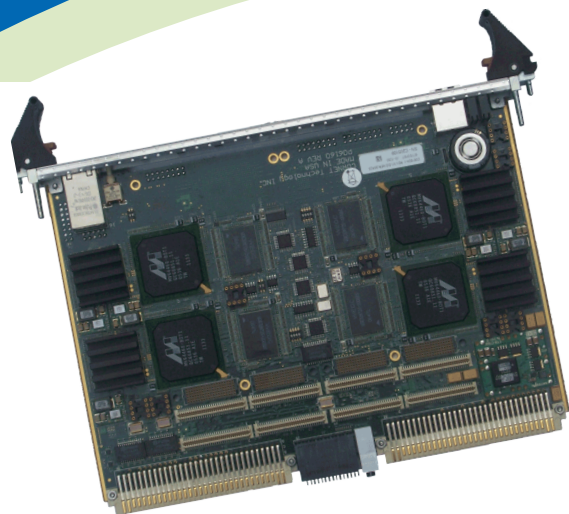


Celero™ CVME-7448M

Quad PowerPC™

VME Solutions



Image, radar, sonar, and laser intelligence applications require an embedded computing platform that is capable of collecting, analyzing, and disseminating enormous amount of intelligence in real-time. Systems designers often consider using a multi-processing architecture. Cornet Technology's Celero CVME-7448M solution is ideal for system designers choosing commercial-off-the-shelf (COTS) products to achieve substantial cost savings and a reduced time-to-market.

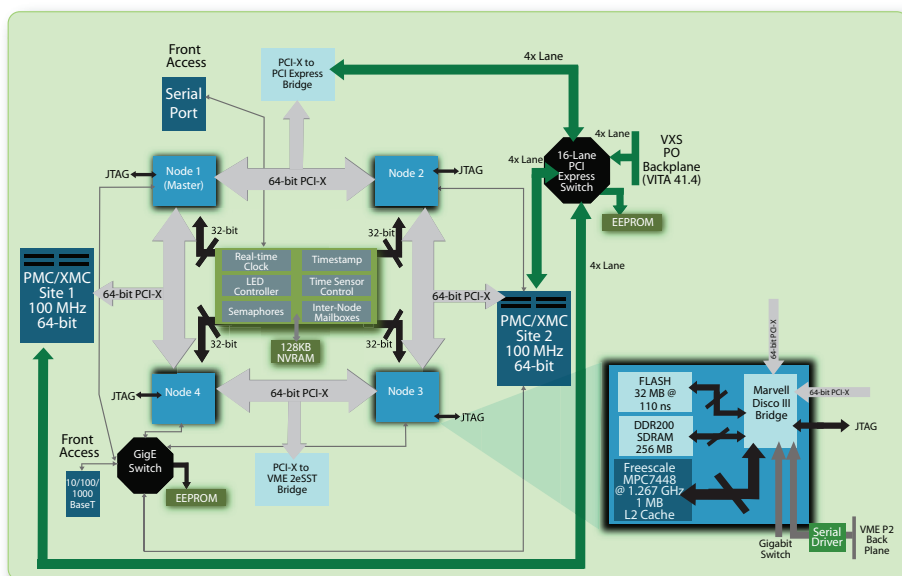
Within a VME 6U form factor, the Celero CVME-7448M has four Freescale PowerPC MPC7448 processors, each running at a clock speed of 1.267 GHz. Each processor has an AltiVec™ vector-processing engine that is capable of optimizing the performance of mathematically intensive operations. The hardware uses a distributed memory architecture. Each node has 1 MB on-chip L2 Cache, 256 MB DDR SDRAM (expandable to 512 MB), and 32 MB FLASH. The board has two 64-bit PMC or XMC (VITA-42/VITA-42.3 PCI Express switched mezzanine card) sites for hosting data acquisition or signal conditioning modules, four configurable multi-protocol (RS-232/422/485) serial ports, and four 10/100/1000 Base-T Gigabit Ethernet ports.

The four processors are connected in a ring topology through a 64-bit PCI-X local bus running at up to 100 MHz. The PCI-X local bus is bridged to a PCI Express high-speed serial switch. The PCI Express switch connects four lanes from the

processor array, eight lanes from the XMCs, and four lanes from the VXS P0 backplane. The backplane interface follows the VME switched serial standard (VXS, VITA 41/VITA 41.4). In addition, the Celero CVME-7448M board has a Gigabit Ethernet switch, capable of switching 2.5 Gbps control signals among the two XMCs (VITA 42.10), the P0 backplane (VITA 41.6), and the four nodes.

The Celero CVME-7448M includes a board support package (BSP) for the VxWorks® 6.5 operating system. This lets system designers seamlessly integrate their application code into a real-time operating system environment. The BSP's function library handles multi-processing capabilities through semaphores, FIFO mailboxes, DMA transfers, time-stamps, and interrupts. To further optimize the performance and precision of processing-intensive operations, a C or C++ signal-processing library is available to fully exploit the capabilities of the AltiVec DSP engine on each PowerPC processor. Software developers can conveniently use the on-board JTAG interface, status LEDs, front panel reset toggle switch, and power-on built-in test features for extensive development.

The Celero CVME-7448M uses lead-free components and manufacturing processes, making it suitable for deployment in environments subject to RoHS compliant requirements. Cornet Technology warrants the Celero CVME-7448M to be free of defects in materials and workmanship for one year from the date of delivery. Cornet Technology also provides firmware upgrades during the warranty period. An extended warranty is available.





Specifications

Processor: 4 Freescale MPC7448 PowerPC processor
@ 1.267 GHz

Memory (per processor):

L1 Cache: 32 KB instruction, 32 KB data
L2 Cache: 1 MB
SDRAM: 256 MB DDR200
Flash: 32 MB

Front Panel I/O: Two 64-bit PMC or XMC (VITA-42) expansion sites

One RJ-45 Ethernet switch port

One RJ-45 RS-232 UART serial port, selectable to one of the four nodes

Backplane I/O: PMC/XMC Site 1/2 user I/O signals (Pn/In4) route to VME P2 (VITA-35)

One Ethernet switch port

Four RS-232/422/485 ports available via VME P2

Eight general purpose LVTTTL digital I/O lines via VME P2

VME Bus: VME64x 2eSST at 320 MB/sec

PCI Express Switched Fabric:

Version: 1.0a

Root Complex: Processor node 1

I/O Ports: 2 XMC sites (signal interface)
VXS: Port A, configurable either as down stream (I/O) or nontransparent port
Signaling throughput: 10 Gbps

Mechanical

Form Factor: 6U VME, 4 TE
PCB Dimensions: 233.35 mm x 160 mm x 20 mm
PCB Type: Multi-layer FR4

Power: 5V, 3.3V

Power Consumption: 100 W (Without PMCs populated)

PMC Expansion

Power: 5V, 3.3V

Max. Clock Speed: 100 MHz

Data Bus: 64-bit

Conformance: IEEE P1386, VITA-35

Environmental

Commercial Temperature Grade

Operating Temperature: 0°C to 50°C

Storage Temperature: -40°C to +85°C

Humidity: 10 to 90% non-condensing

Extended Temperature Grade

Operating Temperature: -20°C to 65°C

Storage Temperature: -40°C to +85°C

Humidity: 10 to 90% non-condensing

Custom Order Options

Commercial and Extended Grade

Conformal Coating



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In the interest of continuous improvement, Cornet Technology, Inc. reserves the right to change specifications without prior notice.

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