The CM4R CompactPCI® is a rugged 3U single board computer ideal for military and aerospace applications where size and power consumption are key requirements. The CM4R will operate as a CompactPCI system controller or peripheral card.

The ultra compact single-slot, all-in-one design offers increased flexibility with multiple processor and RAM configuration options, and an array of on-board peripherals including Fast Ethernet, four serial channels and digital I/O.

The CM4R addresses rugged and military applications with conduction cooling that extends the operating temperature range up to -40°C to +85°C. With increased shock and vibration immunity, using stiffener bars, wedge locks, and conformal coating for high humidity environments, the CM4 can be configured to handle the most demanding environments.

Special features include four serial channels with RS-232 and RS-422/485 interfacing, two DMA controllers, four timers, 32 KB non-volatile SRAM, RTC, watchdog, temperature sensor and I/O intelligent IO support. The CM4R also includes eight discrete digital I/O channels, each with interrupt capability process-control capability.

### Features

- MPC7410 Power Architecture® at 500 MHz or MPC755 @ 400 MHz
- Up to 2 MB L2 Cache
- Ultra compact, 1 slot only
- VxWorks®, Linux® support
- 256 MB SDRAM with ECC
- 64 MB user Flash, 64-bit
- 8 MB Boot Flash
- 32 kB AutoStore NVSRAM
- Fast Ethernet 10/100 Mbit
- PMC extension slot
- Two asynchronous RS-232
- Two asynchronous RS-422/485
- Four timer/counters
- Two DMA channels
- RTC, watchdog, temperature sensor
- -40° to +85° C
- Conduction cooling
- High shock and vibration immunity with stiffener bars and wedge locks
- Conformal coating
- Custom specific, low cost assembly versions
CM4R Single Slot Power Architecture 3U CompactPCI SBC

Specifications

Processor
- Motorola Power Architecture 7410 @ 500 MHz
- Motorola Power Architecture 755 @ 400 MHz
- 2 MB L2 cache on MPC7410 and 1 MB L2 cache on MPC755
- Tsi107 chipset (formerly the MPC107)
- 100 MHz system wide bus

SDRAM
- 256 MB SDRAM with ECC
- ECC Detection/Single Bit Correction
- 72-bit SDR (100 MHz) Memory Bus

Flash Memory
- 64 MB user flash
- 8 MB boot flash

NVRAM
- 32 KB

CPCI Interface
- PICMG 2.0 R3.0 compliant CPCI local bus standard
- 32-bit PCI – PCI bridge for up to 8 slots (33 MHz)
- System controller or peripheral slot operation

Ethernet
- Provided via the Intel® 82541ER (10/100 only)
- 82541ER (10/100 Mbit only) Ethernet operation, auto-negotiation interface

PMC Expansion
- 32-bit/33 MHz IEEE P1386/1386.1 capable with partial rear I/O capability
- Supports cPCI standard

Serial I/O
- Four serial I/O
  - Two RS-232 channels
  - Two RS-422/485 channels

GPIO
- 8 GPIO

Temperature Sensors
- On-board temperature is software readable in the range of -55°C to +125°C

Real-Time Clock/Watchdog/ETI
- Real-time clock
- Watchdog timer

Power Requirements
- 12 Watts maximum (without PMC)

Environmental
- Style 8

Block Diagram

Environmental

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Method</td>
<td>Convection</td>
<td>Convection</td>
<td>Convection</td>
<td>Conduction</td>
</tr>
<tr>
<td>Conformal Coating</td>
<td>Optional</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>High/Low Temp</td>
<td>0 to 55°C</td>
<td>-20 to +65°C</td>
<td>-40 to +75°C</td>
<td>-40 to +75°C</td>
</tr>
<tr>
<td>Operational</td>
<td>(300 ft/m)</td>
<td>(300 ft/m)</td>
<td>(600 ft/m)</td>
<td>At cold wall</td>
</tr>
<tr>
<td>Random Vibration</td>
<td>0.002g^2/Hz*</td>
<td>0.002g^2/Hz*</td>
<td>0.04g/Hz**</td>
<td>0.1g/Hz**</td>
</tr>
<tr>
<td>Shock</td>
<td>20g***</td>
<td>20g***</td>
<td>20g***</td>
<td>40g***</td>
</tr>
</tbody>
</table>

**With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 Hz
** From 10 to 1000 Hz
***Peak sawtooth 11 ms duration

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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