XPedite5550

Freescale Dual-Core QorIQ P2020 Processor-Based Conduction- or Air-Cooled COM Express® Module

- Freescale QorIQ P2010 and P2020 processors with dual PowerPC e500v2 cores at up to 1.2 GHz
- Conduction or air cooling
- Extended shock and vibration tolerance
- Up to 8 GB of DDR3-800 ECC SDRAM
- x2 PCI Express interface
- x1 PCI Express interface
- Three Gigabit Ethernet ports
- Two serial ports
- USB 2.0 port
- Up to 256 MB of NOR flash (with redundancy)
- Up to 16 GB of NAND flash
- Wind River VxWorks BSP
- Linux BSP
- Green Hills INTEGRITY-178 BSP
- QNX Neutrino (contact factory)
- LynuxWorks LynxOS (contact factory)

The XPedite5550 is a ruggedized COM Express module that complies with the COM Express Compact form factor (95 mm x 95 mm) and supports an enhanced Type 5 pinout. COM Express provides a standards-based form factor to bring processing to a wide range of applications. Available in both conduction- and air-cooled versions, the XPedite5550 supports the Freescale QorIQ P2020 processor. With dual PowerPC e500v2 cores running at up to 1.2 GHz, the P2020 delivers enhanced performance and efficiency for today's network information processing and other embedded computing applications.

The XPedite5550 complements processor performance with up to 8 GB of DDR3-800 ECC SDRAM. It also hosts numerous I/O ports, including three Gigabit Ethernet ports or three SerDes Ethernet ports, a single x2 PCIe port, a single x1 PCIe port, a single USB 2.0 port, two I²C ports, two serial ports, one SPI interface, IEEE 1588 support, and P2020 local bus.

The XPedite5550 provides a high-performance, feature-rich solution for current and future generations of embedded applications. For customers seeking lower overall power consumption, the XPedite5550 can be designed with the Freescale P1020 processor. Operating system support packages for the XPedite5550 include Wind River VxWorks, Green Hills INTEGRITY-178, and Linux 2.6.
**Processor**
- Freescale QorIQ P2020 processor
- Dual PowerPC e500v2 cores at up to 1.2 GHz
- 512 kB of shared L2 cache

**Alternate Processor Configurations**
- P1011 processor with one PowerPC e500v2 core at up to 800 MHz
- P1020 processor with two PowerPC e500v2 cores at up to 800 MHz
- P2010 processor with one PowerPC e500v2 core at up to 1.2 GHz

**Memory**
- Up to 8 GB of DDR3-800 SDRAM
- Up to 256 MB of NOR flash (with redundancy)
- Up to 16 GB of NAND flash

**COM Express®**
- Type 5FS pinout, see Board Manual for details
- Compact form factor (95 mm x 95 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
- Bootloader and BIT support

**Interface**
- Three 10/100/1000BASE-T or 1000BASE-X ports
- SPI
- IEEE 1588
- Two PCIe (x2, x1)
- One USB 2.0 port
- Two I^2C
- Two serial ports
- P2020 local bus

**Software Support**
- Wind River VxWorks BSP
- Linux BSP
- Green Hills INTEGRITY-178 BSP
- QNX Neutrino (contact factory)
- LynuxWorks LynxOS (contact factory)

**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.

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<table>
<thead>
<tr>
<th>Ruggedization Level</th>
<th>Level 1</th>
<th>Level 3</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Method</td>
<td>Standard Air-Cooled</td>
<td>Rugged Air-Cooled</td>
<td>Conduction-Cooled</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to +55°C ambient (300 LFM)</td>
<td>-40 to +70°C (600 LFM)</td>
<td>-40 to +85°C (board rail surface)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40 to +85°C ambient</td>
<td>-55 to +105°C ambient</td>
<td>-55 to +105°C ambient</td>
</tr>
<tr>
<td>Vibration</td>
<td>0.002 g²/Hz, 5 to 2000 Hz</td>
<td>0.04 g²/Hz (maximum), 5 to 2000 Hz</td>
<td>0.1 g²/Hz (maximum), 5 to 2000 Hz</td>
</tr>
<tr>
<td>Shock</td>
<td>20 g, 11 ms sawtooth</td>
<td>30 g, 11 ms sawtooth</td>
<td>40 g, 11 ms sawtooth</td>
</tr>
<tr>
<td>Humidity</td>
<td>0% to 95% non-condensing</td>
<td>0% to 95% non-condensing</td>
<td>0% to 95% non-condensing</td>
</tr>
</tbody>
</table>

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**Connector A-B**
- USB 2.0
- DDR3 ECC SDRAM
- Freescale P2020 Processor
- NOR Flash
- NAND Flash
- Buffers

**Connector C-D**
- IEEE 1588
- PCIe x2, x1
- SPI (1 CS)
- 4x GPIO
- RTC
- Temperature Sensor
- EEPROM
- Local Bus

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