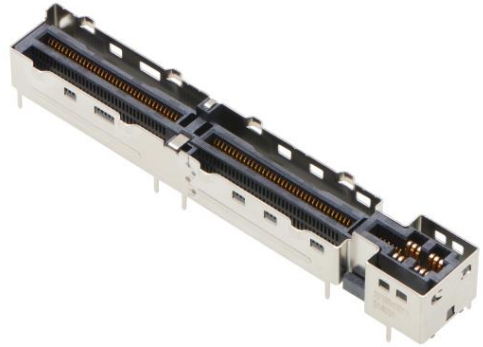


MULTI-TRAK I/O CONNECTORS

Offers slim form factor with a 0.60mm pitch which provides greater flexibility on system design.

NPI INNOVATION

JUNE 2024

creating connections for life

molex

NEW PRODUCT RELEASE

MULTI-TRAK I/O CONNECTORS

Multi-Trak I/O Connectors conform to the SFF-TA-1033 standard, affording a compact design that maximizes space without compromising on performance. Achieving PCIe Gen 5 data rates with a roadmap to Gen 6, these connectors ensure exceptional signal integrity (SI) performance up to 64 Gbps to facilitate cost-effective, thermally efficient designs that meet the rigorous demands of next-generation data centers.

Key Product Information

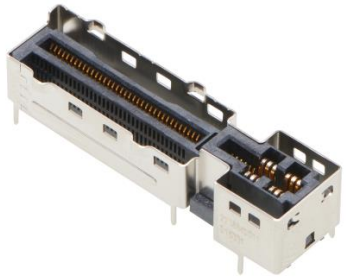
Category: I/O Connectors

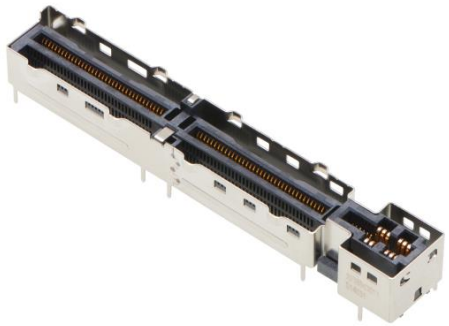
Pitch: 0.60mm

Current: 10.5A max. per power pin, 0.5A max. per signal pin

Voltage: 30V DC

Operating Temperatures: -20 to +80°C





View Product Landing Page

Download Datasheet

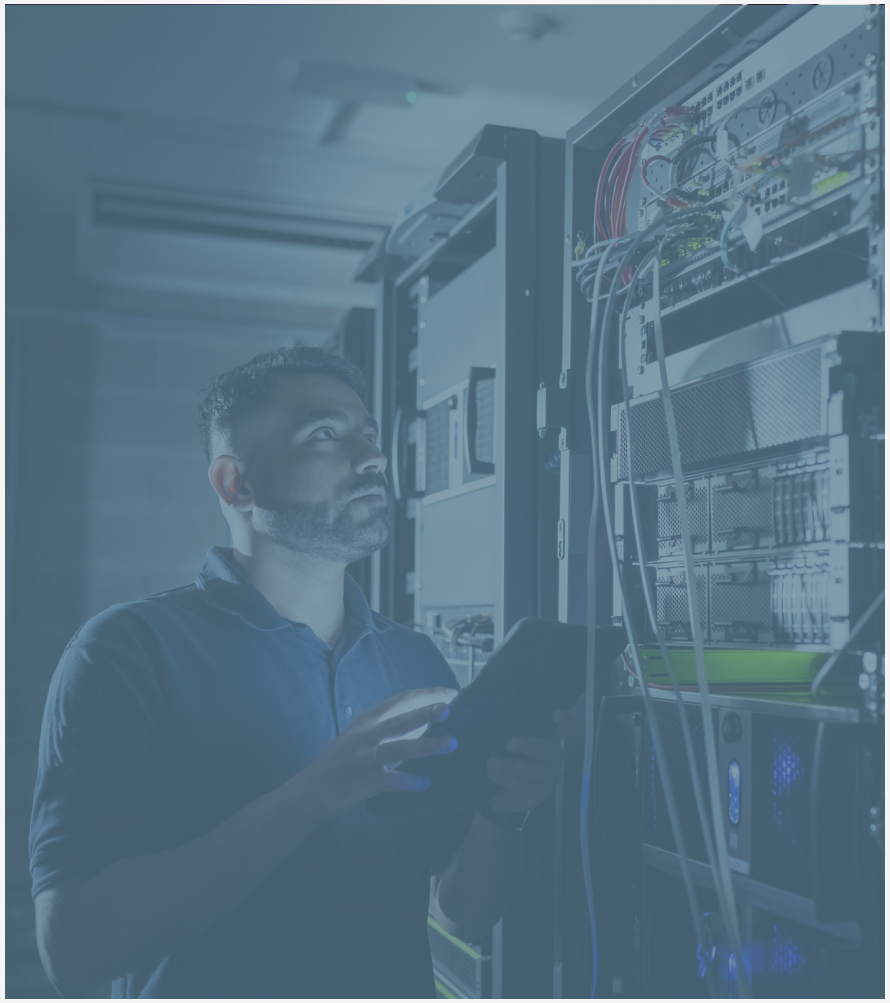
Series

223886	Multi-Trak PCIe Gen5 VT Connector 8X
223886	Multi-Trak PCIe Gen5 VT Connector 16X

creating connections for life

molex

VITAL PRODUCT INFORMATION



What makes this product different from the competition?

The Multi-Trak I/O Connector solution is the small form-factor (SFF) TA-1033 standard and supports the Open Compute Project (OCP) and Data Center Modular Hardware System (DC-MHS) pin definition standard. Multi-Trak I/O connectors are capable of handling high-speed signals, meeting PCIe Gen 5 and targeting up to PCIe Gen 6 data transmission rates.

How does this product create value for our customers?

The Multi-Trak I/O Connector solution supports both high-speed and power transmission, which can be widely accepted in data systems, communications and compute environments. The small form-factor provides a great option for system designers and benefits to cost and scalability. Flexible configurations help fulfill the different applications, such as AI servers as well as compute and rack systems.

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.

PRODUCT OVERVIEW

Flexibility in system design

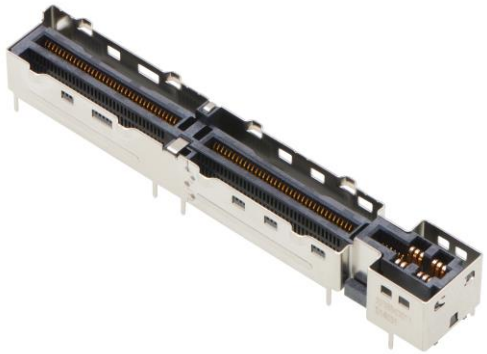
Multi-Trak I/O connectors take advantage of both high-speed and power transmission in a small form-factor that allows better efficiency of system design in meeting various end applications.

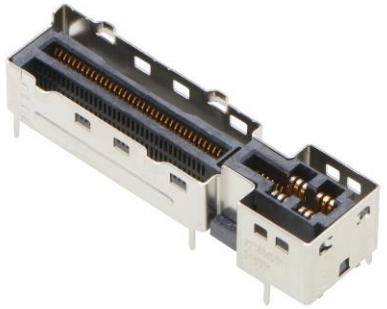
High-speed capability meeting PCIe specifications

Multi-Trak I/O connectors offer data transmission rates of 56G PAM4 PCIe Gen 5 and targeted to meet 64G PAM4 PCIe Gen 6.

Scalable for supporting varied configurations

Multi-Trak I/O connectors are scalable and available with vertical types of 8X + power and 16X + power that provide flexibility when it comes to system board design. These solutions can be adopted in various applications of next-generation servers.





MARKETS AND APPLICATIONS

Storage Racks

Server and Storage

- Storage racks
- Storage controllers
- Redundant array of independent disks storage (RAIDS)
- Enterprise storage systems
- AI servers and HPC

Servers

Telecommunications

- Routers
- Switches
- Servers
- Edge computing

creating connections for life

molex

FREQUENTLY ASKED QUESTIONS

What is the difference between the Multi-Trak I/O Connector and Mini Cool Edge I/O?

The Multi-Trak I/O connector is a combo solution which combines standard MCIO pins and power together. The combination not only offers a great advantage in compact system board design for smaller spaces, but also provides cost-savings. The unique design of the Multi-Trak I/O connector also allows highly modularized and easy to repair solutions.

What are the applications for Multi-Trak I/O Connectors?

The Multi-Trak I/O Connector supports a wide range of applications that are widely used in data centers such as PCIe or OCP NIC. These solutions can be adopted in AI servers, Hyper scales, enterprise data center and compute.

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Compactness	Customers require high-speed data transmission in a space-saving design.	Multi-Trak I/O connectors offer a slim form factor to preserve space. A combination design of signal plus power also improves flexibility in limited real-estate applications.	Greater design flexibility and freedom in data center system design.
Aggressive SI performance	Customers want great SI performance over the life of the connector.	Multi-Trak Connectors meet PCIe Gen 5 standards and aim to meet longer distances with up to 64 Mbps transmission speeds, targeted to meet PCIe Generation 6 standards.	Simplified data center design with the potential for significant cost savings and improved thermal management.

PRODUCT FEATURES AND ADVANTAGES

Provides flexibility for designs

The small form-factor of Multi-Trak I/O Connectors provides a wide variety of options for flexible configurations.

Meets versatility needs for different applications

Multi-Trak I/O Connectors support both high-speed and power transmission that can be widely accepted in data systems, communications and compute environments.

Offers a robust mechanical connector

Multi-Trak I/O Connectors have anti-slant, anti-reverse design with contact protection to simplify assembly and prevent damage to the pins.

Key Specifications	
Voltage	30V DC
Current	10.5A max. per power pin, 0.5A max. per signal pin
Pitch	0.60mm
Operating Temperatures	-20 to +80°C

creating connections for life

molex

UNIQUE AND USEFUL DIFFERENTIATION VS. SIMILAR MOLEX PRODUCT

	Molex | Multi-Trak Connector	Molex | Mini Cool Edge (MCIO) Connector	
Series Number	PCIe Gen5 Connector	PCIe Gen4 Connector	PCIe Gen5 Connector
	223886	217237, 217722	217082, 217346
Circuits	74 to 148 + 21A power	38 to 148	
Channels	8x, 16x	4x, 8x, 16x, 20x	
Ampere	10.5A max. per power pin, 0.5A max. per signal pin	1.1A	
Angle	vertical	90 degree, vertical	
Operating Temperatures	-20°C to +80°C	-40 to +85°C	

creating connections for life

molex

UNIQUE AND USEFUL DIFFERENTIATION VS. COMPETITORS' PRODUCTS

	Molex | Multi-Trak Connector	Competitor A | Multi-Trak Connector
Series Number	PCIe Gen5 Connector	PCIe Gen5 Connector
	223886	G03V2
Circuits	72 to 124 + 21A power	38 to 148 + 21A power
Channels	8x, 16x	8x, 16x
Ampere	10.5A max per power pin, 0.5A max per signal pin	
Angle	vertical	90 degree, vertical
Operating Temperatures	-20°C to +80°C	-20°C to +80°C

creating connections for life

molex

SPECIFICATIONS AND SUPPORTING INFORMATION

Reference Information

Packaging: Tape and reel

Designed in: Millimeters

RoHS: Yes

Halogen Free: Yes

Electrical

Voltage (max.): 30V DC

Current (max.):

21.0A Standard Version: 10.5A per power pin, 0.5A per signal pin

Low-Level Contact Resistance (max.): 20 milliohms

Dielectric Withstanding Voltage: 300V DC

Insulation Resistance (min.): 1,000 Megohms

Mechanical

Latched Mating Force (max.): 1.10N

Latched Unmating Force (min.): 0.10N

Durability (max.): 500 ± 50 cycles

Latch Retention (min.): 50N

Mechanical Shock (max.): 20 milliohms

Contact Normal Force (min.): 0.09N

Physical

Housing: LCP

Contact: Copper Alloy

Shell: Stainless Steel

Operating Temperatures: -20 to +80°C

Additional Resources	
Web Overview Page	www.molex.com
Datasheet	987652-7252.pdf
Global Product Manager	Rick Hsiung

creating connections for life

molex

creating connections for life

molex