

# XPedite7770

Intel® Xeon® D-1700 Processor-Based 3U VPX-REDI Module with 48 GB of DDR4, 100 Gigabit Ethernet, and SecureCOTS™

- ▶ Supports Intel® Xeon® D-1700 series (formerly Ice Lake-D) processors
- ▶ Up to 10 Xeon®-class cores in a single, power-efficient SoC package
- ▶ SKUs available with native extended temperature support
- ▶ Designed with SecureCOTS™ technology to support enhanced security and trusted computing
- ▶ Microsemi® PolarFire™ SoC FPGA with 256 MB SPI flash
- ▶ 3U VPX (VITA 46) module
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Compatible with multiple VITA 65 OpenVPX™ slot profiles
- ▶ 48 GB of DDR4 ECC SDRAM in three channels
- ▶ 32 GB of SLC NAND flash
- ▶ XMC site with x8 PCIe interface and rear I/O support
- ▶ One 100GBASE-KR4 Ethernet port
- ▶ One 10/100/1000BASE-T Ethernet port
- ▶ Two x4 Gen3, one x4 Gen2, and two x2 Gen2 PCIe interfaces
- ▶ One 10GBASE-KR port (with additional port available in some board configurations)
- ▶ Two USB 2.0 ports
- ▶ Two RS-232/422/485 serial ports
- ▶ RDMA over Converged Ethernet (RoCE) v2 internet layer protocol support
- ▶ SOSA-aligned pinout compatible with backplane slot profile 1F1F2U1TU1T1U1T-14.2.16
- ▶ SOSA-aligned to AMPS profile MODA3-16.2.15-1-F2C-(E8)(P3F)(2E7-E3)(N-N-N-N-M3/M4/M5-N)<N> (I/O limitations apply, contact factory for details)
- ▶ Wind River VxWorks BSP
- ▶ X-ES Enterprise Linux (XEL) BSP
- ▶ Contact factory for availability of Microsoft Windows drivers and other operating systems



## XPedite7770

The XPedite7770 is a secure, high-performance single board computer based on the Intel® Xeon® D-1700 series (formerly Ice Lake-D) of processors, making it an optimal choice for computationally heavy applications requiring maximum data and information protection.

This 3U VPX-REDI module integrates SecureCOTS™ technology with a Microsemi® PolarFire™ System-on-Chip (SoC) FPGA for hosting custom functions to protect data from being modified or observed and provides an ideal solution when stringent security capabilities are required.

The XPedite7770 provides incredible speed with 100GBASE-KR4, 10GBASE-KR, and 10/100/1000BASE-T Ethernet ports. It accommodates up to 48 GB of DDR4 ECC SDRAM in three channels and up to 32 GB of onboard SLC NAND flash in addition to numerous I/O ports, including USB 2.0, PCI Express, and RS-232/422/485 serial through the backplane connectors. An integrated XMC site provides additional expansion capabilities, including a x8 PCI Express connection to the Intel® Xeon® D processor and X12d I/O mapped directly to the VPX backplane connectors.

The XPedite7770 offers a SOSA-aligned pinout compatible with backplane slot profile 1F1F2U1TU1T1U1T-14.2.16. The AMPS profile is MODA3-16.2.15-1-F2C-(E8)(P3F)(2E7-E3)(N-N-N-N-M3/M4/M5-N)<N>, although limitations apply. Contact factory for details.

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

# X-ES

Extreme Engineering Solutions

*“Fast, Flexible, Customer-Focused  
Embedded Solutions”*

### Extreme Engineering Solutions

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Phone: 608.833.1155 • Fax: 608.827.6171  
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**Processor**

- Intel® Xeon® D-1700 series (formerly Ice Lake-D) processor
- Up to 10 Xeon®-class cores in a single, power-efficient SoC package
- SKUs available with native extended temperature support

**Memory**

- 48 GB of DDR4 ECC SDRAM in three channels
- 32 GB of SLC NAND flash
- 64 MB NOR boot flash
- 64 kB EEPROM

**Security and Management**

- Microsemi® PolarFire™ SoC FPGA with 256 MB SPI flash
- Designed with SecureCOTSTM technology to support enhanced security and trusted computing
- System voltage monitor, power-on/reset control, non-volatile write-protection control
- Trusted Platform Module (TPM)

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

- Two IPMB connections to an IPMI Controller

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

- One 100GBASE-KR4 Ethernet port to P1.A
- One x4 PCI Express Gen3-capable interface to P1.B
- XMC P16 I/O, mapping P1w9-X12d per VITA 46.9
- One 10GBASE-KR Ethernet port
- One 10GBASE-KR Ethernet port (optional)

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

- One 10/100/1000BASE-T Ethernet port
- One x4 PCI Express Gen3-capable interface
- One x4 PCI Express Gen2-capable interface
- Two x2 PCI Express Gen2-capable interfaces
- Two USB 2.0 ports
- Two RS-232/422/485 serial ports
- Four single-ended FPGA GPIOs

**Software Support**

- RDMA over Converged Ethernet (RoCE) v2 internet layer protocol support
- UEFI firmware
- Wind River VxWorks BSP
- X-ES Enterprise Linux (XEL) BSP
- Contact factory for availability of Microsoft Windows drivers and other operating systems

**XMC Site**

- One x8 PCI Express Gen3-capable interface

**Physical Characteristics**

- 3U VPX-REDI conduction- or air-cooled form factor
- SOSA-aligned pinout compatible with backplane slot profile 1F1F2U1TU1T1U1T-14.2.16
- SOSA-aligned to AMPS profile MODA3-16.2.15-1-F2C-(E8)(P3F)(2E7-E3) (N-N-N-N-M3/M4/M5-N)<N> (I/O limitations apply, contact factory for details)
- Dimensions: 100 mm x 160 mm
- 0.8 in. pitch without solder-side cover
- 1.0 in. pitch with Two-Level Maintenance (2LM) support

**Environmental Requirements**

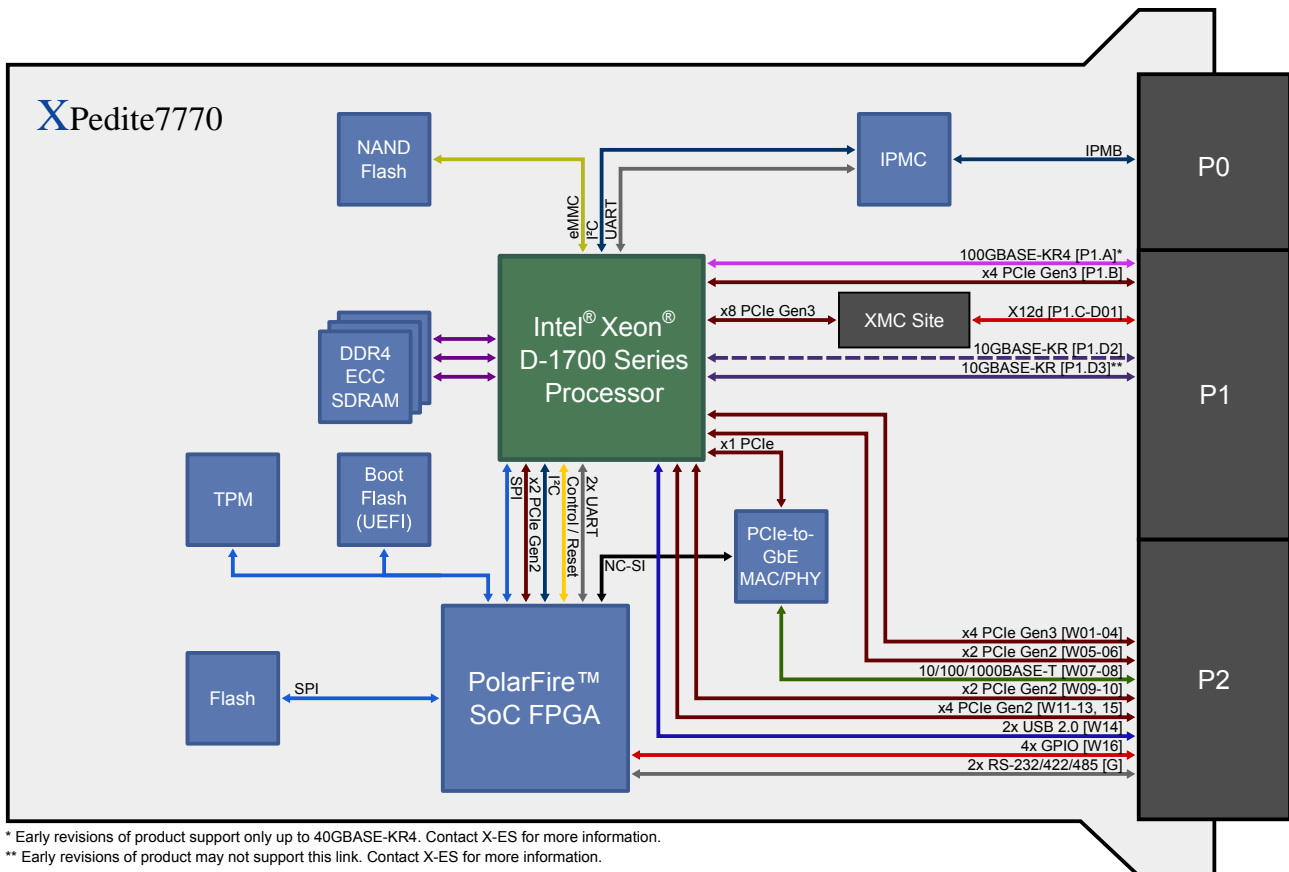
Contact factory for appropriate board configuration based on environmental requirements

- Supported ruggedization levels (see chart below): 5
- Conformal coating available as an ordering option
- Thermal performance will vary based on CPU frequency and application
- Contact X-ES for air-cooled development options

**Power Requirements**

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

<b>Ruggedization Level</b>	<b>Level 5</b>
<b>Cooling Method</b>	Conduction-Cooled
<b>Operating Temperature</b>	-40 to +85°C (board rail surface)
<b>Storage Temperature</b>	-55 to +105°C (maximum)
<b>Vibration</b>	0.1 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz
<b>Shock</b>	40 g, 11 ms sawtooth
<b>Humidity</b>	Up to 95% non-condensing



\* Early revisions of product support only up to 40GBASE-KR4. Contact X-ES for more information.  
 \*\* Early revisions of product may not support this link. Contact X-ES for more information.