

CRD

The CRD is a conduction-cooled 6U single-slot Compact PCI (PCMG 2.16 compatible) platform based on the Intel® Core™2 Duo Mobile Processor L7400 at 1.5 GHz or the T7400 running at 2.16 GHz. The CRD takes advantage of the Core2Duo's low power consumption (17W at 1.5 GHz) as a rugged Single Board Computer (SBC), and it is optionally available as a conduction-cooled Compact PCI module with wedge locks and a full-board heat sink for high shock/vibration environments and temperature extremes. For the conduction-cooled version, see CRD..

The E7520 Memory Controller Hub (MCH) and 6300ESB I/O Controller Hub (ICH) chipset supports PCI-X and PCIe expansion, USB 2.0, ATA/100, and Serial ATA (SATA). Two Gb Ethernet ports and two USB 2.0 ports are accessible from the front panel in addition to two PMC bezels. On-board CompactFlash permits single-slot booting. Two PICMG 2.16-compliant, 10/100/1000BaseTX ports are routed to the backplane. Two SATA ports, VGA video, up to four COM ports, an optional IDE interface, PS/2 mouse & keyboard, and two more USB 2.0 ports are routed to the backplane. Two PMC-X site is provided for additional I/O expansion. One of the sites is XMC compatible and supports x8 PCIexpress. Conventional PC I/O is accessible with industry-standard connectors on optional rear I/O modules.

Core™2 Duo Mobile Processor

L7400 1.5 GHz, 479-pin uFC-BGA Core 2 Duo
manufactured with low-power 65 nm process
T7400 2.16 GHz Core2 Duo version also available
4 MB L2 Cache
667 MHz front side bus
64-bit OS and application support

Single-slot Operation

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

E7520 & 6300ESB Chipset

Two x4 PCI Express interfaces are routed to two dual Gb
Ethernet controllers
One x8 PCI Express interfaces is routed to an XMC site
DDR2-400 DRAM interface with a max memory band
width of 6.4 GB/second
Four USB 2.0 Ports
PATA/100 and SATA/150 support
PCI-X 64/66 for the two PMC sites

DRAM

2 or 4 GBytes of DDR2-400 memory
Two banks that are each 64 bits wide with ECC support

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 CPD 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

PMC Expansion

Two PMC sites based upon PCI-X bus with 64-bit
66 MHz
One of PMC sites also supports XMC modules with x8
PCIe

Ethernet/PICMG 2.16

Two Intel 82571EB dual PCI express Ethernet controllers
provides a total of four 10/100/1000BaseTX ports.
Two 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
Two ports are optionally routed through front cold plate

Graphics

The Silicon Motion SM 712 ultra low-power display
controller with 4 MB on-chip memory
VGA routed to J5

IDE/CompactFlash

Primary ATA/100 DMA IDE interface is optionally
accessible from the J5
Secondary IDE port is routed to a Type II-compatible
CompactFlash connector for on-board booting

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

Watchdog

Programmable watchdog timer for system recovery

I/O interfaces accessible from the front

Conduction-cooled cold plates normally preclude front
panel I/O. CRD, however, includes option of dual
10/100/1000BaseTX, routed through front cold plate

I/O interfaces routed to optional rear plug-in board

VGA, IDE, COM1/2/3/4, dual Serial ATA, keyboard,
mouse, and dual USB 2.0 ports (routed through J5)
Two Gb Ethernet ports in compliance with PICMG 2.16
(routed through J3)
Access to both PMC sites

Rear Transition Module

XPDRIO rear I/O interface board with standard
connectors for all I/O routed to rear

Operating temperature

The CPD1 has a standard operating temperature range of
0°/+70° C
Extended temp versions to -40°/+85°C are available

Rugged/Conduction-cooled Versions

CRD is a conduction-cooled version of the CPD
Stiffener bar enables high shock/vibration immunity per
MIL-STD-810F
Convection-cooled and conduction-cooled versions have
conformal coating as an option

Net Weight

Approximately 15 oz



Core™2 Duo Mobile Processor L7400 or T7400

Delivering breakthrough energy efficient performance for embedded platforms. 65 nm process technology makes it possible to integrate two complete execution cores in one physical package, providing advancements in simultaneous computing for multi-threaded applications and multi-tasking environments. While incorporating advanced processor technology this processor remains software compatible with previous IA-32 processors. Executes four instructions per cycle to improve execution speed and efficiency using 14-stage pipeline. Supports 64-bit instructions, providing flexibility for 64-bit and 32-bit applications and operating systems.

E7520 Memory Controller Hub

The Intel E7520 chipset acts as the central hub for all data passing between the core system elements including processor, memory, PCI Express I/O, and legacy I/O subsystems.

DRAM

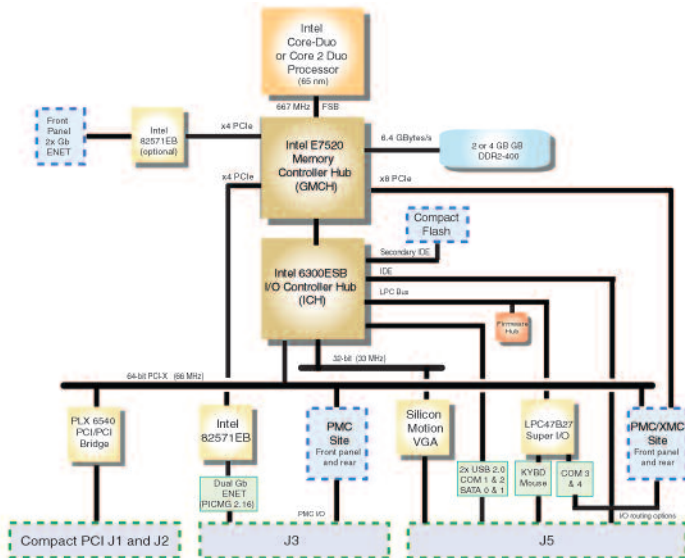
The CPD supports 2 or 4 GBytes of DRAM and its DDR2-400 memory technology is ideal for memory-intensive applications, providing up to 20 percent increase in memory bandwidth, and up to 40 percent decrease in power consumption over DDR 266 memory. The memory subsystem interface to E7520 is dual channel, supporting two registered DIMMs per channel—depending on memory technology—for a total system bandwidth of up to 6.4 GB/second. ECC error correction is supported.

Environmental Specification

Temperature			
	Operating	0°C-70°C	Wider temperature ranges may require some processor slowing
	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 g ² /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).

CPD I/O Routing

I/O	Front Panel	Through J3	Through J5
PS/2 Mouse/Kybd			1
1 Gb LAN (4 total)	2 (optional)	2 (PICMG 2.16)	
COM ports			2 + 2 (optional)
VGA Graphics			1
USB 2.0			2
Serial ATA			2
IDE Interface			1 (optional)
PMC I/O		1	1(PMC/XMC (optional)



Ordering Information:

Part#	Description
CRDxRS	Conduction-cooled CompactPCI single-slot processor with 1.5 GHz Core2-Duo, 2 GB DDR-400. With CompactPCI, PICMG 2.16, IPMI. With no CompactFlash installed. With wedgelocks and stiffener bars.
xxxxQxx	256 MB Flash for CRD
xxxxRxx	512 MB Flash for CRD
xxxxSxx	1 GB Flash for CRD
xxxxTxx	2 GB Flash for CRD
xxxxUxx	4 GB Flash for CRD
xxxxVxx	8 GB Flash for CRD
xxxxWxx	16 GB Flash for CRD
xxxxSx	Upgrade to 4 GB DDR2-400
xxxxxT	Upgrade to 2.16 GHz Core2 Duo T7400
xxxxxxx-ER	Extended operating temperature
CONCOAT	Conformal coating option
XPDDRIO	Optional rear I/O interface board with: <ul style="list-style-type: none"> • USB connector • 40-pin IDE connector • Two RJ-45 connectors for Gb Ethernet • Two SATA connectors • COM 1,2,3,4 connector (two are MDSM) • PS/2 keyboard mouse