DVP-7421BE

4 Channel Triplex MPEG-1/2/4 Video/Audio Codec Card

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CE notification

The DVP-7421BE, developed by ADVANTECH CO., LTD., has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information

On-line Technical Support

For technical support and service, please visit our support website at:

http://www.advantech.com/support

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CHAPTER

General Information

Chapter 1 General Information

1.1 Introduction

The DVP-7421BE is a high-end video capture board with a hardware codec (simultaneous compression/ decompression, or encode/decode) engine. It supports 4-channel live preview, video/audio compression and playback at D1 resolution and 120/100 fps. Up to four DVP-7421BE boards can installed in one PC for concurrent live viewing, compression and playback of up to 16 channels at D1 resolution and 480/400 fps. The programmer can use the comprehensive SDK to load protection code or system parameters into the on-board 128-byte EEPROM. The SDK comes with sample code for reference. The hardware codec engine makes the DVP-7421BE the ideal platform for applications like network video servers, Video conferencing and high-end digital video recorders.

1.2 Production Feature

🕬 D¥P7421B Copyright (C) Advantech Co. Ltd. (20070713)			
Channel 1 - NTSC - MPEG4 - D1 -	Encode Playback Preview Snapshot	Sensor Control Enc Control GPIO Control EE Control	Setting ✓ Save C:\MPEG4NTSC01.mpg ✓ Partition file Size : 5 MB
	Motion Detect	MPEG4toDivx DVP7421BEnc	Exit

The photo is the main interface of DVP-7421BE sample program. The DVP-7421BE feature is like below :

A. EEPROM function ready product

Customer can write the value in EEPROM and check the value before surveillance software boot up. System Integrator can design protection to protect software system. Valid offset values are between 0-127,Valid output values are in the range of 0 and 255.

B. Full D1,real time,MPEG1/2/4,Video and Stereo Audio Hardware Encode

The DVP-7421BE support the full D1 resolution, real time (encode frame rate 30 fps). Moreover, the DVP-7421BE can encode the stereo audio input to MPEG1-LayerII format.

C. Full D1,real time,MPEG1/2/4,Video and Stereo Audio Hardware Decode

Like encode model, the DVP-7421BE can decode D1 resolution, real time, and stereo audio out. The user can easily playback the compression by the

DVP-7421BE hardware capability.

D. Software Decoder to AVI

The DVP-7421BE support software decode that can convert compression MPEG file to AVI format (*.Divx).It is convenient for customer integrate the function to their software system.

E. GPIO access control

User can integrate the DI/DO device, like warning alarm or IR sensor. The demo program can show and feedback the signal information connection or not. It's a function good for SI combine various device to establish powerful surveillance system.

F. Smart Quad Real-time Raw Data Preview

This special characteristic function can support the user raw data to further advantage. For example, one can use the function in the domain of intelligent analysis, image comparison and optical Inspection, etc. The Smart Quad raw data can provide the 4CIF video files that combined in D1 resolution block. The customer also can choices one of Quad to advance operation.

G. Hardware Motion Detection

The DVP-7421BE hardware support motion detection. User can set nine areas to monitor the video changes. The degree of changes could set by library code. It is a benefit for software develops less effort on motion function.

H. Video Configuration

The DVP-7421BE can configure the most feature of video. User can set GOP frames, GOP type, Video Format, Frame rate, Video Bit rate, Average Video Bit Rate, Audio Bit rate, Audio Sampling rate, etc.

Encoding paramaters setting			
GOP frames	15	(1~256)	Motion
GOP type	IP	•	OK
Frame rate	NTSC29	97fp 👻	Exit
Video bit rate	4000	(128~15000)	kbps)
Average video bit rate	3500	(128~9000 ki	ops)
Audio bit rate	128	💌 (Kbps)	
Audio sampling rate	48	• (KHz)	

1.3 Product Spec

	Video Standard	Composite for NTSC/PAL
	Video Input	4 x BNC connectors
	Capture Resolution	D1 (NTSC: 720 x 480; PAL: 720 x 576)
	Frame Rate	30/25 fps (NTSC/PAL) for each channel
		(total 120/100 fps @ D1 resolution)
	Image Processing	Hardware adjustment of hue, contrast,
Video		saturation, and brightness
	Video	MPEG-1/2/4 (CBR/VBR 128 kbps to 15
	Encoding/Decoding	Mbps)
	Video Output	PCI preview/playback stream
		Analog video out from Smart Quad
	Video Loop-through	4 X BNC Connectors
	Audio Input	4 x stereo inputs (8 x BNC connectors)
Audio	Audio Output	4 x stereo outputs from decoder
	Audio Encoding	Supports MPEG1-Layer II
	Operating System	Supports Microsoft Windows XP and
Software		Windows 2000
Development	DirectX Required	Version 9 or above
Kit	Demo Program	Complete demo program with VC++
		sample code for reference
	Host Interface	PCI bus
Hardware	Max. Card	4
	DIO	TTL/CMOS level 3.3 V, 4 DI/4 DO
	Power Consumption	5 V DC @ 3 A , 12 V DC @ 0.5 A
	Temperature	-10 ~ 60° C, Operating -20 ~ 70° C,
Environment		Non-operating
	Dimensions (W x L)	182.6 x 106.9 mm (7.2" x 4.2")

Table 1.1 Product spec

1.3.1 Hardware Requirements

- ◆ CPU : Intel Pentium III 800MGHz or above
- RAM : 256 MB SD RAM or above
- PCI slot : One PCI Slot or above
- VGA : AGP 4X above

1.3.2 Software Requirement

- Support Microsoft DirectX 9 or above
- Microsoft Windows 2000/XP
- Support Complete demo program with VC++ Builder programming language sample code for reference

1.3.3 Block Diagram



*Use four DVP-7421BE to consist of 16 channels application

Figure 1.1 Block diagram

1.3.4 Packing List

1 x DVP-7421BE video codec card

- 1 x Drive & Utility CD
- 2 x 30 cm Dsub-15 to 8 x BNC connector



Board product warranty card

P/N: 1700001618

P/N: 2066742100

P/N:9692742100E

P/N: 2190000902

1.3.5 Dimensions



Figure 1.2 Dimensions



Figure 1.3 Bracket I/O definition

1.3.6 Overview



ODM Only



Smart-Quad TV Out

Audio Pig-tail cable
No1: Ch1 Audio In
No2: Ch2 Audio In
No3: Ch3 Audio In
No4: Ch4 Audio In
No5: Ch1 Audio Loop out
No6: Ch2 Audio Loop out
No7: Ch3 Audio Loop out
No8: Ch4 Audio Loop out

4 x BNC Mono Audio In 4 x BNC Mono Audio Loop





4 x BNC Video In 4 x BNC Video Loop



1.3.7 Connector and Pin Definition

A. Extra Video Output





Pin	Туре	Def
1	Out	Video 1 Out
2	Out	Video 2 Out
3	Out	Video 3 Out
4	Out	Video 4 Out
5	-	GND

B. Extra Video Input





Pin	Туре	Def
1	In	Video 1 In
2	In	Video 2 In
3	In	Video 3 In
4	In	Video 4 In
5	-	GND

C. Extra Audio Input (Stereo L/R)



Audio Left Channel			
Input	Input CON		
Pin	Pin Type Def		
1	In	Audio L1	
2	In	Audio L2	
3	In	Audio L3	
4	In	Audio L4	
5	-	GND	

Audio Right Channel			
Input C	Input CON		
Pin	Туре	Def	
1	In	Audio R1	
2	In	Audio R2	
3	In	Audio R3	
4	In	Audio R4	
5	-	GND	

D. Extra Audio Output (Stereo L/R)



Audio Left Channel			
Outp	Output CON		
Pin	Pin Type Def		
1	Out	Audio L1	
2	Out	Audio L2	
3	Out	Audio L3	
4	Out	Audio L4	
5	-	GND	

Audio Right Channel				
Outp	ut CON			
Pin	Type Def			
1	Out Audio R1			
2	Out Audio R2			
3	Out Audio R3			
4	Out Audio R4			
5	- GND			

E. DI/O connector



Pin	Туре	Def
1	Out	GPIO 4
2	Out	GPIO 5
3	Out	GPIO 6
4	Out	GPIO 7
5	In	GPIO 0
6	In	GPIO 1
7	In	GPIO 2
8	In	GPIO 3
9	-	VCC
10	-	GND



Product Installation

Chapter 2 Product Installation

To facilitate the installation of the DVP-7421BE device drivers and utility software, you should read the instructions in this chapter carefully before you attempt installation. The device drivers and demo program for the DVP-7421BE board are located on the 「Driver & Utility CD」.

Please install Driver & Utility software before install hardware into PCI slot.

2.1. Install Driver & Utility CD

Step 1:

Open CD-ROM folder from \ My Computer \ CD \

DVP-7421BE_Software_Develop_Kit \ Installation | on

windows desktop.



Step 2:

Open \ulcorner Installation \lrcorner folder and double click \ulcorner Setup.exe \lrcorner to install driver and demo program for DVP-7421BE.

data2.cab



data1.cab







layout.bin

¢≿à







eta

setup.ini

setup.inx

Step 3:

Program start prepares files for installation.

Click 「Next」 bottom to continue



Step 4:

Input user name and company name and click Next bottom.

DVP7421B - InstallShield Wizard	
Customer Information Please enter your information.	
Please enter your name and the name of the company for which you work. User Name:	
×××	
<u>C</u> ompany Name:	
×××	
InstallShield	Cancel

Step 5:

Select Complete to install driver & demo program in default folder C:\program files\advantech\, otherwise select Custom to choose different folder. Click Next bottom.

DVP7421B - In	stallShield Wizard 🔀
Setup Type Select the se	tup type to install.
Please select	a setup type.
⊙ <u>C</u> omplete	All program features will be installed. (Requires the most disk space.)
O Custom	Select which program features you want installed. Recommended for advanced users.
InstallShield	< <u>B</u> ack Next > Cancel

Step 6:

Program starts install drivers and demo program. User can find demo program from [Start] →[Advantech] →[DVP7421B]



2.2. Hardware Installation

- 1 Turn off your computer and unplug the power cord.
- 2 Remove the cover of your computer.
- 3 Touch the metal part on the surface of your computer to neutralize any static electricity that might be on your body.
- 4 Place the DVP-7421BE into the Motherboard's PCI slot and connect corresponding pigtail cable to the back bracket of DVP-7421BE.



- 5 Replace the cover of your computer chassis.
- 6 Plug in the power cord and turn on the computer.

Note: Keep the anti-static bag for future use. You might need the original bag to store the Module if you have to remove the card from the PC or transport it elsewhere.

Install 4 x DVP-7421BE codec card into one system can establish of 16 channels hardware compression DVR platform.

2.3. install driver for capture card Step 1:

When computer boot into windows system, it will found new hardware and request user assign the driver location



Step 2:

Because we already install the driver into hard disk (default

folder c:\Program Files\Advantech\DVP7421B\Driver)

therefore user will not download from internet.

Please select [No, not this time] and click 「Next」 bottom.



Step 3:

Select [install from a list or specific location] and click next

Found New Hardware Wiz	ard		
	This wizard helps you install software for: Advantech WDM Video Capture 0601 If your hardware came with an installation CD or floppy disk, insert it now.		
	What do you want the wizard to do?		
	Install the software automatically (Becommended)		
	 Install from a list or specific location (Advanced) 		
	Click Next to continue.		
	< Back Next > Cancel		

Step 4:

Select [Search for the best driver in these locations] Click 「Browse」 bottom to choose folder [C:\Program Files\Advantech\DVP7421B\Driver\SAA7134 and click 「OK」

Please choose your search and installation op	tions.
• Search for the best driver in these locations.	
paths and removable media. The best driver for Search removable media (floppy, CD-RO Include this location in the search:	Browse For Folder ?
C:\Program Files\Advantech\DVP74218 Don't search. I will choose the driver to install. Choose this option to select the device driver fr the driver you choose will be the best match for	Local Disk (C:) Documents and Settings Program Files Advantech DVP7421B Driver SAA7134 Vweb2010 Vweb2010 Vweb2010 Vweb2010 Vweb2010 Vweb
	To view any subfolders, click a plus sign above.

Step 5:

Click 「Next」 bottom. Window start search and install driver for device [Advantech WDM Video Capture 0601]



Step 6:

Click Continue Anyway to install driver



Step 7:

Click 「Finish」 bottom to complete the driver instillation.



Step 8:

Install driver for [Advantech MPEG4 Codec device 0506](User must install four copy of driver for each DVP-7421BE capture card)

Found New Hardware Wizard
It is wizard beins you install software for: Advantech MPEG4 Codec device 0506 It your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? In hell the refuses outeratically (Personal del) In hell the refuses outeratically (Personal del) Install from a list or specific location (Advanced)
Click Next to continue.
< Back Next > Cancel

Step 9:

Select [Search for the best driver in these locations] Click 「Browse」 bottom to choose folder [C:\Program Files\Advantech\DVP7421B\Driver\Vweb2010 and click 「OK」 bottom.

Found New Hardware Wizard	tions
Search for the best driver in these locations.	
paths and removable media. The best driver for Search removable media (floppy, CD-RO	Browse For Folder ?X
 C:\Program Files\Advantech\DVP7421E Don't search. I will choose the driver to install. Choose this option to select the device driver fr the driver you choose will be the best match for 	
	To view any subfolders, click a plus sign above.



Step 10:

Right click on [My computer] on window desktop and select [Management] from pop-up menu.

Click [Device Manger]→[Sound, video and game controller]

User can find five devices from Advantech.

Advantech MPEG-4 Codec device 0506 x 4

Advantech WDM Video Capture 0601 x 1



2.4. Demo Program Functionality

Start demo program from $\lceil \text{Start}
ightarrow \rceil Advantech
ightarrow \rceil DVP7421B
ightarrow Following is demo program window.$

🌌 D¥P7421B	a DVP7421B Copyright (C) Advantech Co. Ltd. (20070713)				
Channel 1 - NTSC - MPEG4 - D1 -	Encode Playback Preview Snapshot	Sensor Control Enc Control GPIO Control EE Control	Setting Save C:\MPEG4NTSC01.mpg Partition file Size : 5	 	
	Motion Detect	MPEG4toDivx DVP7421BEnc	SDK V1.0	Exit	

2.4.1 Channel Select

Each "Channel" is representative of one codec chip. There are four channels for each DVP-7421BE. User can set different parameters to different channel.

₩ D¥P7421B	Copyright (C)	Advantech Co.	Ltd. (20070713)	
Channel 1 👻	Encode	Sensor Control	Setting	
Channel 1 Channel 2	Playback	Enc Control	C:\MPEG4NTSC01.mpg	
Channel 3 Channel 4 D1	Preview	GPIO Control		
	Snapshot	EE Control		MB
	Motion Detect	MPEG4toDivx		Exit
	s	DVP7421BEnc:	SDK V1.0	Ĵ.

2.4.2 Video Standard

Set the video standard of your camera and display.

Set the video and audio codec broadcast television systems.

[™] D ¥ P7421B	Copyright (C)	Advantech Co.	Ltd. (20070713)	
Channel 1 💌	Encode	Sensor Control	Setting	
NTSC -	Playback	Enc Control	I✔ Save	
PAL NTSC	Preview	GPIO Control	C:\MPEG4NTSC01.mpg	
D1 💌	Snapshot	EE Control	▼ Partition file Size : 5	MB
	Motion Detect	MPEG4toDivx		Exit
1		DVP7421BEnc		

2.4.3 Encoding Format

Set the encoding format for customize needs.

DYP7421B	Copyright (C)	Advantech Co.	Ltd. (20070713)	×
Channel 1 💌	Encode	Sensor Control	Setting	1
NTSC -	Playback	Enc Control	V Save	
MPEG4 -	Preview	GPIO Control	C:\MPEG4NTSCU1.mpg	
MPEG1 MPEG2	Snapshot	EE Control	▼ Partition file Size : 5	MB
MPEG4	Motion Detect	MPEG4toDivx	1	Exit
1		DVP7421BEnc	SDK V1.0	

2.4.4 Resolution

Set the video encoding resolution. D1 (NTSC : 720 x 480 ; PAL : 720 x 576) VGA(NTSC : 640 x 480 ; PAL : 640 x 576) QVGA(NTSC : 320 x 240 ; PAL : 320 x 288) SIF (NTSC : 352 x 240 ; PAL : 352 x 288) QCIF (NTSC : 176 x 120 ; PAL : 176 x 144)



2.4.5 Encoding Mode

Click 「Encode」 start encode video.

The bottom of the windows will show the file size of the encode file if the encode function is proceed.

🎫 D¥P7421B	🕬 D¥P7421B Copyright (C) Advantech Co. Ltd. (20070713)				
Channel 1 👻	Encode	Sensor Control	Setting		
NTSC 💌	Playback	Enc Control	✓ Save		
MPEG4 💌	Preview	GPIO Control	C:WPEG4WISCOI.mpg		
D1 💌	Snapshot	EE Control	▼ Partition file Size : 5 MB		
	Motion Detect	MPEG4toDivx	Exit		
DVP7421BEncSDK V1.0					

Channel 1 💌	Stop	Sensor Control	Setting
NTSC 👻	Playback	Enc Control	M Save
MPEG4 💌	Preview	GPIO Control	CAMPEG4N ISCUI mpg
D1 💌	Snapshot	EE Control	
	Motion Detect	MPEG4toDivx	Exit

2.4.6 Playback Mode

There are two way to show the result of playback.

1. Enable $\[\]$ Display Windows $\]$ watch the result in the display of host PC.

2. Connect the BNC cable out to the external display.

🕬 DYP7421B Copyright (C) Advantech Co. Ltd. (20070713)				
Channel 1 - NTSC - MPEG4 - D1 -	Encode Playback Preview Snapshot	Sensor Control Enc Control GPIO Control EE Control	Setting Save C:\MPEG4NTSC01.mpg Partition file Size : 5	 MB
,	Motion Detect	MPEG4toDivx DVP7421BEnc	SDK V1.0	Exit

ॐ D ¥ P7421B	×			
Channel 1 💌	Encode	Sensor Control	Setting	
NTSC 💌	Playback	Enc Control	Save	
MPEG4 💌	Preview	GPIO Control	C:\MPEG4NISCOI.mpg	
D1 💌	Snapshot	EE Control	▼ Partition file Size : 5	MB
	Motion Detect	MPEG4toDivx		Exit
DVP7421BEncSDK V1.0				



2.4.7 Preview Mode

MPEG4	opyright (C) Encode Playback Preview	Advantech Co. Sensor Control Enc Control GPIO Control	Ltd. (20070713) Setting Save C:\MPEG4NTSC01.mpg Partition file Size : 5	
Resolution setti	Motion Detect Chan	MPEG4toDivx mel 1 : Stop video o	encoding() success!	Exit
QVG/ V Qu V Dis OK	ad sable audio	Exit		

The User can preview on host PC using 「Preview Mode」 demo program. First select the button , 「Preview」; there will show the preview resolution setting windows. Ones choice the preview resolution , Quad in a D1 preview windows and switch audio on/off. Then user can preview the video on screen.

Channel :	I -	Encode	Sensor Control	Setting	
N TSC MPEG4	•	Playback Stop	Enc Control GPIO Control	C:\MPEG4NTSC01.mpg	
D1	-(Snapshot Motion Detect	EE Control MPEG4toDivx		Exit
	1	Board 1: P	review		
-					AND .
					1000

2.4.8 Snapshot

Only on Preview Mode jeffect that can enable Snapshot function. Like the above figure ,press the Snapshot to get the image data of specific channel video input. The snap image will be show on the up panel.

The snapshot saves in C:\Program Files\Advantech\DVP7421B

2.4.9 Motion Detect

Only on 「Encoding Mode」 enforce, then press the 「Motion Detect」 to enable the function that 「the movement」 of object will be connect the assigned command.

№ D¥P7421B	Copyright (C) Advantech Co.	Ltd. (20070713)
Channel 1 💌	Stop	Sensor Control	Setting
NTSC 💌	Playback	Enc Control	
MPEG4 -	Preview	GPIO Control	C:WPEG4N ISCUI .mpg
D1 🖵	Snapshot	EE Control	Partition file Size : 5 MB
	Motion Detect	MPEG4toDivx	Exit
1		Channel 1 : 10.	12 MBytes
55 D¥P7421B	Copyright (C)) Advantech Co.	LM. (20070713)
Channel 1 💌	Stop	Sensor Control	Setting
NTSC 💌	Playback	Enc Control	Save
MPEG4 💌	Preview	GPIO Control	C.MAPEG4N1SCOI.mpg
D1 💌	Snapshot	EE Control	Partition file Size : 5 MB
	Stop	MPEG4toDivx	Exit
Channel 1 : region 3. block count = 10x000000011			

The detail $\[\] for the below figure.$

Channel 1 • NTSC • MPEG4 • D1 •	Copyright (C) Advantech Encode Sensor Control Playback Enc Control Preview GPIO Control Snapshot EE Control Motion Detect MPEG4toDir Channel 1 : Stor view Stor view	Co. Ltd. (20070713) Nol Setting Save C:MPEG4NTSCO C:MPEG4NTSCO Partition file S vx leo encoding() success!	H.mpg ize : 5 MB Exit	
Encoding parame GOP frames GOP type Frame rate Video bit rate Average video b Audio bit rate Audio sampling	hters setting 15 (1~256) IP ▼ NTSC2997fp √ 4000 (128~1) it rate 3500 (128~9) 128 ▼ (Kbps rate 48 ▼ (KHz)	Motion OK Exit 5000 kbps) 000 kbps)	ID Left Right 1 0 15 2 15 30 3 0 15 5 15 30 6 30 45 7 0 15 8 15 30 9 30 45	Uint : microlock number Top Bottom Threshold 0 10 80 0 10 80 0 10 80 10 20 80 10 20 80 10 20 80 20 30 80 20 30 80 20 30 80 20 30 80 20 30 80
Area	Area 1 left Area 0 1	1 right 2 Left 5	30 4	45 Area3 Top
10	Area 1 Area 4	Area 2 Area 5	2 Area 3 5 Area 6	Area3 Bottom Area6 Top
30	Area 7 Total 9 Areas co Area = 15x10 bl The block =16x1	Area 8 ompose D1(72 ocks 16 pixel	3 Area 9 20x480) resolution	

The motion detect configure please refer the graph above.

2.4.10 Setting→ Save Specify the path and filename for encode data.

Channel 2 💌	Encode	Sensor Control	Setting
NTSC 💌	Playback	GPIO Control	IV Save
MPEG4 💌	Preview	Enc Control	U:\MPEG4NTSCU2.mpg
SIF 💌	Snapshot	MPEG4toDivx	Partition file
	Motion Detect	Exit	Size : 5 MB
Channel 1 : Stop video encodina() success!			

Separate encode data into specify size.

Channel 2 💌	Encode	Sensor Control	Setting
NTSC 💌	Playback	GPIO Control	ChDasenautrian d Catti
MPEG4 💌	Preview	Enc Control	L:\Documents and Settir
SIF	Snapshot	MPEG4toDivx	Partition file
	Motion Detect	Exit	Size : 5 MB
Channel 1 : Stop video encodina() success!			

2.4.11 Sensor Control

SS DVP7421B Channel 1 ▼	Copyright (C) Encode	Advantech Co. Sensor Control	Ltd. (20070713)	×
NTSC • MPEG4 • D1 •	Playback Preview Snapshot	Enc Control GPIO Control EE Control	 ✓ Save C:\MPEG4NTSC01.mpg ☐ Partition file Size : 5 	мв
-	Chan	nel 1 : Stop video e	encoding() success!	
	ensor Control Brightness —— Contrast —— Saturation —— Hue ——	J J J	128 128 128 128 128 0K Cancel	

Sensor Control	Sensor Control
Brightness D	Brightness 255
Contrast 128	Contrast 128
Saturation 128	Saturation 128
Hue 128	Hue 128
OK Cancel	OK Cancel

To set the brightness, contrast, hue and saturation of specific channel. Please refer to Chapter 2, 「DVP-7421BE Functions

Library Summary _ :

DVP7421B_SetBrightness

DVP7421B_GetBrightness

DVP7421B_SetContrast

DVP7421B_GetContrast

DVP7421B_SetSaturation

DVP7421B_GetSaturation

DVP7421B_SetHue

DVP7421B_GetHueDVP-2420E_GetBrightness

2.4.12 GPIO control

To get a specified 4 DI value or to set a specified 4 DO value.

Channel ?	-	Encode	Sensor Control	Setting	
NTSC	-	Playback	Enc Control	V Save	
MPEG4	-	Preview	GPIO Control	C:MPEG4N ISCUI .mpg	
D1	-	Snapshot	EE Control	□ Partition file Size : 5	МВ
		Motion Detect	MPEG4toDivx		Exit
	e	PIO Control			1
			1 2 1 2	☐ [3] Get	

The user can connect the GPIO device. For example, ones connect DI 1 and DO 2. When user push[¬] Get _button, the blank will show the hook. The GPIO can confirm connection.

2.4.13 ENC control

The encode parameter are tuned more detail to tune in this item.

Channel	•	Encode	Sensor Control	Setting		
NTSC	-	Playback	Enc Control	C:\MPEG4NTSC01.mpg		
MPEG4	-	Preview	GPIO Control			
D1	•	Snapshot	EE Control			МВ
		Motion Detect	MPEG4toDivx			Exit
		Chan	nel 1 : Stop video e	encoding() suc	cessl	
	Ene	oding paramate FOP frames	ers setting	(1~256)	Motion	
	GOP type Frame rate		IP	-	<u>OK</u>	
			NTSC2997	fp 💌	Exit	
	Video bit rate		4000	(128~15000 kbps)		the second
	Average video bit rate Audio bit rate		rate 3500	(128~9000 kbps)		
1.1.1			128	▼ (Kbps)		
	-					

GOP frame : Set the value of Group Of Pictures between 1~256.

GOP type: Set type of mpeg I.P.B frame sequence.

Frame rate : Set the NTSC/PAL and the encode frame rate per second.

Video bit rate : Set the encode video compression rate between 128~15000kbps

Average Video bit rate : Set the average encode video

compression rate between 128~9000kbps

Audio bit rate : Set the encode audio compression rate

2.4.14 EE Control

		Address:	0	Read	100
		Chan EEPROM	nel 1 : Stop video e	ncoding() success!	
		Motion Detect	MPEG4toDivx		Exit
D1	•	Snapshot	EE Control	Partition file Size :	5 MB
MPEG4	-	Preview	GPIO Control	C:\MPEG4NTSC01.mpg	
NTSC	-	Playback	Enc Control	V Save	
	- <u>-</u>	Encode	Sensor Control	Setting	

Press the button $\[\ensuremath{\mathsf{EE}}\]$ control $\]$, the user can write two fields to EEPROM. When system shut down, the value will store. The user can write the key to protect the rights of the software. The numeric range of Address are 0~127, and the numeric range of Value are 0~255.

2.4.15 Convert Function

press the button" Mpeg4 to Divx" could convert the movie format from mpeg to Divx format video file.

S DYP74	121B	Copyright (C)	Advantech Co.	Ltd. (20070713)	×	
Channel	1 🕶	Encode	Sensor Control	Setting		
NTSC	•	Playback	Enc Control	V Save		
MPEG4	•	Preview	GPIO Control	C:\MPEG4NTSC01.mpg		
D1	•	Snapshot	EE Control	☐ Partition file Size : 5	MB	
		Motion Detect	MPEG4toDivx		Exit	
MPEG-4 to DiVX conversion. succes						
儲存於 Doc DVI Pro, WII MPI MPI	EG4N	◆ 本機磁磷 ts and Settings BTest Files VS TSC01 TSC01_0001	E (C:) MPEG4N TSC01 MPEG4N TSC01	_0002 _0003]-	
檔案名 存檔類	稱(N) 型(I)	: <mark>* mpg</mark> : Movie Files (*	í.mpg)		2	

2.4.16 Multi-Board ID Reorganization

Maximum performance Triplex example : The DVP-7421BE could preview < encode and playback simultaneously with four codec chip.

One system can install four DVP-7421BE capacities; it is notice below to recognize the board ID of multi-card.

The driver of the video capture device in the DVP-7421B is a DirectShow source filter. In the DirectShow , the device source filters are enumerated by the System Device Enumerator.

Because enumerate sequence is not by PCI Slot in proper ordering, there cannot know the video capture filter that is belong to which capture card owns. We use the below way to mapping video capture filter and capture card.

In the driver of the video codec chip , the instance of the video codec chip can be got corresponding to the order of the PCI slot.

We use the first codec chip to set the board ID (Refer to the SDK manual, DVP7421B_SetBoardID function.) After setting the board ID, the board LED will show the board ID. Next step, the video capture device filter will read the board ID (Refer to the SDK manual, DVP7421B_GetBoardID function),so the video capture device filter is belong to corresponding capture card.

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DVP-7421BE Triplex Function Experiment

Chapter 3 DVP-7421BE Triplex Function Experiment

3.1 Platform : P4 Platform

Motherboard : Advantech AIMB-741E2-00A1 Motherboard (Intel 845E+ICH4)

CPU : Intel Pentium 4 , 2.4 GHz Memory : KINGMAX DDR-433/400 , 256MB PCI bus : PCI 32-bit/33 MHz, 5 slots VGA : Nvidia Geforce2 MX 400 , AGP , 64MB OS : XP professional , SP2 HDD : WD , 40G Experiment Parameter :

Video Standard : NTSC

Capture Frame Rate : real time , 30/25 fps for NTSC/PAL

Full D1(NTSC : 720 x 480) , QVGA(320 x 240)

Input Video Channel	Function Setting	Each Capture Resolution	Average CPU load (%)
16	Preview	Full D1	30%
16	Encode	Full D1	10%
16	Decode	Full D1	10%
16	Host PC Display	Full D1	30%
16	Preview+ Encode	FullD1 (Preview QVGA*)	40%
16	Decode+ Host PC Display	FullD1 (Preview QVGA*)	40%
16	Preview+ Encode+ Decode	FullD1 (Preview QVGA*)	50%
4	Preview	Full D1	15%
4	Encode	Full D1	0~5%
4	Decode	Full D1	0~5%
4	Host PC Display	Full D1	15%
4	Preview+ Encode	Full D1	15%
4	Decode+ Host PC Display	Full D1	15%
4	Preview+ Encode+ Decode	Full D1	20%

*Depends on user's MB design, PCI bandwidth consideration.

3.2 Appendix : Mpeg4 Software Decoder

The Document File,"MPEG4 Software Decoder",include two files. First,"mpgviddec.ax" : Vweb MPEG4 Decoder Filter Second,"VwebDemuxFilter2R.ax" : Vweb MPEG4 Demux Filter (this file is a "Filter" separate the Video and Audio) (File name can change by user)

User Guide Line: In command line execute "command" regsvr32 mpgviddec.ax → install regsvr32 /u mpgviddec.ax → uninstall

regsvr32 VwebDemuxFilter2R.ax \rightarrow install regsvr32 /u VwebDemuxFilter2R.ax \rightarrow uninstall