

# ZISA Multi-Service Access Platform

## MSAP-X7

### Compact MSAP



MSAP-X7

## Overview

MSAP-X7 is the centralized Multi-Service Access Platform (MSAP) compatible with ITU-T standard. It is designed as a cost-effective and flexible multi-service platform, with STM-1 / STM-4/STM-16 level uplink ports and abundant optional downlink cards to provide typical E1 traffic, PCM, optical tributary, EoSDH and EoPDH traffic access and aggregate.

As an important feature, in MSAP-X7, the dual SDH uplink modules and dual Ethernet uplink modules can work simultaneously. Between each SDH uplink module and each sub-slot, there are STM-1 LVDS connections, and similarly, between each Ethernet uplink module and each sub-slot, there are LVDS Gigabit Ethernet connections. With this backplane design, TDM traffic in SDH/MSTP network and packet traffic in IP network can be distributed and aggregated in MSAP-X7.

A powerful timeslot cross-connection and IP data switching facility is supplied in MSAP-X7. With the ability of connecting various network topologies, reliable self-healing mechanism, and unified intelligent management system, it is suitable for enterprise access, private network interconnection, mobile base stations connection and video monitoring applications.

## Feature

- **Structure**
  - ✓ 7U height, 19 Inch width standard, 16 card slots.
  - ✓ LVDS clock-free backplane, independent SDH bus and GE bus architecture.
  - ✓ Dual SDH uplink, dual Ethernet uplink and dual management units architecture ensure the system reliability.
- **SDH uplink card**

- ✓ Up to 4× STM-1/STM-4/STM-16 interfaces .
- ✓ LC type SFP module, hot-pluggable.
- ✓ 98VC4×98VC4, or 96TU-3×96TU-3, 2016VC12×2016VC12 non-blocking cross-connection.
- ✓ 1+1 line card protection to realize clock module hot-backup.
- ✓ 1+1 linear unidirectional/ bidirectional Multiplex Section protection (MSP) and SNCP protection.
- ✓ Point-to-point, chain, ring and tangent ring network topology.
- **Ethernet uplink card**
  - ✓ Up to 4 GE optical ports and 4 GE electrical ports.
  - ✓ Each card can aggregate the 1000M Ethernet traffic from up to 8 downlink cards, up to the 128 VCGs can be aggregated to the GE/GX port.
- **Diversified downlink cards**
  - ✓ Diversified downlink cards include optical downlink, E1, PCM and Ethernet downlink cards.
  - ✓ Communication with the remote Ethernet media converter, SDH,PCM and MSTP terminals.
  - ✓ Supports 1+1 path protection.
  - ✓ Supports the embedded E1 BERT testing function.
  - ✓ Compliant o Virtual concatenation (VCAT) and Link Capacity Adjustment Scheme (LCAS) recommendation G.7042
- **Timing**
  - ✓ Traces any timing source of STM-1/4/16 uplinks or STM-1 optical tributaries, or external timing source.
  - ✓ Supports External timing output.
  - ✓ The timing source can be switched manually or automatically.
  - ✓ Supports free-running, tracing and hold-over modes.
- **System Management**
  - ✓ Supports ZSView network management platform based on C/S architecture.
  - ✓ Supports DCC and EXM (Extended E1 interface for management) channel for communication between gateway and elements.
  - ✓ Supports DCN channel for the communication between gateway and server.
  - ✓ Supports SNMP\_V1 and SNMP\_V2 protocol.
  - ✓ Supports local and remote firmware online update without disturbing existing traffic.
  - ✓ Provides top-mounted aural-visual alarm output.

## Card List

Type	Name	Model	Description	Slots
SDH uplink	STM-16 uplink	CU2501	2×STM-16, DXC and SET.	5, 8
	STM-4 uplink	CU622	2×STM-4, DXC and SET.	
	STM-1 uplink	CU155	2×STM-1, DXC and SET.	
Ethernet uplink	Ethernet uplink with layer 2 switch	CUGE4A	2×GX+2×GE, supports port-based VLAN and 802.1QVLAN, and trunk function.  Aggregates the Giga Ethernet traffic from 8 slots at most.	6, 7

Downlink	E1 mapping	E1-16	16 E1, 75Ω and 120Ω selectable.	1-4, 6-7, 9-11
		E1-32	32 E1, 75Ω and 120Ω selectable.	1-4, 6-7, 9-11、12
	PCM	DXCCH30	Full cross-connection among thirty 64Kb/s timeslot of 64E1, with the capacity of 1920*1920 64Kb/s. 8 PCM sub-module slots, up to 30 FXS/FXO/magneto voice channels or 16 2/4 wire E&M audio or 16 RS232/RS485/64K data interfaces totally.	1-4、6-7、 9-11、12
		TUCH30	8 PCM modules, up to 30 FXS/FXO/magneto voice channels or 16 2/4 wire E&M audio or 16 RS232/RS485/64K data interfaces totally.	1-4、6-7、 9-11、12
	SDH optical tributary	TU622-2	2xSTM-4, DXC,	1-4、6-7、9-11
		TU155-8	8xSTM-1, DXC, supports P2P, P2MP, chain and ring topology.	1-4, 6-7, 9-11
		TU155-4	4xSTM-1, DXC, supports P2P, P2MP, chain and ring topology.	1-4、6-7、9-11
	PDH optical tributary	TUP155-4	4xPDH optical interface, DXC, used to connect remote PDH equipment, supports point-to-point and star-type network.	1-4、6-7、9-11
		TUP155-8	8xPDH optical interface, DXC, used to connect remote PDH equipment, supports point-to-point and star-type network.	1-4、6-7、9-11
		TUP1250	2xGE+2xOPT(1.25Gb/s), achieve 16 E1 and 2 gigabit Ethernet data transmission over optical line of 1.25Gb/s. Multiple 1GE&16E1 mixed traffic optical rings to	1-4、6-7、9-11

			enhance the traffic protection ability of the entire system.	
	EoSDH	EOS-8FX8	8×FX, 8 physical isolated VCG, with EoSDH, GFP/LCAS/VCAT, flow control, TS1000 protocol.	1-4, 6-7, 9-11
		EOS-4FX4	4×FX, 4 physical isolated VCG, with EoSDH, GFP/LCAS/VCAT, flow control, TS1000 protocol.	1-4, 6-7, 9-11
		EOS-8FE8	8×FE, 8 physical isolated VCG with EoSDH, GFP/LCAS/VCAT, and flow control.	1-4, 6-7, 9-11
		EOS-8FE8A	8×FE, 8VCG, EoSDH,GFP/LCAS/VCAT.  With Ethernet switch, 8 Ethernet can also be aggregated to Giga Ethernet without EoSDH.  Port-based VLAN and 802.1Q VLAN, QinQ.	1-4, 6-7, 9-11
		EOS-4FE4A	4×FE, 4VCG, EoSDH,GFP/LCAS/VCAT.  With Ethernet switch, 4 Ethernet can also be aggregated to Giga Ethernet without EoSDH.  Port-based VLAN and 802.1Q VLAN, QinQ.	1-4, 6-7, 9-11
		EOS-16GE2A	1 ×COMBO + 1 × GE + 1 × FE, 16VCG, EoSDH, GFP/LCAS/VCAT.  With Ethernet switch, the Ethernet can also be aggregated to Giga Ethernet without EoSDH.  Port-based VLAN and 802.1Q VLAN, QinQ.	1-4, 6-7, 9-11
		EOS-2GE2A	2×GE, EoS, 2VCG, up to 63 VC12 for each VCG.  Port-based VLAN and 802.1Q VLAN, QinQ.  Supports GFP/LCAS/VCAT.	1-4·6-7·9-11
		GS4A	Gigabit Ethernet to STM-4 converter, 4×GE, 1 VCG, up to 1~8 VC4,	1-4·6-7·9-11

			Port-based VLAN and 802.1Q VLAN, QinQ. Supports LCAS/VCAT.	
	Ethernet switch	ETH-FX8A	8×FX, port-based VLAN , 802.1Q VLAN, QinQ, TS1000 protocol. Achieve Ethernet aggregation from 8 remote Ethernet Media Converters.	1-4 · 6-7 · 9-11
		ETH-FX4A	4×FX, port-based VLAN , 802.1Q VLAN, QinQ, TS1000 protocol. Achieve Ethernet aggregation from 4 remote Ethernet Media Converters.	1-4 · 6-7 · 9-11
	EoPDH	EOP-16GE2A	1×COMBO +1×GE+1×FE. 16VCG, EoPDH, LCAS/VCAT.  With Ethernet switch, the Ethernet can also be aggregated to Giga Ethernet without EoSDH.  Port-based VLAN and 802.1Q VLAN, QinQ. Supports GFP for multiple E1, and GFP/HDLC for single E1.	1-4, 6-7, 9-11
Management	Management unit	NMU7	Real time SNMP based management unit, supports hot-backup and cascading connection applications.	12, 13
Power	DC power module	PW300DCM	Redundant-backup Power modules, with the power consumption of 300W, supports management function, such as power input/output alarm indication.	14, 15
	AC power module	PW300ACM		14, 15
	DC power module	PW200DCM	Redundant-backup Power modules, with the power consumption of 200W, supports management function, such as power input/output alarm indication.	14,15
	AC power module	PW200ACM		14,15

Fan	Fan tray	FAN7	Fan tray	16
	Fan tray with management	FAN7M	Fan enable/disable and temperature threshold configurable, supports temperature display real time and fan alarm monitor.	16

## PCM sub-module list

Model	Name	Description
PCM-4FXS	Foreign exchange station module	Provides a 4ch FXS interface, connects to user phone directly. Works with PCM-4FXO module to achieve extension of PBX user line
PCM-4FXO	Foreign exchange office module	Provides a 4ch FXO interface, connects to PBX user interface. Works with PCM-4FXS module to achieve extension of PBX user line.
PCM-4MAG	magneto telephone module	Provides a 4ch magneto telephone interface, adopts 2100Hz inband signaling with signaling transmission and detection function, mainly apply to order wire, private line etc.,. Occasions.
PCM-2EM-2/4	2/4 wire E&M audio module	Provides 2ch 2/4 wire E&M audio without signaling, supports 2/4 Wire mode online switch.
PCM-2RS232	RS232 Interface module	Provides a 2ch RS232 asynchronous interface, each channel occupies one 64K time slot. Supports rate from 0Kbps ~ 19.2Kbps.
PCM-2RS485	RS485 interface module	Provides a 2ch RS485 asynchronism interface, each channel occupies one 64K time slot. Supports rate from 0Kbps ~ 19.2Kbps, half-duplex mode.
PCM-2CD64K	64K data module	Provides a 2ch 64K data interface, complies with ITU-T G.703

## Application

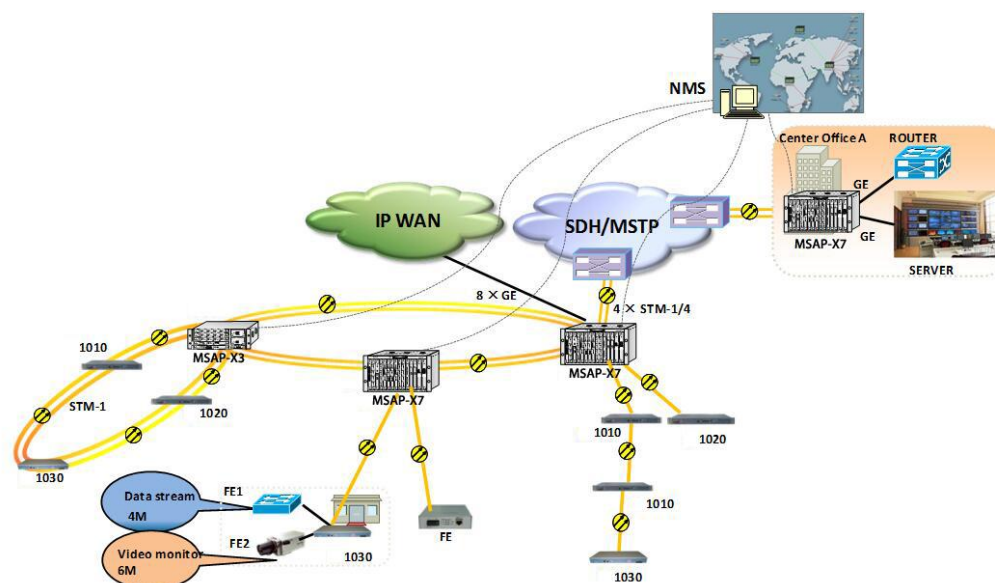


Figure: Typical application

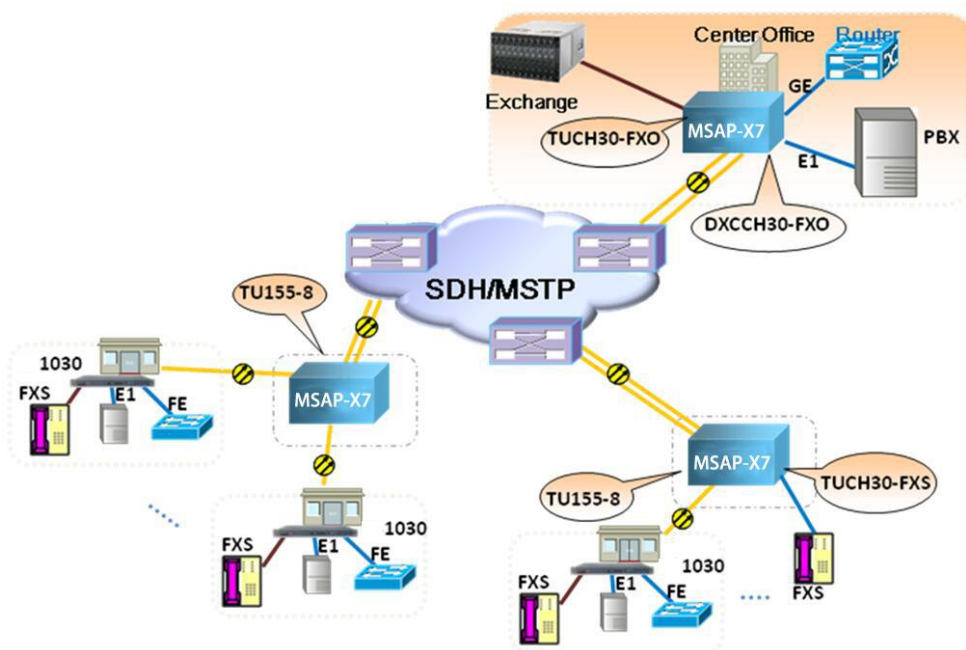


Figure: PCM application

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