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Hitachi Compute Blade 500 Series NVIDIA GPU Adapter User's Guide

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Hitachi Data Systems

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Preface

This document describes how to use the NVIDIA GPU Adapter for Hitachi CB 500 Series..

This preface includes the following information:

- ☐ Intended Audience
- ☐ Release Notes
- ☐ Document Conventions
- ☐ Getting Help
- ☐ Comments

Notice: The use of NVIDIA GPU Adapter for Hitachi CB 500 Series and all other Hitachi Data Systems products is governed by the terms of your agreement(s) with Hitachi Data Systems.

Intended Audience

This document is intended for the personnel who are involved in planning, managing, and performing the tasks to prepare your site for Compute Blade installation and to install the same.

This document assumes the following:

· The reader has a background in hardware installation of computer systems.

· The reader is familiar with the location where the Hitachi Compute Blade 500 Series will be installed, including knowledge of physical characteristics, power systems and specifications, and environmental specifications.

Release Notes

Release notes contain requirements and more recent product information that may not be fully described in this manual. Be sure to review the release notes before installation.

Document Conventions

This document uses the following typographic conventions:

Convention	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, fields, and labels. Example: Click **OK**.
Italic	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: `copy` *`source-file target-file`* ***Note:*** Angled brackets (< >) are also used to indicate variables.
`screen/code`	Indicates text that is displayed on screen or entered by the user. Example: `# pairdisplay -g oradb`
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: `# pairdisplay -g <group>` ***Note:*** Italic font is also used to indicate variables.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [a | b] indicates that you can choose a, b, or nothing. { a | b } indicates that you must choose either a or b.
underline	Indicates the default value. Example: [a | b]

This document uses the following icons to draw attention to information:

Icon	Meaning	Description
	WARNING	This indicates the presence of a potential risk that might cause death or severe injury.
	CAUTION	This indicates the presence of a potential risk that might cause relatively mild or moderate injury.
NOTICE	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	Note	This indicates notes not directly related to injury or severe damage to equipment.
	Tip	This indicates advice on how to make the best use of the equipment.

Getting Help

If you purchased this product from an authorized HDS reseller, contact that reseller for support. For the name of your nearest HDS authorized reseller, refer to the HDS support web site for locations and contact information. To contact the Hitachi Data Systems Support Center, please visit the HDS website for current telephone numbers and other contact information: http://support.hds.com.

Before calling the Hitachi Data Systems Support Center, please provide as much information about the problem as possible, including:

- The circumstances surrounding the error or failure.
- The exact content of any error message(s) displayed on the host system(s).

Comments

Please send us your comments on this document: doc.comments@hds.com. Include the document title, number, and revision, and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation. **Thank you!**

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Overview

This chapter describes the overview of NVIDIA GPU Adapter.

- ☐ Features
- ☐ Supported OSs
- ☐ Attachments

Features

The GPU Adapter is designed for installation into PCI Express slot.

ESXi supports 2 ways of hardware accelerations shown below.

- vDGA(Virtual Dedicated Graphics Acceleration)

  Single virtual machine uses one GPU Adapter.

- vSGA(Virtual Shared Graphics Acceleration)

  Multiple virtual machines share single GPU Adapter.

vDGA is not supported as of December, 2013. Please contact our staff if you need support schedule.

Supported OSs

The GPU Adapter can be used for OSs shown below.

- ESXi 5.1 U2
- ESXi 5.5

Attachments

Prior to using your GPU Adapter, check if there are any missing attachments.

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Installation of Drivers

This chapter describes installation procedure of GPU Adapter’s Driver

- ☐ Confirmation before installing GPU Adapter
- ☐ Installation drivers for ESXi

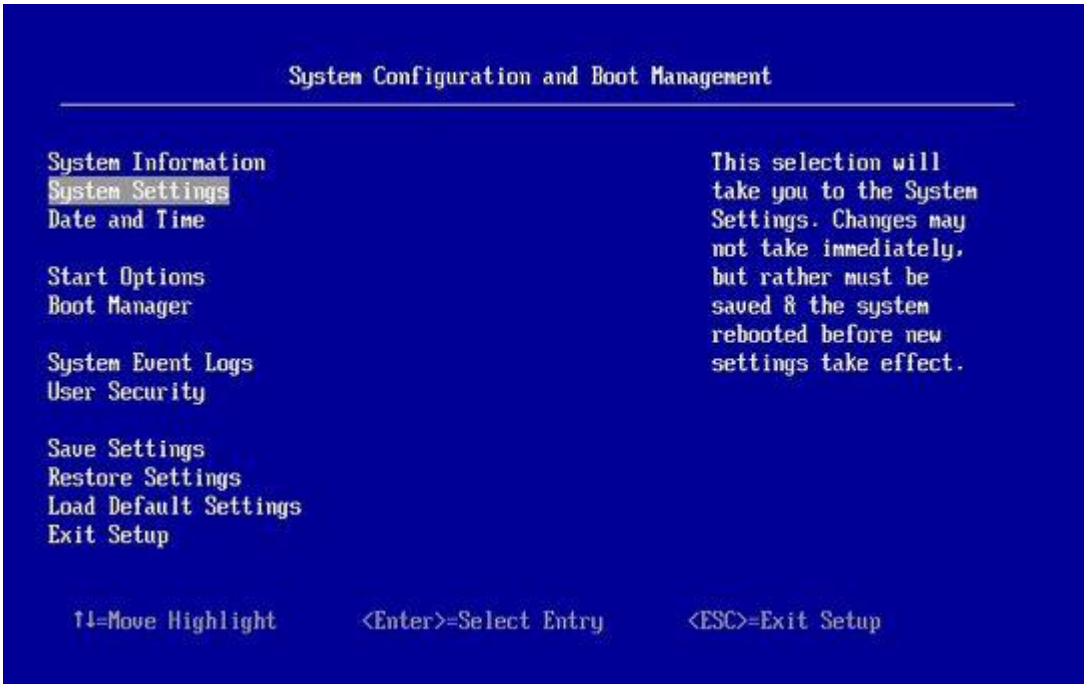
Confirmation before installing GPU Adapter

This section describes confirmation items before installing GPU Adapter.

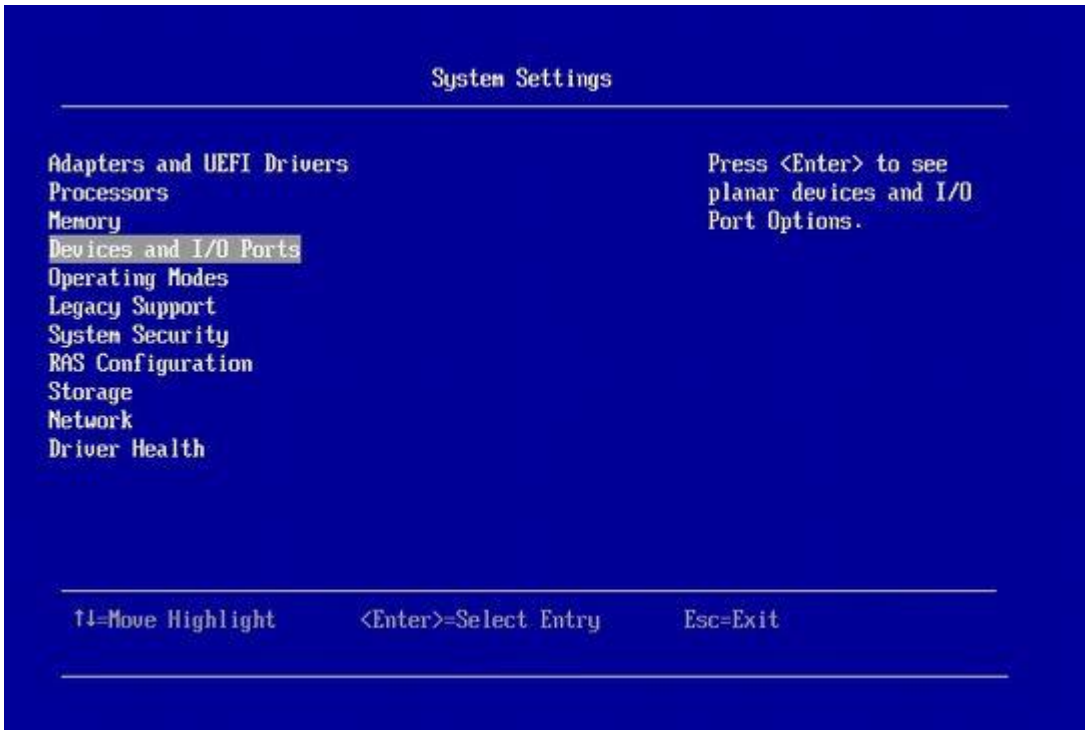
Checking the settings of EFI

Check [Active Video] settings. If the [Active Video] is not set to [Onboard Device], nothing is displayed on the Remote Console.

1. Start Remote Console and power on the server blade.
2. During powering on, when [<F1>Setup] appears at the bottom of the screen, press [F1] key.
3. Setup menu starts and the "System Configuration and Boot Management" Menu is shown, then choose [System Settings] and press [Enter] key.



4. If [System Settings] is displayed, choose [Devices and I/O Ports] and press [Enter] key.

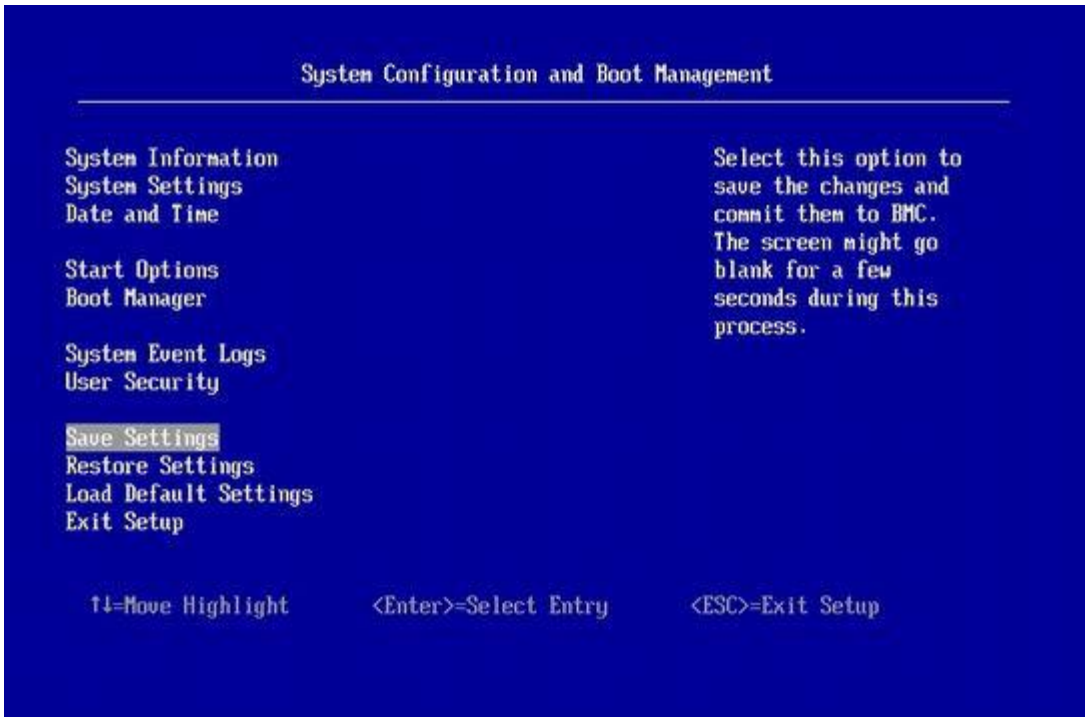


5. If [Devices and I/O Ports] is displayed, [Active Video] current setting is also displayed. Check the current setting. If [Onboard Device], you don't need to change the setting, follow the step 8~9 to exit the setup menu. If [Add-in Device], choose [Add-in Device] and press [Enter] key.

6. If the [Active Video] setting dialog is displayed, choose [Onboard Device] and press [Enter] key.

7. Check if the [Active Video] current setting is [Onboard Device].

8. Press [Esc] key several times until [System Configuration and Boot Management] is displayed. Choose [Save Settings] and press [Enter] key.



9. Choose [Exit Setup] and press [Enter] key.

10. If the confirmation dialog is displayed, press [Y] key.

Installation drivers for ESXi

This section describes installation procedure of GPU Adapter's Driver

Installation drivers for vSGA

Use conditions are provided the document shown below.

Chapter: "Virtual Machine Graphics Acceleration Deployment Guide"

http://www.vmware.com/files/pdf/techpaper/vmware-horizon-view-graphics-acceleration-deployment.pdf

1. Access the URL shown below, and download the driver.

   http://www.nvidia.com/Download/index.aspx?lang=en_us

   Product Type: GRID

   Product Series: GRID Series

   Product: GRID K2

   Operating System: VMware vSphere ESXi 5.1 or 5.5

2. Transfer installation package to the hypervisor host.

   (Directory: /vmfs/volumes/datastore1/ etc.)

3. Shutdown all virtual machines and place the hypervisor host into Maintainance mode.

4. Change Acceptable Level of hypervisor host below VMwareAccepted.

   Example

```
# esxcli software acceptance get
VMwareCertified
# esxcli software acceptance set --level=VMwareAccepted
Host acceptance level changed to 'VMwareAccepted'.
# esxcli software acceptance get
VMwareAccepted
```

5. Installation the driver.

   Access the URL shown below, and follow an install procedure shown in "vSGA Installation" Chapter in "Virtual Machine Graphics Acceleration Deployment Guide".

http://www.vmware.com/files/pdf/techpaper/vmware-horizon-view-graphics-acceleration-deployment.pdf

6. Configure Graphic accelaration.

   The options shown below are available.

   - Automatic(Default)

     This option uses hardware acceleration if there is capable, and available. If hardware acceleration is not available, it uses software 3D rendering automatically.

   - Software

     This option only uses software 3D rendering.

   - Hardware

     This option only uses hardware 3D rendering.

     Note that if a GPU Adapter is not present in the host, the virtual machine will not start.

   The details of these options are provided by the document shown below.

   Chapter:" Understanding the Differences Between Soft 3D/SVGA, vDGA and vSGA"

   http://www.vmware.com/files/pdf/techpaper/vmware-horizon-view-graphics-acceleration-deployment.pdf

   To configure on the vSphere web client 5.5, access the URL shown below and see "vSphere Virtual Machine Administration Guide"

   https://www.vmware.com/support/pubs/vsphere-esxi-vcenter-server-pubs.html

Installation drivers for vDGA

vDGA is not supported as of December, 2013. Please contact our staff if you need support schedule.

The virtual machines must be running Windows7 or higher. When you use vDGA, however installation of drivers on hypervisor is not needed, installation on guest OSs is needed. Detail use conditions are provided the document shown below.

"Virtual Machine Graphics Acceleration Deployment Guide"

Chapter:"vDGA Installation"

http://www.vmware.com/files/pdf/techpaper/vmware-horizon-view-graphics-acceleration-deployment.pdf

1. Access the URL shown below, and download the driver.

http://www.nvidia.com/Download/index.aspx?lang=en_us

Product Type: GRID

Product Series: GRID Series

Product: GRID K2

Operating System: Windows 7 (or higher) 32-bit or 64-bit

2. Installation the driver.

   Access the URL shown below, and follow an install procedure shown in "vDGA Installation" Chapter in "Virtual Machine Graphics Acceleration Deployment Guide".

http://www.vmware.com/files/pdf/techpaper/vmware-horizon-view-graphics-acceleration-deployment.pdf

3

Specifications

This chapter describes specifications of GPU Adapter.

☐ Specifications

Specifications

Item	specification
Product Name	NVIDIA GRID K2
Chip	2× GK104
Processor clock	745MHz
Memory clock	2.5GHz
Memory size	4GB per GPU(8GB per board)
Memory I/O	256bit GDDR5
Memory configuration	32 pieces of 128M × 16 GDDR5 SDRAM
Display connectors	None
Power connectors	-1x 8-pin PCI Express power connector - 1x 6-pin PCI Express power connector
Total board power	225W

Acronyms and Abbreviations

GPU	Graphics Processing Unit
OS	Operating System
vDGA	Virtual Dedicated Graphics Acceleration
vSGA	Virtual Shared Graphics Acceleration

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