CP302

Mobile Pentium® III
3U CompactPCI CPU

Highest integration on 3U

▶ Intel® Mobile Pentium® III / BGA
   400/500/700MHz

▶ System Master and Peripheral
   Master CPU versions

▶ Shock / Vibration and extended
   temperature resistant

▶ Up to 384 MByte SDRAM

▶ 64-bit CompactPCI interface

▶ Peripheral Hot Swap support

▶ Fast Ethernet

▶ On-board high resolution AGP/VGA

▶ Ultra/DMA IDE and standard PC
   interfaces

▶ PMC extension

▶ Optional Rear I/O support
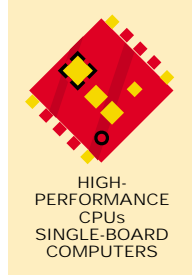
▶ BIOS with LAN Boot feature

Powered by Intel®'s latest Mobile Pentium® III processor,
the CP302 combines outstanding performance with a rugged
design for harsh operational environments and comes
complete with full PC functionality.

Modular Computers ®
A K o n t r o n C o m p a n y

Product Overview

CP302

PEP's CompactPCI CP302 CPU doubles as system master and peripheral master with front or rear I/O.
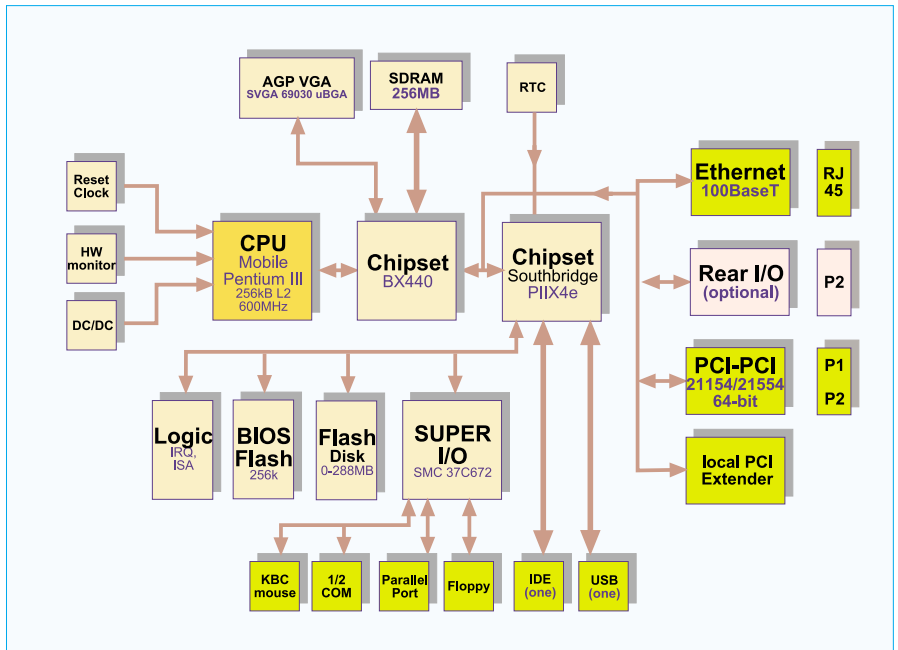
The CP302 features innovative technology in a robust design which incorporates a passive cooling solution for the Mobile Pentium® III processor together with soldered SDRAM supporting ECC, making it ideally suited for harsh and rugged embedded PC applications in industrial environments.

The CompactPCI revision 3.0 compliant CP302 features the very latest Mobile Pentium® III chip in 0.18 micron technology with a 256 kByte on-die full speed L2 cache and the new Advanced Transfer Cache technology boosting performance by up to 25 % at the same clock speed over previous Pentium®III processors.
By using the Mobile Pentium the CP302 offers significant benefits for demanding industrial applications by combining outstanding performance with embedded technology:
– thin chip profile enabling passive cooling on 4 HP
– a case temperature of 100 °C allowing operation at extended temperature range
– reduced power consumption by operating at 1.35V.

In addition to the standard PC interfaces such as PS/2 keyboard / mouse, LPT, EIDE, floppy disk and two COM interfaces, the CPU also offers a 64-bit AGP video controller with a maximum resolution of 1600x1200 pixels, plus a USB and 10/100Base-TX Ethernet interface. Offering the full range of features, the CP302 provides all the functionality of a standard PC and is compatible with off-the-shelf operating systems.

The modular and scalable design of the CP302 permits it to be used as a single slot solution occupying only one CompactPCI slot and thus achieving the highest functionality for space-limited applications. In addition various 8HP/12HP versions with different I/O connection possibilities to maximize the adaptability of the CP302 to user requirements are available.

An optional flash-disk module available either as a DiskOnChip flash or as an EIDE-compatible flash module meets the need for use in harsh operating conditions. Optionally, the CPU can also be ordered with an IDE-compatible hard disk or Flash module.
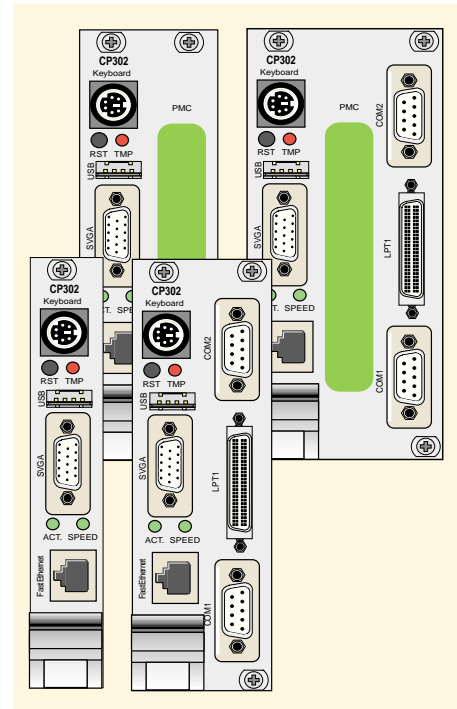
The connections for peripherals are optionally available in the form of rear I/O at the back, thus simplifying the system cabling. Two rear I/O modules 4HP and 8HP are available.

The CP302 is also available as a peripheral master in order to maximize the number of independent CPU´s that may be added in peripheral slots. A non-transparent PCI-PCI bridge isolates the CP302-PM in respect to addressing and configuration from the system master CPU. A TCP/IP connection through the CPCI bus can be provided by means of the multiprocessing software R*ack-NET* from PEP.

Front-Panel

CP302

Specifications

CP302

Processor

Pentium®III, BGA, Intel® embedded low power line
400MHz low power dissipation, ext. temperature
range 500MHz high performance (faster when
available)
256 kByte full speed L2 on-die cache, Intel 440BX

Memory

100 MHz system memory bus
64 MByte up to 128 MByte soldered SDRAM with ECC
64 MByte up to 256 MByte by 144-pin SODIMM
DIL socket for Flash / SRAM, up to 512 kB
optional DiskOnChip™ module up to 96 MByte

I/O

SMSC FDC37C672 providing the following functions:
- Two 16C550 compatible UARTs
- Keyboard and mouse interface
- Floppy disk controller up to 2.88 MB
- Parallel port ECP/EPP compatible
One USB interface
Two EIDE interfaces, one on-onboard, 2nd via rear I/O

AGP/VGA Video Controller

Controller: C&T 69030 with 4MB VRAM
Resolution: up to 1600×1200×16 @ 60Hz
Flat panel interface on 8HP-I/O solution via pin row
connector.

Ethernet Interface

Intel® 82559, 100Base-TX, UTP CAT-5

Front Panel Functions

4HP:
Keyboard/Mouse: PS/2 6-pin mini-DIN
Ethernet: RJ-45
VGA: 15-pin D-Sub SVGA connector
USB: 4-pin connector
LEDs: ACT, SPEED (LAN), TMP Thermal
Reset: Reset button, guarded
8HP-IO:
COM1/2: 9-pin D-Sub (RS232, RS422, RS485)
LPT: 26-pin high density D-Sub
Optional with 2.5" EIDE Flash Disk or Hard Disk
8HP-PMC: Cut out for PMC front panel
12HP: All I/O´s and PMC (no 2.5" IDE drive possible)

On-board Interfaces

One IDE connector supporting Ultra DMA
One floppy disk connector (up to 2.88 MByte); 4HP
with high density connector (adapter required)

CompactPCI Bus Interface

PICMG 2.0 Rev. 3.0 compatible, universal signaling
64-bit/33 MHz (Rear I/O version 32-bit/33 MHz)
Access to additional 7 CPCI slots 32-bit/33 MHz (8HP)

Supervisory Functions

Watchdog, software configurable, 125 msec to 256 sec
generates IRQ, SMI or hardware reset
Hardware monitor for thermal control and onboard
voltages (3.3/5.0V)

Clock/Calendar

RTC and CMOS RAM with backup, battery replaceable

Rear I/O via J2/P2

4HP module: Ethernet ,COM1/2, 2nd EIDE
Additional on 8HP: Mouse / Keyboard, 2×USB, VGA,
(CP302 rear I/O version with 32-bit/33 MHz CPCI)

Hot-Swap

Support for all signals to allow peripheral boards to be
hot swapped. The individual clocks for each slot and
access to the backplane ENUM# signal comply with
the PICMG 2.1 Hot-Swap specification.

General

Dimensions: 100 mm×160 mm, 4HP, 8HP, 12HP
Weight: 300 g
MTBF: 101.000 h

Software Support

256 KByte Flash containing Award BIOS with POST
codes, setup console redirection to serial port (VT100
mode) with CMOS setup access, BIOS parameters
saved in EEPROM, diskless, keyboardless, videoless
operation Support for Windows® NT /NTE,
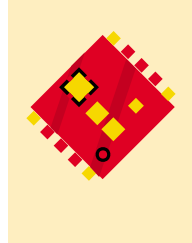VxWorks®,QNX®.

Power Consumption

+5V/4.5W, +3.3V/9W typ. At 400MHz/64MB
+/−12V (connected to PMC)

Environmental

Operating temp.:   0 °C to +60 °C standard
                   −25 °C to +75 °C E1 (optional)
                   −40 °C to +85 °C E2 (optional)
Storage temp.:   −55 °C to +95 °C
Operating humidity: 0% to 95% non-condensing
Altitude: 50,000 ft. (15,240 m)

Ordering Information CP302

Product	Description	Order No.
CP302-BASE 1)	Mobile Pentium® III 500MHz, 128MByte SDRAM	21944
CP302-BASE-E2 1)	Mobile Pentium® III 400MHz, 128MByte SDRAM, –40/+85°C	22254
CP302-BRIO 1)	Mobile Pentium® III 500MHz, 128MByte SDRAM, Rear I/O	21962
CP302-BRIO-E2 1)	Mobile Pentium® III 400MHz, 128MByte SDRAM, Rear I/O, –40/+85°C	22262
CP302-EXT-STD	4HP front panel extension module (Ethernet, VGA, USB, PS/2, Reset, LED's)	21577
CP302-EXT-IOIDE	8HP (additional to 4HP COM1/2, LPT1; 2.5" hard disk or ATA flash possible)	22129
CP302-EXT-PMC	8HP (additional to 4HP PMC slot 32bit PCI)	21362
CP302-EXT-PMCIO	12HP (additional to 4HP COM1/2, LPT1, PMC slot 32bit PCI)	21580
CP302-PM 1)	Mobile Pentium® III 500MHz, 128MByte SDRAM	22539
CP302-PM-E2 1)	Mobile Pentium® III 400MHz, 128MByte SDRAM, –40/+85°C	22556
CP302-PM-EXT-STD	4HP front panel extension module for PM (Ethernet, VGA, USB, PS/2, Reset, LED's)	22222
CP-RIO3-01	4HP rear I/O module (Ethernet, COM1/2, onboard IDE connector)	21971
CP-RIO3-01	8HP rear I/O module (additional to 4HP VGA, USB1/2, PS/2, LED)	21972
DMSO-64	SODIMM, 64MByte SDRAM 144pin PC100	21102
DMSO-128	SODIMM 128MByte SDRAM 144pin PC100	21337
DMSO-256	SODIMM 256MByte SDRAM 144pin PC100	21338
FLD-48 2)	48 MByte DiskOnChip™	19646
FLD-72 2)	72 MByte DiskOnChip™	19369
FLD-96 2)	96 MByte DiskOnChip™	22146
CP-HDD-2.5-IDE	Notebook-style 2.5" Hard disk 10GB or higher for board mounting	22531
CP-FLD-2.5-IDE	Notebook-style 2.5" Flash module 128MB or higher for board mounting	22545
CP-ADAP-PS2-YCABLE	Y–cable, PS/2 mouse/keyboard adapter	18803
CP-ADAP-FD	Floppy adapter for connection to standard floppy interface if 4HP front panel	20536
WNT-RACKNET 2)	TCP/IP multiprocessing communication on PCI bus for Windows NT	20284
KIT-CP302	Drivers, Windows NT setup utilities, user's manual in PDF format on 3.5" floppy disk	20314
VXW-BSP-CP302	VxWorks Board Support Package for use with Tornado on 3.5" floppy disk	20534

Note: 1) A front panel extension module needs to be ordered in conjunction with a BASE, BRIO or PM board.
Users of the 4HP version will require the adapter cable CP-ADAP-FD to connect a FDD to the onboard high density connector. Other configuration options for volume orders are available on request.
2) Others on request.

Modular Computers ®
A Kontron Company

PEP Modular Computers GmbH
Sudetenstr. 7
D-87600 KAUFBEUREN
Tel.: ++49 (0) 8341 803 0
Fax: ++49 (0) 8341 803 499