



**Amphenol**  
COMMUNICATIONS SOLUTIONS

# Industry 4.0 Solutions

Amphenol as a leader in technological advancements, is equipped with a range of connector and cable solutions to support various equipment enabling Industry 4.0.

[amphenol-cs.com](http://amphenol-cs.com)





# Amphenol Overview

**Amphenol Communications Solutions (ACS), a division of Amphenol Corporation, is a world leader in interconnect solutions for Communications, Mobile Consumer Products, RF, Optics, Broadband and Commercial electronics markets.**

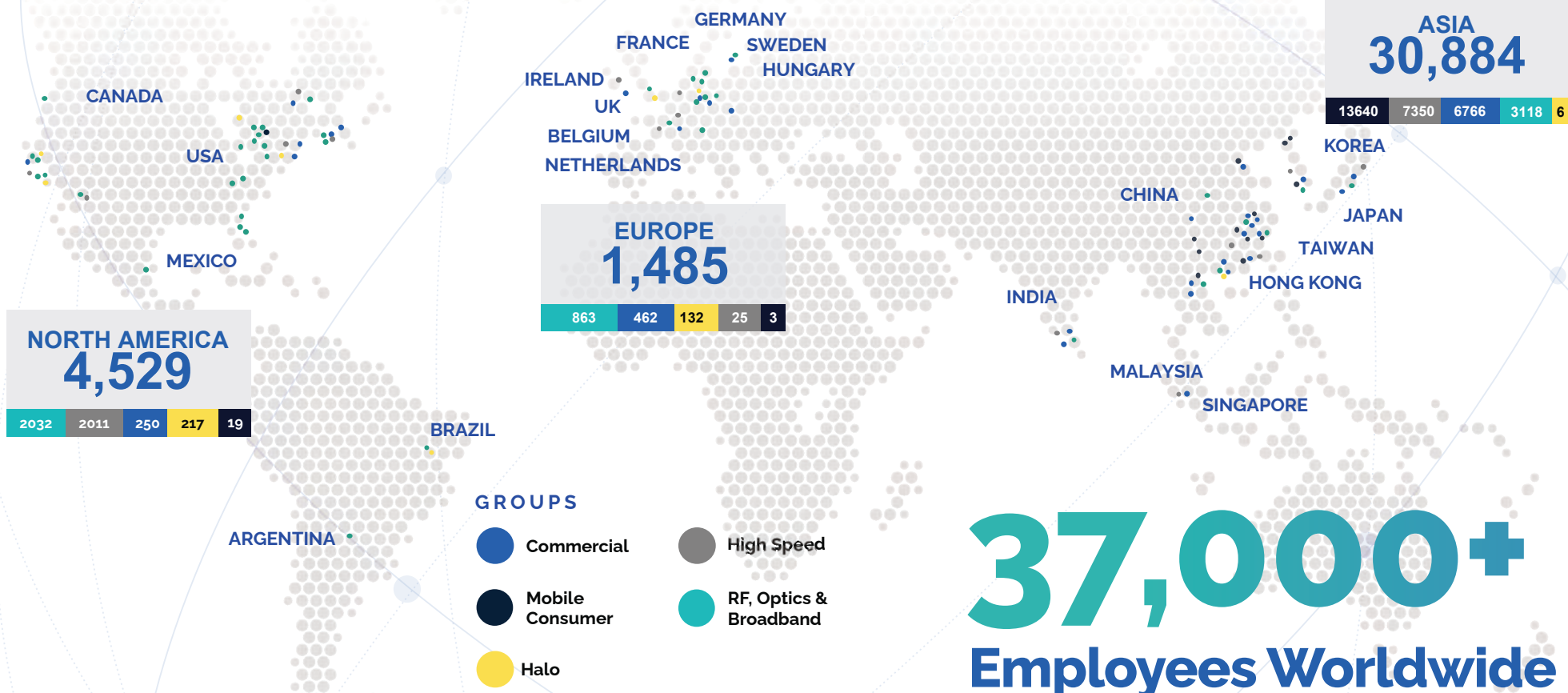
Amphenol Corporation is one of the world's largest designers and manufacturers of electrical, electronic and fiber optic connectors and interconnect systems, antennas, sensors and sensor-based products and coaxial and high-speed specialty cable.

ACS has an expansive global presence in research and development, manufacturing, and sales. We design and manufacture a wide range of innovative connectors as well as cable assemblies for diverse applications including server, storage, data center, mobile, RF, networking, industrial, business equipment and automotive.

## Strong Global Presence

We place heavy emphasis on R&D for both new product and technology development, focusing on the advancement of the next generation of high-speed interconnects and power distribution solutions as well as innovative manufacturing solutions.

- Our R&D centers worldwide have registered thousands of patents and licensing agreements, developing some of the world's first innovations in connectors such as Shield-less High-Speed Connectors, Ball-Grid-Array Attachments, economical Stamped High-Power Contacts and cost effective yet reliable plating processes.
- We relentlessly seek improvements of our products, increasing our solutions' overall cost effectiveness, precision and reliability. This ensures that we meet or even surpass the ever changing needs and expectations of market trends.



# 37,000+

## Employees Worldwide



INDUSTRY 4.0 APPLICATION SCOPE



Programmable Logic Controller

Amphenol provides innovative interconnect solutions that meet the challenges of implementing communication standards like Profinet, DeviceNet, and Modbus into PLC systems for efficient sensor and device control.



Servo Drive & Control Cabinet

Amphenol's advanced power connectors and data interconnect solutions establish enhanced connectivity and flawless communication in these systems.



Industrial Ethernet Switch

Amphenol offers robust connector solutions that support industry grade dependability, network redundancy and includes support for Power over Ethernet (PoE) and Power over Data Line (PoDL) that enhance the connectivity of the switches.



Industrial PC

Amphenol provides advanced and rugged industrial I/O and PCB connectors that go inside industrial PC compliant with IEC-61850-3 and IEEE 1613 standards.



Uninterruptible Power Supply (UPS)

From high power drawer and busbar connectors to smart communication interfaces like RJ45 and USBs, Amphenol provides interconnect solutions that add to the reliability of UPS.



Human Machine Interface & Computerized Numerical Control

Amphenol provides reliable connector solutions in these devices, ranging from memory and media connectors to data interconnects and FPC board connectors.



Power Supplies

Amphenol offers high power, high current connectors that enhance the performance and durability of various power supply units from electronic devices that convert AC to DC, to benchtop equipment used for precision testing.



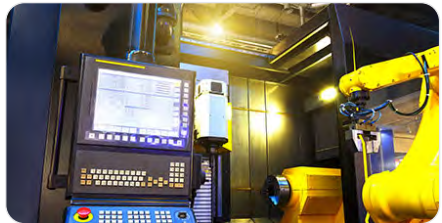
Industrial Embedded Computing

Amphenol offers advanced, industrial I/O and PCB solutions that are built into Industrial Embedded Computers typically designed to work in harsh environments, are rugged enough to withstand wide temperature ranges and meet standards like IEC 68-2-27



Robotic Arm

Amphenol offers a range of rugged, high current connectors with EMI shielding as well as high data rate industrial Ethernet connectors which ensures a safe and reliable operation of the Robotic Arm.



Robot-Control

Amphenol offers a varied range of high-performance and cost-effective PCB and I/O signal and power solutions that maximizes the efficiency of robotic controls.



Test and Measurement

From advanced USB connectors to high-power interconnects, industrial Ethernet, and PCIe connectors, Amphenol offers high performing interconnect solutions for benchtop testing devices, handheld test equipment and test and measurement modules.



Single board computing

Amphenol provides various connector solutions to augment the value of your SBC designs.



PLC Robotic Arm Industrial Control Industrial Ethernet

Single Pair Ethernet (SPE) IP67 Circular Push-Pull Connectors and Cables

NEXT GENERATION IEC63171-6 (M12 PUSH-PULL FORM FACTOR) COMPLIANT SEALED INDUSTRIAL ETHERNET CONNECTORS  
SPE connectors for Industrial applications bring direct Ethernet connectivity to peripheral devices like sensors, actuators, and vision system cameras that operate at speeds up to 1Gb/s.



PLC Test and Measurement

D-Sub High Performance Board-Mount Connectors

PERIPHERAL I/O CONNECTORS WITH MACHINED CONTACTS UP TO 50 POSITIONS  
Amphenol's FCI D-Sub High Performance Board-Mount Connectors are designed for severe environment applications industrial of telecommunications, aerospace, military (125°C) class and for particularly severe applications, especially high temperature (+155°C) class.



PLC Industrial Control

BergStak® Secure Connector

HIGH SECURITY/HIGH DENSITY / HIGH SPEED BOARD TO BOARD CONNECTOR  
One-time option with tamper free screw; terminals and shielding for high security needs. EMI shielding supports 10A power transmission, open pin field design for 32Gb/s.



PLC Robotic Arm Industrial Control Industrial Ethernet

ix Industrial™ IP6X Rectangular Push-Pull Connectors and Cables, NDH Series

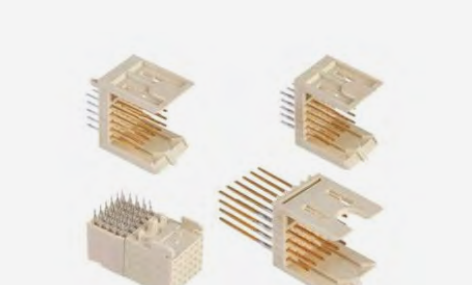
SEALED IX INDUSTRIAL™ LATCHING INTERFACE FOR RUGGED APPLICATIONS  
The ix Industrial™ IP6X Rectangular Push-Pull connector and cable solution provides Cat6A Ethernet connectivity using the IEC 61076-3-124 mating interface.



PLC HMI

Minitek® MicroSpeed 1.00mm Board-to-Board Connector

EMI SHIELDED HIGH-SPEED BOARD TO BOARD CONNECTOR SYSTEM  
Shielded connector family with superior EMC performance. Poka-yoke polarization supports blind mating and the dual beam contact system offers up to 25Gb/s.



Industrial Control Test and Measurement

Metral Backplane

Amphenol's FCI Metral® product family are designed in accordance with IEC 61076-4-104 and Telcordia GR-1217- CORE. One of the most popular connector series Metral® offers the broadest range of backplane connector solutions which includes right angle and vertical for both header and receptacle series.



PLC Robotic Arm

Rugged MRD Series Circular Locking Connectors

IP67 HARSH INDUSTRIAL CONNECTORS  
MRD series connectors are available in 2, 3, 4, 5, 6, 7, 8 and 9 position form factors. Housing options include all plastic constructions as well as metal locking bodies for greater durability.



PLC Industrial Control

ComboStak® Board-to-Board Connectors

COMPACT, HYBRID BOARD TO BOARD CONNECTORS  
Signal and power in 1 connector saves space and avoids tolerance and alignment problems. Self alignment housing supports blind mating.



Industrial Control Test and Measurement

Millipacs Backplane Connectors

Amphenol's FCI Millipacs® is a 2.00 mm grid Interconnection system in hard metric configuration designed in accordance to IEC 917, IEC 61076-4-101, Telcordia GR-1217- CORE standards and fulfills Compact PCI bus architecture.





Industrial Control

Test and Measurement

### DIN 41612 High-Temperature Headers and Receptacles

HARSH ENVIRONMENT CONNECTOR ENHANCED FOR INDUSTRIAL APPLICATIONS  
DIN 41612 High Temperature (HT) connectors meet the fire safety standards required in Industrial (Transportation, Power) market.



UPS

Test and Measurement

Industrial Embedded Computer

### Minitek® Pwr Family Connector System

COMPACT, ROBUST AND VERSATILE  
A complete solution including wire-to-wire and wire-to-board, in pitch sizes ranging from 3mm to 5.7mm with current ratings from 5A to 23A per contact. Amphenol introduces the newest addition, the Gen 5, Minitek® Pwr PCIe® connector system. The CEM 5.0 PCI Express® 12VHPWR auxiliary hybrid connector and cable assembly support 600W GPU cards.



UPS

### CoolPower® SDM Connectors

HIGH CURRENT COOLBAND POWER CONTACTS FOR MAXIMUM PERFORMANCE  
CoolPower® Slim Drawer Mini (SDM) Connectors offer a high level of mating configuration flexibility, current density, and a thin profile making it ideal for compact board-to-board power interconnects.

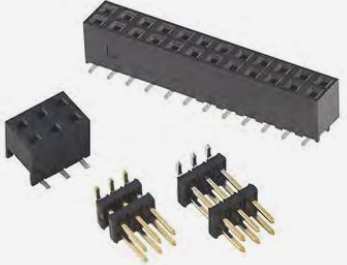


PLC

Industrial Control

### 0.50mm Power Pin Floating Board-to-Board Connectors

HIGH SPEED HIGH CURRENT POWER PIN BOARD-TO-BOARD CONNECTORS  
Power pin 0.50mm pitch floating board-to-board connector system is designed for applications with large current and require space saving features, supports high-speed data rate up to PCIe® Gen4 16Gb/s.



Test and Measurement

Industrial PC

### Minitek® 2.00mm - Board to Board

INDUSTRY PROVEN MODULAR CONNECTOR SYSTEM  
Complete, modular connector system built around a reliable dual beam contact system. Offers all PCB interconnection types and saves up to 38% PCB space compared to 2.54mm systems.



UPS

### Barklip® BK300 Connector

LOW RESISTANCE-HIGH POWER BUSBAR CONNECTOR  
The Barklip® BK300 connector features 14 independent conducting beams that maintain contact with the mating busbar.



Industrial PC

Test and Measurement

Industrial Embedded Computer

### PCI Express® Gen 4 and Gen 5 Card Edge Connectors

EXTEND DIFFERENTIAL SIGNALING TO 16GT/S AND 32GT/S FOR NEXT-GENERATION SYSTEMS  
Amphenol's expansive range of vertical and right-angle 1.00mm pitch PCIe® Gen 4 and Gen 5 connectors enable all generations of PCI Express® signaling and supports backward mating, and are footprint compatible with PCIe 3/2/1.



Industrial PC

Test and Measurement

Industrial Embedded Computer

### PCIe® M.2 Gen 5 Card Edge Connectors

HIGH DENSITY HIGH PERFORMANCE CONNECTOR  
Amphenol's PCIe® M.2 Gen 5 Connectors provide 67 contacts on 0.50mm pitch. It occupies less board space, offers more connector height options and supports higher data rates compared to PCIe® Mini Card connector.



Test and Measurement

### Rugged USB Type C

RUGGED USB TYPE C CONNECTOR FOR HARSH ENVIRONMENT APPLICATION, GENERATION 2  
Amphenol's MUSBR series USB Type C Connectors serve many markets and applications across the globe including Automotive, Communications, Consumer, Data, Industrial and Medical.



Industrial PC

Test and Measurement

Industrial Embedded Computer

### DDR5 SO-DIMM Connectors

HIGH SPEED HIGH DENSITY SO-DIMM SOCKETS  
DDR5 SO-DIMM connectors deliver high-speed and bandwidth. Being half the size of regular DIMMs, they lower power consumption and promote better thermal management.

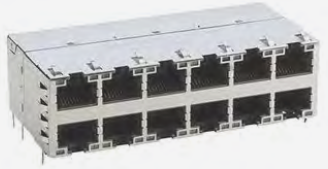


Robotic Arm

Industrial Ethernet

### Modular Jack - Rugged

RUGGED RJ PANEL MOUNT CONNECTOR IP67 SEALING  
Ruggedized RJ connectors with die cast housings and IP67 sealing for Harsh Environment applications, providing reliable performance in extreme conditions for the most demanding applications, and mate with standard RJ plugs.



PLC

Robotic Arm

Industrial Control

Industrial Ethernet

### Magnetic Jack (RJMG) - 2xN

STACKED AND GANGED RJ45 SOLUTION SUPPORTING 100BASE-T, 1, 2.5, 5 AND 10GB/S  
Ethernet PHY RJMG series offers a wide variety of fully RoHS compliant Magnetic Modular Jacks for RJ45. The right angle and through hole type is offered in 2xN (2x1, 2x2, 2x4, 2x6, and 2x8) port with tab-up and tab-down options.

## Custom Connector Solutions

Amphenol can support your custom connector requirements for industrial applications with value added solutions to meet your needs with minimal turnaround time and competitive pricing.



[FIND OUT MORE](#)





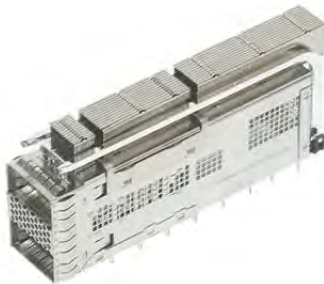
**Chameleon®**

ADAPT AND ADVANCE TO THE NEXT GENERATION  
With performance speeds up to 25 Gbps+, Chameleon meets the demand for faster, smaller and more compact connector solutions. Chameleon delivers a new level of performance unlike any other platform connector on the market today.



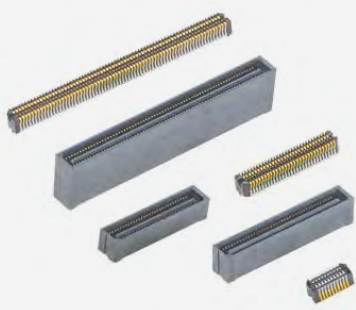
**cStack™**

CUSTOMIZABLE SOLDERLESS INTERPOSER-BASED ONE-PIECE STACKER  
The Amphenol cStack™ high speed solderless interconnect solution provides limitless flexibility for board-to-board mezzanine applications and board-to-board stackable and coplanar applications when terminated to a flex circuit.



**ExtremePort™ QSFP DD 112G Connectors**

ENABLES 400G and 800G AGGREGATE INPUT PER PORT  
A 76-position, 0.8mm pitch connector built for use in high-speed serial applications. One of the industry's leading multi-lane pluggable form factors used across Ethernet, Fibre Channel and InfiniBand.



**Lynx™**

HIGH SPEED AND DOUBLE DENSITY LOW-PROFILE BOARD-TO-BOARD CONNECTOR  
Amphenol's Lynx™ is a 4-row product offering doubling the density in a 2-row footprint that is suitable for a wide variety of applications in datacom, enterprise server, industrial, medical and more.



**InfinX Mezzanine Connectors**

OPTIMIZED FOR PERFORMANCE AND DIFFERENTIAL PAIR SIGNALING  
The InfinX® high-speed mezzanine connector solution is designed to meet the needs of 25+Gb/s applications. Available in 4- and 6-Pair configurations, InfinX is your best choice for high speed board-to-board applications.



**ExtremePort™ OSFP 112G Connectors**

112GB/S PAM-4 WITH UP TO 800GB/S AGGREGATED BANDWIDTH  
Amphenol's ExtremePort™ OSFP 112G interconnect system is comprised of a 60 position, 0.60mm pitch connector designed for high-speed serial applications.



**Lynx™ QD**

THE QUAD DIFFERENTIAL SOLUTION  
Optimized for differential pair signaling, Lynx™ QD sets a new standard for density and flexibility that offers an innovative, high performance interconnect with PCIe® Gen 5 support. Lynx™ QD supports data rates of 56 Gb/s PAM4.



**Leap® On-Board Transceiver**

SMALL, FAST AND POWER EFFICIENT.  
Amphenol's 300Gb/s Leap®High-Speed Optical Module is faster, smaller, and more cost and power efficient than most conventional datacenter interconnects.



**DensiLink® OverPass™ Assemblies**

112G DOUBLE ENDED HIGH PERFORMANCE CABLING INTERCONNECT  
DensiLink® OverPass™ products remove high speed signaling from the PCB and create a double ended, high performance cabling interconnect. These cables support 56G and 112G signaling in hardware system designs.



**SK Series - Sockets**

HIGH PERFORMANCE COMPRESSION MOUNT SOCKETS  
Amphenol's patented compression mount contact technology utilizes industry leading alloys to make cost effective and electrically robust socket solutions that offer high performance. With designs supporting pitches down to 0.4mm and speeds up to 40GHz,



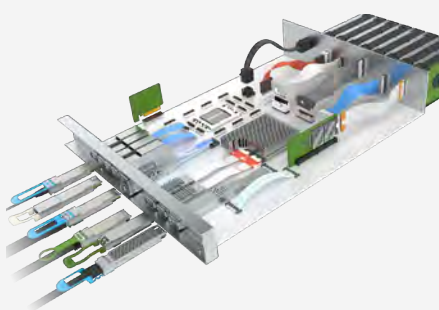
**UltraPort™ SFP+ Interconnects**

LOW COST, COMPACT AND FLEXIBLE SFP28 INTERCONNECT SYSTEM  
Features a 20-position hot swappable I/O connector enclosed in a metal cage mounted to a host PCB.



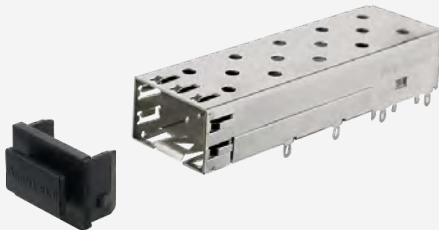
**M-Series™ 56 Mezzanine Connectors**

56GB/S HIGH SPEED BGA CONNECTOR SYSTEM  
Leverages proven technologies, including an industry leading BGA design, offering superior self-aligning and self-leveling.



**OverPass™ Cable System**

INDUSTRY-LEADING DIRECT HIGH-SPEED INTERCONNECT  
Amphenol's OverPass™ cable system offers a broad range of capabilities that allow our customers to efficiently transmit high speed signals from near an ASIC to anywhere in their system.



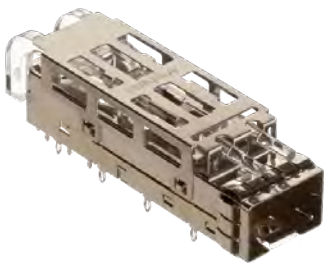
**SFP Product Family**

ACCEPTS MULTIPLE TRANSCEIVERS PER INF-8074i  
Combines, transmits, and receives functions in a low cost, compact format. Designed to maximize valuable space on the PCB.



**Mini-SAS HD Active Optical Cable**

PART OF AMPHENOL'S COMPREHENSIVE MINI-SAS HD PRODUCT OFFERING  
Addresses all board connector and cabling applications from 1 to 100 meters. Gives system architects full flexibility and a complete range of products.



**ExpressPort® SFP+**

MINIMIZE IMPEDANCE DISCONTINUITIES AND REFLECTIONS AT HIGH DATA RATES  
Provides data transfer speeds of up to 16Gb/s with a 10 to 20 dB improvement in Near-End Crosstalk.



**SFP+ Copper Cable Assemblies 10G**

MEETS DATA CENTER, NETWORKING AND HIGH-PERFORMANCE COMPUTING NEEDS  
A high-density cabling interconnect system capable of 10 Gb/s per channel transmission rates.



**ExaMAX® 56Gb/s High Speed Backplane Cable Assembly**

CABLE ASSEMBLIES AND I/O CONNECTORS FOR INTERNAL AND EXTERNAL APPLICATIONS  
ExaMAX® I/O products can deliver high speed performance of 25 Gb/s per channel with a path to 40Gb/s and higher.

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