Thermal Tool

Catalog

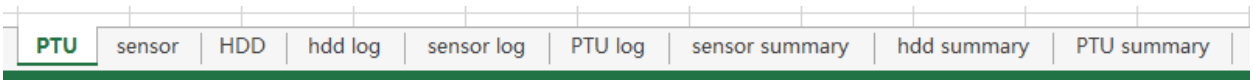
Arguments

- --output thermal.xlsx
- --hdd HDDtemp.txt
- --bmc BMCtemp.txt/BMCtempswitch.txt
- --bmc2 sdr.txt
- --ptu PTUtemp_old.txt
- --ptu2 PTUtemp_new.txt
- --cpulog CPU_PID.log/CPU_PID.txt
- --gpulog GPU_pid.txt
- --draw enable/disable (optional, the default value is 'enable', set it to 'disable' if you don't plan to draw)

Excel Format

1. Tools for PTU, sensor, and HDD

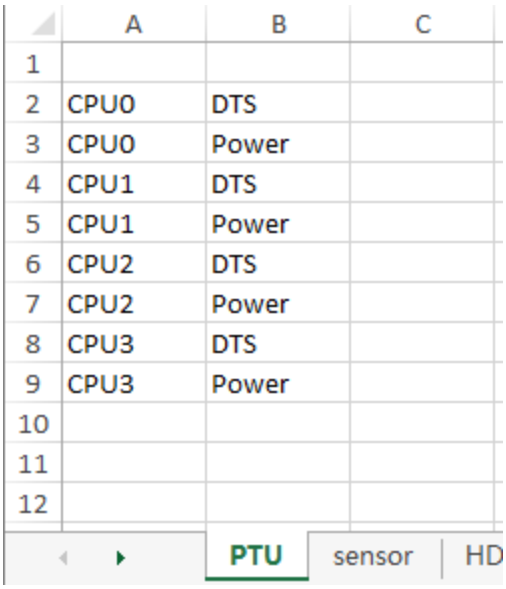
All the sheets can be classified into the following three types: common sheet, log sheet, and summary sheet.



➢ **Common sheet**

PTU, sensor, and HDD are all common sheets, which are used as the guidelines to generate the log sheet and summary sheet.

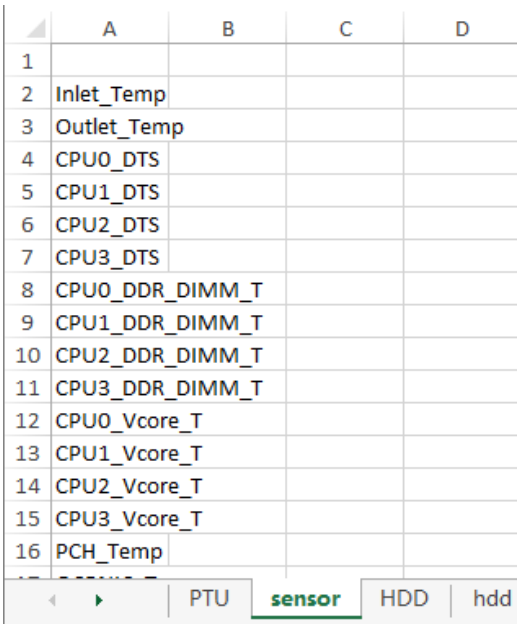
In the common sheet, you **must** fill in the data you want to grasp from a given log file, starts from the **first** column and the **second** row, for example:



	A	B	C
1			
2	CPU0	DTS	
3	CPU0	Power	
4	CPU1	DTS	
5	CPU1	Power	
6	CPU2	DTS	
7	CPU2	Power	
8	CPU3	DTS	
9	CPU3	Power	
10			
11			
12			

PTU | sensor | HD

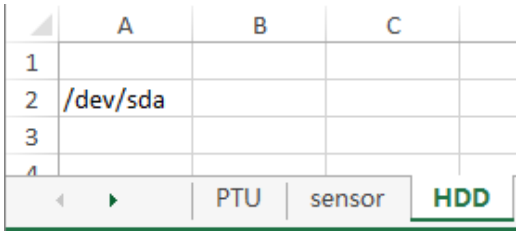
Figure 1 PTU example



	A	B	C	D
1				
2	Inlet_Temp			
3	Outlet_Temp			
4	CPU0_DTS			
5	CPU1_DTS			
6	CPU2_DTS			
7	CPU3_DTS			
8	CPU0_DDR_DIMM_T			
9	CPU1_DDR_DIMM_T			
10	CPU2_DDR_DIMM_T			
11	CPU3_DDR_DIMM_T			
12	CPU0_Vcore_T			
13	CPU1_Vcore_T			
14	CPU2_Vcore_T			
15	CPU3_Vcore_T			
16	PCH_Temp			

PTU | sensor | HDD | hdd

Figure 2 sensor example



	A	B	C
1			
2	/dev/sda		
3			

PTU | sensor | HDD

Figure 3 HDD example

➢ **Log sheet**

PTU log, sensor log, and hdd log are all log sheets, which used to represent the data.

When use the tool, you don't need to delete them or create a new sheet manually because the tool will automatically clear the previous data or create a log sheet if it does't exist.

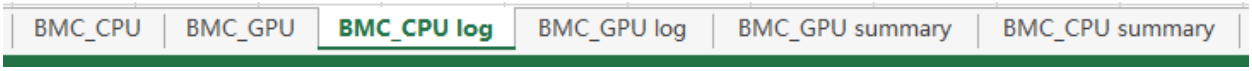
➢ **Summary sheet**

PTU summary, sensor summary, and hdd summary are all log sheets, which used to summarize the data in the log sheet.

Similarly, the summary sheets are also automatically updated or created, there is no need to clear them or create new ones manually.

2. Tools for CPU_pid and GPU_pid

Same as the first tool, all the sheets can be classified into the following three types: common sheet, log sheet, and summary sheet.

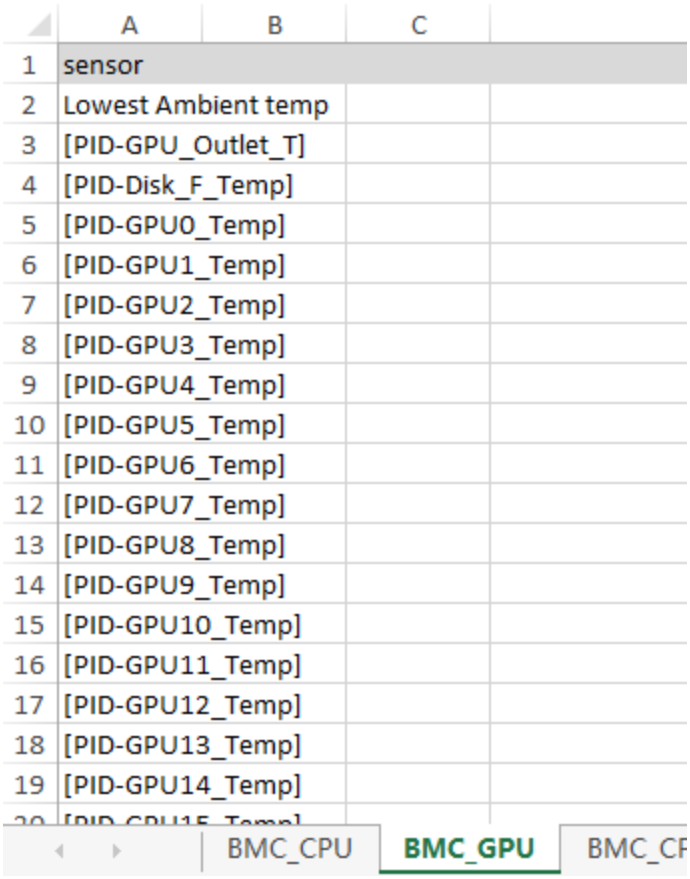


In the common sheet, you **must** fill in the data you want to grasp from a given log file, starts from the **first** column and the **second** row

	A
1	sensor name
2	Id:0,sensorindex:15;CPU0_DTS_MARGIN_TEMP
3	Id:1,sensorindex:16;CPU1_DTS_MARGIN_TEMP
4	Id:2,sensorindex:17;CPU2_DTS_MARGIN_TEMP
5	Id:3,sensorindex:18;CPU3_DTS_MARGIN_TEMP
6	Id:4,sensorindex:195;CPU0_DDR_DIMM_TEMP
7	Id:5,sensorindex:196;CPU1_DDR_DIMM_TEMP
8	Id:6,sensorindex:197;CPU2_DDR_DIMM_TEMP
9	Id:7,sensorindex:198;CPU3_DDR_DIMM_TEMP
10	Id:8,sensorindex:199;CPU0_BPS_DIMM_TEMP
11	Id:9,sensorindex:200;CPU1_BPS_DIMM_TEMP
12	Id:10,sensorindex:201;CPU2_BPS_DIMM_TEMP
13	Id:11,sensorindex:202;CPU3_BPS_DIMM_TEMP
14	Id:12,sensorindex:27;CPU0_VCORE_TEMP
15	Id:13,sensorindex:28;CPU1_VCORE_TEMP
16	Id:14,sensorindex:29;CPU2_VCORE_TEMP
17	Id:15,sensorindex:30;CPU3_VCORE_TEMP
18	Id:16,sensorindex:6;PCH_TEMP
19	Id:17,sensorindex:82;OCP_NIC_TEMP

BMC_CPU | BMC_GPU | BMC_CPU log

Figure 4 BMC_CPU example



	A	B	C
1	sensor		
2	Lowest Ambient temp		
3	[PID-GPU_Outlet_T]		
4	[PID-Disk_F_Temp]		
5	[PID-GPU0_Temp]		
6	[PID-GPU1_Temp]		
7	[PID-GPU2_Temp]		
8	[PID-GPU3_Temp]		
9	[PID-GPU4_Temp]		
10	[PID-GPU5_Temp]		
11	[PID-GPU6_Temp]		
12	[PID-GPU7_Temp]		
13	[PID-GPU8_Temp]		
14	[PID-GPU9_Temp]		
15	[PID-GPU10_Temp]		
16	[PID-GPU11_Temp]		
17	[PID-GPU12_Temp]		
18	[PID-GPU13_Temp]		
19	[PID-GPU14_Temp]		

Figure 5 BMC_GPU example

How to Use?

To use the tool, you have to execute the following command:

[tool name] --output [excel name] --[operations] [log name]

Examples

- .\thermal.exe --output .\thermal.xlsx --bmc .\BMCtemp.txt --hdd .\HDDtemp.txt --ptu .\PTUtemp_old.txt
- thermal.exe --output thermal.xlsx --bmc BMCtemp.txt --hdd HDDtemp.txt --ptu PTUtemp_old.txt --draw disable
- thermal.exe --output thermal.xlsx --bmc2 sdr.txt --hdd HDDtemp.txt --ptu2 PTUtemp_new.txt

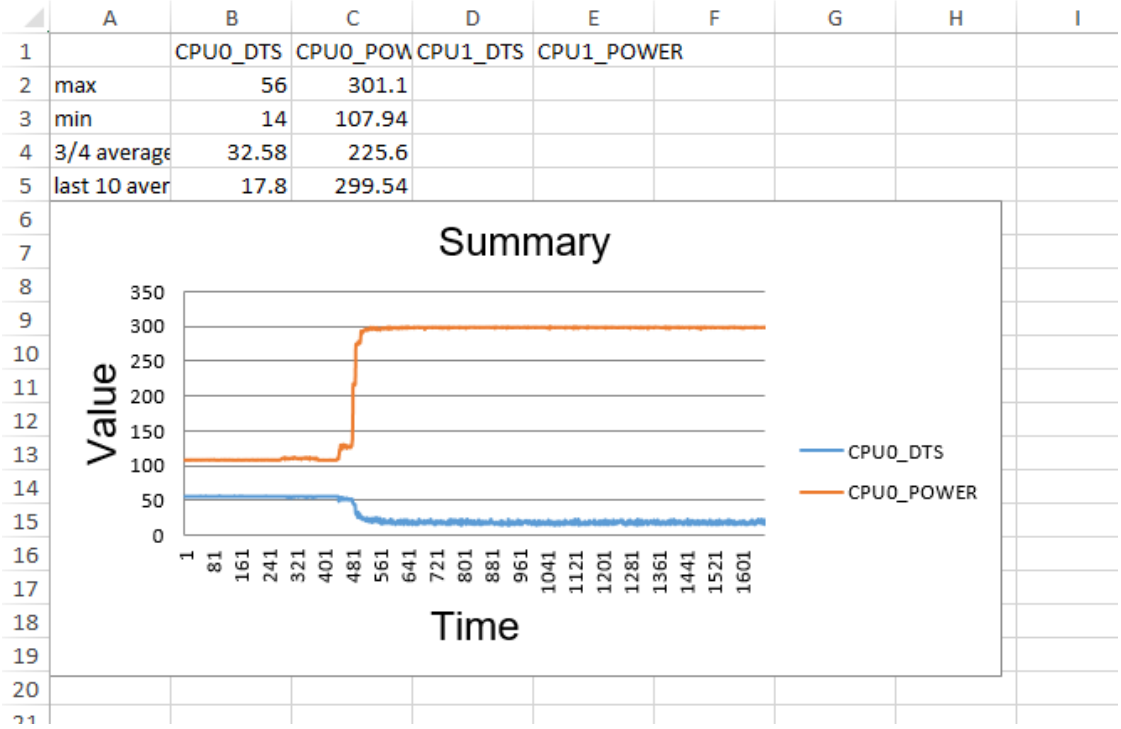
- .\thermal.exe --output thermal.xlsx --bmc2 .\sdr.txt --hdd .\HDDtemp.txt --ptu2 .\PTUtemp_new.txt --draw diable
- .\thermal.exe --output thermal.xlsx --ptu .\PTUtemp_old.txt --draw disable
- .\thermal.exe --output thermal.xlsx --ptu2 .\PTUtemp_new.txt
- .\thermal.exe --output thermal.xlsx --bmc .\BMCtemp.txt
- thermal.exe --output thermal.xlsx --bmc2 .\PTUtemp_old.txt
- thermal.exe --output .\log.xlsx --cpulog .\CPU_PID.txt --gpulog .\GPU_pid.txt
- thermal.exe --output log.xlsx --cpulog CPU_PID.txt
- thermal2.exe --output log.xlsx --cpulog CPU_PID.txt --gpulog GPU_pid.txt --draw disable

Revision History

1. 2021.01.21 Debug --ptu2

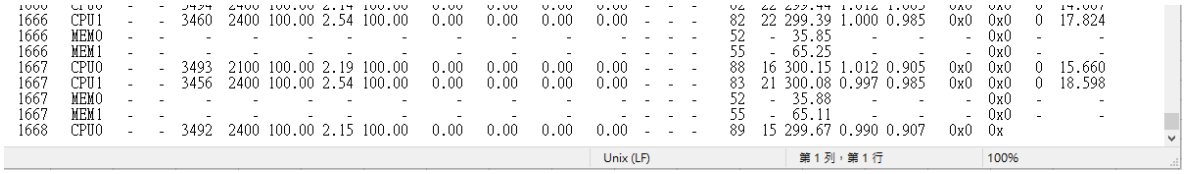
➢ **Issue**

In the summary sheet, CPU0 has data whereas CPU1 is empty.



➢ **Reason**

In the ptu.txt, data is incomplete. The 1668th datais incomplete for it only contains CPU0 while CPU1 is missing.



This missing data then leads to an incomple log sheet.

1663	20	299.68	21	299.95
1664	16	299.33	21	299.98
1665	20	298.93	19	299.95
1666	22	299.44	22	299.39
1667	16	300.15	21	300.08
1668	15	299.67		

Therefore, the summary sheet only contains CPU0.

- **Solution**

Either delete the incomplete data (line 1668) or supplement the incomplete data will help.

- **Improvement in the code**

To figure out this problem, we add some tips in the code to help users realize the missing data.

Whenever there exists incomplete data, some warning information will pop up on the screen:

```
C:\Users\Administrator\Desktop\test>python thermal.py --output thermal.xlsx --bmc BMCtemp2020.txt
start to process BMCtemp2020.txt...
Warning: data missing at log sheet: row 2, col 20.
         Summary sheet returns nothing, please check
Warning: data missing at log sheet: row 2, col 21.
         Summary sheet returns nothing, please check
BMC DONE!
```

2. 2021.02.20 Upgrade –gpulog --cpulog

- **Add a nickname column**

In the requirement sheet, some names are too long and are hard to read in the chart. Therefore, we add a column for short name in the second column. In the meantime, names in the chart of the summary sheet also change.

	A	B
1	sensor name	name
2	Id:0,sensorindex:15;CPU0_DTS_MARGIN_TEMP	a
3	Id:1,sensorindex:16;CPU1_DTS_MARGIN_TEMP	b
4	Id:2,sensorindex:17;CPU2_DTS_MARGIN_TEMP	c
5	Id:3,sensorindex:18;CPU3_DTS_MARGIN_TEMP	d
6	Id:4,sensorindex:195;CPU0_DDR_DIMM_TEMP	e
7	Id:5,sensorindex:196;CPU1_DDR_DIMM_TEMP	f
8	Id:6,sensorindex:197;CPU2_DDR_DIMM_TEMP	g
9	Id:7,sensorindex:198;CPU3_DDR_DIMM_TEMP	h
10	Id:8,sensorindex:199;CPU0_BPS_DIMM_TEMP	i
11	Id:9,sensorindex:200;CPU1_BPS_DIMM_TEMP	j
12	Id:10,sensorindex:201;CPU2_BPS_DIMM_TEMP	k
13	Id:11,sensorindex:202;CPU3_BPS_DIMM_TEMP	l
14	Id:12,sensorindex:27;CPU0_VCORE_TEMP	m
15	Id:13,sensorindex:28;CPU1_VCORE_TEMP	n
16	Id:14,sensorindex:29;CPU2_VCORE_TEMP	o
17	Id:15,sensorindex:30;CPU3_VCORE_TEMP	p
18	Id:16,sensorindex:6;PCH_TEMP	q
19	Id:17,sensorindex:82;OCP_NIC_TEMP	r
20	Id:18,sensorindex:154;OCP_NIC_OPTION0_TEMP	s
21	Id:19,sensorindex:91;PCIE0_CARD_TEMP	t
22	Id:20,sensorindex:92;PCIE1_CARD_TEMP	u
23	Id:21,sensorindex:93;PCIE2_CARD_TEMP	v

Figure 6 add a 2nd column for short name

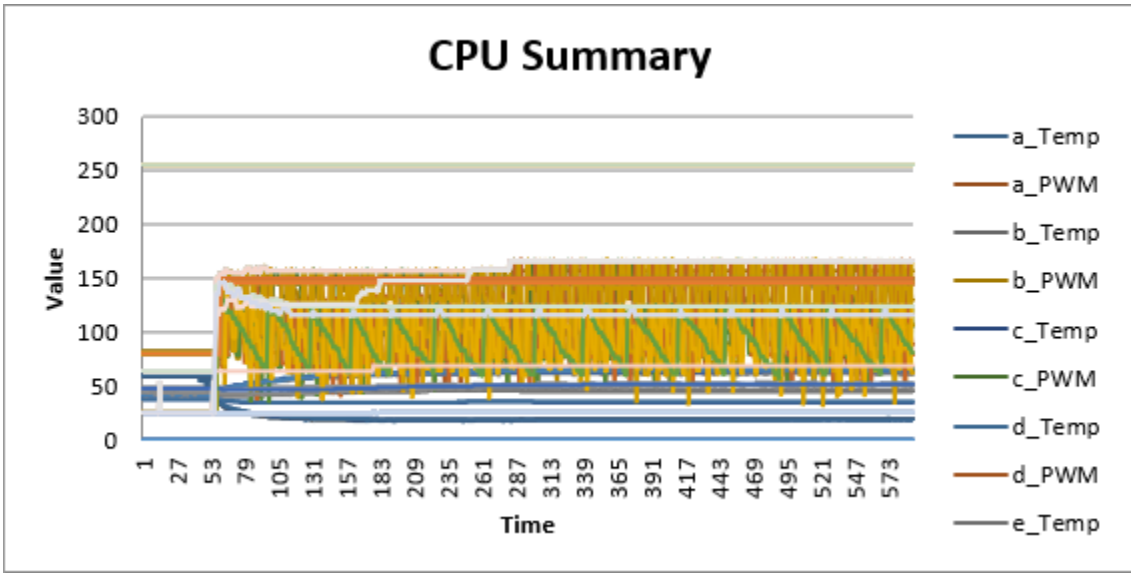


Figure 7 names in the chart also change

- **Add support for the [Final Domain Output Duty] in GPU log**

This version is able to retrieve the [Final Domain Output Duty] and add them to the last five columns.

AZ	BA	BB	BC	BD
Final PWM0	Final PWM1	Final PWM2	Final PWM3	Final PWM4
60	60	72	72	72
55	55			
55	55	74	74	74
55	55	74	74	74
60	60			
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
55	55			
55	55	74	74	74
60	60			
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74
60	60	74	74	74

Figure 8 [Final Domain Output Duty] is shown in the last 5 columns