

SUPPORT TOMORROW'S SPEEDS INSIDE TODAY'S FOOTPRINT >

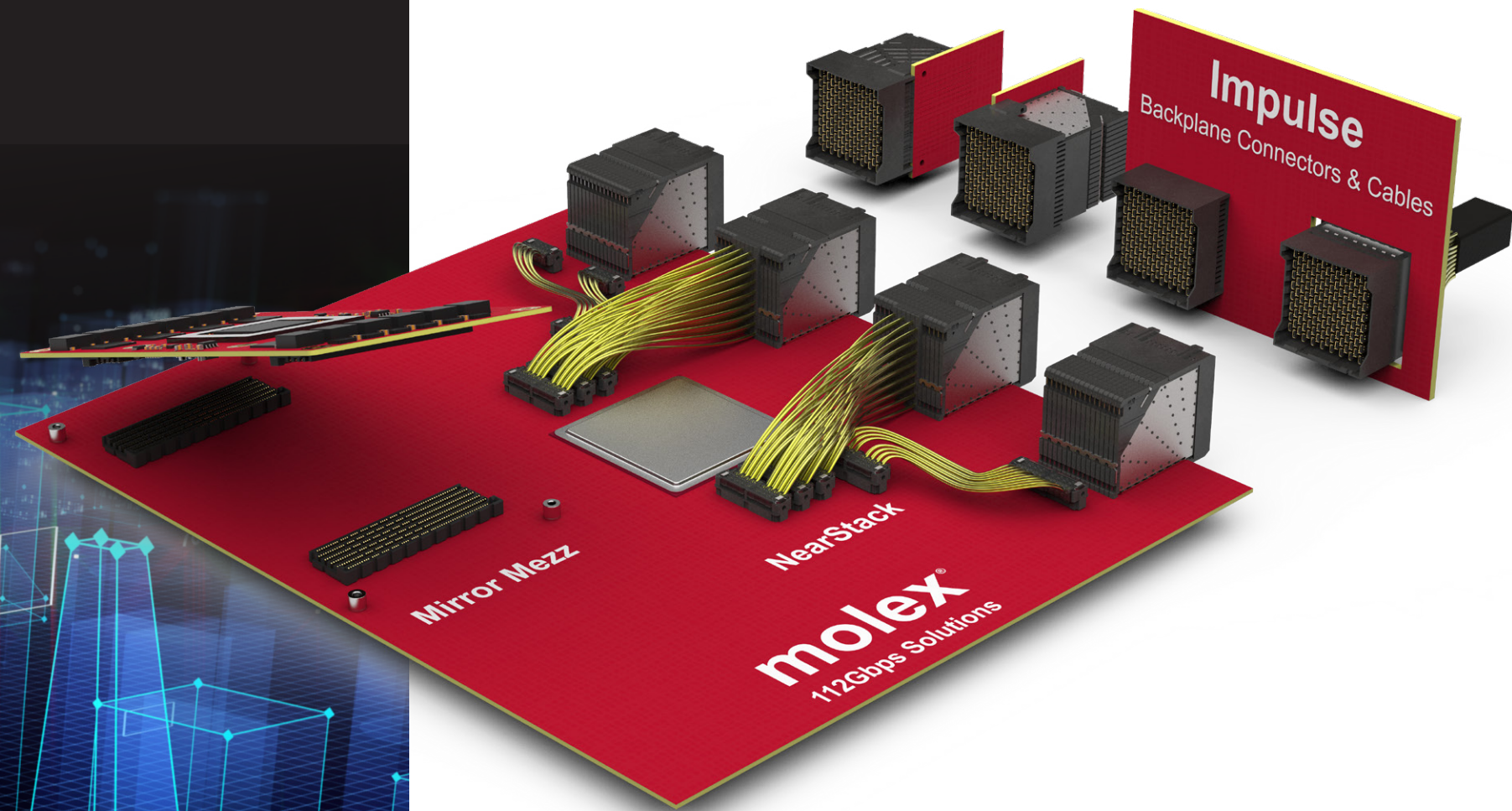
Molex Solutions for 112 Gbps Architecture



molex

SCALE WITHOUT SACRIFICE >

Molex offers a full portfolio of scalable solutions with next-generation speed, signal integrity, EMI containment and thermal efficiencies. With best-in-class products that support future high-speed demand up to 112 Gbps, Molex allows you to expand capacity without rewiring or reconfiguring your network.



Best-in-Class Manufacturing

Our industry-leading manufacturing process is highly automated to produce repeatable and reliable results. As we advance to next-generation signal integrity requirements, this

guarantees consistent results every time. By leveraging decades of experience, Molex is able to deliver a full portfolio of reliable 112 Gbps solutions.



Impulse Backplane Connector and Cable Solutions

Our Impulse Orthogonal Direct Backplane Connector System targets 112 Gbps PAM-4 rates, delivering optimal signal integrity and eliminating the need for a midplane connection. An innovative signal interface improves insertion loss, and Impulse connectors let you meet future data rate requirements without replacing infrastructure.

Combined with our Impulse backplane, Impulse cables offer a large node cable assembly solution with unparalleled flexibility and performance. Impulse cables are fully shielded column-to-column, work with Impulse Orthogonal Direct and Right-Angle daughtercard connectors and use Temp-Flex twinax cable for efficient high-speed applications.

Signal Integrity

Connector

- 0-35 GHz resonance-free interface
- 56 Gbps NRZ and 112 Gbps PAM-4
- 90 Ohms impedance nominal target

Cable

- 56 Gbps NRZ and 112 Gbps PAM-4

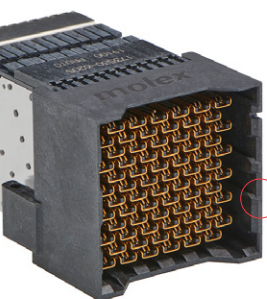
Design

Connector Differential Pairs (DP)

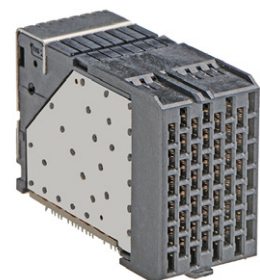
- 2.00mm by 4.00mm DP grid
- 96 DPs per linear inch for 8-pair traditional configuration
- Up to 144 DPs per OD node

Cable

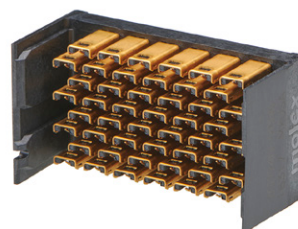
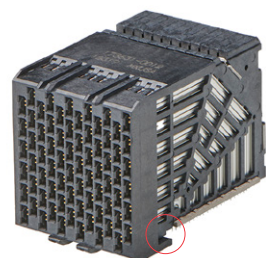
- Mates with Impulse OD and R/A daughtercard connectors
- Uses Molex Temp-Flex twinax cable of varying gauges for more efficient high-speed applications
- Fully shielded column-to-column through mating interface



Varying Gauges for **Unparalleled Flexibility and Performance**



Minimal Insertion Loss at **30 GHz**

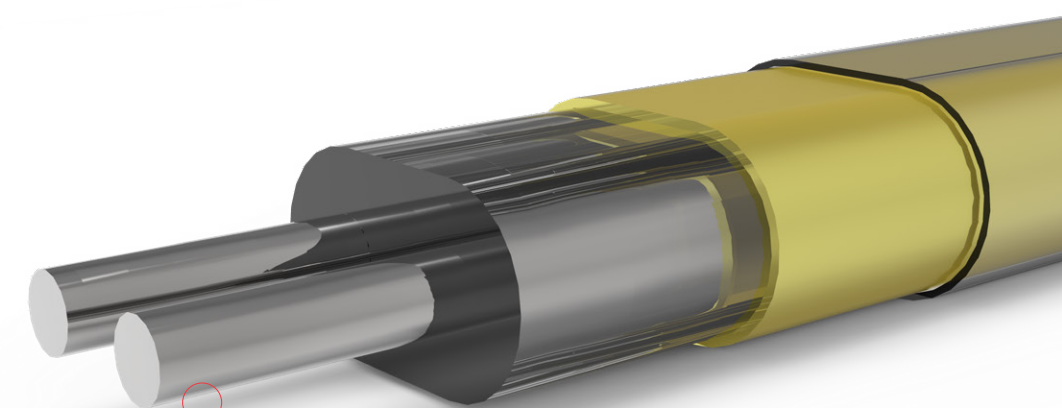


Temp-Flex Specialty Wire and Cable Products

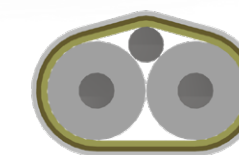
Our Temp-Flex specialty wire and cable products allow your platform's entire footprint to remain the same and help to lower skew and mode conversion. They also include inline monitoring of diameter, concentricity and capacitance control. To ensure quality and consistency, Molex employs real-time closed-loop control systems at extrusion, taping and cabling.

Design

- 112 Gbps PAM-4 applications
- Co-extruded primary for close coupling between S21 and S43
- Solid co-extruded FEP
- 26-34 AWG
- Micro-cellular, co-extruded FEP
- Impedance: 85, 90, 100 Ohms



Co-Extruded Primary for close coupling between **S21 and S43**





Mirror Mezz Connector System

Molex Mirror Mezz Connectors offer maximum design flexibility with minimal tooling by allowing different connector height versions to be paired for achieving desired stack height based on application requirements.

These high-speed, dense mezzanine connectors have an innovative opposing beam design that provides a resonance-free interface for superior signal integrity and a reliable two-point contact structure in a fully mated state.

Signal Integrity

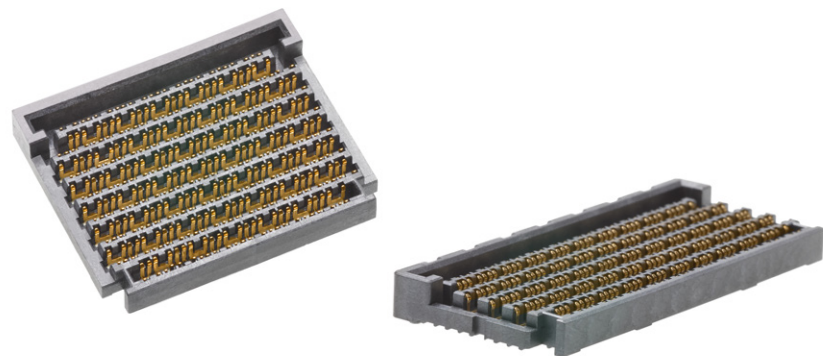
- 56 Gbps NRZ, 112 Gbps PAM-4
- Resonance-free, 0-35 GHz
- 92 Ohms impedance nominal

Design

- Stack heights from 5.00mm to over 20.00mm
- High pin counts: 271 differential pairs maximum
- Dense connector pin field: 107-115 differential pairs per square inch

Customizable Height,
Minimal Tooling

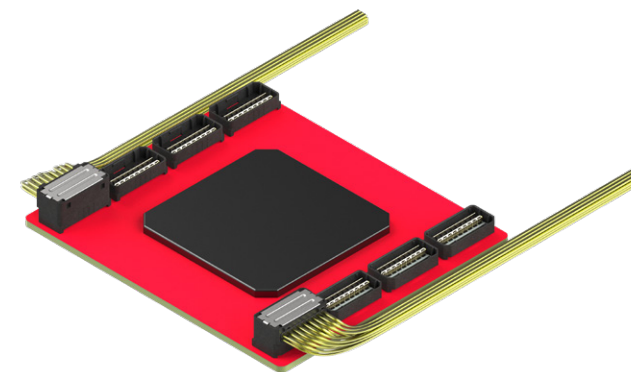
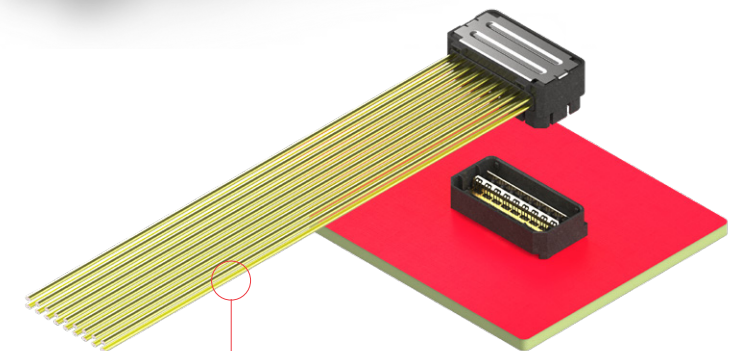
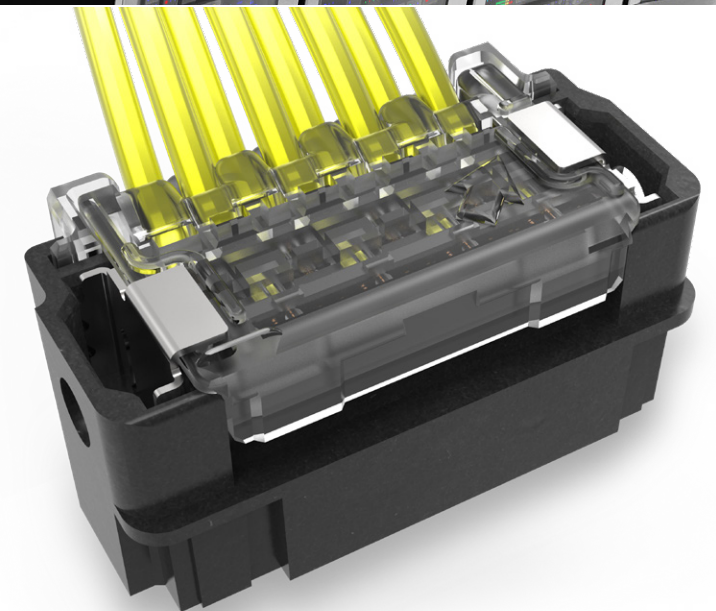
11.00, 8.00
and **5.00mm**



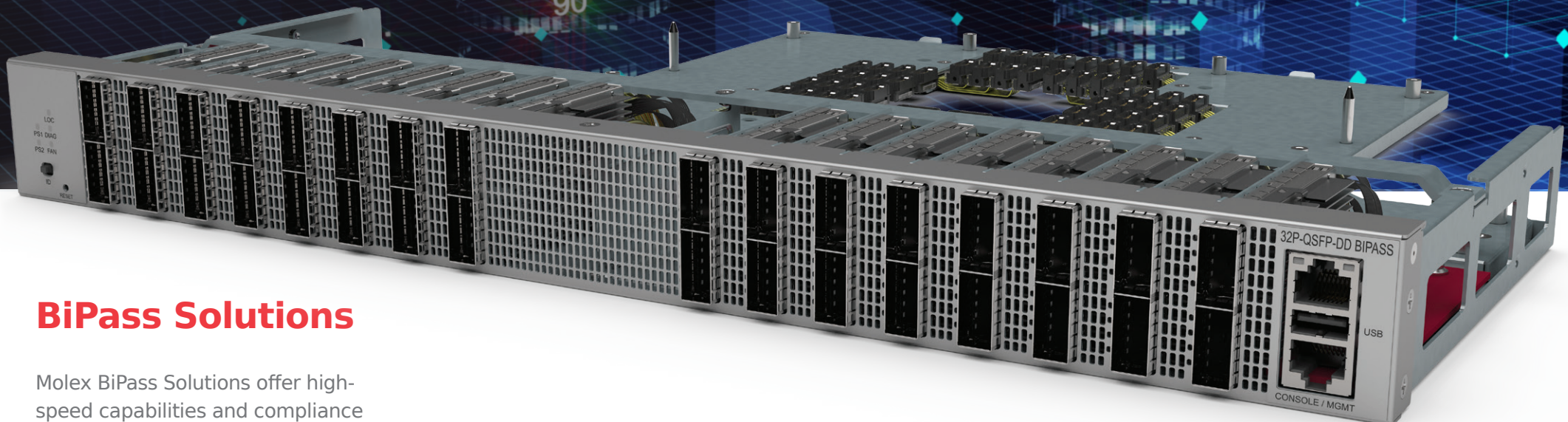
NearStack High-Speed Jumper Assemblies

Our NearStack High-Speed Jumper Assemblies transmit signals directly from point A to point B, achieving superior signal integrity performance. This is achieved by laser welding the Temp-Flex twinax cable directly to the contact wafers, which dramatically reduces insertion loss and overall assembly size.

NearStack assemblies enable designers to use fewer layers of PCBs to transmit signals while enabling the removal of retimers.



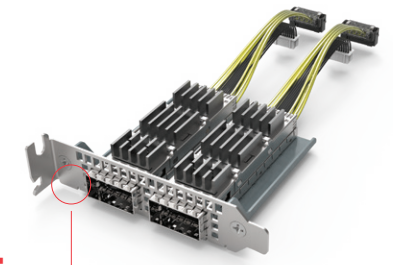
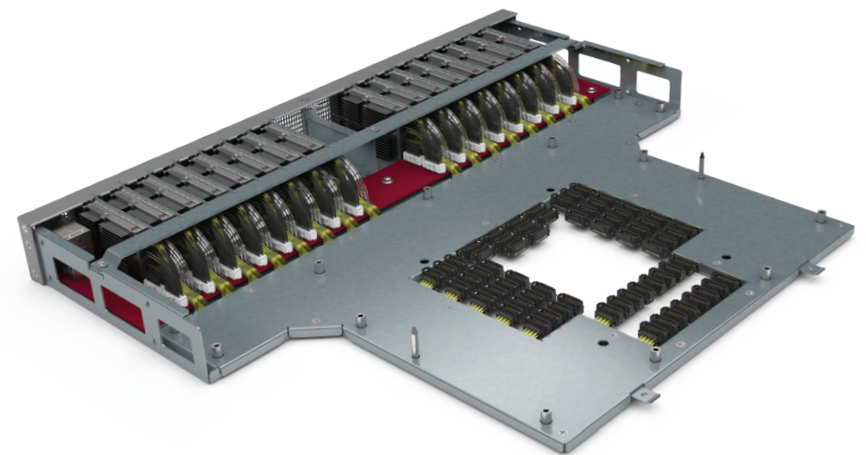
Low Loss
Small Footprint



BiPass Solutions

Molex BiPass Solutions offer high-speed capabilities and compliance with 112 Gbps PAM-4 protocols. They provide reliable signal integrity, enabling protocols that require low signal-to-noise ratios.

For complete solutions tailored to your unique needs, Molex offers custom tray and panel assemblies of multiple BiPass units.



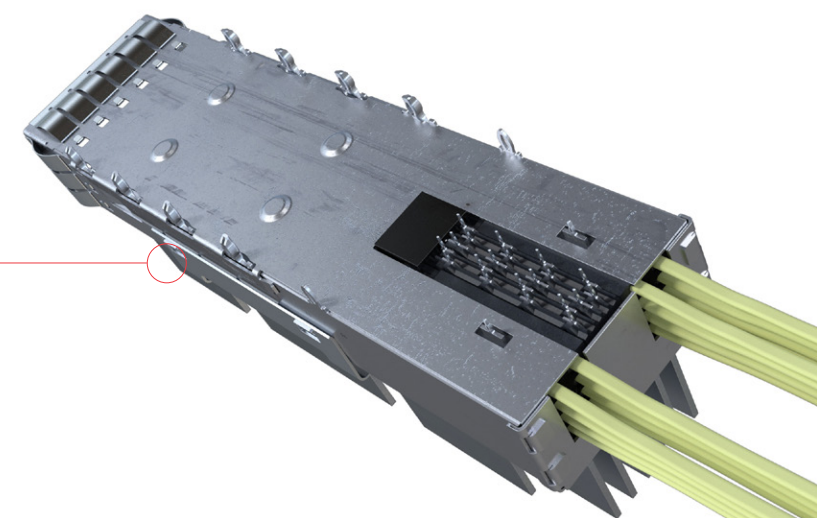
**400 Gb/port,
3+ Meter Long,
Passive Copper
Channels**

Quad Small Form Factor Pluggable Double Density (QSFP-DD) Interconnect System and Cable Assemblies

To meet increasing bandwidth requirements in a high-density footprint, the Molex QSFP-DD Interconnect System provides 8-lane ports to deliver double-lane density matching current QSFP form factors.

Additionally, Temp-Flex cable technology boosts electrical performance and provides excellent operational margin, short lead times and minimal end-user cost via manufacturing efficiencies.

**Double
Lane Density
in the Same
Footprint**

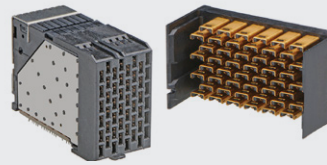


112 Gbps Architecture



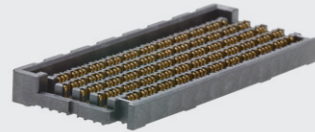
Impulse Backplane Connector System

Provides high-density connection in a compact size
Delivers optimal signal integrity without mid-plane connection



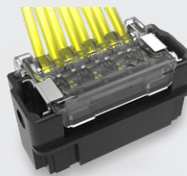
Impulse Cable Solutions

Automated manufacturing process for utmost reliability
Ultimate design flexibility for superior mechanical and electrical performance



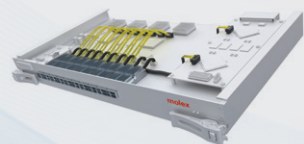
Mirror Mezz Connectors

Maximum design flexibility, minimal tooling
Hermaphroditic — mates to itself — only need to tool up one side



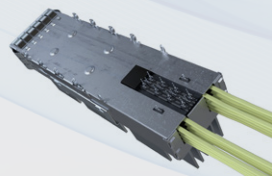
NearStack High-Speed Jumper Assemblies

Superior signal integrity performance
Dramatically reduce insertion loss



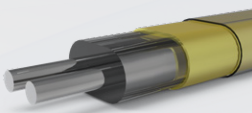
BiPass Solutions

Design flexibility with many available options
Reliable signal integrity enabling up to 3 meter passive channels



Quad Small Form Factor Pluggable Double Density (QSFP-DD) Interconnect System and Cable Assemblies

Double-lane density that is compatible with current QSFP form factor
Temp-Flex technology boosts cable electrical performance



Temp-Flex Raw Cabling

Designed for low skew
Keeps platforms same size as gauges rise

LOW SIGNAL-TO-NOISE RATIO

RUNNING AT 112 GBPS

HIGH DATA RATE PROTOCOLS

With Molex products, you can achieve 112 Gbps speeds and expand your capacity without altering your existing network. Our BiPass system shows a better loss performance and provides more margin than a traditional I/O channel, and our Impulse Backplane Connector System and Mirror Mezz Connectors help you achieve maximum design flexibility and optimal signal integrity. We also provide alternatives to ensure we best serve every market's needs with key components and building blocks.

**GET STARTED
TODAY** >

The Molex Approach

At Molex, we take a multidimensional, consultative approach to help you meet and exceed 112 Gbps speed requirements and plan for next-generation demands. With reliable technologies that are backed by Molex performance and quality, our global team of experts will work with you at every step to develop a comprehensive solution that works within your current infrastructure.

Start designing your 112 Gbps solution today.
Visit www.molex.com/112G

