

# XPedite5470

Freescale Eight-Core P4080 Processor-Based Conduction- or Air-Cooled 3U VPX-REDI Module

- ▶ Freescale P4080 processor with eight PowerPC e500mc cores at up to 1.5 GHz (alternate processors P3041, P4040, P5010, P5020)
- ▶ 3U VPX (VITA 46) module
- ▶ Ruggedized Enhanced Design Implementation (REDI)
- ▶ Conduction or air cooling
- ▶ Two channels of up to DDR3-1333 ECC SDRAM, up to 8 GB (4 GB each)
- ▶ Up to 512 MB of NOR flash (with redundancy)
- ▶ Up to 32 GB of NAND flash
- ▶ Hardware write protection for NVRAM
- ▶ PrPMC/XMC interface
- ▶ x4 PCI Express or Serial RapidIO Fat Pipe P1.A fabric interconnect
- ▶ x4 PCI Express or Serial RapidIO Fat Pipe P1.B fabric interconnect
- ▶ Two SerDes Gigabit Ethernet Thin Pipe P1 fabric interconnects
- ▶ Two optional 10/100/1000BASE-T Ethernet ports
- ▶ Two optional SATA 3.0 Gb/s ports to P16 or P2
- ▶ Up to two RS-232/422/485 serial P2 ports
- ▶ Two USB 2.0 ports to P2 (one can optionally be routed to front panel via plugover module)
- ▶ Front I/O available via plugover module
- ▶ Linux BSP
- ▶ Wind River VxWorks BSP
- ▶ Green Hills INTEGRITY-178 tuMP BSP



## XPedite5470

The XPedite5470 is a high performance 3U VPX-REDI single board computer supporting Freescale QorIQ P3, P4, and P5 processors. With a number of processor options to choose from, X-ES can provide a product to meet the specific power and performance requirements of today's embedded computing applications.

The P4080 processor brings the raw power of eight e500mc cores running at up to 1.5 GHz and dual-channel DDR3 memory, delivering unparalleled multi-core performance. For applications which are more power conscious, the P3041 processor offers four e500mc cores running at up to 1.5 GHz with a single channel of DDR3 memory, all within a significantly reduced power envelope. Applications requiring the performance of a true 64-bit processor are satisfied by the P5020 processor which offers dual e5500 cores running at up to 2 GHz and beyond with high performance floating-point units and dual-channel DDR3 memory. Additional reduced function processors are available to meet any power and performance budget.

The XPedite5470 provides a ruggedized, high-performance, feature-rich solution to support the next generation of rugged embedded applications. Wind River VxWorks, Linux, and Green Hills INTEGRITY-178 tuMP Board Support Packages (BSPs) are available.

# X-ES

Extreme Engineering Solutions

*...Always Fast*

### Extreme Engineering Solutions

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**Processor**

- Freescale P4080 processor
- Eight PowerPC e500mc cores at up to 1.5 GHz
- 128 kB L2 cache per core
- 1 MB L3 cache per channel
- IEEE754 Floating Point Unit (FPU) support
- Alternate processor configurations offered, see below.

**Alternate Processor Configurations**

- P3041 processor with four PowerPC e500mc cores at up to 1.5 GHz
- P4040 processor with four PowerPC e500mc cores at up to 1.5 GHz
- P5010 processor with one 64-bit PowerPC e5500 core at up to 2 GHz
- P5020 processor with two 64-bit PowerPC e5500 cores at up to 2 GHz

**Memory**

- Two channels of up to DDR3-1333 ECC SDRAM, up to 8 GB (4 GB each)
- Up to 512 MB of NOR flash (with redundancy)
- Up to 32 GB of NAND flash

**VPX (VITA 46) P1 I/O**

- x4 PCI Express or Serial RapidIO Fat Pipe to P1.A
- x4 PCI Express or Serial RapidIO Fat Pipe 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-232/422/485 serial ports
- Up to two USB 2.0 ports
- I<sup>2</sup>C port
- 3.3 V GPIO signals
- P64s PMC P14 I/O (optional)
- Two SATA 3.0 Gb/s ports (optional)

**PrPMC/XMC Site**

- 32-bit, 66 MHz PCI bus (PMC interface)
- x4 PCIe port (XMC interface)
- P64s P14 I/O support (optional)
- X12d P16 I/O support
- Two SATA 3.0 Gb/s ports to P16 (optional)

**Front Panel I/O**

- Front panel RJ-45 Ethernet, micro-DB-9 RS-232 serial ports, and USB available via optional plugover module

**Software Support**

- Linux BSP
- Wind River VxWorks BSP
- Green Hills INTEGRITY-178 tuMP BSP

**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**

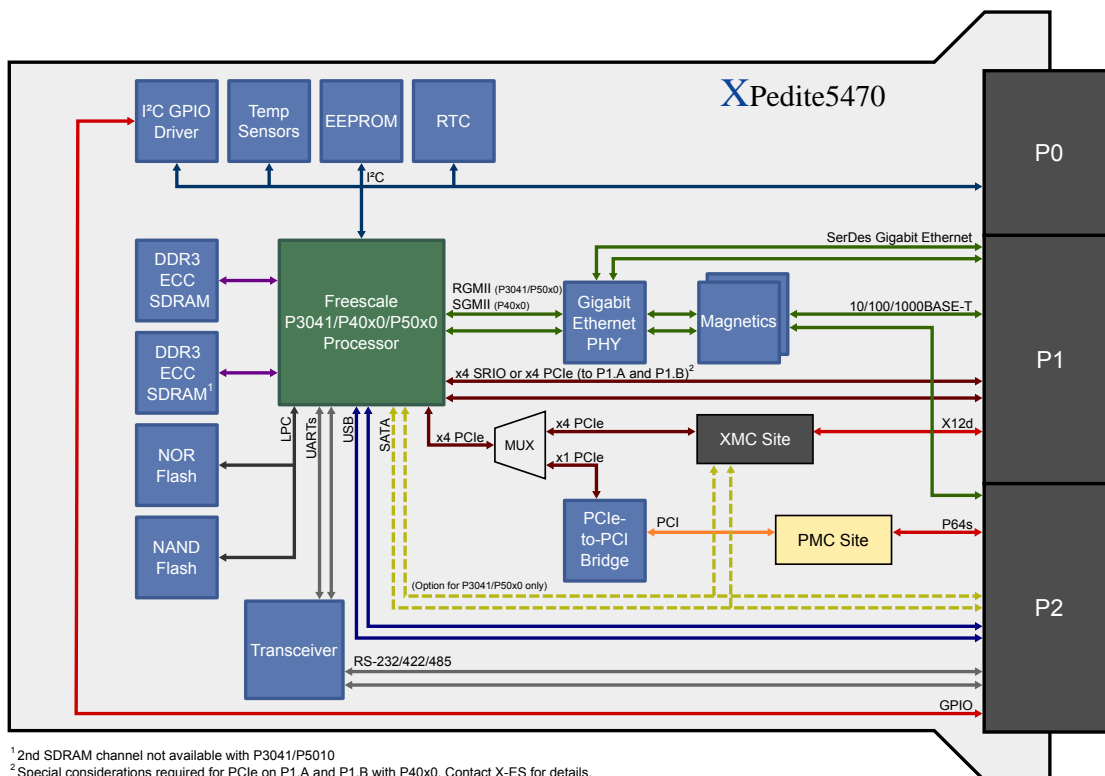
Contact factory for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 1, 3, 5
- Conformal coating available as an ordering option

**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 <sup>2</sup> /Hz, 5 to 2000 Hz	0.04 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.1 g <sup>2</sup> /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



<sup>1</sup> 2nd SDRAM channel not available with P3041/P5010  
<sup>2</sup> Special considerations required for PCIe on P1.A and P1.B with P40x0. Contact X-ES for details.

