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).

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Your system is being analyzed for suitability	of real-time audio and other tasks.		
Fime running (h:mm:ss):	0:14:19		
our system appears to be suitable for handling	g real-time audio and other tasks without dropouts.		
Current measured interrupt to process latency (μs) :	: 81.066632		
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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.

S LatencyMon (Home Edition) v 6.51 - http://www.resplendence.com		-		×
Eile Edit Iools Help				
Image: Main Stats Processes Drivers CPUs				
Your system is being analyzed for suitability of re	eal-time audio and other tasks.			
Time running (h:mm:ss):	0:04:26			
Your system appears to be having trouble handling r appearing as drop outs, clicks or pops. One or more executing for too long. At least one detected probl disabling it to get better results. One problem may and BIOS setup. Check for BIOS updates.	eal-time audio and other tasks. You are likely to experience buffer und DPC routines that belong to a driver running in your system appear to em appears to be network related. In case you are using a WLAN adapter, be related to power management, disable CPU throttling settings in Con	errun be try trol	s Pane:	1
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 Corpor	ation)	1	
Highest reported DPC routine execution time (µs):	6349.254167 (ndis.sys - Network Driver Interface Specification (NDIS), Micro	soft C	Corpor	rati
Reported total hard pagefault count:	141			
Argnest reported hard pagerault resolution time (µs):				
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.

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File Action View Help		
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Audio inputs and outputs		
Microphone (Realtek High Definition Audio)		
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> 🛺 Human Interface Devices		
> 📷 IDE ATA/ATAPI controllers		
> 🕞 Imaging devices		
> 🛅 Intel(R) Dynamic Platform and Thermal Framework		
> 🔤 Keyboards		
> (I) Mice and other pointing devices		
> 🛄 Monitors		
🗸 🚍 Network adapters		
Bluetooth Device (Personal Area Network)		
Bluetooth Device (RFCOMM Protocol TDI)		
🐻 Intel(R) Dual Band Wireless-AC 3165		
Realtek PCIe FE Family Controller #2		
> 🖻 Print queues		
> Processors		
Security devices		~

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