Thermal Test Report
Model : YY-0221
Thermal Performance Contest

Date:Dec.16, 2004

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1. Introduction

The purpose of this evaluation is to find the best performance thermal solution by system operated as for Intel P4 3.4G processor .

2. References

ATX spec http://formfactors.org

3. Thermal Test

3.1 Test Configuration

Chassis	YY-0221
Power Supply	Delta GPS-350CN-100A,350W
Chassis Fan	**TOP DF1208BM, Quantity:1** Speed:2500RPM (Middle Speed) **TOP DF1209BB, Quantity:1** Speed:2600RPM (Middle Speed) *System config. To be tested with various modes, please refer to table 4.1 & 4.2*
Processor	Intel P4 Prescott **3.4**GHz/800MHz 1MB L2-Cache LGA-775, Quantity:1
Processor Thermal solution	Intel Boxed Cooler
Motherboard	ASUS P5GD1-VM(intel 915G)
Memory	Kingston DDR400 512MB, Quantity: 2
Hard Drive	SEAGATE ST380013AS 80G, Quantity: 1
CD ROM	Cyber CD526D 52X, Quantity: 1
Floppy Drive	Mitsumi D359M3, Quantity: 1
AGP Card	GIGABYTE GA-V-NX53128T, Quantity: 1
PCI-Lan Card	D-LINK DFE-530TX, Quantity: 1
PCI-Sound Card	ESS SC1938, Quantity: 1

3.2 Test Equipment Used

FULL SYSTEM OPERATION
Fluke Hydra 2635A
Software: Intel P4 Prescott MAXPOWER Rev:1.4.2

3.3 Test Process

The peripherals listed in section 1 were installed in the chassis and thermocouples were attached at the points designated in section 4. The chassis was tested in a controlled temperature held at a constant 35°C. The thermal readings communicated from the sensors on the test board to the test software. The system was exercised until the initial thermal gradient reached a consistent level with a slope-nearing zero. During testing, the ambient temperature was monitored approximately 2” from the front bezel of the chassis.

3.4 Data Recorded

Temperature readings are measured at the following location(s):

- Ambient -- Hotbox ambient temperature (2” from the front center of the chassis)

- Tinlet1 – Internal ambient temperature of the processor heatsink .5” away from the center of fan hub (near the rear port)
- Tinlet2 – Internal ambient temperature of the processor heatsink .5” away from the center of fan hub (near the PSU)
- Tinlet3 – Internal ambient temperature of the processor heatsink .5” away from the center of fan hub (near the DIMM slot)
- Tinlet4 – Internal ambient temperature of the processor heatsink .5” away from the center of fan hub (near the chipset)
- Tcase -- Processor case temperature

4. Test Result (see table 4.1), & Test mode details (Table 4.2)

Summary: **PASS**

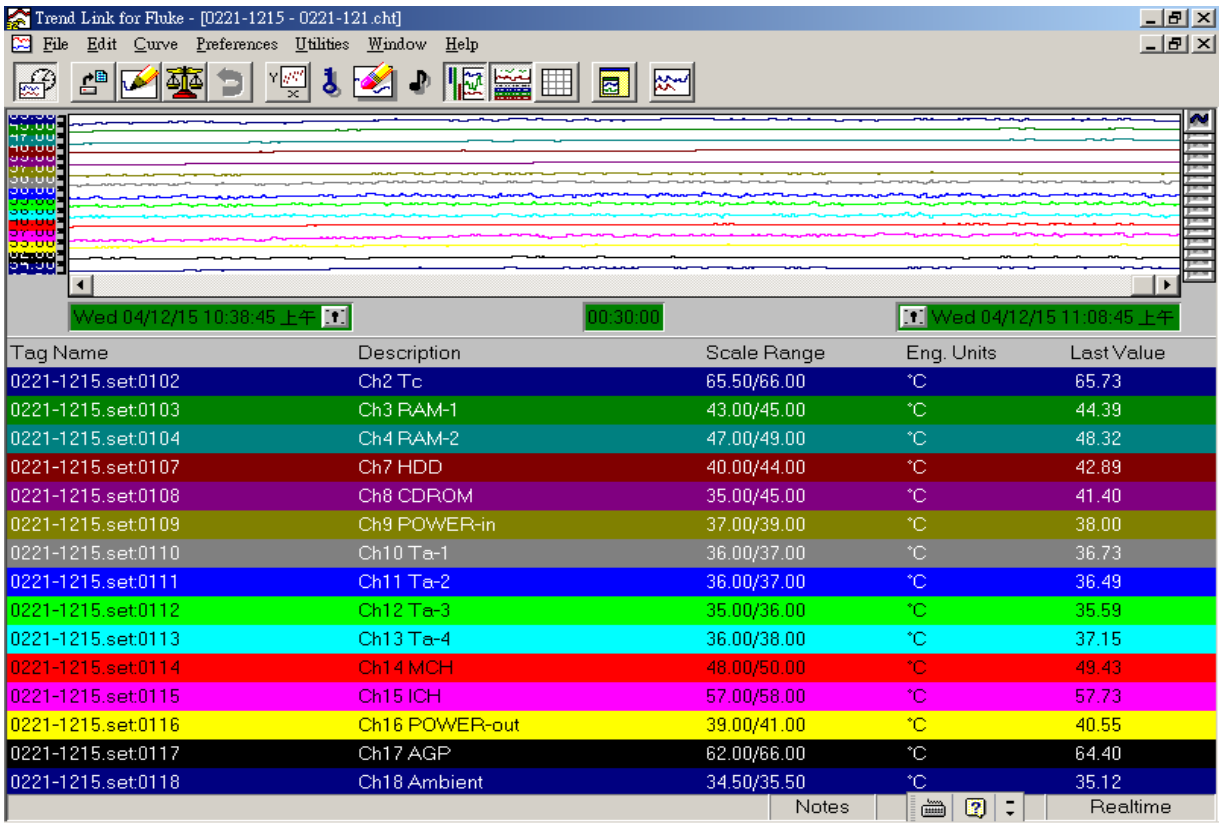
According to the FMB guidance, the CPU is FMB04B, TDP=115W

Psc Tc= Px0.25+44.0 =72.75℃ (Tc spec)

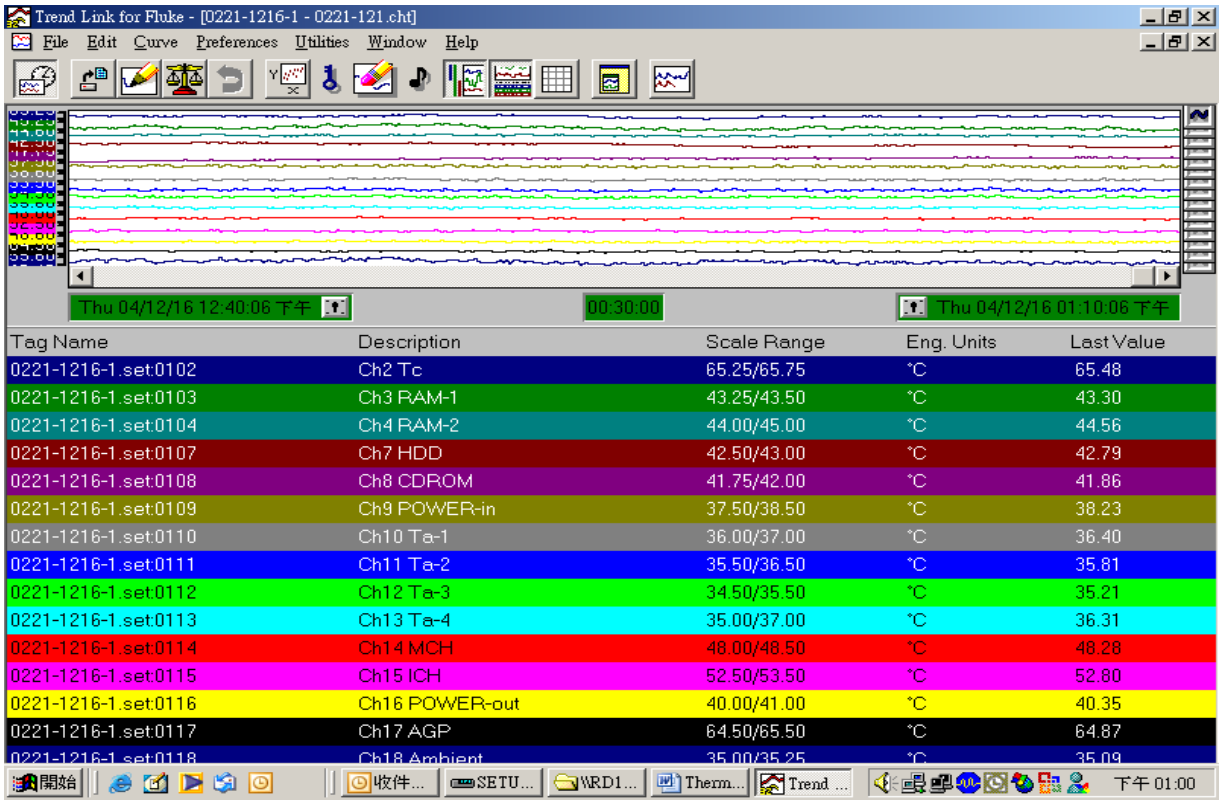
Table 4.1
Date:Dec.15.2004

Mode Introductions	Mode 1	Mode 2	Mode 3	Mode 4
Power Model	Delta 350CN-100A (with 8cm Fan for airflow out, vents for air flow out)			
System Fan- 12 cm *1 Mounted in front side of chassis	No	**Yes-Low speed Airflow in**	No	**Yes-Low speed Airflow out**
System Fan- 8 cm *1 (Mounted in Rear side of chassis)	**Yes-Middle speed**	**Yes-Middle speed**	No	No
System Fan- 9 cm *1 (Mounted in Side of chassis)	No	No	No	No
Airguide-CAG 1.1	**Yes**	**Yes**	**Yes**	**Yes**
Run the test under the software on 100% level	100%	100%	100%	100%
Test Result (values was according to the screens of Fluke monitor)				
DIMM-1	44.4	43.3	49.4	47.8
DIMM-2	48.3	44.6	53.9	51.3
HDD	42.9	42.8	46	44.4
CD ROM	41.4	41.9	45.5	43.6
MCH	49.4	48.3	54.3	52.3
ICH	57.7	52.8	63.6	60.6
AGP Card	64.4	64.9	77.9	73.5
POWER-in	38	38.2	40.8	39.1
POWER-out	40.6	40.4	42.5	41.5
T-inlet 1	36.7	36.4	38.6	37.3
T-inlet 2	36.5	35.8	37.8	36.4
T-inlet 3	35.6	35.2	35.8	35.3
T-inlet 4	37.2	36.3	41.9	38.2
T-inlets average Tambient(1~4)	**36.5**	**35.9**	**38.5**	**36.8**
T-case	**65.7**	**65.5**	**68.3**	**67.3**
Ambient(case outside)	35.1	35.1	35.1	35

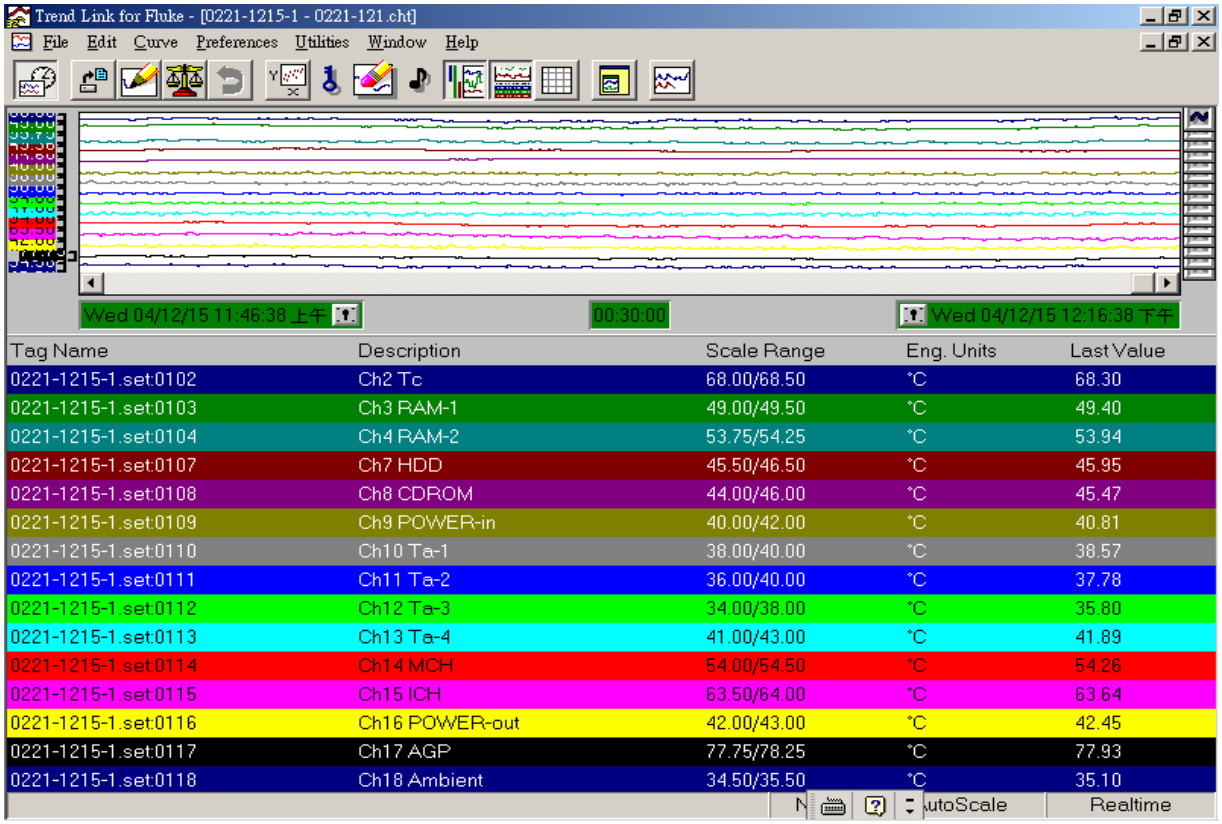
Mode Introductions	Mode 5	Mode 6	Mode 7	Mode 8
Power Model	Delta 350CN-100A (with 8cm Fan for airflow out, vents for air flow out)			
System Fan- 12 cm *1 Mounted in front side of chassis	No	No	**Yes-Low speed Airflow out**	**Yes-Low speed Airflow in**
System Fan- 8 cm *1 (Mounted in Rear side of chassis)	No	No	No	No
System Fan- 9 cm *1 (Mounted in Side of chassis)	No-Vents only	**Yes**	No-Vents only	No-Vents only
Airguide-CAG 1.1	No	No	No	No
Run the test under the software on 100% level	100%	100%	100%	100%
Test Result (values was according to the screens of Fluke monitor)				
DIMM-1	53.3	44.9	50.3	49.9
DIMM-2	54.4	47.2	52.2	47.2
HDD	46.7	45.1	43.9	46.6
CD ROM	45	43.1	43.7	44.1
MCH	58.6	45.1	54.2	56.2
ICH	65.1	53.2	58.9	56.2
AGP Card	81.6	67.3	77.1	74.1
POWER-in	41.6	40.7	39.7	40.9
POWER-out	42.8	43.3	41.5	42.3
T-inlet 1	50.1	36.3	45.7	48.1
T-inlet 2	50	35.4	43.9	48.9
T-inlet 3	48	35.6	43.7	45.3
T-inlet 4	48.6	36	41.6	45.2
T-inlets average Tambient(1~4)	**49.2**	**35.8**	**43.7**	**46.9**
T-case	**72.3**	**64.8**	**69.5**	**71.2**
Ambient(case outside)	35.1	35.1	35	35.1



Tag Name	Description	Scale Range	Eng. Units	Last Value
0221-1215.set:0102	Ch2 Tc	65.50/66.00	°C	65.73
0221-1215.set:0103	Ch3 RAM-1	43.00/45.00	°C	44.39
0221-1215.set:0104	Ch4 RAM-2	47.00/49.00	°C	48.32
0221-1215.set:0107	Ch7 HDD	40.00/44.00	°C	42.89
0221-1215.set:0108	Ch8 CDROM	35.00/45.00	°C	41.40
0221-1215.set:0109	Ch9 POWER-in	37.00/39.00	°C	38.00
0221-1215.set:0110	Ch10 Ta-1	36.00/37.00	°C	36.73
0221-1215.set:0111	Ch11 Ta-2	36.00/37.00	°C	36.49
0221-1215.set:0112	Ch12 Ta-3	35.00/36.00	°C	35.59
0221-1215.set:0113	Ch13 Ta-4	36.00/38.00	°C	37.15
0221-1215.set:0114	Ch14 MCH	48.00/50.00	°C	49.43
0221-1215.set:0115	Ch15 ICH	57.00/58.00	°C	57.73
0221-1215.set:0116	Ch16 POWER-out	39.00/41.00	°C	40.55
0221-1215.set:0117	Ch17 AGP	62.00/66.00	°C	64.40
0221-1215.set:0118	Ch18 Ambient	34.50/35.50	°C	35.12



Tag Name	Description	Scale Range	Eng. Units	Last Value
0221-1216-1.set:0102	Ch2 Tc	65.25/65.75	°C	65.48
0221-1216-1.set:0103	Ch3 RAM-1	43.25/43.50	°C	43.30
0221-1216-1.set:0104	Ch4 RAM-2	44.00/45.00	°C	44.56
0221-1216-1.set:0107	Ch7 HDD	42.50/43.00	°C	42.79
0221-1216-1.set:0108	Ch8 CDROM	41.75/42.00	°C	41.86
0221-1216-1.set:0109	Ch9 POWER-in	37.50/38.50	°C	38.23
0221-1216-1.set:0110	Ch10 Ta-1	36.00/37.00	°C	36.40
0221-1216-1.set:0111	Ch11 Ta-2	35.50/36.50	°C	35.81
0221-1216-1.set:0112	Ch12 Ta-3	34.50/35.50	°C	35.21
0221-1216-1.set:0113	Ch13 Ta-4	35.00/37.00	°C	36.31
0221-1216-1.set:0114	Ch14 MCH	48.00/48.50	°C	48.28
0221-1216-1.set:0115	Ch15 ICH	52.50/53.50	°C	52.80
0221-1216-1.set:0116	Ch16 POWER-out	40.00/41.00	°C	40.35
0221-1216-1.set:0117	Ch17 AGP	64.50/65.50	°C	64.87
0221-1216-1.set:0118	Ch18 Ambient	35.00/35.25	°C	35.09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0221-1215-1.set:0102 Ch2 Tc 68.00/68.50 °C 68.30
0221-1215-1.set:0103 Ch3 RAM-1 49.00/49.50 °C 49.40
0221-1215-1.set:0104 Ch4 RAM-2 53.75/54.25 °C 53.94
0221-1215-1.set:0107 Ch7 HDD 45.50/46.50 °C 45.95
0221-1215-1.set:0108 Ch8 CDROM 44.00/46.00 °C 45.47
0221-1215-1.set:0109 Ch9 POWER-in 40.00/42.00 °C 40.81
0221-1215-1.set:0110 Ch10 Ta-1 38.00/40.00 °C 38.57
0221-1215-1.set:0111 Ch11 Ta-2 36.00/40.00 °C 37.78
0221-1215-1.set:0112 Ch12 Ta-3 34.00/38.00 °C 35.80
0221-1215-1.set:0113 Ch13 Ta-4 41.00/43.00 °C 41.89
0221-1215-1.set:0114 Ch14 MCH 54.00/54.50 °C 54.26
0221-1215-1.set:0115 Ch15 ICH 63.50/64.00 °C 63.64
0221-1215-1.set:0116 Ch16 POWER-out 42.00/43.00 °C 42.45
0221-1215-1.set:0117 Ch17 AGP 77.75/78.25 °C 77.93
0221-1215-1.set:0118 Ch18 Ambient 34.50/35.50 °C 35.10
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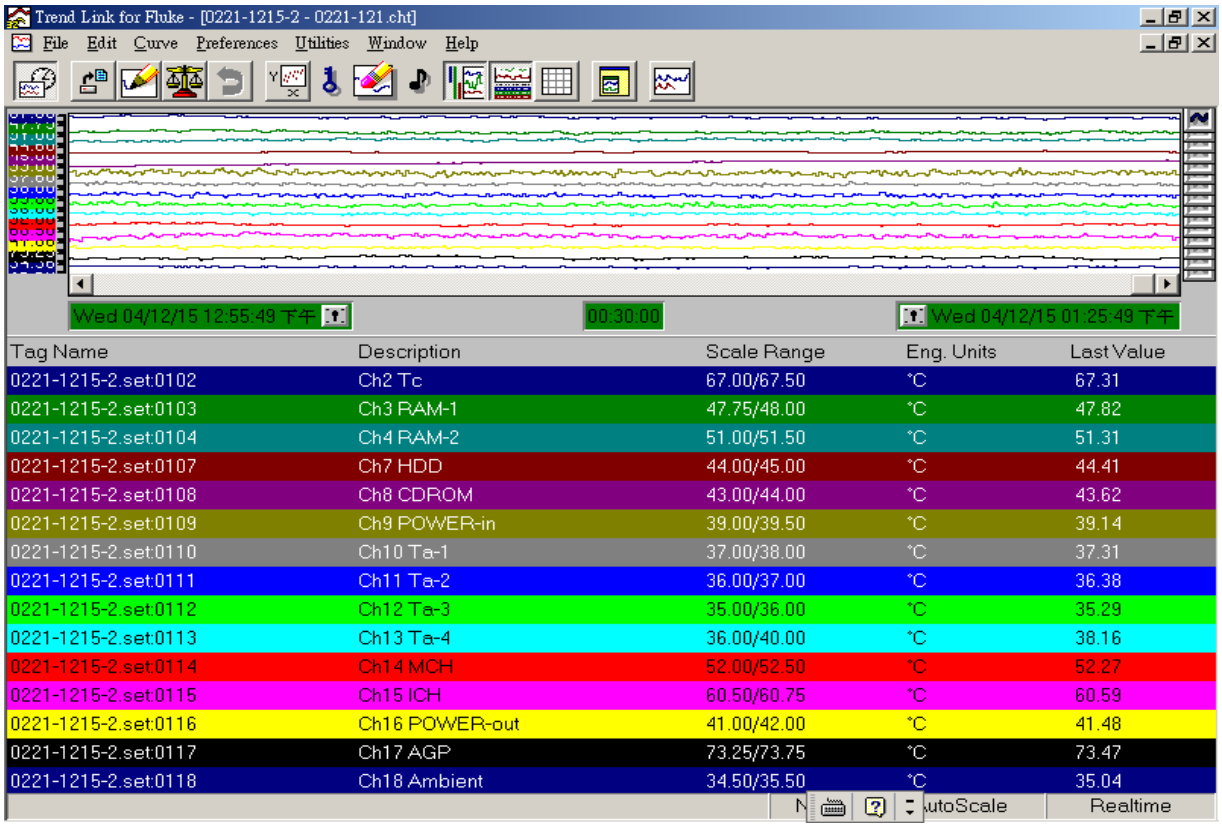
Realtime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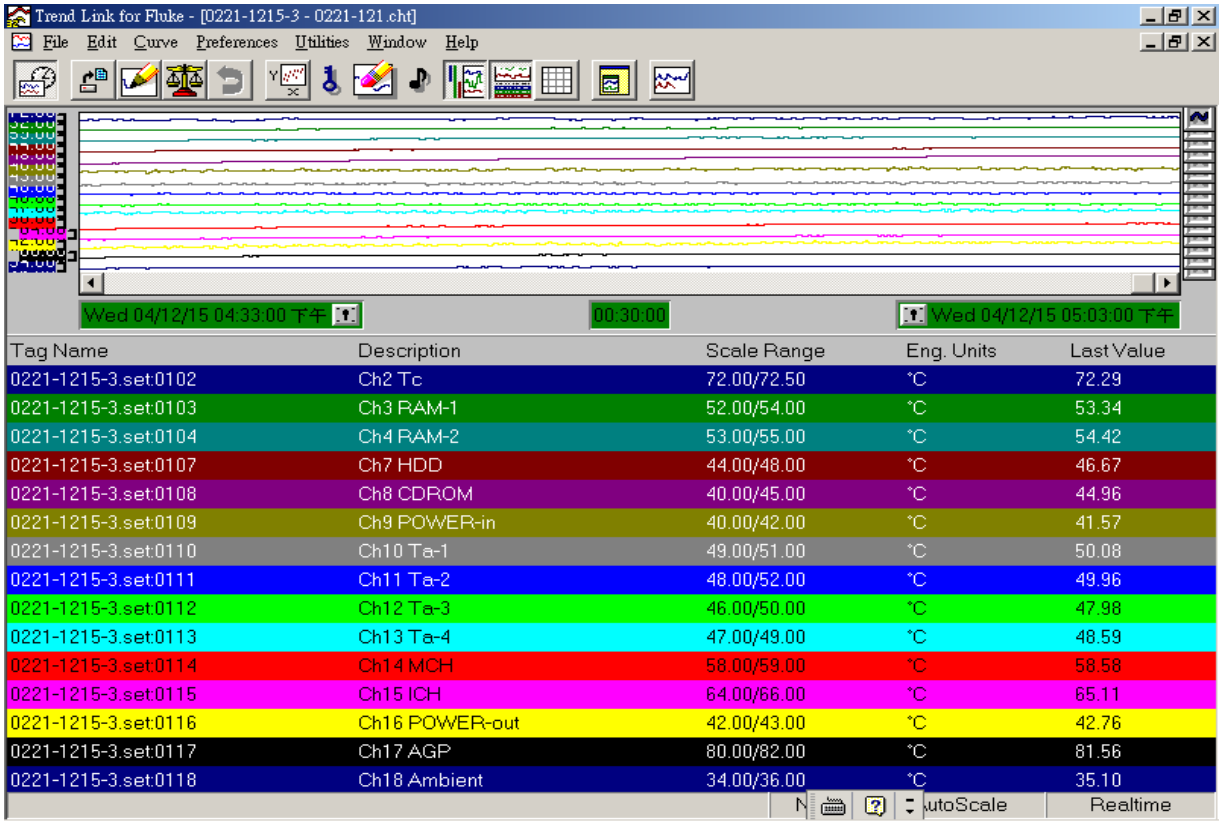
Tag Name Description Scale Range Eng. Units Last Value
0221-1215-2.set:0102 Ch2 Tc 67.00/67.50 °C 67.31
0221-1215-2.set:0103 Ch3 RAM-1 47.75/48.00 °C 47.82
0221-1215-2.set:0104 Ch4 RAM-2 51.00/51.50 °C 51.31
0221-1215-2.set:0107 Ch7 HDD 44.00/45.00 °C 44.41
0221-1215-2.set:0108 Ch8 CDROM 43.00/44.00 °C 43.62
0221-1215-2.set:0109 Ch9 POWER-in 39.00/39.50 °C 39.14
0221-1215-2.set:0110 Ch10 Ta-1 37.00/38.00 °C 37.31
0221-1215-2.set:0111 Ch11 Ta-2 36.00/37.00 °C 36.38
0221-1215-2.set:0112 Ch12 Ta-3 35.00/36.00 °C 35.29
0221-1215-2.set:0113 Ch13 Ta-4 36.00/40.00 °C 38.16
0221-1215-2.set:0114 Ch14 MCH 52.00/52.50 °C 52.27
0221-1215-2.set:0115 Ch15 ICH 60.50/60.75 °C 60.59
0221-1215-2.set:0116 Ch16 POWER-out 41.00/42.00 °C 41.48
0221-1215-2.set:0117 Ch17 AGP 73.25/73.75 °C 73.47
0221-1215-2.set:0118 Ch18 Ambient 34.50/35.50 °C 35.04
utoScale
Realtime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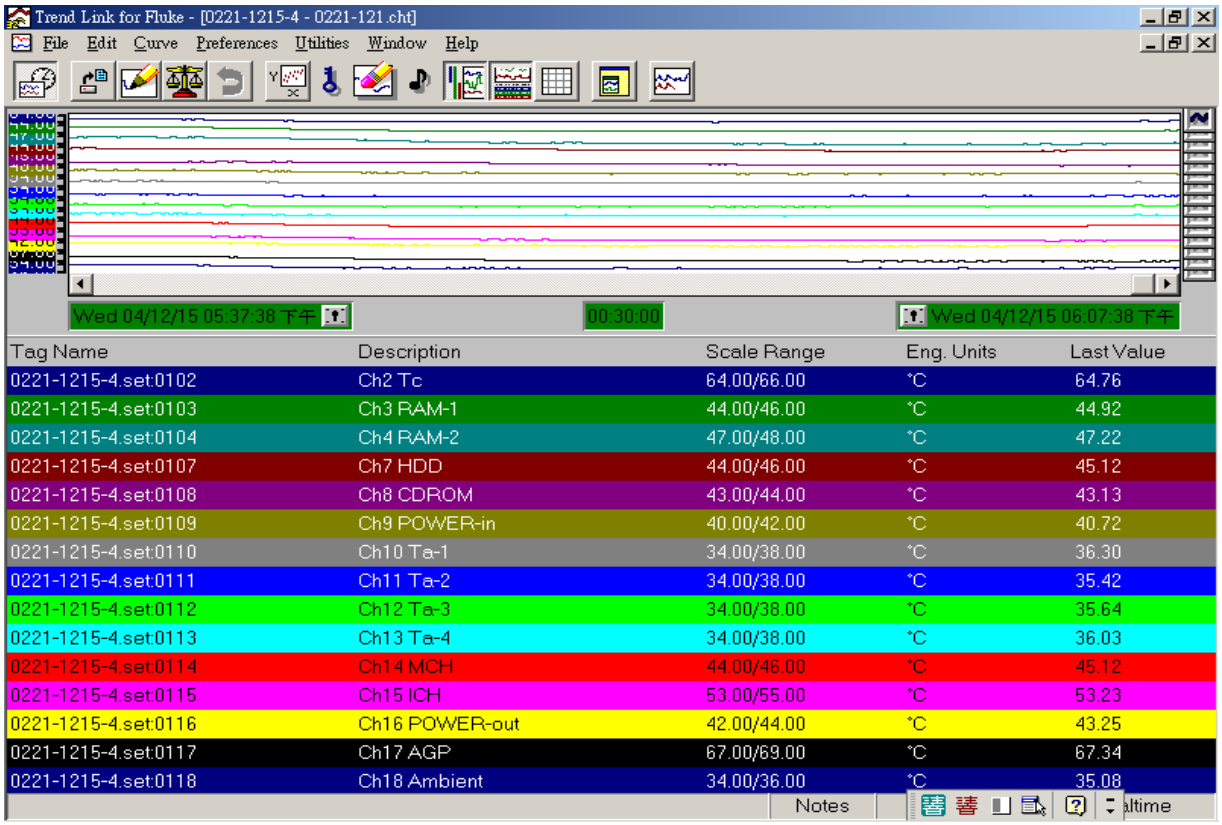
00:30:00
Wed 04/12/15 05:03:00 下午
Tag Name Description Scale Range Eng. Units Last Value
0221-1215-3.set:0102 Ch2 Tc 72.00/72.50 °C 72.29
0221-1215-3.set:0103 Ch3 RAM-1 52.00/54.00 °C 53.34
0221-1215-3.set:0104 Ch4 RAM-2 53.00/55.00 °C 54.42
0221-1215-3.set:0107 Ch7 HDD 44.00/48.00 °C 46.67
0221-1215-3.set:0108 Ch8 CDROM 40.00/45.00 °C 44.96
0221-1215-3.set:0109 Ch9 POWER-in 40.00/42.00 °C 41.57
0221-1215-3.set:0110 Ch10 Ta-1 49.00/51.00 °C 50.08
0221-1215-3.set:0111 Ch11 Ta-2 48.00/52.00 °C 49.96
0221-1215-3.set:0112 Ch12 Ta-3 46.00/50.00 °C 47.98
0221-1215-3.set:0113 Ch13 Ta-4 47.00/49.00 °C 48.59
0221-1215-3.set:0114 Ch14 MCH 58.00/59.00 °C 58.58
0221-1215-3.set:0115 Ch15 ICH 64.00/66.00 °C 65.11
0221-1215-3.set:0116 Ch16 POWER-out 42.00/43.00 °C 42.76
0221-1215-3.set:0117 Ch17 AGP 80.00/82.00 °C 81.56
0221-1215-3.set:0118 Ch18 Ambient 34.00/36.00 °C 35.10
utoScale
Realtime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Wed 04/12/15 06:07:38 下午
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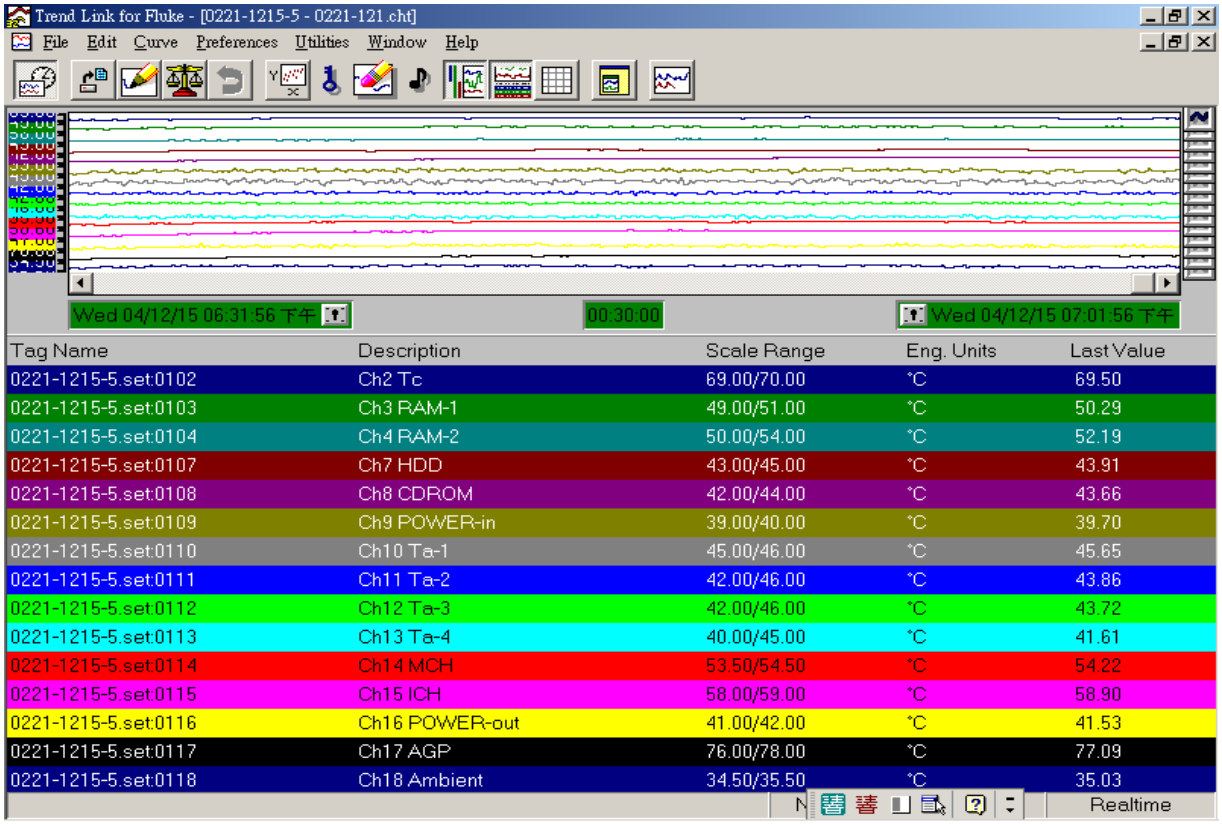
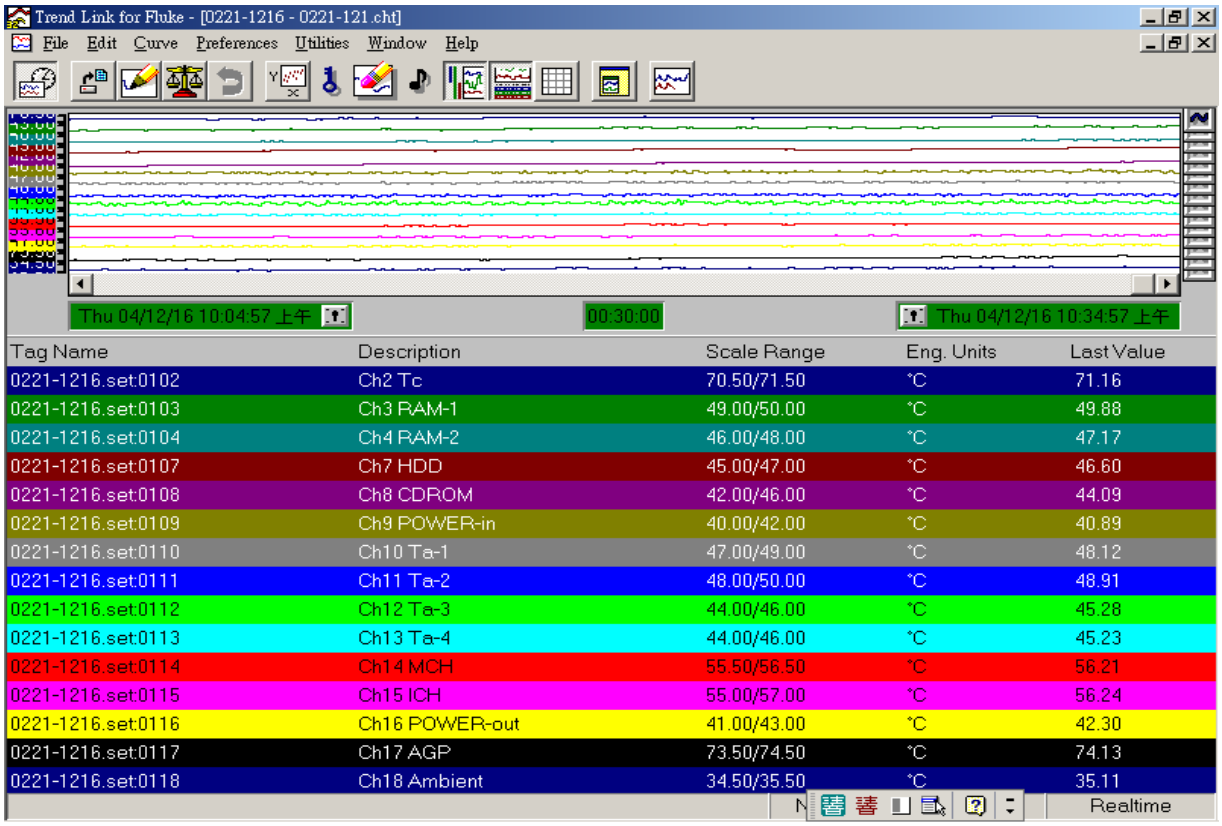
0221-1215-4.set:0102 Ch2 Tc 64.00/66.00 °C 64.76
0221-1215-4.set:0103 Ch3 RAM-1 44.00/46.00 °C 44.92
0221-1215-4.set:0104 Ch4 RAM-2 47.00/48.00 °C 47.22
0221-1215-4.set:0107 Ch7 HDD 44.00/46.00 °C 45.12
0221-1215-4.set:0108 Ch8 CDROM 43.00/44.00 °C 43.13
0221-1215-4.set:0109 Ch9 POWER-in 40.00/42.00 °C 40.72
0221-1215-4.set:0110 Ch10 Ta-1 34.00/38.00 °C 36.30
0221-1215-4.set:0111 Ch11 Ta-2 34.00/38.00 °C 35.42
0221-1215-4.set:0112 Ch12 Ta-3 34.00/38.00 °C 35.64
0221-1215-4.set:0113 Ch13 Ta-4 34.00/38.00 °C 36.03
0221-1215-4.set:0114 Ch14 MCH 44.00/46.00 °C 45.12
0221-1215-4.set:0115 Ch15 ICH 53.00/55.00 °C 53.23
0221-1215-4.set:0116 Ch16 POWER-out 42.00/44.00 °C 43.25
0221-1215-4.set:0117 Ch17 AGP 67.00/69.00 °C 67.34
0221-1215-4.set:0118 Ch18 Ambient 34.00/36.00 °C 35.08
Notes
ltime



Tag Name	Description	Scale Range	Eng. Units	Last Value
0221-1215-5.set:0102	Ch2 Tc	69.00/70.00	°C	69.50
0221-1215-5.set:0103	Ch3 RAM-1	49.00/51.00	°C	50.29
0221-1215-5.set:0104	Ch4 RAM-2	50.00/54.00	°C	52.19
0221-1215-5.set:0107	Ch7 HDD	43.00/45.00	°C	43.91
0221-1215-5.set:0108	Ch8 CDROM	42.00/44.00	°C	43.66
0221-1215-5.set:0109	Ch9 POWER-in	39.00/40.00	°C	39.70
0221-1215-5.set:0110	Ch10 Ta-1	45.00/46.00	°C	45.65
0221-1215-5.set:0111	Ch11 Ta-2	42.00/46.00	°C	43.86
0221-1215-5.set:0112	Ch12 Ta-3	42.00/46.00	°C	43.72
0221-1215-5.set:0113	Ch13 Ta-4	40.00/45.00	°C	41.61
0221-1215-5.set:0114	Ch14 MCH	53.50/54.50	°C	54.22
0221-1215-5.set:0115	Ch15 ICH	58.00/59.00	°C	58.90
0221-1215-5.set:0116	Ch16 POWER-out	41.00/42.00	°C	41.53
0221-1215-5.set:0117	Ch17 AGP	76.00/78.00	°C	77.09
0221-1215-5.set:0118	Ch18 Ambient	34.50/35.50	°C	35.03



Tag Name	Description	Scale Range	Eng. Units	Last Value
0221-1216.set:0102	Ch2 Tc	70.50/71.50	°C	71.16
0221-1216.set:0103	Ch3 RAM-1	49.00/50.00	°C	49.88
0221-1216.set:0104	Ch4 RAM-2	46.00/48.00	°C	47.17
0221-1216.set:0107	Ch7 HDD	45.00/47.00	°C	46.60
0221-1216.set:0108	Ch8 CDROM	42.00/46.00	°C	44.09
0221-1216.set:0109	Ch9 POWER-in	40.00/42.00	°C	40.89
0221-1216.set:0110	Ch10 Ta-1	47.00/49.00	°C	48.12
0221-1216.set:0111	Ch11 Ta-2	48.00/50.00	°C	48.91
0221-1216.set:0112	Ch12 Ta-3	44.00/46.00	°C	45.28
0221-1216.set:0113	Ch13 Ta-4	44.00/46.00	°C	45.23
0221-1216.set:0114	Ch14 MCH	55.50/56.50	°C	56.21
0221-1216.set:0115	Ch15 ICH	55.00/57.00	°C	56.24
0221-1216.set:0116	Ch16 POWER-out	41.00/43.00	°C	42.30
0221-1216.set:0117	Ch17 AGP	73.50/74.50	°C	74.13
0221-1216.set:0118	Ch18 Ambient	34.50/35.50	°C	35.11

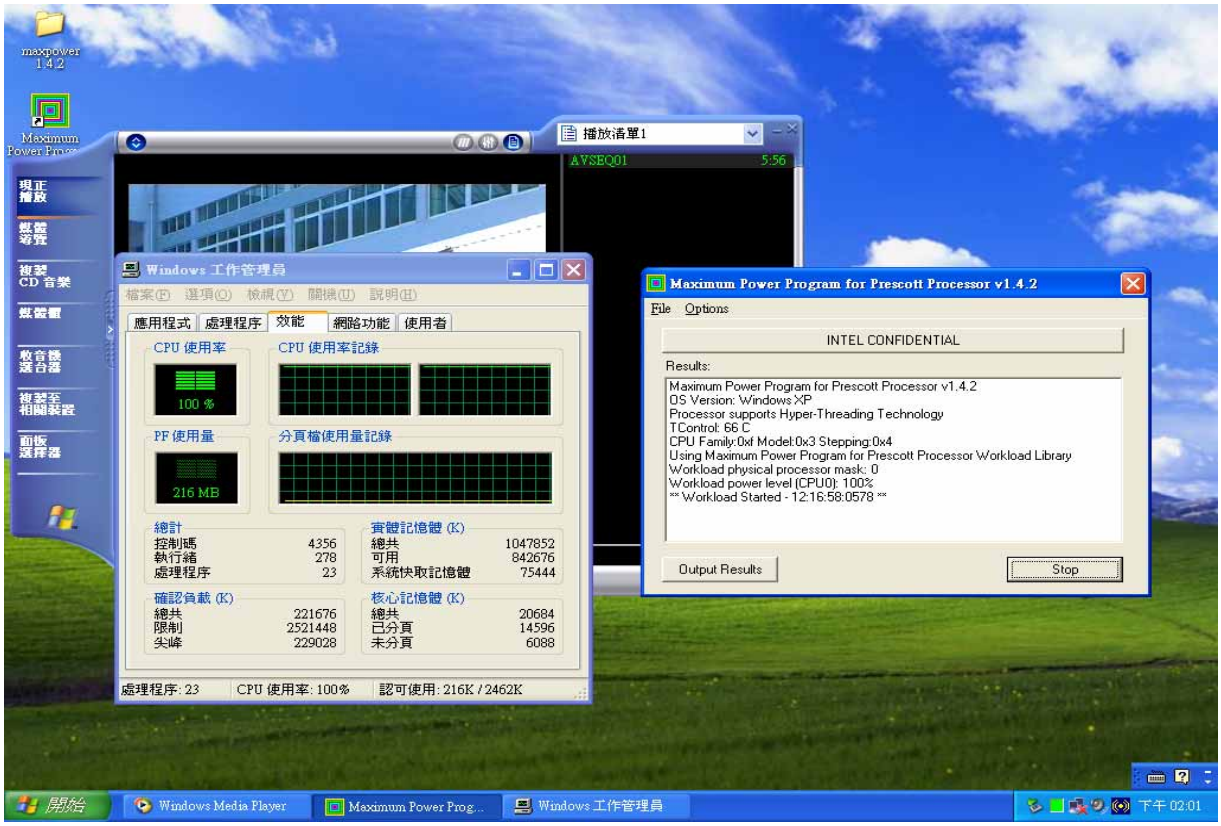

maxpower 1.4.2
播放清單1
AVSEQ01 5:56
Windows 工作管理員
檔案(F) 選項(O) 檢視(V) 關機(U) 說明(H)
應用程式 處理程序 效能 網路功能 使用者
CPU 使用率
100 %
CPU 使用率記錄
PF 使用量
216 MB
分頁檔使用量記錄
總計
控制碼 4356
執行緒 278
處理程序 23
實體記憶體 (K)
總共 1047852
可用 842676
系統快取記憶體 75444
確認負載 (K)
總共 221676
限制 2521448
尖峰 229028
核心記憶體 (K)
總共 20684
已分頁 14596
未分頁 6088
處理程序: 23
CPU 使用率: 100%
認可使用: 216K / 2462K
Maximum Power Program for Prescott Processor v1.4.2
File Options
INTEL CONFIDENTIAL
Results:
Maximum Power Program for Prescott Processor v1.4.2
OS Version: Windows XP
Processor supports Hyper-Threading Technology
TControl: 66 C
CPU Family:0xf Model:0x3 Stepping:0x4
Using Maximum Power Program for Prescott Processor Workload Library
Workload physical processor mask: 0
Workload power level (CPU0): 100%
** Workload Started - 12:16:58:0578 **
Output Results
Stop
開始
Windows Media Player
Maximum Power Prog...
Windows 工作管理員
下午 02:01

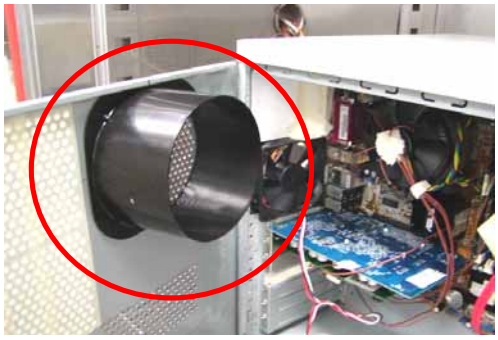
Table 4.2

	The view of the chassis front side-1.
	The view of chassis front side-2 side.
	The view of the chassis right side.
	The view of the chassis left side.

The view of the chassis back side.

The view of the thermocouples connections.

The view of system setup (HDD, CDROM, FDD, POWER).



The view of CAG1.1.