

HIGH-SPEED BOARD-TO-BOARD & BACKPLANE

INTERCONNECT SOLUTIONS GUIDE

HIGH-SPEED BOARD-TO-BOARD & BACKPLANE

Samtec offers the largest variety of high-speed board-to-board and backplane interconnects in the industry with full engineering support, online tools and an unmatched service attitude.

HIGH-SPEED PERFORMANCE

Speeds to 112 Gbps PAM4

More than 4.0 Tbps of aggregate bandwidth

Extremely low crosstalk to 40 GHz

APPLICATION FLEXIBILITY

10 – 3,000 positions

0.33 mm – 40 mm stack heights

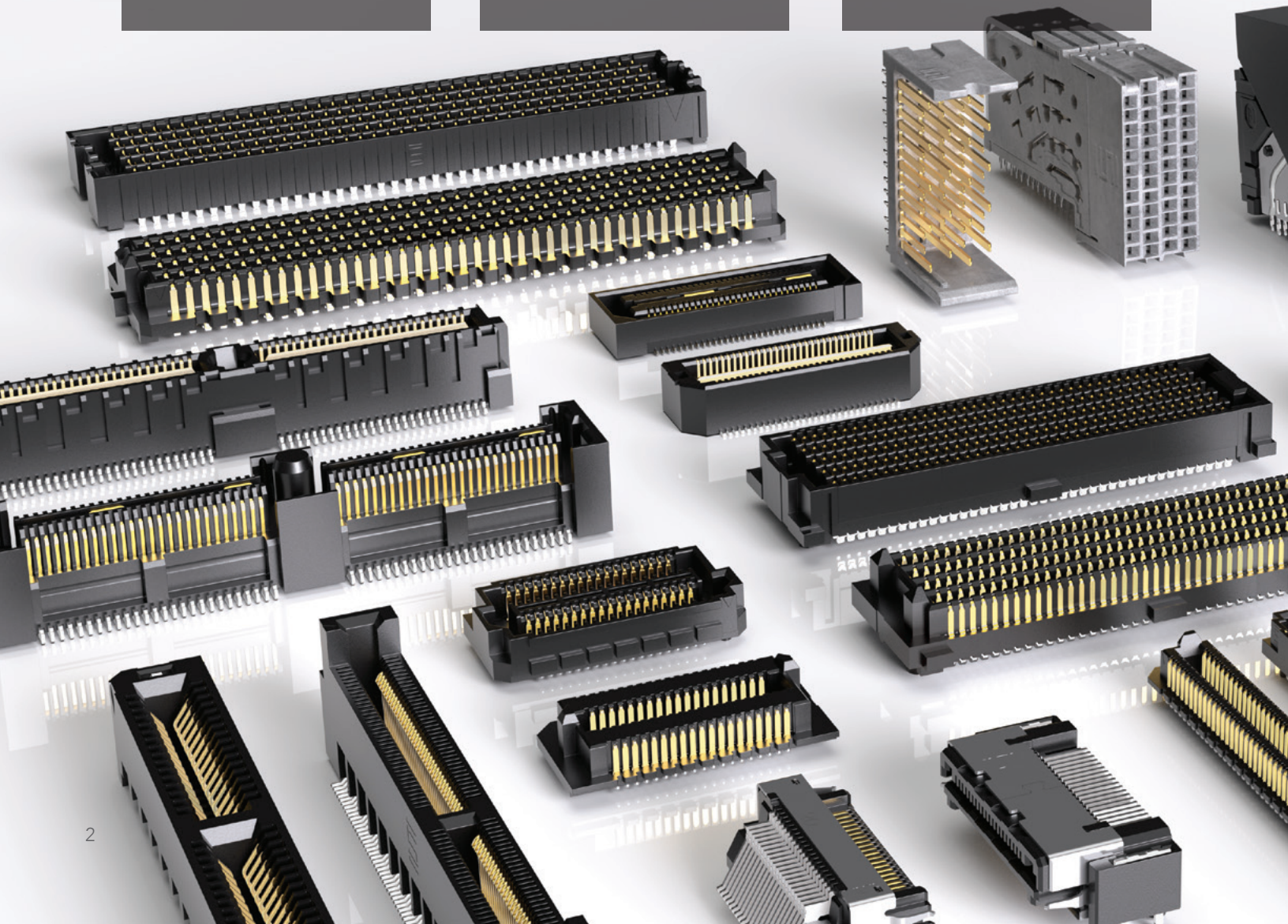
Vertical, right-angle, edge mount

SIGNAL INTEGRITY SUPPORT

Free test reports, models, app notes, Break Out Region

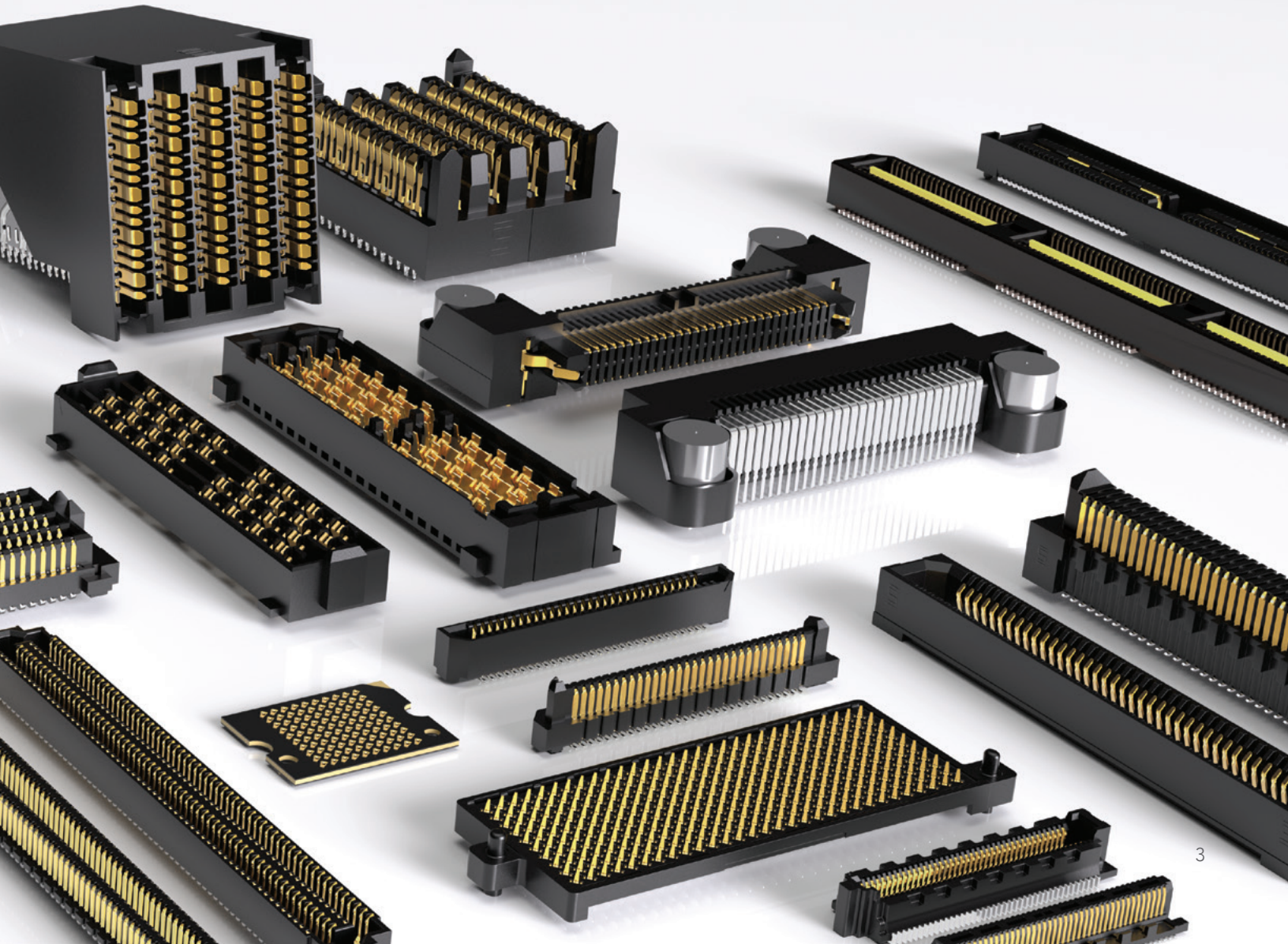
Easy access to live EE support

Online tools: Simulator™ and Channelizer®



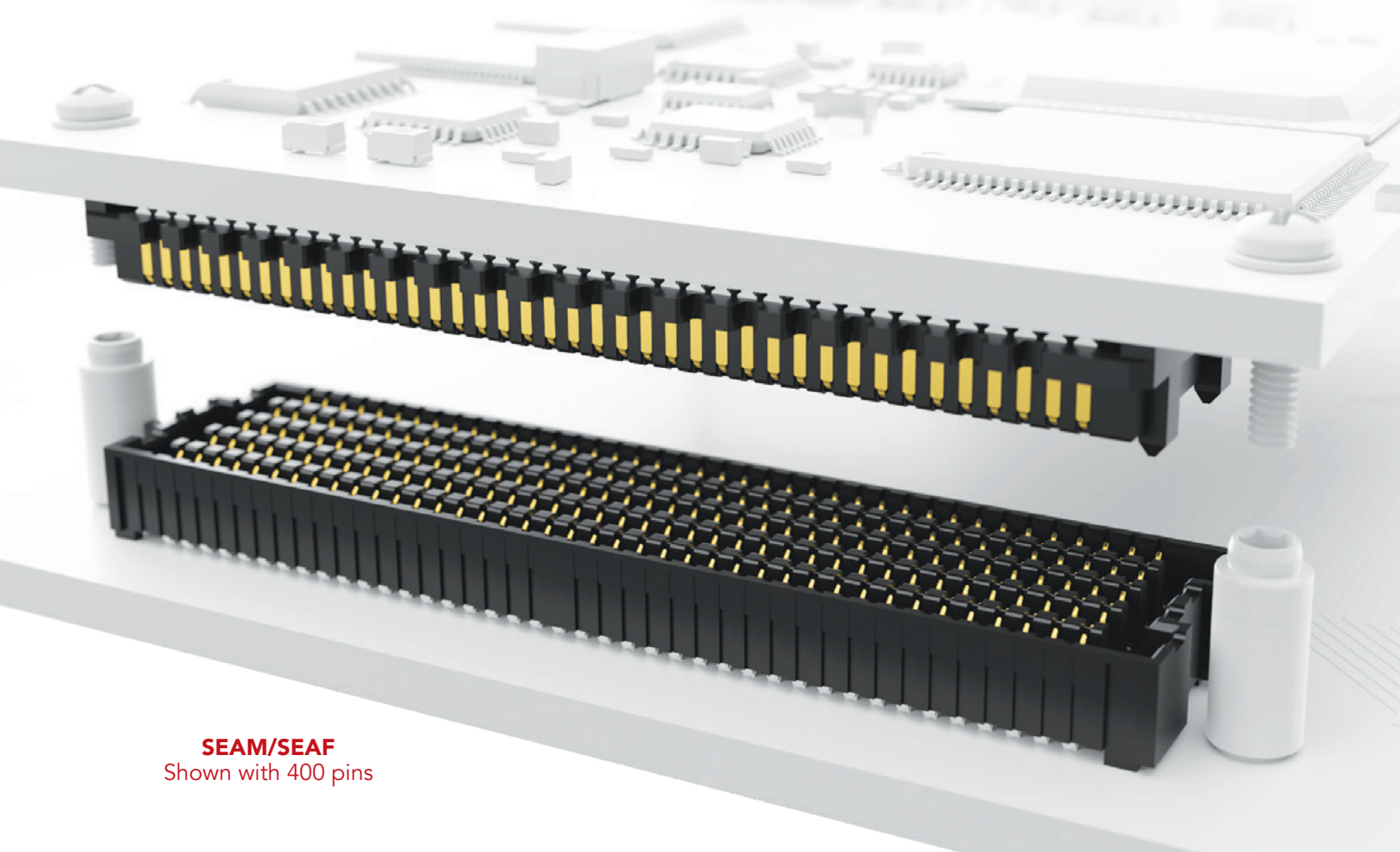
Learn more at
samtec.com

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HIGH-DENSITY ARRAYS

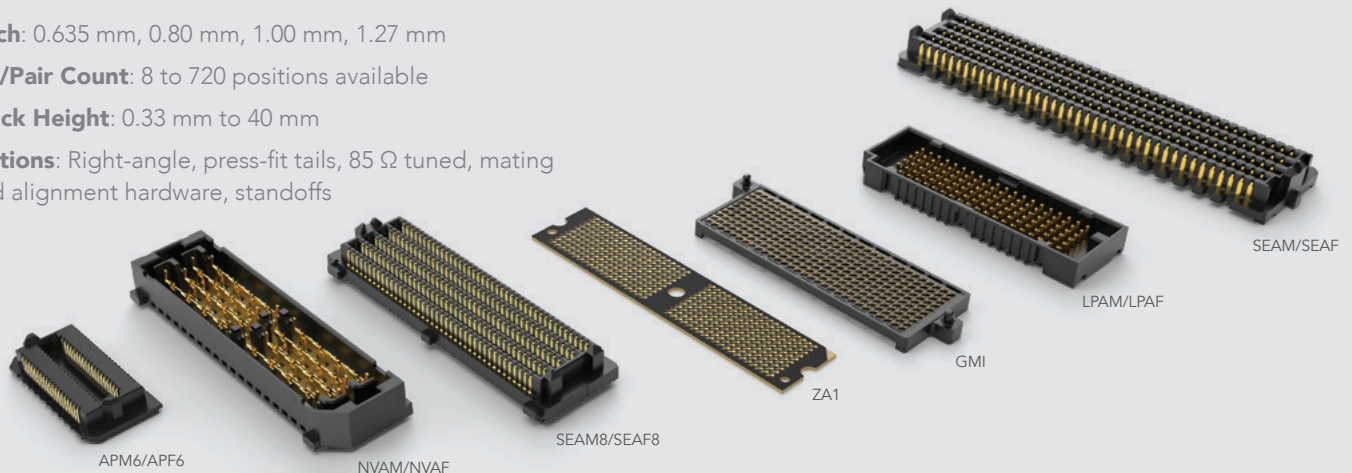
EXTREME PERFORMANCE • OPEN-PIN-FIELD • LOW-PROFILE



SEAM/SEAF
Shown with 400 pins

VARIETY OF OPTIONS:

- **Pitch:** 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm
- **Pin/Pair Count:** 8 to 720 positions available
- **Stack Height:** 0.33 mm to 40 mm
- **Options:** Right-angle, press-fit tails, 85 Ω tuned, mating and alignment hardware, standoffs

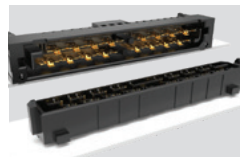


EXTREME PERFORMANCE ARRAYS

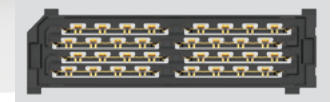
- 4.0 Tbps aggregate data rate - 9 IEEE 400G channels
- Two points of contact ensure a more reliable connection
- Fully shielded differential pair design
- Extremely low crosstalk (to 40 GHz) and incredibly tight impedance control
- Minimal variance in data rate as stack height increases
- Utilizes 40% less space with the same data throughput as compared to traditional arrays

NOVARAY™

NRZ	PAM4
56 Gbps	112 Gbps



NVAM/NVAF



NVAM Series; 32 pairs (actual size shown)

Right-angle in development (NVAM-RA)

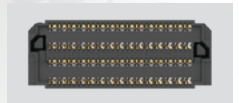
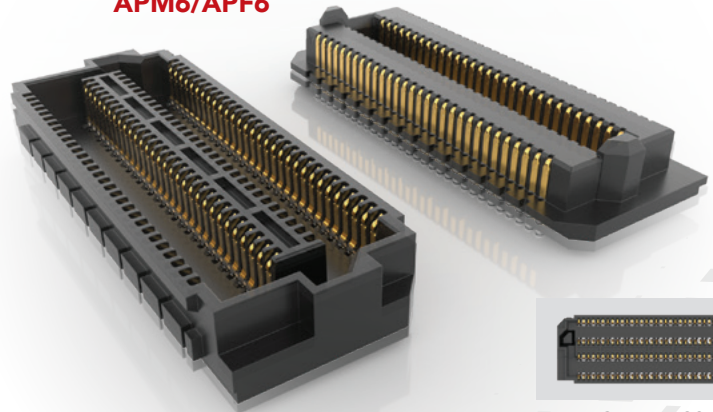
MICRO ARRAYS

- Flexible open-pin-field and cost optimized, extreme performance solution
- Low-profile 5 mm stack height and up to 10 mm
- 0.635 mm pitch
- Four row design with up to 400 total pins
- Data rate compatible with PCIe® Gen 5 and 100 GbE
- Cable assembly in development

ACCELERATE®

NRZ	PAM4
56 Gbps	112 Gbps

APM6/APF6



APF6 Series; 120 pins (actual size shown)

LOW-PROFILE ARRAYS

- Up to 400 total pins in 4, 6 or 8 rows
- 1.27 mm pitch
- Dual beam contact system
- Solder crimped termination for ease of processing
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility
- Press-in or threaded standoffs available to assist unmating (JSO)

LPARRAY™

NRZ	PAM4
28 Gbps	56 Gbps

LPAM/LPAF



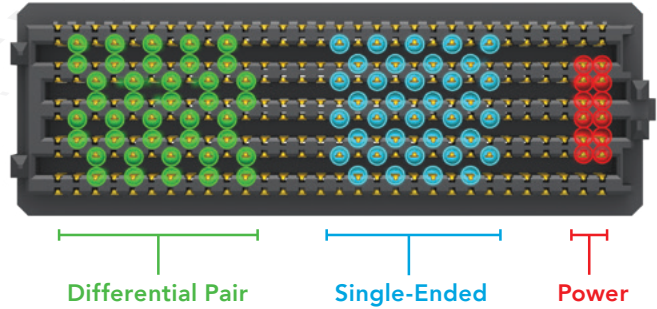
LPAM Series; 120 pins (actual size shown)

HIGH-DENSITY ARRAYS

1.27 mm PITCH ARRAYS

- Maximum grounding and routing flexibility
- Up to 560 Edge Rate® contacts optimized for signal integrity performance
- 7 mm to 40 mm stack heights; right-angle available
- Supports high-speed protocols such as Ethernet, PCI Express®, Fibre Channel and InfiniBand™
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

OPEN-PIN-FIELD FLEXIBILITY

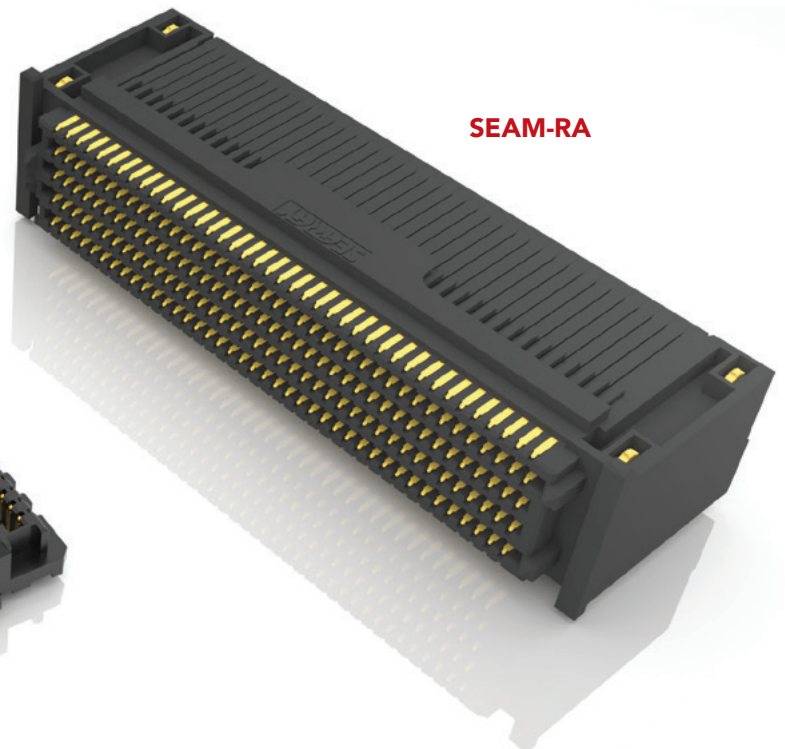


SEARAY™

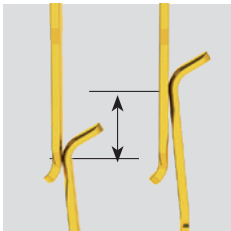
NRZ	PAM4
28 Gbps	56 Gbps



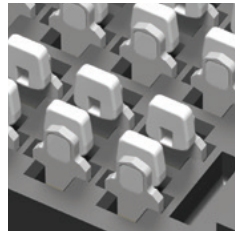
SEAM/SEAF



SEAM-RA



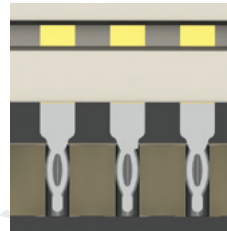
1.15 mm (.045") contact wiper



Solder charge terminations (IPC-A-610F & IPC J-STD-001F Class 3)



Elevated stack heights available (SEAR)



Press-fit tails available (SEAMP/SEAFP)

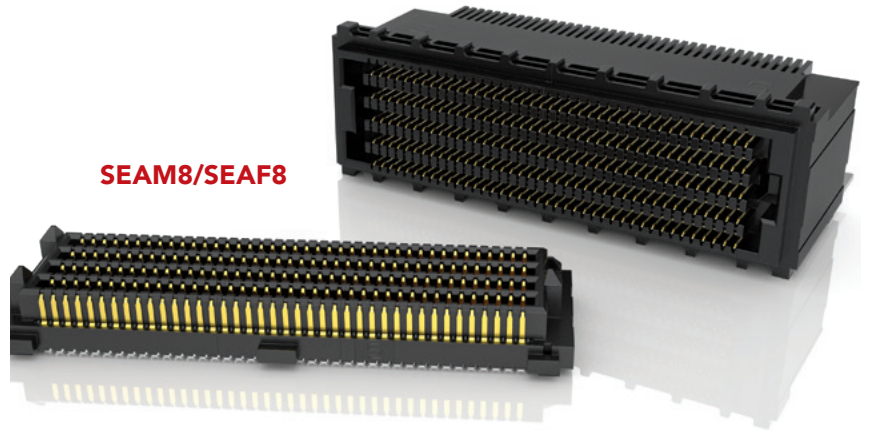


Jack screw standoffs (JSO)

HIGH-DENSITY 0.80 mm PITCH ARRAYS

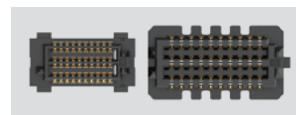
- 2x the density of 1.27 mm pitch arrays
- 0.80 mm pitch
- Up to 720 Edge Rate® contacts; higher pin counts in development
- 7 mm and 10 mm stack heights
- 2 mm extended wipe in development
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

SEAM8/SEAF8



SEARRAY.8mm™

NRZ	PAM4
28 Gbps	56 Gbps



0.80 mm pitch vs. 1.27 mm pitch
(actual size shown; 60 pins)

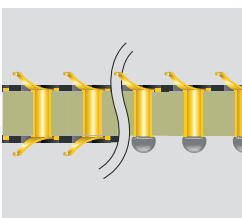
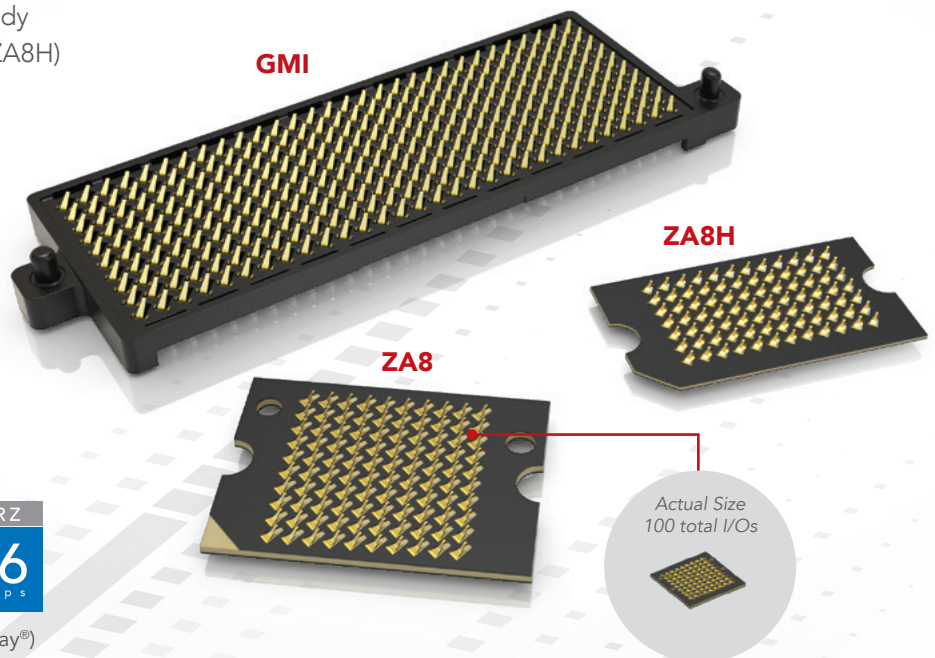
ULTRA-LOW PROFILE ONE-PIECE ARRAYS

- 0.80 mm or 1.00 mm pitch
- 1 mm body height (ZA8/ZA1); 0.33 mm body height provides the shortest signal path (ZA8H)
- 1.27 mm and 2 mm body heights (GMI)
- Up to 400 pins standard; 3,000+ pins with custom capabilities on Z-Ray®
- Z-Ray® is customizable in X, Y, and Z axes, stack height, pin count, shape, plating thickness, etc.
- Alignment/compression hardware available for Z-Ray® (ZHSI, ZSO, ZD)

GMI

ZA8H

ZA8



Dual compression, or single compression with solder balls

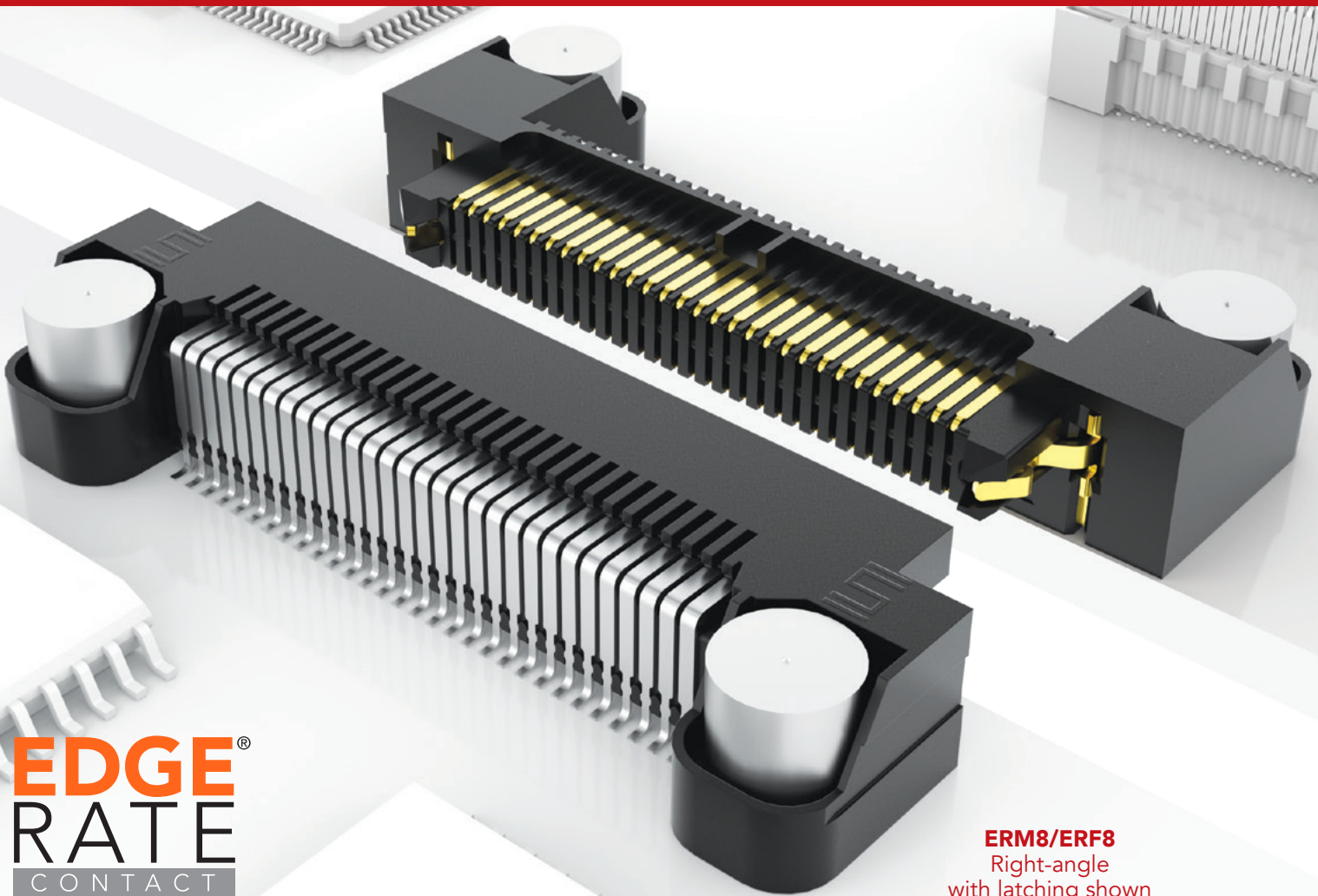
PAM4
56 Gbps
(GMI)

NRZ
56 Gbps
(Z-Ray®)

Actual Size
100 total I/Os

EDGE RATE[®] CONNECTOR STRIPS

OPTIMIZED FOR SPEED • HIGH CYCLES • INCREASED CONTACT WIPE

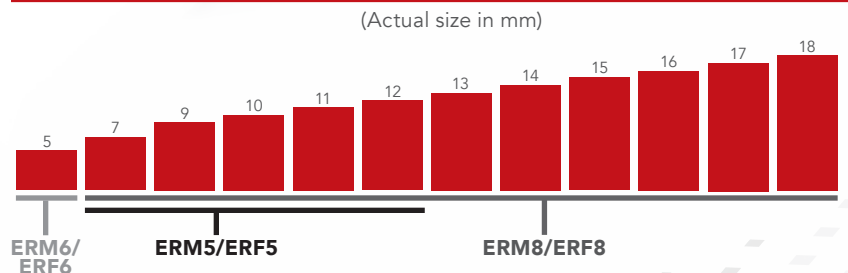


EDGE RATE[®] CONTACT SYSTEM:

- Smooth milled mating surface reduces wear and increases durability
- Lower insertion and withdrawal forces
- Robust when “zippered” during unmating
- Minimized parallel surface area reduces broadside coupling and crosstalk
- Designed, simulated and optimized for 50 Ω and 100 Ω systems

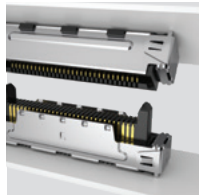


STACK HEIGHT FLEXIBILITY

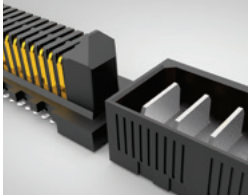


0.80 mm PITCH SYSTEM

- 1.5 mm contact wipe for a reliable connection
- Differential pair and hot swap options
- Stack heights from 7 mm to 18 mm (8 mm in development)
- Supports high-speed protocols including Ethernet and PCI Express®

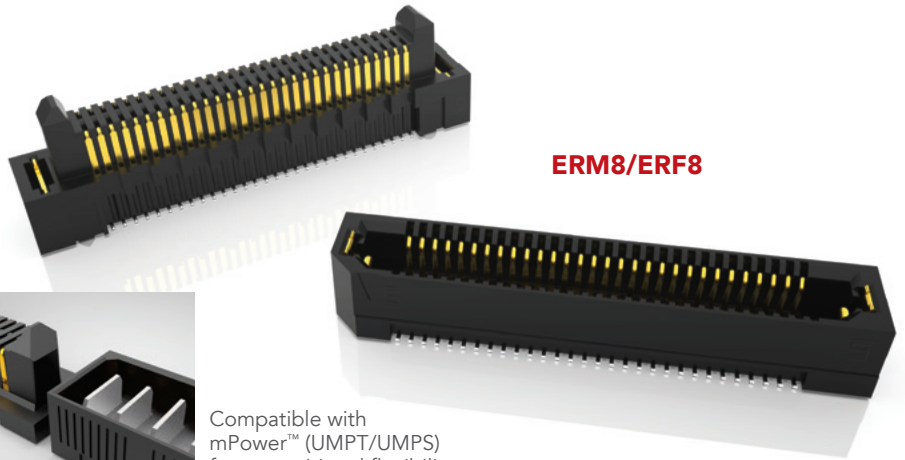


Rugged 360° shielding and metal latching options



Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

PAM 4
56
Gbps

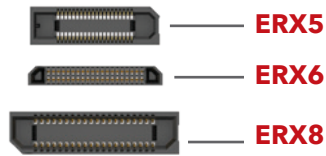


ERM8/ERF8

0.635 mm PITCH SYSTEM

- Extremely slim 2.5 mm body width
- Up to 120 positions in a 2-row design
- 5 mm stack height (others in development)
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

Sockets shown actual size at 40 total positions

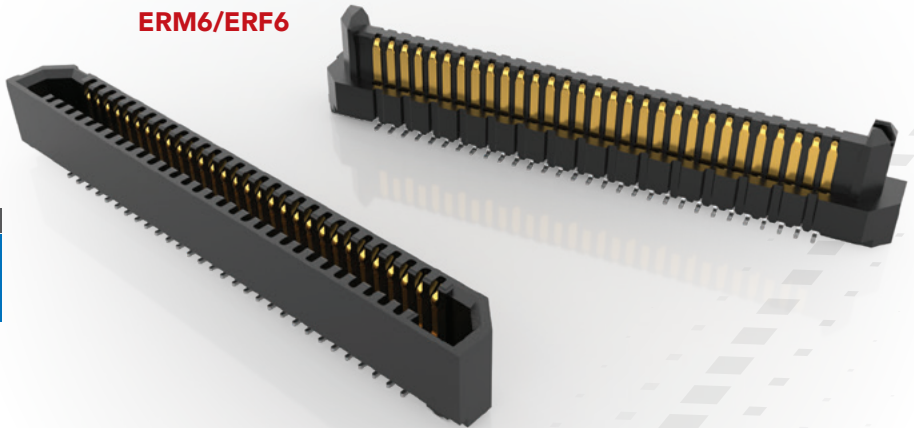


ERX5

ERX6

ERX8

PAM 4
56
Gbps



ERM6/ERF6

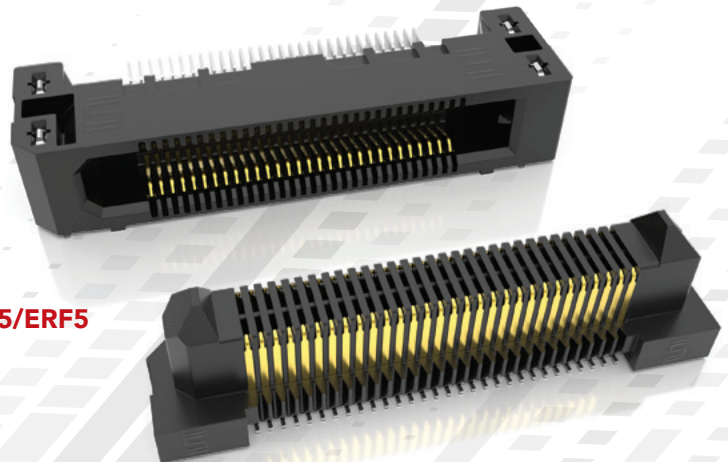
0.50 mm PITCH SYSTEM

- 1.00 mm contact wipe
- Up to 40% PCB space savings with 0.50 mm pitch vs. 0.80 mm pitch
- Stack heights from 7 mm to 12 mm
- 20 to 150 total positions



Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

28
Gbps



ERM5/ERF5

GROUND PLANE CONNECTORS

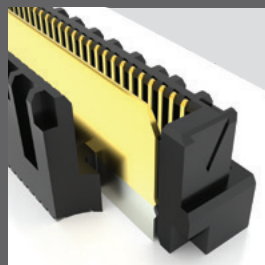
RELIABLE SI PERFORMANCE • LOW-PROFILE • SLIM FOOTPRINT

QTH/QSH
5 mm stack height shown

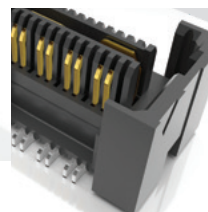
QSERIES[®]

INTEGRAL GROUND/POWER PLANE

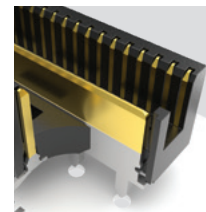
- Surface mount ground plane between two signal rows improves electrical performance
- Significantly reduces row-to-row crosstalk
- Integral metal plane for power to 25 Amps



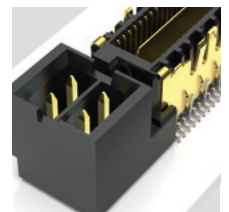
FEATURES



Differential pairs
reduce noise



Mixed technology
(MIT/MIS)



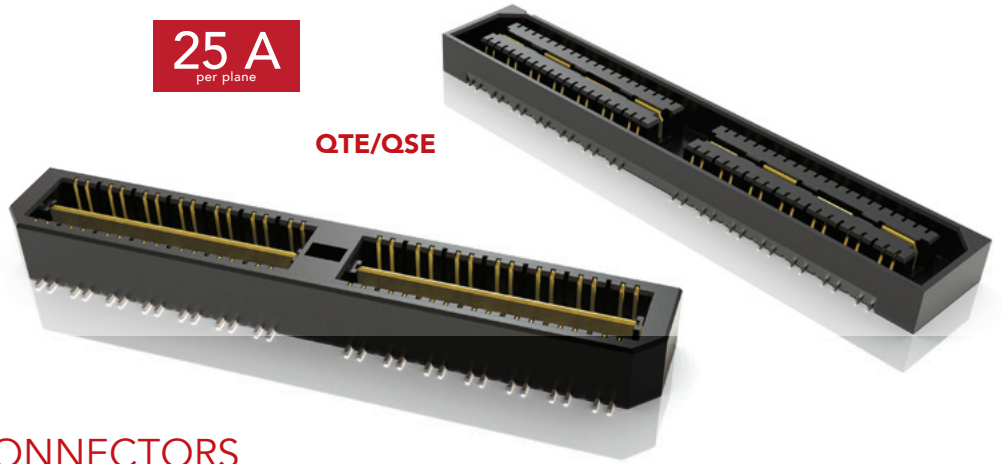
Options for power,
retention & RF

LOW-PROFILE GROUND PLANE CONNECTORS

- 0.50 mm, 0.635 mm and 0.80 mm pitch
- 5 mm to 25 mm stack heights
- Integral ground/power plane
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

25 A
per plane

QTE/QSE



QSTRIP®

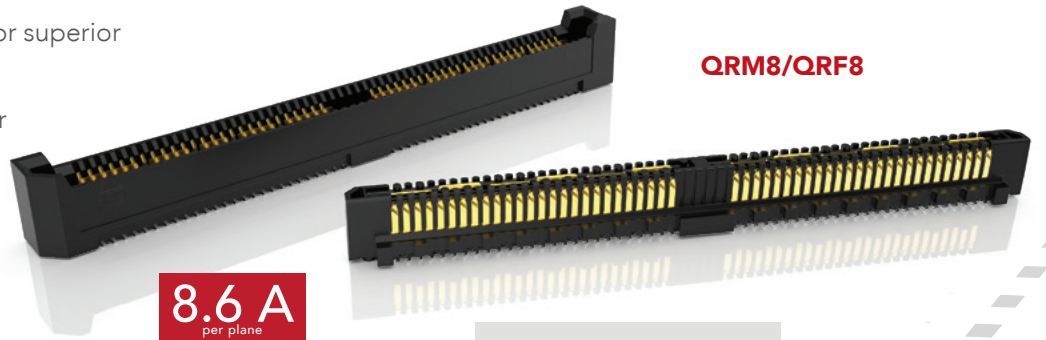
28
Gbps

SLIM GROUND PLANE CONNECTORS

- 0.80 mm pitch and 1.20 mm contact wipe
- Edge Rate® contacts optimized for superior signal integrity performance
- Right-angle available for coplanar and perpendicular mating
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

QRM8/QRF8

8.6 A
per plane



QRATE®

28
Gbps



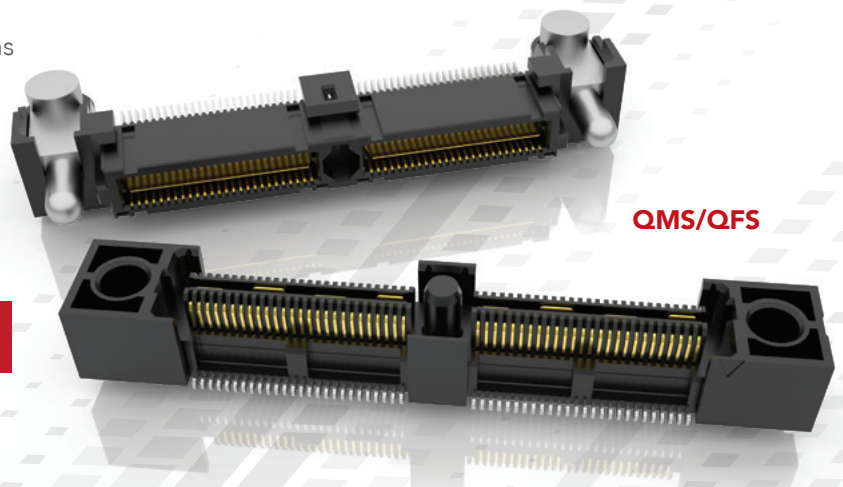
Slim 4.60 mm body width saves board space

RUGGED GROUND PLANE CONNECTORS

- 0.635 mm pitch
- Increased insertion depth for rugged applications
- Up to 156 signal pins/48 signal pairs standard
- Vertical, right-angle and edge mount
- Shielded systems available (QMSS/QFSS)
- Compatible with mPower™ (UMPT/UMPS) for power/signal flexibility

15.7 A
per plane

QMS/QFS

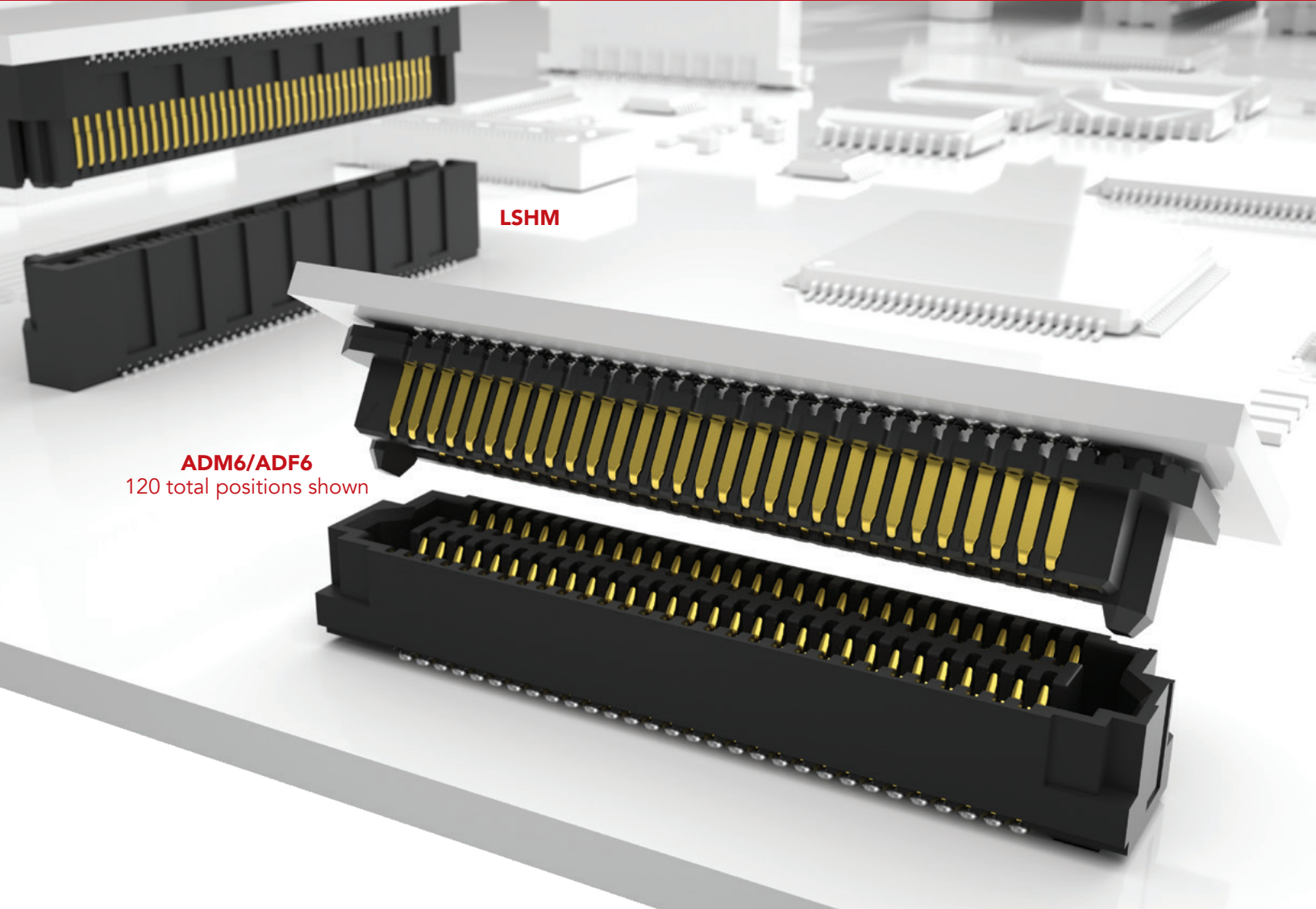


Q2™

25
Gbps

ULTRA MICRO INTERCONNECTS

SPACE SAVING DESIGNS • HERMAPHRODITIC • HIGH-DENSITY

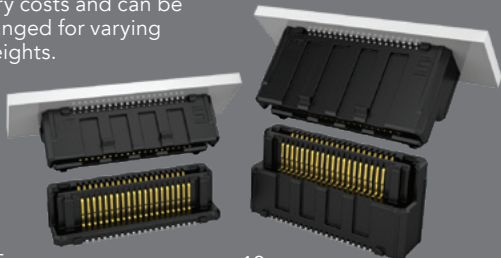


LSHM

ADM6/ADF6

120 total positions shown

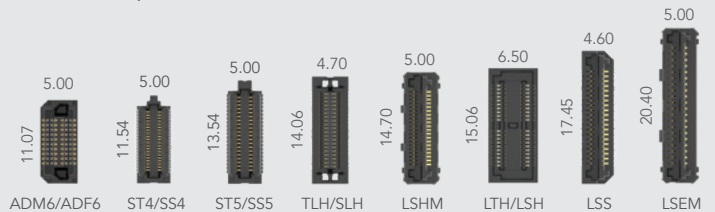
Self-mating connectors reduce inventory costs and can be interchanged for varying stack heights.



5 mm stack height

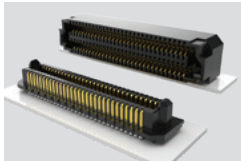
12 mm stack height

ACTUAL SIZE SHOWN - SLIM BODY DESIGNS (40 total positions each)

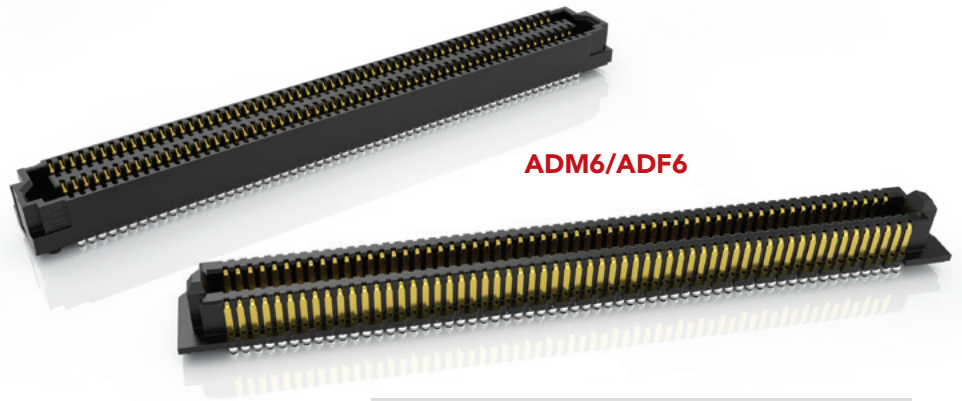


HIGH-DENSITY MULTI-ROW STRIPS

- Low-profile 5 mm stack height and slim 5 mm width
- 0.635 mm pitch Edge Rate® contacts
- Up to 400 I/Os in a 4-row design
- Open-pin-field design for grounding and routing flexibility

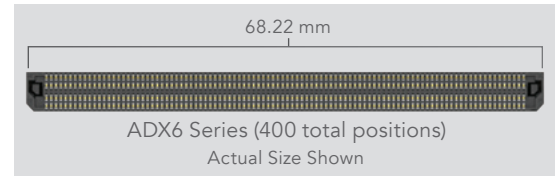


Right-angle and other stack heights in development (ADF6-RA)



ADM6/ADF6

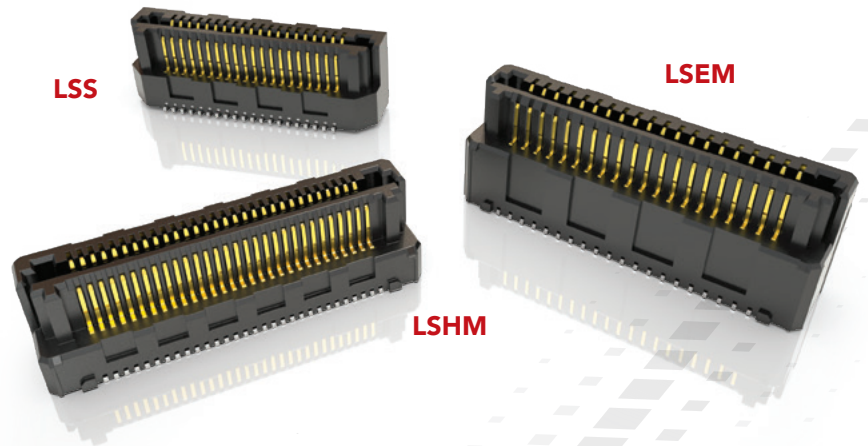
ACCELERATE® HD



RUGGED HERMAPHRODITIC CONNECTORS

- Razor Beam™ contacts for high-speed and fine-pitch systems
- 0.50 mm, 0.635 mm and 0.80 mm pitch
- Stack heights from 5 mm to 12 mm
- 10 - 100 positions

RAZOR BEAM™
SYSTEM



LSS

LSEM

LSHM

LOW-PROFILE STRIPS

- Micro 0.40 mm and 0.50 mm pitch
- Stack heights from 2 to 6 mm
- Slim body designs for increased PCB space savings
- 20 - 160 positions

RAZOR BEAM™ LP
SYSTEM



ST4/SS4

EDGE CARD SYSTEMS

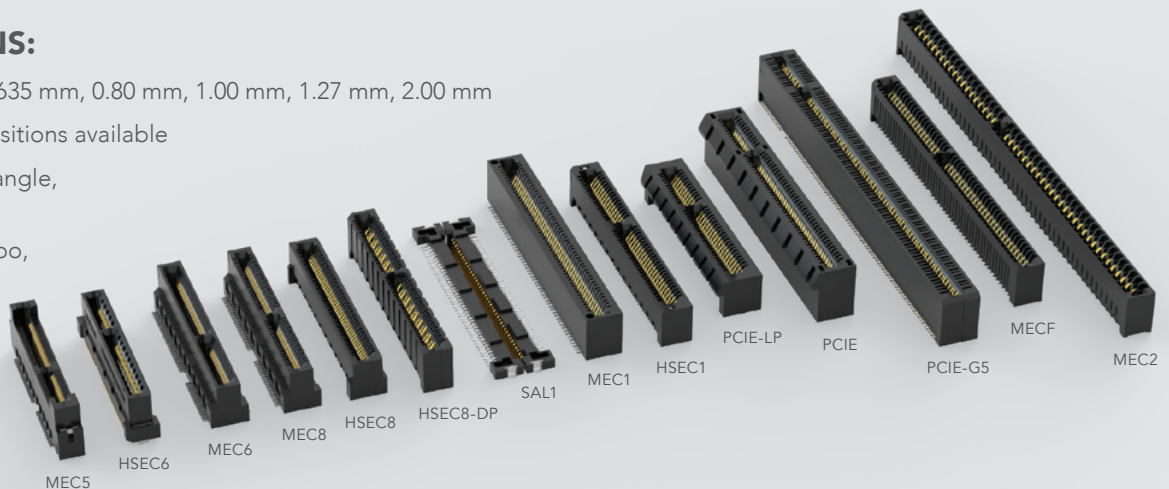
SPEEDS TO 56 Gbps • EDGE RATE® CONTACTS • VARIETY OF OPTIONS

HSEC8-DP
Twelve total
differential pairs shown

MEC5-RA
Right-angle shown

VARIETY OF OPTIONS:

- **Pitch:** 0.50 mm, 0.60 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm
- **Pin Count:** 10 – 200 total positions available
- **Orientation:** Vertical, right-angle, edge mount, pass-through
- **Options:** Power/signal combo, press-fit tails, PCI Express®, rugged weld tabs, locks and latches

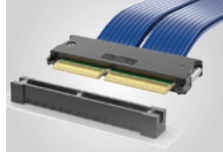


0.60 mm PITCH SOCKETS

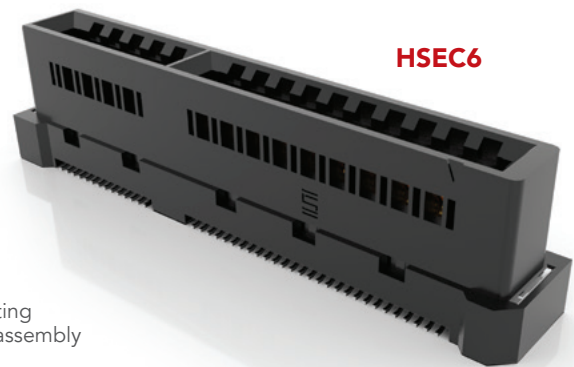
- Differential pair Edge Rate® contacts
- Compliant to SFF-TA-1002: x4 (IC), x8 (2C), x16 (4C and 4C+)
- Mates with .062" (1.60 mm) thick cards
- PCI Express® Gen 5 compatible

**EDGE
RATE**
CONTACT

PAM4
56
Gbps



0.60 mm pitch mating
high-speed cable assembly
in development



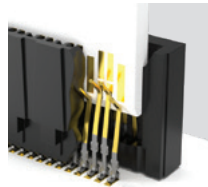
HSEC6

0.80 mm PITCH SOCKETS

- Up to 200 high-speed Edge Rate® contacts
- Mates with .062" (1.60 mm) and .093" (2.36 mm) thick cards
- Power/signal combo (HSEC8-PV)
- PCI Express® Gen 3/4 compatible; rugged Gen 4 compatible socket in development (HTEC8)

**EDGE
RATE**
CONTACT

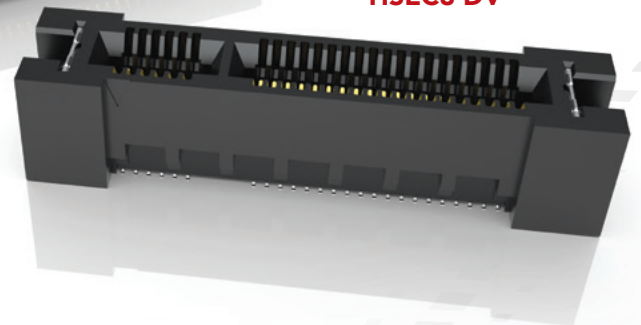
PAM4
56
Gbps



56 Gbps PAM4
with differential pair
(HSEC8-DP)



HSEC8-EM



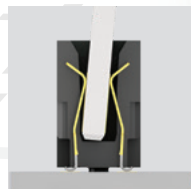
HSEC8-DV

1.00 mm PITCH SOCKETS

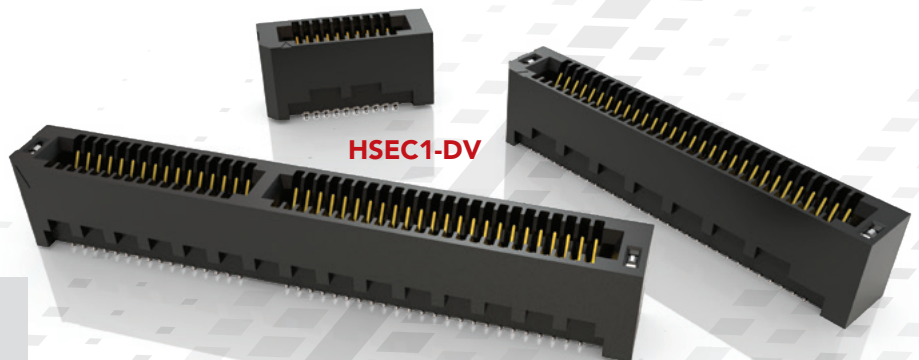
- Edge Rate® contact system for decreased crosstalk
- 20 – 140 positions
- Mates with .062" (1.60 mm) thick cards
- PCI Express® Gen 3/4 compatible; Gen 5 compatible differential pair socket in development (HSEC1-DP)

**EDGE
RATE**
CONTACT

28
Gbps



Custom designs can
aid with misalignment
in the X-Y axes

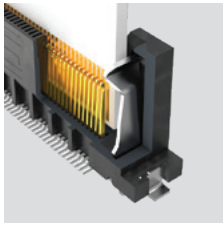


HSEC1-DV

EDGE CARD SYSTEMS

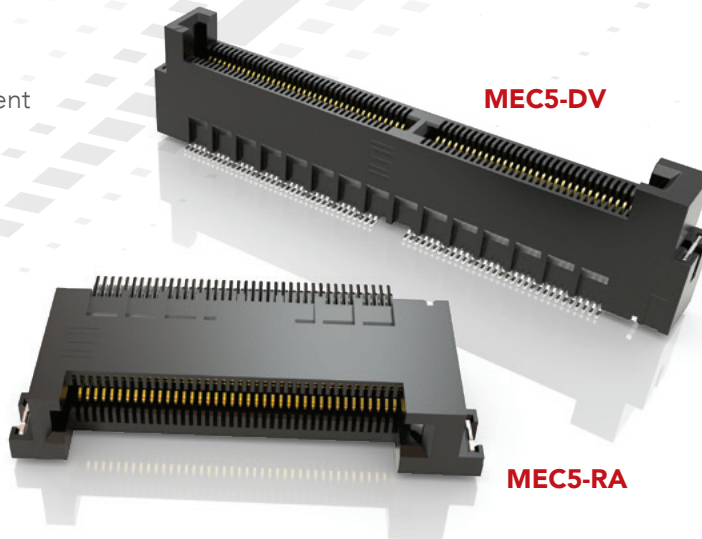
0.50 mm PITCH HIGH-SPEED, LOW-COST SOCKETS

- Justification beam enables use of standard PCB tolerance
- Up to 200 total I/Os; 300 I/Os in development
- PCIe® Gen 4 compatible
- Mates with .062" (1.60 mm) thick cards



Beam ensures card and body are flush

PAM4
56
Gbps



MEC5-DV

MEC5-RA

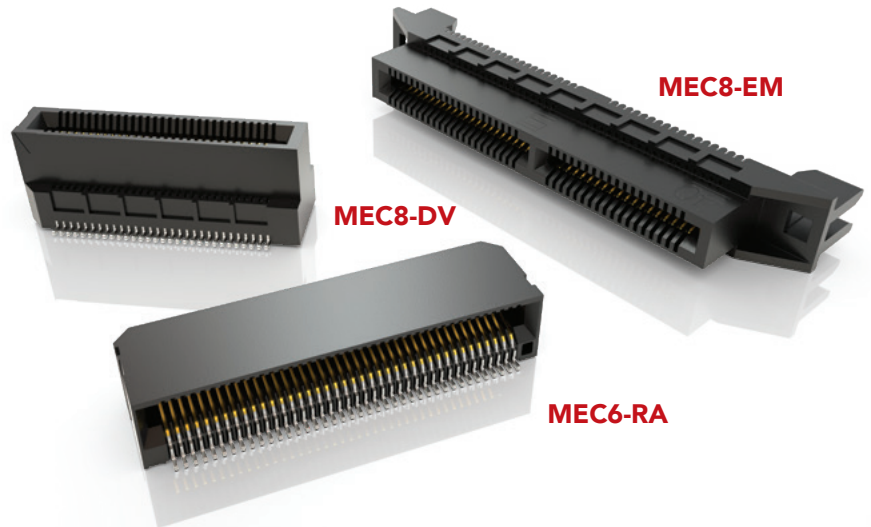
0.635 mm & 0.80 mm PITCH MICRO SOCKETS

- Up to 140 total I/Os
- Vertical and right-angle; edge mount (MEC8)
- Press-fit tails available (MEC8)
- Mates with .062" (1.60 mm) thick cards



Staggered press-fit tails

25
Gbps



MEC8-EM

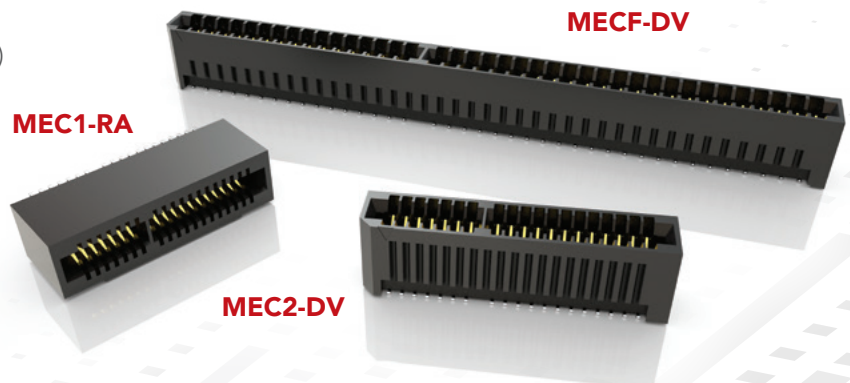
MEC8-DV

MEC6-RA

1.00 mm, 1.27 mm & 2.00 mm PITCH SOCKETS

- Up to 140 total I/Os
- Right-angle and edge mount available (MEC1)
- Optional weld tabs, alignment pins and polarization
- Mates with .062" (1.60 mm) and .093" (2.36 mm) thick cards

25
Gbps



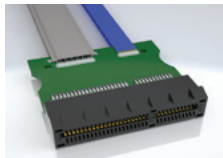
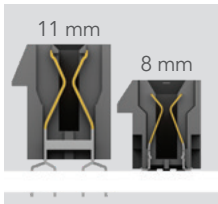
MEC1-RA

MEC2-DV

MECF-DV

GEN 3 & 4 PCI EXPRESS® SOCKETS

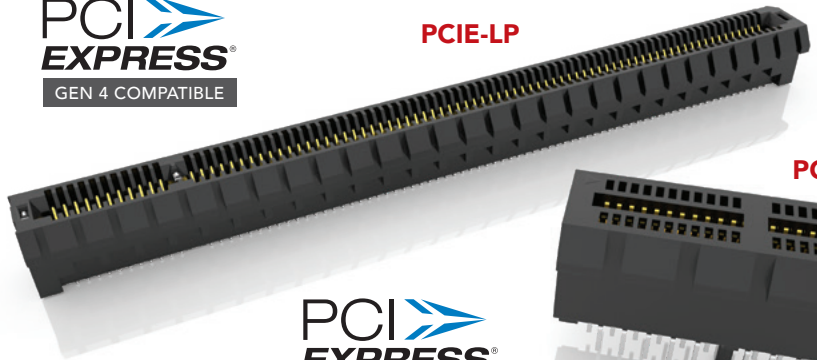
- 1.00 mm pitch in x1, x4, x8 or x16
- Gen 3 compliant (PCIe) and Gen 4 compatible (PCIe-LP)
- Low-profile version for space savings; through-hole tails in development
- Mates with .062" (1.60 mm) thick cards
- Gen 4 slim body socket with Edge Rate® contacts in development (PCIe-G4)



PCI-Express® Jumpers available for use as loop back extender, SerDes physical extender or as a physical extender for PCIe® card debug and analysis

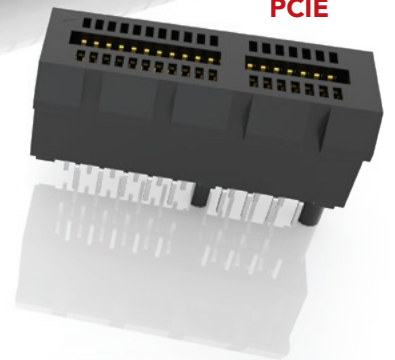
PCI EXPRESS®
GEN 4 COMPATIBLE

PCIe-LP



PCIe

PCI EXPRESS®
GEN 3 COMPLIANT

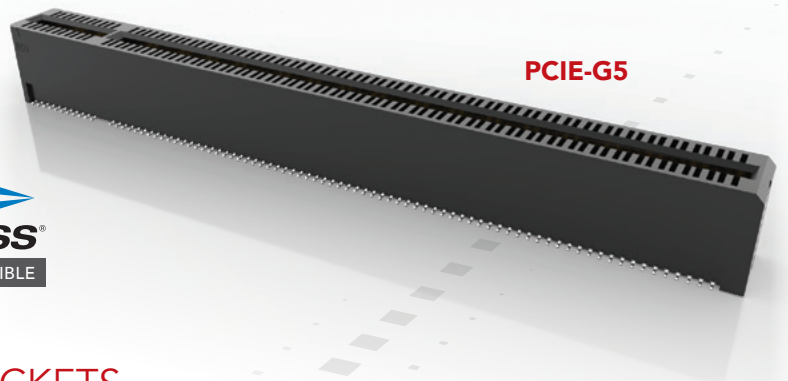


GEN 5 PCI EXPRESS® SOCKETS

- Differential pair system
- Design-in today for future-proof data rates
- Mates with standard PCIe® expansion cards
- 1, 4, 8 and 16 PCI Express® link options
- Currently in development

PCI EXPRESS®
GEN 5 COMPATIBLE

PCIe-G5



1.00 mm PITCH MICRO PLANE SOCKETS

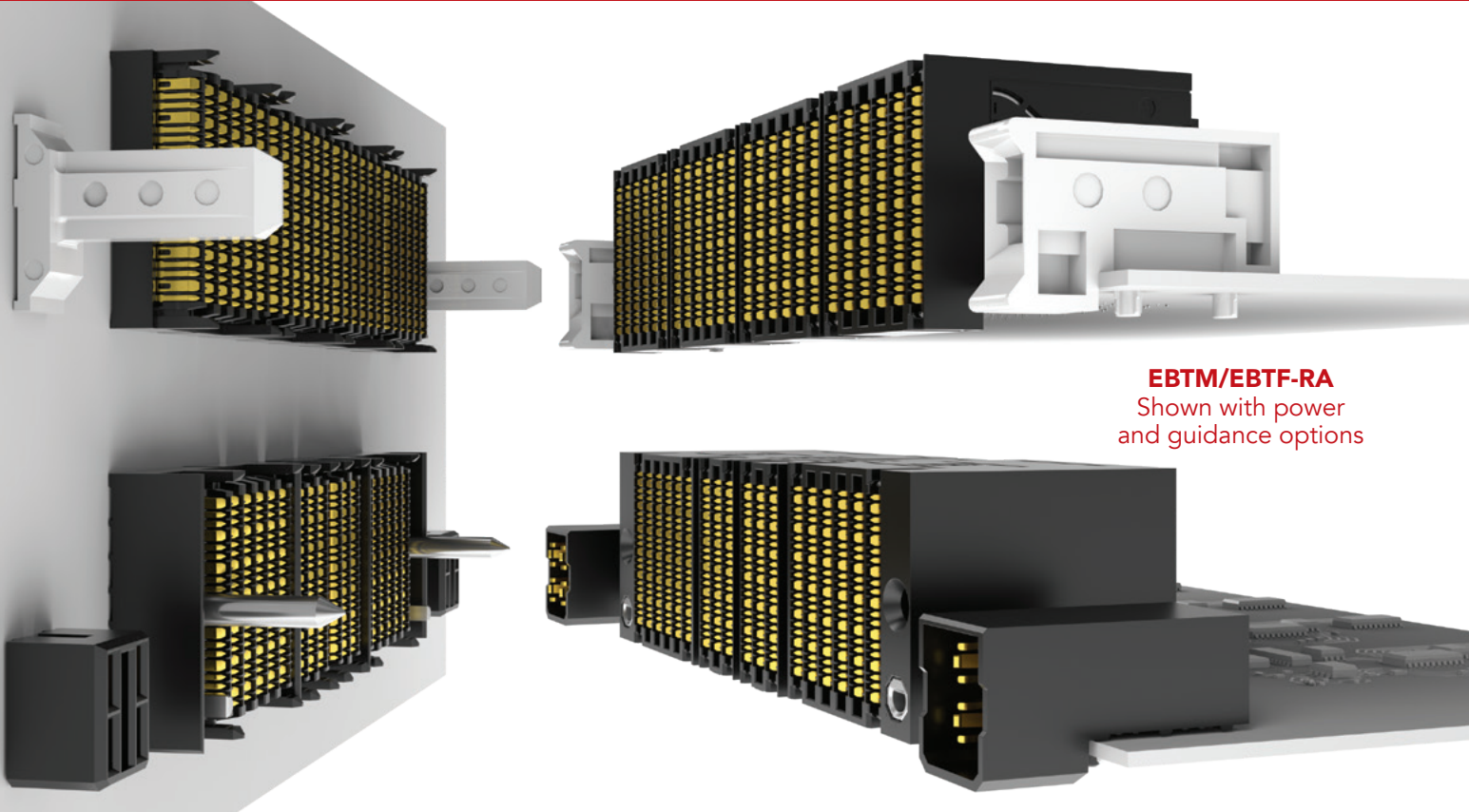
- 40 to 80 I/Os per pair
- Mounts in pairs on same or opposite sides for easy signal routing
- BeCu contacts with large deflection
- PCI Express® Gen 3 compatible
- Mounting flexibility for variable mating card thickness and pass-through applications



SAL1

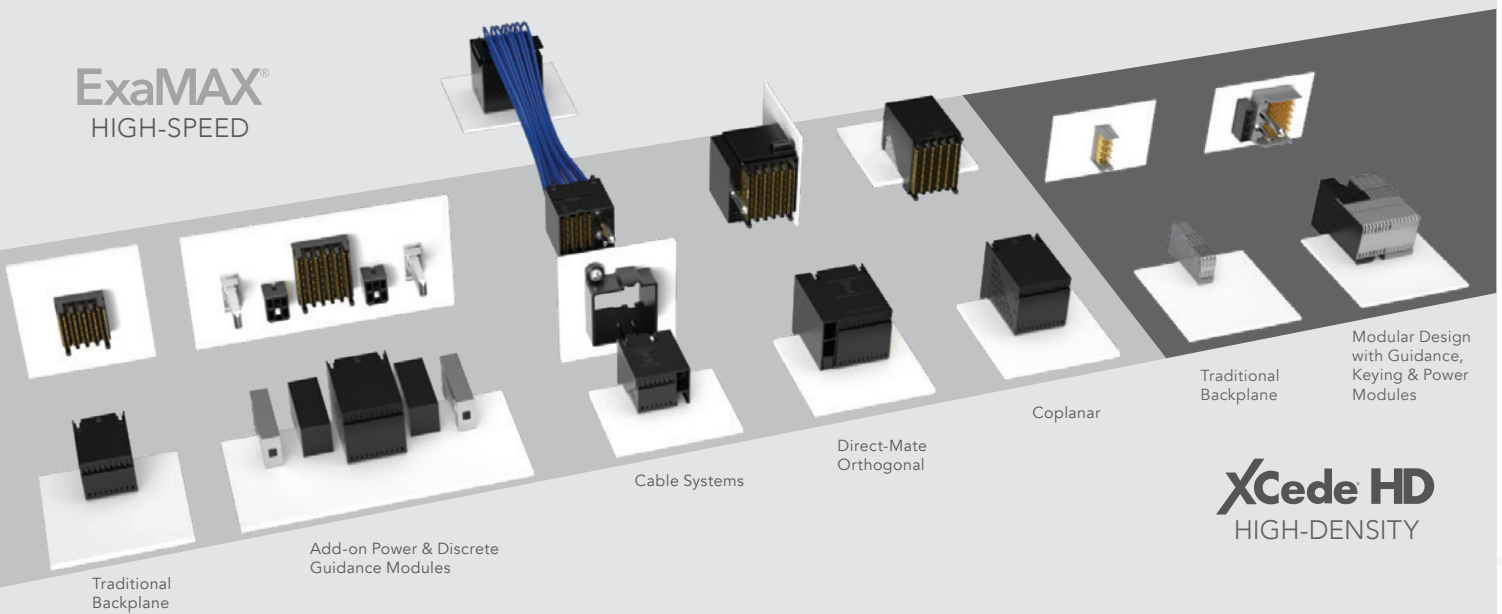
HIGH-SPEED BACKPLANE SYSTEMS

HIGH-DENSITY • DESIGN FLEXIBILITY • HIGH RELIABILITY



EBTM/EBTF-RA
Shown with power and guidance options

ExaMAX®
HIGH-SPEED



Traditional Backplane

Add-on Power & Discrete Guidance Modules

Cable Systems

Direct-Mate Orthogonal

Coplanar

Traditional Backplane

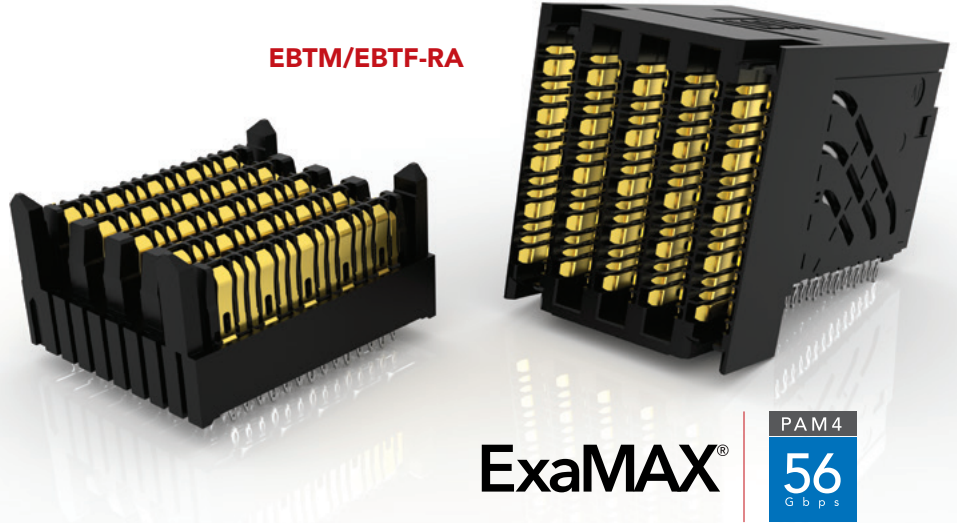
Modular Design with Guidance, Keying & Power Modules

XCede HD
HIGH-DENSITY

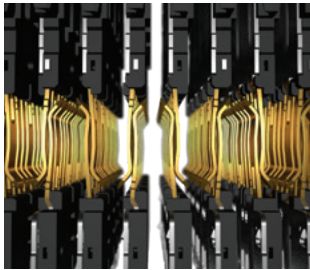
EXAMAX® HIGH-SPEED BACKPLANE

- Meets industry specifications such as PCI Express®, Intel OPI and VPI, SAS, SATA, Fibre Channel, InfiniBand™ and Ethernet
- Exceeds OIF CEI-28G-LR specification for 28 Gbps standards
- 24 - 72 pair designs (4 and 6 pairs; 6, 8, 10 and 12 columns)
- Wafer design increases isolation for reduced crosstalk
- Press-fit tails provide a reliable electrical connection
- Cable assemblies available (see pages 22 - 23)

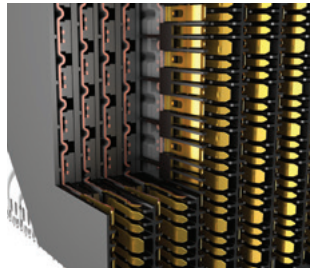
EBTM/EBTF-RA



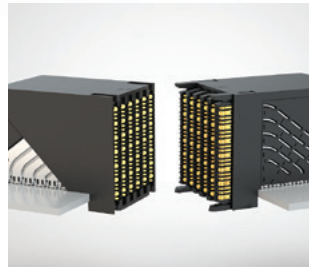
ExaMAX® | PAM 4
56
Gbps



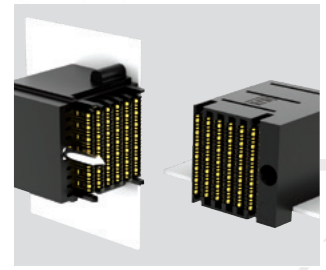
Two reliable points of contact



Staggered differential pair design with an embossed ground plane



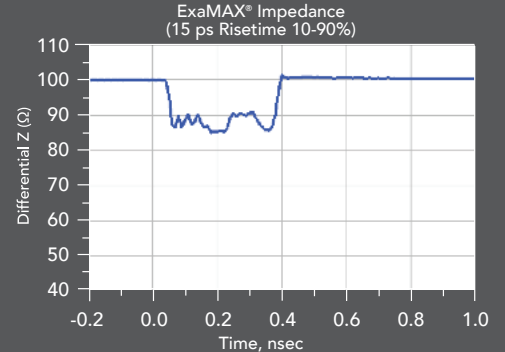
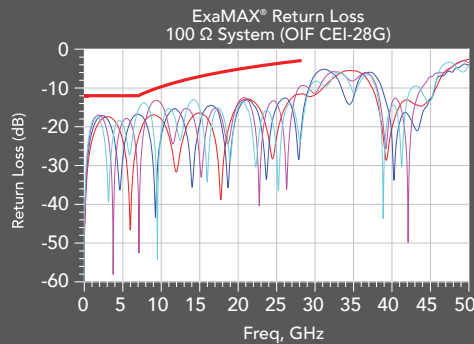
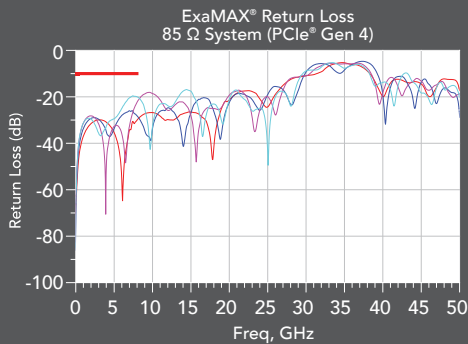
Coplanar available to bypass the midplane (EBTM-RA)



Direct-mate orthogonal (EBDM-RA) eliminates the midplane for a shorter signal path

PERFORMANCE CHARTS

ExaMAX® is engineered for 92 Ω impedance to address both 85 Ω and 100 Ω applications

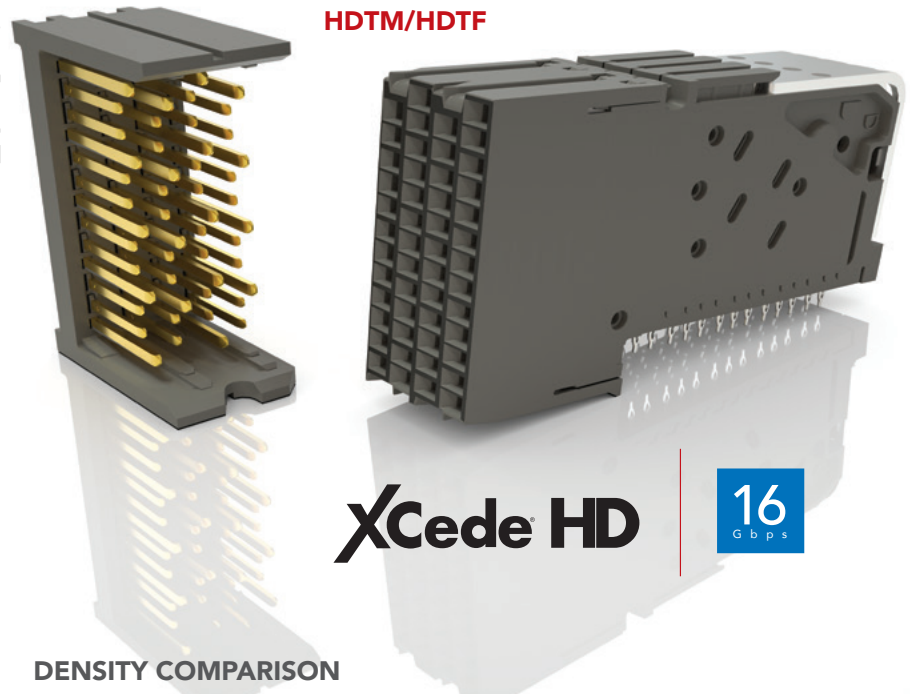


ExaMAX® is a trademark of AFCI

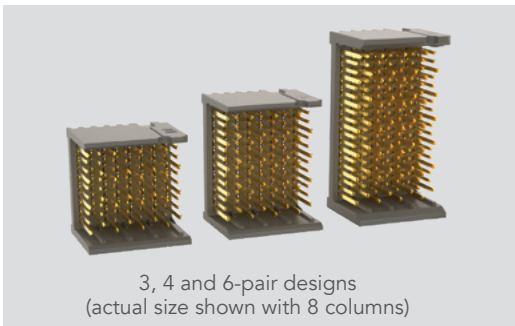
HIGH-SPEED BACKPLANE SYSTEMS

XCEDE® HD HIGH-DENSITY BACKPLANE

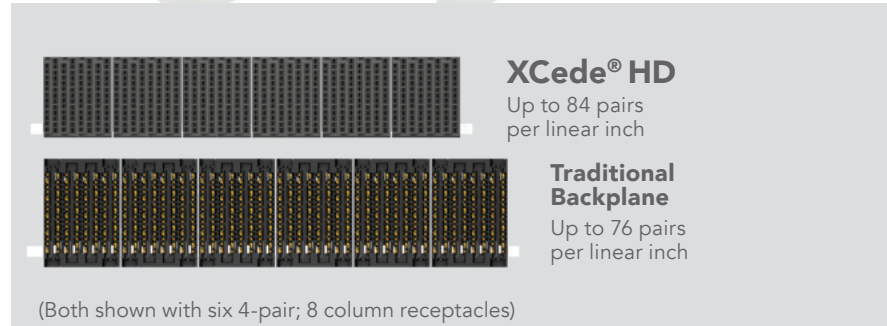
- Small form factor and modular design provides significant space-savings and flexibility
- High-performance system
- Up to 84 differential pairs per linear inch
- 3, 4 and 6-pair designs on 4, 6 and 8 columns
- Integrated power, guidance, keying and end walls available
- 85 Ω and 100 Ω options
- Combine any configuration of modules to create one integrated receptacle (BSP Series); corresponding terminal modules are individually mounted to the backplane



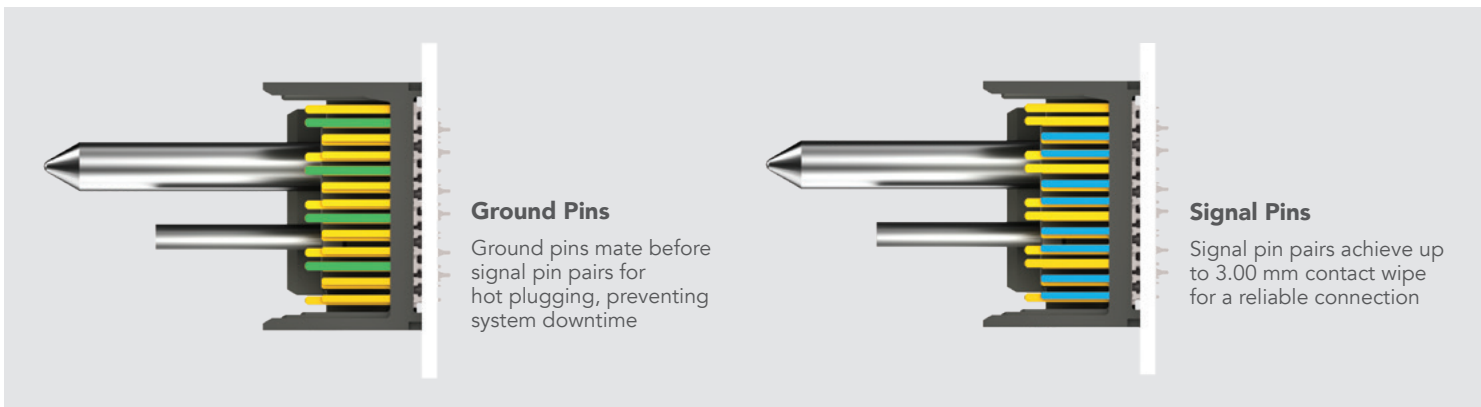
SMALL FORM FACTOR



DENSITY COMPARISON



SIGNAL/GROUND PIN STAGING

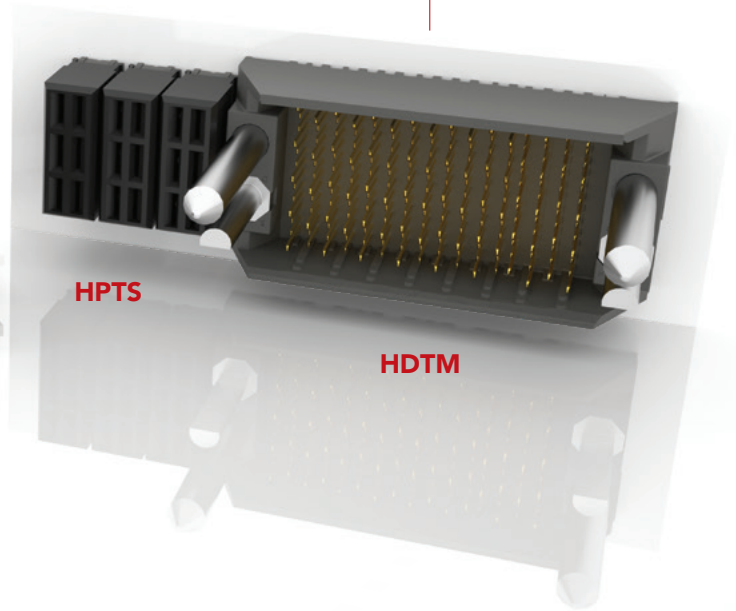
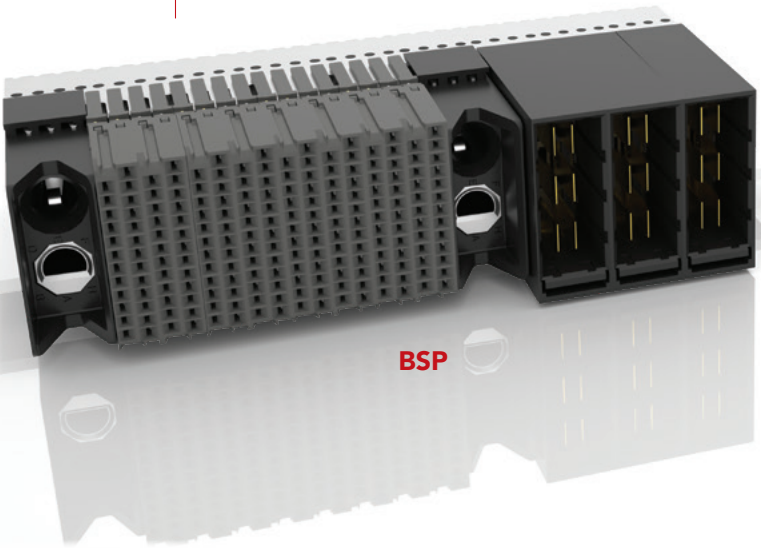


MODULAR DESIGN

XCede® HD consists of signal, power and keying/guidance modules for incredible design flexibility. The modules can be customized in any configuration to meet specific application requirements. Contact HSBP@samtec.com for more information about building a full XCede® HD solution.

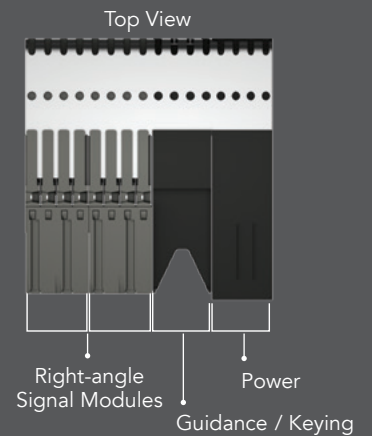
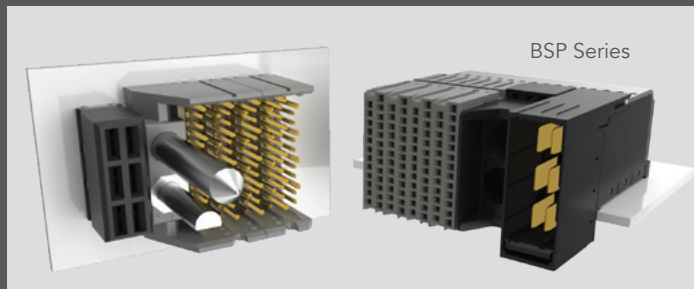
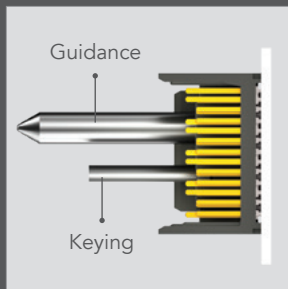
How to build a full solution:

- ① Right-angle modules can be built into a single customizable BSP
- ② Build a BSP part by combining any number, in any configuration, of HDTFs, power and keying/guidance modules to create one receptacle
- ③ Header modules mount to the backplane individually, in any configuration of HDTM and HPTS Series



XCede® is a registered trademark of Amphenol Corporation.

PRODUCT BREAKDOWN (BSP Custom Configuration Shown)



HIGH-SPEED BACKPLANE SYSTEMS

EXAMAX® BACKPLANE CABLE ASSEMBLIES

- Utilizes Samtec's Eye Speed® ultra low skew twinax cable technology for improved signal integrity, increased flexibility and routability
- Highly customizable with modular flexibility
- Reduce costs due to lower layer counts
- 30 and 34 AWG
- Multiple end options available

ExaMAX®

NRZ	PAM4
56 Gbps	112 Gbps



EBCF

**EBTM/
EBCL**

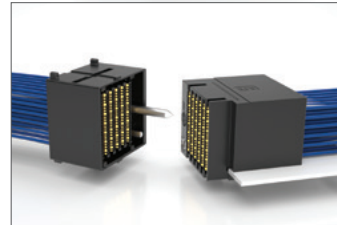
DESIGN FLEXIBILITY



4 and 6 pairs;
6, 8, 10 and 12 columns



Intermateable with all ExaMAX®
connectors (EBTM/EBTF-RA)



Integrated guidance and
keying options

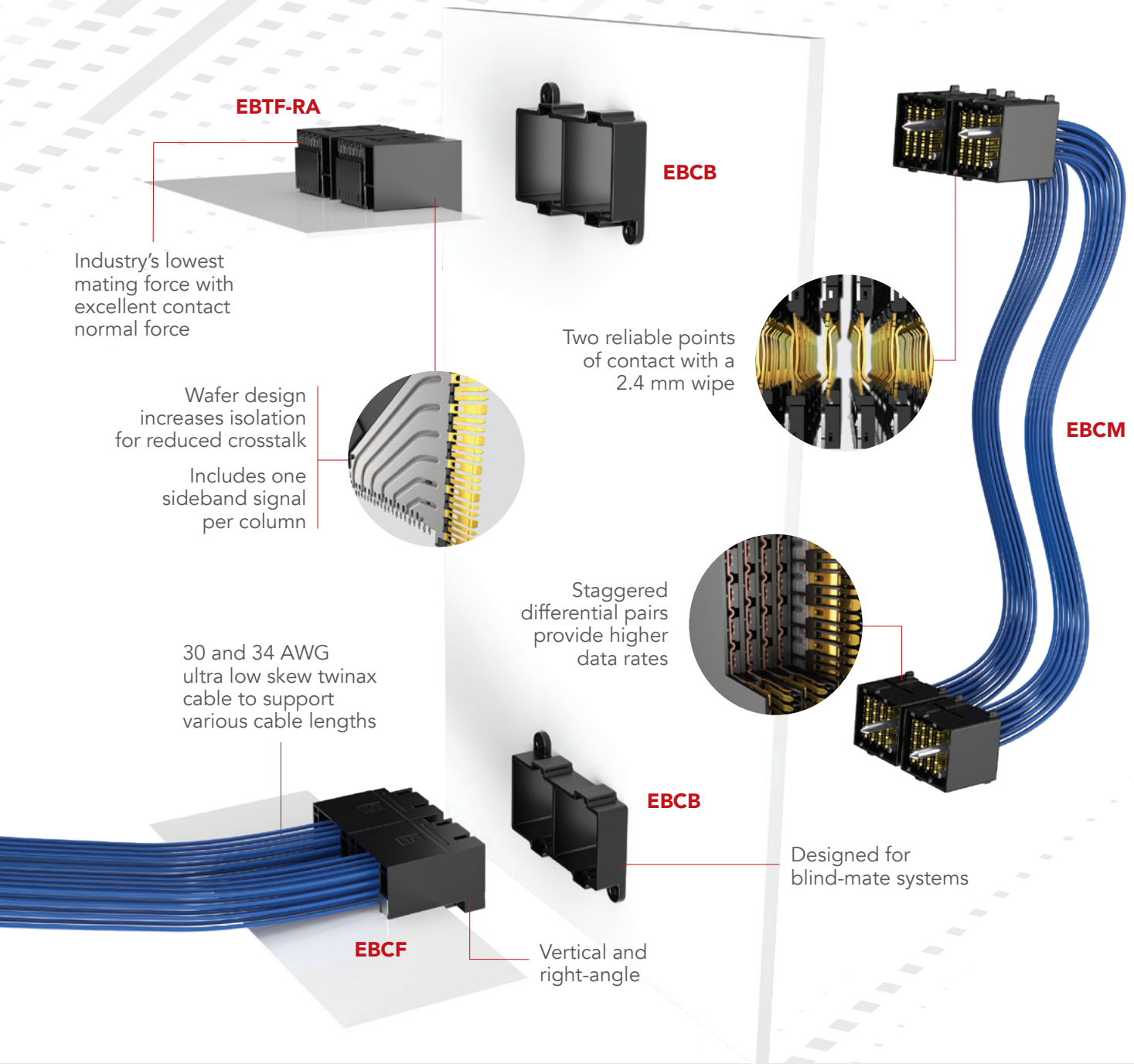


Cable-to-DMO
(Direct Mate Orthogonal)

HIGH-DENSITY APPLICATION



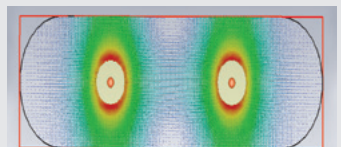
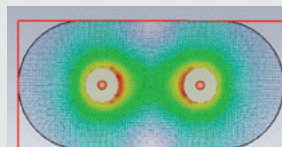
Increases architectural flexibility by overcoming the limitations of traditional connector-to-connector backplane



ULTRA LOW SKEW TWINAX CABLE

Samtec's Eye Speed[®] co-extruded twinax cable technology eliminates the performance limitations and inconsistencies of individually extruded dielectric twinax cabling, improving signal integrity, bandwidth and reach for high-performance system architectures.

- Tight coupling between signal conductors
- Improved bandwidth and reach
- Improved signal integrity and eye pattern opening



✓ Good design coupling with co-extruded low skew twinax

✗ Bad design coupling with paralleled pair twinax

HIGH-SPEED CABLE ASSEMBLIES

EYE SPEED® COAX & TWINAX CABLE • MIX & MATCH

Samtec offers both sides of the system – high-speed connectors and mating cable assemblies. This vertical integration allows for the ultimate combination of design flexibility and customer service.

SEARAY™ HIGH-DENSITY ASSEMBLIES

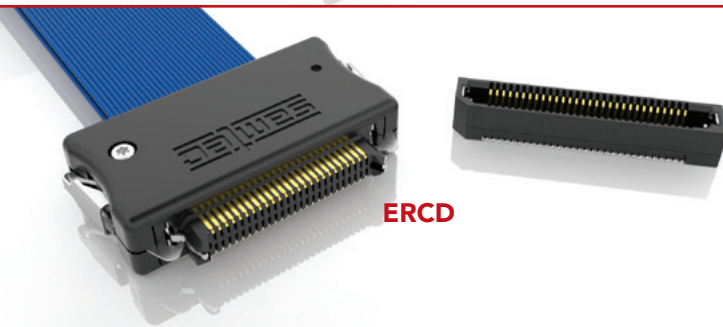
- Up to 14 Gbps
- 34 AWG coax (ESCA); 36 AWG coax or 34 AWG twinax (SEAC)
- Mates with SEARAY™ and SEARAY™ 0.80 mm (pages 6 - 7)



NovaRay™ cable system to 112 Gbps PAM4 (NVAC)

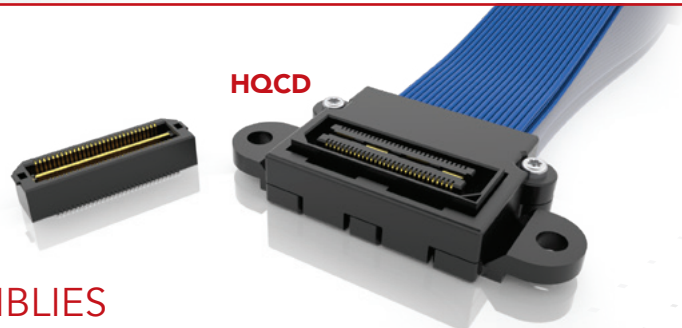
EDGE RATE® ASSEMBLIES

- Up to 14 Gbps
- 34 AWG coax (ERCD); 30 AWG twinax (ERDP)
- Mates with 0.80 mm Edge Rate® connectors (pages 8 - 9)



Q SERIES® ASSEMBLIES

- Up to 14 Gbps
- 34 and 38 AWG coax; 30 AWG twinax
- 0.50 mm (HQCD/HQDP) and 0.80 mm pitch (EQCD/EQDP/EQRD)
- Mates with Q Series® connectors (pages 10 - 11)



ULTRA MICRO & EDGE CARD ASSEMBLIES

- Up to 14 Gbps
- 38 AWG coax mates with 0.50 mm pitch Razor Beam™ (HLCD; pages 12-13)
- 30 AWG twinax mates with 0.80 mm pitch edge card sockets (ECDP; pages 14 - 15)
- Mating assembly for PCI Express® edge cards (PCIEC; page 17)

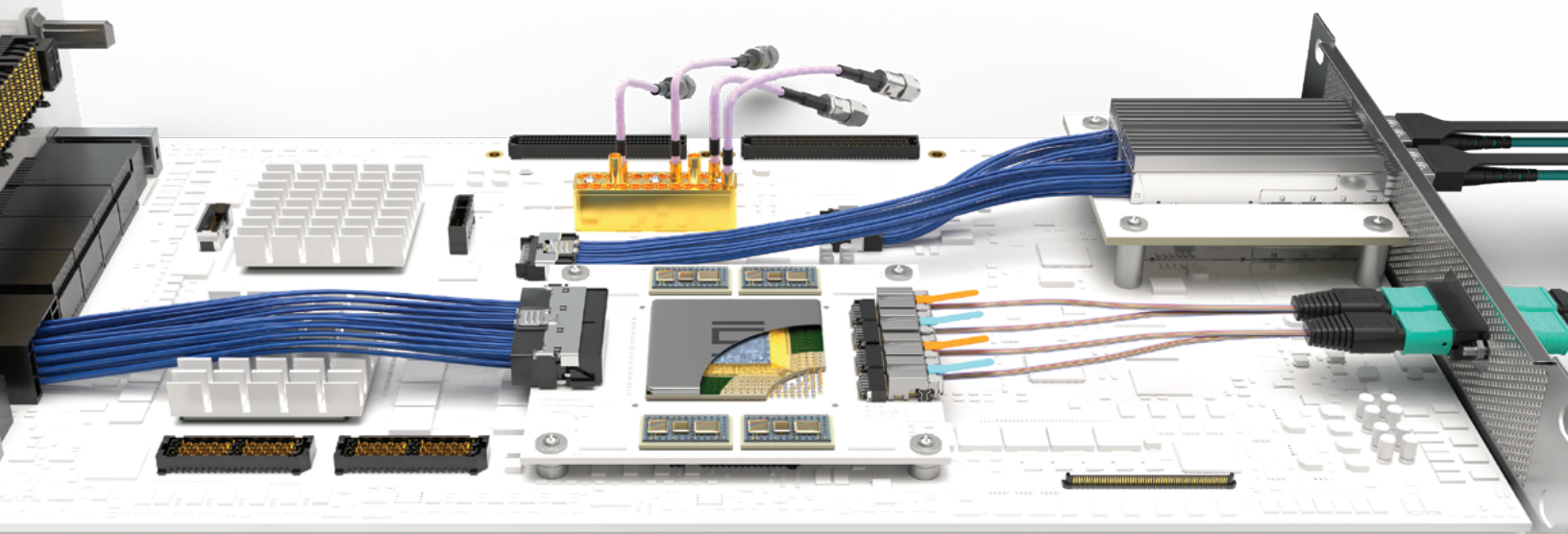


TECHNOLOGY CENTERS

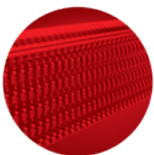
COMPLETE SYSTEM OPTIMIZATION FROM SILICON-TO-SILICON™

Samtec's Technology Centers offer high-level design and development of advanced interconnect systems and technologies, along with industry-leading signal integrity expertise which allows us to provide effective strategies and technical support for optimizing the entire serial channel of high-performance systems.

Because Samtec's Technology Centers are not limited by the boundaries of traditional business units, we are able to work in a fully integrated capacity that enables true collaboration and innovation to support the demands of today, and the challenges of tomorrow.



INTEGRATION LEADS TO INNOVATION



ADVANCED INTERCONNECTS

High precision stamping, plating, molding and automated assembly



HIGH-SPEED CABLE

In-house R&D and manufacturing of precision extruded cable and assemblies



OPTICS

R&D, design, development and support of micro optical engines and assemblies



SYSTEM SIGNAL INTEGRITY

Full channel signal and power integrity analysis, testing and validation services



PRECISION RF

RF interconnect design and development expertise, with testing to 65 GHz



MICROELECTRONICS

Advanced IC packaging design, support and manufacturing capabilities

ONLINE TOOLS

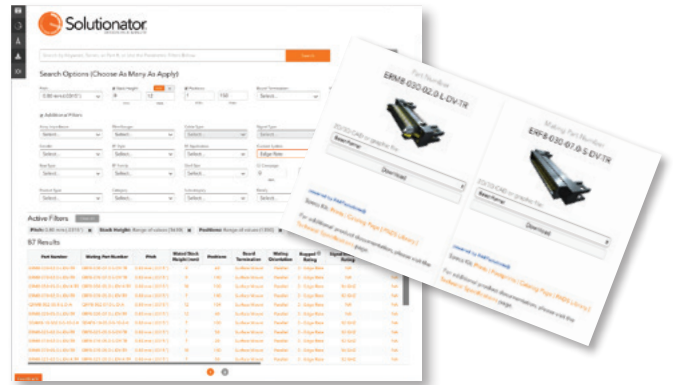
DESIGN • PERFORMANCE • SIMULATION

QUICKLY BUILD MATED CONNECTOR SETS ONLINE

- Wide variety of search parameters and filters: pitch, signaling, stack height, pin count, etc.



- Easily sort search results to find the right mated set
- Live chat with engineers for custom options
- Immediately download models and open Specs Kit
- samtec.com/solutionator



REAL-TIME HIGH-SPEED PERFORMANCE SIMULATIONS

- Integrates and blends data from models to project performance in the user-defined system



- Outputs include:
 - Insertion and return loss
 - Crosstalk (NEXT and FEXT)
 - Eye diagrams

- samtec.com/simulator

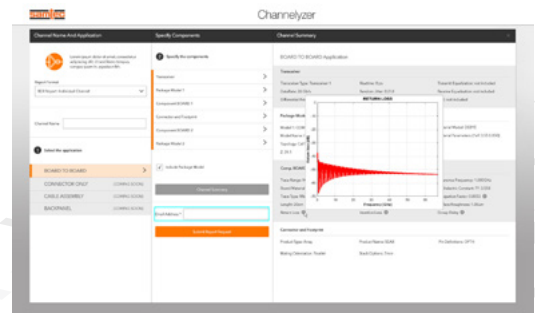


ONLINE FULL CHANNEL SIMULATION & ANALYSIS

- Channel modeling based on inputs provided by the user
- Results for standards and transceivers at varying equalization levels and data rates
- Individual receiver performance data per Tx/Rx assignments
- Channel overview and strategies for improved performance



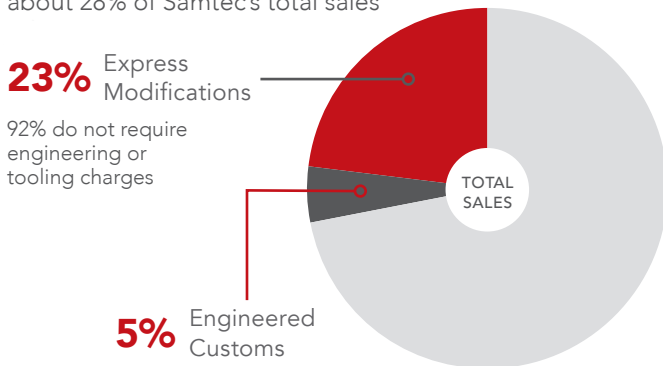
- samtec.com/channelyzer



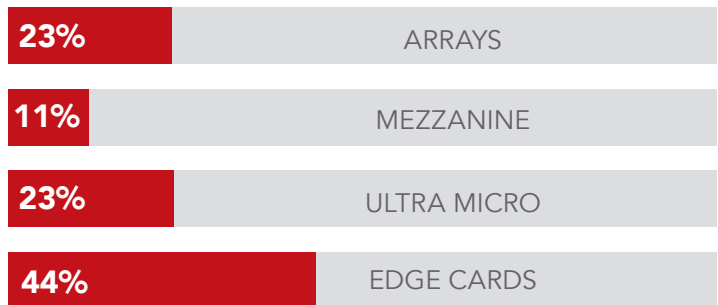
MODIFIED & CUSTOM SOLUTIONS

WILLINGNESS, SUPPORT & EXPERTISE

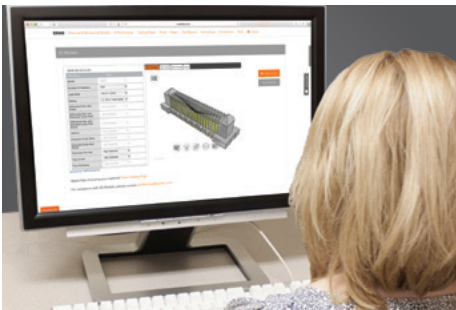
Customs and Modifications make up about 28% of Samtec's total sales



A substantial percentage of Samtec's high-speed board-to-board product segments are custom



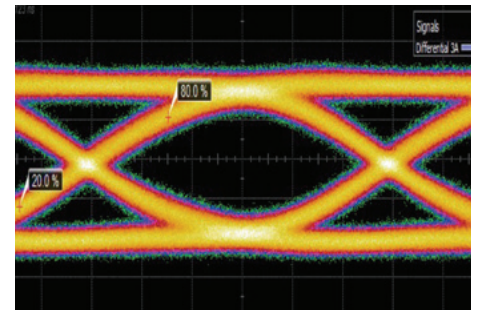
INDUSTRY LEADING CUSTOMER SERVICE



FLEXIBLE IN-HOUSE MANUFACTURING

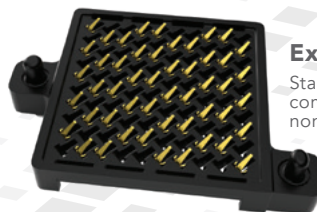


SIGNAL INTEGRITY EXPERTISE



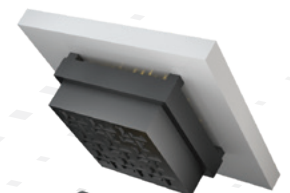
FLEXIBLE CAPABILITIES

- Full engineering, design and prototype support
- Design, simulation and processing assistance
- Quotes and samples turned around in 24 hours
- Flexible, quick-turn manufacturing
- Dedicated Application Specific Product engineers and technicians
- Modified or custom options for board level connectors and cable assemblies including: contacts, bodies, stamping, plating, wiring, molding, ruggedizing features and much more



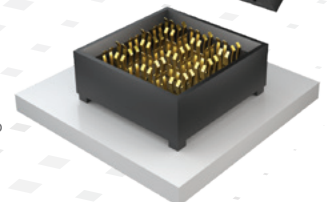
Express Modification

Standard low-profile compression array (GMI) with non-standard pin-out



Engineered Custom

Custom body and pin layout with rotated pairs to cancel magnetic coupling



Contact the Application Specific Products Group at asp@samtec.com for express modifications or engineered customs.



samtec

SUDDEN SERVICE®

UNITED STATES • NORTHERN CALIFORNIA • SOUTHERN CALIFORNIA • SOUTH AMERICA • UNITED KINGDOM
GERMANY • FRANCE • ITALY • NORDIC/BALTIC • BENELUX • ISRAEL • INDIA • AUSTRALIA / NEW ZEALAND
SINGAPORE • JAPAN • CHINA • TAIWAN • HONG KONG • KOREA