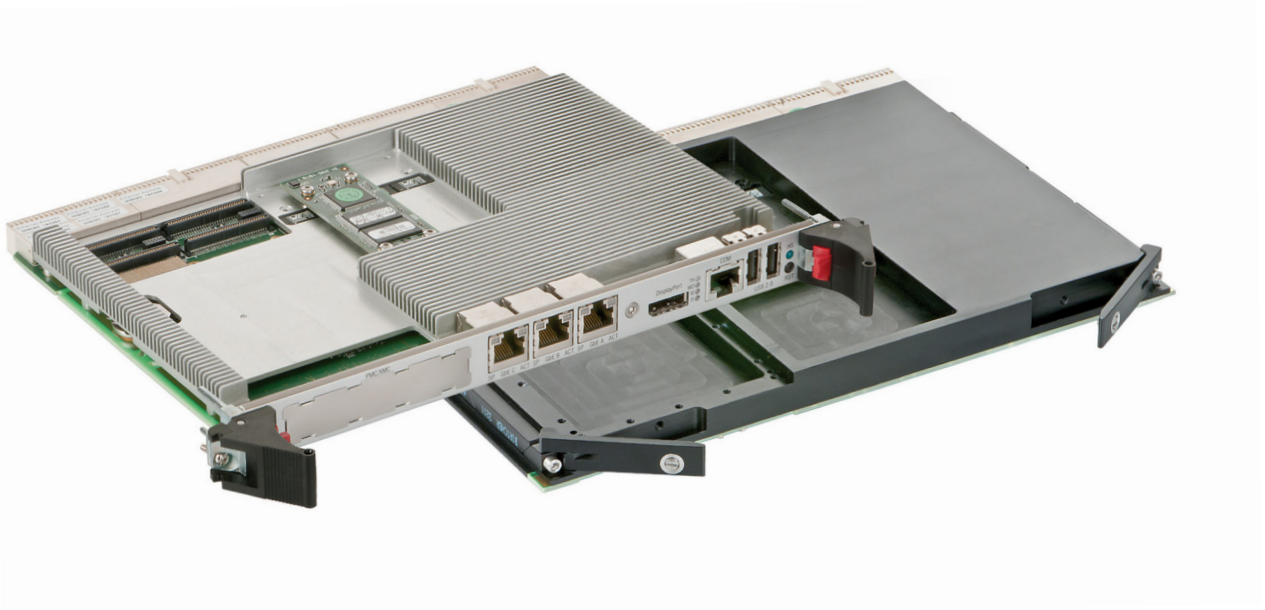
# » CP6003-RA/RC «



## Rugged Intel® Second Generation Core™ i7 CompactPCI Processor Board

» Dual- or Quad-Core Performance
Second Generation Intel® Core™ i7 processor with up to 16 GByte Soldered Memory

» Ruggedized
Rugged Air and Conduction Cooled Low Power Processor Board

» Highest Versatility and Excellent Power Management
Comprehensive I/O capabilities: GigEthernet, PMC/XMC, USB, VGA, DVI, RAID, NAND Flash ...

» Broad Software Support
Complete Board Support Packages for On Board Hardware and Toolchain

# CP6003-RA/RC

## Rugged Intel® Second Generation Core™ i7 Processor Board

**Rugged applications are mainly determined by high shock, vibration, and temperature levels. The Kontron 6U CompactPCI processor boards CP6003-RA and CP6003-RC are the first choice, when computing performance is required in rugged air or conduction cooled 6U CompactPCI systems.**

The CP6003-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 second generation processor and the QM67 platform controller hub, the CP6003-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 CP6003-RA/RC featured by soldered memory including ECC and industrial grade flash modules comes in two rugged levels – defined as RA and RC.

The CP6003-RA version is designed for harsh application requirements in air-cooled environments, where the CP6003-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™ i7-2715QE and the LV 2.2 GHz Intel® Core™i7-2655LE, the CP6003-RA/RC has extraordinary performance per watt values. Up to 16 GByte of soldered DDR3 1333 MHz memory with ECC provide the foundation of demanding software applications.
Based on the Intel® Mobile QM67 I/O controller hub the CP6003-RA/RC 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

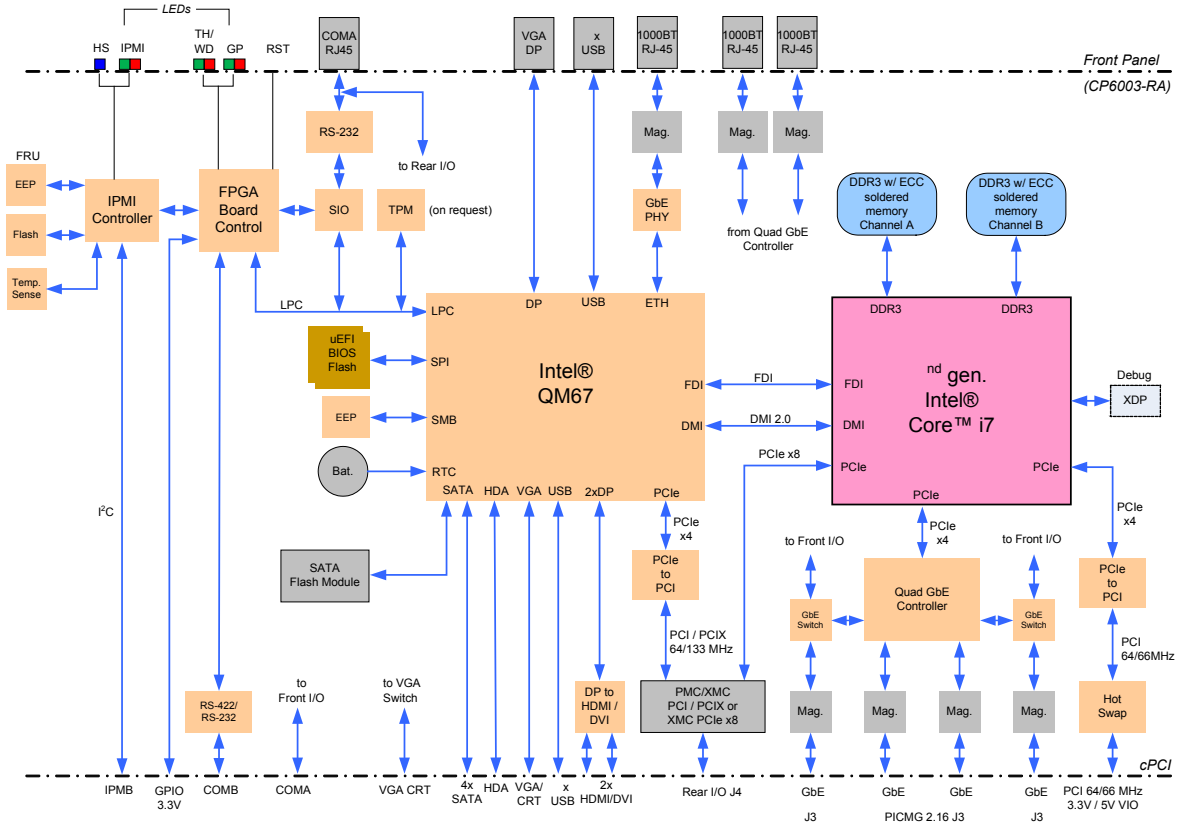
Besides the outstanding graphics performance, the CP6003-RA/RC offers comprehensive I/O capability with up to 5 x 1Gb Ethernet, 4 x rear I/O SATA with RAID 0/1/5/10 functionality, a local SATA Flash disk connector, as well as 6 x USB 2.0, 2 x COM.
It can also accommodate a conduction cooled PMC/XMC slot 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 CP6003-RA/RC ensures long-term availability.



## Technical Information

| | |
|---|---|
| **Processor** | Intel® Core™ i7 Processor Second Generation (32 nm manufacturing process).<br>Intel® Core™ i7-2715QE (quad core) or Intel® Core™ i7-2655LE (dual core) low voltage processor. |
| **Platform Controller Hub** | Intel® QM67 |
| **Memory** | |
| System Memory | Up to 16GB soldered dual channel DDR3 memory with ECC and data speed of up to 1333 MHz per channel |
| NAND Flash | Socket for optional Kontron Solid State Drive |
| Flash BIOS | Two redundant 8 MByte SPI Flashes |
| **Front Panel Functions** | |
| Gigabit Ethernet | 3x Gigabit Ethernet channel, 2 switchable to rear I/O* |
| USB Interface | 2x USB2.0 interface* |
| Serial | 1x RS232 serial interface* |
| Monitor | Displayport connector (adapters for VGA available)* |
| Micro Switch | For Hot Swap and reset |
| Status LED | For Hot Swap and Ethernet status information |
| | *on CP6003-RA version only |
| **Onboard Interfaces** | |
| Gigabit Ethernet | CP6003-RC: 4 ports 10/100/1000BASE-T to rear I/O<br>CP6003-RA: 2 ports according PICMG2.16, 3 ports front I/O; 2 of them switchable to rear I/O |
| SATA / NAND Flash | Four SATA ports fixed to rear I/O (SATA 3Gb/s)<br>One onboard SATA channel available for mounting an optional Kontron SSD (SATA 6Gb/s) |
| Serial Ports | CP6003-RA: 1x RS232 (routed to front and rear I/O) and 1x RS232/RS422 fixed to rear I/O<br>CP6003-RC: 1x RS232 and 1x RS232/422 fixed to rear I/O |
| CPCI Bus | PICMG 2.0 Rev. 3.0 compatible, 64-bit / 66 MHz<br>Universal V(I/O) 5V or 3.3V signaling<br>Operating in system slot as system master and in peripheral slot in PCI passive mode (no communication to CompactPCI bus) |
| PMC/XMC | One 64-bit / 133 MHz conduction cooled PMC slot, Pn1-Pn4, rear I/O Pn3 to J4, 3.3 volt V(I/O)<br>Alternatively one conduction cooled XMC slot via P15, supporting XMC.3 x8 PCIExpress |
| Rear I/O | J3: 2x ETH acc. PICMG 2.16, 2x ETH, VGA, COM 1/2, 4x USB, GPIO, Speaker, fan sense<br>J4: PMC rear I/O<br>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.<br>Hardware monitor for thermal control, fan speed, and all onboard voltages<br>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 | Front I/O | Rear I/O | Onboard Connector | Total |
|---|---|---|---|---|
| Video CRT | - | 1 | - | 1 |
| DVI/HDMI | - | 2 | - | 2 |
| USB 2.0 | 2* | 4 | - | 4 (6*) |
| HD Audio | - | 1 | - | 1 |
| Serial | 1* | 2 | - | - |
| Ethernet | 3* | 4 (4**) | - | 4 (5*) |
| SATA | - | 4 | - | 4 |
| SATA NAND Flash | - | - | 1 | 1 |
| PMC / XMC | - | - | 1/1 | 1/1 |
| FAN control | - | 2 | - | 2 |
| Battery Input | - | 1 | - | 1 |
| SMB | - | 1 | - | 1 |

*) On CP6003-RA only
**) CP6003-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<br>CompactPCI Hot Swap Specification PICMG 2.1 R2.0<br>CompactPCI System Management PICMG 2.9 R1.0<br>CompactPCI Packet Switching Backplane PICMG 2.16 R1.0<br><br>Designed to meet or exceed:<br>» Safety: UL 1950, UL 94, CSA 22.2 No 950, EN 60950, IEC 950<br>» EMI/EMC: EN 55022 / EN 55024, EN 50081-1 / EN 6100-6-2 |

## Technical Information

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|---|---|
| **MTBF** | 153663h MIL-HDBK-217 FN2 Ground Benign 30°<br>103883h Bellcore Issue 6 Ground Benign 30° |
| **Dimensions** | 233 x 160 x 20.5 mm, 6U, 4HP |
| **Weight** | Approx. 800gr |
| **Software Support** | AMI EFI (BIOS) with POST codes, setup console redirection to serial port (VT100 mode) with CMOS setup access.<br>BIOS parameters saved in EEPROM, diskless, keyboardless, videoless operation.<br>LAN boot support<br>Board identification number accessible via EEPROM<br>Support for Windows® 7, XP, XP Embedded, Windows® Server 2008R2, Linux®, VxWorks®<br>(other OSs may be possible, please contact us for information) |
| **Power Consumption** | Maximum: up to 60 watts (quad-core), 40 watts (dual-core) |
| **Environmental** | » CP6003-RA<br>Quad-Core: VITA 47 V2/OS1, -40° to +55°C, forced air cooling required<br>Dual-Core LV: VITA 47 V2/OS1 -40° to +70°C, forced air cooling required<br>» CP6003-RC<br>Quad-Core: VITA 47 V3/OS2 -40° to +55°C<br>Dual-Core LV: VITA 47 V3/OS2 -40° to +70°C<br><br>EN50022 class B<br>EN55024<br>EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11<br><br>» coating standard for CP6003-RC; on request for CP6003-RAt |

## Ordering Information

| Article | Description |
|---|---|
| **CPU Boards** | |
| **CP6003-RA-Q2.1-8G-E1X** | » Quad-Core 2.1 GHz, Core i7-2715QE<br>» 8GB soldered dual channel DDR3 memory 1333 MHz with ECC<br>» Temperature range -40 to +55°C<br>» Rugged air cooled |
| **CP6003-RA-2.2-4G-E1X** | » Dual-Core 2.2 GHz, Core i7-2655LE<br>» 4GB soldered dual channel DDR3 memory 1333 MHz with ECC<br>» Temperature range -40 to +70°C<br>» Rugged air cooled |
| **CP6003-RC-Q2.1-8G-E1X-CC** | » Quad-Core 2.1 GHz, Core i7-2715QE<br>» 8GB soldered dual channel DDR3 memory 1333 MHz with ECC<br>» Temperature range -40 to +55°C<br>» Rugged conduction cooled, conformal coating |
| **CP6003-RC-2.2-4G-E1X-CC** | » Dual-Core 2.2 GHz, Core i7-2655LE<br>» 4GB soldered dual channel DDR3 memory 1333 MHz with ECC<br>» Temperature range -40 to +70°C<br>» Rugged conduction cooled, conformal coating<br><br>**All: Extended temperature versions on request.** |
| **Accessories** | |
| **Flash-SATA** | various Kontron SSD products / sizes avaliable |
| **CABLE-GRAPHIC-DP-TO-DVI** | Adapter cable DisplayPort to DVI, 19 cm |
| **Rear Transition Modules** | Several versions on request |
| **Software Support** | |
| **KIT-CP6003** | Documentation and Windows driver kit, available on the Web |
| **WXPE-BSP-CP6003** | Windows XP Embedded BSP CP6003, available on the Web |
| **LIN-BSP-CP6003** | Linux BSP CP6003 for Fedora and RedHat, available on the Web |
| **VXW-BSP-CP6003** | VxWorks BSP 6.x SMP support, available on the Web |

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