

CSAPP PJ3-code optimization补充说明

如下图所示，大家在进行程序优化实验之前，需要先评估一个自己电脑的baseline（和电脑硬件有关），然后替换掉./perflababout/config.h中关于baseline的宏定义。左边图片中方框里面的值就是大家用自己电脑跑出来的baseline值，右边是程序预定义的baseline值，大家需要根据自己电脑的实际情况进行替换。

```
fdu-cy@ubuntu:~/Desktop/perflab-handout$ ls
clock.c config.h driver.c fcyc.h Makefile
clock.h defs.h fcyc.c kernels.o README
fdu-cy@ubuntu:~/Desktop/perflab-handout$ make
gcc -Wall -O2 -m32 -c -o driver.o driver.c
gcc -Wall -O2 -m32 -c -o kernels.o kernels.c
gcc -Wall -O2 -m32 -c -o fcyc.o fcyc.c
gcc -Wall -O2 -m32 -c -o clock.o clock.c
gcc -Wall -O2 -m32 driver.o kernels.o fcyc.o clock.o -lm -o driver
fdu-cy@ubuntu:~/Desktop/perflab-handout$ ./driver
Teamname: your UIS ID
Member 1: your UIS ID
Email 1: your email

Rotate Baseline
Rotate: Version = naive_rotate: Naive baseline implementation:
Dlm      64      128      256      512      1024      Mean
Your CPEs 1.4      2.8      3.9      7.4      7.7
Baseline CPEs 2.0      2.9      5.2      8.6      11.5
Speedup    1.4      1.4      1.3      1.2      1.6      1.4

Rotate: Version = rotate: Current working version:
Dlm      64      128      256      512      1024      Mean
Your CPEs 1.7      2.9      3.6      7.8      7.0
Baseline CPEs 2.0      2.9      5.2      8.6      11.5
Speedup    1.2      1.0      1.4      1.1      1.6      1.2

Smooth Baseline
Smooth: Version = smooth: Current working version:
Dlm      32      64      128      256      512      Mean
Your CPEs 40.2      42.1      42.3      42.6      42.0
Baseline CPEs 41.0      41.0      41.0      41.0      41.0
Speedup    1.0      1.0      1.0      1.0      1.0      1.0

Smooth: Version = naive_smooth: Naive baseline implementation:
Dlm      32      64      128      256      512      Mean
Your CPEs 39.5      41.2      41.5      42.0      43.0
Baseline CPEs 41.6      41.6      41.6      41.6      41.6
Speedup    1.1      1.0      1.0      1.0      1.0      1.0

Summary of Your Best Scores:
Rotate: 1.4 (naive_rotate: Naive baseline implementation)
Smooth: 1.0 (naive_smooth: Naive baseline implementation)
```

```
C config.h x
C:\Users\FDU_CY\Desktop>perflab>perflab-handout>C config.h>...
1  /*
2  * config.h - Configuration data for the driver.c program.
3  */
4  #ifndef _CONFIG_H_
5  #define _CONFIG_H_
6
7  /*
8  * CPEs for the baseline (naive) version of the rotate function that
9  * was handed out to the students. Rd is the measured CPE for a dxd
10 * image. Run the driver.c program on your system to get these
11 * numbers.
12 */
13 #define R64      2
14 #define R128     2.9
15 #define R256     3.9
16 #define R512     7.4
17 #define R1024    7.7
18
19 /*
20 * CPEs for the baseline (naive) version of the smooth function that
21 * was handed out to the students. Sd is the measure CPE for a dxd
22 * image. Run the driver.c program on your system to get these
23 * numbers.
24 */
25 #define S32     40.2
26 #define S64     42.1
27 #define S128    42.3
28 #define S256    42.6
29 #define S512    42.0
30
31 #endif /* _CONFIG_H_ */
```

PS：原本是打算让大家用同一台服务器做程序优化实验的，这样大家的baseline就是一样的，就不用大家修改config.h中的宏定义，但是由于疫情关系没办法为大家布置服务器，所以就要让大家手动修改一下宏定义。