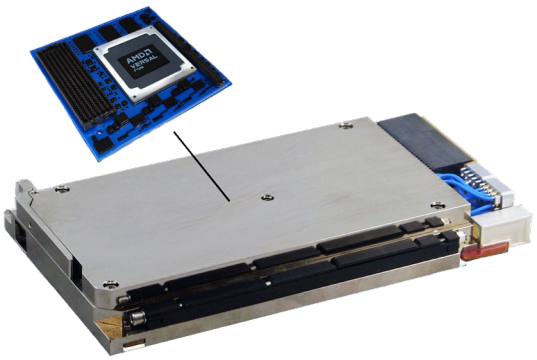


VP241

SOSA Aligned 3U VPX Versal® Prime Processing Module with FMC+

VP241 is a 3U VPX high-performance FPGA processing board featuring an innovative AMD/Xilinx® Versal Series System-on-Module (SOM) processing board designed for scalable performance and design flexibility using a common development framework as program requirements evolve, whether selecting a different processor, changing the form factor or RF module to be as close to the sensor as possible, or upgrading existing systems. Start with Versal Prime for powerful low-latency DSP applications and easily migrate to Versal Core or Versal Edge for added AI capabilities without impacting the overall system architecture.

Aligned with the Sensor Open Systems Architecture™ (SOSA) technical standard, it is built for demanding, mission critical defense and commercial applications such as software defined radio (SDR), communication systems, sensor processing, radar, electronic warfare, autonomous vehicles, factory automation and semiconductor processing equipment.

Secure

The multiprocessor system-on-chip brings advanced security to the forefront. The VP241 is capable of advanced encrypted bit streams and secure boot capability, enabled by Xilinx tools. This makes it ideal for applications where IP security is a top concern.

Heterogeneous Processing Capability

Many RF and signal processing systems require both a streaming DSP with an FPGA, general-purpose processor for decisions and control, and GPUs for added AI capabilities. Traditionally, these processing requirements were handled by separate processing cards. With VP241, all three functions are encompassed in a single module. This removes the need for additional slots, providing an efficient way to maximize system performance while reducing complexity within a smaller footprint.

Flexibility You Need for the System You Want

The VITA 57.4-compliant FMC+ site allows users to take advantage of Abaco's industry leading FMC I/O portfolio. Modular I/O built on an FMC+ standard interface enables engineers to easily upgrade to future technology without a complete system redesign. Availability of both low-latency LVDS data bus and JESD204B/C high-speed serial interface makes the VP241 a versatile solution for many RF data acquisition applications.

Offload Data More Efficiently

The VP241 has VPX backplane interfaces supporting 100 Gigabit Ethernet data plane, PCIe Gen4x4 expansion plane and Ethernet control plane connections to a host computer or other payloads. Dual 100Gbps optical interfaces are optionally available to support high-speed data transfers to and from the VP241. High- speed RF signals can also be transferred directly between the FMC+ and the backplane through the P2 NanoRF connector.

The VP241 is an ideal COTS product for early designs and capable of being deployed into operational assets. When paired with Abaco's extensive portfolio of multi- architecture processing boards including SBCs, GPGPUs, and fabric switches the state of-the-art VP241 enables systems to be built from leading edge, interoperable components.

FEATURES:

- AMD Xilinx Versal Prime
  - VM1502
  - VM1802
- AMD Xilinx Versal Core (planned)
  - VC1502
  - VC1702
  - VC1802
  - VC1902
- AMD Xilinx Versal Edge (planned)
  - VE2802
- Dual-core Arm Cortex-A72
- Dual-core Arm Cortex-R5F
- 24GB LPDDR4 with ECC (VM1502)
- 32GB LPDDR4 with ECC (VM1802)
- 100G Ethernet Data Plane
- Dual 100G Optical Transceivers (option)
- PCIe Gen4 x4 Expansion Plane
- 8 LVDS GPIO pairs
- 20 RF-to-backplane (NanoRF) with FMC
- VITA 57.4 HSPC FMC+
- MIL-I-46058C compliant conformal coating (optional)
- Aligned to SOSA standard
- Linux and Windows 11
- Optional MORA, VITA 49.2 support

Abaco SYSTEMS / AMETEK®

VP241 *SOSA Aligned 3U VPX Versal® Prime Processing Module with FMC+*

Specifications

Physical Specifications
- 3U VPX 1.0” pitch
- Conduction cooled

SOSA RF Payload Slot Profile
- SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-n
- MODA3-16.6.11-1-4-F2C-(E18-E7)(P3F-G7)(E7)(G6-G6)[E19]<N>

Versal Series
- Prime: VM1502 or VM1802
- AI Core: V1502, VC1702, VC1802, VC1902
- AI Edge: VE1752
- System Logic Cells: Up to 1,968K
- LUTs: Up to 899K
- DSP Engines: Up to 1,968

Memory
- VM1502: 24GB LPDDR4 with ECC
- VM1802: 32GB LPDDR4 with ECC
- Optional on-board eMMC storage

FPGA Mezzanine card (FMC) Support
- 1x HSPC FMC+ site

Flexible RF/Optical Backplane Options
- Dual NanoRF 10 port connector option for ADC/DAC/ CLK/ TRIG (when used with an FMC)
- Dual 4-lane bidirectional optical interface via FireFly Gen2 (optional) - 100G Ethernet or Aurora independent channels up to 25 GB/s

Operating Temperature
- -40°C to TBD°C

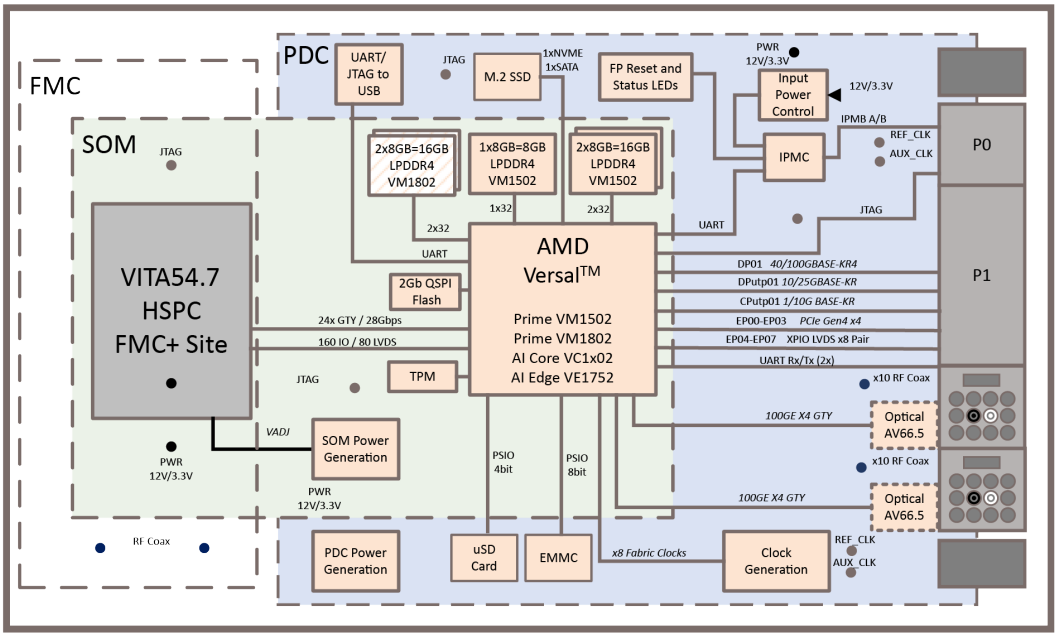
Power Requirements
- +12V
- +3.3V_AUX

Board Support Package (BSP)
- PetaLinux, Linux and Windows 11 with SBC
- Supports industry-standard Vivado IDE
- Optional MORA, VITA 49.2 support
- For VxWorks or other OS, please contact Abaco Systems

Applications
- Electronic Warfare (EW)
- Signal Intelligence (SIGINT)
- Radar/Sonar
- Software Defined Radio (SDR)
- Multi-Function Communication Systems
- Telecommunications/Broadband Wireless
- Networking and Base Stations Equipment
- Ultra-Wide-Band Satellite Digital Receiver
- Optical and Photonics Instrumentation
- RF and EMI Test Instrumentation
- Biomedical Imaging – Medical Equipment

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FireFly is a trademark of Samtec, Inc. PCIe is a trademark of PCI-SIG. ARM is a registered trademark of ARM Limited.

Block diagram



Ordering information

For available product part numbers, contact your local product expert.

WE INNOVATE. WE DELIVER. YOU SUCCEED.

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abaco.com

Abaco Systems is a global leader in commercial open architecture computing and rugged embedded electronics. With more than 30 years of experience in aerospace & defense, industrial, energy, medical, communications and other critical sectors, Abaco’s innovative solutions align with open standards to accelerate customer success.

Abaco Systems is a business unit of AMETEK, Inc., a leading global provider of industrial technology solutions serving a diverse set of attractive niche markets.