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LENOVO FLEX SYSTEM FABRIC SI4093 SYSTEM INTERCONNECT MODULE

Simplify connectivity and interoperability challenges with a preconfigured interconnect module

Today your IT department faces a number of challenges preparing for the future. Some of those key areas include reducing cost and complexity, while retaining scalability and performance. At the same time you need technologies that are more tightly integrated, while also providing investment protection.

SIMPLE MANAGEMENT

The Lenovo® Flex System™ Fabric SI4093 System Interconnect Module enables a simplified integration of the Flex System into your existing networking infrastructure. The default configuration of the SI4093 requires no management for most data center environments, eliminating the need to configure each device or individual ports thus reducing the number of management points. The device provides a low latency, loop-free interface that does not rely upon spanning tree protocols, thereby removing one of the greatest deployment and management complexities of a traditional switch.

The SI4093 offers administrators a simplified deployment experience while maintaining the performance of intra-chassis connectivity, yet provides the simplicity of a single aggregated connection to the upstream network.

EASILY CONNECT

The SI4093 is a low-touch, simple-to-use device that provides a transparent network interface connecting the upstream networking infrastructure to the Flex System chassis compute and storage nodes. In addition to simplifying interoperability, the SI4093 provides a clear division of roles and responsibilities between network and system administrators. Clients can realize savings up to 60 percent[1] in cabling and upstream switching CAPEX costs and significant power reduction OPEX costs when comparing the SI4093 to the architecture associated with a traditional pass-thru device. This also increases return on investment by reducing the qualification cycle and increasing the speed of deployment while providing investment protection for scaling I/O bandwidth requirements into the future.

FLEXIBILITY, SCALABILITY

The SI4093 provides extreme scalability which can help reduce cost, complexity and enable rapid deployment today or in the future. Flex System 'pay-as-you-grow' scalability allows clients to easily and cost effectively activate additional ports through the purchase of a simple software license key. Additionally, the new flexible port mapping feature offers unmatched configuration customization by allowing any active port on the SI4093 to be designated as either an internal or external port. This port mobility capability enables I/O connectivity optimization within the Flex System chassis. With this capability, a client can deploy a pair of SI4093 modules to support an application requiring six 10 Gb node ports. Supporting this application would require some vendors to deploy up to six Ethernet modules. Consequently, this provides clients with up to 66 percent[2] fewer devices to manage, thereby lowering acquisition and operational costs, plus reducing power requirements.

The SI4093 is a key element of the Flex System Interconnect Fabric, which provides a data center architecture solution designed to offer greater efficiency and automation in network environments. The Flex System Interconnect Fabric offers a solid foundation of compute, network, storage, and software resources in a Flex System point of delivery (POD). The solution components include; the Lenovo

RackSwitch™ G8264CS top-of-rack products and Lenovo Flex System SI4093 System Interconnect Modules for data center Ethernet and Fibre Channel network access and fabric interconnect. As a tightly integrated solution, the Flex System Interconnect Fabric presents only one manageable element. All provisioning is accomplished through the primary RackSwitch G8264CS. Once a change is implemented, the primary G8264CS switch manages implementation of provisioning updates to all switches across the entire Flex System Interconnect Fabric. No manual intervention required. In a system that can feature up to 20 I/O devices, this results in a 95 percent[3] reduction in the number of elements that must be managed.

INCREASE PERFORMANCE

With the growth of virtualization and the evolution of cloud, many of today's applications require low latency, security and high-bandwidth performance. The SI4093 supports sub-microsecond latency, a fraction of some competitors, allowing end users to quickly access their data and make critical business decisions faster while assisting them in gaining a competitive edge. In addition to supporting 10 Gb ports, the SI4093 also can support 40 Gb external uplink ports thereby enabling forward-thinking clients to connect to their advanced 40 Gb network or as investment protection for the future. This helps reduce cable complexity while providing four times larger external uplink bandwidth. Each SI4093 module delivers full line-rate performance of up to 1.28 Tbps throughput—up to three times more throughput than other vendors.[4] The SI4093 also offers increased security and performance advantage when configured in VLAN-aware mode, by not forcing communications upstream into the network—adding latency and creating more network traffic.

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SPECIFICATIONS

INTERFACES:
Flexible port mapping provides users the ability to assign ports based on their needs. Each internal 10 Gb port or external 10 Gb SFP+ port counts as a single 10 Gb port license. It is possible to exchange any combination of four 10 Gb internal and/or 10 Gb external port licenses into a single external 40 Gb QSFP+ port license. A single external 40 Gb QSFP+ port license can also be broken out into four 10 Gb port licenses. 40 Gb ports can only be used as external ports. Upgrades must be done in order.

BASE MODULE (PN 00FM518)
- 14 x 10 Gb internal and 10 x 10 Gb external uplinks
- With flexible port mapping, clients have 24 port licenses that can be applied to the internal and external ports.

UPGRADE 1 LICENSE—REQUIRES BASE MODULE (PN 95Y3318)
- Enables additional 14 x 10 Gb internal and 2 x 40 Gb external uplinks
- With flexible port mapping, client enables an additional 22 port licenses (total of 46 with the base) that can be applied to the internal and external ports.

UPDATE 2 LICENSE—REQUIRES BASE MODULE AND UPGRADE 1 (PN 95Y3320)
- Enables all ports 42* x 10 Gb internal and 14 x 10 Gb plus two x 40 Gb external uplinks

PERFORMANCE	• 100% line rate performance • Less than 1 microsecond latency • 1.28 Tbps non-blocking throughput (full duplex) • 960 Mbps
POWER CONSUMPTION	Typical power consumption of 95 W
WARRANTY	Takes on the warranty of the chassis (next business day replacement with phone support and software upgrades)
ENVIRONMENTAL SPECIFICATIONS	
HEAT DISSIPATION	1127 BTU/hour (typical)
MEAN TIME BETWEEN FAILURES (MTBF)†	236,805 hours @ 40°C

For more product details and associated options refer to the SI4093 Product Guide http://lenovopress.com/tips1294

[1] Based on full chassis, redundant connectivity and list price of SI4093, EN4091, SFP+ SR transceivers on the module and the upstream switch plus average cost per port of a Cisco Nexus 5548. Minimum of 2 per SI4093 and upstream Cisco, plus 28 on EN4091 and upstream Cisco.

[2] Clients wanting 6 ports of 10 Gb Ethernet simply need two SI4093 interconnect modules with flexible port mapping, while with HP, clients will require six HP Virtual Connect FlexFabric 10 Gb/10D Modules.

[3] Manage one Lenovo Networking G8264CS top-of-rack switch versus 20 devices (two G8264CS switches and 18 SI4093 modules)

[4] Based on spec sheet for SI4093 (1.2 Tbps) vs. HP Virtual Connect (480 Gbps) LINK—http://h18004.www1.hp.com/products/quickspecs/13127_div/13127_div.pdf

* Requires adapter able to support 6 ports like CN4058 or use all SI4093 ports.

† MTBF is calculated using the Telcordia Technologies Reliability Prediction Procedure for Electronic Equipment, (SR-332 issue 2) Parts Count (method 1 case 1) failure rate data.

WHY LENOVO

Lenovo is the leading provider of x86 systems for the data center. The portfolio includes rack, tower, blade, dense and converged systems, and supports enterprise class performance, reliability and security. Lenovo also offers a full range of networking, storage, software and solutions, and comprehensive services supporting business needs throughout the IT lifecycle.

FOR MORE INFORMATION

To learn more about the Lenovo Flex System Fabric SI4093 System Interconnect Module, visit **lenovo.com/servers** or contact your Lenovo marketing representative or Business Partner.

NEED STORAGE? Learn more about Lenovo Storage lenovo.com/systems/storage

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IBM x86 products are now products of Lenovo in the U.S. and other countries. Learn more at ibm.com/lenovo-acquisition

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