HIGH-SPEED CABLE ASSEMBLIES

samtec.com/hdr
HIGH-SPEED CABLE ASSEMBLIES

MICRO COAX & TWINAX CABLE ASSEMBLIES

- Ability to mix-and-match end options for application-specific requirements with extensive customizing capabilities
- Single-ended 50 Ω & differential 100 Ω standards
- Rugged features and options including strain relief, plastic housings, screw downs, latches, locks, etc.
- Many non-cataloged standards available including 75 Ω micro coax and high-density twinax solutions

EYE SPEED® CABLE TECHNOLOGY

- Excellent signal integrity performance with individual copper serve or tape shielding
- Stranded conductor for small bend radii and dynamic high flexing cycle applications
- Cost-effective ribbonizing eliminates discrete wires
- 26-38 AWG coax and twinax construction; 20 Ω, 50 Ω, 85 Ω & 100 Ω

Samtec’s Eye Speed® cable supports a wide variety of assemblies and applications
HIGH-DENSITY ASSEMBLIES

- 1.27 mm (SEAC) and 0.80 mm pitch (ESCA)
- 34 or 36 AWG coax; 32 AWG twinax
- Mates with SEARAY™ and SEARAY™ 0.80 mm arrays
- Optional rugged latching

GROUND PLANE ASSEMBLIES

- Integral power/ground plane
- 34 and 38 AWG coax; 30 and 32 AWG twinax
- 0.50 mm (HQCD/HQDP) and 0.80 mm pitch (EQCD/EQDP/EQRD)
- Mates with Q Series® and Q Rate® connectors

EDGE CARD ASSEMBLIES

- 30 AWG twinax (ECDP); mates with Generate™ 0.80 mm pitch edge cards (HSEC8)
- PCI Express® twinax assemblies support 3.0/4.0/5.0 data transfer rates (PCIEC)
- FireFly™ copper available as standard (14 Gbps), optimized (56 Gbps PAM4) and PCIe® 4.0; Evaluation Kit available, visit samtec.com/kits
- 34 AWG ultra low skew twinax (FEDP); mates with 0.50 mm pitch edge card (FCDP)

HIGH-SPEED ASSEMBLIES

- Ultra-micro hermaphroditic Razor Beam™ coax assemblies with rugged shielding (HLCD)
- 0.80 mm pitch Edge Rate® coax and twinax assemblies (ERCD, ERDP)
- 38 AWG coax & 30 AWG twinax assemblies
HIGH-SPEED CABLE DESIGN FLEXIBILITY

ANY high-speed connector

ANY break-out configuration

ANY high-speed precision cable

... to create a solution for any specific application.

HDR@samtec.com

Visit samtec.com/custom for additional information.
WILLINGNESS, SUPPORT & EXPERTISE

Industry-Leading Customer Service
- Quotes and samples in 24 hours
- Prototype and processing assistance
- Dedicated Application Specific Product engineers and technicians

Flexible, In-House Manufacturing
- Global Operations, including multiple cable fabrication & assembly facilities
- Quick-turn samples and prototypes
- Custom & modified product support

Signal Integrity Expertise
- Industry-leading engineering support for high-performance system design
- Full system optimization assistance, including simulation, testing, analysis and evaluation

CUSTOMS & EXPRESS MODIFICATIONS

Samtec is able to support completely new and/or custom designs, as well as common simple modifications to cable assemblies and board-to-board products – often with low or no NRE charges, short lead times, quick-turn samples, and low or no MOQ’s. Capabilities include:

- Contacts
- Bodies
- Stamping
- Ruggedizing features
- Wiring
- Molding
- Plating
- Polarization
- Packaging
- Labeling
- Ink printing
- Shielding modifications

Double-ended micro coax cable assembly with two panel mount ground plane connectors

Rugged, high-speed Edge Rate® cable assembly with custom signal mapping to edge card

Ground plane connector to multiple hermaphroditic connectors with micro coax cable for a multi-layered system
ULTRA LOW SKEW TWINAX CABLE

Samtec’s proprietary 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 (28-112+ Gbps) and reach
- Improved signal integrity and eye pattern opening
- Ultra low skew (< 3.5 ps/meter) over extended lengths
- Supports Samtec Flyover® technology

Micro Cellular Dielectric Extrusion
- Critical dimensions measured at every dielectric spool
- Inline laser and CAPAC devices for capacitance monitoring and diameter control
- In-process stats summary sheet for Cpk acceptance

<table>
<thead>
<tr>
<th>Nominal Performance Specifications</th>
<th>28 AWG</th>
<th>30 AWG</th>
<th>32 AWG</th>
<th>34 AWG</th>
<th>36 AWG</th>
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<td>14 GHz (28G NRZ/56G PAM4)</td>
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<td>Better</td>
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</table>

* Eye Speed® Ultra Low Skew Twinax Cable is available in engineered impedance configurations of 85 Ω, 92 Ω and 100 Ω.
MICRO COAX CABLE

- Foaming introduces air voids for signal to travel faster
- Solid extrusion of foamed dielectric provides a constant and more durable construction
- Lighter weight and smaller size with higher bandwidth capabilities at longer lengths
- 26 – 38 AWG cable available
- Choice of signal conductor, shield and FEP dielectric to meet performance and cost specifications

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* Eye Speed® micro coax cable is available in engineered impedance configurations of 50 Ω and 75 Ω.

DYNAMIC TESTING

Samtec Eye Speed® Ultra Low Skew Twinax cable underwent Dynamic Insertion and Return Loss testing, proving the cable to be rugged with stable electrical performance after 250 flex/bend cycles.

This arduous flex and bend test determined that the performance of Samtec Eye Speed® ultra low skew twinax is essentially indistinguishable from the original raw, unbent cable.

Ultra low skew twinax provides the lowest insertion loss in the industry, controlled performance across temperature, and robust insertion loss in any assembly and operation environment. Contact HDR@samtec.com for higher cycle results.

CABLE MANAGEMENT

- Samtec works with system architects in the early stages to optimize the architecture for cable management while keeping signal integrity and thermals in mind
- Complimentary service using mockups with accurate cable lengths
- Minimize number of SKUs within one system
- Minimize pressure drop