

ExaMAX+® High Speed Backplane Connector System

6 and 8 Pairs Per Column

The connector system that delivers superior electrical performance at speeds up to 56Gb/s

HIGH BANDWIDTH APPLICATIONS

The ExaMAX+® backplane connector system is designed to meet 56Gb/s PAM4 industry specifications with plenty of SI margin while maintaining mating interface compatibility with previous ExaMAX® products. The optimized connector design delivers superior signal integrity performance resulting in lower crosstalk noise and higher insertion loss-to-crosstalk ratio.

- Innovative beam-on-beam mating interface minimizes residual stub length for improved signal integrity performance while providing exceptionally low mating forces.
- 100% mating compatible with previous ExaMAX products.
- Footprint impedance control is improved by smaller press-fit tails.
- Resonances are minimized by the addition of a lossy bar in every wafer.



TARGET MARKETS



FEATURES

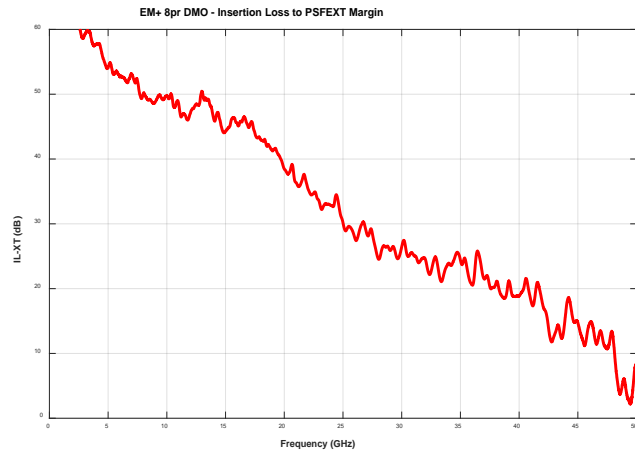
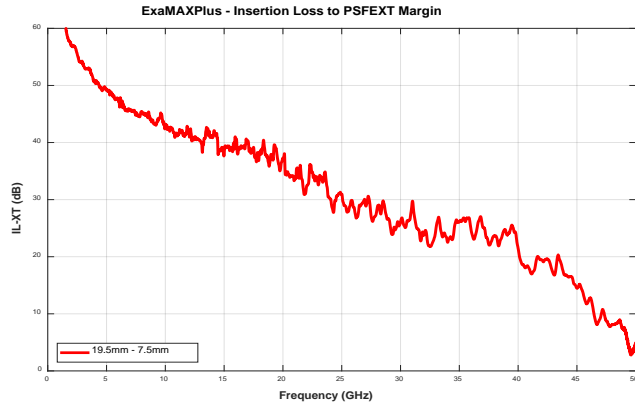
- Special optimized design for 56Gb/s to support system upgrades without costly redesigns
- Scalable performance
- 92Ω nominal impedance
- Unique beam-on-beam interface and skew-equalized lead frames
- Hermaphroditic mating interface protects mating beams
- 2.2mm column pitch design – 8-Pair configuration
- 2.0mm column pitch design – 6-Pair configuration
- Zero skew
- One additional signal pin per column
- High speed signal PCB hole: 0.40mm drill
- Ground PCB hole: 0.60mm drill
- Up to 128 differential pairs per orthogonal node

BENEFITS

- Meets industry specifications such as OIF 56Gb/s PAM4 and IEEE 50Gb/s PAM4
- Minimizes impedance discontinuities
- Provides low crosstalk while eliminating insertion loss resonances
- Reduces mating force up to 65% compared to traditional blade and beam designs
- Durable, reliable mating interface design minimizes risk of crushed pins
- High density mating interface and optimized SI performance
- Optimized PCB routing
- Integrates high and low speed signals into the same connector
- Optimizes electrical performance and aspect ratios
- Wide product range for various packaging options

TECHNICAL INFORMATION

SIGNAL INTEGRITY PERFORMANCE



MATERIAL

- Contacts: High performance copper alloy
- Plating(s): Performance-based plating at separable interface (Telcordia GR-1217-CORE), Tin over nickel on press-fit tails
- Housings: High Performance Thermoplastic, UL94-V0

MECHANICAL PERFORMANCE

- Long mating wipe of > 2mm
- X and Y capture a generous 1.1mm
- Mating Force: 0.45N max. per contact
- Unmating Force: 0.10N min. per contact

ELECTRICAL PERFORMANCE

- Contact Resistance: 20mV max, 100mA current
- Insulation Resistance: 500VDC
- Dielectric Withstanding Voltage: 500VDC
- Current Rating (with 30°C T-rise above ambient)
- Signal contact: 0.5A/contact (both signal and ground contacts can carry current)

APPROVALS AND CERTIFICATIONS

- Telcordia GR-1217-CORE Central Office qualification passed
- UL E66906

ENVIRONMENTAL

- Operating Temperature Range: -55°C to +85°C

SPECIFICATION

- Amphenol Product Specification: GS-12-1096
- Amphenol Packaging Specification: GS-20-0361

INDUSTRY SPECIFICATIONS

Industry Specifications	Speed Performance
PCI Express® (PCIe) Gen 1/2/3/4/5	2.5Gb/s to 32Gb/s
Serial Attached SCSI (SAS) 1.1/2.1/3.0/4.0	3Gb/s to 24Gb/s
SATA Revision 1.x/2.x/3.x	1.5Gb/s to 6Gb/s
Fibre Channel (FC) Gen1/Gen2/Gen3/Gen4/Gen5	1.0625Gb/s to 14.025Gb/s
InfiniBand (IB) SDR/DDR/QDR/FDR/EDR	2.5Gb/s to 25Gb/s
Ethernet 1Gbe/10Gbe/40Gbe/100Gbe/25Gbe	1.25Gb/s to 25.78125Gb/s

TARGET MARKETS/APPLICATIONS



Hubs
Optical Transport Router
Switches
Wireless Infrastructure



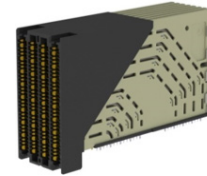
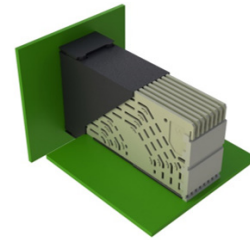
External Storage System Server
SuperComputer



Emulation Equipment Industrial &
Instrumentation Test Equipment

EXAMAX® TRADITIONAL MOTHER-DAUGHTER BOARD

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
6	6	36	10128351-101LF	10145674-101LF
	8	48	10124752-101LF	10146453-101LF
	10	60	10127791-101LF	10146457-101LF
	12	72	10123162-101LF	10145873-101LF
	14	84	10143710-101LF	10146461-101LF
	16	96	10147231-101LF	10143910-101LF
8	8	64	10145007-201LF	10143011-101LF
	10	80	10146471-101LF	10146445-101LF
	12	96	10147101-101LF	10146449-101LF
	14	112	10153018-101LF	10144866-101LF
	16	128	10153020-101LF	10143020-101LF



Right Angle Receptacle



Vertical Header

EXAMAX+® COPLANAR

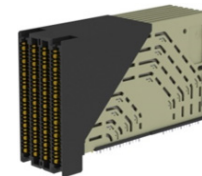


Standard Coplanar

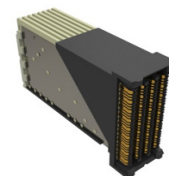


Inverse Coplanar

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Right Angle Header (RAH)	Right Angle Receptacle (RAR)
6	6	36	10159331-101LF	10145674-101LF
	8	48	10150447-101LF	10146453-101LF
	10	60	10156046-101LF	10146457-101LF
	12	72	10150451-101LF	10145873-101LF
	14	84	10159335-101LF	10146461-101LF
	16	96	10150455-101LF	10143910-101LF
8	8	64	10146524-101LF	10143011-101LF
	10	80	10153024-101LF	10146445-101LF
	12	96	10153026-101LF	10146449-101LF
	14	112	10153028-101LF	10144866-101LF
	16	128	10153030-101LF	10143020-101LF

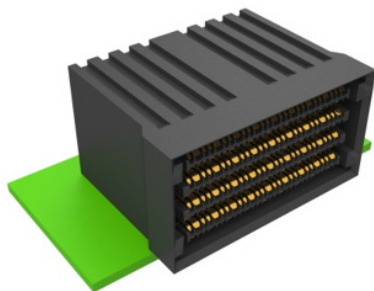


Right Angle Receptacle

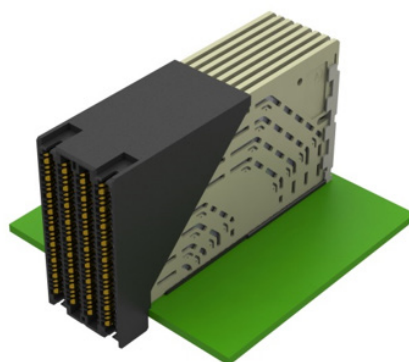


Right Angle Header

EXAMAX® DIRECT MATE ORTHOGONAL

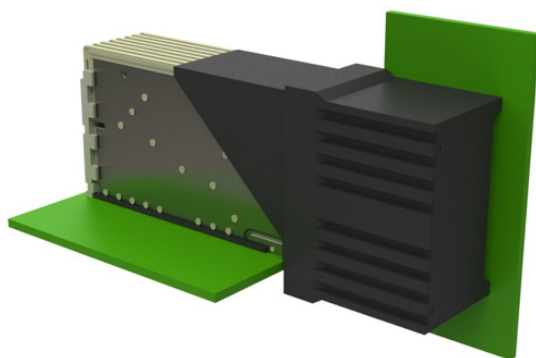


Right Angle Orthogonal Header

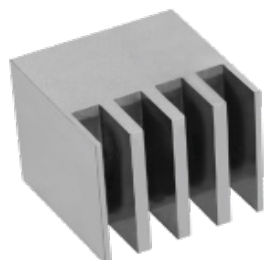


Right Angle Receptacle

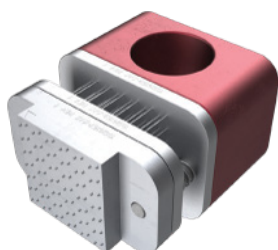
Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Right Angle Orthogonal Header (RAOH)	Right Angle Receptacle (RAR)
6	6	36	10129467-102LF	10145674-101LF
	8	48	10129470-102LF	10146453-101LF
	10	60	10130335-102LF	10146457-101LF
	12	72	10129181-102LF	10145873-101LF
	14	84	10130338-102LF	10146461-101LF
	16	96	10128316-102LF	10143910-101LF
8	8	64	10141226-101LF	10143011-101LF
	10	80	10141229-101LF	10146445-101LF
	12	96	10141232-101LF	10146449-101LF
	14	112	10141235-101LF	10144866-101LF
	16	128	10141240-101LF	10143020-101LF



TOOLING INFORMATION



Insertion Tool



Headers Removal Tool



Right Angle Receptacle
Removal Tool

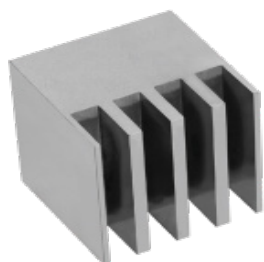
APPLICATION TOOLS FOR RIGHT ANGLE RECEPTACLE

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
6	6	36	Flat Rock, No Tool	10142186-006
	8	48		10142186-008
	10	60		10142186-010
	12	72		10142186-012
	14	84		10142186-014
	16	96		10142186-016
8	8	64	Flat Rock, No Tool	10145235-008
	10	80		10145235-010
	12	96		10145235-012
	14	112		10145235-014
	16	128		10145235-016

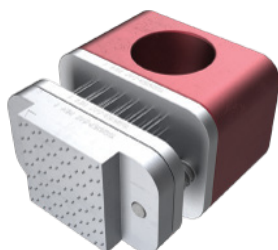
APPLICATION TOOLS FOR RIGHT ANGLE HEADER

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
6	6	36	Flat Rock, No Tool	10159347-006
	8	48		10159347-008
	10	60		10159347-010
	12	72		10159347-012
	14	84		10159347-014
	16	96		10159347-016
8	8	64	Flat Rock, No Tool	10153142-008
	10	80		10153142-010
	12	96		10153142-012
	14	112		10153142-014
	16	128		10153142-016

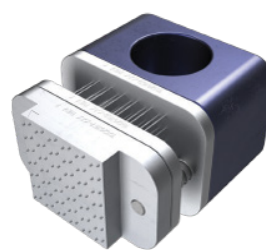
TOOLING INFORMATION



Insertion Tool



Headers
Removal Tool



Right Angle Receptacle
Removal Tool

APPLICATION TOOLS FOR RIGHT ANGLE ORTHOGONAL HEADERS

Pairs	Columns	Differential Pairs	Insertion Tool for no Wall	Insertion Tool for 4 Wall	Removal Tool
6	6	36	10136747-006	10136748-006	10126136-006
	8	48	10136747-008	10136748-008	10126136-008
	10	60	10136747-010	10136748-010	10126136-010
	12	72	10136747-012	10136748-012	10126136-012
	14	84	10136747-014	10136748-014	10126136-014
	16	96	10136747-016	10136748-016	10126136-016
8	8	64	10141197-008	10141194-008	10145245-008
	10	80	10141197-010	10141194-010	10145245-010
	12	96	10141197-012	10141194-012	10145245-012
	14	112	10141197-014	10141194-014	10145245-014
	16	128	10141197-016	10141194-016	10145245-016

APPLICATION TOOLS FOR VERTICAL HEADERS

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
6	6	36	10125493-006	10126136-006
	8	48	10125493-008	10126136-008
	10	60	10125493-010	10126136-010
	12	72	10125493-012	10126136-012
	14	84	10125493-014	10126136-014
	16	96	10125493-016	10126136-016
8	8	64	10145252-008	10145240-008
	10	80	10145252-010	10145240-010
	12	96	10145252-012	10145240-012
	14	112	10145252-014	10145240-014
	16	128	10145252-016	10145240-016

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