



S3 Graphics Video Wall Driver Package

USER GUIDE



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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.

CONDITIONS OF USE:

This device complies with Part15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION:

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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Purpose

This user guide provides information on installing and using the S3 Graphics Video Wall Driver Package.

Video Wall Driver Package Requirements

- ↳ A PCIe (PCI Express), x86-compliant system
- ↳ CPU requirements: Intel Xeon W3520 (2.66GHz) or higher
- ↳ Operating System:
 - Windows 7 32-bit
- ↳ Memory: 2 GB or greater
- ↳ S3 Graphics Video Wall Driver Package Software
- ↳ HDMI Display(s)
- ↳ Display adapter card: S3 Graphics 5400EW adapter; Single Core or Dual Core

Video Wall Display Adapter Cards

Two types of display adapter cards are available for the Video Wall Driver Package:

1. Single Core with 4 HDMI Ports
2. Dual Core with 2 VHDCI Ports + 2 VHDCI Cables

Recommended Systems

Chipset	Recommended Motherboard	CPU	System Memory
NVIDIA nForce® 650i SLI™	ASUS P5N-E	Intel® Core™2 Duo Desktop Processor	1 - 2 GB
Intel® G33 Express	ECS G33T-M2	Intel® Pentium® Desktop Processor	1 - 2 GB
Intel® P55 Express Chipset	ASUS P7P55D	Intel® Core™ i5 Desktop Processor	1 - 2 GB
Intel® X48 Express	ASUS P5E DELUXE	Intel® Core™2 Quad Desktop Processor	1 - 2 GB
Intel® X58 Express	HP Z400 Workstation ASUS P6T6 WS Revolution Gigabyte X58A-UD3R	Intel® Xeon® Server processor Intel® Core™ i7 Desktop processor	2 - 4 GB

Installation Overview

To install and use the S3 Graphics Video Wall Driver Package:

1. Install the S3 Graphics Video Wall Driver Package hardware
2. Determine the Video Wall Driver Package configuration
3. Connect your HDMI Displays
4. Install the Video Wall Driver Package software
5. Configure your Video Wall Driver Package.



Install the Video Wall Driver Package hardware



Warning: To avoid accidental electric shock, shut your computer down and unplug the power cord. To avoid damage from static electrical discharge and to ground yourself, touch the metal chassis on your computer before starting any procedures below.

Have your CD with S3 Graphics Video Wall Driver Package software available. You will need it later.

Step 1. Turn off your system and un-plug it.

Step 2. Remove your system cover. Remove any bay bracket or existing board from the PCIe slot you will use.

Step 3. Insert your Video Wall Single Core or Dual Core graphics board firmly into the PCIe slot in your motherboard and secure it with any screws or braces that came with the system.

Determine the Video Wall Driver Package configuration

The Video Wall Driver Package may be configured using one, two or three cores, each with a set of supported layouts.

SINGLE CORE

Core0: 1 x 5400EW	Display Output				
1x3 Topology: 1 column x 3 row	CORE0	A1	A2	-	A4
2x2 Topology: 2 column x 2 row	CORE0	A1	A2	A3	A4

DUAL CORE

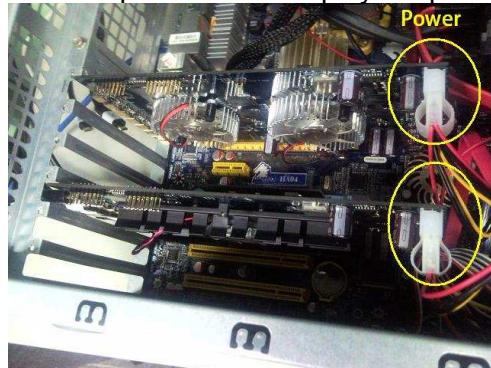
CORE0/CORE1: 1 x 5400EW	Display Output				
2x3 Topology: 2 column x 3 row	CORE0	B1	B2	-	B4
	CORE1	B5	B6	-	B8
2x4 Topology: 2 column x 4 row	CORE0	B1	B2	B3	B4
	CORE1	B5	B6	B7	B8

Once your desired Video Wall Driver Package configuration has been determined, you are ready to connect the display adapter card(s) to the HDMI displays.



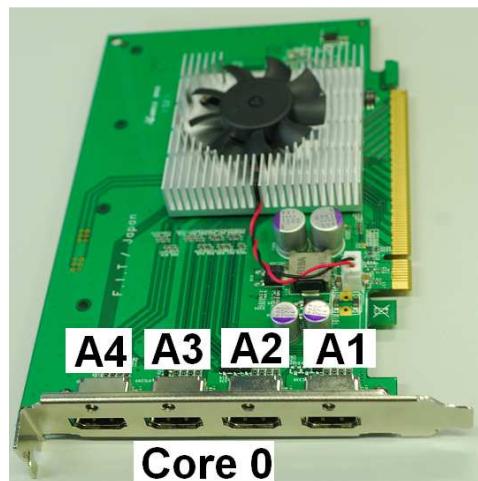
Connect your HDMI display(s)

Step 1. Connect power to the display adapter card.



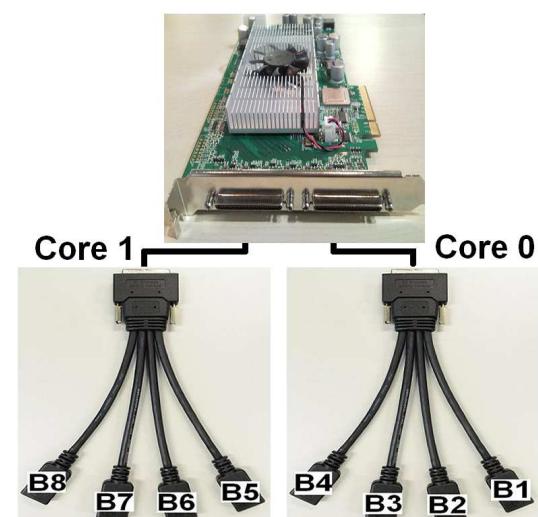
Step 2. Determine the primary HDMI display device. The Video Wall Driver Package will designate this display as the boot device.

Single Core with 4 HDMI Ports



In the Single Core adapter configuration, there is one Core and four HDMI ports. The primary HDMI display device should be connected to the HDMI port labeled **A2**.

Dual Core with 2 VHDCI Ports + 2 VHDCI Cables



In the Dual Core adapter configuration, there are two Cores with eight Micro-HDMI ports. In this configuration, the boot device is determined by the System BIOS setting on the motherboard. Based on this setting, the primary HDMI display should be connected to the HDMI port labeled either **B2** or **B6**.



Step 3. Use the micro-HDMI to HDMI cable to connect the HDMI displays in your configuration to the display adapter. If you have the Triple Core system, connect the second HDMI display to the second display adapter card. Refer to the [Appendix 1: Video Wall Layout Configurations](#) for the various layout configurations.

Step 4. Replace the system cover.

Step 5. Reconnect other cables and power cords as needed.

Step 6. Turn on the system to boot to the desktop.

Step 7. After the system has rebooted, use standard procedures to configure your attached HDMI display devices to have the same resolution, refresh rate and color depth through **Display Properties Settings**.

Step 8. Once your HDMI display devices have all been configured, click **OK** to exit Display Properties to activate any changes.

Step 9. Proceed with installation of the Video Wall Driver Package software.



Install the Video Wall Driver Package software

Step 1. As Windows launches, a **Found New Hardware Wizard** message window appears.

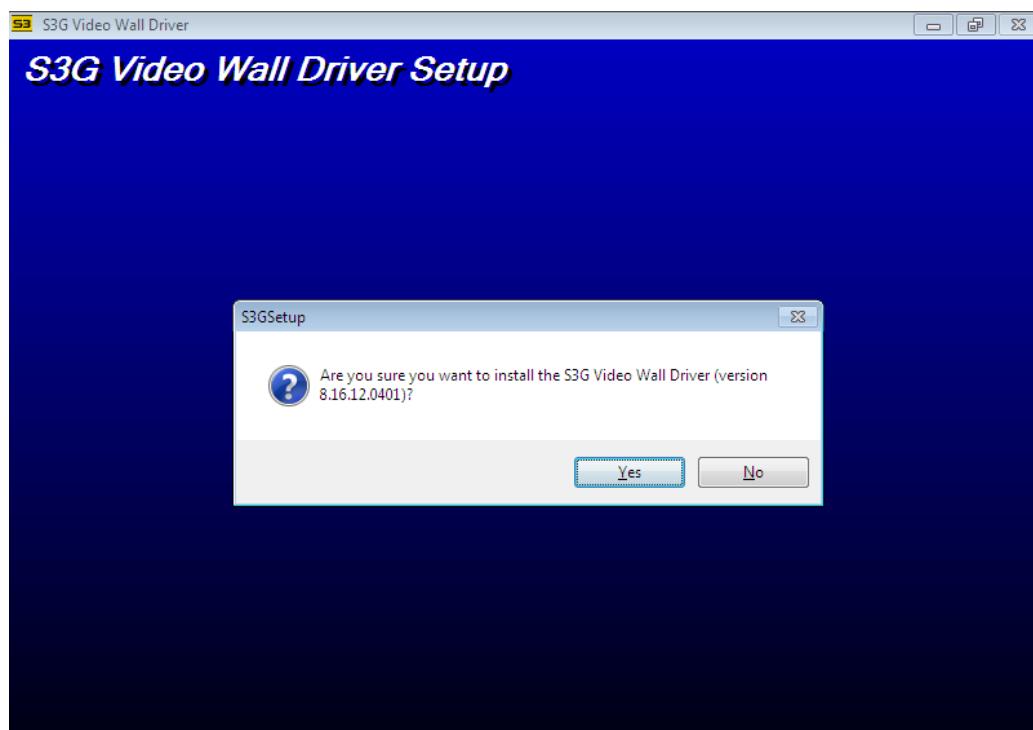
Step 2. Insert your CD with the S3 Graphics Video Wall Driver Package software in your CD-ROM drive. The CD should auto-run and launch the install tool.

Tip: If your CD does not auto-run the install program, Click **Start, Run and Browse** to **D:\WinXP\SETUP.EXE** (where D: is your CD-ROM drive, and WinXP is the subdirectory where the S3 Graphics driver package resides). Click **Open**. Installation should proceed similar to the method described below.

Tip: Alternately, click **Next** to **Install the software automatically**. The Wizard will look for the appropriate drivers, copy drivers and related software to your system, and proceed automatically with the installation. The screen will report **Please wait while the wizard installs the software...**

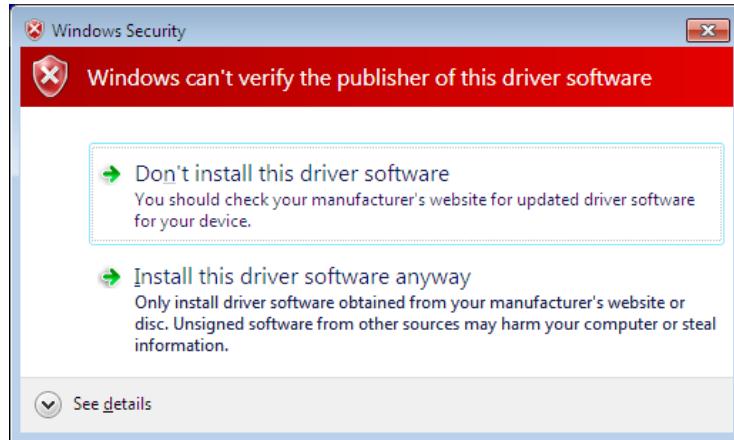
If you cannot find the install program or do not want to locate the drivers automatically, select **Install from a list or specific location (Advanced)**, click **Next**, and browse to the directory where the **S3 Graphics** display adapter driver files reside. Continue by clicking the appropriate prompts.

Step 3. Click **Yes** on the setup confirmation dialog to continue with the setup.



Step 4. Click the **“Install this driver software anyway”** button to setup the S3 Graphics display adapter if the following dialog is displayed.:





Step 5. An installation window may appear and report the progress of your installation.

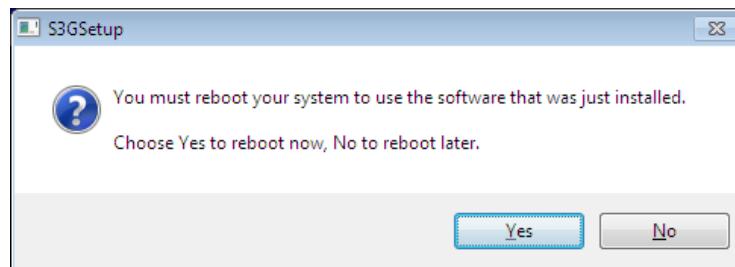
Tip: If a message window appears indicating your software "has not passed Windows Logo testing", click **Continue Anyway** to force the installation.

Note that the screen may go blank for a second or two during the driver installation process. This is normal.

The install process may take a few minutes.

If the **Completing the Found New Hardware Wizard** window appears, click **Finish**.

Step 6. After the installation of the driver has completed successfully, click **Yes** to reboot your system.



Congratulations. Your Video Wall Driver Package software is now installed.

Continue to configure your Video Wall Driver Package.



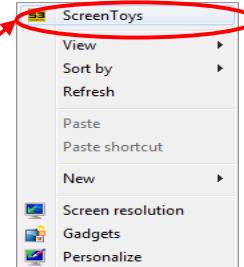
Configure your Video Wall Driver Package

After a successful driver installation, you are ready to configure your audio device and the Video Wall Driver Package, accessible through the S3 ScreenToys configuration pages.

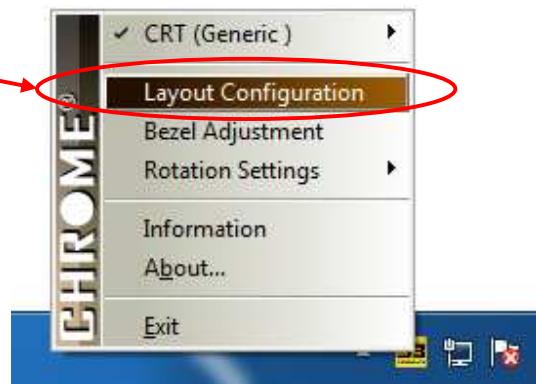
Configure Video Wall using S3 ScreenToys

To access the **S3 ScreenToys Video Wall** configuration settings:

- 1) Right click on an unpopulated area of the desktop. Select S3 **ScreenToys** to open the S3 ScreenToys utility pages.
or
- 2) Right click on the S3 taskbar icon to bring up the CHROME menu list.



Select the Video Wall menu item from the CHROME menu list.

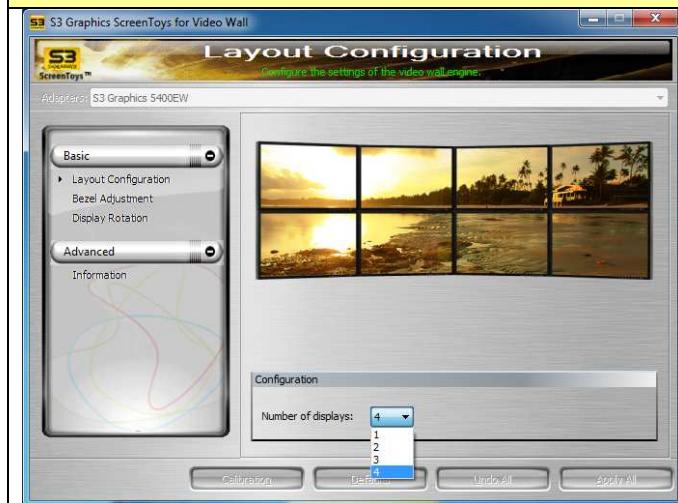


S3 Graphics ScreenToys provides the following utilities to configure your Video Wall Driver Package:

- Layout Configuration page – to configure the Video Wall Layout settings
- Bezel Adjustment page – to adjust display bezel settings
- Display Rotation page – to configure the rotation of the displays
- Information page – to provide system hardware/software information



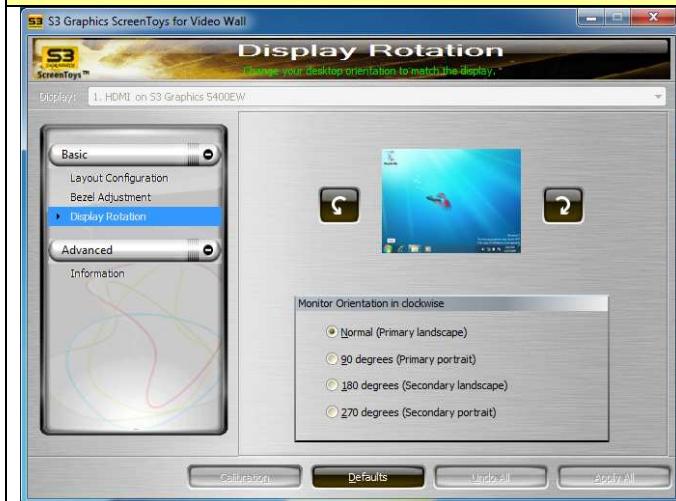
Layout Configuration Page



Bezel Adjustment page



Display Rotation page



Information page



Set the layout configuration

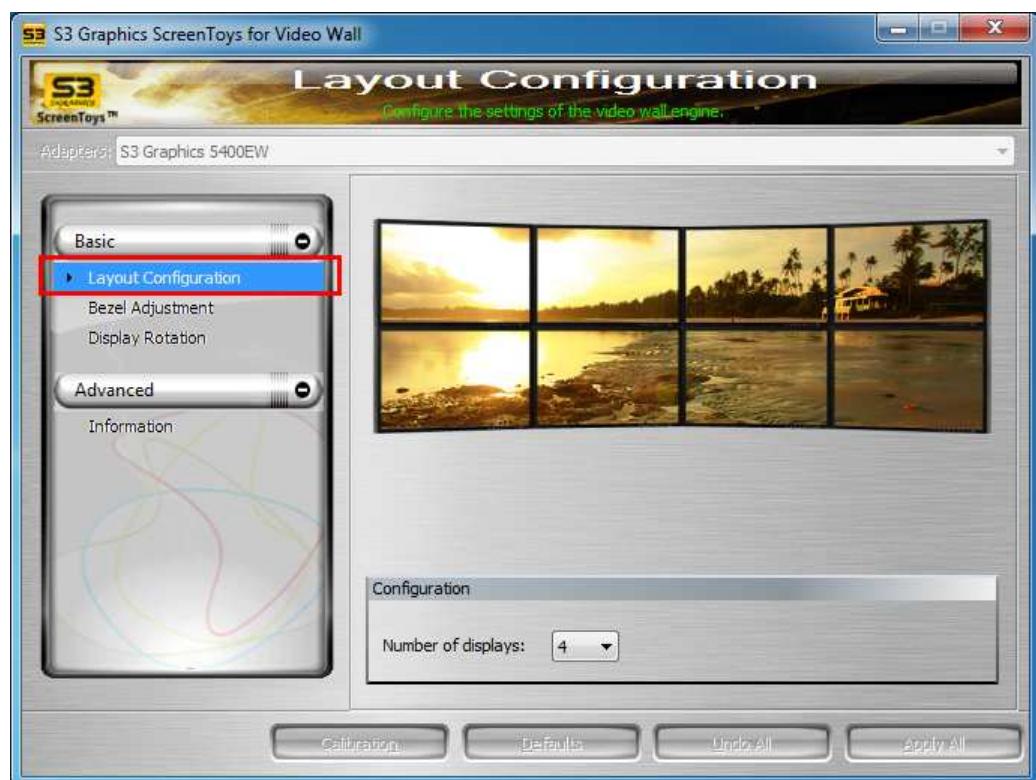
The default layout for the initial boot up after the driver installation is Clone mode. In Clone mode, every display shows the same output. The total number of displays in Clone mode = (4 * N), where N = the number of cores. For example:

Single Core, Clone mode: 4 displays
Dual Core, Clone mode: 8 displays

Note: The following steps are based on a Dual Core configuration.

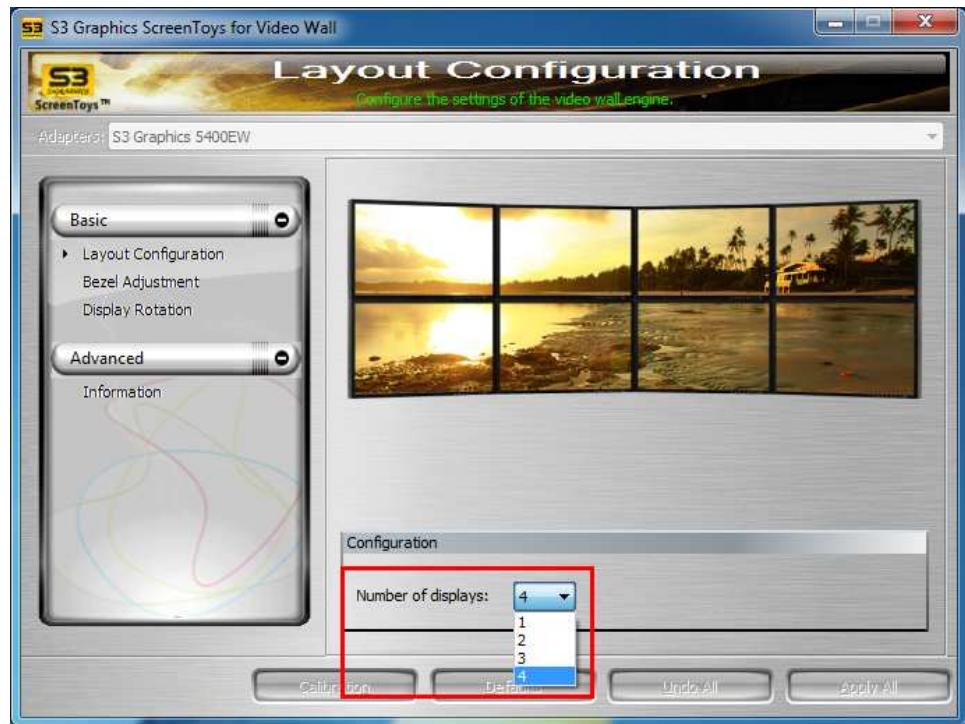
Step 1. Launch the S3 ScreenToys utility by right-clicking the desktop menu or right-clicking the S3 taskbar icon.

Step 2. Select the **Layout Configuration** page.



Step 3. Set the number of displays that are connected on each core.





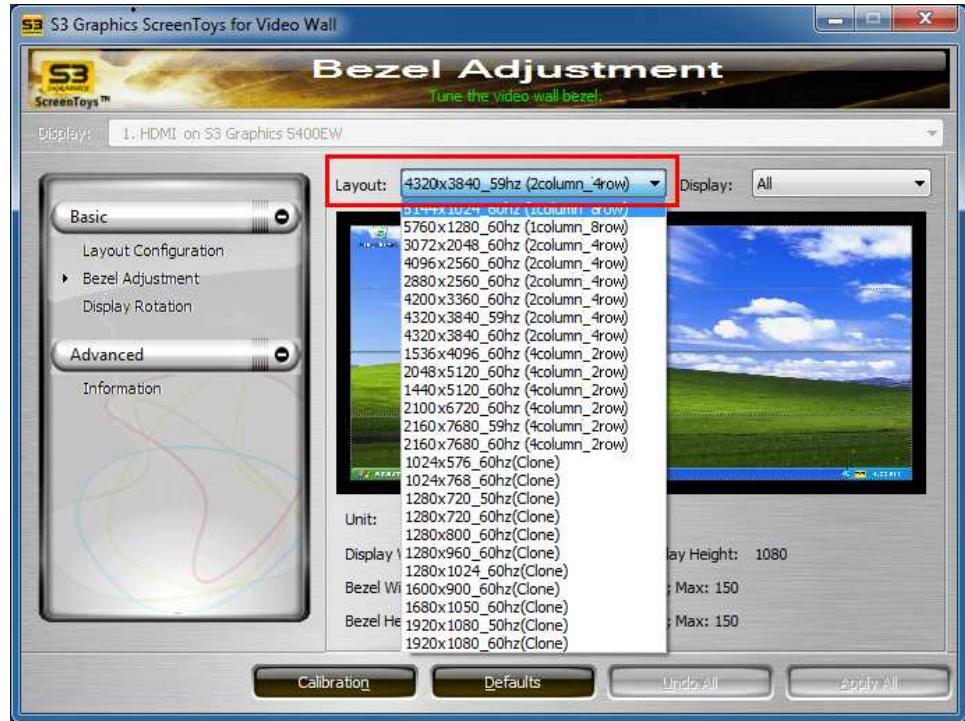
Step 4. After the completion of the Video Wall Engine Status configuration, click **OK** to apply, or **Cancel** to restore the original settings.

Step 5. Click **Yes** to reboot your system.



Step 6. After rebooting into the desktop, set the appropriate layout configuration using the **Layout** dropdown list at the top of the **Bezel Adjustment** page of the S3 Graphics ScreenToys utility.





Configure the display bezel width and height

Video wall displays may result in images appearing distorted due to the space between the individual displays. The display bezel may be adjusted to match the actual display device bezel width and height to compensate for the physical space between your displays.

Bezel Width: Adjustment range: 0~150; Minimum step: 2

Bezel Height: Adjustment range: 0~150; Minimum step: 1

Notes:

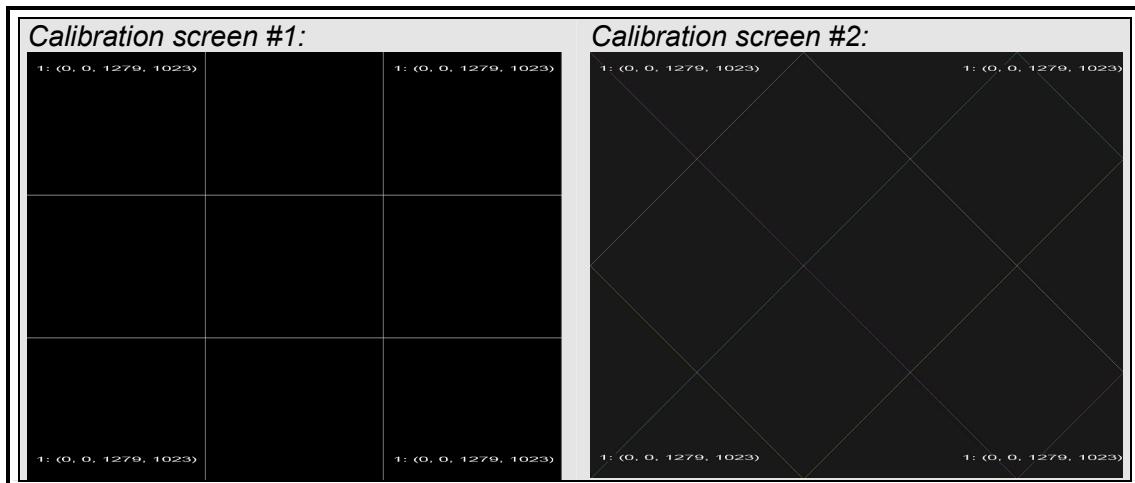
- 1) For the single (1) row configuration, only the bezel width may be adjusted.
- 2) For the single (1) column configuration, only the bezel height may be adjusted.
- 3) For the Clone configurations, the bezel width or height may not be adjusted.

Step 1. Adjust the bezel width.

Step 2. Adjust the bezel height.



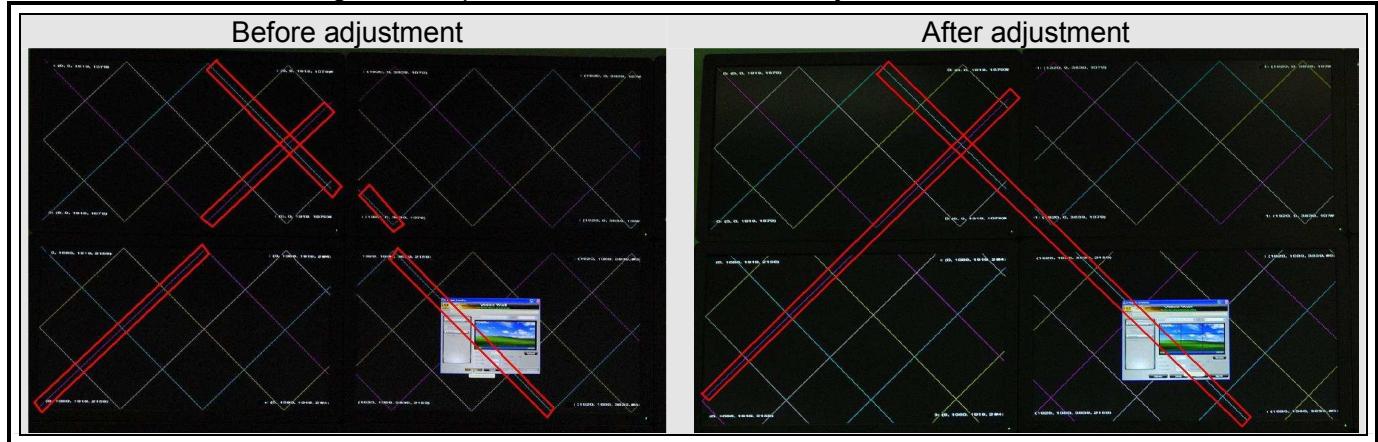
Step 3. Click the **Calibration** button at the bottom of the screen to toggle through the calibration screens to help calibrate the adjusted bezel width and height. The calibration screens are provided for manual adjustments of the bezels.



Clicking the **Calibration** button a third time will return back to desktop.



The following is a comparison of before and after adjustment:

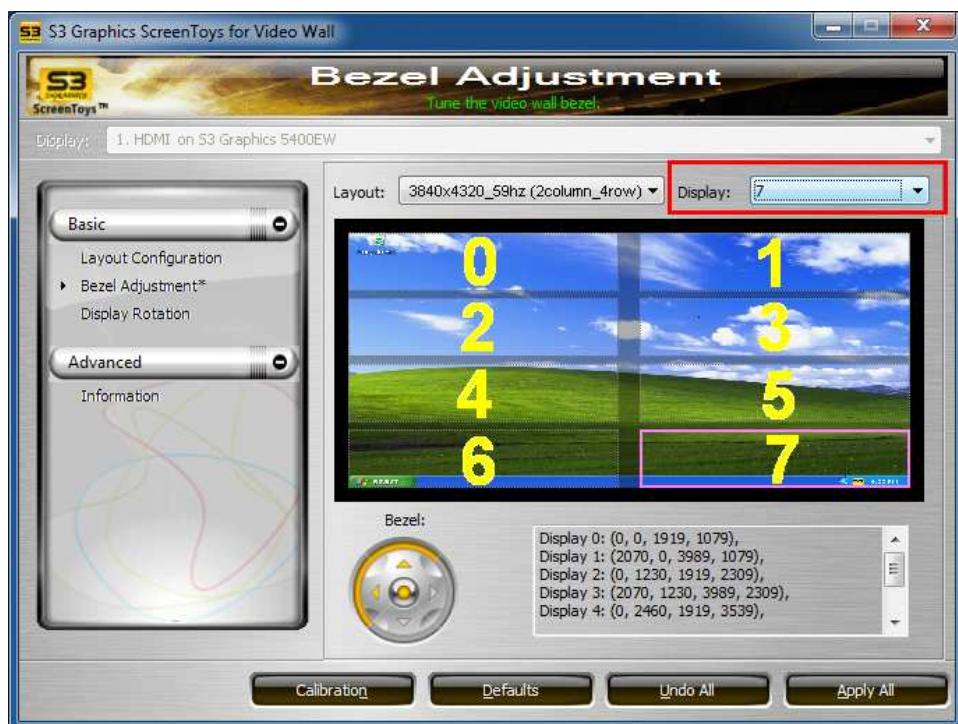


Configure the display bezel position

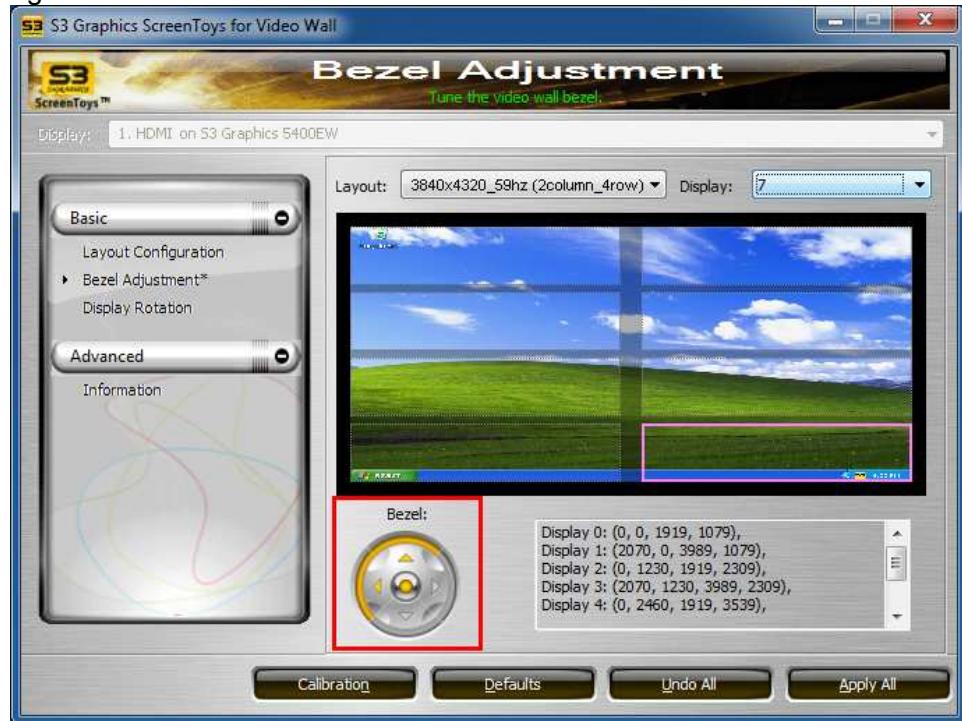
The bezel position may also be adjusted to match the actual display device bezel position for individual displays.

Step 1. Select the display number you wish to adjust by clicking on the desired display. Displays are numbered starting with Display #0 in the upper left corner of the displays in your layout. The selected display is highlighted with a pink outline as shown below.

When the **Display** dropdown list is set to a menu item other than **All**, the display bezel position controls will be visible at the bottom of the Video Wall page.

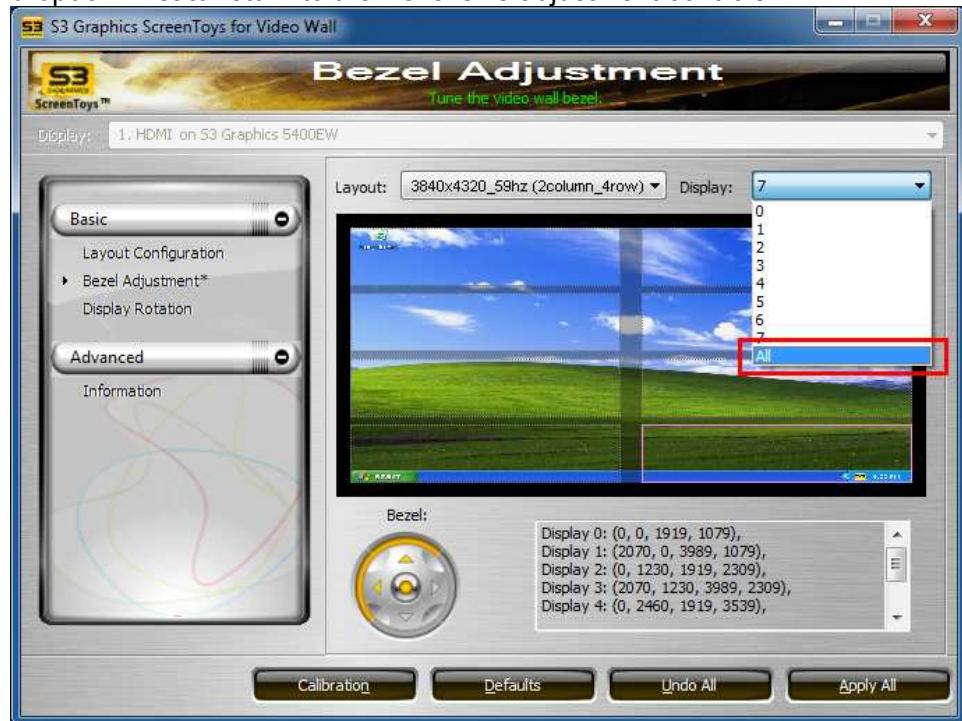


Step 2. Adjust the bezel position for the selected display using the up, down, left and right buttons on the **Bezel** round button.



Step 3. Click the **Calibration** button at the bottom of the screen to toggle through the calibration screens to help calibrate the adjusted bezel position.

Step 4. After bezel position adjustments have been made, select **All** in the **Display** dropdown list to return to the Bezel size adjustment controls.

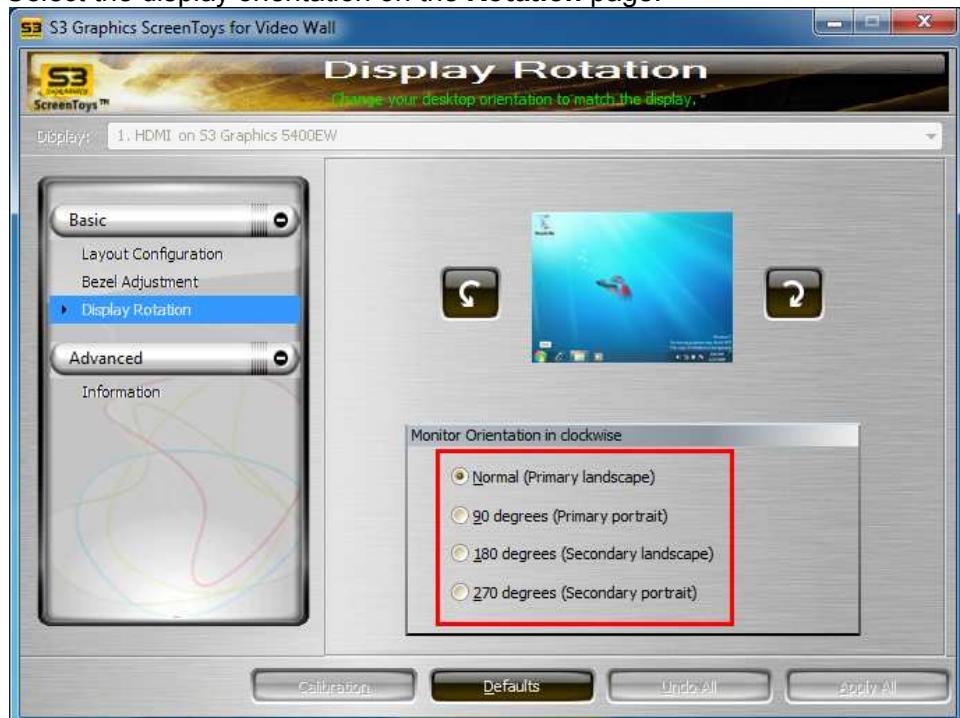


Configure the rotation of the displays

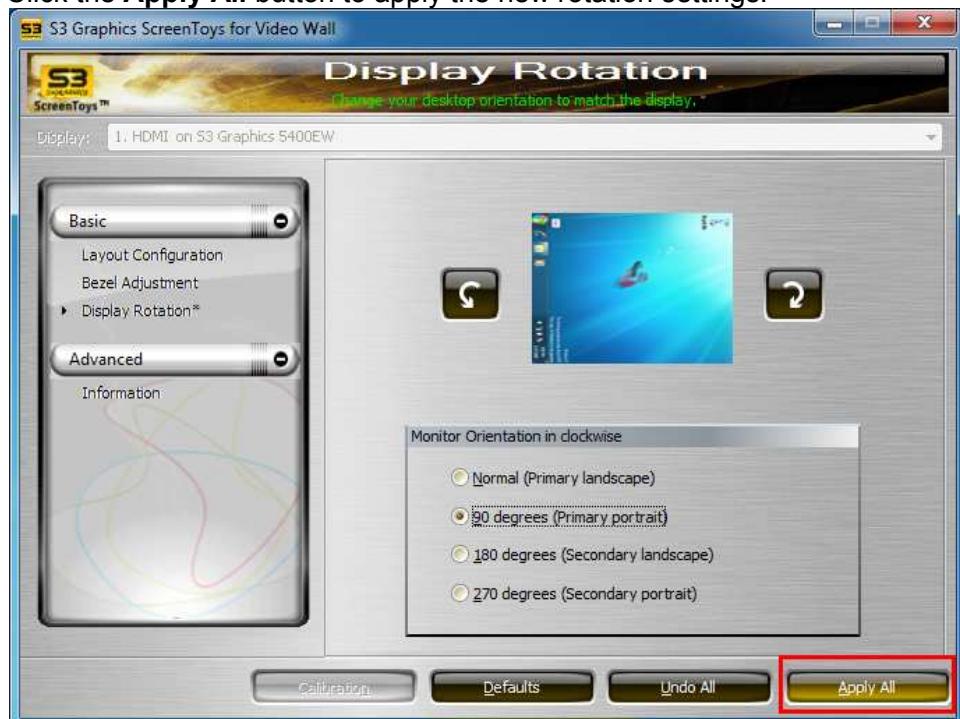
The displays in the Video Wall may be rotated and configured to show the entire image rotated as if the original video wall display was a single display.

To configure a rotated display layout:

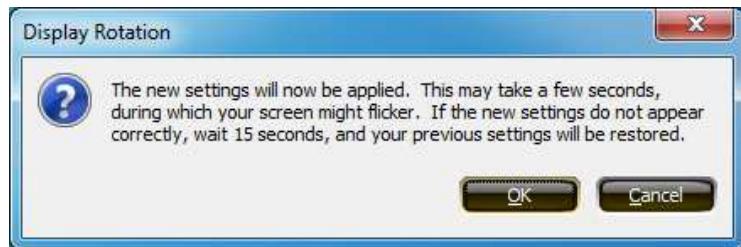
Step 1. Select the display orientation on the **Rotation** page.



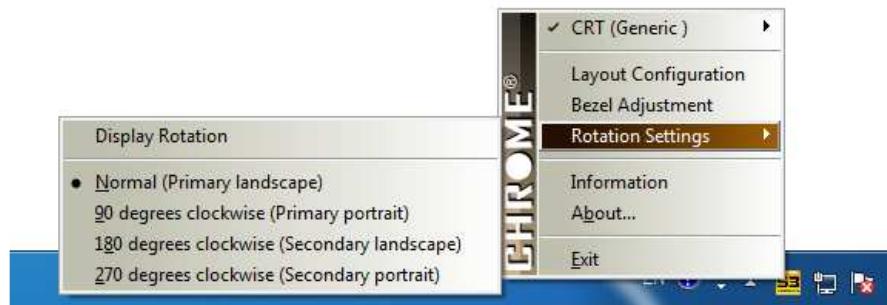
Step 2. Click the **Apply All** button to apply the new rotation settings.



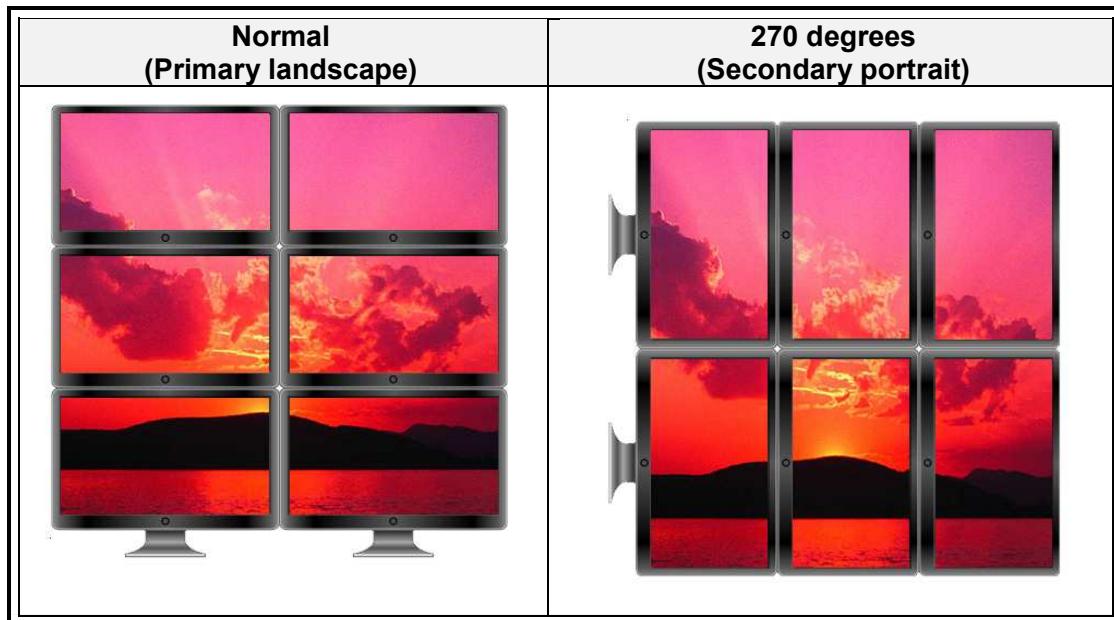
Step 3. Click the **OK** button on the confirmation dialog to confirm the new settings.



Tip: For quick access to the rotation settings, right-click the S3 Graphics icon in the taskbar, select Rotation Settings from the menu and select your desired orientation.



For example, a 2x3 topology, 270 degree rotated display layout looks like this:

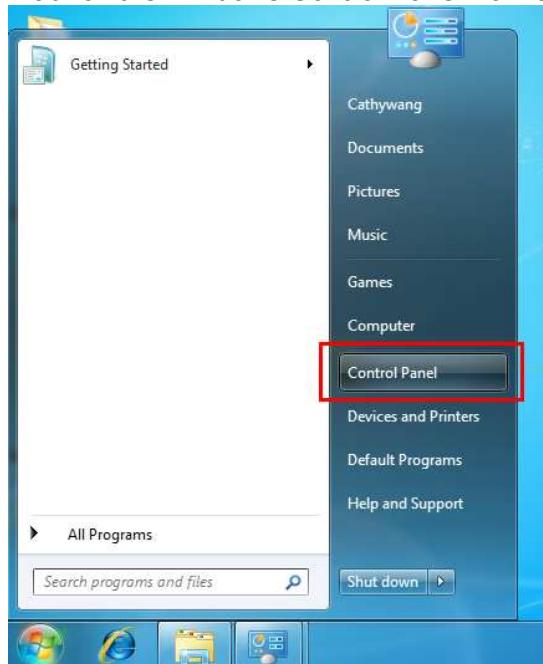


Your Video Wall Driver Package is now configured.

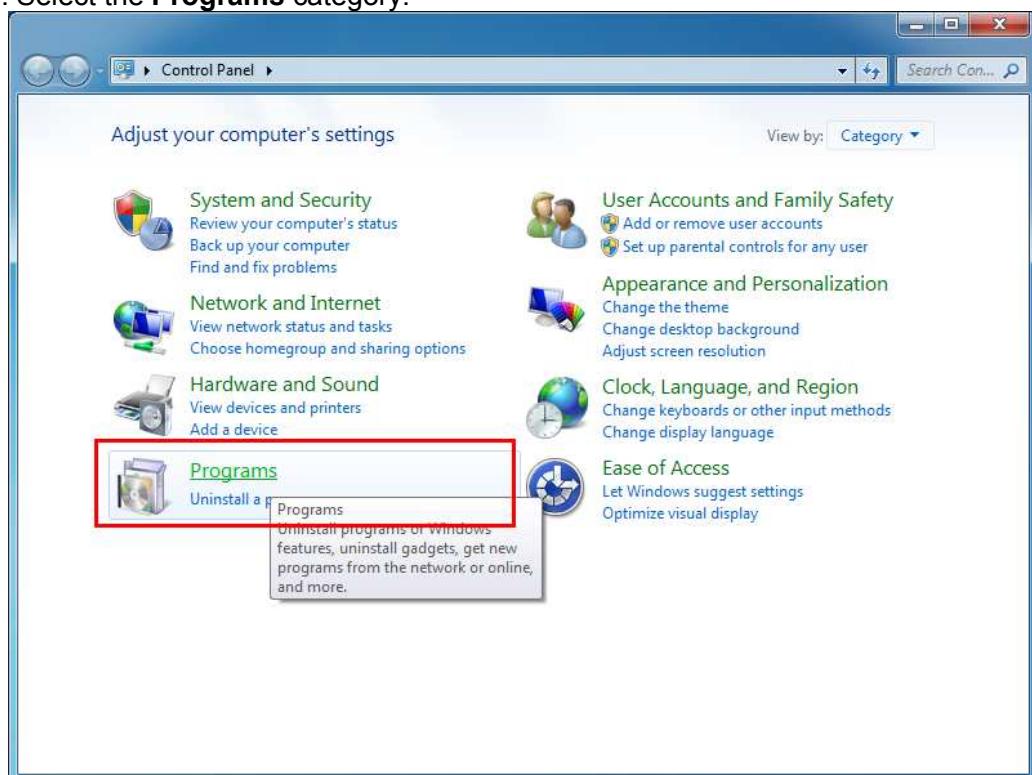


Uninstall the Video Wall Driver Package software

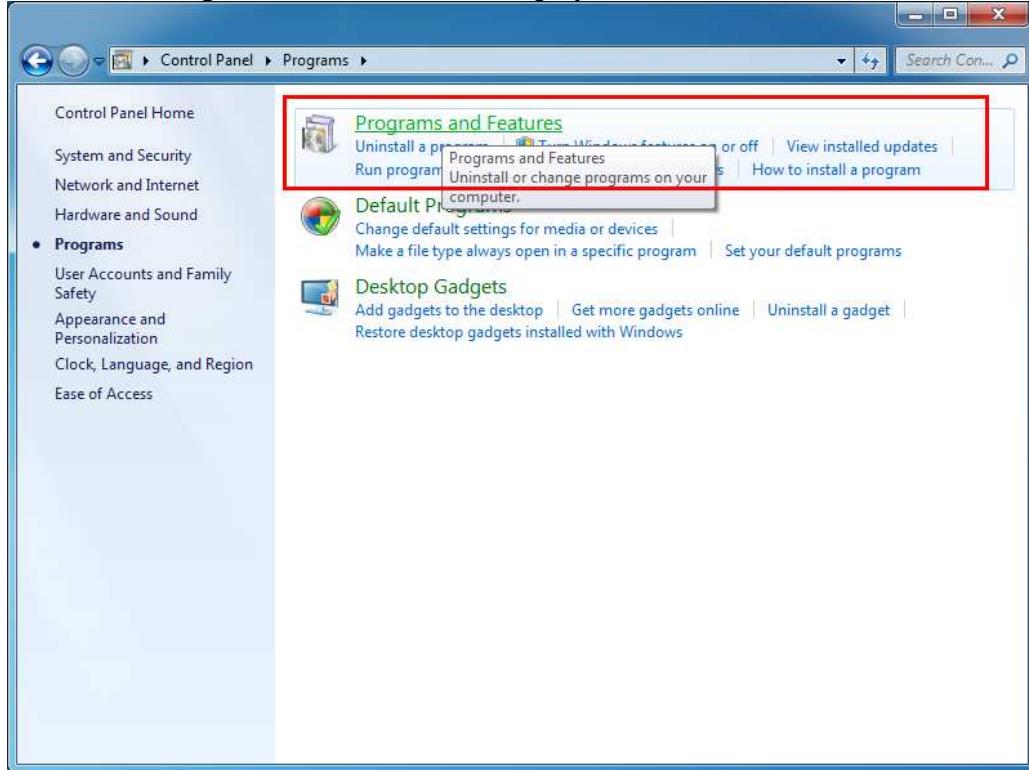
Step 1. Launch the Windows Control Panel from the Start Menu.



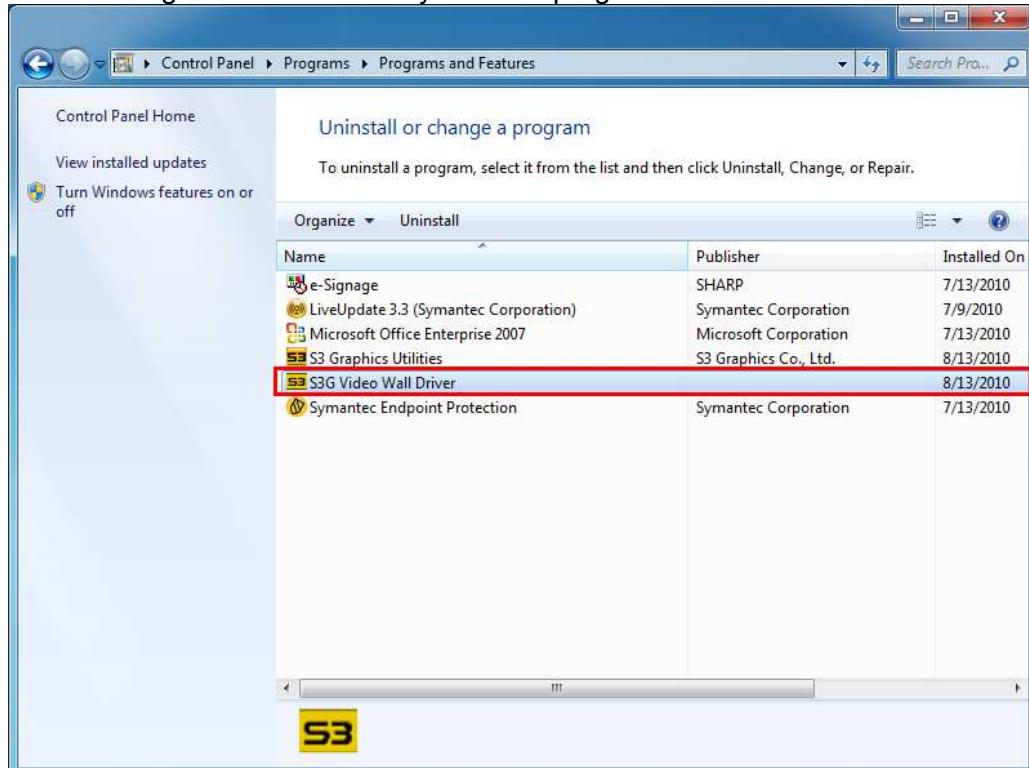
Step 2. Select the **Programs** category.



Step 3. Select the Programs and Features category.

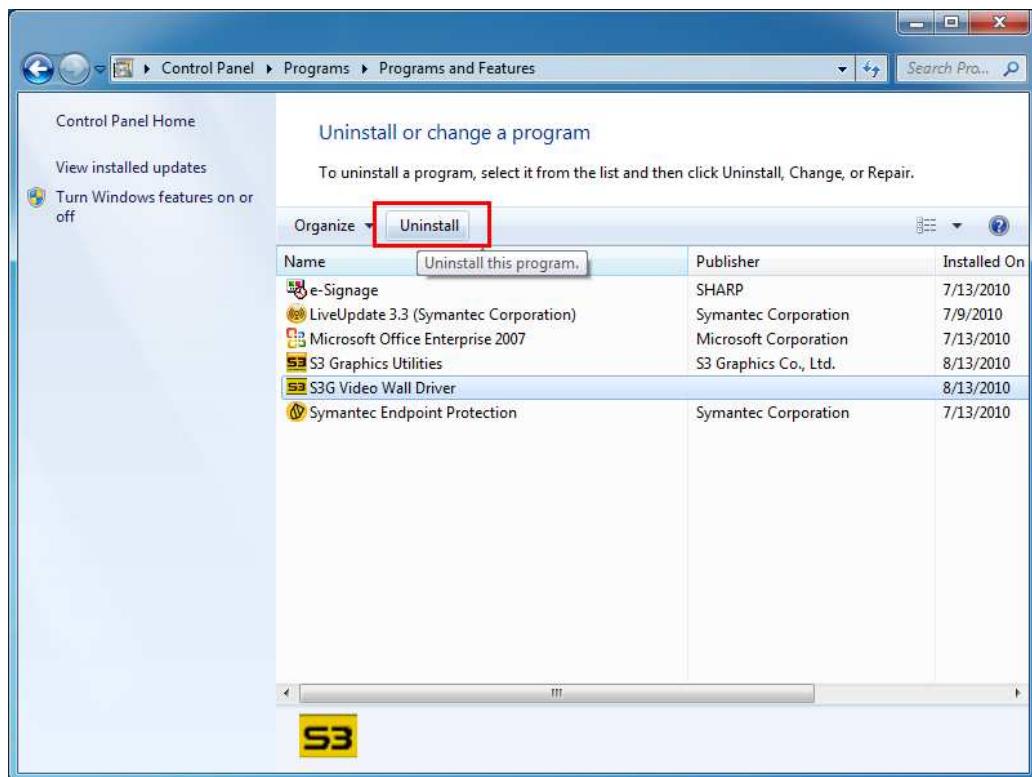


Step 4. Scroll through the list of currently installed programs and click S3G Video Wall Driver.

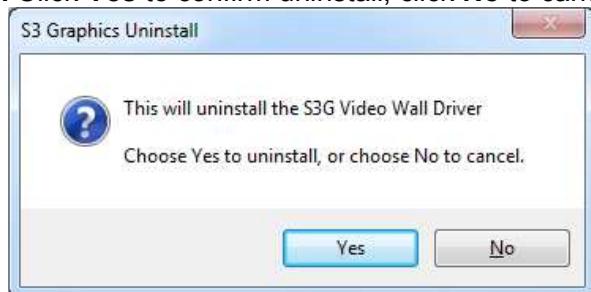


Step 5. Click Uninstall to uninstall the Video Wall Driver and its associated software.

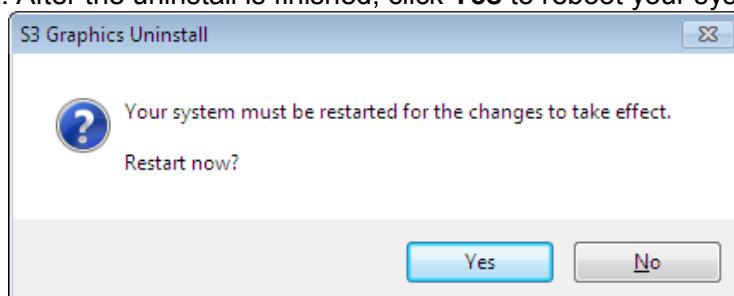




Step 5. Click **Yes** to confirm uninstall, click **No** to cancel.



Step 6. After the uninstall is finished, click **Yes** to reboot your system.



Troubleshooting

Below are some of the common solutions available for troubleshooting questions and problems that may occur with the Video Wall Driver Package installation and use.

[T1] No post screen display at boot up

Step 1: Check the S3 Graphics adapter(s).

- a. Make sure that the S3 Graphics adapter(s) are plugged into the PCIe slots.
- b. For the Triple Core case, make sure the Single Core adapter is plugged into the primary display slot and the Dual Core adapter is plugged into the secondary display slot.

Step 2: Check the monitor(s).

- a. Make sure that the monitor is turned on.
- b. Make sure that the power source for the monitor is turned on.
- c. Make sure that the monitor power cables are securely fastened to both the monitor and the power source.

Step 3: Check the video cable connections.

- a. Make sure the video cables are connected at both ends: one end to a monitor and the other end to the output of the S3 Graphics adapter.
- b. Make sure the output of the boot device is connected to the correct HDMI port. Refer to section [Connect your HDMI monitor\(s\)](#) for the HDMI port boot device:
 - i. Single Core: A2 output
 - ii. Dual Core: B2 or B6 output
- c. Make sure the output signal of the panel is correct.

Step 4: Check the Motherboard on your system

- a. If the motherboard has an integrated graphics adapter, connect a monitor to the output of the integrated graphics, reboot your system, click F2/Del to enter BIOS Settings, set the S3 Graphics adapter as the primary adapter in the CMOS Settings. (Refer to section: [Appendix 2: How to set the discrete graphics as Primary in CMOS](#).)
- b. Make sure the PCIE slot is functioning correctly:
Re-install the Video Wall Driver Package hardware. Refer to section [InstallTheVideoWallDriverPkgHardware](#). Shutdown your system, turn the power off and un-plug it. Move the S3 Graphics adapter to a different PCIe slot, turn the power back on and reboot your system.

Step 5: If Steps 1 ~ 4 still cannot resolve your problem, your adapter(s) may be broken. Try using another adapter(s).

[T2] Boot Error: non-VGA mode

Step 1: If the motherboard has an integrated graphics adapter, disable all other graphics drivers, shutdown your system, turn the power off and reboot. If a boot error persists, continue to step 2.

Step 2: Boot to safe mode, [uninstall the S3 Graphics Video Wall driver](#) using the Windows XP Control Panel and reboot your system.

Step 3: Re-install the S3 Graphics Video Wall driver package (refer to section [Install the Video Wall Driver Package software](#)).

Step 4: Perform a full system reboot.

[T3] System boots, but all of the monitors are not lit up

Step 1: Make sure that you have installed the correct S3 Graphics Video Wall driver package.

Step 2: Check the monitor power (refer to [Troubleshooting T1](#)).

Step 3: Check the video cable connections (refer to [Troubleshooting T1](#)).

Step 4: Make sure that the correct number of monitors on each Core is set ([Screenshot](#)). For more details, refer to section: [Set the layout configuration](#)).

Step 5: Perform a full system reboot.



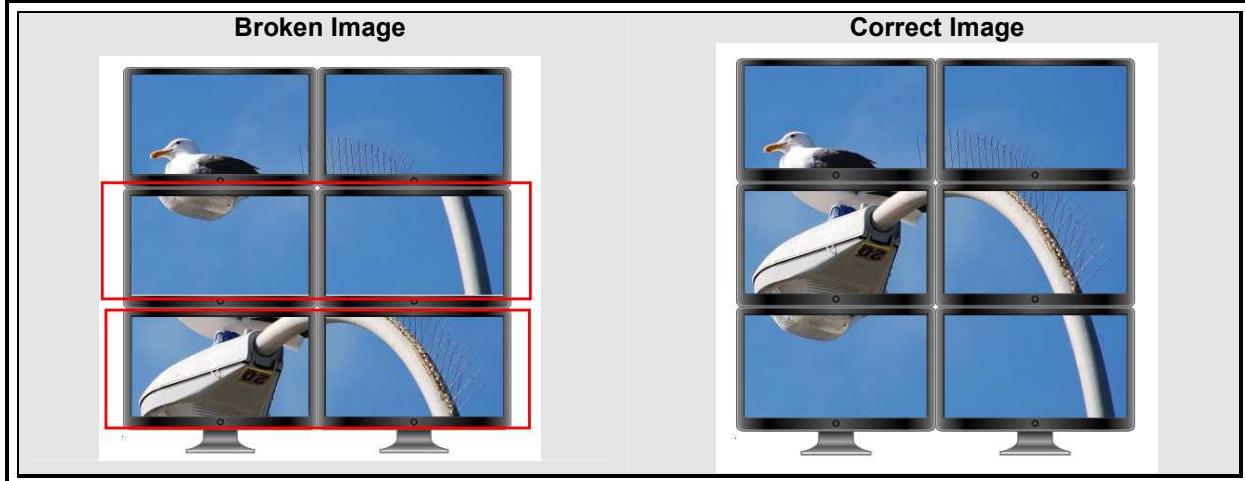
[T4] The monitors are lit up, but the sequence of the monitors is not correct.

Step 1: If the image on the screen appears to be fragmented, check the sequence of the Cores. (For more details, refer to section: [Appendix 1: Video Wall Layout Configuration Diagrams](#)).

For example:

The following diagram on the left shows a 2 x 3 topology with an incorrect image. We can see that the images on the second row and the third row are reversed.

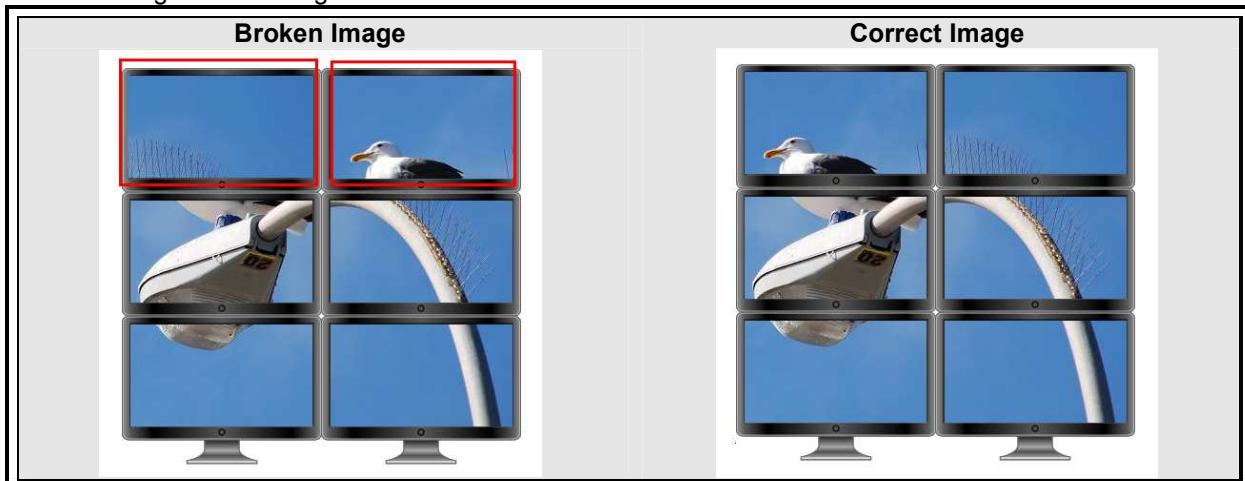
After exchanging the connection of the second Core and the third Core, the complete image is correct as shown in the diagram on the right.



Step 2: Check the connection of each Core.

For example:

The following diagram on the left shows a 2 x 3 topology with an incorrect image. On the first row, the second monitor and the third monitor are reversed. After exchanging the connection of the second monitor and the third monitor on the first row, the image is correct as shown in the diagram on the right.



[T5] The image appears to be distorted at the edge of each display.

Step 1: Adjust the bezel size and position using the utility (For more details, refer to section: [Configure the display bezel width and height](#) and section: [Configure the display bezel position](#)).



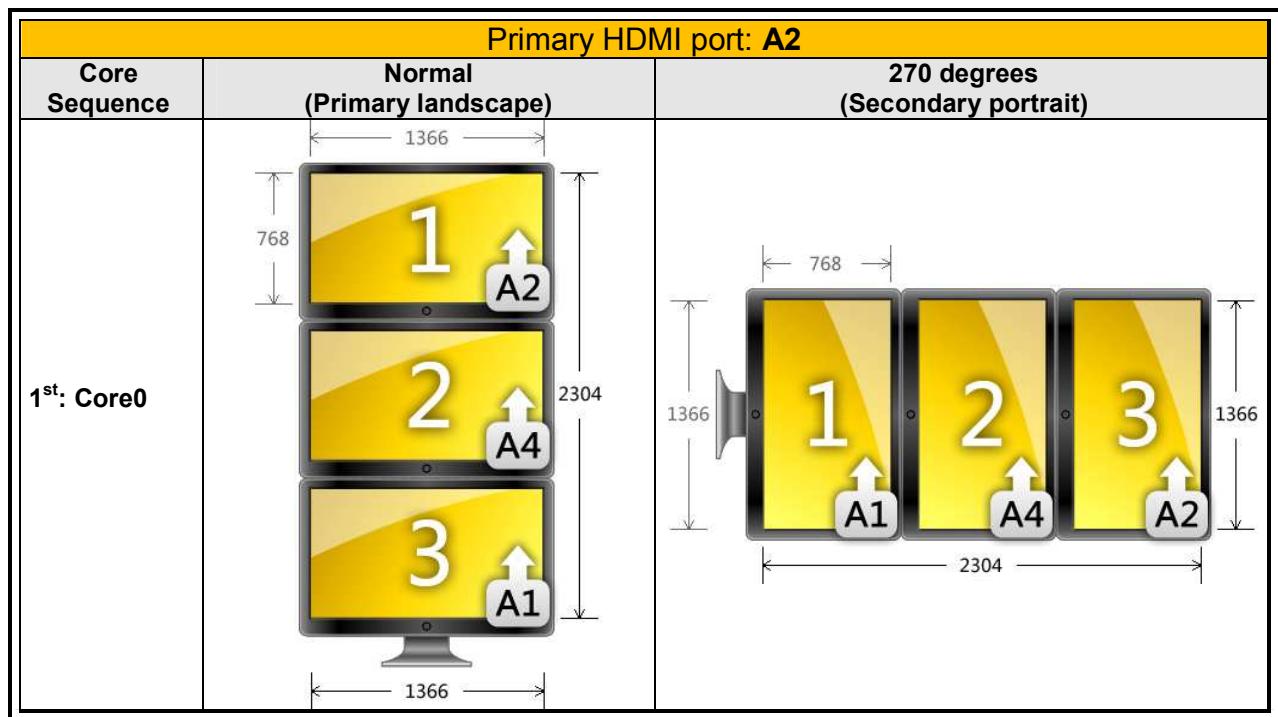
Appendix 1: Video Wall Layout Configuration Diagrams

Note: For the purposes of these examples, the following diagrams are based on display monitors with the current resolution set to 1366 x 768.

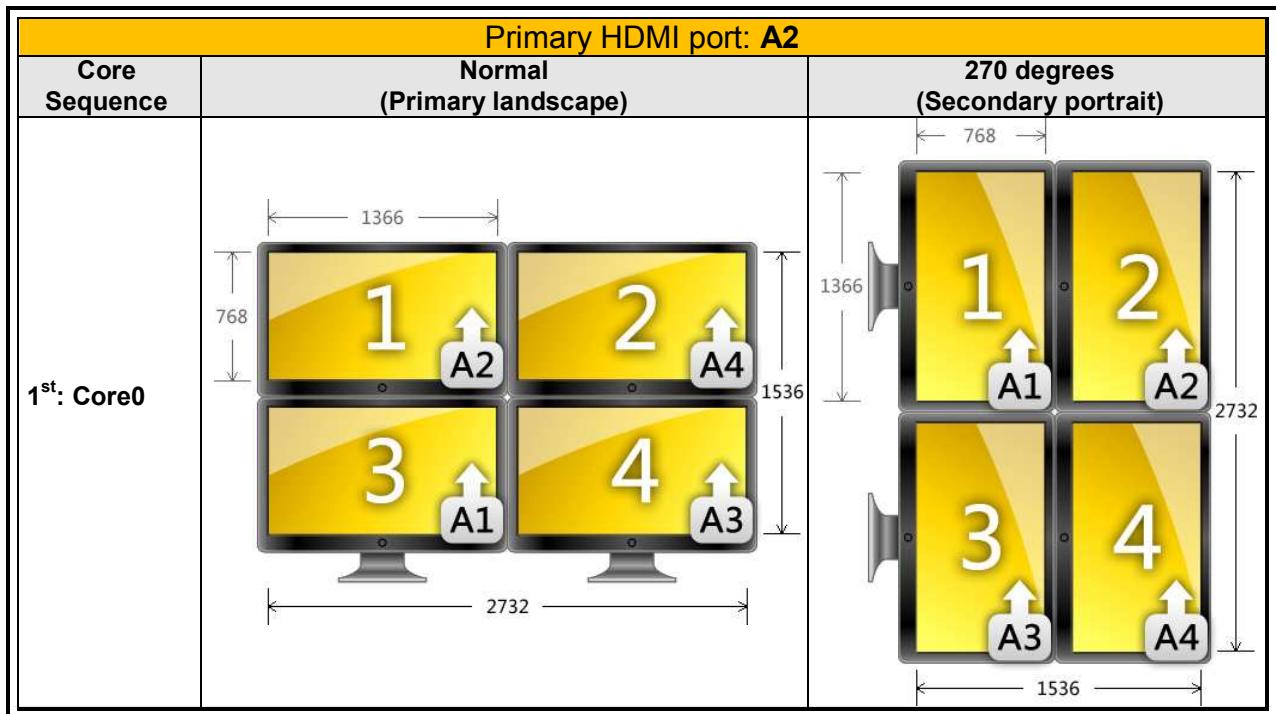
SINGLE CORE

Primary Slot	5400EW (Single Core) <Core0>
HDMI ports	Core0: A1~A4
Primary HDMI port	A2

1 x 3 Topology: 1 column x 3 row



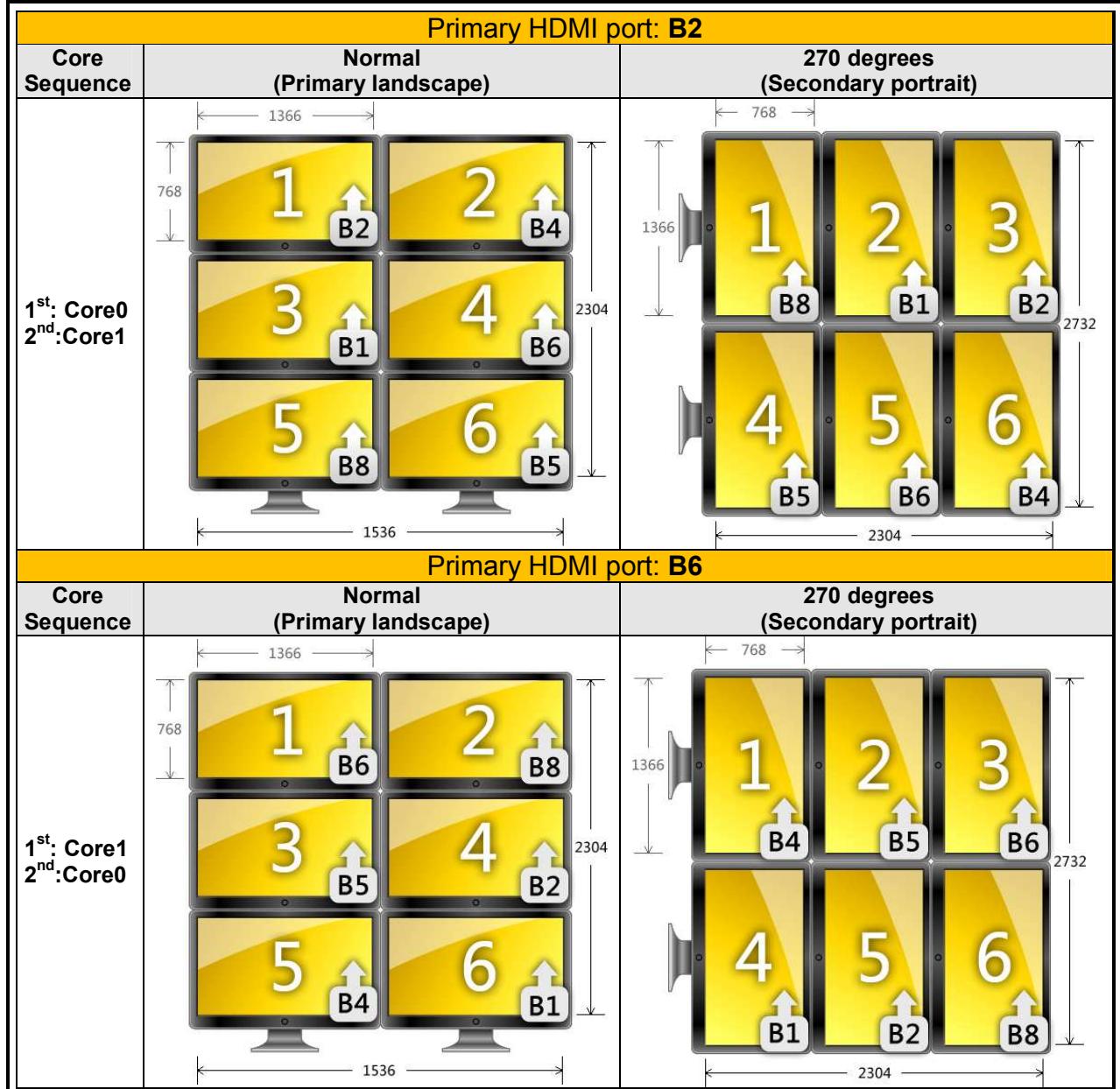
2 x 2 Topology: 2 column x 2 row



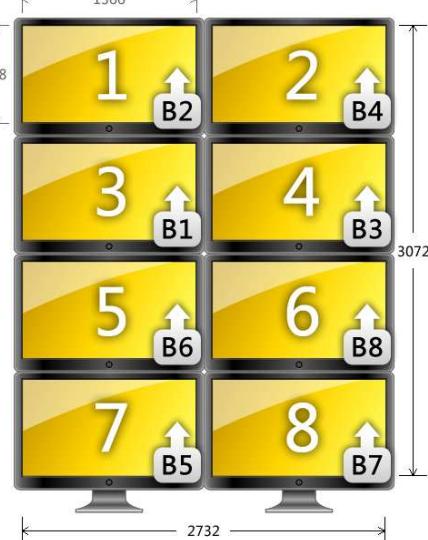
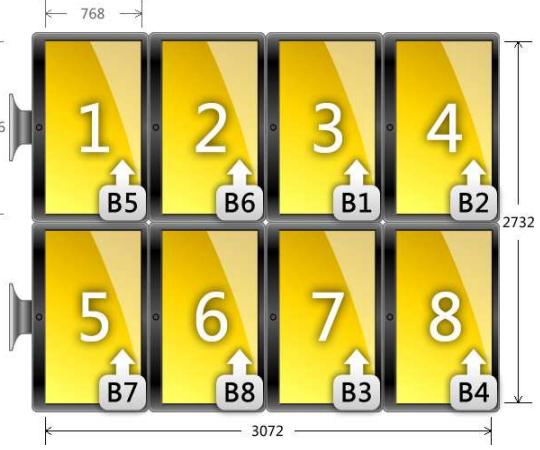
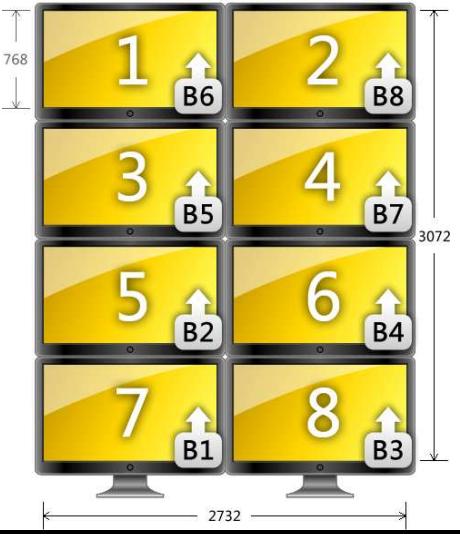
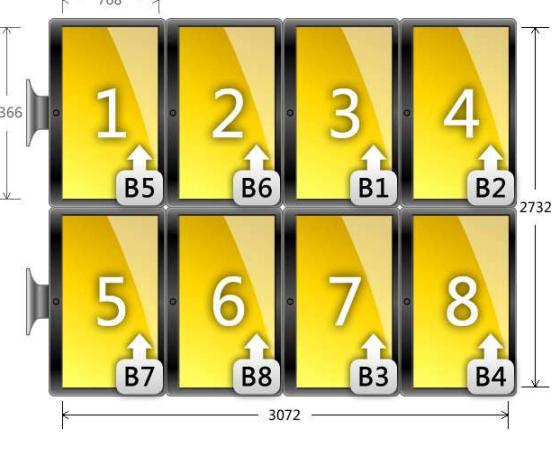
DUAL CORE

Primary Slot	5400EW (Dual Core) <Core0, Core1>
HDMI ports	Core0: B1~B4 Core1: B5~B8
Primary HDMI port	B2 or B6

2 x 3 Topology: 2 column x 3 row



2 x 4 Topology: 2 column x 4 row

Primary HDMI port: B2		
Core Sequence	Normal (Primary landscape)	270 degrees (Secondary portrait)
1 st : Core0 2 nd : Core1	 <p>1366</p> <p>768</p> <p>3072</p> <p>2732</p>	 <p>768</p> <p>1366</p> <p>2732</p> <p>3072</p>
Primary HDMI port: B6		
1 st : Core1 2 nd : Core0	 <p>1366</p> <p>768</p> <p>3072</p> <p>2732</p>	 <p>768</p> <p>1366</p> <p>2732</p> <p>3072</p>



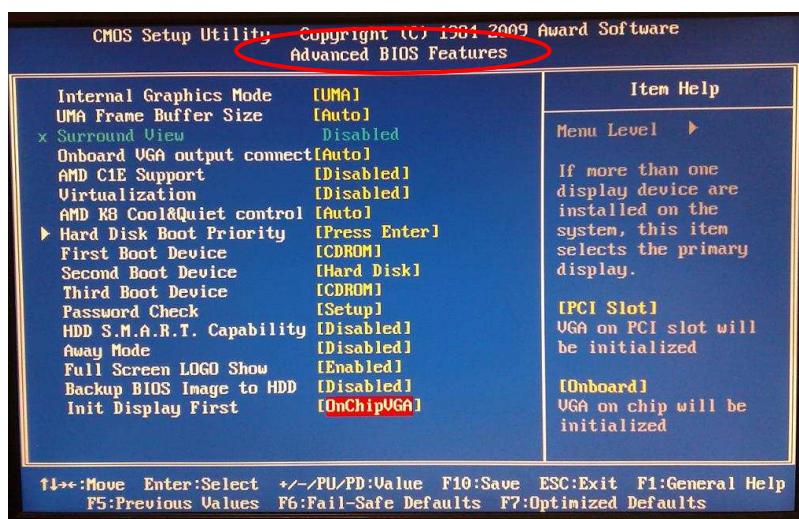
Appendix 2: How to set the discrete graphics as Primary

You may need to change your Primary display device if your motherboard has an integrated graphics adapter. To do this you will need to enter the CMOS Setup utility. The typical method of entering the CMOS Setup utility is by pressing one of the following keys while your computer is booting up: F1 / F2 / DEL / ESC / F10. Some computers will display a message to indicate which key to press to enter the BIOS/CMOS setup (e.g., "Press <F2> to enter BIOS setup"). Some older computers may also display a flashing block to indicate when to press the F1 or F2 keys.

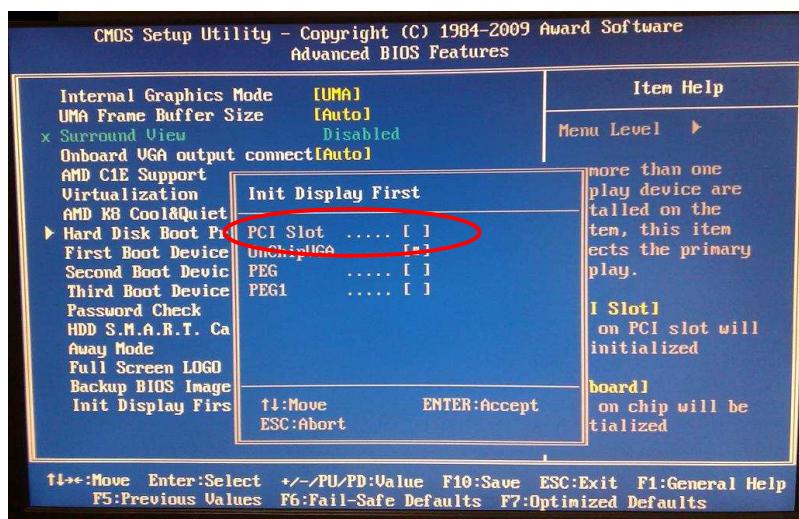
Once you have successfully entered the CMOS Setup utility, you may change your Primary display device. Here are three examples of different vendors for setting the discrete graphics adapter to the Primary display device. Use the **Tab** key and the arrow keys to navigate around the menus and the **Page Up/Down** keys to change values.

Example 1: Phoenix/Award BIOS

Step 1: From the Main Menu, select: Advanced BIOS Features.



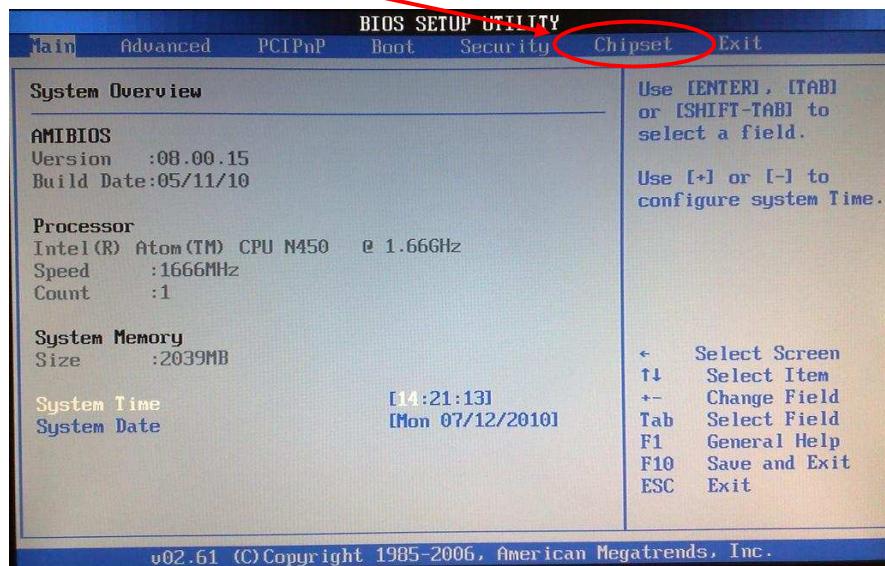
Step 2: Set "Init Display First" to "PCI Slot" and click Enter.



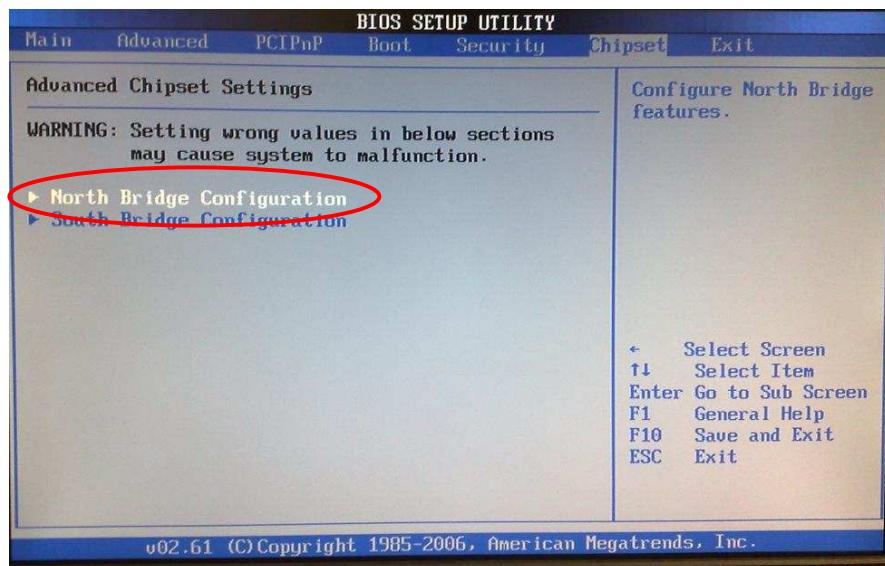
Step 3: Click F10 to save your settings and exit.

Example 2: AMI BIOS

Step 1: Select the “Chipset” screen.

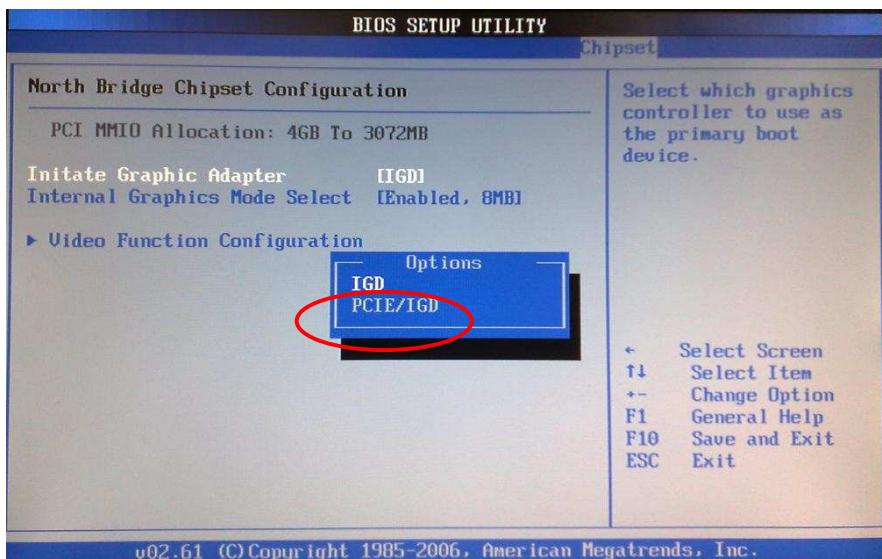


Step 2: Select “North Bridge Configuration” and click Enter.



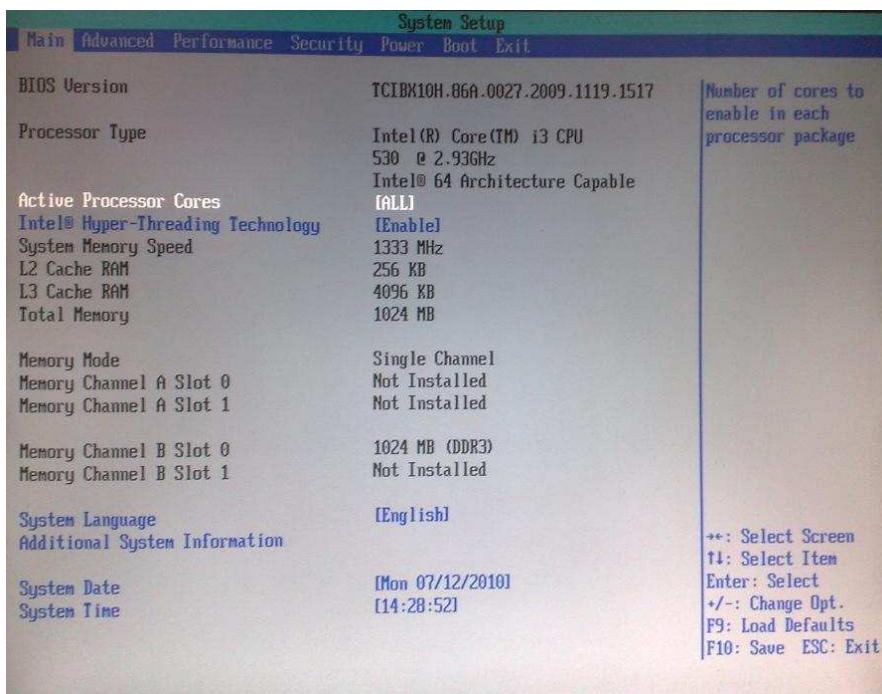
Step 3: Set “Imitate Graphics Adapter” to “PCIE/IGD”.





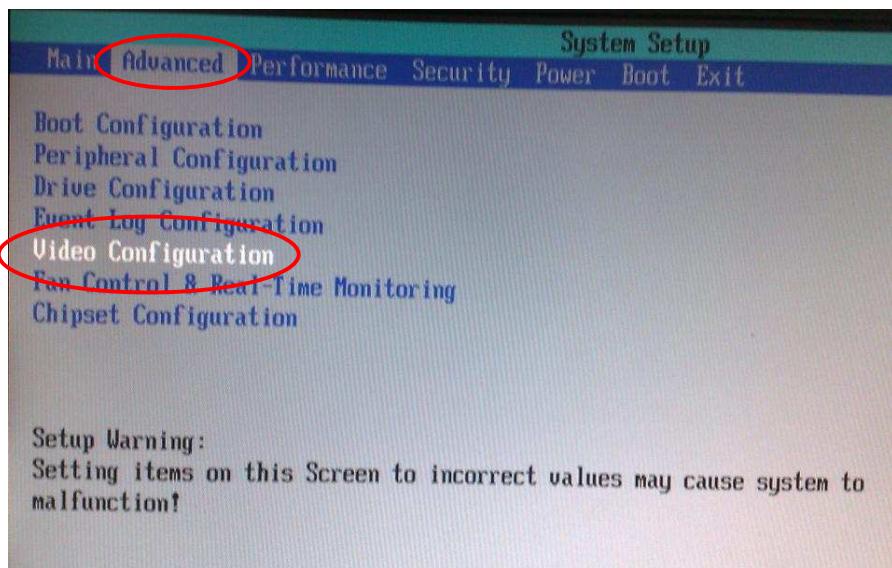
Step 4: Click **F10** to save your settings and exit.

Example 3: Others (Intel)

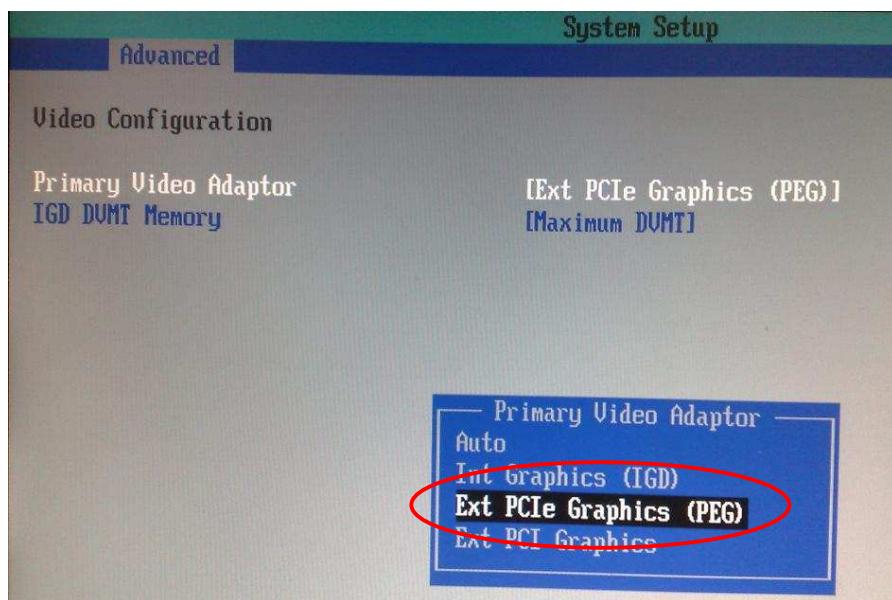


Step 1: Select “Video Configuration” on the “Advanced” screen.





Step 2: Set “Primary Video Adapter” to “[Ext PCIe Graphics (PEG)]” .



Step 3: Click **F10** to save your settings and exit.

