CP303

Mobile Pentium® III CPU

Advanced

Powerful

Tough

Compact PCI

- Multimedia extensions
- Pentium® III processors up to 1.2GHz and 512KB L2 cache
- Extended Temperature and shock/vibration resistant

kontron
... always a Jump ahead!

Multi-controller CPU
Robust design

Kontron's CompactPCI CP303 CPU represents a major advance in high end industrial PC integration

The CP303 3U CompactPCI system controller board combines the performance of Intel's Mobile Pentium® III processor with the high integration of the 815-B0 chipset and the I/O Controller Hub 2.

Computing performance
The new low voltage Pentium® III processors offers the same performance like the desktop version, but dissipates only half of the thermal. Its ability to go up to higher ambient temperatures makes it possible to reach extended temperature ranges and together with its directly soldered BGA package it enables sufficient space for a passive heatsink.

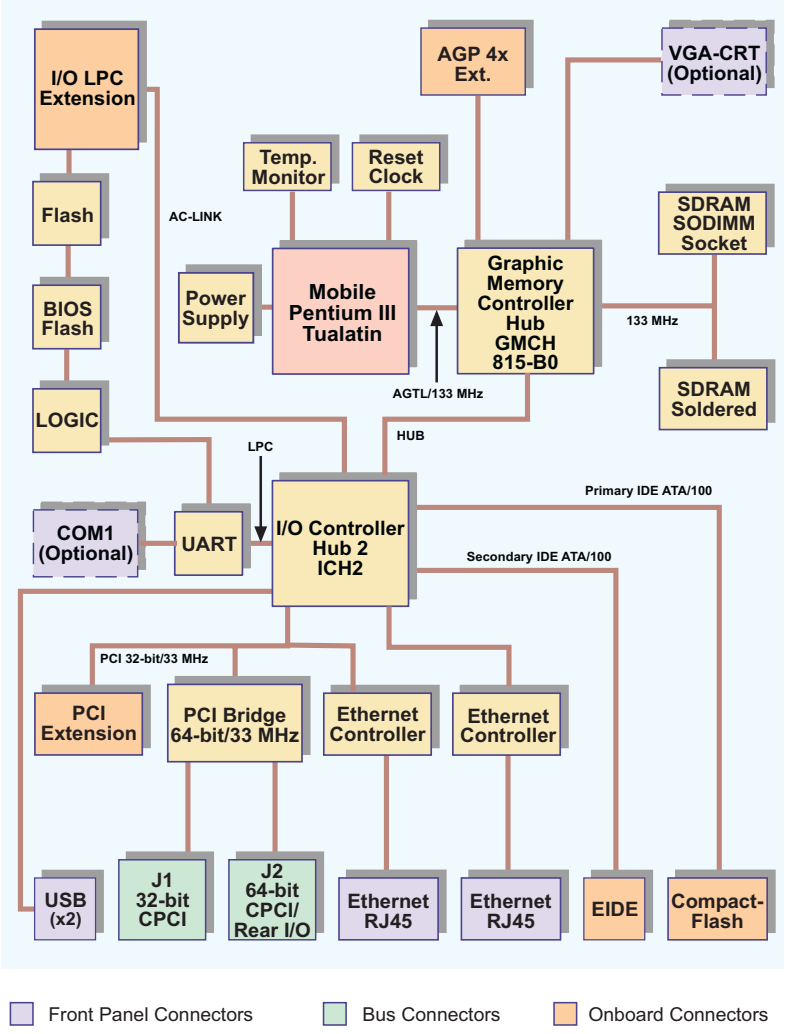
Shock ressistance
The direct soldered processor and memory provide a higher shock/vibration- resistance than socket devices can.

Graphic performance
The 4HP board supplies the 815-B0 integrated graphics accelerator with dynamic memory video technology.
As a double slot board, an external high performance graphics controller (SMI 731) is interfaced via AGP 4x with up to 32MB DDR SDRAM. Optimized for MPEG2 and MPEG4 video encoding it delivers 3 to 4 times more CPU relief than other solutions.

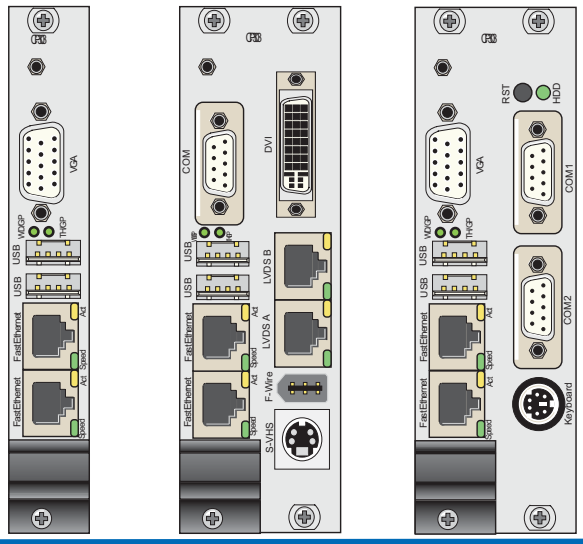
I/O connectivity
Two 8HP versions are supported, one with COM1/2 and PS/2 and a Multimedia version with LVDS, DVI, FireWire, TV Out (NTSC-PAL composite video/SVideo) and Audio I/O.

With the PCI, AGP and LPC expansion connectors, the CP303 is an ideal platform for 8HP customized CPU's.

Functional Block Diagram



Frontpanel



Specifications
... give me the facts

Processor
Mobile low voltage Pentium® III, Micro-FCBGA 478, 512KByte full speed L2 on-die cache. Based on the 0.13u silicon process with 1.15V core voltage (or even 0.95V for the ULV version) resulting in lower power dissipation:
- 400MHz ULV ultra low power dissipation
- 800MHz and 933MHz LV low power dissipation, ext. temperature range
- 1200MHz high performance

all passive cooled

Memory
133 MHz processor side bus, Intel® 82815 GMCH
256MByte soldered SDRAM (no ECC)
256MByte SDRAM via 144-pin SODIMM
Optional CompactFlash socket type II (Flash or Microdrive HDD) or onboard 2.5" HDD mounting
1MB Firmware Hub (FWH) for BIOS
1MB Firmware Hub for general purpose
256 Byte EEPROM for CMOS data storing (no battery operation)
256 Byte EEPROM for user purpose

Connectivity
All versions:
Intel® 82559 based 10/100Base-TX Ethernet controller (No. 1)
Intel® 82801 ICH2 providing the following functions:
- 10/100Base-TX Ethernet controller (No. 2)
- Two EIDE interfaces, Ultra ATA\100, 100MB/sec
- Two USB controllers, 4 ports, USB1.1 compliant

UART with two 16C550 compatible RS232 ports (both rear IO or one at front instead of the VGA connector)

4HP: 82815 GMCH providing 2D/3D graphics accelerator, 1280x1024x16/75Hz or 1200x1600x256/60Hz analog and digital output.

8HP IOIDE: IDE, Floppy, LPT port as onboard pin row
Onboard 2.5" EIDE Flash Disk or HDD mounting option
PS/2 for keyboard and mouse legacy support
Additional 2 COM ports (front IO), 4 COM ports in total

8HP VGA: AGP 4x interface to external graphics controller SMI 731 with up to 32MByte DDR SDRAM, 128bit, 3GB/sec. memory bandwidth, 24bit digital output, 117MHz LVDS transceiver, panel size up to as large as 2480 x 1536 pixels. The dual screen outputs can be routed to any combination of DVI (analog, digital), two LVDS ports or S-VHS.
Dual IEEE1394 FireWire channel ,
AC'97 Audio Codec, audio IO through 4 onboard connectors
Onboard 2.5" EIDE Flash Disk or HDD mounting option
Separate IDE pin row

Front Panel Functions
4HP:

Ethernet:	Two RJ-45 with integrated LED´s (ACT, SPEED)
Top connector:	VGA-CRT 15-pin D-Sub SVGA connector or COM1 RS232 9-pin D-Sub (RS232)
USB:	Two 4-pin connectors
LED·s:	ACT, SPEED (LAN), Thermal, Watchdog or both general purpose

8HP-IOIDE:
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

8HP-VGA:
Additional to 4HP

LVDS:	Two RJ45 connectors at front
DVI:	DVI 29-pin DVI connector with analog and digital video signals
FireWire:	One at front, one onboard connector
TV In or Out:	4-pin MINI-DIN female at front

On-board inter-module interfaces
AGP, 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
- Two Ethernet ports without LED
- 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, 64-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. generates IRQ, NMI or hardware reset, two stage configuration for NMI and Reset
Hardware monitor LM81 for thermal control, fan speed and all onboard Voltages
Processor temperature monitoring MAX1617 (on-die and board)
RTC and 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, 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
MTBF: 101,000 h
Jumperless design

Software Support
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. LAN boot support.
Board identification number accessible via EEPROM
Support for Windows® NT, 2000, XP Pro, Linux®, VxWorks®, (QNX® on request)

Power Consumption
+5V/4W, +3.3V/6W, max. 10W at 400MHz
+5V/8W, +3.3V/6W, max. 14W at 800MHz
+5V/9W, +3.3V/6W, max. 15W at 400MHz
+5V/19W, +3.3V/6W, max. 24W at 1.2GHz

Environmental

Operating temp.:	0°C to +60°C standard
	-40°C to +85 °C E2 (optional)
Storage temp.:	-55°C to +95°C
Operating humidity:	0% to 90% non-condensing
Altitude:	50,000 ft. (15,240 m)

Ordering Information

Product	Description	Order No.
CP303 [1]	Mobile Pentium®III-M 400MHz ULV, 256KByte L2 cache, 256MByte SDRAM	26359
CP303 [1]	Mobile Pentium®III-M 800MHz, LV, 512KByte L2 cache, 256MByte SDRAM	23694
CP303-E2 [1] [4]	Mobile Pentium®III-M 800MHz, LV, 512KByte L2 cache, 256MByte SDRAM, -40/+85 C	23695
CP303-RIO [1]	Mobile Pentium®III-M 800MHz, LV, 512KByte L2 cache, 256MByte SDRAM, Rear I/O routing to J2	23696
CP303 [1]	Mobile Pentium®III-M 933MHz, LV, 512KByte L2 cache, 256MByte SDRAM	25472
CP303 [1] [2]	Mobile Pentium®III-M 1200MHz, LV, 512KByte L2 cache, 256MByte SDRAM	23808
CP303-RIO [1] [2]	Mobile Pentium®III-M 1200MHz, LV, 512KByte L2 cache, 256MByte SDRAM, Rear I/O routing to J2	25851
CP303-EXT-CRT	4HP front panel extension module (2x Ethernet, 2x USB, LED's, VGA)	23704
CP303-EXT-COM	4HP front panel extension module (2x Ethernet, 2x USB, LED's, COM1)	23705
CP303-EXT-VGA [3]	8HP (additional to 4HP LVDS, DVI, Audio I/O, Video Out, FireWire/IEEE1394)	23706
CP303-EXT-IOIDE	8HP (additional to 4HP COM1/2, PS/2, Reset button, Floppy port, parallel port)	23707
CP-RIO3-02	4 HP rear I/O module (two Ethernet, COM1, Dual USB 1.1, no IDE)	23846
CP-RIO3-02	4 HP rear I/O module (two Ethernet, VGA, Dual USB 1.1, no IDE)	25599
CP-RIO3-02	8 HP rear I/O module (two Ethernet, COM1/2, VGA, Dual USB 1.1, no IDE)	25786
DMSO-128	SODIMM 128MByte SDRAM 144-pin PC133	24050
DMSO-256	SODIMM 256MByte SDRAM 144-pin PC133	23362
DMSO-512 [4]	SODIMM 512MByte SDRAM 144-pin PC133	23810
CF128 [5]	CompactFlash 128MByte	23441
CP-HDD-2.5-IDE	Notebook-style 2.5" Hard disk 10GB or higher for board mounting	22531
CP-ADAP-2.5	Adapter to bring CompactFlash to 2.5" IDE interface	22545
CP-ADAP-ATA100 [6]	IDE cable for ATA\100 (40 pin connector with 80 lines, 3x40 pin connectors, length 0.6m)	23671
KIT-CP303 [7]	Drivers, Windows NT setup utilities, user's manual in PDF format on CD-ROM	23702
VXW-BSP-CP303	VxWorks Board Support Package for use with Tornado on CD-ROM	23703

Note: [1] A front panel extension module must be ordered in conjunction with the basic CPU board. Other configuration options for volume orders are available on request.

[2] So far not in Intel embedded roadmap; no long term supply guaranty

[3] Others versions available on request (CRT connector instead of DVI), CompactFlash together with CP303-EXT-VGA needs CP-ADAP-2.5

[4] Extended temperature versions come without soldered onboard DRAM and need SODIMM memory, max. is 512MByte

[5] CompactFlash is available from 32MByte to 1GByte, also in extended temperature range -40/+85 C

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

[7] Free download from http:// www.kontron.com or www.kontron-modular.com or www.pep.com

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Corporate Offices

US/ Canada
6260 Sequence Drive
San Diego, CA 92121-4371
Tel.: +888-294-4558
Fax: +858-677-0898
sales@icsadvent.com

Europe, Middle East and Africa
Oskar-von-Miller-Stra e 1
85386 Eching/Munich Germany
Tel.: +4981-65770
Fax: +4981-6577219
sales@de.kontron.com

Asia Pacific
6F, No. 9, Lane 235, Pao-Chiao Rd.,
Hsin-Tien, Taipei Hsien, 231 Taiwan
Tel.: +886-2-29103532
Fax: +886-2-29103582
sales@tw.kontron.com

Kontron Modular Computers GmbH
Sudetenstr. 7
D-87600 Kaufbeuren
Tel.: ++49 (0) 8341 803 0
Fax: ++49 (0) 8341 803 499
www.pep.com

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