

Re: SMPS with two control loops

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 - *Date:* Sat, 26 Nov 2005 23:42:34 +0000 (UTC)
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In article <4387e0d5\$0\$18203\$afc38c87@xxxxxxxxxxxxxxxxxxxx>, [...]
 >But the switching noise makes it impossible to compare two tiny sine
 >waves on my CRO.

If you have a digital storage scope, triggering the scope from the signal and using the averaging mode in the scope works. You have to fiddle the frequency a bit to get the minimum noise in the sum.

You can make a simple commutating filter using a CD4052, if you can create two squarewaves at the signal frequency, with a 90 degree phase relationship:

```
Scope
!----- C2A
!! X0 !-----!!--GND
C1 R1 !!! C2B
Vi-!!-^/\-+---!In X1 !-----!!--GND
!!
SQR0---!A X2 !-----!!--GND
SQR90--!B !
!en X3 !-----!!--GND
-----
```

You get a steppy waveform on the scope. The nice thing is that the phase between the sine wave and the squarewaves doesn't matter much. You calibrate by hooking Vi to the function generator. You pick off the voltages for (T0 and T180) and (T90 and T270).

The R1,C1 time constant should be low enough to let the desired signals through. R1 needs to be large enough that the currents in the 4052 are kept below about 1mA.

The R1,C2 time constant should be long.

 kensmith@xxxxxxxxx forging knowledge

- **References:**

- ◆ [SMPS with two control loops](#)

- ◇ *From:* Adam S

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