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New Mixer blocks (#p2172)

by **Digital Larry** » Tue Mar 10, 2015 6:21 pm

Now that I have the DBLEVEL option of the sliderLabel working, I'd like to convert all the Mixer blocks to SpinCAD Builder format. And hopefully I can use some logic about the pin connections to create more optimized code.

Gain1 = slider1 value converted from dB to decimal

Gain2 = slider2 value converted from dB to decimal

Input1 = audio input 1

Input2 = audio input 2

Level1 = channel 1 gain control

Level2 = channel 2 gain control

output = output register

Simplest case, no control inputs

```
RDAX Input1, Gain1
RDAX Input2, Gain2
WRAX output, 0
```

3 instructions

With level1 control input connected

```
RDAX Input1, Gain1
MULX level1
RDAX Input2, Gain2
WRAX output, 0
```

4 instructions

With level2 control input connected

```
RDAX Input2, Gain2
MULX level2
RDAX Input1, Gain1
WRAX output, 0
```

4 instructions

With both control inputs connected:

```
RDAX Input1, Gain1
MULX level2
WRAX output, 0.0
RDAX Input2, Gain2
MULX level2
RDAX output, 1.0
```

WRAX output, 0

7 instructions.

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Re: New Mixer blocks (#p2173)

by **Digital Larry** » Tue Mar 10, 2015 8:24 pm

Here's the SpinCAD Builder code for the 2:1 mixer. I think it works! It will get progressively more complex with bigger mixers. Fortunately this is the one I use the most and it appears to be optimized now.

```
@name Mixer_2_1
@audioInput input1 Input_1
@audioInput input2 Input_2

@audioOutput output Output
@controlInput level_1 Level_1
@controlInput level_2 Level_2

equ gain1 1.0
@sliderLabel gain1 Input_Gain_1 -24 0 -6 1.0 1 DBLEVEL

equ gain2 1.0
@sliderLabel gain2 Input_Gain_2 -24 0 -6 1.0 1 DBLEVEL

;REGISTERS
equ output reg0

@isPinConnected Input_1
rdax input1, gain1 ;read input signal
@isPinConnected Level_1
mulx level_1
@endif
@isPinConnected Input_2
@isPinConnected Level_2
wrax output, 0.0
@endif
@endif
@endif

@isPinConnected Input_2
rdax input2, gain2
@isPinConnected Level_2
mulx level_2
@isPinConnected Input_1
rdax output, 1.0
@endif

@endif
@endif
wrax output, 0.0

@setOutputPin Output output
```

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Re: New Mixer blocks (#p2174)

by **Digital Larry** » Wed Mar 11, 2015 5:41 am

OK it's not optimized in the case of only control input 2 connected:

```
;----- Mixer_2_1
RDAX ADCL,0.5011872336
WRAX REG0,0.0000000000
RDAX ADCR,1.0000000000
MULX POT1
RDAX REG0,1.0000000000
WRAX REG0,0.0000000000
```

This could be reduced to:

```
;----- Mixer_2_1
RDAX ADCR,1.0000000000
MULX POT1
RDAX ADCL,0.5011872336
WRAX REG0,0.0000000000
```

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