## **DATA CENTRE SWITCH**





# **QN-DS-2425GF**

#### PRODUCT OVERVIEW

- Quantum Data Centre Switch Series provides Layer-3 connectivity with an integrated QNOS platform for data centre. It can be managed through Rudder controllers (Cloud hosted or onprem), device GUI/CLI and SNMP.
- Besides being able to scale to massive deployments without any impact on latency, the platform has also been designed to provide seamless connectivity and provide a dense form factor with 24xSFP28 ports and 6xQSFP28 ports in order to provide seamless connectivity.
- Quantum Data Centre switches delivers outstanding throughput, resiliency and scalability for organizations with high performance network requirements.
- The switches support hot-pluggable, redundant power supplies and fans; which are essential for fault tolerant environments like Data Centre Top-of-Rack network deployments.
- High Precision Time stamping is one of the features supported by the platform, a cuttingedge technology that provides ultra-low latency with great cut-through.



# **KEY SPECIFICATION QN-DS-2425GF**

Specifications   Peature	Communication Ports	
IOOG/40G Uplink Ports   G   Console Port (RJ45)   1   Management Port (OOB)   1   USB Port   1   Capacity	Specifications	Feature
Console Port (RJ45)   1	25G/10G/1G Fiber Ports	24
Management Port (OOB)  USB Port  Capacity  Switching Capacity  1.79 Bpps  VLANs Support  4096  Maximum Jumbo Frame Size  Spanning Tree Groups  HP4/IPv6 Route Support  MAC Table Size  DiffServ (Differentiated services)  ACL  Mapping to priority queue  QoS based on classification (Based on IP, MAC, VLAN)  Spreward (Based on per port and per queue)  DHCP relay  DHCP server  DHCP server  HP6 ND  IPv6 Interface  MRD quard  MRD quard  MRD quard  IPv6 MTU path discovery  ISATAP  Route—map  Route—M	100G/40G Uplink Ports	6
USB Port Capacity Switching Capacity 1.79 Bpps VLANS Support 4096 Maximum Jumbo Frame Size 9,216 bytes Spanning Tree Groups Up to 4K IPV4/IPV6 Route Support 216/108K MAC Table Size 128K ACL 32K Cuality of Service DiffServ (Differentiated services) ACL mapping to priority queue OoS based on classification WRR support Strict priority support Flow mirror, 802.lp support Strict priority support Rate limiting (Based on per port and per queue) Flow redirection Class-map, Policy-map DHCP relay ARP, Gratuitous ARP DHCP relay ARP, Gratuitous ARP IPV6 NITU path discovery ISATAP Route-only support IPV6 MTU path discovery ISATAP Route-only support Route-only support IPV6 MTU path discovery ISATAP Route-only support IPV6 MTU path discovery Route-only support IPV6 MTU path discovery Route-only support IPV6 MTU path discovery ISATAP Route-only support IPV6 MTU path discovery Route-only support IPV6 MTU path discovery Route-only support IPV6 MTU path discovery ISATAP Route-only support IPV6 MTU path discovery ISATAP Route-only support IPV6 MTU path discovery IPV6 MTU path discovery ISATAP Route-only support IPV6 MTU path discovery IPV8 MUD snooping (vI,v2) IGMP Proxy Route-only support IPV8 MUD snooping (vI,v2) IGMP Proxy Route-only support IPV8 MUD snooping (vI,v2) IPV8 MUD snooping (	Console Port (RJ45)	1
Capacity Switching Capacity Swit	Management Port (OOB)	1
Switching Capacity 2.4 Tbps Forwarding Rate 1.79 Bpps VLANS Support 4096 Maximum Jumbo Frame Size 9,216 bytes Spanning Tree Groups Up to 4K IP-V4/IPv6 Route Support 216/108K MAC Table Size 128K ACL 32K  Cuality of Service Diff Service 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 3 DHCP relay ARP, Gratuitous ARP DHCP server IPv6 ND DHCPv6 client IPv6 Interface IP source guard IPv6 MTU path discovery ISATAP Route-map PIM-SM,SSM Route-rolly support IPv4Interface VRRP MLD snooping (V1,V2) IGMP Proxy Route-map PIM-SM,SSM Route redistribution IP source guard Inter-VLAN routing IPv4 static routing IPv4 static routing IPv4 static routing IPv4 static routing	USB Port	1
Forwarding Rate 1.79 Bpps  VLANs Support 4096  Maximum Jumbo Frame Size 9,216 bytes  Spanning Tree Groups Up to 4K  IPv4/IPv6 Route Support 216/108K  MAC Table Size 128K  ACL 32K  Cuality of Service  Diff Serv (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 3  DHCP relay ARP, Gratuitous ARP  DHCP server IPv6 ND  DHCPv6 client IPv6 Interface  IP source guard IPv6 MTU path discovery  ISATAP Route-only support  VRRP  MLD snooping (v1,v2) IGMP Proxy  Route-map PIM-SM,SSM  Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	Capacity	
VLANs Support 4096  Maximum Jumbo Frame Size 9,216 bytes  Spanning Tree Groups Up to 4K  IPv4/IPv6 Route Support 216/108K  MAC Table Size 128K  ACL 32K  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 3  DHCP relay ARP, Gratuitous ARP  DHCP server IPv6 ND  DHCPv6 client IPv6 Interface  IPs ource guard IPv6 MTU path discovery  ISATAP Route-only support  VRRP  MLD snooping (vI,v2) IGMP Proxy  Route-map  Route edistribution IP source guard  Layer 3 Route-map  Route edistribution IP source guard  IPv4 static routing  IPv4 static routing  IPv4 host routing	Switching Capacity	2.4 Tbps
Maximum Jumbo Frame Size 9,216 bytes  Spanning Tree Groups Up to 4K  IPv4/IPv6 Route Support 216/108K  MAC Table Size 128K  ACL 32K  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 3  DHCP relay ARP, Gratuitous ARP  DHCP server IPv6 ND  DHCPv6 client IPv6 Interface  IP source guard IPv6 MTU path discovery  ISATAP Route-only support  MLD snooping (vI,v2) IGMP Proxy  Route-map PIM-SM,SSM  Route redistribution IP source guard  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	Forwarding Rate	1.79 Bpps
Spanning Tree Groups Up to 4K  IPv4/IPv6 Route Support 216/108K  MAC Table Size 128K  ACL 32K  Quality of Service  DiffServ (Differentiated services) ACL mapping to priority queue QoS based on classification WRR 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 3  DHCP relay ARP, Gratuitous ARP DHCP server IPv6 ND DHCPv6 client IP source guard IPv6 MTU path discovery ISATAP Route-only support  MLD snooping (v1,v2) Route-map Route redistribution IP source guard IP IPv6 MTU path discovery IPv4 Interface IP source guard IPv8 MTD path discovery IPv4 Interface IP source guard IP IPv8 MTD path discovery IPv4 Interface IP Source guard IPv8 MTD path discovery IPv8 MTD path discovery IPv4 Interface IP Source guard IPv8 MTD path discovery	VLANs Support	4096
IPv4/IPv6 Route Support 216/108K  MAC Table Size 128K  ACL 32K  Quality of Service  Diff Serv (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 3  DHCP relay ARP, Gratuitous ARP  DHCP server IPv6 ND  DHCPv6 client IPv6 Interface  IP source guard IPv6 MTU path discovery  ISATAP Route-only support  IPv4Interface VRRP  MLD snooping (vI,v2) IGMP Proxy  Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	Maximum Jumbo Frame Size	9,216 bytes
MAC Table Size  ACL  32K  Quality of Service  DiffServ (Differentiated services)  ACL mapping to priority queue  QoS based on classification  WRR support  Strict priority support  Priority queue  QoS based on classification  SP+WRR  Rate limiting (Based on per port and per queue)  Class-map, Policy-map  DSCP prioritization  Layer 3  DHCP relay  DHCP server  IPv6 ND  DHCPv6 client  IPv6 ND  DHCPv6 client  IPv6 MTU path discovery  ISATAP  Route-only support  WRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  Layer 3 Routing  Inter-VLAN routing  IPv4 host routing	Spanning Tree Groups	Up to 4K
ACL 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 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 3  DHCP relay ARP, Gratuitous ARP 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 Inter-VLAN routing IPv4 static routing RIPv2 IPv4 host routing	IPv4/IPv6 Route Support	216/108K
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 3     DHCP relay       DHCP relay     ARP, Gratuitous ARP       DHCP server     IPv6 ND       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     IPv4 static routing       RIPv2     IPv4 host routing	MAC Table Size	128K
DiffServ (Differentiated services)  ACL mapping to priority queue  QoS based on classification  WRR support  Strict priority support  Priority queue  QoS based on classification (Based on IP, MAC, VLAN)  Rate limiting (Based on per port and per queue)  Class-map, Policy-map  DSCP prioritization  Layer 3  DHCP relay  DHCP server  IPv6 ND  DHCPv6 client  IPv6 Interface  IP source guard  IPv4 MTU path discovery  IPv4Interface  MLD snooping (vI,v2)  Route-map  Route redistribution  IP source guard  IPv5 MTU path discovery  IPv4Interface  VRRP  MLD snooping (vI,v2)  IGMP Proxy  Route-map  Route redistribution  IP source guard  IP so	ACL	32K
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 3  DHCP relay ARP, Gratuitous ARP  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  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	Quality of Service	
WRR support  Strict priority support  Priority queue  QoS based on classification (Based on IP, MAC, VLAN)  Rate limiting (Based on per port and per queue)  Class-map, Policy-map  DSCP prioritization  Layer 3  DHCP relay  ARP, Gratuitous ARP  DHCPs server  IPv6 ND  DHCPv6 client  IPv6 Interface  IPv6 MTU path discovery  ISATAP  Route-only support  IPv4Interface  WRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  IPv6 surce guard  IP source guard  IP source guard  IPv5 MTU path discovery  IGMP Proxy  Route-map  Route-map  PIM-SM,SSM  Route redistribution  IP source guard  IPv4 static routing  IPv4 static routing  RIPv2  IPv4 host routing	DiffServ (Differentiated services)	Traffic shaping/policing
Strict priority support  QoS based on classification (Based on IP, MAC, VLAN)  Rate limiting (Based on per port and per queue)  Class-map, Policy-map  DSCP prioritization  Layer 3  DHCP relay  ARP, Gratuitous ARP  DHCP server  IPv6 ND  DHCPv6 client  IPv6 Interface  IPv6 MTU path discovery  ISATAP  Route-only support  IPv4Interface  VRRP  MLD snooping (v1,v2)  IGMP Proxy  Route map  Route redistribution  IP source guard  IP source guard  IP source guard  IP source guard  IPv5 MTU path discovery  IPv4Interface  VRRP  MLD snooping (v1,v2)  IGMP Proxy  Route-only support  IPv4Interface  VRRP  MLD snooping (v1,v2)  IGMP Proxy  Route map  Route redistribution  IP source guard  Layer 3 Routing  Inter-VLAN routing  IPv4 static routing  IPv4 host routing	ACL mapping to priority queue	QoS based on classification
QoS based on classification (Based on IP, MAC, VLAN) Rate limiting (Based on per port and per queue) Flow redirection  Class-map, Policy-map DSCP prioritization  Layer 3  DHCP relay ARP, Gratuitous ARP 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) Route-map Route redistribution IP source guard IPv6 MTU path discovery IPv4 Static routing IPv6 MTU Path IP	WRR support	Flow mirror, 802.1p support
Rate limiting (Based on per port and per queue)  Class-map, Policy-map  DSCP prioritization  Layer 3  DHCP relay  ARP, Gratuitous ARP  DHCP server  IPv6 ND  DHCPv6 client  IPv6 Interface  IPv6 MTU path discovery  ISATAP  Route-only support  IPv4Interface  VRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  IP source guard  IP source guard  IP source guard  IPV6 MTU path discovery  IFV6 MTU path discovery  IPV6 MTU path discovery	Strict priority support	Priority queue
Class-map, Policy-map  Layer 3  DHCP relay  ARP, Gratuitous ARP  DHCP server  IPv6 ND  DHCPv6 client  IPv6 Interface  IPv6 MTU path discovery  ISATAP  Route-only support  IPv4Interface  VRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  IP source guard  IP source guard  IP source guard  IPv5 MTU path discovery  IPv4Interface  VRRP  MLD snooping (v1,v2)  IGMP Proxy  Route-map  IPv4 static routing  IPv4 static routing  RIPv2  IPv4 host routing	QoS based on classification (Based on IP, MAC, VLAN)	SP+WRR
Layer 3DHCP relayARP, Gratuitous ARPDHCP serverIPv6 NDDHCPv6 clientIPv6 InterfaceIP source guardIPv6 MTU path discoveryISATAPRoute-only supportIPv4InterfaceVRRPMLD snooping (v1,v2)IGMP ProxyRoute-mapPIM-SM,SSMRoute redistributionIP source guardLayer 3 RoutingIPv4 static routingRIPv2IPv4 host routing	Rate limiting (Based on per port and per queue)	Flow redirection
DHCP relay  DHCP server  IPv6 ND  DHCPv6 client  IPv6 Interface  IPv6 MTU path discovery  ISATAP  Route-only support  IPv4Interface  VRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  Layer 3 Routing  IIPv4 static routing  RIPv2  RAPP, Gratuitous ARP  IPv6 ND  IPv6 ND  IPv6 MTU path discovery  IPv6 MTU path di	Class-map, Policy-map	DSCP prioritization
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  Inter-VLAN routing IPv4 host routing  RIPv2 IPv4 host routing	Layer 3	
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  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	DHCP relay	ARP, Gratuitous ARP
IP source guard  IPv6 MTU path discovery  Route-only support  VRRP  MLD snooping (v1,v2)  Route-map  Route redistribution  IP source guard  Layer 3 Routing  Inter-VLAN routing  RIPv2  IPv6 MTU path discovery  Route-only support  VRRP  VRRP  IGMP Proxy  PIM-SM,SSM  IP source guard  IP source guard  IPv4 static routing  IPv4 host routing	DHCP server	IPv6 ND
ISATAP Route-only support  VRRP  MLD snooping (v1,v2) IGMP Proxy  Route-map PIM-SM,SSM  Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing RIPv2 IPv4 host routing  IPv4 host routing	DHCPv6 client	IPv6 Interface
IPv4Interface VRRP  MLD snooping (v1,v2) IGMP Proxy  Route-map PIM-SM,SSM  Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	IP source guard	IPv6 MTU path discovery
MLD snooping (v1,v2)  Route-map  PIM-SM,SSM  Route redistribution  IP source guard  Layer 3 Routing  Inter-VLAN routing  IPv4 static routing  RIPv2  IPv4 host routing	ISATAP	Route-only support
Route-map PIM-SM,SSM  Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	IPv4Interface	VRRP
Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	MLD snooping (v1,v2)	IGMP Proxy
Route redistribution IP source guard  Layer 3 Routing  Inter-VLAN routing IPv4 static routing  RIPv2 IPv4 host routing	Route-map	PIM-SM,SSM
Inter-VLAN routing IPv4 static routing RIPv2 IPv4 host routing	Route redistribution	
Inter-VLAN routing IPv4 static routing RIPv2 IPv4 host routing	Layer 3 Routing	'
RIPv2 IPv4 host routing		IPv4 static routing
· · · · · · · · · · · · · · · · · · ·	RIPv2	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)

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
High Availability	
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	
ACLs	ARP inspection (DAI & SAI)
DHCP snooping	Secure copy (SCP)
802.1x authentication	DoS protection
MAC authentication	Local username/password
Radius/ Tacacs+	Protected ports
AAA, SSH	RA guard
802.1x authentication (Single Host, Multi Host, Multi session)	MACsec **
Management	
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)
Environment	
Operating temperature	-5°C (23°F) to 55°C (149°F)
Humidity	5 % to 95 % RH, non-condensing
Voltage input	100–260V. Frequency: 50/60Hz
Power consumption	650W max

### **CERTIFICATION & COMPLIANCES\***

Regulatory	FCC
Environmental	RoHS
	CE

<sup>\*</sup> For more information, visit <a href="www.qntmnet.com/certification">www.qntmnet.com/certification</a> or email us at <a href="sales@qntmnet.com">sales@qntmnet.com</a>.

### **ORDERING INFORMATION**

Part Number	Description	
QN-DS-2425GF	Data Centre Switch, 24x25G SFP28 ports,6x100G QSFP28 Uplink Ports with 2 hot pluggable	
	power supplies and includes 3-year online activation warranty.	

### **SYSTEM UPGRADE PARTCODES\*\***

(TO BE ORDERED AT THE TIME OF HARDWARE PURCHASE)

Part Number	Description
QN-DS-NSU2	System upgrade for networking scale level 2.
QN-DS-SEC-U	System upgrade for enabling MACsec