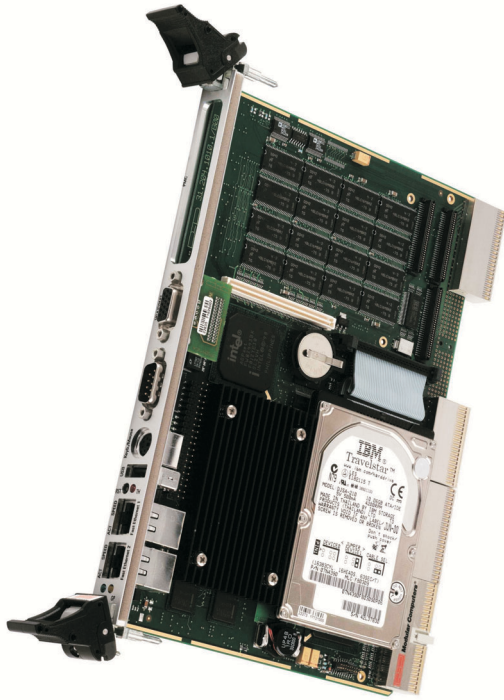


CP604

Mobile Pentium® III

6U CompactPCI CPU



Compact

Robust

Versatile

CompactPCI

- ▶ **Compactness** combined with lowest power consumption allows space saving system designs.
- ▶ **Robustness** guarantees withstanding even harshest environments.
- ▶ **Versatility** allows tailor-made solutions to the specific application requirements.

Robust and rugged

Whenever it's more harsh, more rough,

The 6U CompactPCI board CP604 has been designed to provide superior "rugged" features combined with comprehensive system management support.

The robust design of the CP604 makes it ideally suited for the most demanding conditions found in embedded PC applications.

The small footprint BGA2 package provides maximum height for cooling and space for component placing. The Intel® Low Power Pentium® III chip dissipates about 30% less heat than the FCPGA desktop counterpart by operating at 1.35V and offers a better thermal characteristic with a max. case temperature of 100 C allowing operation at an extended temperature range. The CP604 is equipped with direct soldered PC100 SDRAM up to 1GB and can therefore handle tasks with very high memory demands. By sacrificing the PMC slot a further 1GB of memory expansion can be added.

The board provides for the optional mounting of a flash-disk module DiskOnChip or either a 2.5 IDE-compatible hard disk or a Flash module within its 4HP width.

While the system master version supports the hotswapping of peripheral boards the peripheral master version itself is a hotswappable board with full provision to ensure that the board may be removed and replaced in a working bus without disturbing the system. To achieve this the CP604-PM offers the following additional features:

- signal precharge
- power ramping
- hotswap control and status register
- automatic interrupt generation whenever a board is about to be removed or replaced
- LED to indicate that the board may be safely removed.

All the front panel and onboard interfaces are also optionally available via the rear I/O. Two rear I/O modules (4HP and 8HP) are available.

The peripheral master version CP604-PM with a non-transparent PCI-PCI bridge isolates its resources in respect to addressing

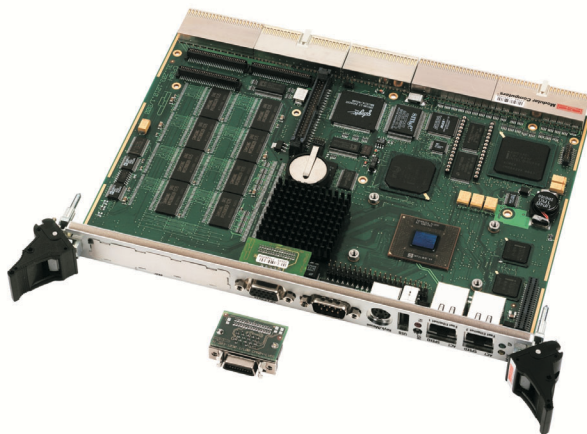
and configuration from the system master CPU.

A TCP/IP connection through the CPCI bus can be provided by means of the multiprocessing software *RackNET*.

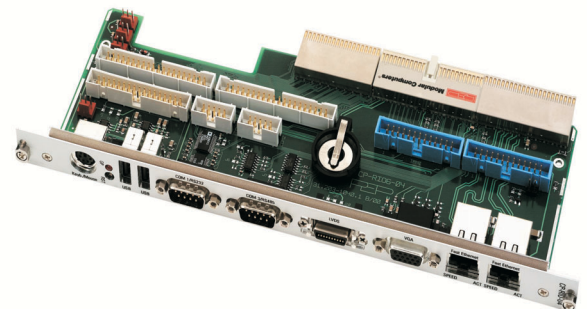
The Intelligent Platform Management Interface Specification (IPMI) provides the ability to monitor systems, generate and log events, determine when to send alarms and perform actions based on system status. The CP604 can optionally be ordered with IPMI support to offer system management features such as:

Defined actions based on I/O status for instance: power down on intrusion alert detection, increase fan speed based on temperature increase.

The versatility of the board is also demonstrated by the connector options available. The user may choose between COM2, VGA-CRT or VGA-LVDS according to his requirements. In total there are 4 serial interfaces, COM1/2 can be accessed as RS232/422/485 at the front and COM3/4 via a rear I/O module CP-RI06-04.



CP604-PM



CP-RI06-04

Specifications

more hot, more cold....

Processor

Intel® Pentium®III, BGA2, embedded low power line
400MHz low power dissipation, ext. temperature range
700MHz high performance,
256 KB full speed L2 on-die cache, passive heat sink

Memory

- 100MHz system memory bus, Intel 440BX/GX
- 256MB up to 1GB soldered SDRAM with ECC
- Memory expansion up to 1 GB (instead of PMC)
- 4MB soldered onboard Flash
- DIL socket for Flash / SRAM up to 512 KB
- Optional DiskOnChip module up to 288 MB
- 2x 256 Byte EEPROM for CMOS data storing
- 2x 256 Byte EEPROM for user purpose
- 256KB Flash boot device for BIOS

I/O

SMSC FDC37C672 providing the following functions:

- Two 16C550 compatible UARTs (COM1/2)
- Keyboard and mouse interface
- Floppy disk controller
- Parallel port ECP/EPP compatible

Two USB interfaces, one at front

Two additional 16C550 compatible UARTs (COM3/4)

Two Fast Ethernet ports, Intel® 82559, 10/100Base-TX

AGP/VGA Video Controller C&T69030 with 4MB VRAM, resolution up to 1600x1200x16@ 60Hz

CRT or LVDS front panel connector instead of COM2

PMC slot

32bit / 33MHz interface, 3.3V / 5V, rear I/O Pn3 to J5

Front Panel Functions

Keyboard/Mouse: PS/2 6-pin mini-DIN

Ethernet: two RJ-45

COM1: 9-pin D-Sub (RS232, RS422, RS485)

either COM2: 9-pin D-Sub (RS232, RS422, RS485)

or VGA: 15-pin D-Sub SVGA connector

or LVDS: 20-pin high density D-Sub

USB: 4-pin connector

LEDs: two times LAN activity and speed,
hotswap, temperature status, general
purpose,

Reset: Reset button, guarded

Micro switch: for hot swap

On-board Interfaces

Two IDE connectors supporting Ultra DMA:

- one 40pin/2.54mm

- one 44 pin/2mm for onboard 2.5 HDD or Flash module

Floppy disk high density connector (adapter required)

Memory extension connector

PMC interface

CompactPCI Bus Interface

PICMG 2.0 Rev. 3.0 compatible, 5V signaling

PICMG 2.1 V1.0 Hot Swap specification

32 or 64-bit/33 MHz, REQ/GNT for 7 slots

System Master CP604 hot swap compliant

Peripheral Master CP604-PM hot swappable

Supervisory Functions, Clock/Calendar

Watchdog, software configurable, 125 msec to 256 sec
generates IRQ, NMI or hardware 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

IPMI (optional)

Onboard independent IPMI compliant baseboard management controller (BMC) with Zircon LT controlling all onboard voltages, processor temperature and external fans if connected to the rear I/O interface.

Compliance

CompactPCI Core Specification PICMG 2.0 Rev. 3.0

CompactPCI Hot Swap Specification PICMG 2.1 R2.0

CompactPCI System Management, PICMG 2.9 R1.0

General

Dimensions: 233 x 160 x 20.5 mm, 6U, 4HP

Weight: 442g

MTBF: 82,600h

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, videless operation.

LAN boot support, Preboot Agent, RackNET support,

Board identification number accessible via EEPROM

Support for Windows® NT /NTE/ 2000, Linux®, VxWorks®, QNX®.

Power Consumption

	400MHz/256MB	500MHz/512MB
5V	5 W	6 W
3.3V	9 W	11 W
+/-12V	connected to PMC	

Environmental

Operating temp.: 0 °C to +60 °C standard
-25 °C to +75 °C E1 (optional)
-45 °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)

Rear I/O via J3/(J4)/J5

All onboard and front interfaces are also routed to the rear side,

COM3/4 are only accessible through rear I/O (TTL signals)

J3: EIDE 1/2, Floppy, COM2, keyboard, mouse, USB

J4: Parallel port, GPIO, IPMI fan control signals

J5: VGA-CRT, LVDS, Ethernet 1/2 without LEDs, USB, COM1, COM3 and COM4
(TTL signals), control signals, PMC rear I/O

Rear I/O module CP-RI06-04

Rear I/O module for CP604, CP604-PM

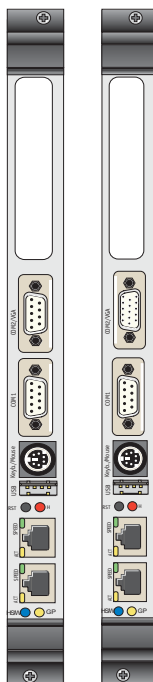
Rear Panel: COM1/3 RS232,PS/2 KB/Mouse

2x USB, 2x Ethernet RJ45, VGA CRT/LVDS

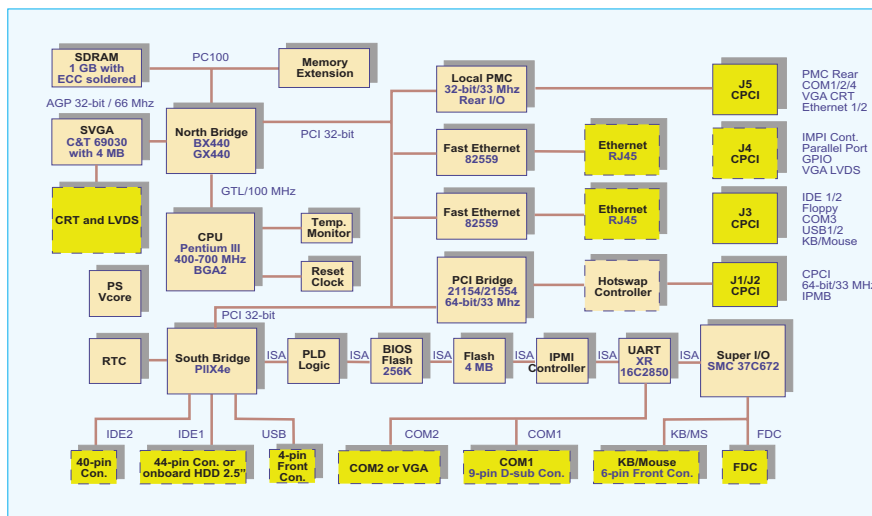
Onboard: 2x IDE, Floppy, LPT, IPMI,

Fan sense 1-3, Battery In, Speaker, Reset In

Frontpanel



Functional Block Diagram



Ordering Information

Product	Description	Order No.
CP604 1)	System Master, Mobile Pentium®III 400 MHz, 256 MByte SDRAM	22802
CP604-E2 1)	System Master, Mobile Pentium®III 400 MHz, 256 MByte SDRAM, -25 °C to +85 °C E2	22803
CP604 1)	System Master, Mobile Pentium®III 500 MHz, 256 MByte SDRAM	22804
CP604 1)	System Master, Mobile Pentium®III 700 MHz, 512 MByte SDRAM	22805
CP604 1)	System Master, Mobile Pentium®III 700 MHz, 1 GByte SDRAM, IPMI	22806
CP604-PM 1)	Peripheral Master, Mobile Pentium®III 400 MHz, 256 MByte SDRAM	22818
CP604-PM-E2 1)	Peripheral Master, Mobile Pentium®III 400 MHz, 256 MByte SDRAM, -25 °C to +85 °C E2	22819
CP604-PM 1)	Peripheral Master, Mobile Pentium®III 500 MHz, 256 MByte SDRAM	22820
CP604-PM 1)	Peripheral Master, Mobile Pentium®III 700 MHz, 512 MByte SDRAM, IPMI	22821
CP604-RI0	Assembly of connectors J3, J4, J5 and rear I/O configuration	22810
CP604-RI0-NOJ4	Assembly of connectors J3, J5 and rear I/O configuration, no J4	22811
CP604-CON-CRT	VGA-CRT connector at front panel instead of COM2 or LVDS	22814
CP604-CON-LVDS	VGA-LVDS connector at front panel instead of COM2 or CRT	22815
CP604-CON-COM2	Second serial port COM2 at front panel instead of VGA or LVDS	22816
CP604-MK2.5	Mounting kit for 2.5" hard disk or ATA flash onboard mounting within 4HP	22813
KIT-CP604	Drivers, Windows® 2000/XP setup utilities, user's manual in PDF format on CD	25218
VXW-BSP-CP605	VxWorks Board Support Package for use with Tornado 2	25278
Note:	1) additional To connect a FDD to the onboard high density connector the adapter cable CP-ADAP-FD is required. Other configuration options for volume orders are available on request	

Corporate Offices

US/ Canada
6260 Sequence Drive
San Diego, CA 92121-4371
Tel.: +1 (0) 88 82 94 45 58
Fax: +1 (0) 88 86 77 08 98
sales@us.kontron.com

Europe, Middle East and Africa
Oskar-von-Miller-Str a 1
85386 Eching/Munich Germany
Tel.: +49 (0) 8165 77 0
Fax: +49 (0) 8165 77 219
sales@kontron.com

Asia Pacific
6F, No. 9, Lane 235, Pao-Chiao Rd.,
Hsin-Tien, Taipei Hsien, 231 Taiwan
Tel.: +88 62 29 10 35 32
Fax: +88 62 29 10 35 82
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.kontron.com

Our worldwide sales representatives and partners can be found on our websites.