



QuantaMesh T4048-IX8D

The Next Wave 25G
Ethernet Switch for
Data Center and
Cloud Computing



Rear view

QuantaMesh T4048-IX8D is a high-performance, high port-density, and low latency layer 3 managed switches for Data Center Leaf Switch or ToR (Top of Rack) application. T4048-IX8D supports 48 SFP28 and 8 QSFP28 ports and is equipped with BMC in a 1-Rack-Unit (1RU) switch that supports 2.0 Terabits per second (Tbps) of bandwidth. The 48-port downlink ports on the T4048-IX8D can be configured to work as either 1/10/25-Gbps ports, offering deployment flexibility and investment protection. The uplink can support up to eight 100-Gbps or eight 40-Gbps ports, or a combination of 10-, 25-, 40-, and 100-Gbps connectivity, offering flexible migration options. By leveraging merchant silicon chip, T4048-IX8D is fully compliant with IEEE 802.3by and is a high performance high density Ethernet switch with advanced features such as smart table, dynamic load balancing, and VXLAN/RIOT support. T4048-IX8D also supports larger tables size, improves the performance for larger packet buffers and reduces the latency. With QNOS (Quanta Network OS) supported, T4048-IX8D is the best fit for Data Center application.

Automation

With the rapid adoption of cloud computing and the proliferation of big data and parallel computing, the need for data center network devices is growing exponentially, making network automation a critical factor. Supporting auto installation, Zero Touch Provision (ZTP), RESTful API, NETCONF/RESTCONF, and Ansible, QNOS facilitates easy deployment to build-up a mass data center with Infrastructure-as-a-Service (IaaS).

Virtualization

Virtualization technology has been booming up fast and widely required in data center for the Cloud computing and virtual machines (VMs) applications. To provide the scalability and stretched ability of L2 environment, QNOS supports Virtual eXtensible LAN (VXLAN) Switching/Routing running over the existing L3 network infrastructure. BGP-EVPN Route Support is also introduced in QNOS to support the VXLAN tunnel creation automatically and reduce network overhead by protocol-based MAC address and ARP learning.

High Availability

For data center network robust operations, QNOS eliminates single- point of failure with the following features:

- Multi-chassis Link Aggregation (MLAG)
- Virtual Router Redundancy Protocol (VRRP) and Bidirectional Forwarding Detection (BFD)
- In-Service Software Upgrade (ISSU)
- Up to 48 paths ECMP routing for load balancing and redundancy
- Spanning Tree with Guarding Features

Data-Center Orientated

To build up a network infrastructure with a high bandwidth and low latency for network storage or high computing requirements, QNOS supports ROCEv1/v2, DCBX, and FIP SNP for the service differentiation to fulfill the needs of modern data center applications.

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.

- **48 x 10/25GbE SFP28 and 8 x 40/100GbE QSFP28**
- **In-Service Software Upgrade (ISSU)**
- **VxLAN Switching/Routing and BGP-EVPN Route Support**
- **Multi-Chassis Link Aggregation (MLAG)**
- **OSPF, BGP4 with ECMP**
- **Network Automation**
- **RoCEv1/v2, DCBX, and FIP SNP**

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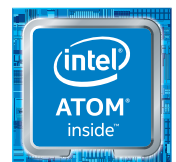
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Powered by Intel Atom® processors



QuantaMesh T4048-IX8D Specifications

Physical ports

- **Port configuration:**
48 10/25GbE SFP28 and 8 40/100GbE QSFP28 ports
- **Management Port:**
Out-of-band management port (RJ-45, 10/100/1000Base-T)
- **Console Port:** 1 (RJ-45)
- **USB:** USB 2.0

Performance

- **Switching capacity:** 4Tbps
- **Maximum forwarding rate:** 2Bpps
- **Latency:** Ultra-low latency

Major Components

- **ASIC:** BRCM TD3 BCM56873
- **CPU:** Intel® Atom® Denverton, TPM 2.0
- **Memory:** 8GB DDR4 with ECC
- **Storage:** 128GB M.2 SATA for storage

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)
- **802.3x Flow Control (Pause Frames)**
- **Storm Control:**
 - Broadcast
 - Unknown Multicast
 - DLF (Unknown Unicast)
- **IGMP Snooping:**
 - v1/v2/v3
 - v1/v2 Querier
 - Immediate Leave
- **MLD Snooping v1/v2**
- **Link Aggregation:**
 - Auto-lag and Auto-trunk
 - Dynamic Load Balancing (DLB)
 - 802.3ad with LACP
 - Static Trunk
 - Unicast/Multicast Traffic Balance over Trunking Port
 - LACP Falback
- **Link State Tracking**
- **Port Backup**
- **Loopback Detection**
- **Private VLAN**
- **Link Debounce**

QoS Features

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

Security Features

- **VLAN 0 Attack Protection**
- **SNMP brute-force login protection**
- **Support encrypted configuration files**

Static and dynamic port security (MAC-based)

- **802.1x (MD5, MS-CHAPv2):**
 - MAC-based
 - Port-base
 - Auto VLAN assignment
 - Guest VLAN
 - Unauthenticated VLAN
- **Access Control List:** L2/L3/L4
- **IPv4/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**
- **Dynamic ARP inspection (DAI)**
- **DHCP snooping:** IPv4, IPv6
- **SSH Public Key Authentication**
- **Control Plane Policing (CoPP)**
- **Service Prohibit Access**
- **Role Base Access Control (RBAC)**
- **Signed firmware image**
- **VxLAN with port-security**
- **Diffie-Hellman 2048-Bit Key**
- **Hardware Protocol Checker**
- **L2 table update Notification**
- **Port Blocking**

Layer 3 Features

- **IPv4 unnumbered interfaces**
- **IP Multinetting/CIDR**
- **/31 subnets**
- **Proxy ARP**
- **Static route:** IPv4, IPv6
- **OSPF v2/v3**
- **ECMP**
 - Dynamic Load Balancing (DLB)
- **BGP4**
- **IGMP v1/v2/v3**
- **PIM-SM/-SM6**
- **SSM**
- **MLD v1/v2**
- **RRRP v2**
- **Policy-Based Routing (PBR)**
- **BFD**
- **VRP Lite**
- **Black Hole Detection (BHD)**
- **RRRPv3**
- **IP SLA**

Management Features

- **MAC flapping Notification**
- **Bus Monitor and Recovery**
- **Two Way Active Measurement Protocol**
- **RRRP aware PIMSM**
- **IPv4 Device Tracking**
- **IP helper**
- **PTP Transparent Clock 1-step E2E**
- **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/relay**
- **DNS client/relay**
- **EVENT / Error log**
- **Remote PING**
- **Traceroute**
- **NTPv4**
- **LLDP:**
 - 802.1ab
 - 802.MED
 - Potential error detection
- **UDLD**
- **Port mirroring:** SPAN, RSPAN
- **sFlow v5**
- **Email alerting:** SMTP
- **Error-Disable Recovery**

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 TFTP**

High Availability

- **Multi-Chassis Link Aggregation (MLAG)**
 - IGMPv1/v2/v3 SNP and MLDv1/v2 SNP
 - Standalone mode
 - L2/L3 unicast
 - RSTP/MSTP
 - VXLAN
- **In-Service Software Upgrade (ISSU)**

Data Center Features

- **PFC watchdog**
- **Anycast gateways**
- **Priority-based Flow Control (802.1Qbb)**
 - 802.1p
 - IP-DSCP
- **DCBX:**
 - DCBX for ETS
 - DCBX for PFC
 - DCBX for Application Priority
- **FCoE Initiation Protocol (FIP) snooping**
- **RoCEv1/v2**

Automation

- **Zero Touch Provision (ZTP)**
 - **Auto installation**
 - **RESTful API**
 - **Ansible**
 - **NETCONF/RESTCONF**
 - **MAC flapping Notification**
 - **Bus Monitor and Recovery**
 - **Two Way Active Measurement Protocol**
 - **RRRP aware PIMSM**
- ## Virtualization Features
- **VxLAN Switching/Routing**
 - **BGP EVPN Route Support**
 - Ethernet autodiscovery Route (Type-1)
 - MAC with IP advertisement Route (Type-2)
 - Inclusive multicast Ethernet tag Route (Type-3)
 - Ethernet segment Route (Type-4)
 - IP prefix Route (Type-5)
 - **Multihoming Designated Forwarder election enhancement (RFC8584)**

SDN

- **OpenFlow v1.3**

Mechanical

- **Dimension (HxWxD):** 44x435x508mm
- **Weight:** 9.35kg/20.59lbs (NET)

Environmental Specifications

- **Operating temperature:** 0~45°C
- **Operating humidity:** 90% maximum relative humidity

Electrical

- **PSU:** 750W x 2, 1+1 Redundant, 100~240VAC, 50/60Hz
- **Power consumption:** Idle Mode: 226W
Normal Mode: 242W

Safety

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

EMC

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

RoHS

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

Order Information

- **T4048-IX8D (1X8UZZ0006)**
Front to Back, with Rail Kit
- **T4048-IX8D (1X8UZZ0007)**
Back to Front, with Rail Kit

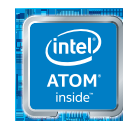


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