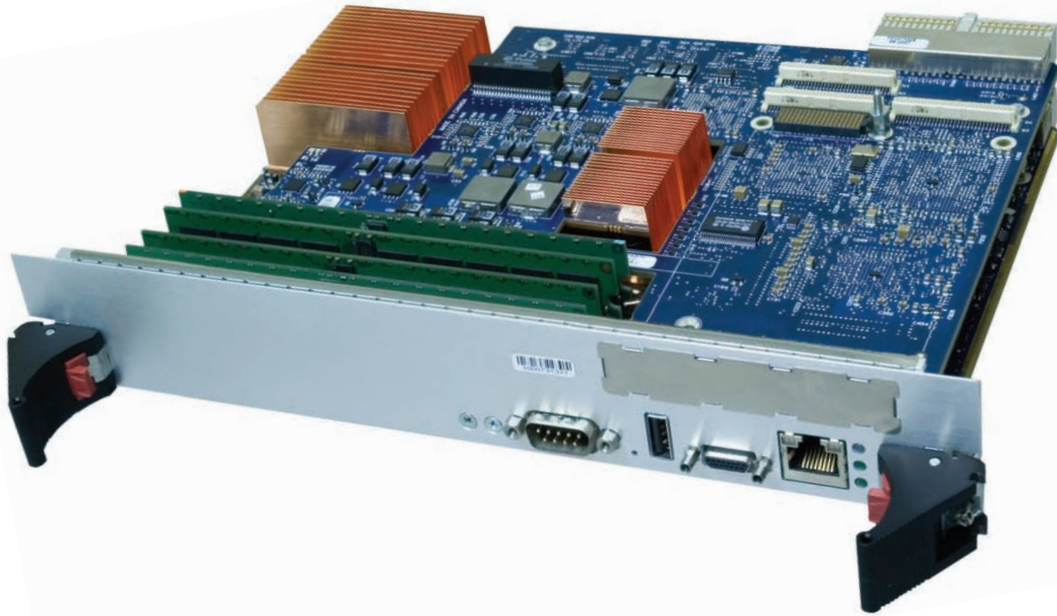




# CP6014

## Dual Intel® Quad-Core LV Xeon® 6U CompactPCI Processor Board



**RoHS**  
compliant  
2002/95/EC

### 8HP PICMG 2.16 R1.0

### CompactPCI 2 x Quad-Core CPU

### Best Performance, Lowest Power

The CP6014 CompactPCI processor board featuring **two Quad-Core Intel® Xeon LV L5408 Processors**, complemented by the cost-optimized Intel® 5100 MCH chipset & Intel® I/O Controller Hub 9R. The significance of eight processor cores on one board now opens up market opportunities that never before existed and, likewise, gives new and existing Kontron CompactPCI customers tremendous system upgrade opportunities.

The Kontron CP6014 CPCI processor board targets storage, wireless infrastructure, security, voice, and the medical market segments. Taken in conjunction with the advantages of Virtualization software, the CP6014 can now address new data-intensive applications such as video recognition and medical imaging.

The Intel® Quad-Core Xeon LV L5408 Processor interfaces to the base-board via the 771 land socket and is based on 45nm technology, which reduces power consumption, increases switching speed, and significantly increases transistor density over the previous 65nm technology. The L5408 has a power envelope of 40W and supports a core frequency of 2.13GHz, a Front Side Bus of 1066MHz, and an on-die L2 cache of a 12 MB (2x6 MB).

- Dual Intel® Quad-Core Xeon®; Dual Intel® Dual-Core Xeon®
- Intel® 5100 MCH chipset & Intel® I/O Controller Hub 9R
- 2.13GHz core frequency (45nm), 1066MHz FSB, and on-die L2 cache of 12 MB (2x6 MB)
- 16GB DDR2 memory (4 DIMMs sockets) with IOAT DMA for fast data transfer
- Solid State Drive (SSD) on USB, with 1GB, 2GB, or 4GB
- 4 SATA/SAS ports (onboard mezzanine & rear I/O)
- 2 COMs RS232 (1 front and 1 rear; or, 2 rear)
- 3 USB 2.0 ports (1 front and 2 rear I/O)
- Support for IPMI V1.5

## Technical Information

|  |         |                  |                  |       |     |     |     |     |     |     |     |     |
|--|---------|------------------|------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Processors</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - 2 x Intel® Quad-Core Xeon® LV L5408 Processor (8 cores total);<br>or 2 x Intel® Dual-Core Xeon® LV 5138 (4 cores total)<br>- Core frequency up to 2.13 GHz<br>- 45 nm technology (L5408), 65nm (5138), and 771 LGA   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Cache Memory</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - On-die L2 cache of up to 12 MB (2x6 MB) for L5408; up to 4MB for LV 5138   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Chipset</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - Intel® 5100 MCH chipset & Intel® I/O Controller Hub 9R   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Bus interface</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - Front Side bus of 1066MHz  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Expansion slots</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - XMC/PMC or onboard SATA HDD<br>- Local PCI-X 64-bit / 133MHz on PMC-slot or a PCIExpress X4 on the XMC   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>System Memory</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - Supports up to 16GB DDR2 memory (4 DIMMs sockets) at 667MHz<br>- IOAT (I/O Acceleration Technology) DMA for fast data transfer   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>CompactPCI Bus Interface</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - System bridge or stand alone operation<br>- PCI 64/66 MHz; VIO 3.3V or 5V  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Flash Memory</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - Solid State Drive Module (SSD) at 1GB, 2GB, 4GB  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>I/O Connectors</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - 1x 10/100/1000 Front and 2x 10/100/1000 available through the RTM or PICMG 2.16<br>- Three USB 2.0 ports (one at front and two at RTM)<br>- VGA controller to support CRT on Front (VGA mini DSub15 connector) or Rear<br>- 1 SATA mezzanine and 3 SAS/SATA RTM, or, 4 SAS/SATA RTM<br>- 1 x COM port front and rear; or two COM ports at rear |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Safety / EMC</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| The board meets the following requirements:<br>- UL 60950, 3rd edition*<br>- CSA-C22.2 No 60950-00*<br>- IEC 60950-1: 2001*<br>- FCC 47 CFR Part 15, class B (USA)<br>- EN55022, Class B (Europe)<br>- EN55024 (Europe) * Designed to meet or exceed.<br>- EN60950-1*  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Target Certifications</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - NEBS Level 3 (designed for)  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>VGA Interface</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - AMD ATI M72 VGA controller on PCI-E 4x bus; CRT only   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Ethernet Controller</b>   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - 1 dual PCI Express Gigabit Ethernet controller 82571EB (Ophir)<br>- 1 Gigabit Ethernet (controller integrated into ICH-9 using external GPHY 82566)<br>- 1 ports front and two ports rear I/O  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Warranty</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| - Two years limited warranty   |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <b>Power Requirements</b>  |         |                  |                  |       |     |     |     |     |     |     |     |     |
| <table border="1"> <tr> <td>Power</td> <td>Max Amp</td> <td>Power / rail (W)</td> </tr> <tr> <td>3.3 V</td> <td>TBD</td> <td>TBD</td> </tr> <tr> <td>5 V</td> <td>TBD</td> <td>TBD</td> </tr> <tr> <td>VIO</td> <td>TBD</td> <td>TBD</td> </tr> </table>   | Power   | Max Amp          | Power / rail (W) | 3.3 V | TBD | TBD | 5 V | TBD | TBD | VIO | TBD | TBD |
| Power  | Max Amp | Power / rail (W) |                  |       |     |     |     |     |     |     |     |     |
| 3.3 V  | TBD     | TBD              |                  |       |     |     |     |     |     |     |     |     |
| 5 V  | TBD     | TBD              |                  |       |     |     |     |     |     |     |     |     |
| VIO  | TBD     | TBD              |                  |       |     |     |     |     |     |     |     |     |

| <b>BIOS</b>   |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
|---|---|---|---------------------|---------------|---------------------------|----------------------------|--------------------------------|-------------------------|-------------------------|------------|---|--------------------------------------|---------|--------------|---------------|-------------|--------------------------|---|----------|-----|--|
| - 2 x 1MB (redundant) Boot Block Flash BIOS.<br>- Field-updateable BIOS for Linux OS<br>- LAN Boot (flexible use of PXE-Boot or EtherBoot)<br>- Video-less operation<br>- Quick boot support (fast memory initialization of <5-7sec)<br>- Parameter saving in non-volatile RAM<br>- Support of Ethernet all speed grades (LAN Boot, front IO, rear IO)<br>- Support of Watchdog (with dual stage NMI/Reset; with determination of origin of reset),<br>- Support of USB (USB2.0: Keyboard, Mouse, Floppy, CD-ROM, HDD)<br>- Support of Serial Ports (RS232, serial console redirection)<br>- Support of VGA (CRT)<br>- Support of the onboard RTC<br>- Support of Boot Devices (USB-Flash drive, USB-memory stick, LAN, SAS-SATA Devices)<br>- Setup console redirection to serial port (VT100 mode) with CMOS setup access<br>- IO-APIC integration (for Linux required), ACPI-compliant |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| <b>IPMI Features</b>  |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| - Extensive Management Controller compliant to IPMI v1.5, PICMG 2.9 and design to meet PICMG 2.50<br>- Standard IPMI Watchdog (with pre-timeout interrupt) with reset/power cycle action<br>- Standard IPMI host interface (interrupt driven KCS interface)<br>- Serial over LAN (provides LAN access to BIOS menu) and IPMI over LAN (provides remote control such as power down/cycle)<br>- Extensive sensors monitoring and external IPMB event generation on threshold, including overheat alarms<br>- Standard IPMI System Event Log (SEL) for external or internal events<br>- IPMI firmware is field updatable with fail safe rollover capability compliant to PICMG HPM.1<br>- Redundant IPMB communication path using cPCI IPMB1   |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| <b>OS Compatibility</b>   |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| - Wind River PNE, version 2.0<br>- Windows Server 2003  |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| <b>Environmental</b>  |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| ETSI EN 300 019-3-1 - storage environment tests<br>ETSI EN 300 019-3-2 - transport environment tests<br>ETSI EN 300 019-3-3 - operational environment tests<br>Telcordia GR-63 - Environmental tests for central offices  |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| <table border="1"> <thead> <tr> <th></th> <th>Operating</th> <th>Storage and Transit</th> </tr> </thead> <tbody> <tr> <td>Temperature*:</td> <td>-5 to 55 °C / 32 to 131°F</td> <td>-40 to 70°C / -10 to 158°F</td> </tr> <tr> <td>Humidity*:<br/>(non-condensing)</td> <td>5% to 93% @40°C / 104°F</td> <td>5% to 95% @40°C / 104°F</td> </tr> <tr> <td>Altitude*:</td> <td>4 000m / 13,123 ft<br/>Note: may require additional cooling above 1800m (5905ft)</td> <td>15 000m / 49,212 ft<br/>18G each axis</td> </tr> <tr> <td>Shock*:</td> <td>3G each axis</td> <td>18G each axis</td> </tr> <tr> <td>Vibration*:</td> <td>5-200Hz. 0.2G, each axis</td> <td>5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz)<br/>(flat) 20 Hz to 200 Hz @ -3 dB/oct<br/>(slope down)</td> </tr> <tr> <td>Airflow:</td> <td>TBD</td> <td></td> </tr> </tbody> </table>   |   | Operating   | Storage and Transit | Temperature*: | -5 to 55 °C / 32 to 131°F | -40 to 70°C / -10 to 158°F | Humidity*:<br>(non-condensing) | 5% to 93% @40°C / 104°F | 5% to 95% @40°C / 104°F | Altitude*: | 4 000m / 13,123 ft<br>Note: may require additional cooling above 1800m (5905ft) | 15 000m / 49,212 ft<br>18G each axis | Shock*: | 3G each axis | 18G each axis | Vibration*: | 5-200Hz. 0.2G, each axis | 5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz)<br>(flat) 20 Hz to 200 Hz @ -3 dB/oct<br>(slope down) | Airflow: | TBD |  |
|   | Operating   | Storage and Transit   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| Temperature*:   | -5 to 55 °C / 32 to 131°F   | -40 to 70°C / -10 to 158°F  |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| Humidity*:<br>(non-condensing)  | 5% to 93% @40°C / 104°F   | 5% to 95% @40°C / 104°F   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| Altitude*:  | 4 000m / 13,123 ft<br>Note: may require additional cooling above 1800m (5905ft) | 15 000m / 49,212 ft<br>18G each axis  |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| Shock*:   | 3G each axis  | 18G each axis   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
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| Airflow:  | TBD   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |
| * Designed to meet or exceed.   |   |   |                     |               |                           |                            |                                |                         |                         |            |   |                                      |         |              |               |             |                          |   |          |     |  |

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