Subject: Re: Why not have double precision complex? (Was: FFT accuracy)
Posted by dale on Thu, 23 Apr 1992 21:31:55 GMT
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> In article <1992Apr20.172439.11546@colorado.edu>, ali@anchor.cs.colorado.edu
> (Ali Bahrami) writes...
>
>> ...A double-precision FFT would, of course, provide better accuracy, but
>> is not provided because there is no double precision complex data
>> type.
>
> Well, that raises a good question. Why isn't there a double precision complex
> data type? I've always wondered why that is.

It seems the reason there isn't uniform support of double complex is that
it hasn't been in a standard, i.e. until now. The Fortran 90 standard
ISO/IEC 1539 (1991) has the following:

> 4.3.1.3 Complex type
>
> The complex type has values that approximate the mathematical complex
> numbers. The values of a complex type are ordered pairs of real values.
> The first real value is called the real part, and the second real value
> is called the imaginary part.
>
> Each approximation method used to represent data entities of type real
> must be available for both the real and imaginary parts of a data entity
> of type complex.

In "Fortran 90 Explained" by Michael Metcalf and John Reid, 1990, Oxford
Science Publications, on page 18 section 2.6.2 Real Literal Constants
is stated: "The processor must provide at least one representation with
more precision than the default, and this second representation may also
be specified as DOUBLE PRECISION."

The implication of these two references is that Fortran 90 is a standard
that definitely specifies double precision complex.

Dale

Have a good day!

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