Achieve rates up to 120 Gbps of pluggable data over 12 lanes in one assembly with Molex’s first-to-market iPass+ HSC CXP Copper and Optical System; enhanced-footprint connectors transmit signals over 10 lanes for up to 100 Gbps, meeting the new industry-leading 100 Gigabit Ethernet specification and providing a path to future terabit networks.

Molex’s iPass+ (HSC) CXP copper and optical system enables twelve channels of 10 Gbps data and the enhanced-footprint integrated connectors enable ten channels of 10 Gbps data, for up to 120 Gbps of total bandwidth. This new technology results in one of the fastest and highest-density I/O’s on the market today. The iPass+ HSC CXP system enables pluggable copper or optical options, thereby increasing the flexibility of system-level hardware for end users. This dual-paddle-card system was adopted as the InfiniBand® CXP 12X QDR standard in July, 2008.

By leveraging high-speed wafer technology and compliant-pin tails, Molex has developed two integrated-connector offerings. The enhanced-footprint version is a high-density, 10-channel connector, conforming to IEEE 802.3ba requirements for the 10-channel 100 Gigabit Ethernet interface. The standard version is a high-density, 12-channel connector capable of achieving Quad Data Rates (QDR) of 10 Gbps. The one-piece press-fit connector and cage assembly provides one-step placement to the board and is offered in both single and stacked dual-port configurations.

Molex CXP 12X copper cables are designed to accommodate single, ganged or stacked connector configurations in extremely high-density requirements. CXP passive copper cables are available in a variety of lengths. Contact Molex for active copper-cable options and transition cables (CXP-to-QSFP and CXP-to-12x LaneLink).

The low-profile CXP optical 4.50mm round cable assemblies offer improved fiber management over traditional flat cables for connecting CXP transceivers. The CXP optical cable assemblies utilize 24 fibers using industry-standard MTP/MPO connectors, 12 transmit (TX) and 12 receive (RX), and 10 Gbps high-bandwidth (OM3) fiber. This design meets the InfiniBand bandwidth requirements for CXP modules spaced up to 300.00m (984.25’). Molex provides a complete optical CXP solution with cable assemblies and loopbacks. Products include MTP/MPO-to-LC cable assemblies for connections to Small Form-factor Pluggable (SFP) or LC patch panels. Loopback assemblies feature a compact housing that loops optical TX to RX ports for testing, burn-in and field troubleshooting.

The iPass+ Interconnect System offers connectors and cables that enable flexible-speed compatibility for applications ranging from 1 to 10 Gbps and is an ideal solution for the growing server-storage market. For additional information, visit: www.molex.com/link/cxp.html.

**MARKETS AND APPLICATIONS**

- High-Performance Computing
  - Controller cards and servers
  - Switches
  - Direct Attached Storage (DAS)

- Data Centers
  - Controller cards and servers
  - Switches
  - Blades
  - Storage Attached Networks (SAN)

- Networking
  - NIC cards and servers
  - Switches
  - Routers
  - Network Attached Storage (NAS)

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**iPass+™ High-Speed Channel (HSC) CXP Copper and Optical System**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76105</td>
<td>Standard Integrated Connector</td>
</tr>
<tr>
<td>170465, 170501, 170502</td>
<td>Enhanced-Footprint Integrated Connectors</td>
</tr>
<tr>
<td>76024</td>
<td>Stacked Dual-Port Integrated Connector</td>
</tr>
<tr>
<td>111025</td>
<td>Copper Cable Assemblies</td>
</tr>
<tr>
<td>106284</td>
<td>Optical Cable Assemblies</td>
</tr>
</tbody>
</table>

*InfiniBand is a registered trademark of the InfiniBand Trade Association*
FEATURES AND BENEFITS

All Integrated Connectors (Series 76105, 170465, 160501, 170502)

- One-piece integrated press-fit connector and cage provides one-step placement to PCB, lowering board processing time
- Four integral screw-mount hold downs applied from the bottom of the PCB provide optimal retention of the die-cast assembly to PCB
- Two robust guide pins located on each side of the assembly ensures compliant-pin integrity during alignment to PCB
- Ground-pad alleys are located at the rear of the die-cast assembly providing ease of routing off the top layers of the PCB

Integrated Connectors, Standard and Enhanced Footprints (Series 76105, 170465)

- Series 76105 and 170465: Front elastomeric gasket provides optimized EMI protection to face plate
- Series 76105 and 170465: Profile height of 11.88mm (.468”) complies with IEEE 802.3ba requirements and low-profile PCIe add-in card component height
- Series 170465: Increased signal spacing reduces cross-talk noise by 6.9mV versus standard-length CXP integrated connectors

SPECIFICATIONS

Reference Information
Packaging: PK-76105-001
UL File No.: Pending
CSA File No.: Pending
Mates With: 111025
Designed In: Millimeters

Electrical
Voltage (max.): 30V
Current (max.): 0.5A
Dielectric Withstanding Voltage: 500V DC
Insulation Resistance: 1000 Megohms

Physical
Housing: High Temperature Glass-filled Thermoplastic
Contact: Copper (Cu) Alloy
Plating:
  - Contact Area — 0.76μm min. Gold (Au)
  - Solder Tail Area — 0.76μm min. Tin/Lead (Sn/Pb)
Underplating — 2.54μm min. Nickel (Ni)
PCB Thickness: 1.57mm (.062”) min.
Operating Temperature: -40 to +80°C

Integrated Connectors, Enhanced Footprint, Short and Extended Profiles (Series 170501, 170502)

- Metal gasket provides optimized EMI protection to the faceplate
- Profile height of 11.30mm (.445”) improves airflow over higher-profile connectors
- Belly-to-belly design allows heat-sink placement on either side of the PCB for more efficient cooling
- Increased signal spacing reduces cross-talk noise by 6.9mV versus standard-profile CXP integrated connectors

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Footprint</th>
<th>Connector Length</th>
<th>Profile Height</th>
<th>Specification Requirement</th>
<th>Cover</th>
<th>EMI Gasket</th>
<th>Lanes</th>
<th>Circuit Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>76105-0584</td>
<td>Standard</td>
<td>Standard</td>
<td>11.88mm</td>
<td>InfiniBand</td>
<td>Yes</td>
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<td>12</td>
<td>84</td>
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<tr>
<td>170465-0002</td>
<td>Enhanced</td>
<td>Standard</td>
<td>11.88mm</td>
<td>100 Gigabit Ethernet</td>
<td>Yes</td>
<td>Front elastomeric</td>
<td>10</td>
<td>84</td>
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<tr>
<td>170465-0102</td>
<td>Enhanced</td>
<td>Standard</td>
<td>11.30mm</td>
<td>100 Gigabit Ethernet</td>
<td>No</td>
<td>Front elastomeric</td>
<td>10</td>
<td>84</td>
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<tr>
<td>170501-0001*</td>
<td>Enhanced</td>
<td>Standard</td>
<td>11.30mm</td>
<td>100 Gigabit Ethernet</td>
<td>No</td>
<td>Metal finger</td>
<td>10</td>
<td>84</td>
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<tr>
<td>170502-0001*</td>
<td>Enhanced</td>
<td>Extended</td>
<td>11.30mm</td>
<td>100 Gigabit Ethernet</td>
<td>No</td>
<td>Metal finger</td>
<td>10</td>
<td>84</td>
</tr>
</tbody>
</table>

Note: All connectors have 84 circuits; enhanced-footprint connectors do not use all terminals
*Contact Molex Customer Service to order parts.
FEATU RES AN D BEN EFITS

- Two 12x ports in a stacked configuration accepts industry-standard cabling while providing optimal bandwidth in the same PCB beach front as the single port; height fits within a 1U Rack-mount enclosure

- One-piece integrated press-fit connector and cage provides one-step placement to PCB, lowering board processing time

- Four integral screw-mount hold downs applied from the bottom of the PCB provide optimal retention of the die-cast assembly to PCB without taking up additional board real estate

- Two robust guide pins located on each side of the assembly ensures compliant-pin integrity during alignment to PCB

- Front elastomeric gasket and electromagnetic interference (EMI) fingers provide optimized EMI protection to face plate

- Ground-pad alleys located at the rear of the diecast assembly provide ease of routing off the top layers of the PCB

SPECIFICATIONS

Reference Information
Packaging: PK-76024-001
UL File No.: Pending
CSA File No.: Pending
Mates With: 111025
Designed In: Millimeters

Electrical
Voltage (max.): 30V
Current (max.): 0.5A
Dielectric Withstanding Voltage: 500V DC
Insulation Resistance: 1000 Megohms

Mechanical
Insertion Force to PCB: 25N (5.62 lbf) per pin max.
Mating Force: 210N (47.21 lb) min.
Unmating Force: 42N (9.44 lb) min.
Durability (min.): 250 cycles

Physical
Housing: High Temperature Glass-filled Thermoplastic
Contact: Copper (Cu) Alloy
Plating:
  - Contact Area — 0.76μm min. Gold (Au)
  - Solder Tail Area — 0.76μm min. Tin/Lead (Sn/Pb)
  - Underplating — 2.54μm min. Nickel (Ni)
PCB Thickness: 1.57mm (.062”) min.
Operating Temperature: -40 to +80°C

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Plating</th>
<th>Circuit Size</th>
<th>Plant No. for Samples</th>
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</thead>
<tbody>
<tr>
<td>76024-0568</td>
<td>0.76μm Min. Gold</td>
<td>168</td>
<td>3109</td>
</tr>
</tbody>
</table>
FEATURES AND BENEFITS

• Built to CXP specifications to be compliant up to QDR speeds per InfiniBand Architecture Specification Volume 2, 1.2.1

• Dual paddle-card design provides cost-effective, high-density solution; each cable port is capable of up to 120 Gbps

• Zinc die-cast back shells on cable plug provides 360° electro magnetic interference (EMI) signal shielding

• Ergonomic “pull-to-release” latching system enables low-impact cable disengagement

• Supports serial ID functionality allows individual cable identification

• Hot pluggable cable allows insertion and removal of plug without powering down the system

SPECIFICATIONS

Reference Information
Packaging: Bag and Box
Mates With: 76105
Designed In: Millimeters

Mechanical
Mating Force: 210N (47.21 lb) min.
Unmating Force: 42N (9.44 lb) min.
Durability (min.): 250 cycles

Electrical
Voltage (max.): 30V AC
Current (max.): 0.5A

Physical
Housing: Zinc diecast
Contact Area: Gold (Au) over Nickel (Ni)
Plating: Nickel (Ni)
Operating Temperature: -40 to +80°C

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Length</th>
<th>Order No.</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>111025-1200</td>
<td>0.50m (1.64ft)</td>
<td>111025-1205</td>
<td>5.00m (16.40ft)</td>
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<tr>
<td>111025-1201</td>
<td>1.00m (3.28ft)</td>
<td>111025-1206</td>
<td>6.00m (19.69ft)</td>
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<tr>
<td>111025-1202</td>
<td>2.00m (6.56ft)</td>
<td>111025-1207</td>
<td>7.00m (22.97ft)</td>
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<tr>
<td>111025-1203</td>
<td>3.00m (9.84ft)</td>
<td>111025-1208</td>
<td>8.00m (26.25ft)</td>
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<tr>
<td>111025-1204</td>
<td>4.00m (13.12ft)</td>
<td>111025-1210</td>
<td>10.00m (32.81ft)</td>
</tr>
</tbody>
</table>
FEATURES AND BENEFITS

- MTP/MPO CXP connector interface meets CXP interface specifications
- Low-profile, round cable design for improved cable management over flat cable, with 360° cable-routing capability
- Up to 10 Gbps data rate capability provides optimized bandwidth by application
- RoHS compliant to meet environmental requirements for electronic equipment and accessories

SPECIFICATIONS

Reference Information
Packaging: Individual pack in a bag
Mates With: CXP Optical Transceivers

Optical
Fiber Specifications:
Fiber Count: 24 fibers (12 TX / 12 RX)
Multi Mode: 50/125μm
Insertion Loss at Test:
Multi Mode: 0.22dB Typical; ≤0.75dB max.
Connector to Connector: MTP to MTP
Bandwidth: See table below

Mechanical
Bend Radius: 50.8mm (2.00’’) min.
long-term

BANDWIDTH SPEEDS

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<thead>
<tr>
<th>Order No.</th>
<th>Bandwidth</th>
<th>Fire Rating</th>
<th>Cable Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>106284-1001</td>
<td>850nm 500</td>
<td>OFNR (Riser)</td>
<td>4.50mm (.177”)</td>
<td>1.00m (3.28’)</td>
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<tr>
<td>106284-1005</td>
<td>1300nm 500</td>
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<td></td>
<td>5.00m (16.40’)</td>
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<tr>
<td>106284-1010</td>
<td>850nm 600</td>
<td>OFNP (Plenum)</td>
<td>5.40mm (.213”)</td>
<td>10.00m (32.81’)</td>
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<td>106284-1015</td>
<td>1300nm 600</td>
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<td></td>
<td>15.00m (49.21’)</td>
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<td>106284-1020</td>
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<td></td>
<td>20.00m (65.62’)</td>
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<tr>
<td>106284-1025</td>
<td>1300nm 300</td>
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<td></td>
<td>25.00m (82.02’)</td>
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<tr>
<td>106284-1030</td>
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<td>30.00m (98.43’)</td>
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<td>106284-1050</td>
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<td>50.00m (164.04’)</td>
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<tr>
<td>106284-1100</td>
<td></td>
<td></td>
<td></td>
<td>100.00m (328.08’)</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION