



MBM-25G-P20 PASS-THRU MODULE



USER'S MANUAL

Revision 1.0a

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Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of this module. Installation and maintenance should be performed by experienced technicians only.

Notes

- Supermicro product manuals: <http://www.supermicro.com/support/manuals/>
- Product safety info: https://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
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Warnings

Special attention should be given to the following symbols used in this manual.



Warning! Indicates important information given to prevent equipment/property damage or personal injury.



Warning! Indicates high voltage may be encountered when performing a procedure.

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MicroBlade Pass-Thru Module

1 Overview

The Supermicro MBM-25G-P20 Pass-Thru Module is designed for Supermicro MicroBlade enclosures for high performance datacenter traffic application usage. It is compatible with the SuperBlade 6U and 3U enclosures. Up to two modules can be used in the 6U enclosure and up to one in the 3U enclosure.

The Pass-Thru module leverages the existing network infrastructure to provide direct network connectivity between the blade servers and the external Top of Rack (ToR) switches using seven external QSFP28 ports. The module can support both 10G and 25G speed blade servers on its internal ports. The seven QSFP28 external ports can accept QSFP28 DAC, DAC breakout cables and QSFP28 fiber transceiver modules for the external network connectivity. The module provides a one-to-one connectivity from the internal blade server ports to the external QSFP28 Ports.

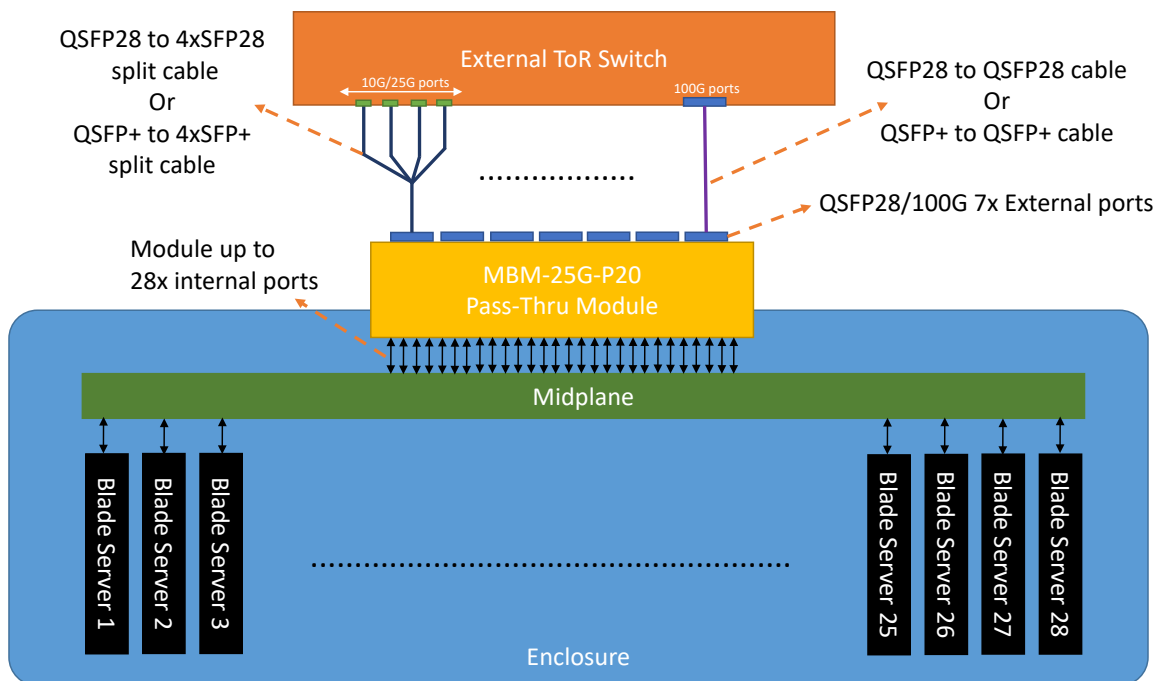


Figure 1. Pass-Thru Function

2 Features

- Twenty-eight internal 25G/10G downlink ports mapped from server node to external QSFP connection
- Up to twenty-eight external 25G/10G uplink ports through the five QSFP28 ports
- Auto-configuration of the port speed
- Minimal configuration and management through the Chassis Management Module (CMM)

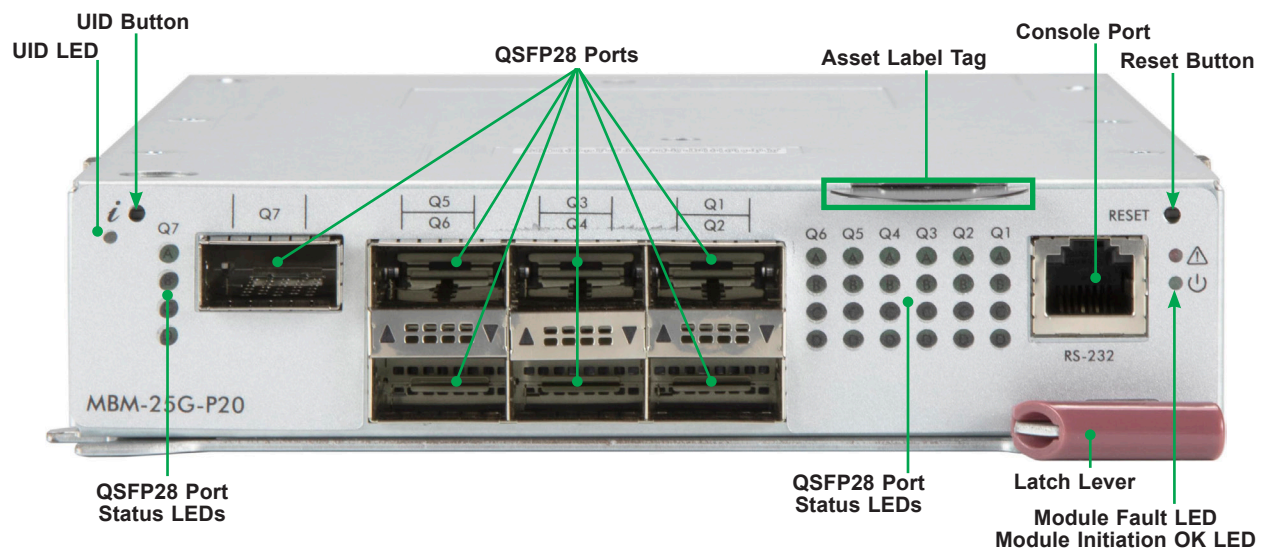


Figure 2. Front View

Module Front Features	
Item	Description
QSFP28 Ports	Ports accept QSFP28 Direct Attach Cable (DAC) or QSFP28 transceiver modules
Asset Label Tab	Slide-out tab with the BMC default password sticker
Console Port	RJ45, usually for debug logs
UID LED	Unit ID indicator; can be activated from CMM
Reset Button	Resets the unit
QSFP28 Port Status LED	Indicates port linkup
Module Fault LED	Module has either failed POST or has detected an operational fault within the module
Module Initiation OK LED	Module is operational and has passed the POST with no critical faults
Latch Lever	Used to physically install or uninstall the module

3 Management

The MBM-25G-P20 module is managed through the CMM module web interface. It supports the upload of configuration files, as described later in this manual. Note that CMM version 3.55 or later is required.

The module can be connected to any computer using the RS-232 Console port. This is generally used to collect debug logs for the Supermicro Technical Support team. The computer COM port settings should be:

Baudrate: 115200
Data: 8 bit
bit Parity: none
Stop: 1 bit
Flow Control: none

Using the CMM Module web interface, the user can perform the below tasks on the pass-thru module.

- Reset
- Configure management IP (Static/DHCP)
- Configuration upload
- Firmware upgrade

4 Port Mapping

The port mapping between the blade server and the switch external port varies depending on the model of the enclosure. The on-board dual port NIC card and the optional add-on mezzanine card with dual ports have internal mapping to the pass-thru module as shown below.

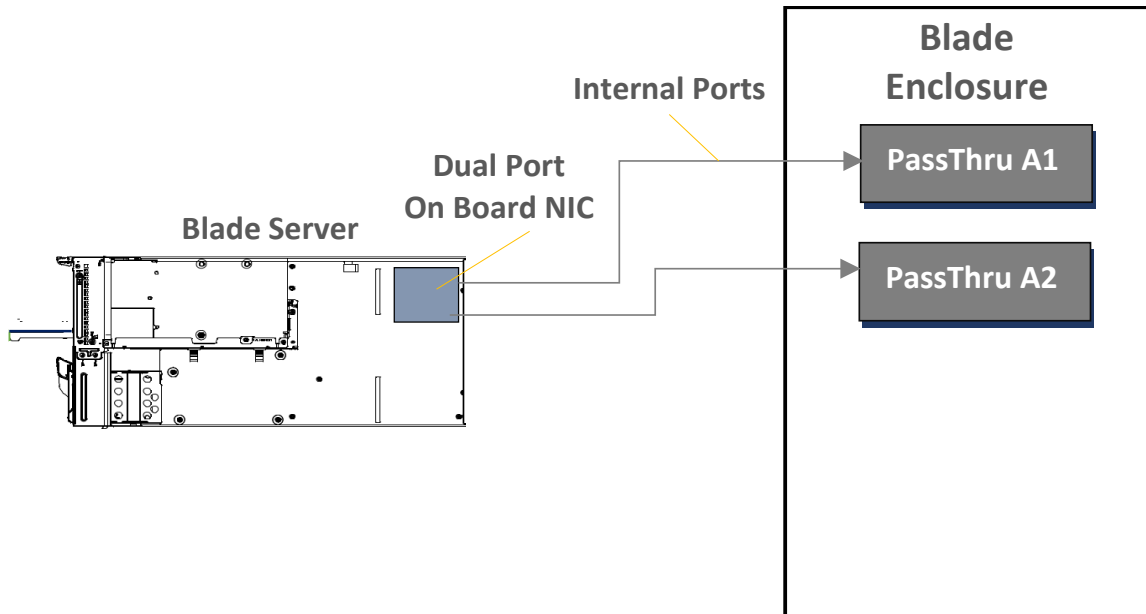


Figure 3. Blade Server with On-Board NIC Connection

Internal to External Port Mapping Tables

In the tables below, the following identifiers are used:

Module Slot – A1 and A2 refer to the modules and their slot number. (Shown for the SBE-610J enclosure with two pass-thru modules.)



Figure 5. Two Pass-Thru Modules Labeled

External Port – Q1 to Q7 refer to the external QSFP28 ports on the pass-thru module.

External Port LED – This is the QSFP28 (Q1 to Q5) port LED number (split) on the module front panel.

Cable Link – When using a split cable, normally each vendor's QSFP28 to 4xSFP28 cables have labels printed on their 4xSFP28 split cables with either A, B, C and D or 1, 2, 3 and 4 to represent the cable. The column addresses both the specifications with, example A/1 (A or 1).

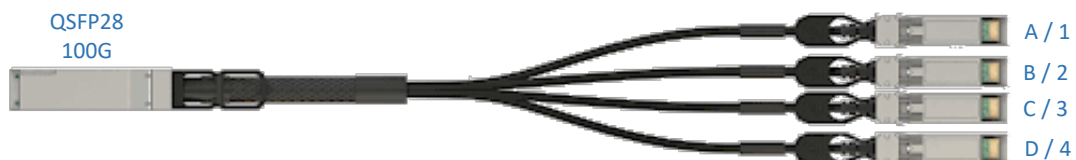


Figure 7. Split Cable Labeled

Mapping for 3U E314

PortMapping				
Blade Slot	NIC	Module Slot	Ext Port	Cable Link
A1	Node 1 - Nic 0	SWA1	Q1	A / 1
	Node 2 - Nic 0	SWA1	Q2	A / 1
	Node 1 - Nic 1	SWA2	Q1	A / 1
	Node 2 - Nic 1	SWA2	Q2	A / 1
A2	Node 1 - Nic 0	SWA1	Q1	B / 2
	Node 2 - Nic 0	SWA1	Q2	B / 2
	Node 1 - Nic 1	SWA2	Q1	B / 2
	Node 2 - Nic 1	SWA2	Q2	B / 2
A3	Node 1 - Nic 0	SWA1	Q1	C / 3
	Node 2 - Nic 0	SWA1	Q2	C / 3
	Node 1 - Nic 1	SWA2	Q1	C / 3
	Node 2 - Nic 1	SWA2	Q2	C / 3
A4	Node 1 - Nic 0	SWA1	Q1	D / 4
	Node 2 - Nic 0	SWA1	Q2	D / 4
	Node 1 - Nic 1	SWA2	Q1	D / 4
	Node 2 - Nic 1	SWA2	Q2	D / 4
A5	Node 1 - Nic 0	SWA1	Q3	A / 1
	Node 2 - Nic 0	SWA1	Q4	A / 1
	Node 1 - Nic 1	SWA2	Q3	A / 1
	Node 2 - Nic 1	SWA2	Q4	A / 1
A6	Node 1 - Nic 0	SWA1	Q3	B / 2
	Node 2 - Nic 0	SWA1	Q4	B / 2
	Node 1 - Nic 1	SWA2	Q3	B / 2
	Node 2 - Nic 1	SWA2	Q4	B / 2
A7	Node 1 - Nic 0	SWA1	Q3	C / 3
	Node 2 - Nic 0	SWA1	Q4	C / 3
	Node 1 - Nic 1	SWA2	Q3	C / 3
	Node 2 - Nic 1	SWA2	Q4	C / 3

PortMapping				
Blade Slot	NIC	Module Slot	Ext Port	Cable Link
A8	Node 1 - Nic 0	SWA1	Q3	D / 4
	Node 2 - Nic 0	SWA1	Q4	D / 4
	Node 1 - Nic 1	SWA2	Q3	D / 4
	Node 2 - Nic 1	SWA2	Q4	D / 4
A9	Node 1 - Nic 0	SWA1	Q5	A / 1
	Node 2 - Nic 0	SWA1	Q6	A / 1
	Node 1 - Nic 1	SWA2	Q5	A / 1
	Node 2 - Nic 1	SWA2	Q6	A / 1
A10	Node 1 - Nic 0	SWA1	Q5	B / 2
	Node 2 - Nic 0	SWA1	Q6	B / 2
	Node 1 - Nic 1	SWA2	Q5	B / 2
	Node 2 - Nic 1	SWA2	Q6	B / 2
A11	Node 1 - Nic 0	SWA1	Q5	C / 3
	Node 2 - Nic 0	SWA1	Q6	C / 3
	Node 1 - Nic 1	SWA2	Q5	C / 3
	Node 2 - Nic 1	SWA2	Q6	C / 3
A12	Node 1 - Nic 0	SWA1	Q5	D / 4
	Node 2 - Nic 0	SWA1	Q6	D / 4
	Node 1 - Nic 1	SWA2	Q5	D / 4
	Node 2 - Nic 1	SWA2	Q6	D / 4
A13	Node 1 - Nic 0	SWA1	Q7	A / 1
	Node 2 - Nic 0	SWA1	Q7	C / 3
	Node 1 - Nic 1	SWA2	Q7	A / 1
	Node 2 - Nic 1	SWA2	Q7	C / 3
A14	Node 1 - Nic 0	SWA1	Q7	B / 2
	Node 2 - Nic 0	SWA1	Q7	D / 4
	Node 1 - Nic 1	SWA2	Q7	B / 2
	Node 2 - Nic 1	SWA2	Q7	D / 4

Mapping for 6U E628

PortMapping				
Blade Slot	NIC	Module Slot	Ext Port	Cable Link
A1	Node 1 - Nic 0	SWA1	Q7	D / 4
	Node 1 - Nic 1	SWA2	Q1	A / 1
A2	Node 1 - Nic 0	SWA1	Q7	C / 3
	Node 1 - Nic 1	SWA2	Q1	B / 2
A3	Node 1 - Nic 0	SWA1	Q6	D / 4
	Node 1 - Nic 1	SWA2	Q1	C / 1
A4	Node 1 - Nic 0	SWA1	Q6	C / 3
	Node 1 - Nic 1	SWA2	Q1	D / 4
A5	Node 1 - Nic 0	SWA1	Q6	B / 2
	Node 1 - Nic 1	SWA2	Q3	A / 1
A6	Node 1 - Nic 0	SWA1	Q6	A / 1
	Node 1 - Nic 1	SWA2	Q3	B / 2
A7	Node 1 - Nic 0	SWA1	Q4	D / 4
	Node 1 - Nic 1	SWA2	Q3	C / 3
A8	Node 1 - Nic 0	SWA1	Q4	C / 3
	Node 1 - Nic 1	SWA2	Q3	D / 4
A9	Node 1 - Nic 0	SWA1	Q4	B / 2
	Node 1 - Nic 1	SWA2	Q5	A / 1
A10	Node 1 - Nic 0	SWA1	Q4	A / 1
	Node 1 - Nic 1	SWA2	Q5	B / 2
A11	Node 1 - Nic 0	SWA1	Q2	D / 4
	Node 1 - Nic 1	SWA2	Q5	C / 3
A12	Node 1 - Nic 0	SWA1	Q2	C / 3
	Node 1 - Nic 1	SWA2	Q5	D / 4
A13	Node 1 - Nic 0	SWA1	Q2	B / 2
	Node 1 - Nic 1	SWA2	Q7	A / 1
A14	Node 1 - Nic 0	SWA1	Q2	A / 1
	Node 1 - Nic 1	SWA2	Q7	B / 2

PortMapping				
Blade Slot	NIC	Module Slot	Ext Port	Cable Link
B1	Node 1 - Nic 0	SWA1	Q1	A / 1
	Node 1 - Nic 1	SWA2	Q7	D / 4
B2	Node 1 - Nic 0	SWA1	Q1	B / 2
	Node 1 - Nic 1	SWA2	Q7	C / 3
B3	Node 1 - Nic 0	SWA1	Q1	C / 3
	Node 1 - Nic 1	SWA2	Q6	D / 4
B4	Node 1 - Nic 0	SWA1	Q1	D / 4
	Node 1 - Nic 1	SWA2	Q6	C / 3
B5	Node 1 - Nic 0	SWA1	Q3	A / 1
	Node 1 - Nic 1	SWA2	Q6	B / 2
B6	Node 1 - Nic 0	SWA1	Q3	B / 2
	Node 1 - Nic 1	SWA2	Q6	A / 1
B7	Node 1 - Nic 0	SWA1	Q3	C / 3
	Node 1 - Nic 1	SWA2	Q4	D / 4
B8	Node 1 - Nic 0	SWA1	Q3	D / 4
	Node 1 - Nic 1	SWA2	Q4	C / 3
B9	Node 1 - Nic 0	SWA1	Q5	A / 1
	Node 1 - Nic 1	SWA2	Q4	B / 2
B10	Node 1 - Nic 0	SWA1	Q5	B / 2
	Node 1 - Nic 1	SWA2	Q4	A / 1
B11	Node 1 - Nic 0	SWA1	Q5	C / 3
	Node 1 - Nic 1	SWA2	Q2	D / 4
B12	Node 1 - Nic 0	SWA1	Q5	D / 4
	Node 1 - Nic 1	SWA2	Q2	C / 3
B13	Node 1 - Nic 0	SWA1	Q7	A / 1
	Node 1 - Nic 1	SWA2	Q2	B / 2
B14	Node 1 - Nic 0	SWA1	Q7	B / 2
	Node 1 - Nic 1	SWA2	Q2	A / 1

5 Firmware and Configuration File Upload

Depending on the vendor and model of the external Top of Rack switch, an appropriate configuration file must be uploaded to the module to enable the external QSFP28 uplinks. This can be done using the CMM Web interface (version 3.55 or later is required). The procedure below applies for both configuration file and firmware upgrade.

Note: Contact Supermicro Technical Support to get the appropriate configuration file or in case the external ports link does not come up.

Instructions to Upload Config File/Upgrade

1. Log in to the CMM web interface and, from the left pane, select **Switch Module** to view the switch summary page. Then click the pass-thru module for which you want to update the configuration file.

In this example we are using switch A1.

Switch Module

HW Reset UID On UID Off Refresh Auto Refresh

Switch	Switch Type	Module Name	Pwr Status	Temperature	UID	Status	Management IP	FW Ver	Pwr Consumption
<input type="checkbox"/> Switch A1	10G Ethernet Switch	MBM-XEM-100 (B9 R1.01)	On	28.30	0# UID	Normal	172.31.33.84	1.3.0.5	35 W
<input type="checkbox"/> Switch A2	10/25G Pass-thru Module	MBM-25G-P20 (P1)	On	30.23	0# UID	Normal	172.31.35.128	1.0.0.2	0 W

Figure 8. CMM Switch Module Page

2. Configure an IP address for the module. Scroll down to the **Switch Network Configuration** section to configure the IP address. The IP address can be static or DHCP. Click **Save**.

HW Reset UID On UID Off Refresh Auto Refresh

Switch

Hide >>> | [Switch A2] Summary FRU Information

Switch Switch A1 Switch A2

Apply above setting to all switches

Save

Switch Network Configuration

IP Config

Obtain an IP address automatically (use DHCP mode)

IP Address 172.31.35.128

Subnet Mask 255.255.0.0

Gateway 172.31.0.1

Mgmt 1 MAC Address 3c:ec:e5:55:4e:f4 (Activated)

Mgmt 2 MAC Address 3c:ec:e5:55:4e:f5

VLAN enable disable

VLAN ID 0

Save

Switch Username & Password Reset

Username ADMIN

Password

Confirm Password

Save

Figure 9. Get Module IP Address

3. Scroll further down to the **Pass-Thru Firmware/Configuration Upgrade** section in the Switch Summary page.

The screenshot shows the Switch Summary page for a switch named [Switch A2]. The left sidebar contains navigation options: Blade Status, Power Supply, Switch Module (circled in green), CMM, FRU Information, and CMM Neighbors. The main content area is divided into several sections:

- Switch Summary Table:** A table with columns for Switch, Switch Type, and Module N. It lists Switch A1 (10G Ethernet Switch, MBM-XEM-100) and Switch A2 (25G Pass-thru Module, MBM-25G-P).
- Management Information:** Fields for Management MAC Address, VLAN, and VLAN ID (set to 0). A Save button is present.
- Switch Username & Password Reset:** Fields for Username (ADMIN), Password, and Confirm Password. A Save button is present.
- Pass-Thru Firmware/Configuration Upgrade:** This section is circled in green. It contains fields for TFTP Server IP Address and File Name. Below these fields are buttons for Update File and Apply File.
- Reset to Factory Default:** A button located at the bottom right of the page.

Figure 10. File Upgrade/Update Section

4. Fill in the file information.

TFTP server IP Address: The configuration file must be available in a TFTP server for download.

File Name:

This close-up screenshot shows the 'Pass-Thru Firmware/Configuration Upgrade' section. The 'TFTP Server IP Address' field is populated with '172.31.48.167'. The 'File Name' field is populated with 'MBM-25G-P20-all-1.0.0.1.bin'. Below the fields are two buttons: 'Update File' and 'Apply File'.

Figure 11. File Upgrade/Update Information

5. Click **Update File** button to start updating the configuration file.
6. Click the **Apply File** button to apply the port settings accordingly. The button is disabled until the process is complete. The new settings will be retained upon reset of the device.

6 Specifications

Module Hardware Specifications

Maximum Internal ports: Twenty-eight 10G/ 25G Internal Ports (depending on the server blade NIC controller speed)

External Ports: Seven QSFP28/100G ports that can split into four 25G/SFP28 or four 10G/SFP+(depend on the server blade NIC controller speed) using fan-out cables

Console Port: One (RJ45 based)

Physical and Environmental Specifications

Weight: 2.46lbs (1.12Kg)

Dimensions: 6 1/2" x 10 9/16" x 1 1/2"

Temperature: Operating 0°C to 45°C (32°F to 113°F)

Humidity: Operating 5% to 95% (non-condensing)

Power Specifications

Hot-Pluggable: Yes

Power consumption: 74 Watts

Enclosure Compatibility

MBE-628E/EB: Up to two pass-thru modules

MBE-314E: Up to two pass-thru modules