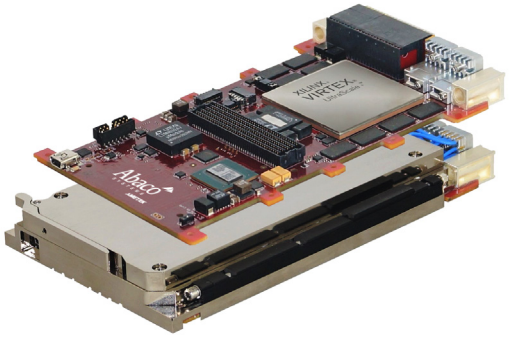


VP892

SOSA-aligned 3U VPX Virtex UltraScale+ VU13P FPGA Processing Card, FMC+

VP892 is a SOSA-aligned 3U VPX high-performance FPGA processing carrier board featuring AMD (Xilinx®) Virtex VU13P, one of the most powerful FPGAs available in the UltraScale+™ family. Aligned with the Sensor Open Systems Architecture™ (SOSA) technical standard, it is designed for the most demanding, mission critical military/defense and commercial applications such as communications, sensor processing, radar, electronic warfare, autonomous vehicles, renewable energy stations and semiconductor processing equipment.

Secure

The Zynq UltraScale+ multiprocessor system-on-chip (MPSoC) brings advanced security to the forefront. VP892 is capable of advanced encrypted bit streams and secure boot capability, enabled by Xilinx tools. This makes it an ideal tool 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 and a general-purpose processor for decisions and control. Traditionally, these processing requirements were handled by separate processing cards. With VP892, both functions in a single module are available by leveraging application and real-time processing ARM cores of the Zynq UltraScale+ MPSoC which reduces the need for a single board computer in some applications.

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 including Abaco's 7GHz FMC300 low-latency high-sampling rate, high-resolution ADC and DAC. 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 VP892 a versatile solution for many RF data acquisition applications such as Electronic Warfare (EW).

Offload Data More Efficiently

VP892 has VPX backplane interfaces supporting 40/100 Gigabit Ethernet data plane, PCIe Gen3 x4 expansion plane and Ethernet control plane connections to a host computer or other payloads. Dual-channel 100Gbps optical interfaces are optionally available to support up to 25GB/s data transfers to and from the VP892. High- speed RF signals can also be transferred directly between the FMC+ and the backplane through the P2 connector.

VP892 is an ideal COTS product 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 VP892 enables systems to be built from leading edge, interoperable components.

FEATURES:

- Dual FPGA architecture
  - Virtex UltraScale+ VU13P
    - 3.78M System Logic Cells
    - 12.2K DSP Slices
    - 1.7M LUTs
  - Zynq UltraScale+ MPSoC ZU5EG
- Arm Processing Cores
  - Quad-core Arm Cortex-A53
  - Dual-core Arm Cortex-R5F
- VITA 57.4 HSPC FMC+ site with direct MGT interface to VU13P for low-latency high-performance RF processing
- Dual 100G Optical Transceivers (option)
- SOSA Backplane I/O
  - 40/100G Ethernet
  - PCIe Gen3 x4
  - Dual 100G Ethernet optical
  - 8 LVDS GPIO
  - 20 RF-to-backplane (NanoRF) ports with an accompanying FMC
- 14GB DDR4 (Aggregate)
- Aligned to SOSA standard
- MIL-I-46058C compliant conformal coating (optional)
- Optional MORA (Modular Open RF Architecture) support

Abaco SYSTEMS / AMETEK®

VP892 *SOSA-aligned 3U VPX Virtex UltraScale+ VU13P FPGA Processing Card, 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]<0N>

FPGA
- AMD (Xilinx) Virtex UltraScale+ XCVU13P
  - System Logic Cells: 3,780K
  - DSP Slices: 12.2K
  - CLB LUTs: 1,728K
- AMD Zynq UltraScale+ MPSoC XCZU5EG
  - Quad-core Arm Cortex-A53
  - Dual-core Arm Cortex-R5

Memory
- 4GB + 8GB DDR4 to Virtex
- 2GB DDR4 to Zynq

I/O and Backplane Connectivity 1x HSPC
- FPGA Mezzanine Card (FMC) Connector
  - 1x HSPC FMC+ site
  - 24x Configurable MGT lanes at 25Gbps/lane
  - JESD204B/C and LVDS support
  - Low-latency RF integration options available with Abaco’s broad FMC portfolio
- SOSA VPX RF/Optical Backplane
  - Dual NanoRF 10 port connector option for ADC/DAC/ CLK/ TRIG (when used with an FMC)
  - Dual 100G (25Gx4-lane) bidirectional optical interface – 40/100G Ethernet or Aurora independent channels

Operating Temperature
- -40°C to +TBD°C (Level D conduction
- cooled environment at the card thermal
- interface)

Power Requirements
- +12V
- +3.3V_AUX

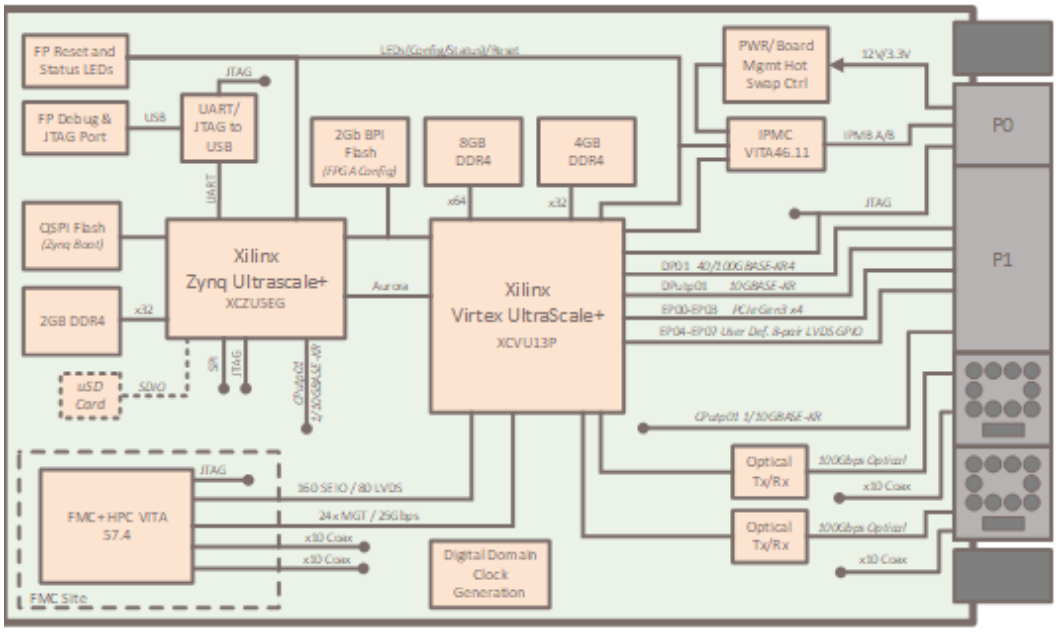
Board Support Package (BSP)
- 40/100G Ethernet with optional RoCEv2 (RDMA over Converged Ethernet)
- Xilinx PCIe DMA engine included
- 100G Ethernet over optical interface available (optional 100Gbps Aurora)
- Optional MORA (Modular Open RF Architecture) support
- Open-source Windows and Linux API
- For VxWorks, 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

Xilinx, Virtex and Zynq are registered trademarks, and UltraScale+ is a trademark of AMD, Inc.
PCIe is a trademark of PCI-SIG. ARM is a registered trademark of ARM Limited.

Block diagram

* Intended as a reference for basic features and connections and not an actual product layout or design



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.