Subject: Re: CalDat
Posted by m.hadfield on Tue, 15 May 2001 22:09:10 GMT
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"Ben Tupper" <pemaquidriver@tidewater.net> wrote in message
news:3B017E66.BD5C9F6D@tidewater.net...
> As single precision:
>
> IDL> CALDAT, 2529161.36, Month, Day, Year, Hour,
> Minute, Second
> IDL> PRINT, Month, Day, Year, Hour, Minute, Second
> 7 4 2212 18
> 0 0.00000000
>
> As double precision:
>
> IDL> CALDAT, 2529161.36d, Month, Day, Year, Hour,
> Minute, Second
> IDL> PRINT, Month, Day, Year, Hour, Minute, Second
> 7 4 2212 20
> 38 23.999989

I get the same results on my machine (which is not surprising as it's the same IDL version). But what about this:

CALDAT, double(2529161.36), Month, Day, Year, Hour, Minute, second
print, Month, Day, Year, Hour, Minute, second
; 7 4 2212 18 0
0.00000000

i.e. CALDAT gives the same result for double(2529161.36) as it does for 2529161.36.

If you look inside CALDAT you will see that there is no difference in the way it handles floats and doubles, and also that its constants are doubles and longs. So for most purposes a float argument is promoted to double in the calculation.

I suggest that there is nothing wrong with CALDAT, but that floats have inadequate precision to represent Julian dates. The following shows that they are only accurate to ~0.3 days.

ma = machar() & print, 2529161.36*ma.eps
; 0.301500

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