

XPedite7672

Intel® Xeon® D-1500 Family Processor-Based 3U VPX-REDI Module with Dual 10GbE and SecureCOTS™

- ▶ 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
- ▶ Designed with SecureCOTS™ technology to support enhanced security and trusted computing
- ▶ Microsemi SmartFusion®2 SoC with 1 GB DDR3-667 ECC SDRAM and 32 MB SPI flash
- ▶ 3U VPX (VITA 46) module
- ▶ Compatible with multiple VITA 65 OpenVPX™ slot profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Up to 16 GB of DDR4-2133 ECC SDRAM in two channels
- ▶ Up to 32 GB of SLC NAND flash
- ▶ XMC site with a x8 PCIe interface and rear I/O support
- ▶ Two x4 PCI Express backplane fabric interconnects
- ▶ Two 10 Gigabit Ethernet ports and two Gigabit Ethernet ports
- ▶ Four SATA ports and two USB 2.0 ports
- ▶ One XMC (J16) SATA port for secure storage (XPort6105)
- ▶ 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



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The XPedite7672 is a secure, high-performance, 3U VPX-REDI, single board computer based on the Intel® Xeon® D-1500 family processors. The Intel® Xeon® D processor can provide up to 16 Xeon®-class cores in a single, power-efficient System-on-Chip (SoC) package. The XPedite7672 is an optimal choice for computationally heavy applications requiring maximum data and information protection.

The XPedite7672 integrates SecureCOTS™ technology with a SmartFusion®2 security SoC for hosting custom functions to protect data from being modified or observed and provides an ideal solution when stringent security capabilities are required. The SmartFusion®2 can control, intercept, and monitor the Xeon® D subsystem, implement penalties, and interface to the system through single-ended and differential I/O directly connected to the VPX backplane. Circuit board enhancements and optimized Two-Level Maintenance (2LM) metalwork provide additional protection to the physical hardware.

The XPedite7672 maximizes network performance with two 10 Gigabit 10GBASE-KR Ethernet interfaces and two 10/100/1000BASE-T Gigabit Ethernet interfaces. It accommodates up to 16 GB of DDR4-2133 ECC SDRAM in two channels and up to 32 GB of onboard SATA NAND flash in addition to numerous I/O ports, including USB, SATA, and RS-232/422/485 through the backplane connectors. The XPedite7672 provides additional expansion capabilities by including an integrated XMC. This XMC site includes a x8 PCIe connection to the Intel® Xeon® D processor and X12d I/O mapped directly to the VPX backplane connectors.

Wind River VxWorks and X-ES Enterprise Linux Support Packages (XEL) are available. The XPedite7672 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

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

Security and Management

- Microsemi SmartFusion®2 security FPGA with 1 GB DDR3-667 ECC SDRAM and 32 MB SPI flash
- Designed with SecureCOTS™ technology to support enhanced security and trusted computing
- SmartFusion®2 zeroization
- System voltage monitor, power-on/reset control, non-volatile write-protection control
- Non-Deterministic Random Number Generator, Encryption
- Environmental sensors (see product manual)
- Trusted Platform Module (TPM) 1.2 or 2.0

VPX (VITA 46) P0 I/O

- Two SmartFusion®2 I²C ports

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
- Four SATA ports capable of 6 Gb/s
- Two USB 2.0 ports
- Up to six RS-232 or four RS-422/485 serial ports
- Single-ended and differential GPIO from SmartFusion®2

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

XMC Site

- x8 PCI Express Gen3-capable port
- One SATA port
- Six SmartFusion®2 GPIO

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

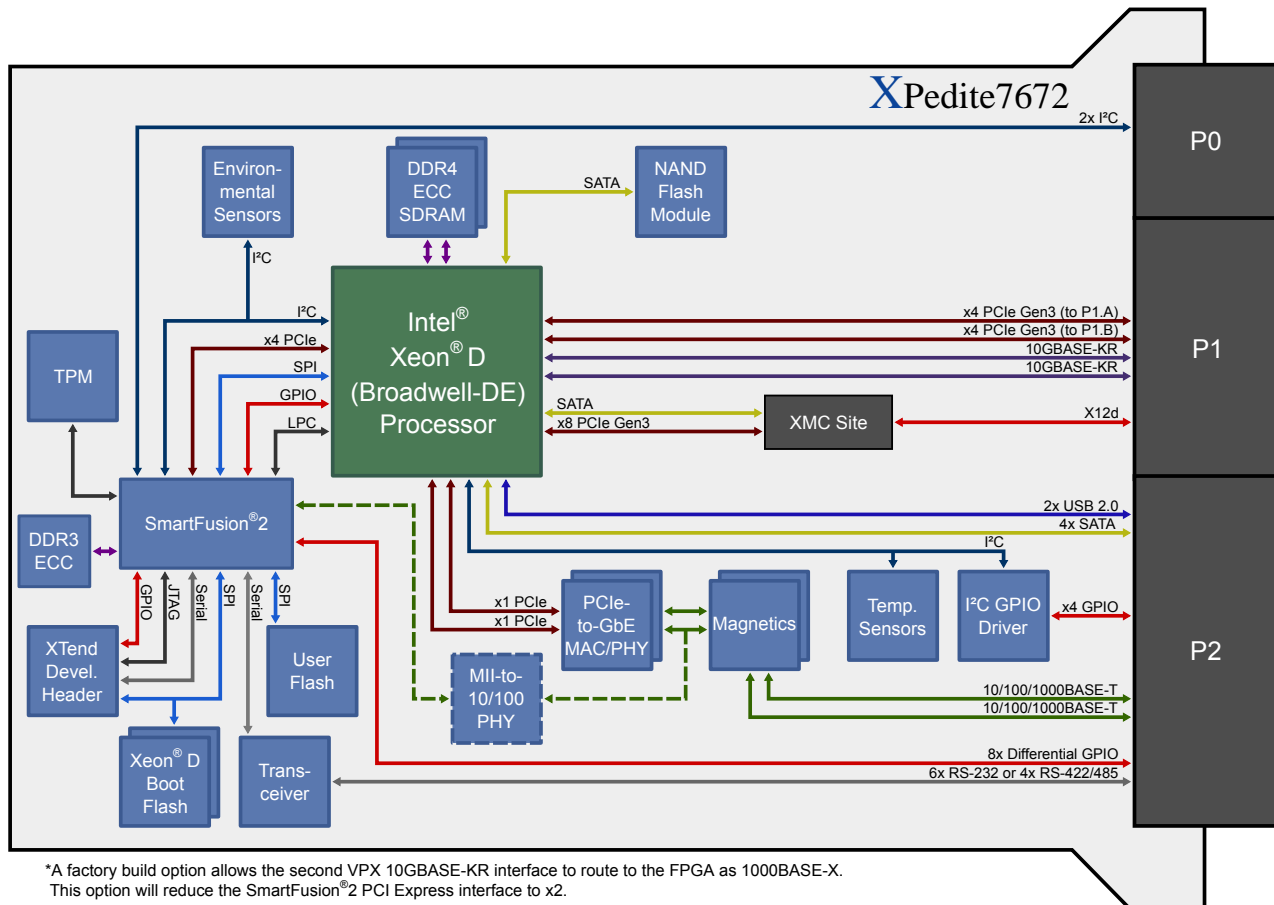
Contact factory for appropriate board configuration based on environmental requirements.

- 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 g²/Hz (maximum), 5 to 2000 Hz	0.04 g²/Hz (maximum), 5 to 2000 Hz	0.1 g²/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



*A factory build option allows the second VPX 10GBASE-KR interface to route to the FPGA as 1000BASE-X. This option will reduce the SmartFusion®2 PCI Express interface to x2.