SAMBHA16 vOLT
SEBA / VOLTHA-based whitebox vOLT with multi-PON capability for SD networks

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Virtual OLT for SD networks

For carriers choosing an SD approach for the Access Networks, the introduction of a multi-PON whitebox vOLT in the ONF framework can provide the maximum deployment and operational flexibility, enabling a transition from traditional GPON connections towards the most powerful XGS-PON connections ready for NG-PON2 and 5G.

The main benefits of this approach are:

- **Disaggregation** of the software from the access node hardware (platform agnostic software)
- Software deployment in **virtualized environments**, **convergence with 5G mobile networks and edge computing applications** (General-purpose Cloud Central Office architecture)
- **Interoperability** in **multi-vendor environments**
SAMBHA16 vOLT

Multi-PON capable whitebox vOLT with Combo-PON optics

SAMBHA16 vOLT is a 16-port multi-PON whitebox virtual Optical Line Terminal supporting Combo-PON, GPON, and XGS-PON with software based on the ONF's SEBA/VOLTHA reference architecture to build flexible, high-performance, and real-time responsive networks in a cost-effective and sustainable manner.

SAMBHA 16 vOLT can be used within a multi-vendor environment and supports both centralized and distributed SD-PON software deployment models suitable for locations with high-density (big cities, telco data centers/public cloud) and low-density (rural areas, street cabinets) respectively.

SAMBHA 16 vOLT may evolve toward NG-PON2 and is fully compatible with extended temperature range applications.
SAMBHA16 vOLT

SAMBHA16 vOLT is based on the 2 x NG-PON2 ready Broadcom BCM68658 Aspen silicon and comes with a 300Gb full-duplex switching capacity, including 2 x 100Gb/40Gb QSFP28 ports, and 16 x 12.5Gb SFP+ ports in a 1RU height (pizza box). The QSFP28 ports can be configured as 4 x 50Gb or 8 x 10/25 Gb using DAC breakout cables.

SAMBHA16 vOLT has 2 redundant, hot-swappable, and load-sharing PSUs, offers carrier-class features such as VLAN tag manipulation and QoS, and is pre-loaded with Open Network Install Environment (ONIE).

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SAMBHA16 vOLT

Front Panel: PON, Network, and Management ports, LEDs and Interfaces

- 16 x 12.5Gb SFP+ supporting multi-PON
- 2 x 100Gb/40Gb QSFP28 configurable as 4 x 50Gb or 8 x 10/25 Gb SFP28 via DAC breakout cables
- LEDs: System/Fan/PSU status, Link/Activity
- Time and clock synchronization*: SyncE, 1PPS
- 2 x USB Type A
- 1 x RJ-45 100/1000BASE-T
- 1 x RJ-45 serial console

Dimensions:
- W: 482mm (19’’)
- H: 44.2mm (1U)
- D: 500mm

* Future release

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SAMBHA16 vOLT

**Capacity**
Switch Qumran BCM88470 processing up to 300 Gbps traffic
Supports up to 128 ONTs per GPON
up to 256 ONTs per XGS-PON

**Carrier-class features**
VLAN tag manipulation
QoS

**Software Installer**
Open Network Install Environment (ONIE)

**PON Technology**
GPON, compliant as specified in ITU-T G.948/G.984.2
XGS-PON, compliant as specified in ITU-T G.9807/G.9807.1
Combo-PON (C-PON)

**Optics**
Class B+, C+, C++ for GPON
Class N1, N2 for XGS-PON
Class D1, D2 for Combo-PON

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SAMBHA16 vOLT

PSUs

2 redundant, hot-swappable, removable and load-sharing AC or -48V DC accessible from the rear

Input Voltage: 180 to 264 VAC or -36 to -72 VDC

Powering: less than 200W

Fans

5+1 redundant, hot-swappable and removable fan modules with F2B airflow accessible from the rear
SAMBHA16 vOLT Roadmap

2023-Q3
Certification: EMC, Safety, ONF
Device Management Interface
Pre-Orders (1U Data Center Version)

2023-Q4
Mass production
Order fulfillment

2024-Q1
Compact Version Testing
(2U ETSI rack)

2024-Q2
Pre-Orders
(Compact ETSI Rack Version)

2025-
New GENIO Project

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SAMBHA16 vOLT Compact Version

Front Panel: PON, Network, and Management ports, LEDs and Interfaces, PSU and Fans

- 16 x 12.5Gb SFP+ supporting multi-PON
- 2 x 100Gb/40Gb QSFP28 configurable as 4 x 50Gb or 8 x 10/25 Gb SFP28 via DAC breakout cables
- LEDs: System/Fan/PSU status, Link/Activity
- Time and clock synchronization*: SyncE, 1PPS
- 2 x USB Type A
- 1 x RJ-45 100/1000BASE-T
- 1 x RJ-45 serial console

Dimensions:
W: 482mm (19”)
H: 88,5mm (2U)
D: 230mm

* Future release

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SAMBHA16 vOLT Compact Version

**PSUs**
- 2 redundant, hot-swappable, removable and load-sharing AC or -48V DC accessible from the rear
- Input Voltage: 180 to 264 VAC or -36 to -72 VDC
- Powering: less than 200W

**Fans**
- hot-swappable and removable fan modules with L2R airflow accessible from the side
The GENIO project: a preview 1/2

Nex-Gen
XGS-PON/NG-PON2
Edge Computing model
The GENIO project: a preview 2/2
Thank You.

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