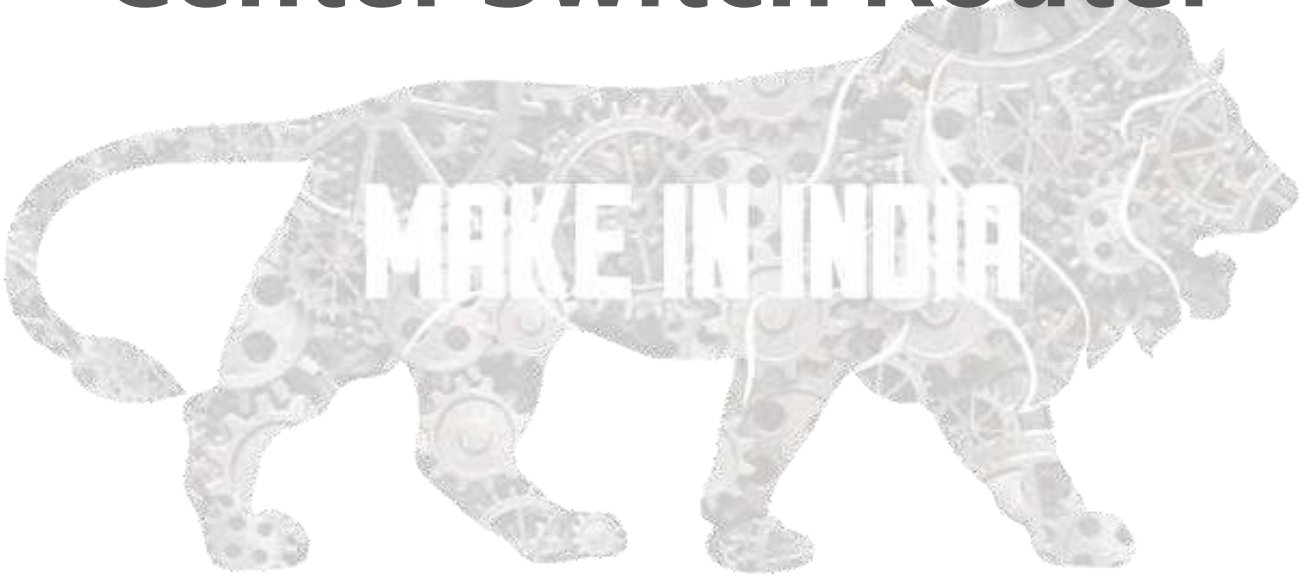
DATASHEET

WD12000 Advance Data Center Switch

WD12000 Data Center Switch Router



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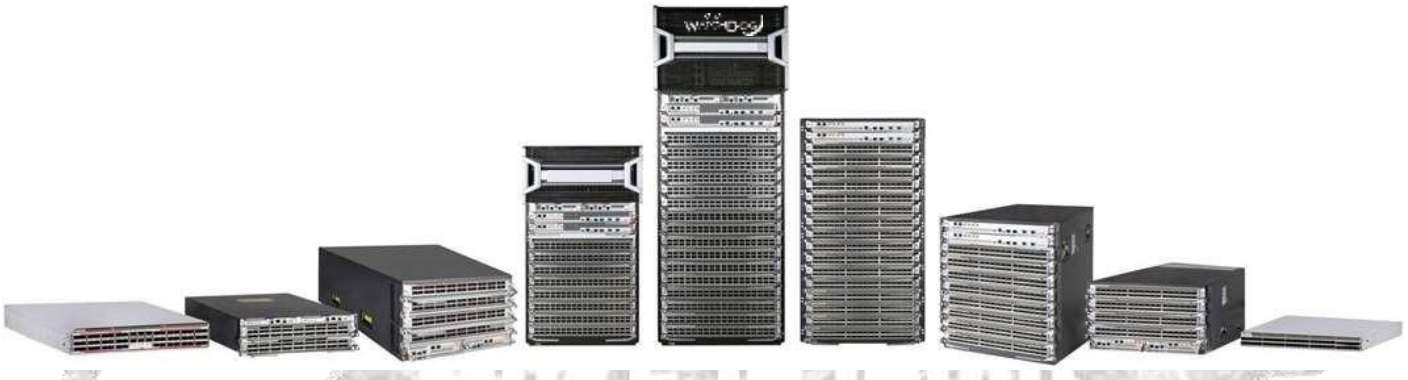
WD12000is a switch router product launched by Apollo Infoways for WAN, 5G bearer network and data center DCI interconnection scenarios. Forwarding performance and very rich wide-area traffic scheduling features.

WD12000 is currently the industry's leading switching router product. A single machine can provide 3072 line-speed 10G ports/25G ports or 768 line-speed 40G/100G/400G ports, providing ultra-high-density 10G, 25G and high-density 40G, 100G, 400G capabilities; Faced with the burst WAN traffic, the "distributed ingress cache" technology is innovatively adopted, which can realize data cache for 200ms and meet the requirements of burst traffic in IPRAN, DCI and other network scenarios; at the same time, it supports independent control engine, detection engine, maintenance engine provides powerful control capability and 50ms high reliability guarantee for the system.

WD12000 series include WD12000-48Y8C, WD12000-48C6D, WD12504R, WD12508R, WD12516R, WD12000-2L, WD12508CR, WD12516CR eight
modeWD， which can adapt to the port density and performance requirements of different network scales, and provide a strong equipment guarantee for wide-area interconnection construction. At the same time, combined with APOLLO INFOWAYS series routers, switches, security, iMC and SDN solutions, it provides a full range of solutions for wide-area convergence and interconnection scenarios.



WD12000 Series Switch Router

Features

Advanced CLOS+ multi-grade multi-plane switching architecture

- CLOS+ multi-grade multi-plane architecture, midplane free design, providing continuous bandwidth upgrade capability.
- Supports high density 25G/40GE/ 100GE/ 400GE interfaces and can meet the existing and future application requirements of data centers.
- With independent forwarding module, the control and data planes are separated. This can maximize the reliability of the equipment and guarantees the continuous upgrade of the bandwidth of subsequent products.
- Dynamic and variable cell fragmentation is strictly switching with non-blocking, which improves the overall forwarding performance.

WDOS Containerized Operating System

The WD12000 adopts the new-generation operating system WDOS independently developed by Apollo Infoways. Compared with the previous-generation operating system, on the basis of integrating rich network features, the WD12000 has a further open architecture and modular software architecture, it supports containerized deployment and can carry third-party software applications.

- Rich network features: WDOS has rich basic device functions, network functions and management functions, while

WDOS provides comprehensive customization and tailoring capabilities: Linux infrastructure (Linux function modules, Docker capabilities), network functions, management functions (SNMP , NetConf, CLI...) can be tailored.

- Openness and Programmability: The native Linux kernel is used to facilitate kernel upgrades, and at the same time, it has better openness (it is more convenient to for users to use third-party software to integrate open source Linux software into WDOS), provide the ability to run third-party software seamlessly, and provide the interface which is open to programmability and supports user-defined network services.
- Containerization: It supports containerization and integrates Docker. WDOS can be deployed in Docker containers and run containerized WDOS or third-party programs.

Smart Connection Based on SRv6

- SRv6 is a future-oriented new-generation protocol. It naturally supports IPv6 and satisfies access to massive address spaces. SRv6 can identify applications and tenants, realize intelligent routing based on index such as delay and bandwidth, and ensure SLA. At the same time, SRv6 implements a unified protocol, which simplifies configuration.
- SRv6 uses segments with a length of 128 bits to define network functions, and then by arranging the segments, a series of forwarding and processing behaviors of network devices can be implemented to complete service orchestration. Compared with MPWD SR protocol, it has stronger scalability and better compatibility with SDN controller, which is more conducive to deploying applications in DCI, MAN and other scenarios.
- The notable feature of SRv6 is that the forwarding plane adopts IPV6. Based on the reachability of IPV6, it is easier to realize the interconnection of different networks. SRV6 is used for forwarding within a domain, and only ordinary IPV6 forwarding is required between domains. It does not need to be like MPWD which need to convert MPWD to IP and do a lot of complicated configuration.

Application requirements for flexible connectivity

- The WD12000 series switches support VXLAN (Virtual eXtensible LAN) technology, which is a Layer2 VPN technology based on IP networks and in the form of "MAC in UDP" encapsulation. VXLAN can provide Layer2 interconnection for decentralized physical sites based on existing service provider or enterprise IP networks, and can provide business isolation for different tenants.
- WD12000 series switches support EVPN (Ethernet Virtual Private Network, Ethernet Virtual Private Network), EVPN is a Layer2 VPN technology, the control plane uses MP-BGP to advertise EVPN routing information, and the data plane supports the use of VXLAN encapsulation to forward messages.
- WD12000 series switches support large-capacity ARP/ND, MAC, ACL table entries, which can adapt to the flattening requirements of large data center networks.
- WD12000 series switches support 400G 120km ZR+ transceiver, which is suitable for DCI connection scenarios, and can partially replace the transmission equipment through the ZR+ module, which is more convenient to manage.

High Precision Time Solution 1588v2

- IEEE 1588v2 is a master-slave synchronization system. During the synchronization process of the system, the master clock periodically publishes the PTP time synchronization protocol and time information. The slave clock port receives the timestamp information sent by the master clock port and the system calculates the line time delay and master-slave time difference accordingly, and use this time difference to adjust the local time, so that the slave device time keeps the same frequency and phase as the master device time. IEEE1588v2 can realize frequency synchronization and time synchronization at the same time. The accuracy of time transfer mainly depends on the accuracy of the frequency of the two condition counters and the symmetry of the link. Compared with traditional timing technology, IEEE1588v2 has obvious advantages(It adopts two-way channel and the precision is ns-level. The cost is low and it can adapt to different access environments and so on.) IEEE1588v2 has become an inevitable trend of development under the background of increasing precision requirement in different industries.

Innovative multi-engine control design

- It adopts innovative hardware design and provides powerful control capability and high reliability guarantee for the system

through independent control engine, detection engine and maintenance engine.

- The independent control engine provides a powerful main control CPU system, which can easily handle various protocol packets and control packets and supports fine control of protocol packets, providing the system with a complete ability to resist protocol packet attacks;
- An independent detection engine provides a highly reliable and high-performance FFDR (Fast Fault Detection and Restoration-Fast Fault Detection and Restoration) system for fast fault detection such as BFD. It is linked with the control plane protocol to support fast protection switching and fast convergence, which can realize fast fault detection and ensure uninterrupted services;
- Independent maintenance engine, intelligent EMS (Embedded Maintenance Subsystem) CPU system, the CPU system supports intelligent power management, and can support sequential power-on and power-off of boards (reduces the power shock caused by power-on of boards at the same time) , improve equipment life, reduce electromagnetic radiation, reduce system power consumption), equipment online status check.
- The independent monitoring engine, completely separated from the service control plane, monitors the working status of the device hardware in real time, including power load and power adjustment, automatic fan speed adjustment and dynamic energy allocation of the whole machine.

Data Center Level Reliability Guarantee

- The WD12000 series products provide a dedicated FFDR system for fast fault detection such as BFD, and cooperate with the control plane protocol to support fast protection switching and fast convergence.
- Support BFD for VRRP/BGP/IS-IS/RIP/OSPF static routes, etc.
- Support NSR/GR for OSFP/BGP/IS-IS etc.
- The hardware of the control engine and the switching fabric board is independent of each other, which realizes the physical separation of the control plane and the forwarding plane. The control engine is 1+1 redundant; the switching fabric board is N+M redundant; the fan system is redundantly designed; the power module is N+M redundant ; Maximize the fault isolation capability and reliability of the system.

Distributed caching mechanism and refined QoS

- In the face of the burst traffic of the next generation data center, the "distributed ingress cache" technology is innovatively adopted. Each port can precisely perform accurate bandwidth allocation and traffic shaping for all service flows flowing to the port, and the precise scheduling of the forwarding plane ensures that the distributed cache in the direction of ingress is supported, and the cache space distributed on each line card is effectively shared and utilized with a better caching effect.
- The network application model has been transformed from C/S to B/S model. The change of application mode has led to the increase of network burst traffic and the large cache mechanism has become an urgent requirement of network equipment. The WD12000 supports 1600ms burst traffic per 10 Gigabit port, combined with the distributed ingress caching mechanism, it meets the needs of high burst traffic in large data centers.
- A single chip supports 8GB cache, and the line card supports a maximum of 32GB (4*8GB, each chip is independent and cannot be shared).
- The whole machine supports a maximum of 64K hardware queues, supports refined QoS and traffic management. It can be configured to assign different priorities and queues to different users and different service flows according to requirements, ensuring different bandwidth, service delay and jitter performance.

Comprehensive maintenance and inspection mechanism

- The online status detection mechanism works through a dedicated maintenance engine. It can detect the switching network board, backplane communication channel, business communication channel, key chips, memory and other parts of the device. Once the relevant module faiWD, it will be reported to the system through EMS.
- The board isolation function can isolate the designated board from the forwarding plane and no longer participate in the forwarding. The isolated board is still in the control plane and can be managed. The board can perform real-time diagnosis, CPLD upgrade and other business processing, without affecting the business of the whole system.

- Supports Ethernet OAM and provides a variety of device-level and network-level fault detection methods.

Open Application Architecture

- The WD12000 series products are designed based on the OAA (Open Application Architecture) concept and innovatively launch an open service platform.

Green

- Through the intelligent EMS engine system, the WD12000 series products support the intelligent management of power supply, and can support the sequential power-on of single boards (reduce the power shock caused by the simultaneous power-on of single boards, improve equipment life, and reduce electromagnetic radiation), and can control power-off of the singleboard, isolate faulty/idle boards, and reduce system power consumption.
- The fans of the WD12000 series are high-efficiency PWM speed-adjustable fans, which support stepless speed regulation. The system can automatically collect the board temperature, calculate the fan speed adjustment curve according to the actual situation of the device, and deliver the speed adjustment command to the fan. The system supports fan status monitoring (speed monitoring, fault alarm, etc.), which can automatically adjust the speed according to the ambient temperature and board configuration, reduce equipment power consumption and operating noise, effectively reduce ambient noise and prolong fan life.
- WD12000 series products support automatic detection of internal ports. When a slot is not configured with an interface board, or when a port is not connected to a cable, the system can automatically close the corresponding internal port, saving the power consumption of the whole machine.
- The minimum power consumption of 10G port is less than 3.4W, the minimum power consumption of 40G port is less than 10.4W, the minimum power consumption of 100G port is less than 13.8W, and the minimum power consumption of 400G port is less than 20.3W
- WD12000 series products adopt front-to-rear straight-through ventilation and strict front-to-rear air duct design, high ventilation and heat dissipation efficiency, energy saving and environmental protection, and can meet the requirements of efficient heat dissipation and energy consumption of data center equipment rooms.

Product Specifications

Hardware Specification

Item	WD12000-48Y8C	WD12000-48C6D	WD12504R	WD12508R	WD12516R	WD12000-2L	WD12508CR	WD12516CR
Switching capacity	4T	14.4T	387T/1161T	645T/1935T	1290T/3870T	172T/516T	967T/2903T	1935T/5806T
Throughput	2100Mpps	2700Mpps	115,200Mpps	230,400Mpps	460,800Mpps	57,600Mpps	460,800Mpps	921,600Mpps
MAC address table	NORMAL：500K；ROUTING：400k							
IPv4 FIB	1.9M	3.9M	3.9M					
IPv6 FIB	1.9M	3.9M	3.9M					
Flash	16GB							
SDRAM	32GB							
CPU	2.2GHz@4Core							
400G Port	/	6	WD12504R: Supports up to 4 LPU; WD12508R: Supports up to 8 LPU; WD12516R: Supports up to 16 LPU; WD12000-2L: Supports up to 2 LPU; WD12508CR: Supports up to 8 LPU; WD12516CR: Supports up to 16 LPU					
100G Port	8	48						
25G Port	48	/						
MPU slots	/	/	2	2	2	2	2	2
LPU slots	/	/	4	8	16	2	8	16
Switching fabric module slots	/	/	6	6	6	/	9	9
Weight (full configuration)	≤9.2kg	≤14.7kg	≤100kg	≤190kg	≤350 kg	≤70 kg	≤400kg	≤620kg
Dimensions (H x W x D) mm	44 x 440 x 460 (1U)	65.5 x 440 x 660 (1.5U)	264 x 440 x 845 (6U)	531 x 440 x 845 (12U)	931x440x845 (21U)	133 x 440 x 895 (3U)	842 x442 x920 (19U)	1331 x442 x920 (30U)
Redundancy	Redundant MPUs, power modules, and fan trays for WD12000-2L Redundant power modules, and fan trays for WD12000-48Y8C/WD12000-48C6D Redundant MPUs, switching fabric modules, power modules, and fan trays for other							
Temperature	Operating temperature: 0°C to 40°C (32°F to 104°F) Storage temperature: -40°C to 70°C (-40°F to 158°F)							
Humidity	Operating Humidity: 5% to 95% (non-condensing) Storage Humidity: 5% to 95% (non-condensing)							

Green	WEEE,RoHS
Safety	CE, UL/cUL, FCC-PART15, VCCI,etc.

Software Specifications

Item	Feature description
Device Virtualization	M-LAG(DRNI)
	S-MLAG
Network Virtualization	BGP-EVPN
	VxLAN
VxLAN	L2 VxLAN gateway
	L3 VxLAN gateway
	Distributed VxLAN gateway
	Centralized VxLAN gateway
	EVPN VxLAN
	manual configured VxLAN
	IPv4 VxLAN tunnel
	IPv6 VxLAN tunnel
	QinQ VxLAN access
	VxLAN DCI, vxlan mapping and route regeneration to interconnect DCs by L2 and L3
	VxLAN multicast
	EVPN-VxLAN multicast
	MPWD SR
SR/SRv6	TI-LFA FRR
	BGP-EPE
	MPWD TE policy
	SRv6
	EVPN VPWD over SRv6
	EVPN VPWS over SRv6
	MPWD L3VPN over SRv6
	EVPN L3VPN over SRv6
	SRv6 BE
	SRv6 TE
MPWD/VPWD	Support L3 MPWD VPN
	Support L2 VPN: VLL (Martini, Kompella)
	Support MCE
	Support MPWD OAM
	Support VPWD, VLL
	Support hierarchical VPWD and QinQ+VPWD access
	Support P/PE function
	Support LDP protocol
SDN	WD DC Controller-DC
	WD DC Controller-WAN

Lossless network	PFC and ECN
	DCBX
	RDMA and ROCE
	PFC deadlock watchdog
	ECN overlay
	ROCE stream analysis
Programmability	Openflow1.3
	Netconf
	Ansible
	Python//TCL/Restful API to realize DevOps automated operation and maintenance
Traffic analysis	Sflow
	Netstream
VLAN	Port-based VLANs
	VLAN mapping
MAC address	Dynamic learning and aging of mac address entries
	Dynamic,static and blackhole entries
	Mac address limiting on ports
IPv4 routing	RIP(Routing Information Protocol) v1/2
	OSPF (Open Shortest Path First) v1/v2
	ISIS(Intermediate System to Intermediate system)
	BGP (Border Gateway Protocol)
	Routing policy
	VRRP
	PBR
	RIPng
IPv6 routing	OSPFv3
	IPv6 IS IS
	BGP4+
	Routing policy
	VRRP
	PBR
Multicast	IGMP snooping
	MLD snooping
	IPv4 and IPv6 multicast VLAN
	IGMP V3
	PIM-SM and PIM-SSM
	PIM-DM
	MSDP
	IPv4 and IPv6 PIM snooping
	IGMP and MLD
	PIM and IPv6 PIM
Reliability	LACP
	LLDP
	STP/RSTP/MSTP protocol, PVST compatible

	STP Root Guard and BPDU Guard
	RRPP and ERPS
	Ethernet OAM
	Smartlink
	DLDP
	BFD for OSPF/OSPFv3, BGP/BGP4, IS-IS/IS-ISv6, PIM/IPM for IPv6 and Static route
	VRRP and VRRPE
QOS	Weighted Random Early Detection (WRED) and tail drop
	Flexible queue scheduling algorithms based on port and queue, including strict priority (SP), Weighted Round Robin (WRR), Weighted Fair Queuing (WFQ), SP + WRR, and SP + WFQ.
	Traffic shaping
	Packet filtering at L2 (Layer 2) through L4 (Layer 4); flow classification based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN to apply qos policy,including mirroring,redirection,priority remark etc.
	Committed access rate (CAR)
	Account by packet and byte
	COPP
Telemetry	gRPC
	ERSPAN
	Mirror on drop
	Telemetry Stream
	Packet trace
	Packet capture
Configuration and maintenance	Console telnet and SSH terminaWD
	SNMPv1/v2/v3
	ZTP
	System log
	File upload and download via FTP/TFTP
	BootRom update and remote update
	NOA
	ping,tracert
	NTP
	PTP(1588v2)
	G8275.1
	SyncE
	GIR Graceful Insertion and Removal
Security and management	Macsec
	Hierarchical management and password protection of users
	Authentication methods,including AAA,RADIUS and HWTACACS
	Support DDos, ARP attack and ICMP attack function
	SSH 2.0
	HTTPS
	SSL
	PKI

	Boot ROM access control (password recovery)
	RMON

Performance and scalability

Item	Description	WD12000	WDWD12000-48Y8C/WD12000-48C8D
Virtualization	M-LAG device number	2	2
	ES-multihoming device number	8	8
	ED group	8	8
ACL	max number of ingress ACWD	51200	51200
	Maximum number of Ingress QACL CARs	8K	8K
	max number of ingress Counter	43008(shared between inbound and outbound)	43008(shared between inbound and outbound)
	max number of egress Car	8K	8K
	max number of egress Counter	8K	8K
Forwarding table	Jumbo frame length(byte)	960	9960
	Mirroring group	6	6
	max number of MACs per switch	Up to 500K	Up to 500K
	max number of ARP entries IPv4	88K	88K
	max ND table size for IPv6	88K	88K
	max number of unicast routes IPv4	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	max number of unicast routes IPv6	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	IPv4 l2 multicast group	4K	4K
	IPv4 l3 multicast group	4K	4K
	IPv4 l2 multicast routing	100K	WD12000-48Y8C: 112K WD12000-48C8D: 100K
	IPv6 l2 multicast routing	100K	WD12000-48Y8C: 112K WD12000-48C8D: 100K
	IPv4 l3 multicast routing	100K	WD12000-48Y8C: 112K WD12000-48C8D: 100K
	IPv6 l3 multicast routing	100K	WD12000-48Y8C: 112K WD12000-48C8D: 100K
	IPv6 l2 multicast group	4K	4K
	IPv6 l3 multicast group	4K	4K
	LAGG group	1024	1024
	LAGG member per group	256	256
	ECMP group	22527	22527
	ECMP member per group	256	256
	VRF	8K	8K
Interface	Loopback interface number	1023	1023
	L3 sub interface number	8K	8K
	SVI interface number	4094	4094
	SVI second ip	8191	8191
	VxLAN AC number	16K	16K

	VxLAN VSI number	16K	16K
	VxLAN tunnel number	15K	15K
	VSI interface number	16K	16K
	VSI interface second ip	8192	8192
	Total VRRP virtual mac-address numbers	16	16
	IPv4 tunnel number	2K	2K
	IPv6 tunnel number	2K	2K
	VLAN number	4094	4094
Performance	BFD session	2000 50ms*3	2000 50ms*3
	RIP routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	RIPng routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	OSPF routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	OSPF process number	3.2K	3.2K
	OSPF peer	1000	1000
	OSPFv3 routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	OSFPv3 process number	3K	3K
	BGP Peer number	2000	2000
	BGP routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	BGP4+ Peer	2000	2000
	BGP4+ routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	ISIS process number	1000	1000
	ISIS routing table	3.9M	WD12000-48Y8C: 1.9M WD12000-48C8D: 3.9M
	ISISv6 process number	1000	1000
	ISISv6 routing table	3.9M	WD12000-48Y8C: 1.3M WD12000-48C8D: 3.9M
	RIB	8M	8M
	MSTP instance	64	64
	PVST instance	128	128
	PVST logical port number	1000	1000
	VRRP VRID	16	16
	VRRP group	4096	4096
	NQA group	5K	5K
Static table	static mac-address	20480	20480
	static ARP	8192	8192
	static ND	1024	1024
	static IPv4 routing table	2048000	2048000
	static IPv6 routing table	524k	524k

Ordering information

Product ID	Product Description
WD-WD12000-2L	WD12000-2L Ethernet Switch Router Chassis
WD-12504R	WD12504R Ethernet Switch Router Chassis
WD-12508R	WD12508R Ethernet Switch Router Chassis
WD-12516R	WD12516R Ethernet Switch Router Chassis
WD-12508CR	WD12508CR Ethernet Switch Router Chassis
WD-12516CR	WD12516CR Ethernet Switch Router Chassis
WD-WD12000-48Y8C	WD12000-48Y8C Ethernet Switch Router with 48 SFP28 Ports and 8 QSFP28 Ports
WD-WD12000-48C6D	WD12000-48C6D Ethernet Switch Router with 48 QSFP28 Ports and 6 QSFP-DD Ports
WDXM1CMUR1	WD12500CR Switch Environment Management Module
WDXM1SUPKR1	WD12500CR Supervisor Engine Unit
WDXM1SUP04TR1	WD12504R Supervisor Engine Unit
WDXM1SUPER1	WD12000Supervisor Engine Unit
WDXM1SFK04FR1	WD12504R Fabric Module,Type K(Class F)
WDXM1SFK08ER1	WD12508R Fabric Module,Type K(Class E)
WDXM1SFK08FR1	WD12508R Fabric Module,Type K(Class F)
WDXM1SFK08GR1	WD12508R Fabric Module,Type K(Class G)
WDXM1SFK16GR1	WD12516R Fabric Module,Type K(Class G)
WDXM1SFK16ER1WDXM1SFK08ER1	WD12516R Fabric Module,Type K(Class E)WD12508R Fabric Module,Type K(Class E)
WDXM1SFK08ER1	WD12508R Fabric Module,Type K(Class E)
WDXM1SFK08FR1	WD12508R Fabric Module,Type K(Class F)
WDXM1SFK08GR1	WD12508R Fabric Module,Type K(Class G)
WDXM1SFK16ER1	WD12516R Fabric Module,Type K(Class E)
WDXM1SFK16GR1	WD12516R Fabric Module,Type K(Class G)
WDXM1SFK08FR1	WD12508R Fabric Module,Type K(Class F)
WDXM1SFK08GR1	WD12508R Fabric Module,Type K(Class G)
WDXM1CDQ24KBR1	WD1200024-Port 400GBASE Ethernet Optical Interface Module(QSFP-DD)(KB)
WDXM1CGQ48KBR1	WD1200048-Port 100GBASE Ethernet Optical Interface Module(QSFP28)(KB)
WDXM1CDQ36KBR1	WD12500CR 36-Port 400GBASE Ethernet Optical Interface Module(QSFP-DD)(KB)
WDXM1CGQFX16KBR1	WD1200016-Port 100GBASE FlexE Ethernet Optical Interface Module(QSFP28)
WDXM1CGMS48KBR1	WD1200048-Port 100GBASE MACsec Ethernet Optical Interface Module (QSFP28)
WDXM1CCQ48KBR1	WD1200048-Port 200GBASE Ethernet Optical Interface Module (QSFP56)(KB)
WDXM1CGQ48KB1	WD12500X-AF 48-Port 100GBASE Ethernet Optical Interface Module(QSFP28)(KB)
WDXM1MOD24KBR1	WD1200024KBR Flexible Line Processing Platform Module
WDXM1SUP02LR1	WD12000-2L Supervisor Engine Unit
WDXM1SUP02TR1	WD12000-2L Supervisor Engine Unit
WDXM1CGQ72KCR1	WD1200036-Port 200GBASE Ethernet Optical Interface (QSFP56)/72-Port 100GBASE Ethernet Optical Interface Module (QSFP28)(KC)
PSR3000-54AHD	3000W AC & 240V-380V HVDC Power Supply
PSR3000-54A	3000W AC Power Supply Module

PSR2400-54A	AC Power Module,2400W
PSR2400-54D	DC Power Module,2400W

WD-PEM-AC3000	AC 3000W Power Tray
PSR650B-12AHD-F	650W HVDC Power Supply
PSR650B-12A2-F	650W AC Power Supply (Power Panel Side Intake Airflow)
WDVM3PSRA	APOLLO INFOWAYS 1800W AC Power Supply (Power Panel Side Exhaust Airflow)
PSR1600C-12A-B	1600W AC Power Supply Module (Power Panel Side Exhaust Airflow)
CR-PEM-DC2000	DC 2000W Power Tray
CR-PEM-HVDC3000	HVDC 3000W Power Tray
PSR650B-12A2-F	650W AC Power Supply (Power Panel Side Intake Airflow)
FAN-40B-1-C	Fan Module (Fan Panel Side Exhaust Airflow, Electronic Label Supported)
FAN-40F-1-D	APOLLO INFOWAYS Fan Module(Fan Panel Side Intake Airflow)
WDXM104XFAN	WD12504X-AF Ethernet Switch Fan Module
WDXM104XFANH	WD12504X-AF Ethernet Switch High Power Fan Module
WDXM108XFAN	WD12508X-AF Ethernet Switch Fan Module
WDXM108XFANH	WD12508X-AF Ethernet Switch High Speed Fan Module
CAB-CON-1.8m	Single Cable, Console Serial Port Cable,1.8m,D9F,28UL20276(4P)(P296U),MPH-8P8C
CAB-Console-1.8m-W31R	Console Cable,1.8m,RJ45P,UL2725(3C28AWG),USB AP
WDVM1BSR10	APOLLO INFOWAYS S9810 Bottom Support RaiWD,630mm~900mm
WDXM1BFP08A	08 Fabric Blank Filler Panel
WDTM2KSGD0	Slide Rail Accessories,500mm-800mm
WDXM1BSR	1U Bottom-Support RaiWD,630mm~900mm
WDXM1BFP16A	16 Fabric Blank Filler Panel

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