

# XPedite7670

Intel® Xeon® D-1500 Family Processor-Based 3U VPX-REDI Module with Quad Gigabit Ethernet and XMC Site

- ▶ Supports 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
- ▶ 3U VPX (VITA 46) module
- ▶ Optional VITA 46.11 Tier 1 and Tier 2 IPMI Controller (IPMC)
- ▶ Compatible with multiple VITA 65 OpenVPX™ slot profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Conduction- or air-cooled
- ▶ Up to 16 GB of DDR4-2133 ECC SDRAM in two channels
- ▶ Contact factory for larger densities of DDR4-2133 ECC SDRAM
- ▶ Up to 32 GB of NAND flash
- ▶ XMC interface
- ▶ Two x4 PCI Express backplane fabric interconnects
- ▶ Two 10GBASE-KR Ethernet ports
- ▶ Two Gigabit Ethernet ports
- ▶ Two USB 2.0/3.0 ports
- ▶ Up to six RS-232/422/485 serial ports
- ▶ Up to six SATA ports
- ▶ coreboot firmware powered by Intel® FSP
- ▶ Wind River VxWorks BSP
- ▶ X-ES Enterprise Linux (XEL) BSP
- ▶ Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs, as well as Microsoft Windows drivers



## XPedite7670

The XPedite7670 is a high-performance, 3U VPX-REDI, single board computer based on the Intel® Xeon® D-1500 family processors (formerly Broadwell-DE). The Intel® Xeon® D processor can provide up to 16 Xeon®-class cores in a single, power-efficient System-on-Chip (SoC) package. The XPedite7670 maximizes network performance with two 10 Gigabit Ethernet ports configured as 10GBASE-KR and two Gigabit Ethernet ports which are configured as 10/100/1000BASE-T.

Up to eight lanes of PCI Express Gen3 are routed to the backplane P1 connector, supporting a single x8 PCIe interface or two x4 PCIe interfaces. This interface also supports Non-Transparent Bridging, enabling direct communication with other Intel® processors, and there is no need for a separate switch module in the system, further reducing SWaP-C for the system integrator.

The XPedite7670 provides superior growth and expansion capabilities by including an XMC site with full 10 mm I/O envelope support, while maintaining a 0.8 in. VPX slot pitch (12 core processor configurations require 1.0 in. pitch). This gives system integrators a plethora of COTS options for additional I/O, storage, or processing.

The XPedite7670 accommodates up to 16 GB of DDR4-2133 ECC SDRAM in two channels to support memory-intensive applications. The XPedite7670 also hosts numerous I/O ports, including USB, SATA, and RS-232/422/485 serial through the backplane connectors.

Wind River VxWorks and X-ES Enterprise Linux Support Packages (XEL) are available. The XPedite7670 uses coreboot, powered by Intel®'s Firmware Support Package (FSP), to provide fast boot times and significantly simplify code traceability over legacy BIOS implementations.

# X-ES

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

**VPX (VITA 46) P0 I/O**

- Two IPMB connections to optional IPMI Controller (IPMC)

**VPX (VITA 46) P1 I/O**

- x4 PCI Express Gen3-capable interface to P1.A
- x4 PCI Express Gen3-capable interface to P1.B
- Two 10GBASE-KR Ethernet ports
- XMC P16 I/O, mapping P1w9-X12d per VITA 46.9

**VPX (VITA 46) P2 I/O**

- Two 10/100/1000BASE-T Gigabit Ethernet ports
- Up to six SATA ports capable of 6 Gb/s
- Two USB 3.0/2.0 ports
- Up to six RS-232/422/485 serial ports
- 3.3 V GPIO signals

**XMC Site**

- x8 PCI Express Gen3-capable interface
- X12d P16 I/O

**Additional Features**

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

**Software Support**

- coreboot firmware powered by Intel® FSP
- Wind River VxWorks BSP
- X-ES Enterprise Linux (XEL) BSP
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs, as well as Microsoft Windows drivers

**Physical Characteristics**

- 3U VPX-REDI conduction- or air-cooled form factor
- Dimensions: 100 mm x 160 mm
- 0.8 in. pitch without solder-side cover
- 1.0 in. pitch with Two-Level Maintenance (2LM) support (optional)

**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

