

The Astek A54812 is a 1U high, 12-port (48-lanes) 12Gb/s SAS switch configured with 12 x4 wide-port each capable of 48Gb/s . The switch extends the capabilities of SAS in direct-attached storage (DAS) environments by allowing multiple servers to connect to one or more independent storage systems. Astek's A54812 switch is designed to provide customers with an inexpensive and easy to use storage networking option for rack-mount server and storage installations in cloud computing, mega data-center and small- to medium-sized business (SMB) environments.

By enabling storage resources to be shared across multiple hosts, and managed effectively through SAS zoning, Astek SAS Switch products help customers to maximize storage resource utilization, eliminate islands of storage and simplify storage management, backup and upgrades. For longer distance connections up to 100 meters the A54812 supports cable management and optical cables. The A54812 is designed for High Availability (HA) applications with features such as Dual Redundant Externally Hot-Swappable Fans and Power Supplies.

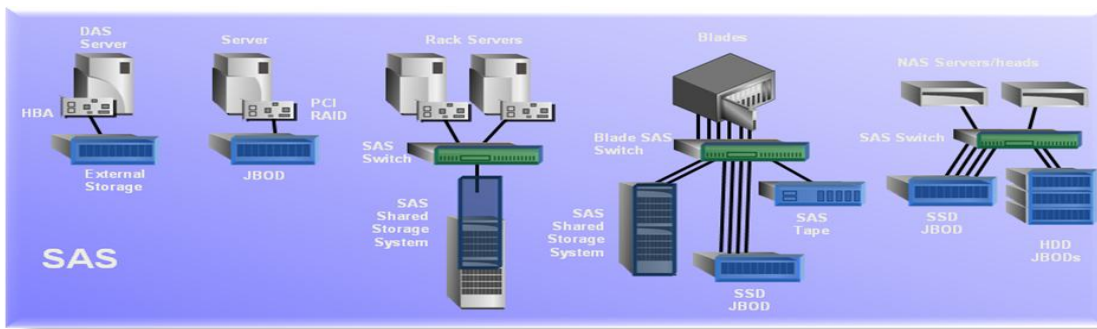
Simple, plug-and-play integration is further enhanced by having complete SAS management available through a storage management utility. The utility is able to modify port configuration, including zoning, firmware management and viewing the topology of the SAS domain. It also offers flexibility to reconfigure without reconnecting cables or adding hardware. As the SAS physical layer supports both SAS and Serial ATA (SATA), the SAS Switch enables single switching infrastructure to address multiple classes of storage supporting a mix of SAS and SATA storage enclosures. A single SAS Switch can be used in a normal configuration, or two switches can be configured for a High Availability (HA) application where both ports of the storage are connected using redundant paths. If one of the switches fails, the second one will continue normal operation.

KEY APPLICATIONS

- Rack mount server and storage clusters
- Cloud and Mega Data Center Environments
- High-Availability Applications
- SMB and Departmental

FEATURES

- Provides exceptional price/performance value, combining flexibility, simplicity, and enterprise-class functionality
- Simple, easy integration
- Industry-standard SAS infrastructure
- Enables direct-attached –storage to be scaled as a low-cost storage network
- 12 SAS connectors (4 SAS phys per port for 48 12Gb/s lanes)
- 48Gb/s SAS ports, aggregate bandwidth of 576Gb/s
- Supports cable management and optical cables
- Dual Hot-Swap Supplies
- Triple Hot-Swap Fans
- 1U high form factors
- SAS and SATA connectivity >1,000 devices
- Standard zoning compliant
- Out-of-band management utility
- OS independent

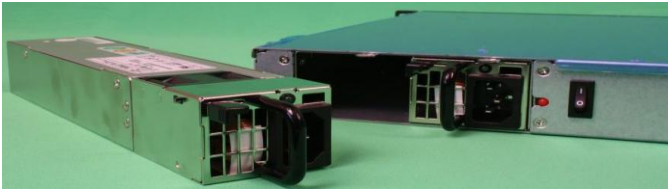
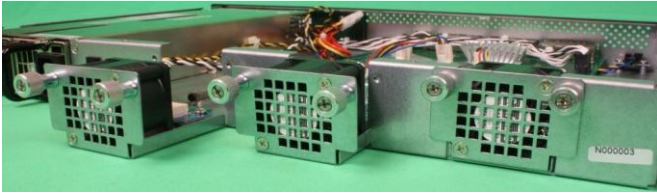


Ordering Information

A54812-SW-01	SAS 12Gb/s switch with hot-swap fans and dual redundant power supplies



Technical Specifications

SAS Compliances	SAS 3.0	
SAS Protocols	SSP,STP and SMP	
SAS Ports Configuration	48 12Gb/s ports configured as 12 x4 Phy Wide ports	
SAS Bandwidths	Half Duplex Wide Port(4Phys)-48GB/s	Full Duplex Wide Port (4 phys) - 96Gb/s
Storage Types	3.0, 6.0 and 12Gb/s SAS and / or SATA	
Cable Management	Passive Copper Cables up to 6 meters Active Optical Cables up to 100 meters	
Zoning	T10 Zoning	
Zone Groups & Zone Sets	Embedded SDM Up to 192 zone groups, Up to 16 zone sets	
Management Interface	10/100 Ethernet out-of-band	
Firmware	Field Upgradeable	
Connectors	SAS 12 SFF8644 (Mini-SAS)	Ethernet RJ-45
LED Indicators	Activity – 1 per Connector	Link/Fault – 1 per Connector
Cable Management	SFF-xxxx Optical cable up to 100 meters	
Power Consumption	50 watts nominal (no active cables); 50 watts max	
Power Supply	Dual Redundant (HA) Hot-Swap 220W 1U Supplies - 100-240 VAC @ 50/60Hz 	
Fans	Three (HA) Hot-Swap fans 	
Size	1.75" x 19" x 12.0"	
Environments	Operating 0° to 55° C 5 to 90% non-condensing	Storage -40° to +85° C 5 to 90% non-condensing



SAS Domain Manager Software

The screenshot displays the SAS Domain Manager GUI - 5.0.7.0. The main window shows the 'Summary' tab with the following information:

Domain Specific Information	
Overlay Name	Domain
Domain Id	1
Domain Access Point	SAS616x (500062b10002f87f)
Root Expander	500062b10002f87f
Number of Expander	2
Number of End Devices	17
Active Zone Set	None
Devices Requiring Attention	500062b10002f87f 50012ba0000375bf

Below this, the 'SDM Specific Information' is shown:

GUI Version	5.0.7.0
Server Version	5.0.7.0
Server Host Name	192.168.1.100
Login Mode	Administrator

An inset window titled '500062b10002f87f' displays the 'Rescan' button and 'Time of update: Time Not Supported'. It also shows the 'Overall Status' as OK, with a list of components and their statuses:

- Temperature Sensors: OK
 - TempSense01: OK, 59°C (138.2°F)
 - TempSense02: OK, 62°C (143.6°F)
- Cooling Elements: OK
 - CAT_A_FAN2_J83: OK, 4560 rpm
 - CAT_B_FAN1_J80: OK, 4560 rpm
- Enclosures: OK
 - EnclosureElement01: OK
- Connectors: OK

SAS Domain Manager Summary Tab and Switch Environmental Information.

The screenshot displays the SAS Domain Manager GUI - 5.0.7.0. The main window shows the 'Domain' tab with a tree view of the domain structure. The 'Properties' tab is selected, showing the following information:

Properties	
SAS Address	50012ba0000375bf
IEEE ID	00 12 be
Number of Physical PHYs	36
Zoning Expander	Yes
Vendor Id	AstekCor
Product Revision Level	0100
Component Vendor Id	LSI
Component Revision Id	4
Device Phys	32-33-34-35
Parent Phys	36-37-38-39
Vendor Specific (ASCII)	□□□□□□□□

The 'Operations' tab is also visible, showing the following information:

Company Name	Astek Corporation
Device Type	Edge Expander
Number of Virtual PHYs	2
Zoning Enabled	No
Product Id	Snowcat-Brann
Firmware Version	3.1.0.0
Component Id	547
Table-to-Table Supported	Yes
Parent SAS Address	500062b10002f87f
Vendor Specific (hex)	00 00 00 00 00 00 00 00

SAS Phy Device Information




12-Port (48-Lanes) 12Gb/s SAS Switch

SAS is a connection-oriented, point-to-point technology. When a host (initiator) issues a request to read or write data, the switch automatically determines how to route the connection request from the initiator to the correct data storage device (target). By default, any SAS initiator or target connected to the Astek A54812 switch can access any other connected initiator or target in the SAS domain, without restrictions. However, because the SAS domain grows to include multiple hosts and multiple storage volumes, you can segregate one host from another host, or restrict one host from accessing storage owned by another host. SAS zoning partitions the SAS topology to isolate selected hosts from each other or to permit selected hosts to access only selected storage volumes. The Astek A54812 switch supports the full SAS 2.0 T10 zoning model.

Zoning provides several benefits:

- **Security** – Zoning prevents users from accessing information that is not available to them.
- **Manageability** – Zoning reflects operational categories, such as marketing or engineering. Zoning also can partition hosts that run different operating systems to minimize conflicts.
- **Performance** – Zoning enables faster boot time because the host must discover only the storage within its zone or zones.

SAS Phy Configuration Table.

Enable/Disable/Reset Phys							
							
Notes - Enabled phys are indicated by a check in the enabled column. - Check the reset column to reset a phy. The act of resetting a phy will enable it. - Rescan button will refresh and reset the dialog.							
Enabled	Reset	Phy Id	Port Id	Link Speed/Status	Attached Device	Attached Phy Id	Attached Device Type
<input checked="" type="checkbox"/>	<input type="checkbox"/>	0		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4	0	6.0 Gb/s	5000c50017909276	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5	1	6.0 Gb/s	5000c50031c34ff2	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6	2	6.0 Gb/s	5000c50031c394b2	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	3	6.0 Gb/s	5000c50031c340ca	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8	4	6.0 Gb/s	5000c50031c395ea	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9	5	6.0 Gb/s	5000c500178f3e1e	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10	6	6.0 Gb/s	5000c500178f3d96	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11	7	6.0 Gb/s	5000c50031c17dda	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12	8	6.0 Gb/s	5000c50031c1bf16	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	13	9	6.0 Gb/s	5000c500178f45a6	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	14	10	6.0 Gb/s	5000c50031c367ba	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	11	6.0 Gb/s	5000c500178d3a16	01	SAS Target
<input checked="" type="checkbox"/>	<input type="checkbox"/>	16		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	17		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	18		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	19		Unknown			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	20		Unknown			
<div>Apply Close Rescan</div>							

About Astek Corporation
Astek manufactures storage products for embedded markets including medical, telecommunications and military applications. In addition to Host Bus Adapters, Astek also supplies Serial Attached SCSI solutions including edge and fan-out expanders.

For more information please visit the Astek web site at:
www.astekcorp.com

Astek Corporation
5055 Corporate Plaza Drive
Colorado Springs, Co 80919
Tel: 719-260-1625
Fax: 719-260-1668

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