

Benchmark MIDI

version 0.1 (20150921)

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Introduction

[Benchmark MIDI](#) is a real-time linux environment for the [alsa-midi-latency-test](#) application. It provides a method to evaluate real-time performance of a MIDI system.

Remember that this is not a professional tool. The results should be considered in your hardware context and in a comparative way.

Benchmark MIDI is offered to the community as open-source software based on Buildroot. This fact encourages cooperative development in compliance with the open-source licenses (see Buildroot packages).

Benchmark MIDI works on any x86_64 BIOS platform. The only important requirement is that you can create a MIDI loopback to measure elapsed time (round trip).

Download Benchmark MIDI. Write benchmarkmidi01.img image on a USB disk with Rufus (<http://rufus.akeo.ie/>). Make sure to set “DD Image” writing mode. All data on the USB disk will be lost! Boot the system and everything is ready. (Advanced users can access the Benchmark MIDI console via ssh: username=root, password=cauldron .)

Following is a list of basic commands to be executed in the console.

#alsa-midi-latency-test -h	show help
#alsa-midi-latency-test -l	list available midi input/output ports
#alsa-midi-latency-test -R -o 14:0 -i 14:0 -4	test virtual midi loopback interface
#alsa-midi-latency-test -R -o 20:0 -i 20:0	test your first midi interface
#alsa-midi-latency-test -R -o 14:0 -i 14:0 -4 -x less	scroll the list up or down
#alsa-midi-latency-test -R -o 14:0 -i 14:0 -4 -x > loop.txt	write the loop.txt file on RAM disk
#w	write your files on USB boot drive

Here are some systems compared.

[Bespeco BMUSB100](#)

[CME WIDI](#)

[Echo Audio Audiofire12](#), firmware 4.8 (legacy device)

[iConnectivity iConnectMIDI4+](#), firmware 1.0.1

[Kenton THRU-5](#)

[M-Audio Audiophile 2496](#) (legacy device)

[Midi Soutions Quadra Merge](#)

[Miditech Midiface II THRU 1x1](#)

[MIDIWorks MIDI JET PRO](#)

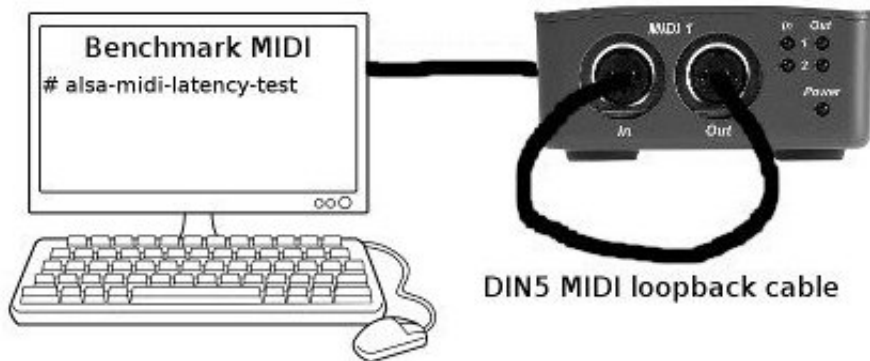
MOTU MIDI Time Piece II, ROM 1.0g (legacy device)

MOTU MIDI Express XT (legacy device)

MOTU MIDI Time Piece AV USB, ROM 2.0.1 (legacy device)

[Native Instruments Komplete Audio 6](#)

Direct test on Benchmark MIDI and ALSA MIDI hardware



Asrock Z87 Extreme4

UEFI version: P2.60
Chipset version: C2
CPU i5-4570 3.2GHz

UEFI default settings
+disable Intel SpeedStep Technology
+disable Intel Turbo Boost
+disable Intel C States Support



Dell Optiplex 780 DT

BIOS Version A08
Chipset Intel Q45
CPU Intel Core 2 Duo E8400 3GHz

BIOS default settings

ALSA virtual loopback midi interface

```
#alsa-midi-latency-test -o 14:0 -i 14:0 -R -S 10000 -w 10 -r -x -5
```

```
>alsa-midi-latency-test 0.0.5  
>running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64  
>set_realtime_priority(SCHED_FIFO, 99).. done.  
>clock resolution: 0.000000001 s  
>interval between measurements: 10.000 .. 20.000 ms
```

```
>sampling 10000 midi latency values - please wait ...  
>press Ctrl+C to abort test
```

```
>done.
```

```
>latency distribution:
```

```
...  
0.00157 - 0.00158 ms: 57 ##  
0.00158 - 0.00159 ms: 409 #####  
0.00159 - 0.00160 ms: 809 #####  
0.00160 - 0.00161 ms: 1464 #####  
0.00161 - 0.00162 ms: 1814 #####  
0.00162 - 0.00163 ms: 1553 #####  
0.00163 - 0.00164 ms: 1680 #####  
0.00164 - 0.00165 ms: 1195 #####  
0.00165 - 0.00166 ms: 573 #####  
0.00166 - 0.00167 ms: 284 #####  
0.00167 - 0.00168 ms: 73 ##  
0.00168 - 0.00169 ms: 13 #  
0.00169 - 0.00170 ms: 7 #  
0.00170 - 0.00171 ms: 1 #  
0.00171 - 0.00172 ms: 4 #  
0.00172 - 0.00173 ms: 3 #  
0.00173 - 0.00174 ms: 1 #  
0.00174 - 0.00175 ms: 6 #  
0.00175 - 0.00176 ms: 5 #  
0.00176 - 0.00177 ms: 3 #  
0.00177 - 0.00178 ms: 2 #  
0.00178 - 0.00179 ms: 1 #  
...  
0.00183 - 0.00184 ms: 1 #  
...  
0.00185 - 0.00186 ms: 1 #  
...  
0.00200 - 0.00201 ms: 1 #  
...  
0.00212 - 0.00213 ms: 1 #  
...  
0.00218 - 0.00219 ms: 1 #  
...  
0.00221 - 0.00222 ms: 2 #  
...  
0.00223 - 0.00224 ms: 1 #  
...  
0.00225 - 0.00226 ms: 1 #  
...  
0.00228 - 0.00229 ms: 1 #  
0.00229 - 0.00230 ms: 1 #  
0.00230 - 0.00231 ms: 1 #  
...  
0.00235 - 0.00236 ms: 1 #  
...  
0.00238 - 0.00239 ms: 1 #  
...  
0.00242 - 0.00243 ms: 1 #  
...  
0.00265 - 0.00266 ms: 1 #  
0.00266 - 0.00267 ms: 1 #  
...  
0.00271 - 0.00272 ms: 1 #  
0.00272 - 0.00273 ms: 2 #  
0.00273 - 0.00274 ms: 1 #  
...  
0.00275 - 0.00276 ms: 1 #  
0.00276 - 0.00277 ms: 1 #  
...  
0.00278 - 0.00279 ms: 1 #  
...  
0.00284 - 0.00285 ms: 1 #  
...  
0.00287 - 0.00288 ms: 1 #  
...  
0.00293 - 0.00294 ms: 1 #  
...  
0.00295 - 0.00296 ms: 1 #  
0.00296 - 0.00297 ms: 1 #  
...  
0.00298 - 0.00299 ms: 1 #  
...  
0.00301 - 0.00302 ms: 1 #  
...  
0.00306 - 0.00307 ms: 1 #  
0.00307 - 0.00308 ms: 1 #  
0.00308 - 0.00309 ms: 1 #  
...  
0.00310 - 0.00311 ms: 1 #  
...  
0.00312 - 0.00313 ms: 1 #  
...  
0.00329 - 0.00330 ms: 1 #  
0.00330 - 0.00331 ms: 3 #  
0.00331 - 0.00332 ms: 3 #  
0.00332 - 0.00333 ms: 7 #  
0.00333 - 0.00334 ms: 10 #  
0.00334 - 0.00335 ms: 14 #  
0.00335 - 0.00336 ms: 23 #  
0.00336 - 0.00337 ms: 17 #  
0.00337 - 0.00338 ms: 15 #  
0.00338 - 0.00339 ms: 10 #  
0.00339 - 0.00340 ms: 6 #  
0.00340 - 0.00341 ms: 3 #  
0.00341 - 0.00342 ms: 10 #  
0.00342 - 0.00343 ms: 3 #  
0.00343 - 0.00344 ms: 3 #  
0.00344 - 0.00345 ms: 6 #  
0.00345 - 0.00346 ms: 3 #  
0.00346 - 0.00347 ms: 1 #  
0.00347 - 0.00348 ms: 3 #  
0.00348 - 0.00349 ms: 2 #  
...  
0.00350 - 0.00351 ms: 1 #  
0.00351 - 0.00352 ms: 1 #  
...  
0.00355 - 0.00356 ms: 2 #  
...  
0.00358 - 0.00359 ms: 1 #  
...  
0.00376 - 0.00377 ms: 1 #  
...  
0.00491 - 0.00492 ms: 2 #  
0.00492 - 0.00493 ms: 14 #  
0.00493 - 0.00494 ms: 29 ##  
0.00494 - 0.00495 ms: 106 #####  
0.00495 - 0.00496 ms: 161 #####  
0.00496 - 0.00497 ms: 197 #####  
0.00497 - 0.00498 ms: 300 #####  
0.00498 - 0.00499 ms: 357 #####  
0.00499 - 0.00500 ms: 315 #####  
0.00500 - 0.00501 ms: 470 #####  
0.00501 - 0.00502 ms: 634 #####  
0.00502 - 0.00503 ms: 615 #####  
0.00503 - 0.00504 ms: 819 #####  
0.00504 - 0.00505 ms: 910 #####  
0.00505 - 0.00506 ms: 727 #####  
0.00506 - 0.00507 ms: 661 #####  
0.00507 - 0.00508 ms: 587 #####  
0.00508 - 0.00509 ms: 328 #####  
0.00509 - 0.00510 ms: 321 #####  
0.00510 - 0.00511 ms: 272 #####  
0.00511 - 0.00512 ms: 205 #####  
0.00512 - 0.00513 ms: 174 #####  
0.00513 - 0.00514 ms: 230 #####  
0.00514 - 0.00515 ms: 128 #####  
0.00515 - 0.00516 ms: 133 #####  
0.00516 - 0.00517 ms: 141 #####  
0.00517 - 0.00518 ms: 100 #####  
0.00518 - 0.00519 ms: 107 #####  
0.00519 - 0.00520 ms: 114 #####  
0.00520 - 0.00521 ms: 90 #####  
0.00521 - 0.00522 ms: 65 #####  
0.00522 - 0.00523 ms: 91 #####  
0.00523 - 0.00524 ms: 50 ###  
0.00524 - 0.00525 ms: 47 ###  
0.00525 - 0.00526 ms: 44 ##  
0.00526 - 0.00527 ms: 45 ##  
0.00527 - 0.00528 ms: 31 ##  
0.00528 - 0.00529 ms: 20 #  
0.00529 - 0.00530 ms: 32 ##  
0.00530 - 0.00531 ms: 25 #  
0.00531 - 0.00532 ms: 23 #  
0.00532 - 0.00533 ms: 23 #  
0.00533 - 0.00534 ms: 11 #  
0.00534 - 0.00535 ms: 9 #  
0.00535 - 0.00536 ms: 6 #  
0.00536 - 0.00537 ms: 1 #  
0.00537 - 0.00538 ms: 6 #  
0.00538 - 0.00539 ms: 2 #  
0.00539 - 0.00540 ms: 5 #  
0.00540 - 0.00541 ms: 1 #  
0.00541 - 0.00542 ms: 3 #
```

```
...
0.00314 - 0.00315 ms: 1 #
...
0.00318 - 0.00319 ms: 1 #
...
0.00331 - 0.00332 ms: 1 #
...
0.00343 - 0.00344 ms: 1 #
...
0.00439 - 0.00440 ms: 1 #
...
0.00442 - 0.00443 ms: 1 #
...
0.01257 - 0.01258 ms: 1 #
```

> SUCCESS

best latency was 0.00156 ms
worst latency was 0.01256 ms, which is great.

```
0.00542 - 0.00543 ms: 1 #
0.00543 - 0.00544 ms: 1 #
0.00544 - 0.00545 ms: 1 #
...
0.00546 - 0.00547 ms: 2 #
...
0.00892 - 0.00893 ms: 1 #
...
0.00895 - 0.00896 ms: 1 #
...
0.00897 - 0.00898 ms: 1 #
0.00898 - 0.00899 ms: 1 #
...
0.00917 - 0.00918 ms: 1 #
...
0.00920 - 0.00921 ms: 1 #
...
0.00927 - 0.00928 ms: 4 #
...
0.00938 - 0.00939 ms: 1 #
...
0.00941 - 0.00942 ms: 1 #
0.00942 - 0.00943 ms: 1 #
0.00943 - 0.00944 ms: 1 #
...
0.00945 - 0.00946 ms: 1 #
...
0.00948 - 0.00949 ms: 2 #
0.00949 - 0.00950 ms: 1 #
0.00950 - 0.00951 ms: 2 #
0.00951 - 0.00952 ms: 1 #
0.00952 - 0.00953 ms: 1 #
...
0.00958 - 0.00959 ms: 1 #
0.00959 - 0.00960 ms: 1 #
...
0.00962 - 0.00963 ms: 2 #
...
0.00967 - 0.00968 ms: 1 #
0.00968 - 0.00969 ms: 1 #
...
0.00971 - 0.00972 ms: 1 #
...
0.00973 - 0.00974 ms: 1 #
...
0.00978 - 0.00979 ms: 1 #
0.00979 - 0.00980 ms: 1 #
...
0.00985 - 0.00986 ms: 2 #
...
0.00987 - 0.00988 ms: 1 #
0.00988 - 0.00989 ms: 1 #
...
0.00992 - 0.00993 ms: 1 #
...
0.00995 - 0.00996 ms: 1 #
...
0.00999 - 0.01000 ms: 2 #
...
0.01002 - 0.01003 ms: 1 #
0.01003 - 0.01004 ms: 1 #
...
0.01010 - 0.01011 ms: 1 #
...
0.01012 - 0.01013 ms: 1 #
0.01013 - 0.01014 ms: 1 #
...
0.01016 - 0.01017 ms: 1 #
...
0.01019 - 0.01020 ms: 1 #
...
0.01024 - 0.01025 ms: 2 #
...
0.01028 - 0.01029 ms: 1 #
...
0.01037 - 0.01038 ms: 2 #
...
0.01041 - 0.01042 ms: 1 #
...
0.01043 - 0.01044 ms: 1 #
...
0.01050 - 0.01051 ms: 1 #
...
0.01052 - 0.01053 ms: 1 #
...
0.01057 - 0.01058 ms: 2 #
...
0.02616 - 0.02617 ms: 1 #
```

> SUCCESS

best latency was 0.00329 ms
worst latency was 0.02616 ms, which is great.

ALSA ice1712 driver ([M-Audio Audiophile 2496](#))

```
# alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -x -4
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.

> latency distribution:
```



...	0.9673 - 0.9674 ms: 1 #
	...
	0.9675 - 0.9676 ms: 1 #
	0.9676 - 0.9677 ms: 1 #
	...
	0.9678 - 0.9679 ms: 1 #
	0.9679 - 0.9680 ms: 1 #
	0.9680 - 0.9681 ms: 1 #
	0.9681 - 0.9682 ms: 1 #
	0.9682 - 0.9683 ms: 3 #
	...
	0.9685 - 0.9686 ms: 1 #
	...
	0.9687 - 0.9688 ms: 1 #
	...
	0.9691 - 0.9692 ms: 1 #
	0.9692 - 0.9693 ms: 1 #
	0.9693 - 0.9694 ms: 1 #
	0.9694 - 0.9695 ms: 2 #
	...
	0.9697 - 0.9698 ms: 1 #
	...
	0.9699 - 0.9700 ms: 3 #
	0.9700 - 0.9701 ms: 1 #
	0.9701 - 0.9702 ms: 3 #
	0.9702 - 0.9703 ms: 1 #
	0.9703 - 0.9704 ms: 3 #
	0.9704 - 0.9705 ms: 1 #
	0.9705 - 0.9706 ms: 4 #
	0.9706 - 0.9707 ms: 2 #
	0.9707 - 0.9708 ms: 2 #
	0.9708 - 0.9709 ms: 1 #
	0.9709 - 0.9710 ms: 2 #
	0.9710 - 0.9711 ms: 1 #
	0.9711 - 0.9712 ms: 3 #
	0.9712 - 0.9713 ms: 3 #
	0.9713 - 0.9714 ms: 5 #
	0.9714 - 0.9715 ms: 2 #
	0.9715 - 0.9716 ms: 1 #
	0.9716 - 0.9717 ms: 3 #
	0.9717 - 0.9718 ms: 3 #
	0.9718 - 0.9719 ms: 1 #
	0.9719 - 0.9720 ms: 4 #
	0.9720 - 0.9721 ms: 10 ##
	0.9721 - 0.9722 ms: 11 ###
	0.9722 - 0.9723 ms: 7 ##
	0.9723 - 0.9724 ms: 15 ####
	0.9724 - 0.9725 ms: 24 #####
	0.9725 - 0.9726 ms: 34 #####
	0.9726 - 0.9727 ms: 41 #####
	0.9727 - 0.9728 ms: 49 #####
	0.9728 - 0.9729 ms: 64 #####
	0.9729 - 0.9730 ms: 69 #####
	0.9730 - 0.9731 ms: 74 #####
	0.9731 - 0.9732 ms: 75 #####
	0.9732 - 0.9733 ms: 93 #####
	0.9733 - 0.9734 ms: 104 #####
	0.9734 - 0.9735 ms: 100 #####
	0.9735 - 0.9736 ms: 97 #####
	0.9736 - 0.9737 ms: 103 #####
	0.9737 - 0.9738 ms: 96 #####
	0.9738 - 0.9739 ms: 94 #####
	0.9739 - 0.9740 ms: 95 #####
	0.9740 - 0.9741 ms: 103 #####
	0.9741 - 0.9742 ms: 87 #####
	0.9742 - 0.9743 ms: 97 #####
	0.9743 - 0.9744 ms: 81 #####
	0.9744 - 0.9745 ms: 99 #####
	0.9745 - 0.9746 ms: 85 #####
	0.9746 - 0.9747 ms: 62 #####
	0.9747 - 0.9748 ms: 89 #####
	0.9748 - 0.9749 ms: 56 #####
	0.9749 - 0.9750 ms: 57 #####
	0.9750 - 0.9751 ms: 54 #####
	0.9751 - 0.9752 ms: 49 #####
	0.9752 - 0.9753 ms: 59 #####
	0.9753 - 0.9754 ms: 56 #####
	0.9754 - 0.9755 ms: 41 #####
0.9704 - 0.9705 ms: 1 #	
0.9705 - 0.9706 ms: 1 #	
0.9706 - 0.9707 ms: 2 #	
0.9707 - 0.9708 ms: 1 #	
0.9708 - 0.9709 ms: 1 #	
0.9709 - 0.9710 ms: 3 #	
0.9710 - 0.9711 ms: 4 #	
0.9711 - 0.9712 ms: 11 #	
0.9712 - 0.9713 ms: 13 #	
0.9713 - 0.9714 ms: 17 ##	
0.9714 - 0.9715 ms: 14 ##	
0.9715 - 0.9716 ms: 27 ###	
0.9716 - 0.9717 ms: 46 ####	
0.9717 - 0.9718 ms: 50 ####	
0.9718 - 0.9719 ms: 79 #####	
0.9719 - 0.9720 ms: 108 #####	
0.9720 - 0.9721 ms: 99 #####	
0.9721 - 0.9722 ms: 148 #####	
0.9722 - 0.9723 ms: 147 #####	
0.9723 - 0.9724 ms: 181 #####	
0.9724 - 0.9725 ms: 210 #####	
0.9725 - 0.9726 ms: 182 #####	
0.9726 - 0.9727 ms: 191 #####	
0.9727 - 0.9728 ms: 235 #####	
0.9728 - 0.9729 ms: 223 #####	
0.9729 - 0.9730 ms: 232 #####	
0.9730 - 0.9731 ms: 265 #####	
0.9731 - 0.9732 ms: 298 #####	
0.9732 - 0.9733 ms: 345 #####	
0.9733 - 0.9734 ms: 379 #####	
0.9734 - 0.9735 ms: 436 #####	
0.9735 - 0.9736 ms: 407 #####	
0.9736 - 0.9737 ms: 427 #####	
0.9737 - 0.9738 ms: 432 #####	
0.9738 - 0.9739 ms: 397 #####	
0.9739 - 0.9740 ms: 384 #####	
0.9740 - 0.9741 ms: 400 #####	
0.9741 - 0.9742 ms: 351 #####	
0.9742 - 0.9743 ms: 351 #####	
0.9743 - 0.9744 ms: 303 #####	
0.9744 - 0.9745 ms: 254 #####	
0.9745 - 0.9746 ms: 300 #####	
0.9746 - 0.9747 ms: 309 #####	
0.9747 - 0.9748 ms: 291 #####	
0.9748 - 0.9749 ms: 288 #####	
0.9749 - 0.9750 ms: 238 #####	
0.9750 - 0.9751 ms: 201 #####	
0.9751 - 0.9752 ms: 186 #####	
0.9752 - 0.9753 ms: 125 #####	
0.9753 - 0.9754 ms: 129 #####	
0.9754 - 0.9755 ms: 91 #####	

```

0.9755 - 0.9756 ms: 67 #####
0.9756 - 0.9757 ms: 29 ###
0.9757 - 0.9758 ms: 13 #
0.9758 - 0.9759 ms: 12 #
0.9759 - 0.9760 ms: 8 #
0.9760 - 0.9761 ms: 6 #
0.9761 - 0.9762 ms: 5 #
0.9762 - 0.9763 ms: 3 #
0.9763 - 0.9764 ms: 7 #
0.9764 - 0.9765 ms: 5 #
0.9765 - 0.9766 ms: 3 #
0.9766 - 0.9767 ms: 4 #
0.9767 - 0.9768 ms: 3 #
0.9768 - 0.9769 ms: 5 #
0.9769 - 0.9770 ms: 2 #
0.9770 - 0.9771 ms: 4 #
0.9771 - 0.9772 ms: 1 #
0.9772 - 0.9773 ms: 3 #
0.9773 - 0.9774 ms: 2 #
0.9774 - 0.9775 ms: 3 #
...
0.9820 - 0.9821 ms: 1 #
...
0.9856 - 0.9857 ms: 1 #

```

> SUCCESS

best latency was 0.9704 ms
worst latency was 0.9856 ms, which is great.

```

0.9755 - 0.9756 ms: 46 #####
0.9756 - 0.9757 ms: 47 #####
0.9757 - 0.9758 ms: 45 #####
0.9758 - 0.9759 ms: 47 #####
0.9759 - 0.9760 ms: 54 #####
0.9760 - 0.9761 ms: 78 #####
0.9761 - 0.9762 ms: 77 #####
0.9762 - 0.9763 ms: 107 #####
0.9763 - 0.9764 ms: 102 #####
0.9764 - 0.9765 ms: 129 #####
0.9765 - 0.9766 ms: 127 #####
0.9766 - 0.9767 ms: 138 #####
0.9767 - 0.9768 ms: 154 #####
0.9768 - 0.9769 ms: 161 #####
0.9769 - 0.9770 ms: 165 #####
0.9770 - 0.9771 ms: 169 #####
0.9771 - 0.9772 ms: 173 #####
0.9772 - 0.9773 ms: 199 #####
0.9773 - 0.9774 ms: 184 #####
0.9774 - 0.9775 ms: 208 #####
0.9775 - 0.9776 ms: 205 #####
0.9776 - 0.9777 ms: 173 #####
0.9777 - 0.9778 ms: 180 #####
0.9778 - 0.9779 ms: 191 #####
0.9779 - 0.9780 ms: 193 #####
0.9780 - 0.9781 ms: 180 #####
0.9781 - 0.9782 ms: 159 #####
0.9782 - 0.9783 ms: 138 #####
0.9783 - 0.9784 ms: 128 #####
0.9784 - 0.9785 ms: 113 #####
0.9785 - 0.9786 ms: 86 #####
0.9786 - 0.9787 ms: 74 #####
0.9787 - 0.9788 ms: 62 #####
0.9788 - 0.9789 ms: 54 #####
0.9789 - 0.9790 ms: 49 #####
0.9790 - 0.9791 ms: 20 #####
0.9791 - 0.9792 ms: 32 #####
0.9792 - 0.9793 ms: 19 #####
0.9793 - 0.9794 ms: 15 #####
0.9794 - 0.9795 ms: 14 #####
0.9795 - 0.9796 ms: 3 #
0.9796 - 0.9797 ms: 7 ##
0.9797 - 0.9798 ms: 10 ##
0.9798 - 0.9799 ms: 12 ###
0.9799 - 0.9800 ms: 7 ##
0.9800 - 0.9801 ms: 3 #
0.9801 - 0.9802 ms: 15 ####
0.9802 - 0.9803 ms: 21 #####
0.9803 - 0.9804 ms: 12 ###
0.9804 - 0.9805 ms: 14 ###
0.9805 - 0.9806 ms: 12 ###
0.9806 - 0.9807 ms: 18 ####
0.9807 - 0.9808 ms: 19 #####
0.9808 - 0.9809 ms: 14 ###
0.9809 - 0.9810 ms: 13 ###
0.9810 - 0.9811 ms: 17 #####
0.9811 - 0.9812 ms: 14 ###
0.9812 - 0.9813 ms: 18 ####
0.9813 - 0.9814 ms: 16 ####
0.9814 - 0.9815 ms: 23 #####
0.9815 - 0.9816 ms: 20 #####
0.9816 - 0.9817 ms: 26 #####
0.9817 - 0.9818 ms: 33 #####
0.9818 - 0.9819 ms: 45 #####
0.9819 - 0.9820 ms: 53 #####
0.9820 - 0.9821 ms: 67 #####
0.9821 - 0.9822 ms: 93 #####
0.9822 - 0.9823 ms: 94 #####
0.9823 - 0.9824 ms: 116 #####
0.9824 - 0.9825 ms: 111 #####
0.9825 - 0.9826 ms: 134 #####
0.9826 - 0.9827 ms: 124 #####
0.9827 - 0.9828 ms: 126 #####
0.9828 - 0.9829 ms: 143 #####
0.9829 - 0.9830 ms: 133 #####
0.9830 - 0.9831 ms: 139 #####
0.9831 - 0.9832 ms: 133 #####
0.9832 - 0.9833 ms: 124 #####
0.9833 - 0.9834 ms: 114 #####
0.9834 - 0.9835 ms: 123 #####
0.9835 - 0.9836 ms: 117 #####
0.9836 - 0.9837 ms: 134 #####
0.9837 - 0.9838 ms: 123 #####
0.9838 - 0.9839 ms: 109 #####
0.9839 - 0.9840 ms: 74 #####
0.9840 - 0.9841 ms: 70 #####
0.9841 - 0.9842 ms: 52 #####
0.9842 - 0.9843 ms: 44 #####
0.9843 - 0.9844 ms: 23 #####
0.9844 - 0.9845 ms: 20 #####
0.9845 - 0.9846 ms: 13 ###
0.9846 - 0.9847 ms: 18 ####
0.9847 - 0.9848 ms: 6 #
0.9848 - 0.9849 ms: 4 #
0.9849 - 0.9850 ms: 12 ###
0.9850 - 0.9851 ms: 3 #
0.9851 - 0.9852 ms: 5 #
0.9852 - 0.9853 ms: 4 #
0.9853 - 0.9854 ms: 4 #
0.9854 - 0.9855 ms: 2 #

```

```
0.9855 - 0.9856 ms: 2 #
0.9856 - 0.9857 ms: 11 ###
0.9857 - 0.9858 ms: 1 #
0.9858 - 0.9859 ms: 4 #
0.9859 - 0.9860 ms: 1 #
0.9860 - 0.9861 ms: 1 #
0.9861 - 0.9862 ms: 1 #
...
0.9863 - 0.9864 ms: 3 #
0.9864 - 0.9865 ms: 2 #
0.9865 - 0.9866 ms: 3 #
0.9866 - 0.9867 ms: 2 #
0.9867 - 0.9868 ms: 3 #
0.9868 - 0.9869 ms: 2 #
...
0.9870 - 0.9871 ms: 3 #
...
0.9872 - 0.9873 ms: 1 #
...
0.9877 - 0.9878 ms: 1 #
...
0.9879 - 0.9880 ms: 2 #
0.9880 - 0.9881 ms: 2 #
0.9881 - 0.9882 ms: 1 #
0.9882 - 0.9883 ms: 2 #
...
0.9887 - 0.9888 ms: 1 #
...
0.9891 - 0.9892 ms: 1 #
...
0.9898 - 0.9899 ms: 1 #
...
0.9976 - 0.9977 ms: 1 #

> SUCCESS

best latency was 0.9673 ms
worst latency was 0.9976 ms, which is great.
```


ALSA usb-audio driver ([Native Instruments Komplete Audio 6](#))



```
#alsa-midi-latency-test -o 24:0 -i 24:0 -R -S 10000 -w 10 -r -3 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

```
...
1.092 - 1.093 ms: 22 ##
1.093 - 1.094 ms: 170 #####
1.094 - 1.095 ms: 421 #####
1.095 - 1.096 ms: 560 #####
1.096 - 1.097 ms: 479 #####
1.097 - 1.098 ms: 468 #####
1.098 - 1.099 ms: 459 #####
1.099 - 1.100 ms: 282 #####
1.100 - 1.101 ms: 245 #####
1.101 - 1.102 ms: 436 #####
1.102 - 1.103 ms: 492 #####
1.103 - 1.104 ms: 491 #####
1.104 - 1.105 ms: 455 #####
1.105 - 1.106 ms: 442 #####
1.106 - 1.107 ms: 525 #####
1.107 - 1.108 ms: 450 #####
1.108 - 1.109 ms: 452 #####
1.109 - 1.110 ms: 469 #####
1.110 - 1.111 ms: 459 #####
1.111 - 1.112 ms: 436 #####
1.112 - 1.113 ms: 451 #####
1.113 - 1.114 ms: 449 #####
1.114 - 1.115 ms: 337 #####
1.115 - 1.116 ms: 170 #####
1.116 - 1.117 ms: 85 #####
1.117 - 1.118 ms: 35 ###
1.118 - 1.119 ms: 21 ##
1.119 - 1.120 ms: 24 ##
1.120 - 1.121 ms: 18 ##
1.121 - 1.122 ms: 25 ##
1.122 - 1.123 ms: 25 ##
1.123 - 1.124 ms: 24 ##
1.124 - 1.125 ms: 23 ##
1.125 - 1.126 ms: 17 ##
1.126 - 1.127 ms: 21 ##
1.127 - 1.128 ms: 22 ##
1.128 - 1.129 ms: 23 ##
1.129 - 1.130 ms: 14 #
1.130 - 1.131 ms: 3 #

1.13 - 1.14 ms: 2 #
1.14 - 1.15 ms: 172 #####
1.15 - 1.16 ms: 774 #####
1.16 - 1.17 ms: 834 #####
1.17 - 1.18 ms: 798 #####
1.18 - 1.19 ms: 798 #####
1.19 - 1.20 ms: 819 #####
1.20 - 1.21 ms: 790 #####
1.21 - 1.22 ms: 772 #####
1.22 - 1.23 ms: 759 #####
1.23 - 1.24 ms: 817 #####
1.24 - 1.25 ms: 847 #####
1.25 - 1.26 ms: 783 #####
1.26 - 1.27 ms: 759 #####
1.27 - 1.28 ms: 267 #####
1.28 - 1.29 ms: 9 #

> SUCCESS

best latency was 1.092 ms
worst latency was 1.130 ms, which is great.

> SUCCESS

best latency was 1.13 ms
worst latency was 1.28 ms, which is great.
```

ALSA usb-audio driver ([iConnectivity iConnectMIDI4+](#)) (DIN1_OUT → DIN1_IN loopback cable)

```
#alsa-midi-latency-test -o 24:0 -i 24:0 -R -S 10000 -w 10 -r -3 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```



```
> latency distribution:
```

```
...
1.076 - 1.077 ms: 5 #
1.077 - 1.078 ms: 6 #
1.078 - 1.079 ms: 13 ##
1.079 - 1.080 ms: 15 ##
1.080 - 1.081 ms: 29 #####
1.081 - 1.082 ms: 39 #####
1.082 - 1.083 ms: 76 #####
1.083 - 1.084 ms: 76 #####
1.084 - 1.085 ms: 77 #####
1.085 - 1.086 ms: 88 #####
1.086 - 1.087 ms: 87 #####
1.087 - 1.088 ms: 110 #####
1.088 - 1.089 ms: 109 #####
1.089 - 1.090 ms: 135 #####
1.090 - 1.091 ms: 158 #####
1.091 - 1.092 ms: 166 #####
1.092 - 1.093 ms: 179 #####
1.093 - 1.094 ms: 187 #####
1.094 - 1.095 ms: 179 #####
1.095 - 1.096 ms: 180 #####
1.096 - 1.097 ms: 206 #####
1.097 - 1.098 ms: 178 #####
1.098 - 1.099 ms: 218 #####
1.099 - 1.100 ms: 245 #####
1.100 - 1.101 ms: 247 #####
1.101 - 1.102 ms: 254 #####
1.102 - 1.103 ms: 275 #####
1.103 - 1.104 ms: 272 #####
1.104 - 1.105 ms: 273 #####
1.105 - 1.106 ms: 268 #####
1.106 - 1.107 ms: 284 #####
1.107 - 1.108 ms: 304 #####
1.108 - 1.109 ms: 274 #####
1.109 - 1.110 ms: 265 #####
1.110 - 1.111 ms: 264 #####
1.111 - 1.112 ms: 267 #####
1.112 - 1.113 ms: 242 #####
1.113 - 1.114 ms: 270 #####
1.114 - 1.115 ms: 260 #####
1.115 - 1.116 ms: 230 #####
1.116 - 1.117 ms: 204 #####
1.117 - 1.118 ms: 195 #####
1.118 - 1.119 ms: 216 #####
1.119 - 1.120 ms: 190 #####
1.120 - 1.121 ms: 198 #####
1.121 - 1.122 ms: 183 #####
1.122 - 1.123 ms: 177 #####
1.123 - 1.124 ms: 159 #####
1.124 - 1.125 ms: 133 #####
1.125 - 1.126 ms: 114 #####
1.126 - 1.127 ms: 105 #####
1.127 - 1.128 ms: 90 #####
1.128 - 1.129 ms: 90 #####
1.129 - 1.130 ms: 84 #####
1.130 - 1.131 ms: 68 #####
1.131 - 1.132 ms: 62 #####
1.132 - 1.133 ms: 47 #####
1.133 - 1.134 ms: 36 #####
1.134 - 1.135 ms: 24 #####
1.135 - 1.136 ms: 22 #####
1.136 - 1.137 ms: 31 #####
1.137 - 1.138 ms: 19 #####
1.138 - 1.139 ms: 25 #####
1.139 - 1.140 ms: 22 #####
1.140 - 1.141 ms: 21 #####
1.141 - 1.142 ms: 14 ##
1.142 - 1.143 ms: 15 ##
1.143 - 1.144 ms: 22 #####
1.144 - 1.145 ms: 30 #####
1.145 - 1.146 ms: 16 ##
1.146 - 1.147 ms: 19 ##
1.147 - 1.148 ms: 38 #####
1.148 - 1.149 ms: 18 ##
1.149 - 1.150 ms: 8 #
1.150 - 1.151 ms: 10 ##
1.151 - 1.152 ms: 21 ##
1.152 - 1.153 ms: 10 ##
1.153 - 1.154 ms: 12 ##
1.154 - 1.155 ms: 20 ##
1.18 - 1.19 ms: 10 ####
1.19 - 1.20 ms: 42 #####
1.20 - 1.21 ms: 51 #####
1.21 - 1.22 ms: 92 #####
1.22 - 1.23 ms: 90 #####
1.23 - 1.24 ms: 116 #####
1.24 - 1.25 ms: 109 #####
1.25 - 1.26 ms: 109 #####
1.26 - 1.27 ms: 97 #####
1.27 - 1.28 ms: 88 #####
1.28 - 1.29 ms: 102 #####
1.29 - 1.30 ms: 118 #####
1.30 - 1.31 ms: 97 #####
1.31 - 1.32 ms: 96 #####
1.32 - 1.33 ms: 87 #####
1.33 - 1.34 ms: 80 #####
1.34 - 1.35 ms: 101 #####
1.35 - 1.36 ms: 87 #####
1.36 - 1.37 ms: 116 #####
1.37 - 1.38 ms: 103 #####
1.38 - 1.39 ms: 88 #####
1.39 - 1.40 ms: 114 #####
1.40 - 1.41 ms: 104 #####
1.41 - 1.42 ms: 113 #####
1.42 - 1.43 ms: 87 #####
1.43 - 1.44 ms: 95 #####
1.44 - 1.45 ms: 96 #####
1.45 - 1.46 ms: 110 #####
1.46 - 1.47 ms: 87 #####
1.47 - 1.48 ms: 91 #####
1.48 - 1.49 ms: 95 #####
1.49 - 1.50 ms: 97 #####
1.50 - 1.51 ms: 104 #####
1.51 - 1.52 ms: 90 #####
1.52 - 1.53 ms: 100 #####
1.53 - 1.54 ms: 110 #####
1.54 - 1.55 ms: 100 #####
1.55 - 1.56 ms: 94 #####
1.56 - 1.57 ms: 107 #####
1.57 - 1.58 ms: 103 #####
1.58 - 1.59 ms: 98 #####
1.59 - 1.60 ms: 108 #####
1.60 - 1.61 ms: 90 #####
1.61 - 1.62 ms: 100 #####
1.62 - 1.63 ms: 92 #####
1.63 - 1.64 ms: 92 #####
1.64 - 1.65 ms: 108 #####
1.65 - 1.66 ms: 101 #####
1.66 - 1.67 ms: 103 #####
1.67 - 1.68 ms: 104 #####
1.68 - 1.69 ms: 100 #####
1.69 - 1.70 ms: 109 #####
1.70 - 1.71 ms: 121 #####
1.71 - 1.72 ms: 119 #####
1.72 - 1.73 ms: 93 #####
1.73 - 1.74 ms: 107 #####
1.74 - 1.75 ms: 100 #####
1.75 - 1.76 ms: 85 #####
1.76 - 1.77 ms: 86 #####
1.77 - 1.78 ms: 88 #####
1.78 - 1.79 ms: 94 #####
1.79 - 1.80 ms: 91 #####
1.80 - 1.81 ms: 102 #####
1.81 - 1.82 ms: 108 #####
1.82 - 1.83 ms: 112 #####
1.83 - 1.84 ms: 93 #####
1.84 - 1.85 ms: 94 #####
1.85 - 1.86 ms: 117 #####
1.86 - 1.87 ms: 96 #####
1.87 - 1.88 ms: 96 #####
1.88 - 1.89 ms: 102 #####
1.89 - 1.90 ms: 95 #####
1.90 - 1.91 ms: 109 #####
1.91 - 1.92 ms: 112 #####
1.92 - 1.93 ms: 86 #####
1.93 - 1.94 ms: 114 #####
1.94 - 1.95 ms: 94 #####
1.95 - 1.96 ms: 93 #####
1.96 - 1.97 ms: 83 #####
```

<pre> 1.155 - 1.156 ms: 12 ## 1.156 - 1.157 ms: 10 ## 1.157 - 1.158 ms: 11 ## 1.158 - 1.159 ms: 17 ### 1.159 - 1.160 ms: 9 # 1.160 - 1.161 ms: 13 ## 1.161 - 1.162 ms: 10 ## 1.162 - 1.163 ms: 8 # 1.163 - 1.164 ms: 14 ## 1.164 - 1.165 ms: 15 ## 1.165 - 1.166 ms: 14 ## 1.166 - 1.167 ms: 11 ## 1.167 - 1.168 ms: 8 # 1.168 - 1.169 ms: 10 ## 1.169 - 1.170 ms: 14 ## 1.170 - 1.171 ms: 8 # 1.171 - 1.172 ms: 6 # 1.172 - 1.173 ms: 5 # 1.173 - 1.174 ms: 6 # 1.174 - 1.175 ms: 2 # 1.175 - 1.176 ms: 2 # 1.176 - 1.177 ms: 5 # 1.177 - 1.178 ms: 2 # 1.178 - 1.179 ms: 4 # 1.179 - 1.180 ms: 1 # 1.180 - 1.181 ms: 2 # ... 1.182 - 1.183 ms: 2 # ... 1.188 - 1.189 ms: 1 # > SUCCESS best latency was 1.076 ms worst latency was 1.188 ms, which is great. </pre>	<pre> 1.97 - 1.98 ms: 93 ##### 1.98 - 1.99 ms: 107 ##### 1.99 - 2.00 ms: 106 ##### 2.00 - 2.01 ms: 98 ##### 2.01 - 2.02 ms: 124 ##### 2.02 - 2.03 ms: 102 ##### 2.03 - 2.04 ms: 84 ##### 2.04 - 2.05 ms: 138 ##### 2.05 - 2.06 ms: 113 ##### 2.06 - 2.07 ms: 110 ##### 2.07 - 2.08 ms: 91 ##### 2.08 - 2.09 ms: 82 ##### 2.09 - 2.10 ms: 116 ##### 2.10 - 2.11 ms: 105 ##### 2.11 - 2.12 ms: 95 ##### 2.12 - 2.13 ms: 94 ##### 2.13 - 2.14 ms: 99 ##### 2.14 - 2.15 ms: 96 ##### 2.15 - 2.16 ms: 117 ##### 2.16 - 2.17 ms: 101 ##### 2.17 - 2.18 ms: 87 ##### 2.18 - 2.19 ms: 80 ##### 2.19 - 2.20 ms: 55 ##### 2.20 - 2.21 ms: 29 ##### 2.21 - 2.22 ms: 7 ### > SUCCESS best latency was 1.18 ms worst latency was 2.21 ms, which is great. </pre>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ALSA usb-audio driver (Bespeco BMUSB100) (loopback with Kenton Thru-5)



```
#alsa-midi-latency-test -o 24:0 -i 24:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

```
...
```

1.27 - 1.28 ms: 181 ###	1.35 - 1.36 ms: 3 #
1.28 - 1.29 ms: 850 #####	1.36 - 1.37 ms: 31 #####
1.29 - 1.30 ms: 1853 #####	1.37 - 1.38 ms: 47 #####
1.30 - 1.31 ms: 2062 #####	1.38 - 1.39 ms: 58 #####
1.31 - 1.32 ms: 1448 #####	1.39 - 1.40 ms: 75 #####
1.32 - 1.33 ms: 619 #####	1.40 - 1.41 ms: 73 #####
1.33 - 1.34 ms: 304 #####	1.41 - 1.42 ms: 89 #####
1.34 - 1.35 ms: 546 #####	1.42 - 1.43 ms: 71 #####
1.35 - 1.36 ms: 740 #####	1.43 - 1.44 ms: 90 #####
1.36 - 1.37 ms: 691 #####	1.44 - 1.45 ms: 92 #####
1.37 - 1.38 ms: 422 #####	1.45 - 1.46 ms: 103 #####
1.38 - 1.39 ms: 106 ###	1.46 - 1.47 ms: 83 #####
1.39 - 1.40 ms: 55 #	1.47 - 1.48 ms: 89 #####
1.40 - 1.41 ms: 47 #	1.48 - 1.49 ms: 93 #####
1.41 - 1.42 ms: 43 #	1.49 - 1.50 ms: 100 #####
1.42 - 1.43 ms: 25 #	1.50 - 1.51 ms: 104 #####
1.43 - 1.44 ms: 6 #	1.51 - 1.52 ms: 90 #####
1.44 - 1.45 ms: 2 #	1.52 - 1.53 ms: 104 #####

```

> SUCCESS

best latency was 1.27 ms
worst latency was 1.44 ms, which is great.

```

1.53 - 1.54 ms: 107 #####	1.54 - 1.55 ms: 104 #####
1.54 - 1.55 ms: 104 #####	1.55 - 1.56 ms: 90 #####
1.55 - 1.56 ms: 90 #####	1.56 - 1.57 ms: 105 #####
1.56 - 1.57 ms: 105 #####	1.57 - 1.58 ms: 106 #####
1.57 - 1.58 ms: 106 #####	1.58 - 1.59 ms: 97 #####
1.58 - 1.59 ms: 97 #####	1.59 - 1.60 ms: 108 #####
1.59 - 1.60 ms: 108 #####	1.60 - 1.61 ms: 90 #####
1.60 - 1.61 ms: 90 #####	1.61 - 1.62 ms: 104 #####
1.61 - 1.62 ms: 104 #####	1.62 - 1.63 ms: 92 #####
1.62 - 1.63 ms: 92 #####	1.63 - 1.64 ms: 88 #####
1.63 - 1.64 ms: 88 #####	1.64 - 1.65 ms: 108 #####
1.64 - 1.65 ms: 108 #####	1.65 - 1.66 ms: 102 #####
1.65 - 1.66 ms: 102 #####	1.66 - 1.67 ms: 104 #####
1.66 - 1.67 ms: 104 #####	1.67 - 1.68 ms: 102 #####
1.67 - 1.68 ms: 102 #####	1.68 - 1.69 ms: 109 #####
1.68 - 1.69 ms: 109 #####	1.69 - 1.70 ms: 107 #####
1.69 - 1.70 ms: 107 #####	1.70 - 1.71 ms: 114 #####
1.70 - 1.71 ms: 114 #####	1.71 - 1.72 ms: 115 #####
1.71 - 1.72 ms: 115 #####	1.72 - 1.73 ms: 98 #####
1.72 - 1.73 ms: 98 #####	1.73 - 1.74 ms: 102 #####
1.73 - 1.74 ms: 102 #####	1.74 - 1.75 ms: 99 #####
1.74 - 1.75 ms: 99 #####	1.75 - 1.76 ms: 83 #####
1.75 - 1.76 ms: 83 #####	1.76 - 1.77 ms: 95 #####
1.76 - 1.77 ms: 95 #####	1.77 - 1.78 ms: 85 #####
1.77 - 1.78 ms: 85 #####	1.78 - 1.79 ms: 92 #####
1.78 - 1.79 ms: 92 #####	1.79 - 1.80 ms: 95 #####
1.79 - 1.80 ms: 95 #####	1.80 - 1.81 ms: 102 #####
1.80 - 1.81 ms: 102 #####	1.81 - 1.82 ms: 110 #####
1.81 - 1.82 ms: 110 #####	1.82 - 1.83 ms: 111 #####
1.82 - 1.83 ms: 111 #####	1.83 - 1.84 ms: 96 #####
1.83 - 1.84 ms: 96 #####	1.84 - 1.85 ms: 89 #####
1.84 - 1.85 ms: 89 #####	1.85 - 1.86 ms: 110 #####
1.85 - 1.86 ms: 110 #####	1.86 - 1.87 ms: 100 #####
1.86 - 1.87 ms: 100 #####	1.87 - 1.88 ms: 108 #####
1.87 - 1.88 ms: 108 #####	1.88 - 1.89 ms: 97 #####
1.88 - 1.89 ms: 97 #####	1.89 - 1.90 ms: 92 #####
1.89 - 1.90 ms: 92 #####	1.90 - 1.91 ms: 109 #####
1.90 - 1.91 ms: 109 #####	1.91 - 1.92 ms: 111 #####
1.91 - 1.92 ms: 111 #####	1.92 - 1.93 ms: 89 #####
1.92 - 1.93 ms: 89 #####	1.93 - 1.94 ms: 113 #####
1.93 - 1.94 ms: 113 #####	1.94 - 1.95 ms: 99 #####
1.94 - 1.95 ms: 99 #####	1.95 - 1.96 ms: 86 #####
1.95 - 1.96 ms: 86 #####	1.96 - 1.97 ms: 88 #####
1.96 - 1.97 ms: 88 #####	1.97 - 1.98 ms: 94 #####
1.97 - 1.98 ms: 94 #####	1.98 - 1.99 ms: 103 #####
1.98 - 1.99 ms: 103 #####	1.99 - 2.00 ms: 99 #####
1.99 - 2.00 ms: 99 #####	2.00 - 2.01 ms: 103 #####
2.00 - 2.01 ms: 103 #####	2.01 - 2.02 ms: 124 #####
2.01 - 2.02 ms: 124 #####	2.02 - 2.03 ms: 99 #####
2.02 - 2.03 ms: 99 #####	2.03 - 2.04 ms: 87 #####
2.03 - 2.04 ms: 87 #####	2.04 - 2.05 ms: 138 #####
2.04 - 2.05 ms: 138 #####	2.05 - 2.06 ms: 108 #####
2.05 - 2.06 ms: 108 #####	2.06 - 2.07 ms: 110 #####
2.06 - 2.07 ms: 110 #####	2.07 - 2.08 ms: 103 #####
2.07 - 2.08 ms: 103 #####	2.08 - 2.09 ms: 79 #####
2.08 - 2.09 ms: 79 #####	2.09 - 2.10 ms: 114 #####
2.09 - 2.10 ms: 114 #####	2.10 - 2.11 ms: 105 #####
2.10 - 2.11 ms: 105 #####	2.11 - 2.12 ms: 97 #####
2.11 - 2.12 ms: 97 #####	

```
2.12 - 2.13 ms: 97 #####
2.13 - 2.14 ms: 92 #####
2.14 - 2.15 ms: 102 #####
2.15 - 2.16 ms: 113 #####
2.16 - 2.17 ms: 102 #####
2.17 - 2.18 ms: 87 #####
2.18 - 2.19 ms: 93 #####
2.19 - 2.20 ms: 95 #####
2.20 - 2.21 ms: 85 #####
2.21 - 2.22 ms: 99 #####
2.22 - 2.23 ms: 88 #####
2.23 - 2.24 ms: 117 #####
2.24 - 2.25 ms: 111 #####
2.25 - 2.26 ms: 107 #####
2.26 - 2.27 ms: 98 #####
2.27 - 2.28 ms: 89 #####
2.28 - 2.29 ms: 99 #####
2.29 - 2.30 ms: 120 #####
2.30 - 2.31 ms: 97 #####
2.31 - 2.32 ms: 95 #####
2.32 - 2.33 ms: 88 #####
2.33 - 2.34 ms: 78 #####
2.34 - 2.35 ms: 100 #####
2.35 - 2.36 ms: 79 #####
2.36 - 2.37 ms: 92 #####
2.37 - 2.38 ms: 54 #####
2.38 - 2.39 ms: 31 #####
2.39 - 2.40 ms: 35 #####
2.40 - 2.41 ms: 32 #####
2.41 - 2.42 ms: 22 #####
2.42 - 2.43 ms: 13 #####
2.43 - 2.44 ms: 9 ###
2.44 - 2.45 ms: 3 #
2.45 - 2.46 ms: 4 #
2.46 - 2.47 ms: 3 #
2.47 - 2.48 ms: 2 #

> SUCCESS

best latency was 1.35 ms
worst latency was 2.47 ms, which is great.
```

ALSA usb-audio driver ([Miditech Midiface II Thru 1x1](#))



```
#alsa-midi-latency-test -o 24:0 -i 24:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

...	
1.13 - 1.14 ms: 10 #	2.06 - 2.07 ms: 1 #
1.14 - 1.15 ms: 33 ##	...
1.15 - 1.16 ms: 40 ###	2.09 - 2.10 ms: 1 #
1.16 - 1.17 ms: 112 #####	...
1.17 - 1.18 ms: 145 #####	2.12 - 2.13 ms: 68 #####
1.18 - 1.19 ms: 262 #####	2.13 - 2.14 ms: 101 #####
1.19 - 1.20 ms: 430 #####	2.14 - 2.15 ms: 93 #####
1.20 - 1.21 ms: 762 #####	2.15 - 2.16 ms: 118 #####
1.21 - 1.22 ms: 608 #####	2.16 - 2.17 ms: 104 #####
1.22 - 1.23 ms: 1012 #####	2.17 - 2.18 ms: 83 #####
1.23 - 1.24 ms: 767 #####	2.18 - 2.19 ms: 88 #####
1.24 - 1.25 ms: 1069 #####	2.19 - 2.20 ms: 98 #####
1.25 - 1.26 ms: 912 #####	2.20 - 2.21 ms: 82 #####
1.26 - 1.27 ms: 852 #####	2.21 - 2.22 ms: 104 #####
1.27 - 1.28 ms: 650 #####	2.22 - 2.23 ms: 90 #####
1.28 - 1.29 ms: 604 #####	2.23 - 2.24 ms: 115 #####
1.29 - 1.30 ms: 532 #####	2.24 - 2.25 ms: 111 #####
1.30 - 1.31 ms: 374 #####	2.25 - 2.26 ms: 108 #####
1.31 - 1.32 ms: 258 #####	2.26 - 2.27 ms: 96 #####
1.32 - 1.33 ms: 150 #####	2.27 - 2.28 ms: 89 #####
1.33 - 1.34 ms: 118 #####	2.28 - 2.29 ms: 96 #####
1.34 - 1.35 ms: 87 #####	2.29 - 2.30 ms: 126 #####
1.35 - 1.36 ms: 71 #####	2.30 - 2.31 ms: 94 #####
1.36 - 1.37 ms: 42 ##	2.31 - 2.32 ms: 95 #####
1.37 - 1.38 ms: 49 ##	2.32 - 2.33 ms: 92 #####
1.38 - 1.39 ms: 18 #	2.33 - 2.34 ms: 77 #####
1.39 - 1.40 ms: 10 #	2.34 - 2.35 ms: 97 #####
1.40 - 1.41 ms: 9 #	2.35 - 2.36 ms: 92 #####
1.41 - 1.42 ms: 6 #	2.36 - 2.37 ms: 115 #####
1.42 - 1.43 ms: 5 #	2.37 - 2.38 ms: 107 #####
1.43 - 1.44 ms: 3 #	2.38 - 2.39 ms: 85 #####
	2.39 - 2.40 ms: 109 #####
> SUCCESS	2.40 - 2.41 ms: 106 #####
best latency was 1.13 ms	2.41 - 2.42 ms: 112 #####
worst latency was 1.43 ms, which is great.	2.42 - 2.43 ms: 81 #####
	2.43 - 2.44 ms: 103 #####
	2.44 - 2.45 ms: 95 #####
	2.45 - 2.46 ms: 114 #####
	2.46 - 2.47 ms: 81 #####
	2.47 - 2.48 ms: 96 #####
	2.48 - 2.49 ms: 87 #####
	2.49 - 2.50 ms: 98 #####
	2.50 - 2.51 ms: 103 #####
	2.51 - 2.52 ms: 92 #####
	2.52 - 2.53 ms: 101 #####
	2.53 - 2.54 ms: 113 #####
	2.54 - 2.55 ms: 100 #####
	2.55 - 2.56 ms: 96 #####
	2.56 - 2.57 ms: 102 #####
	2.57 - 2.58 ms: 111 #####
	2.58 - 2.59 ms: 93 #####
	2.59 - 2.60 ms: 107 #####
	2.60 - 2.61 ms: 92 #####
	2.61 - 2.62 ms: 98 #####
	2.62 - 2.63 ms: 89 #####
	2.63 - 2.64 ms: 92 #####
	2.64 - 2.65 ms: 114 #####
	2.65 - 2.66 ms: 100 #####
	2.66 - 2.67 ms: 100 #####
	2.67 - 2.68 ms: 104 #####
	2.68 - 2.69 ms: 107 #####
	2.69 - 2.70 ms: 105 #####
	2.70 - 2.71 ms: 120 #####
	2.71 - 2.72 ms: 119 #####
	2.72 - 2.73 ms: 93 #####
	2.73 - 2.74 ms: 103 #####
	2.74 - 2.75 ms: 97 #####
	2.75 - 2.76 ms: 87 #####
	2.76 - 2.77 ms: 85 #####
	2.77 - 2.78 ms: 91 #####
	2.78 - 2.79 ms: 101 #####
	2.79 - 2.80 ms: 86 #####
	2.80 - 2.81 ms: 102 #####
	2.81 - 2.82 ms: 112 #####
	2.82 - 2.83 ms: 110 #####
	2.83 - 2.84 ms: 96 #####
	2.84 - 2.85 ms: 90 #####
	2.85 - 2.86 ms: 100 #####
	2.86 - 2.87 ms: 94 #####

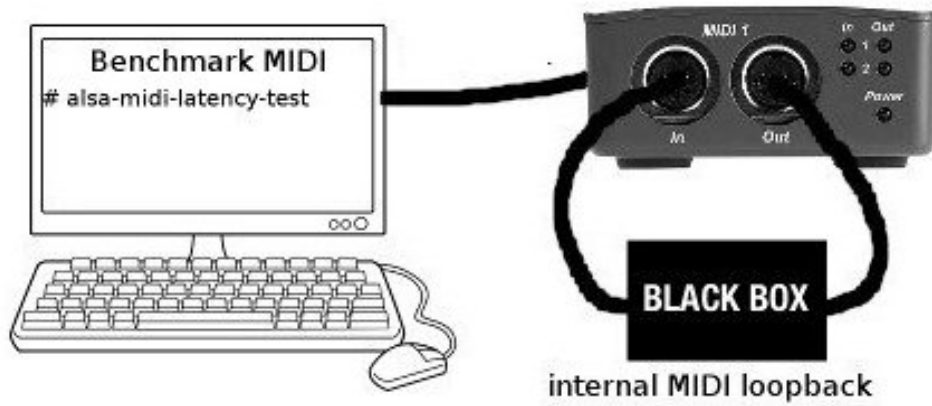
```
2.87 - 2.88 ms: 113 #####
2.88 - 2.89 ms: 102 #####
2.89 - 2.90 ms: 105 #####
2.90 - 2.91 ms: 113 #####
2.91 - 2.92 ms: 103 #####
2.92 - 2.93 ms: 87 #####
2.93 - 2.94 ms: 111 #####
2.94 - 2.95 ms: 93 #####
2.95 - 2.96 ms: 88 #####
2.96 - 2.97 ms: 89 #####
2.97 - 2.98 ms: 88 #####
2.98 - 2.99 ms: 106 #####
2.99 - 3.00 ms: 104 #####
3.00 - 3.01 ms: 100 #####
3.01 - 3.02 ms: 128 #####
3.02 - 3.03 ms: 98 #####
3.03 - 3.04 ms: 85 #####
3.04 - 3.05 ms: 110 #####
3.05 - 3.06 ms: 110 #####
3.06 - 3.07 ms: 109 #####
3.07 - 3.08 ms: 119 #####
3.08 - 3.09 ms: 106 #####
3.09 - 3.10 ms: 121 #####
3.10 - 3.11 ms: 98 #####
3.11 - 3.12 ms: 76 #####
3.12 - 3.13 ms: 25 #####
```

> SUCCESS

best latency was 2.06 ms
worst latency was 3.12 ms, which is great.

Indirect test on Standalone MIDI hardware

(Benchmark MIDI on Asrock Z87 Extreme4 and M-Audio Audiophile 2496)



Kenton Thru 5

```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -x -4
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

```
...
0.9706 - 0.9707 ms: 1 #
...
0.9708 - 0.9709 ms: 4 #
0.9709 - 0.9710 ms: 5 #
0.9710 - 0.9711 ms: 4 #
0.9711 - 0.9712 ms: 7 #
0.9712 - 0.9713 ms: 11 #
0.9713 - 0.9714 ms: 13 #
0.9714 - 0.9715 ms: 13 #
0.9715 - 0.9716 ms: 23 #####
0.9716 - 0.9717 ms: 43 #####
0.9717 - 0.9718 ms: 41 #####
0.9718 - 0.9719 ms: 78 #####
0.9719 - 0.9720 ms: 106 #####
0.9720 - 0.9721 ms: 137 #####
0.9721 - 0.9722 ms: 145 #####
0.9722 - 0.9723 ms: 166 #####
0.9723 - 0.9724 ms: 196 #####
0.9724 - 0.9725 ms: 203 #####
0.9725 - 0.9726 ms: 217 #####
0.9726 - 0.9727 ms: 196 #####
0.9727 - 0.9728 ms: 221 #####
0.9728 - 0.9729 ms: 229 #####
0.9729 - 0.9730 ms: 252 #####
0.9730 - 0.9731 ms: 262 #####
0.9731 - 0.9732 ms: 305 #####
0.9732 - 0.9733 ms: 361 #####
0.9733 - 0.9734 ms: 346 #####
0.9734 - 0.9735 ms: 447 #####
0.9735 - 0.9736 ms: 430 #####
0.9736 - 0.9737 ms: 430 #####
0.9737 - 0.9738 ms: 402 #####
0.9738 - 0.9739 ms: 437 #####
0.9739 - 0.9740 ms: 403 #####
0.9740 - 0.9741 ms: 373 #####
0.9741 - 0.9742 ms: 348 #####
0.9742 - 0.9743 ms: 332 #####
0.9743 - 0.9744 ms: 280 #####
0.9744 - 0.9745 ms: 302 #####
0.9745 - 0.9746 ms: 295 #####
0.9746 - 0.9747 ms: 288 #####
0.9747 - 0.9748 ms: 277 #####
0.9748 - 0.9749 ms: 258 #####
0.9749 - 0.9750 ms: 253 #####
0.9750 - 0.9751 ms: 223 #####
0.9751 - 0.9752 ms: 155 #####
0.9752 - 0.9753 ms: 142 #####
0.9753 - 0.9754 ms: 123 #####
0.9754 - 0.9755 ms: 84 #####
0.9755 - 0.9756 ms: 54 #####
0.9756 - 0.9757 ms: 13 #
0.9757 - 0.9758 ms: 10 #
0.9758 - 0.9759 ms: 7 #
0.9759 - 0.9760 ms: 8 #
0.9760 - 0.9761 ms: 5 #
0.9761 - 0.9762 ms: 6 #
0.9762 - 0.9763 ms: 6 #
0.9763 - 0.9764 ms: 6 #
...
0.9765 - 0.9766 ms: 2 #
0.9766 - 0.9767 ms: 3 #
0.9767 - 0.9768 ms: 1 #
...
0.9769 - 0.9770 ms: 1 #
0.9770 - 0.9771 ms: 1 #
...
0.9772 - 0.9773 ms: 2 #
0.9773 - 0.9774 ms: 2 #
...
0.9777 - 0.9778 ms: 2 #
0.9778 - 0.9779 ms: 2 #
...
0.9835 - 0.9836 ms: 1 #
...
1.0297 - 1.0298 ms: 1 #
```

```
> SUCCESS
```

```
best latency was 0.9706 ms
worst latency was 1.0297 ms, which is great.
```



Midi Solutions Quadra Merge

```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -3 -x
```

```
> alsa-midi-latency-test 0.0.5  
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64  
> set_realtime_priority(SCHED_FIFO, 99).. done.  
> clock resolution: 0.000000001 s  
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...  
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

```
...  
1.418 - 1.419 ms: 7 #  
1.419 - 1.420 ms: 32 #####  
1.420 - 1.421 ms: 92 #####  
1.421 - 1.422 ms: 130 #####  
1.422 - 1.423 ms: 229 #####  
1.423 - 1.424 ms: 259 #####  
1.424 - 1.425 ms: 277 #####  
1.425 - 1.426 ms: 235 #####  
1.426 - 1.427 ms: 277 #####  
1.427 - 1.428 ms: 286 #####  
1.428 - 1.429 ms: 278 #####  
1.429 - 1.430 ms: 267 #####  
1.430 - 1.431 ms: 256 #####  
1.431 - 1.432 ms: 275 #####  
1.432 - 1.433 ms: 289 #####  
1.433 - 1.434 ms: 288 #####  
1.434 - 1.435 ms: 283 #####  
1.435 - 1.436 ms: 271 #####  
1.436 - 1.437 ms: 268 #####  
1.437 - 1.438 ms: 266 #####  
1.438 - 1.439 ms: 264 #####  
1.439 - 1.440 ms: 260 #####  
1.440 - 1.441 ms: 305 #####  
1.441 - 1.442 ms: 294 #####  
1.442 - 1.443 ms: 250 #####  
1.443 - 1.444 ms: 288 #####  
1.444 - 1.445 ms: 280 #####  
1.445 - 1.446 ms: 279 #####  
1.446 - 1.447 ms: 257 #####  
1.447 - 1.448 ms: 298 #####  
1.448 - 1.449 ms: 289 #####  
1.449 - 1.450 ms: 270 #####  
1.450 - 1.451 ms: 308 #####  
1.451 - 1.452 ms: 258 #####  
1.452 - 1.453 ms: 195 #####  
1.453 - 1.454 ms: 150 #####  
1.454 - 1.455 ms: 38 #####  
1.455 - 1.456 ms: 11 #  
1.456 - 1.457 ms: 14 #  
1.457 - 1.458 ms: 11 #  
1.458 - 1.459 ms: 9 #  
1.459 - 1.460 ms: 6 #  
1.460 - 1.461 ms: 14 #  
1.461 - 1.462 ms: 11 #  
1.462 - 1.463 ms: 12 #  
1.463 - 1.464 ms: 26 ####  
1.464 - 1.465 ms: 28 #####  
1.465 - 1.466 ms: 46 #####  
1.466 - 1.467 ms: 47 #####  
1.467 - 1.468 ms: 42 #####  
1.468 - 1.469 ms: 30 #####  
1.469 - 1.470 ms: 50 #####  
1.470 - 1.471 ms: 36 #####  
1.471 - 1.472 ms: 38 #####  
1.472 - 1.473 ms: 39 #####  
1.473 - 1.474 ms: 36 #####  
1.474 - 1.475 ms: 30 #####  
1.475 - 1.476 ms: 26 #####  
1.476 - 1.477 ms: 29 #####  
1.477 - 1.478 ms: 27 #####  
1.478 - 1.479 ms: 27 #####  
1.479 - 1.480 ms: 46 #####  
1.480 - 1.481 ms: 29 #####  
1.481 - 1.482 ms: 25 #####  
1.482 - 1.483 ms: 43 #####  
1.483 - 1.484 ms: 26 #####  
1.484 - 1.485 ms: 28 #####  
1.485 - 1.486 ms: 28 #####  
1.486 - 1.487 ms: 30 #####  
1.487 - 1.488 ms: 34 #####  
1.488 - 1.489 ms: 39 #####  
1.489 - 1.490 ms: 36 #####  
1.490 - 1.491 ms: 31 #####  
1.491 - 1.492 ms: 23 #####  
1.492 - 1.493 ms: 27 #####  
1.493 - 1.494 ms: 22 #####  
1.494 - 1.495 ms: 18 ###  
1.495 - 1.496 ms: 18 ###  
1.496 - 1.497 ms: 3 #  
1.497 - 1.498 ms: 1 #  
> SUCCESS
```

```
best latency was 1.418 ms  
worst latency was 1.497 ms, which is great.
```



MOTU Midi Time Piece II (legacy device) (DIN1 to DIN1, Routing by cable)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5  
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64  
> set_realtime_priority(SCHED_FIFO, 99).. done.  
> clock resolution: 0.000000001 s  
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...  
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

```
...  
2.03 - 2.04 ms: 56 #####  
2.04 - 2.05 ms: 106 #####  
2.05 - 2.06 ms: 90 #####  
2.06 - 2.07 ms: 111 #####  
2.07 - 2.08 ms: 102 #####  
2.08 - 2.09 ms: 111 #####  
2.09 - 2.10 ms: 130 #####  
2.10 - 2.11 ms: 94 #####  
2.11 - 2.12 ms: 108 #####  
2.12 - 2.13 ms: 98 #####  
2.13 - 2.14 ms: 110 #####  
2.14 - 2.15 ms: 104 #####  
2.15 - 2.16 ms: 107 #####  
2.16 - 2.17 ms: 106 #####  
2.17 - 2.18 ms: 103 #####  
2.18 - 2.19 ms: 102 #####  
2.19 - 2.20 ms: 222 #####  
2.20 - 2.21 ms: 265 #####  
2.21 - 2.22 ms: 286 #####  
2.22 - 2.23 ms: 303 #####  
2.23 - 2.24 ms: 286 #####  
2.24 - 2.25 ms: 326 #####  
2.25 - 2.26 ms: 278 #####  
2.26 - 2.27 ms: 307 #####  
2.27 - 2.28 ms: 308 #####  
2.28 - 2.29 ms: 294 #####  
2.29 - 2.30 ms: 282 #####  
2.30 - 2.31 ms: 296 #####  
2.31 - 2.32 ms: 299 #####  
2.32 - 2.33 ms: 306 #####  
2.33 - 2.34 ms: 295 #####  
2.34 - 2.35 ms: 317 #####  
2.35 - 2.36 ms: 240 #####  
2.36 - 2.37 ms: 211 #####  
2.37 - 2.38 ms: 215 #####  
2.38 - 2.39 ms: 218 #####  
2.39 - 2.40 ms: 214 #####  
2.40 - 2.41 ms: 241 #####  
2.41 - 2.42 ms: 227 #####  
2.42 - 2.43 ms: 224 #####  
2.43 - 2.44 ms: 221 #####  
2.44 - 2.45 ms: 223 #####  
2.45 - 2.46 ms: 224 #####  
2.46 - 2.47 ms: 241 #####  
2.47 - 2.48 ms: 231 #####  
2.48 - 2.49 ms: 220 #####  
2.49 - 2.50 ms: 229 #####  
2.50 - 2.51 ms: 211 #####  
2.51 - 2.52 ms: 93 #####  
2.52 - 2.53 ms: 1 #  
2.53 - 2.54 ms: 1 #  
...  
2.56 - 2.57 ms: 1 #  
...  
2.58 - 2.59 ms: 1 #  
2.59 - 2.60 ms: 1 #  
2.60 - 2.61 ms: 1 #  
...  
2.63 - 2.64 ms: 1 #  
2.64 - 2.65 ms: 1 #  
...  
2.66 - 2.67 ms: 1 #
```

```
> SUCCESS
```

```
best latency was 2.03 ms  
worst latency was 2.66 ms, which is great.
```

MOTU MIDI EXPRESS XT (legacy device)
(DIN1 to DIN1, Merge All preset)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5  
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64  
> set_realtime_priority(SCHED_FIFO, 99).. done.  
> clock resolution: 0.000000001 s  
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...  
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

```
...  
2.01 - 2.02 ms: 2 #  
2.02 - 2.03 ms: 61 #####  
2.03 - 2.04 ms: 70 #####  
2.04 - 2.05 ms: 68 #####  
2.05 - 2.06 ms: 81 #####  
2.06 - 2.07 ms: 74 #####  
2.07 - 2.08 ms: 81 #####  
2.08 - 2.09 ms: 77 #####  
2.09 - 2.10 ms: 84 #####  
2.10 - 2.11 ms: 85 #####  
2.11 - 2.12 ms: 86 #####  
2.12 - 2.13 ms: 87 #####  
2.13 - 2.14 ms: 87 #####  
2.14 - 2.15 ms: 86 #####  
2.15 - 2.16 ms: 86 #####  
2.16 - 2.17 ms: 85 #####  
2.17 - 2.18 ms: 90 #####  
2.18 - 2.19 ms: 260 #####  
2.19 - 2.20 ms: 313 #####  
2.20 - 2.21 ms: 317 #####  
2.21 - 2.22 ms: 276 #####  
2.22 - 2.23 ms: 285 #####  
2.23 - 2.24 ms: 309 #####  
2.24 - 2.25 ms: 281 #####  
2.25 - 2.26 ms: 319 #####  
2.26 - 2.27 ms: 283 #####  
2.27 - 2.28 ms: 314 #####  
2.28 - 2.29 ms: 298 #####  
2.29 - 2.30 ms: 288 #####  
2.30 - 2.31 ms: 290 #####  
2.31 - 2.32 ms: 305 #####  
2.32 - 2.33 ms: 300 #####  
2.33 - 2.34 ms: 299 #####  
2.34 - 2.35 ms: 236 #####  
2.35 - 2.36 ms: 241 #####  
2.36 - 2.37 ms: 231 #####  
2.37 - 2.38 ms: 246 #####  
2.38 - 2.39 ms: 233 #####  
2.39 - 2.40 ms: 249 #####  
2.40 - 2.41 ms: 242 #####  
2.41 - 2.42 ms: 264 #####  
2.42 - 2.43 ms: 251 #####  
2.43 - 2.44 ms: 236 #####  
2.44 - 2.45 ms: 240 #####  
2.45 - 2.46 ms: 241 #####  
2.46 - 2.47 ms: 268 #####  
2.47 - 2.48 ms: 252 #####  
2.48 - 2.49 ms: 226 #####  
2.49 - 2.50 ms: 263 #####  
2.50 - 2.51 ms: 54 #####
```

```
> SUCCESS
```

```
best latency was 2.01 ms  
worst latency was 2.50 ms, which is great.
```

MOTU MTP-AV USB (legacy device)
(DIN1 to DIN1, Routing by cable)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

```
...
2.03 - 2.04 ms: 72 #####
2.04 - 2.05 ms: 175 #####
2.05 - 2.06 ms: 165 #####
2.06 - 2.07 ms: 157 #####
2.07 - 2.08 ms: 158 #####
2.08 - 2.09 ms: 176 #####
2.09 - 2.10 ms: 168 #####
2.10 - 2.11 ms: 166 #####
2.11 - 2.12 ms: 167 #####
2.12 - 2.13 ms: 173 #####
2.13 - 2.14 ms: 156 #####
2.14 - 2.15 ms: 174 #####
2.15 - 2.16 ms: 181 #####
2.16 - 2.17 ms: 167 #####
2.17 - 2.18 ms: 190 #####
2.18 - 2.19 ms: 157 #####
2.19 - 2.20 ms: 221 #####
2.20 - 2.21 ms: 316 #####
2.21 - 2.22 ms: 273 #####
2.22 - 2.23 ms: 291 #####
2.23 - 2.24 ms: 297 #####
2.24 - 2.25 ms: 289 #####
2.25 - 2.26 ms: 326 #####
2.26 - 2.27 ms: 273 #####
2.27 - 2.28 ms: 308 #####
2.28 - 2.29 ms: 303 #####
2.29 - 2.30 ms: 296 #####
2.30 - 2.31 ms: 287 #####
2.31 - 2.32 ms: 296 #####
2.32 - 2.33 ms: 304 #####
2.33 - 2.34 ms: 296 #####
2.34 - 2.35 ms: 298 #####
2.35 - 2.36 ms: 243 #####
2.36 - 2.37 ms: 127 #####
2.37 - 2.38 ms: 153 #####
2.38 - 2.39 ms: 159 #####
2.39 - 2.40 ms: 155 #####
2.40 - 2.41 ms: 155 #####
2.41 - 2.42 ms: 178 #####
2.42 - 2.43 ms: 169 #####
2.43 - 2.44 ms: 153 #####
2.44 - 2.45 ms: 162 #####
2.45 - 2.46 ms: 171 #####
2.46 - 2.47 ms: 171 #####
2.47 - 2.48 ms: 163 #####
2.48 - 2.49 ms: 153 #####
2.49 - 2.50 ms: 153 #####
2.50 - 2.51 ms: 157 #####
2.51 - 2.52 ms: 92 #####
2.52 - 2.53 ms: 1 #
...
2.60 - 2.61 ms: 1 #
...
2.68 - 2.69 ms: 1 #
...
2.70 - 2.71 ms: 1 #
...
2.83 - 2.84 ms: 1 #
...
2.90 - 2.91 ms: 1 #
...
2.95 - 2.96 ms: 1 #
2.96 - 2.97 ms: 1 #
...
3.10 - 3.11 ms: 1 #
...
3.41 - 3.42 ms: 1 #
```

```
> SUCCESS
```

```
best latency was 2.03 ms
worst latency was 3.41 ms, which is great.
```

iConnectivity iConnectMIDI4+ (DIN1 to DIN2, default routing)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -3 -x
```

```
> alsa-midi-latency-test 0.0.5  
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64  
> set_realtime_priority(SCHED_FIFO, 99).. done.  
> clock resolution: 0.000000001 s  
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...  
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

```
...  
1.970 - 1.971 ms: 1 #  
1.971 - 1.972 ms: 8 #  
1.972 - 1.973 ms: 28 #####  
1.973 - 1.974 ms: 59 #####  
1.974 - 1.975 ms: 129 #####  
1.975 - 1.976 ms: 216 #####  
1.976 - 1.977 ms: 272 #####  
1.977 - 1.978 ms: 289 #####  
1.978 - 1.979 ms: 343 #####  
1.979 - 1.980 ms: 327 #####  
1.980 - 1.981 ms: 292 #####  
1.981 - 1.982 ms: 319 #####  
1.982 - 1.983 ms: 336 #####  
1.983 - 1.984 ms: 296 #####  
1.984 - 1.985 ms: 313 #####  
1.985 - 1.986 ms: 293 #####  
1.986 - 1.987 ms: 298 #####  
1.987 - 1.988 ms: 284 #####  
1.988 - 1.989 ms: 317 #####  
1.989 - 1.990 ms: 314 #####  
1.990 - 1.991 ms: 293 #####  
1.991 - 1.992 ms: 325 #####  
1.992 - 1.993 ms: 308 #####  
1.993 - 1.994 ms: 335 #####  
1.994 - 1.995 ms: 335 #####  
1.995 - 1.996 ms: 339 #####  
1.996 - 1.997 ms: 310 #####  
1.997 - 1.998 ms: 295 #####  
1.998 - 1.999 ms: 323 #####  
1.999 - 2.000 ms: 323 #####  
2.000 - 2.001 ms: 317 #####  
2.001 - 2.002 ms: 293 #####  
2.002 - 2.003 ms: 292 #####  
2.003 - 2.004 ms: 305 #####  
2.004 - 2.005 ms: 278 #####  
2.005 - 2.006 ms: 217 #####  
2.006 - 2.007 ms: 180 #####  
2.007 - 2.008 ms: 111 #####  
2.008 - 2.009 ms: 58 #####  
2.009 - 2.010 ms: 15 ##  
2.010 - 2.011 ms: 7 #  
2.011 - 2.012 ms: 2 #  
2.012 - 2.013 ms: 1 #  
...  
2.014 - 2.015 ms: 1 #  
...  
2.018 - 2.019 ms: 2 #  
...  
2.020 - 2.021 ms: 1 #
```

```
> SUCCESS
```

```
best latency was 1.970 ms  
worst latency was 2.020 ms, which is great.
```

MIDIWorks MIDI JET PRO (black to white)

```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
...
3.2 - 3.3 ms: 496 #####
3.3 - 3.4 ms: 659 #####
3.4 - 3.5 ms: 654 #####
3.5 - 3.6 ms: 630 #####
3.6 - 3.7 ms: 578 #####
3.7 - 3.8 ms: 622 #####
3.8 - 3.9 ms: 592 #####
3.9 - 4.0 ms: 1742 #####
4.0 - 4.1 ms: 1708 #####
4.1 - 4.2 ms: 1672 #####
4.2 - 4.3 ms: 645 #####
...
5.1 - 5.2 ms: 1 #
...
7.3 - 7.4 ms: 1 #
```

> FAIL

best latency was 3.17 ms
worst latency was 7.31 ms, which is too much.



CME WIDI

```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
...
3.3 - 3.4 ms: 160 #####
3.4 - 3.5 ms: 326 #####
3.5 - 3.6 ms: 275 #####
3.6 - 3.7 ms: 264 #####
3.7 - 3.8 ms: 275 #####
3.8 - 3.9 ms: 273 #####
3.9 - 4.0 ms: 249 #####
4.0 - 4.1 ms: 219 #####
4.1 - 4.2 ms: 221 #####
4.2 - 4.3 ms: 236 #####
4.3 - 4.4 ms: 198 #####
4.4 - 4.5 ms: 213 #####
4.5 - 4.6 ms: 242 #####
4.6 - 4.7 ms: 212 #####
4.7 - 4.8 ms: 254 #####
4.8 - 4.9 ms: 248 #####
4.9 - 5.0 ms: 258 #####
5.0 - 5.1 ms: 281 #####
5.1 - 5.2 ms: 284 #####
5.2 - 5.3 ms: 311 #####
5.3 - 5.4 ms: 300 #####
5.4 - 5.5 ms: 305 #####
5.5 - 5.6 ms: 353 #####
5.6 - 5.7 ms: 493 #####
5.7 - 5.8 ms: 587 #####
5.8 - 5.9 ms: 862 #####
5.9 - 6.0 ms: 736 #####
6.0 - 6.1 ms: 650 #####
6.1 - 6.2 ms: 332 #####
6.2 - 6.3 ms: 288 #####
6.3 - 6.4 ms: 95 #####
```

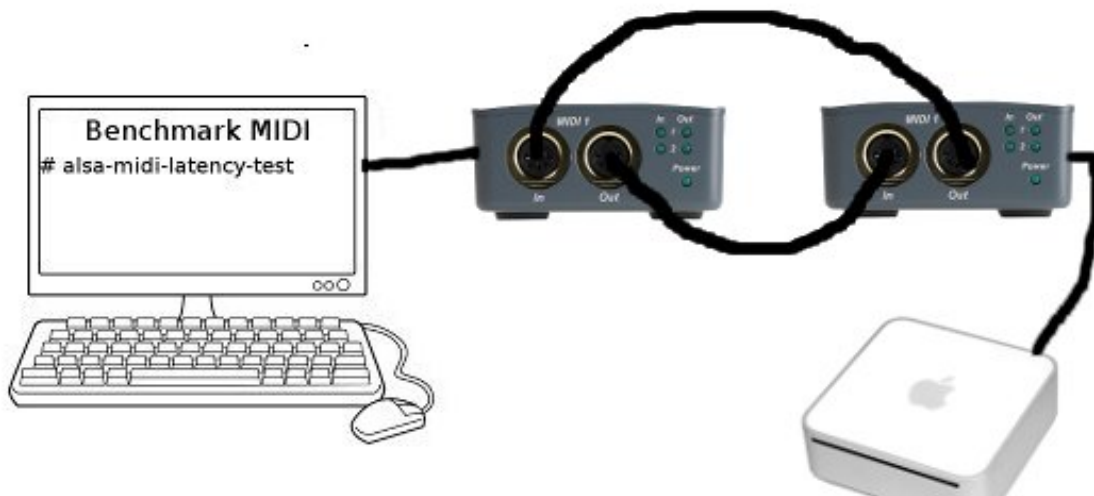
> FAIL

best latency was 3.28 ms
worst latency was 6.31 ms, which is too much.



Indirect test on Operating System MIDI hardware

(Benchmark MIDI on Asrock Z87 Extreme4 and M-Audio Audiophile 2496)



MIDI Patchbay loopback application

http://notahat.com/midi_patchbay/



Apple Mac mini (2009, MB463xx/A)		Apple Mac mini (2006, MA607xx/A)	
OSX:	10.10.5	OSX:	10.6.8
Model Identifier:	Macmini3,1	Model Identifier:	Macmini1,1
Processor Name:	Intel Core 2 Duo	Processor Name:	Intel Core Duo
Processor Speed:	2 GHz	Processor Speed:	1.66 GHz
Number of Processors:	1	Number Of Processors:	1
Total Number of Cores:	2	Total Number Of Cores:	2
L2 Cache:	3 MB	L2 Cache:	2 MB
Memory:	4 GB	Memory:	2 GB
Bus Speed:	1,07 GHz	Bus Speed:	667 MHz
Boot ROM Version:	MM31.0081.B06	Boot ROM Version:	MM11.0055.B08
SMC Version (system):	1.35f0	SMC Version (system):	1.3f4

Native Instruments Komplete Audio 6



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -2 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

<pre>... 2.54 - 2.55 ms: 1 # 2.55 - 2.56 ms: 1 # 2.56 - 2.57 ms: 1 # 2.57 - 2.58 ms: 5 # 2.58 - 2.59 ms: 6 # 2.59 - 2.60 ms: 8 # 2.60 - 2.61 ms: 9 # 2.61 - 2.62 ms: 14 # 2.62 - 2.63 ms: 11 # 2.63 - 2.64 ms: 16 # 2.64 - 2.65 ms: 21 # 2.65 - 2.66 ms: 45 ### 2.66 - 2.67 ms: 59 #### 2.67 - 2.68 ms: 63 ##### 2.68 - 2.69 ms: 81 ##### 2.69 - 2.70 ms: 91 ##### 2.70 - 2.71 ms: 146 ##### 2.71 - 2.72 ms: 173 ##### 2.72 - 2.73 ms: 213 ##### 2.73 - 2.74 ms: 268 ##### 2.74 - 2.75 ms: 267 ##### 2.75 - 2.76 ms: 306 ##### 2.76 - 2.77 ms: 279 ##### 2.77 - 2.78 ms: 320 ##### 2.78 - 2.79 ms: 444 ##### 2.79 - 2.80 ms: 687 ##### 2.80 - 2.81 ms: 687 ##### 2.81 - 2.82 ms: 718 ##### 2.82 - 2.83 ms: 721 ##### 2.83 - 2.84 ms: 600 ##### 2.84 - 2.85 ms: 545 ##### 2.85 - 2.86 ms: 498 ##### 2.86 - 2.87 ms: 507 ##### 2.87 - 2.88 ms: 514 ##### 2.88 - 2.89 ms: 486 ##### 2.89 - 2.90 ms: 456 ##### 2.90 - 2.91 ms: 394 ##### 2.91 - 2.92 ms: 250 ##### 2.92 - 2.93 ms: 48 ### 2.93 - 2.94 ms: 13 # 2.94 - 2.95 ms: 18 # 2.95 - 2.96 ms: 6 # 2.96 - 2.97 ms: 1 # ... 2.98 - 2.99 ms: 1 # ... 3.19 - 3.20 ms: 1 # ... 3.44 - 3.45 ms: 1 # > SUCCESS best latency was 2.54 ms worst latency was 3.44 ms, which is great.</pre>	<pre>2.52 - 2.53 ms: 1 # 2.53 - 2.54 ms: 3 # 2.54 - 2.55 ms: 9 # 2.55 - 2.56 ms: 28 ## 2.56 - 2.57 ms: 39 ## 2.57 - 2.58 ms: 30 ## 2.58 - 2.59 ms: 82 #### 2.59 - 2.60 ms: 124 ##### 2.60 - 2.61 ms: 244 ##### 2.61 - 2.62 ms: 428 ##### 2.62 - 2.63 ms: 599 ##### 2.63 - 2.64 ms: 741 ##### 2.64 - 2.65 ms: 798 ##### 2.65 - 2.66 ms: 817 ##### 2.66 - 2.67 ms: 784 ##### 2.67 - 2.68 ms: 765 ##### 2.68 - 2.69 ms: 782 ##### 2.69 - 2.70 ms: 758 ##### 2.70 - 2.71 ms: 729 ##### 2.71 - 2.72 ms: 730 ##### 2.72 - 2.73 ms: 648 ##### 2.73 - 2.74 ms: 414 ##### 2.74 - 2.75 ms: 318 ##### 2.75 - 2.76 ms: 106 ##### 2.76 - 2.77 ms: 9 # 2.77 - 2.78 ms: 4 # 2.78 - 2.79 ms: 1 # 2.79 - 2.80 ms: 2 # ... 2.82 - 2.83 ms: 1 # 2.83 - 2.84 ms: 1 # 2.84 - 2.85 ms: 1 # 2.85 - 2.86 ms: 2 # 2.86 - 2.87 ms: 1 # ... 2.90 - 2.91 ms: 1 # > SUCCESS best latency was 2.52 ms worst latency was 2.90 ms, which is great.</pre>
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iConnectivity iConnectMIDI4+ (to DIN1, from DIN1, rear usb port)

```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```



```
> latency distribution:
```

<pre>... 2.5 - 2.6 ms: 4 # 2.6 - 2.7 ms: 49 ## 2.7 - 2.8 ms: 168 ##### 2.8 - 2.9 ms: 300 ##### 2.9 - 3.0 ms: 823 ##### 3.0 - 3.1 ms: 1013 ##### 3.1 - 3.2 ms: 1021 ##### 3.2 - 3.3 ms: 990 ##### 3.3 - 3.4 ms: 985 ##### 3.4 - 3.5 ms: 969 ##### 3.5 - 3.6 ms: 983 ##### 3.6 - 3.7 ms: 918 ##### 3.7 - 3.8 ms: 919 ##### 3.8 - 3.9 ms: 687 ##### 3.9 - 4.0 ms: 171 ##### > SUCCESS best latency was 2.5 ms worst latency was 3.9 ms, which is great.</pre>	<pre>2.6 - 2.7 ms: 23 # 2.7 - 2.8 ms: 780 ##### 2.8 - 2.9 ms: 992 ##### 2.9 - 3.0 ms: 1007 ##### 3.0 - 3.1 ms: 1023 ##### 3.1 - 3.2 ms: 985 ##### 3.2 - 3.3 ms: 992 ##### 3.3 - 3.4 ms: 1008 ##### 3.4 - 3.5 ms: 996 ##### 3.5 - 3.6 ms: 945 ##### 3.6 - 3.7 ms: 976 ##### 3.7 - 3.8 ms: 273 ##### > SUCCESS best latency was 2.6 ms worst latency was 3.7 ms, which is great.</pre>
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Bespeco BMUSB100



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

2.8 - 2.9 ms: 2 #	2.8 - 2.9 ms: 176 #####
2.9 - 3.0 ms: 23 #	2.9 - 3.0 ms: 969 #####
3.0 - 3.1 ms: 670 #####	3.0 - 3.1 ms: 988 #####
3.1 - 3.2 ms: 1021 #####	3.1 - 3.2 ms: 1010 #####
3.2 - 3.3 ms: 993 #####	3.2 - 3.3 ms: 1024 #####
3.3 - 3.4 ms: 981 #####	3.3 - 3.4 ms: 991 #####
3.4 - 3.5 ms: 1011 #####	3.4 - 3.5 ms: 993 #####
3.5 - 3.6 ms: 948 #####	3.5 - 3.6 ms: 974 #####
3.6 - 3.7 ms: 1022 #####	3.6 - 3.7 ms: 986 #####
3.7 - 3.8 ms: 1027 #####	3.7 - 3.8 ms: 1025 #####
3.8 - 3.9 ms: 964 #####	3.8 - 3.9 ms: 818 #####
3.9 - 4.0 ms: 1009 #####	3.9 - 4.0 ms: 45 ##
4.0 - 4.1 ms: 328 #####	4.0 - 4.1 ms: 1 #
4.1 - 4.2 ms: 1 #	
> SUCCESS	> SUCCESS
best latency was 2.8 ms	best latency was 2.8 ms
worst latency was 4.1 ms, which is great.	worst latency was 4.0 ms, which is great.

Miditech Midiface II Thru 1x1



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms
```

```
> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test
```

```
> done.
```

```
> latency distribution:
```

<pre>... 2.8 - 2.9 ms: 1 # 2.9 - 3.0 ms: 13 # 3.0 - 3.1 ms: 42 ## 3.1 - 3.2 ms: 47 ## 3.2 - 3.3 ms: 43 ## 3.3 - 3.4 ms: 39 ## 3.4 - 3.5 ms: 60 ### 3.5 - 3.6 ms: 59 ### 3.6 - 3.7 ms: 189 ##### 3.7 - 3.8 ms: 243 ##### 3.8 - 3.9 ms: 793 ##### 3.9 - 4.0 ms: 1010 ##### 4.0 - 4.1 ms: 967 ##### 4.1 - 4.2 ms: 981 ##### 4.2 - 4.3 ms: 926 ##### 4.3 - 4.4 ms: 920 ##### 4.4 - 4.5 ms: 985 ##### 4.5 - 4.6 ms: 919 ##### 4.6 - 4.7 ms: 792 ##### 4.7 - 4.8 ms: 776 ##### 4.8 - 4.9 ms: 195 ##### > SUCCESS best latency was 2.8 ms worst latency was 4.8 ms, which is great.</pre>	<pre>2.8 - 2.9 ms: 8 # 2.9 - 3.0 ms: 25 # 3.0 - 3.1 ms: 38 ## 3.1 - 3.2 ms: 72 ### 3.2 - 3.3 ms: 84 #### 3.3 - 3.4 ms: 109 ##### 3.4 - 3.5 ms: 137 ##### 3.5 - 3.6 ms: 144 ##### 3.6 - 3.7 ms: 699 ##### 3.7 - 3.8 ms: 1049 ##### 3.8 - 3.9 ms: 958 ##### 3.9 - 4.0 ms: 1003 ##### 4.0 - 4.1 ms: 966 ##### 4.1 - 4.2 ms: 959 ##### 4.2 - 4.3 ms: 910 ##### 4.3 - 4.4 ms: 844 ##### 4.4 - 4.5 ms: 892 ##### 4.5 - 4.6 ms: 812 ##### 4.6 - 4.7 ms: 290 ##### 4.7 - 4.8 ms: 1 # > SUCCESS best latency was 2.8 ms worst latency was 4.7 ms, which is great.</pre>
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Echo Audio Audiofire 12 fw4.8 (legacy device)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

<pre>... 5.5 - 5.6 ms: 1 # 5.6 - 5.7 ms: 6 # 5.7 - 5.8 ms: 52 ### 5.8 - 5.9 ms: 282 ##### 5.9 - 6.0 ms: 697 ##### 6.0 - 6.1 ms: 764 ##### 6.1 - 6.2 ms: 874 ##### 6.2 - 6.3 ms: 937 ##### 6.3 - 6.4 ms: 923 ##### 6.4 - 6.5 ms: 875 ##### 6.5 - 6.6 ms: 844 ##### 6.6 - 6.7 ms: 860 ##### 6.7 - 6.8 ms: 851 ##### 6.8 - 6.9 ms: 784 ##### 6.9 - 7.0 ms: 526 ##### 7.0 - 7.1 ms: 462 ##### 7.1 - 7.2 ms: 190 ##### 7.2 - 7.3 ms: 67 ##### 7.3 - 7.4 ms: 5 # > FAIL best latency was 5.52 ms worst latency was 7.31 ms, which is too much.</pre>	<pre>5.5 - 5.6 ms: 6 # 5.6 - 5.7 ms: 18 # 5.7 - 5.8 ms: 115 ##### 5.8 - 5.9 ms: 486 ##### 5.9 - 6.0 ms: 827 ##### 6.0 - 6.1 ms: 950 ##### 6.1 - 6.2 ms: 1021 ##### 6.2 - 6.3 ms: 1002 ##### 6.3 - 6.4 ms: 965 ##### 6.4 - 6.5 ms: 982 ##### 6.5 - 6.6 ms: 959 ##### 6.6 - 6.7 ms: 1015 ##### 6.7 - 6.8 ms: 944 ##### 6.8 - 6.9 ms: 508 ##### 6.9 - 7.0 ms: 128 ##### 7.0 - 7.1 ms: 58 ### 7.1 - 7.2 ms: 16 # > FAIL best latency was 5.53 ms worst latency was 7.13 ms, which is too much.</pre>
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MOTU MTP-AV USB (legacy device)
(to DIN1, from DIN1)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.

> latency distribution:
```

<u>MOTUSetupMIDI57483.zip driver, OSX 10.6.8</u>	<u>MIDI Installer-Mac-110806-1.zip driver, OSX 10.6.8</u>
<pre>8.6 - 8.7 ms: 2 # ... 8.8 - 8.9 ms: 1 # 8.9 - 9.0 ms: 10 # 9.0 - 9.1 ms: 9 # 9.1 - 9.2 ms: 14 # 9.2 - 9.3 ms: 10 # 9.3 - 9.4 ms: 9 # 9.4 - 9.5 ms: 11 # 9.5 - 9.6 ms: 12 # 9.6 - 9.7 ms: 37 ### 9.7 - 9.8 ms: 101 ##### 9.8 - 9.9 ms: 186 ##### 9.9 - 10.0 ms: 306 ##### 10.0 - 10.1 ms: 357 ##### 10.1 - 10.2 ms: 484 ##### 10.2 - 10.3 ms: 487 ##### 10.3 - 10.4 ms: 480 ##### 10.4 - 10.5 ms: 483 ##### 10.5 - 10.6 ms: 479 ##### 10.6 - 10.7 ms: 514 ##### 10.7 - 10.8 ms: 498 ##### 10.8 - 10.9 ms: 519 ##### 10.9 - 11.0 ms: 492 ##### 11.0 - 11.1 ms: 468 ##### 11.1 - 11.2 ms: 498 ##### 11.2 - 11.3 ms: 473 ##### 11.3 - 11.4 ms: 478 ##### 11.4 - 11.5 ms: 548 ##### 11.5 - 11.6 ms: 451 ##### 11.6 - 11.7 ms: 432 ##### 11.7 - 11.8 ms: 453 ##### 11.8 - 11.9 ms: 282 ##### 11.9 - 12.0 ms: 235 ##### 12.0 - 12.1 ms: 80 ##### 12.1 - 12.2 ms: 58 ##### 12.2 - 12.3 ms: 18 ## 12.3 - 12.4 ms: 5 # 12.4 - 12.5 ms: 7 # ... 12.6 - 12.7 ms: 2 # 12.7 - 12.8 ms: 5 # ... 12.9 - 13.0 ms: 1 # ... 13.3 - 13.4 ms: 1 # 13.4 - 13.5 ms: 2 # ... 13.6 - 13.7 ms: 1 # ... 13.8 - 13.9 ms: 1 # > FAIL best latency was 8.59 ms worst latency was 13.77 ms, which is too much.</pre>	<pre>7.9 - 8.0 ms: 1 # 8.0 - 8.1 ms: 2 # ... 8.4 - 8.5 ms: 31 # 8.5 - 8.6 ms: 86 ### 8.6 - 8.7 ms: 266 ##### 8.7 - 8.8 ms: 375 ##### 8.8 - 8.9 ms: 730 ##### 8.9 - 9.0 ms: 887 ##### 9.0 - 9.1 ms: 889 ##### 9.1 - 9.2 ms: 1046 ##### 9.2 - 9.3 ms: 981 ##### 9.3 - 9.4 ms: 973 ##### 9.4 - 9.5 ms: 949 ##### 9.5 - 9.6 ms: 943 ##### 9.6 - 9.7 ms: 668 ##### 9.7 - 9.8 ms: 524 ##### 9.8 - 9.9 ms: 413 ##### 9.9 - 10.0 ms: 124 ##### 10.0 - 10.1 ms: 77 ##### 10.1 - 10.2 ms: 23 # 10.2 - 10.3 ms: 7 # 10.3 - 10.4 ms: 4 # ... 18.1 - 18.2 ms: 1 # > FAIL best latency was 7.86 ms worst latency was 18.10 ms, which is too much.</pre>

MOTU MTP-AV USB (legacy device)
(to DIN1, from DIN1)



```
#alsa-midi-latency-test -o 20:0 -i 20:0 -R -S 10000 -w 10 -r -1 -x
```

```
> alsa-midi-latency-test 0.0.5
> running on Linux release 4.1.5-rt5 (version #1 SMP PREEMPT RT Fri Sep 11 03:20:44 CEST 2015) on x86_64
> set_realtime_priority(SCHED_FIFO, 99).. done.
> clock resolution: 0.000000001 s
> interval between measurements: 10.000 .. 20.000 ms

> sampling 10000 midi latency values - please wait ...
> press Ctrl+C to abort test

> done.
```

```
> latency distribution:
```

MIDI Installer-Mac-110806-1.zip driver, OSX 10.10.5	MIDI Installer-Mac-110806-1.zip driver, OSX 10.6.8
<pre>8.6 - 8.7 ms: 23 # 8.7 - 8.8 ms: 71 ##### 8.8 - 8.9 ms: 299 ##### 8.9 - 9.0 ms: 514 ##### 9.0 - 9.1 ms: 664 ##### 9.1 - 9.2 ms: 974 ##### 9.2 - 9.3 ms: 954 ##### 9.3 - 9.4 ms: 945 ##### 9.4 - 9.5 ms: 1003 ##### 9.5 - 9.6 ms: 1005 ##### 9.6 - 9.7 ms: 948 ##### 9.7 - 9.8 ms: 865 ##### 9.8 - 9.9 ms: 890 ##### 9.9 - 10.0 ms: 423 ##### 10.0 - 10.1 ms: 284 ##### 10.1 - 10.2 ms: 91 ##### 10.2 - 10.3 ms: 37 ## 10.3 - 10.4 ms: 7 # 10.4 - 10.5 ms: 1 # ... 11.9 - 12.0 ms: 1 # ... 18.9 - 19.0 ms: 1 # > FAIL best latency was 8.59 ms worst latency was 18.93 ms, which is too much.</pre>	<pre>7.9 - 8.0 ms: 1 # 8.0 - 8.1 ms: 2 # ... 8.4 - 8.5 ms: 31 # 8.5 - 8.6 ms: 86 ##### 8.6 - 8.7 ms: 266 ##### 8.7 - 8.8 ms: 375 ##### 8.8 - 8.9 ms: 730 ##### 8.9 - 9.0 ms: 887 ##### 9.0 - 9.1 ms: 889 ##### 9.1 - 9.2 ms: 1046 ##### 9.2 - 9.3 ms: 981 ##### 9.3 - 9.4 ms: 973 ##### 9.4 - 9.5 ms: 949 ##### 9.5 - 9.6 ms: 943 ##### 9.6 - 9.7 ms: 668 ##### 9.7 - 9.8 ms: 524 ##### 9.8 - 9.9 ms: 413 ##### 9.9 - 10.0 ms: 124 ##### 10.0 - 10.1 ms: 77 ##### 10.1 - 10.2 ms: 23 # 10.2 - 10.3 ms: 7 # 10.3 - 10.4 ms: 4 # ... 18.1 - 18.2 ms: 1 # > FAIL best latency was 7.86 ms worst latency was 18.10 ms, which is too much.</pre>

Buildroot packages

(2015.08)

target-sources packages

alsa-lib-1.0.29.tar.bz2
alsa-utils-1.0.29.tar.bz2
avahi-0.6.31.tar.gz
busybox-1.23.2.tar.bz2
dbus-1.8.20.tar.gz
dmidecode-2.12.tar.gz
dropbear-2015.67.tar.bz2
eudev-3.1.2.tar.gz
expat-2.1.0.tar.gz
file-5.24.tar.gz
glib-2.44.1.tar.xz
glibc-2.20.tar.xz
joe-3.7.tar.gz
kmod-20.tar.xz
libdaemon-0.14.tar.gz
libffi-3.1.tar.gz
libusb-1.0.19.tar.bz2
linux-4.1.5.tar.xz
linux-firmware-3161bfa479d5e9ed4f46b57df9bcecbbc4f8eb3c.tar.gz
mc-4.8.14.tar.xz
nano-2.4.2.tar.gz
ncurses-5.9.tar.gz
pciutils-3.3.1.tar.xz
usbutils-008.tar.xz
util-linux-2.26.2.tar.xz
zlib-1.2.8.tar.xz

[alsa-midi-latency-test](#)

host-sources packages

autoconf-2.69.tar.xz
automake-1.15.tar.xz
binutils-2.24.tar.bz2
e2fsprogs-1.42.13.tar.xz
expat-2.1.0.tar.gz
fakeroot_1.18.4.orig.tar.bz2
file-5.24.tar.gz
gawk-4.1.3.tar.xz
gcc-4.9.3.tar.bz2
genext2fs-1.4.1.tar.gz
gettext-0.19.5.1.tar.xz
glib-2.44.1.tar.xz
gmp-6.0.0a.tar.xz
gperf-3.0.4.tar.gz
intltool-0.50.2.tar.gz
kmod-20.tar.xz
libffi-3.1.tar.gz
libtool-2.4.6.tar.xz
lzo-2.09.tar.gz
lzop-1.03.tar.gz
m4-1.4.17.tar.xz
mpc-1.0.3.tar.gz
mpfr-3.1.3.tar.xz
ncurses-5.9.tar.gz
pkgconf-0.8.9.tar.bz2
XML-Parser-2.41.tar.gz
zlib-1.2.8.tar.xz