

NOTE 35

AVB – VSC and ASI2620 low latency

This document outlines the steps to perform in order to configure a VSC and ASI2620 for low latency audio processing. There are several steps

1. Make sure the correct software versions are installed
2. Configure Streams
3. Start streams
4. Configure ASIO buffer size
5. Start an ASIO windows application
6. Configure talker stream latency

The expected latency from the above steps is 6 milliseconds from ASI2620 analog in to ASI2620 analog out. This measurement includes analog I/O, audio packet transport across the network in both directions and ASIO buffer processing in a Windows user application.

Sources of latency: (μs = microseconds)

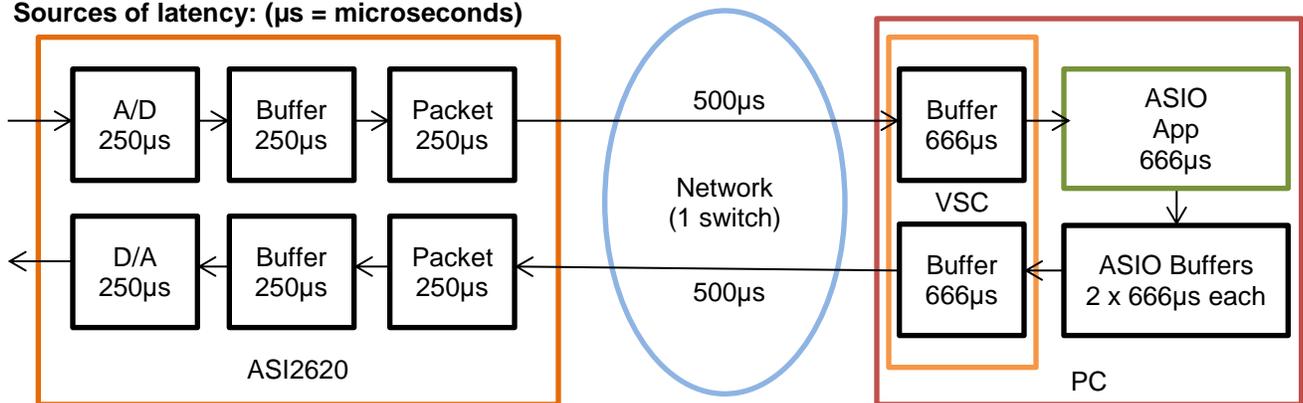


Figure 1. Typical AVB – VSC and ASI2620 low latency setup

The IEEE1722 specification writes about a default 2 millisecond network latency. This is to guarantee worst case correct operation across 7 hops using 100 Mbps switches. In practice, all AVB capable switches on the market operate at 1 Gbps, so packet propagation is much faster than at 100 Mbps. Additionally, if the AVB packets only pass through a single switch, propagation delay is further reduced. Because we are using a single 1Gbps switch in the above configuration, it is acceptable to reduce the network presentation time from the default 2 milliseconds to 0.5 milliseconds and still have correct operation.

1 Software versions required

In order to achieve optimal latency the following software versions need to be installed.

- RTX64: 3.3.2 or later
- VSC: v4.21.23.02 or later
- WDM: v4.21.23 or later
- ASI2620: v1.3.0 firmware or later

You will need to use ASIControl to make sure the VSC is set to operate in Low-Latency mode and restart the computer if you change its mode.

2 Configure streams

Using the AudioScience Hono AVB Controller, make sure all VSC and ASI2620 streams are 8 channel streams and have valid mappings.

3 Start streams

Using the AudioScience Hono AVB Controller, connect the following streams for the initial test

VSC Media Clock Output -> ASI2620 Media Clock Input
VSC Stream Output 1 -> ASI2620 Stream Input 1
ASI2620 Stream Output 1 -> VSC Stream Input 1

At this stage the ASI2620 media clock is synched to the VSC media clock and we have an audio path from the ASI2620 line in to the VSC and from the VSC to the ASI2620 line out. The next step is to complete the loopback.

Additional streams can be connected if required.

4 Configure ASIO

Open the ASIO control panel and set the samples per buffer option to be 32. This corresponds to 0.6 milliseconds at 48 kHz.

5 Start the ASIO application

Start an ASIO application that is capable of feeding audio input buffers back to audio output.

6 Configure talker stream latency

Use the AudioScience Hono AVB Controller to click on the device and then set the Talker stream latency to 500 usec.

7 Tech Support

If at any point you need help with this information please contact our Technical Support department at 585-271-8870 between the hours of 9AM and 5PM EST

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