ACCEED 2104
8 Port Gigabit Fiber EDD

Carrier Ethernet Demarcation Device

- Gigabit Ethernet over active fiber
- Supports SFF 8472 compliant SFP with DDM
- Sub 50ms Ethernet linear and ring protection switching
- Network demarcation allowing SLA enforcement
- Ethernet services with guaranteed bandwidth per flow
- Non blocking line rate switching
- E1 interfaces to support legacy customer equipment
- Integrated CES interworking function
- Synchronization with IEEE 1588v2, SyncE, 2048 kbit/s and 2048 kHz
- Standard Ethernet Link and Service OAM
- 3.3ms CCM intervals
- Built-in Y.1564 Service Activation Test
- Intuitive graphical configuration tool
- Zero Touch Provisioning

Product Overview

ACCEED 2104 EDD supports protected Gigabit/s Carrier Ethernet services and comprehensive SLA enforcement.

Extensive traffic management and supervision at the user network interface (UNI) and integrated E1 CES interworking functions enable the implementation of a broad variety of crucial applications.

Applications

ACCEED 2104 focuses on the following applications:

- High Speed Business Access
- Network Demarcation for Wholesale Solutions
- Reliable Mobile Backhaul
- Utility Solutions

Active Fiber High Speed Ethernet Services

ACCEED 2104 features EFM-F full Gigabit/s line rate performance. Four SFF 8472 compliant SFP slots allow the use of a wide range of SFP modules supporting several options such as: different transmission distances, connectivity, two fiber and single fiber. ACCEED 2104 supports the implementation of protected services using linear or ring topologies with switchover times lower than 50ms.

Carrier Grade Ethernet Services

Traffic aware switching with extended flow management allows providers to address the emerging market of premium SLA backed-up services over Ethernet.

ACCEED 2104 supports the complete set of CE 2.0 services defined by the MEF: E-Line, E-LAN, E-Tree and E-Access.

Support of E1 Legacy Services

ACCEED 2104 features four E1 ports giving the possibility to connect legacy TDM equipment. This allows a successful migration to full Carrier Ethernet.

The integrated pseudo wire interworking function supports Structure-Agnostic (SAToP) and Structure-Aware (CESoPSN) payload encapsulated in Ethernet or MPLS PWE3 protocols.

Ethernet Service Assurance

ACCEED 2104 offers a set of standard based protocols and tools to support providers managing Ethernet services over the entire Life-Cycle. From provisioning to SLA performance monitoring and fault location ACCEED allows operation staffs to ease their work and increase their efficiency thus considerably contributing to reducing operating costs.

Provisioning & Turn-up

- Use of configuration files, CLI scripts and Zero Touch Provisioning minimizes the installation effort by automating the configuration process.
- Built-in Y.1564 compliant Service Activation Test (SAT) allows to cut operational costs to verify the SLA at turn-up. A comprehensive test report with all relevant parameters of multiple simultaneously tested services can be generated by a simple keystroke. No need to dispatch personal and costly test equipment to the customer premises.

Performance Management

- Y.1731 based performance management continuously monitors SLA parameters such as Frame Loss, Availability, Frame Delay and Frame Delay Variation with microsecond accuracy and generates alarms if Objective Thresholds are violated, giving providers the possibility to proactively take actions before the service is seriously degraded.
- Collection of statistics on physical, packet and service level as well as real time graphs monitoring service utilization allows to track the service performance, to analyze network traffic and to certify SLA conformity.

Fault Management

- Ethernet ring and linear protection as well as Link Aggregation (LAG) allow the implementation of resilient architectures minimizing the impact of faults on the service.
- Fault propagation (including AIS/RDI and Dying Gasp), link, port and service level alarms together with extensive localization tools such as continuity check, link-trace and loopback allow to quickly locate faults and re-establish the service in case of failures.

Synchronization Options

For clock sensitive applications like mobile backhaul, synchronization is most important. ACCEED 2104 offers several methods to provide an accurate clock to every location:

- IEEE 1588v2 Precision Timing Protocol delivers protocol based clock and phase over packet based networks
- Synchronous Ethernet delivers highly accurate physical layer timing over packet based networks
- 2048 kbit/s / 2048 kHz clock in and output allow to connect to legacy BITS (Building Integrated Timing Supply)
- Automatic selection of the best available clock source, based on SSM (Synchronization Status Message)
- SyncE / IEEE 1588v2 to 2048 kbit/s / 2048 kHz conversion
- Pulse per second (PPS) output for phase synchronization

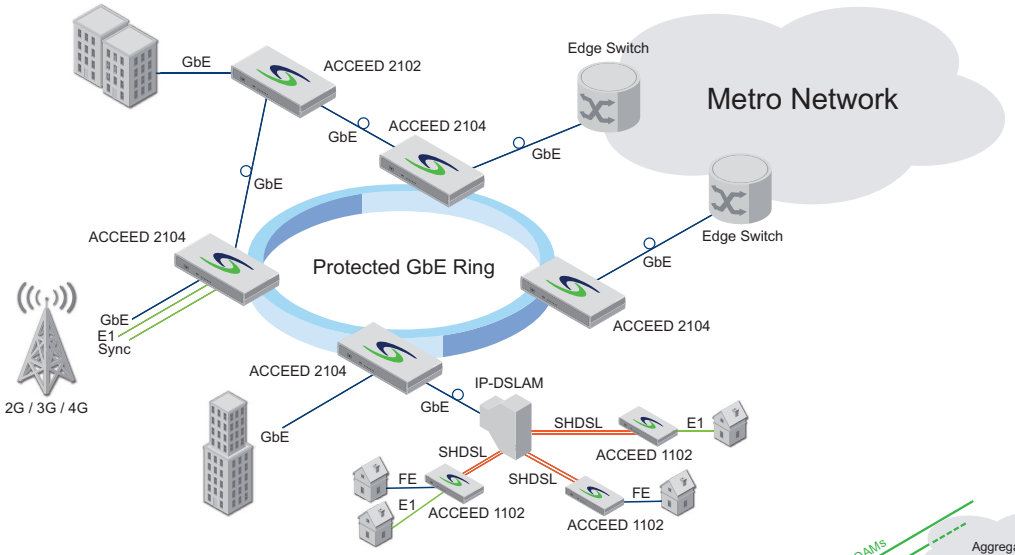
Management

ACCEED 2104 offers a rich variety of management implementations to fulfill the needs of each customer:

- intuitive and easy to operate graphical management applications
- standard compliant protocols
- easy to integrate into 3rd party solutions
- fully automated Zero Touch Provisioning

The management access can be local and from remote via inband or dedicated DCN connection

- CLI console, Telnet and SSH
- Local Craft Terminal LCT+ (GUI)
- Syslog and SNMP traps
- DHCP, TFTP, SCP
- RADIUS client authentication
- Standard MIBs
- AccessIntegrator Management System
- MetroIntegrator Management System



Ethernet Features

Port control

- Flow Control, Auto MDI/MDI-X, Mode, Advertised Mode
- Link Failure Propagation (LFP)
- Multicast storm protection
- Broadcast storm protection
- Port Mirroring (ingress and egress)
- L2CP list with possibility to tunnel/discard/peer
- L2PT layer2 protocol tunneling for 3rd party compatibility
- Synchronous Ethernet

Switch control

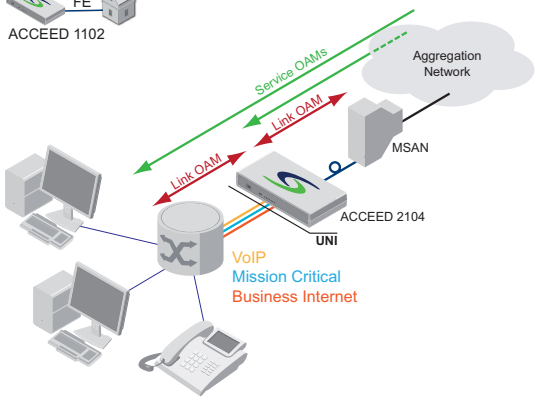
- MAC table 16k, self-learning
- Limit number of MAC-Addresses learned
- MAC table readout
- Port isolation
- Aging enable/disable
- Aging time configurable

VLAN

- 802.1Q (VLAN)
  - 4095 C-VLANs/CE-VLANs
  - Port VID explicit settable
- 802.1ad (Provider Bridge)
  - Provider/Service VID (S-VID)
  - Provider/Service Ethertype (S-TPID)
  - Multiple customer services (different C-VLANs to S-VLANs) on same customer port
- TR-101 VLAN manipulations
  - Inner/outer swap
  - 1:1 translation
  - N:1 service multiplexing
  - Port-based stacking
  - VLAN-based stacking/multiplexing

Classification

- Predefined criteria:
  - Ingress Port
  - Destination MAC-Address
  - Source MAC-Address
  - Ethertype (TPID)
  - VLAN-ID
  - VLAN Priority
  - Destination IP-Address
  - Source IP-Address
  - IP Priority (DSCP)
  - IP Datagram Protocol
  - TCP/UDP Destination Port
  - TCP/UDP Source Port



QoS/Policing

- Prioritization based on:
  - Ingress port
  - 802.1p (L2)
  - DSCP (L3)
  - any other criteria (flow)
- MEF10.2 Ethernet Services Attributes (ingress and egress profiles):
  - Committed Information Rate (CIR)
  - Peak Information Rate (PIR)
  - Committed Burst Size (CBS)
  - Excess Burst Size (EBS)
  - Peak Burst Size (PBS)
  - Color mode (CM)
- Metering according to RFC2697, 2698 and 3290 with single or two rate three color marking
- 8 priority queues per egress port
- Per color queue size
- Hard QoS (guaranteed traffic profile)
- Strict priority (SP)
- Weighted fairness algorithms (WFQ, WRR, SDWRR)
- Per port shaping (rate and burst size)
- Per VLAN shaping (rate and burst size)
- Per queue shaping (rate and burst size)
- Random early detection (RED)
- Flexible L2/L3 remarking
- Flexible traffic class assignment

Counters

- Per port packet and byte counters (RMON Etherstats)
- Per ingress and egress policy counters (packet or byte / per color)
- Transmit queue counters (packet or byte)
- Per service/CoS counters (EVC)
- History for all packet counters

Supported Standards

- MEF 9 Ethernet Services at the UNI (MEF 11, 13, 20)
- MEF 14 Traffic Management (MEF 6.1 / 6.1.1, 10.2 / 10.2.1, 23.1, 29)
- MEF 18 Circuit Emulation Services (MEF 3, 8)
- MEF 25 Service OAM (MEF 17, 30, 31, 35, 36)
- IEEE 802.3ah Ethernet Link OAM (LOAM)
- IEEE 802.1ag Connectivity Fault Management (CFM)
- ITU-T Y.1731 Service Layer OAM (SOAM)
- ITU-T Y.1564 Ethernet Service Activation Test
- IEEE 802.1D MAC Bridging
- IEEE 802.1Q VLAN Bridging
- IEEE 802.1v VLAN Classification by Protocol and Port
- IEEE 802.1ad Provider Bridging
- DSL Forum TR-101 Flexible VLAN Handling
- IEEE 802.3i 10BASE-T
- IEEE 802.3u 100BASE-FX (with SFP)
- IEEE 802.3u 100BASE-TX
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3az 1000BASE-X (with SFP)
- IEEE 802.3x Flow Control
- SFF 8472 Diagnostic Monitoring Interface
- ITU-T Y.1413 TDM-MPLS network interworking
- RFC 4553 Structure-Agnostic Time Division Multiplexing (TDM) over Packet (SAToP)
- RFC 5086 Structure-Aware Time Division Multiplexing (TDM) Circuit Emulation Service over Packet Switched Network (CESoPSN)
- ITU-T G.703 Physical signal characteristics
- ITU-T G.704 Structured E1
- ITU-T G.8261 Synchronization in Packet Networks
- ITU-T G.8262 Synchronous Ethernet (SyncE)
- ITU-T G.8263 Timing characteristics of packet-based equipment clocks
- ITU-T G.8264 SSM transport over ESMC
- ITU-T G.8265.1 PTP telecom profile
- IEEE 1588-2008 Precision Clock Synchronization Protocol (1588v2, PTP)
- ITU-T G.8031 Ethernet linear protection switching
- ITU-T G.8032 Ethernet ring protection switching
- RFC 2865 RADIUS

Ordering Information

ACCEED 2104

- DT 4SFP (Eth) S3118-H654-E413
- DT 4SFP (Eth+G703+PTP+SyncE) S3118-H654-F416

Accessories

- Adapter cable 2 Mbit/s RJ45-BNC C195-A336-A45
- Desktop Mounting Set 1 HU C107-A124-C128

Several SFP modules available. Please check the *ULAF+ SFP overview* data sheet.

Technical Data

Power Supply	
Input Voltage	-40 to -72 V_{DC} 95 to 260 V_{AC}
Power Consumption	
	≤12 W
Interfaces	
Ethernet	4x SFP slot for FE/GbE 4x RJ45 10/100/1000BASE-T
TDM (optional)	4x RJ45 G.703 120/75 Ohm 1 x BNC for PPS 50 Ohm
Management	1x RJ45 serial 1x RJ45 Ethernet 10/100BASE-T
Physical and Environment	
Dimensions	(W x H x D) 271 x 43,5 x 175 mm wall and rack mounting option
Operating Temperature	-5° C to +55° C at 5 to 95 % rel. humidity
Extended Operating Temperature Range (optional)	-20° C to +70° C
Safety	EN 60950-1 (2011)
EMC/EMF	
	EN 300 386 V1.5.1 (2010) ES 201 468 V1.3.1 (2005) ITU-T K.20/K.21 (2011) ITU-T K.45 (2011) EN 300 132-2 V2.1.1 (2003) EN 62479 (2010)

Related Products

- ACCEED 1102
- ACCEED 1104
- ACCEED 1404
- ACCEED 1416
- ACCEED 2102
- ACCEED 2202
- AccessIntegrator (AcI)
- MetroIntegrator (MI)

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