

Quidway® AR46 Series Intelligent Multi-Services Router

Quidway® AR46 Intelligent Network (IN) service central routers are multiservice routers with high performance and reliability developed for enterprise central network, industry network and carrier network. They inherit the idea “Emphasis on both service and performance, smooth service evolution” and aim at overall service and open service model.

Quidway® AR46 series routers provide two kinds of main process engine, one is RPU (Routing Processing Unit), which integrates 2 fixed FE ports and provides 350Kpps forwarding capability, another one is ERPU (Enhanced Routing Processing Unit), which integrates 3 fixed GE ports and provides 1000Kpps forwarding capability. Quidway® AR46 series routers have three models, namely, AR46-80, AR46-40 and AR46-20, which provide eight slots, four slots and two slots respectively. According to the network scale, AR46 routers can serve as a core router on a corporation network, as an edge router on a carrier network and as a convergence router on a large industry network.



Quidway® AR46-20

Quidway® AR46-40

Quidway® AR46-80



AR46 RPU with 2 fixed FE



AR46 ERPU with 3 Combo GE

Advantages of products:

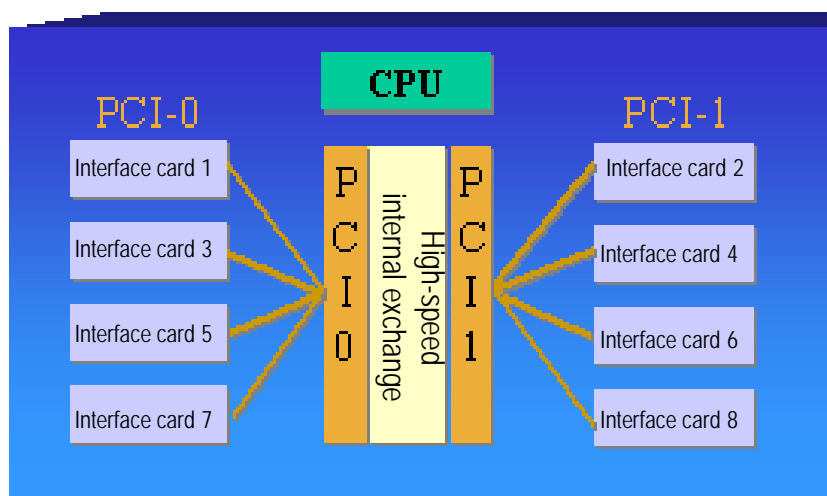
Quidway® AR 46 routers are designed for enterprise central networks and large industry networks. They inherit the design advantages of Quidway® NetEngine high-end router in four high-high

performance, high quality, high reliability and high security. Moreover, they are integrated with the service capabilities of Quidway® R middle/low-end routers and extensive experiences from applications. Therefore, Quidway® AR 46 routers meet requirements for network performance, service integration, high reliability, high security and three-in-one solution from rapid informationized development.

High-efficient dual bus structure

Quidway® AR46 routers adopt unique dual bus structure, which use two independent PCI buses, high-performance PowerPC and IP Turbo Engine™ (Huawei intellectual property), greatly improving system forwarding performance. The forwarding capability can reach 1000Kpps (with ERPU), much higher than other products at the same level. High performance of AR 46 routers aims at service, with which the forwarding performance will not decrease apparently in processing various service.

Through upgrading main processing engine, Quidway®AR46 routers can provide 1000Kpps service performance, thus improve the service performance of enterprise central networks and large industry networks.



End-to-end reliability guarantee

Redundancy design of key component: Quidway® AR46 routers consider high-reliability requirement for network application. They are integrated with technologies of high-end routers. The key components such as bus, power, heat dissipation system, and BootRom adopt redundancy design. Moreover, they adopt dual power (1+1 backup) module, supporting the input of both AC and DC power.

Hot swap of key components: All interface boards, power supplies and fans of Quidway® AR 46 support hot swap function, satisfying the needs of network maintenance, upgrade and

optimization.

In-service software patch installation: Quidway® AR 46 routers provide a unique function of software in-service patch installation, ensuring service noninterruption at the software optimization.

Much network redundancy: Quidway® AR 46 routers have many redundancy functions such as link backups, link bindings, router backups, dial-up backups and VRRP, ensuring the reliability of network node and entire network.

With these backup guarantees, Quidway® AR46 routers can realize noninterruption operation in 7*24 hours.

Ease maintenance and human centered design

Quidway® AR 46 routers take Design for Testability (DFT), and moreover they have unique auto fault location and analysis tool. Fault diagnosis software running on a PC help network engineers to quickly locate system faults with a clear idea. They also support query of system status and alarm information and provide many diagnosis methods.

In addition, powerful Network Management System (NMS), Quidview, and exquisite, visual service management system, VPN Manager and CAMS are provided, helping network administrator to manage and maintain services efficiently.

Prominent integrated security

Quidway® AR46 routers adopt a brand-new integrated security design. The idea of the security design has been incorporated into each module, protocol and service flow, effectively protecting the security of enterprise network.

Quidway® AR 46 routers integrate security features including packet filtering firewall, ISPKeeper DOS defense system, NAT, user authentication, security log, equipment security, VPN encryption and service isolation (VR), which are security policies tailored in time, space and network hierarchy for network users.

Integrated omnipotence and flexible application

Quidway® AR 46 routers are ones integrated with the service capabilities of high-/medium-/low-end routers, including powerful routing, MPLS, VPN, multicast, voice, security, QoS, IPv6, broadband access and three-in-one service capabilities. All services are optimal design for enterprise core environment. The VRP software platform of core network operating system have more than eight years commercial experiences, the service provided by which is not a simple overlay but a high-efficient, organic integration.

Quidway® AR 46 routers integrate functions of such devices as router, FW, intruder defense, VPN gateway, voice gateway, broadband access gateway and Layer 2 switch, fully satisfying network integrative networking requirement. They can be flexibly combined with various devices and

services according to actual situations.

Specifications

Item	AR46-80	AR46-40	AR46-20
Memory	RPU engine: default 256M, maximize 512M ERPU engine: default 512M, maximize 1024M		
FLASH	RPU engine: default 32M ERPU engine: default 64M, maximize 256M+64M		
BOOTROOM	1,024 K	1,024 K	1,024 K
NVRAM	512 K	512 K	512 K
Fixed interface	RPU engine: 2 10/100 M Ethernet interface 1 AUX interface 1 console port		
	ERPU engine: 3 GE Combo ports(fiber and copper are optional) , or 2 GE copper ports + 1 Combo port , 1 AUX interface 1 console port		
Number of slots	8	4	2
Packet Forwarding Rate	RPU engine:350 Kpps		
	ERPU engine: 1000Kpps		
Input voltage	AC: 100V-240V (+/-10%) 50/60Hz		
	DC: -48V- -60V (+/-20%)		
Outline dimensions (mm): Height × width× depth	436.2 × 420 × 219.5	436.2 × 420 × 130.5	436.2 × 420 × 130.5
Weight	27.5kg	17.5kg	15 kg
Maximum power	213W	126W	86W
Security certification	The products pass security certification of various countries, including CE, UL, TUV, and others.		
Working environment temperature	0 - 40°C		
Environment relative humidity	10 - 90%, non-condensing		

Order Information

Quidway® AR46 routers are products developed for enterprises. Users can purchase them by hosts, interface modules and cable set.

Host

Quidway®AR46 routers provide two types of hosts, AC power supply host and DC power supply host. User can select them as required. The hosts and relevant accessories are shown in Table

6-1.

Quidway® AR46 router hosts order information

AR-PWR46-AC	Redundant AC power
AR-PWR46-DC	Redundant DC power
RT-AR4620-AC-CHASSIS	Quidway® AR 46-20 Router AC Chassis, 2 Slots, without RPU
RT-AR4640-AC-CHASSIS	Quidway® AR 46-40 Router AC Chassis, 4 Slots, without RPU
RT-AR4680-AC-CHASSIS	Quidway® AR 46-80 Router AC Chassis, 8 Slots, without RPU
RT-AR4620-DC-CHASSIS	Quidway® AR 46-20 Router DC Chassis, 2 Slots, without RPU
RT-AR4640-DC-CHASSIS	Quidway® AR 46-40 Router DC Chassis, 4 Slots, without RPU
RT-AR4680-DC-CHASSIS	Quidway® AR 46-80 Router DC Chassis, 8 Slots, without RPU
RT-AR46-RPU-256M	AR 46 Routing Processing Unit, 256M SDRAM, 2 10/100 BASE-TX FE
RT-AR46-ERPU-512M	AR 46 Enhanced Routing Processing Unit, 512M SDRAM, 3GE(RJ45 and SFP Combo), 1 CF Slot
RT-AR46-ERPU-1024M	AR 46 Enhanced Routing Processing Unit, 1024M SDRAM, 3GE(RJ45 and SFP Combo), 1 CF Slot
RT-AR46-ERPU(H)-512M	AR 46 Enhanced Routing Processing Unit, 512M SDRAM, 3GE(2*RJ45 and 1 SFP and RJ45 Combo), 1 CF Slot

 Note:

1) "Mandatory" indicates that such items are provided with the host. Users need not to purchase them additionally.

2) "Optional" indicates that such items are not provided with the host. Users need to purchase them additionally.

Interface Module

Interface modules provided by Quidway® AR46 routers are whole sets, for example, including package and power cable. However, users can select them for delivery separated from host.

In fact, interface module selection contains two parts, first selecting interface module and then power cable. Generally, if an interface module requires a power cable of a fixed type, users need not select it. But if there are various types of power cables for selection, users need to select the external cable sets according to line features and number of interfaces.

Quidway® AR46 router interface modules

Interface module	Cable	Remarks
1FE	Ethernet cable	Mandatory

Interface module	Cable	Remarks
2FE	Ethernet cable	Mandatory
1SFX	Single-mode optical cable	Optional, selected from external optical cable sets.
1MFX	Multiple-mode optical cable	Optional, selected from external optical cable sets.
2SAE	Various serial port cables	Select cables according to the protocols supported by the applications, for example V.35, V.24, X.21 and DTE/DCE.
4SAE	Various serial port cables	Select cables according to the protocols supported by the applications, for example V.35, V.24, X.21 and DTE/DCE.
8SAE	Various serial port cables	Select cables according to the protocols supported by the applications, for example V.35, V.24, X.21 and DTE/DCE.
4BS	S port cable	Mandatory
8ASE	AUX cable	Mandatory
16ASE	AUX cable	Mandatory
6AM	Magnetic telephone line loop	Mandatory
12AM	Magnetic telephone line loop	Mandatory
1E1/E1-F	E1 75Ω coaxial cable and coaxial connector E1 120Ω twisted pair cable and network interface connector	Cable and connector are selected from external cable sets.
2E1/E1-F	E1 75Ω coaxial cable and coaxial connector, E1 120Ω twisted pair cable and network interface connector	Cable and connector are selected from external cable sets.
4E1/E1-F	4E1 75Ω transit cable, 4E1 120Ω transit cable E1 75Ω coaxial cable and coaxial connector; E1 120Ω twisted pair cable and network interface connector	4E1 transit cable is mandatory. Other cables are optional, selected from external cable sets.
8E1/E1-F	8E1 75 Ω coaxial cable and coaxial connector; 8E1 120 Ω twisted-pair and	Cable are selected from external cable sets.

Interface module	Cable	Remarks
	network interface connector	
1T1	T1 G.703 100Ω balanced cable	The impedance of network cable is 100Ω generally. Network cable can be adopted, selected according to number of ports.
2T1	T1 G.703 100Ω balanced cable	The impedance of network cable is 100Ω generally. Network cable can be adopted, selected according to number of ports.
4T1	T1 G.703 100Ω balanced cable	The impedance of network cable is 100Ω generally. Network cable can be adopted, selected according to number of ports.
8T1	T1 G.703 100Ω balanced cable	The impedance of network cable is 100Ω generally. Network cable can be adopted, selected according to number of ports.
1cE3	E3 cable	Mandatory
1cT3	T3 cables	Mandatory
1ATM-OC 3MM	Multiple-mode optical cable	Optional, selected from external optical cable sets.
1ATM-OC 3SM	SMF	Optional, selected from external optical cable sets.
1ATM-OC 3SML	SMF	Optional, selected from external optical cable sets.
1/2ADSL	Magnetic telephone line loop	Mandatory
1/2ADSL-I	S port cable	Mandatory
1GBE	Ethernet cable	Mandatory
1GEF	Single/ Multi mode optical cable	Optional, selected from external optical cable sets.
ATM E3	E3 cable	Mandatory
ATM T3	T3 cable	Mandatory
4E1 ATM IMA	4ports E1cable	Mandatory
8E1 ATM IMA	8 ports1cable	Mandatory
4T1 ATM IMA	4ports E1cable	Mandatory
8T1 ATM IMA	8 ports E1cable	Mandatory

Interface module	Cable	Remarks
2/4 FXS	Telephone cable	Mandatory
2/4 FXO	Telephone cable	Mandatory
2/4 E&M	E&M cable	Optional,
E1VI	E1cable	Optional,
T1VI	T1VI cable	Optional,
POS	Single/ multi-mode optical cable	Optical cable optional, selected from external optical cable sets.
cPOS	Single/ multi-mode optical cable	Optical cable optional, selected from external optical cable sets.
NDEC	No	No
HNDE	No	No

 Note:

- 1) "Mandatory" indicates that the cable is provided with interface module, and users do not need to purchase it additionally.
- 2)"Optional" indicates that the cable is not provided with interface module. Users need to purchase it additionally.
- 3) "External cable set/External fiber cable set" is optional cable/fiber cable set for users. It can be delivered separated from host.

Industry Standards Compliance

● Data Link Layer Protocols

Ethernet

- RFC894(Ethernet II Frame)
- RFC1042(Ethernet SNAP Frame)
- RFC3023 (MPLS Frame)
- IEEE 802.3
- IEEE 802.2
- IEEE 802.1Q
- IEEE 802.1P
- IEEE 802.3u
- RFC3635

PPP

- RFC1172
- RFC1661
- RFC1334
- RFC1994

- RFC1332
- RFC1552
- RFC1638
- RFC1570
- RFC3032
- RFC1377
- RFC1962
- RFC1974
- RFC1990
- RFC1333
- RFC1144
- RFC1973
- RFC1471
- RFC1473
- RFC1989

MP

- RFC1990

PPPoE Client/Server

- RFC2516

SLIP

- RFC1055

Frame Relay

- RFC1490
- Q.933 Annex_A
- T1.617 Annex D
- FRF.1.2
- FRF.3.2
- RFC1294
- Q922 Annex_A
- RFC1293
- Q922 Annex_A
- FRF.9
- FRF.20
- FRF.16
- RFC1315
- FRF.11
- FRF.12

ATM

- RFC1483
- RFC2684
- RFC1577
- RFC2364

- RFC1695
- X.25
- ITU-T X.25
 - RFC1613
 - RFC1006
 - RFC1381
 - RFC1356
 - T1.617 Annex G
- ISDN
- I.430
 - I.431
 - Q.921
 - Q.931
- QSIG
- ECMA-143
- DLSw
- RFC1795

Internet Protocol

- ARP
- RFC826
 - RFC1042
 - RFC1027
 - RFC1213
- IP Forwarding
- RFC791
 - RFC1122
 - RFC1071
 - RFC1141
 - RFC1624
 - RFC1256
 - RFC 950
 - RFC3031
 - RFC1213
 - RFC2011
 - RFC2012
 - RFC2013
 - RFC1850
 - RFC2096
- IP Option
- RFC 791
 - RFC 1122

ICMP

- RFC 792
- RFC 950
- RFC1256
- RFC1213

TCP

- RFC793
- RFC2012
- RFC1144

UDP

- RFC768
- RFC1213
- RFC2013

DNS

- RFC1034
- RFC1035

DHCP

- RFC1542
- RFC2131
- RFC1531
- RFC1533

IPX

- IEEE 802.3
- IEEE 802.2

Routing Protocol

RIP

- RFC2453
- RFC1058
- RFC1389
- RFC2082
- RFC2091
- RFC1058
- RFC1724
- RFC1723
- RFC2083

IS-IS

- RFC1195
- ISO10589
- RFC1142
- draft-ietf-isis-wg-mib-02.txt
- RFC2973

- RFC2328
- OSPF
 - RFC2328
 - RFC1587
 - RFC1850
 - RFC2370
 - RFC1583
 - draft-rosen-vpns-ospf-bgp-mpls-06
 - draft-katz-yeung-ospf-traffic-09
 - draft-rosen-ppvpn-ospf2547-area0-01
 - RFC1253
- BGP
 - RFC1997
 - RFC2385
 - RFC2796
 - RFC2439
 - RFC1771
 - RFC1772
 - RFC1998
 - RFC2842
 - RFC2439
 - RFC2858
 - RFC2918
 - RFC2547
 - draft-ietf-idr-bgp-ext-communities-05
 - draft-ramachandra-bgp-ext-communities-04.txt
 - RFC1657
 - RFC1267
 - RFC1966
 - RFC1965
- MBGP
 - RFC1771, RFC2283
 - RFC1997, RFC1998
 - RFC2796
- MPLS/BGP VPN
 - RFC2283 RFC2547
 - draft-ietf-idr-bgp-ext-communities-05.txt
 - draft-ietf-idr-bgp-ext-communities-05.txt
 - draft-ietf-ppvpn-gre-ip-2547-01
- Routing Policy
 - RFC2280
- Routing Management
 - RFC1213

Multicast Protocols

PIM-DM

- draft-ietf-pim-v2-dm-03
- draft-ietf-idmr-pim-dm-06

PIM-SM

- RFC2362

IGMP

- RFC1112
- RFC2236

IGMP SNOOPING

- RFC1112
- RFC2236

MSDP

- draft-ietf-msdp-spec-13

MSDP Trace

- draft-ietf-msdp-traceroute-06
- draft-ietf-idmr-traceroute-ipm-07

MPLS

LDP

- RFC3031,RFC3032,RFC3036,draft-ietf-mpls-ldp-mib-00.txt,RFC2205,RFC2209, RFC3209,draft-ietf-mpls-lsr-mib-07.txt,RFC2702,draft-ietf-mpls-te-mib-09.txt draft-martini-l2circuit-trans-mpls-08

L2VPN

- draft-martini-l2circuit-encap-mpls-04
- draft-martini-l2circuit-trans-mpls-08
- draft-kompella-ppvnp-l2vpn-02.txt

Security

AAA

- RFC2865
- RFC2866
- RFC2867
- RFC2869
- RFC2903
- RFC2904
- RFC2906
- RFC2809

- RFC2138
- RFC2620
- draft-ietf-radius-tunnel-auth

RADIUS/TACACS

- RFC2865

NAT

- RFC1631
- RFC2663

L2TP

- RFC2661

GRE

- RFC1701
- RFC1702
- RFC2784
- draft-ietf-ppvpn-gre-ip-2547-01

IPSEC

- RFC2401
- RFC2402
- RFC2403
- RFC2404
- RFC2405
- RFC2406
- RFC2407
- RFC2408
- RFC2410

IKE

- RFC2409

CA

- RFC3280/PKCS#1/PKCS#7/PKCS#8/PKCS#9/PKCS#10/PKCS#12/draft-nourse-scep-06/X.509/X.208/X.209/RFC3279/RFC2252/RFC2510/RFC2511/RFC2409

Application Layer Protocol

Telnet Client/Server

- RFC854
- RFC855
- RFC 857
- RFC858
- RFC1091

Rlogin

- RFC1282

FTP Client/Server

- RFC 959

SSH

- draft-ylonen-ssh-protocol-00

NTP

- RFC1305

Network Management

SNMP

- RFC1157
- RFC1904
- RFC1905
- RFC1906
- RFC1907
- RFC2571
- RFC2572
- RFC2573
- RFC2574
- RFC2575
- RFC1155
- RFC2579
- RFC2580
- RFC2570
- RFC2576
- RFC2578
- RFC1213
- RFC1212
- RFC1901

MIB

- RFC1155
- RFC1213
- RFC1315
- RFC1450
- RFC1471
- RFC1473
- RFC1657
- RFC1724
- RFC1850
- RFC2233
- RFC2273
- RFC2571
- RFC2572
- RFC2573
- RFC2574

- RFC2575
- RFC2665
- RFC2668
- RFC2737
- RFC2787
- RFC2851
- RFC2925

RMON

- RFC1757

QoS

Congestion Management

- RFC2309
- RFC2474
- RFC2475
- RFC2597
- RFC2598
- RFC3246

IPHC

- RFC1144
- RFC2507
- RFC2508

High Availability

VRRP

- RFC2338
- RFC2787

VoIP/FoIP

Signaling

- H.323
- DSS1
- R2

CODEC

- G.711A
- G.711U
- G.729r8
- G.729A
- G.723r53
- G.723r63

RTP

- RFC1889

FoIP

- T.38