
Subject: Re: problems with FFT cross spectra and other floating point operations

Posted by [hatay](#) on Thu, 17 Dec 1992 17:33:44 GMT

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In article <1992Dec17.030946.4899@news.media.mit.edu> steve@media.mit.edu (Steve Mann) writes:

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>  
> I also noticed that when I subtract the DC from an image, and then do  
> an FFT, the element af(0,0) is not always zero. In fact, as the image  
> gets bigger, I get values further and further from zero. For a 256 by 265  
> image, the DC spike in the Fourier domain is so high that I can't see  
> anything else in shade_surf,abs(af) or tvscl,abs(af).  
>  
> I wrote this little script which shows the accumulation of excess DC:  
> -----  
> ; when I set N=91 or less, I get zero as expected.  
> ; when I set N=92 or more, I get a non-zero DC value in fft.  
>  
> N = 100; size of square array  
> q=findgen(N)#findgen(N); create some arbitrary square array  
> ;Subtract the DC component  
> w=float(q)-norm(q,/one)/float((size(q))(1))/float((size(q))( 2))  
> wf = fft(w,1);    Fourier transform of w  
> print,wf(0,0);    The DC component should be zero now.  
> ;I dont know why it is not zero.
```

I was under the impression that the FFT routines in IDL and WAVE are basically one-dimensional-complex FFT routines. Please, forward me info if this is wrong.

I have played with one-d arrays of size 100-500 on IDL. here is the script:

```
IdlMaster> N=100  
IdlMaster> q = findgen(N)  
IdlMaster> w = q-total(q)/float(N)  
IdlMaster> wf=fft(w,1)  
IdlMaster> print,wf(0,0)  
( 0.00000, 0.00000)  
IdlMaster> print,total(w),total(q)  
0.00000 4950.00  
  
IdlMaster> N=500  
IdlMaster> q = findgen(N)  
IdlMaster> w = q-total(q)/float(N)
```

```
IdlMaster> wf=fft(w,1)
IdlMaster> print,wf(0,0)
( 0.00000, 0.00000)
IdlMaster> print,total(w),total(q)
0.00000 124750.
```

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Ferhat F. Hatay || Disclaimer: ||
Aerospace Engineering Sciences || I speak for myself unless ||
University of Colorado, Boulder || otherwise indicated. ||
e-mail: hatay@spot.colorado.edu ||

Subject: Re: problems with FFT cross spectra and other floating point operations
Posted by [hatay](#) on Thu, 17 Dec 1992 17:46:22 GMT
[View Forum Message](#) <> [Reply to Message](#)

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IdlMaster> q = findgen(N)
IdlMaster> w = q-total(q)/float(N)
IdlMaster> wf=fft(w,1)
IdlMaster> print,wf(0,0)
( 0.00000, 0.00000)
IdlMaster> print,total(w),total(q)
0.00000 4950.00
```

```
IdlMaster> N=500
IdlMaster> q = findgen(N)
IdlMaster> w = q-total(q)/float(N)
IdlMaster> wf=fft(w,1)
IdlMaster> print,wf(0,0)
( 0.00000, 0.00000)
IdlMaster> print,total(w),total(q)
0.00000 124750.
```

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Ferhat F. Hatay          || Disclaimer: |||
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