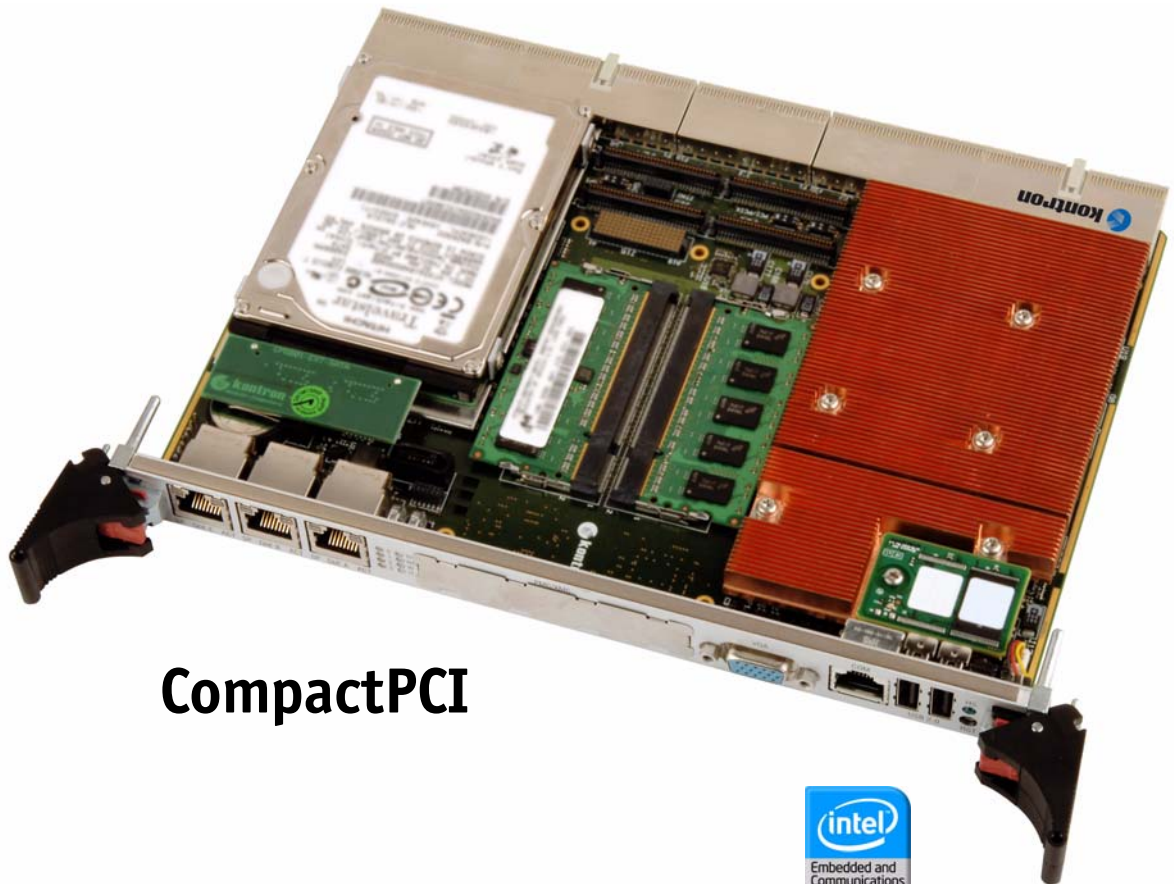




CP6016

Intel® Core™2 Duo

6U CompactPCI PICMG 2.16 Processor Blade



CompactPCI



- ▶ **Breakthrough 45nm Technology Processor**
Intel® Core™2 Duo Penryn processor, 2.53 GHz, FSB 1066MHz
- ▶ **Best Performance Through Server Class Chipset**
Up to 16 GByte dual-channel, 667MHz Registered DDR2 ECC memory
- ▶ **Highest Versatility and Excellent Power Management**
Comprehensive I/O capabilities: PCIe, GigEthernet, PMC/XMC, USB, VGA, SATA RAID, USB NAND Flash ...
- ▶ **Broad Software Support**
Complete Board Support Packages for On Board Hardware and Toolchain

➤ 45nm Processor Technology now in 6U CompactPCI

Benefit from the latest technology that achieves highest processor performance at optimized power consumption. The power of two cores enables virtualization and multithreading applications to run in full 64-bit mode using Enhanced Intel® Virtualization, Dynamic Acceleration Technology and SpeedStep®.

Greater Performance / Watt

Compared to previous processor designs the 45nm dual-core Penryn technology allows much better performance at similar power consumption.

The PICMG 2.16-compliant Kontron CP6016 offers up to 16 GB dual-channel 667 MHz DDR2 registered ECC memory via two SO-RDIMM sockets, providing up to 8.5 GB/sec data throughput. The CP6016 is designed for bandwidth intensive applications and thanks to hotswap support and IPMI (PICMG 2.9-compliant

Intelligent Platform Management Interface) the CPU board meets the highest demands for the management of high-availability applications. Many of these are data and tele-communications applications, but also include highly sensitive, security related solutions as well as image processing systems in medical technology and other vertical industries.

Unique Versatility

The highly integrated CP6016 features a XMC site according to XMC.3 supporting x8 PCI Express (alternatively a 64-bit/133MHz PCI PMC site), an onboard 2.5-inch SATA hard disk and USB NAND Flash device - all usable at the same time in a single slot.

The Intel ICH9R I/O Controller Hub provides advanced I/O technology including USB 2.0 and Serial ATA300. Five independent Gigabit Ethernet ports (3x ports at the front and 2x for full PICMG

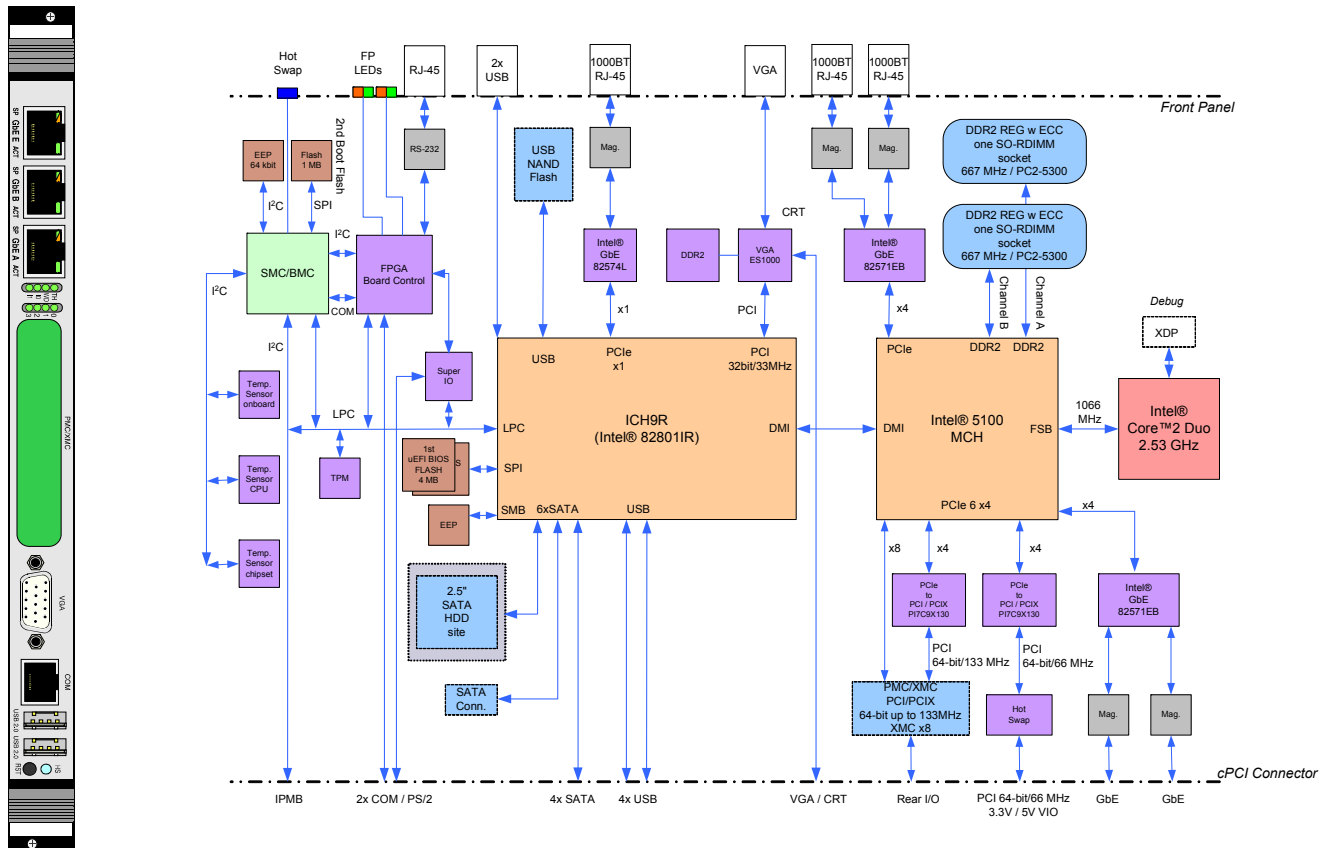
2.16 support) provide comprehensive connectivity capabilities, enabling innovative applications today by offering enough room for the emerging next generation requirements.

Highly versatile, the CP6016 can be used in a system or peripheral slot. A rich set of LEDs at the front panel for debug and diagnostic, as well as full rear I/O connectivity completes the CP6016.

Longterm Availability

Delivering a stable product based on Intel's embedded product line, the CP6016 ensures long term availability. This eliminates the risk of unplanned design changes and unexpected expensive application modification. While minimizing deployment risks, the CP6016 provides a broad range of software support to ease the process of product integration and maximize the competitive advantage of meeting the time-to-market window.

➤ Front Panel ➤ Functional Block Diagram



➤ Specification

Processor

Intel Penryn SV Processor in uFBGA package
(45 nm manufacturing process)
2.53 GHz, 1066 MHz FSB, 6 MB L2 cache

Memory Controller Hub

Intel 5100 chipset with dual-channel DDR2 memory controller with ECC, six x4 PCI Express ports

I/O Controller Hub

Intel ICH9R, 6x SATA II controllers, 7x USB 2.0, one x1 PCI Express, LPC, HDA

Memory

System Memory	Dual channel registered DDR2 memory with ECC and data speed of 667 MHz per channel, and up to 16 GB on two SO-RDIMM sockets
USB Flash	Up to 8 GB NAND Flash Module
Flash BIOS	Two redundant 4 MByte SPI Flashes
EEPROM	Serial EEPROM (24LC64) 64 kbit

Front Panel Interfaces

Gigabit Ethernet	Three 1000BASE-T Ethernet on the FP
Serial Port	One RS232 interface on RJ45 connector
USB interface	Two USB 2.0 ports, 4-pin standard USB host
VGA	One 15-Pin D-Sub connector for analog monitors; ATI ES1000 graphic controller with PCI 32-bit / 33MHz interface
Reset button	One reset button
Micro Switch	For Hot Swap
LEDs	Eight bicolor (red and green) control and status LEDs Two IPMI LEDs One Watchdog and one thermal LED Four GP LEDs One blue hot Swap LED

Onboard Interfaces

Gigabit Ethernet	Two PICMG 2.16 rear I/O 1000BASE-T ports
SATA	Four ports fixed to rear I/O One port routed to a standard SATA connector One port available for mounting an optional 2.5" HDD
USB NAND Flash	One port available for mounting an optional NAND Flash module
Serial Ports	Two RS232 ports: COM1 routed to front panel and rear I/O COM2 routed to rear I/O only
CPCI Bus	PICMG 2.0 Rev. 3.0 compatible, 64-bit / 66 MHz Universal V(I/O) 5V or 3.3V signalling 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 PMC slot, Pn1-Pn4, rear I/O Pn3 to J4, 3.3 volt V(I/O) Alternatively one XMC slot via P15, supporting XMC.3 x8 PCIExpress
Rear I/O	J3: PICMG 2.16, VGA, COM 1/2, keyboard, mouse, 4x USB J4: PMC rear I/O J5: 4x SATA, HDA, battery, fan control

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
H8S/2166 controller with on-chip 512 kB Flash and external 8 Mbit SPI Flash

TPM

Trusted Platform Module (TPM) 1.2 for enhanced hardware and software based data and system security

I/O Summary Table

Description	Front I/O	Rear I/O	Onboard Connector	Total
Video CRT VGA	1	1	-	1
USB 2.0	2	4	1 (Flash)	7
HDAudio	-	1	-	1
Serial	1	2	-	2
PS/2 Mouse	-	1	-	1
PS/2 Keyboard	-	1	-	1
Ethernet	3	2	-	5
SATA	-	4	2	6
USB Flash	-	-	1	1
PMC / XMC	-	-	1 / 1	1 / 1
FAN control	-	2	-	2
Battery Input	-	1	-	1
SMB	-	1 optional	-	1 optional

Compliance

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

General

Dimensions: 233 x 160 x 20.5 mm, 6U, 4HP
Weight: 900g

Software Support

- 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® XP, XP Embedded, Windows® Server 2003, Linux® (other OSs may be possible, please contact us for information)

Power Consumption

Maximum: 64 watts; typically: =< 50 watts

Environmental

Operating temp.: 0°C to +60°C, passive module heat sink, requires forced airflow cooling
Storage temp.: -55°C to +85°C (without battery or HDD)
Climatic Humidity: 93% RH at 40°C, non condensing (acc. to IEC 60068-2-78)
Altitude: 50,000 ft (15,240 m)

► Ordering Information

Product	Description	Order Number
CPU Boards		
CP6016-2.53-2G	6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53GHz, 6MB L2, 2GB DDR2 667 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Socket, J1-J5	1022-4886
CP6016-2.53-4G	6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53GHz, 6MB L2, 4GB DDR2 667 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Socket, J1-J5	1022-4887
CP6016-2.53-8G	6U 4TE CPCI Core™2 Duo T9400 System Master CPU; 2.53GHz, 6MB L2, 8GB DDR2 667 MHz SO-RDIMM; I/O: 5x GigE, VGA, COM, 7x USB, 6x SATA, USB Flash Socket, J1-J5	1022-4888
Services		
CP6016-MK2.5SATA ¹⁾	Mounting kit for 2,5" SATA-HDD onboard, mounting within 4HP ¹⁾	1022-5510
Rear Transition Modules		
CP-CTM80-3	Various 4HP versions available 2x GbE, 2x COM, VGA, 2x USB, PS/2, Speaker, 2x SATA	29973
Software Support		
KIT-CP6016-WIN ²⁾	Documentation and 32-bit Windows (XP, Server 2003) driver kit on CD-ROM ²⁾	1022-5519
KIT-CP6016-WINXPE ²⁾	Documentation and 32-bit Windows XP EMBEDDED driver kit on CD-ROM ²⁾	1022-6303
KIT-CP6016-LIN ²⁾	Documentation and 32 bit Linux BSP for Suse and RedHat distributions on CD-ROM ²⁾	1022-5520
(other operating systems)	Other operating systems support kits (e.g. 64bit versions) on project request	

1) HDD must be ordered separately

2) Free of charge, downloadable from the Internet

Please contact your local sales representative for other configuration options.

► Corporate Offices

Europe, Middle East and Africa

Kontron AG
Oskar-von-Miller-Str. 1
85386 Eching/Munich Germany

Tel. +49 (0)8165-77 777
Fax +49 (0)8165-77 219

sales@kontron-emea.com

North America

Kontron America Corporate Office
14118 Stowe Drive
Poway, CA 92064-7147

Tel. +1-888-294 4558
Fax +1-858-677 0898

sales@us.kontron.com

Asia Pacific

Asia Pacific
4F, No. 415, Ti-Ding Blvd.,
Sec.2, NeiHu District
Taipei, Taiwan 114
Tel. +886-2-2799-2789
Fax +886-2-2799-7399

sales@kontron.com.tw

Kontron Modular Computers GmbH

Kontron Modular Computers GmbH
Sudetenstr. 7
D-87600 Kaufbeuren

Tel. +49 (0)8341 - 803 0
Fax +49 (0)8341 - 803 499

sales@kontron-emea.com