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CompactPCI

PP 432/05x

N, E - Series

Intel® Core™ 2 Duo Processor Dual PMC Carrier



RoHS 2002/95/EC

APPLICATIONS

The PP 432/05x is a PC-compatible high performance, high functionality, dual PMC CompactPCI® board supporting the Intel® Core™ 2 Duo processor and the Intel® 3100 server class chipset. The processor contains two CPU cores and a shared L2 cache. The PP 432/05x will operate in a system slot, a peripheral slot or independently from the CompactPCI bus. High performance networking is provided by four Gigabit Ethernet links, and the board is compliant to the PICMG® 2.16 specification. Full system monitoring is provided by the PICMG 2.9 compliant IPMI interface. Many suitable industry standard operating systems are supported. The PP 432/05x provides an upgrade for most applications that are using the popular PP 332/02x and PP 330/02x boards. The PP 432/05x is suitable for a range of high performance applications within the industrial control, telecomms, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- 2.16 GHz or 1.5 GHz Intel Core Duo processor:
  - dual-core processor
  - 667 MHz Front Side Bus
  - 64 Kbytes L1 cache per core
  - 4 Mbytes L2 cache shared between cores
  - Intel® 64 Technology (64-bit computing support)
  - no CPU fan needed; low power processor
- Up to 4 Gbytes of single channel DDR2-400 ECC SDRAM
- 2 x PMC module interfaces, with front and rear user I/O:
  - 32-bit, 33MHz PCI and 32/64-bit, 33/66/100MHz PCI/PCI-X
  - 2 x XMC module interfaces (x1 PCI Express®)
- 4 x Serial ATA150 (SATA) channels, with options for:
  - on-board SATA disk drive
  - on-board CompactFlash™ or Hitachi GST MicroDrive™
  - on-board options fit in a single slot
- 4 x 10/100/1000Mbps Ethernet interfaces:
  - Dual Gigabit Packet Switching Backplane (PICMG 2.16)
- 4 x Universal Serial Bus (USB 2.0) interfaces:
  - 2 via front panel
  - up to 2 via rear I/O
- 2 x RS232 serial channel interfaces; either:
  - 1 via on-board header and 1 via rear I/O
  - or 2 via optional AD PP5/001-40U Rear Transition Module
- CompactPCI controller:
  - operates in system slot or peripheral slot
  - 32/64-bit at 33/66 MHz CompactPCI interface
- Option to bypass CompactPCI bus (Satellite Mode)
- IPMI (Intelligent Platform Management Interface)
- PICMG 2.9 (System Management Specification)
- Watchdog timer and Long Duration Timer
- Support for Linux®, Windows® 2000, Windows® XP, Windows® XP Embedded, Windows® Server 2003, QNX®, VxWorks® and Solaris™
- Single slot (for all option combinations)
- Extended temperature version available:
  - -25°C to +70°C (E-Series)
  - supporting 1.5 GHz processor
- Optional Rear Transition Modules

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Specification

Central Processor

- 2.16 GHz Intel® Core™ 2 Duo processor T7400:-
  - → uses µFC-PGA 478 (micro Flip-Chip Pin Grid Array) package
- 1.5 GHz Intel® Core™ 2 Duo processor L7400:-
  - → uses µFC-BGA 478 (micro Flip-Chip Ball Grid Array) package
- common processor features are:-
  - → dual-core CPU
  - → 4 Mbytes of secondary (L2) on-die cache
  - → 667 MHz Front Side Bus
  - → 64 Kbytes of primary (L1) on-die cache
  - → Intel® 64 (or Intel® EM64T) 64-bit computing support
  - → no CPU fan; low power processor
- utilizes Intel® 3100 server class chipset:-
  - → supports 667 MHz processor bus to give peak bandwidth of 5.3 Gbytes/s
  - → single chip combining memory and I/O controllers
- provision for XDP debug port

DRAM

- supports up to 4 Gbytes DDR2-400 ECC SDRAM:-
  - → up to 4 Gbytes via two SODIMM sockets
  - → single bit error correction
  - → supports single channel memory to give a peak bandwidth of 3.2 Gbytes/s
- accessible from processor or CompactPCI bus

Hard Disk Interfaces

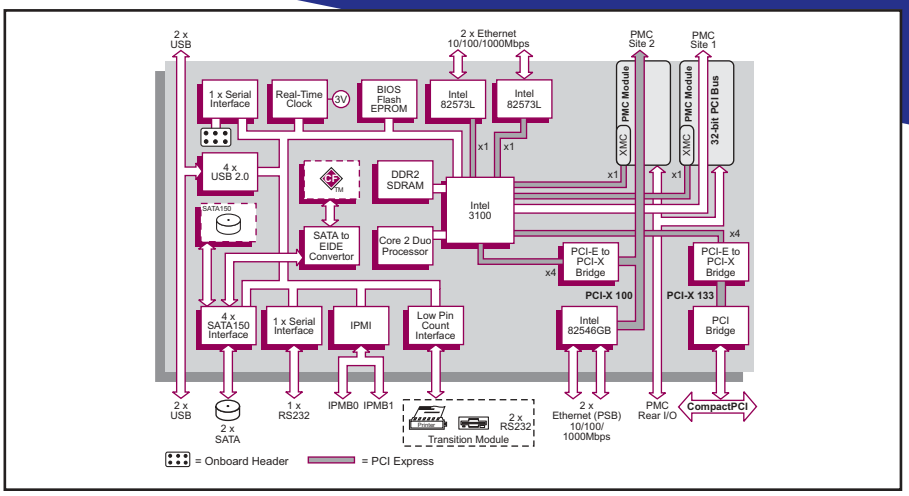
- 4 x SATA-150 interfaces:-
  - → 2 channels accessible via J5
  - → optional 2.5 inch SATA hard disk drive assemblies in a single slot (uses PMC site)
  - → support for CompactFlash™ site under PMC site via SATA to PATA convertor

Ethernet Interfaces

- 4 x channels supporting 10 Base-T, 100 Base-TX, 1000 Base-T
- 2 x front panel interfaces implemented by two Intel® 82573L, accessed via front panel RJ45's
- 2 x rear interfaces implemented by Intel® 82546GB controller:-
  - → support for PICMG 2.16 R1.0 - Packet Switching Backplane (PSB)
  - → optional support for rear panel RJ45's via J3

PMC Interfaces

- 2 x PMC sites
- for PMC site 1:-
  - → 32-bit, 33 MHz PCI operation
  - → 3.3V or 5V PCI signaling levels
  - → I/O via front panel and via J5
- for PMC site 2:-
  - → 32/64-bit, 33/66/100 MHz PCI/PCI-X operation
  - → 3.3V PCI signaling level
  - → I/O via front panel and via J3
- common features for both PMC sites:-
  - → XMC (PCI Express® Mezzanine Card) interface supported via x1 PCI Express Link
  - → I/O via front panel and via J3/J5
  - → Transition Modules support rear I/O



Serial Interfaces

- 2 x RS232 Tx/Rx serial channels; either:-
  - → 1 accessed via on-board header and 1 via J5
  - → or 2 via LPC (Low Pin Count) bus on J5 to optional AD PP5/001-40U Rear Transition Module
- 16550 compatible UARTs
- rear panel supports CTS, RTS

Other Peripheral Interfaces

- PC Real Time Clock (Year 2000 compliant)
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability
- system fan monitor; CPU temperature monitor; voltages monitor:-
  - → accessible via IPMI
- 4 x USB 2.0 interfaces:-
  - → 2 via front panel
  - → 2 via J5
- independent legacy speaker output via J3
- LPC (Low Pin Count) bus via J5 to enable the AD PP5/001 Transition Module support for:-
  - → floppy disk interface
  - → parallel port interface (ECP, EPP, IEEE1284)
  - → 2 x RS232 serial channels

Flash EPROM

- 1 Mbyte of BIOS Flash EPROM - 8-bits wide

Firmware Support

- Phoenix® TrustedCore™ Server BIOS
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

Software Support

- support for Linux®, Windows® XP, Windows® 2000, Windows® XP Embedded, Windows® Server 2003, QNX® VxWorks® and Solaris™

IPMI

- PICMG 2.9 R1.0 (System Management Specification):-
  - → implements the IPMB0 interface
  - → implements an IPMB1 interface
- on-board Baseboard Management Controller
- supports 8 Kbytes of non-volatile memory

CompactPCI Interface

- compliant with PICMG 2.0 R3.0; 3.3V or 5V signaling levels (universal signaling support)
- 33/66 MHz, 32/64-bit interface accessed via J1/J2 connectors
- PCI-X to PCI bridge for off-board accesses
- J4 connector not fitted
- PICMG 2.1 R2.0 Hot Swap compliant
- operates as a System Slot controller or in a Peripheral slot
- option to disable CompactPCI interface (Satellite Mode):-
  - → receives power from CompactPCI bus
  - → board can be hot swapped

Electrical Specification

- typical at 2.16 GHz with 1 Gbyte DRAM
  - → +5V@6.8A; +5% / -3%
  - → +3.3V@3.7A; +5% / -3%
  - → +12V@0.05A; -12V@0.05A
- +12V and -12V routed to PMC slots

Safety

- PCB (PWB) manufactured with flammability rating of 94V-0

Environmental Specification

- operating temperature:-
  - → 0°C to +55°C (N-Series)
  - → -25°C to +70°C (E-Series: 1.5 GHz)
- 10% to 90% Relative Humidity, non-condensing (operating)
- -40°C to +85°C (storage)
- 10% to 90% Relative Humidity, non-condensing (storage)

Mechanical Specification

- 6U form-factor: 9.2inches x 6.3inches (233mm x 160mm)
- single-slot: 0.8inches (20.3mm)
- connectors: IEC-1076-4-101 for J1-J5
- shock: 20g, 11ms, ½ sine (operating); 30g, 11ms, ½ sine (non-operating)
- vibration: 5Hz-2000Hz at 2g, 0.38mm peak displacement (operating); 5Hz-2000Hz at 5g, 0.76mm peak displacement (non-operating)

ORDERING INFORMATION

Order Number	Product Description (Hardware)
PP 432/051-xy	1.5 GHz Core 2 Duo processor L7400
PP 432/052-xy	2.16 GHz Core 2 Duo processor T7400
AD PP5/001-40U	RTM I/O: dual PMC, Ethernet, floppy, printer, 1 x USB, 2 x RS232
AD PP5/002-00	RTM I/O: dual PMC, Ethernet, SATA, 2 x USB, 1 x RS232
AD PP5/003-00	RTM I/O: dual PMC PIM, Ethernet, SATA, 2 x USB, 1 x RS232
AD 110/002-z1	2.5 inch SATA Hard Disk Drive assembly

Replace the order number suffix (xy) with selections from the following:

where x =	where y = memory size
1 - Ethernet via rear panel	1 - reserved
2 - Ethernet via PICMG 2.16	2 - 1 Gbyte
	3 - reserved
	4 - 2 Gbytes
	5 - 4 Gbytes

For z options please contact your local sales office.

For extended temperature, E-Series, please contact your local sales office.

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Specification subject to change; E and OE. RoHS 2002/95/EC compliant.

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