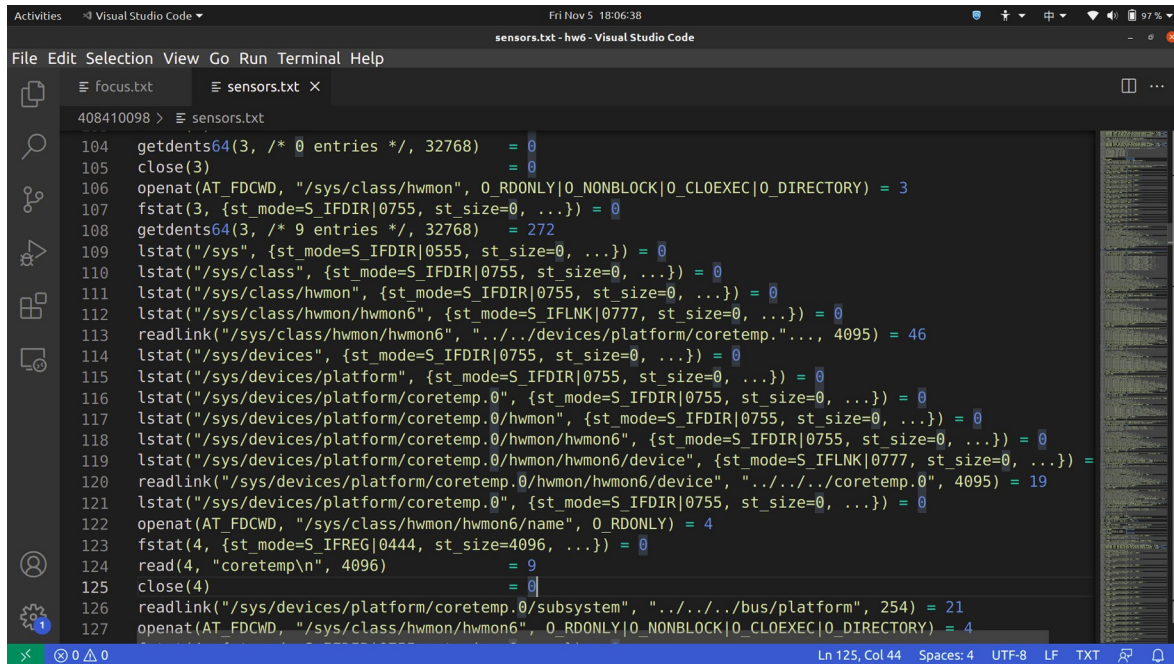


HW6 報告

資工三 408410098 蔡×祥

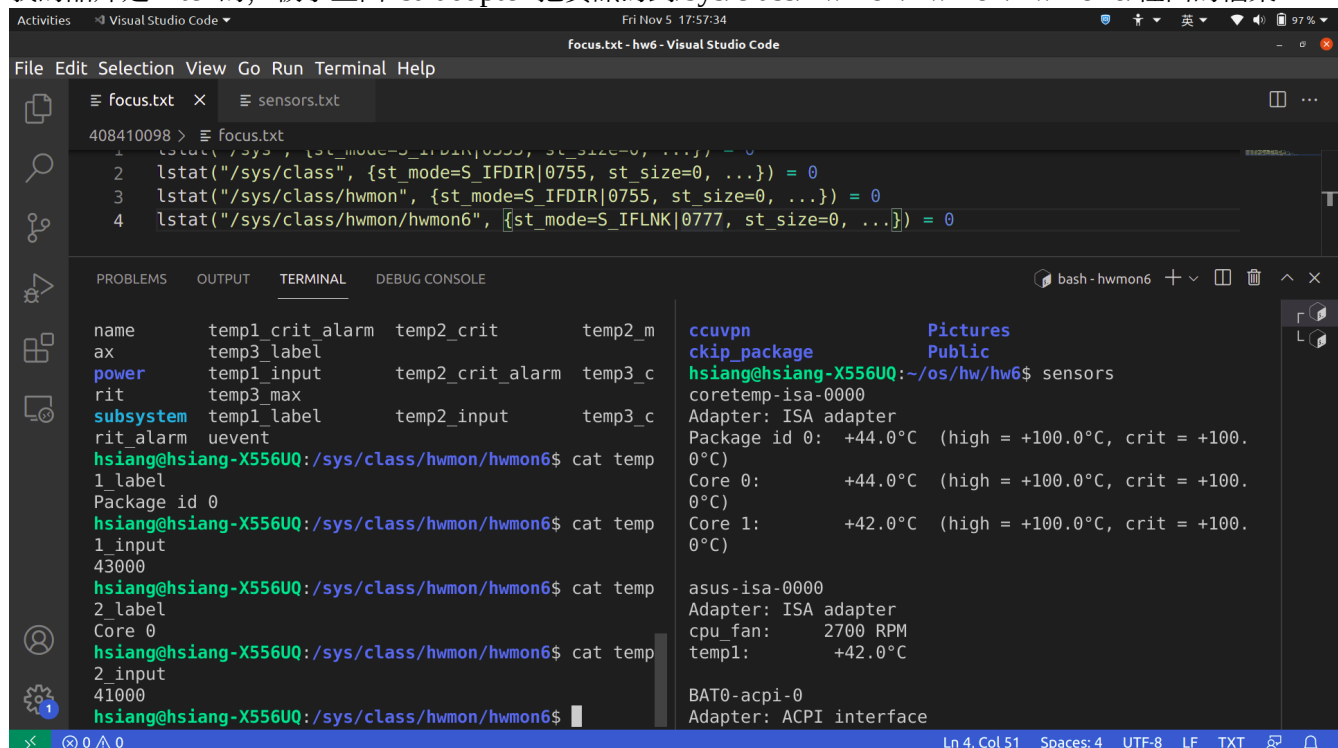
1.(我的筆電是雙系統，這邊是直接**用 sensors 函數就可以抓到**)

sensor 從 /sys/class/hwmon/ 裡面的檔案中讀取溫度（由 strace sensors 的結果去尋找）



```
104 getdents64(3, /* 0 entries */, 32768) = 0
105 close(3) = 0
106 openat(AT_FDCWD, "/sys/class/hwmon", O_RDONLY|O_NONBLOCK|O_CLOEXEC|O_DIRECTORY) = 3
107 fstat(3, {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
108 getdents64(3, /* 9 entries */, 32768) = 272
109 lstat("/sys", {st_mode=S_IFDIR|0555, st_size=0, ...}) = 0
110 lstat("/sys/class", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
111 lstat("/sys/class/hwmon", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
112 lstat("/sys/class/hwmon/hwmon6", {st_mode=S_IFLNK|0777, st_size=0, ...}) = 0
113 readlink("/sys/class/hwmon/hwmon6", "../../devices/platform/coretemp."..., 4095) = 46
114 lstat("/sys/devices", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
115 lstat("/sys/devices/platform", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
116 lstat("/sys/devices/platform/coretemp.0", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
117 lstat("/sys/devices/platform/coretemp.0/hwmon", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
118 lstat("/sys/devices/platform/coretemp.0/hwmon/hwmon6", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
119 lstat("/sys/devices/platform/coretemp.0/hwmon/hwmon6/device", {st_mode=S_IFLNK|0777, st_size=0, ...}) = 0
120 readlink("/sys/devices/platform/coretemp.0/hwmon/hwmon6/device", "../../coretemp.0", 4095) = 19
121 lstat("/sys/devices/platform/coretemp.0", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
122 openat(AT_FDCWD, "/sys/class/hwmon/hwmon6/name", O_RDONLY) = 4
123 fstat(4, {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
124 read(4, "coretemp\n", 4096) = 9
125 close(4) = 0
126 readlink("/sys/devices/platform/coretemp.0/subsystem", "../../bus/platform", 254) = 21
127 openat(AT_FDCWD, "/sys/class/hwmon/hwmon6", O_RDONLY|O_NONBLOCK|O_CLOEXEC|O_DIRECTORY) = 4
```

我的晶片是 intel 的，板子上面 isa adapter 把資訊寫到 /sys/class/hwmon/hwmon/hwmon6/ 裡面的檔案



```
1 lstat("/sys", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
2 lstat("/sys/class", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
3 lstat("/sys/class/hwmon", {st_mode=S_IFDIR|0755, st_size=0, ...}) = 0
4 lstat("/sys/class/hwmon/hwmon6", {st_mode=S_IFLNK|0777, st_size=0, ...}) = 0
```

name	temp1_crit	alarm	temp2_crit	temp2_m
ax	temp3_label			
power	temp1_input		temp2_crit_alarm	temp3_c
rit	temp3_max			
subsystem	temp1_label		temp2_input	temp3_c
rit_alarm	uevent			

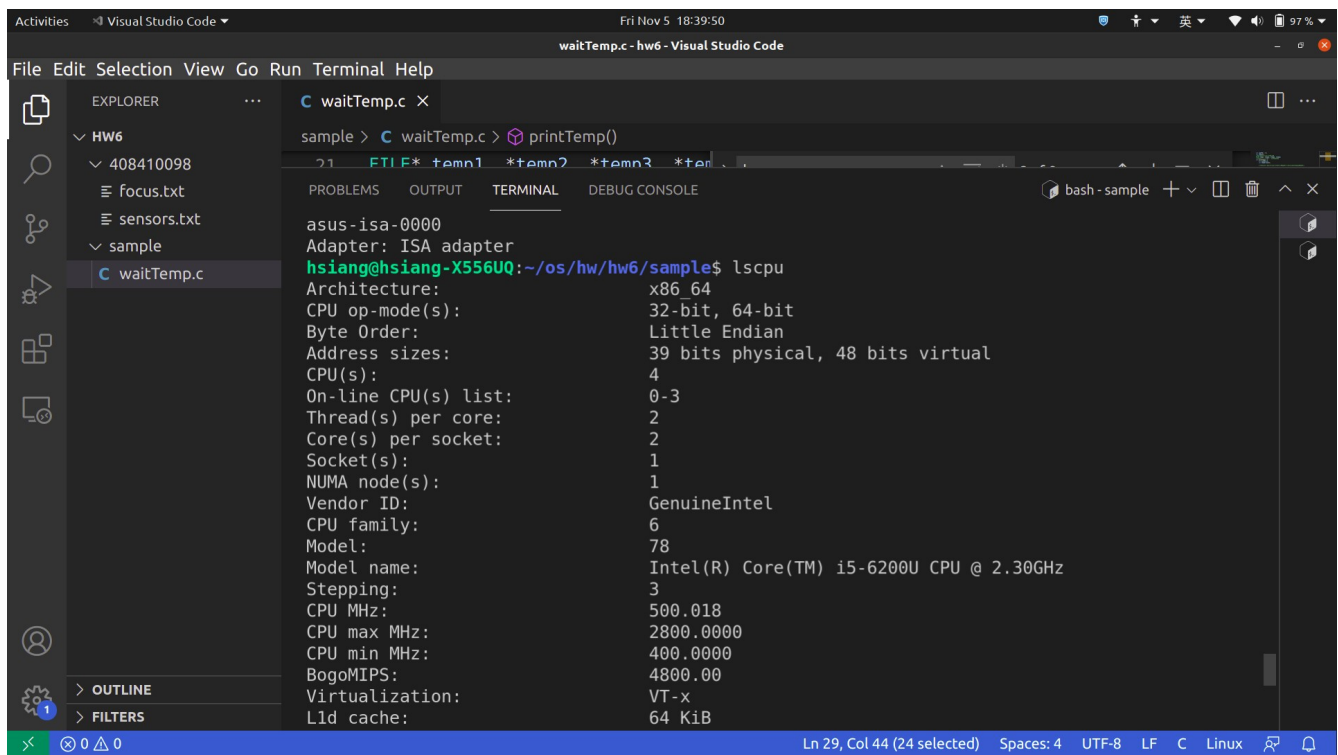
```
hsiang@hsiang-X556UQ:/sys/class/hwmon/hwmon6$ cat temp1_label
Package id 0
hsiang@hsiang-X556UQ:/sys/class/hwmon/hwmon6$ cat temp1_input
43000
hsiang@hsiang-X556UQ:/sys/class/hwmon/hwmon6$ cat temp2_label
Core 0
hsiang@hsiang-X556UQ:/sys/class/hwmon/hwmon6$ cat temp2_input
41000
hsiang@hsiang-X556UQ:/sys/class/hwmon/hwmon6$
```

```
ccuvpn
ckip_package
Pictures
Public
hsiang@hsiang-X556UQ:~/os/hw/hw6$ sensors
coretemp-isa-0000
Adapter: ISA adapter
Package id 0: +44.0°C (high = +100.0°C, crit = +100.0°C)
Core 0: +44.0°C (high = +100.0°C, crit = +100.0°C)
Core 1: +42.0°C (high = +100.0°C, crit = +100.0°C)

asus-isa-0000
Adapter: ISA adapter
cpu_fan: 2700 RPM
temp1: +42.0°C

BAT0-acpi-0
Adapter: ACPI interface
```

有一個點我有點小問題。我的 CPU 核心數：



The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the output of the 'lscpu' command, which provides detailed information about the system's CPU architecture and configuration. The output is as follows:

```
asus-isa-0000
Adapter: ISA adapter
hsiang@hsiang-X556UQ:~/os/hw/hw6/sample$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
Address sizes:          39 bits physical, 48 bits virtual
CPU(s):                 4
On-line CPU(s) list:   0-3
Thread(s) per core:     2
Core(s) per socket:     2
Socket(s):              1
NUMA node(s):          1
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  78
Model name:             Intel(R) Core(TM) i5-6200U CPU @ 2.30GHz
Stepping:               3
CPU MHz:                500.018
CPU max MHz:            2800.0000
CPU min MHz:            400.0000
BogoMIPS:               4800.00
Virtualization:         VT-x
L1d cache:              64 KiB
```

但 Package id 0 裡面只有兩個 core。

我猜測應該是我的電腦是 2 核心模擬 4 核心（如果不對還請教授或助教跟我講一下，謝謝）

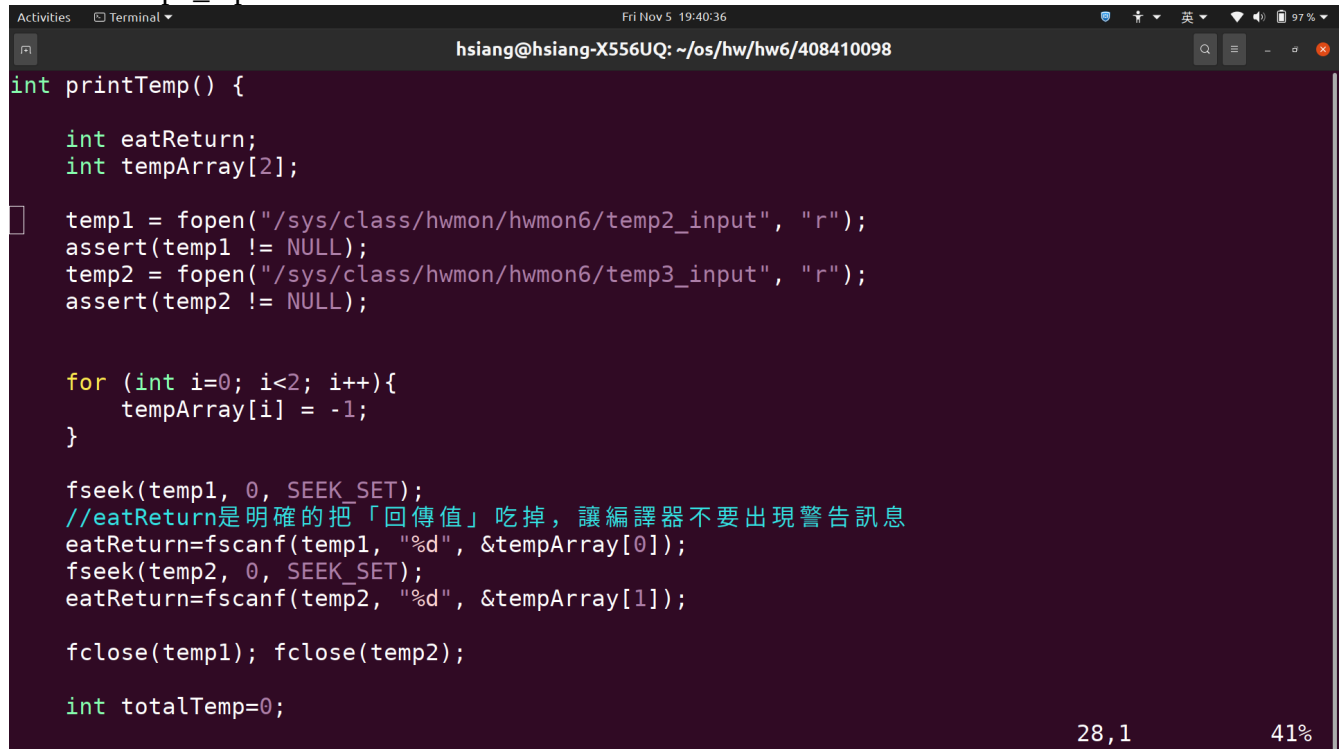
2.

我的 CPU 溫度在/sys/class/hwmon/hwmon/hwmon6/ 裡面：

我的執行環境只有兩個 **cores**, 因此我只有讀兩個

core0 : temp2_input

core1 : temp3_input

A terminal window with a dark purple background. The title bar shows 'Activities', 'Terminal', and the date/time 'Fri Nov 5 19:40:36'. The user is 'hsiang' on host 'hsiang-X556UQ' in directory '~/os/hw/hw6/408410098'. The code is a C function 'printTemp()' that opens files for temperature data, reads values into an array, and calculates a total. Comments in Chinese explain the use of 'eatReturn' to suppress compiler warnings. The bottom right shows '28,1' and '41%'.

```
int printTemp() {  
  
    int eatReturn;  
    int tempArray[2];  
  
    temp1 = fopen("/sys/class/hwmon/hwmon6/temp2_input", "r");  
    assert(temp1 != NULL);  
    temp2 = fopen("/sys/class/hwmon/hwmon6/temp3_input", "r");  
    assert(temp2 != NULL);  
  
    for (int i=0; i<2; i++){  
        tempArray[i] = -1;  
    }  
  
    fseek(temp1, 0, SEEK_SET);  
    //eatReturn是明確的把「回傳值」吃掉，讓編譯器不要出現警告訊息  
    eatReturn=fscanf(temp1, "%d", &tempArray[0]);  
    fseek(temp2, 0, SEEK_SET);  
    eatReturn=fscanf(temp2, "%d", &tempArray[1]);  
  
    fclose(temp1); fclose(temp2);  
  
    int totalTemp=0;
```

我的電腦比較舊（6 年），平常沒開什麼應用程式時大概就是 40 多度，因此我這次的測試是到 40 度就停住

（我想說不開 vs code 應該多少會降低一點溫度，我執行時就只有開一個 terminal）

```
Activities Terminal
Fri Nov 5 19:35:19
hsiang@hsiang-X556UQ: ~/os/hw/hw6/408410098
hsiang@hsiang-X556UQ:~/os/hw/hw6/408410098$ make
gcc -g waitTemp.c -o waitTemp
hsiang@hsiang-X556UQ:~/os/hw/hw6/408410098$ ./waitTemp 41
temp 40.50°C
hsiang@hsiang-X556UQ:~/os/hw/hw6/408410098$ ./waitTemp 40
#=01 sec , temperture = 41.00 °C
#=02 sec , temperture = 41.00 °C
#=03 sec , temperture = 40.50 °C
#=04 sec , temperture = 40.50 °C
#=05 sec , temperture = 40.50 °C
#=06 sec , temperture = 40.50 °C
#=07 sec , temperture = 40.50 °C
#=08 sec , temperture = 40.50 °C
#=09 sec , temperture = 40.50 °C
#=10 sec , temperture = 40.50 °C
temp 39.50°C
hsiang@hsiang-X556UQ:~/os/hw/hw6/408410098$
```