

Re: Simple/Fast Algorithm for binary logarithm in C (on ARM7)

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 - *Date:* Fri, 11 May 2007 11:35:35 GMT
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"Tilmann Reh" <tilmannreh@xxxxxxxxxxxxxxxxxxx> wrote in message
[news:464433e9\\$0\\$23133\\$9b4e6d93@xx](news:464433e9$0$23133$9b4e6d93@xx)

Hello all,

in a current ARM7 project I need to do some calculations which include a logarithm. All other math is done with integers (i.e. fixed point arithmetic), and I would like to calculate the log fast and with little code – so I don't prefer using FP conversion and the standard math libraries.

Can anyone point to fixed–point logarithmic routines I could use (resp. tailor to my needs)?

I had a need for log of an integer with the result fixed point. For fixed point input there is just a constant difference. I didn't hugely accurate results, but the results are better than I needed. Input was signed 32–bit integer and result was $\ln(x)$ as 32–bit fixed point with 24–bit fraction. $\log_{10}(x)$ was then obtained by scaling. There is no particular reason why the input can't be unsigned.

However, the method requires a 256–entry 32–bit int table, a 256–entry byte table and one integer divide :–(

I can't give out the source code because of copyright constraints but I'm happy to explain the algorithm.

Peter

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