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Embedding Intelligence

RZ/G1H Q7 Development Kit

iWave's RZ/G1H development board incorporates RZ/G1H Qseven SOM which is based on Renesas' high performance RZ/G1H Quad ARM Cortex A15 MPU and the carrier board with optional 7" capacitive display kit. The development board can be used for quick prototyping of various applications targeted by the RZ/G1H processor. With the 120mm x120 mm Nano ITX size, the kit is highly packed with all the necessary on-board connectors to validate the RZ/G1H MPU features.

APPLICATIONS: High vision network Camera, Video Analytics & security, Real time image recognition, Industrial HMI & Access Control, Industrial automation, Infotainment & Digital signage, Home & office automation, Office equipment & Smart terminals.

iW-RainboW-G21D-Q7

HIGHLIGHTS

Quad Cortex-A15 @ 1.4GHz, Quad Cortex-A7 @ 780MHz

PowerVR G6400 3D Graphic core @ 520MHz

USB3.0, Gigabit Ethernet, PCIe, SATA, LVDS IOs

Simultaneous Full HD Encode & Decode

Four channel Video input

7" display Kit with cap touch screen

SPECIFICATIONS

RZ/G1H Qseven SOM :	SD Slot – 1 Port
RZ/G1H Quad A15 @ 1.4GHz + Quad A7 @ 780MHz MPU	7" Display with CAP touch
2GB DDR3 RAM	Audio Codec, In/Out Jack
2MB SPI NOR Flash	Serial Console on USB port
4GB eMMC Flash	Data UART – 1 Port
Gigabit Ethernet PHY	CAN PHY – 1 Port
10/100 Ethernet PHY	IO expansion connectors
HDMI transmitter	Nano ITX Size: 120mm x 120mm
Qseven Carrier Board :	12V, 2A DC Input
SATA – 1 Port [1]	**Camera daughter Board[4]:**
PCIe – 1 Port [1]	8-Bit Camera – 4 Ports [5]
Gigabit Ethernet – 1 Port [2]	Optional 16-Bit Camera – 2 Ports [5]
LVDS display – 2 Ports [3]	CAN PHY – 2nd Port
HDMI display – 1 Port [3]	Optional RS232 – 4 Ports
USB3.0 Host – 1 Port	**Temperature support :** 0°C to +60°C
USB 2.0 Host – 2 Ports	**OS Support :**
USB 2.0 OTG – 1 Port	Linux 3.10.31, QNX 7.0.0*

Note1 : SATA and PCIe are multiplexed in the RZ/G1H MPU. Only one can be supported at a time. SATA is supported in the default configuration

Note2 : EtherAVB& VIO is multiplexed in same pins and so either one interface only can be used at a time.
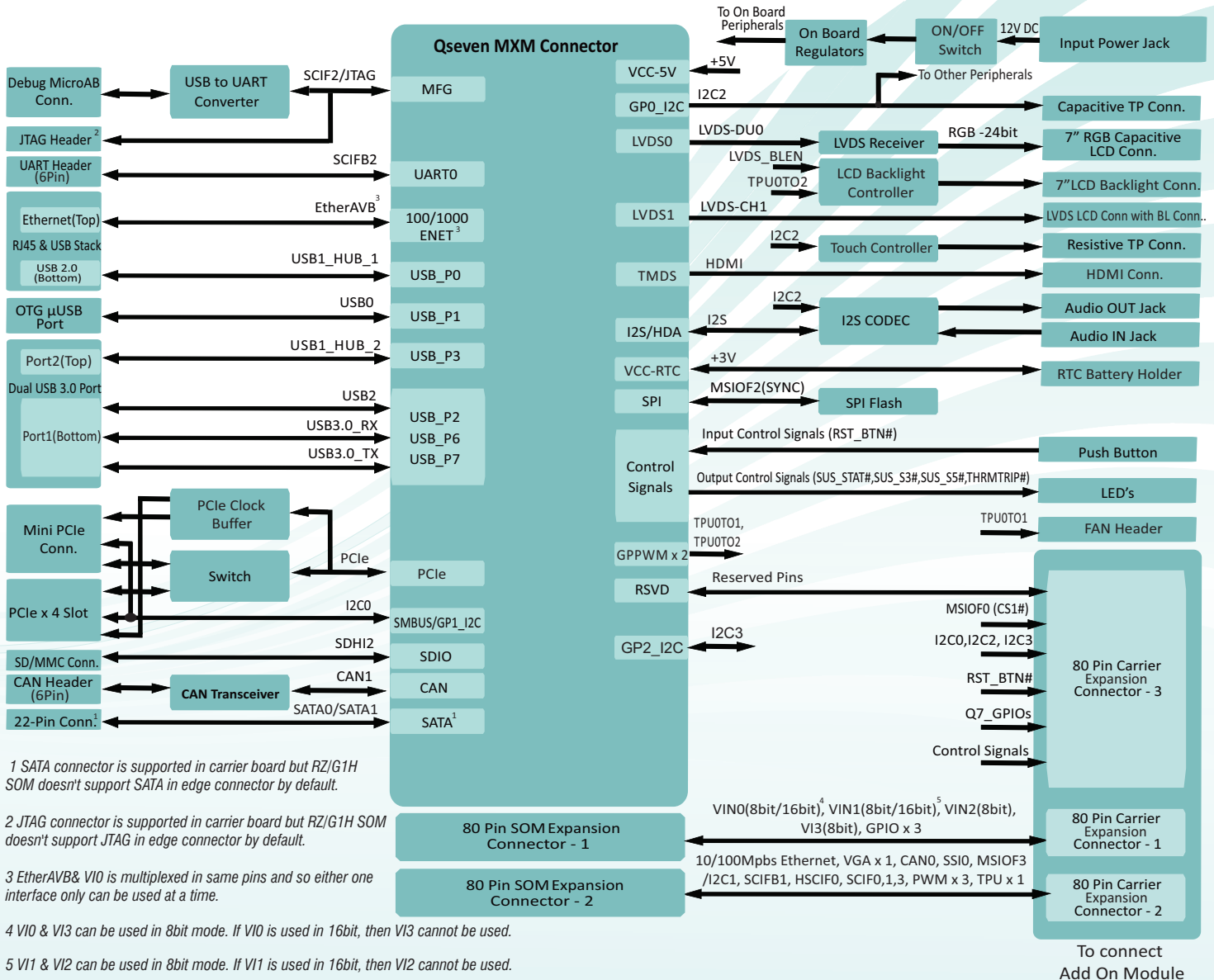
Note3 : LVDS 2nd port is multiplexed with HDMI. Only one can be supported at a time. HDMI port is supported in the default configuration

Note4 : Camera daughter board is optional feature

Note5 : Dual 16-Bit Camera ports are multiplexed with the 8-bit camera ports. By default, 8-bit Camera port is supported.

Note*: Optional feature are not supported by default.

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RENESAS PARTNER Gold

RZ/G1H Development Board - BLOCK DIAGRAM

Qseven MXM Connector

Debug MicroAB Conn. — USB to UART Converter — SCIF2/JTAG — MFG

JTAG Header [2]

UART Header (6Pin) — SCIFB2 — UART0

Ethernet(Top) — EtherAVB [3] — 100/1000 ENET [3]

RJ45 & USB Stack

USB 2.0 (Bottom) — USB1_HUB_1 — USB_P0

OTG µUSB Port — USB0 — USB_P1

Port2(Top) — USB1_HUB_2 — USB_P3

Dual USB 3.0 Port

Port1(Bottom) — USB2 / USB3.0_RX / USB3.0_TX — USB_P2 / USB_P6 / USB_P7

PCIe Clock Buffer

Mini PCIe Conn. — Switch — PCIe — PCIe

PCIe x 4 Slot — I2C0 — SMBUS/GP1_I2C

SD/MMC Conn. — SDHI2 — SDIO

CAN Header (6Pin) — CAN Transceiver — CAN1 — CAN

22-Pin Conn. [1] — SATA0/SATA1 — SATA [1]

80 Pin SOM Expansion Connector - 1

80 Pin SOM Expansion Connector - 2

Right side

To On Board Peripherals — On Board Regulators — ON/OFF Switch — 12V DC — Input Power Jack

VCC-5V — +5V — To Other Peripherals

GP0_I2C — I2C2 — Capacitive TP Conn.

LVDS0 — LVDS-DU0 — LVDS Receiver — RGB -24bit — 7" RGB Capacitive LCD Conn.

LVDS_BLEN — LCD Backlight Controller

TPU0TO2 — 7"LCD Backlight Conn.

LVDS1 — LVDS-CH1 — LVDS LCD Conn with BL Conn.

I2C2 — Touch Controller — Resistive TP Conn.

TMDS — HDMI — HDMI Conn.

I2C2 — I2S CODEC — Audio OUT Jack

I2S/HDA — I2S — Audio IN Jack

VCC-RTC — +3V — RTC Battery Holder

SPI — MSIOF2(SYNC) — SPI Flash

Control Signals — Input Control Signals (RST_BTN#) — Push Button

Output Control Signals (SUS_STAT#,SUS_S3#,SUS_S5#,THRMTRIP#) — LED's

GPPWM x 2 — TPU0TO1, TPU0TO2 — TPU0TO1 — FAN Header

RSVD — Reserved Pins

GP2_I2C — I2C3

MSIOF0 (CS1#)
I2C0,I2C2, I2C3
RST_BTN#
Q7_GPIOs
Control Signals
80 Pin Carrier Expansion Connector - 3

VIN0(8bit/16bit)[4], VIN1(8bit/16bit)[5], VIN2(8bit), VI3(8bit), GPIO x 3 — 80 Pin Carrier Expansion Connector - 1

10/100Mpbs Ethernet, VGA x 1, CAN0, SSI0, MSIOF3 /I2C1, SCIFB1, HSCIF0, SCIF0,1,3, PWM x 3, TPU x 1 — 80 Pin Carrier Expansion Connector - 2

To connect Add On Module

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1 SATA connector is supported in carrier board but RZ/G1H SOM doesn't support SATA in edge connector by default.

2 JTAG connector is supported in carrier board but RZ/G1H SOM doesn't support JTAG in edge connector by default.

3 EtherAVB& VI0 is multiplexed in same pins and so either one interface only can be used at a time.

4 VI0 & VI3 can be used in 8bit mode. If VI0 is used in 16bit, then VI3 cannot be used.

5 VI1 & VI2 can be used in 8bit mode. If VI1 is used in 16bit, then VI2 cannot be used.

OS SUPPORT
Linux 3.10.31,
QNX 7.0.0*

DELIVERABLES
RZ/G1H Qseven Development Kit
Board Support Package
Hardware & Software user Manuals

OPTIONAL KITS/Modules
7" LCD Display Kit with Cap touch screen
Camera Daughter Board
Camera modules

CUSTOM DEVELOPMENT
BSP Development/OS Porting
Custom SOM/Carrier Development
Custom Application/GUI Development
Design Review and Support

iWave Systems Technologies, established in 1999, focuses on Product Engineering Services involving Embedded Hardware, Software & FPGA. The company designs and develops cutting edge products and solutions. iWave has been an innovator in the development of highly integrated, high performance, low power and low cost System On Modules and Development Platforms. iWave's expertise has brought out multiple SOMs based on ARM NXP, Renesas, Qualcomm, Altera, Intel and TI Processors.

iWave System has won the confidence of its customers over the years by being a reliable partner in developing innovative products. Our engineers combine outstanding System design experience to deliver Quality Solutions. iWave specializes across Industrial, Automotive and Medical domains. We support our customers by being time efficient, which in turn helps our customers accelerate time to market their products. iWave is a Windows embedded Silver partner and a winner of the Partner Excellence Award.

*Optional items not included in the standard deliverables.
Note: iWave reserves the right to change these specifications without notice as part of iWave's continuous effort to meet the best in breed specification. The registered trademarks are proprietary of their respective owners.

Ordering the RZ/G1H Qseven Development Kit
The device can be ordered online from the iWave Website
http://www.iwavesystems.com/webforms
Or from our Local Partners in your region
http://www.iwavesystems.com/about-us/business-partner.html

iW-G21D-Q7-BR-R1.3

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