XPedite8152

Intel® Atom™ E3800 Series Processor-Based Rugged COM Express® Module with SLC NAND Flash

- Supports Intel® Atom™ E3800 family processors (formerly Bay Trail-I)

- COM Express® Extended Mini form factor with ruggedization enhancements

- COM Express® enhanced Type 10 pinout

- Conduction- or air-cooled

- Extended shock and vibration tolerance

- Up to 32 GB of SLC NAND flash

- Up to 4 GB of DDR3-1333 ECC SDRAM

- Two Gigabit Ethernet ports

- Three SATA ports

- One Dual-Mode DisplayPort interface and one Embedded DisplayPort interface

- Two serial ports

- Four USB 2.0 ports

- One USB 3.0 port

- 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

XPedite8152

The XPedite8152 is a Rugged COM Express® module based on the Intel® Atom™ E3800 series of processors. It is based on the COM Express® Mini form factor, but is extended to 55 mm x 109 mm to provide up to 32 GB of SLC NAND flash as well as 4 GB of DDR3 ECC SDRAM. The XPedite8152 also supports an enhanced Type 10 pinout with one Dual-Mode DisplayPort, one Embedded DisplayPort, two Gigabit Ethernet interfaces, and three SATA interfaces.

With built-in test (BIT) support, true configuration and obsolescence management, Class III PCB fabrication and assembly, environmental qualification per MIL-STD-810, as well as many other features, the XPedite8152 is designed and tested for maximum reliability in the most demanding environments and applications that require long life cycles.

Wind River VxWorks and Linux Board Support Packages, as well as Microsoft Windows drivers, are available for the XPedite8152. 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.

The Intel® Atom™ E3800 series processors 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 XPedite8152 supports the E3825 processor in standard configurations and can be built to support the E3845, E3827, E3826, 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.

Processor

- Intel® Atom™ E3800 family processors (formerly Bay Trail-I)
- Standard configuration is E3825
- Up to four cores at up to 1.91 GHz

Memory

- Up to 4 GB of DDR3-1333 ECC SDRAM
- Up to 32 GB of SLC NAND flash

COM Express®

- Enhanced Type 10 pinout
- Extended Mini form factor (55 mm x 109 mm)

Ruggedization and Reliability

- Class III PCB fabrication and assembly
- Soldered DDR3 ECC SDRAM
- Tin whisker mitigation
- Designed and tested for extended solder joint reliability
- Additional mounting holes for rugged and conduction-cooled environments
- OS-level BIT support

I/O Interfaces

- One Dual-Mode DisplayPort interface
- One Embedded DisplayPort interface
- Two 10/100/1000BASE-T ports
- Three SATA ports capable of 3 Gb/s
- Four USB 2.0 ports
- One USB 3.0 port
- Two I²C interfaces
- Two serial ports
- One Serial Peripheral Interface (SPI)

Additional Features

- Non-volatile memory write protection
- 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

Environmental Requirements

Contact factory for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 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 g²/Hz, 5 to 2000 Hz	0.04 g²/Hz (maximum), 5 to 2000 Hz	0.1 g²/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

XPedite8152