

# H9MO-LMFE

## SDH MSTP Multiplexer



### > Overview

H9MO-LMFE is a carrier-class, cost-effective, compact (only 1U high), STM-1/STM-4/STM-16 SDH/MSP platform that is designed for application in metro and access networks to facilitate the efficient transport of traditional TDM and emerging data traffic for service providers. It is a mini type of H9MO-LMXE. It can use all cards of H9MO-LMXE.

H9MO-LMFE is a card based compact SDH equipment, designed mainly as a gateway node between the core SDH network and a number of remote CPE boxes. It may also be used as a multi service SDH ADM node in a typical ring or mesh network. The 1U high 19" wide chassis of the H9MO-LMFE has 8 slots, with 2 slots for the DC(1+1)/AC power supply, 1 slot for network management card, 1 slots for STM-1/STM-4 /STM-16 uplink, and 4 slots left for services (STM-1/STM-4/STM-16, Ethernet, E1, E3/DS3,V.35 Etc.).

### > Features

1. Support 1+1 MSP, SNCP protection
2. Management channel can be DCC/E1/VC12
3. Support up to STM-16
4. E1 BERT test is embedded
5. Internal clock / external clock / line clock / clock holdover
6. Ethernet service supporting GFP encapsulation, VC12 virtual concatenation and LCAS, P VLAN and 801.1Q VLAN
7. Large cross-connect matrix capacity is 96\*VC-4 VC-4 level full cross connection or 32\*VC-4 VC-12 or VC-3 level full cross connection
8. 32 remote site's Ethernet over 8\*E1 aggregation
9. 132 remote site's Ethernet over 1\*E1 aggregation
10. 32 Ethernet over SDH aggregation

## ➤ Technical Specifications

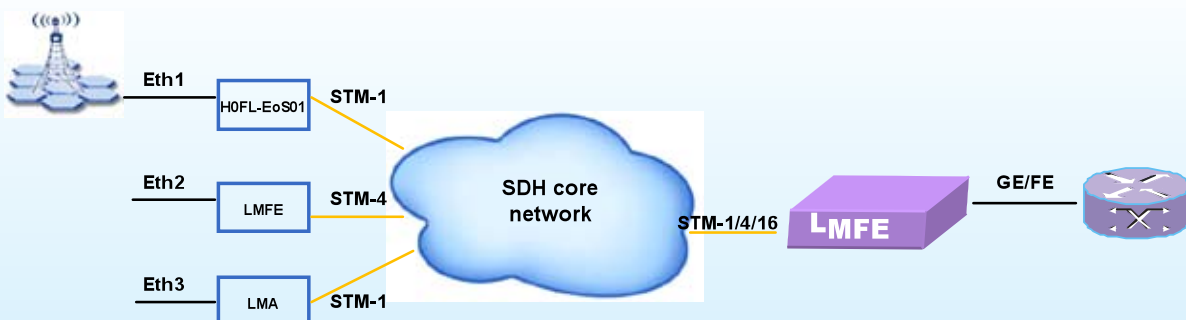
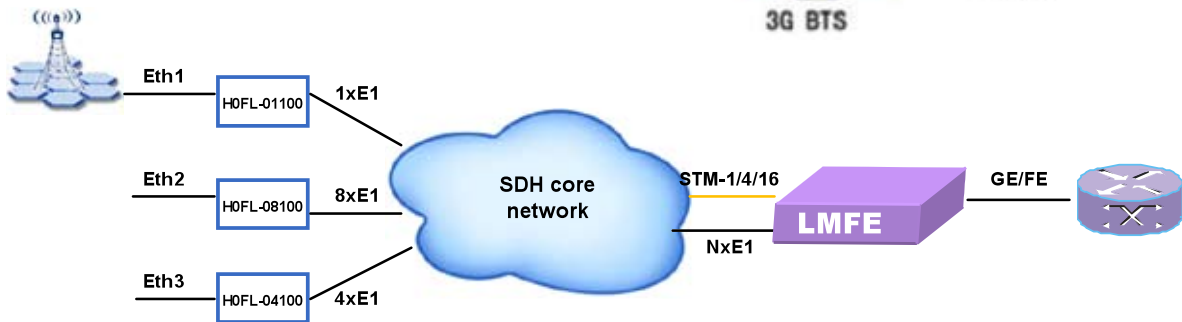
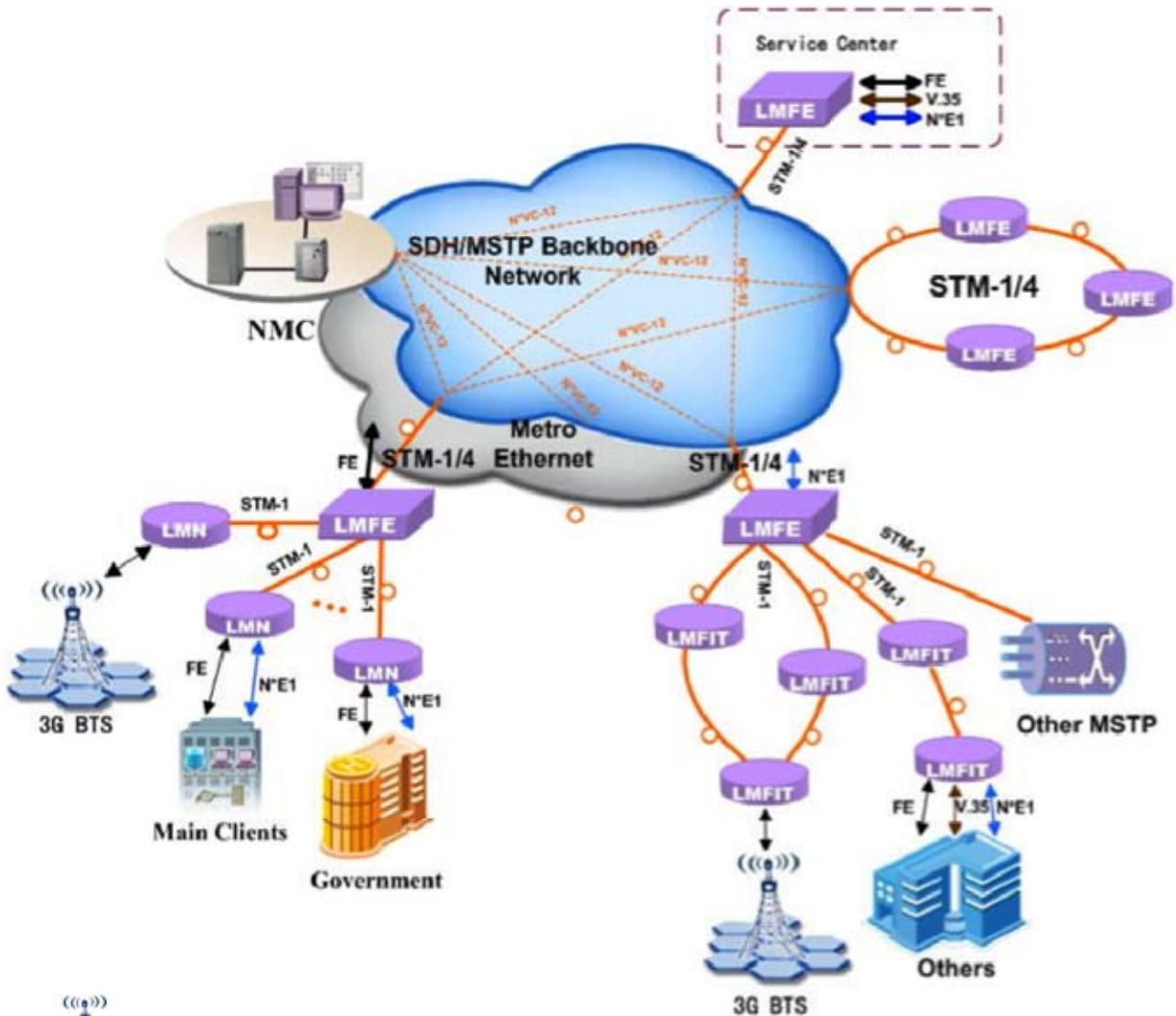
Index		Performance Parameter	
SDH Interface	Max	STM-1	2 aggregation + 8 tributary STM-1 optical interfaces
		STM-4	2 aggregation STM-4 optical interfaces, SFP
		STM-16	2 aggregation STM-16 interface, SFP
	Connector		SC/PC or SFP
	Spec.		S-1.1, S1.2, L-1.1, L-1.2, S4.1, S4.2, L4.1, L4.2, S16.1, S16.2, L16.1, L16.2 Single fiber bi-directional interface can be optionally supported
Service Card	PWR01		DC-48V power card, 1+1 backup
	PWR02A		Power Card ~220V AC
	PWR02B		Power Card ~110V AC
	NM02		EMS Management Card
	OX01		Dual STM-1 aggregation optical card
	OX01S		Dual STM-1 aggregation optical card
	OX04		Dual STM-4 aggregation optical card
	OX16		Dual STM-16 aggregation optical card
	EX01		Dual STM-1 aggregation electrical card
	OS01		Dual STM-1 tributary optical card, SC or FC
	OS01S		Dual STM-1 tributary optical card, SFP
	OS02		2 Ethernet +Dual STM-1 tributary optical card
	OS02A		2 separate Ethernet +Dual STM-1 tributary optical card
	OS03		1 Ethernet +Single STM-1 tributary optical card
	OS04A		Dual STM-4 tributary optical card

## Technical Specifications

Index	Performance Parameter	
Service Card	OP02	2×E1+1×V.35 PDH card
	OP03	2×E1~1×100Base-Tx PDH card
	OP05	4×E1~1×100Base-Tx PDH card
	OP06	4×E1 PDH card
	EP01	24×E1 (75Ω or 120Ω RJ45, occupies 2 slots)
	EP01A	24×E1 (120Ω, DB60)
	EP03	12×E1 (75Ω or 120Ω RJ45)
	EP03A	12×E1 (120Ω, DB60)
	EP02	1×E3/DS3
	FE01	4 FE over 4 VCG trunks (EoS)
	FE02	4 Fx over 4 VCG trunks (EoS), SFP
	FE04	4 FE over 1~16E1 (EoE)
	FE05	4 Fx over 1~16E1 (EoE), SFP
	FE06	Ethernet aggregation, EOS, aggregation ratio: 8:2, dual FE ports
	FE06A	Ethernet aggregation, EOS, aggregation ratio: 4:1, single FE port
	FE07	EOE, Ethernet aggregation, aggregation ratio: 8:2, dual FE ports
	GX01	EOS, Ethernet aggregation, aggregation ratio: 8:1, single GE port
	GX01A	EOS, Ethernet aggregation, aggregation ratio: 8:1, single GE electrical or optical port
	GX02	EOE, Ethernet aggregation, aggregation ratio: 8:1, single GE port
	GX02A	EOE, Ethernet aggregation, aggregation ratio: 8:1, single GE electrical or optical port
	ED01	2×V.35 Card(framed or unframed)
	DX01	VC-4/VC-3/VC-12 level cross connection

Index	Performance Parameter	
Service Card	DX02	Full 64E1 DS0 cross connection (2048×2048,64K)
	LA01	Order wire and external clock card
	DSL01	1 FE over VC-12 + 1 Digital subscriber line access
PDH interface	Max E1	96 E1
	Max E3/DS3	4 E3/DS3
Ethernet	Interface	10/100Base-Tx or 100Base-Tx, Comply with IEEE 802.3
	Max FE Interface	16 FE ports (4 FE01 or FE02 cards support)
	Encapsulation	Comply with ITU-T G.7041 (VCAT, GFP, LCAS)
V.35	Max Interface	28 V.35 interfaces (framed or unframed) DCE/DTE
Cross-connect Capacity	Uplink STM-1	High order 20×20 VC-4s Low order 1260×1260 VC-12s
	Uplink STM-4	High order 32×32 VC-4s Low order 2016×2016 VC-12s
	Uplink STM-16	High order 96×96 VC-4s Low order 2016×2016 VC-12s
Management	Interface	10/100 Base-T (can be cascaded)
EOW interface		Standard socket RJ11
Physical Dimension(H/D/W)		1U: 440 × 44 × 280 (mm)
Power	Supply	-48V DC or dual power supply
	Consumption	≤40W
Environment	Temperature	0°C~50°C
	Humidity	≤90 %(non-condensing)
Weight		≤3.5KG

## Typical Application



## ➤ Service cards

H9MO-LMFE and H9MO-LMXE use the same service cards.

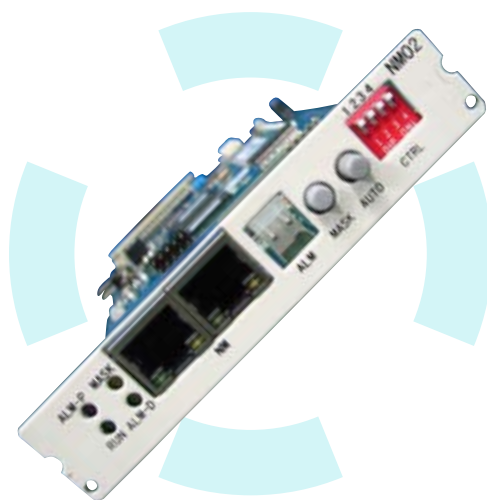
# NM02

## ➤ Overview

NM02 card provides management to the operator. It can monitor and show the status of all cards and the remote equipment.

## ➤ Features

1. 2 FE ports for management
2. The Ethernet port is 10/100Base-T auto
3. Default IP address is 192.192.4.2.
4. Support concatenation
5. Online upgrading



# OX01

## ➤ Overview

The OX01 card is one of the core units of the H9MO-LMXE. Its interface capacity is 2 STM-1. It contains a large cross connect block and a clock block. It can be used to connect to the core network nodes or form a ring network of H9MO-LMFE.

## ➤ Features

1. Provide 2 STM-1 interface
2. VC4 and VC12 level cross connection
3. Cross connects capacity: 20x20VC-4
4. 2 built-in E1 BER testers
5. Clock complies with ITU-T G.813. with one pair of external clock input and output on the backplane



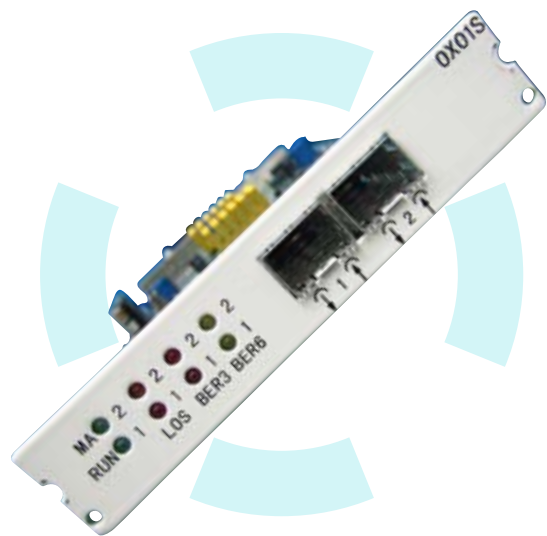
# OX01S

## > Overview

The OX01S card is one of the core units of the H9MO-LMFE. It has the function to connect STM-1 up interface, It's also provide cross-connect unit and SDH equipment clock unit. Every card provide Dual STM-1 SFP interface, used for backbone layer network SDH/MSTP connecting, aggregate every tributary 'service to uplink SDH signal ,The cross-connect matrix capacity is 20 VC-4, The type of cross-connect support unidirectional ,bi-directional,multicast/broadcast,loopback. The cross-connect Support 1+1 protection. The OX01S card has 2 built-in E1 BER testers.

## > Features

1. 2 STM-1 SFP interfaces.
2. The OX01S card provides cross-connect unit and SDH equipment clock unit. The cross-connect matrix capacity is 20x20 VC-4.
3. Each OX01S card has 2 built-in E1 BER testers and 2 built-in E1 management channels. E1 BER testers and E1 management channels can be inserted by cross matrix.
4. The cross connection and clock units in the two aggregation cards can make of 1+1 protection.



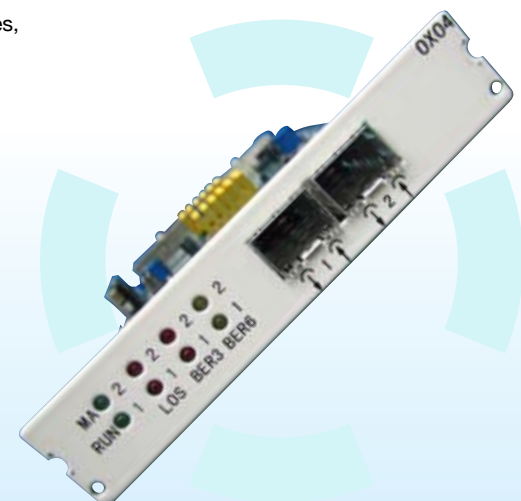
# OX04

## > Overview

OX04 card is one of the core units of the H9MO-LMFE. It has two SFP interfaces for STM-4. It should be inserted to the aggregation slot. OX04 can either be used to connect to the core network nodes, or form a ring network of H9MO-LMFEs.

## > Features

1. 2 STM-4 SFP interfaces
2. Support cross-connect and clock function
3. Built-in BER tester
4. The cross connects capacity of each OX04 card is 32x32VC-4 and 2016x2016VC-12
5. The cross connection and clock units in the two aggregation cards can make of 1+1 protection.



# OX16

## Overview

The OX16 card is one of the core units of the H9MO-LMFE. It has the function to connect STM-16 up interface, it also provides cross-connect unit and SDH equipment clock unit. Every card provide dual STM-16 SFP interfaces, used for backbone layer network SDH/MSTP connecting, aggregate every tributary service to uplink SDH signal. The cross-connect matrix capacity is 96x96 VC-4. It supports VC-4/VC-3/VC-12 level cross connection. The type of cross-connect supports unidirectional, bi-directional, multicast/broadcast and loop back. The cross-connect supports 1+1 protection. The OX16 card has 2 built-in E1 BER testers.

## Features

1. 2 STM-16 SFP interfaces
2. The OX16 card provides cross-connect unit and SDH equipment clock unit.
3. The cross-connect matrix capacity is 96x96 VC-4.
4. Each OX16 cards has 2 built-in E1 BER testers and 2 built-in E1 management channels. BER testers and E1 management channels can be inserted by cross matrix.
5. The cross connection and clock units in the two aggregation cards can make of 1+1 protection.



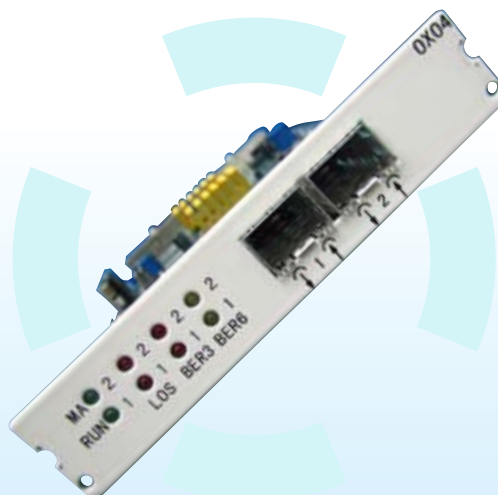
# EX01

## Overview

The EX01 card is one of the core units of the H9MO-LMFE. Each EX01 card provides dual STM-1 electrical interfaces. At the same time, the cross connection and clock units in the two aggregation cards can make of 1+1 protection. Each EX01 cards has 2 built-in E1 BER testers and 2 built-in E1 management channels. E1 BER testers and E1 management channels can be inserted by cross matrix

## Features

1. Each EX01 cards has 2 built-in E1 BER testers and 2 built-in E1 management channels. E1 BER testers and E1 management channels can be inserted by cross matrix.
2. The electrical port in EX01 adopts CC4 sockets; there are 4 LEDs, 4 BNC sockets on the panel.
3. Each EX01 card provides dual STM-1 electrical ports. At the same time, the cross connection and clock units in the two aggregation cards can make of 1+1 protection.





# OS04A

## > Overview

The OS04A card is a dual STM-4 fiber optical tributary card. It can be inserted into A type slots (slot 04). Each H9MO-LMFE can insert 1 OS04A. The 2 STM-4 fiber ports can connect to separate remote CPEs. They may act as east and west ports of an ADM node. There are local cross connect blocks at VC-12 and VC-4 levels.

## > Features

1. Provide 2 STM-4 SFP tributary interface
2. Support MSP and SNCP 1+1 protection



# OS01

## > Overview

The OS01 card is a dual STM-1 fiber optic line card. It can be inserted into any of the 4 LIU slots. The 2 STM-1 fiber ports can connect to separate remote CPEs. They may act as east and west ports of an ADM node. There are local cross connect blocks at VC12 levels.

## > Features

1. Provide 2 STM-1 SC/FC tributary interface
2. Support MSP and SNCP 1+1 protection
3. Default is SC/PC S1.1.
4. L1.1,L1.2, Single fiber Bi-Directional options are Available



# OS01S

## Overview

The OS01S card is a dual STM-1 fiber optic line card. It can be inserted into any of the 4 LIU slots. The different between OS01 and OS01S is that OS01S provides SFP interface but OS01 provides SC/FC interface. The 2 STM-1 fiber ports can connect to separate remote CPEs. They may act as east and west ports of an ADM node. There are local cross connect blocks at VC12 levels.

## Features

1. Provide 2 STM-1 SFP tributary interface
2. Support MSP and SNCP 1+1 protection
3. Optical interfaces are decided by SFP



# OS02A

## Overview

The OS02A card is a dual STM-1 fiber optic line card. It can be inserted into any of the 4 LIU slots. The 2 STM-1 fiber ports can connect to separate remote CPEs. They may act as east and west ports of an ADM node. Besides the STM-1 interfaces, OS02A also provides 2 Ethernet ports. There are local cross connect blocks at VC12 levels.

## Features

1. Provide 2 STM-1 SC/FC tributary interface + 2 FE interface
2. Support MSP and SNCP 1+1 protection
3. Ethernet port support auto-negotiated and manual 100M full-duplex, 100M half-duplex, 10M full-duplex, 10M half-duplex



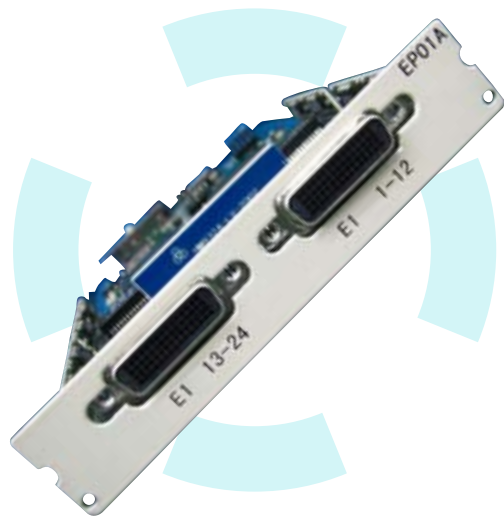
# EP01A

## > Overview

The EP01A card is a PDH interface card with 24 E1 ports. This card occupies 1 service slot. The connector is DB60.

## > Features

1. Each card has two DB-60 sockets
2. Each DB-60 socket provide 12 E1
3. Only 120Ω



# EP02

## > Overview

EP02 is PDH interface card with E3/DS3 port which can provide one channel of E3 or DS3.

## > Features

1. E3/DS3 interface adopts 75Ω(unbalance)BNC or CC4 sockets
2. Use the dip switch or software to select E3/DS3
3. Only 75Ω



# EP03

## ➤ Overview

The EP03 card is a PDH interface card with 12 E1 ports. This card occupies 1 service slot.

## ➤ Features

1. RJ45, each RJ45 connector provides 2xE1.
2. Balanced or unbalanced



# EP03A

## ➤ Overview

The EP03A card is a PDH interface card with 12 E1 ports. This card occupies 1 service slot.

## ➤ Features

1. Each card has 1 DB-60 connector
2. The DB-60 connector provides 12 E1
3. Only 120Ω



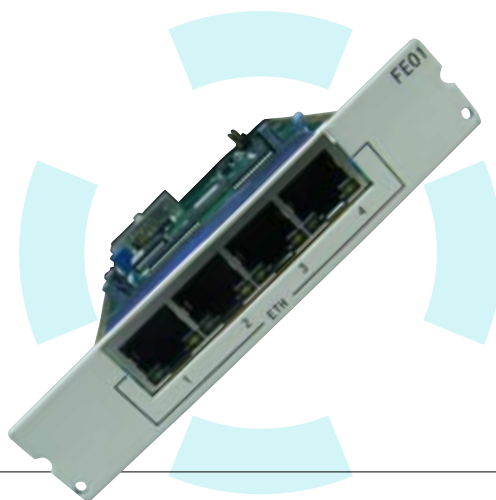
# FE01

## > Overview

The FE01 card is used to provide Ethernet connection to the network through EoS(Ethernet over SDH/VC-12) technology. There are 4 100Base-Tx Ethernet ports on the card. Traffic from each Ethernet port is adapted to a separate VCG channel through VC-12 virtual concatenation.

## > Features

1. 4 100/10Base-Tx Ethernet ports on the card.
2. Each Ethernet port is adapted to a separate VCG channel through VC-12LCAS
3. VLAN supported



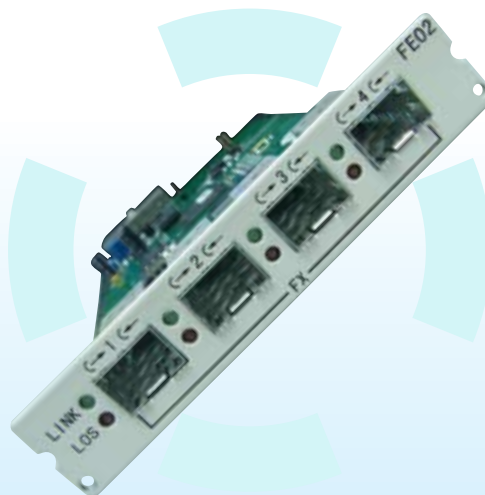
# FE02

## > Overview

The FE02 card is used to provide Ethernet connection to the network through EoS (Ethernet over SDH) technology. There are 4 100Base-Fx Ethernet ports on the card, which are fiber based. It can connect to 100Base-Fx ports on other equipment, as well as to Fx port on a media converter. The Fx ports use pluggable SFP optical modules, so that the user can chose modules with required optical parameters.

## > Features

1. 4 100Base-Fx Ethernet ports on the card.
2. It can connect to 100Base-Fx ports on other equipment
3. The Ethernet ports can auto adapt to cable crossing with the link partners.
4. VLAN supported



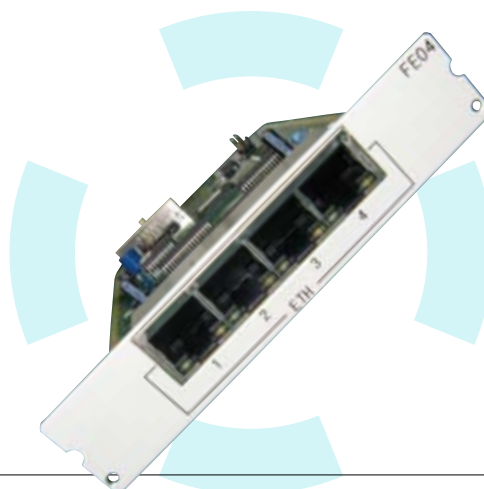
# FE04

## Overview

EoE card FE04 accomplishes transmission Ethernet service via E1 channels, using private protocol. It can connect to 100Base-Tx ports on other equipment. In each channel Ethernet frame format will be converted into E1 frame format.

## Features

1. 4 100Base-Tx Ethernet ports over 4 E1 channels
2. E1 channel bandwidth from 1 to 16 E1
3. VLAN supported



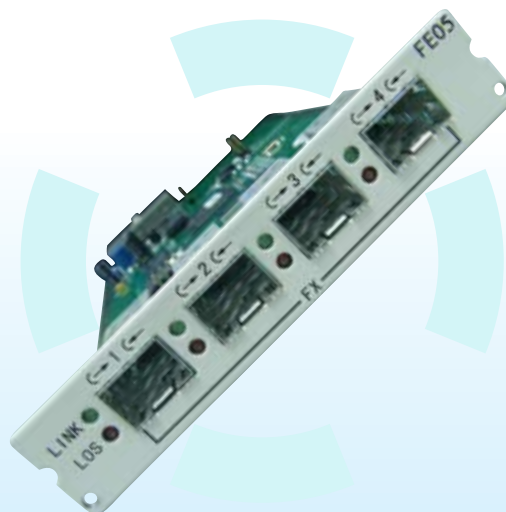
# FE05

## Overview

EoE card FE05 accomplishes transmission optical Ethernet service via E1 channels, using private protocol. It can connect to 100Base-Fx ports on other equipment. In each channel Ethernet frame format will be converted into E1 frame format.

## Features

1. 4 100Base-Fx Ethernet ports over 4 E1 channels
2. E1 channel bandwidth from 1 to 16 E1
3. VLAN supported



# FE06

## ➤ Overview

EOS aggregation card FE06 has 2 100M Ethernet ports. It realizes Ethernet over SDH service aggregation and layer 2 switches. This card can be inserted into any universal slots of H9MO-LMXE. The card can fulfill the data switch between 8 internal virtual concatenation channels and 2 external interfaces.

## ➤ Features

1. 8 internal EOS aggregation channels, ratio 8:1
2. 2 100/10 Base-Tx interfaces
3. VLAN based on 802.1Q
4. Ethernet adopts GFP encapsulation,
5. LCAS supported
6. Auto-negotiation and manual 100M full-duplex, half-duplex, 10M full-duplex and half-duplex.



# FE07

## ➤ Overview

EOE aggregation card FE07 has 2 100M Ethernet ports. It realizes Ethernet over E1 service aggregation and layer 2 switches. This card can be inserted into any universal slots of H9MO-LMXE. The card can fulfill the data switch between 8 internal virtual concatenation channels and 2 external interfaces.

## ➤ Features

1. 8 internal EOE aggregation channels, ratio 8:1
2. Each channel supports to 8 E1
3. VLAN based on 802.1Q
4. Auto-negotiation and manual 100M full-duplex, half-duplex, 10M full-duplex and half-duplex.



# GX01

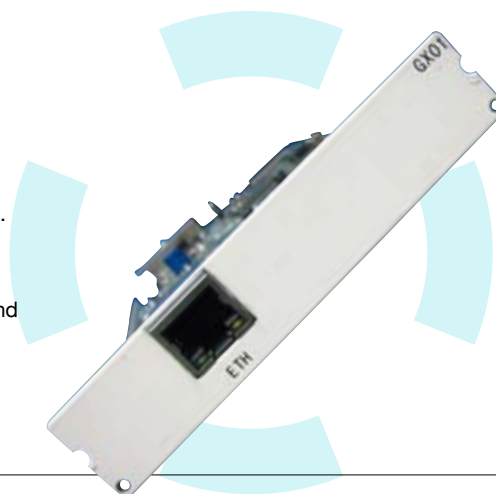
## > Overview

GE port aggregation type EOS card (GX01) is 10/100/1000M Ethernet Tx switch card, realizing Ethernet over SDH service aggregation and layer 2 switch of 6 Ethernet from backboard and 8 VCG accessed Ethernet data, to 1 GE port. GX01 can be inserted to Ethernet aggregation slot (slot 3) to get other slots Ethernet service aggregation and provide Ethernet management channel.

It can also be inserted into any universal slots other than slot3 to provide 8 internal VCAT channels of Ethernet data aggregation to 1 GE port.

## > Features

1. 1 GE electrical port
2. 8 internal virtual concatenation channels support VC-12 VCAT; the total largest bandwidth can get 1 STM-1.
3. 8 internal VCAT channels can set VLAN, VLAN type could be selected based on ports or based on 802.1Q.
4. Ethernet adopts GFP encapsulation, providing GFP alarm. It supports LCAS.
5. Ethernet provides QoS guarantee
6. GE port in GX01 card supports 1000M auto-negotiated and manual 100M full-duplex, half-duplex, 10M full-duplex and half-duplex.



# GX02

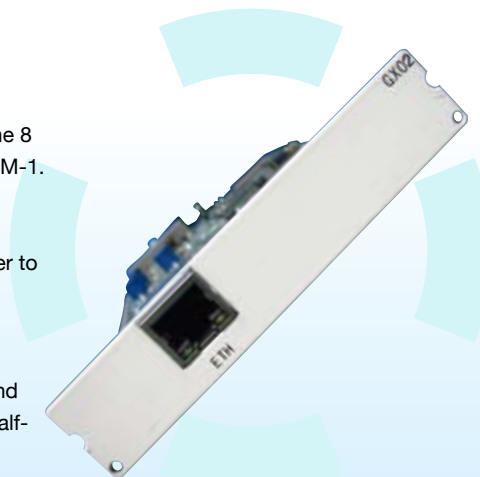
## > Overview

GE port aggregation type EOE card (GX02) is 10/100/1000M Ethernet Tx switch card, realizing aggregation and layer 2 switches of 1 or 6 external Ethernet services from backboard and 8 internal Ethernet accessed by several E1 channels, converging to 1 GE port. When the card is configured in Ethernet aggregation slot (slot 3), it support 6 aggregation side ports, fulfill other slots Ethernet services aggregation by backboard Ethernet bus to GX02 GE port.

It could also be inserted to other universal slots to provide 8 Ethernet over E1 channels and 1 aggregation side port converge to 1 GE port.

## > Features

1. 1 GE electrical port
2. The GX02 card provides 8 internal EOE Ethernet ports. The 8 internal EOE Ethernets' largest bandwidth can reach to 1xSTM-1.
3. Ethernet protocol adopted in GX02 is private, EOE encapsulation.
4. Ethernet package is encapsulated in N\*E1 (1≤N≤8) in order to transmission Ethernet based on E1.
5. Bandwidth could be adjusted automatically by valid E1 channels
6. GE port in GX01 card supports 1000M auto-negotiated and manual 100M full-duplex, half-duplex, 10M full-duplex and half-duplex.





# GX01A

## ➤ Overview

GX01A has one more GE optical SFP interface than GX01. It realizes Ethernet over SDH service aggregation and layer 2 switch of 6 Ethernet from backboard and 8 VCG accessed Ethernet data, to 1 GE port. GX01 can be inserted to Ethernet aggregation slot (slot3) to get other slots Ethernet service aggregation and provide Ethernet management channel, it also can be inserted into any universal slots of H9MO-LMFE to provide 8 internal VCAT channels of Ethernet data aggregation to 1 GE port.

## ➤ Features

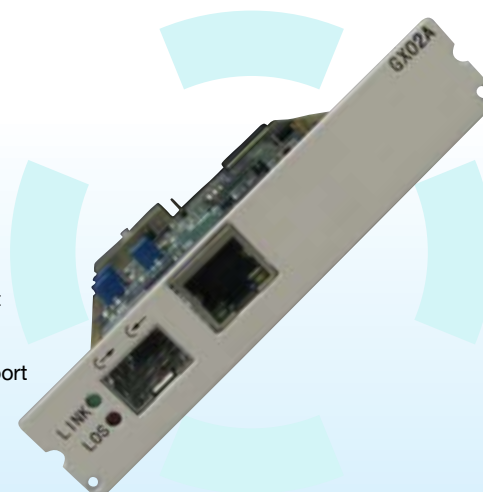
1. Electrical port and SFP optical port can not be used simultaneously.
2. 8 internal virtual concatenation channels support VC-12 VCAT, the total largest bandwidth can get 1 STM-1.
3. 8 internal VCAT channels can set VLAN, VLAN type could be selected based on ports or based on 802.1Q.
4. Ethernet adopts GFP encapsulation, providing GFP alarm.
5. Support LCAS functions
6. Ethernet provides QoS guarantee.
7. GE port in GX01A card supports 1000M auto-negotiated and manual 100M full-duplex, half-duplex, 10M full-duplex and half-duplex.



# GX02A

## ➤ Overview

GX02A has one more GE optical SFP interface than GX02. It realizes aggregation and layer 2 switches of 1 or 6 external Ethernet services from backboard and 8 internal Ethernet accessed by several E1 channels, converging to 1 GE port. When the card is configured in Ethernet aggregation slot (slot 3), it support 6 aggregation side ports, fulfill other slots Ethernet services aggregation by backboard Ethernet bus to GX02 GE port. And it also could be inserted to other universal slots to provide 8 Ethernet over E1 channels and 1 aggregation side port converge to 1 GE port.



## ➤ Features

1. Electrical port and SFP optical port cannot be used simultaneously.
  2. The GX02 card provides 8 internal EOE Ethernet ports. The 8 internal EOE Ethernet's largest bandwidth can reach 1 STM-1.
  3. Ethernet protocol adopted in GX02 is private, EOE encapsulation.
  4. Ethernet package is encapsulated in N\*E1 ( $1 \leq N \leq 8$ ) in order to transmission Ethernet based on E1..
  5. Bandwidth could be adjusted automatically by valid E1 channels
- GE port in GX01 card supports auto-negotiated and manual 100M full-duplex, half-duplex, 10M full-duplex and ha

---

# ED01

## ➤ Overview

Card ED01 provides dual V.35 ports, which can be inserted in any one of the 14 universal slots

## ➤ Features

1. 2×V.35 Card( framed or unframed)
2. DB-25 connector
3. The work mode and bandwidth of V.35 port can be set by NMS and dip switches



# DX01

## > Overview

DX01 card can support VC-4, VC-3 level complete cross of 20 STM-1, and VC-12 level complete cross of 32 STM-1. It provides the cross connection and concatenation of VC12, VC3, VC4 level channels between all tributary cards and cross connection cards. There is one clock input and one clock output channel in the built-in SDH equipment clock units complied with ITU-T G.813. The clock interfaces are located in backboard, or from OW/Overhead card front panel. It supports 2Mbit and 2MHz two kinds of clock mode.

Each DX01 card has 2 built-in E1 BER tester, they can test the tributary optical uplink (aggregation side) and downlink (tributary side) simultaneously. Each SDH cross connection also can be built in 2 E1 monitor channel to transmit management information. E1 BER tester and E1 monitor channel can be inserted by cross matrix.

## > Features

1. Capability : VC-4 level 20xSTM-1, VC-12 level 32xSTM-1
2. Clock module embedded
3. 2 built-in E1 BER tester



# DX02

## > Overview

Card DX02 include 64kbps timeslot cross matrix, which can realize the 30(not include timeslot 16th) or 31 (include timeslot 16th) 64kbps time slot cross connection of each E1 in 63 E1

## > Features

1. Full 64E1 DS0 cross connection (2048x2048 64k)
2. For the framed E1 channel adopted CAS, the 16th time slot can realize signaling cross connection automatically.
3. For the framed E1 channel adopted CCS, the 16th time slot also can be set to transmit data, realizing cross connection.



# DX01

## > Overview

DX01 card can support VC-4, VC-3 level complete cross of 20 STM-1, and VC-12 level complete cross of 32 STM-1. It provides the cross connection and concatenation of VC12, VC3, VC4 level channels between all tributary cards and cross connection cards. There is one clock input and one clock output channel in the built-in SDH equipment clock units complied with ITU-T G.813. The clock interfaces are located in backboard, or from OW/Overhead card front panel. It supports 2Mbit and 2MHz two kinds of clock mode.

Each DX01 card has 2 built-in E1 BER tester, they can test the tributary optical uplink (aggregation side) and downlink (tributary side) simultaneously. Each SDH cross connection also can be built in 2 E1 monitor channel to transmit management information. E1 BER tester and E1 monitor channel can be inserted by cross matrix.

## > Features

1. Capability : VC-4 level 20xSTM-1, VC-12 level 32xSTM-1
2. Clock module embedded
3. 2 built-in E1 BER tester



# DX02

## > Overview

Card DX02 include 64kbps timeslot cross matrix, which can realize the 30(not include timeslot 16th) or 31 (include timeslot 16th) 64kbps time slot cross connection of each E1 in 63 E1

## > Features

1. Full 64E1 DS0 cross connection (2048x2048 64k)
2. For the framed E1 channel adopted CAS, the 16th time slot can realize signaling cross connection automatically.
3. For the framed E1 channel adopted CCS, the 16th time slot also can be set to transmit data, realizing cross connection.



# OP03

## > Overview

OP03 is a PDH tributary card with 2 PDH optical ports. (SC connector FC optional). Each port supports 2×E1+1×100Base-Tx PDH interface. Ethernet interface mode can be set to auto-negotiated, manual 100M full duplex, 100M half-duplex, 10M full duplex, 10M half-duplex. OP 03 tributary card can be inserted in the 14 universal slots

## > Features

1. Remote site is Huahuan PDH H10MOS-60BW
2. H10MOS-60BW has 2×E1+1×100Base-Tx PDH interface
3. 2 optical ports, each port supports 1x H10MOS-60BW
4. This card can built network as point to point, star topology
5. PDH tributary card with SC connector, FC optional



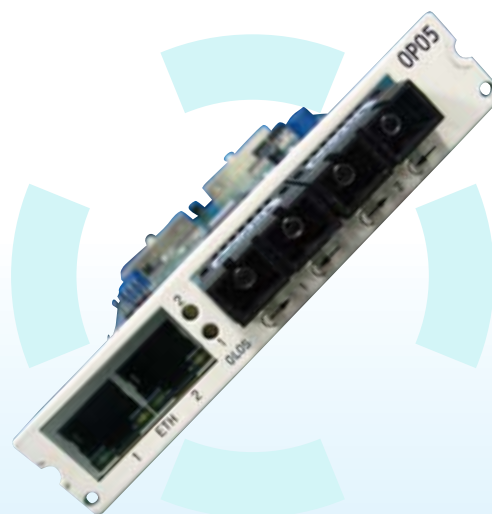
# OP05

## > Overview

OP05 is a PDH tributary card with 2 PDH optical ports. (SC connector FC optional).Each optical port supports 4E1+FE. Ethernet interface mode can be set to auto-negotiated, manual 100M full duplex, 100M half-duplex, 10M full duplex, 10M half-duplex. OP 05 tributary card can be inserted in the 14 universal slots.

## > Features

1. Remote site is Huahuan PDH H10MO-120B
2. Each H10MO-120B has 4E1+FE
3. 2 optical ports, each port supports 1x H10MO-120B
4. This card can built network as point to point, star topology
5. PDH tributary card with SC connector, FC optional



# OP06

## Overview

OP06 is a PDH tributary card with 2 PDH optical ports. (SC connector FC optional) Ethernet interface mode can be set to auto-negotiated, manual 100M full duplex, 100M half-duplex, 10M full duplex, 10M half-duplex. OP 06 tributary card can be inserted in the 14 universal slots.

## Features

1. Supporting ordinary dial-up telephone calls
2. Providing electricity and telephone Ling flow
3. Provide users access byte F1 overhead access
4. Interface mode RS232
5. Clock port 75Ω or 120Ω



## Ordering Information

Type	Description
H9MO-LMFE.BOX	19", 1U, with 2 Power Slots, 1 Fan Slot, 1 Network Management Slot, 1 Aggregation Service Slot, 4 Tributary Service Slots
H9MO-LMFE.FAN01	Pluggable Fan Unit (must equip)
H9MO-LMFE.PWR01	DC -48V Power Supply, Can be 1+1
H9MO-LMFE.PWR02A	AC 220V Supply, Can be 1+1
H9MO-LMFE.PWR02B	AC 110V Supply, Can be 1+1
H9MO-LMFE.NM02	Network Management Card with 2 RJ45 Management Ethernet Ports, Supporting Online Upgrading

## ➤ Ordering Information

Type	Description
H9MO-LMFE.OX01	Dual STM-1 Interfaces per Card (Default S1.1), SC Type. Cross connection Matrix and Timing Processing are Embedded. (L1.1,L1.2, Bi-Directional WDM options are Available)
H9MO-LMFE.OX01S	Dual STM-1 Interfaces per Card, SFP Type. Cross connection Matrix and Timing Processing are Embedded. (SFP should be Ordered Separately). (S1.1,L1.1,L1.2, Bi-Directional WDM options are Available).
H9MO-LMFE.OX04	Dual STM-4 Interfaces per Card, SFP Type. Cross connection Matrix and Timing Processing are Embedded. (SFP should be Ordered Separately) (S4.1,L4.1,L4.2, Bi-Directional WDM options are Available).
H9MO-LMFE.OX16	Dual STM-16 Interfaces per Card, SFP Type. Cross connection Matrix and Timing Processing are Embedded.(SFP should be Ordered Separately) (S16.1,L16.1,L16.2, Bi-Directional WDM options are Available).
H9MO-LMFE.EX01	Dual STM-1 Electrical Interfaces per Card, CC4 Interface Type. Cross connection Matrix and Timing Processing are Embedded.
H9MO-LMFE.OS01	Dual STM-1 Interfaces per Card (Default S1.1), SC Type.(L1.1,L1.2, Bi-Directional WDM options are Available)
H9MO-LMFE.OS01S	Dual STM-1 Interfaces per Card, SFP Type.(SFP should be Ordered Separately). (S1.1,L1.1,L1.2, Bi-Directional WDM options are Available).
H9MO-LMFE.OS02A	Dual STM-1 & Dual FE Ports per Card
H9MO-LMFE.OS03	Single STM-1&FE Port per Card
H9MO-LMFE.OS04A	Dual STM-4 tributary card
H9MO-LMFE.EP03	12E1 per Card □RJ45 Type,75ohms □BH4.850.107 Cable Should be Equipped Separately
H9MO-LMFE.EP03/T	12E1 per Card □RJ45 Type,120ohms
H9MO-LMFE.EP01A/T	24E1 per Card □DB60 Type,120ohms, Two DB60 Cable BH4.850.124-B Should be ordered Separately
H9MO-LMFE.EP03A/T	12E1 per Card □DB60 Type,120ohms, DB60 Cable BH4.850.124-B Should be ordered Separately

Type	Description
H9MO-LMFE.FE01	4 Electrical Fast Ethernet Ports per Card, EoS, GFP/LCAS/VCAT
H9MO-LMFE.FE02	4 Optical Fast Ethernet Ports per Card, EoS, GFP/LCAS/VCAT, SFP Type (SFP should be ordered Separately).
H9MO-LMFE.FE04	4 Electrical Fast Ethernet Ports per Card, EoPDH or EoE (Ethernet over n*E1, One Channel: $1 \leq n \leq 16$ )
H9MO-LMFE.FE05	4 Optimal Fast Ethernet Ports per Card, EoPDH or EoE (Ethernet over n*E1, One Channel: $1 \leq n \leq 16$ ), SFP Type (SFP should be ordered Separately).
H9MO-LMFE.FE06	Ethernet Aggregation Card (EoS), Ratio 8:2, Two External FE ports
H9MO-LMFE.FE07	Ethernet Aggregation Card (EoPDH or EoE), Ratio 8:2, Two External FE ports
H9MO-LMFE.GX01	Gigabit Ethernet Aggregation Card (EoS), Ratio 8:1, One Electrical Gigabit Ethernet Port
H9MO-LMFE.GX02	Gigabit Ethernet Aggregation Card (EoPDH or EoE), Ratio 8:1, One Electrical Gigabit Ethernet Port
H9MO-LMFE.GX01A	Gigabit Ethernet Aggregation Card (EoS), Ratio 8:1, One Electrical Gigabit Ethernet Port or One Optical Gigabit Ethernet Port (SFP Type)(SFP should be ordered Separately)
H9MO-LMFE.GX02A	Gigabit Ethernet Aggregation Card (EoPDH or EoE), Ratio 8:1, One Electrical Gigabit Ethernet Port or One Optical Gigabit Ethernet Port (SFP Type)(SFP should be ordered Separately)
H9MO-LMFE.ED01	Two V35 ports per Card. DTE/DCE. (BH4.851.103 DCE Cable should be ordered separately)
H9MO-LMFE.DX02	Full 64E1 DS0 Cross connection. Matrix: 2048*2048
H9MO-LMFE.EP02	One E3 per Card. CC4 Interface Type
H9MO-LMFE.LA01	Order wire interface and one external clock input/output interface and one RS232 Asynchronous Interface