CPD2

The CPD2 is a 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 at 2.16 GHz . The CPD2 takes advantage of the Core2-Duo's low 17 W power consumption (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 CRD2.

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. 16 GB of on-board Flash 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
1.5 GHz or 2.16 GHz, 479-pin uFC-BGA Core 2 Duo
    manufactured with low-power 65 nm process
4 MB L2 Cache
667 MHz front side bus
64-bit OS and application support

Single-slot Operation
Single-slot CompactPCI operation with 16 GB of
    on-board Flash disk for bootable mass storage

E7520 & 6300ESB Chipset
Two x4 PCI Express interfaces are routed to two dual Gb
    Ethernet controllers
Two x4 PCI Express interfaces are routed to the two PMC sites via two Tsi384 PCIe to PCI-X bridges. This provides each PMC site with a dedicated 64-bit 133 MHz PCI-X bus with a 1 GB bandwidth
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 PLX PCI6466 PCI/PCI bridge
PCI 32/33 for SM712 VGA controller

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 CPD2 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 each with a dedicated 64-bit 133 MHz
    PCI-X bus interfaced to the E7520 via two separate
    Tsi384 PCIe to PCI-X bridges. This architecture
provides 1 GB access to E7520
One of PMC sites supports XMC modules with x8 PCIe

Ethernet/PICMG 2.16
Two Intel 82571EB dual PCI express Ethernet controllers
    provide a total of four 10/100/1000BaseTX ports
Two ports routed to the front panel
Two ports routed to the J3 connector in compliance with
    PICMG 2.16 for backplane fabric switching or for
    alternate routing to an optional rear I/O card

Graphics
The Silicon Motion SM712 ultra low-power display
    controller with 4 MB on-chip memory
VGA routed to J5

IDE/Flash
Primary ATA/100 DMA IDE interface is optionally
    accessible from the J5
Secondary IDE port is routed to a Silicon Motion SM-
2231   NAND Flash controller.
16 GB of NAND Flash is installed

BIOS
Phoenix's flash-based system BIOS with boot options
    including CD-ROM, USB, and PXE over Ethernet

Watchdog
Programmable watchdog timer for system recovery

I/O interfaces accessible from the front panel
Dual 10/100/1000BaseTX, Dual USB 2.0, access to both
    PMC sites

I/O interfaces routed to optional rear plug-in board
VGA, IDE, COM1/2/3/4 (COM2 optionally RS-422), 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

XPDRIO Rear Transition Module
Optional rear I/O interface board (RTM) with:
    One USB connector
    40-pin IDE connector
    Two RJ-45 connectors for Gb Ethernet
    One SATA connector
    COM 1,2,3,4 connector (COM3 has RS-422 option)
    PS/2 keyboard mouse
    VGA
    Audio In and Out
    Two optional PMC Interface (PIM) Modules

XPDRIO2 Rear Transition Module
Optional rear I/O interface board (RTM) with:
    Two USB connectors
    Optional 40-pin IDE connector
    Two RJ-45 connectors for Gb Ethernet
    One SATA connector on front panel plus a 1.8" SATA
        drive connector for mounting onboard
    COM 1,2 optional COM3, 4 (COM3 has RS-422
        option)
    PS/2 keyboard mouse option
    VGA
    Two optional PMC Interface (PIM) Modules

Operating temperature
The CPD2 has a standard operating temperature range of
    0°/+70° C
Extended temp versions are available
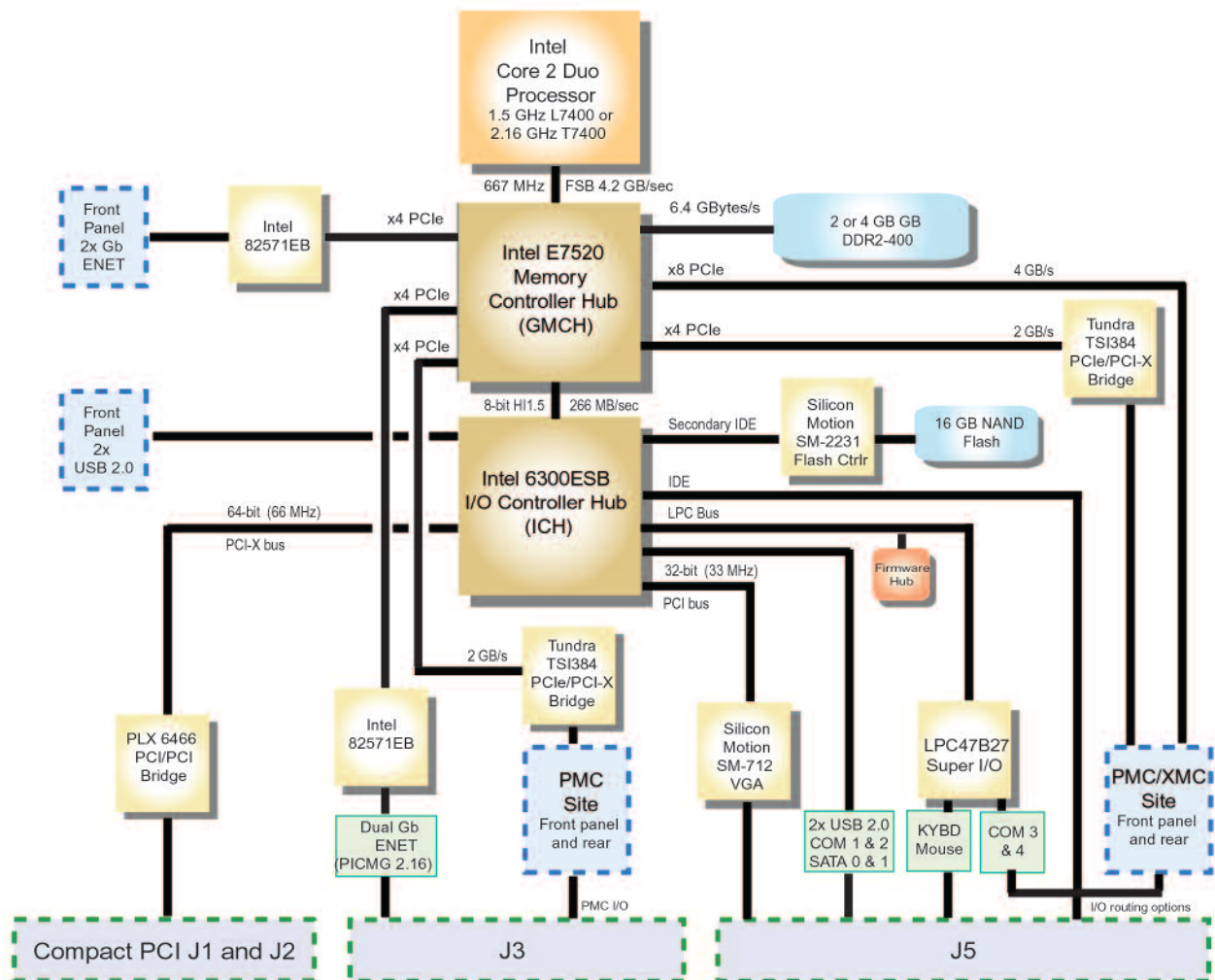
Rugged/Conduction-cooled Versions
CRD2 is a conduction-cooled version of the CPD2
Convection-cooled and conduction-cooled versions have
    conformal coating as an option
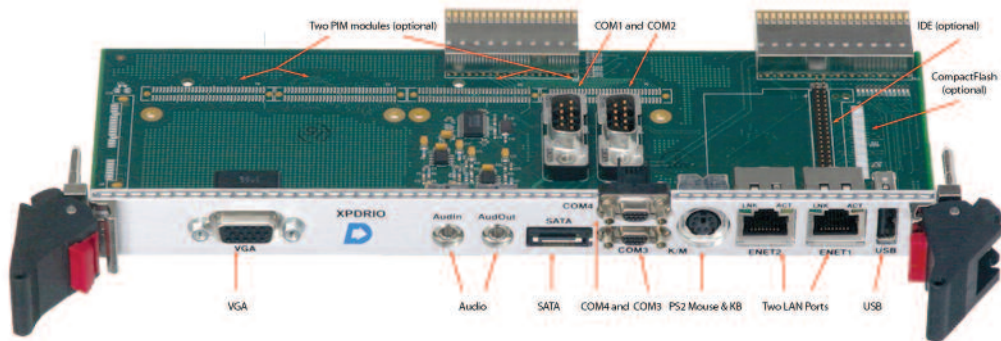
Net Weight
Approximately 15 oz

Power Requirements
1.5 GHz L7400: +5VDC @5.5A peak,
                3.3VDC @2.0A steady
                3.0VDC Lithium Coin Cell @3.4 μA
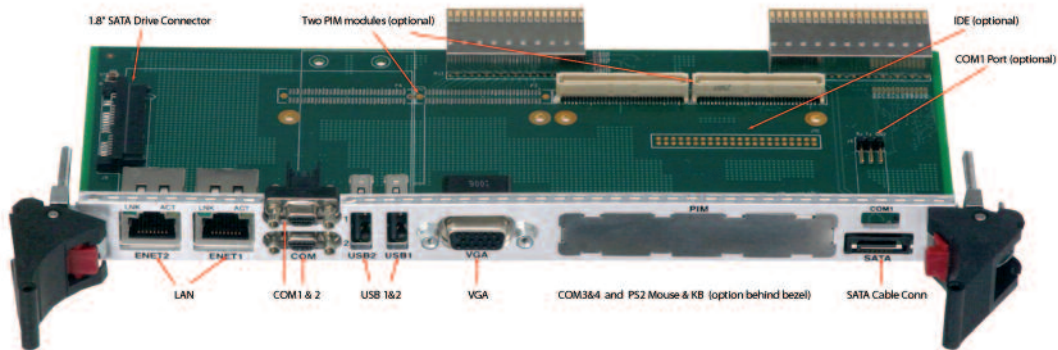2.16 GHz T7400: +5VDC @8.0A peak

Intel
Core 2 Duo
Processor
1.5 GHz L7400 or
2.16 GHz T7400

667 MHz | FSB 4.2 GB/sec

6.4 GBytes/s

2 or 4 GB GB
DDR2-400

Front
Panel
2x Gb
ENET

Intel
82571EB

x4 PCIe

Intel E7520
Memory
Controller Hub
(GMCH)

x8 PCIe

4 GB/s

x4 PCIe

x4 PCIe

x4 PCIe

2 GB/s

Tundra
TSI384
PCIe/PCI-X
Bridge

8-bit HI1.5 | 266 MB/sec

Secondary IDE

Silicon
Motion
SM-2231
Flash Ctrlr

16 GB NAND
Flash

Front
Panel
2x
USB 2.0

Intel 6300ESB
I/O Controller Hub
(ICH)

IDE

LPC Bus

64-bit (66 MHz)

PCI-X bus

32-bit (33 MHz)

Firmware
Hub

PCI bus

2 GB/s

Tundra
TSI384
PCIe/PCI-X
Bridge

PLX 6466
PCI/PCI
Bridge

Intel
82571EB

PMC
Site
Front panel
and rear

Silicon
Motion
SM-712
VGA

LPC47B27
Super I/O

PMC/XMC
Site
Front panel
and rear

Dual Gb
ENET
(PICMG 2.16)

2x USB 2.0
COM 1 & 2
SATA 0 & 1

KYBD
Mouse

COM 3
& 4

I/O routing options

PMC I/O

Compact PCI J1 and J2

J3

J5

CPD2 I/O Routing

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

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XPDRIO RTM I/O Interface

XPDRIO2 RTM I/O Interface

Ordering Information:

Part#	Description
CPDWRS	CompactPCI single-slot processor with 1.5 GHz Core2-Duo, 2 GB DDR-400. With CompactPCI, PICMG 2.16, IPMI. With 16 GB NAND Flash installed
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
XPDDRIO2	Optional rear I/O interface board

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