

➤ **CP6000**

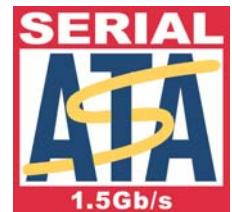
6U Pentium® M

PICMG 2.16 CPU Blade



CompactPCI

- **Maximum Performance**
Intel 1.8GHz Pentium® M processor 745
- **Minimum Power Consumption**
Intel 1.4GHz Pentium® M LV processor 738 with 10W
- **Optimized Price/Performance Ratio**
Compact design due to 855GME and latest Intel I/O controller hub technology



Intel®
Communications
Alliance
Premier Member
GOLD

➤ At a glance A wealth of talents...

Kontron Modular Computer's CompactPCI CP6000 CPU delivers high PC computing performance in a highly integrated cost-effective design.

Combining the low power/high performance features of Intel®'s Mobile Pentium® M processor with the 855GME chipset, the CP6000 CompactPCI system controller incorporates components commonly used in mobile applications.

Compact designed the single slot processor card integrates Intel's latest I/O Controller Hub technology. This all together results in lower levels of heat dissipation, which in turn leads to lower system requirements and integration costs.

Highly versatile the CP6000 can be used in a sytem or peripheral slot. With full hot swap and IPMI functionality the CP6000 is an ideal solution for cost-effective, performance-oriented data and telecommunications applications, media gateways, networking and switching applications, airborne and industrial automation systems and more.

Outstanding Performance Capability

The CP6000 supports the Pentium M processor from 1.1 GHz LV to 1.8 GHz (performance equal to a 2.6 - 2.8 GHz Pentium 4 at about half the power). ECC memory is fast and reliable with up to 2GB of PC333 DDR SDRAM via two 200-pin SODIMM sockets.

Unique Flexibility

The highly integrated CP6000 features a PCI-X PMC site, onboard 2.5-inch hard disk (optional) and compact flash - all usable at the same time in a single slot. The Intel 6300ESB I/O Controller Hub provides advanced I/O technology including USB 2.0 (40X faster than USB 1.1), Serial ATA150 and onboard 64/66 PCI-X bus.

Up to 4 Gigabit Ethernet ports (2x ports at the front and 2x for full PICMG 2.16 support) provide comprehensive connectivity capabilities, enabling innovative applications today by offering enough headroom for the emerging next generation requirements.

With the integrated graphics accelerator - Intels Extreme Graphics 2 technology - the 855GME provides high-resolution graphics up to 2048 x 1536 x 8bit/60Hz pixel and

2D/3D multimedia-quality video. The 855GME enables balanced memory usage between graphics and system for optimized performance (up to 64MB of dynamic video memory allocation).

A rich set of LEDs at the frontpanel for debug and diagnose as well as full rear IO connectivity completes the CP6000.

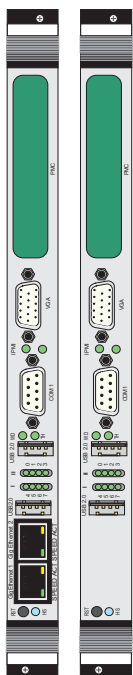
Versions for extended temperature range from -40°C to 85°C are optionally available.

Longterm Availability

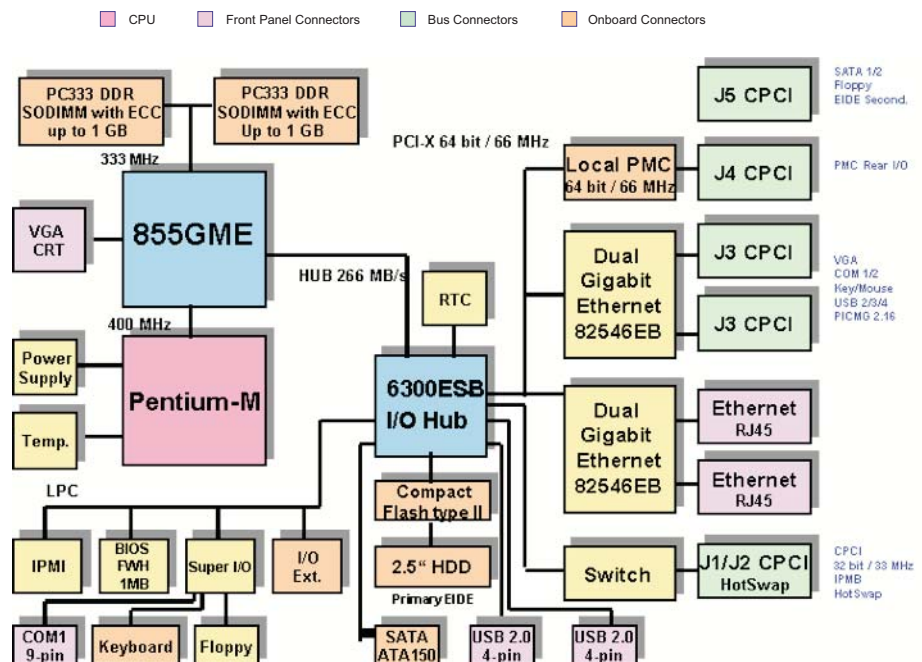
Investing in a new project is always a challenge and risky. Extending the lifetime of an application to the possible maximum is therefore a critical issue to save the development investments.

Delivering a stable product based on Intelfi s embedded product line the CP6000 ensures long term availability. This eliminates the risk of unplanned design changes and unexpected expensive application modification. While minimizing deployment risks the CP6000 provides a broad range of software support to ease the process of product integration and maximize the competitive advantage of meeting the time-to-market window.

➤ Frontpanel



➤ Functional Block Diagram



➤ Specification ... the unique features

Processor

Mobile low power Intel® Pentium® M processor in Micro-FCBGA 479-pin package
2x 32KB L1 cache and 1MByte/2MByte L2 cache, 400MHz processor system bus.
- low power dissipation: 1.1GHz (1 MByte L2) / 1.4GHz LV (2 MByte L2)
extended temperature range option
- high performance 1.6GHz (1 MByte L2) / 1.8GHz (2 MByte L2)
All board versions are passive cooled with a heatsink within 4HP height.
Forced air cooling at a specific flow rate is required depending on the processor version.

Memory

- 400MHz processor side bus, Intel® 82855GME
- Up to 2 GB PC333 DDR SDRAM w/ or w/o ECC via two 200-pin SODIMM sockets
- Socket for CompactFlash Type II module
- Connector for onboard 2.5" HDD support
- 1 MB Firmware Hub (FWH) for BIOS
- 8 kB for storing CMOS data when operating without battery

I/O

- Two 16C550 compatible UARTs (COM1/2)
- Keyboard on rear and onboard connector and mouse interface on rear
- Floppy disk controller on rear
- Four USB 2.0 interfaces with up to 480 Mbit/sec, two front, two rear
- Up to four 10/100/1000 MB/s Gigabit Ethernet ports based on the Intel 82546EM Ethernet 64-bit PCI bus controller. Two copper ports are routed to front and two copper ports are routed to PICMG 2.16 rear pins.
- VGA Video Controller integrated in Intel® 82855GME GMCH providing 2048x1536x8bit/60Hz resolution, max. shared memory 64MB

Front Panel Functions

COM1: 9-pin D-Sub (RS232, RS422)
VGA: 15-pin D-Sub SVGA connector
Ethernet: 2x RJ-45 (depending on version)
USB: 2x 4-pin connectors
PMC: opening for PMC front panel
LEDs: 2x LAN activity (yellow) and speed (green)
one blue control LED for hot swap
2x for IPMI, 1x watchdog, 1x thermal control
8-LED-field for BIOS POST code or general purpose
Reset: reset button, guarded
Micro switch: for hot swap

Onboard Interfaces

- Two IDE connectors supporting Ultra DMA,
one 40pin/2.54mm, one 44 pin/2mm for onboard 2.5 IDE HDD or Flash
- One SATA connection (optional), can be used alternatively to connect an onboard 2.5" SATA HDD instead of an onboard 2.5" IDE HDD
- CompactFlash type II socket
- 22-pin connector with all LPC signals
- PS/2 keyboard connector
- 2x200-pin SODIMM connectors
- 4x 64-pin PMC interface

I/O Table Summary

| Description | Front I/O | Rear I/O | Onboard Connector | Total |
|---------------|-----------|----------|-------------------|-------|
| Video | 1 | 1 | - | 1 |
| USB | 2 | 2 | - | 4 |
| Serial | 1 | 2 | - | 2 |
| PS/2 Mouse | - | 1 | - | 1 |
| PS/2 Keyboard | - | 1 | 1 | 1 |
| Ethernet | 2 | 2 | - | 4 |
| ATA100 | - | 1 | 2 | 2 |
| SATA150 | - | 2 | 1 | 2 |
| CompactFlash | - | - | 1 | 1 |
| PMC | 1 | via J4 | Pn1-Pn4 | 1 |
| Floppy | - | 1 | - | 1 |

CompactPCI Bus Interface

PICMG 2.0 Rev. 3.0 compatible, 32 bit/33 MHz.
5V default signaling (3.3V on request available), REQ/GNT for 7 slots
Operating in system slot as system master and in peripheral slot in PCI passive mode (no communication to CompactPCI bus).

PMC slot

One 64-bit / 66MHz PMC slot Pn1-Pn4, rear I/O Pn3 to J4.
3.3 V PCI voltage.

Supervisory Functions, Clock/Calendar

Watchdog, software configurable, 125 msec to 256 sec
generates IRQ, NMI or hardware reset.
Hardware monitor LM87 for thermal control, fan speed and all onboard voltages.
RTC (integrated in HanceRapids) and CMOS RAM with backup, battery replaceable.

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

J3: PICMG 2.16, VGA, COM0/1, keyboard, mouse, USB3/4
J4: PMC rear I/O
J5: SATA 1/2, IDE (secondary), Floppy

IPMI

IPMI 1.5-compliant for IPMI based management and CompactPCI System Management
PICMG 2.9 R1.0.

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
CompactPCI Packet Switching Backplane PICMG 2.16 R1.0
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: 233 x 160 x 20.5 mm, 6U, 4HP
Weight: 350g
MTBF: 139.589 h @ 30 C / 86 F (Bellcore Issue 6)

Software Support

AMI 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® 2000, XP, XP Embedded, Windows® Server 2003, Linux®, VxWorks® (other OSs may be possible, please contact us for information).

Power Consumption

| | | |
|------|-------------------------|--------------------------|
| | 1.1/1.4 GHz | 1.6/1.8 GHz |
| 3.3V | typ. 8-10 W / max. 11 W | typ. 8-10 W / max. 12 W |
| 5V | typ. 5-7 W / max. 11 W | typ. 16-18 W / max. 27 W |
| +12V | required | |
| -12V | not required | |

Environmental

Operating temp.: 0 °C to +60 °C standard
-40 °C to +85 °C E2 with 1.1/1.4 GHz LV Pentium M (optional)
Storage temp.: -55 °C to +95 °C
Climatic Humidity: non condensing 93% at 40 °C (acc. to IEC 60068-2-78)
Altitude: 50,000 ft. (15,240 m)

► Ordering Information

| Product | Description | Order No. |
|--|--|-----------|
| CPU Boards | | |
| CP6000 | Pentium M 1.6GHz, 2xGigEthernet on FP, 2xGigEthernet on PICMG2.16/RIO, IPMI, J1/J2/J3 | 27792 |
| CP6000 | Pentium M 1.8GHz, 2xGigEthernet on FP, 2xGigEthernet on PICMG2.16/RIO, IPMI, J1/J2/J3 | 28251 |
| CP6000 | LV Pentium M 1.4GHz, 2xGigEthernet on FP, 2xGigEthernet on PICMG2.16/RIO, IPMI, J1/J2/J3 | 29685 |
| CP6000-E2 ²⁾ | LV Pentium M 1.4GHz, 2xGigEthernet on FP, 2xGigEthernet on PICMG2.16/RIO, IPMI, J1/J2/J3, E2: -40° C to +85° C | 29094 |
| Memory Modules | | |
| SODIMM-DDR-512 | SODIMM, DDR SDRAM, 512MB, PC333, 200-pin, no ECC | 27488 |
| SODIMM-DDR-512-E | SODIMM, DDR SDRAM, 512MB, PC333, 200-pin, ECC | 27489 |
| SODIMM-DDR-1024 | SODIMM, DDR SDRAM, 1GB, PC333, 200-pin, no ECC | 27490 |
| SODIMM-DDR-1024-E | SODIMM, DDR SDRAM, 1GB, PC333, 200-pin, ECC | 27491 |
| SODIMM-DDR-512-E-E2 | SODIMM, DDR SDRAM, 512MB, PC266 200-pin, ECC, extended temperature range E2: -40° C to +85° C | 27832 |
| Services | | |
| CP-RIO216 | Assembly of connectors J4/J5 and rear IO configuration for CP6000 | 27829 |
| CP-RIO216-NOJ4 | Assembly of connectors J5 (no J4) and rear IO configuration for CP6000 | 27830 |
| CP6000-MK2.5 ²⁾ | Mounting kit for 2.5" IDE-HDD onboard, mounting within 4HP, mutually exclusive with CP6000-MK2.5SATA | 27831 |
| CP6000-MK2.5SATA ²⁾ | Mounting kit for 2.5" SATA-HDD onboard, mounting within 4HP, mutually exclusive with CP6000-MK2.5 | 30905 |
| Rear Transition Modules | | |
| CP-CTM80-2 ³⁾ | 4HP for SCSI (together with PMC261 on CP6000) and Ethernet on rear panel | 25127 |
| CP-CTM80-2 ³⁾ | 4HP for SCSI (together with PMC261 on CP6000) and PICMG 2.16 | 27622 |
| CP-CTM80-3 | 4HP for SATA and Ethernet on rear panel | 29974 |
| CP-CTM80-3 | 4HP for SATA and PICMG 2.16 | 29973 |
| Software Support | | |
| KIT-CP6000 ⁴⁾ | Documentation and Windowsfi driver kit on CD-ROM | 27790 |
| LIN-BSP-CP6000 ⁴⁾ | Linux BSP CP6000 for Suse and RedHat | 27791 |
| VXW-BSP-CP6000 | VxWorks BSP CP6000 for Tornado V. 2.2 | 27802 |
| Note: | | |
| 1) Mounting kit CP6000-MK2.5 or CP6000-MK2.5SATA can not be used on CP6000-E2 due to larger heatsink | | |
| 2) HDD must be ordered separately | | |
| 3) no SATA150 support | | |
| 4) Free of charge downloadable from the Internet | | |
| please contact your local sales representative for other configuration options | | |



► Corporate Offices

US/ Canada
14118 Stowe Drive
Poway, CA 92064-7147
Tel.: +1 (0)888-294-4558
Fax: +1 (0)888-677-0898

sales@us.kontron.com

Europe, Middle East and Africa
Oskar-von-Miller-Str. e 1
85386 Eching/Munich Germany
Tel.: +49 (0)8165-770
Fax: +49 (0)8165-77219

sales@kontron.com

Asia Pacific
4F, No. 415, Ti-Ding Blvd. Sec. 2
Nei Hu District, Taipei 114, Taiwan
Tel.: +886-2-29103532
Fax: +886-2-29103582

sales@kontron-asia.com

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

sales@kontron.com

Our worldwide sales representatives and partners can be found on our websites: www.kontron.com or www.kontron-emea.com