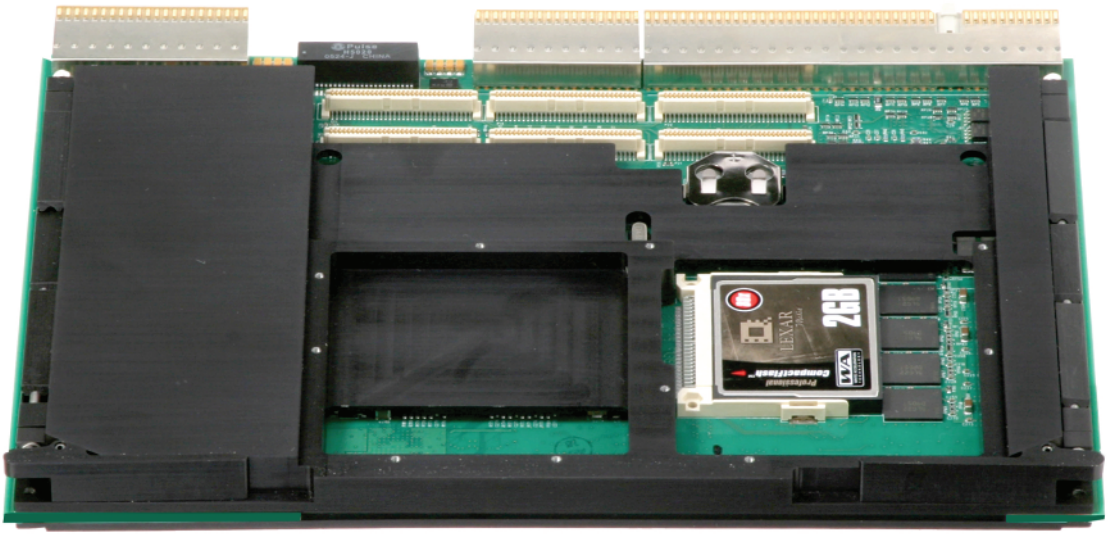
DYNATEM

Pentium M CompactPCI/PICMG 2.16 Single Board



CRM1

The CRM1 is a 6U CompactPCI compatible platform based on the Intel® low power Pentium® M processor. The Pentium M's low power consumption ideally equips the CRM1 for rugged applications. The CRM1 is built with no socketed components and an optional full-board heat sink, wedgelocks, and a stiffener bar for operation in high shock/vibration conditions and extreme temperatures.

The 855GME and 6300ESB chipset supports PCI-X expansion, integrated VGA/DVO (routed to the cPCI backplane), four USB 2.0 ports, ATA/100, and Serial ATA. On-board CompactFlash permits single-slot booting. Two 1000BaseTX ports are routed to the backplane in compliance with PICMG's 2.16 Specification. Conventional PC I/O is accessible via the backplane. Two PMCX sites are provided for additional I/O expansion.

Processor

Intel® Pentium® M Processor:
- 2 MB of L2 Advanced Transfer Cache

Available in either the Ultra Low Voltage 1.0 GHz Celeron-M 370 version @ 5.5 W, the Low Voltage 1.4 GHz Pentium-M 733 @10 W version, or the 1.8 GHz Pentium-M 745 @ 21 W

Single-slot Operation

Single-slot CompactPCI operation with an on-board CompactFlash disk for bootable mass storage

855GME and 6300ESB Chipset

400 MHz System Bus

Ultra ATA 100/66/33 IDE protocol

PCI-X expansion offers 64 bits @ 66 MHz data transfer capability

Integrated Graphics

Chipset includes DRAM controller, four USB 2.0 ports, two Serial ATA/150 ports, RTC, NV-RAM, standard PC timers, Ultra DMA, and interrupt logic

DRAM

DDR-266 support with a memory bandwidth of 2.1 GB/s

Stuffing options for 256MByte, 512MByte or 1GByte

CompactPCI
PICMG 2.0 R3.0 Compliant
PLX non-transparent PCI-PCI bridge provides 64-bit CompactPCI transfer rates at 66 MHz
Universal bridge lets the CRM1 operate as a system controller or a peripheral slot module
Supports Hot Swapping according to PICMG 2.1 R2.0
Connectors J3 and J5 are used for I/O expansion - J4 is not populated

PMC Expansion
Two PMCX sites are available on-board: one with a 32-bit @ 33 MHz and a second with 64-bit @ 66 MHz bandwidth
I/O from the 64-bit PMC site is routed from JN4 to the J3 connector

Ethernet/PICMG 2.16
An Intel 82546 Ethernet controller supports two 10/100/1000BaseTX Ethernet ports routed to the J3 connector in compliance with PICMG 2.16 for back plane fabric switching or for alternate routing to an optional rear I/O card

Graphics
855GME provides an integrated 32-bit 3D core at 133 MHz
SVGA and 12-bit DVI interfaces are routed through J5

IDE
Primary ATA/100 DMA IDE interface is accessible from the CompactPCI P2 connector.
PIO and bus master support
Secondary IDE port is routed to a Type II compatible CompactFlash connector for on-board booting

Watchdog
Programmable watchdog timer for system recovery

BIOS
General Software's flash-based system BIOS with a variety of boot options including CD-ROM, USB, and PXE over Ethernet
Customized versions can be provided

IPMI
Pigeon Point's IPM Sentry offers IPMI system management in compliance with PICMG 2.9
Platform management subsystem monitors, controls and assures proper operation of active components in the chassis

I/O interfaces routed to optional backplane
IDE, COM1/2, Floppy Drive Interface, Dual Serial ATA, and Four USB 2.0 ports (routed through J5)
DVO and VGA ports are routed out through J5
PMC I/O and two Gb Ethernet ports in compliance with PICMG 2.16 (routed through J3)

Operating temperature
The CRM1 has an operating temperature range of 0°/+70° C
Extended temperature versions are available to -40°/+85°C

Rugged/Conduction-cooled
Ruggedized, VITA 301.1-2002 compliant, conduction-cooled with heat sink, stiffener bar, and wedge locks
CRM1 is a conduction-cooled version of the CPM1
Stiffener bar enables high shock/vibration immunity per MIL-STD-810F
Conformal coating as an option

Power Consumption
5 VDC @ 2 Amps typical
3.3 VDC @ 2 Amps typical

Net Weight
27 oz. with 1 GB DDR267, with no CompactFlash installed, with conduction-cooled heatsink/stiffener

Pentium M
The Intel® Pentium® M processor was designed from the ground up with a new microarchitecture that delivers high performance with low power consumption. With its 90 nm processing technology and 2 MB of L2 advanced transfer cache, the Pentium M offers more performance per Watt. Second-generation Streaming SIMD Extensions (Streaming SIMD Extensions 2) capability adds 144 new instructions, including 128-bit SIMD integer arithmetic and 128-bit SIMD double-precision floating-point operation. The Pentium. The Pentium M also offers a dedicated hardware stack manager that employs sophisticated hardware control for improved stack management, advanced branch prediction capability, and a 400 MHz front side bus to the memory controller hub.

Chipset and 6300ESB ICH
The Intel® 855GME Graphics Memory Controller Hub (GMCH) and Intel® 6300ESB I/O Controller Hub (ICH) chipset create an optimized integrated graphics solution with a 400 MHz system bus and integrated 32-bit 3D core at 133 MHz.

Dynatem Inc., (800)543-3830, (949)855-3235, Fax: (949)770-3481, Email:*sales@dynatem.com*, Web:*www.dynatem.com*

855GME

DRAM Controller

The 855GME (GMCH) provides a 266 MHz interface to DDR RAM (72 bits wide with ECC). The CPM1 can be populated with one or two banks of DRAM for 512 MB or 1 GB of total memory respectively. The GMCH system memory architecture is optimized to maintain open pages (up to 16-kB page size) across multiple rows. As a result, up to 16 pages across four rows is supported. To complement this, the GMCH will tend to keep pages open within rows, or will only close a single bank on a page miss.

Graphics Processor

The 855GME also has an advanced integrated graphical display controller. The CPM1 a DVO port (driven via a PanelLink device) and a VGA port out through the J5 connector to the system backplane. The DVO ports:

• Provide high-speed, 12-bit interfaces with 165 MHz dot clocks
• Supports DVO devices (TV-Out Encoders, TMDS & LVDS transmitters, etc.) with pixel resolutions up to 1600 x 1200 @ 85 Hz and up to 1048 x 1536 @ 72 Hz
• Compliant with DVI Specification 1.0

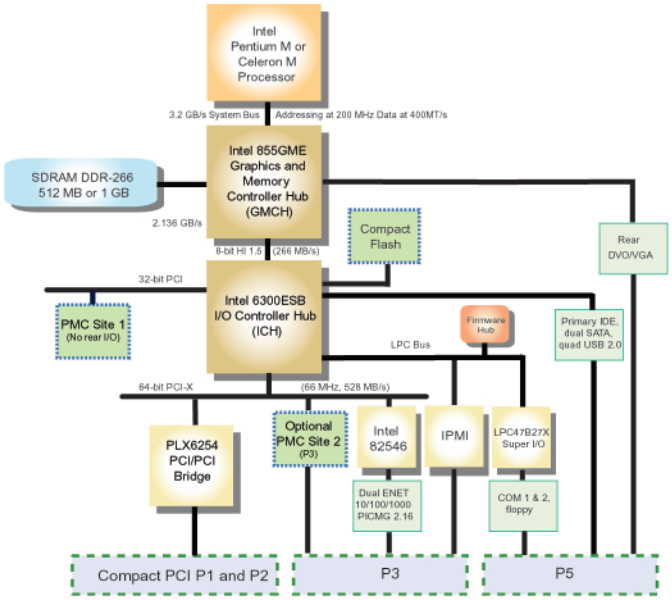
Environmental Specification

Temperature			
	Operating	-40°C to 85°C (1.4 GHz Pentium M) -40°C to 85°C (1.0 GHz Celeron M)	Speed step can be implemented for wider temperature ranges
	Storage	-55°C to 125°C	
Humidity			
	Operating	0 to 95% non-condensing	± 4% relative humidity, per MIL-STD-810F
	Storage	0 to 100% non-condensing	
Altitude			
		Unlimited	Air cooled cards must have adequate cooling
Vibration			
	Sine	10 g peak 15-2 kHz	All levels based on a sweep duration of ten minutes per axis, each of three mutually perpendicular axes. Qualification testing is displacement limited below 44 Hz.
	Random	0.1 g2/Hz 15-2 kHz (14.1 grms)	60 minutes per axis each of three mutually perpendicular axes.
	Shock	40 g peak	Three hits per direction per axis, ½ sine + terminal peak sawtooth, 11 ms (total 36 hits).

Dynatem Inc., (800)-543-3830, (949)855-3235, Fax: (949)770-3481, Email: *sales@dynatem.com*, Web: *www.dynatem.com*

CRM1 I/O Routing

I/O	Through J3	Through J5
PS/2 Mouse/Kybd		
1 Gb LAN (3 total)	2 (PICMG 2.16)	
RS232/422 Ports		
DVI-I Graphics		1
USB 2.0		4
Serial ATA		2
Un-driven COM3/4		2
Floppy Disk I/F		1
IDE Interface		1
PMC I/O	PICMG 2.3 R1.0 Slot B	



CRM1 Block Diagram

Ordering Information:

Part#	**Description**
CRM1xQP	**Rugged conduction-cooled Pentium M single-slot processor with no CompactFlash installed, 1.4 GHz Pentium M, 1 GB DDR-266. CompactPCI, PICMG 2.16, IPMI. With wedgleocks and stiiffener bar.**
xxxxQxx	**256 MB Flash for CRM1**
xxxxRxx	**512 MB Flash for CRM1**
xxxxSxx	**1 GB Flash for CRM1**
xxxxTxx	**2 GB Flash for CRM1**
xxxxUxx	**4 GB Flash for CRM1**
xxxxVxx	**8 GB Flash for CRM1**
xxxxWxx	**16 GB Flash for CRM1**
xxxxxx8	**1.0 GHz ultra-low-power Celeron M**
xxxxxxQ	**Upgrade to 1.8 GHz Pentium M**
xxxxxxx-ER	**Extended temperature versions**
XPM1RIO	**Optional rear I/O interface board with: small speaker, DVI-I graphics interface, 4 USB connectors, 2 RJ-45 Ethernet connectors, 2 SATA connectors, 1 floppy connector, COM3 &4 (individually selectable for RS-232/422)**

Dynatem Inc., (800)543-3830, (949)855-3235, Fax: (949)770-3481, Email: *sales@dynatem.com*, Web: *www.dynatem.com*