

## Re: How inaccurate is a 555 or 7555 REALLY?

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*Source:* <http://sci.tech-archive.net/Archive/sci.electronics.design/2006-12/msg01747.html>

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- *From:* John Fields <jfields@xxxxxxxxxxxxxxxxxxxxxx>
  - *Date:* Thu, 07 Dec 2006 07:29:51 -0600
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On 6 Dec 2006 16:18:51 -0800, bill.sloman@xxxxxxxx wrote:

John Fields wrote:

On 5 Dec 2006 21:21:13 -0800, bill.sloman@xxxxxxxx wrote:

Phil Allison wrote:

<bill.sloman@xxxxxxxx>

John Fields:

Still  
hanging on  
to that  
pig-ignorant  
belief that a  
555 is a  
"bad"  
chip which  
no one  
should use  
because you  
won't? Even  
when it's  
the  
perfect  
candidate  
for the job?

It isn't a "bad" chip, but very  
rarely an acceptable  
candidate for any

Re: How inaccurate is a 555 or 7555 REALLY?

job in serious electronics these days. There was a thread about this here a while back, and the consensus was that most professional electronic engineers don't seem to be using it any more.

\*\* Funny how they sell over 1 billion examples each year then, isn't it ????

Not at all. Legacy designs, and land occasional legacy designer, like John Fields, are an entirely sufficient explanation.

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Hardly an "occasional" designer, what with designs from, say, 30, or 20, or 10 years ago that are still being manufactured and using up 555's like crazy? Nothing wrong with that, is there?

The designs could be smaller, cheaper, faster and more current-efficient with more modern designs and components,

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I guess you haven't heard that 555's have been available for some time in CMOS and in TSSOP? Maybe even smaller, check it out if you want to get current.  
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but manufacturers are extremely nervous about disrupting an existing production process. When I – briefly – worked for Chessell Recorders in the U.K. in 1979, their 100,000-ish per year pen recorder still used a six-transistor servo amplifier that blew up whenever the pen carriage stalled. Development had been wanting to replace it with something cheaper, smaller and stall-proof involving an op amp for years, but production wouldn't risk any change to their smooth-running production.

Eventually, the Eurotherm board shook up the Chessell management team – four of us resigned from Chessell's on the same day (purely by coincidence) and all got to talk to the chairman of the Eurotherm board. I hadn't been there long enough to say anything interesting, but

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others had been there longer ..

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Yawnnnnn...  
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Or legacy  
designers like me who know how to use a 555 to its best advantage  
for many purposes and have no qualms about using it if it's the  
device of choice?

Even if a slightly more broadly educated designer might have made  
another choice.

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Well, Bill, it doesn't take a genius to decide when a 555 is the  
device of choice, but it does take coming down from one's high horse  
and admitting that it is when one takes the position that a 555 will  
\_never\_ be used, no matter what.  
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Nothing wrong with that either. Especially  
since, unlike you, \_I'm\_ still a working designer. You might also  
have noticed that, unlike you, I post actual working designs here  
from time to time.

Yes. I've seen them. All very nostalgic. Your recent exercise with a  
4024 (the last post in this thread) reminds me of stuff I was doing in  
1974 with a 4040, though I didn't decode with three diodes and a  
resistor, even back then.

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Didn't know how? It's just an RDL AND...

lots cheaper than a whole 'nother chip for the decode. You may not  
have noticed, but the OP was pressed for space.

Yes, most of the requests in these groups are best fulfilled with  
older technology that will pretty much work regardless of the skill  
level of the querant.  
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Re: How inaccurate is a 555 or 7555 REALLY?

In terms of components, you should have been able to squeeze your design into a single CMOS 22V10 programmable logic chip. With something bigger but pin-compatible, like the ICT 7024 PEEL part – which is the most recent programmable logic part that I've had a chance to play with – you could probably have also fitted in Arlet's suggestion of dividing by 79 once in a while to get the average frequency closer to 420Hz, or divided down from David L. Jones 10.752MHz crystal and got exactly 420Hz.

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Using 10.752 is absurd, not only from the POV that the OP is a rookie and would probably never get a 10MHz oscillator running, but also because of the amount of dynamic power which the chip would have to dissipate, the need for the extra stage of division (another chip), and the lack of a requirement for frequency accuracy better than 0.1%.

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A more modern programmable logic part – like the Xilinx Coolrunner series – with in-system programming, 1.8V supply and some really compact packages – looks as if it would be even nicer, but I've not yet been able to contrive an excuse to play with one of these parts.

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You seem to be gravitating toward the "use a PIC" mentality when, for the OP's purpose, suggesting that he use anything he'd have to learn to program would be ridiculous. But that's never stopped you before, huh?

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Do you by any chance work for some kind of museum of technology, exhibiting your skills alongside the guys who make flint arrowheads?

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Strange that you should bring that up since I'm working on a flint-knapping machine which will obsolete making them by hand.

And, LOL, what makes you think a flint arrowhead won't kill you just as dead as a round from an M-16?

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JF

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