

/\*main.c file\*/

```
#include <stdio.h>
#include <conio.h>
#include "macro1.h"

int main (void)
{
FILE *fpr,*fpi,*fpr1,*fpi1;
short var=0; //used for TOFLT
double var1; //used for TOFLT

short var2; //used for TOFIX
double var3; //used for TOFIX

int q,q2,type;
char ch;
long i=0;
q2=12; //Q format if u need to convert to and store in the file
printf("Pl.enter Q format:");
scanf("%d",&q);
printf("Enter 1 for FLT-FIX and 2 for FIX-FLT conversion:");
scanf("%d",&type);

fpr=fopen("real_in.txt","r");
fpi=fopen("imag_in.txt","r");

fpr1=fopen("real_out.txt","w");
fpi1=fopen("imag_out.txt","w");

while(1)
{
    ch=fgetc(fpr);
    if(type==1)
    {
        fscanf(fpr,"%lf",&var3);
        var2=TOFIX(var3,q);
        //FCONV(var2, q, q2)
        fprintf(fpr1,"%d\n",var2);
        if(ch==EOF)
            break;
        i=i+1;
    }
    else if(type==2)
```

```
{
    fscanf(fpr,"%d",&var);
    var1=TOFLT(var,q);
    fprintf(fpr1,"%f\n",var1);
    if(ch==EOF)
        break;
    i=i+1;
}
else
    printf("wrong type");
}

while(1)
{
    ch=fgetc(fpi);
    if(type==1)
    {
        fscanf(fpi,"%lf",&var3);
        var2=TOFIX(var3,q);
        //FCONV(var2, q, q2)
        fprintf(fpi1,"%d\n",var2);
        if(ch==EOF)
            break;
    }

    else if(type==2)
    {
        fscanf(fpi,"%d",&var);
        var1=TOFLT(var,q);
        fprintf(fpi1,"%f\n",var1);
        if(ch==EOF)
            break;
    }
    else
        printf("wrong type");
}

printf("I/Q packet length=%d",i);
return 0;
}
```

*\*/macro1.h header file\*/*

*/\* convert a from q1 format to q2 format \*/*

**#define FCONV(a, q1, q2) (((q2)>(q1)) ? (a)<<((q2)-(q1)) : (a)>>((q1)-(q2)))**

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```
/* convert to and from floating point */  
#define TOFIX (d, q) ((int) ((d)*(double) (1<< (q))))  
#define TOFLT (a, q) ((double) (a) / (double) (1<< (q)))
```