

# 12

1X22B138 12

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program122.c

```
#include <stdio.h>
#include <time.h>

int main(void){
    clock_t start, end;
    unsigned int port;
    long long i;
    //volatile long long i;

    start = clock();
    printf("start:%ld\n", start);

    port = 1U;
    for(i=0;i<500000000;i++)
        port = 0U;

    end = clock();
    printf("end:%ld\n\n", end);
    printf("time=%ld[cpu],%lf[s]\n", end-start,(double)(end-
start)/CLOCKS_PER_SEC);
    return 0;
}
```

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```
masuda@DESKTOP-JOV4TPA:~/work/C_intermediate/src$ ./program122
start:847
end:13334
time=12487[cpu],0.012487[s]
```

program122\_a

```
#include<stdio.h>
#include<time.h>

int main(void){
    clock_t start, end;
    unsigned int port;
    volatile long long i;

    start = clock();
    printf("スタート:%d\n", start);

    port = 1U;
    for(i=0;i<5000000000;i++)
        port = 0U;

    end = clock();
    printf("終了:%ld\n\n", end);
    printf("経過=%ld[cpu周波数],%lf[s]\n", end-start, (double)(end-
start)/CLOCKS_PER_SEC);
    return 0;
}
```

実行

```
masuda@DESKTOP-JOV4TPA:~/work/C_intermediate/src$ ./program122_a
スタート:746
終了:195671
経過=194925[cpu周波数],0.194925[s]
```

考察

- CPUのクロック周波数
- movl 指令
- memset 指令
  - volatile フラグ
  - #pragma 指令
- memset の初期値