



# QuantaMesh T1048-LB9M

## The Next Generation Data Center Rack Management Switch

- **Extensive Layer 2 Features**
- **Comprehensive Layer 3 Features**
- **Simplified Management**
- **Software Defined Network (SDN)**
- **High Availability**

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QuantaMesh T1048-LB9M is a high-performance and power efficient L2/3 switch designed in a 1RU form factor. QuantaMesh T1048-LB9M is purpose built as the rack management switch for high density data center deployments. With 48 ports of 10/100/1000 and 4 integrated 10/25GbE SFP28 ports the switch delivers non-blocking forwarding of 296Gbps combined with feature rich L2 and L3 functions. QuantaMesh T1048-LB9M with QNOS (Quanta Network OS) supports not only layer 2 functions but also the advanced layer 3 features, including OSPF, BGP, and ECMP. In order to fulfill the demands for contemporary data center management switch, QuantaMesh T1048-LB9M supports the features for data center application such as OpenFlow v1.3 for software-defined networking and Restful API and Ansible for networking automation capability.

### Extensive Layer 2 Features

Equipped with full Layer 2 features like Spanning Tree, Link Aggregation Control Protocol (LACP) and Storm Control, QuantaMesh T1048-LB9M provides loop-free environment, best control of multicast traffic and stable network. Supported with 802.1Q up to 4K active VLANs, T1048-LB9M secures broadcast domain as well as resource access in between each VLAN.

### Comprehensive Layer 3 Features

In order to support layer3 function, QuantaMesh T1048-LB9M is supported with feature- rich routing protocols, such as VRF lite, OSPFv2, VRRPv2, BGP4, and ECMP to provide the advanced network routing.

### Simplified Management

The QuantaMesh series can be managed through Command Line Interface (CLI) for easy and fast management configuration. T1048-LB9M also supports Simple Network Management Protocol (SNMP) based on standard MIB and private MIB for network administrator to easily configure, monitor and manage remotely. sFlow provides quantize accuracy for network traffic analyzing and management. With the evolution from IPv4 to IPv6, T1048-LB9M is an IPv6 integrated management switch.

### Software Defined Network (SDN)

SDN has emerged as a new approach to support open, vendor-agnostic, simplified architectures, and programmable networks. QuantaMesh T1048-LB9M is equipped with OpenFlow v1.3 features to fulfill the needs of modern data center applications.

### High Availability

The QuantaMesh T1048-LB9M is designed for high availability from both hardware and software perspectives. The key features include:

- 1+1 hot-swappable power supplies
- The sku options for rear-to-front or front-to rear cooling
- Color coded fan module to indicate airflow direction
- Spanning Tree with Guarding Features
- Up to 64 Groups of LACP with per Group 8 Member Ports
- ECMP routing for load balancing and redundancy

### About QCT

Quanta Cloud Technology (QCT) is a global data center solution provider. We combine the efficiency of hyperscale hardware with infrastructure software from a diversity of industry leaders to solve next-generation data center design and operation challenges. QCT serves cloud service providers, telecoms and enterprises running public, hybrid and private clouds.

Product lines include hyper-converged and software-defined data center solutions as well as servers, storage, switches, integrated racks with a diverse ecosystem of hardware component and software partners. QCT designs, manufactures, integrates and services cutting edge offerings via its own global network. The parent of QCT is Quanta Computer, Inc., a Fortune Global 500 corporation.

# QuantaMesh T1048-LB9M Specifications

## Physical ports

- **Port configuration:** 48 10/100/1000BASE-T and 4 10/25GbE SFP28 ports
- **Management Port:** Out-of-band management port (RJ-45, 10/100/1000Base-T)
- **Console Port:** 1 (RJ-45)

## Performance

- **Switching capacity:** 296Gbps
- **Maximum forwarding rate:** 220Mpps

## Major Components

- **ASIC:** Broadcom StrataXGS Hurricane3-MG
- **CPU:** Embedded ARM A9 1.25GHz
- **Memory:** 2GB DDR4 SDRAM
- **Flash:** 128MB
- **Storage:** 8GB SD

## Layer 2 Features

- **Switching Mode:** Store-and-Forward
- **Spanning Tree:**
  - 802.1w
  - 802.1s
  - Auto Edge
- **VLAN :**

- IEEE 802.1Q Tagged Base
- Port-Based
- QinQ (802.1ad)

## Storm Control:

- Broadcast
- Unknown Multicast
- DLF (Unknown Unicast)

## IGMP Snooping:

- v1/v2/v3
- v1/v2 Querier
- Immediate Leave

## MLD Snooping v1/v2

- **Link Aggregation:**
  - 802.3ad with LACP (64 groups)
  - Static Trunk

- Unicast/Multicast Traffic Balance over Trunking Port
- LACP Falback

## Loopback Detection

- **Private VLAN**
- **Link Debounce**

## QoS Features

- **Scheduling for priority queue:**
  - WRR, Strict, Hybrid
- **COS:** 802.1p, IP TOS precedence, DSCP
- **DiffServ**

## Security Features

- **Static and dynamic port security (MAC-based)**

- **802.1x:**
  - MAC-based
  - Port-based
  - Auto VLAN assignment
  - Guest VLAN
  - Unauthenticated VLAN
  - MAC Bypass
  - Authenticator
- **Access Control List:** L2/L3/L4

- **IPv6 ACL:** L3/L4
- **RADIUS/TACACS+:**

- Authentication
- Authorization
- Accounting

## SSH V2.0

- **User name and password:**
  - Local Authentication
  - Remote Authentication via RADIUS/TACACS+

- AAA
- **Management IP filtering:**
  - SNMP
  - Telnet
  - SSH
- **IP Source Guard:** 1K
- **Dynamic ARP inspection (DAI)**
- **DHCP snooping:**
  - IPv4
  - IPv6
- **SSH Public Key Authentication**
- **Control Plane Policing (CoPP)**
- **Service Prohibit Access**
- **Role Base Access Control (RBAC)**

## Layer 3 Features

- **IP Multinetting/CIDR**
  - /31 subnets
- **Proxy ARP**
- **Static route:** IPv4, IPv6
- **OSPFv2/v3**
- **ECMP**
- **BGP4**
- **IGMP v1/v2/v3**
- **VRRPv2**
- **Policy-Based Routing (PBR):**
  - PBR
  - ECMP support
- **VRF Lite:**
  - Static
  - OSPF
- **IP SLA**

## Management Features

- **Industrial standard command-line interface**
- **CLI filtering**
- **CLI schedule**
- **SSH**
- **Software update:**
  - TFTP, SCP, SFTP
- **Configuration Update:**
  - TFTP, SCP, SFTP
- **Dual Images**
- **SNMP v1/v2c/v3**
- **SNMP inform v2**
- **RMON1 Groups: 1, 2, 3, & 9**
- **DHCP client**
- **DHCP relay**
- **DNS client**
- **DNS relay**
- **Remote PING**
- **Traceroute**
- **LLDP:**
  - 802.1ab
  - 802.MED
  - Potential error detection
- **UDLD**
- **Port mirroring:**
  - SPAN
  - RSPAN
- **EVENT / Error log**
- **sFlow v5**
- **Email alerting:** SMTP
- **Auto Install**
- **Error-Disable Recovery**
- **Fluentd**
- **SNTP**

## IPv6 Management

- **IPv4/IPv6 Dual Protocol Stack**
- **ICMPv6**
- **ICMPv6 Redirect**

- **IPv6 Neighbor Discovery**
- **Stateless Autoconfiguration**
- **Manual Configuration**
- **DHCPv6:** Client/Relay
- **SNMP over IPv6**
- **SSH over IPv6**
- **IPv6 DNS Resolver**
- **IPv6 RADIUS**
- **IPv6 TACACS+**
- **IPv6 Syslog**
- **IPv6 SNMP**
- **IPv6 TFTP**

## Automation

- **Auto installation**
- **RESTful API**
- **Ansible**

## SDN

- **OpenFlow v1.3**

## Mechanical

- **Dimension (HxWxD):** 43.2x440x394mm
- **Weight:** 5.8kg/12.78lbs (NET)

## Environmental Specifications

- **Operating temperature:**
  - 0~45°C@altitude: up to 900m
  - 0~40°C@altitude: up to 3048m
- **Operating humidity:**
  - 90% maximum relative humidity

## Electrical

- **Power requirement:**
  - 100~240VAC, 50/60Hz
- **Power consumption:**
  - 62 watts (stress mode)
  - 50 watts (typical mode)

## Safety

- **UL, cUL, CB, CCC**

## EMC

- **CE, FCC, VCCI, CCC**

## RoHS

- **Reduction of Hazardous Substances (RoHS) 6**

## Supported Optics and Cables

- **DAC cable (SFP+):** 1m, 3m, and 5m
- **DAC cable (SFP28):** 1m, 3m and 5m
- **AOC cable (SFP+, 850nm, MMF):**
  - 1m, 3m, 7m, 10m, 20m, and 100m
- **AOC cable (SFP28, 850nm, MMF):**
  - 1m, 3m, 7m, 10m, 20m, and 100m
- **10G optic (SFP+, LC, 850nm, MMF):**
  - 10GBASE-SR optic
- **10G optic (SFP+, LC, 1310nm, SMF):**
  - 10GBASE-LR optic
- **25G optic (SFP28, LC, 850nm, MMF):**
  - 25GBASE-SR

## Order Information

- **T1048-LB9M (1LB9BZZ000Q) (F-2-B,AC)**
- **T1048-LB9M (1LB9BZZ000P) (B-2-F,AC)**

