

H3C G5 服务器 LSI-9560 系列阵列卡 图形化 BIOS UEFI 启动模式下配置 RAID

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一. 适用范围与注意事项

- ➤ 本文档旨在说明 H3C G5 系列服务器 LSI-9560 系列存储控制卡在 UEFI BIOS 下配置阵列的方法, 并以 R4900 G5 服务器为例进行配置步骤说明。
- ▶ 如文中方法不适用或阵列卡型号不匹配,可以通过下面导航链接查找适用文档: https://zhiliao.h3c.com/Theme/details/208527
- ▶ 提示:

本文档中的信息(包括产品,软件版本和设置参数)仅作参考示例,具体操作与目标需求配置请以实际为准。

本文档不定期更新维护,请以发布的最新版本为准。

二. 配置准备

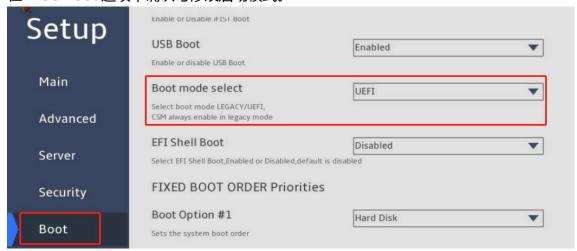


1. 连接 HDM 与启用远程控制台

具体方法请参考: https://zhiliao.h3c.com/Theme/details/210144

2. 确认或修改 BIOS 启动模式

在 BIOS Boot 选项中确认与修改启动模式。



三. 配置步骤

- 1. 访问 HDM 并启用 KVM/H5 KVM
 - 1) 浏览器输入 HDM IP 地址访问 HDM, 输入用户名和密码登录。



2) 选择 **H5 KVM** 或 **KVM** 启用控制台。

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注: 现场同样可使用显示器、鼠标和键盘等外设与服务器进行交互。

- 2. 设置阵列卡工作模式
 - 1) UEFI BIOS 在开机自检界面按下 ESC, 进入 BIOS 菜单。

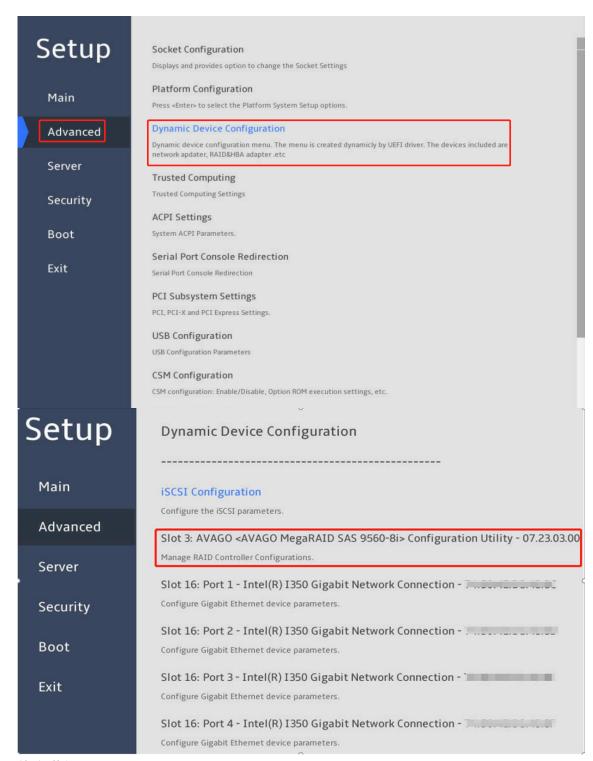


2) 在 Advanced 页签下找到并进入阵列卡菜单。

注:在 G5 intel 平台服务器中,如 BIOS 版本更新到 5.71 及以上版本,需要在 Advanced-> Dynamic Device Configuration 下找到**阵列卡**选项。

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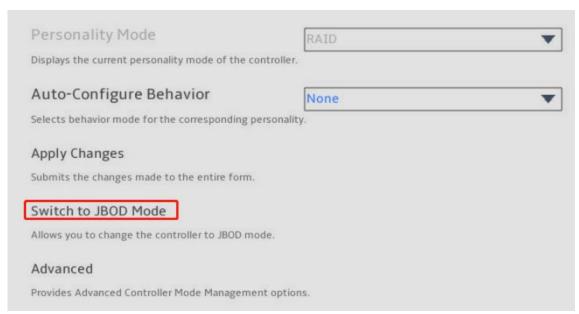




3) 依次进入 Main Menu>Controller Management>Advanced Controller Management> Manage Personality Mode 设置阵列卡的工作模式。

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注:工作模式说明如下。

- RAID: 切换存储控制卡到 RAID 模式。默认存储控制卡工作在 RAID 模式。
- o JBOD: Just a Bunch Of Disks,直通盘,不可用于配置 RAID。
- 4) 根据配置需求选择工作模式后, Enter 提交保存。

注:

- 切换存储控制卡工作模式后,原模式的系统盘可能出现异常,从而导致操作系统无法正常启动, 执行此操作前请确保提前备份数据。如果既要配置逻辑盘又要配置直通盘,建议在 RAID 模式 下直接把需要配置直通盘的硬盘切换为 JBOD 来使用,请参考本文设置硬盘直通。
- 当切换存储控制卡模式为 JBOD 模式时,存储控制卡上的逻辑盘也可以一并切换至 JBOD 模式,需要注意的是,当强制进行切换的时候,不支持的逻辑盘无法保留数据。以 RAID-LSI-9560-LP-8i-4GB 举例, RAID 5, RAID 6, RAID 50, RAID 60 的逻辑盘无法切换为 JBOD 模式,具体以界面提示信息为准。
- 3. 创建与删除阵列
 - 3.1 创建阵列
 - 3.1.1 创建 RAID 0
 - 1) UEFI BIOS 在开机自检界面按下 ESC, 进入 BIOS 菜单。

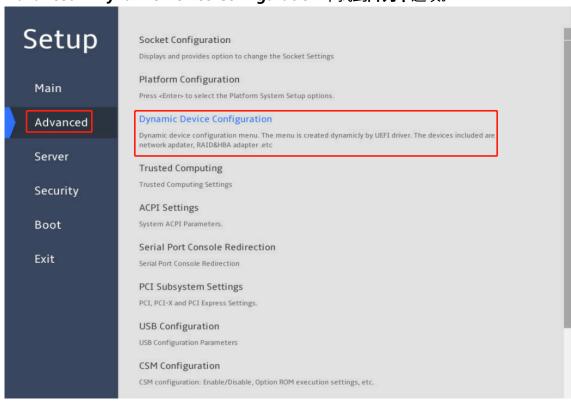
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2) 在 Advanced 页签下找到并进入阵列卡菜单

注:在 G5 intel 平台服务器中,如 BIOS 版本更新到 5.71 及以上版本,需要在 Advanced-> Dynamic Device Configuration 下找到**阵列卡**选项。

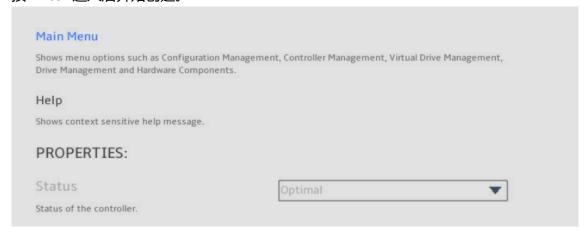


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3) 依次选择 Main Menu>Configuration Management>Create Virtual Drive, 按 Enter 进入后开始创建。



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Configuration Management

Displays configuration options. Some options appear only if the controller supports them. Options are: Create Profile Based Virtual Drive, Create Virtual Drive, Make JBOD, Make Unconfigured Good, Clear configuration, Manage Foreign Configuration, View Drive Group Properties and View Global Hot Spare Drives.

Controller Management

Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.

Virtual Drive Management

Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.

Drive Management

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link

Hardware Components

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

Auto Configure RAID 0

Configures a Unconfigured Good drive to single drive RAID 0. After performing this operation, if you insert any new configurable drive, that drive will remain as a Unconfigured Good drive.

Create Virtual Drive

Creates a virtual drive by selecting the RAID level, drives, and virtual drive parameters.

Create Profile Based Virtual Drive

Creates a virtual drive by using a wizard. The wizard makes intelligent choices based on the profile selected by the user. The profile based virtual drive creation method has special requirements. Refer MegaRAID Software User Guide for details.

Make JBOD

Allows changing the state of the drive from unconfigured good to JBOD.

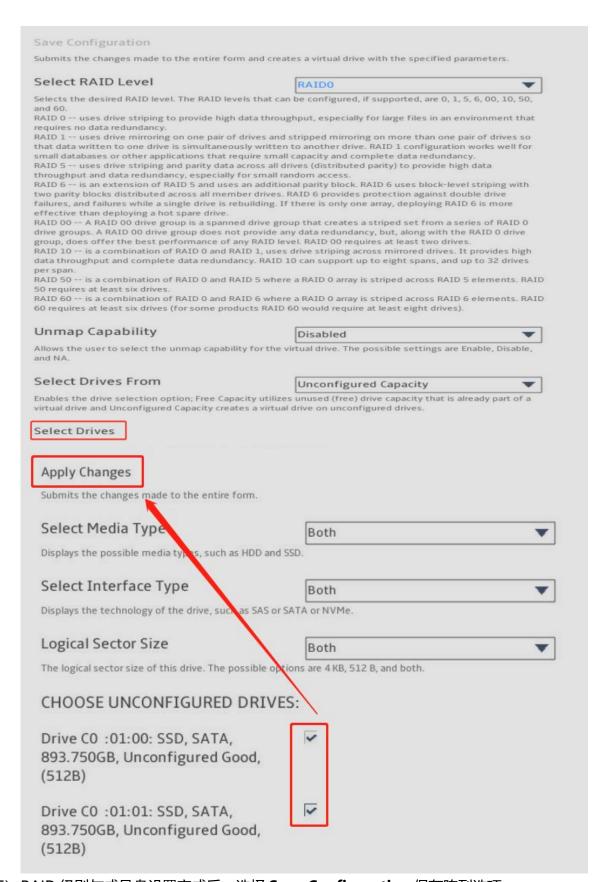
Clear Configuration

Deletes all existing configurations on the RAID controller and discards the pinned cache on missing configuration.

4) 设置 RAID Level 为 RAID 0;在 **Select Drives** 中选择成员盘,**对号**表明已选中成员盘,点击 **Apply Changes** 保存选项。

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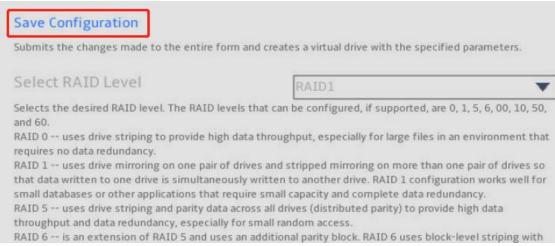




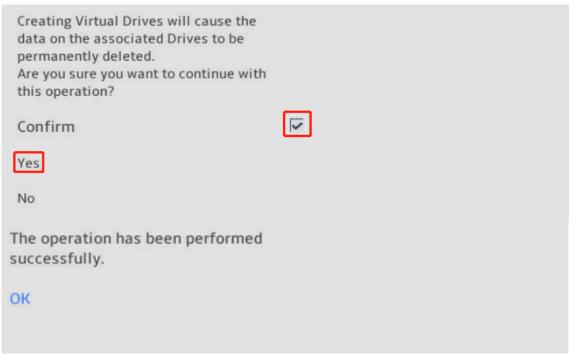
5) RAID 级别与成员盘设置完成后,选择 Save Configuration 保存阵列选项。

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6) 将 Confirm 选项选中对号,点击 Yes,再点击 OK,完成配置。



3.1.2 创建 RAID 10

1) UEFI BIOS 在开机自检界面按下 ESC, 进入 BIOS 菜单。

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2) 在 Advanced 页签下找到并进入阵列卡菜单

注:在 G5 intel 平台服务器中,如 BIOS 版本更新到 5.71 及以上版本,需要在 Advanced-> Dynamic Device Configuration 下找到**阵列卡**选项。



3) 依次选择 Main Menu>Configuration Management>Create Virtual Drive, 按 Enter 讲入后开始创建。

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Main Menu

Shows menu options such as Configuration Management, Controller Management, Virtual Drive Management, Drive Management and Hardware Components.

Help

Shows context sensitive help message.

PROPERTIES:

Status

Ontima

Status of the controller.

Configuration Management

Displays configuration options. Some options appear only if the controller supports them. Options are: Create Profile Based Virtual Drive, Create Virtual Drive, Make JBOD, Make Unconfigured Good, Clear configuration, Manage Foreign Configuration, View Drive Group Properties and View Global Hot Spare Drives.

Controller Management

Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.

Virtual Drive Management

Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.

Drive Management

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link

Hardware Components

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

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Auto Configure RAID 0

Configures a Unconfigured Good drive to single drive RAID 0. After performing this operation, if you insert any new configurable drive, that drive will remain as a Unconfigured Good drive.

Create Virtual Drive

Creates a virtual drive by selecting the RAID level, drives, and virtual drive parameters.

Create Profile Based Virtual Drive

Creates a virtual drive by using a wizard. The wizard makes intelligent choices based on the profile selected by the user. The profile based virtual drive creation method has special requirements. Refer MegaRAID Software User Guide for details.

Make JBOD

Allows changing the state of the drive from unconfigured good to JBOD.

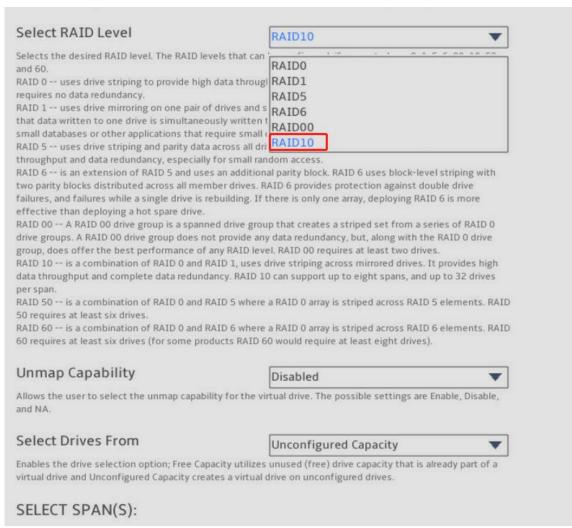
Clear Configuration

Deletes all existing configurations on the RAID controller and discards the pinned cache on missing configuration.

4) 设置 RAID Level 为 RAID 10。

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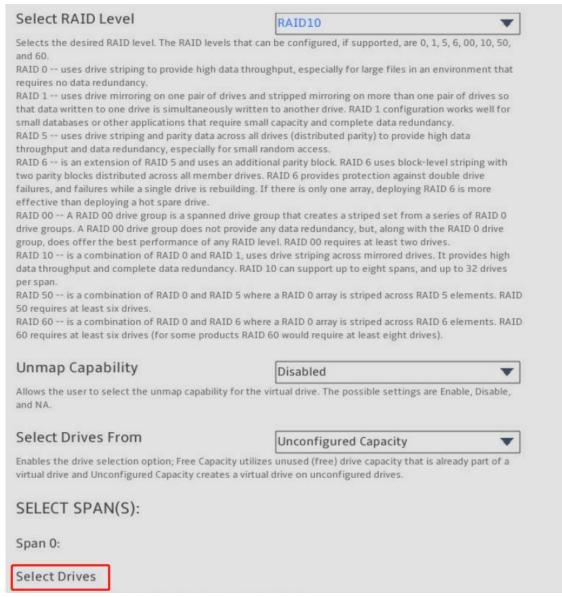




5) 在 Select Drives 中选择成员盘,在 Select Drives 中选择第一个 Span 的成员盘; Enabled 表明已选中成员盘,点击 Apply Changes 保存选项。

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6) 在生成第一个 Span 后,选择 **Add More Spans** 添加第二个 Span 的成员盘,方法同上。

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RAID 1 -- uses drive mirroring on one pair of drives and stripped mirroring on more than one pair of drives so that data written to one drive is simultaneously written to another drive. RAID 1 configuration works well for small databases or other applications that require small capacity and complete data redundancy.

RAID 5 -- uses drive striping and parity data across all drives (distributed parity) to provide high data throughput and data redundancy, especially for small random access.

RAID 6 -- is an extension of RAID 5 and uses an additional parity block. RAID 6 uses block-level striping with two parity blocks distributed across all member drives. RAID 6 provides protection against double drive failures, and failures while a single drive is rebuilding. If there is only one array, deploying RAID 6 is more effective than deploying a hot spare drive.

RAID 00 -- A RAID 00 drive group is a spanned drive group that creates a striped set from a series of RAID 0 drive groups. A RAID 00 drive group does not provide any data redundancy, but, along with the RAID 0 drive group, does offer the best performance of any RAID level. RAID 00 requires at least two drives.

RAID 10 -- is a combination of RAID 0 and RAID 1, uses drive striping across mirrored drives. It provides high data throughput and complete data redundancy. RAID 10 can support up to eight spans, and up to 32 drives per span.

RAID 50 -- is a combination of RAID 0 and RAID 5 where a RAID 0 array is striped across RAID 5 elements. RAID 50 requires at least six drives.

RAID 60 -- is a combination of RAID 0 and RAID 6 where a RAID 0 array is striped across RAID 6 elements. RAID 60 requires at least six drives (for some products RAID 60 would require at least eight drives).

Unmap Capability

Disabled

•

Allows the user to select the unmap capability for the virtual drive. The possible settings are Enable, Disable, and NA.

Select Drives From

Unconfigured Capacity

-

Enables the drive selection option; Free Capacity utilizes unused (free) drive capacity that is already part of a virtual drive and Unconfigured Capacity creates a virtual drive on unconfigured drives.

SELECT SPAN(S):

Span 0:

(Drive CO :01:00 SATA)(Drive CO :01:01 SATA)

Select Drives

Allows you to select drives for creating virtual drive.

Add More Spans

7) 所有 Span 设置完成后,选择 Save Configuration 完成配置,生成阵列。

Save Configuration

Submits the changes made to the entire form and creates a virtual drive with the specified parameters.

Select RAID Level

RAID10



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注: 配置 RAID 50 和 RAID 60 时也需要先配置 Span, 配置方法与 RAID 10 相同, 下面为设置 Span 的说明:

- RAID 10 支持 2~8 个 Span,每个 Span 支持的硬盘数为 2~16 (偶数),且各个 Span 的硬盘数量必须保持一致。
- RAID 50 支持 2~8 个 Span,每个 Span 支持的硬盘数为 3~32,且各个 Span 的硬盘数量必须保持一致。
- RAID 60 支持 2~8 个 Span,每个 Span 支持的硬盘数为 3~32,且各个 Span 的硬盘数量必须保持一致。

3.2 删除阵列

1) 在存储控制卡配置界面选择 Virtual Drive Management, 按 Enter。

Configuration Management

Displays configuration options. Some options appear only if the controller supports them. Options are: Create Profile Based Virtual Drive, Create Virtual Drive, Make JBOD, Make Unconfigured Good, Clear configuration, Manage Foreign Configuration, View Drive Group Properties and View Global Hot Spare Drives.

Controller Management

Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.

Virtual Drive Management

Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.

Drive Management

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link.

Hardware Components

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

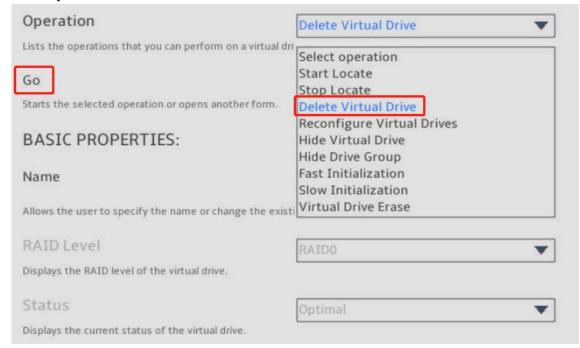
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2) 选择待删除的逻辑磁盘,按 Enter。



3) 选中 Operation, 按 Enter, 然后在弹出的对话框中选择 Delete Virtual Drive, 按 Enter。



4) 选择 Go, 确认操作;选择 Confirm,使其 Enabled,选择 Yes,按 Enter。



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The operation has been performed successfully.

OK

4. 创建与删除热备

4.1 创建热备

- 4.1.1 创建全局热备

选择 Main Menu>Drive Mana	agement,找到开进人需要配直万热备盘的硬盘。
Main Menu	
Shows menu options such as Configuration Drive Management and Hardware Compone	Management, Controller Management, Virtual Drive Management, ents.
Help	
Shows context sensitive help message.	
PROPERTIES:	
Status	Optimal
Status of the controller.	
Configuration Management	
Profile Based Virtual Drive, Create Virtual D	ons appear only if the controller supports them. Options are: Create Orive, Make JBOD, Make Unconfigured Good, Clear configuration, Group Properties and View Global Hot Spare Drives.
Controller Management	
	operties of the controller such as product name, serial number, PCI . You can also use the Advanced link to view additional properties ging the security key, saving the TTY log.
Virtual Drive Management	
	nables you to view the basic virtual drive properties and perform on, consistency check. You can also view additional properties using
Drive Management	

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced

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Hardware Components



Drive CO: 01:00: SSD, SATA, 893.750GB, Online, (512B) Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:01: SSD, SATA, 893.750GB, Online, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

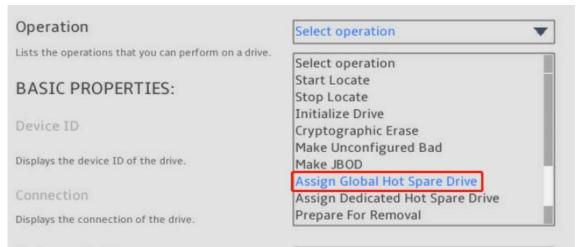
Drive CO: 01:02: SSD, SATA, 893.750GB, Unconfigured Good, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:03: SSD, SATA, 893.750GB, Unconfigured Good, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

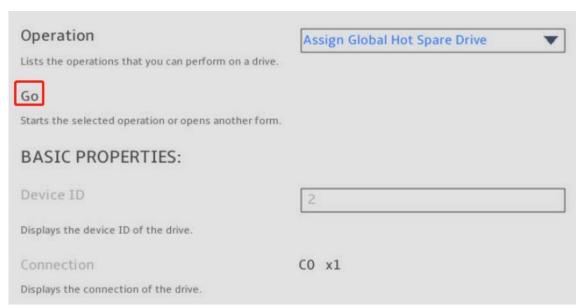
2) 选中 Operation, 按 Enter, 然后再选择 Assign Global Hot Spare Drive, 按 Enter。



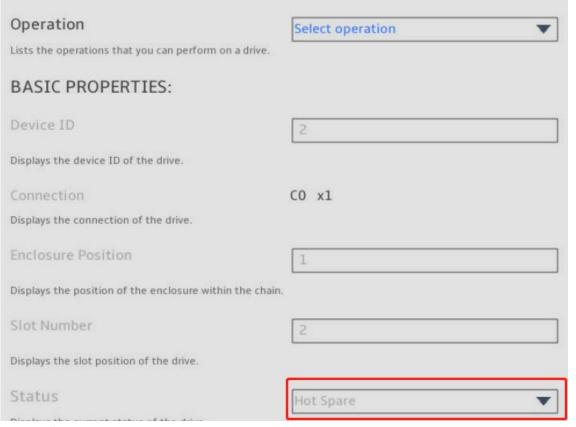
3) 选择完成后,点击 Go 完成配置。

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4) 配置完成的硬盘状态将显示为 Hot Spare。



4.1.2 创建专用热备

1) 选择 Main Menu> Drive Management, 找到并进入需要配置为热备盘的硬盘。

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Main Menu	
	ion Management, Controller Management, Virtual Drive Management, onents.
Help	
Shows context sensitive help message.	
PROPERTIES:	
Status	Optimal
Status of the controller.	
Status of the controller. Backplane	1

Configuration Management

Displays configuration options. Some options appear only if the controller supports them. Options are: Create Profile Based Virtual Drive, Create Virtual Drive, Make JBOD, Make Unconfigured Good, Clear configuration, Manage Foreign Configuration, View Drive Group Properties and View Global Hot Spare Drives.

Controller Management

Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.

Virtual Drive Management

Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.

Drive Management

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link.

Hardware Components

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

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Drive CO: 01:00: SSD, SATA, 893.750GB, Online, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:01: SSD, SATA, 893.750GB, Online, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

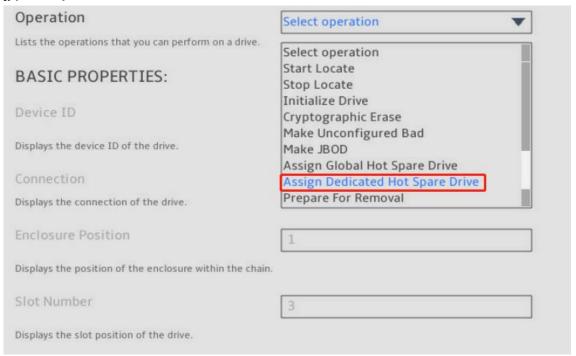
Drive CO: 01:02: SSD, SATA, 893.750GB, Hot Spare, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:03: SSD, SATA, 893.750GB, Unconfigured Good, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

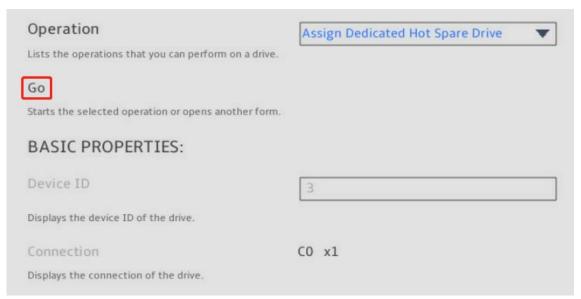
2) 选中 Operation, 按 Enter, 然后再选择 Assign Dedicated Hot Spare Drive, 按 Enter。



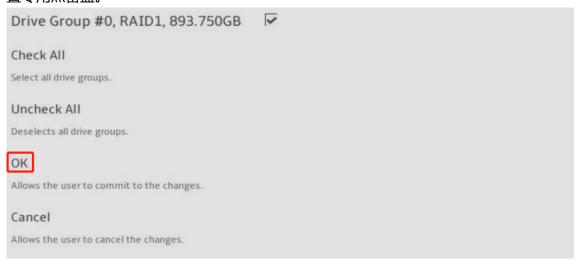
3) 选择 Go, 按 Enter。

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4) 选择需要配置专用热备盘的逻辑磁盘,使其**对号选中**,选择 **OK**,按 **Enter**,完成配置专用热备盘。



The operation has been performed successfully.

OK

4.2 删除热备

1) 选择 Main Menu> Drive Management, 找到并进入需要取消热备盘的硬盘, 按 Enter。

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Drive CO: 01:00: SSD, SATA, 893.750GB, Online, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:01: SSD, SATA, 893.750GB, Online, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

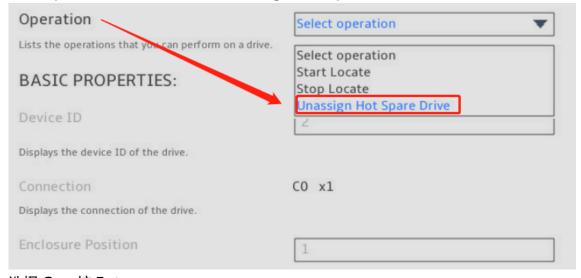
Drive CO: 01:02: SSD, SATA, 893.750GB, Hot Spare, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

Drive CO: 01:03: SSD, SATA, 893.750GB, Hot Spare, (512B)

Displays the properties of a specific drive. For a physical drive, you can perform several operations (such as Rebuild, Initialize drive), view basic properties of the drive and also click Advanced to view additional properties.

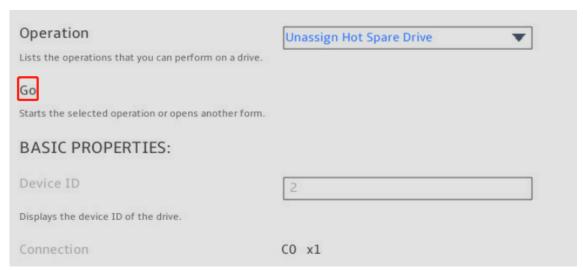
2) 选择 Operation 按 Enter, 选择 Unassign Hot spare drive, 按 Enter。



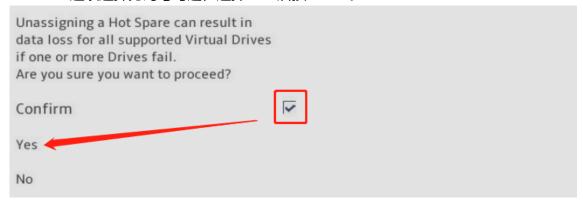
3) 选择 Go, 按 Enter。

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4) Confirm 选项选择为对号勾选,选择 Yes 后按 Enter。



- 5. 设置与取消直通盘
 - 5.1 设置硬盘直通

阵列卡在 RAID 模式下可同时支持设置硬盘为 JBOD。

1) 在 **Configuration Management > Make JBOD** 中选择 Unconfigured Good 硬盘进行配置即可。

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Configuration Management

Displays configuration options. Some options appear only if the controller supports them. Options are: Create Profile Based Virtual Drive, Create Virtual Drive, Make JBOD, Make Unconfigured Good, Clear configuration, Manage Foreign Configuration, View Drive Group Properties and View Global Hot Spare Drives.

Controller Management

Displays the controller status and basic properties of the controller such as product name, serial number, PCI ID, firmware version and NVDATA Version. You can also use the Advanced link to view additional properties and perform additional tasks such as changing the security key, saving the TTY log.

Virtual Drive Management

Manages the virtual drive properties and enables you to view the basic virtual drive properties and perform operations such as background initialization, consistency check. You can also view additional properties using the Advanced link.

Drive Management

Displays the basic drive properties and performs operations such as assign/unassign a hot spare drive, locate drives, Place Drive offline/online, and rebuild drive. You can also view additional properties using the Advanced link.

Hardware Components

Displays the battery and enclosure status if applicable. You can also view additional properties and perform additional operations using the Advanced link. Some options will appear only if the controller supports them.

Auto Configure RAID 0

Configures a Unconfigured Good drive to single drive RAID 0. After performing this operation, if you insert any new configurable drive, that drive will remain as a Unconfigured Good drive.

Create Virtual Drive

Creates a virtual drive by selecting the RAID level, drives, and virtual drive parameters.

Create Profile Based Virtual Drive

Creates a virtual drive by using a wizard. The wizard makes intelligent choices based on the profile selected by the user. The profile based virtual drive creation method has special requirements. Refer MegaRAID Software User Guide for details.

View Drive Group Properties

Displays information about the available drive groups, associated virtual drives, the capacity allocation, and the assigned dedicated hot spare drives if any.

Make JBOD

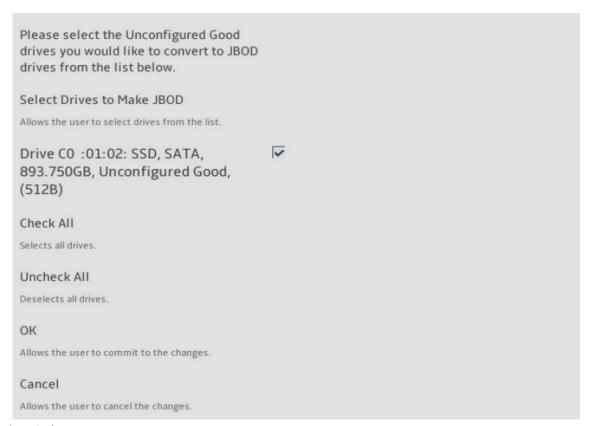
Allows changing the state of the drive from unconfigured good to JBOD.

Clear Configuration

Deletes all existing configurations on the RAID controller and discards the pinned cache on missing configuration.

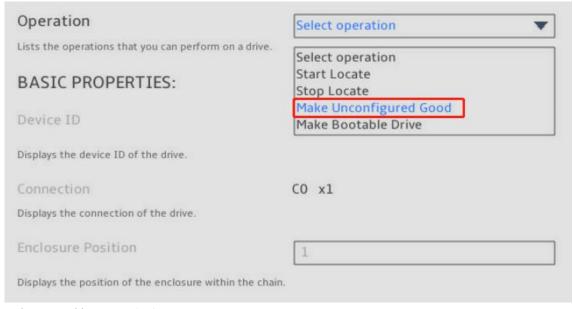
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5.2 取消硬盘直通

1) 依次进入 Main Menu>Drive Management,选中需要取消 JBOD 状态的硬盘,在 Operation 中选择 Make Unconfigured Good。



2) 选择 Go, 按 Enter 保存。

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