

Intel® Pentium® M Processor Slot Controller

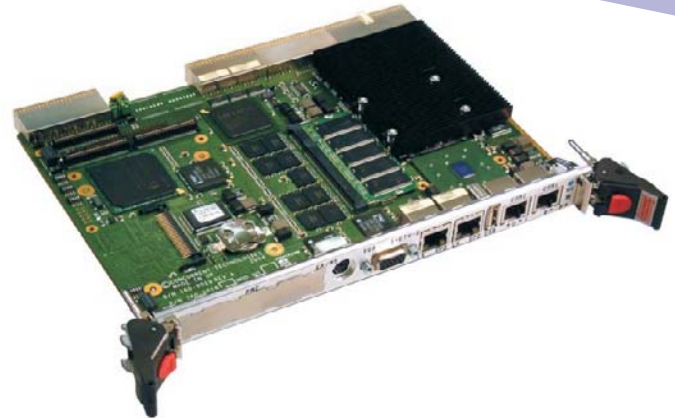


APPLICATIONS

The PP 302/02x-U is a PC-compatible high performance, high functionality one-slot CompactPCI® single board computer supporting either the 1.8 GHz Intel® Pentium® M processor 745 or the 1.4 GHz Intel® Pentium® M processor Low Voltage 738. Featuring a selection of memory options, an optional on-board hard disk drive or CompactFlash™ drive and a variety of interfaces, the board is suitable for a range of high-performance applications in industrial control, telecomms, telemetry, scientific and aerospace applications. Its functionality

HIGHLIGHTS

- 1.8 GHz or 1.4 GHz Intel Pentium M processor:
 - 64 Kbytes L1 cache
 - 2 Mbytes L2 cache
 - no CPU fan needed; low power processor
- 1.6 GHz processor version (1 Mbyte L2 cache) available; see PP 300/02x-U datasheet
- Single slot (for all option combinations)
- Up to 2 Gbytes of 333 MHz DDR DRAM (with ECC)
- High performance EIDE interfaces with optional on-board disk drive or CompactFlash™/Microdrive™ interface (in a single-slot)
- Two Serial ATA150 (SATA) channels
- Ultra-320 Wide SCSI interface
- Four 10/100/1000Mbps Ethernet interfaces
- Dual Gigabit Packet Switching Backplane (PICMG 2.16)
- PMC module interface (32/64-bit at 33/66 MHz)
- 1 Mbyte of BIOS Flash EPROM
- 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)
- High resolution graphics interface
- PS/2 keyboard and mouse port
- 3 x USB 2.0 interfaces and 2 x RS232 serial channels
- Floppy disk interface; Watchdog timer
- Extended temperature version available:
 - -25°C to +70°C (E-Series)
 - -40°C to +85°C (K-Series, includes humidity sealant)
 - supporting 1.4 GHz processor
- Support for VxWorks®, Linux®, Windows NT®, Windows® 2000, Windows® XP, Windows® XP Embedded, Solaris™, LynxOS® and QNX®
- Optional Transition Module for rear panel I/O



Central Processor

- Two processor versions available
- 1.8 GHz Intel® Pentium® M processor 745:-
 - uses μ FC-PGA 478 (micro Flip-Chip Pin Grid Array) package
- 1.4 GHz Intel® Pentium® M processor Low Voltage 738:-
 - uses μ FC-BGA 479 (micro Flip-Chip Ball Grid Array) package
- Common processor features are:-
 - 64 Kbytes of primary (L1) on-die cache
 - 2 Mbytes of secondary (L2) on-die cache
 - 400 MHz Front Side Bus (FSB)
 - no CPU fan
- 1.6 GHz processor version (1 Mbyte L2 cache) available; see PP 300/02x-U datasheet
- utilizes 64-bit Intel® 855GME chipset:-
 - supports 400 MHz bus frequency
 - uses Intel® 6300ESB I/O Controller Hub

DRAM

- supporting up to 2 Gbytes 333 MHz DDR ECC SDRAM:-
 - 1 Gbyte soldered onboard
 - up to 1 Gbyte provided via a SODIMM socket
 - single bit error correction
- accessible from Pentium or CompactPCI bus

Hard Disk Interfaces

- EIDE interface:-
 - supports Ultra-DMA 100 for high performance drives
 - two channels (primary and secondary)
 - secondary channel can be used for on-board 2.5 inch disk drive; or, support for 1x (on-board socket) or 2x (using AD 200/001) CompactFlash or Microdrive™ Type II drives
 - primary channel is accessed via Transition Module
- Serial ATA150:-
 - two channels accessible via J5
 - transfer rate up to 150 Mbytes/s
- Ultra-320 Wide SCSI:-
 - accessible via Transition Module
 - implemented by an LSI 53C1020

Ethernet Interfaces

- four channels supporting 10 Base-T, 100 Base-TX, 1000Base-T:-
 - front channels implemented by 2 x Intel® 82541PI LAN controllers via 32-bit PCI bus
 - rear channels implemented by Intel® 82546GB LAN Controller via 64-bit PCI bus
- 2 x channels accessed via J3 and 2 x channels via front panel RJ45 connectors
- support for PICMG 2.16 R1.0 - Packet Switched Backplane (PSB)

PMC Interface

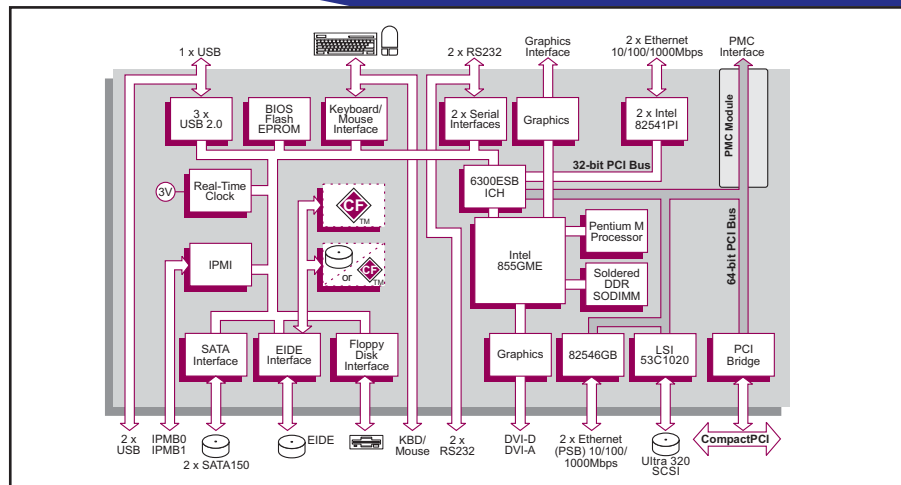
- single PMC site:-
 - I/O via front panel
 - 32/64-bit, 33/66 MHz PCI operation
 - 3.3V PCI signaling levels

Flash EPROM

- 1 Mbyte of BIOS Flash EPROM - 8-bits wide

Firmware Support

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



Software Support

- support for VxWorks, Linux, Windows NT, Windows XP Embedded, Windows 2000, Windows XP, Solaris, LynxOS and QNX

Graphics Interface

- implemented by the Intel® 855GME GMCH:-
 - resolutions up to 2048 x 1536 @75Hz
 - up to 16M colors
- accessed via a VGA connector on front panel or via J5 (DVI-A)
- DVI-D interface supported via J3

Serial Interface

- 2 x RS232 serial channels:-
 - accessed by 2 x RJ45 connectors on front panel or via Transition Module
- each channel supports CTS, RTS, DSR, DTR and DCD via front panel and Transition Module; RI supported via Transition Module
- 16550 compatible UART

Other Peripheral Interfaces

- keyboard and mouse interfaces via a single PS/2™ type connector on front panel or via Transition Module
- PC-compatible RTC (Year 2000 compliant)
- floppy disk interface via Transition Module
- 3 x USB (Universal Serial Bus 2.0) interfaces:-
 - one via front panel
 - two via Transition Module
- watchdog timer
- system fan monitor; CPU temperature monitor; voltages monitor:-
 - all accessible via IPMI
- speaker interface

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
- utilizes a PCI-PCI bridge for off-board accesses
- PICMG 2.1 R2.0 Hot Swap Specification
- 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 in this mode
- J4 connector not fitted

IPMI Interface

- 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

Electrical Specification

- +5V@4.2A (typical at 1.8 GHz with 1 Gbyte DRAM); +5% / -3%
- +3.3V@1.9A; +5% / -3%
- +12V@0.05A; -12V@0.05A
- +12V and -12V routed to PMC expansion slot

Safety

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

Environmental Specification

- operating temperatures:-
 - 0°C to +55°C (N-Series: 1.8 GHz, 1.4 GHz)
 - 25°C to +70°C (E-Series: 1.4 GHz)
 - 40°C to +85°C (K-Series: 1.4 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: 9.2 inches x 6.3 inches (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 302/020-xyU 1.4 GHz Pentium M processor Low Voltage 738
 PP 302/021-xyU 1.8 GHz Pentium M processor 745

AD PP4/00z-zzU Transition Module
 AD 200/001-01 CompactFlash/Microdrive carrier assembly
 AD CP1/DR1-z2 2.5 inch Disk Drive assembly
 AD HSC/001-04 Board Hot Swap cover (rear mounting)

For z options please contact your local sales office

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 =
 1 - reserved
 2 - 1 Gbyte
 3 - 1.5 Gbytes
 4 - 2 Gbytes

For extended temperature, 1.4 GHz E or K-Series, please contact your local sales office