Development Platform iW-RainboW G35D

Zynq Ultrascale+ MPSoC Development kit

iWave's Zynq Ultrascale+ SoC Development kit comprises of Xilinx's Ultrascale+ MPSoC SOM and Ultra-High-Performance carrier card. The SOM is equipped with 64-bit 4GB DDR4 RAM with ECC for PS & 64-bit 4GB Dual DDR4 RAM for PL. The Zynq Ultrascale+ MPSoC development kit carrier board supports required set of features like FMC+ (HPC), FMC (HPC), FireFly, QSFP, SFP+, 12-Pin Pmod, and HDMI- IN/OUT connectors to validate Zynq Ultrascale+ MPSoC high-speed PL interfaces and PCIe x4, SATA, USB-Type-C, Display Port, Gigabit Ethernet and SDI Video IN/OUT on-board connectors to validate the Zynq Ultrascale+ MPSoC high-speed PS interfaces.

Applications: Artificial intelligence, Broadcast audio/video, HPC, Deseggregarted computing, 5G wireless, 100G connectivity

iW-RainboW G35D HIGHLIGHTS

Zynq Ultrascale+ MPSoC with 1143K Logic Cells

PS -GTR Transceivers x 4 @ 6Gbps

PL -GTH Transceivers x 32 @ 16.3Gbps

PL -GTY Transceivers x 16 @ 32.735Gbps

FireFly Connector

FMC+ HPC Connector

FMC HPC Connector

QSFP & SFP+ Connector

Dual 12 -Bit Pmod Connectors
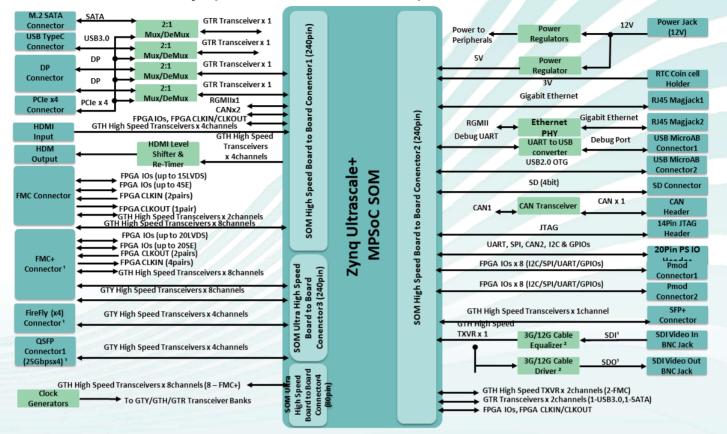
HDMI - IN/OUT

SDI Video IN/OUT

Dual 1G Ethernet

SPECIFICATIONS

Zynq Ultrascale+ MPSoC SOM:	GPIO Header x1
Zynq Ultrascale+(ZCU19EG) MPSOC (-1 speed) @ 1200MHz	RTC Holder x1
PMIC with RTC	JTAG Connector x1
8GB eMMC Flash (for boot code)	**PL - Interface**
4GB DDR4 RAM for PS	Pmod Connector x2
4GB Dual DDR4 RAM for PL	SFP+ Connector x1
PS-GTR Transceivers x4 @ 6Gbps	QSFP+ Connector x1
PL-GTH Transceivers x32 @ 16.3Gbps	SDI Video IN Connector x1
PL-GTY Transceivers x16 @ 32.735Gbps	SDI Video OUT Connector x1
Gigabit Ethernet PHY	HDMI IN Connector x1
USB 2.0 Transceiver	HDMI OUT Connector x1
Ultra-High-Performance Carrier Board:	FMC+ Connector x1
PS - Interface	FMC Connector x1
10/100/1000 Ethernet x2	FireFly Connector x1
CAN Header x1	**Power Supply**
Debug Console x1	4-Pin DIN Power Connector (12V) x1
SD Connector x1	**Switches**
USB 2.0 OTG Connector x1	Reset Button x1
M.2 SATA Connector x1	Power ON/OFF Switch x1
DP Connector x1	PS-GTR Lane Selection Switch x1
USB-Type-C Connector x1	**Operating System**
PCIe x4 Connector x1	Linux

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CERTIFIED MEMBER — BASE

ZU19/17/11 Zynq Ultrascale+ MPSoC Development Kit– BLOCK DIAGRAM

Block diagram showing:

- M.2 SATA Connector — SATA → 2:1 Mux/DeMux → GTR Transceiver x 1
- USB TypeC Connector — USB3.0 → 2:1 Mux/DeMux → GTR Transceiver x 1
- DP Connector — DP → 2:1 Mux/DeMux → GTR Transceiver x 1
- DP → 2:1 Mux/DeMux → GTR Transceiver x 1
- PCIe x4 Connector — PCIe x 4 → 2:1 Mux/DeMux
- RGMIIx1
- CANx2
- FPGA IOs, FPGA CLKIN/CLKOUT
- GTH High Speed Transceivers x 4channels
- HDMI Input / HDM Output — HDMI Level Shifter & Re-Timer — GTH High Speed Transceivers x 4channels
- FMC Connector — FPGA IOs (up to 15LVDS), FPGA IOs (up to 4SE), FPGA CLKIN (2pairs), FPGA CLKOUT (1pair), GTH High Speed Transceivers x 2channels, GTH High Speed Transceivers x 8channels
- FMC+ Connector [1] — FPGA IOs (up to 20LVDS), FPGA IOs (up to 20SE), FPGA CLKOUT (2pairs), FPGA CLKIN (4pairs), GTH High Speed Transceivers x 8channels, GTY High Speed Transceivers x 8channels
- FireFly (x4) Connector [1] — GTY High Speed Transceivers x 4channels
- QSFP Connector1 (25Gbpsx4) [1] — GTY High Speed Transceivers x 4channels
- Clock Generators — GTH High Speed Transceivers x 8channels (8 – FMC+), To GTY/GTH/GTR Transceiver Banks

SOM High Speed Board to Board Conenctor1 (240pin)
SOM Ultra High Speed Board to Board Conenctor3 (240pin)
SOM Ultra High Speed Board to Board Connector4 (80pin)

Zynq Ultrascale+ MPSoC SOM

SOM High Speed Board to Board Conenctor2 (240pin)

Right side:
- Power Jack (12V) — 12V → Power Regulators → Power to Peripherals
- Power Regulator → 5V
- 3V → RTC Coin cell Holder
- Gigabit Ethernet → RJ45 Magjack1
- RGMII / Debug UART → Ethernet PHY — Gigabit Ethernet → RJ45 Magjack2
- UART to USB converter — Debug Port → USB MicroAB Connector1
- USB2.0 OTG → USB MicroAB Connector2
- SD (4bit) → SD Connector
- CAN1 → CAN Transceiver — CAN x 1 → CAN Header
- JTAG → 14Pin JTAG Header
- UART, SPI, CAN2, I2C & GPIOs → 20Pin PS IO Header
- FPGA IOs x 8 (I2C/SPI/UART/GPIOs) → Pmod Connector1
- FPGA IOs x 8 (I2C/SPI/UART/GPIOs) → Pmod Connector2
- GTH High Speed Transceivers x 1channel → SFP+ Connector
- GTH High Speed TXVR x 1 — 3G/12G Cable Equalizer [2] — SDI[1] → SDI Video In BNC Jack
- 3G/12G Cable Driver [2] — SDO[1] → SDI Video Out BNC Jack
- GTH High Speed TXVR x 2channels (2-FMC)
- GTR Transceivers x 2channels (1-USB3.0,1-SATA)
- FPGA IOs, FPGA CLKIN/CLKOUT

Note:
[1] These interfaces can be used only with ZU11/17/19EG based SOM
[2] By default, 3G SDI IN/OUT is supported. Optionally, 12G SDI IN/OUT can be supported on request.

OS SUPPORT
Linux 4.41.0

DELIVERABLES
Zynq Ultrascale+ MPSoC Development kit
Linux 4.14.0 BSP
12V AC-DC Adapter
HW/SW user manuals
Quick Start Guide

Optional KITS/Modules
Pmod 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 innovator in development of highly integrated, high performance, low power and low cost System On Modules and Development Platforms. iWave's expertise brought out multiple SOMs based on ARM, NXP, Intel Atom, Marvell and TI Processors.

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Optional items not included in 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.

Zynq Ultrascale+ MPSoC Development Kit
The device can be ordered online from the iWave website
http://www.iwavesystems .com/webforms

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Authorized Distributor

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[iW-G35D-19EG-4E004G-E008G-LCE](#)