

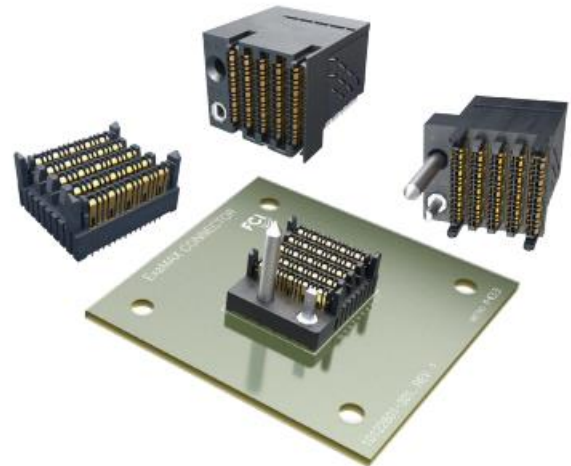
# Centaur ExaMAX for Military

92  $\Omega$  High Speed Backplane Connector System



## SUPPORTS MANY INDUSTRY STANDARD SPECIFICATIONS

Centaur 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.



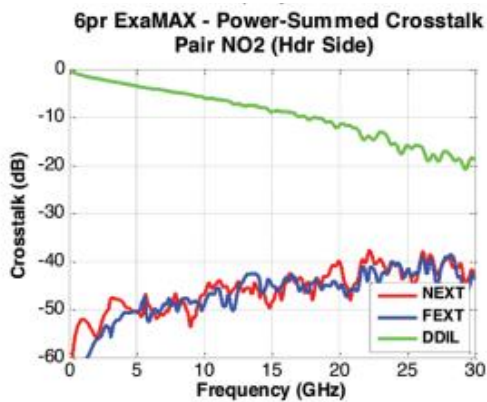
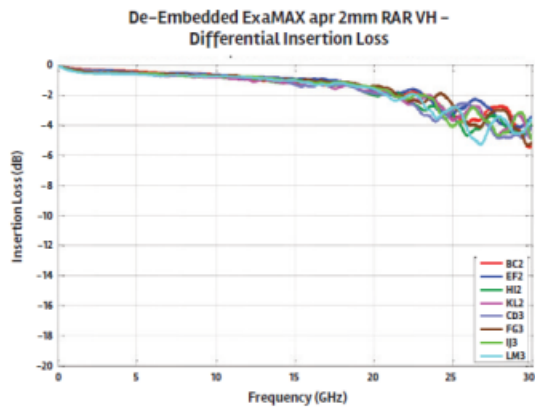
## FEATURES

## BENEFITS

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Data rates scalable from 25Gb/s to 56Gb/s to support system upgrades without costly redesigns</li> </ul> | <ul style="list-style-type: none"> <li>• Meets Industry specifications such as Optical Internetworking Forum (OIC), PCI Express, SATA, Fiber Channel, InfiniBand, Ethernet, SAS, IBTA and IEEE</li> </ul> |
| <ul style="list-style-type: none"> <li>• 92 <math>\Omega</math> nominal impedance</li> </ul>  | <ul style="list-style-type: none"> <li>• Minimizes impedance discontinuities</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Scalable performance</li> </ul>  | <ul style="list-style-type: none"> <li>• Backwards mating and footprint compatible with ExaMAX® VS</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Unique beam-on-beam interface and skew equalized leadframes</li> </ul>                                   | <ul style="list-style-type: none"> <li>• Provides low crosstalk while eliminating insertion loss resonances</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Hermaphroditic mating interface protects mating beams</li> </ul>   | <ul style="list-style-type: none"> <li>• Reduces mating force up to 65% compared to traditional blade and beam designs</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Modular, hard metric connector block design</li> </ul>   | <ul style="list-style-type: none"> <li>• Durable, reliable mating interface design eliminates crushed pins</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Zero skew</li> </ul>   | <ul style="list-style-type: none"> <li>• 2mm pitch for high density application</li> <li>• 3mm pitch enables quad routing and lower PCB cost</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Additional signal pin per column</li> </ul>  | <ul style="list-style-type: none"> <li>• Optimizes PCB routing</li> </ul>   |
| <ul style="list-style-type: none"> <li>• High speed signal PCB hole: 0.36mm (finished hole)</li> </ul>  | <ul style="list-style-type: none"> <li>• Integrates high and low speed signals in the same connector</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Ground pin PCB hole: 0.5mm (finished hole)</li> </ul>  | <ul style="list-style-type: none"> <li>• Optimizes electrical performance and aspect ratio</li> </ul>   |
| <ul style="list-style-type: none"> <li>• 12 to 96 differential pair node connector</li> </ul>   | <ul style="list-style-type: none"> <li>• Wide product range for various packaging options</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Integrated guide design</li> </ul>   | <ul style="list-style-type: none"> <li>• Improves mating performance using minimal board space</li> </ul>   |

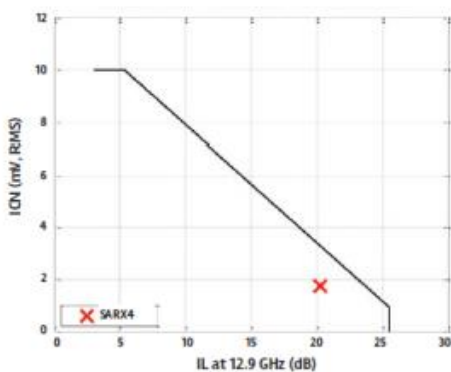
## TECHNICAL INFORMATION

### SIGNAL INTEGRITY PERFORMANCE



Integrated Cross-Talk Noise

Integrated Cross-Talk Noise



Channel length = 20 inches  
PCB material is Nelco 4000-135IVSP

### 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	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
Fiber 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

## 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

## 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

## 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	CF-E28334-101LF	CF-E28332-101LF
	8	16	CF-E24412-101LF	CF-E24411-101LF
	10	20	CF-E24414-101LF	CF-E24413-101LF
3	6	18	CF-E28349-101LF	CF-E28347-101LF
	8	24	CF-E24311-101LF	CF-E24308-101LF
	10	30	CF-E21412-101LF	CF-E21401-101LF
4	6	24	CF-E27896-101LF	CF-E37000-101LF
	8	32	CF-E21067-101LF	CF-E37002-101LF
	10	40	CF-E26366-101LF	CF-E37004-101LF
	12	48	CF-E32074-101LF	CF-E37006-101LF
6	6	36	CF-E28351-101LF	CF-E31760-101LF
	8	48	CF-E24752-101LF	CF-E31762-101LF
	10	60	CF-E27791-101LF	CF-E31764-101LF
	12	72	CF-E23162-101LF	CF-E31766-101LF



**Vertical Header  
(No Guide)**



**Right Angle Receptacle  
(No Guide)**

## LEFT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	CF-E28334-12JLF	CF-E28332-12JLF
	8	16	CF-E24412-12JLF	CF-E24411-12JLF
	10	20	CF-E24414-12JLF	CF-E24413-12JLF
3	6	18	CF-E28349-12JLF	CF-E28347-12JLF
	8	24	CF-E24311-12JLF	CF-E24308-12JLF
	10	30	CF-E21412-12JLF	CF-E21401-12JLF
4	6	24	CF-E27896-12JLF	CF-E37000-12JLF
	8	32	CF-E21067-12JLF	CF-E37002-12JLF
	10	40	CF-E26366-12JLF	CF-E37004-12JLF
	12	48	CF-E32074-12JLF	CF-E37006-12JLF
6	6	36	CF-E28351-12JLF	CF-E31760-12JLF
	8	48	CF-E24752-12JLF	CF-E31762-12JLF
	10	60	CF-E27791-12JLF	CF-E31764-12JLF
	12	72	CF-E23162-12JLF	CF-E31766-12JLF



**Vertical Header  
(Left Guide)**



**Right Angle Receptacle  
(Left Guide)**

## RIGHT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	CF-E28334-11JLF	CF-E28332-11JLF
	8	16	CF-E24412-11JLF	CF-E24411-11JLF
	10	20	CF-E24414-11JLF	CF-E24413-11JLF
3	6	18	CF-E28349-11JLF	CF-E28347-11JLF
	8	24	CF-E24311-11JLF	CF-E24308-11JLF
	10	30	CF-E21412-11JLF	CF-E21401-11JLF
4	6	24	CF-E27896-11JLF	CF-E37000-11JLF
	8	32	CF-E21067-11JLF	CF-E37002-11JLF
	10	40	CF-E26366-11JLF	CF-E37004-11JLF
	12	48	CF-E32074-11JLF	CF-E37006-11JLF
6	6	36	CF-E28351-11JLF	CF-E31760-11JLF
	8	48	CF-E24752-11JLF	CF-E31762-11JLF
	10	60	CF-E27791-11JLF	CF-E31764-11JLF
	12	72	CF-E23162-11JLF	CF-E31766-11JLF



**Vertical Header  
(Right Guide)**



**Right Angle Receptacle  
(Right Guide)**

## CENTAUR EXAMAX 85Ω COPLANAR



Standard Coplanar



Inverse Coplanar

### NO GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	CF-E28401-101LF	CF-E28332-101LF
	8	16	CF-E28403-101LF	CF-E24411-101LF
	10	20	CF-E28405-101LF	CF-E24413-101LF
3	6	18	CF-E28413-101LF	CF-E28347-101LF
	8	24	CF-E28415-101LF	CF-E24308-101LF
	10	30	CF-E28417-101LF	CF-E21401-101LF
4	6	24	CF-E25287-101LF	CF-E37000-101LF
	8	32	CF-E28419-101LF	CF-E37002-101LF
	10	40	CF-E28421-101LF	CF-E37004-101LF
	12	48	CF-E25350-101LF	CF-E31760-101LF
6	6	36	CF-E24558-101LF	CF-E31762-101LF
	8	48	CF-E28425-101LF	CF-E31764-101LF
	10	60	CF-E24560-101LF	CF-E31766-101LF
	12	72	CF-E32650-101LF	CF-E31770-101LF



Right Angle Header  
(No Guide)



Right Angle Receptacle  
(No Guide)

## LEFT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	CF-E28401-12JLF	CF-E28332-12JLF
	8	16	CF-E28403-12JLF	CF-E24411-12JLF
	10	20	CF-E28405-12JLF	CF-E24413-12JLF
3	6	18	CF-E28413-12JLF	CF-E28347-12JLF
	8	24	CF-E28415-12JLF	CF-E24308-12JLF
	10	30	CF-E28417-12JLF	CF-E21401-12JLF
4	6	24	CF-E25287-12JLF	CF-E37000-12JLF
	8	32	CF-E28419-12JLF	CF-E37002-12JLF
	10	40	CF-E28421-12JLF	CF-E37004-12JLF
6	6	36	CF-E25350-12JLF	CF-E31760-12JLF
	8	48	CF-E24558-12JLF	CF-E31762-12JLF
	10	60	CF-E28425-12JLF	CF-E31764-12JLF
	12	72	CF-E24560-12JLF	CF-E31766-12JLF



Right Angle Header  
(Left Guide)



Right Angle Receptacle  
(Left Guide)

## RIGHT GUIDE

Product Variation			Mating Connector System	
Pairs	Columns	Differential Pairs	No Guide Pin	
			Vertical Header (VH)	Right Angle Receptacle (RAR)
2	6	12	CF-E28401-11JLF	CF-E28332-12JLF
	8	16	CF-E28403-11JLF	CF-E24411-12JLF
	10	20	CF-E28405-11JLF	CF-E24413-12JLF
3	6	18	CF-E28413-11JLF	CF-E28347-11JLF
	8	24	CF-E28415-11JLF	CF-E24308-11JLF
	10	30	CF-E28417-11JLF	CF-E21401-11JLF
4	6	24	CF-E25287-11JLF	CF-E37000-11JLF
	8	32	CF-E28419-11JLF	CF-E37002-11JLF
	10	40	CF-E28421-11JLF	CF-E37004-11JLF
6	6	36	CF-E25350-11JLF	CF-E31760-11JLF
	8	48	CF-E24558-11JLF	CF-E31762-11JLF
	10	60	CF-E28425-11JLF	CF-E31764-11JLF
	12	72	CF-E24560-11JLF	CF-E31766-11JLF



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	CF-E26141-006
	8	16		CF-E26141-008
	10	20		CF-E26141-010
3	6	18	Flat Rock, No Tool	CF-E26146-006
	8	24		CF-E26146-008
	10	30		CF-E26146-010
4	6	24	Flat Rock, No Tool	CF-E26151-006
	8	32		CF-E26151-008
	10	40		CF-E26151-010
6	6	36	Flat Rock, No Tool	CF-E26156-006
	8	48		CF-E26156-008
	10	60		CF-E26156-010
	12	72		CF-E26156-012



APPLICATION TOOLS FOR VERTICAL HEADER WITH 2mm COLUMN PITCH

Pairs	Columns	Differential Pairs	Insertion Tool	Removal Tool
2	6	12	CF-E25489-006	CF-E26121-006
	8	16	CF-E25489-008	CF-E26121-008
	10	20	CF-E25489-010	CF-E26121-010
3	6	18	CF-E25490-006	CF-E26126-006
	8	24	CF-E25490-008	CF-E26126-008
	10	30	CF-E25490-010	CF-E26126-010
4	6	24	CF-E25491-006	CF-E26131-006
	8	32	CF-E25491-008	CF-E26131-008
	10	40	CF-E25491-010	CF-E26131-010
6	6	36	CF-E25493-006	CF-E26136-006
	8	48	CF-E25493-008	CF-E26136-008
	10	60	CF-E25493-010	CF-E26136-010
	12	72	CF-E25493-012	CF-E26136-012

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