
Subject: Re: data types

Posted by [Nigel Wade](#) on Thu, 01 Feb 2001 14:01:20 GMT

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graham_wilson@my-deja.com wrote:

>

> I'm trying to compile a short listing of data types for converting

> between F77, C, and IDL.

>

> Below is a listing of what I have but note that I have not filled in all

> of the IDL column. Any and all comments/help is appreciated and my

> apologies to those of you who don't use fixed fonts for reading mail.

>

> F77 type C type IDL type Size

> (bytes)

> -----

> byte x char x byte 1

> character x char x byte 1

> character*n x char x[n] bytearr(n) n

>

> complex x struct {float r, i;} x ? 8

> complex*8 x struct {float r, i;} x ? 8

> double complex x struct {float dr, di;} x ? 16

> complex*16 x struct {float dr, di;} x ? 16

> complex*32 x struct {float dr, di;} x ? 32

>

> double precision x double double 8

> real x float x float 4

> real*4 x float x float 4

> real*8 x double x double 8

> real*16 x long double x ? 16

>

> integer x int x long 4

> integer*2 x short x fix 2

> integer*4 x int x long 4

> integer*8 x long long int x ? 8

>

> logical x int x long 4

> logical*1 char x byte 1

> logical*2 short x fix 2

> logical*4 int x long 4

> logical*8 long long int x ? 8

>

> NB: I'm assuming that there are no fancy compiling options given to

> change the alignment or the default sizes.

>

> Such a list would be useful as an appendix in one of those IDL books we

> keep hearing about (better still if it had the byte alignment for

> sparc/intel/powerpc/dec/mips...) :p
>
> Sent via Deja.com
> <http://www.deja.com/>

IDL's COMPLEX type will match a C struct {float r; float i; } provided a C float is the same as a float in IDL and there is no padding inserted by the C compiler. DCOMPLEX should match struct { double r; double i}. AFAIK IDL does not have a 64 bit float. It does now have LONG64 which should match your integer*8 and long long int.

Your double complex, complex*16 and complex*32 would appear to be inconsistent with your normal complex. Two floats cannot be 8, 16 and 32 bytes!

You don't say which platform your table is for. As I am sure you are aware

ANSI C places very few restrictions on the sizes of the basic types, and no restriction on padding within structures. So you need to be very specific in saying for what platform/compiler/compiler-defaults the values are valid.

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