Product Information

PC3-ALLEGRO • CompactPCI® PlusIO CPU Card

3rd Generation Intel® Core™ i7 Processor

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PC3-ALLEGRO (Shown w. C48-M2 Dual M.2 SATA SSD Mezzanine)
The PC3-ALLEGRO is a rich featured high performance 4HP/3U CompactPCI® PlusIO CPU board, equipped with a 3rd Generation Intel® Core™ i7 Ivy Bridge + ECC (dual- or quad-core) mobile processor. The PC3-ALLEGRO front panel is provided with two Gigabit Ethernet jacks, two USB 3.0 receptacles, and two Mini-DisplayPort connectors for attachment of high resolution digital displays, configured e.g. as extended desktop (option VGA).

The PC3-ALLEGRO is equipped with up to 16GB RAM with ECC support. 8GB memory-down are provided for rugged applications, and another 8GB are available via the DDR3 ECC SO-DIMM socket. The PC3-ALLEGRO backplane connectors comply with the PICMG® CompactPCI® PlusIO system slot specification, suitable for a rear I/O module or hybrid CompactPCI® Serial systems. Several low profile mezzanine modules are available as mass storage solution.
Feature Summary

- **CompactPCI® PlusIO (PICMG® CPCI 2.30) System Slot Controller**
  - J1 Connector for Full CompactPCI® Classic 32-Bit Support
  - J2 Connector (UHM High Speed) for CompactPCI® PlusIO Support
  - 4 x PCIe
  - 4 x SATA
  - 4 x USB
  - 2 x GbE

- **Proven Intel® Mobile CPU Technology**
  - 3rd Generation Intel® Core™ Mobile + ECC CPU, Code Name Ivy Bridge
  - i7-3612QE Processor 2.1GHz • 35W TDP Standard Voltage Quad-Core
  - i7-3555LE Processor 2.5GHz • 25W TDP Low Voltage Dual-Core
  - i7-3517UE Processor 1.7GHz • 17W TDP Ultra Low Voltage Dual-Core
  - i5-3610ME Processor 2.7GHz • 35W TDP Standard Voltage Dual-Core
  - i3-3120ME Processor 2.4GHz • 35W TDP Standard Voltage Dual-Core
  - i3-3217UE Processor 1.6GHz • 17W TDP Ultra Low Voltage Dual-Core
  - Celeron® 1047UE Processor 1.4GHz • 17W TDP Ultra Low Voltage Dual-Core
  - Intel® QM77 Panther Point Platform Controller Hub (PCH)

- **Integrated HD Graphics Engine, 3 Independent Displays, Enhanced Media Processing**
  - Up to 3 Display Configuration (Front Panel: Dual mDP or Single VGA Connector Option)
  - Max Resolution 2560 x 1600 (DisplayPort), 1920 x 1200 (VGA)
  - 3rd Display via Side Card PCS-BALLET

- **Integrated Memory Controller up to 16GB DDR3 +ECC 1600**
  - DDR3 +ECC Soldered Memory up to 8GB
  - DDR3 +ECC SO-DIMM Memory Module Socket up to 8GB

- **SATA 6G & 3G for Mass Storage**
  - 2 + 2 SATA Channels 6Gbps/3Gbps for Mezzanine Storage Modules (Connector HSE)
  - CompactFlash® Card with C40-SCFA Mezzanine Module Option (4HP Maintained)
  - CFast™ Card with C41-CFAST Mezzanine Module Option (4HP Profile Maintained)
  - SATA 1.8-Inch Solid State Drive with C42-SATA Mezzanine Card Option (4HP Maintained)
  - Dual mSATA Modules with C47-MSATA RAID Mezzanine Card Option (4HP Maintained)
  - Dual M.2 SATA Modules with C48-M2 RAID Mezzanine Card Option (4HP Maintained)
  - 4 x SATA RAID Channels to UHM Connector J2, for RIO Module or CPC Serial Backplane Usage, limited to 3G SATA by CPCI PlusIO Specification
  - Hardware RAID Enabled by Marvell 88SE9230 ARM Powered Subsystem
  - RAID Configuration Level 0/1/10
### Feature Summary

- **USB 3.0 XHCI SuperSpeed & USB 2.0 EHCI Support**
  - 2 x USB 3.0 F/P Connectors
  - 6 x USB 2.0 to Mezzanine Connectors
  - 4 x USB 2.0 to J2 (Backplane)

- **Gigabit Ethernet Controllers**
  - 2 x GbE F/P RJ-45 Jacks
  - 2 x GbE to Backplane Connector J2

- **PCI Express® Based Design for Component Interconnect**
  - PCI Express® for System Expansion by Mezzanine and Backplane or RIO
  - 4 x PCI Express® Gen2 Lanes to CPCI PlusIO Backplane J2 Connector
  - 4 x PCI Express® Gen2 Lanes to Mezzanine Connector

- **Set of Mezzanine Connectors for Storage Module or Side Card**
  - Legacy I/O Mezzanine Expansion Connector EXP (USB, HD Audio, LPC)
  - High Speed I/O Mezzanine Expansion Connector HSE (4 x SATA, 4 x USB)
  - PCI Express® Mezzanine Expansion Connector PCIE (4 Lanes)
  - Third Display Mezzanine Expansion Connector SDVO/DP
  - Variety of Mezzanine Expansion Boards (Side Cards) Available
  - Most Mezzanines Optionally Equipped with 2.5-Inch Single- or Dual-Drive
  - Low Profile Storage Modules Maintain 4HP F/P Width
  - Side Cards with Additional Front Panel I/O Connectors (8HP & 12HP Assembly)

- **Phoenix® UEFI (Unified Extensible Firmware Interface) with CSM**
  - Fully customizable by EKF
  - Secure Boot on request
  - Windows®, Linux and other (RT)OS' supported

*CSM (Compatibility Support Module) emulates a legacy BIOS environment, which allows to boot a legacy operating system such as DOS, 32-bit Windows and some RTOS'*

- **Best Suited e.g. for Industrial, Transportation & Instrumentation Applications**
  - Long Term Availability
  - Rugged Solution
  - Coating, Sealing, Underfilling Available on Request
Feature Summary

- **Regulation & Environmental**
  - RoHS compliant
  - EC Regulations EN55032, EN55024, EN60950-1 (UL60950-1/IEC60950-1)
  - Operating Temperature: 0°C to +70°C (Industrial Temperature Range on Request)
  - Storage Temperature: -40°C to +85°C, max. Gradient 5°C/min
  - Humidity 5% ... 95% RH non Condensing
  - Altitude -300m ... +3000m
  - Shock 15g 0.33ms, 6g 6ms
  - Vibration 1g 5-2000Hz
  - MTBF $10^4 \times 10^3$ h (11.9 years) @ 50°C
  - Designed & Manufactured in Germany
  - ISO 9001 Certified Quality Management

- **RT OS Board Support Packages & Driver**
  - LynxOS - on request
  - On Time RTOS-32 - on request
  - OS-9 - on request
  - QNX 4.x, 6.x - on request
  - Real-Time Linux (RT Patch) - on request
  - RTX - on request
  - VxWorks 6.9 - under development
  - VxWorks 7.0 - on request
  - Others - on request

Related Information

|-------------------|-----------------------------|
CompactPCI® Serial (PICMG® CPCIS.0) defines a completely new card slot, based on PCI Express®, SATA, Gigabit Ethernet and USB serial data lines. On a hybrid backplane, both card styles can reside, CompactPCI® and CompactPCI® Serial, with the PC3-ALLEGRO in the middle as controller for both backplane segments.

Related Documents CompactPCI® Serial & CompactPCI® PlusIO

<table>
<thead>
<tr>
<th>Document Type</th>
<th>URL</th>
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<tbody>
<tr>
<td>CompactPCI® PlusIO Home</td>
<td><a href="http://www.ekf.com/p/plus.html">www.ekf.com/p/plus.html</a></td>
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<tr>
<td>CompactPCI® Serial Home</td>
<td><a href="http://www.ekf.com/s/serial.html">www.ekf.com/s/serial.html</a></td>
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Related Documents Mezzanine Modules and Side Cards

<table>
<thead>
<tr>
<th>Module Type</th>
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<tbody>
<tr>
<td>C40 ... C48 Series Mezzanine Storage Modules</td>
<td><a href="http://www.ekf.com/c/ccpu/c4x_mezz_ovw.pdf">www.ekf.com/c/ccpu/c4x_mezz_ovw.pdf</a></td>
</tr>
<tr>
<td>PCS-BALLET Mezzanine Side Card</td>
<td><a href="http://www.ekf.com/p/pcs/pcs.html">www.ekf.com/p/pcs/pcs.html</a></td>
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CompactPCI® PlusIO Racks Available

Hybrid Backplanes Available
The PC3-ALLEGRO is equipped with a set of local expansion interface connectors, which can be optionally used to attach a mezzanine side board. A variety of expansion cards is available, e.g. providing legacy I/O and additional PCI Express® based I/O controllers such as SATA, USB 3.0 and Gigabit Ethernet, or a third video output. Most mezzanine side cards can accommodate in addition a 2.5-inch drive.

Typically, the PC3-ALLEGRO and the related side card would come as a readily assembled 8HP unit. As an alternate, low profile Flash based mezzanine storage modules are available that fit on the PC3-ALLEGRO while maintaining the 4HP profile. The C48-M2 module e.g. is equipped with two fast M.2 embedded SATA Solid State Drives (SSD), suitable for installation of any popular operating system.
PC3-ALLEGRO w. PCS-BALLET Side Card 8HP Assembly

PC3-ALLEGRO w. PCS-BALLET Side Card 8HP Assembly
PC3-ALLEGRO w. PCL-CAPELLA Side Card 8HP Assembly

PC3-ALLEGRO w. PCL-CAPELLA Side Card 8HP Assembly
PC3-ALLEGRO w. C41-CFAST Storage Module

PC3-ALLEGRO w. C42-SATA Storage Module
PC3-ALLEGRO w. C47-MSATA Dual SSD Mezzanine Storage Module
Front Panel Options

Ordering Information
For popular PC3-ALLEGRO SKUs please refer to www.ekf.com/liste/liste_21.html#PC3
For popular Mezzanine Side Cards please refer to www.ekf.com/liste/liste_20.html#C40
Screw Locking Option for mDP Connectors

Opposite to the Standard DisplayPort cable connectors, mDP connectors are not provided with a latching device. For rugged applications with need for a connector locking mechanism, EKF offers two methods of fixing.

1. The front panel is provided with a threaded hole for fixing a removable H-shape retainer plate, which is available from EKF as accessory (image above).

2. As an alternate, the customer can use cable assemblies with screw-locked mDP connectors (image below). The front panel has to be modified however for this solution (two threaded holes in addition, please specify when ordering).
PC3-ALLEGRO (VGA Option)

PC3-ALLEGRO (VGA Option)
PC3-ALLEGRO w. PCL-CAPELLA Side Card 8HP Assembly
PC3-ALLEGRO • CompactPCI® PlusIO • 3rd Generation Intel® Core™ i7-3xxx Processor

PC3-ALLEGRO w. PCS-BALLET & C32-FIO 12HP Assembly

PC3-ALLEGRO w. PR1-RIO Rear I/O Module
PC3-ALLEGRO Configuration Options
Beyond All Limits:
EKF High Performance Embedded