



**THE DATASHEET OF
10137002-101LF**



ExaMAX[®] High Speed Backplane Connector System

Innovative “pinless” connector system delivering superior electrical performance at speeds 25Gb/s to 56Gb/s

SUPPORTS MANY INDUSTRY STANDARD SPECIFICATIONS; MIGRATION PATH TO HIGHER BANDWIDTH APPLICATIONS

ExaMAX[®] backplane connector system meets industry specifications requiring higher bandwidth applications from 25Gb/s to 56Gb/s. The optimized connector design delivers superior signal integrity performance resulting in low crosstalk noise and low insertion loss while minimizing channel performance variation for every differential pair. Each signal wafer incorporates an innovative one-piece, embossed ground structure to improve crosstalk performance through 56Gb/s. The simple, functional design contributes to a very cost-effective solution.

- The innovative beam-on-beam contact interface minimizes residual stub for improved signal integrity performance while providing exceptionally low mating forces
- ExaMAX[®] optimizes design flexibility by integrating high speed differential signals, low speed signals and power in one connector
- ExaMAX[®] product family is offered in industry standard packaging options including traditional backplane, coplanar board, orthogonal midplane and orthogonal direct mate, mezzanine and cable to board



TARGET MARKETS



FEATURES

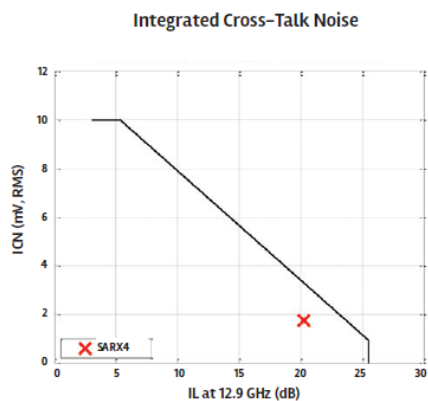
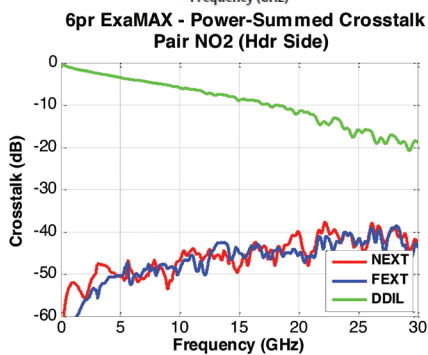
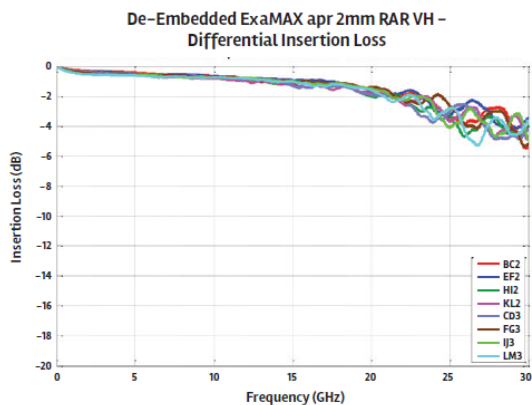
- Data rates scalable from 25Gb/s to 56Gb/s to support system upgrades without costly redesigns
- 92Ω nominal impedance
- Scalable performance
- Unique beam-on-beam interface and skew equalized leadframes
- Hermaphroditic mating interface protects mating beams
- Modular, hard metric connector block design
- Zero skew
- Additional signal pin per column
- High speed signal PCB hole: 0.36mm (finished hole)
- Ground pin PCB hole: 0.5mm (finished hole)
- 12 to 96 differential pair node connector
- Integrated guide design

BENEFITS

- Meets Industry specifications such as Optical Internetworking Forum (OIF), PCI Express, SATA, Fiber Channel, Infiniband, Ethernet, SAS, IBTA and IEEE
- Minimizes impedance discontinuities
- Backwards mating and footprint compatible with ExaMAX[®] VS
- 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 eliminates crushed pins
- 2mm pitch for high density application
- 3mm pitch enables quad routing and lower PCB cost
- Optimizes PCB routing
- Integrates high and low speed signals in the same connector
- Optimizes electrical performance and aspect ratio
- Wide product range for various packaging options
- Improves mating performance using minimal board space

TECHNICAL INFORMATION

SIGNAL INTEGRITY PERFORMANCE



Channel length = 20 inches
PCB material is Nelco 4000-13SI VSP

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: 0.38N max. per contact
- Unmating Force: 0.10N min. per contact
- Average Press-fit Insertion Force: 12N max. 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
CEI-56G-MR-PAM4 Long Reach Interface	56Gb/s PAM4
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) Gen 1/Gen 2/Gen 3/Gen 4/Gen 5	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

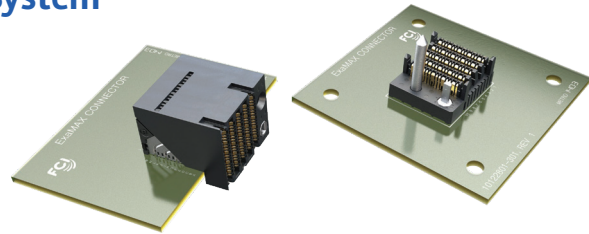


External Storage System
Server
Supercomputer



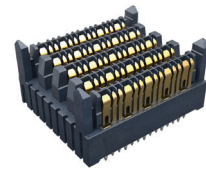
Emulation Equipment
Industrial & Instrumentation
Test Equipment

EXAMAX® TRADITIONAL MOTHER-DAUGHTER BOARD PART NUMBERS

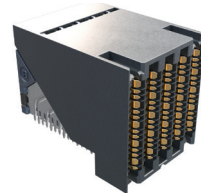


NO GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	10128334-101LF	10128332-101LF
	8	16	10124412-101LF	10124411-101LF
	10	20	10124414-101LF	10124413-101LF
3	6	18	10128349-101LF	10128347-101LF
	8	24	10124311-101LF	10124308-101LF
	10	30	10121412-101LF	10121401-101LF
4	6	24	10127896-101LF	10137000-101LF
	8	32	10121067-101LF	10137002-101LF
	10	40	10126366-101LF	10137004-101LF
	12	48	10132074-101LF	10137006-101LF
6	6	36	10128351-101LF	10131760-101LF
	8	48	10124752-101LF	10131762-101LF
	10	60	10127791-101LF	10131764-101LF
	12	72	10123162-101LF	10131766-101LF



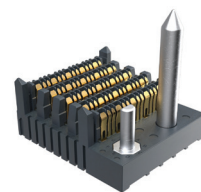
**Vertical Header
(No Guide)**



**Right Angle Receptacle
(No Guide)**

LEFT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	Left Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	10128334-12JLF	10128332-12JLF
	8	16	10124412-12JLF	10124411-12JLF
	10	20	10124414-12JLF	10124413-12JLF
3	6	18	10128349-12JLF	10128347-12JLF
	8	24	10124311-12JLF	10124308-12JLF
	10	30	10121412-12JLF	10121401-12JLF
4	6	24	10127896-12JLF	10137000-12JLF
	8	32	10121067-12JLF	10137002-12JLF
	10	40	10126366-12JLF	10137004-12JLF
	12	48	10132074-12JLF	10137006-12JLF
6	6	36	10128351-12JLF	10131760-12JLF
	8	48	10124752-12JLF	10131762-12JLF
	10	60	10127791-12JLF	10131764-12JLF
	12	72	10123162-12JLF	10131766-12JLF



**Vertical Header
(Left Guide)**



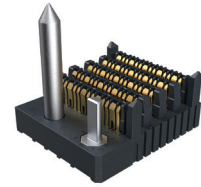
**Right Angle Receptacle
(Left Guide)**

▶ ExaMAX® High Speed Backplane Connector System EXAMAX® TRADITIONAL MOTHER-DAUGHTER BOARD

PART NUMBERS

RIGHT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	Right Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	10128334-11JLF	10128332-11JLF
	8	16	10124412-11JLF	10124411-11JLF
	10	20	10124414-11JLF	10124413-11JLF
3	6	18	10128349-11JLF	10128347-11JLF
	8	24	10124311-11JLF	10124308-11JLF
	10	30	10121412-11JLF	10121401-11JLF
4	6	24	10127896-11JLF	10137000-11JLF
	8	32	10121067-11JLF	10137002-11JLF
	10	40	10126366-11JLF	10137004-11JLF
	12	48	10132074-11JLF	10137006-11JLF
6	6	36	10128351-11JLF	10131760-11JLF
	8	48	10124752-11JLF	10131762-11JLF
	10	60	10127791-11JLF	10131764-11JLF
	12	72	10123162-11JLF	10131766-11JLF



**Vertical Header
(Right Guide)**



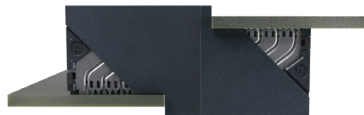
**Right Angle Receptacle
(Right Guide)**

EXAMAX® COPLANAR

PART NUMBERS



Standard Coplanar



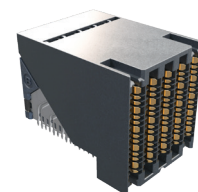
Inverse Coplanar

NO GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Right Angle Header (RAH)	Right Angle Receptacle (RAR)
2	6	12	10128401-101LF	10128332-101LF
	8	16	10128403-101LF	10124411-101LF
	10	20	10128405-101LF	10124413-101LF
3	6	18	10128413-101LF	10128347-101LF
	8	24	10128415-101LF	10124308-101LF
	10	30	10128417-101LF	10121401-101LF
4	6	24	10125287-101LF	10137000-101LF
	8	32	10128419-101LF	10137002-101LF
	10	40	10128421-101LF	10137004-101LF
6	6	36	10125350-101LF	10131760-101LF
	8	48	10124558-101LF	10131762-101LF
	10	60	10128425-101LF	10131764-101LF
	12	72	10124560-101LF	10131766-101LF
	16	96	10132650-101LF	10131770-101LF



**Right Angle Header
(No Guide)**

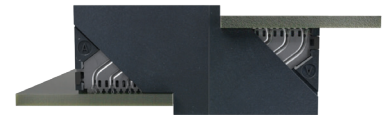


**Right Angle Receptacle
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EXAMAX® COPLANAR PART NUMBERS



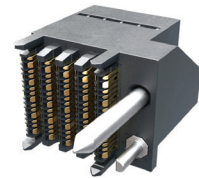
Standard Coplanar



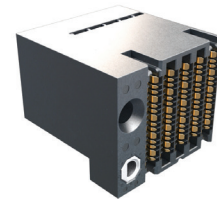
Inverse Coplanar

LEFT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	Left Guide Pin	
			Right Angle Header (RAH)	Right Angle Receptacle (RAR)
2	6	12	10128401-12JLF	10128332-12JLF
	8	16	10128403-12JLF	10124411-12JLF
	10	20	10128405-12JLF	10124413-12JLF
3	6	18	10128413-12JLF	10128347-12JLF
	8	24	10128415-12JLF	10124308-12JLF
	10	30	10128417-12JLF	10121401-12JLF
4	6	24	10125287-12JLF	10137000-12JLF
	8	32	10128419-12JLF	10137002-12JLF
	10	40	10128421-12JLF	10137004-12JLF
6	6	36	10125350-12JLF	10131760-12JLF
	8	48	10124558-12JLF	10131762-12JLF
	10	60	10128425-12JLF	10131764-12JLF
	12	72	10124560-12JLF	10131766-12JLF



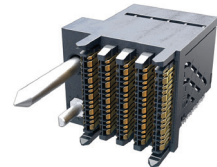
Right Angle Header
(Left Guide)



Right Angle Receptacle
(Left Guide)

RIGHT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	Right Guide Pin	
			Right Angle Header (RAH)	Right Angle Receptacle (RAR)
2	6	12	10128401-11JLF	10128332-12JLF
	8	16	10128403-11JLF	10124411-12JLF
	10	20	10128405-11JLF	10124413-12JLF
3	6	18	10128413-11JLF	10128347-11JLF
	8	24	10128415-11JLF	10124308-11JLF
	10	30	10128417-11JLF	10121401-11JLF
4	6	24	10125287-11JLF	10137000-11JLF
	8	32	10128419-11JLF	10137002-11JLF
	10	40	10128421-11JLF	10137004-11JLF
6	6	36	10125350-11JLF	10131760-11JLF
	8	48	10124558-11JLF	10131762-11JLF
	10	60	10128425-11JLF	10131764-11JLF
	12	72	10124560-11JLF	10131766-11JLF



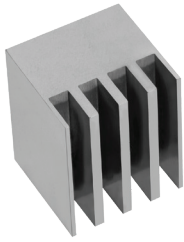
Right Angle Header
(Right Guide)



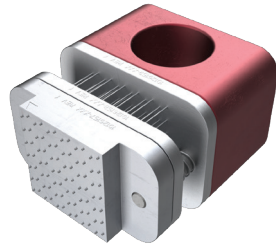
Right Angle Receptacle
(Right Guide)

TOOLING INFORMATION

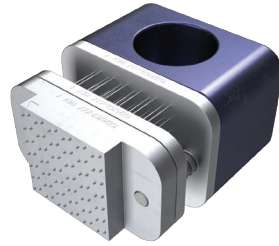
PART NUMBERS



Insertion Tool



Vertical and Right Angle Header Removal Tool



Right Angle Receptacle Removal Tool

APPLICATION TOOLS FOR RIGHT ANGLE RECEPTACLE WITH 2mm COLUMN PITCH

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
2	6	12	Flat Rock, No Tool	10126141-006
	8	16		10126141-008
	10	20		10126141-010
3	6	18	Flat Rock, No Tool	10126146-006
	8	24		10126146-008
	10	30		10126146-010
4	6	24	Flat Rock, No Tool	10126151-006
	8	32		10126151-008
	10	40		10126151-010
6	6	36	Flat Rock, No Tool	10126156-006
	8	48		10126156-008
	10	60		10126156-010
	12	72		10126156-012

APPLICATION TOOLS FOR VERTICAL HEADER WITH 2mm COLUMN PITCH

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
2	6	12	10125489-006	10126121-006
	8	16	10125489-008	10126121-008
	10	20	10125489-010	10126121-010
3	6	18	10125490-006	10126126-006
	8	24	10125490-008	10126126-008
	10	30	10125490-010	10126126-010
4	6	24	10125491-006	10126131-006
	8	32	10125491-008	10126131-008
	10	40	10125491-010	10126131-010
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

▶ ExaMAX® High Speed Backplane Connector

APPLICATION TOOLS FOR RIGHT ANGLE HEADER WITH 2mm COLUMN PITCH

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
2	6	12	Flat Rock, No Tool	10126121-006
	8	16		10126121-008
	10	20		10126121-010
3	6	18	Flat Rock, No Tool	10126126-006
	8	24		10126126-008
	10	30		10126126-010
4	6	24	Flat Rock, No Tool	10126131-006
	8	32		10126131-008
	10	40		10126131-010
6	6	36	Flat Rock, No Tool	10126136-006
	8	48		10126136-008
	10	60		10126136-010
	12	72		10126136-014
	16	96		10126136-016

EXAMAX® PROTECTIVE CAPS

PART NUMBERS



Header Protective Cap



Receptacle Protective Cap

Product Variation			Protective Caps	
Pairs	Columns	Differential Pairs	Header	Receptacle
2	6	24	10138301-006	10138298-006
	8	32	10138301-008	10138298-008
	10	40	10138301-010	10138298-010
	12	48	10138301-012	10138298-012
3	6	36	10138302-006	10138299-006
	8	48	10138302-008	10138299-008
	10	60	10138302-010	10138299-010
	12	72	10138302-012	10138299-012
4	6	24	10138303-006	10138300-006
	8	32	10138303-008	10138300-008
	10	40	10138303-010	10138300-010
	12	48	10138303-012	10138300-012
6	6	36	10138304-006	10137670-006
	8	48	10138304-008	10137670-008
	10	60	10138304-010	10137670-010
	12	72	10138304-012	10137670-012

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Looking for pricing, stock, or lifecycle information?

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-  [Amphenol FCI Information](#)

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-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management