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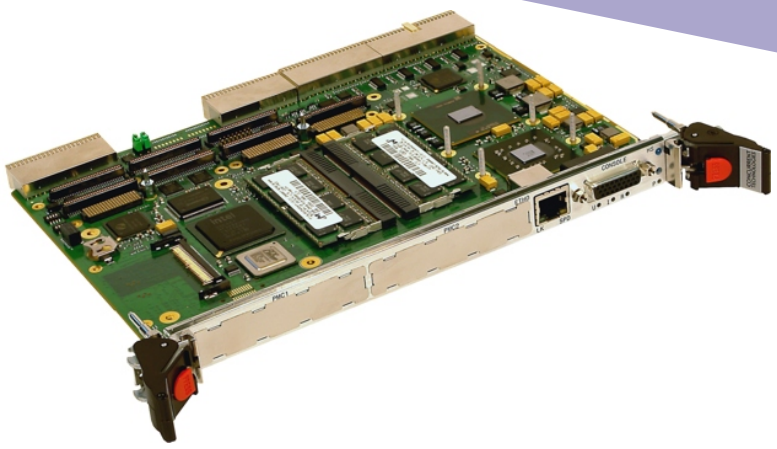
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CompactPCI

PP 512/06x
N - Series

Intel® Core™ 2 Duo Processor (45nm) Dual PMC/XMC Carrier



RoHS 2002/95/EC

APPLICATIONS

The PP 512/06x is a PC-compatible high performance, high functionality, dual PMC/XMC CompactPCI® board supporting the Intel® Core™ 2 Duo processor T9400, utilizing 45nm process technology, and the Intel® GM45 mobile class chipset. The processor contains two CPU cores and 6 Mbytes shared L2 cache. The PP 512/06x 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 PICMG® 2.16. Full system monitoring is provided by the PICMG 2.9 compliant IPMI interface. Many industry standard operating systems are supported. The PP 512/06x is suitable for a range of high-performance applications within the industrial control, telecomms, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- 2.53 GHz Intel® Core 2 Duo processor T9400:
  - 45nm process technology
  - dual-core processor
  - 1066 MHz Front Side Bus
  - 6 Mbytes L2 cache shared between cores
  - Intel® 64 Technology (64-bit computing)
  - no CPU fan needed; low power processor
- Up to 8 Gbytes of dual channel DDR3-1066 SDRAM
- 2 x PMC/XMC module sites with front and rear user I/O:
  - each PMC site 64-bit; 133MHz PCI-X
  - XMC interfaces (x8/x4 and x4 PCI Express™)
- 2 x SATA300 interfaces via rear panel
- 2 x SATA150 interfaces via rear panel:
  - option to switch one channel to on-board SATA300 2.5" disk drive
  - option to switch one channel to on-board CompactFlash™ via EIDE interface
- 4 x Universal Serial Bus (USB 2.0) interfaces:
  - 1 via front panel
  - up to 3 via optional Rear Transition Module
- Graphics, keyboard and mouse interfaces on front panel
- High definition stereo audio
- 3 x 10/100/1000Mbps Ethernet interfaces:
  - Dual Gigabit Packet Switching Backplane (PICMG 2.16)Graphics, keyboard and mouse interfaces on front panel
- 2 x RS232 serial channel interfaces:
  - 1 via front panel
  - 1 via optional 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® XP, Windows® XP Embedded, Windows® Server 2003, QNX®, VxWorks® and Solaris™
- Single slot (for all option combinations)
- Optional Rear Transition Module available:
  - option for USB Flash disk

CONCURRENT TECHNOLOGIES

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Specification

Central Processor

- 2.53 GHz Intel® Core™ 2 Duo processor T9400:-
  - ➔ 45nm process technology
  - ➔ uses FC-BGA 478 (micro Flip-Chip Ball Grid Array) package
  - ➔ 1066 MHz Front Side Bus
  - ➔ 6 Mbytes of shared Level 2 on-die cache
  - ➔ Intel® 64 Technology (64-bit computing)
- no CPU fan
- utilizes Intel® GM45 mobile class chipset:-
  - ➔ uses Intel® ICH9M Enhanced I/O Controller Hub
- provision for XDP debug port

DRAM

- supports up to 8 Gbytes DDR3-1066 SDRAM:-
  - ➔ up to 8 Gbytes via two SODIMM sockets
  - ➔ peak bandwidth of 16 Gbytes/s
  - ➔ dual channel architecture
- accessible from processor and CompactPCI bus

Mass Storage Interfaces

- 2 x SATA300 interfaces via J5
- up to 2 x SATA150 interfaces via J5 or option to selectively switch to onboard storage:-
  - ➔ 1 x SATA150 (can be set to SATA300) for on-board 2.5" disk drive (uses PMC site 1)
  - ➔ 1 x SATA to EIDE conversion for on-board CompactFlash™ site (under PMC site 1)
- option for USB Flash disk on Transition Module

Ethernet Interfaces

- 3 x Gigabit Ethernet interfaces
- front panel interface implemented by Intel® 82541PI, accessed via front panel RJ45
- 2 x rear interfaces implemented by Intel® 82574L controllers via x1 PCI Express™ links:-
  - ➔ support for PICMG® 2.16 R1.0 - Packet Switching Backplane (PSB)
- all interfaces support 10 Base-T, 100 Base-TX, 1000 Base-T

Analog Graphics Interface

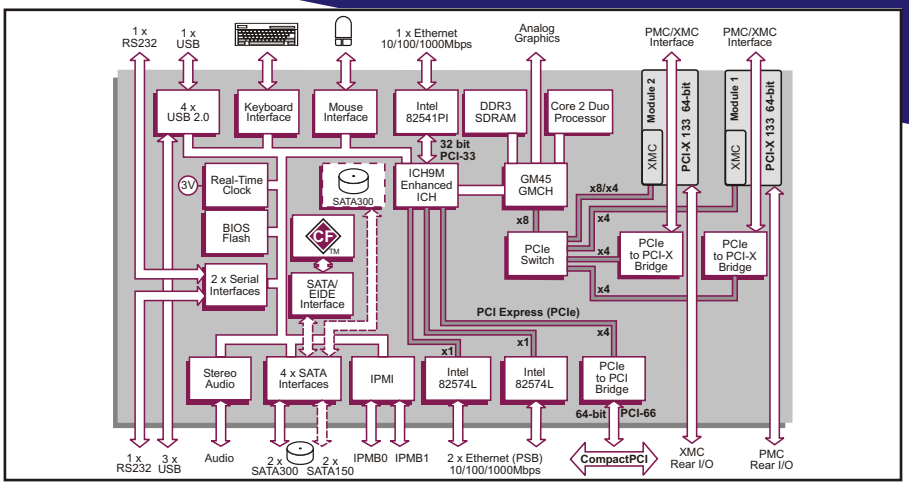
- implemented by GM45 chipset:-
  - ➔ resolutions up to 2048 x 1536 @ 16M colors
- accessed via 26-way high-density connector

PMC/XMC Interfaces

- 2 x PMC/XMC sites which support:-
  - ➔ 32/64-bit, 33/66/100/133 MHz PCI/PCI-X
  - ➔ 3.3V or 5V PCI signaling
  - ➔ separate PCI Express to PCI-X bridges
  - ➔ I/O via front panel
- XMC site 1 supports x4 PCI Express link
- XMC site 2 supports up to x8 PCI Express link:-
  - ➔ x4 if PMC PCI/PCI-X- bus enabled
  - ➔ dual x4 mode if PCI/PCI-X- bus site disabled
- site 1 rear PMC I/O via J5
- site 2 rear XMC I/O via J3

Serial Interfaces

- 2 x RS232 serial channels:-
  - ➔ 1 x Tx/Rx channel accessed via a 26-way high-density connector on front panel
  - ➔ 1 x 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



Stereo Audio

- Intel® High Definition Audio via J5:-
  - ➔ optional codec module on Transition Module

Other Peripheral Interfaces

- PC Real Time Clock (Year 2000 compliant)
- watchdog timer; 32-bit Long Duration Timer with processor interrupt capability; chipset timer
- system fan monitor; CPU temperature monitor; voltages monitor; all accessible via IPMI
- 4 x USB 2.0 interfaces:-
  - ➔ 1 accessed via a 26-way high-density connector on front panel
  - ➔ 3 interfaces accessed via J5
- independent legacy speaker output via J3
- keyboard and mouse interfaces accessed via a 26-way high-density connector on front panel

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

Firmware Support

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

Software Support

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

Flash EPROM

- 2 Mbytes of BIOS Flash EPROM

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 Express to PCI bridge for off-board accesses
- J4 connector not fitted
- PICMG 2.1 R2.0 Hot Swap compliant
- operates as 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@3.4A (typical at 2.53 GHz with 4 Gbytes DRAM); +5% / -3%
- +3.3V@6.1A; +5% / -3%
- +12V@0.05A; -12V@0.05A
- +12V and -12V routed to PMC/XMC slots

Safety

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

Environmental Specification

- operating temperature:-
  - ➔ 0°C to +55°C (N-Series)
- 5% to 95% Relative Humidity, non-condensing (operating)
- -40°C to +85°C (storage)
- 5% to 95% 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 512/063-xy	2.53 GHz Core 2 Duo processor T9400

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

where x =	where y = memory size
1 - Ethernet via rear panel	3 - 4 Gbytes
2 - Ethernet via PICMG 2.16	4 - 8 Gbytes

AD PP5/003-30	RTM I/O: PMC 1, XMC 2 via 2 x PIM sites, Ethernet, SATA, USB, RS232
AD PP5/005-zz	RTM I/O: PMC 1, XMC 2 via 2 x 68-way, Ethernet, SATA, USB, RS232, Flash disk option, Stereo Audio option
AD 110/002-z1	2.5 inch SATA300 Hard Disk Drive assembly
CB 26D/125-00	26-way High Density to VGA, Keyboard, Mouse, USB, RS232 connector cable

For z options please contact your local sales office.

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Datasheet Code 1584/0309
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