BergStak+™ 0.80mm Mezzanine Connector

Superior performance up to 16Gb/s

Product Presentation

Basics Portfolio

**Amphenol
FCi**

BergStak+™ 0.80mm Mezzanine Connector
Agenda

- Value Proposition

- Product Overview

- Product Specifications

- Features & Benefits

- Markets & Applications

- Marcom Collaterals

BergStak+™ 0.80mm Mezzanine Connector

Value Proposition

- BergStak+™ 0.80mm is designed to be the next generation PCIe 4.0 compliant mezzanine connector. It is fully compatible with the existing BergStak® 0.80mm product recommended by the Open Compute Project (OCP).

- BergStak+™ 0.80mm mezzanine connector gurantees support up to 16Gb/s performance. Its backwards compatibility product feature allows its inter-matability with the existing, legacy BergStak® 0.80mm series. Customers can upgrade its board-to-board performance from PCIe 3.0 to PCIe 4.0 while leveraging BergStak+™'s backward compatibility and same footprint feature.

- This new product continues to use the blade-on-beam terminal design with an enhanced BergStak® housing design. This feature provide the same footprint compatibility with the existing BergStak® 0.80mm series and it is easy for PCB assembly, worry-free mating and long-term reliability.

- BergStak+™ 0.80mm mezzanine connector solution includes PCB stack heights 5, 8, 12 and 16mm in 80 and 120 positions.

BergStak+™ 0.80mm Mezzanine Connector

Product Improvement (BergStak® V.S BergStak+™)
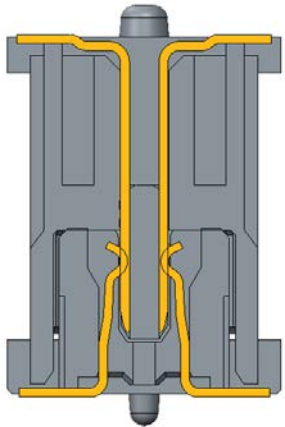
V.S
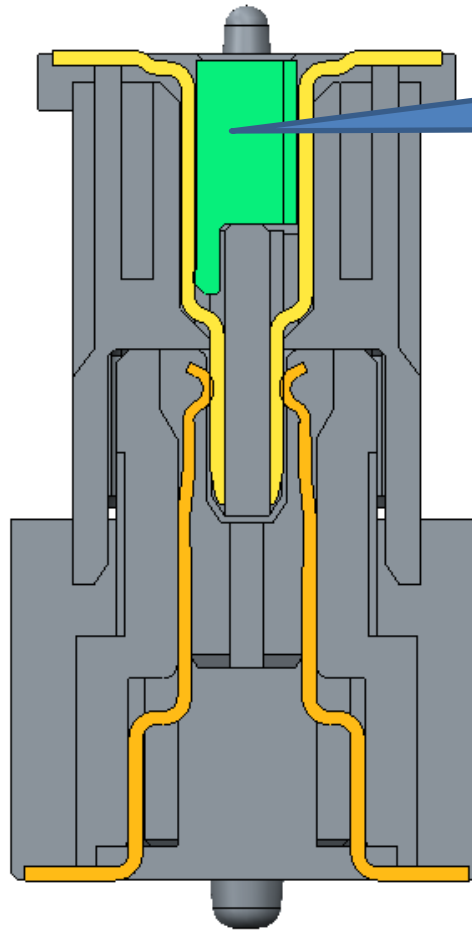
Electrical lossy ground bar to ensure smooth electrical transmission pattern

Current 0.80mm pitch structure uses Blade on beam design.

Open Pin fill design structure to support PCIe Gen 3 or below performance.

All ground pins are **separated.**

BergStak+™ product supports up to PCIe 4.0 – 16Gbps with electrical lossy material component designed into the product and modified terminal on receptacle. This is also backward compatible with existing BergStak® product.

All ground pins related to differential pairs will be **connected** together through the electrical lossy ground bar.

BergStak+™ 0.80mm Mezzanine Connector

Product Specifications

Product Facts

- Speed up to 16Gb/s
- 0.80mm double-row contact pitch
- Stack heights 5mm, 8mm, 12mm & 16mm
- Pin Count in 80 positions and 120 positions
- Scoop-proof Housing
- Backward compatible with BergStak® 0.80mm

Performance Characteristics

- Durability: 100 cycles
- Mating Force: 0.9N max./contact
- Unmating Force: 0.9N max./contact
- Temperature Range: -40°C to +125°C
- High Temperature Life: 105°C +/-5°C for 1000 hours
- Humidity: 80%-98% relative humidity, 24h/cycle, total 10 cycles
- Insulation Resistance:1000 MΩ min.
- Current Rating: 0.8A/contact
- Contact Resistance:
  - Initial: 30 mΩ max.
  - After Test: 50 mΩ max.
- Voltage Rating: 100VAC

Specifications

- Product Specification: GS-12-1354
- Application Specification: GS-20-0480

Materials

- Housing
  - Glass filled LCP (UL94V-0)
- Spacer
  - Electrical lossy material
- Contact Base Metal
  - Receptacles: Copper Alloy
  - Plugs: Copper Alloy
- Solder Area Finish in Matte pure tin over nickel

Pitch	0.8 mm
Pin Count	80 Pos, 120 pos
PCB Termination	SMT
Header Direction	Vertical
Plating	Gold plating on contact area, and tin plating on tail

BergStak+™ 0.80mm Mezzanine Connector
Features & Benefits

Features	Benefits
Housing, terminal profile optimized to meet 16Gb/s	Meets PCIe 4.0 industry standards
Backward mateable and footprint compatible	Supports migration path from PCIe 3.0 to PCIe 4.0
▪ 80 and 120 position sizes ▪ 5mm, 8mm, 12mm and 16mm stack heights	Comprehensive range of sizes and stack heights to satisfy varying needs
0.80mm double-row contact pitch	High density for all the electrical applications needs
Scoop-proof feature housings	Prevents reverse mating
Multiple plating options available	Satisfies different application requirement
Multiple packaging options available	Suitable for varies feeding processing
PCB locator pegs option available	Facilitates ease and accuracy during manual assembly
RoHS compliant and lead-free	Meets environmental, health and safety requirements

BergStak+™ 0.80mm Mezzanine Connector
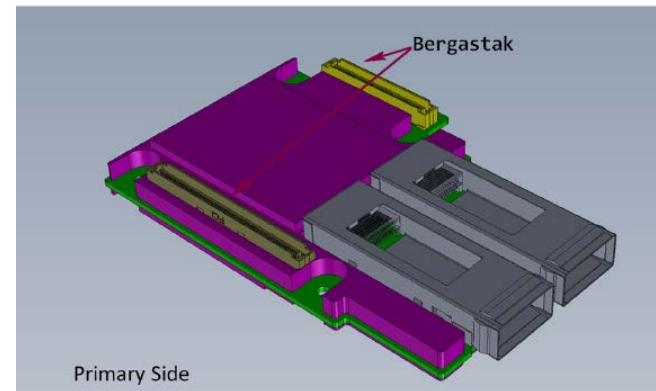
Main Markets & Applications

Data & Communication

- Servers
- Storage
- Open Computer Platform

Industrial & Instrumentation

- Embedded computer
- Test Equipments
- Measurement Equipments

BergStak+™ 0.80mm Mezzanine Connector

Collaterals

Available on FCI.com

- Technical Datasheet

- Product Specifications

- Part Numbers & Drawings

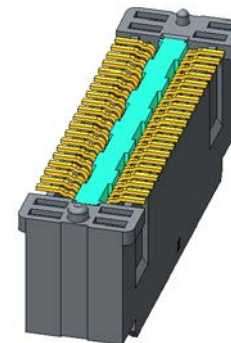**Table 11: 16x KR Mezzanine Card Pin Definition**

Connector A Signal	Pin	Pin	Signal	Connector B Signal	Pin	Pin	Signal
P12V_AUX/P12V	A61	A1	MEZZ_PRSNTA1_N /BASEBOARD_A_ID	P12V_AUX/P12V	B41	B1	MEZZ_PRSNTB1_N /BASEBOARD_B_ID
P12V_AUX/P12V	A62	A2	P5V_AUX	P12V_AUX/P12V	B42	B2	GND
P12V_AUX /P12V	A63	A3	P5V_AUX	RSVD	B43	B3	KR_RX_DP<0>
GND	A64	A4	P5V_AUX	GND	B44	B4	KR_RX_DN<0>
GND	A65	A5	GND	KR_TX_DP<0>	B45	B5	GND
P3V3_AUX	A66	A6	GND	KR_TX_DN<0>	B46	B6	GND
GND	A67	A7	P3V3_AUX	GND	B47	B7	KR_RX_DP<1>
GND	A68	A8	GND	GND	B48	B8	KR_RX_DN<1>
P3V3	A69	A9	GND	KR_TX_DP<1>	B49	B9	GND
P3V3	A70	A10	P3V3	KR_TX_DN<1>	B50	B10	GND
P3V3	A71	A11	P3V3	GND	B51	B11	KR_RX_DP<2>
P3V3	A72	A12	P3V3	GND	B52	B12	KR_RX_DN<2>
GND	A73	A13	P3V3	KR_TX_DP<2>	B53	B13	GND
LAN_3V3STB_ALERT_N	A74	A14	NCSI_CRSDV	KR_TX_DN<2>	B54	B14	GND
SMB_LAN_3V3STB_CLK	A75	A15	NCSI_RCLK	GND	B55	B15	KR_RX_DP<3>
SMB_LAN_3V3STB_DAT	A76	A16	NCSI_TXEN	GND	B56	B16	KR_RX_DN<3>
RSVD	A77	A17	RSVD	KR_TX_DP<3>	B57	B17	GND
NCSI_RXER	A78	A18	MEZZ_SMCLK	KR_TX_DN<3>	B58	B18	GND
GND	A79	A19	MEZZ_SMDATA	GND	B59	B19	KR_RX_DP<4>
NCSI_TXD0	A80	A20	GND	GND	B60	B20	KR_RX_DN<4>
NCSI_TXD1	A81	A21	GND	KR_TX_DP<4>	B61	B21	GND
GND	A82	A22	NCSI_RXD0	KR_TX_DN<4>	B62	B22	GND
GND	A83	A23	NCSI_RXD1	GND	B63	B23	KR_RX_DP<5>
RSVD	A84	A24	GND	GND	B64	B24	KR_RX_DN<5>
RSVD	A85	A25	GND	KR_TX_DP<5>	B65	B25	GND
GND	A86	A26	RSVD	KR_TX_DN<5>	B66	B26	GND
GND	A87	A27	RSVD	GND	B67	B27	KR_RX_DP<6>
KR_TX_DP<8>	A88	A28	GND	GND	B68	B28	KR_RX_DN<6>
KR_TX_DN<8>	A89	A29	GND	KR_TX_DP<6>	B69	B29	GND
GND	A90	A30	KR_RX_DP<8>	KR_TX_DN<6>	B70	B30	GND
GND	A91	A31	KR_RX_DN<8>	GND	B71	B31	KR_RX_DP<7>
KR_TX_DP<9>	A92	A32	GND	GND	B72	B32	KR_RX_DN<7>
KR_TX_DN<9>	A93	A33	GND	KR_TX_DP<7>	B73	B33	GND
GND	A94	A34	KR_RX_DP<9>	KR_TX_DN<7>	B74	B34	GND
GND	A95	A35	KR_RX_DN<9>	GND	B75	B35	RSVD
KR_TX_DP<10>	A96	A36	GND	GND	B76	B36	RSVD
KR_TX_DN<10>	A97	A37	GND	RSVD	B77	B37	GND
GND	A98	A38	KR_RX_DP<10>	RSVD	B78	B38	RSVD
GND	A99	A39	KR_RX_DN<10>	GND	B79	B39	RSVD
KR_TX_DP<11>	A100	A40	GND	MEZZ_PRSNTB2_N	B80	B40	RSVD
KR_TX_DN<11>	A101	A41	GND				
GND	A102	A42	KR_RX_DP<11>				
GND	A103	A43	KR_RX_DN<11>				
KR_TX_DP<12>	A104	A44	GND				
KR_TX_DN<12>	A105	A45	GND				
GND	A106	A46	KR_RX_DP<12>				
GND	A107	A47	KR_RX_DN<12>				
KR_TX_DP<13>	A108	A48	GND				
KR_TX_DN<13>	A109	A49	GND				
GND	A110	A50	KR_RX_DP<13>				
GND	A111	A51	KR_RX_DN<13>				
KR_TX_DP<14>	A112	A52	GND				
KR_TX_DN<14>	A113	A53	GND				
GND	A114	A54	KR_RX_DP<14>				
GND	A115	A55	KR_RX_DN<14>				
KR_TX_DP<15>	A116	A56	GND				
KR_TX_DN<15>	A117	A57	GND				
GND	A118	A58	KR_RX_DP<15>				
GND	A119	A59	KR_RX_DN<15>				
MEZZ_PRSNTA2_N	A120	A60	GND				

THANK YOU