Subject: Re: Blazing FAST!!! FFT's for IDL
Posted by David McClain on Thu, 30 Mar 2000 08:00:00 GMT
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Correction, the 2-D scaling should have been reported as 2n^2 log2 n. FYI, 75 MButterflys/sec corresponds to 128^2 images undergoing 2-D FFTs at roughly video frame rates....

- DM

David McClain <dmcclain@azstarnet.com> wrote in message news:se64n3q1ni716@corp.supernews.com...
> I have some sources available on request to perform very, very, fast 1-D and
> 2-D FFT's, forward and inverse, single and double precision. The speed
> derives from a multithreaded manager written in C++ that calls on the Intel
> Math Kernel implementation of 1-D FFT's. It is multithreaded because we
> typically use dual and quad Pentium and Xeon machines. The manager code
> sniffs out how many processors you have and spawns worker threads to match.
> The arrays are then divied up between the different processor threads. The
> IDL interface is quite simple, consisting of some data prep code and a bunch
> of CALL_EXTERNAL's.
>
> We have been using this system for several years now. The Intel MKL expects
> arrays in power of 2 size, unlike IDL, but it runs roughly 10-100 times
> faster than IDL's routines the last time I checked about a year ago. It
> properly scales as n*log2 n for 1-D and 2n*log2 n for 2-D n square arrays
> (2-D arrays need not be square). IDL's routines scale quite dreadfully as
> something on the order of n^2 (log2 n)^2 which implies some kind of tree
> search on each Butterfly operation (???). Their routine is nice if you need
> arbitrary array sizes, but power of 2 can always be used anyway: the
> resulting spectrum is simply an interpolated spectrum at the intermediate
> frequencies.
>
> On an old quad-Pentium II machine running at 200 MHz, the FFTX routines in
> this package performed at roughly 75 MButterflys/sec. IDL ran about 3
> MButterflys/sec.
>
> If you are interested just drop me a line. The latest Intel MKL has been
> sped up to roughly twice its former speed (the speed tests quoted were
> performed on the old version of the MKL). It is available separately, and I
> believe, still free, from Intel Corp.

>
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