

MINI COOL EDGE (MCIO) CONNECTORS AND CABLE ASSEMBLIES

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NPI INNOVATION

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creating connections for life

molex

MINI COOL EDGE (MCIO) CONNECTORS AND CABLE ASSEMBLIES

The Mini Cool Edge (MCIO) product family delivers 4x, 8x, 16x and 20x options with high-speed 16, 32 and up to 64 Gbps data rates. MCIO cable assemblies meet PCIe standards in extremely flexible configurations.

Key Product Information

Category:	Connectors and Cable Assemblies
Circuits:	38/74/124/148
Data Rates:	16 Gbps, up to 64Gbps
Pitch:	0.60mm
Data Transmitting:	PCIe Generation 4/Generation 5/ Generation 6

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Landing Page](#)[Download Datasheet](#)

Series

301118, 301120, 301121	MCIO PCIe Generation 6 4x Cables
301122, 301123, 301124	MCIO PCIe Generation 6 8x Cables
305586, 305587, 305588	MCIO PCIe Generation 6 16x Cables
301125, 301126, 301127	MCIO PCIe Generation 6 20x Cables
225587, 217346	MCIO PCIe Generation 6 Connectors
217082, 217346	MCIO PCIe Generation 5 Connectors
215070, 215072, 215731	MCIO PCIe Generation 5 4x Cables
215071, 215073, 215732	MCIO PCIe Generation 5 8x Cables
216610, 216611, 216612	MCIO PCIe Generation 5 16x Cables
221278	MCIO PCIe Generation 5 20x Cables
217237, 217722	MCIO PCIe Generation 4 Connectors
216832, 216833, 216834	MCIO PCIe Generation 4 8x Cables

VITAL PRODUCT INFORMATION



What makes this product different from the competitors?

Compared with other I/O product families, Mini Cool Edge (MCIO) connectors and cable assemblies offer increased flexibility by providing multiple circuit options. MCIO connectors and cables were designed specially to be used across many applications. They meet PCIe standards up to PCIe Generation 6 with high-speed data transmission rates. Reliable product quality enables high-volume purchasing for enterprise servers or storage data center customers that expect to transmit data to external device systems across a multitude of protocols.

How does this product/solution create value for our customers?

MCIO anti-slant design and contact protection with optional pull-tab design ensures high-quality signal integrity performance. Customized loose pair and ribbon cables and pin definition are available. They support both cable and edge card applications with one common connector that is available from multiple sources. They can extend the transmission range to over 1.00 meter.

What is the Molex advantage?

Molex offers global manufacturing capability, robust engineering support and the latest high-performance components for best-in-class capability solutions. Customers can take advantage of our quality cable assemblies, our short lead times and the convenience of shopping with one vendor.

PRODUCT OVERVIEW

Flexibility in system design

Customers will enjoy design flexibility with Mini Cool Edge (MCIO) Connectors and Cable Assemblies, offering vertical and right-angle connectors with multiple peg lengths and pinout options as well as cables with various plug designs and provision for loose pair or ribbon cables.

High-speed capability meeting PCIe specifications

Mini Cool Edge (MCIO) Connectors and Cable Assemblies offer data transmission rates of up to 64 Gbps, meeting PCIe Generation 6 specifications.

Robust mechanical connector

The Mini Cool Edge (MCIO) connector is available in vertical and right-angle configurations and features an anti-slant, anti-reverse design with contact protection to simplify assembly and prevent damage to the pins.



MARKETS AND APPLICATIONS



Telecommunications

- Routers
- Servers
- Switches
- Edge computing



Power for Data Center

- Data centers
- Storage racks
- Storage controllers
- RAID5 (Redundant Array of Independent Disks Storage)
- JBODS (Just a Bunch of Disks Storage)
- HBAS (Host Bus Adapter Services)
- Enterprise storage systems
- Servers and high-performance computing

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Compactness	Achieving high-speed data transmission requirements in a space-saving design	MCIO connectors offer a slim form factor to preserve space and improve flexibility in limited real estate applications	Greater design flexibility and freedom in data center system design
Connectors meeting PCIe standards	Standardization of connectors to enhance interoperability and reduce inventory costs	MCIO connectors meet PCIe Generation 6 standards for form factor and data transmission rates	Standardized connector form factor that offers easier printed circuit board (PCB) and system design
Versatile connectors	A large number of highly specialized connectors, resulting in higher procurement costs, more inventory requirements, and greater repair and replacement challenges	MCIO connectors support both cable and edge card applications with one common connector that is available from multiple sources	Connector versatility, providing flexibility in system design and procurement, with modular and scalable connectors that are easier to repair or replace
Greater transmission distance	Transmitting data for longer distances with up to 64 Gbps transmission speeds and meeting PCIe Generation 6 standards	MCIO connectors and cable assemblies can extend the transmission range to over 1.00 meter	Simplified data center design with the potential for significant cost savings and improved thermal management

PRODUCT FEATURES AND ADVANTAGES

Delivers improved flexibility in system design
with straight, right-angle, and side-exit options for multiple plug types

Offers extendable and customizable DS pairs for high-speed channel applications
by using sideband with differential signal (DS) pairs

Prevents damage to the pins
because of anti-slant, anti-reverse and pull-tab features with contact protection and enhanced mechanical design

Permits high-speed data transmission that meets PCIe industry standards
due to high-speed 64 Gbps specifications



Mini Cool Edge (MCIO) Connectors and Cable Assemblies	
Circuits	38 to 148
Pitch	0.60mm
Data Rates	16 Gbps, up to 64 Gbps

PRODUCT FEATURES AND ADVANTAGES

Offers a wide range of pinout options, including 4, 8, 16 and 20 lanes
because of pinout flexibility

Provides flexibility to pair with different wire gauge options, including 29, 30 and 32 AWG
as a result of loose pair and ribbon cable features



UNIQUE AND USEFUL DIFFERENTIATION VS. SIMILAR MOLEX PRODUCT

	Molex SlimSAS Connectors (TA-8654)	Molex SlimSAS LP Connectors (TA-8654)	Molex MCIO Connectors (TA-1016)	
Series Number	PCIe Gen5 Connector	PCIe Gen5 Connector	PCIe Gen4 Connector	PCIe Gen5 Connector
	218100, 218099	218114,	217237, 217722	217082, 217346
Circuits	74	38, 74	38 to 148	
Channels	8X	4X/8X	4x, 8x, 16x, 20x	
Ampere	1.1A	1.1A	1.1A	
Angle	90 degree, vertical	vertical	90 degree, vertical	
Operating Temperatures	-40 to +85°C	-40 to +85°C	-40 to +85°C	

SPECIFICATIONS AND SUPPORTING INFORMATION

Reference Information

Packaging: Carrier tape
Designed in: Millimeters
RoHS: Yes
Halogen Free: Yes

Electrical

Voltage (max.): 30.0V AC/contact
Current (max.): 1.1A/contact
Connector Contact Resistance: 20 milliohms max.
Dielectric Withstanding Voltage: 300V DC
Insulation Resistance (min.): 1,000 Megohms

Mechanical

Mating Force (max.): 1.1 N/contact+10N
Unmating Force (min.): 0.1 N/contact
Durability (min.): 200 mating cycles

Physical

Housing: Nylon
Contact: Copper Alloy
Contact Area: Gold over Nickel
Solder Tail Area: Tin over Nickel
Connector Ground Bar: Stainless Steel
PCB Thickness: 1.57mm
Operating Temperatures: -40 to +85°C



THANK YOU

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