
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!

Dale L. Neaderhouser dale@imsl3.imsl.com FAX: 713-242-9799
Senior Software Engineer uunet!imsl!dale IMSL: 713-242-6776
Post Sales Technical Support: 800-324-4675 Sales: 800-222-4675
