# ASI5520/ASI5620
## MULTISTREAM LINEAR PCI/PCI EXPRESS AUDIO ADAPTERS

# 1 DESCRIPTION

The ASI5520/ASI5620 are professional PCI audio adapters designed for use in radio broadcast automation and production. The ASI5520 is a PCI adapter and the ASI5620 is a PCI Express (PCIe) adapter.

Providing 6 play streams that are mixed to 2 balanced stereo outputs and 4 record streams fed from 2 balanced stereo inputs, the ASI5520/ASI5620 features AudioScience's unique "anything to anywhere" mixing and routing.

The ASI5520/ASI5620 provides balanced analog inputs and outputs. The maximum analog input and output level is +24dBu.

# 2 FEATURES

- Six stereo streams of PCM playback into two stereo outputs

- Four stereo streams of PCM record from 2 stereo inputs

- Balanced stereo analog inputs and outputs with levels to +24dBu

- Formats include 8,16, 24, and 32bit PCM

- Sample rates of 32, 44.1, 48, 64, 88.2, 96 and 192kHz

- SoundGuard™ transient voltage suppression on all I/O

- Short length PCI card format (6.6 inches/168mm)

- Up to 4 cards in one system

- Windows 7, XP, Server 2008/2003 and Linux software drivers available

**ASI5520/ASI5620**
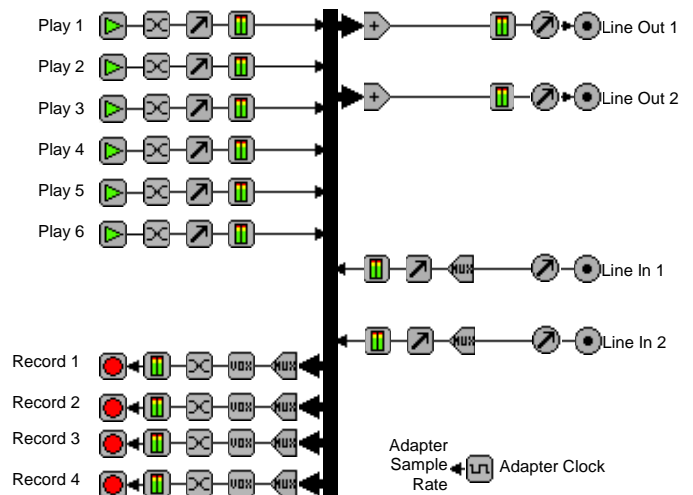
# 3 SPECIFICATIONS

| **ANALOG INPUT/OUTPUT** | |
|---|---|
| Type | Balanced |
| Connector | Mini50 (SCSI-II type) |
| Input Level | -10 to +20dBu in 1dBu steps |
| Input Impedance | 20K ohms |
| A/D converter | 24bit Over sampling |
| Output Level | -10 to +20dBu in 1dBu steps |
| D/A converter | 24bit Over sampling |
| Load Impedance | 600ohms or greater |
| Dynamic Range [1] | >100dB  (record or play) |
| THD+N [2] | <0.0015% (-96dB), record or play |
| Sample Rates | 32, 44.1, 48, 64, 88.2, 96 and 192kHz |
| Frequency Response | 20Hz to 20kHz +/-0.25dB, 20Hz to 50kHz +0.25/-3dB |

| **SAMPLE RATE CLOCK** | |
|---|---|
| Internal | 32, 44.1, 48, 64, 88.2, 96 and 192kHz |
| | **NOTE**: When playing and/or recording multiple files, one sample rate must be used. |

| **SIGNAL PROCESSING** | |
|---|---|
| DSP | Texas Instruments TMS320C6205@190MHz |
| Memory | 8MB |
| Audio Formats | 8 bit unsigned PCM |
| | 16bit signed PCM |
| | 24bit signed PCM |
| | 32bit signed PCM |

| **BREAKOUT CABLES (included)** | |
|---|---|
| Analog | CBL1022: Mini DB50 to 4 in and 4 out XLR |

| **GENERAL** | |
|---|---|
| Bus | Universal 32bit PCI (3.3V or 5V signaling) |
| Dimensions | PCI short-length form factor – 6.5" x 3.9" x 0.6" (165mm x 100mm x 15mm) |
| Weight | 8 oz (227g) max |
| Operating Temperature | 0C to 70C |
| Power Requirements | +3.3V@500mA,  +12V @ 300mA, -12V @ 130mA (NOTE 3.3V must be available from the PCI bus) |

[2] - THD+N measured using a +20dBu 1kHz sine wave sampled at 48kHz, 20-20kHz b/w and A weighting filter
[1] – Dynamic Range is the THD+N of a –60dBFs 1kHz sinewave + 60dB with a level of +20dBu and 20-20kHz bandwidth

# 4   REVISIONS

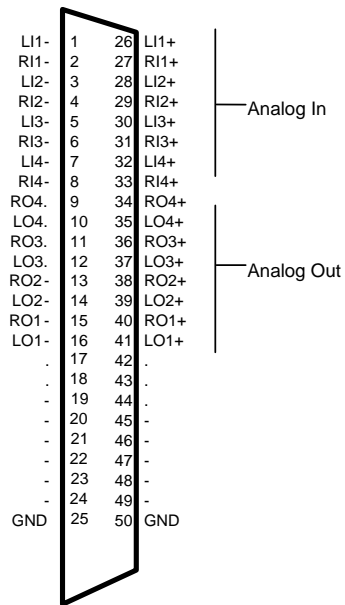| Date | Description |
|---|---|
| 14 June 2011 | Preliminary. |
| 09 August 2011 | Added Low Latency mode. |
| 23 August 2011 | Added ASI5620. |
| 14 September 2011 | Updated datasheet format. |
| 20 September 2011 | Removed unsupported SSX2 information. |
| | |

# 5 CONTENTS

# 6 CONNECTOR

Mini 50pin - Analog

| | | | |
|---|---|---|---|
| LI1- | 1 | 26 | LI1+ |
| RI1- | 2 | 27 | RI1+ |
| LI2- | 3 | 28 | LI2+ |
| RI2- | 4 | 29 | RI2+ |
| LI3- | 5 | 30 | LI3+ |
| RI3- | 6 | 31 | RI3+ |
| LI4- | 7 | 32 | LI4+ |
| RI4- | 8 | 33 | RI4+ |
| RO4. | 9 | 34 | RO4+ |
| LO4. | 10 | 35 | LO4+ |
| RO3. | 11 | 36 | RO3+ |
| LO3. | 12 | 37 | LO3+ |
| RO2- | 13 | 38 | RO2+ |
| LO2- | 14 | 39 | LO2+ |
| RO1- | 15 | 40 | RO1+ |
| LO1- | 16 | 41 | LO1+ |
| . | 17 | 42 | . |
| . | 18 | 43 | . |
| - | 19 | 44 | . |
| - | 20 | 45 | - |
| - | 21 | 46 | - |
| - | 22 | 47 | - |
| - | 23 | 48 | - |
| - | 24 | 49 | - |
| GND | 25 | 50 | GND |

Analog In (pins 1-8, 26-33)

Analog Out (pins 9-16, 34-41)

# 7 CABLE

CBL1022: Mini DB50 to 4 in and 4 out XLR, balanced analog

# 8   HARDWARE INSTALLATION

This section explains how to install one or more AudioScience adapters in a computer.

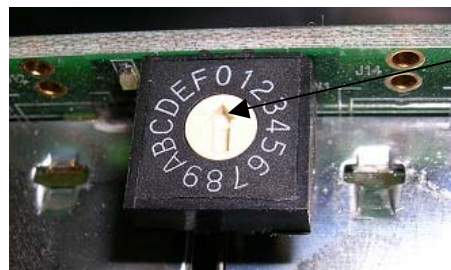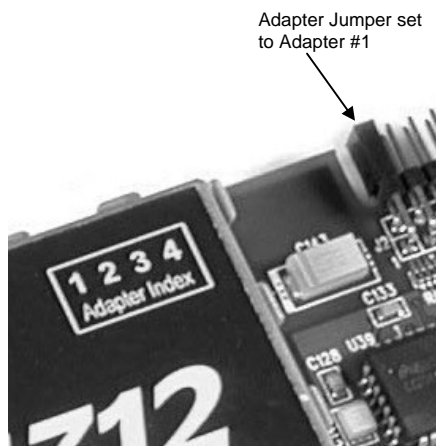## 8.1   Setting Adapter Index – One Adapter in the PC

1. Make sure your computer is turned off.

2. PCI adapters should be installed in any empty PCI slot and PCIe adapters should be installed in any x1 (or greater) PCIe slot.

3. Make sure the adapter jumper is set to adapter index #1, the factory default.  For a new card no changes need to be made.  For an AudioScience adapter from another installation, check that it is set to adapter index #1.

Depending on the adapter family, there are different ways of setting the adapter index.

For ASI5000 and ASI6000 families, there is an adapter jumper that must be set.  The left most position represents adapter index #1.

Adapter Jumper set to Adapter #1



For ASI5300, ASI6300, ASI8700, and ASI8900 families, there is a rotary switch.

**NOTE:** Position 0 (zero) represents adapter #1, position 1 is adapter #2, etc.

Adapter Index switch set to Adapter #1



4. Turn on the computer and let it boot.  Under Windows, a dialog box will pop up informing you that the computer has detected a new Multimedia Audio card.  Cancel out of this dialog box and proceed to the software installation section of this datasheet.

### 8.1.1   Setting Adapter Index - Two or More Adapters in the PC

1. Make sure your computer is turned off.

2. PCI adapters should be installed in any empty PCI slots and PCIe adapters should be installed in any x1 (or greater) PCIe slots.  Different adapter types can coexist in the same computer; for example, an ASI6416 and ASI8921 will work correctly if installed in the same PC. Different adapter types still require unique adapter index numbers.

3. Each adapter in the PC needs to have its adapter jumper/rotary switch position set to unique numbers.  For example if you are installing two adapters, the first one would be set to adapter index #1 and the second to adapter index #2.

3.1.   For ASI5000 and ASI6000 families, the position to the right of index #1, when jumpered, represents adapter index #2.  The next position represents #3, and the rightmost position, when jumpered, represents #4.

3.2.   For ASI5300, ASI6300, ASI8700, and ASI8900 families, rotate the rotary switch to indicate what position is required.

4.   Turn on the computer and let it boot.  Under Windows, a dialog box will pop up informing you that the computer has detected a new Multimedia Audio card.  Cancel out of this dialog box and proceed to the software installation section of this datasheet.

# 9   SOFTWARE INSTALLATION

AudioScience makes audio adapters and drivers for various operating systems. Enhancements to an adapter's utility come from the integrators software that uses the audio driver to implement sophisticated audio playback and recording functions.

## 9.1   Drivers for Windows XP/Server 2003/Server 2008/7

The first step is what type of driver is needed for the adapter.  There are two types of drivers for Windows: The WAVE driver and the WDM driver.  Typically this will be decided by the application used with the AudioScience adapter.  For any application that uses DirectSound, use the WDM driver.

Driver 3.10 and later present the user with three install options during installation:
- Install Standard PCI/PCIe Driver.
- Install Standard + Network Audio Driver.
- Remove all driver components

Traditional installs should select the first of these options. Users of AudioScience CobraNet products should select the second option with the "+Network Audio Driver." in the text.

### 9.1.1   WAVE Driver

Download the file named ASIWAVE_xxxxxx.EXE from [www.audioscience.com](http://www.audioscience.com) and run it (_xxxxxx is the version number).  After the EXE has run, reboot the computer and the audio adapter will be operational.  If the cover is off the computer, one can see one or two blinking LEDs on top of the card indicating its DSP is running and communicating with the driver.

Verify that the adapter is running using ASIControl (see ASIControl section in this document).

### 9.1.2   WDM Driver

Download the file named ASIWDM_xxxxxx.EXE from [www.audioscience.com](http://www.audioscience.com) and run it (_xxxxxx is the version number). After the EXE has run, reboot the computer and the audio adapter will be operational.  If the cover is off the computer, one can see one or two blinking LEDs on top of the card indicating its DSP is running and communicating with the driver.  Verify that the adapter is running using ASIControl (see ASIControl section in this document).

### 9.1.3   Combo Driver

The Combo driver presents both Wave and WDM devices to the user. Download the file named ASICOMBOV_xxxxxx.EXE from [www.audioscience.com](http://www.audioscience.com) and run it (_xxxxxx is the version number). After the EXE has run, reboot your computer and the audio adapter will be operational.  If the cover is off the computer, one can see one or two blinking LEDs on top of the card indicating its DSP is running and communicating with the driver. Verify that the adapter is running using ASIControl (see ASIControl section in this document).

### 9.1.4   ASIO

All AudioScience drivers also install an ASIO driver interface. It is installed by default.

### 9.1.5   Driver Failure

In the event that an adapter's driver fails to load correctly, the OS's event viewer should be checked. The event log is viewed as follows:

**XP:** The system event log is accessed from \Start\Control Panel\Administrative Tools\Event Viewer. The System view should be selected.

**7:** The system event log is accessed from \Start\Control Panel\System and Maintenance\Administrative Tools\Event Viewer. The Windows Logs\System view should be selected.

If two or more adapters are installed in the same system, the first thing to check is that the adapters were assigned unique adapter numbers. If issues persist, please email [support@audioscience.com](mailto:support@audioscience.com).

## 9.2 Drivers for Linux

The latest Linux driver can be downloaded from the AudioScience website – www.audioscience.com

## 9.3 Applications for Windows

AudioScience provides two application for adapter set-up and configuration: ASIControl and ASIMixer.

### 9.3.1 ASIControl

All Windows drivers install an AudioScience application called ASIControl that can be used to setup and verify functionality of adapters. ASIControl provides a common interface for users across all driver types.

The following list of controls are uniquely supported in ASIControl (as opposed to ASIMixer):
- ASI8700 tuner pre-emphasis            - ASI8900 tuner RBDS
- ASI8900 tuner FM stereo indication    - ASI8914 HD Radio PSD field
- ASI8914 HD Radio Digital status field - ASI8914 HD Radio Digital program number selection

From the Windows Start menu, navigate to Start→Programs→AudioScience and run the ASIControl program.



When started, ASIControl will look something like the following:
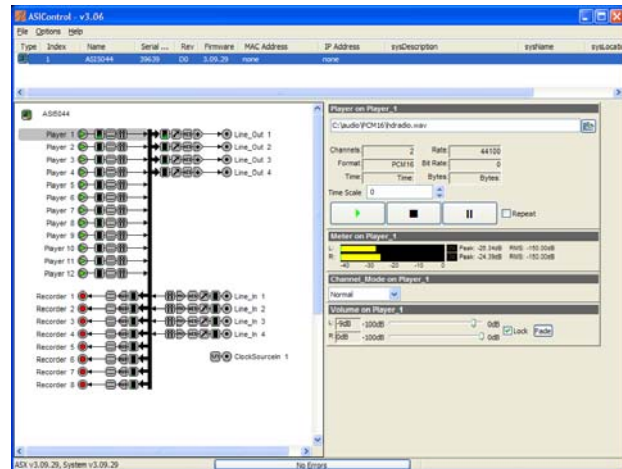


### 9.3.2 ASIMixer

ASIMixer is specific to the Wave and Combo drivers and is available from the AudioScience website. It uses the Wave/Mixer interface to control AudioScience adapters. Users of driver version 3.10 and later are encouraged to use ASIControl for manipulating adapter controls.

See the list of controls in the previous section that that are only available in ASIControl.

*AUDIOSCIENCE*

# 10 OPERATION USING ASICONTROL

Using ASIControl, the ASI5620 in 4-Play mode will look like so:



## 10.1 User Interface

ASIControl consists of three main windows: the adapter list in the top portion of the window, the adapter topology view on the left hand side, and the node control list on the right hand side.

### 10.1.1 Adapter List Window

The top portion of ASIControl shows a list of all the adapters that the application has found. By default, only bus based (i.e. PCI and/or PCI Express) adapters will be shown. If the network portion of the driver is installed (by selecting "Install Standard + Networked Audio Driver" after running the driver installer) and "Local PCI(e) + Networked adapters" is selected from ASIControl's Options→Configure adapter interface, then AudioScience and other third party CobraNet devices will be shown.

Adapters are listed in order of adapter index. For bus-based adapters, this is determined by the adapter index jumper on the card. For AudioScience CobraNet devices this is calculated from the unit's MAC address. Third party CobraNet devices are listed last as they have no AudioScience index.

## 10.1.2 Adapter Topology Window

The left hand side of ASIControl contains the topology view of the adapter. It is essentially a block diagram of the device showing the available physical inputs and outputs on the right hand side of the black, vertical 'bus' line. On the left hand side of the bus line, bus-based adapters show player and recorder streams, while CobraNet adapters show their network connections.

Each of the inputs and outputs is referred to as a node and each Node contains one or more controls. The topology shows each control as a small icon.  A non-exhaustive list of nodes follows:

| | |
|---|---|
| Line In | Recorder |
| Line Out | Tuner |
| AES/EBU In | Clock Source In |
| AES/EBU Out | CobraNet In |
| Player | CobraNet Out |

Hovering the mouse over a particular node will highlight it.  Clicking on a node will bring up the controls resident on that node in the right hand control list.

There is an adapter node in the top left corner of the topology window.  Clicking on this will show adapter-specific controls and properties on the right hand side.

Not all adapters have all nodes.

## 10.1.3  Node Controls Window

The right hand side of ASIControl shows the controls associated with the selected node in the topology view.  The controls are arranged, from top to bottom, in order of audio signal flow, i.e. the audio signal can be viewed as entering the node at the top control and leaving at the bottom control.  Controls may be used to either manipulate the audio as it passes through the node, or report back control status information.

For a comprehensive listing of controls and how to operate ASIControl, please see the ASIControl manual available from www.audioscience.com and also installed by the driver.  Not all adapters have all controls.

# 11 CONTROLS

For further information on controls common to all AudioScience adapters and how to operate ASIControl, please see the ASIControl manual available from www.audioscience.com and also installed by the driver.

## 11.1 Adapter Information

This control displays information about the installed AudioScience product.
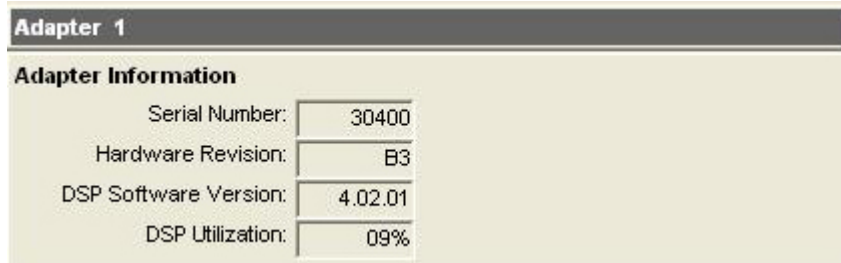
### 11.1.1 Interface



**Figure 1.  Adapter information seen in right side of ASIControl.**

**Serial Number:**
The serial number is displayed here.

**Hardware Revision:**
This lists the hardware revision of the AudioScience product.

**DSP Software Version:**
The DSP software version is displayed; usually the same as the driver version installed.

**DSP Utilization:**
This shows the loading of the AudioScience product's DSP in percent.
**Note**: Utilization should be kept below 90%.

## 11.2 Adapter Mode

The Adapter_Mode control changes the number of players/recorders/lineouts that an adapter has.  On certain adapters, not all sample rates/formats are supported; changing the mode of the adapter allows for best functionality with certain sample rates/formats.  Different adapters will have different modes available, and not all adapters have modes.  Please see datasheets on specific adapters, available at www.audioscience.com, to learn more.
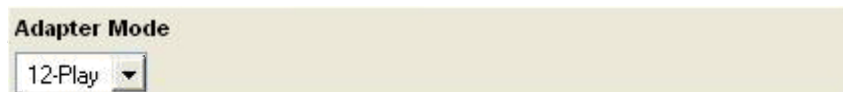
### 11.2.1 Interface



**Figure 2.  Adapter Mode in ASIControl.**

Selecting the appropriate mode from the list using the dropdown arrow changes the Adapter_Mode setting.  A reboot is necessary after changing adapter mode.  The mode setting is saved to the adapter's EEPROM.

The ASI5520/ASI5620 supports 4 adapter modes: 4-Play, 6-Play, Mono, and Low Latency.  A restart is required after selecting a new mode. The mode setting is saved on the adapter EEPROM.

### 11.2.2 4-Play (default)

This mode supports 4 Play streams and 2 Record Streams.

### 11.2.3 6-Play

This mode supports 6 Play streams and 4 Record Streams.

### 11.2.4 Mono Mode

This mode supports 8 mono Play streams and 4 mono Record streams with full mixing capabilities.

### 11.2.5 Low Latency Mode

**NOTE:** Driver 4.06.00 or later is required.
This mode supports a single multichannel audio stream enabling live sound processing in ASIO and Core Audio applications. See the Low Latency Mode datasheet for further information.

## 11.3 Player

The Player control supports playback of an audio file from the computer's hard drive.
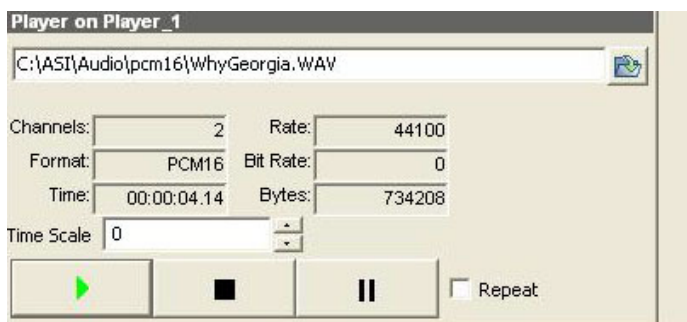
### 11.3.1 Interface



**Figure 3. A player in ASIControl.**

The first line of static text contains the selected playback file. Below the filename is the file information; playback time and playback bytes, the timescale select options, the player control buttons and the file repeat option.

### 11.3.2 How To Play a File

The first step in playing a file is to select the file to play. Use the **file icon button** to navigate to the desired file. After opening the file, the complete filename, including the path, will appear immediately to the left of the file open icon. At this point the file information is also filled in so that it contains the following fields: **Channels**, **Rate**, **Format**, and **Bit Rate**. Most of there are self-explanatory. The **Rate** refers to the sample rate of the audio recorded in the file. The **Bit Rate** applies only to MPEG compression and is set to 0 for all other formats.

At this point the percentage time scaling without pitch shift can be set if desired. The default of 0 indicates that time scaling is disabled. The valid range of settings is +/- 20 percent.

The **Repeat** check box indicates whether the file should be played again after playback has completed. It can be set either before playback has begun, or while playback is underway.

The file is now ready to be played. To start playback press the **play button**. At this point the **Time** and **Bytes** fields report playback time and the number of bytes of the file that have been played.

Once playback has started, the **stop** and **pause buttons** can be used to stop or pause the playback.

### 11.3.3 Using embedded sine wave generator

Manually typing in a filename of "~" and pressing play will cause a full-scale 1 kHz sine wave to be played at 48 kHz.  The format of the filename string is: "~w, c,f,a,m,s,t".

| | |
|---|---|
| **w** | = **w**aveform = SINE (default=SINE) |
| **c** | = **c**hannels = 1…8 (default = 2) |
| **f** | = **f**requency = 1000 for 1kHz (default=1000) |
| **a** | = **a**mplitude = -1 for -1dBFs (default=0dBFS, i.e. full scale) |
| **m** | = channel **m**ask = 10 for left only, 01 for right only, 11 for stereo, etc. (default=1 for all channels) |
| **t** | = sample **t**ype = (PCM8, PCM16, PCM24, PCM32, FLOAT32) (default=FLOAT32) |
| **s** | = **s**ample rate = positive integer (default=48000) [validity depends on adapter] |

Defaults can be used if the complete string is not specified, i.e.
"~" becomes "~wSINE,c2,f1000,a0,m11,s48000,tFLOAT32"

Any subset of the options may be specified, the remaining options will be set to the defaults. e.g. "~f500" = 500Hz stereo sine wave at 0dBFS, 48kHz sample rate.

### 11.3.4 Developer

#### 11.3.4.1 Windows APIs

**Wave** – waveOutOpen(), waveOutWrite(), waveOutClose() etc.
**HPI** – Output stream functions documented here.
**ASX** – ASX Player control functions documented here.
**DirectSound** – TBD.

#### 11.3.4.2 Linux APIs

**HPI** – TBD.

## 11.4 Recorder

The Recorder control supports recording of an audio file.
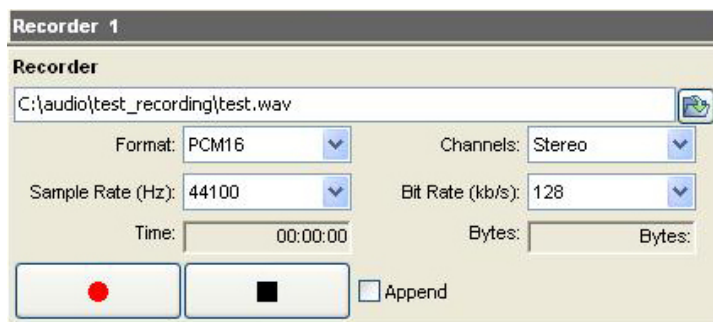
### 11.4.1 Interface



**Figure 4.   A recorder in ASIControl.**

The first line of text contains the name given to the recorded file along with the location where it is to be saved. Below the filename is the file information, the record time and record bytes, the recorder control buttons and the file Append option.

### 11.4.2 How To Record a File

The first step in recording a file is to have audio coming into the adapter. This can be from a line-in or from one of the players in ASIControl. See appropriate sections in this datasheet to accomplish this. Next, the new file needs a name and place to be saved, or an existing audio file can be selected to be overwritten or appended to. Use the **file icon button** to navigate to the location to create the file and to give it a name, or to open a previously recorded file to overwrite or append to it. Next, from the dropdown arrows, select the number of "**Channels"**, the "**Sample Rate"**, the "**Format"**, and the "**Bitrate"** that the file should be recorded in.

Check the **Append** checkbox to save the audio to the end of an already existing file.

The file is now ready to be recorded. To start recording, press the **record button**. At this point the "**Time'** and "**Bytes'** fields report record time and the number of bytes of the file that have been recorded.

Once recording has started, the **stop** and **pause buttons** can be used to stop or pause the playback.

### 11.4.3 Developer

#### 11.4.3.1 Windows APIs

**Wave** – use waveInOpen(), waveInStart() etc.
**HPI** – use HPI_InStreamxxx() functions.
**ASX** – use ASX_Recorder_xxx() functions.
**DirectSound** – TBD.

#### 11.4.3.2 Linux APIs

**HPI** – use HPI_InStreamxxx() functions.
**ASX** – use ASX_Recorder_xxx() functions.
**ALSA** – TBD

## 11.5 Volume

The Volume control allows the audio signal's gain to be altered in the range of –100 to +20dB.

### 11.5.1 Interface



**Figure 5. A Volume of a Player in ASIControl.**

**Left** and **Right** display boxes:
Displays the gain settings that the slider bars are set to.

**Slider Bars**:
Click on the bar with the mouse and drag to desired gain. Once the bars are selected, the left and right arrow keys can also be used to change the settings.

**Lock**:
When checked, locks the left and right channels to the same gain value. When unchecked, allows the left and right channels to have independent gains. (Note that if an adapter is in SSX2 mode, the Player volumes cannot be unlocked to move the left and right channels independently.)

**Autofade**:
When pressed, automatically fades the volume to the opposite end of the scale.

## 11.5.2 Developer

### 11.5.2.1 Windows APIs

**Wave/Mixer** – MIXERCONTROL_CONTROLTYPE_VOLUME
This is a Windows standard volume control. Settings are in the range of 0 to 65535, where 0 completely mutes the output and 65535 is the maximum volume.
**HPI** – HPI_Volume APIs.
**ASX** – ASX_Volume APIs.
**DirectSound** – TBD.

### 11.5.2.2 Linux APIs

**HPI** –HPI_Volume APIs.
**ASX** –ASX_Volume APIs.
**ALSA** – TBD.

## 11.6 Meter

Meters in ASIControl are located on audio nodes and display the audio level as the audio signal passes through the node. Most AudioScience devices return both RMS and peak level readings and ASIControl displays both simultaneously.
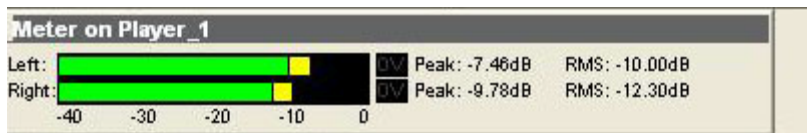
### 11.6.1 Interface



**Figure 6.   A stereo peak meter display. The RMS is the green bar and the peak is the yellow bar.**

To the right of the peak meter is the absolute readings in dBFS. These can be useful when testing input tones of a specific known level.

### 11.6.2 Developer

### 11.6.2.1 Windows APIs

**Wave/Mixer** – Meters are read using mixerGetControlDetails() on a control of type signed and with type "Peak" the name "Peak Meter". A minimum value is 0 and maximum is 32767. The interface returns the peak readings only, not the RSM level. It confirms to expected Windows functionality.
**HPI** – Meters are read using the HPI_Meterxxx() API.
**ASX** – Meters are read using the ASX_Meter_xxx() API.
**DirectSound** – TBD.

### 11.6.2.2 Linux APIs

**HPI** – Meters are read using the HPI_Meterxxx() API.
**ASX** – Meters are read using the ASX_Meter_xxx() API.
**ALSA** – TBD.

## 11.7 Channel_Mode

The channel mode is a mechanism for handling mono to stereo conversions and directing the output to either left or right channels, as well as outputting left to stereo and right to stereo.
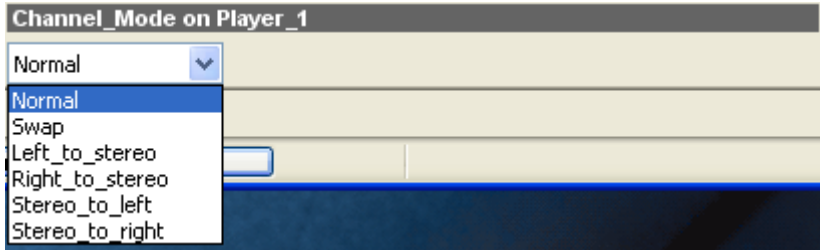
### 11.7.1 Interface

**Channel_Mode on Player_1**

Normal

Normal
Swap
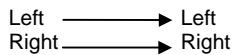Left_to_stereo
Right_to_stereo
Stereo_to_left
Stereo_to_right

**Figure 7. ASIControl view of a player's channel mode control.**

Default playback of either mono or stereo files causes audio to be output from the player on both the left and right audio channels. The channel mode control can allow the audio to be directed to either the left only or the right only. Select a channel mode setting from the dropdown list.
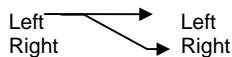
Valid settings are:

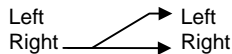**Normal** – left channel out left channel, right channel out right channel

Left   ——————▶ Left
Right ——————▶ Right

**Swap** – left channel out right channel and right channel out left channel

Left   ⟍⟋ ▶ Left
Right ⟋⟍ ▶ Right

**Left_to_stereo** – left channel out to both left and right channels

Left ——▶ Left
Right   ▶ Right

**Right_to_stereo** – right channel out to both left and right channels

Left   ▶ Left
Right ——▶ Right

**Stereo_to_left** – left and right channels out to left channel

Left   ——⊕▶ Left
Right ——⟋ Right
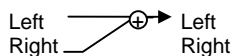
**Stereo_to_right** – left and right channels out to right channel

Left   ⟍ Left
Right ——⊕▶ Right
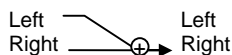
The Stereo_to_left and Stereo_to_right operations perform a sum of the left and right channels and then divides the result by 2.

## 11.8  ClockSourceIn

In the topology pane of ASIControl, click on Clock Source 1

and in the node pane, select where the adapter is to get its clock source from using the Clock Source dropdown list, as well as the sample rate to use if clocking from adapter.

**Note** that for CobraNet and Livewire devices, the sample rate is fixed at 48kHz.

### 11.8.1  Interface

**Figure 8.  Clock Source information as seen in ASIControl.**

**Local Rate:**
Select from the dropdown list the supported rates of the adapter.

**Clock Source:**
From the dropdown list, select the source for the adapter's clocking.  Selections, depending on the adapter, include:
- Local – adapter rate is used; select a supported sample rate in Local Rate dropdown list
- Word – Word clock from Word clock BNC connector on digital cable loom (or BOB1024)
- WordHeader – Word clock from header on adapter (ASI61xx only)
- AES/EBU Sync – AES/EBU Sync from AES/EBU Sync XLR connector on digital cable loom (or BOB1024)
- AES/EBU In 1-4 – rate taken from specific digital input
- AES/EBU Auto – rate taken from first valid digital input; looks at digital input 1 first, then up to digital input 4

**Adapter Rate:**
Displays current adapter rate.

**<end>**