



## Product Information

# PC1-GROOVE • CompactPCI® PlusIO Core™ i7 Processor High Performance CPU Card

Suitable for Classic CompactPCI© and PICMG 2.30 CompactPCI® PlusIO Systems

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*The PC1-GROOVE is a powerful 4HP/3U CompactPCI® CPU board, equipped with an Intel® Core™ i7 processor (dual core, quad threads) scalable from 1.06GHz up to 2.66GHz clock (Turbo Boost up to 3.2GHz), and integrated graphics. The PC1-GROOVE front panel is provided with two Gigabit Ethernet jacks, two USB receptacles, and either the Vesa DisplayPort connector for attachment of a high resolution display (DVI adapter available), or alternatively the classic style VGA connector.*

Conforming to the PICMG® 2.30 CompactPCI® PlusIO specification, the PC1-GROOVE in addition provides standardised high speed rear I/O across the backplane connector J2, such as PCI Express®, SATA, and Gigabit Ethernet. In a hybrid backplane system, the PC1-GROOVE acts as a bridge to PICMG® CPCIS.0 CompactPCI® Serial cards. In a classic CompactPCI® system, any 2.30 compliant rear I/O transition module such as the PR1-RIO may be used as an expansion option.



PC1-GROOVE

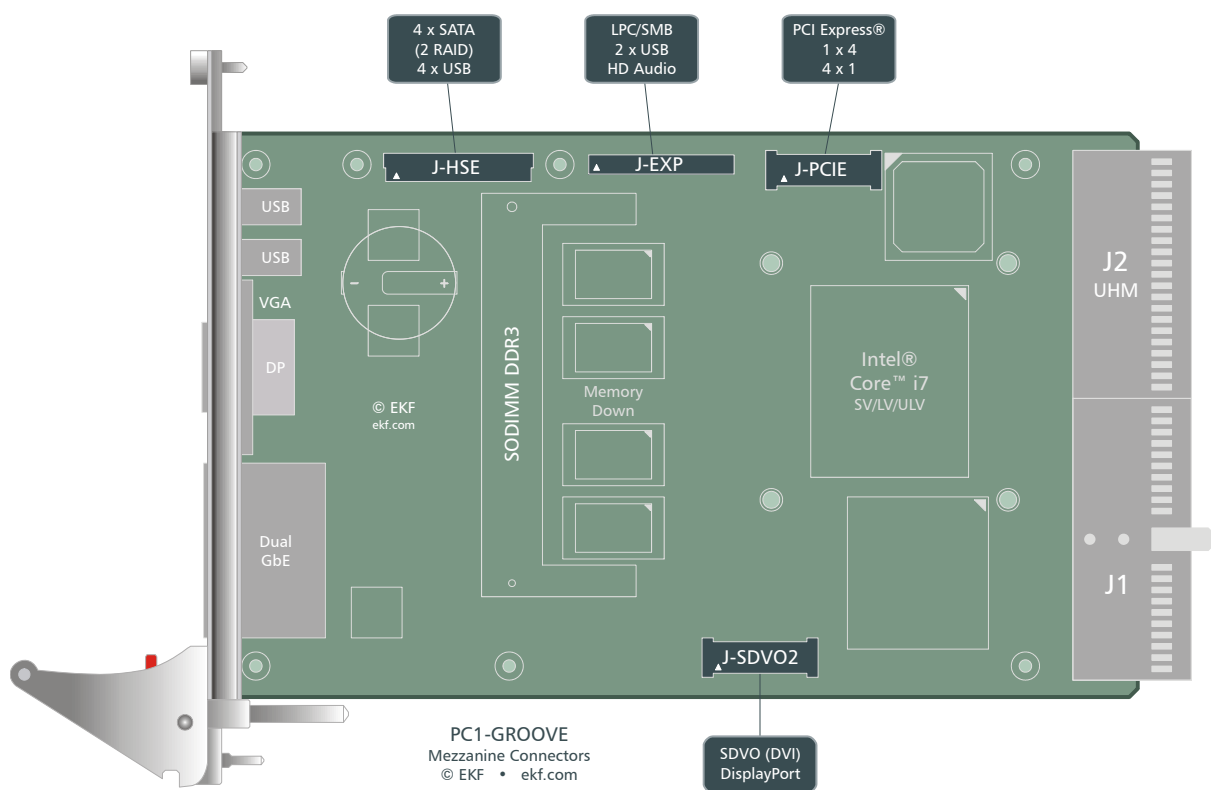
## Major Benefits of the PC1-GROOVE

- ▶ *CompactPCI®* System Slot Controller
- ▶ *CompactPCI®* PlusIO Rear I/O According to PICMG® 2.30
- ▶ Hybrid Systems Option (Dual Backplane *CompactPCI®* & *CompactPCI® Serial*)
- ▶ Based on the *Intel®* Calpella-ECC Low Power Platform (Arrandale+ECC CPU, IbexPeak-M PCH)
- ▶ *Intel® Core™ i7-600* Mobile Processor, Two Cores, 4 Threads, 3 Level Cache Hierarchy, Multi-Core CPU Turbo Boost Technology, Integrated Graphics Engine
- ▶ Standard Voltage Processor i7-610E 2.66GHz (3.33/3.06GHz Single/Dual Core Turbo Mode)
- ▶ Low Voltage Processor i7-620LE 2.0GHz (2.8/2.53GHz Single/Dual Core Turbo Mode)
- ▶ Ultra Low Voltage Processor i7-660UE 1.33GHz (2.4/tbdGHz Single/Dual Core Turbo Mode)
- ▶ Ultra Low Voltage Processor i7-620UE 1.06GHz (2.13/1.73GHz Single/Dual Core Turbo Mode)
- ▶ DDR3 Memory (Dual Channel Mode Capable, up to 1066MHz PC3-8500)
- ▶ One Memory Bank Soldered (Low Memory) for Extreme Ruggedized Systems
- ▶ One Socket for a DDR3 SODIMM Module
- ▶ *Intel®* Mobile Series QM57 Express Chipset Platform Controller Hub (IbexPeak-M)
- ▶ Three Port Graphics Controller (Front Panel: DisplayPort or VGA Connector)
- ▶ SDVO (DVI) and Secondary DisplayPort Channel Via Mezzanine Connector
- ▶ Max Resolution 2560x1600 (DisplayPort), 1920x1200 (DVI), 2048x1536 (VGA)
- ▶ Quad Gigabit Ethernet Controllers
- ▶ Six Native SATA Channels 3Gbps
- ▶ Two Additional SATA Channels 3Gbps, RAID capable with JMicron Drivers
- ▶ Twelve USB 2.0 Channels
- ▶ SATA 1.8-Inch Solid State Drive (SSD) with C42-SATA Mezzanine Module Option (4HP Assembly Height Maintained)
- ▶ CFast™ Flash Card with C41-CFAST Mezzanine Module Option (4HP Maintained)
- ▶ CompactFlash and/or USB SSD with C40-SCFA Mezzanine Module Option (4HP Maintained)
- ▶ On-Board PCI Express® Packet Switch (4 Lanes available for Rear I/O and CPCI Serial Backplane Respectively, another 4 Lanes for Mezzanine Side Card)
- ▶ Variety of Mezzanine Expansion Boards (Side Cards) Available with and w/o PCIe
- ▶ Most Mezzanines Optionally Equipped with 2.5-Inch Single- or Dual-Drive
- ▶ Rear I/O Transition Module Option (e.g. PR1-RIO)
- ▶ UEFI Phoenix BIOS with ACPI
- ▶ Long Term Availability
- ▶ RoHS compliant



The PC1-GROOVE 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 circuitry such as SATA and Gigabit Ethernet, or a secondary video output. Most mezzanine cards can accommodate in addition a 2.5-inch drive.

Typically, the PC1-GROOVE and the related side card would come as a readily assembled 8HP unit. As an alternate, Flash based mezzanine storage modules are available that fit on the PC1-GROOVE while maintaining the 4HP profile. The C42-SATA module e.g. is equipped with a very fast 1.8-inch SATA Solid State Drive (SSD), which is suitable for installation of any popular operating system.



PC1-GROOVE • Mezzanine Board Connectors

Related Documents Mezzanine Modules and Side Cards

C40 ... C45 Series Mezzanine Storage Modules	<a href="http://www.ekf.com/c/ccpu/c4x_mezz_ovw.pdf">www.ekf.com/c/ccpu/c4x_mezz_ovw.pdf</a>
Mezzanine Modules Overview	<a href="http://www.ekf.com/c/ccpu/mezz_ovw.pdf">www.ekf.com/c/ccpu/mezz_ovw.pdf</a>
The EKF Mezzanine Module Concept	<a href="http://www.ekf.com/c/ccpu/cpci_mezzanine_evolution.pdf">www.ekf.com/c/ccpu/cpci_mezzanine_evolution.pdf</a>



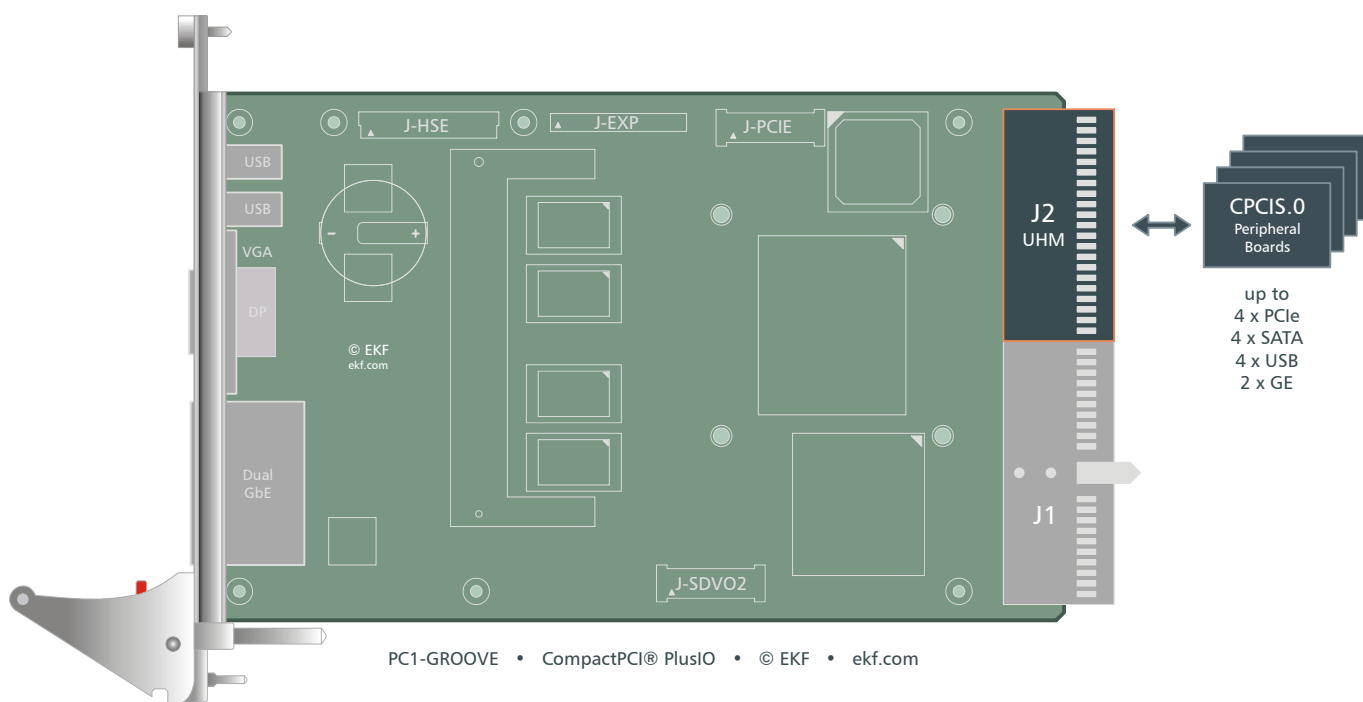
C41-CFAST Mezzanine Module



C42-SATA Mezzanine Module

CompactPCI® PlusIO (PICMG 2.30) is a new standard for rear I/O across J2, specified by the PICMG®. High speed signal lines (PCI Express®, SATA, Gigabit Ethernet and USB) are passed from the PC1-GROOVE through the special UHM connector to the backplane, for usage either on a PlusIO rear I/O transition module, or CompactPCI® Serial card slots.

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, CompactPCI® and CompactPCI® Serial, can coexist, with the PC1-GROOVE in the middle as system slot controller for both backplane segments.



PC1-GROOVE • High Speed UHM Rear I/O Backplane Connector

Related Documents CompactPCI® PlusIO & CompactPCI® Serial

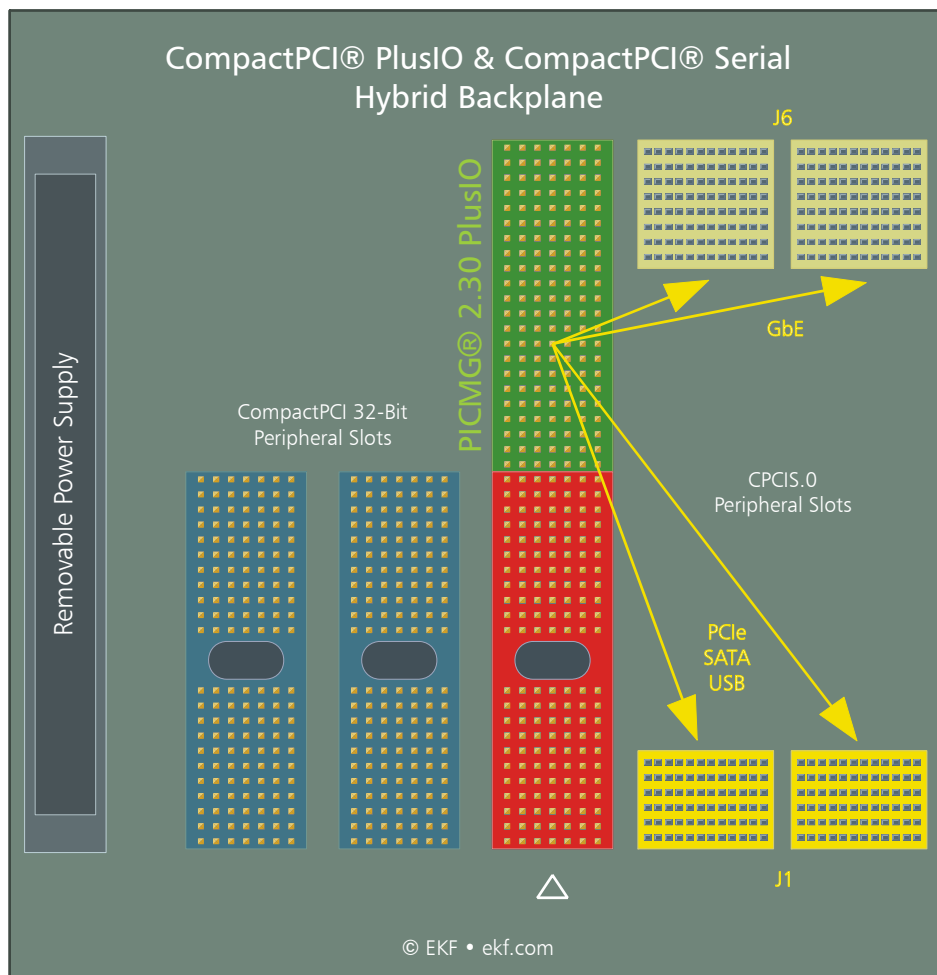
CompactPCI® PlusIO & Serial Overview	<a href="http://www.ekf.com/s/cpci_serial_overview.pdf">www.ekf.com/s/cpci_serial_overview.pdf</a>
CompactPCI® PlusIO Home	<a href="http://www.ekf.com/p/plus.html">www.ekf.com/p/plus.html</a>
CompactPCI® Serial Home	<a href="http://www.ekf.com/s/serial.html">www.ekf.com/s/serial.html</a>



PC1-GROOVE • Backplane Connectors

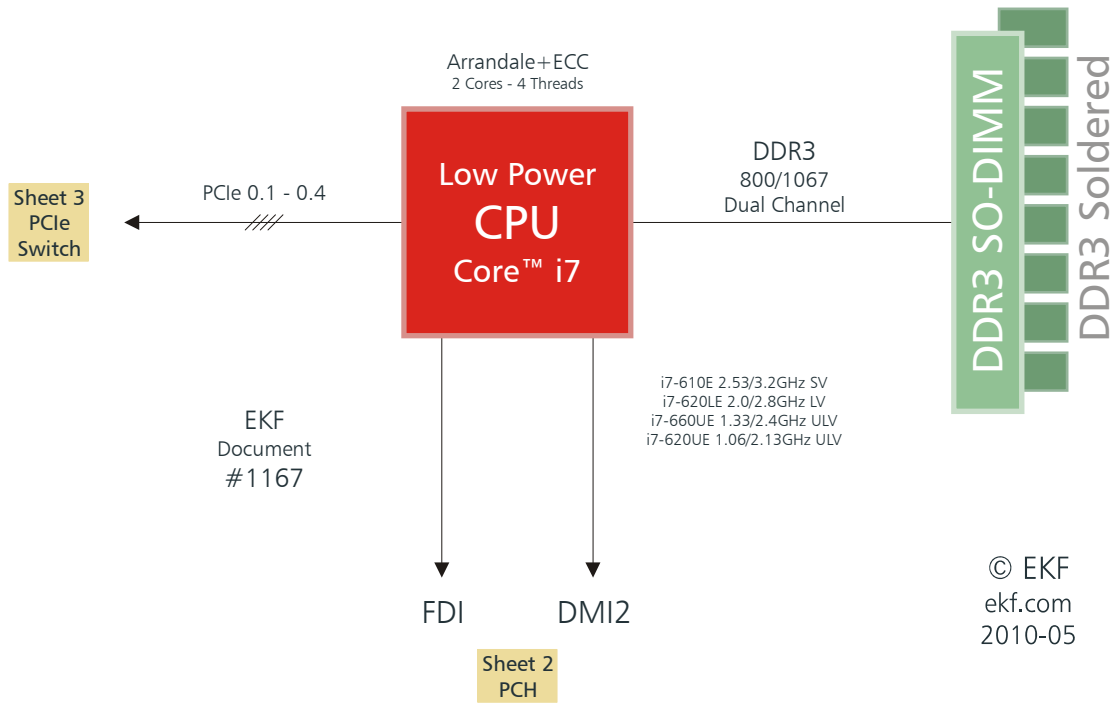


PC1-GROOVE • Top View (UHM Connector Upper Right Corner)



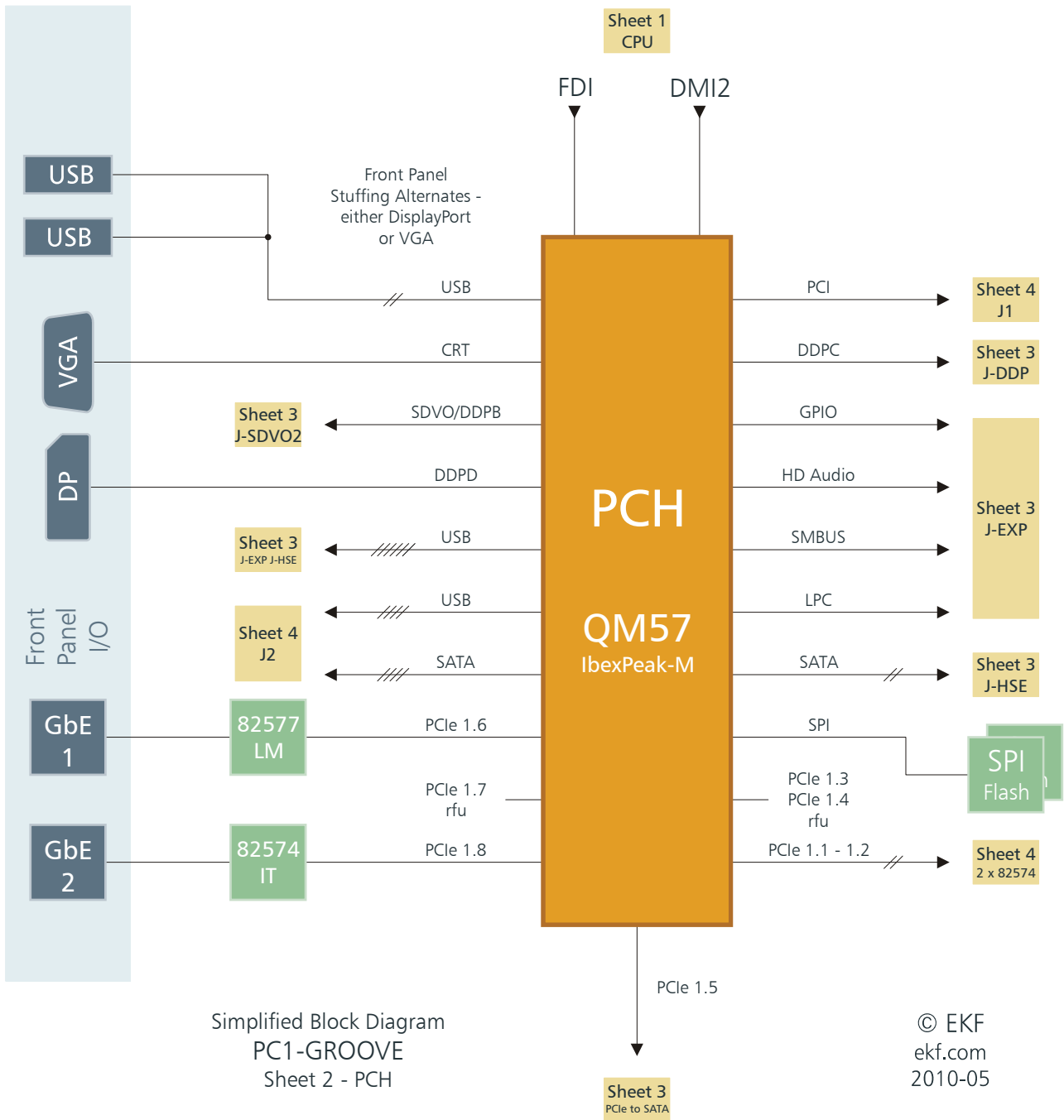
Small Systems Hybrid Backplane

### Block Diagram

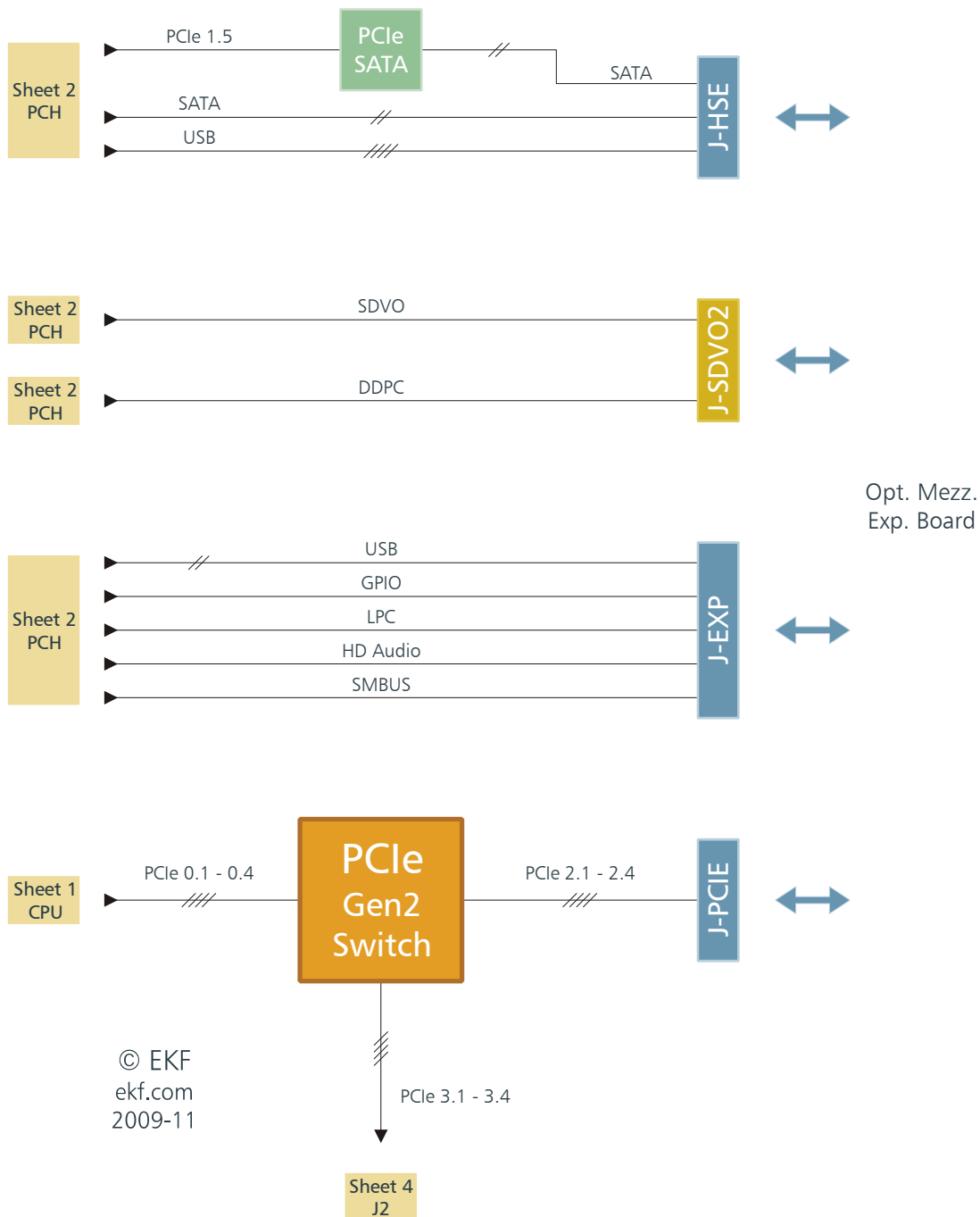


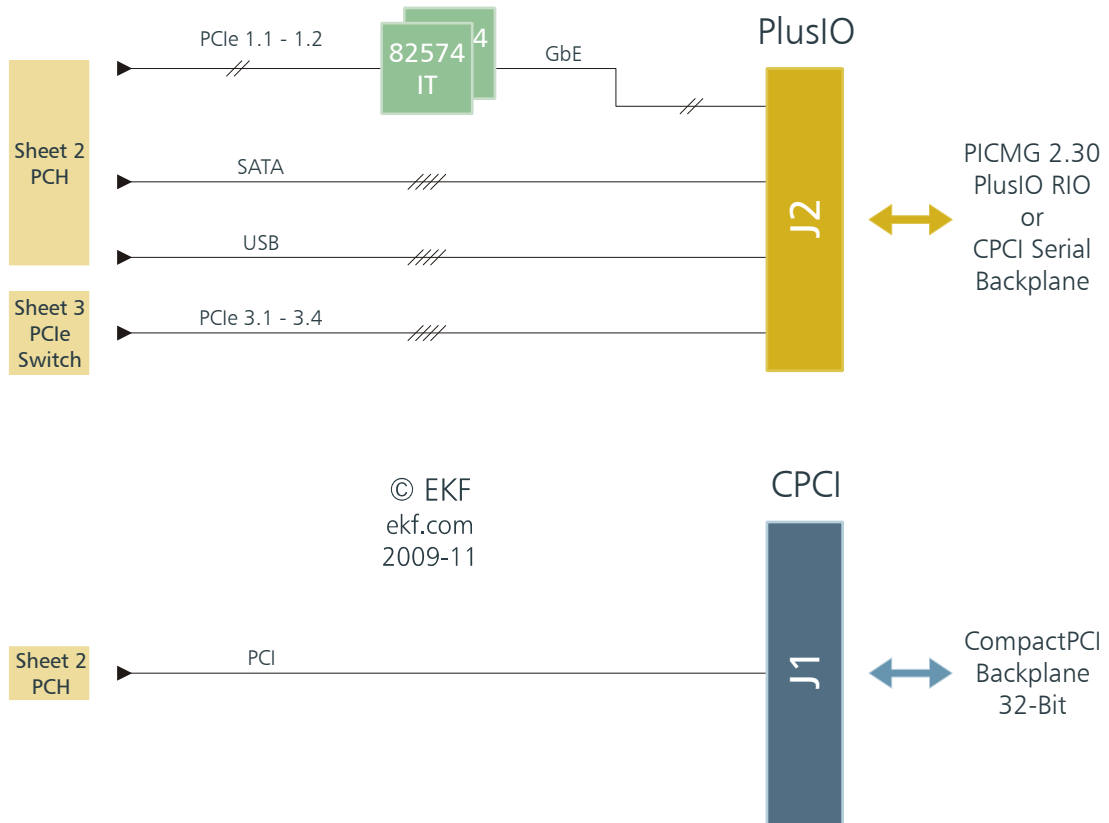
Intel® Low Power Platform Calpella+ECC

Simplified Block Diagram  
PC1-GROOVE  
Sheet 1 - CPU & RAM



Simplified Block Diagram  
PC1-GROOVE  
Sheet 3 - Mezzanine Connectors





Simplified Block Diagram  
PC1-GROOVE  
Sheet 4 - Backplane Connectors



PC1-GROOVE • DisplayPort • C41-CFAST Module



PC1-GROOVE • VGA • C44-SATA Side Card



PC1-GROOVE • DisplayPort • C41-CFAST Module



PC1-GROOVE • VGA • C42-SATA Module

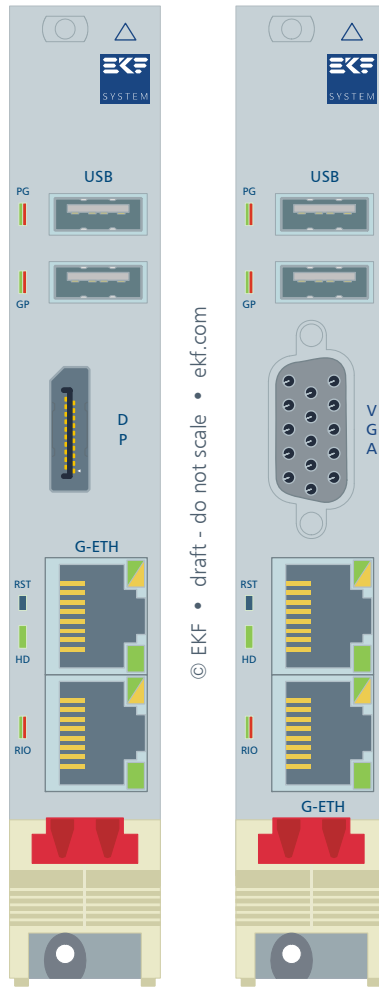


PC1-GROOVE • C45-SATA (Front Panel Removable SSD)



PC1-GROOVE • C45-SATA (Internal SSD)

### Front Panel Options



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PC1-GROOVE  
DisplayPort

PC1-GROOVE  
VGA



C43-SATA Mezzanine Module



C45-SATA Side Card



### Ordering Information

For popular PC1-GROOVE SKUs please refer to [www.ekf.com/liste/liste\\_21.html#PC1](http://www.ekf.com/liste/liste_21.html#PC1)

For popular Mezzanine Side Cards please refer to [www.ekf.com/liste/liste\\_20.html#C23](http://www.ekf.com/liste/liste_20.html#C23)



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