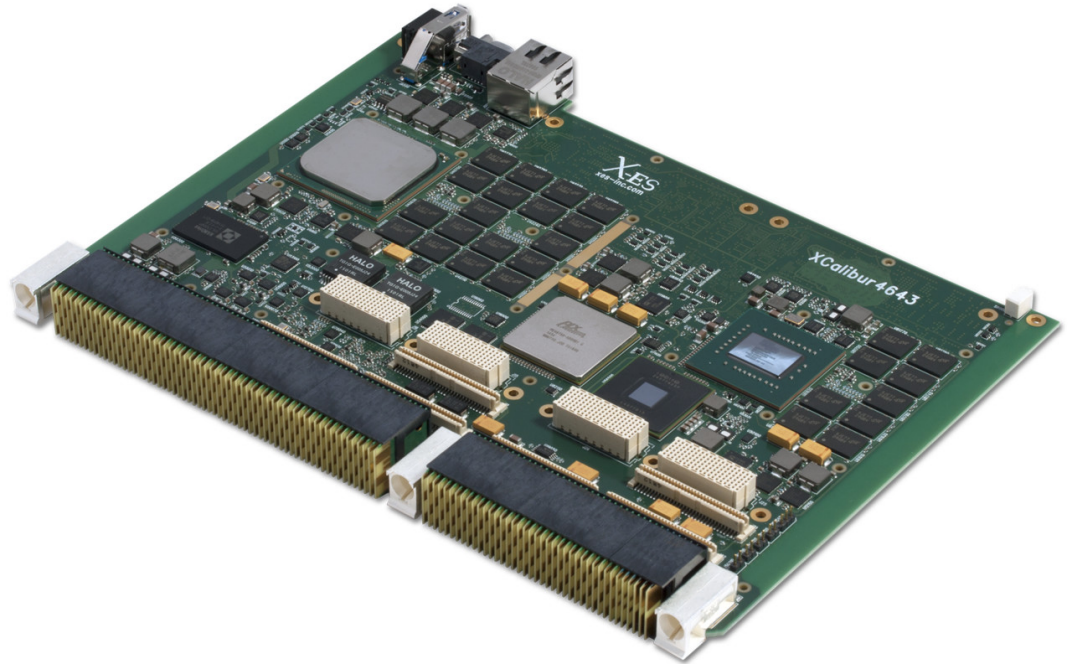


# XCalibur4643

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

- ▶ Supports Intel® Xeon® D-1500 family processors (formerly Broadwell-DE)
- ▶ Xilinx Kintex® UltraScale™ XCKU040 FPGA
- ▶ 6U OpenVPX™ (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
- ▶ Up to 64 GB of onboard SATA NAND flash
- ▶ Two 10 Gigabit Ethernet ports and up to five Gigabit Ethernet ports
- ▶ Three x4 PCI Express Gen3-capable ports from switch to backplane
- ▶ Four SATA ports
- ▶ Three USB ports (two of which are USB 3.0-capable)
- ▶ Up to four RS-232/422/485 serial ports
- ▶ Wind River VxWorks BSP
- ▶ X-ES Enterprise Linux (XEL) BSP
- ▶ Microsoft Windows 7 BSP
- ▶ Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs



## XCalibur4643

The XCalibur4643 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, a Xilinx Kintex® UltraScale™ FPGA, two 10 Gigabit Ethernet ports on the data plane, and three x4 PCI Express Gen3-capable interfaces on the expansion plane, the XCalibur4643 delivers enhanced performance and efficiency for today's embedded computing applications.

The XCalibur4643 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 XCalibur4643 also supports up to five Gigabit Ethernet ports, four SATA ports, three USB ports, and up to four RS-232/422/485 serial ports out the front panel and/or backplane.

The XCalibur4643 is a powerful, feature-rich solution for the next generation of compute-intensive embedded applications. Wind River VxWorks, X-ES Enterprise Linux (XEL), and Microsoft Windows 7 BSPs are available.

# X-ES

Extreme Engineering Solutions

*...Always Fast*

### Extreme Engineering Solutions

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**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
- Two 10 Gigabit Ethernet ports to P1
- Three x4 PCI Express Gen3-capable ports to P2
- Two 10/100/1000BASE-T Ethernet ports
- XMC and PMC I/O to P3, P4, P5, P6, mapping P3w1P4-P64s+x12d+X8d

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

- One 10/100/1000BASE-T Ethernet port
- One USB 3.0 port
- One RS-232/422/485 serial port
- General-purpose LEDs

**Back Panel I/O**

- Four SATA ports capable of 6 Gb/s
- One USB 2.0 port and one USB 3.0 port
- Up to four RS-232/422/485 serial ports
- Pn6 I/O per VITA 46.9 X12d+X8d
- Pn4 I/O per VITA 46.9 P64s
- Two 10 Gigabit Ethernet SerDes ports
- Two 1000BASE-BX Ethernet ports
- Two 10/100/1000BASE-T Gigabit Ethernet ports
- Control plane Ethernet via CPU or FPGA MAC

**FPGA**

- Xilinx Kintex® UltraScale™ XCKU040 FPGA
- 64 MB configuration flash
- 530,000 logic cells
- 484,800 CLB flip-flops
- 242,400 CLB LUTs
- One x8 PCI Express Gen3-capable interface
- One x1 PCI Express Gen2-capable interface

**PrPMC**

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

**XMC**

- x4 PCI Express Gen3-capable port to XMC site 0
- x8 PCI Express Gen3-capable port to XMC site 1
- Pn6 I/O per VITA 46.9 X12d+X8d

**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
- Microsoft Windows 7 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

