ZXA10 C300 Introduction
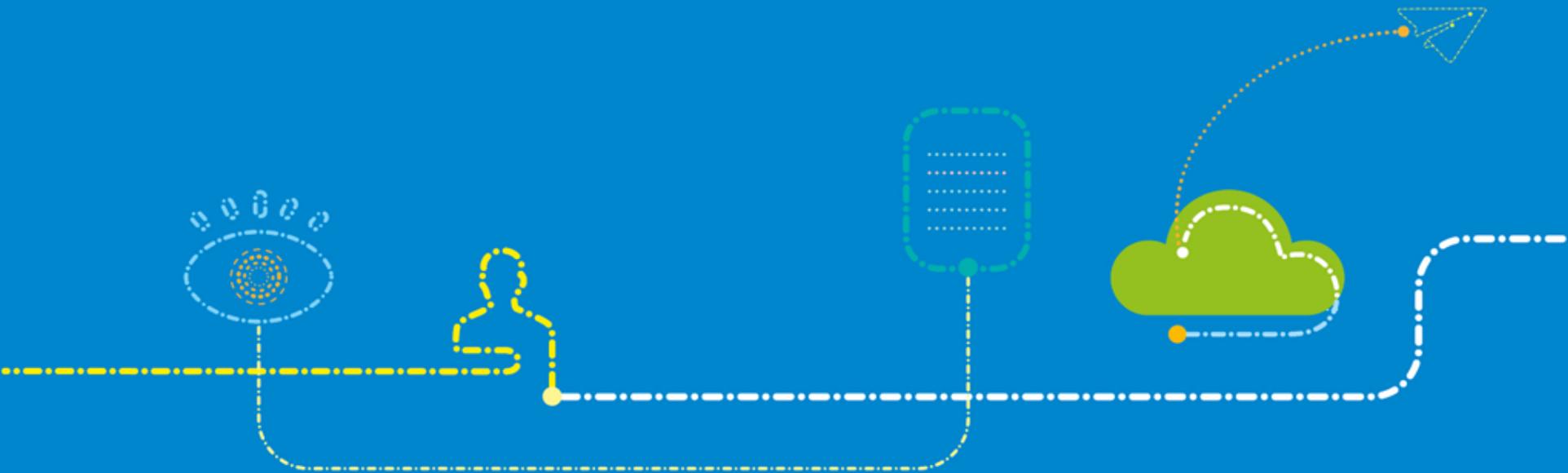
V2.0

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ZXA10 C300 Overview

ZXA10 C300

- **10U high, vertical plug card, front access**
- **Two kinds of rack: 23 slots for 21 inch rack, 21 slots for 19 inch rack**
- **System capacity: 16/14 service card slots(GPON/P2P/XG-PON1)**
- **Up to 16384 GPON subscribers access**
- **Uplink interface**
  - **4$\times$GE (Optical)**
  - **2 $\times$10GE + 2 $\times$GE or 4 $\times$10GE (Optical)** ⎱ **Up to 16$\times$10GE uplink**
  - **4 $\times$GE or 4 $\times$10GE (SCXN or SCTM)** ⎰
  - **TDM uplink interface: T1/ E1(Balanced/Unbalanced), STM-1/STM-4**
- **Physical transmission distance: 20Km~60Km**
- **Management interface: CLI (Telnet or RS232), SSH, SNMP V1/2/3, SNMP proxy**

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PON and L2/L3 Features

PON Features   A

- Compatible with ITU G.984.x
- Support ITU-T G.987.x and G.988
- Support Optical Laser Supervising (OLS)
- Physical reach: 20~60km
- GPON Transceiver power: Class B+ and Class C+
- XG-PON1 Transceiver power: N1, N2a
- Support Type B and Type C protection
- Support SR-DBA and NSR-DBA
- Downstream and upstream FEC
- Support AES128 encryption
- Support SCB (Single Copy Broadcast)
- Full G.984.4 OMCI Stack
- Support migration to NG PON2

L2/L3 Features   B

- 4K VLAN number, IEEE 802.1q, 1:1/N:1 VLAN, VLAN translation, VLAN Stacking (QinQ)
- VRF, ARP agent/ proxy
- STP/RSTP/MSTP/UAPS/ERPS (G.8032)/LACP
- Link aggregation IEEE 802.3ad
- DHCP server, DHCP Relay (option 60/82), DHCP proxy, DHCPv6 L2/L3 relay agent
- IPv4 and IPv6 dual stack
- 1588v2, 1PPS+ToD, SynE, BITs/HZ
- L3 routing: IPv4/6 Statistic routing, OSPFv2, BGPv4, RIP V1/V2
- L2- L4 flow classification and ACL
- Multicast
  - IGMP V1/2/3, IGMP/MLDv1, MLDv2, MLD snooping/proxy/router
  - Support IGMP pre-join and fast leave
  - 256 Multicast VLANs
  - Support CAC, PRV and CDR

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QoS and MPLS Features

QoS Guarantee

- ✓ 802.1p ,support 8 classes of service
- ✓ CoS queue scheduling : SP, DWRR, SP+DWRR
- ✓ DSCP Diffserv
- ✓ SLAs based on classification: CIR, PIR, CBS, etc
- ✓ Stream classification, rate limiting priority setting
- ✓ H-QoS
- ✓ Classification criteria:
  - ✓ MAC/IP source and destination address
  - ✓ TCP/UDP source and destination port

MPLS Features

- ✓ Basic MPLS feature with LDP signal
- ✓ VPWS, VPLS, H-VPLS services
- ✓ MPLS OAM
- ✓ PW VCCV
- ✓ MPLS ping/tracert
- ✓ DU or DoD signal distribution method
- ✓ Static LSP
- ✓ LDP Graceful Restart
- ✓ PWE3(SAToP E1,ETH)
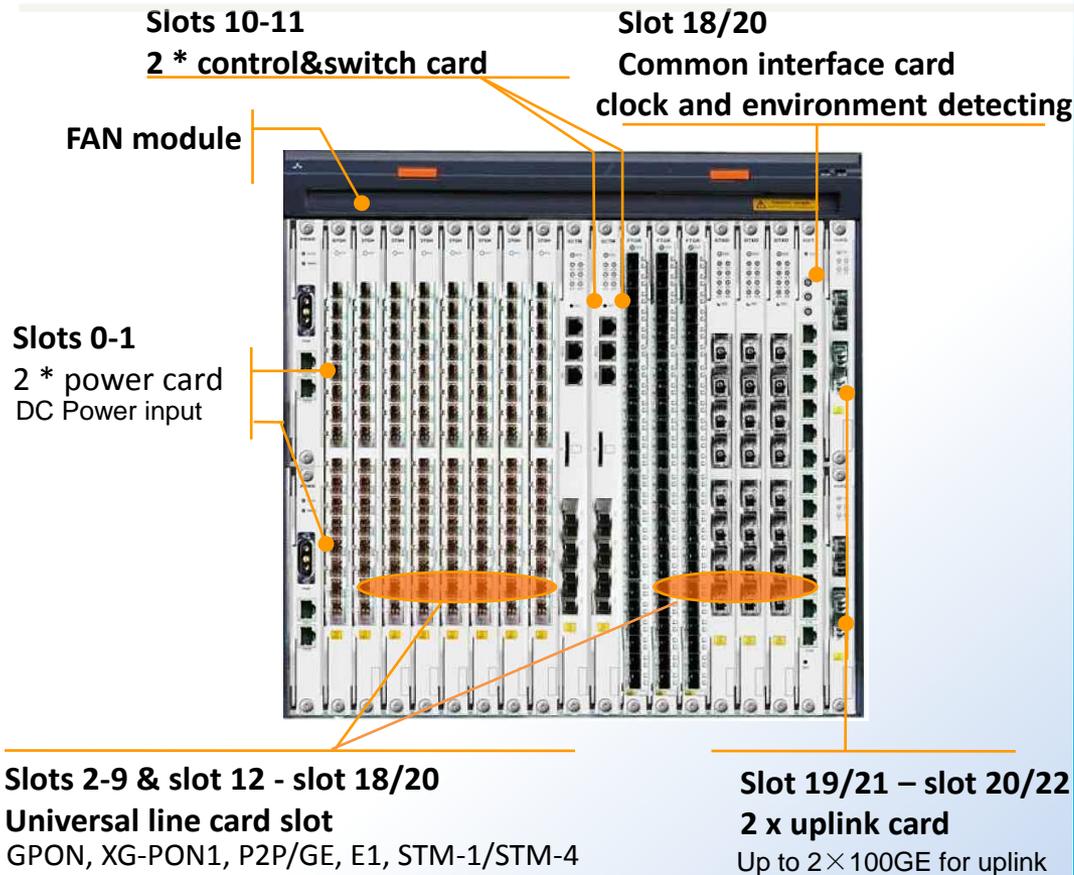- ✓ TDM relay

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Security Guarantee

1   L2- L4 ACL

2   IP and MAC source guard

3   Anti DoS-attacking

4   MAC/IP anti-spoofing (MAC binding, IP binding, DHCP snooping)

5   Anti-flooding: broadcast, IGMP and DHCP packet suppression)

6   MAC address number limit based on VLAN or GEM-port

7   User port identification such as PPPoE+ and DHCP Option 82

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Other Features

Other Features

- Support FAN, anti-dust and environment (temperature, humidity, etc) detecting

- Support CES mode, support MEF8 and PWE3

- Provide E1,STM-1 and STM-4 interfaces for TDM backhaul

- DBA granularity: 64kbit/s

- Support triple-play service: VoIP, HSI, IPTV,CATV and other services

- Powerful OAM functions: link status detection, fault isolation, remote loop-back and remote status detection; supports in-band and out-band management

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ZXA10 C300 Shelf Architecture Overview

Slots 10-11
2 * control&switch card

Slot 18/20
Common interface card
clock and environment detecting

FAN module

Slots 0-1
2 * power card
DC Power input

Slots 2-9 & slot 12 - slot 18/20
Universal line card slot
GPON, XG-PON1, P2P/GE, E1, STM-1/STM-4

Slot 19/21 – slot 20/22
2 x uplink card
Up to 2×100GE for uplink

◆ **Dimensions**
- 21 inch ETSI shelf:
  - 449.2(H)*535(W)*270(D) mm
  - 23 slots
- 19 inch IEC shelf:
  - 443.7(H)*482.6(W)*270(D)mm
  - 21 slots

◆ **Physical Specifications**
- Operating temperature:
  -25ºC - + 55ºC
- Operating humidity: 5% - 95%
- Working voltage: -48V DC($\pm$20%) or - 60V DC(($\pm$20%)
- Maximum input current: 50A

Supports **IEEE 1588v2 & SyncE** for mobile backhaul
Supports **Ethernet Ring(G.8032)** and **MPLS**
Supports **ONU power saving management**
Supports smooth migration to **NG-PON2**: TWDM-PON, PtP-WDM, etc.

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Major Cards of ZXA10 C300

| Card Type	Card Name	Summary
Control & switch cards	SCXN	Type N control and switch card, 480G switching capacity
	SCTM	Type T control and switch card, 2.56T switching capacity
Subscriber cards	GTGO/GTGH	8/16 ports GPON line card
	GTXO	8 ports XG-PON1 line card
	FTGK	48 ports P2P/24 ports GE/FE optical Ethernet interface card
	CTUB	32-channel E1 unbalanced CES interface card
	CTLA	STM-N CES interface card
Common cards	CICK	Common interface card
	PRWG/PRWH	Power supply card
Ethernet uplink cards	GUFQ	4 ports GE/FE optical interface Ethernet uplink card
	GUSQ	2 ports GE optical and 2 ports GE/FE electrical interface Ethernet uplink card
	XUTQ	4 ports 10GE optical interface Ethernet uplink card
	HUTQ	2 ports 10GE and 2 ports GE optical interface Ethernet uplink card
	HUVQ	2 ports 10GE/GE and 2 ports GE/FE optical interface Ethernet uplink card(Sync-E)

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Control & Switch Card - SCXN

SCXN
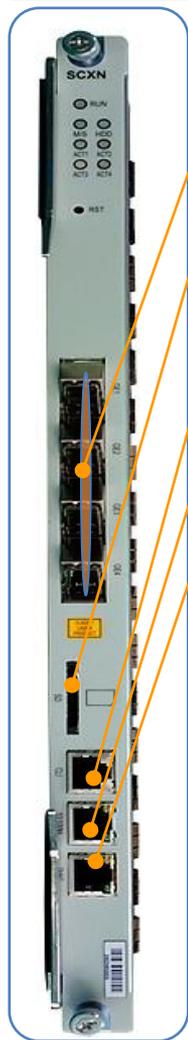
GE1 - GE4: GE optical interface for uplink

SD: socket for importing/exporting data

CLI: RS232 for local debugging interface

10/100M: RJ45 for out-of-band network
 management interface

DIAG: RJ45 for mirroring service traffic
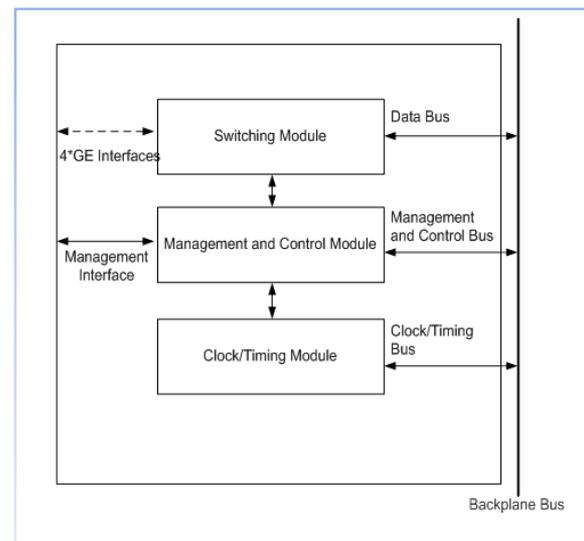
- ❏ High switching capacity
  - • 4*GE uplink ports
  - • Supports 16-port GPON card
- ❏ Clock/time function
  - • Level-3 clock synchronization
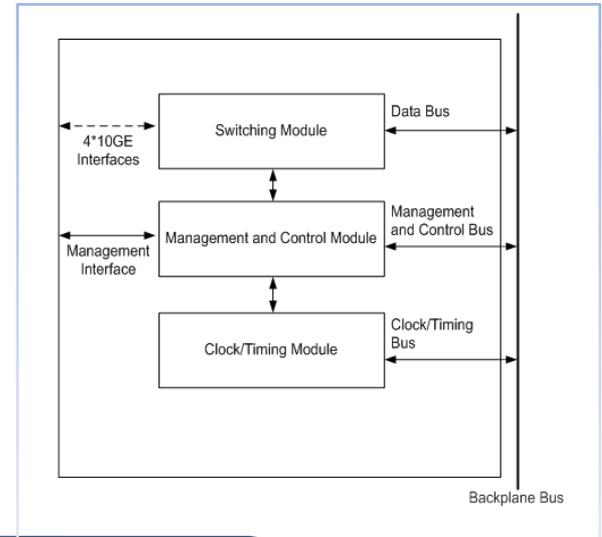 - • IEEE1588 v2 and time synchronization
- ❏ IP function
  - • IPv4/IPv6 dual-stack

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Control & Switch Card - SCTM

CLI: RJ45 for local debugging interface

10/100M: RJ45 for Out-of-band network
 management interface

DIAG: RS232 for mirroring service traffic

SD: socket for importing/exporting data
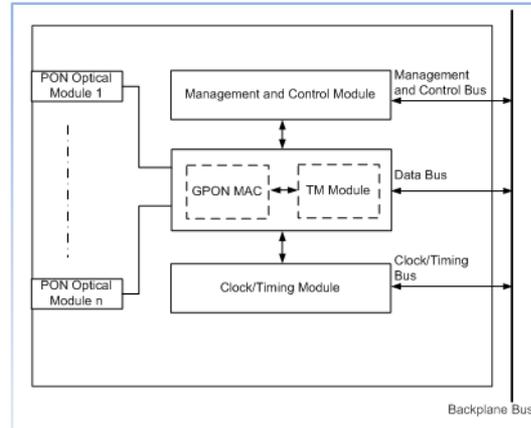
XG1 - XG4: 10GE optical interface for uplink

SCTM

❑ Large switching capacity
- 4*10GE uplink ports
- Supports 16-port GPON card and 8-
  port XG-PON1 card simultaneously
❑ Clock/time function
- IEEE1588 v2 and time synchronization
❑ IP function
- IPv4/IPv6 dual-stack
- Support MPLS linear forwarding

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GPON Subscriber Cards – GTGO/GTGH

1 - 8: GPON ports
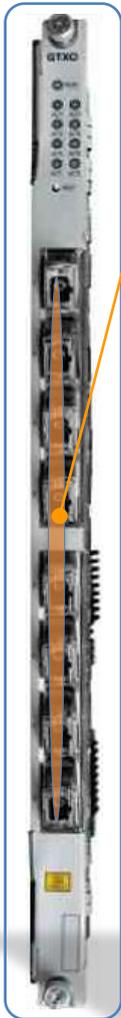
1 - 16: GPON ports

GTGO
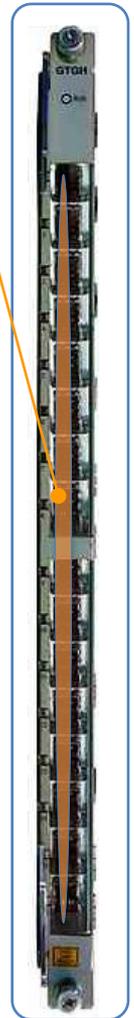
GTGH

- ❏ High density
  - 8/16 GPON ports per card, up to 1:128 split ratio
- ❏ GPON function
  - Support ONU power saving management defined in G.987.3
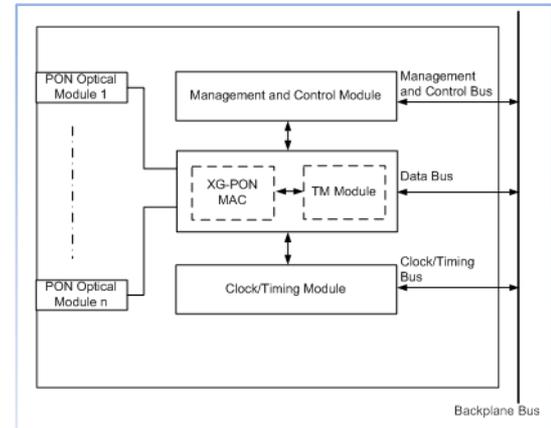 - 1024 T-CONTs per PON port, 4096 GEM ports per PON port

- ❏ High TM performance
  - Support H-QOS
  - 1024 queues and 256 schedulers per PON port
  - Support color-sensitive RED and WRED discard algorithm
- ❏ Clock/time function
  - Receive 1PPS+TOD signals and send them to the ONU through a PON channel

- ❏ Low power consumption
  - Newly-developed lower power GPON MAC chip
  - Reduce 30% power consumption on industry average

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XG-PON1 Subscriber Card – GTXO

1 - 8: XG-PON1 ports

GTXO

❑ **High density**
  - 4/8 XG-PON1 ports per card, up to 1:256 split ratio

❑ **XG-PON1 function**
  - Supports ONU power saving management defined in G.987.3
  - 4096 T-CONT per PON port, 8196 GEM ports per PON port

❑ **High TM performance**
  - Supports H-QOS
  - 1024 queues and 256 schedulers per PON port
  - Supports color-sensitive RED and WRED discard algorithm

❑ **Clock/time function**
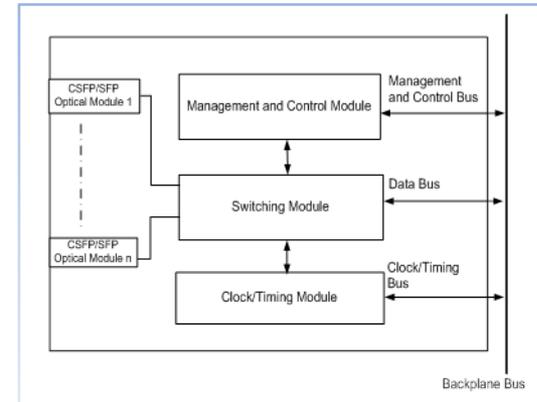 - Receives 1PPS+TOD signals and sends them to the ONU through a PON channel

❑ **Low power consumption**
  - Newly-developed ASIC XG-PON1 chip
  - Reduces 50% power consumption than before

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P2P Subscriber Card – FTGK

1 - 48: P2P ports

or 1~ 24: GE/FE Ethernet ports

FTGK

- ❑ **High density**
  - 48 P2P ports per card (CSFP optical module, two fiber/port)
  - 24 GE/FE ports per card (SFP optical module, single fiber/port)
- ❑ **High QoS performance**
  - Supports E-OAM and QoS of VLAN level
  - 16k queues per card

- ❑ **Clock/time function**
  - Supports Sync-E and IEEE 1588v2
- ❑ **Connection function**
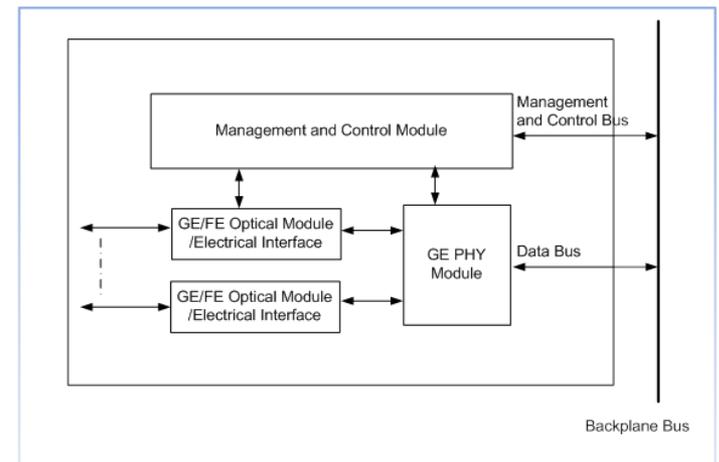 - Supports P2P cascading
  - Programmable

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Ethernet Uplink Cards – GUFQ/GUSQ

GE/FE1 - GE/FE4: GE optical Ethernet ports
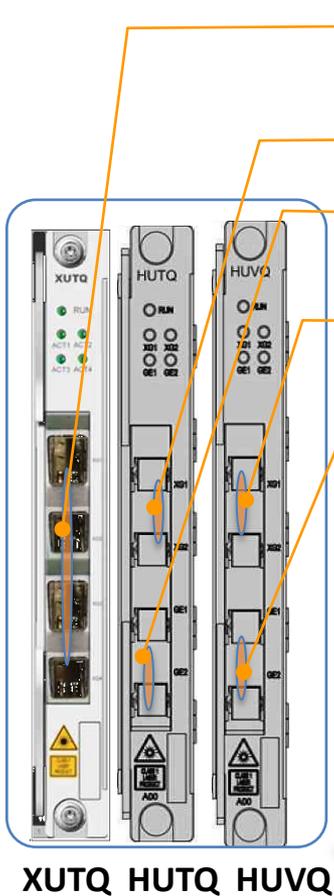
GE/FE1 - GE/FE2: GE/FE electrical Ethernet ports

GE3 - GE4: GE optical Ethernet ports

GUFQ GUSQ

- ❑ Middle uplink capacity
  - • Small size uplink card
  - • Up to 4GE per card
- ❑ Connection function
  - • Support Ethernet uplink
  - • Support Ethernet ring

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Ethernet Uplink Cards – XUTQ/HUTQ/HUVQ

XG1 - XG4: 10 GE optical Ethernet ports

XG1 - XG2: 10GE optical Ethernet ports

GE1 - GE2: GE optical Ethernet ports

XG/GE1 - XG/GE2: 10GE/GE optical Ethernet ports

GE/FE1 - GE/FE2: GE/FE optical Ethernet ports

XUTQ HUTQ HUVQ

XUTQ

HUTQ/HUVQ

- ❑ **High uplink capacity**
  - • Small size uplink cards
  - • Up to 40GE per card
- ❑ **Clock/time function**
  - • HUVQ supports Sync-E
- ❑ **Connection function**
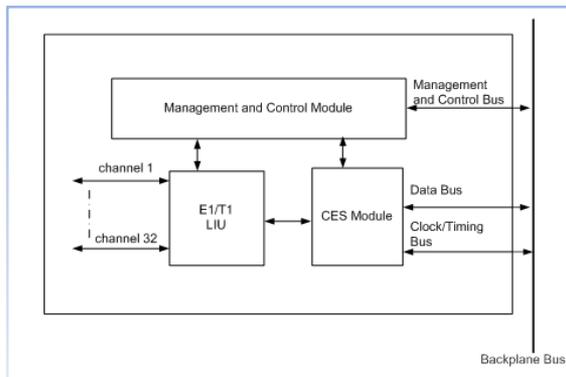 - • Support Ethernet uplink
  - • Support Ethernet ring

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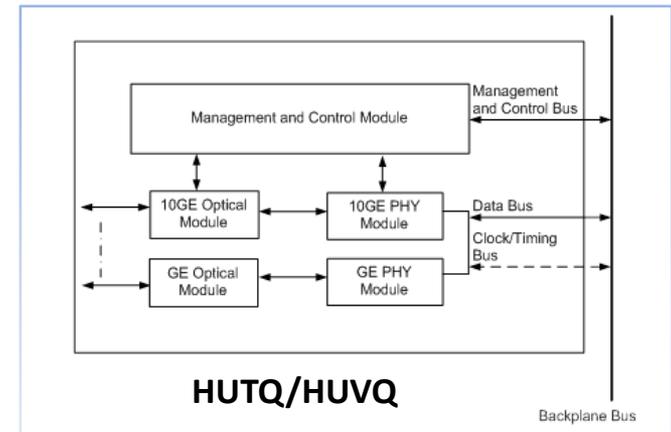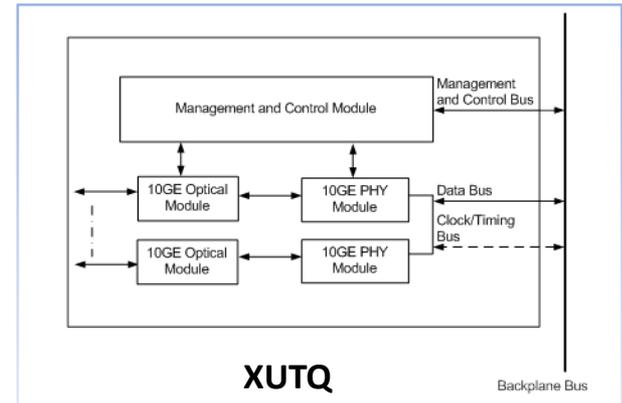
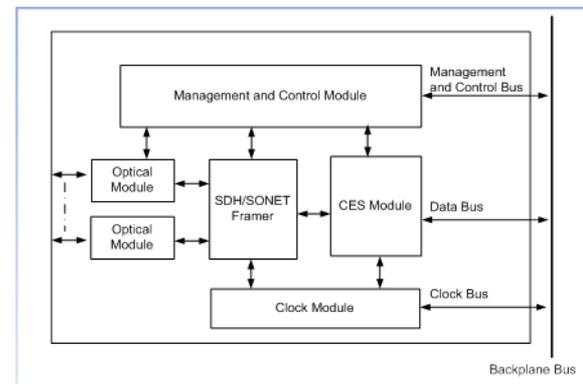# TDM Subscriber Cards

1-16: 16-channel E1 unbalanced CES interfaces

17-32: 16-channel E1 unbalanced CES interfaces

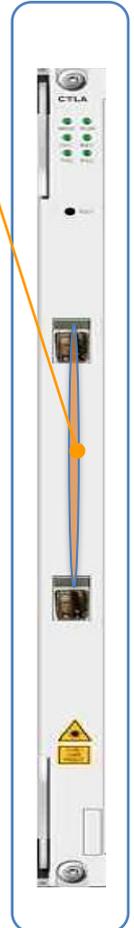Two STM-1 interfaces
or one STM-4 interface

❑ CES service
- MEF8 encapsulation based on MAC
- PWE3 encapsulation based on IP

❑ Clock mode
- Differential mode
- Self-adaptive mode
- Loop timing mode

CTUB

CTLA

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Common Interface Cards

CLKI1-CLKI2: 75Ω BITS clock input interfaces

CLKO/1PPSO: 75Ω BITS/1PPS clock output interface

CLKI1/TIMI1-CLKI2/TIMI2: 120Ω BITS/1PPS+TOD clock input interfaces

CLKO/TIMO: 120Ω BITS/1PPS+TOD clock output interface

ETH: Out-of-band maintenance network port

COM: Public serial port

TEM: Temperature sensor interface

HUM: Humid sensor interface

SMO: Smog sensor interface

LIQ: Liquid sensor interface

DOR: Entrance control sensor interface

DIN: Digit input interface

DOT: Digit output interface

CICK

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Thank you

Tomorrow never waits