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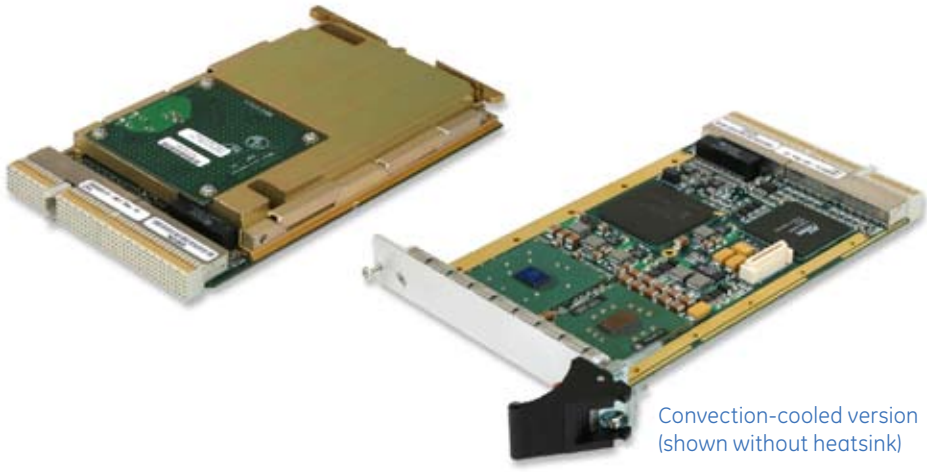
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GE
Intelligent Platforms



Convection-cooled version
(shown without heatsink)

CR4

High Performance 3U Rugged CompactPCI® Embedded Computer

Features

- Pentium® M processor LV 738 with 2 MB on-chip L2 cache
- 400 MHz front side bus
- 855GME graphics and memory controller hub
- 6300ESB I/O controller hub (ICH)
- DDR SDRAM: 512 MB with ECC on 266 MHz memory bus
- 512 KB firmware hub for BIOS storage
- Analog video display – up to 1600 x 1200
- Type 1 CompactFlash module on daughter card
- Real-time clock with backup power from system
- Two independent 82541PI Gigabit Ethernet controllers (MAC and PHY)
- One UART with RS-232 I/F and one USART with RS-422 I/F
- Two USB 2.0 ports
- Serial ATA port
- Eight GPIO ports
- Watchdog timer
- System controller or peripheral mode operation
- Conduction or convection cooled
- Temperature sensor
- Extended temperature range (-40° C to 85° C)

The CR4 is the next generation of rugged 3U compactPCI Single Board Computer offering an Intel® Pentium M processor LV 738 that features 90 nm technology with processing speeds up to 1.4 GHz. The Pentium M 738 includes on-chip 32 KB L1 instruction and data caches and 2 MB of L2 cache.

The CR4 couples the Pentium M LV 738 with the Intel 855GME chipset which includes the 855GME graphics and memory controller hub (GMCH) and the 6300ESB I/O Controller Hub. The 855GME GMCH includes an integrated a 400 MHz front side bus interface, memory controller with a 64-bit 266 MHz memory interface that services 256 or 512 MB of DDR SDRAM. It also includes an integrated VGA video controller with 2D and 3D graphics engines and a 350 MHz 24-bit RAMDAC that can drive an analog CRT monitor at resolutions up to 1600 x 1200.

The 6300ESB integrates two PCI bus interfaces, a USB host, UltraDMA IDE controller, and serial ATA Controller. The CR4 features high-speed LAN connectivity with two Intel 82541PI Gigabit Ethernet controllers (integrated MAC and PHY) and high-reliability mass storage with a Type I CompactFlash card mounted on a daughter card.

For general status and control capability, the CR4 provides eight programmable general-purpose I/O (GPIO) lines with separate interrupts and interrupt masking capability.

The CR4 employs a PLX® PCI 6254 CPCI Bridge for handling 32-bit data transfers to and from a 32-bit CPCI backplane. Through its dual mode functionality, the PCI 6254 allows the CR4 to operate as a system controller or peripheral processor card.

The CR4 is available in ruggedized conduction-cooled and convection-cooled configurations.

Specifications

Processor

- Intel Pentium M processor LV 738 with core processing speeds from 600 MHz to 1.4 GHz
- High performance, low power consumption, Intel Architecture (IA)
- 32 KB L1 instruction and data caches
- 2 MB L2 on-chip cache
- 400 MHz Front Side Bus interface through the 855ESB GMCH

Memory – DDR SDRAM

- 256 or 512 MB of soldered DDR266 SDRAM (PC2100)
- Integrated DDR 266 SDRAM controller through 855GME GMCH
- 64-bit 266 MHz memory bus (72-bit with ECC)

CR4 High Performance 3U Rugged CompactPCI® Embedded Computer

Flash ROM
- 512 KB firmware hub (FWH) for BIOS code
- Multiple levels of write-protection

CompactFlash
- Single Type I CompactFlash module mounted on a CR4 XB-CFIDE daughter card
- UltraDMA Bus interface through 6300ESB ICH

Serial ATA
- Integrated serial ATA host controller for ATA hard disk through 6300ESB ICH

PCI Bus
- Dual PCI interface through the 6300ESB ICH
- PCI Bus 0: 32-bit, 33 MHz
- PCI Bus 1: 32-bit, 66 MHz

cPCI Backplane Bridge
- PCI 6254 PCI/PCI bridge
- PICMG 2.0 R3.0 compliant cPCI local bus standard
- 32-bit cPCI data transfers at 33 MHz
- Auto-detect system controller slot for controller or peripheral mode

NOTE: The CR4 is not compatible with a 64-bit backplane.

Ethernet
- Two Intel 82541PI Gigabit Ethernet controllers with integrated MAC and PHY
- 10/100/1000 Base-T Ethernet

Video
- Integrated VGA video controller through 855GME Graphics and memory controller hub
- Supports render core and display core frequencies up to 200 MHz
- 2D and 3D graphics engines
- 350 MHz 24-bit RAMDAC to drive analog CRT monitor at 1600 x 1200 pixel resolution

Real-Time Clock
- Integrated MC146818B-compatible real-time clock through the 6300ESB ICH
- Two banks of 128-byte SRAM
- Battery backup from system

Counter/Timers
- Three integrated 32-bit timers through 6300ESB ICH
- Timer 0 can be configured as 32-bit or 64-bit timer
- Integrated programmable watchdog timer through 6300ESB ICH

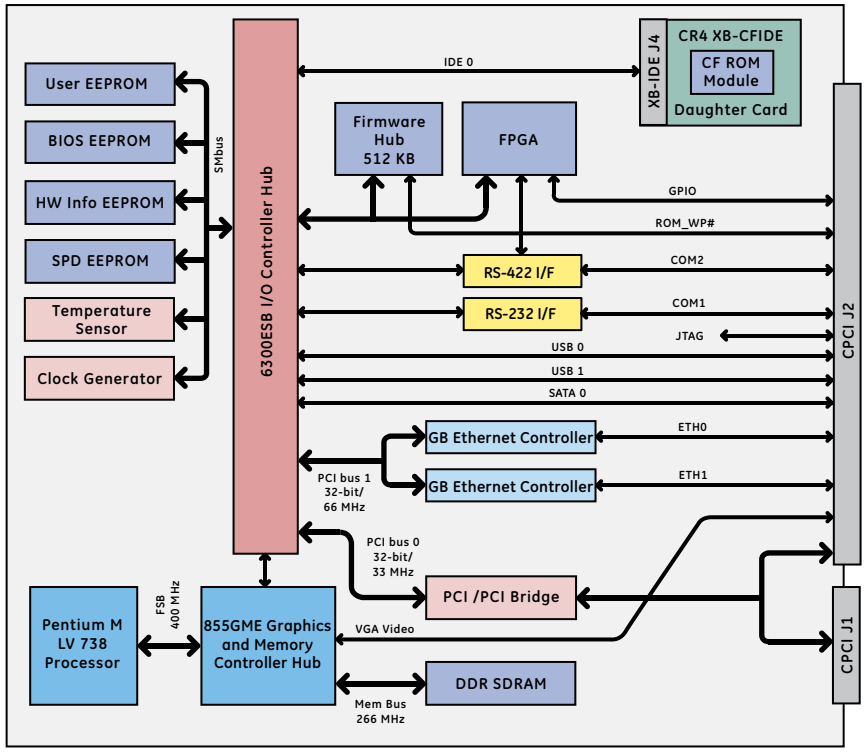
Temperature Sensor
- CPU die and ambient temperature
- Software readable from –55° C to +125° C

Serial Ports
- COM1: RS-232 (asynchronous), integrated UART through the 6300ESB ICH
- COM2: Independent USART (synchronous and asynchronous) and RS-422 interface

USB I/O
- Dual 1.1 and 2.0-compatible USB ports
- Integrated USB Controller through the 6300ESB ICH

GPIO
- FPGA GPIO controller
- Eight general-purpose I/O lines to backplane
- Configurable interrupt and individual interrupt masking

Block Diagram



Ordering Information

CR42100C	LV Pentium M 1.4 GHz, 512 MB, no CompactFlash
CR4xx1xC	128 MB CompactFlash
CR4xx2xC	256 MB CompactFlash
CR4xx3xC	512 MB CompactFlash
CR4xx4xC	1 GB CompactFlash
CR4xx5xC	2 GB CompactFlash
CR4xx6xC	4 GB CompactFlash

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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.

GE Intelligent Platforms Contact Information

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