CompactPCI

PP 66x/x71

N - Series

Dual-Core or Quad-Core Intel® Xeon® Processor Single Board Computer

RoHS 2002/95/EC

APPLICATIONS

The PP 66x/x71 is a PC-compatible very high performance, high functionality, CompactPCI® board supporting either the Dual-Core or Quad-Core Intel® Xeon® processor, utilizing 45nm process technology, and the Intel® 5520 chipset. The processor contains four or two CPU cores and 8 Mbytes shared last level cache. The PP 66x/x71 will operate in a left or right 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. An optional dual channel Ethernet module is also available for expanding the number of interconnects. Full system monitoring is provided by the PICMG 2.9 compliant IPMI interface. Many industry standard operating systems are supported. The PP 66x/x71 is suitable for a range of high-performance applications within the telecomms, security, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- 2.13 GHz Quad-Core Intel® Xeon® processor L5518 or 2.0 GHz Dual-Core Intel® Xeon® processor L5508:
  - 45nm process technology
  - two execution threads per core
  - 1066 MHz Memory Bus
  - Intel® QuickPath Interconnect (Intel® QPI)
  - 8 Mbytes last level cache shared between cores
  - Intel® 64 architecture (64-bit computing)
  - no CPU fan needed; low power processor
- Up to 48 GBytes of DDR3-1066 ECC SDRAM
- PMC/XMC module site :
  - PMC site 64-bit; 133MHz PCI-X
  - XMC interface (up to x8 PCI Express™)
  - front panel I/O and optional rear panel Pn4 I/O
- Optional 8 port SAS/SATA300 hardware RAID controller
- 6 x SATA300 interfaces:
  - 4 interfaces via rear
  - optional on-board disk drive
  - SATA to EIDE interface for on-board CompactFlash™
- 3 x 10/100/1000Mbps Ethernet interfaces:
  - Dual Gigabit Packet Switching Backplane (PICMG 2.16)
- Graphics, keyboard and mouse interfaces on front panel
- 5 x Universal Serial Bus (USB 2.0) interfaces
- 2 x RS232 serial channel interfaces
- CompactPCI controller:
  - operates in left or right system controller slot
  - operates in 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, Windows® Server 2008, QNX®, VxWorks® and Solaris™
- Dual slot 6U CompactPCI board
- Optional dual 1 or 10 Gigabit Ethernet modules
- Optional dual slot Rear Transition Module available:
  - provides SAS/SATA connectors or PMC/XMC rear I/O
  - option for USB Flash Drive module
  - option for up to two 2.5" SATA300 disk drives

CONCURRENT TECHNOLOGIES

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Specification

Central Processor

- 2.13 GHz Quad-Core Intel® Xeon® processor L5518 or 2.0 GHz Dual-Core Intel® Xeon® processor L5508:-
  - 45nm process technology
  - uses 1366-land FCLGA (Flip Chip Land Grid Array) package
  - 1066 MHz Memory Bus
  - Intel® QuickPath Interconnect (Intel® QPI) at 20 Gbytes/sec
  - 8 Mbytes of shared last level on-die cache
  - Intel® 64 architecture (64-bit computing)
- no CPU fan
- utilizes Intel® 5520 chipset:-
  - uses Intel® I/O Controller Hub 10R (ICH10R)
- provision for XDP debug port

SDRAM

- up to 48 Gbytes DDR3-1066 ECC SDRAM:-
  - up to 48 Gbytes via four DIMM sockets
  - maximum 32 GBytes using VLP DIMMs
  - peak bandwidth of 17 Gbytes/s
  - single device data correction support
- accessible from processor and CompactPCI bus

SAS/SATA RAID interface

- 8 port SAS/SATA300 hardware RAID controller implemented by LSI SAS1068E via a x8 PCI Express™ Link
- 8 x SAS/SATA interfaces:-
  - accessed via J3
  - two Mini SAS 4x connectors (SFF-8088) on the AD PP7/001 Rear Transition Module
- hardware RAID modes supported:-
  - mirror
  - enhanced mirroring
  - striping
- the RAID controller is an optional feature and is mutually exclusive with the PMC Pn4 rear I/O feature

Mass Storage Interfaces

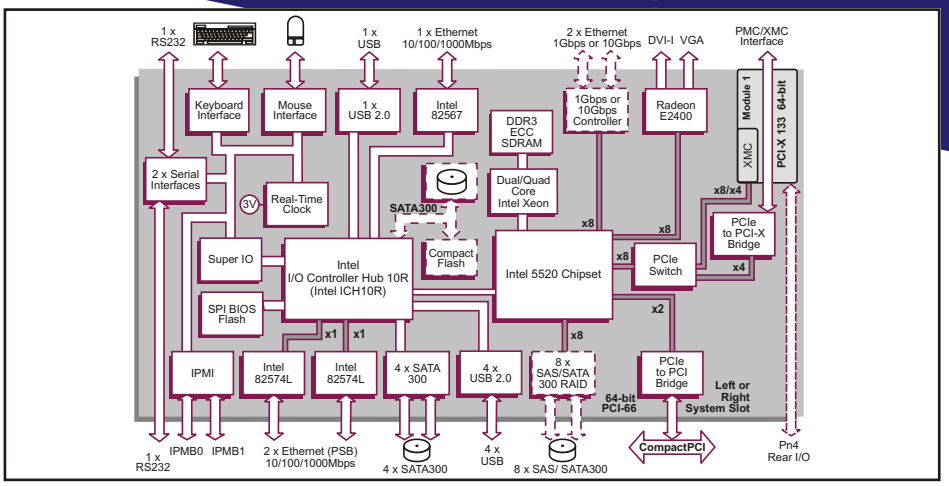
- 6 port SATA300 controller implemented by Intel ICH10R
- 4 SATA interfaces via J3:-
  - support for software RAID control
  - 4 x drive connectors available on the AD PP7/001 Rear Transition Module (RTM)
  - option to support up to two on-board 2.5" SATA300 drives on the RTM
- option to fit 1 x SATA for an on-board 2.5" SATA300 drive (uses the PMC/XMC site)
- 1 x SATA port (via EIDE) used for on-board CompactFlash™ site under PMC/XMC site
- option for USB Flash disk module on the RTM

Gigabit Ethernet Interfaces

- 2 x rear Gigabit Ethernet implemented by two Intel® 82574L Controllers via x1 PCI Express™ links:-
  - optional support for PICMG® 2.16 R1.0 - Packet Switching Backplane (PSB)
- front panel RJ45 interface implemented by Intel® 82567 Gigabit Ethernet Controller
- supports 10 Base-T, 100 Base-TX, 1000 Base-T

Option: Front Panel Ethernet Interfaces

- optional module supporting dual 10 Gigabit Ethernet interfaces implemented by an Intel® 82599 via x8 PCI Express link, front panel is:-
  - optical fiber 10GBase-SR SFP+ module or
  - SFP+ cage for customer's SFP+ module
- optional module supporting dual 1 Gigabit Ethernet interfaces implemented by an Intel® 82576 via x4 PCI Express link, uses RJ45 connectors on the front panel



Graphics Interfaces

- implemented by Radeon E2400 graphics controller via x8 PCI Express Link
- dual independent analog displays
- DVI-I and VGA connectors via front panel:-
  - digital, up to 1600 x 1200 @ 16M colors
  - analog, up to 2048 x 1536 @ 1073M colors
- support for Microsoft® DirectX 10
- support for OpenGL 2.0, Windows® and Linux®

PMC/XMC Interface

- 1 x PMC site which supports:-
  - 32/64-bit, 33/66/100/133 MHz PCI/PCI-X
  - 3.3V or 5V PCI signaling
  - x4 PCI Express to PCI-X bridge
  - I/O via front panel
  - optional PMC Pn4 rear I/O via AD PP7/001 RTM; mutually exclusive with the RAID controller feature
- XMC PCI Express link supports up to x8:-
  - x4 if PMC PCI/PCI-X- bus enabled
  - dual x4 mode if PCI/PCI-X- bus site disabled

Serial Interfaces

- 2 x RS232 serial channels:-
  - 1 x Tx/Rx channel accessed via 9-way D connector on front panel
  - 1 x Tx/Rx channel via J3
- 16550 compatible UARTs
- front and rear panel interface support RI, CTS, RTS, DSR, DTR and DCD

Other Peripheral Interfaces

- PC Real Time Clock (Year 2000 compliant)
- watchdog timer; 32-bit Long Duration Timer with processor interrupt; chipset timer
- system fan monitor; CPU temperature monitor; voltages monitor; all accessible via IPMI
- 5 x USB 2.0 interfaces:-
  - 1 accessed via the front panel
  - 4 interfaces accessed via J3
- independent legacy speaker output via J3
- keyboard and mouse interfaces via front panel

Firmware Support

- Insyde Software InsydeH20™ BIOS:-
  - includes Compatibility Support Module
- based upon Intel® Platform Innovation Framework for EFI
- LAN boot firmware included

Software Support

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

Flash EPROM

- 4 Mbytes of BIOS Flash EPROM

IPMI

- PICMG 2.9 R1.0 (System Management Spec.):-
  - implements the IPMB0 and IPMB1 interfaces
- 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 Express to PCI bridge (off-board accesses)
- PICMG 2.1 R2.0 Hot Swap compliant as a system slot controller
- operates in left or right system controller slot
- operates in peripheral slots
- option to disable CompactPCI interface (Satellite Mode):-
  - receives power from CompactPCI bus
  - board cannot be hot swapped

Electrical Specification

- typical for Quad-Core 2.13 GHz (with 8 Gbytes SDRAM and with RAID controller);
  - +5V@12.0 A; voltage +5%/-3%
  - +3.3V@8.2 A; voltage +5%/-3%
  - +12V@1.5 A; -12V@0.0 A; voltage +5%/-3%
  - +12V and -12V routed to PMC/XMC site

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 and storage)
- -40°C to +85°C (storage)

Mechanical Specification

- 6U form-factor: 9.2inches x 6.3inches (233mm x 160mm)
- dual-slot: 1.6inches (40.6mm)
- connectors: IEC-1076-4-101 for J1-J5

ORDERING INFORMATION

Order Number	Product Description (Hardware)
PP 660/m71-xy	2.0 GHz Dual-Core Intel® Xeon® processor L5508
PP 662/m71-xy	2.13 GHz Quad-Core Intel® Xeon® processor L5518
(where m specifies the optional 1 or 10 Gigabit Ethernet interface module)	
AD PP7/001-zz	Dual slot Rear Transition Module
AD 235/001-0z	USB Flash Drive Module (mounts on AD PP7/001 RTM)

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

where x = rear I/O configuration

1 - Ethernet via rear panel, including 8 port RAID
2 - Ethernet via PICMG 2.16, including 8 port RAID
3 - Ethernet via rear panel, excluding 8 port RAID
4 - Ethernet via PICMG 2.16, excluding 8 port RAID
5 - Ethernet via rear panel, including PMC rear I/O
6 - Ethernet via PICMG 2.16, including PMC rear I/O

where y = memory size

2 - 8 Gbytes
4 - 16 Gbytes
6 - 32 Gbytes
7 - 48 Gbytes

For m and zz options please contact your local sales office.

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Datasheet Code 1596/1009