

# Re: Continuous Pulse–Width Measurement

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*Source:* <http://coding.derkeiler.com/Archive/General/comp.arch.embedded/2005-04/msg00680.html>

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- *From:* Spehro Pefhany <[speffSNIP@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:speffSNIP@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)>
  - *Date:* Mon, 25 Apr 2005 02:01:37 -0400
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On Sat, 23 Apr 2005 23:29:18 GMT, the renowned jawereq@xxxxxxxxxxxx wrote:

>Hi,  
>  
>I'm wondering if anyone knows of a microcontroller or some cheap hardware  
>in combination with a micro that can be used to continuously measure and  
>buffer all of the high and low pulse–widths of a binary signal. I'd like  
>to be able to buffer about 1000 16–bit width measurements in one shot.  
>  
>The catch is that the smallest pulse width measurable needs to be 700ns or  
>better (500ns would be nice). I've looked at using an input capture pin to  
>a 20MHz or faster auto–cleared timer in combination with a DMA controller  
>to transfer the captured pulse–widths to RAM, but all the transfer cycles  
>generally add up to well over 1 micro–second. The 20MHz timer gives  
>sufficient resolution, but the time to buffer the data is too long.  
>  
>Right now, the company I work for accomplishes this exact feat using an  
>ASIC. Together, the current ASIC and micro cost about \$7. Can the same be  
>done for less money, and possibly with a single chip?  
>  
>I appreciate anyone's suggestions on this problem.  
>  
>Thanks!

If the total cycle time (ton + toff) can be guaranteed to be at least some microseconds or longer you might be able to do it by using two counter–timer modules in some micros, but otherwise I think you're looking at programmable logic of some kind.

Best regards,  
Spehro Pefhany

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"it's the network..." "The Journey is the reward"

speff@xxxxxxxxxxxx Info for manufacturers: <http://www.trexon.com>

Embedded software/hardware/analog Info for designers: <http://www.speff.com>

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- **References:**

- ◆ **Continuous Pulse–Width Measurement**

- ◆ *From:* jawereq

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