HIGH SPEED
EDGE CARD SOCKETS

One Piece Edge Rate™
Contact Sockets

- Edge Rate™ contacts optimized for Signal Integrity performance
- Surface mount and edge mount designs for parallel, perpendicular and planar board mating
- Mates with standard .062" (1.60mm) PCB cards
- Optional rugged board locking and cable latching features
- Direct card to socket interface reduces cost (HSEC8 Series)
- 0.8mm pitch

Dual Card
Edge Mount
Right Angle

PCI Express® Sockets
1mm pitch (PCIE Series)
Vertical or right angle PCB Mount and Card Edge Mount
Supports one, four, eight and sixteen "PCI Express™" links

Edge Card Sockets
0.635mm (MEC6 Series), 1mm (MEC1 Series), 1.27mm (MEC2 Series) & 2mm (MEC2 Series) pitch
Right angle, vertical and edge mount

Micro TCA Connectors
0.75mm pitch (MTCA Series)
Identical to Molex in form, fit and function
170 contacts
Press fit tails for simple, reliable board terminations

Micro Plane Interface
Variable card mating thickness
Large deflection BeCu contact
1mm pitch (SAL1 Series)
40 to 80 I/Os per pair

HSECA - TYPICAL PERFORMANCE*

<table>
<thead>
<tr>
<th></th>
<th>Single-Ended</th>
<th>Differential Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 GHz / 16 Gbps @ -3dB IL</td>
<td>10.5 GHz / 21 Gbps @ -3dB IL</td>
</tr>
<tr>
<td>Current Rating</td>
<td>3.1A @ 95°C</td>
<td></td>
</tr>
</tbody>
</table>

* For complete test data go to www.samtec.com/HSECA or contact sig@samtec.com

* PCI Express® is a registered trademark of PCI-SIG
Two Piece Edge Rate™ Contact System

- Smooth broad milled surface for mating
- Robust when “zippered” during unmating
- Edge Rate™ contacts optimized for Signal Integrity performance
- High performance, lower cost system
- 0.5mm and 0.8mm pitch

Micro Rugged Hermaphroditic

- 0.5mm pitch (LSHM Series) & 0.8mm pitch (LSEM Series)
- High Speed/High Density
- Slim row-to-row design
- Low cost blade and beam contact
- Shrouded with audible click when properly mated

Micro Rugged Tiger Eye™ Systems

- SEM/TEM Series (0.8mm), SFM/TFM Series (1.27mm (.050”)) and SMM/TMM(H) Series (2mm) pitch systems
- Friction latching system for higher withdrawal forces (optional)
Right Angle/ Micro Backplane
- Right angle arrays optimized to reduce skew and impedance mismatch
- Choice of 4 and 6 row designs with 20 to 50 contacts per row
- Rugged Edge Rate™ contacts
- Lower insertion/extraction forces
- Optional guide posts for blind mating
- Optional Press Fit tails
- Optional Solder Charge tails for improved solderability/reliability

SEARAY™ High Density Edge Rate™
1.27mm pitch (SEAM/SEAF Series)
Right angle arrays optimized to reduce skew and impedance mismatch
Optional guide posts for blind mating
Press fit termination in design

HD Mezz
Open pin field for maximum grounding and routing flexibility
Can be routed single-ended or differentially
20mm, 25mm, 30mm and 35mm standard board stack heights

DP Array®
Perimeter grounds and staggered pin layout eliminates interstitial grounds and makes board routing easier
Performance of up to a terabit per connector (up to 4 GHz per pair)
Right Angle & Edge Mount

- Integral ground/power plane rated for up to 8.9A @ 80°C
- 50Ω single-ended standard and application specific 100Ω differential pair
- Perpendicular (90°) and horizontal (180°) coplanar applications
- Optional locking screws/holes and guide posts/holes
- 0.635mm pitch

Q Rate® Interface System

QRM8/QRF8 Series
- Edge Rate™ contacts optimized for Signal Integrity performance
- Widely accepted industry standard ground/power plane
- Slim 5mm body width
- 0.8mm pitch

Q Series® Interface Systems

QTS/QSS Series
- 50Ω single-ended standard and application specific 100Ω differential pair
- Perpendicular (90°) and horizontal (180°) coplanar applications
- Optional locking screws/holes and guide posts/holes
- 0.635mm pitch
**Maximize Panel Density**
- Creative I/O to motherboard connection schemes
- Wide variety of micro backplane connectors to interface with the transition card
- High speed edge card, connector strips and arrays
- Right angle, vertical and edge mount designs

**Achieve I/O Flexibility**
- Economies of scale on critical boards is maintained with low cost transition cards
- Provides ability to customize I/Os in small volume applications
- Wide variety of I/O interfaces
- Potential for equalization circuitry to improve or maintain performance

**Rugged/High Speed I/O Interfaces**
- HDMI™ is a trademark of HDMI Licensing LLC.
STANDARD & CUSTOM
HIGH SPEED JUMPERS

Increase Packaging Efficiency

- Bring high speed signals from the back of the box to the panel
- High speed cables for long distances and high speed flex circuits for shorter distances
- Standard I/O interfaces or complete custom designs

Bypass Rack-to-Rack Backplanes

- Route high speed signals on different boards with high speed jumpers
- High speed coax cables for long distances and high speed flex data links for shorter distances

Sudden Circuits®

Quick turn high speed flex data links for short cable runs
Q2™, Q Series®, Edge Rate™, micro and standard pitch connectors
Any length to 22" (559mm)
Any connector gender/key orientation or pin count
Any ground/signal pattern
Small quantity or large, without NREs (nonrecurring engineering charges)
Semi-custom and full custom available with longer lead times and possible NREs

High Speed Cable Jumpers

Coax (50Ω & 75Ω) and twinax (100Ω) cable assemblies for long cable runs
Q2™, Q Series®, Edge Rate™, SEARAY™ Edge Card and RF connectors
Standard hot swap and ruggedizing options
RF/microwave/isolated transmission line jumpers
Standard, custom and semi-custom available, often with minimal engineering and/or set-up charges (depending on design constraints)
Solve 3G SDI Challenges

- True75™ BNC connectors are certified ±3 ohm for Straight and ±4 ohm for Right Angle.
- Samtec micro backplane and high speed stacking interconnects meet or exceed requirements for 3G SDI rear panel I/O card interfaces.
- Demonstration kits that are exceptionally accurate at measuring 3G SDI signal quality in the connector breakout regions are available. Contact 3GBDI@samtec.com for more information.
- Samtec’s signal integrity expertise, and high speed interconnect solutions, are ideal for many of the physical and electrical routing challenges facing the broadcast video industry.

3G SDI Demonstration Kit

Allows accurate measuring of 3G SDI signal quality in the connector breakout regions.
Simulation of the entire transmission line paths from BNCs through high speed interconnect and the equalizers and cable drivers on the active board.

Download e-brochure at www.samtec.com
**Final Inch® PCB Design Tools**

Pre-optimized BOR reference designs that save design, development and validation time and resources.

<table>
<thead>
<tr>
<th>Traditional PCB Design</th>
<th>Samtec Final Inch®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test boards designed to study connector, footprint, Break Out Region and traces in an actual application environment</td>
<td>Test boards are designed to study connector and footprint, with the electrical effects of vias and traces minimized</td>
</tr>
<tr>
<td>Standard materials and manufacturing processes show connector and board under real-world conditions</td>
<td>Exotic materials and difficult manufacturing processes show connector under ideal conditions</td>
</tr>
<tr>
<td>Real-world performance expectations</td>
<td>Unrealistic performance expectations</td>
</tr>
</tbody>
</table>

**Signal Integrity Center**

Online support and reference tools for the selection, development, simulation and testing of high speed systems.

- High speed connector simulations, models, reports and drawings
- HSPIE, PSpice® model, Allegro® SigXplorer model, IBIS, ICM, HyperLinx ELDO and ADS models for simulation
- PCB libraries and footprint files
- High speed characterization reports
- Time and frequency domain test data
- Bandwidth Performance Selector
- Cable Performance Calculator
- Interactive Cable Builders
- High Speed Connector Selector
- Engineering prints, product specifications, PCB footprints
- Application Notes, White Papers, presentations and articles
- Final Inch® design tools
- Test Data comparison program
- [www.samtec.com](http://www.samtec.com)

**Signal Integrity Group**

Personal support via Samtec’s highly qualified, in-house staff of Signal Integrity engineers.

- Interpret test data, performance results and capabilities
- PCB layout, trace and routing assistance
- Connector ground pin assignment and assistance
- Extensive modeling, simulation and testing capabilities
- De-embedding capabilities
- On-request test data, including eye patterns for Final Inch® circuits using Agilent PLTS 50 GHz Characterization System

**Custom Signal Integrity Services**

Application specific design, modeling and testing of circuits, subsystems or complete systems.

- Choose the depth of involvement and the breadth of service
- Layout and component strategies during the concept phase
- Customized simulation models to better optimize performance and enhance signal integrity during the design phase
- Testing and verification during the final development stages
- Electrical engineering services tailored to specific needs and products
- PCB design support for more advanced design needs

See [www.samtec.com/FI](http://www.samtec.com/FI) for downloadable/printable flow chart.
www.samtec.com

SOUTH SERVICE

SAMTEC USA
P.O. Box 1147 • New Albany, IN 47151-1147 USA
1-800-SAMTEC-9 (USA & Canada) • Tel: 812-944-6733 • Fax: 812-948-5047 • E-mail: info@samtec.com

SAMTEC SILICON VALLEY
985 University Avenue • Suite 38 • Los Gatos, CA 95032-7636
Tel: 408-395-5900 • Fax: 408-395-1520 • E-mail: samtecsiliconvalley@samtec.com

SAMTEC SOUTHERN CALIFORNIA
5410 Trabuco Road • Suite 120 • Irvine, CA 92620
Tel: 800-726-8529 • E-mail: samtecsoutherncalifornia@samtec.com

SAMTEC AMERICA LATINA COMERCIO EXTERIOR LTDA
Rua Alagoas Nr 1460 • Sala 805 • Bairro Savassi • 30130-180 Belo Horizonte / MG • Brazil
Tel: +55 31 3786 3227 • Fax: +55 31 3786 3229 • E-mail: brazilsales@samtec.com

SAMTEC UNITED KINGDOM
117 Deerydyes View • Westfield, Cumbernauld • Scotland G68 9HN
Tel: 44 01236 739292 • Fax: 44 01236 727113 • E-mail: scotland@samtec.com

SAMTEC GERMANY
Streiflacher Str. 7 • 82110 Gärmering • Germany • 0800-SAMTEC (0800 / 72 68 329) Germany only
Tel: +49 (0) 89 / 89460-0 • Fax: +49 (0) 89 / 89460-299 • E-mail: germany@samtec.com

SAMTEC FRANCE
2, Allée Emile Cohl • Bioparc Torcy • 77200 Torcy • France
Tel: 33 01 60 95 06 60 • Fax: 33 01 60 95 06 61 • E-mail: france@samtec.com

SAMTEC ITALY
Via Colleoni 25 • Centro Direzionale Colleoni • Palazzo Pegasso Ingresso 3 • 20041 Agrate Brianza-Milano • Italy
Tel: 39 039 6890337 • Fax: 39 039 6890315 • E-mail: italy@samtec.com

SAMTEC NORDIC/BALTIC
Solkravstigen 25 • 13570 Stockholm • Sweden
Tel: +46-8-4477280 • Fax: +46-8-7420413 • E-mail: scandinavia@samtec.com

SAMTEC BENELUX
117 Deerydyes View • Westfield, Cumbernauld • Scotland G68 9HN
Tel: 44 01236 739292 • Fax: 44 01236 727113 • E-mail: benelux@samtec.com

SAMTEC ISRAEL
7 Jabotinski St. • Moshe Avi Tower • Ramat Gan, Israel 52520
Tel: 972-3-7526900 • Fax: 972-3-7526600 • E-mail: israel@samtec.com

SAMTEC INDIA
#26/2, 1st Floor, Bugle Rock Road • Basavanagudi • Bangalore • 560 004 India
Tel: 91 80 3272 1612 • Fax: 91 80 4152 8187 • E-mail: india@samtec.com

SAMTEC ASIA PACIFIC
1 Kallang Sector 805-01/02 • Kotam Ayer Industrial Park • Singapore 349276
Tel: 65 6745 9055 • Fax: 65 6841-1502 • E-mail: singapore@samtec.com

SAMTEC JAPAN
Leaf Square Bldg. • 3-7-3, Shinyokohama, Kohoku-ku • Yokohama-shi, Kanagawa 222-0033 Japan
Tel: 045-475-1385 • Fax: 045-475-1340 • E-mail: japan@samtec.com

SAMTEC CHINA
Room 1701, Building C, Technology Mansion • No 900 Yishan Road • Shanghai, China 200233
Tel: 86-21 61103766 • Fax: 86-21 5423 4575 • E-mail: china@samtec.com

SAMTEC TAIWAN
10F, No. 182, Sec. 2 • Dunhua S. Rd. • Da-an District • Taipei City 10669 • Taiwan (R.O.C.)
Tel: 00801-14-9916 (Taiwan only) • Tel: 886-2-2735-6109 • Fax: 886-2-2735-5036 • E-mail: taiwan@samtec.com

SAMTEC HONG KONG
Room 18, 13/F, Shatin Galleria • 18-24 Shan Mei Street • Fo Tan, Shatin, Hong Kong
Tel: 852-26904858 • Fax: 852-26904862 • E-mail: hongkong@samtec.com

SAMTEC KOREA
RM#758, Sungwoo Starwoos Officeetel Gumi-dong • Seongnam Si, Bundang-gu, Gyeonggi-Do • 463-860 Korea
Tel: 82-31-717-5685 • Fax: 82-31-717-5681 • E-mail: korea@samtec.com

SAMTEC ANZ
5 Berrigan Court Oakleigh South • Victoria 3167, Australia
Tel: 613 9512 7747 • Fax: 613 9512 7745 • E-mail: australia@samtec.com

SAMTEC SOUTH AFRICA
189 First Ave. • Edenvale • Gauteng • South Africa, 1610
Tel: 27 11 452 8112 • Fax: 27 866 714 432 • E-mail: africa@samtec.com

SAMTEC ONLINE
Internet: www.samtec.com