iWave
Embedding Intelligence

PCIe Card - iW-RainboW-G35P

ZU19/ZU17/ZU11 MPSoC based SmartNIC & Storage Card

iWave's SmartNIC & Storage Accelerator Card is 3/4 length PCIe Gen3 x16 card which provides high speed networking extension with Quad 100GbE Ethernet and high performance storage extension with Triple NVMe slots. This card is based on Xilinx's Zynq Ultrascale+ MPSoC ZU19/ZU17/ZU11 based SOM with inbuilt 72bit, 8GB PS DDR4 & 128bit, 16GB PL DDR4 memory bandwidth. Its uniqueness of having Quad A53 core processor and 1143K Logic cell FPGA gives flexible & reconfigurable to support any protocol/application offload. It has 10MHz & 1PPS input SMA option for time critical & Synchronous IEEE 1588v2 application.

APPLICATIONS: Server, Data Center, Cloud, Mobile Wireless Base Station, Network Function Virtualization, Storage

iW-RainboW-G35P HIGHLIGHTS

Xilinx's ZU19/17/11 Zynq Ultrascale+ (Quad A53+FPGA)

Maximum RAM Bandwidth:

- 8GB, 72bit PS DDR4-2400 RAM with ECC
- 16GB, 128bit PL DDR4-26666 RAM

3/4 Length PCIe Gen3 x16 Host Interface

Dual Front Panel QSFP-DD/QSFP28 Cages (200GbE/100GbE)

Single Front Panel QSFP-DD/QSFP Cages (40GbE/10GbE)

Triple M.2 NVMe Slots (High Performance Storage)

Server, Cloud, Synchronous Datacentre Applications

Wireless Base Station Applications

Network Function Virtualization

Flexible Reconfigurable to any Protocol

SPECIFICATIONS

ZU19/ZU17/ZU11 - Zynq Ultrascale + MPSoC
Processing System (PS/Processor)
Quad/Dual ARM Cortex-A53 @ 1.5GHz, Dual Cortex - R5 @ 600MHz
H.264/H.265 Video Encoder/Decoder (VCU)
ARM Mali-400MP2 GPU @ 677MHz
Programming Logic (PL/FPGA)
Up to 1143K Logic cells & 522K LUTs
RAM Memory
64bit, 4GB DDR4RAM with ECC for PS (Upgradable upto 8GB)
Dual 64bit, 4GB DDR4 RAM for PL (Upgradable upto 16GB)
On Board Flash
8GB eMMC Flash for Boot & OS Storage (Upgradable)
Micro SD Slot
Host Interface
PCIe Gen3 x 16
High Speed Network
Dual Front Panel QSFP-DD Cages
2 x 200GbE/4 x 100GbE Ethernet
Backward Compatible with QSFP28/QSFP+
Low Jitter User Configurable Clock
Single Front Panel QSFP-DD Cages
Dual 40GbE/10GbE Ethernet
Backward Compatible with QSFP+
Low Jitter User Configurable Clock
High Performance Storage
Dual M.2 NVMe Slot with PCIe Gen3 x 4
M.2 NVMe Slot with PCIe Gen2 x 4
Time Synchronization (Optional)
Silicon Lab's Si5389 IEEE 1588v2
1 PPS Input/Output through front panel SMA
10MHz Clock Input through front panel SMA
SyncE Phase & Frequency Synchronization
Debug
USB TypeC Debug Port for PS in Front Panel
Rj45 1GbE Ethernet for PS in Back Panel
Dual Stack LED in Front Panel
Thermal
Dual Width Active cooling (by default)
Dual/Single width Passive cooling (Optional)
Power
75W max from PCIe x 16 Host
8 Pin ATX Power Connector in Back Panel Droop Sharing (to maximize power when needed)
Power dissipation is application dependent
Form Factor
218mm x 106.65mm (3/4 Length PCIe)
Compliance
RoHS Compliant , REACH Compliant & CE*

* Under Progress

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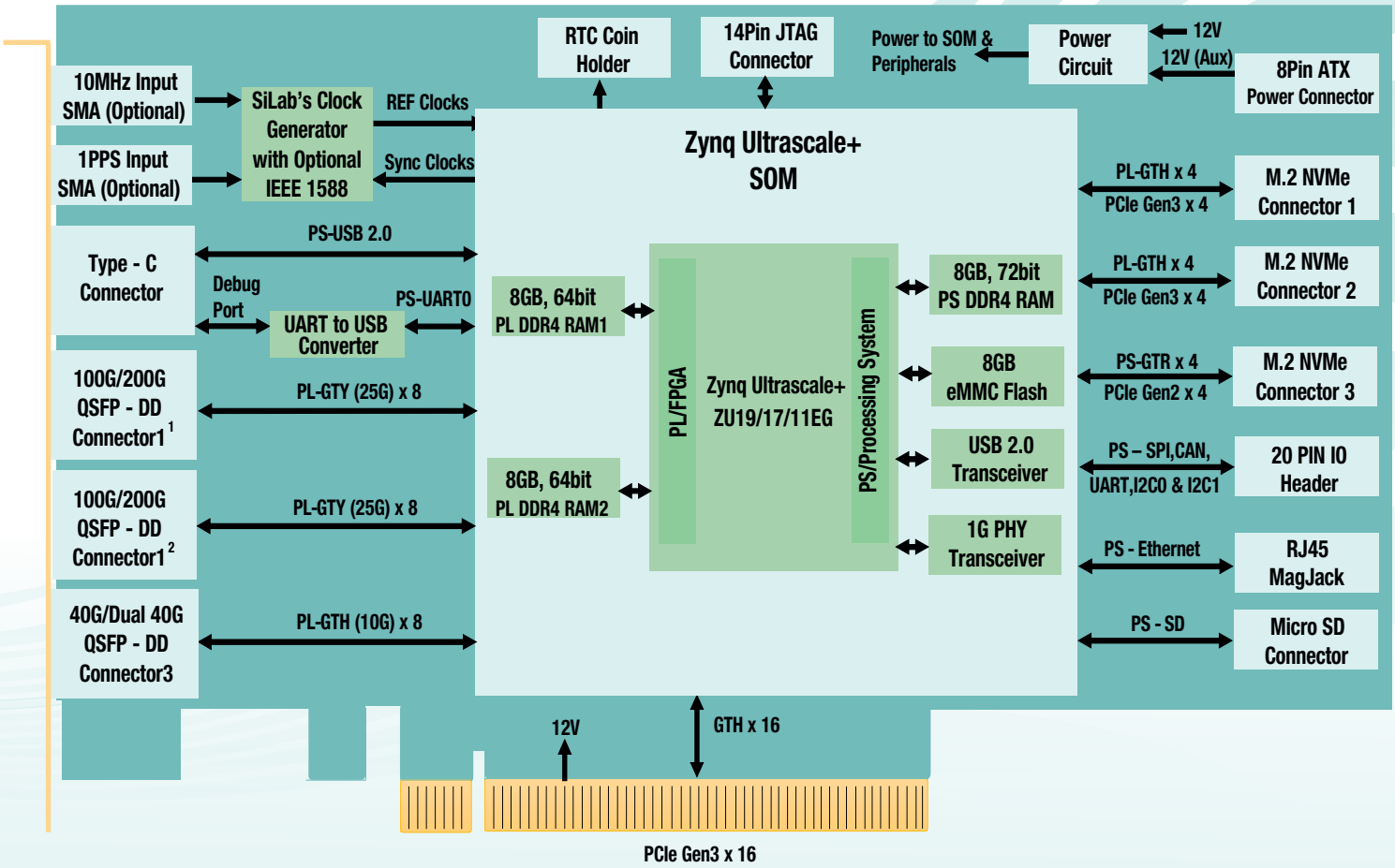
XILINX
ALLIANCE PROGRAM
CERTIFIED

Zynq ZU19/ZU17/ZU11+ SmartNIC & Storage Card Block Diagram



[1] *QSFP-DD conector is backward compatible with 100G QSFP28 module*

OS SUPPORT
Linux 5.4.0

DELIVERABLES
ZU19/17/11MPSoC SOM based PCIe Card
Board Support Package
User Manual

OPTIONAL KITS/Modules
Metal Heatsink enclosure with Fan

iWave Systems Technologies is an ISO 9001:2015 certified company, head quartered in Bangalore India established in the year 1999. The company focuses on providing embedded solution and services for Industrial, Medical, Automotive and various other Embedded Computing applications. iWave Systems offers wide range of System On Modules and Single Board Computers built using wide range of CPU and FPGA SoC platforms with different form factors such as Qseven, SMARC, SODIMM and HPC by closely working with Tier-1 silicon companies such as NXP, Xilinx, Intel etc.

iWave Systems offers various state of art ready ODM solutions such as Connected Telematic Control Unit / OBD II devices for the automotive edge analytics, Comprehensive ARINC818 solutions for the low latency Aerospace applications and Rugged IP rated performance scalable HMI solutions for Industrial applications.

iWave Systems also provides comprehensive Engineering design services involving Embedded Hardware, FPGA and Software development. iWave offers carrier board and custom hardware development with manufacturing and certification services.iWave's Hardware expertise spans complex board design up to 30 layers; Analog, Digital & RF Designs; FPGA Development up to 3+ million gates and VHDL / Verilog RTL Development & Verification. Our Software expertise ranges from OS Porting, Firmware & Device Drivers Development and Wireless & Protocol

**Optional items not included in the standard deliverables.*

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ZU19/17/11 MPSoC SOM based PCIe card

The device can be ordered online from the iWave Website
https://www.iwavesystems.com/product/smartnic-storage-accelerator-card-zynq-ultrascale/
Or from our Local Partners in your region
http://www.iwavesystems.com/about-us/business-partner.html

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