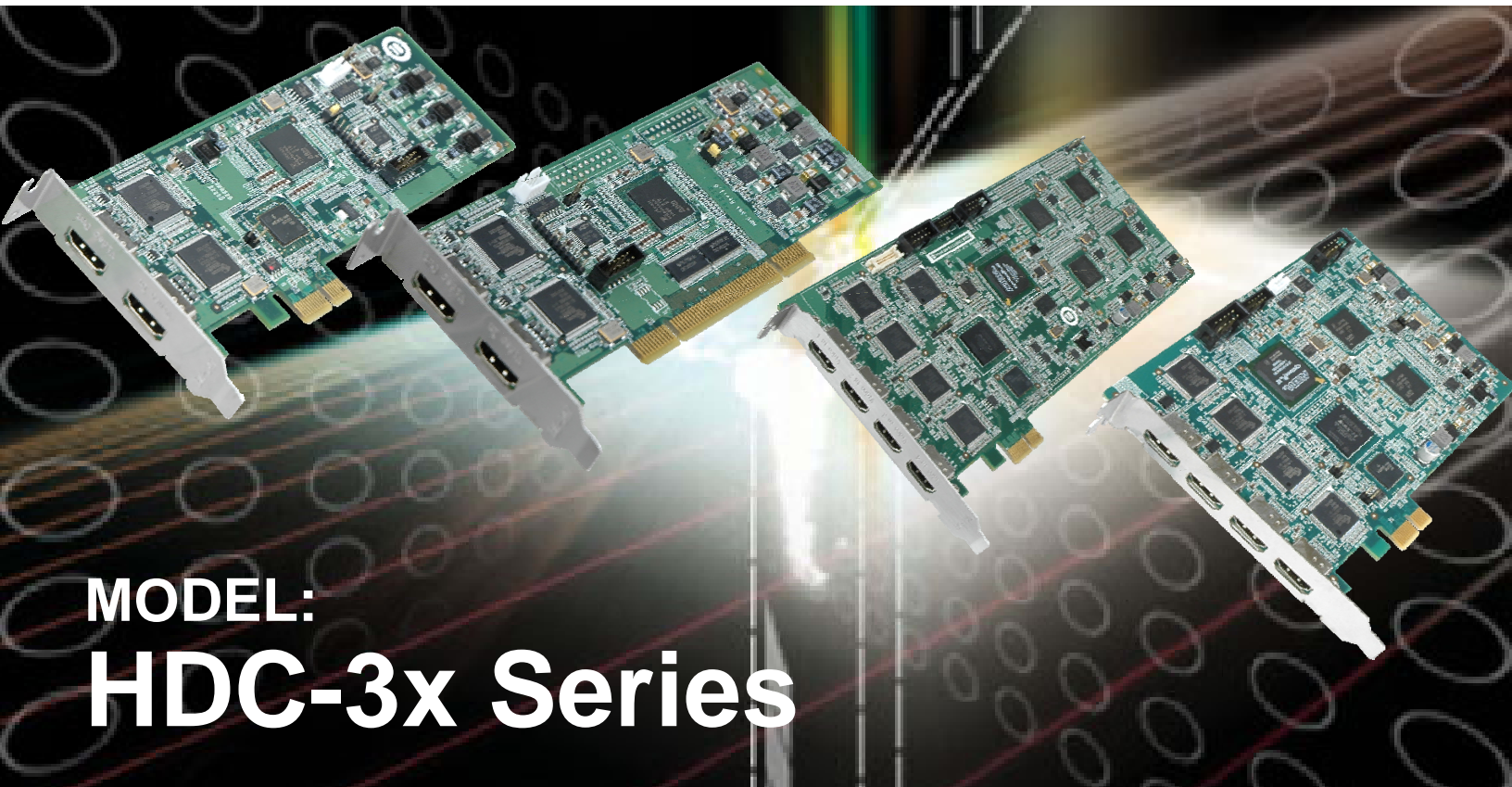




IEI Technology Corp.



MODEL: HDC-3x Series

Video/Audio Capture Card with
HDMI Input Channel, 1920x1080@60p,
and Hardware H.264 Codec

User Manual

Rev. 2.00 – 28 September, 2012



Revision

Date	Version	Changes
28 September, 2012	2.00	Updated for new software version v2.00
10 May, 2011	1.01	Added HDC-302E information
11 April, 2011	1.00	Initial release

Copyright

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

Table of Contents

1 INTRODUCTION.....	1
1.1 OVERVIEW.....	2
1.2 MODEL VARIATIONS	2
1.3 FEATURES.....	3
1.4 APPLICATIONS	3
1.5 CONNECTOR OVERVIEW	4
1.5.1 HDC-301.....	4
1.5.2 HDC-301E	4
1.5.3 HDC-302E	5
1.5.4 HDC-304E	5
1.6 SPECIFICATIONS	7
1.7 DIMENSIONS.....	9
1.7.1 HDC-301 Dimensions.....	9
1.7.2 HDC-301E Dimensions	10
1.7.3 HDC-302E Dimensions	11
1.7.4 HDC-304E Dimensions	12
2 HARDWARE INSTALLATION.....	13
2.1 UNPACKING.....	14
2.1.1 Anti-static Precautions.....	14
2.1.2 Unpacking Precautions.....	14
2.1.3 Unpacking Checklist.....	15
2.2 HARDWARE INSTALLATION PROCEDURE.....	16
2.3 VIDEO CAPTURE CARD INSTALLATION	16
2.4 INSTALL THE HDMI OUTPUT KIT (HDC-304E MODEL ONLY).....	17
2.4.1.1 HDC-304E HDMI Output Kit Connector (JR1).....	19
2.5 HDMI DEVICES INSTALLATION	20
3 DRIVER AND APPLICATION INSTALLATION (WINDOWS)	22
3.1 OVERVIEW.....	23
3.2 DRIVER INSTALLATION	24

HDC-3x Series Video Capture Card

3.2.1 Driver Installation in 64-bit Windows 7 OS.....	28
3.2.2 Uninstall Driver	31
3.3 SOFTWARE INSTALLATION (WINDOWS)	32
3.3.1 System Requirements.....	32
3.3.2 HDCapture Program Installation	33
4 HDCAPTURE APPLICATION (WINDOWS)	36
4.1 HDCAPTURE OVERVIEW	37
4.2 VIDEO CAPTURE.....	37
4.3 VIDEO DECODING	43
4.4 VIDEO BYPASS	45
4.5 UNINSTALL HDCAPTURE	47
4.6 FAQ	49
A HAZARDOUS MATERIALS DISCLOSURE	51
A.1 HAZARDOUS MATERIAL DISCLOSURE TABLE FOR IPB PRODUCTS CERTIFIED AS ROHS COMPLIANT UNDER 2002/95/EC WITHOUT MERCURY	52

List of Figures

Figure 1-1: HDC-3x Series Video Capture Card.....	2
Figure 1-2: HDC-301 Connector Overview	4
Figure 1-3: HDC-301E Connector Overview.....	5
Figure 1-4: HDC-302E Connector Overview.....	5
Figure 1-5: HDC-304E Connector Overview.....	6
Figure 1-6: HDC-301 Dimensions (mm).....	9
Figure 1-7: HDC-301E Dimensions (mm)	10
Figure 1-8: HDC-302E Dimensions (mm)	11
Figure 1-9: HDC-304E Dimensions (mm)	12
Figure 2-1: HDC-3x Series Installation	17
Figure 2-2: HDMI Output Kit Installation	18
Figure 2-3: HDC-304E and Display Connection.....	18
Figure 2-4: HDC-304E HDMI Output Kit Connector Location.....	20
Figure 2-5: HDMI Devices Connect to the Video Capture Card	21
Figure 3-1: Windows Security	24
Figure 3-2: Windows Warning Window	25
Figure 3-3: Device Driver Installation Wizard	25
Figure 3-4: Driver Installing	26
Figure 3-5: Driver Installation Complete	26
Figure 3-6: Device Manager.....	28
Figure 3-7: Disable Driver Signature Enforcement	29
Figure 3-8: Command Prompt – Driver Installation	30
Figure 3-9: Device Manager – 64-bit OS.....	31
Figure 3-10: HDCapture Setup Wizard.....	33
Figure 3-11: Select Installation Folder.....	34
Figure 3-12: Confirm Installation	34
Figure 3-13: Installation Complete.....	35
Figure 4-1: HDCapture	39
Figure 4-2: HDC-302E and HDC-304E Device Ports	40
Figure 4-3: Encoding Settings.....	41
Figure 4-4: Video Capture Control.....	42

HDC-3x Series Video Capture Card

Figure 4-5: Decoding Settings.....	43
Figure 4-6: Select Transmitter Bus for HDC-302E.....	44
Figure 4-7: Select Transmitter Bus for HDC-304E.....	45
Figure 4-8: Select Transmitter Device for HDC-302E.....	46
Figure 4-9: Select Transmitter Device for HDC-304E.....	46
Figure 4-10: Uninstall HDCapture	47
Figure 4-11: Uninstall HDCapture Confirmation Window.....	48

List of Tables

Table 1-1: HDC Video Capture Card Models	2
Table 1-2: Specifications	8
Table 2-1: Package List Contents	15
Table 2-2: HDC-304E HDMI Output Kit Connector Pinouts	19

Chapter

1

Introduction

1.1 Overview



Figure 1-1: HDC-3x Series Video Capture Card

The low power HDC-3x Series video capture card supports 1080p Full HD video via HDMI connection. The HDC-3x Series video capture card is equipped with the high-performing codec component with HDMI video input channels and either audio input channel.

A software development kit (SDK) is shipped with each card and the flexible system architecture simplifies the integration of cameras, video signal processing, storage and video management and or security applications.

1.2 Model Variations

There are three HDC-3x Series video capture card models with different connecting interfaces. These models are listed below:

Model Name	Interface	Video Input	Video Output
HDC-301	PCI	1 channel	1 channel
HDC-301E	PCIe	1 channel	1 channel
HDC-302E	PCIe	2 channels	2 channels
HDC-304E	PCIe	4 channels	1 channel via HDMI output kit

Table 1-1: HDC Video Capture Card Models

HDC-3x Series Video Capture Card

1.3 Features

Some of the HDC-3x Series video capture card features are listed below.

- Encoding or decoding up to 1920x1080@60p
- HDMI input channel with 1920x1080@60p (per channel)
- Pass through for transmitting uncompressed video up to 1080p resolution.
- Capture or record HD video in H.264 format
- Playback the recordings on HDMI monitor or television
- Reduce the amount of hard disk space needed by real-time H.264 recording compression capability
- Low power consumption
- Software development kit (SDK)

1.4 Applications

Some possible applications include:

- Video game
- DVD/Blue-ray player,
- Camcorder
- Video surveillance
- Video analyzer
- Video post production

1.5 Connector Overview

The following section introduce the three models of the HDC-3x Series.



NOTE:

The other connectors, jumpers and interfaces on the board not specified below are for R&D diagnostic purposes and should not be used by the end user.

1.5.1 HDC-301

The HDC-301 comes with one HDMI input connector. A PCI edge connector on the bottom of the capture card enables the HDC-301 to interface with a motherboard.

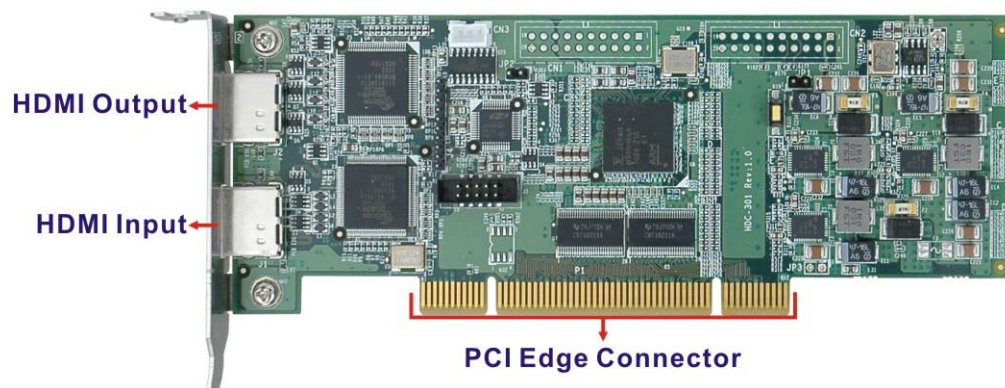


Figure 1-2: HDC-301 Connector Overview

1.5.2 HDC-301E

The HDC-301E comes with one HDMI input connector. A PCIe edge connector on the bottom of the capture card enables the HDC-301E to interface with a motherboard.

HDC-3x Series Video Capture Card

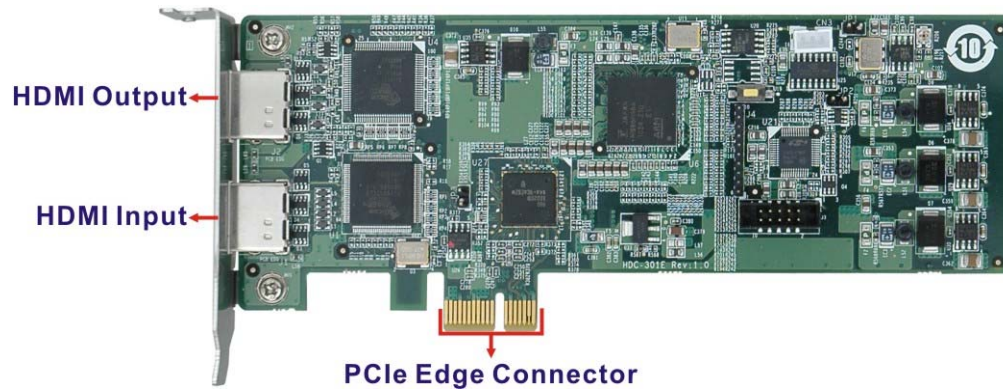


Figure 1-3: HDC-301E Connector Overview

1.5.3 HDC-302E

The HDC-302E comes with two HDMI input connectors. A PCIe edge connector on the bottom of the capture card enables the HDC-302E to interface with a motherboard.

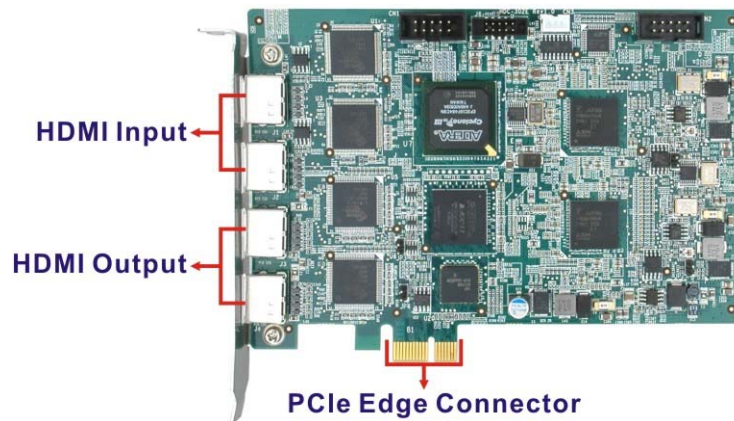


Figure 1-4: HDC-302E Connector Overview

1.5.4 HDC-304E

The HDC-304E comes with four HDMI input connectors and one HDMI output kit connector that provides an HDMI output port. A PCIe edge connector on the bottom of the capture card enables the HDC-304E to interface with a motherboard.

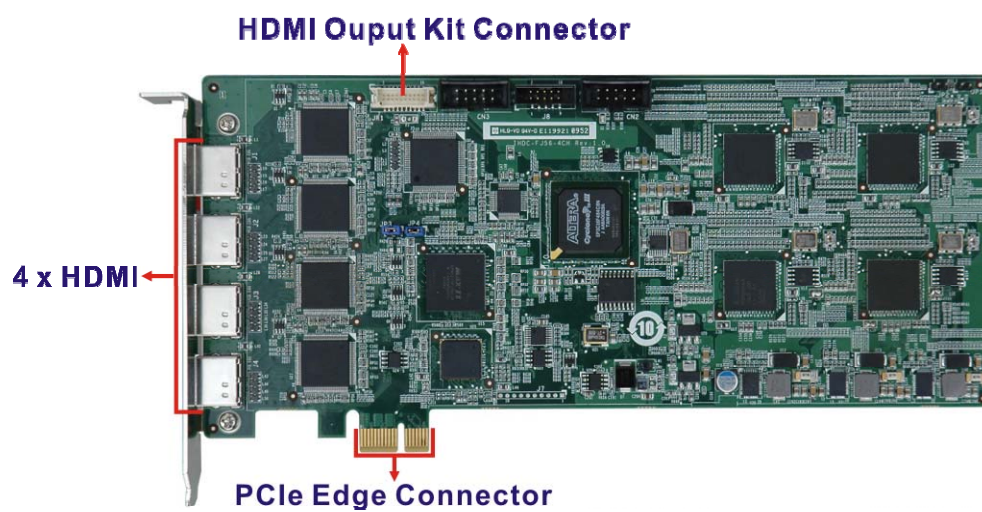


Figure 1-5: HDC-304E Connector Overview

HDC-3x Series Video Capture Card

1.6 Specifications

The HDC-3x Series specifications are listed in the table below:

	HDC-301	HDC-301E	HDC-302E	HDC-304E
Video Input Channels	One	One	Two	Four
Video Input Type	HDMI	HDMI	HDMI	HDMI
Audio Input Channels	One	One	Two	Four
Audio Input Type	HDMI	HDMI	HDMI	HDMI
Video Output Channel	One	One	Two	One via video output kit
Interface	PCI	PCIe x1	PCIe x1	PCIe x1
VIDEO PROCESSING				
Video Engine	H.264/AVC High Profile Level 4.2			
Resolution	1920 x 1080 60p/59.94p/50p 1920 x 1080 60i/59.94i/50i 1280 x 720 60p/59.94p/50p 720 x 576 50i 720 x 480 60i/59.94i			
AUDIO PROCESSING				
Audio Format	MPEG-1 Audio Layer 2			
Bit Rate	256 kbps			
FUNCTIONALITY				
HDCP Compatibility	Yes			
SYSTEM REQUIREMENTS				
System	Windows: Microsoft Windows XP Service Pack2 (SP2) (32-bit version) Microsoft Windows 7 32-bit Microsoft Windows 7 64-bit (not supported by the HDC-301/301E series) Microsoft DirectX 9.0c Microsoft .NET Framework 3.0/3.5/4.0			

	HDC-301	HDC-301E	HDC-302E	HDC-304E
	Win7DSFilterTweaker tool (for Windows 7 OS only) Visual C++ 2005 & 2008 Redistributable Linux: Fedora 16 (Kernel 3.1.0)			
SOFTWARE SUPPORT				
Device Driver	Driver for Windows XP, Windows 7 (32-bit/64-bit) and Linux Fedora 16			
SDK	SDK provided with demo program and sample source code Windows: Provide SDK and demo program with sample source code in C# Linux: Provide SDK and driver/demo program with sample source code in C			
OTHERS				
Dimensions (WxH) (mm)	167.7 x 64.4	167.6 x 68.9	155 x 106.7	230 x 106.7
Operating Temperature	0°C – 65°C (32°F - 149°F), non-condensing			
Power Consumption	5.29 W	6.07 W	9.53 W	12.7 W
	5 V@0.73 A	12 V@0.3 A	12 V@0.46 A	12 V@0.61 A
	3.3 V@0.49 A	3.3 V@0.72 A	3.3 V@1.21 A	3.3 V@1.63 A

Table 1-2: Specifications

HDC-3x Series Video Capture Card

1.7 Dimensions

The dimensions for the HDC-3x Series are listed in the following sections.

1.7.1 HDC-301 Dimensions

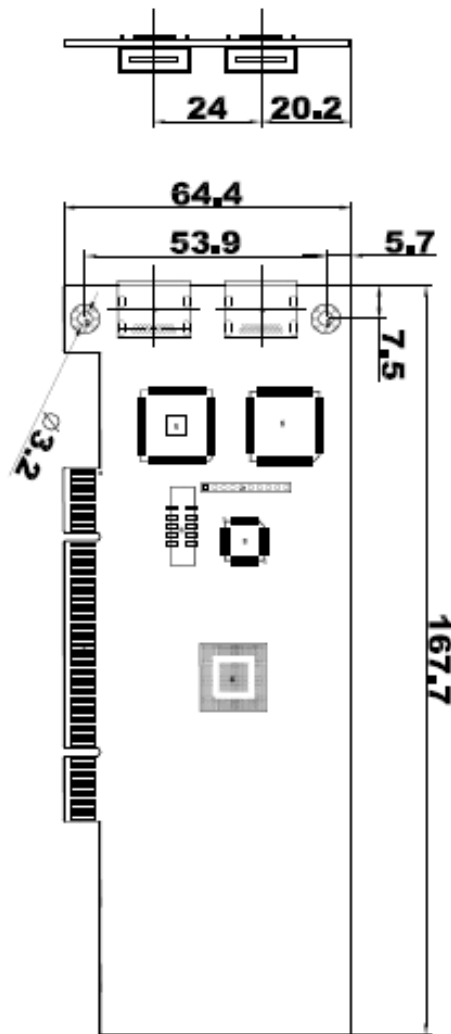


Figure 1-6: HDC-301 Dimensions (mm)

1.7.2 HDC-301E Dimensions

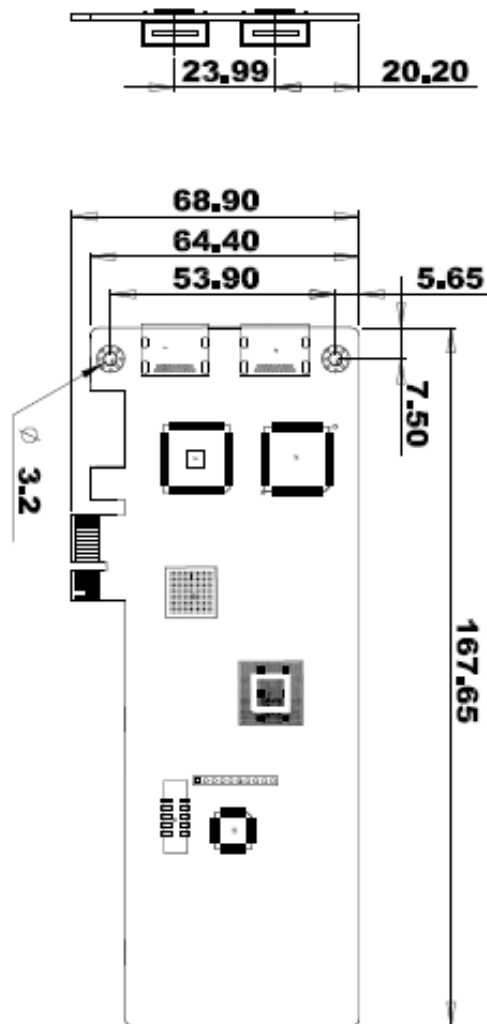


Figure 1-7: HDC-301E Dimensions (mm)

HDC-3x Series Video Capture Card

1.7.3 HDC-302E Dimensions

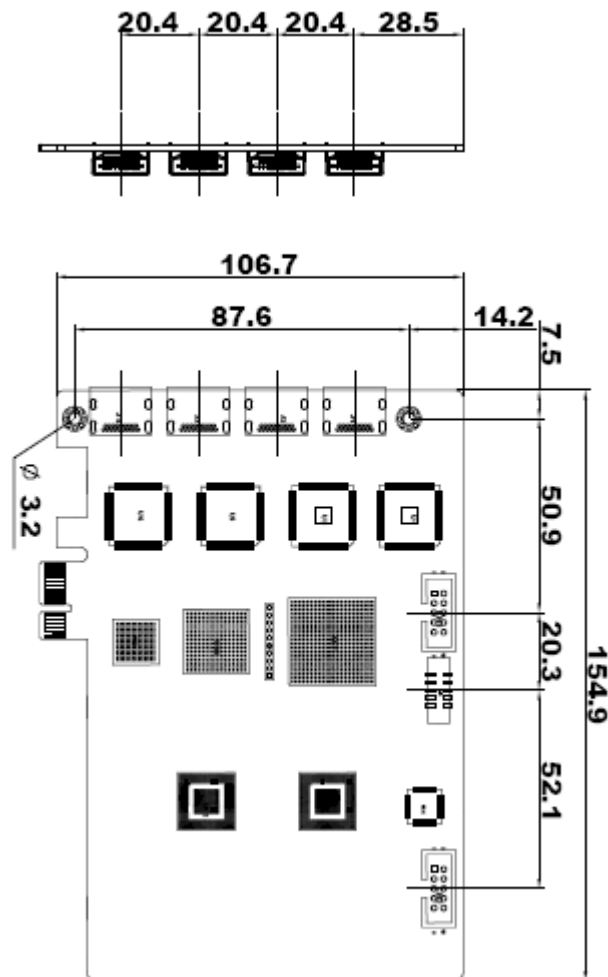


Figure 1-8: HDC-302E Dimensions (mm)

1.7.4 HDC-304E Dimensions

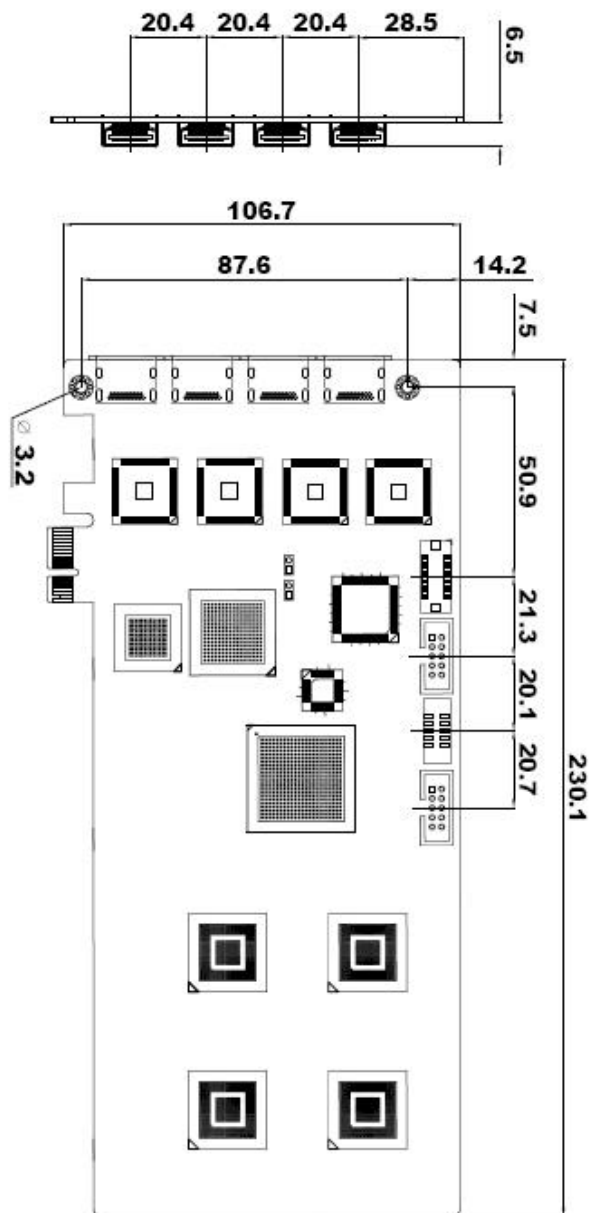


Figure 1-9: HDC-304E Dimensions (mm)

Chapter

2

Hardware Installation

2.1 Unpacking

2.1.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the video capture card may result in permanent damage to the capture card and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the video capture card. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the video capture card, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the video capture card, place it on an anti-static pad. This reduces the possibility of ESD damaging the video capture card.
- ***Only handle the edges of the PCB:-*** When handling the PCB, hold the PCB by the edges.

2.1.2 Unpacking Precautions

When the video capture card is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1.1**.
- Make sure the packing box is facing upwards so the video capture card does not fall out of the box.
- Make sure all the components listed in **Section 2.1.3** are present.

HDC-3x Series Video Capture Card

2.1.3 Unpacking Checklist



NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the video capture card from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The video capture card is shipped with the following components:






Quantity	Item	Image
1	HDC-3x Series video capture card	
1	HDMI output kit (HDC-304E only)	
1	Low profile bracket (HDC-301 and HDC-301E only)	
1	Utility CD	
1	Quick installation guide	

Table 2-1: Package List Contents

2.2 Hardware Installation Procedure

To install the video capture card hardware, the following steps must be followed:

- Step 1:** Install the video capture card.
- Step 2:** Install the HDMI output kit (HDC-304E model only)
- Step 3:** Install the HDMI source equipment.

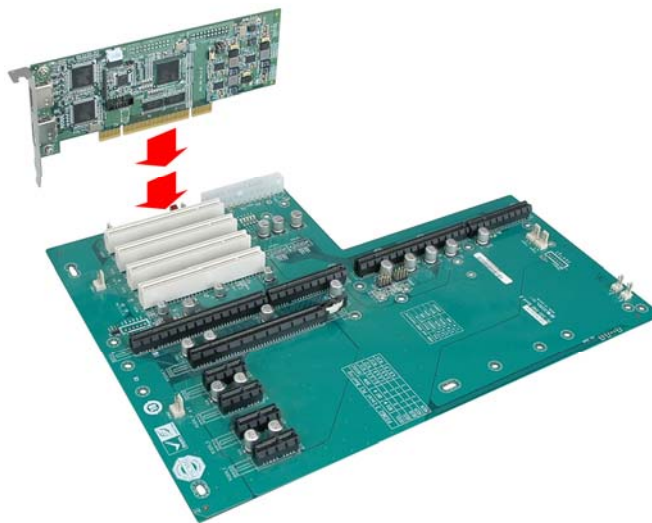
Once the steps above have been completed, the hardware installation procedures are complete.

2.3 Video Capture Card Installation

The HDC-3x Series video capture card has either a PCIe x1 or a PCI interface. To install the HDC-3x Series, please follow the steps below:

- Step 1:** Align the PCIe/PCI edge connector on the bottom of the video capture card with the PCIe x1 or PCI slot on the system motherboard.
- Step 2:** Gently insert the video capture card into the PCIe x1 or PCI slot.
- Step 3:** Push down gently on the video card to make sure it is firmly inserted into the PCIe x1 or PCI slot.

HDC-301



HDC-3x Series Video Capture Card

HDC-301E, HDC-302E & HDC-304E

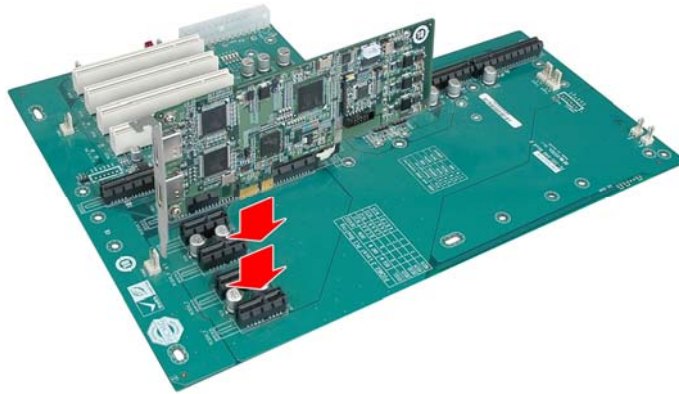


Figure 2-1: HDC-3x Series Installation

Step 4: Insert a retention screw through the top of the video capture card external bracket into the chassis to secure the card to the chassis.

2.4 Install the HDMI Output Kit (HDC-304E Model Only)

The HDC-304E video card is shipped with an HDMI output kit in order to view the decode video or bypass video on the HDMI display. To install the HDMI output kit please follow the instructions below.

Step 1: Locate the HDMI output connector on the HDC-304E video capture card.

Step 2: Align the cable connector from the HDMI output kit with the HDMI output connector on the HDC-304E.

Step 3: Push the cable connector onto the HDMI output connector making sure the pins are correctly aligned.

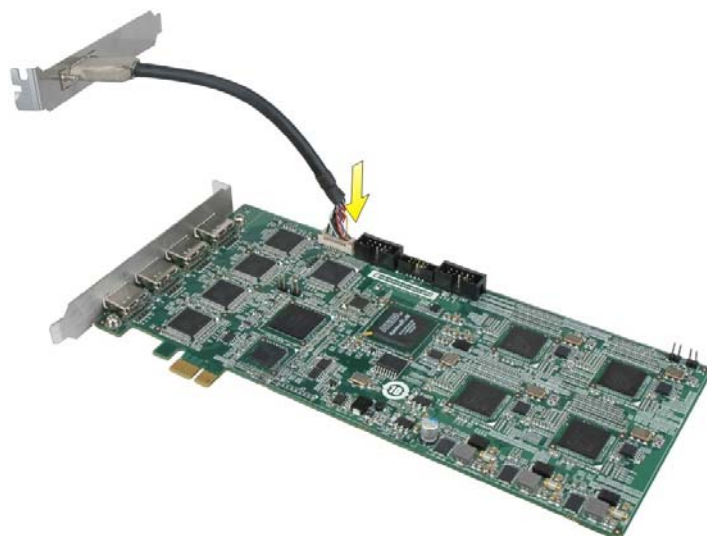


Figure 2-2: HDMI Output Kit Installation

Step 4: Secure the HDMI port bracket to the system chassis.

Step 5: Connect the HDMI cable (not included) from the HDMI output kit to the HDMI display.

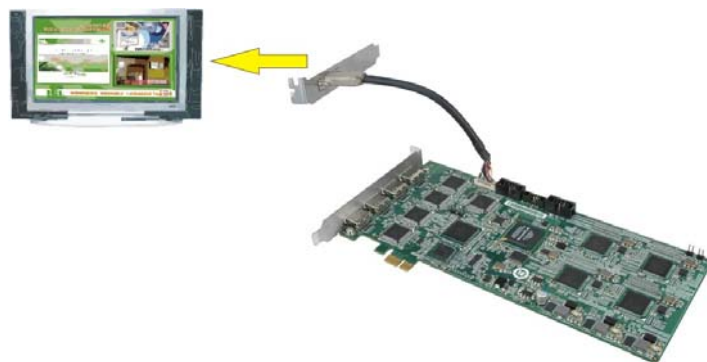


Figure 2-3: HDC-304E and Display Connection



NOTE:

The HDC-301 and HDC-301E models have one HDMI output port on the external peripheral IO panel. There is no need for these two models to install the HDMI output kit to enable the HDMI output connection.

2.4.1.1 HDC-304E HDMI Output Kit Connector (JR1)

The HDMI output kit connector connects to the HDMI output kit cable that provides an HDMI output port. Pinouts for the connector are shown in **Table 2-2**.

Pin No.	Description	Pin No.	Description
1	HDMI_OUT_TX2+	11	GROUND
2	GROUND	12	HDMI_OUT_TXC-
3	HDMI_OUT_TX2-	13	N/A
4	HDMI_OUT_TX1+	14	N/A
5	GROUND	15	HDMI_OUT_DCLK
6	HDMI_OUT_TX1-	16	HDMI_OUT_DSDA
7	HDMI_OUT_TX0+	17	GROUND
8	GROUND	18	VCC_5V
9	HDMI_OUT_TX0-	19	HDMI_OUT_HPD
10	HDMI_OUT_TXC+	20	N/A

Table 2-2: HDC-304E HDMI Output Kit Connector Pinouts

Figure 2-4 shows the location of the HDMI output kit connector.

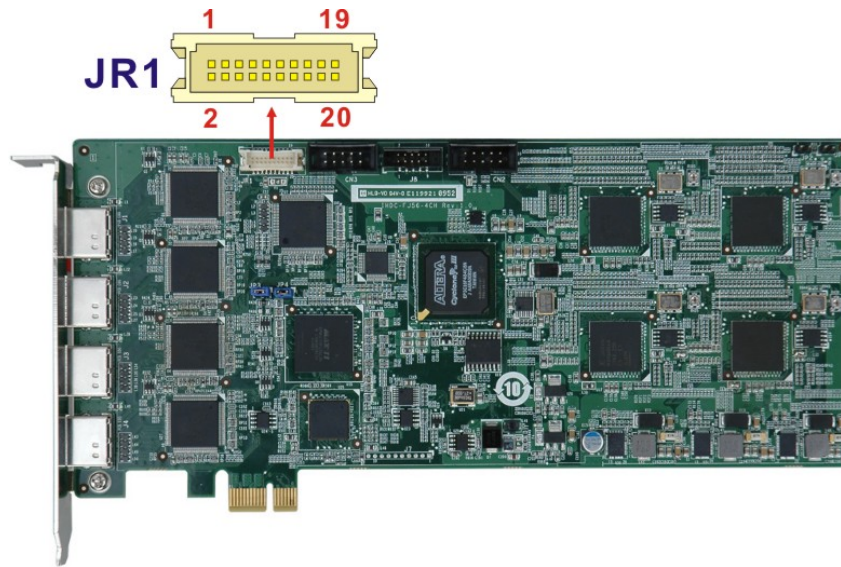


Figure 2-4: HDC-304E HDMI Output Kit Connector Location

2.5 HDMI Devices Installation

Various HDMI devices can be connected to the HDC-3x Series. Video input and video output are all supported. Follow the steps below to connect the HDMI devices to the HDC-3x Series.

- Step 1:** Insert the HDMI connector from the cable into the HDMI input connector on the HDC-3x Series. Make sure the connection is secure.
- Step 2:** Insert the HDMI connector of the other end of the cable into the HDMI connector on the HDMI device. Make sure the connection is secure.
- Step 3:** **This step is only required for the HDC-302E and HDC-304E.** Repeat the steps above until all HDMI devices are connected.
- Step 4:** Use another HDMI cable to connect the HDMI connector of the HDMI display device to the HDMI output connector on the board or on the HDMI output kit (HDC-304E).

HDC-3x Series Video Capture Card

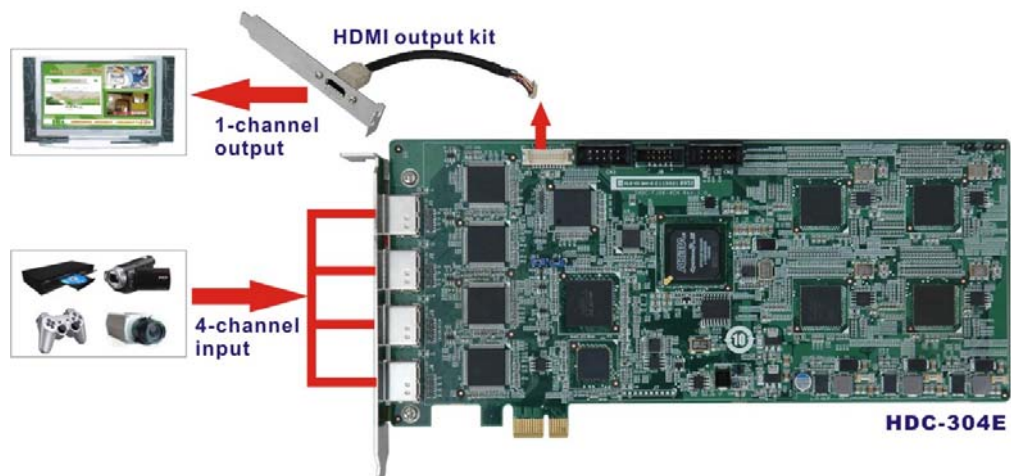
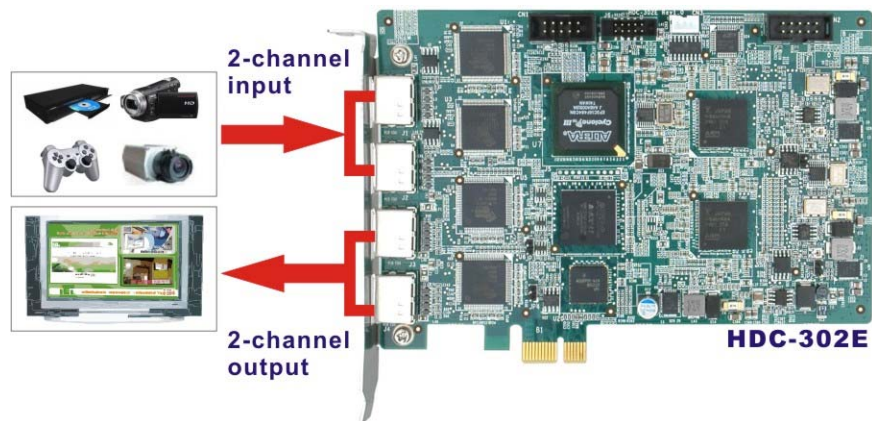


Figure 2-5: HDMI Devices Connect to the Video Capture Card

Chapter

3

Driver and Application Installation (Windows)

HDC-3x Series Video Capture Card

3.1 Overview

A CD is shipped with the video capture card. The CD contains a driver for the video capture controllers on the card. When the video capture card is installed on the system, the driver must be installed. Failure to install the driver means that that video capture card cannot be detected by the system.



NOTE:

The Found New Hardware Wizard will automatically start when the system detects the video capture card (see the image below). Click **Cancel** to exit the wizard and follow the steps described in this chapter to install the driver and the HDCapture demo program.



3.2 Driver Installation

To install the HDC-3x Series driver, please follow the steps below: If the HDC-3x Series driver is already installed, please refer to **Section 3.2.1** to uninstall the driver first.



NOTE:

If the **User Access Control** dialog box appears during installation, click **Yes** to continue.

Step 1: Make sure to log in the system as the administrator.

Step 2: Insert the driver CD.

Step 3: Locate the “Driverinstaller.bat” file in the driver CD. Double click it.

Step 4: A confirmation window appears. Click **Install**.

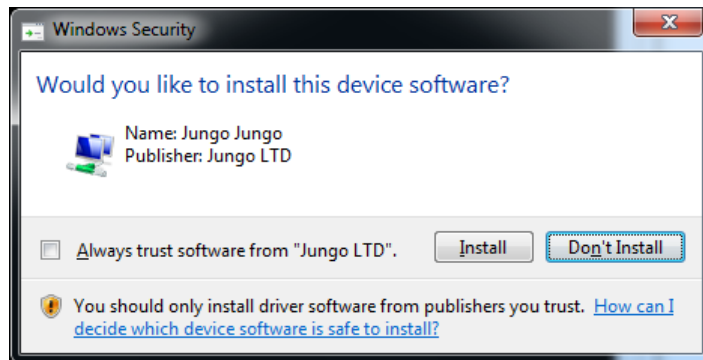


Figure 3-1: Windows Security

Step 5: If the following window appears, click **Install this driver software Anyway**.

HDC-3x Series Video Capture Card

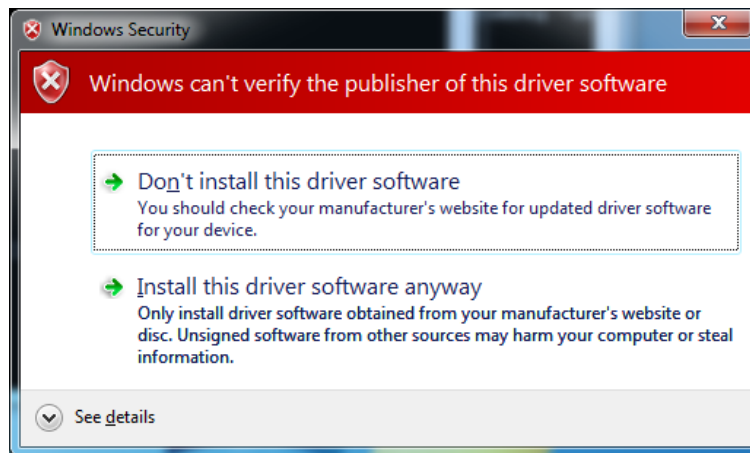


Figure 3-2: Windows Warning Window

Step 6: The Device Driver Installation Wizard appears. Click **Next** to start.

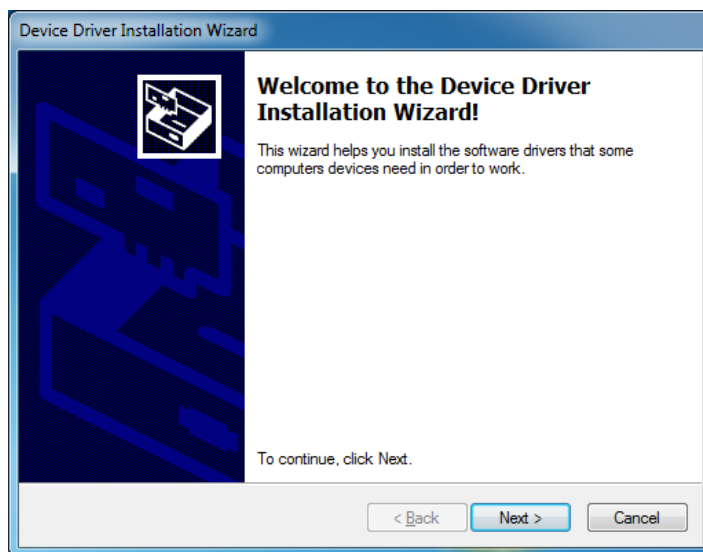


Figure 3-3: Device Driver Installation Wizard

Step 7: The driver starts to install and the screen in **Figure 3-4** appears.

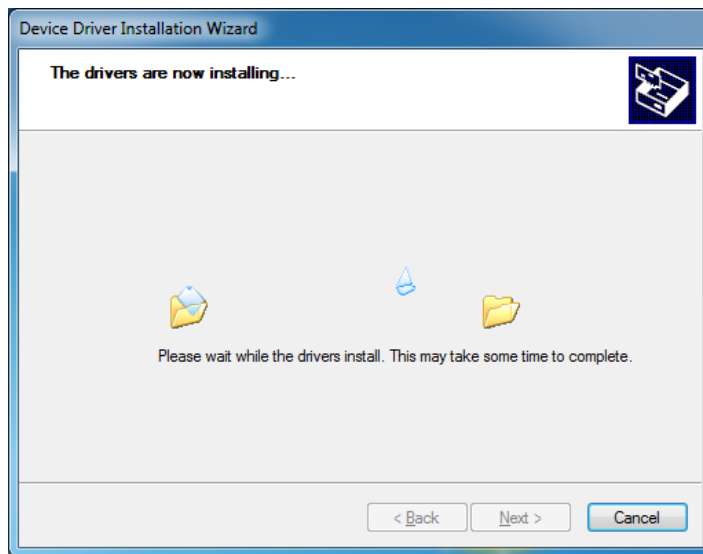


Figure 3-4: Driver Installing

Step 8: When the driver installation is complete, the screen in **Figure 3-5** appears. Click the **Finish** button to finish driver installation.

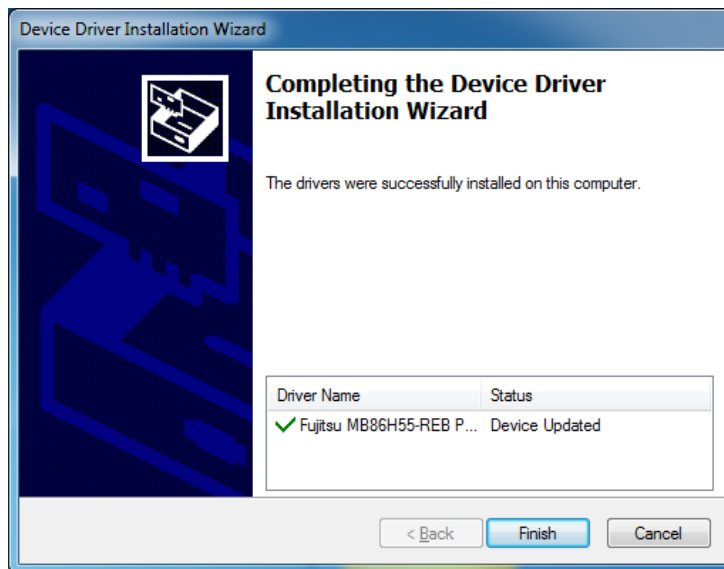
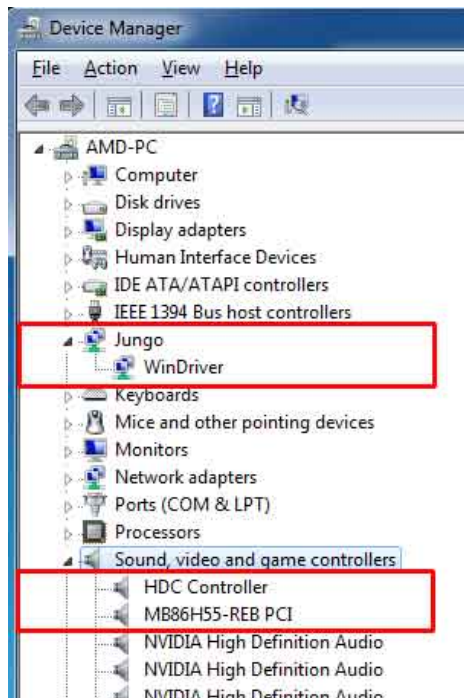


Figure 3-5: Driver Installation Complete

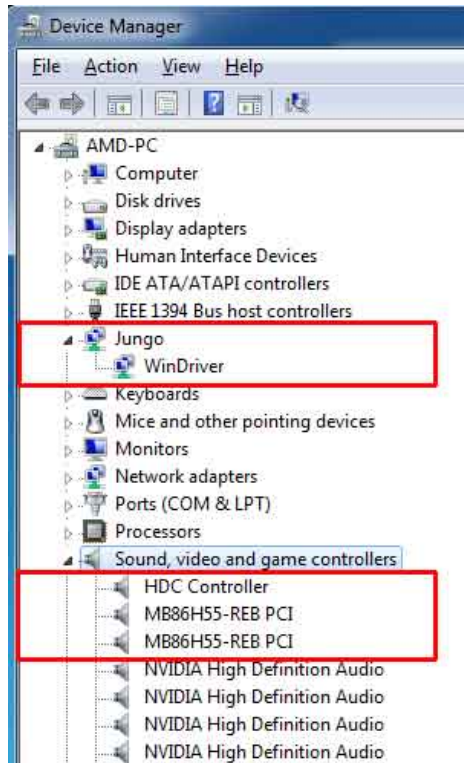
Step 9: Check the device manager in the Windows control panel to ensure the driver (MB86H55-REB PCI, HDC controller and WinDriver) has been properly installed. The installed driver is slightly different on different models. See **Figure 3-6** for the details.

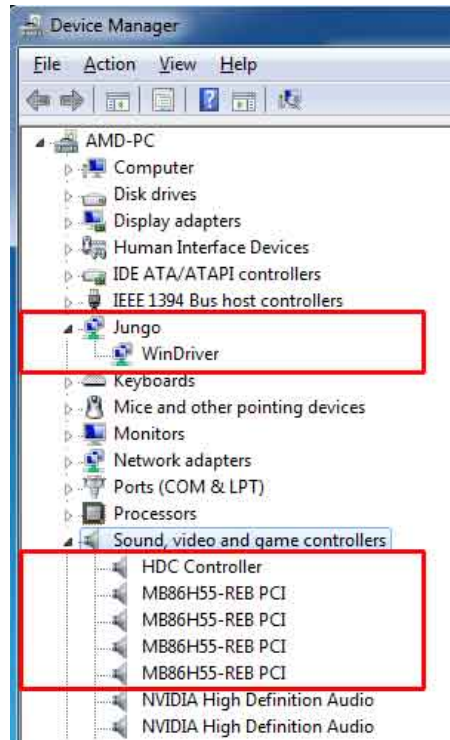
HDC-3x Series Video Capture Card

HDC-301 and HDC-301E



HDC-302E



HDC-304E

Figure 3-6: Device Manager
3.2.1 Driver Installation in 64-bit Windows 7 OS

NOTE:

The HDC-301/301E series does not support Windows 7 64-bit operating system. Please install the HDC-301/301E series in a system with other OS, such as Windows 7 32-bit.

To install the driver in a 64-bit Windows 7 operating system, please do the followings:

- Step 1:** When the system is booting, press **F8** to enter the Advanced Boot Options menu.
Choose **“Disable Driver Signature Enforcement”** and press **Enter**.

HDC-3x Series Video Capture Card

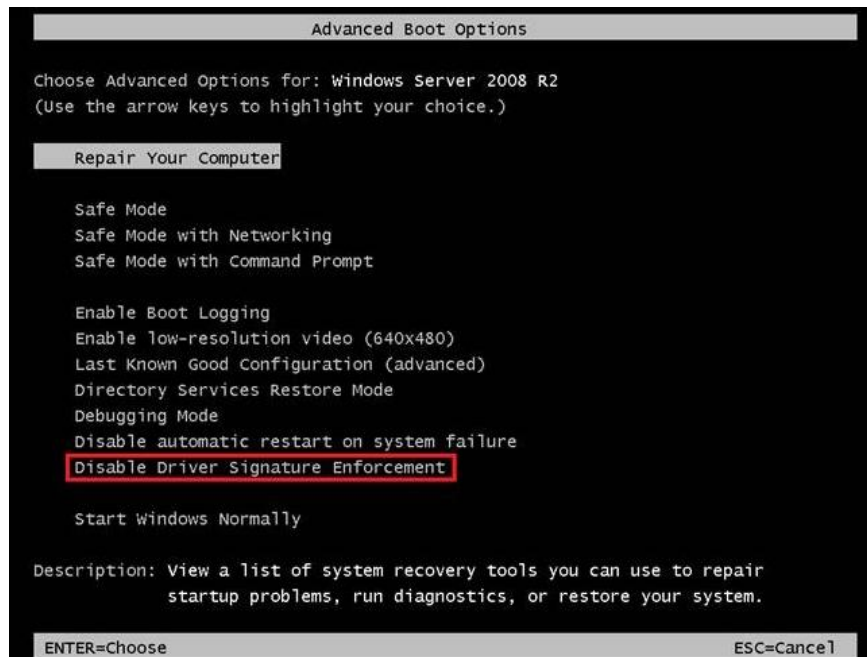


Figure 3-7: Disable Driver Signature Enforcement

- Step 2:** Make sure to log in the system as the administrator.
- Step 3:** Insert the driver CD.
- Step 4:** Launch the Command Prompt application in Windows 7 as an administrator (right click the Command Prompt and select "Run as administrator").
- Step 5:** In the Command Prompt window, specify the 64-bit driver directory. Then, type **DriverInstaller** to install the driver to the system.

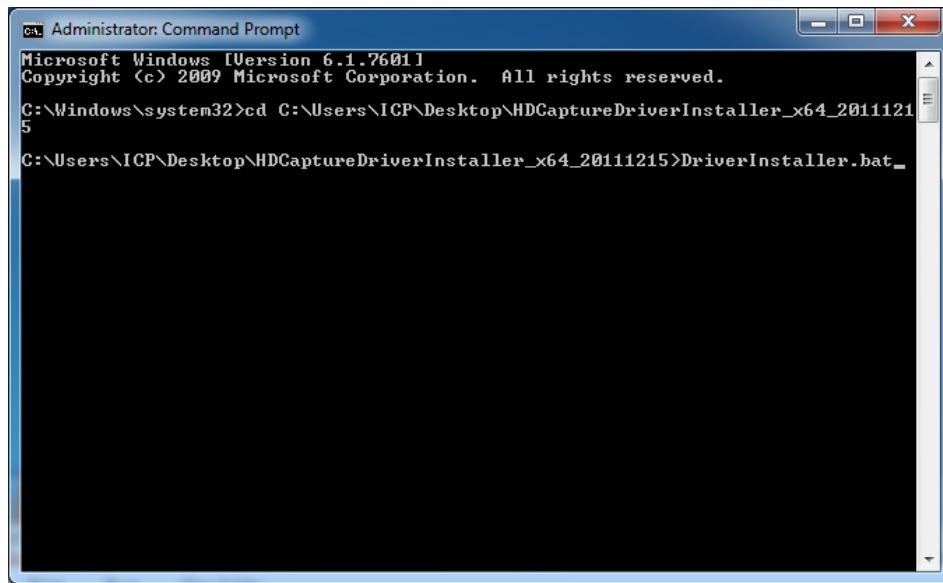


Figure 3-8: Command Prompt – Driver Installation

- Step 6:** Follow **Step 5 ~ Step 8** in **Section 3.2** to complete installing the driver to a 64-bit Windows 7 operating system.
- Step 7:** Check the device manager in the Windows control panel to ensure the driver (MB86H55-REB PCI, DEVICE and WinDriver) has been properly installed. See **Figure 3-9** for the details.

HDC-3x Series Video Capture Card

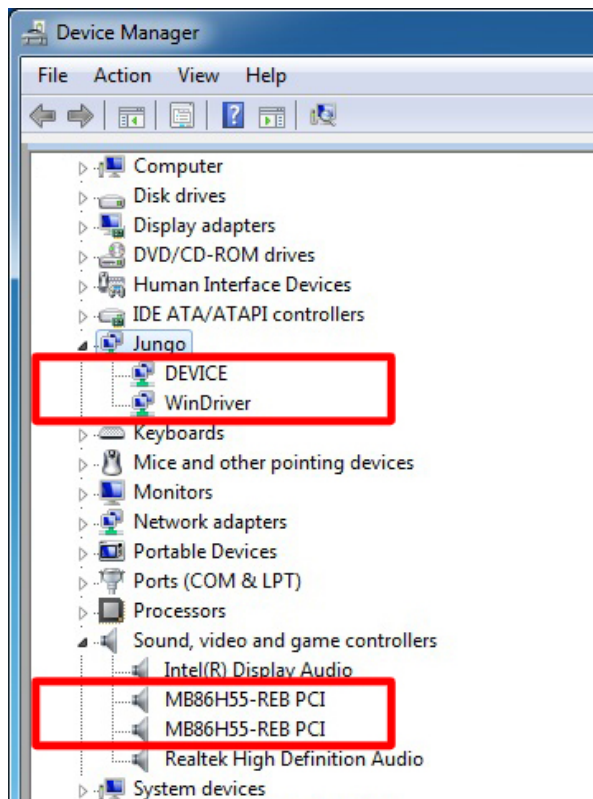


Figure 3-9: Device Manager – 64-bit OS

3.2.2 Uninstall Driver

To uninstall the driver, please follow the steps below.

- Step 1:** Make sure to login the system as the administrator.
- Step 2:** Locate the “Driveruninstaller.bat” file in the driver CD. Double click it to uninstall the driver.
- Step 3:** The console window pop-up and all drivers will be uninstalled.

3.3 Software Installation (Windows)

The HDC-3x Series comes with a video capture application – HDCapture. This section describes how to install the application in Windows environment.

3.3.1 System Requirements

The supported OS versions are listed below:

- Microsoft Windows XP SP2 32-bit
- Microsoft Windows 7 32-bit
- Microsoft Windows 7 64-bit (not supported by the HDC-301/301E series)

After installing the driver, the following programs must be installed in order to use the HDCapture demo program:

- Microsoft .NET Framework 3.0/3.5/4.0
- Microsoft DirectX 9.0c
- Win7DSFilterTweaker tool (for Windows 7 OS only)
- Visual C++ 2005 & 2008 Redistributable

Please download the setup files of these programs from the official websites and install these programs in the system. For detailed setup procedures for some of the above programs, please refer to **Appendix A**.



NOTE:

For the 64-bit Windows 7 operating system, the Microsoft .NET Framework 4.0 must be installed.

HDC-3x Series Video Capture Card

3.3.2 HDCapture Program Installation

To install the HDCapture demo program, please follow the steps below.



NOTE:

If the **User Access Control** dialog box appears during installation, click **Yes** to continue.

Step 1: Insert the driver CD.

Step 2: Locate the **HDCapture_x86_Vxxxx.msi** file in the driver CD. Double click the setup file to start the installation. The user can also download the latest setup file from IEI website.

Step 3: The HDCapture Setup Wizard welcome window appears. Click **Next** to start.

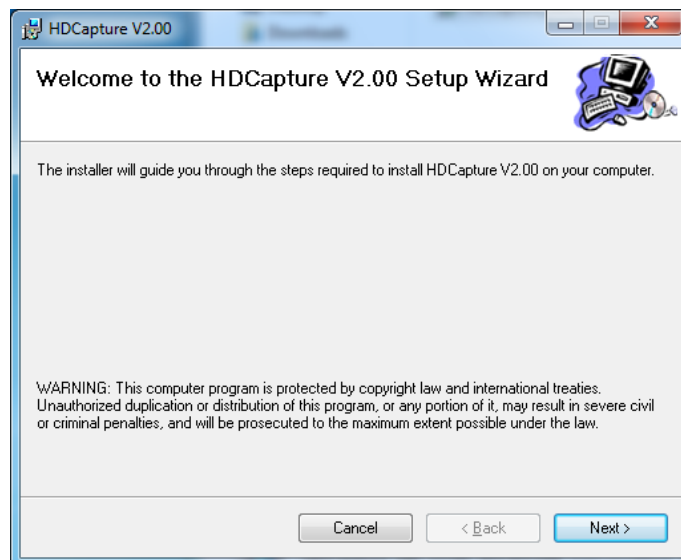


Figure 3-10: HDCapture Setup Wizard

Step 4: Select a folder for HDCapture installation in **Figure 3-11**. Click **Next** to continue.

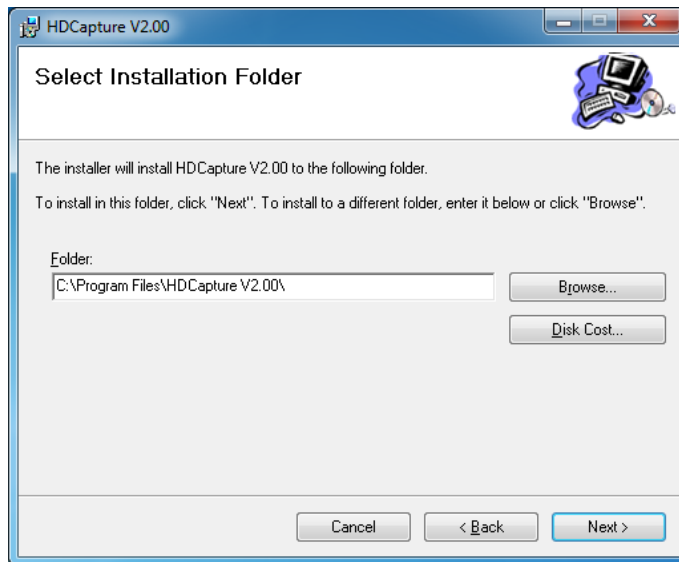


Figure 3-11: Select Installation Folder

Step 5: The following screen appears. Click **Next** to confirm the installation.

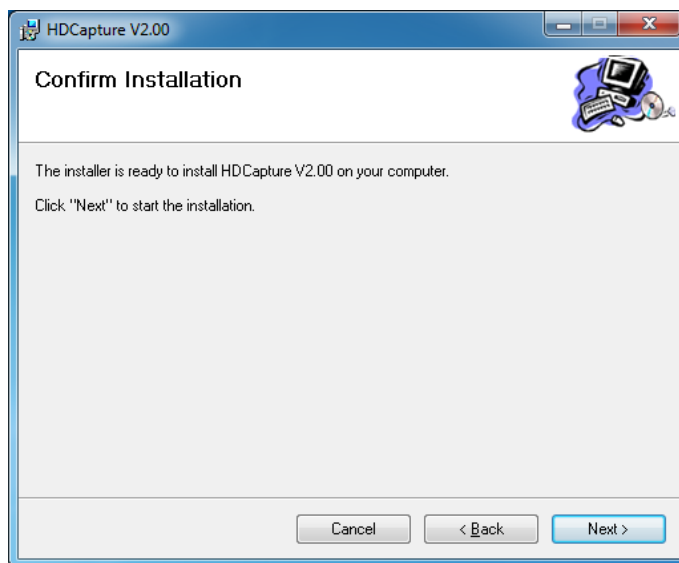


Figure 3-12: Confirm Installation

Step 6: The system starts installing the HD_CAPTURE.

Step 7: When the HD_CAPTURE is successfully installed, the following window appears.

Click **Close** to exit.

HDC-3x Series Video Capture Card

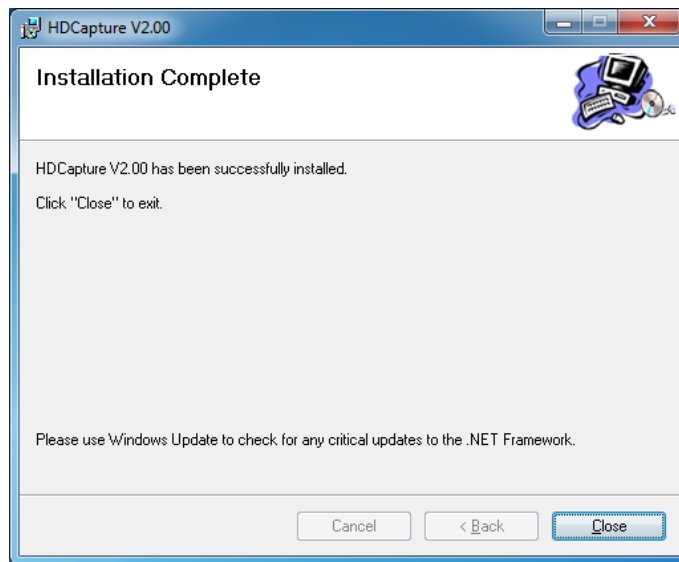


Figure 3-13: Installation Complete



NOTE:

To be able to install the HDCapture Demo Program in a 64-bit Windows 7 operating system, please do the followings:

- When the system is booting, press **F8** to enter the Advanced Boot Options menu. Choose "**Disable Driver Signature Enforcement**" and press **Enter**.
- Login the system as "administrator" and start to install the driver and application.

Chapter

4

HDCapture Application (Windows)

HDC-3x Series Video Capture Card

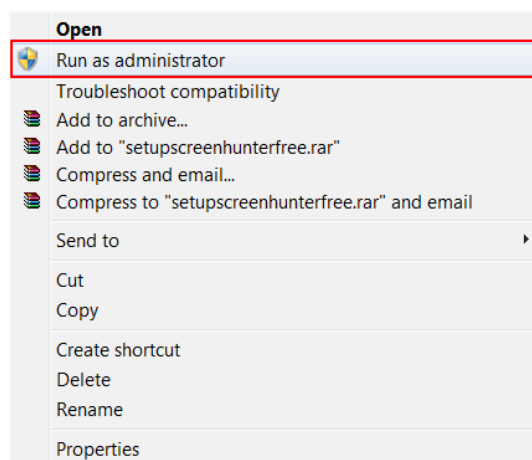
4.1 HDCapture Overview

The HDCapture application is a video capture tool that allows user to capture video through the HDMI input ports in Windows environment. The HDCapture application also includes decoding function that decodes the video signal for video output to the HDMI-enabled display device.



NOTE:

If there is a problem launching the HDCapture application in a 64-bit Windows 7 operating system, right-click the HDCapture application from the Windows **Start** menu and select **Run as administrator**.

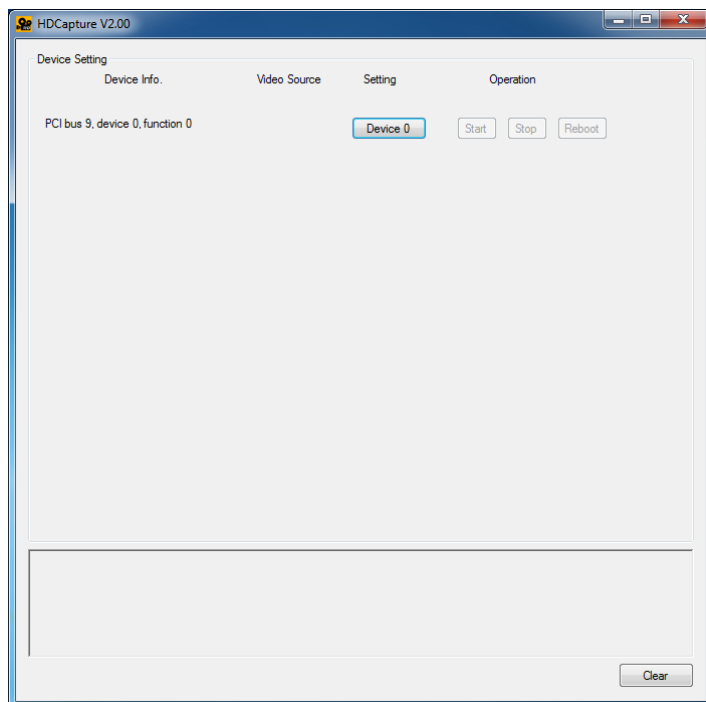


4.2 Video Capture

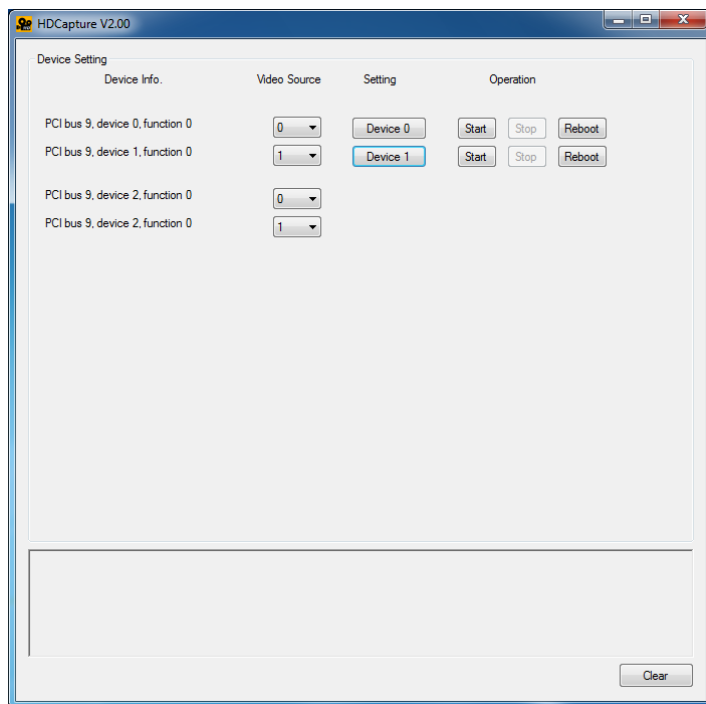
To use the HDCapture to capture video, follow the steps below. If the older version of the HDCapture is already installed, please refer to **Section 4.5** to uninstall it.

Step 1: Launch the HDCapture. The Device Setting on the right side panel of the HDCapture is varied based on the installed video capture card as shown in **Figure 4-1**. The best resolution to view HDCapture is 1280 x 1024 or above.

HDC-301 and HDC-301E



HDC-302E



HDC-3x Series Video Capture Card

HDC-304E

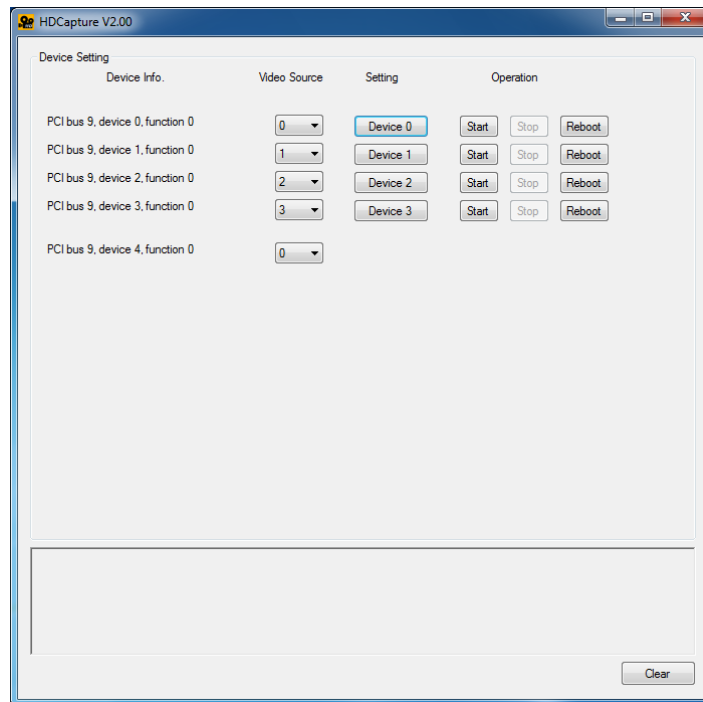


Figure 4-1: HDCapture

Step 2: Enable and configure the device settings by clicking the Device # (0, 1, 2, 3) buttons. The device number is decided by which port the device is installed. If the HDC-301 series is installed, there will be only one Device 0 button to choose.

HDC-3x Series Video Capture Card

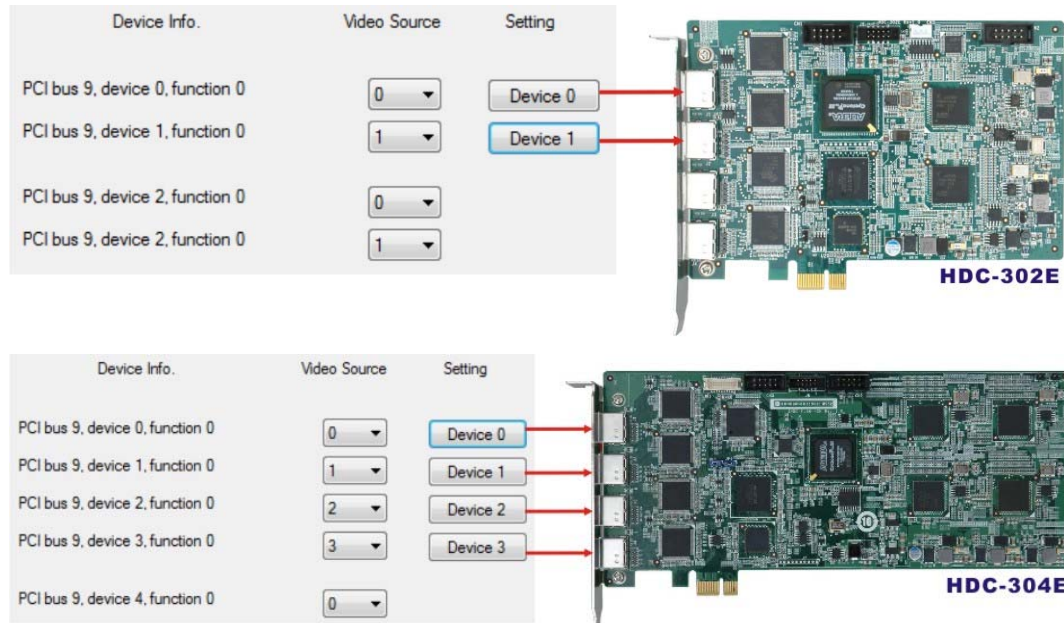


Figure 4-2: HDC-302E and HDC-304E Device Ports

Step 3: Click the Device # button. The Encoding window appears (**Figure 4-3**). Choose the video input format which depends on the video device. **The video format selected here must be same with the HDMI input video format.** The available options include:

- 1920x1080 (60p) (6000kps – 30000kps)
- 1920x1080 (59.94p) (6000kps – 30000kps)
- 1920x1080 (50p) (6000kps – 30000kps)
- 1920x1080 (60i) (6000kps – 24000kps)
- 1920x1080 (59.94i) (6000kps – 24000kps)
- 1920x1080 (50i) (6000kps – 24000kps)
- 1280x720 (60p) (4000kps – 24000kps)
- 1280x720 (59.94p) (4000kps – 24000kps)
- 1280x720 (50p) (4000kps – 24000kps)
- 720x480 (60i) (2000kps – 10000kps)
- 720x480 (59.94i) (2000kps – 10000kps)
- 720x576 (50i) (2000kps – 10000kps)

Step 4: Configure the encoding settings, including encoding file directory (click Ref button to choose the directory), rate control (CBR or VBR) and video encoding

HDC-3x Series Video Capture Card

bitrate (must be in the range of video format). When “CBR” is selected, the “Bitrate” text box is displayed. When “VBR” is selected, the “Average bitrate” and “Peak bitrate” text boxes are displayed. Close the window to save the settings.

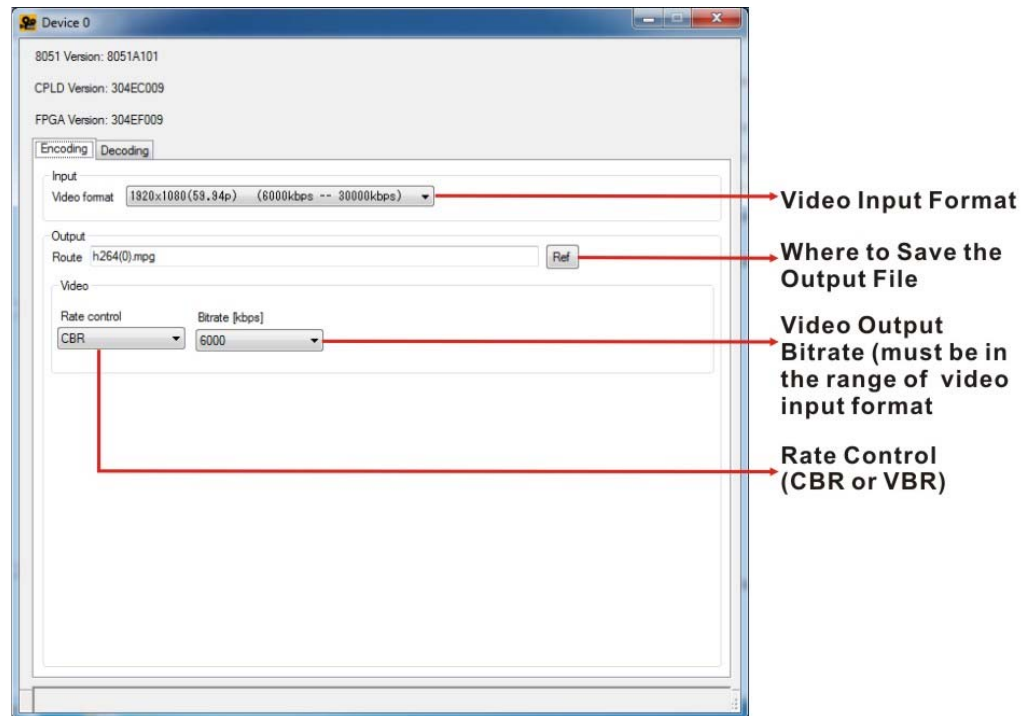
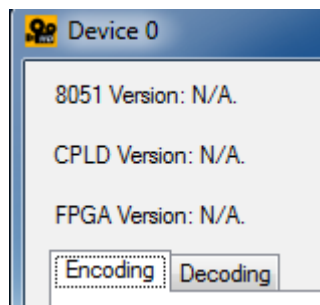


Figure 4-3: Encoding Settings



NOTE:

If the HDC-301/301E series is installed, the version information shown in the encoding/decoding setting window will be N/A (as below).



Step 5: Repeat **Step 2 ~ Step 4** to configure the connected input devices if necessary.

Step 6: Click Start to start capture the video. Click Stop to stop capture.

Click to reboot the device.

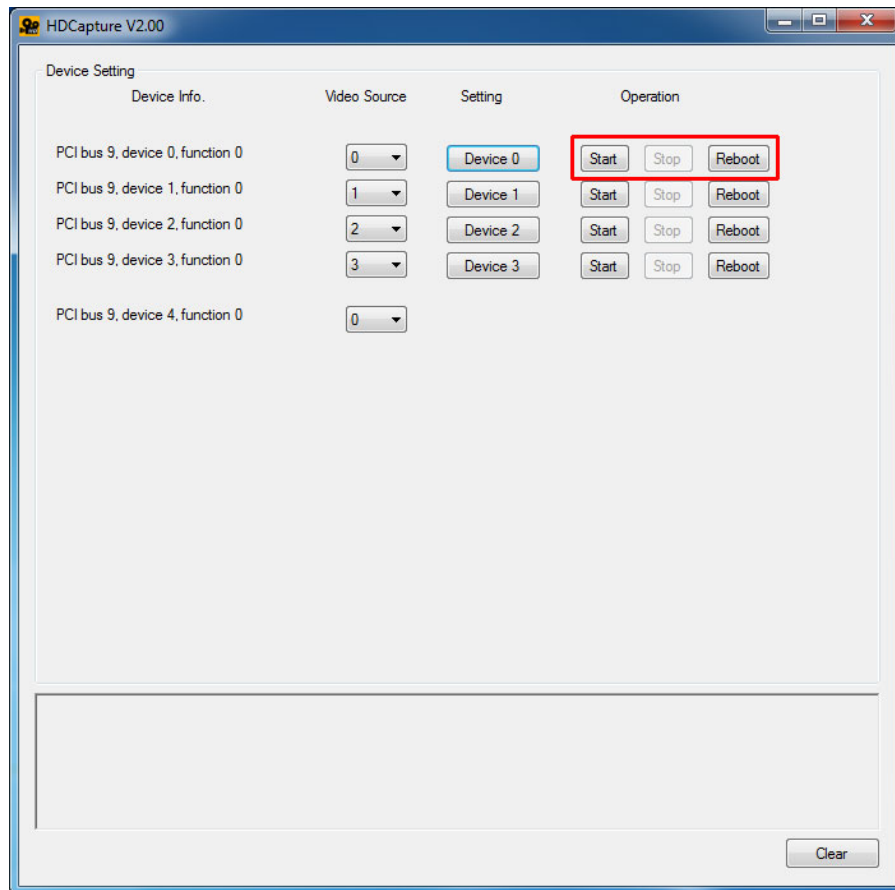


Figure 4-4: Video Capture Control


HDC-3x Series Video Capture Card

4.3 Video Decoding

The HDCapture also includes decoding function that decodes the video signal for video output to the HDMI-enabled display device. To decode a captured video clip, follow the steps below.

Step 1: Launch the HDCapture.

Step 2: Bring up the Decoding page by clicking one of the Device # buttons. Click the Decoding tab to access the decoding page.

Step 3: Click Ref button  to locate a video file in the computer to decode.

Step 4: Select the video format of the selected video clip. The video format selected here must be the same with the video format of the file selected in the previous step.

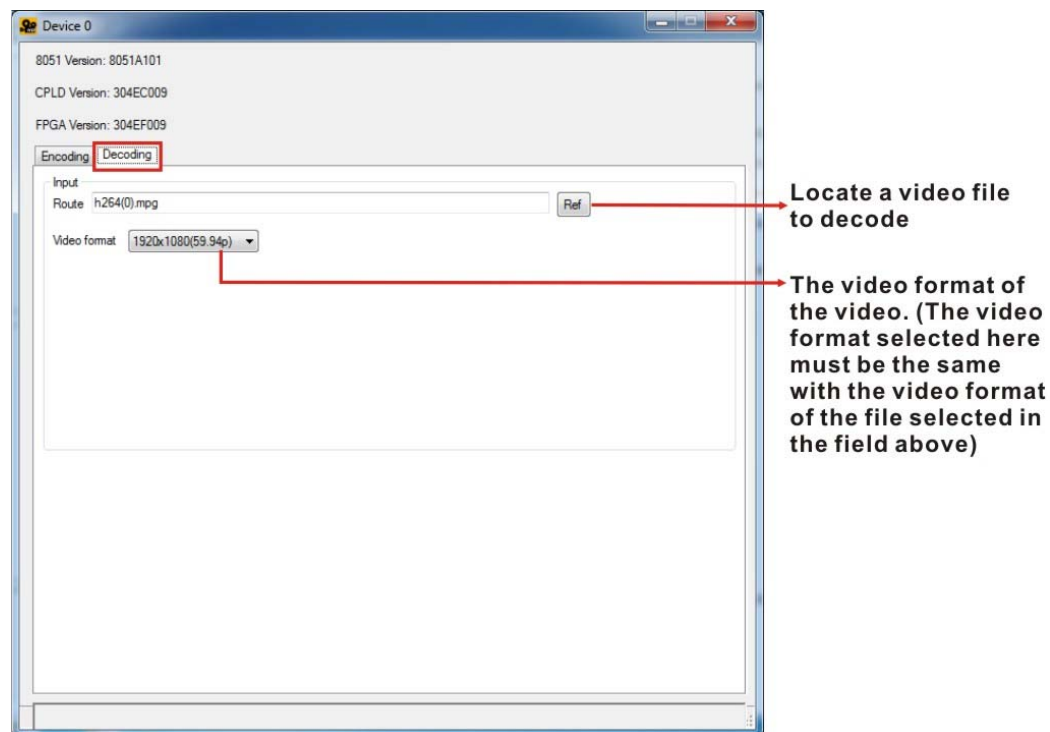


Figure 4-5: Decoding Settings

Step 5: Close the window to save the settings.

Step 6: **This step is only required for the HDC-302E.** Select the transmitter bus (2 or 3) (Figure 4-7). For example, when the Device0 button is selected to decode the encoded file, please select 2 from the device2 (transmitter bus) drop-down menu to display the video on HDMI display device via video output port. Please refer to the following table:

Device Port	Device4 (Transmitter Bus) Setting
Device0	2
Device1	3

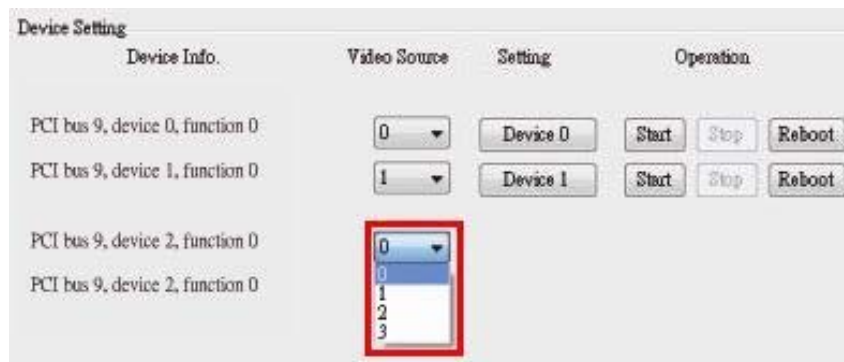


Figure 4-6: Select Transmitter Bus for HDC-302E

Step 7: **This step is only required for the HDC-304E.** Select the transmitter bus from 4 to 7 (Figure 4-7). For example, when the Device0 button is selected to decode the encoded file, please select 4 from the device4 (transmitter bus) drop-down menu to display the video on HDMI display device by output kit. Please refer to the following table:

Device Port	Device4 (Transmitter Bus) Setting
Device0	4
Device1	5
Device2	6
Device3	7

HDC-3x Series Video Capture Card

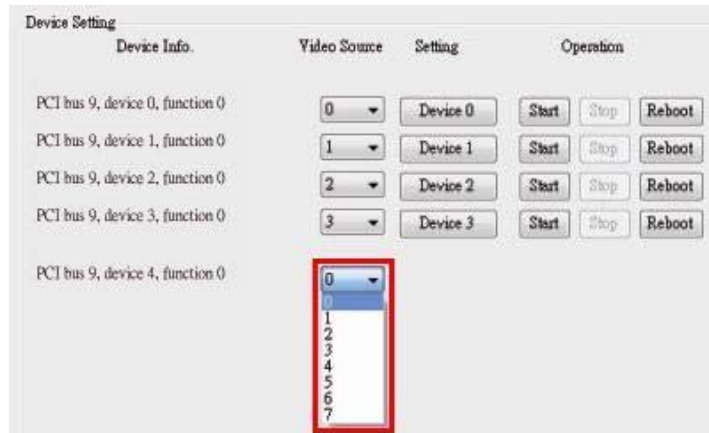



Figure 4-7: Select Transmitter Bus for HDC-304E

Step 8: Click Operation Start  to start decoding the selected video.

4.4 Video Bypass

To view the video input source on HDMI display device in real time, please follow the steps below.

Step 1: Launch the HDCapture.

Step 2: Connect the HDMI cable from HDMI display device to the HDMI output port or the HDMI output kit (HDC-304E).

Step 3: Connect the video input source to the HDMI input port of the HDC-3x Series.

Step 4: **This step is only required for the HDC-302E.** Select the transmitter bus (0 or 1) (Figure 4-9). For example, to view the video input source 1 on HDMI display device, select the transmitter bus 0. Please refer to the following table:

Video Input Source	Transmitter Bus
Source 1	0
Source 2	1



Figure 4-8: Select Transmitter Device for HDC-302E

Step 5: This step is only required for the **HDC-304E**. Select the transmitter bus from 0 to 3 (**Figure 4-9**). For example, to view the video input source 1 on HDMI display device, select the transmitter bus 0. Please refer to the following table:

Video Input Source	Transmitter Bus
Source 1	0
Source 2	1
Source 3	2
Source 4	3

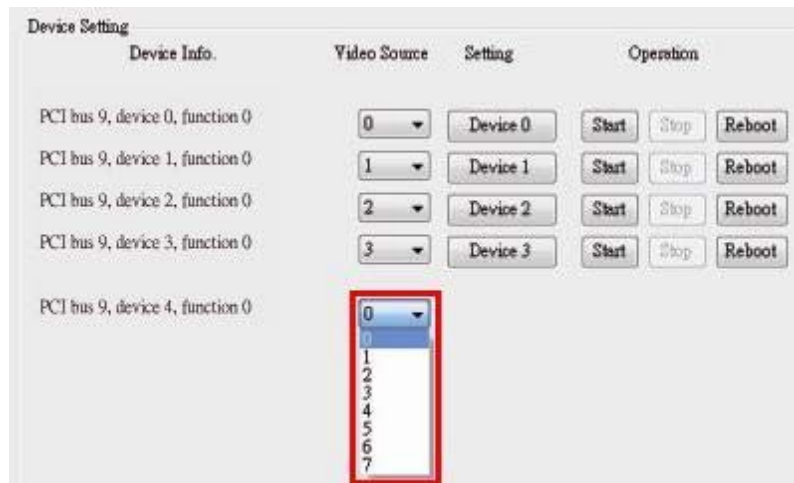


Figure 4-9: Select Transmitter Device for HDC-304E

HDC-3x Series Video Capture Card



NOTE:

For the HDC-304E users:

The video input source 1 is set to default for video bypass. Thus, when turn on the computer, video bypass will be enabled and the video from video input 1 will show on the HDMI display, if

1. the HDMI output kit from the HDC-3x Series is connecting to HDMI display, and
2. the video input source is connecting to the video input 1 connector of the HDC-3x Series.

4.5 Uninstall HDCapture

To uninstall the HDCapture, follow the steps below.

Step 1: Select **Control Panel** → **Programs** → **Programs and Features**.

Step 2: Select HDCapture and click the **Uninstall** button.

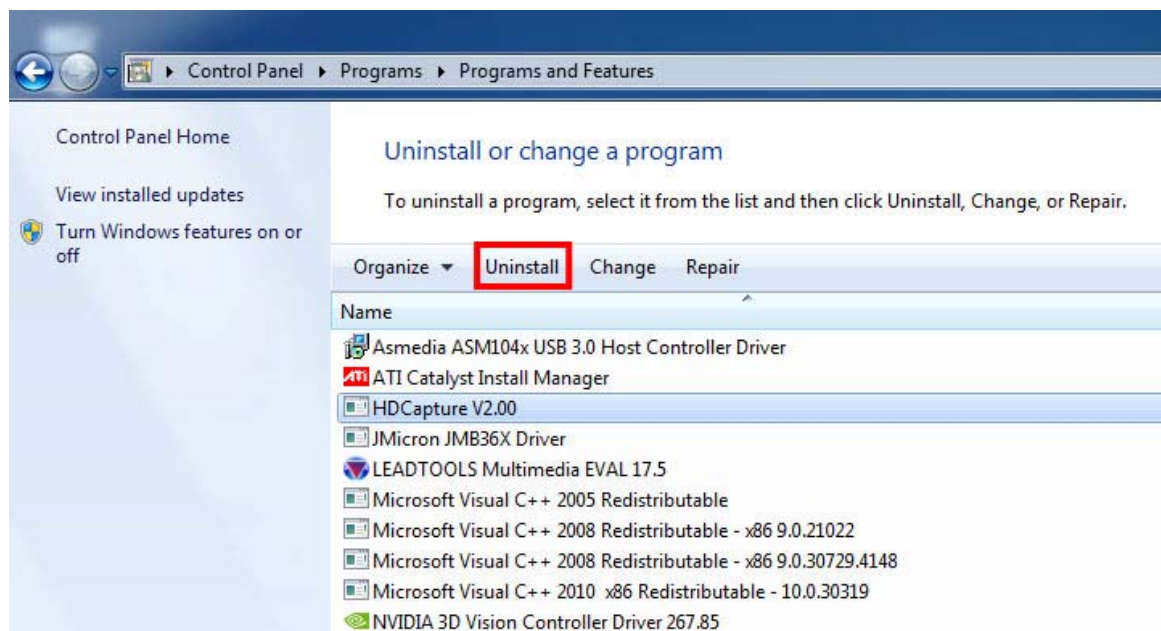


Figure 4-10: Uninstall HDCapture

Step 3: A confirmation window appears. Click **Yes** to uninstall the HDCapture.

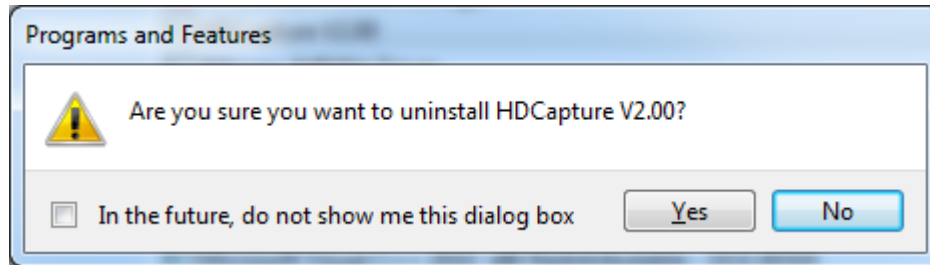


Figure 4-11: Uninstall HDCapture Confirmation Window

HDC-3x Series Video Capture Card

4.6 FAQ

Q: One device of the HDC-304E appears exclamation mark in Windows Device Manager. An error code generated by Windows Device Manager: This device cannot find enough free resources that it can use. If you want to use this device, you will need to disable one of the other devices on this system.

A: This error message will appear if the BIOS did not allocate enough resources to the device. The HDC-304E is compliant to the PCI Express Base Specification. What resource the HDC-304E requires and how these resources are assigned by the motherboard BIOS. Few motherboard BIOS could not assign proper resource allocation for HDC-304E proper operation.

Q: The input source video format is 60Hz and the HDCapture software video format setting is also 60Hz. But the video and sound are not synchronized.

A: Please change the video format of HDCapture software to 59.94P to capture the video.

Q: Capture card, driver, application and input source are all ready, but the video image is not displayed or displayed incorrectly.

A: A correct video codec is needed to display the H.264 video image. For example, ffdshow codec.

Q: The error message window appears from time to time.

A: The OS status, audio codec and input devices may all be the reasons to trigger DMA errors.

Q: How to know the current DirectX version used on the system?

A: In Windows, Start → Run → Type 'dxdiag' → Enter. Then you can find the current version in DirectX Diagnostic Tool window.

Q: How to obtain the latest driver?

Step 4: **A:** Please go to <http://www.ieiworld.com/>. You can always find and download the latest driver from "Support" pages.

Appendix

A

Hazardous Materials Disclosure

A.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

HDC-3x Series Video Capture Card

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O
<p>O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006</p> <p>X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006</p>						

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。						