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Reg Map

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Reg Map (#p1905)

by **Jacko** » Tue Oct 28, 2014 3:42 am

DL,

It looks like the blocks use registers to store their output or control values.

Do you assign the registers on-the-fly, or are they pre-assigned? If pre-assigned, do you have a Master Register Map that you use to keep track of them?

I ask because I find that I do a lot of hand editing of the Spin asm files and a map would be handy.

regards, Jacko

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Re: Reg Map (#p1906)

by **Digital Larry** » Tue Oct 28, 2014 4:23 am

Hi Jacko,

All register assignments are done on the fly.

Prior to generating code for a patch, first the blocks are sorted into order since the output of an upstream block needs to be calculated before being used by a downstream block. Then the code is generated from start to end and registers are assigned in order as needed. There are cases where

registers are used where it is not strictly necessary.

Are you editing the output to bring it in under 128 instructions or because of limitations in what SpinCAD Designer can do? You can tell me, I won't be hurt.

DL

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Re: Reg Map (#p1908)
by **Jacko** » Tue Oct 28, 2014 6:13 am

I guess I'm editing for two reasons, both of which are probably my limitations and not SpCD.

1. Sometimes I'm not exactly sure what is going on with a block because it may have been updated or not been fully documented, and I need to dig into the code to fix/modify/learn.

2. Some blocks are limiting... as an example I want to do some operation on the LFO driving the tremolo but it appears the oscillator is incorporated in the trem block and not easily accessible. So I go into the spn asm to add/change the LFO.

I get the feeling that much of my problem is lack of complete documentation on the SpCD blocks and/or my lack of understanding how the parameters of the block are accessed from SpCD directly.

I really love that SpCD let's me throw together a new patch very quickly but really when I get to the hard core finalizing of a patch to be put into a product, I revert to a lot of spn asm code.

Best regards, Jacko

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Re: Reg Map (#p1909)
by **Digital Larry** » Tue Oct 28, 2014 7:59 am

Ah well THAT makes perfect sense. I kinda forget that the documentation of what's going on internally is a bit lacking. Another thing to add to the list. You are in the smallish category of people who actually understand Spin ASM... at least that gives you some advantage.

Another thing to keep in mind is that some blocks are sub-optimal in their current implementation. I'd put the tremolo block in that category as it needs a width control and should modulate down

from full volume rather than just multiplying the full LFO by the input (which is what I think it does now). Feel free to make some suggestions. My focus on the program at any given time is usually on a particular block or some internal detail of how the whole thing works.

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Re: Reg Map (#p1930)
by **Jacko** » Thu Oct 30, 2014 6:49 am

Here are a couple of examples for the Tremolo block:

1. The first type of Tremolo block has input, output and a control port only. No LFO is defaulted for use. In this mode, the block is basically a VCA (maybe we need a vca block?).

2. The other Tremolo block has input, output, speed and depth inputs. An LFO is default connected to the Trem block and your control inputs are just setting the LFO conditions.

#2 is easy to implement but is limited. #1 is more complicated to set up, but allows more flexibility since any number of control voltages/sources could be driving the amplitude control, which is the basis of this block.

These same conditions apply to a phaser block where a #1 style phaser would only have a control voltage input that could be connected to LFOs, envelopes, fixed values, etc., while the #2 style has the LFO incorporated and the control inputs set the speed and width.

regards, Jacko

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Re: Reg Map (#p1931)
by **Digital Larry** » Thu Oct 30, 2014 7:57 am

Hi Jacko,

Your VCA block is already there: the "Volume" block. I think you can accomplish almost everything you might want with existing controls.

As I was putting together the triangle LFO I had these thoughts:

1) Make a symmetrical (+/- around 0.0) waveform, then you can run it through a "MULX" (aka

volume/VCA) to control the width.
2) Use a scale/offset (SOF 1.0, 1.0) to shove it up so the top clips off. Now as you increase the width it comes down from max.

I'll put some effort into the Tremolo block this weekend.

Thanks,

DL

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Re: Reg Map (#p1933)
by **Jacko** » Thu Oct 30, 2014 11:26 am

Excellent. I don't have SpCD on my office computer so I could not look for a vca when I was writing that, but it crossed my mind that the Mixer 2-1 could be used for a vca (maybe cleaned up in asm). Again, my lack of in-depth knowledge of how some of the blocks work is a limitation.

One of the most important parts of getting good sounds from effects is the feedback loop. How the feedback is treated/filtered/scaled can make a lot of difference in reverbs, phasers, flangers, delays and most other fx. If the loop is fixed within the block then it can limit the usefulness.

regards, Jacko

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Re: Reg Map (#p1934)
by **Digital Larry** » Thu Oct 30, 2014 12:42 pm

Have you found the feedback loop? It's in the upper left of the menu "Loop-Add". Lets you put feedback loops anywhere you like.

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Re: Reg Map (#p1935)

by **Jacko** » Thu Oct 30, 2014 3:23 pm

Yes, I have used the Loop but I'm not sure if some of the blocks already have a local feedback loop built-in.

regards, Jacko

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Re: Reg Map (#p1936)

by **Digital Larry** » Thu Oct 30, 2014 3:58 pm

Just the Single Delay block, to my recollection. But my recollection isn't very good. 😠

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