

XCalibur4840

Intel® Xeon® D-2700 Processor-Based 6U 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™ FPGA with 128 MB SPI flash
- › 6U 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
- › Two XMC sites with x8 PCIe Gen3 interfaces and rear I/O support
- › Two 40GBASE-KR4 Ethernet ports
- › Two 1000BASE-X Ethernet ports
- › Two 10/100/1000BASE-T Ethernet ports
- › Four x4 PCIe Gen3 interfaces and one x4 PCIe Gen2 interface
- › Two USB 2.0 ports
- › Two RS-232/422/485 serial ports
- › Contact factory for SATA or PCIe Gen4 availability
- › 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 XCalibur4840 is a secure, high-performance, 6U VPX-REDI, single board computer based on the Intel® Xeon® D-2700 series (formerly Ice Lake-D) of processors. The XCalibur4840 is an optimal choice for computationally heavy applications requiring maximum data protection.

The XCalibur4840 integrates SecureCOTS™ technology with a Microsemi® PolarFire™ 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 XCalibur4840 provides incredible speed with two 40GBASE-KR4, two 1000BASE-X, and two 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. The XCalibur4840 provides additional expansion capabilities by including two integrated XMC/PMC sites. These sites each include a x8 PCIe connection to the Intel® Xeon® D processor and X12d+X8d I/O mapped directly to the VPX backplane connectors. Additionally, each mezzanine site offers a single PMC connector, which provides a build option for P64s or X38s to the VPX 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

9901 Silicon Prairie Parkway • Verona, WI 53593
Phone: 608.833.1155 • Fax: 608.827.6171
sales@xes-inc.com • <https://www.xes-inc.com>

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™ FPGA with 128 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 (IPMC)

VPX (VITA 46) P1 I/O

- Two 40GBASE-KR4 Ethernet ports to P1.A and P1.B
- Two general-purpose interrupts

VPX (VITA 46) P2 I/O

- Four x4 PCI Express Gen3-capable interfaces

VPX (VITA 46) P3 I/O

- Build option for PMC P24 I/O per VITA 46.9 P64s, or XMC P26 I/O per VITA 46.9 X38s

VPX (VITA 46) P4 I/O

- XMC P26 I/O per VITA 46.9 x12d+x8d
- Two 10/100/1000BASE-T Ethernet ports
- Two 1000BASE-X Ethernet ports
- Eight single-ended FPGA GPIOs

VPX (VITA 46) P5 I/O

- Two RS-232/422/485 serial ports
- Build option for PMC P14 I/O per VITA 46.9 P64s, or XMC P16 I/O per VITA 46.9 X38s

VPX (VITA 46) P6 I/O

- XMC P16 I/O per VITA 46 x12d+x8d
- Two USB 2.0 ports
- One x4 PCI Express Gen2-capable interface

XMC

- x8 PCI Express Gen3-capable port to J15 and J25
- Pn6 I/O to VPX connectors per VITA 46.9 X8d+X12d
- Build option for Pn6 I/O to VPX connectors, per VITA 46.9 X38s

PrPMC

- Build option for Pn4 I/O to VPX connectors per VITA 46.9 P64s

Software Support

- UEFI firmware
- 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

- Contact factory for details

Environmental Requirements

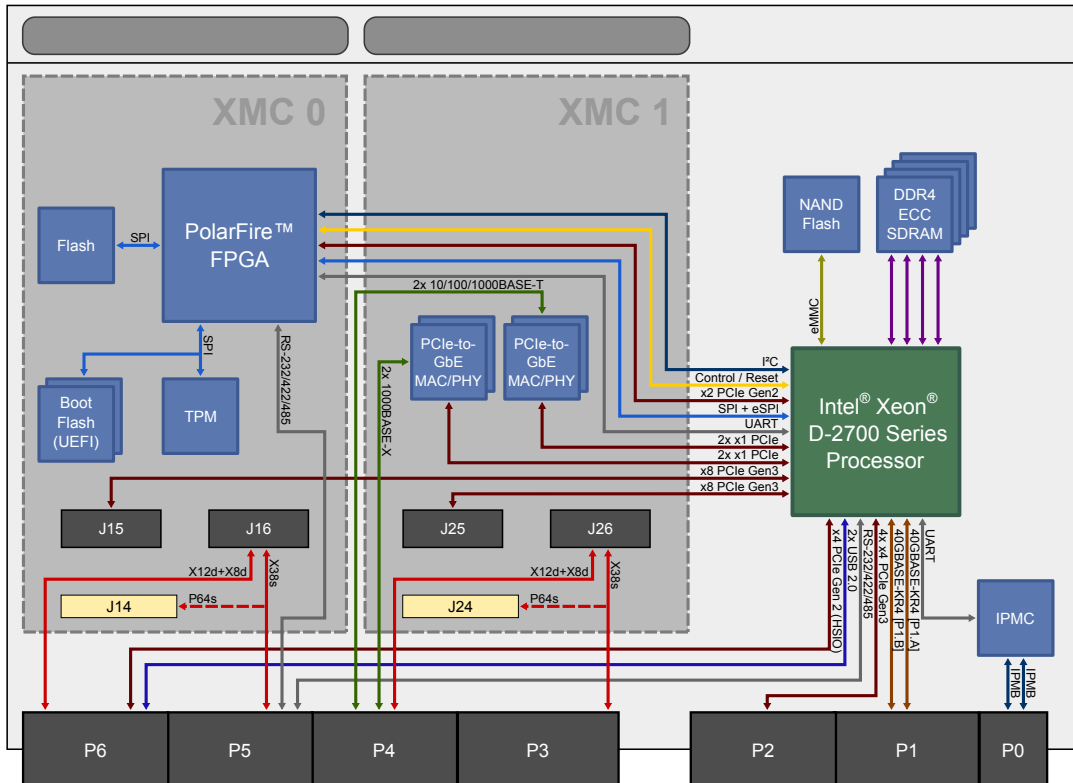
Contact factory for appropriate board configuration based on environmental requirements

- 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 g ² /Hz (maximum), 5 to 2000 Hz
Shock	40 g, 11 ms sawtooth
Humidity	Up to 95% non-condensing



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