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ASIO

Audio Streaming Input/Output

ASIO “Audio Streaming Input/Output” , Steinberg
API() . ASIO 가

. ASIO () .
ASIO ,

ASIO , 가 ASIO 가 .

ASIO 가

- ASIO
- ASIO4ALL
- Generic low latency ASIO driver
- Steinberg built-in ASIO driver

ASIO

ASIO stands for “Audio Streaming Input/Output,” and it is an audio API (Application Programming Interface) developed by Steinberg. ASIO is a driver system that enables faster audio processing performance, primarily used in professional audio interfaces and audio devices. Audio devices that support ASIO drivers provide excellent audio performance and low latency (the delay in processing audio signals).

Typically, audio interfaces come with built-in support for ASIO drivers, allowing music producers, mixers, and sound engineers to take advantage of higher audio quality and lower latency. In contrast, regular sound cards rarely support ASIO, although there are occasional instances where ASIO drivers are available.

The presence of ASIO driver support is a crucial criterion for evaluating and distinguishing audio interfaces and sound cards, particularly for professional audio tasks. This support enables users to experience superior audio quality and performance.



ASIO buffer

- : Samples

ASIO

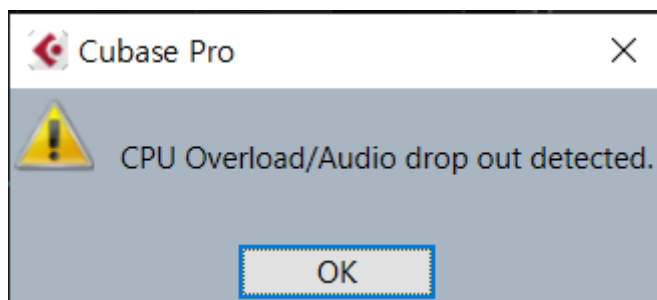
가 ,

,

, CPU

, CPU

Audio Drop out



Cubase

ASIO

가

가

, CPU

, ASIO buffer

Audio Drop out

Audio Drop out

VSTi

Audio Drop out

, 가

Audio Drop out ¹⁾

Audio Drop out

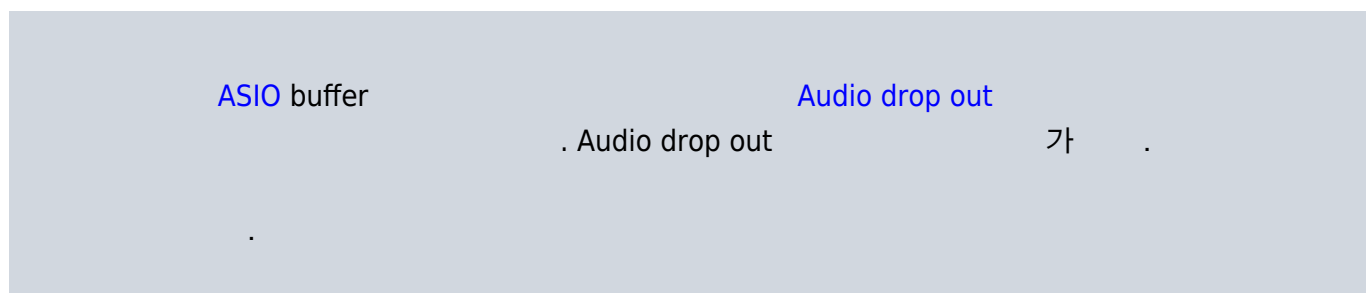
/

, **F12**

Audio Performance

Audio

Drop out



ASIO performance meter

: **F12**

Cubase 12

, ASIO



Realtime

(, **VSTi**) ²⁾

Peak , **VSTi**

Audio Drop out 가 , Audio Drop out 가

³⁾

Peak가 Audio Drop out 가

가 ,

ASIO Guard

(**ASIO-Guard**)

ASIO-Guard , MIDI **VSTi**

CPU CPU **DAW**

가 CPU , Realtime,

CPU

ASIO-Guard , **VSTi**) 가 (

ASIO-Guard 가 Audio Drop out Audio Drop out

ASIO-Guard Studio Setup Audio System ASIO-Guard

가 VSTi ASIO-Guard ASIO-Guard
, 가 가
MIDI ASIO-Guard

Peak

가 Peak

Peak ASIO-Guard Peak 가 Peak
Audio Drop , Realtime, ASIO-Guard Audio Drop out

Peak 가
Peak 가 , 가
가 Peak 가 ASIO
Peak 가 , Realtime ASIO-Guard 가 가
DAW
가 가 ASIO
Peak
ASIO ASIO
Peak 가 가 , ASIO

Disk cache

out Peak , Audio Drop
가

Audio Drop out

Audio Export Audio Drop out ⁴⁾ CPU 가

Realtime Export

Export가

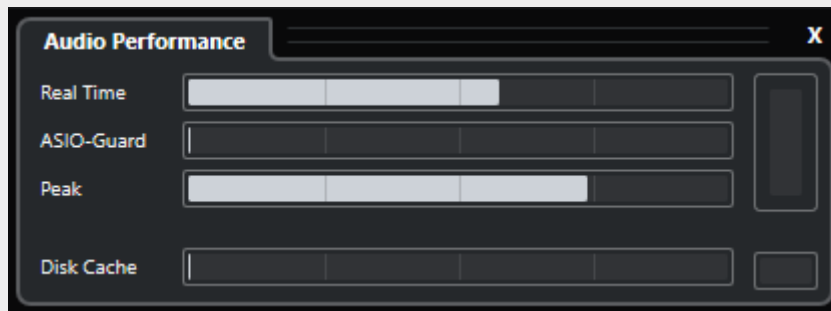
CPU

?

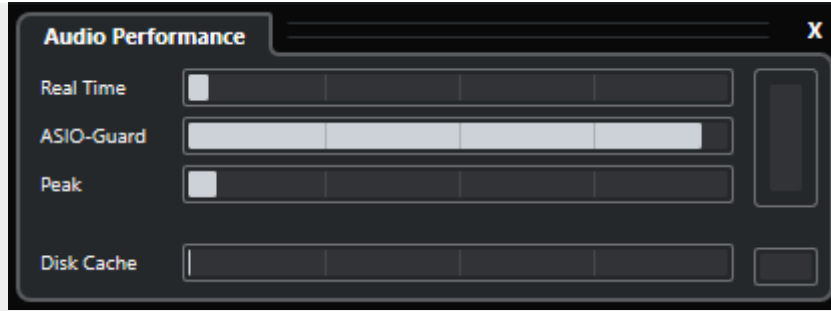
CPU
 가 128 samples CPU 가 30% , 256 samples , CPU
 15%
 Audio drop out . CPU
 64 samples , CPU 가 0% 가



60-70%가 256 samples , CPU 가



Realtime Audio Drop out



(ASIO-Guard) Audio Drop out

100% CPU Audio drop out

6) 가 ASIO 가 Realtime(, VSTi Drop out) CPU L1, L2, L3 /DMA⁷⁾ . ASIO 256 samples .) CPU Audio drop out , 256 samples ASIO buffer Audio drop out 가 . 256 samples 가 8)

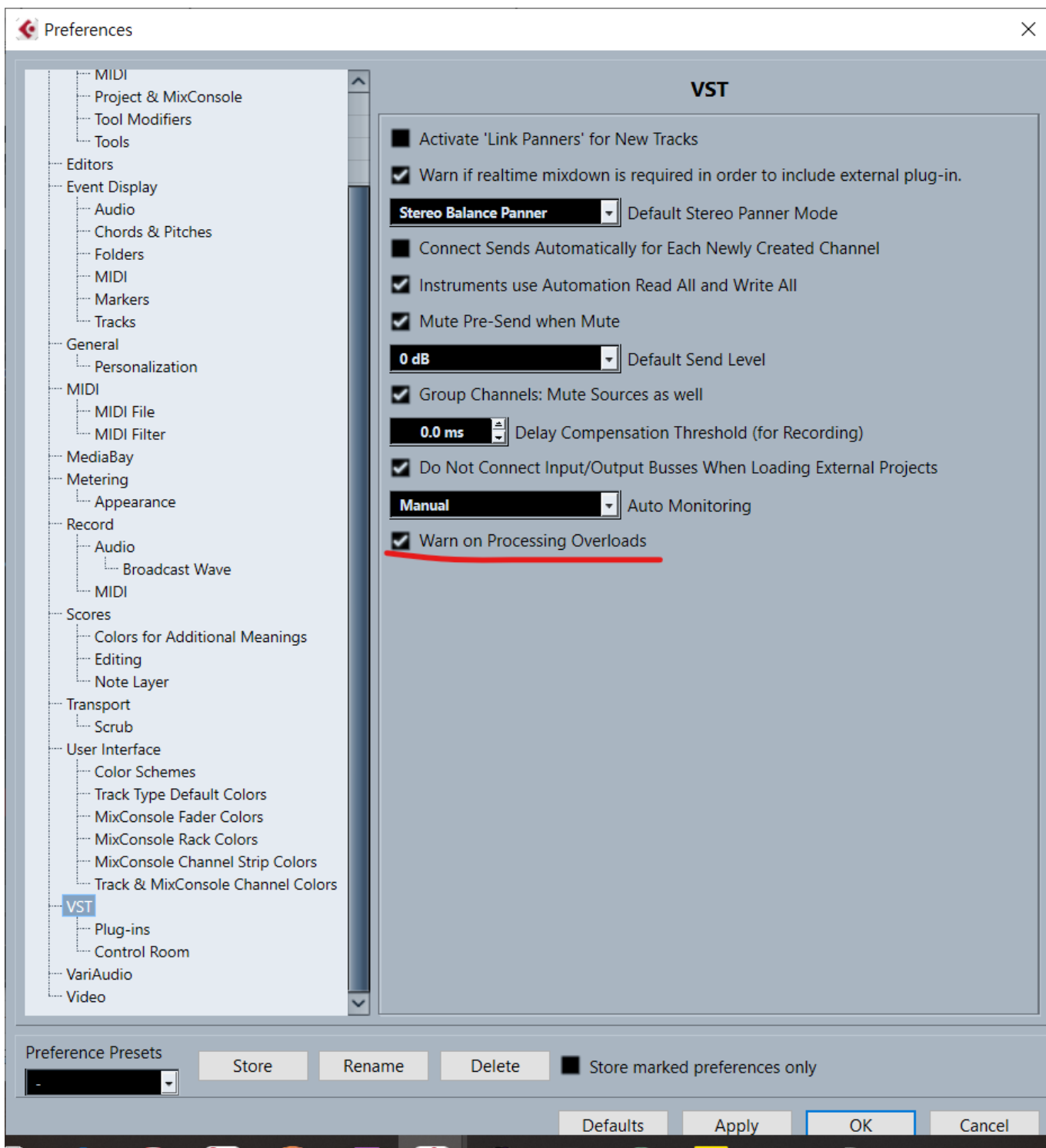
DAW 가 , 가 (가)

Warn on processing overload

, Realtime(, VSTi) Audio Drop out , 가 , Audio drop out . drop out 가 . Realtime Performance , 가

가 9),

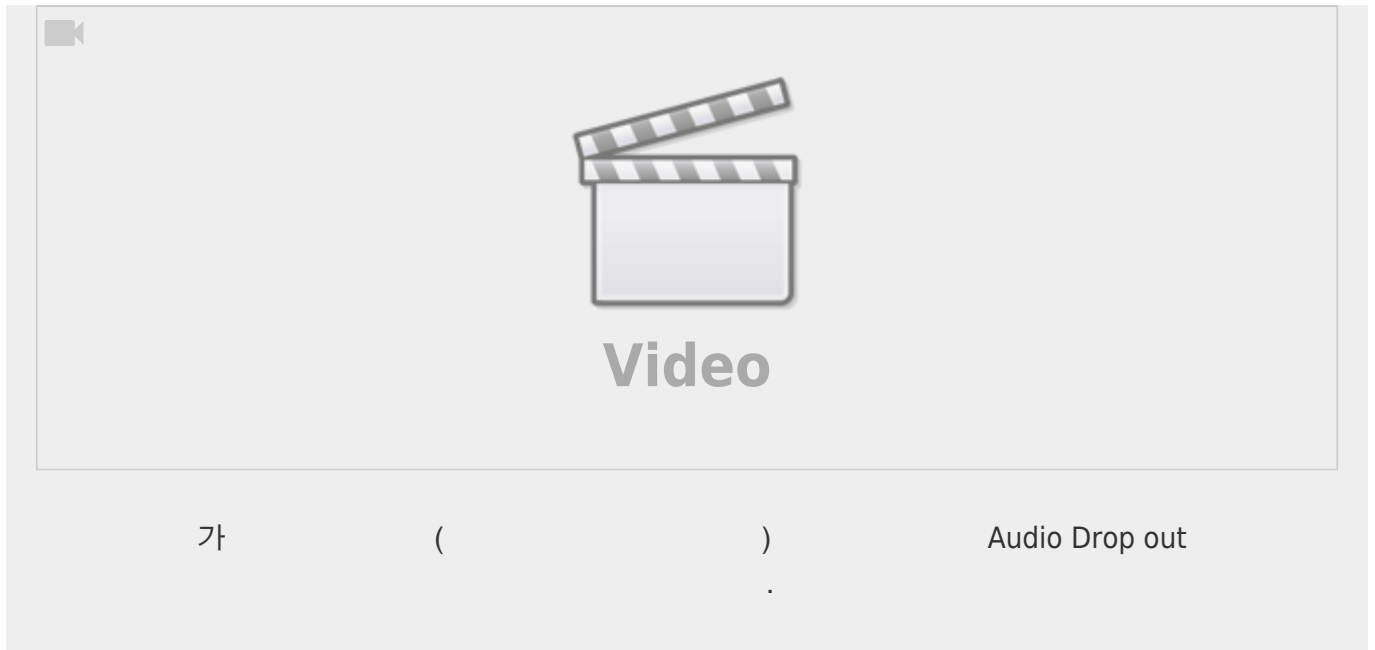
Audio Drop out



Audio Drop out

ASIO buffer

Buffer



ASIO Multi-Client

ASIO Multi-Client, ASIO loop-back, ASIO

ASIO Multi-Client

ASIO Multi-Client

- Focusrite Clarett
- RME
- Zoom
- MOTU
- Roland Capture Series
- Focusrite Scarlett 3rd Gen
- SSL

Steinberg

- <https://forums.steinberg.net/t/pc-windows-asio-multiclient-driver-by-charlie-steinberg/20479>

ASIO

1)

Audio Drop out

가 , 가
가 .

2)

3)

가

4)

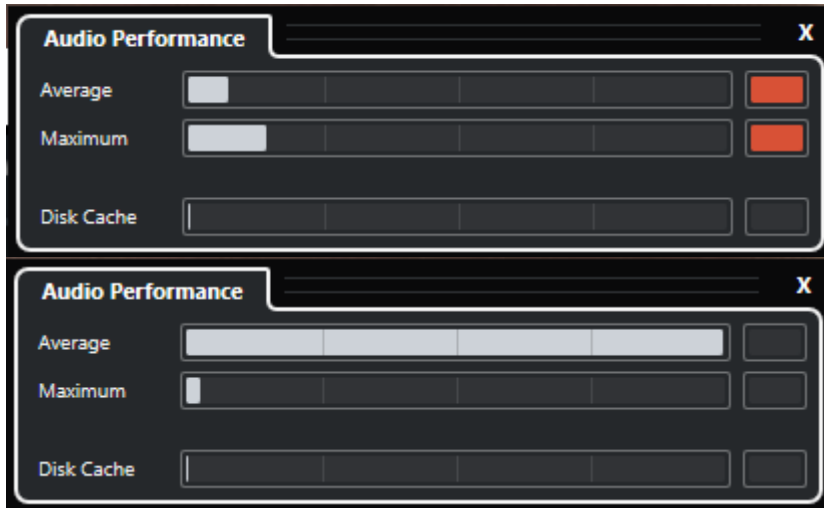
Realtime export

Audio drop out

5)

CPU 가 100% 가 ...

6)



7)

Direct memory access, Cache latency

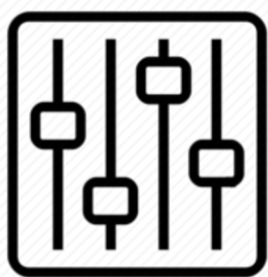
	L2 Setup	L2 Latency
Skylake (Client)	256 KB 4-Way	12 cycles
Skylake (Server)	1024 KB 16-Way	13 cycles
Sunny Cove (Client)	512 KB 8-Way	13 cycles
Willow Cove (Client)	1280 KB 20-Way	14 cycles
Golden Cove (Client)	1280 KB 10-Way	15 cycles
Raptor Lake P-Core (Client)	2048 KB 16-Way	16 cycles

Intel's L2 designs trend towards increased capacity, with slightly higher latency

8)

64 samples Audio drop out

9)



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: (admin@homerecz.com)