

WATCHDOG

CMMI  
MATURITY LEVEL 5



# L3 SERIES SWITCH

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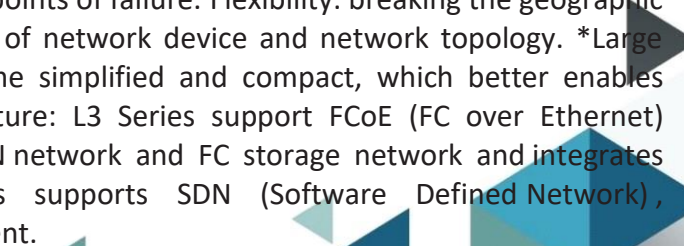
# Product Overview

WatchDog Core L3 Series is a new generation of full 10GE TOR switches, oriented for high-performance computing, data center and high-end campuses. The Core L3 Series adopts our most advanced hardware architecture designs. Core L3 Series (1U height) supports up to 2.56Tbps switching capacity and 48 10GE ports + 2 40GE ports + 4 100G ports or 72 10GE ports. Core L3 Series supports WVSS, TRILL, SDN and FCoE/FC. By cooperating with Core L3 Series can converge data of 15000+10GE servers. Developed on the basis of a software platform, Core L3 Series provides high-performance L2/L3/L4 wire speed switching capacity by integrating services such as Ipv6, MPLS VPN, network security, flow analysis, virtualization, with high reliable techniques including continuous forwarding, graceful restarting and loop network protection, all which works efficiency withing the core L3 Series fabric for guaranteed maximum runtime. Core L3 Series supports the "GreenTouch" architecture and "Smart@CHIP". Its power consumption is lower than 200W. It support transceiver Digital Diagnostic Monitoring for optical Core L3 Series has 3 models: WD-GS-24G4Q28, WD-GS-48G4Q, WD-GS-48G2Q4Q28

Carrier-Level Aggregation Layer-3 Ethernet Switch Innovative virtualize multiple physical devices into one. The performance, reliability and management capabilities of virtual system combine to outperform that of individual physical devices; Improved performance: its makes full use of each link in the physical device cluster, which avoids STP blocking on links and protects the original link to the maximum; High Reliability: Based on the advanced distribution mechanism and efficient cross-physical link aggregation function, the logic control plane, service control plane and service data plane are separated. Thus, the device can support continuous layer 3 routing forwarding, avoiding services interruption as a result of a single point of failure, Easy Management: WVSS realize single IP management, greatly improving the networking efficiency and lowering operating costs.

## Product Characteristics

Rich data center services WVSS (Watchdog Virtual Switch System) L3 Series supports WVSS, which can virtualize multiple physical devices into a single logical element. the virtualized system is superior to the independent physical device in performance, reliability, flexibility and management. Doubled performance: The virtualized system makes the best use of each link in the device and avoids blocking of STP to the links. High-reliability: Based on the advanced distributed processing technique and the efficient function of cross-physical device link aggregation, the L3-Series provides non-stop layer-L3 routing forwarding and avoids single points of failure. Flexibility: breaking the geographic restriction of traditional cluster techniques. Easy Management of network device and network topology. \*Large Layer-2 Network Technique, the network structure has become simplified and compact, which better enables access for data center, large-scale servers, \*Unified Architecture: L3 Series support FCoE (FC over Ethernet) technique, which solves the problem of discrepancy between LAN network and FC storage network and integrates computing, data and storage networking.\*SDN: L3 Series supports SDN (Software Defined Network), which can realize network vitalization and centralized management.






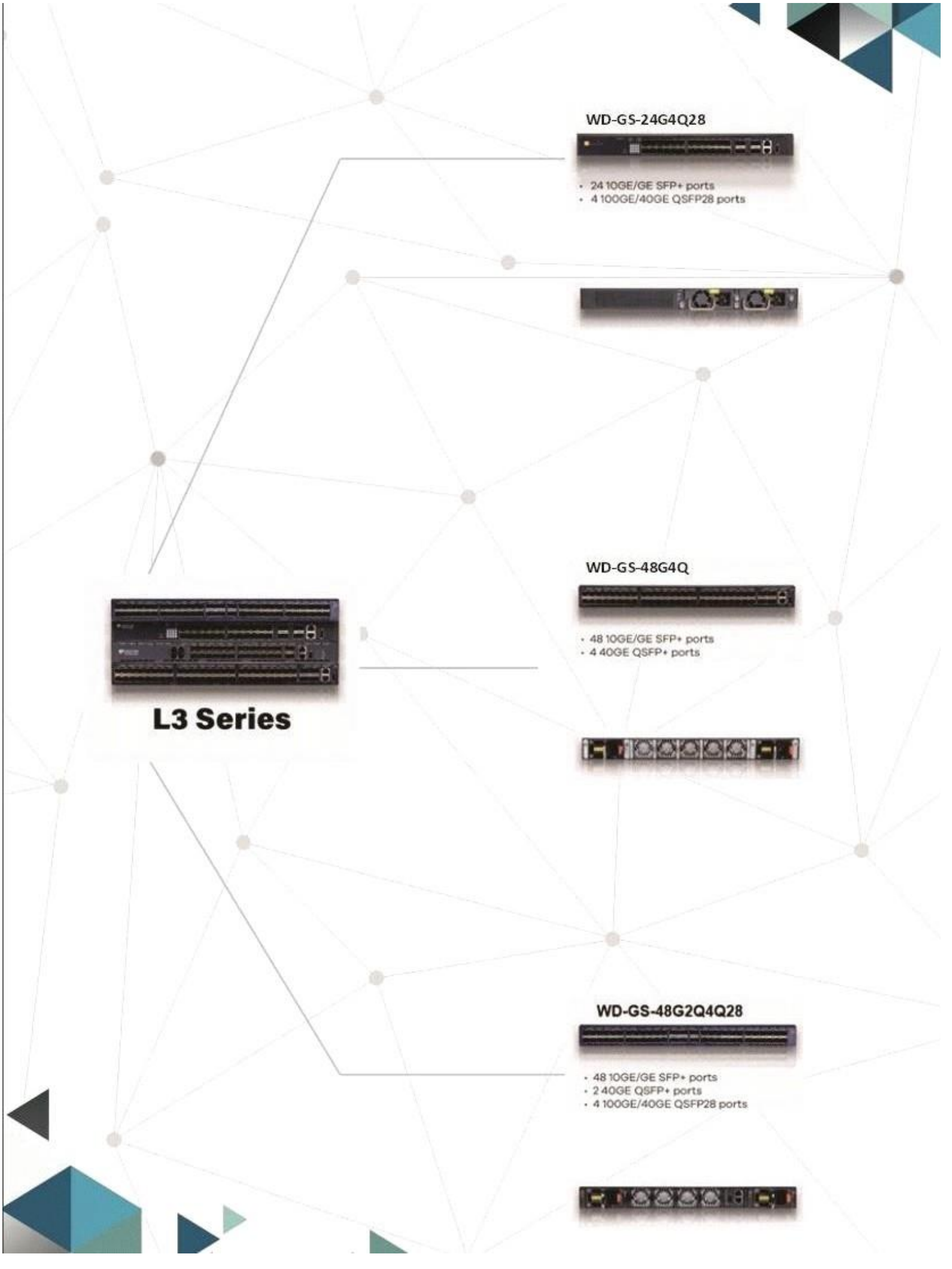
## Security+

Equipment-level security: the advanced hardware infrastructure design realizes the level-based packet schedule and packet protection, prevents DoS-/TCP-related STC Flood, UDP Flood, Broadcast Storm or large traffic attacks, and supports level-based command line protection, endowing different levels of users with different management permissions. Perfect security authentication mechanisms: IEEE 802.1x, Radius and watchdog tacacs+ L3 Series supports storm/multicast/unicast limits, ensuring normal running conditions of the equipment when deployed in harsh network conditions. L3 series supports perfect ring detection mechanisms, ensuring long-term network performance stability. L3 series support port isolation within the same VLAN, DHCP-Snooping, and IP + MAC + port binding

## Versatile IPv6 Solution

L3 Series supports the Ipv6 protocol suite, Ipv6 neighbor discovery, ICMPv6, path MTU discovery, DHCPv6, etc.; L3 Series supports ping, Traceroute, Telnet, SSH, ACL based on Ipv6; L3 Series supports MLD, MLD Snooping, Ipv6 statics routing, RIPng, BFD, OSPFv2, OSPFv3 and BGP4+, etc.; Support Ipv6 tunnel: manual tunnel, automatic tunnel, GRE tunnel, 6 to 4 tunnel, ISATAP; L3 Series supports Ipv4 transiting to Ipv6: Ipv6 manual tunnel, automatic tunnel, automatic tunnel 6 to 4 tunnel, ISATAP tunnel. Data Center level high-reliability L3 Series adopts HPS (Hitless protection System). The key components of the L3 series Such as the power system and the fan system support redundancy in design. All system modules support hot-swap and seamless switching without need of manual intervention. L3 Series supports ISSU (In-Service Software Upgrade), guaranteeing non-stop forwarding of service data while the system is upgrading. L3 Series supports BFD and realizes fault detection and service recovery in seconds through linking with layer-2 or layer-3 protocol. L3 Series has perfect Ethernet OAM, 802.3ah, 802.1ag and ITU-Y.1731 which can monitor the network operating state in real time and rapidly detect and locate the malfunction. High Reliability (99.999%): The MTTR of the L3 Series is 50ms, satisfying the requirement for reliable delivery of carrier-level service.





### WD-GS-24G4Q28



- 24 10GE/GE SFP+ ports
- 4 100GE/40GE QSFP28 ports



### WD-GS-48G4Q



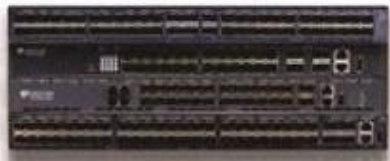
- 48 10GE/GE SFP+ ports
- 4 40GE QSFP+ ports



### WD-GS-48G2Q4Q28



- 48 10GE/GE SFP+ ports
- 2 40GE QSFP+ ports
- 4 100GE/40GE QSFP28 ports



## L3 Series

# Product Specifications



ITEM	WD-GS-48G4Q	WD-GS-24G4Q28	WD-GS-48G2Q4Q28
INTERFACE	48*10GE/GE SFP + ports,4*40GE QSFP+ports	24*10GE/GE SFP + ports, 4*100GE/40GE QSFP28 Ports	48 10GE/GE SFP+ Ports, 2*40GE QSFP+ ports, 4 *100GE/40GE QSFP28 Ports
CONSOLE		1 Rj45 console 1MGMT	1RJ45 console 1 MGMT
BACKPLANE	1280Gbps 960Mpps	1280Gbps	1920Gbps
FORWARDING RATE	442x404x44	800Mpps	1440 Mpps
CHASSIS	8.6	440x350x44	442x404x44
	616x488x140	7.1	8.8
PACKAGE	8.6	576X448X94	616x488x140
	94W	8.3	10
POWER CONSUMPTION	1315W	45W	102W
		70W	147W
POWER SUPPLY AC: 100V-240V, (hot-swap) 50Hz+10%	2	2	2
Power status monitoring	Support	Support	Support
Total output BTU (1000BTU/H=293W)	448.81	238.91	501.71
Fan number	5	4	4
Noise@25°C(dBA)	55	57	57
MTBF(H)	>100,000	>100,000	>100,000
Forwarding mode	Store-forward	Store-forward	Store-forward
Flash (MB)	2048	1024	2048
DRAM (MB)	2048	1024	2048
MAC	128K	64K	85K
Jumbo (MB)	9K	9K	9K
VLAN	4K	4K	4K
FIB Table IPv4	48K	16K	36k
IPv6	16K	8K	8K
ACL Table	8K	10K	4K

# Features

## **VLAN**

4K Active VLAN, 256 VLAN for SVI, QinQ & SelectiveQinQ, GVRP, Private VLAN, 802.1Q Tagged VLAN

## **Spanning Tree**

.802.1D (STP)  
.802.1W (RSTP) and 802.1S (MSTP)  
.BPDU guard, root guard and loopback guard

## **Multicast**

.PIM-SIM, PIM-DM,  
.IGMP v1/v2/v3,  
.IGMP Snooping,  
IGMP Fast Leave,  
.MVR, IGMP filter

## **Protocol**

.Static routing, RIP v1/v2  
.OSPF, BGP, PBR, ECMP  
.BFD for OSPF

## **Ipv6**

.ICMPv6, DHCPv6, ACLv6 and Ipv6 Telnet  
.Ipv6 neighbor discovery, path MTU discovery  
.MLD V1/V2, MLD snooping  
.Ipv6 Static Routing, RIPng, OSPFv2, OSPFv3, BGP4+  
.Manual tunnel, ISTAP tunnel, 6 to 4 tunnel

# Features

## **MPLS**

- .Multi-VRF

## **QoS**

- .CAR, HQoS, MAC/IP/TCP/UDP/VLAN/COS/DSCP/TOS based QoS,
- .802.1P/DSCP priority re-labeling, SP, WRR," Tail-Drop,
- .WRED, flow monitoring and traffic shaping

## **Security**

- .Port isolation, Port security and "IP+MAC+Port" binding, MAC
- .IEEE802.1x radius and BDTacacs+ L2/L3/L4 ACL flow identification and filtration Anti-Attack from DDoS
- .Port Mirroring
- .TCP's SYN Flood, UDP Flood, etc. Broadcasting/ Multicast/Unknown unicast storm " control
- .Md5, SHA-256, RSA-1024, AES256

## **Reliability**

- Static/ LACP link aggregation,
- Interface backup
- Support Stacking :8 hardware queue
- EAPS and ERPS
- URPF, LLDP,ISSU
- VRRP
- 1+1 power backup

# Features

## Management

- Console, Telnet, SSH v1/v2, HTTP
- HTTPS, SNMP v1/v2/v3, RMON
- TFTP, FTP, SFTP
- NTP, SPAN, RSPAN

## Environment

- Operating temperature/humidity: 0° --50°, 10% -90% non-condensing
- Storage temperature/humidity: -20° -70°, 5%-90% non-condensing

## Certification

CE, FCC, ROHS, EMI/EMC



# Supported optics Module

Gigabit SFP single-mode (120Km,1550nm,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (10Km,TX1310/RX1550,LC,DDM)
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Gigabit SFP single-mode, single-core bidirectional (20Km,TX1550/RX1310,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (40Km,TX1310/RX1550,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (40Km,TX1550/RX1310,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (80Km,TX1490/RX1550,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (80Km,TX1550/RX1490,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (120Km,TX1490/RX1550,LC,DDM)
Gigabit SFP single-mode, single-core bidirectional (120Km,TX1550/RX1490,LC,DDM)
40G QSFP+ (PSM4-IR) 2 KMs
40G QSFP+ PSM4-LR Module (10 KMs)
QSFP+ 40G (10 KMs) CWDM Dual Fiber
QSFP+ 40G LR4 CWDM 1310nm 20km
QSFP+ 40G ER4 CWDM 1310nm 40km
QSFP28 SR4
QSFP28 100G ER4 40 KMs
10G DAC Cable 1 Mtr
40G DAC Cable 1 Mtr
100G DAC Cable 1 Mtr
MPO to MPO cable (QSFP+ 40G to QSFP+ 40G connection )
OM3 8F LSZH Type B 10Meter
Breakout Cable (MPO/PC to 4*DLC/PC 8F LSZH 10M B-type Length 1M)