

If Floating Point Numbers Don't Display Right

Many compilers (and/or their included support libraries) have trouble correctly rounding floating point values when converting them to ASCII representations (e.g., when printing them out using `printf()` or other standard I/O or stream I/O functions). Unfortunately, Symantec's C and C++ compilers for the Macintosh and MetroWerk's CodeWarrior compilers fall into this category. For example, if use Symantec's THINK C and enter 1.21 as the single precision floating point value in the test program provided, the number that displays back is 1.21000004 instead of 1.21. This is not due to any error in Mac F2C or in the Mac F2C support libraries. The problem arises because the `printf()` function in Symantec's ANSI library is inaccurate. Note that Symantec's compilers appear to have trouble only with single precision values. Symantec's `printf()` family of functions appears to handle double precision values correctly.

Note that in every case the internal value used in computation is correct (as you can verify using the debugger). However, **if you have access to your compiler's ANSI library source code**, you can correct this problem. The folder Fixing Floating Point Output (found in the Mac F2C Extras folder) contains two files (`dtoa.c` and `g_fmt.c`) that have the code you need to correctly display floating point values.

The functions in these two files replace the `strtod()` and `dtoa()` functions in the ANSI library supplied by your compiler vendor. For 68K Macintoshes, be sure to `#define IEEE_MC68k`. I don't know enough about the PowerPC to provide guidance in that case.

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