Intel® Core™2 DUO 6U CompactPCI PICMG 2.16 PROCESSOR BLADE

- breakthrough 45 nm technology processor
- best performance through server class chipset
- highest versatility and excellent power management
- broad software support
Benefit from the latest technology that achieves highest processor performance at optimized power consumption.

The power of two cores enables virtualization and multithreading applications to run in full 64-bit mode using Enhanced Intel® Virtualization, Dynamic Acceleration Technology and SpeedStep®.

Greater Performance / Watt

Compared to previous processor designs the 45 nm dual-core Penryn technology allows much better performance at similar power consumption.

The PICMG 2.16-compliant Kontron CP6016 offers up to 16 GByte dual-channel 667 MHz DDR2 registered ECC memory via two SO-RDIMM sockets, providing up to 8.5 GByte/sec data throughput. The CP6016 is designed for bandwidth intensive applications and thanks to hotswap support and IPMI (PICMG 2.9-compliant Intelligent Platform Management Interface) the CPU board meets the highest demands for the management of high-availability applications. Many of these are data and tele-communications applications, but also include highly sensitive, security related solutions as well as image processing systems in medical technology and other vertical industries.

Unique Versatility

The highly integrated CP6016 features a XMC site according to XMC.3 supporting x8 PCI Express (alternatively a 64-bit/133 MHz PCI PMC site), an onboard 2.5-inch SATA hard disk and USB NAND Flash device - all usable at the same time in a single slot. The Intel® ICH9R I/O Controller Hub provides advanced I/O technology including USB 2.0 and Serial ATA300. Five independent Gigabit Ethernet ports (3x ports at the front and 2x for full PICMG 2.16 support) provide comprehensive connectivity capabilities, enabling innovative applications today by offering enough room for the emerging next generation requirements. Highly versatile, the CP6016 can be used in a system or peripheral slot. A rich set of LEDs at the front panel for debug and diagnostic, as well as full rear I/O connectivity completes the CP6016.

Longterm Availability

Delivering a stable product based on Intel®’s embedded product line, the CP6016 ensures long term availability. This eliminates the risk of unplanned design changes and unexpected expensive application modification. While minimizing deployment risks, the CP6016 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.
## TECHNICAL INFORMATION

### PROCESSOR
Intel® Penryn SV Processor in uFBGA package (45 nm manufacturing process) 2.53 GHz, 1066 MHz FSB, 6 MByte L2 cache

### MEMORY CONTROLLER HUB
Intel® 5100 chipset with dual-channel DDR2 memory controller with ECC, six x4 PCI Express ports

### I/O CONTROLLER HUB
Intel® ICH9R, 6x SATA II controllers, 7x USB 2.0, one x1 PCI Express, LPC, HDA

### MEMORY
Dual channel registered DDR2 memory with ECC and data speed of 667 MHz per channel, and up to 16 GByte on two SORDIMM sockets
Up to 8 GByte NAND Flash Module
Two redundant 4 MByte SPI Flashes
Serial EEPROM (24LC64) 64 kbit

### FRONT PANEL FUNCTIONS
Three 1000BASE-T Ethernet on the FP
One RS232 interface on RJ45 connector
Two USB 2.0 ports, 4-pin standard USB host
One 15-Pin D-Sub connector for analog monitors;
ATI ES1000 graphic controller with PCI 32-bit / 33 MHz interface
One reset button
For Hot Swap
Eight bicolor (red and green) control and status LEDs
Two IPMI LEDs
One Watchdog and one thermal LED
Four GP LEDs
One blue hot Swap LED

### ONBOARD INTERFACES
Two PICMG 2.16 rear I/O 1000BASE-T ports
Four ports fixed to rear I/O
One port routed to a standard SATA connector
One port available for mounting an optional 2.5" HDD
One port available for mounting an optional NAND Flash module
Two RS232 ports:
COM1 routed to front panel and rear I/O
COM2 routed to rear I/O only
Universal V/I/O) 5 V or 3.3 V signalling
Operating in system slot as system master and in peripheral slot in PCI passive mode (no communication to CompactPCI bus)
One 64-bit / 133 MHz PMC slot, Pn1-Pn4, rear I/O Pn3 to J4, 3.3 volt V/I/O)
Alternatively one XMC slot via P15, supporting XMC.3 x8 PCIExpress
J3: PICMG 2.16, VGA, COM 1/2, keyboard, mouse, 4x USB
J4: PMC rear I/O
J5: 4x SATA, HDA, battery, fan control

### SUPERVISORY FUNCTIONS, CLOCK/CALENDAR
Watchdog, software configurable, 125 msec to 256 sec, generates IRQ or hardware reset. Hardware monitor for thermal control, fan speed, and all onboard voltages RTC battery backup

### IPMI
IPMI 1.5-compliant for IPMI based management and CompactPCI System Management PICMG 2.9 R1.0 H8S/2166 controller with on-chip 512 kByte Flash and external 8 Mbit SPI Flash

### TPM
Trusted Platform Module (TPM) 1.2 for enhanced hardware and software based data and system security

### I/O TABLE SUMMARY

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Front I/O</th>
<th>Rear I/O</th>
<th>Onboard Controller</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIDEO CRT VGA</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>2</td>
<td>4</td>
<td>1 (Flash)</td>
<td>7</td>
</tr>
<tr>
<td>HDAUDIO</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>SERIAL</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>PS/2 MOUSE</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>PS/2 KEYBOARD</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>ETHERNET</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>SATA</td>
<td>-</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>USB FLASH</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PMC / XMC</td>
<td>-</td>
<td>-</td>
<td>1/1</td>
<td>1/1</td>
</tr>
<tr>
<td>FAN CONTROL</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>BATTERY INPUT</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>SMB</td>
<td>-</td>
<td>-</td>
<td>1 optional</td>
<td>1 optional</td>
</tr>
</tbody>
</table>

### 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
EN 55022 / EN 55024, EN 50081-1 / EN 61000-6-2

### MTBF
218070h acc. Belcore Issue 6 Ground Benign 30°

### GENERAL
Dimensions
233 x 160 x 20.5 mm, 6U, 4HP

Weight
900 g
## TECHNICAL INFORMATION

### SOFTWARE SUPPORT

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

### POWER CONSUMPTION

Maximum: 64 watts, typically: <= 50 watts

### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>OPERATING TEMP.</th>
<th>STORAGE TEMP.</th>
<th>CLIMATIC HUMIDITY</th>
<th>ALTITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° C to +60°C. passive module heat sink. requires forced airflow cooling</td>
<td>-55° C to +85° C (without battery or HDD)</td>
<td>93% RH at 40°C. non condensing (acc. to IEC 60068-2-78)</td>
<td>50,000 ft (15,240 m)</td>
</tr>
</tbody>
</table>

## ORDERING INFORMATION

### CPU BOARDS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1032-0739</td>
<td>6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53 GHz, 6 MByte L2, 2 GByte DDR2 667 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Sockel, J1-J5</td>
</tr>
<tr>
<td>1032-0742</td>
<td>6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53 GHz, 6 MByte L2, 4 GByte DDR2 DDR67 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Sockel, J1-J5</td>
</tr>
<tr>
<td>1032-0743</td>
<td>6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53 GHz, 6 MByte L2, 8 GByte DDR2 DDR67 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Sockel, J1-J5</td>
</tr>
</tbody>
</table>

### USB-FLASH MODULES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH-USB-XXX</td>
<td>NAND-Flash in various capacities</td>
</tr>
</tbody>
</table>

### SERVICES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1022-5510</td>
<td>Mounting kit for 2.5” SATA-HDD onboard, mounting within 4HP</td>
</tr>
</tbody>
</table>

### REAR TRANSITION MODULES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1027-4239</td>
<td>4TE Rear I/O Module for CP6016/CP6001 Sockets for 2x 2.5 inch Hard Disk, extended temperature range -40 to 60°C</td>
</tr>
<tr>
<td>1027-4235</td>
<td>4TE Rear I/O Module for CP6016 Rear Panel: 2xUSB, 2xGbe, Audio, COM1, VGA, Connectors for USB Flash, 2xSATA, Fan, 0°C to 60°C</td>
</tr>
<tr>
<td>1027-4236</td>
<td>4TE Rear I/O Module for CP6016 Rear Panel: 2xUSB, Audio, COM1, VGA, Connectors for USB Flash, 4xSATA, Fan, 0°C to 60°C C PIMG2.16 Support</td>
</tr>
</tbody>
</table>

### SOFTWARE SUPPORT

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1022-5519</td>
<td>Documentation and 32-bit Windows (XP, Server 2003) driver kit on CD-ROM</td>
</tr>
<tr>
<td>1022-6303</td>
<td>Documentation and 32-bit Windows XP EMBEDDED driver kit on CD-ROM</td>
</tr>
<tr>
<td>1022-5520</td>
<td>Documentation and 32 bit Linux BSP for Suse and RedHat distributions on CD-ROM</td>
</tr>
</tbody>
</table>

### (OTHER OPERATING SYSTEMS)

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) HDD must be ordered separately</td>
<td></td>
</tr>
<tr>
<td>2) Free of charge, downloadable from the Internet</td>
<td></td>
</tr>
</tbody>
</table>

### NOTES

Please contact your local sales representative for other configuration options.

## CORPORATE OFFICES

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