Subject: Re: IDL FFT vs C benchmark?
Posted by Liam E. Gumley on Fri, 04 Feb 2000 08:00:00 GMT
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Myron Brown wrote:

> Hi. Has anybody done any benchmarking of IDL's
> FFT routines? They seem pretty fast, actually. I'm
> wondering how they compare to efficient C code.
> Perhaps someone has looked at fftpack or other
> efficient implementations of the FFT in C and compared
> them?

Check out
http://airs2.ssec.wisc.edu/~paulv/fft/fft_comparison.html

You might need to run the benchmarks on your platform. As I recall, IDL performed comparably to the FORTRAN version from Numerical Recipes.

If you have the energy, I'd be interested to see a comparison of IDL and FFTW
http://www.fftw.org/

Cheers,
Liam.
http://cimss.ssec.wisc.edu/~gumley

Subject: Re: IDL FFT vs C benchmark?
Posted by David McClain on Mon, 07 Feb 2000 08:00:00 GMT
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Actually, the IDL routines are pretty slow by comparison... More than two years ago I investigated their performance compared to the Intel Math Kernel Library and found that unlike the expected 2N log2 N for an NxN square image 2-D FFT, the IDL routines scaled as (N log2 N)^2 which implies a tree search on every butterfly operation. This appaling behavior was pointed out the RSI and they furnished the header comments from a Fortran reference that they used for their implementation. It appears that they sacrificed speed for the sake of arbitrary dimension FFT's. The Intel routines are strictly power of 2 but so what. I would rather have an interpolated transform to a power of 2 in size at expected speeds than to sacrifice performance due to poor scaling of the original problem.

We now use the Intel MKL routines wrapped in a multithreaded DLL to maximize parallel performance of FFT's. The speedup is remarkable indeed. On our old 4-processor Pentium Pro machine we reached speeds of 75 MButterflys/sec. Our newer multiprocessors exceed that by another factor of 2-5. By comparison,

we never saw the RSI routines exceed 7-10 MButterflys/sec.

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Myron Brown <Myron.Brown@jhuapl.edu> wrote in message
news:87engh$t1a$1@houston.jhuapl.edu...
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> efficient implementations of the FFT in C and compared
> them?
>
> Anyone have any idea?
>
> Thanks.
>
> Myron Brown
> Myron.Brown@jhuapl.edu
> JHU Applied Physics Laboratory
>
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