

【作業系統概論 作業六】

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1. 怎樣使用 `strace` 得知你的 CPU 的溫度在哪個檔案中？
 - 首先使用 `sensors` 指令，可以得到 `cpu` 的溫度訊息。

```
pc341@E500-G6:~$ sensors
coretemp-isa-0000
Adapter: ISA adapter
Package id 0:  +29.0°C (high = +80.0°C, crit = +100.0°C)
Core 0:        +29.0°C (high = +80.0°C, crit = +100.0°C)
Core 1:        +28.0°C (high = +80.0°C, crit = +100.0°C)
Core 2:        +28.0°C (high = +80.0°C, crit = +100.0°C)
Core 3:        +28.0°C (high = +80.0°C, crit = +100.0°C)
```

- 再使用 **strace sensors** 進一步去查看，會發現奇怪的訊息。這些奇怪的訊息當中，就能找到 **cpu** 溫度是在哪個檔案了！

[illegible]

1. 怎樣使用 strace 得知你的 CPU 的溫度在哪個檔案中？

- 觀察這段訊息

```
stat("/sys/class/hwmon/hwmon2/temp3_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp6_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp9_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp2_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp7_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp2_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp2_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp6_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp8_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp3_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp5_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp1_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp7_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp7_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp3_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp7_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp3_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp4_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp8_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp6_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp8_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp1_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp1_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp4_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp5_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp8_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp6_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp5_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp4_crit", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp9_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp4_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp1_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp5_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp9_crit_alarm", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp2_input", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
stat("/sys/class/hwmon/hwmon2/temp9_max", {st_mode=S_IFREG|0444, st_size=4096, ...}) = 0
getdents64(4, /* 0 entries */ , 32768) = 0
```

- 把檔案的內容 cat 出來看看就知道了，input/1000 == 溫度。

```
+++ exited with 0 +++
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp1_input
28000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp2_input
28000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp3_input
27000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp4_input
28000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp5_input
27000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp1_max
80000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp2_max
80000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp3_max
80000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp4_max
80000
pc341@E500-G6:~$ cat /sys/class/hwmon/hwmon2/temp5_max
80000
```

2. 附上截圖說明你完成的部分？

- 首先可以印出 **target** 的溫度，接著會印出程式開始執行的時間。
- 再來可以印出個個核心的溫度！
- 最後可以印出平均溫度！

```
pc341@E500-G6:~/Downloads/oshw7$ ./waitTemp 27
    target temperature is 27°C
    core1=28°C
    core2=28°C
    core3=27°C
    core4=27°C
    core average temperature is 27.50°C
#=01 sec 🌟🔥🌟🔥 27.50 °C
    core1=28°C
    core2=28°C
    core3=27°C
    core4=27°C
    core average temperature is 27.50°C
#=02 sec 🌟🔥🌟🔥 27.50 °C
    core1=28°C
    core2=28°C
    core3=27°C
    core4=27°C
    core average temperature is 27.50°C
#=03 sec 🌟🔥🌟🔥 27.50 °C
    core1=28°C
    core2=28°C
    core3=27°C
    core4=27°C
    core average temperature is 27.50°C
#=04 sec 🌟🔥🌟🔥 27.50 °C
    core1=28°C
    core2=28°C
    core3=27°C
    core4=28°C
    core average temperature is 27.75°C
```

2. 附上截圖說明你完成的部分？

- 最後當平均溫度和目標溫度相同，就會結束程式。

```
#=16 sec 🌟🔥🌟🔥 27.25 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=27°C
      core average temperature is 27.50°C
#=17 sec 🌟🔥🌟🔥 27.50 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=27°C
      core average temperature is 27.50°C
#=18 sec 🌟🔥🌟🔥 27.50 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=26°C
      core average temperature is 27.25°C
#=19 sec 🌟🔥🌟🔥 27.25 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=26°C
      core average temperature is 27.25°C
#=20 sec 🌟🔥🌟🔥 27.25 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=26°C
      core average temperature is 27.25°C
#=21 sec 🌟🔥🌟🔥 27.25 °C
      core1=28°C
      core2=28°C
      core3=27°C
      core4=26°C
      core average temperature is 27.25°C
#=22 sec 🌟🔥🌟🔥 27.25 °C
      core1=27°C
      core2=28°C
      core3=26°C
      core4=27°C
      core average temperature is 27.00°C
```