HIKVISION

DS-42xxHCI/HFVI Series Audio/Video Compression Card
User Manual

Version 4.4
2009-05-23

Model
DS-4216HFVI
DS-4208HFVI
DS-4216HCI

Notices

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Please send any comments regarding the documentation to:
overseabusiness@hikvision.com

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Contents

Chapter 1 Product Description

1.1. Product Description

　　DS-42xxHCI/HFVI series card is one of HIKVISION's new generation audio & video compression products. It adopts high performance video processing chip with low power consumption, and can be used for real time audio & video capturing and encoding. A PC-DVR system can be constructed via application software with functions of video streaming and storage. The DS-42xx series card includes models as DS-4216HCI, DS-4208HFVI, DS-4216HFVI, etc.

Card Model Description

DS - 42 ww XYZ

- Model Name
- Video/Audio Channel Number
- Stands for Hikvision Encode/Decode Card Series
- Stands for Hikvision Digital Surveillance Products
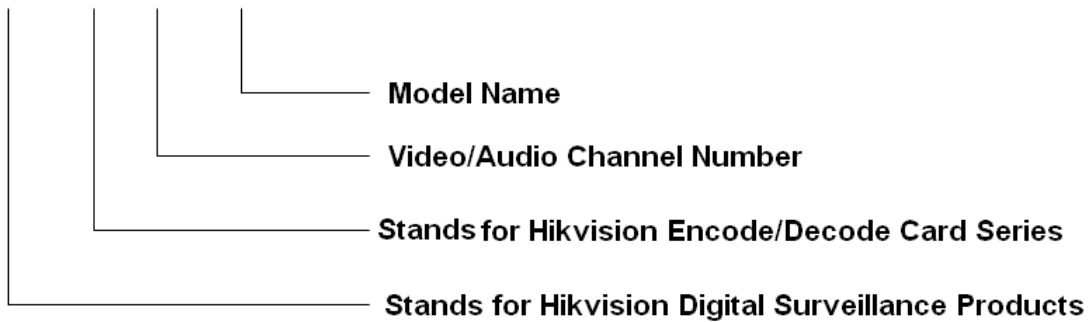
Product Snapshot
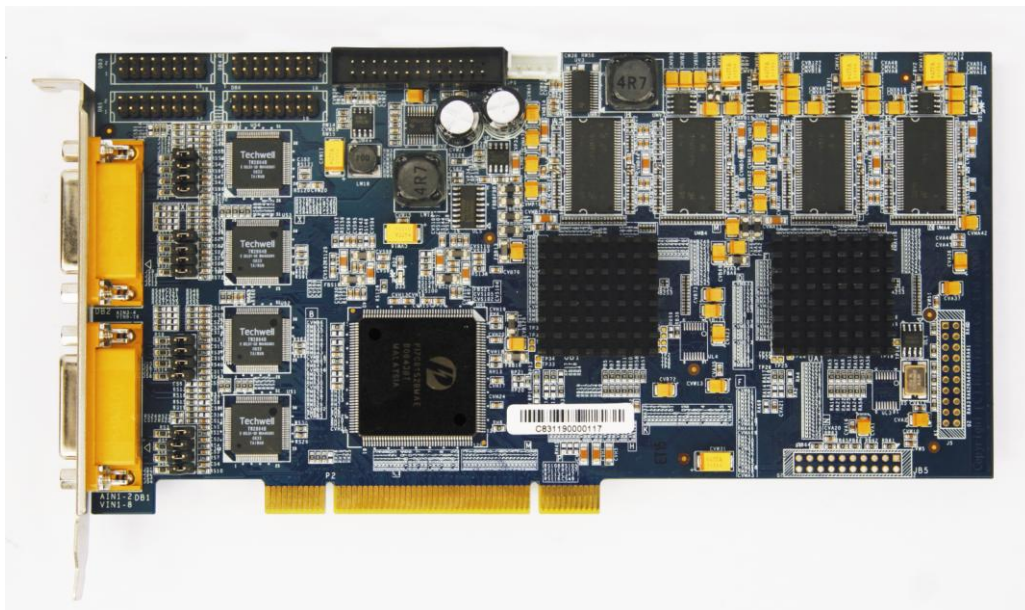
DS-4216HFVI
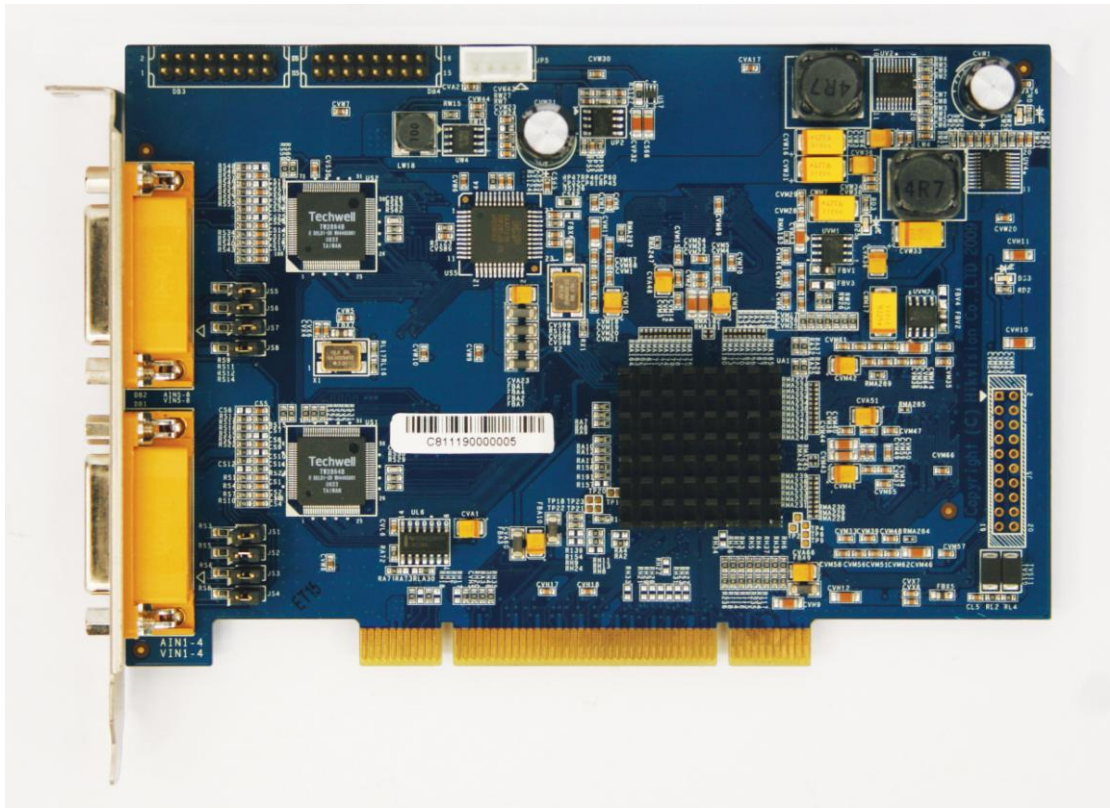
DS-4208HFVI
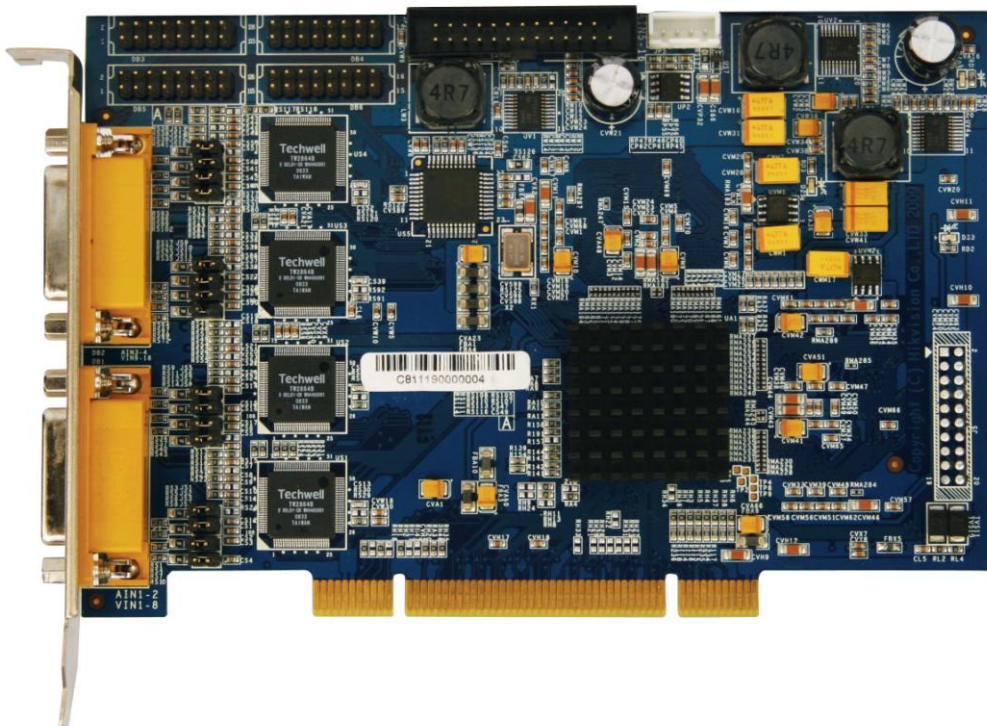
DS-4216HCI

1.2. Technical Specification

Model	DS-4216HCI	DS-4208HFVI	DS-4216HFVI
Dimensions (mm)	162*101	162*101	213x101
PCI Standard	PCI 2.2		
Video Compression	H.264(MPEG-4/part10)		
Video Input	16ch	8ch	16ch
Video Input Interface	BNC (1.0Vp-p, 75Ω)		
Video Standard	PAL/NTSC		
Live View Resolution	4CIF		
Playback Resolution	CIF/QCIF	4CIF/2CIF/CIF /QCIF	
Frame Rate	1/16~25 F/S(PAL), 1/16~30 F/S(NTSC)		
Video Recording Bit Rate	32k ~2M (CIF), 32k ~4M (4CIF) (Unit:bps)		
Video Output Interface	--	1 ch BNC	
Audio Compression	OggVorbis		
Audio Input	16ch, mono	8ch, mono	16ch, mono
Audio Input Interface	BNC (2Vp-p, 1kΩ, volume adjust range: 83DB)		
Sampling Rate	8KHz		
Audio Recording Bit Rate	64kbps		
Power Consumption	<8.5w	<7w	<14w

1.3. Product Features

- Clear and vivid live view/playback under high image resolution
- Real time encoding
- Extra-low power consumption and high stability
- Support multiple cards plugged in PC (support up to 40ch camera input for 1 PC)
- User-adjustable frame structure (I/P frame structure)
- User-adjustable image quality and bit rate
- User-adjustable video brightness/hue/contrast
- Built-in motion detect
- Support OSD, LOGO and mask area settings

Chapter 2 Product Performance

- **DS-4216HFVI**
  Support 16ch 4CIF/2CIF/CIF/QCIF real time encoding
  *Support up to 16ch 4CIF (main stream) +16ch CIF (sub stream) encoding on dual stream mode

- **DS-4208HFVI:**
  Support 8ch 4CIF/2CIF/CIF/QCIF real time encoding
  *Support up to 8ch 4CIF (main stream) + 8ch CIF (sub stream) encoding on dual stream mode

- **DS-4216HCI**
  Support 16 channel CIF/QCIF real time encoding
  *Support up to 16ch CIF (main stream) +16ch CIF(sub stream) encoding on dual stream mode

Notice
1. All the recording performance testing is done under normal office scene with color camera input, and the recording performance may differ according to the surveillance scene:
   1) DS-4208HFVI / DS-4216HFVI (Performance of each DSP):
      8ch 4CIF real time encoding at 4Mbps/channel

   2) DS-4216HCI (Performance of each DSP):
      16ch CIF real time encoding at 2Mbps/channel

2. Please kindly refer to the website or contact technical support for the latest updated info of card performance.

3. Recording performance may be slightly different according to the card number and hard disk read/write efficiency of the system.

Chapter 3 Compatible Software/ Hardware Configuration

3.1. Operating System

It is suggested to use Windows 2000 Pro + SP4 or Windows XP + SP2 with DirectX version 8.1 or above. Card driver and SDK which support Windows Vista or Linux OS will be released in future.

For Windows 2003 OS, please kindly follow the below operation steps:

1. Right click on Windows Desktop-> Select "Properties" ->Settings-> Advanced-> Troubleshoot->and drag "Hardware Acceleration" to "Full".

2. Click "Start"-> "Run" of Windows task bar, input "dxdiag" and enter DirectX diagnosing program. Please check if DirectX version is above 8.1. If yes, please kindly refer to step 3; if not, please upgrade it to version higher than 8.1 first.

DirectX Diagnostic Tool

System | DirectX Files | Display | Sound | Music | Input | Network | More Help

This tool reports detailed information about the DirectX components and drivers installed on your system. It lets you test functionality, diagnose problems, and change your system configuration to work best.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

The "More Help" page lists some other tools that may help with the problem you are experiencing.

System Information

Current Date/Time: Saturday, May 23, 2009, 11:07:57
Computer Name: LS
Operating System: Microsoft Windows XP Professional (5.1, Build 2600)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 9460AWC
BIOS: Phoenix FirstBIOS(tm) Notebook Pro Version 2.0 for ThinkPad
Processor: Intel(R) Core(TM)2 CPU   T5500 @ 1.66GHz (2 CPUs)
Memory: 510MB RAM
Page file: 440MB used, 804MB available
DirectX Version: DirectX 9.0c (4.09.0000.0904)

☑ Check for WHQL digital signatures

DxDiag 5.03.2600.2180 Unicode Copyright © 1998-2003 Microsoft Corporation. All rights reserved.

Help   Next Page   Save All Information...   Exit

3.   Enable "DirectDraw" and "Direct3D" options in the "Display" column.

DirectX Diagnostic Tool
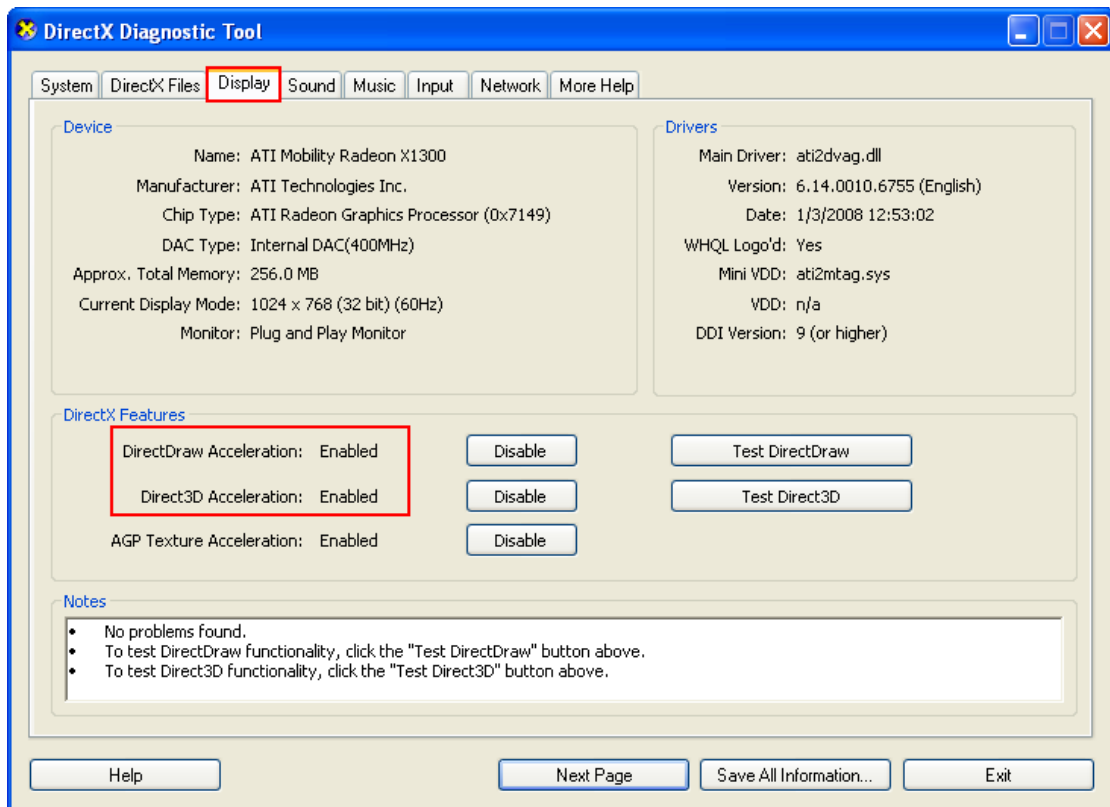
System | DirectX Files | Display | Sound | Music | Input | Network | More Help

Device
Name: ATI Mobility Radeon X1300
Manufacturer: ATI Technologies Inc.
Chip Type: ATI Radeon Graphics Processor (0x7149)
DAC Type: Internal DAC(400MHz)
Approx. Total Memory: 256.0 MB
Current Display Mode: 1024 x 768 (32 bit) (60Hz)
Monitor: Plug and Play Monitor

Drivers
Main Driver: ati2dvag.dll
Version: 6.14.0010.6755 (English)
Date: 1/3/2008 12:53:02
WHQL Logo'd: Yes
Mini VDD: ati2mtag.sys
VDD: n/a
DDI Version: 9 (or higher)

DirectX Features
DirectDraw Acceleration: Enabled   Disable   Test DirectDraw
Direct3D Acceleration: Enabled   Disable   Test Direct3D
AGP Texture Acceleration: Enabled   Disable

Notes
• No problems found.
• To test DirectDraw functionality, click the "Test DirectDraw" button above.
• To test Direct3D functionality, click the "Test Direct3D" button above.

Help   Next Page   Save All Information...   Exit

3.2. CPU and Motherboard

It is suggested to use motherboard with Intel P3, C4, P4, Core2, Core4 CPU.

And it is suggested that users use motherboard from reliable manufactures such as Intel, Asus, Gigabyte, Microstar, etc.

3.3. System Memory

512M or more, suggested 1G

Notice:

Larger memory size is required when the card number installed in the PC increases.

3.4. Display Adapter

To support high resolution live view/ record function of the card, it is suggested to use a high performance display adapter. Please kindly refer to the list below for tested models of compatible display adapters. Please notice that the driver of these display adapter must support BLT function.

ATI Radeon X1650/X1600 /X1550/X1300/X800/X600/X550/HD2400/HD2600

ATI Radeon 7000/7200/7500/8500 /9000/9200 /9500/9600

NVIDIA GeForce 8600GT/8500GT/8400GS/7600/7300LE/6600LE/6200LE

Nvidia Tnt/Tnt2, Geforce Mx 200/400/420/440 Fx5200/5600

INTEL845G/865G/ 915/945G/G31 integrated display unit

MatroxG450/550

3.5. Power Supply

400W or above

Chapter 4 Driver Installation

To install the card to your PC, please kindly follow these steps below:
1. Insert the card into an empty PCI slot.
2. Turn on your PC and start Windows.
3. Windows Hardware Wizard detects this newly installed card and appears automatically. Please ignore the wizard window and keep on the following steps.
4. Locate to the folder of DS-40xxHCI Driver, run the Driver Install.exe, and then the Driver Install dialog box will be displayed as below:


5. Click "Install or Update Driver" to install/update the driver, and a Windows dialog box will popup as below :

6. Click "Continue Anyway" to continue the hardware installation. If there is more than one card inserted in the PC or more than one DSP in one card, the operation system will remind you of repeating the above process.

7. When the installation is done, this message will appear: Driver Installed Successfully!

Driver Installed successfully!

OK
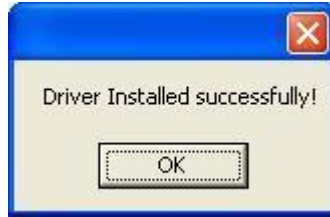
8. After "Driver install success" message popup during driver installation, there will be "Hikvision DS42xx Series" displayed in the list "Sound, Video and Game Controller" of Windows Device Manager as below. The total number of this item is equal to the total DSP number on the cards installed inside the PC.
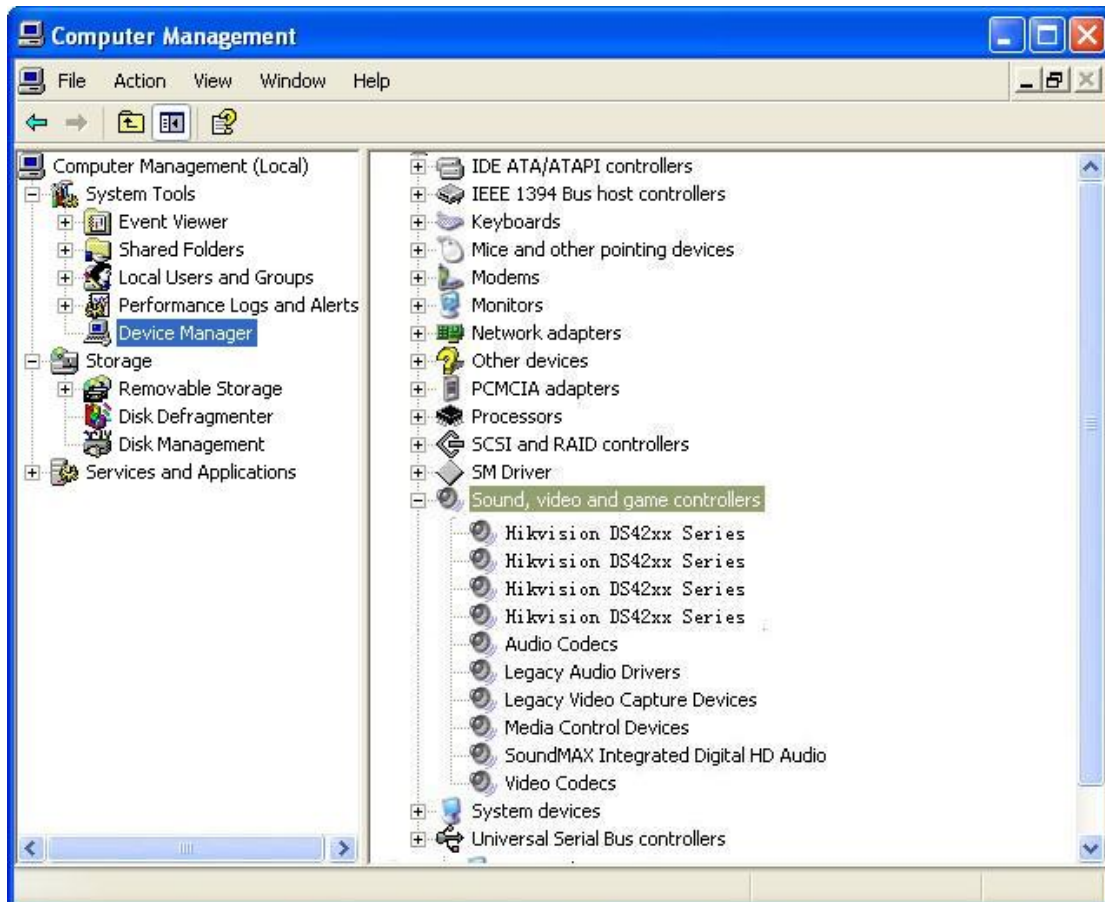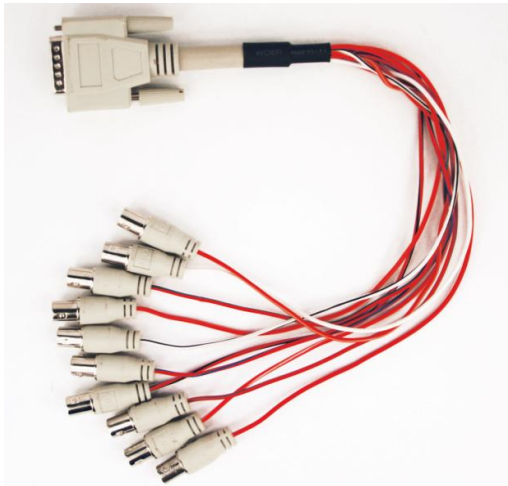
Chapter 5 Cable Connection & Pin Definition

7.1. DS-4216HFVI Accessory and Connection

8ch video /2ch audio connection cable (2 units for each card)
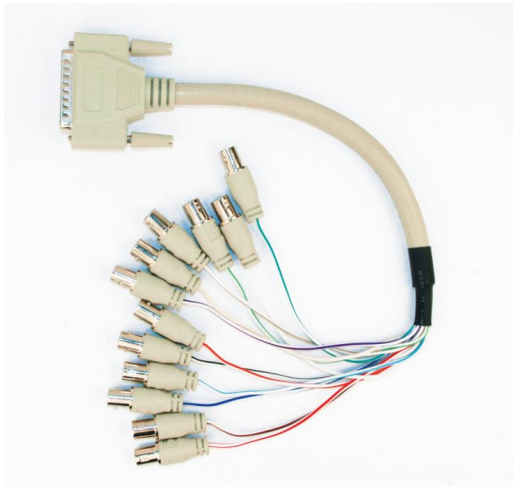

Description:
VID1~VID8 stand for "video 1 ~ video 8" when connected to DB1, or "video 9~video 16" when connected to DB2;
AID1, AID2 stand for "audio 1~audio 2" when connected to DB1, or "audio 3~audio 4" when connected to DB2.

12ch audio connection cable and installation adapter (1 unit for each card)

Description:
AID5~AID16 stand for "audio 5~audio 16"

DS-4216HFVI Connection
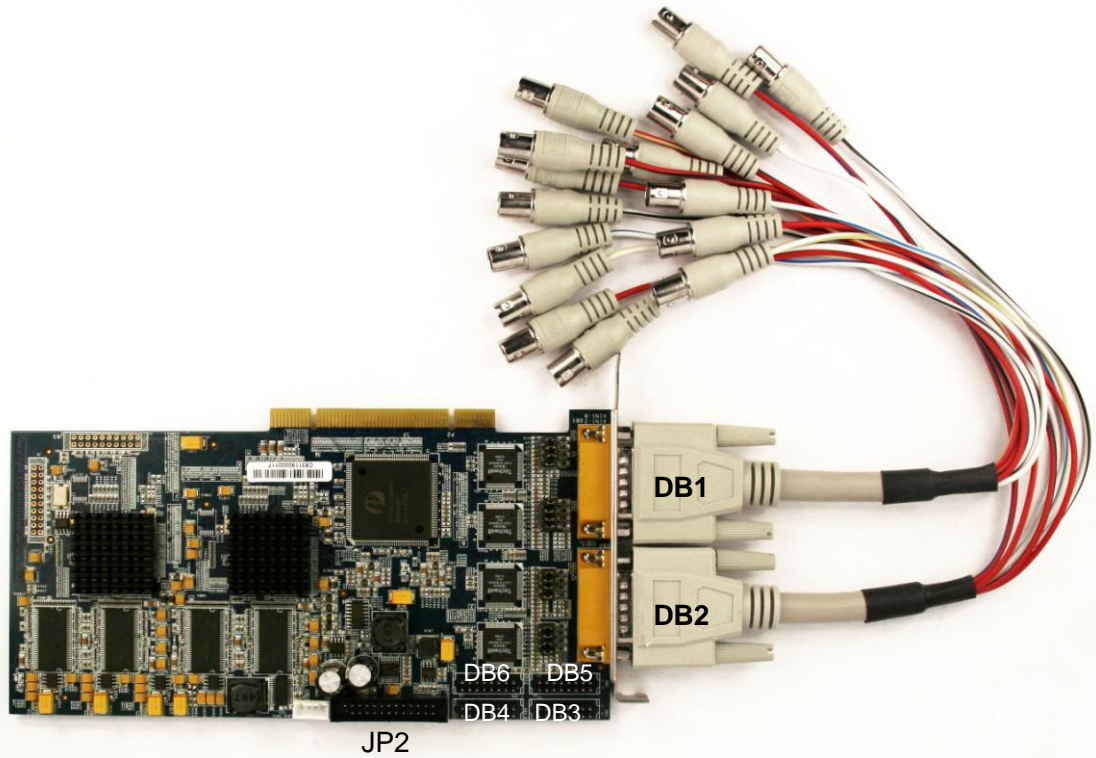
DB1	video 1~video 8; audio 1, audio 2
DB2	video 9~video 16; audio 3, audio 4
JP2	audio 5~audio 16

7.2. DS-4216HFVI Video/Audio Input Pin Definition

Each DS-4216HFVI card is with 2 DB 15-pin female connectors (labeled DB1 and DB2), and each DB15 connector supports 8ch video input and 2ch audio input.

On the card there is also a connector labeled JP2 for an extra 12ch audio input via an audio connection cable.

Pin 2, 4, 6 ………………………24 (JP2)

Pin 1, 3, 5 ………………………..25 (JP2)

Pin Definition for DB1, DB2, JP2

DB1		DB2		JP2	
1	Video1	1	Video9	1	Audio5
2	Video2	2	Video10	2	GND
3	Video3	3	Video11	3	Audio6
4	Video4	4	Video12	4	GND
5	Video5	5	Video13	5	Audio7
6	Video6	6	Video14	6	GND
7	Video7	7	Video15	7	Audio8
8	Video8	8	Video16	8	GND
9	Audio1	9	Audio3	9	Audio9
10	GND	10	GND	10	GND
11	GND	11	GND	11	Audio10
12	GND	12	GND	12	GND
13	GND	13	GND	13	Audio11
14	GND	14	GND	14	GND
15	Audio 2	15	Audio 4	15	Audio12
				16	GND
				17	Audio13
				18	GND
				19	Audio14
				20	GND
				21	Audio15
				22	GND
				23	Audio16
				24	GND
				25	GND

Users can are also input video/audio via the on-board pins DB3, DB4, DB5 and DB6.

Pin2, 4, 6 …………………16(DB3)   Pin2, 4, 6 ………………..16(DB4)

Pin1, 3, 5 ………………15(DB3)   Pin1, 3, 5 ………………15(DB4)

Pin 2, 4, 6 …………….……16(DB5)   Pin2, 4, 6 …….…..……16(DB6)

Pin1, 3, 5 …………………15(DB5)   Pin1, 3, 5 ……………...15(DB6)

Pin Definition for DB3, DB4, DB5, DB6

DB3		DB4		DB5		DB6	
1	Video1	1	Video5	1	Video9	1	Video13
2	GND	2	GND	2	GND	2	GND
3	Video2	3	Video6	3	Video10	3	Video14
4	GND	4	GND	4	GND	4	GND
5	Video3	5	Video7	5	Video11	5	Video15
6	GND	6	GND	6	GND	6	GND
7	Video4	7	Video8	7	Video12	7	Video16
8	GND	8	GND	8	GND	8	GND
9	Audio1	9	Audio5	9	Audio9	9	Audio13
10	GND	10	GND	10	GND	10	GND
11	Audio2	11	Audio6	11	Audio10	11	Audio14
12	GND	12	GND	12	GND	12	GND
13	Audio3	13	Audio7	13	Audio11	13	Audio15
14	GND	14	GND	14	GND	14	GND
15	Audio4	15	Audio8	15	Audio12	15	Audio16
16	GND	16	GND	16	GND	16	GND

7.3. DS-4208HFVI Accessory and Connection

4ch video /4ch audio connection cable (2 units for each card)
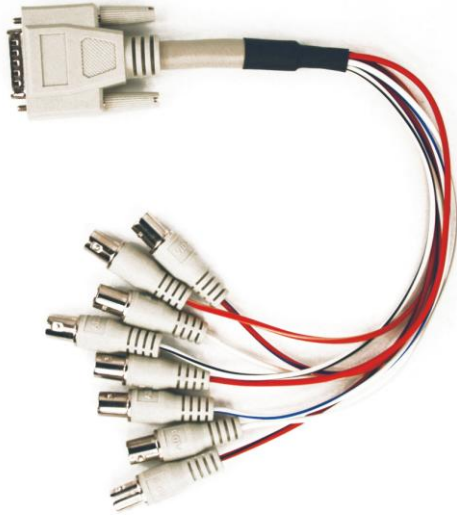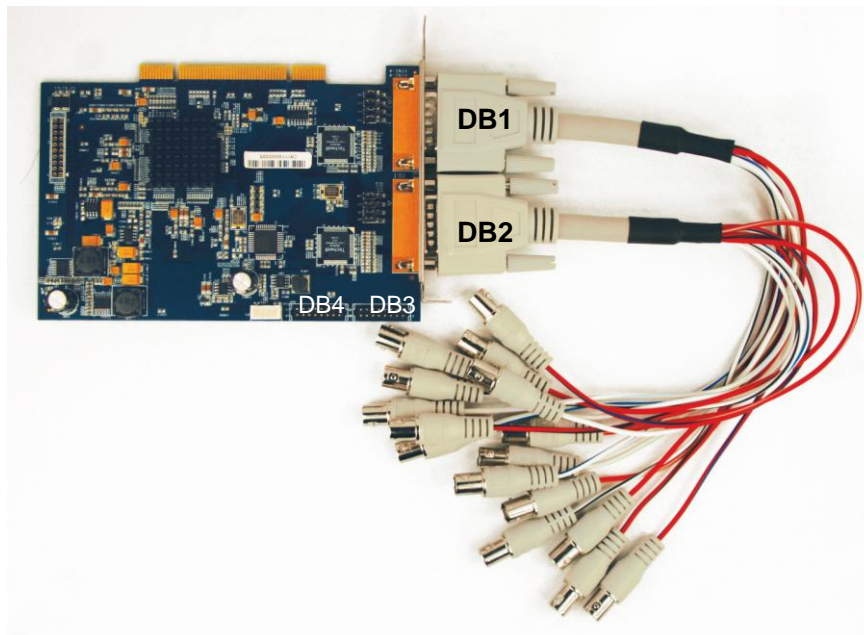

Description:

VID1~VID4 stand for "video 1~video 4" when connected to DB1, and "video 5~video 8" when connected to DB2;

AID1~AID4 stand for "audio 1~audio 4" when connected to DB1, and "audio 5~audio 8" when connected to DB2.

DS-4208HFVI Connection

DB1	video 1~video 4; audio 1~audio 4
DB2	video 5~video 8; audio 5~audio 8

## 7.4. DS-4208HFVI Video/Audio Input Pin Definition

Each DS-4208HFVI card is with 2 DB 15-pin female connectors (labeled DB1 and DB2), and each DB15 connector supports 4ch video input and 4ch audio input.
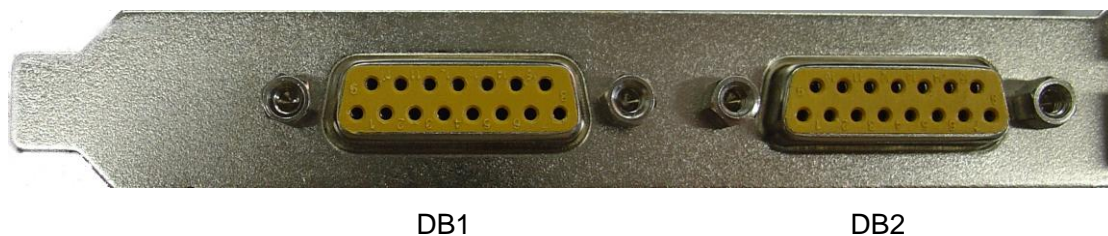
DB1   DB2

Pin Definition for DB1& DB2

DB1		DB2	
1	Video1	1	Video5
2	Video2	2	Video6
3	Video3	3	Video7
4	Video4	4	Video8
5	Audio1	5	Audio5
6	Audio2	6	Audio6
7	Audio3	7	Audio7
8	Audio4	8	Audio8
9	GND	9	GND
10	GND	10	GND
11	GND	11	GND
12	GND	12	GND
13	GND	13	GND
14	GND	14	GND
15	GND	15	GND
—	—	—	—

Users can also input video/audio via the on-board pins DB3 and DB4.

Pin2, 4, 6 ……………………16 (DB3)   Pin2, 4, 6 …………………16 (DB4)

Pin1, 3, 5 ……………………15 (DB3)   Pin1, 3, 5 …………………15 (DB4)
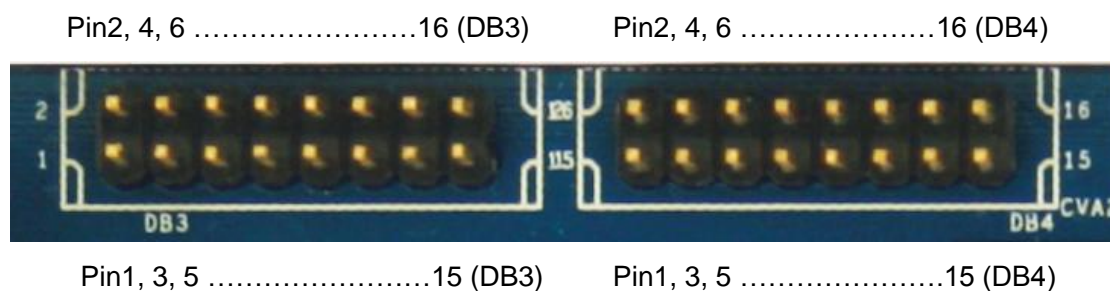
Pin Definition for DB3& DB4

DB3		DB4	
1	Video1	1	Video5
2	GND	2	GND
3	Video2	3	Video6
4	GND	4	GND
5	Video3	5	Video7
6	GND	6	GND
7	Video4	7	Video8
8	GND	8	GND
9	Audio1	9	Audio5
10	GND	10	GND
11	Audio2	11	Audio6
12	GND	12	GND
13	Audio3	13	Audio7
14	GND	14	GND
15	Audio4	15	Audio8
16	GND	16	GND

7.5. DS-4216HCI Accessories and Connection

8ch video+2ch audio connection cable (2 units for each card)
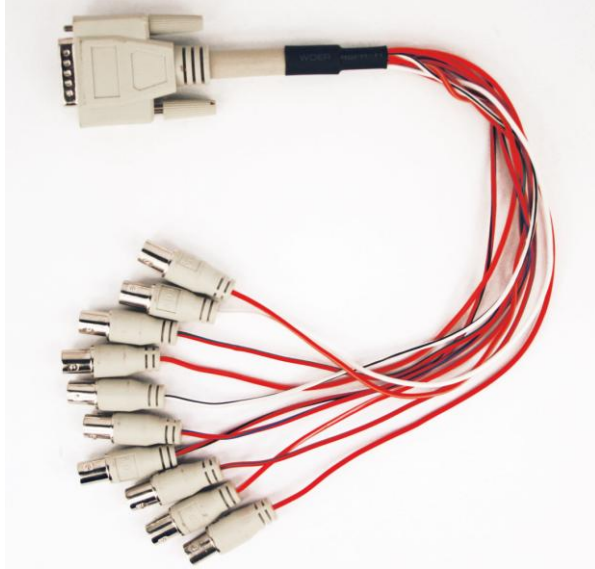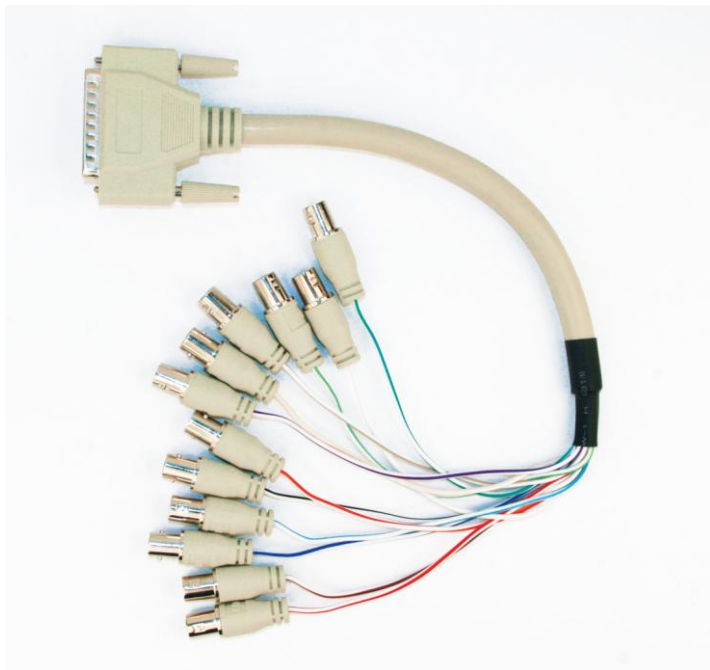

Description:

VID1~VID8 stand for "video 1 ~ video 8" or "video 9~video 16" ;

AID1, AID2 stand for "audio 1~audio 2" or "audio 3~audio 4"

12ch audio connection cable and installation adapter (1 unit for each card)

Description:

AID5~AID16 stand for "audio 5~audio 16"

DS-4216HCI Connection
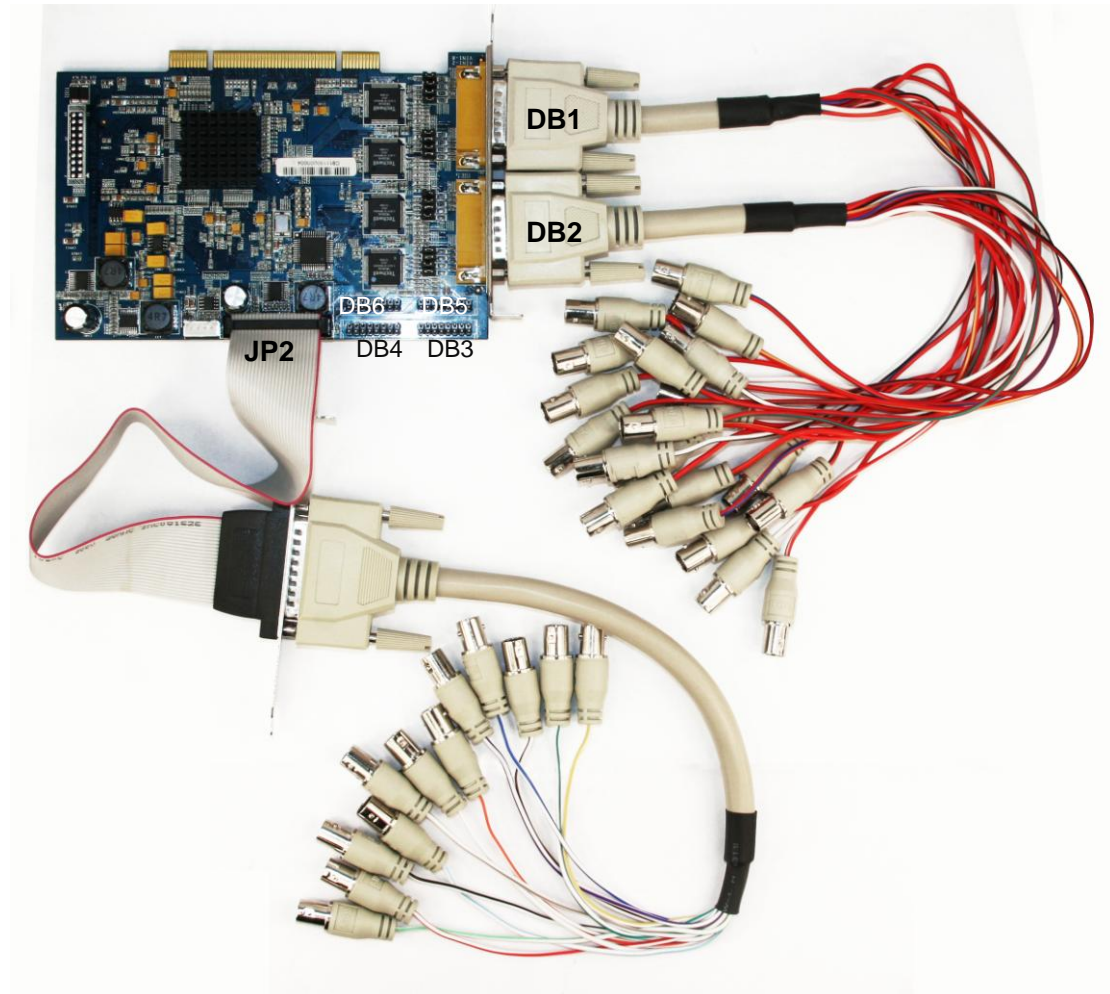
DB1	video 1~video 8; audio 1, audio 2
DB2	video 9~video 16; audio 3, audio 4
JP2	audio 5~audio 16

7.6. DS-4216HCI Video/Audio Input Pin Definition

Each DS-4216HCI card is with 2 DB 15-pin female connectors (labeled DB1 and DB2), and each DB15 connector supports 8ch video input and 2ch audio input.

DB1   DB2

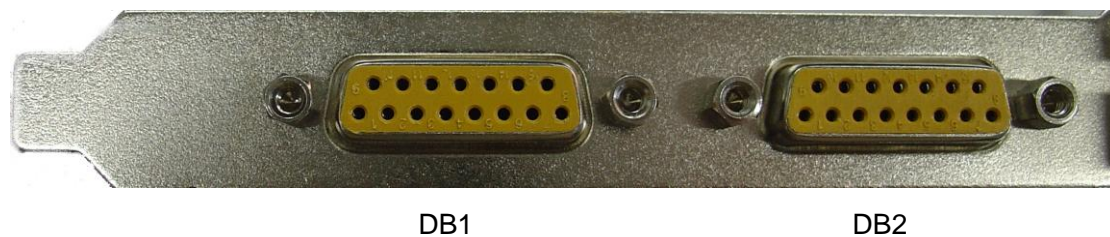On the card there is also a connector labeled JP2 for an extra 12ch audio input via an audio connection cable.
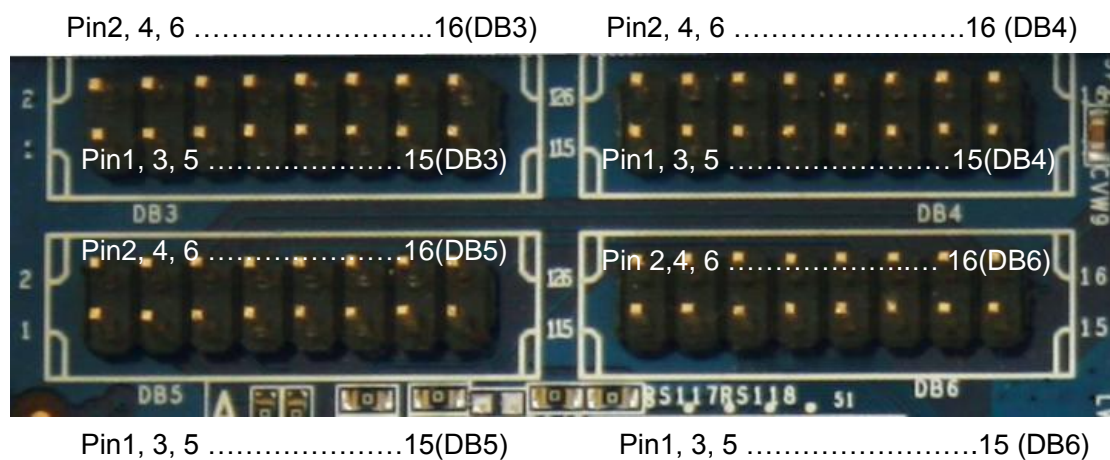
Pin 2, 4, 6 ……………………24 (JP2)

Pin 1, 3, 5 …………………….…..25(JP2)

Pin Definition for DB1, DB2, JP2

DB1		DB2		JP2	
1	Video1	1	Video9	1	Audio5
2	Video2	2	Video10	2	GND
3	Video3	3	Video11	3	Audio6
4	Video4	4	Video12	4	GND
5	Video5	5	Video13	5	Audio7
6	Video6	6	Video14	6	GND
7	Video7	7	Video15	7	Audio8
8	Video8	8	Video16	8	GND
9	Audio1	9	Audio3	9	Audio9
10	GND	10	GND	10	GND
11	GND	11	GND	11	Audio10
12	GND	12	GND	12	GND
13	GND	13	GND	13	Audio11
14	GND	14	GND	14	GND
15	Audio 2	15	Audio 4	15	Audio12
				16	GND
				17	Audio13
				18	GND
				19	Audio14
				20	GND
				21	Audio15
				22	GND
				23	Audio16
				24	GND
				25	GND

Users can also input video/audio via the on-board pins DB3, DB4, DB5 and DB6.

Pin2, 4, 6 ……………………..16(DB3)   Pin2, 4, 6 ……………………16 (DB4)

Pin1, 3, 5 …………………15(DB3)   Pin1, 3, 5 ……………………15(DB4)

Pin2, 4, 6 …………………16(DB5)   Pin 2,4, 6 …………………..16(DB6)

Pin1, 3, 5 …………………15(DB5)   Pin1, 3, 5 …………………….15 (DB6)

Pin Definition for DB3, DB4, DB5 and DB6

DB3		DB4		DB5		DB6	
1	Video1	1	Video5	1	Video9	1	Video13
2	GND	2	GND	2	GND	2	GND
3	Video2	3	Video6	3	Video10	3	Video14
4	GND	4	GND	4	GND	4	GND
5	Video3	5	Video7	5	Video11	5	Video15
6	GND	6	GND	6	GND	6	GND
7	Video4	7	Video8	7	Video12	7	Video16
8	GND	8	GND	8	GND	8	GND
9	Audio1	9	Audio5	9	Audio9	9	Audio13
10	GND	10	GND	10	GND	10	GND
11	Audio2	11	Audio6	11	Audio10	11	Audio14
12	GND	12	GND	12	GND	12	GND
13	Audio3	13	Audio7	13	Audio11	13	Audio15
14	GND	14	GND	14	GND	14	GND
15	Audio4	15	Audio8	15	Audio12	15	Audio16
16	GND	16	GND	16	GND	16	GND