6322

Occam Networks 6322 blade and BLC 6322 assembly

4 Port Full-Rate GPON OLT

- 2.488 Gbps downstream, 1.244 Gbps upstream GPON fiber network
- Carrier Ethernet Triple-Play subscriber services– Voice, Internet and Video
- 10GigE integrated resilient IP aggregation transport
- Supports RF video distribution

The BLC 6322 GPON OLT blade provides four 2.5/1.2 Gigabit OLT ports with full rate non-blocking, seamless IP/Ethernet architecture and Denial of Service security functionality. The 6322 GPON OLT blade can be deployed in the same network and nodes with all of the other BLC 6000 system capabilities such as Gigabit Point-to-Point (P2P) Ethernet FTTP, ADSL2Plus and lifeline POTS.

The 6322 terminates up to 4 Gigabit-rate passive optical networks (GPON) that works seamlessly with Occam's Gigabit P2P FTTP networks to meet the needs of high-density solutions with sufficient bandwidth to support voice, data, and video for residential and business applications. The GPON access network uses passive optical splitters that service multiple optical network terminals (ONTs) on a single OLT port, thus sharing the cost of the OLT port and laser. Additionally, the GPON network allows distribution of RF video, eliminating the need for set-top decoder systems.

The 6322 GPON OLT blade and BLC 6322 assembly provides four OLT ports, each delivering full-rate GPON at 2.488 Gbps downstream and 1.244 Gbps upstream. Occam's GPON blade supports the 2400-series single family residential (SFR), multiple dwelling unit (MDU), and business ONTs to provide a variety of capabilities, including lifeline POTS, high-speed Internet, audio and video entertainment services, and digital business services. Each OLT fiber port supports a pluggable SFP Class B+ laser that can support a 32-way optical split with up to 20 km of fiber reach (12.4 mi). With the 6322 and its high performance Occam Packet Engine, it is possible to handle more than 50 Mbps of unicast traffic to each of the 32 subscribers on the PON. Occam's support for intelligent IP multicast delivery in the PON enables high take rates of IPTV, HDTV and Video on Demand (VoD) while providing headroom for POTS and Internet services.

The 6322 blade can be deployed in the 6001 as the BLC 6322 assembly. It can also be used in high-density deployments with additional 6322 blades or with other BLC 6000 blades in the BLC 6012 high-capacity chassis for a full range of copper, P2P Ethernet and GPON FTTP capabilities.

Management

The OLT supports management functions for Occam's GPON ONTs via the ITU G.984 compliant OMCI interface. When deployed with the OccamView Element Management System, comprehensive service management functions are provided and service models remain consistent with other BLC products, thereby minimizing operational costs.

Subscriber Services

The 6322 leverages IEEE 802.1ad Provider Bridges, DSL Forum TR-101 and RFC 4562 MAC Forced Forwarding to enable security, QoS and simplicity in provisioning IPTV, High Speed Internet and other residential services while enabling Carrier Ethernet E-Line and E-LAN business services.

Ethernet Transport Flexibility

The 6322 is designed for a wide range of network applications. It can be located individually, stacked, or deployed in a multi-slot chassis. The 6322 integrates GigE and 10GigE resilient transport utilizing Occam's Ethernet Protection Switching (EPS) and can be deployed in rings, strings, and tree topologies.

OCCAM

The future of Telco services puts new demands on the access network. DSL growth with Internet streaming content, fiber to the home, residential video and Triple Play, enterprise Ethernet, VoIP, and expansion into new service areas will all have a major impact. For carriers to remain profitable while service offerings become more complex, the network must get simpler.

Making the network simpler requires new thinking. Occam's BLC 6000 Broadband Loop Carrier uses IP as a simple, common service delivery protocol for all services and uses Ethernet transport to provide economical, highly scalable bandwidth. The BLC 6000 integrates the functions of an NGDLC, DSLAM, OLT, Optical Mux, Ethernet switch, and VoIP gateway into an environmentally hardened loop carrier system to simplify the network and deliver all services to all customers from a single platform.

The BLC 6000 is the industry's first complete loop carrier system designed to economically scale from dozens to thousands of users, deliver narrowband to gigabit services, and leverage the power and cost effectiveness of IP and Ethernet.

– Preliminary –
The information is subject to change

6322 Features and Benefits

10Gigabit and dual Gigabit Ethernet Optical Interfaces: very high capacity networks

Integral Gigabit Ethernet switching: multiple Gigabit feeder and support or line-rate Ethernet service delivery – transport at a fraction of the cost of SONET

Integral redundancy: protected fiber feeder transport in a single blade or with other blades

Dynamic bandwidth usage: all services share all bandwidth according to QoS parameters

Pluggable optical transceivers: Class B+ GPON small form-factor pluggable (SFP), 10Gigabit Ethernet small form-factor pluggable (XFP), and Gigabit Ethernet SFP fiber ports allow selection of the best speed and power budget to meet network requirements and to scale when needed

Modular, pluggable, stackable chassis: low-capacity (1 slot) and high-capacity (12 slot), economical configurations for all node sizes; low MTTR

BLC 6000 System Advances

Intelligent blade Interconnect Architecture (IBIA):
Direct interconnection of intelligent, distributed processing blades provides redundancy while eliminating the common processors and backplane switch fabrics that limit conventional equipment architectures. Having no common equipment allows the BLC 6000 to be economically deployed in low or medium density stacks and in high capacity chassis.

Ethernet Protection Switching (EPS):
"Five nines" network availability, flexible network topologies and use of all network bandwidth (load balance over primary and alternate paths) during normal operation.

Service Quality Management (SQM):
Complete multiservice QoS management using simple, efficient Ethernet and IP technology standards.

Occam's IP Security Management enabled on Fiber (GPON and P2P) and DSL access interfaces, built on TR-101 and RFC-4562 for dynamic "hands free" network security. Leveraging the scalability of IP, the simplicity of dynamic configuration with DHCP and OMCI, and the economy of GPON, Occam brings a cost effective solutions to the challenge of Administration, Authorization and Accounting (AAA) of subscriber traffic. With IP Security Management the end-to-end network is more secure than a traditional ATM circuit-oriented architecture while maintaining the cost efficiencies in both the capital and operations of DHCP+IP+Ethernet.

OCCAM NETWORKS

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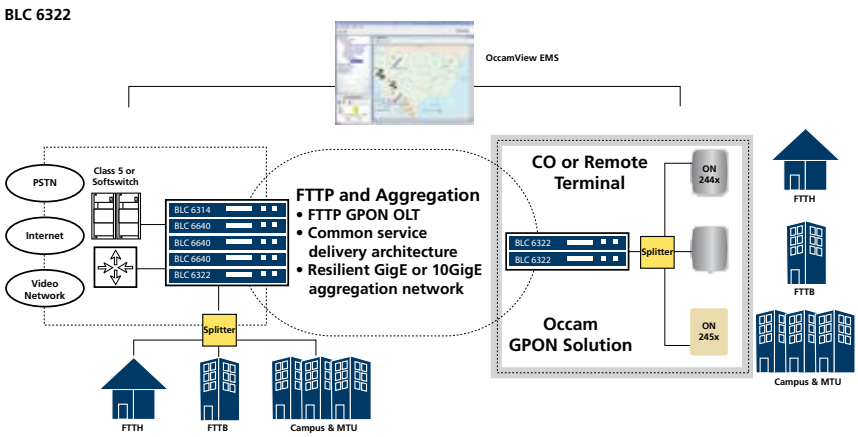
Specifications



Ports
GPON Optical Line Terminal: 4 fiber ports
› 4 connectors GPON fiber ports, on front [GPON fiber ports are receptacles for small form-factor pluggable (SFP) Class B+ bidirectional optical transceivers purchased separately]
› Class B+ SFP has the following characteristics: mean transmitter launched power minimum +1.5 dBm; mean transmitter launched power maximum +5 dBm; receiver sensitivity minimum -28 dBm; receiver sensitivity maximum -8 dBm
10Gigabit Ethernet: 1 fiber port, 2 copper ports
› 1 XFP fiber port, 10Gigabit Ethernet, fiber, on front [Fiber port is receptacle for 10 Gigabit small form factor pluggable (XFP) optical transceiver]
› 2 copper 10Gigabit IBIA ports on front, for connections within the BLC 6012 chassis or between stacked BLC 6000 assemblies
Gigabit Ethernet: 2 fiber ports, 6 copper ports
› 2 fiber ports, Gigabit Ethernet on front [fiber ports are receptacles for small form-factor pluggable (SFP) optical transceivers purchased separately]
› 6 copper 10/100/1000BaseT Ethernet ports on rear, RJ-45 connectors

GPON Ports
ITU-T G.984.1, G.984.2, G.984.3, G.984.4
2.488 Gbps downstream, 1.244 Gbps upstream
FSAN Compliant

Standards and Protocols
DSL Forum TR-101
RFC 4562 MAC Forced Forwarding

Ethernet Protection Switching
Sub-50 ms switchover on any failure of resilient access ring or aggregation network using EPS.

Network Timing
GPON framing synchronizes to network timing for ONT voice and T1 subscriber ports
$5x10^{-6}$ internal timing source
Direct Clock Synchronization Interface (BITS)

Configuration and Management
OccamView 5.x Element Management System
Secure Command Line Interface (CLI)
Secure Embedded Web Interface
SNMP v1/v2c

Local Management and Alarm Interfaces
Local Ethernet: 10/100BaseT Ethernet management port on front, copper, RJ-45 connector
Craft Console: One port, RS-232, 8-pin modular jack on front
Alarms: 1 input and 1 NC/NO contact output on back

Electrical Specifications
Power input: -48VDC (-42 VDC to –56.7VDC) input, A and B feeds
Power consumption: blade (4.3A); assembly (5A)

Physical
Size: BLC 6322 stackable: 1 RU, 1.75 in. high x 17.0 in. wide x 11.75 in. deep (4.45 cm x 43.2 cm x 29.9 cm)
Adjustable rack mounting brackets: EIA 23 in., EIA 19 in. (58.42 cm., 48.26 cm.)
Weight: 12.5 lbs (5.68 kg.) blade alone

Operating Environment
Ambient operating temperature: -40°C to + 65°C (-40°F to +149°F)
Relative humidity: 10% - 90% (noncondensing)
Operating altitude: -198 ft. to 13,123 ft. (4000 m) above mean sea level
Heat dissipation: blade: 520 BTU/hr; assembly: 640 BTU/hr

Compliance
NEBS Level 3, Telcordia GR-63-CORE, modified to harsher OSP limits
NEBS Level 3, Telcordia GR-1089-CORE, GR-57-CORE (Environmental)
FCC Part 15 Class B (EMI)
FCC Part 68, CS-3 (Telecom)
CSA/UL 60950 3rd Edition