GeoVision inc
The Vision of Security

Surveillance System

Quick Start Guide V8.5.5.0

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

DVRV8550-QG-A

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Contents

Important Notice

GPU Decoding Specifications

In V8.5 or later, support for GPU (Graphics Processing Unit) decoding is added to lower the CPU loading and to increase the total frame rate supported by a GV-System. GPU decoding only supports the following software and hardware specifications:

Software Specifications

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Supported</th><th rowspan="2">Not Supported</th></tr>
<tr><th>Sandy Bridge</th><th>Ivy Bridge</th></tr>
<tr><td rowspan="2">Operating System</td><td>32-Bit</td><td colspan="2">Windows Vista / 7</td><td rowspan="2">Windows 2000 / XP / Server 2008</td></tr>
<tr><td>64-Bit</td><td>Windows 7 / Server 2008 R2</td><td>Windows 7</td></tr>
<tr><td colspan="2">GV-System</td><td>V8.5.0.0 or later</td><td>V8.5.5.0 or later</td><td></td></tr>
<tr><td colspan="2">Resolution</td><td>1 MP / 2 MP</td><td>1 MP / 2 MP / 3 MP</td><td>CIF / VGA / D1 / 4MP / 5MP</td></tr>
<tr><td colspan="2">Codec</td><td colspan="2">H.264</td><td>MPEG4 / MJEPG</td></tr>
<tr><td colspan="2">Stream</td><td colspan="2">Single Stream</td><td>Dual Streams</td></tr>
<tr><td colspan="5">Note: To apply GPU decoding, the recommended memory (RAM) requirements is 8 GB or more for 64-bit OS and 3 GB for 32-bit OS.</td></tr>
</table>

Hardware Specifications

Motherboard	Intel chipset with onboard VGA Ex: Intel® Q77, Q75, Z77, Z75, H77, B75, Q67, H67, H61, Q65, B65, Z68 Express Chipset.
Note: If you want to use an external VGA card, it is required to connect a monitor to the onboard VGA to activate GPU decoding.	

Multi-Channel Playback Specifications

In V8.5 or later, multi-channel playback in ViewLog has been enhanced to improve the smoothness of the video by producing higher frame rate. However, playing back multiple channels at high resolution can increase the CPU loading especially if the GV-System is processing other tasks simultaneously. As a result of the high CPU loading, dropped frames may sometimes occur in recorded video when playing back multiple megapixel channels.

To avoid the problem, **it is recommended to play back megapixel video in single view**.

Important Notice before Using GV-Video Capture Card

1. **Exclusions:**

- Currently all GV-Video Capture Cards are not compatible with **VIA series**, **ATI series** chipset motherboards.
- Currently GV-600(S), GV-650(S), GV-800(S), GV-600A, GV-650A and GV-800A, GV-1120, GV-1240, GV-1480 Cards are not compatible with **VIA series**, **ATI series, Intel Sandy Bridge series** and **Intel Ivy Bridge series** chipset motherboards.
- Currently GV-3008 Card is not compatible with **VIA series**, **ATI series**, **NVIDIA series**, **Intel Sandy Bridge series** and **Intel Ivy Bridge series** chipset motherboards.
- If your GV-Video Capture Card or GV-System works in conjunction with GV-Multi Quad Card or GV-Keyboard V1 / V2, note these accessories **do not support 64-bit Windows versions.**

2. **Hard Disk Requirements:**

- It is strongly recommended to use two separate hard disks. One is for installing Windows operating system and GV-System software, and the other is for storing recorded files.
- The total of recording frame rates that you can assign to a single hard disk is listed as below:

Frame rate limit in a single hard disk when connecting to analog cameras

Software Compression		
Video Resolution (MPEG4)	**NTSC**	**PAL**
CIF	960 FPS	800 FPS
VGA/D1	480 FPS	400 FPS
Turbo VGA	416 FPS	400 FPS
Turbo D1	352 FPS	320 FPS
Note: 1. The above data was determined using the default codec MPEG4 and hard disks with average R/W speed above 110 MB/s. 2. The data for Turbo VGA and Turbo D1 was determined using GV-1480A Card.		

Hardware Compression		
Video Resolution	**H.264**	
	NTSC	**PAL**
D1	480 FPS	400 FPS
Note: The above data was determined using the default codec H.264, default quality level Q3 and hard disks with average R/W speed above 110 MB/s.		

Frame rate limit in a single hard disk when connecting to IP cameras

Video resolution	**H.264**		**MJPEG**	
	Frame Rate	**Bit Rate**	**Frame Rate**	**Bit Rate**
5 MP (2560 x 1920)	220 FPS	8.5 Mbit/s	80 FPS	30.4 Mbit/s
4 MP (2048 x 1944)	330 FPS	10.4 Mbit/s	105 FPS	40.53 Mbit/s
3 MP (2048 x 1536)	440 FPS	9.83 Mbit/s	140 FPS	38.67 Mbit/s
2 MP (1920 x 1080)	660 FPS	12.59 Mbit/s	210 FPS	44.93 Mbit/s
1.3 MP (1280 x 1024)	660 FPS	6.16 Mbit/s	300 FPS	32.26 Mbit/s
Note: The data above was determined using the bit rate listed above and hard disks with average R/W speed above 110 MB/s.				

Frame rate limit in a single hard disk when connecting to SDI cameras

Hardware Compression		
Video Resolution	**H.264**	
	NTSC	**PAL**
1080p	360 FPS	300 FPS
1080i	360 FPS	300 FPS
720p	720 FPS	600 FPS
Note: The above data was determined using the default codec H.264, default quality level Q3 and hard disks with average R/W speed above 110 MB/s.		

The frame rate limit is based on the resolution of video sources. The higher video resolutions the lower frame rates you can assign to a single hard disk. In other words, the higher frame rates you wish to record the more hard disks you need to install. For the information of recording frame rates, you may consult the user's manual of the GV-System or the IP camera that you wish to connect to.

- The hard disk space required to install GV-System must be at least 1 GB.
- To use Advanced Video Analysis, at least 1 GB of memory is required.
- To use two or more of the following functions simultaneously, at least 2 GB of memory is required: Advanced Video Analysis, Video Analysis, IP Camera and Pre-Record by Memory.

3. CPU Requirements:

- For recording resolution of 640 x 480 or above, Pentium 4 processor with Hyper Threading is required.

4. Default Settings:

- For software recording rates, all GV Cards are set to CIF. For hardware recording rates, GV-4008A / 4008 / 3008 Card is set to D1.

5. The Card with PCI-E Interface:

- GV-Video Capture Cards with x1 interface support the PCI Express x1, x4, x8 or x16 slot. GV-1120B, GV-1240B, GV-1480B Cards with x4 interface support x4, x8 or x16 slot.

6. GV-600A, GV-650A and GV-800A:

- Starting from V8.3.2, GV-600 (V4), GV-650 (V4) and GV-800 (V4) are renamed to GV-600A, GV-650A and GV-800A. These V4 Cards and A Cards are the same video capture cards.

7. End of Support:

- Starting from V8.3, GV-System will not support **GV-250 Card**, **GV-Hybrid DVR (MPEG2) Card** and **GV-DSP Card**.
- Starting from V8.3.2, GV-System will not support **GV-2004 Card**.
- Starting from V8.3.2, GV-System will not support **MPEG2** codec.
- Starting form V8.3.3, GV-System will not support **GV-2008 Card**.
- Starting from V8.4, GV-System will not support **Windows 2000**.

Chapter 1 Video Capture Cards

This chapter includes the following information:

- **Minimum system requirements**
- **Packing list**
- **Connection diagrams**
- **Specifications**
- **Driver installation**
- **Comparison chart**

1.1 GV-SDI-204

The GV-SDI-204 Card provides up to 4 video channels of HD-SDI cameras, recording up to 120 / 100 fps (NTSC / PAL) in total at 1080p with H.264 hardware compression. You can install up to four GV-SDI-204 Cards for a total of 16 channels. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at high-quality resolution without DSP Overlay.

Minimum System Requirements

OS	**32-bit**	Windows XP / Windows Vista / Windows 7 / Windows Server 2008	
	64-bit	Windows 7 / Windows Server 2008 R2	
CPU		GV-SDI-204	Core 2 Duo E4400, 2.00 GHz
		GV-SDI-204 x 2	Core 2 Quad Q9400, 2.66 GHz
		GV-SDI-204 x 3	Core i3-2130, 3.40 GHz
		GV-SDI-204 x 4	Core i3-2130, 3.40 GHz
RAM		GV-SDI-204	2 x 1 GB Dual Channels
		GV-SDI-204 x 4	
HDD		GV-SDI-204	500 GB
		GV-SDI-204 x 4	2 TB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	

Packing List

1. GV-SDI-204 Card x 1
2. SATA Power Converter Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. USB Dongle x 1
5. Software DVD x 1
6. Surveillance System Quick Start Guide x 1

Connecting the GV-SDI-204 Cards

Up to four GV-SDI-204 Cards can be connected. GV-SDI-204 Cards can also be installed with other types of GV-Video Capture Cards including GV-900A, GV-800B, GV-650B, GV-600B, and GV-1480A / 1240A / 1120A Combo Cards, but the total number of channels cannot exceed 32 channels.

- Connect the HD-SDI cameras to the GV-SDI-204 Card using BNC cables.
- Using the supplied SATA Power Converter Cable, connect the GV-SDI-204 Card to power supply.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-2).
- After you turn on the computer, the Power LED (D1) and Status LED (D10 and D18) should be lit in green to indicate the card is ready for use.

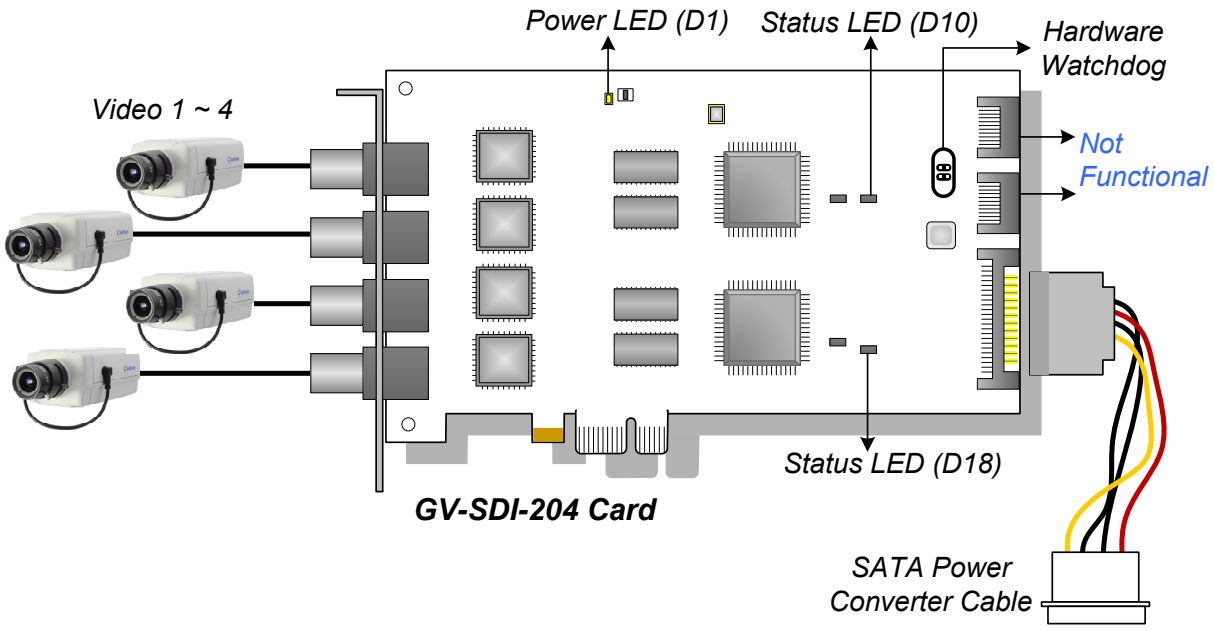


Figure 1-1

Note:

1. The GV-SDI-204 Card only works when the supplied USB Dongle is inserted to PC.
2. The connected HD-SDI cameras must have a resolution under 1080p_30, 720p_60 or 1080i_60. The Video Lost message will be displayed when the connected channels have higher resolution.

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

When installing multiple capture cards, the Hardware Watchdog can be connected to any of the GV-SDI-204 cards, no matter if the cards are all GV-SDI-204 cards or a combination of GV-SDI-204 cards and other capture cards. If you are installing GV-SDI cards in addition to existing video capture cards and the Hardware Watchdog has already been connected, you do not need to change the connection to a GV-SDI-204 card.

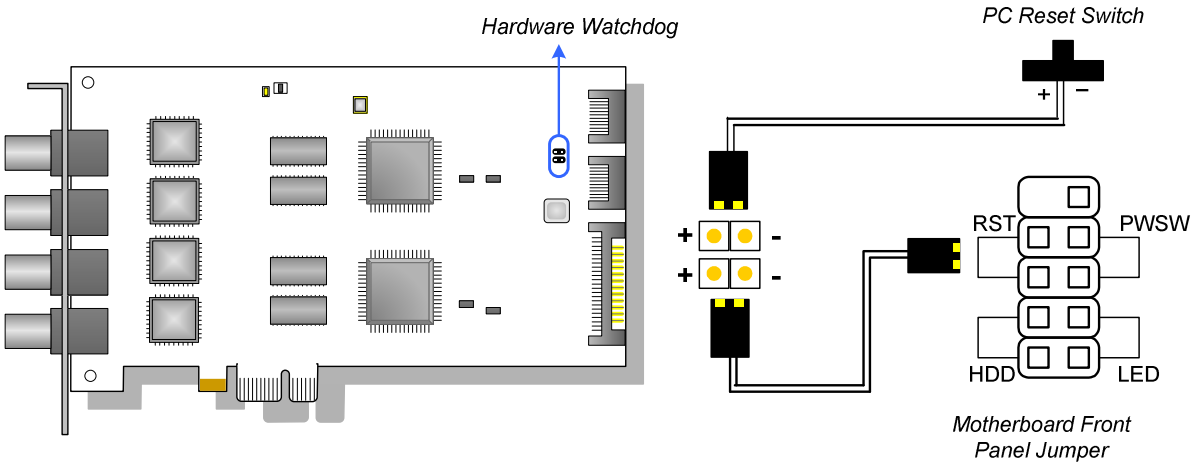


Figure 1-2

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-SDI-204 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-SDI-204 card.

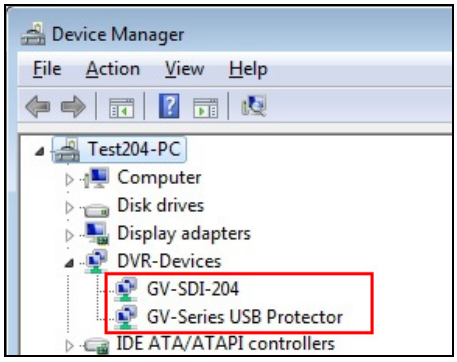


Figure 1-3

Expand the **DVR-Devices** field, you can see:

GV-SDI-204 Card	Entry
Single-card mode	GV-SDI-204 GV-Series USB Protector
Four-card mode	GV-SDI-204 GV-SDI-204 GV-SDI-204 GV-SDI-204 GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-SDI-204 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-SDI-204 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

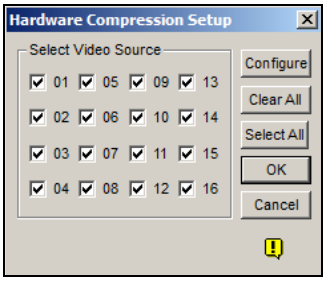


Figure 1-4

2. Select the cameras you want to set up, and click the **Configure** button. This dialog box appears.

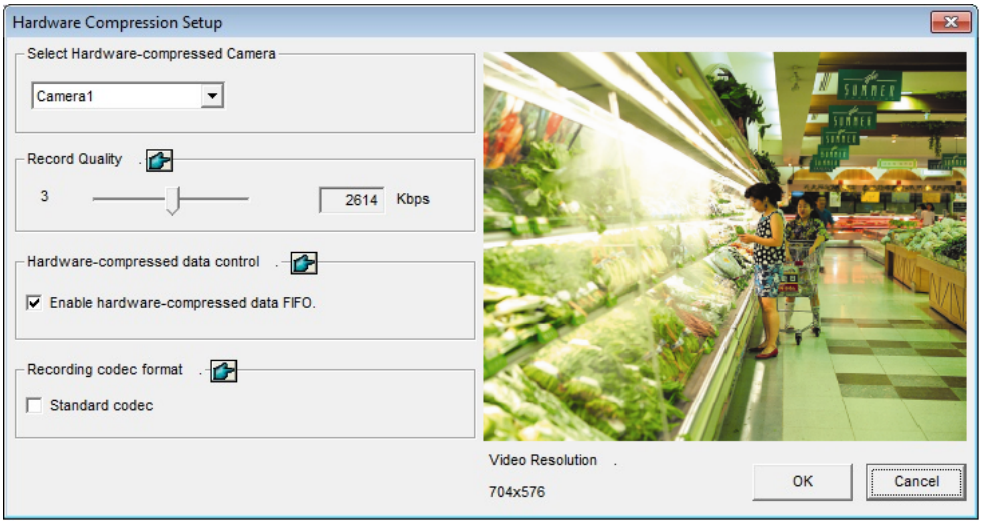


Figure 1-5

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.

5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. To apply the same setting to all cameras, click the **Finger** button in each section.
8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

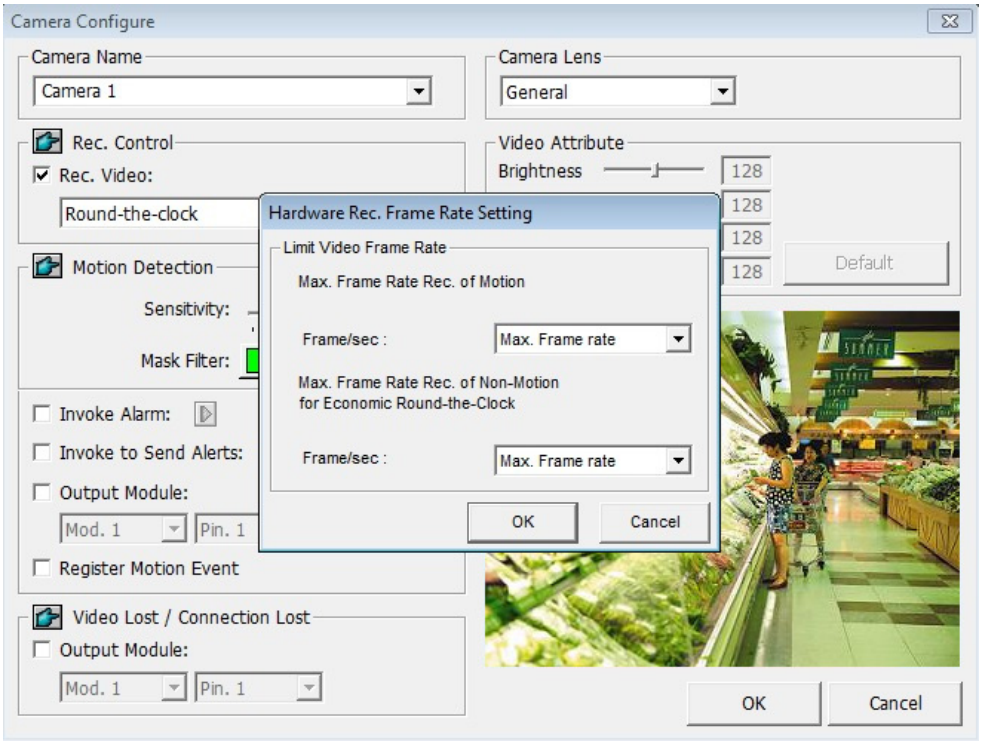


Figure 1-6

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.
10. Set the maximum frame rate for motion and non-motion periods to save disk space when possible.

Specifications

			GV-SDI-204
Interface			PCI-E (x1)
Input Type			BNC
Video Input			4 Cams
Audio Input			N/A
Recording Rate and Display Rate	**1080p**	**NTSC**	120 fps
		PAL	100 fps
	720p	**NTSC**	240 fps
		PAL	200 fps
	1080i	**NTSC**	120 fps
		PAL	100 fps
Video Resolution	**H/W**	**1080p**	1920 x 1080
		720p	1280 x 720
		1080i	1920 x 1080
	S/W	**1080p**	960 x 540, 480 x 270
		720p	640 x 360
		1080i	960 x 540, 480 x 270
Video Compression Format		**H/W**	H.264
		S/W	Geo MPEG4, Geo H.264
Bit Rate Range			10M ~ 20M
GV-NET/IO Card Support			Yes (Note 2)
GV-Multi Quad Card Support			No
GV-Loop Through Card Support			No
Dimensions (W x H)			158 x 111 mm / 6.22 x 4.37 in

Note:

1. GV-SDI-204 does not support the TV-Out function.
2. To work together with GV-SDI-204, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.2 GV-5016

The GV-5016 Card provides up to 16 video and 16 audio channels, recording up to 480 / 400 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at high-quality resolution without DSP Overlay.

Minimum System Requirements

OS	**32-bit**	Windows XP / Windows Vista / Windows 7 / Windows Server 2008	
	64-bit	Windows 7 / Windows Server 2008 R2	
CPU		GV-5016	Core 2 Quad, 2.4 GHz
		GV-5016 x 2	Core i5 650, 3.20 GHz
RAM		GV-5016	2 x 1 GB Dual Channels
		GV-5016 x 2	
HDD		GV-5016	500 GB
		GV-5016 x 2	1 TB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	

Packing List

1. GV-5016 Card x 1
2. 1-16 LFH-Type Audio and Video Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. USB Dongle x 1
5. Software DVD x 1
6. Surveillance System Quick Start Guide x 1

Connecting One GV-5016 Card

- Connect the video and audio cables to the GV-5016 Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-11).
- After you turn on the computer, the Power LED (D19) and Status LED (D17) should be lit in green to indicate the card is ready for use.

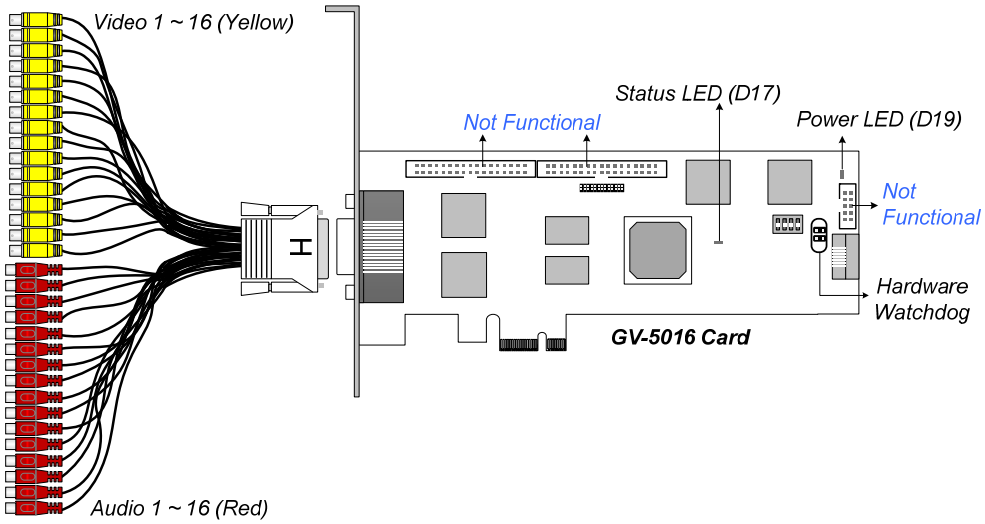


Figure 1-7

When connecting the cable, make sure the cable is connected correctly:

- The letter “H” on the connector should be on the same side as the chipsets.

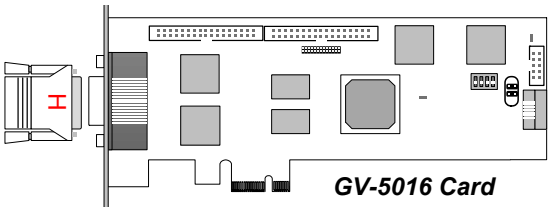


Figure 1-8

- The LFH connector on the cable is in the shape of a trapezoid and should match the trapezoid connector on the capture card.

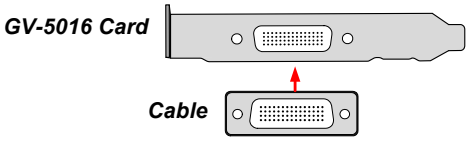


Figure 1-9

Note:

1. The GV-5016 Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-5016 Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-5016 Cards

You can install two GV-5016 Cards for a total of 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-11).

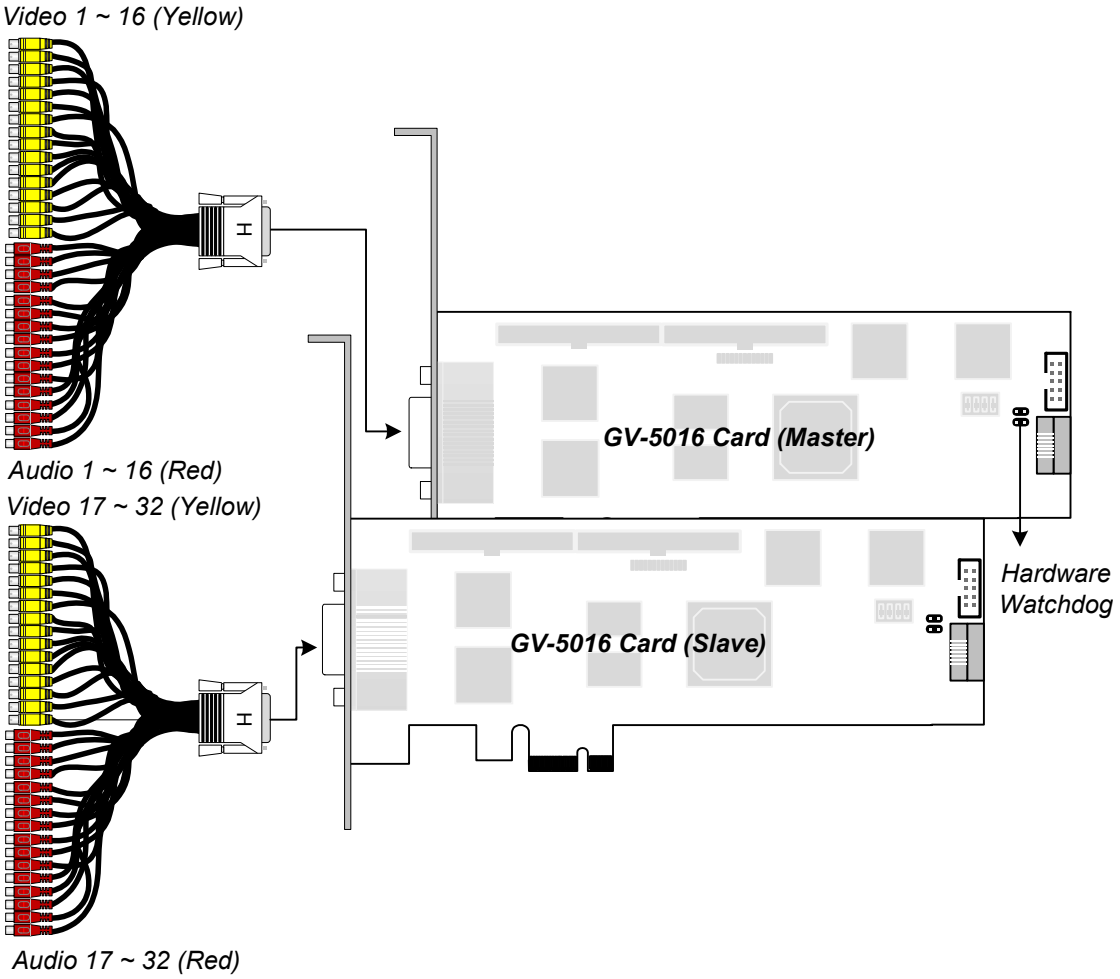


Figure 1-10

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

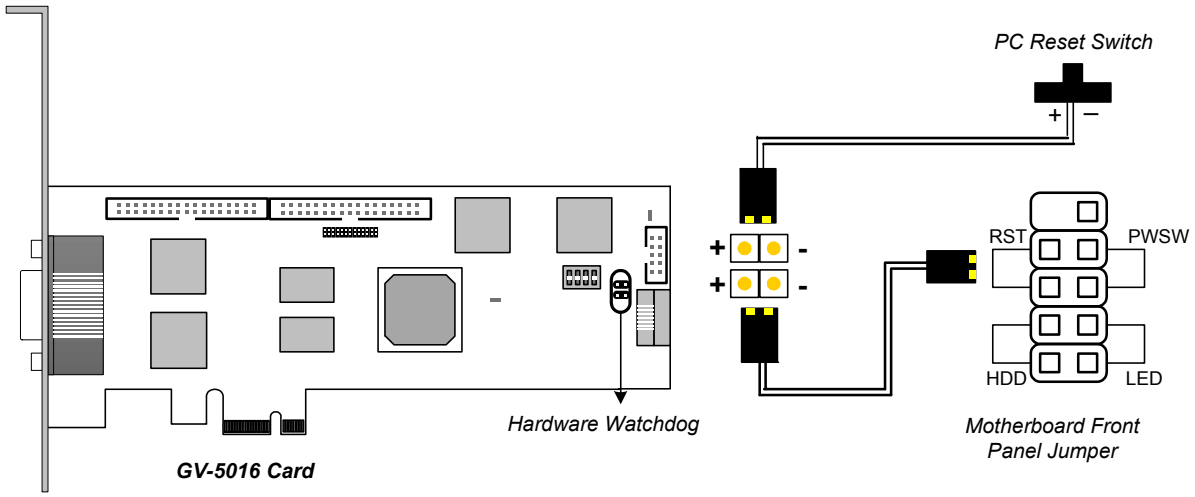


Figure 1-11

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-5016 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-5016 card.

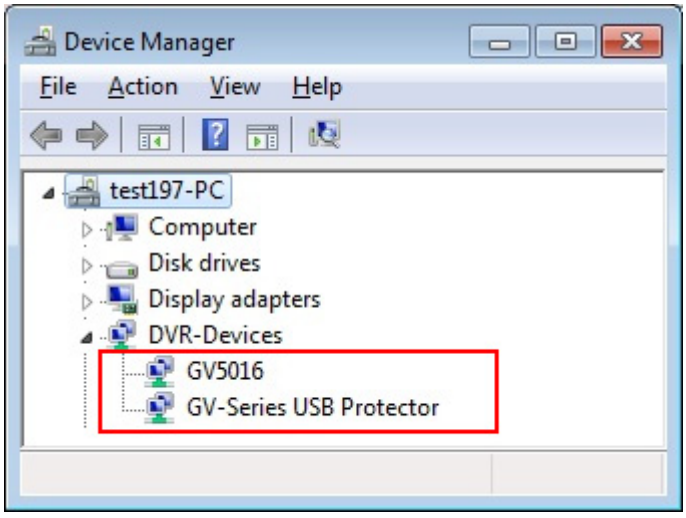


Figure 1-12

Expand the **DVR-Devices** field, you can see:

GV-5016 Card	Entry
Single-card mode	GV5016 GV-Series USB Protector
Two-card mode	GV5016 GV5016 GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-5016 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-5016 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

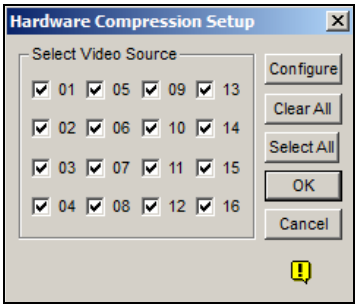


Figure 1-13

2. Select the cameras you want to set up, and click the **Configure** button. This dialog box appears.

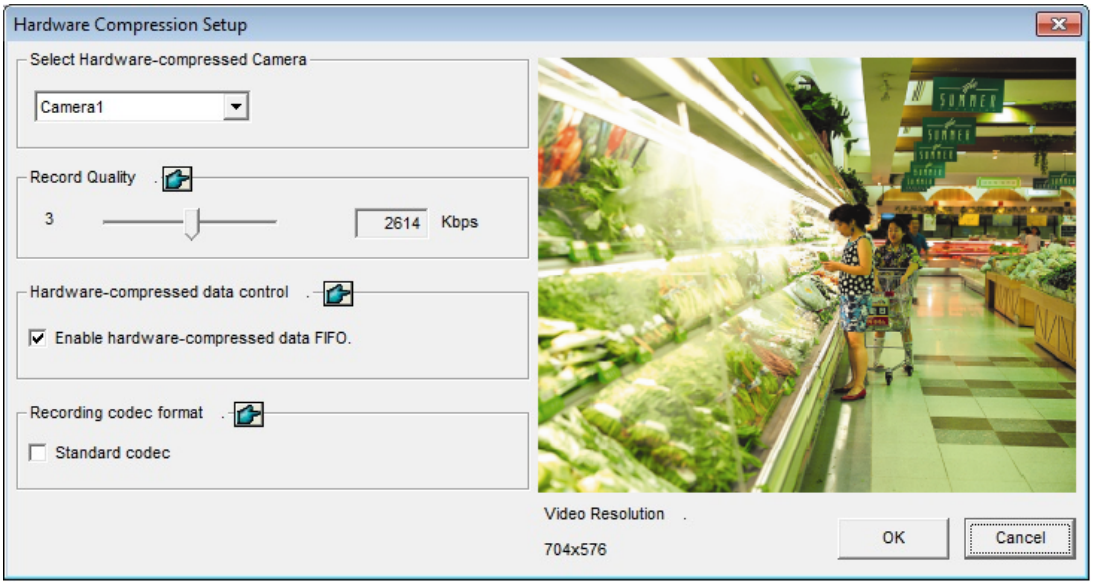


Figure 1-14

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.
5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. If you want to apply the same setting to all cameras, click the **Finger** button in each section.
8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

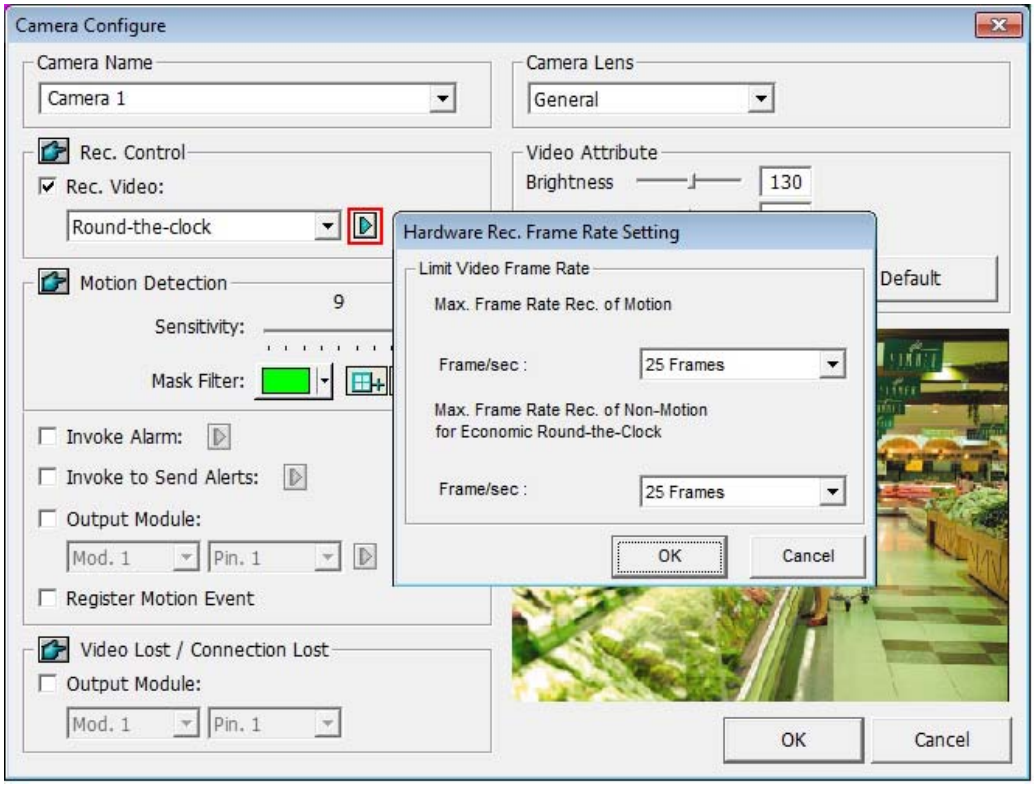


Figure 1-15

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.

10. Set the maximum frame rate for motion and non-motion periods so as to save as much disk space as possible.

11. To adjust image quality, in the Video Attributes section, move the sliders to the desired values or click **Default** to apply default values.

Note: The default settings are as follows: Recording Quality is 3, Video Resolution is 704 x 480 (NTSC) or 704 x 576 (PAL), Codec is Geo H.264 and Frame Rate is 30 (NTSC) or 25 (PAL).

Specifications

		GV-5016		GV-5016 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		LFH		
Video Input		16 Cams		32 Cams
Audio Input		16 Channels		32 Channels
Recording Rate (D1)	**NTSC**	480 fps		960 fps
	PAL	400 fps		800 fps
Display Rate	**NTSC**	480 fps		960 fps
	PAL	400 fps		800 fps
Video Resolution	**NTSC**	**H/W**	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	**H/W**	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	**S/W**	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Compression Format		AAC (16 kHz / 16 bit)		
Bit Rate Range		5M ~ 10M		
GV-NET/IO Card Support		Yes (Note 2)		
GV-Multi Quad Card Support		No		
GV-Loop Through Card Support		No		
Dimensions (W x H)		168 x 70 mm / 6.61 x 2.75 in		

Note:

1. GV-5016 does not support the TV-Out function.
2. To work together with GV-5016, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.3 GV-4008

The GV-4008 Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image of D1 without DSP Overlay. Even in screen divisions, the largest division can remain at the high-quality D1 resolution.

Minimum System Requirements

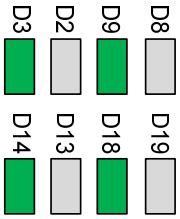
OS	32-bit	Windows XP / Windows Vista / Windows 7 / Windows Server 2008	
	64-bit	Windows 7 / Windows Server 2008 R2	
CPU		GV-4008	Core 2 Duo, 2.33 GHz
		GV-4008 x 2	Core 2 Quad, 2.4 GHz
RAM		GV-4008	2 x 1 GB Dual Channels
		GV-4008 x 2	
HDD		GV-4008	250 GB
		GV-4008 x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	
Power Supply		400 Watts	

Packing List

1. GV-4008 Card x 1
2. 1-8 Cam Audio BNC Cable with BNC Male to RCA Female Adaptors x 1
3. 1-8 Cam Video BNC Cable x 1
4. Hardware Watchdog Jumper Wire x1
5. SATA Power Converter Cable x 1
6. USB Dongle x 1
7. Software DVD x 1
8. Surveillance System Quick Start Guide x 1

Connecting One GV-4008 Card

- Connect the video and audio cables to the GV-4008 Card.
- Using the supplied SATA Power Converter Cable, connect the GV-4008 Card to power supply. The Power LED in the top right corner should be lit in green and the 4 status LEDs (D3, D9, D14, D18) in the left corner should be lit in green to indicate the normal functionality.



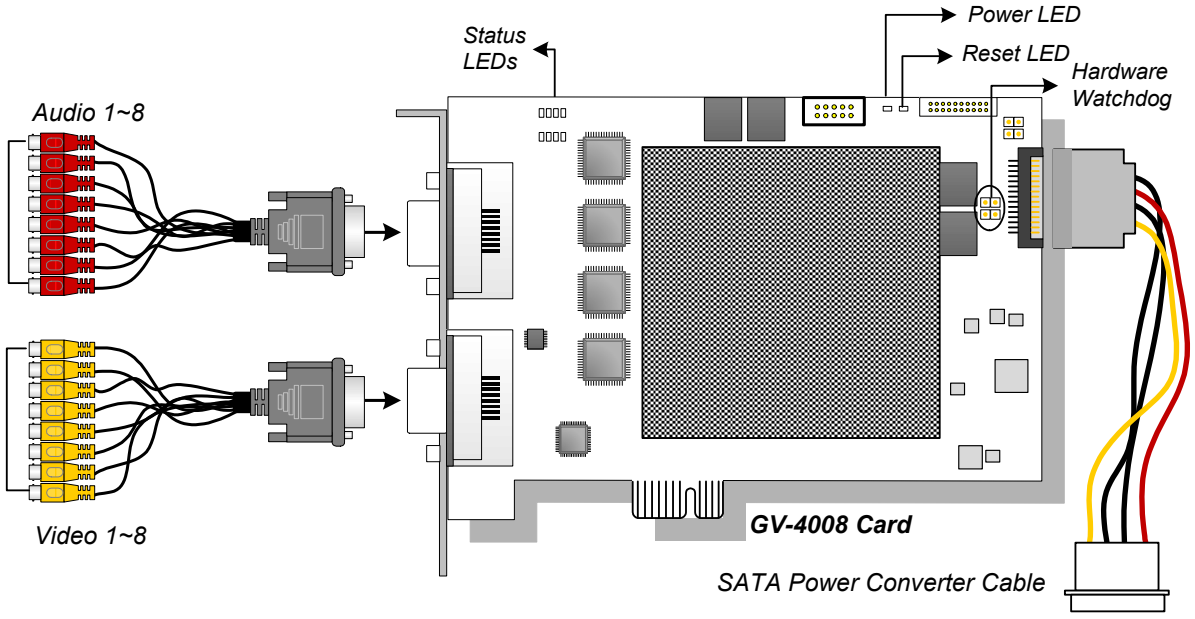


Figure 1-16

Note:

1. The GV-4008 Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-4008 Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-4008 Cards

You can install two GV-4008 Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-18).
- **Accessory Card Connections:** To work together with GV-4008 Cards, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9**.**

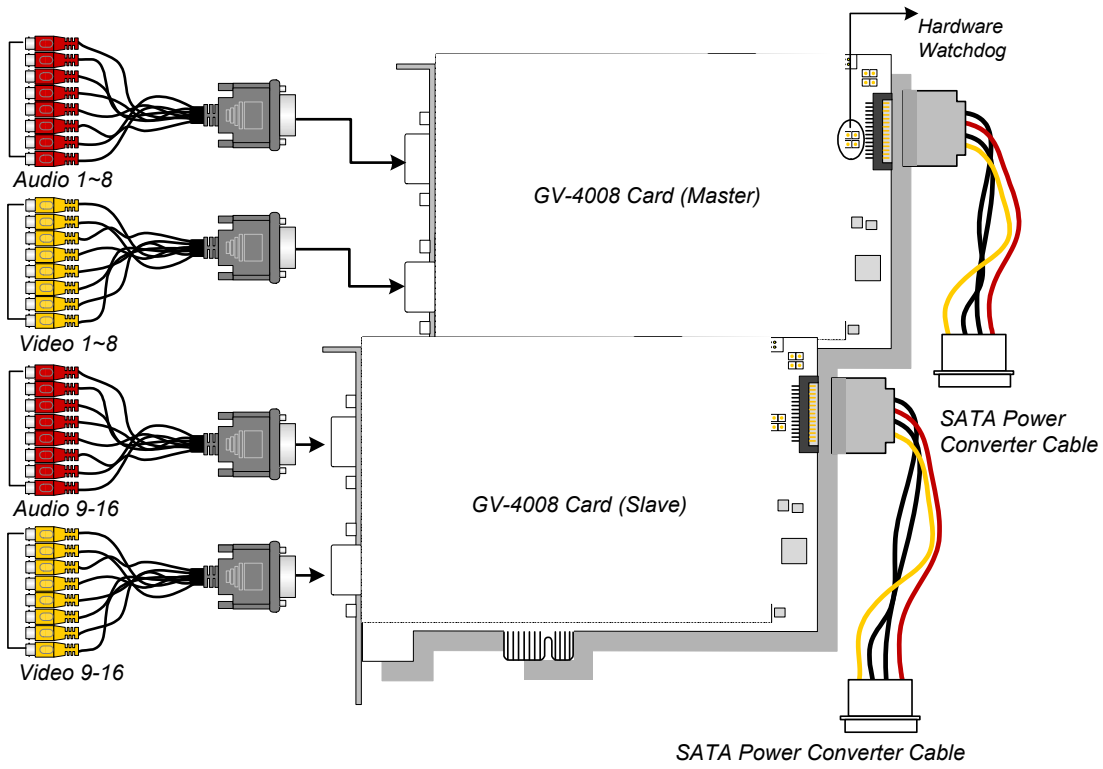


Figure 1-17

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will be damaged.

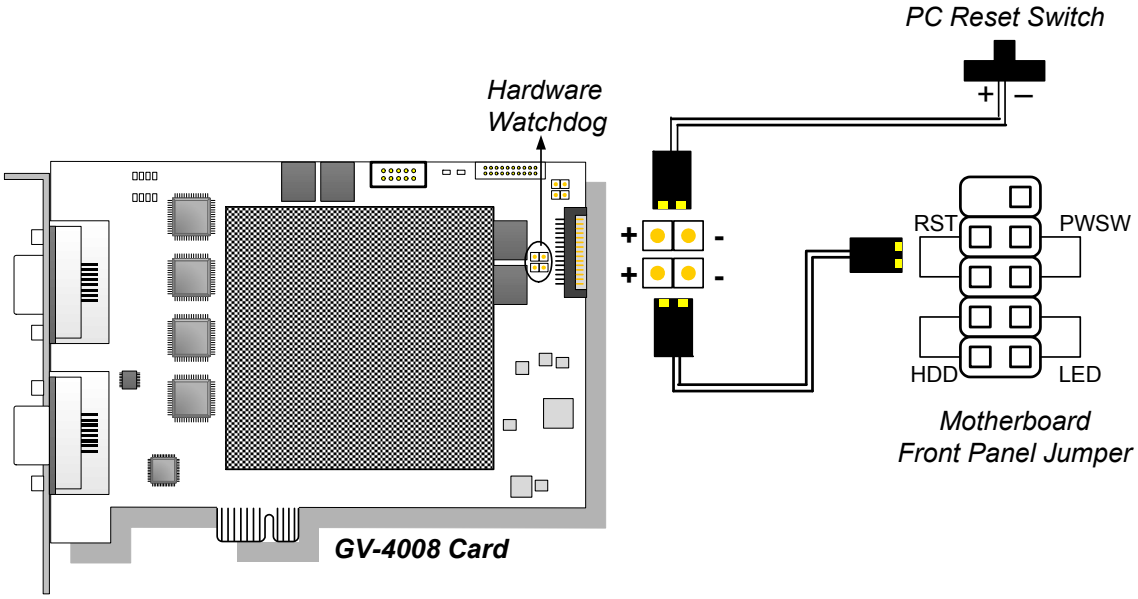


Figure 1-18

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-4008 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

Note: For the installation of two GV-4008 cards, it is required to restart the computer after the driver is installed.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-4008 card.

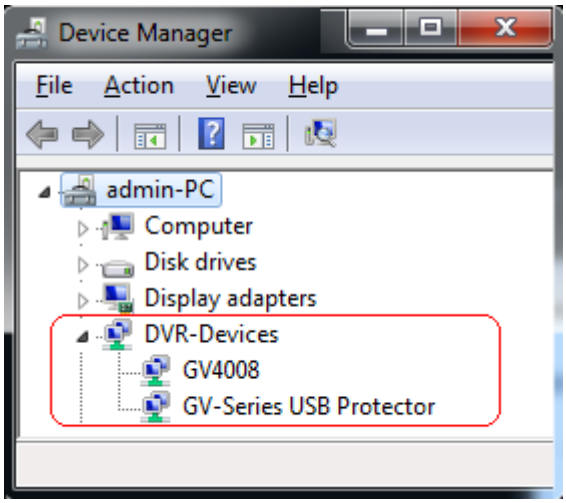


Figure 1-19

Expand the **DVR-Devices** field, you can see:

GV-4008 Card	Entry
Single-card mode	GV4008 GV-Series USB Protector
Two-card mode	GV4008 GV4008 GV-Series USB Protector

Troubleshooting Power Supply Issues

When the **Reset LED** on the top of the Card is flashing red color or the four **Status LEDs** are not all on, it indicates that the GV-4008 Card is short of power supply. Make sure your power supply is of 400 watts at least. If not, replace it with the power supply of 400 or larger watts. The power supply issues should be solved.

Adjusting the Video Settings in the Main System

One distinct feature of GV-4008 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-4008 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

Setting up the video settings of the recorded files:

Considering computer performance or recording quality, you may adjust the settings to meet your needs.

1. On the Main System, click the **Configure** button, select **System Configure**, select **Camera Install**, and click **Hardware Compression Setup**. This dialog box appears.

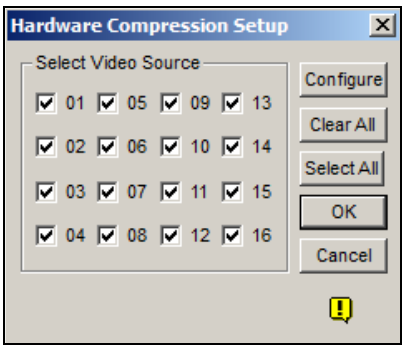


Figure 1-20

2. Select the cameras you want to set up, and click the **Configure** button. This dialog box appears.

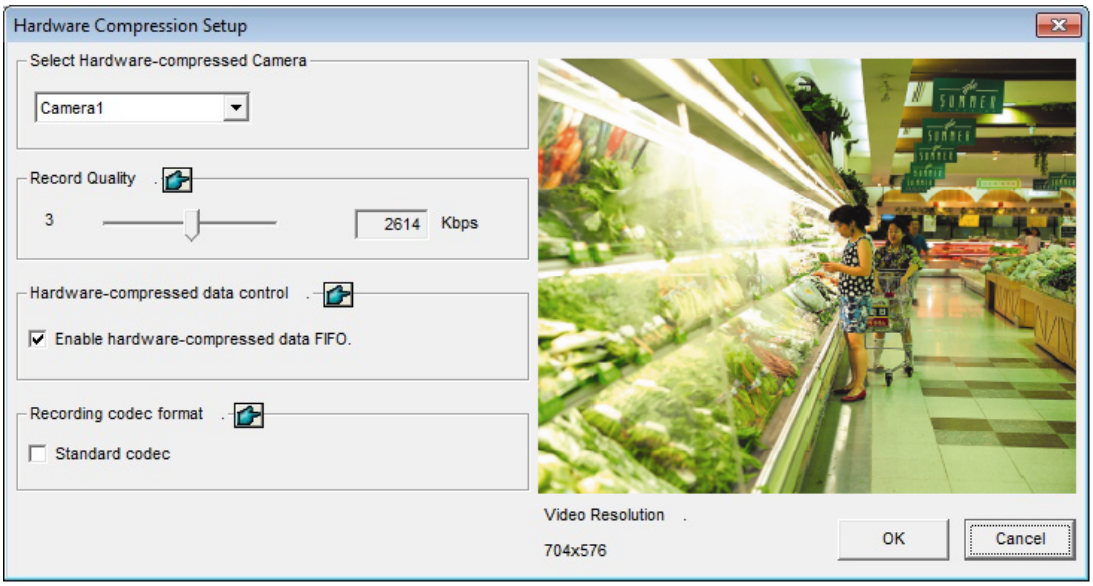


Figure 1-21

3. In the Select Hardware-compressed Camera section, select one camera to be configured.
4. Select the recording quality.
5. The **Enable hardware-compressed data FIFO** option is disabled by default. When the option is enabled, the hardware-compressed data from the video IP device, such as IP camera, video server and compact DVR, will be transmitted directly to remote servers instead of being compressed again on the DVR. The remote servers include CMS-related servers and WebCam Server. This feature can decrease the system load of DVR but increase that of remote servers.
6. To use standard H.264 codec in recording, enable **Standard codec** in the Recording codec format section.
7. If you want to apply the same setting to all cameras, click the **Finger** button in each section.

8. To access the frame rate settings, on the Main System, click the **Configure** button, select **System Configure**, and select **Camera Configure**. This dialog box appears.

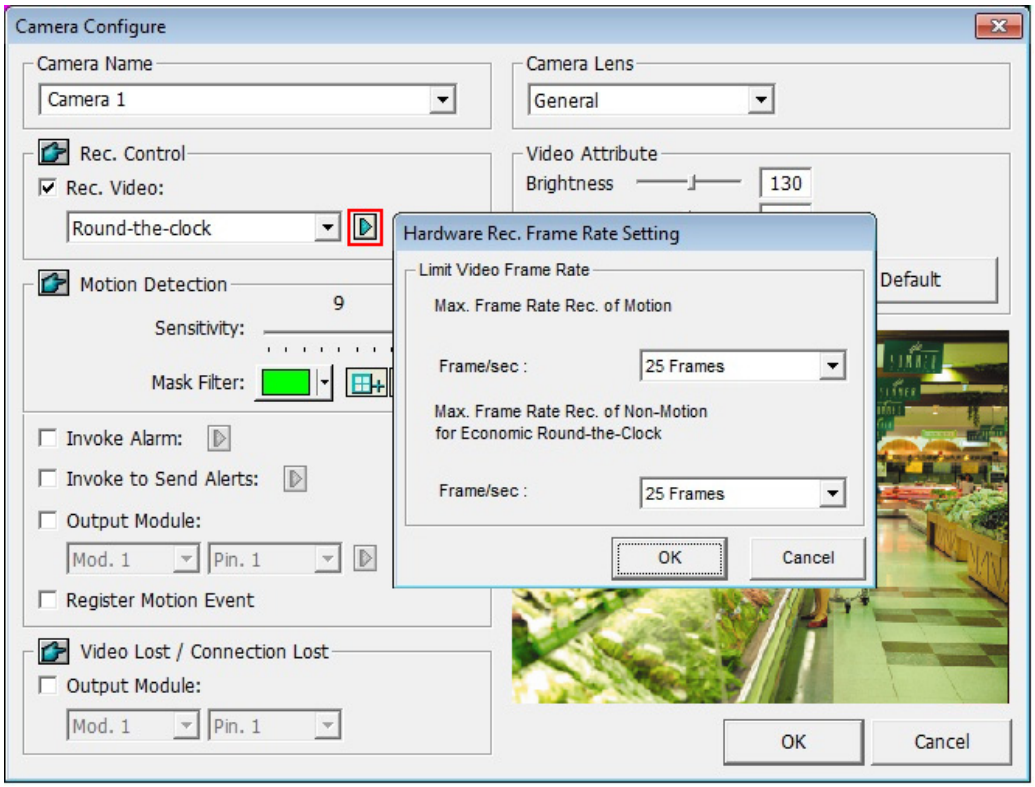


Figure 1-22

9. In the Rec Control section, click the **Arrow** button. The Hardware Rec. Frame Rate Setting dialog box appears.
10. Set the maximum frame rate for motion and non-motion periods so as to save as much disk space as possible.
11. To adjust image quality, in the Video Attributes section, move the sliders to the desired values or click **Default** to apply default values.

Note: The default settings are as follows: Recording Quality is 3, Video Resolution is 704 x 480 (NTSC) or 704 x 576 (PAL), Codec is Geo H.264 and Frame Rate is 30 (NTSC) or 25 (PAL).

Specifications

		GV-4008		GV-4008 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		DVI		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Compression Format		AAC (16 kHz / 16 bit)		
Bit Rate Range		2.5M ~ 5M		
GV-NET/IO Card Support		Yes (Note2)		
GV-Multi Quad Card Support		No		
Dimensions (W x H)		169 x 99 mm / 6.65 x 3.9 in		

Note:

1. GV-4008 does not support the TV-Out function.
2. To work together with GV-4008, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.
3. In screen divisions, the largest division is set to D1 resolution and the other divisions to CIF resolution.

1.4 GV-4008A

The GV-4008A Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The new technology of resolution is employed to enhance the live image without DSP Overlay. Even in multi views, the image on the largest division view can remain at the high-quality resolution without DSP Overlay.

Minimum System Requirements

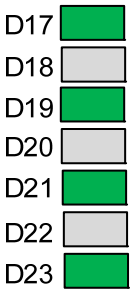
<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="2">Windows XP / Windows Vista / Windows 7 / Windows Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="2">Windows 7 / Windows Server 2008 R2</td></tr>
<tr><td colspan="2" rowspan="2">CPU</td><td>GV-4008A</td><td>Core 2 Duo, 2.33 GHz</td></tr>
<tr><td>GV-4008A x 2</td><td>Core 2 Quad, 2.4 GHz</td></tr>
<tr><td colspan="2" rowspan="2">RAM</td><td>GV-4008A</td><td rowspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-4008A x 2</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-4008A</td><td>250 GB</td></tr>
<tr><td>GV-4008A x 2</td><td>500 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="2">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="2">9.0c</td></tr>
<tr><td colspan="2">Power Supply</td><td colspan="2">400 Watts</td></tr>
</table>

Packing List

1. GV-4008A Card x 1
2. 1-8 DVI-Type Audio Cable x 1
3. 1-8 DVI-Type Video Cable x 1
4. Hardware Watchdog Jumper Wire x 1
5. Internal Power Y Cable x 1
6. USB Dongle x 1
7. Software DVD x 1
8. Surveillance System Quick Start Guide x 1

Connecting One GV-4008A Card

- Connect the video and audio cables to the GV-4008A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-16).
- Connect the computer's internal power supply to the GV-4008A Card. The LEDs (D17, D19, D21, D23) should be lit in green to indicate the card is ready for use.



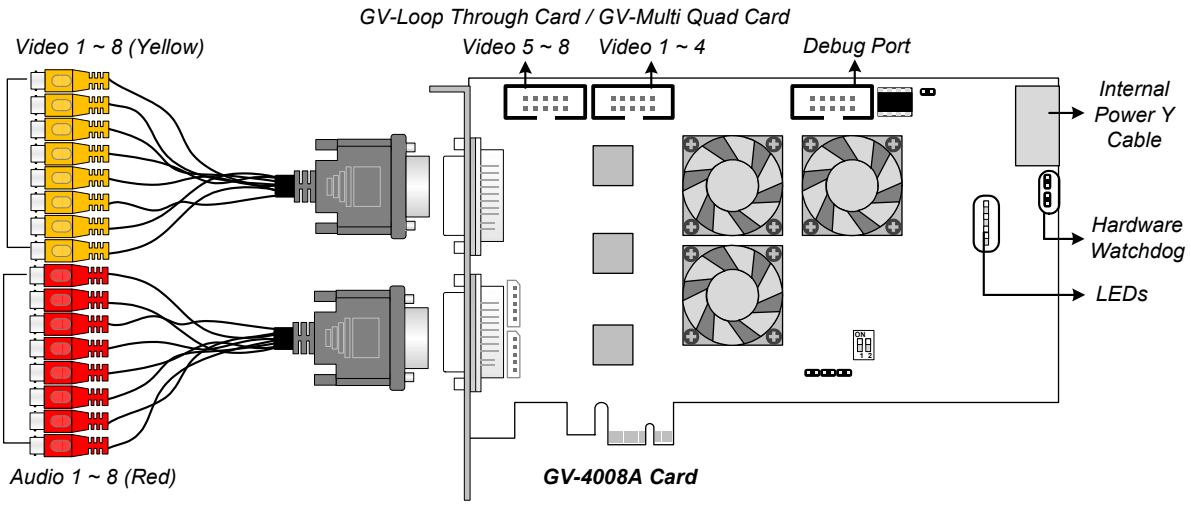


Figure 1-23

Note:

1. The GV-4008A Card only works when the supplied USB Dongle is inserted to PC.
2. The GV-4008A Card cannot work with microphones which acquire power from the PC. Use microphones which have external power supply.

Connecting Two GV-4008A Cards

You can install two GV-4008A Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-16).
- **Accessory Card Connections:**
  - ⊙ GV-Loop Through Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.
  - ⊙ GV-Multi Quad Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.

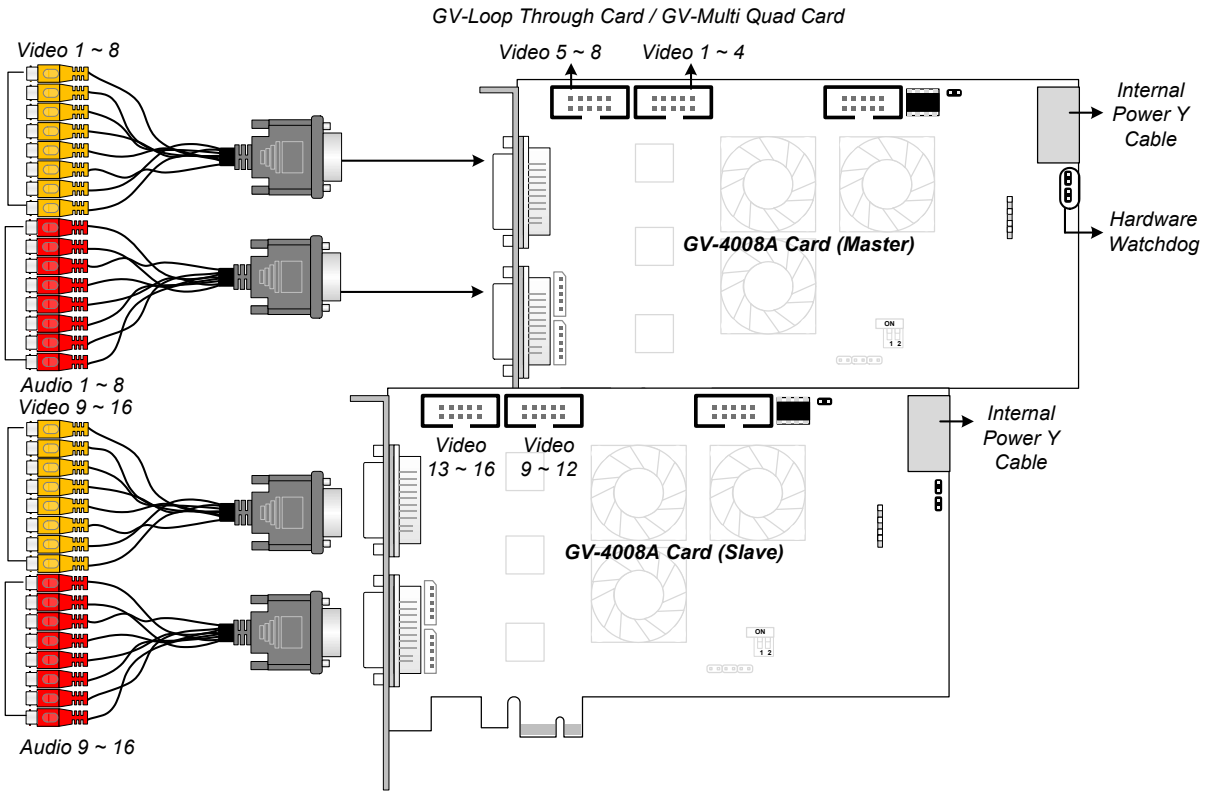


Figure 1-24

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

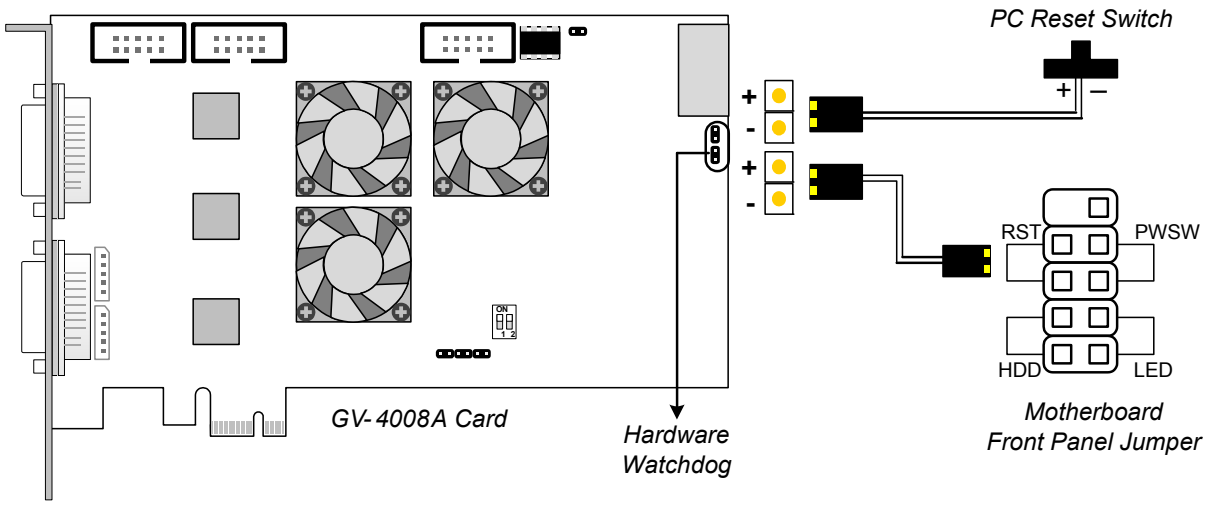


Figure 1-25

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-4008A Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select the following two options to install card and USB dongle drivers.

- **Install or Remove GeoVision GV-Series Card Drivers:** installs card drivers.
- **Install GeoVision USB Device Drivers:** installs USB dongle drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-4008A Card	Entry
Single-card mode	GV4008(A) GV-Series USB Protector
Two-card mode	GV4008(A) GV4008(A) GV-Series USB Protector

Adjusting the Video Settings in the Main System

One distinct feature of GV-4008A Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-4008A Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

For details on adjusting the video settings, see *Setting up the video settings of the recorded files* in *1.1 4008 Card*.

Specifications

		GV-4008A		GV-4008A x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		DVI		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Compression Format		AAC (16 kHz / 16 bit)		
Bit Rate Range		2.5M ~ 5M		
GV-NET/IO Card Support		Yes (Note 2)		
GV-Multi Quad Card Support		Yes		
GV-Loop Through Card Support		Yes		
Dimensions (W x H)		169 x 112 mm / 6.65 x 4.41 in		

Note:

1. GV-4008A does not support the TV-Out function.
2. To work together with GV-4008A, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.

1.5 GV-3008

The GV-3008 Card provides up to 8 video and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 hardware compression. The GV-3008 Card provides the high-resolution live image with DSP Overlay. Even in multi views, the image on the largest division view can remain at the high-quality resolution.

Minimum System Requirements

OS	32-bit	Windows XP / Windows Vista / Windows 7 / Windows Server 2008	
	64-bit	Windows 7 / Windows Server 2008 R2	
CPU		GV-3008	Core 2 Duo, 2.33 GHz
		GV-3008 x 2	Core 2 Quad, 2.4 GHz
RAM		GV-3008	2 x 1 GB Dual Channels
		GV-3008 x 2	
HDD		GV-3008	250 GB
		GV-3008 x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	
Power Supply		400 Watts	

Packing List

1. GV-3008 Card x 1
2. 1-4 D-Type Video and Audio Cable x 1
3. 5-8 D-Type Video and Audio Cable x 1
4. Hardware Watchdog Jumper Wire x1
5. Software DVD x 1
6. Surveillance System Quick Start Guide x 1

Connecting One GV-3008 Card

- Connect the D-Type video and audio cables to the GV-3008 Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-28).
- Connect the computer's internal power supply to the GV-3008 Card. The Power LED should be lit in green to indicate the card is ready for use.

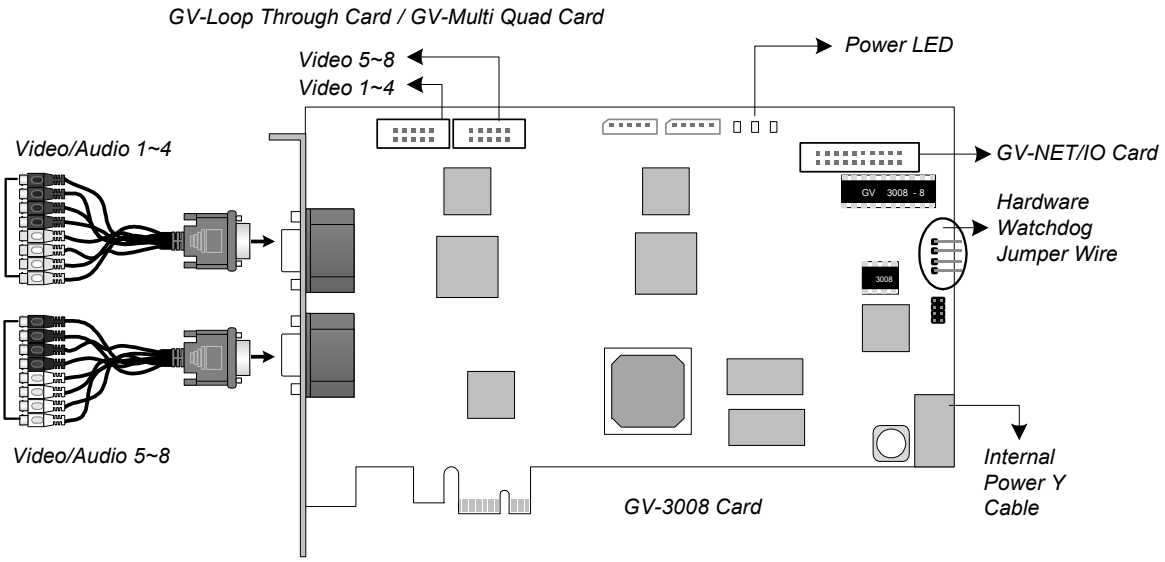


Figure 1-26

Connecting Two GV-3008 Cards

You can install two GV-3008 Cards for a total of 16 channels. Master Card is the card with 1-8 channels and Slave Card is that with 9-16 channels. The Master and Slave cards can be distinguished by the labels on cards, as shown below:

Master Card: 

Slave Card: 

IMPORTANT:

1. The Slave Cards cannot work alone. They need to work in conjunction with the Master Cards.
2. If both GV-3008 Cards are Master Cards, it is required to identify which are Master and Slave by the PCI-E slot number. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-28).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.
  - ⊙ GV-Multi Quad Card: Connect the card to two 10-pin connectors on each Master and Slave Card by using a supplied cable with four 10-pin headers.

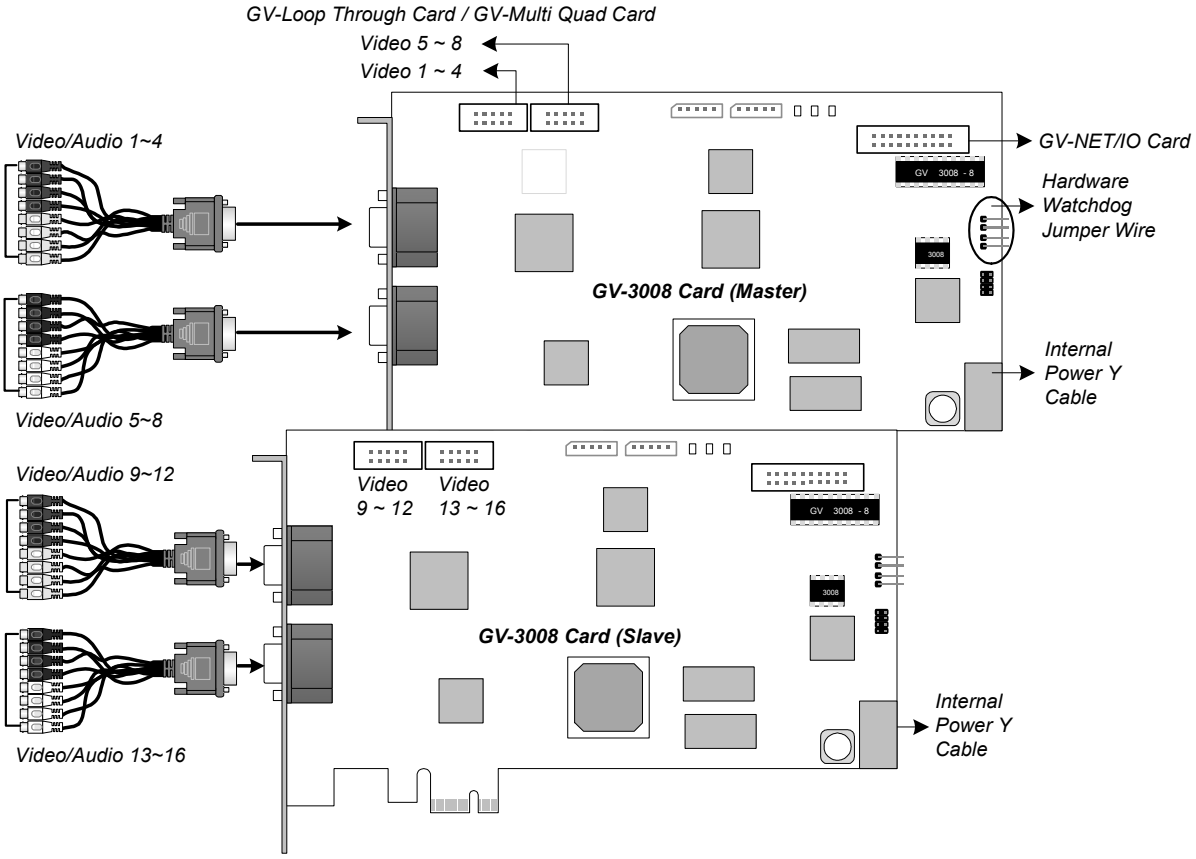

GV-Loop Through Card / GV-Multi Quad Card
Video 5 ~ 8
Video 1 ~ 4
Video/Audio 1~4
GV-NET/IO Card
Hardware
Watchdog
Jumper Wire
GV-3008 Card (Master)
Internal
Power Y
Cable
Video/Audio 5~8
Video/Audio 9~12
Video
9 ~ 12
Video
13 ~ 16
GV-3008 Card (Slave)
Internal
Power Y
Cable
Video/Audio 13~16

Figure 1-27

Connecting Hardware Watchdog

To restart the computer automatically by the hardware watchdog on the GV-Video Capture Card, a connection needs to be made from the card to the motherboard.

1. Using the supplied jumper wire, connect the reset jumper pins on the card and on the motherboard.

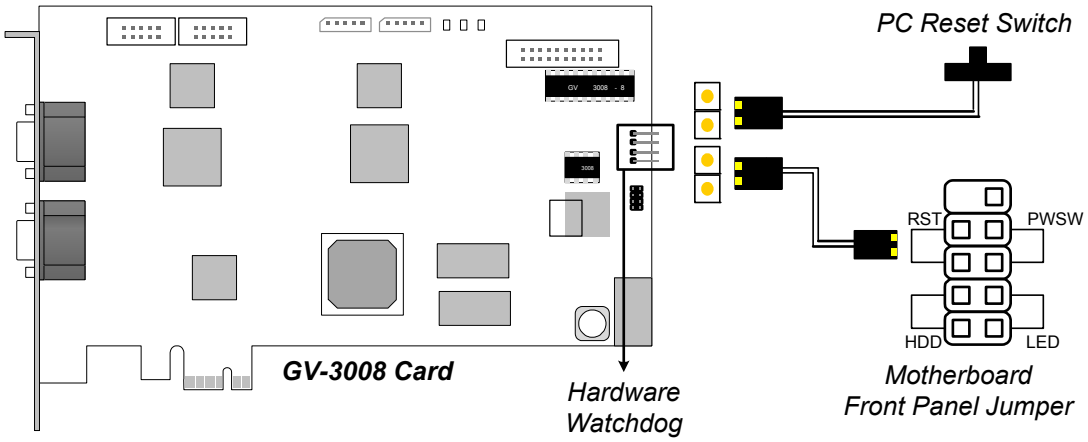


Figure 1-28

2. If the computer has a reset switch, the switch's jumper wire should already be connected to the motherboard's reset jumper pins. Remove the switch wire from the motherboard and connect it to the reset jumper pins on the card.

Installing Drivers

After installing the GV-3008 Card in the computer, insert the software DVD to install GV-Series drivers. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-3008 Card		Entry
Single-card mode		GV3008 Capture GV3008 Encode #1 GV3008 Encode #2
Two-card mode	Two Master Cards	GV3008 Capture GV3008 Capture GV3008 Encode #1 GV3008 Encode #1 GV3008 Encode #2 GV3008 Encode #2
	One Master and Slave Card	GV3008 Capture GV3008 Capture GV3008 Encode #1 GV3008 Encode #2 GV3008 Encode #3 GV3008 Encode #4

Adjusting the Video Settings in the Main System

One distinct feature of GV-3008 Cards is their ability of hardware compression, providing you with higher system performance and DVD recording quality.

To take full advantage of GV-3008 Cards, you can adjust the video settings, including the recording quality and frame rate, before running the GV-System.

For details on adjusting the video settings, see *Setting up the video settings of the recorded files* in *1.1 4008 Card*.

Specifications

		GV-3008		GV-3008 x 2
Interface		PCI-E (x1)		PCI-E (x1) x 2
Input Type		D-Type		
Video Input		8 Cams		16 Cams
Audio Input		8 Channels		16 Channels
Recording Rate (D1)	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Display Rate	NTSC	240 fps		480 fps
	PAL	200 fps		400 fps
Video Resolution	NTSC	H/W	704 x 480	704 x 480
		S/W	352 x 240	352 x 240
	PAL	H/W	704 x 576	704 x 576
		S/W	352 x 288	352 x 288
Video Compression Format	S/W	Geo MPEG4, Geo H264		
	H/W	H.264		
Audio Compression Format		AAC (16 kHz / 16 bit)		
Bit Rate Range		2.5M ~ 10M		
GV-NET/IO Card Support		Yes		
GV-Multi Quad Card Support		Yes		
GV-Loop Through Card Support		Yes		
Dimensions (W x H)		180 x 112 mm / 7.09 x 4.41 in		
Note: GV-3008 does not support the TV-Out function.				

1.6 GV-1120A, 1240A, 1480A

GV-Combo A Card (GV-1120A, GV-1240A and GV-1480A) are the three-in-one combo cards, providing one single card solution for 16 video / audio recording, real-time display and TV-out display.

Minimum System Requirements

OS	32-bit	Windows XP / Windows Vista / Windows 7 / Windows Server 2008		
	64-bit	Windows 7 / Windows Server 2008 R2		
CPU		GV-1120A	Pentium 4, 3.0 GHz with Hyper Threading	
			Turbo Mode: Pentium 4, 3.0 GHz, Dual Core	
		GV-1120A x 2	Pentium 4, 3.0 GHz, Dual Core	
			Turbo Mode: Core 2 Quad, 2.4 GHz	
		GV-1240A	Pentium 4, 3.0 GHz, Dual Core	
			Turbo Mode: Core 2 Duo, 3.0 GHz	
		GV-1240A x 2	Core 2 Duo, 2.53 GHz	
			Turbo Mode: Core 2 Quad, 2.8 GHz	
		GV-1480A	Core 2 Duo, 3.0 GHz	
			Turbo Mode: Core 2 Quad, 2.4 GHz	
		GV-1480A x 2	Core 2 Quad, 2.4 GHz	
			Turbo Mode: Core i7-920, 2.66 GHz	
RAM		GV-1120A / 1240A / 1480A	Windows XP	2 x 512 MB Dual Channels
			Windows Vista / 7 / Server 2008	2 x 1 GB Dual Channels
		GV-1120A x 2 / 1240A x 2 / 1480A x 2	2 x 1 GB Dual Channels	
HDD		GV-1120A	80 GB / Turbo Mode: 120 GB	
		GV-1120 A x 2	160 GB / Turbo Mode: 250 GB	
		GV-1240A	120 GB / Turbo Mode: 160 GB	
		GV-1240A x 2	250 GB / Turbo Mode: 320 GB	
		GV-1480A	250 GB / Turbo Mode: 320 GB	
		GV-1480A x 2	500 GB / Turbo Mode: 750 GB	
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		
DirectX		9.0c		

Packing List (D-Type)

1. GV-Combo A Card x 1
2. Audio Extension Card x 1
3. 1-8 D-Type Video Cable x 1
4. 9-16 D-Type Video Cable x 1
5. 1-8 D-Type Audio Cable x 1
6. 9-16 D-Type Audio Cable x 1
7. Internal Power Y Cable x 1
8. Hardware Watchdog Jumper Wire x 1
9. Software DVD x 1
10. Surveillance System Quick Start Guide x 1

Packing List (DVI-Type)

1. GV- Combo A Card x 1
2. 1-16 DVI-Type Video plus TV Out Cable x 1
3. 1-16 DVI-Type Audio Cable x 1
4. Internal Power Y Cable x 1
5. Hardware Watchdog Jumper Wire x 1
6. Software DVD x 1
7. Surveillance System Quick Start Guide x 1

Connecting One GV-Combo A Card (D-Type)

- Plug the Audio Extension Card in the assigned connectors on the GV-Combo A Card.
- Connect D-Type video and audio cables to the GV-Combo A Card and Audio Extension Card respectively.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-33).
- Connect the PC's internal power supply to the GV-Combo A Card.
- Connect the TV monitor to the GV-Combo A Card if needed.

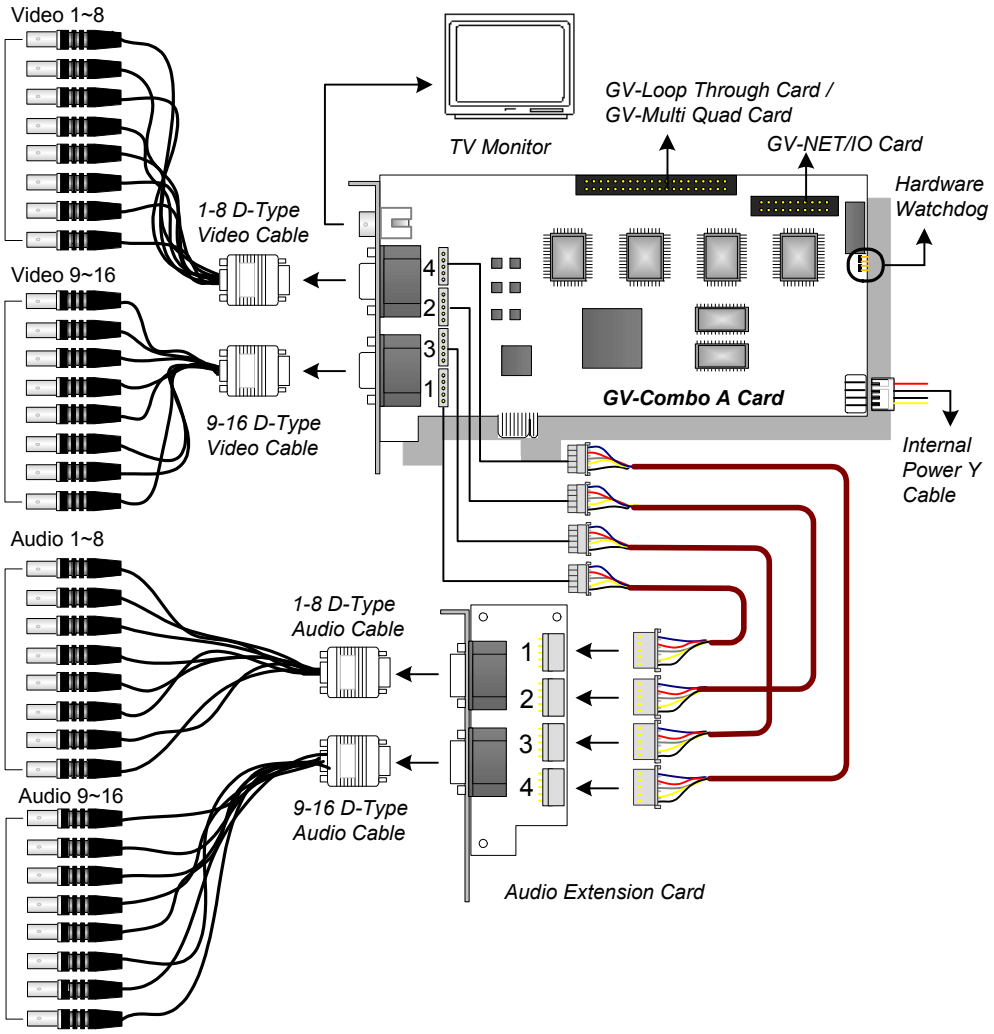


Figure 1-29

Note: The Card only works when it connects to PC's power supply using the supplied Internal Power Y Cable.

Connecting One GV-Combo A Card (DVI-Type)

- Connect the DVI video and audio cables to the GV-Combo A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-33).
- Connect the PC's internal power supply to the GV-Combo A Card.
- Connect the DVI TV Out cable to the TV monitor if needed.

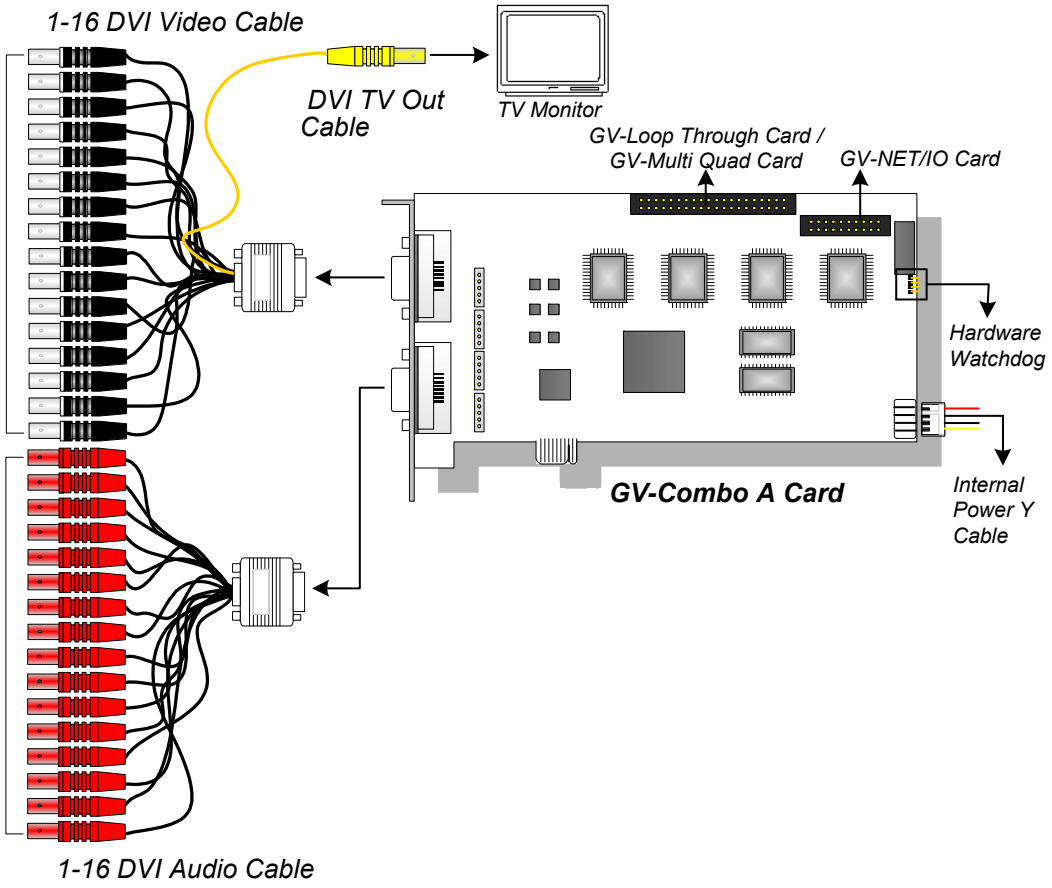


Figure 1-30

Note: The Card only works when it connects to PC's power supply using the supplied Internal Power Y Cable.

Connecting GV-NET/IO Card to GV-Combo A Card

Connect the GV-NET/IO Card to the 20-pin GV-NET/IO port on the GV-Combo A Card. Some GV-Combo A Cards are built in two 20-pin ports. Ensure to connect the GV-NET/IO Card to the correct port as illustrated below.

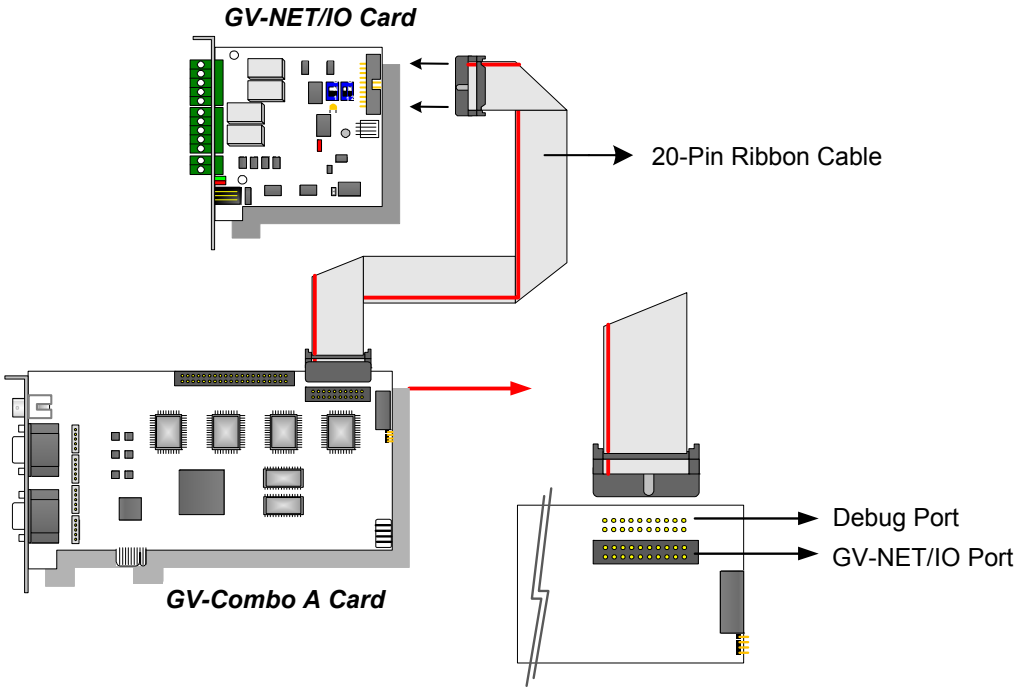


Figure 1-31

Note: If the GV-NET/IO Card is connected to the Debug port, it may lead to the GV-NET/IO Card to be damaged, or the GV-Combo A Card to burn out, causing Video Lost or an error message of “can’t find keypro” to pop up.

Connecting Two GV-Combo A Cards

You can install two GV-Combo A Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **TV Output Connection:** The RCA connector in the Master Card is for displaying 1-16 channels, and the one in the Slave Card is for displaying 17-32 channels.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-33).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

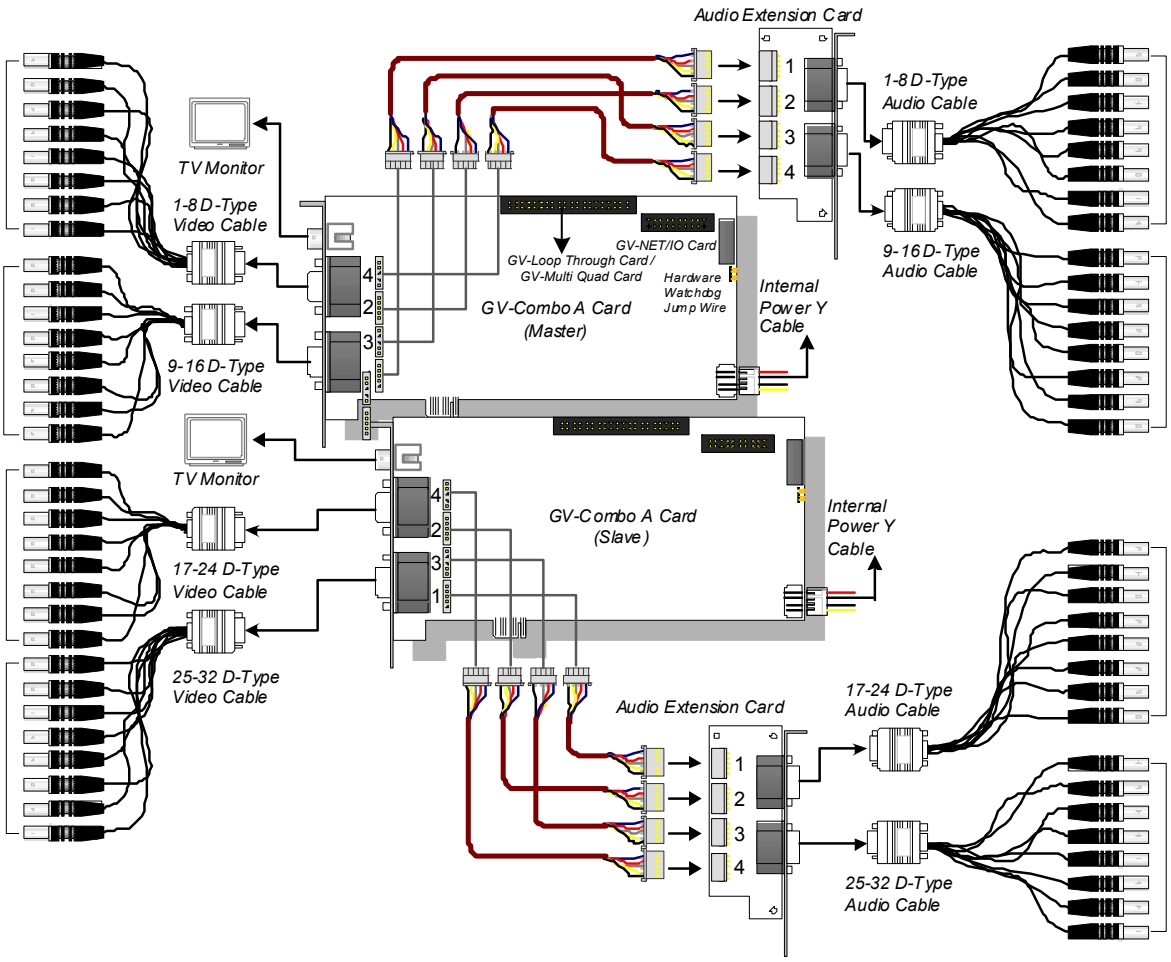


Figure1-32

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card and on the motherboard as illustrated below. Ensure the connection is correct; otherwise the hardware watchdog will not work.

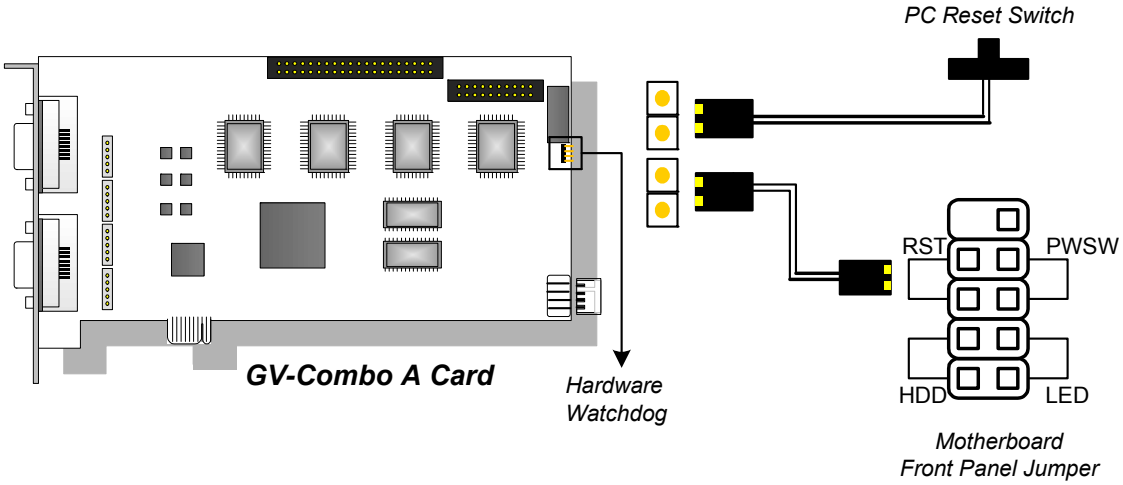


Figure 1-33

Installing Drivers

After installing the GV-Combo A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-1120A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008 GV1480A/GV1240A/GV1248A/GV1120A/GV1008
GV-1240A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008 GV1480A/GV1240A/GV1248A/GV1120A/GV1008
GV-1480A	Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008
	Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008 GV1480A/GV1240A/GV1248A/GV1120A/GV1008

Specifications

			GV-1120A	GV-1240A	GV-1480A
Interface Type			PCI-E (x1)		
Input Type			D-Type, DVI		
Video Input			8, 12, 16 Cams	8, 16 Cams	16 Cams
Audio Input			8, 12, 16 Channels	8, 16 Channels	16 Channels
TV Output			D-Type: RCA Connector DVI: BNC Connector		
Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	80 fps	120 fps	240 fps
		PAL	72 fps	100 fps	200 fps
	Turbo VGA	NTSC	120 fps	240 fps	416 fps
		PAL	100 fps	200 fps	400 fps
	Turbo D1	NTSC	120 fps	240 fps	352 fps
		PAL	100 fps	200 fps	320 fps
Display Rate	CIF	NTSC	480 fps		
		PAL	400 fps		
	D1	NTSC	480 fps		
		PAL	400 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	D-Type		179 x 112 mm / 7.04 x 4.41 in		
	DVI-Type				

Note: Turbo Mode is only applied in VGA and D1 resolutions. To activate Turbo Mode, see *Activating Turbo Mode*, *Chapter 1*, *DVR User's Manual* on the Software DVD.

			GV-1120A x 2	GV-1240A x 2	GV-1480A x 2
Interface Type			PCI-E (x1) x 2		
Input Type			D-Type, DVI		
Video Input			16, 20, 24, 28, 32 Cams	16, 24, 32 Cams	32 Cams
Audio Input			16, 20, 24, 28, 32 Channels	16, 24, 32 Channels	32 Channels
TV Output			D-Type: RCA Connector DVI: BNC Connector		
Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	160 fps	240 fps	480 fps
		PAL	144 fps	200 fps	400 fps
	Turbo VGA	NTSC	240 fps	480 fps	832 fps
		PAL	200 fps	400 fps	800 fps
	Turbo D1	NTSC	240 fps	480 fps	704 fps
		PAL	200 fps	400 fps	640 fps
Display Rate	CIF	NTSC	960 fps		
		PAL	800 fps		
	D1	NTSC	960 fps		
		PAL	800 fps		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	D-Type		179 x 112 mm / 7.04 x 4.41 in		
	DVI-Type				

Note: Turbo Mode is only applied in VGA and D1 resolutions. To activate Turbo Mode, see *Activating Turbo Mode*, *Chapter 1*, *DVR User's Manual* on the Software DVD.

1.7 GV-1120B, GV-1240B, GV-1480B

GV-Combo B Card (GV-1120B, GV-1240B and GV-1480B) are of GV-Comb Card series, providing one single card solution for 16 video / audio recording and real-time display.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Windows Vista / Windows 7 / Windows Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / Windows Server 2008 R2</td></tr>
<tr><td colspan="2" rowspan="6">CPU</td><td>GV-1120B</td><td colspan="2">Pentium 4, 3.0 GHz with Hyper Threading</td></tr>
<tr><td>GV-1120B x 2</td><td colspan="2">Core 2 Duo, E7200, 2.53 GHz</td></tr>
<tr><td>GV-1240B</td><td colspan="2">Pentium 4, 3.0 GHz, Dual Core</td></tr>
<tr><td>GV-1240B x 2</td><td colspan="2">Core 2 Duo, 3.0 GHz</td></tr>
<tr><td>GV-1480B</td><td colspan="2">Core 2 Duo, 3.0 GHz</td></tr>
<tr><td>GV-1480B x 2</td><td colspan="2">Core 2 Quad, 2.4 GHz</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-1120B / 1240B / 1480B</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / Server 2008</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-1120B x 2 / 1240B x 2 / 1480B x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="6">HDD</td><td>GV-1120B</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-1120B x 2</td><td colspan="2">160 GB</td></tr>
<tr><td>GV-1240B</td><td colspan="2">120 GB</td></tr>
<tr><td>GV-1240B x 2</td><td colspan="2">250 GB</td></tr>
<tr><td>GV-1480B</td><td colspan="2">250 GB</td></tr>
<tr><td>GV-1480B x 2</td><td colspan="2">500 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List (DVI-Type)

1. GV- Combo B Card x 1
2. 1-16 DVI-Type Video Cable x 1
3. 1-16 DVI-Type Audio Cable x 1
4. Hardware Watchdog Jumper Wire x 1
5. Software DVD x 1
6. Surveillance System Quick Start Guide x 1

Connecting One GV-Combo B Card (DVI-Type)

- Connect the DVI video and audio cables to the GV-Combo B Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-36).

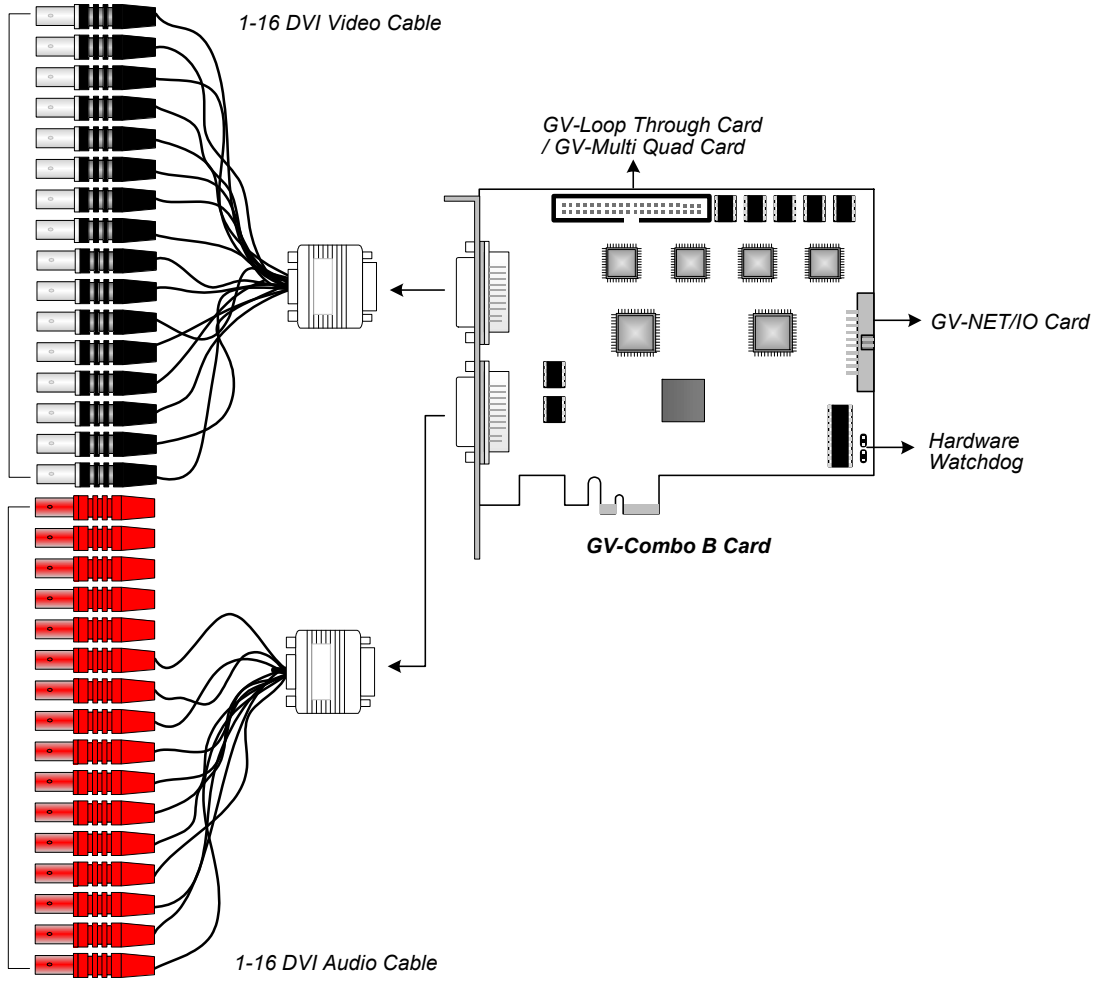


Figure 1-34

Note: Combo B Cards cannot work with microphones which acquire power from the PC. Use microphones that have external power supply.

Connecting Two GV-Combo B Cards

You can install two GV-Combo B Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-36).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

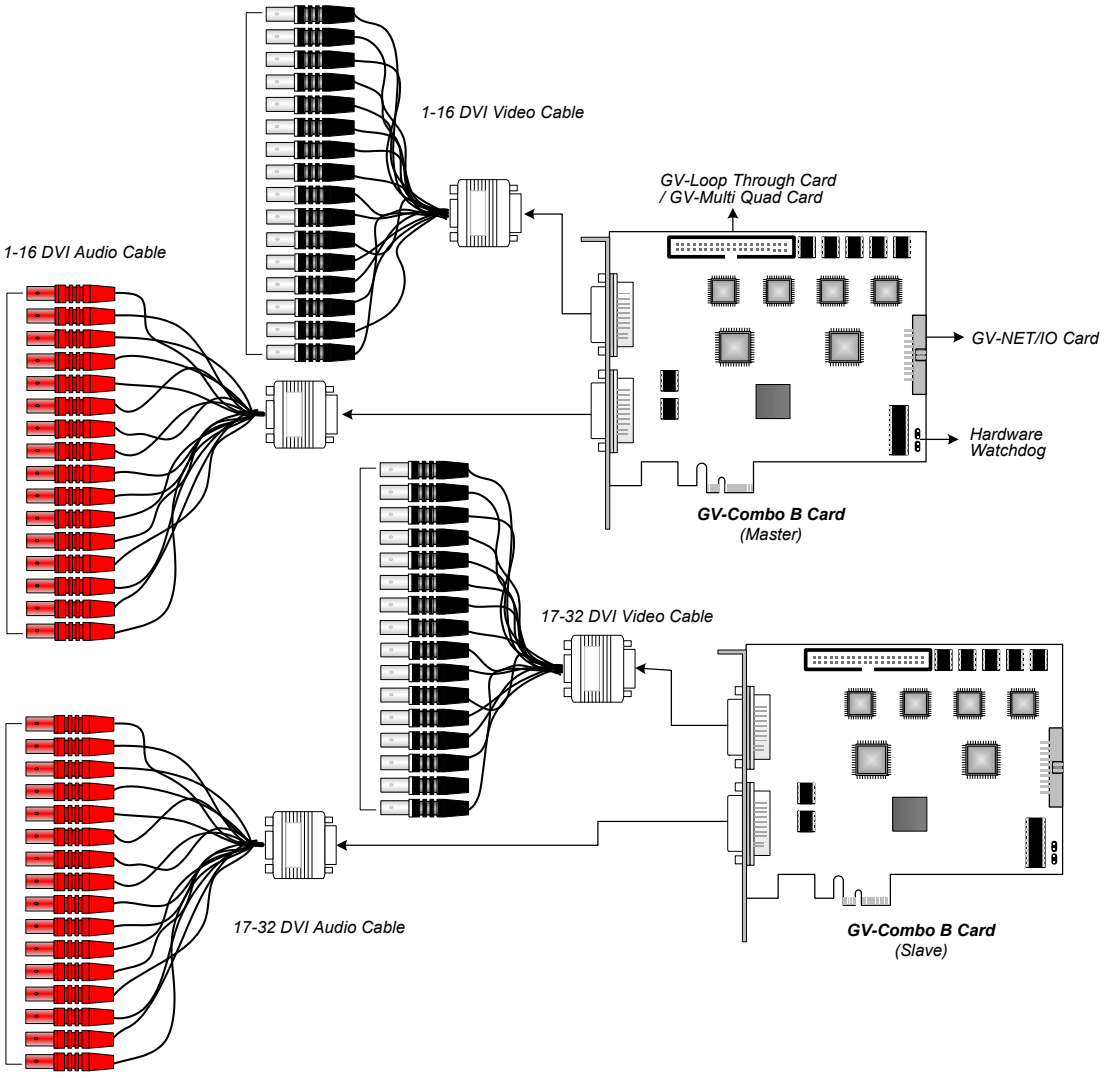


Figure 1-35

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card and on the motherboard as illustrated below. Ensure the connection is correct; otherwise the hardware watchdog will not work.

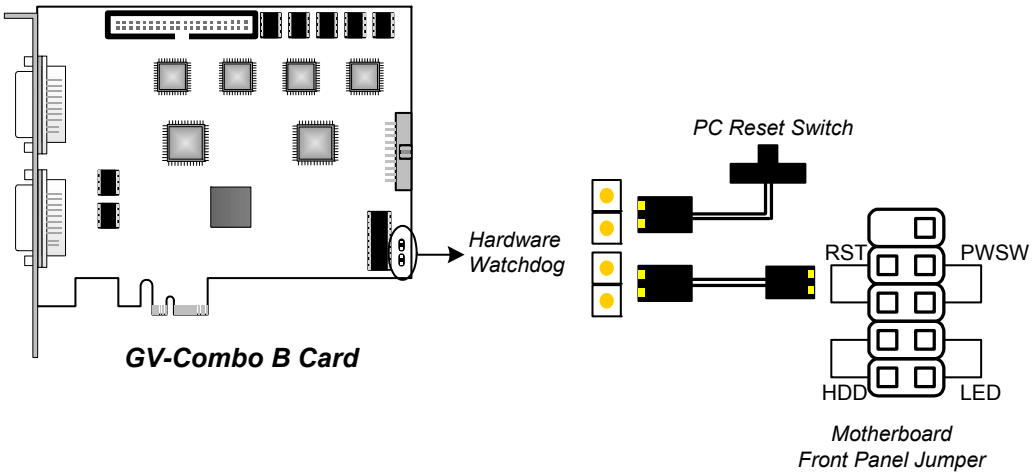


Figure 1-36

Installing Drivers

After installing the GV-Combo B Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed. The image below is an example of installing one GV-Combo B card.

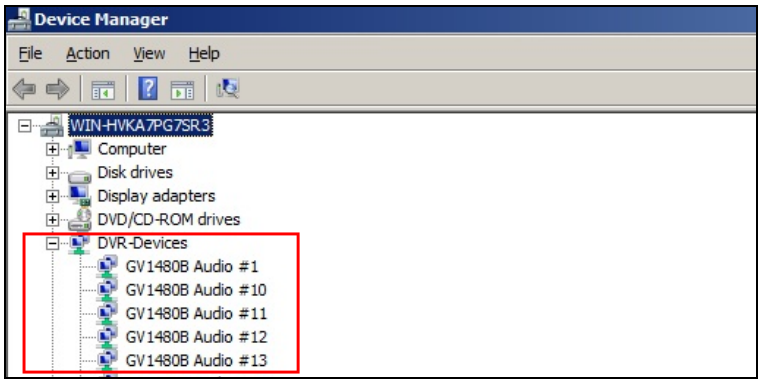


Figure 1-37

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-1120B	**Single-card mode**	GV-1120B Audio #1~#16 GV-1120B Video #1~#16
	Two-card mode	GV-1120B Audio #1~#16 GV-1120B Audio #1~#16 GV-1120B Video #1~#16 GV-1120B Video #1~#16
GV-1240B	**Single-card mode**	GV-1240B Audio #1~#16 GV-1240B Video #1~#16
	Two-card mode	GV-1240B Audio #1~#16 GV-1240B Audio #1~#16 GV-1240B Video #1~#16 GV-1240B Video #1~#16
GV-1480B	**Single-card mode**	GV-1480B Audio #1~#16 GV-1480B Video #1~#16
	Two-card mode	GV-1480B Audio #1~#16 GV-1480B Audio #1~#16 GV-1480B Video #1~#16 GV-1480B Video #1~#16

Specifications

			GV-1120B	GV-1240B	GV-1480B
Interface Type			PCI-E (x4)		
Input Type			DVI		
Video Input			16 Cams	16 Cams	16 Cams
Audio Input			16 Channels	16 Channels	16 Channels
Recording Rate	**CIF**	**NTSC**	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	**NTSC**	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
Display Rate	**CIF**	**NTSC**	480 fps		
		PAL	400 fps		
	D1	**NTSC**	480 fps		
		PAL	400 fps		
Video Resolution		**NTSC**	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	**DVI-Type**		156 x 111 mm / 6.14 x 4.37 in		

			GV-1120B x 2	GV-1240B x 2	GV-1480B x 2
Interface Type			PCI-E (x4) x 2		
Input Type			DVI		
Video Input			32 Cams	32 Cams	32 Cams
Audio Input			32 Channels	32 Channels	32 Channels
Recording Rate	**CIF**	**NTSC**	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	**NTSC**	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
Display Rate	**CIF**	**NTSC**	960 fps		
		PAL	800 fps		
	D1	**NTSC**	960 fps		
		PAL	800 fps		
Video Resolution		**NTSC**	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			Yes		
GV-Loop Through Card Support			Yes		
GV-NET/IO Card Support			Yes		
Dimensions	**DVI-Type**		156 x 111 mm / 6.14 x 4.37 in		

1.8 GV-1008

The GV-1008, as a three-in-one combo card, provides one single card solution for 8 video / audio recording, real-time display and TV-out display. The Card can record each channel at D1 in real time or 30 fps. When the two Cards are installed in the system, it can be utilized to provide a single TV-out display of 16 cameras and maintain a high recording rate of 480 fps at D1 resolution.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Windows Vista / Windows 7 / Windows Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / Windows Server 2008 R2</td></tr>
<tr><td colspan="2" rowspan="2">CPU</td><td>GV-1008</td><td colspan="2">Core 2 Duo, 3.0 GHz</td></tr>
<tr><td>GV-1008 x 2</td><td colspan="2">Core i5-750, 2.66 GHz</td></tr>
<tr><td colspan="2" rowspan="4">RAM</td><td rowspan="2">Windows XP</td><td>GV-1008</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>GV-1008 x 2</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td rowspan="2">Windows Vista / 7 / Server 2008</td><td>GV-1008</td><td rowspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-1008 x 2</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-1008</td><td colspan="2">250 GB</td></tr>
<tr><td>GV-1008 x 2</td><td colspan="2">500 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-1008 Card x 1
2. Audio Extension Card x 1
3. 1-8 D-Type Video Cable x 1
4. 1-8 D-Type Audio Cable x 1
5. 40-Pin Ribbon Cable with 3 headers x 1
6. Internal Power Y Cable x 1
7. Hardware Watchdog Jumper Wire x1
8. Software DVD x 1
9. Surveillance System Quick Start Guide x 1

Connecting One GV-1008 Card

- Plug the Audio Extension Card in the assigned connectors on the GV-1008 Card.
- Connect D-Type video cable and audio cable to the GV-1008 Card and Audio Extension Card respectively.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-40).
- Connect the PC's internal power supply to the GV-1008 Card.
- Connect the TV monitor to the GV-1008 Card if needed.

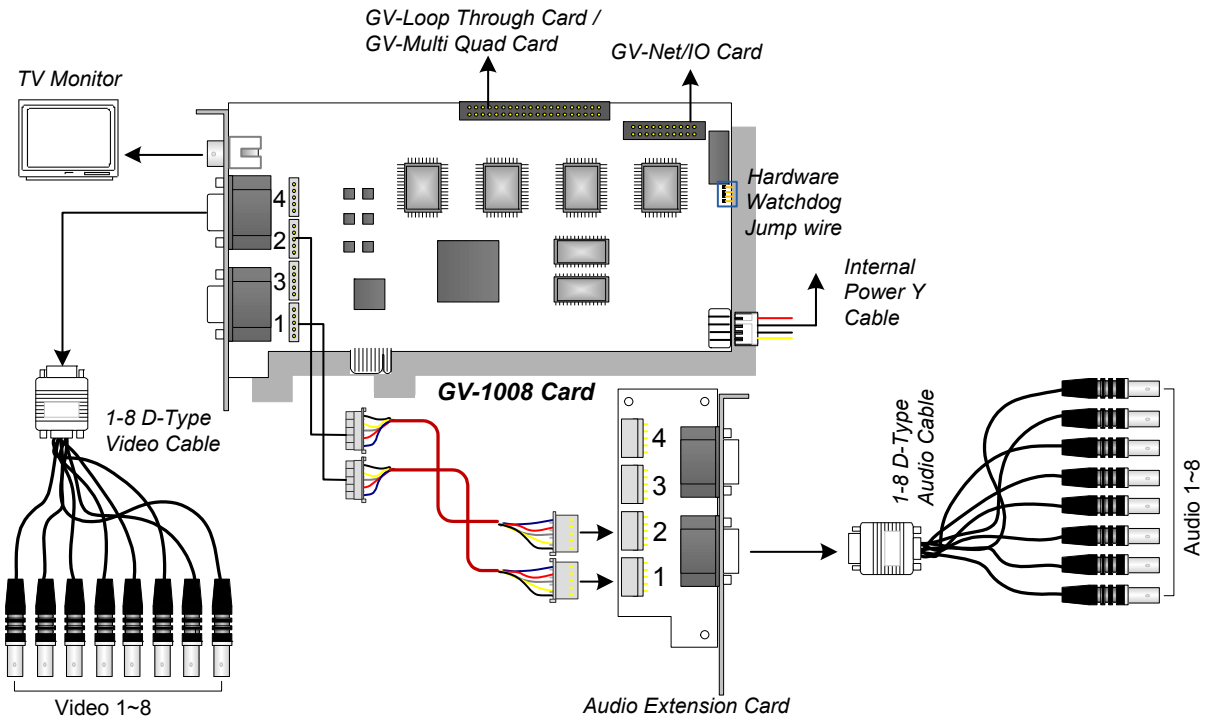


Figure 1-38

Note: The Card only works when it connects to PC's power supply using the supplied Internal Power Y Cable.

Connecting Two GV-1008 Cards

You can install the Master and Slave of GV-1008 Cards for a total of 16 channels. The Master and Slave are distinguished by the labels on cards, as shown below:

Master Card: 

Slave Card: 

Use the supplied 40-pin cable to connect the Master and Slave Cards together.

IMPORTANT:

1. The Slave Cards cannot work alone. They need to work in conjunction with the Master Cards.
2. If both GV-1008 Cards are Master Cards, it is required to identify which are Master and Slave by the PCI-E slot number. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Video Channels:** Connect only Video Channels 1~8 of the Master Card and Video Channels 9~16 of the Slave Card with the supplied D-Type Video Cables
- **Audio channels:** Connect only Audio Channels 1~8 of the Master Card and Audio Channels 9~16 of the Slave Card to Audio Extension Card.
- **TV Output Connection:** Connect a TV Monitor to any of the RCA connectors on the Master and Slave Cards for displaying 1-16 channels.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-40).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card only to the Master Card.
  - ⊙ GV-Loop Through Card: Connect one card to the 40-pin cable which connects both Master and Slave Cards.
  - ⊙ GV-Multi Quad Card: Connect one card to the 40-pin cable which connects both Master and Slave Cards.

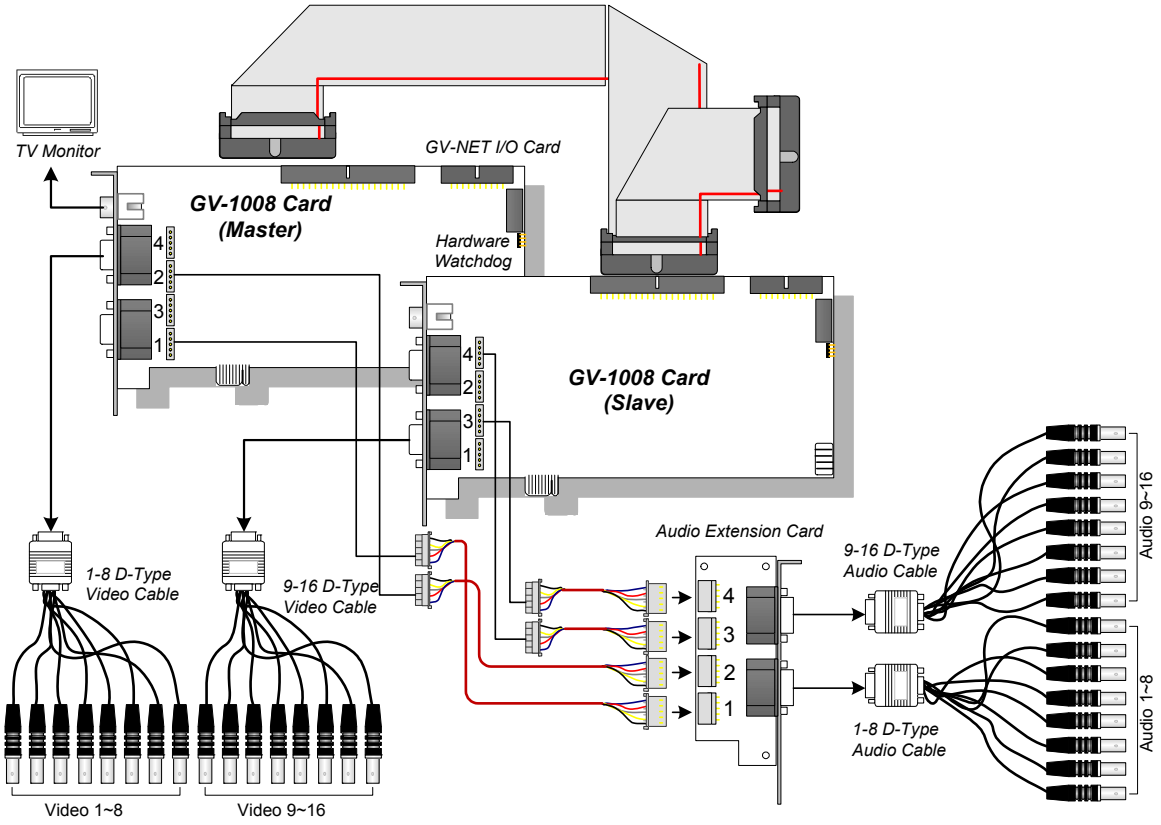

TV Monitor
GV-NET I/O Card
GV-1008 Card
(Master)
Hardware
Watchdog
GV-1008 Card
(Slave)
Audio Extension Card
1-8 D-Type
Video Cable
9-16 D-Type
Video Cable
9-16 D-Type
Audio Cable
1-8 D-Type
Audio Cable
Audio 9~16
Audio 1~8
Video 1~8
Video 9~16

Figure 1-39

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

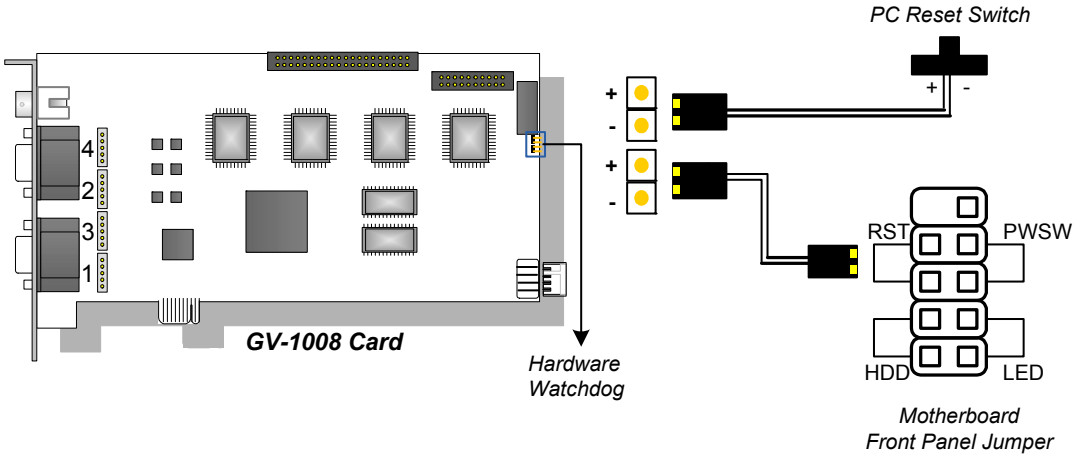


Figure 1-40

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-1008 Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-1008 Card	Entry
Single-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008
Two-card mode	GV1480A/GV1240A/GV1248A/GV1120A/GV1008 GV1480A/GV1240A/GV1248A/GV1120A/GV1008

Specifications

			GV-1008	GV-1008 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			D-Type, DVI	
Video Input			8 Cams	16 Cams
TV Output			D-Type: RCA Connector DVI: BNC Connector	
Audio Input			8 Channels	16 Channels
Recording Rate	CIF	NTSC	240 fps	480 fps
		PAL	200 fps	400 fps
	D1	NTSC	240 fps	480 fps
		PAL	200 fps	400 fps
Display Rate	CIF	NTSC	240 fps	480 fps
		PAL	200 fps	400 fps
	D1	NTSC	240 fps	480 fps
		PAL	200 fps	400 fps
Video Resolution	NTSC		704 x 480, 704 x 480 (De-interlace), 640 x 480, 640 X 480 (De-interlace), 352 x 240, 320 x 240	
	PAL		704 x 576, 704 x 576 (De-interlace), 640 x 480, 640 X 480 (De-interlace), 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Compression Format			AAC (16 kHz / 16 bit)	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
GV-NET/IO Card Support			Yes	
Dimensions (W x H)			179 x 99 mm / 7.04 x 3.89 in	

1.9 GV-900A

One GV-900A Card provides up to 32 video channels and 8 audio channels, recording up to 240 / 200 fps (NTSC / PAL) in total with H.264 software compression.

Minimum System Requirements

OS	32-bit	Windows XP / Windows Vista / Windows 7 / Windows Server 2008	
	64-bit	Windows 7 / Windows Server 2008 R2	
CPU		GV-900A	Pentium 4, 3.0 GHz with Dual Core
		GV-900A x 2	Core i5-750, 2.66 GHz
RAM		2 x 1 GB Dual Channels	
HDD		GV-900A	160 GB
		GV-900A x 2	500 GB
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
DirectX		9.0c	

Packing List

1. GV-900A Card x 1
2. 1-16 Cams with 4-Port Audio DVI-Type Cable x 2 / 1-8 Cams with 4-Port Audio DVI-Type Cable x 2 / 1-4 Cams with 4-Port Audio DVI-Type Cable x 2
3. Hardware Watchdog Jumper Wire x 1
4. Software DVD x 1
5. Surveillance System Quick Start Guide x 1

Note: The two **1-16 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 32 video inputs, the two **1-8 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 16 video inputs and the two **1-4 Cams with 4-Port Audio DVI-Type** cables are supplied with the GV-900A card with 8 video inputs.

Connecting One GV-900A Card

Here we use the GV-900A Card of 8 channels to illustrate the connection.

- Connect the video / audio cables into the DVI ports of the GV-900A Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-43).

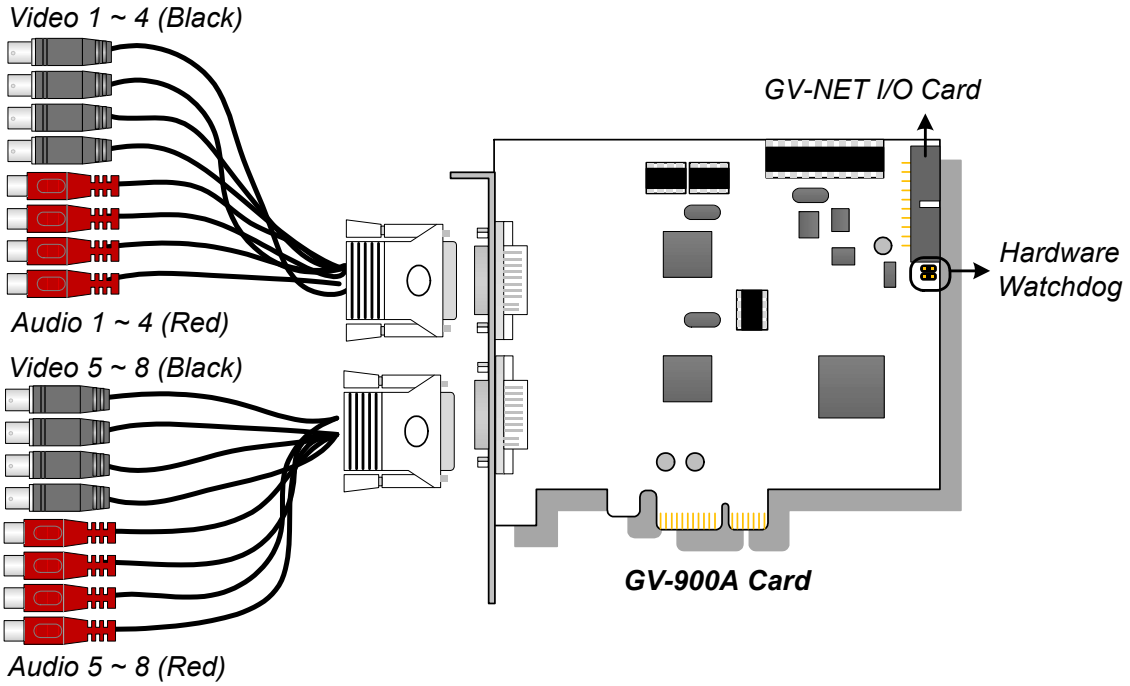


Figure 1-41

Connecting Two GV-900A Cards

You can install two GV-900A Cards for up to 32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-43).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.

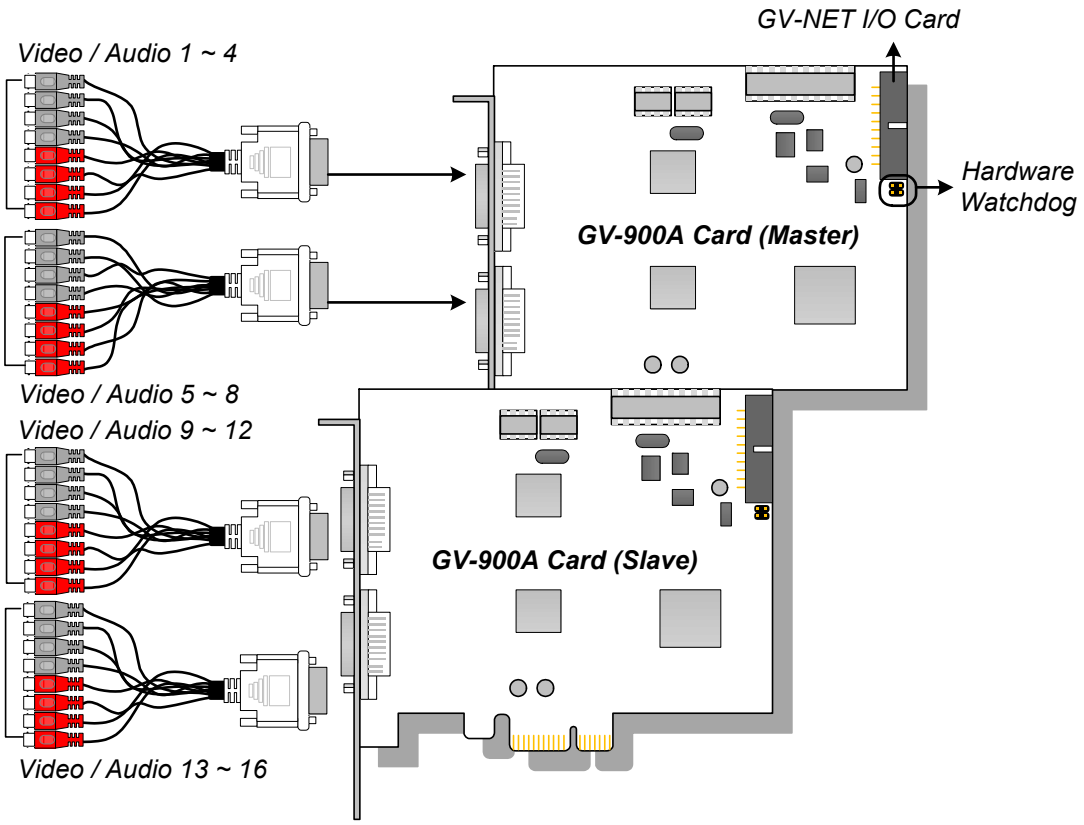


Figure 1-42

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

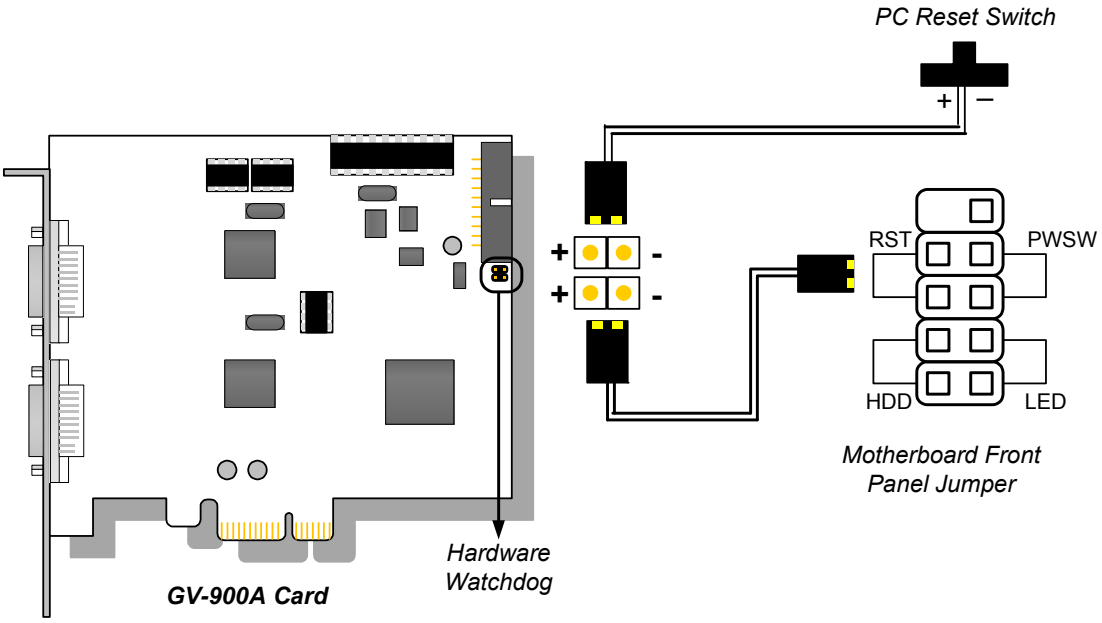


Figure 1-43

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-900A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-900A Card	Entry	
Single-card mode	GV900(A) Audio #1 ~ 8 GV900(A) Video #1 ~ 8	
Two-card mode	GV900(A) Audio #1	GV900(A) Video #1
	GV900(A) Audio #1	GV900(A) Video #1
	GV900(A) Audio #2	GV900(A) Video #2
	GV900(A) Audio #2	GV900(A) Video #2
	GV900(A) Audio #3	GV900(A) Video #3
	GV900(A) Audio #3	GV900(A) Video #3
	GV900(A) Audio #4	GV900(A) Video #4
	GV900(A) Audio #4	GV900(A) Video #4
	GV900(A) Audio #5	GV900(A) Video #5
	GV900(A) Audio #5	GV900(A) Video #5
	GV900(A) Audio #6	GV900(A) Video #6
	GV900(A) Audio #6	GV900(A) Video #6
	GV900(A) Audio #7	GV900(A) Video #7
	GV900(A) Audio #7	GV900(A) Video #7
	GV900(A) Audio #8	GV900(A) Video #8
	GV900(A) Audio #8	GV900(A) Video #8

Specifications

			GV-900A	GV-900A x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8, 16, 32 Cams	16, 24, 32 Cams
Audio Input			8 Channels	16 Channels
Recording Rate	CIF	NTSC	8-port: 240 fps 32-port: 240 fps	8+8 port: 480 fps 16+16 port: 480 fps
		PAL	8-port: 200 fps 32-port: 200 fps	8+8 port: 400 fps 16+16 port: 400 fps
	D1	NTSC	8-port: 240 fps 32-port: 120 fps	8+8 port: 480 fps 16+16 port: 240 fps
		PAL	8-port: 200 fps 32-port: 100 fps	8+8 port: 400 fps 16+16 port: 200 fps
Display Rate	CIF	NTSC	8-port: 240 fps 32-port: 240 fps	8+8 port: 480 fps 16+16 port: 480 fps
		PAL	8-port: 200 fps 32-port: 200 fps	8+8 port: 400 fps 16+16 port: 400 fps
	D1	NTSC	8-port: 240 fps 32-port: 120 fps	8+8 port: 480 fps 16+16 port: 240 fps
		PAL	8-port: 200 fps 32-port: 100 fps	8+8 port: 400 fps 16+16 port: 200 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Compression Format			AAC (16 kHz / 16 bit)	
GV-NET/IO Card Support			Yes	
Dimensions (W x H)			120 x 112 mm / 4.7 x 4.4 in	

1.10 GV-650A, GV-800A

The GV-650A and GV-800A Cards have similar appearances, system requirements and packing list so that we introduce both together in this section. However, you may choose between the two according to your need for recording rate and audio channels.

Minimum System Requirements

OS	32-bit	Windows XP / Windows Vista / Windows 7 / Windows Server 2008		
	64-bit	Windows 7 / Windows Server 2008 R2		
CPU		GV-650A	Pentium 4, 2.4 GHz	
		GV-650A x 2	Pentium 4, 2.8 GHz with Hyper Threading	
		GV-800A	Pentium 4, 3.0 GHz with Hyper Threading	
		GV-800A x 2	Pentium 4, 3.0 GHz Dual Core	
RAM		GV-650A / GV-800A	Windows XP	2 x 512 MB Dual Channels
			Windows Vista / 7 / Server 2008	2 x 1 GB Dual Channels
		GV-650A x 2 / GV-800A x 2	2 x 1 GB Dual Channels	
HDD		GV-650A / GV-800A	80 GB	
		GV-650A x 2 / GV-800A x 2	160 GB	
Graphic Card		AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		
DirectX		9.0c		

Packing List

1. GV-800A or GV-650A Card x 1
2. Audio Extension Card x 1 **
3. 1-8 Cams with 4-Port Audio D-Type Cable x 1
4. 9-16 Cams D-Type Cable x 1 *
5. Hardware Watchdog Jumper Wire x 1
6. Software DVD x 1
7. Surveillance System Quick Start Guide x 1

* Supplied with 12-16 Cams D-Type Video Capture Card

** Supplied with GV-800A Card only

Connecting One GV-650A / GV-800A Card

The GV-650A Card is designed with a D-Type connector while the GV-800A Card is designed with two types of connectors: BNC and D-Type. BNC type only provides four video channels; audio extension card is required for extension. D-Type can provide up to 16 video channels and four audio channels together.

For the D-Type video capture card, plug the black video/audio cable into the black connector on the GV-650A / 800A Card; the blue video cable into the blue connector, as illustrated below.

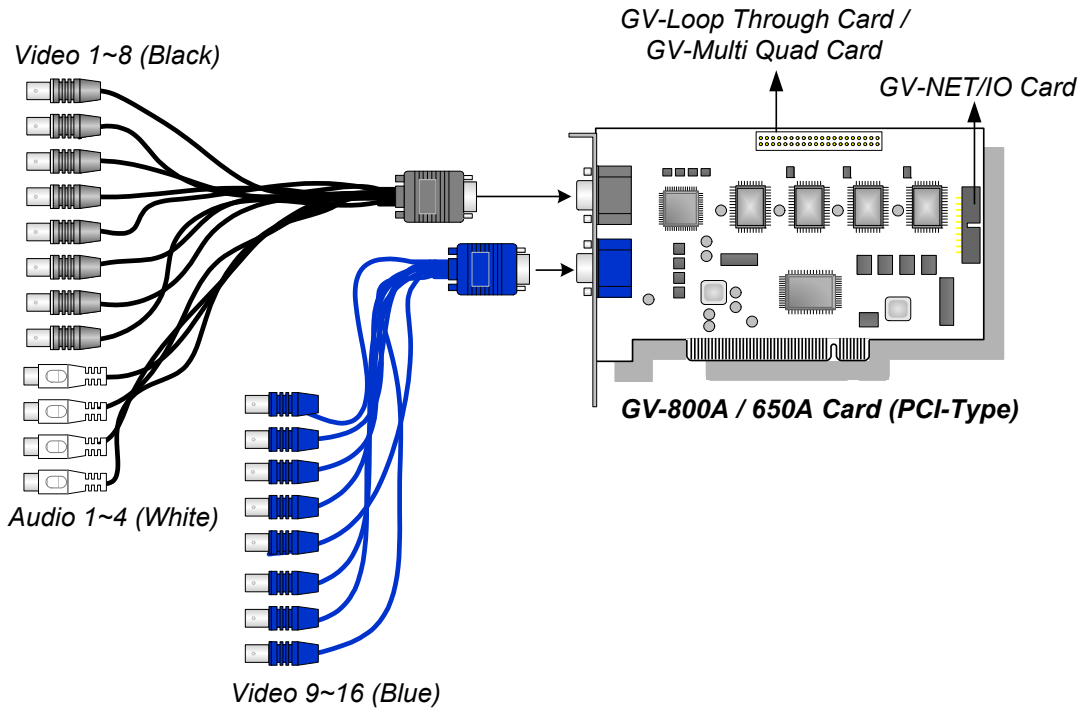


Figure 1-44 D-Type GV-650A / GV-800A Card with PCI interface

Note: The GV-650A Card only supports two audio channels so that only two audio ports can work in the supplied 1-8 Cams with 4-Port Audio D-Type cable.

For the BNC-type video capture card, plug the Audio Extension Card into the connector on the GV-804A Card, as illustrated below.

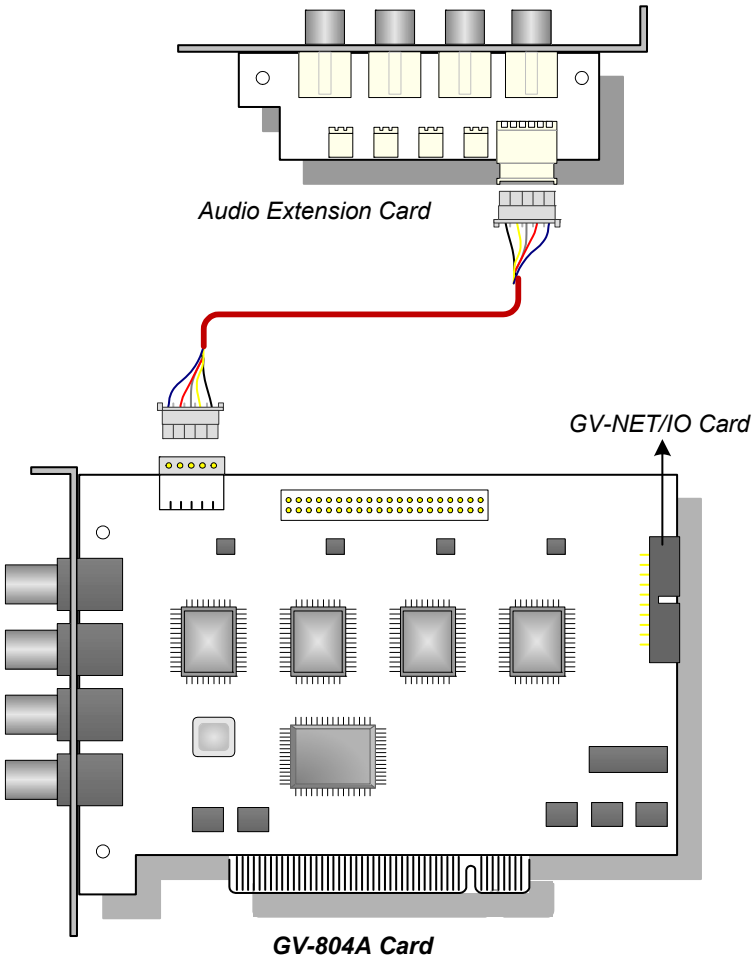


Figure 1-45 BNC-type GV-804A Card

Connecting Two GV-650A / GV-800A Cards

You can install two GV-650A / GV-800A of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

Note: To install two GV-800A Cards, ensure one of both has PCI-E interface. For the detailed rules for two-card mode, see *1.10 Installing Two Cards*.

- **Two GV-650A Cards only support four audio channels:** Connect microphones to Audio 1 and Audio 2 connectors of the Master Card, and Audio 5 and Audio 6 connectors of the Slave Card.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-47).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

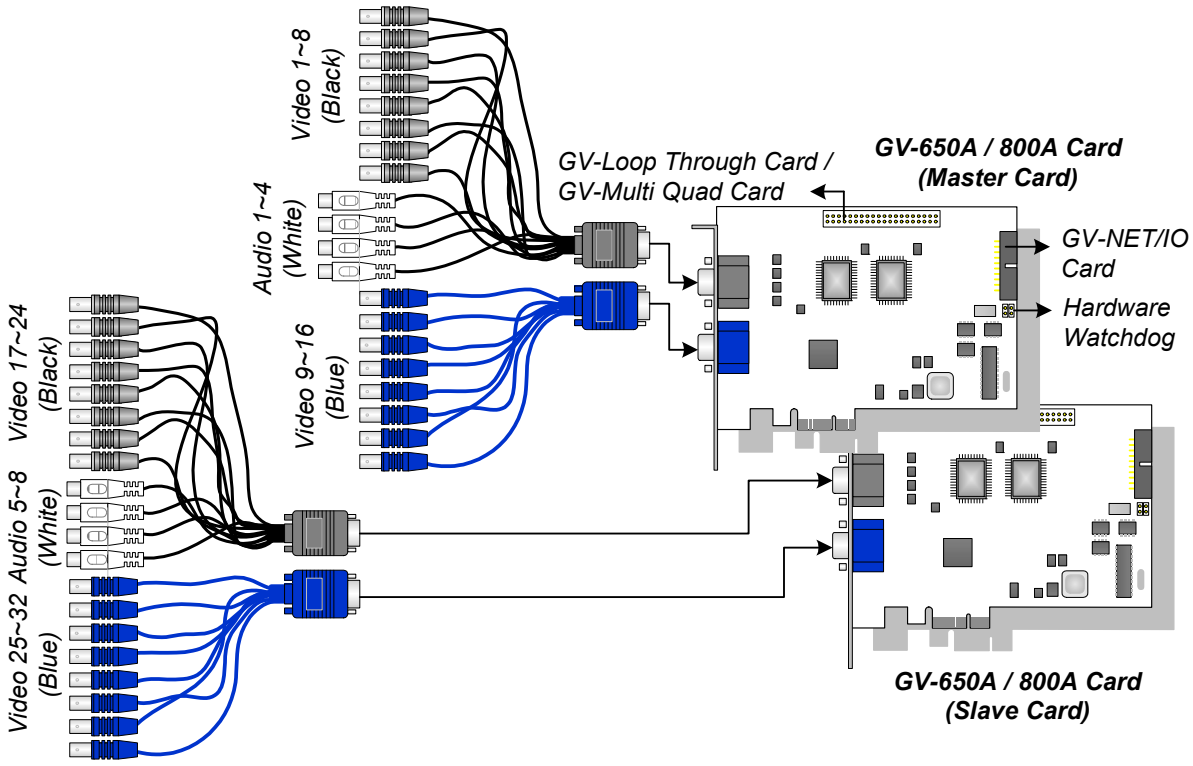


Figure 1-46 D-Type GV-650A / 800A Cards with PCI-E interface

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

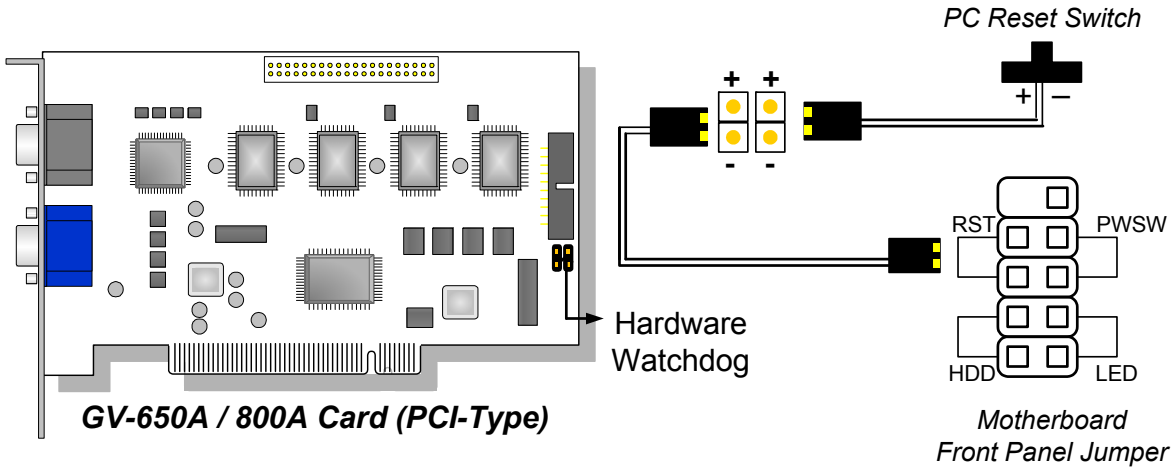


Figure 1-47

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-650A / GV-800A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Model		Entry
GV-650A Card	Single-card mode	GV650(V4) Audio #1 ~ 2 GV650(V4) Video Capture #1 ~ 2
	Two-card mode	GV650(V4) Audio #1 GV650(V4) Audio #1 GV650(V4) Audio #2 GV650(V4) Audio #2 GV650(V4) Video Capture #1 GV650(V4) Video Capture #1 GV650(V4) Video Capture #2 GV650(V4) Video Capture #2
GV-800A Card	Single-card mode	GV800(V4) Audio #1 ~ 4 GV800(V4) Video Capture #1 ~ 4
	Two-card mode	GV800(V4) Audio #1 GV800(V4) Audio #1 GV800(V4) Audio #2 GV800(V4) Audio #2 GV800(V4) Audio #3 GV800(V4) Audio #3 GV800(V4) Audio #4 GV800(V4) Audio #4 GV800(V4) Video Capture #1 GV800(V4) Video Capture #1 GV800(V4) Video Capture #2 GV800(V4) Video Capture #2 GV800(V4) Video Capture #3 GV800(V4) Video Capture #3 GV800(V4) Video Capture #4 GV800(V4) Video Capture #4

Specifications

			GV-650A	GV-800A
Interface			PCI, PCI-E (x1)	
Input Type			D-Type	BNC, D-Type
Video Input			4, 8, 12, 16 Cams	
Audio Input			2 Channels	4 Channels
Recording Rate	CIF	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
	D1	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
Display Rate	CIF	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
	D1	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Compression Format			AAC (16 kHz / 16 bit)	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)		BNC	GV-804A	152 x 94 mm / 5.98 x 3.7 in
		D-Type	GV-650A	174 x 98 mm / 6.85 x 3.86 in
			GV-800A	174 x 98 mm / 6.85 x 3.86 in

			GV-650A x 2	GV-800A x 2
Interface			PCI x 2, PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1	PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1
Input Type			D-Type	BNC, D-Type
Video Input			32 Cams (Max.)	
Audio Input			4 Channels	8 Channels
Recording Rate	CIF	NTSC	120 fps	240 fps
		PAL	100 fps	200 fps
	D1	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
Display Rate	CIF	NTSC	120 fps	240 fps
		PAL	100 fps	200 fps
	D1	NTSC	60 fps	120 fps
		PAL	50 fps	100 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Compression Format			AAC (16 kHz / 16 bit)	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)		BNC	GV-804A	152 x 94 mm / 5.98 x 3.7 in
		D-Type	GV-650A	174 x 98 mm / 6.85 x 3.86 in
			GV-800A	174 x 98 mm / 6.85 x 3.86 in

1.11 GV-600A

There are two types of GV-600A Cards: BNC and D-Type. BNC-Type only provides four video channels; video and audio extension cards are required for extension. D-Type can provide up to 16 video channels and one audio channel together.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Windows Vista / Windows 7 / Windows Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / Windows Server 2008 R2</td></tr>
<tr><td colspan="2" rowspan="2">CPU</td><td>GV-600A</td><td colspan="2">Pentium 4, 2.0 GHz</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">Pentium 4, 2.6 GHz with Hyper Threading</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-600A</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / Server 2008</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-600A</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-600A x 2</td><td colspan="2">160 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-600A Card x 1
2. Audio Extension Card x 1 **
3. 1-8 Cams with 4-Port Audio D-Type
4. 9-16 Cams D-Type Cable x 1 *
5. Hardware Watchdog Jumper
6. Software DVD x 1
7. Surveillance System Quick Start Guide x 1

* Supplied with 10-16 Cams D-Type Video Capture Card

** Supplied with BNC Video Capture Card

Connecting One GV-600A Card

For the D-Type video capture card, plug the black video / audio cable into the black connector on the GV-600A Card; the blue video cable into the blue connector, as illustrated below.

Note: The GV-600A Card only supports one audio channel so that only one audio port can work in the supplied 1-8 Cams with 4-Port Audio D-Type cable.

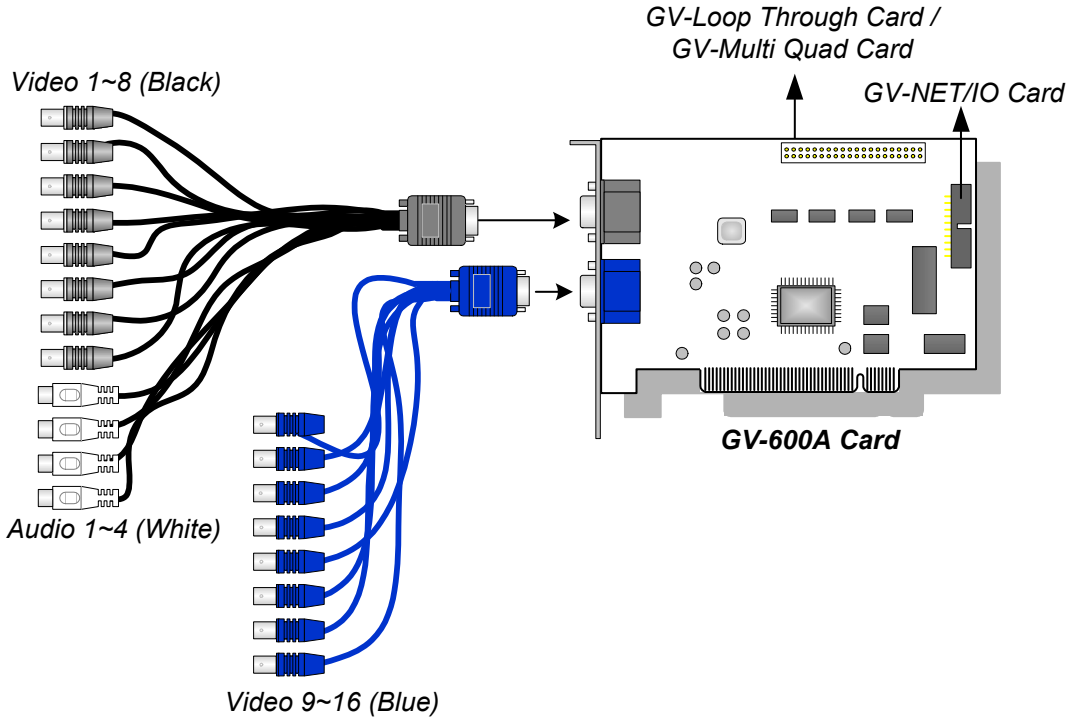


Figure 1-48

For the BNC-Type video capture card, plug the Audio Extension Card into the connector on the GV-600A Card, as illustrated below.

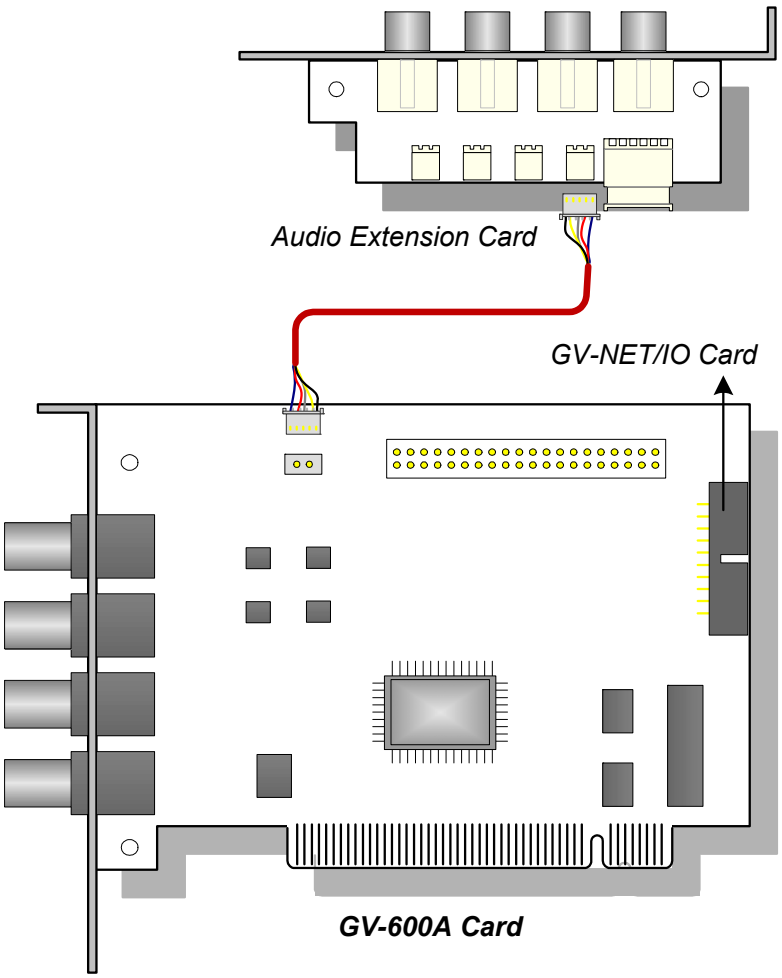


Figure 1-49

Connecting Two GV-600A Cards

You can install two GV-600A Cards for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI slot number will act as Master, and the card attached to the higher PCI slot number will act as Slave.

- **Two GV-600A Cards only support two audio channels:** Connect microphones to Audio 1 connector of the Master Card, and Audio 5 connector of the Slave Card.
- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-51).
- **Accessory Card Connections:**
  - ⊙ GV-NET/IO Card: Connect the card to the Master Card only.
  - ⊙ GV-Loop Through Card: Connect the card for each video capture card.
  - ⊙ GV-Multi Quad Card: Only connect one card to any of two video capture cards.

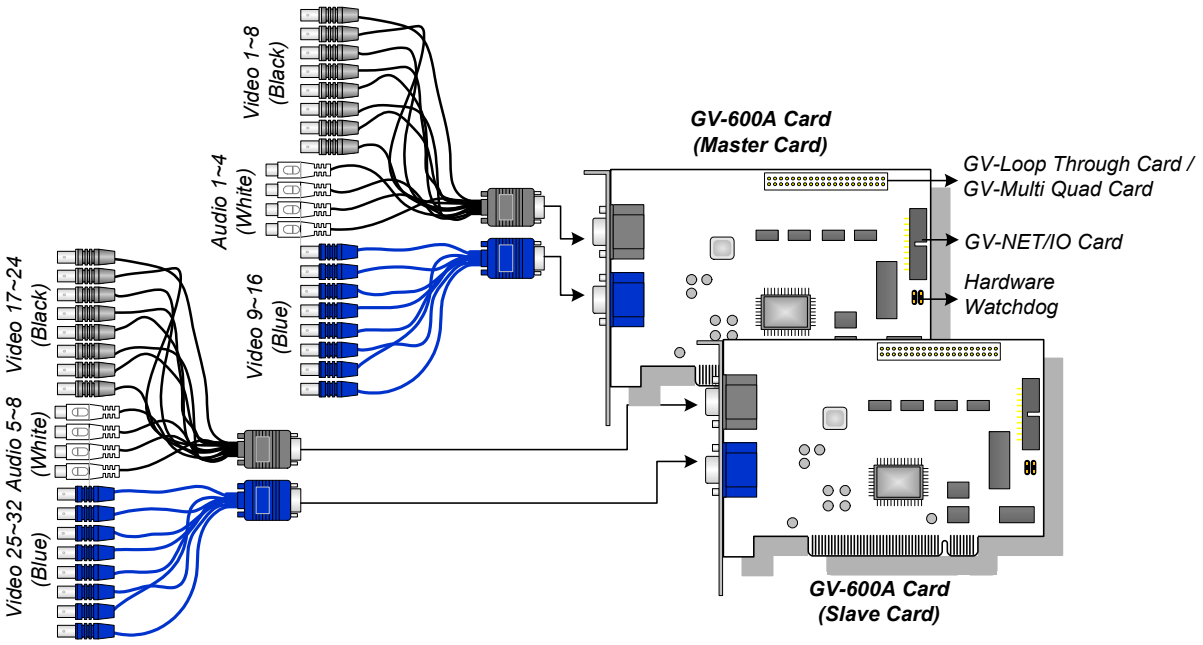


Figure 1-50

Connecting Hardware Watchdog

To reboot the computer by the hardware watchdog on the GV-Video Capture Card, a connection needs to be made from the card to the motherboard.

1. Using the supplied jumper wire, connect the reset jumper pins on the card and on the motherboard.

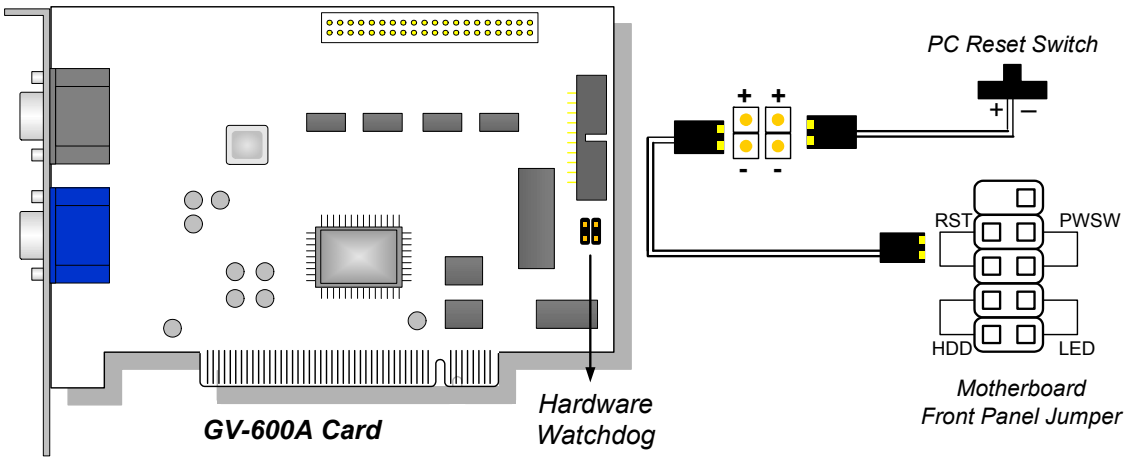


Figure 1-51

2. If the computer has a reset switch, the switch's jumper wire should already be connected to the motherboard's reset jumper pins. Remove the switch wire from the motherboard and connect it to the reset jumper pins on the card.

Installing Drivers

After installing the GV-600A Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

GV-600A Card	Entry
Single-card mode	GV600(V4) Audio GV600(V4) Video Capture
Two-card mode	GV600(V4) Audio GV600(V4) Audio GV600(V4) Video Capture GV600(V4) Video Capture

Specifications

			GV-600A	GV-600A x 2
Interface			PCI	PCI x 2
Input Type			BNC, D-Type	
Video Input			1, 2, 4, 6, 8, 10, 12, 14, 16 Cams	32 Cams (Max.)
Audio Input			1 Channel	2 Channels
Recording Rate	CIF	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
	D1	NTSC	15 fps	30 fps
		PAL	12.5 fps	25 fps
Display Rate	CIF	NTSC	30 fps	60 fps
		PAL	25 fps	50 fps
	D1	NTSC	15 fps	30 fps
		PAL	12.5 fps	25 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240	
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240	
Video Compression Format			Geo MPEG4, Geo H264	
Audio Compression Format			AAC (16 kHz / 16 bit)	
GV-NET/IO Card Support			Yes	
GV-Multi Quad Card Support			Yes	
GV-Loop Through Card Support			Yes	
Dimensions (W x H)			144 x 89 mm / 5.67 x 3.50 in	

1.12 GV-600B, GV-650B, GV-800B

There are two types of GV-600B / GV-650B / GV-800B Card: PCI and PCI-E. Both types of the GV-600B / GV-650B / GV-800B Card provide up to 16 video channels and 4 audio channels. The GV-600B, GV-650B and GV-800B Cards have the same appearances and similar system requirements so that we introduce the three cards together in this section. However, you may choose among the three according to your need for recording rate.

Minimum System Requirements

<table>
<tr><td rowspan="2">OS</td><td>32-bit</td><td colspan="3">Windows XP / Windows Vista / Windows 7 / Windows Server 2008</td></tr>
<tr><td>64-bit</td><td colspan="3">Windows 7 / Windows Server 2008 R2</td></tr>
<tr><td colspan="2" rowspan="6">CPU</td><td>GV-600B</td><td colspan="2">Pentium 4, 2.0 GHz</td></tr>
<tr><td>GV-600B x 2</td><td colspan="2">Pentium 4, 2.6 GHz with Hyper Threading</td></tr>
<tr><td>GV-650B</td><td colspan="2">Pentium 4, 2.4 GHz</td></tr>
<tr><td>GV-650B x 2</td><td colspan="2">Pentium 4, 2.8 GHz with Hyper Threading</td></tr>
<tr><td>GV-800B</td><td colspan="2">Pentium 4, 3.0 GHz with Hyper Threading</td></tr>
<tr><td>GV-800B x 2</td><td colspan="2">Pentium 4, 3.0 GHz Dual Core</td></tr>
<tr><td colspan="2" rowspan="3">RAM</td><td rowspan="2">GV-600B / 650B / 800B</td><td>Windows XP</td><td>2 x 512 MB Dual Channels</td></tr>
<tr><td>Windows Vista / 7 / Server 2008</td><td>2 x 1 GB Dual Channels</td></tr>
<tr><td>GV-600B x 2 / 650B x 2 / 800B x 2</td><td colspan="2">2 x 1 GB Dual Channels</td></tr>
<tr><td colspan="2" rowspan="2">HDD</td><td>GV-600B / 650B / 800B</td><td colspan="2">80 GB</td></tr>
<tr><td>GV-600B x 2 / 650B x 2 / 800B x 2</td><td colspan="2">160 GB</td></tr>
<tr><td colspan="2">Graphic Card</td><td colspan="3">AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color</td></tr>
<tr><td colspan="2">DirectX</td><td colspan="3">9.0c</td></tr>
</table>

Packing List

1. GV-600B, GV-650B or GV-800B Card x 1
2. 1-16 Cams with 4-Port Audio DVI-Type Cable x 1 / 1-8 Cams with 4-Port Audio DVI-Type Cable x 1 / 1-4 Cams with 4-Port Audio DVI-Type Cable x 1
3. Hardware Watchdog Jumper Wire x 1
4. Software DVD x 1
5. Surveillance System Quick Start Guide x 1

Note: The **1-16 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 16 video inputs, the **1-8 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 8 video inputs, while the **1-4 Cams with 4-Port Audio DVI-Type** cable is supplied with GV-600B / GV-650B / GV-800B card with 4 video inputs.

Connecting One GV-600B / GV-650B / GV-800B Card

There are two types of GV-600B / GV-650B / GV-800B Card: PCI and PCI-E. Here we take the GV-600B / GV-650B / GV-800B Card with PCI interface for example to illustrate the connection.

- Connect the video / audio cables into the DVI ports of the GV-600B / GV-650B / GV-800B Card.
- Connect the supplied Hardware Watchdog Jump Wire (Figure 1-54).

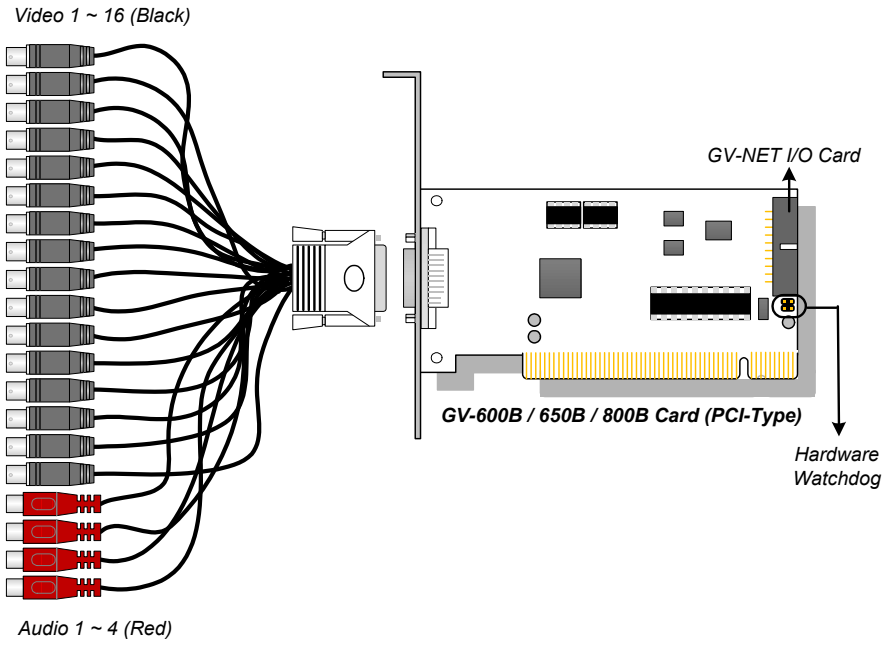


Figure 1-52

Connecting Two GV-600B / GV-650B / GV-800B Cards

You can install two GV-600B / GV-650B / GV-800B Cards of the same model for up to 32 channels. Master Card is the card with 1-16 channels and Slave Card is that with 17-32 channels. Normally, the card attached to the lower PCI-E slot number will act as Master, and the card attached to the higher PCI-E slot number will act as Slave.

Note: To install two GV-600B / GV-650B / GV-800B Cards, ensure one of both has PCI-E interface. For the detailed rules for two-card mode, see *1.10 Installing Two Cards*.

Here we take two GV-600B / GV-650B / GV-800B Cards with PCI-E interfaces for example to illustrate the connection.

- **Hardware Watchdog Connection:** Connect the supplied Hardware Watchdog Jump Wire to the Master Card only (Figure 1-54).
- **Accessory Card Connection:** Connect the GV-NET/IO Card to the Master Card only.

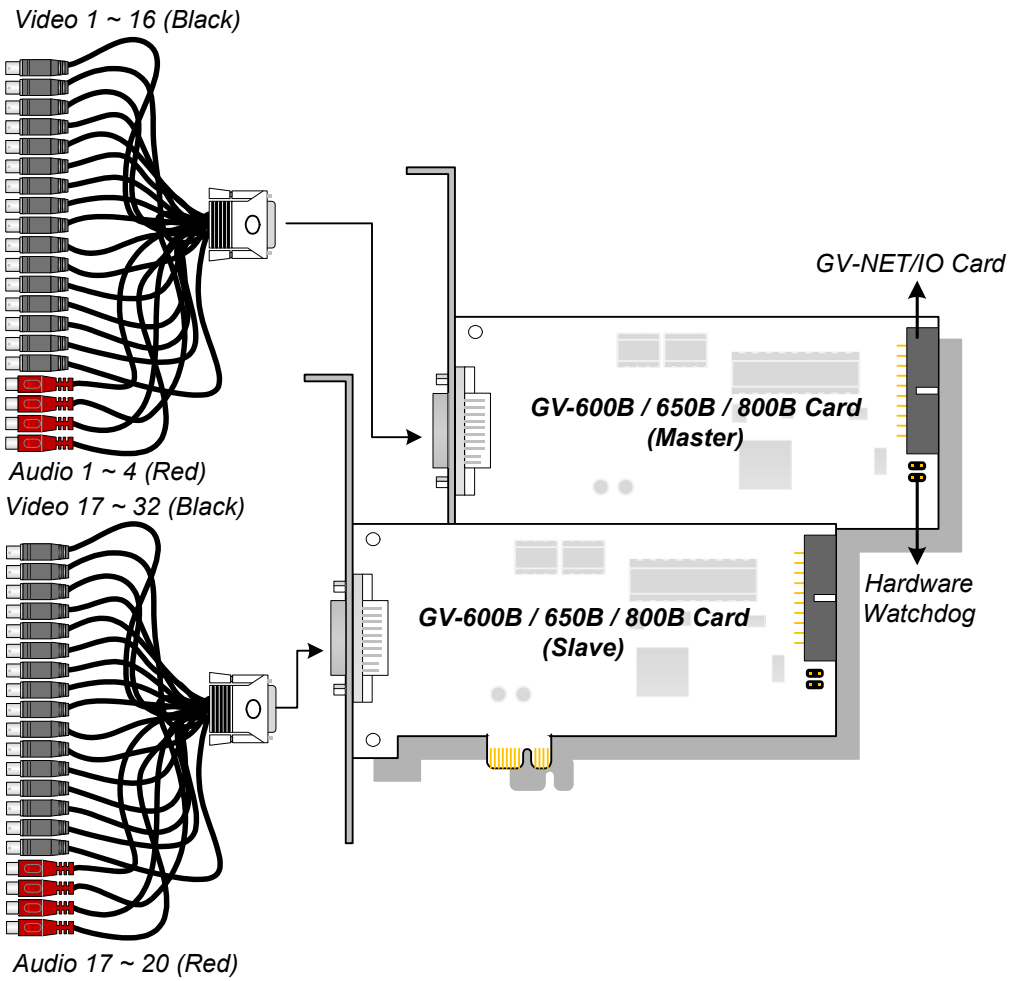


Figure 1-53

Connecting Hardware Watchdog

Insert the Hardware Watchdog Jumper Wire to the 2-pin connectors on the Card. The (+) pin on the Card must connect to the Reset (+) pin on the motherboard, and the (-) pin on the Card to the Ground (-) pin on the motherboard. Ensure the connection is correct; otherwise the hardware watchdog will not work.

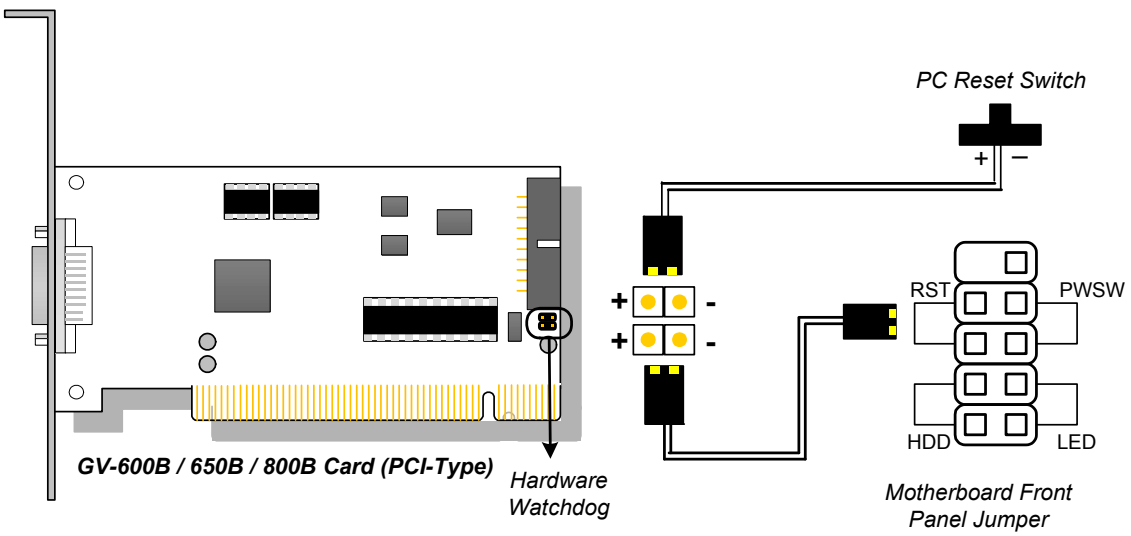


Figure 1-54

Note: To locate the motherboard's Reset (+) pin and (-) pin, please refer to the motherboard's user manual.

Installing Drivers

After installing the GV-600B / GV-650B / GV-800B Card in the computer, insert the software DVD. The DVD will run automatically and an installation window will pop up. Select **Install or Remove GeoVision GV-Series Driver**, and select **Install or Remove GeoVision GV-Series Card Drivers** to install card drivers.

To verify the drivers are installed correctly, go to Windows Device Manager and see if their entries are listed.

Expand the **DVR-Devices** field, you can see:

Card Models	Entry	
GV-600B	GV600(B) Audio #1 ~ 4 GV600(B) Video #1 ~ 4	
GV-600B x 2	GV600(B) Audio #1 GV600(B) Audio #1 GV600(B) Audio #2 GV600(B) Audio #2 GV600(B) Audio #3 GV600(B) Audio #3 GV600(B) Audio #4 GV600(B) Audio #4	GV600(B) Video #1 GV600(B) Video #1 GV600(B) Video #2 GV600(B) Video #2 GV600(B) Video #3 GV600(B) Video #3 GV600(B) Video #4 GV600(B) Video #4
GV-650B	GV650(B) Audio #1 ~ 4 GV650(B) Video #1 ~ 4	
GV-650B x 2	GV650(B) Audio #1 GV650(B) Audio #1 GV650(B) Audio #2 GV650(B) Audio #2 GV650(B) Audio #3 GV650(B) Audio #3 GV650(B) Audio #4 GV650(B) Audio #4	GV650(B) Video #1 GV650(B) Video #1 GV650(B) Video #2 GV650(B) Video #2 GV650(B) Video #3 GV650(B) Video #3 GV650(B) Video #4 GV650(B) Video #4
GV-800B	GV800(B) Audio #1 ~ 4 GV800(B) Video #1 ~ 4	
GV-800B x 2	GV800(B) Audio #1 GV800(B) Audio #1 GV800(B) Audio #2 GV800(B) Audio #2 GV800(B) Audio #3 GV800(B) Audio #3 GV800(B) Audio #4 GV800(B) Audio #4	GV800(B) Video #1 GV800(B) Video #1 GV800(B) Video #2 GV800(B) Video #2 GV800(B) Video #3 GV800(B) Video #3 GV800(B) Video #4 GV800(B) Video #4

Specifications

			GV-600B	GV-650B	GV-800B
Interface			PCI, PCI-E (x1)		
Input Type			DVI		
Video Input			4, 8, 16 Cams		
Audio Input			4 Channels		
Recording Rate	CIF	NTSC	4-port: 30 fps 16-port: 30 fps	4-port: 60 fps 16-port: 60 fps	4-port: 120 fps 16-port: 120 fps
		PAL	4-port: 25 fps 16-port: 25 fps	4-port: 50 fps 16-port: 50 fps	4-port: 100 fps 16-port: 100 fps
	D1	NTSC	4-port: 30 fps 16-port: 15 fps	4-port: 60 fps 16-port: 30 fps	4-port: 120 fps 16-port: 60 fps
		PAL	4-port: 25 fps 16-port: 12.5 fps	4-port: 50 fps 16-port: 25 fps	4-port: 100 fps 16-port: 50 fps
Display Rate	CIF	NTSC	4-port: 30 fps 16-port: 30 fps	4-port: 60 fps 16-port: 60 fps	4-port: 120 fps 16-port: 120 fps
		PAL	4-port: 25 fps 16-port: 25 fps	4-port: 50 fps 16-port: 50 fps	4-port: 100 fps 16-port: 100 fps
	D1	NTSC	4-port: 30 fps 16-port: 15 fps	4-port: 60 fps 16-port: 30 fps	4-port: 120 fps 16-port: 60 fps
		PAL	4-port: 25 fps 16-port: 12.5 fps	4-port: 50 fps 16-port: 25 fps	4-port: 100 fps 16-port: 50 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-NET/IO Card Support			Yes		
Dimensions (W x H)			PCI-Type: 120 x 65 mm / 4.7 x 2.5 in PCI-E Type: 120 x 82 mm / 4.7 x 3.2 in		

			GV-600B x 2	GV-650B x 2	GV-800B x 2
Interface			PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1		
Input Type			DVI		
Video Input			8, 12, 16, 20, 24, 32 Cams		
Audio Input			8 Channels		
Recording Rate	CIF	NTSC	4+4 port: 60 fps 16+16 port: 60 fps	4+4 port: 120 fps 16+16 port: 120 fps	4+4 port: 240 fps 16+16 port: 240 fps
		PAL	4+4 port: 50 fps 16+16 port: 50 fps	4+4 port: 100 fps 16+16 port: 100 fps	4+4 port: 200 fps 16+16 port: 200 fps
	D1	NTSC	4+4 port: 60 fps 16+16 port: 30 fps	4+4 port: 120 fps 16+16 port: 60 fps	4+4 port: 240 fps 16+16 port: 120 fps
		PAL	4+4 port: 50 fps 16+16 port: 25 fps	4+4 port: 100 fps 16+16 port: 50 fps	4+4 port: 200 fps 16+16 port: 100 fps
Display Rate	CIF	NTSC	4+4 port: 60 fps 16+16 port: 60 fps	4+4 port: 120 fps 16+16 port: 120 fps	4+4 port: 240 fps 16+16 port: 240 fps
		PAL	4+4 port: 50 fps 16+16 port: 50 fps	4+4 port: 100 fps 16+16 port: 100 fps	4+4 port: 200 fps 16+16 port: 200 fps
	D1	NTSC	4+4 port: 60 fps 16+16 port: 30 fps	4+4 port: 120 fps 16+16 port: 60 fps	4+4 port: 240 fps 16+16 port: 120 fps
		PAL	4+4 port: 50 fps 16+16 port: 25 fps	4+4 port: 100 fps 16+16 port: 50 fps	4+4 port: 200 fps 16+16 port: 100 fps
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Video Compression Format			Geo MPEG4, Geo H264		
Audio Compression Format			AAC (16 kHz / 16 bit)		
GV-NET/IO Card Support			Yes		
Dimensions (W x H)			PCI-Type: 120 x 65 mm / 4.7 x 2.5 in PCI-E Type: 120 x 82 mm / 4.7 x 3.2 in		

1.13 Installing Two Cards

You can install two video capture cards of the same model for a total of 32 channels. For example, 2 x GV-650A Cards (16 channels) = 32 channels.

It is also possible to implement two video capture cards of different channels. For example, GV-650A Card (12 channels) + GV-650A Card (16 channels) = 28 channels.

Note: Besides GV-804A Card, all GV video capture cards support two-card mode.

Rules to Use Two Cards

GV video capture cards have two interface types: PCI and PCI Express (PCI-E). When you install two video capture cards, ensure they are installed in the right slots as instructed in the following tables.

- **GV-600A, GV-650A, GV-800A**

<table>
<tr><th>Card Combination</th><th>V3.20 and later</th><th colspan="2">V4.20 and later</th></tr>
<tr><td>V3.20 and later</td><td>X</td><td colspan="2">X</td></tr>
<tr><td rowspan="6">V4.20 and later</td><td rowspan="6">X</td><td>GV-600A</td><td>PCI x 2</td></tr>
<tr><td rowspan="3">GV-650A</td><td>PCI x 2</td></tr>
<tr><td>PCI-E x 2</td></tr>
<tr><td>PCI x 1+ PCI-E x 1</td></tr>
<tr><td rowspan="2">GV-800A</td><td>PCI-E x 2</td></tr>
<tr><td>PCI x 1+ PCI-E x 1</td></tr>
</table>

1. The V3.20 (and later) Cards or the combination of V3.20 and V4.20 (and later) Cards do not support two-card mode.
2. For GV-600A cards, it is required to use two PCI slots.
3. For GV-650A cards, you can use two PCI slots, two PCI Express slots, or the combination of PCI and PCI Express slots.
4. For GV-800A cards, it is required to use two PCI Express slots, or the combination of PCI and PCI Express slots.

- **GV-600B, GV-650B, GV-800B**

Card Combination	GV-600B / 650B / 800B
GV-600B / 650B / 800B	PCI-E x 2 PCI x 1+ PCI-E x 1

1. For GV-600B / 650B / 800B card, it is required to use two PCI Express slots, or the combination of PCI and PCI Express slots.

- **GV-1120A, GV-1240A, GV-1480A**

Card Combination	V1.02 / V2.00 and later	Combo A Cards (GV-1120A / 1240A / 1480A)
V1.02 / V2.00 and later	PCI-E x 2 PCI x 1+ PCI-E x 1	**X**
Combo A Cards (GV-1120A / 1240A / 1480A)	**X**	PCI-E x 2

1. V1.02 / V2.00 (and later) and Combo A Cards all support two-card mode, but the combination of V1.02 / V2.00 (and later) and Combo A Cards does not support two-card mode.
2. When you install two V1.02 / V2.00 (and later) Cards, it is required to use two PCI Express slots or the combination of PCI and PCI Express slots.
3. When you install two Combo A Cards, it is required to use only two PCI Express slots.

1.14 Installing Drivers

After you install the GV-Video Capture Card on the computer, the Found New Hardware Wizard will automatically detect the device. Ignore the wizard and follow these steps to install drivers:

1. Insert the software DVD. It will run automatically and pop up a window.
2. Select **Install or Remove GeoVision GV-Series Cards Driver** and select **Install or Remove GeoVision GV-Series Card Drivers**. This dialog box appears.

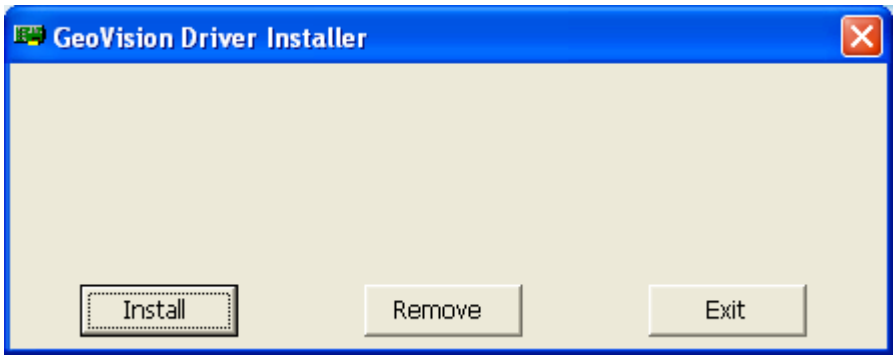


Figure 1-55

3. Click **Install** to install the drivers. When the installation is complete, this message will appear: Install Successfully.
4. Click **Exit** to close the dialog box.

Note: In Windows XP, the wizard will disappear after installation. In Windows 2000, close the wizard manually.

1.15 Comparison Chart (H/W Compression)

				GV-SDI-204	GV-SDI-204 x 4
Interface				PCI-E (x1)	PCI-E (x1) x 4
Input Type				BNC	
Video Input				4	16
Recording Rate and Display Rate	1080p	NTSC		120 fps	480 fps
		PAL		100 fps	400 fps
	720p	NTSC		240 fps	960 fps
		PAL		200 fps	800 fps
	1080i	NTSC		120 fps	480 fps
		PAL		100 fps	400 fps
Video Codec		H/W		H.264	
		S/W		Geo MPEG4, Geo H.264	
Video Resolution		H/W	1080p	1920 x 1080	
			720p	1280 x 720	
			1080i	1920 x 1080	
		S/W	1080p	960 x 540, 480 x 270	
			720p	640 x 360	
			1080i	960 x 540, 480 x 270	
GV-Multi Quad Card Support				X	X
GV-Loop Through Card Support				X	X
GV-NET/IO Card Support				O[1]	O[1]
GV-I/O 12-In Card Support				O[1]	O[1]
GV-I/O 12-Out Card Support				O[1]	O[1]
Hardware Watchdog				O	O
Minimum System Requirements					
OS				Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)	
DirectX				9.0c	
CPU				Core 2 Duo, 2.00 GHz	Core i3, 3.40 GHz
RAM				2 x 1 GB Dual Channels	
HDD				500 GB	2 TB
Graphic Card				AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. To work together with GV-SDI-204, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-5016	GV-5016 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			LFH	
Video Input			16	32
Total Recording Rate (D1)	NTSC		480 fps	960 fps
	PAL		400 fps	800 fps
Display Rate	NTSC		480 fps	960 fps
	PAL		400 fps	800 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			16	32
Audio Codec			AAC (16 kHz / 16 bit)	
GV-Multi Quad Card Support			X	X
GV-Loop Through Card Support			X	X
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)	
DirectX			9.0c	
CPU			Core 2 Quad, 2.4 GHz	Core i5 650, 3.20 GHz
RAM			2 x 1 GB Dual Channels	
HDD			500 GB	1 TB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. To work together with GV-5016, GV-NET/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-4008A	GV-4008A x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Codec			AAC (16 kHz / 16 bit)	
GV-Multi Quad Card Support			O	O
GV-Loop Through Card Support			O	O
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. GV-Net/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-4008	GV-4008 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			DVI	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Codec			AAC (16 kHz / 16 bit)	
GV-Multi Quad Card Support			X	X
GV-Loop Through Card Support			X	X
GV-NET/IO Card Support			O[1]	O[1]
GV-I/O 12-In Card Support			O[1]	O[1]
GV-I/O 12-Out Card Support			O[1]	O[1]
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	

Note:

1. GV-Net/IO Card V3.1 must be set in the I/O Box Mode and connected to the PC through USB or DB9.
2. All Specifications are subject to change without notice.

			GV-3008	GV-3008 x 2
Interface			PCI-E (x1)	PCI-E (x1) x 2
Input Type			D-Type	
Video Input			8	16
Total Recording Rate (D1)	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Display Rate	NTSC		240 fps	480 fps
	PAL		200 fps	400 fps
Video Codec	H/W		H.264	
	S/W		Geo MPEG4, Geo H.264	
Video Resolution	NTSC	H/W	704 x 480	
		S/W	352 x 240	
	PAL	H/W	704 x 576	
		S/W	352 x 288	
Audio Input			8	16
Audio Codec			AAC (16 kHz / 16 bit)	
GV-Multi Quad Card Support			O	O
GV-Loop Through Card Support			O	O
GV-NET/IO Card Support			O	O
GV-I/O 12-In Card Support			O	O
GV-I/O 12-Out Card Support			O	O
Hardware Watchdog			O	O
Minimum System Requirements				
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)	
DirectX			9.0c	
CPU			Core 2 Duo, 2.33 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels	
HDD			250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color	
Note: All Specifications are subject to change without notice.				

1.16 Comparison Chart (S/W Compression: Single Card)

			GV-600A	GV-650A	GV-800A
Interface			PCI	PCI, PCI-E (x1)	
Input Type			BNC, D-Type	D-Type	BNC, D-Type
Video Input			1, 2, 4, 6, 8, 10, 12, 14, 16	4, 8, 12, 16	4, 8, 12, 16
Total Recording Rate	CIF	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
	D1	NTSC	15 fps	30 fps	60 fps
		PAL	12.5 fps	25 fps	50 fps
Display Rate	CIF	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
	D1	NTSC	15fps	30 fps	60 fps
		PAL	12.5 fps	25 fps	50 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			1	2	4
Audio Codec			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 2.0 GHz	Pentium 4, 2.4 GHz	Pentium 4, 3.0 GHz with HT
RAM			2 x 512 MB Dual Channels (Windows XP)		
			2 x 1 GB Dual Channels (Windows Vista / 7 / Server 2008)		
HDD			80 GB		
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		
Note: All Specifications are subject to change without notice.					

			GV-600B	GV-650B	GV-800B	GV-900A
Interface			PCI, PCI-E (x1)			PCI-E (x1)
Input Type			DVI			
Video Input			4, 8, 16			8, 16, 32
Total Recording Rate	CIF	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
	D1	NTSC	15 fps	30 fps	60 fps	120 fps
		PAL	12.5 fps	25 fps	50 fps	100 fps
Display Rate	CIF	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
	D1	NTSC	15fps	30 fps	60 fps	120 fps
		PAL	12.5 fps	25 fps	50 fps	100 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			4			8
Audio Codec			AAC (16 kHz / 16 bit)			
GV-Multi Quad Card Support			X	X	X	X
GV-Loop Through Card			X	X	X	X
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)			
DirectX			9.0c			
CPU			Pentium 4, 2.0 GHz	Pentium 4, 2.4 GHz	Pentium 4, 3.0 GHz with HT	Pentium 4, 3.0 GHz Dual Core
RAM			2 x 512 MB Dual Channels (Windows XP)			2 x 1 GB Dual Channels
			2 x 1 GB Dual Channels (Windows Vista / 7 / Server 2008)			
HDD			80 GB			160 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			

Note: All specifications are subject to change without notice.

			GV-1008	GV-1120A	GV-1240A	GV-1480A
Interface			PCI-E (x1)			
Input Type			D-Type, DVI			
Video Input			8	8, 12, 16	8, 16	16
Total Recording Rate	CIF	NTSC	240 fps	120 fps	240 fps	480 fps
		PAL	200 fps	100 fps	200 fps	400 fps
	D1	NTSC	240 fps	80 fps	120 fps	240 fps
		PAL	200 fps	72 fps	100 fps	200 fps
Display Rate	CIF	NTSC	240 fps	480 fps	480 fps	480 fps
		PAL	200 fps	400 fps	400 fps	400 fps
	D1	NTSC	240 fps	480 fps	480 fps	480 fps
		PAL	200 fps	400 fps	400 fps	400 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			8	8, 12, 16	8, 16	16
Audio Codec			AAC (16 kHz / 16 bit)			
GV-Multi Quad Card Support			O	O	O	O
GV-Loop Through Card			O	O	O	O
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)			
DirectX			9.0c			
CPU			Core 2 Duo, 3.0 GHz	Pentium 4, 3.0 GHz With HT	Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 3.0 GHz
RAM			2 x 512 MB Dual Channels (Windows XP)			
			2 x 1 GB Dual Channels (Windows Vista / 7 / Server 2008)			
HDD			250 GB	80 GB	120 GB	250 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			
Note: All specifications are subject to change without notice.						

			GV-1120B	GV-1240B	GV-1480B
Interface			PCI-E (x4)		
Input Type			DVI		
Video Input			16	16	16
Total Recording Rate	CIF	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
	D1	NTSC	120 fps	240 fps	480 fps
		PAL	100 fps	200 fps	400 fps
Display Rate	CIF	NTSC	480 fps	480 fps	480 fps
		PAL	400 fps	400 fps	400 fps
	D1	NTSC	480 fps	480 fps	480 fps
		PAL	400 fps	400 fps	400 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			16	16	16
Audio Codec			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 3.0 GHz With HT	Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 3.0 GHz
RAM			2 x 512 MB Dual Channels (Windows XP)		
			2 x 1 GB Dual Channels (Windows Vista / 7 / Server 2008, R2)		
HDD			80 GB	120 GB	250 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

1.17 Comparison Chart (S/W Compression: Two Cards)

			GV-600A x 2	GV-650A x 2	GV-800A x 2
Interface			PCI x 2	PCIx 2, PCI-E(x1)x 2, PCIx 1 + PCI-E(x1)x 1	PCI-E(x1) x 2, PCI x 1 + PCI-E(x1) x 1
Input Type			BNC, D-Type	D-Type	BNC, D-Type
Video Input			32 (Max.)		
Total Recording Rate	CIF	NTSC	60 fps	120 fps	240 fps
		PAL	50 fps	100 fps	200 fps
	D1	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
Display Rate	CIF	NTSC	60 fps	120 fps	240 fps
		PAL	50 fps	100 fps	200 fps
	D1	NTSC	30 fps	60 fps	120 fps
		PAL	25 fps	50 fps	100 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			2	4	8
Audio Codec			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card Support			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)		
DirectX			9.0c		
CPU			Pentium 4, 2.6 GHz with HT	Pentium 4, 2.8 GHz with HT	Pentium 4, 3.0 GHz Dual Core
RAM			2 x 1 GB Dual Channels		
HDD			160 GB		
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

			GV-600B x 2	GV-650B x 2	GV-800B x 2	GV-900A x 2
Interface			PCI-E (x1) x 2, PCI x 1 + PCI-E (x1) x 1		PCI-E (x1) x 2	
Input Type			DVI			
Video Input			8, 12, 16, 20, 24, 32		16, 24, 32	
Total Recording Rate	CIF	NTSC	60 fps	120 fps	240 fps	480 fps
		PAL	50 fps	100 fps	200 fps	400 fps
	D1	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
Display Rate	CIF	NTSC	60 fps	120 fps	240 fps	480 fps
		PAL	50 fps	100 fps	200 fps	400 fps
	D1	NTSC	30 fps	60 fps	120 fps	240 fps
		PAL	25 fps	50 fps	100 fps	200 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			8	8	8	16
Audio Codec			AAC (16 kHz / 16 bit)			
GV-Multi Quad Card Support			X	X	X	X
GV-Loop Through Card Support			X	X	X	X
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)			
DirectX			9.0c			
CPU			Pentium 4, 2.6 GHz with HT	Pentium 4, 2.8 GHz with HT	Pentium 4, 3.0 GHz Dual Core	Core i5-750, 2.66 GHz
RAM			2 x 1 GB Dual Channels			
HDD			160 GB		500 GB	
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			

Note: All specifications are subject to change without notice.

			GV-1008 x 2	GV-1120A x 2	GV-1240A x 2	GV-1480A x 2
Interface			PCI-E (x1) x 2			
Input Type			D-Type, DVI			
Video Input			16	16, 20, 24, 28, 32	16, 24, 32	32
Total Recording Rate	CIF	NTSC	480 fps	240 fps	480 fps	960 fps
		PAL	400 fps	200 fps	400 fps	800 fps
	D1	NTSC	480 fps	160 fps	240 fps	480 fps
		PAL	400 fps	144 fps	200 fps	400 fps
Display Rate	CIF	NTSC	480 fps	960 fps	960 fps	960 fps
		PAL	400 fps	800 fps	800 fps	800 fps
	D1	NTSC	480 fps	960 fps	960 fps	960 fps
		PAL	400 fps	800 fps	800 fps	800 fps
Video Codec			Geo MPEG4, Geo H.264			
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240			
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240			
Audio Input			16	16, 20, 24, 28, 32	16, 24, 32	32
Audio Codec			AAC (16 kHz / 16 bit)			
GV-Multi Quad Card Support			O	O	O	O
GV-Loop Through Card			O	O	O	O
GV-NET/IO Card Support			O	O	O	O
GV-I/O 12-In Card Support			O	O	O	O
GV-I/O 12-Out Card Support			O	O	O	O
Hardware Watchdog			O	O	O	O
Minimum System Requirements						
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)			
DirectX			9.0c			
CPU			Core i5-750, 2.66 GHz	Pentium 4, 3.0 GHz Dual Core	Core 2 Duo, 2.53 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels			
HDD			500 GB	160 GB	250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color			

Note: All specifications are subject to change without notice.

			GV-1120B x 2	GV-1240B x 2	GV-1480B x 2
Interface			PCI-E (x4) x 2		
Input Type			DVI		
Video Input			32	32	32
Total Recording Rate	CIF	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
	D1	NTSC	240 fps	480 fps	960 fps
		PAL	200 fps	400 fps	800 fps
Display Rate	CIF	NTSC	960 fps	960 fps	960 fps
		PAL	800 fps	800 fps	800 fps
	D1	NTSC	960 fps	960 fps	960 fps
		PAL	800 fps	800 fps	800 fps
Video Codec			Geo MPEG4, Geo H.264		
Video Resolution		NTSC	704 x 480, 704 x 480 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 240, 320 x 240		
		PAL	704 x 576, 704 x 576 De-interlace, 640 x 480, 640 x 480 De-interlace, 352 x 288, 320 x 240		
Audio Input			32	32	32
Audio Codec			AAC (16 kHz / 16 bit)		
GV-Multi Quad Card Support			O	O	O
GV-Loop Through Card			O	O	O
GV-NET/IO Card Support			O	O	O
GV-I/O 12-In Card Support			O	O	O
GV-I/O 12-Out Card Support			O	O	O
Hardware Watchdog			O	O	O
Minimum System Requirements					
OS			Windows XP (32-bit) / Vista (32-bit) / 7 (32-bit and 64-bit) / Server 2008 (32-bit and R2, 64-bit)		
DirectX			9.0c		
CPU			Core 2 Duo, E7200, 2.53 GHz	Core 2 Duo, 3.0 GHz	Core 2 Quad, 2.4 GHz
RAM			2 x 1 GB Dual Channels		
HDD			160 GB	250 GB	500 GB
Graphic Card			AGP or PCI-Express, 800 x 600 (1280 x 1024 recommended), 32-bit color		

Note: All specifications are subject to change without notice.

Chapter 2 Software Installation

This chapter includes the following information:

- **Important notice**
- **Installing a program**
- **Program list**
- **User's Manual**

2.1 Before You Start

For optimal performance of your system, it is important to follow these recommendations before installing GV-System software:

- It is strongly recommended to use two separate hard disks. One is for installing Windows OS and GV-System software, and the other is for storing recorded files and system logs.
- When formatting the two hard disks, select NTFS as the file system.
- GV-System is a multi-channel video recording system. With normal use of the system, the drive containing video files will become fragmented. This is because GV-System constantly stores video files of multi channels simultaneously, and video files will be scattered all over the drive. It is not necessary to regularly perform disk defragmentation. Since GV-System software and video files are stored on two separated hard disks, the performance of GV-System will not be affected.

2.2 Installing the System

When you insert the Surveillance System Software DVD, the Install Program window will pop up automatically:

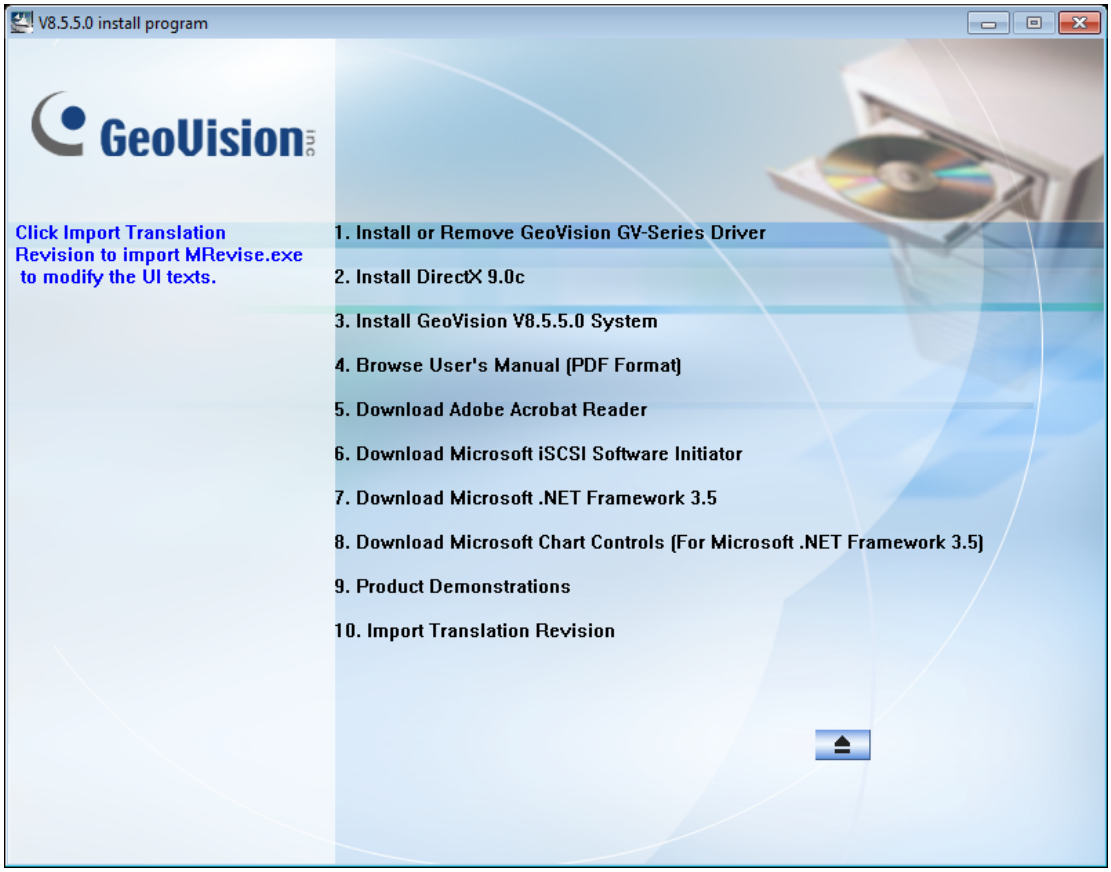


Figure 2-1 The Install Program Window

Installing DirectX

Before installing the system software, make sure **DirectX 9.0c** is already installed on your computer. If your computer doesn't have the latest version of Direct X, click **Install DirectX 9.0c** in the Install Program window.

Installing the System

To install the GV-System, follow these steps:

1. In the Install Program window, click **Install GeoVision xxx System** (ex. Install GeoVision V8.5.5.0 System).
2. To install the Main System, select **GeoVision Main System**, and follow the on-screen instructions.
3. Follow the above steps to install other programs one by one.

Uninstalling the System

To uninstall the GV-System, follow these steps:

1. Close any open programs because your computer will restart during the uninstalling process.
2. On the taskbar, click **Start**, point to **Programs**, select the system folder, and then click **Uninstall GeoVision System**.

Note: Uninstalling the system will not delete video files and log files previously saved in the computer.

2.3 Program List

The Surveillance System Software DVD includes the following programs:

First Page:

1. Main System
2. Remote ViewLog
3. Fast Backup and Restore Multicam System
4. Skype Video Utility
5. GV-IP Device Utility
6. GV-SDCardSync Utility
7. MultiLang Tool
8. Multi View
9. E-Map Server
10. Remote E-Map

Figure 2-2 First page of program installation

Second page:

11. Center V2
12. Dynamic DNS Service
13. Mcamctrl Utility (Only for GV-Joystick)
14. POS Data Sender (Only for Graphic Mode POS device)
15. POS Text Sender (Only for Windows-Based and Text Mode POS device)
16. Authentication Server
17. SMS Server
18. Audio Broadcast
19. Multicast
20. Bandwidth Control Client Site

Figure 2-3 Second page of program installation

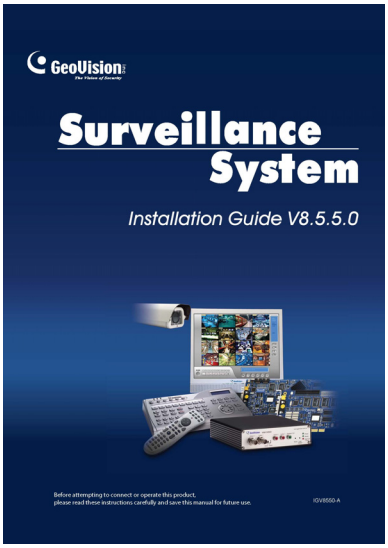
Third page:

21. Backup Viewer
22. Mobile Server
23. Local DDNS Server
24. GV-AView for Android Smartphone in Android Market
25. GV-iView for iPhone and iPod Touch in iTunes Store
26. GV-iView HD for iPad in iTunes Store
27. GV-Remote View for BlackBerry Smartphone in BlackBerry App World

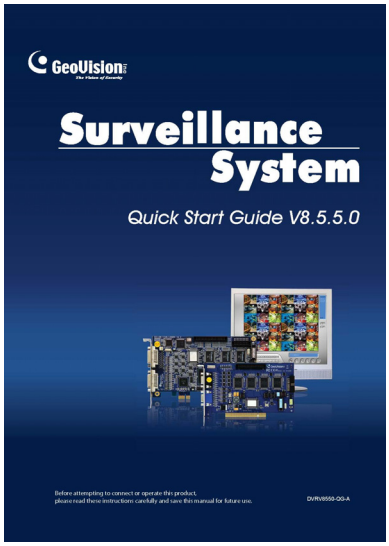
Figure 2-4 Third page of program installation

2.4 User's Manuals

For detailed information on hardware accessories, see the *Installation Guide* on the Surveillance Software DVD.



For configuration and usage of the GV-System, see the *DVR User's Manual* on the Surveillance Software DVD.



Chapter 3 Basic Operation

This chapter includes the following information:

- **Main screen**
- **Setting video storage**
- **Changing camera names and attributes**
- **Choosing the recording mode**
- **Changing the recording resolution**
- **Setting a recording schedule**
- **Playing the video**
- **Backing up the video**

3.1 Main Screen

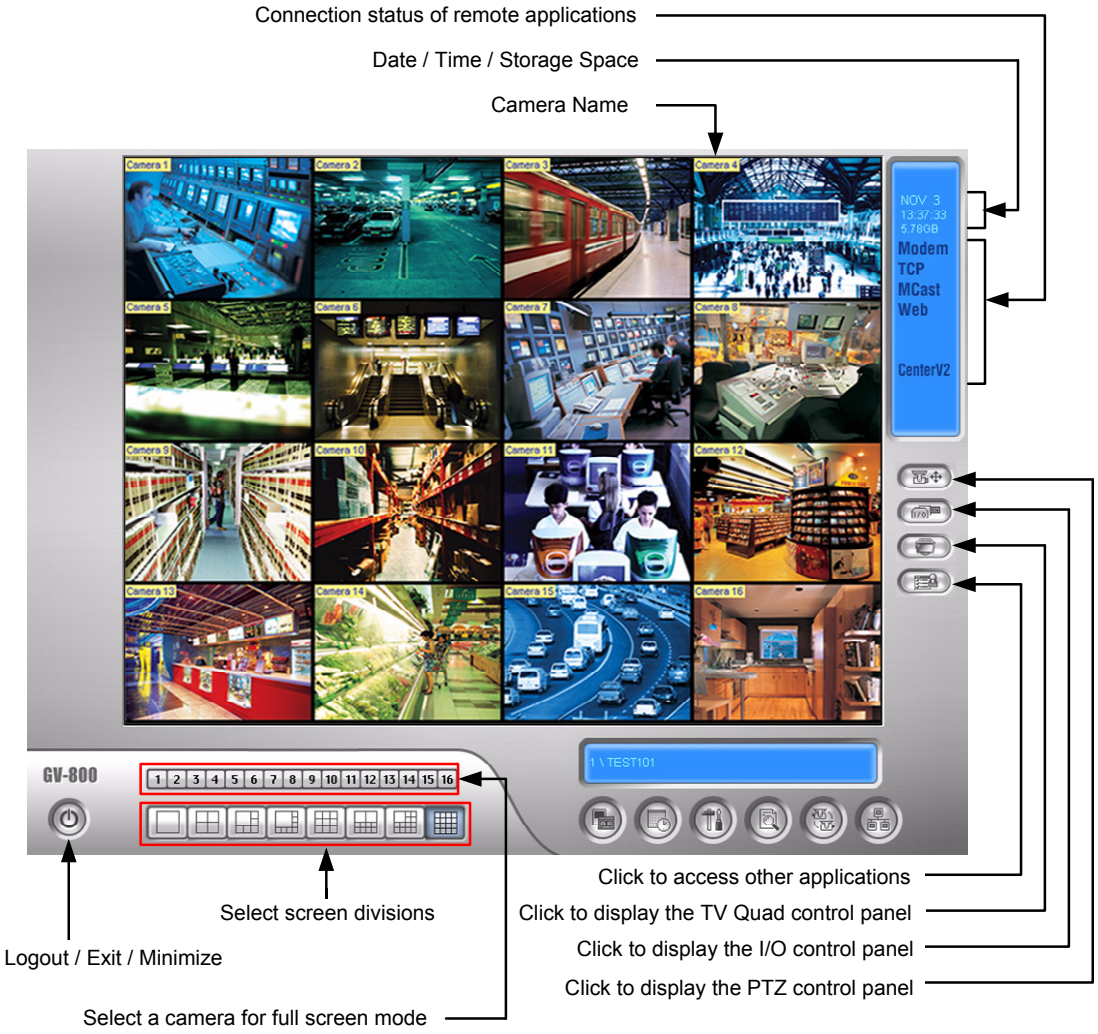


Figure 3-1


Start/stop recording


Set up recording schedules


Access system settings


Access ViewLog to play back videos


Start/stop screen rotation


Connect to remote applications

3.2 Setting Video Storage

You can create a maximum of 16 storage groups, each with a set of storage location, keep day and recycle size to store your recording files.

1. Click  on the main screen, select **System Configure** and select **General Setting**.

   This dialog box appears.

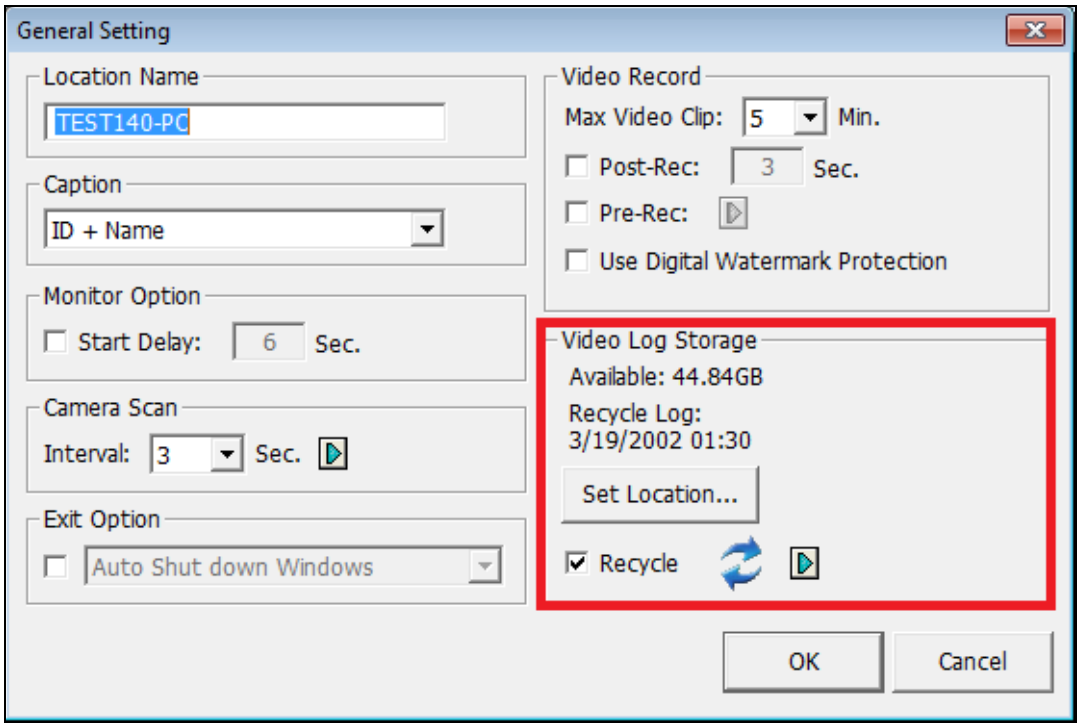


Figure 3-2

2. In the **Video Log Storage** section, click the **Set Location** button and select **Storage Group Folder**. This dialog box appears.

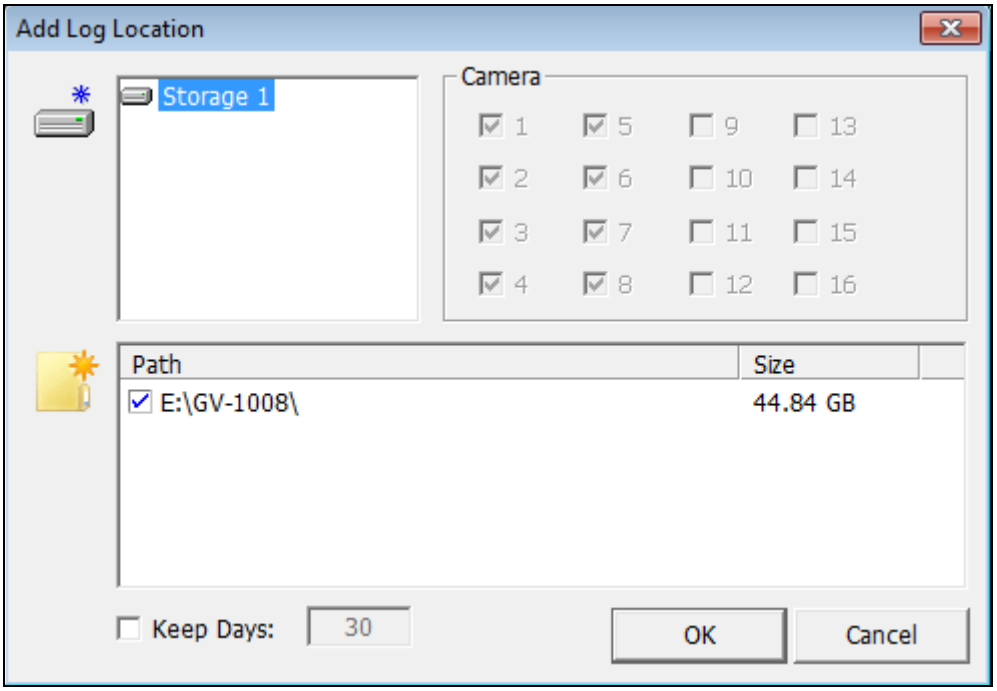


Figure 3-3

3. Click the **Add Storage Group** icon  . The first storage group is created by default.

4. Click the new storage group and select the cameras to be added to it. Note that a camera can only be added to one storage group.

5. Click the **Add New Path** icon  to specify the storage location in a hard drive which is not used for other storage groups.

6. Select **Keep Days** and specify the number of days to keep the video files in storage.

7. Click **OK**.

For details on setting storage, recycle and keep days, see *1.2.2 Setting Data Storage*, *DVR User's Manual* on the Surveillance Software DVD.

3.3 Changing Camera Names and Attributes

You can give a new name for each camera and adjust camera attributes.

1. Click on the main screen, select **System Configure** and select **Camera Configure**. This dialog box appears.

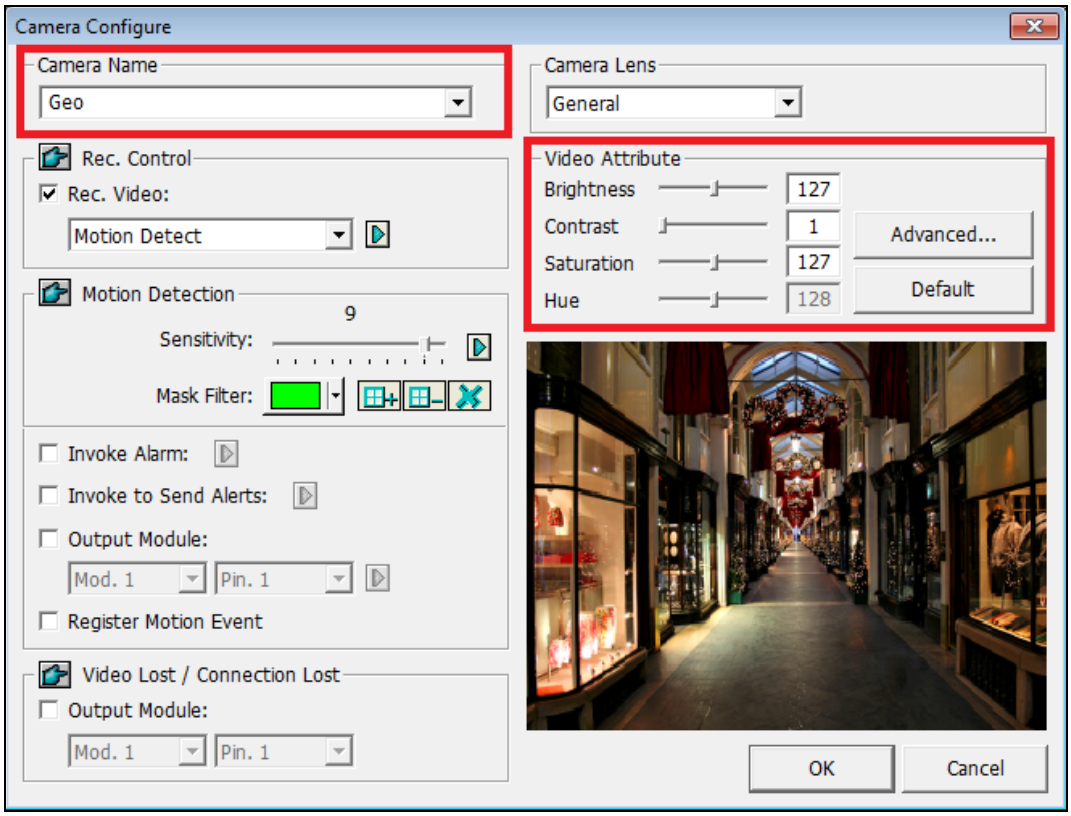


Figure 3-4

2. In the Camera Name field, type a new name for the camera.
3. In the Video Attributes section, use the sliders to adjust video attributes.
4. Click **OK**.

For details, see *1.2.3 Adjusting Camera Configuration, DVR User's Manual* on the Surveillance Software DVD.

3.4 Choosing the Recording Mode

You can set the recording mode of each camera as Motion Detection, Round-the-Clock or Day and Night. The Day and Night mode allows you to have different recording modes for different time frames of the day.

1. Click  on the main screen, select **System Configure** and select **Camera Configure**. This dialog box appears.

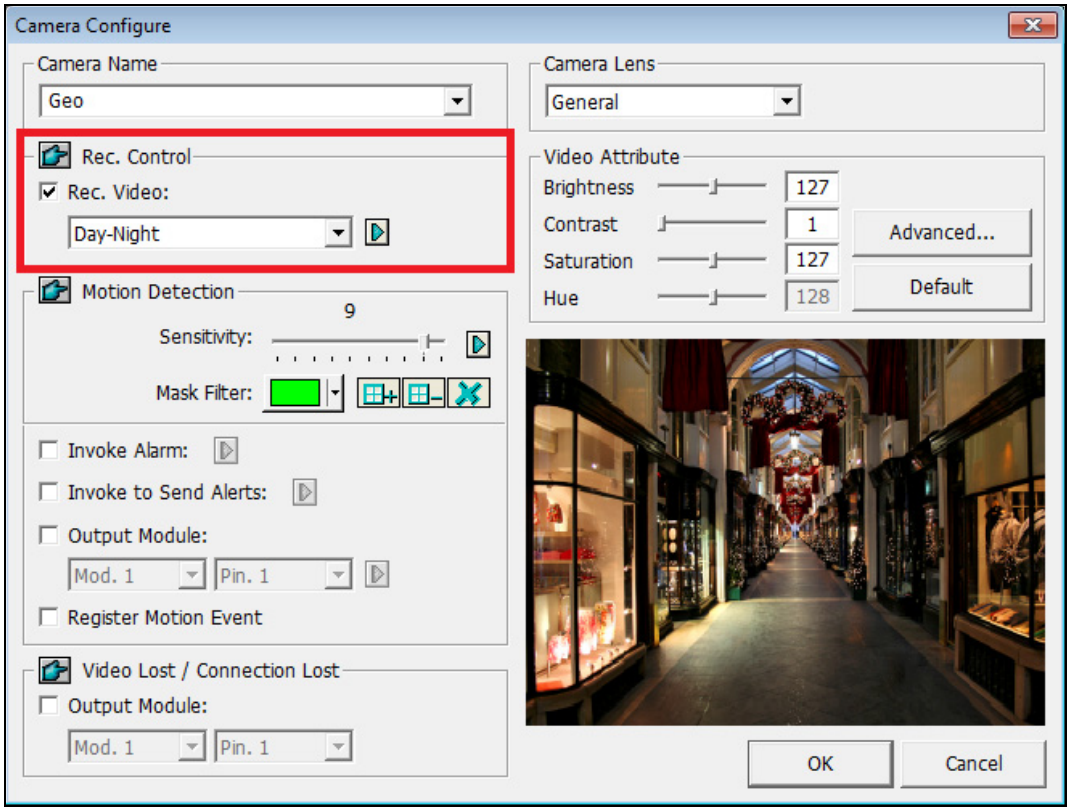


Figure 3-5

2. From the Camera Name drop-down list, select a camera.
3. In the Rec. Control section, select **Rec. Video**, and use the drop-down list to select **Motion Detection**, **Round-the-Clock** or **Day-Night**.
4. If you select Day-Night, click the **Arrow** button to set up time frames.
5. Click **OK**.

For details, see *1.2.3 Adjusting Camera Configuration* and *1.2.4 Setting Day and Night Recording Mode, DVR User's Manual* on the Surveillance Software DVD.

3.5 Changing the Recording Resolution

The default recording resolution is 320 x 240. You can set the recording resolution of each analog camera individually.

1. Click on the main screen, select **A/V Setting** and select **Video Source**. This dialog box appears.

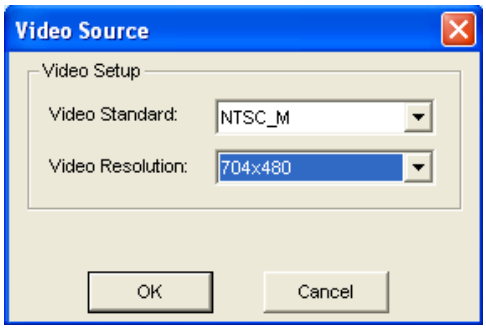


Figure 3-6

2. Select the desired video standard and resolution from the drop-down list, and click **OK**.

3. Click on the main screen, select **System Configure**, and select **Camera Configure**. This dialog box appears.

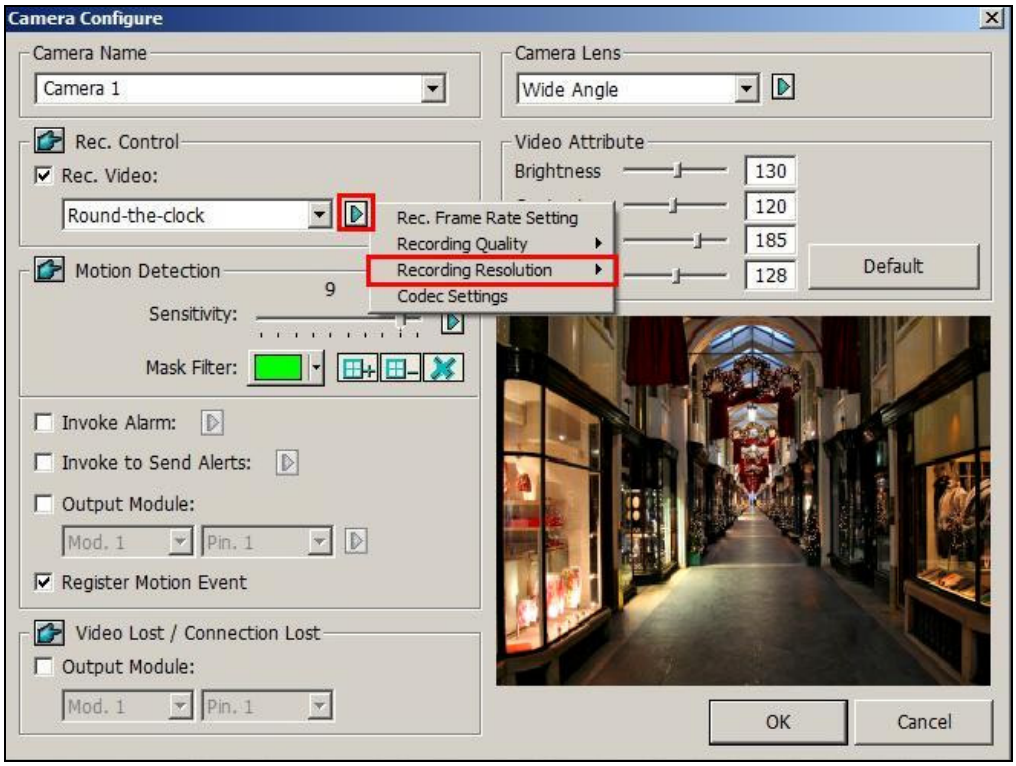


Figure 3-7

4. Select a desired camera from the Camera Name drop-down list.
5. Click the **Arrow** button and click **Recording Resolution** to select the desired resolution.
6. Repeat steps 4 and 5 to set up each camera.
7. Click **OK**.

For details, see *1.3.1 Setting Video Source and Resolution, DVR User's Manual* on the Surveillance Software DVD.

3.6 Setting a Recording Schedule

You can schedule the system to record at a specific time each day.

1. Click  on the main screen, and select **Schedule Edit**.
2. Select the **Start** and **End** time.
3. Select day(s).
4. Select **Rec**, and use the drop-down list to select **Round-the-Clock** or **Motion Detection** as the recording mode.
5. Select camera(s).
6. Click **Add Schedule**.
7. Click **OK**.

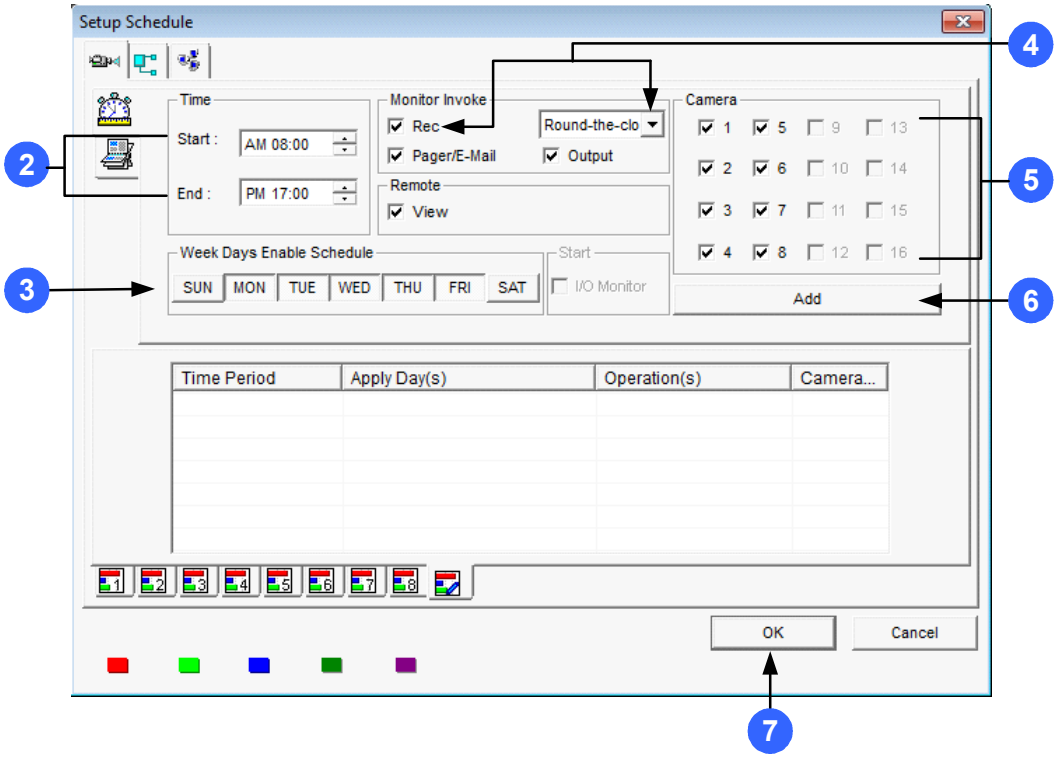


Figure 3-8

For details, see *1.8 Recording Schedule, DVR User's Manual* on the Surveillance Software DVD.

3.7 Playing the Video

You can play back the video recorded during a particular date and time.

1. Click  on the main screen, and select **Video/Audio Log**. The ViewLog window appears.
2. Select the camera you wish to view.
3. Select a date folder from the date tree.
4. Select a time from the Video Events list.
5. Click  to begin playback.

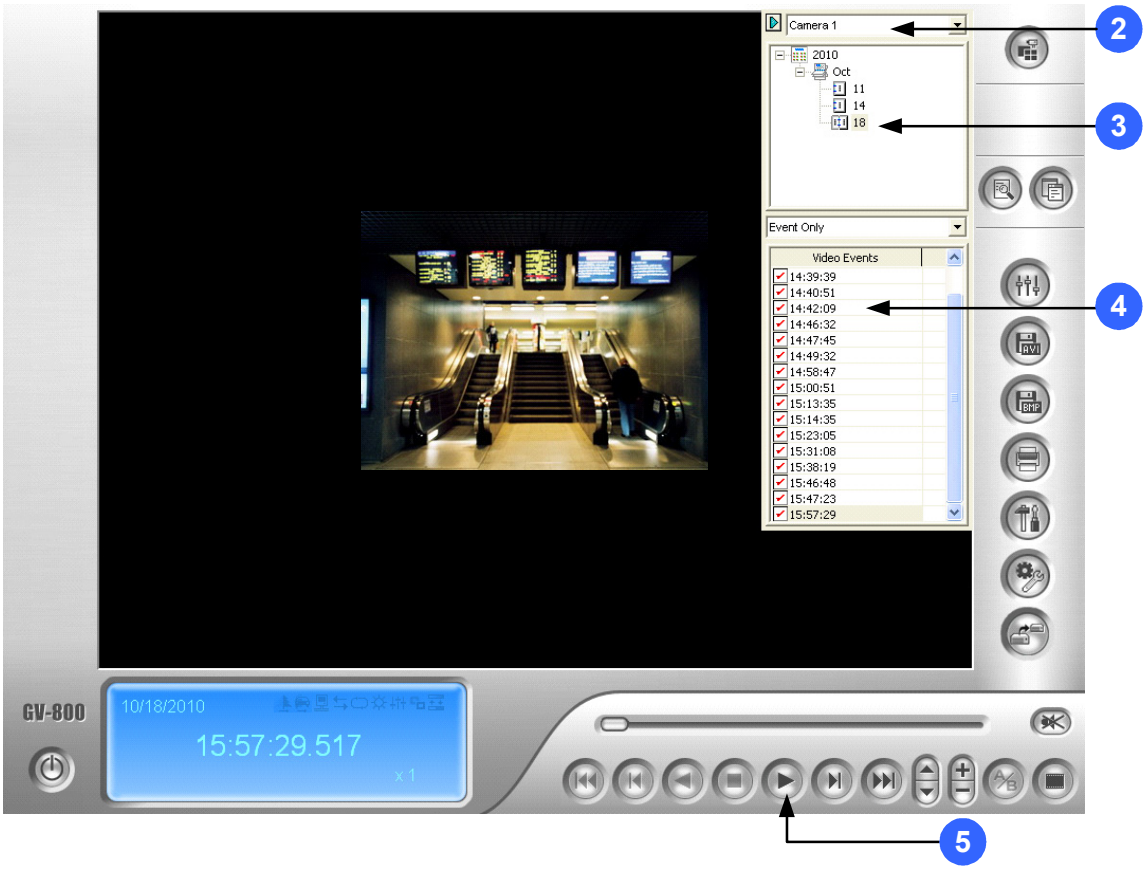


Figure 3-9

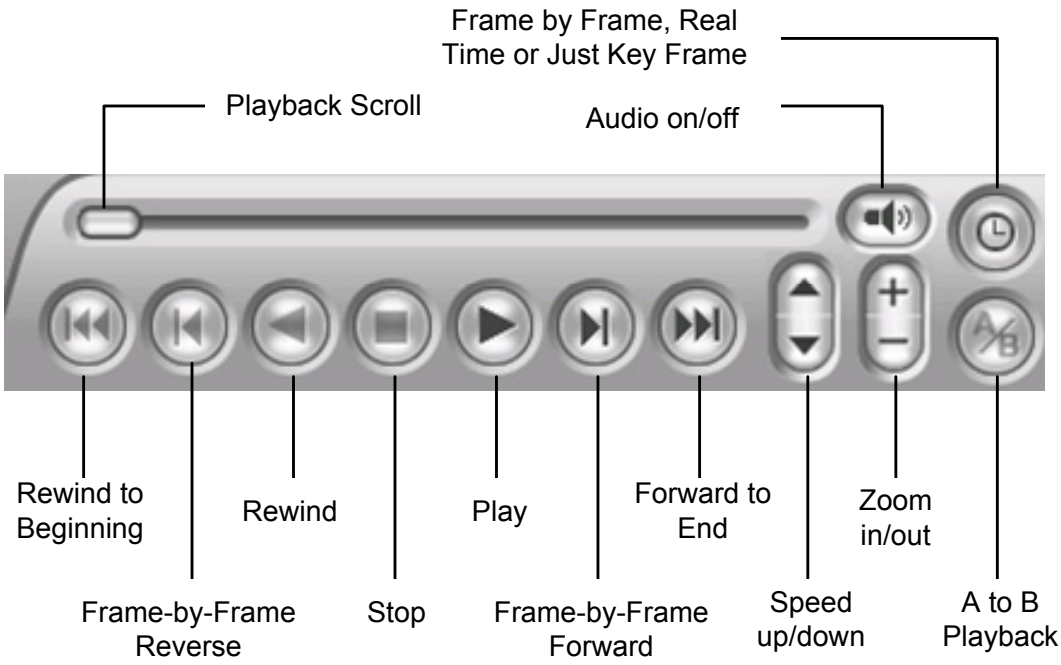


Figure 3-10

Using the Zoom

- **Zoom in:** Click the Zoom-in button, and then click on the area you want to magnify. Each click will increase the zoom level.
- **Zoom out:** Click the Zoom-out button, and then click on the image to zoom out. Each click will decrease the zoom level.

For details, see *Playing Back on ViewLog,* Chapter 4, *DVR User's Manual* on the Surveillance Software DVD.

3.8 Backing up the Video

You can back up videos of the desired time to CD / DVD.

1. Insert the CD / DVD media into the drive.
2. Click  on the main screen, and select **Video/Audio Log**.
3. Click  on the functional panel.
4. Select **Using OS-Burning** to burn files using the inbuilt software of Windows.
5. Click **Add time frame**.

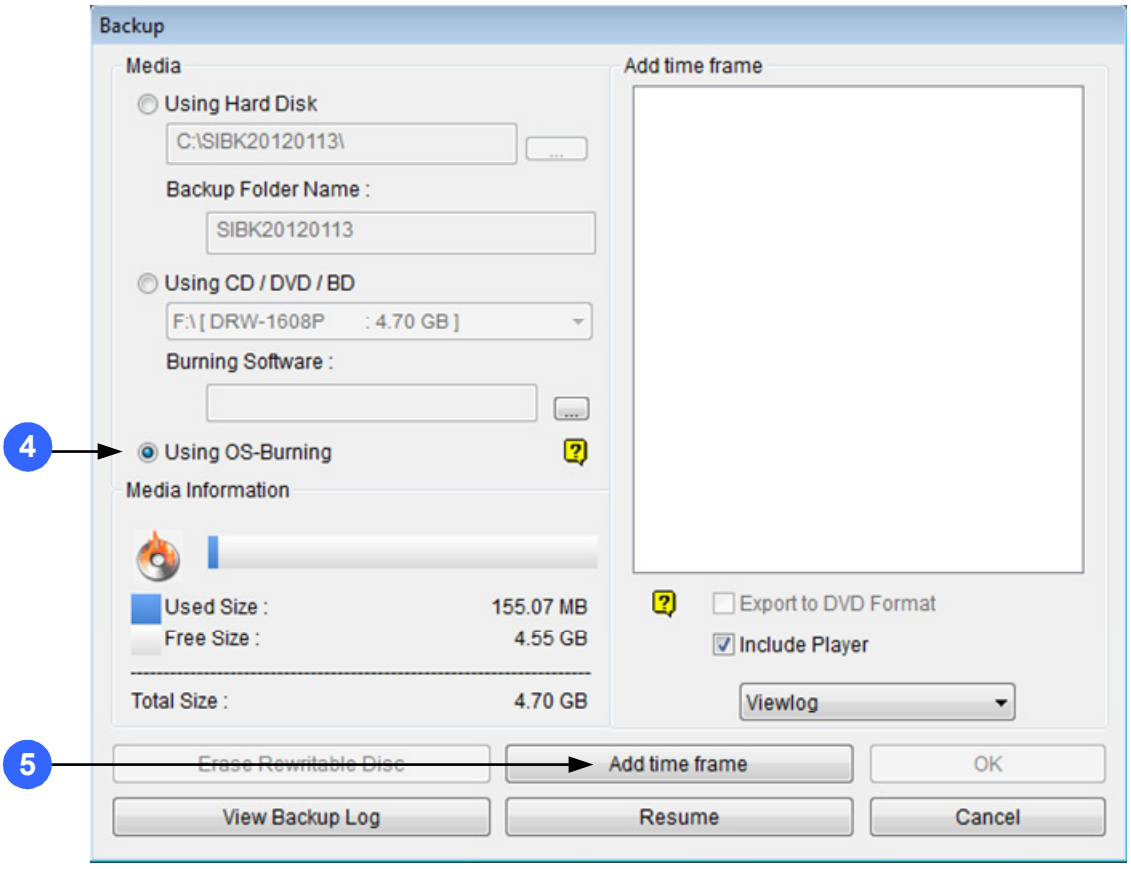


Figure 3-11

6. Enter the **Start Time** and **End Time**.
7. Select the desired camera(s) for backup.
8. Use the drop-down list to select the types of events for backup, e.g. video, audio or both together.
9. Click **OK** to add the time frame. You can repeat steps 5 to 8 to create up to 10 time frames.

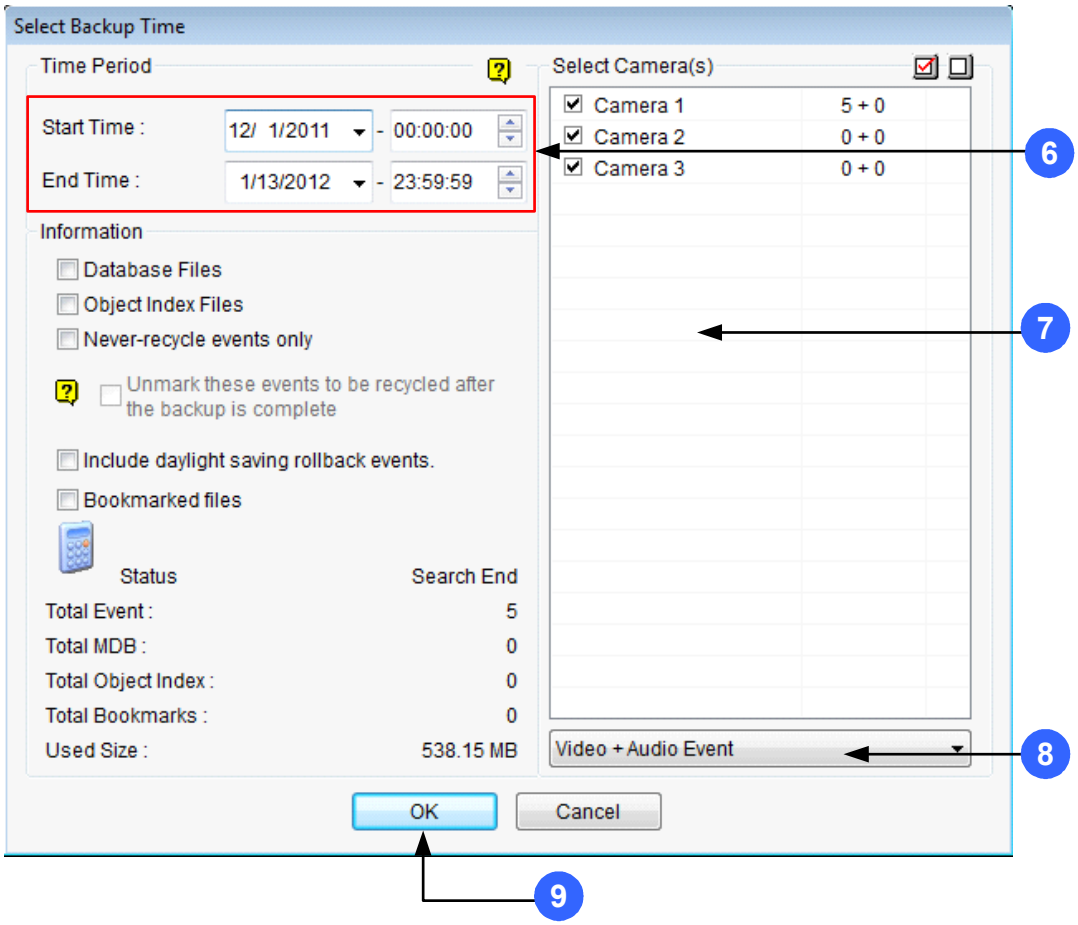


Figure 3-12

Playing the Backup Videos

Open the backup folder, run **EZViewLog500.exe**  , and then follow the instructions in the *Playing the Video* section earlier in this Quick Guide.

For details, see *Backup, Deletion and Repair*, Chapter 5, *DVR User's Manual* on the Surveillance Software DVD.