

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



APPLICATIONS

The PP 68x/m71 is a PC-compatible very high performance, high functionality, CompactPCI® board supporting either the Quad-Core or Six-Core Intel® Xeon® processor and the Intel® 5520 chipset. The processor contains four or six CPU cores and 12 Mbytes shared last level cache. The PP 68x/m71 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 front panel Ethernet module is also available. Full system monitoring is provided by the PICMG 2.9 compliant IPMI interface. Many industry standard operating systems are supported. The PP 68x/m71 is I/O compatible with the PP 66x/x71 family, and is suitable for a range of very high-performance applications within the telecomms, security, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- 2.00 GHz Six-Core Intel® Xeon® processor L5638 or 1.87 GHz Quad-Core Intel® Xeon® processor L5618:
 - two execution threads per core
 - 1066 MHz Memory Bus
 - Intel® QuickPath Interconnect (Intel® QPI)
 - 12 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™:
 - including 64-bit support where applicable
- 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



Specification

Central Processor

- 2.00 GHz Six-Core Intel® Xeon® processor L5638 or 1.87 GHz Quad-Core Intel® Xeon® processor L5618:-
 - 32nm 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
 - 12 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)

SDRAM

- up to 48 Gbytes DDR3-1066 ECC SDRAM:-
 - up to 48 Gbytes via four DIMM sockets
 - 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 optional 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 on 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

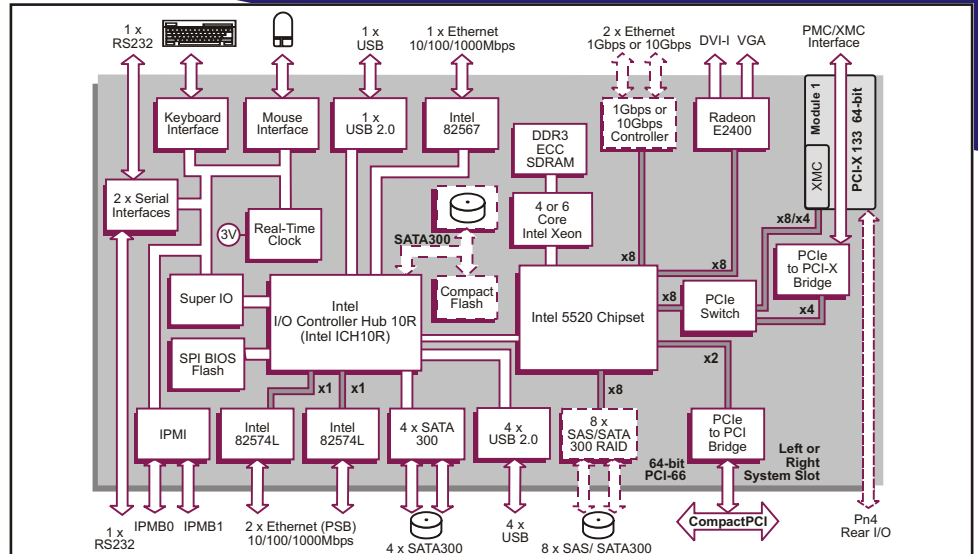
- 2 x rear Gigabit Ethernet implemented by Intel® 82574L Controllers via two x1 PCI Express links:-
 - optional support for PICMG® 2.16 R1.0 - Packet Switching Backplane (PSB)
- front panel RJ45 interface implemented by Intel® 82567 Gigabit Ethernet Controller
- supports 10 Base-T, 100 Base-TX, 1000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

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 interfaces support RI, CTS, RTS, DSR, DTR and DCD



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

Other Peripheral Interfaces

- PC Real Time Clock
- 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

Flash EPROM

- 4 Mbytes of BIOS Flash EPROM

Software Support

- support for Linux®, Windows® XP, Windows® XP Embedded, Windows® Server 2003, Windows Server 2008, QNX®, VxWorks® and Solaris™:-
 - including 64-bit support where applicable

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 (Estimate)

- typical for Six-Core 2.00 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 684/m71-xy 1.87 GHz Quad-Core Intel® Xeon® processor L5618
 PP 686/m71-xy 2.00 GHz Six-Core Intel® Xeon® processor L5638
 (where m specifies the optional 1 or 10 Gigabit Ethernet interface module)

For the order number suffix (xy) option please contact your local sales office:
 where x = rear I/O configuration where y = SDRAM size
 x - Ethernet and RAID configurations y - up to 48 Gbytes

For accessories 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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