Subject: IDL performance and FFTs (was: call external speed)
Posted by roy.hansen on Wed, 16 Sep 1998 07:00:00 GMT
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Hi,

In article <Pine.SO4.4.03.9809141531430.9709-100000@sukak>,
Karl Krieger <kak@ipp.mpg.de> wrote:
>
> It really depends on the application. I wrote a LINKIMAGE wrapper for the
> FFTW package (http://theory.lcs.mit.edu/~fftw) and compared the speed to
> IDL's native FFT routine. The speed gain for single precision
> real->complex 2d transforms is about 2.5 on a SUN Ultra/170 and about 2.3
> on a Pentium/133 under WinNT, so it's really worth the effort if you want
> to do FFT of large data sets.
>

We did a small comparison of the FFT performance in IDL 5.1.1
compared with the Matlab 5.2 version for a PII-400 with Win-NT,
and found that Matlab was approx 4 times faster. We also found
that the FFT in IDL 5.1.1 was faster than in IDL 5.1 on an other
PII-400 with Win95.

This raises a few questions:

- Does there exist any optimized versions of IDL for the PII and
  PPro with W95 and Win-NT?

- Does anybody know what the performance gain is using an optimized
  version compared to the standard version?

- Is the IDL performance operating system dependent for the INTEL
  platform?

- What's the main differences of version 5.1.1 and 5.1 ?

- Are there any benchmarks of numerical performance for IDL
  compared to other software packages, like Matlab?

- If the FFTW (which is free) outperforms the native FFT in IDL,
  why don't RSI use that implementation? Is this a silly question?

- RoyH

Subject: Re: IDL performance and FFTs (was: call external speed)
Posted by krieger on Sat, 19 Sep 1998 07:00:00 GMT

In article <m2d88u8o9s.fsf@mailhost.neuroinformatik.ruhr-uni-bochum.de>, David Kastrup
<dak@mailhost.neuroinformatik.ruhr-uni-bochum.de> wrote:
> Karl Krieger <kak@ipp.mpg.de> writes:
>
>> BTW: I very much doubt if it's against the GPL to distribute code,
>> which refers to subroutine libraries under GPL as long as I do not
>> include these routines or a compiled binary.
>
> If the interface is unique to the GPL software, you are creating a
> derived work, as it is of no use without the GPL binary and is
> intended to link with it. The interface itself, however, is usually
> not considered copyrightable. So if you distribute a lousy
> implementation of fftw with the same interface along with your wrapper
> routines, one would have problems suing you in court.

Well, I hope the authors of FFTW or MIT as copyright owner won't sue
me for distributing some lousy wrapper routines for their excellent
library ;-) The only persons requesting that stuff so far were from
other research institutes without any commercial interests.

Karl

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Disclaimer: I do not speak for the IPP despite my mouth is big enough.

Subject: Re: IDL performance and FFTs (was: call external speed)
Posted by stevenj on Sat, 19 Sep 1998 07:00:00 GMT

menakkis@my-dejanews.com wrote:
> [...]
> They also state that the 2D FFT is multithreaded and will take advantage of a
> multiprocessor environment if you want it to, and - the tantalising part -
> that this will work even if your program (that calls their lib) is
> single-threaded. [...]

Incidentally, FFTW has multi-threaded routines, too, which can also be
called from a single-threaded application. (You just pass as a parameter
the number of threads you want them to use.) As far as I know, though,
FFTW hasn't been benchmarked against the Intel libraries, so I don't know
how they compare. (Anyone who's interested can download the benchFFT
application from http://theory.lcs.mit.edu/~benchfft, and add the Intel
routines to the benchmark.)

(Actually, Intel has two completely independent FFT libraries--one in their

Math Kernel Library, and one in their Signal Processing Library.)

Cordially,
Steven G. Johnson
