

# XPedite7871

Intel® Xeon® D-2700 Processor-Based 3U VPX-REDI Module with 64 GB of DDR4, 40 Gigabit Ethernet, and SecureCOTS™

- ▶ Supports Intel® Xeon® D-2700 series (formerly Ice Lake-D) processors
- ▶ Up to 20 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
- ▶ Compatible with multiple VITA 65 OpenVPX™ slot profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ 64 GB of DDR4 ECC SDRAM in four channels
- ▶ 32 GB of SLC NAND flash
- ▶ One 40GBASE-KR4 Ethernet port
- ▶ Up to two 10GBASE-KR Ethernet ports
- ▶ One 10/100/1000BASE-T Ethernet port
- ▶ Two x4 Gen3, one x4 Gen2, and two x2 Gen2 PCI Express interfaces
- ▶ 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 100GBASE-KR4 availability
- ▶ Contact factory for availability of Microsoft Windows drivers and other operating systems



## XPedite7871

The XPedite7871 is a secure, high-performance single board computer based on the Intel® Xeon® D-2700 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 XPedite7871 provides incredible speed with one 40GBASE-KR4, up to two 10GBASE-KR, and one 10/100/1000BASE-T Ethernet ports. It accommodates up to 64 GB of DDR4 ECC SDRAM in four channels and up to 32 GB of onboard SLC NAND flash in addition to numerous I/O ports, including USB 2.0, PCIe, and RS-232/422/485 serial through the backplane connectors.

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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**Processor**

- Intel® Xeon® D-2700 series (formerly Ice Lake-D) processor
- Up to 20 Xeon®-class cores in a single, power-efficient SoC package
- SKUs available with native extended temperature support

**Memory**

- 64 GB of DDR4 ECC SDRAM in four 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) P1 I/O**

- One 40GBASE-KR4 Ethernet port to P1.A
- One x4 PCI Express Gen3-capable interface to P1.B
- Up to two 10GBASE-KR Ethernet ports to P1.D

**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

**Physical Characteristics**

- 3U VPX-REDI conduction- or air-cooled form factor
- SOSA-aligned pinout compatible with backplane slot profile 1F1F2U1T1U1T-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

