



Product Information

SN1-REVERB

CompactPCI® Serial • 5-Port Gigabit Ethernet NIC

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General

The SN1-REVERB is a peripheral slot card for CompactPCI® Serial systems. The board is equipped with five independent PCI Express® based Gigabit Ethernet controllers, wired to associated RJ45 front panel jacks.

The Intel® I210IT Ethernet NICs provide latest networking technology, e.g. power management for increased efficiency and Audio-Video Bridging (AVB) for tightly controlled media stream synchronisation, buffering, and reservation.

The on-board PCI Express® packet switch allows for operation of the SN1-REVERB either in a CompactPCI® Serial fat pipe peripheral slot, or even a standard peripheral backplane slot. The optimum performance can be achieved with a PCIe x 4 link established via the backplane connector P1.

The SN1-REVERB is well suited for high performance industrial networking applications. Drivers are available for all major operation systems.



SN1-REVERB

Theory of Operation

The SN1-REVERB is equipped with five independent Intel I210 industrial temperature range Gigabit Ethernet controllers. Each of them requires a PCI Express® x1 lane, which is provided by a PCI Express® Gen2 packet switch. The downstream ports operate at 2.5GT/s, fully sufficient for the 1Gbps Ethernet data transfer speed. The PCIe x4 upstream port of the PCI Express® packet switch is capable to operate at 4 x 5.0GT/s (Gen2), if supported by the CompactPCI® Serial system slot controller (CPU board) for the chosen SN1-REVERB card slot.

The PCI Express® packet switch is a flexible interface between one to four PCI Express® lanes, derived from the CompactPCI® Serial backplane connector P1 (upstream link), and 5 GbE NICs (single lane downstream links). For maximum data throughput the SN1-REVERB should be inserted either into a CompactPCI® Serial fat pipe slot (which provides 8 PCIe lanes), or PCIe x4 capable standard peripheral slot. For typical applications however, reasonable performance can be already achieved in a PCIe x1 CompactPCI® Serial peripheral slot.



SN1-REVERB

Feature Summary

- ▶ PICMG® CompactPCI® Serial standard (CPCI-S.0) peripheral slot card
- ▶ Single Size Eurocard 3U 4HP 100x160mm²
- ▶ cPCI-S backplane connector P1
- ▶ Suitable for PCIe x 1 or PCIe x 4 standard peripheral slots, and fat pipe peripheral slots

- ▶ PLX PCI Express® Gen2 packet switch for optimum bandwidth distribution
- ▶ 1 x Upstream port PCIe x 4 oder PCIe x 1, Gen2 or Gen1 PCI Express® over backplane
- ▶ 5 x Downstream ports PCIe x 1 to Gigabit Ethernet NICs

- ▶ Five independent Gigabit Ethernet controllers (5 x MAC address) Intel® I210IT
- ▶ Integrated PHYs 1000BASE-T, 100BASE-TX, 10BASE-T (IEEE 802.3, 802.3u, 802.3ab)
- ▶ IEEE 802.3ab Auto Negotiation for automatic link configuration
- ▶ Auto MDI, MDI-X Crossover at all speeds
- ▶ Full duplex operation at 10/100/1000Mbps
- ▶ 9.5KB Jumbo Frame support
- ▶ Hardware-based time stamping (IEEE 1588) and support for 802.1AS - Precise Timing Protocol
- ▶ Support for Energy Efficient Ethernet (EEE) standard of IEEE 802.3az
- ▶ Option IEEE 802.1Qav compliant Audio-Video Bridging (AVB)
- ▶ IPv4, IPv6, TCP/UDP checksum offloads
- ▶ Driver support for all major operating systems
- ▶ Five front panel connectors RJ45 with integrated magnetics

- ▶ Long term availability
- ▶ Rugged solution (coating, sealing, underfilling on request)
- ▶ RoHS compliant 2002/95/EC
- ▶ Commercial and industrial temperature range
- ▶ Humidity 5% ... 95% RH non condensing
- ▶ Altitude -300m ... +3000m
- ▶ Shock 15g 0.33ms, 6g 6ms
- ▶ Vibration 1g 5-2000Hz
- ▶ MTBF tbd
- ▶ EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)

System Integration

The SN1-REVERB is a CompactPCI® Serial peripheral card. CompactPCI® Serial (CPCI-S.0) is a PICMG® standard for modular industrial computers, which provides high speed serial I/O (PCI Express®, SATA, USB, Gigabit Ethernet) over the backplane. The cPCI-S mechanical design is fully backward compatible to CompactPCI® Classic and will interoperate with existing systems, by means of a hybrid backplane.

Hybrid systems (providing card slots for both cPCI Classic & cPCI Serial) can be configured by means of a CompactPCI® PlusIO CPU card such as the PC1-GROOVE or PC3-ALLEGRO in combination with a suitable hybrid backplane.

Native CompactPCI® Serial systems (up to 8 cPCI Serial peripheral card slots) can be built around a suitable system slot CPU board such as the SC1-ALLEGRO.



SRP-4401-PLUSIO • Hybrid System



PC1-GROOVE • CPCI PlusIO CPU Card



Sample Hybrid Backplane

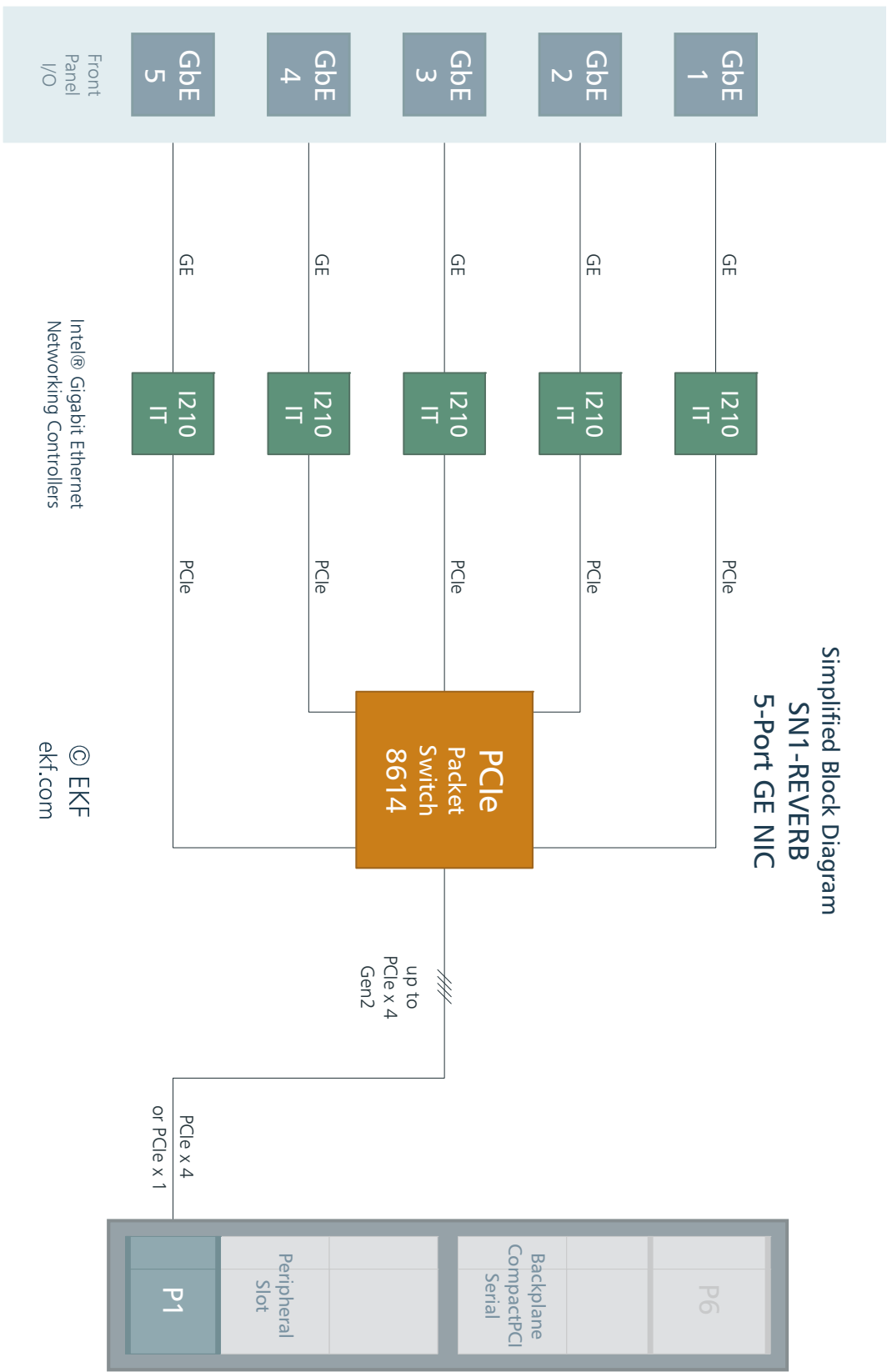


SRS-3001-BLUELINE • CPCI Serial System

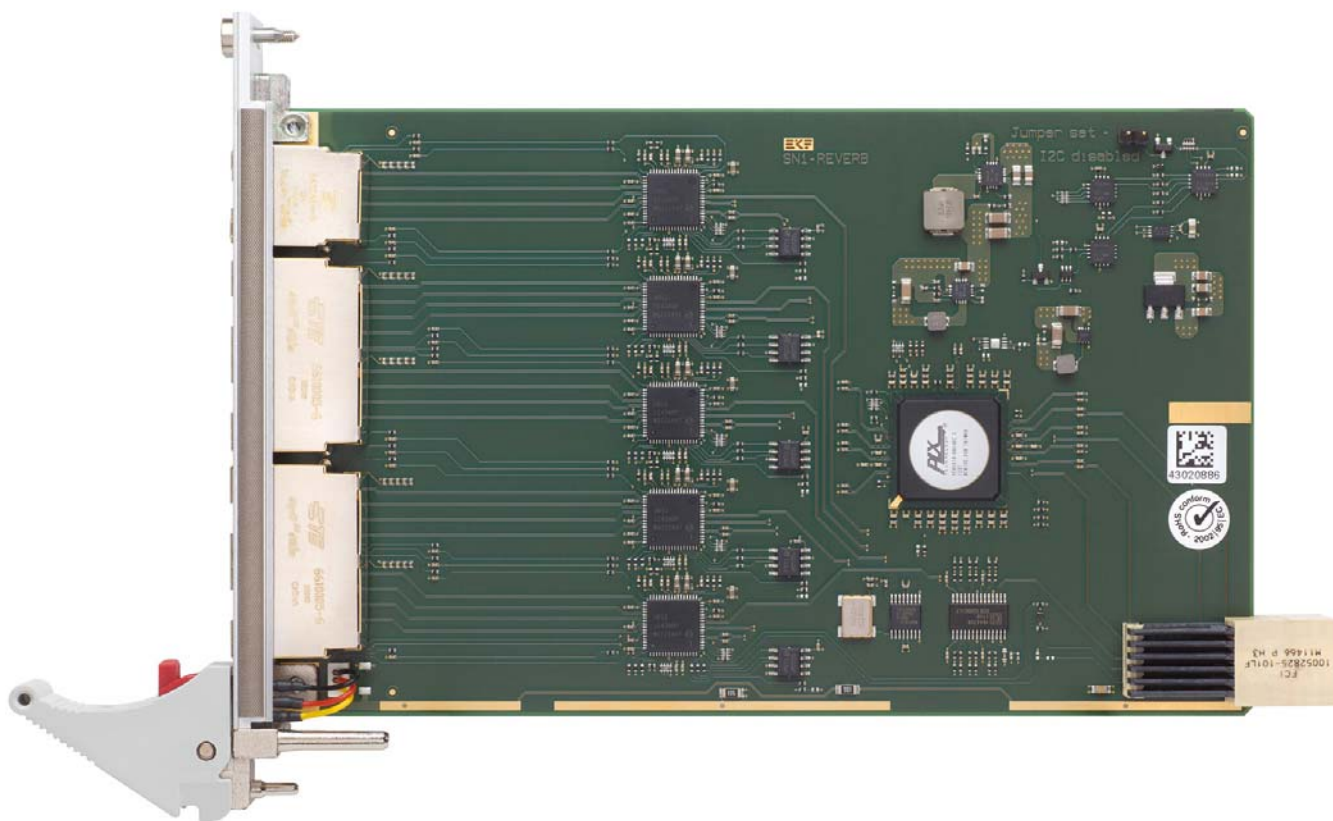


SC1-ALLEGRO • CPCI Serial CPU Card

Block Diagram



Component Assembly



Front Panel



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SN1-REVERB
5-Port GE NIC

P1 CompactPCI® Serial Peripheral Slot Backplane Connector

EKF Part #250.3.1206.20.02 • 72 pos. 12x6, 14mm Width

P1	A	B	C	D	E	F	G	H	I	J	K	L
6	GND	PE TX02+	PE TX02-	GND	PE RX02+	PE RX02-	GND	PE TX03+	PE TX03-	GND	PE RX03+	PE RX03-
5	PE TX00+	PE TX00-	GND	PE RX00+	PE RX00-	GND	PE TX01+	PE TX01-	GND	PE RX01+	PE RX01-	GND
4	GND	USB2+	USB2-	GND	PE CLK+	PE CLK-	GND	SATA TX+	SATA TX-	GND	SATA RX+	SATA RX-
3	USB3 TX+	USB3 TX-	GA0	USB3 RX+	USB3 RX-	GA1	SATA SDI	SATA SDO	GA2	SATA SCL	SATA SL	GA3
2	GND	I2C SCL	I2C SDA	GND	RSV	RSV	GND	RST#	WAKE#	GND	PE EN#	SYS EN#
1	+12V	STBY	GND	+12V	+12V	GND	+12V	+12V	GND	+12V	+12V	GND

pin positions printed gray: not connected

Gigabit Ethernet

270.01.08.05 Single RJ45 Jack • 270.02.08.5 2 x Dual RJ45 Jacks



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Upper yellow LEDs (1):
on=1Gbit/s off=10/100Mbit/s

Lower green LEDs (2):
on=link established blinking=activity (data)

Ports

0-4

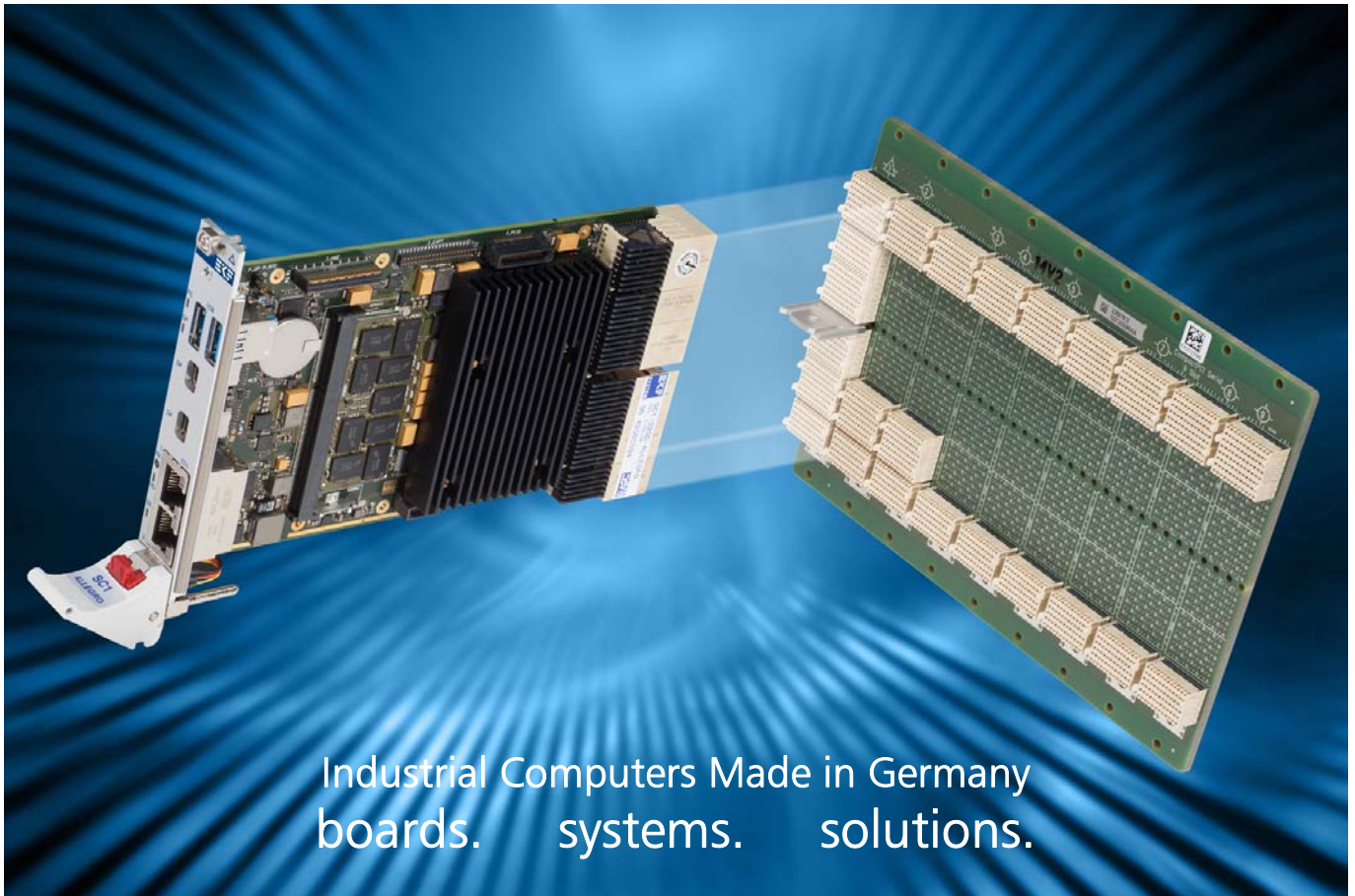
1	MDX0+
2	MDX0-
3	MDX1+
4	MDX2+
5	MDX2-
6	MDX1-
7	MDX3+
8	MDX3-

SN1-REVERB Links

SN1-REVERB Home	www.ekf.com/s/sn1/sn1.html
Intel® I210 Driver Download	www.ekf.com/s/sn1/sn1.html
CompactPCI® Serial Overview	www.ekf.com/s/cpci_serial_overview.pdf

Ordering Information

For popular SN1-REVERB SKUs please refer to
www.ekf.com/liste/liste_21.html#SN1



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