

XPedite5170

Freescale Dual-Core MPC8640D Processor-Based Conduction- or Air-Cooled VPX-REDI Module

- ▶ Freescale MPC8640D processor with dual PowerPC e600 cores at up to 1.25 GHz
- ▶ 3U VPX (VITA 46) module
- ▶ Ruggedized Enhanced Design Implementation (REDI)
- ▶ Conduction or air cooling
- ▶ Two channels of up to DDR2-500 ECC SDRAM, up to 4 GB (2 GB each)
- ▶ Up to 256 MB of NOR flash (with redundancy)
- ▶ Up to 4 GB of NAND flash
- ▶ PrPMC/XMC interface
- ▶ x4 PCI Express or Serial RapidIO Fat Pipe P1.A fabric interconnect
- ▶ x4 PCI Express P1.B fabric interconnect
- ▶ Two SERDES Gigabit Ethernet Thin Pipe P1 fabric interconnects
- ▶ Two optional 10/100/1000BASE-T Ethernet ports
- ▶ Up to two RS-232/RS-422/RS-485 serial P2 ports
- ▶ Front I/O available via plugover module
- ▶ Linux LSP
- ▶ Wind River VxWorks BSP
- ▶ QNX Neutrino BSP
- ▶ Green Hills INTEGRITY BSP



XPedite5170

The XPedite5170 is a high-performance 3U VPX-REDI single-board computer based on the Freescale MPC8640D processor. With dual PowerPC e600 cores running at up to 1.25 GHz, the MPC8640D delivers enhanced performance with AltiVec technology and IEEE 754 dual-precision floating point and efficiency for today's network information processing and other embedded computing applications.

The XPedite5170 supports two separate channels of up to 2 GB each of up to DDR2-500 ECC SDRAM, as well as up to 4 GB of NAND flash and up to 256 MB of NOR flash (with redundancy). The XPedite5170 provides the option of utilizing a PCI Express or Serial RapidIO Fat Pipe P1 interconnect, as well as two SERDES Gigabit Ethernet Thin Pipe P1 fabric interconnects. The XPedite5170 also supports dual Gigabit Ethernet, GPIO, I²C, PMC I/O, XMC I/O, and up to two RS-232/RS-422/RS-485 serial ports through the P2 connector.

The XPedite5170 provides a ruggedized, high-performance, feature-rich solution to support the next generation of rugged embedded applications. Wind River VxWorks, QNX Neutrino, and Green Hills INTEGRITY Board Support Packages (BSPs) are available, as well as a Linux LSP.

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Processor

- Freescale MPC8640D processor
- Dual PowerPC e600 cores at up to 1.25 GHz
- 1 MB of integrated AltiVec L2 cache per core

Memory

- Two channels of up to DDR2-500 ECC SDRAM, up to 4 GB (2 GB each)
- Up to 256 MB of NOR flash (with redundancy)
- Up to 4 GB of NAND flash

VPX (VITA 46) P1 I/O

- x4 PCI Express or Serial RapidIO to P1.A
- x4 PCI Express to P1.B
- Two SERDES Gigabit Ethernet ports (or one 10/100/1000BASE-T port out P1 and one 10/100/1000BASE-T port out P2)
- X12d XMC P16 I/O

VPX (VITA 46) P2 I/O

- One 10/100/1000BASE-T port (when two SERDES Gigabit Ethernet P1 ports are not used)
- Up to two RS-232/RS-422/RS-485 serial ports
- I²C port
- 3.3V GPIO signals
- P64s PMC P14 I/O

PrPMC/XMC Site

- 32-bit, 66-MHz PCI bus (PMC interface)
- x4 PCIe port (XMC interface)
- P64s P14 I/O support
- X12d P16 I/O support

Front Panel I/O

- Front-panel RJ45 Ethernet and mini-DB9 RS-232 serial ports available via optional plugover module

Software Support

- Linux LSP
- Wind River VxWorks BSP
- QNX Neutrino BSP
- Green Hills INTEGRITY BSP
- Windows drivers

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 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): Level 1, Level 2, Level 3, Level 4, Level 5
- Humidity: 0% to 95% non-condensing
- Storage temperature: -55 to 105 °C

Power Requirements

- Maximum power consumption: 35 W (with 1.0-GHz processor)

Ruggedization Level	Level 1	Level 2	Level 3	Level 4	Level 5
Cooling Method	Standard Air-Cooled	Extended Air-Cooled	Rugged Air-Cooled	Conduction-Cooled	Conduction-Cooled
Operating Temperature	0 to +55 °C	0 to +65 °C	-40 to +70 °C	-40 to +70 °C	-40 to +85 °C
Vibration	0.002 g ² /Hz	0.002 g ² /Hz	0.04 g ² /Hz	0.1 g ² /Hz	0.1 g ² /Hz
Shock	20 g	20 g	40 g	40 g	40 g
Storage Temperature	-40 to +105 °C	-40 to +105 °C	-55 to +105 °C	-55 to +105 °C	-55 to +105 °C

