Celestica's Silverstone 400G Networking Series

Unlock the Potential of Tomorrow's Technologies, Today

Celestica™   BROADCOM®

Celestica's Silverstone Series

Industry leading 400G switches for the most demanding datacenter needs

An Evolving Market

In recent years, the incredible growth of machine learning, cloud computing, IoT and AI have driven requirements for higher processing speeds and lower latency to meet end-users' needs. The increasing deployment of high speed NVMe-based Storage Systems has also contributed to this continued surge in networking bandwidth requirements.

According to an IDC report, datacenter storage requirements are increasing by an astonishing 50 percent annually, with digital information projected to increase to 40 zettabytes in 2020 and 163 zettabytes by 2025.[1] 400G solutions are delivering on the requirement for higher speeds by doubling the density of proven QSFP28 (Quad Small Form Factor Pluggable 28G) modules for up to quadruple the bandwidth, with lower overall power consumption for a 400G module than four 100G modules.[2]

Partnering to Accelerate Innovation

At Celestica, our strategy is to invest in market-leading technology – collaborating with our partners as early as possible to develop unique, innovative hardware solutions that are optimized for the application environment. Working with the right ecosystem partners is key to delivering leading-edge technology that keeps pace with the speed of today's dynamic and rapidly evolving markets.

Our partnership with Broadcom illustrates the advantages of this early collaboration model. From delivering 100G Networking and NVMe-based Storage solutions, to the release of our leading-edge 400G Networking solutions series, Celestica is proud to collaborate with Broadcom to deliver innovative solutions that respond to today's technology challenges, and anticipate future needs.

From Vision to Reality – Enabling the World's Best Businesses

Celestica engaged early with Broadcom on 400G-class devices, developing initial platforms for our Silverstone series. As an early access partner, we were able to incorporate first silicon into our Silverstone DX400 32x400G switch. Working side-by-side with Broadcom, we solved common integration and qualification issues including Software Development Kit (SDK), signal integrity, power integrity, and thermal challenges. As a result, our Silverstone platforms are designed to meet the toughest signaling standards, achieving 3m DAC performance on all ports. In addition, our 400G Silverstone2 is targeted to support 20W optical modules – enabling 400G ZR applications for datacenter interconnection.

Our flexible approach and customizable solutions enable us to deliver a range of solutions from standard whitebox to customer rebranded Britebox, or customized variant offerings – demonstrating our depth of expertise and confidence with 400G technology. We have also collaborated with Broadcom

to enable an open networking software solution, SONiC, for our 400G offering. Our initial prototypes leveraged joint porting and development rights, with Celestica focused on platform-level development and ASIC-level integration support; and Broadcom focused on the SAI and application layers in SONiC.

The Celestica and Broadcom collaboration has leveraged the expertise and experience of global engineers from both companies – all highly committed to delivering commercially successful solutions that push the boundaries of what is possible.

Unlocking Future Potential

Our Silverstone series of Hardware Platform Solutions continues to expand in order to meet the evolving needs of today's most challenging datacenter markets. The Silverstone series delivers industry-leading performance, low latency and power efficiency, while offering high-reliability features that support current and future network requirements.

Our combination of switches supports a wide variety of use cases, including:

- Top of Rack support for 50G / 100G / 200G / 400G connectivity to Servers
- Leaf and Spine connectivity at 400G
- Standard Layer3 switching support, Higher Featured Layer3 switching, or Advanced Routing support
- Routing capabilities with 100G to Servers or Leaf nodes and 400G to Fabric

Looking ahead, our 800G technology development is already underway.

Contact Celestica to discuss how we can help you unlock the potential of tomorrow's technologies, today.

[1,2] Campbell, Tony. (2019, 02/15) The rise of 400G changing the data center landscape. Datacenterdynamics.com.
https://www.datacenterdynamics.com/en/opinions/rise-400g-changing-data-center-landscape/

Silverstone Solutions Features

Switches		Silverstone DX400	Silverstone2 DX420	SilverstoneDP DX500
Description		High performance, cost effective 32x400G switch	High performance and feature-rich 32x400G switch	High performance router with 100G downlinks and 400G uplinks
Performance	Switching Capacity	12.8Tbps	12.8Tbps	4.8Tbps
	Buffer Size	64.0MB	132MB	up to 8GB
Ports	10 GbE SFP+ Ports	2	2	2
	100Gbps QSFP28 Ports	-	-	24
	400Gbps QSFP56-DD Ports	32	32	6
Mechanical	Form Factor	1RU	1RU	1RU
	Height/Width/Depth	43.3 x 438.5 x 657 mm	43.6 x 438.5 x 657.5 mm	43.1 x 438.5 x 657.5 mm
Power and Cooling	Hot-Swappable Power Supplies	1+ 1 Redundant	1+ 1 Redundant	1+ 1 Redundant
	Power Supply Unit Scale	1500W	1500W	1500W
	Power Supply Input	100-240VAC	100-240VAC 190-310VDC	100-240VAC 180-300VDC, 48V DC
	Hot-Swappable FAN Module	6 + 1 Redundant	6 + 1 Redundant	6 + 1 Redundant
	Airflow	Front to Back/Back to Front	Front to Back/Back to Front	Front to Back
	Max Power Consumption (w/o optical module)	-	1500W	1100W
System Control Interface	Console Port	RJ45	RJ45	RJ45
	Management Port	10/100/1000 Mbps RJ-45	10/100/1000 Mbps RJ-45	10/100/1000 Mbps RJ-45
	USB Port	Type A	Type A	Type A
Environmental	Operating Temperature (F2B @ sea level)	0°C to 45°C	0°C to 45°C@950 m QSFP-DD up to 15W	0°C to 45°C
	Operating Temperature (B2F @ sea level)	0°C to 45°C	0°C to 45°C@950 m QSFP-DD up to 7W	
	Humidity	15% to 85%	15% to 85%	5% to 90%
	Altitude	10,000 ft	950 m	950 m
Certification	Safety	UL, CB, CCC	UL, CSA, IEC, EN 60950-1/62368-1	UL/CSA/IEC/EN 60950-
	EMC	CE EMC, VCCI, FCC, ICES003	CN (GB9254-2008), EU(EN55022, EN55024), FCC, VCCI, CCC	CE, FCC, VCCI, CCC,CN (GB9254)
Features	CPU	Standard Form Factor COM-E Broadwell-DE 2C/4C/8C/16C	Standard Form Factor COM-E Broadwell-DE 2C/4C/8C/16C	Standard Form Factor COM-E Intel Xeon D 2C/4C/8C/16C
	Memory	4G/8G/16G DDR4 per slot two DDR4 Slots	4G/8G/16G DDR4 per slot two DDR4 Slots	Up to 32GB DDR4
	Storage	64GB/128GB MLC SSD 16GB eMLC SSD	64GB/128GB MLC SSD 16GB eMLC SSD	Up to 1TB SSD
	Industry-standard CLI	Y	Y	Y
	MAC Entries	8K	384K	710K
	L3 Host Table IPv4/IPv6	IPV4 UC:16K IPV4 MC:8K IPV6 UC:8K IPV6 MC:4K	IPv6: 320K	
	L3 LPM Table IPv4/IPv6	IPV4: 4K IPV6/64: 2K IPV6/128: 1K	IPv4 ALPM: 1.75M IPv6/64 ALPM: 620K	IPv4 forwarding: 1.5M IPv6 forwarding: 750K
	Jumbo Frames	9416 Bytes	9416 Bytes	5450 Bytes