A white line drawing of a Tesla C2075 computing processor on a printed circuit board. The drawing shows the top and side views of the device, highlighting its various connectors and components. A green rectangular box is overlaid on the right side of the image, containing the title and subtitle.

# TESLA™ C2075 COMPUTING PROCESSOR

INSTALLATION GUIDE



**nvidia.**

# NVIDIA Tesla C2075

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# 01 INTRODUCTION

With many mainstream applications now taking advantage of the GPU computing found in the NVIDIA® Tesla™ C2075, leading-edge customers are producing breakthroughs in their industries by achieving better results in a shorter period of time. Adding the NVIDIA Tesla C2075 to an industry-standard workstation and configuring it with an NVIDIA Quadro Professional Graphics Solution enables performance scaling across a wide range of professional applications.

## About This Guide

This installation guide discusses the installation and configuration of the Tesla C2075 Computing Processor.

## Minimum System Requirements

Prior to unpacking your new Tesla C2075, confirm that your system meets all the system requirements for a smooth installation.

### > **Operating System**

- Microsoft Windows XP, Vista, Windows 7 (32-bit or 64-bit)
- Linux 32-bit and 64-bit on:
  - Redhat Enterprise Linux 3.x, 4.x, 5.x
  - SUSE Linux Enterprise Desktop 11 and 10
  - OpenSUSE 11.1, 11.0, 10.3, 10.2, 10.1
  - Fedora 10, 9, 8, 7
  - Ubuntu 9.04, 8.10, 8.04, 7.10, 7.04

### > **Processor**

- Intel Pentium 4 or Xeon processor or higher
- AMD Athlon processor or higher

### > **RAM**

- 6 GB recommended per Tesla C2075

### > **PCI Express Slot**

- PCI Express x16 slot, Gen2 recommended but not required

### > **Power Consumption**

- 215 W maximum power consumption
- Power supply must have either a single 8-pin connector or two 6-pin power connectors. (It is ok to connect both an 8-pin and a 6-pin connector to the board, but not required)

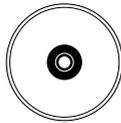
# 02

## UNPACKING

Be sure to inspect each piece of equipment. If anything is missing or damaged, contact your supplier.

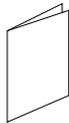
### Equipment

The following equipment is included in the Tesla C2075 box.



#### Installation CD

Contains this file (installation guide), Linux drivers, and links to additional information on the Tesla C-series product. To keep your drivers current, visit [www.nvidia.com/drivers](http://www.nvidia.com/drivers) to download the latest drivers.



#### Quick Start Guide

Contains basic hardware and software installation instructions. Read carefully, and refer to the Installation Guide on the CD for full installation instructions and troubleshooting.



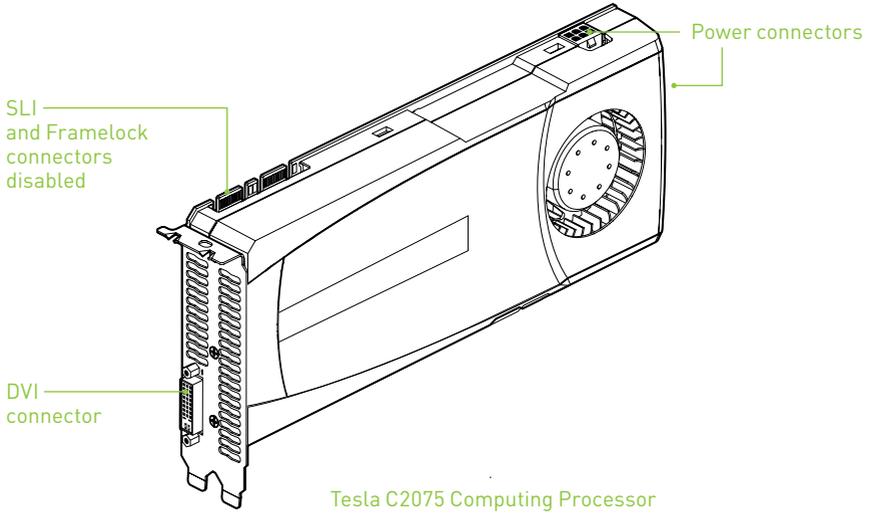
#### Registration Card

Register to gain priority access to online and phone support. Take time to follow the instructions on this card to register your product to take advantage of customer support and warranty.

## 02

**Tesla C2075 GPU Computing Processor**

Installs into the PCI Express x16 slot in your computer.



# 03

## HARDWARE INSTALLATIONS

Installing the Tesla C2075 hardware involves opening up your computer.



**Note:** All hardware must be installed prior to installation of the drivers.

### Tesla C2075 Installation

A computer system with an available PCI Express ×16 slot is required for the Tesla C2075. For the best system bandwidth between the host processor and the Tesla C2075, it is recommended (but not required) that the Tesla C2075 be installed in a PCI Express ×16 Gen2 slot.

Because there are so many different computer systems on the market, the installation procedure for the Tesla C2075 can vary from system to system. Use the following instructions as a guideline and consult the system documentation for clarification of computer specific procedures.



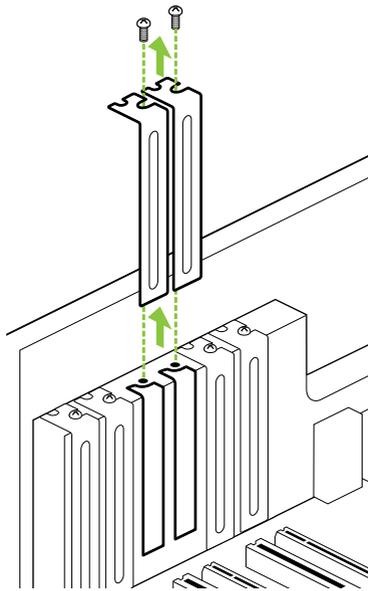
**Note:** It is important that all power to the computer be removed (unplugged) before you install the computing board. You must also discharge your body's static electricity before handling sensitive components. Simply touch a grounded surface before beginning.



**Note:** To simplify reconnections, label cables as they are disconnected.

## 03

- 1 Turn off your computer and monitor and disconnect the power cord at the outlet or at the back of your system (depending on the system).
- 2 Open your computer chassis (refer to your system documentation for details).
- 3 Remove the slot bracket for the two adjacent slots, if they are still covered. The Tesla C2075 computing board is a dual-slot board and will take up two (2) slots. Save any hardware (such as screws) to use to anchor the Tesla C2075 computing board after it is seated properly.



The Tesla C2075 will occupy two slots.

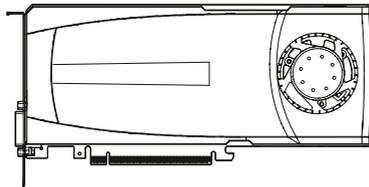
- 4 Connect the 8-pin connector or the two 6-pin connectors from the power supply to the 8-pin and 6-pin connectors on the board. (it is ok to connect both an 8-pin and a 6-pin connector to the board, but not required)

## 03

- 5 Reinstall the computer cover and any cables that were removed earlier.

**6-pin power connectors**

Connect one (1) 6-pin PCI Express power connector on the edge of the board

**8-pin power connector**

Connect one (1) 8-pin OR one (1) 6-pin PCI Express power connector on the edge of the board



**Note: If you are using one 8-pin power connector, you must ensure that the power supply can drive enough power through the 8-pins to the power connector. (up to 150W through a single 8-pin connector)**

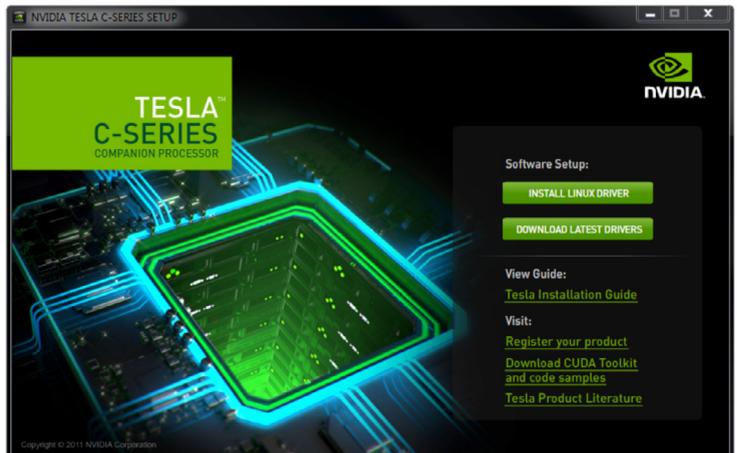
# 04

## DRIVER INSTALLATION

This section contains the instructions to install the software drivers within a Windows environment or within a Linux environment.

### Windows Installation

- 1 Power up your computer
- 2 Click **Cancel** when the Found New Hardware Wizard window displays.
- 3 Insert the installation CD included in the Tesla C2075 package.
- 4 Right-click on the CD drive and select **AutoPlay** or explore the files on the CD and double click **setup.exe** if it does not begin to auto play.
- 5 Click **Download Latest Drivers** from the Tesla C2075 main screen to be automatically directed to the NVIDIA driver download page.



- 6 Download the current display drivers for the Tesla C2075 from [www.nvidia.com/drivers](http://www.nvidia.com/drivers) (make sure to select Tesla as the Product Type and C-Class as the Product Series along with the appropriate Operating System).

### NVIDIA Driver Downloads

Option 1: Manually find drivers for my NVIDIA products. [Help](#)

Product Type:

Product Series:

Product:

Operating System:

Language:

Option 2: Automatically find drivers for my NVIDIA products. [Learn More](#)

- 7 Click **Agree & Download** then follow instructions. Once you have downloaded the software, click the Run button to begin the installation.

### Download

By clicking the "Agree & Download" button below, you are confirming that you have read and agree to be bound by the [License For Customer Use of NVIDIA Software](#) for use of the driver. The driver will begin downloading immediately after clicking on the "Agree & Download" button below.



## 04

- 8 Double click on the Tesla C2075 driver executable file you downloaded from [www.nvidia.com/drivers](http://www.nvidia.com/drivers). Click **AGREE AND CONTINUE** when the *NVIDIA software license agreement* window displays.



- 9 Select an Install option and click **NEXT**. If you select the **Express (Recommended)** install option, the install process will begin.



**Note:** It is recommended that you uninstall the existing driver from your system before you go through the Express Install



**Note:** Express install loads all options listed under the custom install:

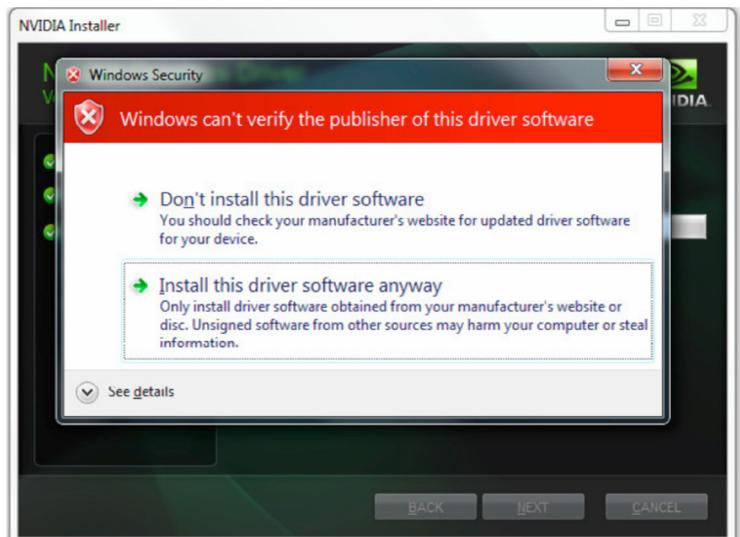
- > Graphic drivers
- > 3D Vision Controller Driver
- > 3D Vision drivers
- > NVIDIA WMI

If you select **Custom (Advanced)** install option, the Custom installation options screen displays to allow you to select options to be installed. If you would like to clean up your old profiles and settings, click the **Perform a clean installation** check box. Performing a clean install also removes all files related to the previous driver.



**Note:** If you are installing the Tesla C2075 as a companion device to your primary Quadro board, a clean install is recommended.

- 10** Click **Continue Anyway** (on Windows XP) or **Install this driver software anyway** (Windows Vista/7) if the Hardware Installation warning is displayed.



## 04



**Note:** This warning tells you that the drivers you are about to install have not passed the Windows logo testing (WHQL). WHQL is a Microsoft testing procedure that is required before Microsoft approves the software. Clicking Continue Anyway will not harm your computer. The drivers are currently under WHQL testing. If you do not see this warning, the drivers have passed the testing requirements. This warning displays multiple times for each GPU in the system.

- 11 Restart the computer if prompted by the user interface.
- 12 Click **Close** to complete the installation.



**Note:** It is highly recommended that you periodically visit [www.nvidia.com/drivers](http://www.nvidia.com/drivers) to update to the latest driver versions.

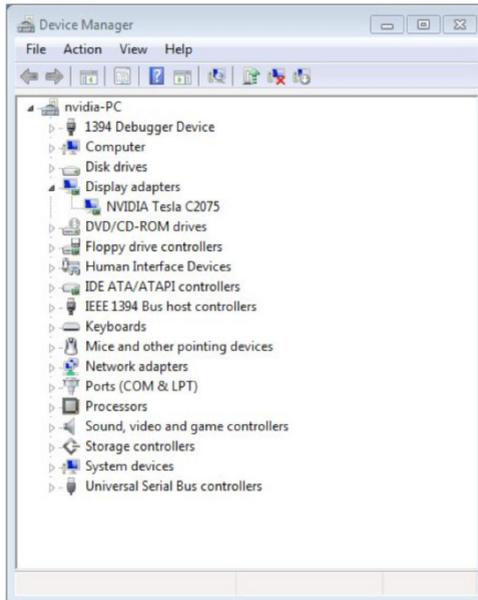
## 04

## Verifying Windows Installation

It is recommended that you verify your installation by going to the Windows Device Manager and verifying that the Tesla C2075 has been installed correctly and is recognized by the drivers.

Use the following procedure to verify the installation of the board:

- 1 Go to **Start > Computer**
- 2 Select **System Properties**
- 3 Go to **Device Manager** in the menu bar
- 4 Expand **Display Adapters** in the list
- 5 **NVIDIA Tesla C2075** will be shown in the list



## 04

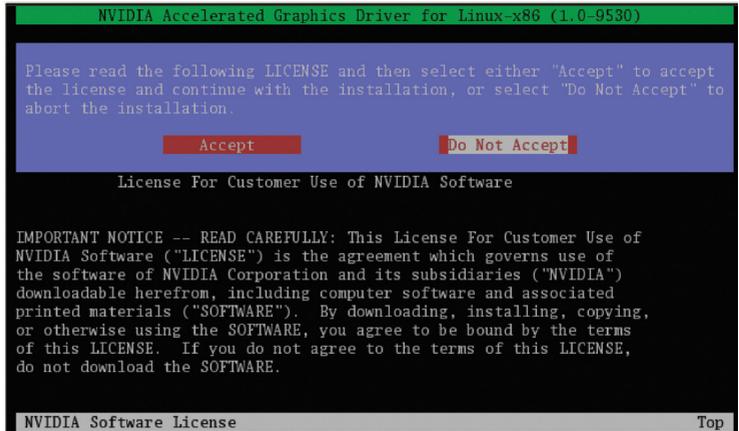
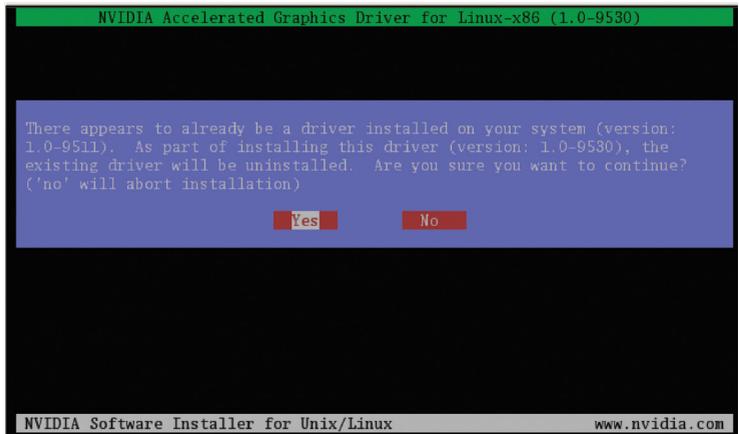
## Linux Installation

While driver installation may be carried out using the enclosed installation CD, it is recommended that the customer download the most recent drivers available at [www.nvidia.com/drivers](http://www.nvidia.com/drivers)

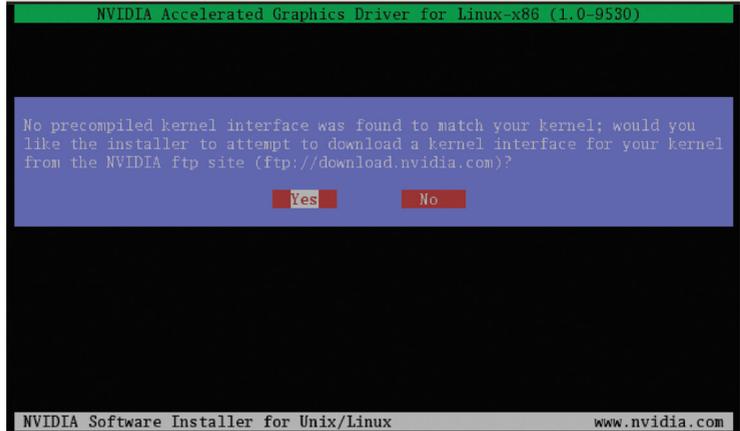
Before you begin the installation, you should exit the X server and close all OpenGL applications (it is possible that some OpenGL applications persist even after the X server has stopped). You should also set the default run level on your system such that it will boot to a VGA console and not directly to X. Doing so will make it easier to recover if there is a problem during the installation process.

- 1 Download the 32-bit or 64-bit Linux driver (the driver will have a similar naming convention as **NVIDIA-Linux-x86-100.14.11-pkg1.run** or **NVIDIA-Linux-x86\_64-100.14.11-pkg2.run**).
- 2 Change to the directory containing the downloaded file.
- 3 Run as root the **NVIDIA-Linux\*.run** file downloaded in Step 1. As the root user you can run the following executables:  
**cd download\_directory**  
**NVIDIA-Linux-x86-xxx-xx-xx.run** or **NVIDIA-Linux-x86\_64-xxx-xx-xx.run**  
The **NVIDIA-Linux\*.run** file is a self-extracting archive. When executed, it extracts the content of the archive and runs the contained **nvidia-installer** utility, which provides an interactive interface to walk you through the installation.  
**nvidia-installer** will also install itself to **/usr/bin/nvidia-installer** which may be used at some later time to uninstall drivers, auto download updated drivers, etc.

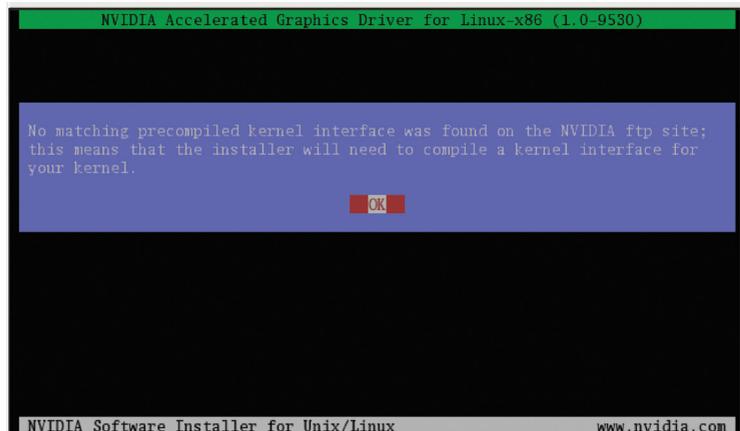
## 04

4 Select **Accept** to accept the License Agreement.5 Select **Yes** if a warning window displays indicating that there are drivers already installed. Selecting **Yes** tells the installation process to overwrite the previously installed drivers.

- 6 Select **Yes** when the Kernel Interface window displays.  
When the installer is run, it will determine if it has a precompiled kernel interface for the kernel you are running. If it does not have one, it will check if there is one on the NVIDIA FTP site and download it.



- 7 Select **OK** to compile a kernel interface.  
If a kernel interface cannot be downloaded, either because the FTP site cannot be reached or because one is not provided, the installer will check your system for the required kernel sources and compile the interface for you. You must have the source code for your kernel installed for compilation to work. On most systems this means that you will need to locate and install the correct kernel source, kernel headers or kernel development package.



## 04

Linking of the kernel interface (in the case that the interface downloaded or compiled at installation) required you to have a linker installed on your system. The linker, usually `/usr/bin/ld`, is part of the `binutils` package. If a precompiled kernel interface is not found, you must install a linker prior to installing the NVIDIA driver.

- 8 Run **nvidia-xconfig** utility.  
**nvidia-xconfig** will find the X configuration file and modify it to use the NVIDIA X driver. In most cases, you can answer **Yes** when the installer asks if it should run it. If you need to reconfigure your X server later, you can run **nvidia-xconfig** again from a terminal. **nvidia-xconfig** will make a backup copy of your configuration file before modifying it.
- 9 Installation is complete.



**Note:** The X server must be restarted for any changes to its configuration file to take effect.

More information about **nvidia-xconfig** can be found in the **nvidia-xconfig** manual page by running:  
**% man nvidia-xconfig**

## Verifying Linux Installation

- 1 Run **nvidia-settings** to displays the Server Settings window.
- 2 Verify here that the installation is correct and working.



# 05

## REFERENCES AND RESOURCES

### Getting Driver Updates

During NVIDIA software installation, the installation wizard provides an option to check for updated software online. You can also download software updates by visiting: [www.nvidia.com/drivers](http://www.nvidia.com/drivers)

# 06

## REGISTRATION, WARRANTY, AND SUPPORT

### Registering Your Tesla C2075 Computing Board

Registering your Tesla C2075 computing board, gives you priority access to the NVIDIA Customer Care support center. Once you have completed registration, you will be given a user ID and password for online customer care. You can also elect to receive automatic notification of special promotions and software updates through email to ensure that your Tesla C2075 computing board continues to operate optimally.

### Warranty and Support

The Tesla C2075 is covered by a 36 month warranty.

For support, visit the Customer Care Center at [www.nvidia.com/support](http://www.nvidia.com/support). The Web site offers access to a broad range of product information.

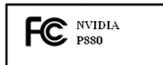
# 07

## COMPLIANCE AND CERTIFICATIONS

The following regulatory compliance statements apply to the products documented by this manual.

### US Federal Communications Commission Compliance

#### FCC– Federal Communications Commission



Title 47 of Code of Federal Regulation (CFR) part 15

**CAUTION:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- > Reorient or relocate the receiving antenna.
- > Increase the separation between the equipment and receiver.
- > Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- > Consult the dealer or an experienced radio/TV technician for help.

## CANADA COMPLIANCE

### Industry Canada

ICES-003:2004 - Digital Apparatus: Spectrum Management and Telecommunications Policy; Interference-Causing Equipment Standard

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## AUSTRALIA AND NEW ZEALAND COMPLIANCE

### C-Tick - The Australian Communications Authority (ACA) and the Radio Spectrum Management Group (RSM) of New Zealand



AS/NZS CISPR 22:2009 standard – Information technology equipment-Radio disturbance characteristics-limit and methods of measurement

CAUTION: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## JAPAN COMPLIANCE

### VCCI - Voluntary Control Council for Interference by Information Technology Equipment



- > V-1/09.04: Agreement of Voluntary Control Council for Interference by Information Technology Equipment
- > V-2/09.04: Rules for Voluntary Control Measures
- > V-3/09.04: Normative Annex 1 Technical Requirements
- > V-4/09.04: Normative Annex 1-1 Supplementary Test Conditions for Equipment under Test

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取扱説明書に従って正しい取り扱いをして下さい。

## KOREA COMPLIANCE

### KC – Korea Certification



**NVA-P880-000 (B)**

- > KN 22 (CISPR 22: Information technology equipment-Radio disturbance characteristics - limit and methods of measurement)
- > KN 24 (CISPR 24: Information technology equipment - immunity characteristics-limit and methods of measurement)

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## TAIWAN COMPLIANCE

### BSMI - Bureau of Standards, Metrology and Inspection



**D33088**

- > CNS 13438:2006 (CISPR 22: Information technology equipment-Radio disturbance characteristics-limit and methods of measurement)

## EUROPEAN UNION COMPLIANCE

### CE – European Conformity (Conformité Européenne)



Product comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms

(The equivalent international standards are in parenthesis)

- > EN 55022:2006 +A1:2007 (CISPR 22): Information technology equipment–Radio disturbance characteristics –limit and methods of measurement
- > EN 55024:1998+A1:2001+A2:2003 (IEC 61000-4-2, 3, 4, 5, 6, 8, 11): Information technology equipment - immunity characteristics-limit and methods of measurement
- > EN 61000-3-2:2006 (IEC 61000-3-2): Electromagnetic compatibility (EMC)-Part 3-2: Limits-Limits for harmonic current emissions (equipment input current  $\leq 16$  A per phase)
- > EN 61000-3-3:2008 (IEC 61000-3-3): Electromagnetic compatibility (EMC)-Part 3-3: Limits-Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection)

## UL, CUL COMPLIANCE



- > UL60950-1, 2<sup>nd</sup> edition, 2007-03-27: Information technology equipment - Safety - Part 1: General requirement
- > CSA C22.2 No. 60950-1-07, 2<sup>nd</sup> edition, 2007-03: Information Technology equipment - Safety - Part1: General requirement

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