IVC-100/100G & IVC-200/200G & IVC-120/120G

User's Manual

Version 1.2

Table of Contents

1. Product Introduction

Thank you for choosing IEI's IVC-100G/100, IVC-200G/200 and IVC-120G/120 as your video capture card. These video capture cards allow users to capture live video from video source such as the CCTV camera. These cards are PCI compliant. IVC-100G/100 and IVC-200G/200 have four video input channels and an LED indicator. As to VC-120G/120, it has sixteen channels and an LED indicator as well. This unique LED feature makes IVC-100G/100, IVC-200G/200 and IVC-120G/120 ideal candidates for multi-cards surveillance systems. The patent-pending LED feature gives users an easy solution to system upgrading and management. With the help of the LED, users can quickly assign an ID number to the card, identify the card he wants and this makes on site maintenance more easy and efficient.

1.1 Common Features for IVC-100G/IVC-100

- Total frame rate up to 30 frames per second
- 4 channels of BNC composite video input
- LED indicator for easy system management
- NTSC/PAL/SECAM auto sensing
- Resolution (NTSC): 720 x 480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98SE, Windows ME, Windows 2000 and Windows XP
- Provide Demo Programs and SDK for Windows
- Provide Linux driver for kernel 2.4x or above

1.2 Common Features for IVC-200G/IVC-200

- Total frame rate up to 120 frames per second
- 4 channels of BNC composite video input
- LED indicator for easy system management
- NTSC/PAL/SECAM auto sensing
- Resolution (NTSC): 720 x 480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98SE, Windows ME, Windows 2000 and Windows XP
- Provide Demo Application and SDK for Windows

- Provide Linux driver for kernel 2.4x or above

1.3 Common Feature for IVC-120G/IVC-120

- Total frame rate up to 30 frames per second
- 16 channels of BNC composite video input
- LED indicator for easy system management
- NTSC/PAL/SECAM auto sensing
- Resolution (NTSC): 720 x 480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98SE, Windows ME, Windows 2000 and Windows XP
- Provide Demo Application and SDK for Windows
- One video output channel (direct pass through from one of the 16 video input channels)

1.4 Special Feature for IVC-100G/IVC-200G/IVC120G

- General Purpose Input & Output for external control and alarm (4 inputs & 4 outputs)

1.5 Package Contents

- 1 video capture card
- 1 CD
- 1 hard copy of user manual
- Only IVC-100G, IVC-200G and IVC-120G packages contain GPIO module (1 GPIO daughter board, 1 flat cable, 1 input connector and 1 output connector)
- Only IVC-120G and IVC-120 packages contain a video connector cable with 16 video inputs and 1 video output

1.6 System Requirements

- IBM or IBM compatible computer
- Pentium 133 MHz CPU or better processor
- Minimum 16 MB memory
- At least one unoccupied PCI slot and IRQ
- Window Screen setting at 16 bits color or higher
- OS: Windows 98SE, Windows ME, Windows 2000 and Windows XP

1.7 Note

■ IVC-100G/100/200G/200/120G/120 will take up a set of IRQ and I/O Address. Please make sure that there is a free set of IRQ and I/O address for IVC-100 to use. The IRQ of the PCI slot can be modified from the CMOS setting of the motherboard. Please make the necessary adjustment according to the motherboard user manual.

■ If the system has installed other video capture card before, please make sure the previous driver is removed from the system.

■ Microsoft DirectX 8.1 or above. The setup program (ieisetup.exe) will prompt you to install DirectX 8.1 after the program has completed the driver installation. Therefore, IEI strongly recommend you to use ieisetup.exe for driver installation.

■ Users of Windows XP do not need to install DirectX 8.1 since Windows XP includes DirectX 8.1.

■ About DirectX 8.1:
DirectX 8.1 is a Microsoft shareware. DirectX 8.1 will help improve multimedia experiences on most PCs. This latest version of DirectX offers updated graphics, faster frame rates and more immersive audio when running programs rich in multimedia contents. Since DirectX 8.1 is a system component, it cannot be uninstalled without uninstalled your OS.

2. Hardware Connections & Settings

2.1   Illustration for Video Capture Card

IVC-100G   GPIO = general purpose input output
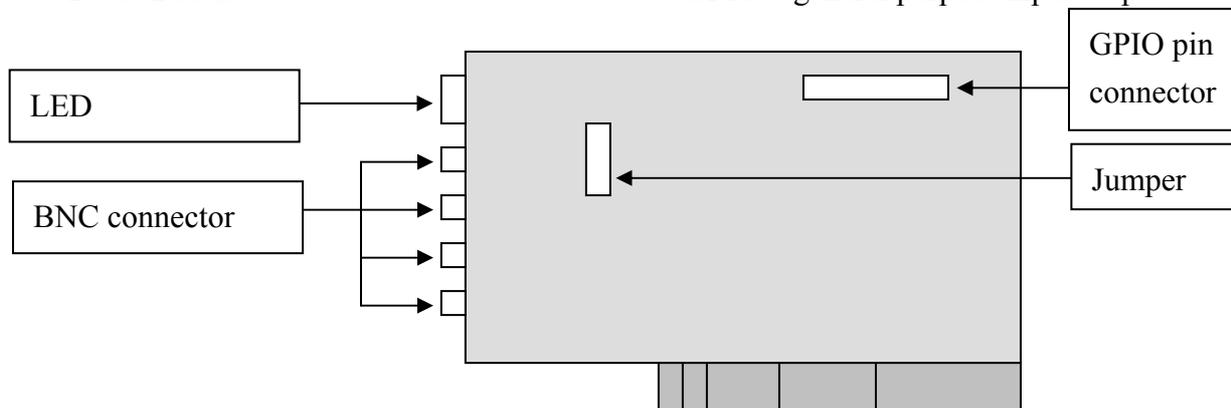
IVC-100
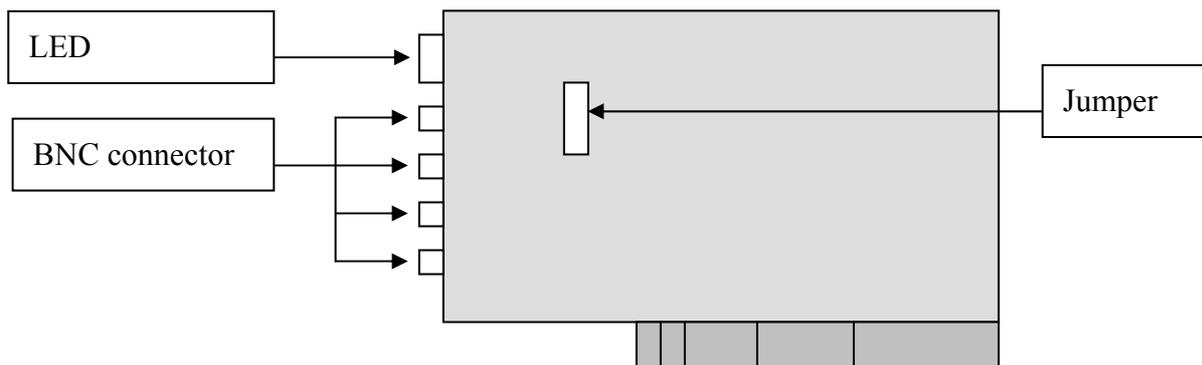
IVC-200G   GPIO = general purpose input output

IVC-200

LED

BNC connector

Jumper

IVC-120G

GPIO = general purpose input output

LED

Connector

GPIO pin connector

Jumper

IVC-120

LED
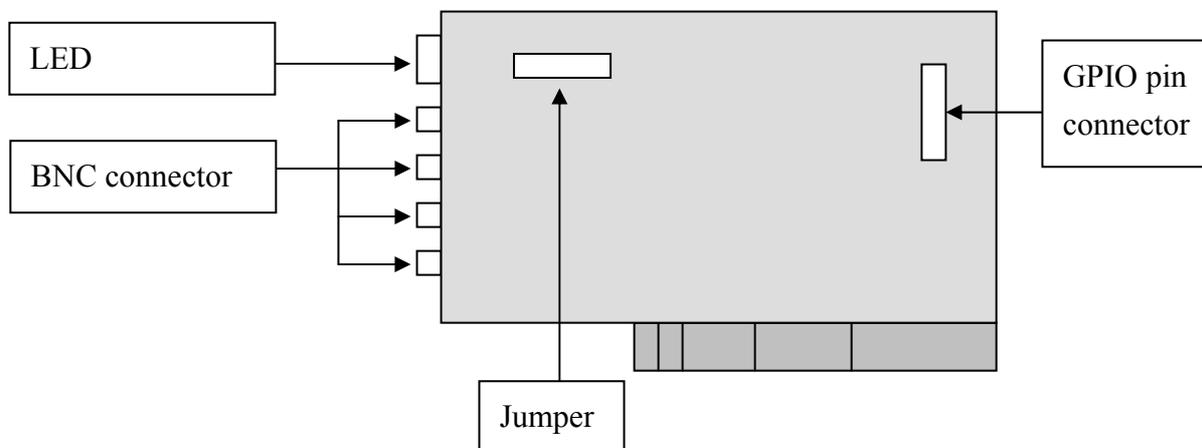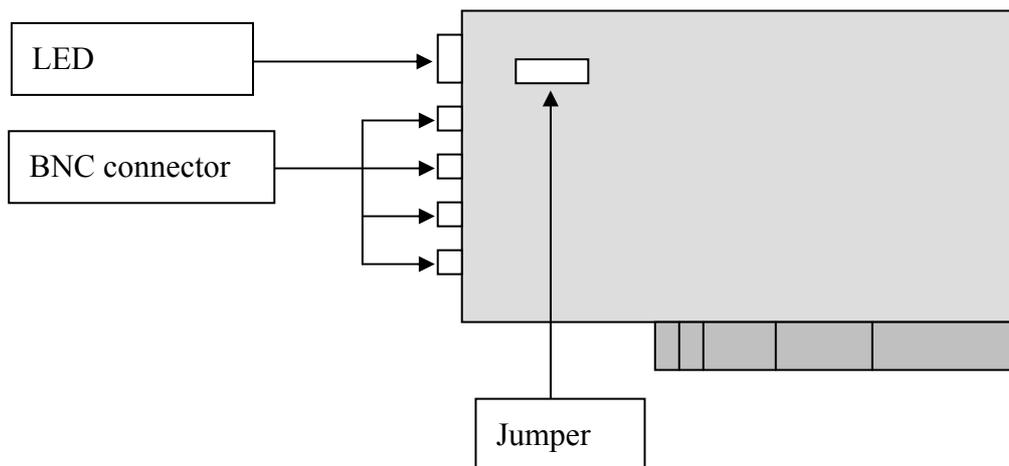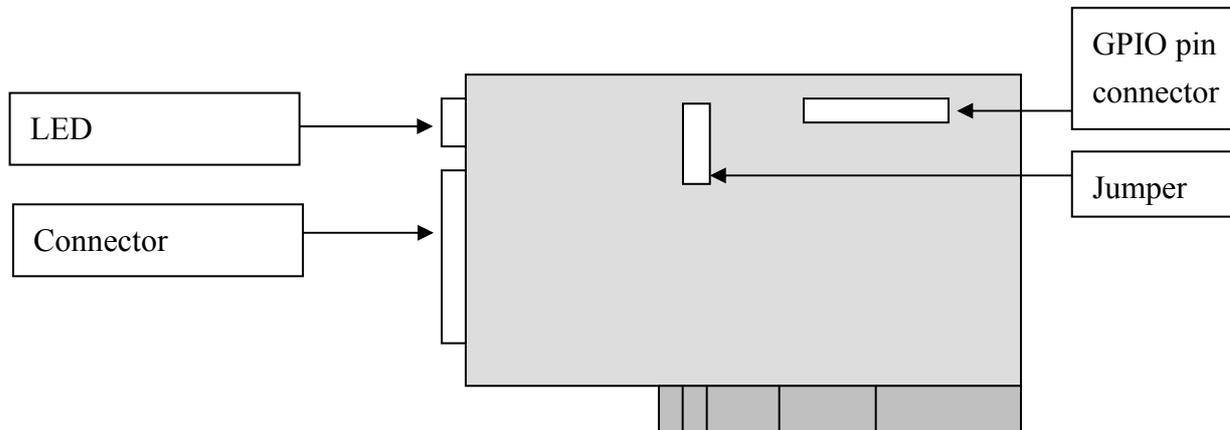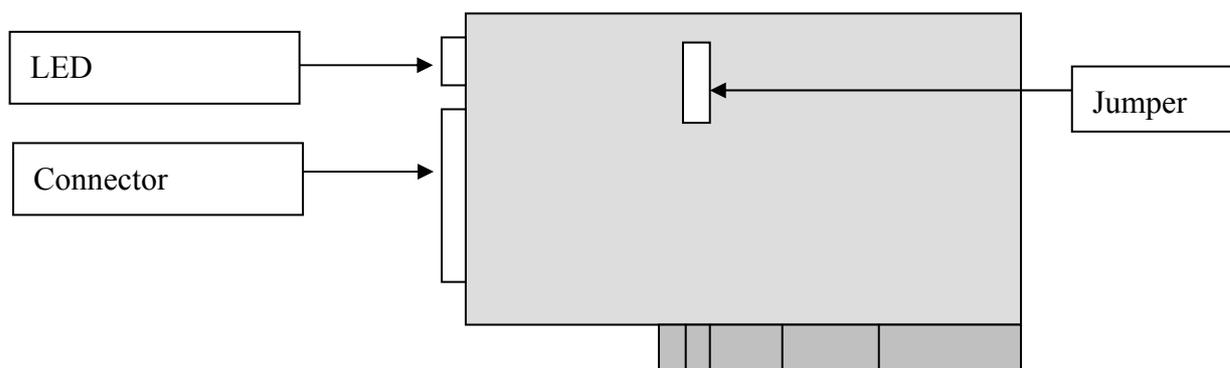
Connector

Jumper

2.2   Connections to the Video Source

Connect your video source to the BNC connector of the video capture card. Take
IVC-100G and IVC-120G for example:

● **IVC-100G**

Video Source

● **IVC-120G**

x 16

Video Source
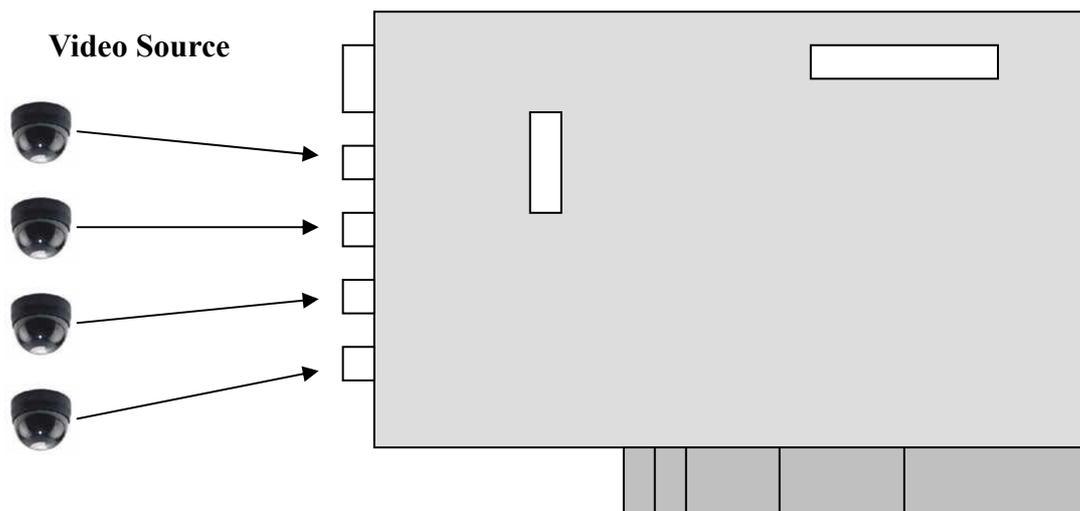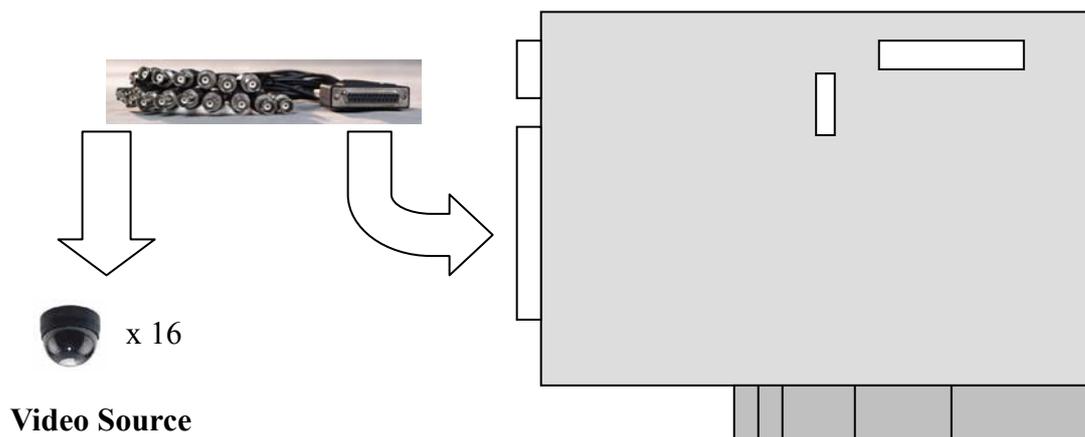
2.3   LED Jumper Settings

The jumper setting controls the card number on the LED.
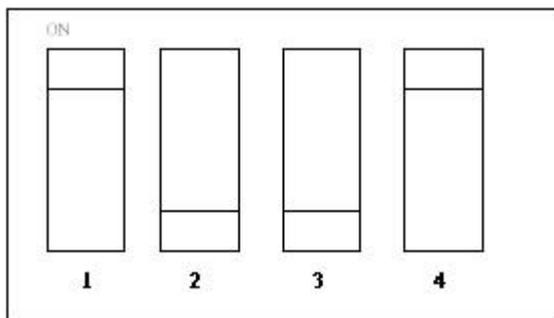
Jumper Setting Table

logic 1 = ON   logic 0 = OFF

1	2	3	4	Card Number on the LED
1	1	1	1	0
0	1	1	1	1
1	0	1	1	2
0	0	1	1	3
1	1	0	1	4
0	1	0	1	5
1	0	0	1	6
0	0	0	1	7
1	1	1	0	8
0	1	1	0	9
1	0	1	0	A
0	0	1	0	B
1	1	0	0	C
0	1	0	0	D
1	0	0	0	E
0	0	0	0	F

2.4   General Purpose Input Output (GPIO) Connections

⚠ Please note that this section ONLY applies to IVC-100G, IVC-200G and IVC-120G.

The GPIO module contains a flat cable, a GPIO daughter board, an input connector and an output connector. The GPIO module allows users to connector four input devices and four output devices. Please refer to Figure 1.
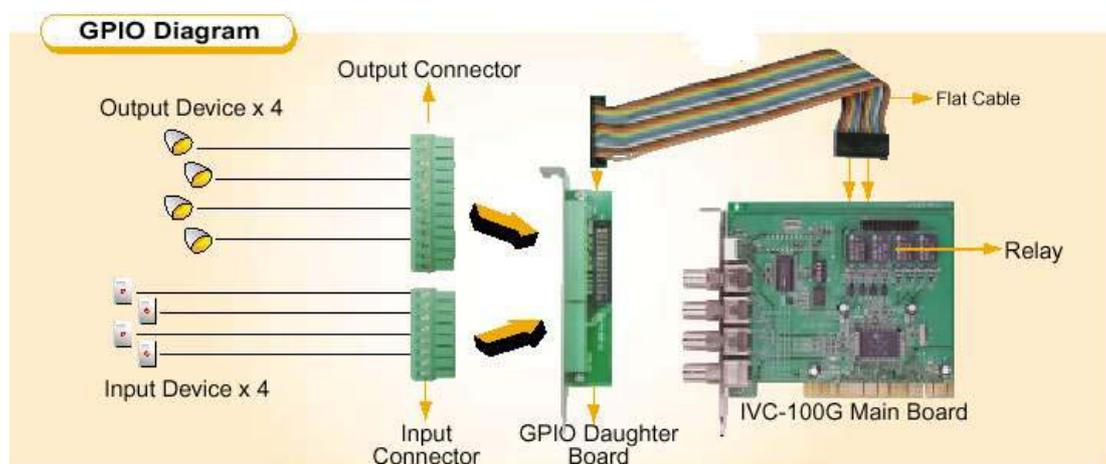
Figure 1: GPIO module

2.4.1   Connections to GPIO daughter board

  a. Connect the flat cable to the GPIO pin connector on IVC-100G (IVC-200G and IVC-120G).

IVC-100G

Flat cable

GPIO pin connector

IVC-200G

GPIO pin connector
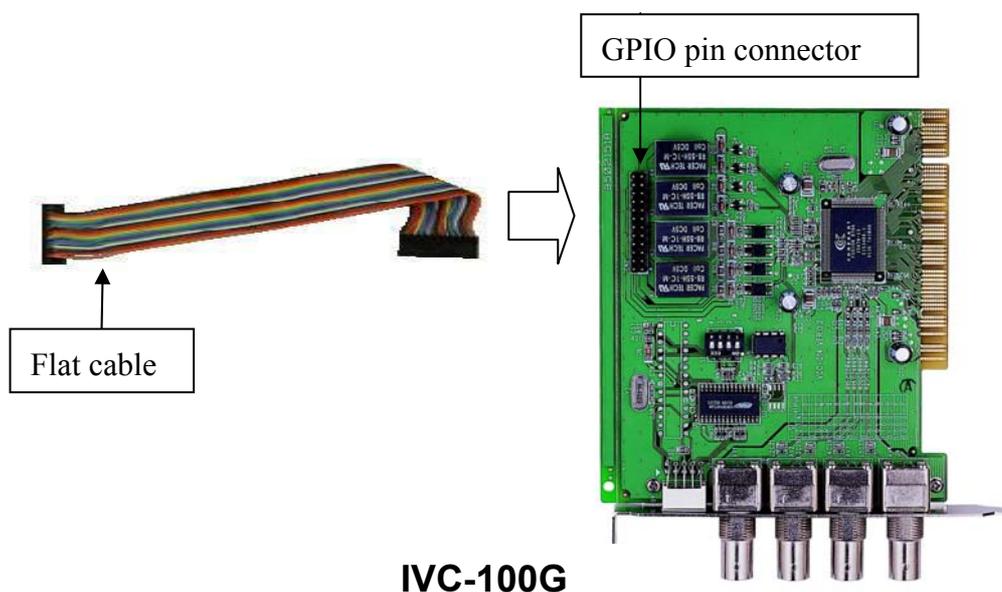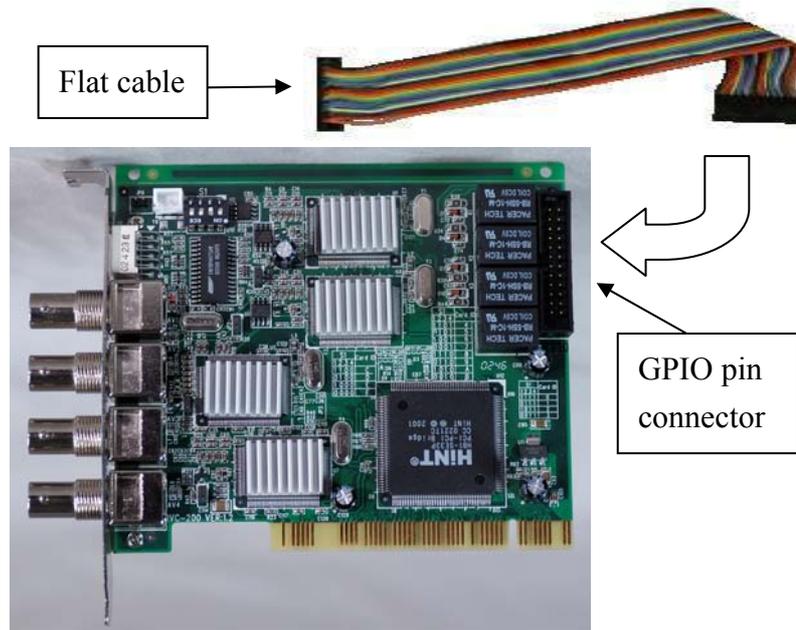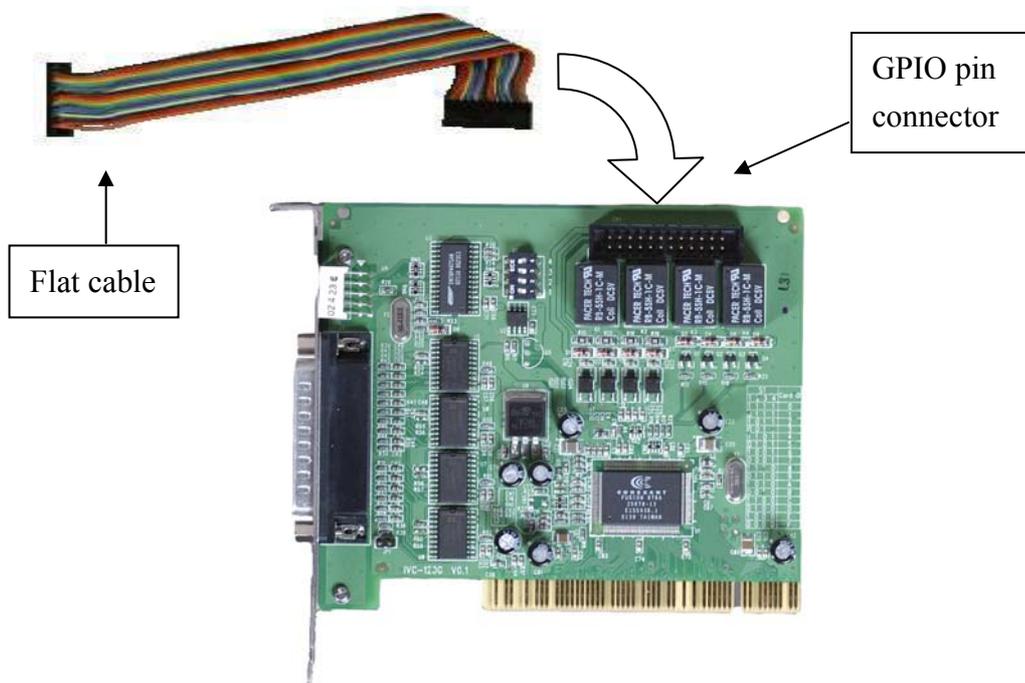
Flat cable

IVC-120G

b. Connect the other end of the flat cable to the GPIO pin connector on the GPIO daughter board.

GPIO pin connector

GPIO daughter board
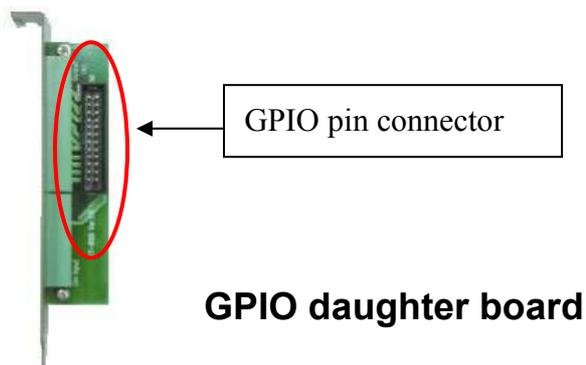
c. Use the screw to secure the GPIO daughter board on your computer case.

2.4.2 Connections for Input/Output devices

An input connector and an output connector are provided for connections to the external devices. The connection points of the input connector are shown in Figure 2. The connection points of the output connector are shown in Figure 3.

Input 1

Ground 1

Input 2

Ground 2

Input 3

Ground 3

Input 4

Ground 4

Input Connector

Figure 2

Output Connector
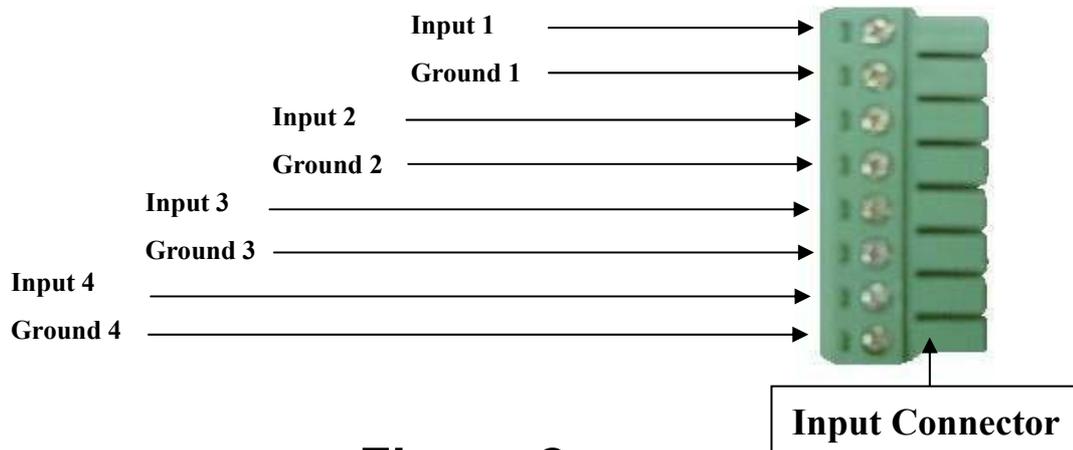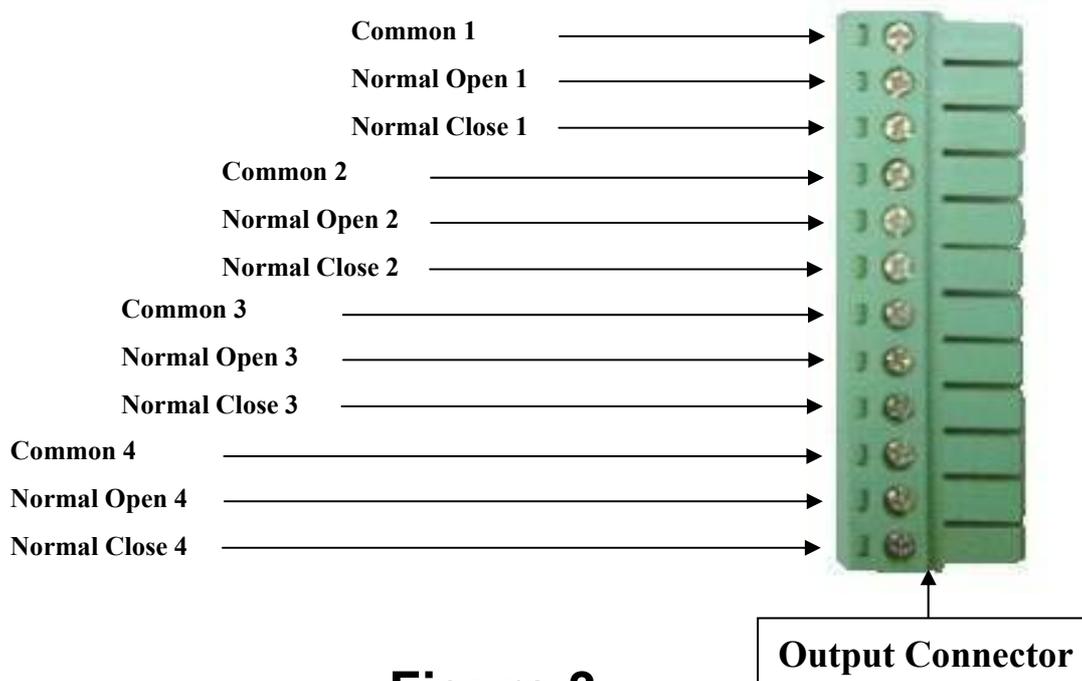
Figure 3

Specification for General Inputs

The general inputs can take DC voltage from 0-24V. Voltage above 24V is not recommended.

	Voltage Range
Logic 0	< 0.5V
Logic 1	0.5V – 24V

Specification for General Outputs

Relay Contact Ratings

Contact Form	1 FORM C (SPDT)
Contact Capacity	coil = 0.36W
Resistive Load	1A/125 VAC
(cos θ = 1)	2A/24 VDC
Inductive Load	0.3A/30 VDC
(cos θ = 0.4 L/R = 7 msec)	
Rated Carring Current	2A
Max. allowable voltage	AC 120V. DC 60V
Max allowable current	2A
Max allowable power	48W
Contact Material	Ag Alloy

Relay Coil Specification

Coil voltage	Nominal Voltage (VDC)	Nominal Current (mA)	Coil Resistance (Ohm)	Power Consumption (W)
5V	5V	66.7	75	about 0.36W

Relay Coil Specification (Continue)

Pull-in Voltage (VDC)	Drop-out voltage (VDC)	Max-Allowable Voltage (VDC)
75% max. 3.75V	10% min. 0.5V	110% 5.5V

After connecting your external device, you can therefore plug the connector into the GPIO board.
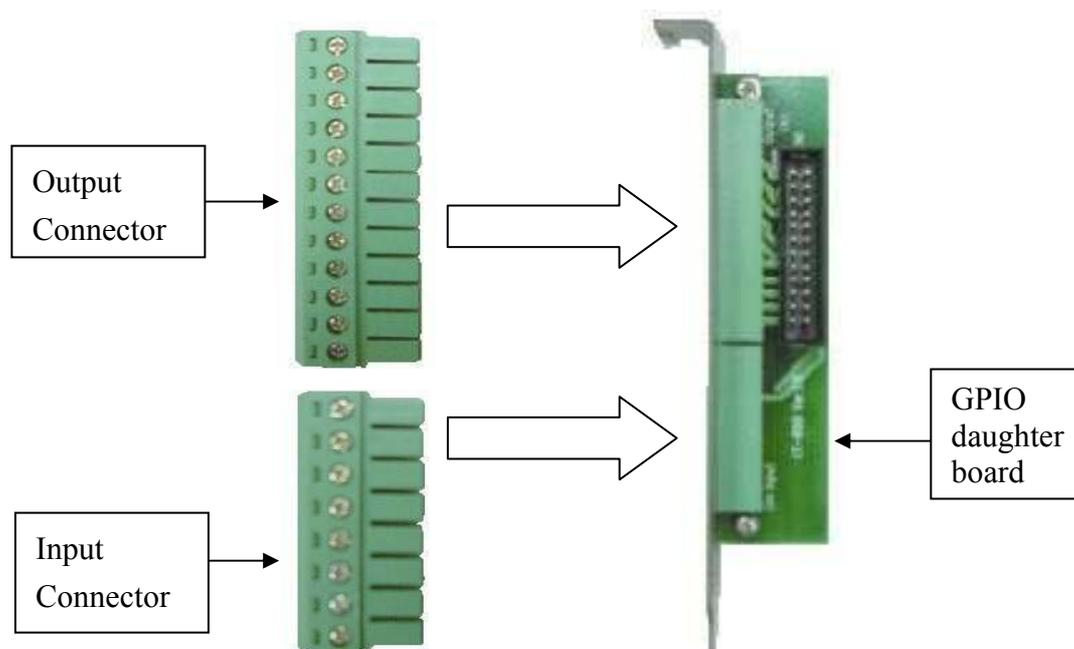
3. Installation Procedures

3.1   Driver Installation

Take the advantage of IEI driver installation program. This program makes the driver installation of multiple cards an easy job.

Steps:

1. Adjust the jumper setting of your video capture card.
2. Insert your video capture card(s) into the computer system then switch on your computer.
3. The window will find a new device on the system and ask you to install the driver. Please click "Cancel" to close all dialog boxes.
4. Please insert the IEI Installation CD into your CD drive.
5. Double click the icon " My Computer " on the screen.
6. Double click the icon " IEI Installation CD " in your CD ROM.
7. Double click the "Windows" folder.
8. Double click " ieisetup.exe".
9. The window will show a welcome message for installation. Please click the "Next " bottom for next step.
10. The window will then show a message of current configuration, please click "Next" to start installation.
11. The window will start installing the drivers into your computer system.
12. The window will show a message to warn you that the software does not contain a Microsoft digital signature. Please click "Yes" to continue the installation.
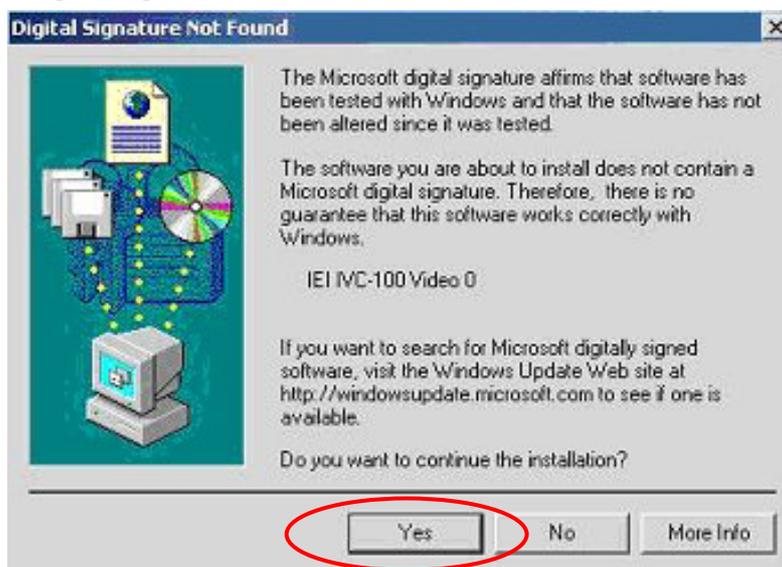
13. There will be another window message to ask you to install an audio driver. Please click "Yes".

14. For multi-card system, you will be asked to install video and audio drivers for every card in your system.. Click "Yes" to continue installation.
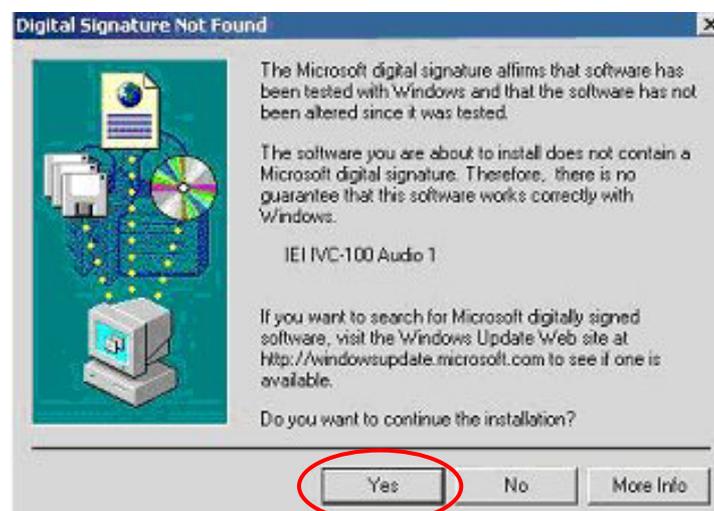
15. After the driver has been successfully installed, the window will ask you to click on the " Finish " button in order to start installing DirectX.
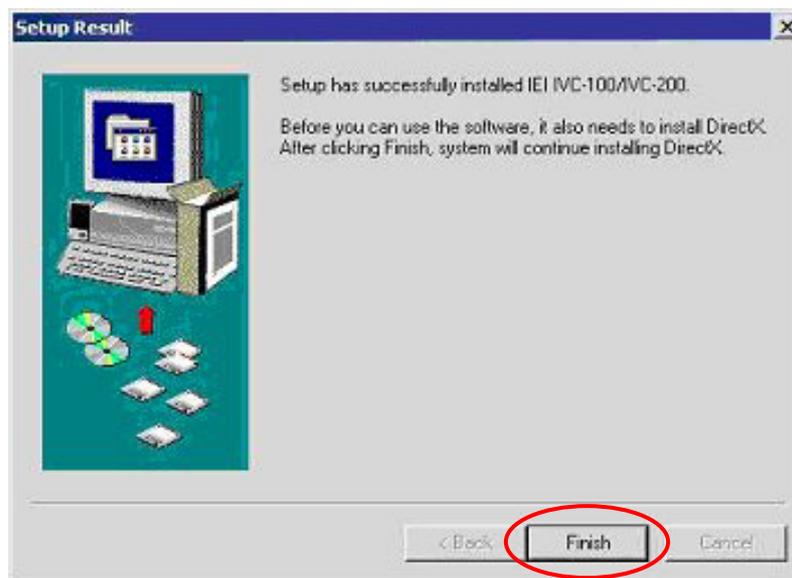
16. Restart your computer when you finish installing DirectX.

 You can also install a driver first before plugging the video capture card into the computer. Follow step 4 to step 11 to install the driver. Then install DirectX. Power off your computer after you has finished installing the DirectX. Adjust jumper setting of your video capture card then plug your video capture card into the computer. Power on your computer then windows will ask if you want to install audio and video drivers for each card. Click "Yes" in order to complete driver installation.

3.2   Check for Installed Driver

If you have any doubt about whether the driver is properly installed or not, please follow these steps.

1. Point the mouse to the object " My Computer" on your screen.
2. Click on the right side of the mouse and you will see a function list. Double click "Properties".
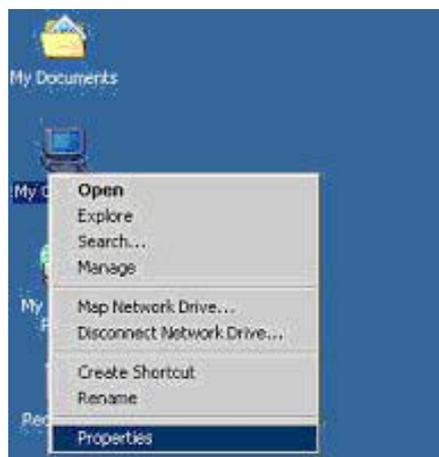
3. Choose "Hardware". Then click on the "Device Manager" button.
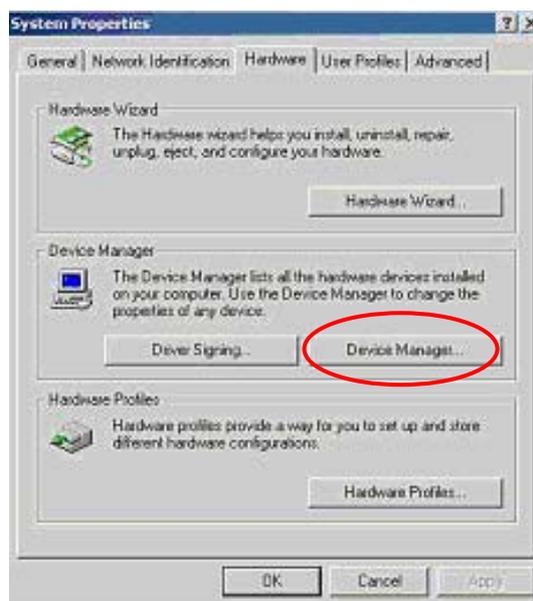
4. Double click on the mark of "Sound, video and game controllers"
5. You should be able to see a list of the audio and video driver of each video capture card.

⚠ The above procedures are performed in Windows 2000 server. For Window 98, Win ME, if system requires the file for driver, you can find the file (ieibt878.exe) in your CD, under the directory Windows/Driver.

4. Demo Programs

4.1   Video Image Preview for IVC-100G/100

1. Double click "Demo" folder.

2. Double click "ivc-100.exe".

3. Click "Select Device" to choose the video capture card.
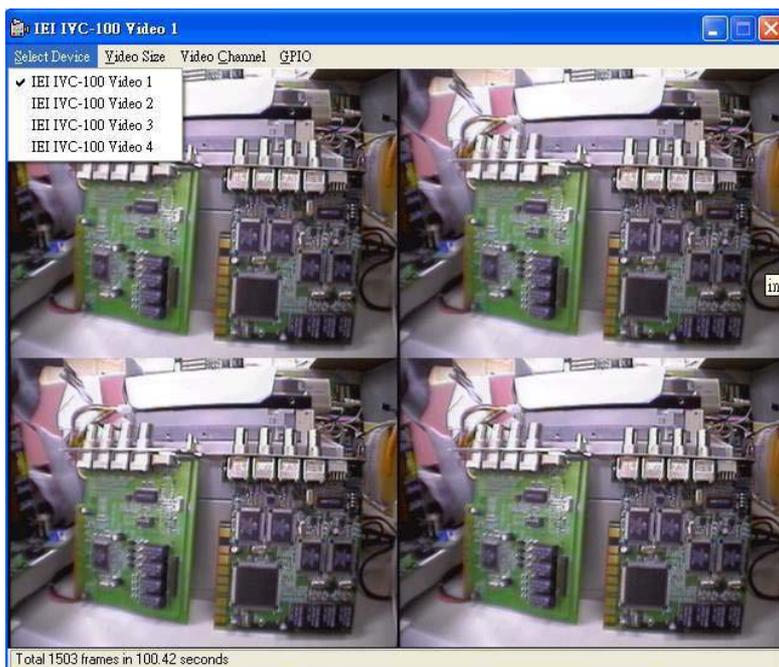
4. Click "Video Size" to choose the resolution. The available resolutions are 160 x 120 and 320 x 240.
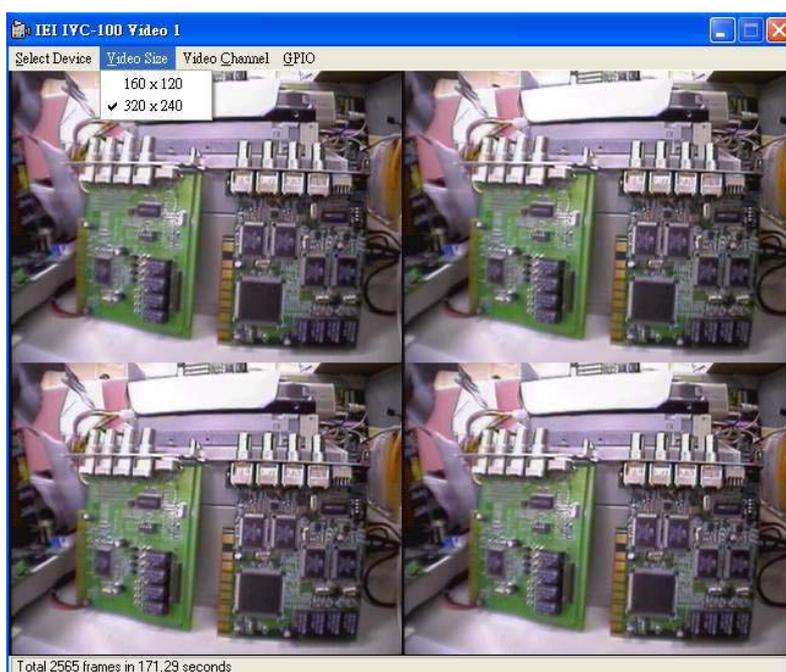
5. Click "Video Channel" to activate the video input channels.
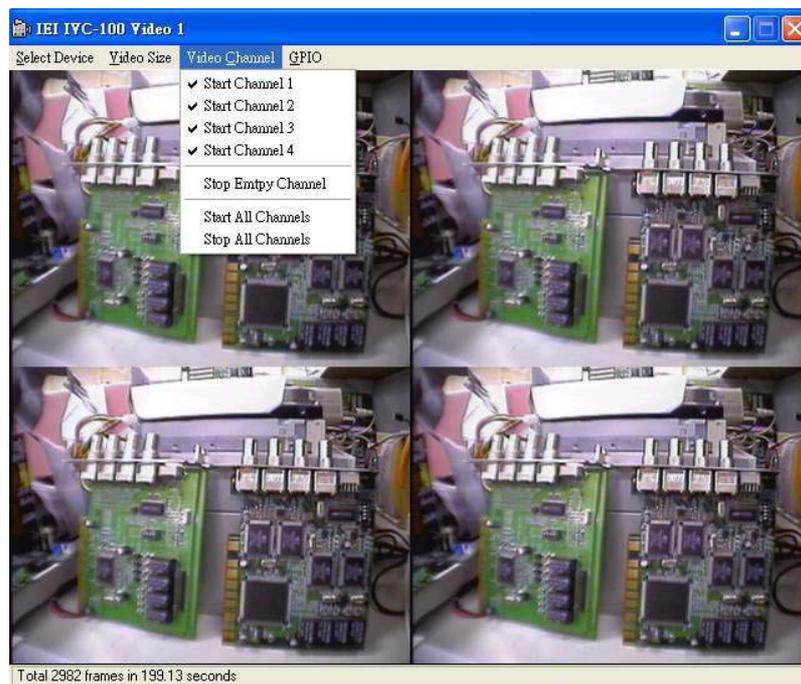
⚠ Please disable the channel that has no input signals. For example, if there is only one CCTV camera connecting to Channel 1, users are recommended to enable the Channel and disable all other channels in order to reach a high quality display image.

6. Click "GPIO" to control the input/output devices.
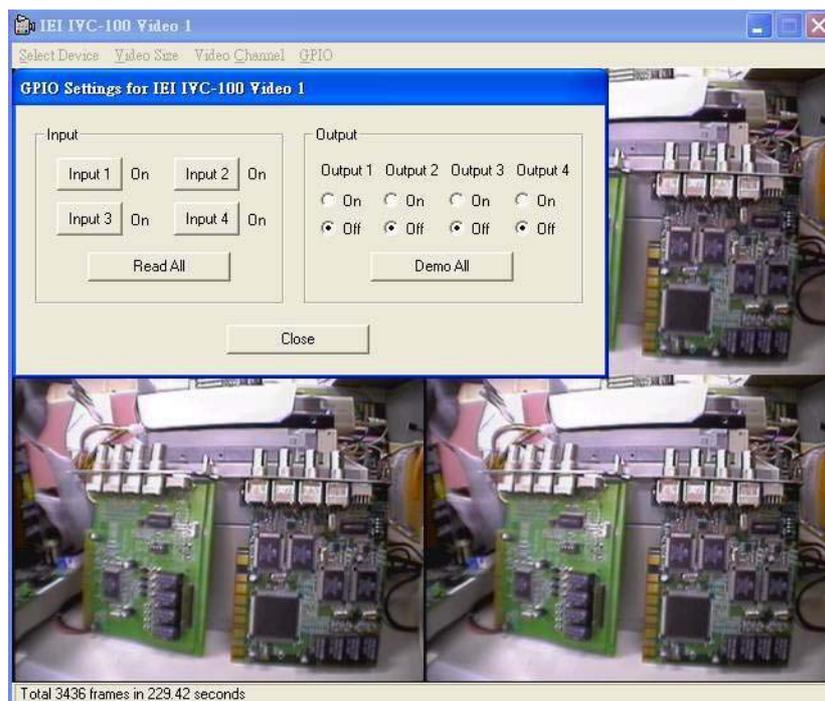
4.2   Video Image Preview for IVC-200G/200

1. Double click "Demo" folder.
2. Double click "ivc-200.exe".
3. Click "Select Device" to choose the video capture card.
4. Click "Video Size" to choose the resolution. The available resolutions are 160 x 120 and 320 x 240.
5. Click "Video Channel" to activate the video input channels.
6. Click "GPIO" to control the input/output devices

Please disable the channel that has no input signals. For example, if there is only one CCTV camera connecting to Channel 1, users are recommended to enable the Channel and disable all other channels in order to reach a high quality display image.

4.3   Video Image Preview for IVC-120G/120

1. Double click "Demo" folder.
2. Double click "ivc-120.exe".
3. Click "Select Device" to choose the video capture card.

4. Click "Video Size" to choose the resolution. The available resolutions are 160 x 120 and 320 x 240.

5. Click "Video Channel" to activate the video input channels.

Please disable the channel that has no input signals. For example, if there is only one CCTV camera connecting to Channel 1, users are recommended to enable the Channel and disable all other channels in order to reach a high quality display image.

6. Clock "GPIO" to control the input/output devices.

7. Click "VPD" to view or edit the serial number for this card.
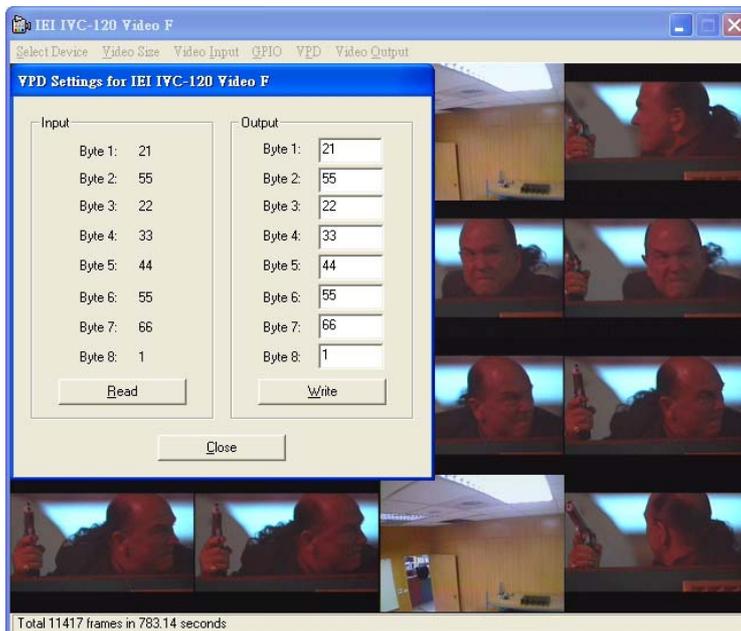
8. Click "Output" to select a channel to output.
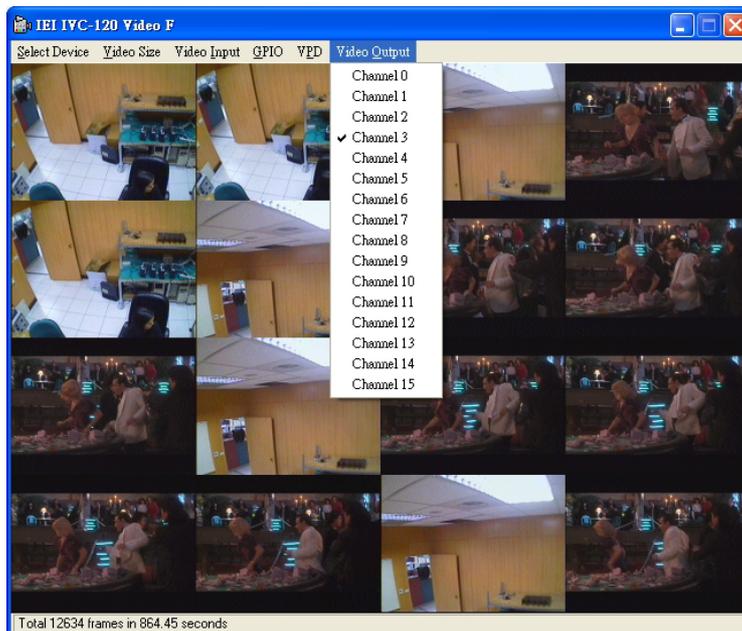
4.4   Recording the Captured Image

⚠️ The program used in the following section is amcp.exe. It is a Microsoft's program for video capturing.

1. Please open the folder " Demo" and double click "amcap.exe".
2. Click on " Devices" to select the video capture card.
3. Click on "Options" then click " Preview" to view the captured image.
4. Click "Video Crossbar" then choose from the Input list to select the recording channel.

5. Click "Capture" then click "Start Capture".
6. Set the directory and folder to save the captured file. Then click "OK" to start recording the video image.
7. Click "Stop Capture" to stop recording.

5. Uninstalling the Program

1. Click "Start" then choose "Settings" and double click "Control Panel".
2. Double click "Add/Remove Programs".
3. Select the software of Video Capture Card and click on "Add/Remove" button.
4. Click "Yes " to uninstall the Video Capture Card software.
5. Select "Restart my computer now" and click "Finish".

Appendix   IVC-200G-WDT

Installing the Hardware

Connect to chassis's reset button

Connect to Reset Pin on the motherboard. (Pin on the right is Reset +)
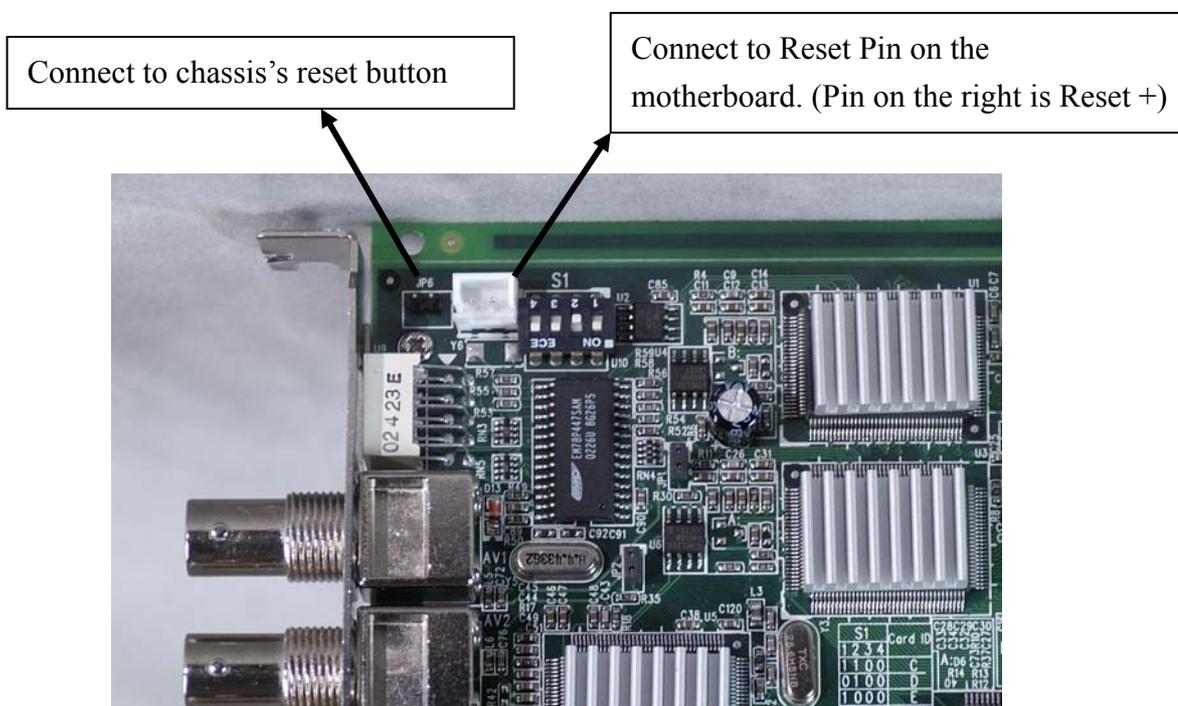
Instructions

● Run wdt-demo.exe (located in Demo folder). The following dialog will appear on the screen.

● To enable the watch dog timer function, please select the "Enable WDT with time-out period" option.
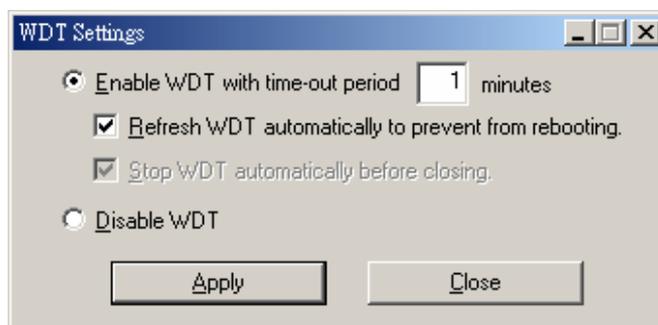
● When the "Refresh WDT automatically to prevent from rebooting" option is not selected as shown in the picture below, the system will reboot after 1 minute once you've applied the "Enable WDT with time-out period 1 minute" option.
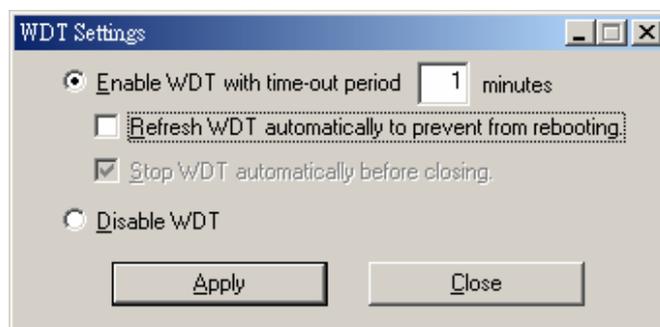
● The source code of wdt-demo.exe is included in the driver CD-ROM. Please refer to the source code for developing the watch dog function.