




Huawei NetEngine AR6000 Series Enterprise Routers

Huawei NetEngine AR6000 series enterprise routers are designed for headquarters of enterprises as well as branches of enterprises, providing the industry's most diversified service slot types. The NetEngine AR6000 integrates various service features such as SD-WAN, routing, switching, voice, and security, providing diversified services and high performance.

Product Overview

Huawei's next-generation NetEngine AR6000 series enterprise routers use high-performance multi-core processors and a non-blocking switching structure, helping to deliver higher forwarding performance than the industry average. The NetEngine AR6000 also integrates functions such as SD-WAN, 5G, routing, switching, VPN, voice, security, and MPLS, ensuring diversified and cloud-based services are fully supported.

Huawei NetEngine AR6000 series enterprise routers can be deployed at enterprise headquarters or branches as required to provide enterprise network egress capabilities. The NetEngine AR6000 series consists of models such as NetEngine AR6120, NetEngine AR6120-VW, NetEngine AR6121, NetEngine AR6121E, NetEngine AR6140-9G-2AC, and NetEngine AR6140E-9G-2AC, which can meet networking requirements of enterprises of different scales.

 <p>NetEngine AR6120/AR6120-VW</p>	<ul style="list-style-type: none"> • Forwarding Performance: 2 Gbps • Fixed WAN ports: 1*GE Combo, 1*GE RJ45, 1*10GE SFP+ (compatible with GE SFP) • Fixed LAN ports: 8*GE RJ45 (can be configured as WAN) • DSP: 64 channels supported (AR6120-VW support) • WiFi: compliance with 802.11b/g/n/ac (AR6120-VW support) • Dimensions (H x W x D): 44.5mm x 390mm x 232.5mm
 <p>NetEngine AR6121/AR6121E</p>	<ul style="list-style-type: none"> • Forwarding Performance: 2 Gbps • Fixed WAN ports: 2*GE Combo, 1*10GE SFP+ (compatible with GE SFP) • Fixed LAN ports: 1*GE Combo, 8*GE RJ45 (can be configured as WAN) • Dimensions (H x W x D): 43.6mm x 442mm x 220mm
 <p>NetEngine AR6140-9G-2AC NetEngine AR6140E-9G-2AC</p>	<ul style="list-style-type: none"> • Forwarding Performance: 2 Gbps • Fixed WAN ports: 2*GE RJ45, 2*GE SFP • Fixed LAN ports: 2*GE SFP, 3*GE RJ45 (can be configured as WAN) • Dimensions (H x W x D): 44.5 mm x 442 mm x 420 mm

Features and Benefits

Features and Benefits

Service Requirement	Features and Benefits
High performance	<ul style="list-style-type: none">• Multi-core processors and a non-blocking switching structure.• Higher forwarding performance than the industry average, providing the low latency for key services
High reliability	<ul style="list-style-type: none">• Hot-swappable cards, ensuring service reliability and stability• Link backup for enterprise services, improving reliability• Fault detection and determination in milliseconds, minimizing service interruption time
5G Wireless access	<ul style="list-style-type: none">• AR6000 series support 5G SIC card and RU-5G-101, provide high wireless bandwidth experience• Support dual architecture, NSA/SA• Support dual SIM card <p>For more information about RU-5G-101, see the RU-5G-101 Datasheet.</p> <p>For more information about 5G SIC card, see the Huawei NetEngine AR Enterprise Router 5G SIC Card Datasheet.</p>
Easy O&M	Multiple management modes, including SD-WAN management, SNMP-based network management, and web-based network management, simplifying network deployment and reducing OPEX
Service convergence	Integration of functions such as routing, switching, VPN, security, WLAN, meeting diversified enterprise service requirements, saving space, and reducing TCO
Security	Built-in firewall, IPS, URL filtering, and multiple VPN technologies, providing comprehensive security protection capabilities
SD-WAN Ready	<ul style="list-style-type: none">• Built-in SD-WAN solution, building cost-effective and business-friendly connections over the Internet• ZTP (email-, USB-, and DHCP-based deployment), minimizing skill requirements and provisioning devices in minutes• First packet identification (FPI) for SaaS applications and service awareness for complex applications, identifying over 90% of applications• Traffic steering based on bandwidth and link quality, ensuring experience of key applications and improving bandwidth utilization to up to 90%

Architecture Highlights

Architecture Feature	Benefits
Multi-core processor	<ul style="list-style-type: none">• High-performance multi-core processors, supporting high-speed WAN connections, powerful route calculation capabilities, and enhanced L4-L7 service processing
Extensive network interfaces	<ul style="list-style-type: none">• Hot swapping• Extensive flexible interface cards such as LAN, WAN and 3G/LTE.

Product Specifications

Item	NetEngine AR6120/ NetEngine AR6120-VW	NetEngine AR6121/ NetEngine AR6121E	NetEngine AR6140-9G-2AC/ NetEngine AR6140E-9G-2AC
System Parameters			
Forwarding Performance (LAN - > WAN + WAN - > LAN, NAT + ACL + QoS, IMIX)	2 Gbps	2 Gbps	2 Gbps
IPsec performance (IMIX)	2 Gbps	2 Gbps	2 Gbps
IPsec performance (1400 bytes)	4 Gbps	4 Gbps	4 Gbps
SD-WAN performance (1400byte)*	-	1.8Gbps	1.8Gbps
SD-WAN performance (IMIX)*	800Mbps	1.2Gbps	1.2Gbps
Fixed WAN ports	1 x GE combo, 1 x GE RJ45, 1 x 10GE SFP+ (compatible with GE SFP)	2 x GE combo, 1 x 10GE SFP+ (compatible with GE SFP)	2 x GE RJ45, 2 x GE SFP
Fixed LAN ports	8 x GE RJ45 (can be configured as WAN)	1 x GE combo, 8 x GE RJ45 (can be configured as WAN)	2 x GE SFP, 3 x GE RJ45 (can be configured as WAN)
WiFi	AR6120: Don't support AR6120-VW: Dual-band (2.4 GHz and 5 GHz), 2x2 MIMO, 802.11b/g/n/ac	-	-
DSP (Voice)	AR6120: Don't support AR6120-VW: 64-channel voice (built-in)	-	-
PoE	AR6120: Don't support AR6120-VW: 8 * GE LAN ports support PoE+	-	-
5G uplink	Support 5G SIC	Support 5G SIC	Support 5G SIC
SIC slots	2	2	4
WSIC slots	0 (default)/1 (maximum)	0 (default)/1 (maximum)	0 (default)/2 (maximum)
USB port	2 x USB		1 x USB

Item	NetEngine AR6120/ NetEngine AR6120-VW	NetEngine AR6121/ NetEngine AR6121E	NetEngine AR6140-9G-2AC/ NetEngine AR6140E-9G-2AC
Console port	1 x RJ45 console port	1 x RJ45 console port	1 x RJ45 console port
Memory	2 GB	NetEngine AR6121: 2 GB NetEngine AR6121E: 4 GB	NetEngine AR6140-9G-2AC: 2 GB NetEngine AR6140E-9G-2AC: 4 GB
Flash memory	1 GB/ 512MB **	1 GB	1 GB
Hot swapping	Supported	Supported	Supported
Dimensions and Weight			
Router dimensions, With no mounting bracket installed (H x W x D)	44.5mm × 390mm × 232.5mm	43.6mm × 442mm × 220mm	44.5 mm x 442 mm x 420 mm
Router dimensions, With mounting bracket installed (H x W x D)	44.5mm × 482.6mm × 232.5mm	43.6mm × 482.6mm × 220mm	44.5 mm x 482.6 mm x 572.5 mm
Weight	2.9kg	3.2kg	5.0 kg
Installation type	Rack	Rack	Rack
Occupied rack space	1U	1U	1U
Power Specifications, Power Consumption, and Heat Dissipation			
Rated input voltage range (AC)	100 V to 240 V		
Rated input frequency (AC)	50 Hz/60 Hz		
Maximum input voltage range (AC)	90 V to 264 V		
Maximum input current (AC)	2A	2A	3A
Maximum output power (AC)	60 W	60 W	AR6140E-9G-2AC:70W AR6140-9G-2AC:60W/70W
Typical power consumption	18w	18W	18W
Maximum power consumption	20w	AR6121E:33W AR6121:31W	AR6140E-9G-2AC:34W AR6140-9G-2AC:32W
Power supply redundancy	-	-	Supported
Fan module	Built-in unpluggable fan modules		
Airflow	Left to right		
Noise level	49.6 dB	49.6 dB	54 dB
Environment Parameters			
Operating temperature	0 ° C to 45 ° C		

Item	NetEngine AR6120/ NetEngine AR6120-VW	NetEngine AR6121/ NetEngine AR6121E	NetEngine AR6140-9G-2AC/ NetEngine AR6140E-9G-2AC
Operating humidity	5% to 95% (non-condensing)		
Operating altitude	< 5000 m (16404.2 ft.)		
Storage temperature	-40 ° C to +70 ° C		
Storage altitude	< 5000 m (16404.2 ft.)		

* Note: The SD-WAN performance model is EVPN+IPsec+QoS, with the performance data being the sum of bidirectional flows.

**Note: For AR6120, the chipset of flash is 1GB, and 512MB is used for the users.

Software Features and Protocols

Item	NetEngine AR6000
Basic function	DHCP server/client/relay, PPPoE server/client, NAT, and sub-interface management
Voice (AR6120-VW support)	RTP, SIP, SIP AG, IP PBX/TDM PBX, VoIP, SBC
LAN	IEEE 802.1P, IEEE 802.1Q, IEEE 802.3, VLAN management, VLAN aggregation, MAC management, STP/RSTP
WLAN (AC)	AP management (AC discovery, AP access, and AP management), CAPWAP, WLAN user management, WLAN radio management (802.11a/b/g/n/ac), WLAN QoS (WMM), WLAN security (WEP, WPA, WPA2, key management)
IPv4 unicast routing	Routing policies, static routes, RIP, OSPF, IS-IS, BGP
IPv6 unicast routing	Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+
Basic IPv6 function	IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6
IPv6 tunneling	Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP
Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD
MPLS	LDP, MPLS L3 VPN, VLL, PWE3, static LSP, dynamic LSP, MPLS TE, IP FRR, LDP FRR, TE FRR
VPN	IPsec VPN, GRE VPN, DSVPN, A2A VPN, L2TP VPN, L2TPv3 VPN
QoS	DiffServ mode, MPLS QoS, priority mapping, traffic policing (CAR), traffic shaping, congestion avoidance, congestion management, MQC (traffic classifier, traffic behavior, and traffic policy), hierarchical QoS, Smart Application Control (SAC)
WAN Optimization	Multi-fed and Selective receiving, per-packet load balancing
Security	ACL (v4/v6), domain-based stateful firewall, 802.1X authentication, MAC address authentication, portal authentication, AAA authentication, RADIUS authentication, HWTACACS authentication, PKI, broadcast storm suppression, ARP security, ICMP attack defense, URPF, CPCAR, blacklist, attack source tracing, online behavior management, IPS, URL filtering
Management and maintenance	Upgrade management, device management, web-based network management, GTL, SNMP (v1/v2c/v3), RMON, NTP, CWMP, Auto-Config, URL-based/USB-based/DHCP deployment, NETCONF/YANG, CLI, NetStream, IP FPM, TCP FPM, TWAMP Light, IP accounting, NQA

Safety and Regulatory Standards

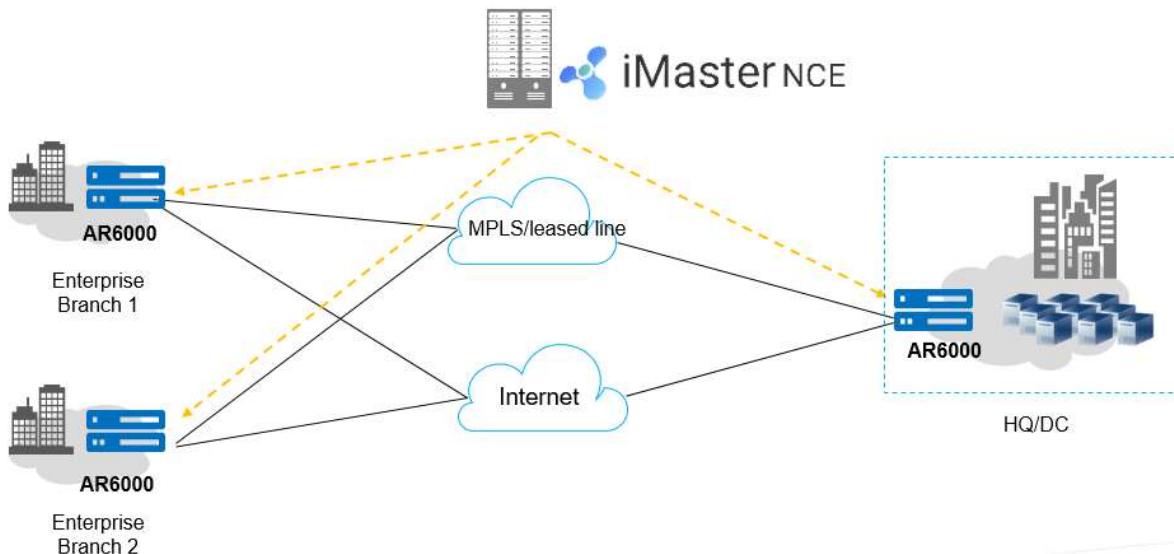
Item	NetEngine AR6000
EMC standards compliance	<ul style="list-style-type: none">•EN 55032•EN 55035•CISPR 32•CISPR 35•IEC/EN 61000-3-2•EN 61000-3-3•ETSI EN 300 386•ETSI EN 301 489-1•ETSI EN 301 489-3•ETSI EN 301 489-17•ETSI EN 301 489-52•FCC CFR Part 15, Subpart B•ANSI C63.4•ICES-003 Issue 7•EN 50121-1•EN 50121-4•GB 9254
Environmental standards compliance	<ul style="list-style-type: none">•RoHS•REACH•WEEE
Safety standards compliance	<ul style="list-style-type: none">•IEC 60950-1•IEC 62368-1•EN 60950-1•UL 60950-1•CSA C22.2 No 60950-1•GB 4943.1

Networking and Application

- **SD-WAN Using Hybrid Links**

In the SD-WAN Solution, the NetEngine AR6000 functions as the hub of medium- to large-sized enterprises or gateway of large branches and supports hybrid access using multiple physical links, such as MPLS private lines and Internet links. The solution also leverages Huawei's next-generation controller, the Agile Controller, which implements centralized and visualized management. The NetEngine AR6000 provides extensive SD-WAN features and delivers optimal service experience for enterprises through intelligent application identification, intelligent traffic steering, and intelligent acceleration. For details about Huawei SD-WAN Solution, visit <https://e.huawei.com/en/solutions/business-needs/enterprise-network/sd-wan>.

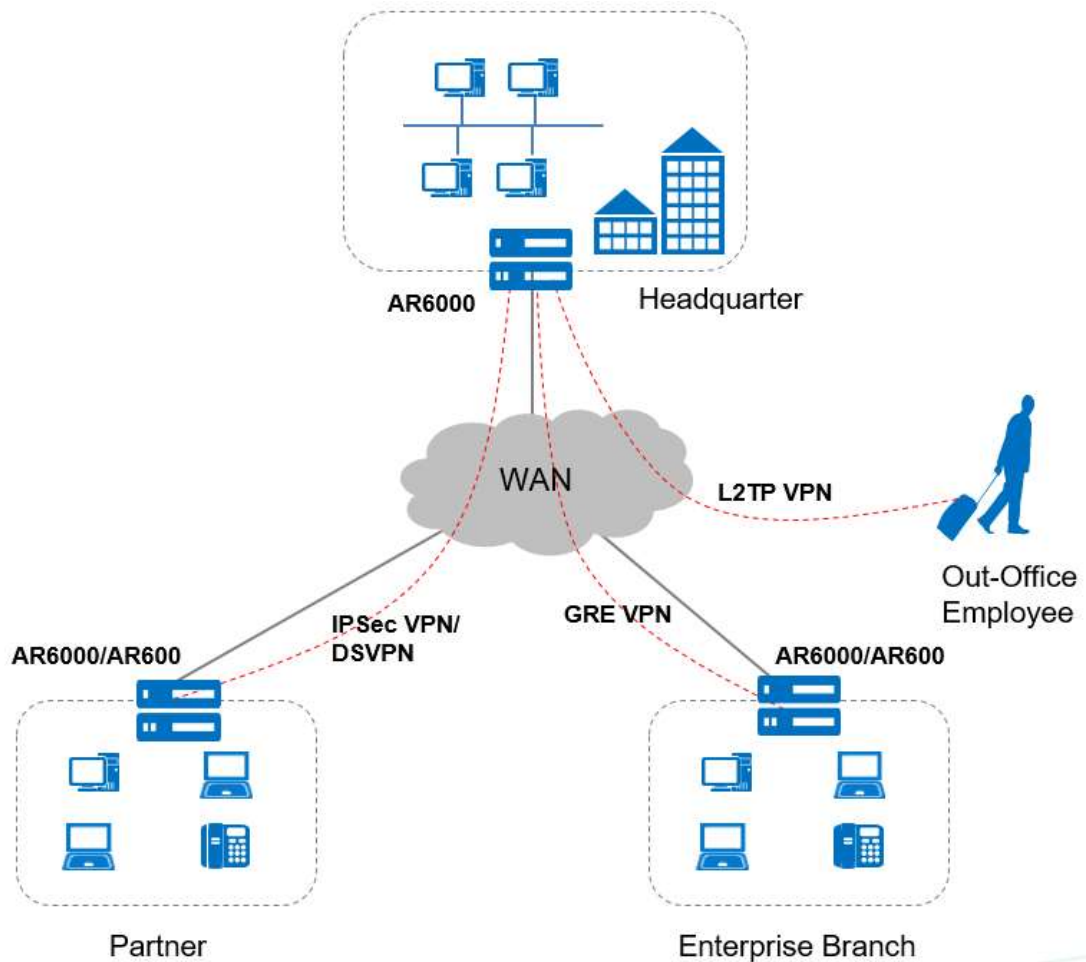
SD-WAN networking



- **Building Different Types of VPNs by Leveraging Internet Resources**

The NetEngine AR6000 provides various secure access functions for communication between enterprise branches and between branches and headquarters. These functions also allow an enterprise's partners to access its resources. Secure tunnels such as GRE VPN, IPSec VPN, DSVPN, L2TP VPN, and EVPN tunnels can be set up between the headquarters and branches for secure data access and transmission. The NetEngine AR6000 supports quick tunnel deployment and authentication for branches. Furthermore, partners authenticated and authorized by the NetEngine AR6000 can remotely access the enterprise resources over these tunnels.

The NetEngine AR6000 supports a wide selection of cards and meets the extended service security requirements. Data encryption and decryption is hardware-based, greatly improving data encryption and decryption performance and providing E2E security assurance for customers.



Ordering Information

Begin by ordering the chassis. Then select interface modules, any special licenses, and any desired accessories (SD card or USB disk).

- **Chassis Options**

The device model is determined by the slot quantity, forwarding capacity and service features that you require.

- **Interface modules**

The interface modules, including SIC cards and WSIC cards, are inserted into service card slots. Two SIC slots can be combined into one WSIC slot by removing the guide rail.

- **Software**

The basic software and licensed software are available. The basic software provides basic functions, such as routing, switching, voice, and security. The licensed software provides additional functions, such as AC.

Chassis Configuration	Description
NetEngine AR6120	AR6120, 1*GE WAN, 1*GE combo WAN, 1*10GE SFP+, 8*GE LAN, 2*USB, 2*SIC
NetEngine AR6120-VW	AR6120-VW, 1*GE WAN, 1*GE combo WAN, WLAN, 1*10GE SFP+, 8*GE LAN, 2*USB, 2*SIC
NetEngine AR6121	AR6121, 2*GE combo WAN, 1*10GE(SFP+) WAN, 8*GE LAN, 1*GE combo LAN, 2*USB, 2*SIC
NetEngine AR6121E	AR6121E, 2*GE combo WAN, 1*10GE(SFP+) WAN, 8*GE LAN, 1*GE combo LAN, 2*USB, 2*SIC
NetEngine AR6140-9G-2AC	AR6140-9G-2AC AC host, 5*GE RJ45, 4*GE SFP, 1*USB 3.0, 4*SIC
NetEngine AR6140E-9G-2AC	AR6140E-9G-2AC AC host, 5*GE RJ45, 4*GE SFP, 1*USB 3.0, 4*SIC
License	Description
LAR0DATAE10	AR6100 Value-Added Data Package
LAR0AC10	AR6100 AC Express License
LAR0SECE10	AR6100 Value-Added Security Package
LAR0TP10	AR600/AR700/AR6100 Threat Protection Service Subscribe 1 Year
LAR0IPS10	AR6100 IPS Service Subscribe 1 Year

More Information


For more information about Huawei next-generation AR enterprise routers, visit <http://e.huawei.com> 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

Copyright © Huawei Technologies Co., Ltd. 2022. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions

 HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang Shenzhen 518129
People's Republic of China
Website: e.huawei.com