

XPedite8171

Intel® Atom™ E3800 Series Processor-Based 3U VPX Module

- ▶ Intel® Atom™ E3800 family processors (formerly Bay Trail-I)
- ▶ 3U VPX (VITA 46) module
- ▶ Compatible with multiple VITA 65 OpenVPX™ slot profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Conduction or air cooling
- ▶ Up to 8 GB of DDR3-1333 ECC SDRAM
- ▶ Up to 64 GB of SLC NAND flash in two devices
- ▶ XMC/PMC support
- ▶ Support for the XPedite5205 Cisco IOS® router
- ▶ Two PCI Express Fat Pipe P1 fabric interconnects
- ▶ Up to three Gigabit Ethernet ports
- ▶ Two SATA ports
- ▶ Two USB 2.0 high-speed ports
- ▶ Two RS-232/422/485 serial ports
- ▶ Two HDMI/DVI-D or Dual-Mode DisplayPort interfaces
- ▶ Intel® Platform Trust Technology (PTT) providing optional Trusted Platform Module (TPM) support
- ▶ coreboot bootloader, powered by Intel®'s Firmware Support Package (FSP)
- ▶ Wind River VxWorks BSP
- ▶ Linux BSP
- ▶ Microsoft Windows drivers
- ▶ Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs



XPedite8171

The XPedite8171 is an Intel® Atom™ E3800-based 3U VPX-REDI single board computer available in conduction- and air-cooled configurations. The Atom™ E3800 processors provide excellent computational performance and I/O functionality for their power profile and size. They are low-power system-on-chip (SoC) processors with integrated graphics and support for up to four cores operating at up to 1.91 GHz. Along with best-in-class performance-per-watt, the E3800 family supports extremely low operating temperatures, and its power-efficient 22 nm technology enables operation in the most demanding high-temperature environments.

The XPedite8171 provides superior growth and expansion capabilities by including an XMC or PMC site with full 10 mm I/O envelope support, while maintaining a 0.8 in. VPX slot pitch and providing the system integrator with a plethora of COTS options for additional I/O, storage, or processing, all while minimizing total system SWaP-C. In addition, the XPedite8171 has been designed to support the XPedite5205 Embedded Services Router (ESR) utilizing Cisco IOS®. It also includes up to 8 GB of DDR3-1333 ECC SDRAM and up to 64 GB of SLC NAND flash in two devices, as well as two HDMI/DVI-D or Dual-Mode DisplayPort video interfaces and up to two Gigabit Ethernet ports.

The XPedite8171 supports the E3845 processor in standard configurations and can be built to support the E3827, E3826, E3825, E3815, and E3805. The E3800 series is the 4th generation Atom™ processor from Intel® and was formerly known as the Bay Trail-I platform and Valleyview processor. Wind River VxWorks and Linux Board Support Packages, as well as Microsoft Windows drivers, are available for the XPedite8171. It also supports the open source coreboot bootloader, powered by Intel®'s Firmware Support Package (FSP), to enable ultra-fast boot times and drastically simplify system security.

X-ES

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...Always Fast

Extreme Engineering Solutions

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Processor

- Intel® Atom™ E3800 family processors (formerly Bay Trail-I)
- Standard configuration is E3845
- Up to four cores at up to 1.91 GHz

Memory

- Up to 8 GB of DDR3-1333 ECC SDRAM
- Up to 64 GB of SLC NAND flash

XMC/PrPMC Site

- 32-bit, 33/66 MHz PCI bus (PMC interface)
- x4 PCI Express Gen3-capable port (XMC interface)
- Two SATA ports capable of 3 Gb/s (XMC interface)

VPX (VITA 46) P0 I/O

- I²C port

VPX (VITA 46) P1 I/O

- x4 PCI Express Fat Pipe interface to P1.A
- x4 PCI Express Fat Pipe interface to P1.B
- Two HDMI/DVI-D or Dual-Mode DisplayPort interfaces
- One 10/100/1000BASE-T or two 1000BASE-BX Ethernet ports

VPX (VITA 46) P2 I/O

- One 10/100/1000BASE-T Gigabit Ethernet port
- Two SATA ports capable of 3 Gb/s
- Two USB 2.0 high-speed ports
- Up to two RS-232/422/485 serial ports
- 3.3 V GPIO signals

Additional Features

- Non-volatile memory write protection
- IEEE 1588 support
- Intel® Platform Trust Technology (PTT) providing optional Trusted Platform Module (TPM) support

Software Support

- coreboot bootloader, powered by Intel®'s FSP
- Wind River VxWorks BSP
- Linux BSP
- Microsoft Windows drivers
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs

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
- 0.85 in. and 1.0 in. pitch with solder-side cover

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 ambient
Vibration	0.002 g ² /Hz, 5 to 2000 Hz	0.04 g ² /Hz (maximum), 5 to 2000 Hz	0.1 g ² /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

