

# DATA CENTER NETWORKING

## QUICK REFERENCE GUIDE

Last update: December 2020

<sup>1</sup> 128 + 2 supported today, additional 16 support is in roadmap

<sup>2</sup> 128 supported today, additional 16 support is in roadmap

<sup>3</sup> 50G NRZ supported today. 50G PAM4 support is in road map

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>	<b>Z9332F-ON</b>	<b>Z9264F-ON</b>	<b>Z9100-ON</b>
<b>Performance</b>			
Switching capacity (full duplex)	25.6 Tbps	12.8 Tbps	6.4 Tbps
Forwarding capacity (Bpps)	5.1	2.5	3.5
Buffer size	64MB	42MB	16MB
Latency	sub 700 ns	300ns L2/400ns L3	300ns L2/400ns L3
<b>Ports</b>			
1/10GBase-T	1	N/A	2
10GbE (SFP+)	2	128 (breakout) + 2	—
10GbE	146 = 128 (breakout) + 16 + 2 <sup>1</sup>	128	128 (breakout) + 2
25GbE	144 = 128 (breakout) + 16 <sup>2</sup>	128 (breakout)	128 (breakout)
40GbE	64 (breakout)	64	32
50GbE	64 (breakout) <sup>3</sup>	128 (breakout)	64 (breakout)
100GbE	128 (breakout)	64	32
400 GbE	32		
Expansion module slots (Modules support speed indicated)	N/A	N/A	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	Normal or Reverse as orderable options, can be reversed in the field		
<b>Features</b>			
Operating Systems	Dell EMC SmartFabric OS10 and select 3rd party OS; Enterprise SONIC Distribution by Dell Technologies		Dell EMC Networking OS9 and select 3rd party OS
Industry-standard CLI (Console, Telnet, SSHv1/v2)	Dell EMC SmartFabric OS10 and several 3rd party OS		Dell EMC Networking OS9 and select 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	
Max MAC entries	8K	160K	136K
Link aggregation (Groups/Members)	16 links per group, 128 groups	64 links per group, 128 groups	16 links per group, 128 groups
Max routes (IPv4/IPv6)	400K/300K	128K/64K	136K/68K
Jumbo frames		9,216 bytes	
IPv4 routing		OSPF, BGP	
IPv6 routing		MP-BGP, OSPFv3	
Multicast routing		PIM-SM, PIM-SSM	
VXLAN	Not supported	Bridging only	Not supported

S-Series	10GbE/8GbFC	10/25/40/50/100GbE				
<b>Overview</b>	Latest generation 40GbE TOR switch based on Broadcom Trident2+ chip	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>S6010-ON</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)	2.56	6.4	4.0	6.4	2.16	2.16
Forwarding capacity (Mpps)	1462	1.5 Bpps	1.9 Bpps	1.5 Bpps	892	954
Buffer size	16MB	32MB	32MB	32MB	32MB	32MB
Latency	Sub 600ns	877	847	850	906	881
<b>Ports</b>						
1/10GBase-T	N/A	N/A	N/A	N/A	N/A	N/A
1GbE (SFP)	96 (Breakout)	128	80	128	12	24
10GbE	96 (Breakout)	128	80	128	12	24
25GbE	—	128	80	128	12	24
40GbE	32 fixed 40GbE QSFP+ ports	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	N/A
<b>Power and cooling</b>						
Max. power consumption (W)	411 (max)/274 (normal)	635	647	893	304	455
Power options	AC	AC or DC	AC or DC	AC or DC	AC or DC	AC or DC
Redundant power (hot-swappable)	2	2	2	2	N/A	2
Airflow	Normal or Reverse as orderable options, can be reversed in the field					
<b>Features</b>						
Operating Systems	Dell EMC SmartFabric OS10 and select 3rd party OS; Enterprise SONiC Distribution by Dell Technologies					
Industry-standard CLI (Console, Telnet, SSHv1/v2)	Dell EMC SmartFabric OS10 and several 3rd party OS					
iSCSI optimization	iSCSI optimization and FSB					
Max VLANs (Configured)	4K per port					
Max MAC entries	160K					
Link aggregation (Groups/Members)	16 links per group, 128 groups					
Max routes (IPv4/IPv6)	128K/8K					128K/64K
Jumbo frames	9,216 bytes					
IPv4 routing	OSPF, BGP					
IPv6 routing	MP-BGP, OSPFv3					
Multicast routing	PIM-SM, PIM-SSM					
VXLAN	Routing and Bridging					

## S-Series

Overview	High-performance switch with 10/40Gbe ports, multi-rate 100GbE ports and deep buffers and tables	Low density ToR switch for 10GE/25GE storage arrays and servers in a compact form factor	
Models (all sized 1RU)	S4248FBL-ON	S4112F-ON	S4112T-ON
<b>Performance</b>			
Switching capacity (full duplex) (Tbps)	1.6	840	840
Forwarding capacity (Mpps)	720	625	625
Buffer size	6GB	12MB	12MB
Latency (microseconds)	1.9 to 10.0 micro sec	800	<2.5
<b>Ports</b>			
1/10GBase-T	N/A	N/A	12
1GbE (SFP)	N/A	N/A	N/A
10GbE	40	12	12
25GbE	-	2 options: — or 12 (breakout)	2 options: — or 12 (breakout)
40GbE	2		
40GbE (QSFP+)		3	3
50GbE	-	6	6
100GbE	6	3	3
Expansion module slots (Modules support speed indicated)	N/A	N/A	N/A
<b>Power and cooling</b>			
Power consumption (W)	420 (max)/180 (normal)	180 (max) / 90 (normal)	200 (max) / 120 (normal)
Power options	AC or DC		Fixed power supply
Redundant power supplies	2 (hot-swappable)		Redundant Fixed fans
Airflow	Reversible		Normal or reverse air flow
<b>Features</b>			
Operating Systems		Dell EMC SmartFabric OS10 and several 3rd party OS	
Industry-standard CLI (Console, Telnet, SSHv1/v2)		Dell EMC SmartFabric OS10 and several 3rd party OS	
iSCSI optimization	Yes	iSCSI optimization and FSB	
Max VLANs (Configured)	4K	4K/500	
Max MAC entries	750K	272K	
Link aggregation (Groups/Members)	32 links per group, 128 groups	32 links per group, 128 groups	
Max routes (IPv4/IPv6)	2 Million / 400K	200K/130K	
Jumbo frames	9216 bytes	9,216 bytes	
IPv4 routing	OSPF, BGP	OSPF, BGP	
IPv6 routing	OSPFv3, MP-BGP	OSPFv3, MP-BGP	
Multicast routing	PIM-SM, PIM-SSM	PIM-SM, PIM-SSM	
VXLAN		Routing and Bridging	

S-Series	10GbE					
Overview	Next generation open networking switches for enterprise, mid-market and Tier2 cloud service providers with demanding compute and storage traffic environments					
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	<800 n sec	<2.3	<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 supported					
Operating system	Dell EMC SmartFabric OS10 and select 3rd party OS					
Industry-standard CLI	Dell EMC 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 VLANs (Configured)	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)	9,216					
IPv4 routing	OSPF, BGP					
IPv6 routing	MP-BGP, OSPFv3					
Multicast routing	PIM-SM, PIM-SSM					
VXLAN	Routing and Bridging					

**S-Series | N-Series**

Overview	High-density 10GbE open networking switch	Energy-efficient ToR switch optimized for data center efficiency	High-density 1GbE open networking switch	High density 1GbE open networking switch
Models (all sized 1RU)	S4048-ON	S4048T-ON	S3048-ON	N3248TE-ON
<b>Performance</b>				
Switching capacity (full duplex) (Gbps)	1.44 Tbps	1.44 Tbps	260	576
Forwarding Capacity (Mpps)	1080	1080	131	800
Buffer size	12MB	16MB	4MB	8 MB
Latency (microseconds)	<600ns	2.8	3.7	<4.5
<b>Ports</b>				
1GBase-T	N/A	N/A	N/A	48
1/10GBase-T	N/A	48	48	N/A
1GbE (SFP)	N/A	N/A	N/A	N/A
10GbE	48	N/A	4	N/A
10G SFP+	N/A	N/A	N/A	4
25GbE	N/A	N/A	N/A	N/A
40GbE (QSFP+)	6	6	N/A	N/A
50GbE	N/A	N/A	N/A	N/A
100GbE	N/A	N/A	N/A	N/A
Expansion module slots (Modules support speed indicated)	N/A	6 fixed 40GbE QSFP+ ports	N/A	N/A
<b>Power and cooling</b>				
Power consumption (W)	234.35 (max)/153 (normal)	460 (max)/338 (normal)	87 (max)/65 (normal)	212
Power options	AC or DC	AC	AC	AC or DC
Redundant power supplies	2 hot-swappable	2	2 hot-swappable	2 hot swappable redundant power supplies. 1 PSU included, 2nd PSU optional.
Airflow	Reversible			Normal (IO/PS) and reverse (PS/IO) airflow
<b>Features</b>				
Stacking	Up to 6 units			
Operating system	Dell EMC OS9, Dell EMC SmartFabric OS10 Consult the Dell EMC Open Networking 3rd Party OS Ordering Guide for up-to-date details			Dell EMC SmartFabric OS10 and select 3rd party OS; Enterprise SONiC Distribution by Dell Technologies
Industry-standard CLI	Dell EMC Networking OS9 and several 3rd party OS			Dell EMC SmartFabric OS10 and select 3rd party OS
iSCSI optimization storage features	iSCSI optimization and FSB		N/A	N/A
Max VLANs (Configured)	4096/1000		4096/1000	4K L2, 1K L3
Max MAC entries	160K		64K	55K
Link aggregation (groups/Members)	16 links per group, 128 groups		16 links per group, 128 groups	16 links per group, 128 groups
Max routes (IPv4/IPv6)	128K/64K		16K/8K	8K/4K
Jumbo frames (Bytes)	9,216		9,216	9K
IPv4 routing	OSPF, BGP		OSPF, BGP	IPv4 and IPv6 functionality including BGP, VRF, BFD, PIM-SM/SSM, OSPFv2/v3
IPv6 routing	MP-BGP, OSPFv3		OSPFv3, BGPv6, IS-IS	
Multicast routing	PIM-SM, PIM-SSM		PIM-SM, PIM-SSM	
VXLAN	Routing & Bridging			

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