课外阅读资料之三：CLOCK()函数的使用说明和实例

1. 使用 CLOCK()函数可以用来测试某程序执行的耗时时间。具体方面见下面说明。

2. CLOCK()函数的使用说明

Calculates the wall-clock time used by the calling process.

```
clock_t clock( void );
```

Return Value

The elapsed wall-clock time since the start of the process (elapsed time in seconds times **CLOCKS_PER_SEC**). If the amount of elapsed time is unavailable, the function returns –1, cast as a **clock_t**.

Remarks

The **clock** function tells how much time the calling process has used. A timer tick is approximately equal to 1/**CLOCKS_PER_SEC** second. In versions of Microsoft C before 6.0, the **CLOCKS_PER_SEC** constant was called **CLK_TCK**.

Requirements

Routine	Required header
clock	<time.h>

For additional compatibility information, see Compatibility in the Introduction.

3. 使用实例（Example）

```
// crt_clock.c
// This example prompts for how long
// the program is to run and then continuously
// displays the elapsed time for that period.
//
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

void sleep( clock_t wait );

int main( void )
{
```

```
   long    i = 6000000L;
   clock_t start, finish;// clock_t 实际上是 long int 类型
   double  duration;

   // Delay for a specified time.
   printf( "Delay for three seconds\n" );
   sleep( (clock_t)3 * CLOCKS_PER_SEC );//设置 CPU 睡眠时间或说空转时间
   printf( "Done!\n" );

   // Measure the duration of an event.
   printf( "Time to do %ld empty loops is ", i );
   start = clock();
   while( i-- )
      ;
   finish = clock();
   duration   =   (double)(finish   -   start)   /   CLOCKS_PER_SEC;//
CLOCKS_PER_SEC 是系统定义宏，CLOCK()获得是“tick”数，除以该宏得到秒数
   printf( "%2.1f seconds\n", duration );
}

// Pauses for a specified number of milliseconds.
void sleep( clock_t wait )
{
   clock_t goal;
   goal = wait + clock();
   while( goal > clock() )
      ;
}
```

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```
Delay for three seconds
Done!
Time to do 6000000 empty loops is 0.1 seconds
```