Re: How inaccurate is a 555 or 7555 REALLY?

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- *From*: John Fields <jfields@xxxxxxxxxxxxxxxxxxxx>
- *Date*: Sat, 09 Dec 2006 08:22:45 −0600

On 8 Dec 2006 23:02:13 −0800, bill.sloman@xxxxxxxx wrote:

> Don't be silly. First you libel me, then you claim it is up to me to
> prove that your unsupported libel is false.

−−−
If it is, you should be able to prove it.

The reason I don't want to go slogging through your stuff is because when I did present you with evidence you'd claim that what I found was taken out of context or that it wasn't what you meant, or any number of other excuses to try to get out of it.

The other reason I don't want to go slogging through your stuff is that I just don't have the stomach for it.
−−−

> You haven't raised the stakes at all − the electron beam
> microfabricator included a laser driven inteferometric stage
> positioning system, and hardware to map arbitrarily scaled data
> defining the inegrated circuit masks to be written onto the
> interoferometer measurements. We did fall short of full generality by
> assuming that the wafer/mask to be written was within two degrees of
> being square to the interferometer designed grid, but our customers
> assured us that that was all the tolerance we needed.
>
> Our electron beam provided better resolution than your
> photolithographuc system ever could, and was doing write on the fly. I
> think you have just een comprehensively trumped.

−−−
Actually, it sounds pretty much like what we were doing, which was writing patterns generated on a CAD system directly onto an alumina

wafer by ablating its surface with a laser. We also used a laser interferometer to get the stage's position, which in our case was a shuttle driven pneumatically back and forth, with the interferometric data being used to get data from memory which was to be written at that position.
−−−

or a stroboscopic electron microscope.

> −−−
> That doesn't sound like such a big deal. What? a couple of detectors instead of just one, maybe two beams? Steering magnetics? Duck soup!
> −−−

Not if you want 0.5nsec wide stroboscopic pulses (which required an electrostatic beam−blanking system − albeit the boss would not spring for the wide−voltage range version on which I'm named as the inventor. Magnetic beam blanking is nice − we used it on the old EBMF 10.5 electron microfabricator − but it won't go sub−nanosecond nor anywhere near it.

In fact the interesting part of that system, which I first proposed in 1983 (too late to have qualified for a patent) was the "multiple flash per cycle" feature. We could keep track of up to 1024 phase points, and build up our waveform/image at the 25MHz sampling rate of the system (it should have been faster, but we started off with an unrealistic completion date which created a lot of problems) rather than the repeat cycle of the process we were following.

And we didn't need two detectors − a sing;e relatively fast Everhart−Thornley detector above the final lens did everything we needed. The fast−focussed photo−multiplier tube did need a fast output amplifier, which incorporated an analog finite−impulse response filter built around a lumped constant delay line − a trick I've recycled a few times since then.

Great fun, but I don't know anybody who would describe it as "duck soup" once they understood what was going on.

−−−
Yup, sounds neat.
−−−

> Not a place for a 555−addict.
>
> −−−
> You sure do seem to harp a lot on that anti−555 crap.
>
> Too bad you were never successful in using it in any of your designs, (even though it's very easy to use) since if you had been you might actually appreciate Camendzind's genius.

It never did what I wanted done.

−−−
I suspect that's because there was always some reason you could come up with why it was never satisfactory. Probably because you considered it to be so far beneath your lofty designs that you'd have nothing to do with it.
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> If nothing else,
> I think the use of the ratiometric voltage divider in order to largely eliminate variations in output timing WRT supply voltage and temperature variations was brilliant, as was the window detector placed at the 1/3Vcc and 2/3Vcc taps of the divider.

That isn't exactly genius. Anyone whio can do enough calculus to find minimum sensitivity conditions can demonstrate the same genius on a wide variety of circuits. I spent a lot design time doing this on various resistor networks when I was younger and doing serious analog design.

Camenzind did come up with a great circuit for its time, but the combination of crummy timer and crummy saturating switch didn't have much to offer by 1974, when I might have used it, and has had even less appeal since (except to people who are bit slow to learn new tricks − when are you going to get into PLDs?).

−−−
If you mean use them, then when I need to, if ever. They just don't excite me very much and I've always been able to do what I needed to without them using cheap, easily obtained parts, so what's the big deal. I notice from an earlier post that you're itching to get your hands on some of Xilinx's stuff but you're waiting for an "opportunity" to come along? Why not just buy what you need and get started.
−−−

> YMMV, but I think you kind of begrudge him his success because you think you're ever so much smarter than he is and yet...

> I don't begrudge Hans Camenzind his success. Try to find some evidence to support that daft allegation.

Just a feeling...

> I"ve also got no reason to suppose that I'm smarter than Hans Camenzind, nor have I ever made any such ridiculous claim.\

How about the: "That isn't exactly genius."... paragraph above?

You seem to be setting yourself up as a judge of what constitutes genius and what doesn't, thereby putting yourself above him by declaring his work "not genius". Strangely, what I said was that it was "brilliant". The "genius" part was in a different context.

> You don't seem to have a particulary secure grasp of reality, do you.

Not according to you, but then I always keep a saltshaker around whenever I read your stuff.

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JF
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