

# XCalibur4640

Intel® Xeon® D-1500 Family Processor-Based 6U VPX Module with Six 10GbE and Dual XMC/PMC Sites

- ▶ Supports Intel® Xeon® D-1500 family processors (formerly Broadwell-DE)
- ▶ 6U VPX (VITA 46) module
- ▶ VITA 46.11 Tier 1 and Tier 2 IPMI Controller (IPMC)
- ▶ Compatible with multiple OpenVPX™ (VITA 65) profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Conduction or air cooling
- ▶ Supports two XMC/PrPMC modules
- ▶ Up to 16 Xeon®-class cores in a single, power-efficient SoC package
- ▶ 4, 8, or 12 core SKUs available with native extended temperature support
- ▶ Up to 32 GB of DDR4-2133 ECC SDRAM in two channels
- ▶ Contact factory for larger densities of DDR4-2133 ECC SDRAM
- ▶ Up to 64 GB of onboard SATA NAND flash
- ▶ Six 10 Gigabit Ethernet ports and up to three Gigabit Ethernet ports
- ▶ Four x4, two x8, or one x16 PCI Express Gen3-capable ports from switch to backplane
- ▶ Four SATA ports
- ▶ One USB 3.0 port and one USB 2.0 port to the back panel and one optional USB 3.0 port to the front panel
- ▶ Up to five serial ports
- ▶ Wind River VxWorks BSP
- ▶ X-ES Enterprise Linux (XEL) BSP
- ▶ Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs



## XCalibur4640

The XCalibur4640 is a high-performance, 6U OpenVPX™, multiprocessing, single board computer that is ideal for ruggedized systems requiring high-bandwidth processing and low power consumption. Featuring Intel® Xeon® D-1500 family processors, four 10 Gigabit Ethernet ports on the data plane, two 10 Gigabit Ethernet ports on the control plane, and a configurable x16 PCI Express Gen3-capable expansion plane interface, the XCalibur4640 delivers enhanced performance and efficiency for today's embedded computing applications.

The XCalibur4640 provides up to 32 GB of DDR4-2133 ECC SDRAM in two channels, two XMC/PrPMC slots, and up to 64 GB of SATA NAND flash. The XCalibur4640 also supports up to three Gigabit Ethernet ports, four SATA ports, one USB 2.0 port, up to two USB 3.0 ports, and up to five serial ports out the front panel and/or backplane.

The XCalibur4640 is a powerful, feature-rich solution for the next generation of compute-intensive embedded applications. Wind River VxWorks and X-ES Enterprise Linux Support Packages (XEL) are available.

# X-ES

Extreme Engineering Solutions

*...Always Fast*

### Extreme Engineering Solutions

3225 Deming Way, Suite 120 • Middleton, WI 53562

Phone: 608.833.1155 • Fax: 608.827.6171

sales@xes-inc.com • <https://www.xes-inc.com>

**Processor**

- Intel® Xeon® D-1500 family processors (formerly Broadwell-DE)
- Up to 16 Xeon®-class cores in a single, power-efficient SoC package
- 4, 8, or 12 core SKUs available with native extended temperature support

**Memory**

- Up to 32 GB of DDR4-2133 ECC SDRAM in two channels
- Up to 64 GB of NAND flash
- 32 MB NOR boot flash
- 64 kB EEPROM

**OpenVPX™**

- VITA 46.11 (System Management on VPX)
- Compatible with multiple OpenVPX™ (VITA 65) profiles
- Four 10 Gigabit Ethernet ports to P1 and two 10 Gigabit Ethernet ports to P4
- Configurable x16 PCI Express Gen3-capable port to P2
- Two 10/100/1000BASE-T Ethernet ports
- XMC and PMC I/O to P3, P4, P5, and P6

**PrPMC**

- PCI (32-bit, 66/33 MHz)
- Pn4 I/O to VPX connectors per VITA 46.9 P64s

**XMC**

- x8 PCI Express Gen3-capable port to J15 and J25
- Pn6 I/O to VPX connectors per VITA 46.9 X38s+X12d+X8d

**Front Panel I/O (Optional)**

- One 10/100/1000BASE-T Ethernet port
- One USB 3.0 port
- One RS-232 serial port
- General-purpose LEDs

**Back Panel I/O**

- Four SATA ports capable of 6 Gb/s
- One USB 3.0 port and one USB 2.0 port
- Up to five RS-232/422/485 serial ports
- Pn4 and Pn6 I/O per VITA 46.9
- Two 10/100/1000BASE-T Gigabit Ethernet ports
- Four 10 Gigabit Ethernet SerDes ports
- Two 10GBASE-KR Ethernet ports

**Additional Features**

- Non-volatile memory write protection
- Optional Trusted Platform Module (TPM)
- VITA 46.11 Tier 1 and Tier 2 IPMI Controller (IPMC)
- IEEE 1588 support (optional)

**Software Support**

- Wind River VxWorks BSP
- X-ES Enterprise Linux (XEL) BSP
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs

**Physical Characteristics**

- 6U VPX-REDI conduction- or air-cooled form factor
- Dimensions: 233 mm x 160 mm
- 0.8 in. pitch
- 1.0 in. pitch Two-Level Maintenance (2LM)

**Environmental Requirements**

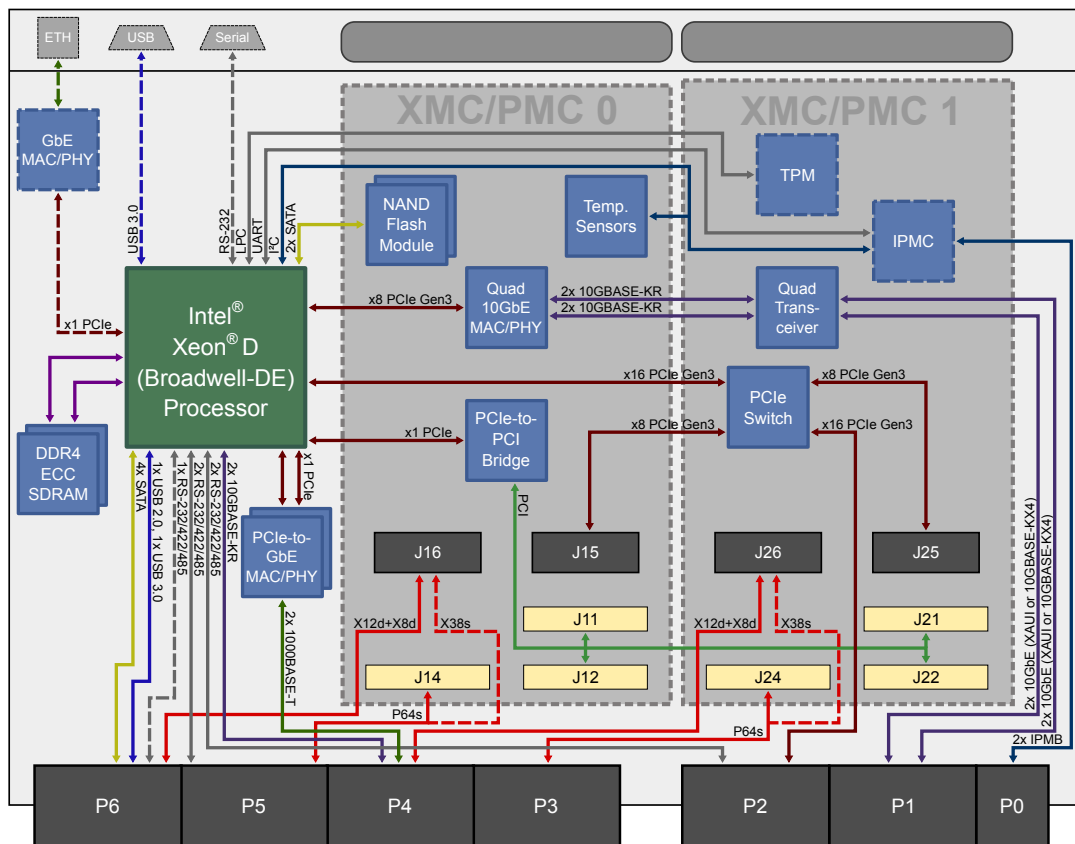
Contact factory for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 1, 3, 5
- Conformal coating available as an ordering option
- Thermal performance will vary based on CPU frequency and application

**Power Requirements**

- Power will vary based on configuration and usage. Please consult factory.

Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55°C ambient (300 LFM)	-40 to +70°C (600 LFM)	-40 to +85°C (board rail surface)
Storage Temperature	-40 to +85°C ambient	-55 to +105°C ambient	-55 to +105°C (maximum)
Vibration	0.002 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.04 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.1 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing



XCalibur4640