



ANT-6000X

Specification & User Manual

Version 1.5

October, 2012

This document is confidential and subject to change

ANT-6000X (ANT-6000E & ANT-6000D)



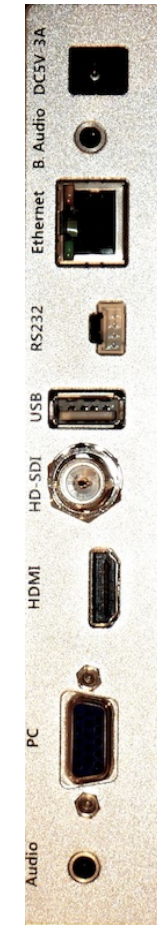
ANT-6000E
Front view♪



ANT-6000E
Rear view♪

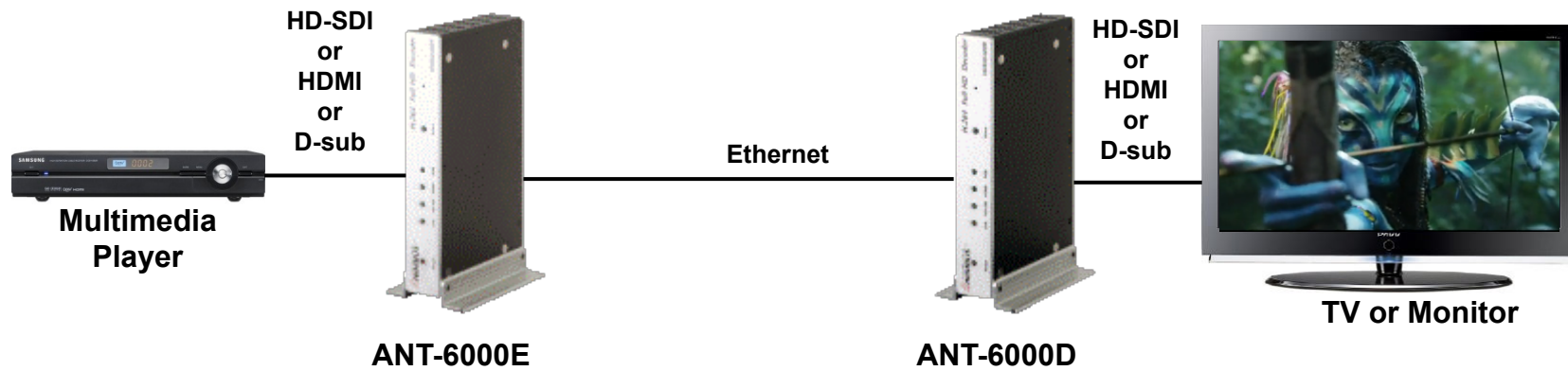


ANT-6000D
Front view♪



ANT-6000D
Rear view♪

ANT-6000X - Connection



ANT-6000X (ANT-6000E/ANT-6000D) Main Highlights

- ❑ 1080p60 full HD encode/decode with H.264 Baseline Profile (Level 4.2)
 - Supports both interlacing and progressive input streams
- ❑ Very low encode/decode latency
 - Latency of encode-decode in 1080p60 HD: 90 ms
- ❑ PC2TV: Supports both DTV & VESA Standards
 - DTV: 1920x1080i60/p60, 1280x720p60, 720x480i60/p60
 - VESA:HD 1080 (1920x1080), WSXGA+(1680x1050), SXGA(1280x1024), WXGA(1280x800), XGA(1024x768), SVGA (800x600), VGA(640x480)
- ❑ High-end solution of the Ethernet full HD with 40Mbit/s of video encoding rate
- ❑ Full HD real-time streaming server over Internet (RTSP/RTP/UDP or MPEG-2 TS/UDP)
 - Maximum video encoding rate of RTSP/RTP/UDP streaming: 30 ~ 40Mbps
 - Maximum video encoding rate of MPEG-2 TS/UDP streaming: ~ 15Mbps
- ❑ HD-SDI & 3G-SDI Interface
- ❑ Supports either high quality 16-bit 48kHz audio or bandwidth efficient G.711 audio (64kbps or 128 kbps)
- ❑ Back channel audio
- ❑ Video out with video scaler
 - Support various video outputs on the ANT-6000D

Encoder (ANT-6000E)

Video Input

- HDMI(DVI): up to 1080p60, HDMI v1.3 compatible
- RGB (D-Sub): VESA formats up to 1280 x 1024 and 1920 x 1080p60
- HD-SDI & 3G-SDI: up to 1080i60/p60

Audio Input

- HDMI : HDMI compatible audio, Compressed or Uncompressed
- HD-SDI & 3G-SDI: SDI compatible audio
- Stereo Audio : Analog, 44.1kHz/48kHz 16-bit ADC
 - Stereo Phone Jack

Back Channel Audio Output

- Stereo Audio : Analog, 44.1kHz/48kHz 16-bit DAC
 - Stereo Phone Jack

Encoding of Moving Pictures

- H.264 (MPEG-4 Parts10: AVC)
- Baseline Profile with Level 4.2 (up to 1920 x 1080p60)

Ethernet Output for Audio/Video

- 10/100 BASE-Encoder, Cat.5 UTP cable
- Power Of Ethernet (Max. 13W): Option

USB for Engineering use

Serial port for bi-directional remote operation

Decoder (ANT-6000D)

- ❑ Video Output
 - HDMI: up to 1080p60, HDMI v1.3 compatible
 - RGB (D-Sub): VESA formats up to 1280 x 1024 and 1920 x 1080p60
 - HD-SDI & 3G-SDI: up to 1080i60/p60
 - COMPONENT (YPbPr) (using gender): All HDTV formats up to 1080i60
- ❑ Audio Output
 - HDMI: HDMI compatible audio
 - Stereo Audio : Analog, 44.1kHz/48kHz 16-bit DAC
 - Stereo Phone Jack & Stereo RCA Jack
- ❑ Back Channel Audio Input
 - Stereo Audio : Analog, 44.1kHz/48kHz 16-bit ADC
 - Stereo Phone Jack
- ❑ Decoding of Moving Pictures
 - H.264 (MPEG-4 Parts10: AVC)
 - Baseline Profile with Level 4.2 (up to 1920 x 1080p60)
- ❑ Ethernet Input for Audio/Video
 - 10/100 BASE-Encoder, Cat.5 UTP cable (150m)
 - Power Over Ethernet (Max. 13W): Option
- ❑ USB for Engineering use.
- ❑ Serial port for bi-directional remote operation

Video Format Supported: VESA & DTV

Video Standard	Resolutions				
		HDMI	D-SUB	COMP	SDI
PC Format (VESA or Industrial)	640 x 480P 60/70/72/75/85	O	O	X	X
	800 x 600P 56/60/72/70/75/85	O	O	X	X
	1024 x 768P 60/70/72/75/85	O	O	X	X
	1152 x 864P 60/70/75/85	O	O	X	X
	1280 x 800P 60	O	O	X	X
	1280 x 960P 60/70/72/75/85	O	O	X	X
	1280 x 1024P 60/70/75/85	O	O	X	X
	1360 x 768P 60	O	X	X	X
	1366 x 768P 60	O	X	X	X
	1440 x 900P 60	O	X	X	X
	1440 x 1050P 60	O	X	X	X
	1600 x 1200P 60/R60	O	O	X	X
	1600 x 900P 60	O	X	X	X
	1680 x 1050P 60/R60	O	x	X	X
	1920 x 1080P R60	O	O	X	O
TV Format (DTV or SMPTE)	720 x 480I60(NTSC)	O	O	O	O
	720 x 576I50(PAL)	O	O	O	O
	720 x 480P60	O	O	O	X
	720 x 576P50	O	O	O	X
	1280 x 720P50	O	O	O	O
	1280 x 720P60	O	O	O	O
	1920 x 1080I50	O	O	O	O
	1920 x 1080I60	O	O	O	O
	1920 x 1080P24	O	O	X	O
	1920 x 1080P25	O	X	X	O
	1920 x 1080P30	O	X	X	O
	1920 x 1080P50	O	O	O	O
	1920 x 1080P60	O	O	O	O

Common Specifications

Video Compression		H.264 Baseline Profile Level 4.2
Video Resolutions (partial list)		480i/p, 720p, 1080i and 1080p (24fps/30fps/60fps)
System Latency		Less than 90 millisecond Delay between Transmitter and Receiver
Ethernet LAN		10/100 BASE-Encoder, car.5e UTP cable
		Optional: PoE (Max. power 13W)
USB		Upgrade SW firmware
		Optional: 3G/LTE wireless network
Power Supply		6 - 12V/1.5A DC
Dimensions (H x W x D, mm)		Board: 28 x 175 x 100, Enclosure: 30 x 184 x 101
Weight (g)	Encoder	400g (with case), 140g (without case)
	Decoder	400g (with case), 140g (without case)
Operating Temperature		Operating from 0°C ~ 40°C
Storage Temperature		Storage from -20°C ~ 60°C

ANT-6000E/D specification

ANT-6000E spec

Digital Video IN Interface	1 x HDMI	HDMI-v1.3 compatible, Up to 24 bit RGB or YUV (4:2:2)
	1 x HD-SDI	Female BNC, 3G-SDI(2.970Gb/s), HD-SDI(1.485Gb/s), SD-SDI(270Mb/s)
Analog Video IN Interface	1 x D-Sub (15pin)	RGB Video with D-Sub, YPbPr with D-Sub to component gender
Digital Audio IN Interface	HDMI, HD-SDI	2 Ch Linear PCM, DTS 5.1 Ch., AC3 5.1 Ch.
Analog Audio IN Interface	Mini Stereo headphone Jack	48 kHz sampling with 16bits resolution
Back channel Audio OUT Interface	Mini Stereo headphone Jack	48 kHz sampling with 16bits resolution

ANT-6000D spec

Digital Video OUT Interface	1 x HDMI	HDMI-v1.3 compatible, Up to 24 bit RGB or YUV (4:2:2)
	1 x HD-SDI	Female BNC, 3G-SDI(2.970Gb/s), HD-SDI(1.485Gb/s), SD-SDI(270Mb/s)
Analog Video OUT Interface	1 x D-Sub (15pin)	RGB Video with D-Sub, YPbPr with D-Sub to component gender
Digital Audio OUT Interface	HDMI, HD-SDI	2 Ch Linear PCM, DTS 5.1 Ch., AC3 5.1 Ch.
Analog Audio OUT Interface	Mini Stereo headphone Jack	48 kHz sampling with 16bits resolution
Back channel Audio IN Interface	Mini Stereo headphone Jack	48 kHz sampling with 16bits resolution
SDI signal Formats	SMPTE-425M-A/B	1080p (60/59.94/50/30/29.97/25/24/23.98)
	SMPTE-274M	1080i (60/59.94/50)
		1080p (60/59.94/50/30/29.97/25/24/23.98)
	SMPTE-296M	720p (60/59.94/50)
	SMPTE-259M-C	576i (50) / 487i (59.94)
	ITU-R BT.656	SD format
	ITU-R BT.709 and BT.1120-6	1125 line format

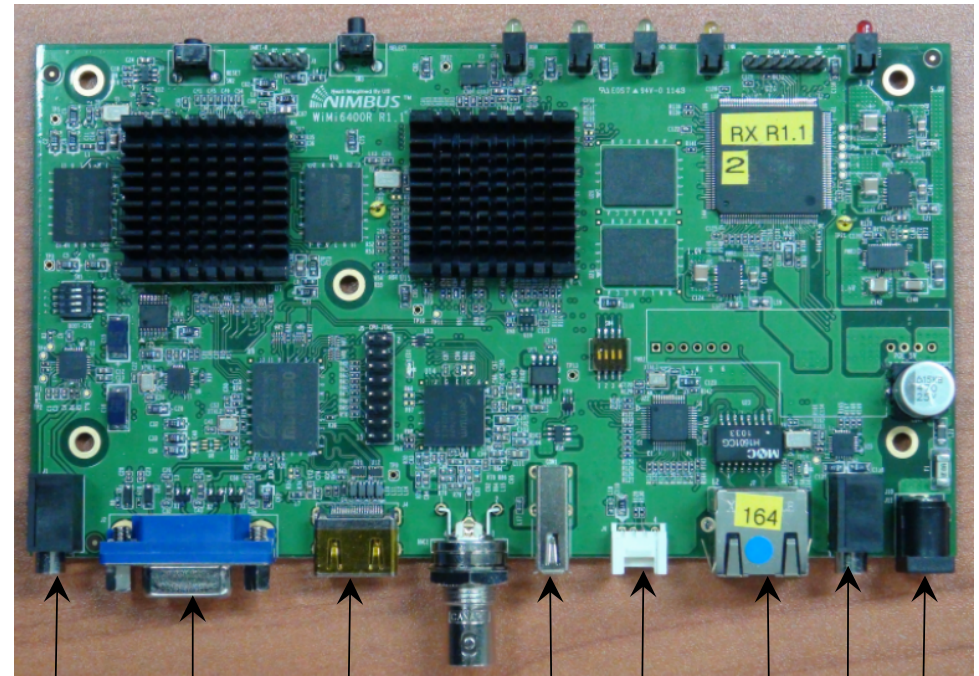
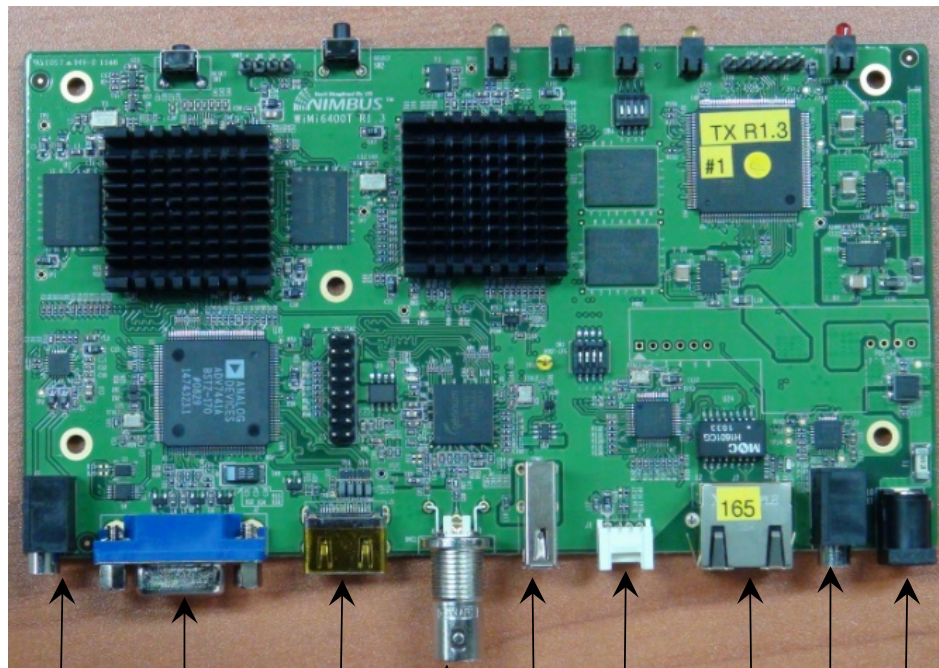
ANT-6000E/D Video Outputs

Output Mode (HDMI Colour space)	SDI		HDMI		RGB	YPbPr	Analog Audio
	Video	Audio ⁽¹⁾	Video	Audio			
HDMI (RGB)	Colour mismatch	OK	OK	OK	OK	No Out	OK
HDMI (YPbPr)	OK	OK	OK	OK	Colour mismatch	OK	OK
DSUB	No Out	No Out	OK	OK	OK	No Out	OK
Component	OK	OK	OK	OK	Colour mismatch	OK	OK
HDSDI	OK	OK	OK	OK	Colour mismatch	OK	OK

Boards of Encoder (ANT-6000E)/Decoder (ANT-6000D)

Encoder ↴

Decoder ↴

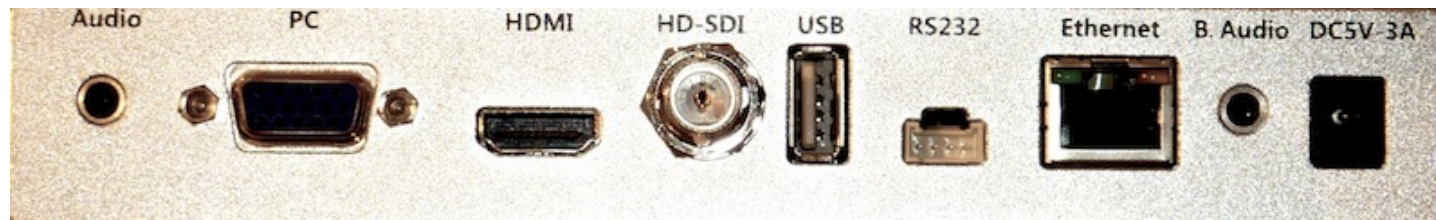


- Audio In
- D-Sub
- HDMI
- HD-SDI
- USB
- RS-2 32C
- LAN
- Back Ch. Audio
- +12.0V POWER

- Audio out
- D-Sub
- HDMI
- HD-SDI
- USB
- RS-2 32C
- LAN
- Back Ch. Audio
- +12.0V POWER

Details subject to change and Firmware version

ANT-6000X Front LED & Rear Connector



LED Description

ANT-6000E		ON	OFF	Blinking
Power	RED	Power on	Power off	-
Link	YEL	-	-	Link up status and data transmit
HD-SDI	GRN	Selected and input normal	Not Selected	Selected and No input
HDMI	GRN	Selected and input normal	Not Selected	Selected and No input
RGB	GRN	Selected and input normal	Not Selected	Selected and No input

ANT-6000D		ON	OFF	Blinking
Power	RED	Power on	Power off	-
Link	YEL	Link up status and data transmit	-	-
HD-SDI	GRN	Selected and output normal	Not Selected	Selected and No output
HDMI	GRN	Selected and output normal	Not Selected	Selected and No output
RGB	GRN	Selected and output normal	Not Selected	Selected and No output

LED operation at booting

ANT-6000E	Link LED	Video Port LED (HD-SDI, HDMI, RGB)	Time
Power LED ON	Blinking	3 x LED Blinking	4~5sec
Booting	Blinking	LED Off	40~45sec
	Blinking	Blinking	60~65sec
Normal operation	Fast Blinking	LED On	90~95sec

ANT-6000D	Link LED	Video Port LED (HD-SDI, HDMI, RGB)	Time
Power LED ON	Blinking	3 x LED Blinking	4~5sec
Booting	Blinking	LED Off	40~45sec
Normal operation	LED On	LED On	90~95sec

Factory Reset

- ❑ Factory reset will be started by pushing SEL button more than 20 seconds.
- ❑ All LEDs except power LED will blink fast, then you can release the button.
- ❑ It will reboot after 2~3 minutes.
- ❑ The IP address will be set to default value of 192.168.0.161 for ANT-6000E, and 192.168.0.162 for ANT-6000D.

Web Based Interface

- System Configuration
- Serial port Configuration
- FW Images
- Streaming Control
- Save changes
- Reboot System

System Configuration

Changing IP address of the ANT-6000E or ANT-6000D

- ❑ Default IP address of the ANT-6000E and ANT-6000D were set to 192.168.0.161 for ANT-6000E (Encoder) and 192.168.0.162 for ANT-6000D (Decoder). So, if this IP address is used by other IP devices on the same network, then you have to change the IP address to another one through the web interface of the Encoder and Decoder. You can connect to the embedded web page of the Encoder/Decoder with Encoder/Decoder's IP address via Internet Explorer. Please connect a laptop or PC to the Encoder (Decoder) with a CAT5e Ethernet cable directly. And enter the below IP address on the URL of Internet Explorer/Chrome.

Example of the Encoder) <http://192.168.0.161>

Example of the Decoder) <http://192.168.0.162>

1. Change the IP address using "Ethernet IP", "Ethernet NetMask" & "Gateway" to correct values, page 18 of this user guide.
2. Save the changed IP address, page 39.
3. Enter the new IP address of the ANT-6000E on the URL of Internet Explorer.
4. Same changes should be repeated to the ANT-6000D.

- ❑ And, if you did change the Encoder or Decoder IP address, you have to input the "Peer IP (lan)" in the "System Configuration" page. New IP address of the Decoder must be entered in to the Encoder's "Peer IP(lan)" field, and the new IP address of Encoder must be entered on to the Decoder's "Peer IP(lan)" value.

System Configuration (Encoder)

The screenshot shows a web browser window displaying the 'System Configuration' page for an ANTRICA encoder. The browser title is 'WBI(192,168,0,161) - Internet Explorer, optimized for Bing and MSN' and the address bar shows 'http://192,168,0,161/home.asp'. The page has a navigation menu on the left and a main configuration area on the right. The configuration fields are as follows:

Field	Value
Ethernet IP	192,168,0,161
Ethernet NetMask	255,255,255,0
Ethernet MAC	80:64:59:00:00:00
Ethernet Gateway	192,168,0,1
Streaming Mode	P2P
Group IP(multicast)	227,2,2,9
Peer IP	192,168,0,162
Multicast TTL	1

At the bottom of the configuration area are 'Submit' and 'Refresh' buttons. The model number 'ANT-6000X' is displayed at the bottom left of the page. The browser zoom is set to 100%.

Callouts and their corresponding fields:

- Ethernet Configurations:** Points to the Ethernet IP, NetMask, MAC, and Gateway fields.
- Streaming Mode : P2P/Multicast:** Points to the Streaming Mode dropdown menu.
- Multicast address when Multicast mode:** Points to the Group IP(multicast) field.
- Peer address when P2P mode:** Points to the Peer IP field.
- Count value for Multicast Time To Live:** Points to the Multicast TTL field.
- Click 'Submit' to activate the changes of Configuration:** Points to the Submit button.
- Click 'Refresh' to display current status:** Points to the Refresh button.

System Configuration (Encoder) – P2P mode

The screenshot shows a web browser window displaying the 'System Configuration' page for an ANTRICA device. The browser address bar shows 'http://192.168.0.161/home.asp'. The page has a navigation menu on the left and a main configuration area on the right. The configuration fields are as follows:

Field	Value
Ethernet IP	192.168.0.161
Ethernet NetMask	255.255.255.0
Ethernet MAC	80:64:59:00:00:00
Ethernet Gateway	192.168.0.1
Streaming Mode	P2P
Group IP(multicast)	227.2.2.9
Peer IP	192.168.0.162
Multicast TTL	1

Two callout boxes with arrows point to the 'Streaming Mode' dropdown and the 'Peer IP' input field. The first callout box says 'Select P2P' and the second says 'Enter Peer address'. At the bottom of the page, there are 'Submit' and 'Refresh' buttons. The device model 'ANT-6000X' is visible in the bottom left corner of the page content.

System Configuration (Encoder) – Multicast mode

The screenshot displays the System Configuration page for the WBI(192.168.0.161) device. The page is accessed via Internet Explorer. The configuration fields are as follows:

Field	Value
Ethernet IP	192.168.0.161
Ethernet NetMask	255.255.255.0
Ethernet MAC	80:64:59:00:00:00
Ethernet Gateway	192.168.0.1
Streaming Mode	Multicast
Group IP(multicast)	227.2.2.9
Peer IP	192.168.0.162
Multicast TTL	1

Navigation menu items:

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes
- Reboot System

Buttons: Submit, Refresh

Callout boxes:

- Select Muticast (points to Streaming Mode dropdown)
- Enter multicast address (points to Group IP(multicast) field)

ANT-6000X

System Configuration (Decoder)

The screenshot shows the 'System Configuration' page in Internet Explorer. The browser title is 'WBI(192.168.0.162) - Internet Explorer, optimized for Bing and MSN' and the address bar shows 'http://192.168.0.162/home.asp'. The page has a navigation menu on the left with items: System Configuration, Serial Port Configuration, S/W Images, Streaming Control, Save Changes, and Reboot System. The main content area is titled 'System Configuration' and contains the following fields:

- Ethernet IP: 192.168.0.162
- Ethernet NetMask: 255.255.255.0
- Ethernet MAC: 80:64:59:80:00:01
- Ethernet Gateway: 192.168.0.1
- Streaming Mode: P2P (dropdown menu)
- Group IP(multicast): 227.2.2.8
- Peer IP: 192.168.0.161

At the bottom of the form are 'Submit' and 'Refresh' buttons. The device model 'ANT-6000X' is displayed at the bottom left of the page. Several callout boxes provide instructions:

- 'Ethernet Configurations' points to the Ethernet IP, NetMask, MAC, and Gateway fields.
- 'Streaming Mode : P2P/Multicast' points to the Streaming Mode dropdown.
- 'Multicast address when Multicast mode' points to the Group IP field.
- 'Peer address when P2P mode' points to the Peer IP field.
- 'Click 'Submit' to activate the changes of Configuration' points to the Submit button.
- 'Click 'Refresh' to display current status' points to the Refresh button.

System Configuration (Decoder) – P2P mode

The screenshot shows a web browser window with the URL `http://192.168.0.162/home.asp`. The page title is "WBI(192.168.0.162) - Internet Explorer, optimized for Bing and MSN". The main content area is titled "System Configuration" and contains the following fields:

- Ethernet IP: 192.168.0.162
- Ethernet NetMask: 255.255.255.0
- Ethernet MAC: 80:64:59:80:00:01
- Ethernet Gateway: 192.168.0.1
- Streaming Mode: P2P (selected in a dropdown menu)
- Group IP(multicast): 227.2.2.8
- Peer IP: 192.168.0.161

At the bottom of the configuration area are "Submit" and "Refresh" buttons. A navigation menu on the left includes "System Configuration", "Serial Port Configuration", "S/W Images", "Streaming Control", "Save Changes", and "Reboot System". The device model "ANT-6000X" is displayed at the bottom left of the page. Two callout boxes with arrows point to the "Streaming Mode" dropdown and the "Peer IP" field, with the text "Select P2P" and "Enter Peer address" respectively.

System Configuration (Decoder) – Multicast mode

The screenshot shows a web browser window with the URL `http://192.168.0.162/home.asp`. The page title is "WBI(192.168.0.162) - Internet Explorer, optimized for Bing and MSN". The browser tabs show "WBI(192.168.0.161)" and "WBI(192.168.0.162)".

Navigation

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes
- Reboot System

System Configuration

Ethernet IP	<input type="text" value="192.168.0.162"/>
Ethernet NetMask	<input type="text" value="255.255.255.0"/>
Ethernet MAC	<input type="text" value="80:64:59:80:00:01"/>
Ethernet Gateway	<input type="text" value="192.168.0.1"/>
Streaming Mode	<input type="text" value="Multicast"/>
Group IP(multicast)	<input type="text" value="227.2.2.8"/>
Peer IP	<input type="text" value="192.168.0.161"/>

ANT-6000X

100%

Annotations:

- "Select Muticast" points to the Streaming Mode dropdown menu.
- "Enter multicast address" points to the Group IP(multicast) text input field.

Serial Port Configuration

The screenshot shows a web browser window with the address bar displaying `http://192.168.0.161/home.asp`. The page title is "WBI(192,168,0,161) - Internet Explorer, optimized for Bing and MSN". The main content area is titled "Serial Port Configuration" and contains the following elements:

- Navigation:** A sidebar menu with options: System Configuration, Serial Port Configuration, S/W Images, Streaming Control, Save Changes, and Reboot System.
- Configuration Fields:**
 - Baudrate:** A dropdown menu set to 9600.
 - Stop Bit:** A dropdown menu set to 1.
 - Character Size:** A dropdown menu set to CS8.
 - Parity:** A dropdown menu set to DISABLE.
 - Flow Control:** A text field set to None.
- Buttons:** "Submit" and "Refresh" buttons.
- Parameter Lists:** Four light blue boxes listing available options for each parameter:
 - Baud rate:** 1200, 2400, 4800, 9600, 19200, 38400, 115200.
 - Stop Bit:** 1 or 2.
 - Character size:** CS5, CS6, CS7, CS8.
 - Parity:** Disable, Add, Even.

At the bottom left of the page, the text "ANT-6000X" is visible. The browser's status bar at the bottom right shows a zoom level of 100%.

Firmware Images

Also referred to as FW or S/W

FW Images (S/W)

The screenshot shows a web browser window titled "WBI(192.168.0.161) - Internet Explorer, optimized for Bing and MSN" with the URL "http://192.168.0.161/home.asp". The page content is organized into a navigation sidebar and a main "S/W Images" section.

Navigation:

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes
- Reboot System

S/W Images Section:

- Working S/W Information:** Image Name: nimbus:100,15; Created: Fri Jun 8 16:10:26 2012; Size: 6849391 Bytes. Callout: "Information about currently working FW".
- Flash S/W Information:** Image Name: nimbus:100,15; Created: Fri Jun 8 16:10:26 2012; Size: 6849391 Bytes. Callout: "Information about FW on Flash ROM".
- downloaded S/W Information:** Image Name: nimbus:100,14; Created: Wed May 30 15:13:17 2012; Size: 6844197 Bytes. Callout: "Information about newly downloaded FW on RAM". Buttons: "Delete" and "Write To Flash".
- Server file's URL:** Input field with "Download" button. Callout: "Download from Server or upload from local PC".
- Select Local file:** "찾아보기..." button with "Upload" button. Callout: "Download from Server or upload from local PC".
- Instructions:** "Once you click the 'Upload' button, DO NOT TOUCH any browser buttons and DO NOT refresh the browser till web is refreshed automatically." Callout: "Download from Server or upload from local PC".
- Refresh:** "Refresh" button. Callout: "Click 'Refresh' to display current status".

Additional Callouts:

- "These two buttons are shown only when there is newly downloaded FW and it is different to currently working FW" (pointing to "Delete" and "Write To Flash").

FW Images – Download from Remote Server

Step 1.
Enter the url address of FW image (FW) if you want to download server's file into ANT-6000X

Ex)
http://192.168.0.12/ANT-6000X_ver_antrica.100.15.img
ftp://192.168.0.12/ANT-6000X_ver_antrica.100.15.img
ftp://user:passwd@192.168.0.12/ANT-6000X_ver_antrica.100.15.img

Caution: In above example, corresponding server(http, tftp or ftp) must be running on 192.168.0.12 before download.♪

Step 2.
Click <Download> button

downloaded S/W Information	Delete	Write To Flash
Image Name nimbus:100.14		
Created Wed May 30 15:13:17 2012		
Size 6844197 Bytes		

Server file's URL

Select Local file

Once you click the "Upload" button, refresh the browser till web is refreshed.

Step 3.
Click <Write To Flash> button to adapt newly transferred FW into ANT-6000X

Or you can delete it with <Delete> button.♪

FW upgrade – Upload from Local PC

The screenshot shows a web browser window with the URL `http://192.168.0.161/home.asp`. The page has a navigation menu on the left and a main content area titled "S/W Images".

Navigation:

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes

S/W Images:

Working S/W Information

Image Name	nimbus:100,15
Created	Fri Jun 8 16:10:26 2012
Size	6849391 Bytes

downloaded S/W Information

Image Name	nimbus:100,14
Created	Wed May 30 15:13:17 2012
Size	6844197 Bytes

Buttons: Delete, Write To Flash

Server file's URL: Download

Select Local file:

Once you click the "Upload" button, DO NOT TOUCH any browser buttons and DO NOT refresh the browser till web is re

ANT-6000X

Step 1: Click this button and select a FW image file that will be uploaded from the local PC (points to the "찾아보기..." button).

Step 2: Click <Upload> button (points to the "Upload" button).

Step 3: Click <Write To Flash> button to adapt newly transferred into ANT-6000X. Or you can delete it with <Delete> button. (points to the "Write To Flash" and "Delete" buttons).

Streaming Control

Streaming Control (Encoder)

The screenshot shows a web browser window with the URL `http://192.168.0.161/home.asp`. The page title is "Encoder Streaming". On the left is a "Navigation" menu with items: System Configuration, Serial Port Configuration, S/W Images, Streaming Control, Save Changes, and Reboot System. The main content area is titled "Encoder Streaming" and contains the following sections:

- Peer Machine:** P2P Decoder, nimbus:100,15-r575b13G-0, HDMI, D1280x720P60.
- Local Machine:** P2P Encoder, nimbus:100,15-r575b13G-0.
- Video In Port:** HDMI (dropdown).
- Audio In Port:** HDMI (dropdown).
- Video Signal:** detected.
- Resolution(In/Enc):** D1280x720P60 / D1280x720P60.
- Color Space:** RGB.
- HDMI Audio:** PCM 48000.
- Streaming:** Video-On / Audio-On / RTSP-On.
- Buttons:** Forcing I-frame, Restart Streaming.
- Encapsulation:** RTP (dropdown).
- RTSP Server:** On (dropdown).
- Video Streaming:** On (dropdown).
- Coding Mode:** RandIntraCoded (dropdown).
- GOP Size:** 120.
- Intra Count:** 120.
- Video Bitrate(Mbps):** 10.
- Frame or Field Rate:** 0.
- OSD Status:** Off (dropdown).
- Audio Streaming:** Stereo (dropdown).
- PCM Compress:** aLaw (dropdown).
- PCM 8KHz DownSample:** On (dropdown).
- Audio Direction:** All (dropdown).
- Buttons:** Submit, Refresh.

Callout boxes on the right side of the interface point to specific elements:

- Peer Machine Status (points to Peer Machine section)
- Select video/audio input port (points to Video In Port and Audio In Port)
- Input A/V Status Streaming Status (points to Video Signal, Resolution, Color Space, and HDMI Audio)
- Click to restart A/V part (points to Restart Streaming button)
- Packetizing & Server Control (points to Encapsulation and RTSP Server)
- Video Encoding & Streaming Control (points to Video Streaming, Coding Mode, GOP Size, Intra Count, Video Bitrate, Frame or Field Rate, and OSD Status)
- Audio Streaming Control (points to Audio Streaming, PCM Compress, PCM 8KHz DownSample, and Audio Direction)

Callout boxes at the bottom left provide instructions:

- Click 'Submit' to activate the changes of Configuration (points to Submit button)
- Click 'Refresh' to display current status (points to Refresh button)

Streaming Control (Encoder) : Video Encoding & Streaming Control

The screenshot shows a web browser window titled "WBI(192,168,0,161) - Internet Explorer, optimized for Bing and MSN" with the URL "http://192,168,0,161/home.asp". The interface includes a navigation menu on the left with options: System Configuration, Serial Port Configuration, S/W Images, and Streaming Control. The main content area displays video signal information and streaming controls.

Video Signal Information:

- Video Signal: detected
- Resolution(In/Enc): D1280x720P60 / D1280x720P60
- Color Space: RGB
- HDMI Audio: PCM 48000
- Streaming: Video-On / Audio-On / RTSP-On

Streaming Controls:

- Buttons: Forcing I-frame, Restart Streaming
- Encapsulation: RTP (dropdown)
- RTSP Server: On (dropdown)
- Video Streaming: On (dropdown)
- Coding Mode: RandIntraCoded (dropdown)
- GOP Size: 120 (input field)
- Intra Count: 120 (input field)
- Video Bitrate(Mbps): 10 (input field)
- Frame or Field Rate: 0 (input field)
- OSD Status: Off (dropdown)
- Audio Streaming: Stereo (dropdown)
- PCM Compress: aLaw (dropdown)
- PCM 8KHz DownSample: On (dropdown)
- Audio Direction: All (dropdown)
- Buttons: Submit, Refresh

Callout Explanations:

- Forcing I-frame:** This button click causes forcing one I-frame regardless current mode.
- Encapsulation:** Encapsulation : RTP / TS2UDP
- RTSP Server:** RTSP Server : On/Off
- Video Streaming:** Video streaming : On/Off
- Coding Mode:** Coding Mode : GOP/RandIntraCoded/ContIntraCoded
- GOP Size:** GOP size : gap between two I-frames set range 60 ~ 65535, 0 - in_fps * 5
- Intra Count:** Intra Count : number of P-frames which an I frame is spread into set range : 60 ~ 65535
- OSD Status:** Info from ENC chip : On/Off (debugging purpose only)
- Video Bitrate:** CBR setting: 0.001 ~ 40 "0" = 12Mbps
- Frame or Field Rate:** FPS setting : 1 ~ 85 / 0 - input fps

ANT-6000X

Streaming Control (Encoder) : Audio Streaming Control

The screenshot shows a web browser window with the URL `http://192.168.0.161/home.asp`. The page displays configuration options for a streaming encoder. The left sidebar contains a navigation menu with items like System Configuration, Serial Port Configuration, S/W Images, Streaming Control, Save Changes, and Reboot System. The main content area is divided into sections for Video Signal, Encapsulation, Video Streaming, and Audio Streaming. The Audio Streaming section includes dropdown menus for Audio Streaming (Stereo), PCM Compress (aLaw), PCM 8KHz DownSample (On), and Audio Direction (All). Callout boxes on the right point to these settings with descriptive text: 'Audio Streaming : Stereo / Mono / Off', 'PCM Compress : None / aLaw / uLaw', 'PCM 8KHz DownSample: On/ Off', and 'Audio Direction : All / Decoder / RTSP'. The device model 'ANT-6000X' is visible at the bottom left of the interface.

Section	Parameter	Value
Video Signal	Resolution(In/Enc)	D1280x720P60 / D1280x720P60
	Color Space	RGB
	HDMI Audio	PCM 48000
	Streaming	Video-On / Audio-On / RTSP-On
Encapsulation	Encapsulation	RTP
	RTSP Server	On
Video Streaming	Video Streaming	On
	Coding Mode	RandIntraCoded
	GOP Size	120
	Intra Count	120
	Video Bitrate(Mbps)	10
	Frame or Field Rate	0
OSD Status	Off	
Audio Streaming	Audio Streaming	Stereo
	PCM Compress	aLaw
	PCM 8KHz DownSample	On
	Audio Direction	All

Bandwidth for Audio in ANT-6000X

- ❑ When input audio is linear PCM (no compression), the audio bitrate can be changed through the selection of “Audio Streaming”, “PCM compress” or “PCM 8KHz DownSample” fields.
- ❑ When audio input is PCM 48KHz, audio bitrate is about 1,536kbps.
 - Selection of Mono reduces it to half, 768kbps
- ❑ Selection of aLaw or uLaw reduces it to half again
 - Stereo: 768kbps, Mono: 384kbps
- ❑ 8KHz Downsample (G.711 mode) reduces it to one sixth again.
 - Stereo: 128kbps, Mono: 64kbps
- ❑ Through such ways, audio bitrate can be reduced to minimum 64kbps.
- ❑ The audio quality is proportional to the bit rate.

Format	Bandwidth for Stereo	Bandwidth for Mono
Normal Linear PCM (16bit, 48kHz)	1,536kbps	768kbps
PCM compress (A/u-Law, 48kHz)	768kbps	384kbps
G.711 Compress (A/u-Law, 8kHz)	128kbps	64kbps

Streaming Control (Encoder) - RTP mode without RTSP Server

Navigation

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes
- Reboot System

Encoder Streaming

Peer Machine
 P2P Decoder
 nimbus:100,15-r575b13G-0

Local Machine
 P2P Encoder
 nimbus:100,15-r575b13G-0

Video In Port HDMI
Audio In Port HDMI

Video Signal detected
Resolution(In/Enc) D1280x720P60 / D1280x720P60
Color Space RGB
HDMI Audio PCM 48000

Streaming
 Video-On / Audio-On / RTSP-On

Forcing I-frame Restart Streaming

Encapsulation RTP
RTSP Server Off
Video Streaming On
Coding Mode RandIntraCoded
GOP Size 120
Intra Count 120
Video Bitrate(Mbps) 10
Frame or Field Rate 0
OSD Status Off

Audio Streaming Stereo
PCM Compress aLaw
PCM 8KHz DownSample On
Audio Direction RX

Submit Refresh

wimi6400

Select RTP

Select Off

Select On

Notice

This mode is for a working condition only between ANT-6000X Encoder and Decoder.

We recommend randIntraCoded at Coding Mode and value 120 of IntraCount.

Must not select RTSP for this mode.

We recommend Decoder than All

Streaming Control(Encoder) - RTP mode with RTSP Server

Encoder Streaming

Peer Machine P2P Decoder
Peer S/W version nimbus:100,15-r575b13G-0
Video Out Port HDMI
Output Resolution D1280x720P60

Local Machine P2P Encoder
Local S/W version nimbus:100,15-r575b13G-0

Video In Port HDMI
Audio In Port HDMI

Video Signal detected
Resolution(In/Enc) D1280x720P60 / D1280x720P60
Color Space RGB
HDMI Audio PCM 48000
Streaming Video-On / Audio-On / RTSP-On

Forcing I-frame Restart Streaming

Encapsulation RTP
RTSP Server On
Video Streaming On
Coding Mode RandIntraCoded
GOP Size 120
Intra Count 120
Video Bitrate(Mbps) 10
Frame or Field Rate 0
OSD Status Off

Audio Streaming Stereo
PCM Compress aLaw
PCM 8KHz DownSample On
Audio Direction All

Submit Refresh

wimi6400

Select RTP

Select On

Select On

Notice

This mode is for ANT-6000D Decoder and RTSP client.

When in P2P mode, ANT-6000E Encoder can serve max 4 clients including a ANT-6000D Decoder. Available number of clients depends on CBR setting.

Must not select Decoder for this mode. Select All if there is also Decoder or select RTSP if there is no Decoder.

Streaming Control (Encoder) - MPEG2TS over UDP mode (IPTV set-top compatible)

The screenshot shows a web browser window with the URL `http://192,168,0,161/home.asp`. The page title is "WBI(192,168,0,161) - Internet Explorer, optimized for Bing and MSN". The main content area is titled "Encoder Streaming" and contains the following configuration options:

- Peer Machine:** P2P Decoder, Peer S/W version: nimbus:100,15-r575b13G-0, Video Out Port: HDMI, Output Resolution: D1280x720P60.
- Local Machine:** P2P Encoder, Local S/W version: nimbus:100,15-r575b13G-0.
- Video In Port:** HDMI (dropdown), **Audio In Port:** HDMI (dropdown).
- Video Signal:** detected, **Resolution(In/Enc):** D1280x720P60 / D1280x720P60, **Color Space:** RGB, **HDMI Audio:** PCM 48000.
- Streaming:** Video-On / Audio-On / RTSP-On. Buttons: Forcing I-frame, Restart Streaming.
- Encapsulation:** TS2UDP (dropdown).
- Video Streaming:** On (dropdown), **Coding Mode:** GOP (dropdown), **GOP Size:** 120, **Intra Count:** 120, **Video Bitrate(Mbps):** 10, **Frame or Field Rate:** 0, **OSD Status:** Off (dropdown).
- Audio Streaming:** Stereo (dropdown). Buttons: Submit, Refresh.

At the bottom left of the page, the text "wimi6400" is visible. The browser's status bar shows "100%" zoom.

Select TS2UDP

Select On

Notice
In this mode, ANT-6000D Decoder and RTSP client cannot receive stream from this ANT-6000X Encoder and ANT-6000E Encoder does not stream audio in this mode.

Select GOP

Streaming Control (Decoder)

The screenshot shows a web browser window titled "WBI(192, 168, 0, 162) - Internet Explorer, optimized for Bing and MSN" with the URL "http://192, 168, 0, 162/home.asp". The page content is divided into a "Navigation" sidebar and a main "Decoder Streaming" section.

Navigation:

- System Configuration
- Serial Port Configuration
- S/W Images
- Streaming Control
- Save Changes
- Reboot System

Decoder Streaming:

Peer Machine:

- Peer Machine: P2P Encoder
- Peer S/W version: nimbus:100,15-r575b13G-0
- Video In Port: HDMI
- Audio In Port: HDMI
- Resolution(In/Enc): D1280x720P60 / D1280x720P60
- HDMI Audio: PCM 48000

Local Machine:

- Local Machine: P2P Decoder
- Local S/W version: nimbus:100,15-r575b13G-0
- Video Out Port:
- Display: D1280x720P60

Streaming:

- Video-On / Audio-On
-

Resolution and ColorSpace Settings:

- HDMI Res:
- HDMI ColorSpace:
- DSUB Res:
- Component Res:
- HDSDI Res:

Back Channel Audio:

- Back Channel Audio:

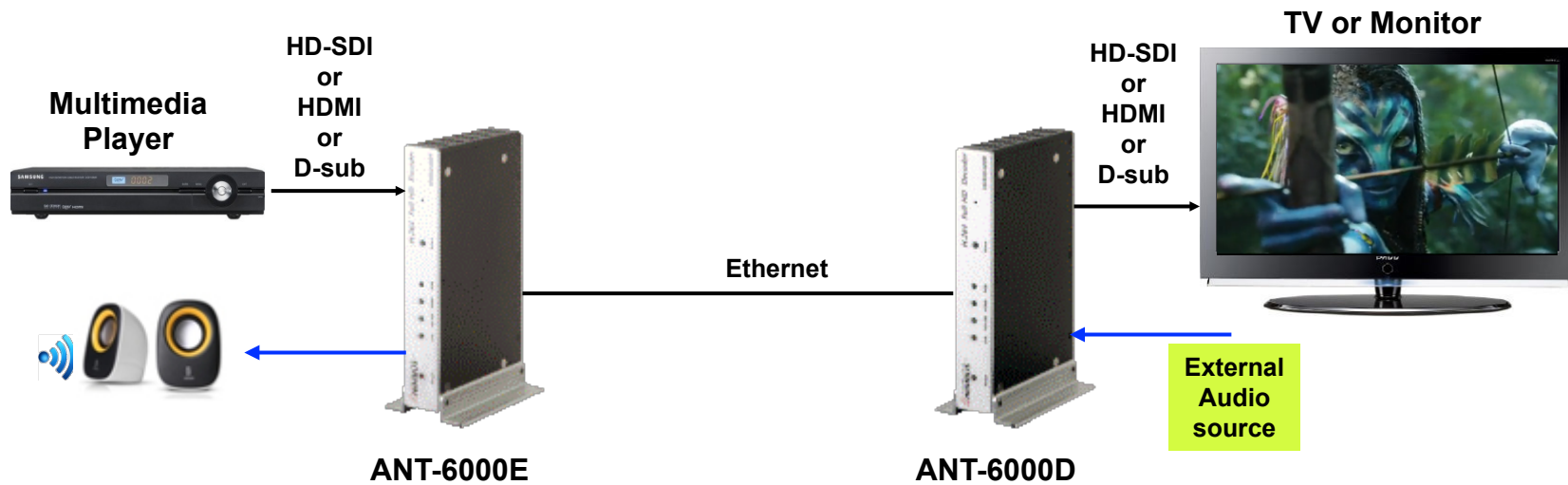
Buttons:

-

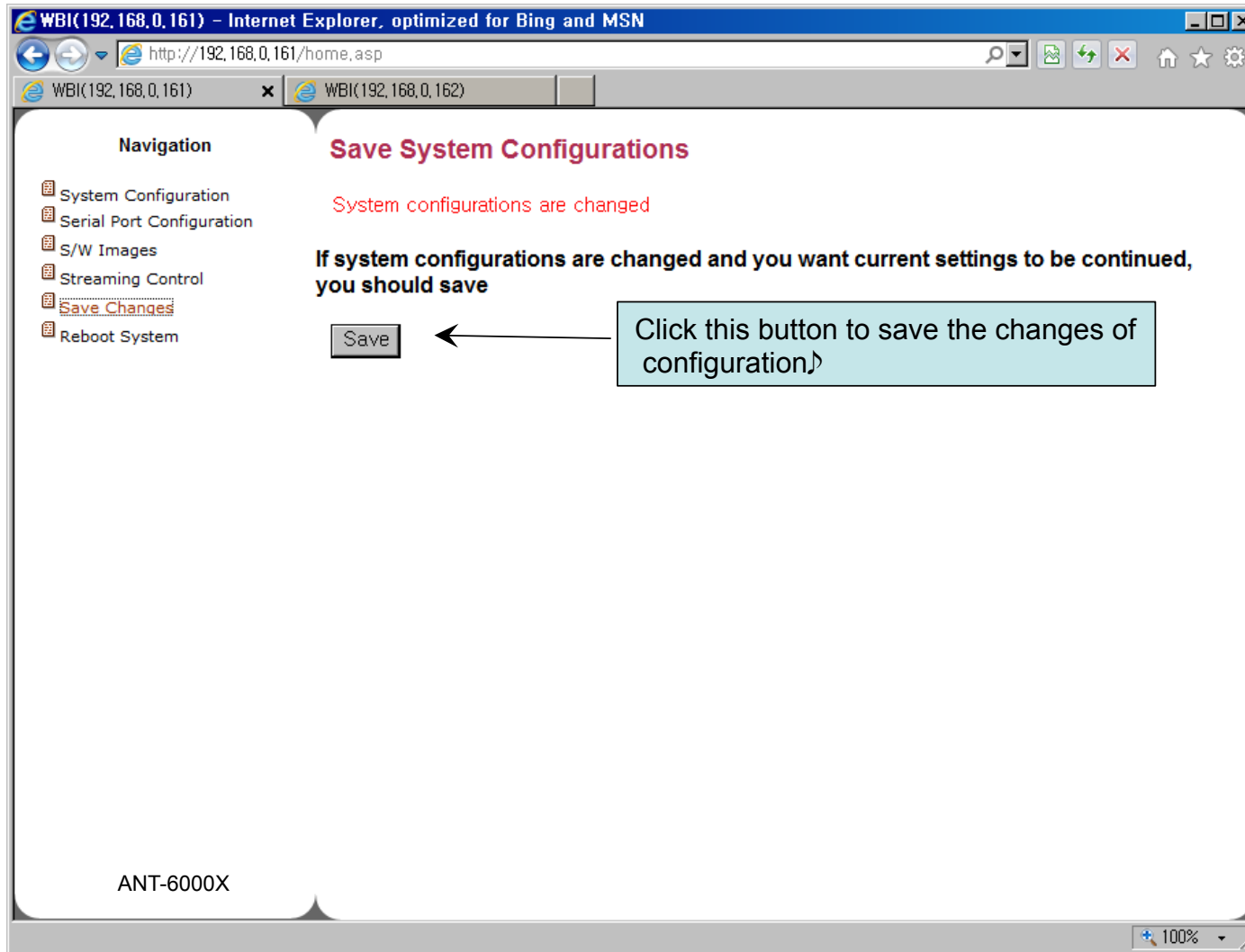
Annotations:

- Peer Machine Status:** Points to the Peer Machine section.
- Video output port:** Points to the Video Out Port dropdown.
- Click to restart receiver:** Points to the Restart Streaming button.
- Video output control:** Points to the resolution dropdowns.
- Back Channel Audio Control:** Points to the Back Channel Audio dropdown.
- HDMI ColourSpace : RGB/YPbPr:** Points to the HDMI ColorSpace dropdown.
- Click 'Submit' to activate the changes of Configuration:** Points to the Submit button.
- Click 'Refresh' to display current status:** Points to the Refresh button.

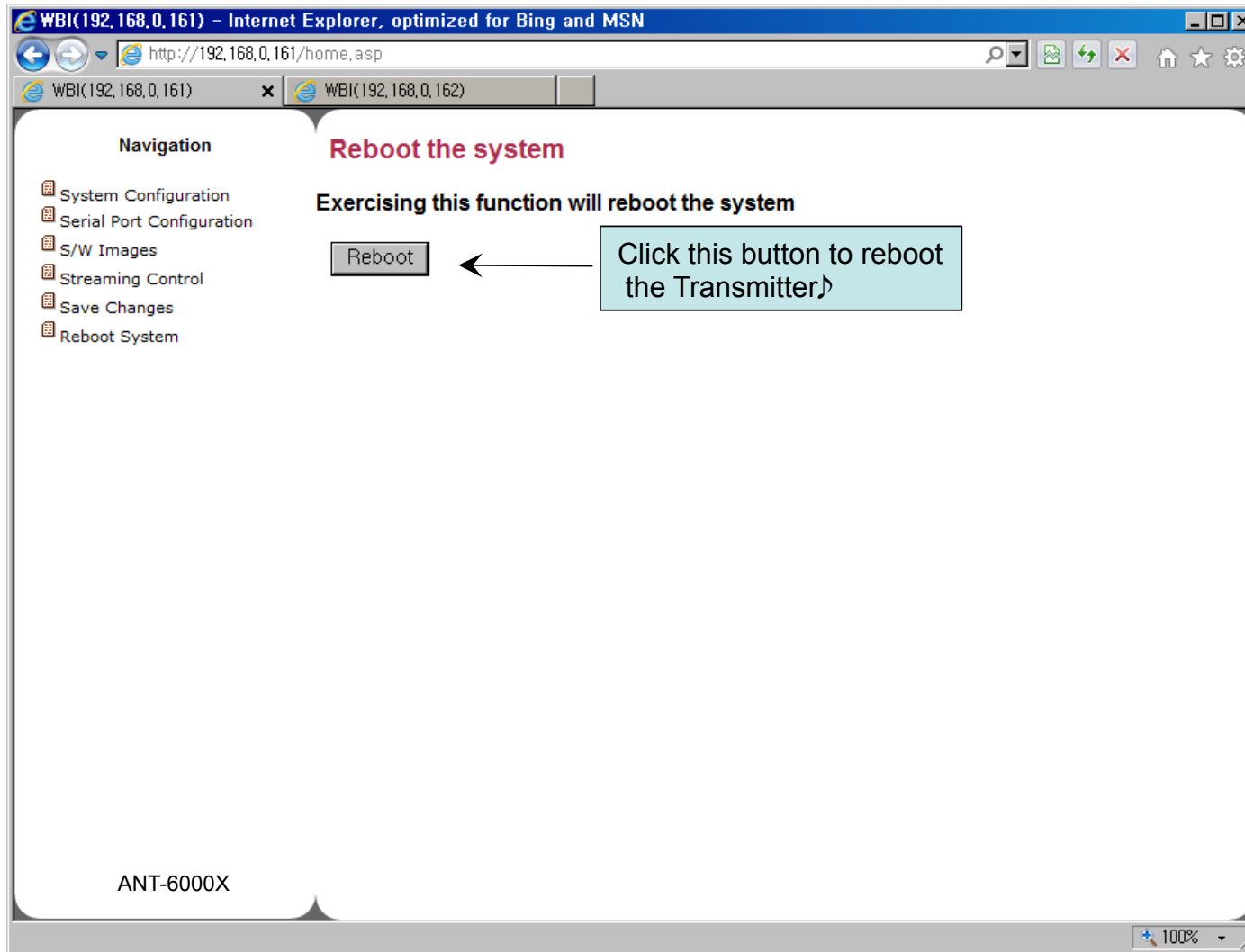
ANT-6000X – Back channel audio connection



Save Changes



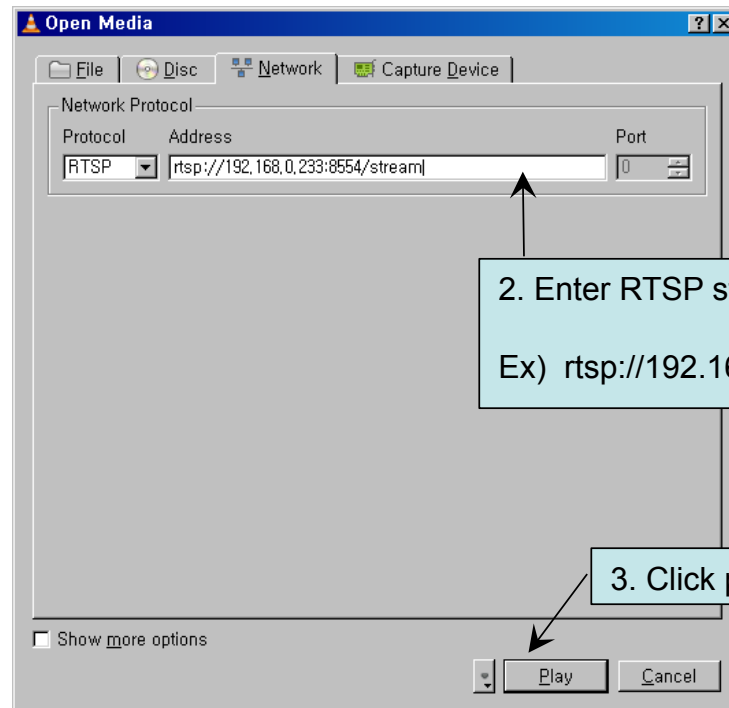
Reboot the system : Click the Reboot Button



RTSP client : in a VLC media player



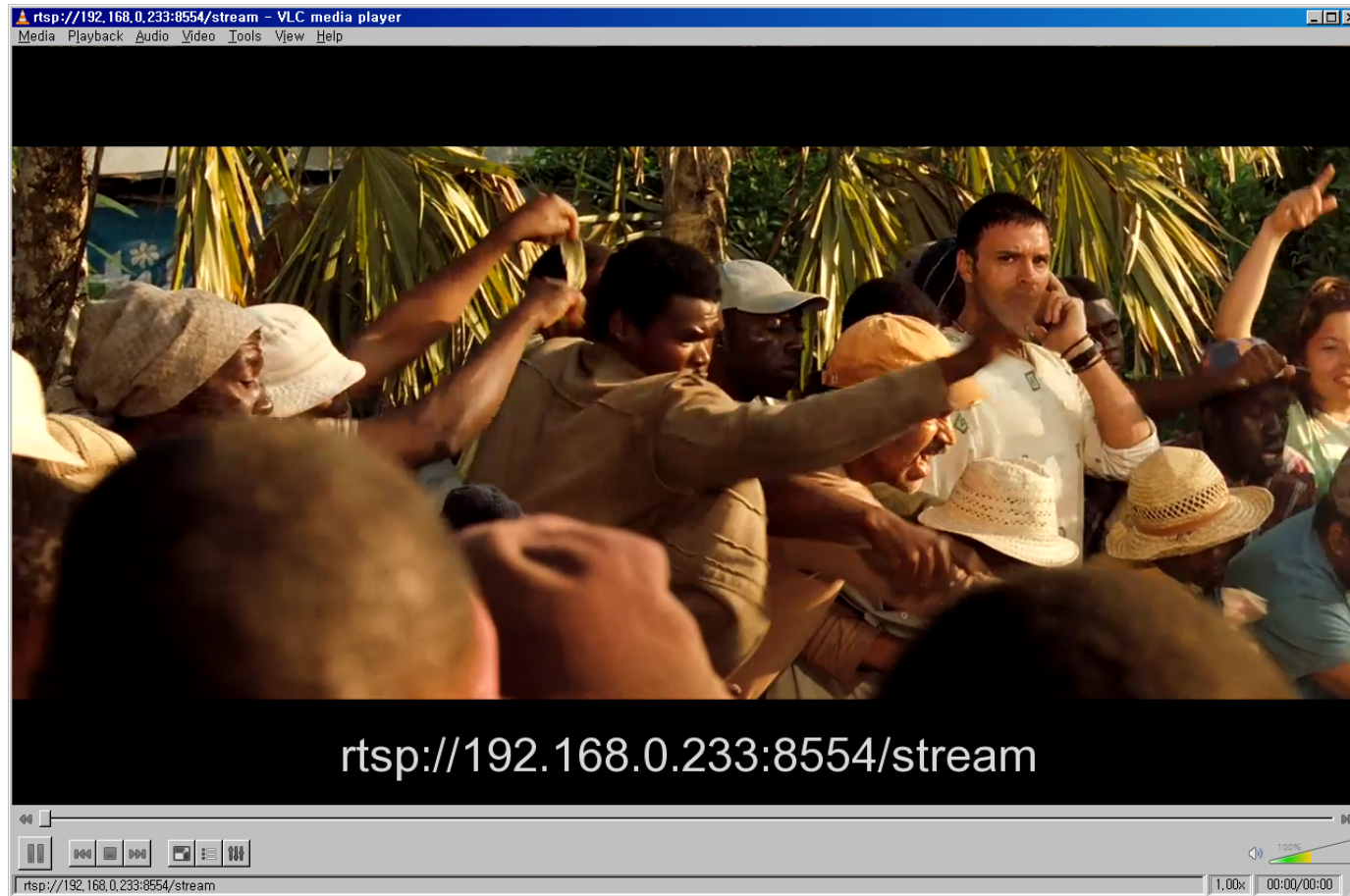
1. Select <Media>- <Open Network Stream>



2. Enter RTSP stream address
Ex) rtsp://192.168.0.233:8554/stream

3. Click play button

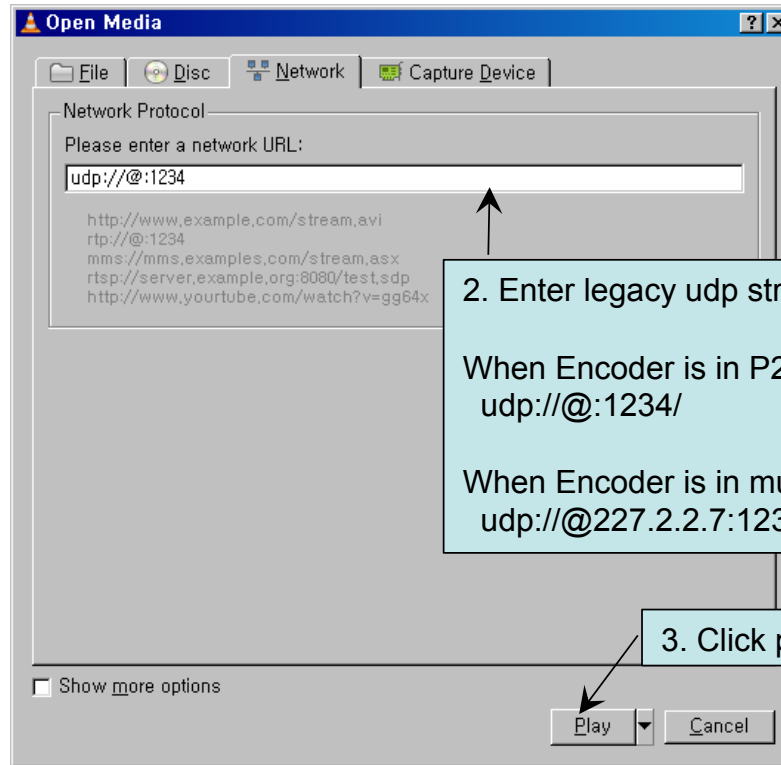
RTSP client : in a VLC media player



TS2UDP client : in a VLC media player



1. Select <Media>- <Open Network Stream>



2. Enter legacy udp stream

When Encoder is in P2P mode
udp://@:1234/

When Encoder is in multicast mode
udp://@227.2.2.7:1234/

3. Click play button

TS2UDP client : in a VLC media player





8 Hasting Close

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