Samtec is much more than just another connector company. We put people first, along with a commitment to exceptional service, quality products and innovative technologies that take the industry further faster. This is enabled by our unique, fully integrated business model, which allows for true collaboration and innovation without the limits of traditional business models.

We believe that taking care of our customers and our employees is paramount in how we approach our business, and this belief is deeply ingrained throughout Samtec worldwide.

### INNOVATIVE TECHNOLOGIES

From standard cataloged products to unique high-performance design, Samtec’s SOLUTION BLOCKS are designed to support any interconnectivity need, regardless of application, performance requirements or environment.

**Silicon-to-Silicon™ Solutions**

**Core Board-to-Board**

**HIGH-SPEED BOARD-TO-BOARD**  **HIGH-SPEED CABLE**  **OPTICS**  **RF**  **RUGGED/POWER**  **FLEXIBLE STACKING**

### SUDDEN SERVICE®

Samtec is the service leader in the industry, offering unmatched technical support, free product samples and access to online resources, and innovative online tools to help streamline the design process.

**CORE SERVICE**  **TECH SUPPORT**  **WEB TOOLS**  **SYSTEM SERVICE**

#1 in Bishop’s Customer Survey of the Electronic Connector Industry
During the Renaissance – a historic time of a cultural, artistic, political and economic “rebirth” – traditional ways of thinking were challenged, reimagined and redefined. Fields of study such as architecture, art and science were often intertwined, enabling new ideas, innovations and advancements never before considered. Fast forward to the 21st Century, and we too are experiencing a Renaissance – a **Technical Renaissance** – along with its inherent challenges.

Quickly advancing and evolving industries such as the 5G Network, High-Performance Computing, Artificial Intelligence and Auto “2.0” are driving new architectures that demand previously unimaginable transmission speeds, bandwidths, frequencies and densities – all while balancing scalability, power and thermal management concerns, and of course, cost.

Samtec’s Silicon-to-Silicon™ interconnect solutions consistently exceed industry-standard connectivity demands, **enabling the path to 224 Gbps performance and beyond.**

While interconnect solutions that support bleeding edge speeds are certainly important, those capabilities can be rendered ineffective unless it is part of a well-designed and optimized system. A holistic approach to system design, particularly as speeds, bandwidths and densities increase – is a must.

Samtec provides high-level design assistance and engineering support both at the component level and system level, to ensure full system performance optimization - from bare die, to IC package, to PCB, to connectors and cables, and back again: **Full System Optimization... from Silicon-to-Silicon™.**

Learn more about how Samtec can help with your high-performance system design at samtec.com/s2s.

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**THE TECHNICAL RENAISSANCE**

Driven by **progress**, challenged by unprecedented **demands**, a catalyst for next level **innovation**... enabled by Samtec’s **Silicon-to-Silicon™** Solutions.

---

PROGRESS DEMANDS INNOVATION.

Development of technologies and products that can support these unprecedented performance demands requires next level thinking. At Samtec, integration leads to innovation. Global collaboration amongst all areas of technical expertise enables development of innovative and effective solutions for next generation challenges.

---

1 Ray Kurzweil, from The Law of Accelerating Returns, By Alison E. Berman and Jason Dorrier © 2016 Singularity University
2 Gary Dickerson, Applied Materials President and CEO from "Time for a New Playbook" by Dylan McGrath, EETAsia.com © 2019 eMedia Asia Ltd.
Samtec's integrated approach provides high-level design and development of advanced interconnect systems and technologies, along with industry-leading expertise that allows us to offer effective strategies and support for optimizing the entire signal channel of high-performance systems.

Samtec is structured like no other company in the interconnect industry. We work in a fully integrated capacity that enables true collaboration and results in uniquely innovative products because our technology teams are not limited by the boundaries of traditional business units.

As bandwidth, scale and power requirements continue to challenge conventional engineering methods, we want to help optimize the landscape of your entire system - and develop solutions, together.

Samtec’s industry-leading signal integrity expertise, full system optimization strategies and, innovative products and technologies help address the challenges of next gen data transmission for a path to 224 Gbps and beyond.
**SILICON-TO-SILICON™ SOLUTIONS**

Samtec is positioned to produce solutions quickly, with higher densities, faster speeds and smaller footprints to meet the demands of next generation systems. New series, as well as expansions to existing product lines, are added to the millions of solutions we offer weekly – if not daily.

Samtec's new *Technology & New Product Overview Guide* introduces some of our recently released series, and highlights future endeavors as we lead the way in products and support for complete system optimization from *Silicon-to-Silicon™*.

---

**THE TECHNICAL RENAISSANCE | 3-6**

Next Gen System Design Challenges  
Integration Leads to Innovation  
Silicon-to-Silicon™ Solutions

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**HIGH-SPEED CABLE**

**Flyover® QSFP Cable System**
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**AcceleRate® HP High-Performance Cable System**
112 Gbps High-Density System (ARP6/APF6-L) .............. 14-15

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**RUGGED/POWER**

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<td><strong>Si-FLY</strong></td>
<td>Ultra Low Profile, High-Density Cable System</td>
<td>• Samtec's lowest profile Flyover® cable solution  • Direct attach to IC Package  • Enables 25.6 TB aggregate with a path to 51.2 TB</td>
<td>Copper Twinax System with up to 16 pairs (CPC/CP) ASIC-adjacent rugged latching</td>
<td>Gen 2: 112G PAM4 with angled vertical launch for co-packaged applications</td>
<td></td>
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<tr>
<td><strong>Flyover® QSFP</strong></td>
<td>Cable Systems</td>
<td>• Improved signal integrity and architectural flexibility  • Increased airflow with sideband signaling via press-fit contacts</td>
<td>QSFP (FQSFP) QSFP Double Density (FQSFP-DD)</td>
<td>800G QSFP Double Density (FQSFP-D8)</td>
<td>• FQSFP Cage (QSPC)  • FQSFP Light Pipe (LP-FQSFP)</td>
</tr>
<tr>
<td><strong>ACCELERATE®</strong></td>
<td>Slim Direct Attach Cables</td>
<td>• Slimmest cable assembly in the industry  • High-density 2-row design  • PCIe® 5.0 compatible</td>
<td>8, 16, 24 Pairs (ARC6) 72 Pairs (ARC6)</td>
<td></td>
<td>• ACCELERATE® Mating Board Level Sockets (ARF6, ARF6-RA)</td>
</tr>
<tr>
<td><strong>ACCELERATE® mini</strong></td>
<td>Extreme Performance 1 &amp; 2 Pair Cable Systems</td>
<td>• Ultra Low Skew Thinax™  • End 2 option for Flyover® assemblies with 1 or 2 Differential Pairs</td>
<td>1 or 2 Pairs Vertical &amp; Right-Angle</td>
<td></td>
<td>• ACCELERATE® Slim Direct Attach Cable Systems (ARC6)</td>
</tr>
<tr>
<td><strong>ACCELERATE® HP</strong></td>
<td>High-Density, High-Performance Cable System</td>
<td>• Industry’s highest density 112 Gbps PAM4 cable-to-board system  • Ultra Low Skew Twinax</td>
<td>4, 6 or 8 Rows 8 or 12 Twinax/Row 12 or 18 Coax/Row (ARP6)</td>
<td>Gen 2: Up to 144 DP &amp; Thinax™ Cable for co-packaged applications</td>
<td>• ACCELERATE® HP Mating Connector (APF6-L)</td>
</tr>
<tr>
<td><strong>NOVARAY</strong></td>
<td>Extreme Density &amp; Performance Cable Systems</td>
<td>• 40% smaller than conventional cables  • Low crosstalk to 40 GHz+  • Tight impedance control</td>
<td>8, 16, 24, 32 Pairs; 34 AWG Twinax (NVAC) 72 Pairs; 30 AWG Twinax</td>
<td></td>
<td>• NOVARAY® Mating Terminal Connector (NVAM-C)  • NOVARAY® I/O 38999 IP67 Sealed Rugged Cable System</td>
</tr>
<tr>
<td><strong>NOVARAY</strong></td>
<td>High-Speed Micro Rugged Backplane System</td>
<td>• Reliable precision insert molded contact system with stub-free mating  • C2B, C2C &amp; B2B systems in development</td>
<td>Socket Cable System (NVCF) Terminal Cable System (NVCM)</td>
<td></td>
<td>• NOVARAY® Backplane Sockets &amp; Terminals (NVBF, NVBM-RA)</td>
</tr>
<tr>
<td><strong>NOVARAY I/O</strong></td>
<td>Extreme Performance Panel Mount Cable Systems</td>
<td>• Highest aggregate data rate on the market  • Internal &amp; external cables  • PCIe® 6.0 Compatible</td>
<td>8, 16 &amp; 32 Pairs (NVACE, NVACP) -RA Panel Mount Receptacle</td>
<td></td>
<td>• NOVARAY® I/O 38999 IP67 Sealed Rugged Cable System</td>
</tr>
<tr>
<td><strong>ExaMAX®</strong></td>
<td>High-Speed Backplane System</td>
<td>• Cable Sockets &amp; Terminals  • Traditional, coplanar, direct mate orthogonal  • High reliability differential pair contact system</td>
<td>4 &amp; 6 Pairs/Column (EBCM, EBCF-VT &amp; -RA) 8 Pairs/Column</td>
<td>112G PAM4 I/O System</td>
<td>• EXAMAX® C2B / B2B Interconnects (EBT/EBTF-RA/EBDM-RA)</td>
</tr>
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</table>
### HIGH-SPEED CABLE SYSTEMS

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</table>
| **PCI Express**
Edge Card Cable Systems | • 3.0, 4.0 & 5.0 compatible
• High-speed twinax jumper cables
• Breakout test cable with microwave coax & SMAs | 3.0 (PCIEC)
4.0 (PCIEC-G4)
5.0 (PCIEC-G5) | PCIe® 4.0 & 5.0 Test Cables in x1, x4, x8, x16 sizes (PCRF-G4/-G5) | • PCIe® Edge Card Sockets (PCIE)
• PCIe® Low Loss Microwave Test Cable (PCRF) |

<table>
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</table>
| **Generate**
High-Speed Differential Pair Edge Card Cable | • SFF-TA-1002 & PCIe® 5.0 compatible
• Vertical & Right-Angle
• Edge Rate® contacts on 0.60 mm pitch | 1C (2x28), 2C (2x42) & 4C (2x70) configurations (GC6) | 4C+ (2x84) configuration (GC6) | • Generate™ Mating Socket (HSEC6)
• Generate™ 0.80 mm & 1.00 mm Sockets (HSEC8, HSEC1) |

### HIGH-SPEED BOARD-TO-BOARD

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</table>
| **ACCELERATE**
Ultra Dense Multi-Row Mezzanine Strips | • 720 pins per square inch
• Low profile 5 mm stack, slim 5 mm width
• Up to 400 I/Os in 4-Rows
• Open-pin-field design | 5-16 mm Stack
4 Rows: 10 - 60 Positions/Row (ADM6/AD6) | 4 Row: 70 - 100 Positions/Row (ADM6/AD6) | • SureWare™ Rugged Guidepost Standoff (GPSO) |

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</thead>
</table>
| **ACCELERATE**
High-Density Signal & Power Combo | • AcceleRate® HD Connector + mPOWER® Power Blades
• Rotated power blades for improved performance
• Flexible open-pin-field | 5 mm Stack Height
4 Power + 40 Signal Positions | Up to 16 mm Stack Heights
6, 8, 10 Power + up to 240 Signal Pos. | • AcceleRate® HD Mezzanine Strips (ADM6/AD6) |

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</table>
| **ACCELERATE**
Extreme Performance Open-Pin-Field Arrays | • Low profile 5 mm stack height, up to 10 mm
• PCIe® 5.0/100 GbE compatible
• COM-HPC™ interconnects (4x100, APX6 Series) | 4 Rows: 20, 40, 60, 100 Positions/Row (APM6/AP6) | 6 & 8 Rows
Right-Angle & Cable Assembly | Up to 1,000+ Total Pins | • AcceleRate® HP Cable Systems (ARP6) |

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</table>
| **NOVARAY**
High-Speed Mezzanine Interconnects | • 4.0 Tbps aggregate data rate
• High reliability with two points of contact
• Extremely low crosstalk, tight impedance control | 7, 9, 10, 12 mm Stack Heights
2, 3, 4 Rows
1, 2 Banks (NVAM/NVAF) | 3 Banks
Backplane System | Up to 20 mm Stack Heights
5 Rows
Single-Ended Configurations | • NOVARAY® High-Speed Cable Systems (NVAC) |

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</table>
| **NOVARAY**
Micro Rugged Backplane System | • Board-to-Board & Cable-to-Board connectors
• Performance to 224G PAM4 | Vertical Socket (NVBF)
Right-Angle Terminal (NVBM-RA) | • NOVARAY® Backplane Cable System (NVCF) |

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</thead>
</table>
| **GENERATE**
High-Speed Differential Pair Edge Card Connector | • Rugged Edge Rate® contacts on 0.60 mm pitch
• PCIe® 5.0 compatible
• SFF-TA-1002 Compliant | Vertical (HSEC6-DV)
Right-Angle (HSEC6-RA) | • 0.60 mm Pitch Cable System (GC6) |
• 0.80 mm Pitch Sockets (HSEC8, HSEC8-DP) & Cable System (ECDP) |
• 1.00 mm Pitch Sockets (HSEC1) |
# TECHNOLOGY ROADMAP

## OPTICS

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</thead>
</table>
| **FIREFLY.**         | • Flyover® Technology enables simplified board layout and improved signal integrity  
                        • Industry-leading miniature footprint, low profile  
                        • Up to 28 Gbps per channel                                    | Commercial (ECUO)   | Extreme Environment Sealed System: submersible with -40 to +85 ºC temp range (ETMO) |                                                                         |
| Optical Micro Flyover System™ |                                                                          |                     |                                                                                |                                                                         |
| **Halo™**            | • Capable of 112 Gbps PAM4 per lane, up to 16 channels  
                        • Low 6 mm profile with low center of gravity designed to withstand high shock & vibe | Up to 16 Channels  | (0 Channel Bi-Directional)                                                     |                                                                         |
| Next Gen Optics      |                                                                          |                     |                                                                                |                                                                         |
| **FIREHAWK.**        | • Industry’s most compact fiber optics with solderable BGA attach for reliability  
                        • Removable pigtail connector ideal for harsh environments          | MT/MTF Ferrule Terminations  |                                                                                |                                                                         |
| Ultra Rugged Optics  |                                                                          | MIL-Spec Custom Terminations  |                                                                                |                                                                         |
|                      |                                                                          | Rad-Hard Optical Fiber |                                                                                |                                                                         |

## RUGGED / POWER

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</thead>
</table>
| **URSA I/O**         | • Hyperboloid-type contact for extreme reliability and high mating cycles  
                        • MIL-grade performance at commercial pricing  
                        • 1 mm pitch; up to 40 pos/row                                          | 2 to 10 total Positions  | EMI Shielding Socket Cable (B15D)  
                        5 to 20 mm Stack Heights (UMPT/UMPS, UMPC)                               | Cable-to-Cable System                                                |
| Ultra Rugged Power Cable System |                                                                          |                     |                                                                                | Additional Positions  
                                                                            | Slim Latching                                                              |
|                      |                                                                          |                     |                                                                                |                                                                         |
| **mPOWER®**          | • Board-to-board & cable-to-cable solutions  
                        • Design flexibility as power-only, or as power/signal when used with any signal connector | 8 & 32 Pairs, Additional Shell Configurations |                                                                                |                                                                         |
| Ultra Micro Power Interconnect System |                                                                          |                     |                                                                                |                                                                         |
|                      |                                                                          |                     |                                                                                |                                                                         |
| **NOVARAY I/O**      | • NovaRay® I/O High Data Rate Cable System  
                        • Rugged 38999 style shell  
                        • Salt fog resistant to 48 hours                                      | 16 Pairs             |                                                                                |                                                                         |
| 38999 Sealed Rugged Cable System |                                                                          |                     |                                                                                |                                                                         |
|                      |                                                                          |                     |                                                                                |                                                                         |
| **SURECOAT**         | • High-Reliability Palladium Plating for high-temp, high-cycle applications | Hi-Temp Plating for SEAM/SEAF |                                                                                | Hi-Temp Plating for SEAX8, AP6X, HSEC8, HDTX, HPTX Series |
| High Reliability Platings & Coatings |                                                                          |                     |                                                                                |                                                                         |
|                      |                                                                          |                     |                                                                                |                                                                         |
| **ACCLIMATE**        | • AccliMate™ IP67/IP68 Sealed Circular & Rectangular Systems  
                        • Single Pair Ethernet Cables and Connectors  
                        • USB Connectors & Cables                                                    | AccliMate™ Systems (Mini Push-Pull, Bayonet Circulars, Ethernet, USB)  
                                                                            | AccliMate™ IP67 Sealed USB Type-C System (USB 3.1 speeds)  
<pre><code>                                                                        | IEC 63171-6 Compliant Single Pair Ethernet                              |
</code></pre>
<p>| Rugged I/O Cable &amp; Connector Systems |                                                                          | USB &amp; Mini USB Connectors &amp; Cables  |                                                                                |                                                                         |</p>
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</tr>
</thead>
</table>
| **Ganged SMPM Solutions** | • High-density, space-saving push-on design  
• Board-to-Board & Cable-to-Board  
• Custom pitch and row counts available | Edge Mount, .047” Low-Loss Flexible Cable Mezzanine, Coplanar or Perpendicular Single-Row design | Vertical Surface Mount Right-Angle Surface Mount .086” Low-Loss Flexible Cable | |
| **High-Performance Test Systems** | • High-density, space-saving  
• Enables smaller eval boards and shorter trace lengths  
• Compression interface  
• Microstrip or stripline PCB transmission types | 50 GHz, 70 GHz Systems | 90 GHz System with improved density | |
| **High-Frequency Micro Waveguide Technology** | • High-frequency (mmWave)  
• Extremely flexible cable construction; maintains dynamic stability  
• Ultra Small Form Factor  
• Low loss dielectric | BNC, High-Density BNC, DIN 1.0/2.3 in a variety of orientations | –V Band, –E Band | |
| **Broadcast Video Solutions** | • Proprietary balanced, right-angle design  
• Low profile  
• Pick-and-place options  
• Meets SMPTE 2082 12G-SDI specifications | Belden 4694R & 4855R cable assemblies | | |
| **VITA 90 VNX™+ RF Backplane Solution** | • Modular, SFF design with FireFly™ Optics & SEARAY™ Right-Angle Array  
• Supports 110 GHz  
• COTS or modified COTS solution saves time & cost | Size 20 RF Contact System Blind Mate Optical Connector | Size 16 RF Contact System | |
| **Precision RF Connectors** | • Cable connectors with bayonet, threaded and push-on coupling features  
• Cable-to-Board and Board-to-Board Systems  
• Variety of orientations | SMA (18 GHz, SMP, SMPM) PCB Compression 1.85 mm, 2.40 mm, 2.92 mm 1.35 mm Stripline | RF280; N Type, TNC & SMA 1.35 mm, 1.00 mm, 26.5 GHz, SMP (40 GHz) assemblies | Edge Launch 2.40 mm SMA (26.5 GHz) Edge Mount Compression Edge Launch Through-Hole & Mixed Technology |
| **Precision RF Cables** | • Low-loss microwave/mmWave, 12G-SDI, RG Type, High-Density Ganged, and Samtec-optimized cables  
• Wide variety of industry standard interfaces | MHF4, 1.85 mm, 2.40 mm, 2.92 mm assemblies RF180: N Type, TNC & SMA RF280: SMA | | Next Gen Precision Cable Assemblies: phase & insertion loss stable, extended frequency range |
| **Precision RF Between-Series & In-Series Adaptors** | • Designed for well-performing VSWR and insertion loss  
• Test & Measurement applications  
• Board-to-board SMPM applications | In-Series (PRFIA) for SMPM & Magnum RF™ Solutions | In-Series for 1.00 mm, 3.50 mm, N Type, SMA, TNCA & SMP | |
**FLYOVER® QSFP CABLE ASSEMBLIES**

**FEATURES & BENEFITS**

QSFP28, QSFP-DD and QSFP-D8 systems utilize Samtec Flyover® technology to route data above lossy PCB, simplifying board layout and extending signal reach. The modular design enables optimized systems that improve heat management, increase signal integrity performance, build in scalability for future upgrades and reduces costs by creating a multifunction board.

**FLYOVER® QSFP SYSTEM**
- 4 Channels (x4 bidirectional, 8 differential pairs)
- Up to 400 Gbps aggregate (112 Gbps PAM4)
- Compatible with all MSA QSFP pluggables
- Multiple heat sink options available for optimal dissipation
- Eye Speed® 30 or 34 AWG twinax cable
- Multiple end 2 options for design flexibility
- Evaluation Kits available (REF-205303-X.XX-XX and REF-200471-X.XX-XX), visit samtec.com/kits

**FLYOVER® QSFP DOUBLE DENSITY**
- 8 Channels (x8 bidirectional, 16 differential pairs)
- Up to 400 Gbps aggregate (56 Gbps PAM4)
- Belly-to-belly mating for maximum density
- Backward compatible with QSFP modules
- Multiple heat sink options available for optimal dissipation
- Variety of end 2 options
- Evaluation Kits available (REF-205605-X.XX-XX and REF-203423-X.XX-XX), visit samtec.com/kits

**800G FLYOVER® DOUBLE DENSITY**
- 8 Channels (x8 bidirectional, 16 differential pairs)
- Up to 800 Gbps aggregate (112 Gbps PAM4)
- Belly-to-belly mating for maximum density
- Backward compatible with QSFP & QSFP-DD modules
- Multiple heat sink options available for optimal dissipation
- Variety of end 2 options

Localized press-fit control and power contacts eliminate the need for a secondary cable and connector

High-speed contacts directly soldered to Eye Speed® ultra low skew twinax

[Samtec Website](samtec.com/qsfp-flyover)

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
800G FLYOVER® QSFP DOUBLE DENSITY

### FQSFP-D8

- **Cable Type**: 03
  - 34 AWG, 92 Ω ultra low skew twinax cable, 16 pairs
- **Footprint**: A
  - Primary
- **Cable Length**: "XX.X"
  - Length in inches
  - 04.0" (101.6 mm) minimum
- **End 2 Option**: 1
  - ARC6-16

### QSFPC-D8

- **Stack**: 1
  - Single Stack
- **No. of Ports**: 1
  - One Port
- **Option**: S
  - Spring Fingers
- **Style**: F
  - Flyover

### HS-QSFP-D8

- **Heat Sink Height**: 1
  - (6.20 mm) .244" height
- **Heat Sink Height**: 2
  - (12.00 mm) .472" height

---

**Note:**
Some sizes, styles and options are non-standard, non-returnable.

samtec.com?FQSFP-D8, samtec.com?QSFPC-D8 or samtec.com?HS-QSFP-D8

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ACCELERATE® HP

EXTREME DENSITY CABLE-ON-SUBSTRATE
(0.635 mm) .025" PITCH

FEATURES & BENEFITS

- Industry’s highest density 112G PAM4 cable system
- BGA solder ball attach
- 34 AWG ultra-low skew twinax
- 0.635 mm contact pitch; 2.20 x 2.40 mm row-to-row pitch
- 4 to 6 rows (8 rows in development)
- Up to 96 twinax cables
- Squeeze latch or extraction tool configuration
- Single-ended micro coax configuration in development

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>CABLE</th>
<th>SIGNAL ROUTING</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.635 mm) .025&quot;</td>
<td>34 AWG ultra-low skew twinax</td>
<td>92 Ω Differential</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Au or Sn over 50 µ&quot; (1.27 µm) Ni</td>
<td>-40 °C to +125 °C</td>
</tr>
</tbody>
</table>

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
ARP6
- STYLE
- NO. OF PAIRS
- NO OF ROWS
- CABLE LENGTH
- END 2 ORIENTATION
- END 1 OPTION
- END 2 OPTION

- DP
  = Twinax Cable
-008, -012
-04, -06
-“XX.X” = Length in Inches
03.0” (76.2 mm) minimum
-T
  = Top
-B
  = Bottom

ARPF6 – 025 – 03.5 – XX – 04 – 2 – L SHOWN

ARP6 Board Mates:
APF6-L

APF6
- NO. OF POSITIONS
- LEAD STYLE
- PLATING
- ROW
- SOLDER TYPE
- OPTION
- ”X”R

-025, -037
  (Per Row)
-03.5
  = (3.5 mm) .138"
-L
  = 10 µ (0.25 µm)
Gold on contact area,
Matte Tin on tail
-S
  = 30 µ (0.76 µm)
Gold on contact area,
Matte Tin on tail
-04
  = Four Row
-06
  = Six Row
-2
  = Lead-Free Solder Balls
-L
  = Squeeze Latch
-TR
  = Tape & Reel
-FR
  = Full Reel Tape & Reel
  (must order maximum quantity per reel;
  contact Samtec for quantity breaks)

APF6-L Cable Mates:
ARP6

Note: Some sizes, styles and options are non-standard, non-returnable.
**NOVARAY® I/O**

**EXTREME PERFORMANCE PANEL MOUNT I/O ASSEMBLIES**

### FEATURES & BENEFITS
- 16 & 32 differential pair configurations
  - Accommodates x4 or x8 plus sidebands
- Cable-to-Cable bulkhead panel connection using Flyover® Cable Technology
- External Cable: 28, 30 or 34 AWG twinax
- Internal Cable: 34 AWG twinax
- Single-Ended coax options also available
- Full external EMI shielding
- Multiple end 2 high-speed connector options

### TARGETED CONFIGURATIONS

<table>
<thead>
<tr>
<th></th>
<th>AGGREGATE DATA RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Pair (In Development)</td>
<td>896 Gbps</td>
</tr>
<tr>
<td>16 Pair</td>
<td>1792 Gbps</td>
</tr>
<tr>
<td>32 Pair</td>
<td>3584 Gbps</td>
</tr>
<tr>
<td>x4 (8 Pair + PCIe® Sidebands)</td>
<td>512 Gbps</td>
</tr>
<tr>
<td>x8 (16 Pair + PCIe® Sidebands)</td>
<td>1024 Gbps</td>
</tr>
</tbody>
</table>

**Si-Fly™**

**NovaRay®**

**AcceleRate®**

**VARIous END 2 OPTIONS AVAILABLE**

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
EXTREME PERFORMANCE PANEL MOUNT CABLE

NVACP - SIGNAL TYPE - CABLE STYLE - ROWS - CABLE LENGTH - END 2 - PIN OUT - SPEED

- DP = Differential (twinax pairs only)
- SE = Single ended (coax signals only)
- 1 = 34 AWG 100 Ω twinax
- 4 = 4 row
- 8 = 8 rows
- XX.X = Length in inches 06.0” (152.4 mm) minimum
- A = 1 ARC6
- 1 = Pin A01 to Pin A01
- 4 = Pin A01 to Pin AN (N equals last position)

(Differential twinax pairs only)

Notes:
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.
Some sizes, styles and options are non-standard, non-returnable.

NVACP - CABLE MATES:
- NVACE

Panel Cage:
- NVC

ROW | A
--- | ---
-4 | (12.95) .510
-8 | (20.95) .825

LENGTH = (CABLE LENGTH) +(9.8) .391
CABLE LENGTH ±1%

Die Cast Panel Cage

NO. OF PORTS - ROWS - PACKAGING

-1 = 1 Port
-2 = 2 Ports (8 row only)
-4 = 4 Ports (8 row only)

-04 = 4 rows
-08 = 8 rows

-TY = Trays

Note:
Some sizes, styles and options are non-standard, non-returnable.

 DIE CAST PANEL CAGE

View complete specifications at: samtec.com/?NVACP

samtec.com/NOVARAY-I/O

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
EXTREME PERFORMANCE I/O CABLE

NVACE

SIGNAL TYPE
- DP = Differential (twinax pairs only)
- SE = Single ended (coax signals only)

CABLE TYPE
- 1 = 34 AWG, 100 Ω twinax
- 5 = 28 AWG, 100 Ω twinax
- 6 = 34 AWG, 50 Ω coax (-SE only)

ROWS
- 4 = 4 row
- 8 = 8 rows

CABLE LENGTH
- X.X = Length in meters
  0.5 meters (19.68") minimum

END 2
- A = NVACE

PIN OUT
- 1 = Pin A01 to Pin A01
- 2 = Pin A01 to Pin N

SPEED
- 1 = 56G PAM4
- 2 = 112G PAM4

Notes:
- Cable lengths longer than 3 meters (118") are not supported with S.I. test data.
- Some sizes, styles and options are non-standard, non-returnable.

NVACE Cable Mates:
NVACP
Panel Cage:
NVC

LVDS INDICATOR

D01

D13

A01

A13

ROW  A  B
-4  (12.75).502  (17.00).669
-8  (20.75).817  (25.00).984

View complete specifications at: samtec.com?NVACE

samtec.com/NOVARAY-I/O

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
PCIEC-G4
Mates: PCIE-G4

PCIEC-G5
Mates: PCIE-G5

SPECIFICATIONS

Cable:
Eye Speed® 34 AWG Twinax; 30 AWG insulated ribbon

Operating Temp:
-25 °C to +105 °C

Contact:
Copper Alloy

Plating:
Au or Sn over 50 μ" Ni

Performance:
Supports PCIe® 4.0 & 5.0

Bend Radius:
3.18 mm .125"

Notes:
Cable lengths longer than 1015 millimeters are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

PCI-SIG®, PCI Express® and PCIe® design marks are registered trademarks and/or service marks of PCI-SIG

This Series is non-standard, non-returnable.

END TO END L
–C1 to –C1
(18.60) .732
–C1 to –C2
(29.64) 1.167
–C1 to –M1
(29.64) 1.167

CABLE OPTION
BLANK
4.0 & 5.0 SOLUTIONS
34 AWG Taped Shield
34 AWG Taped Shield

END TO END L
–C1 to –C1
(18.60) .732
–C1 to –C2
(29.64) 1.167
–C1 to –M1
(29.64) 1.167

CABLE OPTION

Notes:
Cable lengths longer than 1015 millimeters are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

PCI-SIG®, PCI Express® and PCIe® design marks are registered trademarks and/or service marks of PCI-SIG

This Series is non-standard, non-returnable.

samtec.com?PCIEC-G4 or samtec.com?PCIEC-G5

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**GC6**

**Mates:**
HSEC6-DV  
(Shield (-S) option required for mating)

**SPECIFICATIONS**

**Cable:**
34 AWG Eye Speed®  
Ultra low skew twinax  
Plating:
Au over 50 µ" (1.27 µm) Nickel

**Operating Temp Range:**
Testing Now!  
**Current Rating:**
Testing Now

**Protocols:**
SFF-TA-1002 Compatible

**Notes:**
Cables lengths longer than 40.00” (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec’s High-Speed Cable Builder at www.samtec.com/cablebuilder

Some lengths, styles and options are non-standard, non-returnable.

---

**GC6-028-XX.X–SU–SD–1–1 SHOWN**

**GC6-042-XX.X–SU–RU–2–1 SHOWN**

**GC6-070-XX.X–SU–RD–2–1 SHOWN**

---

Samtec.com?GC6

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
OPEN-PIN-FIELD CABLE SOCKET ARRAY
(1.27 mm) .050” PITCH • SEAFC SERIES

**SPECIFICATIONS**

Insulator Material:
Black LCP

Contact Material:
Phosphor Bronze

Plating:
Au or Sn over 50 µ” (1.27 µm) Ni

Operating Temp Range:
-55 °C to +125 °C

**PROCESSING**

Lead-Free Solderable:
Yes

**VIEW COMPLETE SPECIFICATIONS AT:**
samtec.com?SEAFC

---

**SEAFC**
Cable Mates:
SEAC

---

**Note:**
Some lengths, styles and options are non-standard, non-returnable

---

View complete specifications at: samtec.com?SEAFC
FEATURES & BENEFITS

- Small form factor
- Four points of contact for an extremely reliable connection
- Up to 40 positions per row
- Cable-to-cable & cable-to-board solutions
- EMI shielding in development to reduce noise generated and protect sensitive lines
- Through-hole or surface mount
- 28 & 30 AWG cable

KEY SPECIFICATIONS (P1PD(X), B1SD(X) & P1M)

<table>
<thead>
<tr>
<th>PITCH</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>SHIELD MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>CURRENT RATING</th>
<th>VOLTAGE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 mm</td>
<td>Liquid Crystal Polymer</td>
<td>Beryllium Copper</td>
<td>Zinc Alloy</td>
<td>Au over 50 µ&quot; (1.27 µm) Ni</td>
<td>–10 °C to +80 °C (PVC)</td>
<td>2.9 A per pin (2 pins powered)</td>
<td>253 VAC</td>
</tr>
</tbody>
</table>

*$Teflon™$ is a trademark of The Chemours Company FC, LLC used under license by Samtec.
(1.00 mm) .0394" PITCH • NON-PANEL MOUNT I/O CABLE/COMPONENTS


B1SD = Double Row Non-Panel Mount PVC Cable

= 10, -15, -25, -30 (Per Row)

= 28 AWG

= Color Code Wire (Leave blank for standard wire)

= 30 µ" (0.76 µm) Gold on contact area, Gold flash on tail

= 06.0" (152.4 mm) minimum

(Leave blank for single ended)

B1SDT = Double Row Non-Panel Mount Blue "Teflon" Fluoropolymer Cable

B1SD, B1SDT

Cable Mates: P1PD, P1PDT

Board Mates: P1M

B1SD CABLE HOLDER
(Required for use with IBT1)

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1SDR</td>
<td>-10, -15, -25, -30</td>
</tr>
</tbody>
</table>

B1SDS – NO. OF POSITIONS – N – OPTION

= 10, -15, -25, -30

= CS = Captive Screw

IBT1 – NO. OF POSITIONS – 1

= 10, -15, -25, -30

= 1

CC508 – 01 – PLATING – PACKAGING

= 30 µ" (0.76 µm) Gold on contact area, Gold flash on tail

= Full Reel (25,000 Contacts Per Reel)

= Mini Reel (1,000 to 5,000 Contacts Per Reel)

= Bubble Bag (35 Contacts)

Notes:
*Teflon™ Fluoropolymer Cable is intended for crimp only. Contact Samtec for solderable cable applications.

TOOLING

Hand Tool: TBD

Mini Applicator: TBD

View complete specifications at: samtec.com/B1SDS, samtec.com/IBT1 & samtec.com/CC508

Unlesm otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**1.00 mm • .0394" PITCH • PANEL MOUNT I/O CABLE/COMPONENTS**

**P1PD, P1PDT**

*P1PDR, P1PD, P1PDT*

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NO. OF POSITIONS</th>
<th>WIRE GAUGE</th>
<th>COLOR CODE</th>
<th>PLATING</th>
<th>ASSEMBLED LENGTH</th>
<th>END OPTION</th>
<th>PINOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1PD</td>
<td>-10, -15, -25, -30</td>
<td>28 AWG</td>
<td>(Leave blank for standard wire)</td>
<td>H = 30 µ&quot; (0.76 µm) Gold on contact area, Gold flash on tail</td>
<td>(Leave blank for single ended)</td>
<td>(Leave blank for single ended)</td>
<td></td>
</tr>
<tr>
<td>P1PDT</td>
<td>-30 = 30 AWG</td>
<td>C = Color Code Wire (Not available with P1PDT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**P1PD CABLE HOLDER**

(Required for use with IPP1)

<table>
<thead>
<tr>
<th>SERIES</th>
<th>NUMBER OF POSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1PDR</td>
<td>-10, -15, -25, -30</td>
</tr>
</tbody>
</table>

**P1PDS**

-10, -15, -25, -30

**IPP1**

-10, -15, -25, -30

**TC145**

-01

**PLATING**

-30 = 30 µ" (0.76 µm) Gold on contact area, Gold flash on tail

**PACKAGING**

- R = Full Reel (25,000 Terminals Per Reel)
- M = Mini Reel (1,000 to 5,000 Terminals Per Reel)
- B = Bubble Bag (35 Terminals)

**TOOLING**

| Hand Tool: TBD | Mini Applicator: TBD |


*Teflon™ Fluoropolymer Cable is intended for crimp only. Contact Samtec for solderable cable applications.*

Some lengths, styles and options are non-standard, non-returnable.

Note:

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com/URSA
Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.

(1.00 mm) .0394” PITCH • I/O BOARD MOUNT


-10, -15, -25, -30 (Per Row)

-01 = Surface Mount
-02 = Through-hole (1.57 mm PCB)
-03 = Through-hole (2.36 mm PCB)

-01 = 30 µ” (0.76 µm) Gold on contact area, Matte Tin on tail
-02 = 30 µ” (0.76 µm) Gold on contact area, Matte Tin on tail
-03 = 30 µ” (0.76 µm) Gold on contact area, Tin/Lead on tail

(Leave blank for standard)

-TR = Tape & Reel
-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

P1M-10-01-S-D-RA SHOWN (SURFACE MOUNT)

LEAD STYLE = Through-hole

-DV = Through-hole

PLATING = Through-hole

PIN LENGTH = Through-hole

“X”R = Through-hole

P1M-10-02-S-D-RA SHOWN (THROUGH-HOLE)

LEAD STYLE = Through-hole

-DV = Through-hole

PLATING = Through-hole

PIN LENGTH = Through-hole

“X”R = Through-hole

Note: Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: samtec.com?P1M

P1M Cable Mates: B1SD, B1SDT
mPOWER®

ULTRA MICRO POWER SYSTEM
(2.00 mm) .0787” PITCH

FEATURES & BENEFITS

• Up to 18 A per blade (1 blade powered)
• Design flexibility as a power-only system or a two-piece system for power/signal applications
• Use with Samtec’s high-speed connector systems for a unique power/signal system
• Choice of 2 to 10 positions
• 5 mm to 20 mm stack heights available
• Tin or 10 µ” Gold plated power blades; 30 µ” Gold plating available to meet specific regulations
• Optional weld tabs
• Cable-to-board and cable-to-cable systems in development

KEY SPECIFICATIONS

<table>
<thead>
<tr>
<th>PITCH</th>
<th>STACK HEIGHTS</th>
<th>INSULATOR MATERIAL</th>
<th>CONTACT MATERIAL</th>
<th>PLATING</th>
<th>OPERATING TEMP RANGE</th>
<th>VOLTAGE RATING</th>
<th>LEAD-FREE SOLDERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 mm</td>
<td>5 to 16, 18, 20 mm</td>
<td>Black LCP</td>
<td>Copper Alloy</td>
<td>Sn or Au over 50 µ” (1.27 µm) Ni</td>
<td>-55 °C to +105 °C with Tin -55 °C to +125 °C with Gold</td>
<td>460 VAC/650 VDC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

UMPT/UMPS compared to another small form factor power solution

MCreepage & Clearance

<table>
<thead>
<tr>
<th>UMPT/UMPS</th>
<th>CREEPAGE</th>
<th>CLEARANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMPT/UMPS</td>
<td>2.20 mm</td>
<td>1.65 mm</td>
</tr>
</tbody>
</table>

Selectively loading contacts achieves customer specific creepage and clearance requirements.

samtec.com/mPOWER

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### ULTRA MICRO POWER SOCKET

**UMPS**

<table>
<thead>
<tr>
<th>NO. OF POSITIONS</th>
<th>LEAD STYLE</th>
<th>PLATING OPTION</th>
<th>V</th>
<th>S</th>
<th>OPTION</th>
<th>“X”R</th>
</tr>
</thead>
<tbody>
<tr>
<td>–02, –03, –04, –05, –06, –07, –08, –09, –10</td>
<td>–03.5</td>
<td>= (03.5 mm) .138&quot;</td>
<td>–L</td>
<td>= 10 µ&quot; (0.25 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–05.5</td>
<td>= (05.5 mm) .217&quot;</td>
<td>–S</td>
<td>= 30 µ&quot; (0.76 µm) Gold on contact, Matte Tin on tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>–07.5</td>
<td>= (07.5 mm) .295&quot;</td>
<td>–T</td>
<td>= Matte Tin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Some lengths, styles and options are non-standard, non-returnable.

**UMPS Board Mates:**
- UMPT

---

#### UMPS/UMPT CURRENT RATING (PER CONTACT)

<table>
<thead>
<tr>
<th>PINS</th>
<th>–T</th>
<th>–L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.3 A</td>
<td>16.2 A</td>
</tr>
<tr>
<td>2</td>
<td>14.5 A</td>
<td>14.6 A</td>
</tr>
<tr>
<td>3</td>
<td>14.2 A</td>
<td>12.6 A</td>
</tr>
<tr>
<td>4</td>
<td>12.9 A</td>
<td>12.3 A</td>
</tr>
<tr>
<td>5</td>
<td>12.9 A</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>N/A</td>
<td>9.4 A</td>
</tr>
</tbody>
</table>

Ratings are derated 20% with 30 °C rise to maximum allowable temperature.

View complete specifications at: [samtec.com?UMPS](samtec.com?UMPS)
ULTRA MICRO POWER TERMINAL

**UMPT**

- **NO. OF POSITIONS**
  - 02, 03, 04, 05, 06, 07, 08, 09, 10

**Board Mates:** UMPS

**Cable Mates:** UMPC* (*UMPT requires -P or -M option for mating)

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**PLATING OPTION**
- **L** = 10 µ (0.25 µm) Gold on contact, Matte Tin on tail
- **S** = 30 µ (0.76 µm) Gold on contact, Matte Tin on tail
- **T** = Matte Tin

**WELD TAB**
- **-V**
- **-S**
- **-WT** = Weld Tab Through-hole
- **-W** = Weld Tab Through-hole
- **-P** = Plastic top latch
- **-M** = Metal side latches
- **-X”R**

**LATCH OPTION**
- **-TR** = Tape & Reel
- **-FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**LEAD STYLE**
- **-01.5** = (01.5 mm).059*
- **-02.5** = (02.5 mm).098*
- **-06.5** = (06.5 mm).256*
- **-07.5** = (07.5 mm).295*
- **-12.5** = (12.5 mm).492*

**MAX 18 Amps**

View complete specifications at: samtec.com?UMPT

---

**UMPT-RA**

- **NO. OF POSITIONS**
  - 02, 03, 04, 05, 06, 07, 08, 09, 10

**Board Mates:** UMPS

**Cable Mates:** UMPC* (*UMPT requires -P or -M option for mating)

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**PLATING OPTION**
- **L** = 10 µ (0.25 µm) Gold on contact, Matte Tin on tail
- **S** = 30 µ (0.76 µm) Gold on contact, Matte Tin on tail
- **T** = Matte Tin

**WELD TAB**
- **-V**
- **-S**
- **-WT** = Weld Tab Through-hole
- **-W** = Weld Tab Through-hole
- **-P** = Plastic top latch
- **-M** = Metal side latches
- **-X”R**

**LATCH OPTION**
- **-TR** = Tape & Reel
- **-FR** = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**LEAD STYLE**
- **-01.5** = (01.5 mm).059*
- **-02.5** = (02.5 mm).098*
- **-06.5** = (06.5 mm).256*
- **-07.5** = (07.5 mm).295*
- **-12.5** = (12.5 mm).492*

**MAX 18 Amps**

View complete specifications at: samtec.com?UMPT-RA

---

samtec.com/mPOWER

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
**ULTRA MICRO POWER CABLE**

**SERIES**
- UMPC = Ultra Micro PVC Cable
- UMPC(T) = Ultra Micro Blue "Teflon" Fluoropolymer Cable

**UMPC(T)**
Board Mates:
- UMPT = (Plastic (-P) or metal (-M) latch required)

**SPECIFICATIONS**
- Insulator Material: Black LCP
- Contact Material: Copper Alloy
- Plating: Sn or Au over 50 µ" (1.27 µm) Ni
- Wire: 16 or 18 AWG
- Voltage Rating: 300V PVC

**CABLE COLOR CODING**

<table>
<thead>
<tr>
<th>PIN</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BROWN</td>
</tr>
<tr>
<td>2</td>
<td>RED</td>
</tr>
<tr>
<td>3</td>
<td>ORANGE</td>
</tr>
<tr>
<td>4</td>
<td>YELLOW</td>
</tr>
<tr>
<td>5</td>
<td>GREEN</td>
</tr>
<tr>
<td>6</td>
<td>BLUE</td>
</tr>
<tr>
<td>7</td>
<td>VIOLET</td>
</tr>
<tr>
<td>8</td>
<td>GRAY</td>
</tr>
<tr>
<td>9</td>
<td>WHITE</td>
</tr>
<tr>
<td>10</td>
<td>BLACK</td>
</tr>
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</table>

*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:**
For wiring option information refer to drawings on web.

**UMPC CABLE HOLDER**
(Required for use with UMPC)
- Series: UMPC
- Number of Positions: 1 or 2
- Lead Style: 01 = 16 AWG, 02 = 18 AWG

**UMPC CABLE HOLDER**
(Required for use with UMPC(T))
- Series: UMPC(T)
- Number of Positions: 1 or 2
- Lead Style: 01 = 16 AWG, 02 = 18 AWG

**UMPC CABLE PLATING**
- Placing: UMPC/UMPT (TIN PLATING)

<table>
<thead>
<tr>
<th>PINS</th>
<th>CURRENT RATING (PER CONTACT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.8 A</td>
</tr>
<tr>
<td>2</td>
<td>14.6 A</td>
</tr>
<tr>
<td>3</td>
<td>12.6 A</td>
</tr>
<tr>
<td>4</td>
<td>11.6 A</td>
</tr>
<tr>
<td>10</td>
<td>8.8 A</td>
</tr>
</tbody>
</table>

**UMPC/DMP**
- Pinout: 1 = Pin 01 to Pin 01
- 2 = Pin 01 to Pin N

**IMPC**
- Series: IMPC
- Number of Positions: -02, -03, -04, -05, -06, -07, -08, -09, -10
- Latch Option: -P = Plastic top latch, -M = Metal side latches

**CC489**
- Color: 01
- Plating:
  - L = 10 µ" (0.25 µm) Gold on contact, Tin on tail
  - S = 30 µ" (0.76 µm) Gold on contact, Tin on tail
- Packaging:
  - R = Full Reel (5,000 Contacts)
  - M = Mini Reel (1,000 Contacts)
  - B = Bubble Bag (35 Contacts)

**TOOLING**
- Hand Tool: CAT-HT-489-1618-13
- Mini Applicator: CAT-MC-489-1618-XX-01

**View complete specifications at:**
samtec.com?UMPC & samtec.com?CC489

*Teflon™ Fluoropolymer Double ended = (228.6 mm) 09.0" min. (2-4 positions)
Double ended = (254.0 mm) 10.0" min. (5-10 positions)*

**Note:** Some lengths, styles and options are non-standard, non-returnable.

samtec.com/mPOWER

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.
## Specifications

**Locking Compound:**
Nylon

### GPSO Series

**BOARD STACK HEIGHT**

<table>
<thead>
<tr>
<th>BOARD STACK HEIGHT</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>–01</td>
<td>4.15</td>
<td>4.65</td>
<td>1.183</td>
</tr>
<tr>
<td>–02</td>
<td>4.15</td>
<td>4.65</td>
<td>1.183</td>
</tr>
</tbody>
</table>

**LEAD STYLE**

- **–01** = Press-In
- **–02** = Press-In with Nut

**MATERIAL**

- **–01** = 303 Stainless Steel with MIL-C-13924 black oxide finish

**KIT OPTION**

- **–N** = No hardware (Standoff only)

Leave blank for kit

### Notes:

- Standoffs to be used with (1.57 mm) .062" min thick boards. Threaded options PCB max thickness of (3.16 mm) .124".
- Standoffs are designed, 0.15 mm longer than fully mated connector stack height to allow for processing variables.
- Some sizes, styles and options are non-standard, non-returnable.

Components are to be packaged in separate bags unassembled.

## Applications

**GPSO mated with ADX6**

Allows for 0.035" of initial misalignment

**GPSO mated with UMPX**

Alignment starts before connectors engage.

---

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HIGH-RELIABILITY PLATING

- New Samtec palladium plating with flash gold for high-temp applications
- Qualified up to 150 °C ambient; 200 °C on roadmap
- Increased mating cycles
- Ideal for ATE applications

- Available on SEARAY™ 1.27 mm pitch high-density arrays (SEAF/SEAM) - up to 3,000 mating cycles
- Product roadmap includes SEARAY™ 0.80 mm, AcceleRate® HP, LP Array™ and Generate™ 0.80 mm

IN DEVELOPMENT

NEXT GEN SURFACE PLATING

Cost optimized solution by decreasing gold thickness while providing increased reliability and life cycles for ultra rugged applications.

STANDARD PLATING
10 µ" or 30 µ" Gold on contact area, Matte Tin on solder tail

NEW PALLADIUM PLATING
40 to 50 µ" Palladium with Flash Gold on top, Matte Tin on solder tail

INCREASED MATING CYCLE LIFE
INCREASED MIXED FLOW GAS
COST OPTIMIZED
SMPM TO 65 GHZ

SMPM Ganged Cable: GC47

Mates With: GPPC

Ganged Block: GC47

Mates With: GPPC

Notes:
- Cable lengths longer than 1000 mm (39.37”) are not supported with S.I. test data.
- Some sizes, styles and options are non-standard, non-returnable.

Notes:
- Some sizes, styles and options are non-standard, non-returnable.

---

SMPM

Ganged Cable:

GC47

Mates With:

GPPC

Ganged Block:

GPPC

Mates With:

GC47

Notes:
- Some sizes, styles and options are non-standard, non-returnable.

---

Notes:

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SMPM TO 65 GHz

SMPM
Ganged Block:
GPPB

Mates With:
PRFIA

GPPB - GENDER - NO. OF ROWS - NO. OF POSITIONS - PLATING - ST - SM - CHANNEL PITCH

-PF = Plug Full Detent
-PS = Plug Smooth Bore
-PC = Catcher's Mitt

-1 -08 -EG

-EG = 50 µ" (1.27 µm) heavy Gold center contact, 10 µ" (0.25 µm) Gold outer body

-1N = 3.56 mm (.140") Pitch

 ALSO AVAILABLE

2, 4, 6, 10 Positions Counts
(8.33 mm) .328" Pitch
(5.08 mm) .200" Pitch
Edge Mount termination
Contact RFGroup@samtec.com

SMPM
In-Series Adaptor:
PRFIA

Mates With:
SMPM, GPPB, GPPC

PRFIA - SMPM - GENDER - GENDER - ORIENTATION - OPTION

-J = Jack
-J = Jack
-S = Straight

-1 = (5.33) .210
-2 = (8.31) .327
-3 = (12.70) .500
-4 = (4.22) .166

VSWR
1.50 max.

ALSO AVAILABLE

2, 4, 6, 10 Positions Counts
(8.33 mm) .328" Pitch
(5.08 mm) .200" Pitch
Edge Mount termination
Contact RFGroup@samtec.com

Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec’s specifications which are subject to change without notice.
### In-Series Adaptors

**PRFIA**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>CONNECTOR</th>
<th>END 1 GENDER</th>
<th>END 2 GENDER</th>
<th>ORIENTATION</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>-185</td>
<td>-P</td>
<td>= Plug</td>
<td>-J</td>
<td>= Jack</td>
<td>2.92 mm</td>
</tr>
<tr>
<td>-240</td>
<td>-J</td>
<td>= Jack</td>
<td>-J</td>
<td>= Jack</td>
<td>2.40 mm</td>
</tr>
<tr>
<td>-292</td>
<td>-P</td>
<td>= Plug (Only available with -P on end 1)</td>
<td>-J</td>
<td>= Jack</td>
<td>2.92 mm</td>
</tr>
</tbody>
</table>

**VSWR**

- 185: 1.25 max.
- 240: 1.15 max.
- 292: 1.15 max.

---

### Between-Series Adaptors

**PRFBA**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>CONNECTOR</th>
<th>END 1 GENDER</th>
<th>CONNECTOR</th>
<th>END 2 GENDER</th>
<th>ORIENTATION</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>-292</td>
<td>-P</td>
<td>= Plug</td>
<td>-SMPM</td>
<td>= Jack</td>
<td>= Straight</td>
<td>2.92 mm</td>
</tr>
<tr>
<td></td>
<td>-J</td>
<td>= Jack</td>
<td>-PF</td>
<td>= Plug Full Detent</td>
<td>= Straight</td>
<td>2.92 mm</td>
</tr>
</tbody>
</table>

**VSWR**

1.30 max.

---

* SMPM in-series PRFIA adaptors available. See SMPM section, or visit samtec.com/SMPM

---

* Required for -292 Jack-to-Jack adaptor (PRFIA-292-J-J-S-1)
  - Leave blank for all other part numbers.

---

* Required for Jack-to-Jack adaptor (PRFBA-J-SMPM-J-J-1)
  - Leave blank for all other part numbers.
### INDEX

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<td>ARP6</td>
<td>0.635 mm AcceleRate® HP High Density/Performance Cable</td>
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<td>B1SD(T)</td>
<td>URSA™ I/O Ultra Rugged Socket Cable Assembly</td>
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<td>URSA™ I/O Metal Shell for IBT1</td>
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<td>800 Gbps Flyover® QSFP Double Density Cable System</td>
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<td>50 Ω Magnum RF™ Ganged SMPM Block, Board-to-Board</td>
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<td>50 Ω Magnum RF™ Ganged SMPM Block, Cable-to-Board</td>
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<td>24</td>
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<td>NovaRay™ I/O Extreme Performance Cable Assembly</td>
<td>18</td>
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<td>NVACP</td>
<td>NovaRay™ I/O Panel Mount Cable Assembly</td>
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<tr>
<td>NVC</td>
<td>NovaRay™ I/O Die Cast Panel Cage</td>
<td>17</td>
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<td>P1M</td>
<td>URSA™ I/O Ultra Rugged Board Mount Connector</td>
<td>25</td>
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<td>P1PD(T)</td>
<td>URSA™ I/O Ultra Rugged Terminal Cable Assembly</td>
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<td>1.00 mm PCI Express® 4.0 Cable Assembly</td>
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<td>PCIEC-G5</td>
<td>1.00 mm PCI Express® 5.0 Cable Assembly</td>
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<td>.050&quot; SEARAY™ Open-Pin-Field Board Mate for SEAC</td>
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<td>UMPC(T)</td>
<td>2.00 mm mPOWER® Ultra Micro Power Cable Assembly</td>
<td>29</td>
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<td>UMP5</td>
<td>2.00 mm mPOWER® Ultra Micro Power Socket</td>
<td>27</td>
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<tr>
<td>UMPT</td>
<td>2.00 mm mPOWER® Ultra Micro Power Terminal</td>
<td>28</td>
</tr>
</tbody>
</table>

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Federal Supply Code: 55322

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- [Picture Search](#)  
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