

A solid red circle.

# FS M6500 Series Data Sheet

# Contents

|                                   |           |
|-----------------------------------|-----------|
| <b>I. Product Overview</b>        | <b>3</b>  |
| <b>II. Features and Benefits</b>  | <b>3</b>  |
| <b>III. Product Details</b>       | <b>4</b>  |
| <b>IV. Applications</b>           | <b>6</b>  |
| <b>V. Technical Specification</b> | <b>7</b>  |
| <b>5.1 Chassis</b>                | <b>7</b>  |
| <b>5.2 NMU</b>                    | <b>9</b>  |
| <b>5.3 Muxponder</b>              | <b>10</b> |
| <b>VI. Ordering Information</b>   | <b>15</b> |

## **I Product Overview**

M6500 series Managed Chassis offers plug & play modules, supports visual management. It allows flexible configuration of service type and port mode, to meet the needs of network upgrade and monitoring. The chassis is available with Optical Supervisory Channel (OSC) and Electrical Supervisory Channel (ESC), providing greater flexibility and scalability for hybrid network connectivity.

The M6500 Series supports 10G/40G/100G OTN/SDH/Ethernet service transmissions, enabling the construction of a high-capacity optical transport network with 200G over a single wavelength. It is suited for high-rate, high-capacity, small-package, low-power data centre interconnects.

## **I Features and Benefits**

- Support 100G/200G High Speed and Large-capacity OTN Transmission
- Transport 10G/40G/100G Ethernet, SDH STM-64/256, 10G Fiber Channel, SDI, etc
- Enable Simplified Operations with WEB and SNMP Management System
- Redundant Hot-pluggable 2x AC/DC Power Supply Units and 1x Fan Module
- Embedded OSC and ESC for Remote Management
- 2/5U Chassis Host Up to 2/10x Slots for M6500 Series Line Cards
- Offer Field-replaceable Units, Ensuring no Service Impact during Failures

# Product Details

## Product configurations

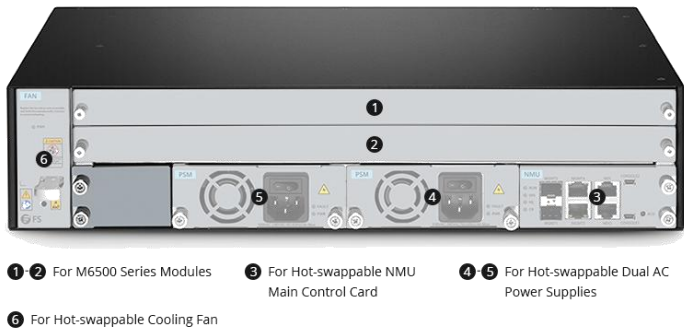


**Figure 1.**  
M6500-CH2U, 2 Slots 2U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support WEB/SNMP Management

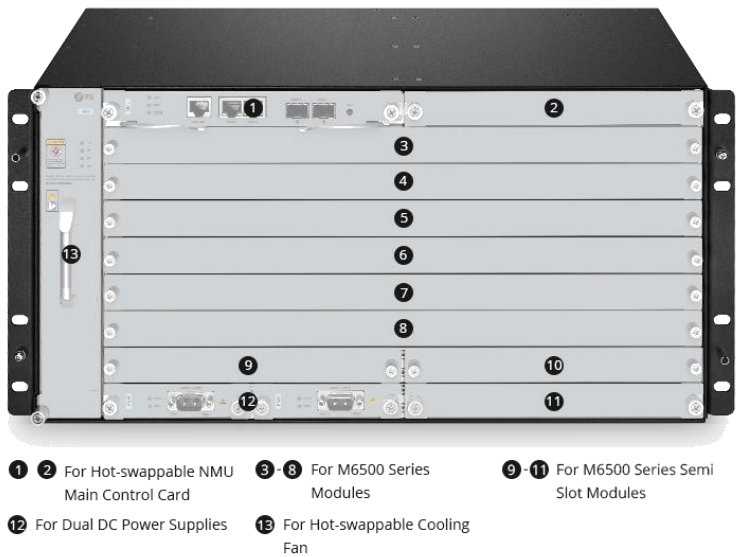


**Figure 2.**  
M6500-CH5U, 10 Slots 5U Managed Chassis Unloaded Platform, Redundant DC PSUs, Support WEB/SNMP Management

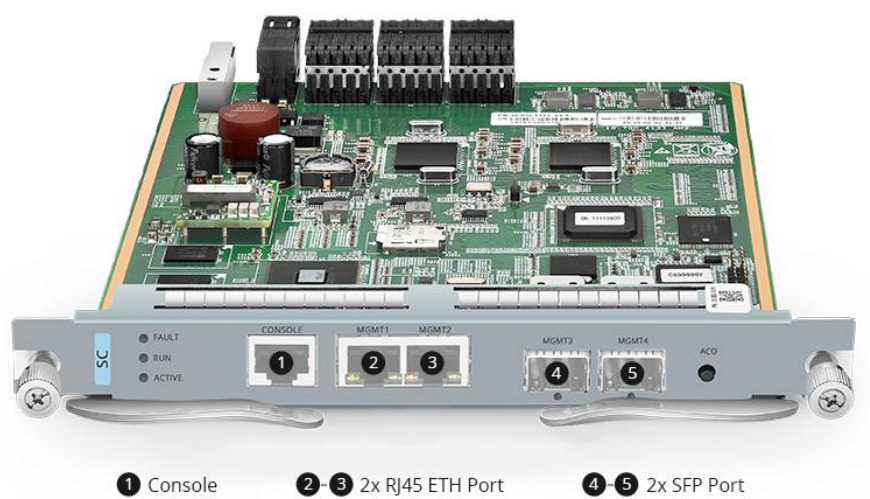


**Figure 3.**  
M6500-5UNMU, Network Management Unit for M6500 5U Managed Chassis

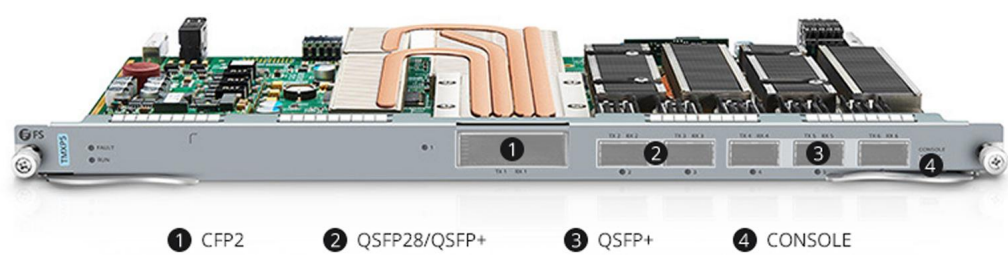


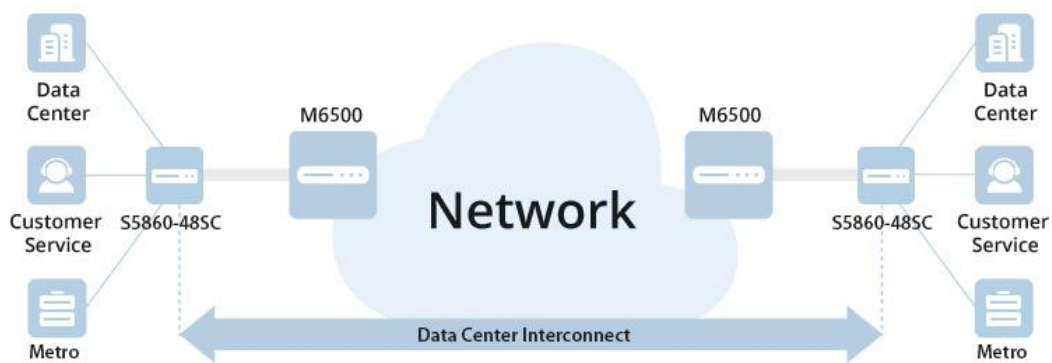
**Figure 4.**  
M6500-TMXP5, 2x 100G QSFP28/5x 40G QSFP+ to 1x 200G CFP2 Transponder/Muxponder



**Figure 5.**  
M-CFP2-DCO, 100G/200G Coherent Transceiver Module for M6500/M6800 Series Muxponder

## Application

M6500 series is a 10G/40G/100G high-capacity OTN transmission system, which is mainly applied to backbone line, metro network, and data center interconnection transmission. It supports high-capacity OTN scheduling capability, 10G/40G/100G transmission, and rich management and protection, which enables to build an end-to-end OTN/WDM backbone transmission solution for operators, and realizes high-capacity scheduling and ultra-broadband intelligent transmission.



# Technical Specification

Table 1. Technical Specification of Chassis

| Parameter               | M6500-CH2U                                                                                       | M6500-CH5U                                                                                       |
|-------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Physical Specifications |                                                                                                  |                                                                                                  |
| Power Redundancy        | 1+1 Backup Power Supply                                                                          | 1+1 Backup Power Supply                                                                          |
| Power Supply            | Dual AC Power, 100V~240VAC, Hot-swappable                                                        | Dual Power, -36V~-72VDC (Only Support Dual DC)                                                   |
| Power Consumption       | Static Power Consumption ≤70W<br>Maximum Power Consumption ≤ 350W                                | Static Power Consumption ≤150W<br>Maximum Power Consumption ≤1100W                               |
| Cooling Unit            | 1x Fan Module, Hot-swappable                                                                     | 1x Fan Module, Hot-swappable                                                                     |
| Dimensions (HxWxD)      | 3.70"x17.48"x9.53" (94x444x242mm)                                                                | 8.74"×17.49"×9.51"(222×444.5×241.5mm)                                                            |
| Weight                  | 7.755KG                                                                                          | 12.015kg                                                                                         |
| Port                    |                                                                                                  |                                                                                                  |
| Slot Count              | 2-slot for 200G Transponder/Muxponder Module                                                     | 10-slot (6 Full Slots and 4 Half Slots)                                                          |
| Controller Card Slots*  | 1                                                                                                | 2                                                                                                |
| Network Interface       | 2x SFP LAN Ports 1000Base-X<br>2x RJ45 LAN Ports 10/100/1000Base-T                               | 2x SFP LAN Ports 1000Base-X<br>2x RJ45 LAN Ports 10/100/1000Base-T                               |
| Management              |                                                                                                  |                                                                                                  |
| Management Type         | SNMP v2c, Web Browser over HTTP/HTTPS                                                            | SNMP v2c, Web Browser over HTTP/HTTPS                                                            |
| Transmission Protection | OCP OMSP OLP                                                                                     | OCP OMSP OLP                                                                                     |
| In-band DCN Management  | GCC0 on OTU4<br>GCC0 on OTU3<br>GCC1 or GCC2 or GCC1+2 on ODU4<br>GCC1 or GCC2 or GCC1+2 on ODU3 | GCC0 on OTU4<br>GCC0 on OTU3<br>GCC1 or GCC2 or GCC1+2 on ODU4<br>GCC1 or GCC2 or GCC1+2 on ODU3 |
| Management Channel      | Optical Supervisory Channel (OSC)<br>Electrical Supervisory Channel (ESC)                        | Optical Supervisory Channel (OSC)<br>Electrical Supervisory Channel (ESC)                        |
| Management Software     | <a href="#">M Series NMS Management Software</a>                                                 |                                                                                                  |

\* Note: The chassis comes with one NMU main control card.

| Parameter             | M6500-CH2U                   | M6500-CH5U                   |
|-----------------------|------------------------------|------------------------------|
| Environmental         |                              |                              |
| Operating Temperature | 0 to 45° C (0 to 113° F)     | 0 to 40° C (0 to 122° F)     |
| Storage Temperature   | -40 to 70° C (-40 to 158° F) | -40 to 70° C (-40 to 158° F) |
| Relative Humidity     | 10% to 90%, No Condensing    | 10% to 90%, No Condensing    |
| Ingress Protection    | Non-waterproof               | Non-waterproof               |

Table 2. Technical Specification of 5U NMU

| Parameter               | M6500-5UNMU                                                        |
|-------------------------|--------------------------------------------------------------------|
| Physical Specifications |                                                                    |
| Power Consumption       | Max. 20W                                                           |
| Weight                  | 0.4kg                                                              |
| Matching Chassis        | M6500-CH5U                                                         |
| Port                    |                                                                    |
| Network Interface       | 2x SFP LAN Ports 1000Base-X<br>2x RJ45 LAN Ports 10/100/1000Base-T |
| 2x SFP Ports Rate       | 1Gbits                                                             |
| 2x RJ45 Ports Rate      | 10M/100M/1000Mbits                                                 |
| Environmental           |                                                                    |
| Operating Temperature   | 0 to 50° C (0 to 122° F)                                           |
| Storage Temperature     | -10 to 70° C (14 to 158° F)                                        |

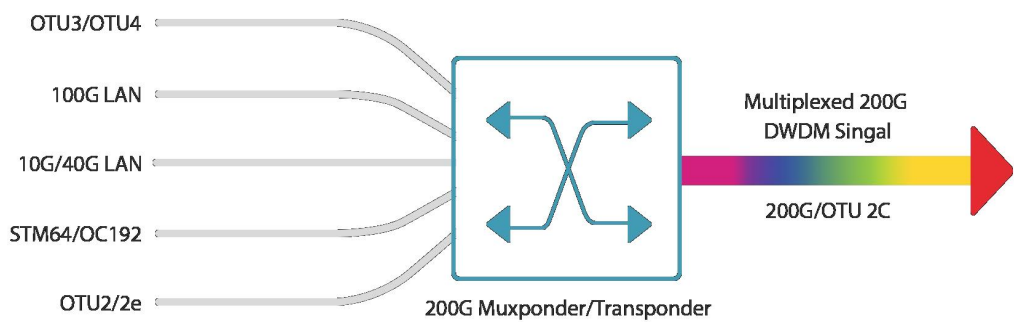
Table 3. Technical Specification of Muxponder

| Parameter                        | M6500-TMXP5                                                                                                                                                                                                                         |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Line Interface                   |                                                                                                                                                                                                                                     |
| Line Interface Type              | 1x DWDM CFP2                                                                                                                                                                                                                        |
| Line Interface Protocol          | Coherent CFP2                                                                                                                                                                                                                       |
| Coherent Modulation Technology   | 8/16QAM                                                                                                                                                                                                                             |
| Transmit Rate                    | 100G/200G (User-Configurable)                                                                                                                                                                                                       |
| OSNR Sensitivity                 | 20dB 8/16QAM                                                                                                                                                                                                                        |
| Wavelength Range of Input Signal | 1528~1568nm                                                                                                                                                                                                                         |
| Channel Spacing                  | 50GHz & 100GHz                                                                                                                                                                                                                      |
| Dispersion Tolerance             | 20000 ps/nm 8QAM<br>16000ps/nm 16QAM                                                                                                                                                                                                |
| FEC Support                      | G.709 Regular FEC or SD-FEC (100G)<br>Soft-Decision FEC (200G)                                                                                                                                                                      |
| Client Interface                 |                                                                                                                                                                                                                                     |
| Client Interface Type            | 2x QSFP28 + 3x QSFP+;<br>5x QSFP+                                                                                                                                                                                                   |
| Client Interface Protocol        | 10G, 40G, 100G, OTU3, OTU4                                                                                                                                                                                                          |
| FEC Support                      | I.4 and 1.7Super FEC or G.709 Regular FEC (10G OTU2/2e)                                                                                                                                                                             |
| Visual Indicator                 |                                                                                                                                                                                                                                     |
| RUN                              | Slow Flash of Green Light: The system has been successfully started.<br>Green Light Always OFF: The system has not been started.                                                                                                    |
| FAULT                            | Quick Flash of Red Light: The board is mismatched.<br>Slow Flash of Red Light: There is latchopen alarm of the board.<br>Red Light Always ON: There is alarm of the board.<br>Red Light Always OFF: There is no alarm of the board. |

| Parameter               | M6500-TMXP5                                                      |
|-------------------------|------------------------------------------------------------------|
| Physical Specifications |                                                                  |
| Power Consumption       | Max.150W                                                         |
| Weight                  | 1.32kg                                                           |
| Housing                 | Pluggable Module (Occupies 1 Full Slot in M6500 Managed Chassis) |
| Environmental           |                                                                  |
| Operating Temperature   | 0 to 45° C (0 to 113° F)                                         |
| Storage Temperature     | -40 to 70° C (-40 to 158° F)                                     |

## Function Diagram

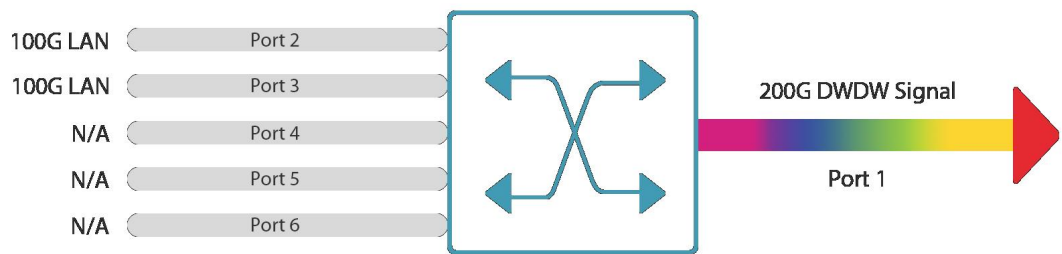
The M6500 200G transponder/muxponder provides a high transport capacity of 200G over a single wavelength, it can aggregate 10GbE, 40GbE, and 100GbE, STM-64/OC-192, OTU2/OTU2e/OTU3/OTU4 OTN multi-protocol services into a single 200G /OTU2C standard OTN trunk.



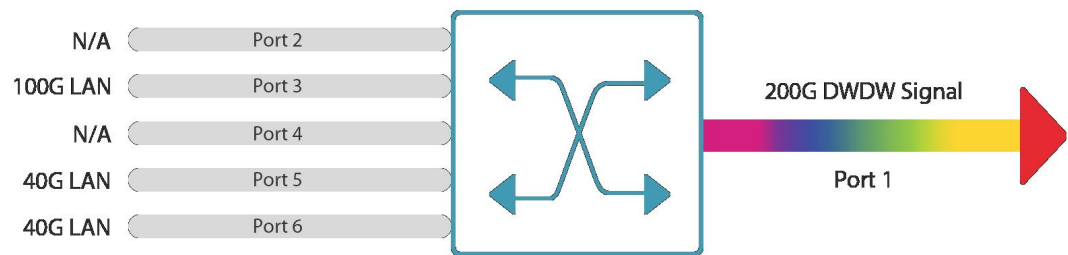
**Flexible and Versatile 200G Muxponder/Transponder**

The M6500 200G transponder/muxponder can be flexibly deployed in five operation mode via M Series NMS managed software.

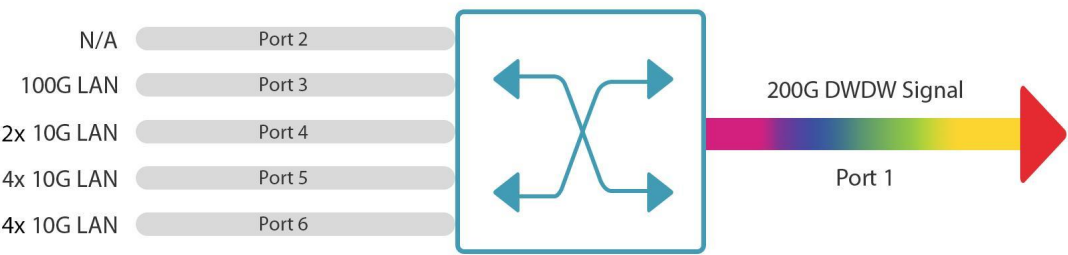
**Mode 1: 2x 100G to 200G**--2x 100G QSFP28 on Port 2/3, 1x 200G CFP2 on Port 1, Port 4~6 is spare.



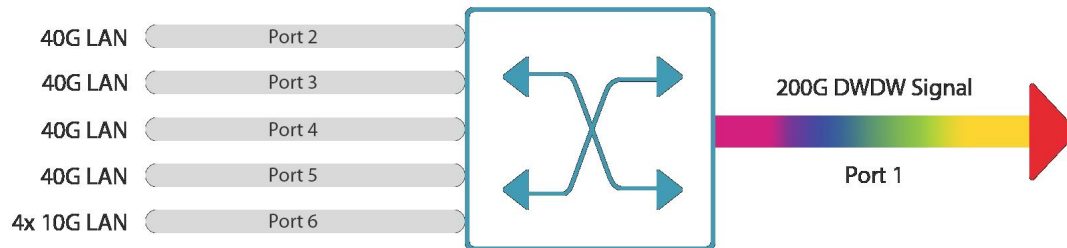
**Mode 2: 1x 100G + 2x 40G to 200G**--1x 100G QSFP28 on Port 3, 2x 40G QSFP+ on Port 5/6, 1x 200G CFP2 on Port 1, Port 2/4 is spare.



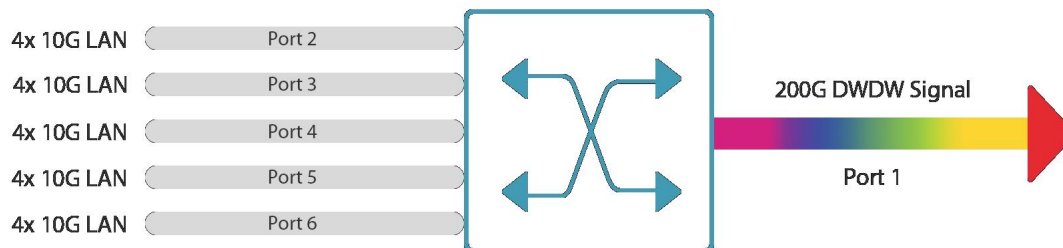
**Mode 3: 1x 100G + 10x 10G to 200G**--1x 100G QSFP28 on Port 3, (2x 10G)\* QSFP+ on Port 4, 2x (4x10G)\* QSFP+ on Port 5/6, 1x 200G CFP2 on Port 1, Port 2 is spare.



**Mode 4: 4x 40G + 4x 10G to 200G**--4x 40G QSFP+ on Port 2~5, (4x 10G)\* QSFP+ on Port 6, 1x 200G CFP2 on Port 1.



**Mode 5: 20x 10G to 200G**--(4x10G)\* QSFP+ on Port 2~6, 1x 200G CFP2 on Port 1.



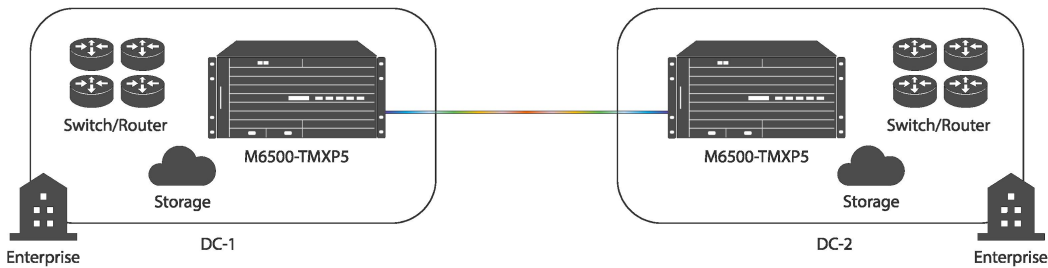
**Note:**

1. MTP-LC breakout patch cable should be used with QSFP+ port for 10G rate (4x 10G).
2. When MTP-LC breakout patch cable is used to transmit 4x10G, the not used branches can be spared.

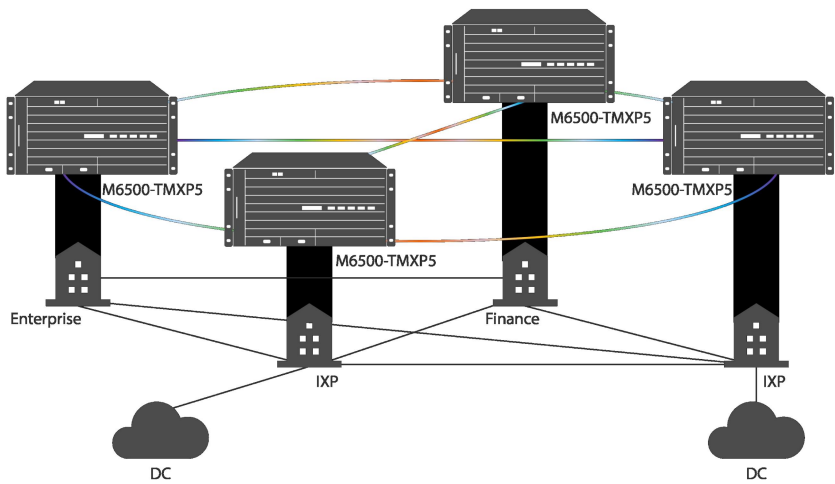
## Application of Muxponder

M6500 TMXP5 is a 200G multi-protocol multi-rate transponder/muxponder for building high capacity optical transport networks. It delivers carrier grade, high-end 200G solutions, capable of serving multiple applications and protocols for enterprise and data center networks and long-haul DWDM OTN solutions.

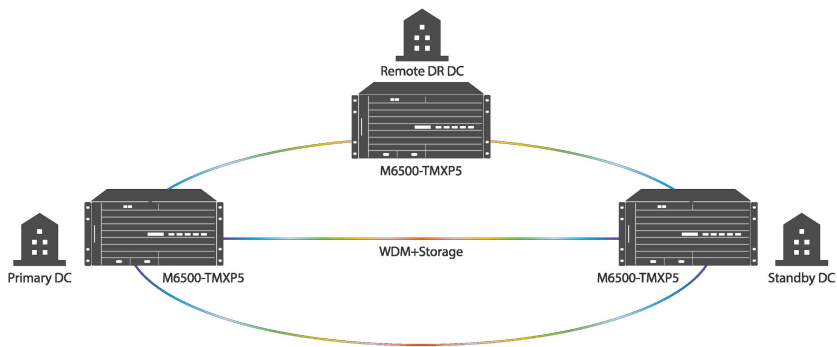
### 1. Small-sized Networks--Point-to-point



### 2. Medium and Large-sized Networks--Mesh



### 3. Disaster recovery--Three centers in two cities



## Ordering Information

| FS P/N                      | Product Description                                                                                        |
|-----------------------------|------------------------------------------------------------------------------------------------------------|
| Chassis                     |                                                                                                            |
| <a href="#">M6500-CH2U</a>  | M6500-CH2U, 2 Slots 2U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support WEB/SNMP Management   |
| <a href="#">M6500-CH2U</a>  | Customized M6500-CH2U, 2 Slots 2U Managed Chassis Platform, Redundant AC PSUs, Support WEB/SNMP Management |
| <a href="#">M6500-CH5U</a>  | M6500-CH5U, 10 Slots 5U Managed Chassis Unloaded Platform, Redundant DC PSUs, Support WEB/SNMP Management  |
| Muxponder                   |                                                                                                            |
| <a href="#">M6500-TMXP5</a> | M6500-TMXP5, 2x 100G QSFP28/5x 40G QSFP+ to 1x 200G CFP2 Transponder/Muxponder                             |
| Accessories                 |                                                                                                            |
| <a href="#">M6500-5UNMU</a> | M6500-5UNMU, Network Management Unit for M6500 5U Managed Chassis                                          |
| <a href="#">M-CFP2-DCO</a>  | C15 1565.49nm 100G/200G Tunable Coherent CFP2-DCO Transceiver, up to 1000km                                |



### **Shenzhen (China)**

Address: 24F, Yingfeng Center, Haitian 2nd Rd,  
Nanshan District, Shenzhen  
Tel: +86 (755) 8357 1351  
Email: sales@feisu.com

### **Delaware (United States)**

Address: 380 Centerpoint Blvd, New Castle,  
DE 19720, United States  
Tel: +1 (888) 468 9910  
Email: us@fs.com

### **Munich (Germany)**

Address: NOVA Gewerbepark Building 7, Am  
Gfild 7,85375 Neufahrn bei Munich, Germany  
Tel: +49 (0) 8131 377 3008  
Email: de@fs.com

### **Singapore**

Address: 30A Kallang Pl, #11-10/11/12 Singapore  
339213  
Tel: +65 3138 1992  
Email: sg@fs.com

### **Wuhan (China)**

Address: 9-14F, Optical Valley Software Park  
A7, Guanshan Ave, Wuhan  
Tel: +86 (027) 8808 9195  
Email: sales@feisu.com

### **Birmingham (United Kingdom)**

Address: Regus Edmund House, 12-22 Newhall  
Street, Birmingham, B3 3AS  
Tel: +44 (0) 121 726 4775  
Email: uk@fs.com

### **Melbourne (Australia)**

Address: 57-59 Edison Rd, Dandenong South,  
VIC 3175, Australia  
Tel: +61 3 5909 9990  
Email: au@fs.com

### **Tokyo (Japan)**

Address: JS Progress Building, 4-1-23 Heiwajima,  
Ota-ku, Tokyo 143-0006  
Tel: +81 3 6897 9438  
Email: jp@fs.com



FS has several offices around the world. Addresses, phone numbers are listed on the FS Website at [https://www.fs.com/contact\\_us.html](https://www.fs.com/contact_us.html)  
FS and FS logo are trademarks or registered trademarks of FS in the U.S. and other countries.