XCalibur4500

4th Generation Intel® Core™ i7 Haswell Processor-Based Conduction- or Air-Cooled 6U CompactPCI Module

- Supports 4th generation Intel® Core™ i7 processors
- 6U CompactPCI module
- Complies with PICMG 2.0, 2.1, 2.3, 2.9, 2.16
- Conduction or air cooling
- Up to 16 GB DDR3L-1600 ECC SDRAM in two channels
- Up to 64 GB of NAND flash
- Three Gigabit Ethernet ports
- Three USB 2.0 high-speed ports
- Four SATA ports
- Two RS-232/422/485 serial ports
- Two PMC/XMC interfaces
- Two HDMI/DVI-D or Dual-Mode DisplayPort interfaces
- Intel® vPro™/AMT support
- Wind River VxWorks BSP
- Linux BSP
- Microsoft Windows drivers
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs

XCalibur4500

The XCalibur4500 is a high-performance 6U CompactPCI single board computer that is ideal for ruggedized systems requiring high-bandwidth processing and low power consumption. With the 4th generation Intel® Core™ i7 Haswell processor, the XCalibur4500 delivers enhanced performance and efficiency for today’s network information processing and embedded computing applications.

The XCalibur4500 provides up to 16 GB DDR3L-1600 ECC SDRAM in two separate channels, two PrPMC/XMC slots, and up to 64 GB of NAND flash. The XCalibur4500 also hosts numerous I/O ports, including Gigabit Ethernet, USB, SATA, graphics, and RS-232/422/485 through the backplane connectors.

The XCalibur4500 is a powerful, feature-rich solution for the next generation of compute-intensive embedded applications. Wind River VxWorks and Linux Board Support Packages (BSPs) are available, as well as Microsoft Windows drivers.
Technical Specifications

XCalibur4500

Processor
- 4th generation Intel® Core™ i7
- Integrated high-performance 3D graphics controller

Memory
- Up to 16 GB of DDR3L-1600 ECC SDRAM in two channels
- Up to 64 GB of NAND flash
- 64 MB NOR boot flash
- 64 kB EEPROM

cPCI
- 66 MHz 64-bit PCI interface to J1 and J2
- PICMG 2.1 (Hot Swap support)
- PICMG 2.3 (PMC I/O to P3 and P5)
- PICMG 2.9 (dedicated IPMI controller)
- PICMG 2.16 (two 10/100/1000BASE-T Ethernet ports)

PrPMC
- PCI-X (32/64-bit, 66/100 MHz)
- PCI (32/64-bit, 33/66 MHz)

XMC (VITA 42.3)
- x8 PCI Express Gen3-capable

Front Panel I/O (Optional)
- Dual-Mode DisplayPort interface
- One 10/100/1000BASE-T Ethernet port
- One USB 2.0 port
- General-purpose LEDs

Rear Panel I/O
- Two 10/100/1000BASE-T Ethernet ports
- Two SATA ports
- Two USB 2.0 ports
- HDMI/DVI-D or Dual-Mode DisplayPort interface
- Two RS-232/422/485 serial ports
- 3.3 V GPIO signals
- PMC I/O

Additional Features
- Non-volatile memory write protection
- Optional Trusted Platform Module (TPM)
- IEEE 1588 support on two Gigabit Ethernet ports
- Intel® Active Management Technology (AMT) supported by Intel® vPro™ Technology

Software Support
- Wind River VxWorks BSP
- Linux BSP
- Microsoft Windows drivers
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPPs

Physical Characteristics
- 6U CompactPCI conduction- or air-cooled form factor
- Contact factory for appropriate board configuration based on environmental requirements.
- 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.

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

<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>
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<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>
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<tr>
<td>Vibration</td>
<td>0.02 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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