Subject: Re: DOUBLE precision no precise??
Posted by Vincent Schut on Tue, 05 Mar 2002 13:01:35 GMT
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David Williams wrote:
> I've always had heaps of help from the inhabitants of this newsgroup --
> for which I am eternally grateful -- despite my often stupid questions.
> So, when a mate of mine came across this `quirk' yesterday, and I wasn't
> sure how to help him out, I thought I'd ask this group.
>
> He has an array of numbers that he wants to apply a user-defined
> function to, but we're both a little disturbed by the fact that if you
> do the calculations with a pocket calculator, you get different numbers
> than if you perform the same calculation in IDL.
>
> To try and find where the problem is, we tried the following lines...
>
> IDL> a = DOUBLE(42766.080001)
> IDL> print,a,FORMAT='(F24.17)'
>
> 42766.07812500000000000
>
> As you see, the number we get out isn't the same as the number we
> entered. I'm guessing it's to do with the way IDL stores numbers in
> memory, but my understanding of low-level computational processes isn't
> great.
>
> Can anybody help me understand what's going on, and/or if there's a way
> around? I'd really appreciate whatever help is on offer, so thanks in
> advance.
>
>
> Dave
>
> -- ---------
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> == =========

I'm no expert on math precision, but I think that this is a known 'problem', caused by the different possible ways to store floating point precision data. (For example, different C++ compilers also give different values for a double precision float constant of pi, nice eh? :-)) It might help to read the idl help section called 'accuracy & floating point operations', as a start. Maybe others in the group can give you a more specific answer, though.

cheers,
Vincent.