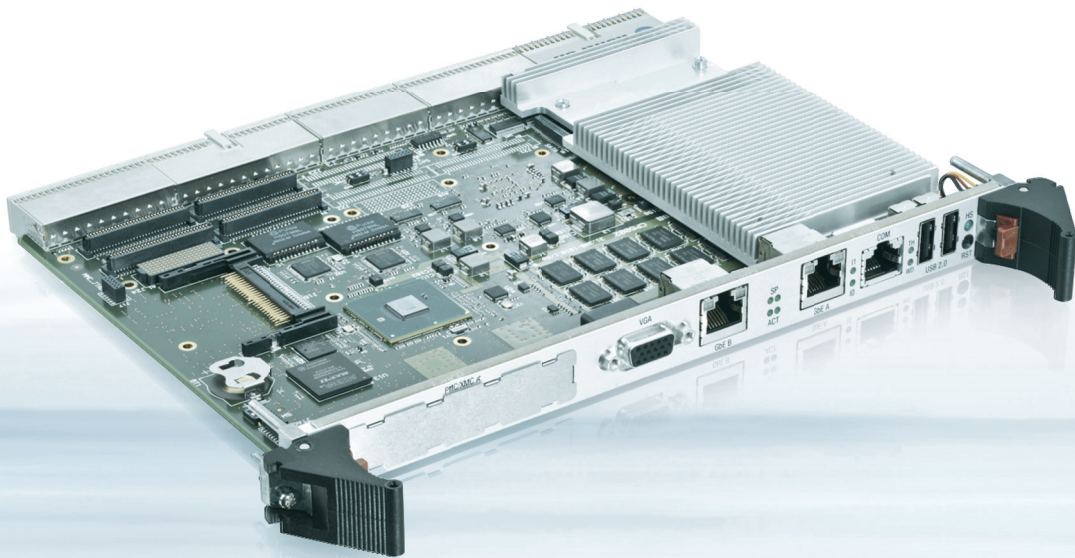


# CP6002

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## Intel® Core™ i7 RUGGED 6U CompactPCI PROCESSOR BLADE

- ▶ high computing and graphic performance  
Intel® Core™ i7 processors combined with QM57 chipset
- ▶ rugged levels for demanding application requirements  
highly shock and vibration resistant, extended temperature range
- ▶ comprehensive I/O capabilities  
4x GbE, 6x SATA with RAID, DVI & HDMI, onboard HDD, CompactFlash ...

POSSIBILITIES START HERE



# CP6002

## Intel® Core™ i7 RUGGED 6U CompactPCI PROCESSOR BLADE

Explore the power and the potential of two 32 nm cores in one processor with Kontron's CP6002 based on the Intel® Core™ i7 processor.

The CP6002, a CompactPCI PICMG 2.16 compliant 6U CPU board, comes with various rugged levels, making it yet another addition to Kontron's rugged PICMG 2.16 portfolio. Based on the Intel® Core™ i7 processor and

mobile chipset, the CP6002 features high computing and graphic performance with a low thermal power design and a complete set of data, communication and multi-media interfaces.

### Maximum Ruggedization

Designed to withstand even the toughest environmental conditions, the passively cooled CP6002 featuring up to 8 GByte of soldered RAM with ECC and a CompactFlash socket for industrial grade flash modules comes in the rugged levels – defined as R1 and R2. The R1 version is designed for standard application requirements in air-cooled environments. Air cooled Version R2 is available in extended temperature range from -40° C to +70° C. It is designed for high shock and vibration requirements as defined in VITA 47 EAC3/EAC6 (EAC6 requires special system components). The CP6002 features energy efficient embedded Intel® dual core processors. With the 2.53 GHz Intel® Core™ i7-610E and the LV 2.0 GHz Intel® Core™ i7-620LE, the CP6002 has extraordinary performance per watt values. Up to 8 GByte of soldered DDR3 1066 MHz memory with ECC provide the basis for demanding

software applications. Based on the Intel® Mobile QM57 IO controller hub the CP6002 provides high graphics performance for VGA and two independent digital video outputs to the rear I/O as well as HDA audio capabilities.

### Comprehensive Versatility

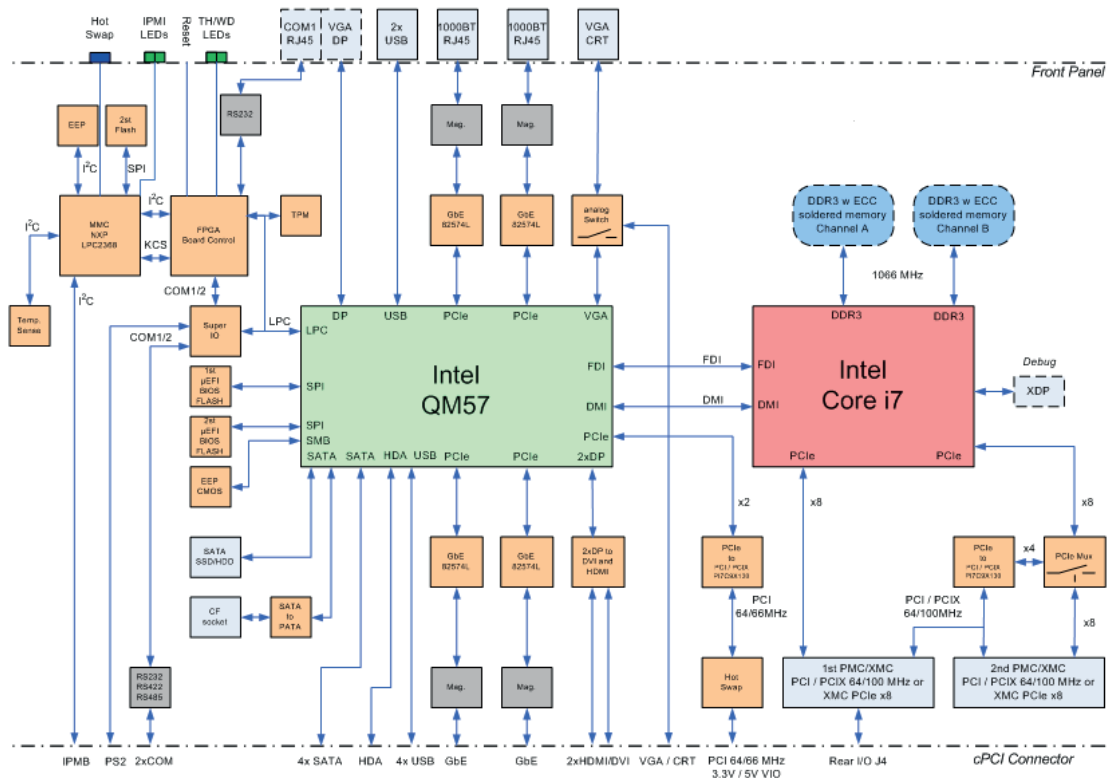
The CP6002 offers comprehensive I/O capability with 4x 1Gb Ethernet, 4x rear IO SATA with RAID 0/1/5/10 functionality, a local SATA hard disk and SATA Flash disk connector, a CompactFlash socket as well as 6x USB 2.0, 2x COM, VGA and/or DVI. It can also accommodate a PMC/XMC slot and onboard 2.5" SATA HDD. A CP6002 with two PMC/XMC sockets is available for IO intensive applications. The CP6002 enables construction of a highly shock and vibration resistant systems with non-rotating, nonvolatile – write protectable – memory.

### Unique Security

The board provides safety and security via a trusted platform module, (TPM) 1.2, two redundant firmware hubs (failover) and IPMI (Intelligent Platform Management Interface) support (PICMG 2.9 R1.0).

### Long-term Availability

Delivering a stable product based on Intel®'s embedded product line the CP6002 ensures long-term availability.



► TECHNICAL INFORMATION

PROCESSOR		Intel® Core™i7 Processor (32 nm): <ul style="list-style-type: none"> <li>- Core™ i7-610E, Dual Core, 2.53 GHz, 4 MByte cache,</li> <li>- Core™ i7-620LE, Dual Core, 2.0 GHz, 4 MByte cache, (LV)</li> <li>- Celeron® Processor P4505, Dual Core, 2 MByte cache</li> </ul> 1066 MHz dual-channel DDR-3 memory controller with ECC Note: Versions incorporating other CPUs available on project request. Please contact us for further assistance.																												
I/O HUB		<ul style="list-style-type: none"> <li>- Intel® QM57, internal graphics controller w. dual independent graphic channels (front VGA or DVI and rear dual DVI/HDMI)</li> <li>- 6 SATA II controllers, 12x USB 2.0 (6 used), 8x PCIe 2.0 x1, 1x LPC</li> </ul>																												
MEMORY		<ul style="list-style-type: none"> <li>- Up to 8 GByte DDR-3, 1066 MHz, with ECC, dual channel 4 or 8 GByte soldered</li> <li>- Up to 32 GByte NAND Flash module with SATA interface</li> <li>- CompactFlash socket (CP6002-R2: SATA flash disk only)</li> <li>- Two redundant 8 Mbit SPI Flash</li> <li>- Serial EEPROM</li> </ul>																												
ONBOARD CONTROLLER		Four Gigabit Ethernet Intel® 82574L PCI Express® bus controllers: <ul style="list-style-type: none"> <li>- 2x front I/O</li> <li>- 2x rear I/O to support PICMG 2.16</li> <li>- Watchdog: FPGA-based, software configurable, two-stage Watchdog w. programmable timeout ranging from 125 ms to 256 s in 12 steps</li> <li>- RTC</li> <li>- IPMI Controller w. Flash and RAM; ext. 1 MByte SPI Flash, 64 kbit EEPROM</li> <li>- Super I/O: LPC Super I/O, 2x UART, HW-Monitor, fan control</li> <li>- Trusted Platform Module (TPM 1.2) optional</li> </ul>																												
SYSTEM INTERCONNECT		<ul style="list-style-type: none"> <li>- Serial ports: two COM ports (transceivers onboard)</li> <li>- COM1 as RS232 on front</li> <li>- COM2 as RS422 on the rear I/O interface</li> <li>- SATA NAND Flash: One SATA port of the QM57 is routed to a dedicated onboard connector, where SATA-NAND-Flash modules can be connected</li> <li>- SATA: Five Serial ATA II ports</li> <li>- Four ports are routed to rear I/O</li> <li>- One available as 2.5" onboard HDD (not for dual XMC versions)</li> <li>- PMC: one 64-bit / 66 MHz PCI PMC slot with rear I/O support or XMC (PCIe x8) slot, 5 V and 3.3 V PCI signalling supported</li> <li>- CP6002-R1/R2-MC with 2x 64-bit / 66 MHz PCI PMC slot with rear I/O support or XMC (PCIe x8) slot</li> </ul>																												
FRONT PANEL FUNCTIONS	<b>ETHERNET</b> <b>VGA</b> <b>COM</b> <b>USB</b> <b>PMC</b> <b>LEDS</b>  <b>RESET</b> <b>MICRO SWITCH</b>	2x 1000/100/10 Base Ethernet on RJ45 1x 15-Pin D-Sub connector for standard analog displays 1x RS232 UART interface on RJ45 connector 2x 4-pin connectors Opening for PMC front panel 2x LAN activity (yellow) and speed (green), one blue control LED for hot swap, 2x for IPMI, 1x watchdog, 1x thermal control, 4-LED-field for BIOS POST code or general purpose Reset button, guarded For hot swap																												
I/O TABLE SUMMARY (CP6002-R1)	<b>VIDEO*</b> <b>USB</b> <b>SERIAL*</b> <b>ETHERNET*</b> <b>SATA</b> <b>PMC/XMC</b> <b>*) DUAL PMC/XMC VERSIONS WITH REDUCED FRONT I/O</b>	<table border="1"> <thead> <tr> <th>Front I/O</th> <th>Rear I/O</th> <th>Onboard Connector</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>-</td> <td>2</td> </tr> <tr> <td>2</td> <td>4</td> <td>-</td> <td>6</td> </tr> <tr> <td>1</td> <td>2</td> <td>-</td> <td>2</td> </tr> <tr> <td>2</td> <td>2</td> <td>-</td> <td>4</td> </tr> <tr> <td>-</td> <td>4</td> <td>2</td> <td>6</td> </tr> <tr> <td>1 or 2</td> <td>J4</td> <td>1/1 or 2/2</td> <td>max. 2</td> </tr> </tbody> </table>	Front I/O	Rear I/O	Onboard Connector	Total	1	2	-	2	2	4	-	6	1	2	-	2	2	2	-	4	-	4	2	6	1 or 2	J4	1/1 or 2/2	max. 2
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1 or 2	J4	1/1 or 2/2	max. 2																											
CompactPCI® BUS INTERFACE		<ul style="list-style-type: none"> <li>- PICMG 2.0, 32/64-bit / 66 MHz</li> <li>- Universal signaling, REQ/GNT for 7 slots</li> <li>- Operating in system slot as system master and in peripheral slot in PCI passive mode (no communication to CPCI bus)</li> </ul>																												
REAR I/O VIA J3/J4/J5		<ul style="list-style-type: none"> <li>- J3: PICMG 2.16, VGA, COM 1/2, keyboard, mouse, USB 3-6, HDA, speaker, FAN sense</li> <li>- J4: PMC I/O</li> <li>- J5: SATA 1-4, DVI, HDMI</li> </ul>																												

## ORDERING INFORMATION

ARTICLE	DESCRIPTION
<b>CPU BOARDS</b>	
CP6002-R1-2.53-4G	R1-Level, Intel® Core™ i7 610E 2.53 GHz, 4 MByte Cache, 4 GByte soldered Memory, 1 PMC / XMC socket 0° C to +60° C operating temperature
CP6002-R1-2.53-8G	R1-Level, Intel® Core™ i7 610E 2.53 GHz, 4 MByte Cache, 8 GByte soldered Memory, 1 PMC / XMC socket 0° C to +60° C operating temperature
CP6002-R1-2.00-4G	R1-Level, Intel® Core™ i7 620LE 2.00 GHz, 4 MByte Cache, 4 GByte soldered Memory, 1 PMC / XMC socket 0° C to +60° C operating temperature
CP6002-R1-MC-2.00-4G	R1-Level, Intel® Core™ i7 610E 2.00 GHz, 4 MByte Cache, 4 GByte soldered Memory, 2 PMC / 2 XMC sockets 0° C to +60° C operating temperature
CP6002-R1-MC-2.53-4G	R1-Level, Intel® Core™ i7 610E 2.53 GHz, 4 MByte Cache, 4 GByte soldered Memory, 2 PMC / XMC sockets 0° C to +60° C operating temperature
CP6002-R2-MC-2.00-4G-E1X	R2-Level, Intel® Core™ i7 620E 2.00 GHz, 4 MByte Cache, 4 GByte soldered Memory, 2 PMC / XMC socket -40° C to +70° C operating temperature
CP6002-R1-MC-1.86-4G-V	R1-Level, Intel® Celeron P4505 1.86 GHz, 2 MByte Cache, 4 GByte soldered Memory, 1 PMC / XMC socket 0° C to +55° C operating temperature
<b>ACCESSORIES</b>	
CP6002-MK2.5SATA	Mounting kit for 2.5" SATA-HDD onboard, mounting within 4HP
FLASH-SATA OR COMPACT-FLASH	Various products / sizes available
CABLE-GRAPHIC-DP-TO-DVI	Adapter cable DisplayPort to DVI, 19 cm
<b>REAR TRANSITION MODULES</b>	
CP-RI06-001	4HP Rear I/O Module for CP6002 with 1x DVI-D; 2x USB2.0; 2x GbE; socket for SATA 2.5" disk; headers for 2x COM, Flash, SATA, fan
CP-RI06-B	4HP Rear I/O Module for CP6002 with 1x DVI-D; 2x USB2.0; socket for SATA 2.5" disk; headers for 2x COM, Flash, SATA, fan
CP-RI06-B-216	4HP Rear I/O Module for CP6002 with 2x USB, 2x GbE, Audio, COM1, DVI, HDMI, Connectors for USB Flash, 4x SATA, Fan, 0° C to 60° C
CP-RI06-A	4HP Rear I/O Module for CP6002 with 2x USB, Audio, COM1, DVI, HDMI, Connectors for USB Flash, 4x SATA, Fan, 0° C to 60° C, PIMG2.16 Support
CP-RI06-A216	4HP Rear I/O Module for CP6002 with 2x USB, 2x GbE, Audio, COM1, VGA, Connectors for USB Flash, 4x SATA, Fan, 0° C to 60° C  4HP Rear I/O Module for CP6002 with 2x USB, Audio, COM1, VGA, Connectors for USB Flash, 4x SATA, Fan, 0° C to 60° C, PICMG 2.16 Support
<b>SOFTWARE SUPPORT</b>	
KIT-CP6002	Documentation and Windows driver kit
WXPE-BSP-CP6002	Windows XP Embedded BSP CP6002
LIN-BSP-CP6002	Linux BSP CP6002 for Suse and RedHat
VXW-BSP-CP6002	VxWorks BSP 6.x SMP support All available on the Web

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