LOW LATENCY MODE
FOR AUDIOSCIENCE ADAPTERS

1   INTRODUCTION

AudioScience's low latency mode changes the operation of an AudioScience adapter so that a single multichannel audio play stream and a single multichannel audio record stream are presented to the operating system, providing real-time quality and response.

Low latency mode enables live sound processing using standard PC or Mac hardware and off-the-shelf audio applications. This allows integrators to choose high quality audio processing functions from the incredibly wide range of commercially available VST plug-ins.

Low latency audio interfaces supported include ASIO on Windows and Core Audio on OS X. The DirectSound and WAVE interfaces are not currently supported.

2   REQUIREMENTS

2.1   Supported Adapters

Particular driver versions are needed and some adapters require particular hardware revisions (Revs). The table below lists the adapters, revs, and drivers required. It also lists the requirements for sample rates and formats; see next page for more information on sample rates and formats.

Adapter	Rev.	Driver	Sample Rate	Format
ASI5308/5316/6316	F0 and later	4.06.00 and later	CobraNet Network sample rate, 48kHz	PCM 16 and PCM 32*
ASI5408/5416/6416	F6 and later	4.06.00 and later	CobraNet Network sample rate, 48kHz, or Word clock	PCM 16 and PCM 32*
ASI5520/5540/5541/5544	none	4.08.00 and later	Adapter sample rate	PCM 16 and PCM 32*
ASI5640/5641/5644/5680	none	4.08.00 and later	Adapter sample rate	PCM 16 and PCM 32*
ASI6514/6518/6520/6522/ 6540/6544/6585	none	4.08.00 and later	Adapter sample rate	PCM 16 and PCM 32*
ASI6614/6618/6620/6622/ 6640/6644/6685	none	4.08.00 and later	Adapter sample rate	PCM 16 and PCM 32*

*16 and 32 signify file bit depth

2.2 Sample Rate

2.2.1 ASI5520/5540/5541/5544/5640/5641/5644/5680/6514/6518/6520/6522/6540/6544/6585/6614/6618/6620/6622/6640/6644/6685 Non-CobraNet Adapters
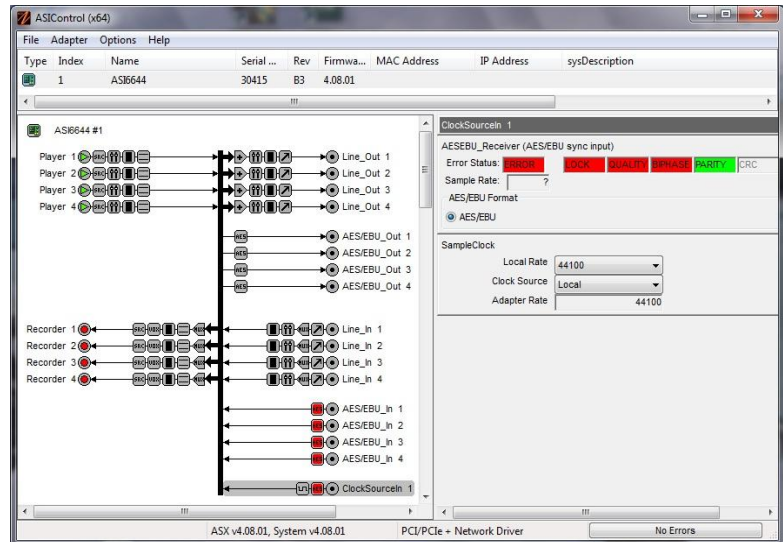
For non-CobraNet adapters, the supported sample rate is restricted to the adapter sample rate as defined in ASIControl in the SampleClock. In the left side of ASIControl, click on ClockSourceIn 1 to bring up the SampleClock control in the right side.

2.2.2 ASI5308/ASI5316/ASI6316 CobraNet Adapters

For CobraNet adapters ASI53/63xx Rev F0 and later, the supported sample rate is the CobraNet Network sample rate, 48kHz, or Word clock, depending on what is selected in its Clock Source control in ASIControl.

2.2.3 ASI5408/ASI5416/ASI6416 CobraNet Adapters

For CobraNet adapters ASI54/64xx Rev F6 and later, the supported sample rate is the CobraNet Network sample rate, 48kHz.

2.3 Format

Low latency mode supports PCM 16 and PCM 32. The channel count of audio files played/recorded must match the channel count of the player/recorder.

3 AGGREGATING ADAPTERS

The ASI5308, ASI5316, and ASI6316 PCI Express CobraNet adapters have inter-adapter synchronization capability that facilitates combining audio channels from all cards in one machine together into a single ASIO device for increased channel counts. The combined device maintains sample accurate synchronization across all channels.
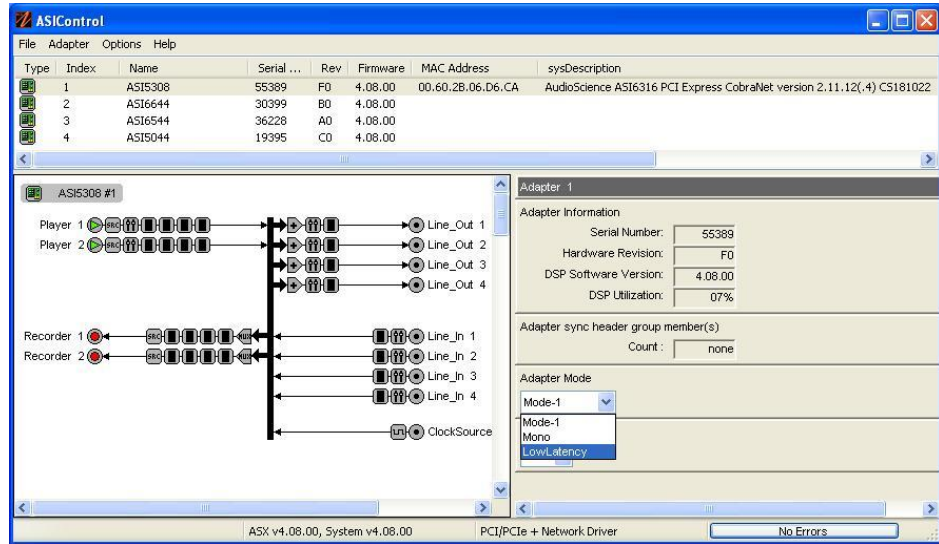
3.1 Requirements

In order to aggregate the adapters:
- They must all be of the same type
- They must be all selected in the ASIO control panel (see the AudioScience ASIO datasheet for information on selecting adapters in the ASIO control panel)
- They must all be connected via their ribbon cables for synchronization (see the ASI53xx/ASI6316 datasheet for more information on synchronization)
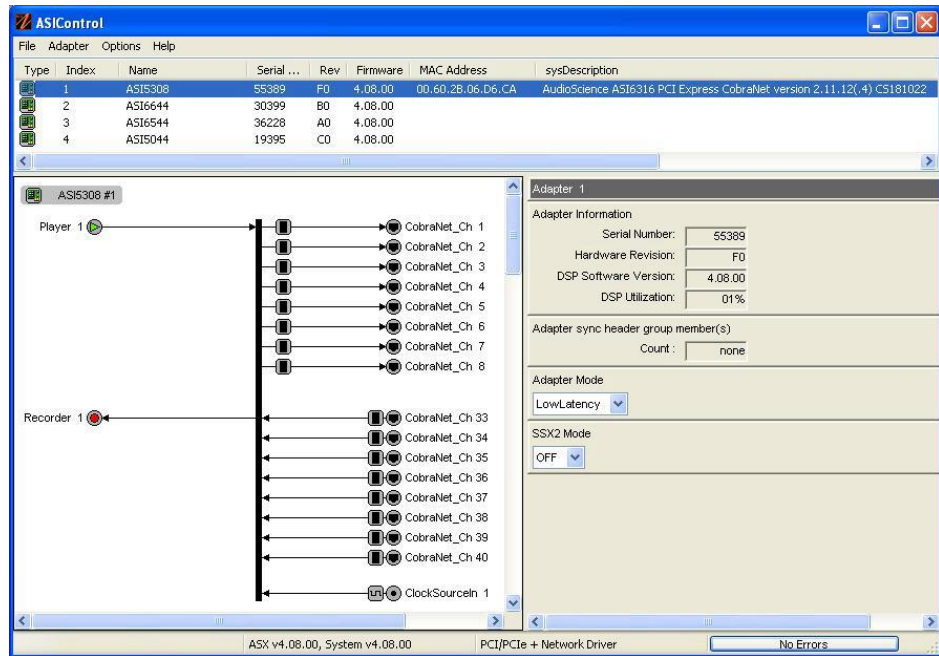
4   SELECTING LOW LATENCY MODE

4.1   Windows Machines

Low latency mode is selected using ASIControl. ASIControl is installed with all current Windows drivers.
To open ASIControl, doubelclick the ASIControl icon   (installed by the driver .EXE) found on the desktop.

In the top list pane, click on the adapter to be placed in low latency mode. In the left pane, click on the name of the adapter in the upper left, then in the right pane, select Low latency from the Mode dropdown list. You will be prompted to restart the machine. The adapter mode is written to the adapter's EEPROM; the setting will remain with the adapter if placed in another machine.

When the machine restarts, the adapter in low latency mode is presented as a single-channel audio device.

4.2   OS X Machines

When installed, the Mac driver automatically places the AudioScience adapter in low latency mode.