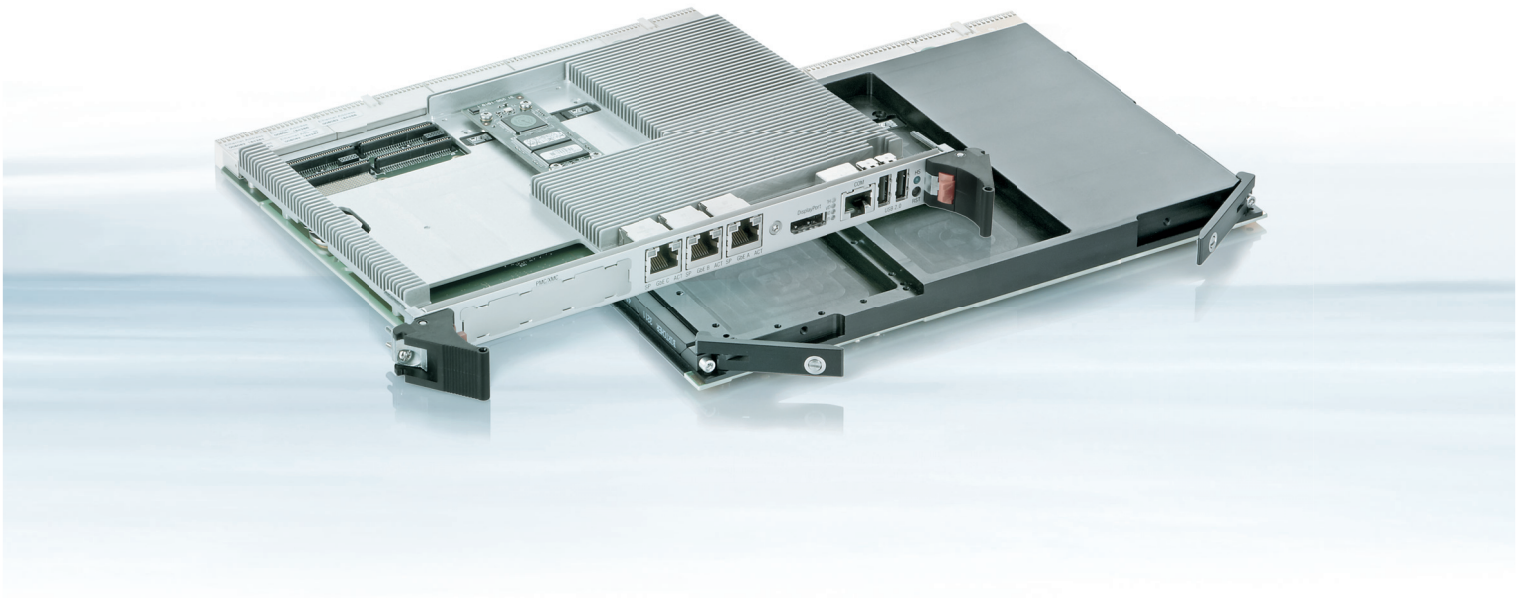


# CP6004-RA/RC

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## RUGGED Intel® THIRD GENERATION Core™ i7 CompactPCI® PROCESSOR BOARD

- ▶ dual- or quad-core performance
- ▶ ruggedized
- ▶ highest versatility and excellent power management
- ▶ broad software support

POSSIBILITIES START HERE



# CP6004-RA/RC

## RUGGED Intel® THIRD GENERATION CORE™ i7 PROCESSOR BOARD

Rugged applications are mainly determined by high shock, vibration, and temperature levels. The Kontron 6U CompactPCI® processor boards CP6004-RA and CP6004-RC are the first choice, when computing performance is required in rugged air or conduction cooled 6U CompactPCI® systems.

The CP6004-RA/RC, 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 third generation processor and the QM77 platform controller hub, the CP6004-RA/RC is featured by dual or quad core computing performance at a reasonable thermal design power, including a complete set of data, communication and multimedia interfaces.

### Maximum Ruggedization

Designed to withstand even the toughest environmental conditions, the passively cooled CP6004-RA/RC featured by soldered memory including ECC and industrial grade flash modules comes in two rugged levels – defined as RA and RC.

The CP6004-RA version is designed for harsh application requirements in air-cooled environments, where the CP6004-RC is made for conduction cooled environments. Depending on the processor type, both versions are available in extended temperature ranges from -40°C to +70°C.

With the 2.1 GHz Intel® Core™ i7-3612QE and the LV 2.5 GHz Intel® Core™ i7-3555LE, the CP6004-RA/RC has extraordinary performance per watt values. Up to 16 GByte of soldered DDR3 1600 MHz memory with ECC provide the foundation of demanding software applications. Based on the Intel® Mobile QM77 I/O controller hub the CP6004-RA/RC provides high graphics performance for VGA and up to three independent digital video outputs to the rear I/O as well as HDA audio capabilities.

### Comprehensive Versatility

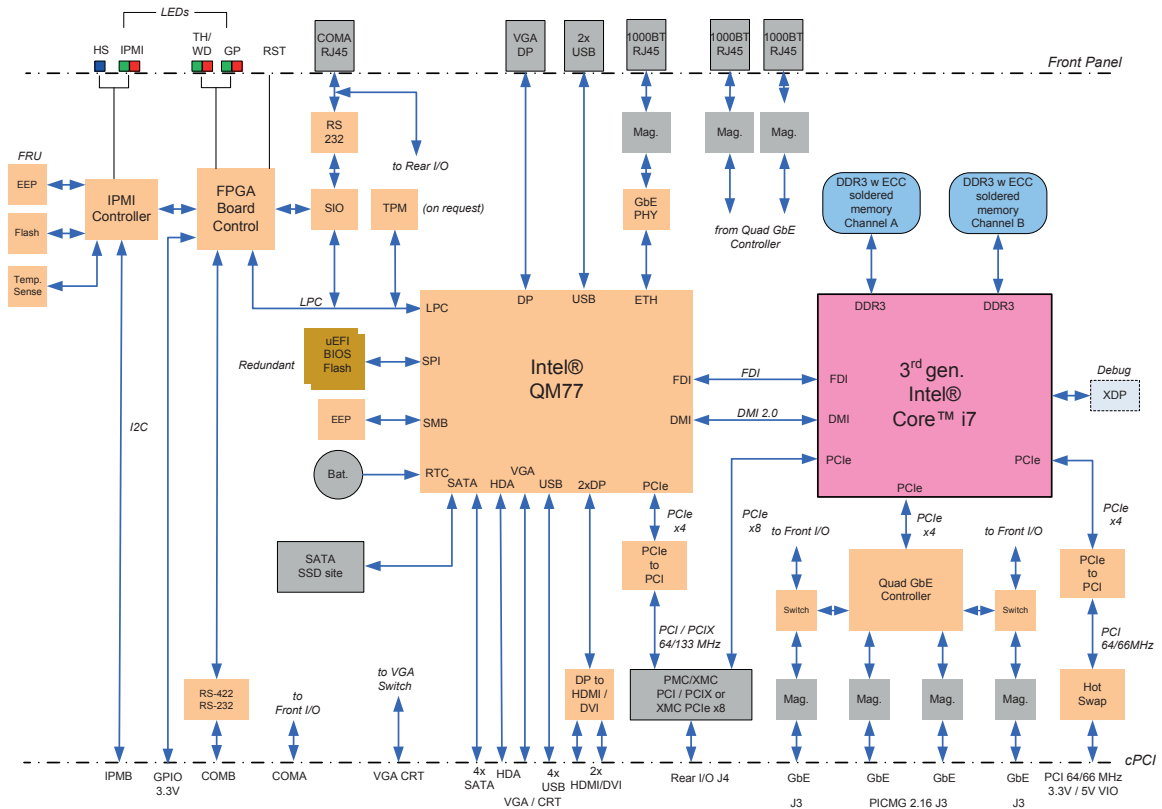
Besides the outstanding graphics performance, the CP6004-RA/RC offers comprehensive I/O capability with up to 5 x 1Gb Ethernet, 4 x rear I/O SATA with RAID 0/1/5/10 functionality, a local SATA Flash disk connector, as well as 6 x USB 2.0, 2 x COM. It can also accommodate a conduction cooled PMC/XMC slot for I/O intensive applications.

### Unique Security

The board provides safety and security via an optional trusted platform module, (TPM 1.2), two redundant firmware hubs (failover) and IPMI support according PICMG 2.9 R1.0.

### Long-term Availability

Delivering a stable product based on Intel®'s embedded product line the CP6004-RA/RC ensures long-term availability.



► TECHNICAL INFORMATION

PROCESSOR		Intel® Core™ i7 Processor Third Generation (22 nm manufacturing process) Intel® Core™ i7-3612QE (quad core) or Intel® Core™ i7-3555LE (dual core) low voltage processor			
PLATFORM CONTROLLER HUB		Intel® QM77			
MEMORY	SYSTEM MEMORY	Up to 16GB soldered dual channel DDR3 memory with ECC and data speed of up to 1600 MHz per channel			
	NAND FLASH FLASH BIOS	Socket for optional Kontron Solid State Drive Two redundant 8 MByte SPI Flashes			
FRONT PANEL FUNCTIONS	GIGABIT ETHERNET USB INTERFACE SERIAL MONITOR MICRO SWITCH STATUS LED	3x Gigabit Ethernet channel, 2 switchable to rear I/O* 2x USB2.0 interface* 1x RS232 serial interface* Displayport connector (adapters for VGA available)* For Hot Swap and reset For Hot Swap and Ethernet status information  *on CP6004-RA version only			
ONBOARD INTERFACES	GIGABIT ETHERNET SATA / NAND FLASH SERIAL PORTS CPCI BUS  PMC/XMC REAR I/O	CP6004-RC: 4 ports 10/100/1000BASE-T to rear I/O CP6004-RA: 2 ports according PICMG2.16, 3 ports front I/O; 2 of them switchable to rear I/O Four SATA ports fixed to rear I/O (SATA 3Gb/s) One onboard SATA channel available for mounting an optional Kontron SSD (SATA 6Gb/s) CP6004-RA: 1x RS232 (routed to front and rear I/O) and 1x RS232/RS422 fixed to rear I/O CP6004-RC: 1x RS232 and 1x RS232/422 fixed to rear I/O PICMG 2.0 Rev. 3.0 compatible, 64-bit / 66 MHz Universal V(I/O) 5V or 3.3V signaling 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 conduction cooled PMC slot, Pn1-Pn4, rear I/O Pn3 to J4, 3.3 volt V(I/O) Alternatively one conduction cooled XMC slot via P15, supporting XMC.3 x8 PCIExpress J3: 2x ETH acc. PICMG 2.16, 2x ETH, VGA, COM 1/2, 4x USB, GPIO, Speaker, fan sense J4: PMC rear I/O J5: 4x SATA, 2xHDMI, HDA, battery, fan control, additional GPIO			
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			
TPM		Optional Trusted Platform Module (TPM) 1.2 for enhanced hardware and software based data and system security			
I/O TABLE SUMMARY	DESCRIPTION VIDEO CRT DVI/HDMI USB 2.0 HD AUDIO SERIAL ETHERNET SATA SATA NAND FLASH PMC / XMC FAN CONTROL BATTERY INPUT SMB	Front I/O	Rear I/O	Onboard Connector	Total
		-	1	-	1
		-	2	-	2
		2*	4	-	4 (6*)
		-	1	-	1
		1*	2	-	-
		3*	4 (4**)	-	4 (5*)
		-	4	-	4
		-	-	1	1
		-	-	1/1	1/1
		-	2	-	2
		-	1	-	1
		-	1	-	1
		-	1	-	1
		*) On CP6004-RA only      **) CP6004-RA 2 rear I/O + 3 front I/O, 2 of them switchable to rear I/O			
COMPLIANCY		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			

## ▶ TECHNICAL INFORMATION (CONTINUED)

<b>MTBF</b>	CP6004R 156125 h CP6004R 82762 h	MIL-HDBK-217 FN2 Bellcore Issue 6	Ground Benign 30° Ground Benign 30°
<b>DIMENSIONS</b>	233 x 160 x 20.5 mm, 6U, 4HP		
<b>WEIGHT</b>	Approx. 800gr		
<b>SOFTWARE SUPPORT</b>	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® 7, XP, XP Embedded, Windows® Server 2008R2, Linux®, VxWorks® (other OSs may be possible, please contact us for information)		
<b>POWER CONSUMPTION</b>	Maximum: up to 60 watts (quad-core), 40 watts (dual-core)		
<b>ENVIRONMENTAL</b>	<p>- CP6004-RA Quad-Core: VITA 47 V2/OS1, -40° to +70°C, forced air cooling required Dual-Core LV: VITA 47 V2/OS1 -40° to +70°C, forced air cooling required</p> <p>- CP6004-RC Quad-Core: VITA 47 V3/OS2 -40° to +70°C Dual-Core LV: VITA 47 V3/OS2 -40° to +70°C</p> <p>EN50022 class B EN55024 EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11</p> <p>- Coating standard for CP6003-RC; on request for CP6004-RA</p>		

## ▶ ORDERING INFORMATION

ARTICLE	DESCRIPTION
<b>CPU BOARDS</b>	
CP6004-RA-2.1Q-8-E1X	» Quad-Core 2.1 GHz, Core i7-3612QE » 8GB soldered dual channel DDR3 memory 1600 MHz with ECC » Temperature range -40°C to +70°C » Rugged air cooled
CP6004-RA-2.5D-8-E1X	» Dual-Core 2.5 GHz, Core i7-3555LE » 8GB soldered dual channel DDR3 memory 1600 MHz with ECC » Temperature range -40°C to +70°C » Rugged air cooled
CP6004-RC-2.1Q-16-E1X-C	» Quad-Core 2.1 GHz, Core i7-3612QE » 16GB soldered dual channel DDR3 memory 1600 MHz with ECC » Temperature range -40°C to +70°C » Rugged conduction cooled, conformal coating
CP6004-RC-2.5D-8-E1X-C	» Dual-Core 2.5 GHz, Core i7-3555LE » 8GB soldered dual channel DDR3 memory 1600 MHz with ECC » Temperature range -40°C to +70°C » Rugged conduction cooled, conformal coating
	<b>All: Extended temperature versions on request.</b>
<b>ACCESSORIES</b>	
FLASH-SATA	Various Kontron SSD products / sizes available
CABLE-GRAPHIC-DP-TO-DVI	Adapter cable DisplayPort to DVI, 19 cm
REAR TRANSITION MODULES	Several versions on request
<b>SOFTWARE SUPPORT (ALL PACKAGES DOWNLOADABLE FROM WEB)</b>	
WINDOWS	Documentation and Windows XP, 7, WES, Server 2003/2008-R2 driver kit
LINUX	Linux (Redhat, Fedora, Windriver) Board Support Package
VXWORKS	VxWorks 6.x Board Support Package

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