Huawei NetEngine AR8000 Series Enterprise Router Data Sheet

NetEngine AR8000 series enterprise routers are designed by Huawei for enterprise headquarters and large branches. These routers offer a wide range of service features such as SD-WAN, routing, switching, and security, and come equipped with various interface types such as Ethernet, LTE/5G, E1, POS, and GPON/xGSPON, which allows them to deliver high performance and diversified services to meet the needs of different enterprises.

Product Overview

Huawei's next-generation NetEngine AR8000 series enterprise routers are fitted with ARM multi-core processors and a non-blocking switching structure, delivering superior performance particularly when dealing with diverse and cloud-based services.

Huawei NetEngine AR8000 series enterprise routers are ideal for enterprise headquarters and large branches and can be deployed at the network egress as needed. This series consists of models such as NetEngine AR8140-12G10XG, NetEngine AR8140-T-12G10XG, and NetEngine AR8700-8, which can meet networking requirements of enterprises of different scales. In addition, they offer a variety of interface cards, such as Ethernet, LTE, E1, and POS, to help extend enterprise services.

- **Rich access capability**: Ethernet, LTE/5G (5G RUs), E1, POS, and GPON/xGSPON
- **High-quality SD-WAN**: fast ZTP, all-scenario networking architecture, application quality-based intelligent traffic steering, and WAN optimization, helping deliver ultimate service experience
- **Superior performance**: high-speed access of 5G RUs and service cards
- **AI**: bandwidth planning, network orchestration, policy recommendation, in-band flow measurement, and automatic fault locating
- **Security protection**: stateful firewall, IPsec, IPS, URL filtering, antivirus, signature database and antivirus database update, and interconnection with third-party SSE security clouds
- **Reliability**: carrier-class hardware reliability, network-level high reliability, fast service fault recovery, and hot swapping supported
- **Easy O&M and management**: single-site ZTP within 5 minutes, batch site replication, SD-Branch LAN/WAN converged management, 5G RU and switch RU plug-and-play, digital map, visualized application quality and bandwidth, rights- and domain-based management, diversified alarm and log management methods, and report generation

 NetEngineAR8140-12G10XG	• Fixed WAN ports*: 10 x 10GE SFP+, 8 x GE Combo, 4 x GE electrical • 4 x SIC card • Dimensions (H x W x D): 44.4 mm x 442.0 mm x 420.0 mm • Dual power modules (AC/DC)
 NetEngine AR8140-T-12G10XG	• Fixed WAN ports*: 10 x 10GE SFP+, 8 x GE Combo, 4 x GE electrical • 4 x SIC card • Dimensions (H x W x D): 44.4 mm x 442.0 mm x 420.0 mm • Dual power modules (AC/DC) • TPM

 NetEngine AR8700-8	• Fixed WAN ports*: 1 x 40GE QSFP+, 8 x 10GE SFP+, 8 x GE Combo • 8 x SIC card • Dimensions (H x W x D): 88.1 mm x 442.0 mm x 482.8 mm • Dual power modules (AC/DC) • Independent dual MPUs

*: Supported by all models: All fixed ports are LAN/WAN interchangeable.

Features and Highlights

Features and Highlights of NetEngine AR8000

Service Requirement	Feature and Highlight
High performance	• Integrates the ARM multi-core processor, NP network processor, hardware encryption/decryption engine, hardware TM engine, and hardware FEC codec engine, based on the self-developed SOC chip architecture. • Offers industry-leading performance, ensuring a low latency for mission-critical services. • Comes equipped with a high-performance multi-core processor that supports high-speed WAN connections and powerful route computing, improving L4–L7 service processing efficiency.
High reliability	• Provides backup links for enterprise services, enhancing service access reliability. • Detects link faults and completes route convergence in milliseconds, greatly shortening the service interruption time. • Comes equipped with dual MPUs (for AR8700 series only), ensuring zero video freezing during service switchovers.
Easy O&M	• Supports on-premises and cloud-based management by iMaster NCE-Campus using various protocols, such as NETCONF and SNMP, and high-performance data collection through telemetry. These help simplify network deployment, visualize O&M, and reduce OPEX.
SD-WAN	• Is ideal for the SD-WAN solution to build cost-effective and business-friendly connections over the Internet. • Supports application identification and link quality-based intelligent traffic steering, guaranteeing the experience of key applications. • Supports multi-link routing, dual-hub flexible networking, end-to-end IPsec encryption plus reliable devices, ensuring secure service transmission.

Product Specifications

Features and Values of Huawei NetEngine AR8000 Series

Specifications	NetEngine AR8140-12G10XG NetEngine AR8140-T-12G10XG	NetEngine AR8700-8
System Parameters		
Forwarding performance (NAT+ACL+QoS, IMIX)	25 Gbps	30 Gbps
IPsec performance (IMIX)	20 Gbps	20 Gbps
IPsec performance (1420 bytes)	50 Gbps	50 Gbps

Specifications	NetEngine AR8140-12G10XG NetEngine AR8140-T-12G10XG	NetEngine AR8700-8
SD-WAN IPsec performance (IMIX)	22 Gbps	24 Gbps
SD-WAN IPsec performance (1400 bytes)	55 Gbps	60 Gbps
SD-WAN typical performance* (IMIX)	15 Gbps	15.5 Gbps
SD-WAN typical performance* (1400 bytes)	48 Gbps	40 Gbps
Fixed WAN ports	10 x 10GE SFP+, 8 x GE Combo, 4 x GE electrical (All WAN ports can be switched to LAN ports)	1 x 40GE QSFP+, 8 x 10GE SFP+, 8 x GE Combo (All WAN ports can be switched to LAN ports)
5G RU	Supported	Supported
Switch RU	Supported	Supported
SIC slot	4 x SIC	8 x SIC
WSIC slot (default/maximum**)	0/2	0/4
Auxiliary or console port	1 x RJ45 console port	1 x RJ45 console port
USB port	1 x USB	1 x USB
Memory (SPU)	16 GB	16 GB
Memory (MPU)		8 GB
Flash (MPU)	4 GB	4 GB
TPM	Supported only by the NetEngine AR8140-T-12G10XG	Not supported
*: Scenario where the typical SD-WAN performance specification applies: IPsec + QoS + SA + AppFlow. This specification applies to the combined total of traffic in inbound and outbound directions. **: The maximum number of slots includes the number of combined slots.		
Dimensions and Weight		
Dimensions without packaging (excluding the parts protruding from the body\) (H x W x D)	44.4 mm x 442.0 mm x 420.0 mm	88.1 mm x 442.0 mm x 482.8 mm
Dimensions without packaging (the depth is the distance from ports on the front panel to the handle on the rear panel) (H x W x D)	44.4 mm x 442.0 mm x 442.5 mm	88.1 mm x 442.0 mm x 525.1 mm
Dimensions with packaging (H x W x D)	205 mm x 585 mm x 760 mm	205 mm x 585 mm x 760 mm
Installation type	Rack	Rack

Specifications	NetEngine AR8140-12G10XG NetEngine AR8140-T-12G10XG	NetEngine AR8700-8
Occupied rack space	1 U	2 U
Power Specifications, Power Consumption, and Heat Dissipation		
Rated input voltage (V)	AC: 100 V to 240 V, 50 Hz/60 Hz HVDC: 240 V DC: -48 V/-60 V/+48 V	AC: 110 V/220 V, 50 Hz/60 Hz HVDC: 240 V DC: -48 V to -60 V NOTE: When the input voltage of an AC power module is 110 V, the AC power module cannot be used together with other power modules. If the AC power module is used together with other power modules, overcurrent protection may be triggered for the AC power module.
Input voltage range (V)	AC: 90 V to 290 V, 45 Hz to 65 Hz HVDC: 190 V to 290 V DC: -38.4 V to -72 V/+38.4 V to +57 V	AC: 90 V to 290 V; 45 Hz to 65 Hz HVDC: 190 V to 290 V DC: -38.4 V to -72 V
Maximum input current (A)	350 W AC: 5.5 A 350 W HVDC: 2.5 A 240 W DC: 8 A	600 W AC: 8 A (100 V to 130 V AC)/8 A (200 V to 240 V AC) 600 W HVDC: 4 A 1000 W AC: 12 A (100 V to 130 V AC)/8 A (200 V to 240 V AC) 1000 W HVDC: 8 A 1000 W DC: 30 A
Maximum output power (W)	350 W AC: 350 W 350 W HVDC: 350 W 240 W DC: 240 W	600 W AC: 300 W (100 V to 130 V AC)/600 W (200 V to 240 V AC) 600 W HVDC: 600 W 1000 W AC: 900 W (100 V to 130 V AC)/1000 W (200 V to 240 V AC) 1000 W HVDC: 1000 W 1000 W DC: 1000 W
Typical power consumption (W)	168 W	221 W (SPU + 2 x MPU + FAN)
Maximum power consumption (W)	191 W	288 W (SPU + 2 x MPU + FAN)
Power supply redundancy	Dual power supplies, hot-swappable	Dual power supplies, hot-swappable
Fan modules	Built-in unpluggable fan modules	Pluggable fan tray assembly
Airflow	Left-to-right	Left-to-rear + front-to-rear
Noise	57.6 dB(A)	57.6 dB(A)
Environment Parameters		
Operating temperature	0°C to 45°C	0°C to 45°C
Operating humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)

Specifications	NetEngine AR8140-12G10XG NetEngine AR8140-T-12G10XG	NetEngine AR8700-8
Operating altitude	< 5000 m	< 5000 m
Storage temperature	-40°C to +70°C	-40°C to +70°C

Software Features and Protocols

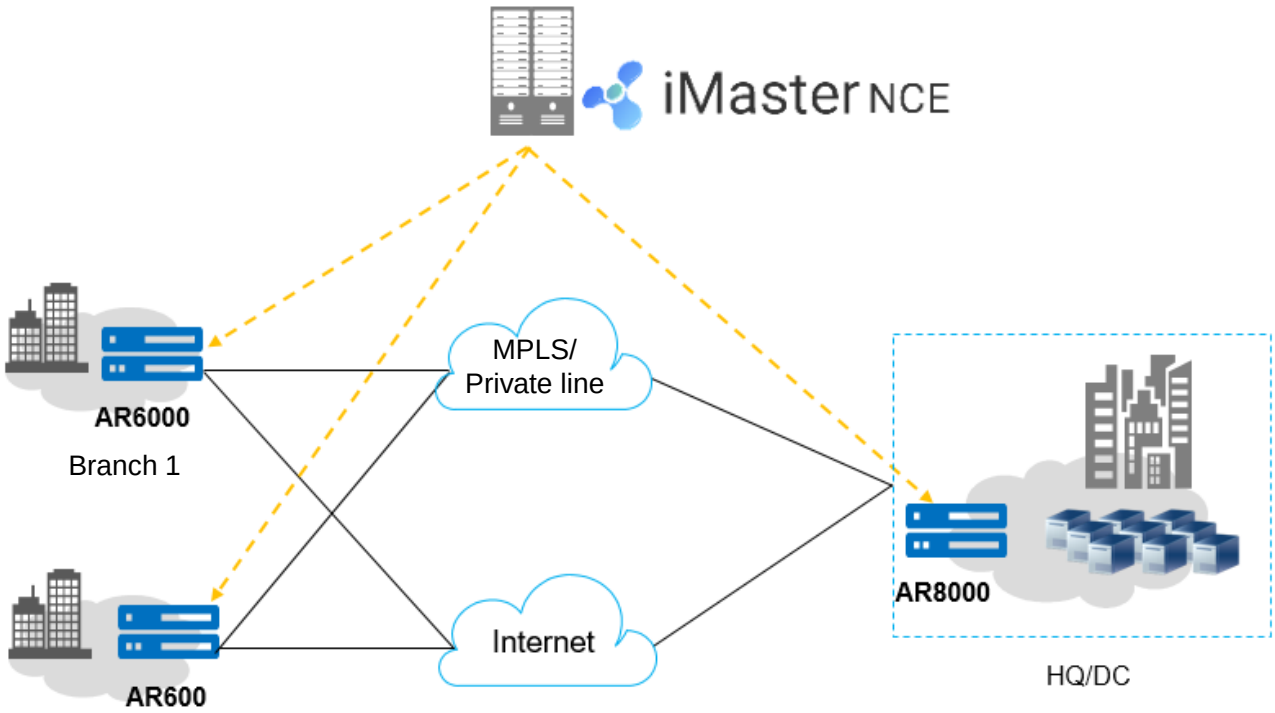
Item	NetEngine AR8000 Series
Basic function	DHCPv4 Server/Client/Relay, PPPoE client, NAT, and sub-interface management
LAN	IEEE 802.1p, IEEE 802.1Q, IEEE 802.3, VLAN management, VLAN aggregation, MAC management, STP/RSTP, MSTP
IPv4 unicast routing	Routing policies, static routes, RIP, OSPF, IS-IS, BGP, IP FRR
IPv6 unicast routing	Static routing, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+
Basic IPv6 function	IPv6 ND, Path PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6, PPPoE client IPv6, IPv4 over IPv6, IPv6 over IPv4
VPN	GRE, Ethernet over GRE, IPsec v4/v6, Segment Routing IPv6 (SRv6), L2TP client, DSVPN, IPv4/IPv6 dual-stack, SD-WAN EVPN
WAN optimization	A-FEC and data redundancy elimination
Multicast	IGMP V1/V2/V3, PIM SM, PIM DM, MSDP, MBGP
MPLS	MPLS LDP, MPLS L3VPN, Dynamic LSP, IP FRR, LDP FRR, MPLS 6VPE, MPLS 6PE
QoS	Priority mapping, traffic policing (CAR), traffic shaping, congestion avoidance, congestion management, MQC (traffic classifier, traffic behavior, and traffic policy), level-3 traffic scheduling and shaping (HQoS), application identification, intelligent policy-based routing (SPR), SaaS routing, adaptive QoS
Security	ACL/ACL6, firewall, AAA authentication, RADIUS, HWTACACS, NAC, PKI, broadcast storm suppression, ARP security, ICMP security, attack defense, URPF, CPCAR, attack source tracing, 802.1X authentication, portal authentication, port security, antivirus, IPS, URL filtering, security policy control based on IP addresses (groups)/domain groups/applications/time ranges
System management	Upgrade management, device management, SNMP (v1/v2c/v3), RMON, NTP, USB-, DHCP option-, and email-based deployment, deployment through the registration query center, NETCONF/YANG/telemetry, TCP FPM, NQA, IFIT, NetStream, switch RU plug-and-play

Safety and Regulatory Standards

Item	NetEngine AR8000 Series
EMC standards compliance	•EN 55032 •EN 55035 •CISPR 32 •CISPR 35 •IEC/EN 61000-3-2 •EN 61000-3-3 •ETSI EN 300 386 •ETSI EN 301 489-1 •ETSI EN 301 489-3 •ETSI EN 301 489-17 •ETSI EN 301 489-52 •FCC CFR Part 15, Subpart B •ANSI C63.4 •ICES-003 Issue 7 •EN 50121-1 •EN 50121-4 •GB 9254
Environmental standards compliance	•RoHS •REACH •WEEE
Security standards compliance	•IEC 60950-1 •IEC 62368-1 •EN 60950-1 •UL 60950-1 •CSA C22.2 No 60950-1 •GB 4943.1

Application Scenarios

SD-WAN networking



In the SD-WAN Solution, Huawei NetEngine AR8000 series routers can serve as gateways for enterprise headquarters or large branches and support multiple physical links such as MPLS private lines and Internet links. Additionally, they can be managed and visualized on iMaster NCE in a unified manner. The AR6710-H series provides extensive SD-WAN features such as intelligent application identification and intelligent traffic steering to deliver better service experience to enterprises. For details about Huawei SD-WAN Solution, visit

https://e.huawei.com/en/solutions/enterprise-network/campus-network/sd-wan.

Ordering Information

The configuration of the NetEngine AR8100 series includes device model selection and software configuration.

- Device model

Select the device model according to the uplink interface type and service requirements.

- Software

The NetEngine AR8100 series software consists of the basic software and licensed software. The basic software provides basic features such as routing, switching, and security, while the licensed software provides additional functions, such as security protection.

Host	Ordering Information
AR8140-12G10XG	AR8140-12G10XG, 10*10GE SFP+, 8*GE Combo, 4*GE electrical,1*USB3.0, 4*SIC
AR8140-T-12G10XG	AR8140-T-12G10XG, 10*10GE SFP+, 8*GE Combo, 4*GE electrical,1*USB3.0, 4*SIC

Software Sales Model	License	Ordering Information
Threat protection service	LAR0TP1201 LAR0TP1202 LAR0TP1203 LAR0TP1204 LAR0TP1205	Threat Protection Service Subscribe x Year (Applies to AR8100) (corresponding model: LAR0TP120x), including: • IPS signature database update • URL remote query for URL filtering • Antivirus signature database update
Independent Sale Model	AR81-LIC-Basic-IFIT	AR8100 Value-added Basic IFIT Package
	AR81-LIC-Enhance-IFIT	AR8100 Value-added Enhanced IFIT Package
	AR81-LIC-Enh-WANOP	AR8100 Value-added Enhanced WAN-Optimize Package, including: • Data Compression • Adaptive QoS
	AR81-LIC-NETCONN	AR8700 Value-added Network Connection Package, including: • DSVPN
N1 Model	N1-AR81-B	N1 AR8100 CloudCampus Basic Software (exclude SD-WAN), Per Device
	N1-AR81-F	N1 AR8100 CloudCampus Foundation (include SD-WAN), Per Device
	N1-AR81-A	N1 AR8100 CloudCampus Advanced (include SD-WAN), Per Device
	N1-AR81-E-IFIT	N1 AR8100 CloudCampus Add-On, Enhance IFIT, Per Device

The configuration of the NetEngine AR8700 series includes device model selection, MPU selection, and software configuration.

- Device model

Select the device model according to the uplink interface type and service requirements.

- MPU

Select a single or dual MPUs based on the actual service scenario.

- Software

The NetEngine AR8700 series software consists of the basic software and licensed software. The basic software provides basic features such as routing, switching, and security, while the licensed software provides additional functions, such as security protection.

Host	Ordering Information
AR8700-8	AR8700-8 assembly chassis

SPU-700H	AR8700 Service Process Unit (SPU-700H), 1*40GE QSFP+, 8*10GE SFP+, 8*GE Combo
MPU-100	AR8700 Main Processing Unit (MPU-100)
MPU-100-T	AR8700 Main Processing Unit (MPU-100-T)

Software Sales Model	License	Ordering Information
Threat protection service	LAR0TP1501 LAR0TP1502 LAR0TP1503 LAR0TP1504 LAR0TP1505	Threat Protection Service Subscribe x Year (Applies to AR8700) (corresponding model: LAR0TP150x), including: • IPS signature database update • URL remote query for URL filtering • Antivirus signature database update
Independent Sale Model	AR87-LIC-Basic-IFIT	AR8700 Value-added Basic IFIT Package
	AR87-LIC-Enhance-IFIT	AR8700 Value-added Enhanced IFIT Package
	AR87-LIC-Enh-WANOP	AR8700 Value-added Enhanced WAN-Optimize Package, including: • Data Compression • Adaptive QoS
	AR87-LIC-NETCONN	AR8700 Value-added Network Connection Package, including: • DSVPN
N1 Model	N1-AR87-B	N1 AR8700 CloudCampus Basic Software (exclude SD-WAN), Per Device
	N1-AR87-F	N1 AR8700 CloudCampus Foundation (include SD-WAN), Per Device
	N1-AR87-A	N1 AR8700 CloudCampus Advanced (include SD-WAN), Per Device
	N1-AR87-E-IFIT	N1 AR8700 CloudCampus Add-On, Enhance IFIT, Per Device

Other Information

SIC Port Model	Ordering Information
SIC-4E1-V2	4-Port Channelized E1 Interface Card
SIC-4GET-V2	4-Port GE LAN/WAN Interface Card
SIC-4STM1-V2	4-Port 155M Packet over SDH/Sonet Optical Interface Card
WSIC Port Model	**Ordering Information**
WSIC-8GE-T-V2	8-Port GE LAN/WAN Interface Card
WSIC-4GE-C-V2	4-Port GE COMBO LAN/WAN Interface Card
5G RU	**Frequency Band**
RU-201	•5G: NR Band 1/3/5/7/8/20/28/38/40/41/75/77/78/79/80/81/82/83/84 •LTE: Band 1/3/5/7/8/18/19/20/26/28/32/34/38/39/40/41/42/43 •DL MIMO: 5G 4x4: NR Band 1/3/7/38/40/41/77/78/79 5G 2x2: NR Band 5/8/20/28/75 LTE 4x4: Band 1/3/7/38/39/40/41/42/43 LTE 2x2: Band 5/8/18/19/20/26/28/32/34 •UL MIMO: 5G 2x2: NR Band1/38/40/41/77/78/79
Switch RU	**Model**
Switch RU	CloudEngine S5731-L series, CloudEngine S5731S-L series, CloudEngine S5731I-L series, CloudEngine S5751-L series

More Information

For more information, visit https://e.huawei.com/en/ or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei.com

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