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Find the *Kontron CP306* at our website: ***Click HERE***

CP306
Pentium® M
Rugged CPU



Effective

Even-tempered

Robust

CompactPCI

- More value with Intel® Pentium® M up to **1.8 GHz** / 2MB L2 cache (Pentium® M processor 745)
- Less rejected heat through better power saving
- Extended Temperature and shock/vibration resistance

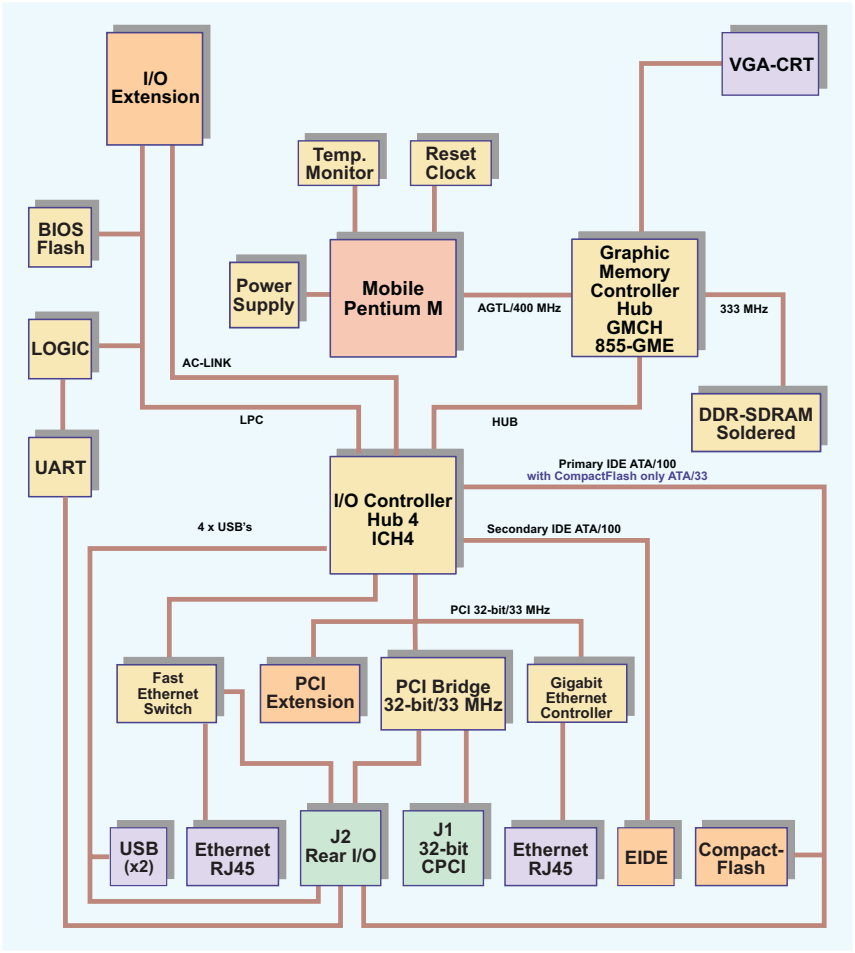
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kontron

Determined designed CPU
Robustness implemented

Functional Block Diagram



Kontron Modular Computer's CompactPCI CP306 CPU demonstrates high PC computing performance in a first-rate resistant construction

The CP306 CompactPCI system controller board combines the performance of Intel's Mobile Pentium® M processor with the high integration of the 855GME chipset and the I/O Controller Hub ICH4.
Realized as a 3U single slot processor card it contributes to high density packaging.

Computing performance
Pentium M clock speed statements are not directly comparable to those of Pentium 4. The new low power Pentium M processors offers at 1.8GHz the same performance as Pentium 4 at 2.6GHz up to 2.9GHz, but dissipates only half of the thermal.
This is achieved by several architecture improvements over Pentium 4 like larger caches, faster buses, enhanced SpeedStep with aggressive clock gating to turn off circuits not in use very quick and enables real-time dynamic switching between multiple voltage and frequency points to reduce idle power.
With the speed of 333MHz up to 1GByte DDR-SDRAM with ECC can be accessed.

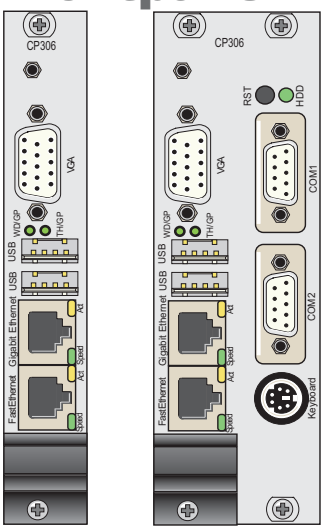
Temperature resistance
The Pentium M architecture allows a high internal temperature and thus make it possible to work up to high extended temperature ranges. Together with its directly soldered thin BGA package it enables sufficient space for a passive heatsink within 4HP.

Shock resistance
The direct soldered processor and memory provide less weight and a higher shock/vibration- resistance than socket devices can. The fan-less heat sink is tightly screwed on the board.

Graphic performance
With the 855GME integrated graphics accelerator delivering high performance 2D, 3D and video capabilities it supports intense, realistic 3D graphics with sharp images and enables balanced memory usage between graphics and system for optimal performance (up to 64MB of dynamic video memory allocation).
It further offers display image rotation 90", 180", 270" and follows DirectX and OpenGL pixelization rules.

I/O connectivity
The 4HP version comes with the most important interfaces, the 8HP version supports legacy interfaces as well.
With the PCI and LPC expansion connectors, the CP306 is an ideal platform for 8HP customized CPU's as well.

Frontpanel



Specifications
... just technical facts:

Processor

Mobile low power Pentium® M processor in Micro-FCBGA 479 package
2x 32KB L1 cache and 2MByte L2 cache, 400MHz processor system bus.
Long term available versions:
- 1.4GHz LV low power dissipation, extended temperature range option
- 1.8 GHz

Maximum internal junction temperature 100°C

All board versions are passive cooled with fanless heatsink within 4HP height. Forced air cooling at a specific flow rate is required depending on the processor version.

Memory

333 MHz memory speed, Intel® 82855GME GMCH
512MByte or 1GByte soldered DDR-SDRAM with ECC
CompactFlash socket type II (Flash or Microdrive HDD)
Onboard 2.5" HDD mounting within 8HP
1MB Firmware Hub for BIOS
8KByte EEPROM for CMOS data storing (no battery operation)

Connectivity

4HP board:

Ethernet:	1st: Intel® 82541PI based 10/100/1000MBit/s Gigabit Ethernet controller at front
	2nd:Intel® 82801DB ICH4 10/100Base-TX Ethernet controller (based on 82559; front or rear IO)
VGA:	Intel® 82855GME GMCH internal VGA controller providing 2048x1536x8bit/60Hz resplution, max. shared memory 64MB
USB:	4x USB2.0 channels up to 480Mbit/s, 2 as front IO, 2 as rear IO
COM:	UART with two 16C550 compatible RS232 ports as rear IO
IDE:	Two EIDE interfaces, Ultra ATA\100, 100MB/sec Primary port ATA\33 connected to CompactFlash socket & rear IO Secondary port ATA\100 40-pin, 2.54mm connector onboard

8HP additions:

COM:	Additional 2 COM ports (front IO), 4 COM ports in total
PS/2:	PS/2 for keyboard and mouse legacy support (front IO)
IDE:	Secondary port ATA\100 two 40-pin, 2.54mm connector s, one for onboard 2.5" EIDE Flash Disk or HDD mounting option, anotherone for external devices like CD-ROM
Floppy:	Standard Floppy connector
LPT:	The parallel port is accessible as onboard 26-pin row connector

Front Panel Functions

4HP:

Ethernet:	Two RJ-45 with integrated LED´s (ACT, SPEED)
Top connector:	VGA-CRT 15-pin D-Sub SVGA connector
USB:	Two 4-pin connectors
LED·s:	ACT, SPEED (LAN), Thermal, Watchdog or both general purpose

8HP:

Additional to 4HP

COM1/2:	Two 9-pin D-Sub (RS232/422/485 jumper selectable)
Keyb/Mouse:	PS/2
Reset:	Reset button, guarded
LED:	HDD active

On-board inter-module interfaces

PCI and LPC (Low Pin Count - the ISAbus replacement) build the connection between the basic CPU board with any I/O extension module, resulting in a double slot (8HP) solution.

Rear I/O via J2

The Rear I/O versions support:
- 32-bit/33 MHz CompactPCI interface
- Two USB ports
- One Fast Ethernet port without LED
- Primary EIDE Port
- Two COM ports (TTL level)
- CRT VGA port
- One fan control input
- One general purpose output
- Input for external backup battery

CompactPCI Bus Interface

PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz System master
5V VI/O (3.3V on request), 7 Req/Gnt & clock lines
Version with rear I/O on J2 PICMG 2.0

Supervisory Functions, Clock/Calendar

Watchdog, software configurable, 125 msec to 256 sec. in 12 steps, generates IRQ, NMI or hardware reset, two stage configuration for NMI and Reset
Hardware monitor LM87 for thermal control, fan-sense and all important onboard voltages
ICH4 internal RTC (MC146818 compatible), RTC and 256 Byte CMOS RAM with backup, battery replaceable

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.

Compliancy

CompactPCI Core Specification PICMG 2.0 Rev. 3.0
CompactPCI Hot Swap Specification PICMG 2.1 R2.0
Designed to meet or exceed:
- Safety: UL 1950, UL 94, CSA 22.2 No 950, EN 60950, IEC 950
- EMI/EMC: EN 55022 / EN 55024, EN 50081-1 / EN 6100-6-2"

General

Dimensions: 100mm x 160mm
Weight: 300g / 4HP, 400g / 8HP
MTBF: 117,000h

Software Support

Phoenix BIOS with QuickBoot, QuietBoot, BootBlock, MultiBoot III, PC Health Monitoring, Serial port remote control with CMOS setup access, BIOS parameters saved in EEPROM, diskless, keyboardless, videoless operation. LAN boot support. USB Floppy boot, USB memory stick boot. Plug&Play capability.
Board identification number accessible via EEPROM
Support for Windows 2000, XP Pro, XP Embedded, Linux®, VxWorks®, (other OS's may be possible, please contact us for information).

Power Consumption

+5V/ 7W, +3.3V/ 6W,	typ. 13W at 1.4GHz
+5V/ 8W, +3.3V/ 9W,	max. 17W at 1.4GHz
+5V/17W, +3.3V/5W,	typ. 22W at 1.8GHz
+5V/27W, +3.3V/9W	max. 36W at 1.8GHz

+12V / -12V not used

Environmental

Operating temp.:	0°C to +60°C standard
	-40°C to +85 °C E2 (optional, 1.4GHz LV)
Storage temp.:	-55°C to +85°C
Climatic Humidity:	non condensing 93% at 40 C (acc. to IEC 60068-2-78)
Altitude:	50,000 ft. (15,240 m)

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Ordering Information

Product	Description	Order No.
CP306 [1]	Pentium® M 1.4GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM	30562
CP306-E2 [1]	Pentium® M 1.4GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM, -40 C/+85 C	30564
CP306-RIO [1]	Pentium® M 1.4GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM, Rear I/O routing to J2	30566
CP306-RIO-E2 [1]	Pentium® M 1.4GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM, Rear I/O routing to J2, -40 C/+85 C	30568
CP306 [1]	Pentium® M 1.8GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM	30561
CP306 [1]	Pentium® M 1.8GHz, LV, 2MByte L2 cache, 1GByte DDR-SDRAM	30239
CP306 [1]	Pentium® M 1.8GHz, LV, 2MByte L2 cache, 1GByte DDR-SDRAM, 3.3 V I/O	31529
CP306-RIO [1]	Pentium® M 1.8GHz, LV, 2MByte L2 cache, 512MByte DDR-SDRAM, Rear I/O routing to J2	30565
CP306-RIO [1]	Pentium® M 1.8GHz, LV, 2MByte L2 cache, 1GByte DDR-SDRAM, Rear I/O routing to J2	30567
CP306-EXT-CRT	4HP front panel extension module (2x Ethernet, 2x USB, LED's, VGA)	26717
CP306-EXT-IOIDE	8HP (additional to 4HP COM1/2, PS/2, Reset button, Floppy port, parallel port, HDD mounting option)	26718
CP-RIO3-03	4HP rear I/O module (one Ethernet, COM1/2, onboard IDE connector)	26725
CP-RIO3-03	8HP rear I/O module (additional to 4HP VGA, USB1/2, LED)	26726
CF128 [2]	CompactFlash 128MByte	23441
CP-HDD-2.5-IDE	Notebook-style 2.5" Hard disk 19GB or higher for board mounting (on CP306-EXT-IOIDE)	22531
CP-ADAP-ATA100 [3]	IDE cable for ATA\100 (40 pin connector with 80 lines, 3x40 pin connectors, length 0.6m)	23671
KIT-CP306 [4]	Windows Drivers, setup utilities, user's manual in PDF format on CD-ROM	26723
VXW-BSP-CP306	VxWorks Board Support Package for use with Tornado on CD-ROM	26724
LIN-BSP-CP306 [4]	Linux Board Support Package for use with SuSE or RedHat distribution	27617

Note: [1] A front panel extension module must be ordered in conjunction with the basic CPU board.
Other configuration options like Ultra Lower Power processors (ULV) for volume orders are available on request.

[2] CompactFlash is available in various sizes, also in extended temperature range -40/+85 C

[3] Today's fast hard disk drives need ATA\100 cable

[4] Free download from http://www.kontron-emea.com

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