XPedite7870

Intel® Xeon® D-2800 Processor-Based 3U VPX-REDI Module with 64 GB of DDR4, 100 Gigabit Ethernet, and SecureCOTS™

- Supports Intel® Xeon® D-2800 series (formerly Eddy Lake) 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
- Up to 256 GB of NAND flash
- Dual 100GBASE-KR4 Ethernet ports (up to 100 Gbps aggregate processor throughput)
- 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 support (contact factory for details)
- Wind River VxWorks BSP
- X-ES Enterprise Linux (XEL) BSP
- Contact factory for PCI Express Gen4 and alternative Ethernet configuration availability
- Contact factory for availability of Microsoft Windows drivers and other operating systems

XPedite7870

The XPedite7870 is a secure, high-performance, single board computer based on the Intel® Xeon® D-2800 series (formerly Eddy Lake) 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 XPedite7870 provides incredible speed with two 100GBASE-KR4 and one 10/100/1000BASE-T Ethernet ports. The dual 100GBASE-KR4 Ethernet ports offer fallback redundancy to help ensure a consistent processor throughput of up to 100 Gbps is available at all times. The XPedite7870 also accommodates up to 64 GB of DDR4 ECC SDRAM in four channels and up to 256 GB of onboard 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.

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"

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Processor

- Intel® Xeon® D-2800 series (formerly Eddy Lake) 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
- Up to 256 GB of NAND flash
- 64 MB NOR boot flash
- 64 kB EEPROM

Security and Management

- Microsemi® PolarFire™ SoC FPGA with 256 MB SPI flash
- Designed with SecureCOTS™ 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

- Dual 100GBASE-KR4 Ethernet ports (up to 100 Gbps aggregate processor throughput) to P1.A and P1.B
- One x4 PCI Express Gen3-capable interface to P1.C

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 support (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.

Ruggedization Level	Level 5
Cooling Method	Conduction-Cooled
Operating Temperature	-40 to +85°C (board rail surface)
Storage Temperature	-55 to +105°C (maximum)
Vibration	0.1 g²/Hz (maximum), 5 to 2000 Hz
Shock	40 g, 11 ms sawtooth
Humidity	Up to 95% non-condensing
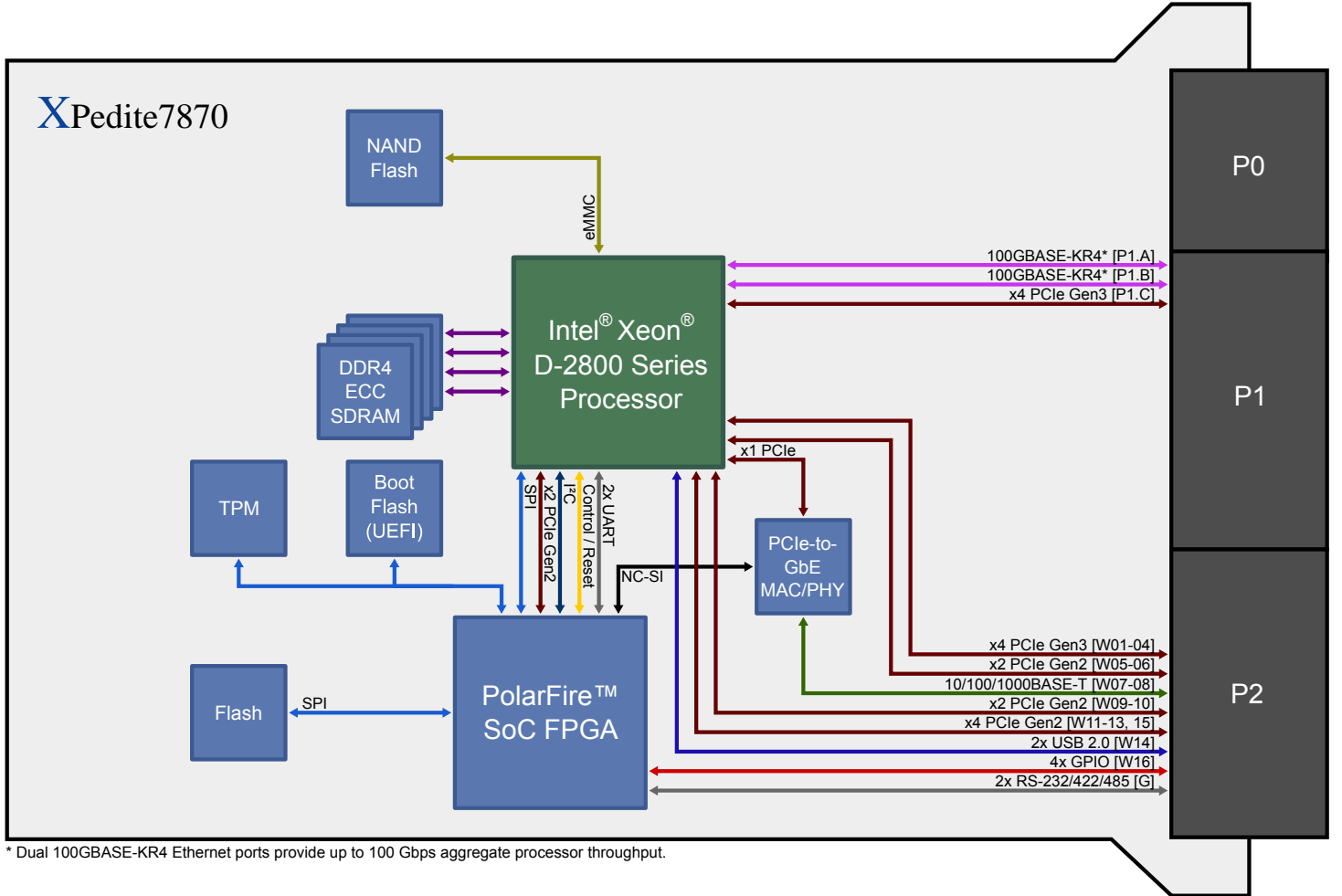
* Dual 100GBASE-KR4 Ethernet ports provide up to 100 Gbps aggregate processor throughput.