

## Intel® Core™ Duo Processor Dual PMC Carrier

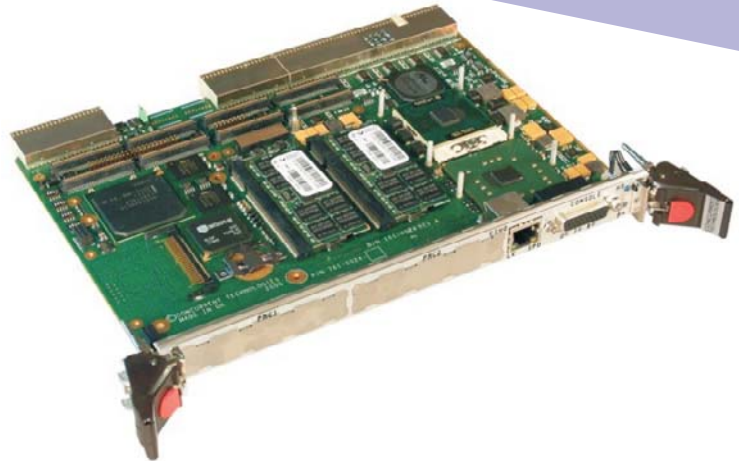


### APPLICATIONS

The PP 410/03x is a PC-compatible high performance, high functionality, dual PMC CompactPCI® board supporting the Intel® Core™ Duo processor and the Intel® E7520 server class chipset. The processors contain two CPU cores and a shared L2 cache. The PP 410/03x will operate in a system slot, a peripheral slot or independently from the CompactPCI bus. High-performance networking is provided by three Gigabit Ethernet links, and the board is compliant to the

### HIGHLIGHTS

- 2.0 GHz or 1.66 GHz Intel Core Duo processor:
  - dual-core processor
  - 667 MHz Front Side Bus
  - 64 Kbytes L1 cache per core
  - 2 Mbytes L2 cache shared between cores
  - no CPU fan needed; low power processor
- Up to 4 Gbytes of dual channel DDR2-400 ECC SDRAM
- 2 x PMC module interfaces, with front and rear user I/O:
  - 64-bit; 33/66MHz PCI and 33/66/100MHz PCI/PCI-X
  - 1 x XMC module interface (x8 PCI Express™)
- High performance SATA and EIDE disk interfaces with optional on-board disk drive
- On-board CompactFlash™ or Hitachi GST MicroDrive™
- 3 x 10/100/1000Mbps Ethernet interfaces:
  - Dual Gigabit Packet Switching Backplane (PICMG 2.16)
- 4 x Universal Serial Bus (USB 2.0) interfaces:
  - 1 via front panel
  - up to 3 via optional Rear Transition Modules
- Up to 3 x RS232 serial channel interfaces:
  - 1 via front panel
  - up to 2 via optional Rear Transition Modules
- Graphics, keyboard and mouse interfaces on front panel
- 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® and VxWorks®
- Single slot (for all option combinations)
- Extended temperature version available:
  - -25°C to +70°C (E-Series)
  - supporting 1.66 GHz processor
- Optional Rear Transition Modules available with PMC, Ethernet and IPMB rear panel I/O, and with either:
  - RS232, SATA, USB and stereo audio interfaces or
  - RS232, SATA, USB, stereo audio and PIM interfaces or
  - RS232, USB, printer and floppy disk interfaces



## Central Processor

- 2.0 GHz Intel® Core™ Duo processor T2500:-
  - uses µFC-PGA 478 (micro Flip-Chip Pin Grid Array) package
- 1.66 GHz Intel® Core™ Duo processor L2400:-
  - uses µFC-BGA 479 (micro Flip-Chip Ball Grid Array) package
- common processor features are:-
  - dual-core CPU (originally called Yonah)
  - 667 MHz Front Side Bus
  - 64 Kbytes of primary (L1) on-die cache
  - 2 Mbytes of secondary (L2) on-die cache
- no CPU fan; low power processor
- utilizes Intel® E7520 server class chipset:-
  - supports dual channel DDR2-400 memory to give a peak bandwidth of 6.4 Gbytes/s
  - uses Intel® 6300ESB I/O Controller Hub
- provision for XDP debug port

## DRAM

- supports up to 4Gbytes DDR2-400 ECC SDRAM:-
  - up to 4 Gbytes via two SODIMM sockets
  - up to four bit error correction
- accessible from Intel Core Duo processor or CompactPCI bus

## Hard Disk Interfaces

- 2 x SATA-150 interfaces via J5
- on-board EIDE interfaces:-
  - supports up to Ultra-DMA 100
  - on-board CompactFlash™ site under PMC site
  - options for dual CompactFlash carrier or 2.5 inch disk drive assemblies (uses PMC site)

## Ethernet Interfaces

- 2 x rear interfaces implemented by Intel® 82573L controllers via x1 PCI Express™ links:-
  - support for PICMG 2.16 R1.0 - Packet Switching Backplane (PSB)
  - optional support for rear panel RJ45's via J3
- front panel interface implemented by Intel 82573L, accessed via front panel RJ45
- supports 10 Base-T, 100 Base-TX, 1000 Base-T

## Graphics Interface

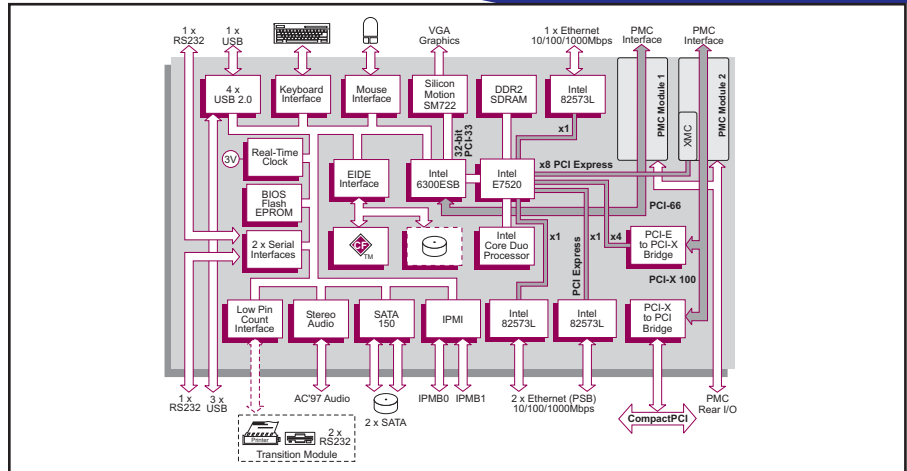
- implemented by a Silicon Motion SM722:-
  - 8 Mbytes video memory
  - resolutions up to 1280 x 1024; supporting up to 16M colors
- analog graphics accessed via a 26-way high-density connector on front panel

## PMC Interfaces

- 2 x PMC sites
- for PMC site 1:-
  - 32/64-bit, 33/66 MHz PCI operation
  - 3.3V or 5V PCI signaling levels
- for PMC site 2:-
  - 32/64-bit, 33/66/100 MHz PCI/PCI-X operation
  - 3.3V PCI signaling level
  - XMC (PCI Express Mezzanine Card) interface supported via x8 PCI Express Link
- common features for both PMC sites:-
  - I/O via front panel and via J3/J5
  - Transition Modules support rear I/O

## Stereo Audio

- AC '97 interface via J5:-
  - codec on AD PP5/002 and AD PP5/003 Rear Transition Modules (RTM)
- independent legacy speaker output via J3



## Serial Interfaces

- up to 3 x RS232 serial channels:-
  - 1 Tx/Rx channel accessed via a 26-way high-density connector on front panel
  - 1 or 2 Tx/Rx channels via Transition Module
- 16550 compatible UARTs
- front panel supports CTS and RTS, and rear panel supports RI, CTS, RTS, DSR, DTR and DCD

## 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:-
  - all accessible via IPMI
- legacy speaker interface
- 4 x USB 2.0 interfaces:-
  - 1 accessed via a 26-way high-density connector on front panel
  - 3 interfaces accessed via J5
- keyboard and mouse interfaces accessed via a 26-way high-density connector on front panel
- 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® Server BIOS
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

## Software Support

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

## 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

- +5V@TBDA; +5% / -3%
- +3.3V@TBDA; +5% / -3%
- +12V@TBDA; -12V@TBDA
- +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: 1.66 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 410/031-xy	1.66 GHz Core Duo processor L2400
PP 410/032-xy	2.0 GHz Core Duo processor T2500
AD PP5/002-00	RTM I/O: dual PMC, Ethernet, SATA, USB, RS232, stereo audio
AD PP5/003-00	RTM I/O: dual PMC PIM, Ethernet, SATA, USB, RS232, stereo audio
CB 26D/125-00	26-way High Density to VGA, Keyboard, Mouse, USB, RS232 connector cable
AD 200/001-zz	CompactFlash/Microdrive carrier assembly
AD CP1/DR1-zz	2.5 inch Hard Disk Drive assembly

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

- where x =  
 1 - Ethernet via rear panel  
 2 - Ethernet via PICMG 2.16

- where y = memory size  
 1 - reserved  
 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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