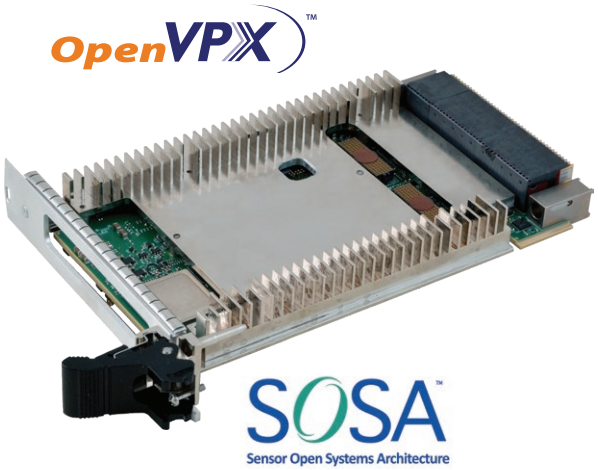
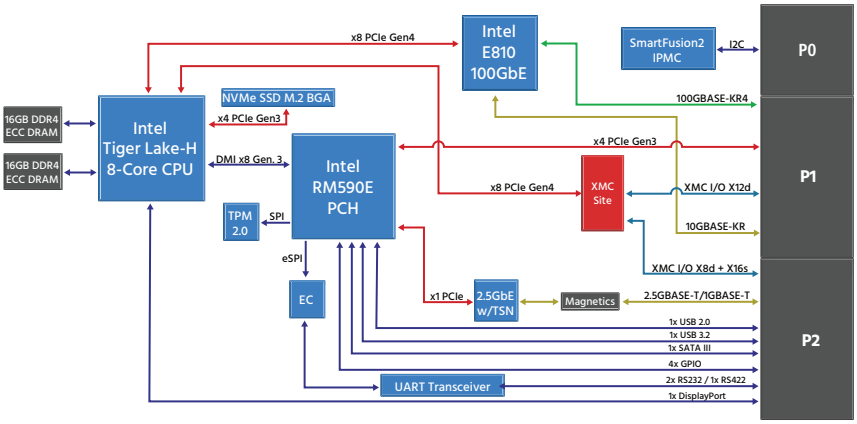
VPX Processor Boards

VPX7600 3U Single Board Computer

CE 2 YEAR WARRANTY RoHS Compliant





Intel® Tiger Lake-H CPU ◆ SOSA-aligned ◆ XMC slot ◆ 100GbE ◆ 32GB DDR4 RAM ◆ Air/Conduction-Cooled

The VPX7600 is an I/O Intensive single board computer featuring an Intel 11th Generation Xeon W-11000E Series processor. It was developed in alignment with the Sensor Open Systems Architecture (SOSA) Technical Standard.

The high-performance 8-core processor supports up to 32GB of dual-channel, soldered-down DDR4 ECC memory with data rates of up to 3200 MT/s. An integrated Intel Gen12 UHD graphics Xe 32EU engine supports clock speeds of up to 1.35 GHz. Data storage, up to 1TB, is handled by an NVMe M.2 BGA SSD.

A wide variety of I/O peripherals are supported, plus an XMC expansion site enables advanced computation capabilities with plug-in mezzanine modules. The Intel E810 Ethernet controller provides 100GbE and 10GbE ports.

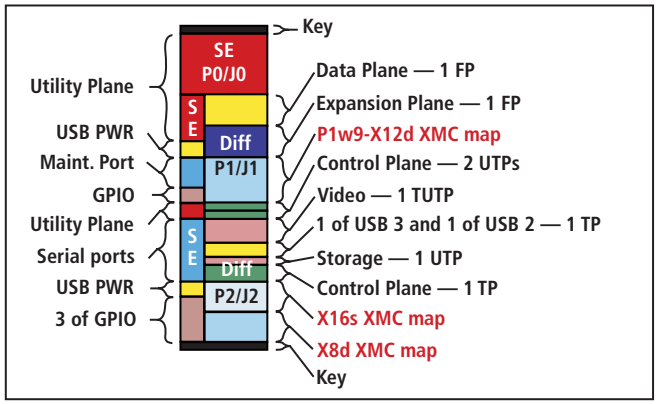
Other backplane peripheral interfaces offer great flexibility. A 2.5-gigabit Ethernet port supports Time Sensitive Networking (TSN). DisplayPort 1.4 enables HBR3 data rates and 4K resolution. USB 3.2 and USB 2.0 offer versatile, high-speed interfaces for many uses, while a SATA III port simplifies data storage connections. Additional interfaces include RS232, RS422, and discrete GPIO lines.

Board support packages facilitate use with Microsoft Windows®, Linux®, and VxWorks™ operating systems.

Acromag has more than 60 years of experience working with defense, aerospace, scientific, and industrial applications. We are committed to providing embedded computing solutions with the best long-term value in the industry. These boards are designed and manufactured in the USA for the highest quality, security, and reliability.

Key Features & Benefits

- SOSA-aligned I/O Intensive SBC profile
- Intel 11th Gen Xeon-W Tiger Lake-H 8-Core CPU
- 32GB of dual channel DDR4 SDRAM with ECC
- Up to 1TB (64GB standard) of NVMe SSD on-board storage
- 100G Ethernet Data Plane
- x4 PCIe Gen3 Expansion Plane
- 10G Ethernet Control Plane
- IPMC System Management
  - HOST 3.0
  - VITA 46.11 Tier-3
- XMC Expansion Site
- Backplane I/O includes:
  - 1x 2.5GBASE-T/1GBASE-T Ethernet port
  - 1x DisplayPort 1.4 interface
  - 1x USB 3.2 port
  - 1x USB 2.0 port
  - 1x SATA III port
  - 4 x GPIO
  - 1x RS-422 (or 2x RS-232) ports



SOSA 3U I/O Intensive Slot Profile **SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16**

Acromag THE LEADER IN INDUSTRIAL I/O

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VPX Processor Boards

ISO9001 AS9100 MADE IN USA

Performance Specifications

Processor & Memory

CPU
Intel Xeon W-11000E Series Processor.
(11th generation, codename Tiger Lake H).

W-11865MRE: 4.70 GHz, 8 cores, 16 threads, 24 MB cache, 45W.

Chipset
Intel RM590E PCH chipset.

Memory
32GB of dual channel soldered DDR4-3200 ECC memory.

Flash Storage
NVME 64GB SSD M.2 BGA with x4 PCIe Gen3 interface

Software and Firmware Support

Drivers
Support provided for Microsoft® Windows®10, VxWorks™ 7 SR0540, and Linux™ (RHEL, CentOS, Fedora, Ubuntu) kernel 4.0 and later.

BIOS
Dual BIOS SPI Flash EEPROMs

UEFI boot firmware
BIOS Features TBD

Switched Fabric Interconnects

VPX Data Plane
1x 100 Gigabit Ethernet port on P1.
100GBASE-KR4 protocol.
Supports IEEE-1588 Precision Time Protocol.

VPX Expansion Plane
x4 PCIe Gen3 on P1.

VPX Control Plane
1x 10 Gigabit Ethernet port on P1.
10GBASE-KR protocol.

1x 100/1000/2500BASE-T Ethernet port on P2.
Supports Time-Sensitive Networking (TSN) via TGL PCH integrated MAC.

XMC Site

Host Interface
8-lanes of PCIe Gen4 to P15 connector per VITA 42.3.
Support for PCIe Gen1 (2.5GT/s), Gen2 (5GT/s), Gen3 (8GT/s), and Gen4 (16GT/s).

Rear I/O
Backplane P16 rear I/O mapping X12d+X16s+X8d per VITA 46.9.

Supports both 5V and 12V VPWR, configurable via firmware.

XMC TDP: 15W (contact the factory for higher powered mezzanine requirements.

Build Options available to support VITA 42, VITA 61, or VITA 88 XMC connector types.

Peripheral I/O

1x DisplayPort 1.4 interface
Supports HBR3 data rate and 4K 60Hz max. resolution.

1x USB 3.2 Gen 2x1 port (10Gb/s).

1x USB 2.0 port.

1x SATA III port.

2x RS-232 or 1x RS-422 full duplex port(s).

1x RS-232 Maintenance Port (LVCMOS).

4x Discrete GPIO.

Bus Compliance

SOSA 3U I/O Intensive Slot Profile
SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16.

VITA 65 OpenVPX Module Profile
MOD3-PAY-1F1F2U1TU1T1U1T-16.2.15-2

AMPS String
MODA3-16.2.15-1-F2C-(E18)(P3F)(1E7-E3)
(S3-D1-U2-U1-M3-G1)<XA0>

System Management
Crossfield Technology HOST 3.0 / VITA 46.11 / IPMI 1.5 Compliant IPMC.

Form Factor

3U VPX 1" pitch (VITA 48.0).

Power

+12V (VS1) and +3.3V_AUX only, per VITA 65.0.

Power Consumption Estimates: TBD.

XMC site supports up to 25W DC power but only thermally qualified to 15W.

Environmental

Operating Temperature
-40 to 55°C. VITA 47 Class AC2.

Operating Temperature Conduction-cooled
-40 to 85°C. VITA 47 Class CC4.

Storage Temperature
-55 to 105°C. VITA 47 Class C4.

Humidity
Air-cooled: Withstands exposure up to 95% relative humidity, per VITA 47.2.

Conduction-cooled: Withstands exposure up to 100% relative humidity, per VITA 47.3.

Vibration
Air-cooled: VITA 47 Class V1.
Withstands vibration as defined below for 1 hr. per axis.
5 Hz to 100 Hz PSD = $0.04g^2/Hz$

Conduction-cooled: VITA 47 Class V3.
Withstands vibration as defined below for 1 hr. per axis.
5 Hz to 100 Hz PSD increasing at 3 dB/octave.
100 Hz to 1000 Hz PSD = $0.10\ g^2/Hz$.
1000 Hz to 2000 Hz PSD decreasing at 3 dB/octave.

Shock
Air-cooled: VITA 47 Class OS1.
Withstands operating shock as defined below.
20g, 11ms half-sine or terminal sawtooth shock pulses in all 3 axes.

Conduction-cooled: VITA 47 Class OS2.
Withstands operating shock as defined below.
40g, 11ms half-sine or terminal sawtooth shock pulses in all 3 axes.

Altitude
Operates from 1,500 feet (460 meters) below sea level to 60,000 feet (18,300 meters) above sea level, per VITA 47.1.

Ordering Information

Go to on-line ordering page >

VPX7600-42-20
3U VPX SBC with Xeon W-11856MRE CPU, 32GB DDR4, VITA 42 XMC slot, air-cooled with front I/O.

VPX7600-42-50
3U VPX SBC with Xeon W-11856MRE CPU, 32GB DDR4, VITA 42 XMC slot, conduction-cooled.

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