

**EVIDEN**

BullSequana EX & AI

# Getting Started Guide

The following copyright notice protects this book under Copyright laws which prohibit such actions as, but not limited to, copying, distributing, modifying, and making derivative works.

Copyright ©Bull SAS 2025, part of Eviden group. Eviden is a registered trademark of Eviden SAS. This document, or any part of it, may not be reproduced, copied, circulated and/or distributed nor quoted without prior written approval from Bull SAS.

## **Trademarks and Acknowledgments**

We acknowledge the right of proprietors of trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection.

Quoting of brand and product names is for information purposes only and does not represent trademark and/or patent misuse.

### **Hardware**

**January 2025**

**Eviden  
30 bis rue du Nid de Pie  
49000 Angers  
FRANCE**

The information in this document is subject to change without notice. Eviden will not be liable for errors contained herein, or for incidental or consequential damages in connection with the use of this material.

---

# Table of contents

<b>Preface</b> .....	<b>p-1</b>
Intended Readers .....	p-1
<b>Chapter 1. Connecting a BullSequana EX &amp; AI server</b> .....	<b>1-1</b>
1.1. Connecting the server to the power supply .....	1-1
1.2. Accessing the Server Hardware Console (SHC) .....	1-4
1.2.1. Obtaining an address via a DHCP server .....	1-4
1.2.2. Obtaining an IP address with an auto-discovery tool .....	1-6
1.2.3. Connecting to the SHC for the first time .....	1-9
1.3. Connecting the server to a monitor (optional) .....	1-10
<b>Chapter 2. Configuring general parameters</b> .....	<b>2-1</b>
2.1. Setting the date and time .....	2-2
2.2. Configuring network settings .....	2-4
2.3. Changing the initial user password .....	2-7
2.4. Testing parameters .....	2-9
<b>Chapter 3. Installing an operating system</b> .....	<b>3-1</b>
3.1. Installing an OS .....	3-2
3.2. Booting the operating system (OS) .....	3-6
<b>Chapter 4. Power operations</b> .....	<b>4-1</b>
4.1. Powering on the server with the power button .....	4-2
4.2. Powering on from the SHC .....	4-3
4.3. Powering off the server with the power button .....	4-4
4.4. Rebooting or shutting down from the SHC .....	4-5
4.5. Configuring the power restore policy .....	4-6
4.6. Managing power usage .....	4-7
<b>Chapter 5. Maintenance operations</b> .....	<b>5-1</b>
5.1. Rebooting the BMC .....	5-1
5.2. Checking event logs .....	5-2
5.3. Checking the sensors .....	5-3
5.4. Collecting Logs .....	5-4
5.5. Managing firmware versions .....	5-6
<b>Chapter 6. Managing RAID configurations</b> .....	<b>6-1</b>

6.1.	M.2 NVMe disks RAID configuration with Intel® VROC .....	6-2
6.1.1.	M.2 NVMe disks location .....	6-2
6.1.2.	Intel® VROC mapping .....	6-4
6.1.3.	Configuring RAID disks .....	6-6
6.2.	SATA disks RAID configuration with Intel® VROC .....	6-15
6.2.1.	2.5 inch SATA disks location .....	6-15
6.2.2.	Configuring RAID disks .....	6-16
6.3.	SATA disks RAID configuration with a RAID controller card .....	6-27
6.3.1.	2.5 inch SATA disks location .....	6-27
6.3.2.	Configuring RAID disks .....	6-28

**Appendix A. Pre-installation steps for Windows Server 2022 .....A-1**

---

## Preface

This guide explains how to set up the server.

---

**See** The Bull support web site for the most up-to-date product information, documentation, firmware updates, software fixes and service offers:  
<https://support.bull.com>

---

---

**Important** **ATTENTION: Please read carefully the safety instructions before you perform the procedures described in this manual.**  
*Multilingual Safety Notices Guide*

---

---

## Intended Readers

This guide is intended for use by system administrators and operators.



---

# Chapter 1. Connecting a BullSequana EX & AI server

---

**Important** The steps in this chapter must be followed in the order indicated.

---

**See** The Installation Guide and the documentation set for more information.

---

---

## 1.1. Connecting the server to the power supply

### 1. Connect the server to the power supply

---

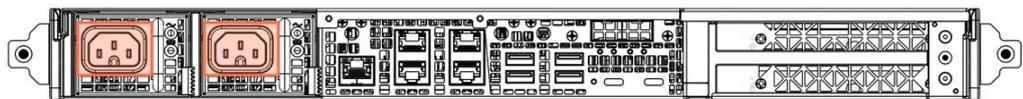
**Important** The site power breaker must be OFF when the server is connected to the power supply. The site power supply must remain OFF until the system is ready to be powered on.

---

1. Locate the power supply connection.

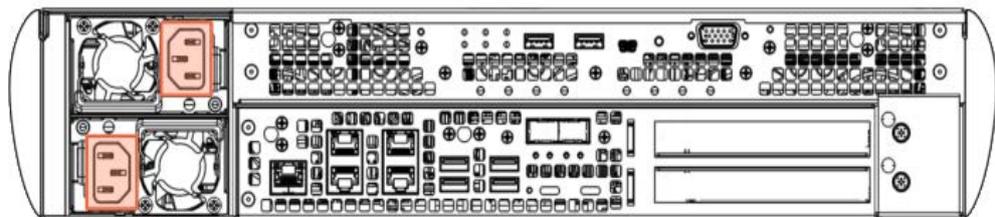
#### BullSequana EXR & AI100R

 Rear view



#### BullSequana EXD & AI100D

 Rear view



2. Connect the server to the Power Distribution Unit (PDU).

Plug the power cable into power socket and the required PDU.

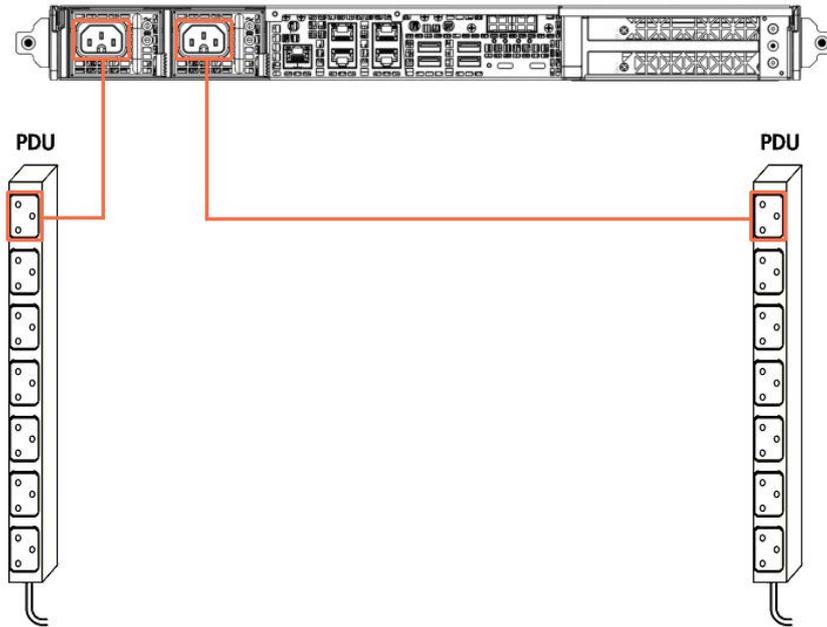
---

**Note** If the server is installed in a rack cabinet, route the power cable along the cabinet flange to the PDU.

---

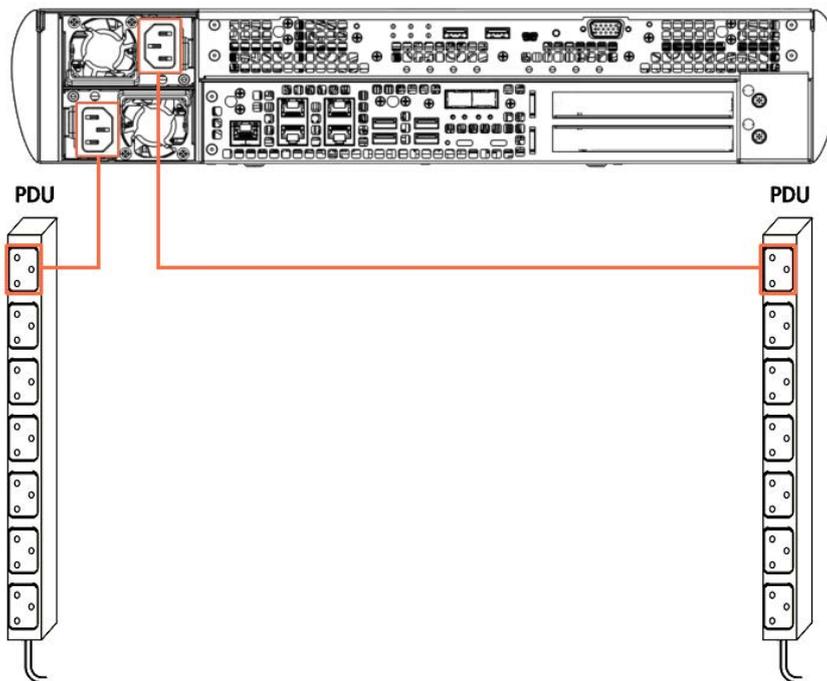
## BullSequana EXR & AI100R

 Rear view



## BullSequana EXD & AI100D

 Rear view

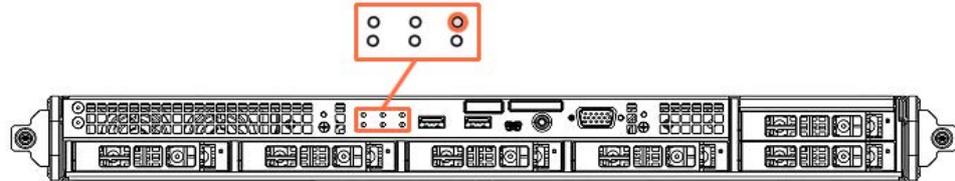


## 2. Power on the server to standby

1. Turn the site power breakers ON.
2. Check that the power status LED blinks green to indicate that the server is connected to the power supply.

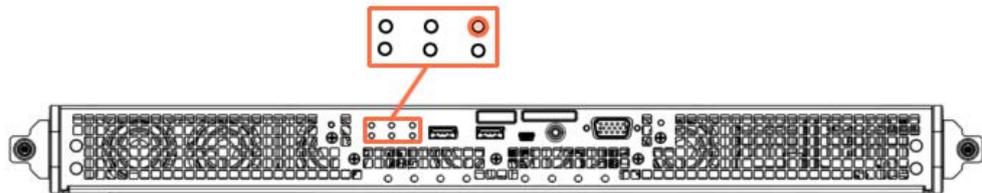
### BullSequana EXR & AI100R: 2.5 inch SATA disk option

#### Front view



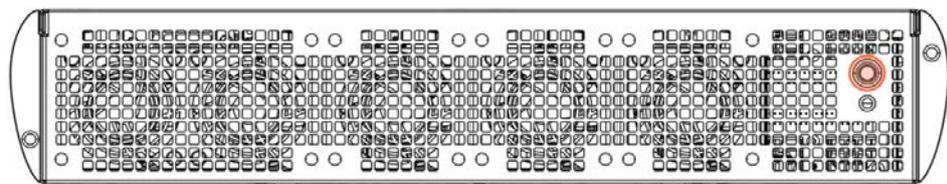
### BullSequana EXR & AI100R: M.2 NVMe disk option

#### Front view



### BullSequana EXD & AI100D

#### Front view



---

## 1.2. Accessing the Server Hardware Console (SHC)

The Server Hardware Console (SHC) for BullSequana EX & AI servers provides a web based interface to manage, configure and monitor the server.

The SHC is powered by OpenBMC, an open source implementation of the Baseboard Management Controller (BMC) firmware stack

---

**See** The SHC Reference Guide and the documentation set for more information.

---

The first connection to the SHC can be made using either an IP address allocated by DHCP or an auto-discovery tool.

### 1.2.1. Obtaining an address via a DHCP server

#### Prerequisites

- A DHCP server is installed on the network subnet
- The laptop used to access the BullSequana EX & AI server is on the same network subnet

#### Procedure

##### 1. Connect the server to the LAN

Connect the server BMC port (A) to the LAN via a RJ45 Ethernet cable.

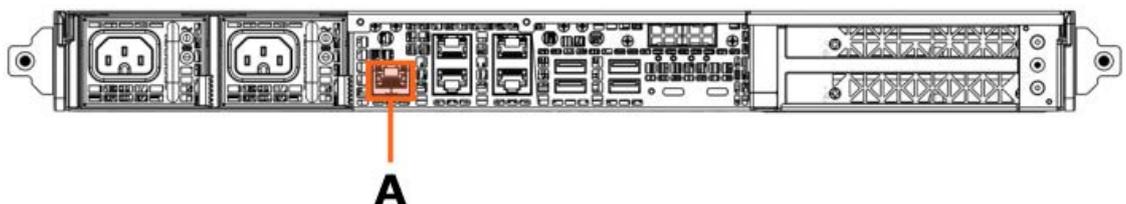
---

**Important** If a switch is used the ports must support a bandwidth of 1 Gb/s.

---

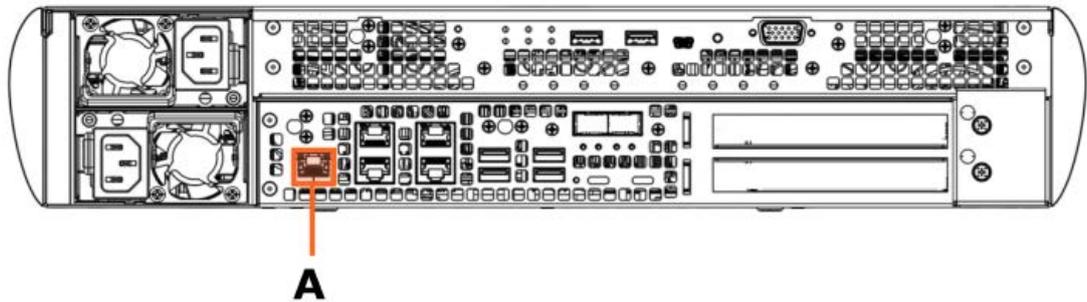
#### BullSequana EXR & AI100R

##### Rear view



## BullSequana EXD & AI100D

### Rear view



#### 2. Check the LAN connection

Check the LEDs are on for the BMC port.

#### 3. Obtain the MAC address for the server

1. Remove the top cover and if necessary the air duct.
2. Locate one of the labels displaying the server MAC address:
  - On the rear of a BullSequana EXD & AI100D server or the front of a BullSequana EXR & AI100R server
  - On the motherboard, next to the memory modules
3. Note the server MAC address.

#### 4. Obtain an IP address for the server

There are two possibilities according to the network system management:

- Retrieve an IP address from the DHCP server table
- Ask the network system administrator to allocate a DHCP IP address using the MAC address of the server

#### 5. Note the IP address obtained

## 1.2.2. Obtaining an IP address with an auto-discovery tool

### Prerequisite

A laptop is connected to the server via the LAN

### Procedure

---

**Note** In this procedure the Bonjour browser is used as an example of an IP auto-discovery tool.

---

#### 1. Connect the server to the LAN

Connect the server BMC port (A) to the LAN via a RJ45 Ethernet cable.

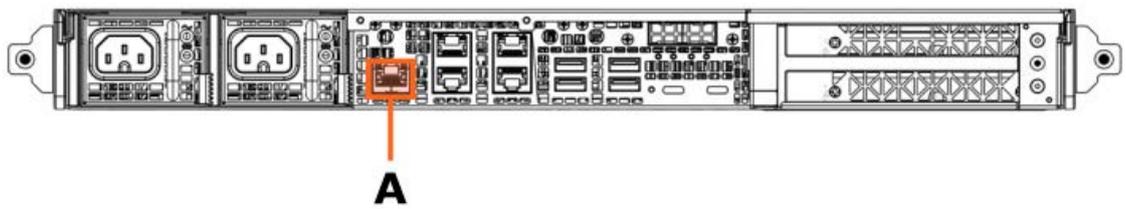
---

**Important** If a switch is used the ports must support a bandwidth of 1 Gb/s.

---

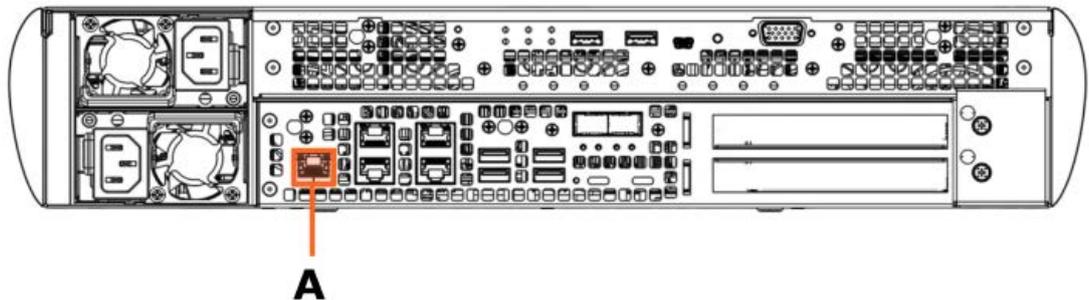
#### BullSequana EXR & AI100R

##### Rear view



#### BullSequana EXD & AI100D

##### Rear view



#### 2. Check the LAN connection

Check the LEDs are on for the BMC port.

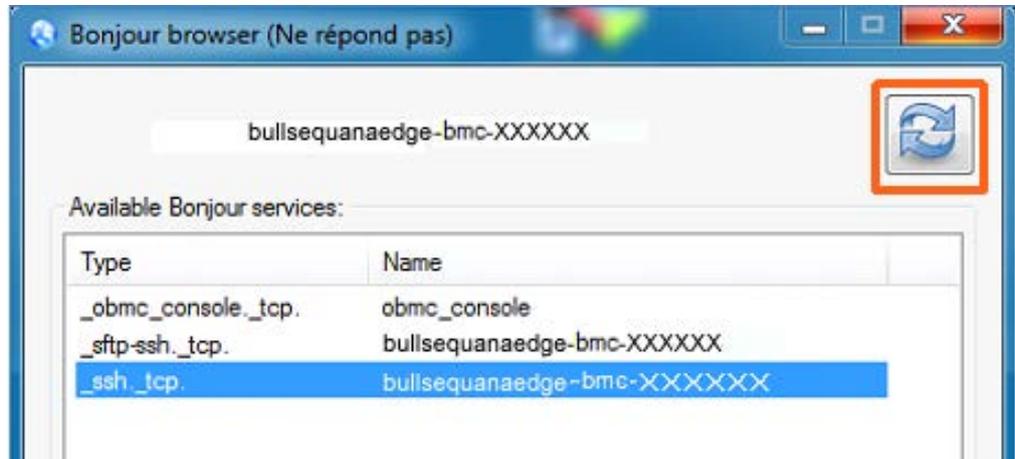
#### 3. Install Bonjour on the laptop

1. Download the latest **BonjourBrowserSetup.exe** file.
2. Run **BonjourBrowserSetup.exe** to install Bonjour.

**4. Launch the Bonjour browser on the laptop**

**5. Refresh the Bonjour browser**

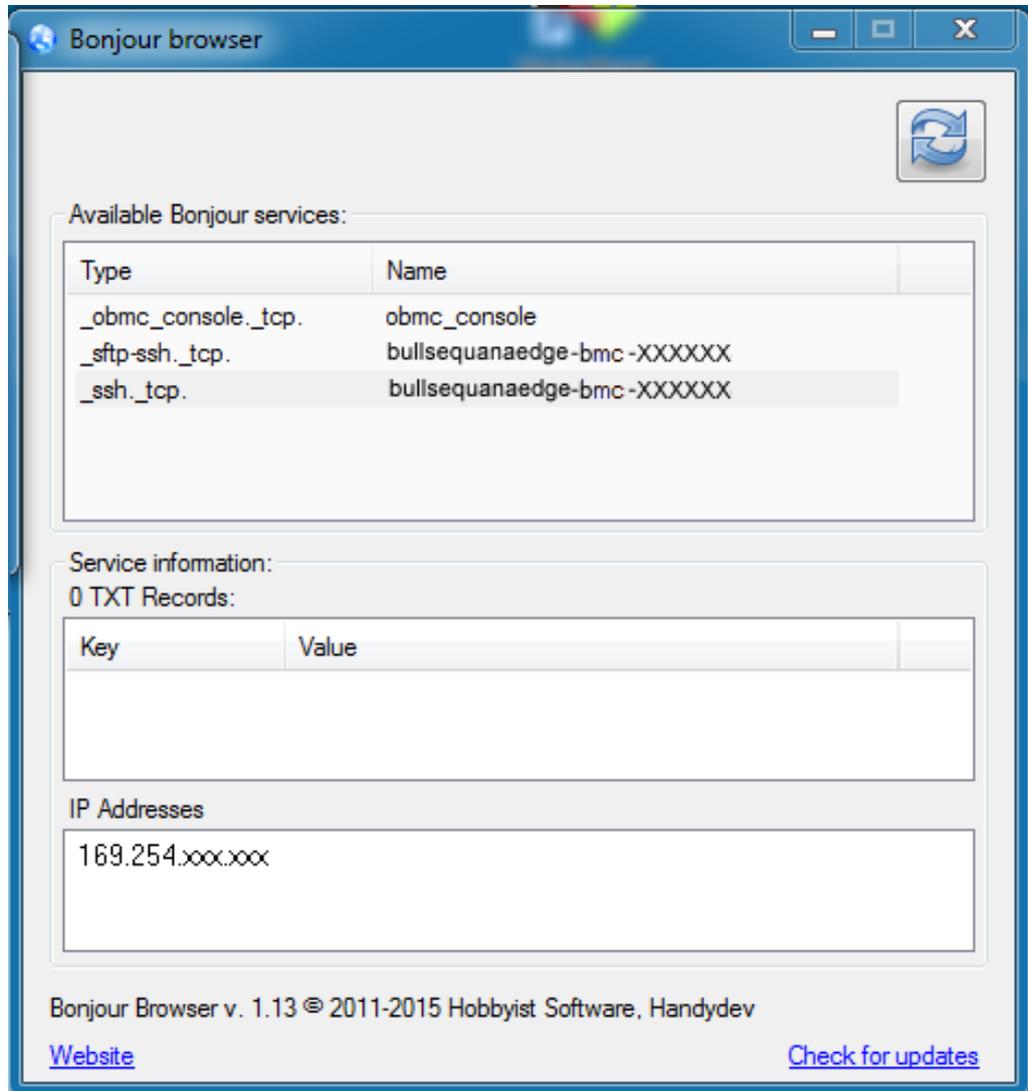
1. Click the Refresh button at the top on the right of the browser window.



2. The available services are displayed.

## 6. Note the server IP address

1. Select the **\_ssh.\_tcp** Bonjour service for the server BMC.
2. The Bonjour server IP address is displayed in the **IP addresses** field.



3. Note the IP address indicated.

### 1.2.3. Connecting to the SHC for the first time

#### Prerequisites

- An IP address is available for the server
- Chrome or Firefox web browsers are recommended
- Setting the language of the web browser to English is recommended

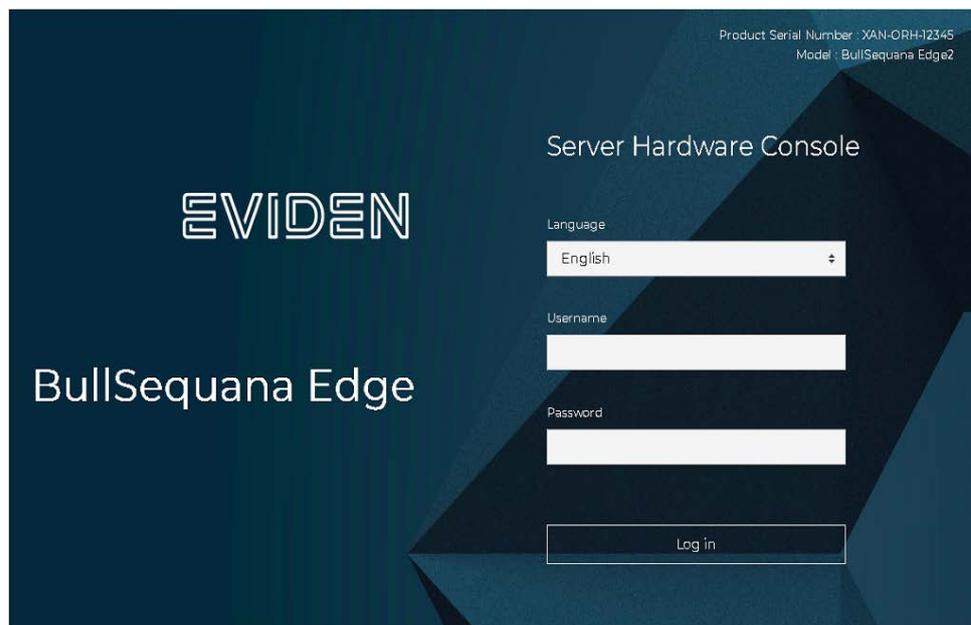
#### Procedure

---

**Note** The connection to the SHC must be made using the https protocol.

---

1. Open a web browser on the laptop.
2. Enter the server IP address into the address bar, using the https secure protocol.
3. Ignore all security messages displayed, including advanced messages. The SHC authentication page opens.



4. Complete the Username and Password fields and click **Log in**. The **Overview** page opens.

SHC default user account	
Username	<b>admin</b>
Password	<b>OpenBmc*</b> The 0 in the default password is the number zero.

---

**See** SHC Reference Guide for more information.

---

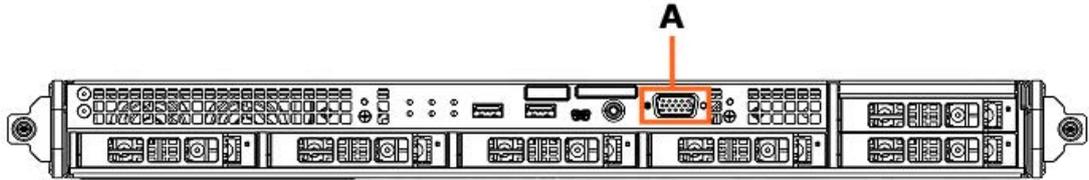
---

### 1.3. Connecting the server to a monitor (optional)

Connect a monitor to the VGA port (A).

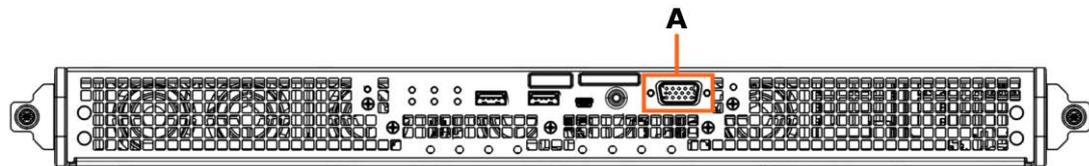
#### BullSequana EXR & AI100R: 2.5 inch SATA disk option

 Front view



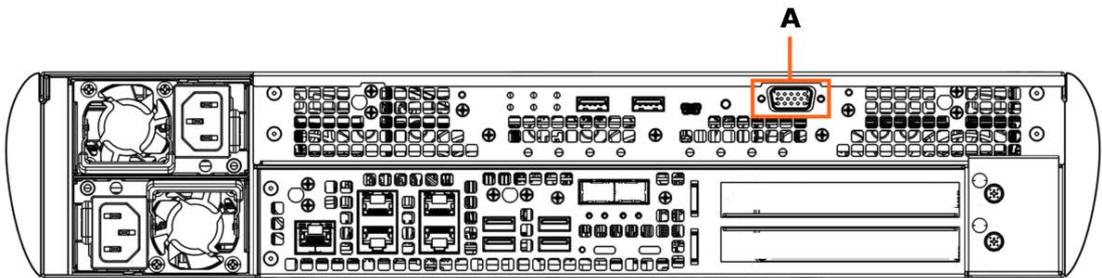
#### BullSequana EXR & AI100R: M.2 NVMe disk option

 Front view



#### BullSequana EXD & AI100D

 Rear view



---

## Chapter 2. Configuring general parameters

---

**Note** The parameters listed in this chapter are configured via the Server Hardware Console (SHC). A connection to the SHC must be in place, as previously described.

---

When a BullSequana EX & AI is configured for the first time, it is advisable to note the following details:

Data required	Value
Hostname	
User name	
Password	
DNS server IP address(es)	
Gateway IP address	
NTP server IP address(es)	
Power restore policy	
Rsyslog IP address	
Rsyslog port	

---

## 2.1. Setting the date and time

1. From the **Configuration** tab, click **Date and time settings**. The **Date and time settings** page opens.

### Date and time settings

**i** To change how date and time are displayed (either UTC or browser offset) throughout the application, visit [Profile Settings](#)

Date	24-hour time
2022-01-11	08:11:25 UTC

#### Configure settings

Manual

Date	24-hour time (UTC)
YYYY-MM-DD	HH:MM
<input type="text" value="2022-01-11"/>	<input type="text" value="08:11"/>

NTP

Server 1	Server 2	Server 3
<input type="text"/>	<input type="text"/>	<input type="text"/>

2. Select the date and time configuration:
  - Manual
  - Network Time Protocol (NTP) servers

---

**Note** It is recommended to configure an NTP server. Time and date settings configured manually will be lost when the BMC is reset.

---

3. Click **Save settings**.

4. Click **Profile Settings** at the top of the page. The **Profile settings** page opens.

# Profile settings

## Profile information

Username  
admin

Privilege  
Administrator

## Change password

New password

Password must be between 8 – 20 characters ... 

Confirm new password

## Timezone display preference

Select how time is displayed throughout the application

Timezone

- Default (UTC)
- Browser offset (CEST UTC+2)

[Save settings](#)

5. Select the timezone display:
  - Default
  - Browser offset
6. Click **Save settings**.

## 2.2. Configuring network settings

**Note** The server hostname may be modified in the screen below.

1. From the **Configuration** tab, click **Network settings**. The **Network settings** page opens.

### Network settings

Configure BMC network settings

**i** Changing BMC network settings may result in a loss of the remote connection to the BMC. Please ensure that all the values are correct before applying changes so that you can reconnect remotely to the BMC.

#### Global settings

Hostname [🔗](#)  
spark

Use domain name  
 Disabled

Use DNS servers  
 Disabled

Use NTP servers  
 Disabled

eth0

#### Interface settings

FQDN: spark      MAC address: 08:00:38:bd:68:9e

#### IPv4

DHCP:  Enabled

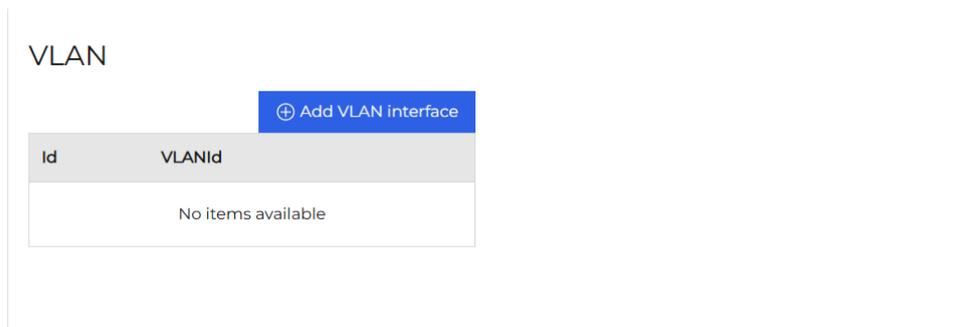
IPv4 addresses + Add static IPv4 address

IP address	Gateway	Subnet mask	Address origin	
XX.XX.XX.XX	0.0.0.0	255.255.0.0	IPv4LinkLocal	
XX.XX.XX.XX	0.0.0.0	255.255.255.0	DHCP	

#### Static DNS

+ Add IP address

IP address
No items available



<b>Global settings</b>	
Hostname	The server hostname: it must be a combination of upper case letters (A to Z), lower case letters (a to z) and numbers (0 to 9). The only authorized special character is the hyphen (-)
Use domain name	enables or not domain name usage
Use DNS servers	enables or not DNS server usage
Use NTP servers	enables or not NTP server usage
<b>Interface settings</b>	
FQDN	Fully Qualified Domain Name used by the DNS server
Mac address	The server MAC address
<b>IPv4</b>	
DHCP	When enabled, the server IP address is retrieved from a DHCP server
IP address	Server IP address
Gateway	Gateway IP address
Subnet mask	Sub-net mask to be used
Address origin	DHCP or Static or IPv4LinkLocal
Add Static IPv4 address	Click this button to add a static IP address
<b>Static DNS</b>	
IP address	DNS IP address
Add IP address	Click this button to add a DNS IP address
<b>VLAN</b>	
VLANid	VLAN interface identifier
Add VLAN Interface	Click this button to add a VLAN interface identifier

2. Fill in Hostname.

3. Select IPV4 configuration: DHCP or Static.
4. Add a static IP address if required.
5. Add a DNS server if required.
6. Add a VLAN interface if required.
7. Click **Save settings**.

## 2.3. Changing the initial user password

**Important** It is strongly recommended to change the initial password once the setup is completed, taking care to record the new account details for subsequent connections.

1. From the user profile button, click **Profile settings**.



The **Profile settings** page opens.

### Profile settings

#### Profile information

Username  
admin  
Privilege  
Administrator

#### Change password

New password

Password must be between 8 – 20 characters ... ⓘ

Confirm new password

#### Timezone display preference

Select how time is displayed throughout the application

Timezone

- Default (UTC)  
 Browser offset (CEST UTC+2)

Save settings

2. Enter and confirm the new password.
  - The password must be between 8 and 20 characters long
  - The password must be a mixture of upper case letters, lower case letters, numbers and special characters
  - The password must be different from the user name
3. Click **Save settings**.

---

**Note** According to the localisation the timezone can also be changed, for example in France UTC+2 would be used.

---

---

## 2.4. Testing parameters

Stop and restart the Server Hardware Console (SHC) to verify that the new parameters have taken effect.

### Procedure

#### 1. Stop the SHC

From the user profile button, click **Log out** to stop the SHC.



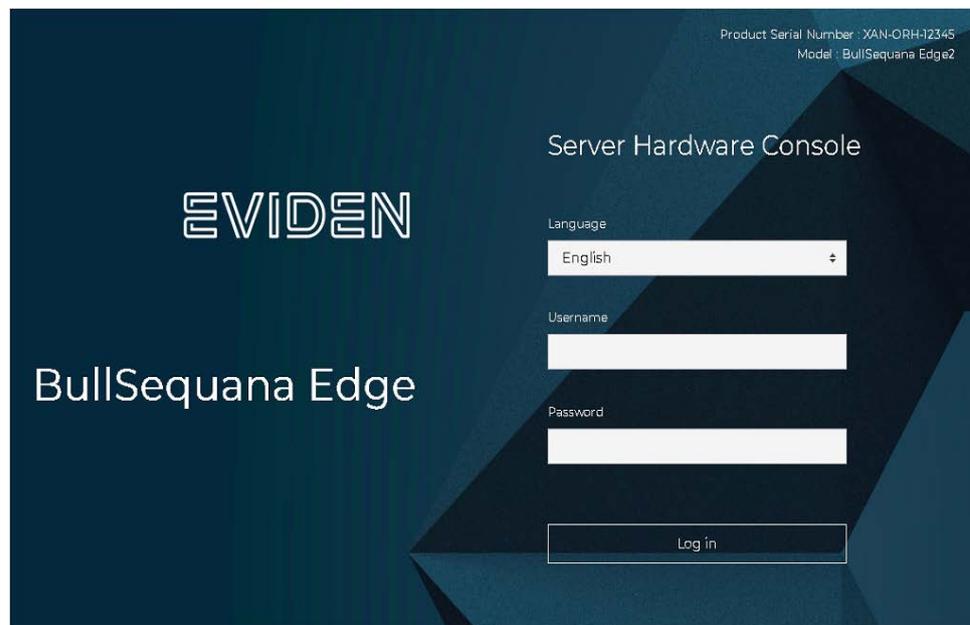
#### 2. Start the SHC

---

**Note** The connection to the SHC must be made using the https protocol.

---

1. Open a web browser on the laptop.
2. Enter the server IP address into the address bar, using the https secure protocol.
3. Ignore all security messages displayed, including advanced messages. The SHC authentication page opens.





---

## Chapter 3. Installing an operating system

The operating system is installed from one of the following:

- A bootable USB drive
- A Pre-boot eXecution Environment (PXE)
- A virtual media device

### Prerequisites

- The server power status is Off
- Depending on the installation option:
  - A bootable USB drive with the OS to be installed is plugged into a USB port
  - A Pre-boot eXecution Environment (PXE) has been set up and is accessible
  - The location for the virtual media ISO file is known
  - For Windows Server 2022 installation, in some cases, it is necessary to load a driver to be able to access the storage devices

---

**See** [Appendix A. Pre-installation steps for Windows Server 2022](#)

---

---

## 3.1. Installing an OS

### Procedure

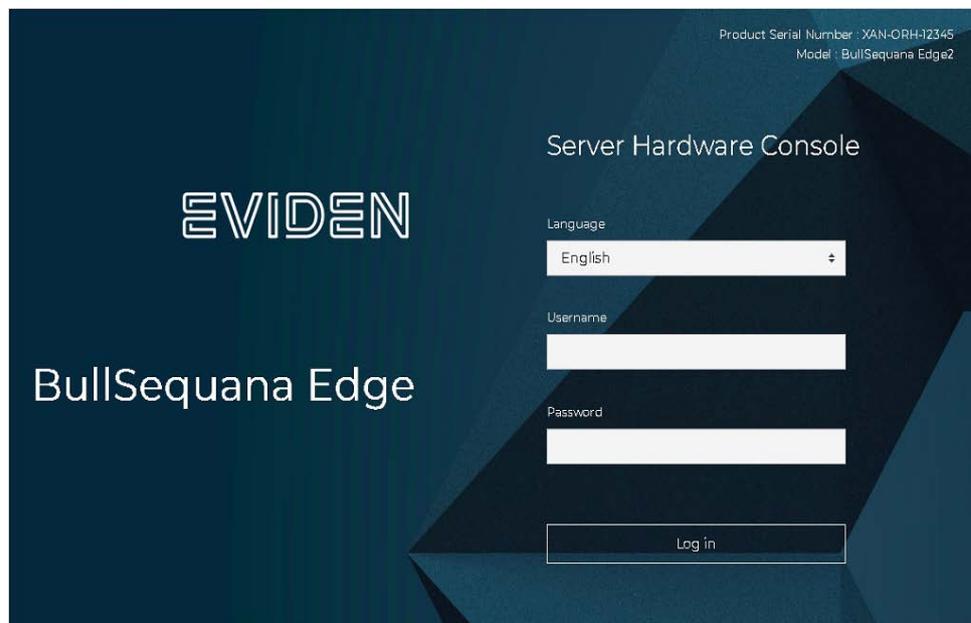
#### 1. Connect to the SHC

---

**Note** The connection to the SHC must be made using the https protocol.

---

1. Open a web browser on the laptop.
2. Enter the server IP address into the address bar, using the https secure protocol.
3. Ignore all security messages displayed, including advanced messages. The SHC authentication page opens.



## 2. Create a virtual media session if this OS installation option is to be used

---

**Note** Only users with Administrator privilege have access to this feature.

---

1. From the **Control** tab, click **Virtual media**. The **Virtual media** page opens.

# Virtual media

## Virtual image redirection

Virtual media device

Add file

Start

2. Click **Add** file.
3. Select an ISO file for the boot.
4. Click **Start**.

## 3. Power on the server

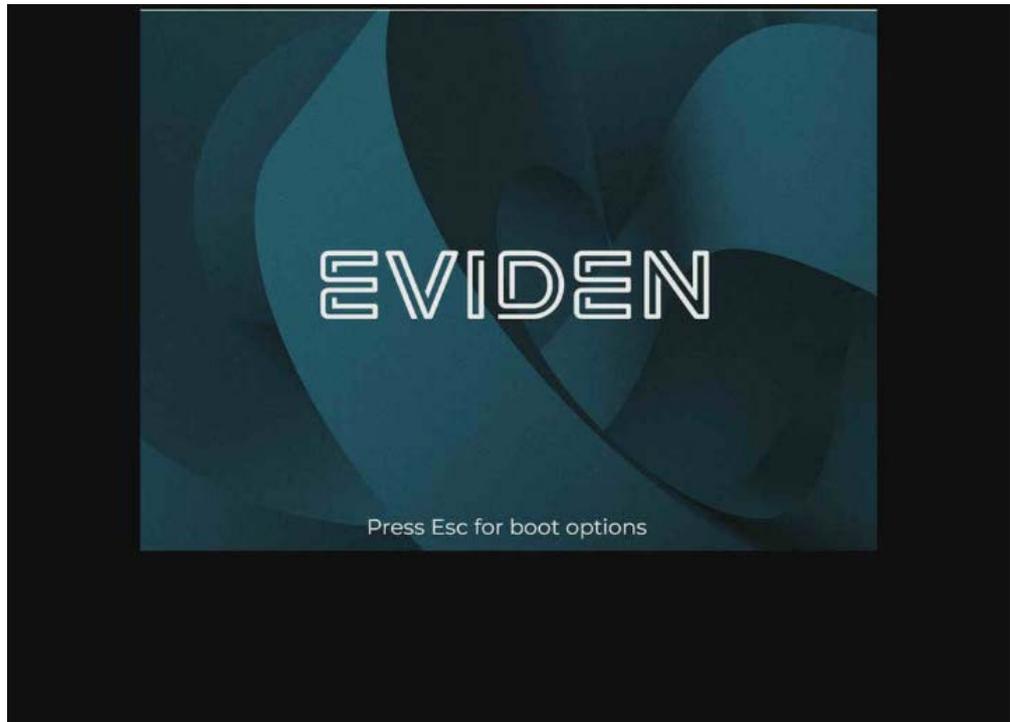
1. From the **Control** tab, click **Server power operations**. The **Server power operations** page opens.
2. In the **Operations** section, click **Power on**.

## 4. Launch the remote system console

From the **Control** tab, click **KVM**. The **KVM** page opens.

## 5. Access the BIOS interface

1. Wait a few minutes for the following screen to be displayed.

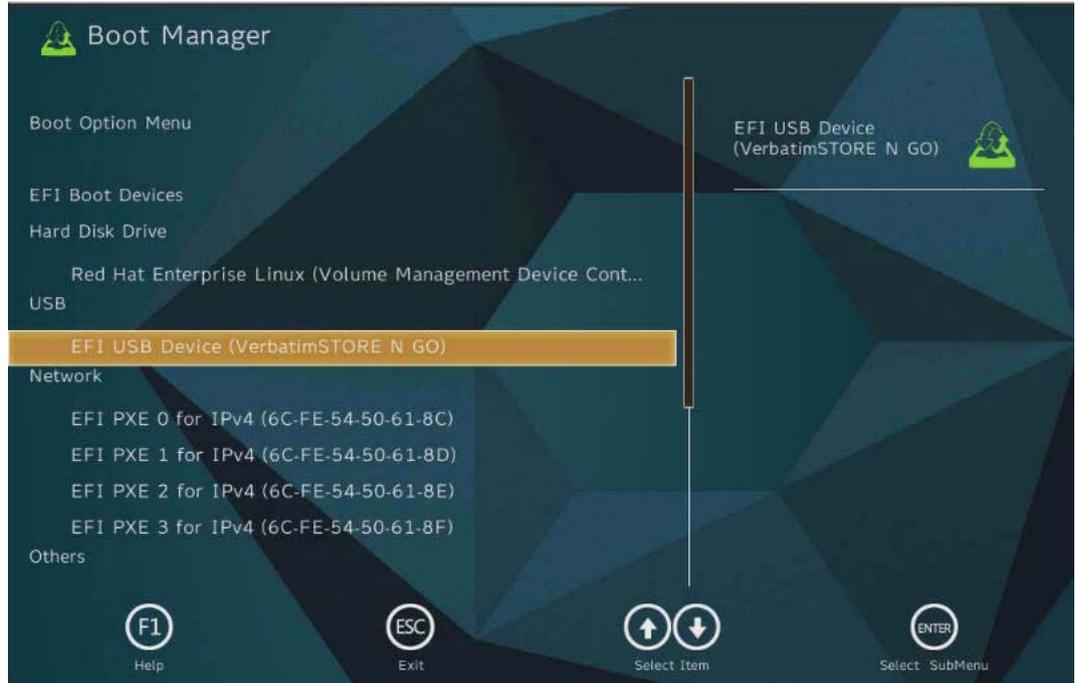


2. Press **[ESC]** to display the BIOS interface.
3. Select **Boot Manager** from the main menu using the navigation arrows and press **[Enter]**.



## 6. Define the boot device

1. Select the boot device and press **[Enter]**.



Boot device	Action
Bootable USB drive	Select the corresponding entry in the <b>USB</b> section
PXE server	Select the corresponding entry in the <b>Network</b> section
Virtual media ISO file	Select the corresponding entry in the <b>USB</b> section

2. Follow the instructions displayed to Install the OS.
3. Select the system settings required.

---

## 3.2. Booting the operating system (OS)

---

**Note** It is advisable to boot the OS using the BIOS interface for the first time in order to verify that the installation is correct. If OK, the operating system is booted in the normal way for subsequent boots.

---

### Prerequisite

The server power status is Off.

### Procedure

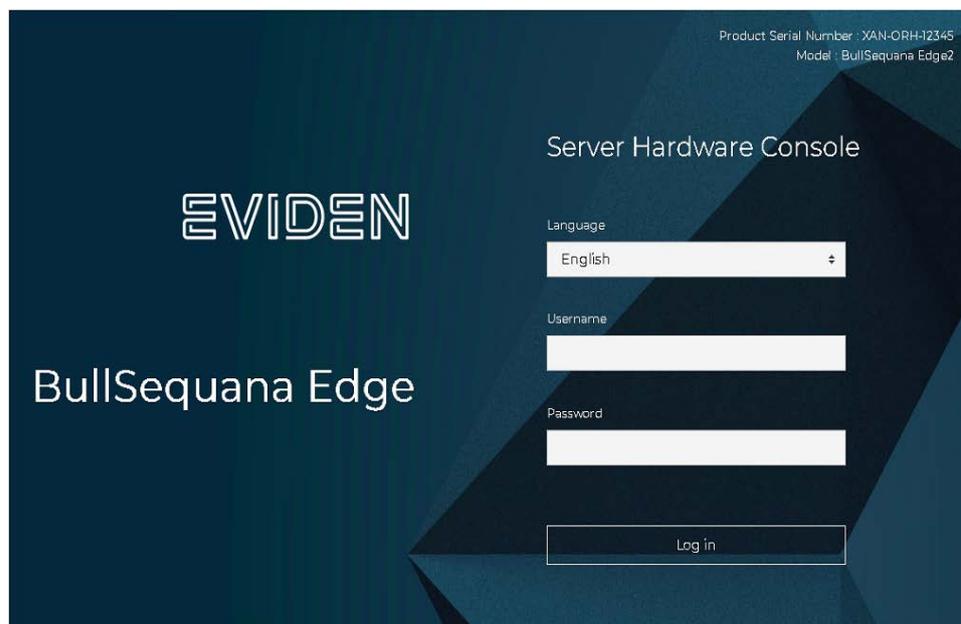
#### 1. Connect to the SHC

---

**Note** The connection to the SHC must be made using the https protocol.

---

1. Open a web browser on the laptop.
2. Enter the server IP address into the address bar, using the https secure protocol.
3. Ignore all security messages displayed, including advanced messages. The SHC authentication page opens.



#### 2. Power on the server

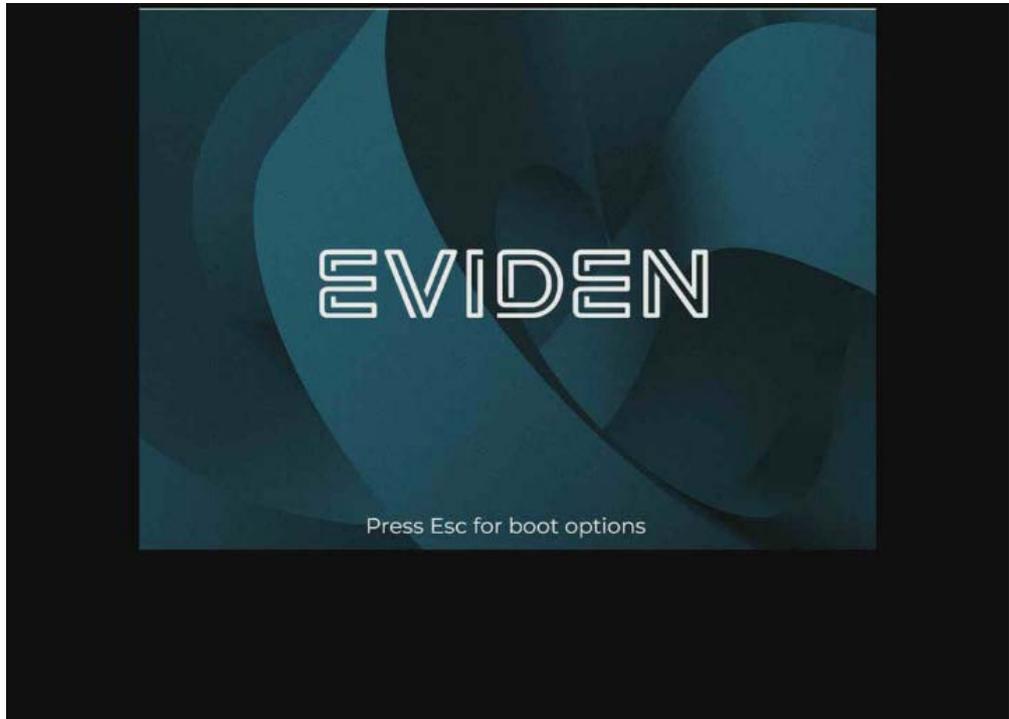
1. From the **Control** tab, click **Server power operations**. The **Server power operations** page opens.
2. In the **Operations** section, click **Power on**.

#### 3. Launch the remote system console

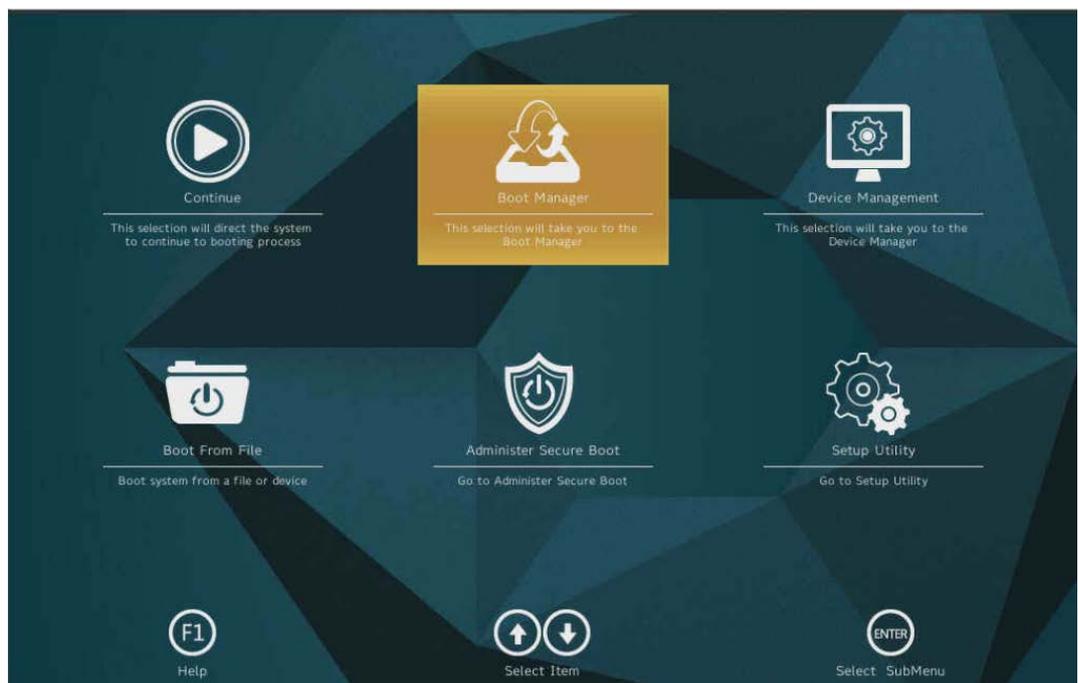
From the **Control** tab, click **KVM**. The **KVM** page opens.

#### 4. Access the BIOS interface

1. Wait a few minutes for the following screen to be displayed.

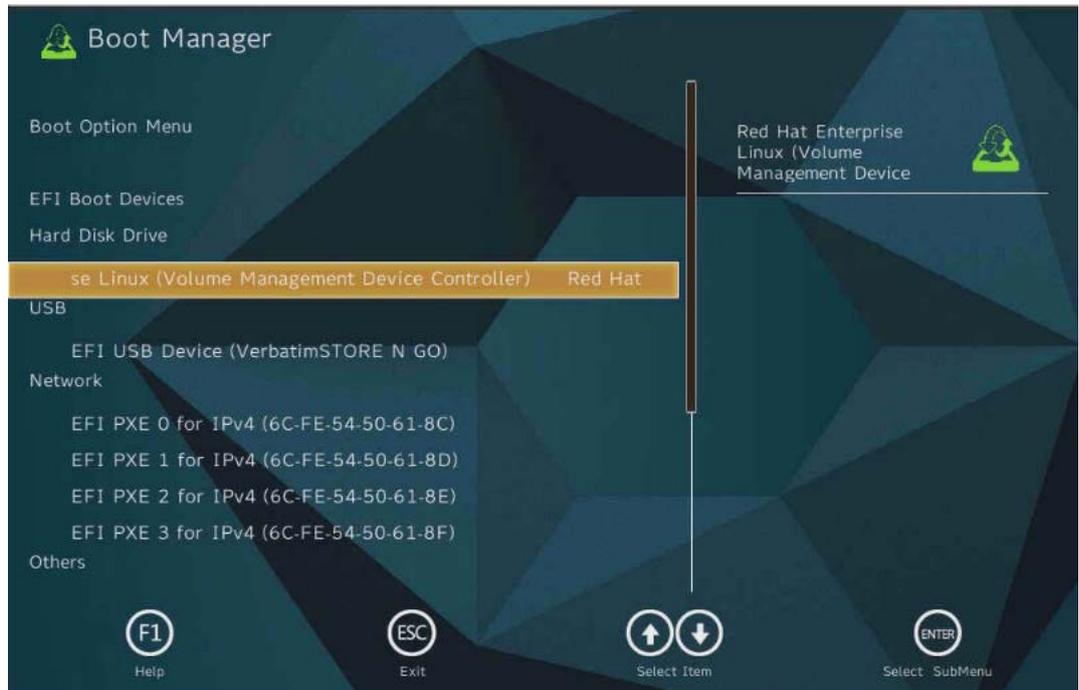


2. Press **[ESC]** to display the BIOS interface.
3. Select **Boot Manager** from the main menu using the navigation arrows and press **[Enter]**.



## 5. Select the boot option

1. Select the entry corresponding to the OS and press [Enter] to exit setup and complete the system boot.



2. Wait until the boot completes to verify that the operating system has installed correctly.

---

## Chapter 4. Power operations

A BullSequana EX & AI server can be powered on and off using:

- The power button at the front of the server
- The Server Hardware Console (SHC)

---

**See** The Description Guide for more information about the ports and LEDs and the SHC Reference Guide.

---

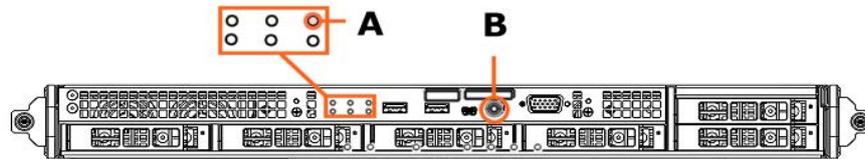
---

## 4.1. Powering on the server with the power button

1. Check that the power status LED (A) is blinking green to indicate that the server power status is Off.
2. Press the power button (B) for approximately two seconds.

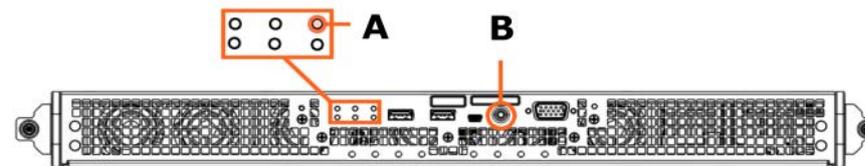
### BullSequana EXR & AI100R: 2.5 inch SATA disk option

 Front view



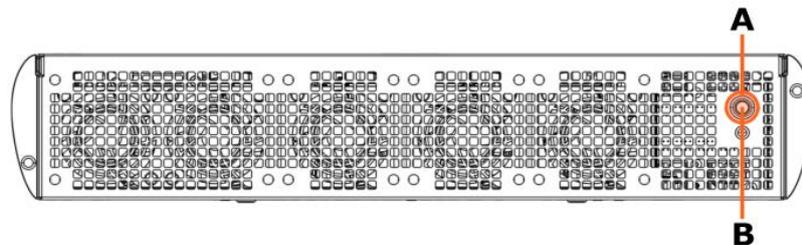
### BullSequana EXR & AI100R: M.2 NVMe disk option

 Front view

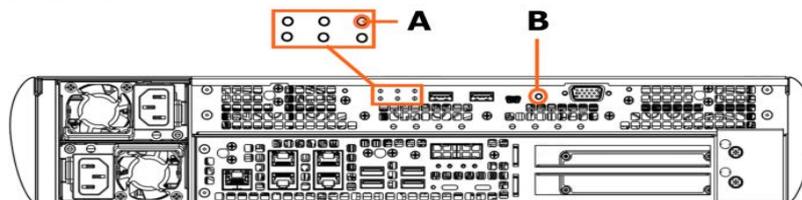


### BullSequana EXD & AI100D

 Front view



 Rear view



3. Check that the power button LED (A) is on and solid green to indicate that the server power status is Running.

---

## 4.2. Powering on from the SHC

1. From the **Control** tab, click **Server power operations**. The **Server power operations** page opens.
2. In the **Operations** section, click **Power on**.

### Server power operations

#### Current status

Host status  
Not available

Last power operation  
2023-06-08 08:32:26 UTC

Last memory size  
448 GiB

#### Host OS boot settings

Boot settings override

None

Instance 0

Enable one time boot

TPM required policy  
Enable to ensure the system only boots when the TPM is functional.

Enabled

Save

#### Operations

Power on

A message is displayed.

#### Operations

**i** There are no options to display while a power operation is in progress. When complete, power operations will be displayed here.

---

**Note** After initiating the power on of the system, there is a 30 second delay before the update of the host power status to avoid sensor fluctuation. It is therefore necessary to wait 30 seconds before refreshing the Server power operations page of the Server Hardware Console (SHC) to see the updated power status after a power on.

---

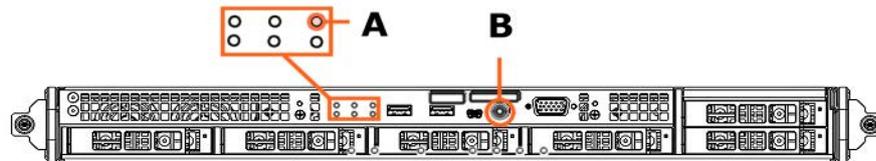
---

### 4.3. Powering off the server with the power button

1. Check that the power button LED (A) is on and solid green to indicate that the server power status is Running.
2. Press the power button (B) for approximately four seconds.

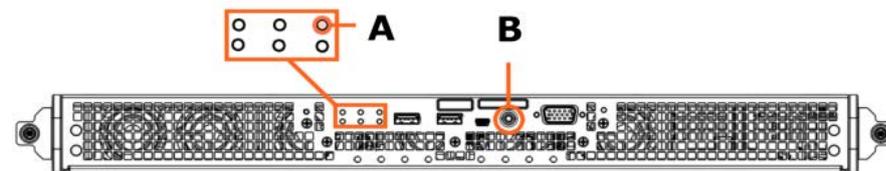
#### BullSequana EXR & AI100R: 2.5 inch SATA disk option

 Front view



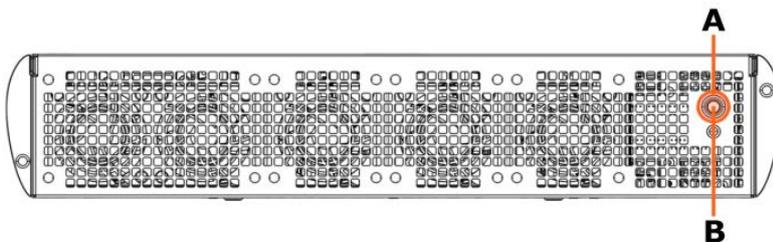
#### BullSequana EXR & AI100R: M.2 NVMe disk option

 Front view

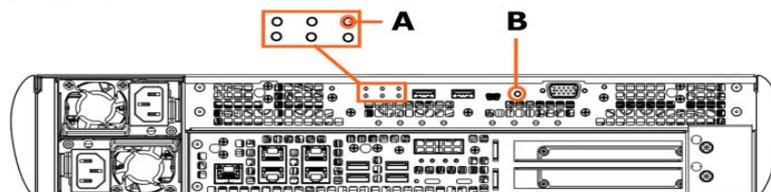


#### BullSequana EXD & AI100D

 Front view



 Rear view



3. Check that the power status LED (A) is blinking green to indicate that the server power status is Off.

---

## 4.4. Rebooting or shutting down from the SHC

1. From the **Control** tab, click **Server power operations**. The **Server power operations** page opens.
2. In the **Operations** section, select the mode and click **Reboot** or **Shutdown**.

### Server power operations

#### Current status

Host status  
Not available

Last power operation  
2023-06-08 08:32:26 UTC

Last memory size  
448 GiB

#### Host OS boot settings

Boot settings override

None

Instance 0

Enable one time boot

TPM required policy  
Enable to ensure the system only boots when the TPM is functional.

Enabled

Save

#### Operations

##### Reboot server

- Orderly - OS shuts down, then server reboots
- Immediate - Server reboots without OS shutting down; may cause data corruption

Reboot

##### Shutdown server

- Orderly - OS shuts down, then server shuts down
- Immediate - Server shuts down without OS shutting down; may cause data corruption

Shut down

---

## 4.5. Configuring the power restore policy

The power restore policy determines how the system starts after a power disturbance.

1. From the **Control** tab, click **Power restore policy**. The **Power restore policy** page opens.

### Power restore policy

Configure power policy to determine how the system starts after a power disturbance.

Power restore policies

- Always on - The system always powers on when power is applied.
- Always off - The system always remains powered off when power is applied.
- Restore - The system returns to its last on or off power state when power is applied.

Save settings

2. Select the policy.

Power restore policy	Description
Always On	The system always powers on when power is applied
Always Off	The system always remains powered off when power is applied
Last state	The system returns to its last power state when power is applied

3. Click **Save Settings**.

---

## 4.6. Managing power usage

---

**Note** Only users with Administrator privilege have access to this feature.

---

1. From the **Control** tab, click **Manage power usage**. The **Manage power usage** page opens.

### Manage power usage

Set a power cap to keep power consumption at or below the specified value in watts

Current power consumption  
Not available

Power cap setting

Apply power cap

Power cap value (in watts)

Value must be between 1 and 1000

Save

2. To set a power cap:
  - a. Select **Apply power cap**.
  - b. Set the power cap value in the **Power Cap Value (in watts)** box.
3. Click **Save**.

---

**Note** The power consumption and power cap value are indicated on the Overview page.

---



---

## Chapter 5. Maintenance operations

---

### 5.1. Rebooting the BMC

---

**Note** Only users with Administrator privilege have access to this feature.

---

1. From the **Control** tab, click **Reboot BMC**. The **Reboot BMC** page opens.

## Reboot BMC

Last BMC reboot  
2023-06-07 15:07:20 UTC

When you reboot the BMC, your web browser loses contact with the BMC for several minutes. When the BMC is back online, you may need to log in again.

Reboot BMC(s)

2. Click the **Reboot BMC** button and confirm.

A success message is displayed.

Reboot BMC



## 5.2. Checking event logs

### Displaying event logs

From the **Health** tab, click **Event logs**. The **Event logs** page opens.

The screenshot shows the 'Event logs' interface. At the top right is a 'Delete all event logs' button (C). Below it is a search bar (A) with 'Search logs' and '2294 items'. Underneath are date range filters (B) for 'From date' and 'To date', both showing 'YYYY-MM-DD'. A 'Filter' button (D) is on the right. The main table (E) has columns for ID, Severity, Date, and Description. The first row shows an 'OK' event with ID 1686047387. The second row shows an 'OK' event with ID 1686047345. The third row shows a 'Warning' event with ID 1686047344. Each row has an export icon (E).

Mark	Description
A	Alphabetical search
B	Date range search
C	Log deletion
D	Severity filter
E	Export of log to a json file

### Filtering event logs

Enter one or more search criteria in the alphabetical search (A), date range (B) and severity (D) fields to filter the event logs displayed.

### Exporting event logs

Click the arrow (E) to export an event log to a json file.

### Deleting event logs

Click (C) to delete all event logs.

## 5.3. Checking the sensors

### Displaying sensors

From the **Health** tab, click **Sensors**. The **Sensors** page opens.

### Sensors

A  6 of 21 items

B

C

<input type="checkbox"/>	Sensor type	Name	Status	Lower critical	Lower warning	Current value	Upper warning	Upper critical
<input type="checkbox"/>	Fan	Fan0 DIMM R	OK	5600 RPM	8000 RPM	8206 RPM	40000 RPM	41800 RPM
<input type="checkbox"/>	Fan	Fan1 CPU	OK	5600 RPM	8000 RPM	8252 RPM	40000 RPM	41800 RPM
<input type="checkbox"/>	Fan	Fan2 CPU	OK	5600 RPM	8000 RPM	8183 RPM	40000 RPM	41800 RPM
<input type="checkbox"/>	Fan	Fan3 DIMM L	OK	5600 RPM	8000 RPM	8104 RPM	40000 RPM	41800 RPM
<input type="checkbox"/>	Fan	Fan4 GPU	OK	5600 RPM	8000 RPM	8115 RPM	40000 RPM	41800 RPM
<input type="checkbox"/>	Fan	Fan5 GPU	OK	5600 RPM	8000 RPM	8241 RPM	40000 RPM	41800 RPM

Mark	Description
A	Alphabetical search
B	Status filter
C	Sensor type filter

### Filtering sensors

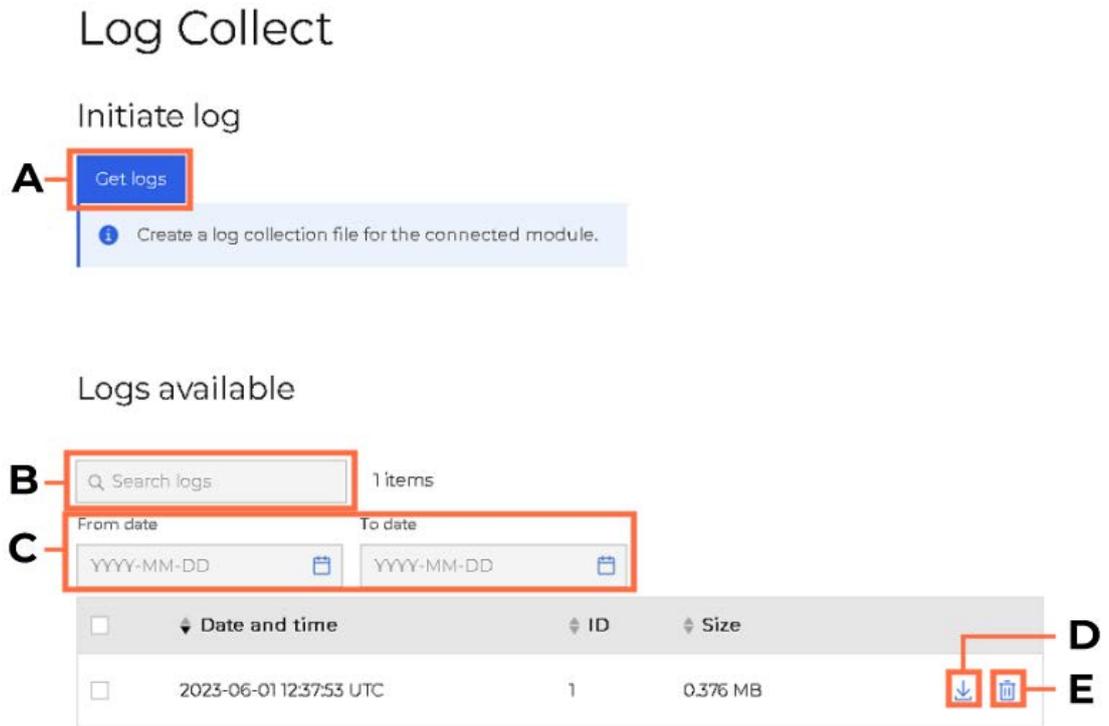
Enter one or more search criteria in the alphabetical search (A), date range (B) and severity (C) fields to filter the sensors displayed.

## 5.4. Collecting Logs

A log file is a collection of the logs for the connected server.

### Displaying logs

From the **Health** tab, click **Log Collect**. The **Log Collect** page opens.



Mark	Description
A	Log file creation
B	Alphabetical search
C	Data range search
D	Log file download
E	Log file deletion

### Filtering logs

Enter the search item (B) and / or the date range (C) to filter the log files displayed.

## Collecting logs

---

**Note** Due to space restrictions, it is advisable to delete the existing logs before perform a new log collect.

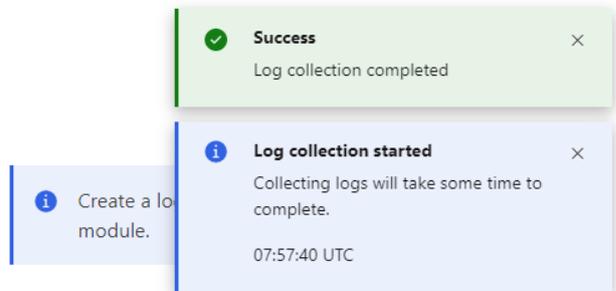
---

Click **Get logs** (A) to create a new log collection.

### Log Collect

Initiate log

Get logs



## Exporting event logs

Click the arrow (D) to download a log file.

## Deleting event logs

Click (E) to delete the log file.

---

## 5.5. Managing firmware versions

1. From the **Configuration** tab, click **Firmware**. The **Firmware** page opens.

### Firmware

#### Firmware version

Component	Version
BIOS	BIOS_ESR160.37.01.001
BMC	160.02.0004
FPGA	1.E.0.0

#### Update firmware

Image file  
Only .tar, .tar.gz files accepted

Force Update

Firmware update may take up 10 minutes due to security features

2. To update a firmware version, click **Add file** to select the firmware version file, and click **Start update**.

---

#### Notes

- It is strongly recommended to power off the system before updating the BIOS and FPGA firmware.
  - After a BIOS firmware update, the boot option is reset to PXE. It is therefore necessary to change the boot option after the update if PXE is not desired boot option.
  - Select the **Force Update** box to reinstall the same firmware version.
-

---

## Chapter 6. Managing RAID configurations

---

**Important**    **ATTENTION:** Please read carefully the safety instructions before you perform the procedures described in this manual. See the *Multilingual Safety Notices Guide* for translated versions of the safety notices.

---



**WARNING W083**

Do not change BIOS setup settings unless directed to do so by the support team.



**WARNING W082**

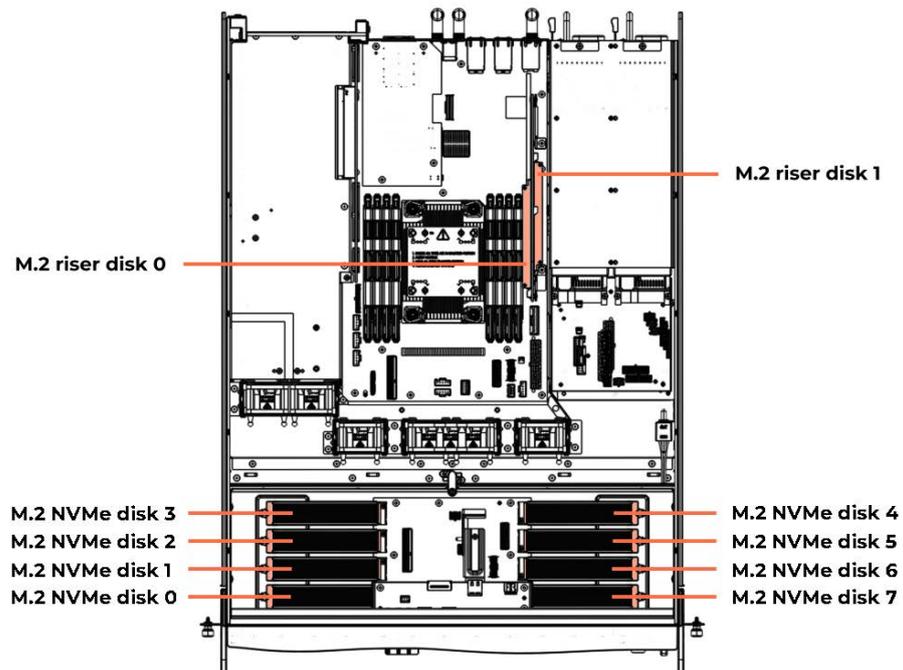
These procedures are for advanced users only. Risk of system damage.

## 6.1. M.2 NVMe disks RAID configuration with Intel® VROC

To use Virtual RAID On CPU (Intel® VROC) with M.2 NVMe disks, a hardware key must be inserted onto the motherboard, and the appropriate socket Virtual Management Devices (VMD) must be enabled in the BIOS settings.

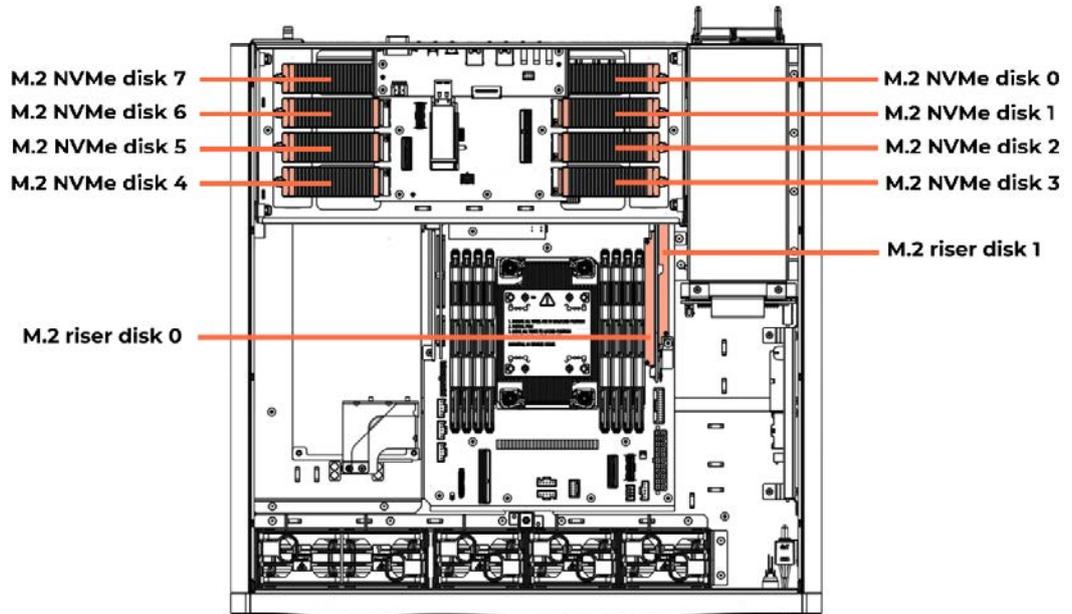
### 6.1.1. M.2 NVMe disks location

BullSequana EXR & AI100R



## BullSequana EXD & AI100D

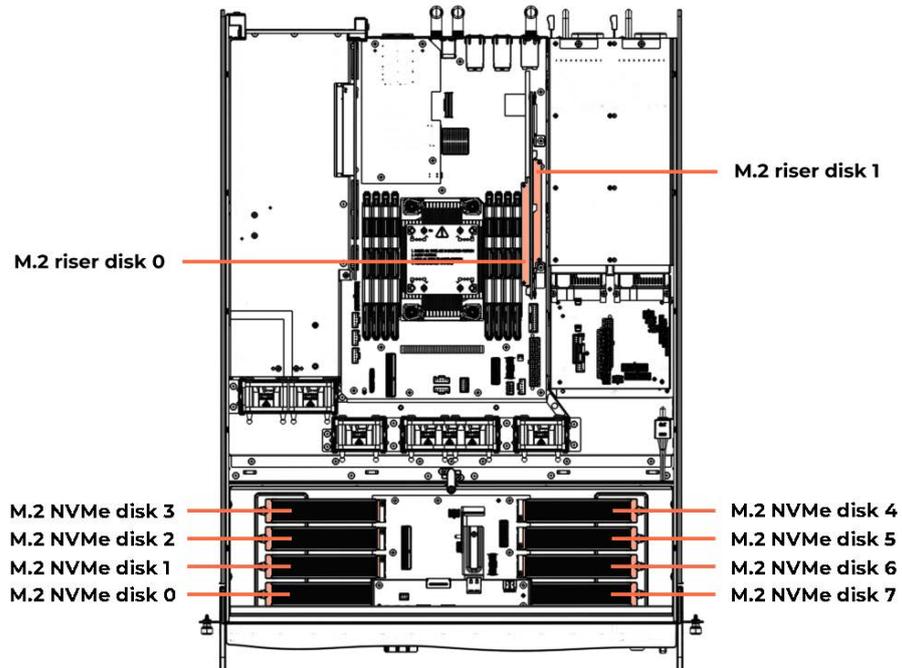
### Top view



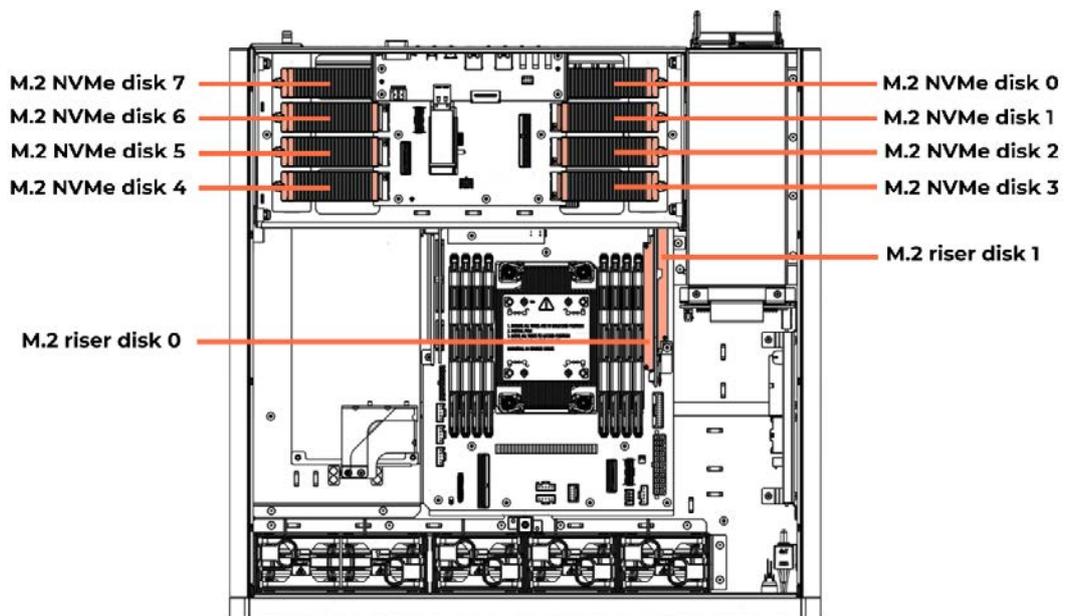
Disk module	Socket	IOU	VMD port
M.2 NVMe disk 0	0	IOU 3	A
M.2 NVMe disk 1	0	IOU 3	C
M.2 NVMe disk 2	0	IOU 3	E
M.2 NVMe disk 3	0	IOU 3	G
M.2 NVMe disk 4	0	IOU 4	A
M.2 NVMe disk 5	0	IOU 4	C
M.2 NVMe disk 6	0	IOU 4	E
M.2 NVMe disk 7	0	IOU 4	G
M.2 riser board disk 0	0	IOU 0	A
M.2 riser board disk 1	0	IOU 0	C

## 6.1.2. Intel® VROC mapping

### BullSequana EXR & AI100R



### BullSequana EXD & AI100D



<b>Physical location</b>	<b>BIOS</b>
M.2 NVMe disk 0	Port 3.0, Slot 8, CPU0, VMD3, BDF 0A.00.0
M.2 NVMe disk 1	Port 3.1, Slot 9, CPU0, VMD3, BDF 0B.00.0
M.2 NVMe disk 2	Port 3.2, Slot 10, CPU0, VMD3, BDF 0C.00.0
M.2 NVMe disk 3	Port 3.3, Slot 11, CPU0, VMD3, BDF 0D.00.0
M.2 NVMe disk 4	Port 4.0, Slot 12, CPU0, VMD4, BDF 0A.00.0
M.2 NVMe disk 5	Port 4.1, Slot 13, CPU0, VMD4, BDF 0B.00.0
M.2 NVMe disk 6	Port 4.2, Slot 14, CPU0, VMD4, BDF 0C.00.0
M.2 NVMe disk 7	Port 4.3, Slot 15, CPU0, VMD4, BDF 0D.00.0
M.2 riser board disk 0	Port 0.0, Slot 2, CPU0, VMD0, BDF 8A.00.0
M.2 riser board disk 1	Port 0.1, Slot 3, CPU0, VMD0, BDF 8B.00.0

### 6.1.3. Configuring RAID disks

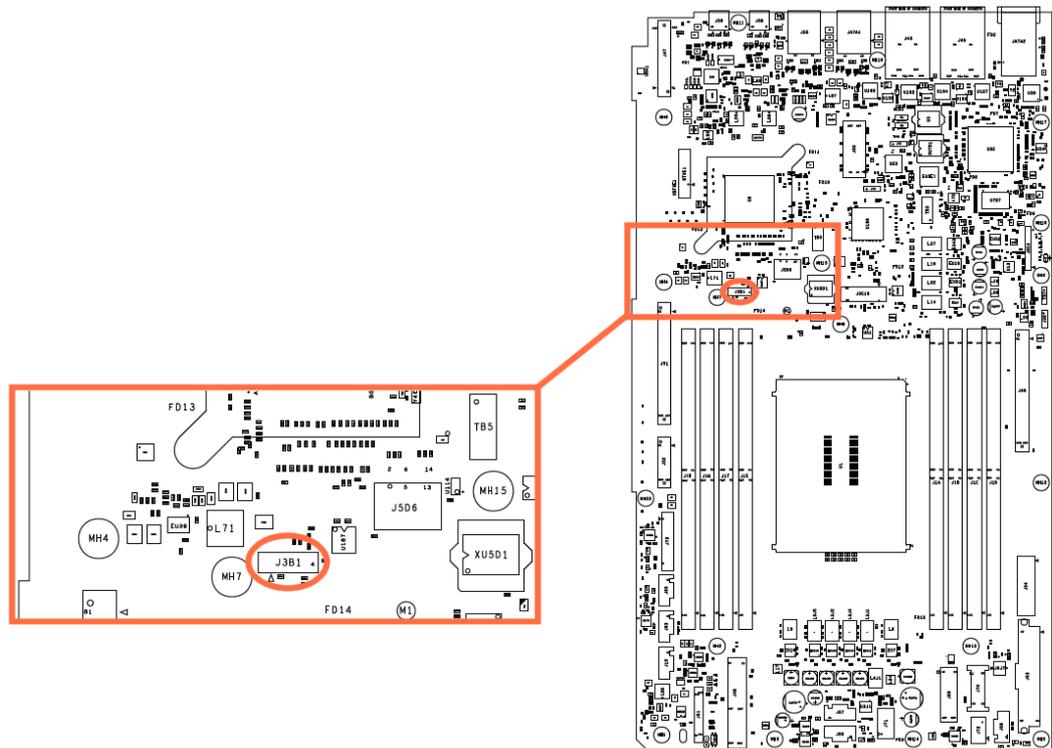
**Note** A RAID volume can be used as a bootable disk only if all disks in the RAID volume are connected to a single VMD domain. It is possible to create RAID volumes spanning multiple VMD domains, however such RAID configurations are not bootable.

#### Prerequisite

The appropriate Intel® VROC key is inserted on the motherboard.

Intel® VROC key type	RAID level
Standard	RAID 0, 1, 10
Premium	RAID 0, 1, 5, 10

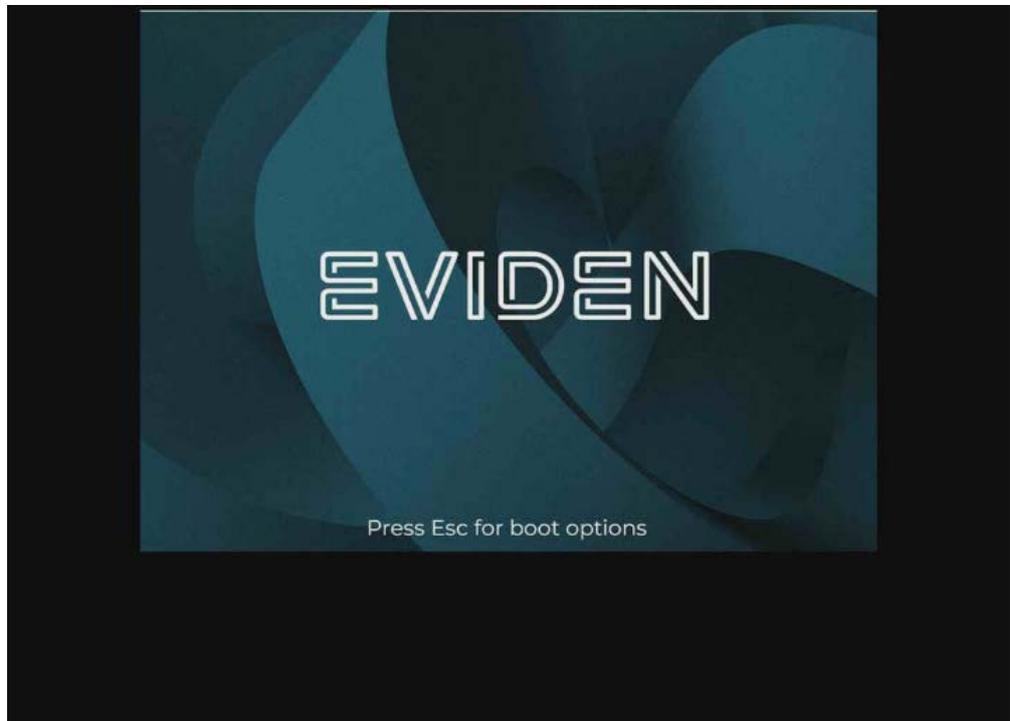
It is necessary to remove the optional mezzanine to insert or remove the Intel® VROC key. Contact the Support team for more information.



## Procedure

### 1. Access the BIOS interface

1. Wait a few minutes for the following screen to be displayed.



2. Press **[ESC]** to display the BIOS interface.
3. Select **Setup utility** from the main menu.



## 2. Configure VMD

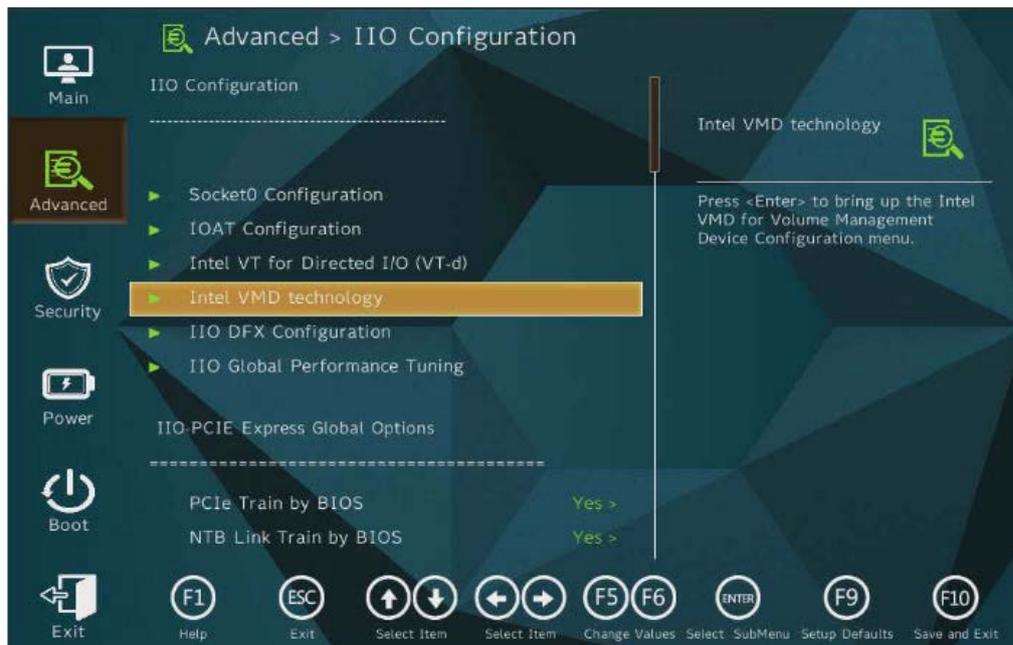
1. From **Advanced**, select **Socket Configuration**.



2. Select **IIO Configuration**.



3. Select **Intel VMD technology**.

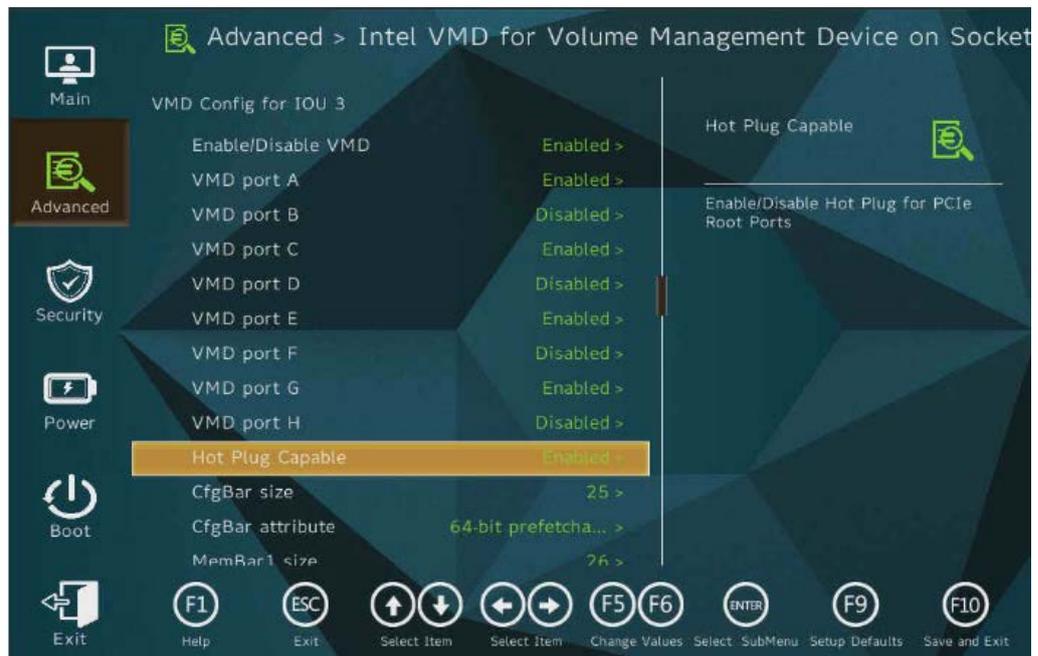


4. Select **Intel VMD for Volume Management Device on socket 0**.



5. In sections **VMD Config for IOU 0**, **VMD Config for IOU 3** and **VMD Config for IOU 4**, enable:

- Enable/Disable VMD
- VMD port A
- VMD port C
- VMD port E
- VMD port G
- Hot Plug capable



### 3. Save changes

1. Click **Exit**.
2. Click **Exit Saving Changes**.
3. Click **Yes** in the **Exit** dialog box.

### 4. Reboot the system

## 5. Check the configuration after reboot

1. Select **Device management** from the main menu.

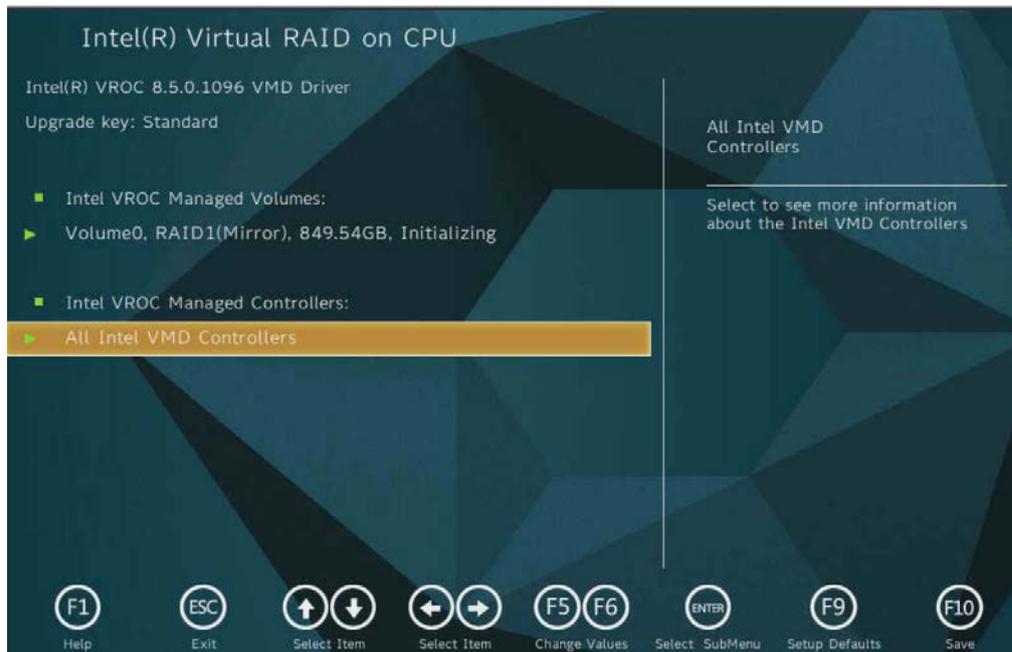


2. In **Device Management**, check that the new device **Intel(R) Virtual RAID on CPU** is created.

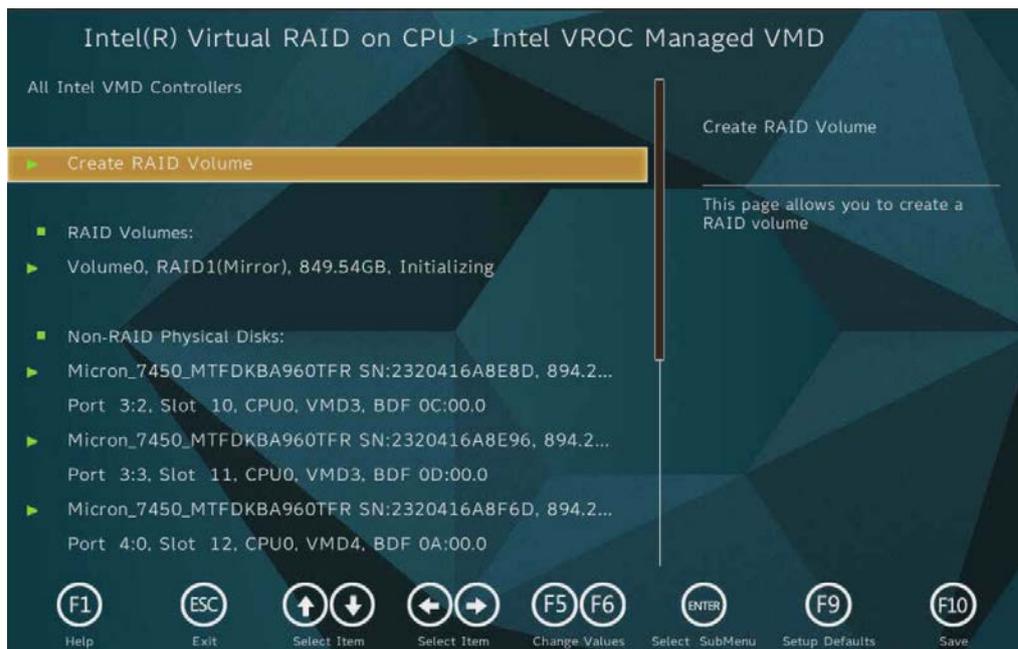


3. Select **Intel(R) Virtual RAID on CPU**.

4. Select **All Intel VMD Controllers**.

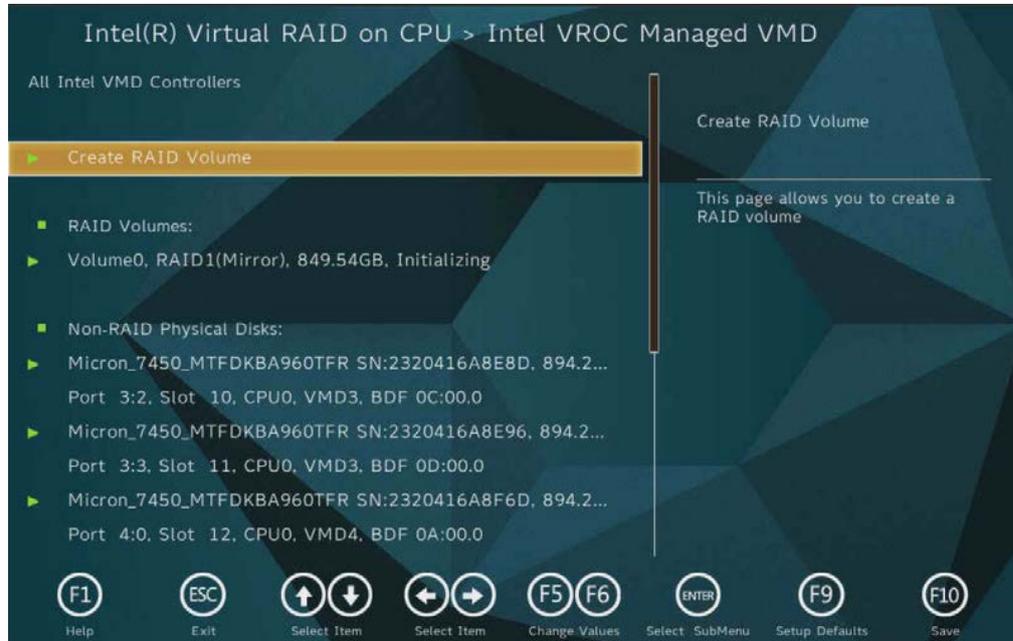


5. Check the configuration.

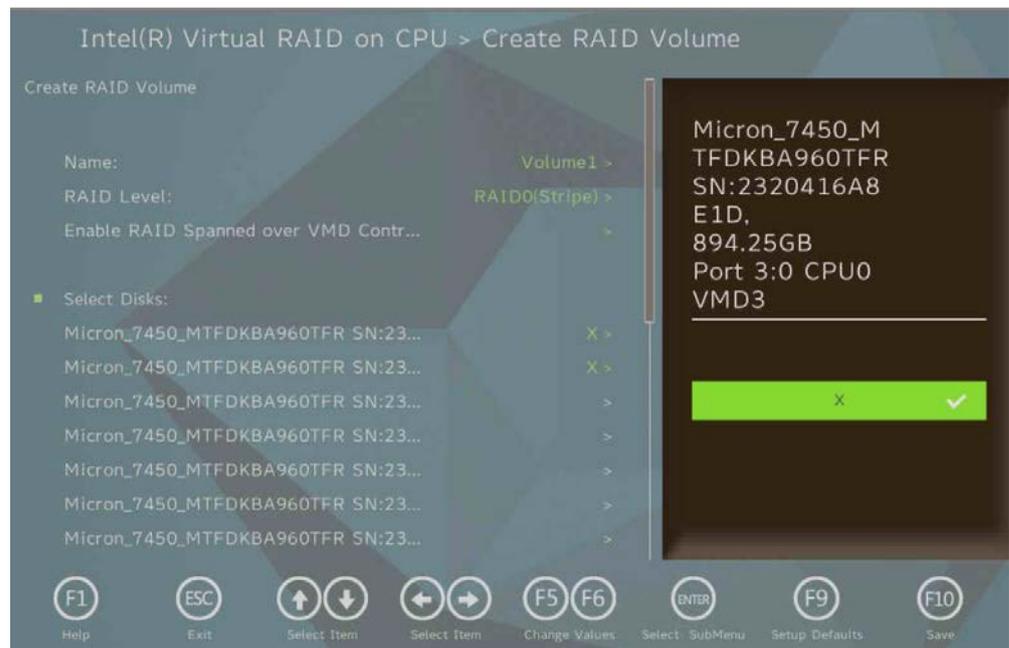


## 6. Configure RAID volumes

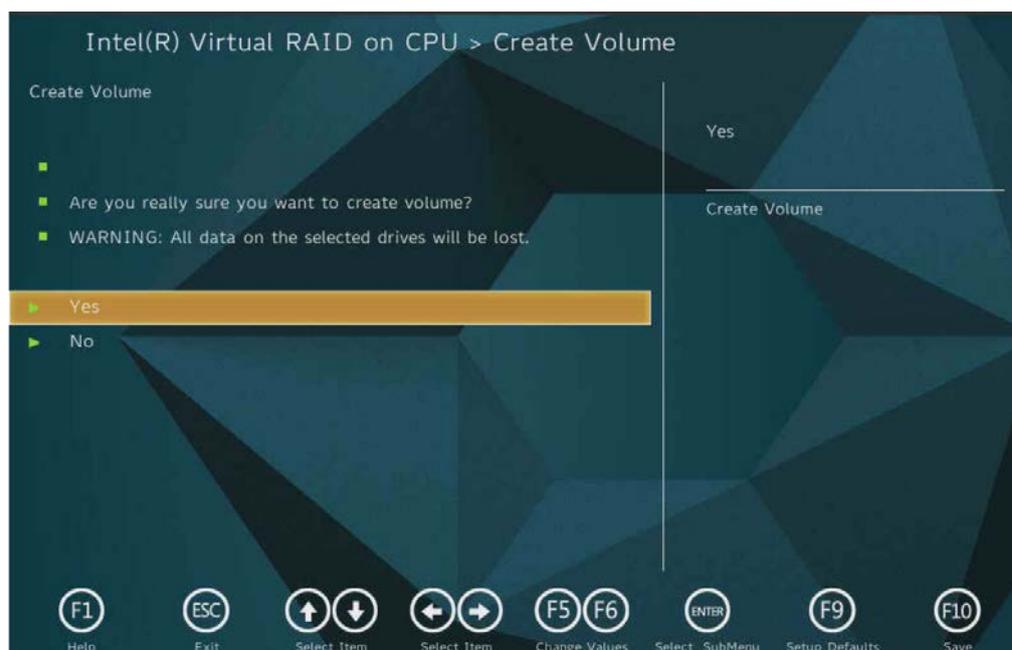
1. From the **Device Management** menu, select **Intel(R) Virtual RAID on CPU**.
2. Select **All Intel VMD Controllers**.
3. Select **Create RAID Volume**.



4. Create the RAID volume:
  - a. Select the **RAID Level**: 0, 1, 5 or 10.
  - b. Select **Enable RAID spanned over VMD Controllers** to create RAID volumes spanning multiple VMD domains.
  - c. Select the required disks in **Select Disks** section.
  - d. Select **Create Volume**.



5. Click **Yes** in the **Create Volume** dialog box.

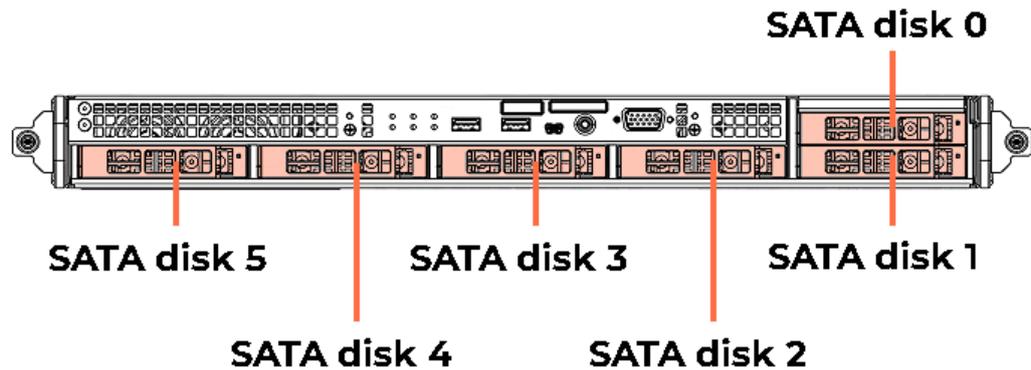


---

## 6.2. SATA disks RAID configuration with Intel® VROC

To use Virtual RAID On CPU (Intel® VROC) with SATA disks, no hardware key is required, but the appropriate socket Virtual Management Devices (VMD) must be enabled in the BIOS settings.

### 6.2.1. 2.5 inch SATA disks location



## 6.2.2. Configuring RAID disks

---

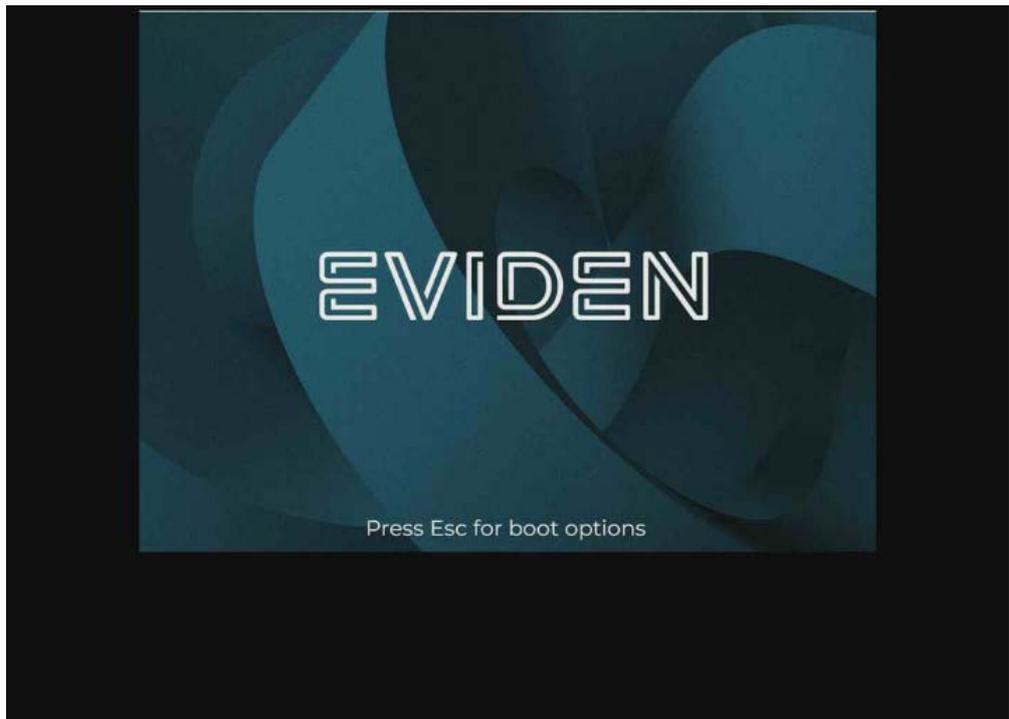
**Note** A RAID volume can be used as a bootable disk only if all disks in the RAID volume are connected to a single VMD domain. It is possible to create RAID volumes spanning multiple VMD domains, however such RAID configurations are not bootable.

---

### Procedure

#### 1. Access the BIOS interface

1. Wait a few minutes for the following screen to be displayed.



2. Press **[ESC]** to display the BIOS interface.

3. Select **Setup utility** from the main menu.



## 2. Configure VMD

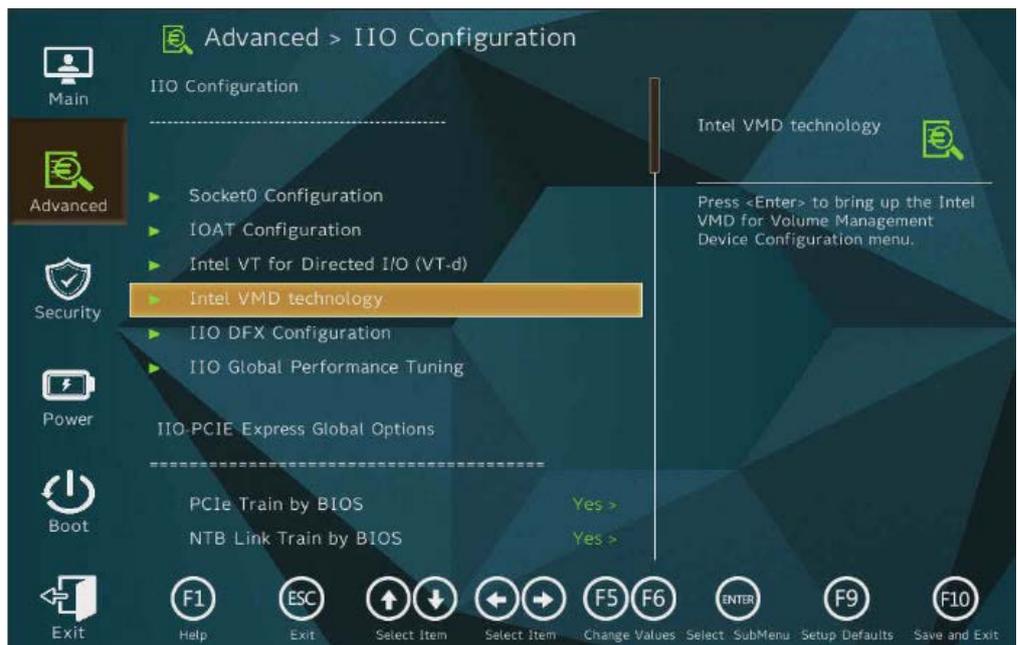
1. From **Advanced**, select **Socket Configuration**.



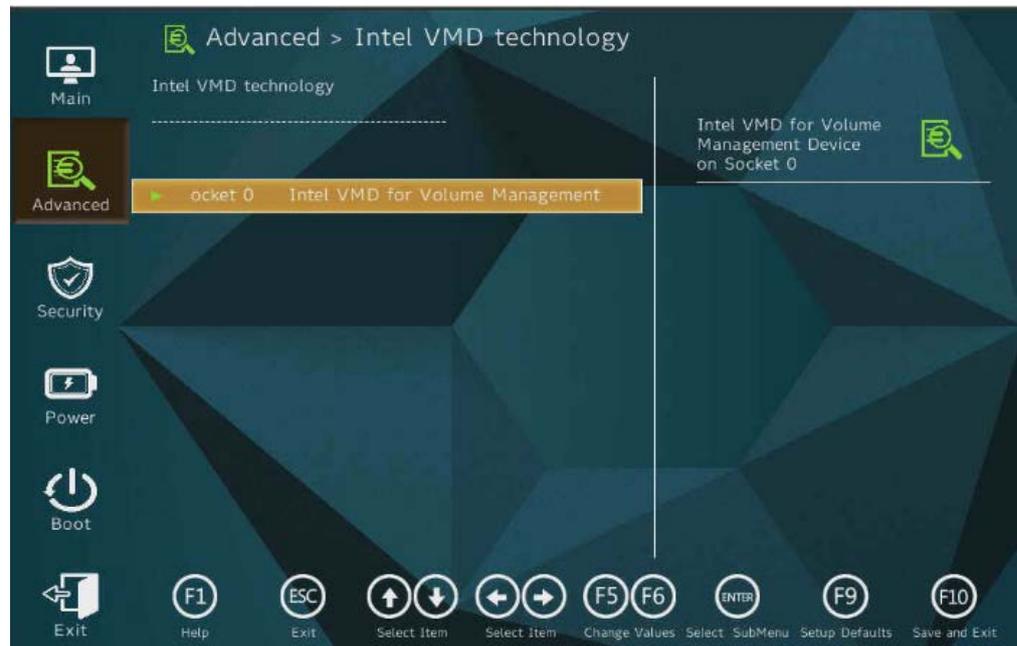
2. Select **IIO Configuration**.



3. Select **Intel VMD technology**.



4. Select **Intel VMD for Volume Management Device on socket 0**.



5. In section **VMD Config for IOU 0** enable:

- Enable/Disable VMD
- VMD port A
- VMD port C
- VMD port E
- VMD port G
- Hot Plug capable



### 3. Configure settings for SATA disks

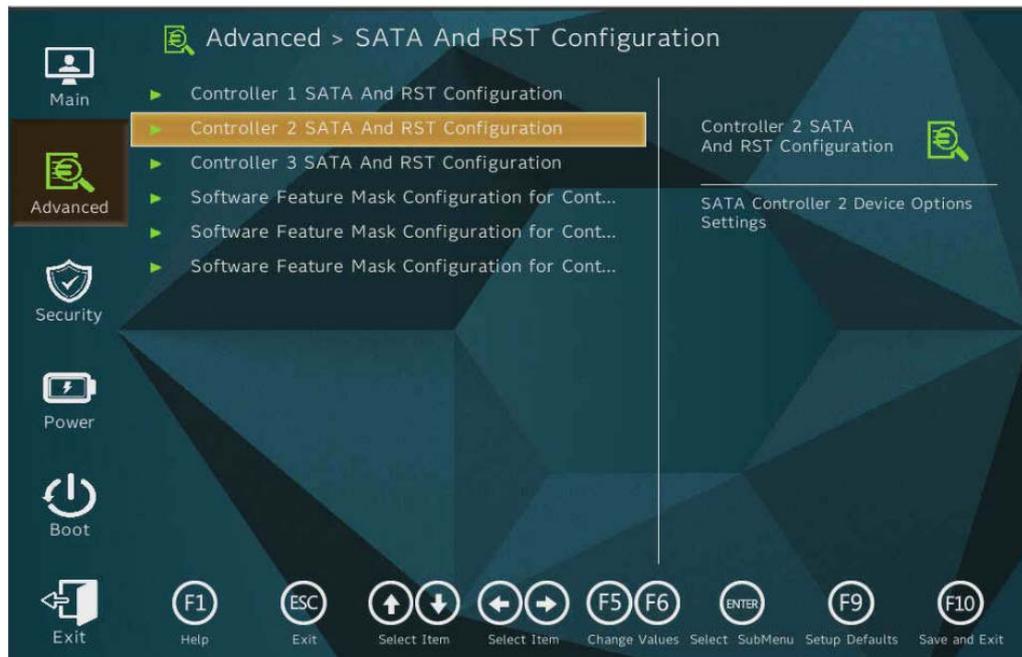
1. From **Advanced**, select **PCH-IO Configuration**.



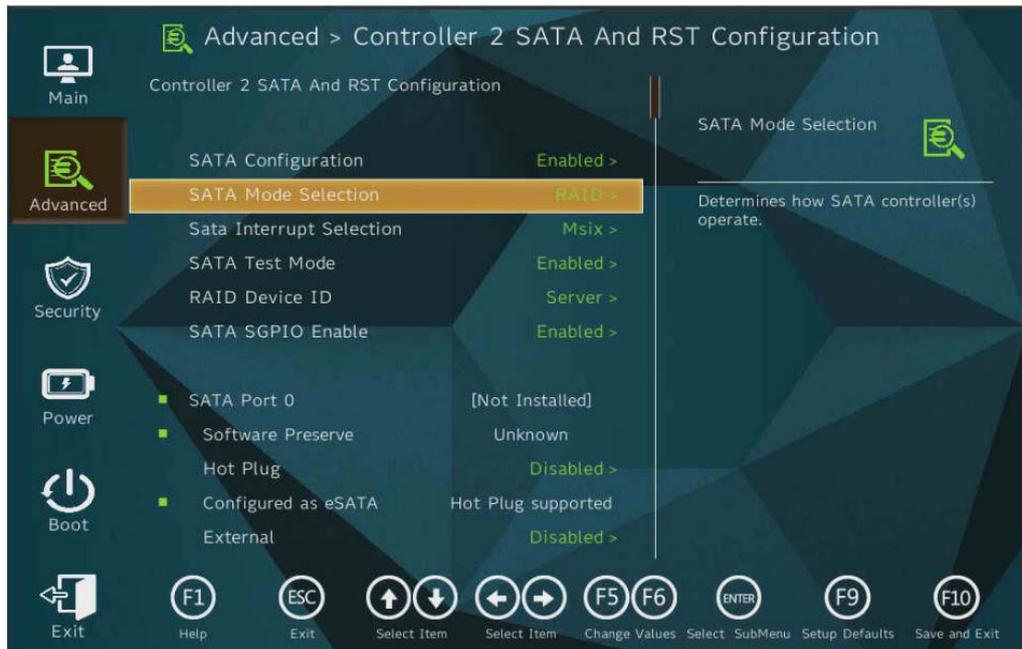
2. Select **SATA and RST Configuration**.



3. Select **Controller 2 SATA and RST Configuration**.



4. Change **SATA Mode Selection** to RAID.



**4. Save changes**

1. Click **Exit**.
2. Click **Exit Saving Changes**.
3. Click **Yes** in the **Exit** dialog box.

**5. Reboot the system**

## 6. Check the configuration after reboot

1. Select **Device management** from the main menu.



2. Select **Intel® VROC sSATA Controller**.



3. Check the configuration.



## 7. Configure RAID volumes

1. From the Device Management menu, select **Intel® VROC sSATA Controller**.



2. Select **Create RAID Volume**.



3. Create the RAID volume:
  - a. Select the **RAID Level**: 0, 1, 5 or 10.
  - b. Select **Enable RAID spanned over VMD Controllers** to create RAID volumes spanning multiple VMD domains.
  - c. Select the required disks in **Select Disks** section.
  - d. Select **Create Volume**.



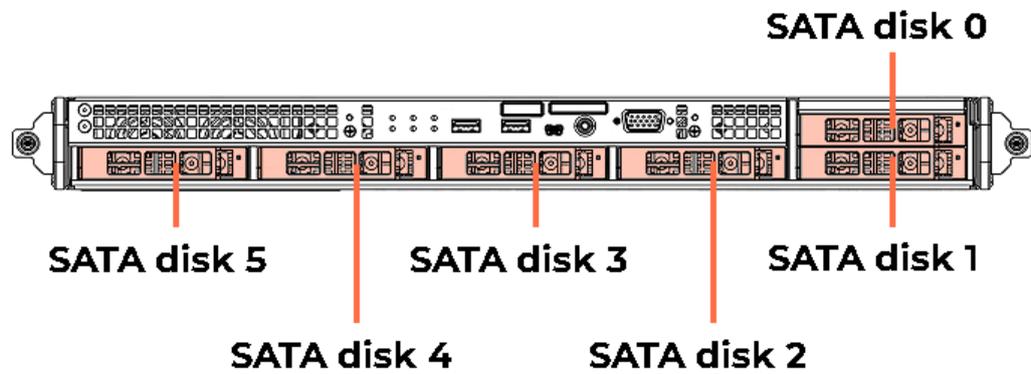
4. Select **Yes** in the **Create Volume** dialog box.



## 6.3. SATA disks RAID configuration with a RAID controller card

### 6.3.1. 2.5 inch SATA disks location

 Front view



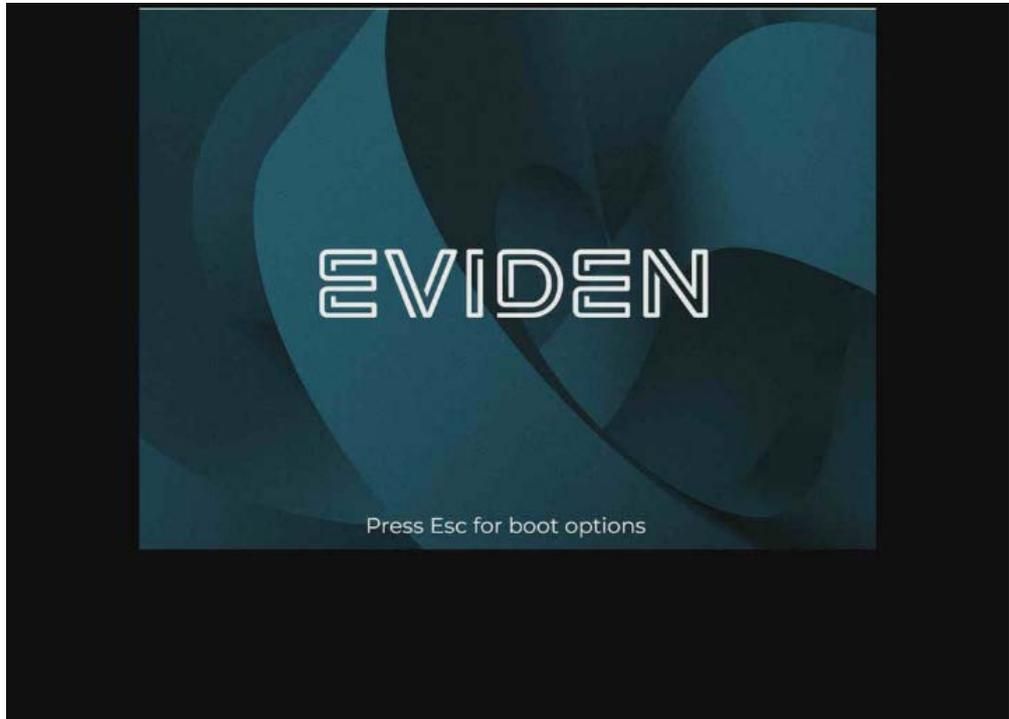
Physical location	BIOS
SATA disk 0	C0.0:01:00
SATA disk 1	C0.0:01:01
SATA disk 2	C0.0:01:02
SATA disk 3	C0.1:01:05
SATA disk 4	C0.1:01:06
SATA disk 5	C0.1:01:07

## 6.3.2. Configuring RAID disks

### Procedure

#### 1. Access the BIOS interface

1. Wait a few minutes for the following screen to be displayed.



2. Press **[ESC]** to display the BIOS interface.

## 2. Configure Virtual RAID

Example: configuration RAID1 with 2 disks.

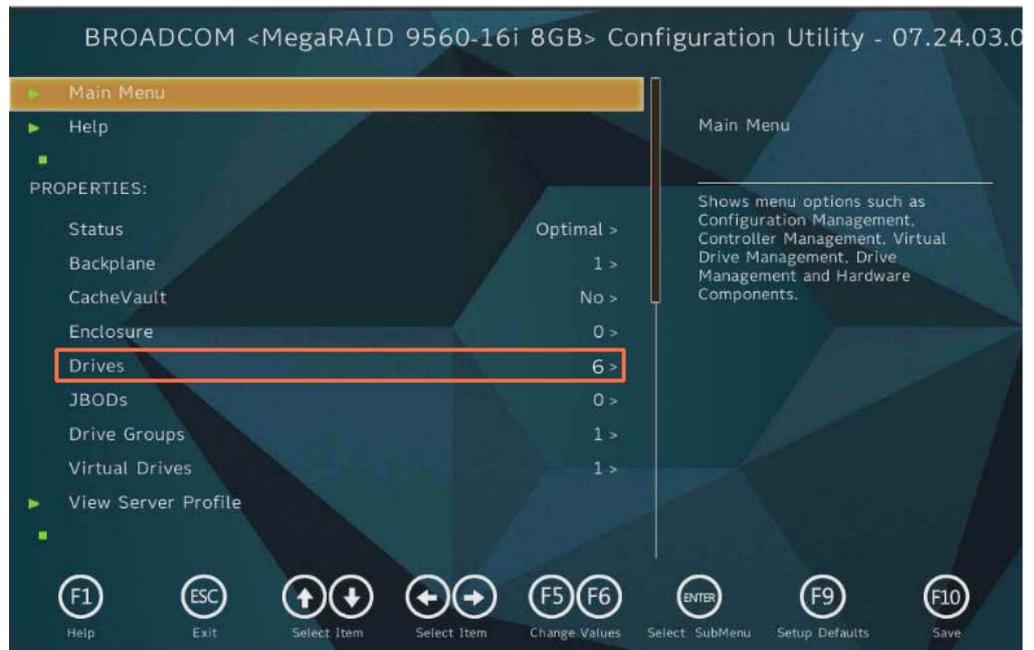
1. Select **Device management** from the main menu.



2. In **Device Manager**, select **Broadcom MegaRAID configuration Utility**.



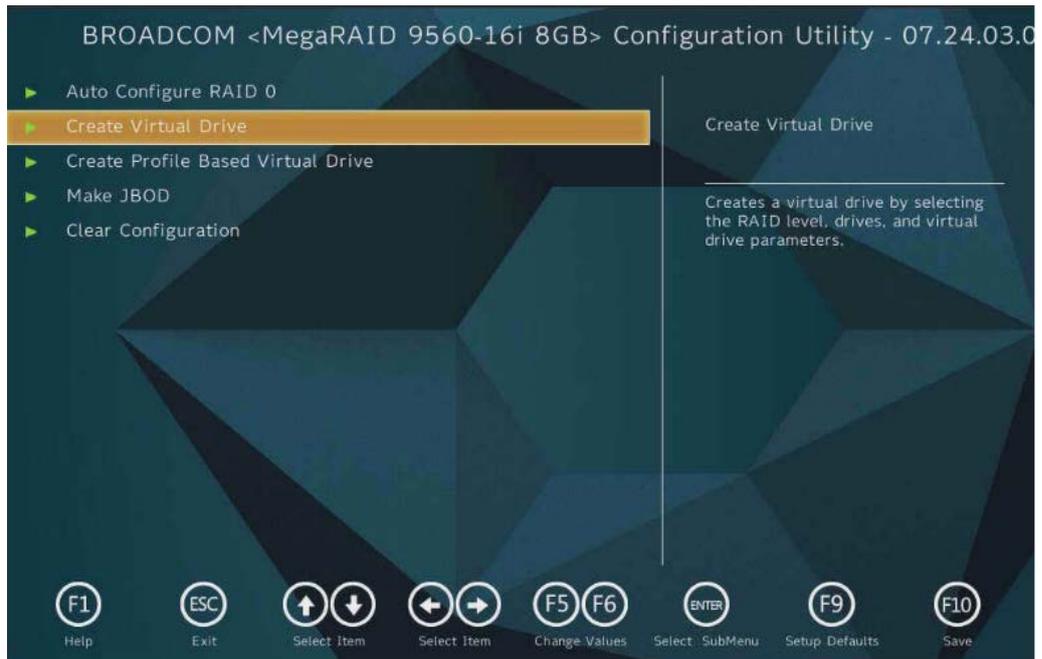
3. Check the number of disks available.



4. In the Main menu, select **Configuration Management**.



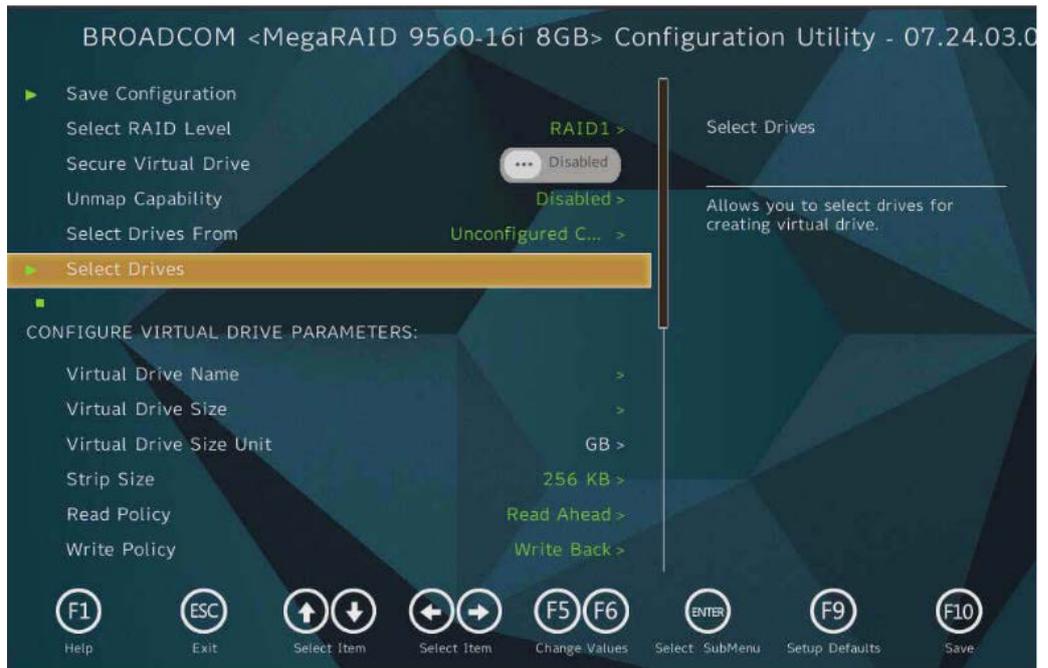
5. Select **Create Virtual Drive**.



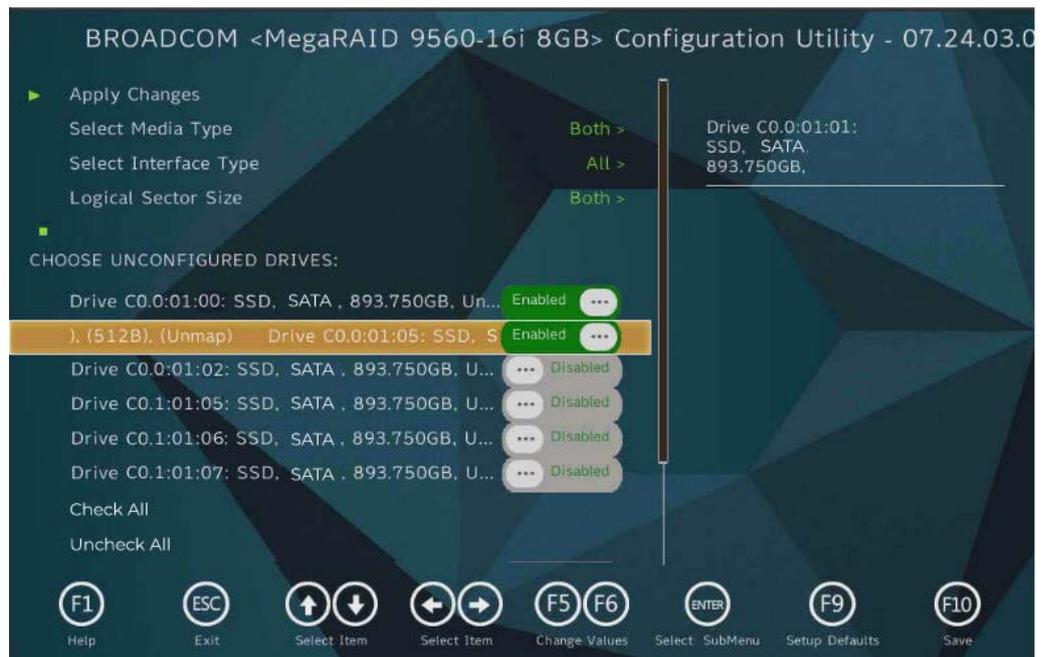
6. Select **RAID level**.



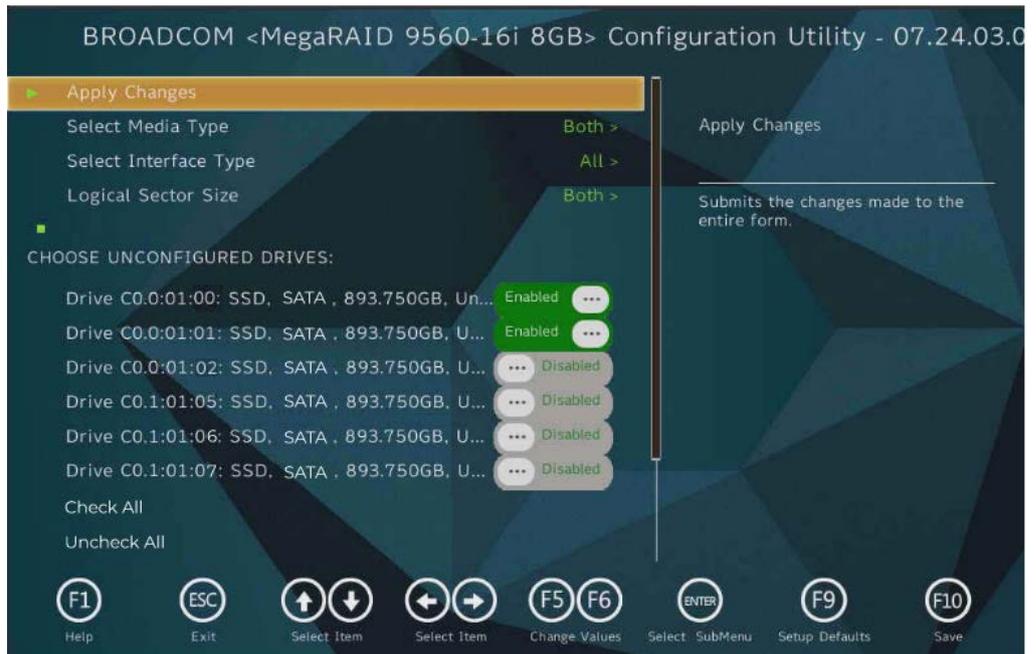
7. Select **Select Drives**.



8. Choose and enable the disks.



9. Apply changes.



10. Click **OK**.



11. Save the configuration.



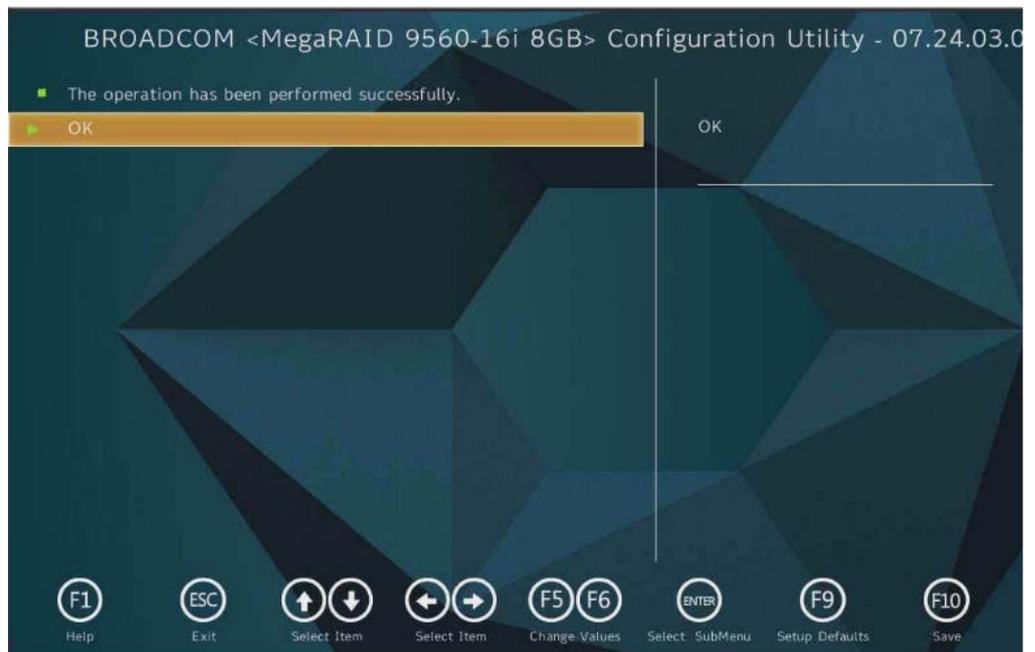
12. Confirm the creation.



13. Select **Yes**.



14. Select **OK**.



15. Click **ESC** twice to return to the main menu.

### 3. Check the configuration

1. From the main menu, select **Virtual Drive Management**.



2. Select the new virtual drive.



3. Select **View Associated Drives** to see the associated drives.





---

## Appendix A. Pre-installation steps for Windows Server 2022

The Windows Server 2022 operating system (OS) can be installed on different storage configurations using the installation ISO image.

In some cases, it is necessary to load a driver to be able to access the storage devices.

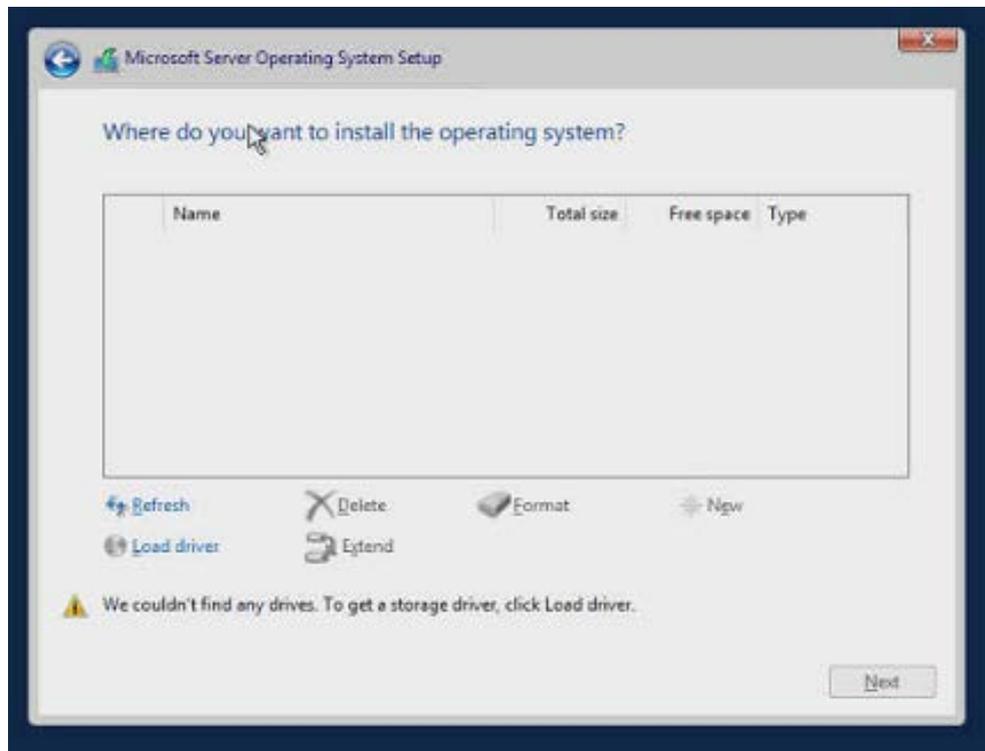
---

**See** The Bull support web site for the necessary drivers:  
<https://support.bull.com>

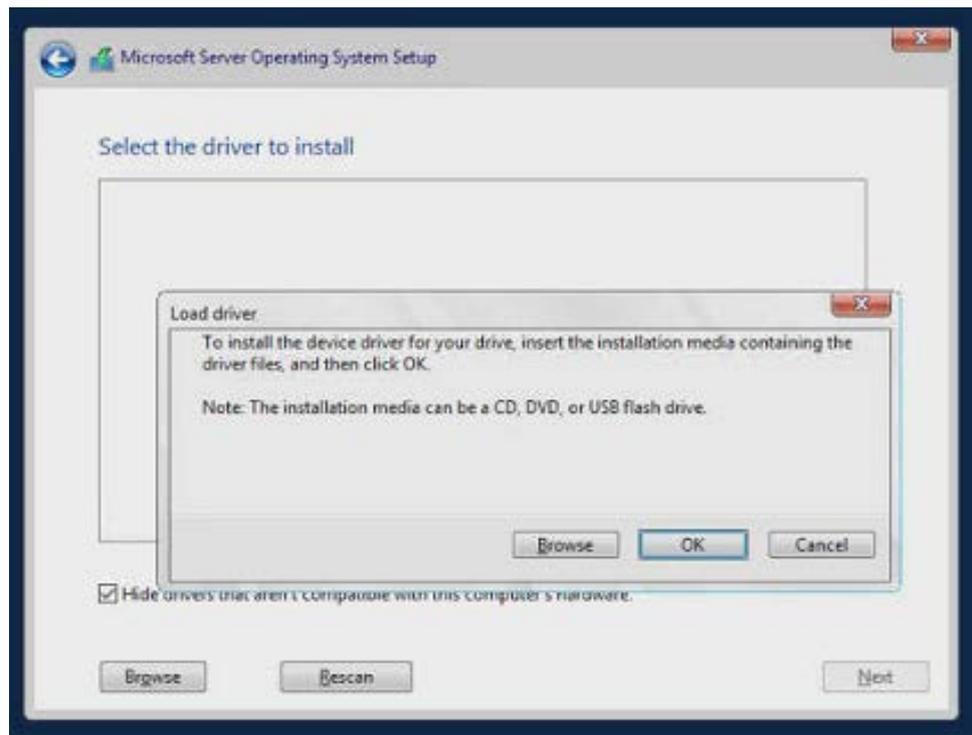
---

### Procedure

1. Click Load Driver on the following screen



## 2. Browse the location of the driver

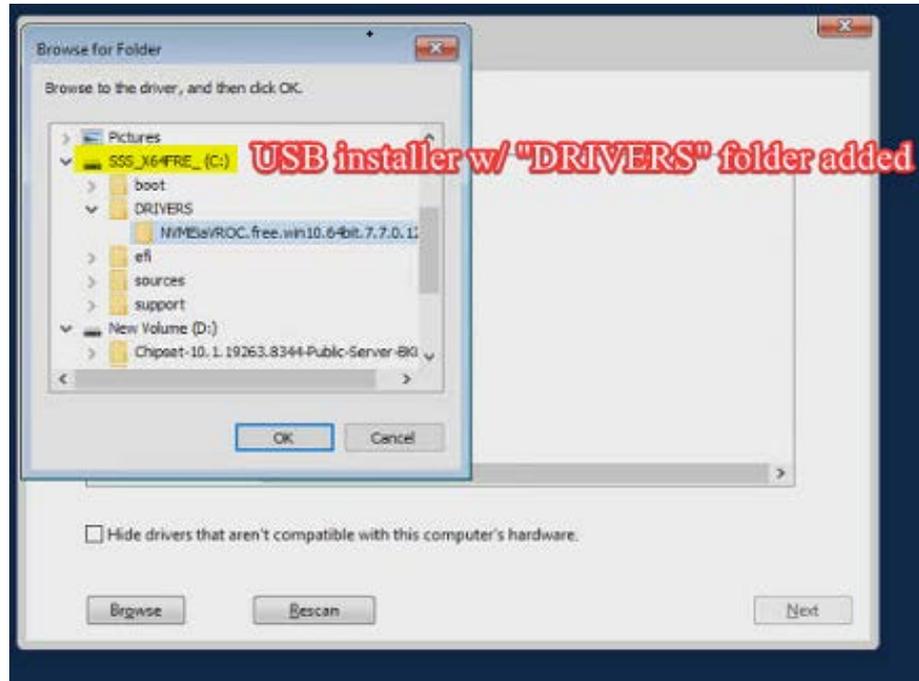


### 3. Select the driver

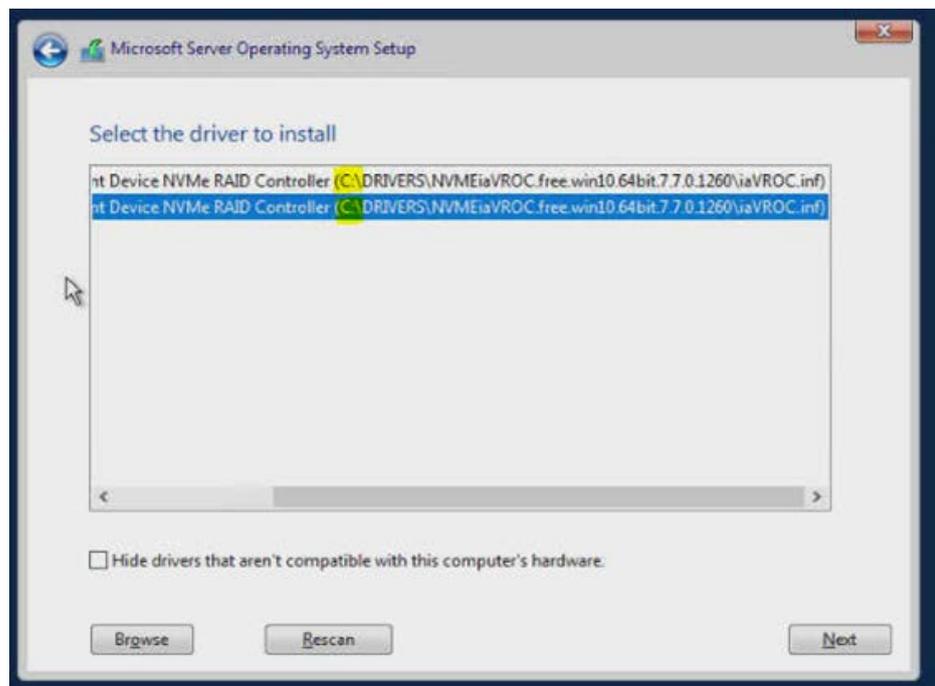
The driver can be copied to the installation media before starting, or to another USB drive.

#### Driver added to the installation media

1. Select the driver folder that is present on the Windows Installation USB drive.

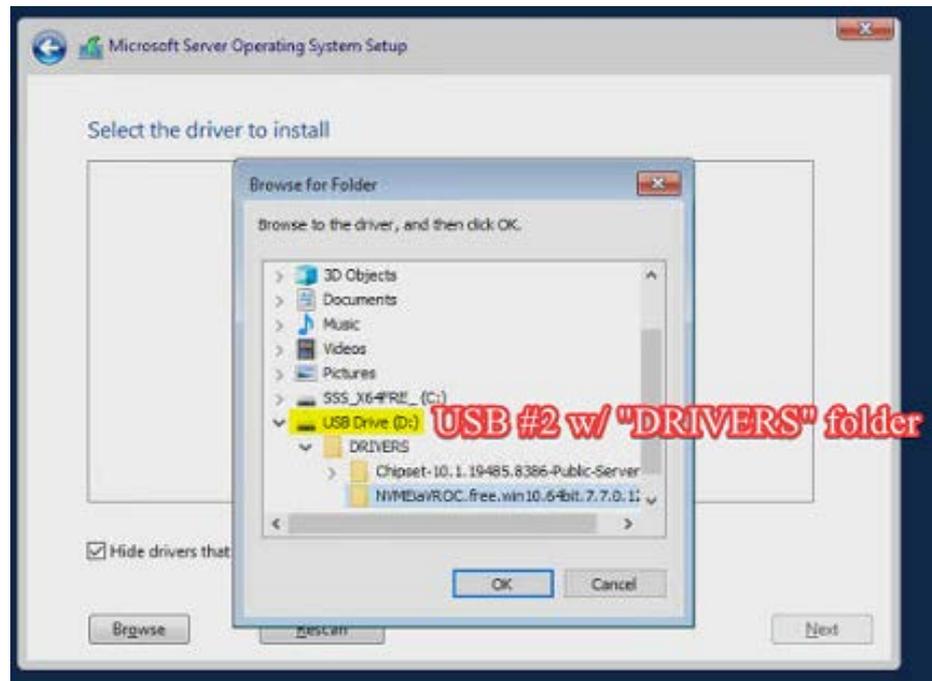


2. Select the driver to install.

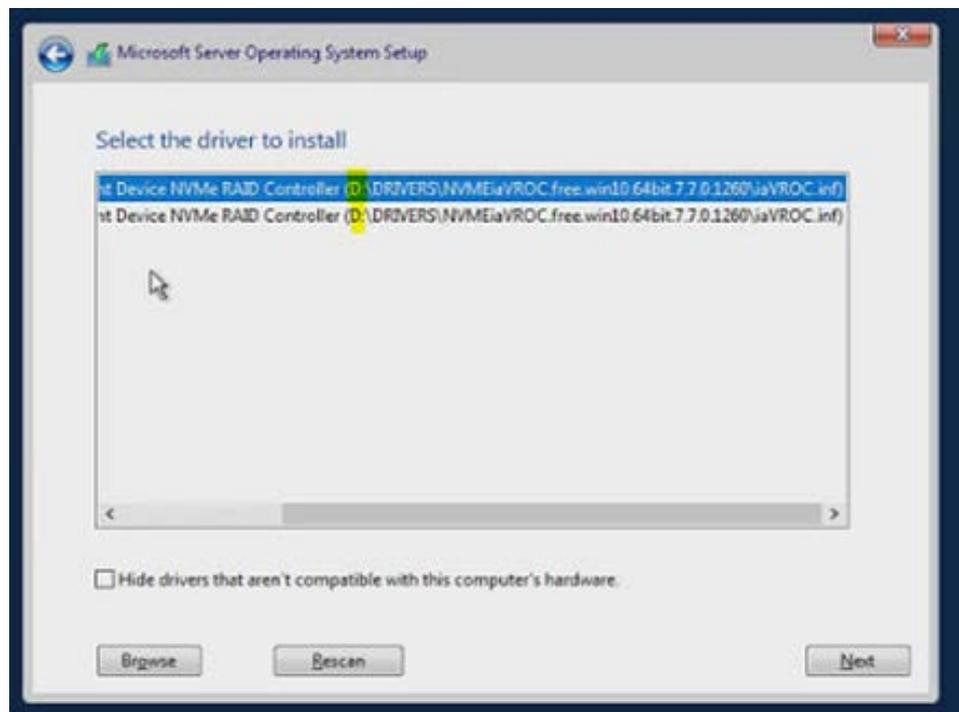


## Driver on another USB drive

1. Select the driver folder that is present on a separate drive.



2. Select the driver to install.



4. Select one of the NVMe drives present to continue installation

