iW-RainboW-G47V

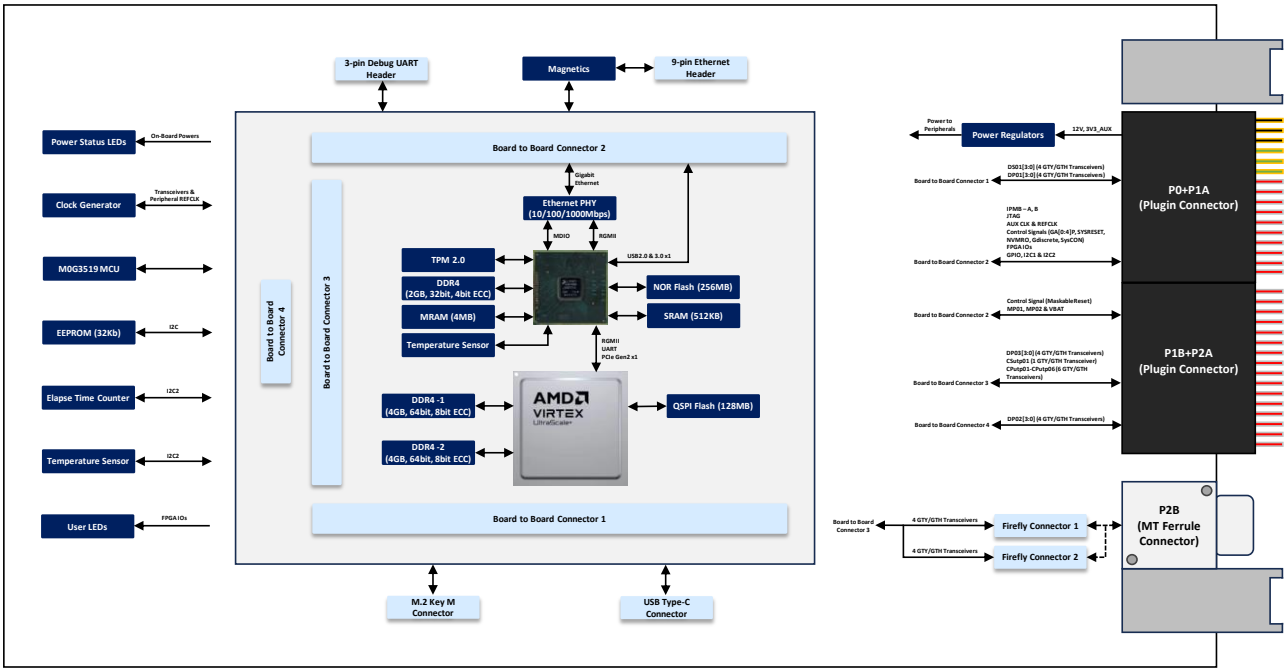
Virtex™ UltraScale+™ FPGA 3U VPX Plug-in Module (Payload Profile)

iWave's Virtex™ UltraScale+™ 3U VPX Plug-in Module comprises of Virtex™ UltraScale+™ FPGA SOM and 3U VPX Carrier Board. Virtex™ UltraScale+™ FPGA SOM is compatible with VU13P, VU11P, VU09P, VU07P, VU05P, VU190, VU160, VU125, VU095 & VU080 Devices. It has 3780K FPGA Logic Cells, 1780K LUTs and Dual-core Arm® Cortex®-A7 @up to 1.2GHz. It is equipped with 3U VPX Connectors (P0, P1A+P1B & P2A) based on VITA 46.0 and MT Ferrule Connector (P2B) based on VITA 67.3. It has Dual 64-bit, 4GB FPGA DDR4 with 8-bit ECC & 128MB QSPI Flash for FPGA and 2GB DDR4 with 4-bit ECC, 256MB NOR Flash, 4MB MRAM & 512KB SRAM for CPU.

Highlights

- SOSA aligned Virtex™ UltraScale+™ FPGA 3U VPX Plug-in Module
- Compatible with VU13P, VU11P, VU09P, VU07P, VU05P, VU190, VU160, VU125, VU095 & VU080 Devices
- Dual 64-bit, 4GB FPGA DDR4 & Single 32-bit, 2GB CPU DDR4
- Supports SOSA Aligned Payload Profiles
- IPMC with Arm® 32-bit Cortex®-M0+ CPU @up to 80MHz
- LS1021A with Dual-core Arm® Cortex®-A7 @up to 1.2GHz
- 10+ years Long Support

Block Diagram



Profile Specifications:

- Slot Profile: SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-0 (Without Fibre ports)
  Module Profile as per AMPS: MODA3-16.6.13-1-0-F2C-(E8-E7)(P3D-P3D)(E7)[N]
- Slot Profile: SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-4 (With 12 Fibre ports)
  Module Profile as per AMPS: MODA3-16.6.13-1-4-F2C-(E8-E7)(P3D-P3D)(E7)[E12]

Technical Specifications

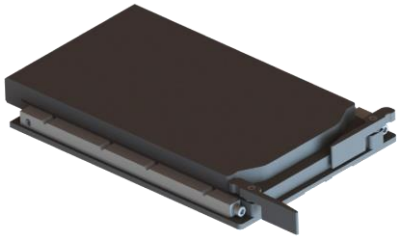
SoC/FPGA	Virtex™ UltraScale+™ FPGA with B2104 Package Compatible with VU13P, VU11P, VU09P, VU07P, VU05P, VU190, VU160, VU125, VU095 & VU080 Devices Up to 1842.75K FPGA Logic Cells & 842.4K LUTs
CPU	LS1021A with Dual-core Arm® Cortex®-A7 @up to 1.2GHz
Memory & Storage	FPGA • Dual 64-bit, 4GB DDR4 with 8-bit ECC (Upgradable up to 8GB) • 128MB QSPI Flash CPU • Single 32-bit, 2GB DDR4 with 4-bit ECC • 256MB NOR Flash • 4MB MRAM & 512KB SRAM
IPMC	IPMC with Arm® 32-bit Cortex®-M0+ CPU @up to 80MHz Up to 512KB of Flash Memory & 128KB of Total SRAM
SoC/FPGA to CPU Interfaces	PCIe Gen2 x1 RGMII UART
VPX Front Panel Features	USB3.0 & USB 2.0 through USB Type-C Connector x1 10/100/1000Mbps Ethernet through 9-Pin Header x1 3-Pin Console UART Header x1
3U VPX Backplane: Connector - P0	Utility Plane • IPMB - A, B • JTAG • System Reference Clocks (REF_CLK, AUX_CLK) • Power Input (12V VDC, 3.3V_AUX) • Control Signals (GA[0:4]P,SYSRESET,NVMRO)

3U VPX Backplane: Connector - P1A+P1B	Data Plane Port-01 • DP01[3:0] - Up to 40G Ethernet Data Plane Port • DPutp01 - Up to 10G Ethernet Control Plane Port • CPutp01 - Up to 10G Ethernet Expansion Plane • EP[0:7] – PCIe Gen3 x8 Control Signals (MaskableReset, Gdiscrete,SysCON) MP01, MP02 & VBAT
3U VPX Backplane: Connector – P2A	Expansion Plane • EP[8:15] – PCIe Gen3 x8
3U VPX Backplane: Connector – P2B	MT Ferrule Optical Interconnect with Aperture Pattern J Supports MM12F - 12 Fibre ports
VPX On-Board Features	32Kb EEPROM x1 PCIe Gen2 x1 through M.2 (Key-M) Connector x1 Temperature Sensor x1 Elapse Time Counter x1 On-Board Clock Generators
Profile Specification	• Slot Profile: SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-0 (Without Fibre ports) Module Profile as per AMPS: MODA3-16.6.13-1-0-F2C-(E8-E7)(P3D-P3D)(E7)[N] • Slot Profile: SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-4 (With 12 Fibre ports) Module Profile as per AMPS: MODA3-16.6.13-1-4-F2C-(E8-E7)(P3D-P3D)(E7)[E12]
General Specification	• Slot Pitch: 1 Inch Conduction Cooled • BSP Support: Linux/Vivado 2024 or above • Environmental Specification: RoHS & REACH Compliant

Ordering Information

To be Discussed

Product Accessories



Thermal Solutions

For any highly integrated FPGA VPX Plug-in Module, thermal design is a very important factor. iWave supports a VITA 65.0 compliant 3U Conduction Cooled Heat Spreader

Applications

- **Military & Aerospace Systems**

  Designed for Military & Aerospace systems, It delivers high-performance processing, secure computing, and rugged reliability for mission-critical applications.

- **Embedded Computing**

  Optimized for embedded computing, It delivers high-performance processing, low-latency data handling, and scalable integration for advanced embedded systems..

- **Data Center & Network Infrastructure**

  Ideal for Data Center & Network Infrastructure, it enables high-speed data processing, low-latency networking, and scalable acceleration for next-generation communication systems.

- **Sensor Networks and Telecommunications**

  Optimized for Sensor Networks and Telecommunications, it delivers high-speed signal processing, real-time data analytics, and reliable connectivity for advanced communication systems.

A Global Leader in Embedded Systems Engineering and Solutions

Since 1999, we have pioneered leadership in embedded systems technology, establishing ourselves as a strategic embedded technology partner for advanced solutions. Our comprehensive portfolio encompasses ARM and FPGA System on Modules, COTS FPGA solutions, and ODM solutions which include Telematics, Gateways & HMI Solutions.

Beyond our robust product ecosystem, we provide comprehensive ODM support with specialized custom design and manufacturing capabilities, enabling customers to accelerate and optimize their product development roadmaps. With a strategic focus on industrial, automotive, medical, and avionics markets, we deliver innovative technology solutions to global clients.

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