

» CP305 «



Intel® Atom™ 3U CompactPCI® CPU board

- » Low-power CPU based on Intel®'s Atom™ technology
- » Fully EN50155 compliant
- » Comprehensive I/O capabilities:
Gigabit Ethernet, USB, VGA, SATA, CompactFlash...

CP305

Intel® Atom™ Power on CompactPCI

Discover the possibilities of Intel®'s Atom™ architecture manufactured in the leading 45nm process. Based on an entirely new microarchitecture, the Intel® Atom™ processor is developed specifically for targeted performance at low power consumption while maintaining Intel® Core™ microarchitecture compatibility.

The CP305, a low-power 3U CompactPCI board, supports the highly efficient Intel® Atom™ N270 combined with the Intel® 945GSE Express Chipset and ICH7-M I/O Controller Hub.

The 1.6 GHz Intel® Atom™ Processor N270 delivers high performance combined with low power consumption and minimal cooling requirements. The processor comes with one core supporting two parallel threads (Intel® Hyper-Threading technology) for better performance and increased system responsiveness.

The mobile chipset 945GSE featuring the Intel® 3D graphics accelerator delivers sophisticated graphics performance for high-resolution and dual display applications.

The ICH7-M I/O Controller Hub provides all the necessary interfaces to have a fully PC compatible CPU board.

Low-Power Design

The board comes with an unbeatable thermal design power value of typically 10 W. This ability in conjunction with the specifically heatsink design makes the CP305 predestinated for usage in all systems and applications where additional cooling by fans is not possible or not allowed. Intel®'s Enhanced SpeedStep® Technology provides additional power- and thermal management capabilities and therefore offers further energy saving possibilities.

Robust Design

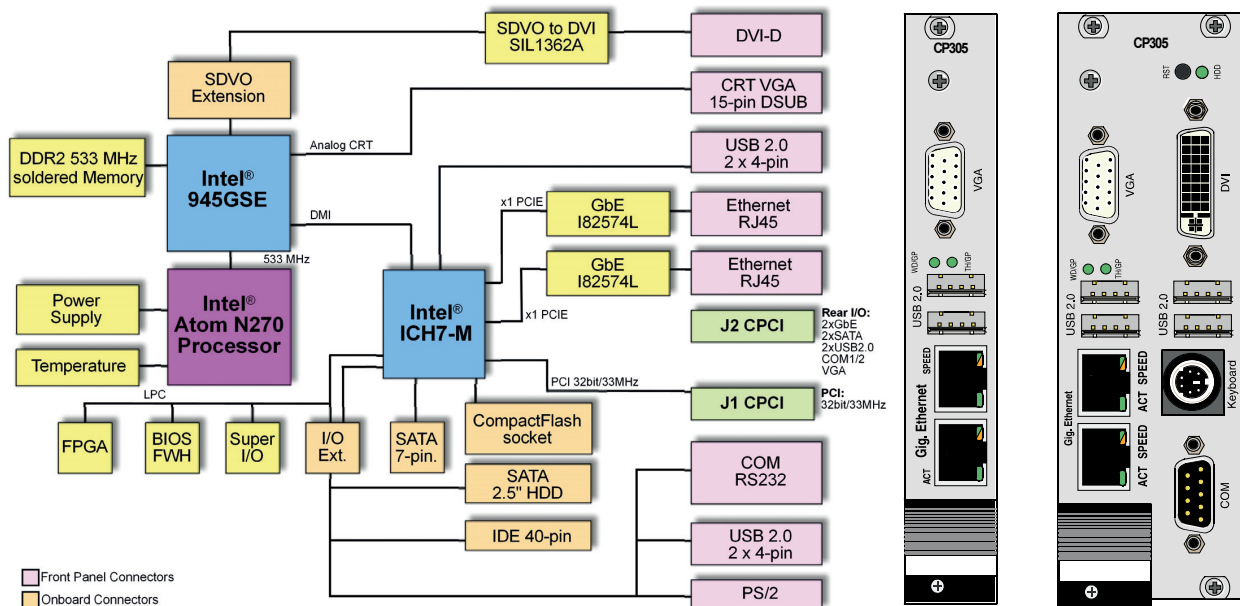
Designed with direct soldered processor and memory to handle the toughest environmental conditions, the CP305 can be used in all low-power and mobile applications. With respect to the transportation market the CP305 is fully EN50155 compliant.

Comprehensive I/O Connectivity

The CP305 comes with a comprehensive I/O connectivity supporting various communication interfaces like 2x Gigabit Ethernet, 6x USB 2.0 ports, 2x SATA interfaces and 2x serial ports (RS232). Available as 4HP or 8HP version - optionally combined with rear I/O support - the CP305 can be adapted to a wide range of different application needs.

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 CP305 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 CP305 eases the process of product integration and maximizes your competitive advantage to meet your time-to-market window.



Technical Information

Processor	Intel® Atom™ processor in micro-FCBGA8 package (45nm manufacturing process): » N270: 1.6 GHz, 533 MHz FSB, 512 kB L2 cache
Memory	
System Memory	Up to 2 GB 533 MHz DDR2 memory, soldered, no ECC
Flash (BIOS)	8 MBit Firmware hub (FWH)
EPROM	Serial EEPROM (24LC64) 64 Kbit for CMOS data storing (no battery operation)
CompactFlash	4HP: Type I and Type II, mounting on piggy-back module 8HP: Type I and Type II, mounting on extension via CompactFlash socket
Onboard Controller	
GMCH (Graphics Memory Controller Hub)	Intel® 945GSE chipset Single-channel DDR2 memory controller, Internal graphics controller with dual, independent VGA channels
I/O Controller Hub	Intel® ICH7-M 2x SATA I, 6x USB 2.0, 4x PCI-Express x1, 1x IDE, 1x 32-bit/33 MHz PCI master interface
VGA	Integrated in 945GSE max. 2048 x 1536 pixels (QXGA) @75Hz, max. 265 MB memory used from system memory
Gigabit Ethernet	2x GbE Front or Rear (s/w switchable), 82574L PCI-Express controller
Super I/O	LPC Super I/O SMSC SCH3112I-NU with 2x UART, HW Monitor, PS/2
Watchdog	Timeout ranging from 125ms to 4096s programmable in 16 steps IRQ, Reset, dual-stage
RTC	Integrated in ICH7-M
Front Panel Interfaces	
4 HP version:	
VGA	1x VGA-CRT 15-pin D-Sub connector
USB	2x USB 2.0, USB-A connectors
Ethernet	2x RJ45 with integrated LEDs (ACT, SPEED)
LEDs	WD/GP: Watchdog or General Purpose TH/GP: Overtemperature Status or General Purpose
8HP version (in addition to 4HP):	
DVI	1x 29-pin DVI-D connector
USB	2x USB 2.0, USB-A connectors
COM	1x 9-pin D-Sub connector
PS/2	1x 6-pin shielded mini-DIN connector
Control	Reset button and HDD LED
Onboard Interfaces	
Serial ATA	2x switchable SATA I ports: 1x onboard standard SATA connector and 1x I/O extension or 2x Rear I/O
I/O Extension Connector (to 8HP)	1x SATA, SDVO, 2x USB, LPC, PS/2, COM, ID
Rear I/O via J2	The CP305 supports: » 32-bit/33 MHz CompactPCI interface » 2x USB 2.0 ports » 2x Gigabit Ethernet ports without LED signals » 2x SATA ports » 2x COM ports (TTL level) » 1x VGA analog port » 1x fan control input » 1x power management output
CompactPCI Bus Interface	PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz system master universal 5V and 3.3V PCI signalling voltage supported, 7 Req/Gnt & clock lines
Supervisory Functions	Watchdog, software configurable, 125ms to 4096s in 16 steps, generates IRQ or hardware reset, dual-stage configuration Hardware monitoring SCH3112 for thermal control, fan-sense/control and all important onboard voltages
Hot Swap	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
Compliance	CompactPCI Core Specification PICMG 2.0 Rev. 3.0 CompactPCI Hot Swap Specification PICMG 2.1 R2.0 Designed to meet or exceed: » Safety: UL 60950-1, CSA 22.2 No 60950-1, EN60950-1 » EMI/EMC: EN 55022 / EN 55024, EN 50081-1 / EN 61000-6-2 » EN50155

Technical Information

General

Dimensions	100 x 160mm, 3U
Weight	4HP: 320g 8HP: 540g
MTBF	307,691 h acc. to MIL-HDBK-217 FN2, Ground Benign GB, controlled at 30°C
Software Support	<ul style="list-style-type: none"> » AMI BIOS with POST codes, setup console redirection to serial port (VT100 mode) with CMOS setup access, BIOS parameters saved in EEPROM, diskless, keyboardless, LAN boot support » Board identification number accessible via EEPROM » Support for Windows® XP, Windows XP Embedded, Windows 7, Windows Embedded Standard 7, Linux®, VxWorks (Other OSs may also be used with the CP305. Please contact Kontron for further information.)
Power Consumption	
N270 1.6 GHz and 2 GB memory	Typ. 10W
Environmental	
Operating Temperature	0°C to +55°C, passive module heatsink, convection cooling; -40°C to +80°C, passive module heatsink, forced airflow
Storage Temperature	-55°C to +85°C (without battery)
Climatic Humidity	93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

Ordering Information

Article	Description
CP305 Configurations	
CP305-SA-1.6S-1-4F-E1X	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Front I/O, extend. temp. range
CP305-SA-1.6S-1-4F-E1X-C	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Front I/O, extend. temp. range, with conformal coating
CP305-SA-1.6S-1-4F-CF2-E1X-CR	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Front I/O, with Compact Flash 2GB, extend. temp. range, with conformal coating and ruggedization service
CP305-SA-1.6S-1-4R	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Rear I/O
CP305-SA-1.6S-1-4R-E1X	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Rear I/O, extend. temp. range
CP305-SA-1.6S-1-4R-CF4-E1X	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 4HP, Rear I/O, with Compact Flash 4GB, extend. temp. range
CP305-SA-1.6S-1-8F	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 8HP with CP305-HDD, Front I/O
CP305-SA-1.6S-1-8F-HK	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 8HP with CP305-HDD, Front I/O, with HDD King Size
CP305-SA-1.6S-1-8R	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 8HP with CP305-HDD, Rear I/O
CP305-SA-1.6S-1-8R-HC	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 8HP with CP305-HDD, Rear I/O, with HDD Current Size
CP305-SA-1.6S-1-8R-EX1	Atom™ 1.66 GHz, 512 kB L2, 1 GB soldered, 8HP with CP305-HDD, Rear I/O, extend. temp. range
CP305-SA-1.6S-2-4F	Atom™ 1.66 GHz, 512 kB L2, 2 GB soldered, 4HP, Front I/O
CP305-SA-1.6S-2-4R	Atom™ 1.66 GHz, 512 kB L2, 2 GB soldered, 4HP, Rear I/O
CP305-SA-1.6S-2-8F	Atom™ 1.66 GHz, 512 kB L2, 2 GB soldered, 8HP with CP305-HDD, Front I/O
CP305-SA-1.6S-2-8R	Atom™ 1.66 GHz, 512 kB L2, 2 GB soldered, 8HP with CP305-HDD, Rear I/O
Rear Transition Modules	
CP-RI03-04	4HP rear I/O module (2x Gig. Ethernet, 2x USB, VGA, 2x SATA connectors)
CP-RI03-04	8HP rear I/O module (in addition to 4HP COM1/2)
CP-RI03-04S	4HP rear I/O module (2x Ethernet, VGA, COM, 2x SATA connectors)
Software	
VXW-BSP-CP305-V6.8	VxWorks 6.8 Board Support Package, CP305 User Guide

Please contact your local sales representative for other configuration options.

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