Amphenol

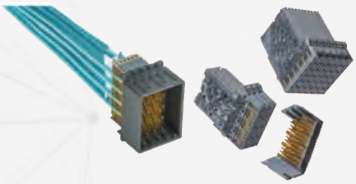
Enabling The
Electronics Revolution

Overview

Amphenol

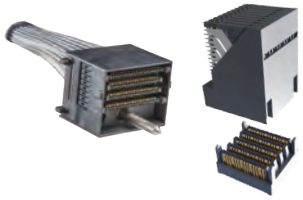
High Speed Backplane Products

www.amphenol-icc.com/high-speed-backplane



XCede®

- Supports designs from 8G to 56G PAM4
- Scalable and flexible design supports all your system requirements
- Supports Embedded Capacitors



ExaMAX®

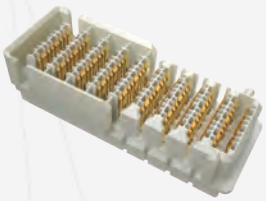
- Cost optimized with scalable performance beyond 56G PAM4
- Innovative design supports low insertion/extraction forces along with reduced crosstalk and low insertion loss
- Flexible architecture supports direct orthogonal, traditional backplane, coplanar and cable requirements

Paladin®

- Supports data rates beyond 112G PAM4; industry leading signal to noise performance
- Consistent signal integrity performance over the entire mating range
- Flexible architecture supports direct orthogonal, traditional backplane, mezzanine, coplanar and cable requirements

XCede® HD

- Supports designs from 8G to 56G PAM4
- The de facto standard for high performance backplane designs with industry leading density
- Supports Embedded Capacitors



ExaMEZZ®

- Cost optimized with scalable performance up to 56G PAM4
- Innovative design supports low insertion/extraction forces along with reduced crosstalk and low insertion loss
- Stacked height range from 15 to 45mm in 2 and 4 pair configurations

AirMax®

- Cost optimized with scalable performance beyond 25G PAM4
- Traditional backplane offering including standard and inverse gender
- Standard is 3-, 4- and 5-pair

Elite®

- Scalable performance beyond 56G PAM4
- Connector design is optimized for reduced PCB layer count
- Same mating interface for direct orthogonal, cable and traditional architectures

High Speed IO

www.amphenol-icc.com/high-speed-io

1G-10G and 25G SFP Transceivers

- LR, ER, BIDI, CWDM, LWDM

100G / 200G QSFP

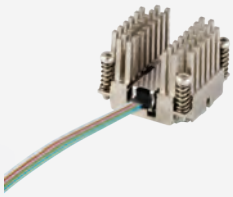
- 4 lanes per cable – 28G & 56G per lane capability
- Passive & active cables; 26AWG to 32 AWG cable
- Supports cable lengths up to 5 meters

200G / 400G QSFP DD

- 8 lanes per cable – 28G & 56G per lane capability
- Double the bandwidth per port vs. QSFP
- Backwards plug compatibility with QSFP

200G / 400G OSFP

- 8 lanes per cable – 28G & 56G per lane capability
- Thermal management engineered into cabled solution
- PAM4 modulation providing solutions up to 400G aggregate bandwidth



Leap® On-Board Transceiver

- Capable of speeds up to 25Gb/s and distances up 10 100m
- 300Gb/s total throughput requires only 1sq inch of board space and 5.4W of power
- Optical cable can be routed above around other components in the design

100G QSFP Active Optical Cables

- Capable of speeds up to 25.78125Gb/s or 28.056Gb/s per channel
- Supports 100G Ethernet and Infiniband 4xEDR and 4x32FC protocol
- Transmission distance up to 100m (MMF)

300G CXP2 Active Optical Cables

- Capable of transmittng data at rates up to 25.78125Gb/s
- Full duplex 12 channel transmissions
- Up to 300Gb/s aggregate bandwidth per channel

200G / 400G QSFP DD / OSFP Active Optical Cables

- 8 lanes per cable - 28 G & 56G per lane capability
- Maximization of linear port density
- Thermal management engineered into cabled solution

MEZZANINE Products

www.amphenol-icc.com/mezzanine

M-Series™ 56

- Designed to support high technology products in board-to-board or flex assembly architectures from 4-15mm
- Next-generation differential pair contact design for 56G NRZ, 112G PAM4 performance

cLGA® & cSTACK

- Mechanically robust dual compression technology with pin counts up to 5000+
- High performance sBGA configurations are readily available with speeds to 56G+

cSTACK™ & CUSTOM FLEX

- Designed for applications where flexibility, space, weight and performance are critical
- Available with BGA, LGA, SMT, press-fit or thru-hole connector terminations

Lynx™ QD

- Designed in multiple form factors: right angle, coplanar and vertical stacker
- Optimized for differential pair signaling to support PCIe Gen5 and 56G performance

ARDENT CONCEPTS
An Amphenol Company

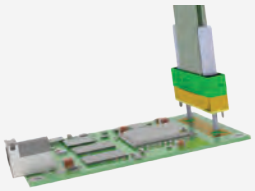
www.ardentconcepts.com

Right Angle 16-Channel TR Multicoax Connector

- Alleviate height concerns in applications that are Z-height limited (7.62mm mated height)
- Escape signals up to 70 GHz from existing standard footprint symbol
- Dense PCB footprint saves real estate and gets cables close to devices, minimizing lossy trace lengths

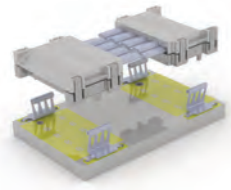
SK Series Family of Sockets

- Socket can be easily mounted and de-mounted with a few screws encouraging re-use across board revisions
- Durable 40 GHz+ socket solutions offer low loss connection for high performaing devices



TR Multicoax Series TR Auto

- Delivers superior signal integrity from multiple high speed channels in the narrow E-Band (71-86+ GHz)
- Ideal for automotive radar applications
- Highest density high speed multicoax connector on the market while delivering extremely low VSWR and Insertion Loss



CA Series Connectors and Interpowers

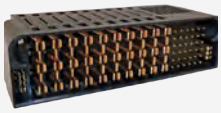
- Bandwidth and performance outpast 32 Gb/s
- Pure vertical interface, no offset required

Power Solutions

www.amphenol-icc.com/power-solutions

EnergyEdge™ X-treme

- Available in straddle mount, right angle, right angle coplanar, and vertical configurations
- 3000W at 12V
- 25% increase in current linear desity
- 23% size reduction compared to traditional card edge connectors



PwrMAX® G2

- Next genration PwrMAX® - highest density blind-mate Power and Signal connector series
- 100A per contact and 18% size reduction
- Orthogonal, mezzanine, coplanar and right angle configurations available for both PCB and busbar applications

PwrBlade+® IO

- Up to 60A per contact (high power) & 25A per contact (low power), power & signal contacts are highly configurable wide range of wire sizes available

BarKlip® IO

- Up to 20A per contact, AGT® plating technology for ultra low resistance, ultrasonic welding provides lower voltage drop and greater overall efficiency

CoolPower® SDM

- Up to 35A per pin, high current Coolband or RADSOK® contact technology available, backplane coplaner and orthogonal configurations

PwrBlade Ultra®

- Up to 75A per contact, ultra low resistance (0.4mΩ at end-of-life conditions), low profile height of 9.6mm for optimized airflow

FCi Basics

www.amphenol-icc.com/basics

Minitek MicroSpace™

- Conpact, Robust and Versatile. LV214 Severity-2 Compatible

BergStak HS™ 0.50mm

- Flexible solution designed for high speed and high desity

Minitek® MicroSpeed

- Outstanding signal integrity for high data rates

Conan® 1.00 mm

- Secure, High-Speed design for harsh environments

OCTIS™ Outdoor IO

- Robust I/O for high realiability and performance

Minitek® Pwr Family

- Full range solution for power application with a high current rating up to 23A per contact

Commercial IO

www.amphenol-icc.com/commercial-io

RJ/RJMG

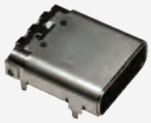
- Modular Jacks, widest variety of standard, high performance and integrated magnetics

Fan Connectors

- Unique modular fan interconnect solutions for Servers, Storage and Data Center applications

High Speed Automotive

- Connectors for Automotive Electronics: HSD, HSC, HSBridge, NETBridge, Floating BTB



USB

- Wide variety of USB 2.0, USB 3.0, USB 3.1 Gen1 & Gen2 in Type A, micro/mini, Type C, single port and stacked, multiple configurations and combos

Industrial Ethernet Connectors

- IX and Single Pair Ethernet (SPE) for next generation of high speed, ruggedized Factory Automation Ethernet connectivity

Harsh Environment

- Ruggedized, IP67 sealed standard interfaces including RJ, USB, USBC, D-Subs, HDMI, and new/custom interfaces

Storage & Server IO

www.amphenol-icc.com/storage-server-io

Double Density Cool Edge for Ultra Compact Design

- Designed to accommodate both high speed signal and power in a space-saving format using two rows of contacts

M.2 & PCIe GEN 4 and 5

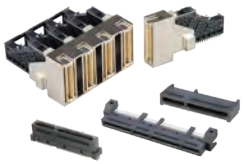
- Meets industry standard PCIe 4.0 and 5.0 with high speed up to 32GT/s per differential signal pair

Slim Cool Edge for High Speed Hybrid Design

- Designed for high speed up to 32GT/s (or 56GT/s PAM4) capability

SAS PCIe (U.2 & U.3) 4.0 and 5.0

- Designed to meet SFF8639 and SFF8680 spec with high speed up to SAS 4.0 24Gb/s and PCIe 5.0 32GT/s



Mini Cool Edge for GENZ/EDSFF/OCP

- Designed to meet SFF TA1002, Gen Z, EDSFF, OCP

DDR4 and DDR5

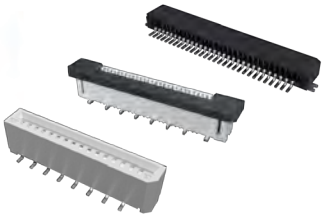
- Designed to meet JEDEC SO-016, SO-017, SO-019 and SO-023 spec

Amphenol AORORA

www.amphenol-icc.com/aorora

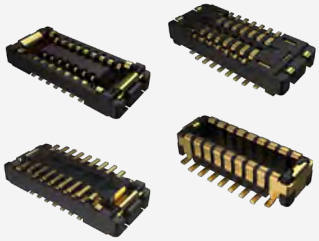
0.50mm FFC/FPC

- Easy to operate and vibration-proof
- Wide height range from 1.25mm to 5.80mm with 4 to 80 contact positions in both vertical and right angle orientations
- Front/back/vertical flip and slider mechanisms with ZIF or Non-ZIF cable terminations



1.00mm FFC/FPC

- Easy to operate and prevents against solder and flux wicking
- Wide height range from 2.00mm to 5.04mm with 3 to 34 contact positions in both vertical and right angle orientations
- Front flip and slider mechanisms with ZIF or Non-ZIF cable terminations



Micro Board-to-Board

- Low profile and fine pitch for high density applications
- High current rating (Up to 3A)
- Chamfer connector design prevents mismatching

Floating Board-to-Board

- Floating range of ±0.50mm in the X, Y and Z directions
- High speed performance (Up to 2.5Gb/s)
- Double contact points for enhanced contact reliability

OverPass™ Solutions

Cable system offering a broad range of capabilities that efficiently take high speed signal from near the ASIC to anywhere in the system.

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 32 AWG to 26 AWG
- Supports transmission speeds of 10G, 28G and 56G PAM 4 per lane bandwidths (112G versions in development)
- Impedance tuned designs support: Paladin ®, ExaMAX®, ExaMAX+®, LinkOVER™, Swift, Flash, GenZ, OverPass™ HSIO
- FEP insulated wiring for higher temperature environments

External High Speed IO

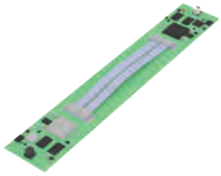
Near ASIC to external IO receptacles

- Direct high speed interconnect link from the chip site directly to the external IO port
- HSIO OverPass portfolio products are fully compliant to established industry standard interfaces: SFP, QSFP, QSFP DD, OSFP and others
- Supports signal transmission speeds of 10G, 28G and 56G PAM4 per lane bandwidths (112G versions in development)
- Press fit or cabled sideband signal management
- Stacked, ganged, and belly-to-belly HSIO connector and cage configurations

Cabled Backplane

Near ASIC to system backplane or coplanar cards

- Cable Backplane System portfolio products extend the reach of passive copper for next generation system designs
- 56G and 112G PAM4 performance
- Optimization with our high speed, low loss twinax cable with Paladin® and ExaMAX® backplane connector families
- Flexible connector architecture supports cable mating with a backplane cable, press fit headers, right angle and orthogonal configurations



Internal

Near ASIC to cards or board location in system

- Delivering a simple, low-loss, direct link to pluggable modules or anywhere in your system
- Optimization with our high speed, low loss twinax cable with high speed connectors such as: Mini-SAS HD, OCulink, SlimSAS™, Mini Cool Edge IO, ExtremePort™ Z-Link, Flash & Swift, and LinkOVER™
- Solutions are available in 10G, 25G, 56G & 112G PAM4 per lane signaling speeds
- Multiple cable exit options like straight, right angle, and coplanar
- Construction options including double ended, Y, and breakout cables.
- Single, ganged and stacked cage configurations

Amphenol ICC

www.amphenol-icc.com