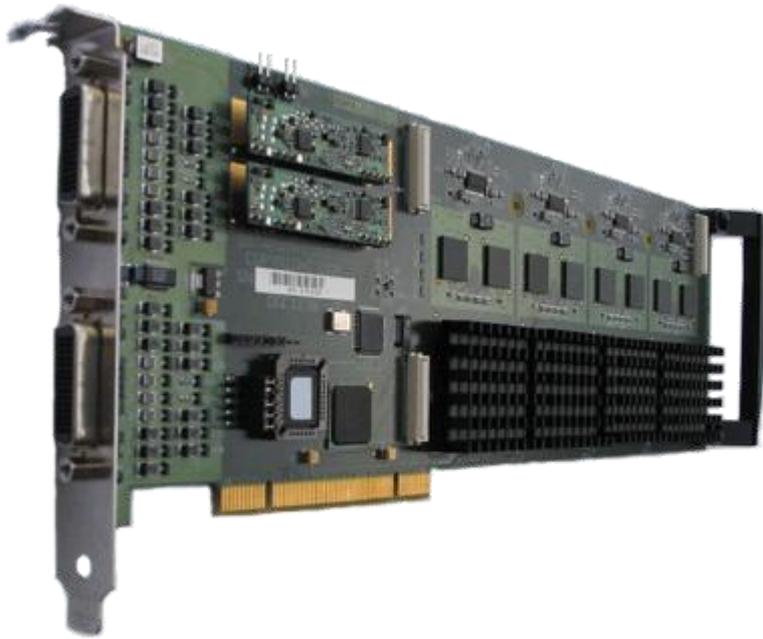


# Vantage4 User Manual



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## FCC Compliance

### Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

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

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial, industrial or business environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacture's 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:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to 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.

**Warning! Any changes or modifications to this product not expressly approved by the manufacturer could void any assurances of safety or performance and could result in violation of Part 15 of the FCC Rules.**

Reprinted from the Code of Federal Regulations #47, part 15.193.1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, US Government Printing Office.

## Declaration of Conformity – FCC

Per FCC Part 2 Section “. 1077(a)



**Responsible Party Name:** Datapath Limited  
**Address:** Alfreton Road, Derby,  
**Phone:** +441332-294441

Hereby declares the product:

**Product Name:** Quad Screen Graphics Card  
**Model Number:** Vantage4-PRO/SIP

Conforms to the following specifications:

FCC Part 15 Subpart B                      Class A Digital Device

Supplementary Information:

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards & Specifications listed above and as indicated in the measurement report number: 5C9213GUS1

Representative Persons Name: Tony Jones, Chairman



Signature:

Date: 23 May 2006

## Declaration of Conformity – CE

Per EN55022



**Responsible Party Name:** Datapath Limited  
**Address:** Alfreton Road, Derby,  
**Phone:** +441332-294441

Hereby declares the product:

**Product Name:** Quad Screen Graphics Card  
**Model Number:** Vantage4-PRO/SIP

Conforms to the following specifications:

CE Regulation EN55022                      Class A Digital Device

Supplementary Information:

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards & Specifications listed above and as indicated in the measurement report number: 5C9213GEU1

Representative Persons Name: Tony Jones, Chairman



Signature:

Date: 23 May 2006

## Introduction

The Datapath Vantage4 multi-screen graphics accelerators are single slot PCI cards for displaying Windows across multiple screens as one extended desktop.

Based on the S3 Graphics DeltaChrome graphics processors with 32MB of DDR per graphics processor, the Vantage4 provides crisp, high resolution displays.

There are a number of different models in the Vantage4 range, which are described in detail in the Vantage4 Models section.

All cards in the Vantage4 range feature:

- Analog or DVI-D outputs.
- Fully PCI compliant for improved host to screen BITBLTs and other bus related operations.
- Supports VESA modes up to 1600 x 1200 and non-VESA modes up to 2048 x 1536.
- Dedicated hardware acceleration across all colour depths for key 2D graphics functions, high speed BITBLT, line drawing and rectangle and polygon fills.
- Full hardware cursor support for flicker free Windows cursors in all modes.
- Multiple card hardware support for multiple screen systems.

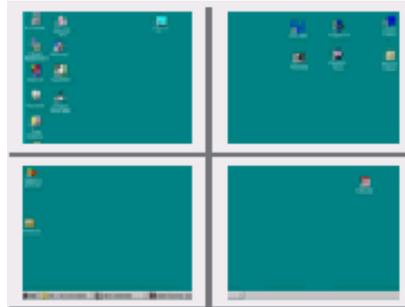
## Specifications:

Processors	4 S3 Graphics DeltaChrome GPU's
Video Memory	32MB DDR per GPU (Total 128MB)
Board Format	32 bit - 66Mhz PCI adapter
Connectors	Special D-type connectors, cables supplied.
Video Output	Each output supports up to 2048 x 1536 x 60Hz (Analog) and 1600 x 1200 x 60Hz or 2048 x 1536 x 35Hz(DVI)
Pixel clock	Up to 300MHz – Analog Up to 165 MHz – DVI-D

## Vantage4 Models

The Vantage4 range includes a variety of models and options providing live video overlay for complex data/video walls or multi-screen desktop applications.

### Vantage4



- Four port graphics adapter.
- Four S3 Graphics DeltaChrome graphics processors each with 32MB of DDR 250MHz frame buffers (Total 128MB).
- Four Analog VGA outputs.
- Four DVI-D outputs.
- Up to sixteen Vantage4 cards can be used to support a maximum of sixty-four screens from a single PC.

### Vantage4-PRO



In addition to the Vantage4 specifications, the Vantage4-PRO provides high quality video overlays enabling the display of live video sources.

- Four high quality de-interlaced video overlays with triple buffering, each at 720 x 576 resolution. (1 per screen) Overlays can be positioned anywhere on the wall.
- Increase the number of composite video inputs to 128 by using the Datapath VisionSwitch32-H card.
- Four PAL, NTSC and SECAM decoders.
- Up to sixteen Vantage4-PRO cards can be used to support a maximum of sixty-four screens and sixty-four video overlays from a single PC.

## Vantage4-SIP



The Vantage4-SIP has all the specifications of the Vantage4 and in addition:

- Four SIP processors each with 64MB overlay memory (Total 256MB)
- High speed 5Gb/s SIP digital video input port for Mosaic-SQ16 supporting up to 128 video channels.
- Sixteen video overlay windows per display channel. (Total 64 windows)
- Four 1280 x 1024 high resolution video overlays.

## Hardware Installation

This section deals with installing Vantage4 cards and spreading the Windows desktop across all the screens. If you are intending to use the Vantage4 cards with other Datapath products, you should follow this section first to get the Windows desktop working correctly.

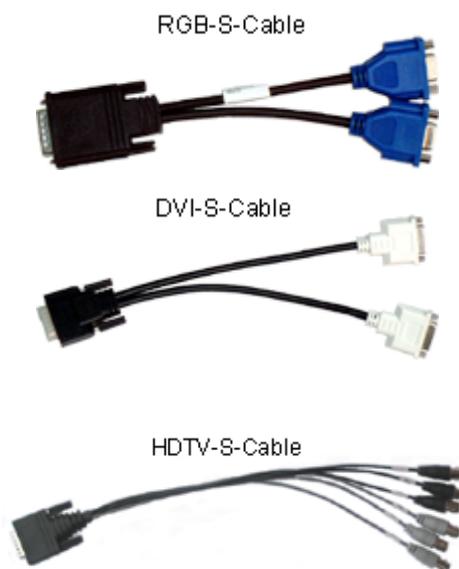
### System Requirements

- A Pentium PCI bus computer.
- 128MB of RAM.
- Windows® 2000, Windows® XP or Windows® Server 2003.

### Unpacking

Your packing box should contain the following items:

- The Vantage4 plug-in card.
- HCS-cable
- Two RGB-S-Cables, two DVI-S-Cables or two HDTV-Cables, depending on the model purchased
- Installation CD-ROM.



Cables are provided depending on which card you have purchased for example:

Vantage4	Vantage4 supplied with two analog VGA splitter cables - (RGB-S-cable).
Vantage4-DVI	Vantage4 supplied with two DVI splitter cables - (DVI-S-cable).
Vantage4-PRO	Vantage4-PRO supplied with two analog VGA splitter cables - (RGB-S-cable).
Vantage4-PRO-DVI	Vantage4-PRO supplied with two DVI splitter

	cables - (DVI-S-cable).
Vantage4-SIP	Vantage4-SIP supplied with two analog VGA splitter cables - (RGB-S-cable).
Vantage4-SIP-DVI	Vantage4-SIP supplied with two DVI splitter cables - (DVI-S-cable)
Vantage4-HDTV	Vantage4 supplied with two analog TV splitter cables for connection to High Definition TV - (HDTV-S-Cable).
Vantage4-PRO-HDTV	Vantage4-PRO supplied with two analog TV splitter cables for connection to High Definition TV - (HDTV-S-Cable).
Vantage4-SIP-HDTV	Vantage4-SIP supplied with two analog TV splitter cables for connection to High Definition TV - (HDTV-S-Cable).

If you are installing a single card (up to four screens), follow the section *Installing the Master Vantage4 Card*.

If you are installing more than one card, start by installing one card as described in *Installing the Master Vantage4 Card*. Once the system works correctly with four screens, install the rest of the cards as described in *Installing the Slave Vantage4 Cards*.

### Installing the Master Vantage4 Card

A requirement of PCs is that there is a VGA graphics device in the system. When you switch on your PC, the VGA graphics device is used to display boot messages. The boot messages include some or all of the following:

- A message from the graphics card BIOS.
- A logo for the motherboard.
- Messages describing the results of the Power On Self Test (POST).

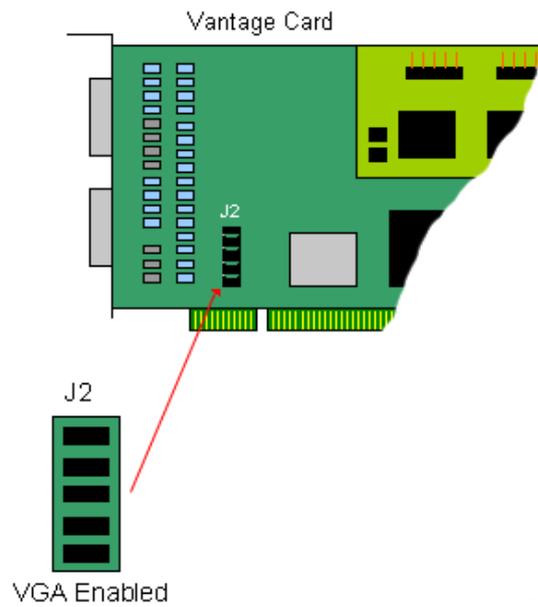
Some display devices take a long time to show an image so you may miss some of the boot messages.

Before you install the master Vantage4 card, you need to know if there are any VGA graphics devices already in the system. There may be a PCI or AGP plug-in graphics card in the system. There may be a graphics device on the motherboard or SBC.

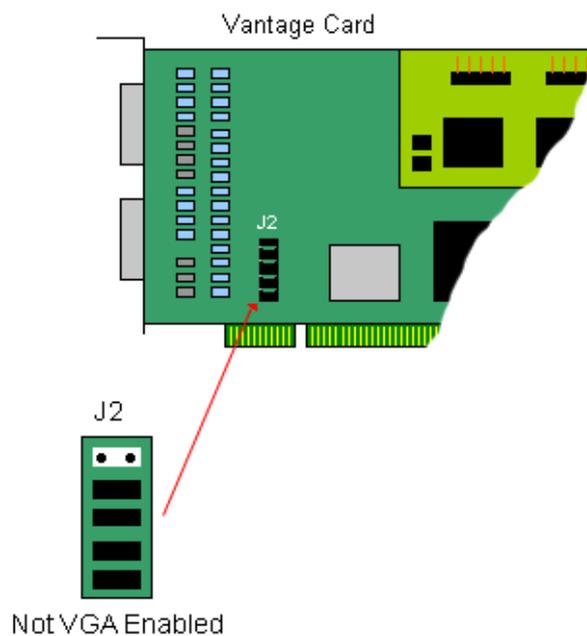
The Vantage4 can be used in systems that contain other manufacturer's graphics devices. The screens connected to Vantage4 cards are used for the main display. Another screen is connected to the other graphics device and is used to configure or control the system. Due to the number of other manufacturer's graphics devices available, it is not possible to support them all. In general, a modern graphics device with an up-to-date display driver should work.

If you do not want to use the other graphics device at the same time as the Vantage4 and the graphics device is a plug-in card, remove the plug-in card from the system.

If you want to use Vantage4 graphics cards only, the links on the master Vantage4 should be configured according to the following diagram:



If you want to use another graphics device at the same time as the Vantage4, you need to change the links on the Vantage4 so that the motherboard does not display the boot messages on the Vantage4.



If your machine is on, shut down Windows and switch the machine off.

**Notes:**

**All plug-in cards are static sensitive and packed in antistatic materials. Please keep the card in its packaging until you are ready to install.**

**It is recommended that you do not discard the packing box until you are completely satisfied with the Vantage4 card, and it is fully installed and working correctly. We also recommend that you make note of the serial number of the card in a prominent place before you plug the card into the computer. This should hasten any query should you need to contact our Technical Support Department. The serial number is displayed on the card and the box label.**

- Locate an available PCI slot to install your Vantage4 card (you may need to remove the expansion slot cover and screw, please retain these for future use).
- Holding the card firmly by its top edge at each end of the card's length, slide it into the slot. Extreme care should be taken when sliding the card into the PCI slot to avoid damage to the components on the Vantage4 card.

**Note:**

**Vantage4 models have a rear bracket to ensure that the card is firmly seated in the slot. This bracket supports the card when installed in the machine.**

- Using the retaining screw, secure the bracket to the back panel.
- Using the splitter cables provided, connect screens to all the outputs from the card. If there are other graphics devices in the system, connect screens to them (even if you don't intend to use all the outputs in your final configuration).
- Switch all the screens on then switch the machine on.

You should see the boot messages on one of the screens. If the master Vantage4 has VGA enabled, the boot messages should appear on output 1 of the master Vantage4. If the master Vantage4 does not have VGA enabled, the boot messages should appear on one of the other graphics devices (not one of the Vantage4 outputs).

If the boot messages appear on the correct monitor, you can install the display driver.

If the boot messages appear on the wrong monitor, or you don't see any boot messages at all, there is something wrong with the system.

### Installing the Display Drivers for the Master Vantage4

Once the master Vantage4 card has been installed and the boot messages are appearing on the correct monitor, you can start Windows.

- Log on as a user with administrative access rights.
- The **Found New Hardware Wizard** will announce that new hardware has been found.
- Do not use the **Found New Hardware Wizard** to install the Vantage drivers.
- Install the display drivers from the Software Installation Suite CD supplied with the Vantage4 card.
- Alternatively, the most up to date display drivers can be downloaded from the web site [www.datapath.co.uk/DRIVERS/DriverInstall.zip](http://www.datapath.co.uk/DRIVERS/DriverInstall.zip) and installed using the Driver Install Wizard.
- If your final configuration has less than four screens select the number of screens required, otherwise select four screens.
- Restart the machine.

When Windows starts up, the desktop should be spread over all the screens connected to the master Vantage4.

## Installing the Slave Vantage4 Cards

As the number of required screens increase, the likelihood of reaching a system limitation or encountering a problem increases. The system limitations are the amount of address space available and the capacity of the power supply.

### Address Space

The 32-bit Intel architecture has a 4GB address space. System RAM occupies the bottom part of the address space. The system BIOS occupies the top part of the address space. PCI devices are assigned parts of the remaining address space by the motherboard BIOS shortly after the system is switched on or reset.

A Vantage4 requires 1MB + 128MB of address space.

You can calculate the minimum amount of address space required for the Vantage4 cards. For example, the minimum address space required for a 24-screen system is calculated as follows:

At least  $6 \times (1\text{MB} + 128\text{MB}) = 774\text{MB}$  address space is required for the Vantage4 cards.

The actual amount of address space used by the motherboard BIOS for Vantage4 cards varies. The parts of address space allocated to the Vantage4 must be aligned on boundaries. Different motherboard BIOSs use different algorithms to allocate the parts of the address space. Some motherboard BIOSs do not pack the allocated address ranges together efficiently.

In addition to the memory and the Vantage4 cards there are other PCI devices in the system which require address space.

### Power

The amount of current a power supply can deliver on each voltage rail is limited. Often there is also a limit on the total power.

Each Vantage4 card requires +5V @ 2.7A and +3.3V @ 4.2A.

Each Vantage4-PRO card requires +5V @ 3.3A and +3.3V @ 4.0A

Each Vantage4-SIP card requires +5V @ 2.8A and +3.3V @ 6.8A

You can calculate the amount of current and the amount of power required for the Vantage4 cards. For example, the requirements for a 24-screen system of Vantage4-PRO cards is calculated as follows:

#### Current

$$+3.3\text{V} \quad 6 \times 3.5\text{A} = 24\text{A}$$

$$+5\text{V} \quad 6 \times 2.5\text{A} = 19.8\text{A}$$

#### Power

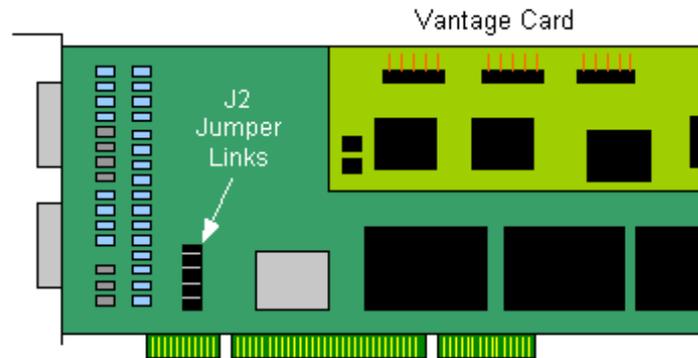
$$( 3.3\text{V} \times 24\text{A} ) + ( 5\text{V} \times 19.8\text{A} ) = 178\text{W}$$

These are the requirements for the Vantage4 cards, you must take into account the requirements of all the other devices in the system.

## Connecting up to 64 Screens

To connect up to 64 screens to Vantage4 cards, configure the links as shown in the diagram below:

### Vantage Jumper links (J2)



#### Vantage Master J2 Link Settings

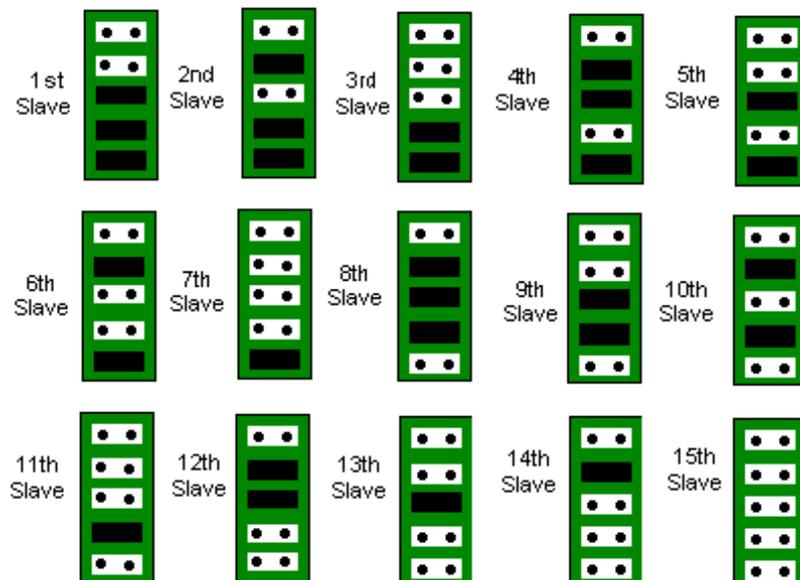


VGA Enabled



Not VGA Enabled

#### Vantage Slave Cards J2 Link Settings



The links control the order in which the display driver uses the Vantage4 cards. Insert the slave Vantage4 cards into the PCI slots.

Connect screens to the slave cards. The first slave card should be connected to the second group of four screens, the second slave should be connected to the third group of four screens and so on.

Master	Master	Master	Master	Slave 1	Slave 1	Slave 1	Slave 1
Slave 2	Slave 2	Slave 2	Slave 2	Slave 3	Slave 3	Slave 3	Slave 3
Slave 4	Slave 4	Slave 4	Slave 4	Slave 5	Slave 5	Slave 5	Slave 5
Slave 6	Slave 6	Slave 6	Slave 6	Slave 7	Slave 7	Slave 7	Slave 7
Slave 8	Slave 8	Slave 8	Slave 8	Slave 9	Slave 9	Slave 9	Slave 9
Slave 10	Slave 10	Slave 10	Slave 10	Slave 11	Slave 11	Slave 11	Slave 11
Slave 12	Slave 12	Slave 12	Slave 12	Slave 13	Slave 13	Slave 13	Slave 13
Slave 14	Slave 14	Slave 14	Slave 14	Slave 15	Slave 15	Slave 15	Slave 15

Switch the screens on then switch the machine on.

The boot messages should appear on the same screen that they appeared on when the Vantage4 master had been installed.

Log on as a user with administrative access rights.

The **Found New Hardware Wizard** will announce that new hardware has been found. This will happen once for each slave Vantage4 card you have added to the system. **Do not use the Found New Hardware Wizard to install the Vantage4 drivers.**

The Windows desktop should appear on the four screens attached to the master card as it did after the display driver had been installed for the master Vantage4 card.

You need to install the display driver again. This time you should specify the number of screens you wish to use.

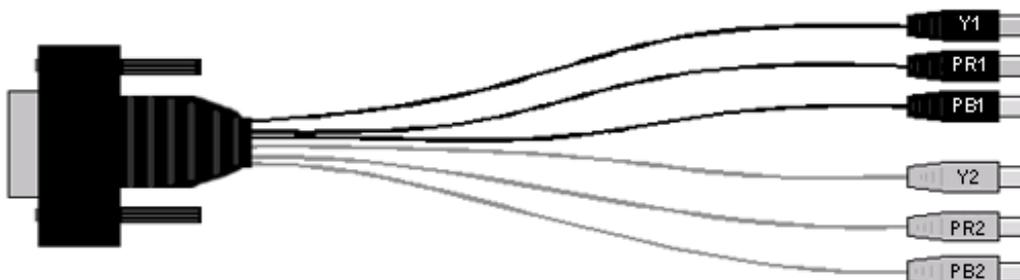
Restart the machine.

The Windows desktop should now be spread across the number of screens you specified.

If you encountered any problems, please refer to the [Troubleshooting](#) section.

### Connecting the HDTV-S-Cable

The HDTV-S-Cable enables the outputs from the Vantage card to be displayed on HDTV and standard TV.



Each output channel has three connectors as shown in the diagram above, black for the first output channel and grey for the second output channel.

The following table explains how the connections are made:

	HDTV	S-Video	Composite
	Y1	Luma – Y1	PR1
<b>1<sup>st</sup> Output Channel</b>	PR1	Chroma – PB1	
	PB1		
	Y2	Luma- Y2	PR2
<b>2<sup>nd</sup> Output Channel</b>	PR2	Chroma – PB2	
	PB2		

### Supported Display Resolutions for Standard TV Output, S-Video and Composite

Resolution	NTSC	PAL
640 x 480	✓	✓
720 x 480	✓	✓
800 x 600	✓	✓
1024 x 768	✓	✓

### Supported HDTV Resolutions

1920 x 1080

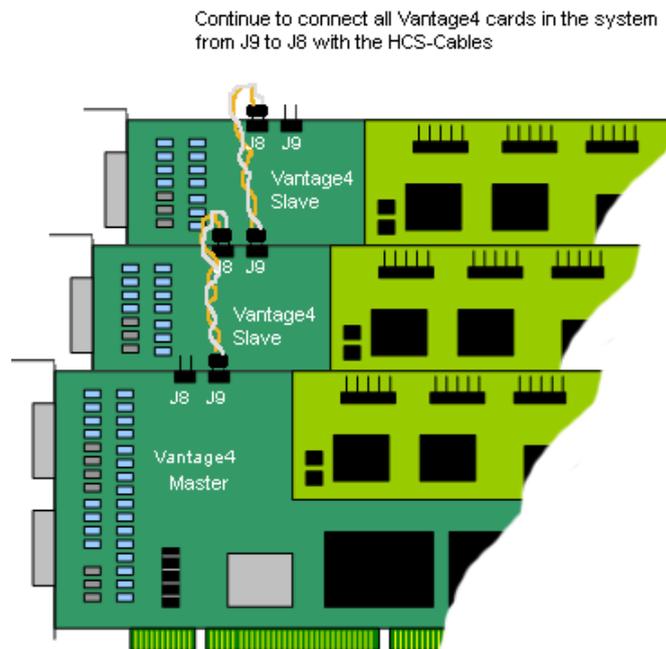
1280 x 720

720 x 483

## Clock Sync

Each Vantage4-PRO/SIP is supplied with a single HCS-Cable. The cables are provided for the connection of multiple cards to distribute the clock signal.

In most circumstances there is no requirement to use the HCS-Cables, however, if you are advised by Datapath support staff to do so, the following diagram explains how the connections are made:

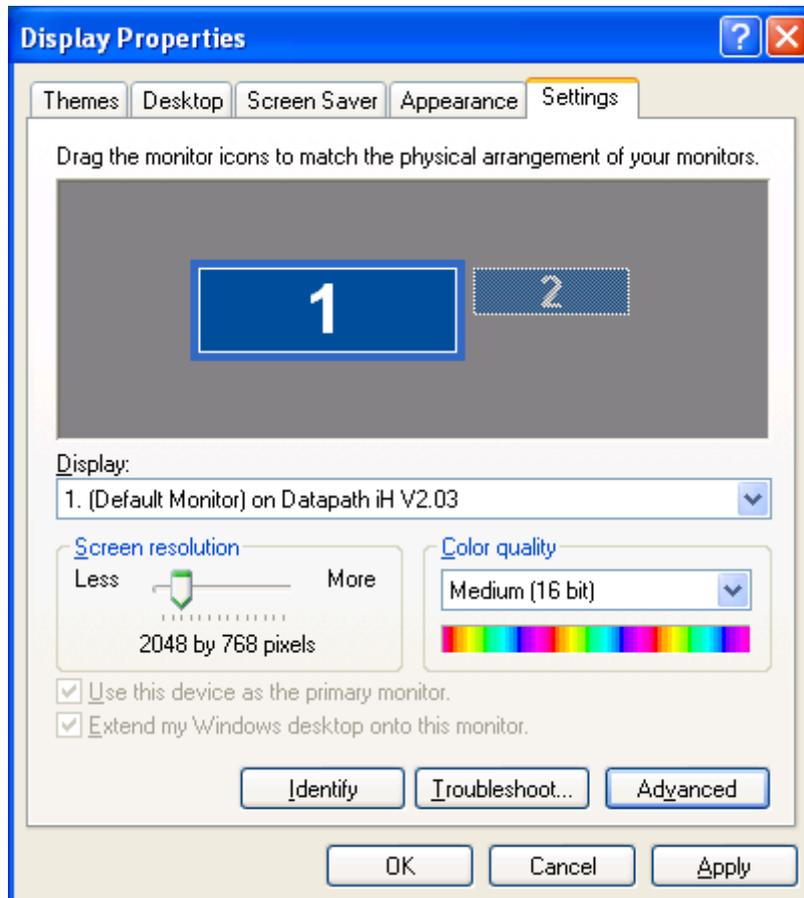


The HCS-Cables must be attached carefully, decide to fit the cables with the orange cable to the left and the white cable to the right, or vice versa.

Either way is acceptable as long as the cables are connected consistently.

## Multi Screen Configuration

To change the display settings for the Vantage4 cards, use the Display Properties dialog in the Control Panel.



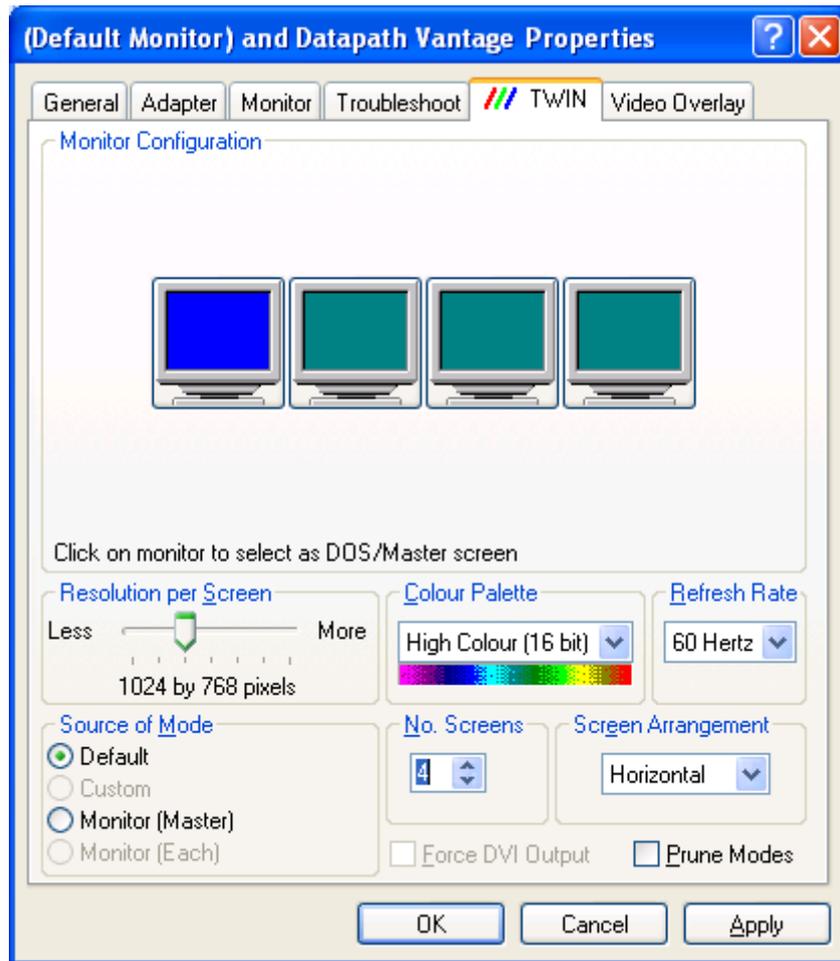
If you have more than one graphics device in your machine, the **Settings** tab allows you to control which graphics devices are used and what their position on the desktop is. There should be a monitor icon for each Vantage4 card and at least one monitor icon for each of the other graphics devices in the system (there is a limit to the number of monitor icons that are displayed).

If you are using a non-Vantage4 device as a control screen, make that device the primary monitor.

The first Vantage4 device should have the **Extend my Windows desktop onto this monitor** control checked.

Do not check **Extend my Windows desktop onto this monitor** for any of the other Vantage4 devices.

To change other properties of the Vantage4 display, select the first Vantage4 device, click on the **Advanced** button and go to the TWIN tab.



#### Resolution per Screen:



#### Note:

Changing the resolution may alter the colour palette settings, so check that it is correct before clicking OK or Apply.

#### Colour Palette:

Select the number of colours you want to use.

#### Refresh Rate:

Use the drop down arrow to select a refresh rate for the desktop. Only the refresh rates available at the selected resolution and colour depth are displayed. The maximum settings are restricted to the capabilities of the screens connected to the system.

## Source of Mode:



When the **TWIN** tab is selected, the display driver reads the EDID information from each monitor and reads the Registry to find detailed display timing information.

The **Source of Mode** group box shows which mode sources are available for the selected resolution and colour depth.

The Source of Mode has four options.

### Default

Monitor timing information from the display driver's internal tables.

### Custom

Monitor timing information from the Registry. (See [Appendix 1: Defining Custom Modes](#) for details)

### Monitor (Master)

Monitor timing information from the monitor attached to output 1 of the Master Vantage4 is used for all outputs.

### Monitor (Each)

The monitor timing information from each monitor is used for the output connected to that monitor.

### No. Screens

Change the number of screens the display driver uses. You should always install the driver (using install.exe) for the maximum number of screens you want to use.

### Screen Arrangement

Use the drop down menu to select the screen arrangement you require. The illustration in the Monitor Configuration box will reflect your choice.

### Force DVI Output

When the Datapath display driver initializes it reads the EDIDs of the attached screens to determine if the DVI (digital) or analog outputs should be used. If no monitor EDID is read then this function is used to decide which output to enable.

If the check box is in an indeterminate state it signifies that the enabled outputs are not as requested by the user. This will occur if a mixture of analog and digital screens are used or if the type of monitor used is different to the Force DVI state.

If the check box state is changed the **Apply** button will become active, click on **Apply** to force the required output.

Since the DVI (digital) output supports a lower pixel dot-clock frequency than the analog output, the resolution dialog is updated when the check box is changed to reflect the resolutions supported by the active output.

### Prune Modes

Enabling the check box limits the resolutions displayed in the resolution box to those that are supported by all of the screens attached to the Vantage4 cards active outputs. This information is read from the monitor EDIDs when the TWIN tab is opened. If the state of this check box is changed then the resolution control is updated.

When you click on **OK** or **Apply** the following dialog is displayed:



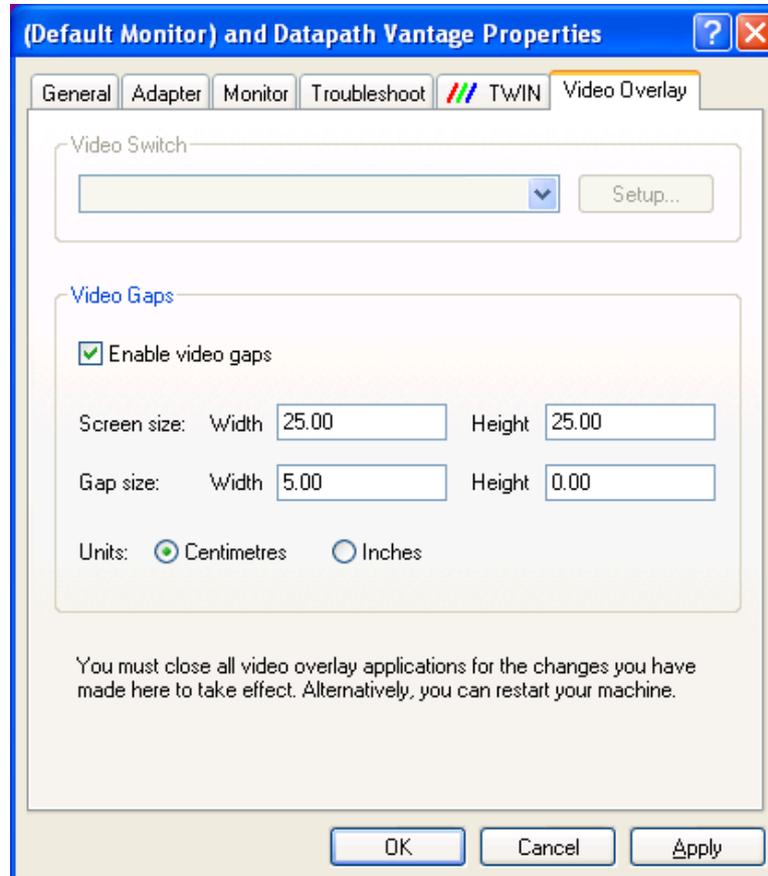
This dialog gives you the option to accept the changes or restore the previous display settings. The display will return to the previous settings after 15 seconds should **Yes** or **No** not be selected.

### Warning!

**Always close all video overlay applications before performing any operation that modifies the settings of any attached display. Failure to do so could result in the machine locking up and requiring a reboot.**

## Video Overlay Tab

The Video Overlay Tab allows you to configure the video overlay driver.



## Video Gaps

If a video overlay is displayed across multiple screens that have wide casings around the edges, strange effects maybe seen in the video images. Diagonal lines appear broken and circles appear elongated.

Original Video:

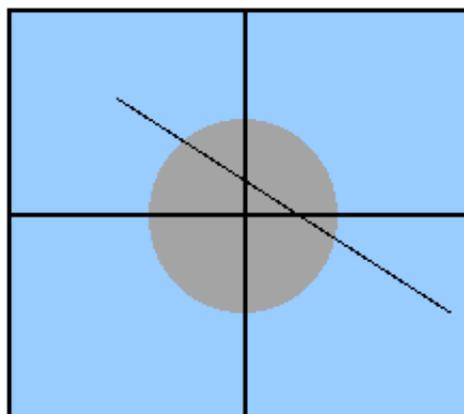
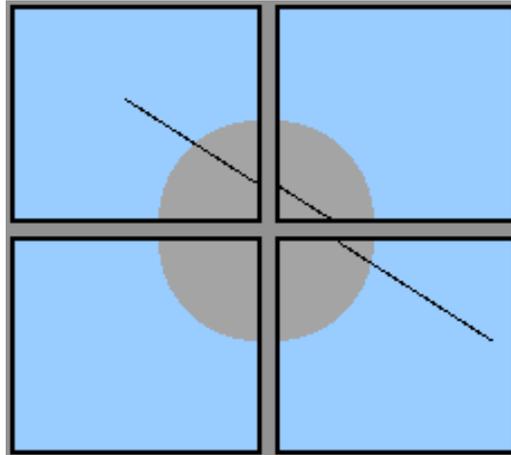
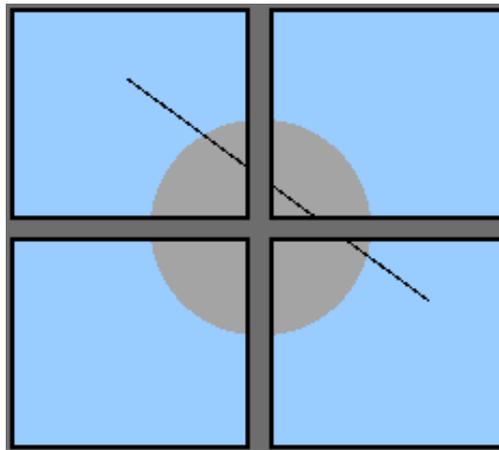


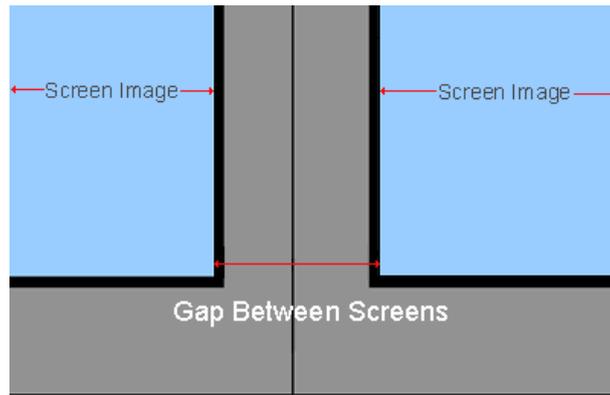
Image spread across screens with wide edges:



With video gaps, the video is spread across the gaps between the screens so that the lines are straight and the circles remain circular. Parts of the video are lost in the gaps.



- Using a ruler, measure the size of the image on the screen and enter the values in Screen size. Note that the image on the screen does not necessarily fill the whole screen area.
- Measure the size of the gaps between the screen images, this should also include any area of the screen that is not covered by the displayed image as shown in the following diagram:

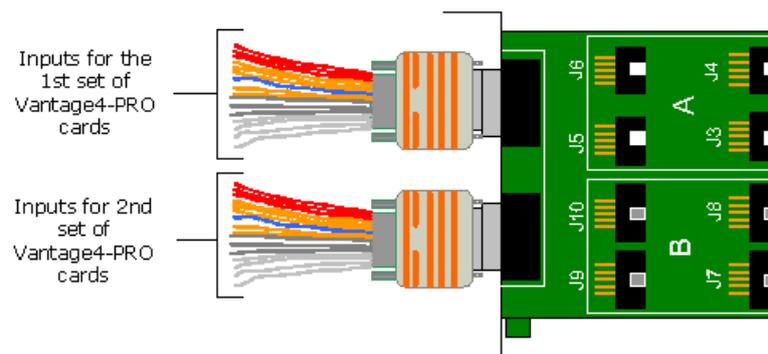


## Accessories

### Video Input Modules

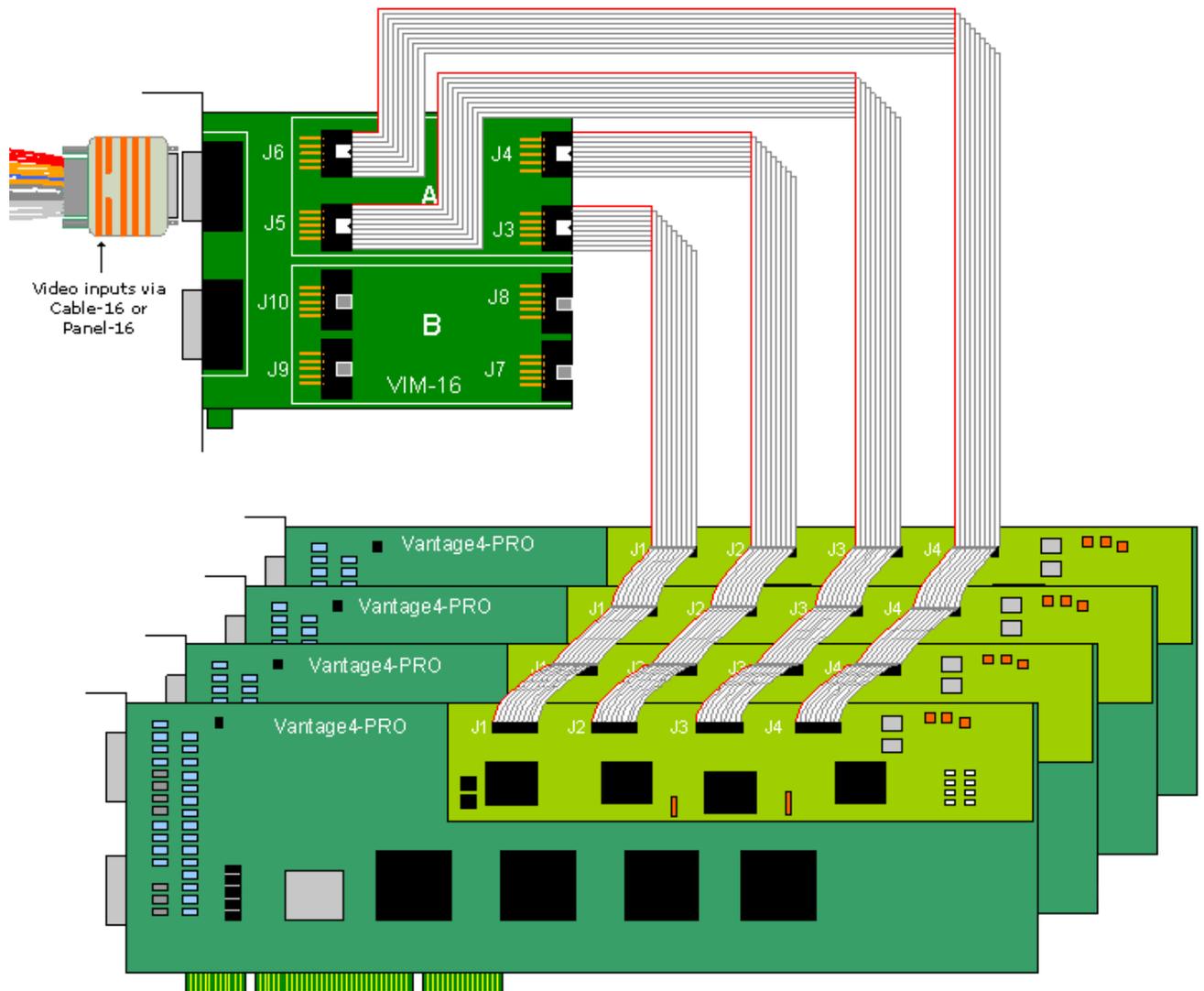
#### VIM16

The VIM16 is a video input module designed specifically for connecting analog video inputs to your Vantage4-PRO. The VIM16 requires a vacant mounting position on the PC backplane but does not require a PCI slot, as it does not plug into the motherboard.



The printed circuit board on the VIM16 is divided into two areas and are labelled **A** and **B**. The area of the card labelled **A** will connect to one set of Vantage4-PRO cards and the area labelled **B** connects to a second set of Vantage4-PRO cards. The maximum number of Vantage4-PRO cards in any system is sixteen; therefore, the total number of cards for both sets (**A** and **B**) combined cannot exceed sixteen.

The illustration on the following page shows how the VIM16 is connected to four Vantage4-PRO. (**Model shown VIM16-4**)



### How to Connect Video Inputs to the Vantage4-PRO Card

Connect output 1-4 (J3) from the VIM16	To	Input 1-4 (J1) on the Vantage4-PRO cards
Connect output 5-8 (J4) from the VIM-16	To	Input 5-8 (J2) on the Vantage4-PRO cards
Connect output 9-12 (J5) from the VIM-16	To	Input 9-12 (J3) on the Vantage4-PRO cards
Connect output 13-16 (J6) from the VIM-16	To	Input 13-16 (J4) on the Vantage4-PRO cards

## Video Inputs

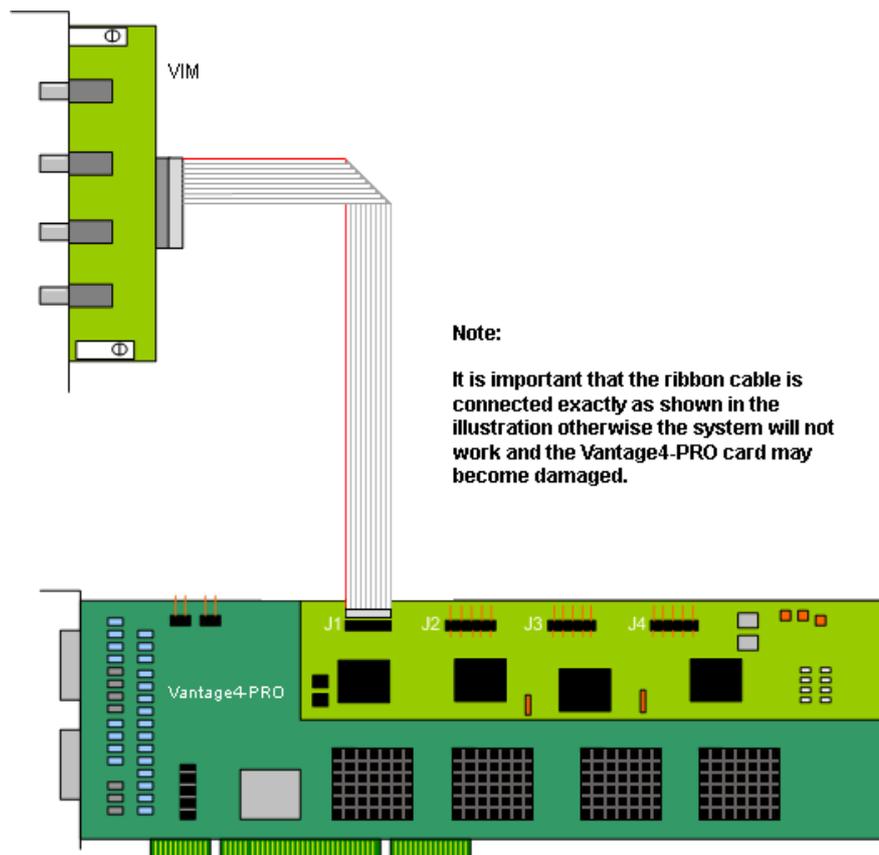
The video inputs are connected to the VIM16 using a 16-way splitter cable (provided). The cable consists of 16 BNC sockets connected to a 26-way D plug. Up to 16 composite or 8 S-Video sources can be connected to the splitter cable.

Each BNC socket on the splitter cable is labeled to show the video input channel number. i.e. 1-16.

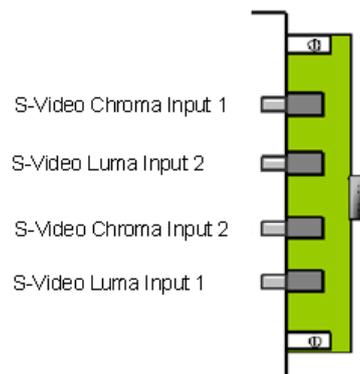
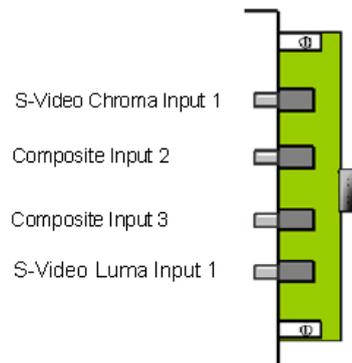
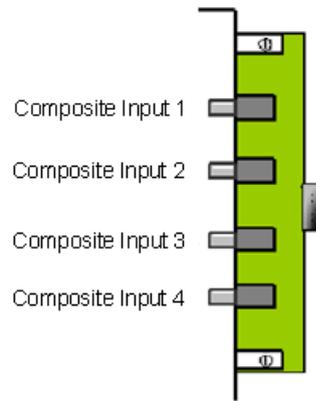
S-Video is connected by selecting a required BNC connector for the Luma connection and the following BNC connector for the Chroma connection. For example, if you select BNC connector 3 for the Luma connection then BNC connector 4 must be used for the Chroma connection.

## VIM

The Video Input Module (VIM) is available for connecting analog video inputs to your Vantage4-PRO card. A small printed circuit board, the VIM requires a vacant mounting position on the PC backplane – it does not require a PCI slot, as it does not plug into the motherboard.



The VIM is supplied with either BNC or RCA phono connectors for the video sources.



## Troubleshooting

In the unlikely event that you encounter any difficulties installing your Vantage4 card, please refer to the following possible solutions before contacting technical support.

### No text display at boot-up

- Make sure that the Vantage4 card is firmly plugged into the PCI slot.
- Check that the video cable is correctly connected at both ends – to the special connector on the card back panel and to each monitor cable.
- Ensure that you have screens connected to all the outputs of the Vantage4 card. Due to the ordering of devices on the PCI, bus the system may boot up on either the first or last output.
- Check that your motherboard BIOS is PCI 2.1 compatible. If not then you will need to upgrade the BIOS and try again. This is particularly important for Vantage4 card installations, since it has a PCI to PCI bridge chip.
- If your system has onboard AGP/VGA then connect a monitor to the onboard VGA to view the system messages.

### Machine boots but slave screens do not initialise

The blue boot screen appears, but there is no cursor on the slave screens

- Make sure that you have installed the software drivers and completed a full system reboot as described in the software installation section of the manual.

### Windows does not boot correctly in non-VGA mode

- Make sure that you have installed the correct driver.
- If that does not solve the problem try moving the Vantage4 to a different PCI slot and try again.
- If you still have problems, then select the following: **Start | Programs | Administrative Tools | Event Viewer**. If there are any problems with graphics devices then select the following: **Start | Settings | Control Panel** and select **Devices**. Ensure the Start-up setting for the **Vantage4, VGA Save** and **VGA Start** is set to *system* and set to *Disabled* for all other graphics devices. Shutdown, power off and reboot.

### The machine boots up but the desktop does not appear across all screens

- Ensure that you have installed the correct driver software for your card / operating system.
- Click the desktop Properties and select the TWIN page.
- Make sure that the correct number of screens is selected and restart the system.

Problems with multiple Vantage4 cards in a system

The PC does not boot

- If your PC fails to boot with two graphics cards installed, then you should first ensure that the motherboard BIOS is up to date – you can verify this with your PC supplier.

The PC boots, but dual screen operation fails

If the PC does boot correctly, but dual screen operation fails, then you should run the PCICFG utility supplied in the utils/pci directory of the CD. This details how the PCI cards in the machine are mapped in by the motherboard BIOS, and will, therefore help us to examine and solve the problem. Run the utility and print out the results.

To do this:

- Change directory to \utils\pci
- Type `pcicfg -v * > output.txt`
- Print the file (output.txt) from DOS or by using Notepad
- Email the output.txt and complete description of the problem and the system you are using (including version numbers of software installed) to [support@datapath.co.uk](mailto:support@datapath.co.uk)

#### Poor screen display/fuzzy images

A poor screen image can be caused by selection of the incorrect refresh rate for your monitor. Using the TWIN tab, select a lower refresh rate or lower resolution to see if this improves the crispness of the displayed image.

#### Caution:

**You can damage your monitor by setting the refresh to a rate beyond its capabilities. We recommend that you consult your monitor documentation before altering the refresh rate.**

#### Computer beeps during boot up or initialisation

The Vantage4 BIOS is DDC2 compliant and detects if a monitor is connected, the machine will beep where there is no monitor connection made. We recommend that screens are always connected to all Vantage4 cards/channels before switching the computer on.

If any problems persist even after you have run through the troubleshooting alternatives, please send email to [support@datapath.co.uk](mailto:support@datapath.co.uk) with as much detail about your system and the fault as possible.

## Datapath Limited

Datapath has a long and very successful history in the computer graphics industry. Datapath has been designing and supplying high performance, high quality graphics display systems to the worlds largest and most demanding companies and institutions since 1982. Datapath was one of the founding companies of multi-screen Windows acceleration using single and multi board solutions. Now using the very latest display technology Datapath offers some of the world's leading multi screen graphics accelerators for the most demanding applications.

As new technology advances, so we at Datapath improve the performance and functionality of both our hardware and software to give our customers more. Following a continuous development program, we pride ourselves on our support and responsive nature towards all our customers and their changing needs. As more sophisticated equipment and techniques become readily available, so we are there to exploit the power and potential that this technology presents.

## Technical Support

Registered Users can access our technical support line using, email, and the Support page on the Datapath Web Site, usually with a response within 24 hours (excluding weekends).

## Via Email

Send an email to [support@datapath.co.uk](mailto:support@datapath.co.uk) with as much information about your system as possible. To enable a swift response we need to know the following details:

- Specification of the PC - including processor speed
- Operating System
- Application Software
- Datapath Hardware / Software
- The exact nature of the problem - and please be as specific as possible.

Please quote version and revision numbers of hardware and software in use wherever possible.

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## Appendix 1 – Defining Custom Modes

Custom Mode information is stored in the Registry at:

- **HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\DGC123\Device0**

In a **REG\_MULTI\_SZ** value named “Mode”. Each mode definition is on a single line (there can be multiple mode definitions each on a new line). The mode definition should be typed in the following format as a comma-separated string:

X, Y, Refresh, hfp, hsync, hbp, vfp, vsync, vbp, hpol, vpol, dotclock

For example:

1280,1024,50,24,240,144,3,3,1,0,0,90139

The following table explains what each value represents:

X	Active display width in pixels
Y	Active display height in lines
Refresh	Refresh rate displayed in dialog. Also used for calculating dot-clock if no dotclock value is provided
hfp	Horizontal front porch in pixels (value must be divisible by 8)
hsync	Horizontal sync width in pixels (value must be divisible by 8)
hbp	Horizontal back porch in pixels (value must be divisible by 8)
vfp	Vertical front porch in lines
vsync	Vertical sync width in lines
vbp	Vertical back porch in lines
hpol	Horizontal sync polarity (0 = negative, 1 = positive)
vpol	Vertical sync polarity (0 = negative, 1 = positive)
dotclock	Pixel dot-clock in KHz (optional). Allows more accurate control of the dot-clock

### Note

**If this registry value is amended the TWIN tab must be closed then re-opened to ensure the new values are read from the Registry.**

## Appendix 2 – Screen Order

### Screen Order – Connection of Screens

The first card to be initialized generates the picture for the top left monitor in the wall of screens, plus the three adjacent screens. The second card drives the next four screens and so on. This sounds simple, but nevertheless, can be confusing when trying to determine how to assign monitor video cables to the Vantage4 outputs.

### Changing the Order of the Screens

The REG\_MULTI\_SZ Registry entry **HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\DGC123\Device0\ReorderList** can be used to change the order in which the screens are used. This value can be created and changed using REGEDT32.

By default the screens are used in the order 0, 1, 2 etc. Starting at the top left and progressing across then down. If you had an eight screen system arranged four across and two down the screens would be numbered thus:



You do not have to specify the ReorderList value to achieve this arrangement. If you did, the above arrangement would correspond to a ReorderList of:

```
0
1
2
3
4
5
6
7
```

If you wanted to arrange your system so that one Vantage4 card was driving the left half of the video wall, and the other Vantage4 card was driving the right half of the video wall the screens would be arranged thus:



This arrangement would correspond to a ReorderList of:

```
0
1
4
5
2
3
6
7
```

The value of ReorderList must comply with the following rules:

- Each screen within the arrangement must be represented.
- Screens should not be duplicated i.e. may only be entered once.

For a new screen order to take effect, reboot the machine.

**Note: If for any reason the value of ReorderList is not valid, the system will revert to the default screen ordering.**