Product Brief

ASEE-1441

Subscriber End Equipment (4GE + 2POTS)

Feature Summary

- ITU-T G.984 and G.988 compliant, BBF.247 ready
- BBF TR.156 VLAN Model compliant
- Indoor wall or table mount
- Four 10/100/1000Base-T Ethernet RJ-45 ports
- Two FXS POTS ATA RJ-11 ports
- Configurable for either Ethernet Bridged mode or Gateway Routed mode operation
- Built-in L2 wire-speed switch with dynamic bridging, 4k VLANs (Untagged, Priority tagged, Port based, 802.1q single tagged, 802.1ad (Q-in-Q) double tagged)
- ToS/DSCP to 802.1p mapping
- Flexible traffic mapping, policing & shaping
- VoIP features: SIP, multiple voice codecs, T.30 and T.38 Fax, various CLASS services
- Supports feature rich VoIP application profiles for Caller ID, Call progress, Call Waiting, Call Direct, and Call presentation
- Integrated router with features such as IPv4, IPv6, IPoE, PPPoE, NAT, DHCP, DNS, IP Filtering, IP forwarding, Static IP routing, IP QoS and Firewall
- Supports dual software image - working image & alternative image for image rollback
- Serial number or ID and password based activation and authentication
- IGMPv2/v3 (IPv4) and MLDv2 (IPv6) snooping, proxy and filtering, 256 multicast groups
- Web based GUI for local provisioning and software upgrade
- Dual managed by ITU-T G.988 OMCI and/or remote management functions as TR-069 and Telnet for provisioning, diagnostics, monitoring, and software upgrade
- ON/OFF and factory default RESET pushbuttons

Applications

The Alphion Subscriber End Equipment Model ASEE-1441 has been optimized to provide high speed data service to the Subscriber.

Advanced High Bandwidth technology

The ASEE-1441 is fully FSAN (ITU-T G.984) compliant 2.488 Gbps downstream and 1.244 Gbps upstream GPON systems.

Quality of Service

The ASEE-1441 supports extensive QoS features, including 802.3x - flow control, DSCP to 802.1p mapping, upstream congestion control, and downstream traffic scheduling for premium or time sensitive content. Intelligent and robust buffer and queue management for Ethernet traffic, with individual prioritized queues, ensures that tiered service offerings based on different bit-rates and QoS can be readily supported.

Gateway

The ASEE-1441 contains both wire-speed L2 switch and L3 routing gateway with port forwarding, NAT and NAPT address translation, built-in PPPoE support for HSI, and an integrated stateful packet inspection (SPI) firewall with a configurable access control list (ACL) and application-level gateway (ALG). Support for VPN pass through is also provided. Included as part of the gateway function are DHCP client, DHCP server and DNS server for IPv4 and IPv6.

Security

The ASEE-1441 comes with the latest security features, including MAC address spoofing protection, MAC/IP address port binding, per-port access control list (ACL) based on port, MAC address and Ether-type, DoS prevention

Flexible Management

The ASEE-1441 is managed from the AOLT GPON / EPON OLT family via OMCI channel and if required via TR-069. The AOLT in turn is managed with either Alphion's AEMS (Element Management System) that provides configuration, profile based provisioning, event and fault management and performance monitoring for the device, or with a 3rd party NMS via North Bound Interface.

SPECIFICATIONS

GPON/EPON Uplink interface

Standard:	Fully ITU-T G.984 and G.988 compliant
Line rate:	Downstream: 2.488 Gbps; Upstream: 1.244 Gbps
Connector:	SC/APC, single-mode-fiber;
Link Budget:	28 dB (Class B+) ITU G.984.2 Amd1
Wavelength:	Transmit: 1310+/-20nm; Receive: 1490+/-10nm
Tx Output power:	+0.5 to +5.0 dBm mean launch power
Rx Sensitivity:	-27dBm (at 10 dB extinction ratio w/FEC off)
Rx Overload:	-8 dBm
Distance:	up to 60 km (depending on split ratio & fiber loss)
OLS/OTM:	G.984.2Amd2 incl. RX & TX power, dying gasp
TC layer:	AES (128-bit key), US and DS FEC RS(255,239)
DBA :	DBRu mode 0 and mode 1SR
GEM port-IDs:	up to 256, Flexible mapping between T-CONT & GEM port, Multicast GEM
T-CONT:	Type 1-5, up to 32, 8 queues per T-CONT

Ethernet interfaces

Type:	Four GE ports; RJ-45 connectors
Standard:	IEEE 802.3, 802.3u, 802.3ab, IEEE 802.3az, 802.3x
Link	10/100/1000Base-T with rate and full/half-duplex auto-negotiation and MDI/MDIX auto-sensing
MTU size:	2,000 Byte maximum per IEEE802.3as

Voice/Fax interfaces

Type:	Two POTS FXS ports
Connector:	RJ-11 connectors; Labeled 'FXS1' and 'FXS2'
FXS:	5 REN per port, loop start, balanced and unbalanced ringing, configurable tones, country specific impedance, DTMF dialing, CLIP, Hook flash detection, Metallic Loop Testing (MLT), etc.

Power

AC Adapter:	Input: 100-240VAC, 50/60Hz Output: 12VDC, 1.5A (BIS Certified)
DC Connector:	2-pin Barrel connector
Power (Max):	~9 watts

Physical

Temperature:	Operating: 0 °C to 50 °C,
Humidity (RH):	5% to 95% non-condensing
Mounting	Desktop mounting & wall mounting
LED Indicators:	POWER, PON, LOS, WAN, LAN1, LAN2, LAN3, LAN4
Dimensions:	190mm x 175mm x 36.5mm (HxWxD)
Switches:	ON/OFF Pushbutton, Recessed RESET Pushbutton

L2 Ethernet features

Bridging:	Transparent bridging, MAC aging timer, UNI port MAC limit, MAC Filters
US Rate Limiting:	Broadcast/multicast, unknown multicast and DLF
VLAN model:	TR-156 1:1 & N:1, Transparent LAN Service (TLS)
VLANs:	4,095 VLANs (2-4094), Untagged, Priority tagged, Port based, 802.1q single tagged, 802.1ad (Q-in-Q) double tagged, VLAN ID translation
VLANs per port:	up to 32 configurable VLAN IDs per SEE/port
Multicast:	IGMPv2/v3 & MLDv2 snooping, 256 multicast groups, 8 clients, 32 simultaneous flows/client
QoS Classification:	US: 802.1p TCI, 802.1q CoS, per port IP ToS/DSCP to 802.1p mapping/re-marking; DS: per GEM port
QoS Scheduling:	SP, WRR, SP+WRR, 8 queues per T-CONT
Congestion:	PAUSE frame, tail-drop, rate-limiting per port
OAM:	ONU loopback, Stats, PMs

Gateway features for IPv4 and IPv6

WAN side:	PPPoE client, IPoE with DHCP client or static IP, NAT/NAPT, port forwarding, port triggering
LAN side:	DHCP server and relay agent, DNS relay
Routing:	RIP v1/v2 and static IP routing
IPv6 Mode:	Dual stack

Firewall

Type:	Stateful packet inspection (SPI) pass/block
Filtering:	DoS attack prevention, IP source/destination, TCP/UDP port source/destination, MAC source
ALGs:	FTP, SIP, H.323, RSTP
VPN:	pass-through
Access control:	Parental Controls

VoIP

Protocols:	SIP (RFC3261), SDP (RFC2327), RTP/RTCP (RFC3550, RFC3605), RFC3611*, RFC2198*, DTMF & Tones (RFC2833)
CLASS features:	Caller ID, call transfer, call forwarding, call hold, call park and pickup, call waiting, MWI, 3-way conference, etc.
Codec:	ITU-T G.711 (μ & a-law), G.722, G.723.1, G.729a/b, echo cancellation, jitter buffer, voice activity detection (VAD), silence suppression, comfort noise generation (CNG), voice modem bypass
Fax:	ITU-T T.30, T.38 FoIP, Fax Relay, Fax by-pass
IP address:	DHCP client or static IP configuration
Interop (IOP):	Proven with major soft switch, gateways, IP-PBXs

Secure Management

Local:	Web based GUI (HTTPS)
Remote:	G.984.4/988 OMCI, G.984 PLOAM, Telnet, TR-069
Authorization:	Secure registration - serial number, PLOAM password

Regulatory Compliances

Certification	CE certificate, FCC/UL compliant TEC (MTCTE) Certified

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