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pitch up/down block in simulator not working?

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pitch up/down block in simulator not working? (#p2930)

by **add4** » Sat Mar 11, 2017 5:58 am

Hello,

i'm using the pitch up/down block and i get one octave up from both outputs. Is that normal because of the simulation? 😊

I've read that the simulator doesn't cope perfectly with the pitch shifting, but i have no idea how much of a problem it is ..

waiting for the hardware to test that in the real world but so far i only have the simulator 😊

Thanks

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Re: pitch up/down block in simulator not working? (#p2931)

by **add4** » Sat Mar 11, 2017 6:04 am

actually the down output gives me a minor sixth above my note (+8 semitones) and the up output gives me +1 octave 😊

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Re: pitch up/down block in simulator not working? (#p2932)

by **Digital Larry** » Sat Mar 11, 2017 6:22 am

Interesting....

The base library that SpinCAD is built on top of (called ElmGen), which included the simulator functionality, didn't work properly for pitch shifting when I first started working on it. Later on I dug into it and thought I got it working reasonably well, but didn't subject it to any detailed analysis.

So there's a couple of possibilities.

- 1) Pitch shifting simulation is still broken in some way
- 2) The block claiming to do an octave down isn't (or whichever it was you said that is off).

Why don't you let me know what you discover once you get your dev board or whatever you are working on. The real proof would be to look at the pitch shift coefficients in the generated ASM and compare those to the theoretical calculated values from Spin's documentation.

Thanks for the note.

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Re: pitch up/down block in simulator not working? (#p2935)

by **add4** » Sat Mar 11, 2017 10:02 pm

something like this ?

```
;----- Pitch_Up_Down
SKP RUN ,2
WLDR 1, 16384, 4096
WLDR 0, -8192, 4096
LDAX ADCL
WRA 0,0.0
CHO RDA,2,REG | COMPC,0
CHO RDA,2,0,1
WRA 4097,0.0
CHO RDA,2,COMPC | RPTR2,0
CHO RDA,2,RPTR2,1
```

```

CHO SOF,2,COMPC | NA,0.0
CHO RDA,2,NA,4097
WRAX REG1,0.0000000000
CHO RDA,3,REG | COMPC,0
CHO RDA,3,0,1
WRA 4097,0.0
CHO RDA,3,COMPC | RPTR2,0
CHO RDA,3,RPTR2,1
CHO SOF,3,COMPC | NA,0.0
CHO RDA,3,NA,4097
WRAX REG2,0.0000000000

```

being new to anything FV-1 related .. from yesterday. it's still absolutely not clear to me if the code is ok or not 😞

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Re: pitch up/down block in simulator not working? (#p2937)

by **Digital Larry** » Sun Mar 12, 2017 11:46 am

If you are going to get into the FV-1 you will have to memorize the following document. It's been awhile for me so I forget. Can you please (if you are so motivated) check the octave down coefficient?

[http://www.spinsemi.com/Products/appnot ... N-0001.pdf](http://www.spinsemi.com/Products/appnot...N-0001.pdf) (<http://www.spinsemi.com/Products/appnotes/spn1001/AN-0001.pdf>)

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Re: pitch up/down block in simulator not working? (#p2941)

by **add4** » Mon Mar 13, 2017 6:37 am

i calculate -8192 for pitch shifting down 1 octave, which is the value in the code :p seems it's something related to the simulator?

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Re: pitch up/down block in simulator not working? (#p2942)

by **Digital Larry** » Mon Mar 13, 2017 6:46 am

Could very well be then! I didn't write the simulator code originally and it was only after about a month of excruciating experimentation that I got it working properly for pitch shifting UP. So, it looks like there's a bug in the pitch shifting DOWN simulation. Thanks for pointing it out. I can't make any commitment to fixing it though as I am way busy with about 5 other things.

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Re: pitch up/down block in simulator not working? (#p2944)

by **add4** » Mon Mar 13, 2017 7:17 am

You're already here and answering my questions, which i am thankful for.

Thanks for your help

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