Using Resplendance LatencyMon
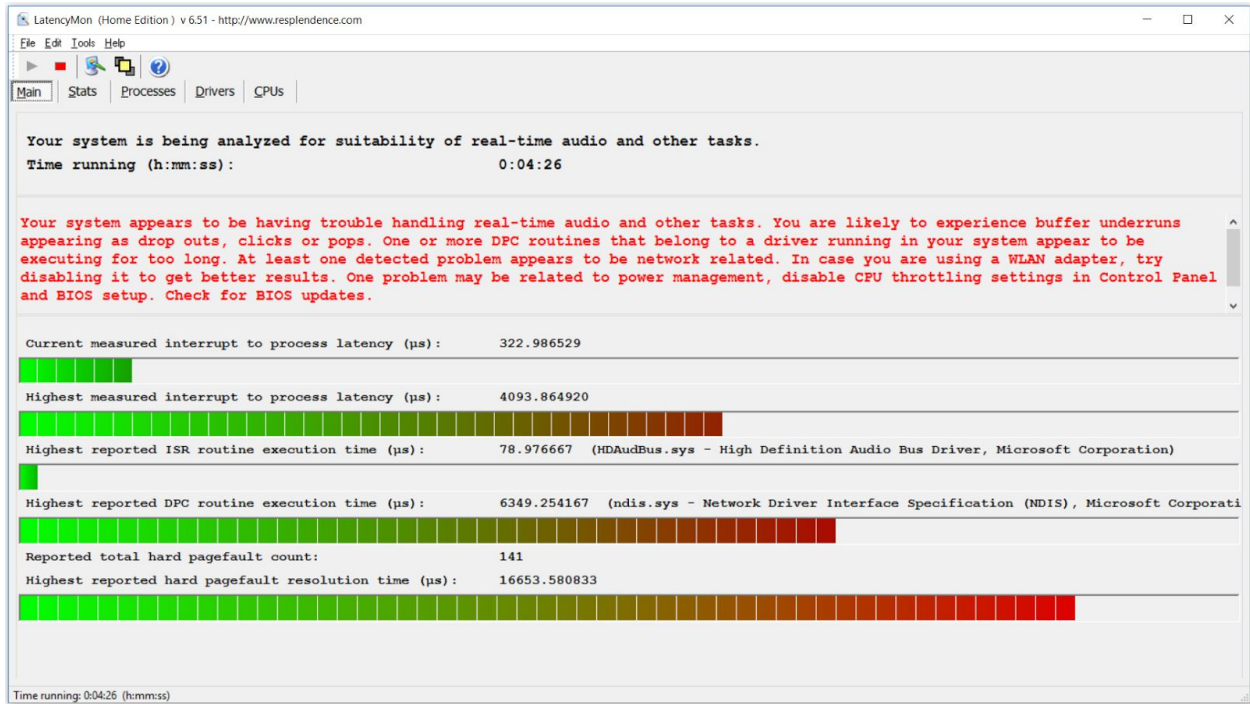
While it may seem that a Windows computer is doing lots of things at the same time, in reality it's doing one thing at a time, but just very quickly. Each application running on your computer gets a slice of CPU processing time in order to complete a task, with a rather complicated routine to decide the sequence of slices. This means that if one app holds up the CPU, other apps get delayed, which can lead to pops, clicks and dropouts in audio programs.

LatencyMon isn't checking audio latency, it's checking the latency of specific Windows processes relating to the CPU.

Using LatencyMon is really quite easy - download the app, launch it, and click the green Start arrow. If after several minutes LatencyMon indicates that "Your system appears to be suitable for handling real-time audio and other tasks without dropouts", you're ready to go! (In the example below, the hard pagefault indication is high, but as seen in the Processes window, this is caused by the LatencyMon app itself, which won't preset a problem while running your audio system).
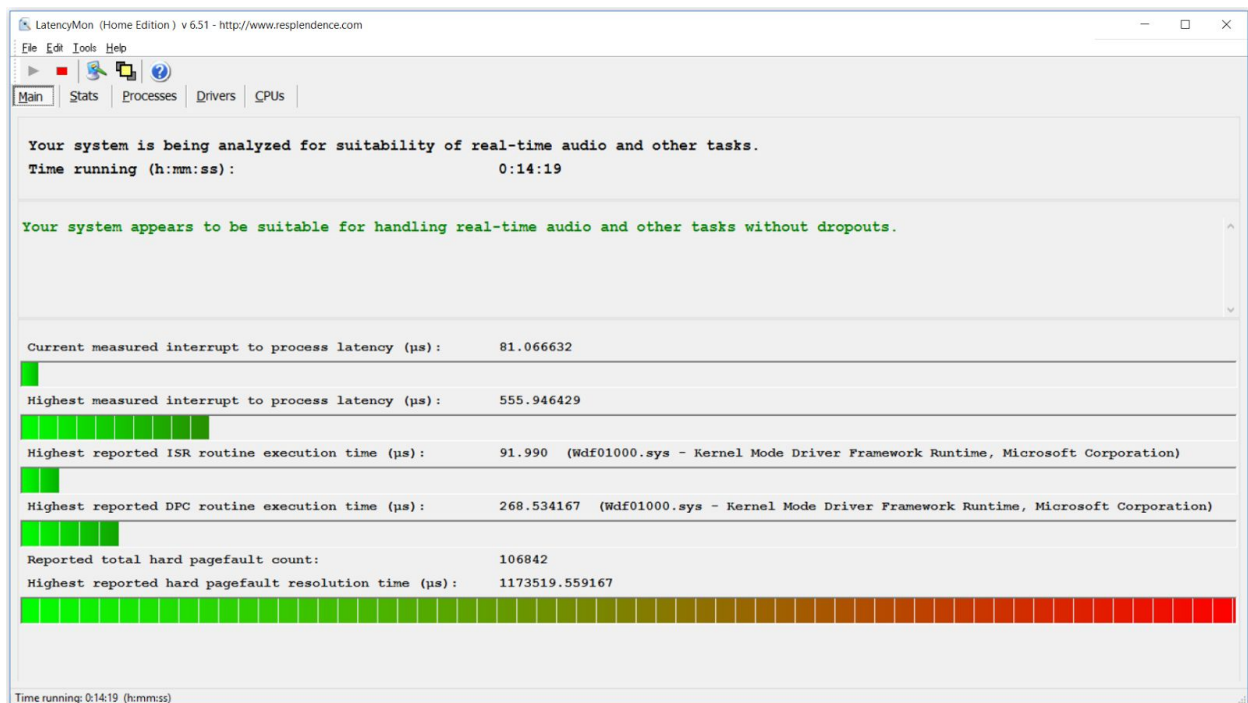
If, on the other hand, LatencyMon displays a message that your system is less suitable for real-time audio tasks, look for the bargraph(s) that display orange or red blocks - these indicate CPU latencies that could result in issues . Above each bargraph is displayed the app or driver that's causing the excessive latency. Now's when the, er, fun starts.

LatencyMon (Home Edition) v 6.51 - http://www.resplendence.com

File Edit Tools Help

Main | Stats | Processes | Drivers | CPUs

Your system is being analyzed for suitability of real-time audio and other tasks.
Time running (h:mm:ss):   0:04:26

Your system appears to be having trouble handling real-time audio and other tasks. You are likely to experience buffer underruns appearing as drop outs, clicks or pops. One or more DPC routines that belong to a driver running in your system appear to be executing for too long. At least one detected problem appears to be network related. In case you are using a WLAN adapter, try disabling it to get better results. One problem may be related to power management, disable CPU throttling settings in Control Panel and BIOS setup. Check for BIOS updates.

Current measured interrupt to process latency (µs):   322.986529

Highest measured interrupt to process latency (µs):   4093.864920

Highest reported ISR routine execution time (µs):   78.976667   (HDAudBus.sys - High Definition Audio Bus Driver, Microsoft Corporation)

Highest reported DPC routine execution time (µs):   6349.254167   (ndis.sys - Network Driver Interface Specification (NDIS), Microsoft Corporati

Reported total hard pagefault count: 141

Highest reported hard pagefault resolution time (µs):   16653.580833

Time running: 0:04:26 (h:mm:ss)

First, determine what function the specified driver performs. Because LatencyMon is so widely used in audio circles, searching on-line for information is the quickest way to get information. For example, based on the results shown above, search for "ndis.sys latency". As is indicated on the same line, this is a network driver.
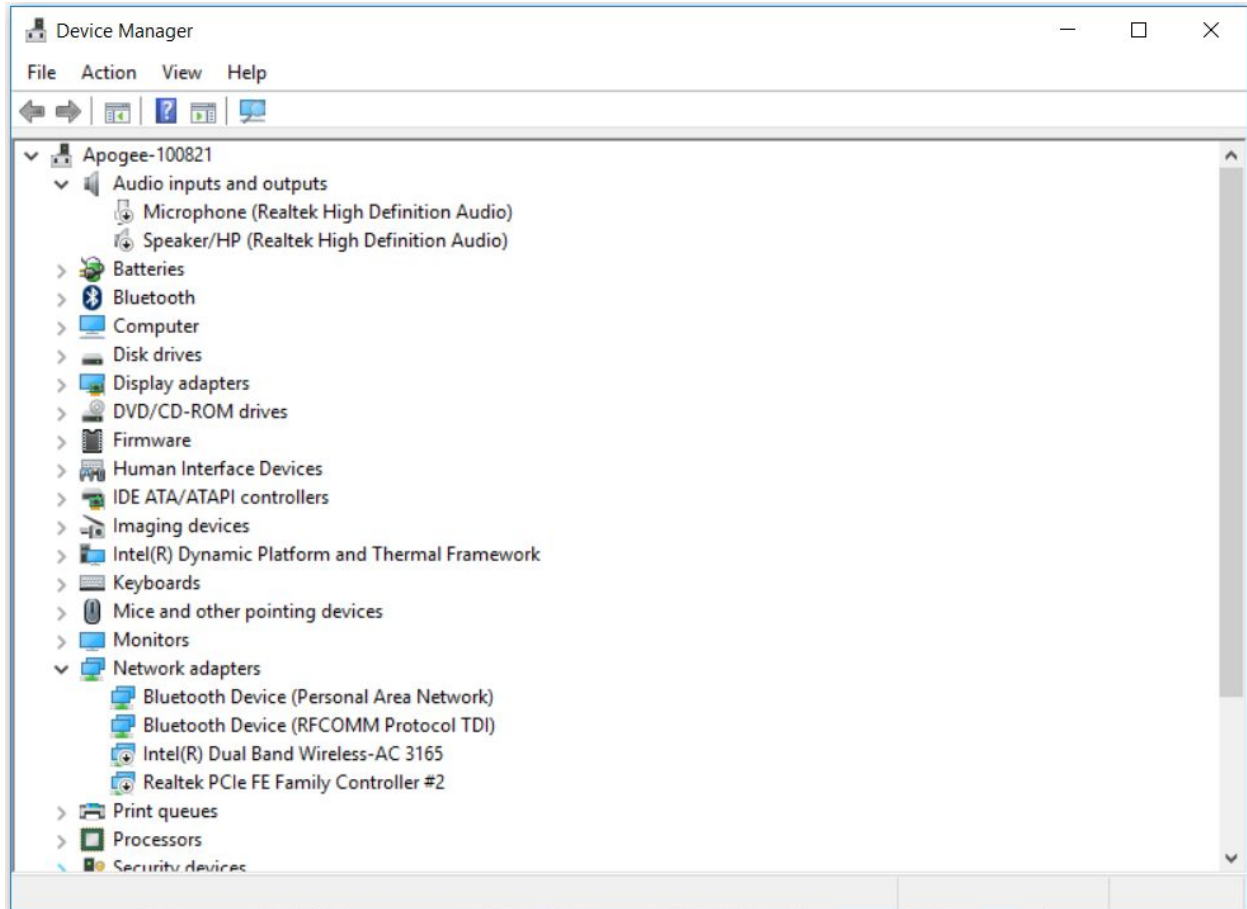
To verify that this driver is indeed causing the issue, open Device Manager and locate the hardware most likely associated with the offending driver, in this case devices listed under Network adaptors. Disable one device by right-clicking it and choosing "Disable", then run the LatencyMon test and observe whether results change. Repeat this test with other Network devices until the offending device is found, or you switch to a Mac!

Once you've determined which process is causing an issue, there are several methods to resolve the problem:

1) Is the process necessary for your operation? For example, do you need wireless connection on your studio computer? If no, disable the wireless device.
2) Search online for a more recent device driver.
3) In the device Properties > Power Management, uncheck power saving options.

The creator of LatencyMon, Replendence Sofware, offers a good deal of information on their website as well: http://www.resplendence.com/latencymon_using