

# » CP3010-SA «



## Intel® Atom™ 3U CompactPCI® CPU Board

- » **Latest 22nm Atom™ Technology**  
Powerful SOC with advanced graphics capabilities
- » **Robust and Low-Power Board Design**  
Optimized heatsink design, soldered components
- » **Comprehensive I/O Capabilities**  
DisplayPort, USB 3.0/2.0, Gigabit Ethernet, CAN, SATA ...

## CP3010-SA

### Intel® Atom™ 3U CompactPCI® CPU Board

Intel®'s latest Atom™ technology provides significant increases in performance and energy efficiency by using the new leading-edge 22nm Tri-Gate SOC (system-on-a-chip) manufacturing process.

The CP3010-SA Kontron's latest low-power 3U CompactPCI® CPU board supports the Intel® Atom™ processors E3827 and E3845 with a maximum of quad-core 1.91 GHz processing performance. Even though the board design is based on Atom™ technology, performance levels of former Core™ 2 Duo platforms can be reached. Further, the built-in graphics core now features Intel® HD Graphics Technology offering an outstanding increase in graphics performance compared to previous Atom™ designs. Memory demanding applications can make use of up to 8GB soldered DDR3L running at 1333MHz. For onboard data storage the CP3010-SA offers a CFAST option or a soldered SATA Flash and a HDD/SSD option on the 8HP extension module. On the system side, the CP3010-SA supports a PCI 32-bit, 33MHz (66MHz on request) CompactPCI® interface enabling the peripheral mode feature.

### Low-Power Design

Using the latest Atom™ technology, the board offers a very low TDP (thermal design power) value. This feature, in conjunction with the special heatsink design, makes the CP3010-SA a perfect fit for all systems and applications where cooling by fans is not desired or not possible. As a result, operation in temperature ranges from -40°C up to +85°C is possible.

### Robust Board Layout

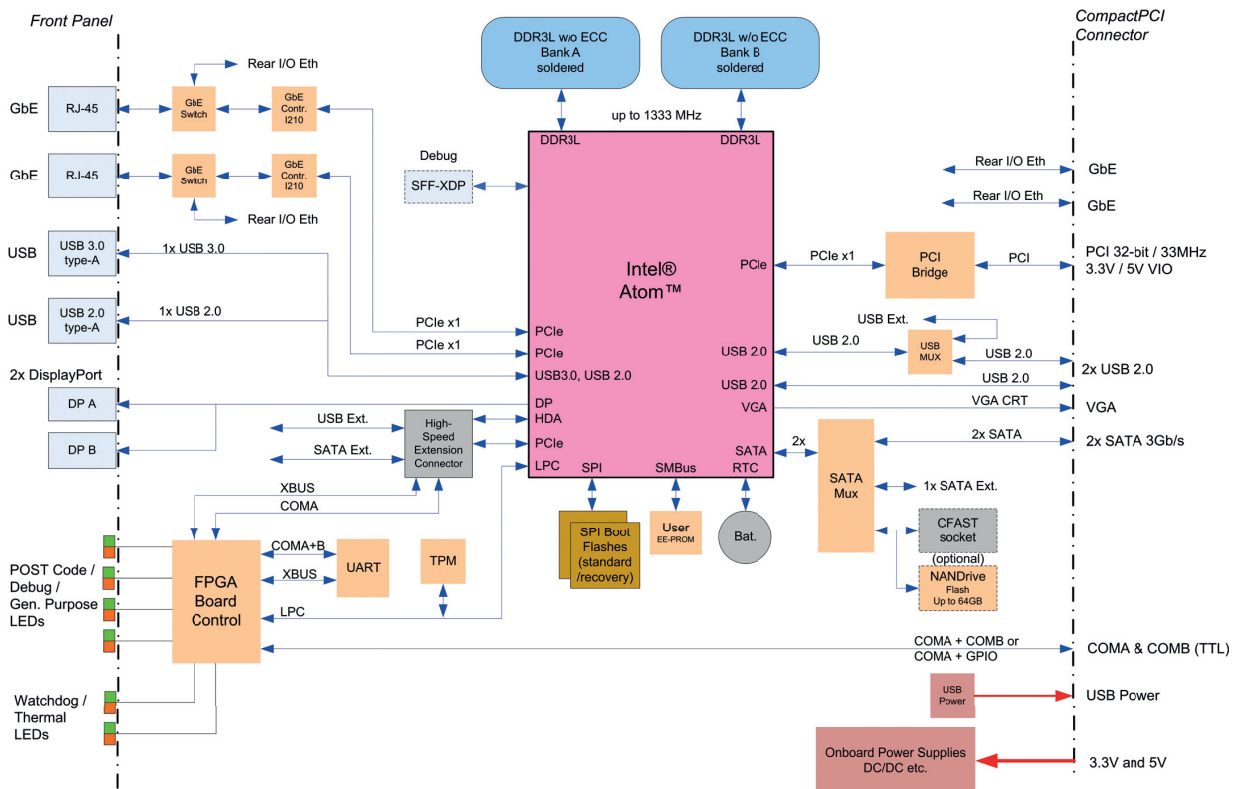
Designed with direct soldered processor and memory to handle even the toughest environmental conditions, the CP3010-SA can be used in industrial and mobile applications where motion, shock and vibration typically can be found. With respect to the transportation market the CP3010-SA is fully EN50155 compliant.

### Comprehensive I/O Connectivity

The CP3010-SA comes with a comprehensive I/O feature set supporting interfaces such as DisplayPort, USB 3.0/2.0, Gigabit Ethernet, SATA, CAN, RS-232 serial ports in common with the audio interfaces Line-In and Line-Out. Available as 4HP or 8HP version – optionally combined with rear I/O support - the CP3010-SA can be adapted to a wide range of 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 preserve the development investments. Delivering a stable product based on Intel®'s embedded product line, the CP3010-SA 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 CP3010-SA eases the process of product integration and maximizes competitive advantages to meet time-to-market windows.



## Technical Information

## SOC (System-on-a-chip)

Intel® Atom™ SOC (22nm technology):  
 E3845: Quad-Core 1.91 GHz, 2MB cache  
 E3827: Dual-Core 1.75 GHz, 1MB cache  
 All boards are passive cooled with a heatsink in 4HP height

## I/O Specification:

- » USB host interface with three USB 2.0 and one USB 3.0 ports
- » SATA host controller with two SATA 3Gb/s ports
- » Four x1 PCI Express® 2.0 ports operating at 5.0 GT/s

## Graphics Specification:

- » Intel® HD Graphics
- » Support for up to 2x independent displays

## Memory

## System Memory

Up to 8GB soldered DDR3L running at 1067/1333 MHz, dual channel w/o ECC

## Boot Flash (uEFI)

Two redundant 8 MB SPI boot flashes with fail-over functionality

## EEPROM

Serial EEPROM (24LC64) 64 Kbit for storing uEFI BIOS settings and serial number

## CFast

Onboard CFast installation via CFAST module

## SATA Flash

Up to 64GB soldered SATA NAND Flash, optional available

## HDD/SSD

Onboard 2.5" SATA SSD/HDD installation via 8HP extension

## Onboard Controller

## Gigabit Ethernet

Up to three 1000BASE-T interfaces with WOL (Wake-on-LAN) support, two front/rear switchable, third available via 8HP extension, Intel® I210-IT Ethernet controller

## UART

XR16L2750IM-F UART, 16C550-compatible

## Watchdog

FPGA-based, timeout ranging from 125ms to 4096s programmable in 16 steps, IRQ, reset, dual-stage configuration

## RTC

Integrated in SOC

## Trusted Platform Module (TPM)

Atmel AT97SC3204 TPM 1.2 controller

## CAN

SJA1000 CAN controller for one CAN port, available on the 8HP extension

## Front Interfaces 4HP

## DisplayPort

2x 20-pin DisplayPort connectors, DVI/HDMI/VGA capable through cable adapter

## USB

1x USB 3.0 port, 9-pin type-A connector  
 1x USB 2.0 port, 4-pin type-A connector

## Ethernet

2x RJ-45 with integrated LEDs (ACT, SPEED)

## LEDs

6x LED's: 4x POST Code or General Purpose, WD, TH

Front Interfaces 8HP  
(additional to 4HP)

## Ethernet

1x RJ-45 with integrated LEDs (ACT, SPEED)

## CAN

1x 9-pin D-Sub connector

## Serial Port

1x 16C550-compatible serial port, RS-232 signalling, RJ-45

## USB

1x USB 2.0 port, 4-pin type-A connector

## Line-In

1x 3.5 mm stereo jack, blue jack

## Line-Out

1x 3.5 mm stereo jack, green jack

## Control

Reset button and HDD activity LED

## Onboard Interfaces

High-Speed Extension  
Connector

One 60-pin high-speed connector holding:

- » COMA (TTL)
- » One SATA 3Gb/s
- » One USB 2.0
- » PCIe x1
- » HDA
- » XBUS
- » Reset

## CFAST

One CFast card socket on CFAST module

## Rear I/O via J2

The CP3010-SA supports the following interfaces via Rear I/O:

- » One VGA analog port
- » Two USB 2.0 ports
- » Two Gigabit Ethernet ports without LED signals
- » Two SATA 3 Gb/s ports
- » Two COM ports RS-232 (LVTTTL signal level)
- » Five GPIs and Three GPOs (LVTTTL signal level)
- » System management signals: Power Button, Sleep S3, 5V Standby
- » Option to write protect non-volatile RAMs via a special pin

## CompactPCI® Bus Interface

PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz (66MHz on request), version with rear I/O via J2  
 Universal 5V and 3.3V PCI signalling voltage supported, 7 Req/Gnt & clock lines  
 Operating in system slot as system master and in peripheral slot in PCI passive mode

## Technical Information

<b>Hot Swap</b>	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
<b>Supervisory Functions</b>	Watchdog, software configurable, 125ms to 4096s in 16 steps, generates IRQ or hardware reset or dual-stage configuration
<b>Software Support</b>	<ul style="list-style-type: none"> <li>» Phoenix uEFI, setup console redirection to serial port (VT100 mode) with CMOS setup access, EFI Shell support, board configuration via Shell, diskless, keyboardless, videoleless operation</li> <li>» LAN boot support</li> <li>» Board identification number accessible via EEPROM</li> <li>» Support for Windows® 7, Windows® Embedded Standard 7, Windows® 8, Linux, VxWorks®, QNX® (Other OSs may also be used with the CP3010-SA. Please contact Kontron for further information)</li> </ul>
<b>Compliance</b>	<ul style="list-style-type: none"> <li>» CompactPCI® Core Specification PICMG 2.0 Rev. 3.0</li> <li>» CompactPCI® Hot Swap Specification PICMG 2.1 Rev. 2.0</li> </ul> Designed to meet or exceed: <ul style="list-style-type: none"> <li>» Safety: UL 60950-1, CSA 22.2 No 60950, EN 60950-1, IEC 60950-1</li> <li>» EMI/EMC: EN 55022 / EN 55024, EN 61000-6-3 / EN 61000-6-2</li> <li>» Railway: EN50155</li> </ul>
<b>General</b>	
Dimensions	3U 4HP/8HP CompactPCI®, 100 x 160 mm
Weight	4HP: ca. 350g
MTBF	TBD
<b>Power Consumption</b>	TBD
<b>Environmental</b>	
Operating Temperature	0°C to +60°C standard; -40°C to +85°C extended temperature E2
Storage Temperature	-40°C to +85°C (without additional components)
Climatic Humidity	93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

## Ordering Information

Article	Description
<b>CP3010-SA Configurations</b>	
<a href="#">CP3010-SA-1.91Q-4-4F-T</a>	Atom™ E3845, 1.91 GHz, 2MB cache, 4GB DDR3L, 4HP, Front I/O
<a href="#">CP3010-SA-1.91Q-4-4R-T</a>	Atom™ E3845, 1.91 GHz, 2MB cache, 4GB DDR3L, 4HP, Rear I/O
<a href="#">CP3010-SA-1.91Q-4-8F-T</a>	Atom™ E3845, 1.91 GHz, 2MB cache, 4GB DDR3L, 8HP, Front I/O, HD/SSD/CFast Carrier
<a href="#">CP3010-SA-1.75D-4-4F-T</a>	Atom™ E3827, 1.75 GHz, 1MB cache, 4GB DDR3L, 4HP, Front I/O
<a href="#">CP3010-SA-1.75D-4-4F-T-E2</a>	Atom™ E3827, 1.75 GHz, 1MB cache, 4GB DDR3L, 4HP, Front I/O, ext. Temp.
<b>Storage (as separate items, not mounted on the CPU)</b>	
<a href="#">CFASTx</a>	Industrial grade CFast, various sizes available
<a href="#">CP-HDD-2.5-SATA-xx</a>	Industrial grade HDD, various sizes available
<a href="#">CP-SSD-2.5-SATA-xx</a>	Industrial grade SSD, various types and sizes available
<b>Rear Transition Modules</b>	
<a href="#">CP-RI03-04</a>	4HP rear I/O module (2x Ethernet, 2x USB, VGA, 2x SATA connectors)
<a href="#">CP-RI03-04</a>	8HP rear I/O module (additional to 4HP COMA/B)
<a href="#">CP-RI03-04S</a>	4HP rear I/O module (2x Ethernet, COM, VGA, 2x SATA connectors)
<b>Software</b>	
<a href="#">VXW-BSP-CP3010-SA-V6.9.3</a>	VxWorks 6.9.3 Board Support Package
<a href="#">QNX-BSP-CP3010-SA-V6.5</a>	QNX6.5 Board Support Package

Notes: Windows and Linux BSPs are only available as download on the web page. Please contact your local sales representative for other configuration options.

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