

Intel® Core™ 2 Duo Processor, Dual PMC/XMC Rugged Conduction-Cooled



APPLICATIONS

The PP 531/06x-RC is a PC-compatible, high performance, dual PMC/XMC, ruggedized conduction-cooled CompactPCI® board supporting the 1.86 GHz Intel® Core™ 2 processor, and the Intel® GS45 mobile chipset with up to 8 Gbytes of DDR3-1066 SDRAM. The board features a variety of I/O interfaces including a CompactFlash® socket. The board will operate in a system slot, a peripheral slot or independently from the CompactPCI bus. Supporting two Gigabit Ethernet ports,

the board is compliant to the PICMG® 2.16 specification. Full system monitoring is provided by the PICMG 2.9 compliant IPMI interface. The PP 531/06x-RC is suitable for demanding applications within the defense, industrial control, telemetry, transportation, and aerospace markets. The board is I/O plug compatible with the commercial and the ruggedized air-cooled versions. To simplify the board's integration many popular standard operating systems are supported.

HIGHLIGHTS

- Ruggedized dual PMC/XMC board for CompactPCI systems:
 - conduction-cooled to IEEE 1101.2
 - supports 2 conduction-cooled PMC or XMC modules conforming to ANSI/VITA 20
 - -40°C to +85°C operating temperature
 - conformally coated
- 1.86GHz Intel® Core™ 2 Duo processor:
 - 45nm process technology, dual-core processor
 - 1066MHz Front Side Bus
 - 6 Mbytes last-level cache shared between cores
 - Intel® 64 Technology (64-bit computing)
- Up to 8 Gbytes DDR3-1066 SDRAM
- 2 x PMC/XMC sites with rear user I/O:
 - 32/64-bit; 33/66MHz PCI; up to 100MHz PCI-X
 - 2 x XMC interfaces (x8 and x4 PCI Express™)
- 2 x SATA300 interfaces via rear I/O
- On-board CompactFlash® socket
- 2 x Universal Serial Bus (USB 2.0) interfaces
- 2 x 10/100/1000Mbps Ethernet interfaces:
 - Dual Gigabit Packet Switching Backplane (PICMG 2.16)
- 1 x RS232/RS422/RS485 serial channel interface
- Graphics, keyboard and mouse interfaces
- Optional Built-In Test (BIT) support:
 - Power-on BIT, Initiated BIT, Continuous BIT
- Watchdog timer and Long Duration Timer
- 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)
- Ruggedized air-cooled versions:
 - -40°C to +75°C, conformally coated
 - see separate PP 531/061-RA datasheet
- Non-ruggedized air-cooled versions:
 - see separate PP 531/06x datasheet
 - rear plug compatible with the ruggedized versions
 - useful for bench development
 - use in commercial (non-rugged) applications
- Support for Linux®, Windows® XP, Windows® XP Embedded, Windows® Server 2003, Windows® Server 2008, QNX®, Solaris™ and VxWorks®

Ruggedized dual PMC/XMC Controller

- conduction-cooled to IEEE 1101.2
- supports 2 x conduction-cooled PMC or XMC modules conforming to ANSI/VITA 20
- conformally coated

Central Processor

- 1.86 GHz Intel® Core™ 2 Duo SL9400:-
 - 45nm process technology
 - soldered to board
 - 1066 MHz Front Side Bus
 - 6 Mbytes of shared last-level on-die cache
 - Intel 64 technology (64-bit computing)
 - no CPU fan
- utilizes Intel® GS45 mobile class chipset with Intel ICH9M-E I/O Controller Hub
- provision for XDP debug port

SDRAM

- supports up to 8 Gbytes DDR3-1066 SDRAM:-
 - up to 8 Gbyte soldered
 - peak bandwidth of 16 Gbytes/s
 - dual channel architecture
- accessible by CPU and from CompactPCI® bus

Mass Storage Interfaces

- 2 SATA interfaces via J5
- 1 x SATA 300 interface for on-board CompactFlash socket via EIDE converter

Ethernet Interfaces

- 1 x rear interface via J3 implemented by Intel 82574L controller via x1 PCI Express link
- 1 x rear interface via J3 implemented by an Intel® 82567 Gigabit Ethernet controller
- support for PICMG 2.16 R1.0 - Packet Switching Backplane (PSB)
- supports 10 Base-T, 100 Base-TX, 1000 Base-T
- support for Wake-On-LAN

PMC/XMC Interfaces

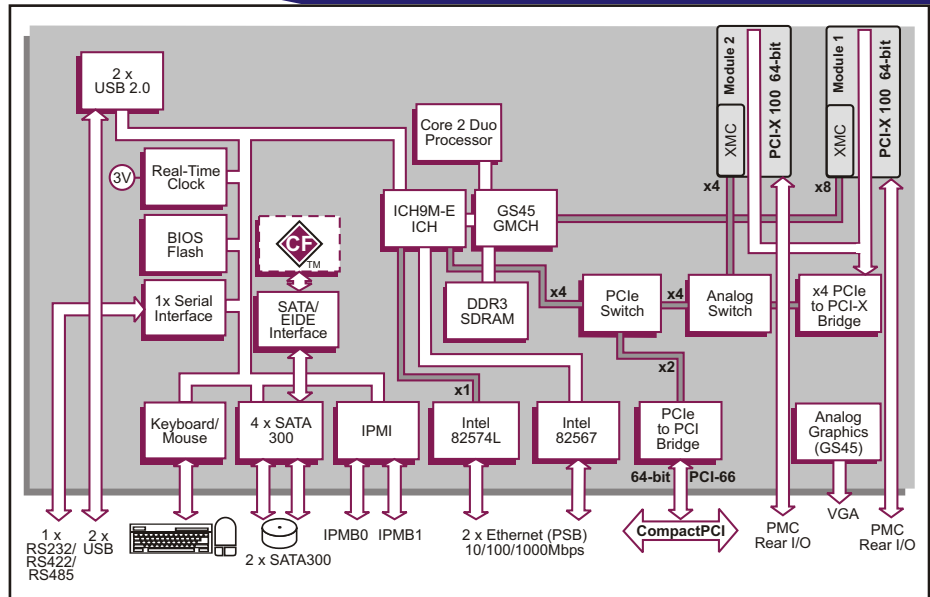
- 2 x PMC/XMC sites
- common features for both PMC sites:-
 - 32/64-bit, 33/66MHz PCI bus
 - 64-bit PCI-X bus up to 100MHz
 - 5V or 3.3V signaling levels
 - rear I/O via Pn4 connectors
- XMC (PCI Express™ Mezzanine Card) features:-
 - XMC site 2 interface supported via x4 PCI Express link
 - XMC site 1 interface supported via x8 PCI Express link

Serial Interface

- 1 x RS232/RS422/RS485 serial channel:-
 - Tx, Rx, CTS and RTS signals via J5
- 16550 compatible UART

Other Peripheral Interfaces

- PC Real Time Clock
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability
- CPU temperature monitor; voltages monitor; optional system fan monitor:-
 - accessible via IPMI
- GPIO via J5:-
 - 2 x GPO signals and 1 x GPI signal
- 2 x USB 2.0 interfaces accessed via J5
- independent legacy speaker output via J3
- keyboard and mouse



Graphics Interface

- implemented by Intel GS45 chipset
- analog VGA accessed via J5 rear I/O:-
 - resolutions up to 2048 x 1536 @ 16M colors

Software Support

- support for Linux®, Windows® XP, Windows® XP Embedded, Windows® Server 2003, Windows® Server 2008, QNX®, Solaris™ and VxWorks®

Flash EPROM

- 4 Mbytes of BIOS Flash EPROM - 8-bits wide

Firmware Support

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

Built-In Test (BIT) Support (optional)

- Power-on BIT (PBIT)
- Initiated BIT (IBIT)
- Continuous BIT (CBIT)

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 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

IPMI

- PICMG 2.9 R1.5 (System Management Spec.):-
 - implements the IPMB0 interface
 - implements an IPMB1 interface
- on-board Baseboard Management Controller
- supports 8 Kbytes of non-volatile memory

Electrical Specification

- +5V@3.9A (typical at 1.86 GHz with 4 Gbytes SDRAM); +5% / -3%
- +3.3V@3.5A; +5% / -3%
- +12V@0.01A; -12V@0.001A
- +12V and -12V routed to PMC slots

Safety

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

Environmental Specification

- operating temperature:-
 - VITA 47 Class CC4, -40°C to +85°C
 - conduction-cooled
- storage temperature:-
 - VITA 47 Class C4, -55°C to +105°C
- operating altitude:-
 - -1,000 to 50,000 feet (-305 to 15,240 meters)
- 5% to 95% Relative Humidity, non condensing (operating/storage)
- ruggedized and commercial air-cooled versions - see separate datasheets:-
 - rear plug compatible
 - air-cooled: PP 531/06x-RA
 - commercial: PP 531/06x

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
- operating mechanical:-
 - shock - VITA 47 Class OS2, 40g
 - random vibration - VITA 47 Class V3, 0.1g²/Hz

ORDERING INFORMATION

Order Number Product Description (Hardware)

For the order number suffix (xy) options please contact your local sales office:
where x = I/O where y = SDRAM size

PP 531/061-xyRC 1.86 GHz Core 2 Duo processor SL9400 SBC

x - rear Ethernet and VI/O configuration

y - up to 8 Gbytes SDRAM

For accessories please contact your local sales office.

For commercial N, E, K-Series or ruggedized RA-Series, please contact your local sales office.

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

Datasheet Code 1636/0510
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