BROADCAST VIDEO SOLUTIONS

HIGH-PERFORMANCE INTERCONNECT SYSTEMS FOR HD & BEYOND
The broadcast video ecosystem is changing, resulting in increased demands for high-capacity HD and UHD digital transmission through today’s SDI infrastructures and the emerging video-over-IP infrastructures. This requires expanded capabilities throughout the broadcast video chain, from camera to consumer. Samtec offers a full line of high-performance solutions for each of these applications.
Samtec’s dedicated RF engineers provide personal support for meeting your specific RF challenges, at any level.

- Simulations and physical test and measurement verifications
- 12G-SDI analysis and launch optimization
- Quick-turn modifications to standards
- Design for fully engineered custom products
- Prototype support

CUSTOMS

Our RF Technical Group, together with our Full System Signal Integrity Engineers, can develop application-specific solutions and optimize product design to meet the 12G-SDI transmission demands of today’s market.

FULL SYSTEM SIGNAL INTEGRITY

Samtec’s Teraspeed Consulting and Signal Integrity Group engineers help optimize and validate high-performance systems. Services are available at any level: from the early stages of the design process through in-depth analysis, modeling and simulation, with measurement validation services available to 67 GHz.

PACKAGE DESIGN & MATERIALS
- Bumpout / Ballout Optimization
- Layout & Routing
- Ballout Transition Structures
- Material Recommendations

MODELING
- High Bandwidth Full-Wave Custom & Commercial Software

SIMULATION
- Design Rules for Package & PCB Designs
- Validate Implementation and Signaling Requirements for Critical Channels
- Simulations via High-Performance Computing

ANALYSIS
- Package, PCB and System-Level Power Integrity
- Package, PCB and System-Level Signal Integrity

TESTING
- Post Design Simulation & Measurements
- Measurement of Test Structures for Signal Integrity / Power Integrity Optimization
- Material Characterization

VALIDATION
- Validation Platform Engineering
- Connectors, Packages & Devices Characterization at Frequencies to 67 GHz
Video has transformed from being an analog 6 MHz bandwidth signal to a 12 Gbps digital data stream. As signaling transitioned to 12 Gbps 4K UHD-SDI standards, the demand for meeting stringent return loss requirements up to 12 GHz emerged. Samtec has the largest variety of 12G-SDI products available, including right-angle orientations. To learn more contact RFTechnicalGroup@samtec.com.

TRUE75™ 75 Ω RF SYSTEMS
samtec.com/RF
- Industry standard cables, components, board-level interconnects
- Mix-and-match flexibility
- 12G-SDI optimized interconnects
- Original Samtec solutions

BACKPLANES
HSBP@samtec.com
- ExaMAX® to 28 Gbps
- Developing: direct-mate orthogonal, backplane cable, coplanar headers
- XCede® HD for extreme density
- Guidance, keying and end wall options

HIGH-SPEED
28+ Gbps Solutions
- High-performance interconnects that meet 12G-SDI system requirements
- SEARAY® open-pin-field arrays
- High-speed edge cards
- Dual and multi-row strips
BNCs (low profile, right-angle, and more) for 12G-SDI rack applications.

Visit [samtec.com](http://samtec.com) for more information.

### 12G-SDI, 75 Ω RF*

<table>
<thead>
<tr>
<th>Density</th>
<th>High-density BNC</th>
<th>DIN 1.0/2.3</th>
<th>BNC</th>
<th>4x the panel density (vs. BNC)</th>
<th>Traditional Solution</th>
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</thead>
<tbody>
<tr>
<td>Return Loss</td>
<td>12 GHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>HDBNC</td>
<td>DIN7A</td>
<td>BNC7T</td>
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<td></td>
</tr>
</tbody>
</table>

* Cable options available: RG 179, RG 6, 1694A, 1855A  
* Learn more at samtec.com/RF

### LOWER-FREQ., 75 Ω RF*

<table>
<thead>
<tr>
<th>Density</th>
<th>4 GHz</th>
<th>6 GHz</th>
<th>Micro-Mini (MMCX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMB/H</td>
<td>MCX</td>
<td>MMCX7</td>
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### BACKPLANES

<table>
<thead>
<tr>
<th>Density</th>
<th>Xcede® HD</th>
<th>ExaMAX®</th>
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</thead>
<tbody>
<tr>
<td>84 pairs/linear in.</td>
<td>51 pairs/linear in.</td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>12 Gbps</td>
<td>28 Gbps</td>
</tr>
<tr>
<td>Series</td>
<td>HDTF/HDTM</td>
<td>EBTM/EBTF-RA</td>
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### HIGH-SPEED

<table>
<thead>
<tr>
<th>Density</th>
<th>12G-SDI, 75 Ω RF*</th>
<th>High-Speed Edge Cards</th>
<th>Dual &amp; Multi-Row Strips</th>
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</thead>
<tbody>
<tr>
<td>40 to 500 I/Os (SE)</td>
<td>18 to 200</td>
<td>20 to 240</td>
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</tr>
<tr>
<td>Performance</td>
<td>13 to 40 Gbps</td>
<td>28 Gbps</td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>SEAM/SEAF, SEAM²/SEAF8</td>
<td>HSEC8, HSEC1, MEC1, MEC2, MEC5, MEC6, MEC8, MECF</td>
<td>QTH/QSH, QTS/QSS, QTE/QSE, QMS/QFS, ERM5/ERF5, ERMB/ERF8, EDM6/EDF6</td>
</tr>
</tbody>
</table>

* Cable options available: RG 179, RG 6, 1694A, 1855A  
* Learn more at samtec.com/RF
As bandwidth requirements rapidly increase, routing signals through lossy PCBs, vias and other components has become one of the most complex challenges designers face. Samtec’s approach of flying signals over the board breaks the constraints of traditional routing and results in cost-effective, high-performance solutions.

OPTICS
samtec.com/FireFly

- Allows for closer proximity to the IC, simplifies board layout with 28+ Gbps speeds
- Miniature footprint for greater density
- Supports data center and HPC protocols, including Ethernet

TWINAX FLYOVER
HDR@samtec.com

- 28 Gbps using Samtec’s ultra-low-skew, co-extruded twinax that improves bandwidth and reach
- Variety of termination options
- Enables system architecture design flexibility

Samtec’s high-speed, flyover copper twinax and optical cables support the high-speed, high-capacity demands of broadcast video signal transmission.
BNC-style ARIB optical camera receptacle with MT ferrule.

Visit [samtec.com](http://samtec.com) for more information.

**Density**

**Optical FireFly™**

- ~30.85 mm x 11.25 mm keepout (contact FireFly@samtec.com)

**Performance**

- 28 Gbps
- 10 Gbps
- 8 GTps
- 8 GTps

**Series**

- ECUO
- ETUO
- PCUO
- PTUO

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**OPTICS**

<table>
<thead>
<tr>
<th>Optical FireFly™</th>
<th>Extended Temperature FireFly™</th>
<th>PCIe®-over-FireFly™</th>
<th>Extended Temperature PCIe®-over-FireFly™</th>
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<tbody>
<tr>
<td>Density</td>
<td>~30.85 mm x 11.25 mm keepout</td>
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<td></td>
</tr>
<tr>
<td>Performance</td>
<td>28 Gbps</td>
<td>10 Gbps</td>
<td>8 GTps</td>
</tr>
<tr>
<td>Series</td>
<td>ECUO</td>
<td>ETUO</td>
<td>PCUO</td>
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**COPPER / TWINAX FLYOVER™**

<table>
<thead>
<tr>
<th>Flyover QSFP28</th>
<th>Double-Density Flyover QSFP</th>
<th>FireFly™</th>
<th>PCIe® protocol compatible</th>
<th>Direct Attach Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>28 Gbps (Per channel)</td>
<td>28 Gbps, 56 Gbps PAM-4 (Per channel)</td>
<td>28 Gbps</td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>FQSFP (4 channels)</td>
<td>FQSFP-DD (8 channels)</td>
<td>ECUE</td>
<td>PCUE</td>
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