# ASI5751 and ASI5752

**PCI EXPRESS DANTE SOUND CARDS**

## 1 DESCRIPTION

The ASI5751 and ASI5752 are professional PCI Express audio adapters designed for use Dante audio over IP networks.

The ASI5751 provides either 32 Mono streams or 16 stereo streams of playback and record. The ASI5752 delivers 64 channels of Dante input and output that can be routed to WDM devices of 1, 2, 4 or 8 channels.

AudioScience provides ASIControl, an application for configuration and mixing.

## 2 FEATURES

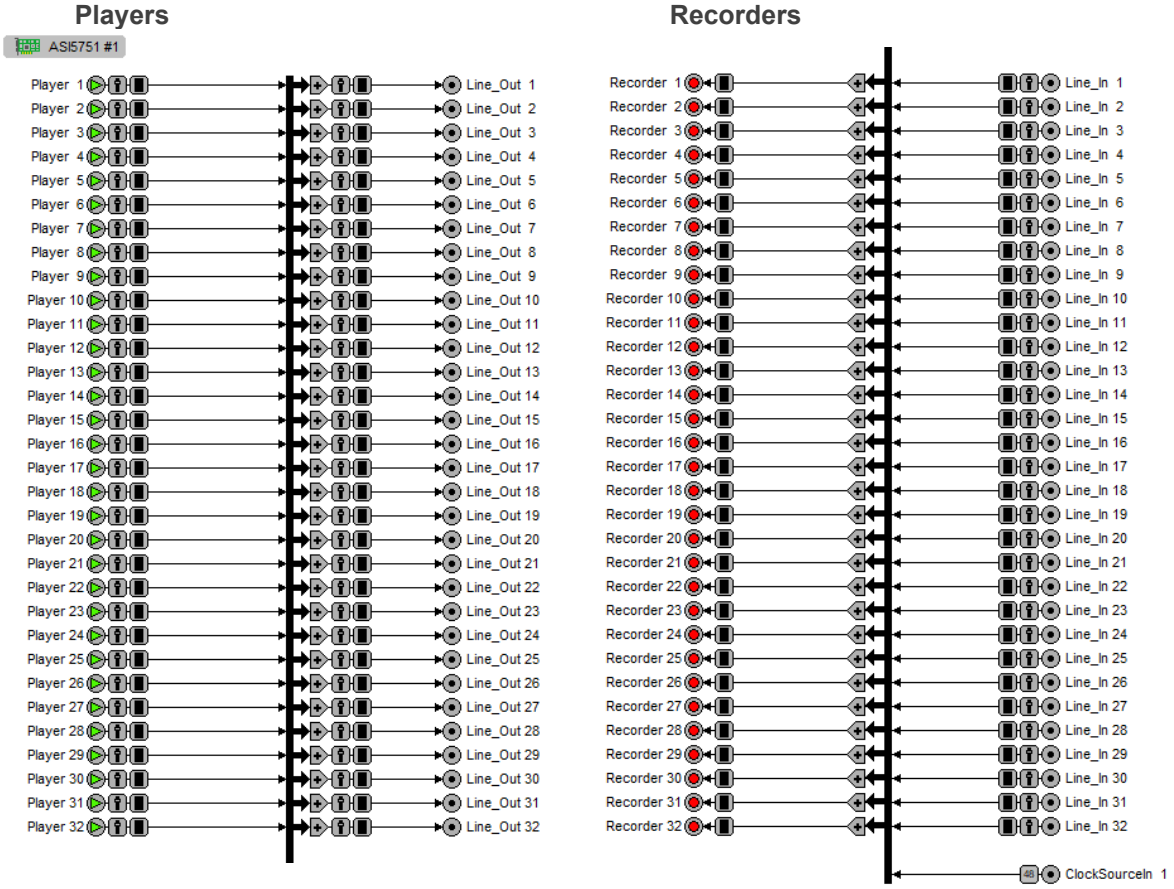
- 32 x 32 Dante audio channels (ASI5751)
- 64 x 64 Dante audio channels at 48kHz or 32 x 32 Dante I/0 at 96kHz (ASI5752)
- Up to 32 Rx and 32 Tx Dante network flows per card
- 32 mono/16 stereo streams of PCM playback and 32 mono/16 stereo streams of record (ASI5751)
- 64 mono streams of PCM play and record (ASI5752)
- Gb Ethernet connection
- WDM devices configurable from 1 to 8 channels
- Low Profile PCI(e) card allows use in 2U high rackmount computers
- Up to 8 cards in one system
- Windows and Linux software drivers available

# 3 SPECIFICATIONS

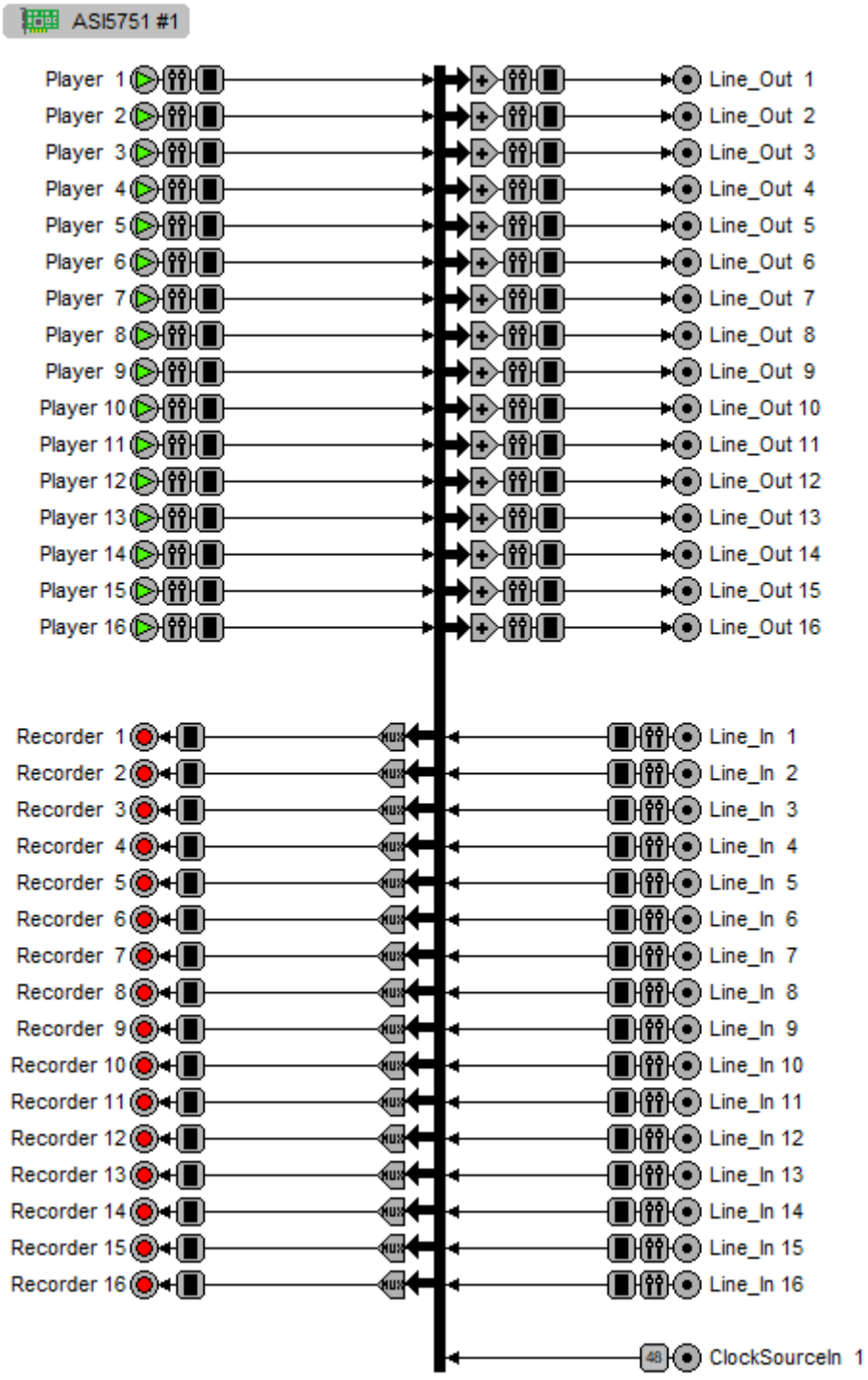
| | |
|---|---|
| **DANTE INPUT/OUTPUT** | |
| Type | 1000BaseT Ethernet |
| Connector | RJ-45 |
| Precision | 24bit PCM |
| Sample Rate - ASI5751 | 48kHz |
| Sample Rate - ASI5752 | 64 x 64 Dante I/O at 48kHz or 32 x 32 Dante I/O at 96kHz* Sample rate must be set independently in both ASIControl and Dante Controller |
| Latency | 0.25, 0.5, 1.0, 2.0, 5.0ms |
| | |
| **SIGNAL PROCESSING** | |
| DSP | Texas Instruments TMS320DM8147@600MHz |
| Memory | 64MB |
| Audio Formats | 8 bit unsigned PCM<br>16, 24 bit signed PCM<br>32 bit floating point PCM |
| Modes: | |
| ASI5751 | 16-Play: 16 stereo Play and Record<br>32-Play: 32 mono Play and Record |
| ASI5752 | Low-latency: 1 Play and 1 Record, configurable to 64x64 mono, 32x32 stereo, 16x16 four channel or 8x8 eight channel devices in Windows |
| **GENERAL** | |
| Bus | X1 PCI Express |
| Dimensions | PCI half-height form factor – 5.4" x 2.75" x 0.6" (138mm x 70mm x 15mm)<br>Ships with both half height and full height brackets |
| Weight | 8 oz (227g) max |
| Operating Temperature | 0C to 60C |
| Power Requirements | +3.3V @ TBD, +12V @ TBD |
| | |

# 4 BLOCK DIAGRAMS

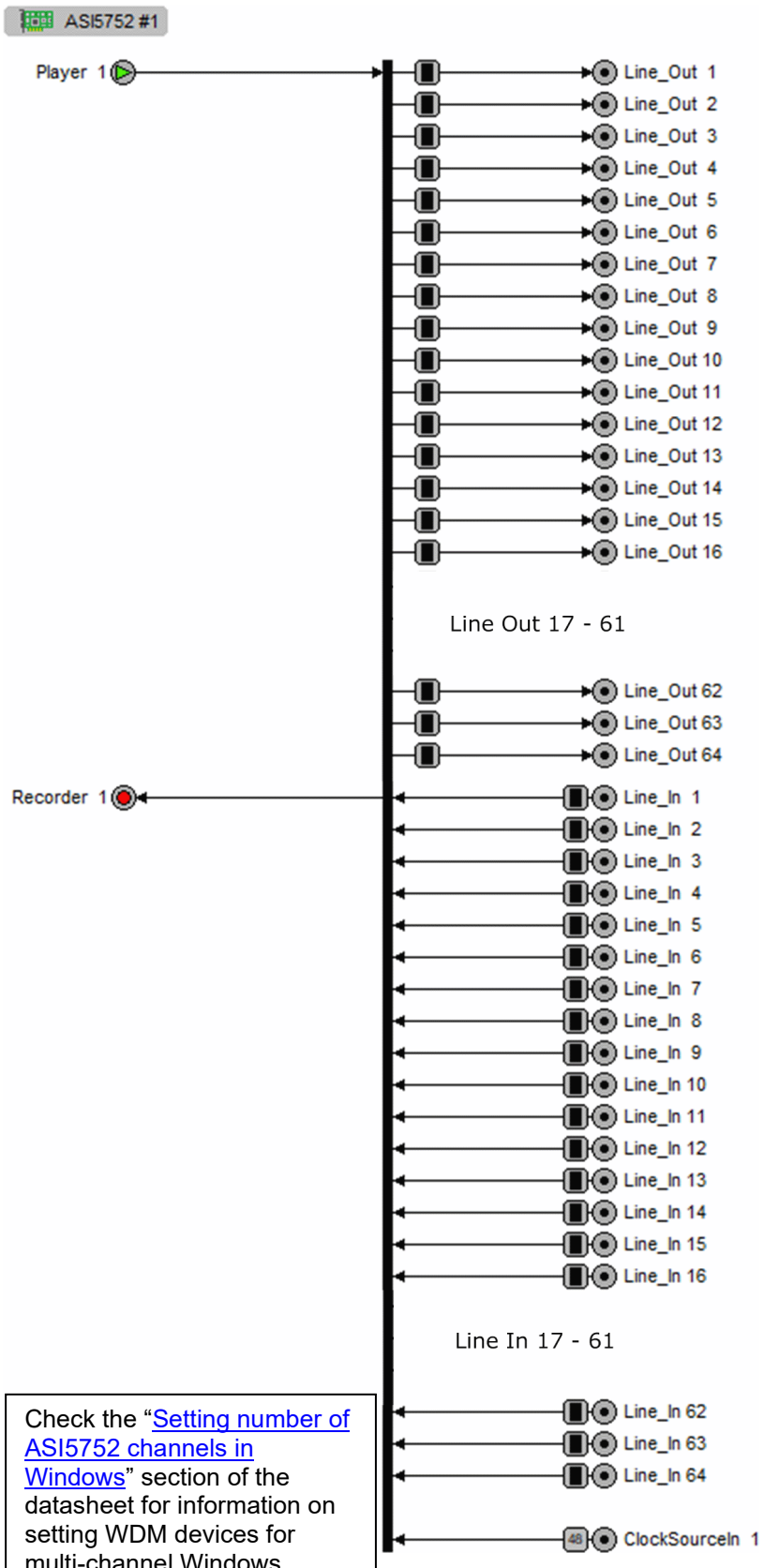
## 4.1 32-Play (mono) mode (ASI5751)



## 4.2 16-Play (stereo) mode (ASI5751)



## 4.3 Low-latency Mode (ASI5752)




Check the "Setting number of ASI5752 channels in Windows" section of the datasheet for information on setting WDM devices for multi-channel Windows

# 5 REVISIONS

| Date | Description |
|---|---|
| October 2023 | Preliminary |
| March 2024 | Initial public release |
| April 4, 2024 | Added Compandor and EQ sections |
| Jan 14 2025 | Added ASI5752 |
| April 22, 2025 | Updated ASI5752 block diagram and other info |
| July 15 2025 | Added Save/Restore section |
| Oct 27 2025 | Added note re: ASI5752 at 96kHz channel counts |

# 6 INTRODUCTION

## 6.1 About Dante

Based on industry standards, Audinate created Dante, an uncompressed, multi-channel digital media networking technology, with near-zero latency and synchronization. Dante is the preferred audio networking solution that has been adopted by more pro-audio AV manufacturers than any other networking technology. Interoperability is not a dream of the future, but a reality today. Hundreds of Dante-enabled products are available from the world's leading manufacturers, enabling you to mix devices from multiple manufacturers.

One cable does it all. Dante does away with heavy, expensive analog or multicore cabling, replacing it with low-cost, easily available CAT5e, CAT6, or fiber optic cable for a simple, lightweight, and economical solution. Dante integrates media and control for your entire system over a single, standard IP network.

Dante systems can easily scale from a simple pairing of a console to a computer, to large capacity networks running thousands of audio channels. Because Dante uses logical routes instead of physical point-to-point connections, the network can be expanded and reconfigured at any time with just a few mouse clicks.

# 7 CONTENTS


**1 DESCRIPTION ..... 1**

**2 FEATURES ..... 1**

**3 SPECIFICATIONS ..... 2**

**4 BLOCK DIAGRAMS ..... 3**

4.1 32-PLAY (MONO) MODE (ASI5751) ..... 3
4.2 16-PLAY (STEREO) MODE (ASI5751) ..... 4
4.3 LOW-LATENCY MODE (ASI5752) ..... 5

**5 REVISIONS ..... 6**

**6 INTRODUCTION ..... 6**

6.1 ABOUT DANTE ..... 6

**7 CONTENTS ..... 7**

**8 INTRODUCTION ..... 8**

**9 CONNECTORS ..... 8**

**10 CABLES ..... 8**

**11 HARDWARE INSTALLATION ..... 9**

11.1 SETTING ADAPTER INDEX – ONE ADAPTER IN THE PC ..... 9
11.2 SETTING ADAPTER INDEX - TWO OR MORE ADAPTERS IN THE PC ..... 9

**12 OPERATION USING ASICONTROL ..... 10**

12.1 USER INTERFACE ..... 10
*12.1.1 Adapter List Window ..... 10*
*12.1.2 Adapter Topology Window ..... 10*
*12.1.3 Node Controls Window ..... 11*
12.2 SAVE/RESTORE CONFIGURATION ..... 11
*12.2.1 Interface ..... 12*
12.3 CONTROLS ..... 11
*12.3.1 Adapter Information ..... 12*
*12.3.2 Adapter Mode ..... 12*
*12.3.3 Player ..... 13*
*12.3.4 Recorder ..... 15*

**13 TROUBLESHOOTING ..... 16**

*<end> ..... 16*

# 8 INTRODUCTION

The ASI5751 and ASI5752 are PCI Express audio adapters. The ASI5751 provides 32 x 32 channels of Dante receive and transmit while the ASI5752 offers 64 x64 channels of Dante I/O at 48kHz and 32 x 32 Dante I/O at 96kHz.

AudioScience provides application software ASIControl that may be used to set up the devices.

# 9 CONNECTORS

The ASI5751 and ASI5752 use standard, dual RJ-45 connectors.

# 10 CABLES

The cards are connected to a Dante network using a standard Ethernet cable.  The Ethernet cable is not supplied.

# 11 HARDWARE INSTALLATION

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

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

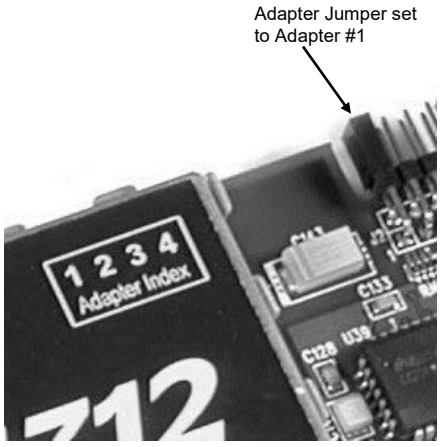
1. Make sure your computer is turned off.

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.

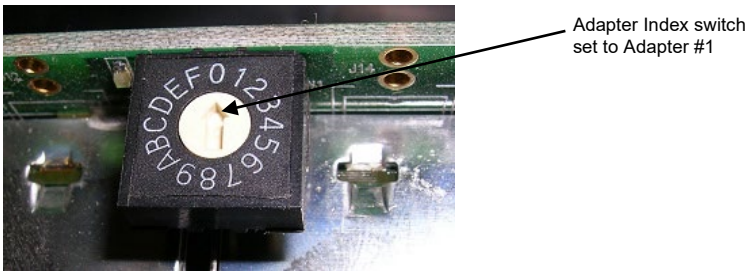
Depending on the adapter family, there are different ways of setting the adapter index.

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




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.




4. Turn on the computer and let it boot. Under **Windows,** a dialog box may 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.

## 11.2 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 if installed in the same PC. Different adapter types still require unique adapter index numbers.

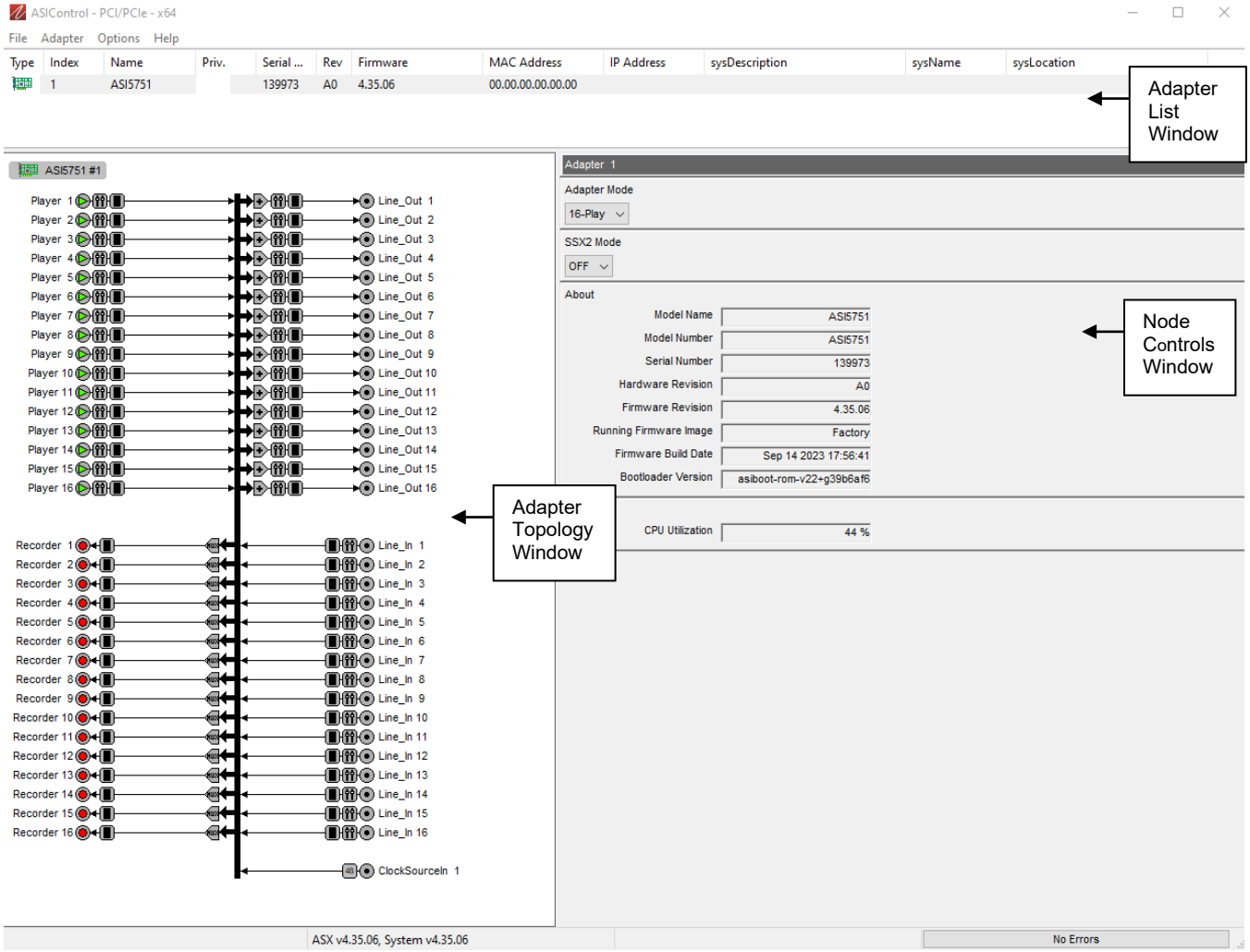
3. Each adapter in the PC needs to have its adapter jumper/rotary switch position set to unique numbers. If you are installing two adapters, the first one would be set to adapter index #1 and the second to adapter index #2.

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.

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.

# 12 OPERATION USING ASICONTROL

Using ASIControl, the ASI5751 will look similar to the following (in 16-Play mode)




## 12.1 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.

### 12.1.1 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 network support has been installed with the driver then AudioScience and other 3rd 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 network devices such as the ASI2416 this is calculated from the units MAC address. 3rd party network devices are listed last as they have no AudioScience index.

### 12.1.2 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. On the left hand side, bus based adapters show player and recorder streams, while CobraNet adapters show their network connections.

Each of these inputs and outputs is referred to as a Node and each Node contains one or more Controls on it. The topology shows each Control as a small square icon. A non-exhaustive list of nodes follows:

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

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. Clicking on this will show adapter specific controls and properties on the right-hand side.

### 12.1.3 Node Controls Window

The right-hand side of ASIControl shows the controls associated with the selected node on 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.

## 12.2 Save/Restore Configuration

Using ASIControl a device's control settings (trim, level, volume, etc.) can be saved and restored. The Save option supports the storing of most device settings in an XML-format, readable text file.

The Save/Restore Configuration command is invoked in ASIControl by either right clicking on the device in the top section or clicking Adapter->Configuration from the top menu.

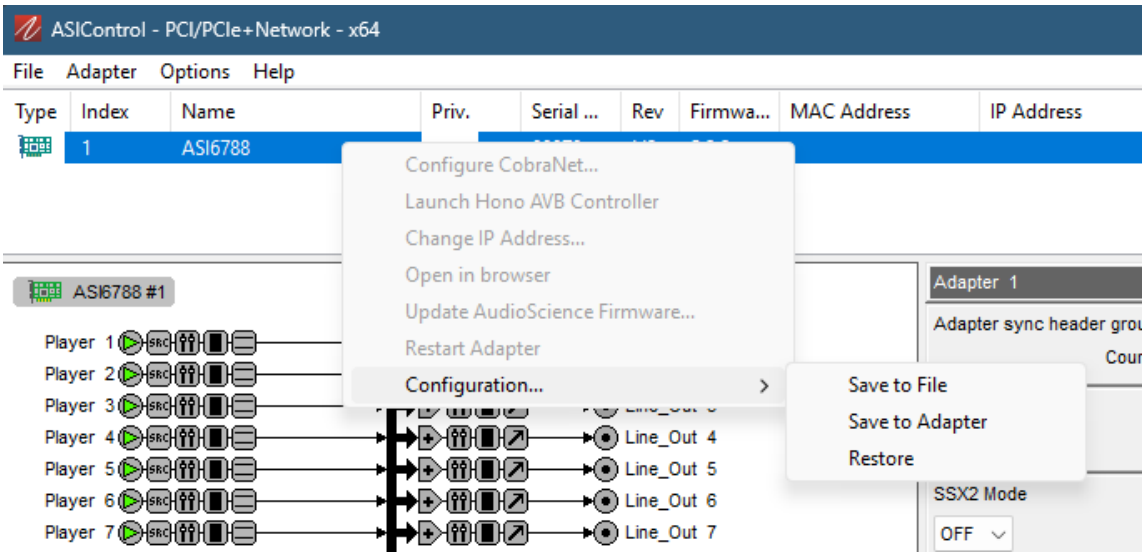



**Figure 1. Right-clicking on a device to access Save/Restore function**

There are 3 options under this section:

1. Save to file. Writes the information to an XML file.
2. Save to adapter: Writes the settings to the current adapter's memory (only used for certain models)
3. Restore: Restores a previously saved configuration as the current setup.

### 12.2.1 Interface

Use the default location to save configuration settings or use the Save in dropdown arrow to browse to a different location. Give the file a meaningful name in the File name text box. Click the Save button; the configuration file is saved as type xml.

To retrieve the file, simply select the Restore Configuration option and if necessary, browse to the location of the saved xml file. Click the Open button to install the configuration settings.

## 12.3 Controls

The following subsections list all the controls for the ASI575x. Each control's interface as it appears in ASIControl is detailed and where applicable, the API to use the control is described.

### 12.3.1 Adapter Information

This control displays information about the installed adapter or network device.

#### 12.3.1.1 Interface

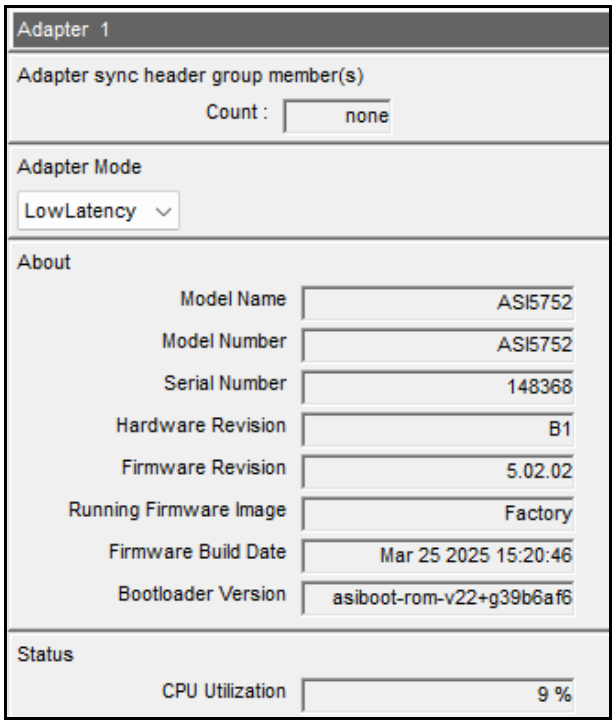



Figure 2. Adapter information seen in right side of ASIControl.

**Model Number:** Model number displayed here.
**Serial Number:** The serial number is displayed here.
**Hardware Revision:** This lists the hardware revision.
**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 adapter's DSP in percentage. **Note:** Should be kept below 90%.

### 12.3.2 Adapter Mode

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

#### 12.3.2.1 Interface

**Figure 3. Adapter_Mode in ASIControl.**

Selecting the appropriate mode from the list using the dropdown arrow changes the Adapter_Mode setting. Rebooting is necessary after changing adapter mode. The mode setting is saved to the adapter's EEPROM. The ASI5751 supports 2 adapter modes: 16-Play and 32-Play. The ASI5752 supports Low-latency only.

#### 12.3.2.2 16-Play (ASI5751)

This mode supports 16 stereo Play streams and 16 stereo Record streams.

#### 12.3.2.3 Mono (ASI5751)

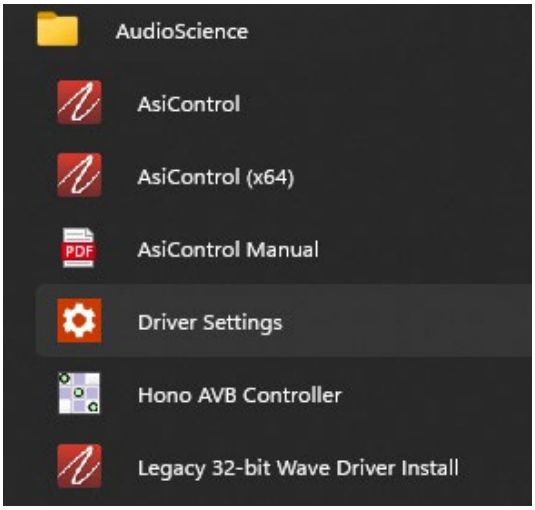
This mode supports 32 mono Play streams and 32 mono Record streams with full mixing capabilities. Mono mode supports mapping a single Play device to a mono Dante channel, allowing independent audio output on each channel.

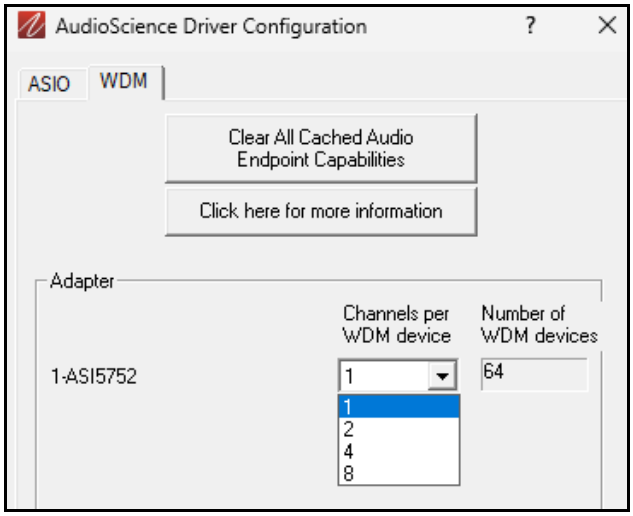
#### 12.3.2.4 Low-latency (ASI5752)

This mode supports a single multichannel audio stream enabling live sound processing in ASIO and Core Audio Applications. This single stream can be configured as 1,2,4 or 8 WDM devices.

##### 12.3.2.4.1 Setting number of ASI5752 channels in Windows

The ASI5752 operates in Low-Latency mode only, however, that does not mean you are limited to 32x32 stereo channels in Windows. You can set the number of channels per WDM device using the "Driver Settings" app found in the AudioScience Start menu. First, run the application, then switch to the WDM tab. Next set the "Channels per WDM device" to the number of channels you want for each Windows device. Set to 1 for 64 mono channels, set to 2 for 32 stereo channels or use 4 or 8 for multi-channel devices. Reboot your system (required)




### 12.3.3 Player

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

#### 12.3.3.1 Interface

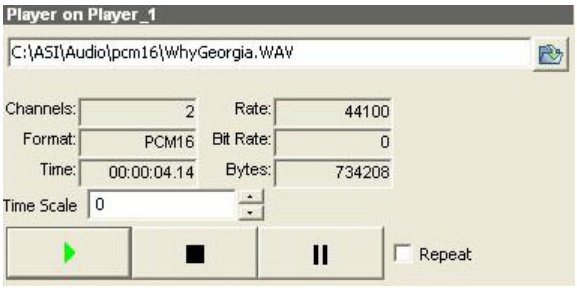



**Figure 4. A player in ASIControl.**

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.

#### 12.3.3.2 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.

#### 12.3.3.3 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** = waveform = SINE (default=SINE)
**c** = channels = 1..8 (default = 2)
**f** = frequency = 1000 for 1kHz (default=1000)
**a** = amplitude = -1 for -1dBFs (default=0dBFS, i.e. full scale)
**m** = channel mask = 10 for left only, 01 for right only, 11 for stereo etc (default=1 for all channels)
**t** = sample type = (PCM8,PCM16,PCM24,PCM32,FLOAT32), (default=FLOAT32)
**s** = sample 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.

#### 12.3.3.4 Developer

##### 12.3.3.4.1 Windows APIs

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

**DirectSound** – TBD.

#### 12.3.3.4.2 Linux APIs

**HPI** – TBD.

### 12.3.4 Recorder

The Recorder control supports recording of an audio file.

#### 12.3.4.1 Interface

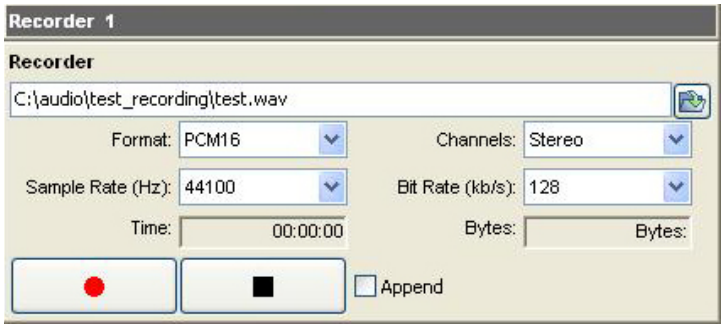



**Figure 5. A recorder in ASIControl.**

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.

#### 12.3.4.2 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.

#### 12.3.4.3 Developer

#### 12.3.4.3.1 Windows APIs

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

#### 12.3.4.3.2 Linux APIs

**HPI** – use HPI_InStreamxxx() functions.

ASX – use ASX_Recorder_xxx() functions.
ALSA – TBD

## 13 Troubleshooting

For help with Dante Controller issues, check out this helpful guide from Audinate:

Troubleshooting Dante IP Address Configuration

<end>