Ruijie Newton RG-N18000

Campus Network Core Switch Series Datasheet

Ruijie Newton 18000 Switch Series (RG-N18000) is industry leading core switch with a broad spectrum of specialized campus network features. Ruijie RG-N18000 core switches achieve virtualization, and wired wireless integration. With AC line card, it supports management of maximum 2560 APs. At the same time, Ruijie RG-N18000 core switches support combo-port line module option, giving you a variety of options for your network.

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.

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.

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
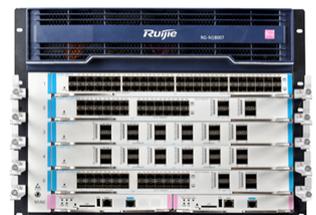- Ready for future: support 100G Ethernet and SDN/ OpenFlow


RG-N18014   RG-N18012   RG-N18010   RG-N18007

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RG-N18000 Series has 4 models: RG-N18014, RG-N18012, 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 campus network.
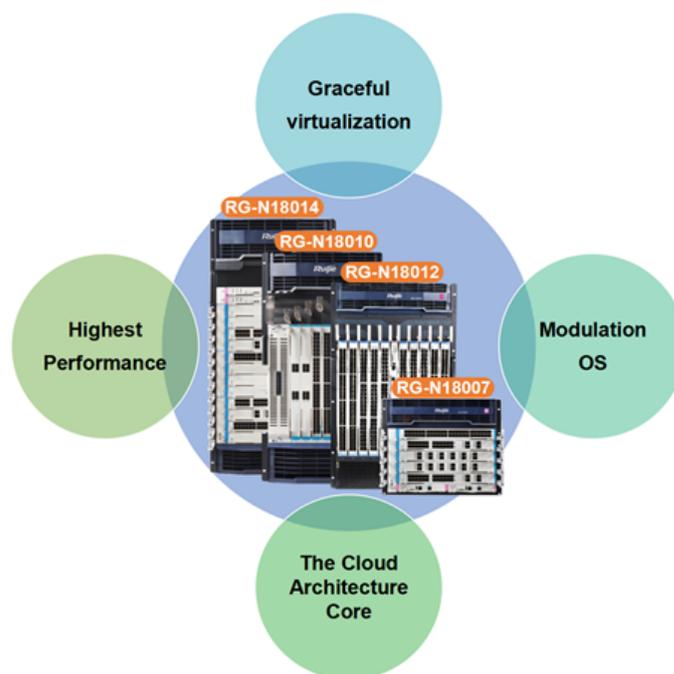
Innovative Feature Highlights of Ruijie Newton 18000 Series

PRODUCT FEATURES

Ultra-Simplified Solution for Campus Networks

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

The RG-N18000 Series 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 Series supports ≥170K ARP capacity, concurrent ≥60K IPv4/IPv6 dual stack devices with centralized authentication and authentication speed of 1000 devices per second.

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

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 are 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.

World's Leading Campus Network Core

CLOS Non-Blocking Architecture[1]
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.

Note:

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

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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 supports high-density 40GE 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.

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.

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.

VSD
1 physical device can be distributed into 12 logical devices
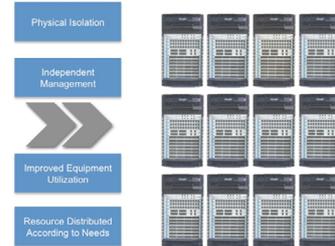
Benefits of 1-to-12 Virtualization

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.

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 series platforms will fully support OpenFlow modular hardware switching

■ SDN Controller RG-IONC
  Ruijie Intelligent OpenFlow Network System is a X86 hardware platform, which fully supports OpenFlow 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

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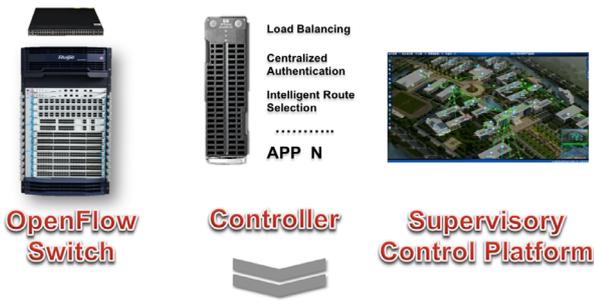
N18000 Offers a Comprehensive SDN Solution

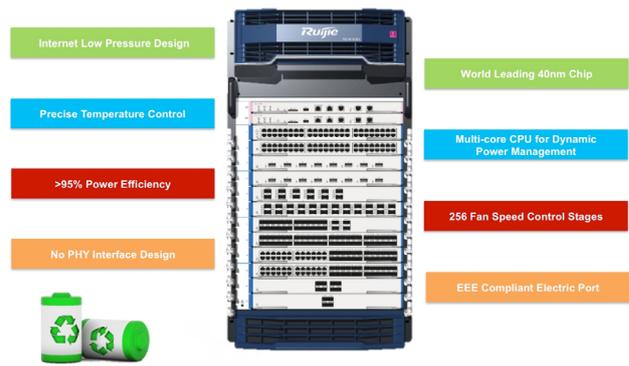Abundant Energy Conservation Features

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 is 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.

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.
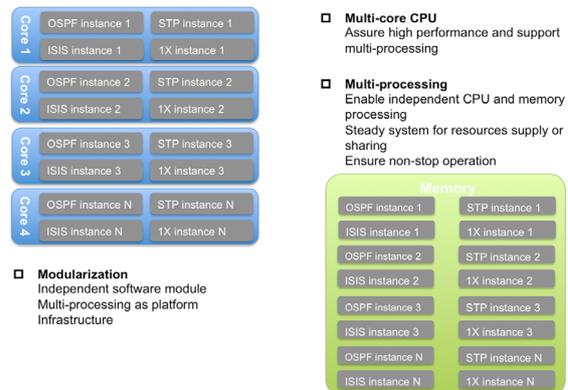
Architecture and Benefits of Multi-Process Modular Operating System

PLATFORM COMPONENTS

The Ruijie Newton 18000 platform provides high forwarding performance, high-density 10GE/100GE ports, and 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:

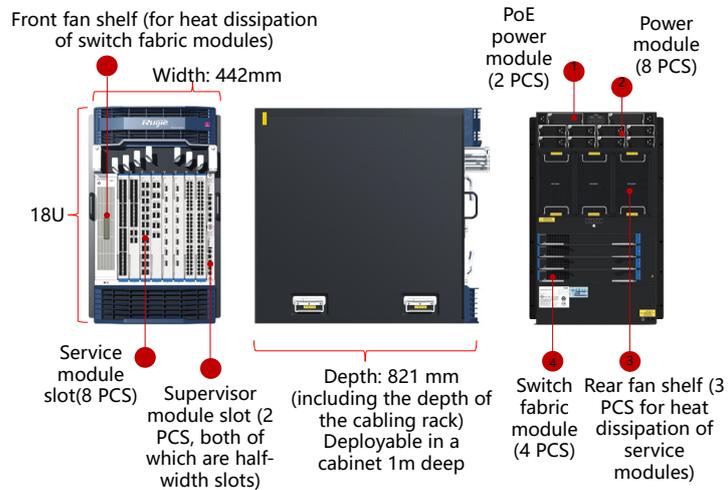| Specifications	RG-N18007	RG-N18010	RG-N18012	RG-N18014
Dimensions (W x D x H) (mm)	442 x 598 x 352.8 (8U)	442 x 836 x 797.3 (18U)	442 x 725 x 708.4 (16U)	442 x 814 x 886.2 (20U)
Number of Control Engine Slots	2	2	2	2
Number of Service Module Slots	5	8	10	12
Number of Fabric Engine Slots	N/A	4	4	4
Max. Number of 10GE Ports	Up to 240	Up to 384/ 768 (40GE ports for 1-to-4 splitting)	Up to 480	Up to 576/1152 (40GE ports for 1-to-4 splitting)
Max. Number of 40GE Ports	Up to 60	Up to 192	Up to 120	Up to 288
Max. Number of 100GE Ports	N/A	Up to 96	Up to 120	Up to 144

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.
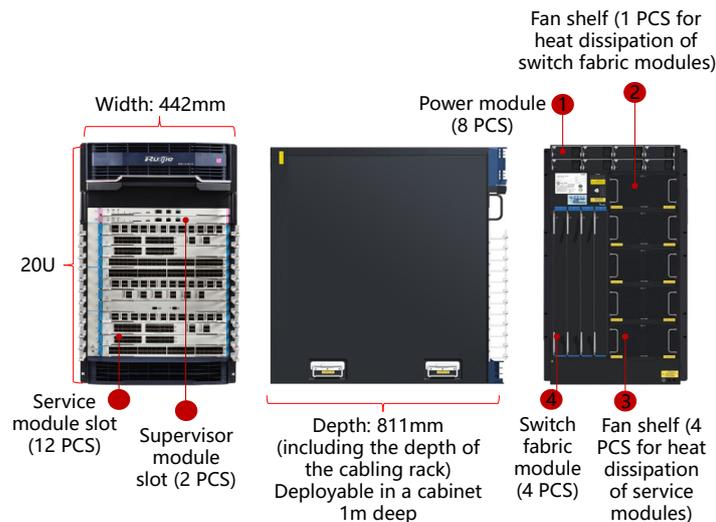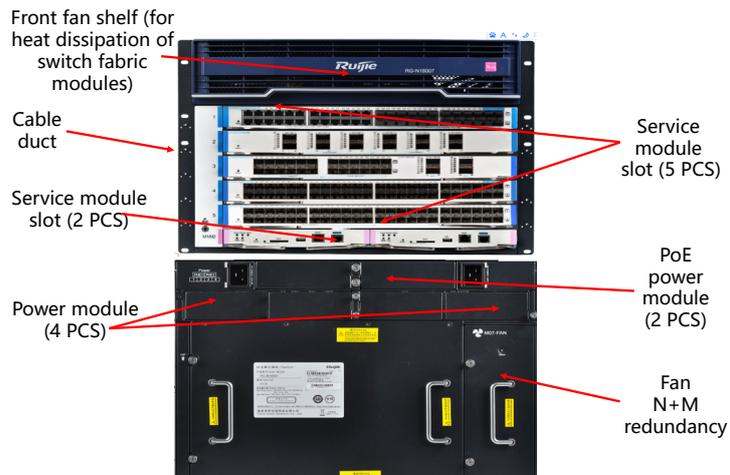

Ruijie RG-N18014 Platform Components

Ruijie RG-N18012 Platform Components

Ruijie RG-N18010 Platform Components

Ruijie RG-N18007 Platform Components

TECHNICAL SPECIFICATIONS

Model	RG-N18007	RG-N18010	RG-N18012	RG-N18014
Module Slots	7 (2 for control engines)	10 (2 for control engines)	12 (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)	6 (all for system power)	8 (all for system power)
Fan Slots	1	4	2	5
Control Engine Slots	2	2	2	2
Service Module Slots	5	8	10	12
Fabric Engine Slots	N/A	4	4	4
Switching Capacity	260.6Tbps	417Tbps	521.3Tbps	625.5Tbps
Packet Forwarding Rate	900Mpps	11,520Mpps	3,840Mpps	17,280Mpps
Max. Number of 10GE Ports	Up to 240	Up to 768	Up to 480	Up to 1,152
Max. Number of 40GE Ports	Up to 60	Up to 192	Up to 120	Up to 288
Max. Number of 100GE Ports	N/A	Up to 96	Up to 120	Up to 144
PoE	Support	Support	N/A	N/A
Port Buffer	Up to 16MB	Up to 24GB	Up to 24MB	Up to 24GB
ARP Table	Up to 170K			
MAC Address	Up to 512K	Up to 512K	Up to 225K	Up to 512K
Routing Entries (IPv4/IPv6)	Up to 16K/8K			
Multicast Entries (IPv4/IPv6)	Up to 16K/8K			
ACL Entries	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 2K			
Data Center Unified Network Features	L2 GRE			
VXLAN[2]	VXLAN Layer 2 Bridge, VXLAN Layer 3 Bridge, EVPN VXLAN			
SDN	OpenFlow			

Note:

[2] Data Center Line Card is required for VXLAN features

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Model	RG-N18007	RG-N18010	RG-N18012	RG-N18014
VSU (Virtual Switch Unit)	Up to 2 stack members			
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)	60K IPv4 and IPv6 dual-stack concurrent users; 1,000 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, MPLS VPN, VPLS/VPWS, LDP, LSP			
G.8032	Support			
ACE Capacity	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, and 8 hardware queues at egress ports), 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; GR for OSPF/IS-IS/BGP; BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing			
EEE Format	Support EEE (802.3az)			
Security	NFPP (Network Foundation Protection Policy), CPP (CPU Protection), DAI, ARP Check, 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			

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Model	RG-N18007	RG-N18010	RG-N18012	RG-N18014
Hot Patch	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 725 x 708.4	442 x 814 x 886.2
Rack Height	8RU	18RU	16U	20RU
Weight	30.2kg (total weight of empty chassis and fans)	103.32kg (total weight of empty chassis and fans)	105kg (total weight of empty chassis and fans)	107.55kg (total weight of empty chassis and fans)
MTBF	229K hours	259K hours	259K hours	216K 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-PL: 90-180V~1000W; 180-264V~1600W (PoE) RG-PA3000I-PL: 90-180 V~1200W; 210-264V~3000W (PoE)	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: 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	<518W	<860W
PoE Power	<6,000W	<6,000W	N/A	N/A
Temperature	Operating temperature: 0ºC to 50ºC			
	Storage temperature: -40ºC to 70ºC			
Humidity	Operating humidity: 10% to 90% RH (non-condensing)			
	Storage humidity: 5% to 95% RH			
Operating Altitude	-500m to 4,000m			

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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	103.32kg	730W
• Ruijie RG-N18012 chassis with fan	105kg	518W
• Ruijie RG-N18014 chassis with fan	107.55kg	860W
Control Engine		
• M18007-CM	1.68kg	40W
• M18007-CM II	2.0kg	102W
• M18007-CM II Lite	2.0kg	102W
• M18010-CM	1.68kg	40W
• M18010-CM II	2.04kg	95W
• M18012-CM	1.68kg	40W
• M18012-CM II	2.0kg	95W
• M18014-CM	3.22kg	40W
• M18014-CM II	3.58kg	100W
Fabric Engine		
• M18010-FE-D I	2.8kg	107W
• M18010-FE-D III	3.36kg	313W
• M18012-FE-D I	2.2kg	107W
• 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-PL	1.6kg	
• RG-PA3000I-PL	1.6kg	
• RG-PD1600I	1.6kg	
• RG-PD600I	1.3kg	
Line Card & Service Module		
• M18000-44SFP4XS-ED	3.76kg	135W
• M18000-48GT-ED	3.7kg	95W
• M18000-48GT-P-ED	4.04kg	95W
• M18000-24GT20SFP4XS-ED	3.76kg	100W
• M18000-08XS-ED	3.42kg	85W
• M18000-16XS2QXS-ED	4.55kg	267W
• M18000-48XS-DC	4.25kg	232W
• M18000-24XS4QXS-DC	4.0kg	208W

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Component	Weight	Maximum Power
• M18000-12QXS-DC	3.92kg	200W
• M18000-24QXS-DB	4.95kg	374W
• M18000-12CQ-EH	5.4kg	366W
Multiservice Module		
• M18000-MSC-ED	4.58kg	190W
• M18000-WS-ED	4.58kg	190W
• RG-WALL 1600-B-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
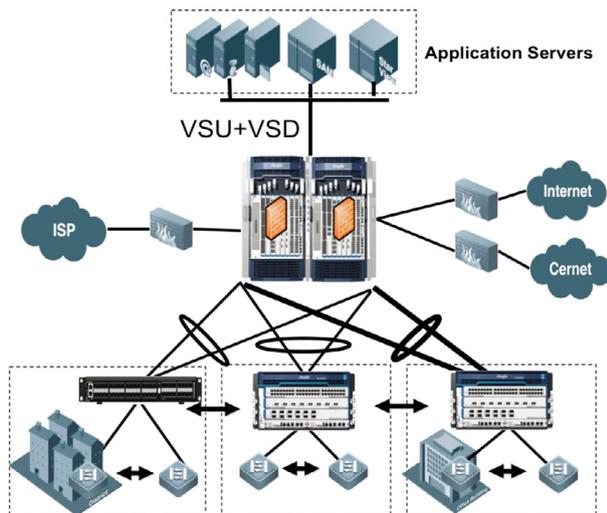
RG-N18000 switches are connected through 40GE ports to build a core network, implementing non-blocking switching.

Large MAN Core

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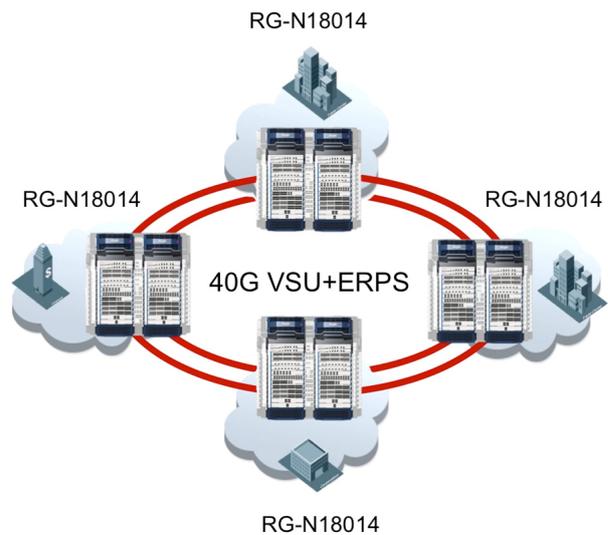
ORDERING INFORMATION

1. Main Chassis & Engine Management

Select the main chassis and control engine according to specific product model. The 2nd generation control engines are designed to achieve the best performance in centralized authentication scenarios.

Model	Description
RG-N18000 Series Main Chassis & Control Engine	
RG-N18014	14-slot Chassis with fan (without power supply)
RG-N18012	12-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
M18012-CM II	N18012 2nd Generation Control Engine
M18012-CM	N18012 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)
M18012-FE-D I	N18012 D Series 1st Generation Fabric Engine
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)

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4.   Line Card & Service Module[3]

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)
M18000-48GT-ED	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)
M18000-16XS2QXS-ED	16-port 10GE fiber ports (SFP+,LC)+ 2-port 40GE Ethernet optical interface board (QSFP+,MPO)
M18000-08XS-ED	8 10GE fiber ports (SFP+, LC)
M18000-48XS-DC	48 10GE fiber ports (SFP+, LC)
M18000-24XS4QXS-DC	24 10GE fiber ports (SFP+, LC) + 4-port 40GE optical interface module (QSFP+, MPO)
M18000-12QXS-DC	12 40GE fiber ports (QSFP+, MPO)
M18000-24QXS-DB	24 40GE fiber ports (QSFP+, MPO)
M18000-12CQ-EH[4]	12 100GE fiber ports(QSFP28)
Multi-service Line Card	
RG-WALL 1600-B-ED[5]	Firewall card, 2 10GE fiber ports (SFP+, LC)
M18000-WS-ED	WS Series Wireless Controller Module for RG-N18000 Switch Series, 2 1G/10GBASE-X SFP+ ports, 128 APs License by default, maximum 2560 APs or 4000 Wall APs License

5.   Transceiver and Cable

Model	Description
Mini-GBIC-SX-MM850	1000BASE-SX mini GBIC Transceiver (850nm)
Mini-GBIC-LX-SM1310	1000BASE-LX mini GBIC Transceiver (1310nm)
Mini-GBIC-GT	1000BASE-TX, SFP Transceiver (100m)
Mini-GBIC-LH40-SM1310	1000BASE-LH mini GBIC Transceiver (1310nm, 40km)
Mini-GBIC-ZX50-SM1550	1000BASE-ZX mini GBIC Transceiver (1550nm, 50km)
Mini-GBIC-ZX80-SM1550	1000BASE-ZX mini GBIC Transceiver (1550nm, 80km)
Mini-GBIC-ZX100-SM1550	1000BASE-ZX mini GBIC Transceiver (1550nm, 100km)
XG-SFP-AOC1M	10GBASE SFP+ Optical Stack Cable (included both side transceivers) , 1 Meter
XG-SFP-AOC3M	10GBASE SFP+ Optical Stack Cable (included both side transceivers), 3 Meter
XG-SFP-AOC5M	10GBASE SFP+ Optical Stack Cable (included both side transceivers), 5 Meter
XG-SFP-AOC10M	10GBASE SFP+ Optical Stack Cable (included both side transceivers), 10 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)

Note:

[3] N18007 does not support EH, EF, CB module and M18000-24QXS-DB

[4,5] Scenario-based design, orders will only be accepted after confirming scenario of use.

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Model	Description
XG-SFP-ER-SM1550	10GBASE-ER, SFP+ Transceiver, SM (1550nm, 40km, LC)
XG-SFP-ZR-SM1550	10GBASE-ZR, SFP+ Transceiver, SM (1550nm, 80km, LC)
40G-AOC-5M	40G Cable for QSFP+, 5M
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-LR4-SM1310	100G LR Fiber Module, QSFP28 Transceiver, LC, 10km (1310nm)
FE-SFP-LX-MM1310	100BASE-LX, SFP Transceiver, MM (1310nm, 2km, LC)
FE-SFP-LH15-SM1310	100BASE-LH, SFP Transceiver, SM (1310nm, 15km, LC)
GE-SFP-LX20-SM1310-BIDI	1000BASE-LX, SFP Transceiver, BIDI-TX1310/RX1550, 20km, LC
GE-SFP-LX20-SM1550-BIDI	1000BASE-LX, SFP Transceiver, BIDI-TX1550/RX1310, 20km, LC
GE-SFP-LH40-SM1310-BIDI	1000BASE-LH, SFP Transceiver, BIDI-TX1310/RX1550, 40km, LC
GE-SFP-LH40-SM1550-BIDI	1000BASE-LH, SFP Transceiver, BIDI-TX1550/RX1310, 40km, LC
XG-SFP-LR-SM1330-BIDI	10GBASE-LR, SFP+ Transceiver, BIDI-TX1310/RX1270,10km, LC
XG-SFP-LR-SM1270-BIDI	10GBASE-LR, SFP+ Transceiver, BIDI-TX1310/RX1270,10km, LC
CON-DB9/RJ45-2M	Ruijie Console Cable RJ45-to-DB9 (2m)

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For further information, please visit our website: http://www.ruijienetworks.com