



Product Information

SC1-ALLEGRO • *CompactPCI*® Serial CPU Card

Third Generation Intel® Core™ Processor

Document No. 6460 • 4 October 2018



SC1-ALLEGRO

The SC1-ALLEGRO is a rich featured high performance 4HP/3U CompactPCI® Serial CPU board, equipped with a 3<sup>rd</sup> generation Intel® Core™ i7 mobile processor (Ivy Bridge + ECC, (dual- or quad-core). The SC1-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.

The SC1-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. As an option, a low profile mezzanine module with dual M.2 SATA SSDs may serve as a high-speed mass storage solution. The SC1-ALLEGRO backplane connectors comply with the PICMG® CompactPCI® Serial system slot specification.



## Feature Summary

- ▶ *CompactPCI® Serial* (PICMG® CPCI-5.0) System Slot Controller
- ▶ Based on the Intel® *Chief River* Platform (*Ivy Bridge + ECC* CPU, *Panther Point* PCH)
- ▶ Intel® Core™ i7 (i5/i3) Mobile +ECC Processor, 22nm Process Technology, Low Power, Dual-Core and Quad-Core, 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
- ▶ Integrated HD Graphics Engine, 3 Independent Displays, Enhanced Media Processing
- ▶ Integrated Memory Controller up to 16GB DDR3 +ECC 1333 and 1600
- ▶ DDR3 +ECC Soldered Memory up to 8GB
- ▶ DDR3 +ECC SO-DIMM Memory Module Socket up to 8GB
- ▶ Performance Rating Passmark 8.0 SC1-680D (i7-i7-3612QE): Passmark Rating 2241, CPU Rating 7243
- ▶ Intel® *QM77 Panther Point* Platform Controller Hub (PCH)
- ▶ Up to 3 Display Configuration (Front Panel: Dual mDP or Single VGA Connector Option)
- ▶ Max Resolution 2560 x 1600 (DisplayPort), 1920 x 1200 (VGA)
- ▶ 2 + 1 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)
- ▶ 7 x SATA Channels 3Gbps to Backplane Connectors, 5 Channels Available for Hardware RAID Configuration Level 0/1/10 + Hot Spare (Option RAID Level 3/5)
- ▶ 4 x USB 3.0 XHCI SuperSpeed Channels (2 x to F/P Connectors, 2 x Backplane)
- ▶ 10 x USB 2.0 EHCI (6 x to Mezzanine Connectors, 4 x Backplane)
- ▶ 4 x Gigabit Ethernet Controllers (2 x F/P RJ-45 Jacks and 2 x Backplane Connector)
- ▶ 8 + 8 x PCI Express® Gen3 Lanes to CPCI Serial Backplane (CPCI Serial Fat Pipe 1 + 2)
- ▶ 4 + 4 x PCI Express® Gen2 Lanes (4 x Mezzanine Connector, 4 x Backplane)
- ▶ Legacy I/O Mezzanine Expansion Connector EXP (USB, HD Audio, LPC)
- ▶ High Speed I/O Mezzanine Expansion Connector HSE (3 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 with and w/o PCIe
- ▶ Most Mezzanines Optionally Equipped with 2.5-Inch Single- or Dual-Drive
- ▶ Phoenix® UEFI (Unified Extensible Firmware Interface) with CSM (Compatibility Support Module)
- ▶ Long Term Availability
- ▶ Coating, Sealing, Underfilling on Request
- ▶ RoHS compliant
- ▶ MTBF 104 x 10<sup>3</sup> h (11.9 years) @ 40°C
- ▶ Designed & Manufactured in Germany
- ▶ ISO 9001 Certified Quality Management System
- ▶ RT OS BSP & Driver Support - VxWorks 7.0 Available, QNX and Others on Request

Related Information

SC1-ALLEGRO Home

[www.ekf.com/s/sc1/sc1.html](http://www.ekf.com/s/sc1/sc1.html)

SC1-ALLEGRO User Guide

[www.ekf.com/s/sc1/sc1\\_ug.pdf](http://www.ekf.com/s/sc1/sc1_ug.pdf)

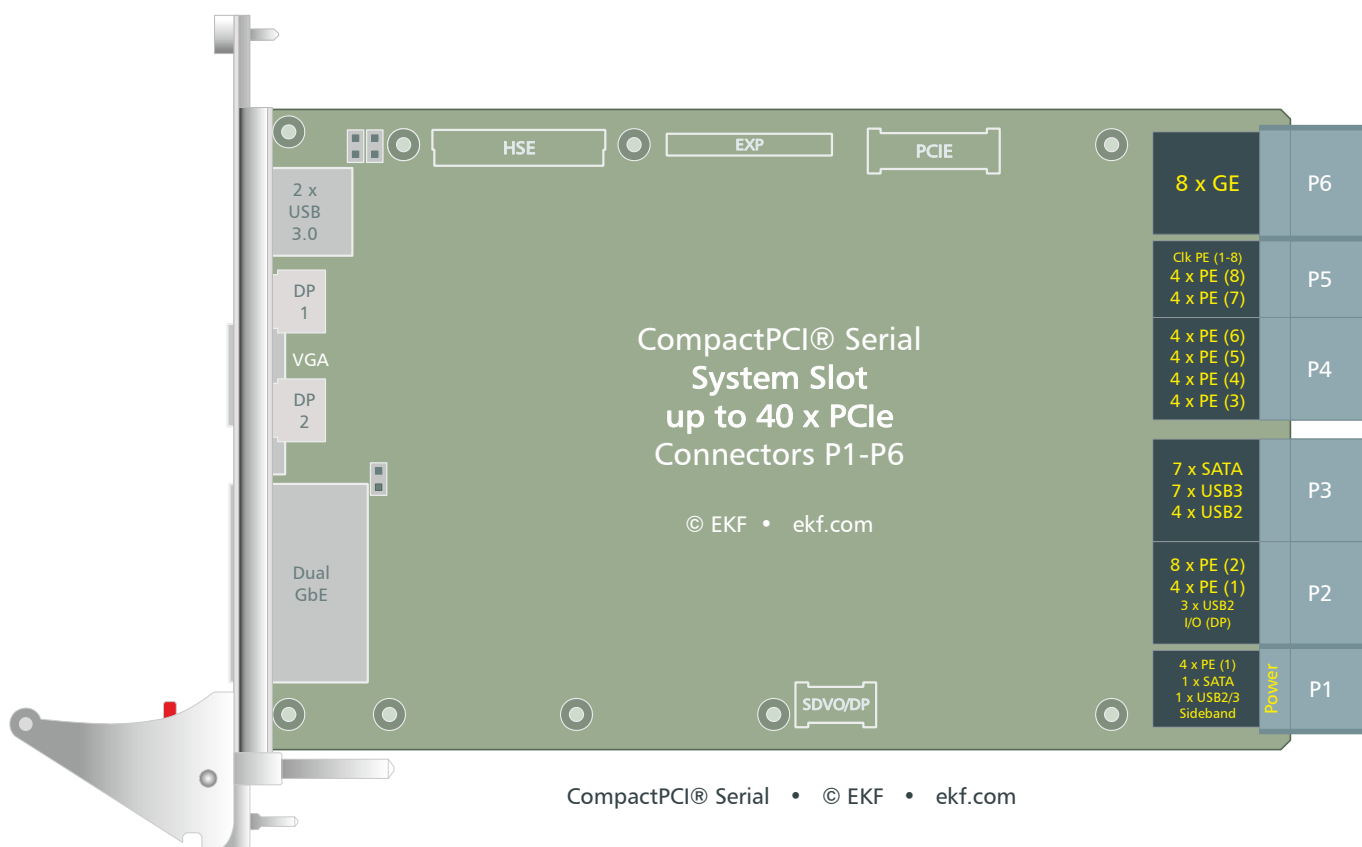


SC1-ALLEGRO

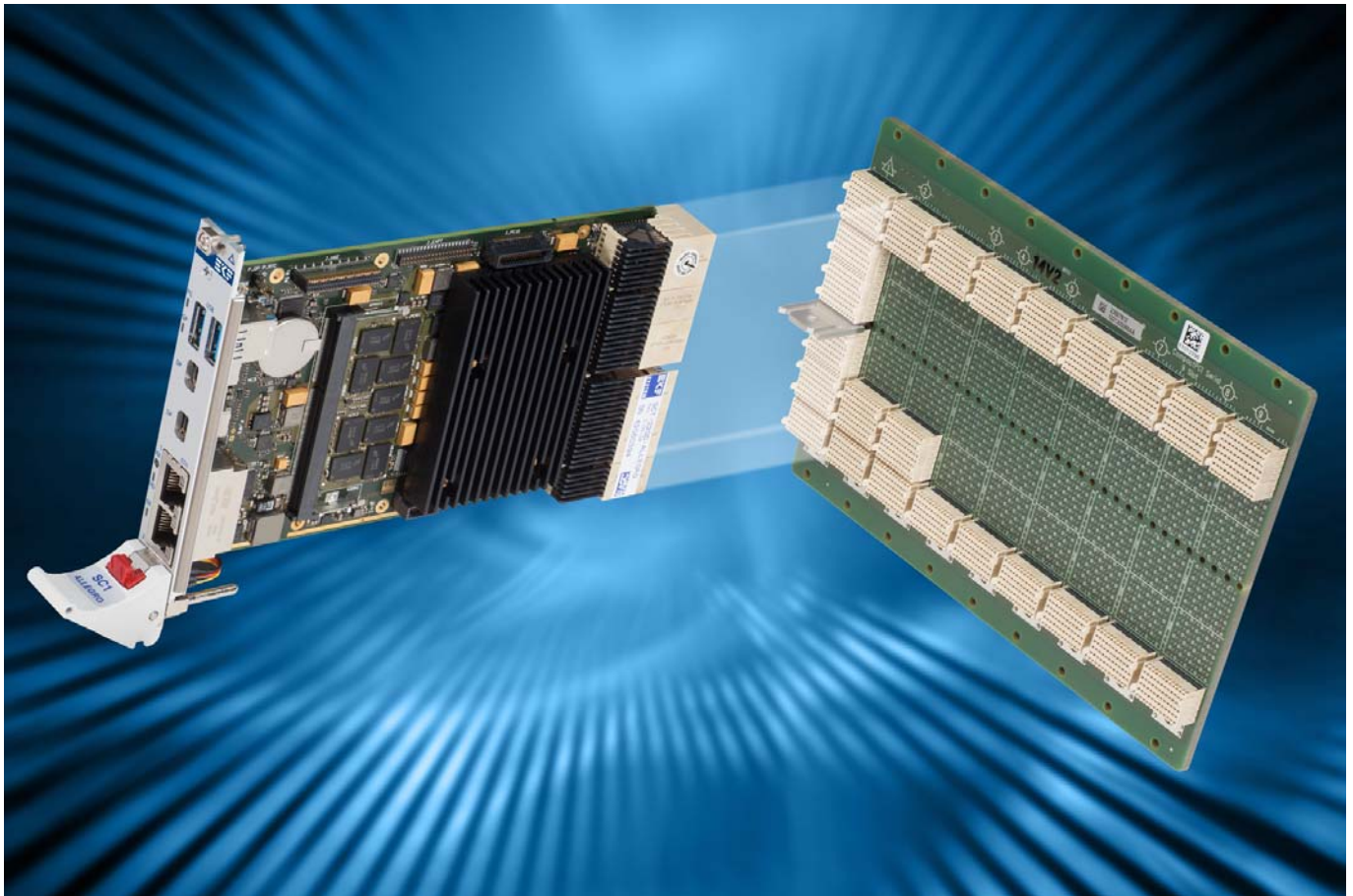
While mechanically compliant to CompactPCI® Classic, CompactPCI® Serial (PICMG® CPCIS.0) defines a completely new card slot, based on PCI Express®, SATA, Gigabit Ethernet and USB serial data lines. Up to 6 high-speed backplane connectors P1 - P6 are provided on a system slot controller such as the SC1-ALLEGRO, which can be considered as a root hub with respect to most signal lines. A passive backplane is used for distribution of a defined subset of I/O channels from the system slot to each of up to eight peripheral slots in a CompactPCI® Serial system.

Most CompactPCI® Serial peripheral slot cards require only the backplane connector P1, which comprises PCIe, SATA and USB signals, resulting in a concise and inexpensive peripheral board design. More powerful peripheral cards profit from so called Fat Pipe slots (PCIe x 8).

The SC1-ALLEGRO is a native CompactPCI® Serial CPU card, suitable for usage in a pure CPCI Serial environment. Due to its generous backplane capabilities (20 x PCI Express® lanes, 6 x USB, 7 x SATA/RAID, 2 x GbE), very powerful industrial systems can be built.



Backplane Connector Assignment  
According to PICMG® CPCIS.0



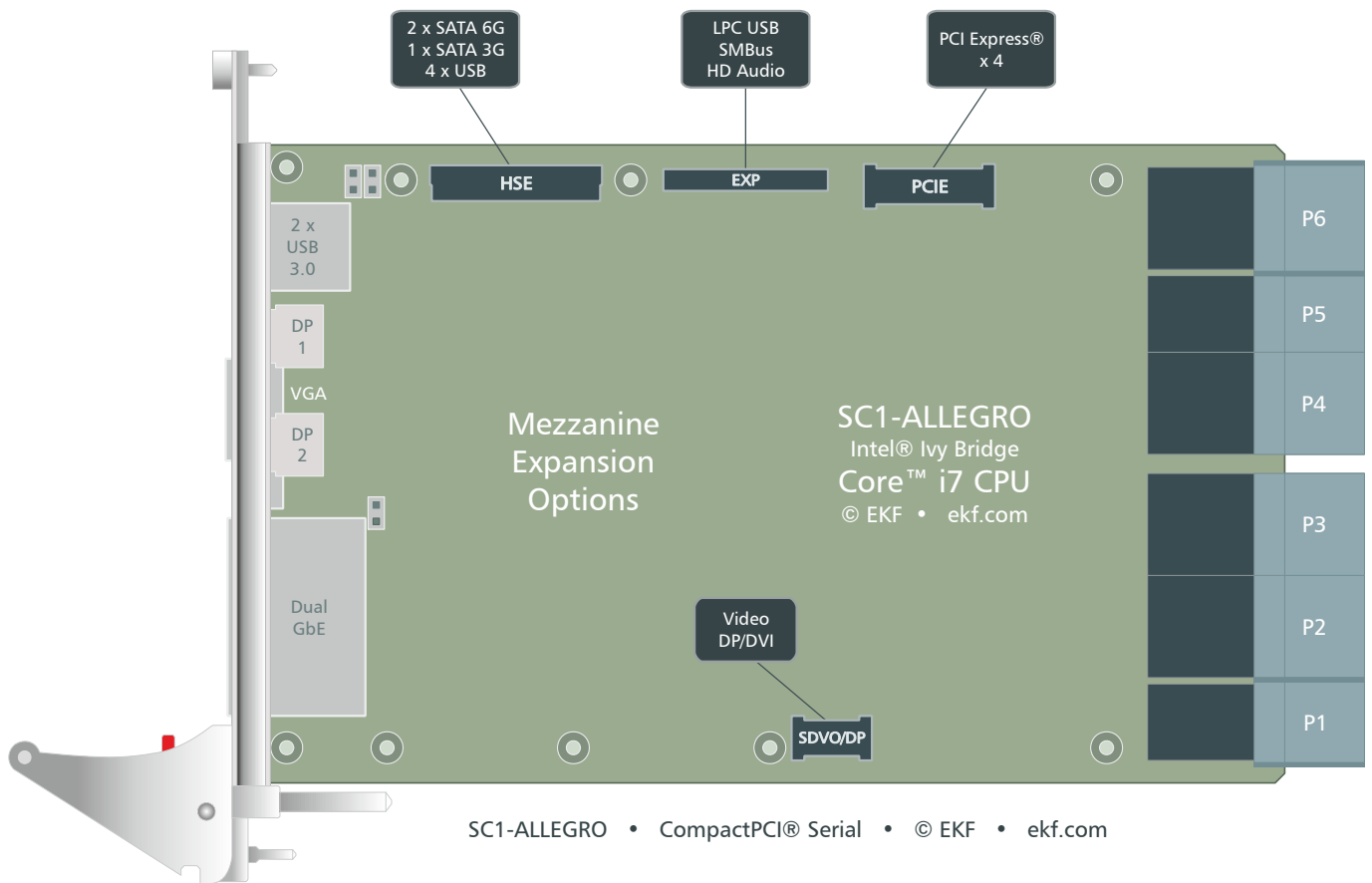
SC1-ALLEGRO as CompactPCI® Serial System Slot Controller

Related Documents CompactPCI® PlusIO & CompactPCI® Serial

CompactPCI® Serial - Concise Guide	<a href="http://www.ekf.com/s/serial_concise.pdf">www.ekf.com/s/serial_concise.pdf</a>
CompactPCI® Serial - The Smart Solution	<a href="http://www.ekf.com/s/smart_solution.pdf">www.ekf.com/s/smart_solution.pdf</a>
CompactPCI® Serial Home	<a href="http://www.ekf.com/s/serial.html">www.ekf.com/s/serial.html</a>
CompactPCI® PlusIO Home	<a href="http://www.ekf.com/p/plus.html">www.ekf.com/p/plus.html</a>

The SC1-ALLEGRO is equipped with a set of high-speed 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 such as RS-232, and additional PCI Express® based I/O controllers such as SATA, USB 3.0 and Gigabit Ethernet, and also a third video output.

Most mezzanine side cards can accommodate in addition a 2.5-inch drive. Typically, the SC1-ALLEGRO and the related side card would come as a readily assembled 8HP unit. As an alternate, MicroSATA or mSATA SSD based low profile mezzanine mass-storage modules are available that fit on the SC1-ALLEGRO 4HP envelope, nevertheless suitable for installation of any popular operating system.



SC1-ALLEGRO • Mezzanine Board Connectors



Mezzanine Side Card Connector Suite

### Related Documents Mezzanine Modules and Side Cards

SCS-TRUMPET Multi Function Mezzanine Side Card	<a href="http://www.ekf.com/s/scs/scs.html">www.ekf.com/s/scs/scs.html</a>
C40 ... C48 Series Mezzanine Storage Modules	<a href="http://www.ekf.com/c/ccpu/c4x_mezz_oww.pdf">www.ekf.com/c/ccpu/c4x_mezz_oww.pdf</a>
Mezzanine Side Cards Overview	<a href="http://www.ekf.com/c/ccpu/mezz_oww.pdf">www.ekf.com/c/ccpu/mezz_oww.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>





SC1-ALLEGRO w. SCS-TRUMPET Side Card 8HP Assembly





C41-CFAST • CFast Card SATA Storage Mezzanine Module



SC1-ALLEGRO w. C41-CFAST



SC1-ALLEGRO w. C42-SATA Storage Module



SC1-ALLEGRO w. C42-SATA Storage Module



C44-SATA • 2.5-Inch HDD/SSD Mezzanine Side Card (8HP F/P Assembly)



C45-SATA • 1.8-Inch SSD Mezzanine Side Card (8HP F/P Assembly)



SC1-ALLEGRO w. C47-MSATA Dual mSATA Mezzanine Module (RAID)



C47-MSATA • Low Profile Dual-SSD Mezzanine Module



SC1-ALLEGRO w. C47-MSATA Dual mSATA SSD Storage Module



SC1-ALLEGRO with C48-M2 Dual M.2 SATA SSD Module

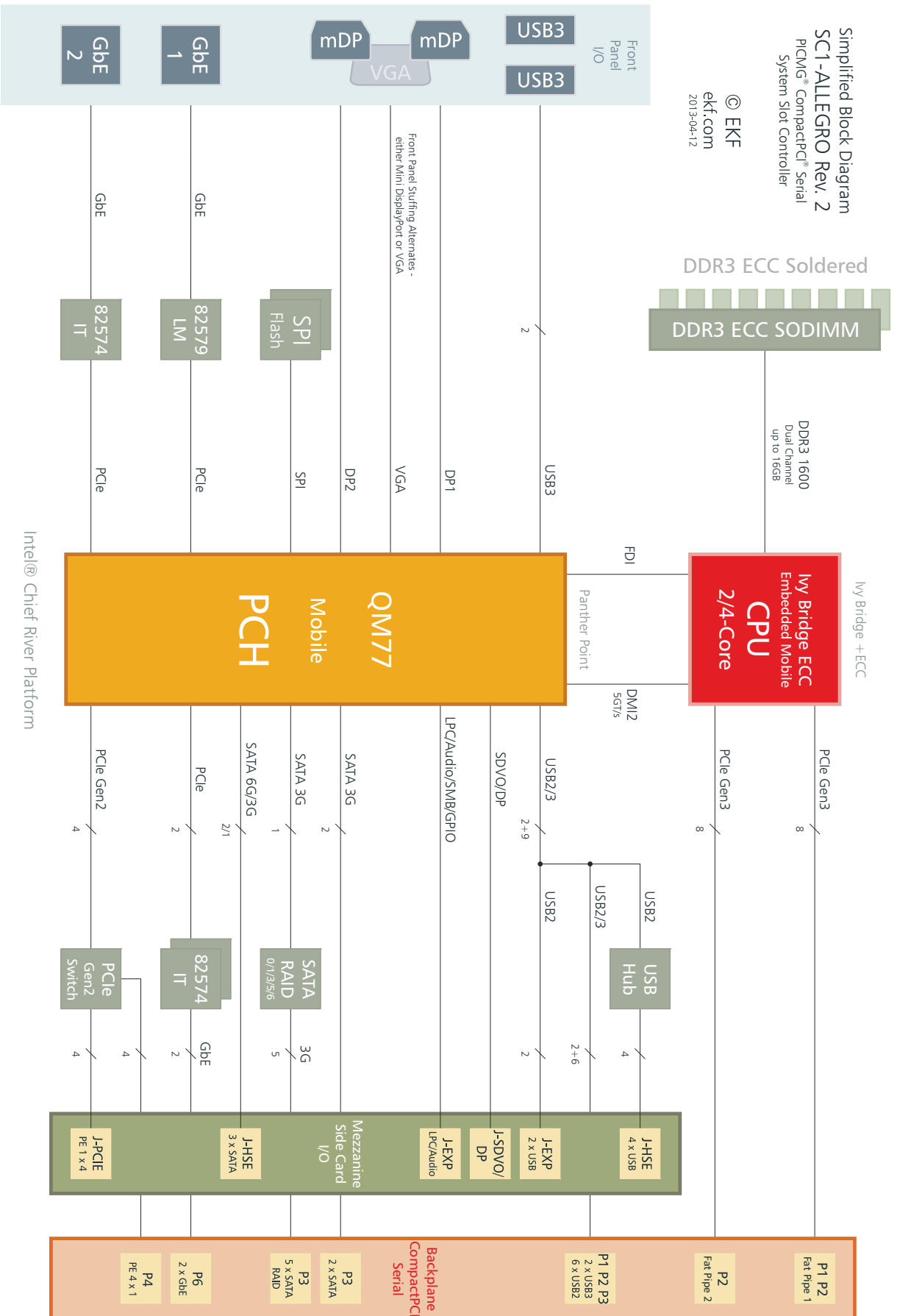


C48-M2 Low Profile Mezzanine Storage Module (Dual M.2 SATA SSD)



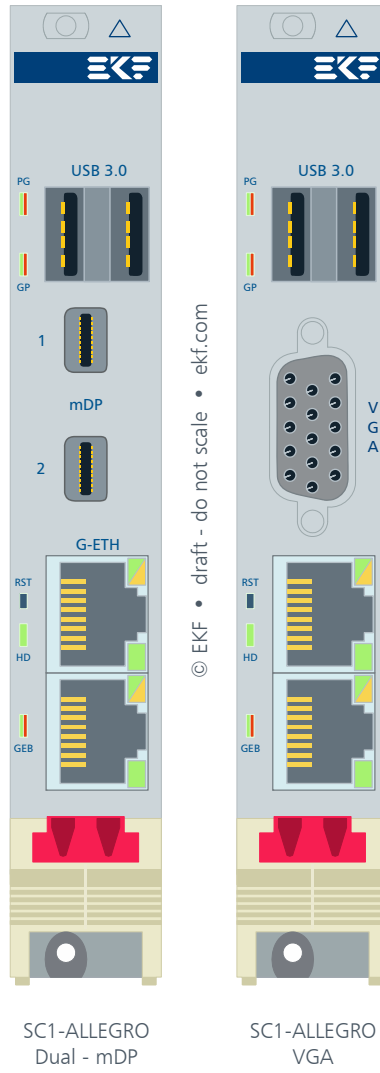
SC1-ALLEGRO with C48-M2 Dual M.2 SATA SSD Module

### Block Diagram



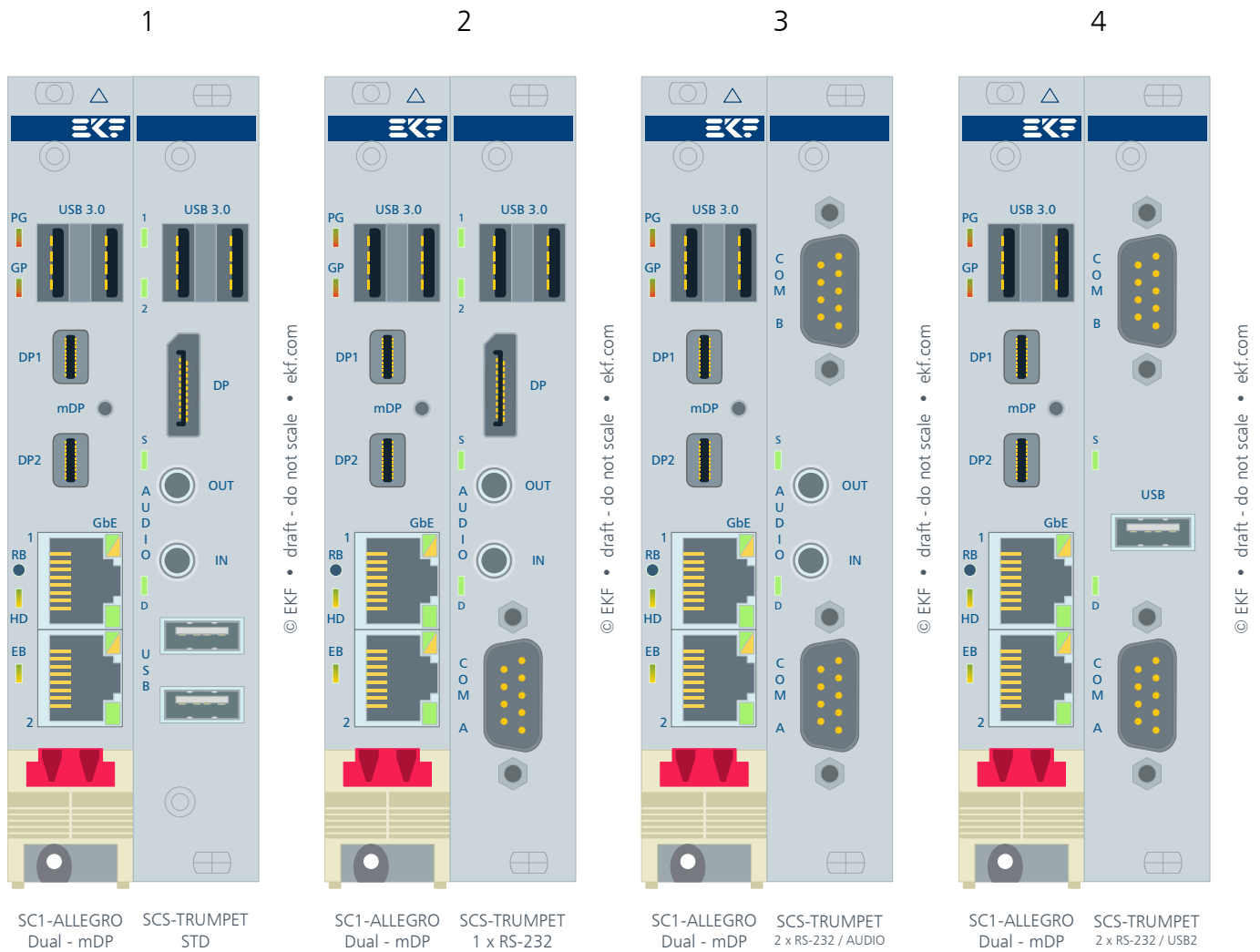


### Front Panel Options



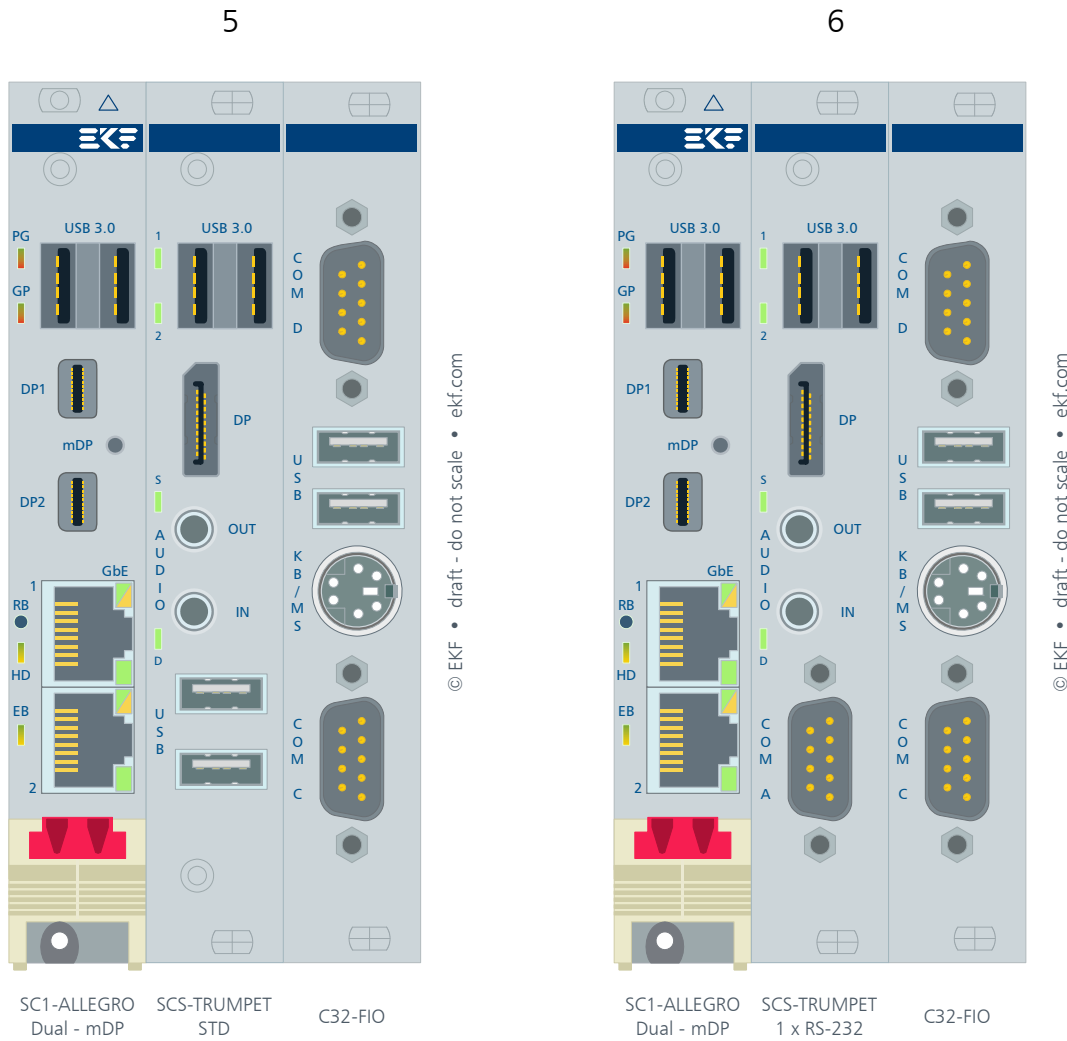
Option Screw-Locked mDP Cable Connectors

### Sample Front Panel Options 8HP



1. Typical assembly, dual-USB 3.0, DisplayPort, 3.5mm stereo audio in/out, 2 x USB 2.0
2. Bottom RS-232 male D-Sub 9-pin (COM-A) replaces two USB 2.0 jacks
3. Top RS-232 male D-Sub 9-pin (COM-B) replaces dual-USB 3.0 and DisplayPort connectors
4. Center USB 2.0 receptacle replaces both 3.5mm stereo audio jacks

Sample Front Panel Options 12HP



5. Dual-USB 3.0, DisplayPort, 3.5mm stereo audio in/out, 4 x USB 2.0, 2 x RS-232 (COM-C/D)

6. Dual-USB 3.0, DisplayPort, 3.5mm stereo audio in/out, 2 x USB 2.0, 3 x RS-232 (COM-A/C/D)

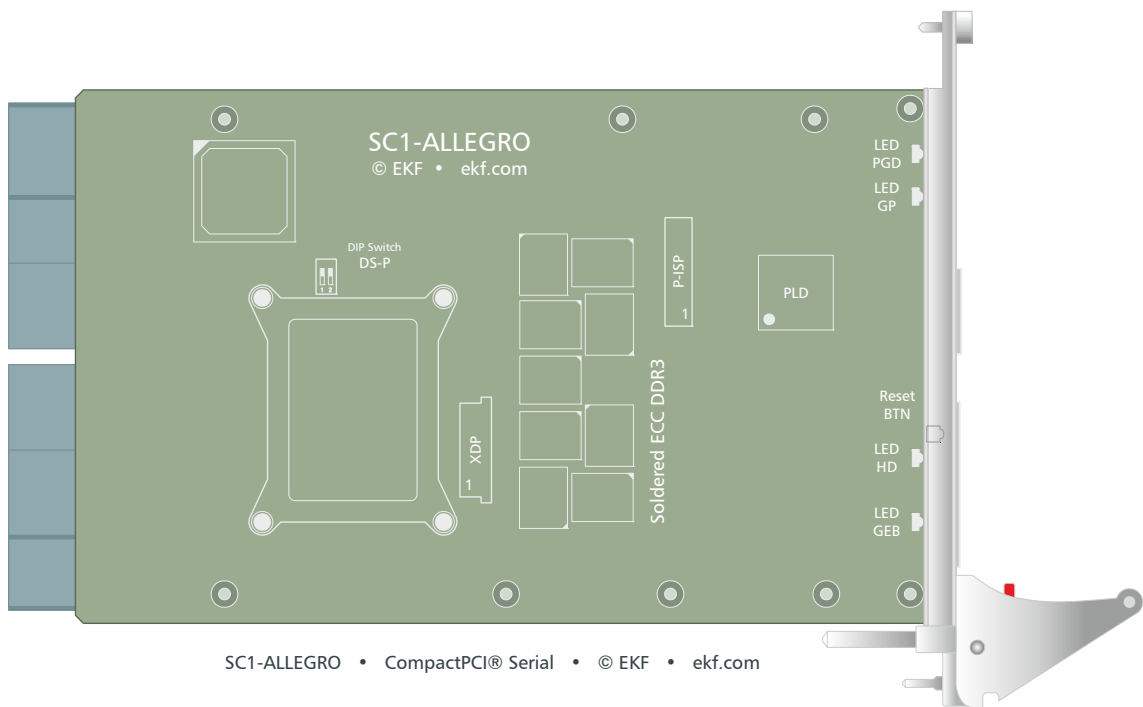
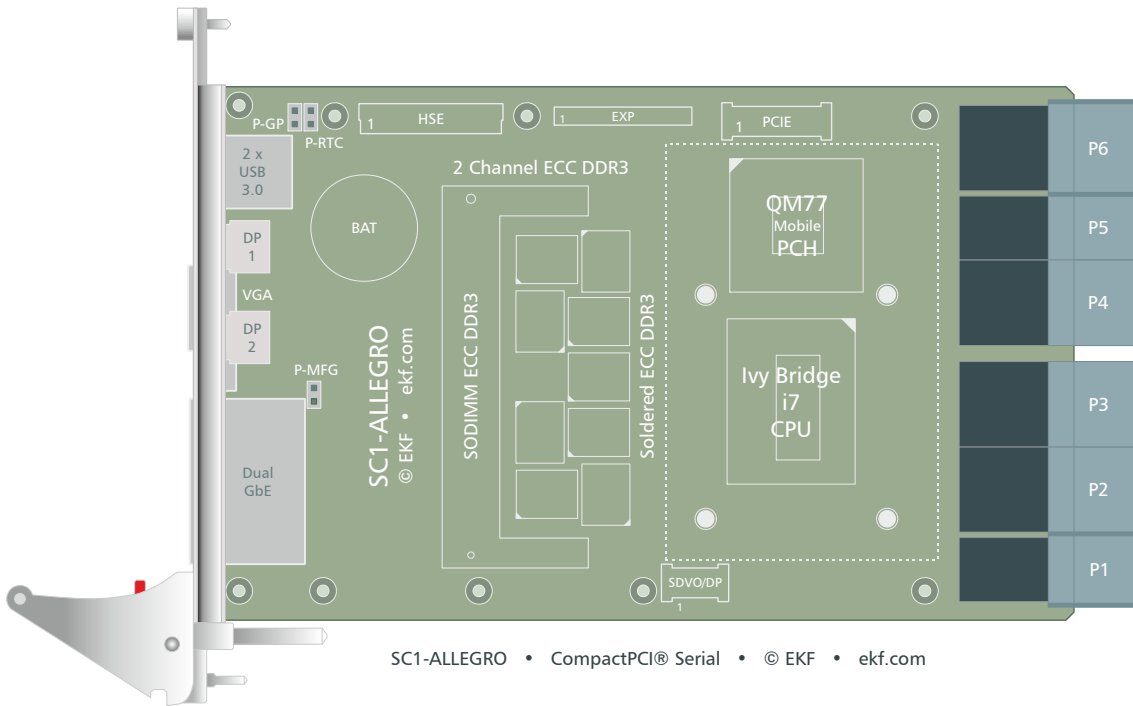


Option VGA Connector



Convection Cooling

Top & Bottom Component Assembly



## System Integration



SC1-ALLEGRO on a Backplane w. System Slot Left Aligned



Backplane w. System Slot Right Aligned



BluBoxx Series Small Systems Rack



CompactPCI® Serial Racks Available

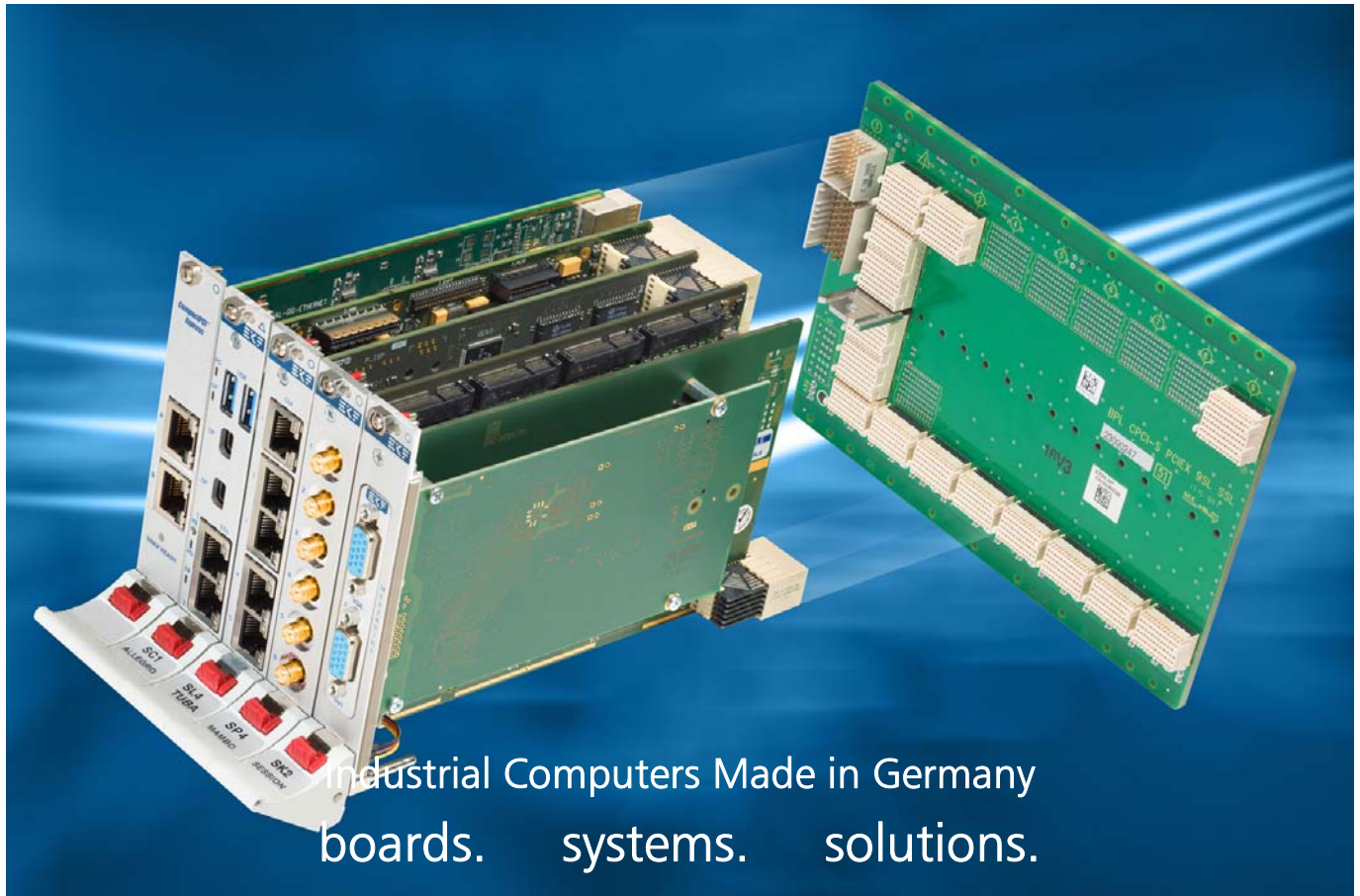




## Ordering Information

For popular SC1-ALLEGRO SKUs please refer to [www.ekf.com/liste/liste\\_21.html#SC1](http://www.ekf.com/liste/liste_21.html#SC1)

For popular Mezzanine Side Cards please refer to [www.ekf.com/liste/liste\\_20.html#C40](http://www.ekf.com/liste/liste_20.html#C40)



EKF Elektronik GmbH  
Philipp-Reis-Str. 4 (Haus 1)  
Lilienthalstr. 2 (Haus 2)  
59065 HAMM  
Germany



Phone +49 (0)2381/6890-0  
Fax +49 (0)2381/6890-90  
Internet [www.ekf.com](http://www.ekf.com)  
E-Mail [sales@ekf.com](mailto:sales@ekf.com)