



MCIO-PCIEX16-G5 User Guide



V1.00 - October 09, 2025

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1. Overview

MCIO-PCIEX16-G5 features cutting-edge PCIe 5.0 slots optimized for GPU access, flexible expansion, and broad compatibility, providing a robust, reliable platform for high-performance computing.

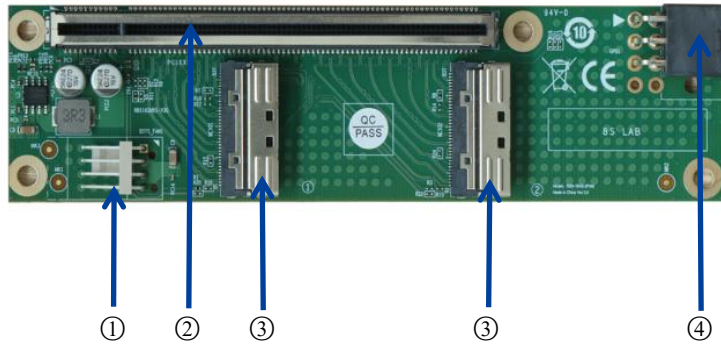
1.1. Key Features

- Provide one internal PCIe x16 slot
- Provide two MCIO Connectors
- Support data transfer rate 64GB/s
- Support one GPU
- Support all GPU Dimension
- All the Operating Systems that support the PCIe standard

2. MCIO-PCIEX16-G5 Hardware Description

2.1. MCIO-PCIEX16-G5 Layout

The following figure shows the key components of the MCIO-PCIEX16-G5.



The following table describes the key components of the MCIO-PCIEX16-G5.

Table 1: Key component of the MCIO-PCIEX16-G5

Number	Type	Description
①	Fan Power Connector	Used for fan power supply.
②	PCIe Slot	PCIe 5.0 x16 host interface. The interface between the PCIe device and the host system and provides power to the PCIe device.
③	MCIO Connector	Two MCIO (SFF-1016 8x) connectors. Connect the R1628A/ R1528D/ R1624A/ R7638D by cable.
④	External Power Port	6-pin external power connector for supplying additional power to high-power devices.

2.2. PCIe Slot

The MCIO-PCIEX16-G5's PCIe 5.0 slot provides maximum transmission. Other PCIe host interface features include the following:

- 16-lane PCIe host interface
- Support of x16 link width
- Support one GPU
- 16-lane aggregate bandwidth of up to 64GB/s

2.3. MCIO Connector

The MCIO-PCIEX16-G5 has two MCIO connectors. Other features include the following:

- Support the R7638D
- Support the R1628A
- Support the R1624A
- Support the R1528D

2.4. Basic Specifications

The following table describes the basic specifications of the MCIO-PCIEX16-G5.

Table 2: Basic Specifications of MCIO-PCIEX16-G5

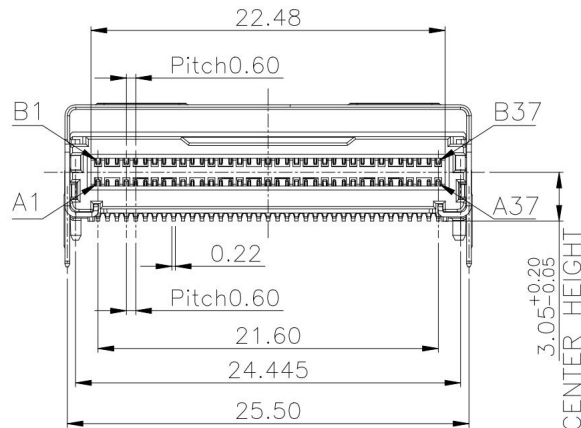
Model		MCIO-PCIEX16-G5
Dimensions	Length	5.71"
	Height	1.50"
	Depth	0.54"
Weight		0.04kg
Work Temperature		+5°C ~ +55°C
Storage Temperature		-20°C ~ +80°C
MTBF (Mean Time Before Failure)		920,585 Hours

3. MCIO-PCIEX16-G5 MCIO Connector

3.1. MCIO Connector Pin Designation

The MCIO-PCIEX16-G5 has two x8 MCIO connectors. It follows the SFF-TA-1016 standard for connector sideband signal assignments.

The following figure shows the MCIO connector pin designation.



3.2. MCIO Connector Pinout

The following table defines the MCIO-PCIEX16-G5's MCIO connector pinouts.

Table 3: MCIO Connector Pinouts

1#			
Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	PE0_TX_DP0	B2	PE0_RX_DP0
A3	PE0_TX_DN0	B3	PE0_RX_DN0
A4	GND	B4	GND
A5	PE0_TX_DP1	B5	PE0_RX_DP1
A6	PE0_TX_DN1	B6	PE0_RX_DN1
A7	GND	B7	GND
A8	SMB_SLIM1_SCL1	B8	NC
A9	SMB_SLIM1_SDA1	B9	WAKE_LVC3_N
A10	GND	B10	GND
A11	SLIM_1_PERST0_N	B11	CLK_SLIM1_DP0
A12	SLIM_1_PRST0_N	B12	CLK_SLIM1_DN0
A13	GND	B13	GND
A14	PE0_TX_DP2	B14	PE0_RX_DP2
A15	PE0_TX_DN2	B15	PE0_RX_DN2
A16	GND	B16	GND

A17	PE0_TX_DP3	B17	PE0_RX_DP3
A18	PE0_TX_DN3	B18	PE0_RX_DN3
A19	GND	B19	GND
A20	PE0_TX_DP4	B20	PE0_RX_DP4
A21	PE0_TX_DN4	B21	PE0_RX_DN4
A22	GND	B22	GND
A23	PE0_TX_DP5	B23	PE0_RX_DP5
A24	PE0_TX_DN5	B24	PE0_RX_DN5
A25	GND	B25	GND
A26	NC	B26	NC
A27	NC	B27	NC
A28	GND	B28	GND
A29	NC	B29	NC
A30	NC	B30	NC
A31	GND	B31	GND
A32	PE0_TX_DP6	B32	PE0_RX_DP6
A33	PE0_TX_DN6	B33	PE0_RX_DN6
A34	GND	B34	GND
A35	PE0_TX_DP7	B35	PE0_RX_DP7
A36	PE0_TX_DN7	B36	PE0_RX_DN7
A37	GND	B37	GND
2#			
Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	PE0_TX_DP8	B2	PE0_RX_DP8
A3	PE0_TX_DN8	B3	PE0_RX_DN8
A4	GND	B4	GND
A5	PE0_TX_DP9	B5	PE0_RX_DP9
A6	PE0_TX_DN9	B6	PE0_RX_DN9
A7	GND	B7	GND
A8	NC	B8	NC
A9	NC	B9	NC
A10	GND	B10	GND
A11	NC	B11	NC
A12	SLIM_2_PRSENT0_N	B12	NC
A13	GND	B13	GND
A14	PE0_TX_DP10	B14	PE0_RX_DP10
A15	PE0_TX_DN10	B15	PE0_RX_DN10

A16	GND	B16	GND
A17	PE0_TX_DP11	B17	PE0_RX_DP11
A18	PE0_TX_DN11	B18	PE0_RX_DN11
A19	GND	B19	GND
A20	PE0_TX_DP12	B20	PE0_RX_DP12
A21	PE0_TX_DN12	B21	PE0_RX_DN12
A22	GND	B22	GND
A23	PE0_TX_DP13	B23	PE0_RX_DP13
A24	PE0_TX_DN13	B24	PE0_RX_DN13
A25	GND	B25	GND
A26	NC	B26	NC
A27	NC	B27	NC
A28	GND	B28	GND
A29	NC	B29	NC
A30	NC	B30	NC
A31	GND	B31	GND
A32	PE0_TX_DP14	B32	PE0_RX_DP14
A33	PE0_TX_DN14	B33	PE0_RX_DN14
A34	GND	B34	GND
A35	PE0_TX_DP15	B35	PE0_RX_DP15
A36	PE0_TX_DN15	B36	PE0_RX_DN15
A37	GND	B37	GND

4. MCIO-PCIEX16-G5 Installation Instructions

The MCIO-PCIEX16-G5 can be installed with R1528D/ R1624A/ R1628A/ R7638D Adapters to support GPU integration. Differences in Adapters connectors, the adaptation solution offers two technical paths: SFF-8654 connector and MCIO connector.

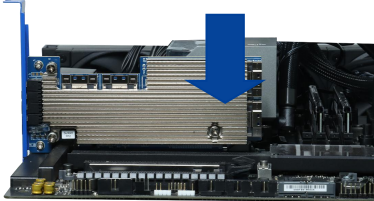
Notes:

- Ensure the all parts are connected securely. Loose connections can lead to various problems, including instability and slower-than-expected performance.
- For the R1528D/ R1628A to the MCIO-PCIEX16-G5 port matching:
 - Bandwidth x16 requires bonded pairing of MCIO-PCIEX16-G5's Port1/2 to R1528D/R1628A's Port1/2 or Port3/4.
 - Bandwidth x8 permits unrestricted port connections.

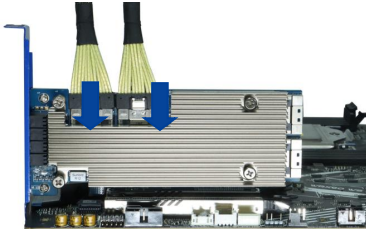
4.1. With the SFF-8654 Connector Hardware Installation

Using the R1528D (supporting SFF-8654) as example, the hardware installation process is described below.

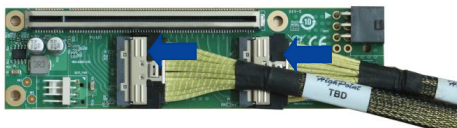
1. Use a wired ESD wrist strap that is properly grounded.
2. Unpack and remove the MCIO-PCIEX16-G5 and check it for damage. If it appears damaged, please get in touch with HighPoint Technical Support.
3. Shut down the system and disconnect the AC power cord.
4. Align the R1528D to one of the motherboard's available slots. Press down gently but firmly to seat the R1528D correctly in the slot.



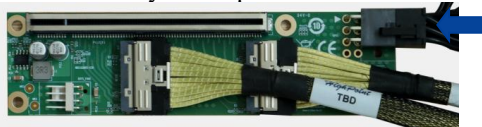
5. Connect the SFF-8654 connector of the 8654-CIO8-110 cable to the R1528D.



6. Connect the MCIO connector of the 8654-CIO8-110 cable to the MCIO-PCIEX16-G5.



7. Connect the system's power connector to the MCIO-PCIEX16-G5's external power port.



8. Hold the GPU by its edges, insert it connector-down into the PCIe slot.

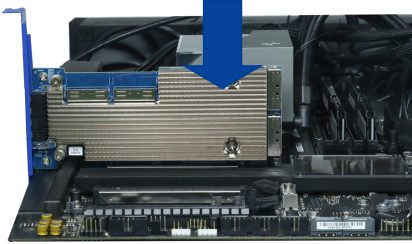


9. Turn on the power to the system.

4.2. With the MCIO Connector Hardware Installation

Using the R1628A (supporting MCIO) as example, the hardware installation process is described below.

1. Use a wired ESD wrist strap that is properly grounded.
2. Unpack and remove the MCIO-PCIEX16-G5 and check it for damage. If it appears damaged, please get in touch with HighPoint Technical Support.
3. Shut down the system and disconnect the AC power cord.
4. Align the R1628A to one of the motherboard's available slots. Press down gently but firmly to seat the R1628A correctly in the slot.



5. Connect the MCIO connector of the CIO8-CIO8-110 cable to the R1628A.



6. Connect the MCIO connector of the CIO8-CIO8-110 cable to the MCIO-PCIEX16-G5.



7. Connect the system's power connector to the MCIO-PCIEX16-G5's external power port.



8. Hold the GPU by its edges, insert it connector-down into the PCIe slot.



9. Turn on the power to the system.

5. Revision History

5.1. Version 1.00, October 09, 2025

Initial version.