

```

1 /* blurSoso.c */
2 #include <stdio.h>
3 #include <malloc.h>
4 #include <sys/time.h>
5 #include <time.h>
6 #define M 1024
7 #define N 1024
8 int main( void )
9 {
10     FILE      *fpr,*fpw;
11     unsigned char  *ip, *ipi, *ipib, *ipif;
12     double      sum, mean;
13     int         bip, i, j;
14     double      ts, te, etimeClock, etimeGettimeofday;
15     clock_t     start, finish;
16
17     double gettimeofday_sec()
18     {
19         struct timeval tv;
20         gettimeofday(&tv, NULL);
21         return tv.tv_sec + (double)tv.tv_usec*1e-6;
22     }
23
24     ip  = (unsigned char *)malloc( N*M );
25
26     /* NOTE!! ( j: suffix for vertical direction,
27                i: suffix for horizontal direction ) */
28
29     fpr = fopen("myareaNew.gray","rb");
30     fpw = fopen("blurSoso.gray","wb");
31
32     start=clock();
33     ts = gettimeofday_sec();
34     fread(ip, M*N*sizeof(unsigned char), 1, fpr);
35
36     ipib= ip;
37     ipi =(ip+M);
38     ipif=(ip+2*M);
39     for (j=1; j < N-1; j++){
40         sum =0.000;
41         mean=0.000;
42         for (i=1; i < M-1; i++){
43             sum =ipib[i-1]+ipi[i-1]+ipif[i-1];
44             sum+=ipib[i ]+ipi[i ]+ipif[i ];
45             sum+=ipib[i+1]+ipi[i+1]+ipif[i+1];
46             sum = sum/9.0;
47             mean=(int) (sum + 0.5);
48             bip=mean;
49             if (bip > 255) bip = 255;
50             if (bip < 0 ) bip = 0;
51             fputc(bip, fpw);
52         }
53         ipib+=M;
54         ipi +=M;
55         ipif+=M;
56     }
57     te = gettimeofday_sec();
58     finish=clock();
59
60     etimeGettimeofday = te - ts;
61     etimeClock=(double) (finish-start)/CLOCKS_PER_SEC;
62     printf("elapse time: %lf seconds (%lf precise sec.)\n", etimeClock, etimeGettimeofday);
63
64     fclose(fpr);
65     fclose(fpw);
66 }

```