Get started

StorageGRID Appliances

NetApp
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Get started with StorageGRID appliances

What's new for appliances

Learn what's new for StorageGRID appliances.

SG110 and SG1100 services appliances

The new StorageGRID SG110 and SG1100 services appliances are an evolutionary hardware update that provides improved administrative and load-balancing performance. See SG110 and SG1100 services appliance: Overview.

Learn about StorageGRID appliances

SG100 and SG1000 appliances: Overview

The StorageGRID SG100 services appliance and the SG1000 services appliance can operate as a Gateway Node and as an Admin Node to provide high availability load balancing services in a StorageGRID system. Both appliances can operate as Gateway Nodes and Admin Nodes (primary or non-primary) at the same time.

Appliance features

Both models of the services appliance provide the following features:

- Gateway Node or Admin Node functions for a StorageGRID system.
- The StorageGRID Appliance Installer to simplify node deployment and configuration.
- When deployed, can access StorageGRID software from an existing Admin Node or from software downloaded to a local drive. To further simplify the deployment process, a recent version of the software is preloaded onto the appliance during manufacturing.
- A baseboard management controller (BMC) for monitoring and diagnosing some of the appliance hardware.
- The ability to connect to all three StorageGRID networks, including the Grid Network, the Admin Network, and the Client Network:
  - The SG100 supports up to four 10- or 25-GbE connections to the Grid Network and Client Network.
  - The SG1000 supports up to four 10-, 25-, 40-, or 100-GbE connections to the Grid Network and Client Network.

SG100 and SG1000 diagrams

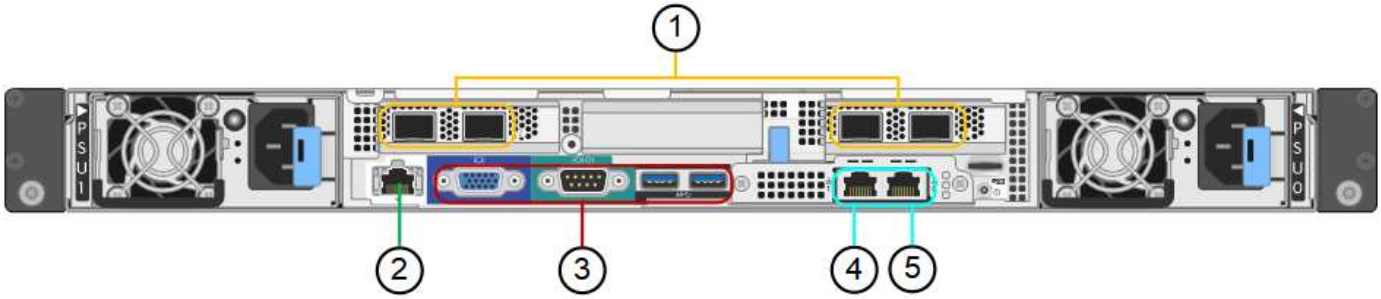
This figure shows the front of the SG100 and the SG1000 with the bezel removed. From the front, the two appliances are identical except for the product name on the bezel.

The two solid-state drives (SSDs), indicated by the orange outline, are used for storing the StorageGRID operating system and are mirrored using RAID 1 for redundancy. When the SG100 or SG1000 services appliance is configured as an Admin Node, these drives might be used to store audit logs, metrics, and database tables.

The remaining drive slots are blank.

SG100 connectors

This figure shows the connectors on the back of the SG100.

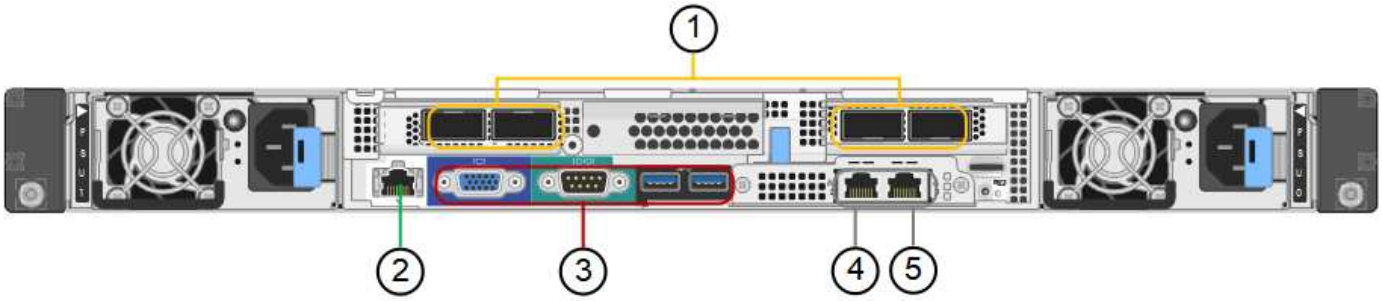


Callout	Port	Type	Use
1	Network ports 1-4	10/25-GbE, based on cable or SFP transceiver type (SFP28 and SFP+ modules are supported), switch speed, and configured link speed	Connect to the Grid Network and the Client Network for StorageGRID.
2	BMC management port	1-GbE (RJ-45)	Connect to the appliance baseboard management controller.
3	Diagnostic and support ports	• VGA • Serial, 115200 8-N-1 • USB	Reserved for technical support use.
4	Admin Network port 1	1-GbE (RJ-45)	Connect the appliance to the Admin Network for StorageGRID.

Callout	Port	Type	Use
5	Admin Network port 2	1-GbE (RJ-45)	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave disconnected and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

SG1000 connectors

This figure shows the connectors on the back of the SG1000.



Callout	Port	Type	Use
1	Network ports 1-4	10/25/40/100-GbE, based on cable or transceiver type, switch speed, and configured link speed. QSFP28 and QSFP+ (40/100GbE) are supported natively and SFP28/SFP+ transceivers can be used with a QSA (sold separately) to use 10/25GbE speeds.	Connect to the Grid Network and the Client Network for StorageGRID.
2	BMC management port	1-GbE (RJ-45)	Connect to the appliance baseboard management controller.

Callout	Port	Type	Use
3	Diagnostic and support ports	• VGA • Serial, 115200 8-N-1 • USB	Reserved for technical support use.
4	Admin Network port 1	1-GbE (RJ-45)	Connect the appliance to the Admin Network for StorageGRID.
5	Admin Network port 2	1-GbE (RJ-45)	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave disconnected and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

SG100 and SG1000 applications

You can configure the StorageGRID services appliances in various ways to provide gateway services as well as redundancy of some grid administration services.

Appliances can be deployed in the following ways:

- Add to a new or existing grid as a Gateway Node
- Add to a new grid as a primary or non-primary Admin Node, or to an existing grid as a non-primary Admin Node
- Operate as a Gateway Node and Admin Node (primary or non-primary) at the same time

The appliance facilitates the use of high availability (HA) groups and intelligent load balancing for S3 or Swift data path connections.

The following examples describe how you can maximize the capabilities of the appliance:

- Use two SG100 or two SG1000 appliances to provide gateway services by configuring them as Gateway Nodes.

> Don't deploy the SG100 and SG1000 service appliances in the same site. Unpredictable performance might result.

- Use two SG100 or two SG1000 appliances to provide redundancy of some grid administration services. Do this by configuring each appliance as Admin Nodes.
- Use two SG100 or two SG1000 appliances to provide highly available load balancing and traffic shaping services accessed through one or more virtual IP addresses. Do this by configuring the appliances as any combination of Admin Nodes or Gateway Nodes and adding both nodes to the same HA group.

> If you use Admin Nodes and Gateway Nodes in the same HA group, Admin Node-only port will not fail over. See the instructions for configuring HA groups.

When used with StorageGRID storage appliances, both the SG100 and the SG1000 services appliances enable deployment of appliance-only grids with no dependencies on external hypervisors or compute hardware.

SG110 and SG1100 appliances: Overview

The StorageGRID SG110 services appliance and the SG1100 services appliance can operate as a Gateway Node and as an Admin Node to provide high availability load balancing services in a StorageGRID system. Both appliances can operate as Gateway Nodes and Admin Nodes (primary or non-primary) at the same time.

Appliance features

Both models of the services appliance provide the following features:

- Gateway Node or Admin Node functions for a StorageGRID system.
- The StorageGRID Appliance Installer to simplify node deployment and configuration.
- When deployed, can access StorageGRID software from an existing Admin Node or from software downloaded to a local drive. To further simplify the deployment process, a recent version of the software is preloaded onto the appliance during manufacturing.
- A baseboard management controller (BMC) for monitoring and diagnosing some of the appliance hardware.
- The ability to connect to all three StorageGRID networks, including the Grid Network, the Admin Network, and the Client Network:
  - The SG110 supports up to four 10- or 25-GbE connections to the Grid Network and Client Network.
  - The SG1100 supports up to four 10-, 25-, 40-, or 100-GbE connections to the Grid Network and Client Network.

SG110 and SG1100 diagrams

This figure shows the front of the SG110 and the SG1100 with the bezel removed. From the front, the two appliances are identical except for the product name on the bezel.

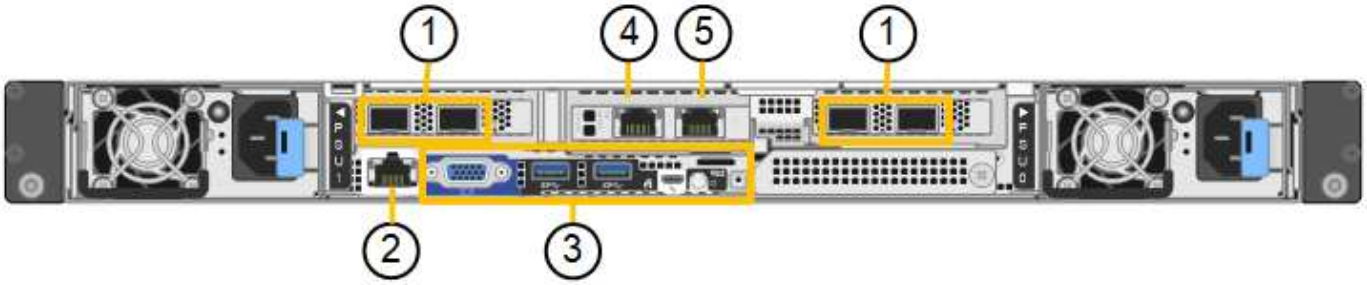
The two solid-state drives (SSDs), indicated by the orange outline, are used for storing the StorageGRID operating system and are mirrored using RAID 1 for redundancy. When the SG110 or SG1100 services appliance is configured as an Admin Node, these drives might be used to store audit logs, metrics, and

database tables.

The remaining drive slots are blank.

SG110 connectors

This figure shows the back of the SG110, including the ports, fans, and power supplies.

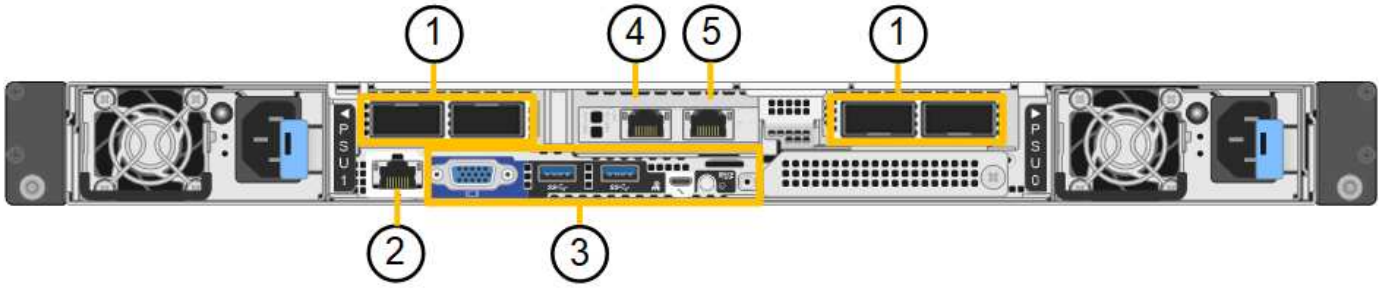


Callout	Port	Type	Use
1	Network ports 1-4	10/25-GbE, based on cable or SFP transceiver type (SFP28 and SFP+ modules are supported), switch speed, and configured link speed	Connect to the Grid Network and the Client Network for StorageGRID.
2	BMC management port	1-GbE (RJ-45)	Connect to the appliance baseboard management controller.
3	Diagnostic and support ports	• VGA • USB • Micro-USB console port • Micro-SD slot module	Reserved for technical support use.
4	Admin Network port 1	1/10-GbE (RJ-45)	Connect the appliance to the Admin Network for StorageGRID.

Callout	Port	Type	Use
5	Admin Network port 2	1/10-GbE (RJ-45)	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave disconnected and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

SG1100 connectors

This figure shows the connectors on the back of the SG1100.



Callout	Port	Type	Use
1	Network ports 1-4	10/25/40/100-GbE, based on cable or transceiver type, switch speed, and configured link speed. QSFP56 (limited to 100GbE/port), QSFP28 (100GbE), and QSFP+ (40GbE) are supported natively. Optional SFP+ (10GbE) or SFP28 (25GbE) transceivers can be used with a QSA (sold separately).	Connect to the Grid Network and the Client Network for StorageGRID.
2	BMC management port	1-GbE (RJ-45)	Connect to the appliance baseboard management controller.

Callout	Port	Type	Use
3	Diagnostic and support ports	• VGA • USB • Micro-USB console port • Micro-SD slot module	Reserved for technical support use.
4	Admin Network port 1	1/10-GbE (RJ-45)	Connect the appliance to the Admin Network for StorageGRID.
5	Admin Network port 2	1/10-GbE (RJ-45)	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave disconnected and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

SG110 and SG1100 applications

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- Add to a new or existing grid as a Gateway Node
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- Operate as a Gateway Node and Admin Node (primary or non-primary) at the same time

The appliance facilitates the use of high availability (HA) groups and intelligent load balancing for S3 or Swift data path connections.

The following examples describe how you can maximize the capabilities of the appliance:

- Use two SG110 or two SG1100 appliances to provide gateway services by configuring them as Gateway Nodes.

> Don't deploy the SG110 and SG1100 service appliances in the same site. Unpredictable performance might result.

- Use two SG110 or two SG1100 appliances to provide redundancy of some grid administration services. Do this by configuring each appliance as Admin Nodes.
- Use two SG110 or two SG1100 appliances to provide highly available load balancing and traffic shaping services accessed through one or more virtual IP addresses. Do this by configuring the appliances as any combination of Admin Nodes or Gateway Nodes and adding both nodes to the same HA group.

> If you use Admin Nodes and Gateway Nodes in the same HA group, Admin Node-only port will not fail over. See the instructions for configuring HA groups.

When used with StorageGRID storage appliances, both the SG110 and the SG1100 services appliances enable deployment of appliance-only grids with no dependencies on external hypervisors or compute hardware.

SG5700 appliances: Overview

The SG5700 StorageGRID appliance is an integrated storage and computing platform that operates as a Storage Node in a StorageGRID grid. The appliance can be used in a hybrid grid environment that combines appliance Storage Nodes and virtual (software-based) Storage Nodes.

StorageGRID SG5700 series appliance provides the following features:

- Integrate the storage and computing elements for a StorageGRID Storage Node.
- Include the StorageGRID Appliance Installer to simplify Storage Node deployment and configuration.
- Includes E-Series SANtricity System Manager for hardware management and monitoring.
- Support up to four 10-GbE or 25-GbE connections to the StorageGRID Grid Network and Client Network.
- Support Full Disk Encryption (FDE) drives or FIPS drives. When these drives are used with the Drive Security feature in SANtricity System Manager, unauthorized access to data is prevented.

The SG5700 appliance is available in four models: the SG5712 and SG5712X, and the SG5760 and SG5760X. There are no specification or functional differences between the SG5712 and SG5712X except for the location of the interconnect ports on the storage controller. Similarly, there are no specification or functional differences between the SG5760 and SG5760X except for the location of the interconnect ports on the storage controller.

SG5700 components

The SG5700 models include the following components:

SG5712

Compute controller

E5700SG controller

Storage controller

E2800A controller

Chassis

E-Series DE212C enclosure, a two rack-unit (2U) enclosure

Drives

12 NL-SAS drives (3.5-inch)

Redundant power supplies and fans

Two power-fan canisters

SG5712X

Compute controller

E5700SG controller

Storage controller

E2800B controller

Chassis

E-Series DE212C enclosure, a two rack-unit (2U) enclosure

Drives

12 NL-SAS drives (3.5-inch)

Redundant power supplies and fans

Two power-fan canisters

SG5760

Compute controller

E5700SG controller

Storage controller

E2800A controller

Chassis

E-Series DE460C enclosure, a four rack-unit (4U) enclosure

Drives

60 NL-SAS drives (3.5-inch)

Redundant power supplies and fans

Two power canisters and two fan canisters

SG5760X

Compute controller

E5700SG controller

Storage controller

E2800B controller

Chassis

E-Series DE460C enclosure, a four rack-unit (4U) enclosure

Drives

60 NL-SAS drives (3.5-inch)

Redundant power supplies and fans

Two power canisters and two fan canisters

The maximum raw storage available in the StorageGRID appliance is fixed, based on the number of drives in each enclosure. You can’t expand the available storage by adding a shelf with additional drives.

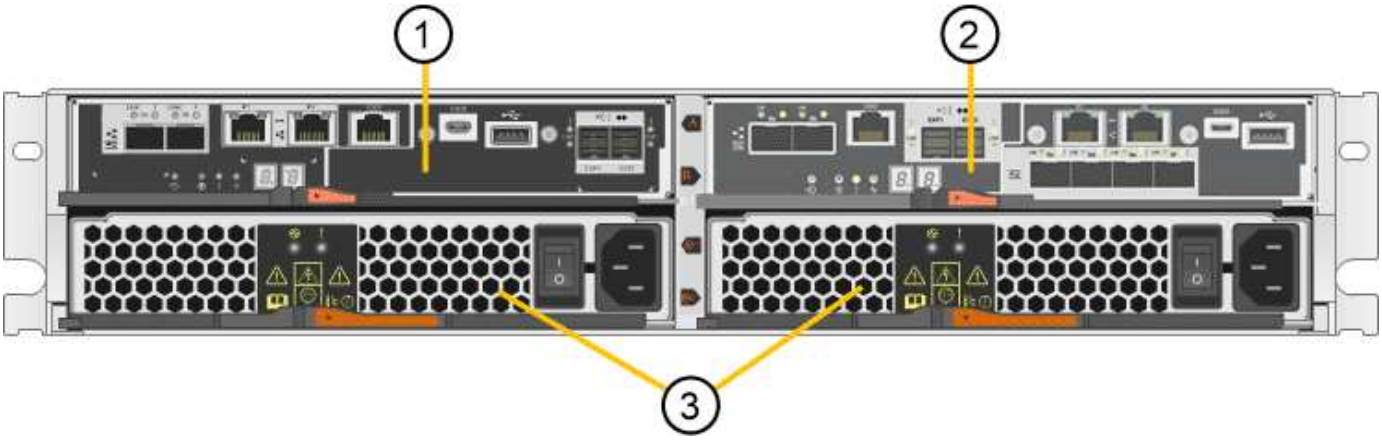
SG5700 diagrams

SG5712 front and rear views

The figures show the front and back of the SG5712, a 2U enclosure that holds 12 drives.

SG5712 components

The SG5712 includes two controllers and two power-fan canisters.



Callout	Description
1	E2800A controller (storage controller)
2	E5700SG controller (compute controller)
3	Power-fan canisters

SG5712X front and rear views

The figures show the front and back of the SG5712X, a 2U enclosure that holds 12 drives.

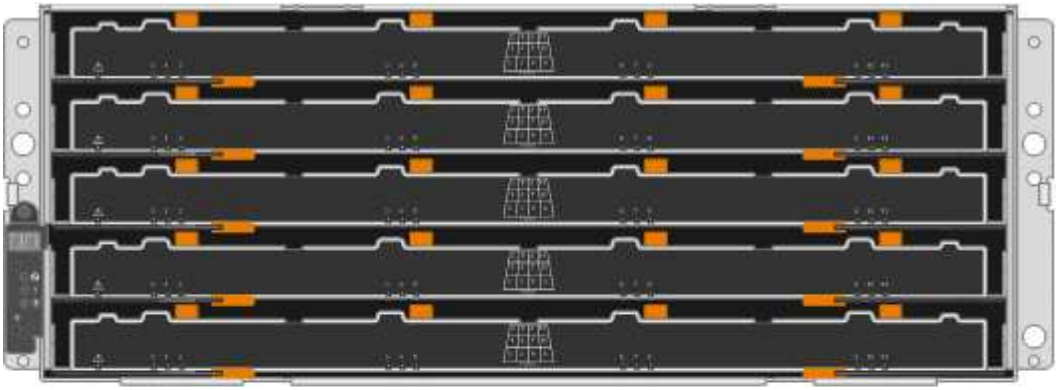
SG5712X components

The SG5712X includes two controllers and two power-fan canisters.

Callout	Description
1	E2800B controller (storage controller)
2	E5700SG controller (compute controller)
3	Power-fan canisters

SG5760 front and rear views

The figures show the front and back of the SG5760 model, a 4U enclosure that holds 60 drives in 5 drive drawers.



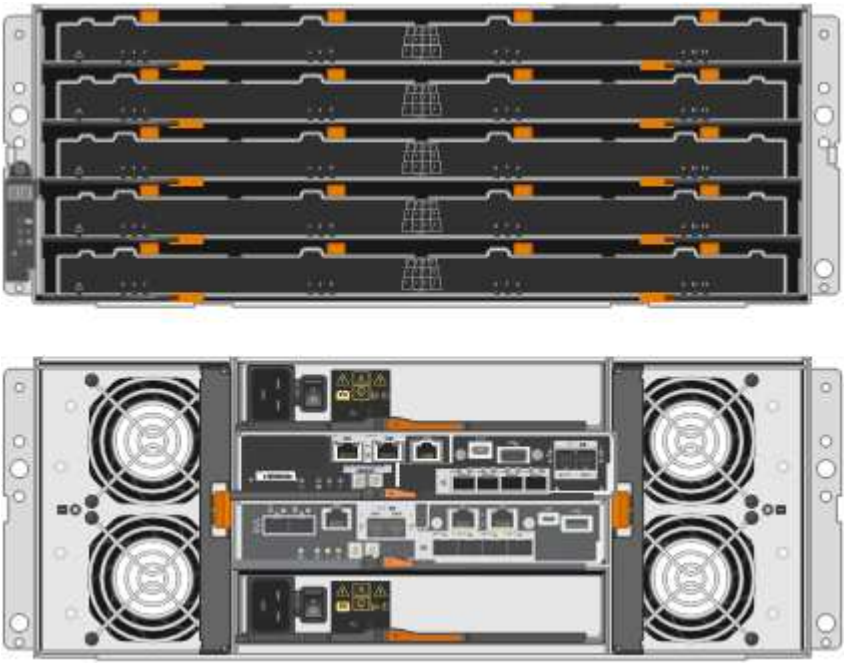
SG5760 components

The SG5760 includes two controllers, two fan canisters, and two power canisters.

Callout	Description
1	E2800A controller (storage controller)
2	E5700SG controller (compute controller)
3	Fan canister (1 of 2)
4	Power canister (1 of 2)

SG5760X front and rear views

The figures show the front and back of the SG5760X model, a 4U enclosure that holds 60 drives in 5 drive drawers.



SG5760X components

The SG5760X includes two controllers, two fan canisters, and two power canisters.

Callout	Description
1	E2800B controller (storage controller)
2	E5700SG controller (compute controller)

Callout	Description
3	Fan canister (1 of 2)
4	Power canister (1 of 2)

SG5700 controllers

Both the 12-drive SG5712 and SG5712X and the 60-drive SG5760 and SG5760X models of the StorageGRID appliance include an E5700SG compute controller and an E-Series E2800 storage controller.

- The SG5712 and SG5760 use a E2800A controller.
- The SG5712X and the SG5760X use a E2800B controller.

The E2800A and E2800B controllers are identical in specification and function except for the location of the interconnect ports.

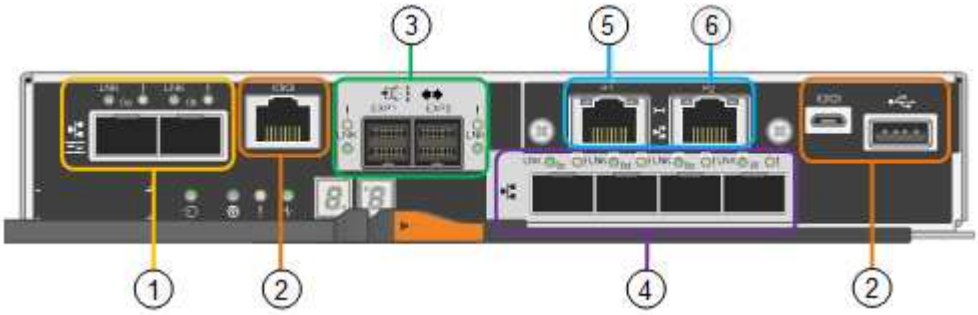
E5700SG compute controller

- Operates as the compute server for the appliance.
- Includes the StorageGRID Appliance Installer.

> StorageGRID software is not preinstalled on the appliance. This software is accessed from the Admin Node when you deploy the appliance.

- Can connect to all three StorageGRID networks, including the Grid Network, the Admin Network, and the Client Network.
- Connects to the E2800 controller and operates as the initiator.

E5700SG connectors



Callout	Port	Type	Use
1	Interconnect ports 1 and 2	16Gb/s Fibre Channel (FC), optical SFP	Connect the E5700SG controller to the E2800 controller.

Callout	Port	Type	Use
2	Diagnostic and support ports	• RJ-45 serial port • Micro USB serial port • USB port	Reserved for technical support.
3	Drive expansion ports	12Gb/s SAS	Not used. StorageGRID appliances don't support expansion drive shelves.
4	Network ports 1-4	10-GbE or 25-GbE, based on SFP transceiver type, switch speed, and configured link speed	Connect to the Grid Network and the Client Network for StorageGRID.
5	Management port 1	1-Gb (RJ-45) Ethernet	Connect to the Admin Network for StorageGRID.
6	Management port 2	1-Gb (RJ-45) Ethernet	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave unwired and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

E2800 storage controller

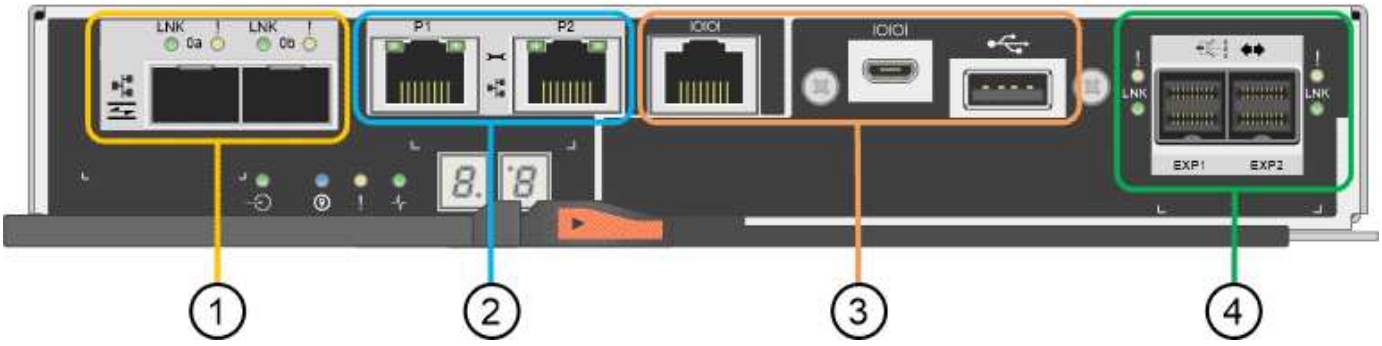
There are two versions of the E2800 storage controller used in the SG5700 appliances: E2800A and E2800B. The E2800A does not have a HIC, and the E2800B has a four-port HIC. The two controller versions have identical specifications and function except for the location of the interconnect ports.

The E2800 series storage controller has the following specifications:

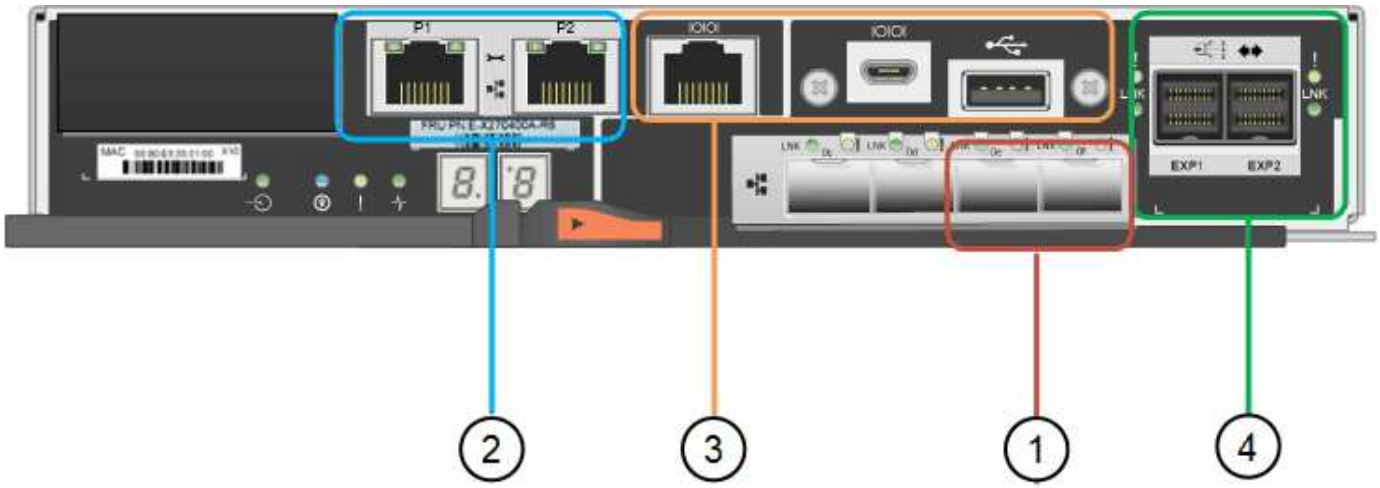
- Operates as the storage controller for the appliance.
- Manages the storage of data on the drives.
- Functions as a standard E-Series controller in simplex mode.
- Includes SANtricity OS Software (controller firmware).
- Includes SANtricity System Manager for monitoring appliance hardware and for managing alerts, the AutoSupport feature, and the Drive Security feature.

- Connects to the E5700SG controller and operates as the target.

E2800A connectors



E2800B connectors



Callout	Port	Type	Use
1	Interconnect ports 1 and 2	16Gb/s FC optical SFP	Connect the E2800 controller to the E5700SG controller.

Callout	Port	Type	Use
2	Management ports 1 and 2	1-Gb (RJ-45) Ethernet	• Port 1 Options: ◦ Connect to a management network to enable direct TCP/IP access to SANtricity System Manager ◦ Leave unwired to save a switch port and IP address. Access SANtricity System Manager using the Grid Manager or Storage Grid Appliance Installer UIs. **Note**: some optional SANtricity functionality, such as NTP sync for accurate log timestamps, is not available when you choose to leave Port 1 unwired. **Note**: StorageGRID 11.5 or greater, and SANtricity 11.70 or greater, are required when you leave Port 1 unwired. • Port 2 is reserved for technical support use.
3	Diagnostic and support ports	• RJ-45 serial port • Micro USB serial port • USB port	Reserved for technical support use.
4	Drive expansion ports.	12Gb/s SAS	Not used.

Related information

NetApp E-Series Systems Documentation Site

SG6060 and SG6060X appliances: Overview

The StorageGRID SG6060 and SG6060X appliances each include a compute controller and a storage controller shelf that contains two storage controllers and 60 drives.

Optionally, 60-drive expansion shelves can be added to both appliances. There are no specification or functional differences between the SG6060 and SG6060X except for the location of the interconnect ports on

the storage controller.

SG6060 and SG6060X components

The SG6060 and SG6060X appliances include the following components:

Compute controller

The SG6000-CN controller is a one-rack unit (1U) server that includes:

- 40 cores (80 threads)
- 192 GB RAM
- Up to 4 × 25 Gbps aggregate Ethernet bandwidth
- 4 × 16 Gbps Fibre Channel (FC) interconnect
- Baseboard management controller (BMC) that simplifies hardware management
- Redundant power supplies

Storage controller shelf

The E-Series E2860 controller shelf (storage array) is a 4U shelf that includes:

- Two E2800 series controllers (duplex configuration) to provide storage controller failover support
  - The SG6060 contains E2800A storage controllers
  - The SG6060X contains E2800B storage controllers
- Five-drawer drive shelf that holds sixty 3.5-inch drives (2 solid-state drives, or SSDs, and 58 NL-SAS drives)
- Redundant power supplies and fans

Optional: Storage expansion shelves

Each SG6060 and SG6060X appliance can have one or two expansion shelves for a total of 180 drives (two of these drives are reserved for E-Series read cache).

Note: Expansion shelves can be installed during initial deployment or added later.

The E-Series DE460C enclosure is a 4U shelf that includes:

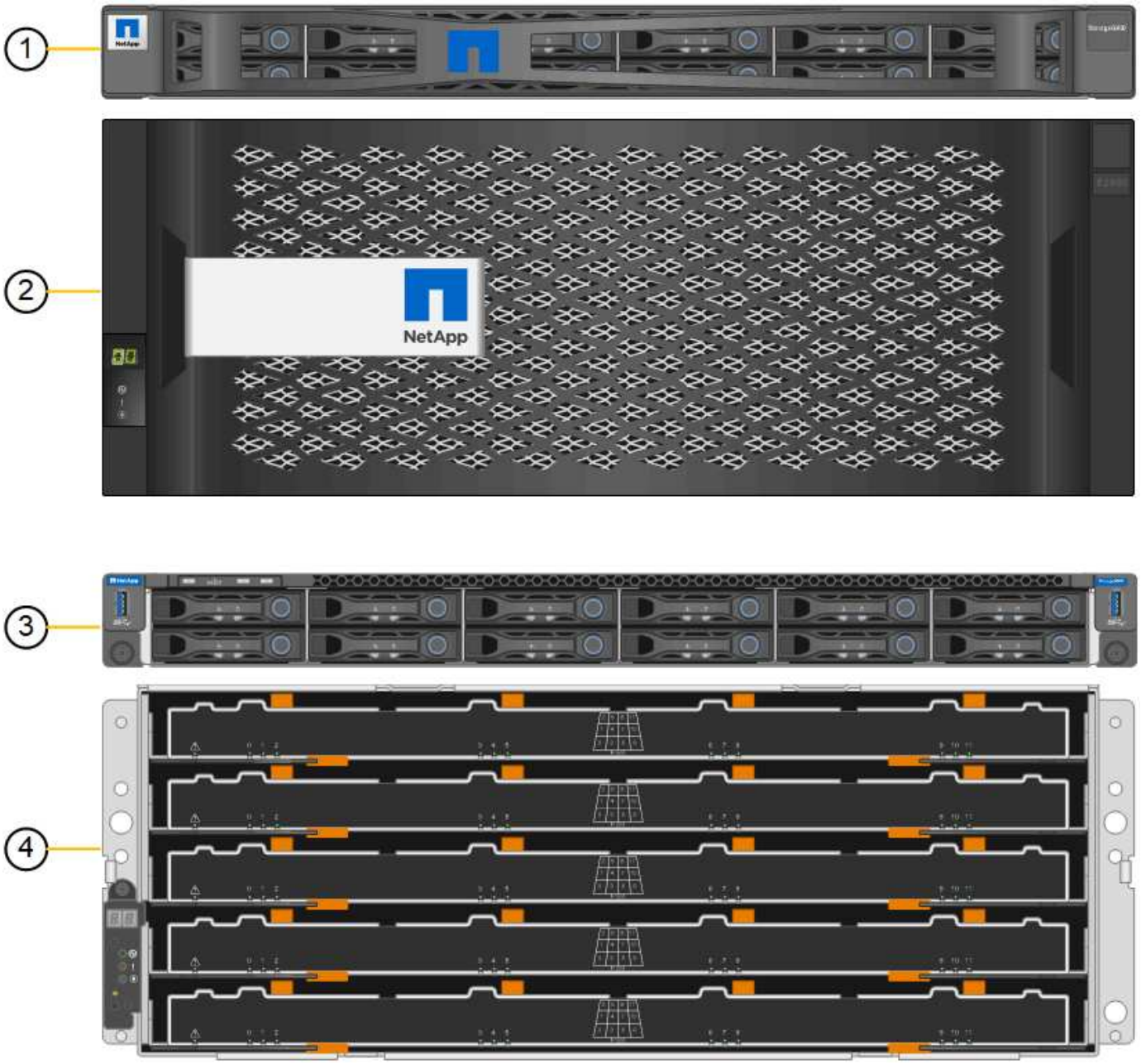
- Two input/output modules (IOMs)
- Five drawers, each holding 12 NL-SAS drives, for a total of 60 drives
- Redundant power supplies and fans

SG6060 and SG6060X diagrams

The fronts of the SG6060 and SG6060X are identical.

SG6060 or SG6060X front view

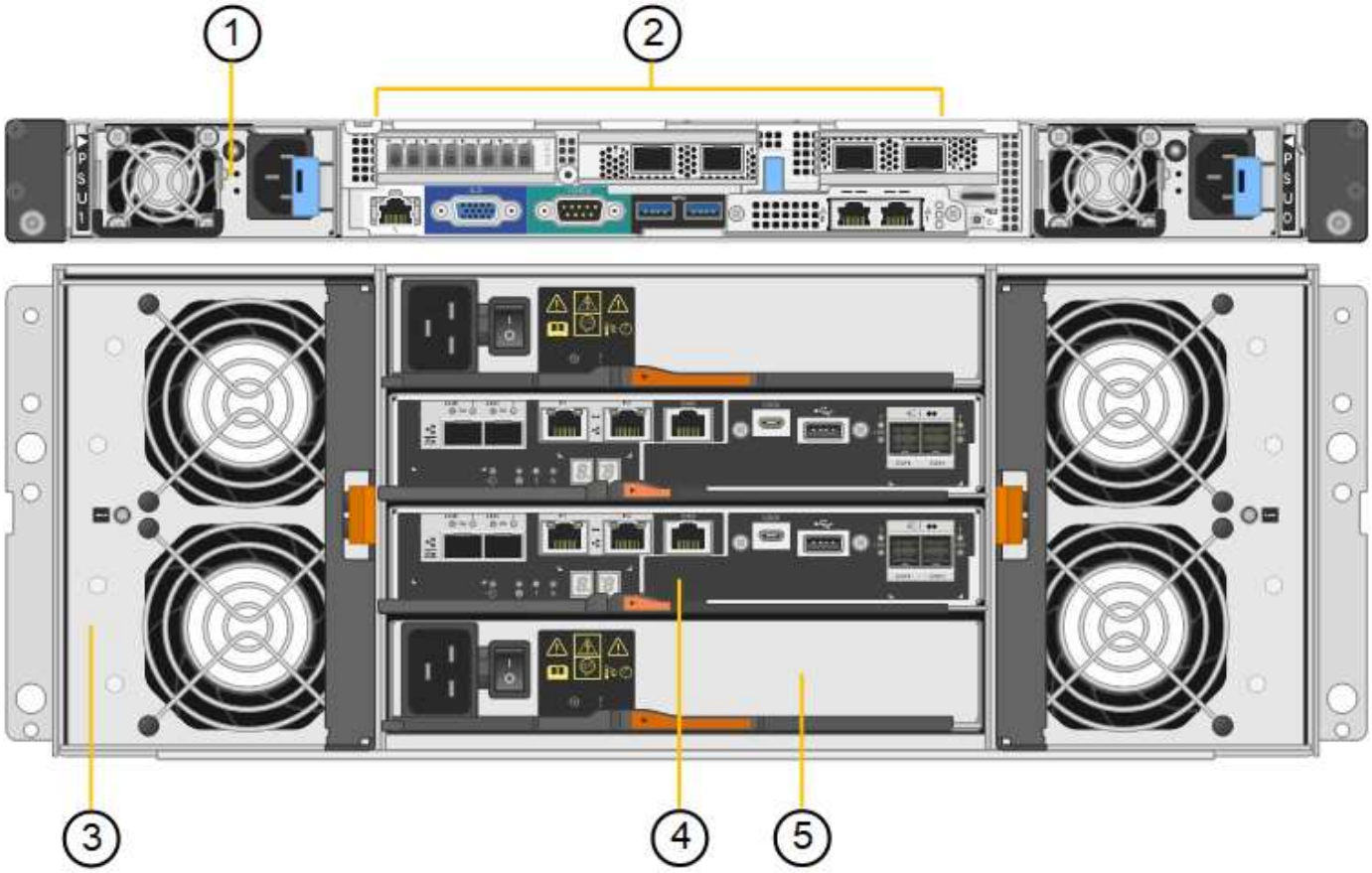
This figure shows the front of the SG6060 or SG6060X, which includes a 1U compute controller and a 4U shelf containing two storage controllers and 60 drives in five drive drawers.



Callout	Description
1	SG6000-CN compute controller with front bezel
2	E2860 controller shelf with front bezel (optional expansion shelf appears identical)
3	SG6000-CN compute controller with front bezel removed
4	E2860 controller shelf with front bezel removed (optional expansion shelf appears identical)

SG6060 rear view

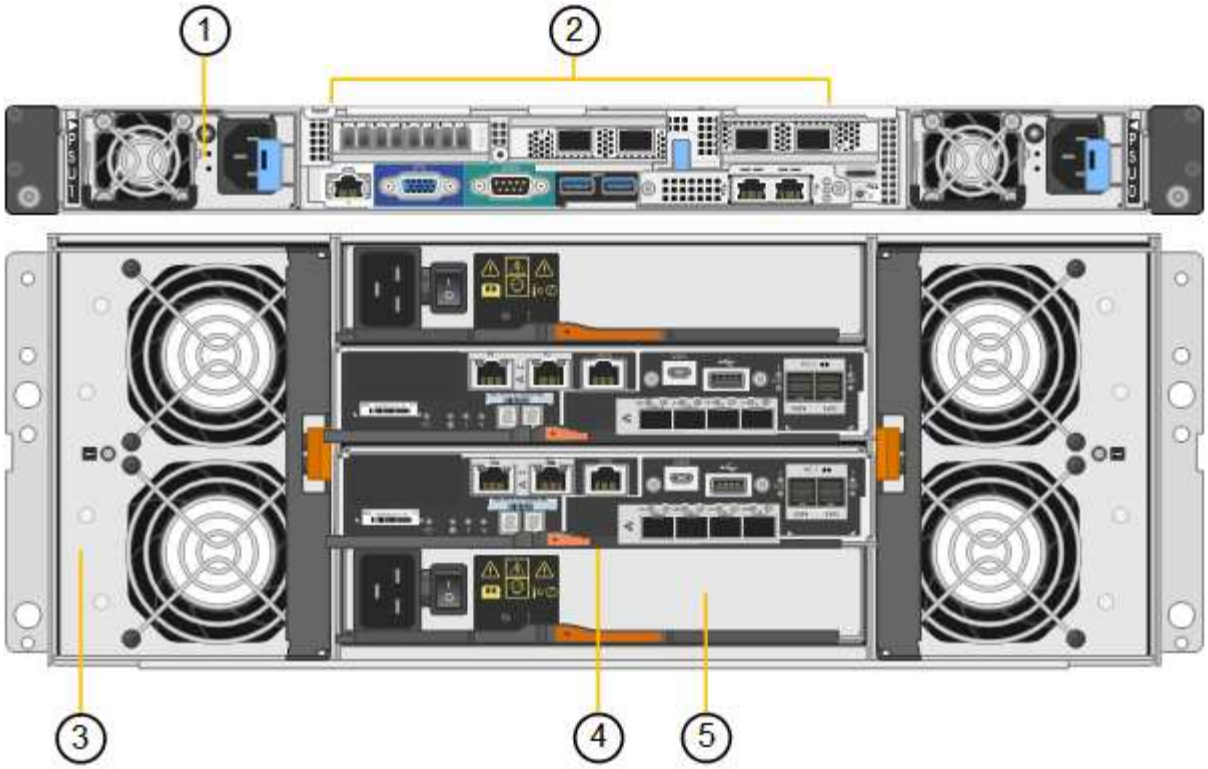
This figure shows the back of the SG6060, including the compute and storage controllers, fans, and power supplies.



Callout	Description
1	Power supply (1 of 2) for SG6000-CN compute controller
2	Connectors for SG6000-CN compute controller
3	Fan (1 of 2) for E2860 controller shelf
4	E-Series E2800A storage controller (1 of 2) and connectors
5	Power supply (1 of 2) for E2860 controller shelf

SG6060X rear view

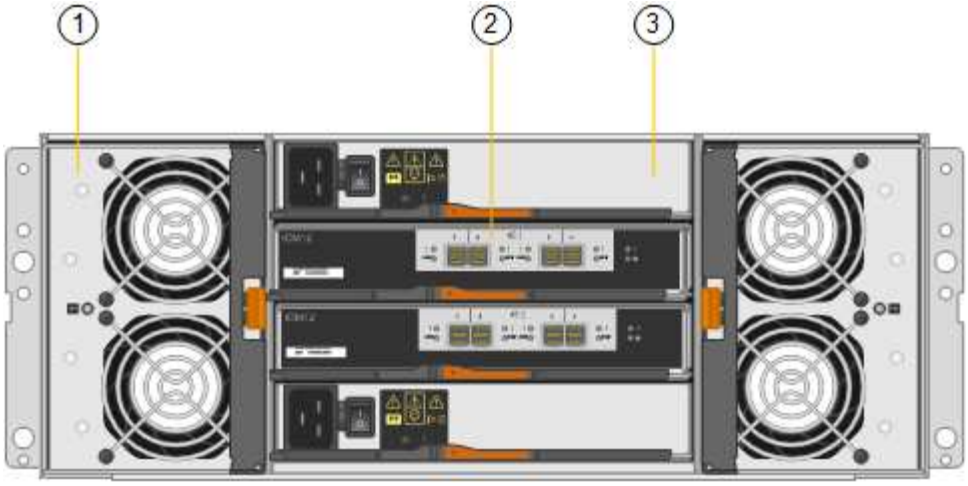
This figure shows the back of the SG6060X.



Callout	Description
1	Power supply (1 of 2) for SG6000-CN compute controller
2	Connectors for SG6000-CN compute controller
3	Fan (1 of 2) for E2860 controller shelf
4	E-Series E2800B storage controller (1 of 2) and connectors
5	Power supply (1 of 2) for E2860 controller shelf

Expansion shelf

This figure shows the back of the optional expansion shelf for the SG6060 and SG6060X, including the input/output modules (IOMs), fans, and power supplies. Each SG6060 can be installed with one or two expansion shelves, which can be included in the initial installation or added later.



Callout	Description
1	Fan (1 of 2) for expansion shelf
2	IOM (1 of 2) for expansion shelf
3	Power supply (1 of 2) for expansion shelf

SG6000 controllers

Each model of the StorageGRID SG6000 appliance includes an SG6000-CN compute controller in a 1U enclosure and duplex E-Series storage controllers in a 2U or 4U enclosure, depending on the model. Review the diagrams to learn more about each type of controller.

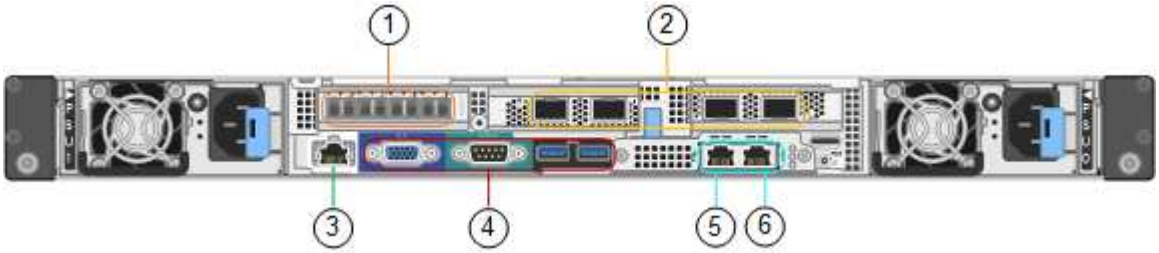
SG6000-CN compute controller

- Provides compute resources for the appliance.
- Includes the StorageGRID Appliance Installer.

> StorageGRID software is not preinstalled on the appliance. This software is retrieved from the Admin Node when you deploy the appliance.

- Can connect to all three StorageGRID networks, including the Grid Network, the Admin Network, and the Client Network.
- Connects to the E-Series storage controllers and operates as the initiator.

SG6000-CN connectors

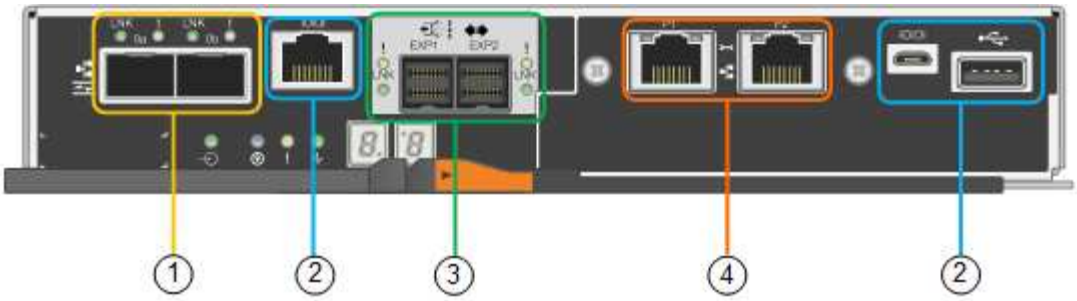


Callout	Port	Type	Use
1	Interconnect ports 1-4	16-Gb/s Fibre Channel (FC), with integrated optics	Connect the SG6000-CN controller to the E2800 controllers (two connections to each E2800).
2	Network ports 1-4	10-GbE or 25-GbE, based on cable or SFP transceiver type, switch speed, and configured link speed	Connect to the Grid Network and the Client Network for StorageGRID.
3	BMC management port	1-GbE (RJ-45)	Connect to the SG6000-CN baseboard management controller.
4	Diagnostic and support ports	• VGA • Serial, 115200 8-N-1 • USB	Reserved for technical support use.
5	Admin Network port 1	1-GbE (RJ-45)	Connect the SG6000-CN to the Admin Network for StorageGRID.
6	Admin Network port 2	1-GbE (RJ-45)	Options: • Bond with management port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave unwired and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.

SGF6024: EF570 storage controllers

- Two controllers for failover support.
- Manage the storage of data on the drives.
- Function as standard E-Series controllers in a duplex configuration.
- Include SANtricity OS Software (controller firmware).
- Include SANtricity System Manager for monitoring storage hardware and for managing alerts, the AutoSupport feature, and the Drive Security feature.
- Connect to the SG6000-CN controller and provide access to the flash storage.

EF570 connectors



Callout	Port	Type	Use
1	Interconnect ports 1 and 2	16-Gb/s FC optical SFP	Connect each of the EF570 controllers to the SG6000-CN controller. There are four connections to the SG6000-CN controller (two from each EF570).
2	Diagnostic and support ports	• RJ-45 serial port • Micro USB serial port • USB port	Reserved for technical support use.
3	Drive expansion ports	12Gb/s SAS	Not used. The SGF6024 appliance does not support expansion drive shelves.
4	Management ports 1 and 2	1-Gb (RJ-45) Ethernet	• Port 1 connects to the network where you access SANtricity System Manager on a browser. • Port 2 is reserved for technical support use.

SG6060 and SG6060X: E2800 storage controllers

- Two controllers for failover support.
- Manage the storage of data on the drives.
- Function as standard E-Series controllers in a duplex configuration.
- Include SANtricity OS Software (controller firmware).
- Include SANtricity System Manager for monitoring storage hardware and for managing alerts, the AutoSupport feature, and the Drive Security feature.
- Connect to the SG6000-CN controller and provide access to the storage.

The SG6060 and SG6060X use E2800 storage controllers.

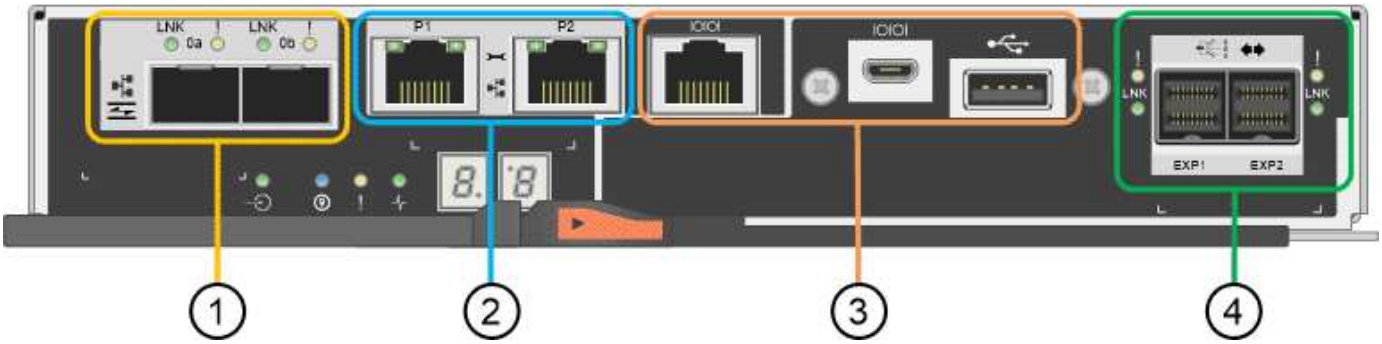
Appliance	Controller	Controller HIC
SG6060	Two E2800A storage controllers	None

Appliance	Controller	Controller HIC
SG6060X	Two E2800B storage controllers	Four-port HIC

The E2800A and the E2800B storage controllers are identical in specifications and function except for the location of the interconnect ports.

Don’t use an E2800A and an E2800B in the same appliance.

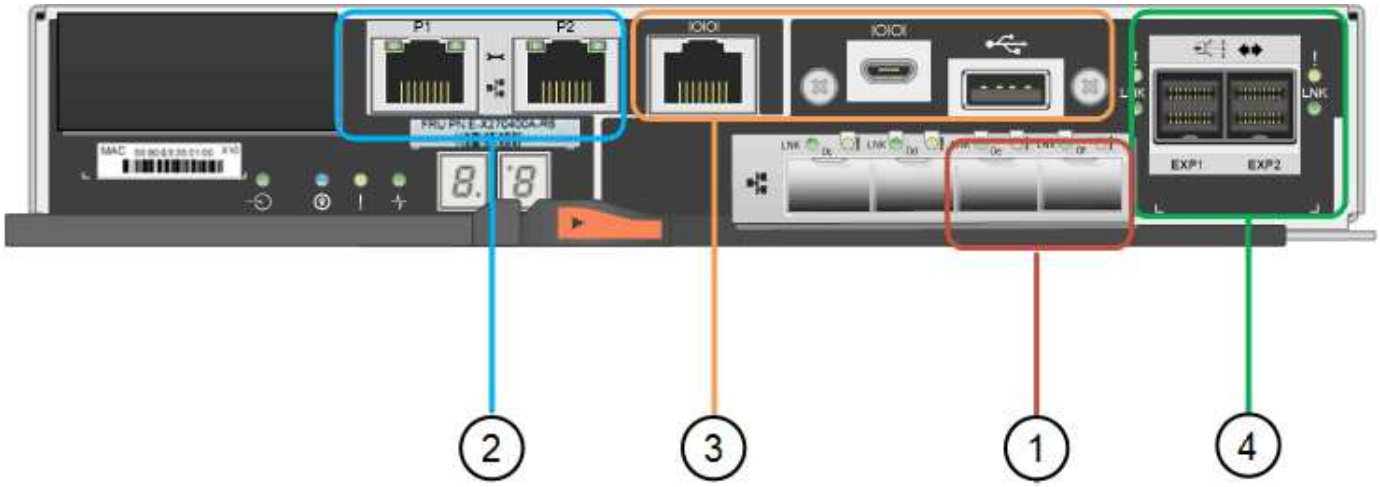
E2800A connectors



Callout	Port	Type	Use
1	Interconnect ports 1 and 2	16-Gb/s FC optical SFP	Connect each of the E2800A controllers to the SG6000-CN controller. There are four connections to the SG6000-CN controller (two from each E2800A).

Callout	Port	Type	Use
2	Management ports 1 and 2	1-Gb (RJ-45) Ethernet	• Port 1 Options: ◦ Connect to a management network to enable direct TCP/IP access to SANtricity System Manager ◦ Leave unwired to save a switch port and IP address. Access SANtricity System Manager using the Grid Manager or Storage Grid Appliance Installer UIs. **Note**: some optional SANtricity functionality, such as NTP sync for accurate log timestamps, is not available when you choose to leave Port 1 unwired. **Note**: StorageGRID 11.5 or greater, and SANtricity 11.70 or greater, are required when you leave Port 1 unwired. • Port 2 is reserved for technical support use.
3	Diagnostic and support ports	• RJ-45 serial port • Micro USB serial port • USB port	Reserved for technical support use.
4	Drive expansion ports 1 and 2	12Gb/s SAS	Connect the ports to the drive expansion ports on the IOMs in the expansion shelf.

E2800B connectors

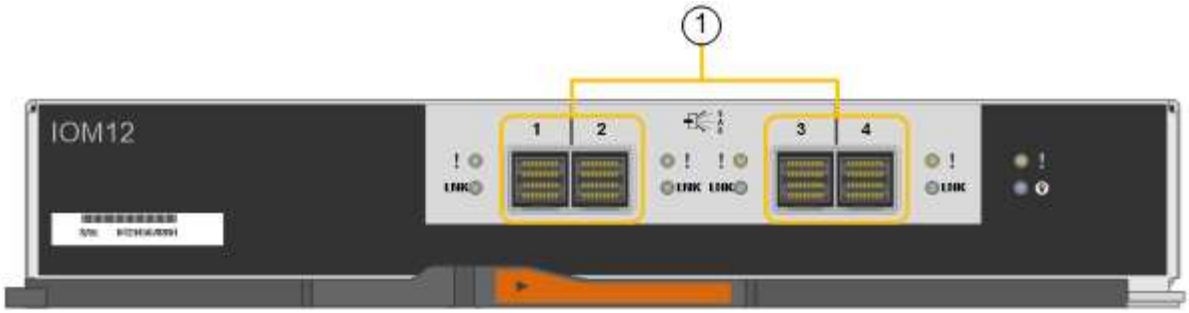


Callout	Port	Type	Use
1	Interconnect ports 1 and 2	16-Gb/s FC optical SFP	Connect each of the E2800B controllers to the SG6000-CN controller. There are four connections to the SG6000-CN controller (two from each E2800B).
2	Management ports 1 and 2	1-Gb (RJ-45) Ethernet	• Port 1 Options: ◦ Connect to a management network to enable direct TCP/IP access to SANtricity System Manager ◦ Leave unwired to save a switch port and IP address. Access SANtricity System Manager using the Grid Manager or Storage Grid Appliance Installer UIs. **Note**: some optional SANtricity functionality, such as NTP sync for accurate log timestamps, is not available when you choose to leave Port 1 unwired. **Note**: StorageGRID 11.5 or greater, and SANtricity 11.70 or greater, are required when you leave Port 1 unwired. • Port 2 is reserved for technical support use.
3	Diagnostic and support ports	• RJ-45 serial port • Micro USB serial port • USB port	Reserved for technical support use.
4	Drive expansion ports 1 and 2	12Gb/s SAS	Connect the ports to the drive expansion ports on the IOMs in the expansion shelf.

SG6060 and SG6060X: IOMs for optional expansion shelves

The expansion shelf contains two input/output modules (IOMs) that connect to the storage controllers or to other expansion shelves.

IOM connectors



Callout	Port	Type	Use
1	Drive expansion ports 1-4	12Gb/s SAS	Connect each port to the storage controllers or additional expansion shelf (if any).

SG6100 appliances: Overview

The StorageGRID SGF6112 appliance operates as a Storage Node in a StorageGRID system. The appliance can be used in a hybrid grid environment that combines appliance Storage Nodes and virtual (software-based) Storage Nodes.

The SGF6112 appliance provides the following features:

- 12 NVMe (nonvolatile memory express) SSD drives with integrated compute and storage controllers.
- Integrates the storage and computing elements for a StorageGRID Storage Node.
- Includes the StorageGRID Appliance Installer to simplify Storage Node deployment and configuration.
- Includes a baseboard management controller (BMC) for monitoring and diagnosing the hardware in the compute controller.
- Supports up to four 10-GbE or 25-GbE connections to the StorageGRID Grid Network and Client Network.

SGF6112 hardware description

The StorageGRID SGF6112 is an all-flash appliance that features a compact design with compute controller and storage controller integrated into a 1U chassis. The appliance supports 12 SSD NVMe drives with a storage capacity of up to 15.3 TB per drive.

Resilient object storage

The SGF6112 is designed with SSDs in a RAID that provides the following data protection features:

- Ability to function after the failure of a single SSD with no impact on object availability.
- Ability to function after multiple SSD failures with a minimum necessary reduction in object availability (based on the design of the underlying RAID scheme).
- Fully recoverable, while in service, from SSD failures that don’t result in extreme damage to the RAID housing the node’s root volume (the StorageGRID operating system).

SGF6112 hardware components

The SGF6112 appliance includes the following components:

Compute and storage platform

A one-rack unit (1U) server that includes:

- Two 2.1/2.6 GHz 165 W processors providing 48 cores
- 256 GB RAM
- 2 × 1/10 GBase-T ports
- 4 × 10/25 GbE Ethernet ports
- 1 × 256 GB Internal Boot drive (includes StorageGRID software)
- Baseboard management controller (BMC) that simplifies hardware management
- Redundant power supplies and fans

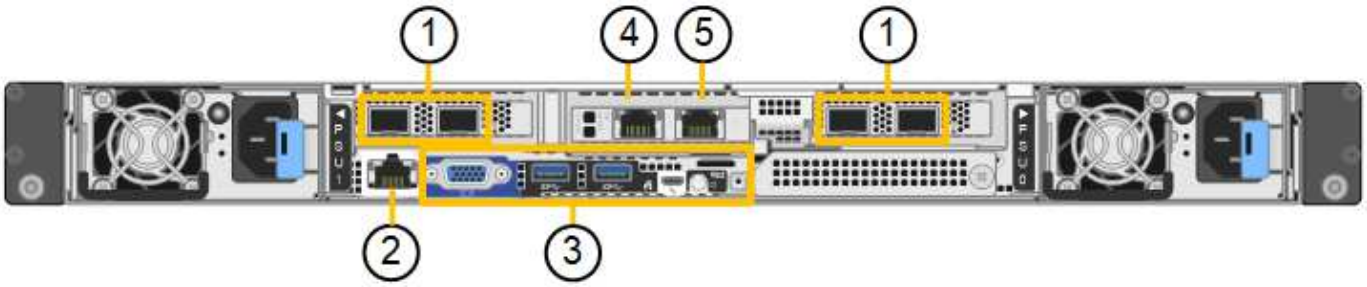
SGF6112 diagrams

SGF6112 front view

This figure shows the front of the SGF6112 without the bezel. The appliance includes a 1U compute and storage platform that contains 12 SSD drives.

SGF6112 rear view

This figure shows the back of the SGF6112, including the ports, fans, and power supplies.



Callout	Port	Type	Use
1	Network ports 1-4	10/25-GbE, based on cable or SFP transceiver type (SFP28 and SFP+ modules are supported), switch speed, and configured link speed.	Connect to the Grid Network and the Client Network for StorageGRID.
2	BMC management port	1-GbE (RJ-45)	Connect to the appliance baseboard management controller.

Callout	Port	Type	Use
3	Diagnostic and support ports	• VGA • USB • Micro-USB console port • Micro-SD slot module	Reserved for technical support use.
4	Admin Network port 1	1/10-GbE (RJ-45)	Connect the appliance to the Admin Network for StorageGRID.
5	Admin Network port 2	1/10-GbE (RJ-45)	Options: • Bond with Admin Network port 1 for a redundant connection to the Admin Network for StorageGRID. • Leave disconnected and available for temporary local access (IP 169.254.0.1). • During installation, use port 2 for IP configuration if DHCP-assigned IP addresses aren't available.