









# DATA CENTER NETWORKING


## QUICK REFERENCE GUIDE

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\*Some features differ for Open Networking (ON) versions.

Z-Series	400GbE	10/25/40/50/100GbE	
<b>Overview</b>	 High-performance, high-density 100GbE multi-rate aggregation switch	 High-performance, high-density 100GbE multi-rate aggregation switch	 Fixed form factor switch for high-performance data center and computing environments
<b>Models</b>	Z9332F-ON	Z9264F-ON	Z9100-ON
<b>Performance</b>			
Switching capacity (full duplex)	25.6 Tbps	12.8 Tbps	6.4 Tbps
Forwarding capacity (Tpps)	5.1	2.9 for 64 < packet size < 250 bytes 4.2 when average size > 250 bytes	3.5
Buffer size	64MB	42MB	16MB
Latency	sub 700 ns	300ns L2/400ns L3	L2: 300ns, L3: 400ns
<b>Ports</b>			
1/10GBase-T	1	N/A	2
1GbE (SFP)	2	128 (breakout) + 2	—
10GbE	1144 = 128 (breakout) +16	128	128 (breakout) + 2
25GbE	144 = 128 (breakout) + 16	128 (breakout)	128 (breakout)
40GbE	64 (breakout)	64	32
50GbE	64 (breakout)	128 (breakout)	64 (breakout)
100GbE	128 (breakout)	64	32
400 GbE	32	—	—
Expansion module slots (Modules support speed indicated)	N/A	—	—
<b>Power and cooling</b>			
Power consumption (W)	1500 (max)/900 (normal)	750 (max)/340 (normal)	605 (max)/195 (normal)
Power options	AC	AC or DC	AC or DC
Redundant power (hot-swappable)	Yes	2	2
Airflow	Reversible	Reversible	Reversible
<b>Features</b>			
Operating Systems	Dell EMC SmartFabric OS10 and select 3rd party OS		Dell EMC Networking OS9 and select 3rd party OS
Industry-standard CLI (Console, Telnet, SSHv1/v2)	Dell EMC Networking and several 3rd party OS		
iSCSI optimization	iSCSI optimization and FSB	iSCSI aware (detect and prioritize iSCSI traffic into pre-defined QoS); iSCSI Auto-Configuration (switch configuration routine for automated setup and optimal performance with Dell EqualLogic or Compellent arrays)	
Max VLANs (Configured)	4K per port	4K per port	4K per port
Max MAC entries	8K	160K	136K
Link aggregation (Groups/Members)	16 links per group, 128 groups	64 links per group, 128 groups	128/16
Max routes (IPv4/IPv6)	400K/300K	128K/64K	136K/68K
IPv4 routing	RIP, OSPF, BGP	RIP, OSPF, BGP	RIP, OSPF, BGP, IS-IS
IPv6 routing	BGP-4, OSPFv3, ICMPv6 and DHCPv6	BGP-4, OSPFv3, ICMPv6 and DHCPv6	OSPFv3, BGP-4, IS-IS
Multicast routing	IGMP, MLD	IGMP, MLD	IGMP, PIM, MSDP

S-Series	10/25/40/50/100GbE				
<b>Overview</b>	 Build a high-performance, cost-efficient data center leaf/spine fabric with this spine fabric switch	 Provide optimum flexibility and cost-effectiveness for demanding compute and storage traffic environments	 Double the amount of direct 25GbE ports with a ToR switch that features 96 x 25GbE SFP28	 Low-density 1RU, half-width switch ideal for high-performance HCI connectivity	 Low-density 1RU, full-width switch ideal for high-performance HCI connectivity
<b>Models</b>	<b>S5232F-ON</b>	<b>S5248F-ON</b>	<b>S5296F-ON</b>	<b>S5212F-ON</b>	<b>S5224F-ON</b>
<b>Performance</b>					
Switching capacity (full duplex) (Tbps)	6.4	4.0	6.4	2.16	2.16
Forwarding capacity (Mpps)	1.5 Bpps	1.9 Bpps	1.5 Bpps	892	954
Buffer size	32MB	32MB	32MB	32MB	32MB
Latency	877	847	850	906	881
<b>Ports</b>					
1/10GBase-T	N/A	N/A	N/A	N/A	N/A
1GbE (SFP)	126	80	128	24	40
10GbE	128	80	128	24	40
25GbE	124	80	128	24	40
40GbE	32	8	8	3	4
50GbE	64	16	16	6	8
100GbE	32	8	8	3	4
Expansion module slots	N/A	N/A	N/A	N/A	N/A
<b>Power and cooling</b>					
Max. power consumption (W)	635	647	893	304	455
Power options	AC or DC	AC or DC	AC or DC	AC or DC	AC or DC
Redundant power (hot-swappable)	2	2	2	N/A	2
Airflow	Reversible	Reversible	Reversible	Normal or Reverse as orderable options, not reversible in the field	Reversible
<b>Features</b>					
Operating Systems	Dell EMC SmartFabric OS10 and select 3rd party OS				
Industry-standard CLI (Console, Telnet, SSHv1/v2)	Dell EMC networking and several 3rd party OS				
iSCSI optimization	iSCSI optimization and FSB	iSCSI optimization and FSB	iSCSI optimization and FSB	iSCSI optimization and FSB	iSCSI optimization and FSB
Max VLANs (Configured)	4K per port	4K per port	4K per port	4K per port	4K per port
Max MAC entries	160K	160K	160K	160K	160K
Link aggregation (Groups/Members)	16 links per group, 128 groups	16 links per group, 128 groups	16 links per group, 128 groups	16 links per group, 128 groups	16 links per group, 128 groups
Max routes (IPv4/IPv6)	128K/64K	128K/64K	128K/64K	128K/64K	128K/64K
IPv4 routing	RIP, OSPF, BGP	RIP, OSPF, BGP	RIP, OSPF, BGP	RIP, OSPF, BGP	RIP, OSPF, BGP
IPv6 routing	BGP-4, OSPFv3, ICMPv6 and DHCPv6	BGP-4, OSPFv3, ICMPv6 and DHCPv6	BGP-4, OSPFv3, ICMPv6 and DHCPv6	BGP-4, OSPFv3, ICMPv6 and DHCPv6	BGP-4, OSPFv3, ICMPv6 and DHCPv6
Multicast routing	IGMP, MLD	IGMP, MLD	IGMP, MLD	IGMP, MLD	IGMP, MLD

S-Series	10GbE/8GbFC	
<b>Overview</b>	 Latest generation 40GbE TOR switch based on Broadcom Trident2+ chip	 High-performance switch with 10/40GbE ports, multi-rate 100GbE ports and deep buffers and tables
<b>Models</b>	<b>S6010-ON</b>	<b>S4248FBL-ON</b>
<b>Performance</b>		
Switching capacity (full duplex) (Tbps)	2.56	1.6
Forwarding capacity (Mpps)	1462	720
Buffer size	16MB	6GB
Latency	Sub 600ns	1.9 to 10.0 micro sec
<b>Ports</b>		
1/10GBase-T	—	N/A
1GbE (SFP)	96 (Breakout)	N/A
10GbE	96 (Breakout)	40
25GbE	—	
40GbE	32 fixed 40GbE QSFP+ ports	2
50GbE	—	
100GbE	—	6
Expansion module slots (Modules support speed indicated)	—	N/A
<b>Power and cooling</b>		
Power consumption (W)	411 (max)/274 (normal)	420 (max)/180 (normal)
Power options	AC	AC or DC
Redundant power (hot-swappable)	2	2
Airflow	Reversible	
<b>Features</b>		
Operating Systems	Dell EMC Networking SmartFabric OS10 and several 3rd party OS	
Industry-standard CLI (Console, Telnet, SSHv1/v2)	Dell EMC Networking SmartFabric OS10 and several 3rd party OS	
iSCSI optimization	Yes	
Max VLANs (Configured)	4K	4K
Max MAC entries	160K	750K
Link aggregation (Groups/Members)	16 links per group, 128 groups	32 links per group, 128 groups
Max routes (IPv4/IPv6)	128K/8K	2 Million / 400K
Jumbo frames	In process	9216 bytes
IPv4 routing	RIP, OSPF, BGP, IS-IS	RIP, OSPF, BGP
IPv6 routing	BGP-4, IS-IS	OSPFv3, ICMPv6
Multicast routing	IGMP, PIM, MTU	IGMP

+Some features differ for Open Networking (ON) versions.

S-Series	10GbE					
Overview	 <p>Next generation open networking switches for enterprise, mid-market and Tier2 cloud service providers with demanding compute and storage traffic environments</p>					
Models (all sized 1RU)	S4128F-ON	S4128T-ON	S4148F-ON	S4148T-ON	S4148FE-ON	S4148U-ON
<b>Performance</b>						
Switching capacity (full duplex)	960 Gbps	960 Gbps	1.76 Tbps	1.76 Tbps	1.76 Tbps	1.76 Tbps
Forwarding Capacity (Mpps)	714	714	759	759	759	759
Buffer size	12MB	12MB	12MB	12MB	12MB	12MB
Latency (microseconds)	<800 n sec	<2.3 u sec	<800 n sec	<2.3 u sec	<850 n sec	<800 n sec
<b>Ports</b>						
FC8/FC16	N/A	N/A	N/A	N/A	N/A	unified SFP+/SFP28
FC8/FC16/FC32	N/A	N/A	N/A	N/A	N/A	unified QSFP28
1/10GBase-T	N/A	28	N/A	48	N/A	N/A
10GbE	36	36	72	72	72	72
25GbE (QSFP+)	8	8	16	16	16	16
40GbE	2	2	6	6	6	6
50GbE	4	4	8	8	8	8
100GbE	2	2	4	4	4	4
Expansion module slots (Modules support speed indicated)	N/A	N/A	N/A	N/A	N/A	N/A
<b>Power and cooling</b>						
Max. power consumption (W)	260 (max)/160 (normal)	300 (max)/250 (normal)	370 (max)/200 (normal)	440 (max)/320 (normal)	400(max)/240 (normal)	460 (max)/300 (normal)
Power options	AC or DC	AC or DC	AC or DC	AC or DC	AC or DC	AC or DC
Redundant power supplies	2	2	2	2	2	2
Airflow	Normal or Reverse					
<b>Features</b>						
Stacking	Not currently available					
Operating system	Dell EMC Networking SmartFabric OS10 and select 3rd party OS					
Industry-standard CLI	Dell EMC Networking SmartFabric OS10 and several 3rd party OS					
iSCSI optimization storage features	iSCSI optimization and FSB					iSCSI optimization, FSB, NPIV Proxy gateway, F_Port, FCoE/ FC hosts, FC zoning
Max L2 VLANs and L3 VLANs	500 L3 VLANs					
Max MAC entries	272K					
Link aggregation (groups/Members)	32 links per group, 128 groups					
Max routes (IPv4/IPv6)	200K/130K					
Jumbo frames (Bytes)	9,416					
IPv4 routing	RIP, OSPF, BGP					
IPv6 routing	OSPFv3, ICMPv6					
Multicast routing	IGMP					

S-Series	10GbE				
Overview	 Low density ToR switch for 10GE/25GE storage arrays and servers in a compact form factor	 High-density 10GbE open networking switch	 Energy-efficient ToR switch optimized for data center efficiency	 High-density 1GbE open networking switch	
Models (all sized 1RU)	<b>S4112F-ON</b>	<b>S4112T-ON</b>	<b>S4048-ON</b>	<b>S4048T-ON</b>	<b>S3048-ON</b>
<b>Performance</b>					
Switching capacity (full duplex)	840 Gbps	840 Gbps	1.44 Tbps	1.44 Tbps	260 Gbps
Forwarding Capacity (Mpps)	625	625	1080	1080	131
Buffer size	12MB	12MB	12MB	16MB	4MB
Latency (microseconds)	800	<2.5us	Sub 600ns	2.8	3.7
<b>Ports</b>					
1/10GBase-T	N/A	12	—	48	48
1GbE (SFP)	N/A	N/A	—	—	—
10GbE	12	12	48	—	4
25GbE	2 options: — or 12 (breakout)	2 options: — or 12 (breakout)	—	—	—
40GbE (QSFP+)	3	3	6	6	—
50GbE	6	6	—	—	—
100GbE	3	3	—	—	—
Expansion module slots (Modules support speed indicated)	—	—	—	6 fixed 40GbE QFSP+ ports	—
<b>Power and cooling</b>					
Power consumption (W)	180 (max) / 90 (normal)	200 (max) / 120 (normal)	234.35 (max)/153 (normal)	460 (max)/338 (normal)	87 (max)/65 (normal)
Power options	Fixed power supply		AC or DC	AC	AC
Redundant power supplies	Redundant Fixed fans		2 hot-swappable	2	2 hot-swappable
Airflow	Normal or reverse air flow		Reversible		
<b>Features</b>					
Stacking	Not currently available		Up to 6 units	Up to 6 units	
Operating system	Dell EMC SmartFabric OS10 and select 3rd party OS	Dell EMC SmartFabric OS10 and select 3rd party OS	Consult the <a href="#">Dell EMC Open Networking 3rd Party OS Ordering Guide</a> for up-to-date details		
Industry-standard CLI	Dell EMC networking and several 3rd party OS		Dell EMC Networking OS9 and several 3rd party OS		
iSCSI optimization storage features			iSCSI optimization and FSB	No	
Max L2 VLANs and L3 VLANs	4KL2/500L3		4096/1000	4K	4096/1000
Max MAC entries	272K		160K	160K	64K
Link aggregation (groups/Members)	32 links per group, 128 groups		16 links per group, 128 groups	16 links per group, 128 groups	16 links per group, 128 groups
Max routes (IPv4/IPv6)	200K/130K		128K/64K	128K/64K	16K/8K
Jumbo frames (Bytes)	9,416		9,252	12K	12K
IPv4 routing	RIP, OSPF, BGP		RIP, OSPF, BGP, IS-IS	RIP, OSPF, BGP, IS-IS	RIP, OSPF, BGP, IS-IS
IPv6 routing	OSPFv3, ICMPv6		OSPFv3, BGPv6, IS-IS	OSPFv3, BGP-4, IS-IS	OSPFv3, BGPv6, IS-IS
Multicast routing	IGMP		IGMP, PIM, MTU, MSDP		IGMP, PIM

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