



QUANTUM

20 January 2025

**QUANTUM SMART-1
6000-L/6000-XL
APPLIANCES
REPLACING MEMORY**



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Latest Software

We recommend that you install the most recent software release to stay up-to-date with the latest functional improvements, stability fixes, security enhancements and protection against new and evolving attacks.



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Check Point Quantum Smart-1 6000-L/6000-XL Appliances Replacing Memory

For more about this release, see the [home page](#).



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Feedback

Check Point is engaged in a continuous effort to improve its documentation.
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Revision History

Date	Description
17 February 2022	Rebranding - New Check Point logo
25 February 2021	First release of this document

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Safety Instructions

- Lift the appliance with assistance. To avoid injury, do not attempt to lift the appliance by yourself.
- Opening or removing the appliance cover, while the appliance is powered on may expose you to a risk of electric shock.
- Do not operate the appliance without the cover for more than five minutes. Operating the appliance without the cover can result in component damage.
- Many repairs may only be done by a certified service technician. Only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the technical support.
- We recommend that you always use an antistatic mat and antistatic strap on your wrist, while working on components inside the appliance.
- To ensure proper operation and cooling, all bays in the appliance and cooling fans must be always populated with a component.
- For proper heat dissipation and cooling, Smart-1 6000-L/6000-XL appliances contain a cooling air shroud that covers the empty memory module sockets that are not occupied.

For more information, see the *Enterprise Products Safety, Environmental, and Regulatory Information* booklet supplied in the original appliance shipping carton.

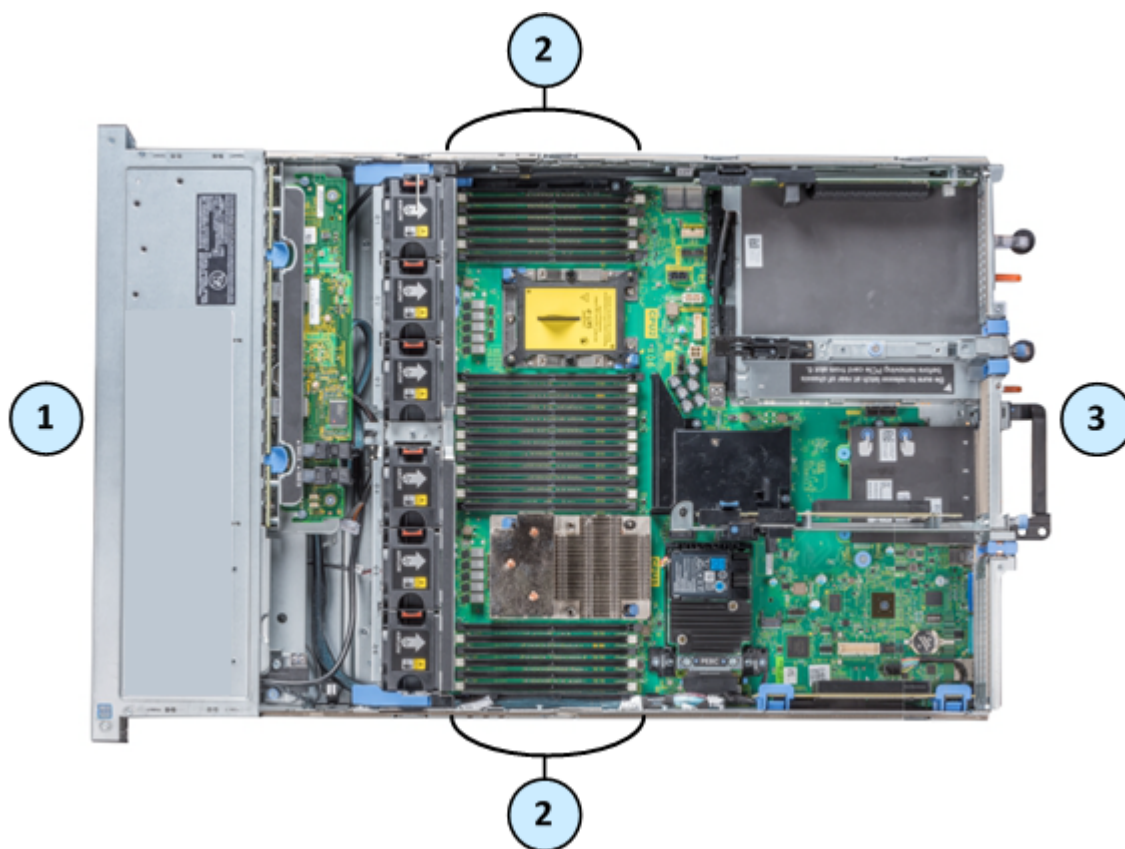


Best Practice - We recommend that only experienced personnel install or remove hardware components. Installing or removing components incorrectly can permanently damage the Security Management Appliance.



Important - Make sure that you are electromagnetically grounded when working with hardware components of the appliance. ESD (electrostatic discharge) can damage the appliance.

Hardware Components



Item	Description
1	Front panel
2	24 Memory module sockets (located under the cooling air shroud)
3	Rear panel



About Memory and DIMM Sockets

The Smart-1 6000-L/6000-XL Security Management Appliances come with these default memory configuration options:

Smart-1 6000-L Base	Smart-1 6000-L Plus	Smart-1 6000-XL Base	Smart-1 6000-XL Plus
96GB	192GB	192GB	384GB

The memory sockets have black and white colored ejectors. In the appliance configuration diagrams, note that:

- The view shown is always from the top.
- The front panel of the appliance is always at the bottom of the diagram.

Item	Description
	Memory sockets with DIMMs installed
	Empty memory sockets



Important: The cooling air shroud covers empty memory sockets and ensures proper cooling.

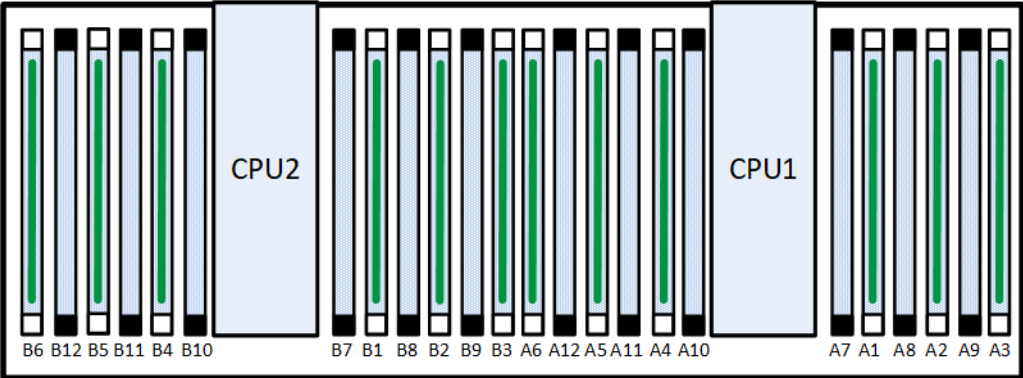
Smart-1 6000-L DIMM Configuration

The Smart-1 6000-L Base Security Management Appliance has a default memory configuration of 96GB: 12x8GB, with twelve DIMMs.

The memory socket numbers, shown in the configuration diagrams, are marked on the cooling shroud and align with the respective memory sockets.

Default Configuration for Smart-1 6000-L Base

(Top View - front of the Security Management Appliance is at the bottom of the diagram)



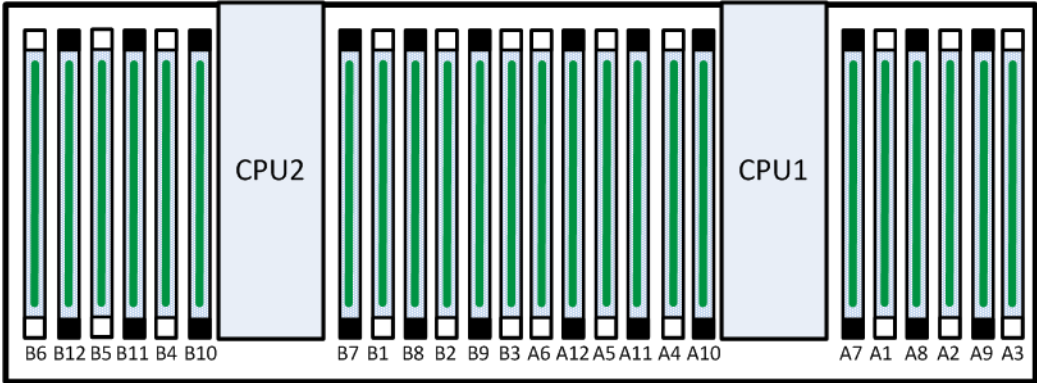
Best Practice - We recommend that you keep the DIMMs in the socket numbers as specified in the Default Configuration diagram. Changing the default configuration placement may impact performance.

Upgrading the Configuration from 96GB to 192GB

To upgrade from	To upgrade to	Use DIMMs	Procedure	Sockets
96GB	192GB	24x8GB	Install an additional twelve 8GB DIMMs. See the Upgraded Configuration diagram for the socket numbers.	24 out of 24

Upgraded Configuration from 96GB to 192GB in Smart-1 6000-L

(Top View - front of the Security Management Appliance is at the bottom of the diagram)



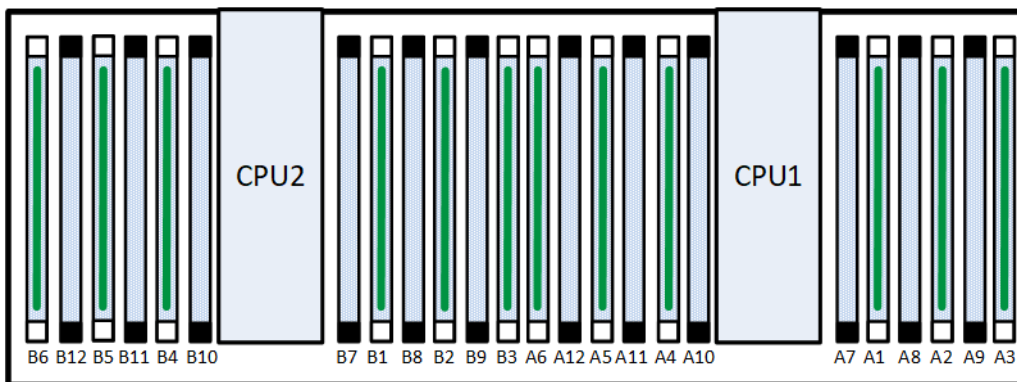
Smart-1 6000-XL DIMM Configuration

The Smart-1 6000-XL Base Security Management Appliance has a default memory configuration of 192GB: 12x16GB, with twelve DIMMs.

The memory socket numbers, shown in the configuration diagrams, are marked on the cooling shroud and align with the respective memory sockets.

Default Configuration for Smart-1 6000-XL Base

(Top View - front of the Security Management Appliance is at the bottom of the diagram)



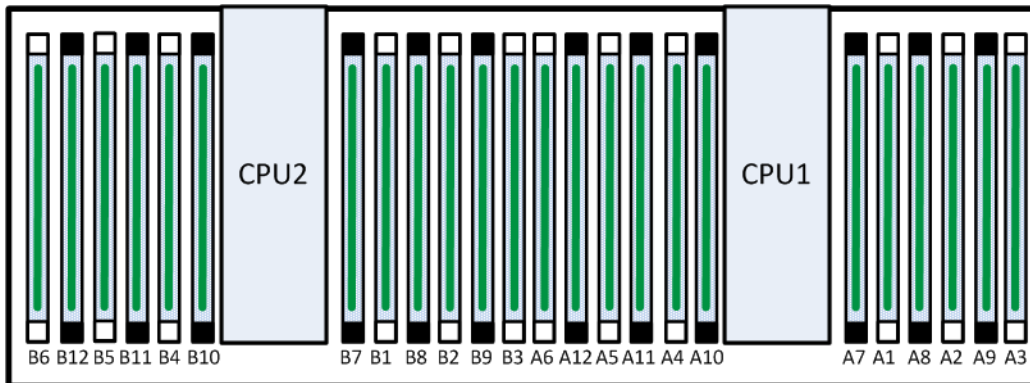
Best Practice - We recommend that you keep the DIMMs in the socket numbers as specified in the Default Configuration diagram. Changing the default configuration placement may impact performance.

Upgrading the Configuration from 192GB to 384GB

To upgrade from	To upgrade to	Use DIMMs	Procedure	Sockets
192GB	384GB	24x16GB	Install an additional twelve 16GB DIMMs. See the Upgraded Configuration diagram for the socket numbers.	24 out of 24

Upgraded Configuration from 192GB to 384GB in Smart-1 6000-XL

(Top View - front of the Security Management Appliance is at the bottom of the diagram)



Procedure

Memory Kit Contents

- Installation guide - **Smart-1 Installing and Removing Memory**
- Expansion DIMMs
- Electrostatic Discharge (ESD) grounding wrist strap (anti-static)

To install a new DIMM:

1. Prepare the appliance.
2. Remove the cooling air shroud.
3. Remove a DIMM (if necessary).
4. Install a DIMM.
5. Install the cooling air shroud.
6. Reassemble the appliance.
7. Verify the memory configuration.

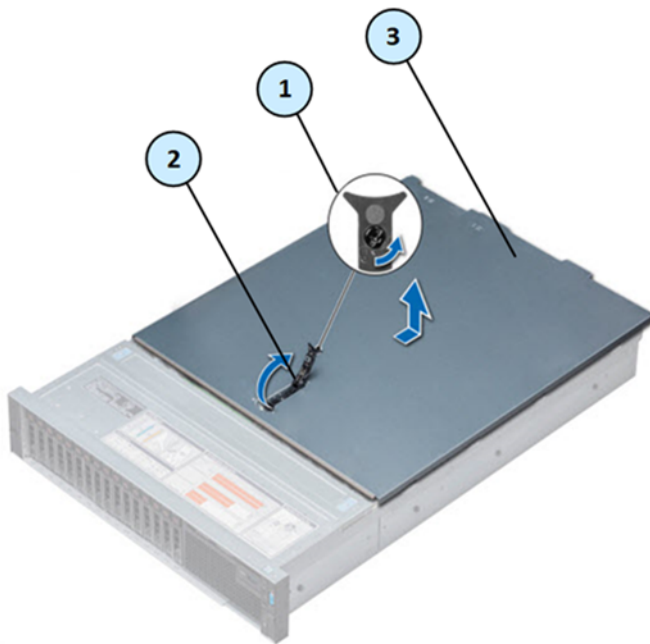
Preparing the Appliance

To prepare the appliance:

1. Make sure to follow the ["Safety Instructions" on page 5](#).
2. Shut down the appliance:
 - In Gaia Portal:
Go to **Maintenance** > **Shut Down**, and click **Halt**
 - In Gaia Clish:
Run: `halt`
3. Open the retention strap that secures the power cables to the PSUs.
4. If AC PSUs are installed in the appliance:
Disconnect the power cables from the AC PSUs.
5. If DC PSUs are installed in the appliance:
Disconnect the safety ground wires from the DC PSUs.
Disconnect the DC power connectors from the DC PSUs.
6. Remove the hook-and-loop straps that hold and secure the system cables, if they interfere with the PSU removal.

7. Remove the appliance from the rack. See the [Installing the Quantum Smart-1 6000-L/6000-XL Telescopic Rails](#) booklet for illustrated installation procedures.
8. Put the Electrostatic Discharge (ESD) grounding strap on your wrist and attach the other end to a grounding point.
9. Remove the appliance cover:
 - a. Using a flat or a Phillips head screwdriver, rotate the latch release lock counter-clockwise to the unlocked position.
 - b. Lift the latch.
 - c. Slide the cover back.

The tabs on the cover should disengage from the guide slots on the appliance.
 - d. Hold the cover on both sides and lift the cover away from the appliance.

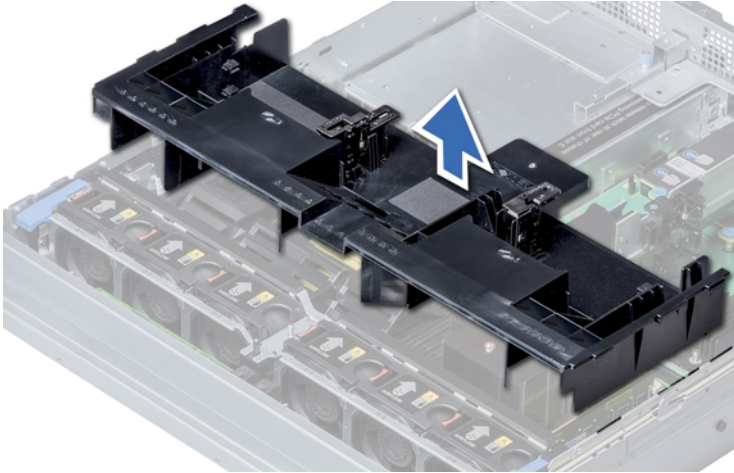


Item	Description
1	Latch release lock
2	Latch
3	Cover

Removing the Cooling Air Shroud

To remove the cooling air shroud:

1. Hold the cooling shroud at both ends.
2. Lift the cooling shroud away from the appliance.



Removing a DIMM



Warning - Allow the DIMMs to cool after you power off the system. Handle the memory DIMMs by the card edges and avoid touching the components or metallic contacts on the DIMM.

To remove a DIMM:

1. Locate the appropriate memory socket.

Caution- Handle each DIMM only by the card edges, ensuring not to touch the middle of the DIMM or metallic contacts.

2. Push the ejectors outward on both ends of the memory socket to release from the socket.
3. Lift and remove the DIMM from the system.

Installing a DIMM

To install a DIMM:

1. Locate the appropriate memory socket.

Caution- Handle each DIMM only by the card edges, ensuring not to touch the middle of the DIMM or metallic contacts.

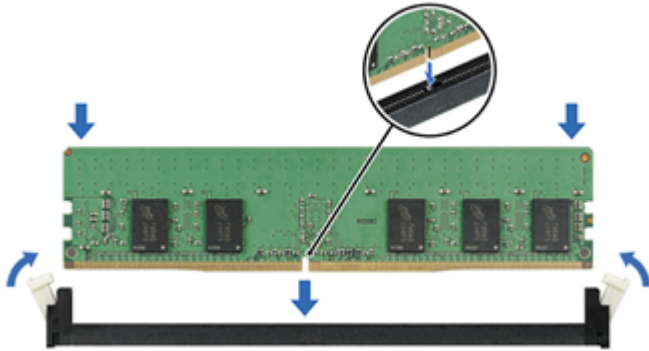
Caution - To prevent damage to the DIMM or the memory socket during installation, do not bend or flex the DIMM. You must insert both ends of the DIMM simultaneously.

2. Open the ejectors on the memory socket outward to allow the DIMM to be inserted into the socket.
3. Align the edge connector of the DIMM with the alignment key of the memory socket, and insert the DIMM in the socket.

Caution - Do not apply pressure at the center of the DIMM; apply pressure at both ends of the DIMM evenly.

Note - The memory socket has an alignment key that enables you to install the DIMM in the socket in only one orientation.

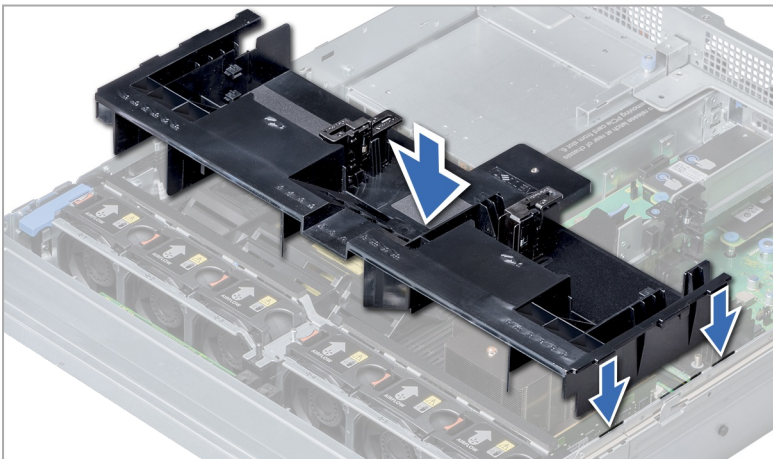
4. Press the DIMM with your thumbs until the socket levers firmly click into place.



Installing the Cooling Air Shroud

1. Align the tabs on the air shroud with the slots on the appliance.
2. Lower the air shroud into the appliance until it is firmly seated.

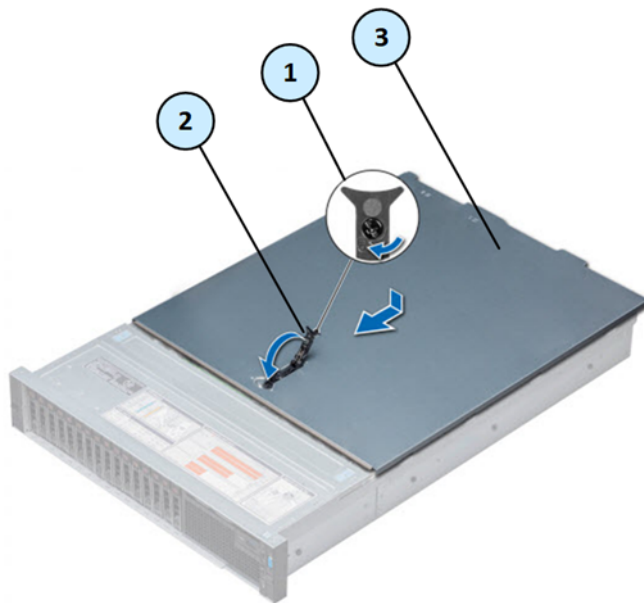
Note - When firmly seated, the memory socket numbers marked on the air shroud will align with the respective memory sockets.



Reassembling the Appliance

To reassemble the appliance:

1. Make sure all internal cables are routed correctly and connected, and no tools or extra parts are left inside the system.
2. Align the tabs on the cover with the guide slots on the appliance.
3. Push the latch down.
4. Slide the cover forward - the tabs on the cover should engage with the guide slots on the appliance.
The latch should lock into place.
5. Use a flat or Phillips head screwdriver to rotate the latch release lock clockwise to the locked position.



Item	Description
1	Latch release lock
2	Latch
3	Cover

6. Install the appliance into the rack.
See the [Installing the Quantum Smart-1 6000-L/6000-XL Telescopic Rails](#) booklet for illustrated installation procedures:
7. If AC PSUs are installed in the appliance:
Connect the power cables from the AC PSUs.
8. If DC PSUs are installed in the appliance:
Connect the safety ground wires from the DC PSUs.

Connect the DC power connectors from the DC PSUs.

9. If you opened the hook-and-loop straps, close them to secure the system cables.
10. Make a loop and secure the power cables to the PSUs using the retention strap.
11. Press the **Power** button on the front panel to turn on the Security Management Appliance.

Verifying the Memory Configuration

To make sure that the memory configuration is correct:

1. In the CLI, enter Expert mode.
2. Run: # `free -g`

Example output from a Smart-1 6000-L Base Security Management Appliance with 96GB of memory:

```
[Expert@6000_Large:0]# free -g
              total          used         free       shared  buff/cache   available
Mem:           92             4            83           0             5            87
Swap:          93             0            93
```



Note - The amount of installed memory is shown in the row named `Mem` under the column named `total`.

In the above example, 96GB of RAM are installed on the system. This corresponds to the 92GB of total memory shown by the `free` utility (as some GB are used by the system).