

Ruijie Newton RG-N18000

Cloud Network Core Switch Series Datasheet

Ruijie Newton 18000 Switch Series (RG-N18000) is industry leading in supporting cloud data center with a broad spectrum of specialized campus network features. Ruijie RG-N18000 core switches achieve cloud network integration, virtualization, and flexible deployment to fulfill the evolving next-gen cloud architecture requirements.

Ruijie brings you an innovative “Network Cloud Mode” featuring strong cloud and light access: Building a strong core (unified gateway, authentication, multiservice) for light access. All service channels including the cloud data center and cloud campus network can move to the cloud, building a true channel connecting the services and end users. The feature achieves network resources pooling, requirement-based distribution and flexible expansion.

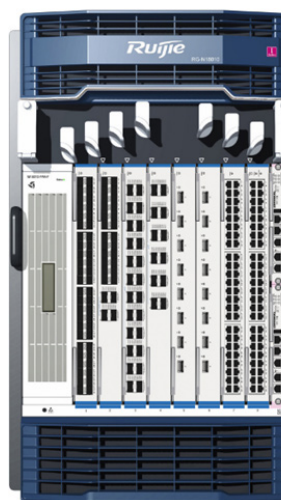
Ruijie RG-N18000 Series deploys an advanced software architecture design and is one of the world’s leading core switches with the highest specifications. The series supports CLOS switching architecture and offers sustaining bandwidth upgrade and service support capacities. Single slot offers forwarding rates of up to 1.28Tbps and single chassis can support 96 100GE, 288 40GE or 1152 10GE full line rate interfaces.

HIGHLIGHTS

- Ideal for ultra-large campus and data center networks with up to 512K MAC and 170K ARP table
- Ideal for high-performance computing with ultra-low latency of up to 0.5µs
- CLOS non-blocking architecture with up to 2T bandwidth per slot
- Scalable capacity for future expansion: up to 1152 10GE and 288 40GE ports
- Ready for future: support 100G Ethernet and SDN/ OpenFlow



RG-N18014

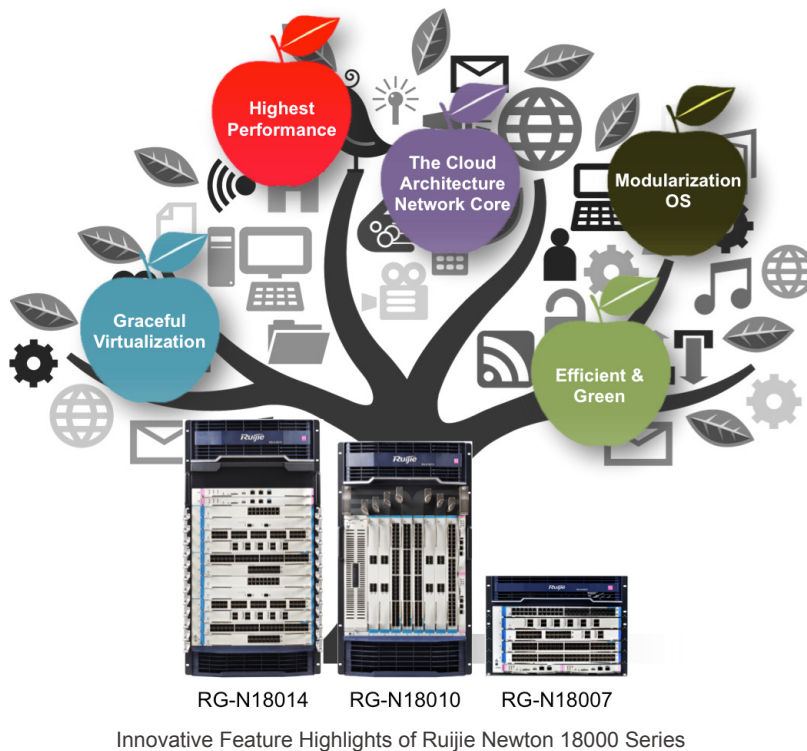


RG-N18010



RG-N18007

Ruijie Newton 18000 Series has 3 models - RG-N18014, RG-N18010 and RG-18007 - to meet various port density and performance requirements. The switches deliver excellent investment protection and are suitable for deployment in a wide range of settings such as data center, MAN, campus network or integrated network of data center and campus network.



PRODUCT FEATURES

Ultra-Simplified Solution for Campus and Data Center Networks

To meet new challenges from evolving application environments, the market-leading Ruijie RG-N18000 Series delivers an innovative heterogeneous solution to power both campus and data center networks.

The RG-N18000 operates as the core of unified authentication and gateway in the ultra-simplified network solution. The switch achieves centralized authentication of wired and wireless networks on the core device via the built-in/external 802.1X/Portal authentication system. It can eliminate all the differences between access layer device performance and access mode. The RG-N18000 supports $\geq 170K$ ARP capacity, concurrent $\geq 90K$ IPv4/IPv6 dual stack devices with centralized authentication and authentication speed of 1200 devices per second. The web noise reduction feature can prevent illegal authentication packets to protect users' Internet authentication experience. With Ruijie SAM, the RG-N18000 can also achieve refined management such as traffic billing and traffic control.

Moreover, RG-N18000 can further achieve network simplicity through the consolidation of SAN Storage Network into a unified Ethernet-based Storage Network via FCoE support.

Feature highlights supported by the respective sub-solution are illustrated in the figure below and described in the following sections.

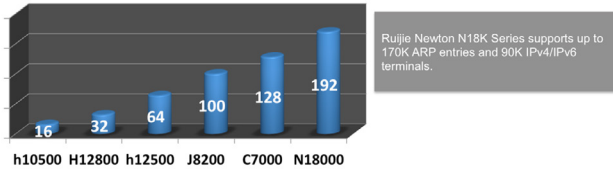
	Campus Network	Data Center
N18000 Series Ultra-Simplified Solution	<ul style="list-style-type: none"> L2/L3, QinQ, IPv6 MPLS, Multicast Tunnel, ACL QoS, BFD IPFIX, sFlow Hot Backup, ISSU Unified authentication Large table size Unified management mode (One Switch One Network) SDN and more... 	<ul style="list-style-type: none"> FCoE DCB TRILL Security policy migration VSU (4 to 1) VSD (1 to 12) High density/High bandwidth Low latency Ultra-large buffering L2-GRE and more...

Platform Features	Hardware: CLOS architecture, 1.28Tbps per slot (unidirectional) Software: Multi-processing modular OS, ISSU and process backup
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N18000 Series Handles Both Networks with Ease

Ruijie RG-N18000 Series can act as the core of unified authentication and gateway of the campus network to offer simplified network experience for users. As the centralized authentication gateway, the core device can achieve unified assignment of security policies. The access layer and aggregation layer is only responsible for Layer 2 forwarding. As the device maintenance is simpler, the performance capacity is no longer a bottleneck. The core layer device provides rich features, high performance and high reliability. The centralized management of network management policies facilitates security monitoring,

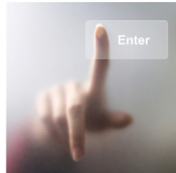
network expansion and new service development. The Ruijie RG-N18000 Series supports multiple authentication modes such as Portal/ 802.1X. MAC. Different management modes and technologies will be deployed in different scenarios according to different user requirements of the campus network so as to provide targeted and high-availability technologies and solutions.



Ruijie Newton N18K Series supports up to 170K ARP entries and 90K IPv4/IPv6 terminals.

Authenticate **1000 clients/second**

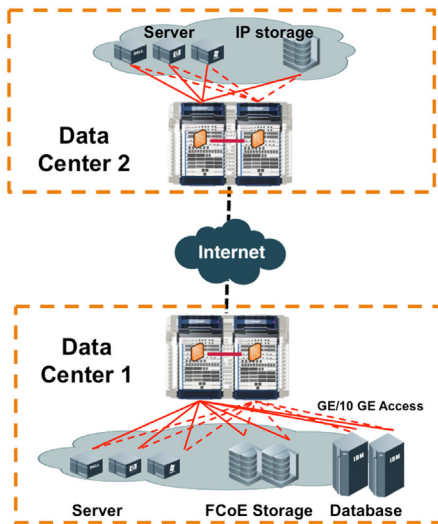
Speed surpasses traditional authentication device



Superior Authentication Performance

Cloud Data Center Network

Ruijie RG-N18000 Series can also act as the core of the Cloud Data Center Network Solution, and provide a robust and comprehensive set of features that meets the demanding requirements of virtualization and automation in present and future data center environments. A variety of features are embedded in the Ruijie RG-N18000 Series such as Transparent Interconnection of Lots of Links (TRILL), Policy Auto-migration, Layer 2 Generic Routing Encapsulation (GRE), Virtual Ethernet Port Aggregator (VEPA), Fibre Channel over Ethernet (FCoE) and Data Center Bridging (DCB).



N18000 Supports Data Center Solution

World's Leading Cloud Network Core

CLOS Non-blocking Architecture¹

Ruijie RG-N18000 Series deploys the advanced CLOS multi-plane, multi-stage architecture, which achieves complete

separation of the forwarding and control planes. With independent fabric engines and control engines, it ensures all ports are running at full line rate in a non-blocking manner. The solution continues to strengthen bandwidth upgrade and business supporting capacities.

Multilevel CLOS Architecture



Advanced CLOS Architecture

Using an orthogonal design for service modules and fabric engines, the cross-board traffic is transmitted to the fabric engines through the orthogonal connector. Ruijie RG-N18000 Series achieves zero wiring for backplane with minimized transmission loss and signal degradation. It can also improve internal transmission efficiency of the switch.

Scalable Performance for Future Development

Ruijie RG-N18000 Series single slot supports bandwidth of 2Tbps and it is scalable to 4Tbps. The series also supports high-density 40GE and 100GE Ethernet ports to meet the evolving requirements of cloud computing data center in the coming decade.

The RG-N18000 Series is market leading in supporting line-rate packet forwarding. All boards including the one with the highest density support 64-byte packet forwarding at line rate. The switches thereby ensure high-speed forwarding with zero packet loss in large-scale data center.

The RG-N18000 Switches offer ultra-low latency up to 0.5µs to support high-speed transmission.

The series sustains a huge distributed cache design to achieve 200ms caching capacity. This feature fulfills spontaneous traffic requirements for data centers, high-performance network and so on.



The line card provides the highest density:
 • 2T bandwidth per slot
 • 24 x 40G ports per slot
 • 24 x 40G ports per chassis
 All ports support Line-Speed Forwarding

2T



Only 0.5µs Low Forwarding Delay to satisfy high-performance computing, computing center, data equipment interconnection, financial transactions, etc.

0.5µs



Super Large Distributing Cache
 200ms to ensure zero packet loss

200ms

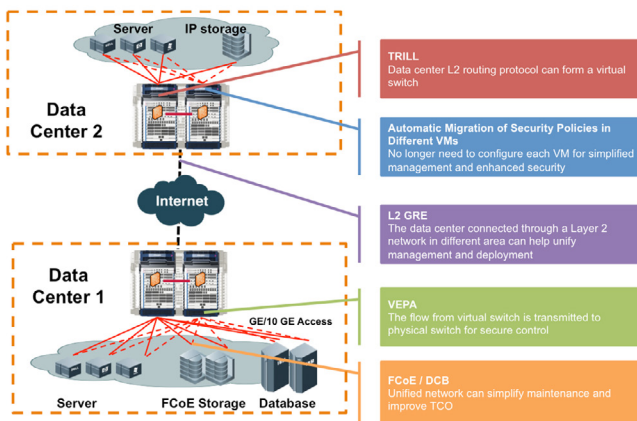
Market-leading Performance in Line Card Density, Forwarding and Cache

Note:

¹ The RG-N18007 does not support the CLOS Non-blocking Architecture.

Next-Generation Cloud Infrastructure

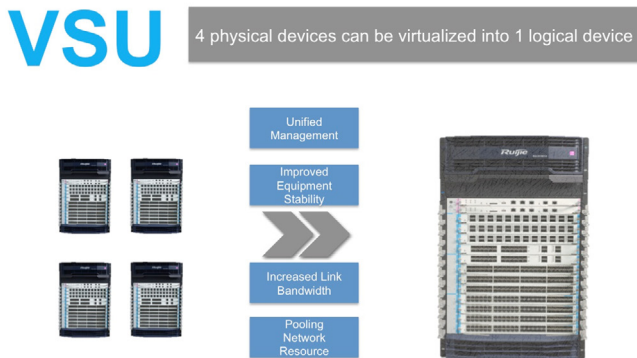
Delivering high-quality cloud-based experiences to clients efficiently requires an intelligent next-generation cloud infrastructure that Ruijie offers. Ruijie RG-N18000 Cloud Network Core Switch Series can operate as the core of the Cloud Data Center Network, and provide a robust and comprehensive set of features that meets the demanding requirements of virtualization and automation in present and future data center environments. A variety of features are embedded in the Ruijie RG-N18000 Series such as Transparent Interconnection of Lots of Links (TRILL), Policy Auto-migration, Layer 2 Generic Routing Encapsulation (GRE), Virtual Ethernet Port Aggregator (VEPA), Fibre Channel over Ethernet (FCoE) and Data Center Bridging (DCB). Full details will be discussed in the coming sections.



Summary of Data Center Features Supported by N18000

Virtual Switch Unit 3.0 (VSU)

The series supports the Virtual Switch Unit 3.0 (VSU). The technology can virtualize multiple physical devices into one logical unit, which largely minimizes the number of network nodes and reduce administrator workload. Superior 50~200ms link failover ensures smooth and uninterrupted transmission of key services. The RG-N18000 Series supports cross-device link aggregation for easy double uplink to server/switch. The network can effectively maximize bandwidth investment return.



Benefits of 4-to-1 Virtualization

Virtual Switch Device (VSD)

Ruijie RG-N18000 Series delivers industry's first 1:12 virtualization. One device can be virtualized into multiple virtual units. Hence, every virtual unit has a unique configuration management interface, independent hardware allocation (e.g. storage, TCAM and hardware forwarding table). All the features support restart with no effects on other virtual machines. Users can realize network resources allocation based on different needs. Resources of the core switch can hence be shared with other domains and users.



Benefits of 1-to-12 Virtualization

Transparent Interconnection of Lots of Links (TRILL)

Ruijie RG-N18000 Series supports Transparent Interconnection of Lots of Links (TRILL) of the IETF standard, allowing deployment of super large Layer 2 network in the data center. The feature enhances deployment flexibility and expands VM migration area. Ruijie data center products, ranging from access to core, all support the TRILL technology. It can simplify the network design and boost network scalability and flexibility, building a firm foundation for a large-scale virtualized cloud-computing network construction in the future.

Layer 2 Generic Routing Encapsulation (L2-GRE)

With the international L2-GRE standard, the RG-N18000 switches break the geographical boundaries to achieve data center L2 communication. Data center resources at different locations can be centrally managed and allocated.

Virtual Ethernet Port Aggregator (VEPA)

The Ruijie RG-N18000 Series supports Virtual Ethernet Port Aggregator (VEPA) of the IEEE802.1qbg standard. Data traffic from the server VM can be diverted to the physical network devices for "hard-switching". This completely eliminates problems such as uncontrollable monitoring of VM traffic, incapability of unified policy deployment and server resources occupation caused by traditional "soft-switching". All the features together optimize the next-gen data center network solution to fit into the virtual computing environment.

Virtual Machine Perception & Policy Auto-migration

The VM perception and automatic migration of policies features enable centralized deployment of VM traffic security policy in a large-scale server virtualization environment. Married with data center network management platform, data center switches, and VM management platform, it realizes simultaneous policy migration as virtual host can migrate smoothly within the network. It totally gets rid of security loopholes and hence lessens network maintenance workload.

Unified Switching with Integrated Storage & Ethernet

Ruijie RG-N18000 Series supports access via Fibre Channel over Ethernet (FCoE) or Ethernet for easy integration of heterogeneous storage and data networks. It greatly reduces the number of network devices.

The RG-N18000 switches and 10GE data center ToR device RG-S6220 together form a FC/FCoE data center integration solution. It can centrally manage FC SAN, IP SAN, FCoE SAN and IP network. It simplifies network deployment and minimizes cabling cost, hence totally protecting user's investment.

Software-Defined Network (SDN) & OpenFlow

Software Defined Networking is an emerging network architecture where network control is decoupled from forwarding and is directly programmable.

Core Concepts

- Decoupling of control plane and forwarding plane-> hardware / network unified abstraction & virtualization, ease of independent development
- Centralized control & distributed forwarding-> convert the distributed protocol problem into algorithm problem
- Open programming interface-> softwarization of hardware, programmable devices, scalable network features & higher flexibility

Solution Components

- Hardware Switching Devices:
Ruijie Newton 18000 and S6000 series platforms will fully support OpenFlow 1.0/1.3 modular hardware switching
- SDN Controller RG-IONC
Ruijie Intelligent OpenFlow Network System is a X86 hardware platform, which fully supports OpenFlow 1.0/1.3 and SNMP2.0, providing the SDN control service modules below:
 - Switch/host/topology management, L2/L3 communication
 - Traffic editing/path calculation/static routing/DHCP
 - MPLS L3 VPN service
 - Virtual tenant network service



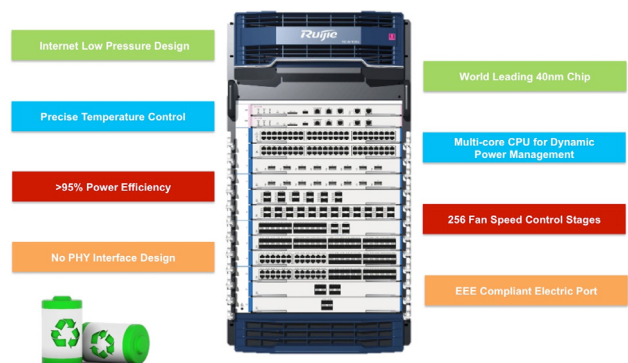
High Reliability & Energy-saving Design

Redundant design of the RG-N18000 Series key components delivers excellent protection: control engine 1+1 redundancy, fabric engine N+1 redundancy, fan N+M redundancy and power module N+M redundancy. All redundant components are hot-swappable to enhance the reliability and availability of the device to the maximum extent. Hot patch and ISSU technology are also supported to enable online upgrade of devices.

Support GR for OSPF/IS-IS/BGP and BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/MPLS/static routing to enable the fast fault detection mechanism of different protocols, which minimized the fault detection time to less than 50ms.

The RG-N18000 Series adopts 40nm chip technology, more energy efficient than the traditional 90nm and 65nm. Multi-core CPU supports dynamic power management with all fiber ports adopting non-PHY design to reduce power consumption. All Ethernet ports support the Energy-Efficient Ethernet (EEE) standard to save power under light load.

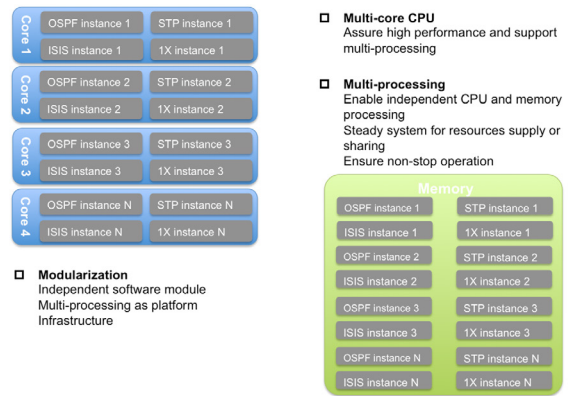
The internal system is designed for low voltage power supply with high-efficiency modular power to form a more efficient power supply system. The smart fan supports 256 speed modulations with precise temperature control, energy saving and noise control. The device can function at high temperature for a long period of time or in harsh environment for significant savings on energy consumption by air conditioning.



Abundant Energy Conservation Features

Multi-processing Modular Operating System

Since 1998, Ruijie has been investing on the R&D of modular operating system. The RG-N18000 software platform is designed based on the next-generation RGOS 11.X multi-processing modular operating system to integrate the service features such as loosely coupled firewall, wireless, IPFIX and authentication into a unified cloud network operating system. The RG-N18000 software platform also supports full virtualization and offers rich data center and campus network features. The key availability indicators such as multi-processing modules, process backup and hot patch have reached the industry-leading level.



Architecture and Benefits of Multi-process Modular Operating System

PLATFORM COMPONENTS

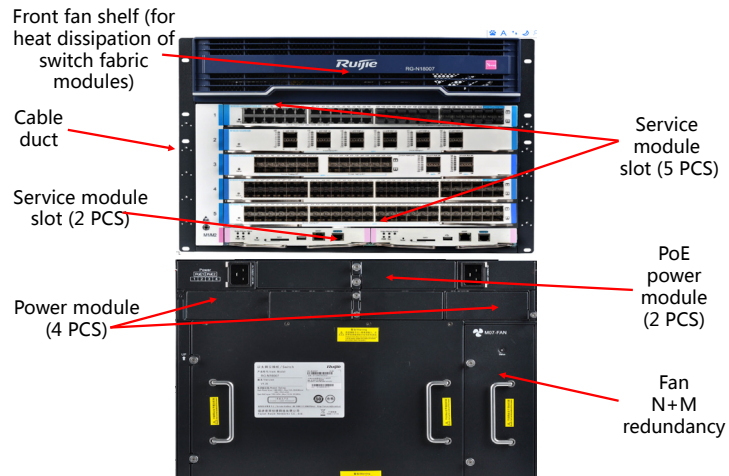
The Ruijie Newton 18000 platform provides high forwarding performance, high-density 10GE/100GE ports, and FCoE/IP integrated networking to meet application requirements of integrated data center networks and campus networks. Below is a quick hardware overview of the Newton 18000 platform:

Specifications	RG-N18007	RG-N18010	RG-N18014
Dimensions (W x D x H) (mm)	442 x 598 x 352.8 (8U)	442 x 836 x 797.3 (18U)	442 x 814 x 886.2 (20U)
Number of Control Engine Slots	2	2	2
Number of Service Module Slots	5	8	12
Number of Fabric Engine Slots	N/A	4	4
Max. Number of 10GE Ports	240 (DB module, 10GE ports) 240 (DB module, 40GE ports for 1-to-4 splitting)	384 (DB module, 10GE ports) 768 (DB module, 40GE ports for 1-to-4 splitting) 320 (CB module, 10GE ports) 768 (CB module, 40GE ports for 1-to-4 splitting)	576 (DB module, 10GE ports) 1152 (DB module, 40GE ports for 1-to-4 splitting) 480 (CB module, 10GE ports) 1152 (CB module, 40GE ports for 1-to-4 splitting)
Max. Number of 40GE Ports	Up to 120	Up to 192	Up to 288

Ruijie Newton 18000 Platform Components

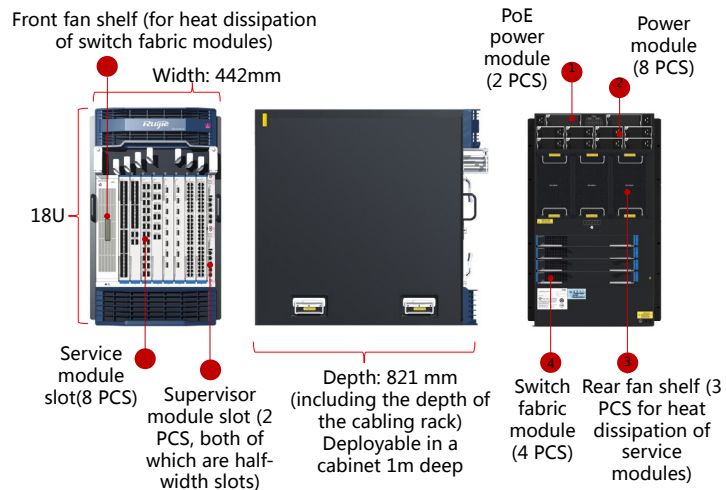
The Ruijie Newton 18000 platform is built using the components summarized in figure below followed by full details in latter sections.

RG-N18007



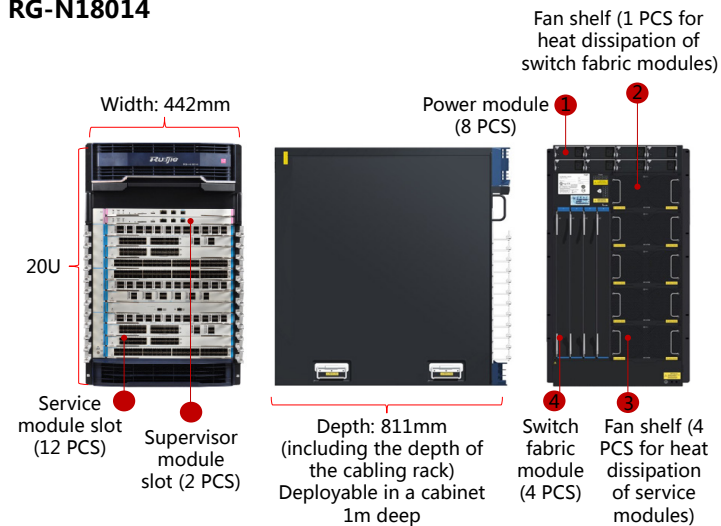
Ruijie RG-N18007 Platform Components

RG-N18010



Ruijie RG-N18010 Platform Components

RG-N18014



Ruijie RG-N18014 Platform Components

TECHNICAL SPECIFICATIONS

Model	RG-N18007	RG-N18010	RG-N18014
Module Slots	7 (2 for control engines)	10 (2 for control engines)	14 (2 for control engines)
Modular Power Slots	6 (4 for system power; 2 for PoE power)	10 (8 for system power; 2 for PoE power)	8 (all for system power)
Fan Slots	1	4	5
Control Engine Slots	2	2	2
Service Module Slots	5	8	12
Fabric Engine Slots	N/A	4	4
Backplane Bandwidth (per slot)	Up to 640Gbps ²	Up to 1.28Tbps	Up to 960Gbps
Switching Capacity	50Tbps/139Tbps	80Tbps/222.4Tbps	120Tbps/333.6Tbps
Packet Forwarding Rate	3,600Mpps	57,600Mpps	86,400Mpps
Max. Number of 10GE Ports	Up to 240	Up to 768	Up to 1,152
Max. Number of 40GE Ports	Up to 120	Up to 192	Up to 288
PoE	Support	Support	N/A
Port Buffer	Up to 12MB	Up to 24GB	Up to 24GB
ARP Table	Up to 170K		
MAC Address	Up to 512K		
Routing Entries	Up to 384K		
Routing Table Size (IPv4/IPv6)	Up to 12K/6K	Up to 384K/128K	Up to 384K/128K
Multicast Entries (IPv4/IPv6)	Up to 16K/8K		
ACL Entries	Up to 7K	Up to 8K	Up to 8K
VLAN	4K		
QinQ	Basic QinQ, Flexible QinQ		
Link Aggregation	AP, LACP		
Port Mirroring	Many-to-one mirroring, One-to-many mirroring, Flow-based mirroring, Over devices mirroring, VLAN-based mirroring, VLAN-filtering mirroring, AP-port mirroring, RSPAN		
Spanning Tree Protocols	STP, RSTP and MSTP		
DHCP	Support DHCP relay, DHCP snooping, DHCP server, DHCP client		
Multiple Spanning Tree (MST) Instances	64 (not include default 0)		
Maximum Aggregation Port (AP)	Up to 256		
Virtual Routing and Forwarding (VRF) Instances	Up to 1K	Up to 2K	Up to 2K
Data Center Unified Network Features	Data Center Bridging (DCB) features: 802.1Qaz: Enhanced Transmission Selection; 802.1Qau: Congestion Notification (CN/QCN); 802.1Qbb: Priority-based Flow Control (PFC); 802.1Qaz: Enhanced Transmission Selection (ETS)		

Note:

² DB modules for N18007 include: M18000-48XS-DB, M18000-12QXS-DB, M18000-24XS4QXS-DB
ED modules for N18007 include: M18000-24GT20SFP4XS-ED, M18000-48GT-ED, M18000-48GT-P-ED, M18000-44SFP4XS-ED, M18000-08XS-ED, M18000-WS-ED (M18000-WS), RG-WALL 1600-B-ED

Model	RG-N18007	RG-N18010	RG-N18014
Data Center Unified Network Features	Unified switching: Fibre Channel over Ethernet (FCoE) Virtualization: Virtual Ethernet Port Aggregator (VEPA); Virtual Switch Unit (VSU); Transparent Interconnection of Lots of Links (TRILL) ³		
SDN	OpenFlow 1.3 ⁴		
VSU (Virtual Switch Unit)	Up to 4 stack members (Recommended: 2)		
VSD (Virtual Switch Device)	Up to 12 VSD units		
L2 Features	Jumbo Frame, 802.1Q, STP, RSTP, MSTP, Port-based VLAN, Super VLAN, Private VLAN, Protocol-based VLAN, IP subnet-based VLAN, GVRP, QinQ, Flexible QinQ, LLDP, ERPS (G.8032)		
Layer 2 Protocols	IEEE802.1d (STP), IEEE802.1w (RSTP), IEEE802.1s (MSTP), IGMP Snooping, Jumbo Frame (9Kbytes), IEEE802.1ad (QinQ and flexible QinQ), GVRP		
Layer 3 Features	ARP, IPv4/v6, PBR v4/v6		
Layer 3 Protocols (IPv4)	Ping, Traceroute, Equal-Cost Multi-Path Routing (ECMP), URPF, GRE Tunnel(4 over 6), GRE Tunnel(6 over 4), IPv4 VRF		
Centralized Authentication (With RG-SAM+ Integration)	90K IPv4 and IPv6 dual-stack concurrent users; 1,200 devices per second authentication speed; Authentication modes including 802.1x/ Portal/Mac/IPoE; Portal authentication, RADIUS and TACACS+ user authentication; Layer 2 portal, Layer 3 portal authentication; Traffic billing, traffic control, refined management; Gateway authentication		
IPv4 Features	Static routing, RIP, OSPF, IS-IS, BGP4, VRRP, Equal-cost routing, Policy-based routing, GRE Tunnel		
IPv6 Features	Static routing OSPFv3, BGP4+, IS-ISv6, MLDv1/v2, VRRPv3, Equal-cost routing, Policy-based routing, Manual tunnel, Auto tunnel, ISATAP tunnel, GRE tunnel		
Basic IPv6 Protocols	DHCP Relay v6, DHCP Server v6, Telnet v6, TFTP Client v6, FTP v6, NTP client v6, NTP server v6		
IPv6 Routing Protocols	RIP, RIPng, OSPFv2/v3, BGP4, BGP4+, IS-ISv4/v6, Routing Policy		
IPv6 Tunnel Features	6over4 Manual Tunnel, 6to4 Auto Tunnel, Manual Tunnel, Auto Tunnel, ISATAP Tunnel, IPv4 over IPv6 Tunnel, IPv6 over IPv6 Tunnel, GRE Tunnel(4 over 6), GRE Tunnel(6 over 6)		
Multicast	IGMP v1/v2/v3, IGMP proxy, Multicast routing protocols (PIM-DM, PIM-SM, PIM-SSM), MLD, Multicast static routing		
MPLS	MPLS forwarding, LDP, LSP		
G.8032	Support		
ACE Capacity	Up to 7K	Up to 8K	Up to 8K
ACL	Standard/Extended/Expert ACL; ACL 80; IPv6 ACL		
QoS	802.1p, Queue scheduling mechanisms (SP, WRR, DRR, WFQ, SP+WFQ, SP+WRR, SP+DRR), RED/WRED, Input/output port-based speed limit		
IPv6 ACL	Support		
Reliability	Control engine 1+1 redundancy; power supply 1+1 redundancy; Hot-swappable components; Hot patch and online patch upgrade; ISSU ⁵ ; GR for OSPF/IS-IS/BGP; BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing		
EEE Format	Support EEE (802.3az)		

Note:

^{3,4,5} Future release support

Model	RG-N18007	RG-N18010	RG-N18014
Security	NFPP (Network Foundation Protection Policy), CPP (CPU Protection), DAI, Port Security, IP Source Guard, 802.1x, Portal authentication, RADIUS and TACACS+ user login authentication, uRPF, Account privileges and password security policy, Unknown multicasts are not delivered to CPU and support unknown unicasts suppression, Support SSHv2 to provide a secure and encrypted channel for user login		
Manageability	Console/AUX Modem/Telnet/SSH2.0 command line configuration; FTP, TFTP, Xmodem file upload/download management; SNMP V1/V2c/V3; RMON; NTP clock; Fault alarm and self-recovery; System log; sFlow		
Hot Patch	Support		
CWMP	Support		
Smart Temperature Control	Fan speed auto-adjustment; Fan malfunction alerts; Fan status check		
Smart Power Supply	Support power control and management		
Other Protocols	DHCP client, DHCP relay, DHCP server, ARP proxy, Syslog		
Dimensions (W x D x H) (mm)	442 x 598 x 352.8	442 x 836 x 797.3	442 x 814 x 886.2
Rack Height	8RU	18RU	20RU
Weight	30.2kg (total weight of empty chassis and fans)	78.66kg (total weight of empty chassis and fans)	77.86kg (total weight of empty chassis and fans)
MTBF	>200K hours		
Power Supply	RG-PA1600I: 90-180V~1200W; 180-264V~1600W RG-PA600I: 90-180V~600W; 180-264V~600W RG-PD1600I: -40.5VDC-75VDC ~1600W RG-PD600I: -40.5VDC-75VDC ~600W RG-PA1600I-PL: 90-180V~1000W; 180-264V~1600W RG-PA3000I-PL: 90-180V~1200W; 210-264V~3000W	RG-PA1600I: 90-180V~1200W; 180-264V~1600W, 16A RG-PA600I: 90-180V~600W; 180-264V~600W, 10A RG-PD1600I: -40.5VDC-75VDC ~1400W RG-PD600I: -40.5VDC-75VDC ~600W RG-PA1600I-P: 90-180V~1200W; 180-264V~1600W, 16A	RG-PA1600I: 90-180V~1200W; 180-264V~1600W, 16A RG-PA600I: 90-180V~600W; 180-264V~600W, 10A RG-PD1600I: -40.5VDC-75VDC ~1400W RG-PD600I: -40.5VDC-75VDC ~600W
Power Consumption	<432W	<730W	<860W
PoE Power	<6,000W	<3,200W	N/A
Temperature	Operating temperature: 0°C to 50°C		
	Storage temperature: -40°C to 70°C		
Humidity	Operating humidity: 10% to 90% RH (non-condensing)		
	Storage humidity: 5% to 95% RH		
Operating Altitude	-500m to 5,000m		

Weight and Typical Power

Below table lists the weight and maximum power consumption of the Newton 18000 switch platform.

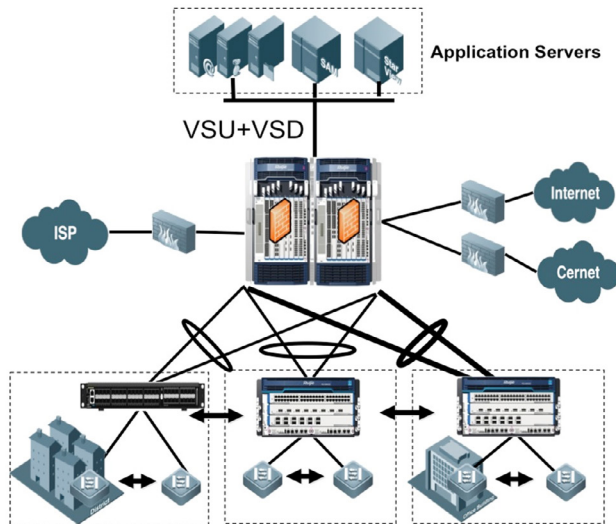
Component	Weight	Maximum Power
Main Chassis		
• Ruijie RG-N18007 chassis with fan	30.2kg	432W
• Ruijie RG-N18010 chassis with fan	78.66kg	730W
• Ruijie RG-N18014 chassis with fan	77.86kg	860W
Control Engine		
• M18007-CM II	2.0kg	102W
• M18007-CM II Lite	2.0kg	102W
• M18010-CM	1.68kg	40W
• M18010-CM II	2.04kg	100W
• M18014-CM	3.22kg	40W
• M18014-CM II	3.58kg	95W
Fabric Engine		
• M18010-FE-C I	2.72kg	90W
• M18010-FE-D I	2.8kg	107W
• M18010-FE-D III	3.36kg	313W
• M18014-FE-C I	3.54kg	90W
• M18014-FE-C II	4.22kg	150W
• M18014-FE-D I	3.76kg	158W
• M18014-FE-D III	4.56kg	425W
Power Supply		
• RG-PA1600I	2.04kg	N/A
• RG-PA600I	1.64kg	
• RG-PA1600I-P	1.6kg	
• RG-PA3000I-PL	1.6kg	N/A
• RG-PD1600I	1.6kg	
• RG-PD600I	1.3kg	
Line Card & Service Module		
• M18000-44SFP4XS-ED	3.76kg	135W
• M18000-44SFP4XS-EF	3.86kg	175W
• M18000-44SFP4XS-CB	5.06kg	267W
• M18000-48GT-ED	3.7kg	95W
• M18000-48GT-EF	3.8kg	175W
• M18000-48GT-P-ED	4.04kg	95W
• M18000-24GT20SFP4XS-ED	3.76kg	100W
• M18000-08XS-ED	3.42kg	85W
• M18000-08XS-EF	3.52kg	120W

Component	Weight	Maximum Power
• M18000-16XS-CB	4.20kg	156W
• M18000-16XT-CB	4.50kg	250W
• M18000-40XS-CB	5.20kg	296W
• M18000-48XS-DB	4.25kg	232W
• M18000-24XS4QXS-DB	4.0kg	208W
• M18000-10QXS-CB	4.82kg	257W
• M18000-12QXS-DB	3.92kg	200W
• M18000-24QXS-DB	4.95kg	374W
Multiservice Module		
• RG-WALL 1600-B-ED	4.58kg	190W
• RG-M18000-WS-ED	4.58kg	190W
• M18000-MS-ED	4.58kg	190W

TYPICAL APPLICATION

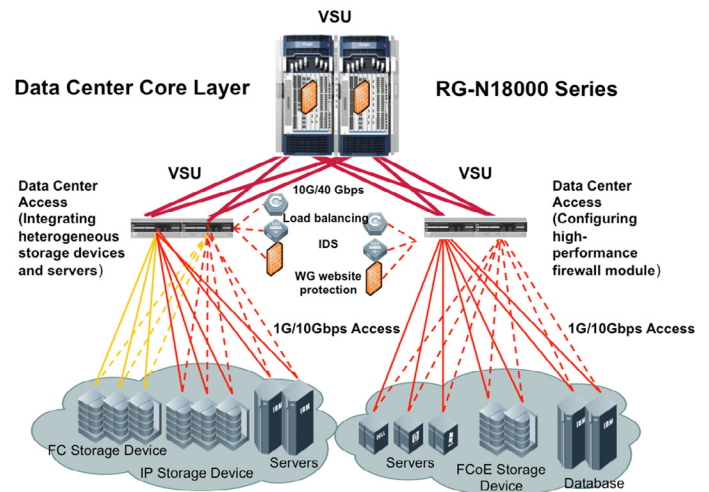
The Ruijie Newton 18000 platform is applicable to a wide range of deployment scenarios. The series can act as the core for large campus network, data center network, integrated network of data center and campus network, and large MAN. Respective illustrations are shown below.

Large Campus Network Core

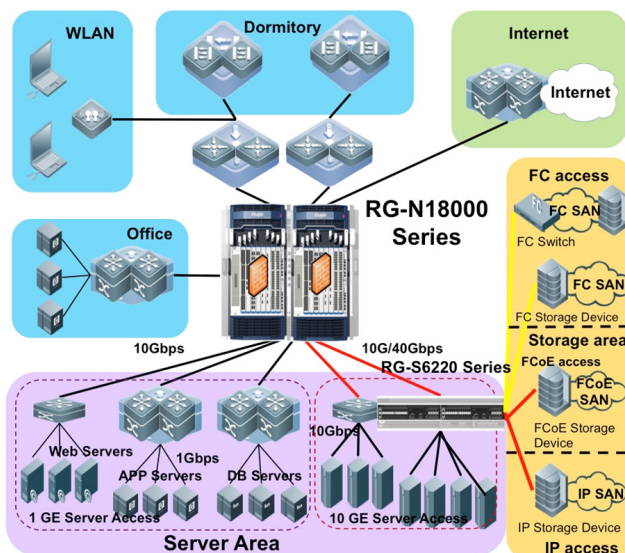


RG-N18000 switches are connected through 40GE ports to build a core network, implementing non-blocking switching.

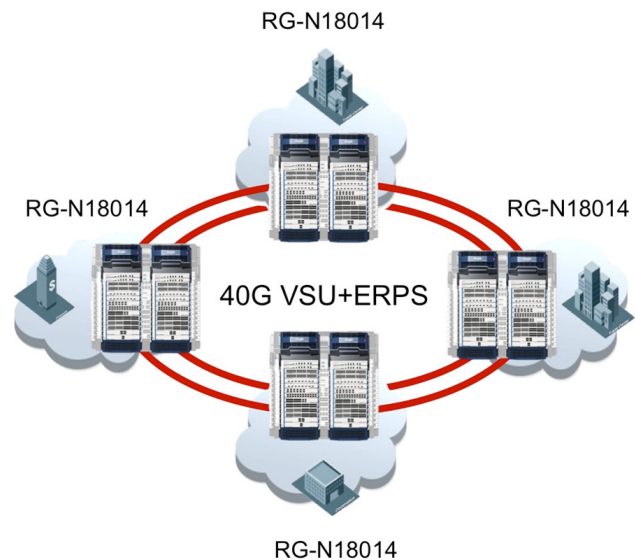
Data Center Network Core



Campus Network & Data Center Network Core



Large MAN Core



ORDERING INFORMATION

1. Main Chassis & Engine Management

Select the main chassis and control engine according to specific product model.

Model	Description
RG-N18000 Series Main Chassis & Control Engine	
RG-N18014	14-slot Chassis with fan (without power supply)
RG-N18010	10-slot Chassis with fan (without power supply)
RG-N18007	7-slot Chassis with fan (without power supply)
M18014-CM II	N18014 2nd Generation Control Engine
M18014-CM	N18014 Control Engine
M18010-CM II	N18010 2nd Generation Control Engine
M18010-CM	N18010 Control Engine
M18007-CM	N18007 1st Generation Control Engine
M18007-CM II	N18007 2nd Generation Control Engine
M18007-CM II Lite	N18007 2nd Generation Lite Control Engine

2. Power Supply

Please select at least 1 power module or up to N+M redundancy according to the power supply requirement of the device.

Model	Description
RG-PA600I	N18000 Power Module (support redundancy, AC, 600W, 10A)
RG-PD600I	N18000 Power Module (support redundancy, DC, 600W)
RG-PA1600I	N18000 Power Module (support redundancy, AC, 1600W, 16A)
RG-PD1600I	N18000 Power Module (support redundancy, DC, 1400W)
RG-PA1600I-PL	N18000 PoE Power Module (support redundancy, AC, 1600W, 16A)
RG-PA3000I-PL	N18000 PoE Power Module (support redundancy, AC, 3000W, 16A)

3. Fabric Engine

Please select at least 1 or up to 4 fabric engines. It is recommended to select at least 2 to ensure fabric engine redundancy.

Model	Description
M18014-FE-D III	N18014 D Series 3rd Generation Fabric Engine (For ED and DB series Line Card and Service Module)
M18014-FE-D I	N18014 D Series 1st Generation Fabric Engine (For ED and DB series Line Card and Service Module)
M18010-FE-D III	N18010 D Series 3rd Generation Fabric Engine (For ED and DB series Line Card and Service Module)
M18010-FE-D I	N18010 D Series 1st Generation Fabric Engine (For ED and DB series Line Card and Service Module)
M18014-FE-C II	N18014 C Series 2nd Generation Fabric Engine (For CB series Line Card and Service Module)
M18014-FE-C I	N18014 C Series 1st Generation Fabric Engine (For CB series Line Card and Service Module)
M18010-FE-C III	N18010 C Series 3rd Generation Fabric Engine (For CB series Line Card and Service Module)
M18010-FE-C I	N18010 C Series 1st Generation Fabric Engine (For CB series Line Card and Service Module)

4. Line Card & Service Module⁶

Select the host line cards according to your application scenario.

Model	Description
M18000-44SFP4XS-ED	44 Gigabit Ethernet fiber ports (SFP, LC), 4-port 10GE Ethernet optical interface board (SFP+, LC)
M18000-44SFP4XS-EF	44 Gigabit Ethernet fiber ports (SFP, LC), 4-port 10GE Ethernet optical interface board (SFP+, LC)
M18000-44SFP4XS-CB	44 Gigabit Ethernet fiber ports (SFP, LC), 4-port 10GE Ethernet optical interface board (SFP+, LC)
M18000-48GT-ED	48-port Gigabit Ethernet electrical interface board (RJ45)
M18000-48GT-EF	48-port Gigabit Ethernet electrical interface board (RJ45)
M18000-48GT-P-ED	48-port Gigabit PoE Ethernet electrical interface board (RJ45)
M18000-24GT20SFP4XS-ED	24-port Gigabit Ethernet electrical interface board (RJ45), 20 Gigabit Ethernet fiber ports (SFP, LC), 4 10GE Ethernet fiber ports (SFP+, LC)
M18000-08XS-ED	8 10GE fiber ports (SFP+, LC)
M18000-08XS-EF	8 10GE fiber ports (SFP+, LC)
M18000-16XS-CB	16 10GE fiber ports (SFP+, LC)
M18000-16XT-CB	16 10GE copper ports (RJ45)
M18000-40XS-CB	40 10GE fiber ports (SFP+, LC)
M18000-48XS-DB	48 10GE fiber ports (SFP+, LC)
M18000-24XS4QXS-DB	24 10GE fiber ports (SFP+, LC) + 4 40GE fiber module (QSFP+, MPO)
M18000-10QXS-CB	10 40GE fiber ports (QSFP+, MPO)
M18000-12QXS-DB	12 40GE fiber ports (QSFP+, MPO)
M18000-24QXS-DB	24 40GE fiber ports (QSFP+, MPO)
M18000-24QXS-CB	24 40GE fiber ports (QSFP+, MPO)
M18000-04CQ-DB	4 100GE fiber ports (QSFP28)
M18000-08CQ-CB	8 100GE fiber ports (QSFP28)
M18000-12CQ-EH	12 100GE fiber ports (QSFP28)
Multiservice Module	
RG-WALL 1600-B-ED	Firewall module, support RG-N18000 Series, deploy with ED and DB line cards
RG-M18000-WS-ED	Wireless control module

5. Transceiver and Cable

Model	Description
Mini-GBIC-SX	1000BASE-SX, SFP Transceiver, MM (850nm, 550m, LC)
Mini-GBIC-LX	1000BASE-LX, SFP Transceiver, SM (1310nm, 10km, LC)
Mini-GBIC-GT	1000BASE-TX, SFP Transceiver (100m)
Mini-GBIC-LH40	1000BASE-LH, SFP Transceiver, SM (1310nm, 40km, LC)
Mini-GBIC-ZX50	1000BASE-ZX, SFP Transceiver, SM (1550nm, 50km, LC)
Mini-GBIC-ZX80	1000BASE-ZX, SFP Transceiver, SM (1550nm, 80km, LC)

Note:

⁶ N18007 does not support EF, CB module and M18000-24QXS-DB

Model	Description
Mini-GBIC-ZX100	1000BASE-ZX, SFP Transceiver, SM (1550nm, 100km, LC)
XG-SFP-CU1M	10GBASE-CU SFP+ Cable 1 Meter
XG-SFP-CU3M	10GBASE-CU SFP+ Cable 3 Meter
XG-SFP-SR-MM850	10GBASE-SR, SFP+ Transceiver, MM (850nm, 300m, LC)
XG-SFP-LR-SM1310	10GBASE-LR, SFP+ Transceiver, SM (1310nm, 10km, LC)
XG-SFP-ER-SM1550	10GBASE-ER, SFP+ Transceiver, SM (1550nm, 40km, LC)
XG-SFP-ZR-SM1550	10GBASE-LC, SFP+ Transceiver, SM (1550nm, 80km, LC)
40G-QSFP-STACK1M	40G Copper Cable for QSFP+, 1M
40G-QSFP-STACK3M	40G Copper Cable for QSFP+, 3M
40G-AOC-5M	40G Cable for QSFP+, 5M
40G-AOC-10M	40G Cable for QSFP+, 10M
40G-QSFP-SR-MM850	40GBASE-SR, QSFP+ Transceiver, MM (850nm, 100m with OM3 fiber, 150m with OM4 fiber, MPO)
40G-QSFP-LSR-MM850	40GBASE-SR, QSFP+ Transceiver, MM (850nm, 300m with OM4 fiber, 400m with OM4 fiber, MPO)
40G-QSFP-LR4-SM1310	40G LR Single-mode Fiber Module, QSFP+ Transceiver, LC, 10km (1310nm)
40G-QSFP-LR4-PSM-SM1310	40G LR Single-mode 1-to-4 Fiber Module, QSFP+ Transceiver, LC, 10km (1310nm)
QSFP-MPO8-4LC-SM-1M	40G Single-mode 1-to-4 Fiber Jumper, MPO/APC-4*LC/PC, 8 cores, 1m, for 40G-QSFP-LR4-PSM-SM1310
QSFP-MPO8-4LC-MM-1M	40G Single-mode 1-to-4 Fiber Jumper, MPO/APC-4*LC/PC, 8 cores, 1m, for 40G-QSFP-SR-MM850 and 40G-QSFP-LSR-MM850
100G-QSFP-SR-MM850	100GBASE-SR, QSFP28 Transceiver, MM (850nm, 70m with OM3 fiber, 100m with OM4 fiber, MPO)
100G-QSFP-iLR4-PSM-SM1310	100G iLR Fiber Module, QSFP28 Transceiver, MPO/APC, 2km (1310nm)
100G-QSFP-LR4-SM1310	100G LR Fiber Module, QSFP28 Transceiver, LC, 10km (1310nm)



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