Subject: Re: modulo reset
Posted by James Kuyper on Tue, 23 Nov 2004 18:51:30 GMT
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## Ralf Schaa wrote:

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- > I am reading binary data (not longer than 32 bit, and I store it in ULL
- > as suggested)
- > and the 'modulo reset' I talked about may appear at one datafield: that
- > is in an accumulated
- > "Doppler" cycle count.
- > By differentiating with respect to time, one can get the true doppler
- > count.

"Differencing", not "Differentiating". You differentiate a continuous function of time. For a discontinuously sampled function, you can't differentiate, you can only calculate finite differences.

- > Than the documentation says, when a modula reset occurs, add 2^32.
- > I think, this means when the counter is full and is starting with zero
- > again. than add the 2^32.
- > But I don't see what adding 2^32 exactly would do ...

Let's assume that the current cycle count is  $t0=2^32-5$ . 20 cyles later the true count would be  $2^32+15$ . However, because it reset at  $2^32$ , the actual number in the cycle count would be t1=15. If you calculate the time difference as dt=t1-t2 while storing the value in, for instance, a 64 byte integer or floating point type, then the dt will be  $t3-(2^32-5)=20-2^32$ . To get the correct number of cycles, you have to add in t3-20, leaving you with t3-20.