

# » CP3002 «



## Intel® Core™ i7 3U CompactPCI CPU board

### » Outstanding performance

Intel® Core™ i7 processor, up to 2.53 GHz

### » Fast and reliable data storage

8GB DDR3 memory with ECC, up to 16GB SATA NAND Flash, CFast

### » Comprehensive I/O capabilities

Gigabit Ethernet, USB, SATA, Serial ports ...

# CP3002

## Intel® Core™ i7 3U CompactPCI CPU board

Intels new Core™ microarchitecture sets new standards for energy-efficient performance and scalability by use of new technologies such as Intel® Turbo Boost technology and Intel® Smart Cache.

The CP3002 is a highly integrated 3U CompactPCI CPU board based on the Intel® Core™ i7 processor platform combined with the Mobile Intel® QM57 Express Platform Controller Hub.

The CP3002 supports the Intel® Core™ i7-610E and Core™ i7-620LE processors with frequencies up to 2.53 GHz. The integrated next generation graphics core offers superior 3D and video performance resulting in a up to doubled graphics performance compared to previous platform designs. Memory demanding applications can make use of up to 8 GB DDR3 SDRAM with Error Checking and Correcting (ECC). For onboard data storage the CP3002 offers up to 16 GB on a dedicated SATA Flash module or a CFast option via the 8HP extension module.

On the system side, the CP3002 supports a PCI 32-bit, 33MHz CompactPCI interface enabling the peripheral mode feature. When installed in a system master slot, the CompactPCI interface is enabled, whereas the CompactPCI interface will be isolated when installed in a peripheral slot.

### Unique Versatility

A variety of communication interfaces like two Gigabit Ethernet ports, six USB 2.0 ports, six SATA interfaces and two serial ports either available at the front as onboard header or via Rear IO allow the CP3002 to be easily adapted to the individual application requirements.

### Highest Data Security

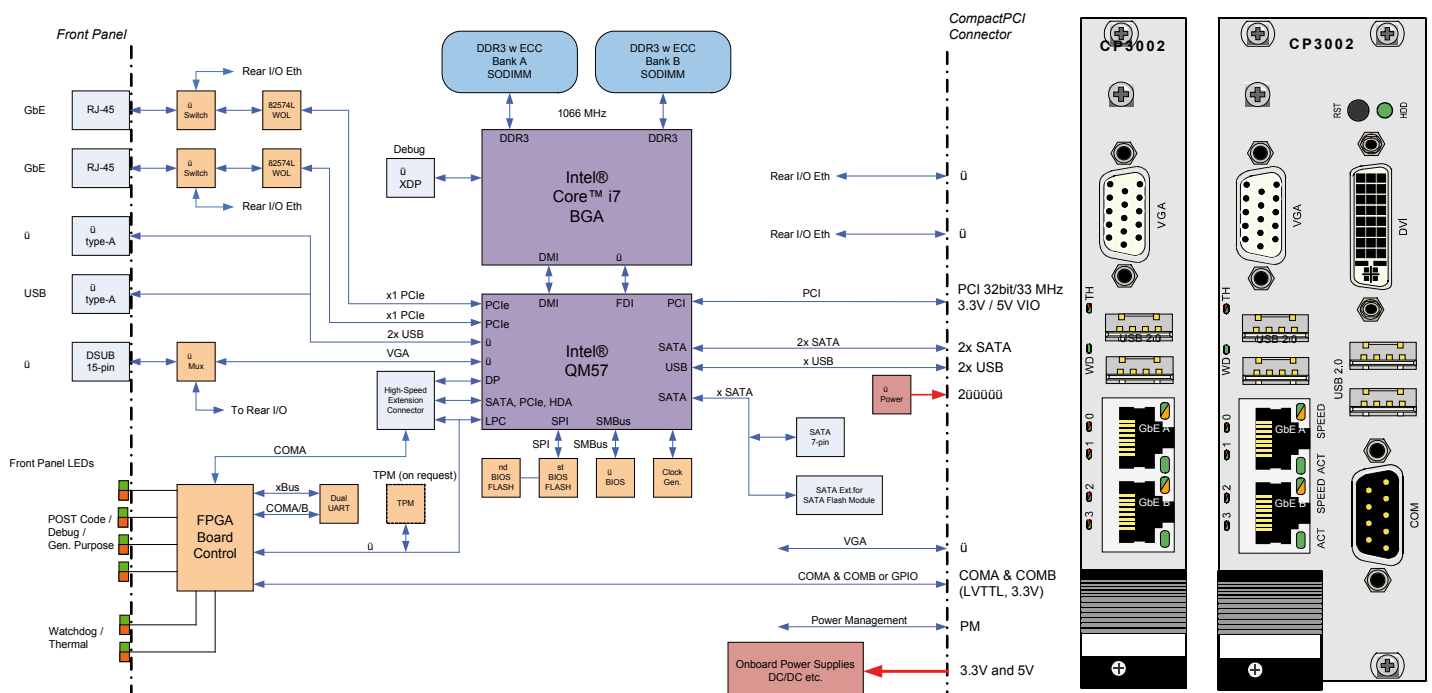
The optional Trusted Platform Module (TPM) provides hardware-based encryption mechanisms to create, seal or store keys, passwords and other important data.

### Long-Term 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 Intel®'s embedded product line, the CP3002 ensures long-term availability. This eliminates the risk of unplanned design changes and unexpected expensive application modification.

While minimizing deployment risks by providing a broad range of software support, the CP3002 eases the process of product integration and maximizes your competitive advantage to meet your time-to-market window.



## Technical Information

<b>Processor</b>	<p>Intel® Core™ i7 processor (32nm manufacturing process):</p> <ul style="list-style-type: none"> <li>» Core i7-620LE: 2.0 GHz, LV, 4MB L3 cache (shared instruction/data cache between both cores)</li> <li>» Core i7-610E: 2.53 GHz, SV, 4MB L3 cache (shared instruction/data cache between both cores)</li> </ul> <p>All board versions are passive cooled with a heatsink within 4HP height</p> <p>Please contact Kontron for further information concerning the suitability of other Intel processors for use w. the CP3002</p>
<b>Memory</b>	
System Memory	Up to 8 GB dual channel DDR3 SDRAM running at 1066 MHz, with ECC, via two SODIMM sockets
Flash (uEFI)	2 x redundant 8 MB SPI Flashes, with fail-over functionality
EEPROM	Serial EEPROM (24LC64) 64 Kbit for storing uEFI BIOS settings and serial number
SATA NAND Flash	Up to 16 GB SLC NAND Flash on a dedicated SATA NAND Flash module
HDD	Onboard 2.5" SATA HDD mounting within 8HP mezzanine
CFast	Onboard CFast mounting within 8HP mezzanine
<b>Onboard Controller</b>	
Platform Controller Hub	<p>Mobile Intel® QM57 Express Chipset:</p> <ul style="list-style-type: none"> <li>» SATA host controller with six ports with RAID 0/1/5/10 support</li> <li>» USB 2.0 host interface with up to 14 ports (6x ports are used on the CP3002)</li> <li>» 2 x PCI Express x4 or 8x PCI Express x1 2.0 ports (only 2x PCI-Express x1 are used)</li> </ul>
VGA	<p>High performance 3D graphics controller integrated in the processor:</p> <ul style="list-style-type: none"> <li>» Support for two independent displays</li> <li>» Supports digital display resolutions up to 2560 x 1600 pixels @ 60Hz</li> <li>» Supports analog display resolutions up to 2048 x 1536 pixels @ 75Hz</li> <li>» Dynamic Video Memory Technology (DVMT)</li> </ul>
Gigabit Ethernet	2 x GbE, front or rear (switchable), Intel 82574L Ethernet controller, WOL (Wake-On-LAN) support
UART	XR16L2750IM-F, dual UART, 16C550-compatible
Watchdog	FPGA-based, timeout ranging from 125ms to 4096s programmable in 16 steps, IRQ, Reset, dual-stage
RTC	Integrated in QM57 with 256 Byte CMOS RAM
Trusted Platform Module (TPM)	Infineon SLB9635TT TPM 1.2 controller, optional
<b>Front Interfaces 4HP</b>	
VGA	1 x VGA-CRT 15-pin D-Sub connector
USB	2 x USB 2.0 ports, 4-pin standard USB connectors
Ethernet	2 x RJ45 with integrated LEDs (ACT, SPEED)
LED's	6 x LED's: 4 x POST Code or General Purpose, WD, TH
<b>Front Interfaces 8HP (additional to 4HP)</b>	
DVI	1 x 29-pin DVI-D connector
USB	2 x USB 2.0 ports, 4-pin standard USB connectors
COM	1 x 9-pin D-Sub connector, RS-232 signalling
Control	Reset button and HDD LED
<b>Onboard Interfaces</b>	
Serial ATA	1 x onboard standard SATA connector
High-Speed I/O Connector	<p>The high-speed I/O connector to the extension module holds the following signals:</p> <ul style="list-style-type: none"> <li>» PCIe</li> <li>» 2 x SATA</li> <li>» 2 x USB</li> <li>» 1 x DisplayPort</li> <li>» 1 x COM RS-232</li> <li>» HDA</li> <li>» LPC</li> </ul>
I/O Extension Connector	18-pin I/O extension connector holding 1 x SATA port for the SATA NAND Flash module
<b>Rear I/O via J2</b>	<p>The CP3002 supports:</p> <ul style="list-style-type: none"> <li>» Two SATA II ports</li> <li>» Two Gigabit Ethernet ports without LED signals</li> <li>» Two USB 2.0 ports</li> <li>» One VGA analog port</li> <li>» Two COM ports (LVTTTL signal level)</li> <li>» Five GPIs and Three GPOs (LVTTTL signal level)</li> <li>» Power management signals</li> </ul>
<b>CompactPCI Bus Interface</b>	<ul style="list-style-type: none"> <li>» PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz, version with rear I/O via J2</li> <li>» Universal 5V and 3.3V PCI signalling voltage supported, 7 Req/Gnt &amp; clock lines</li> <li>» Operating in system slot as system master and in peripheral slot in peripheral mode</li> </ul>
<b>Supervisory Functions</b>	Watchdog, software configurable, 125ms to 4096s in 16 steps, generates IRQ or hardware reset, dual-stage configuration
<b>Hot Swap</b>	Support for all signals to allow peripheral boards to be hot swapped. The individual clocks for each slot and access the backplane ENUM# signal comply with the PICMG 2.1 Hot Swap Specification

## Technical Information

<b>Compliance</b>	<ul style="list-style-type: none"> <li>» CompactPCI Core Specification PICMG 2.0 Rev. 3.0</li> <li>» CompactPCI Hot Swap Specification PICMG 2.1 Rev. 2.0</li> <li>Designed to meet or exceed:</li> <li>» Safety: UL 60950-1, CSA 22.2 No 60950-1, EN60950-1</li> <li>» EMI/EMC: EN 55022 / EN 55024, EN 50081-1 / EN 61000-6-2</li> </ul>
<b>General</b>	
Dimensions	100 x 160mm, 3U, 4HP or 8HP
Weight	<ul style="list-style-type: none"> <li>» CP3002 4HP: 340 g</li> <li>» CP3002 8HP: 480 g</li> </ul>
MTBF	CP3002: 250,129 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30° CP3002-HDD: 1,901,991 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°
<b>Software Support</b>	<ul style="list-style-type: none"> <li>» AMI uEFI, setup console redirection to serial port (VT100 mode) with CMOS setup access, EFI Shell support, Board configuration via Shell, diskless, keyboardless, videoless operation</li> <li>» LAN boot support</li> <li>» Board identification number accessible via EEPROM</li> <li>» Support for Windows® XP, Windows® 7, Windows® Server 2003, Windows® Server 2008, Linux®, Wind River Linux, VxWorks®, QNX® (Other OSs may also be used with the CP3002. Please contact Kontron for further information.)</li> </ul>
<b>Power Consumption</b>	Core i7-620LE 2.0 GHz and 4GB memory typ. 28W
<b>Environmental</b>	
Operating Temp.	0°C to 60°C, standard (depending on processor version and airflow in the system)
Storage Temp.	-40°C to +85°C (without additional components)
Climatic Humidity	93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

## Ordering Information

Article	Description
<b>CPU Baseboard</b>	
<a href="#">CP3002-F-2.53D-U</a>	Core i7-610E, 2.53 GHz, 4MB L3, Front I/O, universal PCI interface
<a href="#">CP3002-R-2.53D-U</a>	Core i7-610E, 2.53 GHz, 4MB L3, Rear I/O, universal PCI interface
<a href="#">CP3002-F-2.0D-U</a>	Core i7-620LE, 2.0 GHz, 4MB L3, Front I/O, universal PCI interface
<a href="#">CP3002-R-2.0D-U</a>	Core i7-620LE, 2.0 GHz, 4MB L3, Rear I/O, universal PCI interface
<b>Front Panel / Extension</b>	
<a href="#">CP3002-FP-4HP</a>	4HP front panel (2x Ethernet, 2x USB, LED's, VGA)
<a href="#">CP3002-HDD</a>	8HP (in addition to 4HP DVI, 2x USB, COM, Reset button, SATA HDD mounting option, CFast socket)
<b>Memory</b>	
<a href="#">SODIMM-DDR3-4G-ECC</a>	SODIMM DDR3 4 GB (2 x 2 GB modules), with ECC
<a href="#">SODIMM-DDR3-8G-ECC</a>	SODIMM DDR3 8 GB (2 x 4 GB modules), with ECC
<b>SATA NAND Flash Module</b>	
<a href="#">FLASH-SATA-4GB-CP3002</a>	4 GB SATA NAND Flash module
<a href="#">FLASH-SATA-8GB-CP3002</a>	8 GB SATA NAND Flash module
<a href="#">FLASH-SATA-16GB-CP3002</a>	16 GB SATA NAND Flash module
<b>CFast Module</b>	
<a href="#">CFASTxxxx</a>	Industrial grade CFast, various sizes available
<b>Rear Transition Module</b>	
<a href="#">CP-RI03-04</a>	4HP rear I/O module (2x Ethernet, 2x USB, VGA, 2x SATA connectors)
<a href="#">CP-RI03-04</a>	8HP rear I/O module (additional to 4HP COM1/2)
<a href="#">CP-RI03-04S</a>	4HP rear I/O module (2x Ethernet, COM, VGA, 2x SATA connectors)

Please contact your local sales representative for other configuration options.

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