Subject: double precision complex #s
Posted by psharer on Thu, 13 Apr 1995 07:00:00 GMT
View Forum Message <> Reply to Message

I am using the complex declaration for an array of complex numbers,
but am running into a problem with floating point overflows in a
polynomial calculation. Does anyone know of a way to create a complex
variable with double precision?

Thanks for your help,

Peter Sharer

Subject: Re: double precision complex #s
Posted by agraps on Sun, 16 Apr 1995 07:00:00 GMT
View Forum Message <> Reply to Message

psharer@eos.arc.nasa.gov (Peter J. Sharer) writes:

> I am using the complex declaration for an array of complex numbers,
> but am running into a problem with floating point overflows in a
> polynomial calculation. Does anyone know of a way to create a complex
> variable with double precision?

> Thanks for your help,

> Peter Sharer

Peter,

Try handling the real and imaginary parts this way (it's
convoluted, but it works :) )

```
IDL> a = [1,2,3]
IDL> b = [4,5,6]
IDL> c = complex(a,b)
IDL> print, c
(      1.00000,      4.00000)(      2.00000,      5.00000)(      3.00000,
6.00000)
```

To get double precision reals, use some of the rules of complex algebra,

```
IDL> print,  double(abs((c+conj(c))/2.0))
       1.0000000       2.0000000       3.0000000
```

To get double precision imaginary, use idl's imaginary function,

```
IDL> print, double(imaginary(c))
      4.0000000      5.0000000      6.0000000
```

(There are more zeros than what's being printed here, but you get the
idea.)

Amara

--


 ********** **********

Amara Graps email: agraps@netcom.com
Computational Physicist vita: finger agraps@sunshine.arc.nasa.gov
Intergalactic Reality URL: http://www.best.com/~agraps/agraps.html

 ********** **********


"The map is not the territory." --Alfred Korzybski

---

Subject: Re: double precision complex #s
Posted by agraps on Mon, 17 Apr 1995 07:00:00 GMT
View Forum Message <> Reply to Message

thompson@orpheus.nascom.nasa.gov (William Thompson) writes:

>> (There are more zeros than what's being printed here, but you get the
>> idea.)

> Uhhh, sorry to disappoint you, but simply taking a single precision number and
> converting it to double precision does not mean that it has double precision
> accuracy.

> Fear not, IDL v4.0 will have a DCOMPLEX data type.

> Bill Thompson

Yes, of course, but that's not what I was saying. Since I didn't know
where Peter's use of complex numbers were coming in for his calculation,
I was just offering a way for him to manipulate the real and imaginary
components in double precision separately (It'd be better to avoid the
complex stuff altogether.).

Amara
--


 ********** **********

Amara Graps email: agraps@netcom.com

Computational Physicist vita: finger agraps@sunshine.arc.nasa.gov
Intergalactic Reality URL: http://www.best.com/~agraps/agraps.html
********** **********

"I don't make jokes- I just watch the government and report the facts."
-- Will Rogers

---

Subject: Re: double precision complex #s
Posted by thompson on Mon, 17 Apr 1995 07:00:00 GMT
View Forum Message <> Reply to Message

agraps@netcom.com (Amara Graps) writes:

> psharer@eos.arc.nasa.gov (Peter J. Sharer) writes:

>> I am using the complex declaration for an array of complex numbers,
>> but am running into a problem with floating point overflows in a
>> polynomial calculation. Does anyone know of a way to create a complex
>> variable with double precision?

>> Thanks for your help,

>> Peter Sharer

> Peter,

> Try handling the real and imaginary parts this way (it's
> convoluted, but it works :) )

> IDL> a = [1,2,3]
> IDL> b = [4,5,6]
> IDL> c = complex(a,b)
> IDL> print, c
> ( 1.00000, 4.00000)( 2.00000, 5.00000)( 3.00000,
> 6.00000)

> To get double precision reals, use some of the rules of complex algebra,

> IDL> print, double(abs((c+conj(c))/2.0))
> 1.0000000 2.0000000 3.0000000

> To get double precision imaginary, use idl's imaginary function,

> IDL> print, double(imaginary(c))
> 4.0000000 5.0000000 6.0000000

> (There are more zeros than what's being printed here, but you get the

> idea.)

Uhhh, sorry to disappoint you, but simply taking a single precision number and converting it to double precision does not mean that it has double precision accuracy.

Fear not, IDL v4.0 will have a DCOMPLEX data type.

Bill Thompson

---