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

& IVC-120/120G & PM-1056

User Manual Version 1.21a
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1. Product Introduction

Thank you for choosing IEI IVC-100G/100, IVC-200G/200 and IVC-120G/120 & PM-1056 video capture cards.   These cards enable 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.   VC-120G/120 has 16 channels and an LED indicator.   This unique LED feature makes IVC-100G/100, IVC-200G/200 and IVC-120G/120 & PM-1056 ideal candidates for multi-cards surveillance systems.   The patent-pending LED feature provides a solution to system upgrading and management.   With the help of the LED, users can quickly assign an ID number to the card for identification, which makes onsite maintenance easier and more efficient.   The operation and driver for PM-1056-4P/4PB/4PG/4PGB and IVC100/100G, and that for PM-1056-16P/16PG and IVC-120/120G, are the same.

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): 720x480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98 SE, Windows ME, Windows 2000 and Windows XP
- Provide Demo Programs and SDK for Windows
- Provide Linux driver for Red Hat 7.2, 7.3, 8.0

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): 720x480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98 SE, Windows ME, Windows

2000 and Windows XP

- Provide Demo Application and SDK for Windows
- Provide Linux driver for Red Hat 7.2, 7.3, 8.0

1.3   Common Features 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): 720x480, 704x480, 640x480, 352x240, 320x240, 176x112
- Resolution (PAL): 720x576, 704x576, 640x576, 352x288, 176x144
- Provide WDM driver for Windows 98 SE, 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 Features for IVC-100G/IVC-200G/IVC120G

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

1.5   Package Contents

- Video capture card x 1
- CD x 1
- Hard copy of user manual x 1
- GPIO module:
  GPIO daughter board x 1, flat cable x 1, input connector x 1 and output connector x 1 (for IVC-100G, IVC-200G and IVC-120G only)
- Video connector cable with 16 video inputs and 1 video output x 1 (for IVC-120G and IVC-120 only)

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

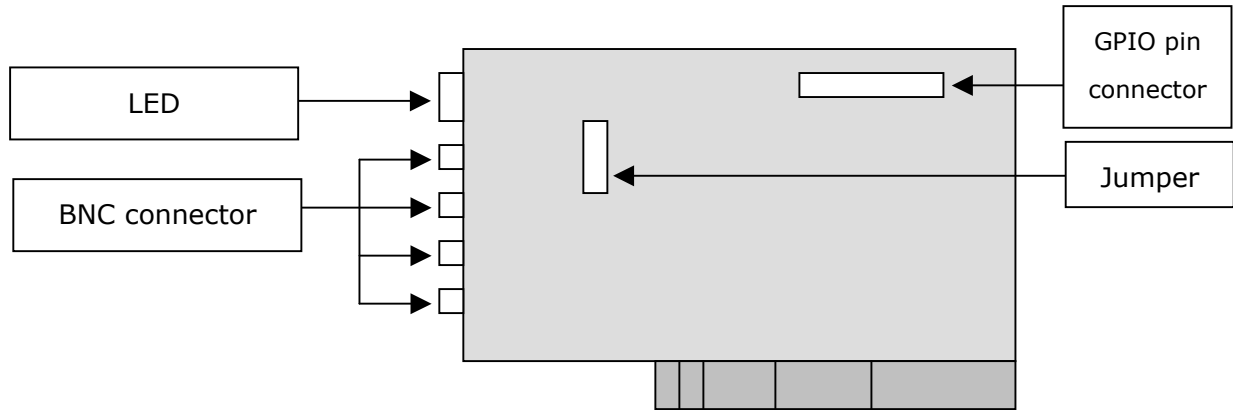- OS: Windows 98 SE, Windows ME, Windows 2000 and Windows XP

1.7 Notes

- IVC-100G/100/200G/200/120G/120 will take up a set of IRQ and I/O Address.   Please make sure 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 user manual for the motherboard.

- If the system has installed other video capture cards before, please make sure the previous driver has been 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 run 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, which 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 uninstalling your OS.
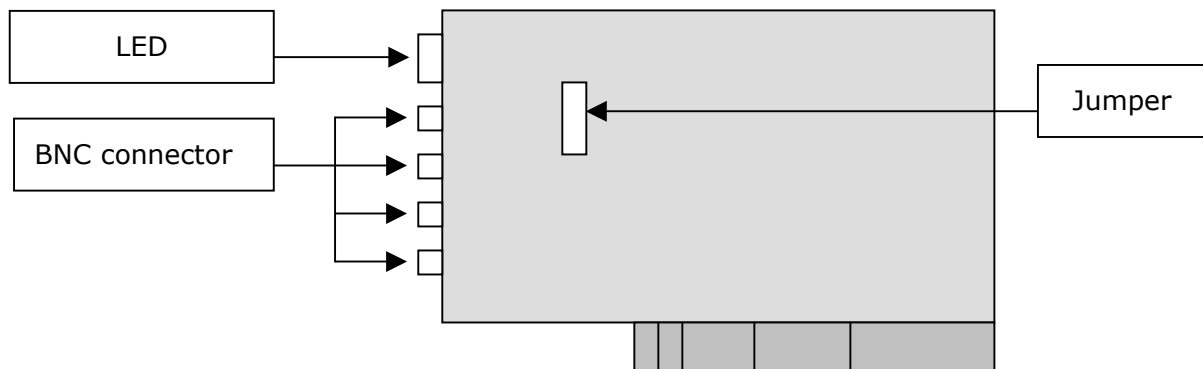
2. Hardware Connections & Settings

2.1 Illustration for Video Capture Card

IVC-100G   GPIO = general purpose input output

| LED |
| BNC connector |
| GPIO pin connector |
| Jumper |

IVC-100

| LED |
| BNC connector |
| Jumper |

IVC-200G   GPIO = general purpose input output

| LED |
| BNC connector |
| GPIO pin connector |
| Jumper |

IVC-200

LED

BNC connector

Jumper

IVC-120G

GPIO = general purpose input output

GPIO pin connector

LED

Connector

Jumper

IVC-120

LED
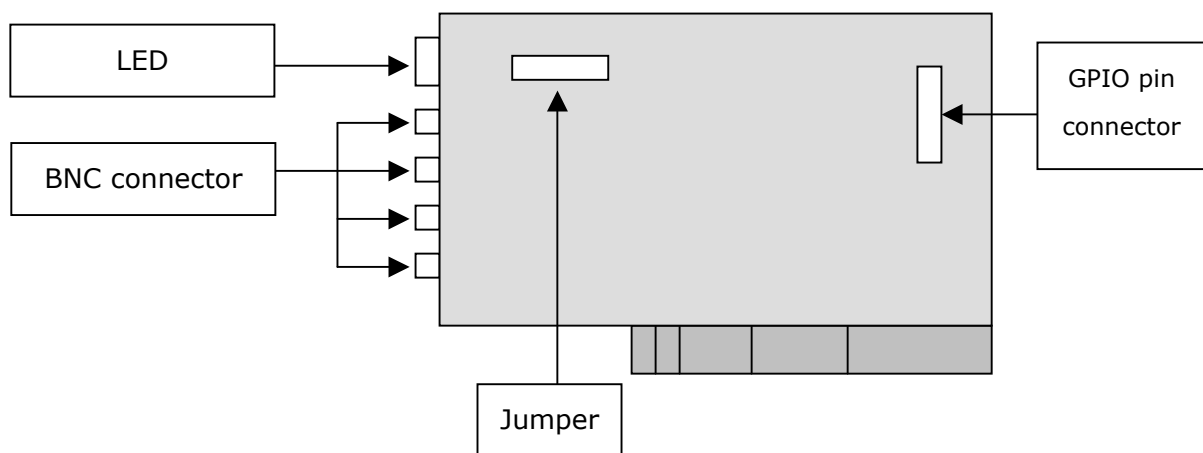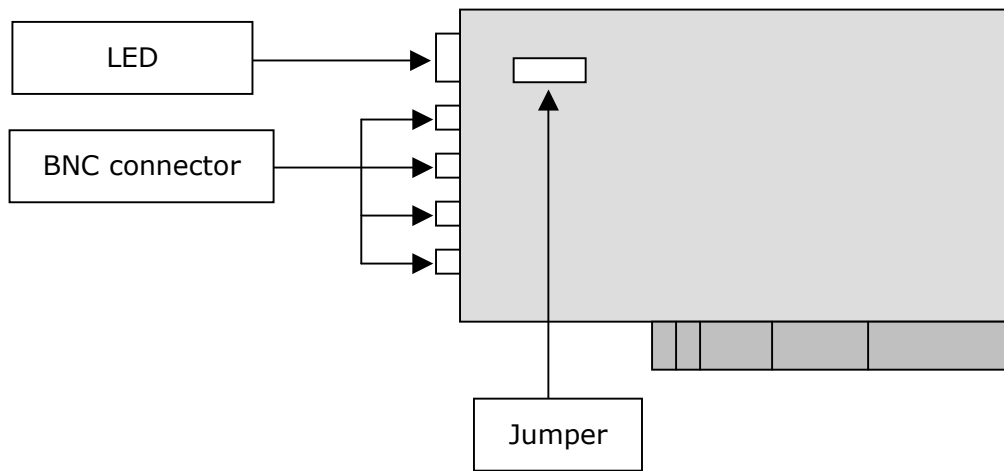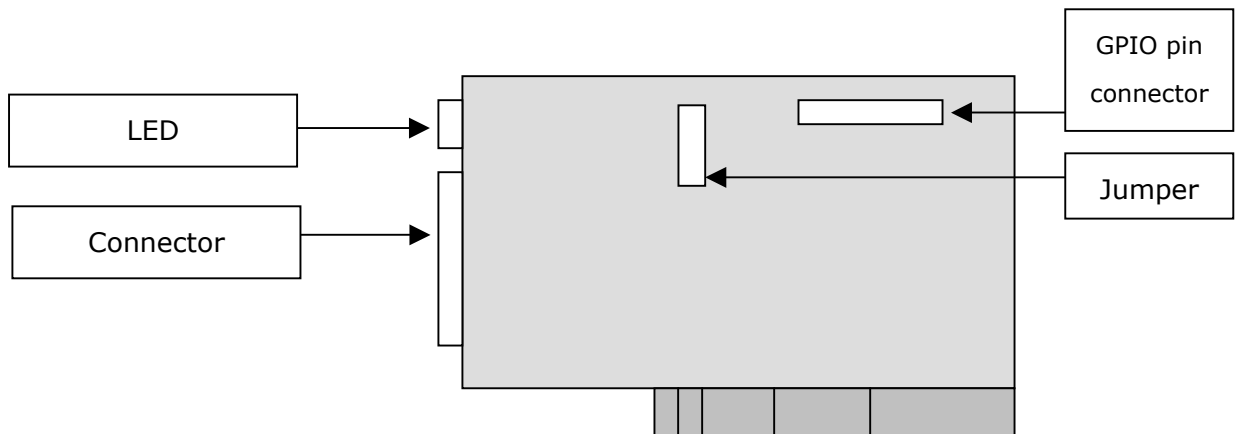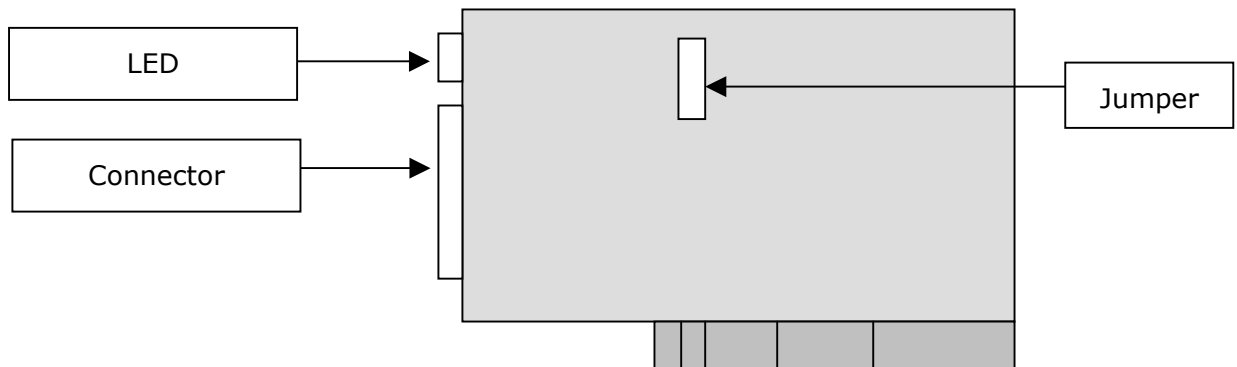
Connector

Jumper

2.2 Connections to the Video Source

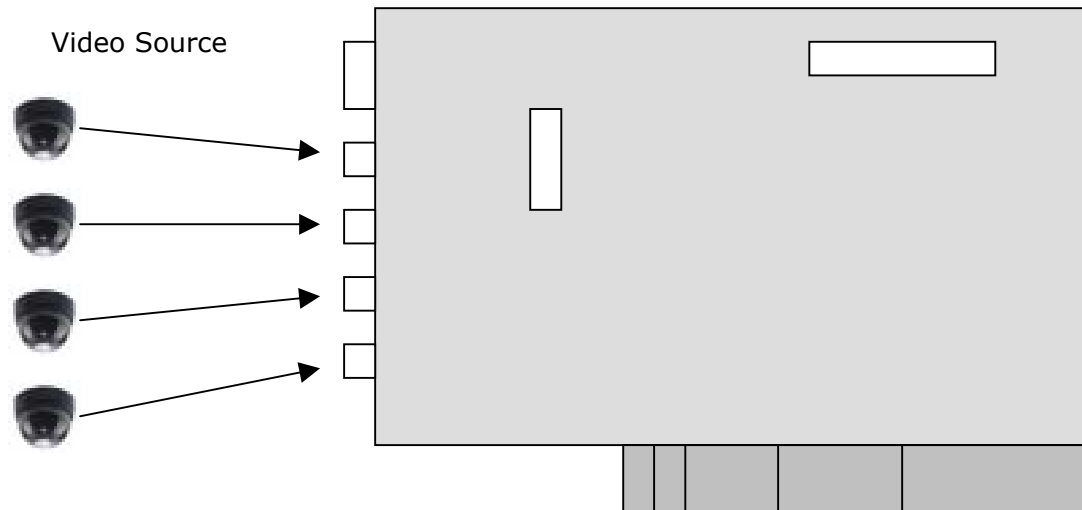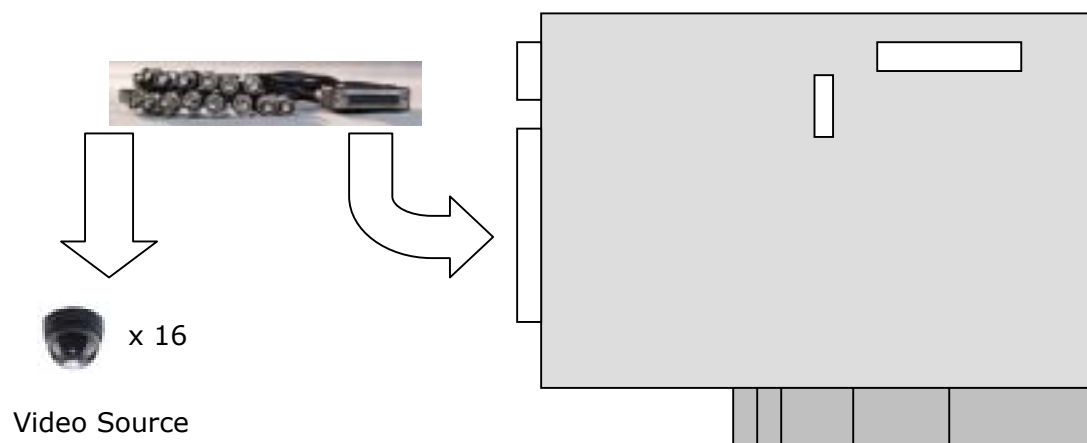Connect your video source to the BNC connector of the video capture card.   Take IVC-100G and IVC-120G for example:

• **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.
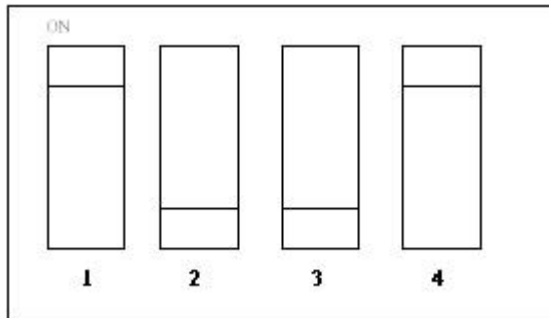
Jumper Setting Table

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 enables users to connect four input devices and four output devices.
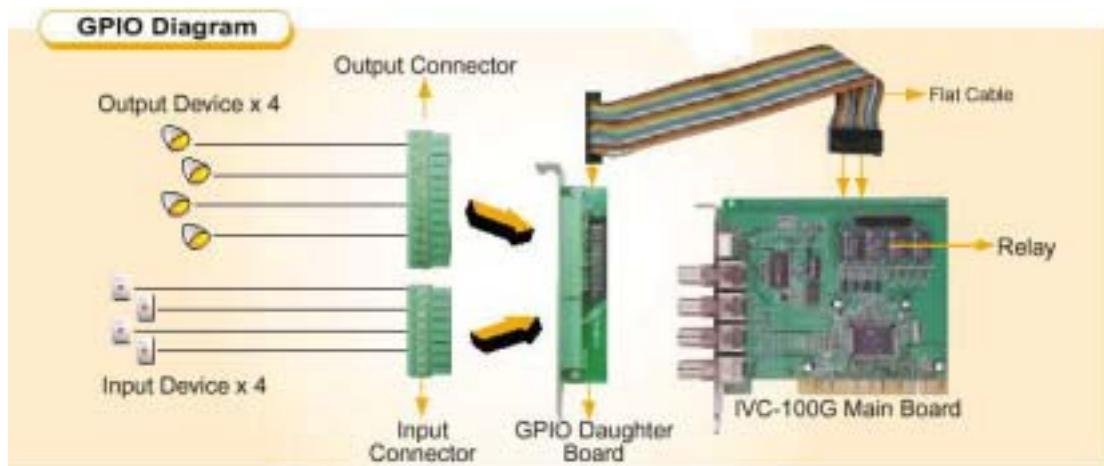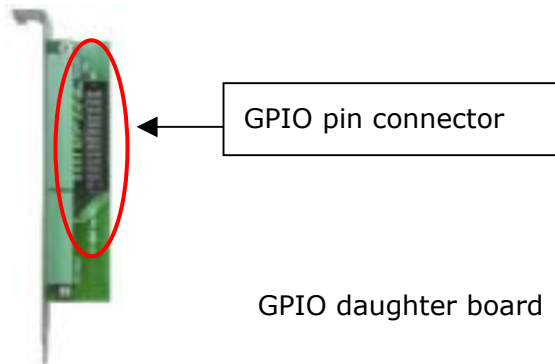

GPIO module

2.4.1 Connections to GPIO daughter board

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

Flat cable

GPIO pin connector

Flat cable

GPIO pin connector

Flat cable

IVC-120G
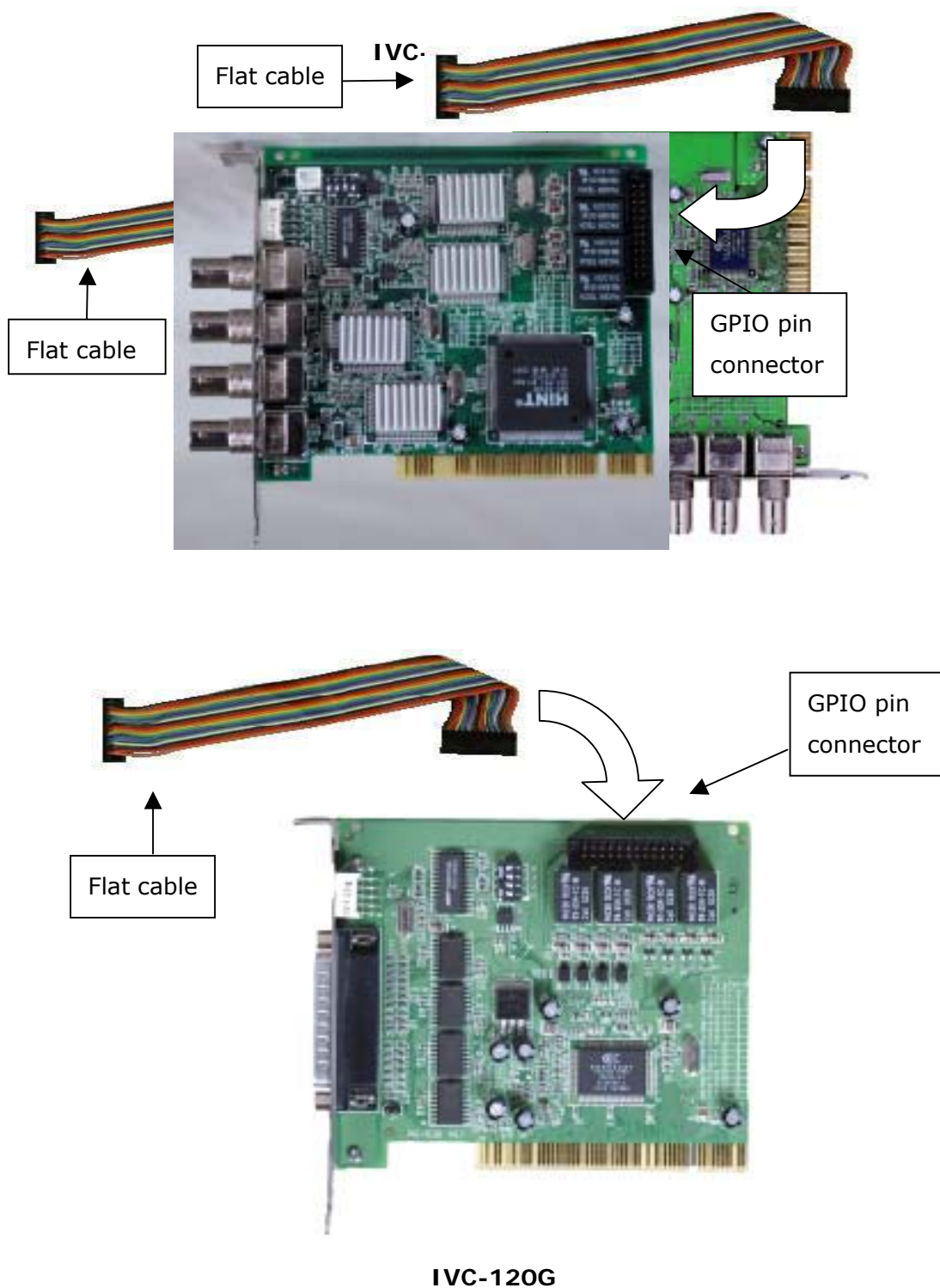
Connect the other end of the flat cable to the GPIO pin connector on the GPIO daughter board.

GPIO pin connector

GPIO daughter board

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 1.   The connection points of the output connector are shown in Figure 2.
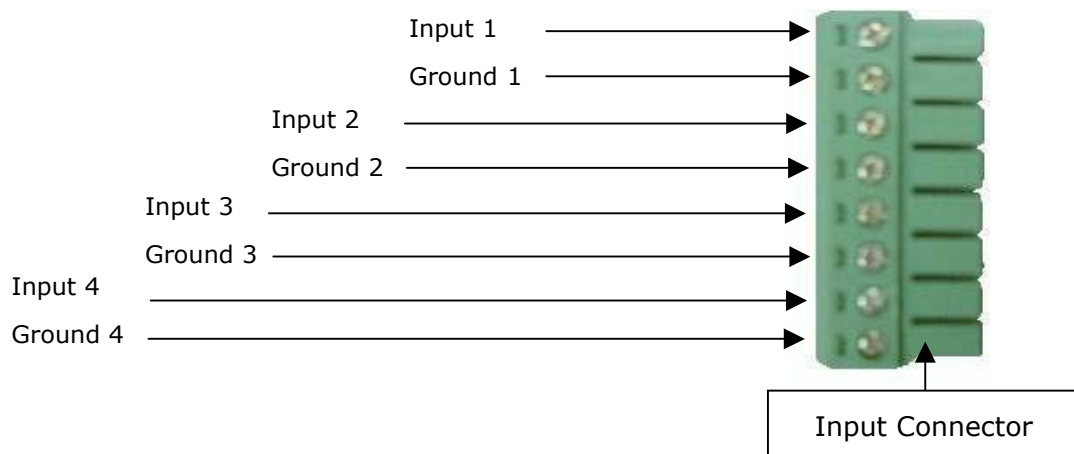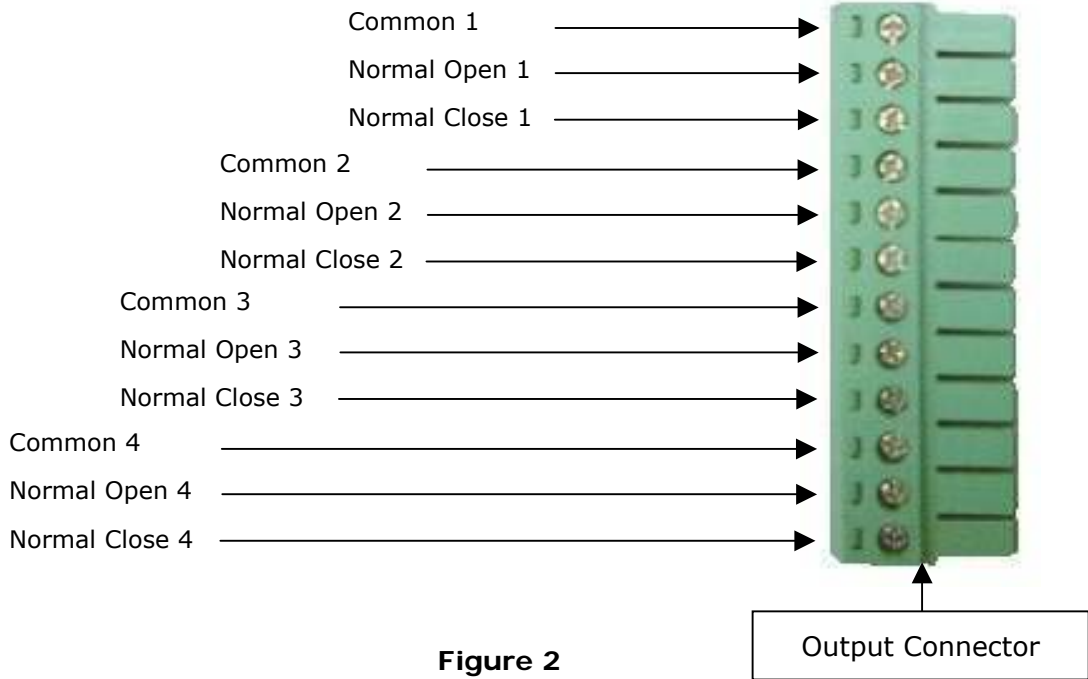
Input 1

Ground 1

Input 2

Ground 2

Input 3

Ground 3

Input 4

Ground 4

Input Connector

Figure 1

Common 1 ⟶

Normal Open 1 ⟶

Normal Close 1 ⟶

Common 2 ⟶

Normal Open 2 ⟶

Normal Close 2 ⟶

Common 3 ⟶

Normal Open 3 ⟶

Normal Close 3 ⟶

Common 4 ⟶

Normal Open 4 ⟶

Normal Close 4 ⟶

Output Connector

Figure 2

Specification for General Inputs

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

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

Specification for General Outputs

Relay Contact Ratings

| Contact Form	1 FORM C (SPDT)
Contact Capacity Resistive Load (cos θ = 1) Inductive Load (cos θ = 0.4 L/R = 7 msec)	Coil = 0.36W 1A/125 VAC 2A/24 VDC 0.3A/30 VDC
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 the external device, plug the connector into the GPIO board.
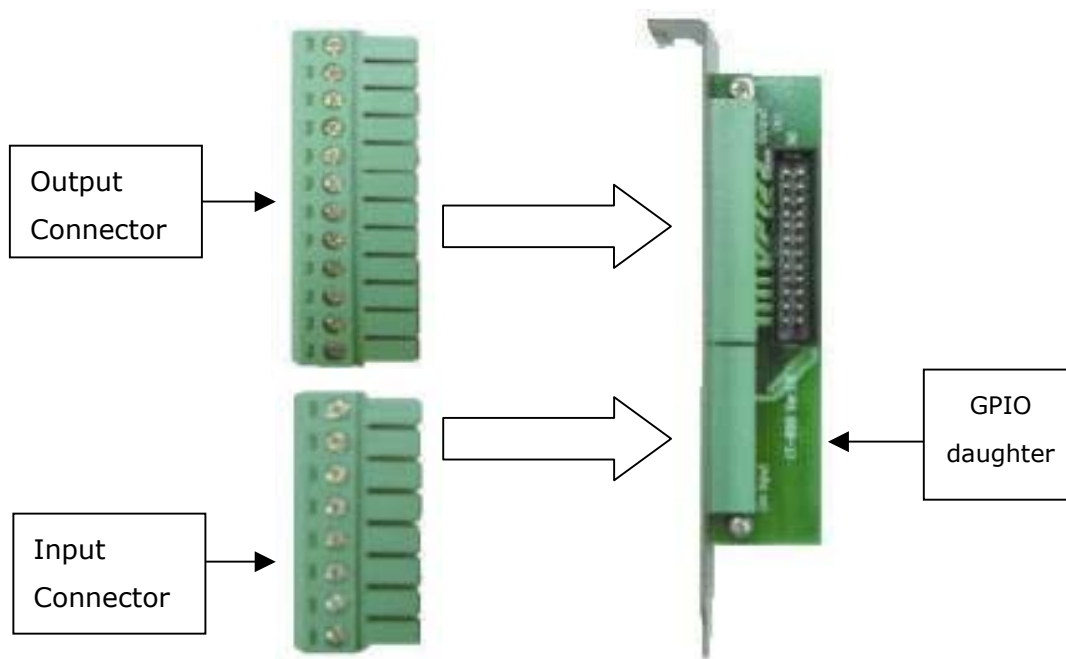
3. Installation Procedures

3.1 Driver Installation

IEI driver installation program makes the driver installation of multiple cards an easy job.   The steps of driver installation are described as below:
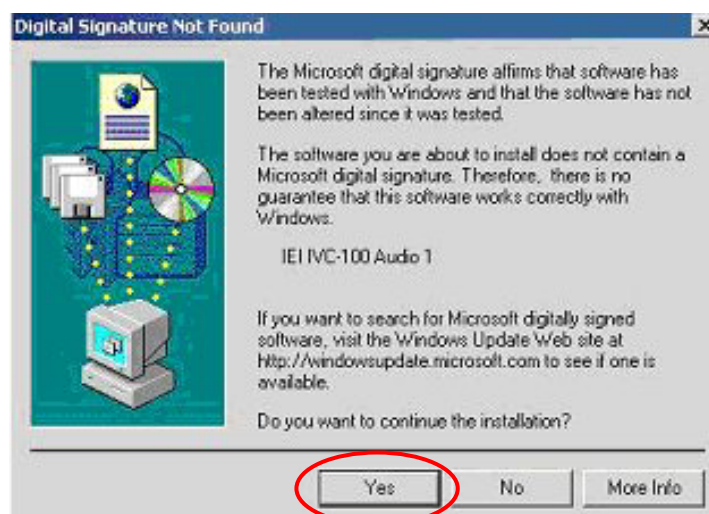
Steps:
  i.   Adjust the jumper setting of the video capture card.
  ii. Insert the video capture card(s) into the computer system, and then turn on the computer.
  iii. The system will find a new device on the system and ask you to install the driver.   Click Cancel to close the dialog box.
  iv. Run the program ieisetup.exe from the IEI Installation CD.
  v.   The window will show a welcome message for installation.   Click the Next button for next step.
  vi. The window will then show a message of current configuration, click Next to start the installation.

  vii. The window will show a message to warn you that the software does not contain a Microsoft digital signature.   Click Yes to continue the installation.
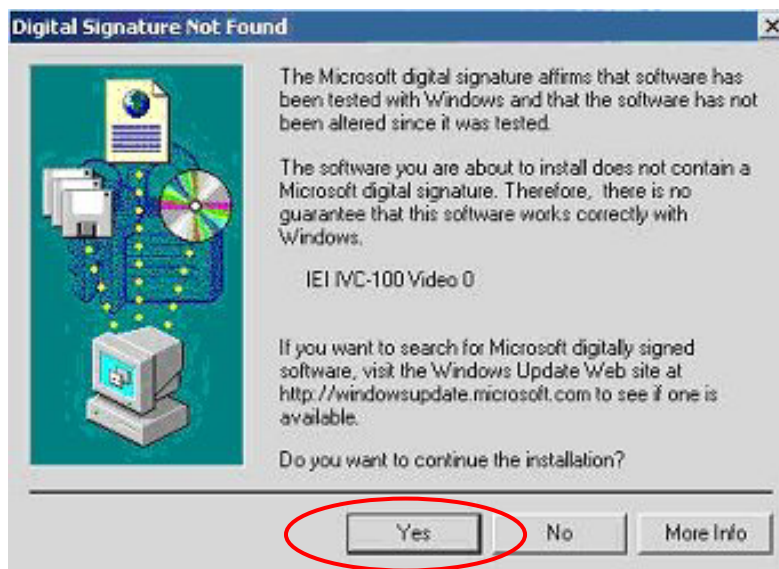
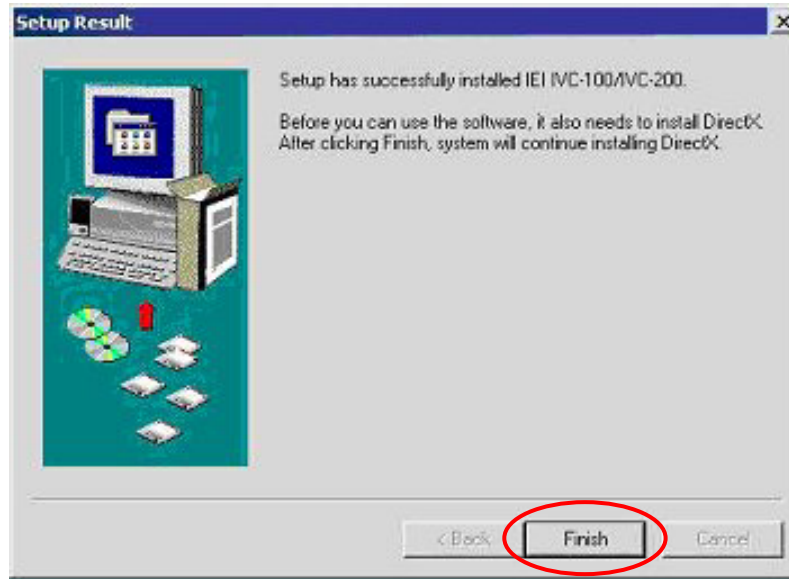 viii. There will be another window message to ask you to install an audio driver. Click Yes to continue.

ix. For multi-card system, you will be asked to install video and audio drivers for every card in your system.   Click Yes to continue the installation.

x. After the driver has been successfully installed, click Finish.

xi. Restart your computer when you finish installing DirectX.

⚠ You can also install a driver first before plugging the video capture card into the computer. After that, install DirectX and then shut down the computer. Adjust the jumper setting of the video capture card and plug the video capture card into the computer. Turn on the computer. The system will ask if you want to install audio and video drivers for each card. Click Yes to complete driver installation.
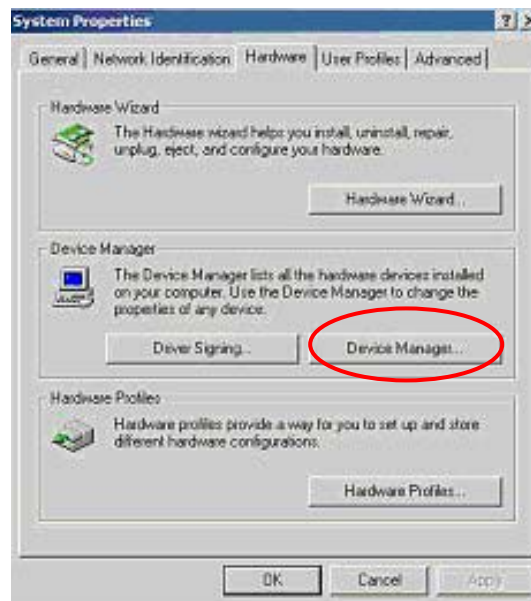
3.2 Check for Installed Driver

If you have any doubt about whether the driver is properly installed or not, follow the steps below:

1. Right click My Computer and click Properties.
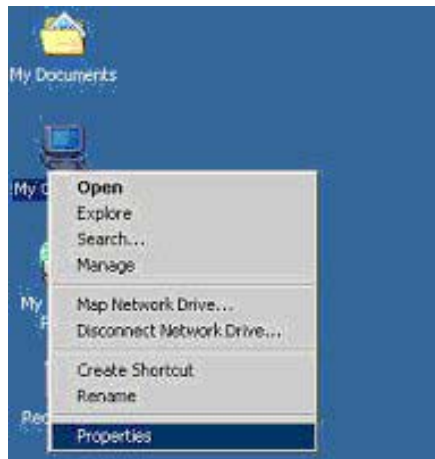
2. Choose Hardware.   Then click on Device Manager.

3. Double click the mark "Sound, video and game controllers". 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
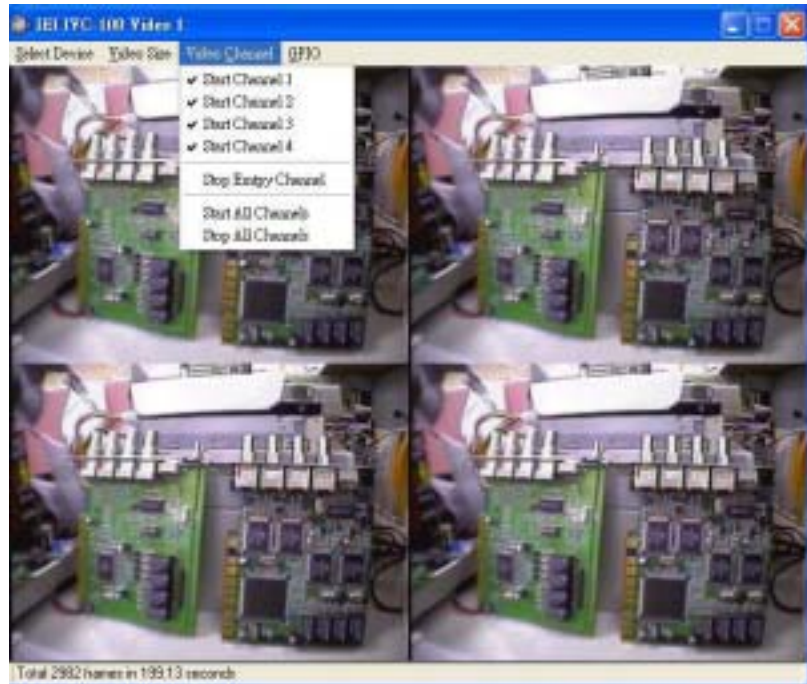
To preview a video image, follow the steps below:

i.   Double click Demo folder.

ii.   Double click ivc-100.exe.

iii.   Click Select Device to choose the video capture card.

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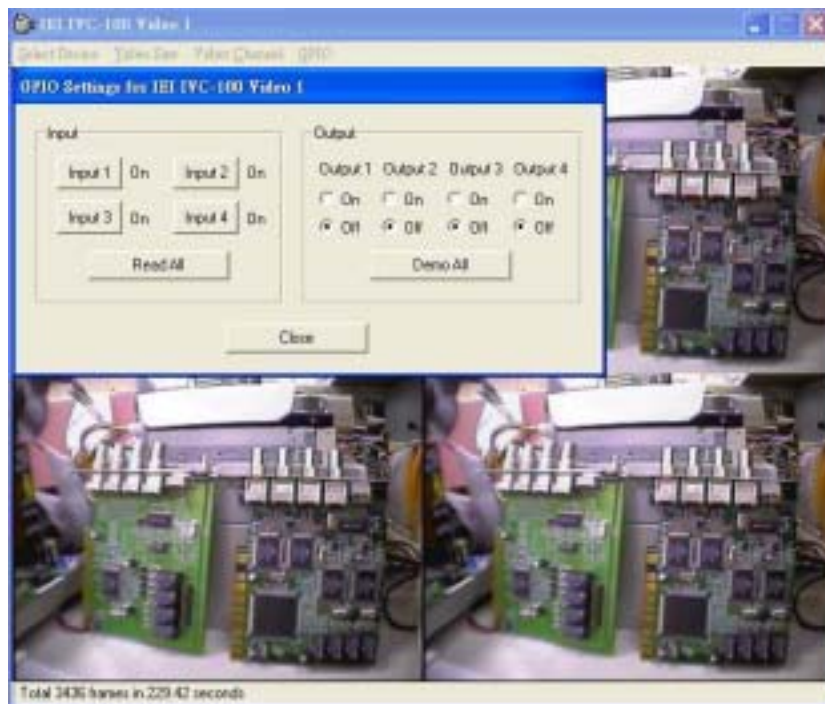are 160 x 120 and 320 x 240.

v. Click Video Channel to activate the video input channels.

⚠ Disable the channels without input signals. For example, if there is only one CCTV camera connected to Channel 1, users are recommended to enable that channel only and disable all the others in order to reach a high quality display image.

vi. Click GPIO to control the input/output devices.

4.2   Video Image Preview for IVC-200G/200

   i.   Double click "Demo" folder.

  ii.   Double click "ivc-200.exe".

 iii.   Click "Select Device" to choose the video capture card.

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

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

 vi.   Click "GPIO" to control the input/output devices

⚠️ Disable the channels without input signals.   For example, if there is only one CCTV camera connected to Channel 1, users are recommended to enable that channel only and disable all the others in order to reach a high quality display image.

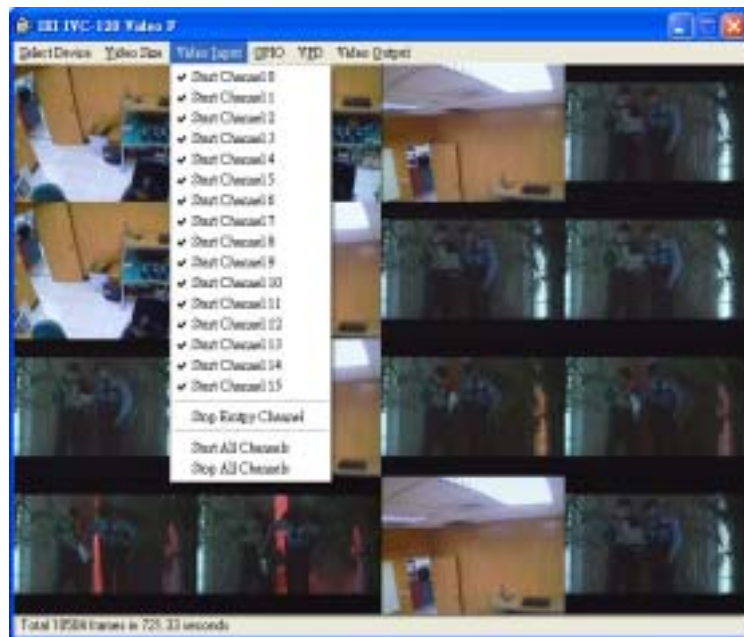## 4.3   Video Image Preview for IVC-120G/120

   i.   Double click Demo folder.

  ii.   Double click ivc-120.exe.

 iii.   Click Select Device to choose the video capture card.
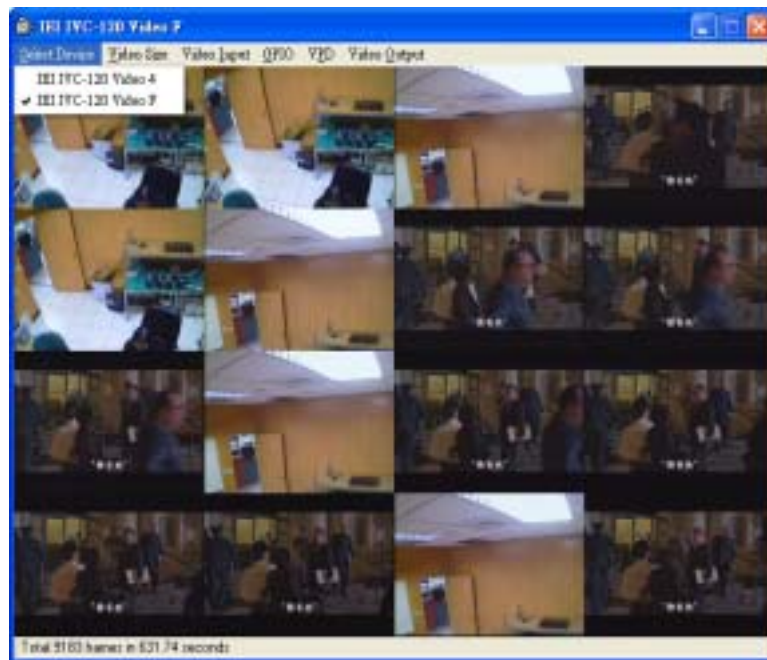
iv. Click Video Size to choose the resolution.   The available resolutions are 160 x 120 and 320 x 240.

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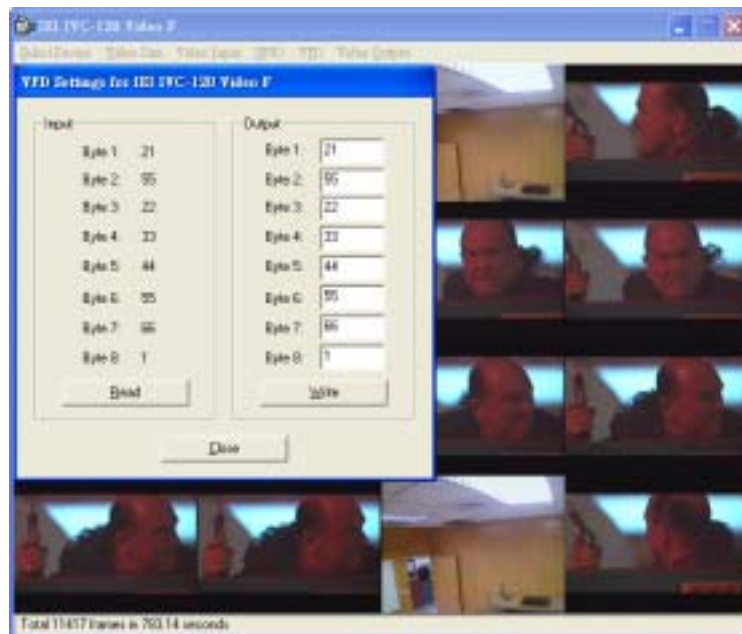

⚠ Disable the channels without input signals.   For example, if there is only one CCTV camera connected to Channel 1, users are recommended to enable that channel only and disable all the others in order to reach a high quality display image.
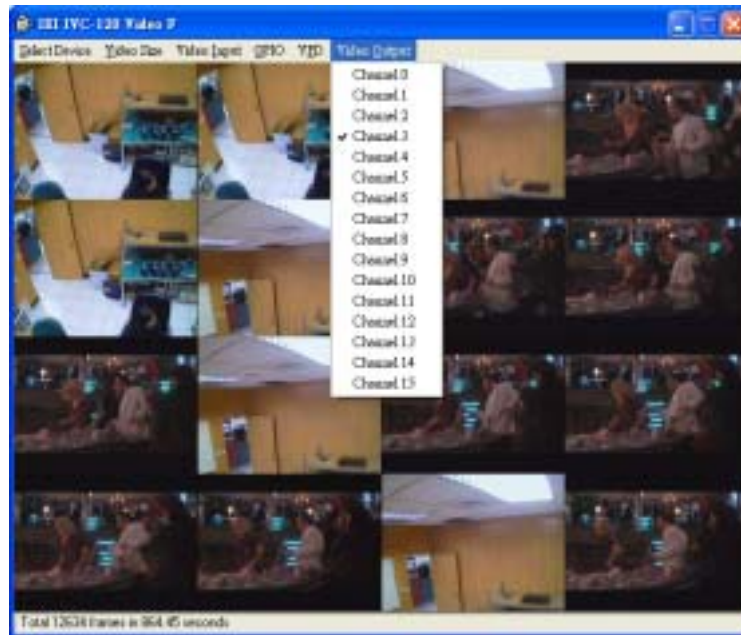
vi. Click GPIO to control the input/output devices.
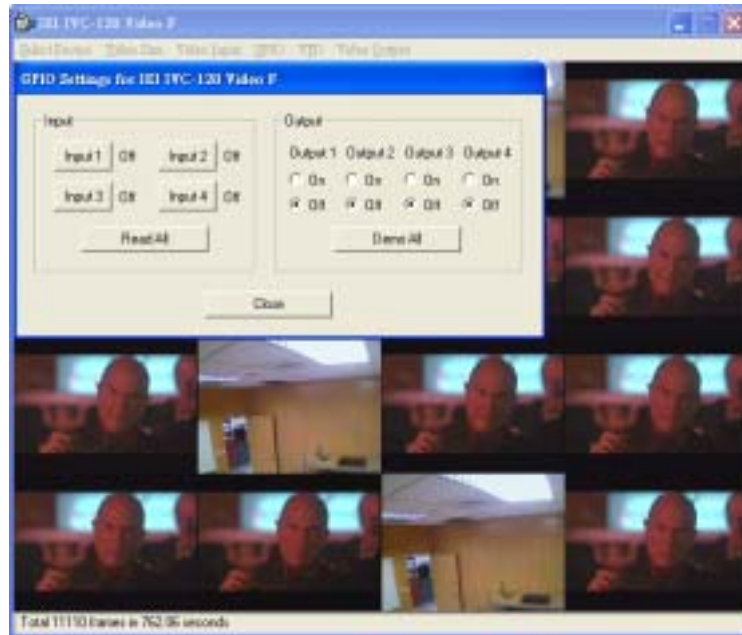
vii. Click VPD to view or edit the serial number for this card.

viii.   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
program of Microsoft for video capturing.

  i.   Open the folder Demo and double click amcap.exe.
 ii.   Click Devices to select the video capture card.
iii.   Click "Options and then Preview to view the captured image.
iv.   Click Video Crossbar then select the recording channel from the
       Input list.

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    v.   Click Capture then Start Capture.

   vi.   Set the directory and folder to save the captured file.   Then click OK to start recording the video image.

  vii.   Click Stop Capture to stop recording.

5. Uninstalling the Program

    i. Click Start then choose Settings and double click Control Panel.

   ii. Double click Add/Remove Programs.

  iii. Select the software of Video Capture Card and click Add/Remove.

  iv. Click Yes to uninstall the Video Capture Card software.

   v. Select "Restart my computer now" and click Finish.
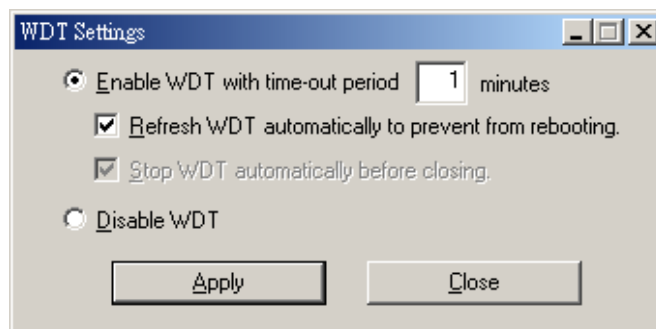
Appendix A: Watch Dog Function of IVC-200G-WDT

IVC-200G-WDT

Installing the Hardware

Connect to chassis's reset button

Connect to Reset Pin on the motherboard on the right.
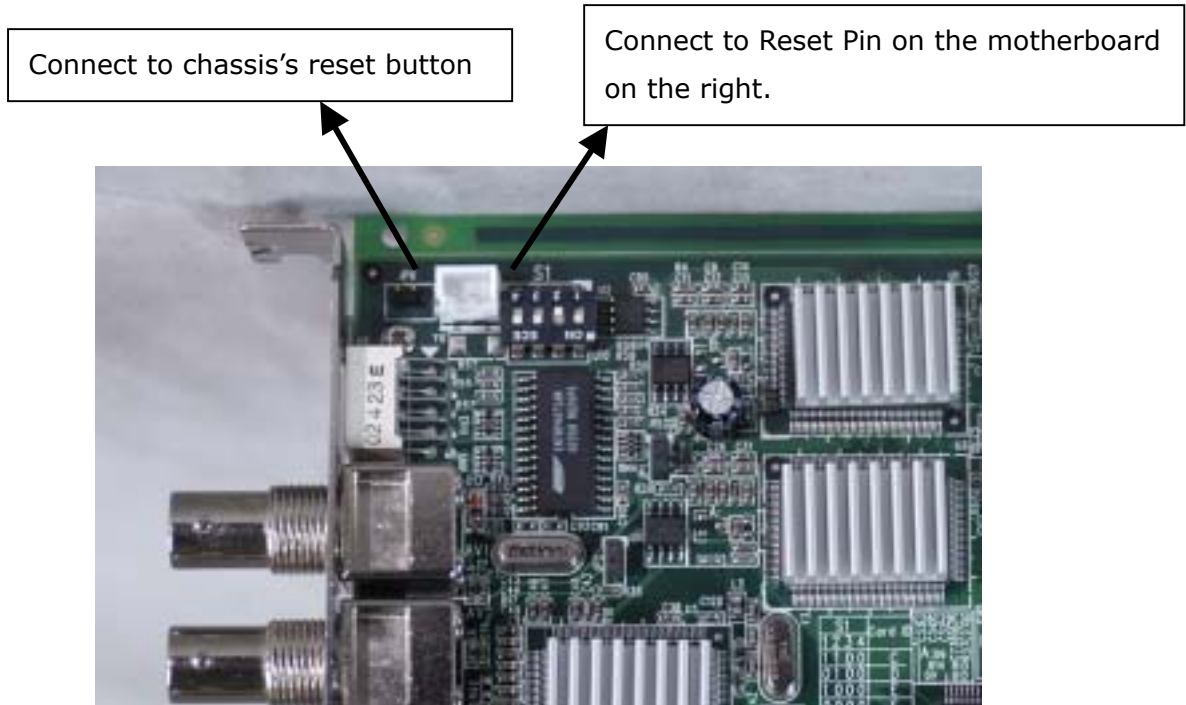
Instructions

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

- To enable the watchdog timer function, please select the option "Enable WDT with time-out period".

- When the option "Refresh WDT automatically to prevent from rebooting" is not selected as shown in the picture below, the system will reboot after one minute once you have applied the "Enable WDT with time-out period 1 minute" option.
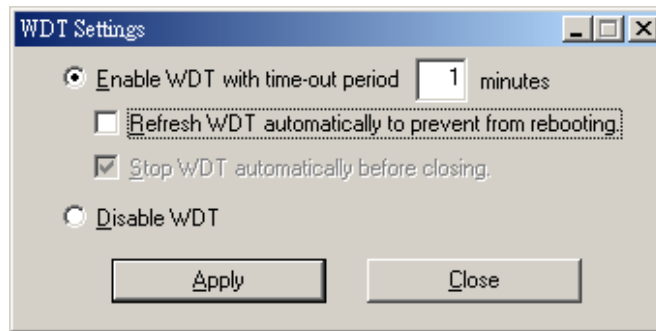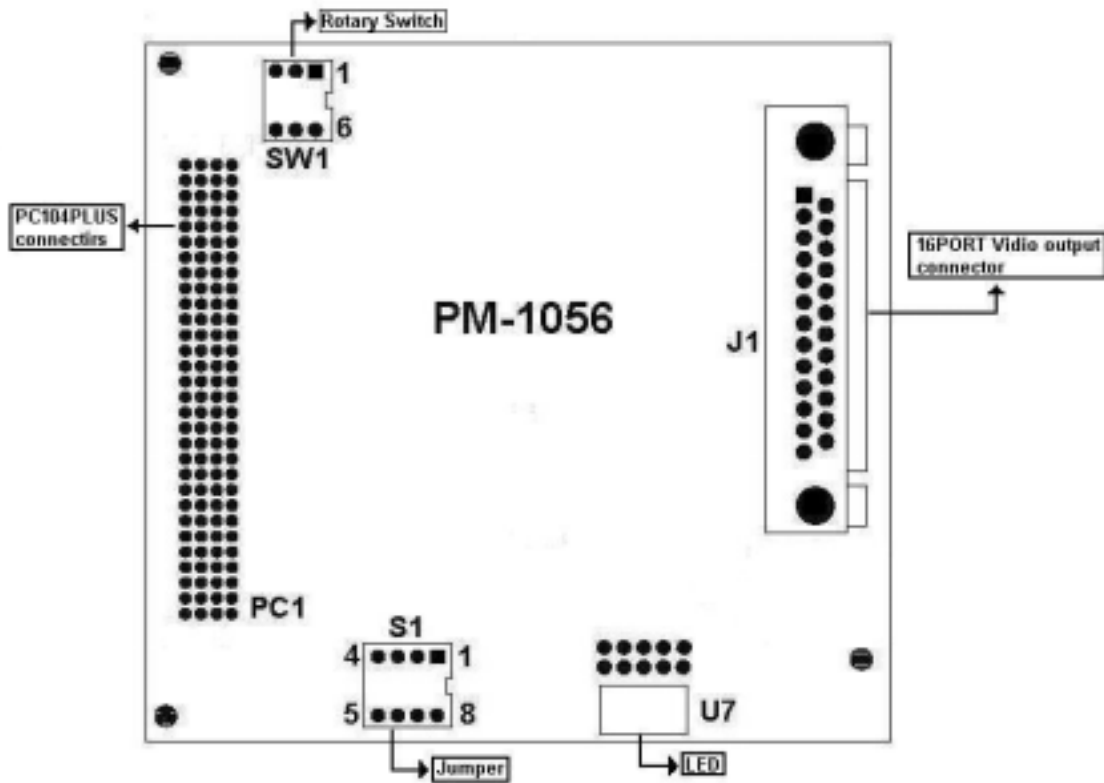

- The source code of wdt-demo.exe is included in the driver CD-ROM. Please refer to the source code for developing the watchdog function.
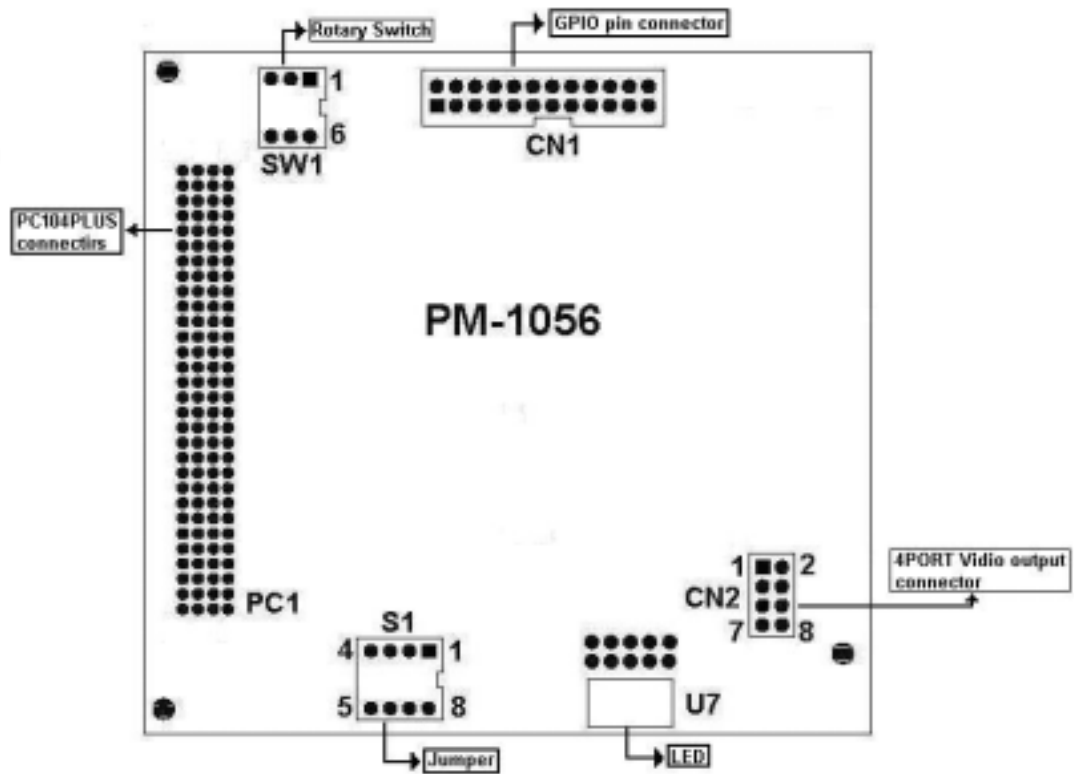
Appendix B: PM-1056 Hardware Diagrams

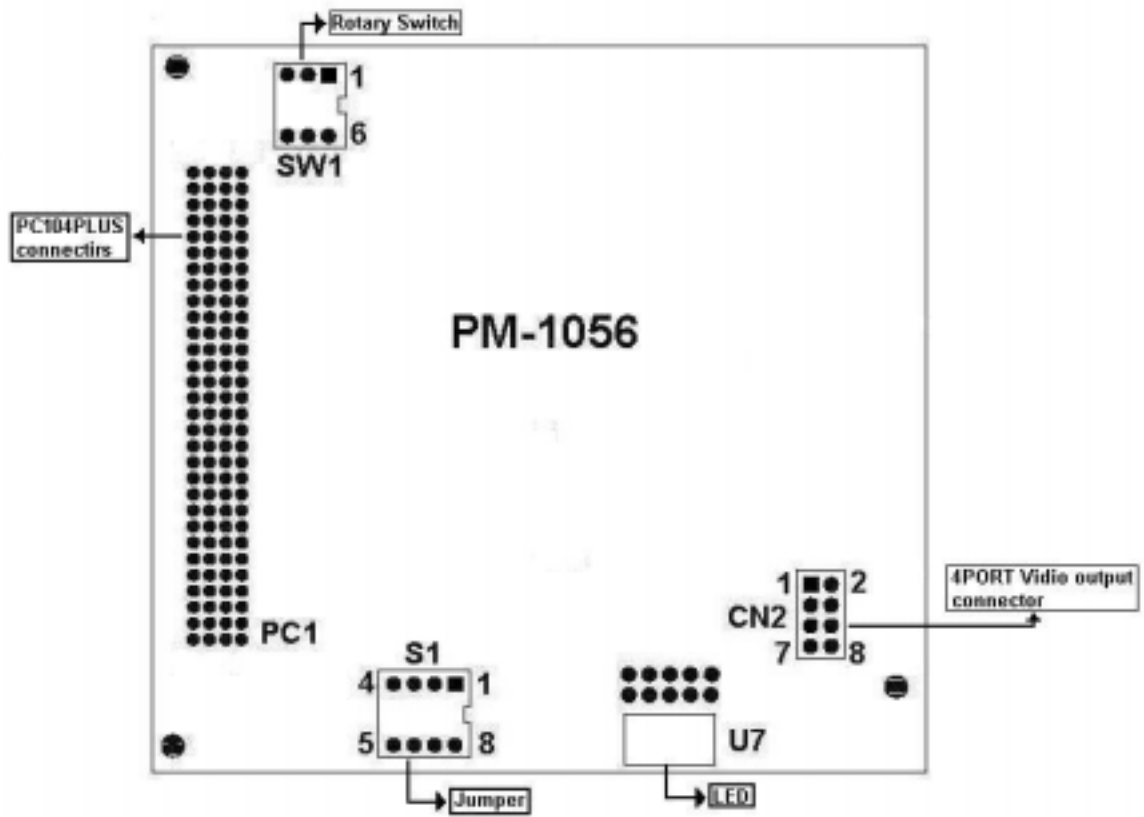**PM-1056-16PG**
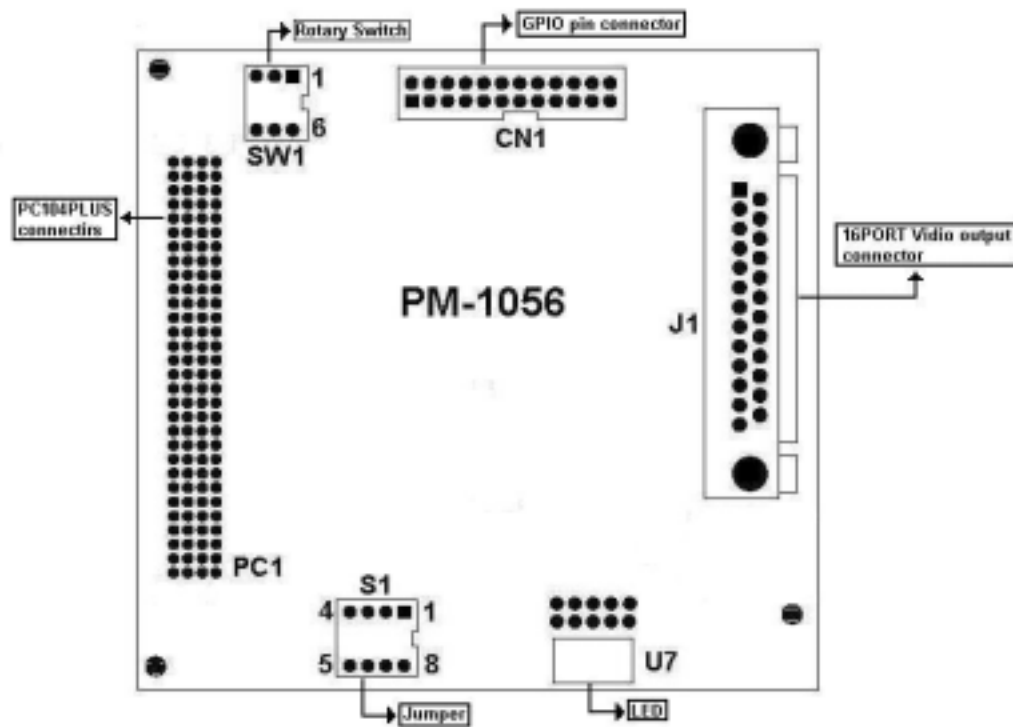
PM-1056-16P

PM-1056-4PG/4PGB

PM-1056-4P/4PB

The driver program and operation of PM-1056-16P/PG and IVC-120/G are the same. PM-1056-16P/PG is the interface of PC/104-PLUS.

The driver program and operation of PM-1056-4P/4PB/4PG/4PGB and IVC-100/G are the same.   PM-1056-4P/4PB/4PG/4PGB is the interface of PC/104-PLUS.

PCI Signal Grouping Selection

• SW1 (Rotary Switch): Group selection of PCI configuration for PC/104-PLUS modules

Group	SW1 Position
0	0, 4
1	1, 5
2	2, 6
3	3, 7

• Signal Grouping Description

Group	PCICLK	ID Address	INT0	INT1	REQ	GNT
0	PCICLK0	IDSEL0	INTA	INTB	REQ0	GNT0
1	PCICLK1	IDSEL1	INTB	INTC	REQ1	GNT1
2	PCICLK2	IDSEL2	INTC	INTD	REQ2	GNT2
3	PCICLK3	IDSEL3	INTD	INTA	REQ3*	GNT3*

Note: REQ3# and GNT#3 are not signals defined in PC/104-PLUS.
Do not use MODE3 if your card does not have these signals on PC/104-PLUS connector.