



PRODUCT OVERVIEW

- The Quantum core switch series provides robust Layer 2 switching and advanced Layer 3 routing features to meet the mission-critical needs of data centre, enterprise and healthcare and education institution networks.
- Quantum Networks switches can be managed through Rudder controllers (cloud-hosted or on-prem), device GUI/CLI and SNMP.
- On-device management ports include a dedicated console port, an out-of-band management port and a USB flash drive port for storage.
- Quantum core switches deliver outstanding throughput, resiliency and scalability for organizations with high-performance network requirements.
- The core switches support multiple configurations – 16 to 48 ports of 10G. In addition, they support 2 to 6 ports of 40/100G uplinks.
- The switches support hot-swappable, redundant power supplies and fans; which are essential for fault tolerant environments like Data centre Top-of-Rack, Enterprise Core/Distribution and Cloud service provider network deployments.
- Switch supports an advanced feature set with OSPF, Virtual Router Redundancy Protocol (VRRP), Ring Redundancy Protocol (RRP), Stacking (Up to 8 members), IPv6, robust QoS, DoS prevention and policy-based routing.
- Three-year limited liability manufacturer's warranty from day one.

HIGHLIGHTS

- **Simplified network management**
Quantum Core Series Switches support redundant hot-swappable power supplies, fan redundancy, a choice of L2 and L3 multi-pathing designs and application-level performance monitoring and virtualization.
- **Reliable performance**
Provides stability, scalability, and seamless management of varied workloads.
 - The Core switch supports up to 2160 Gbps of wire-speed switching capacity and up to 1607 Mpps of forwarding capacity, allowing it to handle a wide range of workloads.
 - For better network security, the switch supports multiple authentication methods, including 802.1x and MAC authentication. The switch provides identity-driven security and controls via granular Access Control Lists (ACLs).
- **Centralized network observability**
Dashboards and reporting logs for diverse network occurrences.

KEY SPECIFICATION

FEATURE	SPECIFICATIONS			
Communication Ports	QN-CS-4810GF	QN-CS-2410GF	QN-CS-1610GF	QN-CS-241GF
10G SFP+ downlinks	48	24	16	NA
1G SFP downlinks	NA	NA	NA	16
1G Combo downlinks	NA	NA	NA	8
100G QSFP28 uplinks	4+2*	4+2*	2*	NA
10G SFP+ uplinks	NA	NA	NA	4
100G Fiber dedicated stacking ports	2*	2*	2*	NA
Management Ports				
Management (OOB)	1	1	1	1
Console (RJ45)	1	1	1	1
Storage (USB Type A)	1	1	1	1
Capacity				
Switching capacity	2160 Gbps	1680 Gbps	720 Gbps	128 Gbps
Forwarding rate	1607 Mpps	1250 Mpps	536 Mpps	95.23 Mpps
MAC address table	32k, 128k**	32k, 128k**	32k	16k
Packet buffer size	6MB	6MB	6MB	3MB
VLANs support	4096	4096	4096	4096
Maximum jumbo frame size	9,216 bytes	9,216 bytes	9,216 bytes	9,216 bytes
Link aggregation groups	Max 8	Max 8	Max 8	Max 8
Link aggregation ports per group	Max 8	Max 8	Max 8	Max 8
QoS priority queues	8 per port	8 per port	8 per port	8 per port
Quality of Service				
▪ DiffServ (Differentiated services)	▪ Traffic shaping/policing			
▪ ACL mapping to priority queue	▪ QoS based on classification			
▪ WRR support	▪ Flow mirror, 802.1p support			
▪ Strict priority support	▪ Priority queue			
▪ QoS based on classification (Based on IP, MAC, VLAN)	▪ SP+WRR			
▪ Rate limiting (Based on per port and per queue)	▪ Flow redirection			
▪ Class-map, Policy-map	▪ DSCP prioritization			
Layer 2				
▪ STP, RSTP, MSTP	▪ Port mirroring (Port, ACL, VLAN Based)			
▪ VLAN (MAC, Protocol, Port based)	▪ BPDU filtering			
▪ Auto MDI/MDIX	▪ Ping/Trace route/ICMPv6			
▪ BPDU guard, Root guard	▪ Storm control (Broadcast, Multicast, Unicast)			
▪ IGMP/IGMP snooping v1/v2/v3*	▪ GVRP			
▪ LLDP/LLDP MED	▪ Loopback detection			
▪ 802.1Q VLAN Tagging	▪ 802.1x(Guest VLAN)			
▪ Private VLAN	▪ Dynamic VLAN			

* Dedicated stacking ports can be configured as uplink ports.

Layer 3

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|------------------------|---------------------------|
| ▪ DHCP relay | ▪ ARP Table |
| ▪ DHCP server | ▪ IPv6 ND |
| ▪ DHCPv6 client | ▪ IPv6 Interface |
| ▪ IP source guard | ▪ IPv6 MTU path discovery |
| ▪ ISATAP | ▪ Route-only support |
| ▪ IPv4Interface | ▪ VRRP |
| ▪ MLD snooping (v1,v2) | ▪ IGMP Proxy |
| ▪ Route-map | ▪ PIM-SM,SSM |
| ▪ Route redistribution | ▪ IP source guard |

Layer 3 Routing

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| ▪ Inter-VLAN routing | ▪ IPv4 static routing |
| ▪ RIPv2, RIPv6 | ▪ IPv4 host routing |
| ▪ OSPFv2/v3 | ▪ IPv6 static routing, IPv6 host routing |
| ▪ IPv6 Unicast routing | ▪ IPv4 and IPv6 Dual stack |
| ▪ Policy based routing | ▪ Border Gateway Protocol (BGP) |

High Availability

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|---|---|
| ▪ Stacking (Up-to 8 members) | ▪ Ring Redundancy Protocol (RRP) |
| ▪ Equal-cost multi path (ECMP) | ▪ Ethernet Ring Protection Switching (ERPS) |
| ▪ Storm control (Broadcast, Multicast, Unicast) | ▪ Virtual Router Redundancy Protocol (VRRP) |

Security

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|--|---------------------------|
| ▪ ACLs | ▪ SSH |
| ▪ DHCP snooping | ▪ Secure copy (SCP) |
| ▪ 802.1x authentication | ▪ DoS protection |
| ▪ MAC authentication | ▪ Local username/password |
| ▪ Radius/Tacacs/Tacacs+ | ▪ Protected ports |
| ▪ AAA | ▪ RA guard |
| ▪ 802.1x authentication (Single Host, Multi Host, Multi session) | ▪ MACSec ** |

Open Source Support

- SONiC operating system

Management

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| ▪ Local GUI | ▪ SNMP traps |
| ▪ Industrial standard CLI | ▪ Management: RUDDER (Controller)/Standalone |
| ▪ Stacking | ▪ Telnet support |
| ▪ SNMP v1/v2c/v3 | ▪ SNTP |
| ▪ TFTP support | ▪ IPv6 management |
| ▪ SPAN/RSPAN | ▪ Storage & File management with USB |
| ▪ sFLOW | ▪ Firmware auto-install support |
| ▪ RMON (all 4 groups 1,2,3,9) | ▪ Password management |
| ▪ Syslog server | |

Standard Compliance				
IEEE Standards Compliance				
▪ 802.1AB LLDP/ LLDP-MED		▪ 802.3ae 10 Gigabit Ethernet		
▪ 802.1D MAC bridging		▪ 802.3at Power over Ethernet Plus		
▪ 802.1p Mapping to priority queue		▪ 802.3u 100Base-TX		
▪ 802.1s Multiple Spanning Tree (MST)		▪ 802.3x flow control		
▪ 802.1w Rapid Reconfiguration of Spanning Tree (RSTP)		▪ 802.3z 1000Base-SX/LX		
▪ 802.1x Port-based Network Access Control (PNAC)		▪ 802.3 MAU MIB (RFC 2239)		
▪ 802.3 Carrier Sense Multiple Access/Collision Detection (CSMA/CD)		▪ 802.1Q VLAN tagging		
▪ 802.3ab 1000 Base-T		▪ 802.3az Energy Efficient Ethernet		
▪ 802.3 10 Base-T		▪ 802.3af Power over Ethernet		
▪ 802.3ad link aggregation (Dynamic and Static)				
Monitoring and Troubleshooting				
▪ Errdisable detection and recovery		▪ CPU utilization		
▪ Device temp/PSU/FAN/status display & alarm		▪ User operation logs		
▪ Virtual cable test		▪ Management logs, alarms		
▪ ICMPv4/v6		▪ DDM (Digital Diagnostic Monitoring)		
▪ Traceroute		▪ UDLD (Unidirectional Link Detection)		
Physical	QN-CS-4810GF	QN-CS-2410GF	QN-CS-1610GF	QN-CS-241GF
Net Weight	8.90 Kg	8.69 Kg	8.53 Kg	3.86 Kg
Dimensions (H x W x D)	44mm x 440mm x 470mm	44mm x 440mm x 470mm	44mm x 440mm x 470mm	44mm x440mm X 245mm
Fan	2+1, Hot pluggable	2+1, Hot pluggable	2+1, Hot pluggable	In-built
Environment				
Operating temperature		-5°C (23°F) to 65°C (149°F)		
Storage temperature		-40°C (-40°F) to 70°C (158°F)		
Humidity		5 % to 95 % RH, non-condensing		
Voltage input		100-240V. Frequency: 50/60Hz		
Power consumption		≤40W		
Certification & Compliances				
Regulatory		FCC		
Standard		BIS		
		IEC-62368		
		EN 61000-3-2/3, EN 61000-4-2/3/4/5/6/8/11, EN 61000-6-4		
Environmental		EN 55022, EN 55024, EN 60825		
		CE, RoHS		

ORDERING INFORMATION

Part Number	Description
QN-CS-4810GF	Quantum Networks QN-CS-4810GF Core Switch, 48×10G SFP+ ports, 6×100G QSFP28 uplink/stacking ports with two hot-swappable power supplies, Includes a cloud controller license and a 3-year online activation warranty.
QN-CS-2410GF	Quantum Networks QN-CS-2410GF Core Switch, 24×10G SFP+ ports, 6×100G QSFP28 uplink/stacking ports with two hot-swappable power supplies, Includes a cloud controller license and a 3-year online activation warranty.
QN-CS-1610GF	Quantum Networks QN-CS-1610GF Core Switch, 16×10G SFP+ ports, 2×100G QSFP28 uplink/stacking ports with two hot-swappable power supplies, Includes a cloud controller license and a 3-year online activation warranty.
QN-CS-241GF	Quantum Networks QN-CS-241GF Networking Switch, 16×1G SFP Ports + 8×1G SFP/RJ45 combo ports + 4×10G SFPP uplink/stacking ports with two hot-swappable AC+AC power supplies, USB, OOB, Includes a cloud controller license and a 3-year online activation warranty.

SYSTEM UPGRADE INFORMATION

Part Number	Description
QN-HMU-4810GF	System Upgrade for QN-CS-4810GF to support advanced traffic scale and features.
QN-HMU-2410GF	System Upgrade for QN-CS-2410GF to support advanced traffic scale and features.
QN-SMU-4810GF	System Upgrade for QN-CS-4810GF to support MACsec.
QN-SMU-2410GF	System Upgrade for QN-CS-2410GF to support MACsec.

** Additional feature for specific hardware.

(QN-HMU-4810GF, QN-HMU 2410GF - for Advanced traffic scale and features and QN-SMU-4810GF, QN-SMU-2410GF - for MACSec)