32-Bit

Microcontroller

TC36x

32-Bit Single-Chip Microcontroller
AA-Step

32-Bit Single-Chip Microcontroller

Data Sheet

V 1.1, 2021-03

Microcontrollers

OPEN MARKET VERSION

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1 Summary of Features

The TC36x product family has the following features:

- High Performance Microcontroller with two CPU cores
- Two 32-bit super-scalar TriCore CPUs (TC1.6.2P), each having the following features:
  - Superior real-time performance
  - Strong bit handling
  - Fully integrated DSP capabilities
  - Multiply-accumulate unit able to sustain 2 MAC operations per cycle
  - Fully pipelined Floating point unit (FPU)
  - up to 300 MHz operation at full temperature range
  - up to 192 Kbyte Data Scratch-Pad RAM (DSPR)
  - up to 32 Kbyte Instruction Scratch-Pad RAM (PSPR)
  - up to 64 Kbyte Data RAM (DLMU)
  - 32 Kbyte Instruction Cache (ICACHE)
  - 16 Kbyte Data Cache (DCACHE)
- Lockstepped shadow cores for all TC1.6.2P
- Multiple on-chip memories
  - All embedded NVM and SRAM are ECC protected
  - up to 4 Mbyte Program Flash Memory (PFLASH)
  - up to 128 kbyte Data Flash Memory (DFLASH 0) usable for EEPROM emulation
  - BootROM (BROM)
- 64-Channel DMA Controller with safe data transfer
- Sophisticated interrupt system (ECC protected)
- High performance on-chip bus structure
  - 64-bit Cross Bar Interconnect (SRI) giving fast parallel access between bus masters, CPUs and memories
  - 32-bit System Peripheral Bus (SPB) for on-chip peripheral and functional units
  - SRI to SPB bus bridges (SFI Bridge)
- Optional Hardware Security Module (HSM) on some variants
- Safety Management Unit (SMU) handling safety monitor alarms
- Memory Test Unit with ECC, Memory Initialization and MBIST functions (MTU)
- Hardware I/O Monitor (IOM) for checking of digital I/O
- Versatile On-chip Peripheral Units
  - 12 Asynchronous/Synchronous Serial Channels (ASCLIN) with hardware LIN support (V1.3, V2.0, V2.1 and J2602) up to 50 MBaud
  - 4 Queued SPI Interface Channels (QSPI) with master and slave capability up to 50 Mbit/s
  - 1 High Speed Serial Link (HSSL) for serial inter-processor communication up to 320 Mbit/s
  - 1 serial Micro Second Bus interfaces (MSC) for serial port expansion to external power devices
  - 2 MCMCAN Modules with 4 CAN nodes for high efficiency data handling via FIFO buffering
  - 10 Single Edge Nibble Transmission (SENT) channels for connection to sensors
  - 1 FlexRay™ module with 2 channels (E-Ray) supporting V2.1
  - One Generic Timer Module (GTM) providing a powerful set of digital signal filtering and timer functionality to realize autonomous and complex Input/Output management

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  - One Capture / Compare 6 module (Two kernels CCU60 and CCU61)
  - One General Purpose 12 Timer Unit (GPT120)
  - 2 channel Peripheral Sensor Interface conforming to V1.3 (PSI5)
  - 1 Peripheral Sensor Interface with Serial PHY (PSI5-S)
  - 1 Inter-Integrated Circuit Bus Interface (I2C) conforming to V2.1
  - 1 IEEE802.3 Ethernet MAC with RGMII, RMII and MII interfaces (ETH)
- Versatile Successive Approximation ADC (VADC)
  - Cluster of 8 independent ADC kernels
  - Input voltage range from 0 V to 5.5V (ADC supply)
- Delta-Sigma ADC (DSADC)
  - 4 channels
- Digital programmable I/O ports
- On-chip debug support for OCDS Level 1 (CPUs, DMA, On Chip Buses)
- multi-core debugging, real time tracing, and calibration
- four/five wire JTAG (IEEE 1149.1) or DAP (Device Access Port) interface
- Power Management System and on-chip regulators
- Clock Generation Unit with System PLL and Peripheral PLL
- Embedded Voltage Regulator
- Qualified for automotive application according to AEC-Q100 (only applicable after delivery release of the corresponding sales codes)
- ISO 26262 Safety Element out of Context for safety requirements up to ASIL D (only applicable for sales codes listed within a released Safety Package Release Note from IFX)

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Ordering Information

The ordering code for Infineon microcontrollers provides an exact reference to the required product. This ordering code identifies:

- The derivative itself, i.e. its function set, the temperature range, and the supply voltage
- The package and the type of delivery.

Table 1-1 Platform Feature Overview

Feature		TC36x
CPUs	Type	TC1.6.2
	Cores / Checker Cores	2 / 2
	Max. Freq.	300 MHz
Cache per CPU	Program	32 KB
	Data	16 KB
SRAM per CPU	PSPR	32 KB
	DSPR	192 KB
	DLMU	64 KB
Program Flash	Size	4 MB
	Banks	2 x 2 MB
Data Flash	Size (single-ended)	128 kB (DF0) + 128 KB (DF1)
DMA	Channels	64
CONVCTRL	Modules	1
EVADC	Primary Groups/Channels	4 / 32
	Secondary Groups/Channels	2 / 32
	Fast Compare Channels	2
EDSADC	Channels	4
GTM	Clusters	4 @ 200MHz
	TIM (8 ch)	3
	TOM (16 ch)	2
	ATOM (8 ch)	4
	MCS (8 ch)	3
	CMU / ICM	1 / 1
	PSM	1
	TBU channels[1)]	4 (TBU0-3)
	SPE	2
	CMP / MON	1 / 1
	BRC / DPLL	1 / 1
	CDTM modules	4
	DTM modules	12 (4 on TOM, 8 on ATOM)
Timer	GPT12	1
	CCU6	1
STM	Modules	2

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Table 1-1 Platform Feature Overview (cont'd)

Feature		TC36x
FlexRay	Modules	1
	Channels	2
CAN	Modules	2
	Nodes	2 x 4
	of which support TT-CAN	1
QSPI	Modules	4
	HSCI Channels	0
ASCLIN	Modules	12
I2C	Interfaces	1
SENT	Channels	10
PSI5	Modules	2
PSI5-S	Modules	1
HSSL	Channels	1
MSC	Channels	1
EBU	External Bus	0
SDMMC	eMMC/SD Interface	0
Ethernet (10/100Mbit/1Gbit)	Modules	1
FCE	Modules	1
Safety Support	SMU	yes
	IOM	yes
SPU	Modules	0
RIF	Modules	0
HSPDM	Modules	0
Security	HSM+	1
Debug	OCDS	yes
	MCDS	no
	miniMCDS	no
	miniMCDS TRAM	-
	AGBT	no
Low Power Features	Standby RAM	2 (DLMU0 + DLMU1)
	SCR	yes
Packages	Type	LFBGA-292 / LFBGA-180 / LQFP-176 /LQFP-144 / TQFP-144
I/O	Type	5 V CMOS / 3.3 V CMOS / LVDS
$T_{ambient}$	Range	−40 … +150°C

1) TBU3 has special purpose as angle clock.

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2 TC36x Pin Definition and Functions:

The following figures are showing the TC36x Logic Symbols for the package variants:

- LFBGA-292 (**Figure 2-1**)
- LFBGA-180 (**Figure 2-2**)
- LQFP-176 (**Figure 2-3**)
- LQFP-144 (**Figure 2-4**)
- TQFP-144 (**Figure 2-5**)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A	NC1	VEXT	P10.7	P10.6	P10.2	P10.3	P10.0	P11.11	P11.9	P11.2	P13.3	P13.1	P14.8	P14.5	P14.1	P15.6	P15.4	P15.1	VDDP3	VSS	A
B	P02.0	VSS	VEXT	P10.8	P10.5	P10.4	P10.1	P11.12	P11.10	P11.3	P13.2	P13.0	P14.6	P14.3	P14.4	P14.0	P15.3	VDDP3	VSS	P15.0	B
C	P02.2	P02.1																	P15.2	P20.14	C
D	P02.4	P02.3		VSS	VFLEX	P11.15	P11.14	P11.5	P11.6	P11.4	P14.10	P14.9	P14.7	P15.8	P15.7	VDD	VSS		P20.12	P20.13	D
E	P02.6	P02.5		NC	VSS	P11.13	P11.8	P11.7	P11.1	P11.0	P12.1	P12.0	P14.2	P15.5	VDD	VSS	P20.9		P20.10	P20.11	E
F	P02.8	P02.7		NC	NC											$\overline{\text{ESR0}}$	P20.6		P20.7	P20.8	F
G	P00.0	P00.1		NC	NC			VDD	VSS	VSS	VSS	VSS	VDD			$\overline{\text{ESR1}}$	$\overline{\text{PORST}}$		P20.1	P20.3	G
H	P00.2	P00.3		NC	NC		VDD		VSS	VSS	VSS	VSS		VDD		P21.7 / TDO	P21.6 / TDI		P20.2	P20.0	H
J	P00.4	P00.5		P00.6	NC		VSS	VSS		VSS	VSS		VSS	VSS		TCK	P21.1		P21.3	P21.5	J
K	P00.7	P00.9		P00.8	P00.10		VSS	VSS	VSS	VSS	VSS	VSS	VSS	NC		TMS	P21.0		P21.2	P21.4	K
L	P00.11	P00.12		AN43	AN42		VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS		NC	NC		$\overline{\text{TRST}}$	VSS	L
M	AN46	AN47		AN41	AN40		VSS	VSS		VSS	VSS		VSS	VSS		NC	NC		XTAL2	XTAL1	M
N	AN44	AN45		AN36 / P40.6	AN38 / P40.8		VDD		VSS	VSS	VSS	VSS		VDD		NC	NC		VDD	VEXT	N
P	AN39 / P40.9	AN37 / P40.7		AN32 / P40.4	AN34			VDD	VSS	VSS	VSS	VSS	VDD			NC	NC		P22.1	P22.0	P
R	AN33 / P40.5	AN35		AN31	AN23											NC	NC		P22.3	P22.2	R
T	NC	NC		AN30	AN22	AN15	AN12	AN6	AN4	AN0	VEVRSB	NC	NC	NC	NC	VSS	P23.5		P23.3	P23.4	T
U	AN29	AN28		NC1	AN17	AN14	AN9	AN7	AN3	AN1	NC	NC	NC	NC	NC	NC	VSS		P23.1	P23.2	U
V	AN27 / P40.3	AN26 / P40.2																	VEXT	P23.0	V
W	AN25 / P40.1	AN24 / P40.0	AN19	AN18	AN16	AN13	AN11	AN8	AN2	P33.0	P33.2	P33.4	P33.6	P33.8	P33.10	P33.12	P32.1 / VGATE1P	P32.4	VSS	VEXT	W
Y	NC1	AN21	AN20	VSSM	VDDM	VAREF1	VAGND1	AN10	AN5	P33.1	P33.3	P33.5	P33.7	P33.9	P33.11	P33.13	P32.0 / VGATE1N	P32.2	P32.3	VSS	Y
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

TC36xpd - (top view)

Figure 2-1 TC36x Logic Symbol for the package variant LFBGA-292

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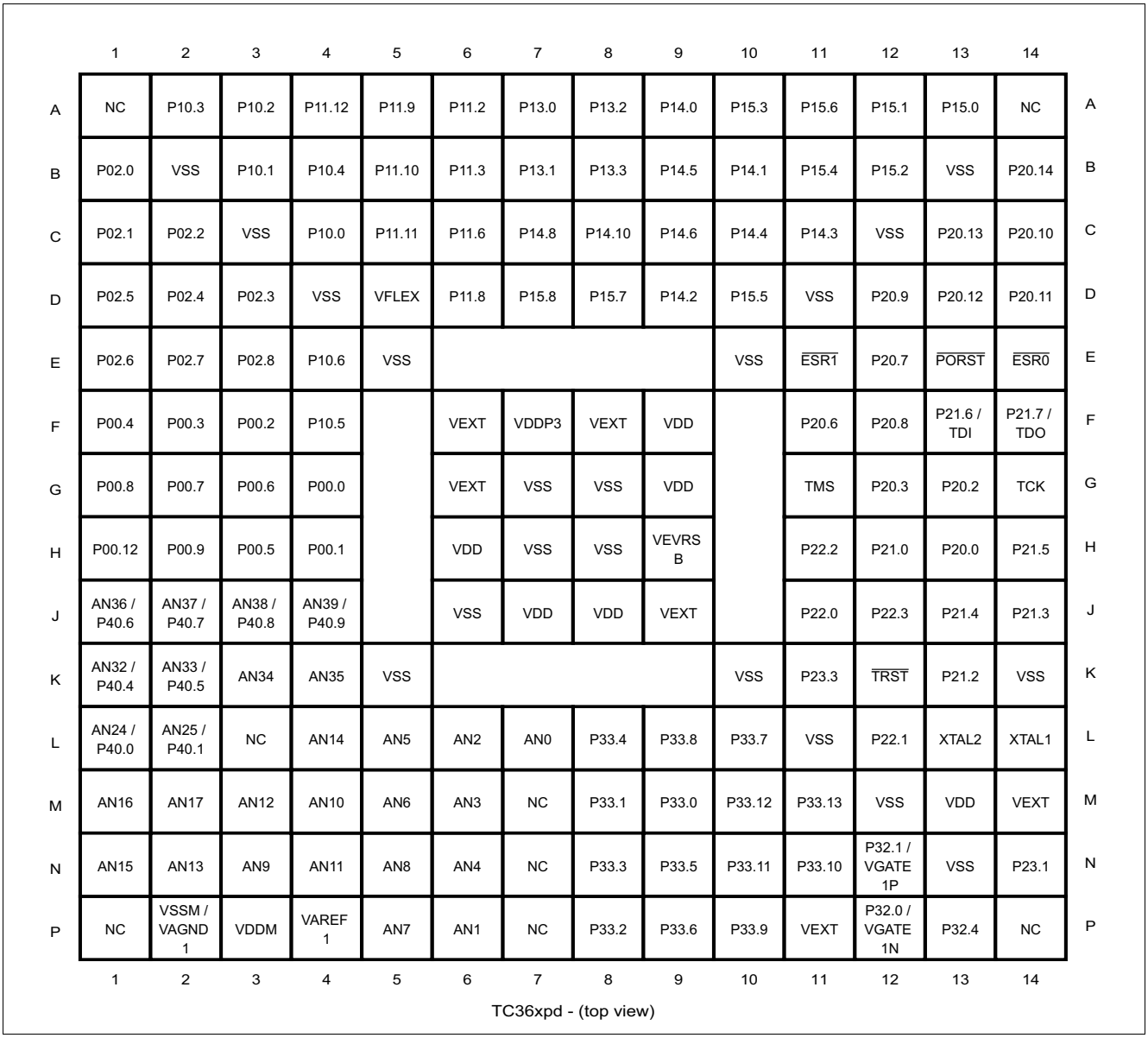

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A	NC	P10.3	P10.2	P11.12	P11.9	P11.2	P13.0	P13.2	P14.0	P15.3	P15.6	P15.1	P15.0	NC	A
B	P02.0	VSS	P10.1	P10.4	P11.10	P11.3	P13.1	P13.3	P14.5	P14.1	P15.4	P15.2	VSS	P20.14	B
C	P02.1	P02.2	VSS	P10.0	P11.11	P11.6	P14.8	P14.10	P14.6	P14.4	P14.3	VSS	P20.13	P20.10	C
D	P02.5	P02.4	P02.3	VSS	VFLEX	P11.8	P15.8	P15.7	P14.2	P15.5	VSS	P20.9	P20.12	P20.11	D
E	P02.6	P02.7	P02.8	P10.6	VSS					VSS	$\overline{\text{ESR1}}$	P20.7	$\overline{\text{PORST}}$	$\overline{\text{ESR0}}$	E
F	P00.4	P00.3	P00.2	P10.5		VEXT	VDDP3	VEXT	VDD		P20.6	P20.8	P21.6 / TDI	P21.7 / TDO	F
G	P00.8	P00.7	P00.6	P00.0		VEXT	VSS	VSS	VDD		TMS	P20.3	P20.2	TCK	G
H	P00.12	P00.9	P00.5	P00.1		VDD	VSS	VSS	VEVRSB		P22.2	P21.0	P20.0	P21.5	H
J	AN36 / P40.6	AN37 / P40.7	AN38 / P40.8	AN39 / P40.9		VSS	VDD	VDD	VEXT		P22.0	P22.3	P21.4	P21.3	J
K	AN32 / P40.4	AN33 / P40.5	AN34	AN35	VSS					VSS	P23.3	$\overline{\text{TRST}}$	P21.2	VSS	K
L	AN24 / P40.0	AN25 / P40.1	NC	AN14	AN5	AN2	AN0	P33.4	P33.8	P33.7	VSS	P22.1	XTAL2	XTAL1	L
M	AN16	AN17	AN12	AN10	AN6	AN3	NC	P33.1	P33.0	P33.12	P33.13	VSS	VDD	VEXT	M
N	AN15	AN13	AN9	AN11	AN8	AN4	NC	P33.3	P33.5	P33.11	P33.10	P32.1 / VGATE1P	VSS	P23.1	N
P	NC	VSSM / VAGND1	VDDM	VAREF1	AN7	AN1	NC	P33.2	P33.6	P33.9	VEXT	P32.0 / VGATE1N	P32.4	NC	P
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

TC36xpd - (top view)

Figure 2-2 TC36x Logic Symbol for the package variant LFBGA-180

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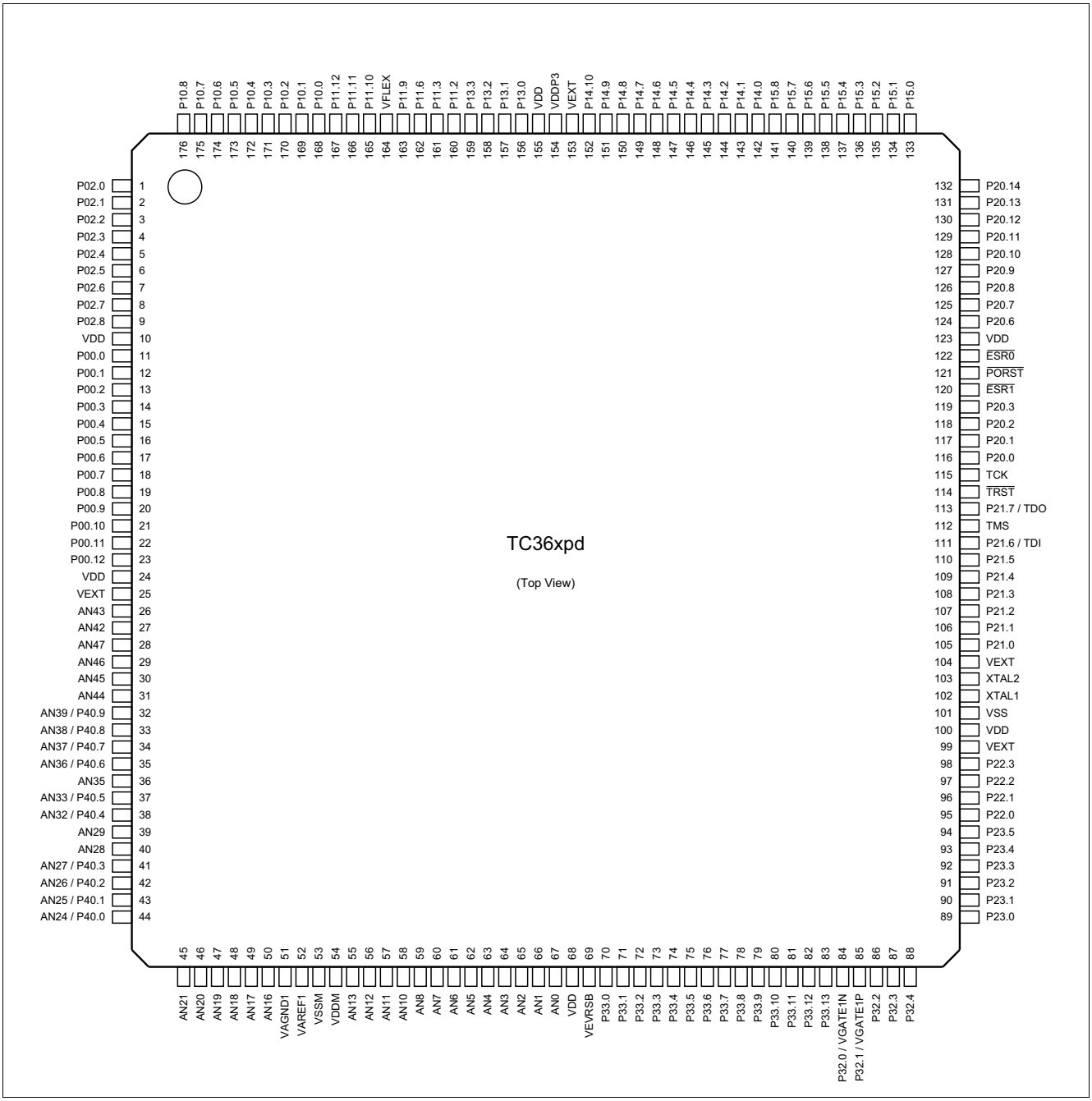

Figure 2-3 TC36x Logic Symbol for the package variant LQFP-176

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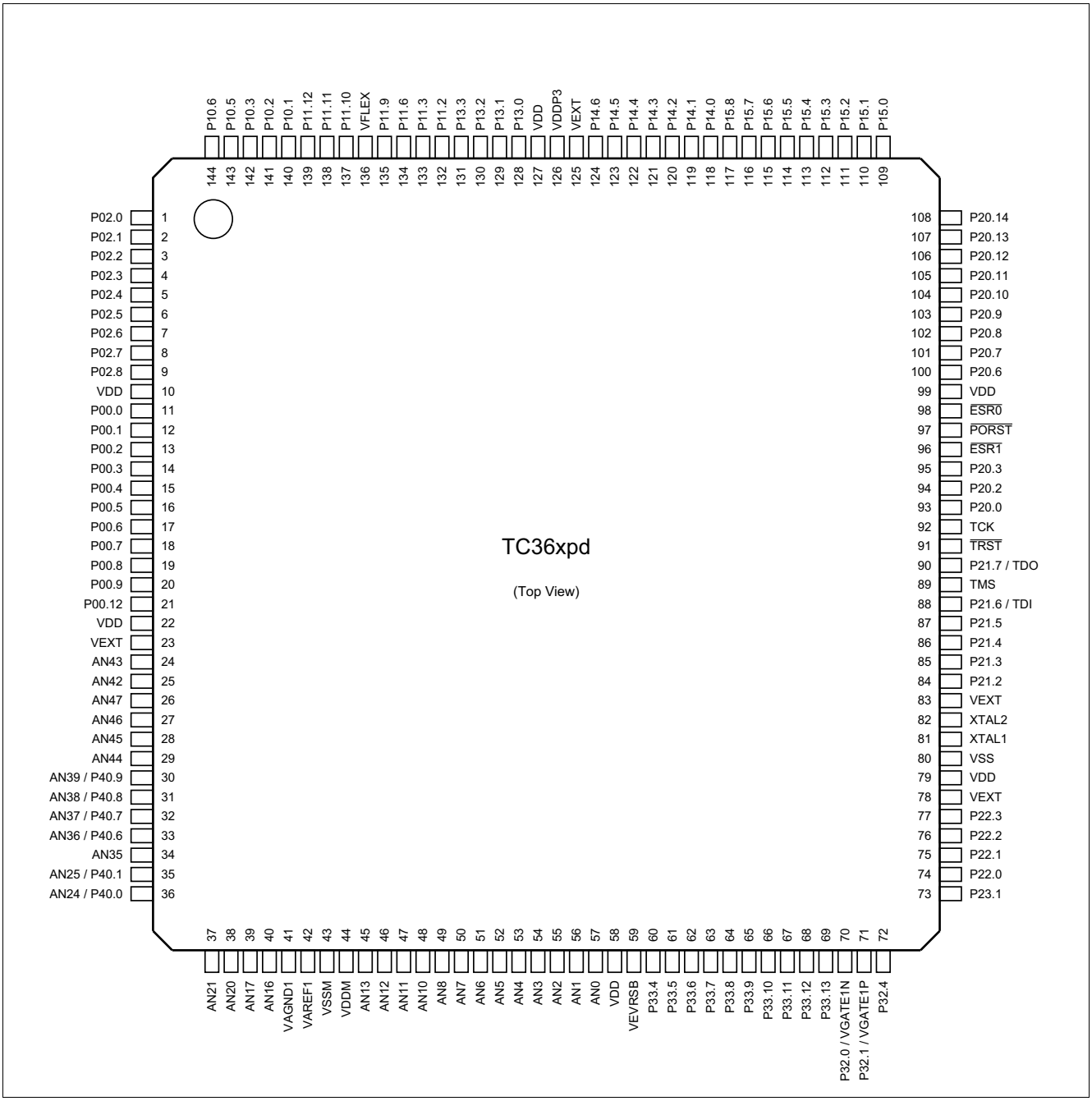

Figure 2-4 TC36x Logic Symbol for the package variant LQFP-144

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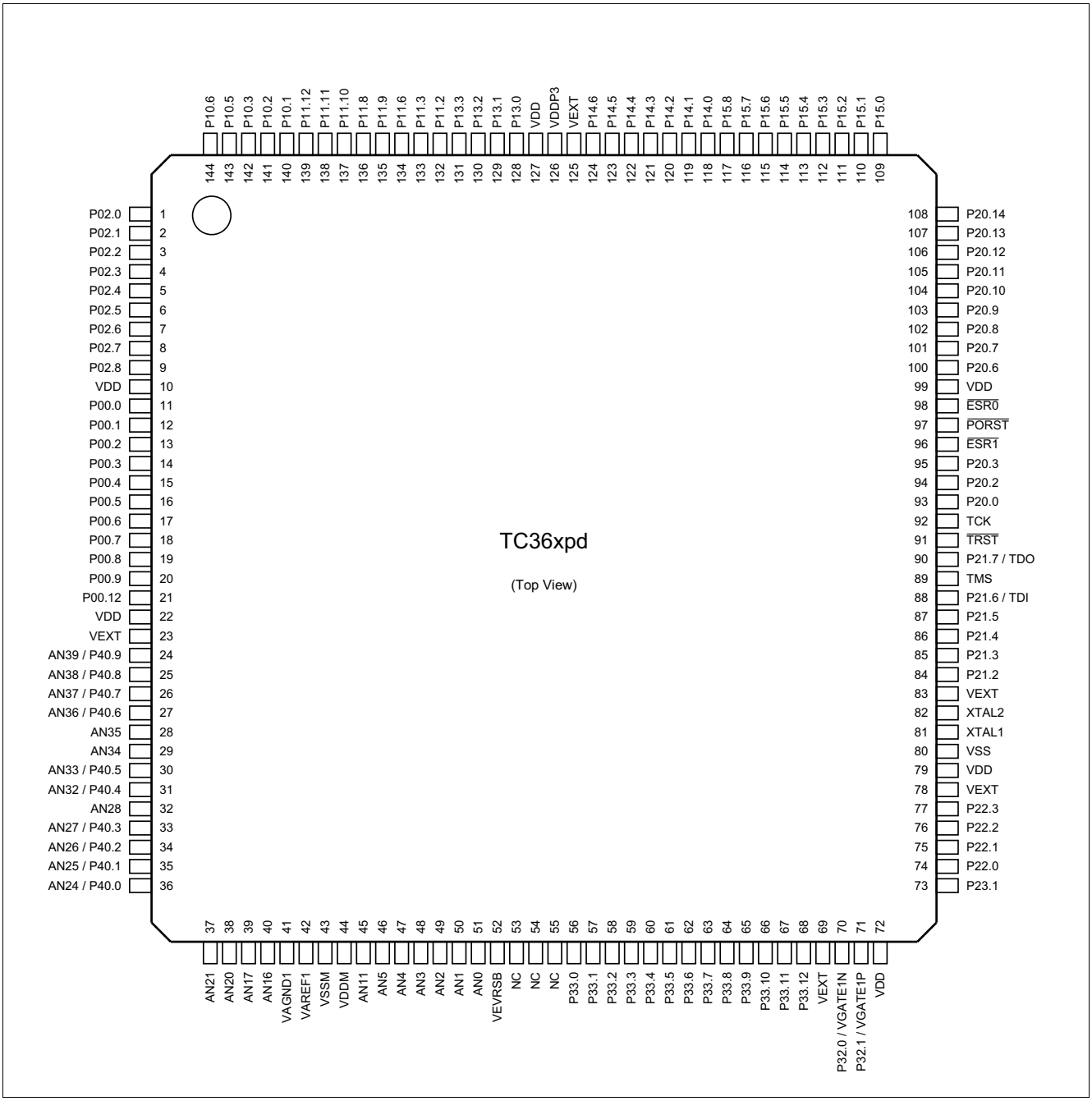

Figure 2-5 TC36x Logic Symbol for the package variant TQFP-144

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2.1 LFBGA-292 Package Variant Pin Configuration of TC36x

Table 2-1 Port 00 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
G1	P00.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_1			**Mux input channel 0 of TIM module 2**
	CCU61_CTRAPA			**Trap input capture**
	CCU60_T12HRE			**External timer start 12**
	MSC0_INJ0			**Injection signal from port**
	GETH_MDIOA			**MDIO Input**
	P00.0	O0		**General-purpose output**
	GTM_TOUT9	O1		**GTM muxed output**
	IOM_REF0_9			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN10_TXD	O5		**CAN transmit output node 0**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	GETH_MDIO	O		**MDIO Output**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
G2	P00.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_1			**Mux input channel 1 of TIM module 2**
	CCU60_CC60INB			**T12 capture input 60**
	ASCLIN3_ARXE			**Receive input**
	CAN10_RXDA			**CAN receive input node 0**
	PSI5_RX0A			**RXD inputs (receive data) channel 0**
	CCU61_CC60INA			**T12 capture input 60**
	SENT_SENT0B			**Receive input channel 0**
	EVADC_G9CH11	AI		**Analog input channel 11, group 9**
	P00.1	O0		**General-purpose output**
	GTM_TOUT10	O1		**GTM muxed output**
	IOM_REF0_10			**Reference input 0**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC0	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H1	P00.2	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN1_2			**Mux input channel 1 of TIM module 2**
	SENT_SENT1B			**Receive input channel 1**
	EVADC_G9CH10	AI		**Analog input channel 10, group 9**
	P00.2	O0		**General-purpose output**
	GTM_TOUT11	O1		**GTM muxed output**
	IOM_REF0_11			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	QSPI3_SLSO4	O6		**Master slave select output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H2	P00.3	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN2_1			**Mux input channel 2 of TIM module 2**
	CCU60_CC61INB			**T12 capture input 61**
	EDSADC_DSCIN3A			**Modulator clock input, channel 3**
	PSI5_RX1A			**RXD inputs (receive data) channel 1**
	CAN03_RXDA			**CAN receive input node 3**
	PSI5S_RXA			**RX data input**
	SENT_SENT2B			**Receive input channel 2**
	CCU61_CC61INA			**T12 capture input 61**
	EVADC_G9CH9	AI		**Analog input channel 9, group 9**
	P00.3	O0		**General-purpose output**
	GTM_TOUT12	O1		**GTM muxed output**
	IOM_REF0_12			**Reference input 0**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	—	O5		**Reserved**
	SENT_SPC2	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
J1	P00.4	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN3_1			**Mux input channel 3 of TIM module 2**
	SCU_E_REQ2_2			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	SENT_SENT3B			**Receive input channel 3**
	EDSADC_DSDIN3A			**Digital datastream input, channel 3**
	EDSADC_SGNA			**Carrier sign signal input**
	ASCLIN10_ARXA			**Receive input**
	EVADC_G9CH8	AI		**Analog input channel 8, group 9**
	P00.4	O0		**General-purpose output**
	GTM_TOUT13	O1		**GTM muxed output**
	IOM_REF0_13			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	CAN11_TXD	O3		**CAN transmit output node 1**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	—	O5		**Reserved**
	SENT_SPC3	O6		**Transmit output**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
J2	P00.5	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN4_1			**Mux input channel 4 of TIM module 2**
	CCU60_CC62INB			**T12 capture input 62**
	EDSADC_DSCIN2A			**Modulator clock input, channel 2**
	CCU61_CC62INA			**T12 capture input 62**
	SENT_SENT4B			**Receive input channel 4**
	CAN11_RXDB			**CAN receive input node 1**
	GTM_DTMT1_1			**CDTM1_DTM0**
	EVADC_G9CH7	AI		**Analog input channel 7, group 9**
	P00.5	O0		**General-purpose output**
	GTM_TOUT14	O1		**GTM muxed output**
	IOM_REF0_14			**Reference input 0**
	EDSADC_CGPWMN	O2		**Negative carrier generator output**
	QSPI3_SLSO3	O3		**Master slave select output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_FC0BFLOUT	O5		**Boundary flag output, FC channel 0**
	SENT_SPC4	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
J4	P00.6	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN5_1			**Mux input channel 5 of TIM module 2**
	EDSADC_DSDIN2A			**Digital datastream input, channel 2**
	SENT_SENT5B			**Receive input channel 5**
	ASCLIN5_ARXA			**Receive input**
	EVADC_G9CH6	AI		**Analog input channel 6, group 9**
	P00.6	O0		**General-purpose output**
	GTM_TOUT15	O1		**GTM muxed output**
	IOM_REF0_15			**Reference input 0**
	EDSADC_CGPWMP	O2		**Positive carrier generator output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC5	O6		**Transmit output**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
K1	P00.7	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN6_1			**Mux input channel 6 of TIM module 2**
	CCU61_CC60INC			**T12 capture input 60**
	SENT_SENT6B			**Receive input channel 6**
	GPT120_T2INA			**Trigger/gate input of timer T2**
	CCU61_CCPOS0A			**Hall capture input 0**
	CCU60_T12HRB			**External timer start 12**
	GTM_DTMT0_2			**CDTM0_DTM0**
	EVADC_G9CH5	AI		**Analog input channel 5, group 9**
	P00.7	O0		**General-purpose output**
	GTM_TOUT16	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC6	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**
K4	P00.8	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN7_1			**Mux input channel 7 of TIM module 2**
	CCU61_CC61INC			**T12 capture input 61**
	SENT_SENT7B			**Receive input channel 7**
	GPT120_T2EUDA			**Count direction control input of timer T2**
	CCU61_CCPOS1A			**Hall capture input 1**
	CCU60_T13HRB			**External timer start 13**
	ASCLIN10_ARXB			**Receive input**
	EVADC_G9CH4	AI		**Analog input channel 4, group 9**
	P00.8	O0		**General-purpose output**
	GTM_TOUT17	O1		**GTM muxed output**
	QSPI3_SLSO6	O2		**Master slave select output**
	ASCLIN10_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC7	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
K2	P00.9	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN0_1			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_1			**Mux input channel 0 of TIM module 0**
	CCU61_CC62INC			**T12 capture input 62**
	SENT_SENT8B			**Receive input channel 8**
	CCU61_CCPOS2A			**Hall capture input 2**
	EDSADC_DSCIN1A			**Modulator clock input, channel 1**
	EDSADC_ITR3F			**Trigger/Gate input, channel 3**
	GPT120_T4EUDA			**Count direction control input of timer T4**
	CCU60_T13HRC			**External timer start 13**
	CCU60_T12HRC			**External timer start 12**
	EVADC_G9CH3	AI		**Analog input channel 3, group 9**
	P00.9	O0		**General-purpose output**
	GTM_TOUT18	O1		**GTM muxed output**
	QSPI3_SLSO7	O2		**Master slave select output**
	ASCLIN3_ARTS	O3		**Ready to send output**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	ASCLIN4_ATX	O5		**Transmit output**
	SENT_SPC8	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
K5	P00.10	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN1_1			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_1			**Mux input channel 1 of TIM module 0**
	SENT_SENT9B			**Receive input channel 9**
	EDSADC_DSDIN1A			**Digital datastream input, channel 1**
	EVADC_G9CH2	AI		**Analog input channel 2, group 9**
	P00.10	O0		**General-purpose output**
	GTM_TOUT19	O1		**GTM muxed output**
	ASCLIN4_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC9	O6		**Transmit output**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-1 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
L1	P00.11	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN2_1			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_1			**Mux input channel 2 of TIM module 0**
	CCU60_CTRAPA			**Trap input capture**
	EDSADC_DSCIN0A			**Modulator clock input, channel 0**
	CCU61_T12HRE			**External timer start 12**
	EVADC_G9CH1	AI		**Analog input channel 1, group 9**
	P00.11	O0		**General-purpose output**
	GTM_TOUT20	O1		**GTM muxed output**
	ASCLIN4_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
L2	P00.12	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN3_1			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_1			**Mux input channel 3 of TIM module 0**
	ASCLIN3_ACTSA			**Clear to send input**
	EDSADC_DSDIN0A			**Digital datastream input, channel 0**
	ASCLIN4_ARXA			**Receive input**
	EVADC_G9CH0	AI		**Analog input channel 0, group 9**
	P00.12	O0		**General-purpose output**
	GTM_TOUT21	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-2 Port 02 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
B1	P02.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_2			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_2			**Mux input channel 0 of TIM module 0**
	CCU61_CC60INB			**T12 capture input 60**
	ASCLIN2_ARXG			**Receive input**
	CCU60_CC60INA			**T12 capture input 60**
	SCU_E_REQ3_2			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GTM_DTMA0_0			**CDTM0_DTM4**
	P02.0	O0		**General-purpose output**
	GTM_TOUT0	O1		**GTM muxed output**
	IOM_REF0_0			**Reference input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO1	O3		**Master slave select output**
	EDSADC_CGPWMN	O4		**Negative carrier generator output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C2	P02.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_2			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_2			**Mux input channel 1 of TIM module 0**
	ERAY0_RXDA2			**Receive Channel A2**
	ASCLIN2_ARXB			**Receive input**
	CAN00_RXDA			**CAN receive input node 0**
	SCU_E_REQ2_1			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P02.1	O0		**General-purpose output**
	GTM_TOUT1	O1		**GTM muxed output**
	IOM_REF0_1			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SLSO2	O3		**Master slave select output**
	EDSADC_CGPWMP	O4		**Positive carrier generator output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C1	P02.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_2			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_2			**Mux input channel 2 of TIM module 0**
	CCU61_CC61INB			**T12 capture input 61**
	CCU60_CC61INA			**T12 capture input 61**
	P02.2	O0		**General-purpose output**
	GTM_TOUT2	O1		**GTM muxed output**
	IOM_REF0_2			**Reference input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI3_SLSO3	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDB	O6		**Transmit Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D2	P02.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_2			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_2			**Mux input channel 3 of TIM module 0**
	ERAY0_RXDB2			**Receive Channel B2**
	CAN02_RXDB			**CAN receive input node 2**
	ASCLIN1_ARXG			**Receive input**
	PSI5_RX0B			**RXD inputs (receive data) channel 0**
	P02.3	O0		**General-purpose output**
	GTM_TOUT3	O1		**GTM muxed output**
	IOM_REF0_3			**Reference input 0**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI3_SLSO4	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D1	P02.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_1			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_1			**Mux input channel 4 of TIM module 0**
	CCU61_CC62INB			**T12 capture input 62**
	QSPI3_SLSIA			**Slave select input**
	CCU60_CC62INA			**T12 capture input 62**
	I2C0_SDAA			**Serial Data Input 0**
	CAN11_RXDA			**CAN receive input node 1**
	CAN0_ECTT1			**External CAN time trigger input**
	P02.4	O0		**General-purpose output**
	GTM_TOUT4	O1		**GTM muxed output**
	IOM_REF0_4			**Reference input 0**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_SLSO0	O3		**Master slave select output**
	PSI5S_CLK	O4		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	I2C0_SDA	O5		**Serial Data Output**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E2	P02.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_1			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_1			**Mux input channel 5 of TIM module 0**
	I2C0_SCLA			**Serial Clock Input 0**
	PSI5_RX1B			**RXD inputs (receive data) channel 1**
	PSI5S_RXB			**RX data input**
	QSPI3_MRSTA			**Master SPI data input**
	SENT_SENT3C			**Receive input channel 3**
	CAN0_ECTT2			**External CAN time trigger input**
	P02.5	O0		**General-purpose output**
	GTM_TOUT5	O1		**GTM muxed output**
	IOM_REF0_5			**Reference input 0**
	CAN11_TXD	O2		**CAN transmit output node 1**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	I2C0_SCL	O5		**Serial Clock Output**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E1	P02.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_1			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_1			**Mux input channel 6 of TIM module 0**
	CCU60_CC60INC			**T12 capture input 60**
	SENT_SENT2C			**Receive input channel 2**
	GPT120_T3INA			**Trigger/gate input of core timer T3**
	CCU60_CCPOS0A			**Hall capture input 0**
	CCU61_T12HRB			**External timer start 12**
	QSPI3_MTSRA			**Slave SPI data input**
	P02.6	O0		**General-purpose output**
	GTM_TOUT6	O1		**GTM muxed output**
	IOM_REF0_6			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	QSPI3_MTSR	O3		**Master SPI data output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F2	P02.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_1			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_1			**Mux input channel 7 of TIM module 0**
	CCU60_CC61INC			**T12 capture input 61**
	SENT_SENT1C			**Receive input channel 1**
	EDSADC_DSCIN3B			**Modulator clock input, channel 3**
	GPT120_T3EUDA			**Count direction control input of core timer T3**
	CCU60_CCPOS1A			**Hall capture input 1**
	QSPI3_SCLKA			**Slave SPI clock inputs**
	CCU61_T13HRB			**External timer start 13**
	P02.7	O0		**General-purpose output**
	GTM_TOUT7	O1		**GTM muxed output**
	IOM_REF0_7			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	SENT_SPC1	O6		**Transmit output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-2 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F1	P02.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_2			**Mux input channel 0 of TIM module 2**
	CCU60_CC62INC			**T12 capture input 62**
	SENT_SENT0C			**Receive input channel 0**
	CCU60_CCPOS2A			**Hall capture input 2**
	EDSADC_DSDIN3B			**Digital datastream input, channel 3**
	EDSADC_ITR3E			**Trigger/Gate input, channel 3**
	GPT120_T4INA			**Trigger/gate input of timer T4**
	CCU61_T12HRC			**External timer start 12**
	CCU61_T13HRC			**External timer start 13**
	GTM_DTMA0_1			**CDTM0_DTM4**
	P02.8	O0		**General-purpose output**
	GTM_TOUT8	O1		**GTM muxed output**
	IOM_REF0_8			**Reference input 0**
	QSPI3_SLSO5	O2		**Master slave select output**
	ASCLIN8_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	GETH_MDC	O6		**MDIO clock**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-3 Port 10 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
A7	P10.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_2			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_2			**Mux input channel 4 of TIM module 0**
	GPT120_T6EUDB			**Count direction control input of core timer T6**
	ASCLIN11_ARXA			**Receive input**
	GETH_RXERC			**Receive Error MII**
	P10.0	O0		**General-purpose output**
	GTM_TOUT102	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	QSPI1_SLSO10	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
B7	P10.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_3			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_3			**Mux input channel 1 of TIM module 0**
	GPT120_T5EUDB			**Count direction control input of timer T5**
	QSPI1_MRSTA			**Master SPI data input**
	GTM_DTMT0_1			**CDTM0_DTM0**
	P10.1	O0		**General-purpose output**
	GTM_TOUT103	O1		**GTM muxed output**
	QSPI1_MTSR	O2		**Master SPI data output**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	MSC0_EN1	O4		**Chip Select**
	EVADC_FC1BFLOUT	O5		**Boundary flag output, FC channel 1**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-3 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A5	P10.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_3			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_3			**Mux input channel 2 of TIM module 0**
	CAN02_RXDE			**CAN receive input node 2**
	MSC0_SDI1			**Upstream assynchronous input signal**
	QSPI1_SCLKA			**Slave SPI clock inputs**
	GPT120_T6INB			**Trigger/gate input of core timer T6**
	SCU_E_REQ2_0			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P10.2	O0		**General-purpose output**
	GTM_TOUT104	O1		**GTM muxed output**
	IOM_MON2_9			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SCLK	O3		**Master SPI clock output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
A6	P10.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_3			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_3			**Mux input channel 3 of TIM module 0**
	QSPI1_MTSRA			**Slave SPI data input**
	SCU_E_REQ3_0			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T5INB			**Trigger/gate input of timer T5**
	P10.3	O0		**General-purpose output**
	GTM_TOUT105	O1		**GTM muxed output**
	IOM_MON2_10			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	CAN02_TXD	O6		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	—	O7		**Reserved**

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Table 2-3 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B6	P10.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_2			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_2			**Mux input channel 6 of TIM module 0**
	QSPI1_MTSRC			**Slave SPI data input**
	CCU60_CCPOS0C			**Hall capture input 0**
	GPT120_T3INB			**Trigger/gate input of core timer T3**
	ASCLIN11_ARXB			**Receive input**
	P10.4	O0		**General-purpose output**
	GTM_TOUT106	O1		**GTM muxed output**
	IOM_MON2_11			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SLSO8	O3		**Master slave select output**
	QSPI1_MTSR	O4		**Master SPI data output**
	MSC0_EN0	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**
B5	P10.5	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_4			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_4			**Mux input channel 2 of TIM module 0**
	PMS_HWCFG4IN			**HWCFG4 pin input**
	MSC0_INJ1			**Injection signal from port**
	P10.5	O0		**General-purpose output**
	GTM_TOUT107	O1		**GTM muxed output**
	IOM_REF2_9			**Reference input 2**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO8	O3		**Master slave select output**
	QSPI1_SLSO9	O4		**Master slave select output**
	GPT120_T6OUT	O5		**External output for overflow/underflow detection of core timer T6**
	ASCLIN2_ASLSO	O6		**Slave select signal output**
	—	O7		**Reserved**

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Table 2-3 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A4	P10.6	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_4			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_4			**Mux input channel 3 of TIM module 0**
	ASCLIN2_ARXD			**Receive input**
	QSPI3_MTSRB			**Slave SPI data input**
	PMS_HWCFG5IN			**HWCFG5 pin input**
	P10.6	O0		**General-purpose output**
	GTM_TOUT108	O1		**GTM muxed output**
	IOM_REF2_10			**Reference input 2**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_MTSR	O3		**Master SPI data output**
	GPT120_T3OUT	O4		**External output for overflow/underflow detection of core timer T3**
	—	O5		**Reserved**
	QSPI1_MRST	O6		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	—	O7		**Reserved**
A3	P10.7	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_3			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_3			**Mux input channel 0 of TIM module 0**
	GPT120_T3EUDB			**Count direction control input of core timer T3**
	ASCLIN2_ACTSA			**Clear to send input**
	QSPI3_MRSTB			**Master SPI data input**
	SCU_E_REQ0_2			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	CCU60_CCPOS1C			**Hall capture input 1**
	P10.7	O0		**General-purpose output**
	GTM_TOUT109	O1		**GTM muxed output**
	IOM_REF2_11			**Reference input 2**
	—	O2		**Reserved**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	CAN12_TXD	O6		**CAN transmit output node 2**
	—	O7		**Reserved**

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Table 2-3 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B4	P10.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_2			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_2			**Mux input channel 5 of TIM module 0**
	CAN12_RXDB			**CAN receive input node 2**
	GPT120_T4INB			**Trigger/gate input of timer T4**
	QSPI3_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ1_2			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	CCU60_CCPOS2C			**Hall capture input 2**
	P10.8	O0		**General-purpose output**
	GTM_TOUT110	O1		**GTM muxed output**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

Table 2-4 Port 11 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
E10	P11.0	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN0_7			**Mux input channel 0 of TIM module 2**
	ASCLIN3_ARXB			**Receive input**
	GTM_DTMA2_1			**CDTM2_DTM4**
	P11.0	O0		**General-purpose output**
	GTM_TOUT119	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN11_TXD	O5		**CAN transmit output node 1**
	GETH_TXD3	O6		**Transmit Data**
	—	O7		**Reserved**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E9	P11.1	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_6			**Mux input channel 1 of TIM module 2**
	P11.1	O0		**General-purpose output**
	GTM_TOUT120	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	GETH_TXD2	O6		**Transmit Data**
	—	O7		**Reserved**
A10	P11.2	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_3			**Mux input channel 1 of TIM module 2**
	P11.2	O0		**General-purpose output**
	GTM_TOUT95	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO5	O3		**Master slave select output**
	QSPI1_SLSO5	O4		**Master slave select output**
	MSC0_EN1	O5		**Chip Select**
	GETH_TXD1	O6		**Transmit Data**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B10	P11.3	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_2			**Mux input channel 2 of TIM module 2**
	MSC0_SDI3			**Upstream assynchronous input signal**
	QSPI1_MRSTB			**Master SPI data input**
	P11.3	O0		**General-purpose output**
	GTM_TOUT96	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	ERAY0_TXDA	O4		**Transmit Channel A**
	—	O5		**Reserved**
	GETH_TXD0	O6		**Transmit Data**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**
D10	P11.4	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_6			**Mux input channel 2 of TIM module 2**
	GETH_RXCLKB			**Receive Clock MII**
	P11.4	O0		**General-purpose output**
	GTM_TOUT121	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN13_TXD	O5		**CAN transmit output node 3**
	GETH_TXER	O6		**Transmit Error MII**
	GETH_TXCLK	O7		**Transmit Clock Output for RGMII**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D8	P11.5	I	SLOW / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_8			**Mux input channel 3 of TIM module 2**
	GETH_TXCLKA			**Transmit Clock Input for MII**
	GETH_GREFCLK			**Gigabit Reference Clock input for RGMII (125 MHz high precission)**
	P11.5	O0		**General-purpose output**
	GTM_TOUT122	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
D9	P11.6	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_2			**Mux input channel 3 of TIM module 2**
	QSPI1_SCLKB			**Slave SPI clock inputs**
	P11.6	O0		**General-purpose output**
	GTM_TOUT97	O1		**GTM muxed output**
	ERAY0_TXENB	O2		**Transmit Enable Channel B**
	QSPI1_SCLK	O3		**Master SPI clock output**
	ERAY0_TXENA	O4		**Transmit Enable Channel A**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	GETH_TXEN	O6		**Transmit Enable MII and RMII**
	GETH_TCTL			**Transmit Control for RGMII**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E8	P11.7	I	SLOW / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_7			**Mux input channel 4 of TIM module 2**
	GETH_RXD3A			**Receive Data 3 MII and RGMII (RGMII can use RXD3A only)**
	CAN11_RXDD			**CAN receive input node 1**
	P11.7	O0		**General-purpose output**
	GTM_TOUT123	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
E7	P11.8	I	SLOW / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_8			**Mux input channel 5 of TIM module 2**
	GETH_RXD2A			**Receive Data 2 MII and RGMII (RGMII can use RXD2A only)**
	CAN12_RXDD			**CAN receive input node 2**
	P11.8	O0		**General-purpose output**
	GTM_TOUT124	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A9	P11.9	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_2			**Mux input channel 4 of TIM module 2**
	QSPI1_MTSRB			**Slave SPI data input**
	ERAY0_RXDA1			**Receive Channel A1**
	GETH_RXD1A			**Receive Data 1 MII, RMII and RGMII (RGMII can use RXD1A only)**
	P11.9	O0		**General-purpose output**
	GTM_TOUT98	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
B9	P11.10	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_2			**Mux input channel 5 of TIM module 2**
	GTM_TIM2_IN0_9			**Mux input channel 0 of TIM module 2**
	CAN03_RXDD			**CAN receive input node 3**
	ERAY0_RXDB1			**Receive Channel B1**
	ASCLIN1_ARXE			**Receive input**
	SCU_E_REQ6_3			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	MSC0_SDI0			**Upstream assynchronous input signal**
	GETH_RXD0A			**Receive Data 0 MII, RMII and RGMII (RGMII can use RXD0A only)**
	QSPI1_SLSIA			**Slave select input**
	P11.10	O0		**General-purpose output**
	GTM_TOUT99	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO3	O3		**Master slave select output**
	QSPI1_SLSO3	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A8	P11.11	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_2			**Mux input channel 6 of TIM module 2**
	GETH_CRSDVA			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVA			**Receive Data Valid MII**
	GETH_CRSB			**Carrier Sense MII**
	GETH_RCTLA			**Receive Control for RGMII**
	P11.11	O0		**General-purpose output**
	GTM_TOUT100	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO4	O3		**Master slave select output**
	QSPI1_SLSO4	O4		**Master slave select output**
	MSC0_EN0	O5		**Chip Select**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
B8	P11.12	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_2			**Mux input channel 7 of TIM module 2**
	GETH_REFCLKA			**Reference Clock input for RMII (50 MHz)**
	GETH_TXCLKB			**Transmit Clock Input for MII**
	GETH_RXCLKA			**Receive Clock MII**
	P11.12	O0		**General-purpose output**
	GTM_TOUT101	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	GTM_CLK2	O3		**CGM generated clock**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-4 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E6	P11.13	I	SLOW / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_7			**Mux input channel 6 of TIM module 2**
	GETH_RXERA			**Receive Error MII**
	CAN13_RXDD			**CAN receive input node 3**
	P11.13	O0		**General-purpose output**
	GTM_TOUT125	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
D7	P11.14	I	SLOW / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_8			**Mux input channel 7 of TIM module 2**
	GETH_CRSDVB			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVB			**Receive Data Valid MII**
	GETH_CRSA			**Carrier Sense MII**
	P11.14	O0		**General-purpose output**
	GTM_TOUT126	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
D6	P11.15	I	SLOW / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM0_IN7_8			**Mux input channel 7 of TIM module 0**
	GETH_COLA			**Collision MII**
	P11.15	O0		**General-purpose output**
	GTM_TOUT127	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-5 Port 12 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
E12	P12.0	I	SLOW / PU1 / VFLEX / ES	**General-purpose input**
	CAN00_RXDC			**CAN receive input node 0**
	GETH_RXCLKC			**Receive Clock MII**
	P12.0	O0		**General-purpose output**
	GTM_TOUT128	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_MDC	O6		**MDIO clock**
	—	O7		**Reserved**
E11	P12.1	I	SLOW / PU1 / VFLEX / ES	**General-purpose input**
	GETH_MDIOC			**MDIO Input**
	P12.1	O0		**General-purpose output**
	GTM_TOUT129	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**

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Table 2-6 Port 13 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
B12	P13.0	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN5_3			Mux input channel 5 of TIM module 2
	ASCLIN10_ARXC			Receive input
	P13.0	O0		General-purpose output
	GTM_TOUT91	O1		GTM muxed output
	ASCLIN10_ATX	O2		Transmit output
	QSPI2_SCLKN	O3		Master SPI clock output (LVDS N line)
	MSC0_EN1	O4		Chip Select
	MSC0_FCLN	O5		Shift-clock inverted part of the differential signal
	—	O6		Reserved
	CAN10_TXD	O7		CAN transmit output node 0
A12	P13.1	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN6_3			Mux input channel 6 of TIM module 2
	I2C0_SCLB			Serial Clock Input 1
	CAN10_RXDD			CAN receive input node 0
	ASCLIN10_ARXD			Receive input
	P13.1	O0		General-purpose output
	GTM_TOUT92	O1		GTM muxed output
	—	O2		Reserved
	QSPI2_SCLKP	O3		Master SPI clock output (LVDS P line)
	—	O4		Reserved
	MSC0_FCLP	O5		Shift-clock direct part of the differential signal
	I2C0_SCL	O6		Serial Clock Output
	—	O7		Reserved
B11	P13.2	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN7_3			Mux input channel 7 of TIM module 2
	GPT120_CAPINA			Trigger input to capture value of timer T5 into CAPREL register
	I2C0_SDAB			Serial Data Input 1
	P13.2	O0		General-purpose output
	GTM_TOUT93	O1		GTM muxed output
	ASCLIN10_ASCLK	O2		Shift clock output
	QSPI2_MTSRN	O3		Master SPI data output (LVDS N line)
	MSC0_FCLP	O4		Shift-clock direct part of the differential signal
	MSC0_SON	O5		Data output - inverted part of the differential signal
	I2C0_SDA	O6		Serial Data Output
	—	O7		Reserved

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Table 2-6 Port 13 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A11	P13.3	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN0_3			**Mux input channel 0 of TIM module 2**
	P13.3	O0		**General-purpose output**
	GTM_TOUT94	O1		**GTM muxed output**
	ASCLIN10_ASLSO	O2		**Slave select signal output**
	QSPI2_MTSRP	O3		**Master SPI data output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	—	O7		**Reserved**

Table 2-7 Port 14 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
B16	P14.0	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN3_5			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_5			**Mux input channel 3 of TIM module 0**
	P14.0	O0		**General-purpose output**
	GTM_TOUT80	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	ERAY0_TXDA	O3		**Transmit Channel A**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-7 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A15	P14.1	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN4_3			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_3			**Mux input channel 4 of TIM module 0**
	ERAY0_RXDA3			**Receive Channel A3**
	ASCLIN0_ARXA			**Receive input**
	ERAY0_RXDB3			**Receive Channel B3**
	CAN01_RXDB			**CAN receive input node 1**
	SCU_E_REQ3_1			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	PMS_PINAWKP			**PINA (P14.1) pin input**
	P14.1	O0		**General-purpose output**
	GTM_TOUT81	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
E13	P14.2	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_3			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_3			**Mux input channel 5 of TIM module 0**
	PMS_HWCFG2IN			**HWCFG2 pin input**
	P14.2	O0		**General-purpose output**
	GTM_TOUT82	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO1	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN2_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-7 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B14	P14.3	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_3			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_3			**Mux input channel 6 of TIM module 0**
	PMS_HWCFG3IN			**HWCFG3 pin input**
	ASCLIN2_ARXA			**Receive input**
	MSC0_SDI2			**Upstream assynchronous input signal**
	SCU_E_REQ1_0			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P14.3	O0		**General-purpose output**
	GTM_TOUT83	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO3	O3		**Master slave select output**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	ASCLIN3_ASLSO	O5		**Slave select signal output**
	—	O6		**Reserved**
	—	O7		**Reserved**
B15	P14.4	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_2			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_2			**Mux input channel 7 of TIM module 0**
	PMS_HWCFG6IN			**HWCFG6 pin input**
	GTM_DTMT0_0			**CDTM0_DTM0**
	P14.4	O0		**General-purpose output**
	GTM_TOUT84	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_PPS	O6		**Pulse Per Second**
	—	O7		**Reserved**

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Table 2-7 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A14	P14.5	I	FAST / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_4			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_4			**Mux input channel 0 of TIM module 0**
	PMS_HWCFG1IN			**HWCFG1 pin input**
	GTM_DTMA2_0			**CDTM2_DTM4**
	P14.5	O0		**General-purpose output**
	GTM_TOUT85	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ERAY0_TXDB	O6		**Transmit Channel B**
	—	O7		**Reserved**
B13	P14.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_4			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_4			**Mux input channel 1 of TIM module 0**
	P14.6	O0		**General-purpose output**
	GTM_TOUT86	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SLSO2	O3		**Master slave select output**
	CAN13_TXD	O4		**CAN transmit output node 3**
	—	O5		**Reserved**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	—	O7		**Reserved**

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Table 2-7 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D13	P14.7	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_5			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_5			**Mux input channel 0 of TIM module 0**
	ERAY0_RXDB0			**Receive Channel B0**
	CAN10_RXDB			**CAN receive input node 0**
	CAN13_RXDA			**CAN receive input node 3**
	ASCLIN9_ARXC			**Receive input**
	P14.7	O0		**General-purpose output**
	GTM_TOUT87	O1		**GTM muxed output**
	ASCLIN0_ARTS	O2		**Ready to send output**
	QSPI2_SLSO4	O3		**Master slave select output**
	ASCLIN9_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
A13	P14.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_3			**Mux input channel 2 of TIM module 2**
	ERAY0_RXDA0			**Receive Channel A0**
	CAN02_RXDD			**CAN receive input node 2**
	ASCLIN1_ARXD			**Receive input**
	P14.8	O0		**General-purpose output**
	GTM_TOUT88	O1		**GTM muxed output**
	ASCLIN5_ASLSO	O2		**Slave select signal output**
	ASCLIN7_ASLSO	O3		**Slave select signal output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-7 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D12	P14.9	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_3			**Mux input channel 3 of TIM module 2**
	ASCLIN0_ACTSA			**Clear to send input**
	QSPI2_MRSTFN			**Master SPI data input (LVDS N line)**
	ASCLIN9_ARXD			**Receive input**
	P14.9	O0		**General-purpose output**
	GTM_TOUT89	O1		**GTM muxed output**
	—	O2		**Reserved**
	MSC0_EN1	O3		**Chip Select**
	CAN10_TXD	O4		**CAN transmit output node 0**
	ERAY0_TXENB	O5		**Transmit Enable Channel B**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	—	O7		**Reserved**
D11	P14.10	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_3			**Mux input channel 4 of TIM module 2**
	QSPI2_MRSTFP			**Master SPI data input (LVDS P line)**
	P14.10	O0		**General-purpose output**
	GTM_TOUT90	O1		**GTM muxed output**
	—	O2		**Reserved**
	MSC0_EN0	O3		**Chip Select**
	ASCLIN1_ATX	O4		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	—	O7		**Reserved**

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Table 2-8 Port 15 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
B20	P15.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_4			**Mux input channel 3 of TIM module 2**
	P15.0	O0		**General-purpose output**
	GTM_TOUT71	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO13	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
A18	P15.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_4			**Mux input channel 4 of TIM module 2**
	CAN02_RXDA			**CAN receive input node 2**
	ASCLIN1_ARXA			**Receive input**
	QSPI2_SLSIB			**Slave select input**
	SCU_E_REQ7_2			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.1	O0		**General-purpose output**
	GTM_TOUT72	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_SLSO5	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-8 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C19	P15.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_4			**Mux input channel 5 of TIM module 2**
	QSPI2_SLSIA			**Slave select input**
	QSPI2_MRSTE			**Master SPI data input**
	P15.2	O0		**General-purpose output**
	GTM_TOUT73	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SLSO0	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
B17	P15.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_4			**Mux input channel 6 of TIM module 2**
	CAN01_RXDA			**CAN receive input node 1**
	ASCLIN0_ARXB			**Receive input**
	QSPI2_SCLKA			**Slave SPI clock inputs**
	P15.3	O0		**General-purpose output**
	GTM_TOUT74	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	MSC0_EN1	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-8 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A17	P15.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_4			**Mux input channel 7 of TIM module 2**
	I2C0_SCLC			**Serial Clock Input 2**
	QSPI2_MRSTA			**Master SPI data input**
	SCU_E_REQ0_0			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.4	O0		**General-purpose output**
	GTM_TOUT75	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	I2C0_SCL	O6		**Serial Clock Output**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-8 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E14	P15.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_4			**Mux input channel 0 of TIM module 2**
	ASCLIN1_ARXB			**Receive input**
	I2C0_SDAC			**Serial Data Input 2**
	QSPI2_MTSRA			**Slave SPI data input**
	SCU_E_REQ4_3			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.5	O0		**General-purpose output**
	GTM_TOUT76	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_EN0	O5		**Chip Select**
	I2C0_SDA	O6		**Serial Data Output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
A16	P15.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_14			**Mux input channel 2 of TIM module 2**
	GTM_TIM1_IN0_6			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_6			**Mux input channel 0 of TIM module 0**
	QSPI2_MTSRB			**Slave SPI data input**
	P15.6	O0		**General-purpose output**
	GTM_TOUT77	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	QSPI2_SCLK	O5		**Master SPI clock output**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-8 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D15	P15.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_5			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_5			**Mux input channel 1 of TIM module 0**
	ASCLIN3_ARXA			**Receive input**
	QSPI2_MRSTB			**Master SPI data input**
	P15.7	O0		**General-purpose output**
	GTM_TOUT78	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
D14	P15.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_5			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_5			**Mux input channel 2 of TIM module 0**
	QSPI2_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ5_0			**ERU Channel 5 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.8	O0		**General-purpose output**
	GTM_TOUT79	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-9 Port 20 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
H20	P20.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_7			**Mux input channel 6 of TIM module 1**
	GTM_TIM1_IN4_9			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN6_7			**Mux input channel 6 of TIM module 0**
	CAN03_RXDC			**CAN receive input node 3**
	CCU_PAD_SYSCLK			**Sysclk input**
	CBS_TGI0			**Trigger input**
	SCU_E_REQ6_0			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T6EUDA			**Count direction control input of core timer T6**
	P20.0	O0		**General-purpose output**
	GTM_TOUT59	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	HSCT0_SYSCLK_OUT	O5		**sys clock output**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO0	O		**Trigger output**
G19	P20.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_5			**Mux input channel 3 of TIM module 2**
	CBS_TGI1			**Trigger input**
	GTM_DTMA1_1			**CDTM1_DTM4**
	P20.1	O0		**General-purpose output**
	GTM_TOUT60	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO1	O		**Trigger output**
H19	P20.2	I	S / PU / VEXT	**General-purpose input** This pin is latched at power on reset release to enter test mode.
	$\overline{\text{TESTMODE}}$			**Testmode Enable Input**

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Table 2-9 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
G20	P20.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_5			**Mux input channel 4 of TIM module 2**
	ASCLIN3_ARXC			**Receive input**
	GPT120_T6INA			**Trigger/gate input of core timer T6**
	P20.3	O0		**General-purpose output**
	GTM_TOUT61	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI0_SLSO9	O3		**Master slave select output**
	QSPI2_SLSO9	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
F17	P20.6	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_5			**Mux input channel 6 of TIM module 2**
	CAN12_RXDA			**CAN receive input node 2**
	ASCLIN9_ARXE			**Receive input**
	P20.6	O0		**General-purpose output**
	GTM_TOUT62	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	QSPI0_SLSO8	O3		**Master slave select output**
	QSPI2_SLSO8	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-9 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F19	P20.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_5			**Mux input channel 7 of TIM module 2**
	GTM_TIM1_IN5_8			**Mux input channel 5 of TIM module 1**
	CAN00_RXDB			**CAN receive input node 0**
	ASCLIN1_ACTSA			**Clear to send input**
	ASCLIN9_ARXF			**Receive input**
	P20.7	O0		**General-purpose output**
	GTM_TOUT63	O1		**GTM muxed output**
	ASCLIN9_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**
F20	P20.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_3			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_3			**Mux input channel 7 of TIM module 0**
	P20.8	O0		**General-purpose output**
	GTM_TOUT64	O1		**GTM muxed output**
	ASCLIN1_ASLSO	O2		**Slave select signal output**
	QSPI0_SLSO0	O3		**Master slave select output**
	QSPI1_SLSO0	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-9 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E17	P20.9	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_5			**Mux input channel 5 of TIM module 2**
	CAN03_RXDE			**CAN receive input node 3**
	ASCLIN1_ARXC			**Receive input**
	QSPI0_SLSIB			**Slave select input**
	SCU_E_REQ7_0			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P20.9	O0		**General-purpose output**
	GTM_TOUT65	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO1	O3		**Master slave select output**
	QSPI1_SLSO1	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**
E19	P20.10	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_6			**Mux input channel 6 of TIM module 2**
	P20.10	O0		**General-purpose output**
	GTM_TOUT66	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO6	O3		**Master slave select output**
	QSPI2_SLSO7	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-9 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E20	P20.11	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_6			**Mux input channel 7 of TIM module 2**
	QSPI0_SCLKA			**Slave SPI clock inputs**
	P20.11	O0		**General-purpose output**
	GTM_TOUT67	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
D19	P20.12	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_5			**Mux input channel 0 of TIM module 2**
	QSPI0_MRSTA			**Master SPI data input**
	IOM_PIN_13			**GPIO pad input to FPC**
	P20.12	O0		**General-purpose output**
	GTM_TOUT68	O1		**GTM muxed output**
	IOM_MON0_13			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MRST	O3		**Slave SPI data output**
	IOM_MON2_0			**Monitor input 2**
	IOM_REF2_0			**Reference input 2**
	QSPI0_MTSR	O4		**Master SPI data output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-9 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D20	P20.13	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_4			**Mux input channel 1 of TIM module 2**
	QSPI0_SLSIA			**Slave select input**
	IOM_PIN_14			**GPIO pad input to FPC**
	P20.13	O0		**General-purpose output**
	GTM_TOUT69	O1		**GTM muxed output**
	IOM_MON0_14			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_SLSO2	O3		**Master slave select output**
	QSPI1_SLSO2	O4		**Master slave select output**
	QSPI0_SCLK	O5		**Master SPI clock output**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
C20	P20.14	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_4			**Mux input channel 2 of TIM module 2**
	QSPI0_MTSRA			**Slave SPI data input**
	IOM_PIN_15			**GPIO pad input to FPC**
	DMU_FDEST			**Enter destructive debug mode**
	P20.14	O0		**General-purpose output**
	GTM_TOUT70	O1		**GTM muxed output**
	IOM_MON0_15			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-10 Port 21 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
K17	P21.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_6			**Mux input channel 4 of TIM module 2**
	ASCLIN11_ARXC			**Receive input**
	P21.0	O0		**General-purpose output**
	GTM_TOUT51	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSM_HSM1	O		**Pin Output Value**
J17	P21.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_6			**Mux input channel 5 of TIM module 2**
	ASCLIN11_ARXD			**Receive input**
	P21.1	O0		**General-purpose output**
	GTM_TOUT52	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSM_HSM2	O		**Pin Output Value**

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Table 2-10 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
K19	P21.2	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_7			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_7			**Mux input channel 0 of TIM module 0**
	QSPI2_MRSTCN			**Master SPI data input (LVDS N line)**
	SCU_EMGSTOP_PORT_B			**Emergency stop Port Pin B input request**
	ASCLIN3_ARXGN			**Differential Receive input (low active)**
	HSCT0_RXDN			**Rx data**
	ASCLIN11_ARXE			**Receive input**
	GTM_DTMA1_0			**CDTM1_DTM4**
	P21.2	O0		**General-purpose output**
	GTM_TOUT53	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	GETH_MDC	O5		**MDIO clock**
	—	O6		**Reserved**
	—	O7		**Reserved**
J19	P21.3	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_6			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_6			**Mux input channel 1 of TIM module 0**
	QSPI2_MRSTCP			**Master SPI data input (LVDS P line)**
	ASCLIN3_ARXGP			**Differential Receive input (high active)**
	GETH_MDIOD			**MDIO Input**
	HSCT0_RXDP			**Rx data**
	P21.3	O0		**General-purpose output**
	GTM_TOUT54	O1		**GTM muxed output**
	ASCLIN11_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**

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Table 2-10 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
K20	P21.4	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN2_6			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_6			**Mux input channel 2 of TIM module 0**
	P21.4	O0		**General-purpose output**
	GTM_TOUT55	O1		**GTM muxed output**
	ASCLIN11_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDN	O		**Tx data**
J20	P21.5	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_6			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_6			**Mux input channel 3 of TIM module 0**
	ASCLIN11_ARXF			**Receive input**
	P21.5	O0		**General-purpose output**
	GTM_TOUT56	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN11_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDP	O		**Tx data**

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Table 2-10 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H17	P21.6/TDI	I	FAST / PD / PU2 / VEXT / ES3	**General-purpose input** PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
	GTM_TIM1_IN4_8			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_8			**Mux input channel 4 of TIM module 0**
	GPT120_T5EUDA			**Count direction control input of timer T5**
	ASCLIN3_ARXF			**Receive input**
	CBS_TGI2			**Trigger input**
	TDI			**JTAG Module Data Input**
	P21.6	O0		**General-purpose output**
	GTM_TOUT57	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T3OUT	O7		**External output for overflow/underflow detection of core timer T3**
	CBS_TGO2	O		**Trigger output**
	DAP3	I/O		**DAP: DAP3 Data I/O**

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Table 2-10 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H16	P21.7/TDO	I	FAST / PU2 / VEXT / ES4	**General-purpose input**
	GTM_TIM1_IN5_7			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_7			**Mux input channel 5 of TIM module 0**
	GPT120_T5INA			**Trigger/gate input of timer T5**
	CBS_TGI3			**Trigger input**
	GETH_RXERB			**Receive Error MII**
	P21.7	O0		**General-purpose output**
	GTM_TOUT58	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T6OUT	O7		**External output for overflow/underflow detection of core timer T6**
	CBS_TGO3	O		**Trigger output**
	DAP2	I/O		**DAP: DAP2 Data I/O**
	TDO	O		**JTAG Module Data Output**

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Table 2-11 Port 22 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
P20	P22.0	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN1_7			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_7			**Mux input channel 1 of TIM module 0**
	ASCLIN6_ARXE			**Receive input**
	QSPI3_MTSRD			**Slave SPI data input**
	P22.0	O0		**General-purpose output**
	GTM_TOUT47	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN6_ATX	O7		**Transmit output**
P19	P22.1	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN0_8			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_8			**Mux input channel 0 of TIM module 0**
	ASCLIN7_ARXE			**Receive input**
	QSPI3_MRSTD			**Master SPI data input**
	P22.1	O0		**General-purpose output**
	GTM_TOUT48	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN7_ATX	O7		**Transmit output**

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Table 2-11 Port 22 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
R20	P22.2	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_7			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_7			**Mux input channel 3 of TIM module 0**
	P22.2	O0		**General-purpose output**
	GTM_TOUT49	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	QSPI3_SLSO12	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
R19	P22.3	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN4_4			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_4			**Mux input channel 4 of TIM module 0**
	ASCLIN5_ARXC			**Receive input**
	QSPI3_SCLKD			**Slave SPI clock inputs**
	P22.3	O0		**General-purpose output**
	GTM_TOUT50	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-12 Port 23 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
V20	P23.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_4			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_4			**Mux input channel 5 of TIM module 0**
	CAN10_RXDC			**CAN receive input node 0**
	P23.0	O0		**General-purpose output**
	GTM_TOUT41	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
U19	P23.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_4			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_4			**Mux input channel 6 of TIM module 0**
	ASCLIN6_ARXF			**Receive input**
	P23.1	O0		**General-purpose output**
	GTM_TOUT42	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	—	O3		**Reserved**
	GTM_CLK0	O4		**CGM generated clock**
	CAN10_TXD	O5		**CAN transmit output node 0**
	CCU_EXTCLK0	O6		**External Clock 0**
	ASCLIN6_ASCLK	O7		**Shift clock output**
U20	P23.2	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_5			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_5			**Mux input channel 6 of TIM module 0**
	ASCLIN7_ARXC			**Receive input**
	P23.2	O0		**General-purpose output**
	GTM_TOUT43	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-12 Port 23 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
T19	P23.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_4			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_4			**Mux input channel 7 of TIM module 0**
	ASCLIN6_ARXA			**Receive input**
	CAN12_RXDC			**CAN receive input node 2**
	P23.3	O0		**General-purpose output**
	GTM_TOUT44	O1		**GTM muxed output**
	ASCLIN7_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
T20	P23.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_5			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_5			**Mux input channel 7 of TIM module 0**
	P23.4	O0		**General-purpose output**
	GTM_TOUT45	O1		**GTM muxed output**
	ASCLIN6_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
T17	P23.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_7			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_7			**Mux input channel 2 of TIM module 0**
	P23.5	O0		**General-purpose output**
	GTM_TOUT46	O1		**GTM muxed output**
	ASCLIN6_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-13 Port 32 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
Y17	P32.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
	GTM_TIM2_IN2_5			**Mux input channel 2 of TIM module 2**
	P32.0	O0		**General-purpose output**
	GTM_TOUT36	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
W17	P32.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.1 / External Pass Device gate control for EVRC
	P32.1	O0		**General-purpose output**
	GTM_TOUT37	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
Y18	P32.2	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_8			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_8			**Mux input channel 3 of TIM module 0**
	CAN03_RXDB			**CAN receive input node 3**
	ASCLIN3_ARXD			**Receive input**
	P32.2	O0		**General-purpose output**
	GTM_TOUT38	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	PMS_DCDCSYNCO	O6		**DC-DC synchronization output**
	—	O7		**Reserved**

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Table 2-13 Port 32 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
Y19	P32.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_5			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_5			**Mux input channel 4 of TIM module 0**
	P32.3	O0		**General-purpose output**
	GTM_TOUT39	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN3_ASCLK	O4		**Shift clock output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
W18	P32.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_5			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_5			**Mux input channel 5 of TIM module 0**
	ASCLIN1_ACTSB			**Clear to send input**
	P32.4	O0		**General-purpose output**
	GTM_TOUT40	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	GTM_CLK1	O4		**CGM generated clock**
	—	O5		**Reserved**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	PMS_DCDCSYNCO	O		**DC-DC synchronization output**

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Table 2-14 Port 33 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
W10	P33.0	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN4_6			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_6			**Mux input channel 4 of TIM module 0**
	EDSADC_ITR0E			**Trigger/Gate input, channel 0**
	IOM_PIN_0			**GPIO pad input to FPC**
	GTM_DTMT1_2			**CDTM1_DTM0**
	P33.0	O0		**General-purpose output**
	GTM_TOUT22	O1		**GTM muxed output**
	IOM_MON0_0			**Monitor input 0**
	IOM_GTM_0			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
Y10	P33.1	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN5_6			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_6			**Mux input channel 5 of TIM module 0**
	EDSADC_ITR1E			**Trigger/Gate input, channel 1**
	PSI5_RX0C			**RXD inputs (receive data) channel 0**
	EDSADC_DSCIN2B			**Modulator clock input, channel 2**
	SENT_SENT9C			**Receive input channel 9**
	ASCLIN8_ARXC			**Receive input**
	IOM_PIN_1			**GPIO pad input to FPC**
	P33.1	O0		**General-purpose output**
	GTM_TOUT23	O1		**GTM muxed output**
	IOM_MON0_1			**Monitor input 0**
	IOM_GTM_1			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	QSPI2_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W11	P33.2	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN6_6			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_6			**Mux input channel 6 of TIM module 0**
	EDSADC_ITR2E			**Trigger/Gate input, channel 2**
	SENT_SENT8C			**Receive input channel 8**
	EDSADC_DSDIN2B			**Digital datastream input, channel 2**
	IOM_PIN_2			**GPIO pad input to FPC**
	P33.2	O0		**General-purpose output**
	GTM_TOUT24	O1		**GTM muxed output**
	IOM_MON0_2			**Monitor input 0**
	IOM_GTM_2			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	QSPI2_SLSO10	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**
Y11	P33.3	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN7_6			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_6			**Mux input channel 7 of TIM module 0**
	PSI5_RX1C			**RXD inputs (receive data) channel 1**
	SENT_SENT7C			**Receive input channel 7**
	EDSADC_DSCIN1B			**Modulator clock input, channel 1**
	IOM_PIN_3			**GPIO pad input to FPC**
	P33.3	O0		**General-purpose output**
	GTM_TOUT25	O1		**GTM muxed output**
	IOM_MON0_3			**Monitor input 0**
	IOM_GTM_3			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W12	P33.4	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_10			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_10			**Mux input channel 0 of TIM module 0**
	EDSADC_ITR0F			**Trigger/Gate input, channel 0**
	SENT_SENT6C			**Receive input channel 6**
	EDSADC_DSDIN1B			**Digital datastream input, channel 1**
	CCU61_CTRAPC			**Trap input capture**
	ASCLIN5_ARXB			**Receive input**
	IOM_PIN_4			**GPIO pad input to FPC**
	P33.4	O0		**General-purpose output**
	GTM_TOUT26	O1		**GTM muxed output**
	IOM_MON0_4			**Monitor input 0**
	IOM_GTM_4			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI2_SLSO12	O3		**Master slave select output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC0BFLOUT	O6		**Boundary flag output, FC channel 0**
	CAN13_TXD	O7		**CAN transmit output node 3**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
Y12	P33.5	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_8			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_8			**Mux input channel 1 of TIM module 0**
	EDSADC_DSCIN0B			**Modulator clock input, channel 0**
	EDSADC_ITR1F			**Trigger/Gate input, channel 1**
	GPT120_T4EUDB			**Count direction control input of timer T4**
	PSI5S_RXC			**RX data input**
	ASCLIN2_ACTSB			**Clear to send input**
	CCU61_CCPOS2C			**Hall capture input 2**
	SENT_SENT5C			**Receive input channel 5**
	CAN13_RXDB			**CAN receive input node 3**
	IOM_PIN_5			**GPIO pad input to FPC**
	P33.5	O0		**General-purpose output**
	GTM_TOUT27	O1		**GTM muxed output**
	IOM_MON0_5			**Monitor input 0**
	IOM_GTM_5			**GTM-provided inputs to EXOR combiner**
	QSPI0_SLSO7	O2		**Master slave select output**
	QSPI1_SLSO7	O3		**Master slave select output**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	—	O6		**Reserved**
	ASCLIN5_ASLSO	O7		**Slave select signal output**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W13	P33.6	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_9			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_9			**Mux input channel 2 of TIM module 0**
	EDSADC_ITR2F			**Trigger/Gate input, channel 2**
	GPT120_T2EUDB			**Count direction control input of timer T2**
	SENT_SENT4C			**Receive input channel 4**
	CCU61_CCPOS1C			**Hall capture input 1**
	EDSADC_DSDIN0B			**Digital datastream input, channel 0**
	ASCLIN8_ARXD			**Receive input**
	IOM_PIN_6			**GPIO pad input to FPC**
	P33.6	O0		**General-purpose output**
	GTM_TOUT28	O1		**GTM muxed output**
	IOM_MON0_6			**Monitor input 0**
	IOM_GTM_6			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI2_SLSO11	O3		**Master slave select output**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC1BFLOUT	O6		**Boundary flag output, FC channel 1**
	PSI5S_TX	O7		**TX data output**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
Y13	P33.7	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN3_9			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_9			**Mux input channel 3 of TIM module 0**
	CAN00_RXDE			**CAN receive input node 0**
	GPT120_T2INB			**Trigger/gate input of timer T2**
	CCU61_CCPOS0C			**Hall capture input 0**
	SCU_E_REQ4_0			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	IOM_PIN_7			**GPIO pad input to FPC**
	P33.7	O0		**General-purpose output**
	GTM_TOUT29	O1		**GTM muxed output**
	IOM_MON0_7			**Monitor input 0**
	IOM_GTM_7			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	ASCLIN8_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W14	P33.8	I	FAST / HighZ / VEVRSB	**General-purpose input**
	GTM_TIM1_IN4_7			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_7			**Mux input channel 4 of TIM module 0**
	ASCLIN2_ARXE			**Receive input**
	SCU_EMGSTOP_PORT_A			**Emergency stop Port Pin A input request**
	IOM_PIN_8			**GPIO pad input to FPC**
	P33.8	O0		**General-purpose output**
	GTM_TOUT30	O1		**GTM muxed output**
	IOM_MON0_8			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
	SMU_FSP0	O		**FSP[1..0] Output Signals - Generated by SMU_core**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
Y14	P33.9	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_9			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_9			**Mux input channel 1 of TIM module 0**
	IOM_PIN_9			**GPIO pad input to FPC**
	P33.9	O0		**General-purpose output**
	GTM_TOUT31	O1		**GTM muxed output**
	IOM_MON0_9			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN2_ASCLK	O4		**Shift clock output**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ATX	O6		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W15	P33.10	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_9			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_9			**Mux input channel 0 of TIM module 0**
	CAN01_RXDD			**CAN receive input node 1**
	ASCLIN0_ARXD			**Receive input**
	IOM_PIN_10			**GPIO pad input to FPC**
	P33.10	O0		**General-purpose output**
	GTM_TOUT32	O1		**GTM muxed output**
	IOM_MON0_10			**Monitor input 0**
	QSPI1_SLSO6	O2		**Master slave select output**
	—	O3		**Reserved**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	PSI5S_CLK	O5		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**
	SMU_FSP1	O		**FSP[1..0] Output Signals - Generated by SMU_core**
Y15	P33.11	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_8			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_8			**Mux input channel 2 of TIM module 0**
	IOM_PIN_11			**GPIO pad input to FPC**
	P33.11	O0		**General-purpose output**
	GTM_TOUT33	O1		**GTM muxed output**
	IOM_MON0_11			**Monitor input 0**
	ASCLIN1_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	EDSADC_CGPWMN	O6		**Negative carrier generator output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-14 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
W16	P33.12	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN0_6			**Mux input channel 0 of TIM module 2**
	CAN00_RXDD			**CAN receive input node 0**
	PMS_PINBWKP			**PINB (P33.12) pin input**
	IOM_PIN_12			**GPIO pad input to FPC**
	P33.12	O0		**General-purpose output**
	GTM_TOUT34	O1		**GTM muxed output**
	IOM_MON0_12			**Monitor input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN1_ASCLK	O4		**Shift clock output**
	—	O5		**Reserved**
	EDSADC_CGPWMP	O6		**Positive carrier generator output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
Y16	P33.13	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN1_5			**Mux input channel 1 of TIM module 2**
	ASCLIN1_ARXF			**Receive input**
	EDSADC_SGNB			**Carrier sign signal input**
	P33.13	O0		**General-purpose output**
	GTM_TOUT35	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	QSPI2_SLSO6	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-15 Analog Inputs

Ball	Symbol	Ctrl.	Buffer Type	Function
T10	AN0	I	D / HighZ / VDDM	**Analog Input 0**
	EVADC_G0CH0			**Analog input channel 0, group 0**
	EDSADC_EDS3PA			**Positive analog input channel 3, pin A**
U10	AN1	I	D / HighZ / VDDM	**Analog Input 1**
	EVADC_G0CH1			**Analog input channel 1, group 0**
	EDSADC_EDS3NA			**Negative analog input channel 3, pin A**
W9	AN2	I	D / HighZ / VDDM	**Analog Input 2**
	EVADC_G0CH2			**Analog input channel 2, group 0**
	EDSADC_EDS0PA			**Positive analog input channel 0, pin A**
U9	AN3	I	D / HighZ / VDDM	**Analog Input 3**
	EVADC_G0CH3			**Analog input channel 3, group 0**
	EDSADC_EDS0NA			**Negative analog input channel 0, pin A**
T9	AN4	I	D / HighZ / VDDM	**Analog Input 4**
	EVADC_G0CH4			**Analog input channel 4, group 0**
Y9	AN5	I	D / HighZ / VDDM	**Analog Input 5**
	EVADC_G0CH5			**Analog input channel 5, group 0**
T8	AN6	I	D / HighZ / VDDM	**Analog Input 6**
	EVADC_G0CH6			**Analog input channel 6, group 0**
U8	AN7	I	D / HighZ / VDDM	**Analog Input 7**
	EVADC_G0CH7			**Analog input channel 7, group 0**
W8	AN8	I	D / HighZ / VDDM	**Analog Input 8**
	EVADC_G1CH0			**Analog input channel 0, group 1**
U7	AN9	I	D / HighZ / VDDM	**Analog Input 9**
	EVADC_G1CH1			**Analog input channel 1, group 1**
Y8	AN10	I	D / HighZ / VDDM	**Analog Input 10**
	EVADC_G1CH2			**Analog input channel 2, group 1**
W7	AN11	I	D / HighZ / VDDM	**Analog Input 11**
	EVADC_G1CH3			**Analog input channel 3, group 1**
T7	AN12	I	D / HighZ / VDDM	**Analog Input 12**
	EVADC_G1CH4			**Analog input channel 4, group 1**
	EDSADC_EDS0PB			**Positive analog input channel 0, pin B**
W6	AN13	I	D / HighZ / VDDM	**Analog Input 13**
	EVADC_G1CH5			**Analog input channel 5, group 1**
	EDSADC_EDS0NB			**Negative analog input channel 0, pin B**
U6	AN14	I	D / HighZ / VDDM	**Analog Input 14**
	EVADC_G1CH6			**Analog input channel 6, group 1**
	EDSADC_EDS3PB			**Positive analog input channel 3, pin B**

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Table 2-15 Analog Inputs (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
T6	AN15	I	D / HighZ / VDDM	**Analog Input 15**
	EVADC_G1CH7			**Analog input channel 7, group 1**
	EDSADC_EDS3NB			**Negative analog input channel 3, pin N**
W5	AN16	I	D / HighZ / VDDM	**Analog Input 16**
	EVADC_G2CH0			**Analog input channel 0, group 2**
	EVADC_FC0CH0			**Analog input FC channel 0**
U5	AN17	I	D / HighZ / VDDM	**Analog Input 17**
	EVADC_G2CH1			**Analog input channel 1, group 2**
	EVADC_FC1CH0			**Analog input FC channel 1**
W4	AN18	I	D / HighZ / VDDM	**Analog Input 18**
	EVADC_G2CH2			**Analog input channel 2, group 2**
W3	AN19	I	D / HighZ / VDDM	**Analog Input 19**
	EVADC_G2CH3			**Analog input channel 3, group 2**
Y3	AN20	I	D / HighZ / VDDM	**Analog Input 20**
	EVADC_G2CH4			**Analog input channel 4, group 2**
	EDSADC_EDS2PA			**Positive analog input channel 2, pin A**
Y2	AN21	I	D / HighZ / VDDM	**Analog Input 21**
	EVADC_G2CH5			**Analog input channel 5, group 2**
	EDSADC_EDS2NA			**Negative analog input channel 2, pin A**
T5	AN22	I	D / HighZ / VDDM	**Analog Input 22**
	EVADC_G2CH6			**Analog input channel 6, group 2**
R5	AN23	I	D / HighZ / VDDM	**Analog Input 23**
	EVADC_G2CH7			**Analog input channel 7, group 2**
W2	AN24/P40.0	I	S / HighZ / VDDM	**Analog Input 24**
	SENT_SENT0A			**Receive input channel 0**
	EVADC_G3CH0			**Analog input channel 0, group 3**
	CCU60_CCPOS0D			**Hall capture input 0**
	EDSADC_EDS2PB			**Positive analog input channel 2, pin B**
W1	AN25/P40.1	I	S / HighZ / VDDM	**Analog Input 25**
	SENT_SENT1A			**Receive input channel 1**
	EVADC_G3CH1			**Analog input channel 1, group 3**
	CCU60_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS2NB			**Negative analog input channel 2, pin B**
V2	AN26/P40.2	I	S / HighZ / VDDM	**Analog Input 26**
	SENT_SENT2A			**Receive input channel 2**
	EVADC_G3CH2			**Analog input channel 2, group 3**
	CCU60_CCPOS1D			**Hall capture input 1**

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Table 2-15 Analog Inputs (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
V1	AN27/P40.3	I	S / HighZ / VDDM	**Analog Input 27**
	SENT_SENT3A			**Receive input channel 3**
	EVADC_G3CH3			**Analog input channel 3, group 3**
	CCU60_CCPOS2B			**Hall capture input 2**
U2	AN28	I	D / HighZ / VDDM	**Analog Input 28**
	EVADC_G3CH4			**Analog input channel 4, group 3**
U1	AN29	I	D / HighZ / VDDM	**Analog Input 29**
	EVADC_G3CH5			**Analog input channel 5, group 3**
T4	AN30	I	D / HighZ / VDDM	**Analog Input 30**
	EVADC_G3CH6			**Analog input channel 6, group 3**
R4	AN31	I	D / HighZ / VDDM	**Analog Input 31**
	EVADC_G3CH7			**Analog input channel 7, group 3**
P4	AN32/P40.4	I	S / HighZ / VDDM	**Analog Input 32**
	SENT_SENT4A			**Receive input channel 4**
	EVADC_G8CH0			**Analog input channel 0, group 8**
	CCU60_CCPOS2D			**Hall capture input 2**
R1	AN33/P40.5	I	S / HighZ / VDDM	**Analog Input 33**
	SENT_SENT5A			**Receive input channel 5**
	EVADC_G8CH1			**Analog input channel 1, group 8**
	CCU61_CCPOS0D			**Hall capture input 0**
P5	AN34	I	D / HighZ / VDDM	**Analog Input 34**
	EVADC_G8CH2			**Analog input channel 2, group 8**
R2	AN35	I	D / HighZ / VDDM	**Analog Input 35**
	EVADC_G8CH3			**Analog input channel 3, group 8**
N4	AN36/P40.6	I	S / HighZ / VDDM	**Analog Input 36**
	SENT_SENT6A			**Receive input channel 6**
	EVADC_G8CH4			**Analog input channel 4, group 8**
	CCU61_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS1PA			**Positive analog input channel 1, pin A**
P2	AN37/P40.7	I	S / HighZ / VDDM	**Analog Input 37**
	SENT_SENT7A			**Receive input channel 7**
	EVADC_G8CH5			**Analog input channel 5, group 8**
	CCU61_CCPOS1D			**Hall capture input 1**
	EDSADC_EDS1NA			**Negative analog input channel 1, pin A**

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Table 2-15 Analog Inputs (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
N5	AN38/P40.8	I	S / HighZ / VDDM	**Analog Input 38**
	SENT_SENT8A			**Receive input channel 8**
	EVADC_G8CH6			**Analog input channel 6, group 8**
	CCU61_CCPOS2B			**Hall capture input 2**
	EDSADC_EDS1PB			**Positive analog input channel 1, pin B**
P1	AN39/P40.9	I	S / HighZ / VDDM	**Analog Input 39**
	SENT_SENT9A			**Receive input channel 9**
	EVADC_G8CH7			**Analog input channel 7, group 8**
	CCU61_CCPOS2D			**Hall capture input 2**
	EDSADC_EDS1NB			**Negative analog input channel 1, pin B**
M5	AN40	I	D / HighZ / VDDM	**Analog Input 40**
	EVADC_G8CH8			**Analog input channel 8, group 8**
M4	AN41	I	D / HighZ / VDDM	**Analog Input 41**
	EVADC_G8CH9			**Analog input channel 9, group 8**
L5	AN42	I	D / HighZ / VDDM	**Analog Input 42**
	EVADC_G8CH10			**Analog input channel 10, group 8**
L4	AN43	I	D / HighZ / VDDM	**Analog Input 43**
	EVADC_G8CH11			**Analog input channel 11, group 8**
N1	AN44	I	D / HighZ / VDDM	**Analog Input 44**
	EVADC_G8CH12			**Analog input channel 12, group 8**
	EDSADC_EDS1PC			**Positive analog input channel 1, pin C**
N2	AN45	I	D / HighZ / VDDM	**Analog Input 45**
	EVADC_G8CH13			**Analog input channel 13, group 8**
	EDSADC_EDS1NC			**Negative analog input channel 1, pin C**
M1	AN46	I	D / HighZ / VDDM	**Analog Input 46**
	EVADC_G8CH14			**Analog input channel 14, group 8**
	EDSADC_EDS1PD			**Positive analog input channel 1, pin D**
M2	AN47	I	D / HighZ / VDDM	**Analog Input 47**
	EVADC_G8CH15			**Analog input channel 15, group 8**
	EDSADC_EDS1ND			**Negative analog input channel 1, pin D**

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Note: Port Pins P32.0 and P32.1 are bidirectional pads and are having the following two functionalities implemented:

1. *In case the pins are used as standard GPIOs the functions defined in the pin configuration tables of P32.0 and P32.1 are available.*
2. *In case the pins are used as pre-drivers for external MOSFETs (internal DCDC usecase) P32.0 and P32.1 act as analog IOs named VGATE1N and VGATE1P.*

Table 2-16 System I/O

Ball	Symbol	Ctrl.	Buffer Type	Function
Y17	VGATE1N	O	—	**DCDC N ch. MOSFET gate driver output** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
W17	VGATE1P	O	—	**DCDC P ch. MOSFET gate driver output** P32.1 / External Pass Device gate control for EVRC
M20	XTAL1	I	XTAL / VEXT	**XTAL pad1** XTAL1. Main Oscillator/PLL/Clock Generator Input.
M19	XTAL2	O	XTAL / VEXT	**XTAL pad2** XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
K16	TMS	I	FAST / PD2 / VEXT	**JTAG Module State Machine Control Input**
	DAP1	I/O		**DAP: DAP1 Data I/O**
L19	$\overline{\text{TRST}}$	I	FAST / PU2 / VEXT	**JTAG Module Reset/Enable Input**
J16	TCK	I	FAST / PD2 / VEXT	**JTAG Module Clock Input**
	DAP0	I		**DAP: DAP0 Clock Input**
G16	$\overline{\text{ESR1}}$	I/O	FAST / PU1 / VEXT	**ESR1 Port Pin input - can be used to trigger a reset or an NMI** ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR1WKP	I		**ESR1 pin input**
G17	$\overline{\text{PORST}}$	I/O	PORST / PD / VEXT	**PORST pin** Power On Reset Input. Additional strong PD in case of power fail.

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Table 2-16 System I/O (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F16	$\overline{\text{ESR0}}$	I/O	FAST / OD / VEXT	**ESR0 Port Pin input - can be used to trigger a reset or an NMI** ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR0WKP	I		**ESR0 pin input**

Table 2-17 Supply

Ball	Symbol	Ctrl.	Buffer Type	Function
Y5	VDDM	I	—	**ADC Analog Power Supply (5V / 3.3V)**
D5	VFLEX	I	—	**Digital Power Supply for Flex Port Pads (5V / 3.3V)**
P8, P13, N7, N14, E15, H14, D16, G13, G8, H7	VDD	I	—	**Digital Core Power Supply (1.25V)**
A2, B3, V19, W20	VEXT	I	—	**External Power Supply (5V / 3.3V)**
B18, A19	VDDP3	I	—	**Flash Power Supply (3.3V)**
B2, D4, E5, T16, U17, W19, Y20, E16, D17, B19, A20	VSS	I	—	**Digital Ground**
Y4	VSSM	I	—	**Analog Ground for VDDM**

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Table 2-17 Supply (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
P9, P12, N9, N10, N11, N12, M7, M8, M10, M11, M13, M14, L8, L9, L10, L11, L12, L13, K8, K9, K10, K11, K12, K13, J7, J8, J10, J11, J13, J14, H9, H10, H11, H12, G9, G10, G11, G12, L14, P10, P11, K7, L7	VSS	I	—	**Digital Ground**
L20	VSS	I	—	**Oscillator Ground**
Y6	VAREF1	I	—	**Positive Analog Reference Voltage 1**
Y7	VAGND1	I	—	**Negative Analog Reference Voltage 1**
E4, F4, F5, G4, G5, H4, H5, J5, K14, L16, L17, M16, M17, N16, N17, P16, P17, R16, R17, T1, T2, T12, T13, T14, T15, U11, U12, U13, U14, U15, U16	NC	I	—	**Not connected. These pins are reserved for future extensions and shall not be connected externally**
A1, Y1, U4	NC1	I	—	**Not connected. These pins are not connected on package level and will not be used for future extensions**
T11	VEVRSB	I	—	**Standby Power Supply (5V / 3.3V) for the Standby SRAM**
N19	VDD	I	—	**Digital Power Supply for Oscillator (1.25V)**
N20	VEXT	I	—	**Digital Power Supply for Oscillator (shall be supplied with same level as used for VEXT)**

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2.2 LFBGA-180 Package Variant Pin Configuration of TC36x

Table 2-18 Port 00 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
G4	P00.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_1			**Mux input channel 0 of TIM module 2**
	CCU61_CTRAPA			**Trap input capture**
	CCU60_T12HRE			**External timer start 12**
	MSC0_INJ0			**Injection signal from port**
	GETH_MDIOA			**MDIO Input**
	P00.0	O0		**General-purpose output**
	GTM_TOUT9	O1		**GTM muxed output**
	IOM_REF0_9			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN10_TXD	O5		**CAN transmit output node 0**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	GETH_MDIO	O		**MDIO Output**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H4	P00.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_1			**Mux input channel 1 of TIM module 2**
	CCU60_CC60INB			**T12 capture input 60**
	ASCLIN3_ARXE			**Receive input**
	CAN10_RXDA			**CAN receive input node 0**
	PSI5_RX0A			**RXD inputs (receive data) channel 0**
	CCU61_CC60INA			**T12 capture input 60**
	SENT_SENT0B			**Receive input channel 0**
	EVADC_G9CH11	AI		**Analog input channel 11, group 9**
	P00.1	O0		**General-purpose output**
	GTM_TOUT10	O1		**GTM muxed output**
	IOM_REF0_10			**Reference input 0**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC0	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F3	P00.2	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN1_2			**Mux input channel 1 of TIM module 2**
	SENT_SENT1B			**Receive input channel 1**
	EVADC_G9CH10	AI		**Analog input channel 10, group 9**
	P00.2	O0		**General-purpose output**
	GTM_TOUT11	O1		**GTM muxed output**
	IOM_REF0_11			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	QSPI3_SLSO4	O6		**Master slave select output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F2	P00.3	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN2_1			**Mux input channel 2 of TIM module 2**
	CCU60_CC61INB			**T12 capture input 61**
	EDSADC_DSCIN3A			**Modulator clock input, channel 3**
	PSI5_RX1A			**RXD inputs (receive data) channel 1**
	CAN03_RXDA			**CAN receive input node 3**
	PSI5S_RXA			**RX data input**
	SENT_SENT2B			**Receive input channel 2**
	CCU61_CC61INA			**T12 capture input 61**
	EVADC_G9CH9	AI		**Analog input channel 9, group 9**
	P00.3	O0		**General-purpose output**
	GTM_TOUT12	O1		**GTM muxed output**
	IOM_REF0_12			**Reference input 0**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	—	O5		**Reserved**
	SENT_SPC2	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F1	P00.4	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN3_1			**Mux input channel 3 of TIM module 2**
	SCU_E_REQ2_2			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	SENT_SENT3B			**Receive input channel 3**
	EDSADC_DSDIN3A			**Digital datastream input, channel 3**
	EDSADC_SGNA			**Carrier sign signal input**
	ASCLIN10_ARXA			**Receive input**
	EVADC_G9CH8	AI		**Analog input channel 8, group 9**
	P00.4	O0		**General-purpose output**
	GTM_TOUT13	O1		**GTM muxed output**
	IOM_REF0_13			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	CAN11_TXD	O3		**CAN transmit output node 1**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	—	O5		**Reserved**
	SENT_SPC3	O6		**Transmit output**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H3	P00.5	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN4_1			**Mux input channel 4 of TIM module 2**
	CCU60_CC62INB			**T12 capture input 62**
	EDSADC_DSCIN2A			**Modulator clock input, channel 2**
	CCU61_CC62INA			**T12 capture input 62**
	SENT_SENT4B			**Receive input channel 4**
	CAN11_RXDB			**CAN receive input node 1**
	GTM_DTMT1_1			**CDTM1_DTM0**
	EVADC_G9CH7	AI		**Analog input channel 7, group 9**
	P00.5	O0		**General-purpose output**
	GTM_TOUT14	O1		**GTM muxed output**
	IOM_REF0_14			**Reference input 0**
	EDSADC_CGPWMN	O2		**Negative carrier generator output**
	QSPI3_SLSO3	O3		**Master slave select output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_FC0BFLOUT	O5		**Boundary flag output, FC channel 0**
	SENT_SPC4	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
G3	P00.6	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN5_1			**Mux input channel 5 of TIM module 2**
	EDSADC_DSDIN2A			**Digital datastream input, channel 2**
	SENT_SENT5B			**Receive input channel 5**
	ASCLIN5_ARXA			**Receive input**
	EVADC_G9CH6	AI		**Analog input channel 6, group 9**
	P00.6	O0		**General-purpose output**
	GTM_TOUT15	O1		**GTM muxed output**
	IOM_REF0_15			**Reference input 0**
	EDSADC_CGPWMP	O2		**Positive carrier generator output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC5	O6		**Transmit output**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
G2	P00.7	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN6_1			**Mux input channel 6 of TIM module 2**
	CCU61_CC60INC			**T12 capture input 60**
	SENT_SENT6B			**Receive input channel 6**
	GPT120_T2INA			**Trigger/gate input of timer T2**
	CCU61_CCPOS0A			**Hall capture input 0**
	CCU60_T12HRB			**External timer start 12**
	GTM_DTMT0_2			**CDTM0_DTM0**
	EVADC_G9CH5	AI		**Analog input channel 5, group 9**
	P00.7	O0		**General-purpose output**
	GTM_TOUT16	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC6	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**
G1	P00.8	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN7_1			**Mux input channel 7 of TIM module 2**
	CCU61_CC61INC			**T12 capture input 61**
	SENT_SENT7B			**Receive input channel 7**
	GPT120_T2EUDA			**Count direction control input of timer T2**
	CCU61_CCPOS1A			**Hall capture input 1**
	CCU60_T13HRB			**External timer start 13**
	ASCLIN10_ARXB			**Receive input**
	EVADC_G9CH4	AI		**Analog input channel 4, group 9**
	P00.8	O0		**General-purpose output**
	GTM_TOUT17	O1		**GTM muxed output**
	QSPI3_SLSO6	O2		**Master slave select output**
	ASCLIN10_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC7	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H2	P00.9	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN0_1			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_1			**Mux input channel 0 of TIM module 0**
	CCU61_CC62INC			**T12 capture input 62**
	SENT_SENT8B			**Receive input channel 8**
	CCU61_CCPOS2A			**Hall capture input 2**
	EDSADC_DSCIN1A			**Modulator clock input, channel 1**
	EDSADC_ITR3F			**Trigger/Gate input, channel 3**
	GPT120_T4EUDA			**Count direction control input of timer T4**
	CCU60_T13HRC			**External timer start 13**
	CCU60_T12HRC			**External timer start 12**
	EVADC_G9CH3	AI		**Analog input channel 3, group 9**
	P00.9	O0		**General-purpose output**
	GTM_TOUT18	O1		**GTM muxed output**
	QSPI3_SLSO7	O2		**Master slave select output**
	ASCLIN3_ARTS	O3		**Ready to send output**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	ASCLIN4_ATX	O5		**Transmit output**
	SENT_SPC8	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-18 Port 00 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H1	P00.12	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN3_1			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_1			**Mux input channel 3 of TIM module 0**
	ASCLIN3_ACTSA			**Clear to send input**
	EDSADC_DSDIN0A			**Digital datastream input, channel 0**
	ASCLIN4_ARXA			**Receive input**
	EVADC_G9CH0	AI		**Analog input channel 0, group 9**
	P00.12	O0		**General-purpose output**
	GTM_TOUT21	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-19 Port 02 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
B1	P02.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_2			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_2			**Mux input channel 0 of TIM module 0**
	CCU61_CC60INB			**T12 capture input 60**
	ASCLIN2_ARXG			**Receive input**
	CCU60_CC60INA			**T12 capture input 60**
	SCU_E_REQ3_2			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GTM_DTMA0_0			**CDTM0_DTM4**
	P02.0	O0		**General-purpose output**
	GTM_TOUT0	O1		**GTM muxed output**
	IOM_REF0_0			**Reference input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO1	O3		**Master slave select output**
	EDSADC_CGPWMN	O4		**Negative carrier generator output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C1	P02.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_2			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_2			**Mux input channel 1 of TIM module 0**
	ERAY0_RXDA2			**Receive Channel A2**
	ASCLIN2_ARXB			**Receive input**
	CAN00_RXDA			**CAN receive input node 0**
	SCU_E_REQ2_1			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P02.1	O0		**General-purpose output**
	GTM_TOUT1	O1		**GTM muxed output**
	IOM_REF0_1			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SLSO2	O3		**Master slave select output**
	EDSADC_CGPWMP	O4		**Positive carrier generator output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C2	P02.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_2			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_2			**Mux input channel 2 of TIM module 0**
	CCU61_CC61INB			**T12 capture input 61**
	CCU60_CC61INA			**T12 capture input 61**
	P02.2	O0		**General-purpose output**
	GTM_TOUT2	O1		**GTM muxed output**
	IOM_REF0_2			**Reference input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI3_SLSO3	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDB	O6		**Transmit Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D3	P02.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_2			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_2			**Mux input channel 3 of TIM module 0**
	ERAY0_RXDB2			**Receive Channel B2**
	CAN02_RXDB			**CAN receive input node 2**
	ASCLIN1_ARXG			**Receive input**
	PSI5_RX0B			**RXD inputs (receive data) channel 0**
	P02.3	O0		**General-purpose output**
	GTM_TOUT3	O1		**GTM muxed output**
	IOM_REF0_3			**Reference input 0**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI3_SLSO4	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D2	P02.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_1			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_1			**Mux input channel 4 of TIM module 0**
	CCU61_CC62INB			**T12 capture input 62**
	QSPI3_SLSIA			**Slave select input**
	CCU60_CC62INA			**T12 capture input 62**
	I2C0_SDAA			**Serial Data Input 0**
	CAN11_RXDA			**CAN receive input node 1**
	CAN0_ECTT1			**External CAN time trigger input**
	P02.4	O0		**General-purpose output**
	GTM_TOUT4	O1		**GTM muxed output**
	IOM_REF0_4			**Reference input 0**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_SLSO0	O3		**Master slave select output**
	PSI5S_CLK	O4		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	I2C0_SDA	O5		**Serial Data Output**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D1	P02.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_1			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_1			**Mux input channel 5 of TIM module 0**
	I2C0_SCLA			**Serial Clock Input 0**
	PSI5_RX1B			**RXD inputs (receive data) channel 1**
	PSI5S_RXB			**RX data input**
	QSPI3_MRSTA			**Master SPI data input**
	SENT_SENT3C			**Receive input channel 3**
	CAN0_ECTT2			**External CAN time trigger input**
	P02.5	O0		**General-purpose output**
	GTM_TOUT5	O1		**GTM muxed output**
	IOM_REF0_5			**Reference input 0**
	CAN11_TXD	O2		**CAN transmit output node 1**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	I2C0_SCL	O5		**Serial Clock Output**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E1	P02.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_1			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_1			**Mux input channel 6 of TIM module 0**
	CCU60_CC60INC			**T12 capture input 60**
	SENT_SENT2C			**Receive input channel 2**
	GPT120_T3INA			**Trigger/gate input of core timer T3**
	CCU60_CCPOS0A			**Hall capture input 0**
	CCU61_T12HRB			**External timer start 12**
	QSPI3_MTSRA			**Slave SPI data input**
	P02.6	O0		**General-purpose output**
	GTM_TOUT6	O1		**GTM muxed output**
	IOM_REF0_6			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	QSPI3_MTSR	O3		**Master SPI data output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E2	P02.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_1			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_1			**Mux input channel 7 of TIM module 0**
	CCU60_CC61INC			**T12 capture input 61**
	SENT_SENT1C			**Receive input channel 1**
	EDSADC_DSCIN3B			**Modulator clock input, channel 3**
	GPT120_T3EUDA			**Count direction control input of core timer T3**
	CCU60_CCPOS1A			**Hall capture input 1**
	QSPI3_SCLKA			**Slave SPI clock inputs**
	CCU61_T13HRB			**External timer start 13**
	P02.7	O0		**General-purpose output**
	GTM_TOUT7	O1		**GTM muxed output**
	IOM_REF0_7			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	SENT_SPC1	O6		**Transmit output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-19 Port 02 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E3	P02.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_2			**Mux input channel 0 of TIM module 2**
	CCU60_CC62INC			**T12 capture input 62**
	SENT_SENT0C			**Receive input channel 0**
	CCU60_CCPOS2A			**Hall capture input 2**
	EDSADC_DSDIN3B			**Digital datastream input, channel 3**
	EDSADC_ITR3E			**Trigger/Gate input, channel 3**
	GPT120_T4INA			**Trigger/gate input of timer T4**
	CCU61_T12HRC			**External timer start 12**
	CCU61_T13HRC			**External timer start 13**
	GTM_DTMA0_1			**CDTM0_DTM4**
	P02.8	O0		**General-purpose output**
	GTM_TOUT8	O1		**GTM muxed output**
	IOM_REF0_8			**Reference input 0**
	QSPI3_SLSO5	O2		**Master slave select output**
	ASCLIN8_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	GETH_MDC	O6		**MDIO clock**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-20 Port 10 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
C4	P10.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_2			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_2			**Mux input channel 4 of TIM module 0**
	GPT120_T6EUDB			**Count direction control input of core timer T6**
	ASCLIN11_ARXA			**Receive input**
	GETH_RXERC			**Receive Error MII**
	P10.0	O0		**General-purpose output**
	GTM_TOUT102	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	QSPI1_SLSO10	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
B3	P10.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_3			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_3			**Mux input channel 1 of TIM module 0**
	GPT120_T5EUDB			**Count direction control input of timer T5**
	QSPI1_MRSTA			**Master SPI data input**
	GTM_DTMT0_1			**CDTM0_DTM0**
	P10.1	O0		**General-purpose output**
	GTM_TOUT103	O1		**GTM muxed output**
	QSPI1_MTSR	O2		**Master SPI data output**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	MSC0_EN1	O4		**Chip Select**
	EVADC_FC1BFLOUT	O5		**Boundary flag output, FC channel 1**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-20 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A3	P10.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_3			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_3			**Mux input channel 2 of TIM module 0**
	CAN02_RXDE			**CAN receive input node 2**
	MSC0_SDI1			**Upstream assynchronous input signal**
	QSPI1_SCLKA			**Slave SPI clock inputs**
	GPT120_T6INB			**Trigger/gate input of core timer T6**
	SCU_E_REQ2_0			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P10.2	O0		**General-purpose output**
	GTM_TOUT104	O1		**GTM muxed output**
	IOM_MON2_9			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SCLK	O3		**Master SPI clock output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
A2	P10.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_3			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_3			**Mux input channel 3 of TIM module 0**
	QSPI1_MTSRA			**Slave SPI data input**
	SCU_E_REQ3_0			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T5INB			**Trigger/gate input of timer T5**
	P10.3	O0		**General-purpose output**
	GTM_TOUT105	O1		**GTM muxed output**
	IOM_MON2_10			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	CAN02_TXD	O6		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	—	O7		**Reserved**

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Table 2-20 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B4	P10.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_2			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_2			**Mux input channel 6 of TIM module 0**
	QSPI1_MTSRC			**Slave SPI data input**
	CCU60_CCPOS0C			**Hall capture input 0**
	GPT120_T3INB			**Trigger/gate input of core timer T3**
	ASCLIN11_ARXB			**Receive input**
	P10.4	O0		**General-purpose output**
	GTM_TOUT106	O1		**GTM muxed output**
	IOM_MON2_11			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SLSO8	O3		**Master slave select output**
	QSPI1_MTSR	O4		**Master SPI data output**
	MSC0_EN0	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**
F4	P10.5	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_4			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_4			**Mux input channel 2 of TIM module 0**
	PMS_HWCFG4IN			**HWCFG4 pin input**
	MSC0_INJ1			**Injection signal from port**
	P10.5	O0		**General-purpose output**
	GTM_TOUT107	O1		**GTM muxed output**
	IOM_REF2_9			**Reference input 2**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO8	O3		**Master slave select output**
	QSPI1_SLSO9	O4		**Master slave select output**
	GPT120_T6OUT	O5		**External output for overflow/underflow detection of core timer T6**
	ASCLIN2_ASLSO	O6		**Slave select signal output**
	—	O7		**Reserved**

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Table 2-20 Port 10 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E4	P10.6	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_4			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_4			**Mux input channel 3 of TIM module 0**
	ASCLIN2_ARXD			**Receive input**
	QSPI3_MTSRB			**Slave SPI data input**
	PMS_HWCFG5IN			**HWCFG5 pin input**
	P10.6	O0		**General-purpose output**
	GTM_TOUT108	O1		**GTM muxed output**
	IOM_REF2_10			**Reference input 2**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_MTSR	O3		**Master SPI data output**
	GPT120_T3OUT	O4		**External output for overflow/underflow detection of core timer T3**
	—	O5		**Reserved**
	QSPI1_MRST	O6		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	—	O7		**Reserved**

Table 2-21 Port 11 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
A6	P11.2	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_3			**Mux input channel 1 of TIM module 2**
	P11.2	O0		**General-purpose output**
	GTM_TOUT95	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO5	O3		**Master slave select output**
	QSPI1_SLSO5	O4		**Master slave select output**
	MSC0_EN1	O5		**Chip Select**
	GETH_TXD1	O6		**Transmit Data**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**

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Table 2-21 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B6	P11.3	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_2			**Mux input channel 2 of TIM module 2**
	MSC0_SDI3			**Upstream assynchronous input signal**
	QSPI1_MRSTB			**Master SPI data input**
	P11.3	O0		**General-purpose output**
	GTM_TOUT96	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	ERAY0_TXDA	O4		**Transmit Channel A**
	—	O5		**Reserved**
	GETH_TXD0	O6		**Transmit Data**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**
C6	P11.6	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_2			**Mux input channel 3 of TIM module 2**
	QSPI1_SCLKB			**Slave SPI clock inputs**
	P11.6	O0		**General-purpose output**
	GTM_TOUT97	O1		**GTM muxed output**
	ERAY0_TXENB	O2		**Transmit Enable Channel B**
	QSPI1_SCLK	O3		**Master SPI clock output**
	ERAY0_TXENA	O4		**Transmit Enable Channel A**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	GETH_TXEN	O6		**Transmit Enable MII and RMII**
	GETH_TCTL			**Transmit Control for RGMII**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-21 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D6	P11.8	I	SLOW / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_8			**Mux input channel 5 of TIM module 2**
	GETH_RXD2A			**Receive Data 2 MII and RGMII (RGMII can use RXD2A only)**
	CAN12_RXDD			**CAN receive input node 2**
	P11.8	O0		**General-purpose output**
	GTM_TOUT124	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
A5	P11.9	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_2			**Mux input channel 4 of TIM module 2**
	QSPI1_MTSRB			**Slave SPI data input**
	ERAY0_RXDA1			**Receive Channel A1**
	GETH_RXD1A			**Receive Data 1 MII, RMII and RGMII (RGMII can use RXD1A only)**
	P11.9	O0		**General-purpose output**
	GTM_TOUT98	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-21 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B5	P11.10	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_2			**Mux input channel 5 of TIM module 2**
	GTM_TIM2_IN0_9			**Mux input channel 0 of TIM module 2**
	CAN03_RXDD			**CAN receive input node 3**
	ERAY0_RXDB1			**Receive Channel B1**
	ASCLIN1_ARXE			**Receive input**
	SCU_E_REQ6_3			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	MSC0_SDI0			**Upstream assynchronous input signal**
	GETH_RXD0A			**Receive Data 0 MII, RMII and RGMII (RGMII can use RXD0A only)**
	QSPI1_SLSIA			**Slave select input**
	P11.10	O0		**General-purpose output**
	GTM_TOUT99	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO3	O3		**Master slave select output**
	QSPI1_SLSO3	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**
C5	P11.11	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_2			**Mux input channel 6 of TIM module 2**
	GETH_CRSDVA			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVA			**Receive Data Valid MII**
	GETH_CRSB			**Carrier Sense MII**
	GETH_RCTLA			**Receive Control for RGMII**
	P11.11	O0		**General-purpose output**
	GTM_TOUT100	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO4	O3		**Master slave select output**
	QSPI1_SLSO4	O4		**Master slave select output**
	MSC0_EN0	O5		**Chip Select**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-21 Port 11 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A4	P11.12	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_2			**Mux input channel 7 of TIM module 2**
	GETH_REFCLKA			**Reference Clock input for RMII (50 MHz)**
	GETH_TXCLKB			**Transmit Clock Input for MII**
	GETH_RXCLKA			**Receive Clock MII**
	P11.12	O0		**General-purpose output**
	GTM_TOUT101	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	GTM_CLK2	O3		**CGM generated clock**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

Table 2-22 Port 13 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
A7	P13.0	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN5_3			**Mux input channel 5 of TIM module 2**
	ASCLIN10_ARXC			**Receive input**
	P13.0	O0		**General-purpose output**
	GTM_TOUT91	O1		**GTM muxed output**
	ASCLIN10_ATX	O2		**Transmit output**
	QSPI2_SCLKN	O3		**Master SPI clock output (LVDS N line)**
	MSC0_EN1	O4		**Chip Select**
	MSC0_FCLN	O5		**Shift-clock inverted part of the differential signal**
	—	O6		**Reserved**
	CAN10_TXD	O7		**CAN transmit output node 0**

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Table 2-22 Port 13 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B7	P13.1	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN6_3			**Mux input channel 6 of TIM module 2**
	I2C0_SCLB			**Serial Clock Input 1**
	CAN10_RXDD			**CAN receive input node 0**
	ASCLIN10_ARXD			**Receive input**
	P13.1	O0		**General-purpose output**
	GTM_TOUT92	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLKP	O3		**Master SPI clock output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	I2C0_SCL	O6		**Serial Clock Output**
	—	O7		**Reserved**
A8	P13.2	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN7_3			**Mux input channel 7 of TIM module 2**
	GPT120_CAPINA			**Trigger input to capture value of timer T5 into CAPREL register**
	I2C0_SDAB			**Serial Data Input 1**
	P13.2	O0		**General-purpose output**
	GTM_TOUT93	O1		**GTM muxed output**
	ASCLIN10_ASCLK	O2		**Shift clock output**
	QSPI2_MTSRN	O3		**Master SPI data output (LVDS N line)**
	MSC0_FCLP	O4		**Shift-clock direct part of the differential signal**
	MSC0_SON	O5		**Data output - inverted part of the differential signal**
	I2C0_SDA	O6		**Serial Data Output**
	—	O7		**Reserved**
B8	P13.3	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN0_3			**Mux input channel 0 of TIM module 2**
	P13.3	O0		**General-purpose output**
	GTM_TOUT94	O1		**GTM muxed output**
	ASCLIN10_ASLSO	O2		**Slave select signal output**
	QSPI2_MTSRP	O3		**Master SPI data output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-23 Port 14 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
A9	P14.0	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN3_5			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_5			**Mux input channel 3 of TIM module 0**
	P14.0	O0		**General-purpose output**
	GTM_TOUT80	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	ERAY0_TXDA	O3		**Transmit Channel A**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-23 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B10	P14.1	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN4_3			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_3			**Mux input channel 4 of TIM module 0**
	ERAY0_RXDA3			**Receive Channel A3**
	ASCLIN0_ARXA			**Receive input**
	ERAY0_RXDB3			**Receive Channel B3**
	CAN01_RXDB			**CAN receive input node 1**
	SCU_E_REQ3_1			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	PMS_PINAWKP			**PINA (P14.1) pin input**
	P14.1	O0		**General-purpose output**
	GTM_TOUT81	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
D9	P14.2	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_3			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_3			**Mux input channel 5 of TIM module 0**
	PMS_HWCFG2IN			**HWCFG2 pin input**
	P14.2	O0		**General-purpose output**
	GTM_TOUT82	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO1	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN2_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-23 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C11	P14.3	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_3			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_3			**Mux input channel 6 of TIM module 0**
	PMS_HWCFG3IN			**HWCFG3 pin input**
	ASCLIN2_ARXA			**Receive input**
	MSC0_SDI2			**Upstream assynchronous input signal**
	SCU_E_REQ1_0			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P14.3	O0		**General-purpose output**
	GTM_TOUT83	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO3	O3		**Master slave select output**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	ASCLIN3_ASLSO	O5		**Slave select signal output**
	—	O6		**Reserved**
	—	O7		**Reserved**
C10	P14.4	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_2			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_2			**Mux input channel 7 of TIM module 0**
	PMS_HWCFG6IN			**HWCFG6 pin input**
	GTM_DTMT0_0			**CDTM0_DTM0**
	P14.4	O0		**General-purpose output**
	GTM_TOUT84	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_PPS	O6		**Pulse Per Second**
	—	O7		**Reserved**

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Table 2-23 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B9	P14.5	I	FAST / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_4			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_4			**Mux input channel 0 of TIM module 0**
	PMS_HWCFG1IN			**HWCFG1 pin input**
	GTM_DTMA2_0			**CDTM2_DTM4**
	P14.5	O0		**General-purpose output**
	GTM_TOUT85	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ERAY0_TXDB	O6		**Transmit Channel B**
	—	O7		**Reserved**
C9	P14.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_4			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_4			**Mux input channel 1 of TIM module 0**
	P14.6	O0		**General-purpose output**
	GTM_TOUT86	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SLSO2	O3		**Master slave select output**
	CAN13_TXD	O4		**CAN transmit output node 3**
	—	O5		**Reserved**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	—	O7		**Reserved**
C7	P14.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_3			**Mux input channel 2 of TIM module 2**
	ERAY0_RXDA0			**Receive Channel A0**
	CAN02_RXDD			**CAN receive input node 2**
	ASCLIN1_ARXD			**Receive input**
	P14.8	O0		**General-purpose output**
	GTM_TOUT88	O1		**GTM muxed output**
	ASCLIN5_ASLSO	O2		**Slave select signal output**
	ASCLIN7_ASLSO	O3		**Slave select signal output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-23 Port 14 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C8	P14.10	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_3			**Mux input channel 4 of TIM module 2**
	QSPI2_MRSTFP			**Master SPI data input (LVDS P line)**
	P14.10	O0		**General-purpose output**
	GTM_TOUT90	O1		**GTM muxed output**
	—	O2		**Reserved**
	MSC0_EN0	O3		**Chip Select**
	ASCLIN1_ATX	O4		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	—	O7		**Reserved**

Table 2-24 Port 15 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
A13	P15.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_4			**Mux input channel 3 of TIM module 2**
	P15.0	O0		**General-purpose output**
	GTM_TOUT71	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO13	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-24 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A12	P15.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_4			**Mux input channel 4 of TIM module 2**
	CAN02_RXDA			**CAN receive input node 2**
	ASCLIN1_ARXA			**Receive input**
	QSPI2_SLSIB			**Slave select input**
	SCU_E_REQ7_2			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.1	O0		**General-purpose output**
	GTM_TOUT72	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_SLSO5	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
B12	P15.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_4			**Mux input channel 5 of TIM module 2**
	QSPI2_SLSIA			**Slave select input**
	QSPI2_MRSTE			**Master SPI data input**
	P15.2	O0		**General-purpose output**
	GTM_TOUT73	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SLSO0	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-24 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
A10	P15.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_4			**Mux input channel 6 of TIM module 2**
	CAN01_RXDA			**CAN receive input node 1**
	ASCLIN0_ARXB			**Receive input**
	QSPI2_SCLKA			**Slave SPI clock inputs**
	P15.3	O0		**General-purpose output**
	GTM_TOUT74	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	MSC0_EN1	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**
B11	P15.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_4			**Mux input channel 7 of TIM module 2**
	I2C0_SCLC			**Serial Clock Input 2**
	QSPI2_MRSTA			**Master SPI data input**
	SCU_E_REQ0_0			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.4	O0		**General-purpose output**
	GTM_TOUT75	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	I2C0_SCL	O6		**Serial Clock Output**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-24 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D10	P15.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_4			**Mux input channel 0 of TIM module 2**
	ASCLIN1_ARXB			**Receive input**
	I2C0_SDAC			**Serial Data Input 2**
	QSPI2_MTSRA			**Slave SPI data input**
	SCU_E_REQ4_3			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.5	O0		**General-purpose output**
	GTM_TOUT76	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_EN0	O5		**Chip Select**
	I2C0_SDA	O6		**Serial Data Output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
A11	P15.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_14			**Mux input channel 2 of TIM module 2**
	GTM_TIM1_IN0_6			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_6			**Mux input channel 0 of TIM module 0**
	QSPI2_MTSRB			**Slave SPI data input**
	P15.6	O0		**General-purpose output**
	GTM_TOUT77	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	QSPI2_SCLK	O5		**Master SPI clock output**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-24 Port 15 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D8	P15.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_5			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_5			**Mux input channel 1 of TIM module 0**
	ASCLIN3_ARXA			**Receive input**
	QSPI2_MRSTB			**Master SPI data input**
	P15.7	O0		**General-purpose output**
	GTM_TOUT78	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
D7	P15.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_5			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_5			**Mux input channel 2 of TIM module 0**
	QSPI2_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ5_0			**ERU Channel 5 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.8	O0		**General-purpose output**
	GTM_TOUT79	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-25 Port 20 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
H13	P20.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_7			**Mux input channel 6 of TIM module 1**
	GTM_TIM1_IN4_9			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN6_7			**Mux input channel 6 of TIM module 0**
	CAN03_RXDC			**CAN receive input node 3**
	CCU_PAD_SYSCLK			**Sysclk input**
	CBS_TGI0			**Trigger input**
	SCU_E_REQ6_0			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T6EUDA			**Count direction control input of core timer T6**
	P20.0	O0		**General-purpose output**
	GTM_TOUT59	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	HSCT0_SYSCLK_OUT	O5		**sys clock output**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO0	O		**Trigger output**
G13	P20.2	I	S / PU / VEXT	**General-purpose input** This pin is latched at power on reset release to enter test mode.
	$\overline{\text{TESTMODE}}$			**Testmode Enable Input**

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Table 2-25 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
G12	P20.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_5			**Mux input channel 4 of TIM module 2**
	ASCLIN3_ARXC			**Receive input**
	GPT120_T6INA			**Trigger/gate input of core timer T6**
	P20.3	O0		**General-purpose output**
	GTM_TOUT61	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI0_SLSO9	O3		**Master slave select output**
	QSPI2_SLSO9	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
F11	P20.6	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_5			**Mux input channel 6 of TIM module 2**
	CAN12_RXDA			**CAN receive input node 2**
	ASCLIN9_ARXE			**Receive input**
	P20.6	O0		**General-purpose output**
	GTM_TOUT62	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	QSPI0_SLSO8	O3		**Master slave select output**
	QSPI2_SLSO8	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-25 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
E12	P20.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_5			**Mux input channel 7 of TIM module 2**
	GTM_TIM1_IN5_8			**Mux input channel 5 of TIM module 1**
	CAN00_RXDB			**CAN receive input node 0**
	ASCLIN1_ACTSA			**Clear to send input**
	ASCLIN9_ARXF			**Receive input**
	P20.7	O0		**General-purpose output**
	GTM_TOUT63	O1		**GTM muxed output**
	ASCLIN9_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**
F12	P20.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_3			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_3			**Mux input channel 7 of TIM module 0**
	P20.8	O0		**General-purpose output**
	GTM_TOUT64	O1		**GTM muxed output**
	ASCLIN1_ASLSO	O2		**Slave select signal output**
	QSPI0_SLSO0	O3		**Master slave select output**
	QSPI1_SLSO0	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-25 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D12	P20.9	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_5			**Mux input channel 5 of TIM module 2**
	CAN03_RXDE			**CAN receive input node 3**
	ASCLIN1_ARXC			**Receive input**
	QSPI0_SLSIB			**Slave select input**
	SCU_E_REQ7_0			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P20.9	O0		**General-purpose output**
	GTM_TOUT65	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO1	O3		**Master slave select output**
	QSPI1_SLSO1	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**
C14	P20.10	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_6			**Mux input channel 6 of TIM module 2**
	P20.10	O0		**General-purpose output**
	GTM_TOUT66	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO6	O3		**Master slave select output**
	QSPI2_SLSO7	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-25 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
D14	P20.11	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_6			**Mux input channel 7 of TIM module 2**
	QSPI0_SCLKA			**Slave SPI clock inputs**
	P20.11	O0		**General-purpose output**
	GTM_TOUT67	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
D13	P20.12	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_5			**Mux input channel 0 of TIM module 2**
	QSPI0_MRSTA			**Master SPI data input**
	IOM_PIN_13			**GPIO pad input to FPC**
	P20.12	O0		**General-purpose output**
	GTM_TOUT68	O1		**GTM muxed output**
	IOM_MON0_13			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MRST	O3		**Slave SPI data output**
	IOM_MON2_0			**Monitor input 2**
	IOM_REF2_0			**Reference input 2**
	QSPI0_MTSR	O4		**Master SPI data output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-25 Port 20 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
C13	P20.13	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_4			**Mux input channel 1 of TIM module 2**
	QSPI0_SLSIA			**Slave select input**
	IOM_PIN_14			**GPIO pad input to FPC**
	P20.13	O0		**General-purpose output**
	GTM_TOUT69	O1		**GTM muxed output**
	IOM_MON0_14			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_SLSO2	O3		**Master slave select output**
	QSPI1_SLSO2	O4		**Master slave select output**
	QSPI0_SCLK	O5		**Master SPI clock output**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
B14	P20.14	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_4			**Mux input channel 2 of TIM module 2**
	QSPI0_MTSRA			**Slave SPI data input**
	IOM_PIN_15			**GPIO pad input to FPC**
	DMU_FDEST			**Enter destructive debug mode**
	P20.14	O0		**General-purpose output**
	GTM_TOUT70	O1		**GTM muxed output**
	IOM_MON0_15			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-26 Port 21 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
H12	P21.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_6			**Mux input channel 4 of TIM module 2**
	ASCLIN11_ARXC			**Receive input**
	P21.0	O0		**General-purpose output**
	GTM_TOUT51	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSM_HSM1	O		**Pin Output Value**
K13	P21.2	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_7			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_7			**Mux input channel 0 of TIM module 0**
	QSPI2_MRSTCN			**Master SPI data input (LVDS N line)**
	SCU_EMGSTOP_PORT_B			**Emergency stop Port Pin B input request**
	ASCLIN3_ARXGN			**Differential Receive input (low active)**
	HSCT0_RXDN			**Rx data**
	ASCLIN11_ARXE			**Receive input**
	GTM_DTMA1_0			**CDTM1_DTM4**
	P21.2	O0		**General-purpose output**
	GTM_TOUT53	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	GETH_MDC	O5		**MDIO clock**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-26 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
J14	P21.3	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_6			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_6			**Mux input channel 1 of TIM module 0**
	QSPI2_MRSTCP			**Master SPI data input (LVDS P line)**
	ASCLIN3_ARXGP			**Differential Receive input (high active)**
	GETH_MDIOD			**MDIO Input**
	HSCT0_RXDP			**Rx data**
	P21.3	O0		**General-purpose output**
	GTM_TOUT54	O1		**GTM muxed output**
	ASCLIN11_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**
J13	P21.4	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN2_6			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_6			**Mux input channel 2 of TIM module 0**
	P21.4	O0		**General-purpose output**
	GTM_TOUT55	O1		**GTM muxed output**
	ASCLIN11_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDN	O		**Tx data**

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Table 2-26 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H14	P21.5	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_6			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_6			**Mux input channel 3 of TIM module 0**
	ASCLIN11_ARXF			**Receive input**
	P21.5	O0		**General-purpose output**
	GTM_TOUT56	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN11_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDP	O		**Tx data**
F13	P21.6/TDI	I	FAST / PD / PU2 / VEXT / ES3	**General-purpose input** PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
	GTM_TIM1_IN4_8			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_8			**Mux input channel 4 of TIM module 0**
	GPT120_T5EUDA			**Count direction control input of timer T5**
	ASCLIN3_ARXF			**Receive input**
	CBS_TGI2			**Trigger input**
	TDI			**JTAG Module Data Input**
	P21.6	O0		**General-purpose output**
	GTM_TOUT57	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T3OUT	O7		**External output for overflow/underflow detection of core timer T3**
	CBS_TGO2	O		**Trigger output**
	DAP3	I/O		**DAP: DAP3 Data I/O**

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Table 2-26 Port 21 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
F14	P21.7/TDO	I	FAST / PU2 / VEXT / ES4	**General-purpose input**
	GTM_TIM1_IN5_7			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_7			**Mux input channel 5 of TIM module 0**
	GPT120_T5INA			**Trigger/gate input of timer T5**
	CBS_TGI3			**Trigger input**
	GETH_RXERB			**Receive Error MII**
	P21.7	O0		**General-purpose output**
	GTM_TOUT58	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T6OUT	O7		**External output for overflow/underflow detection of core timer T6**
	CBS_TGO3	O		**Trigger output**
	DAP2	I/O		**DAP: DAP2 Data I/O**
	TDO	O		**JTAG Module Data Output**

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Table 2-27 Port 22 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
J11	P22.0	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN1_7			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_7			**Mux input channel 1 of TIM module 0**
	ASCLIN6_ARXE			**Receive input**
	QSPI3_MTSRD			**Slave SPI data input**
	P22.0	O0		**General-purpose output**
	GTM_TOUT47	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN6_ATX	O7		**Transmit output**
L12	P22.1	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN0_8			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_8			**Mux input channel 0 of TIM module 0**
	ASCLIN7_ARXE			**Receive input**
	QSPI3_MRSTD			**Master SPI data input**
	P22.1	O0		**General-purpose output**
	GTM_TOUT48	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN7_ATX	O7		**Transmit output**

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Table 2-27 Port 22 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
H11	P22.2	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_7			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_7			**Mux input channel 3 of TIM module 0**
	P22.2	O0		**General-purpose output**
	GTM_TOUT49	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	QSPI3_SLSO12	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
J12	P22.3	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN4_4			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_4			**Mux input channel 4 of TIM module 0**
	ASCLIN5_ARXC			**Receive input**
	QSPI3_SCLKD			**Slave SPI clock inputs**
	P22.3	O0		**General-purpose output**
	GTM_TOUT50	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-28 Port 23 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
N14	P23.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_4			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_4			**Mux input channel 6 of TIM module 0**
	ASCLIN6_ARXF			**Receive input**
	P23.1	O0		**General-purpose output**
	GTM_TOUT42	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	—	O3		**Reserved**
	GTM_CLK0	O4		**CGM generated clock**
	CAN10_TXD	O5		**CAN transmit output node 0**
	CCU_EXTCLK0	O6		**External Clock 0**
	ASCLIN6_ASCLK	O7		**Shift clock output**
K11	P23.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_4			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_4			**Mux input channel 7 of TIM module 0**
	ASCLIN6_ARXA			**Receive input**
	CAN12_RXDC			**CAN receive input node 2**
	P23.3	O0		**General-purpose output**
	GTM_TOUT44	O1		**GTM muxed output**
	ASCLIN7_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-29 Port 32 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
P12	P32.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
	GTM_TIM2_IN2_5			**Mux input channel 2 of TIM module 2**
	P32.0	O0		**General-purpose output**
	GTM_TOUT36	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
N12	P32.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.1 / External Pass Device gate control for EVRC
	P32.1	O0		**General-purpose output**
	GTM_TOUT37	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
P13	P32.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_5			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_5			**Mux input channel 5 of TIM module 0**
	ASCLIN1_ACTSB			**Clear to send input**
	P32.4	O0		**General-purpose output**
	GTM_TOUT40	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	GTM_CLK1	O4		**CGM generated clock**
	—	O5		**Reserved**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	PMS_DCDCSYNCO	O		**DC-DC synchronization output**

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Table 2-30 Port 33 Functions

Ball	Symbol	Ctrl.	Buffer Type	Function
M9	P33.0	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN4_6			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_6			**Mux input channel 4 of TIM module 0**
	EDSADC_ITR0E			**Trigger/Gate input, channel 0**
	IOM_PIN_0			**GPIO pad input to FPC**
	GTM_DTMT1_2			**CDTM1_DTM0**
	P33.0	O0		**General-purpose output**
	GTM_TOUT22	O1		**GTM muxed output**
	IOM_MON0_0			**Monitor input 0**
	IOM_GTM_0			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
M8	P33.1	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN5_6			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_6			**Mux input channel 5 of TIM module 0**
	EDSADC_ITR1E			**Trigger/Gate input, channel 1**
	PSI5_RX0C			**RXD inputs (receive data) channel 0**
	EDSADC_DSCIN2B			**Modulator clock input, channel 2**
	SENT_SENT9C			**Receive input channel 9**
	ASCLIN8_ARXC			**Receive input**
	IOM_PIN_1			**GPIO pad input to FPC**
	P33.1	O0		**General-purpose output**
	GTM_TOUT23	O1		**GTM muxed output**
	IOM_MON0_1			**Monitor input 0**
	IOM_GTM_1			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	QSPI2_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
P8	P33.2	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN6_6			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_6			**Mux input channel 6 of TIM module 0**
	EDSADC_ITR2E			**Trigger/Gate input, channel 2**
	SENT_SENT8C			**Receive input channel 8**
	EDSADC_DSDIN2B			**Digital datastream input, channel 2**
	IOM_PIN_2			**GPIO pad input to FPC**
	P33.2	O0		**General-purpose output**
	GTM_TOUT24	O1		**GTM muxed output**
	IOM_MON0_2			**Monitor input 0**
	IOM_GTM_2			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	QSPI2_SLSO10	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**
N8	P33.3	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN7_6			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_6			**Mux input channel 7 of TIM module 0**
	PSI5_RX1C			**RXD inputs (receive data) channel 1**
	SENT_SENT7C			**Receive input channel 7**
	EDSADC_DSCIN1B			**Modulator clock input, channel 1**
	IOM_PIN_3			**GPIO pad input to FPC**
	P33.3	O0		**General-purpose output**
	GTM_TOUT25	O1		**GTM muxed output**
	IOM_MON0_3			**Monitor input 0**
	IOM_GTM_3			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
L8	P33.4	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_10			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_10			**Mux input channel 0 of TIM module 0**
	EDSADC_ITR0F			**Trigger/Gate input, channel 0**
	SENT_SENT6C			**Receive input channel 6**
	EDSADC_DSDIN1B			**Digital datastream input, channel 1**
	CCU61_CTRAPC			**Trap input capture**
	ASCLIN5_ARXB			**Receive input**
	IOM_PIN_4			**GPIO pad input to FPC**
	P33.4	O0		**General-purpose output**
	GTM_TOUT26	O1		**GTM muxed output**
	IOM_MON0_4			**Monitor input 0**
	IOM_GTM_4			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI2_SLSO12	O3		**Master slave select output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC0BFLOUT	O6		**Boundary flag output, FC channel 0**
	CAN13_TXD	O7		**CAN transmit output node 3**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
N9	P33.5	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_8			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_8			**Mux input channel 1 of TIM module 0**
	EDSADC_DSCIN0B			**Modulator clock input, channel 0**
	EDSADC_ITR1F			**Trigger/Gate input, channel 1**
	GPT120_T4EUDB			**Count direction control input of timer T4**
	PSI5S_RXC			**RX data input**
	ASCLIN2_ACTSB			**Clear to send input**
	CCU61_CCPOS2C			**Hall capture input 2**
	SENT_SENT5C			**Receive input channel 5**
	CAN13_RXDB			**CAN receive input node 3**
	IOM_PIN_5			**GPIO pad input to FPC**
	P33.5	O0		**General-purpose output**
	GTM_TOUT27	O1		**GTM muxed output**
	IOM_MON0_5			**Monitor input 0**
	IOM_GTM_5			**GTM-provided inputs to EXOR combiner**
	QSPI0_SLSO7	O2		**Master slave select output**
	QSPI1_SLSO7	O3		**Master slave select output**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	—	O6		**Reserved**
	ASCLIN5_ASLSO	O7		**Slave select signal output**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
P9	P33.6	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_9			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_9			**Mux input channel 2 of TIM module 0**
	EDSADC_ITR2F			**Trigger/Gate input, channel 2**
	GPT120_T2EUDB			**Count direction control input of timer T2**
	SENT_SENT4C			**Receive input channel 4**
	CCU61_CCPOS1C			**Hall capture input 1**
	EDSADC_DSDIN0B			**Digital datastream input, channel 0**
	ASCLIN8_ARXD			**Receive input**
	IOM_PIN_6			**GPIO pad input to FPC**
	P33.6	O0		**General-purpose output**
	GTM_TOUT28	O1		**GTM muxed output**
	IOM_MON0_6			**Monitor input 0**
	IOM_GTM_6			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI2_SLSO11	O3		**Master slave select output**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC1BFLOUT	O6		**Boundary flag output, FC channel 1**
	PSI5S_TX	O7		**TX data output**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
L10	P33.7	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN3_9			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_9			**Mux input channel 3 of TIM module 0**
	CAN00_RXDE			**CAN receive input node 0**
	GPT120_T2INB			**Trigger/gate input of timer T2**
	CCU61_CCPOS0C			**Hall capture input 0**
	SCU_E_REQ4_0			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	IOM_PIN_7			**GPIO pad input to FPC**
	P33.7	O0		**General-purpose output**
	GTM_TOUT29	O1		**GTM muxed output**
	IOM_MON0_7			**Monitor input 0**
	IOM_GTM_7			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	ASCLIN8_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
L9	P33.8	I	FAST / HighZ / VEVRSB	**General-purpose input**
	GTM_TIM1_IN4_7			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_7			**Mux input channel 4 of TIM module 0**
	ASCLIN2_ARXE			**Receive input**
	SCU_EMGSTOP_PORT_A			**Emergency stop Port Pin A input request**
	IOM_PIN_8			**GPIO pad input to FPC**
	P33.8	O0		**General-purpose output**
	GTM_TOUT30	O1		**GTM muxed output**
	IOM_MON0_8			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
	SMU_FSP0	O		**FSP[1..0] Output Signals - Generated by SMU_core**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
P10	P33.9	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_9			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_9			**Mux input channel 1 of TIM module 0**
	IOM_PIN_9			**GPIO pad input to FPC**
	P33.9	O0		**General-purpose output**
	GTM_TOUT31	O1		**GTM muxed output**
	IOM_MON0_9			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN2_ASCLK	O4		**Shift clock output**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ATX	O6		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
N11	P33.10	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_9			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_9			**Mux input channel 0 of TIM module 0**
	CAN01_RXDD			**CAN receive input node 1**
	ASCLIN0_ARXD			**Receive input**
	IOM_PIN_10			**GPIO pad input to FPC**
	P33.10	O0		**General-purpose output**
	GTM_TOUT32	O1		**GTM muxed output**
	IOM_MON0_10			**Monitor input 0**
	QSPI1_SLSO6	O2		**Master slave select output**
	—	O3		**Reserved**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	PSI5S_CLK	O5		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**
	SMU_FSP1	O		**FSP[1..0] Output Signals - Generated by SMU_core**
N10	P33.11	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_8			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_8			**Mux input channel 2 of TIM module 0**
	IOM_PIN_11			**GPIO pad input to FPC**
	P33.11	O0		**General-purpose output**
	GTM_TOUT33	O1		**GTM muxed output**
	IOM_MON0_11			**Monitor input 0**
	ASCLIN1_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	EDSADC_CGPWMN	O6		**Negative carrier generator output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-30 Port 33 Functions (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
M10	P33.12	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN0_6			**Mux input channel 0 of TIM module 2**
	CAN00_RXDD			**CAN receive input node 0**
	PMS_PINBWKP			**PINB (P33.12) pin input**
	IOM_PIN_12			**GPIO pad input to FPC**
	P33.12	O0		**General-purpose output**
	GTM_TOUT34	O1		**GTM muxed output**
	IOM_MON0_12			**Monitor input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN1_ASCLK	O4		**Shift clock output**
	—	O5		**Reserved**
	EDSADC_CGPWMP	O6		**Positive carrier generator output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
M11	P33.13	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN1_5			**Mux input channel 1 of TIM module 2**
	ASCLIN1_ARXF			**Receive input**
	EDSADC_SGNB			**Carrier sign signal input**
	P33.13	O0		**General-purpose output**
	GTM_TOUT35	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	QSPI2_SLSO6	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-31 Analog Inputs

Ball	Symbol	Ctrl.	Buffer Type	Function
L7	AN0	I	D / HighZ / VDDM	**Analog Input 0**
	EVADC_G0CH0			**Analog input channel 0, group 0**
	EDSADC_EDS3PA			**Positive analog input channel 3, pin A**
P6	AN1	I	D / HighZ / VDDM	**Analog Input 1**
	EVADC_G0CH1			**Analog input channel 1, group 0**
	EDSADC_EDS3NA			**Negative analog input channel 3, pin A**
L6	AN2	I	D / HighZ / VDDM	**Analog Input 2**
	EVADC_G0CH2			**Analog input channel 2, group 0**
	EDSADC_EDS0PA			**Positive analog input channel 0, pin A**
M6	AN3	I	D / HighZ / VDDM	**Analog Input 3**
	EVADC_G0CH3			**Analog input channel 3, group 0**
	EDSADC_EDS0NA			**Negative analog input channel 0, pin A**
N6	AN4	I	D / HighZ / VDDM	**Analog Input 4**
	EVADC_G0CH4			**Analog input channel 4, group 0**
L5	AN5	I	D / HighZ / VDDM	**Analog Input 5**
	EVADC_G0CH5			**Analog input channel 5, group 0**
M5	AN6	I	D / HighZ / VDDM	**Analog Input 6**
	EVADC_G0CH6			**Analog input channel 6, group 0**
P5	AN7	I	D / HighZ / VDDM	**Analog Input 7**
	EVADC_G0CH7			**Analog input channel 7, group 0**
N5	AN8	I	D / HighZ / VDDM	**Analog Input 8**
	EVADC_G1CH0			**Analog input channel 0, group 1**
N3	AN9	I	D / HighZ / VDDM	**Analog Input 9**
	EVADC_G1CH1			**Analog input channel 1, group 1**
M4	AN10	I	D / HighZ / VDDM	**Analog Input 10**
	EVADC_G1CH2			**Analog input channel 2, group 1**
N4	AN11	I	D / HighZ / VDDM	**Analog Input 11**
	EVADC_G1CH3			**Analog input channel 3, group 1**
M3	AN12	I	D / HighZ / VDDM	**Analog Input 12**
	EVADC_G1CH4			**Analog input channel 4, group 1**
	EDSADC_EDS0PB			**Positive analog input channel 0, pin B**
N2	AN13	I	D / HighZ / VDDM	**Analog Input 13**
	EVADC_G1CH5			**Analog input channel 5, group 1**
	EDSADC_EDS0NB			**Negative analog input channel 0, pin B**
L4	AN14	I	D / HighZ / VDDM	**Analog Input 14**
	EVADC_G1CH6			**Analog input channel 6, group 1**
	EDSADC_EDS3PB			**Positive analog input channel 3, pin B**

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Table 2-31 Analog Inputs (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
N1	AN15	I	D / HighZ / VDDM	**Analog Input 15**
	EVADC_G1CH7			**Analog input channel 7, group 1**
	EDSADC_EDS3NB			**Negative analog input channel 3, pin N**
M1	AN16	I	D / HighZ / VDDM	**Analog Input 16**
	EVADC_G2CH0			**Analog input channel 0, group 2**
	EVADC_FC0CH0			**Analog input FC channel 0**
M2	AN17	I	D / HighZ / VDDM	**Analog Input 17**
	EVADC_G2CH1			**Analog input channel 1, group 2**
	EVADC_FC1CH0			**Analog input FC channel 1**
L1	AN24/P40.0	I	S / HighZ / VDDM	**Analog Input 24**
	SENT_SENT0A			**Receive input channel 0**
	EVADC_G3CH0			**Analog input channel 0, group 3**
	CCU60_CCPOS0D			**Hall capture input 0**
	EDSADC_EDS2PB			**Positive analog input channel 2, pin B**
L2	AN25/P40.1	I	S / HighZ / VDDM	**Analog Input 25**
	SENT_SENT1A			**Receive input channel 1**
	EVADC_G3CH1			**Analog input channel 1, group 3**
	CCU60_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS2NB			**Negative analog input channel 2, pin B**
K1	AN32/P40.4	I	S / HighZ / VDDM	**Analog Input 32**
	SENT_SENT4A			**Receive input channel 4**
	EVADC_G8CH0			**Analog input channel 0, group 8**
	CCU60_CCPOS2D			**Hall capture input 2**
K2	AN33/P40.5	I	S / HighZ / VDDM	**Analog Input 33**
	SENT_SENT5A			**Receive input channel 5**
	EVADC_G8CH1			**Analog input channel 1, group 8**
	CCU61_CCPOS0D			**Hall capture input 0**
K3	AN34	I	D / HighZ / VDDM	**Analog Input 34**
	EVADC_G8CH2			**Analog input channel 2, group 8**
K4	AN35	I	D / HighZ / VDDM	**Analog Input 35**
	EVADC_G8CH3			**Analog input channel 3, group 8**
J1	AN36/P40.6	I	S / HighZ / VDDM	**Analog Input 36**
	SENT_SENT6A			**Receive input channel 6**
	EVADC_G8CH4			**Analog input channel 4, group 8**
	CCU61_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS1PA			**Positive analog input channel 1, pin A**

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Table 2-31 Analog Inputs (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
J2	AN37/P40.7	I	S / HighZ / VDDM	**Analog Input 37**
	SENT_SENT7A			**Receive input channel 7**
	EVADC_G8CH5			**Analog input channel 5, group 8**
	CCU61_CCPOS1D			**Hall capture input 1**
	EDSADC_EDS1NA			**Negative analog input channel 1, pin A**
J3	AN38/P40.8	I	S / HighZ / VDDM	**Analog Input 38**
	SENT_SENT8A			**Receive input channel 8**
	EVADC_G8CH6			**Analog input channel 6, group 8**
	CCU61_CCPOS2B			**Hall capture input 2**
	EDSADC_EDS1PB			**Positive analog input channel 1, pin B**
J4	AN39/P40.9	I	S / HighZ / VDDM	**Analog Input 39**
	SENT_SENT9A			**Receive input channel 9**
	EVADC_G8CH7			**Analog input channel 7, group 8**
	CCU61_CCPOS2D			**Hall capture input 2**
	EDSADC_EDS1NB			**Negative analog input channel 1, pin B**

Note: Port Pins P32.0 and P32.1 are bidirectional pads and are having the following two functionalities implemented:

3. *In case the pins are used as standard GPIOs the functions defined in the pin configuration tables of P32.0 and P32.1 are available.*
4. *In case the pins are used as pre-drivers for external MOSFETs (internal DCDC usecase) P32.0 and P32.1 act as analog IOs named VGATE1N and VGATE1P.*

Table 2-32 System I/O

Ball	Symbol	Ctrl.	Buffer Type	Function
P12	VGATE1N	O	—	**DCDC N ch. MOSFET gate driver output** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
N12	VGATE1P	O	—	**DCDC P ch. MOSFET gate driver output** P32.1 / External Pass Device gate control for EVRC
L14	XTAL1	I	XTAL / VEXT	**XTAL pad1** XTAL1. Main Oscillator/PLL/Clock Generator Input.
L13	XTAL2	O	XTAL / VEXT	**XTAL pad2** XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
G11	TMS	I	FAST / PD2 / VEXT	**JTAG Module State Machine Control Input**
	DAP1	I/O		**DAP: DAP1 Data I/O**

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Table 2-32 System I/O (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
K12	$\overline{\text{TRST}}$	I	FAST / PU2 / VEXT	**JTAG Module Reset/Enable Input**
G14	TCK	I	FAST / PD2 / VEXT	**JTAG Module Clock Input**
	DAP0	I		**DAP: DAP0 Clock Input**
E11	$\overline{\text{ESR1}}$	I/O	FAST / PU1 / VEXT	**ESR1 Port Pin input - can be used to trigger a reset or an NMI** ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR1WKP	I		**ESR1 pin input**
E13	$\overline{\text{PORST}}$	I/O	PORST / PD / VEXT	**PORST pin** Power On Reset Input. Additional strong PD in case of power fail.
E14	$\overline{\text{ESR0}}$	I/O	FAST / OD / VEXT	**ESR0 Port Pin input - can be used to trigger a reset or an NMI** ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR0WKP	I		**ESR0 pin input**

Table 2-33 Supply

Ball	Symbol	Ctrl.	Buffer Type	Function
P3	VDDM	I	—	**ADC Analog Power Supply (5V / 3.3V)**
D5	VFLEX	I	—	**Digital Power Supply for Flex Port Pads (5V / 3.3V)**
F9, G9, H6, J7, J8	VDD	I	—	**Digital Core Power Supply (1.25V)**
F6, F8, G6, J9, P11	VEXT	I	—	**External Power Supply (5V / 3.3V)**
F7	VDDP3	I	—	**Flash Power Supply (3.3V)**
B2, C3, D4, E5, K10, L11, M12, N13	VSS	I	—	**Digital Ground**

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Table 2-33 Supply (cont'd)

Ball	Symbol	Ctrl.	Buffer Type	Function
B13, C12, D11, E10, G7, G8, H7, H8, J6, K5	VSS	I	—	**Digital Ground**
K14	VSS	I	—	**Oscillator Ground**
P4	VAREF1	I	—	**Positive Analog Reference Voltage 1**
A1, A14, L3, M7, N7, P1, P7, P14	NC	I	—	**Not connected. These pins are reserved for future extensions and shall not be connected externally**
H9	VEVRSB	I	—	**Standby Power Supply (5V / 3.3V) for the Standby SRAM**
M13	VDD	I	—	**Digital Power Supply for Oscillator (1.25V)**
M14	VEXT	I	—	**Digital Power Supply for Oscillator (shall be supplied with same level as used for VEXT)**
P2	VSSM/VAGND1	I	—	**Analog Ground for VDDM / Negative Analog Reference Voltage 1**

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2.3 LQFP-176 Package Variant Pin Configuration of TC36x

Note: In the following QFP package the VFLEX supply is internally connected to VEXT supply and thus does not show up in the corresponding package drawings neither supply tables as a dedicated pin.

Table 2-34 Port 00 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
11	P00.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_1			**Mux input channel 0 of TIM module 2**
	CCU61_CTRAPA			**Trap input capture**
	CCU60_T12HRE			**External timer start 12**
	MSC0_INJ0			**Injection signal from port**
	GETH_MDIOA			**MDIO Input**
	P00.0	O0		**General-purpose output**
	GTM_TOUT9	O1		**GTM muxed output**
	IOM_REF0_9			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN10_TXD	O5		**CAN transmit output node 0**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	GETH_MDIO	O		**MDIO Output**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
12	P00.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_1			**Mux input channel 1 of TIM module 2**
	CCU60_CC60INB			**T12 capture input 60**
	ASCLIN3_ARXE			**Receive input**
	CAN10_RXDA			**CAN receive input node 0**
	PSI5_RX0A			**RXD inputs (receive data) channel 0**
	CCU61_CC60INA			**T12 capture input 60**
	SENT_SENT0B			**Receive input channel 0**
	EVADC_G9CH11	AI		**Analog input channel 11, group 9**
	P00.1	O0		**General-purpose output**
	GTM_TOUT10	O1		**GTM muxed output**
	IOM_REF0_10			**Reference input 0**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC0	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
13	P00.2	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN1_2			**Mux input channel 1 of TIM module 2**
	SENT_SENT1B			**Receive input channel 1**
	EVADC_G9CH10	AI		**Analog input channel 10, group 9**
	P00.2	O0		**General-purpose output**
	GTM_TOUT11	O1		**GTM muxed output**
	IOM_REF0_11			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	QSPI3_SLSO4	O6		**Master slave select output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
14	P00.3	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN2_1			**Mux input channel 2 of TIM module 2**
	CCU60_CC61INB			**T12 capture input 61**
	EDSADC_DSCIN3A			**Modulator clock input, channel 3**
	PSI5_RX1A			**RXD inputs (receive data) channel 1**
	CAN03_RXDA			**CAN receive input node 3**
	PSI5S_RXA			**RX data input**
	SENT_SENT2B			**Receive input channel 2**
	CCU61_CC61INA			**T12 capture input 61**
	EVADC_G9CH9	AI		**Analog input channel 9, group 9**
	P00.3	O0		**General-purpose output**
	GTM_TOUT12	O1		**GTM muxed output**
	IOM_REF0_12			**Reference input 0**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	—	O5		**Reserved**
	SENT_SPC2	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
15	P00.4	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN3_1			**Mux input channel 3 of TIM module 2**
	SCU_E_REQ2_2			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	SENT_SENT3B			**Receive input channel 3**
	EDSADC_DSDIN3A			**Digital datastream input, channel 3**
	EDSADC_SGNA			**Carrier sign signal input**
	ASCLIN10_ARXA			**Receive input**
	EVADC_G9CH8	AI		**Analog input channel 8, group 9**
	P00.4	O0		**General-purpose output**
	GTM_TOUT13	O1		**GTM muxed output**
	IOM_REF0_13			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	CAN11_TXD	O3		**CAN transmit output node 1**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	—	O5		**Reserved**
	SENT_SPC3	O6		**Transmit output**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
16	P00.5	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN4_1			**Mux input channel 4 of TIM module 2**
	CCU60_CC62INB			**T12 capture input 62**
	EDSADC_DSCIN2A			**Modulator clock input, channel 2**
	CCU61_CC62INA			**T12 capture input 62**
	SENT_SENT4B			**Receive input channel 4**
	CAN11_RXDB			**CAN receive input node 1**
	GTM_DTMT1_1			**CDTM1_DTM0**
	EVADC_G9CH7	AI		**Analog input channel 7, group 9**
	P00.5	O0		**General-purpose output**
	GTM_TOUT14	O1		**GTM muxed output**
	IOM_REF0_14			**Reference input 0**
	EDSADC_CGPWMN	O2		**Negative carrier generator output**
	QSPI3_SLSO3	O3		**Master slave select output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_FC0BFLOUT	O5		**Boundary flag output, FC channel 0**
	SENT_SPC4	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
17	P00.6	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN5_1			**Mux input channel 5 of TIM module 2**
	EDSADC_DSDIN2A			**Digital datastream input, channel 2**
	SENT_SENT5B			**Receive input channel 5**
	ASCLIN5_ARXA			**Receive input**
	EVADC_G9CH6	AI		**Analog input channel 6, group 9**
	P00.6	O0		**General-purpose output**
	GTM_TOUT15	O1		**GTM muxed output**
	IOM_REF0_15			**Reference input 0**
	EDSADC_CGPWMP	O2		**Positive carrier generator output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC5	O6		**Transmit output**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
18	P00.7	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN6_1			**Mux input channel 6 of TIM module 2**
	CCU61_CC60INC			**T12 capture input 60**
	SENT_SENT6B			**Receive input channel 6**
	GPT120_T2INA			**Trigger/gate input of timer T2**
	CCU61_CCPOS0A			**Hall capture input 0**
	CCU60_T12HRB			**External timer start 12**
	GTM_DTMT0_2			**CDTM0_DTM0**
	EVADC_G9CH5	AI		**Analog input channel 5, group 9**
	P00.7	O0		**General-purpose output**
	GTM_TOUT16	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC6	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**
19	P00.8	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN7_1			**Mux input channel 7 of TIM module 2**
	CCU61_CC61INC			**T12 capture input 61**
	SENT_SENT7B			**Receive input channel 7**
	GPT120_T2EUDA			**Count direction control input of timer T2**
	CCU61_CCPOS1A			**Hall capture input 1**
	CCU60_T13HRB			**External timer start 13**
	ASCLIN10_ARXB			**Receive input**
	EVADC_G9CH4	AI		**Analog input channel 4, group 9**
	P00.8	O0		**General-purpose output**
	GTM_TOUT17	O1		**GTM muxed output**
	QSPI3_SLSO6	O2		**Master slave select output**
	ASCLIN10_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC7	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
20	P00.9	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN0_1			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_1			**Mux input channel 0 of TIM module 0**
	CCU61_CC62INC			**T12 capture input 62**
	SENT_SENT8B			**Receive input channel 8**
	CCU61_CCPOS2A			**Hall capture input 2**
	EDSADC_DSCIN1A			**Modulator clock input, channel 1**
	EDSADC_ITR3F			**Trigger/Gate input, channel 3**
	GPT120_T4EUDA			**Count direction control input of timer T4**
	CCU60_T13HRC			**External timer start 13**
	CCU60_T12HRC			**External timer start 12**
	EVADC_G9CH3	AI		**Analog input channel 3, group 9**
	P00.9	O0		**General-purpose output**
	GTM_TOUT18	O1		**GTM muxed output**
	QSPI3_SLSO7	O2		**Master slave select output**
	ASCLIN3_ARTS	O3		**Ready to send output**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	ASCLIN4_ATX	O5		**Transmit output**
	SENT_SPC8	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
21	P00.10	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN1_1			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_1			**Mux input channel 1 of TIM module 0**
	SENT_SENT9B			**Receive input channel 9**
	EDSADC_DSDIN1A			**Digital datastream input, channel 1**
	EVADC_G9CH2	AI		**Analog input channel 2, group 9**
	P00.10	O0		**General-purpose output**
	GTM_TOUT19	O1		**GTM muxed output**
	ASCLIN4_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC9	O6		**Transmit output**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-34 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
22	P00.11	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN2_1			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_1			**Mux input channel 2 of TIM module 0**
	CCU60_CTRAPA			**Trap input capture**
	EDSADC_DSCIN0A			**Modulator clock input, channel 0**
	CCU61_T12HRE			**External timer start 12**
	EVADC_G9CH1	AI		**Analog input channel 1, group 9**
	P00.11	O0		**General-purpose output**
	GTM_TOUT20	O1		**GTM muxed output**
	ASCLIN4_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
23	P00.12	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN3_1			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_1			**Mux input channel 3 of TIM module 0**
	ASCLIN3_ACTSA			**Clear to send input**
	EDSADC_DSDIN0A			**Digital datastream input, channel 0**
	ASCLIN4_ARXA			**Receive input**
	EVADC_G9CH0	AI		**Analog input channel 0, group 9**
	P00.12	O0		**General-purpose output**
	GTM_TOUT21	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-35 Port 02 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
1	P02.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_2			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_2			**Mux input channel 0 of TIM module 0**
	CCU61_CC60INB			**T12 capture input 60**
	ASCLIN2_ARXG			**Receive input**
	CCU60_CC60INA			**T12 capture input 60**
	SCU_E_REQ3_2			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GTM_DTMA0_0			**CDTM0_DTM4**
	P02.0	O0		**General-purpose output**
	GTM_TOUT0	O1		**GTM muxed output**
	IOM_REF0_0			**Reference input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO1	O3		**Master slave select output**
	EDSADC_CGPWMN	O4		**Negative carrier generator output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
2	P02.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_2			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_2			**Mux input channel 1 of TIM module 0**
	ERAY0_RXDA2			**Receive Channel A2**
	ASCLIN2_ARXB			**Receive input**
	CAN00_RXDA			**CAN receive input node 0**
	SCU_E_REQ2_1			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P02.1	O0		**General-purpose output**
	GTM_TOUT1	O1		**GTM muxed output**
	IOM_REF0_1			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SLSO2	O3		**Master slave select output**
	EDSADC_CGPWMP	O4		**Positive carrier generator output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
3	P02.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_2			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_2			**Mux input channel 2 of TIM module 0**
	CCU61_CC61INB			**T12 capture input 61**
	CCU60_CC61INA			**T12 capture input 61**
	P02.2	O0		**General-purpose output**
	GTM_TOUT2	O1		**GTM muxed output**
	IOM_REF0_2			**Reference input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI3_SLSO3	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDB	O6		**Transmit Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
4	P02.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_2			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_2			**Mux input channel 3 of TIM module 0**
	ERAY0_RXDB2			**Receive Channel B2**
	CAN02_RXDB			**CAN receive input node 2**
	ASCLIN1_ARXG			**Receive input**
	PSI5_RX0B			**RXD inputs (receive data) channel 0**
	P02.3	O0		**General-purpose output**
	GTM_TOUT3	O1		**GTM muxed output**
	IOM_REF0_3			**Reference input 0**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI3_SLSO4	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
5	P02.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_1			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_1			**Mux input channel 4 of TIM module 0**
	CCU61_CC62INB			**T12 capture input 62**
	QSPI3_SLSIA			**Slave select input**
	CCU60_CC62INA			**T12 capture input 62**
	I2C0_SDAA			**Serial Data Input 0**
	CAN11_RXDA			**CAN receive input node 1**
	CAN0_ECTT1			**External CAN time trigger input**
	P02.4	O0		**General-purpose output**
	GTM_TOUT4	O1		**GTM muxed output**
	IOM_REF0_4			**Reference input 0**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_SLSO0	O3		**Master slave select output**
	PSI5S_CLK	O4		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	I2C0_SDA	O5		**Serial Data Output**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
6	P02.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_1			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_1			**Mux input channel 5 of TIM module 0**
	I2C0_SCLA			**Serial Clock Input 0**
	PSI5_RX1B			**RXD inputs (receive data) channel 1**
	PSI5S_RXB			**RX data input**
	QSPI3_MRSTA			**Master SPI data input**
	SENT_SENT3C			**Receive input channel 3**
	CAN0_ECTT2			**External CAN time trigger input**
	P02.5	O0		**General-purpose output**
	GTM_TOUT5	O1		**GTM muxed output**
	IOM_REF0_5			**Reference input 0**
	CAN11_TXD	O2		**CAN transmit output node 1**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	I2C0_SCL	O5		**Serial Clock Output**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
7	P02.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_1			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_1			**Mux input channel 6 of TIM module 0**
	CCU60_CC60INC			**T12 capture input 60**
	SENT_SENT2C			**Receive input channel 2**
	GPT120_T3INA			**Trigger/gate input of core timer T3**
	CCU60_CCPOS0A			**Hall capture input 0**
	CCU61_T12HRB			**External timer start 12**
	QSPI3_MTSRA			**Slave SPI data input**
	P02.6	O0		**General-purpose output**
	GTM_TOUT6	O1		**GTM muxed output**
	IOM_REF0_6			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	QSPI3_MTSR	O3		**Master SPI data output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
8	P02.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_1			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_1			**Mux input channel 7 of TIM module 0**
	CCU60_CC61INC			**T12 capture input 61**
	SENT_SENT1C			**Receive input channel 1**
	EDSADC_DSCIN3B			**Modulator clock input, channel 3**
	GPT120_T3EUDA			**Count direction control input of core timer T3**
	CCU60_CCPOS1A			**Hall capture input 1**
	QSPI3_SCLKA			**Slave SPI clock inputs**
	CCU61_T13HRB			**External timer start 13**
	P02.7	O0		**General-purpose output**
	GTM_TOUT7	O1		**GTM muxed output**
	IOM_REF0_7			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	SENT_SPC1	O6		**Transmit output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-35 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
9	P02.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_2			**Mux input channel 0 of TIM module 2**
	CCU60_CC62INC			**T12 capture input 62**
	SENT_SENT0C			**Receive input channel 0**
	CCU60_CCPOS2A			**Hall capture input 2**
	EDSADC_DSDIN3B			**Digital datastream input, channel 3**
	EDSADC_ITR3E			**Trigger/Gate input, channel 3**
	GPT120_T4INA			**Trigger/gate input of timer T4**
	CCU61_T12HRC			**External timer start 12**
	CCU61_T13HRC			**External timer start 13**
	GTM_DTMA0_1			**CDTM0_DTM4**
	P02.8	O0		**General-purpose output**
	GTM_TOUT8	O1		**GTM muxed output**
	IOM_REF0_8			**Reference input 0**
	QSPI3_SLSO5	O2		**Master slave select output**
	ASCLIN8_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	GETH_MDC	O6		**MDIO clock**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-36 Port 10 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
168	P10.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_2			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_2			**Mux input channel 4 of TIM module 0**
	GPT120_T6EUDB			**Count direction control input of core timer T6**
	ASCLIN11_ARXA			**Receive input**
	GETH_RXERC			**Receive Error MII**
	P10.0	O0		**General-purpose output**
	GTM_TOUT102	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	QSPI1_SLSO10	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
169	P10.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_3			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_3			**Mux input channel 1 of TIM module 0**
	GPT120_T5EUDB			**Count direction control input of timer T5**
	QSPI1_MRSTA			**Master SPI data input**
	GTM_DTMT0_1			**CDTM0_DTM0**
	P10.1	O0		**General-purpose output**
	GTM_TOUT103	O1		**GTM muxed output**
	QSPI1_MTSR	O2		**Master SPI data output**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	MSC0_EN1	O4		**Chip Select**
	EVADC_FC1BFLOUT	O5		**Boundary flag output, FC channel 1**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-36 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
170	P10.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_3			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_3			**Mux input channel 2 of TIM module 0**
	CAN02_RXDE			**CAN receive input node 2**
	MSC0_SDI1			**Upstream assynchronous input signal**
	QSPI1_SCLKA			**Slave SPI clock inputs**
	GPT120_T6INB			**Trigger/gate input of core timer T6**
	SCU_E_REQ2_0			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P10.2	O0		**General-purpose output**
	GTM_TOUT104	O1		**GTM muxed output**
	IOM_MON2_9			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SCLK	O3		**Master SPI clock output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
171	P10.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_3			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_3			**Mux input channel 3 of TIM module 0**
	QSPI1_MTSRA			**Slave SPI data input**
	SCU_E_REQ3_0			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T5INB			**Trigger/gate input of timer T5**
	P10.3	O0		**General-purpose output**
	GTM_TOUT105	O1		**GTM muxed output**
	IOM_MON2_10			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	CAN02_TXD	O6		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	—	O7		**Reserved**

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Table 2-36 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
172	P10.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_2			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_2			**Mux input channel 6 of TIM module 0**
	QSPI1_MTSRC			**Slave SPI data input**
	CCU60_CCPOS0C			**Hall capture input 0**
	GPT120_T3INB			**Trigger/gate input of core timer T3**
	ASCLIN11_ARXB			**Receive input**
	P10.4	O0		**General-purpose output**
	GTM_TOUT106	O1		**GTM muxed output**
	IOM_MON2_11			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SLSO8	O3		**Master slave select output**
	QSPI1_MTSR	O4		**Master SPI data output**
	MSC0_EN0	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**
173	P10.5	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_4			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_4			**Mux input channel 2 of TIM module 0**
	PMS_HWCFG4IN			**HWCFG4 pin input**
	MSC0_INJ1			**Injection signal from port**
	P10.5	O0		**General-purpose output**
	GTM_TOUT107	O1		**GTM muxed output**
	IOM_REF2_9			**Reference input 2**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO8	O3		**Master slave select output**
	QSPI1_SLSO9	O4		**Master slave select output**
	GPT120_T6OUT	O5		**External output for overflow/underflow detection of core timer T6**
	ASCLIN2_ASLSO	O6		**Slave select signal output**
	—	O7		**Reserved**

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Table 2-36 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
174	P10.6	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_4			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_4			**Mux input channel 3 of TIM module 0**
	ASCLIN2_ARXD			**Receive input**
	QSPI3_MTSRB			**Slave SPI data input**
	PMS_HWCFG5IN			**HWCFG5 pin input**
	P10.6	O0		**General-purpose output**
	GTM_TOUT108	O1		**GTM muxed output**
	IOM_REF2_10			**Reference input 2**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_MTSR	O3		**Master SPI data output**
	GPT120_T3OUT	O4		**External output for overflow/underflow detection of core timer T3**
	—	O5		**Reserved**
	QSPI1_MRST	O6		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	—	O7		**Reserved**
175	P10.7	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_3			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_3			**Mux input channel 0 of TIM module 0**
	GPT120_T3EUDB			**Count direction control input of core timer T3**
	ASCLIN2_ACTSA			**Clear to send input**
	QSPI3_MRSTB			**Master SPI data input**
	SCU_E_REQ0_2			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	CCU60_CCPOS1C			**Hall capture input 1**
	P10.7	O0		**General-purpose output**
	GTM_TOUT109	O1		**GTM muxed output**
	IOM_REF2_11			**Reference input 2**
	—	O2		**Reserved**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	CAN12_TXD	O6		**CAN transmit output node 2**
	—	O7		**Reserved**

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Table 2-36 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
176	P10.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_2			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_2			**Mux input channel 5 of TIM module 0**
	CAN12_RXDB			**CAN receive input node 2**
	GPT120_T4INB			**Trigger/gate input of timer T4**
	QSPI3_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ1_2			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	CCU60_CCPOS2C			**Hall capture input 2**
	P10.8	O0		**General-purpose output**
	GTM_TOUT110	O1		**GTM muxed output**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

Table 2-37 Port 11 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
160	P11.2	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_3			**Mux input channel 1 of TIM module 2**
	P11.2	O0		**General-purpose output**
	GTM_TOUT95	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO5	O3		**Master slave select output**
	QSPI1_SLSO5	O4		**Master slave select output**
	MSC0_EN1	O5		**Chip Select**
	GETH_TXD1	O6		**Transmit Data**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**

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Table 2-37 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
161	P11.3	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_2			**Mux input channel 2 of TIM module 2**
	MSC0_SDI3			**Upstream assynchronous input signal**
	QSPI1_MRSTB			**Master SPI data input**
	P11.3	O0		**General-purpose output**
	GTM_TOUT96	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	ERAY0_TXDA	O4		**Transmit Channel A**
	—	O5		**Reserved**
	GETH_TXD0	O6		**Transmit Data**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**
162	P11.6	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_2			**Mux input channel 3 of TIM module 2**
	QSPI1_SCLKB			**Slave SPI clock inputs**
	P11.6	O0		**General-purpose output**
	GTM_TOUT97	O1		**GTM muxed output**
	ERAY0_TXENB	O2		**Transmit Enable Channel B**
	QSPI1_SCLK	O3		**Master SPI clock output**
	ERAY0_TXENA	O4		**Transmit Enable Channel A**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	GETH_TXEN	O6		**Transmit Enable MII and RMII**
	GETH_TCTL			**Transmit Control for RGMII**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-37 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
163	P11.9	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_2			**Mux input channel 4 of TIM module 2**
	QSPI1_MTSRB			**Slave SPI data input**
	ERAY0_RXDA1			**Receive Channel A1**
	GETH_RXD1A			**Receive Data 1 MII, RMII and RGMII (RGMII can use RXD1A only)**
	P11.9	O0		**General-purpose output**
	GTM_TOUT98	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
165	P11.10	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_2			**Mux input channel 5 of TIM module 2**
	GTM_TIM2_IN0_9			**Mux input channel 0 of TIM module 2**
	CAN03_RXDD			**CAN receive input node 3**
	ERAY0_RXDB1			**Receive Channel B1**
	ASCLIN1_ARXE			**Receive input**
	SCU_E_REQ6_3			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	MSC0_SDI0			**Upstream assynchronous input signal**
	GETH_RXD0A			**Receive Data 0 MII, RMII and RGMII (RGMII can use RXD0A only)**
	QSPI1_SLSIA			**Slave select input**
	P11.10	O0		**General-purpose output**
	GTM_TOUT99	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO3	O3		**Master slave select output**
	QSPI1_SLSO3	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-37 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
166	P11.11	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_2			**Mux input channel 6 of TIM module 2**
	GETH_CRSDVA			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVA			**Receive Data Valid MII**
	GETH_CRSB			**Carrier Sense MII**
	GETH_RCTLA			**Receive Control for RGMII**
	P11.11	O0		**General-purpose output**
	GTM_TOUT100	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO4	O3		**Master slave select output**
	QSPI1_SLSO4	O4		**Master slave select output**
	MSC0_EN0	O5		**Chip Select**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
167	P11.12	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_2			**Mux input channel 7 of TIM module 2**
	GETH_REFCLKA			**Reference Clock input for RMII (50 MHz)**
	GETH_TXCLKB			**Transmit Clock Input for MII**
	GETH_RXCLKA			**Receive Clock MII**
	P11.12	O0		**General-purpose output**
	GTM_TOUT101	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	GTM_CLK2	O3		**CGM generated clock**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-38 Port 13 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
156	P13.0	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN5_3			Mux input channel 5 of TIM module 2
	ASCLIN10_ARXC			Receive input
	P13.0	O0		General-purpose output
	GTM_TOUT91	O1		GTM muxed output
	ASCLIN10_ATX	O2		Transmit output
	QSPI2_SCLKN	O3		Master SPI clock output (LVDS N line)
	MSC0_EN1	O4		Chip Select
	MSC0_FCLN	O5		Shift-clock inverted part of the differential signal
	—	O6		Reserved
	CAN10_TXD	O7		CAN transmit output node 0
157	P13.1	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN6_3			Mux input channel 6 of TIM module 2
	I2C0_SCLB			Serial Clock Input 1
	CAN10_RXDD			CAN receive input node 0
	ASCLIN10_ARXD			Receive input
	P13.1	O0		General-purpose output
	GTM_TOUT92	O1		GTM muxed output
	—	O2		Reserved
	QSPI2_SCLKP	O3		Master SPI clock output (LVDS P line)
	—	O4		Reserved
	MSC0_FCLP	O5		Shift-clock direct part of the differential signal
	I2C0_SCL	O6		Serial Clock Output
	—	O7		Reserved
158	P13.2	I	LVDS_TX / FAST / PU1 / VEXT / ES6	General-purpose input
	GTM_TIM2_IN7_3			Mux input channel 7 of TIM module 2
	GPT120_CAPINA			Trigger input to capture value of timer T5 into CAPREL register
	I2C0_SDAB			Serial Data Input 1
	P13.2	O0		General-purpose output
	GTM_TOUT93	O1		GTM muxed output
	ASCLIN10_ASCLK	O2		Shift clock output
	QSPI2_MTSRN	O3		Master SPI data output (LVDS N line)
	MSC0_FCLP	O4		Shift-clock direct part of the differential signal
	MSC0_SON	O5		Data output - inverted part of the differential signal
	I2C0_SDA	O6		Serial Data Output
	—	O7		Reserved

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Table 2-38 Port 13 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
159	P13.3	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN0_3			**Mux input channel 0 of TIM module 2**
	P13.3	O0		**General-purpose output**
	GTM_TOUT94	O1		**GTM muxed output**
	ASCLIN10_ASLSO	O2		**Slave select signal output**
	QSPI2_MTSRP	O3		**Master SPI data output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	—	O7		**Reserved**

Table 2-39 Port 14 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
142	P14.0	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN3_5			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_5			**Mux input channel 3 of TIM module 0**
	P14.0	O0		**General-purpose output**
	GTM_TOUT80	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	ERAY0_TXDA	O3		**Transmit Channel A**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-39 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
143	P14.1	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN4_3			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_3			**Mux input channel 4 of TIM module 0**
	ERAY0_RXDA3			**Receive Channel A3**
	ASCLIN0_ARXA			**Receive input**
	ERAY0_RXDB3			**Receive Channel B3**
	CAN01_RXDB			**CAN receive input node 1**
	SCU_E_REQ3_1			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	PMS_PINAWKP			**PINA (P14.1) pin input**
	P14.1	O0		**General-purpose output**
	GTM_TOUT81	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
144	P14.2	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_3			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_3			**Mux input channel 5 of TIM module 0**
	PMS_HWCFG2IN			**HWCFG2 pin input**
	P14.2	O0		**General-purpose output**
	GTM_TOUT82	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO1	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN2_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-39 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
145	P14.3	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_3			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_3			**Mux input channel 6 of TIM module 0**
	PMS_HWCFG3IN			**HWCFG3 pin input**
	ASCLIN2_ARXA			**Receive input**
	MSC0_SDI2			**Upstream assynchronous input signal**
	SCU_E_REQ1_0			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P14.3	O0		**General-purpose output**
	GTM_TOUT83	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO3	O3		**Master slave select output**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	ASCLIN3_ASLSO	O5		**Slave select signal output**
	—	O6		**Reserved**
	—	O7		**Reserved**
146	P14.4	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_2			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_2			**Mux input channel 7 of TIM module 0**
	PMS_HWCFG6IN			**HWCFG6 pin input**
	GTM_DTMT0_0			**CDTM0_DTM0**
	P14.4	O0		**General-purpose output**
	GTM_TOUT84	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_PPS	O6		**Pulse Per Second**
	—	O7		**Reserved**

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Table 2-39 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
147	P14.5	I	FAST / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_4			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_4			**Mux input channel 0 of TIM module 0**
	PMS_HWCFG1IN			**HWCFG1 pin input**
	GTM_DTMA2_0			**CDTM2_DTM4**
	P14.5	O0		**General-purpose output**
	GTM_TOUT85	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ERAY0_TXDB	O6		**Transmit Channel B**
	—	O7		**Reserved**
148	P14.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_4			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_4			**Mux input channel 1 of TIM module 0**
	P14.6	O0		**General-purpose output**
	GTM_TOUT86	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SLSO2	O3		**Master slave select output**
	CAN13_TXD	O4		**CAN transmit output node 3**
	—	O5		**Reserved**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	—	O7		**Reserved**

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Table 2-39 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
149	P14.7	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_5			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_5			**Mux input channel 0 of TIM module 0**
	ERAY0_RXDB0			**Receive Channel B0**
	CAN10_RXDB			**CAN receive input node 0**
	CAN13_RXDA			**CAN receive input node 3**
	ASCLIN9_ARXC			**Receive input**
	P14.7	O0		**General-purpose output**
	GTM_TOUT87	O1		**GTM muxed output**
	ASCLIN0_ARTS	O2		**Ready to send output**
	QSPI2_SLSO4	O3		**Master slave select output**
	ASCLIN9_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
150	P14.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_3			**Mux input channel 2 of TIM module 2**
	ERAY0_RXDA0			**Receive Channel A0**
	CAN02_RXDD			**CAN receive input node 2**
	ASCLIN1_ARXD			**Receive input**
	P14.8	O0		**General-purpose output**
	GTM_TOUT88	O1		**GTM muxed output**
	ASCLIN5_ASLSO	O2		**Slave select signal output**
	ASCLIN7_ASLSO	O3		**Slave select signal output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-39 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
151	P14.9	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_3			**Mux input channel 3 of TIM module 2**
	ASCLIN0_ACTSA			**Clear to send input**
	QSPI2_MRSTFN			**Master SPI data input (LVDS N line)**
	ASCLIN9_ARXD			**Receive input**
	P14.9	O0		**General-purpose output**
	GTM_TOUT89	O1		**GTM muxed output**
	—	O2		**Reserved**
	MSC0_EN1	O3		**Chip Select**
	CAN10_TXD	O4		**CAN transmit output node 0**
	ERAY0_TXENB	O5		**Transmit Enable Channel B**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	—	O7		**Reserved**
152	P14.10	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_3			**Mux input channel 4 of TIM module 2**
	QSPI2_MRSTFP			**Master SPI data input (LVDS P line)**
	P14.10	O0		**General-purpose output**
	GTM_TOUT90	O1		**GTM muxed output**
	—	O2		**Reserved**
	MSC0_EN0	O3		**Chip Select**
	ASCLIN1_ATX	O4		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	—	O7		**Reserved**

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Table 2-40 Port 15 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
133	P15.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_4			**Mux input channel 3 of TIM module 2**
	P15.0	O0		**General-purpose output**
	GTM_TOUT71	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO13	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
134	P15.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_4			**Mux input channel 4 of TIM module 2**
	CAN02_RXDA			**CAN receive input node 2**
	ASCLIN1_ARXA			**Receive input**
	QSPI2_SLSIB			**Slave select input**
	SCU_E_REQ7_2			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.1	O0		**General-purpose output**
	GTM_TOUT72	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_SLSO5	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-40 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
135	P15.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_4			**Mux input channel 5 of TIM module 2**
	QSPI2_SLSIA			**Slave select input**
	QSPI2_MRSTE			**Master SPI data input**
	P15.2	O0		**General-purpose output**
	GTM_TOUT73	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SLSO0	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
136	P15.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_4			**Mux input channel 6 of TIM module 2**
	CAN01_RXDA			**CAN receive input node 1**
	ASCLIN0_ARXB			**Receive input**
	QSPI2_SCLKA			**Slave SPI clock inputs**
	P15.3	O0		**General-purpose output**
	GTM_TOUT74	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	MSC0_EN1	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-40 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
137	P15.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_4			**Mux input channel 7 of TIM module 2**
	I2C0_SCLC			**Serial Clock Input 2**
	QSPI2_MRSTA			**Master SPI data input**
	SCU_E_REQ0_0			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.4	O0		**General-purpose output**
	GTM_TOUT75	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	I2C0_SCL	O6		**Serial Clock Output**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-40 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
138	P15.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_4			**Mux input channel 0 of TIM module 2**
	ASCLIN1_ARXB			**Receive input**
	I2C0_SDAC			**Serial Data Input 2**
	QSPI2_MTSRA			**Slave SPI data input**
	SCU_E_REQ4_3			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.5	O0		**General-purpose output**
	GTM_TOUT76	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_EN0	O5		**Chip Select**
	I2C0_SDA	O6		**Serial Data Output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
139	P15.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_14			**Mux input channel 2 of TIM module 2**
	GTM_TIM1_IN0_6			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_6			**Mux input channel 0 of TIM module 0**
	QSPI2_MTSRB			**Slave SPI data input**
	P15.6	O0		**General-purpose output**
	GTM_TOUT77	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	QSPI2_SCLK	O5		**Master SPI clock output**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-40 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
140	P15.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_5			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_5			**Mux input channel 1 of TIM module 0**
	ASCLIN3_ARXA			**Receive input**
	QSPI2_MRSTB			**Master SPI data input**
	P15.7	O0		**General-purpose output**
	GTM_TOUT78	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
141	P15.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_5			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_5			**Mux input channel 2 of TIM module 0**
	QSPI2_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ5_0			**ERU Channel 5 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.8	O0		**General-purpose output**
	GTM_TOUT79	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-41 Port 20 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
116	P20.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_7			**Mux input channel 6 of TIM module 1**
	GTM_TIM1_IN4_9			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN6_7			**Mux input channel 6 of TIM module 0**
	CAN03_RXDC			**CAN receive input node 3**
	CCU_PAD_SYSCLK			**Sysclk input**
	CBS_TGI0			**Trigger input**
	SCU_E_REQ6_0			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T6EUDA			**Count direction control input of core timer T6**
	P20.0	O0		**General-purpose output**
	GTM_TOUT59	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	HSCT0_SYSCLK_OUT	O5		**sys clock output**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO0	O		**Trigger output**
117	P20.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_5			**Mux input channel 3 of TIM module 2**
	CBS_TGI1			**Trigger input**
	GTM_DTMA1_1			**CDTM1_DTM4**
	P20.1	O0		**General-purpose output**
	GTM_TOUT60	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO1	O		**Trigger output**
118	P20.2	I	S / PU / VEXT	**General-purpose input** This pin is latched at power on reset release to enter test mode.
	$\overline{\text{TESTMODE}}$			**Testmode Enable Input**

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Table 2-41 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
119	P20.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_5			**Mux input channel 4 of TIM module 2**
	ASCLIN3_ARXC			**Receive input**
	GPT120_T6INA			**Trigger/gate input of core timer T6**
	P20.3	O0		**General-purpose output**
	GTM_TOUT61	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI0_SLSO9	O3		**Master slave select output**
	QSPI2_SLSO9	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
124	P20.6	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_5			**Mux input channel 6 of TIM module 2**
	CAN12_RXDA			**CAN receive input node 2**
	ASCLIN9_ARXE			**Receive input**
	P20.6	O0		**General-purpose output**
	GTM_TOUT62	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	QSPI0_SLSO8	O3		**Master slave select output**
	QSPI2_SLSO8	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-41 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
125	P20.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_5			**Mux input channel 7 of TIM module 2**
	GTM_TIM1_IN5_8			**Mux input channel 5 of TIM module 1**
	CAN00_RXDB			**CAN receive input node 0**
	ASCLIN1_ACTSA			**Clear to send input**
	ASCLIN9_ARXF			**Receive input**
	P20.7	O0		**General-purpose output**
	GTM_TOUT63	O1		**GTM muxed output**
	ASCLIN9_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**
126	P20.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_3			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_3			**Mux input channel 7 of TIM module 0**
	P20.8	O0		**General-purpose output**
	GTM_TOUT64	O1		**GTM muxed output**
	ASCLIN1_ASLSO	O2		**Slave select signal output**
	QSPI0_SLSO0	O3		**Master slave select output**
	QSPI1_SLSO0	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-41 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
127	P20.9	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_5			**Mux input channel 5 of TIM module 2**
	CAN03_RXDE			**CAN receive input node 3**
	ASCLIN1_ARXC			**Receive input**
	QSPI0_SLSIB			**Slave select input**
	SCU_E_REQ7_0			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P20.9	O0		**General-purpose output**
	GTM_TOUT65	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO1	O3		**Master slave select output**
	QSPI1_SLSO1	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**
128	P20.10	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_6			**Mux input channel 6 of TIM module 2**
	P20.10	O0		**General-purpose output**
	GTM_TOUT66	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO6	O3		**Master slave select output**
	QSPI2_SLSO7	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-41 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
129	P20.11	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_6			**Mux input channel 7 of TIM module 2**
	QSPI0_SCLKA			**Slave SPI clock inputs**
	P20.11	O0		**General-purpose output**
	GTM_TOUT67	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
130	P20.12	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_5			**Mux input channel 0 of TIM module 2**
	QSPI0_MRSTA			**Master SPI data input**
	IOM_PIN_13			**GPIO pad input to FPC**
	P20.12	O0		**General-purpose output**
	GTM_TOUT68	O1		**GTM muxed output**
	IOM_MON0_13			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MRST	O3		**Slave SPI data output**
	IOM_MON2_0			**Monitor input 2**
	IOM_REF2_0			**Reference input 2**
	QSPI0_MTSR	O4		**Master SPI data output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-41 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
131	P20.13	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_4			**Mux input channel 1 of TIM module 2**
	QSPI0_SLSIA			**Slave select input**
	IOM_PIN_14			**GPIO pad input to FPC**
	P20.13	O0		**General-purpose output**
	GTM_TOUT69	O1		**GTM muxed output**
	IOM_MON0_14			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_SLSO2	O3		**Master slave select output**
	QSPI1_SLSO2	O4		**Master slave select output**
	QSPI0_SCLK	O5		**Master SPI clock output**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
132	P20.14	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_4			**Mux input channel 2 of TIM module 2**
	QSPI0_MTSRA			**Slave SPI data input**
	IOM_PIN_15			**GPIO pad input to FPC**
	DMU_FDEST			**Enter destructive debug mode**
	P20.14	O0		**General-purpose output**
	GTM_TOUT70	O1		**GTM muxed output**
	IOM_MON0_15			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-42 Port 21 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
105	P21.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_6			**Mux input channel 4 of TIM module 2**
	ASCLIN11_ARXC			**Receive input**
	P21.0	O0		**General-purpose output**
	GTM_TOUT51	O1		**GTM muxed output**
	ASCLIN11_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSM_HSM1	O		**Pin Output Value**
106	P21.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_6			**Mux input channel 5 of TIM module 2**
	ASCLIN11_ARXD			**Receive input**
	P21.1	O0		**General-purpose output**
	GTM_TOUT52	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSM_HSM2	O		**Pin Output Value**

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Table 2-42 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
107	P21.2	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_7			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_7			**Mux input channel 0 of TIM module 0**
	QSPI2_MRSTCN			**Master SPI data input (LVDS N line)**
	SCU_EMGSTOP_PORT_B			**Emergency stop Port Pin B input request**
	ASCLIN3_ARXGN			**Differential Receive input (low active)**
	HSCT0_RXDN			**Rx data**
	ASCLIN11_ARXE			**Receive input**
	GTM_DTMA1_0			**CDTM1_DTM4**
	P21.2	O0		**General-purpose output**
	GTM_TOUT53	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	GETH_MDC	O5		**MDIO clock**
	—	O6		**Reserved**
	—	O7		**Reserved**
108	P21.3	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_6			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_6			**Mux input channel 1 of TIM module 0**
	QSPI2_MRSTCP			**Master SPI data input (LVDS P line)**
	ASCLIN3_ARXGP			**Differential Receive input (high active)**
	GETH_MDIOD			**MDIO Input**
	HSCT0_RXDP			**Rx data**
	P21.3	O0		**General-purpose output**
	GTM_TOUT54	O1		**GTM muxed output**
	ASCLIN11_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**

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Table 2-42 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
109	P21.4	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN2_6			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_6			**Mux input channel 2 of TIM module 0**
	P21.4	O0		**General-purpose output**
	GTM_TOUT55	O1		**GTM muxed output**
	ASCLIN11_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDN	O		**Tx data**
110	P21.5	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_6			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_6			**Mux input channel 3 of TIM module 0**
	ASCLIN11_ARXF			**Receive input**
	P21.5	O0		**General-purpose output**
	GTM_TOUT56	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN11_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDP	O		**Tx data**

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Table 2-42 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
111	P21.6/TDI	I	FAST / PD / PU2 / VEXT / ES3	**General-purpose input** PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
	GTM_TIM1_IN4_8			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_8			**Mux input channel 4 of TIM module 0**
	GPT120_T5EUDA			**Count direction control input of timer T5**
	ASCLIN3_ARXF			**Receive input**
	CBS_TGI2			**Trigger input**
	TDI			**JTAG Module Data Input**
	P21.6	O0		**General-purpose output**
	GTM_TOUT57	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T3OUT	O7		**External output for overflow/underflow detection of core timer T3**
	CBS_TGO2	O		**Trigger output**
	DAP3	I/O		**DAP: DAP3 Data I/O**

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Table 2-42 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
113	P21.7/TDO	I	FAST / PU2 / VEXT / ES4	**General-purpose input**
	GTM_TIM1_IN5_7			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_7			**Mux input channel 5 of TIM module 0**
	GPT120_T5INA			**Trigger/gate input of timer T5**
	CBS_TGI3			**Trigger input**
	GETH_RXERB			**Receive Error MII**
	P21.7	O0		**General-purpose output**
	GTM_TOUT58	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T6OUT	O7		**External output for overflow/underflow detection of core timer T6**
	CBS_TGO3	O		**Trigger output**
	DAP2	I/O		**DAP: DAP2 Data I/O**
	TDO	O		**JTAG Module Data Output**

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Table 2-43 Port 22 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
95	P22.0	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN1_7			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_7			**Mux input channel 1 of TIM module 0**
	ASCLIN6_ARXE			**Receive input**
	QSPI3_MTSRD			**Slave SPI data input**
	P22.0	O0		**General-purpose output**
	GTM_TOUT47	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN6_ATX	O7		**Transmit output**
96	P22.1	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN0_8			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_8			**Mux input channel 0 of TIM module 0**
	ASCLIN7_ARXE			**Receive input**
	QSPI3_MRSTD			**Master SPI data input**
	P22.1	O0		**General-purpose output**
	GTM_TOUT48	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN7_ATX	O7		**Transmit output**

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Table 2-43 Port 22 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
97	P22.2	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_7			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_7			**Mux input channel 3 of TIM module 0**
	P22.2	O0		**General-purpose output**
	GTM_TOUT49	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	QSPI3_SLSO12	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
98	P22.3	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN4_4			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_4			**Mux input channel 4 of TIM module 0**
	ASCLIN5_ARXC			**Receive input**
	QSPI3_SCLKD			**Slave SPI clock inputs**
	P22.3	O0		**General-purpose output**
	GTM_TOUT50	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-44 Port 23 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
89	P23.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_4			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_4			**Mux input channel 5 of TIM module 0**
	CAN10_RXDC			**CAN receive input node 0**
	P23.0	O0		**General-purpose output**
	GTM_TOUT41	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
90	P23.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_4			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_4			**Mux input channel 6 of TIM module 0**
	ASCLIN6_ARXF			**Receive input**
	P23.1	O0		**General-purpose output**
	GTM_TOUT42	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	—	O3		**Reserved**
	GTM_CLK0	O4		**CGM generated clock**
	CAN10_TXD	O5		**CAN transmit output node 0**
	CCU_EXTCLK0	O6		**External Clock 0**
	ASCLIN6_ASCLK	O7		**Shift clock output**
91	P23.2	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_5			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_5			**Mux input channel 6 of TIM module 0**
	ASCLIN7_ARXC			**Receive input**
	P23.2	O0		**General-purpose output**
	GTM_TOUT43	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-44 Port 23 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
92	P23.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_4			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_4			**Mux input channel 7 of TIM module 0**
	ASCLIN6_ARXA			**Receive input**
	CAN12_RXDC			**CAN receive input node 2**
	P23.3	O0		**General-purpose output**
	GTM_TOUT44	O1		**GTM muxed output**
	ASCLIN7_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
93	P23.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_5			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_5			**Mux input channel 7 of TIM module 0**
	P23.4	O0		**General-purpose output**
	GTM_TOUT45	O1		**GTM muxed output**
	ASCLIN6_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
94	P23.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_7			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_7			**Mux input channel 2 of TIM module 0**
	P23.5	O0		**General-purpose output**
	GTM_TOUT46	O1		**GTM muxed output**
	ASCLIN6_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-45 Port 32 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
84	P32.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
	GTM_TIM2_IN2_5			**Mux input channel 2 of TIM module 2**
	P32.0	O0		**General-purpose output**
	GTM_TOUT36	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
85	P32.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.1 / External Pass Device gate control for EVRC
	P32.1	O0		**General-purpose output**
	GTM_TOUT37	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
86	P32.2	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_8			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_8			**Mux input channel 3 of TIM module 0**
	CAN03_RXDB			**CAN receive input node 3**
	ASCLIN3_ARXD			**Receive input**
	P32.2	O0		**General-purpose output**
	GTM_TOUT38	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	PMS_DCDCSYNCO	O6		**DC-DC synchronization output**
	—	O7		**Reserved**

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Table 2-45 Port 32 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
87	P32.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_5			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_5			**Mux input channel 4 of TIM module 0**
	P32.3	O0		**General-purpose output**
	GTM_TOUT39	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN3_ASCLK	O4		**Shift clock output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
88	P32.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_5			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_5			**Mux input channel 5 of TIM module 0**
	ASCLIN1_ACTSB			**Clear to send input**
	P32.4	O0		**General-purpose output**
	GTM_TOUT40	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	GTM_CLK1	O4		**CGM generated clock**
	—	O5		**Reserved**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	PMS_DCDCSYNCO	O		**DC-DC synchronization output**

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Table 2-46 Port 33 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
70	P33.0	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN4_6			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_6			**Mux input channel 4 of TIM module 0**
	EDSADC_ITR0E			**Trigger/Gate input, channel 0**
	IOM_PIN_0			**GPIO pad input to FPC**
	GTM_DTMT1_2			**CDTM1_DTM0**
	P33.0	O0		**General-purpose output**
	GTM_TOUT22	O1		**GTM muxed output**
	IOM_MON0_0			**Monitor input 0**
	IOM_GTM_0			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
71	P33.1	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN5_6			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_6			**Mux input channel 5 of TIM module 0**
	EDSADC_ITR1E			**Trigger/Gate input, channel 1**
	PSI5_RX0C			**RXD inputs (receive data) channel 0**
	EDSADC_DSCIN2B			**Modulator clock input, channel 2**
	SENT_SENT9C			**Receive input channel 9**
	ASCLIN8_ARXC			**Receive input**
	IOM_PIN_1			**GPIO pad input to FPC**
	P33.1	O0		**General-purpose output**
	GTM_TOUT23	O1		**GTM muxed output**
	IOM_MON0_1			**Monitor input 0**
	IOM_GTM_1			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	QSPI2_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
72	P33.2	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN6_6			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_6			**Mux input channel 6 of TIM module 0**
	EDSADC_ITR2E			**Trigger/Gate input, channel 2**
	SENT_SENT8C			**Receive input channel 8**
	EDSADC_DSDIN2B			**Digital datastream input, channel 2**
	IOM_PIN_2			**GPIO pad input to FPC**
	P33.2	O0		**General-purpose output**
	GTM_TOUT24	O1		**GTM muxed output**
	IOM_MON0_2			**Monitor input 0**
	IOM_GTM_2			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	QSPI2_SLSO10	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**
73	P33.3	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN7_6			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_6			**Mux input channel 7 of TIM module 0**
	PSI5_RX1C			**RXD inputs (receive data) channel 1**
	SENT_SENT7C			**Receive input channel 7**
	EDSADC_DSCIN1B			**Modulator clock input, channel 1**
	IOM_PIN_3			**GPIO pad input to FPC**
	P33.3	O0		**General-purpose output**
	GTM_TOUT25	O1		**GTM muxed output**
	IOM_MON0_3			**Monitor input 0**
	IOM_GTM_3			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
74	P33.4	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_10			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_10			**Mux input channel 0 of TIM module 0**
	EDSADC_ITR0F			**Trigger/Gate input, channel 0**
	SENT_SENT6C			**Receive input channel 6**
	EDSADC_DSDIN1B			**Digital datastream input, channel 1**
	CCU61_CTRAPC			**Trap input capture**
	ASCLIN5_ARXB			**Receive input**
	IOM_PIN_4			**GPIO pad input to FPC**
	P33.4	O0		**General-purpose output**
	GTM_TOUT26	O1		**GTM muxed output**
	IOM_MON0_4			**Monitor input 0**
	IOM_GTM_4			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI2_SLSO12	O3		**Master slave select output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC0BFLOUT	O6		**Boundary flag output, FC channel 0**
	CAN13_TXD	O7		**CAN transmit output node 3**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
75	P33.5	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_8			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_8			**Mux input channel 1 of TIM module 0**
	EDSADC_DSCIN0B			**Modulator clock input, channel 0**
	EDSADC_ITR1F			**Trigger/Gate input, channel 1**
	GPT120_T4EUDB			**Count direction control input of timer T4**
	PSI5S_RXC			**RX data input**
	ASCLIN2_ACTSB			**Clear to send input**
	CCU61_CCPOS2C			**Hall capture input 2**
	SENT_SENT5C			**Receive input channel 5**
	CAN13_RXDB			**CAN receive input node 3**
	IOM_PIN_5			**GPIO pad input to FPC**
	P33.5	O0		**General-purpose output**
	GTM_TOUT27	O1		**GTM muxed output**
	IOM_MON0_5			**Monitor input 0**
	IOM_GTM_5			**GTM-provided inputs to EXOR combiner**
	QSPI0_SLSO7	O2		**Master slave select output**
	QSPI1_SLSO7	O3		**Master slave select output**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	—	O6		**Reserved**
	ASCLIN5_ASLSO	O7		**Slave select signal output**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
76	P33.6	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_9			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_9			**Mux input channel 2 of TIM module 0**
	EDSADC_ITR2F			**Trigger/Gate input, channel 2**
	GPT120_T2EUDB			**Count direction control input of timer T2**
	SENT_SENT4C			**Receive input channel 4**
	CCU61_CCPOS1C			**Hall capture input 1**
	EDSADC_DSDIN0B			**Digital datastream input, channel 0**
	ASCLIN8_ARXD			**Receive input**
	IOM_PIN_6			**GPIO pad input to FPC**
	P33.6	O0		**General-purpose output**
	GTM_TOUT28	O1		**GTM muxed output**
	IOM_MON0_6			**Monitor input 0**
	IOM_GTM_6			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI2_SLSO11	O3		**Master slave select output**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC1BFLOUT	O6		**Boundary flag output, FC channel 1**
	PSI5S_TX	O7		**TX data output**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
77	P33.7	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN3_9			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_9			**Mux input channel 3 of TIM module 0**
	CAN00_RXDE			**CAN receive input node 0**
	GPT120_T2INB			**Trigger/gate input of timer T2**
	CCU61_CCPOS0C			**Hall capture input 0**
	SCU_E_REQ4_0			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	IOM_PIN_7			**GPIO pad input to FPC**
	P33.7	O0		**General-purpose output**
	GTM_TOUT29	O1		**GTM muxed output**
	IOM_MON0_7			**Monitor input 0**
	IOM_GTM_7			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	ASCLIN8_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
78	P33.8	I	FAST / HighZ / VEVRSB	**General-purpose input**
	GTM_TIM1_IN4_7			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_7			**Mux input channel 4 of TIM module 0**
	ASCLIN2_ARXE			**Receive input**
	SCU_EMGSTOP_PORT_A			**Emergency stop Port Pin A input request**
	IOM_PIN_8			**GPIO pad input to FPC**
	P33.8	O0		**General-purpose output**
	GTM_TOUT30	O1		**GTM muxed output**
	IOM_MON0_8			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
	SMU_FSP0	O		**FSP[1..0] Output Signals - Generated by SMU_core**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
79	P33.9	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_9			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_9			**Mux input channel 1 of TIM module 0**
	IOM_PIN_9			**GPIO pad input to FPC**
	P33.9	O0		**General-purpose output**
	GTM_TOUT31	O1		**GTM muxed output**
	IOM_MON0_9			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN2_ASCLK	O4		**Shift clock output**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ATX	O6		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
80	P33.10	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_9			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_9			**Mux input channel 0 of TIM module 0**
	CAN01_RXDD			**CAN receive input node 1**
	ASCLIN0_ARXD			**Receive input**
	IOM_PIN_10			**GPIO pad input to FPC**
	P33.10	O0		**General-purpose output**
	GTM_TOUT32	O1		**GTM muxed output**
	IOM_MON0_10			**Monitor input 0**
	QSPI1_SLSO6	O2		**Master slave select output**
	—	O3		**Reserved**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	PSI5S_CLK	O5		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**
	SMU_FSP1	O		**FSP[1..0] Output Signals - Generated by SMU_core**
81	P33.11	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_8			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_8			**Mux input channel 2 of TIM module 0**
	IOM_PIN_11			**GPIO pad input to FPC**
	P33.11	O0		**General-purpose output**
	GTM_TOUT33	O1		**GTM muxed output**
	IOM_MON0_11			**Monitor input 0**
	ASCLIN1_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	EDSADC_CGPWMN	O6		**Negative carrier generator output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-46 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
82	P33.12	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN0_6			**Mux input channel 0 of TIM module 2**
	CAN00_RXDD			**CAN receive input node 0**
	PMS_PINBWKP			**PINB (P33.12) pin input**
	IOM_PIN_12			**GPIO pad input to FPC**
	P33.12	O0		**General-purpose output**
	GTM_TOUT34	O1		**GTM muxed output**
	IOM_MON0_12			**Monitor input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN1_ASCLK	O4		**Shift clock output**
	—	O5		**Reserved**
	EDSADC_CGPWMP	O6		**Positive carrier generator output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
83	P33.13	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN1_5			**Mux input channel 1 of TIM module 2**
	ASCLIN1_ARXF			**Receive input**
	EDSADC_SGNB			**Carrier sign signal input**
	P33.13	O0		**General-purpose output**
	GTM_TOUT35	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	QSPI2_SLSO6	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-47 Analog Inputs

Pin	Symbol	Ctrl.	Buffer Type	Function
67	AN0	I	D / HighZ / VDDM	**Analog Input 0**
	EVADC_G0CH0			**Analog input channel 0, group 0**
	EDSADC_EDS3PA			**Positive analog input channel 3, pin A**
66	AN1	I	D / HighZ / VDDM	**Analog Input 1**
	EVADC_G0CH1			**Analog input channel 1, group 0**
	EDSADC_EDS3NA			**Negative analog input channel 3, pin A**
65	AN2	I	D / HighZ / VDDM	**Analog Input 2**
	EVADC_G0CH2			**Analog input channel 2, group 0**
	EDSADC_EDS0PA			**Positive analog input channel 0, pin A**
64	AN3	I	D / HighZ / VDDM	**Analog Input 3**
	EVADC_G0CH3			**Analog input channel 3, group 0**
	EDSADC_EDS0NA			**Negative analog input channel 0, pin A**
63	AN4	I	D / HighZ / VDDM	**Analog Input 4**
	EVADC_G0CH4			**Analog input channel 4, group 0**
62	AN5	I	D / HighZ / VDDM	**Analog Input 5**
	EVADC_G0CH5			**Analog input channel 5, group 0**
61	AN6	I	D / HighZ / VDDM	**Analog Input 6**
	EVADC_G0CH6			**Analog input channel 6, group 0**
60	AN7	I	D / HighZ / VDDM	**Analog Input 7**
	EVADC_G0CH7			**Analog input channel 7, group 0**
59	AN8	I	D / HighZ / VDDM	**Analog Input 8**
	EVADC_G1CH0			**Analog input channel 0, group 1**
58	AN10	I	D / HighZ / VDDM	**Analog Input 10**
	EVADC_G1CH2			**Analog input channel 2, group 1**
57	AN11	I	D / HighZ / VDDM	**Analog Input 11**
	EVADC_G1CH3			**Analog input channel 3, group 1**
56	AN12	I	D / HighZ / VDDM	**Analog Input 12**
	EVADC_G1CH4			**Analog input channel 4, group 1**
	EDSADC_EDS0PB			**Positive analog input channel 0, pin B**
55	AN13	I	D / HighZ / VDDM	**Analog Input 13**
	EVADC_G1CH5			**Analog input channel 5, group 1**
	EDSADC_EDS0NB			**Negative analog input channel 0, pin B**
50	AN16	I	D / HighZ / VDDM	**Analog Input 16**
	EVADC_G2CH0			**Analog input channel 0, group 2**
	EVADC_FC0CH0			**Analog input FC channel 0**

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Table 2-47 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
49	AN17	I	D / HighZ / VDDM	**Analog Input 17**
	EVADC_G2CH1			**Analog input channel 1, group 2**
	EVADC_FC1CH0			**Analog input FC channel 1**
48	AN18	I	D / HighZ / VDDM	**Analog Input 18**
	EVADC_G2CH2			**Analog input channel 2, group 2**
47	AN19	I	D / HighZ / VDDM	**Analog Input 19**
	EVADC_G2CH3			**Analog input channel 3, group 2**
46	AN20	I	D / HighZ / VDDM	**Analog Input 20**
	EVADC_G2CH4			**Analog input channel 4, group 2**
	EDSADC_EDS2PA			**Positive analog input channel 2, pin A**
45	AN21	I	D / HighZ / VDDM	**Analog Input 21**
	EVADC_G2CH5			**Analog input channel 5, group 2**
	EDSADC_EDS2NA			**Negative analog input channel 2, pin A**
44	AN24/P40.0	I	S / HighZ / VDDM	**Analog Input 24**
	SENT_SENT0A			**Receive input channel 0**
	EVADC_G3CH0			**Analog input channel 0, group 3**
	CCU60_CCPOS0D			**Hall capture input 0**
	EDSADC_EDS2PB			**Positive analog input channel 2, pin B**
43	AN25/P40.1	I	S / HighZ / VDDM	**Analog Input 25**
	SENT_SENT1A			**Receive input channel 1**
	EVADC_G3CH1			**Analog input channel 1, group 3**
	CCU60_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS2NB			**Negative analog input channel 2, pin B**
42	AN26/P40.2	I	S / HighZ / VDDM	**Analog Input 26**
	SENT_SENT2A			**Receive input channel 2**
	EVADC_G3CH2			**Analog input channel 2, group 3**
	CCU60_CCPOS1D			**Hall capture input 1**
41	AN27/P40.3	I	S / HighZ / VDDM	**Analog Input 27**
	SENT_SENT3A			**Receive input channel 3**
	EVADC_G3CH3			**Analog input channel 3, group 3**
	CCU60_CCPOS2B			**Hall capture input 2**
40	AN28	I	D / HighZ / VDDM	**Analog Input 28**
	EVADC_G3CH4			**Analog input channel 4, group 3**
39	AN29	I	D / HighZ / VDDM	**Analog Input 29**
	EVADC_G3CH5			**Analog input channel 5, group 3**

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Table 2-47 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
38	AN32/P40.4	I	S / HighZ / VDDM	**Analog Input 32**
	SENT_SENT4A			**Receive input channel 4**
	EVADC_G8CH0			**Analog input channel 0, group 8**
	CCU60_CCPOS2D			**Hall capture input 2**
37	AN33/P40.5	I	S / HighZ / VDDM	**Analog Input 33**
	SENT_SENT5A			**Receive input channel 5**
	EVADC_G8CH1			**Analog input channel 1, group 8**
	CCU61_CCPOS0D			**Hall capture input 0**
36	AN35	I	D / HighZ / VDDM	**Analog Input 35**
	EVADC_G8CH3			**Analog input channel 3, group 8**
35	AN36/P40.6	I	S / HighZ / VDDM	**Analog Input 36**
	SENT_SENT6A			**Receive input channel 6**
	EVADC_G8CH4			**Analog input channel 4, group 8**
	CCU61_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS1PA			**Positive analog input channel 1, pin A**
34	AN37/P40.7	I	S / HighZ / VDDM	**Analog Input 37**
	SENT_SENT7A			**Receive input channel 7**
	EVADC_G8CH5			**Analog input channel 5, group 8**
	CCU61_CCPOS1D			**Hall capture input 1**
	EDSADC_EDS1NA			**Negative analog input channel 1, pin A**
33	AN38/P40.8	I	S / HighZ / VDDM	**Analog Input 38**
	SENT_SENT8A			**Receive input channel 8**
	EVADC_G8CH6			**Analog input channel 6, group 8**
	CCU61_CCPOS2B			**Hall capture input 2**
	EDSADC_EDS1PB			**Positive analog input channel 1, pin B**
32	AN39/P40.9	I	S / HighZ / VDDM	**Analog Input 39**
	SENT_SENT9A			**Receive input channel 9**
	EVADC_G8CH7			**Analog input channel 7, group 8**
	CCU61_CCPOS2D			**Hall capture input 2**
	EDSADC_EDS1NB			**Negative analog input channel 1, pin B**
27	AN42	I	D / HighZ / VDDM	**Analog Input 42**
	EVADC_G8CH10			**Analog input channel 10, group 8**
26	AN43	I	D / HighZ / VDDM	**Analog Input 43**
	EVADC_G8CH11			**Analog input channel 11, group 8**
31	AN44	I	D / HighZ / VDDM	**Analog Input 44**
	EVADC_G8CH12			**Analog input channel 12, group 8**
	EDSADC_EDS1PC			**Positive analog input channel 1, pin C**

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Table 2-47 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
30	AN45	I	D / HighZ / VDDM	**Analog Input 45**
	EVADC_G8CH13			**Analog input channel 13, group 8**
	EDSADC_EDS1NC			**Negative analog input channel 1, pin C**
29	AN46	I	D / HighZ / VDDM	**Analog Input 46**
	EVADC_G8CH14			**Analog input channel 14, group 8**
	EDSADC_EDS1PD			**Positive analog input channel 1, pin D**
28	AN47	I	D / HighZ / VDDM	**Analog Input 47**
	EVADC_G8CH15			**Analog input channel 15, group 8**
	EDSADC_EDS1ND			**Negative analog input channel 1, pin D**

Note: Port Pins P32.0 and P32.1 are bidirectional pads and are having the following two functionalities implemented:

5. *In case the pins are used as standard GPIOs the functions defined in the pin configuration tables of P32.0 and P32.1 are available.*
6. *In case the pins are used as pre-drivers for external MOSFETs (internal DCDC usecase) P32.0 and P32.1 act as analog IOs named VGATE1N and VGATE1P.*

Table 2-48 System I/O

Pin	Symbol	Ctrl.	Buffer Type	Function
84	VGATE1N	O	—	**DCDC N ch. MOSFET gate driver output** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
85	VGATE1P	O	—	**DCDC P ch. MOSFET gate driver output** P32.1 / External Pass Device gate control for EVRC
102	XTAL1	I	XTAL / VEXT	**XTAL pad1** XTAL1. Main Oscillator/PLL/Clock Generator Input.
103	XTAL2	O	XTAL / VEXT	**XTAL pad2** XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
112	TMS	I	FAST / PD2 / VEXT	**JTAG Module State Machine Control Input**
	DAP1	I/O		**DAP: DAP1 Data I/O**
114	$\overline{\text{TRST}}$	I	FAST / PU2 / VEXT	**JTAG Module Reset/Enable Input**
115	TCK	I	FAST / PD2 / VEXT	**JTAG Module Clock Input**
	DAP0	I		**DAP: DAP0 Clock Input**

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Table 2-48 System I/O (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
120	$\overline{\text{ESR1}}$	I/O	FAST / PU1 / VEXT	**ESR1 Port Pin input - can be used to trigger a reset or an NMI** ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR1WKP	I		**ESR1 pin input**
121	$\overline{\text{PORST}}$	I/O	PORST / PD / VEXT	**PORST pin** Power On Reset Input. Additional strong PD in case of power fail.
122	$\overline{\text{ESR0}}$	I/O	FAST / OD / VEXT	**ESR0 Port Pin input - can be used to trigger a reset or an NMI** ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR0WKP	I		**ESR0 pin input**

Table 2-49 Supply

Pin	Symbol	Ctrl.	Buffer Type	Function
54	VDDM	I	—	**ADC Analog Power Supply (5V / 3.3V)**
164	VFLEX	I	—	**Digital Power Supply for Flex Port Pads (5V / 3.3V)**
154	VDDP3	I	—	**Flash Power Supply (3.3V)**
52	VAREF1	I	—	**Positive Analog Reference Voltage 1**
69	VEVRSB	I	—	**Standby Power Supply (5V / 3.3V) for the Standby SRAM**
155	VDD	I	—	**Digital Core Power Supply (1.25V)**
10	VDD	I	—	**Digital Core Power Supply (1.25V)**
24	VDD	I	—	**Digital Core Power Supply (1.25V)**
68	VDD	I	—	**Digital Core Power Supply (1.25V)**
100	VDD	I	—	**Digital Core Power Supply (1.25V)**
123	VDD	I	—	**Digital Core Power Supply (1.25V)**
153	VEXT	I	—	**External Power Supply (5V / 3.3V)**
25	VEXT	I	—	**External Power Supply (5V / 3.3V)**
99	VEXT	I	—	**External Power Supply (5V / 3.3V)**
E-PAD	VSS	I	—	**Digital Ground (Exposed PAD), VSS**

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Table 2-49 Supply (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
53	VSSM	I	—	**Analog Ground for VDDM**
51	VAGND1	I	—	**Negative Analog Reference Voltage 1**
101	VSS	I	—	**Oscillator Ground, VSS(OSC)**
104	VEXT	I	—	**Digital Power Supply for Oscillator (shall be supplied with same level as used for VEXT), VEXT(OSC)**

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2.4 LQFP-144 Package Variant Pin Configuration of TC36x

Note: In the following QFP package the VFLEX supply is internally connected to VEXT supply and thus does not show up in the corresponding package drawings neither supply tables as a dedicated pin.

Table 2-50 Port 00 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
11	P00.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_1			**Mux input channel 0 of TIM module 2**
	CCU61_CTRAPA			**Trap input capture**
	CCU60_T12HRE			**External timer start 12**
	MSC0_INJ0			**Injection signal from port**
	GETH_MDIOA			**MDIO Input**
	P00.0	O0		**General-purpose output**
	GTM_TOUT9	O1		**GTM muxed output**
	IOM_REF0_9			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN10_TXD	O5		**CAN transmit output node 0**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	GETH_MDIO	O		**MDIO Output**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
12	P00.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_1			**Mux input channel 1 of TIM module 2**
	CCU60_CC60INB			**T12 capture input 60**
	ASCLIN3_ARXE			**Receive input**
	CAN10_RXDA			**CAN receive input node 0**
	PSI5_RX0A			**RXD inputs (receive data) channel 0**
	CCU61_CC60INA			**T12 capture input 60**
	SENT_SENT0B			**Receive input channel 0**
	EVADC_G9CH11	AI		**Analog input channel 11, group 9**
	P00.1	O0		**General-purpose output**
	GTM_TOUT10	O1		**GTM muxed output**
	IOM_REF0_10			**Reference input 0**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC0	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
13	P00.2	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN1_2			**Mux input channel 1 of TIM module 2**
	SENT_SENT1B			**Receive input channel 1**
	EVADC_G9CH10	AI		**Analog input channel 10, group 9**
	P00.2	O0		**General-purpose output**
	GTM_TOUT11	O1		**GTM muxed output**
	IOM_REF0_11			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	QSPI3_SLSO4	O6		**Master slave select output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
14	P00.3	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN2_1			**Mux input channel 2 of TIM module 2**
	CCU60_CC61INB			**T12 capture input 61**
	EDSADC_DSCIN3A			**Modulator clock input, channel 3**
	PSI5_RX1A			**RXD inputs (receive data) channel 1**
	CAN03_RXDA			**CAN receive input node 3**
	PSI5S_RXA			**RX data input**
	SENT_SENT2B			**Receive input channel 2**
	CCU61_CC61INA			**T12 capture input 61**
	EVADC_G9CH9	AI		**Analog input channel 9, group 9**
	P00.3	O0		**General-purpose output**
	GTM_TOUT12	O1		**GTM muxed output**
	IOM_REF0_12			**Reference input 0**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	—	O5		**Reserved**
	SENT_SPC2	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
15	P00.4	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN3_1			**Mux input channel 3 of TIM module 2**
	SCU_E_REQ2_2			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	SENT_SENT3B			**Receive input channel 3**
	EDSADC_DSDIN3A			**Digital datastream input, channel 3**
	EDSADC_SGNA			**Carrier sign signal input**
	ASCLIN10_ARXA			**Receive input**
	EVADC_G9CH8	AI		**Analog input channel 8, group 9**
	P00.4	O0		**General-purpose output**
	GTM_TOUT13	O1		**GTM muxed output**
	IOM_REF0_13			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	CAN11_TXD	O3		**CAN transmit output node 1**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	—	O5		**Reserved**
	SENT_SPC3	O6		**Transmit output**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
16	P00.5	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN4_1			**Mux input channel 4 of TIM module 2**
	CCU60_CC62INB			**T12 capture input 62**
	EDSADC_DSCIN2A			**Modulator clock input, channel 2**
	CCU61_CC62INA			**T12 capture input 62**
	SENT_SENT4B			**Receive input channel 4**
	CAN11_RXDB			**CAN receive input node 1**
	GTM_DTMT1_1			**CDTM1_DTM0**
	EVADC_G9CH7	AI		**Analog input channel 7, group 9**
	P00.5	O0		**General-purpose output**
	GTM_TOUT14	O1		**GTM muxed output**
	IOM_REF0_14			**Reference input 0**
	EDSADC_CGPWMN	O2		**Negative carrier generator output**
	QSPI3_SLSO3	O3		**Master slave select output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_FC0BFLOUT	O5		**Boundary flag output, FC channel 0**
	SENT_SPC4	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
17	P00.6	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN5_1			**Mux input channel 5 of TIM module 2**
	EDSADC_DSDIN2A			**Digital datastream input, channel 2**
	SENT_SENT5B			**Receive input channel 5**
	ASCLIN5_ARXA			**Receive input**
	EVADC_G9CH6	AI		**Analog input channel 6, group 9**
	P00.6	O0		**General-purpose output**
	GTM_TOUT15	O1		**GTM muxed output**
	IOM_REF0_15			**Reference input 0**
	EDSADC_CGPWMP	O2		**Positive carrier generator output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC5	O6		**Transmit output**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
18	P00.7	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN6_1			**Mux input channel 6 of TIM module 2**
	CCU61_CC60INC			**T12 capture input 60**
	SENT_SENT6B			**Receive input channel 6**
	GPT120_T2INA			**Trigger/gate input of timer T2**
	CCU61_CCPOS0A			**Hall capture input 0**
	CCU60_T12HRB			**External timer start 12**
	GTM_DTMT0_2			**CDTM0_DTM0**
	EVADC_G9CH5	AI		**Analog input channel 5, group 9**
	P00.7	O0		**General-purpose output**
	GTM_TOUT16	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC6	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**
19	P00.8	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN7_1			**Mux input channel 7 of TIM module 2**
	CCU61_CC61INC			**T12 capture input 61**
	SENT_SENT7B			**Receive input channel 7**
	GPT120_T2EUDA			**Count direction control input of timer T2**
	CCU61_CCPOS1A			**Hall capture input 1**
	CCU60_T13HRB			**External timer start 13**
	ASCLIN10_ARXB			**Receive input**
	EVADC_G9CH4	AI		**Analog input channel 4, group 9**
	P00.8	O0		**General-purpose output**
	GTM_TOUT17	O1		**GTM muxed output**
	QSPI3_SLSO6	O2		**Master slave select output**
	ASCLIN10_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC7	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
20	P00.9	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN0_1			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_1			**Mux input channel 0 of TIM module 0**
	CCU61_CC62INC			**T12 capture input 62**
	SENT_SENT8B			**Receive input channel 8**
	CCU61_CCPOS2A			**Hall capture input 2**
	EDSADC_DSCIN1A			**Modulator clock input, channel 1**
	EDSADC_ITR3F			**Trigger/Gate input, channel 3**
	GPT120_T4EUDA			**Count direction control input of timer T4**
	CCU60_T13HRC			**External timer start 13**
	CCU60_T12HRC			**External timer start 12**
	EVADC_G9CH3	AI		**Analog input channel 3, group 9**
	P00.9	O0		**General-purpose output**
	GTM_TOUT18	O1		**GTM muxed output**
	QSPI3_SLSO7	O2		**Master slave select output**
	ASCLIN3_ARTS	O3		**Ready to send output**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	ASCLIN4_ATX	O5		**Transmit output**
	SENT_SPC8	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-50 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
21	P00.12	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN3_1			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_1			**Mux input channel 3 of TIM module 0**
	ASCLIN3_ACTSA			**Clear to send input**
	EDSADC_DSDIN0A			**Digital datastream input, channel 0**
	ASCLIN4_ARXA			**Receive input**
	EVADC_G9CH0	AI		**Analog input channel 0, group 9**
	P00.12	O0		**General-purpose output**
	GTM_TOUT21	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-51 Port 02 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
1	P02.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_2			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_2			**Mux input channel 0 of TIM module 0**
	CCU61_CC60INB			**T12 capture input 60**
	ASCLIN2_ARXG			**Receive input**
	CCU60_CC60INA			**T12 capture input 60**
	SCU_E_REQ3_2			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GTM_DTMA0_0			**CDTM0_DTM4**
	P02.0	O0		**General-purpose output**
	GTM_TOUT0	O1		**GTM muxed output**
	IOM_REF0_0			**Reference input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO1	O3		**Master slave select output**
	EDSADC_CGPWMN	O4		**Negative carrier generator output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
2	P02.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_2			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_2			**Mux input channel 1 of TIM module 0**
	ERAY0_RXDA2			**Receive Channel A2**
	ASCLIN2_ARXB			**Receive input**
	CAN00_RXDA			**CAN receive input node 0**
	SCU_E_REQ2_1			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P02.1	O0		**General-purpose output**
	GTM_TOUT1	O1		**GTM muxed output**
	IOM_REF0_1			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SLSO2	O3		**Master slave select output**
	EDSADC_CGPWMP	O4		**Positive carrier generator output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
3	P02.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_2			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_2			**Mux input channel 2 of TIM module 0**
	CCU61_CC61INB			**T12 capture input 61**
	CCU60_CC61INA			**T12 capture input 61**
	P02.2	O0		**General-purpose output**
	GTM_TOUT2	O1		**GTM muxed output**
	IOM_REF0_2			**Reference input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI3_SLSO3	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDB	O6		**Transmit Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
4	P02.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_2			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_2			**Mux input channel 3 of TIM module 0**
	ERAY0_RXDB2			**Receive Channel B2**
	CAN02_RXDB			**CAN receive input node 2**
	ASCLIN1_ARXG			**Receive input**
	PSI5_RX0B			**RXD inputs (receive data) channel 0**
	P02.3	O0		**General-purpose output**
	GTM_TOUT3	O1		**GTM muxed output**
	IOM_REF0_3			**Reference input 0**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI3_SLSO4	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
5	P02.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_1			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_1			**Mux input channel 4 of TIM module 0**
	CCU61_CC62INB			**T12 capture input 62**
	QSPI3_SLSIA			**Slave select input**
	CCU60_CC62INA			**T12 capture input 62**
	I2C0_SDAA			**Serial Data Input 0**
	CAN11_RXDA			**CAN receive input node 1**
	CAN0_ECTT1			**External CAN time trigger input**
	P02.4	O0		**General-purpose output**
	GTM_TOUT4	O1		**GTM muxed output**
	IOM_REF0_4			**Reference input 0**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_SLSO0	O3		**Master slave select output**
	PSI5S_CLK	O4		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	I2C0_SDA	O5		**Serial Data Output**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
6	P02.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_1			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_1			**Mux input channel 5 of TIM module 0**
	I2C0_SCLA			**Serial Clock Input 0**
	PSI5_RX1B			**RXD inputs (receive data) channel 1**
	PSI5S_RXB			**RX data input**
	QSPI3_MRSTA			**Master SPI data input**
	SENT_SENT3C			**Receive input channel 3**
	CAN0_ECTT2			**External CAN time trigger input**
	P02.5	O0		**General-purpose output**
	GTM_TOUT5	O1		**GTM muxed output**
	IOM_REF0_5			**Reference input 0**
	CAN11_TXD	O2		**CAN transmit output node 1**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	I2C0_SCL	O5		**Serial Clock Output**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
7	P02.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_1			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_1			**Mux input channel 6 of TIM module 0**
	CCU60_CC60INC			**T12 capture input 60**
	SENT_SENT2C			**Receive input channel 2**
	GPT120_T3INA			**Trigger/gate input of core timer T3**
	CCU60_CCPOS0A			**Hall capture input 0**
	CCU61_T12HRB			**External timer start 12**
	QSPI3_MTSRA			**Slave SPI data input**
	P02.6	O0		**General-purpose output**
	GTM_TOUT6	O1		**GTM muxed output**
	IOM_REF0_6			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	QSPI3_MTSR	O3		**Master SPI data output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
8	P02.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_1			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_1			**Mux input channel 7 of TIM module 0**
	CCU60_CC61INC			**T12 capture input 61**
	SENT_SENT1C			**Receive input channel 1**
	EDSADC_DSCIN3B			**Modulator clock input, channel 3**
	GPT120_T3EUDA			**Count direction control input of core timer T3**
	CCU60_CCPOS1A			**Hall capture input 1**
	QSPI3_SCLKA			**Slave SPI clock inputs**
	CCU61_T13HRB			**External timer start 13**
	P02.7	O0		**General-purpose output**
	GTM_TOUT7	O1		**GTM muxed output**
	IOM_REF0_7			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	SENT_SPC1	O6		**Transmit output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-51 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
9	P02.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_2			**Mux input channel 0 of TIM module 2**
	CCU60_CC62INC			**T12 capture input 62**
	SENT_SENT0C			**Receive input channel 0**
	CCU60_CCPOS2A			**Hall capture input 2**
	EDSADC_DSDIN3B			**Digital datastream input, channel 3**
	EDSADC_ITR3E			**Trigger/Gate input, channel 3**
	GPT120_T4INA			**Trigger/gate input of timer T4**
	CCU61_T12HRC			**External timer start 12**
	CCU61_T13HRC			**External timer start 13**
	GTM_DTMA0_1			**CDTM0_DTM4**
	P02.8	O0		**General-purpose output**
	GTM_TOUT8	O1		**GTM muxed output**
	IOM_REF0_8			**Reference input 0**
	QSPI3_SLSO5	O2		**Master slave select output**
	ASCLIN8_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	GETH_MDC	O6		**MDIO clock**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-52 Port 10 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
140	P10.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_3			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_3			**Mux input channel 1 of TIM module 0**
	GPT120_T5EUDB			**Count direction control input of timer T5**
	QSPI1_MRSTA			**Master SPI data input**
	GTM_DTMT0_1			**CDTM0_DTM0**
	P10.1	O0		**General-purpose output**
	GTM_TOUT103	O1		**GTM muxed output**
	QSPI1_MTSR	O2		**Master SPI data output**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	MSC0_EN1	O4		**Chip Select**
	EVADC_FC1BFLOUT	O5		**Boundary flag output, FC channel 1**
	—	O6		**Reserved**
	—	O7		**Reserved**
141	P10.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_3			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_3			**Mux input channel 2 of TIM module 0**
	CAN02_RXDE			**CAN receive input node 2**
	MSC0_SDI1			**Upstream assynchronous input signal**
	QSPI1_SCLKA			**Slave SPI clock inputs**
	GPT120_T6INB			**Trigger/gate input of core timer T6**
	SCU_E_REQ2_0			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P10.2	O0		**General-purpose output**
	GTM_TOUT104	O1		**GTM muxed output**
	IOM_MON2_9			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SCLK	O3		**Master SPI clock output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-52 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
142	P10.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_3			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_3			**Mux input channel 3 of TIM module 0**
	QSPI1_MTSRA			**Slave SPI data input**
	SCU_E_REQ3_0			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T5INB			**Trigger/gate input of timer T5**
	P10.3	O0		**General-purpose output**
	GTM_TOUT105	O1		**GTM muxed output**
	IOM_MON2_10			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	CAN02_TXD	O6		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	—	O7		**Reserved**
143	P10.5	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_4			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_4			**Mux input channel 2 of TIM module 0**
	PMS_HWCFG4IN			**HWCFG4 pin input**
	MSC0_INJ1			**Injection signal from port**
	P10.5	O0		**General-purpose output**
	GTM_TOUT107	O1		**GTM muxed output**
	IOM_REF2_9			**Reference input 2**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO8	O3		**Master slave select output**
	QSPI1_SLSO9	O4		**Master slave select output**
	GPT120_T6OUT	O5		**External output for overflow/underflow detection of core timer T6**
	ASCLIN2_ASLSO	O6		**Slave select signal output**
	—	O7		**Reserved**

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Table 2-52 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
144	P10.6	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_4			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_4			**Mux input channel 3 of TIM module 0**
	ASCLIN2_ARXD			**Receive input**
	QSPI3_MTSRB			**Slave SPI data input**
	PMS_HWCFG5IN			**HWCFG5 pin input**
	P10.6	O0		**General-purpose output**
	GTM_TOUT108	O1		**GTM muxed output**
	IOM_REF2_10			**Reference input 2**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_MTSR	O3		**Master SPI data output**
	GPT120_T3OUT	O4		**External output for overflow/underflow detection of core timer T3**
	—	O5		**Reserved**
	QSPI1_MRST	O6		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	—	O7		**Reserved**

Table 2-53 Port 11 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
132	P11.2	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_3			**Mux input channel 1 of TIM module 2**
	P11.2	O0		**General-purpose output**
	GTM_TOUT95	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO5	O3		**Master slave select output**
	QSPI1_SLSO5	O4		**Master slave select output**
	MSC0_EN1	O5		**Chip Select**
	GETH_TXD1	O6		**Transmit Data**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**

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Table 2-53 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
133	P11.3	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_2			**Mux input channel 2 of TIM module 2**
	MSC0_SDI3			**Upstream assynchronous input signal**
	QSPI1_MRSTB			**Master SPI data input**
	P11.3	O0		**General-purpose output**
	GTM_TOUT96	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	ERAY0_TXDA	O4		**Transmit Channel A**
	—	O5		**Reserved**
	GETH_TXD0	O6		**Transmit Data**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**
134	P11.6	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_2			**Mux input channel 3 of TIM module 2**
	QSPI1_SCLKB			**Slave SPI clock inputs**
	P11.6	O0		**General-purpose output**
	GTM_TOUT97	O1		**GTM muxed output**
	ERAY0_TXENB	O2		**Transmit Enable Channel B**
	QSPI1_SCLK	O3		**Master SPI clock output**
	ERAY0_TXENA	O4		**Transmit Enable Channel A**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	GETH_TXEN	O6		**Transmit Enable MII and RMII**
	GETH_TCTL			**Transmit Control for RGMII**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-53 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
135	P11.9	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_2			**Mux input channel 4 of TIM module 2**
	QSPI1_MTSRB			**Slave SPI data input**
	ERAY0_RXDA1			**Receive Channel A1**
	GETH_RXD1A			**Receive Data 1 MII, RMII and RGMII (RGMII can use RXD1A only)**
	P11.9	O0		**General-purpose output**
	GTM_TOUT98	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
137	P11.10	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_2			**Mux input channel 5 of TIM module 2**
	GTM_TIM2_IN0_9			**Mux input channel 0 of TIM module 2**
	CAN03_RXDD			**CAN receive input node 3**
	ERAY0_RXDB1			**Receive Channel B1**
	ASCLIN1_ARXE			**Receive input**
	SCU_E_REQ6_3			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	MSC0_SDI0			**Upstream assynchronous input signal**
	GETH_RXD0A			**Receive Data 0 MII, RMII and RGMII (RGMII can use RXD0A only)**
	QSPI1_SLSIA			**Slave select input**
	P11.10	O0		**General-purpose output**
	GTM_TOUT99	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO3	O3		**Master slave select output**
	QSPI1_SLSO3	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-53 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
138	P11.11	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_2			**Mux input channel 6 of TIM module 2**
	GETH_CRSDVA			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVA			**Receive Data Valid MII**
	GETH_CRSB			**Carrier Sense MII**
	GETH_RCTLA			**Receive Control for RGMII**
	P11.11	O0		**General-purpose output**
	GTM_TOUT100	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO4	O3		**Master slave select output**
	QSPI1_SLSO4	O4		**Master slave select output**
	MSC0_EN0	O5		**Chip Select**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
139	P11.12	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_2			**Mux input channel 7 of TIM module 2**
	GETH_REFCLKA			**Reference Clock input for RMII (50 MHz)**
	GETH_TXCLKB			**Transmit Clock Input for MII**
	GETH_RXCLKA			**Receive Clock MII**
	P11.12	O0		**General-purpose output**
	GTM_TOUT101	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	GTM_CLK2	O3		**CGM generated clock**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-54 Port 13 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
128	P13.0	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN5_3			**Mux input channel 5 of TIM module 2**
	ASCLIN10_ARXC			**Receive input**
	P13.0	O0		**General-purpose output**
	GTM_TOUT91	O1		**GTM muxed output**
	ASCLIN10_ATX	O2		**Transmit output**
	QSPI2_SCLKN	O3		**Master SPI clock output (LVDS N line)**
	MSC0_EN1	O4		**Chip Select**
	MSC0_FCLN	O5		**Shift-clock inverted part of the differential signal**
	—	O6		**Reserved**
	CAN10_TXD	O7		**CAN transmit output node 0**
129	P13.1	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN6_3			**Mux input channel 6 of TIM module 2**
	I2C0_SCLB			**Serial Clock Input 1**
	CAN10_RXDD			**CAN receive input node 0**
	ASCLIN10_ARXD			**Receive input**
	P13.1	O0		**General-purpose output**
	GTM_TOUT92	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLKP	O3		**Master SPI clock output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	I2C0_SCL	O6		**Serial Clock Output**
	—	O7		**Reserved**
130	P13.2	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN7_3			**Mux input channel 7 of TIM module 2**
	GPT120_CAPINA			**Trigger input to capture value of timer T5 into CAPREL register**
	I2C0_SDAB			**Serial Data Input 1**
	P13.2	O0		**General-purpose output**
	GTM_TOUT93	O1		**GTM muxed output**
	ASCLIN10_ASCLK	O2		**Shift clock output**
	QSPI2_MTSRN	O3		**Master SPI data output (LVDS N line)**
	MSC0_FCLP	O4		**Shift-clock direct part of the differential signal**
	MSC0_SON	O5		**Data output - inverted part of the differential signal**
	I2C0_SDA	O6		**Serial Data Output**
	—	O7		**Reserved**

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Table 2-54 Port 13 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
131	P13.3	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN0_3			**Mux input channel 0 of TIM module 2**
	P13.3	O0		**General-purpose output**
	GTM_TOUT94	O1		**GTM muxed output**
	ASCLIN10_ASLSO	O2		**Slave select signal output**
	QSPI2_MTSRP	O3		**Master SPI data output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	—	O7		**Reserved**

Table 2-55 Port 14 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
118	P14.0	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN3_5			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_5			**Mux input channel 3 of TIM module 0**
	P14.0	O0		**General-purpose output**
	GTM_TOUT80	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	ERAY0_TXDA	O3		**Transmit Channel A**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-55 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
119	P14.1	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN4_3			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_3			**Mux input channel 4 of TIM module 0**
	ERAY0_RXDA3			**Receive Channel A3**
	ASCLIN0_ARXA			**Receive input**
	ERAY0_RXDB3			**Receive Channel B3**
	CAN01_RXDB			**CAN receive input node 1**
	SCU_E_REQ3_1			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	PMS_PINAWKP			**PINA (P14.1) pin input**
	P14.1	O0		**General-purpose output**
	GTM_TOUT81	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
120	P14.2	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_3			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_3			**Mux input channel 5 of TIM module 0**
	PMS_HWCFG2IN			**HWCFG2 pin input**
	P14.2	O0		**General-purpose output**
	GTM_TOUT82	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO1	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN2_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-55 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
121	P14.3	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_3			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_3			**Mux input channel 6 of TIM module 0**
	PMS_HWCFG3IN			**HWCFG3 pin input**
	ASCLIN2_ARXA			**Receive input**
	MSC0_SDI2			**Upstream assynchronous input signal**
	SCU_E_REQ1_0			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P14.3	O0		**General-purpose output**
	GTM_TOUT83	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO3	O3		**Master slave select output**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	ASCLIN3_ASLSO	O5		**Slave select signal output**
	—	O6		**Reserved**
	—	O7		**Reserved**
122	P14.4	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_2			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_2			**Mux input channel 7 of TIM module 0**
	PMS_HWCFG6IN			**HWCFG6 pin input**
	GTM_DTMT0_0			**CDTM0_DTM0**
	P14.4	O0		**General-purpose output**
	GTM_TOUT84	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_PPS	O6		**Pulse Per Second**
	—	O7		**Reserved**

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Table 2-55 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
123	P14.5	I	FAST / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_4			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_4			**Mux input channel 0 of TIM module 0**
	PMS_HWCFG1IN			**HWCFG1 pin input**
	GTM_DTMA2_0			**CDTM2_DTM4**
	P14.5	O0		**General-purpose output**
	GTM_TOUT85	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ERAY0_TXDB	O6		**Transmit Channel B**
	—	O7		**Reserved**
124	P14.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_4			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_4			**Mux input channel 1 of TIM module 0**
	P14.6	O0		**General-purpose output**
	GTM_TOUT86	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SLSO2	O3		**Master slave select output**
	CAN13_TXD	O4		**CAN transmit output node 3**
	—	O5		**Reserved**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	—	O7		**Reserved**

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Table 2-56 Port 15 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
109	P15.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_4			**Mux input channel 3 of TIM module 2**
	P15.0	O0		**General-purpose output**
	GTM_TOUT71	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO13	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
110	P15.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_4			**Mux input channel 4 of TIM module 2**
	CAN02_RXDA			**CAN receive input node 2**
	ASCLIN1_ARXA			**Receive input**
	QSPI2_SLSIB			**Slave select input**
	SCU_E_REQ7_2			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.1	O0		**General-purpose output**
	GTM_TOUT72	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_SLSO5	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-56 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
111	P15.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_4			**Mux input channel 5 of TIM module 2**
	QSPI2_SLSIA			**Slave select input**
	QSPI2_MRSTE			**Master SPI data input**
	P15.2	O0		**General-purpose output**
	GTM_TOUT73	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SLSO0	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
112	P15.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_4			**Mux input channel 6 of TIM module 2**
	CAN01_RXDA			**CAN receive input node 1**
	ASCLIN0_ARXB			**Receive input**
	QSPI2_SCLKA			**Slave SPI clock inputs**
	P15.3	O0		**General-purpose output**
	GTM_TOUT74	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	MSC0_EN1	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-56 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
113	P15.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_4			**Mux input channel 7 of TIM module 2**
	I2C0_SCLC			**Serial Clock Input 2**
	QSPI2_MRSTA			**Master SPI data input**
	SCU_E_REQ0_0			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.4	O0		**General-purpose output**
	GTM_TOUT75	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	I2C0_SCL	O6		**Serial Clock Output**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-56 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
114	P15.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_4			**Mux input channel 0 of TIM module 2**
	ASCLIN1_ARXB			**Receive input**
	I2C0_SDAC			**Serial Data Input 2**
	QSPI2_MTSRA			**Slave SPI data input**
	SCU_E_REQ4_3			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.5	O0		**General-purpose output**
	GTM_TOUT76	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_EN0	O5		**Chip Select**
	I2C0_SDA	O6		**Serial Data Output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
115	P15.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_14			**Mux input channel 2 of TIM module 2**
	GTM_TIM1_IN0_6			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_6			**Mux input channel 0 of TIM module 0**
	QSPI2_MTSRB			**Slave SPI data input**
	P15.6	O0		**General-purpose output**
	GTM_TOUT77	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	QSPI2_SCLK	O5		**Master SPI clock output**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-56 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
116	P15.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_5			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_5			**Mux input channel 1 of TIM module 0**
	ASCLIN3_ARXA			**Receive input**
	QSPI2_MRSTB			**Master SPI data input**
	P15.7	O0		**General-purpose output**
	GTM_TOUT78	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
117	P15.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_5			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_5			**Mux input channel 2 of TIM module 0**
	QSPI2_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ5_0			**ERU Channel 5 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.8	O0		**General-purpose output**
	GTM_TOUT79	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-57 Port 20 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
93	P20.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_7			**Mux input channel 6 of TIM module 1**
	GTM_TIM1_IN4_9			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN6_7			**Mux input channel 6 of TIM module 0**
	CAN03_RXDC			**CAN receive input node 3**
	CCU_PAD_SYSCLK			**Sysclk input**
	CBS_TGI0			**Trigger input**
	SCU_E_REQ6_0			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T6EUDA			**Count direction control input of core timer T6**
	P20.0	O0		**General-purpose output**
	GTM_TOUT59	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	HSCT0_SYSCLK_OUT	O5		**sys clock output**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO0	O		**Trigger output**
94	P20.2	I	S / PU / VEXT	**General-purpose input** This pin is latched at power on reset release to enter test mode.
	$\overline{\text{TESTMODE}}$			**Testmode Enable Input**

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Table 2-57 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
95	P20.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_5			**Mux input channel 4 of TIM module 2**
	ASCLIN3_ARXC			**Receive input**
	GPT120_T6INA			**Trigger/gate input of core timer T6**
	P20.3	O0		**General-purpose output**
	GTM_TOUT61	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI0_SLSO9	O3		**Master slave select output**
	QSPI2_SLSO9	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
100	P20.6	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_5			**Mux input channel 6 of TIM module 2**
	CAN12_RXDA			**CAN receive input node 2**
	ASCLIN9_ARXE			**Receive input**
	P20.6	O0		**General-purpose output**
	GTM_TOUT62	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	QSPI0_SLSO8	O3		**Master slave select output**
	QSPI2_SLSO8	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-57 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
101	P20.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_5			**Mux input channel 7 of TIM module 2**
	GTM_TIM1_IN5_8			**Mux input channel 5 of TIM module 1**
	CAN00_RXDB			**CAN receive input node 0**
	ASCLIN1_ACTSA			**Clear to send input**
	ASCLIN9_ARXF			**Receive input**
	P20.7	O0		**General-purpose output**
	GTM_TOUT63	O1		**GTM muxed output**
	ASCLIN9_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**
102	P20.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_3			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_3			**Mux input channel 7 of TIM module 0**
	P20.8	O0		**General-purpose output**
	GTM_TOUT64	O1		**GTM muxed output**
	ASCLIN1_ASLSO	O2		**Slave select signal output**
	QSPI0_SLSO0	O3		**Master slave select output**
	QSPI1_SLSO0	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-57 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
103	P20.9	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_5			**Mux input channel 5 of TIM module 2**
	CAN03_RXDE			**CAN receive input node 3**
	ASCLIN1_ARXC			**Receive input**
	QSPI0_SLSIB			**Slave select input**
	SCU_E_REQ7_0			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P20.9	O0		**General-purpose output**
	GTM_TOUT65	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO1	O3		**Master slave select output**
	QSPI1_SLSO1	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**
104	P20.10	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_6			**Mux input channel 6 of TIM module 2**
	P20.10	O0		**General-purpose output**
	GTM_TOUT66	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO6	O3		**Master slave select output**
	QSPI2_SLSO7	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-57 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
105	P20.11	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_6			**Mux input channel 7 of TIM module 2**
	QSPI0_SCLKA			**Slave SPI clock inputs**
	P20.11	O0		**General-purpose output**
	GTM_TOUT67	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
106	P20.12	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_5			**Mux input channel 0 of TIM module 2**
	QSPI0_MRSTA			**Master SPI data input**
	IOM_PIN_13			**GPIO pad input to FPC**
	P20.12	O0		**General-purpose output**
	GTM_TOUT68	O1		**GTM muxed output**
	IOM_MON0_13			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MRST	O3		**Slave SPI data output**
	IOM_MON2_0			**Monitor input 2**
	IOM_REF2_0			**Reference input 2**
	QSPI0_MTSR	O4		**Master SPI data output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-57 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
107	P20.13	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_4			**Mux input channel 1 of TIM module 2**
	QSPI0_SLSIA			**Slave select input**
	IOM_PIN_14			**GPIO pad input to FPC**
	P20.13	O0		**General-purpose output**
	GTM_TOUT69	O1		**GTM muxed output**
	IOM_MON0_14			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_SLSO2	O3		**Master slave select output**
	QSPI1_SLSO2	O4		**Master slave select output**
	QSPI0_SCLK	O5		**Master SPI clock output**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
108	P20.14	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_4			**Mux input channel 2 of TIM module 2**
	QSPI0_MTSRA			**Slave SPI data input**
	IOM_PIN_15			**GPIO pad input to FPC**
	DMU_FDEST			**Enter destructive debug mode**
	P20.14	O0		**General-purpose output**
	GTM_TOUT70	O1		**GTM muxed output**
	IOM_MON0_15			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-58 Port 21 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
84	P21.2	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_7			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_7			**Mux input channel 0 of TIM module 0**
	QSPI2_MRSTCN			**Master SPI data input (LVDS N line)**
	SCU_EMGSTOP_PORT_B			**Emergency stop Port Pin B input request**
	ASCLIN3_ARXGN			**Differential Receive input (low active)**
	HSCT0_RXDN			**Rx data**
	ASCLIN11_ARXE			**Receive input**
	GTM_DTMA1_0			**CDTM1_DTM4**
	P21.2	O0		**General-purpose output**
	GTM_TOUT53	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	GETH_MDC	O5		**MDIO clock**
	—	O6		**Reserved**
	—	O7		**Reserved**
85	P21.3	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_6			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_6			**Mux input channel 1 of TIM module 0**
	QSPI2_MRSTCP			**Master SPI data input (LVDS P line)**
	ASCLIN3_ARXGP			**Differential Receive input (high active)**
	GETH_MDIOD			**MDIO Input**
	HSCT0_RXDP			**Rx data**
	P21.3	O0		**General-purpose output**
	GTM_TOUT54	O1		**GTM muxed output**
	ASCLIN11_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**

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Table 2-58 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
86	P21.4	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN2_6			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_6			**Mux input channel 2 of TIM module 0**
	P21.4	O0		**General-purpose output**
	GTM_TOUT55	O1		**GTM muxed output**
	ASCLIN11_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDN	O		**Tx data**
87	P21.5	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_6			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_6			**Mux input channel 3 of TIM module 0**
	ASCLIN11_ARXF			**Receive input**
	P21.5	O0		**General-purpose output**
	GTM_TOUT56	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN11_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDP	O		**Tx data**

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Table 2-58 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
88	P21.6/TDI	I	FAST / PD / PU2 / VEXT / ES3	**General-purpose input** PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
	GTM_TIM1_IN4_8			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_8			**Mux input channel 4 of TIM module 0**
	GPT120_T5EUDA			**Count direction control input of timer T5**
	ASCLIN3_ARXF			**Receive input**
	CBS_TGI2			**Trigger input**
	TDI			**JTAG Module Data Input**
	P21.6	O0		**General-purpose output**
	GTM_TOUT57	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T3OUT	O7		**External output for overflow/underflow detection of core timer T3**
	CBS_TGO2	O		**Trigger output**
	DAP3	I/O		**DAP: DAP3 Data I/O**

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Table 2-58 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
90	P21.7/TDO	I	FAST / PU2 / VEXT / ES4	**General-purpose input**
	GTM_TIM1_IN5_7			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_7			**Mux input channel 5 of TIM module 0**
	GPT120_T5INA			**Trigger/gate input of timer T5**
	CBS_TGI3			**Trigger input**
	GETH_RXERB			**Receive Error MII**
	P21.7	O0		**General-purpose output**
	GTM_TOUT58	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T6OUT	O7		**External output for overflow/underflow detection of core timer T6**
	CBS_TGO3	O		**Trigger output**
	DAP2	I/O		**DAP: DAP2 Data I/O**
	TDO	O		**JTAG Module Data Output**

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Table 2-59 Port 22 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
74	P22.0	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN1_7			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_7			**Mux input channel 1 of TIM module 0**
	ASCLIN6_ARXE			**Receive input**
	QSPI3_MTSRD			**Slave SPI data input**
	P22.0	O0		**General-purpose output**
	GTM_TOUT47	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN6_ATX	O7		**Transmit output**
75	P22.1	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN0_8			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_8			**Mux input channel 0 of TIM module 0**
	ASCLIN7_ARXE			**Receive input**
	QSPI3_MRSTD			**Master SPI data input**
	P22.1	O0		**General-purpose output**
	GTM_TOUT48	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN7_ATX	O7		**Transmit output**

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Table 2-59 Port 22 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
76	P22.2	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_7			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_7			**Mux input channel 3 of TIM module 0**
	P22.2	O0		**General-purpose output**
	GTM_TOUT49	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	QSPI3_SLSO12	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
77	P22.3	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN4_4			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_4			**Mux input channel 4 of TIM module 0**
	ASCLIN5_ARXC			**Receive input**
	QSPI3_SCLKD			**Slave SPI clock inputs**
	P22.3	O0		**General-purpose output**
	GTM_TOUT50	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-60 Port 23 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
73	P23.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_4			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_4			**Mux input channel 6 of TIM module 0**
	ASCLIN6_ARXF			**Receive input**
	P23.1	O0		**General-purpose output**
	GTM_TOUT42	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	—	O3		**Reserved**
	GTM_CLK0	O4		**CGM generated clock**
	CAN10_TXD	O5		**CAN transmit output node 0**
	CCU_EXTCLK0	O6		**External Clock 0**
	ASCLIN6_ASCLK	O7		**Shift clock output**

Table 2-61 Port 32 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
70	P32.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
	GTM_TIM2_IN2_5			**Mux input channel 2 of TIM module 2**
	P32.0	O0		**General-purpose output**
	GTM_TOUT36	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
71	P32.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.1 / External Pass Device gate control for EVRC
	P32.1	O0		**General-purpose output**
	GTM_TOUT37	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-61 Port 32 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
72	P32.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_5			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_5			**Mux input channel 5 of TIM module 0**
	ASCLIN1_ACTSB			**Clear to send input**
	P32.4	O0		**General-purpose output**
	GTM_TOUT40	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	GTM_CLK1	O4		**CGM generated clock**
	—	O5		**Reserved**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	PMS_DCDCSYNCO	O		**DC-DC synchronization output**

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Table 2-62 Port 33 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
60	P33.4	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_10			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_10			**Mux input channel 0 of TIM module 0**
	EDSADC_ITR0F			**Trigger/Gate input, channel 0**
	SENT_SENT6C			**Receive input channel 6**
	EDSADC_DSDIN1B			**Digital datastream input, channel 1**
	CCU61_CTRAPC			**Trap input capture**
	ASCLIN5_ARXB			**Receive input**
	IOM_PIN_4			**GPIO pad input to FPC**
	P33.4	O0		**General-purpose output**
	GTM_TOUT26	O1		**GTM muxed output**
	IOM_MON0_4			**Monitor input 0**
	IOM_GTM_4			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI2_SLSO12	O3		**Master slave select output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC0BFLOUT	O6		**Boundary flag output, FC channel 0**
	CAN13_TXD	O7		**CAN transmit output node 3**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
61	P33.5	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_8			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_8			**Mux input channel 1 of TIM module 0**
	EDSADC_DSCIN0B			**Modulator clock input, channel 0**
	EDSADC_ITR1F			**Trigger/Gate input, channel 1**
	GPT120_T4EUDB			**Count direction control input of timer T4**
	PSI5S_RXC			**RX data input**
	ASCLIN2_ACTSB			**Clear to send input**
	CCU61_CCPOS2C			**Hall capture input 2**
	SENT_SENT5C			**Receive input channel 5**
	CAN13_RXDB			**CAN receive input node 3**
	IOM_PIN_5			**GPIO pad input to FPC**
	P33.5	O0		**General-purpose output**
	GTM_TOUT27	O1		**GTM muxed output**
	IOM_MON0_5			**Monitor input 0**
	IOM_GTM_5			**GTM-provided inputs to EXOR combiner**
	QSPI0_SLSO7	O2		**Master slave select output**
	QSPI1_SLSO7	O3		**Master slave select output**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	—	O6		**Reserved**
	ASCLIN5_ASLSO	O7		**Slave select signal output**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
62	P33.6	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_9			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_9			**Mux input channel 2 of TIM module 0**
	EDSADC_ITR2F			**Trigger/Gate input, channel 2**
	GPT120_T2EUDB			**Count direction control input of timer T2**
	SENT_SENT4C			**Receive input channel 4**
	CCU61_CCPOS1C			**Hall capture input 1**
	EDSADC_DSDIN0B			**Digital datastream input, channel 0**
	ASCLIN8_ARXD			**Receive input**
	IOM_PIN_6			**GPIO pad input to FPC**
	P33.6	O0		**General-purpose output**
	GTM_TOUT28	O1		**GTM muxed output**
	IOM_MON0_6			**Monitor input 0**
	IOM_GTM_6			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI2_SLSO11	O3		**Master slave select output**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC1BFLOUT	O6		**Boundary flag output, FC channel 1**
	PSI5S_TX	O7		**TX data output**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
63	P33.7	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN3_9			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_9			**Mux input channel 3 of TIM module 0**
	CAN00_RXDE			**CAN receive input node 0**
	GPT120_T2INB			**Trigger/gate input of timer T2**
	CCU61_CCPOS0C			**Hall capture input 0**
	SCU_E_REQ4_0			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	IOM_PIN_7			**GPIO pad input to FPC**
	P33.7	O0		**General-purpose output**
	GTM_TOUT29	O1		**GTM muxed output**
	IOM_MON0_7			**Monitor input 0**
	IOM_GTM_7			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	ASCLIN8_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
64	P33.8	I	FAST / HighZ / VEVRSB	**General-purpose input**
	GTM_TIM1_IN4_7			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_7			**Mux input channel 4 of TIM module 0**
	ASCLIN2_ARXE			**Receive input**
	SCU_EMGSTOP_PORT_A			**Emergency stop Port Pin A input request**
	IOM_PIN_8			**GPIO pad input to FPC**
	P33.8	O0		**General-purpose output**
	GTM_TOUT30	O1		**GTM muxed output**
	IOM_MON0_8			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
	SMU_FSP0	O		**FSP[1..0] Output Signals - Generated by SMU_core**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
65	P33.9	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_9			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_9			**Mux input channel 1 of TIM module 0**
	IOM_PIN_9			**GPIO pad input to FPC**
	P33.9	O0		**General-purpose output**
	GTM_TOUT31	O1		**GTM muxed output**
	IOM_MON0_9			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN2_ASCLK	O4		**Shift clock output**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ATX	O6		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
66	P33.10	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_9			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_9			**Mux input channel 0 of TIM module 0**
	CAN01_RXDD			**CAN receive input node 1**
	ASCLIN0_ARXD			**Receive input**
	IOM_PIN_10			**GPIO pad input to FPC**
	P33.10	O0		**General-purpose output**
	GTM_TOUT32	O1		**GTM muxed output**
	IOM_MON0_10			**Monitor input 0**
	QSPI1_SLSO6	O2		**Master slave select output**
	—	O3		**Reserved**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	PSI5S_CLK	O5		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**
	SMU_FSP1	O		**FSP[1..0] Output Signals - Generated by SMU_core**
67	P33.11	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_8			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_8			**Mux input channel 2 of TIM module 0**
	IOM_PIN_11			**GPIO pad input to FPC**
	P33.11	O0		**General-purpose output**
	GTM_TOUT33	O1		**GTM muxed output**
	IOM_MON0_11			**Monitor input 0**
	ASCLIN1_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	EDSADC_CGPWMN	O6		**Negative carrier generator output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-62 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
68	P33.12	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN0_6			**Mux input channel 0 of TIM module 2**
	CAN00_RXDD			**CAN receive input node 0**
	PMS_PINBWKP			**PINB (P33.12) pin input**
	IOM_PIN_12			**GPIO pad input to FPC**
	P33.12	O0		**General-purpose output**
	GTM_TOUT34	O1		**GTM muxed output**
	IOM_MON0_12			**Monitor input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN1_ASCLK	O4		**Shift clock output**
	—	O5		**Reserved**
	EDSADC_CGPWMP	O6		**Positive carrier generator output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
69	P33.13	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN1_5			**Mux input channel 1 of TIM module 2**
	ASCLIN1_ARXF			**Receive input**
	EDSADC_SGNB			**Carrier sign signal input**
	P33.13	O0		**General-purpose output**
	GTM_TOUT35	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	QSPI2_SLSO6	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-63 Analog Inputs

Pin	Symbol	Ctrl.	Buffer Type	Function
57	AN0	I	D / HighZ / VDDM	**Analog Input 0**
	EVADC_G0CH0			**Analog input channel 0, group 0**
	EDSADC_EDS3PA			**Positive analog input channel 3, pin A**
56	AN1	I	D / HighZ / VDDM	**Analog Input 1**
	EVADC_G0CH1			**Analog input channel 1, group 0**
	EDSADC_EDS3NA			**Negative analog input channel 3, pin A**
55	AN2	I	D / HighZ / VDDM	**Analog Input 2**
	EVADC_G0CH2			**Analog input channel 2, group 0**
	EDSADC_EDS0PA			**Positive analog input channel 0, pin A**
54	AN3	I	D / HighZ / VDDM	**Analog Input 3**
	EVADC_G0CH3			**Analog input channel 3, group 0**
	EDSADC_EDS0NA			**Negative analog input channel 0, pin A**
53	AN4	I	D / HighZ / VDDM	**Analog Input 4**
	EVADC_G0CH4			**Analog input channel 4, group 0**
52	AN5	I	D / HighZ / VDDM	**Analog Input 5**
	EVADC_G0CH5			**Analog input channel 5, group 0**
51	AN6	I	D / HighZ / VDDM	**Analog Input 6**
	EVADC_G0CH6			**Analog input channel 6, group 0**
50	AN7	I	D / HighZ / VDDM	**Analog Input 7**
	EVADC_G0CH7			**Analog input channel 7, group 0**
49	AN8	I	D / HighZ / VDDM	**Analog Input 8**
	EVADC_G1CH0			**Analog input channel 0, group 1**
48	AN10	I	D / HighZ / VDDM	**Analog Input 10**
	EVADC_G1CH2			**Analog input channel 2, group 1**
47	AN11	I	D / HighZ / VDDM	**Analog Input 11**
	EVADC_G1CH3			**Analog input channel 3, group 1**
46	AN12	I	D / HighZ / VDDM	**Analog Input 12**
	EVADC_G1CH4			**Analog input channel 4, group 1**
	EDSADC_EDS0PB			**Positive analog input channel 0, pin B**
45	AN13	I	D / HighZ / VDDM	**Analog Input 13**
	EVADC_G1CH5			**Analog input channel 5, group 1**
	EDSADC_EDS0NB			**Negative analog input channel 0, pin B**
40	AN16	I	D / HighZ / VDDM	**Analog Input 16**
	EVADC_G2CH0			**Analog input channel 0, group 2**
	EVADC_FC0CH0			**Analog input FC channel 0**

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Table 2-63 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
39	AN17	I	D / HighZ / VDDM	**Analog Input 17**
	EVADC_G2CH1			**Analog input channel 1, group 2**
	EVADC_FC1CH0			**Analog input FC channel 1**
38	AN20	I	D / HighZ / VDDM	**Analog Input 20**
	EVADC_G2CH4			**Analog input channel 4, group 2**
	EDSADC_EDS2PA			**Positive analog input channel 2, pin A**
37	AN21	I	D / HighZ / VDDM	**Analog Input 21**
	EVADC_G2CH5			**Analog input channel 5, group 2**
	EDSADC_EDS2NA			**Negative analog input channel 2, pin A**
36	AN24/P40.0	I	S / HighZ / VDDM	**Analog Input 24**
	SENT_SENT0A			**Receive input channel 0**
	EVADC_G3CH0			**Analog input channel 0, group 3**
	CCU60_CCPOS0D			**Hall capture input 0**
	EDSADC_EDS2PB			**Positive analog input channel 2, pin B**
35	AN25/P40.1	I	S / HighZ / VDDM	**Analog Input 25**
	SENT_SENT1A			**Receive input channel 1**
	EVADC_G3CH1			**Analog input channel 1, group 3**
	CCU60_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS2NB			**Negative analog input channel 2, pin B**
34	AN35	I	D / HighZ / VDDM	**Analog Input 35**
	EVADC_G8CH3			**Analog input channel 3, group 8**
33	AN36/P40.6	I	S / HighZ / VDDM	**Analog Input 36**
	SENT_SENT6A			**Receive input channel 6**
	EVADC_G8CH4			**Analog input channel 4, group 8**
	CCU61_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS1PA			**Positive analog input channel 1, pin A**
32	AN37/P40.7	I	S / HighZ / VDDM	**Analog Input 37**
	SENT_SENT7A			**Receive input channel 7**
	EVADC_G8CH5			**Analog input channel 5, group 8**
	CCU61_CCPOS1D			**Hall capture input 1**
	EDSADC_EDS1NA			**Negative analog input channel 1, pin A**
31	AN38/P40.8	I	S / HighZ / VDDM	**Analog Input 38**
	SENT_SENT8A			**Receive input channel 8**
	EVADC_G8CH6			**Analog input channel 6, group 8**
	CCU61_CCPOS2B			**Hall capture input 2**
	EDSADC_EDS1PB			**Positive analog input channel 1, pin B**

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Table 2-63 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
30	AN39/P40.9	I	S / HighZ / VDDM	**Analog Input 39**
	SENT_SENT9A			**Receive input channel 9**
	EVADC_G8CH7			**Analog input channel 7, group 8**
	CCU61_CCPOS2D			**Hall capture input 2**
	EDSADC_EDS1NB			**Negative analog input channel 1, pin B**
25	AN42	I	D / HighZ / VDDM	**Analog Input 42**
	EVADC_G8CH10			**Analog input channel 10, group 8**
24	AN43	I	D / HighZ / VDDM	**Analog Input 43**
	EVADC_G8CH11			**Analog input channel 11, group 8**
29	AN44	I	D / HighZ / VDDM	**Analog Input 44**
	EVADC_G8CH12			**Analog input channel 12, group 8**
	EDSADC_EDS1PC			**Positive analog input channel 1, pin C**
28	AN45	I	D / HighZ / VDDM	**Analog Input 45**
	EVADC_G8CH13			**Analog input channel 13, group 8**
	EDSADC_EDS1NC			**Negative analog input channel 1, pin C**
27	AN46	I	D / HighZ / VDDM	**Analog Input 46**
	EVADC_G8CH14			**Analog input channel 14, group 8**
	EDSADC_EDS1PD			**Positive analog input channel 1, pin D**
26	AN47	I	D / HighZ / VDDM	**Analog Input 47**
	EVADC_G8CH15			**Analog input channel 15, group 8**
	EDSADC_EDS1ND			**Negative analog input channel 1, pin D**

Note: Port Pins P32.0 and P32.1 are bidirectional pads and are having the following two functionalities implemented:

7. *In case the pins are used as standard GPIOs the functions defined in the pin configuration tables of P32.0 and P32.1 are available.*
8. *In case the pins are used as pre-drivers for external MOSFETs (internal DCDC usecase) P32.0 and P32.1 act as analog IOs named VGATE1N and VGATE1P.*

Table 2-64 System I/O

Pin	Symbol	Ctrl.	Buffer Type	Function
70	VGATE1N	O	—	**DCDC N ch. MOSFET gate driver output** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
71	VGATE1P	O	—	**DCDC P ch. MOSFET gate driver output** P32.1 / External Pass Device gate control for EVRC
81	XTAL1	I	XTAL / VEXT	**XTAL pad1** XTAL1. Main Oscillator/PLL/Clock Generator Input.

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Table 2-64 System I/O (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
82	XTAL2	O	XTAL / VEXT	**XTAL pad2** XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
89	TMS	I	FAST / PD2 / VEXT	**JTAG Module State Machine Control Input**
	DAP1	I/O		**DAP: DAP1 Data I/O**
91	$\overline{\text{TRST}}$	I	FAST / PU2 / VEXT	**JTAG Module Reset/Enable Input**
92	TCK	I	FAST / PD2 / VEXT	**JTAG Module Clock Input**
	DAP0	I		**DAP: DAP0 Clock Input**
96	$\overline{\text{ESR1}}$	I/O	FAST / PU1 / VEXT	**ESR1 Port Pin input - can be used to trigger a reset or an NMI** ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR1WKP	I		**ESR1 pin input**
97	$\overline{\text{PORST}}$	I/O	PORST / PD / VEXT	**PORST pin** Power On Reset Input. Additional strong PD in case of power fail.
98	$\overline{\text{ESR0}}$	I/O	FAST / OD / VEXT	**ESR0 Port Pin input - can be used to trigger a reset or an NMI** ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR0WKP	I		**ESR0 pin input**

Table 2-65 Supply

Pin	Symbol	Ctrl.	Buffer Type	Function
44	VDDM	I	—	**ADC Analog Power Supply (5V / 3.3V)**
136	VFLEX	I	—	**Digital Power Supply for Flex Port Pads (5V / 3.3V)**
126	VDDP3	I	—	**Flash Power Supply (3.3V)**
42	VAREF1	I	—	**Positive Analog Reference Voltage 1**
59	VEVRSB	I	—	**Standby Power Supply (5V / 3.3V) for the Standby SRAM**

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Table 2-65 Supply (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
10	VDD	I	—	**Digital Core Power Supply (1.25V)**
125	VEXT	I	—	**External Power Supply (5V / 3.3V)**
23	VEXT	I	—	**External Power Supply (5V / 3.3V)**
78	VEXT	I	—	**External Power Supply (5V / 3.3V)**
127	VDD	I	—	**Digital Core Power Supply (1.25V)**
22	VDD	I	—	**Digital Core Power Supply (1.25V)**
58	VDD	I	—	**Digital Core Power Supply (1.25V)**
79	VDD	I	—	**Digital Core Power Supply (1.25V)**
99	VDD	I	—	**Digital Core Power Supply (1.25V)**
E-PAD	VSS	I	—	**Digital Ground (Exposed PAD), VSS**
43	VSSM	I	—	**Analog Ground for VDDM**
41	VAGND1	I	—	**Negative Analog Reference Voltage 1**
80	VSS	I	—	**Oscillator Ground, VSS(OSC)**
83	VEXT	I	—	**Digital Power Supply for Oscillator (shall be supplied with same level as used for VEXT), VEXT(OSC)**

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2.5 TQFP-144 Package Variant Pin Configuration of TC36x

Note: In the following QFP package the VFLEX supply is internally connected to VEXT supply and thus does not show up in the corresponding package drawings neither supply tables as a dedicated pin.

Table 2-66 Port 00 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
11	P00.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_1			**Mux input channel 0 of TIM module 2**
	CCU61_CTRAPA			**Trap input capture**
	CCU60_T12HRE			**External timer start 12**
	MSC0_INJ0			**Injection signal from port**
	GETH_MDIOA			**MDIO Input**
	P00.0	O0		**General-purpose output**
	GTM_TOUT9	O1		**GTM muxed output**
	IOM_REF0_9			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN3_ATX	O3		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O4		**Reserved**
	CAN10_TXD	O5		**CAN transmit output node 0**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
	GETH_MDIO	O		**MDIO Output**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
12	P00.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_1			**Mux input channel 1 of TIM module 2**
	CCU60_CC60INB			**T12 capture input 60**
	ASCLIN3_ARXE			**Receive input**
	CAN10_RXDA			**CAN receive input node 0**
	PSI5_RX0A			**RXD inputs (receive data) channel 0**
	CCU61_CC60INA			**T12 capture input 60**
	SENT_SENT0B			**Receive input channel 0**
	EVADC_G9CH11	AI		**Analog input channel 11, group 9**
	P00.1	O0		**General-purpose output**
	GTM_TOUT10	O1		**GTM muxed output**
	IOM_REF0_10			**Reference input 0**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	SENT_SPC0	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
13	P00.2	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN1_2			**Mux input channel 1 of TIM module 2**
	SENT_SENT1B			**Receive input channel 1**
	EVADC_G9CH10	AI		**Analog input channel 10, group 9**
	P00.2	O0		**General-purpose output**
	GTM_TOUT11	O1		**GTM muxed output**
	IOM_REF0_11			**Reference input 0**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	QSPI3_SLSO4	O6		**Master slave select output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
14	P00.3	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN2_1			**Mux input channel 2 of TIM module 2**
	CCU60_CC61INB			**T12 capture input 61**
	EDSADC_DSCIN3A			**Modulator clock input, channel 3**
	PSI5_RX1A			**RXD inputs (receive data) channel 1**
	CAN03_RXDA			**CAN receive input node 3**
	PSI5S_RXA			**RX data input**
	SENT_SENT2B			**Receive input channel 2**
	CCU61_CC61INA			**T12 capture input 61**
	EVADC_G9CH9	AI		**Analog input channel 9, group 9**
	P00.3	O0		**General-purpose output**
	GTM_TOUT12	O1		**GTM muxed output**
	IOM_REF0_12			**Reference input 0**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	—	O5		**Reserved**
	SENT_SPC2	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
15	P00.4	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN3_1			**Mux input channel 3 of TIM module 2**
	SCU_E_REQ2_2			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	SENT_SENT3B			**Receive input channel 3**
	EDSADC_DSDIN3A			**Digital datastream input, channel 3**
	EDSADC_SGNA			**Carrier sign signal input**
	ASCLIN10_ARXA			**Receive input**
	EVADC_G9CH8	AI		**Analog input channel 8, group 9**
	P00.4	O0		**General-purpose output**
	GTM_TOUT13	O1		**GTM muxed output**
	IOM_REF0_13			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	CAN11_TXD	O3		**CAN transmit output node 1**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	—	O5		**Reserved**
	SENT_SPC3	O6		**Transmit output**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
16	P00.5	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN4_1			**Mux input channel 4 of TIM module 2**
	CCU60_CC62INB			**T12 capture input 62**
	EDSADC_DSCIN2A			**Modulator clock input, channel 2**
	CCU61_CC62INA			**T12 capture input 62**
	SENT_SENT4B			**Receive input channel 4**
	CAN11_RXDB			**CAN receive input node 1**
	GTM_DTMT1_1			**CDTM1_DTM0**
	EVADC_G9CH7	AI		**Analog input channel 7, group 9**
	P00.5	O0		**General-purpose output**
	GTM_TOUT14	O1		**GTM muxed output**
	IOM_REF0_14			**Reference input 0**
	EDSADC_CGPWMN	O2		**Negative carrier generator output**
	QSPI3_SLSO3	O3		**Master slave select output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_FC0BFLOUT	O5		**Boundary flag output, FC channel 0**
	SENT_SPC4	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**
17	P00.6	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN5_1			**Mux input channel 5 of TIM module 2**
	EDSADC_DSDIN2A			**Digital datastream input, channel 2**
	SENT_SENT5B			**Receive input channel 5**
	ASCLIN5_ARXA			**Receive input**
	EVADC_G9CH6	AI		**Analog input channel 6, group 9**
	P00.6	O0		**General-purpose output**
	GTM_TOUT15	O1		**GTM muxed output**
	IOM_REF0_15			**Reference input 0**
	EDSADC_CGPWMP	O2		**Positive carrier generator output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC5	O6		**Transmit output**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
18	P00.7	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN6_1			**Mux input channel 6 of TIM module 2**
	CCU61_CC60INC			**T12 capture input 60**
	SENT_SENT6B			**Receive input channel 6**
	GPT120_T2INA			**Trigger/gate input of timer T2**
	CCU61_CCPOS0A			**Hall capture input 0**
	CCU60_T12HRB			**External timer start 12**
	GTM_DTMT0_2			**CDTM0_DTM0**
	EVADC_G9CH5	AI		**Analog input channel 5, group 9**
	P00.7	O0		**General-purpose output**
	GTM_TOUT16	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC6	O6		**Transmit output**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**
19	P00.8	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM2_IN7_1			**Mux input channel 7 of TIM module 2**
	CCU61_CC61INC			**T12 capture input 61**
	SENT_SENT7B			**Receive input channel 7**
	GPT120_T2EUDA			**Count direction control input of timer T2**
	CCU61_CCPOS1A			**Hall capture input 1**
	CCU60_T13HRB			**External timer start 13**
	ASCLIN10_ARXB			**Receive input**
	EVADC_G9CH4	AI		**Analog input channel 4, group 9**
	P00.8	O0		**General-purpose output**
	GTM_TOUT17	O1		**GTM muxed output**
	QSPI3_SLSO6	O2		**Master slave select output**
	ASCLIN10_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	SENT_SPC7	O6		**Transmit output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
20	P00.9	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN0_1			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_1			**Mux input channel 0 of TIM module 0**
	CCU61_CC62INC			**T12 capture input 62**
	SENT_SENT8B			**Receive input channel 8**
	CCU61_CCPOS2A			**Hall capture input 2**
	EDSADC_DSCIN1A			**Modulator clock input, channel 1**
	EDSADC_ITR3F			**Trigger/Gate input, channel 3**
	GPT120_T4EUDA			**Count direction control input of timer T4**
	CCU60_T13HRC			**External timer start 13**
	CCU60_T12HRC			**External timer start 12**
	EVADC_G9CH3	AI		**Analog input channel 3, group 9**
	P00.9	O0		**General-purpose output**
	GTM_TOUT18	O1		**GTM muxed output**
	QSPI3_SLSO7	O2		**Master slave select output**
	ASCLIN3_ARTS	O3		**Ready to send output**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	ASCLIN4_ATX	O5		**Transmit output**
	SENT_SPC8	O6		**Transmit output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-66 Port 00 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
21	P00.12	I	SLOW / PU1 / VEXT / ES1	**General-purpose input**
	GTM_TIM1_IN3_1			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_1			**Mux input channel 3 of TIM module 0**
	ASCLIN3_ACTSA			**Clear to send input**
	EDSADC_DSDIN0A			**Digital datastream input, channel 0**
	ASCLIN4_ARXA			**Receive input**
	EVADC_G9CH0	AI		**Analog input channel 0, group 9**
	P00.12	O0		**General-purpose output**
	GTM_TOUT21	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**

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Table 2-67 Port 02 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
1	P02.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_2			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_2			**Mux input channel 0 of TIM module 0**
	CCU61_CC60INB			**T12 capture input 60**
	ASCLIN2_ARXG			**Receive input**
	CCU60_CC60INA			**T12 capture input 60**
	SCU_E_REQ3_2			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GTM_DTMA0_0			**CDTM0_DTM4**
	P02.0	O0		**General-purpose output**
	GTM_TOUT0	O1		**GTM muxed output**
	IOM_REF0_0			**Reference input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO1	O3		**Master slave select output**
	EDSADC_CGPWMN	O4		**Negative carrier generator output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	ERAY0_TXDA	O6		**Transmit Channel A**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
2	P02.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_2			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_2			**Mux input channel 1 of TIM module 0**
	ERAY0_RXDA2			**Receive Channel A2**
	ASCLIN2_ARXB			**Receive input**
	CAN00_RXDA			**CAN receive input node 0**
	SCU_E_REQ2_1			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P02.1	O0		**General-purpose output**
	GTM_TOUT1	O1		**GTM muxed output**
	IOM_REF0_1			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SLSO2	O3		**Master slave select output**
	EDSADC_CGPWMP	O4		**Positive carrier generator output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
3	P02.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_2			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_2			**Mux input channel 2 of TIM module 0**
	CCU61_CC61INB			**T12 capture input 61**
	CCU60_CC61INA			**T12 capture input 61**
	P02.2	O0		**General-purpose output**
	GTM_TOUT2	O1		**GTM muxed output**
	IOM_REF0_2			**Reference input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI3_SLSO3	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ERAY0_TXDB	O6		**Transmit Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
4	P02.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_2			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_2			**Mux input channel 3 of TIM module 0**
	ERAY0_RXDB2			**Receive Channel B2**
	CAN02_RXDB			**CAN receive input node 2**
	ASCLIN1_ARXG			**Receive input**
	PSI5_RX0B			**RXD inputs (receive data) channel 0**
	P02.3	O0		**General-purpose output**
	GTM_TOUT3	O1		**GTM muxed output**
	IOM_REF0_3			**Reference input 0**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI3_SLSO4	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
5	P02.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN4_1			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_1			**Mux input channel 4 of TIM module 0**
	CCU61_CC62INB			**T12 capture input 62**
	QSPI3_SLSIA			**Slave select input**
	CCU60_CC62INA			**T12 capture input 62**
	I2C0_SDAA			**Serial Data Input 0**
	CAN11_RXDA			**CAN receive input node 1**
	CAN0_ECTT1			**External CAN time trigger input**
	P02.4	O0		**General-purpose output**
	GTM_TOUT4	O1		**GTM muxed output**
	IOM_REF0_4			**Reference input 0**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_SLSO0	O3		**Master slave select output**
	PSI5S_CLK	O4		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	I2C0_SDA	O5		**Serial Data Output**
	ERAY0_TXENA	O6		**Transmit Enable Channel A**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
6	P02.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_1			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_1			**Mux input channel 5 of TIM module 0**
	I2C0_SCLA			**Serial Clock Input 0**
	PSI5_RX1B			**RXD inputs (receive data) channel 1**
	PSI5S_RXB			**RX data input**
	QSPI3_MRSTA			**Master SPI data input**
	SENT_SENT3C			**Receive input channel 3**
	CAN0_ECTT2			**External CAN time trigger input**
	P02.5	O0		**General-purpose output**
	GTM_TOUT5	O1		**GTM muxed output**
	IOM_REF0_5			**Reference input 0**
	CAN11_TXD	O2		**CAN transmit output node 1**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	I2C0_SCL	O5		**Serial Clock Output**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
7	P02.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_1			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_1			**Mux input channel 6 of TIM module 0**
	CCU60_CC60INC			**T12 capture input 60**
	SENT_SENT2C			**Receive input channel 2**
	GPT120_T3INA			**Trigger/gate input of core timer T3**
	CCU60_CCPOS0A			**Hall capture input 0**
	CCU61_T12HRB			**External timer start 12**
	QSPI3_MTSRA			**Slave SPI data input**
	P02.6	O0		**General-purpose output**
	GTM_TOUT6	O1		**GTM muxed output**
	IOM_REF0_6			**Reference input 0**
	PSI5S_TX	O2		**TX data output**
	QSPI3_MTSR	O3		**Master SPI data output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
8	P02.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_1			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_1			**Mux input channel 7 of TIM module 0**
	CCU60_CC61INC			**T12 capture input 61**
	SENT_SENT1C			**Receive input channel 1**
	EDSADC_DSCIN3B			**Modulator clock input, channel 3**
	GPT120_T3EUDA			**Count direction control input of core timer T3**
	CCU60_CCPOS1A			**Hall capture input 1**
	QSPI3_SCLKA			**Slave SPI clock inputs**
	CCU61_T13HRB			**External timer start 13**
	P02.7	O0		**General-purpose output**
	GTM_TOUT7	O1		**GTM muxed output**
	IOM_REF0_7			**Reference input 0**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT3	O4		**Modulator clock output**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	SENT_SPC1	O6		**Transmit output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-67 Port 02 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
9	P02.8	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_2			**Mux input channel 0 of TIM module 2**
	CCU60_CC62INC			**T12 capture input 62**
	SENT_SENT0C			**Receive input channel 0**
	CCU60_CCPOS2A			**Hall capture input 2**
	EDSADC_DSDIN3B			**Digital datastream input, channel 3**
	EDSADC_ITR3E			**Trigger/Gate input, channel 3**
	GPT120_T4INA			**Trigger/gate input of timer T4**
	CCU61_T12HRC			**External timer start 12**
	CCU61_T13HRC			**External timer start 13**
	GTM_DTMA0_1			**CDTM0_DTM4**
	P02.8	O0		**General-purpose output**
	GTM_TOUT8	O1		**GTM muxed output**
	IOM_REF0_8			**Reference input 0**
	QSPI3_SLSO5	O2		**Master slave select output**
	ASCLIN8_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	GETH_MDC	O6		**MDIO clock**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-68 Port 10 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
140	P10.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_3			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_3			**Mux input channel 1 of TIM module 0**
	GPT120_T5EUDB			**Count direction control input of timer T5**
	QSPI1_MRSTA			**Master SPI data input**
	GTM_DTMT0_1			**CDTM0_DTM0**
	P10.1	O0		**General-purpose output**
	GTM_TOUT103	O1		**GTM muxed output**
	QSPI1_MTSR	O2		**Master SPI data output**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	MSC0_EN1	O4		**Chip Select**
	EVADC_FC1BFLOUT	O5		**Boundary flag output, FC channel 1**
	—	O6		**Reserved**
	—	O7		**Reserved**
141	P10.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_3			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_3			**Mux input channel 2 of TIM module 0**
	CAN02_RXDE			**CAN receive input node 2**
	MSC0_SDI1			**Upstream assynchronous input signal**
	QSPI1_SCLKA			**Slave SPI clock inputs**
	GPT120_T6INB			**Trigger/gate input of core timer T6**
	SCU_E_REQ2_0			**ERU Channel 2 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P10.2	O0		**General-purpose output**
	GTM_TOUT104	O1		**GTM muxed output**
	IOM_MON2_9			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_SCLK	O3		**Master SPI clock output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-68 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
142	P10.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_3			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_3			**Mux input channel 3 of TIM module 0**
	QSPI1_MTSRA			**Slave SPI data input**
	SCU_E_REQ3_0			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T5INB			**Trigger/gate input of timer T5**
	P10.3	O0		**General-purpose output**
	GTM_TOUT105	O1		**GTM muxed output**
	IOM_MON2_10			**Monitor input 2**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	MSC0_EN0	O4		**Chip Select**
	—	O5		**Reserved**
	CAN02_TXD	O6		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	—	O7		**Reserved**
143	P10.5	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_4			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_4			**Mux input channel 2 of TIM module 0**
	PMS_HWCFG4IN			**HWCFG4 pin input**
	MSC0_INJ1			**Injection signal from port**
	P10.5	O0		**General-purpose output**
	GTM_TOUT107	O1		**GTM muxed output**
	IOM_REF2_9			**Reference input 2**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI3_SLSO8	O3		**Master slave select output**
	QSPI1_SLSO9	O4		**Master slave select output**
	GPT120_T6OUT	O5		**External output for overflow/underflow detection of core timer T6**
	ASCLIN2_ASLSO	O6		**Slave select signal output**
	—	O7		**Reserved**

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Table 2-68 Port 10 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
144	P10.6	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN3_4			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_4			**Mux input channel 3 of TIM module 0**
	ASCLIN2_ARXD			**Receive input**
	QSPI3_MTSRB			**Slave SPI data input**
	PMS_HWCFG5IN			**HWCFG5 pin input**
	P10.6	O0		**General-purpose output**
	GTM_TOUT108	O1		**GTM muxed output**
	IOM_REF2_10			**Reference input 2**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	QSPI3_MTSR	O3		**Master SPI data output**
	GPT120_T3OUT	O4		**External output for overflow/underflow detection of core timer T3**
	—	O5		**Reserved**
	QSPI1_MRST	O6		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	—	O7		**Reserved**

Table 2-69 Port 11 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
132	P11.2	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN1_3			**Mux input channel 1 of TIM module 2**
	P11.2	O0		**General-purpose output**
	GTM_TOUT95	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO5	O3		**Master slave select output**
	QSPI1_SLSO5	O4		**Master slave select output**
	MSC0_EN1	O5		**Chip Select**
	GETH_TXD1	O6		**Transmit Data**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**

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Table 2-69 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
133	P11.3	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN2_2			**Mux input channel 2 of TIM module 2**
	MSC0_SDI3			**Upstream assynchronous input signal**
	QSPI1_MRSTB			**Master SPI data input**
	P11.3	O0		**General-purpose output**
	GTM_TOUT96	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MRST	O3		**Slave SPI data output**
	IOM_MON2_1			**Monitor input 2**
	IOM_REF2_1			**Reference input 2**
	ERAY0_TXDA	O4		**Transmit Channel A**
	—	O5		**Reserved**
	GETH_TXD0	O6		**Transmit Data**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**
134	P11.6	I	RFAST / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN3_2			**Mux input channel 3 of TIM module 2**
	QSPI1_SCLKB			**Slave SPI clock inputs**
	P11.6	O0		**General-purpose output**
	GTM_TOUT97	O1		**GTM muxed output**
	ERAY0_TXENB	O2		**Transmit Enable Channel B**
	QSPI1_SCLK	O3		**Master SPI clock output**
	ERAY0_TXENA	O4		**Transmit Enable Channel A**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	GETH_TXEN	O6		**Transmit Enable MII and RMII**
	GETH_TCTL			**Transmit Control for RGMII**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-69 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
136	P11.8	I	SLOW / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_8			**Mux input channel 5 of TIM module 2**
	GETH_RXD2A			**Receive Data 2 MII and RGMII (RGMII can use RXD2A only)**
	CAN12_RXDD			**CAN receive input node 2**
	P11.8	O0		**General-purpose output**
	GTM_TOUT124	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
135	P11.9	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN4_2			**Mux input channel 4 of TIM module 2**
	QSPI1_MTSRB			**Slave SPI data input**
	ERAY0_RXDA1			**Receive Channel A1**
	GETH_RXD1A			**Receive Data 1 MII, RMII and RGMII (RGMII can use RXD1A only)**
	P11.9	O0		**General-purpose output**
	GTM_TOUT98	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI1_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**

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Table 2-69 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
137	P11.10	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN5_2			**Mux input channel 5 of TIM module 2**
	GTM_TIM2_IN0_9			**Mux input channel 0 of TIM module 2**
	CAN03_RXDD			**CAN receive input node 3**
	ERAY0_RXDB1			**Receive Channel B1**
	ASCLIN1_ARXE			**Receive input**
	SCU_E_REQ6_3			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	MSC0_SDI0			**Upstream assynchronous input signal**
	GETH_RXD0A			**Receive Data 0 MII, RMII and RGMII (RGMII can use RXD0A only)**
	QSPI1_SLSIA			**Slave select input**
	P11.10	O0		**General-purpose output**
	GTM_TOUT99	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO3	O3		**Master slave select output**
	QSPI1_SLSO3	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**
138	P11.11	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN6_2			**Mux input channel 6 of TIM module 2**
	GETH_CRSDVA			**Carrier Sense / Data Valid combi-signal for RMII**
	GETH_RXDVA			**Receive Data Valid MII**
	GETH_CRSB			**Carrier Sense MII**
	GETH_RCTLA			**Receive Control for RGMII**
	P11.11	O0		**General-purpose output**
	GTM_TOUT100	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO4	O3		**Master slave select output**
	QSPI1_SLSO4	O4		**Master slave select output**
	MSC0_EN0	O5		**Chip Select**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**

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Table 2-69 Port 11 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
139	P11.12	I	FAST / RGMII_Input / PU1 / VFLEX / ES	**General-purpose input**
	GTM_TIM2_IN7_2			**Mux input channel 7 of TIM module 2**
	GETH_REFCLKA			**Reference Clock input for RMII (50 MHz)**
	GETH_TXCLKB			**Transmit Clock Input for MII**
	GETH_RXCLKA			**Receive Clock MII**
	P11.12	O0		**General-purpose output**
	GTM_TOUT101	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	GTM_CLK2	O3		**CGM generated clock**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	CCU_EXTCLK1	O6		**External Clock 1**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

Table 2-70 Port 13 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
128	P13.0	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN5_3			**Mux input channel 5 of TIM module 2**
	ASCLIN10_ARXC			**Receive input**
	P13.0	O0		**General-purpose output**
	GTM_TOUT91	O1		**GTM muxed output**
	ASCLIN10_ATX	O2		**Transmit output**
	QSPI2_SCLKN	O3		**Master SPI clock output (LVDS N line)**
	MSC0_EN1	O4		**Chip Select**
	MSC0_FCLN	O5		**Shift-clock inverted part of the differential signal**
	—	O6		**Reserved**
	CAN10_TXD	O7		**CAN transmit output node 0**

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Table 2-70 Port 13 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
129	P13.1	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN6_3			**Mux input channel 6 of TIM module 2**
	I2C0_SCLB			**Serial Clock Input 1**
	CAN10_RXDD			**CAN receive input node 0**
	ASCLIN10_ARXD			**Receive input**
	P13.1	O0		**General-purpose output**
	GTM_TOUT92	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLKP	O3		**Master SPI clock output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_FCLP	O5		**Shift-clock direct part of the differential signal**
	I2C0_SCL	O6		**Serial Clock Output**
	—	O7		**Reserved**
130	P13.2	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN7_3			**Mux input channel 7 of TIM module 2**
	GPT120_CAPINA			**Trigger input to capture value of timer T5 into CAPREL register**
	I2C0_SDAB			**Serial Data Input 1**
	P13.2	O0		**General-purpose output**
	GTM_TOUT93	O1		**GTM muxed output**
	ASCLIN10_ASCLK	O2		**Shift clock output**
	QSPI2_MTSRN	O3		**Master SPI data output (LVDS N line)**
	MSC0_FCLP	O4		**Shift-clock direct part of the differential signal**
	MSC0_SON	O5		**Data output - inverted part of the differential signal**
	I2C0_SDA	O6		**Serial Data Output**
	—	O7		**Reserved**
131	P13.3	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM2_IN0_3			**Mux input channel 0 of TIM module 2**
	P13.3	O0		**General-purpose output**
	GTM_TOUT94	O1		**GTM muxed output**
	ASCLIN10_ASLSO	O2		**Slave select signal output**
	QSPI2_MTSRP	O3		**Master SPI data output (LVDS P line)**
	—	O4		**Reserved**
	MSC0_SOP	O5		**Data output - direct part of the differential signal**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-71 Port 14 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
118	P14.0	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN3_5			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_5			**Mux input channel 3 of TIM module 0**
	P14.0	O0		**General-purpose output**
	GTM_TOUT80	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	ERAY0_TXDA	O3		**Transmit Channel A**
	ERAY0_TXDB	O4		**Transmit Channel B**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	CCU60_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_5			**Monitor input 1**
	IOM_REF1_1			**Reference input 1**

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Table 2-71 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
119	P14.1	I	FAST / PU1 / VEXT / ES2	**General-purpose input**
	GTM_TIM1_IN4_3			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_3			**Mux input channel 4 of TIM module 0**
	ERAY0_RXDA3			**Receive Channel A3**
	ASCLIN0_ARXA			**Receive input**
	ERAY0_RXDB3			**Receive Channel B3**
	CAN01_RXDB			**CAN receive input node 1**
	SCU_E_REQ3_1			**ERU Channel 3 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	PMS_PINAWKP			**PINA (P14.1) pin input**
	P14.1	O0		**General-purpose output**
	GTM_TOUT81	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_6			**Monitor input 1**
	IOM_REF1_0			**Reference input 1**
120	P14.2	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN5_3			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_3			**Mux input channel 5 of TIM module 0**
	PMS_HWCFG2IN			**HWCFG2 pin input**
	P14.2	O0		**General-purpose output**
	GTM_TOUT82	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO1	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN2_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**

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Table 2-71 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
121	P14.3	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_3			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_3			**Mux input channel 6 of TIM module 0**
	PMS_HWCFG3IN			**HWCFG3 pin input**
	ASCLIN2_ARXA			**Receive input**
	MSC0_SDI2			**Upstream assynchronous input signal**
	SCU_E_REQ1_0			**ERU Channel 1 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P14.3	O0		**General-purpose output**
	GTM_TOUT83	O1		**GTM muxed output**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	QSPI2_SLSO3	O3		**Master slave select output**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	ASCLIN3_ASLSO	O5		**Slave select signal output**
	—	O6		**Reserved**
	—	O7		**Reserved**
122	P14.4	I	SLOW / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_2			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_2			**Mux input channel 7 of TIM module 0**
	PMS_HWCFG6IN			**HWCFG6 pin input**
	GTM_DTMT0_0			**CDTM0_DTM0**
	P14.4	O0		**General-purpose output**
	GTM_TOUT84	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	GETH_PPS	O6		**Pulse Per Second**
	—	O7		**Reserved**

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Table 2-71 Port 14 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
123	P14.5	I	FAST / PU2 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_4			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_4			**Mux input channel 0 of TIM module 0**
	PMS_HWCFG1IN			**HWCFG1 pin input**
	GTM_DTMA2_0			**CDTM2_DTM4**
	P14.5	O0		**General-purpose output**
	GTM_TOUT85	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ERAY0_TXDB	O6		**Transmit Channel B**
	—	O7		**Reserved**
124	P14.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_4			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_4			**Mux input channel 1 of TIM module 0**
	P14.6	O0		**General-purpose output**
	GTM_TOUT86	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SLSO2	O3		**Master slave select output**
	CAN13_TXD	O4		**CAN transmit output node 3**
	—	O5		**Reserved**
	ERAY0_TXENB	O6		**Transmit Enable Channel B**
	—	O7		**Reserved**

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Table 2-72 Port 15 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
109	P15.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN3_4			**Mux input channel 3 of TIM module 2**
	P15.0	O0		**General-purpose output**
	GTM_TOUT71	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO13	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN02_TXD	O5		**CAN transmit output node 2**
	IOM_MON2_7			**Monitor input 2**
	IOM_REF2_7			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
110	P15.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_4			**Mux input channel 4 of TIM module 2**
	CAN02_RXDA			**CAN receive input node 2**
	ASCLIN1_ARXA			**Receive input**
	QSPI2_SLSIB			**Slave select input**
	SCU_E_REQ7_2			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.1	O0		**General-purpose output**
	GTM_TOUT72	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_SLSO5	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-72 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
111	P15.2	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_4			**Mux input channel 5 of TIM module 2**
	QSPI2_SLSIA			**Slave select input**
	QSPI2_MRSTE			**Master SPI data input**
	P15.2	O0		**General-purpose output**
	GTM_TOUT73	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SLSO0	O3		**Master slave select output**
	—	O4		**Reserved**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ASCLK	O6		**Shift clock output**
	—	O7		**Reserved**
112	P15.3	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_4			**Mux input channel 6 of TIM module 2**
	CAN01_RXDA			**CAN receive input node 1**
	ASCLIN0_ARXB			**Receive input**
	QSPI2_SCLKA			**Slave SPI clock inputs**
	P15.3	O0		**General-purpose output**
	GTM_TOUT74	O1		**GTM muxed output**
	ASCLIN0_ATX	O2		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	MSC0_EN1	O5		**Chip Select**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-72 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
113	P15.4	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_4			**Mux input channel 7 of TIM module 2**
	I2C0_SCLC			**Serial Clock Input 2**
	QSPI2_MRSTA			**Master SPI data input**
	SCU_E_REQ0_0			**ERU Channel 0 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.4	O0		**General-purpose output**
	GTM_TOUT75	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	I2C0_SCL	O6		**Serial Clock Output**
	CCU60_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_0			**Monitor input 1**
	IOM_REF1_4			**Reference input 1**

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Table 2-72 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
114	P15.5	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_4			**Mux input channel 0 of TIM module 2**
	ASCLIN1_ARXB			**Receive input**
	I2C0_SDAC			**Serial Data Input 2**
	QSPI2_MTSRA			**Slave SPI data input**
	SCU_E_REQ4_3			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.5	O0		**General-purpose output**
	GTM_TOUT76	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	MSC0_EN0	O5		**Chip Select**
	I2C0_SDA	O6		**Serial Data Output**
	CCU60_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_1			**Monitor input 1**
	IOM_REF1_5			**Reference input 1**
115	P15.6	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_14			**Mux input channel 2 of TIM module 2**
	GTM_TIM1_IN0_6			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_6			**Mux input channel 0 of TIM module 0**
	QSPI2_MTSRB			**Slave SPI data input**
	P15.6	O0		**General-purpose output**
	GTM_TOUT77	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	QSPI2_SCLK	O5		**Master SPI clock output**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_2			**Monitor input 1**
	IOM_REF1_6			**Reference input 1**

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Table 2-72 Port 15 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
116	P15.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_5			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_5			**Mux input channel 1 of TIM module 0**
	ASCLIN3_ARXA			**Receive input**
	QSPI2_MRSTB			**Master SPI data input**
	P15.7	O0		**General-purpose output**
	GTM_TOUT78	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI2_MRST	O3		**Slave SPI data output**
	IOM_MON2_2			**Monitor input 2**
	IOM_REF2_2			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU60_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_3			**Monitor input 1**
	IOM_REF1_3			**Reference input 1**
117	P15.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN2_5			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_5			**Mux input channel 2 of TIM module 0**
	QSPI2_SCLKB			**Slave SPI clock inputs**
	SCU_E_REQ5_0			**ERU Channel 5 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P15.8	O0		**General-purpose output**
	GTM_TOUT79	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI2_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	ASCLIN3_ASCLK	O6		**Shift clock output**
	CCU60_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_4			**Monitor input 1**
	IOM_REF1_2			**Reference input 1**

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Table 2-73 Port 20 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
93	P20.0	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_7			**Mux input channel 6 of TIM module 1**
	GTM_TIM1_IN4_9			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN6_7			**Mux input channel 6 of TIM module 0**
	CAN03_RXDC			**CAN receive input node 3**
	CCU_PAD_SYSCLK			**Sysclk input**
	CBS_TGI0			**Trigger input**
	SCU_E_REQ6_0			**ERU Channel 6 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	GPT120_T6EUDA			**Count direction control input of core timer T6**
	P20.0	O0		**General-purpose output**
	GTM_TOUT59	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	HSCT0_SYSCLK_OUT	O5		**sys clock output**
	—	O6		**Reserved**
	—	O7		**Reserved**
	CBS_TGO0	O		**Trigger output**
94	P20.2	I	S / PU / VEXT	**General-purpose input** This pin is latched at power on reset release to enter test mode.
	$\overline{\text{TESTMODE}}$			**Testmode Enable Input**

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Table 2-73 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
95	P20.3	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN4_5			**Mux input channel 4 of TIM module 2**
	ASCLIN3_ARXC			**Receive input**
	GPT120_T6INA			**Trigger/gate input of core timer T6**
	P20.3	O0		**General-purpose output**
	GTM_TOUT61	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI0_SLSO9	O3		**Master slave select output**
	QSPI2_SLSO9	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	—	O6		**Reserved**
	—	O7		**Reserved**
100	P20.6	I	SLOW / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_5			**Mux input channel 6 of TIM module 2**
	CAN12_RXDA			**CAN receive input node 2**
	ASCLIN9_ARXE			**Receive input**
	P20.6	O0		**General-purpose output**
	GTM_TOUT62	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	QSPI0_SLSO8	O3		**Master slave select output**
	QSPI2_SLSO8	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-73 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
101	P20.7	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_5			**Mux input channel 7 of TIM module 2**
	GTM_TIM1_IN5_8			**Mux input channel 5 of TIM module 1**
	CAN00_RXDB			**CAN receive input node 0**
	ASCLIN1_ACTSA			**Clear to send input**
	ASCLIN9_ARXF			**Receive input**
	P20.7	O0		**General-purpose output**
	GTM_TOUT63	O1		**GTM muxed output**
	ASCLIN9_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN12_TXD	O5		**CAN transmit output node 2**
	—	O6		**Reserved**
	CCU61_COUT63	O7		**T13 PWM channel 63**
	IOM_MON1_7			**Monitor input 1**
	IOM_REF1_7			**Reference input 1**
102	P20.8	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN7_3			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_3			**Mux input channel 7 of TIM module 0**
	P20.8	O0		**General-purpose output**
	GTM_TOUT64	O1		**GTM muxed output**
	ASCLIN1_ASLSO	O2		**Slave select signal output**
	QSPI0_SLSO0	O3		**Master slave select output**
	QSPI1_SLSO0	O4		**Master slave select output**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_CC60	O7		**T12 PWM channel 60**
	IOM_MON1_8			**Monitor input 1**
	IOM_REF1_13			**Reference input 1**

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Table 2-73 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
103	P20.9	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN5_5			**Mux input channel 5 of TIM module 2**
	CAN03_RXDE			**CAN receive input node 3**
	ASCLIN1_ARXC			**Receive input**
	QSPI0_SLSIB			**Slave select input**
	SCU_E_REQ7_0			**ERU Channel 7 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	P20.9	O0		**General-purpose output**
	GTM_TOUT65	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SLSO1	O3		**Master slave select output**
	QSPI1_SLSO1	O4		**Master slave select output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**
104	P20.10	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN6_6			**Mux input channel 6 of TIM module 2**
	P20.10	O0		**General-purpose output**
	GTM_TOUT66	O1		**GTM muxed output**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	QSPI0_SLSO6	O3		**Master slave select output**
	QSPI2_SLSO7	O4		**Master slave select output**
	CAN03_TXD	O5		**CAN transmit output node 3**
	IOM_MON2_8			**Monitor input 2**
	IOM_REF2_8			**Reference input 2**
	ASCLIN1_ASCLK	O6		**Shift clock output**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-73 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
105	P20.11	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN7_6			**Mux input channel 7 of TIM module 2**
	QSPI0_SCLKA			**Slave SPI clock inputs**
	P20.11	O0		**General-purpose output**
	GTM_TOUT67	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI0_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**
106	P20.12	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN0_5			**Mux input channel 0 of TIM module 2**
	QSPI0_MRSTA			**Master SPI data input**
	IOM_PIN_13			**GPIO pad input to FPC**
	P20.12	O0		**General-purpose output**
	GTM_TOUT68	O1		**GTM muxed output**
	IOM_MON0_13			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MRST	O3		**Slave SPI data output**
	IOM_MON2_0			**Monitor input 2**
	IOM_REF2_0			**Reference input 2**
	QSPI0_MTSR	O4		**Master SPI data output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**

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Table 2-73 Port 20 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
107	P20.13	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN1_4			**Mux input channel 1 of TIM module 2**
	QSPI0_SLSIA			**Slave select input**
	IOM_PIN_14			**GPIO pad input to FPC**
	P20.13	O0		**General-purpose output**
	GTM_TOUT69	O1		**GTM muxed output**
	IOM_MON0_14			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_SLSO2	O3		**Master slave select output**
	QSPI1_SLSO2	O4		**Master slave select output**
	QSPI0_SCLK	O5		**Master SPI clock output**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
108	P20.14	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM2_IN2_4			**Mux input channel 2 of TIM module 2**
	QSPI0_MTSRA			**Slave SPI data input**
	IOM_PIN_15			**GPIO pad input to FPC**
	DMU_FDEST			**Enter destructive debug mode**
	P20.14	O0		**General-purpose output**
	GTM_TOUT70	O1		**GTM muxed output**
	IOM_MON0_15			**Monitor input 0**
	—	O2		**Reserved**
	QSPI0_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-74 Port 21 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
84	P21.2	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN0_7			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_7			**Mux input channel 0 of TIM module 0**
	QSPI2_MRSTCN			**Master SPI data input (LVDS N line)**
	SCU_EMGSTOP_PORT_B			**Emergency stop Port Pin B input request**
	ASCLIN3_ARXGN			**Differential Receive input (low active)**
	HSCT0_RXDN			**Rx data**
	ASCLIN11_ARXE			**Receive input**
	GTM_DTMA1_0			**CDTM1_DTM4**
	P21.2	O0		**General-purpose output**
	GTM_TOUT53	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	GETH_MDC	O5		**MDIO clock**
	—	O6		**Reserved**
	—	O7		**Reserved**
85	P21.3	I	LVDS_RX / FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN1_6			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_6			**Mux input channel 1 of TIM module 0**
	QSPI2_MRSTCP			**Master SPI data input (LVDS P line)**
	ASCLIN3_ARXGP			**Differential Receive input (high active)**
	GETH_MDIOD			**MDIO Input**
	HSCT0_RXDP			**Rx data**
	P21.3	O0		**General-purpose output**
	GTM_TOUT54	O1		**GTM muxed output**
	ASCLIN11_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	GETH_MDIO	O		**MDIO Output**

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Table 2-74 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
86	P21.4	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN2_6			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_6			**Mux input channel 2 of TIM module 0**
	P21.4	O0		**General-purpose output**
	GTM_TOUT55	O1		**GTM muxed output**
	ASCLIN11_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDN	O		**Tx data**
87	P21.5	I	LVDS_TX / FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_6			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_6			**Mux input channel 3 of TIM module 0**
	ASCLIN11_ARXF			**Receive input**
	P21.5	O0		**General-purpose output**
	GTM_TOUT56	O1		**GTM muxed output**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	ASCLIN11_ATX	O3		**Transmit output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
	HSCT0_TXDP	O		**Tx data**

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Table 2-74 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
88	P21.6/TDI	I	FAST / PD / PU2 / VEXT / ES3	**General-purpose input** PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
	GTM_TIM1_IN4_8			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_8			**Mux input channel 4 of TIM module 0**
	GPT120_T5EUDA			**Count direction control input of timer T5**
	ASCLIN3_ARXF			**Receive input**
	CBS_TGI2			**Trigger input**
	TDI			**JTAG Module Data Input**
	P21.6	O0		**General-purpose output**
	GTM_TOUT57	O1		**GTM muxed output**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T3OUT	O7		**External output for overflow/underflow detection of core timer T3**
	CBS_TGO2	O		**Trigger output**
	DAP3	I/O		**DAP: DAP3 Data I/O**

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Table 2-74 Port 21 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
90	P21.7/TDO	I	FAST / PU2 / VEXT / ES4	**General-purpose input**
	GTM_TIM1_IN5_7			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_7			**Mux input channel 5 of TIM module 0**
	GPT120_T5INA			**Trigger/gate input of timer T5**
	CBS_TGI3			**Trigger input**
	GETH_RXERB			**Receive Error MII**
	P21.7	O0		**General-purpose output**
	GTM_TOUT58	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	ASCLIN3_ASCLK	O3		**Shift clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	GPT120_T6OUT	O7		**External output for overflow/underflow detection of core timer T6**
	CBS_TGO3	O		**Trigger output**
	DAP2	I/O		**DAP: DAP2 Data I/O**
	TDO	O		**JTAG Module Data Output**

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Table 2-75 Port 22 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
74	P22.0	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN1_7			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_7			**Mux input channel 1 of TIM module 0**
	ASCLIN6_ARXE			**Receive input**
	QSPI3_MTSRD			**Slave SPI data input**
	P22.0	O0		**General-purpose output**
	GTM_TOUT47	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MTSR	O3		**Master SPI data output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN6_ATX	O7		**Transmit output**
75	P22.1	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN0_8			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_8			**Mux input channel 0 of TIM module 0**
	ASCLIN7_ARXE			**Receive input**
	QSPI3_MRSTD			**Master SPI data input**
	P22.1	O0		**General-purpose output**
	GTM_TOUT48	O1		**GTM muxed output**
	ASCLIN3_ATX	O2		**Transmit output**
	IOM_MON2_15			**Monitor input 2**
	IOM_REF2_15			**Reference input 2**
	QSPI3_MRST	O3		**Slave SPI data output**
	IOM_MON2_3			**Monitor input 2**
	IOM_REF2_3			**Reference input 2**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	ASCLIN7_ATX	O7		**Transmit output**

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Table 2-75 Port 22 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
76	P22.2	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN3_7			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_7			**Mux input channel 3 of TIM module 0**
	P22.2	O0		**General-purpose output**
	GTM_TOUT49	O1		**GTM muxed output**
	ASCLIN5_ATX	O2		**Transmit output**
	QSPI3_SLSO12	O3		**Master slave select output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
77	P22.3	I	FAST / PU1 / VEXT / ES6	**General-purpose input**
	GTM_TIM1_IN4_4			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_4			**Mux input channel 4 of TIM module 0**
	ASCLIN5_ARXC			**Receive input**
	QSPI3_SCLKD			**Slave SPI clock inputs**
	P22.3	O0		**General-purpose output**
	GTM_TOUT50	O1		**GTM muxed output**
	—	O2		**Reserved**
	QSPI3_SCLK	O3		**Master SPI clock output**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-76 Port 23 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
73	P23.1	I	FAST / PU1 / VEXT / ES	**General-purpose input**
	GTM_TIM1_IN6_4			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_4			**Mux input channel 6 of TIM module 0**
	ASCLIN6_ARXF			**Receive input**
	P23.1	O0		**General-purpose output**
	GTM_TOUT42	O1		**GTM muxed output**
	ASCLIN1_ARTS	O2		**Ready to send output**
	—	O3		**Reserved**
	GTM_CLK0	O4		**CGM generated clock**
	CAN10_TXD	O5		**CAN transmit output node 0**
	CCU_EXTCLK0	O6		**External Clock 0**
	ASCLIN6_ASCLK	O7		**Shift clock output**

Table 2-77 Port 32 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
70	P32.0	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
	GTM_TIM2_IN2_5			**Mux input channel 2 of TIM module 2**
	P32.0	O0		**General-purpose output**
	GTM_TOUT36	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
71	P32.1	I	SLOW / PU1 / VEXT / ES	**General-purpose input** P32.1 / External Pass Device gate control for EVRC
	P32.1	O0		**General-purpose output**
	GTM_TOUT37	O1		**GTM muxed output**
	—	O2		**Reserved**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-78 Port 33 Functions

Pin	Symbol	Ctrl.	Buffer Type	Function
56	P33.0	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN4_6			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_6			**Mux input channel 4 of TIM module 0**
	EDSADC_ITR0E			**Trigger/Gate input, channel 0**
	IOM_PIN_0			**GPIO pad input to FPC**
	GTM_DTMT1_2			**CDTM1_DTM0**
	P33.0	O0		**General-purpose output**
	GTM_TOUT22	O1		**GTM muxed output**
	IOM_MON0_0			**Monitor input 0**
	IOM_GTM_0			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ATX	O2		**Transmit output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**
57	P33.1	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN5_6			**Mux input channel 5 of TIM module 1**
	GTM_TIM0_IN5_6			**Mux input channel 5 of TIM module 0**
	EDSADC_ITR1E			**Trigger/Gate input, channel 1**
	PSI5_RX0C			**RXD inputs (receive data) channel 0**
	EDSADC_DSCIN2B			**Modulator clock input, channel 2**
	SENT_SENT9C			**Receive input channel 9**
	ASCLIN8_ARXC			**Receive input**
	IOM_PIN_1			**GPIO pad input to FPC**
	P33.1	O0		**General-purpose output**
	GTM_TOUT23	O1		**GTM muxed output**
	IOM_MON0_1			**Monitor input 0**
	IOM_GTM_1			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASLSO	O2		**Slave select signal output**
	QSPI2_SCLK	O3		**Master SPI clock output**
	EDSADC_DSCOUT2	O4		**Modulator clock output**
	EVADC_EMUX02	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
58	P33.2	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN6_6			**Mux input channel 6 of TIM module 1**
	GTM_TIM0_IN6_6			**Mux input channel 6 of TIM module 0**
	EDSADC_ITR2E			**Trigger/Gate input, channel 2**
	SENT_SENT8C			**Receive input channel 8**
	EDSADC_DSDIN2B			**Digital datastream input, channel 2**
	IOM_PIN_2			**GPIO pad input to FPC**
	P33.2	O0		**General-purpose output**
	GTM_TOUT24	O1		**GTM muxed output**
	IOM_MON0_2			**Monitor input 0**
	IOM_GTM_2			**GTM-provided inputs to EXOR combiner**
	ASCLIN3_ASCLK	O2		**Shift clock output**
	QSPI2_SLSO10	O3		**Master slave select output**
	PSI5_TX0	O4		**TXD outputs (send data)**
	IOM_MON1_14			**Monitor input 1**
	IOM_REF1_14			**Reference input 1**
	EVADC_EMUX01	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**
59	P33.3	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN7_6			**Mux input channel 7 of TIM module 1**
	GTM_TIM0_IN7_6			**Mux input channel 7 of TIM module 0**
	PSI5_RX1C			**RXD inputs (receive data) channel 1**
	SENT_SENT7C			**Receive input channel 7**
	EDSADC_DSCIN1B			**Modulator clock input, channel 1**
	IOM_PIN_3			**GPIO pad input to FPC**
	P33.3	O0		**General-purpose output**
	GTM_TOUT25	O1		**GTM muxed output**
	IOM_MON0_3			**Monitor input 0**
	IOM_GTM_3			**GTM-provided inputs to EXOR combiner**
	ASCLIN5_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	EDSADC_DSCOUT1	O4		**Modulator clock output**
	EVADC_EMUX00	O5		**Control of external analog multiplexer interface 0**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
60	P33.4	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_10			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_10			**Mux input channel 0 of TIM module 0**
	EDSADC_ITR0F			**Trigger/Gate input, channel 0**
	SENT_SENT6C			**Receive input channel 6**
	EDSADC_DSDIN1B			**Digital datastream input, channel 1**
	CCU61_CTRAPC			**Trap input capture**
	ASCLIN5_ARXB			**Receive input**
	IOM_PIN_4			**GPIO pad input to FPC**
	P33.4	O0		**General-purpose output**
	GTM_TOUT26	O1		**GTM muxed output**
	IOM_MON0_4			**Monitor input 0**
	IOM_GTM_4			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ARTS	O2		**Ready to send output**
	QSPI2_SLSO12	O3		**Master slave select output**
	PSI5_TX1	O4		**TXD outputs (send data)**
	IOM_MON1_15			**Monitor input 1**
	EVADC_EMUX12	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC0BFLOUT	O6		**Boundary flag output, FC channel 0**
	CAN13_TXD	O7		**CAN transmit output node 3**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
61	P33.5	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_8			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_8			**Mux input channel 1 of TIM module 0**
	EDSADC_DSCIN0B			**Modulator clock input, channel 0**
	EDSADC_ITR1F			**Trigger/Gate input, channel 1**
	GPT120_T4EUDB			**Count direction control input of timer T4**
	PSI5S_RXC			**RX data input**
	ASCLIN2_ACTSB			**Clear to send input**
	CCU61_CCPOS2C			**Hall capture input 2**
	SENT_SENT5C			**Receive input channel 5**
	CAN13_RXDB			**CAN receive input node 3**
	IOM_PIN_5			**GPIO pad input to FPC**
	P33.5	O0		**General-purpose output**
	GTM_TOUT27	O1		**GTM muxed output**
	IOM_MON0_5			**Monitor input 0**
	IOM_GTM_5			**GTM-provided inputs to EXOR combiner**
	QSPI0_SLSO7	O2		**Master slave select output**
	QSPI1_SLSO7	O3		**Master slave select output**
	EDSADC_DSCOUT0	O4		**Modulator clock output**
	EVADC_EMUX11	O5		**Control of external analog multiplexer interface 1**
	—	O6		**Reserved**
	ASCLIN5_ASLSO	O7		**Slave select signal output**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
62	P33.6	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_9			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_9			**Mux input channel 2 of TIM module 0**
	EDSADC_ITR2F			**Trigger/Gate input, channel 2**
	GPT120_T2EUDB			**Count direction control input of timer T2**
	SENT_SENT4C			**Receive input channel 4**
	CCU61_CCPOS1C			**Hall capture input 1**
	EDSADC_DSDIN0B			**Digital datastream input, channel 0**
	ASCLIN8_ARXD			**Receive input**
	IOM_PIN_6			**GPIO pad input to FPC**
	P33.6	O0		**General-purpose output**
	GTM_TOUT28	O1		**GTM muxed output**
	IOM_MON0_6			**Monitor input 0**
	IOM_GTM_6			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASLSO	O2		**Slave select signal output**
	QSPI2_SLSO11	O3		**Master slave select output**
	—	O4		**Reserved**
	EVADC_EMUX10	O5		**Control of external analog multiplexer interface 1**
	EVADC_FC1BFLOUT	O6		**Boundary flag output, FC channel 1**
	PSI5S_TX	O7		**TX data output**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
63	P33.7	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN3_9			**Mux input channel 3 of TIM module 1**
	GTM_TIM0_IN3_9			**Mux input channel 3 of TIM module 0**
	CAN00_RXDE			**CAN receive input node 0**
	GPT120_T2INB			**Trigger/gate input of timer T2**
	CCU61_CCPOS0C			**Hall capture input 0**
	SCU_E_REQ4_0			**ERU Channel 4 inputs 0 to 5 (0 is the LSB and 5 is the MSB)**
	IOM_PIN_7			**GPIO pad input to FPC**
	P33.7	O0		**General-purpose output**
	GTM_TOUT29	O1		**GTM muxed output**
	IOM_MON0_7			**Monitor input 0**
	IOM_GTM_7			**GTM-provided inputs to EXOR combiner**
	ASCLIN2_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	ASCLIN8_ATX	O4		**Transmit output**
	—	O5		**Reserved**
	—	O6		**Reserved**
	—	O7		**Reserved**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
64	P33.8	I	FAST / HighZ / VEVRSB	**General-purpose input**
	GTM_TIM1_IN4_7			**Mux input channel 4 of TIM module 1**
	GTM_TIM0_IN4_7			**Mux input channel 4 of TIM module 0**
	ASCLIN2_ARXE			**Receive input**
	SCU_EMGSTOP_PORT_A			**Emergency stop Port Pin A input request**
	IOM_PIN_8			**GPIO pad input to FPC**
	P33.8	O0		**General-purpose output**
	GTM_TOUT30	O1		**GTM muxed output**
	IOM_MON0_8			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	—	O4		**Reserved**
	CAN00_TXD	O5		**CAN transmit output node 0**
	IOM_MON2_5			**Monitor input 2**
	IOM_REF2_5			**Reference input 2**
	—	O6		**Reserved**
	CCU61_COUT62	O7		**T12 PWM channel 62**
	IOM_MON1_13			**Monitor input 1**
	IOM_REF1_8			**Reference input 1**
	SMU_FSP0	O		**FSP[1..0] Output Signals - Generated by SMU_core**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
65	P33.9	I	SLOW / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN1_9			**Mux input channel 1 of TIM module 1**
	GTM_TIM0_IN1_9			**Mux input channel 1 of TIM module 0**
	IOM_PIN_9			**GPIO pad input to FPC**
	P33.9	O0		**General-purpose output**
	GTM_TOUT31	O1		**GTM muxed output**
	IOM_MON0_9			**Monitor input 0**
	ASCLIN2_ATX	O2		**Transmit output**
	IOM_MON2_14			**Monitor input 2**
	IOM_REF2_14			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN2_ASCLK	O4		**Shift clock output**
	CAN01_TXD	O5		**CAN transmit output node 1**
	IOM_MON2_6			**Monitor input 2**
	IOM_REF2_6			**Reference input 2**
	ASCLIN0_ATX	O6		**Transmit output**
	IOM_MON2_12			**Monitor input 2**
	IOM_REF2_12			**Reference input 2**
	CCU61_CC62	O7		**T12 PWM channel 62**
	IOM_MON1_10			**Monitor input 1**
	IOM_REF1_11			**Reference input 1**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
66	P33.10	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN0_9			**Mux input channel 0 of TIM module 1**
	GTM_TIM0_IN0_9			**Mux input channel 0 of TIM module 0**
	CAN01_RXDD			**CAN receive input node 1**
	ASCLIN0_ARXD			**Receive input**
	IOM_PIN_10			**GPIO pad input to FPC**
	P33.10	O0		**General-purpose output**
	GTM_TOUT32	O1		**GTM muxed output**
	IOM_MON0_10			**Monitor input 0**
	QSPI1_SLSO6	O2		**Master slave select output**
	—	O3		**Reserved**
	ASCLIN1_ASLSO	O4		**Slave select signal output**
	PSI5S_CLK	O5		**PSI5S CLK is a clock that can be used on a pin to drive the external PHY.**
	—	O6		**Reserved**
	CCU61_COUT61	O7		**T12 PWM channel 61**
	IOM_MON1_12			**Monitor input 1**
	IOM_REF1_9			**Reference input 1**
	SMU_FSP1	O		**FSP[1..0] Output Signals - Generated by SMU_core**
67	P33.11	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM1_IN2_8			**Mux input channel 2 of TIM module 1**
	GTM_TIM0_IN2_8			**Mux input channel 2 of TIM module 0**
	IOM_PIN_11			**GPIO pad input to FPC**
	P33.11	O0		**General-purpose output**
	GTM_TOUT33	O1		**GTM muxed output**
	IOM_MON0_11			**Monitor input 0**
	ASCLIN1_ASCLK	O2		**Shift clock output**
	—	O3		**Reserved**
	—	O4		**Reserved**
	—	O5		**Reserved**
	EDSADC_CGPWMN	O6		**Negative carrier generator output**
	CCU61_CC61	O7		**T12 PWM channel 61**
	IOM_MON1_9			**Monitor input 1**
	IOM_REF1_12			**Reference input 1**

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Table 2-78 Port 33 Functions (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
68	P33.12	I	FAST / PU1 / VEVRSB / ES5	**General-purpose input**
	GTM_TIM2_IN0_6			**Mux input channel 0 of TIM module 2**
	CAN00_RXDD			**CAN receive input node 0**
	PMS_PINBWKP			**PINB (P33.12) pin input**
	IOM_PIN_12			**GPIO pad input to FPC**
	P33.12	O0		**General-purpose output**
	GTM_TOUT34	O1		**GTM muxed output**
	IOM_MON0_12			**Monitor input 0**
	ASCLIN1_ATX	O2		**Transmit output**
	IOM_MON2_13			**Monitor input 2**
	IOM_REF2_13			**Reference input 2**
	—	O3		**Reserved**
	ASCLIN1_ASCLK	O4		**Shift clock output**
	—	O5		**Reserved**
	EDSADC_CGPWMP	O6		**Positive carrier generator output**
	CCU61_COUT60	O7		**T12 PWM channel 60**
	IOM_MON1_11			**Monitor input 1**
	IOM_REF1_10			**Reference input 1**

Table 2-79 Analog Inputs

Pin	Symbol	Ctrl.	Buffer Type	Function
51	AN0	I	D / HighZ / VDDM	**Analog Input 0**
	EVADC_G0CH0			**Analog input channel 0, group 0**
	EDSADC_EDS3PA			**Positive analog input channel 3, pin A**
50	AN1	I	D / HighZ / VDDM	**Analog Input 1**
	EVADC_G0CH1			**Analog input channel 1, group 0**
	EDSADC_EDS3NA			**Negative analog input channel 3, pin A**
49	AN2	I	D / HighZ / VDDM	**Analog Input 2**
	EVADC_G0CH2			**Analog input channel 2, group 0**
	EDSADC_EDS0PA			**Positive analog input channel 0, pin A**
48	AN3	I	D / HighZ / VDDM	**Analog Input 3**
	EVADC_G0CH3			**Analog input channel 3, group 0**
	EDSADC_EDS0NA			**Negative analog input channel 0, pin A**
47	AN4	I	D / HighZ / VDDM	**Analog Input 4**
	EVADC_G0CH4			**Analog input channel 4, group 0**
46	AN5	I	D / HighZ / VDDM	**Analog Input 5**
	EVADC_G0CH5			**Analog input channel 5, group 0**

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Table 2-79 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
45	AN11	I	D / HighZ / VDDM	**Analog Input 11**
	EVADC_G1CH3			**Analog input channel 3, group 1**
40	AN16	I	D / HighZ / VDDM	**Analog Input 16**
	EVADC_G2CH0			**Analog input channel 0, group 2**
	EVADC_FC0CH0			**Analog input FC channel 0**
39	AN17	I	D / HighZ / VDDM	**Analog Input 17**
	EVADC_G2CH1			**Analog input channel 1, group 2**
	EVADC_FC1CH0			**Analog input FC channel 1**
38	AN20	I	D / HighZ / VDDM	**Analog Input 20**
	EVADC_G2CH4			**Analog input channel 4, group 2**
	EDSADC_EDS2PA			**Positive analog input channel 2, pin A**
37	AN21	I	D / HighZ / VDDM	**Analog Input 21**
	EVADC_G2CH5			**Analog input channel 5, group 2**
	EDSADC_EDS2NA			**Negative analog input channel 2, pin A**
36	AN24/P40.0	I	S / HighZ / VDDM	**Analog Input 24**
	SENT_SENT0A			**Receive input channel 0**
	EVADC_G3CH0			**Analog input channel 0, group 3**
	CCU60_CCPOS0D			**Hall capture input 0**
	EDSADC_EDS2PB			**Positive analog input channel 2, pin B**
35	AN25/P40.1	I	S / HighZ / VDDM	**Analog Input 25**
	SENT_SENT1A			**Receive input channel 1**
	EVADC_G3CH1			**Analog input channel 1, group 3**
	CCU60_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS2NB			**Negative analog input channel 2, pin B**
34	AN26/P40.2	I	S / HighZ / VDDM	**Analog Input 26**
	SENT_SENT2A			**Receive input channel 2**
	EVADC_G3CH2			**Analog input channel 2, group 3**
	CCU60_CCPOS1D			**Hall capture input 1**
33	AN27/P40.3	I	S / HighZ / VDDM	**Analog Input 27**
	SENT_SENT3A			**Receive input channel 3**
	EVADC_G3CH3			**Analog input channel 3, group 3**
	CCU60_CCPOS2B			**Hall capture input 2**
32	AN28	I	D / HighZ / VDDM	**Analog Input 28**
	EVADC_G3CH4			**Analog input channel 4, group 3**
31	AN32/P40.4	I	S / HighZ / VDDM	**Analog Input 32**
	SENT_SENT4A			**Receive input channel 4**
	EVADC_G8CH0			**Analog input channel 0, group 8**
	CCU60_CCPOS2D			**Hall capture input 2**

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Table 2-79 Analog Inputs (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
30	AN33/P40.5	I	S / HighZ / VDDM	**Analog Input 33**
	SENT_SENT5A			**Receive input channel 5**
	EVADC_G8CH1			**Analog input channel 1, group 8**
	CCU61_CCPOS0D			**Hall capture input 0**
29	AN34	I	D / HighZ / VDDM	**Analog Input 34**
	EVADC_G8CH2			**Analog input channel 2, group 8**
28	AN35	I	D / HighZ / VDDM	**Analog Input 35**
	EVADC_G8CH3			**Analog input channel 3, group 8**
27	AN36/P40.6	I	S / HighZ / VDDM	**Analog Input 36**
	SENT_SENT6A			**Receive input channel 6**
	EVADC_G8CH4			**Analog input channel 4, group 8**
	CCU61_CCPOS1B			**Hall capture input 1**
	EDSADC_EDS1PA			**Positive analog input channel 1, pin A**
26	AN37/P40.7	I	S / HighZ / VDDM	**Analog Input 37**
	SENT_SENT7A			**Receive input channel 7**
	EVADC_G8CH5			**Analog input channel 5, group 8**
	CCU61_CCPOS1D			**Hall capture input 1**
	EDSADC_EDS1NA			**Negative analog input channel 1, pin A**
25	AN38/P40.8	I	S / HighZ / VDDM	**Analog Input 38**
	SENT_SENT8A			**Receive input channel 8**
	EVADC_G8CH6			**Analog input channel 6, group 8**
	CCU61_CCPOS2B			**Hall capture input 2**
	EDSADC_EDS1PB			**Positive analog input channel 1, pin B**
24	AN39/P40.9	I	S / HighZ / VDDM	**Analog Input 39**
	SENT_SENT9A			**Receive input channel 9**
	EVADC_G8CH7			**Analog input channel 7, group 8**
	CCU61_CCPOS2D			**Hall capture input 2**
	EDSADC_EDS1NB			**Negative analog input channel 1, pin B**

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Note: Port Pins P32.0 and P32.1 are bidirectional pads and are having the following two functionalities implemented:

9. *In case the pins are used as standard GPIOs the functions defined in the pin configuration tables of P32.0 and P32.1 are available.*
10. *In case the pins are used as pre-drivers for external MOSFETs (internal DCDC usecase) P32.0 and P32.1 act as analog IOs named VGATE1N and VGATE1P.*

Table 2-80 System I/O

Pin	Symbol	Ctrl.	Buffer Type	Function
70	VGATE1N	O	—	**DCDC N ch. MOSFET gate driver output** P32.0 / SMPS mode: analog output. External Pass Device gate control for EVRC
71	VGATE1P	O	—	**DCDC P ch. MOSFET gate driver output** P32.1 / External Pass Device gate control for EVRC
81	XTAL1	I	XTAL / VEXT	**XTAL pad1** XTAL1. Main Oscillator/PLL/Clock Generator Input.
82	XTAL2	O	XTAL / VEXT	**XTAL pad2** XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
89	TMS	I	FAST / PD2 / VEXT	**JTAG Module State Machine Control Input**
	DAP1	I/O		**DAP: DAP1 Data I/O**
91	$\overline{\text{TRST}}$	I	FAST / PU2 / VEXT	**JTAG Module Reset/Enable Input**
92	TCK	I	FAST / PD2 / VEXT	**JTAG Module Clock Input**
	DAP0	I		**DAP: DAP0 Clock Input**
96	$\overline{\text{ESR1}}$	I/O	FAST / PU1 / VEXT	**ESR1 Port Pin input - can be used to trigger a reset or an NMI** ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR1WKP	I		**ESR1 pin input**
97	$\overline{\text{PORST}}$	I/O	PORST / PD / VEXT	**PORST pin** Power On Reset Input. Additional strong PD in case of power fail.

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Table 2-80 System I/O (cont'd)

Pin	Symbol	Ctrl.	Buffer Type	Function
98	$\overline{\text{ESR0}}$	I/O	FAST / OD / VEXT	**ESR0 Port Pin input - can be used to trigger a reset or an NMI** ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
	PMS_ESR0WKP	I		**ESR0 pin input**

Table 2-81 Supply

Pin	Symbol	Ctrl.	Buffer Type	Function
44	VDDM	I	—	**ADC Analog Power Supply (5V / 3.3V)**
126	VDDP3	I	—	**Flash Power Supply (3.3V)**
42	VAREF1	I	—	**Positive Analog Reference Voltage 1**
53, 54, 55	NC	I	—	**Not connected. These pins are reserved for future extensions and shall not be connected externally**
52	VEVRSB	I	—	**Standby Power Supply (5V / 3.3V) for the Standby SRAM**
10	VDD	I	—	**Digital Core Power Supply (1.25V)**
125	VEXT	I	—	**External Power Supply (5V / 3.3V)**
23	VEXT	I	—	**External Power Supply (5V / 3.3V)**
78	VEXT	I	—	**External Power Supply (5V / 3.3V)**
69	VEXT	I	—	**External Power Supply (5V / 3.3V)**
127	VDD	I	—	**Digital Core Power Supply (1.25V)**
22	VDD	I	—	**Digital Core Power Supply (1.25V)**
79	VDD	I	—	**Digital Core Power Supply (1.25V)**
99	VDD	I	—	**Digital Core Power Supply (1.25V)**
72	VDD	I	—	**Digital Core Power Supply (1.25V)**
E-PAD	VSS	I	—	**Digital Ground (Exposed PAD), VSS**
43	VSSM	I	—	**Analog Ground for VDDM**
41	VAGND1	I	—	**Negative Analog Reference Voltage 1**
80	VSS	I	—	**Oscillator Ground, VSS(OSC)**
83	VEXT	I	—	**Digital Power Supply for Oscillator (shall be supplied with same level as used for VEXT), VEXT(OSC)**

OPEN MARKET VERSION

2.6 Sequence of Pads in Pad Frame

Table 2-82 Pad List

Number	Pad Name	Pad Type	X	Y	Comment
1	P15.0	FAST / PU1 / VEXT / ES	291978	185148	General-purpose I/O
2	P15.1	FAST / PU1 / VEXT / ES	392976	185148	General-purpose I/O
3	P15.2	FAST / PU1 / VEXT / ES	495972	185148	General-purpose I/O
4	P15.3	FAST / PU1 / VEXT / ES	600930	362646	General-purpose I/O
5	P15.4	FAST / PU1 / VEXT / ES	650934	185148	General-purpose I/O
6	P15.5	FAST / PU1 / VEXT / ES	700938	362646	General-purpose I/O
7	VSS	Vx	750942	185148	Supply Voltage
8	VEXT	Vx	802980	362646	Supply Voltage
9	P15.6	FAST / PU1 / VEXT / ES	852984	185148	General-purpose I/O
10	P15.7	FAST / PU1 / VEXT / ES	902988	362646	General-purpose I/O
11	VSS	Vx	978948	185148	Supply Voltage
12	VDD	Vx	1054494	362646	Supply Voltage
13	P15.8	FAST / PU1 / VEXT / ES	1106532	185148	General-purpose I/O
14	VDDP3	Vx	1158570	362646	Supply Voltage
15	P14.0	FAST / PU1 / VEXT / ES2	1210608	185148	General-purpose I/O
16	P14.1	FAST / PU1 / VEXT / ES2	1262646	362646	General-purpose I/O
17	P14.2	SLOW / PU2 / VEXT / ES	1314684	185148	General-purpose I/O
18	P14.3	SLOW / PU2 / VEXT / ES	1366722	362646	General-purpose I/O
19	P14.4	SLOW / PU2 / VEXT / ES	1418760	185148	General-purpose I/O
20	P14.5	FAST / PU2 / VEXT / ES	1470798	362646	General-purpose I/O
21	P14.6	FAST / PU1 / VEXT / ES	1522836	185148	General-purpose I/O
22	P14.7	SLOW / PU1 / VEXT / ES	1572840	362646	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
23	P14.8	SLOW / PU1 / VEXT / ES	1624293	185148	General-purpose I/O
24	P14.9	LVDS_RX / FAST / PU1 / VEXT / ES	1694340	362646	General-purpose I/O
25	P14.10	LVDS_RX / FAST / PU1 / VEXT / ES	1793340	362646	General-purpose I/O
26	VSS	Vx	1868391	185148	Supply Voltage
27	VEXT	Vx	1924389	362646	Supply Voltage
28	VSS	Vx	1976427	185148	Supply Voltage
29	VEXT	Vx	2028465	362646	Supply Voltage
30	VEXT	Vx	2080503	185148	Supply Voltage
31	VDDP3	Vx	2262501	185148	Supply Voltage
32	VDDP3	Vx	2312505	362646	Supply Voltage
33	VDDP3	Vx	2362509	185148	Supply Voltage
34	VDD	Vx	2442267	362646	Supply Voltage
35	VSS	Vx	2516445	185148	Supply Voltage
36	VDD	Vx	2586627	362646	Supply Voltage
37	VSS	Vx	2654505	185148	Supply Voltage
38	VDD	Vx	2720385	362646	Supply Voltage
39	VSS	Vx	2778876	185148	Supply Voltage
40	P13.0	LVDS_TX / FAST / PU1 / VEXT / ES6	2878884	185148	General-purpose I/O
41	P13.1	LVDS_TX / FAST / PU1 / VEXT / ES6	2977884	185148	General-purpose I/O
42	P13.2	LVDS_TX / FAST / PU1 / VEXT / ES6	3148884	362646	General-purpose I/O
43	P13.3	LVDS_TX / FAST / PU1 / VEXT / ES6	3247884	362646	General-purpose I/O
44	P12.0	SLOW / PU1 / VFLEX / ES	3381597	179145	General-purpose I/O
45	P12.1	SLOW / PU1 / VFLEX / ES	3428595	348147	General-purpose I/O
46	P11.14	SLOW / PU1 / VFLEX / ES	3531933	179145	General-purpose I/O
47	P11.13	SLOW / PU1 / VFLEX / ES	3580191	348147	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
48	P11.15	SLOW / PU1 / VFLEX / ES	3627189	179145	General-purpose I/O
49	P11.0	RFAST / PU1 / VFLEX / ES	3700593	356643	General-purpose I/O
50	VFLEX	Vx	3749391	185148	Supply Voltage
51	P11.1	RFAST / PU1 / VFLEX / ES	3822795	356643	General-purpose I/O
52	VSS	Vx	3871593	185148	Supply Voltage
53	P11.2	RFAST / PU1 / VFLEX / ES	3944997	362646	General-purpose I/O
54	VDD	Vx	3993795	185148	Supply Voltage
55	P11.4	RFAST / PU1 / VFLEX / ES	4109499	348147	General-purpose I/O
56	VSS	Vx	4196997	185148	Supply Voltage
57	P11.3	RFAST / PU1 / VFLEX / ES	4270401	362646	General-purpose I/O
58	VFLEX	Vx	4319199	185148	Supply Voltage
59	P11.6	RFAST / PU1 / VFLEX / ES	4390803	362646	General-purpose I/O
60	VSS	Vx	4441401	185148	Supply Voltage
61	P11.5	SLOW / RGMII_Input / PU1 / VFLEX / ES	4491099	356643	General-purpose I/O
62	P11.7	SLOW / RGMII_Input / PU1 / VFLEX / ES	4554387	179145	General-purpose I/O
63	P11.9	FAST / RGMII_Input / PU1 / VFLEX / ES	4602285	362646	General-purpose I/O
64	VFLEX	Vx	4652883	185148	Supply Voltage
65	P11.8	SLOW / RGMII_Input / PU1 / VFLEX / ES	4702581	362646	General-purpose I/O
66	P11.10	FAST / RGMII_Input / PU1 / VFLEX / ES	4753179	185148	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
67	P11.11	FAST / RGMII_Input / PU1 / VFLEX / ES	4803777	362646	General-purpose I/O
68	VSS	Vx	4854375	185148	Supply Voltage
69	P11.12	FAST / RGMII_Input / PU1 / VFLEX / ES	4903173	362646	General-purpose I/O
70	P10.0	SLOW / PU1 / VEXT / ES	4979187	185148	General-purpose I/O
71	P10.1	FAST / PU1 / VEXT / ES	5029191	362646	General-purpose I/O
72	P10.2	FAST / PU1 / VEXT / ES	5079195	185148	General-purpose I/O
73	P10.3	FAST / PU1 / VEXT / ES	5129199	362646	General-purpose I/O
74	VSS	Vx	5179203	185148	Supply Voltage
75	VEXT	Vx	5231241	362646	Supply Voltage
76	P10.4	FAST / PU1 / VEXT / ES	5281245	185148	General-purpose I/O
77	VDD	Vx	5331249	362646	Supply Voltage
78	P10.5	SLOW / PU2 / VEXT / ES	5383287	185148	General-purpose I/O
79	P10.7	SLOW / PU1 / VEXT / ES	5435325	362646	General-purpose I/O
80	VSS	Vx	5494005	185148	Supply Voltage
81	P10.6	SLOW / PU2 / VEXT / ES	5595003	185148	General-purpose I/O
82	P10.8	SLOW / PU1 / VEXT / ES	5697999	185148	General-purpose I/O
83	P02.0	FAST / PU1 / VEXT / ES	5801292	291978	General-purpose I/O
84	P02.1	SLOW / PU1 / VEXT / ES	5801292	392976	General-purpose I/O
85	P02.2	FAST / PU1 / VEXT / ES	5801292	495972	General-purpose I/O
86	P02.3	SLOW / PU1 / VEXT / ES	5801292	600966	General-purpose I/O
87	P02.4	FAST / PU1 / VEXT / ES	5801292	700974	General-purpose I/O
88	VSS	Vx	5801292	800982	Supply Voltage

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
89	P02.5	FAST / PU1 / VEXT / ES	5801292	900990	General-purpose I/O
90	P02.6	FAST / PU1 / VEXT / ES	5801292	1000998	General-purpose I/O
91	P02.7	FAST / PU1 / VEXT / ES	5801292	1101006	General-purpose I/O
92	P02.8	SLOW / PU1 / VEXT / ES	5801292	1201014	General-purpose I/O
93	VEXT	Vx	5801292	1301022	Supply Voltage
94	VSS	Vx	5801292	1401030	Supply Voltage
95	VDD	Vx	5801292	1501038	Supply Voltage
96	VDD	Vx	5801292	1601046	Supply Voltage
97	VSS	Vx	5801292	1701054	Supply Voltage
98	VDD	Vx	5801292	1801062	Supply Voltage
99	VSS	Vx	5801292	1902060	Supply Voltage
100	VSS	Vx	5801292	2005056	Supply Voltage
101	VDD	Vx	5623794	2108052	Supply Voltage
102	P00.0	FAST / PU1 / VEXT / ES	5801292	2165049	General-purpose I/O
103	P00.1	SLOW / PU1 / VEXT / ES	5801292	2273540	General-purpose I/O
104	P00.2	SLOW / PU1 / VEXT / ES1	5623794	2328538	General-purpose I/O
105	P00.3	SLOW / PU1 / VEXT / ES1	5801292	2383538	General-purpose I/O
106	P00.4	SLOW / PU1 / VEXT / ES1	5623794	2438536	General-purpose I/O
107	P00.5	SLOW / PU1 / VEXT / ES1	5801292	2493536	General-purpose I/O
108	P00.6	SLOW / PU1 / VEXT / ES1	5623794	2548534	General-purpose I/O
109	P00.7	SLOW / PU1 / VEXT / ES1	5801292	2603534	General-purpose I/O
110	P00.8	SLOW / PU1 / VEXT / ES1	5623794	2658532	General-purpose I/O
111	P00.9	SLOW / PU1 / VEXT / ES1	5801292	2713532	General-purpose I/O
112	P00.10	SLOW / PU1 / VEXT / ES1	5623794	2768530	General-purpose I/O
113	P00.11	SLOW / PU1 / VEXT / ES1	5801292	2823530	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
114	P00.12	SLOW / PU1 / VEXT / ES1	5623794	2878528	General-purpose I/O
115	VSS	Vx	5801292	2933528	Supply Voltage
116	VSS	Vx	5801292	3032626	Supply Voltage
117	VDD	Vx	5801292	3131726	Supply Voltage
118	VDD	Vx	5623794	3186724	Supply Voltage
119	VEXT	Vx	5801292	3285824	Supply Voltage
120	VEXT	Vx	5623794	3340822	Supply Voltage
121	AN43	D / HighZ / VDDM	5801292	3439922	Analog Input 43
122	AN42	D / HighZ / VDDM	5623794	3494920	Analog Input 42
123	AN47	D / HighZ / VDDM	5801292	3549920	Analog Input 47
124	AN46	D / HighZ / VDDM	5623794	3604918	Analog Input 46
125	AN45	D / HighZ / VDDM	5801292	3659918	Analog Input 45
126	AN44	D / HighZ / VDDM	5623794	3714916	Analog Input 44
127	AN39/P40.9	S / HighZ / VDDM	5801292	3879914	Analog Input 39
128	AN38/P40.8	S / HighZ / VDDM	5623794	3934912	Analog Input 38
129	AN37/P40.7	S / HighZ / VDDM	5801292	3989912	Analog Input 37
130	AN36/P40.6	S / HighZ / VDDM	5623794	4044910	Analog Input 36
131	AN35	D / HighZ / VDDM	5801292	4099910	Analog Input 35
132	AN34	D / HighZ / VDDM	5623794	4154908	Analog Input 34
133	AN33/P40.5	S / HighZ / VDDM	5801292	4209908	Analog Input 33
134	AN32/P40.4	S / HighZ / VDDM	5623794	4264906	Analog Input 32
135	AN29	D / HighZ / VDDM	5801292	4319906	Analog Input 29
136	AN28	D / HighZ / VDDM	5623794	4374904	Analog Input 28
137	AN27/P40.3	S / HighZ / VDDM	5801292	4429904	Analog Input 27

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
138	AN26/P40.2	S / HighZ / VDDM	5623794	4484902	Analog Input 26
139	AN25/P40.1	S / HighZ / VDDM	5801292	4539902	Analog Input 25
140	AN24/P40.0	S / HighZ / VDDM	5801292	4663300	Analog Input 24
141	AN23	D / HighZ / VDDM	5716440	4748292	Analog Input 23
142	AN22	D / HighZ / VDDM	5593140	4748292	Analog Input 22
143	AN41	D / HighZ / VDDM	5538141	4570794	Analog Input 41
144	AN21	D / HighZ / VDDM	5483142	4748292	Analog Input 21
145	AN40	D / HighZ / VDDM	5428143	4570794	Analog Input 40
146	AN20	D / HighZ / VDDM	5373144	4748292	Analog Input 20
147	AN31	D / HighZ / VDDM	5318145	4570794	Analog Input 31
148	AN19	D / HighZ / VDDM	5263146	4748292	Analog Input 19
149	AN30	D / HighZ / VDDM	5208147	4570794	Analog Input 30
150	AN18	D / HighZ / VDDM	5153148	4748292	Analog Input 18
151	AN17	D / HighZ / VDDM	5098149	4570794	Analog Input 17
152	AN16	D / HighZ / VDDM	5043150	4748292	Analog Input 16
153	AN15	D / HighZ / VDDM	4988151	4570794	Analog Input 15
154	VAGND1	Vx	4933152	4748292	Supply Voltage
155	VAREF1	Vx	4878153	4570794	Supply Voltage
156	VAGND0	Vx	4823154	4748292	Supply Voltage
157	VAREF0	Vx	4768155	4570794	Supply Voltage
158	VSSM	Vx	4713156	4748292	Supply Voltage
159	VDDM	Vx	4658157	4570794	Supply Voltage
160	VSSM	Vx	4603158	4748292	Supply Voltage
161	VDDM	Vx	4548159	4570794	Supply Voltage
162	VSSM	Vx	4369514	4748292	Supply Voltage
163	VDDM	Vx	4314514	4570794	Supply Voltage

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
164	AN14	D / HighZ / VDDM	4259516	4748292	Analog Input 14
165	AN13	D / HighZ / VDDM	4204516	4570794	Analog Input 13
166	AN12	D / HighZ / VDDM	4149518	4748292	Analog Input 12
167	AN11	D / HighZ / VDDM	4094518	4570794	Analog Input 11
168	AN10	D / HighZ / VDDM	4039520	4748292	Analog Input 10
169	AN9	D / HighZ / VDDM	3984520	4570794	Analog Input 9
170	AN8	D / HighZ / VDDM	3929522	4748292	Analog Input 8
171	AN7	D / HighZ / VDDM	3874522	4570794	Analog Input 7
172	AN6	D / HighZ / VDDM	3819524	4748292	Analog Input 6
173	AN5	D / HighZ / VDDM	3764524	4570794	Analog Input 5
174	AN4	D / HighZ / VDDM	3709526	4748292	Analog Input 4
175	AN3	D / HighZ / VDDM	3654526	4570794	Analog Input 3
176	AN2	D / HighZ / VDDM	3599528	4748292	Analog Input 2
177	AN1	D / HighZ / VDDM	3544528	4570794	Analog Input 1
178	AN0	D / HighZ / VDDM	3489530	4748292	Analog Input 0
179	VSS	Vx	3371427	4748292	Supply Voltage
180	VDD	Vx	3293469	4570794	Supply Voltage
181	VSS	Vx	3219507	4748292	Supply Voltage
182	VDD	Vx	3141549	4570794	Supply Voltage
183	VSS	Vx	3067587	4748292	Supply Voltage
184	VDD	Vx	2991789	4570794	Supply Voltage
185	VEVRSB	Vx	2910159	4748292	Supply Voltage
186	VEVRSB	Vx	2858121	4570794	Supply Voltage
187	VSS	Vx	2806083	4748292	Supply Voltage
188	P33.0	SLOW / PU1 / VEVRSB / ES5	2683107	4748292	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
189	P33.1	SLOW / PU1 / VEVRSB / ES5	2627109	4570794	General-purpose I/O
190	P33.2	SLOW / PU1 / VEVRSB / ES5	2577105	4748292	General-purpose I/O
191	P33.3	SLOW / PU1 / VEVRSB / ES5	2527101	4570794	General-purpose I/O
192	P33.4	SLOW / PU1 / VEVRSB / ES5	2477097	4748292	General-purpose I/O
193	P33.5	SLOW / PU1 / VEVRSB / ES5	2422107	4570794	General-purpose I/O
194	VSS	Vx	2334015	4748292	Supply Voltage
195	VDD	Vx	2258217	4570794	Supply Voltage
196	P33.6	SLOW / PU1 / VEVRSB / ES5	2208519	4748292	General-purpose I/O
197	P33.8	FAST / HighZ / VEVRSB	2158515	4570794	General-purpose I/O
198	P33.7	SLOW / PU1 / VEVRSB / ES5	2108511	4748292	General-purpose I/O
199	VDD	Vx	2059173	4570794	Supply Voltage
200	VSS	Vx	2009475	4748292	Supply Voltage
201	P33.10	FAST / PU1 / VEVRSB / ES5	1954179	4570794	General-purpose I/O
202	P33.9	SLOW / PU1 / VEVRSB / ES5	1903185	4748292	General-purpose I/O
203	P33.11	FAST / PU1 / VEVRSB / ES5	1853181	4570794	General-purpose I/O
204	P33.12	FAST / PU1 / VEVRSB / ES5	1803177	4748292	General-purpose I/O
205	VDD	Vx	1752309	4570794	Supply Voltage
206	VSS	Vx	1684044	4748292	Supply Voltage
207	VEVRSB	Vx	1584036	4748292	Supply Voltage
208	VSS	Vx	1484028	4748292	Supply Voltage

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
209	P33.13	FAST / PU1 / VEVRSB / ES5	1379034	4748292	General-purpose I/O
210	VSS	Vx	1278036	4748292	Supply Voltage
211	VDD	Vx	1178028	4748292	Supply Voltage
212	VEXT	Vx	1078020	4748292	Supply Voltage
213	P32.0	SLOW / PU1 / VEXT / ES	978012	4748292	General-purpose I/O
214	VGATE1N	Vx	878004	4748292	DCDC N ch. MOSFET gate driver output
215	P32.1	SLOW / PU1 / VEXT / ES	777996	4748292	General-purpose I/O
216	VGATE1P	Vx	677988	4748292	DCDC P ch. MOSFET gate driver output
217	VSS	Vx	577980	4748292	Supply Voltage
218	P32.2	SLOW / PU1 / VEXT / ES	477972	4748292	General-purpose I/O
219	P32.3	SLOW / PU1 / VEXT / ES	372978	4748292	General-purpose I/O
220	P32.4	FAST / PU1 / VEXT / ES	269982	4748292	General-purpose I/O
221	P23.0	SLOW / PU1 / VEXT / ES	185148	4596759	General-purpose I/O
222	P23.1	FAST / PU1 / VEXT / ES	185148	4493763	General-purpose I/O
223	VEXT	Vx	362646	4441725	Supply Voltage
224	P23.3	SLOW / PU1 / VEXT / ES	185148	4364199	General-purpose I/O
225	P23.2	SLOW / PU1 / VEXT / ES	362646	4312161	General-purpose I/O
226	P23.5	FAST / PU1 / VEXT / ES	185148	4260123	General-purpose I/O
227	P23.4	FAST / PU1 / VEXT / ES	362646	4208085	General-purpose I/O
228	P22.0	FAST / PU1 / VEXT / ES6	185148	4156047	General-purpose I/O
229	P22.1	FAST / PU1 / VEXT / ES6	362646	4104009	General-purpose I/O
230	P22.2	FAST / PU1 / VEXT / ES6	185148	4048011	General-purpose I/O
231	P22.3	FAST / PU1 / VEXT / ES6	362646	3995973	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
232	RESERVED	Vx	185148	3943935	Must be bonded to VSS
233	VEXT	Vx	362646	3891897	Supply Voltage
234	VSS	Vx	185148	3839859	Supply Voltage
235	VEXT	Vx	362646	3787821	Supply Voltage
236	VSS	Vx	185148	3735783	Supply Voltage
237	VDD	Vx	362646	3683745	Supply Voltage
238	VSS	Vx	185148	3604815	Supply Voltage
239	VDD	Vx	362646	3523887	Supply Voltage
240	VSS	Vx	185148	3446955	Supply Voltage
241	VDD	Vx	362646	3356172	Supply Voltage
242	VSS	Vx	185148	3306762	Supply Voltage
243	XTAL1	XTAL / VEXT	185148	3149613	XTAL pad1 XTAL1. Main Oscillator/PLL/Clock Generator Input.
244	XTAL2	XTAL / VEXT	185148	3050613	XTAL pad2 XTAL2. Main Oscillator/PLL/Clock Generator OUTPUT
245	VSS	Vx	185148	2893464	Supply Voltage
246	VEXT	Vx	362646	2844054	Supply Voltage
247	VEXT	Vx	362646	2709414	Supply Voltage
248	VSS	Vx	185148	2659374	Supply Voltage
249	P21.0	FAST / PU1 / VEXT / ES	362646	2605338	General-purpose I/O
250	P21.1	FAST / PU1 / VEXT / ES	185148	2551338	General-purpose I/O
251	P21.2	LVDS_RX / FAST / PU1 / VEXT / ES	362646	2476287	General-purpose I/O
252	P21.3	LVDS_RX / FAST / PU1 / VEXT / ES	362646	2377287	General-purpose I/O
253	P21.4	LVDS_TX / FAST / PU1 / VEXT / ES6	362646	2247741	General-purpose I/O
254	P21.5	LVDS_TX / FAST / PU1 / VEXT / ES6	362646	2148741	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
255	P21.6/TDI	FAST / PD / PU2 / VEXT / ES3	185148	2037240	General-purpose I/O PD during Reset and in DAP/DAPE or JTAG mode. After Reset release and when not in DAP/DAPE or JTAG mode: PU. In Standby mode: HighZ.
256	TMS	FAST / PD2 / VEXT	362646	1987236	JTAG Module State Machine Control Input
257	P21.7/TDO	FAST / PU2 / VEXT / ES4	185148	1937232	General-purpose I/O
258	$\overline{\text{TRST}}$	FAST / PU2 / VEXT	362646	1887228	JTAG Module Reset/Enable Input
259	TCK	FAST / PD2 / VEXT	185148	1837224	JTAG Module Clock Input
260	P20.0	FAST / PU1 / VEXT / ES	362646	1787220	General-purpose I/O
261	VSS	Vx	185148	1737216	Supply Voltage
262	VEXT	Vx	362646	1685178	Supply Voltage
263	P20.1	SLOW / PU1 / VEXT / ES	185148	1635174	General-purpose I/O
264	P20.2	S / PU / VEXT	362646	1585170	General-purpose I/O This pin is latched at power on reset release to enter test mode.
265	P20.3	SLOW / PU1 / VEXT / ES	185148	1535166	General-purpose I/O
266	$\overline{\text{ESR1}}$	FAST / PU1 / VEXT	362646	1485162	ESR1 Port Pin input - can be used to trigger a reset or an NMI ESR1: External System Request Reset 1. Default NMI function. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
267	$\overline{\text{PORST}}$	PORST / PD / VEXT	185148	1435158	PORST pin Power On Reset Input. Additional strong PD in case of power fail.

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
268	$\overline{\text{ESR0}}$	FAST / OD / VEXT	362646	1385154	ESR0 Port Pin input - can be used to trigger a reset or an NMI ESR0: External System Request Reset 0. Default configuration during and after reset is open-drain driver. The driver drives low during power-on reset. This is valid additionally after deactivation of PORST_N until the internal reset phase has finished. See also SCU chapter for details. Default after power-on can be different. See also SCU chapter ´Reset Control Unit´ and SCU_IOCR register description. PMS_EVRWUP: EVR Wakepup Pin
269	VSS	Vx	185148	1312974	Supply Voltage
270	VDD	Vx	362646	1240794	Supply Voltage
271	VSS	Vx	185148	1168614	Supply Voltage
272	VDD	Vx	362646	1096434	Supply Voltage
273	VSS	Vx	185148	1024254	Supply Voltage
274	VDD	Vx	362646	952074	Supply Voltage
275	P20.6	SLOW / PU1 / VEXT / ES	185148	900036	General-purpose I/O
276	P20.7	FAST / PU1 / VEXT / ES	362646	847998	General-purpose I/O
277	P20.8	FAST / PU1 / VEXT / ES	185148	797994	General-purpose I/O
278	P20.9	FAST / PU1 / VEXT / ES	362646	747990	General-purpose I/O
279	VEXT	Vx	185148	697986	Supply Voltage
280	P20.10	FAST / PU1 / VEXT / ES	362646	647982	General-purpose I/O
281	VSS	Vx	185148	597978	Supply Voltage
282	P20.12	FAST / PU1 / VEXT / ES	362646	547974	General-purpose I/O
283	P20.11	FAST / PU1 / VEXT / ES	185148	497970	General-purpose I/O

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Table 2-82 Pad List (cont'd)

Number	Pad Name	Pad Type	X	Y	Comment
284	P20.13	FAST / PU1 / VEXT / ES	185148	392976	General-purpose I/O
285	P20.14	FAST / PU1 / VEXT / ES	185148	289980	General-purpose I/O

Whenever in table of section 3 'Electrical Specification' the term 'neighbor pads' is used, the detailed definition is provided by **Figure 2-82**. This statement is also valid for next/nearest neighbor pads.

In order to find out who is affecting operation on a target pad (interfering) a number of active close-neighbor pads (ACNP) has to be defined.

Finding close-neighbor pads.

The Pad Ring has four edges: bottom, left, top, right. Each edge is limited, i.e. it has two ends.

Each pad has two direct (first) neighbors unless it is located at the end of the edge. In that case it only has one neighbor. Similarly, each pad has two indirect (second) neighbors unless it or its first neighbor is located at the end of the edge. These first and second neighbors we will collectively call Close-Neighbor pads. Therefore each pad has 2 to 4 close-neighbor pads.

Finding close-neighbors can be done with the following sequence:

1.) Choose a target pad and lookup its "X" and "Y" coordinates in table **Figure 2-82**.

2.) Find first and second neighbors by calculating "X" and "Y" distance from the selected pad. **Figure 2-82** is sorted by "Y" coordinate, which might help locate the 4 close-neighbor candidates (if the pad is near the edge, it might end up with less than 4 close-neighbors).

Defining active pads:

Pad is active if it is currently in use and if it doesn't have "Vxx" in the name.

Figuring out number of active close-neighbor pads follow next rules:

- If the first neighbor is active, then we count it and also check if second neighbor (on the same side of selected pad) is active.

- If the first neighbor is not active, then we do not check the second on the same side.

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2.7 Legend

The data in this chapter 2 match with the file TC36xpd_IO_Spirit_v1.0.0.1.12.xml.

Column “Ctrl.”:

I = Input (for GPIO port lines with IOCR bit field Selection PCx = $0XXX_B$)

O = Output (for GPIO port lines the ´O´ represents in most cases the port HWOUT function)

O0 = Output with IOCR bit field selection PCx = $1X000_B$

O1 = Output with IOCR bit field selection PCx = $1X001_B$ (ALT1)

O2 = Output with IOCR bit field selection PCx = $1X010_B$ (ALT2)

O3 = Output with IOCR bit field selection PCx = $1X011_B$ (ALT3)

O4 = Output with IOCR bit field selection PCx = $1X100_B$ (ALT4)

O5 = Output with IOCR bit field selection PCx = $1X101_B$ (ALT5)

O6 = Output with IOCR bit field selection PCx = $1X110_B$ (ALT6)

O7 = Output with IOCR bit field selection PCx = $1X111_B$ (ALT7)

Column “Buffer Type”:

FAST = Pad class FAST (5V/3.3V)

RFAST = Pad class RFAST (5V/3.3V)

SLOW = Pad class SLOW (5V/3.3V)

LVDS_TX = Pad class LVDS Transmit

LVDS_RX = Pad class LVDS Receive

RGMII_Input = Pad implemented with controllable RGMII input buffer. Chapter -> ´General Purpose Ports and I/O´

S = Pad class S (Analog Input overlayed with General Purpose Input)

D = Pad class D (Analog Input)

Porst = Porst input Pad

XTAL1 = XTAL1 input Pad

XTAL2 = XTAL2 input Pad

PU = with pull-up device connected during reset ($\overline{\text{PORST}}$ = 0)

PU1 = with pull-up device connected during reset ($\overline{\text{PORST}}$ = 0)[1)]

PU2 = with pull-up device connected during reset and startup, HighZ in Standby mode

PD = with pull-down device connected during reset ($\overline{\text{PORST}}$ = 0)

PD1 = with pull-down device connected during reset ($\overline{\text{PORST}}$ = 0)[1)]

PD2 = with pull-down device connected during reset and startup, HighZ in Standby mode

OD = open drain during reset ($\overline{\text{PORST}}$ = 0)

ES = Supports Emergency Stop

ES1 = ES. ES can be overruled by VADC, control via P00_PCSR

ES2 = ES. ES can be overruled by DXCPL - DAP over CAN physical layer, No overruling for DXCM - Debug over CAN message

ES3 = ES. ES can be overruled by JTAG mode if this pin is used as TDI

ES4 = ES. ES can be overruled by JTAG or Three Pin DAP mode

1) The default state of GPIOs (Px.y) during and after PORST active is controllled via HWCFG6 (P14.4). Pls. see also chapter PMS, HWCFG[6].

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ES5 = ES. ES can be overruled by the Standby Controller - SCR - if implemented. Overruling can be disabled via the control register P33_PCSR and P34_PCSR

ES6 = ES. On LVDS TX pads the ES affects the pads only in CMOS mode, not in LVDS mode. Thus, only when LPCRx.TX_EN selects the CMOS Mode, the output is switched off in the ES event.

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3 Electrical Specification

3.1 Parameter Interpretation

The parameters listed in this section partly represent the characteristics of the TC36x and partly its requirements on the system. To aid interpreting the parameters easily when evaluating them for a design, they are marked with an two-letter abbreviation in column “Symbol”:

- **CC**
  Such parameters indicate **C**ontroller **C**haracteristics which are a distinctive feature of the TC36x and must be regarded for a system design.
- **SR**
  Such parameters indicate **S**ystem **R**equirements which must be provided by the microcontroller system in which the TC36x designed in.

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3.2 Absolute Maximum Ratings

Stresses above the values listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the Operational Conditions of this specification is not implied. Exposure to absolute maximum rating conditions may affect device reliability.

Table 3-1 Absolute Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Storage Temperature	T_{ST} SR	-65	-	150	°C	upto 65h @ T_J = 150°C
Voltage at V_{DD} power supply pins with respect to V_{SS} 1) 2)	V_{DD} SR	-	-	1.65	V	upto 2.8h
		-	-	1.45	V	upto 72h
Voltage at V_{DDP3} power supply pins with respect to V_{SS}	V_{DDP3} SR	-	-	4.43	V	
Voltage at V_{DDM}, V_{EXT}, V_{FLEX} and V_{EVRSB} power supply pins with respect to V_{SS}	V_{DDM} SR	-	-	6.75	V	upto 2.8h
		-	-	5.6	V	upto 72h
Voltage on all other input pins with respect to V_{SS} 3)	V_{IN} SR	-0.7	-	6.75	V	
Voltage on all analog and class S input pins with respect to V_{SS} 3)	V_{IN} SR	-0.7	-	6.75	V	
Input current on any pin during overload condition 4) 5)	I_{IN} SR	-10	-	10	mA	
Absolute maximum sum of all input circuit currents during overload condition. 4)	ΣI_{IN} SR	-100	-	100	mA	

1) Valid for cumulated for up to 2.8h and pulse forms followed a power supply switch on phase, where the rise and fall times are related to the system capacities and coils.

2) Due to EVRC output voltage oscillation during switch off phase V_{DD} can drop down to -0.72V. For V_{DD} an input level down to -0.72V during switch off phase will not cause any damage or reliability problem.

3) Voltages below V_{INmin} have no Impact to the device reliability as Long as the times and currents defined in section Pin Reliability in Overload for the affected pad(s) are not violated.

4) This parameter is an Absolute Maximum Rating. Exposure to Absolute Maximum Ratings for extended periods of time may damage the device.

5) The specified min. and max. values represent the current limits, which have to be maintained, in case of a short circuit condition on the output of any Fast, RFast, Slow and Class S pad, not being used during operation.
This covers also output currents due to switching in operation for C_L=200pF.

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3.3 Pin Reliability in Overload

When receiving signals from higher voltage devices, low-voltage devices experience overload currents and voltages that go beyond their own IO power supplies specification.

The following table defines overload conditions that will not cause any negative reliability impact if all the following conditions are met:

- allowed time interval (defined in Note column) for overload condition is not exceeded. If no time limit is defined the allowed time includes both 'Operation Lifetime hours' and 'Inactive Lifetime hours'. The number of hours in **Table 3-66** and **Table 3-67** are examples only and the applicable numbers are defined by the customer profiles accepted by Infineon.
- **Operating Conditions** are met for
  - pad supply levels
  - temperature

If a pin current is out of the **Operating Conditions** but within the overload parameters, then the parameters functionality of this pin as stated in the Operating Conditions can no longer be guaranteed. Operation is still possible in most cases but with relaxed parameters.

Table 3-2 Overload Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input current on any digital pin during overload condition	I_{IN}	-5	-	5	mA	except LVDS pins
		-15 [1]	-	15 [1]	mA	except LVDS pins; limited to max. 20 pulses with 1ms pulse length
Input current on LVDS pin during overload condition	I_{INLVDS}	-3	-	3	mA	
Input current on analog input pin during overload condition	I_{INANA}	-3	-	3	mA	
		-5	-	5	mA	limited to 60h over lifetime
Absolute sum of all analog input currents for analog inputs during overload condition	I_{INSA}	-20	-	20	mA	
Absolute maximum sum of all input circuit currents during overload condition (digital and analog combined)	ΣI_{INS}	-100	-	100	mA	
Signal voltage over/undershoot at GPIOs	V_{OUS}	V_{SS} - 2	-	$V_{EXT/FLEX}$ + 2	V	limited to 60h over lifetime; Valid for non LVDS and analoge pads
Sum of all inactive device pin currents	I_{IDS}	-100	-	100	mA	
Static pin output current	I_{OUT} CC	-	-	2.5	mA	100% duty cycle; output driver = medium
		-	-	5	mA	100% duty cycle; output driver = strong

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Table 3-2 Overload Parameters (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Overload coupling factor for digital inputs, negative	K_{OVDN} CC	-	-	$3*10^{-4}$		Overload injected on GPIO non LVDS pad and affecting neighbor fast pads; -5mA < I_{IN} < 0mA
		-	-	$2*10^{-3}$		Overload injected on GPIO non LVDS pad and affecting neighbor slow pads VGASTE1N and VGATE1P; -5mA < I_{IN} < 0mA
		-	-	$1*10^{-4}$		Overload injected on GPIO non LVDS pad and affecting neighbor slow pads; -5mA < I_{IN} < 0mA
		-	-	0.8		Overload injected on LVDS RX pad and affecting neighbor LVDS pads
		-	-	0.5		Overload injected on LVDS TX pad and affecting neighbor LVDS pads
Overload coupling factor for digital inputs, positive	K_{OVDP} CC	-	-	$1.5*10^{-3}$		Overload injected on GPIO non LVDS pad and affecting neighbor GPIO non LVDS pads
		-	-	1		Overload injected on LVDS RX pad and affecting neighbor LVDS pads
		-	-	$5*10^{-3}$		Overload injected on LVDS TX pad and affecting neighbor LVDS pads
Overload coupling factor for analog inputs, negative [2)]	K_{OVAN} CC	-	-	$1*10^{-4}$		Analog inputs overlaid with slow pads or pull down diagnostics; -5mA < I_{IN} < 0mA
		-	-	$1*10^{-5}$		else; -5mA < I_{IN} < 0mA

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Table 3-2 Overload Parameters (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Overload coupling factor for analog inputs, positive [2]	K_{OVAP} CC	-	-	$2*10^{-4}$		Analoge inputs overlaid with slow pads or pull down diagnostics; 0mA < I_{IN} < 5mA
		-	-	$2*10^{-5}$		else; 0mA < I_{IN} < 5mA

1) Reduced VADC / DSADC result accuracy and / or GPIO input levels (V_{IL} and V_{IH}) can differ from specified parameters.

2) Overload coupling on analog inputs is caused by parasitic effects between pads, input multiplexers and surrounding structures. The given parameters have been verified for all permutations of channels. Also watch multiple connections of a pin to several channels.

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3.4 Operating Conditions

The following operating conditions must not be exceeded in order to ensure correct operation and reliability of the TC36x. All parameters specified in the following tables refer to these operating conditions, unless otherwise noticed.

Digital supply voltages applied to the TC36x must be static regulated voltages.

All parameters specified in the following tables refer to these operating conditions (see table below), unless otherwise noticed in the Note / Test Condition column.

Table 3-3 Operating Conditions

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SRI frequency	f_{SRI} SR	-	-	300	MHz	
CPU Frequency (All CPUs)	f_{CPUx} SR	-	-	300	MHz	
PLL0 output frequency	f_{PLL0} SR	20	-	300	MHz	
SPB frequency	f_{SPB} SR	-	-	100	MHz	
FSI2 frequency	f_{FSI2} SR	-	-	300	MHz	
FSI frequency	f_{FSI} SR	20	-	100	MHz	
GTM frequency	f_{GTM} SR	-	-	200	MHz	
STM frequency	f_{STM} SR	-	-	100	MHz	
ERAY frequency	f_{ERAY} SR	-	80	-	MHz	
BBB frequency	f_{BBB} SR	-	-	150	MHz	
VADC frequency	f_{ADC} SR	-	-	160	MHz	
ASCLIN Operating Frequency	$f_{ASCLINx}$ SR	-	-	200	MHz	
CAN frequency	f_{CAN} SR	-	-	80	MHz	
I2C frequency	f_{I2C} SR	-	-	100	MHz	
Operating MSC Frequency	f_{MSC} SR	-	-	200	MHz	
PLL1 output frequency from PER PLL	f_{PLL1} SR	20	-	320	MHz	
PLL2 output frequency from PER PLL	f_{PLL2} SR	20	-	200	MHz	
QSPI Frequency	f_{QSPI} SR	-	-	200	MHz	
MCANH frequency	f_{MCANH} CC	-	-	100	MHz	
GETH frequency	f_{GETH} CC	100	-	150	MHz	
Ambient Temperature	T_A SR	-40	-	125	°C	valid for all SAK products
		-40	-	150	°C	valid for all SAL products with package
		-40	-	170	°C	valid for all SAL products without package

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Table 3-3 Operating Conditions (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Junction Temperature	T_J SR	-40	-	150	°C	valid for all SAK products
		-40	-	170	°C	valid for all SAL products
Core Supply Voltage	V_{DD} SR	1.125 [1]	1.25	1.375 [2]	V	
ADC analog supply voltage	V_{DDM} SR	2.97	5.0	5.5 [3]	V	
Digital external supply voltage for pads and EVR	V_{EXT} SR	4.5	5.0	5.5 [3]	V	Nominal 5V Pad / Port Pin supply range. 5V pad parameters are valid.
		2.97	3.3	3.63	V	Nominal 3.3V Pad / Port Pin supply range with VDDP3 supplied externally and EVR33 inactive. 3.3V pad parameters are valid.
		3.6	-	4.5	V	Flash configured in cranking mode; Flash read operation with reduced performance. EVR33 active in low voltage mode. 3.3V pad parameters are valid.
		2.97	-	3.6	V	Incase EVR33 is active, Flash configured in sleep mode and execution switched to RAM. 3.3V pad parameters are valid.
Digital supply voltage for Flex port	V_{FLEX} SR	2.97	-	4.0	V	3.3V pad parameters are valid
		4.5	5.0	5.5 [3]	V	5V pad parameters are valid
Digital supply voltage for Flash	V_{DDP3} SR	2.97	3.3	3.63 [4]	V	
		2.6	-	3.63	V	Flash configured in cranking mode; Flash read operation with reduced performance.
Digital ground voltage	V_{SS} SR	0	-	-	V	
Analog ground voltage for V_{DDM}	V_{SSM} CC	-0.1	0	0.1	V	

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Table 3-3 Operating Conditions (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Digital external supply voltage for EVR and during Standby mode	V_{EVRSB} SR	2.97 [5]	-	5.5	V	
Voltage to ensure defined pad states	V_{DDPPA} CC	1.3 [6]	-	-	V	

1) For V_{DD} 1.08V ≤ V_{DD} < 1.125V operation is still possible but with relaxed parameters.
2) Voltage overshoot to 1.69V is permissible, provided the duration is less than 2h cumulated. Reduced ADC accuracy and leakage is increased.
3) Voltage overshoot to 6.5V is permissible, provided the duration is less than 2h cumulated. Reduced ADC accuracy and leakage is increased.
4) Voltage overshoot to 4.29V is permissible, provided the duration is less than 2h cumulated. Reduced ADC accuracy and leakage is increased.
5) V_{EVRSB} supply voltage can drop down upto 2.6V during Standby mode. It is required to have a capictor of 100nF on V_{EVRSB} supply pin.
6) HWCFG[6] pin is latched and pull-up or tristate is activated at Port pins when VEXT has reached this level.

Limitation of Supply Voltage over Time

The maximum operation voltage for $V_{EXT/FLEX/DDM}$ supply rails is limited over the complete lifetime.

The following voltage profile is an example. Application specific voltage profiles need to be aligned and approved by Infineon Technologies for the fulfillment of quality and reliability targets.

Table 3-4 Example Voltage Profile

$V_{EXT/FLEX/DDM}$=	Duration [h]
5.4 V < $V_{EXT/FLEX/DDM}$ ≤ 5.5 V	≤ 5% of lifetime
5.15 V < $V_{EXT/FLEX/DDM}$ ≤ 5.4 V	≤ 15% of lifetime
4.85 V < $V_{EXT/FLEX/DDM}$ ≤ 5.15 V	≤ 60% of lifetime
4.6 V < $V_{EXT/FLEX/DDM}$ ≤ 4.85 V	≤ 15% of lifetime
4.5 V < $V_{EXT/FLEX/DDM}$ ≤ 4.6 V	≤ 5% of lifetime

The maximum operation voltage for V_{DD} supply rails is limited over the complete lifetime.

The following voltage profile is an example. Application specific voltage profiles need to be aligned and approved by Infineon Technologies for the fulfillment of quality and reliability targets.

Table 3-5 Example Voltage Profile

V_{DD}=	Duration [h]
1.325 V < V_{DD} ≤ 1.375 V	≤ 5% of lifetime
1.275 V < V_{DD} ≤ 1.325 V	≤ 15% of lifetime
1.225 V < V_{DD} ≤ 1.275 V	≤ 60% of lifetime
1.175 V < V_{DD} ≤ 1.225 V	≤ 15% of lifetime
1.125 V < V_{DD} ≤ 1.175V	≤ 5% of lifetime

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3.5 5 V / 3.3 V switchable Pads

Pad classes slow GPIO and fast GPIO support both Automotive Level (AL) or TTL level (TTL) operation. Parameters are defined for AL operation and degrade in TTL operation.

Table 3-6 $\overline{\text{PORST}}$ Pad

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
$\overline{\text{PORST}}$ pad Output current	I_{PORST} CC	13	-	-	mA	V_{EXT} = 2.97V; V_{PORST} = 0.9V
Spike filter always blocked pulse duration	t_{SF1} CC	-	-	80	ns	
Spike filter pass-through blocked pulse duration	t_{SF2} CC	260	-	-	ns	without additional PORST Digtial Filter active (PORSTDF = 0).
Input hysteresis [1]	HYS CC	0.055 * V_{EXT}	-	-	V	non of the neighbor pads are used as output;TTL (degraded, used for CIF)
Pull-down current [2]	I_{PDL} CC	-	-	|130|	µA	V_{IH}; TTL (degraded, used for CIF)
		|15|	-	-	µA	V_{IL}; TTL (degraded, used for CIF)
Input leakage current	I_{OZ} CC	-450	-	450	nA	TJ≤150°C ; (0.1 * V_{EXT}) < V_{IN} < (0.9 * V_{EXT})
		-500	-	500	nA	TJ≤150°C ;else
		-900	-	900	nA	TJ≤170°C ; (0.1 * V_{EXT}) < V_{IN} < (0.9 * V_{EXT})
		-950	-	950	nA	TJ≤170°C ; else
Input high voltage level	V_{IH} SR	1.4	-	-	V	TTL (degraded, used for CIF); V_{EXT} = 2.97V
		2.0	-	-	V	TTL; V_{EXT} = 4.5V
Input low voltage level	V_{IL} SR	-	-	0.5	V	TTL (degraded, used for CIF); V_{EXT} = 2.97V
		-	-	0.8	V	TTL; V_{EXT} = 4.5V
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added

1) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.

2) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

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Table 3-7 Fast 5V GPIO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
		31	55	80	Ohm	strong driver; $I_{OH/OL}$ = 8mA
Rise / Fall time [1) 2)]	t_{RF} CC	1.6	-	3.2	ns	C_L = 25pF; driver = strong sharp edge; from 0.2 * $V_{EXT/FLEX/EVRSB}$ to 0.8 * $V_{EXT/FLEX/EVRSB}$
		4+0.55*C_L	4+0.75*C_L	12+1.0*C_L	ns	driver = medium; C_L≤200pF
		1.0+0.18* C_L	2.5+0.27* C_L	5.0+0.35* C_L	ns	driver = strong edge = medium; C_L≤200pF
		0.5+0.08* C_L	0.5+0.11* C_L	1.0+0.17* C_L	ns	driver = strong edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-1	-	1	ns	valid for all data rates excluding clock tolerance
Input frequency	f_{IN} CC	-	-	160	MHz	
Input hysteresis [3)]	HYS CC	0.09 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; AL
		0.075 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; TTL
		75	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL
Pull-up current [4)]	I_{PUH} CC	|30|	-	-	µA	V_{IH}; AL or TTL
		-	-	|130|	µA	V_{IL}; AL or TTL
Pull-down current [5)]	I_{PDL} CC	-	-	|130|	µA	V_{IH}; AL or TTL
		|30|	-	-	µA	V_{IL}; AL
		|28|	-	-	µA	V_{IL}; TTL

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Table 3-7 Fast 5V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input leakage current	I_{OZ} CC	-1100	-	1100	nA	$T_J \leq 150°C$; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-2500	-	2500	nA	$T_J \leq 150°C$; (0.1 * $V_{EXT/FLEX}$) < V_{IN} < (0.9 * $V_{EXT/FLEX}$) ; LVDS_TX / Fast pad type
		-6000	-	6000	nA	$T_J \leq 150°C$; LVDS_RX / Fast pad type ; else
		-3200	-	3200	nA	$T_J \leq 150°C$; LVDS_TX / Fast pad type ; else
		-1500	-	1500	nA	$T_J \leq 150°C$; else
		-2000	-	2000	nA	$T_J \leq 170°C$; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-4000	-	4000	nA	$T_J \leq 170°C$; (0.1 * $V_{EXT/FLEX}$) < V_{IN} < (0.9 * $V_{EXT/FLEX}$) ; LVDS_TX / Fast pad type
		-13500	-	13500	nA	$T_J \leq 170°C$; LVDS_RX / Fast pad type ; else
		-5100	-	5100	nA	$T_J \leq 170°C$; LVDS_TX / Fast pad type ; else
		-2500	-	2500	nA	$T_J \leq 170°C$; else
Input high voltage level	V_{IH} SR	0.7 * $V_{EXT/FLEX/EVRSB}$	-	-	V	AL
		2.0	-	-	V	TTL
Input low voltage level	V_{IL} SR	-	-	0.44 * $V_{EXT/FLEX/EVRSB}$	V	AL
		-	-	0.8	V	TTL
Input low threshold variation	V_{ILD} SR	-50	-	50	mV	max. variation of 1ms; $V_{EXT/FLEX/EVRSB}$ = constant; AL
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.

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3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-8 Fast 3.3V GPIO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
		31	55	80	Ohm	strong driver; $I_{OH/OL}$ = 8mA
Rise / Fall time [1) 2)]	t_{RF} CC	1.6	-	4.5	ns	C_L = 25pF; driver = strong sharp edge; from 0.2 * $V_{EXT/FLEX/EVRSB}$ to 0.8 * $V_{EXT/FLEX/EVRSB}$
		-	-	5	ns	C_L = 25pF; driver = strong sharp edge; from 0.8V to 2.0V (RMII)
		2+0.57*C_L	5.5+0.75* C_L	10+1.25* C_L	ns	driver = medium; C_L≤200pF
		1.5+0.18* C_L	1.5+0.28* C_L	8+0.4*C_L	ns	driver = strong edge = medium; C_L≤200pF
		0.75+0.08 *C_L	0.75+0.11 *C_L	2.5+0.21* C_L	ns	driver = strong edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-1	-	1	ns	valid for all data rates excluding clock tolerance
Input frequency	f_{IN} CC	-	-	160	MHz	
Input hysteresis [3)]	HYS CC	0.055 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; AL
		0.09 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; TTL
		0.055 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output;TTL (degraded, used for CIF)
		125	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL

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Table 3-8 Fast 3.3V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Pull-up current [4]	I_{PUH} CC	|17|	-	-	µA	V_{IH}; AL and TTL (degraded, used for CIF)
		|11|	-	-	µA	V_{IH}; TTL
		-	-	|80|	µA	V_{IL}; AL and TTL and TTL (degraded, used for CIF)
Pull-down current [5]	I_{PDL} CC	-	-	|105|	µA	V_{IH}; AL and TTL (degraded, used for CIF)
		-	-	|115|	µA	V_{IH}; TTL
		|19|	-	-	µA	V_{IL}; AL and TTL
		|15|	-	-	µA	V_{IL}; TTL (degraded, used for CIF)
Input leakage current	I_{OZ} CC	-1100	-	1100	nA	$T_J \leq 150°C$; $(0.1 * V_{EXT/FLEX/EVRSB}) < V_{IN} < (0.9 * V_{EXT/FLEX/EVRSB})$
		-2500	-	2500	nA	$T_J \leq 150°C$; $(0.1 * V_{EXT/FLEX}) < V_{IN} < (0.9 * V_{EXT/FLEX})$; LVDS_TX / Fast pad type
		-6000	-	6000	nA	$T_J \leq 150°C$; LVDS_RX / Fast pad type ; else
		-3200	-	3200	nA	$T_J \leq 150°C$; LVDS_TX / Fast pad type ; else
		-1500	-	1500	nA	$T_J \leq 150°C$; else
		-2000	-	2000	nA	$T_J \leq 170°C$; $(0.1 * V_{EXT/FLEX/EVRSB}) < V_{IN} < (0.9 * V_{EXT/FLEX/EVRSB})$
		-4000	-	4000	nA	$T_J \leq 170°C$; $(0.1 * V_{EXT/FLEX}) < V_{IN} < (0.9 * V_{EXT/FLEX})$; LVDS_TX / Fast pad type
		-13500	-	13500	nA	$T_J \leq 170°C$; LVDS_RX / Fast pad type ; else
		-5100	-	5100	nA	$T_J \leq 170°C$; LVDS_TX / Fast pad type ; else
		-2500	-	2500	nA	$T_J \leq 170°C$; else

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Table 3-8 Fast 3.3V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input high voltage level	V_{IH} SR	0.7 * $V_{EXT/FLEX/EVRSB}$	-	-	V	AL
		2.0	-	-	V	TTL
		1.4	-	-	V	TTL (degraded, used for CIF)
Input low voltage level	V_{IL} SR	-	-	0.42 * $V_{EXT/FLEX/EVRSB}$	V	AL
		-	-	0.8	V	TTL
		-	-	0.5	V	TTL (degraded, used for CIF)
Input low/high voltage level	V_{ILH} SR	1.0	-	1.9	V	RGMII; no hysteresis available
Input low threshold variation	V_{ILD} SR	-33	-	33	mV	max. variation of 1ms; $V_{EXT/FLEX/EVRSB}$ = constant; AL
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.
3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-9 Slow 5V GPIO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
Rise / Fall time 1) 2)	t_{RF} CC	4+0.55*C_L	4+0.75*C_L	12+1*C_L	ns	driver = medium edge = medium ; C_L≤200pF
		1.5+0.25*C_L	2.5+0.40*C_L	7+0.55*C_L	ns	driver = medium edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-1	-	1	ns	valid for all data rates excluding clock tolerance
Input frequency	f_{IN} CC	-	-	160	MHz	

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Table 3-9 Slow 5V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input hysteresis [3]	HYS CC	0.09 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; AL
		0.075 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; TTL
		75	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL
Pull-up current [4]	I_{PUH} CC	|30|	-	-	µA	V_{IH};AL or TTL; exept VGATE1P; except VGATE1N and T_J > 150°C
		-	-	|130|	µA	V_{IL}; AL or TTL; exept VGATE1P; except VGATE1N and T_J > 150°C
Pull-down current [5]	I_{PDL} CC	-	-	|130|	µA	V_{IH}; AL or TTL
		|30|	-	-	µA	V_{IL}; AL
		|28|	-	-	µA	V_{IL}; TTL
Input leakage current	I_{OZ} CC	-300	-	300	nA	$T_J \le 150°C$; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-400	-	400	nA	$T_J \le 150°C$; else
		-600	-	600	nA	$T_J \le 170°C$; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-750	-	750	nA	$T_J \le 170°C$; else
		-18000	-	18000	nA	P32.0 and P32.1;$T_J \le 150°C$
		-38000	-	38000	nA	P32.0 and P32.1;$T_J \le 170°C$
Input high voltage level	V_{IH} SR	0.7 * $V_{EXT/FLEX/EVRSB}$	-	-	V	AL
		2.0	-	-	V	TTL
Input low voltage level	V_{IL} SR	-	-	0.44 * $V_{EXT/FLEX/EVRSB}$	V	AL
		-	-	0.8	V	TTL

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Table 3-9 Slow 5V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input low threshold variation	V_{ILD} SR	-50	-	50	mV	max. variation of 1ms; $V_{EXT/FLEX/EVRSB}$ = constant; AL
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.
3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-10 Slow 3.3V GPIO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
Rise / Fall time [1) 2)]	t_{RF} CC	2+0.57*C_L	5.5+0.75* C_L	10+1.25* C_L	ns	driver = medium edge = medium ; C_L≤200pF
		2+0.30*C_L	3.5+0.50* C_L	5+0.70*C_L	ns	driver = medium edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-1	-	1	ns	valid for all data rates excluding clock tolerance
Input frequency	f_{IN} CC	-	-	160	MHz	
Input hysteresis [3)]	HYS CC	0.055 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; AL
		0.09 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output; TTL
		0.055 * $V_{EXT/FLEX/EVRSB}$	-	-	V	non of the neighbor pads are used as output;TTL (degraded, used for CIF)
		125	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL

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Table 3-10 Slow 3.3V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Pull-up current [4]	I_{PUH} CC	|17|	-	-	µA	V_{IH}; AL and TTL (degraded, used for CIF); exept VGATE1P; except VGATE1N and T_J > 150°C
		|11|	-	-	µA	V_{IH}; TTL; exept VGATE1P; except VGATE1N and T_J > 150°C
		-	-	|80|	µA	V_{IL}; AL and TTL and TTL (degraded, used for CIF); exept VGATE1P; except VGATE1N and T_J > 150°C
Pull-down current [5]	I_{PDL} CC	-	-	|105|	µA	V_{IH}; AL and TTL (degraded, used for CIF)
		-	-	|115|	µA	V_{IH}; TTL
		|19|	-	-	µA	V_{IL}; AL and TTL
		|15|	-	-	µA	V_{IL}; TTL (degraded, used for CIF)
Input leakage current	I_{OZ} CC	-300	-	300	nA	T_J ≤ 150°C; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-400	-	400	nA	T_J ≤ 150°C; else
		-600	-	600	nA	T_J ≤ 170°C; (0.1 * $V_{EXT/FLEX/EVRSB}$) < V_{IN} < (0.9 * $V_{EXT/FLEX/EVRSB}$)
		-750	-	750	nA	T_J ≤ 170°C; else
		-18000	-	18000	nA	P32.0 and P32.1;T_J≤150°C
		-38000	-	38000	nA	P32.0 and P32.1;T_J≤170°C
Input high voltage level	V_{IH} SR	0.7 * $V_{EXT/FLEX/EVRSB}$	-	-	V	AL
		2.0	-	-	V	TTL
		1.4	-	-	V	TTL (degraded, used for CIF)

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Table 3-10 Slow 3.3V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input low voltage level	V_{IL} SR	-	-	0.42 * $V_{EXT/FLEX/EVRSB}$	V	AL
		-	-	0.8	V	TTL
		-	-	0.5	V	TTL (degraded, used for CIF)
Input low/high voltage level	V_{ILH} SR	1.0	-	1.9	V	RGMII; no hysteresis available
Input low threshold variation	V_{ILD} SR	-33	-	33	mV	max. variation of 1ms; $V_{EXT/FLEX/EVRSB}$ = constant; AL
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.
3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-11 RFast 5V GPIO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
		31	55	80	Ohm	strong driver; $I_{OH/OL}$ = 8mA
Rise / Fall time 1) 2)	t_{RF} CC	1.6	-	3.2	ns	C_L = 25pF; driver = strong sharp edge; from 0.2 * V_{FLEX} to 0.8 * V_{FLEX}
		4+0.55*C_L	4+0.75*C_L	12+1.0*C_L	ns	driver = medium; C_L≤200pF
		1.0+0.18* C_L	2.5+0.27* C_L	5.0+0.35* C_L	ns	driver = strong edge = medium; C_L≤200pF
		0.5+0.08* C_L	0.5+0.11* C_L	1.0+0.17* C_L	ns	driver = strong edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-0.5	-	0.5	ns	valid for all data rates excluding clock tolerance

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Table 3-11 RFast 5V GPIO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input frequency	f_{IN} CC	-	-	160	MHz	
Input hysteresis [3]	HYS CC	0.09 * V_{FLEX}	-	-	V	non of the neighbor pads are used as output; AL
		0.075 * V_{FLEX}	-	-	V	non of the neighbor pads are used as output; TTL
		75	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL
Pull-up current [4]	I_{PUH} CC	|30|	-	-	µA	V_{IH}; AL or TTL
		-	-	|130|	µA	V_{IL}; AL or TTL
Pull-down current [5]	I_{PDL} CC	-	-	|130|	µA	V_{IH}; AL or TTL
		|30|	-	-	µA	V_{IL}; AL
		|28|	-	-	µA	V_{IL}; TTL
Input leakage current	I_{OZ} CC	-1700	-	1700	nA	$T_J \leq 150°C$; $(0.1 * V_{FLEX}) < V_{IN} < (0.9 * V_{FLEX})$
		-2100	-	2100	nA	$T_J \leq 150°C$; else
		-3000	-	3000	nA	$T_J \leq 170°C$; $(0.1 * V_{FLEX}) < V_{IN} < (0.9 * V_{FLEX})$
		-4000	-	4000	nA	$T_J \leq 170°C$; else
Input high voltage level	V_{IH} SR	$0.7 * V_{FLEX}$	-	-	V	AL
		2.0	-	-	V	TTL
Input low voltage level	V_{IL} SR	-	-	0.44 * V_{FLEX}	V	AL
		-	-	0.8	V	TTL
Input low threshold variation	V_{ILD} SR	-50	-	50	mV	max. variation of 1ms; V_{FLEX} = constant; AL
Pin capacitance	C_{IO} CC	-	2	3.5	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.
3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.

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5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-12 RFast 3.3V pad

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
On-Resistance of pad output	R_{DSON} CC	8	20	30	Ohm	Driver = RGMII; $I_{OH/OL}$ = 8mA
		125	225	320	Ohm	medium driver; $I_{OH/OL}$ = 2mA
		31	55	80	Ohm	strong driver; $I_{OH/OL}$ = 8mA
Input Duty Cycle	f_D SR	47.5	50	52.5		
Rise / Fall time [1) 2)]	t_{RF} CC	1.6	-	4.5	ns	C_L = 25pF; driver = strong sharp edge; from 0.2 * V_{FLEX} to 0.8 * V_{FLEX}
		-	-	5	ns	C_L = 25pF; driver = strong sharp edge; from 0.8V to 2.0V (RMII)
		-	-	1	ns	Driver = RGMII; from 20%V to 80%V; C_L=15pF
		2+0.57*C_L	5.5+0.75* C_L	10+1.25* C_L	ns	driver = medium; C_L≤200pF
		1.5+0.18* C_L	1.5+0.28* C_L	8+0.4*C_L	ns	driver = strong edge = medium; C_L≤200pF
		0.75+0.08 *C_L	0.75+0.11 *C_L	2.5+0.21* C_L	ns	driver = strong edge = sharp ; C_L≤200pF
Asymmetry of sending	t_{TX_ASYM} CC	-0.4	-	0.4	ns	valid for all data rates excluding clock tolerance
Input frequency	f_{IN} CC	-	-	160	MHz	

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Table 3-12 RFast 3.3V pad (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input hysteresis [3]	HYS CC	0.055 * V_{FLEX}	-	-	V	non of the neighbor pads are used as output; AL
		0.09 * V_{FLEX}	-	-	V	non of the neighbor pads are used as output; TTL
		0.055 * V_{FLEX}	-	-	V	non of the neighbor pads are used as output;TTL (degraded, used for CIF)
		125	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL
Pull-up current [4]	I_{PUH} CC	|17|	-	-	µA	V_{IH}; AL and TTL (degraded, used for CIF)
		|11|	-	-	µA	V_{IH}; TTL
		-	-	|80|	µA	V_{IL}; AL and TTL and TTL (degraded, used for CIF)
Pull-down current [5]	I_{PDL} CC	-	-	|105|	µA	V_{IH}; AL and TTL (degraded, used for CIF)
		-	-	|115|	µA	V_{IH}; TTL
		|19|	-	-	µA	V_{IL}; AL and TTL
		|15|	-	-	µA	V_{IL}; TTL (degraded, used for CIF)
Input leakage current	I_{OZ} CC	-1700	-	1700	nA	$T_J \leq 150°C$; (0.1 * V_{FLEX}) < V_{IN} < (0.9 * V_{FLEX})
		-2100	-	2100	nA	$T_J \leq 150°C$; else
		-3000	-	3000	nA	$T_J \leq 170°C$; (0.1 * V_{FLEX}) < V_{IN} < (0.9 * V_{FLEX})
		-4000	-	4000	nA	$T_J \leq 170°C$; else
Input high voltage level	V_{IH} SR	0.7 * V_{FLEX}	-	-	V	AL
		2.0	-	-	V	TTL
		1.4	-	-	V	TTL (degraded, used for CIF)

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Table 3-12 RFast 3.3V pad (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input low voltage level	V_{IL} SR	-	-	0.42 * V_{FLEX}	V	AL
		-	-	0.8	V	TTL
		-	-	0.5	V	TTL (degraded, used for CIF)
Input low threshold variation	V_{ILD} SR	-33	-	33	mV	max. variation of 1ms; V_{FLEX} = constant; AL
Pin capacitance	C_{IO} CC	-	2	3.5	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) In the formulas the value of C_L needs to be entered in pF to obtain results in ns.
2) Rise / fall times are defined 10% - 90% of pad supply voltage.
3) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
4) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
5) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

Table 3-13 Class S 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input frequency	f_{IN} CC	-	-	160	MHz	
Input hysteresis [1]	HYS CC	0.09 * V_{DDM}	-	-	V	non of the neighbor pads are used as output; AL
		0.075 * V_{DDM}	-	-	V	non of the neighbor pads are used as output; TTL
		75	-	-	mV	two of the neighbor pads are used as output with driver=strong and edge=sharp; AL
Pull-up current [2]	I_{PUH} CC	|30|	-	-	µA	V_{IH}; AL or TTL
		-	-	|130|	µA	V_{IL}; AL or TTL
Pull-down current [3]	I_{PDL} CC	-	-	|130|	µA	V_{IH}; AL or TTL
		|30|	-	-	µA	V_{IL}; AL
		|28|	-	-	µA	V_{IL}; TTL

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Table 3-13 Class S 5V (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input leakage current	I_{OZ} CC	-150	-	150	nA	$T_J \leq 150°C$; else
		-300	-	300	nA	$T_J \leq 150°C$; PDD option available, or AltRef option available and EDSADC channel connected
		-300	-	300	nA	$T_J \leq 170°C$; else
		-600	-	600	nA	$T_J \leq 170°C$; PDD option available, or AltRef option available and EDSADC channel connected
Input high voltage level	V_{IH} SR	0.7 * V_{DDM}	-	-	V	AL
		2.0	-	-	V	TTL
Input low voltage level	V_{IL} SR	-	-	0.44 * V_{DDM}	V	AL
		-	-	0.8	V	TTL
Input low threshold variation	V_{ILD} SR	-50	-	50	mV	max. variation of 1ms; V_{DDM} = constant; AL
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added
Pad set-up time to get an software update of the configuration active	t_{SET} CC	-	-	100	ns	

1) Hysteresis is implemented to avoid metastable states and switching due to internal ground bounce. It can't be guaranteed that it suppresses switching due to external system noise.
2) Values for Pull-up resistor is defined via parameter R_{MDU} in table VADC 5V.
3) Values for Pull-down resistor is defined via parameter R_{MDD} in table VADC 5V.

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Table 3-14 Class D

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input leakage current	I_{OZ} CC	-150	-	150	nA	$T_J \leq 150°C$; else
		-300 [1]	-	300 [1]	nA	$T_J \leq 150°C$; PDD option available, or AltRef option available and EDSADC channel connected
		-300	-	300	nA	$T_J \leq 170°C$; else
		-600 [2]	-	600 [2]	nA	$T_J \leq 170°C$; PDD option available, or AltRef option available and EDSADC channel connected
Pin capacitance	C_{IO} CC	-	2	3	pF	in addition 2.5pF from package to be added

1) For AN11, 100 nA need to be added.

2) For AN11, 200 nA need to be added .

Table 3-15 ADC Reference Pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input leakage current for V_{AREF}	I_{OZ2} CC	-1	-	1	µA	$T_J \leq 150°C$; $V_{AREF} < V_{DDM}$; used for EVADC
		-2	-	2	µA	$T_J \leq 170°C$; $V_{AREF} < V_{DDM}$; used for EVADC
		-3.5	-	3.5	µA	$T_J \leq 150°C$; $V_{AREF} \leq V_{DDM}$+50mV; used for EVADC
		-7	-	7	µA	$T_J \leq 170°C$; $V_{AREF} \leq V_{DDM}$+50mV; used for EVADC
		-2	-	2	µA	$T_J \leq 150°C$; $V_{AREF} < V_{DDM}$; used for EDSADC
		-4	-	4	µA	$T_J \leq 170°C$; $V_{AREF} < V_{DDM}$; used for EDSADC
		-6	-	6	µA	$T_J \leq 150°C$; $V_{AREF} \leq V_{DDM}$+50mV; used for EDSADC
		-12	-	12	µA	$T_J \leq 170°C$; $V_{AREF} \leq V_{DDM}$+50mV; used for EDSADC

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Table 3-16 Driver Mode Selection for Slow Pads

PDx.2	PDx.1	PDx.0	Port Functionality	Driver Setting
X	X	0	Speed grade 1	medium sharp edge (sm)
X	X	1	Speed grade 2	medium medium edge (m)

Table 3-17 Driver Mode Selection for Fast Pads

PDx.2	PDx.1	PDx.0	Port Functionality	Driver Setting
X	0	0	Speed grade 1	Strong sharp edge (ss)
X	0	1	Speed grade 2	Strong medium edge (sm)
X	1	0	Speed grade 3	medium (m)
X	1	1	Speed grade 4	Reserved, do not use this combination

Table 3-18 Driver Mode Selection for RFast Pads

PDx.2	PDx.1	PDx.0	Port Functionality	Driver Setting
X	0	0	Speed grade 1	Strong sharp edge (ss)
X	0	1	Speed grade 2	Strong medium edge (sm)
X	1	0	Speed grade 3	medium (m)
X	1	1	Speed grade 4	RGMII function is active

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3.6 High performance LVDS Pads

This LVDS pad type is used for the high speed chip to chip communication interface of the new TC36x. It compose out of a LVDS pad and a fast pad.

C_L = 2.5 pF for all LVDS parameters.

Table 3-19 LVDS - IEEE standard LVDS general purpose link (GPL)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Output impedance	R_0 CC	40	-	140	Ohm	V_{cm} = 1.0 V and 1.4 V
Rise time (20% - 80%)	t_{rise20} CC	-	-	0.75 [1]	ns	Z_L = 100 Ohm ±20% @2pF external load
Output differential voltage [2]	V_{OD} CC	240	-	330	mV	R_T = 100 Ohm ±1%; LPCRx.VDIFFADJ=00
		280	-	370	mV	R_T = 100 Ohm ±1%; LPCRx.VDIFFADJ=01
		320	-	410	mV	R_T = 100 Ohm ±1%; LPCRx.VDIFFADJ=10
		380	-	500	mV	RT = 100 Ohm ± 1%; LPCRx.VDIFFADJ=11; Multi slave operation
Output voltage high	V_{OH} CC	-	-	1475	mV	RT = 100 Ohm +/- 1% VDIFFADJ=00 and 01
		-	-	1500	mV	RT = 100 Ohm ± 1% VDIFFADJ=10 and 11
Output voltage low	V_{OL} CC	925	-	-	mV	RT = 100 Ohm ± 1% VDIFFADJ=00 and 01
		900	-	-	mV	RT = 100 Ohm +/- 1% VDIFFADJ=10 and 11
Output offset (Common mode) voltage	V_{OS} CC	1125	-	1275	mV	RT = 100 Ohm ± 1%
Input voltage range	V_I SR	0	-	1600	mV	Driver ground potential difference < 925 mV; R_T = 100 Ohm ±10%
		0	-	2400	mV	Driver ground potential difference < 925 mV; R_T = 100 Ohm ±20%
Input differential threshold	V_{idth} SR	-100	-	100	mV	Driver ground potential difference < 900 mV; VDIFFADJ=10 and 11
		-100	-	-	mV	Driver ground potential difference < 925 mV; VDIFFADJ=00 and 01
Receiver differential input impedance	R_{in} CC	80	-	120	Ohm	V_I ≤ 2400 mV

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Table 3-19 LVDS - IEEE standard LVDS general purpose link (GPL) (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Output differential voltage Sleep Mode 3)	V_{ODSM} CC	-5	-	20	mV	RT = 100 Ohm ± 20%; LPCRx.VDIFFADJ=xx
Delta output impedance	$dR0$ SR	-	-	10	%	V_{cm} = 1.0 V and 1.4 V
Change in VOS between 0 and 1	$dVOS$ CC	-	-	25	mV	R_T = 100 Ohm ±1%
Change in Vod between 0 and 1	$dVod$ CC	-	-	25	mV	R_T = 100 Ohm ±1%
Pad set-up time	t_{SET_LVDS} CC	-	10	13	µs	
Duty cycle	t_{duty} CC	45	-	55	%	

1) t_{rise20} = 0.75ns + (C_L - 2)[pF]*20ps. C_L defines the external load.
2) Potential violations of the IEEE Std 1596.3 are intended for the new multislave support feature. To be compliant to IEEE Std 1596.3 LPCRx.VDIFFADJ has to be configured to 01.
3) Common Mode voltage of Tx is maintained.

Note: Driver ground potential difference is defined as driver-receiver potential difference, that can result in a voltage shift when comparing driver output voltage level and receiver input voltage level of a transmitted signal.

*Note: R_T in table 'LVDS - IEEE standard LVDS general purpose Link (GPL)' is as termination resistor of the receiver according to figure 3-5 in IEEE Std 1596.3-1996 and is represent in **Figure 3-1** either by R_{in} or by R_T=100Ohm but not both. If R_T is mentioned in column Note / Test Condition always the internal resistor R_{in} in **Figure 3-1** is the selected one.*

default after start-up = CMOS function

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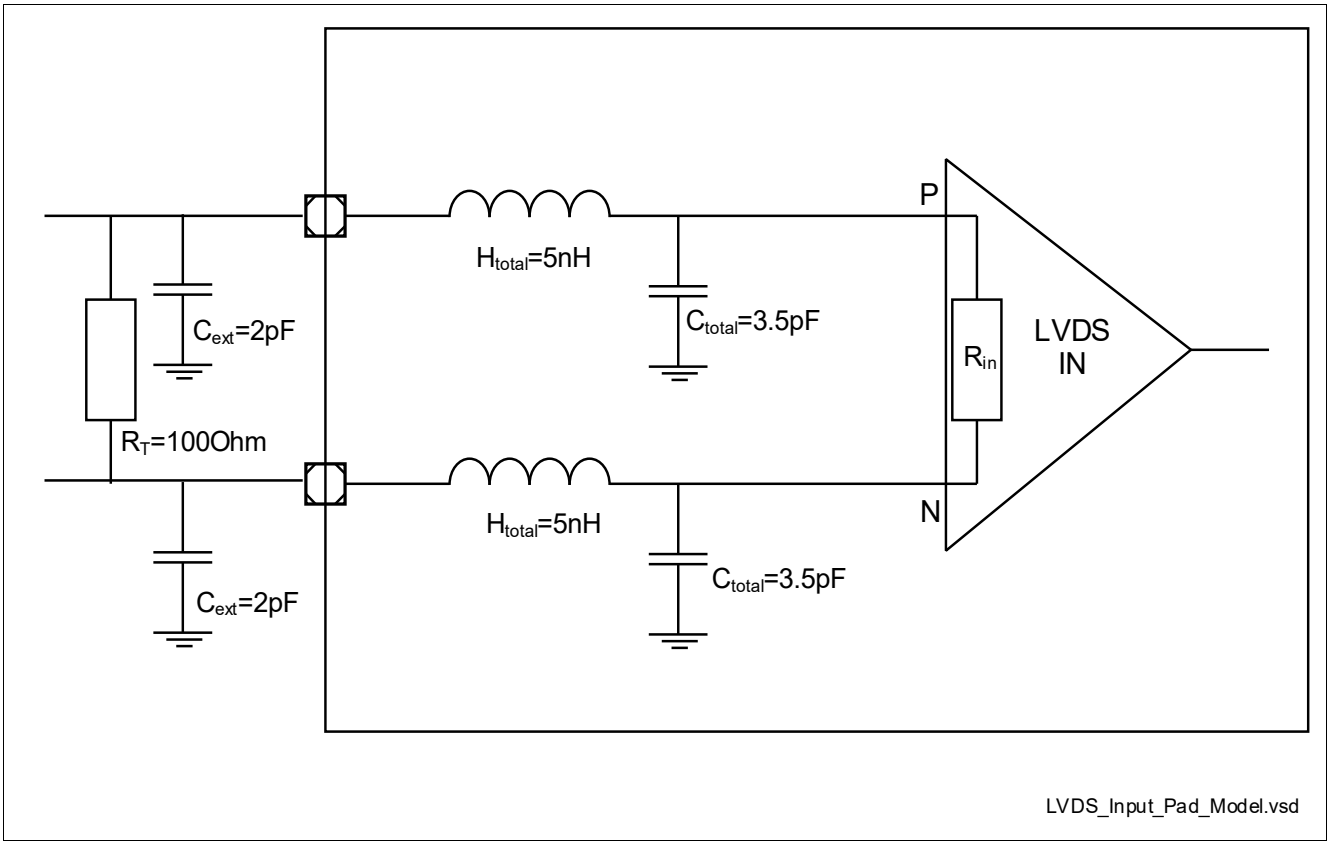

Figure 3-1 LVDS pad Input model

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3.7 VADC Parameters

The accuracy of the converter results depends on the reference voltage range. The parameters in the table below are valid for a reference voltage range of (V_{AREF} - V_{AGND}) >= 4.5 V. If the reference voltage range is below 4.5 V by a factor of k (e.g. 3.3 V), the accuracy parameters increase by a factor of 1.1/k (e.g. 1.1 × 4.5 / 3.3 = 1.5).

Noise on supply voltage V_{DDM} influences the conversion. The accuracy (error) parameters are defined for a supply voltage ripple of below 20 mVpp up to 10 MHz (below 5 mVpp above 10 MHz).

Digital functions overlapping analog inputs influence accuracy.

The total unadjusted error (TUE) is defined without noise. The overall deviation depends on TUE and EN_{RMS} (depending on the noise distribution). Example: For a noise distribution of 4 sigma and EN_{RMS} = 1.0 the additional peak-peak noise error is ±(4 × 1.0) = 8 LSB_{12}.

Fast compare operations are executed with 10-bit values.

The noise reduction feature improves the result by adding additional conversion steps. The conversion times, therefore, increase accordingly (4 × t_{ADCI} + 3 × t_{ADC} for each of 1, 3, or 7 steps).

Table 3-20 VADC 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
EVADC IVR output voltage	V_{DDK} CC	1.15	-	1.35	V	Measured at low temperature.
Deviation of IVR output voltage V_{DDK}	dV_{DDK} CC	-2	-	2	%	Based on device-specific value
Analog reference voltage [1]	V_{AREF} SR	4.5	5.0	V_{DDM} + 0.05	V	4.5 V ≤ V_{DDM} ≤ 5.5 V
		2.97	3.3	V_{DDM} + 0.05	V	2.97 V ≤ V_{DDM} < 4.5 V
Analog reference ground	V_{AGND} SR	V_{SSM}	V_{SSM}	V_{SSM}	V	V_{SSM} and V_{AGND} are connected together
Analog input voltage range	V_{AIN} SR	V_{AGND}	-	V_{AREF}	V	V_{AIN} is limited by the respective pad supply voltage; see pin configuration (buffer type)
Converter reference clock	f_{ADCI} SR	16	40	53.33	MHz	4.5 V ≤ V_{DDM} ≤ 5.5 V
		16	20	26.67	MHz	2.97 V ≤ V_{DDM} < 4.5 V
Total Unadjusted Error [2] [3]	TUE CC	-4	-	4	LSB	12-bit resolution for primary/secondary groups, 10-bit resolution for fast compare channels
INL Error [2]	EA_{INL} CC	-3	-	3	LSB	
DNL error [2][4]	EA_{DNL} CC	-1	-	3	LSB	
Gain Error [2]	EA_{GAIN} CC	-3.5	-	3.5	LSB	
Offset Error [2][3]	EA_{OFF} CC	-4	-	4	LSB	
RMS Noise [2][5] [6]	EN_{RMS} CC	-	0.5	0.8	LSB	Noise reduction level 3
		-	0.5	1.0	LSB	Standard conversion

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Table 3-20 VADC 5V (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Reference input charge consumption per conversion (from V_{AREF}) [7) 8) 9)]	Q_{CONV} CC	-	-	20	pC	V_{AIN} = 0 V (worst case), precharging disabled
		-	-	10	pC	V_{AIN} = 0 V (worst case), precharging enabled, V_{DDM} - 5% < V_{AREF} < V_{DDM} + 50 mV
Switched capacitance of an analog input	C_{AINS} CC	-	2.5	3.4	pF	Input buffer disabled
Analog input charge consumption [10)]	Q_{AINS} CC	-	-	3.5	pC	Primary groups and fast compare channels; V_{AIN} = V_{AREF}; V_{DDM} = 5.0 V; input buffer enabled; T_J ≤ 150°C
		-	-	3.8	pC	Primary groups and fast compare channels; V_{AIN} = V_{AREF}; V_{DDM} = 5.0 V; input buffer enabled; T_J > 150°C
		-	-	4.4	pC	Secondary groups; V_{AIN} = V_{AREF}; V_{DDM} = 5.0 V; input buffer enabled; T_J ≤ 150 °C
		-	-	4.8	pC	Secondary groups; V_{AIN} = V_{AREF}; V_{DDM} = 5.0 V; input buffer enabled; T_J > 150°C

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Table 3-20 VADC 5V (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Sampling time	t_S SR	100	-	-	ns	Primary group or fast compare channel, 4.5 V ≤ V_{DDM} ≤ 5.5 V; input buffer disabled
		300	-	-	ns	Primary group or fast compare channel, 4.5 V ≤ V_{DDM} ≤ 5.5 V; input buffer enabled
		500	-	-	ns	Secondary group, 4.5 V ≤ V_{DDM} ≤ 5.5 V; input buffer disabled
		700	-	-	ns	Secondary group, 4.5 V ≤ V_{DDM} ≤ 5.5 V; input buffer enabled
		200	-	-	ns	Primary Group or fast compare channel, 2.97 V ≤ V_{DDM} < 4.5 V; input buffer disabled
		400	-	-	ns	Primary group or fast compare channel, 2.97 V ≤ V_{DDM} < 4.5 V; input buffer enabled
		1000	-	-	ns	Secondary group, 2.97 V ≤ V_{DDM} < 4.5 V; input buffer disabled
		1200	-	-	ns	Secondary group, 2.97 V ≤ V_{DDM} < 4.5 V; input buffer enabled
Sampling time for calibration	t_{SCAL} SR	50	-	-	ns	4.5 V ≤ V_{DDM} ≤ 5.5 V
		100	-	-	ns	2.97 V ≤ V_{DDM} < 4.5 V
Input buffer switch-on time	t_{BUF} CC	-	0.4	1	µs	
Wakeup time	t_{WU} CC	-	0.1	0.2	µs	Fast standby mode
		-	1.6	3	µs	Slow standby mode
Broken wire detection delay against V_{AREF}	t_{BWR} CC	-	100	-	cycles	Result above 80% of full scale range, analog input buffer disabled
Broken wire detection delay against V_{AGND}	t_{BWG} CC	-	100	-	cycles	Result below 10% of full scale range, analog input buffer disabled
Converter diagnostics unit resistance [11]	R_{CSD} CC	45	-	75	kOhm	
Converter diagnostics voltage accuracy	dV_{CSD} CC	-10	-	10	%	Percentage refers to V_{DDM}

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Table 3-20 VADC 5V (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistance of the multiplexer diagnostics pull-up device	R_{MDU} CC	30	-	42	kOhm	0 V ≤ V_{IN} ≤ 0.9* V_{DDM}, Automotive Levels
		56	-	78	kOhm	0 V ≤ V_{IN} ≤ 0.9* V_{DDM}, TTL Levels
Resistance of the multiplexer diagnostics pull-down device	R_{MDD} CC	43	-	58	kOhm	0.1*V_{DDM} ≤ V_{IN} ≤ V_{DDM}, Automotive level
		18	-	25	kOhm	0.1*V_{DDM} ≤ V_{IN} ≤ V_{DDM}, TTL level
Resistance of the pull-down test device	R_{PDD} CC	-	-	0.3	kOhm	Measured at pad input voltage V_{IN} = V_{DDM} / 2.

1) These limits apply to the standard reference input as well as to the alternate reference input.
2) Parameter depends on reference voltage range and supply ripple, see introduction.
Resulting worst case combined error is arithmetic combination of TUE and EN_{RMS}.
Tests are done with postcalibration disabled, after completing the startup calibration.
3) Analog inputs mapped to pads of the type SLOW influence accuracy. The values for this parameter increase by 3 LSB_{12}.
4) Monotonic characteristic, no missing codes when calibrated.
5) Parameter EN_{RMS} refers to a 1 sigma distribution.
6) Analog inputs mapped to pads of the type SLOW the RMS noise (EN_{RMS}) can be up to 2 LSB_{12} (soft switching for DC/DC enabled).
7) For reduced reference voltages VAREF < 3.375V, the consumed charge QCONV is reduced by the factor of k2 = VAREF [V] / 3.375. For reduced reference voltages 4.5V < VAREF ≤ 3.375V, QCONV is not reduced.
8) Maximum charge increases by 15 pC when BWD (Broken Wire Detection) is active.
9) Fast compare channels only consume 1/3 of the charge for a primary/secondary group.
10) For analog inputs with overlaid digital GPIOs or with PDD function this value increases by 1 pC.
11) Use a sample time of at least 1.1 µs to enable proper settling of the test voltage.

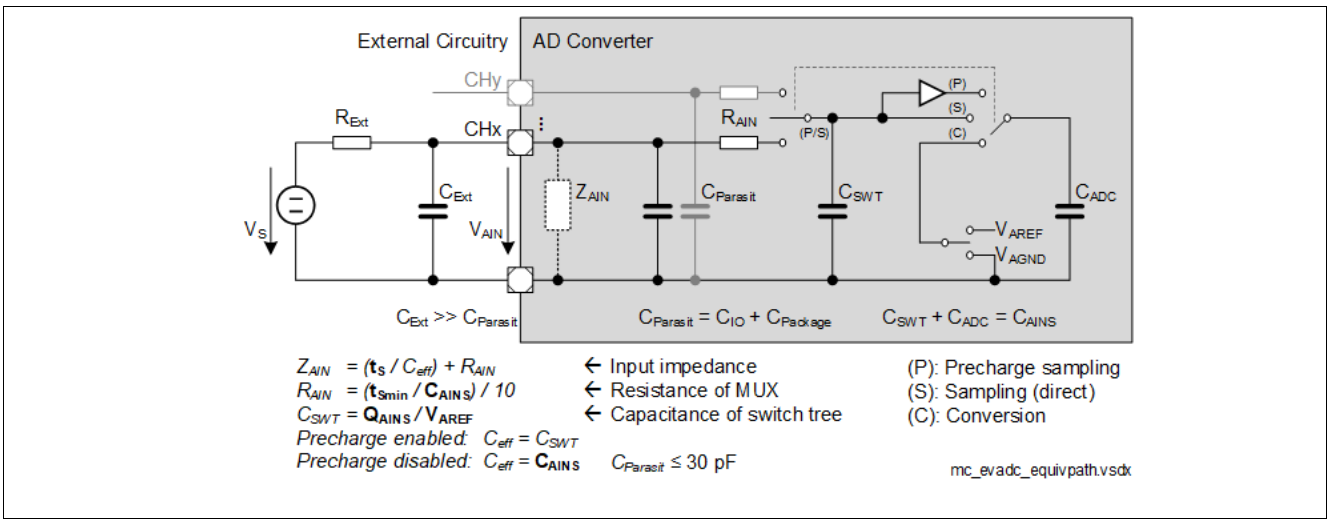

Figure 3-2 Equivalent Circuitry for Analog Inputs

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3.8 DSADC Parameters

The DSADC parameters are valid only for voltage range 4.5 V <= V_{DDM} <= 5.5 V.

These parameters describe the product properties and do not include external circuitry. The values are valid for junction temperatures T_J <= 150°C if not defined explicitly.

Calibration is specified for gain factors 1 and 2, calibrated values refer to these settings.

The signal-noise ratio (SNR) is specified for differential inputs. For single ended operation the resulting signal-noise ratio is reduced by 6 dB. For quasi-differential mode (i.e. using V_{CM}) it is reduced by 6 dB for gain = 1 and by 3 dB for gain= 2.

Table 3-21 DSADC 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Common mode voltage bias resistance	R_{BIAS} CC	105	130	155	kOhm	On-chip variation ≤ ±2.5%.
Positive reference voltage	V_{AREF} SR	4.5	-	V_{DDM} + 0.05	V	
Reference ground voltage	V_{AGND} SR	V_{SSM}	-	V_{SSM}	V	V_{SSM} and V_{AGND} are connected together
Reference load current	I_{REF} CC	-	10	12	µA	Per modulator
		-	-	14	µA	Per modulator, T_J>150°C
Common mode voltage accuracy [1]	dV_{CM} CC	-100	-	100	mV	Deviation from selected voltage
Analog input voltage range	V_{DSIN} SR	V_{SSM}	-	2 * V_{DDM}	V	Differential;V_{DSxP} - V_{DSxN}
		V_{SSM}	-	V_{DDM}	V	Single ended
Input current [2]	I_{RMS} CC	7	10	13	µA	Exact value (±1%) available in UCB; valid for gain = 1 and f_{MOD} = 26.7 MHz
On-chip modulator clock frequency	f_{MOD} SR	16	-	40	MHz	
Gain error [3] [4]	ED_{GAIN} CC	-0.2 [5]	±0.1[5]	0.2 [5]	%	T_J≤150°C; Target, calibrated, V_{AREF} constant after calibration; f_{MOD} = 26.67 MHz
		-	±0.25	-	%	T_J>150°C; V_{AREF} constant after calibration; f_{MOD} = 26.67 MHz
		-1	-	1	%	Calibrated once; f_{MOD} = 26.67 MHz
		-2.5	-	2.5	%	Uncalibrated; f_{MOD} = 26.67 MHz

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Table 3-21 DSADC 5V (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
DC offset error [3]	ED_{OFF} CC	-5 [5]	-	5 [5]	mV	Calibrated; f_{MOD} = 26.67 MHz
		-10	-	10	mV	Calibrated once; f_{MOD} = 26.67 MHz
		-30	-	30	mV	Uncalibrated; f_{MOD} = 26.67 MHz
Signal-Noise Ratio for differential input signals [2][6][7]	*SNR* CC	80	-	-	dB	T_J≤150°C; f_{PB} = 30 kHz; f_{MOD} = 26.67 MHz
		78	-	-	dB	T_J≤150°C; f_{PB} = 50 kHz; f_{MOD} = 26.67 MHz
		74	-	-	dB	T_J≤150°C; f_{PB} = 100 kHz; f_{MOD} = 26.67 MHz
Signal-Noise Ratio degradation	*DSNR* CC	-	-	3	dB	T_J>150°C; Resulting Signal-Noise Ratio value is SNR - DSNR
Spurious-free dynamic range [3]	*SFDR* CC	60	-	-	dB	f_{MOD} = 26.67 MHz
Output sampling rate	f_D CC	3.906	-	300	kHz	16 MHz / 4096, without integrator
Pass band	f_{PB} CC	1.302	-	100	kHz	Output data rate: f_D = f_{PB} * 3; without integrator
		1.302	-	10	kHz	Output data rate: f_D = f_{PB} * 6; without integrator
Pass band ripple	df_{PB} CC	-0.08	-	0.08	dB	FIR filters enabled
Stop band attenuation	*SBA* CC	40	-	-	dB	0.5 f_D ... 1.0 f_D
		45	-	-	dB	1.0 f_D ... 1.5 f_D
		50	-	-	dB	1.5 f_D ... 2.0 f_D
		55	-	-	dB	2.0 f_D ... 2.5 f_D
		60	-	-	dB	2.5 f_D ... OSR/2 f_D
DC compensation factor	*DCF* CC	-3	-	-	dB	10^{-5} f_D, offset compensation filter enabled (FCFGMx.OCEN = 001_B)
Modulator settling time	t_{MSET} CC	-	-	20	µs	After switching on, voltage regulator already running

1) On pins with overlaid GPIO function the max. limit increases by up to 25 mV due to leakage current for T_J > 150°C.
2) For detailed information, refer to the User Manual chapter.
3) This parameter is valid within the defined range of f_{MOD}.
4) Gain mismatch error between the different EDSADC channels is within ±0.5% if they have the same calibration strategy

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5) Recalibration needed in case of a temperature change >20ºC
6) These values are valid for an analog gain factor of 1. Subtract 3 dB for each higher gain factor.
7) For single ended input signals and gain1, the SNR is reduced by 6 dB.

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3.9 MHz Oscillator

OSC_XTAL is used as accurate and exact clock source. OSC_XTAL supports 16 MHz to 40 MHz crystals external outside of the device. Support of ceramic resonators is also provided.

Table 3-22 OSC_XTAL

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input current at XTAL1	I_{IX1} CC	-70	-	70	µA	V_{IN}>0V ; V_{IN}<V_{EXT}
Oscillator frequency	f_{OSC} SR	4	-	40	MHz	Direct Input Mode selected, if shaper is not bypassed
		16	-	40	MHz	External Crystal Mode selected
Oscillator start-up time	t_{OSCS} CC	-	-	3 [1]	ms	20MHz ≤ f_{OSC} and 8pF load capacitance
Input voltage at XTAL1 [2]	V_{IX} SR	-0.7	-	V_{EXT} + 0.5	V	If shaper is not bypassed
Input amplitude (peak to peak) at XTAL1	V_{PPX} SR	0.3*V_{EXT}	-	V_{EXT} + 1.0	V	If shaper is not bypassed; f_{OSC} > 25MHz
		0.35*V_{EXT}	-	V_{EXT} + 1.0	V	If shaper is not bypassed; f_{OSC} ≤ 25MHz
Internal load capacitor	C_{L0} CC	1.30	1.40	1.55	pF	enabled via bit OSCCON.CAP0EN
Internal load capacitor	C_{L1} CC	3.05	3.35	3.70	pF	enabled via bit OSCCON.CAP1EN
Internal load capacitor	C_{L2} CC	7.85	8.70	9.55	pF	enabled via bit OSCCON.CAP2EN
Internal load capacitor	C_{L3} CC	12.05	13.35	14.65	pF	enabled via bit OSCCON.CAP3EN
Internal load stray capacitor between XTAL1 and XTAL2	C_{XINTS} CC	1.15	1.20	1.25	pF	
Internal load stray capacitor between XTAL1 and ground	C_{XTAL1} CC	-	2.5	4	pF	
Duty cycle at XTAL1 [3]	DC_{X1} SR	35	-	65	%	V_{XTAL1} = 0.5*V_{PPX}
Absolute RMS jitter at XTAL1 [3]	J_{ABSX1} SR	-	-	28	ps	10 KHz to f_{OSC}/2
Slew rate at XTAL1 [3]	SR_{XTAL1} SR	0.3	-	-	V/ns	Maximum 30% difference between rising and falling slew rate

1) t_{OSCS} is defined from the moment when the Oscillator Mode is set to External Crystal Mode until the oscillations reach an amplitude at XTAL1 of 0.3 * VEXT.
This value depends on the frequency of the used external crystal. For faster crystal frequencies this value decrease.

2) For Supply (V_{EXT} < 5.3V V_{IX}) min could be down to -0.9V. For XTAL1 an input level down to -0.9V will not cause a damage or a reliability problem operating with an external crystal.

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3) Square wave input signal for XTAL1.

Note: It is strongly recommended to measure the oscillation allowance (negative resistance) in the final target system (layout) to determine the optimal parameters for the oscillator operation. Please refer to the limits specified by the crystal or ceramic resonator supplier.

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3.10 Back-up Clock

The back-up clock provides an alternative clock source.

Table 3-23 Back-up Clock

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Back-up clock accuracy before trimming	f_{BACKUT} CC	70	100	130	MHz	V_{EXT}≥2.97V
Back-up clock accuracy after trimming [1]	f_{BACKT} CC	98	100	102	MHz	V_{EXT}≥2.97V
Standby clock	f_{SB} CC	25	70	110	kHz	V_{EXT}≥2.97V

1) A short term trimming providing the accuracy required by LIN communication is possible by periodic trimming every 2 ms for temperature and voltage drifts up to temperatures of 125 celcius

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3.11 Temperature Sensor

Table 3-24 DTS PMS

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Measurement time for each conversion [1]	t_M CC	-	-	2.7	ms	Measured from cold power-on reset release
Calibration reference accuracy	T_{CALACC} CC	-1	-	1	°C	calibration points @ T_J=-40°C and T_J=127°C
Accuracy over temperature range	T_{NL} CC	-2	-	2	°C	T_{CALACC} has to be added in addition
DTS temperature range	T_{SR} SR	-40	-	170	°C	

1) After warm reset t_M is not restarted and is measured from last conversion.

Table 3-25 DTS Core

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Measurement time for each conversion [1]	t_M CC	-	-	2.7	ms	Measured from cold power-on reset release
Temperature difference between on chip temperature sensors	ΔT CC	-3	-	3	°C	
Calibration reference accuracy	T_{CALACC} CC	-2	-	2	°C	calibration points @ T_J=-40°C and T_J=127°C
Accuracy over temperature range	T_{NL} CC	-2	-	2	°C	T_{CALACC} has to be added in addition
DTS temperature range	T_{SR} SR	-40	-	170	°C	

1) After warm reset t_M is not restarted and is measured from last conversion.

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3.12 Power Supply Current

The total power supply current defined below consists of leakage and switching component.

Application relevant values are typically lower than those given in the following table and depend on the customer's system operating conditions (e.g. thermal connection or used application configurations).

The operating conditions for the parameters in the following table are:

The real (realistic) power pattern defines the following conditions:

- T_J = 150 °C
- f_{SRI} = f_{CPUx} = 300 MHz
- f_{GTM} = 200 MHz
- f_{SPB} = f_{STM} = f_{BAUD1} = f_{BAUD2} = $f_{ASCLINx}$ = 100 MHz
- V_{DD} = 1.275 V
- V_{DDP3} / FLEX = 3.366 V
- $V_{EXT / EVRSB}$ = V_{DDM} = 5.1 V
- all cores are active including two lockstep cores at IPC = 0.6
- the following peripherals are inactive: HSM, Ethernet, PSI5, I2C, FCE, and MTU

The max (maximum) power pattern defines the following conditions:

- T_J = 150 °C
- f_{SRI} = f_{CPUx} = 300 MHz
- f_{GTM} = 200 MHz
- f_{SPB} = f_{STM} = f_{BAUD1} = f_{BAUD2} = $f_{ASCLINx}$ = 100 MHz
- V_{DD} = 1.375 V
- V_{DDP3} / FLEX = 3.63 V
- $V_{EXT / EVRSB}$ = V_{DDM} = 5.5 V
- all cores are active including two lockstep cores at IPC = 1.2
- the following peripherals are inactive: GETH, FCE, and MTU

Table 3-26 Current Consumption

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
∑ Sum of I_{DD} core and peripheral supply currents (incl. $I_{DDPORST}$+ ∑ I_{DDCx0}+ ∑ I_{DDCxx}+ I_{DDGTM}+I_{DDSB})	I_{DDRAIL} CC	-	-	650	mA	max power pattern
		-	-	500	mA	real power pattern
I_{DD} core current during active power-on reset (PORST pin held low). Leakage current of core domain. [1)]	$I_{DDPORST}$ CC	-	-	95	mA	V_{DD} = 1.275V; T_J=125°C
		-	-	166	mA	V_{DD} = 1.275V; T_J=150°C
		-	-	230	mA	V_{DD} = 1.275V; T_J=165°C

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Table 3-26 Current Consumption (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
∑ Sum of I_{DDP3} 3.3 V supply currents	$I_{DDP3RAIL}$ CC	-	-	45	mA	max power pattern incl. Flash read current and Dflash programming current.
		-	-	36 [2]	mA	real power pattern incl. Flash read current and Dflash programming current.
∑ Sum of external I_{EXT} supply currents (incl. $I_{EXTFLEX}$+I_{EVRSB}+$I_{EXTLVDS}$)	$I_{EXTRAIL}$ CC	-	-	44	mA	max power pattern
		-	-	34	mA	real power pattern
I_{EXT} and I_{FLEX} supply current	$I_{EXTFLEX}$ CC	-	-	18 [3]	mA	real power pattern with port activity absent; PORST output inactive.
I_{EVRSB} supply current [1]	I_{EVRSB} CC	-	-	8.5	mA	real power pattern; PMS/EVR module current considered without SCR and Standby RAM during RUN mode.
∑ Sum of external I_{DDM} supply currents (incl. $I_{DDMEVADC}$+$I_{DDMEDSADC}$)	I_{DDM} CC	-	-	27	mA	real power pattern; sum of currents of EDSADC and EVADC modules
∑ Sum of all currents (incl. $I_{EXTRAIL}$+$I_{DDMRAIL}$+$I_{DDx3RAIL}$+I_{DD})	I_{DDTOT} CC	-	-	597	mA	real power pattern; T_J=150°C
∑ Sum of all currents with DC-DC EVRC regulator active [4]	$I_{DDTOTDC3}$ CC	-	-	380	mA	real power pattern; EVRC reset settings with 72% efficiency; V_{EXT} = 3.3V
∑ Sum of all currents with DC-DC EVRC regulator active [4]	$I_{DDTOTDC5}$ CC	-	-	280	mA	real power pattern; EVRC reset settings with 72% efficiency; V_{EXT} = 5V
∑ Sum of all currents (SLEEP mode) [1]	I_{SLEEP} CC	-	-	25	mA	All CPUs in idle, All peripherals in sleep, $f_{SRI/SPB}$ = 1 MHz via LPDIV divider; T_J = 25°C
∑ Sum of all currents (STANDBY mode) drawn at V_{EVRSB} supply pin [5]	$I_{STANDBY}$ CC	-	-	130 [6]	µA	32 kB Standby RAM block active. SCR inactive. Power to remaining domains switched off. T_J = 25°C; V_{EVRSB} = 5V

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Table 3-26 Current Consumption (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Maximum power dissipation 7)	PD SR	-	-	1495	mW	max power pattern
		-	-	1080	mW	real power pattern

1) Limits are defined for real power pattern (V_{DD}=1.275V). For max power pattern limit has to be multiplied by the factor 1.22.
2) Realistic Pflash read pattern with 50% Pflash bandwidth utlilization and a code mix of 50% 0s and 50% 1s. A common decoupling capacitor of atleast 100nF for (V_{DDP3}) is used. Continuous Dflash programming in burst mode with 3.3 V supply and realistic Pflash read access in parallel. Erase currents of the corresponding flash modules are less than the respective programming currents at V_{DDP3} pin. Programming and erasing flash may generate transient current spikes of up to 45 mA / 20 ns
which are handled by the decoupling and buffer capacitors. This parameter is relevant for external power supply dimensioning and not for thermal considerations.
3) The current consumption includes only minimal port activity.
4) The total current drawn from external regulator is estimated with 72% EVRC SMPS regulator efficiency. IDDTOTDCx is calculated from IDDTOT using the scaled core current [(IDD x VDD)/(VinxEfficiency)] and constitutes all other rail currents and IDDM.
5) The same current limits apply also for the other power pattern.
6) ∑ Sum of all currents during RUN mode at VEVRSB supply pin is less than (IEVRSB + 4 mA Standby RAM current + ISCRSB if SCR active). ∑ It is recommended to have atleast 100 nF decoupling capacitor at this pin. 32kB of Standby SRAM contributes less than 10uA to ISTANDBY current.
7) The values are only valid if all supplies are applied from external and do not contain the power losses of EVR33 and EVRC.

Table 3-27 Module Current Consumption

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
I_{DDP3} supply current for programming of a Pflash or Dflash bank 1)	$I_{DDP3PROG}$ CC	-	-	25	mA	Pflash 3.3V programming current adder when using external 3.3V supply.
		-	-	9 2)	mA	Pflash 3.3V programming current adder when using external 5V supply.
I_{EXT} supply current added by LVDS pads in LVDS mode 1)	$I_{EXTLVDS}$ CC	-	-	3	mA	real power pattern; 2 pairs of LVDS pins active with receive function
		-	-	12	mA	real power pattern; 3 pairs of LVDS pins active with transmit function

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Table 3-27 Module Current Consumption (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
∑ Sum of external I_{DDM} supply currents (incl. $I_{DDMEVADC}$+$I_{DDMEDSADC}$)	I_{DDM} CC	-	-	14	mA	real power pattern; current for EDSADC modules only and EVADC modules are inactive; 4 EDSADC channels active continuously.
		-	-	22 [3]	mA	max power pattern; current for EDSADC modules only and EVADC modules are inactive; all EDSADC channels active continuously.
		-	-	13	mA	real power pattern; current for EVADC modules only and EDSADC modules are inactive; 6 EVADC modules active.
		-	-	15 [4]	mA	max power pattern; current for EVADC modules only and EDSADC modules are inactive; all EVADC modules active.
I_{DDP3} supply current for erasing of a Pflash or Dflash bank	$I_{DDP3ERASE}$ CC	-	-	25	mA	Pflash 3.3V erasing current adder when using external 3.3V supply.
SCR 8-bit Standby Controller current incl. PMS in STANDBY Mode drawn at V_{EVRSB} supply pin	I_{SCRSB} CC	-	-	7.5	mA	SCR power pattern incl. PMS current consumption with fback clock active; f_{SYS_SCR} = 20MHz; T_J=150°C
		-	0.150	-	mA	SCR power pattern incl. PMS current consumption with fback inactive; fSYS_SCR = 70kHz; T_J=25°C
SCR 8-bit Standby Controller CPU in IDLE mode [5]	$I_{SCRIDLE}$ CC	-	-	3.5	mA	real power pattern. CPU set into idle mode.

1) The same current limits apply also for the other power pattern.
2) During Pflash programming at 5V, additional 2 mA is drawn at VEXT supply rail.
3) A single DS channel instance consumes 4 mA.

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4) A single VADC unit consumes 1.3 mA.
5) Limits are defined for real power pattern (V_{DD}=1.275V). For max power pattern limit has to be multiplied by the factor 1.22.

Table 3-28 Module Core Current Consumption

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
I_{DD} core current of CPUx main core with CPUx lockstep core inactive	I_{DDCx0} CC	-	-	70	mA	max power pattern; IPC=1.2
		-	-	45	mA	real power pattern; IPC=0.6
I_{DD} core current of CPUx main core with CPUx lockstep core active	I_{DDCxx} CC	-	-	I_{DDCx0} + 50	mA	max power pattern; IPC=1.2
		-	-	I_{DDCx0} + 40	mA	real power pattern; IPC=0.6
I_{DD} core current added by GTM	I_{DDGTM} CC	-	-	90	mA	max power pattern
		-	-	75	mA	real power pattern; TIMx, TOMx, ATOMx , MCSx active. 2 clusters at 200 MHz.
		-	-	50	mA	TIMx, TOMx active at 100MHz. ATOMx , MCSx, DPLL inactive. 2 clusters at 100 MHz.
I_{DD} core current added by HSM	I_{DDHSM} CC	-	-	20 [1]	mA	max power pattern; HSM running at 100MHz.
I_{DD} core dynamic current added by LBIST	$I_{DDLBIST}$ CC	-	-	200 [2]	mA	LBIST Configuration A; 1.2V ≤ V_{DD}
I_{DD} core dynamic current added by MBIST	$I_{DDMBIST}$ CC	-	-	200	mA	fMBIST = 300MHz; tMBIST < 6ms. MTU Ganging procedure for SRAM test and initialization; VDD = 1.375V.

1) The current consumption includes basic HSM activity incl. AES module.
2) LBIST is executed either during start-up phase or can be triggered by application software. Secondary voltage monitors are inactive during the LBIST execution time (t_{LBIST}).
During the start-up phase externally supplied V_{DD} voltage has to be equal or greater than 1.2V (V_{DD} nominal - 4%) for static accuracy.
If V_{DD} is supplied internally by EVRC, EVRC takes care not to violate the V_{DD} 1.2V static under voltage limit.

3.13 Power Supply Infrastructure and Supply Start-up

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3.13.1 Supply Ramp-up and Ramp-down Behavior

Start-up slew rates for supply rails shall comply to SR (see **Table 3-32** Supply Ramp).

3.13.1.1 Single Supply mode (a)

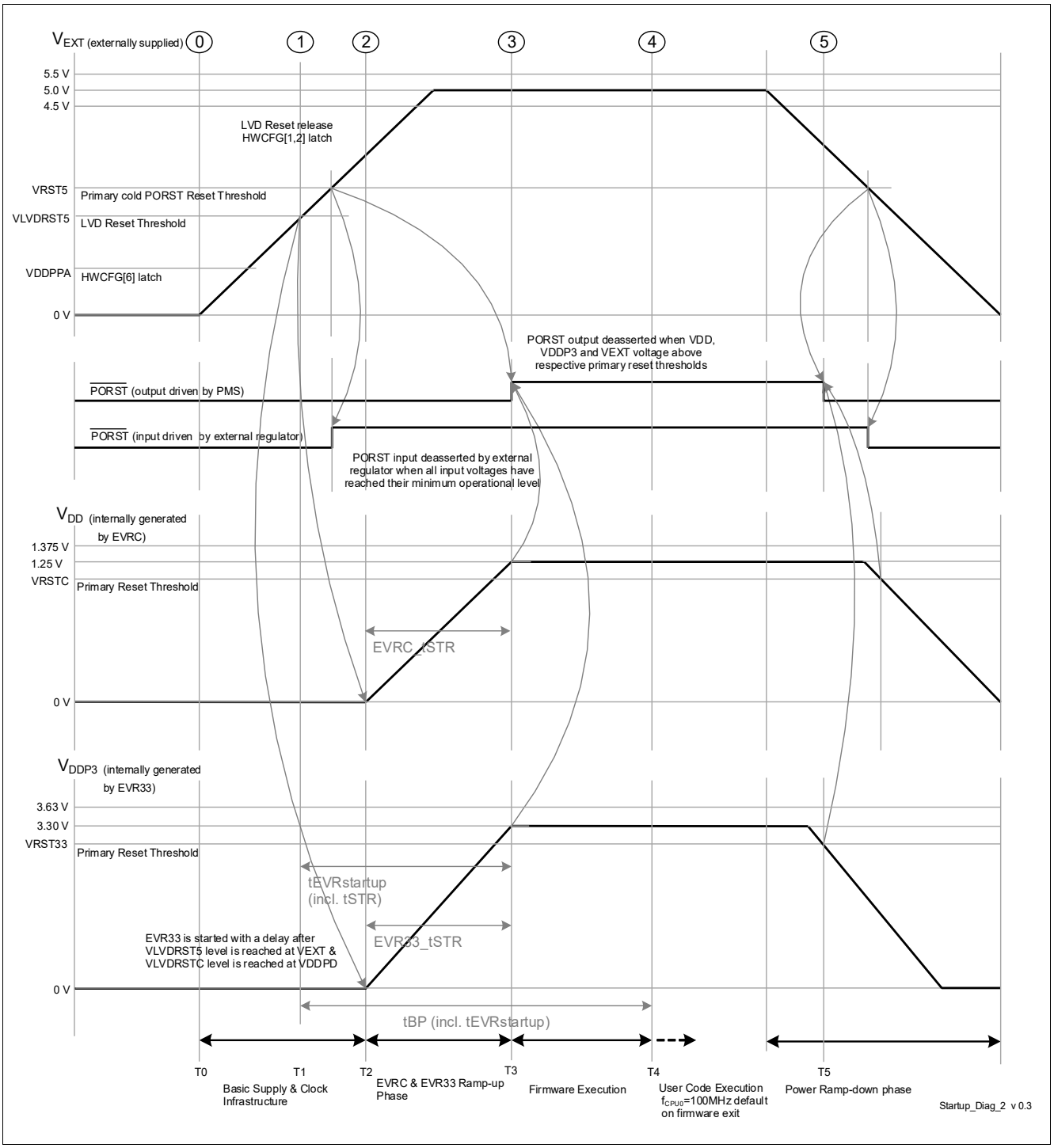

Figure 3-3 Single Supply mode (a) - V_{EXT} (5 V) single supply

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V_{EXT} = 5 V single supply mode. V_{DD} and V_{DDP3} are generated internally by the EVRC and EVR33 internal regulators.

- The rate at which current is drawn from the external regulator (dIEXT /dt) is limited during the basic infrastructure and EVRx regulator start-up phase (T0 up to T2) to a maximum of 100 mA with 100 us settling time. Start-up slew rates for supply rails shall comply to datasheet parameter SR. The slope is defined as the maximal tangential slope between 0% to 100% voltage level. Actual waveform may not represent the specification.
- Furthermore it is also ensured that the current drawn from the regulator (dIDD/dt) is limited during the Firmware start-up phase (T3 up to T4) to a maximum of 100 mA with 100 us settling time.
- PORST is active/asserted when either PORST (input) or PORST (output) is active/asserted.
- PORST (input) active means that the reset is held active by external agents by pulling the PORST pin low. It is recommended to keep the PORST (input) asserted until the external supply is above the respective primary reset threshold.
- PORST (output) active means that µC asserts the reset internally and drives the PORST pin low thus propagating the reset to external devices. The PORST (output) is asserted by the µC when at least one among the three supply domains (V_{DD}, V_{DDP3} or V_{EXT}) violate their primary under-voltage reset thresholds.The PORST (output) is de-asserted by the µC when all supplies are above their primary reset thresholds and the basic supply and clock infrastructure is available. During reset release at T3, the load jump of up to 150 mA (dIDD) is expected.
- The power sequence as shown in **Figure 3-3** is enumerated below
  - T1 up to T2 refers to the period in time when basic supply and clock infrastructure components are available as the external supply ramps up. The bandgap and internal clock sources are started. The supply mode is evaluated based on the HWCFG[2:1,4,5,6] and TESTMODE pins. These events are initiated after LVD reset release at T1 after V_{EXT} ad VEVRSB supply rails have reached VLVDRST5 level and internal pre-regulator VDDPD voltage has reached VLVDRSTC level.
  - T2 refers to the point in time where consequently a soft start of EVRC and EVR33 regulators are initiated. PORST (input) does not have any affect on EVR33 or EVRC output and regulators continue to generate the respective voltages though PORST is asserted and the device is in reset state. The generated voltage follows a soft ramp-up over the tSTR (datasheet parameter) time to avoid overshoots.
  - T3 refers to the point in time when all supplies are above their primary reset thresholds denoted by VRST5, VRST33 and VRSTC supply voltage levels. EVRC and EVR33 regulators have ramped up.
    PORST (output) is de-asserted and HWCFG[3:5] pins are latched on PORST rising edge by SCU.
    Firmware execution is initiated. The time between T1 and T3 is documented as tEVRstartup (datasheet parameter).
  - T4 refers to the point in time when Firmware execution is completed and User code execution starts with CPU0 at a default frequency of 100 MHz. The time between T0 and T4 is documented as tBP (datasheet parameter).
  - T5 refers to the point in time during the ramp-down phase when at least one of the externally provided or generated supplies (V_{DD}, V_{DDP3} or V_{EXT}) drop below their respective primary under-voltage reset thresholds.

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3.13.1.2 Single Supply mode (e)

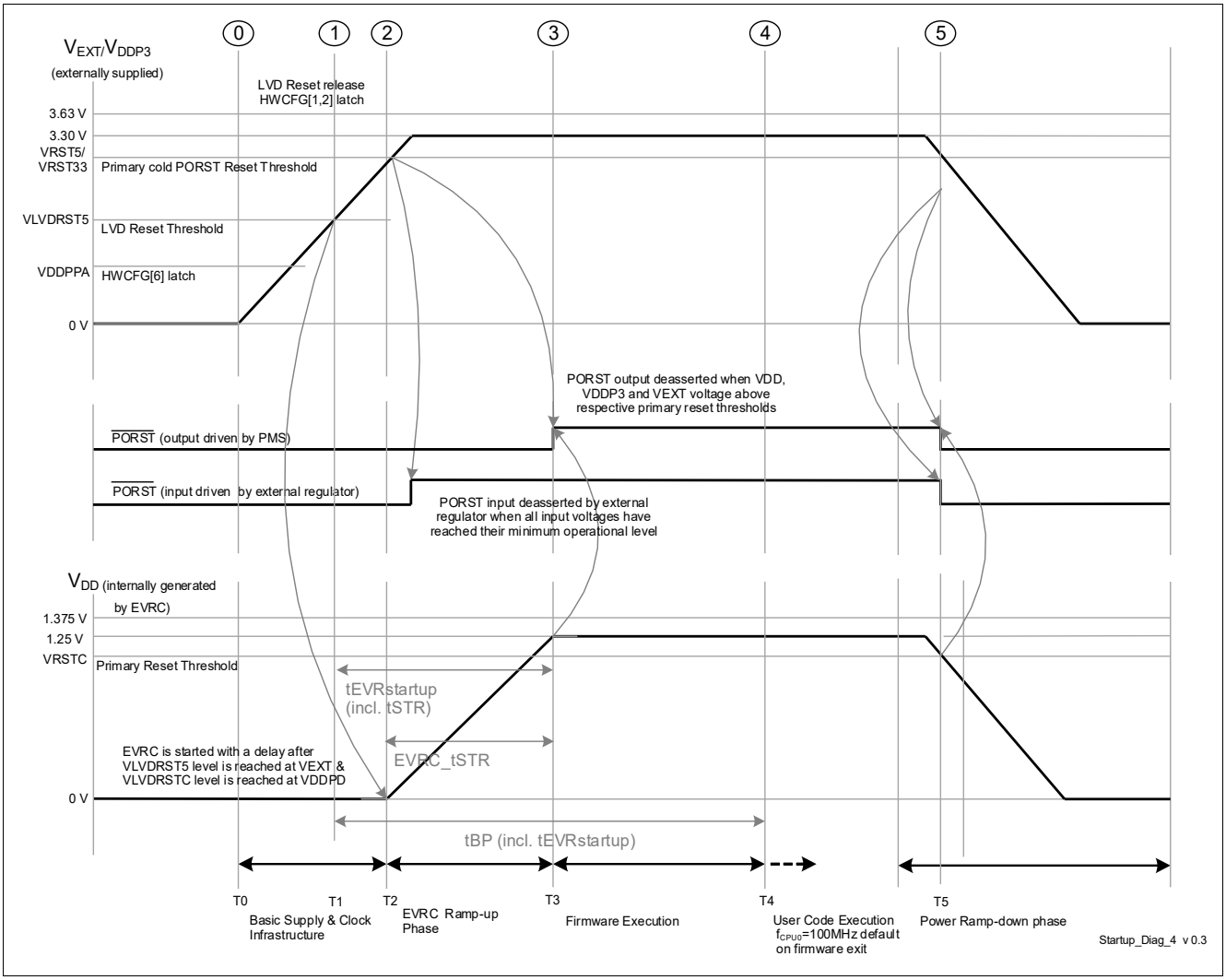

Figure 3-4 Single Supply mode (e) - (V_{EXT} & V_{DDP3}) 3.3 V single supply

V_{EXT} = V_{DDP3} = 3.3 V single supply mode. V_{DD} is generated internally by the EVRC regulator.

- The rate at which current is drawn from the external regulator (dIEXT /dt) is limited in the Start-up phase to a maximum of 100 mA with 100 us settling time. Start-up slew rates for supply rails shall comply to datasheet parameter SR. The slope is defined as the maximal tangential slope between 0% to 100% voltage level. Actual waveform may not represent the specification.
- PORST is active/asserted when either PORST (input) or PORST (output) is active/asserted.
- PORST (input) active means that the reset is held active by external agents by pulling the PORST pin low. It is recommended to keep the PORST (input) asserted until the external supply is above the respective primary reset threshold.
- PORST (output) active means that µC asserts the reset internally and drives the PORST pin low thus propagating the reset to external devices. The PORST (output) is asserted by the µC when at least one among the three supply domains (V_{DD}, V_{DDP3} or V_{EXT}) violate their primary under-voltage reset thresholds.The PORST (output) is de-asserted by the µC when all supplies are above their primary reset thresholds and the basic supply and clock infrastructure is available. During reset release at T3, the load jump of up to 150 mA (dIDD) is expected.

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- The power sequence as shown in **Figure 3-4** is enumerated below
  - T1 up to T2 refers to the period in time when basic supply and clock infrastructure components are available as the external supply ramps up. The bandgap and internal clock sources are started. The supply mode is evaluated based on the HWCFG[2:1,4,5,6] and TESTMODE pins. These events are initiated after LVD reset release at T1 after V_{EXT} ad VEVRSB supply rails have reached VLVDRST5 level and internal pre-regulator VDDPD voltage has reached VLVDRSTC level.
  - T2 refers to the point in time where consequently a soft start of EVRC regulator is initiated. PORST (input) does not have any affect on EVRC output and regulators continue to generate the respective voltages though PORST is asserted and the device is in reset state. The generated voltage follows a soft ramp-up over the tSTR (datasheet parameter) time to avoid overshoots.
  - T3 refers to the point in time when all supplies are above their primary reset thresholds denoted by VRST5, VRST33 and VRSTC supply voltage levels. EVRC regulator has ramped up. PORST (output) is de-asserted and HWCFG[3:5] pins are latched on PORST rising edge by SCU. Firmware execution is initiated. The time between T1 and T3 is documented as tEVRstartup (datasheet parameter).
  - T4 refers to the point in time when Firmware execution is completed and User code execution starts with CPU0 at a default frequency of 100 MHz. The time between T0 and T4 is documented as tBP (datasheet parameter).
  - T5 refers to the point in time during the ramp-down phase when at least one of the externally provided or generated supplies (V_{DD}, V_{DDP3} or V_{EXT}) drop below their respective primary under-voltage reset thresholds.

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3.13.1.3 External Supply mode (d)

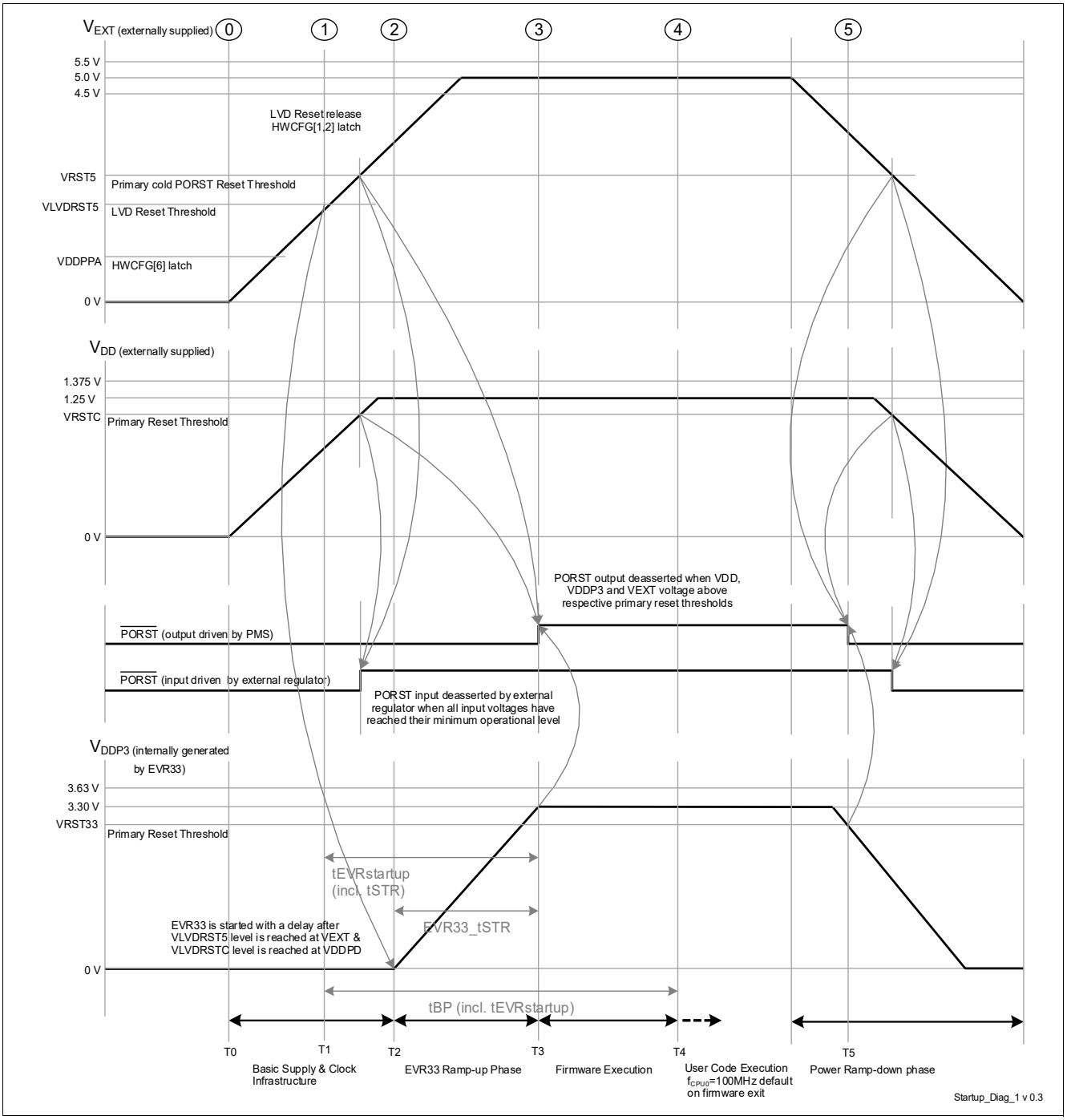

Figure 3-5 External Supply mode (d) - V_{EXT} and V_{DD} externally supplied

V_{EXT} = 5 V and V_{DD} supplies are externally supplied. 3.3V is generated internally by the EVR33 regulator.

- External supplies V_{EXT} and V_{DD} may ramp-up or ramp-down independent of each other with regards to start, rise and fall time(s). Start-up slew rates for supply rails shall comply to datasheet parameter SR. The slope is defined as the maximal tangential slope between 0% to 100% voltage level. Actual waveform may not represent the specification. It is expected that during start-up, V_{EXT} ramps up before V_{DD} rail. In case V_{DD}

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voltage rail is ramped up before V_{EXT}; V_{DD} supply overshoots during start-up shall be limited within the operational voltage range.

- The rate at which current is drawn from the external regulator (dIEXT /dt or dIDD /dt) is limited in the Start-up phase to a maximum of 100 mA with 100 us settling time.
- PORST is active/asserted when either PORST (input) or PORST (output) is active/asserted.
- PORST (input) active means that the reset is held active by external agents by pulling the PORST pin low. It is recommended to keep the PORST (input) asserted until all the external supplies are above their primary reset thresholds.
- PORST (output) active means that µC asserts the reset internally and drives the PORST pin low thus propagating the reset to external devices. The PORST (output) is asserted by the µC when at least one among the three supply domains (V_{DD}, V_{DDP3} or V_{EXT}) violate their primary under-voltage reset thresholds. The PORST (output) is de-asserted by the µC when all supplies are above their primary reset thresholds and the basic supply and clock infrastructure is available. During reset release at T3, the load jump of up to 150 mA (dIDD) is expected.
- The power sequence as shown in **Figure 3-5** is enumerated below
  - T1 up to T2 refers to the period in time when basic supply and clock infrastructure components are available as the external supply ramps up. The bandgap and internal clock sources are started. The supply mode is evaluated based on the HWCFG[2:1,4,5,6] and TESTMODE pins. These events are initiated after LVD reset release at T1 after V_{EXT} ad VEVRSB supply rails have reached VLVDRST5 level and internal pre-regulator VDDPD voltage has reached VLVDRSTC level.
  - T2 refers to the point in time where consequently a soft start of EVR33 regulator is initiated. PORST (input) does not have any affect on EVR33 output and regulators continue to generate the respective voltages though PORST is asserted and the device is in reset state. The generated voltage follows a soft ramp-up over the tSTR (datasheet parameter) time to avoid overshoots.
  - T3 refers to the point in time when all supplies are above their primary reset thresholds denoted by VRST5, VRST33 and VRSTC supply voltage levels. EVR33 regulators has ramped up. PORST (output) is de-asserted and HWCFG[3:5] pins are latched on PORST rising edge by SCU. Firmware execution is initiated. The time between T1 and T3 is documented as tEVRstartup (datasheet parameter).
  - T4 refers to the point in time when Firmware execution is completed and User code execution starts with CPU0 at a default frequency of 100 MHz. The time between T0 and T4 is documented as tBP (datasheet parameter).
  - T5 refers to the point in time during the ramp-down phase when at least one of the externally provided or generated supplies (V_{DD}, V_{DDP3} or V_{EXT}) drop below their respective primary under-voltage reset thresholds.

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3.13.1.4 External Supply mode (h)

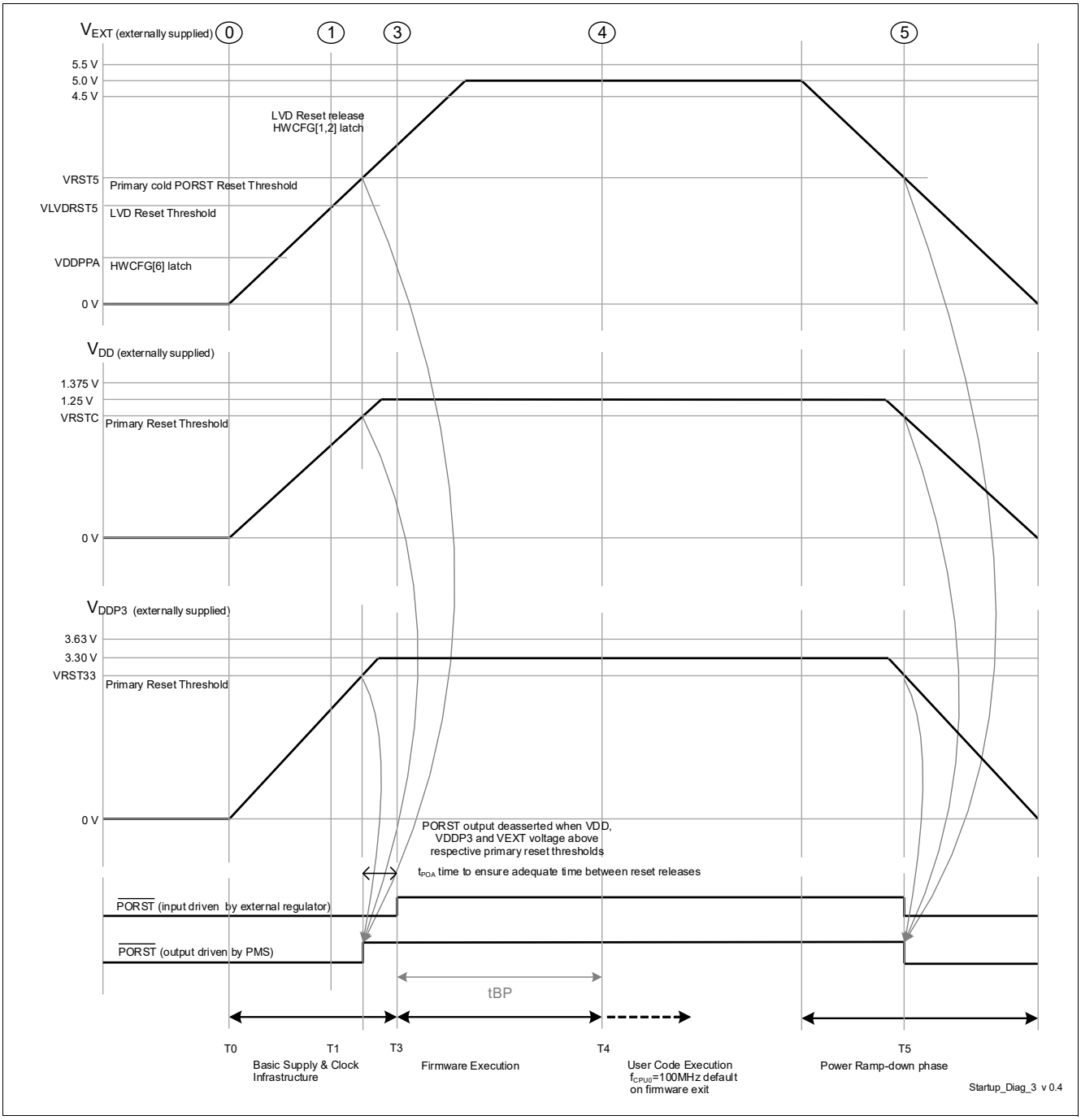

Figure 3-6 External Supply mode (h) - V_{EXT}, V_{DDP3} & V_{DD} externally supplied

All supplies, namely V_{EXT}, V_{DDP3} & V_{DD} are externally supplied.

- External supplies V_{EXT}, V_{DDP3} & V_{DD} may ramp-up or ramp-down independent of each other with regards to start, rise and fall time(s). Start-up slew rates for supply rails shall comply to (datasheet parameter) SR. The slope is defined as the maximal tangential slope between 0% to 100% voltage level. Actual waveform may not represent the specification. It is expected that during start-up, V_{EXT} ramps up before V_{DDP3} and V_{DD} rails. In case smaller voltage rails are ramped up before V_{EXT}; V_{DD} and V_{DDP3} supply overshoots during start-up shall be limited within the operational voltage ranges of the respective rails.

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- The rate at which current is drawn from the external regulator (dIEXT /dt, dIDD /dt or dIDDP3 /dt) is limited in the Start-up phase to a maximum of 100 mA with 100 us settling time.
- PORST is active/asserted when either PORST (input) or PORST (output) is active/asserted.
- PORST (input) active means that the reset is held active by external agents by pulling the PORST pin low. It is recommended to keep the PORST (input) asserted until all the external supplies are above their primary reset thresholds.
- PORST (output) active means that µC asserts the reset internally and drives the PORST pin low thus propagating the reset to external devices. The PORST (output) is asserted by the µC when at least one among the three supply domains (V_{DD}, V_{DDP3} or V_{EXT}) violate their primary under-voltage reset thresholds.The PORST (output) is de-asserted by the µC when all supplies are above their primary reset thresholds and the basic supply and clock infrastructure is available. During reset release at T3, the load jump of up to 150 mA (dIDD) is expected.
- The power sequence as shown in **Figure 3-6** is enumerated below
  - T1 up to T3 refers to the period in time when basic supply and clock infrastructure components are available as the external supply ramps up. The bandgap and internal clock sources are started. The supply mode is evaluated based on the HWCFG[2:1,4,5,6] and TESTMODE pins. These events are initiated after LVD reset release at T1 after V_{EXT} ad VEVRSB supply rails have reached VLVDRST5 level and internal pre-regulator VDDPD voltage has reached VLVDRSTC level.
  - T3 refers to the point in time when all supplies are above their primary reset thresholds denoted by VRST5, VRST33 and VRSTC supply voltage levels. PORST (output) is de-asserted and HWCFG[3:5] pins are latched on PORST rising edge by SCU. Firmware execution is initiated.
  - T4 refers to the point in time when Firmware execution is completed and User code execution starts with CPU0 at a default frequency of 100 MHz. The time between T0 and T4 is documented as tBP (datasheet parameter).
  - T5 refers to the point in time during the ramp-down phase when at least one of the externally provided supplies (V_{DD}, V_{DDP3} or V_{EXT}) drop below their respective primary under-voltage reset thresholds.

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3.14 Reset Timing

Table 3-29 Reset

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Application Reset Boot Time	t_B CC	-	-	400	µs	operating with max. frequencies, with valid BMI header
System Reset Boot Time	t_{BS} CC	-	-	1.1	ms	RAM initialization and HSM boot time are not included, with valid BMI header
Cold Power on Reset Boot Time [1]	t_{BP} CC	-	-	3.1	ms	$dVEXT/dT$=1V/ms. $VEXT$>$VLVDRST5$. Boot time after Cold PORST including EVR ramp-up and Firmware execution time; RAM initialization and HSM boot time are not included.
		-	-	1.6	ms	Firmware execution time after PORST release without EVR ramp-up; RAM initialization and HSM boot time is not included
Minimum cold PORST reset hold time in case of power fail event issued by EVR primary monitors	t_{EVRPOR} CC	10 [2]	-	-	µs	
PMS Infrastructure, EVRC and EVR33 overall start-up time till cold PORST reset release	$t_{EVRstartup}$ CC	-	-	1	ms	dV/dT=1V/ms. EVRC and EVR33 active
Minimum PORST active hold time externally after power supplies are stable at operating levels after start-up	t_{POA} SR	1 [3]	-	-	ms	
Configurable PORST digital filter delay in addition to analog pad filter delay	$t_{PORSTDF}$ CC	600	-	1200	ns	
Warm Reset Sequencing Delay	$t_{WARMRSTSEQ}$ CC	-	-	180	µs	
HWCFG pins hold time from ESR0 rising edge	t_{HDH} CC	16 / f_{SPB}	-	-	ns	

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Table 3-29 Reset (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
HWCFG pins setup time to ESR0 rising edge	t_{HDS} CC	0	-	-	ns	
Ports inactive after ESR0 reset active	t_{PI} CC	8000/f_{BACKT}	-	18000/f_{BACKT}	s	
Ports inactive after PORST reset active	t_{PIP} CC	-	-	160	ns	
Hold time from PORST rising edge	t_{POH} SR	150	-	-	ns	
Setup time to PORST rising edge	t_{POS} SR	0	-	-	ns	
Warm PORST reset boot time	t_{BWP} CC	-	-	1.5	ms	without RAM initalization
LBIST execution time extending the boot time	t_{LBIST} CC	-	-	6	ms	LBIST Configuration A; 1.2V ≤ V_{DD}
SCR reset boot time	t_{SCR} CC	-	-	5	µs	User Mode 0
		-	-	16	µs	User Mode 1
		-	13.3	-	µs	WDT double bit ECC, soft reset
Minimum external supplies hold time after warm reset assertion	$t_{SUPHOLD}$ CC	-	-	250	µs	external supplies are V_{EVRSB}, V_{EXT}, V_{FLEX}, V_{DDM}, V_{DDP3} and V_{DD}

1) RAM initialization add 500µs in addition.
2) Cold PORST reset is driven by uC and maintained in an extended voltage range between VDDPPA limit and absolute maximum rating voltage limits.
3) The reset release on supply ramp-up or supply restoration is delayed by a voltage hysteresis of 1.5% (default value) above the undervoltage reset limit implemented on VEXT, VDDP3 and VDD rails. This mechanism helps to avoid multiple consecutive cold PORST events during slow supply ramp-ups owing to voltage drop/current jumps when reset is released.

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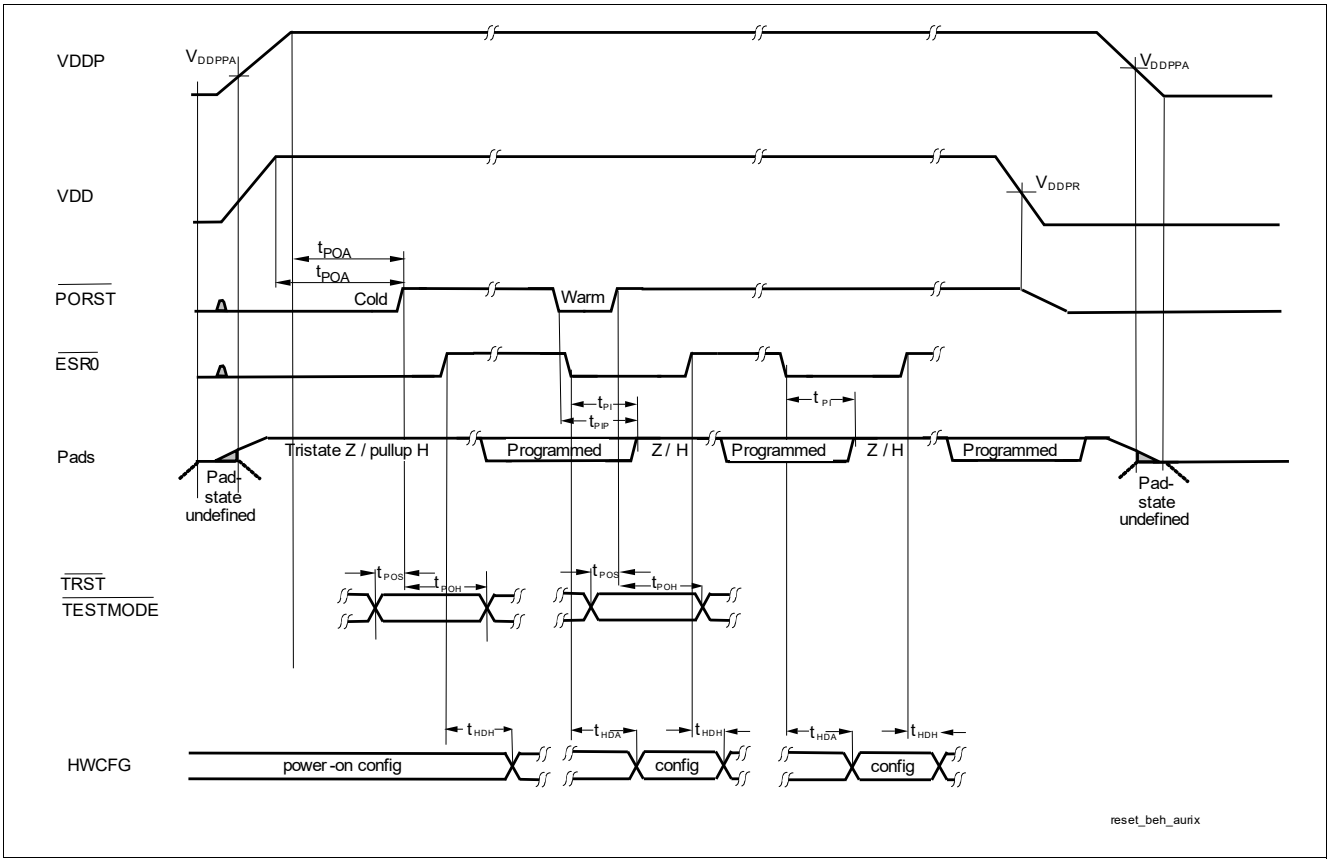

Figure 3-7 Power, Pad and Reset Timing

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3.15 EVR

Table 3-30 EVR33 LDO

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input voltage range	V_{IN} SR	3.60 [1]	-	5.50	V	Normal RUN mode
		2.97 [2]	-	5.50	V	Low voltage cranking mode
Output voltage operational range including load/line regulation and aging [3]	V_{OUT} CC	2.97	3.3	3.63	V	Normal RUN mode
		2.60	3.3	3.63	V	Low voltage cranking mode; I_{DDP3}=50mA
Output V_{DDx3} static voltage accuracy after trimming and aging without dynamic load/line regulation.	V_{OUTT} CC	3.225	3.3	3.375	V	Normal RUN mode
		2.78	3.3	3.375	V	Low voltage cranking mode; I_{DDP3}=50mA
Output buffer capacitance on V_{OUT}	C_{OUT} SR	1.45	2.2	3	µF	
Output buffer capacitor ESR	C_{OUTESR} SR	-	-	100 [4]	mOhm	f > 0.5MHz; f < 10MHz
Maximum output current of the regulator	I_{MAX} CC	60 [5]	-	-	mA	Normal RUN mode
Startup time	t_{STR} CC	-	500	1000	µs	Normal RUN mode
External V_{IN} supply ramp [6]	$dVin/dt$ SR	-	1	-	V/ms	
Ripple on Output Voltage	ΔV_{OUTTC} CC	-	-	33	mV	V_{EXT} ≥ 2.97V ; V_{EXT} ≤ 5.5V ; I_{OUTTC} ≥ 10mA ; I_{OUTTC} ≤ 60mA; ΔV_{OUTTC} = (peak to peak ripple / 2)
Load step response [7]	$dVout/dIout$ CC	-165	-	-	mV	Normal RUN mode; dI=10 to 60mA; dt=20ns; $Tsettle$=20us
		-	-	165	mV	Normal RUN mode; dI=60 to 10mA; dt=20ns; $Tsettle$=20us
		-180	-	-	mV	Low voltage cranking mode; dI=10 to 50 mA; dt=20ns; $Tsettle$=20us
		-	-	180	mV	Low voltage cranking mode; dI=50 to 10mA; dt=20ns; $Tsettle$=20us

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Table 3-30 EVR33 LDO (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Line step response	*dVout/dVin* CC	-	-	40	mV	$dVin/dT$=1V/ms; dV= 3.6 to 5V; I_{MAX}=60mA
		-40	-	-	mV	$dVin/dT$=1V/ms; dV= 5 to 3.6V; I_{MAX}=60mA
		-	-	280	mV	$dVin/dT$=50V/ms; dV= 3.6 to 5V; I_{MAX}=60mA
		-165	-	-	mV	$dVin/dT$=50V/ms; dV= 5 to 3.6V; I_{MAX}=60mA

1) A maximum pass device dropout voltage of 300mV is included in the minimum input voltage to ensure optimal pass device performance during normal operation.
2) VEXT Input voltage drop up to 2.97V leading to VDDP3 output voltage drop upto 2.6V can be tolerated if Flash is switched before to low performance mode.
3) No external inductive load permissible if EVR33 is used.
4) It is also recommended that the resistance of the supply trace from the pin to the EVR output capacitor is less than 100 mOhm. An additional decoupling capacitor of 100nF shall be located close to the pin before Cout.
5) IMAX is limited to 40 mA incase of Low voltage mode (cranking case) with on chip pass devices. In case EVR33 is not used, Injection current into 3.3V VDDP3 supply rail with active sink on 5V VEXT rail should be limited to 500 mA if during power sequencing 3.3V is supplied before 5V by external regulator.
6) EVR is robust against residual voltage ramp-up starting between 0 - 2.97 V. A VEXT voltage ramp range between 0.5V/min upto 120V/ms is covered in robustness validation. The generated voltage itself follows a soft ramp-up over the tSTR time to avoid overshoots.
7) Settling time is defined until output voltage is within +-1% of the mean(VOUTT) of the individual device.

Table 3-31 Supply Monitors

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Primary Undervoltage Reset threshold for V_{DDP3} before trimming [1]	V_{RST33} CC	-	-	3.00	V	by reset release before EVR trimming on supply ramp-up
Primary undervoltage reset threshold for V_{DD} before trimming	V_{RSTC} CC	-	-	1.138	V	by reset release before trimming on supply ramp-up including 2 LSB voltage Hysteresis
V_{EXT} primary undervoltage monitor accuracy after trimming [2]	$V_{EXTPRIUV}$ CC	2.86	2.92	2.97	V	V_{EXT} = Undervoltage cold PORST Primary Monitor Threshold
V_{DDP3} primary undervoltage monitor accuracy after trimming [2]	$V_{DDP3PRIUV}$ CC	2.86 [3]	2.90	2.97	V	VDDP3 = Undervoltage cold PORST Primary Monitor Threshold
V_{DD} primary undervoltage monitor accuracy after trimming [2]	$V_{DDPRIUV}$ CC	1.08 [3]	1.105	1.125	V	VDD = Undervoltage cold PORST Primary Monitor Threshold

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Table 3-31 Supply Monitors (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
EVR primary monitor measurement latency for a new supply value	t_{PRIUV} CC	-	-	300	ns	The supply ramp / line jump slope is limited to 50V/ms for V_{EXT}, V_{DDP3} and V_{DD} rails.

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Table 3-31 Supply Monitors (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
V_{EXT}, V_{DDM} & V_{EVRSB} secondary supply monitor accuracy after trimming [4) 5)]	V_{EXTMON} CC	3.2	3.3	3.4	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=3.3V=90h(OV,UV). For BGA packages: EVRMONFILT.SWDFIL=1.
		3.2	3.3	3.4	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=3.3V=90h(OV,UV). For QFP packages: EVRMONFILT.SWDFIL=2
		4.5	4.6	4.7	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=4.6V=C8h(UV)/C9h(OV). For BGA packages: EVRMONFILT.SWDFIL=1
		4.5	4.6	4.7	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=4.6V=C8h(UV)/C9h(OV). For QFP packages: EVRMONFILT.SWDFIL=2
		5.3	5.4	5.5	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=5.4V=EAh(UV)/ECh(OV). For BGA packages: EVRMONFILT.SWDFIL=1
		5.3	5.4	5.5	V	SWDxxVAL, VDDMxxVAL & SBxxVAL monitoring threshold=5.4V=EAh(UV)/ECh(OV). For QFP packages: EVRMONFILT.SWDFIL=2
		4.9	5.0	5.1	V	SWDx VDDMxxVAL & SBxxVAL monitoring

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Table 3-31 Supply Monitors (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
V_{DDP3} secondary supply monitor accuracy after trimming [5]	$V_{DDP3MON}$ CC	2.97	3.035	3.1	V	EVR33xxVAL monitoring threshold=3.035V=CBh (UV)/CCh(OV). EVRMONFILT.EVR33 FIL = 3.
		3.235	3.30	3.365	V	EVR33xxVAL monitoring threshold=3.3V=DDh(OV,UV). EVRMONFILT.EVR33 FIL = 3.
		3.5	3.565	3.63	V	EVR33xxVAL monitoring threshold=3.565V=EEh (UV)/EFh(OV). EVRMONFILT.EVR33 FIL = 3.
V_{DD} & V_{DDPD} secondary supply monitor accuracy after trimming [5]	V_{DDMON} CC	1.125	1.15	1.175	V	EVRCxxVAL & PRExxVAL monitoring threshold=1.15V=C7h(UV)/C8h(OV). EVRMONFILT.EVRCFI L = 1.
		1.225	1.25	1.275	V	EVRCxxVAL & PRExxVAL monitoring threshold=1.25V=D9h(OV,UV). EVRMONFILT.EVRCFI L = 1.
		1.325	1.35	1.375	V	EVRCxxVAL & PRExxVAL monitoring threshold=1.35V=EAh(UV)/EBh(OV). EVRMONFILT.EVRCFI L = 1.
V_{EXT} LVD Primary undervoltage reset Monitor threshold	$V_{LVDRST5}$ CC	2.3	-	2.72	V	Power-down
		2.4	-	2.75	V	Power-up
V_{EVRSB} LVD Primary undervoltage reset Monitor threshold	$V_{LVDRSTSB}$ CC	2.18	-	2.47	V	Power-down
		2.21	-	2.5	V	Power-up
V_{EXT} and V_{EVRSB} PBIST primary overvoltage Monitor threshold	V_{PBIST5} CC	5.63	-	-	V	

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Table 3-31 Supply Monitors (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Primary undervoltage reset threshold for V_{EXT} before trimming	V_{RST5} CC	-	-	3.0	V	by last cold PORST release on supply ramp-up including voltage hysteresis.
EVR secondary monitor measurement latency for all 6 supply rails	t_{MON} CC	-	-	3.2	µs	HPOSC and SHPBG bandgap trimmed. Filter inactive.

1) The reset release on supply ramp-up is delayed by a time duration 20-40 us after reaching undervoltage reset threshold and by a voltage hysteresis of 1.5% above the undervoltage reset limit. These mechanisms serve as hysteresis to avoid multiple consecutive cold PORST events during slow supply ramp-ups owing to voltage drop/current jumps when reset is released. The reset limit of 2,97V at pin is for the case with 3.3V generated internally from EVR33. In case the 3.3V supply is provided externally, the bondwire drop will cause a reset at a higher voltage of 3.0V at the VDDP3 pin.
2) The monitor tolerances constitute the inherent variation of the band gap and ADC over process, voltage and temperature operational ranges. The VxxPRIUV parameters are device individually tested in production with +-1% tolerance about the VxxPRIUV limits. All voltages are measured on pins.
3) VRSTxx parameters are relevant only for the first cold PORST release. Later the reset levels are trimmed by the Firmware and reflected as VxxPRIUV parameters before device is used with full performance. The cold PORST is released with a voltage hysteresis on all the primary monitors to avoid consecutive PORST toggling behavior.
4) In case the application is using 3.3V single supply (Single Supply mode (e), i.e. VEXT and VDDP3 are shorted together), it is recommended to use secondary supply monitoring on channel VDDP3, because of the better accuracy of parameter VDDP3MON.
5) To monitor voltage level not provided in conditions the values for OV and UV thresholds can be generated by a linear interpolation or extrapolation based on the given points.

Table 3-32 Supply Ramp

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
External V_{EXT} & V_{EVRSB} supply ramp-up and ramp-down slope 1) 2) 3)	*dVEXT/dt* SR	8.3E-6	1	100	V/ms	
External V_{DDP3} supply ramp-up and ramp-down slope 1)3)	*dVDDP3/dt* SR	8.3E-6	1	100	V/ms	
External V_{DD} supply ramp-up and ramp-down slope 1)3)	*dVDD/dt* SR	8.3E-6	1	100	V/ms	
External V_{DDM} supply ramp-up and ramp-down slope 1)3)	*dVDDM/dt* SR	8.3E-6	1	100	V/ms	

1) The device is robust against residual voltage ramp-up starting between 0 - 2.97 V for VEXT, VEVRSB, VDDP3 and VDDM and 0-1 V for VDD. A voltage ramp range between 0.5V/min upto 120V/ms is covered in robustness validation.
2) Also valid in case EVR33 or EVRC is used. The generated voltage itself follows a soft ramp-up over the tSTR time to avoid overshoots.
3) The slope is defined as the maximal tangential slope between 0% to 100% voltage level. Actual waveform may not represent the specification.

Up to 1,000,000 power cycles, matching the limits defined in table 'Supply Ramp', are allowed for TC36x without any restriction to reliability.

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Table 3-33 EVRC SMPS

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input V_{EXT} Voltage range	V_{IN} SR	2.97	-	5.5	V	Start-up VEXT voltage > 2.6 V
SMPS regulator output voltage range including load/line regulation and aging	V_{DDDC} CC	1.125	-	1.375	V	V_{EXT} ≥ 2.97V ; V_{EXT} ≤ 5.5V ; I_{DDDC} ≥ 1mA ; I_{DDDC} ≤ 500mA ; untrimmed
SMPS regulator static voltage output accuracy after trimming without dynamic load/line regulation.	V_{DDDCT} CC	1.225	1.25	1.275	V	V_{EXT} ≥ 2.97V ; V_{EXT} ≤ 5.5V ; I_{DDDC} ≥ 1mA ; I_{DDDC} ≤ 500mA
Programmable switching frequency	f_{DCDC} SR	1.6	1.82	2.0	MHz	Start-up frequency switches from 500 KHz in open loop operation to 1.82 MHz in closed loop Operation.
		-	0.8	-	MHz	Start-up frequency switches from 500 KHz in open loop operation to 1.82 MHz in closed loop Operation. 0.8 MHz to be set in SW.
Startup time	t_{STRDC} CC	-	-	900	µs	SMPS Start-up Mode. It is is defined beween $V_{EXTPRIUV}$ reset threshold till PORST release, on condition that all other PORST requirements were released before. I_{START} < 350mA.
Switching frequency modulation spread	Δf_{DCSPR} CC	-	1.8%	-	MHz	
Maximum ripple at I_{MAX}	ΔV_{DDDC} CC	-	-	16	mV	V_{EXT} ≥ 2.97V ; V_{EXT} ≤ 5.5V ; I_{DDDC} ≥ 300mA ; I_{DDDC} ≤ 500mA ; ΔV_{DDDC} = (Peak to Peak ripple / 2)
No load current consumption of SMPS regulator	I_{DCNL} CC	-	15	19	mA	f_{DCDC}=1.82MHz; I_{DDDC}=I_{SLEEP}; V_{EXT} > 2.97 V; T_J=25°C
		-	5	-	mA	LPM mode; I_{DDDC}=I_{SLEEP}; V_{EXT} > 2.97 V; T_J=25°C

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Table 3-33 EVRC SMPS (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SMPS regulator load transient response	dV_{DDDCT} / dI_{OUT} CC	-50	-	75	mV	dI < -250mA ; I_{DDDC}=280-500mA; t_r=0.1us; t_f=0.1us; V_{DDDC}=1.25V; T_{settle}=100 us
		-26	-	26	mV	dI < 100mA ; I_{DDDC}=50-500mA; t_r=0.1us; t_f=0.1us; V_{DDDC}=1.25V; T_{settle}=20us;
Maximum output current	I_{MAX} CC	100	-	-	mA	LPM mode. Typical current in LPM Mode = I_{SLEEP}
		500	-	-	mA	limited by thermal constraints and component choice
SMPS regulator line transient response	dV_{DDDCT} / dV_{IN} CC	-75	-	75	mV	dV/dT=120V/ms; dV < 2.97 - 5.5V ; I_{DDDC}=50-500mA;
		-12.5	-	12.5	mV	dV/dT=1V/ms; dV < 2.97 - 5.5V ; I_{DDDC}=50-500mA;
SMPS regulator efficiency	n_{DC} CC	-	80	-	%	V_{IN}=3.3V; I_{DDDC}=500mA; f_{DCDC}=1.82MHz
		-	75	-	%	V_{IN}=5V; I_{DDDC}=500mA; f_{DCDC}=1.82MHz
Input Synchronisation frequency	$f_{DCDCSYNC}$ SR	1.6	1.82	2.0	MHz	f_{DCDC} =1.82MHz
		0.66	0.8	0.94	MHz	f_{DCDC}=0.8MHz

Table 3-34 EVRC SMPS External components

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
External output capacitor value [1)]	C_{OUT} SR	13	20	27	µF	I_{DDDC}=500 mA; f_{DDDC} = 0.8MHz
		9.6	14.7	19.8	µF	I_{DDDC}=500mA; f_{DDDC} = 1.82MHz
External output capacitor ESR	C_{OUT_ESR} SR	-	-	50	mOhm	f≥0.5MHz ; f≤10MHz
		-	-	100	Ohm	f=10Hz
External input capacitor value [1)]	C_{IN} SR	4.42	6.8	9.18	µF	I_{DDDC}=500mA
External input capacitor ESR	C_{IN_ESR} SR	-	-	50	mOhm	f≥0.5MHz ; f≤10MHz
		-	-	100	Ohm	f=100Hz

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Table 3-34 EVRC SMPS External components (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
External inductor value	L_{DC} SR	3.29	4.7	6.11		f_{DCDC}=0.8MHz
		2.31	3.3	4.29	µH	f_{DCDC}=1.82MHz
External inductor DCR	L_{DC_DCR} SR	-	-	0.2	Ohm	
P + N-channel MOSFET logic level	V_{LL} SR	-	-	2.5	V	
P + N-channel MOSFET drain source breakdown voltage	$\|V_{BR_DS}\|$ SR	+7	-	-	V	NMOS - V_{GS} = 0.
		-	-	-7	V	PMOS - V_{GS} = 0.
P + N-channel MOSFET drain source ON-state resistance	R_{ON} SR	-	200	-	mOhm	I_{DDDC}=500mA; $\|V_{GS\|}$=2.5V ; T_A=25°C
P + N-channel MOSFET Gate Charge	Q_G SR	-	-	4	nC	I_{DDDC}=500mA; NMOS- $\|V_{GS\|}$=5V; 0.5A pulsed drain current
		-4	-	-	nC	I_{DDDC}=500mA; PMOS- $\|V_{GS\|}$=5V; 0.5A pulsed drain current
External Inductor Saturation Current Margin	ΔI_{SAT} SR	400	-	-	mA	The saturation current of the coil must be larger than I_{DDDC} + ΔI_{SAT}
P + N-channel MOSFET Gate threshold voltage	V_{GSTH} SR	-	1	-	V	NMOS
		-	-1	-	V	PMOS
N-channel MOSFET reverse diode forward voltage	V_{RDN} SR	-	0.8	-	V	

1) Capacitor min-max range represent typical +-35% tolerance including DC bias effect. The trace resistance from the capacitor to the supply or ground rail should be limited to 25 mOhm.

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3.16 System Phase Locked Loop (SYS_PLL)

Table 3-35 PLL System

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
DCO Input frequency range	f_{REF} CC	10	-	40	MHz	
Modulation Amplitude	MA CC	0	-	2	%	
Peak Period jitter	DP CC	-200	-	200	ps	without modulation (PLL output frequency)
Peak Accumulated Jitter	D_{PP} CC	-5	-	5	ns	without modulation
Total long term jitter	J_{TOT} CC	-	-	11.5	ns	including modulation; MA 1.25%; f_{REF} 20MHz
System frequency deviation	f_{SYSD} CC	-	-	0.01	%	with active modulation
DCO frequency range	f_{DCO} CC	400	-	800	MHz	
PLL lock-in time	t_L CC	4	-	100	µs	

Note: The specified PLL jitter values are valid if the capacitive load per pin does not exceed C_L = 20 pF with the maximum driver and sharp edge.

Note: The maximum peak-to-peak noise on the power supply voltage, is limited to a peak-to-peak voltage of V_{PP} = 100 mV for noise frequencies below 300 KHz and V_{PP} = 40 mV for noise frequencies above 300 KHz. These conditions can be achieved by appropriate blocking of the supply voltage as near as possible to the supply pins and using PCB supply and ground planes.

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3.17 Peripheral Phase Locked Loop (PER_PLL)

Table 3-36 PLL Peripheral

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Peak Accumulated jitter at SYSCLK pin	D_{PP} CC	-1000	-	1000	ps	Peak only
Peak accumulated jitter	D_{PPI} CC	-700	-	700	ps	Peak only
RMS Accumulated jitter	D_{RMS} CC	-100	-	100	ps	measured over 1 µs; f_{REF} = 20 MHz and f_{DCO} = 640 MHz or f_{REF} = 25 MHz and f_{DCO} = 800 MHz
Peak Period jitter	DP CC	-200	-	200	ps	f_{DCO} = 640 MHz or f_{DCO} = 800 MHz
Absolute RMS jitter (PLL out)	J_{ABS10} CC	-125	-	125	ps	f_{REF} = 10 MHz; f_{DCO} = 640 MHz
Absolute RMS jitter (PLL out)	J_{ABS20} CC	-85	-	85	ps	f_{REF} = 20 MHz; f_{DCO} = 640 MHz
Absolute RMS jitter (PLL out)	J_{ABS25} CC	-85	-	85	ps	f_{REF} = 25 MHz; f_{DCO} = 800 MHz
DCO frequency range	f_{DCO} CC	400	-	800	MHz	
DCO input frequency range	f_{REF} CC	10	-	40	MHz	
PLL lock-in time	t_L CC	4	-	100	µs	

Note: The specified PLL jitter values are valid if the capacitive load per pin does not exceed C_L = 20 pF with the maximum driver and sharp edge.

Note: The maximum peak-to-peak noise on the power supply voltage, is limited to a peak-to-peak voltage of V_{PP} = 100 mV for noise frequencies below 300 KHz and V_{PP} = 40 mV for noise frequencies above 300 KHz. These conditions can be achieved by appropriate blocking of the supply voltage as near as possible to the supply pins and using PCB supply and ground planes.

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3.18 AC Specifications

All AC parameters are specified for the complete operating range defined in **Chapter 3.4** unless otherwise noted in column Note / Test Condition.

Unless otherwise noted in the figures the timings are defined with the following guidelines:

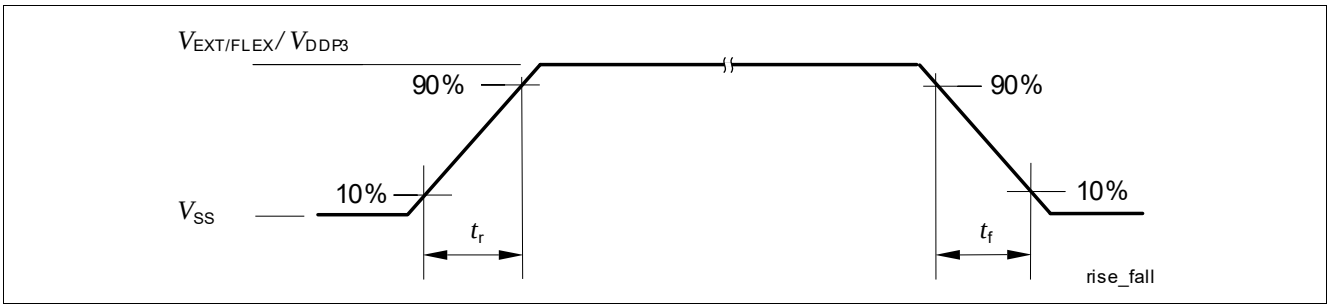

Figure 3-8 Definition of rise / fall times

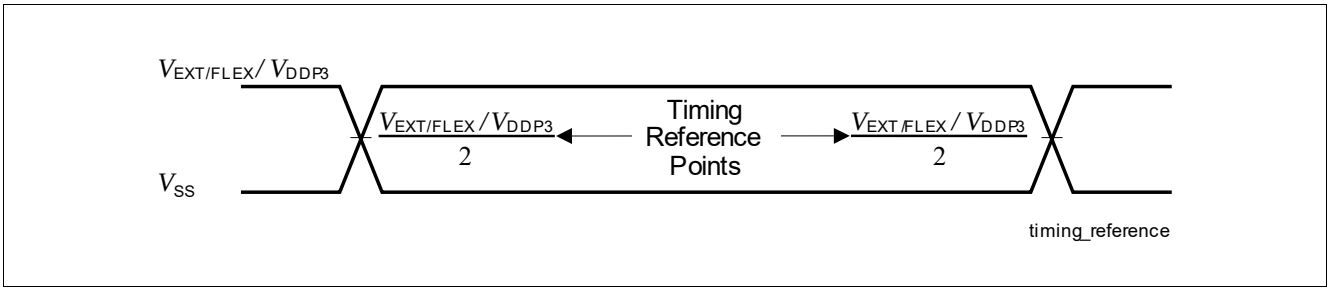

Figure 3-9 Time Reference Point Definition

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3.19 JTAG Parameters

The following parameters are applicable for communication through the JTAG debug interface. The JTAG module is fully compliant with IEEE1149.1-2000.

Table 3-37 JTAG

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
TCK clock period	t_1 SR	50	-	-	ns	
TCK high time	t_2 SR	10	-	-	ns	
TCK low time	t_3 SR	10	-	-	ns	
TCK clock rise time	t_4 SR	-	-	4	ns	
TCK clock fall time	t_5 SR	-	-	4	ns	
TDI/TMS setup to TCK rising edge	t_6 SR	6.0	-	-	ns	
TDI/TMS hold after TCK rising edge	t_7 SR	6.0	-	-	ns	
TDO valid after TCK falling edge (propagation delay)	t_8 CC	3.0	-	-	ns	C_L≤20pF
		-	-	25	ns	C_L≤50pF
TDO hold after TCK falling edge	t_{18} CC	2	-	-	ns	
TDO high impedance to valid from TCK falling edge	t_9 CC	-	-	25	ns	C_L≤50pF
TDO valid output to high impedance from TCK falling edge	t_{10} CC	-	-	25	ns	C_L≤50pF

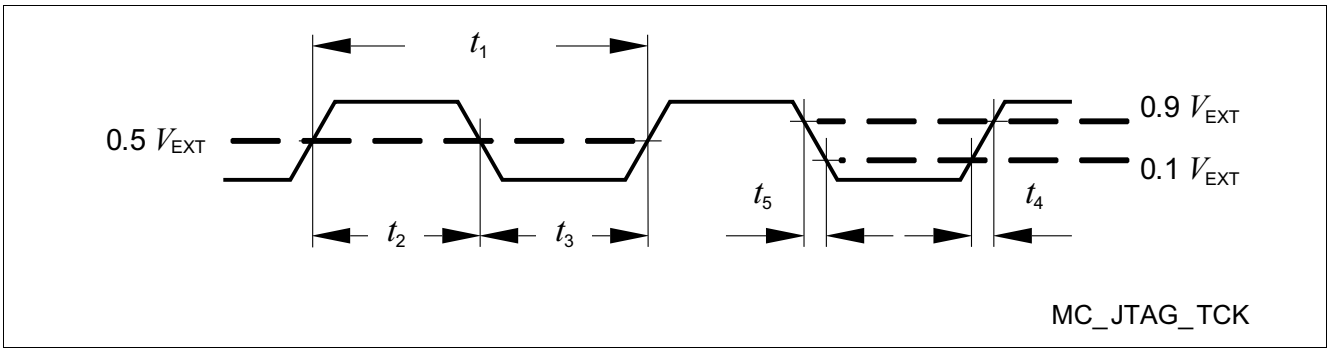

Figure 3-10 Test Clock Timing (TCK)

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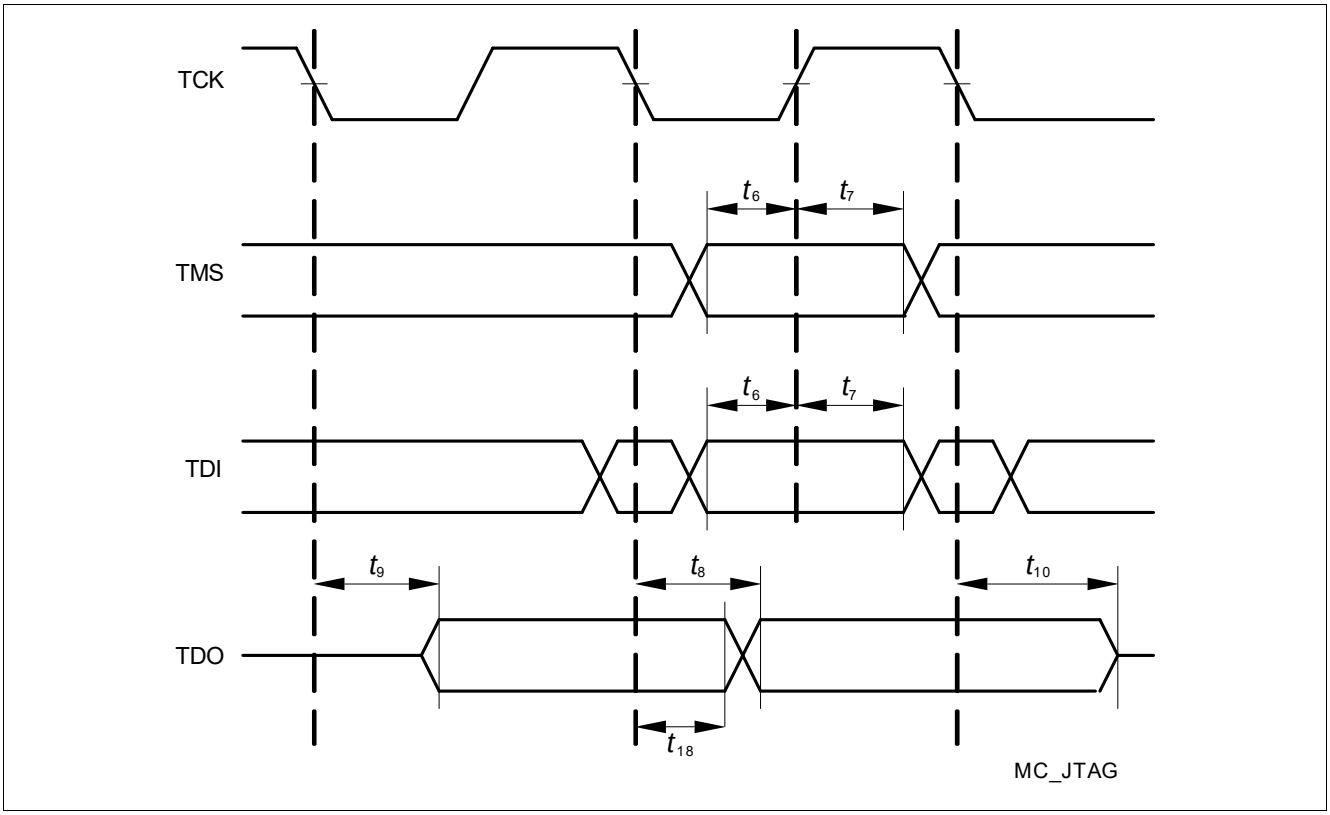

Figure 3-11 JTAG Timing

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3.20 DAP Parameters

The following parameters are applicable for communication through the DAP debug interface.

Table 3-38 DAP

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
DAP0 clock rise time	t_{14} SR	-	-	1	ns	f=160MHz
		-	-	4	ns	f=40MHz
		-	-	2	ns	f=80MHz
DAP0 clock fall time	t_{15} SR	-	-	1	ns	f=160MHz
		-	-	4	ns	f=40MHz
		-	-	2	ns	f=80MHz
DAP1 setup to DAP0 rising edge	t_{16} SR	4	-	-	ns	
		5	-	-	ns	f=40MHz
DAP1 hold after DAP0 rising edge	t_{17} SR	2	-	-	ns	
DAP1 valid per DAP0 clock period	t_{19} CC	4	-	-	ns	C_L=20pF ; f=160MHz
		8	-	-	ns	C_L=20pF ; f=80MHz
		10	-	-	ns	C_L=50pF ; f=40MHz
DAP0 high time	t_{12} SR	2	-	-	ns	
DAP0 low time	t_{13} SR	2	-	-	ns	
DAP0 clock period	t_{11} SR	6.25	-	-	ns	

Table 3-39 SCR DAP

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
DAP0 clock rise time	t_{14} SR	-	-	8	ns	f=20MHz
DAP0 clock fall time	t_{15} SR	-	-	8	ns	f=20MHz
DAP1 setup to DAP0 rising edge	t_{16} SR	10	-	-	ns	
DAP1 hold after DAP0 rising edge	t_{17} SR	10	-	-	ns	
DAP1 valid per DAP0 clock period	t_{19} CC	30	-	-	ns	C_L=20pF ; f=20MHz
DAP0 high time	t_{12} SR	15	-	-	ns	
DAP0 low time	t_{13} SR	15	-	-	ns	
DAP0 clock period	t_{11} SR	50	-	-	ns	

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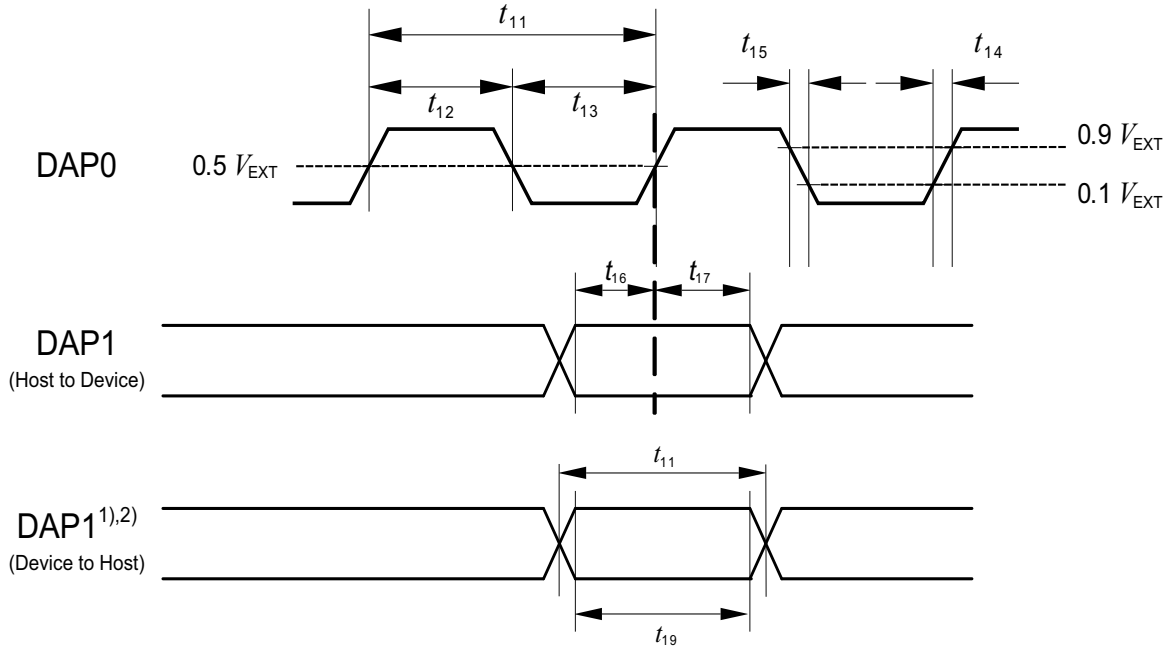

1) The DAP1 and DAP2 device to host timing is individual for both pins.
There is no guaranteed max. signal skew.

2) No explicite setup and hold times are given for DAP1 for the direction Device to Host.
Only t11 and t19 are guaranteed and the tool may set the sample point freely.

Figure 3-12 DAP Timing

Note: The DAP1 and DAP2 device to host timing is individual for both pins. There is no guaranteed max. signal skew.

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3.21 ASCLIN SPI Master Timing

This section defines the timings for the ASCLIN in the TC36x.

Note: Pad asymmetry is already included in the following timings.

Table 3-40 Master Mode strong sharp (ss) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
ASCLKO clock period	t_{50} CC	20	-	-	ns	C_L=25pF
Deviation from ideal duty cycle	t_{500} CC	-2	-	2	ns	C_L=25pF
MTSR delay from ASCLKO shifting edge	t_{51} CC	-3.5	-	3.5	ns	C_L=25pF
ASLSOn delay from the first ASCLKO edge	t_{510} CC	-3	-	3.5	ns	C_L=25pF
MRST setup to ASCLKO latching edge	t_{52} SR	25	-	-	ns	C_L=25pF
MRST hold from ASCLKO latching edge	t_{53} SR	-2	-	-	ns	C_L=25pF

Table 3-41 Master Mode strong medium (sm) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
ASCLKO clock period	t_{50} CC	50	-	-	ns	C_L=50pF
Deviation from ideal duty cycle	t_{500} CC	-5	-	5	ns	C_L=50pF
MTSR delay from ASCLKO shifting edge	t_{51} CC	-7	-	7	ns	C_L=50pF
ASLSOn delay from the first ASCLKO edge	t_{510} CC	-7	-	7	ns	C_L=50pF
MRST setup to ASCLKO latching edge	t_{52} SR	35	-	-	ns	C_L=50pF
MRST hold from ASCLKO latching edge	t_{53} SR	-5	-	-	ns	C_L=50pF

Table 3-42 Master Mode medium (m) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
ASCLKO clock period	t_{50} CC	160	-	-	ns	C_L=50pF
Deviation from ideal duty cycle	t_{500} CC	-10	-	10	ns	C_L=50pF
MTSR delay from ASCLKO shifting edge	t_{51} CC	-20	-	20	ns	C_L=50pF
ASLSOn delay from the first ASCLKO edge	t_{510} CC	-20	-	20	ns	C_L=50pF

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Table 3-42 Master Mode medium (m) output pads (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
MRST setup to ASCLKO latching edge	t_{52} SR	80	-	-	ns	C_L=50pF
MRST hold from ASCLKO latching edge	t_{53} SR	-15	-	-	ns	C_L=50pF

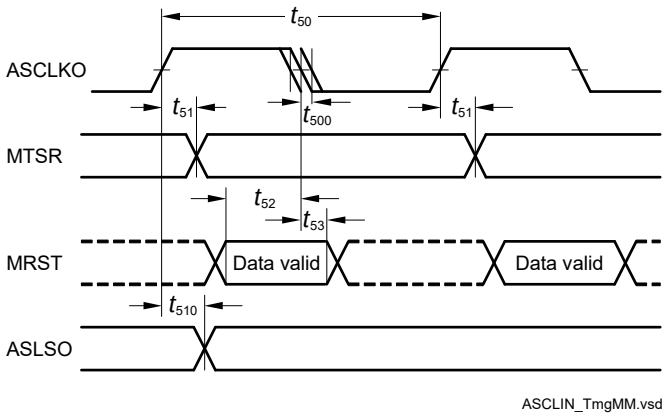

Figure 3-13 ASCLIN SPI Master Timing

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3.22 QSPI Timings, Master and Slave Mode

This section defines the timings for the QSPI in the TC36x.
It is assumed that SCLKO, MTSR, and SLSO pads have the same pad settings:

Note: Pad asymmetry is already included in the following timings.

Table 3-43 Master Mode Timing, LVDS output pads for data and clock

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SCLKO clock period	t_{50} CC	20 [1]	-	-	ns	CL=25pF
Deviation from the ideal duty cycle	t_{500} CC	-1 [1]	-	1 [1]	ns	CL=25pF
MTSR delay from SCLKO shifting edge	t_{51} CC	-3 [1]	-	4 [1]	ns	CL=25pF
SLSOn deviation from the ideal programmed position	t_{510} CC	-4 [1]	-	5.5 [1]	ns	C_L=25pF, driver strength ss
		-10 [1]	-	10 [1]	ns	C_L=25pF, driver strength sm
		-30 [1]	-	30 [1]	ns	C_L=25pF, driver strength m
MRST setup to SCLK latching edge	t_{52} SR	18 [1]	-	-	ns	CL=25pF; valid for LVDS Input pads of QSPI2 only
MRST hold from SCLK latching edge	t_{53} SR	-1 [1]	-	-	ns	CL=25pF; valid for LVDS Input pads only

1) The load (C_L=25pF) defined in the condition list is a load definition for the single end signal SLSO and does not intend to add an additional load inside the differential signal lines. For single end signals the load definition defines the max length of the signal on the PCB layout. For the LVDS pads the IEEE Std 1596.3-1996 load definitions apply.

Table 3-44 Master Mode Strong Sharp (ss) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SCLKO clock period	t_{50} CC	50	-	-	ns	CL=25pF
Deviation from the ideal duty cycle	t_{500} CC	-2	-	2	ns	CL=25pF
MTSR delay from SCLKO shifting edge	t_{51} CC	-4	-	5	ns	CL=25pF
SLSOn deviation from the ideal programmed position	t_{510} CC	-4	-	5	ns	CL=25pF
MRST setup to SCLK latching edge	t_{52} SR	25 [1] [2]	-	-	ns	CL=25pF
MRST hold from SCLK latching edge	t_{53} SR	-2 [1][2]	-	-	ns	CL=25pF

1) For compensation of the average on-chip delay the QSPI module provides the bit fields ECONz.A, B and C.
2) The setup and hold times are valid for both settings of the input pads thresholds: TTL and AL.

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Table 3-45 Master Mode Strong Medium (sm) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SCLKO clock period	t_{50} CC	50	-	-	ns	CL=50pF
Deviation from the ideal duty cycle	t_{500} CC	-5	-	5	ns	CL=50pF
MTSR delay from SCLKO shifting edge	t_{51} CC	-7	-	7	ns	CL=50pF
SLSOn deviation from the ideal programmed position	t_{510} CC	-7	-	7	ns	CL=50pF
MRST setup to SCLK latching edge	t_{52} SR	35 [1) 2)]	-	-	ns	CL=50pF
MRST hold from SCLK latching edge	t_{53} SR	-5 [1)2)]	-	-	ns	CL=50pF

1) For compensation of the average on-chip delay the QSPI module provides the bit fields ECONz.A, B and C.
2) The setup and hold times are valid for both settings of the input pads thresholds: TTL and AL.

Table 3-46 Master Mode Medium (m) output pads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SCLKO clock period	t_{50} CC	160	-	-	ns	CL=50pF
Deviation from the ideal duty cycle	t_{500} CC	-10	-	10	ns	CL=50pF
MTSR delay from SCLKO shifting edge	t_{51} CC	-20	-	20	ns	CL=50pF
SLSOn deviation from the ideal programmed position	t_{510} CC	-20	-	20	ns	CL=50pF
MRST setup to SCLK latching edge	t_{52} SR	80 [1) 2)]	-	-	ns	CL=50pF
MRST hold from SCLK latching edge	t_{53} SR	-15 [1)2)]	-	-	ns	CL=50pF
		-13 [1)2)]	-	-	ns	CL=50pF; SCR SSC

1) For compensation of the average on-chip delay the QSPI module provides the bit fields ECONz.A, B and C.
2) The setup and hold times are valid for both settings of the input pads thresholds: TTL and AL.

Table 3-47 Slave mode timing

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SCLK clock period	t_{54} SR	4 x T_{MAX}	-	-	ns	
SCLK duty cycle	$t_{55/t54}$ SR	40	-	60	%	
MTSR setup to SCLK latching edge	t_{56} SR	6	-	-	ns	Input Level AL
		6	-	-	ns	Input Level TTL

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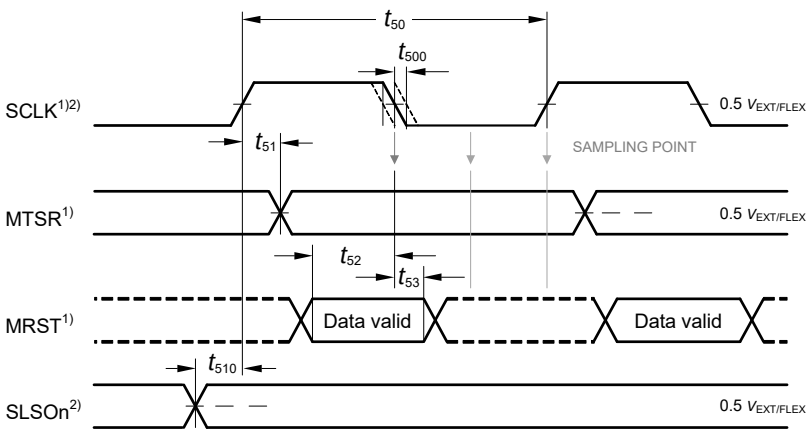
Table 3-47 Slave mode timing (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
MTSR hold from SCLK latching edge	t_{57} SR	4	-	-	ns	Input Level AL
		6	-	-	ns	Input Level TTL
SLSI setup to first SCLK shift edge	t_{58} SR	4	-	-	ns	Input Level AL
		6	-	-	ns	Input Level TTL
SLSI hold from last SCLK latching edge	t_{59} SR	3	-	-	ns	Input Level AL
		6	-	-	ns	Input Level TTL
MRST delay from SCLK shift edge	t_{60} CC	5	-	35	ns	driver = strong edge = medium ; C_L=50pF
		2	-	24	ns	driver = strong edge = sharp ; C_L=50pF
		15	-	80	ns	medium driver ; C_L=50pF
		14	-	-	ns	medium driver ; C_L=50pF; SCR SSC



1) This timing is based on the following setup: ECON.CPH = 1, ECON.CPOL = 0, ECON.B=0 (no sampling point delay).

2) t510 is the deviation from the ideal position configured with the leading delay, BACON.LPRE and BACON.LEAD > 0.

QSPI_TmgMM.vsd

Figure 3-14 Master Mode Timing

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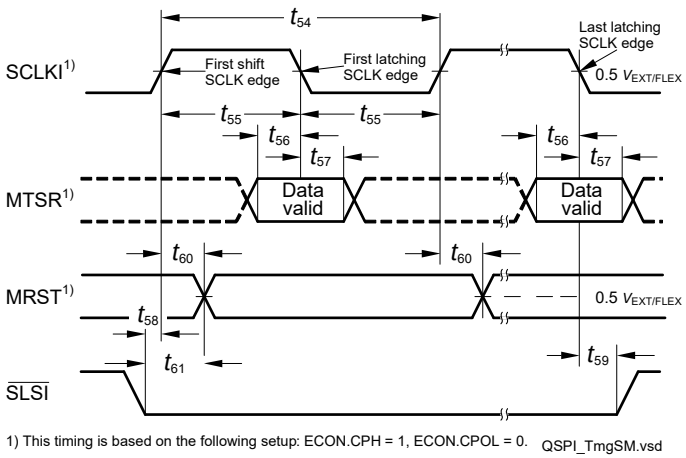

Figure 3-15 Slave Mode Timing

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3.23 MSC Timing 5 V Operation

The following section defines the timings.

Note: Pad asymmetry is already included in the following timings.

Note: Load for LVDS pads are defined as differential loads in the following timings.

Table 3-48 LVDS clock/data (LVDS pads in LVDS mode) valid for 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
FCLPx clock period	t_{40} CC	2 * T_A 1) 2) 3)	-	-	ns	LVDS; C_L=50pF
Deviation from ideal duty cycle	t_{400} CC	-1 3)	-	1 3)	ns	LVDS; 0 < C_L < 50pF
SOPx output delay	t_{44} CC	-3 3)	-	3 3)	ns	CL=50pF
ENx output delay	t_{45} CC	-4 3)	-	5 3)	ns	ss; C_L=50pF; ABRA block bypassed
		-4 3)	-	4 3)	ns	ss; C_L=50pF; ABRA block used
		-2 3)	-	10 3)	ns	sm; C_L=50pF
		-30 3)	-	30 3)	ns	m; C_L=50pF

1) T_A depends on the clock source selected for baud rate generation in the ABRA block of the MSC.
2) The capacitive load on the LVDS pins is differential, the capacitive load on the CMOS pins is single ended.
3) The load (C_L=50pF) defined in the condition list is a load definition for the single end signal EN and does not intend to add an additional load inside the differential signal lines. For single end signals the load definition defines the max length of the signal on the PCB layout. For the LVDS pads the IEEE Std 1596.3-1996 load definitions apply.

Table 3-49 Strong sharp (ss) driver for clock/data valid for 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
FCLPx clock period	t_{40} CC	2 * T_A	-	-	ns	CL=50pF
Deviation from ideal duty cycle	t_{400} CC	-2	-	2	ns	CL=50pF
SOPx output delay	t_{44} CC	-4	-	3.5	ns	CL=50pF
ENx output delay	t_{45} CC	-4	-	3.5	ns	CL=50pF

Table 3-50 Strong medium (sm) driver for clock/data valid for 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
FCLPx clock period	t_{40} CC	2 * T_A	-	-	ns	CL=50pF
Deviation from ideal duty cycle	t_{400} CC	-5	-	5	ns	CL=50pF
SOPx output delay	t_{44} CC	-7	-	7	ns	CL=50pF
ENx output delay	t_{45} CC	-7	-	7	ns	CL=50pF

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Table 3-51 Medium (m) driver for clock/data valid for 5V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
FCLPx clock period	t_{40} CC	2 * T_A	-	-	ns	CL=50pF
Deviation from ideal duty cycle	t_{400} CC	-10	-	10	ns	CL=50pF
SOPx output delay	t_{44} CC	-20	-	20	ns	CL=50pF
ENx output delay	t_{45} CC	-20	-	20	ns	CL=50pF

Table 3-52 Upstream Interface

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
SDI bit time	t_{46} SR	8 * t_{MSC}	-	-	ns	
SDI rise time	t_{48} SR	-	-	200	ns	
SDI fall time	t_{49} SR	-	-	200	ns	

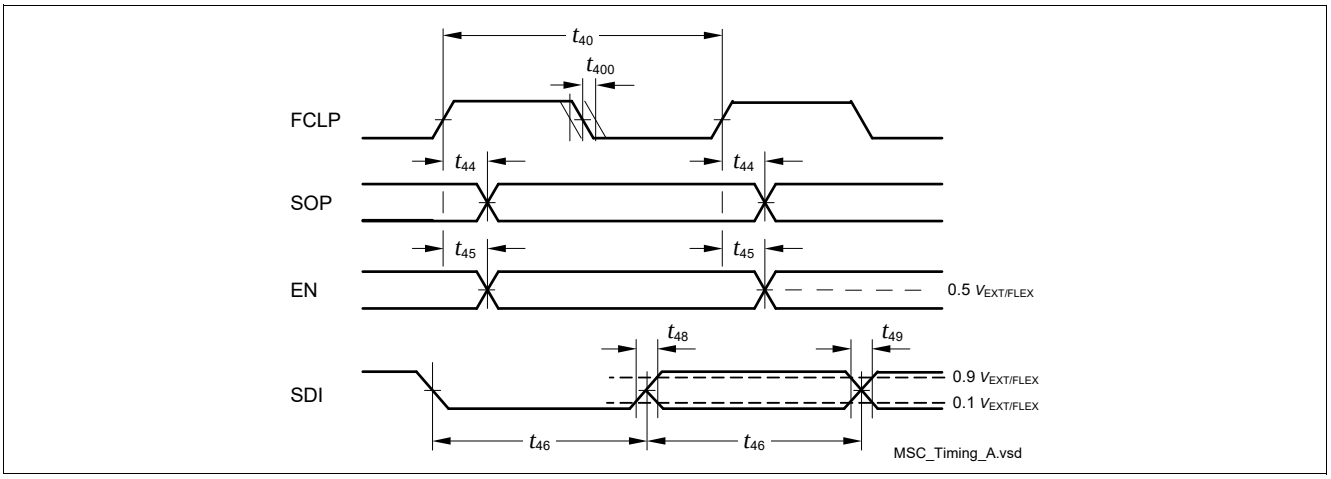

Figure 3-16 MSC Interface Timing

Note: The SOP data signal is sampled with the falling edge of FCLP in the target device.

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3.24 Ethernet Interface (ETH) Characteristics

3.24.1 ETH Measurement Reference Points

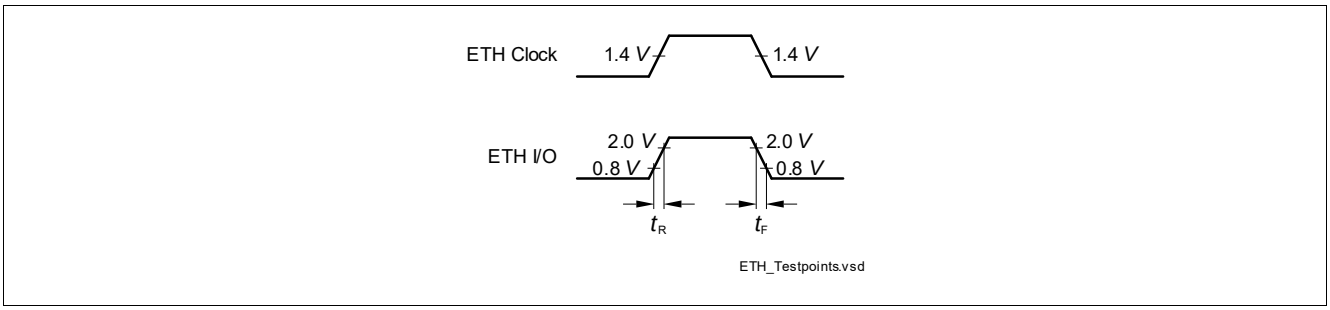

Figure 3-17 ETH Measurement Reference Points

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3.24.2 ETH Management Signal Parameters (ETH_MDC, ETH_MDIO)

Table 3-53 ETH Management Signal Parameters valid for 3.3V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
ETH_MDC period	t_1 CC	400	-	-	ns	CL=25pF
ETH_MDC high time	t_2 CC	160	-	-	ns	CL=25pF
ETH_MDC low time	t_3 CC	160	-	-	ns	CL=25pF
ETH_MDIO setup time (output)	t_4 CC	10	-	-	ns	CL=25pF
ETH_MDIO hold time (output)	t_5 CC	10	-	-	ns	CL=25pF
ETH_MDIO data valid (input)	t_6 SR	0	-	300	ns	CL=25pF

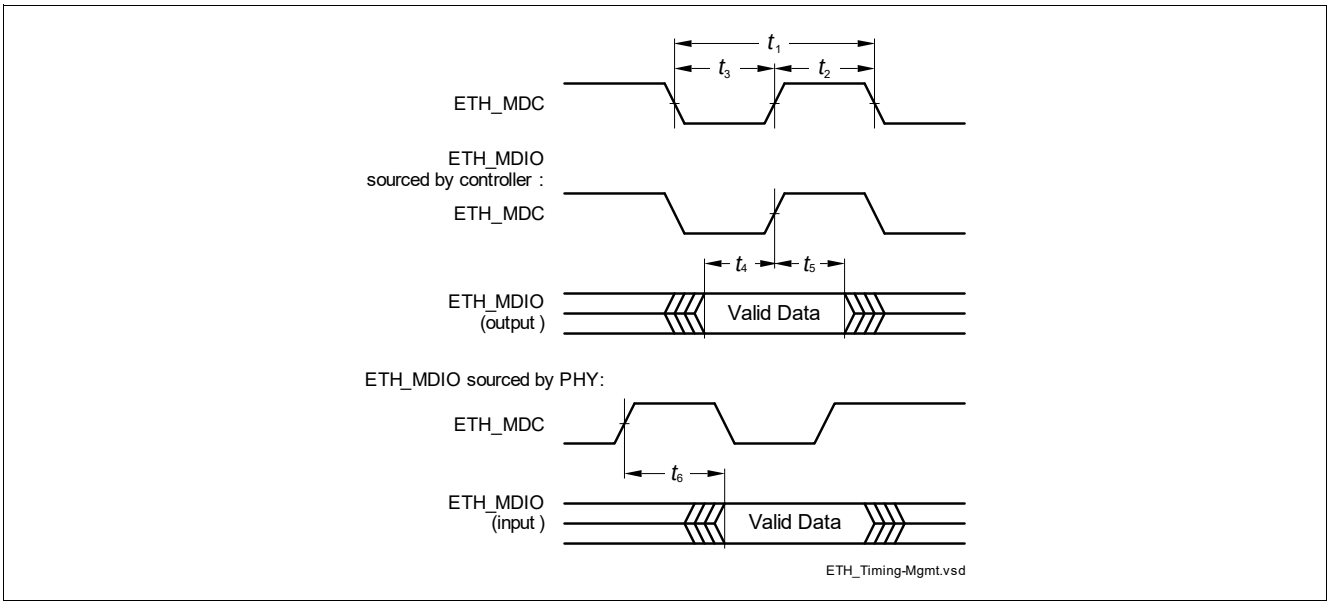

Figure 3-18 ETH Management Signal Timing

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3.24.3 ETH MII Parameters

In the following, the parameters of the MII (Media Independent Interface) are described.

Table 3-54 ETH MII Signal Timing Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Clock period	t_7 SR	-	40	-	ns	CL=25pF ; baudrate=100Mbps
		-	400	-	ns	CL=25pF ; baudrate=10Mbps
Clock high time	t_8 SR	14	-	26	ns	CL=25pF ; baudrate=100Mbps
		140 1)	-	260 2)	ns	CL=25pF ; baudrate=10Mbps
Clock low time	t_9 SR	14	-	26	ns	CL=25pF ; baudrate=100Mbps
		140 1)	-	260 2)	ns	CL=25pF ; baudrate=10Mbps
Input setup time	t_{10} SR	10	-	-	ns	CL=25pF
Input hold time	t_{11} SR	10	-	-	ns	CL=25pF
Output valid time	t_{12} CC	0	-	25	ns	CL=25pF

1) Defined by 35% of clock period.
2) Defined by 65% of clock period.

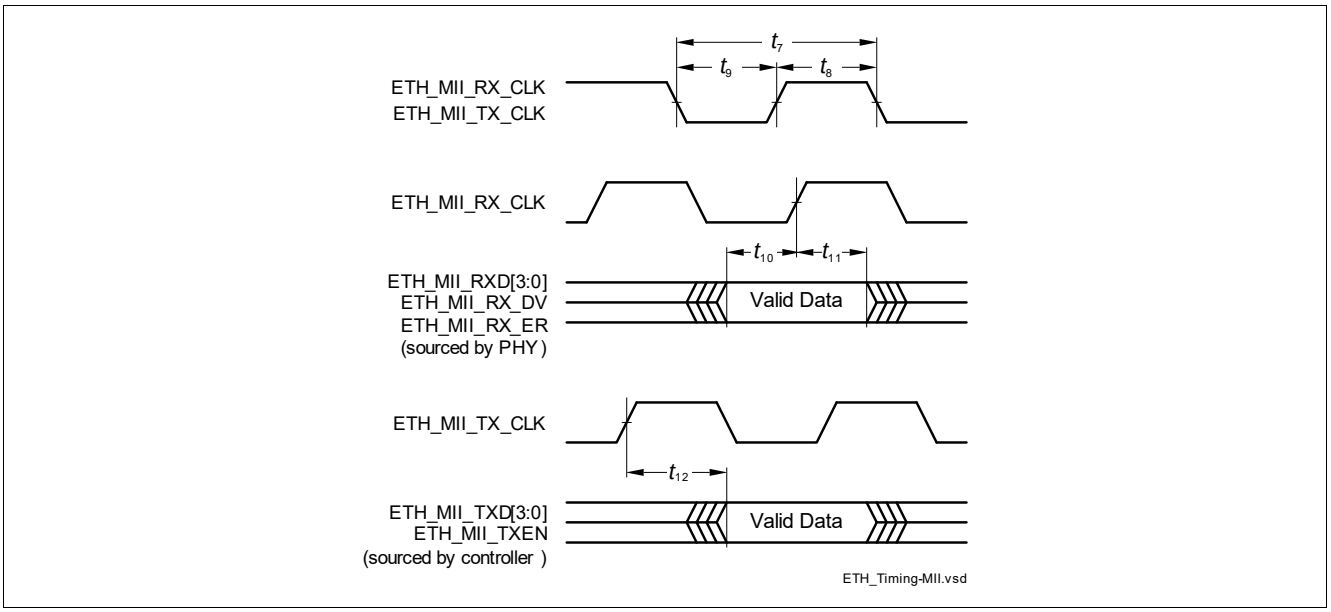

Figure 3-19 ETH MII Signal Timing

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3.24.4 ETH RMII Parameters

In the following, the parameters of the RMII (Reduced Media Independent Interface) are described.

Table 3-55 ETH RMII Signal Timing Parameters valid for 3.3V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
ETH_RMII_REF_CL clock period	t_{13} SR	-	20	-	ns	50ppm ; CL=25pF
ETH_RMII_REF_CL clock high time	t_{14} SR	7 [1]	-	13 [2]	ns	CL=25pF
ETH_RMII_REF_CL clock low time	t_{15} SR	7 [1]	-	13 [2]	ns	CL=25pF
ETHTXEN, ETHTXD[1:0], ETHRXD[1:0], ETHCRSDV; setup time [3]	t_{16} CC	4	-	-	ns	CL=25pF
ETHTXEN, ETHTXD[1:0], ETHRXD[1:0], ETHCRSDV; hold time [3]	t_{17} CC	2	-	-	ns	CL=25pF

1) Defined by 35% of clock period.
2) Defined by 65% of clock period.
3) For ETHRXD and ETHCRSDV signals this parameter is a SR.

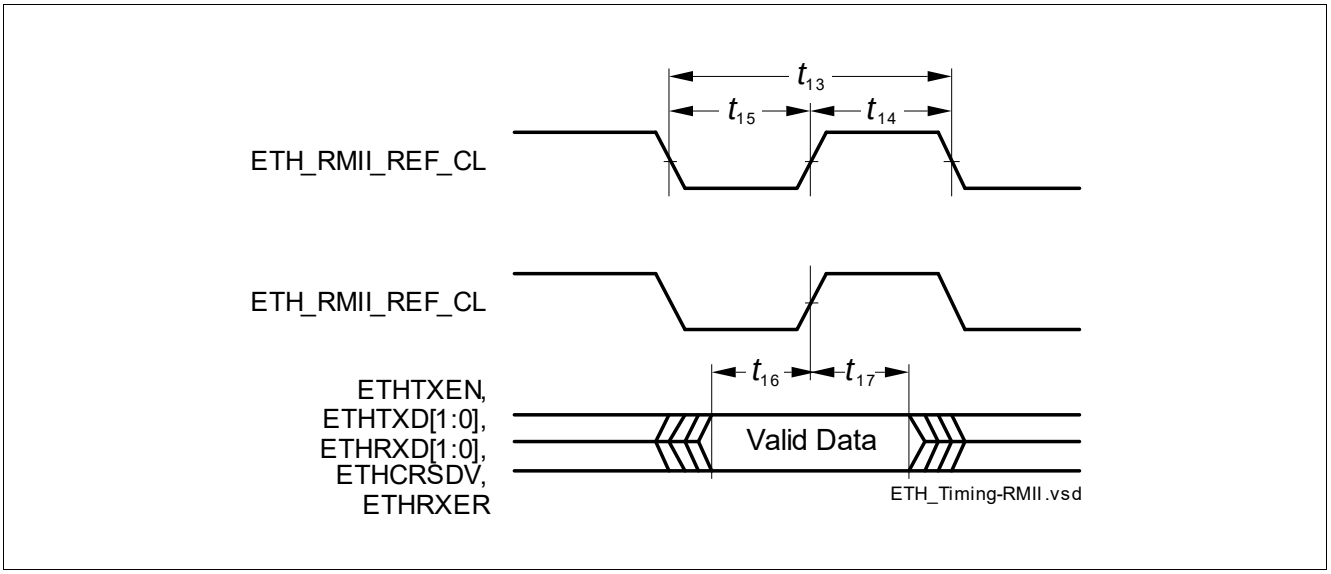

Figure 3-20 ETH RMII Signal Timing

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3.24.5 ETH RGMII Parameters

In the following, the parameters of the RGMII are described.

Table 3-56 ETH RGMII Signal Timing Parameters valid for 3.3V

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
TX Clock period	t_{19} CC	36	40	44	ns	100Mbps
		360	400	440	ns	10Mbps
		7.2	8	8.8	ns	Gigabit
Data to Clock Output skew	t_{20} CC	-500	0	500	ps	
Data to Clock input skew (at receiver)	t_{21} SR	1	1.8	2.6	ns	
Clock duty cycle	t_{duty} CC	40	50	60	%	10/100Mbps
		45	50	55	%	Gigabit
GREFCLK duty cycle	t_{duty_in} SR	45	-	55	%	
GREFCLK Input accuracy	ACC SR	-0.005	-	0.005	%	

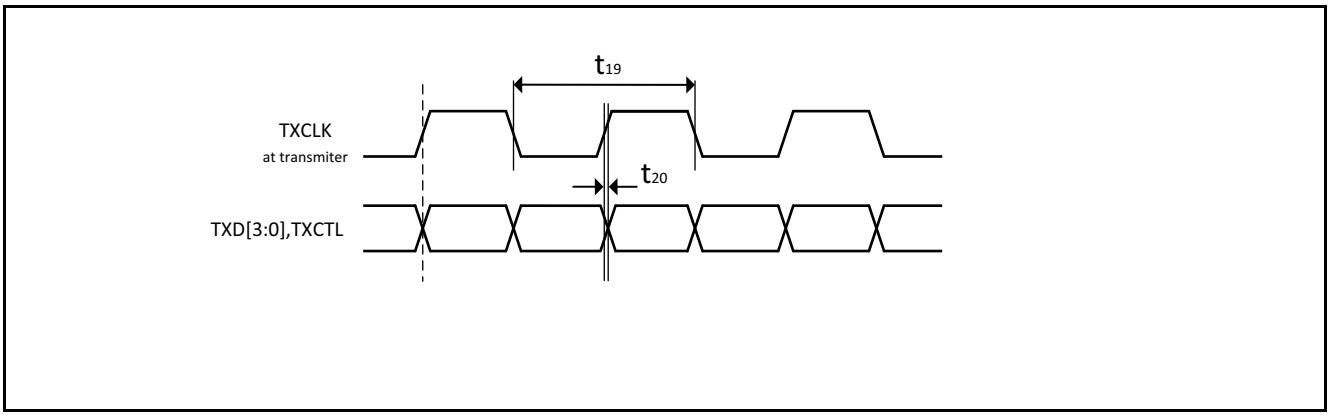

Figure 3-21 ETH RGMII TX Signal Timing (Delay on Destination (DoD))

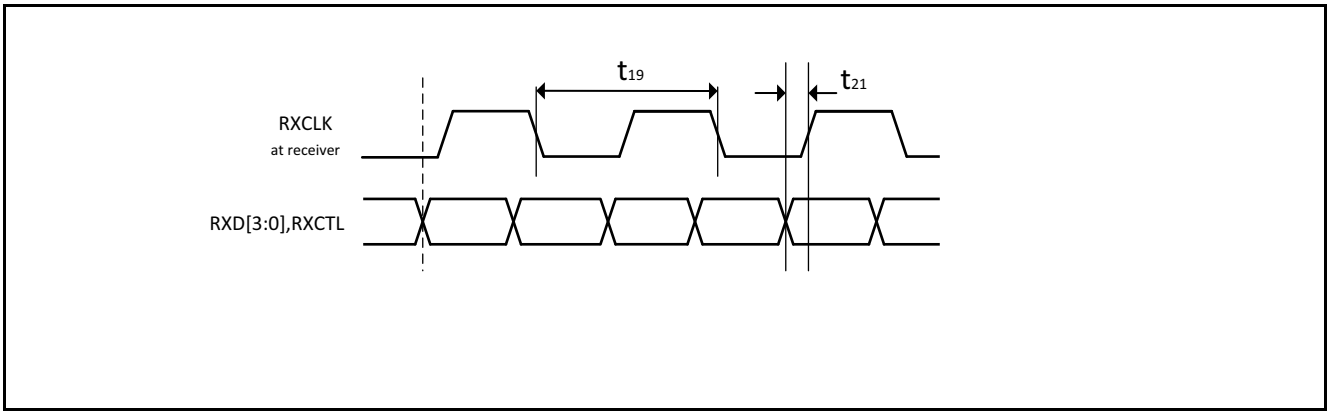

Figure 3-22 ETH RGMII RX Signal Timing (Delay on Source (DoS))

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3.25 E-Ray Parameters

The timings of this section are valid for the strong driver and sharp edge settings of the output drivers with C_L = 25 pF.

Table 3-57 Transmit Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Rise time of TxEN	$t_{dCCTxENRise25}$ CC	-	-	9	ns	C_L=25pF
Fall time of TxEN	$t_{dCCTxENFall25}$ CC	-	-	9	ns	C_L=25pF
Sum of rise and fall time	$t_{dCCTxRise25+dCCTxFall25}$ CC	-	-	9	ns	20% - 80% ; C_L=25pF
Sum of delay between TP1_FF and TP1_CC and delays derived from TP1_FFi, rising edge of TxEN	$t_{dCCTxEN01}$ CC	-	-	25	ns	
Sum of delay between TP1_FF and TP1_CC and delays derived from TP1_FFi, falling edge of TxEN	$t_{dCCTxEN10}$ CC	-	-	25	ns	
Asymmetry of sending	t_{tx_asym} CC	-2.45	-	2.45	ns	C_L=25pF
Sum of delay between TP1_FF and TP1_CC and delays derived from TP1_FFi, rising edge of TxD	$t_{dCCTxD01}$ CC	-	-	25	ns	
Sum of delay between TP1_FF and TP1_CC and delays derived from TP1_FFi, falling edge of TxD	$t_{dCCTxD10}$ CC	-	-	25	ns	
TxD signal sum of rise and fall time at TP1_BD	t_{txd_sum} CC	-	-	9	ns	

Table 3-58 Receive Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Acceptance of asymmetry at receiving part	$t_{dCCTxAsymAccept25}$ SR	-30.5	-	43.0	ns	C_L=25pF
Acceptance of asymmetry at receiving part	$t_{dCCTxAsymAccept15}$ SR	-31.5	-	44.0	ns	C_L=15pF
Threshold for detecting logical high	$T_{uCCLogic1}$ SR	35	-	70	%	
Threshold for detecting logical low	$T_{uCCLogic0}$ SR	30	-	65	%	

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Table 3-58 Receive Parameters (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Sum of delay between TP4_CC and TP4_FF and delays derived from TP4_FFi, rising edge of RxD	$t_{dCCRxD01}$ CC	-	-	10	ns	
Sum of delay between TP4_CC and TP4_FF and delays derived from TP4_FFi, falling edge of RxD	$t_{dCCRxD10}$ CC	-	-	10	ns	

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3.26 HSCT Parameters

Table 3-59 HSCT - Rx parasitics and loads

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Capacitance total budget	C_{total} CC	-	3.5	5	pF	Total Budget for complete receiver including silicon, package, pins and bond wire
Parasitic inductance budget	*Htotal* CC	-	5	-	nH	

Table 3-60 HSCT - Rx/Tx setup timing

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
RX o/p duty cycle	*DCrx* CC	40	-	60	%	
Disable time of the LVDS pad	$t_{LVDSDIS}$ CC	-	-	20	ns	
Enable time of the LVDS pad	t_{LVDSEN} CC	-	-	400	ns	
Wakeup time from Sleep Mode	t_{SWU} CC	-	-	250	ns	
Maximum length of a wake-up glitch that does not wake-up the receiver	t_{WUP} CC	-	-	0.2	ns	
Bias startup time	t_{bias} CC	-	5	10	µs	Bias distributor waking up from power down and provide stable Bias.
RX startup time	t_{rxi} CC	-	-	600	ns	Wake-up RX from power down.
TX startup time	t_{tx} CC	-	-	280	ns	Wake-up TX from power down.

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3.27 Inter-IC (I2C) Interface Timing

All I2C timing parameter are SR for Master Mode and CC for Slave Mode.

Table 3-61 I2C Standard Mode Timing

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Fall time of both SDA and SCL	t_1	-	-	300	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Capacitive load for each bus line	C_b SR	-	-	400	pF	
Bus free time between a STOP and ATART condition	t_{10}	4.7	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Rise time of both SDA and SCL	t_2	-	-	1000	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Data hold time	t_3	0	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Data set-up time	t_4	250	-	-	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Low period of SCL clock	t_5	4.7	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
High period of SCL clock	t_6	4	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Hold time for the (repeated) START condition	t_7	4	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Set-up time for (repeated) START condition	t_8	4.7	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Set-up time for STOP condition	t_9	4	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line

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Table 3-62 I2C Fast Mode Timing

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Fall time of both SDA and SCL	t_1	20+0.1*C_b	-	300	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Capacitive load for each bus line	C_b SR	-	-	400	pF	
Bus free time between a STOP and ATART condition	t_{10}	1.3	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Rise time of both SDA and SCL	t_2	20+0.1*C_b	-	300	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Data hold time	t_3	0	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Data set-up time	t_4	100	-	-	ns	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Low period of SCL clock	t_5	1.3	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
High period of SCL clock	t_6	0.6	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Hold time for the (repeated) START condition	t_7	0.6	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Set-up time for (repeated) START condition	t_8	0.6	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line
Set-up time for STOP condition	t_9	0.6	-	-	µs	Measured with a pull-up resistor of 4.7 kohms at each of the SCL and SDA line

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Table 3-63 I2C High Speed Mode Timing

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Capacitive load for each bus line	C_b SR	-	-	400	pF	
Fall time of SCL	t_{11}	10 1)	-	40 1)	ns	bus line load of 100pF
Fall time of SDA	t_{12}	10 1)	-	80 1)	ns	bus line load of 100pF
Rise time of SCL	t_{13}	10 1)	-	40 1)	ns	bus line load of 100pF
Rise time of SDA	t_{14}	10 1)	-	80 1)	ns	bus line load of 100pF
Data hold time	t_3	0 1)	-	70 1)	ns	bus line load of 100pF
Data set-up time	t_4	10 1)	-	-	ns	bus line load of 100pF
Low period of SCL clock	t_5	160 1)	-	-	ns	bus line load of 100pF
High period of SCL clock	t_6	60 1)	-	-	ns	bus line load of 100pF
Hold time for the (repeated) START condition	t_7	160 1)	-	-	ns	bus line load of 100pF
Set-up time for (repeated) START condition	t_8	160 1)	-	-	ns	bus line load of 100pF
Set-up time for STOP condition	t_9	160 1)	-	-	ns	bus line load of 100pF

1) Values are defined for C_b = 100pF, for the Timing of C_b = 400pF see the I2C Standard.

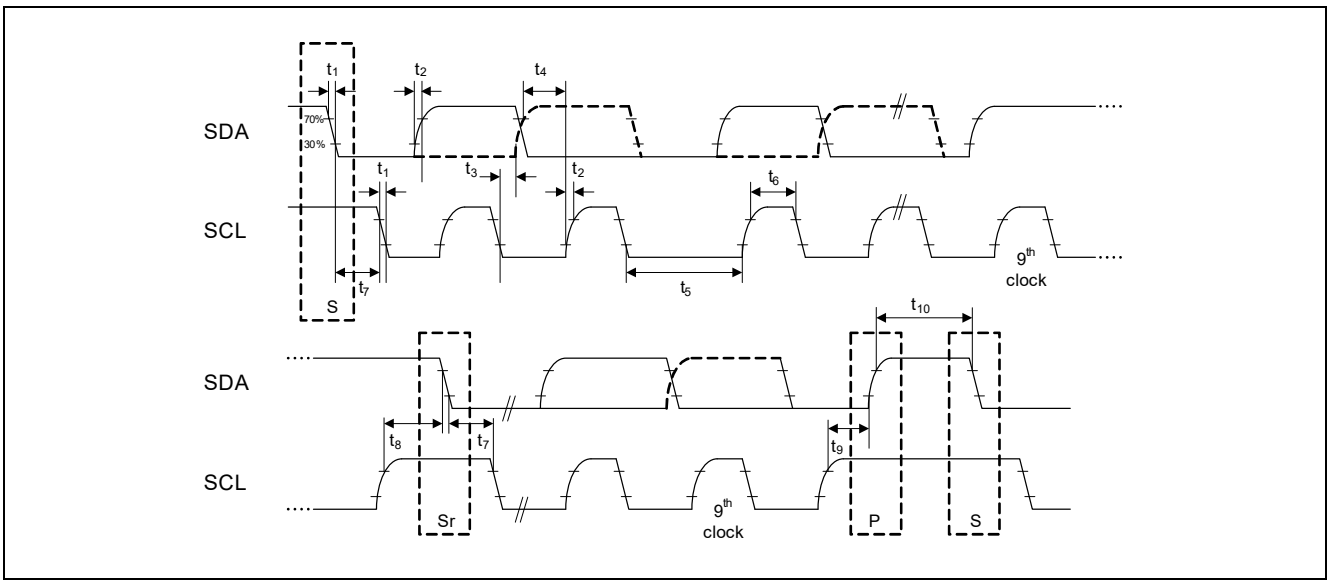

Figure 3-23 I2C Standard and Fast Mode Timing

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3.28 Flash Target Parameters

Table 3-64 Flash

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Program Flash Erase Time per logical sector [1]	t_{ERP} CC	-	-	0.5	s	cycle count < 1000
Program Flash Erase Time per Multi-Sector Command [1]	t_{MERP} CC	-	-	0.5	s	For consecutive logical sectors in a physical sector with total range ≤ 512 kByte; cycle count < 1000
Program Flash program time per page in 5 V mode [1]	t_{PRP5} CC	-	-	80	µs	32 Byte
Program Flash program time per page in 3.3 V mode [1]	t_{PRP3} CC	-	-	115	µs	32 Byte
Program Flash program time per burst in 5 V mode [1]	t_{PRPB5} CC	-	-	220	µs	256 Byte
Program Flash program time per burst in 3.3 V mode [1]	t_{PRPB3} CC	-	-	530	µs	256 Byte
Program Flash program time for 1 MByte with burst programming in 3.3 V mode excluding communication [1]	t_{PRPB3_1MB} CC	-	-	2.2	s	Derived value for documentation purpose
Program Flash program time for 1 MByte with burst programming in 5 V mode excluding communication [1]	t_{PRPB5_1MB} CC	-	-	1	s	Derived value for documentation purpose
Program Flash program time for complete PFlash with burst programming in 5 V mode excluding communication [1]	t_{PRPB5_PF} CC	-	-	4	s	Derived value for documentation purpose
Write Page Once adder [1]	t_{ADD} CC	-	-	20	µs	Adder to Program Time when using Write Page Once
Program Flash suspend to read latency [1]	t_{SPNDP} CC	-	-	120	µs	For Write Burst, Verify Erased and for multi-(logical) sector erase commands
Data Flash Erase Disturb Limit (single ended sensing mode)	N_{DFD} CC	-	-	50	cycles	
Data Flash Erase Disturb Limit (complement sensing mode)	N_{DFDC} CC	-	-	500	cycles	
UCB Erase Disturb Limit	N_{UCBD} CC	-	-	500	cycles	

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Table 3-64 Flash (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Program time data flash per page [1)2)]	t_{PRD} CC	-	-	75	µs	8 Byte
Complete Device Flash Erase Time PFlash and DFlash [1)3) 4) 5)]	t_{ER_Dev} CC	-	3	5	s	Valid for less than 1000 cycles, w/o UCB. Derived value for documentation purpose.
Data Flash program time per burst [1)2)]	t_{PRDB} CC	-	-	140	µs	32 Byte
Data Flash suspend to read latency [1)]	t_{SPNDD} CC	-	-	120	µs	
Wait time after margin change	$t_{FL_MarginDel}$ CC	-	-	2	µs	
Program Flash Endurance per Logical Sector	N_{E_P} CC	-	-	1000	cycles	Replace logical sector command shall be used if a sector fails during erase or program
Number of erase operations per physical sector in program flash	N_{ERP} CC	-	-	16000	cycles	
Program Flash Retention Time, Sector	t_{RET} CC	20	-	-	years	Max. 1000 erase/program cycles
UCB Retention Time	t_{RTU} CC	20	-	-	years	Max. 100 erase/program cycles per UCB, max 500 erase/program cycles for all UCBs together
Data Flash access delay	t_{DF} CC	-	-	100	ns	see RFLASH of DMU register HF_DWAIT
Data Flash ECC Delay	t_{DFECC} CC	-	-	20	ns	see RECC of DMU register HF_DWAIT
Program Flash access delay	t_{PF} CC	-	-	30	ns	see RFLASH of DMU register HF_PWAIT
Program Flash ECC delay	t_{PFECC} CC	-	-	10	ns	see RECC and CECC of DMU register HF_PWAIT
Number of erase operations on DF0 over lifetime (complement sensing mode) [6)]	N_{ERD0C} CC	-	-	4000000	cycles	
Number of erase operations on DF0 over lifetime (single ended sensing mode) [7)]	N_{ERD0S} CC	-	-	750000	cycles	

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Table 3-64 Flash (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Number of erase operations on DF1 over lifetime (complement sensing mode) [6]	N_{ERD1C} CC	-	-	2000000	cycles	
Number of erase operations on DF1 over lifetime (single ended sensing mode) [7]	N_{ERD1S} CC	-	-	500000	cycles	
Data Flash Endurance per EEPROMx sector (complement sensing mode) [8]	N_{E_EEP10C} CC	-	-	500000	cycles	Max. data retention time 10 years
DataFlash Endurance per EEPROMx sector (single ended sensing mode) [8]	N_{E_EEP10S} CC	-	-	125000	cycles	Retention time and Tj according below example temperature profile
		-	-	125000	cycles	max data retention time 20y, Tj=110°C
		-	-	125000	cycles	max data retention time 8.2y, Tj=125°C
Data Flash Endurance per HSMx sector (complement sensing mode) [8]	N_{E_HSMC} CC	-	-	250000	cycles	Max. data retention time 10 years
Data Flash Endurance per HSMx sector (single ended sensing mode) [8]	N_{E_HSMS} CC	-	-	125000	cycles	Retention time and Tj according below example temperature profile
		-	-	125000	cycles	max data retention time 20y, Tj=110°C
		-	-	125000	cycles	max data retention time 8.2y, Tj=125°C
Junction temperature limit for PFlash program/erase operations	$T_{JPFlash}$ SR	-	-	150	°C	
Data Flash Erase Time per Sector [1][3][5]	t_{ERD1} CC	-	-	0.5	s	Max. 1000 erase/program cycles
Data Flash Erase Time per Sector [1][3][5]	t_{ERDM} CC	-	-	1.5	s	Max allowed cycles, see NE_EEP10 and NE_HSM parameters
DataFlash Adder on Erase Time per 32kByte erase size when using complement sensing mode [1]	$t_{ER_ADDC32C}$ CC	-	-	50	ms	Adder per 32 kByte on erase time; applicable only when using complement mode

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Table 3-64 Flash (cont'd)

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Data Flash Erase Time per Multi-Sector Command [1)3)5)]	t_{MERD1} CC	-	-	0.5	s	Max 1000 erase/program cycles; For consecutive logical sectors ≤ 256KBytes
Data Flash Erase Time per Multi-Sector Command [1)3)5)]	t_{MERDM} CC	-	-	1.5	s	Max allowed cycles, see NE_EEP10x and NE_HSMx Parameters; For consecutive logical sectors ≤ 256 kByte
Program Flash Access Delay at reduced VDDP3 voltage supply during cranking	$t_{PF_low_VDDP3}$ CC	-	-	60	ns	see register DMU_HF_PWAIT.CFLASH
Data Flash Erase Verify time per page (Complement Sensing) [2)]	$t_{VER_PAGE_DC}$ CC	-	-	10	µs	Time per 8 Byte page for Verify Erased Page command
Data Flash Erase Verify time per page (Single Ended Sensing) [1)]	$t_{VER_PAGE_DS}$ CC	-	-	10	µs	Time per 8 Byte page for Verify Erased Page command
Program Flash Erase Verify time per page [1)]	$t_{VER_PAGE_P}$ CC	-	-	10	µs	Time per 32 Byte page for Verify Erased Page command
Data Flash Erase Verify time per sector (Complement Sensing) [1)]	$t_{VER_SEC_DC}$ CC	-	-	200	µs	Time per 2 KB sector for Verify Erased Logical Sector Range command
Data Flash Erase Verify time per sector (Single Ended Sensing) [1)]	$t_{VER_SEC_DS}$ CC	-	-	360	µs	Time per 4 KB sector for Verify Erased Logical Sector Range command
Program Flash Erase Verify time per sector [1)]	$t_{VER_SEC_P}$ CC	-	-	360	µs	Time per 16KB sector for Verify Erased Logical Sector Range command
Data Flash Erase Verify time per wordline (Complement Sensing) [1)]	$t_{VER_WL_DC}$ CC	-	-	30	µs	
Data Flash Erase Verify time per wordline (Single Ended Sensing) [1)]	$t_{VER_WL_DS}$ CC	-	-	50	µs	
Program Flash Erase Verify time per wordline [1)]	$t_{VER_WL_P}$ CC	-	-	30	µs	

1) Only vaild for f_{FSI} = 100MHz.

2) Time is not dependent on program mode (5V or 3.3V).

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3) Under out-of-spec conditions (e.g. over-cycling) or in case of activation of WL oriented defects, the duration of erase processes may be increased by up to 50%.
4) Using 512 kByte / 256 kByte erase commands (PFlash / DFlash).
5) If the DataFlash is operated in Complement Sensing Mode the erase time is increased by erase_size / 32kByte x tER_ADDC32C
6) Allows segmentation of addressable memory into 8 logical sectors; round robin cycling must still be done to consider erase disturb limit N_{DFD}.
7) Allows segmentation of addressable memory into 6 logical sectors; round robin cycling must still be done to consider erase disturb limit N_{DFD}.
8) Only valid when a robust EEPROM emulation algorithm is used. For more details see the Users Manual.

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3.29 Quality Declarations

Table 3-65 Quality Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Moisture Sensitivity Level	MSL CC	-	-	3		Conforming to Jedec J-STD--020C for 240C
ESD susceptibility according to Charged Device Model (CDM)	V_{CDM} SR	-	-	500	V	for all other balls/pins; conforming to JESD22-C101-C
		-	-	750	V	for corner balls/pins; conforming to JESD22-C101-C
ESD susceptibility according to Human Body Model (HBM)	V_{HBM} SR	-	-	2000	V	Conforming to JESD22-A114-B
ESD susceptibility of the LVDS pins according to Human Body Model (HBM)	V_{HBM1} SR	-	-	2000	V	
Operation Lifetime	t_{OP} CC	-	-	24500	hour	see below temperature profile as an example

Example Temperature Profile

The following temperature profile is an example. Application specific temperature profiles need to be aligned and approved by Infineon Technologies for the fulfillment of quality and reliability targets.

Table 3-66 Example Temperature Profile

T_J=	Duration [h]	Comment
≤ 170°C	≤ 30	
≤ 160°C	≤ 120	
≤ 150°C	≤ 220	
≤ 140°C	≤ 350	
≤ 130°C	≤ 780	
≤ 120°C	≤ 1600	
≤ 110°C	≤ 3000	
≤ 100°C	≤ 7000	
≤ 90°C	≤ 8000	
≤ 80°C	≤ 2400	
≤ 70°C	≤ 1000	
	≤ 24500	total time

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Table 3-67 Example Inactive Lifetime Temperature Profile

T_J=	Duration [h]	Comment
≤ 55°C	≤ 150700	

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3.30 Package Outline

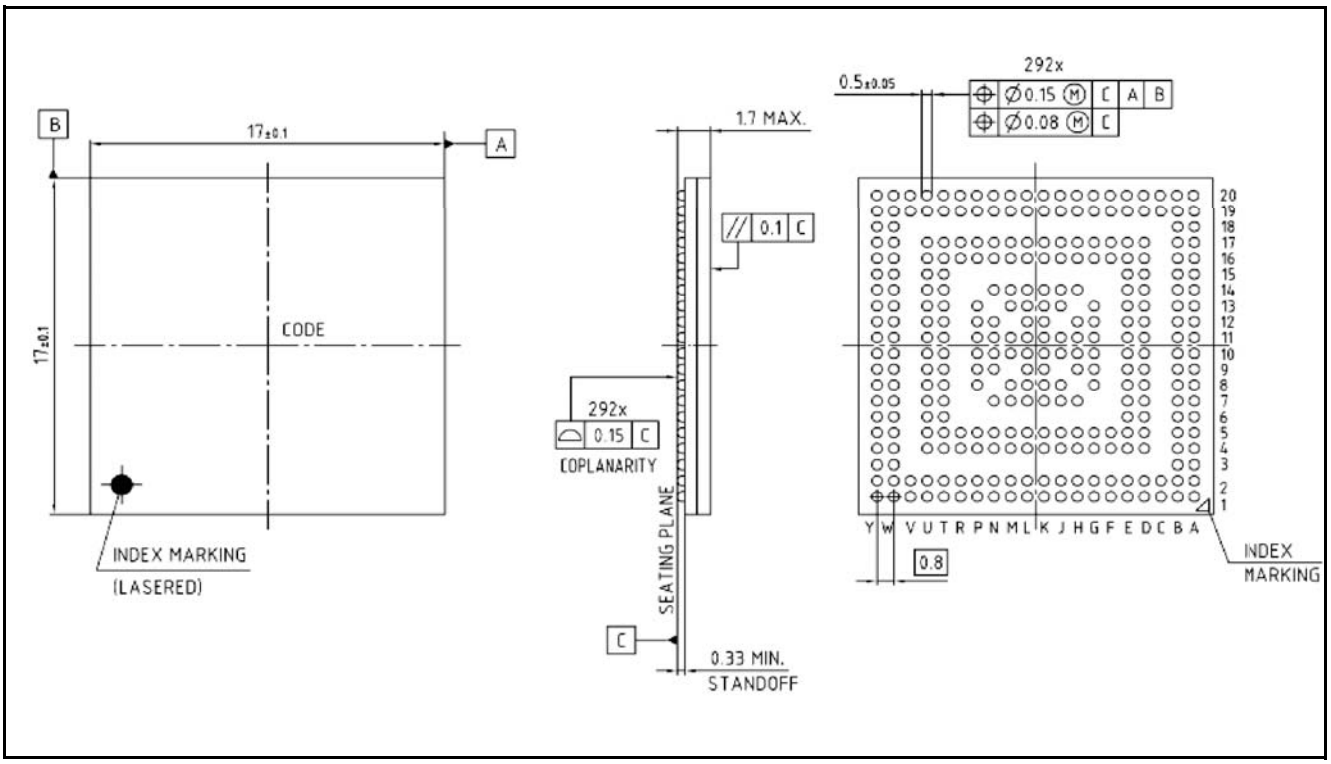

Figure 3-24 Package Outlines LFBGA-292

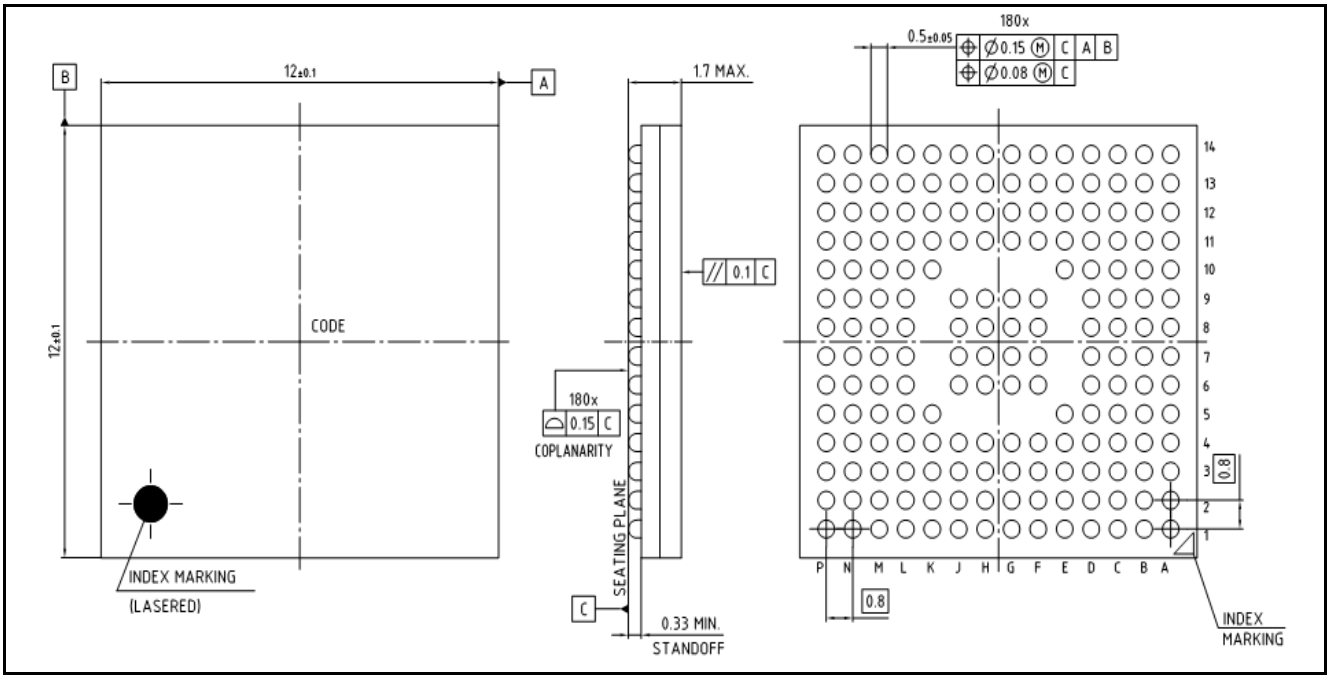

Figure 3-25 Package Outlines LFBGA-180

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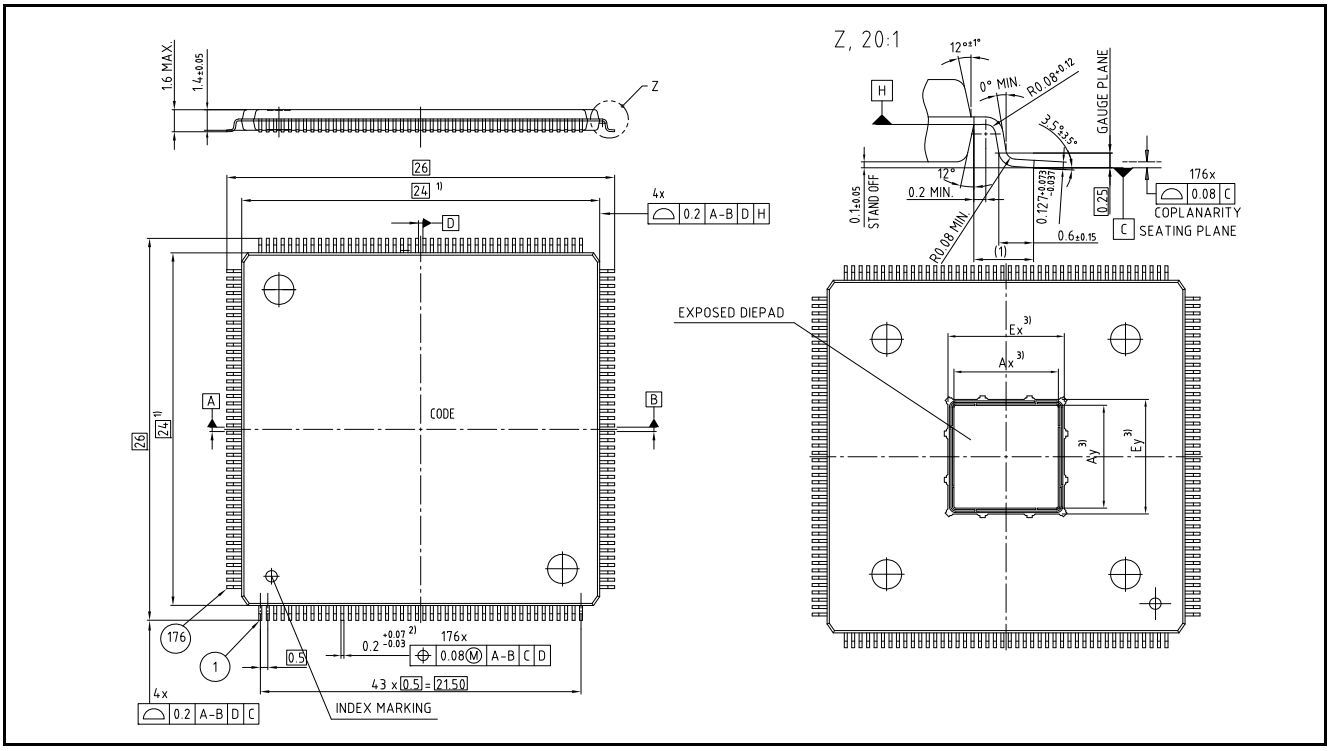

Figure 3-26 Package Outlines LQFP-176

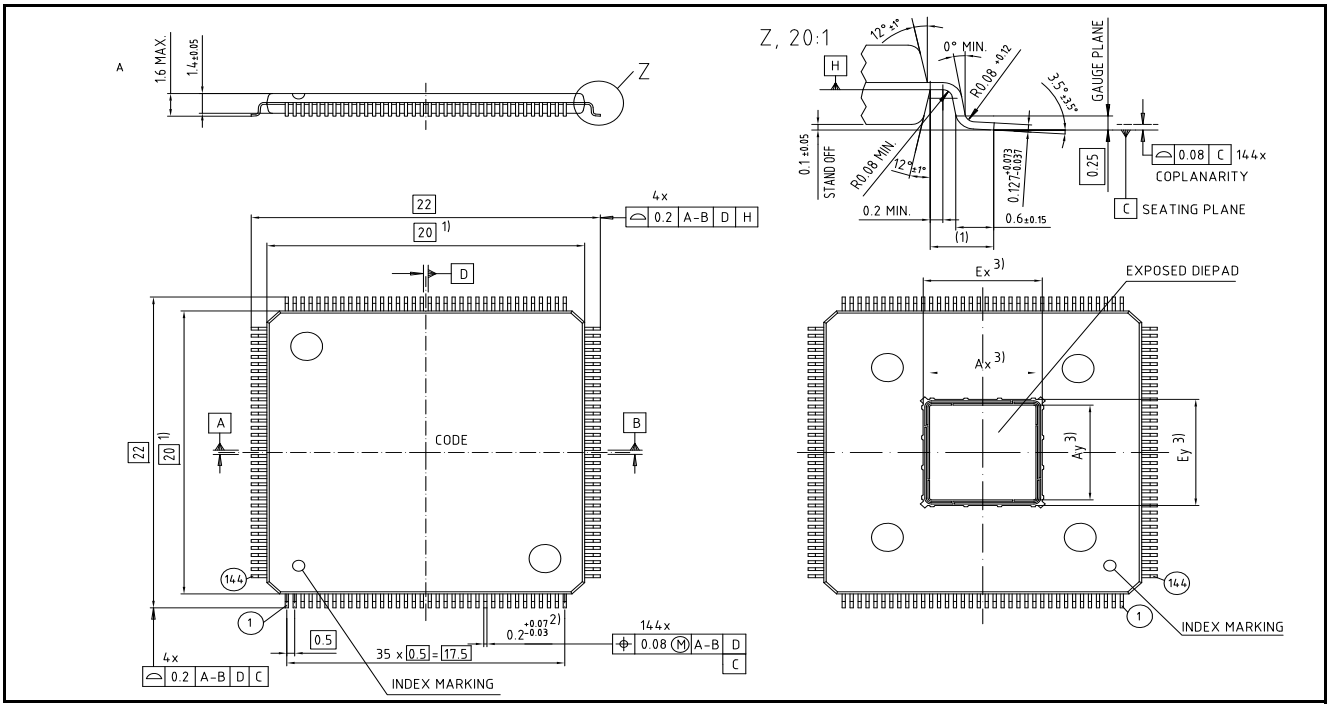

Figure 3-27 Package Outlines LQFP-144

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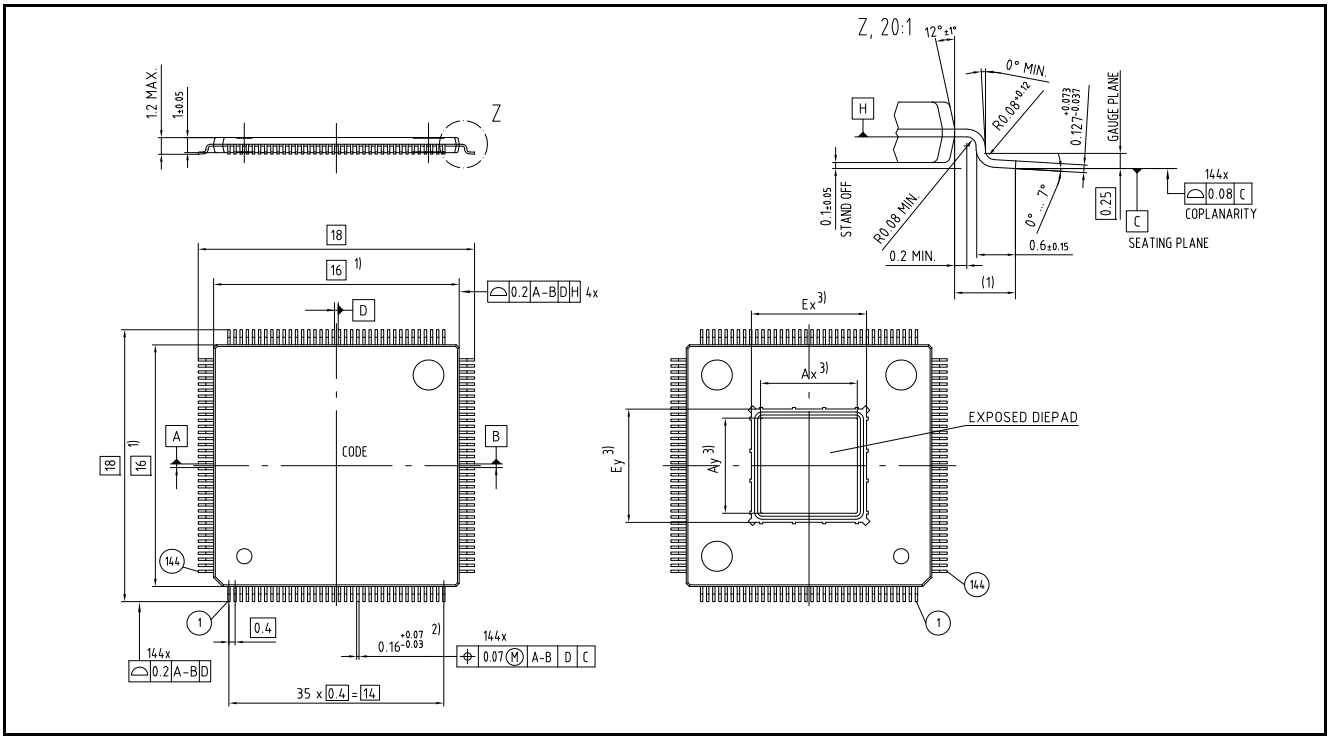

Figure 3-28 Package Outlines TQFP-144

Table 3-68 Exposed Pad Dimensions for LQFP-144 and LQFP-176

LQFP-144 (0.5 mm) and LQFP-176 (0.5 mm)	Ex; nominal EPad size	7.5 mm ± 50 µm
	Ey; nominal EPad size	7.5 mm ± 50 µm
	Ax; solderable EPad size	6.7 mm ± 50 µm
	Ay; solderable EPad size	6.7 mm ± 50 µm

Table 3-69 Exposed Pad Dimensions for TQFP-144

TQFP-144 (0.4 mm)	Ex; nominal EPad size	8.7 mm ± 50 µm
	Ey; nominal EPad size	8.7 mm ± 50 µm
	Ax; solderable EPad size	7.9 mm ± 50 µm
	Ay; solderable EPad size	7.9 mm ± 50 µm

You can find all of our packages, sorts of packing and others in our Infineon Internet Page “Products”: http://www.infineon.com/products.

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3.30.1 Package Parameters

Table 3-70 Package Parameters

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Thermal resistance (junction to ambient) 1)	RTH_JA CC	-	-	22	K/W	LFBGA-180
		-	-	23	K/W	LFBGA-292
		-	-	18	K/W	QFP-144
		-	-	17	K/W	QFP-176
Thermal resistance (junction to case bottom) 1)	RTH_JCB CC	-	-	4.5	K/W	LFBGA-180
		-	-	4.5	K/W	LFBGA-292
		-	-	2	K/W	QFP-144
		-	-	2	K/W	QFP-176
Thermal resistance (junction to case top) 1)	RTH_JCT CC	-	-	6	K/W	LFBGA-180
		-	-	5	K/W	LFBGA-292
		-	-	10	K/W	QFP-144
		-	-	10	K/W	QFP-176

1) The top and bottom thermal resistances between the case and the ambient (RTH_CTA, RTH_CBA) are to be combined with the thermal resistances between the junction and the case given above (RTH_JCT, RTH_JCB), in order to calculate the total thermal resistance between the junction and the ambient (RTH_JA). The thermal resistances between the case and the ambient (RTH_CTA, RTH_CBA) depend on the external system (PCB, case) characteristics and are under user responsibility.
The junction temperature can be calculated using the following equation: TJ = TA + RTH_JA * PD, where the RTH_JA is the total thermal resistance between the junction and the ambient.
Thermal resistances as measured by the 'cold plate method' (MIL SPEC-883 Method 1012.1).

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4 History

Version 0.4 is the first version of this document.

4.1 Changes from Version 0.4 to Version 0.6

- Changes in chapter Summary of Features, table Platform Feature Overview
  - Corrected spelling “HSPDM”
  - Changed spelling for packages
  - Added packages

- Changes in chapter “Pin Definition and Function”
  - Changed package wording from BGA292 to LFBGA-292
  - Changed package wording from BGA180 to LFBGA-180
  - Changed package wording from QFP176 to LQFP-176
  - Changed package wording from QFP144 to LQFP-144
  - Added pinning for package LFBGA-180
  - Separated pinnings for package LQFP-144 and TQFP-144

- Changes in chapter 'LFBGA-292 Package Variant Pin Configuration of TC36x'
  - Changes in 'Port 00 Functions' table; P00.0, P00.1, P00.2, P00.3, P00.4, P00.5, P00.6, P00.9, P00.10, P00.11, P00.12
  - Changes in Port 02 Functions' table; P02.0, P02.1, P02.2, P02.3, P02.4, P02.5, P02.7, P02.8
  - Changes in 'Port 10 Functions' table; P10.2, P10.3, P10.7, P10.8
  - Changes in 'Port 11 Functions' table; P11.0, P11.1, P11.4, P11.5, P11.7, P11.8, P11.10, P11.12, P11.13
  - Changes in 'Port 12 Functions' table; P12.0, P12.1
  - Changes in 'Port 13 Functions' table; P13.0, P13.1, P13.2
  - Changes in 'Port 14 Functions' table; P14.0, P14.1, P14.6, P14.7, P14.8, P14.9, P14.10
  - Changes in 'Port 15 Functions' table; P15.0, P15.1, P15.2, P15.3, P15.4, P15.5
  - Changes in 'Port 20 Functions' table; P20.0, P20.3, P20.6, P20.7, P20.8, P20.9, P20.10, P20.14
  - Changes in 'Port 21 Functions' table; P21.0, P21.1, P21.2, P21.3, P21.4, P21.5, P21.6, P21.7
  - Changes in 'Port 23 Functions' table; P23.0, P23.1, P23.2, P23.3
  - Changes in 'Port 32 Functions' table; P32.2, P32.3, P32.4
  - Changes in 'Port 33 Functions' table; P33.0, P33.1, P33.2, P33.3, P33.4, P33.5, P33.6, P33.7, P33.8, P33.9, P33.10, P33.12, P33.13
  - Changes in table “Analog Inputs” - Changed function for ball W5; Changed function for ball U5
  - Changes in table “System I/O” - Removed symbol and function for ball L19; Changed I/O for symbol ESR1, ball G16; Changed I/O for symbol ESR0, ball F16

- Added chapter 'LFBGA-180 Package Variant Pin Configuration of TC36x'

- Changes in chapter 'LQFP-176 Package Variant Pin Configuration of TC36x'

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  - Changes in 'Port 00 Functions' table; P00.0, P00.1, P00.2, P00.3, P00.4, P00.5, P00.6, P00.9, P00.10, P00.11, P00.12
  - Changes in 'Port 02 Functions' table; P02.0, P02.1, P02.2, P02.3, P02.4, P02.5, P02.7, P02.8
  - Changes in 'Port 10 Functions' table; P10.2, P10.3, P10.7, P10.8
  - Changes in 'Port 11 Functions' table; P11.10, P11.12
  - Changes in 'Port 13 Functions' table; P13.0, P13.1, P13.2
  - Changes in 'Port 14 Functions' table; P14.0, P14.1, P14.6, P14.7, P14.8, P14.9, P14.10
  - Changes in 'Port 15 Functions' table; P15.0, P15.1, P15.2, P15.3, P15.4, P15.5
  - Changes in 'Port 20 Functions' table; P20.0, P20.3, P20.6, P20.7, P20.8, P20.9, P20.10, P20.14
  - Changes in 'Port 21 Functions' table; P21.0, P21.1, P21.2, P21.3, P21.4, P21.5, P21.6, P21.7
  - Changes in 'Port 23 Functions' table; P23.0, P23.1, P23.2, P23.3
  - Changes in 'Port 32 Functions' table; P32.2, P32.3, P32.4
  - Changes in 'Port 33 Functions' table; P33.0, P33.1, P33.2, P33.3, P33.4, P33.5, P33.6, P33.7, P33.8, P33.9, P33.10, P33.12, P33.13
  - Changes in table “Analog Inputs” - Changed function for pin 50; Changed function for pin 49
  - Changes in table “System I/O” - Removed symbol and function for pin 114; Changed I/O for symbol ESR1, pin 120; Changed I/O for symbol ESR0, pin 122
  - Changes in table “Supply” - Changed symbol and function for pin 164; Changed symbol and function for pin 54; Changed pin 177 to E-PAD

- Changes in chapter 'LQFP-144 Package Variant Pin Configuration of TC36x'
  - Changes in 'Port 00 Functions' table; P00.0, P00.1, P00.2, P00.3, P00.4, P00.5, P00.6, P00.9, P00.12
  - Changes in 'Port 02 Functions' table; P02.0, P02.1, P02.2, P02.3, P02.4, P02.5, P02.7, P02.8
  - Changes in 'Port 10 Functions' table; P10.2, P10.3
  - Changes in 'Port 11 Functions' table; P11.10, P11.12
  - Changes in 'Port 13 Functions' table; P13.0, P13.1, P13.2
  - Changes in 'Port 14 Functions' table; P14.0, P14.1, P14.6
  - Changes in 'Port 15 Functions' table; P15.0, P15.1, P15.2, P15.3, P15.4, P15.5
  - Changes in 'Port 20 Functions' table; P20.0, P20.3, P20.6, P20.7, P20.8, P20.9, P20.10, P20.14
  - Changes in 'Port 21 Functions' table; P21.2, P21.3, P21.4, P21.5, P21.6, P21.7
  - Changes in 'Port 23 Functions' table; P23.1
  - Changes in 'Port 32 Functions' table; P32.4
  - Changes in 'Port 33 Functions' table; P33.4, P33.5, P33.6, P33.7, P33.8, P33.9, P33.10, P33.12, P33.13
  - Changes in table “Analog Inputs” - Changed function for pin 40, symbol EVADC_FC0CH0; Changed function for pin 39, symbol EVADC_FC1CH0
  - Changes in table “System I/O” - Removed symbol and function for pin 91; Changed I/O for symbol ESR1, ball 96; Changed I/O for symbol ESR0, ball 98
  - Changes in table “Supply” - Changed symbol and function for pin 136; Changed symbol and function for pin 44; Changed pin 145 to E-PAD

- Added chapter 'TQFP-144 Package Variant Pin Configuration of TC36x'

- Changes in chapter “Bare Die Variant Pin Configuration of TC36x”

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  - Changes in table “Pad List” for different positions (Pad Names, Pad Types, X and Y values, and comments)

- Changes in chapter “Legend”

- Changes in chapter “Electrical Specification”

- Changes in table “Absolute Maximum Ratings”
  - Added footnote of parameter V_{DDM}
  - Changed footnote number of parameter V_{IN}
  - Changed footnote number of parameter I_{IN}
  - Changed footnote number of parameter $\sum I_{IN}$
  - Added footnote 2)
  - Changed order of footnotes

- Changes in table “Overload Parameters”
  - Changed note for parameter K_{OVAN}
  - Changed footnote number of parameter K_{OVAN}
  - Changed note for parameter K_{OVAP}
  - Changed footnote number of parameter K_{OVAP}
  - Added footnote 2)

- Changes in table “Operating Conditions”
  - Deleted parameter f_{EBU}
  - Added footnote number of parameter V_{DD}
  - Changed footnote number of parameter V_{DDM}
  - Changed footnote number of parameter V_{EXT}
  - Changed footnote number of parameter V_{FLEX}
  - Changed footnote number of parameter V_{DDP3}
  - Changed footnote number of parameter V_{EVRSB}
  - Changed footnote number of parameter V_{DDPPA}
  - Added footnote 1)
  - Changed order of footnotes

- Changes in table “PORST Pad”
  - Added footnote number of parameter I_{PDL}
  - Added values and notes for parameter V_{IH}
  - Added values and notes for parameter V_{IL}
  - Added footnote 2)

- Changes in table “Fast 5V GPIO”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}

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  - Changed and deleted values of parameter I_{OZ}
  - Added footnotes 4) and 5)

- Changes in table “Fast 3.3V GPIO”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Changed and deleted values of parameter I_{OZ}
  - Added footnotes 4) and 5)

- Changes in table “Slow 5V GPIO”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Changed and deleted values of parameter I_{OZ}
  - Deleted footnote 4)
  - Added footnotes 4) and 5)

- Changes in table “Slow 3.3V GPIO”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Changed and deleted values of parameter I_{OZ}
  - Deleted footnote 4)
  - Added footnotes 4) and 5)

- Changes in table “RFast 5V GPIO”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Added footnotes 4) and 5)

- Changes in table “RFast 3.3V GPIO pad”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Added footnotes 4) and 5)

- Changes in table “Class S 5V”
  - Added footnote number of parameter I_{PUH}
  - Added footnote number of parameter I_{PDL}
  - Added footnotes 2) and 3)

- Changes in table “LVDS - IEEE standard LVDS general purpose link (GPL)”
  - Added footnote for parameter t_{rise20}
  - Added footnote for parameter t_{fall20}
  - Changed footnote number of parameter V_{OD}

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  - Changed value for parameter V_I
  - Changed test conditions for parameter V_{idth}
  - Added values and test conditions for parameter V_{idth}
  - Changed test conditions for parameter R_{in}
  - Changed footnote number of parameter V_{ODSM}
  - Added footnotes 1) and 2)
  - Changed order of footnotes

- Changes in table “VADC 5V”
  - Added and changed values of parameter V_{AREF}
  - Added footnote number of parameter V_{AREF}
  - Added note for parameter V_{AIN}
  - Changed footnote numbers of parameter *TUE*
  - Changed footnote number of parameter EA_{INL}
  - Changed footnote numbers of parameter EA_{DNL}
  - Changed footnote number of parameter EA_{GAIN}
  - Added footnote number of parameter EA_{OFF}
  - Added and changed footnote numbers of parameter EN_{RMS}
  - Added footnote number of parameter Q_{CONV}
  - Changed footnote number of parameter Q_{AINS}
  - Changed footnote number of parameter R_{CSD}
  - Added footnote 1)
  - Changed order of footnotes

- Changes in table “DSADC 5V”
  - Changed value of parameter V_{AREF}
  - Added value of parameter I_{REF}
  - Added value of parameter I_{RMS}
  - Added and changed footnote numbers of parameter ED_{GAIN}
  - Changed footnote number of parameter ED_{OFF}
  - Changed footnote number of parameter *SNR*
  - Added footnote 4)
  - Changed order of footnotes

- Changes in table “OSC_XTAL”
  - Added values for parameter DC_{X1}
  - Added values for parameter J_{ABSX1}
  - Added values for parameter SR_{XTAL1}
  - Added footnote 3)

- Changes in table “Back-up Clock”
  - Changes in footnote 1)

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- Changes in table “DTS PMS”
  - Added note for parameter T_{NL}

- Changes in table “DTS Core”
  - Added note for parameter T_{NL}

- Changes in chapter “Power Supply Current”
  - Changed chapter description

- Changes in table “Current Consumption”
  - Changed values of parameter $I_{DDPORST}$
  - Changed value for parameter $I_{EXTRAIL}$
  - Changed value for parameter $I_{EXTFLEX}$
  - Changed value for parameter I_{DDTOT}
  - Added value for parameter $I_{DDTOTDC3}$
  - Changed test condition for parameter $I_{DDTOTDC3}$
  - Added value for parameter $I_{DDTOTDC5}$
  - Changed test condition for parameter $I_{DDTOTDC5}$
  - Changed values for parameter *PD*
  - Deleted footnote number of parameter $I_{EXTFLEX}$
  - Deleted footnote number of parameter $I_{DDP3RAIL}$
  - Changed footnotes 1) and 3)

- Changes in table “Module Current Consumption”
  - Changed value of parameter of $I_{EXTLVDS}$
  - Changed value of parameter of I_{SCRSB}
  - Changed footnote 5)

- Changes in table “Module Core Current Consumption”
  - Added values of parameter of I_{DDGTM}
  - Changed footnote 1)

- Changes in chapter “Power Supply Infrastructure and Supply Start-up”
  - Changed wording in descriptions for sub chapter “Supply Ramp-up and Ramp-down Behavior”
  - Changed numbers for HWCFG pins
  - Changed figure for 'Single Supply Mode (a)'
  - Changed figure for 'Single Supply Mode (e)'
  - Changed figure for 'External Supply Mode (d)'
  - Changed figure for 'External Supply Mode (h)'

- Changes in table “Reset”

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  - Added values for parameter $t_{WARMRSTSEQ}$
  - Changed value for parameter t_{BWP}
  - Changed/ added values for parameter t_{SCR}

- Changes in table “EVR33 LDO”
  - Added footnote number of parameter dV_{OUT} / dI_{OUT}
  - Added footnote 7)

- Changes in table “Supply Monitors”
  - Changed note for parameter V_{RST33}
  - Added value for parameter V_{RSTC}
  - Changed note for parameter V_{RSTC}
  - Changed values of parameter V_{EXTMON}
  - Added footnote number of parameter V_{EXTMON}
  - Added footnote number of parameter $V_{DDP3MON}$
  - Added footnote number of parameter V_{DDMON}
  - Changed footnote 2)
  - Changed footnote 3)
  - Added footnote 5)

- Changes in table “EVRC SMPS”
  - Changed values of parameter V_{DDDC}
  - Changed values of parameter V_{DDDCT}
  - Added/ changed values of parameter f_{DCDC}
  - Changed value of parameter t_{STRDC}
  - Changed value of parameter ΔV_{DDDC}
  - Deleted/ changed values of parameter dV_{DDDCT} / dI_{OUT}
  - Changed value for parameter I_{MAX}
  - Deleted/ changed values of parameter dV_{DDDCT} / dV_{IN}
  - Changed values of parameter n_{DC}

- Changes in table “EVRC SMPS External components”
  - Deleted values of parameter C_{OUT}
  - Deleted values of parameter C_{IN}
  - Added values of parameter L_{DC}
  - Deleted values of parameter R_{ON}
  - Deleted values of parameter Q_G

- Changes in table “PLL System”
  - Deleted values of parameter f_{MV}

- Changes in table “Master Mode Timing, LVDS output pads for data and clock”

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  - Added footnote numbers for all parameter values
  - Added footnote 1)

- Changes in table “LVDS clock/data (LVDS pads in LVDS mode) valid for 5V”
  - Added footnote numbers for all parameter values
  - Added footnote 3)

- Changes in subchapter “ETH RGMII Parameters”
  - Added figure for “ETH RGMII TX Signal Timing (Delay on Destination (DoD))”
  - Added figure for “ETH RGMII RX Signal Timing (Delay on Source (DoS))”

- Changes in table “Flash”
  - Changed value for parameter t_{RTU}
  - Changed description and note for parameter $t_{VER\text{-}PAGE_DC}$
  - Changed description for parameter $t_{VER\text{-}PAGE_DS}$

- Changes in table “Package Parameters”
  - Added values for all parameters

4.2 Changes from Version 0.6 to Version 0.7

- Changes in chapter “Bare Die Variant Pin Configuration of TC36x”
  - Added comment to “Pad List” concerning “neighbor pads”

- Changes in chapter “Legend”
  - Added refering IO_Spirit_file version

Changes in chapter “Electrical Specification”
- Changes in table “Absolute Maximum Ratings”
  - Changed description of parameter V_{IN}
  - Changed description of parameter $\sum I_{IN}$
  - Added footnote number to parameter I_{IN}
  - Added footnote 5)
- Changes in table “Slow 3.3V GPIO”
  - Added value and note for parameter R_{DSON}
  - Changed notes of parameter I_{OZ}
- Changes in table “LVDS - IEEE standard LVDS general purpose link (GPL)”
  - Added notes to table “LVDS - IEEE standard LVDS general purpose link (GPL)”
- Changes in table “OSC_XTAL”
  - Changed spelling in footnote 2)
- Changes in table “Current Consumption”
  - Changed wording in footnote 6)

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- Changes in table “Module Current Consumption”
  - Changed value and note of parameter $T_{EXTLVDS}$
  - Added value and note of parameter $T_{EXTLVDS}$
- Changes in table “Reset”
  - Changed value for parameter t_{PIP}
- Changes in table “EVR33 LDO”
  - Added parameter dV_{OUTTC}
- Changes in table “Supply Monitors”
  - Changed notes for all values of parameter V_{EXTMON}
  - Added values to parameter V_{EXTMON}
- Changes in table “EVRC SMPS”
  - Changed Controller Characteristics (CC) to System Requirements (SR) for parameter Δf_{DCSPR}
  - Changed Controller Characteristics (CC) to System Requirements (SR) for parameter n_{DC}
  - Added values to parameter $f_{DCDCSYNC}$
- Changes in table “PLL System”
  - Changed value of parameter f_{REF}
- Changes in table “Flash”
  - Changed value of parameter t_{PRPB5_PF}
  - Changed value of parameter t_{ER-DEV}
- Changes in table “Package Parameters”
  - Changed value of parameter V_{HBM1}

4.3 Changes from Version 0.7 to Version 1.0

Changes in chapter “Summary of Features”
- Changed spelling in table "Platform Feature Overview"
  - Removed “ASIL” value from table “Platform Feature Overview”

Changes in chapter “TC36x Pin Definition and Functions”
- Changes in sub-chapter "Bare Die Variant Pin Configuration of TC36x"
  - Deleted redundant sentence in explanation following table “Pad List” regarding neighbor pads

Changes in chapter “Electrical Specification”
- Changes in sub-chapter “Absolute Maximum Ratings”
  - Changed wording for parameter V_{IN}
  - Changed spelling in footnote 3)
- Changes in sub-chapter “Pin Reliability in Overload”
  - Changed spelling for parameter I_{INSA} in table “Overload Parameters”
- Changes in sub-chapter “Operating Conditions”
  - Deleted parameter f_{ADAS} in table "Operating Conditions"
  - Changed values for parameter f_{GETH} in table "Operating Conditions"
- Changes in sub-chapter “5V / 3.3V switchable Pads”
  - Deleted value for parameter R_{DSON} in table "Slow 5V GPIO"
  - Deleted value for parameter R_{DSON} in table "Slow 3.3V GPIO"

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- Changes in sub-chapter “High performance LVDS Pads”
  - Deleted value for parameter t_{fall20} in table "LVDS - IEEE standard LVDS general purpose link (GPL)"
  - Deleted footnote 2) for table "LVDS - IEEE standard LVDS general purpose link (GPL)"
  - Changed order of footnotes for table "LVDS - IEEE standard LVDS general purpose link (GPL)"
- Changes in sub-chapter “VADC Parameters”
  - Deleted footnote 9) for parameter Q_{CONV} in table "VADC 5V"
  - Changed spelling for parameter dV_{CSD} in table "VADC 5V"
  - Changed wording for footnote 7) for table "VADC 5V"
  - Changed footnote numbering for table "VADC 5V"
  - Changed figure "Equivalent Circuitry for Analog Inputs" for table "VADC 5V"
- Changes in sub-chapter “MHz Oscillator”
  - Changed wording of footnote 1) for table "OSC_XTAL"
- Changes in sub-chapter “Power Supply Current”
  - Changed value for parameter $T_{EXTRAIL}$ in table "Current Consumption"
  - Changed value for parameter T_{EVRSB} in table "Current Consumption"
  - Changed value for parameter I_{SRCSB} in table "Module Current Consumption"
- Changes in sub-chapter “Reset Timing”
  - Changed spelling for parameter t_{EVRPOR} in table "Reset"
  - Changed values for parameter t_{PI} in table "Reset"
- Changes in sub-chapter “EVR”
  - Changed Test Conditions for parameter $V_{DDP3MON}$ in table "Supply Monitors"
  - Changed Test Conditions for parameter V_{DDMON} in table "Supply Monitors"
  - Changed Test Conditions for parameter t_{MON} in table "Supply Monitors"
  - Changed spelling of footnote 2) for table "Supply Ramp"
  - Added description at table "Supply Ramp" regarding power cycles
  - Added values for parameter C_{OUT} in table "EVRC SMPS External components"
- Changes in sub-chapter “ETH RGMII Parameters”
  - Deleted note for parameter t_{21} in table "ETH RGMII Signal Timing Parameters valid for 3.3V"
- Changes in sub-chapter “Package Parameters”
  - Changed notes spelling in table "Package Parameters"

4.4 Changes from Version 1.0 to Version 1.1

- Changes in chapter “Summary of Features”
  - Changed wording for “DFLASH”
  - Added description for “AEC-Q100”
  - Added description for “ISO 26262 Safety Element”
  - Added description for Data Flash in table “Platform Feature Overview”
  - Changed wording for Low Power Features in table “Platform Feature Overview”
  -
- Changes in chapter “TC36x Pin Definition and Functions”
  - Added notes to table “System I/O” for “LFBGA-292 Package Variant”

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  - Added notes to table “System I/O” for “LFBGA-180 Package Variant”
  - Added note to sub-chapter “LQFP-176 Package Variant”
  - Added notes to table “System I/O” for “LQFP-176 Package Variant”
  - Added note to sub-chapter “LQFP-144 Package Variant”
  - Added notes to table “System I/O” for “LQFP-144 Package Variant”
  - Added note to sub-chapter “TQFP-144 Package Variant”
  - Added notes to table “System I/O” for “TQFP-144 Package Variant”
  - Changed sub-chapter title from “Bare Die Variant Pin Configuration of TC36x” to “Sequence of Pads in Pad Frame”
  -
- Changes in chapter “Legend”
  - Changed version number of “TC36xpd_IO_Spirit” file
  -
- Changes in chapter “Electrical Specification”
  - Typos corrected in footnotes for sub-chapter “Absolute Maximum Ratings”
  - Changed note for parameter t_{TX_ASYM} in table “Fast 5V GPIO” of sub-chapter “5V/3.3V switchable Pads”
  - Changed note for parameter t_{TX_ASYM} in table “Fast 3.3V GPIO” of sub-chapter “5V/3.3V switchable Pads”
  - Changed note for parameter t_{TX_ASYM} in table “Slow 5V GPIO” of sub-chapter “5V/3.3V switchable Pads”
  - Changed note for parameter t_{TX_ASYM} in table “Slow 3.3V GPIO” of sub-chapter “5V/3.3V switchable Pads”
  - Changed note for parameter t_{TX_ASYM} in table “RFast 5V GPIO” of sub-chapter “5V/3.3V switchable Pads”
  - Changed note for parameter t_{TX_ASYM} in table “RFast 3.3V pad” of sub-chapter “5V/3.3V switchable Pads”
  - Typos corrected in footnote 2) for table “LVDS – IEEE standard LVDS general purpose link (GPL)” in sub-chapter “High performance LVDS Pads”
  - Added footnote content for table “LVDS – IEEE standard LVDS general purpose link (GPL)” in sub-chapter “High performance LVDS Pads”
  - Changed footnotes 3) and 6) for table “VADC 5V” in sub-chapter “VADC Parameters”
  - Changed value of parameter I_{RMS} in table “DSADC 5V” in sub-chapter “DSADC Parameters”
  - Changed footnote 4) in sub-chapter “DSADC Parameters”
  - Added footnote 7) for parameter *PD* in table “Current Consumption” in sub-chapter “Power Supply Current”
  - Changed footnote 2) for table “Current Consumption” in sub-chapter “Power Supply Current”
  - Added footnote 7) for table “Current Consumption” in sub-chapter “Power Supply Current”
  - Added sentence to sub-chapter “Supply Ramp-up and Ramp-down Behavior”
  - Deleted value for parameter t_{52} in table “Master Mode Timing, LVDS output pads for data and clock” in sub-chapter “QSPI Timings, Master and Slave Mode”
  - Changed values (from Min. to Typ.) for parameter t_7 in table “ETH MII Signal Timing Parameters” for sub-chapter “ETH MII Parameters”
  - Changed symbols for parameters t_{13}, t_{14}, t_{15} in table “ETH RMII Signal Timing Parameters valid for 3.3V” in sub-chapter “ETH RMII Parameters”
  - Changed value (from Min. to Typ.) for parameter t_{13} in table “ETH RMII Signal Timing Parameters valid for 3.3V” in sub-chapter “ETH RMII Parameters”
  - Added footnote 3) for parameters t_{16}, t_{17} in table “ETH RMII Signal Timing Parameters valid for 3.3V” in sub-chapter “ETH RMII Parameters”

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– Added footnote 3) for table “ETH RMII Signal Timing Parameters valid for 3.3V” in sub-chapter “ETH RMII Parameters”
– Added tables for “Exposed Pad Dimensions” to sub-chapter “Package Outlines”

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