Product Information

SD1-DISCO • *CompactPCI® Serial* • SATA Storage Card

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SD1-DISCO with SSD

General

The **SD1-DISCO** is a peripheral slot card for CompactPCI® Serial systems. The board accommodates a 2.5-inch size SATA drive, controlled by the SATA channel derived from the backplane connector P1.

The SD1-DISCO provides SATA 6G redrivers for optimum signal integrity. A solid state drive (SSD) is recommended for maximum performance. A JBOD or RAID system can be established with two or more cards.

SD1-DISCO w. SSD 2.5-Inch

System Integration Options

The SD1-DISCO 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 PC7-FESTIVAL 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 SC5-FESTIVAL.

Feature Summary
▸ PICMG® CompactPCI® Serial Standard (CPCI-S.0)
▸ Peripheral Slot Card w. Backplane Connector P1 for SATA Support
▸ Carrier Board for a 2.5-Inch Size SATA Drive *
▸ Up to 8 x SD1-DISCO Cards on a CPCI-S Backplane
▸ Suitable for a 2.5-Inch SATA SSD or HDD (Max Power 12V/0.75A 5V/2.0A 3.3V/2A)
▸ SSD Recommended for R/W High Speed, HDD Recommended for High Storage Capacity
▸ On-Board SATA 6G Redrivers (Compliant w. SATA 3G/1.5G)
▸ Front Panel SATA Activity LED
▸ Suitable for RAID or Non-RAID Operation
▸ Option on-Board USB 3.0 Receptacle (Available Concurrent to 2.5-Inch SSD) **
▸ CompactPCI® Serial Backplanes Available
▸ Rugged Solution (Coating/Sealing Available on Request)
▸ RoHS compliant
▸ MTBF 122.8 Years
▸ EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)

* requires SATA enabled CompactPCI® Serial peripheral card backplane slot
** requires USB enabled CompactPCI® Serial peripheral card backplane slot

Please note: This document reflects revision 3 of the SD1-DISCO PCB, as of 2014-08. The option Micro SATA (1.8-inch SSD) is no longer supported. The SATA routing and the redriver settings were optimized for best signal eye opening at 6G speed. The USB connector is 3.0 SuperSpeed compliant now.
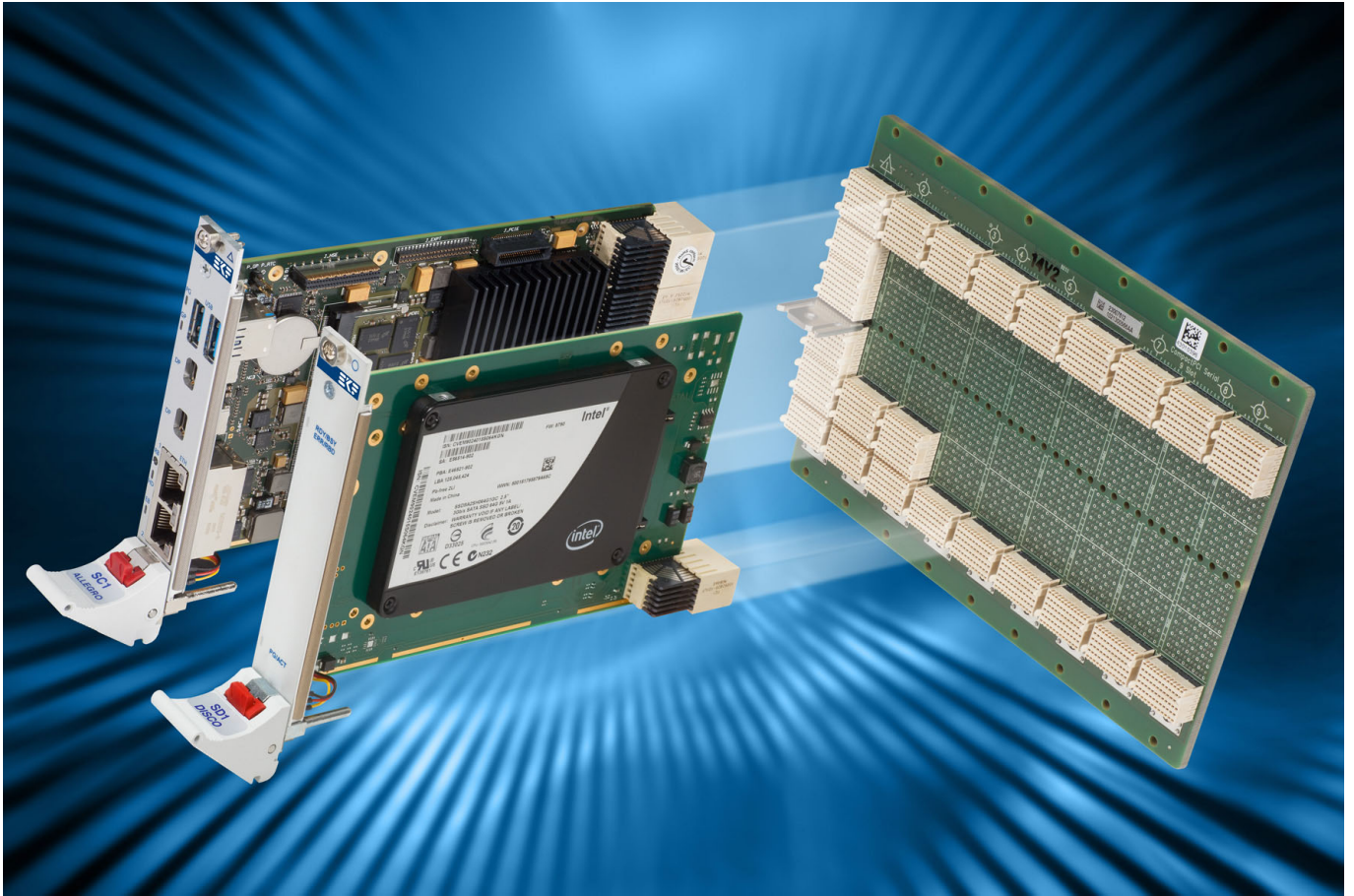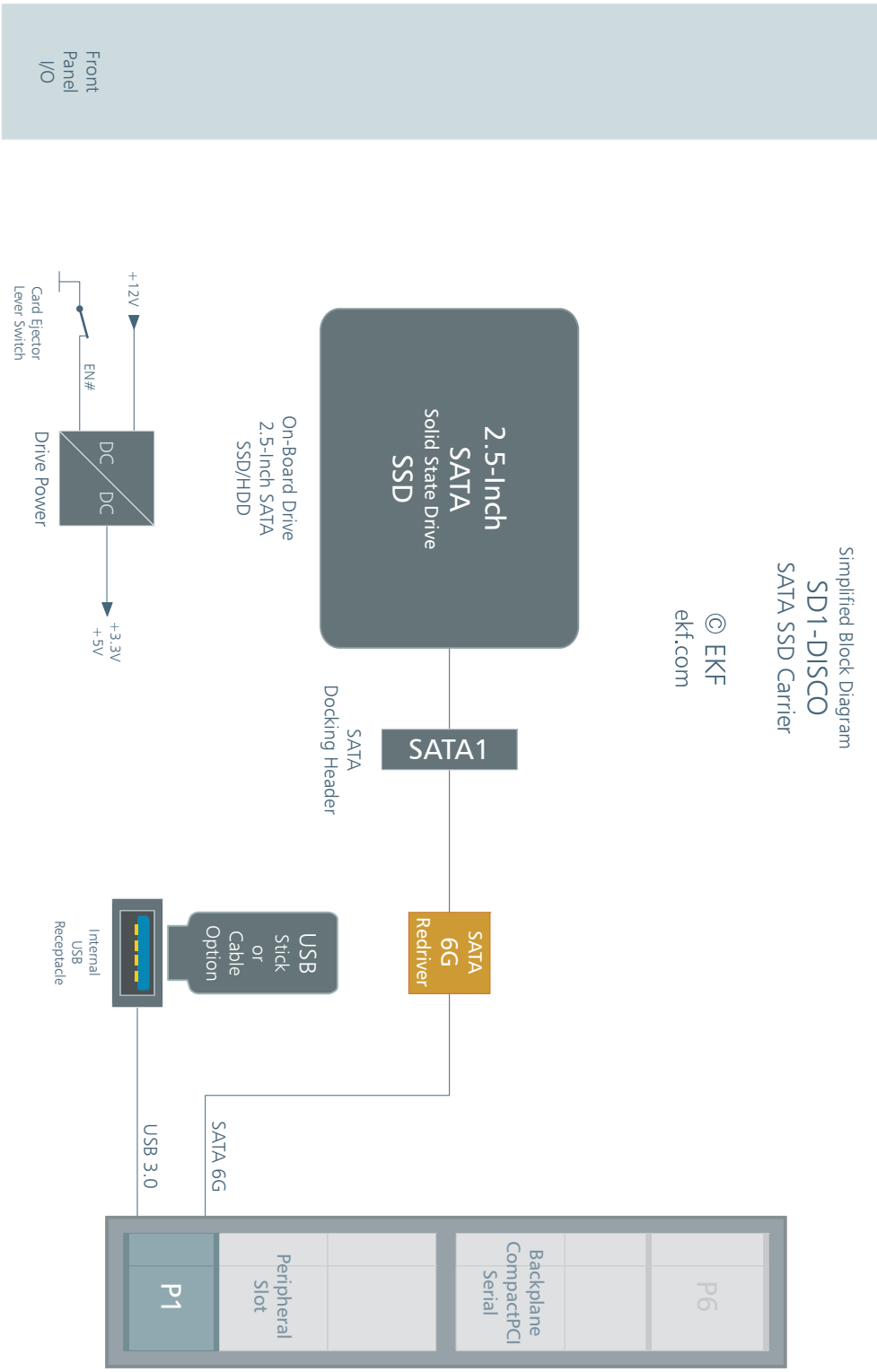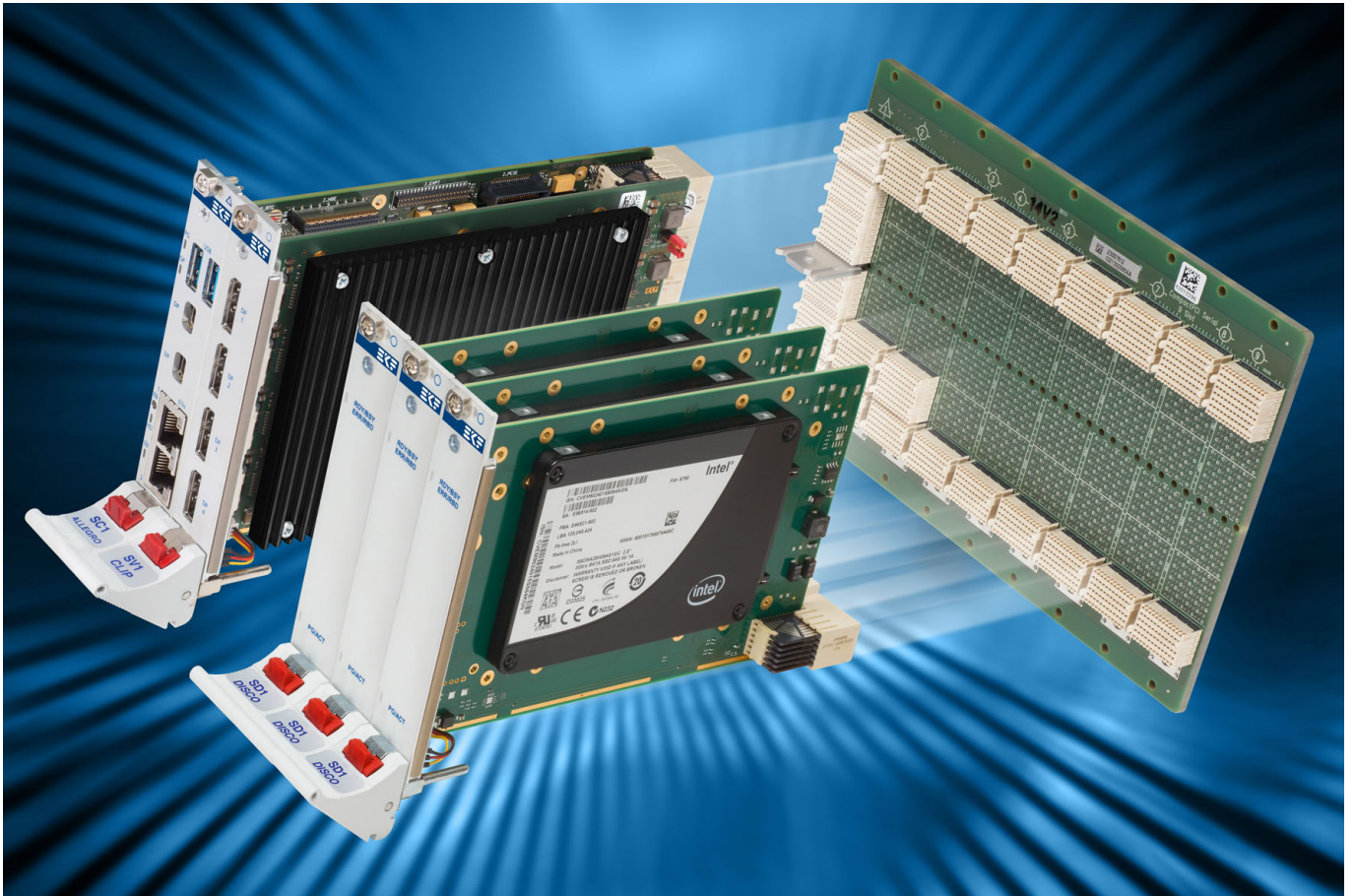
SD1-DISCO with CompactPCI® Serial CPU Card & CompactPCI® Serial Backplane

SD1-DISCO with CompactPCI® PlusIO CPU Card & Hybrid Backplane

Block Diagram

Front Panel I/O

Card Ejector Lever Switch

+12V

EN#

Drive Power

DC / DC

+3.3V +5V

On-Board Drive 2.5-Inch SATA SSD/HDD

2.5-Inch SATA SSD

Solid State Drive SSD

Simplified Block Diagram
SD1-DISCO
SATA SSD Carrier

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SATA Docking Header

SATA1

SATA 6G Redriver

Internal USB Receptacle

USB Stick or Cable Option

USB 3.0

SATA 6G

P1

Peripheral Slot

Backplane CompactPCI Serial

P6

Multiple SD1-DISCO Boards (e.g. for JBOD or RAID Configuration)

Ordering Information
For popular SD1-DISCO SKUs please refer to www.ekf.com/liste/liste_21.html#SD1

Related Links to CompactPCI® Serial SATA Cards	
SD1-DISCO Home	www.ekf.com/s/sd1/sd1.html
CompactPCI® Serial SATA Solutions	www.ekf.com/s/serial.html#SD

Related Documents CompactPCI® Serial & CompactPCI® PlusIO	
Basics / Overview CompactPCI® Serial & CompactPCI® PlusIO	www.ekf.com/s/smart_solution.pdf
CompactPCI® Serial Home	www.ekf.com/s/serial.html
CompactPCI® PlusIO Home	www.ekf.com/p/plus.html

| Recommended CPU Cards P = PlusIO • PICMG® 2.30 CompactPCI® PlusIO S = Serial • PICMG® CPCI-S.0 CompactPCI® Serial	
PC1-GROOVE	CompactPCI® PlusIO CPU Card • www.ekf.com/p/pc1/pc1.html
PC3-ALLEGRO	CompactPCI® PlusIO CPU Card • www.ekf.com/p/pc3/pc3.html
SC1-ALLEGRO	CompactPCI® Serial CPU Card • www.ekf.com/s/sc1/sc1.html
SC2-PRESTO	CompactPCI® Serial CPU Card • www.ekf.com/s/sc2/sc2.html

2.5-Inch SATA SSD

Please note: The on-board SATA drive is not included in delivery unless ordered separately by customer
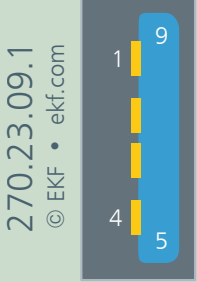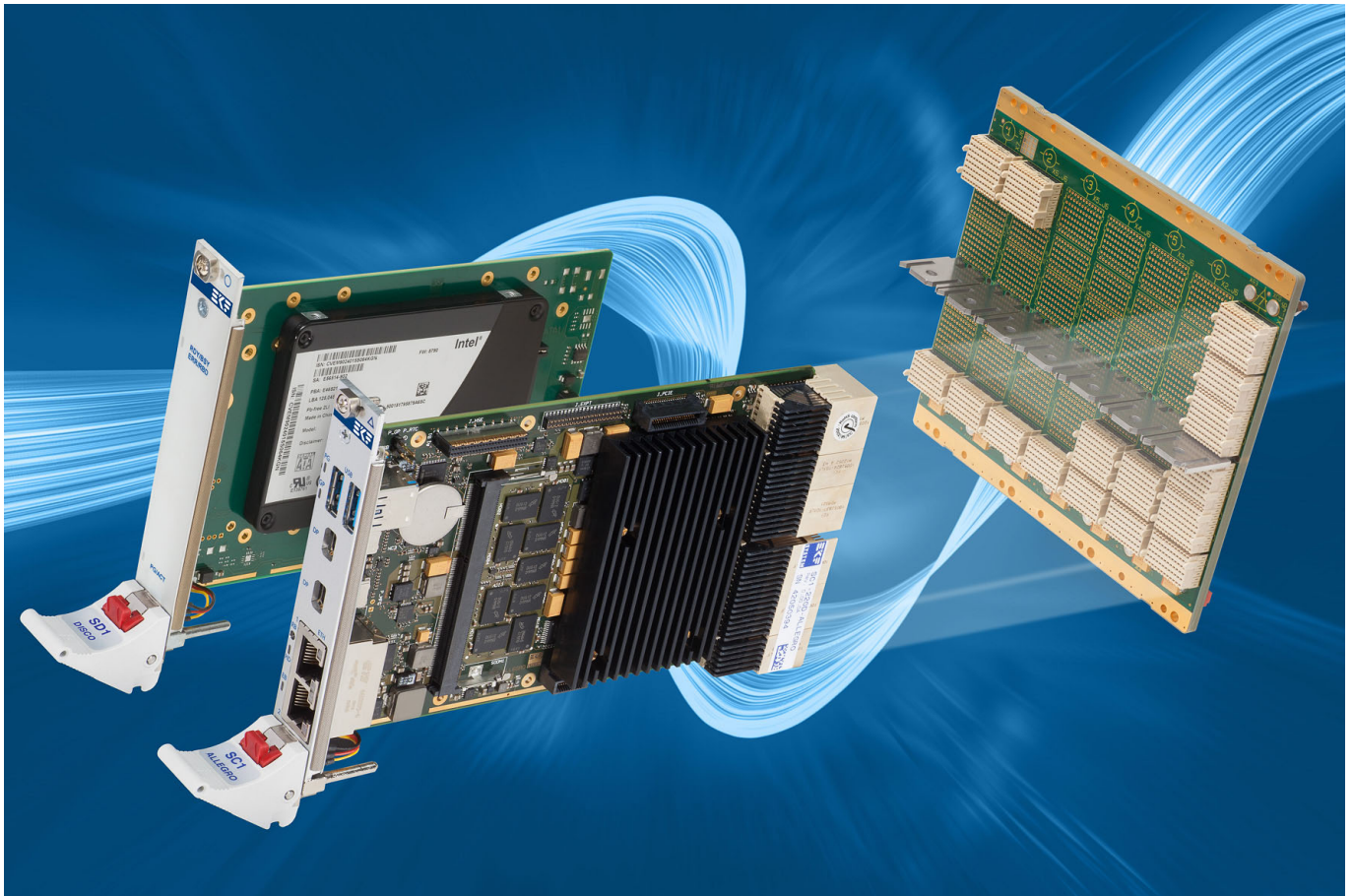
SATA Connector 2.5-Inch Drive

SATA-1 • Serial ATA Docking Connector	
Serial ATA host receptacle (256.022.10.01)	
Part No. 256.022.10.02 • SATA Host Receptacle • © EKF • ekf.com	
S1	GND
S2	SATA01 TXP
S3	SATA01 TXN
S4	GND
S5	SATA01 RXN
S6	SATA01 RXP
S7	GND
P1	+3.3V_SATA
P2	+3.3V_SATA
P3	+3.3V_SATA
P4	GND
P5	GND
P6	GND
P7	+5V_SATA
P8	+5V_SATA
P9	+5V_SATA
P10	GND
P11	DAS (Drive Activity)
P12	GND
P13	*+12V_SATA*
P14	*+12V_SATA*
P15	*+12V_SATA*

+3.3V SATA via PolyFuse 1.5A
+5V SATA via PolyFuse 1.5A
+12V SATA normally not connected (stuffing option)

SATA operation requires the SD1-DISCO inserted into an SATA enabled CompactPCI© Serial backplane slot. The drive connector SATA-1 is wired to the backplane connector P1 via a redriver circuitry.

On-Board USB 3.0 Connector

USB 3.0 Standard Mount Receptacle • 270.23.09.1		
	1	VBUS +5V (PolyFuse)
	2	USB D-
	3	USB D+
	4	GND
	5	SS RX-
	6	SS RX+
	7	GND
	8	SS TX-
	9	SS TX+

USB usage requires the SD1-DISCO inserted into an USB 3.0 enabled CompactPCI© Serial backplane slot. No USB redrivers are populated on-board - do not use this connector with long USB cables. Targeted application is an USB SSD stick positioned here.

CompactPCI® Serial Backplane Connector P1

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	LED SATA Lk/Act	LED SATA Err/Rb	GND	RST#	*WAKE#*	GND	*PE EN#*	*SYS EN#*
1	+12V	STBY	GND	+12V	+12V	GND	+12V	+12V	GND	+12V	+12V	GND

pin positions printed white/italic: not connected

Pins E2/F2 are inputs to a bicolour LED in series w. 390 Ohm resistors to +5V and may be used as indicators for RAID operation as an option. These pins are normally reserved on the backplane and would have to be wired manually to a suitable RAID controller status circuitry. SGPIO pins G3/H3 and J3/K3 are not supported.

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