DITFFT OF N=8

PROGRAM:

x=[1 2 3 4 5 6 7 8];

N=length(x);

levels=nextpow2(N);

xn=[x,zeros(1,(2^levels)-N)];

x=bitrevorder(xn);

N=length(xn);

tw=cos(2\*pi\*(1/N)\*(0:N/2-1))-j\*sin(2\*pi\*(1/N)\*(0:N/2-1));

for level=1:levels;

L=2^level;

twlvl=tw(1:N/L:N/2);

for k=0:L:N-L;

for n=0:L/2-1;

A=x(n+k+1);

B=x(n+k+(L/2)+1)\*twlvl(n+1);

x(n+k+1)=A+B;

x(n+k+(L/2)+1)=A-B;

end

end

x

end

XK=x

n=0:N-1;

subplot(2,2,1);stem(n,xn);title('x(n)');xlabel('n');ylabel('Amplitude');

subplot(2,2,2);stem(n,real(XK));title('Real part of X(K)');xlabel('n');ylabel('Amplitude');

subplot(2,2,3);stem(n,imag(XK));title('Imag part of X(K)');xlabel('n');ylabel('Amplitude');