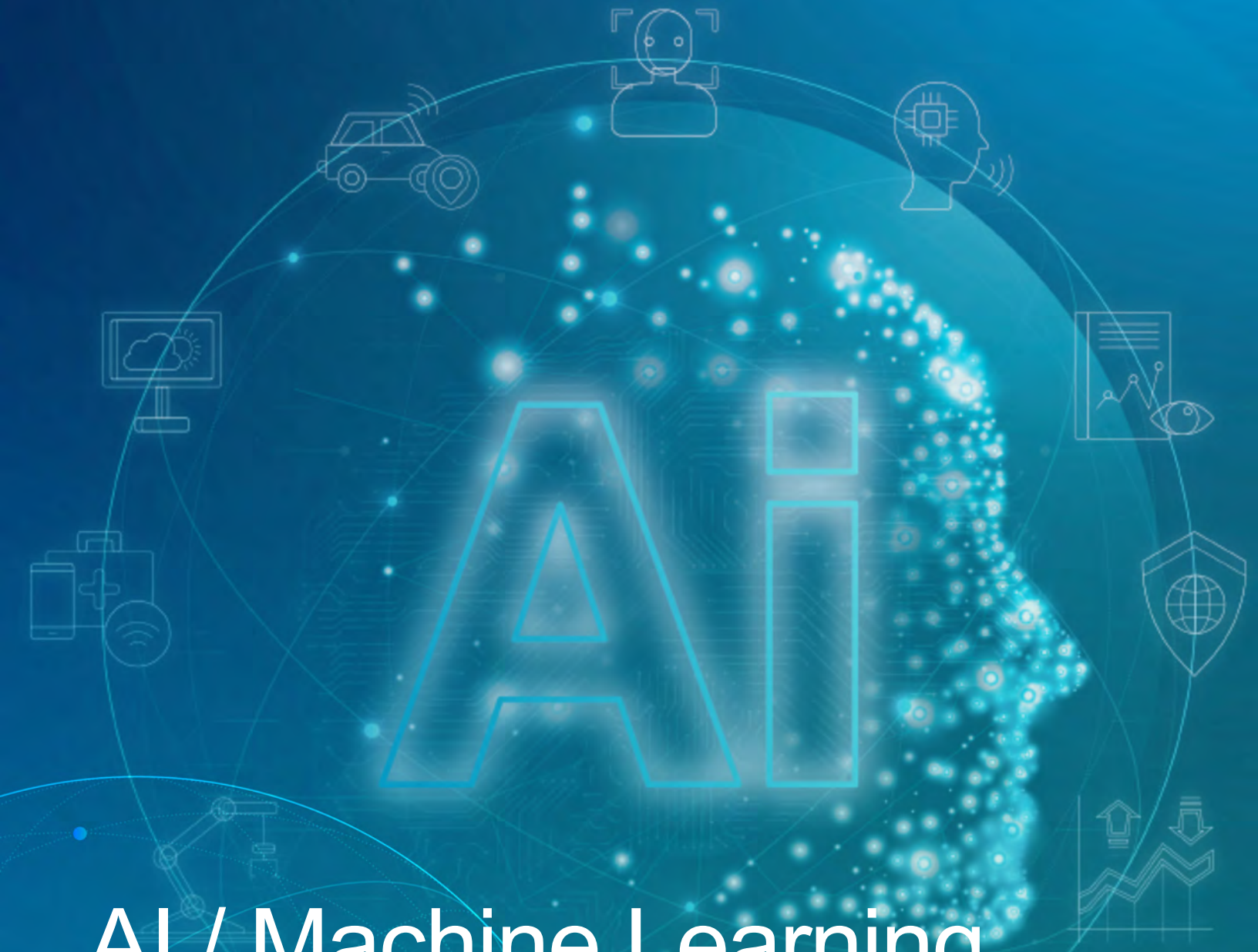
Amphenol
COMMUNICATIONS SOLUTIONS



AI / Machine Learning

Amphenol enables high-speed connectivity solutions with density, high performance and engineering expertise for every AI/ML application.

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.

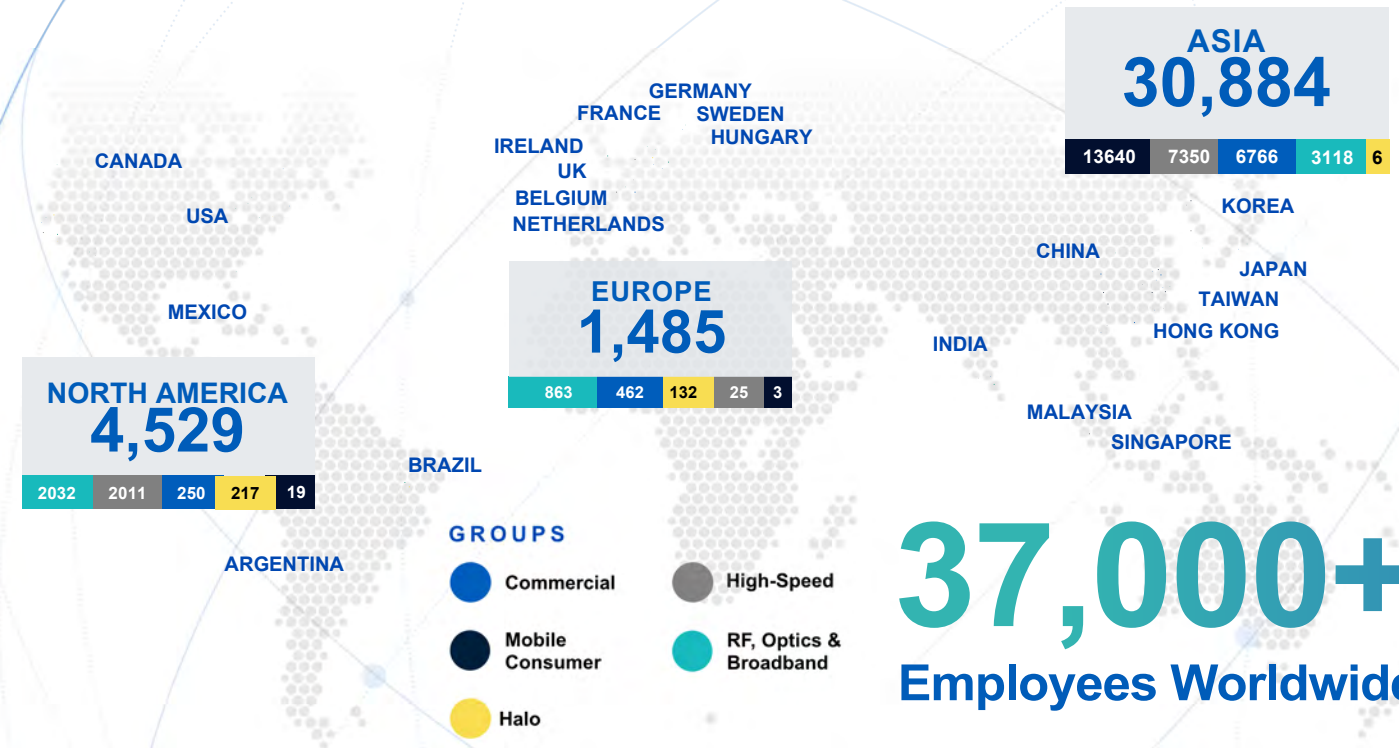
Amphenol Corporation is one of the world's largest designers and manufacturers of electrical, electronic and fiber optic connectors and interconnect systems, antennas, sensors and sensor-based products and coaxial and high-speed specialty cable.

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

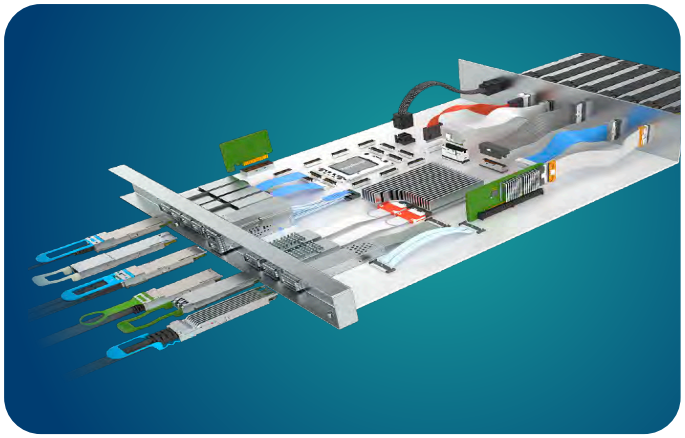
We place heavy emphasis on R&D for both new product and technology development, focusing on the advancement of the next generation of high-speed interconnects and power distribution solutions as well as innovative manufacturing solutions.

- 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

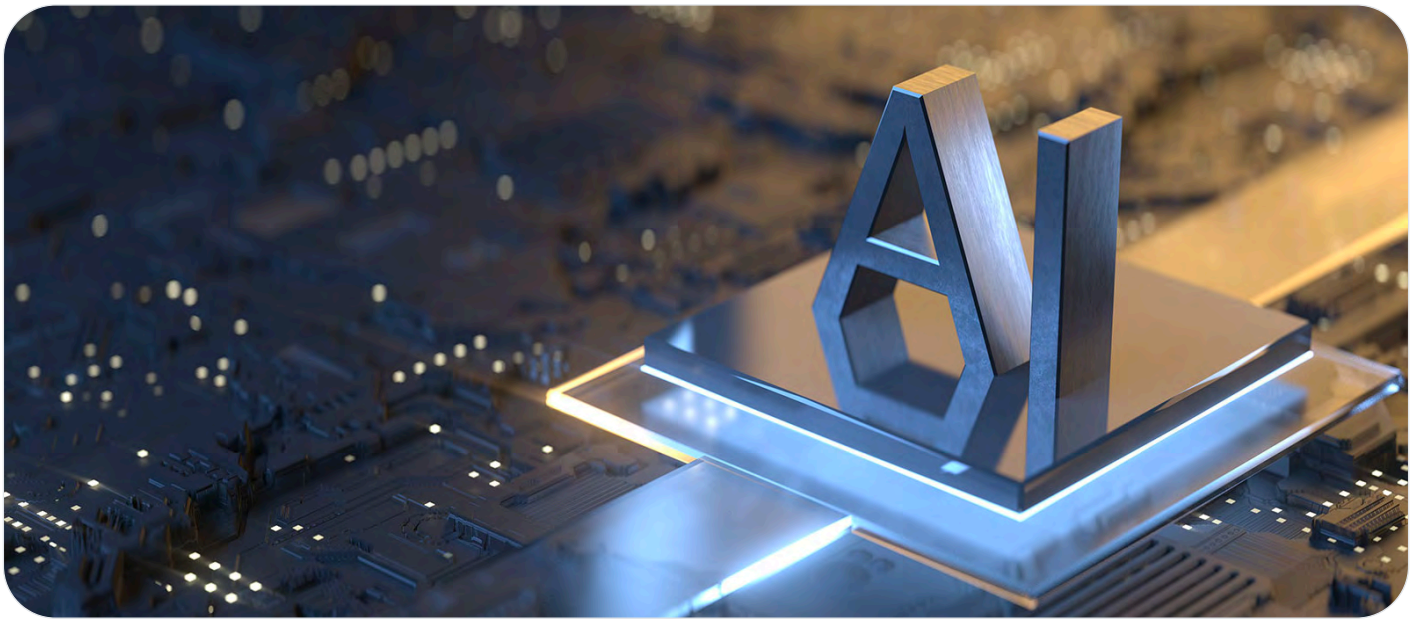


Integrated Signal Integrity Solutions

Amphenol provides reliable integrated signal integrity solutions across High-Speed IO, Backplane, and Mezzanine Connectors and Cables to meet the expansive goals of AI/ML. Adhering to PCIe® and DDR standards, high performance storage and memory connectors along with high-speed magnetic modular jacks and wire to board power connectors, are available for all your AI/ML applications.

OverPass™ Cable System

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. Reduce overall link signal loss and eliminate the need for expensive signal re-timers.



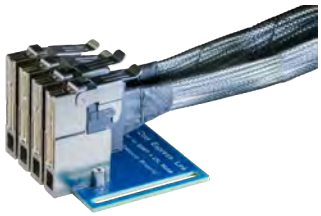
112G & 224G High-Speed Connectivity Solutions

Amphenol understands how to provide connector solutions to enable the higher speeds of today. We have the tools and expertise to help our customers get there, electrically and mechanically – and every type of connector needed for 112G integration, with a seamless path to 224G.

Amphenol has connectivity solutions for every application that requires a connector. Paladin® HD and EXAMAX2® are used for mezzanine and traditional, cabled, and orthogonal backplane. Amphenol SFP, QSFP, QSFP DD, and OSFP connectors and cable are available for a wide range of applications. Our engineering teams collaborate with customers on 1000's of projects every year, so no matter what technical, operational, or commercial challenges you face, Amphenol can develop a solution for you.

Mini and Hyper Cool Edge for EDSFF/ SFF-TA-1002 /SFF-TA-1037/ OCP/ GEN Z

- 0.60mm pitch card edge connectors, compliant with PCIe® Gen 5/Gen 6/112G PAM4 specs, and targeted for PCIe® Gen 7
- Designed to meet SFF-TA-1002, SFF-TA-1037, EDSFF E1/E3, OCP NIC 3.0 and Gen Z specifications
- Vertical, right angle, straddle mount and orthogonal options are available



Cool Express Link™ EDSFF PCIe® Gen 5/6

- EDSFF E3 hybrid orthogonal PCIe® Gen 5/6 cable connector for next-gen storage applications
- Supports CXL 3.x memory low latency, high bandwidth, and high-speed data transmission for next-gen AI/HPC applications
- Hybrid connector design streamlines midplane design

EDSFF, OCP, Power Shelf and PCIe® DirectAttached Cable Connectors

- PCIe® DirectAttached® cable riser solution supports up to PCIe® Gen5
- EDSFF cable connectors for E1 / E3 specifications
- OCP cable connectors for OCP NIC 3.0
- Power Shelf cable connectors for ORv3

U.2 SFF8639 Gen 5/6

- SFF8639 connectors, ideal for NVME U.2 SSD, also compatible with SATA/SAS form factor SSDs and HDDs
- 2 SAS lanes supporting up to 24G data rate and 4 PCIe® lanes supporting up to 64G (PSAS 6.0) data rates

PCIe® M.2 & Ultra Slim M.2

- 67 contacts on 0.50mm pitch fully compliant with PCI-SIG PCIe® M.2 specification
- Meets PCIe® Gen 5 specs and targeted for PCIe® Gen 6
- Dual Stacked, Shielded versions are available
- Right angle, vertical and various connector heights and keying options offered

PCIe® CEM Connectors

- 1.00mm pitch card edge connectors, PCIe® Gen 4/5/6 and targeted for Gen 7
- X1, X4, X8, X16, X24, X32 standard links
- Extensive range includes vertical and straddle-mount with options for ridge/ ridgeless, locked latch, side latch, blade hold down, open side wall, and more.

PCIe® Flip CEM, Slim CEM, Metal Cage CEM

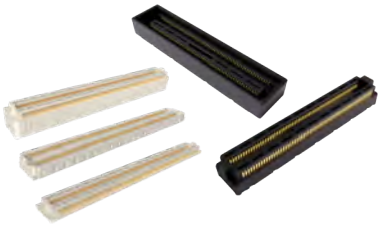
- Flip CEM with "JJ" or "LL" contacts provides better SI routing and smaller footprint
- Standard PCIe® CEM footprint is 8.20mm, Slim CEM is 6.00mm, Flip CEM is 5.90mm
- Metal cage CEM provides enhanced housing support

Memory LPCAMM Connectors

- Compress Mount Technology contacts provide lower height
- Provides faster transmission speed and higher bandwidth for memory
- Better airflow for improved thermal
- Flexibility of severability

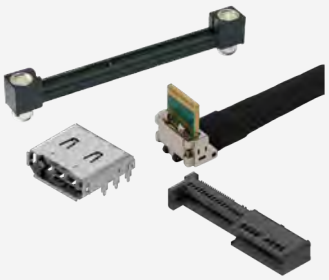
DDR5 SMT and SO-DIMM Memory module Connectors

- Vertical Surface Mount, 288Pin/287pin to support different CPU platforms. Support UDIMM, RDIMM and MRDIMM options.
- Right-Angled Surface Mount DDR5 SODIMM with full height offerings, reverse or standard key options.



PCIe® Gen 6 COM-HPC & MiniStak

- Up to PCIe® Gen6 64Gb/s per channel
- **COM-HPC:** 400pos 0.635mm pitch connectors supporting stack heights of 5mm and 10mm and provides CPU power support at 150W
- **MiniStak:** 0.60mm pitch 40pos to 400pos connectors withstanding 50G mechanical shock



Cool Edge Hybrid Connectors

- **Slim Cool Edge:** 0.65mm pitch, Gen6 64G PAM4 connectors
- **Standard Cool Edge:** 0.8mm pitch connectors with EMI shielding for automotive and power applications
- **Double Density Cool Edge:** 0.8mm pitch connectors with highly configurable wafer design for differential, single-ended, and power applications
- One-piece small form factor

Mini Cool Edge IO

- Up to 64Gb/s PAM4 PCIe® Gen 4/5/6/7 over 1.0 meter transmission distance
- Cable/card insertion dual applications are available
- Options for 92Ω, 85Ω and 95Ω impedance and various pin number options - meeting PCIe®/NVMe/SAS/SFP(+)/QSFP specifications

Multi-Trak™

- Combines original PCIe® and Mini Cool Edge IO in one connector to provide both power (21A) and high/low-speed signal
- Up to 56Gb/s PAM4, PCIe® Gen 5, and target PCIe® Gen 6
- Options for 85Ω impedance and various pin number options - meeting PCIe®/ NVMe/SAS/OCP DC-MHS/ SFF-TA-1033 specifications

ExtremePort™ Z-Link

- Compliant with Gen-Z and OCP NIC specifications. SFF-TA-1002/1020 solution
- High-speed of up to 56Gb/s PAM4
- Supports both cable and card edge applications

ExtremePort™ Swift

- Ultra-low profile, 0.60mm pitch connector in 8X, 16X configurations. Mating height 8.38mm
- Designed for unshielded, internal I/O connectors
- With 85Ω impedance and meets PCIe® Gen 5 NRZ 32GT/s specifications

Fan Connectors

- Blind Mate Interface Wire-to-Board connectors from 1.25mm to 2.54mm pitch with max current rating 5.5A/pin. Designed for Server and Storage applications
- Card to Wire connectors in 2.44mm and 2.54mm pitch with current rating 4A/pin designed for switch application

RJMG & Discrete Magnetics

- 10/100T, 1GBT (10/100/1000-BT), 2.5G, 5G , 10G, Power over Ethernet (PoE, 15W~150W) , integrated with surge protection
- Commercial 0~70℃ and industrial -0~85℃ & -40~105℃
- Meets IEEE 802.3ab and supports various Ethernet PHY

Mid Power / TopFlight™

- Wire-to-Board solutions in 3.0mm and 4.2mm pitch
- Current rating of 6.5A to 20A per pin
- TopFlight™: Engineered for use in OCP power distribution and management architecture, current rating up to 14A per pin

PwrBlade® ULTRA HD+ Board-to-Board

- Provides up to 100A per contact
- Low-profile configuration, 11.40mm height above board
- Highly configurable tooling design

PwrBlade® ULTRA HD+ Cable Assembly

- Provides up to 84A per contact
- Squeeze-to-release latches
- Versatile wire ranges of 6 – 8AWG for power contacts

PwrBlade® MiniMezz

- Rated up to 50A per high-power contact, 25A per low power contact
- Available in stack heights from 8.00mm to 20.00mm (tooled in 1.00mm increments)
- ± 0.80mm of gatherability for blind-mate applications

PwrBlade® Mini Cable-to-Board

- Rated up to 25A per contact (50A per column)
- Built-in squeeze-to-release latches
- Latching CPA (Connector Position Assurance) features

PwrBlade® Mini Board-to-Board

- Rated up to 45A per power contact
- Lowest-profile PwrBlade® connector (8.10mm height above board)
- No PCB overhang

PwrBlade+® I/O

- Rated up to 50A per contact
- Power and signal contacts are highly configurable
- Wide wire size range available

BarKlip® BK450

- Currents rated up to 450A per contact
- 36 independent points of contact for high current carrying capability
- ±3.50mm of gatherability for blind mate applications

BarKlip® XP Series

- Connectors Rated from 200A-1000A
- No housings to maximize power-density
- Mounts directly to PCB or busbar

OCP ORv3 BarKlip®

- Power ranging from 100 – 700A per contact
- Designed to meet OCP ORv3 Power Distribution standards
- Supports 48V Power Rack Architecture

BarKlip® BK220

- Provides up to 220A per contact
- Ultra-low end-of-life resistance of 0.05mΩ
- Sense pin contacts for mate last-first break capability

BarKlip® BK220 Connector

- Power ranging from 150A – 220A per contact
- Fully compliant with ORv3 IT Gear Connector Specification
- Sense pin contacts for mate last-first break capability

BarKlip® BK350 I/O

- Distributes up to 360A per contact
- Sense pin contacts mate last-first break capability
- Secondary chassis grounding contacts

ORv3 AC Input Connectors and Cable Assemblies

- 7-Pin connector designed for Star, Delta, and single-phase connections
- Fully compliant with OCP ORv3 Power Shelf Universal Input Connector Specification
- Rated up to 32A per pin

M-CRPS +54V

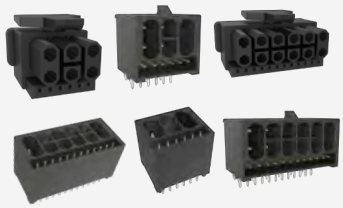
- Rated up to 40A per pin
- Wiring options of 8, 10, & 12AWG
- Over-molded cable options available

M-CRPS HVDC 277VAC/380VDC

- Rated up to 30A per pin
- Touch-safe design
- Over-molded housing

CoolPower® HD

- Wide power range of 100A – 250A per pin
- Pin diameters from 5.70mm – 9.10mm
- Flexible housing form-factor

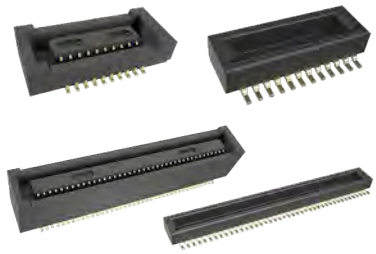


Minitek® Pwr PICPwr OCP Connector Solutions

- 12V connector solution support Open Compute Project Power Distribution and Management architecture requirements
- Operating power and voltage 864W at 12VDC

Minitek® Pwr Connector and Cable Assembly

- Wire-to-wire and wire-to-board solutions
- Current rating from 5A to 25A
- Available in pitch sizes of 3.00mm, 4.20mm, and 5.70mm



BergStak®

- 0.40mm pitch
- Wide range of stack heights and positions
- Speed up to 16Gb/s, USCAR-2 V2 qualified

DensiStak™

- 0.80mm x 1.25mm pitch
- High Density up to 1034 pos
- Speed up to 16Gb/s, USCAR-2 compliant

Ruggedized

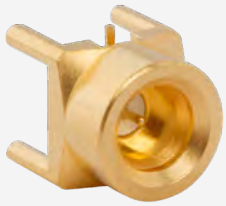
- Ruggedized, IP67 sealed
- Connectors & cables
- RJ, USB, USB-C, D-Sub, HDMI
- MRD circular latching
- FLH rectangular latching
- Industrial, commercial, lighting

AI / Machine Learning

RF

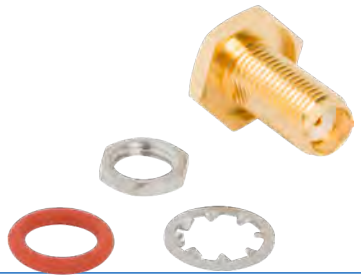
RJ / Modular Jacks & Modular Cable Assemblies

- Cat5, Cat5e, Cat6, Cat6A
- Single port, ganged, stacked multi-port, LEDs, shielded
- Vertical, right angle
- PoE++ capability
- Industrial, commercial, medical, consumer, military applications
- Cable Assemblies



SMP

- A subminiature RF interface available in push-on and snap-on mating used in high frequency coaxial modules
- Available in full, limited, and smooth bore detent for applications that utilize a floating bullet adapter that compensates for misalignment
- Cable-to-board mated pairs accommodate a variety of smaller diameter cable types



SMA

- Versatile 50 ohm threaded connector series available in various PCB and cable-mount configurations
- Available in lightweight, compact and vibration proof options
- Its high-strength designs are ideal for harsh environment applications

2.92 mm

- Offers low VSWR and excellent return and insertion loss, along with high power handing capabilities
- Mates with SMA, 3.5 mm and other K or 2.92 mm interconnects for additional versatility

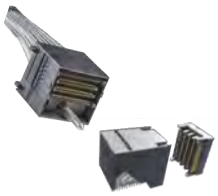
Conformable Cable Assemblies

- Amphenol RF offers a broad variety of pre-configured cable assemblies on conformable cable types
- These flexible cables feature all industry-standard RF connector interfaces in in-series and between-series options

SMPM

- Similar to the SMP interface, the SMPM connector series is a high-frequency RF interconnect designed to support applications up to 65GHz
- Available as a board-to-board and cable-to-board solution in a variety of straight and right-angle configurations with surface, through-hole and end launch mounting options

High-Speed



EXAMAX2®

- Cost optimized with scalable performance to 112Gb/s PAM4
- Innovative design supports low insertion/ extraction forces along with reduced crosstalk and low insertion loss
- Flexible architecture supports direct orthogonal, traditional backplane, coplanar and cable requirements
- Meets industry specifications such as UPI 3.0, PCIe® 6 and 7

ExtremePort™ QSFP-DD 224G Connectors

- Supports per port designs from 200G, 400G, 800G and 1.6T PAM4
- 8 lanes per cable – 28G, 56G, 112G and 224G per lane capability
- Double the bandwidth per port vs. QSFP
- Backwards plug compatibility with QSFP; available in all 4x form factors

800G OSFP 2xDR4+ Transceivers

- Low power dissipation for LPO based solution
- Supports 106.25 Gb/s data rate per channel
- Electrically hot-pluggable with a single 3.3V power supply
- Integrated optional CWDM EML TOSA or 1310nm Silicon photonics modulator chip

Paladin® HD

- Industry leading SI performance supporting 112Gb/s data rates
- Optimized to maximize density with 144 diff pairs within 1U orthogonal slot
- Consistent signal integrity performance over the entire mating range
- Flexible architecture supports right angle female, direct orthogonal, and cables up to 12P

ExtremePort™ OSFP 224G Connectors

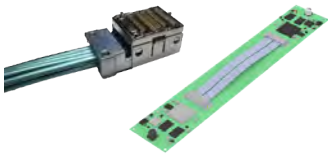
- Supports per port designs from 400G, 800G and 1.6T PAM4
- 8 lanes per cable – 28G, 56G, 112G and 224G per lane capability
- Thermal management engineered into cabled solution; available in all 4x form factors
- Enables up to 57.6 Tb/s aggregate bandwidth in a single switch slot

Mini-SAS HD Active Optical Cable

- Reliable high performance interconnect solution for M-SAS applications
- Fully compliant to SAS 3.0 and SAS 4.0 industry standards as well as the SFF-8636 interface standard
- Used primarily for external enterprise storage applications

Paladin® HD2

- Industry leading SI performance supporting 224Gb/s data rates
- Optimized to maximize density with 144 diff pairs within 1U orthogonal slot
- Consistent signal integrity performance over the entire mating range
- Flexible architecture supports right angle female, direct orthogonal, and cables up to 12P
- Offers a backwards compatible upgrade path with Paladin HD

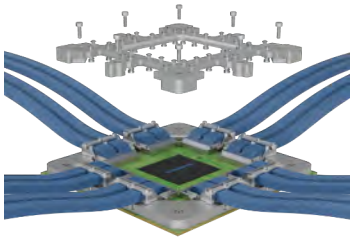


UltraPass™ Internal High Speed IO

- Delivering a simple, low-loss, direct link to pluggable modules or anywhere in the system
- High speed, low profile and high density (bandwidth / mm2) near chip and on package solutions including micro-LinkOVERTM and DensiLinkTM
- Solutions available at 28G, 56G, 112G and 224G signaling speeds

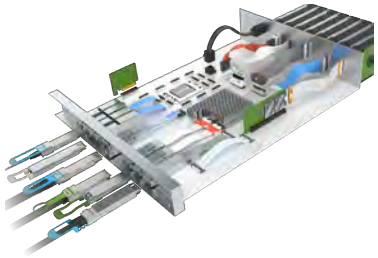
OSFP Copper Cable Assemblies

- A comprehensive interconnect system for copper or optical based cable solutions
- Compatible with 25G/lane channel NRZ up to 224G/lane channel PAM4 signaling protocols that allow the cables to deliver aggregate bandwidths of 200G, 400G, 800G, and 1.6T per cable assembly
- Available in both passive and active variants



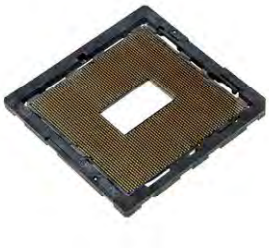
Osmium™ Co-Packaged Copper Connector 224G/448G

- High density single-piece CPC connector system
- 8-pair incremental (x4, x6, x8, etc.) on-substrate connector and compression system
- 0.6mm pitch within contact position and 0.53mm spacing between contacts
- Direct mate to on-substrate pads requires no 2nd piece connector and minimizes routing impact



OverPass™ Cable System

- Industry-leading, direct high-speed interconnect system
- Allows system designers to efficiently transmit high speed signals from near an ASIC to anywhere in their system
- Solutions available in 10G, 25G, 56G, 112G, and 224G PAM4 per lane signaling speeds



cLGA® Socket

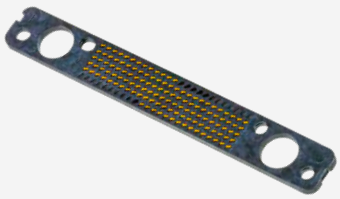
- Industry leading SI performance due to advanced shunted contact technology.
- Mixed signal and power contact designs for AI chips.
- Socket and compression hardware are co-developed to guarantee reliable performance.
- Contact pitch from 0.6 mm to 1 mm

QSFP-DD PCIe® Gen 5/6/7 LPO Transceiver

- Type II QSFP-DD Form Factor
- 8 Channel full-duplex transceiver
- Lengths up to 50m OM4 with power dissipation < 5W

High-Speed Bulk Cables

- High frequency SkewClear EXD cable technology
- Offerings include multi-pair cables: 2, 4 and 8 pair constructions in wire gages from 32AWG to 26 AWG (34 AWG in development)
- Supports transmission speeds of 10G, 28G, 56G, 112G, and 224G



cStack™

- Industry leading SI performance due to advanced shunted contact technology.
- Contact pitch from 0.6 mm to 1 mm
- Mated height between 1 and 10 mm
- Pin count from 2 to 1000's

CDFP Connectors & Cages

- Compliant with SFF-TA-1032
- 85ohms impedance
- PCIe® Gen5/Gen6 application ready, target to upgrade to Gen7
- Soldering ring option, belly to belly application
- A heat-sink assembly is available to improve thermal performance

HD Express® Backplane Interconnect System

- Specifically designed to support PCIe® Gen 6 links
- Highest density backplane product in the market
- Modular construction with integrated guidance, 85Ω impedance

M-Series™ Mezzanine Connectors

- Designed to support high-technology products in board-to-board or flex assembly architectures from 4-5mm
- Next-generation differential pair contact design for 56G NRZ, 112G PAM4 performance

ExtremePort™ OSFP-XD 112G Connectors

- Meets or exceeds MSA supported standard interface
- Enables 800G and 1.6Tb/s aggregate bandwidth per port
- Allows the user to choose from multiple options to optimize the thermal performance
- Enables use of DAC, short and long-range optical

TR Multicoax Connector

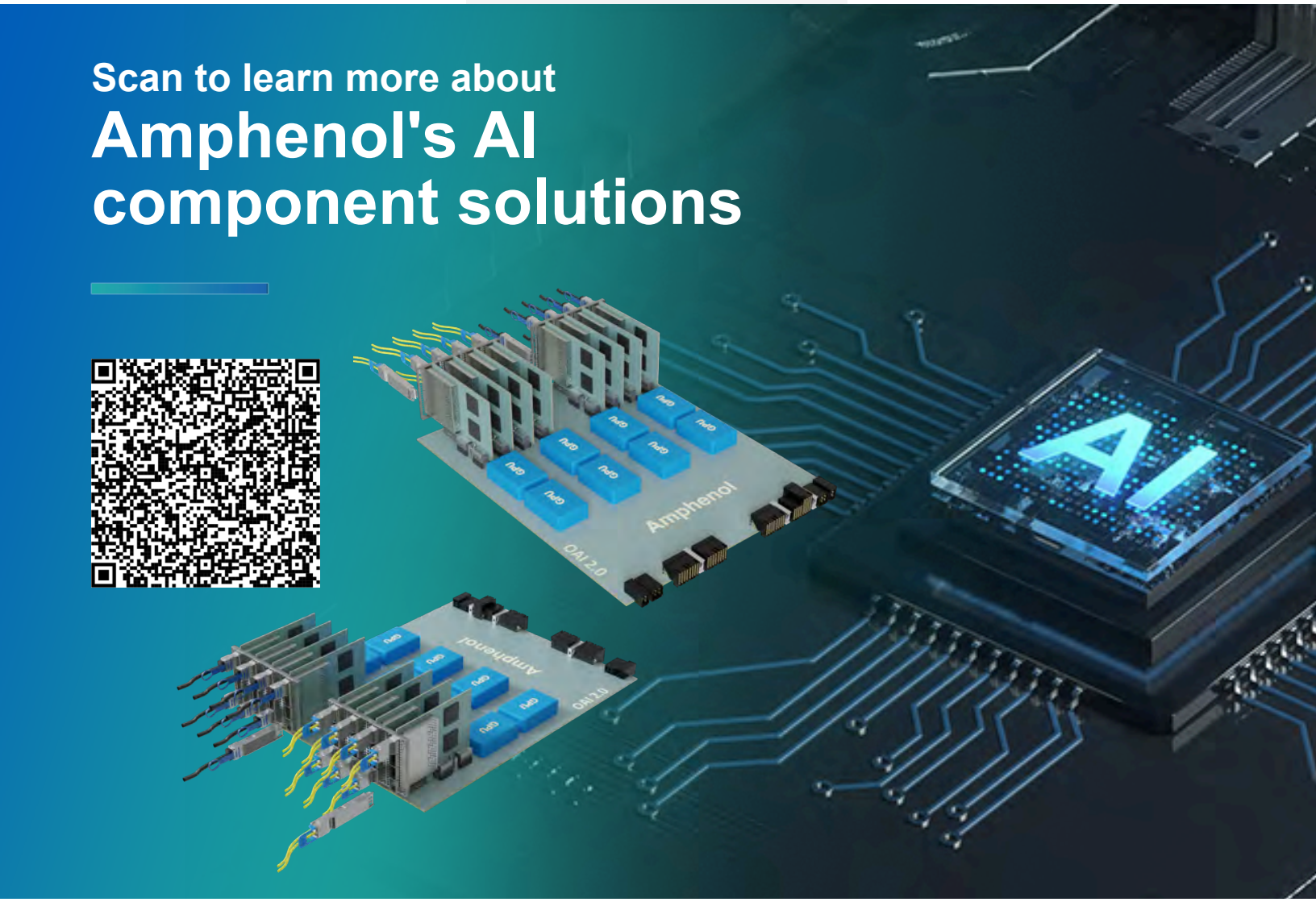
- High density, high-speed multicoax connector with compression-mount interface
- Features superior signal integrity from multiple high-speed analog or digital channels
- Choose from 20GHz, 40GHz, 70GHz, or 90GHz configurations

ExtremePort VOSFP 224G Connectors

- Vertical OSFP 1x1 SMT connector with MSA-supported standard mating interface
- Employs 8 lanes that support 224Gb/s PAM4, providing solutions up to 1.6Tb/s aggregate bandwidth
- Enables up to 128 ports for a high-density network cloud fabric application

Scan to learn more about

Amphenol's AI component solutions



Connectivity Products & Solutions for AI Racks

Amphenol
COMMUNICATIONS SOLUTIONS

Backplane Cables & Connectors

Cartridges
Harnesses

- Paladin HD
- Paladin HD2
- EXAMAX2
- XCede HD

Power

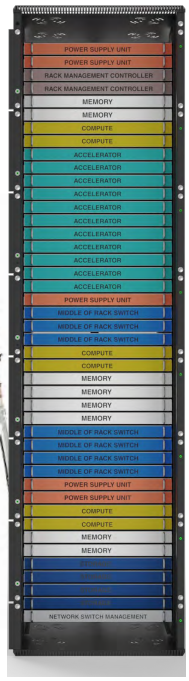
- ORV3 Horizontal Busbars
- ORV3 Vertical Busbars
- Busbar & Power Connectors
- High-current Cable Assemblies
- High Density & Signal Cable Connectors
- High Power Connectors

- BarKlip BK150 IO
- BarKlip BK500 IO
- BarKlip BK600 IO
- eHPCE
- PwrBlade & PwrMAX
- Minitek Pwr 5.7
- Positronics 7-Pin Connectors

Thermal Management

- Advanced Heat Sinks
- Thermal Interface Material
- Liquid Cooling Solutions

- OSFP & QSFP-DD Heat Sink Cages and Liquid Cooling Cages



Server Solutions

- Paladin® HD2
- Mini Cool Edge Card Edge Connectors
- 224G OSFP & QSFP Connectors & Cables
- 224G ExtremePort Connectors

- Backplane Connectors
- SSIO Connectors & Cables
- Card Edge Connectors
- HSIO Cable Assemblies
- Fan Connectors
- Power Modules
- 27-32 AWG Bulk Cable

Switch Solutions

- 224G OverPass™ Cable Assemblies
- 224G Celerity™ Mezzanine Connectors
- 800G LPO Transceivers

- Co-packaged Copper/ Near Package Copper
- Chip to IO/Chip to Backplane
- HSIO Connectors
- DAC/ACC/AEC
- AOCs & Transceivers

Manufacturing Locations

China, Vietnam, India, Mexico, USA, Malaysia, Thailand

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1

Notes

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