

Thermal Test Report
Model : YY-5603
Thermal Performance Contest

Date:Aug.05, 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 Xeon 3.2G processor .

2. References

ATX spec <http://formfactors.org>

3. Thermal Test

3.1 Test Configuration

Chassis	YY-5603
Power Supply	EMACS PSM-6600P 600W
Chassis Fan	Jamicon KF1225B1H, Quantity:2 Speed:2200RPM (High Speed) Jamicon JF1238B1H, Quantity:1 Speed:2800RPM (High Speed) <i>System config. To be tested with various modes, please refer to table 4.1 & 4.2</i>
Processor	Intel Xeon 3.2GHz(Nocona FSB 800MHz) Quantity:2
Processor Thermal solution	Intel Boxed Heatsink
Motherboard	ASUS NCCH-DL
Memory	Kingston DDR400 512MB, Quantity: 2
Hard Drive	SEAGATE 40G, Quantity: 1
SCSI Drive	SEAGATE ST39102LC 8G, Quantity: 3
CD ROM	Cyber CD526D 52X, Quantity: 1
Floppy Drive	Mitsumi D359M3, Quantity: 1
AGP Card	Albatron FX5200, Quantity: 1
SCSI Card	Adaptec 39320D Ultra 320 , Quantity: 1

3.2 Test Equipment Used

FULL SYSTEM OPERATION

Fluke Hydra 2635A

Software: 1. Intel Nacona MAXPOWER (100%)
2. Winthrax

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)

5. Summary: *PASS, The Tcase and Tambient value seems too margin at 35 °C ambient (the worst case). The test result is PASS at 30 °C ambient. The exactly operation room temperature shall not higher than 30 °C.*

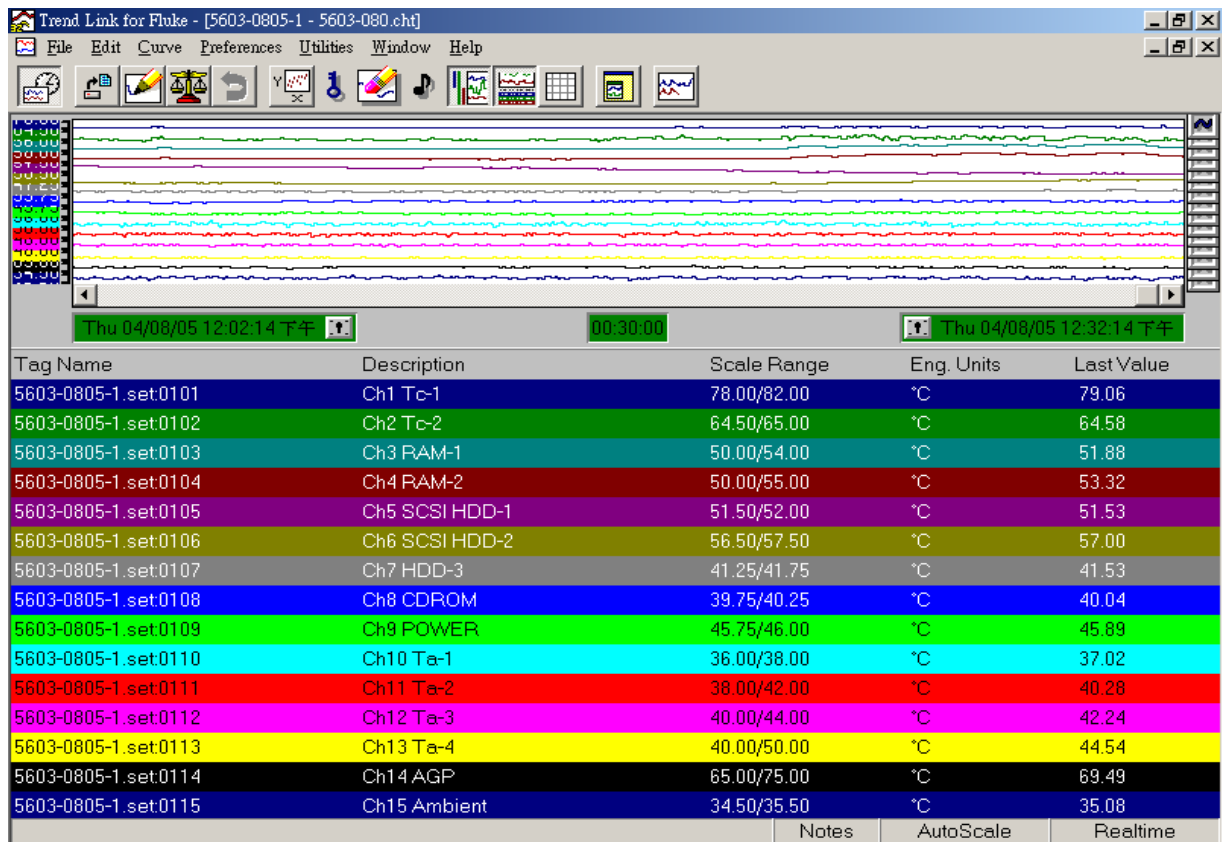
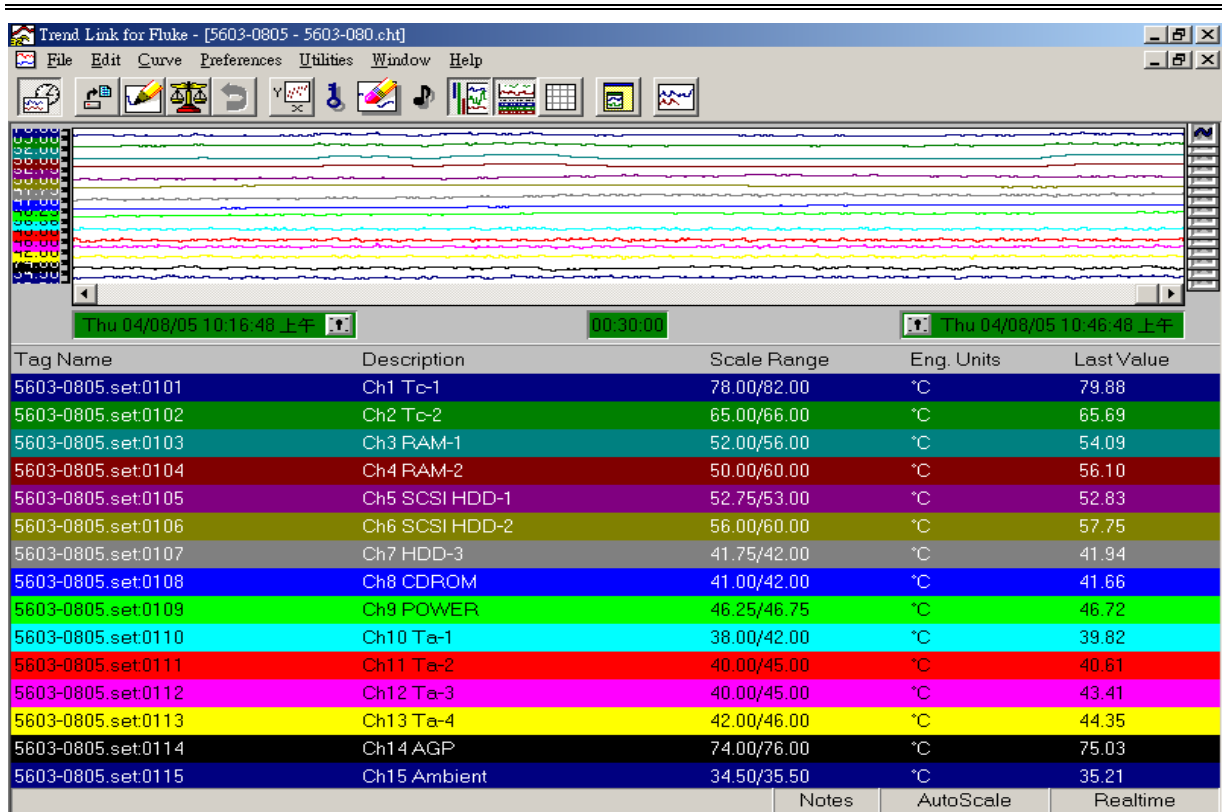
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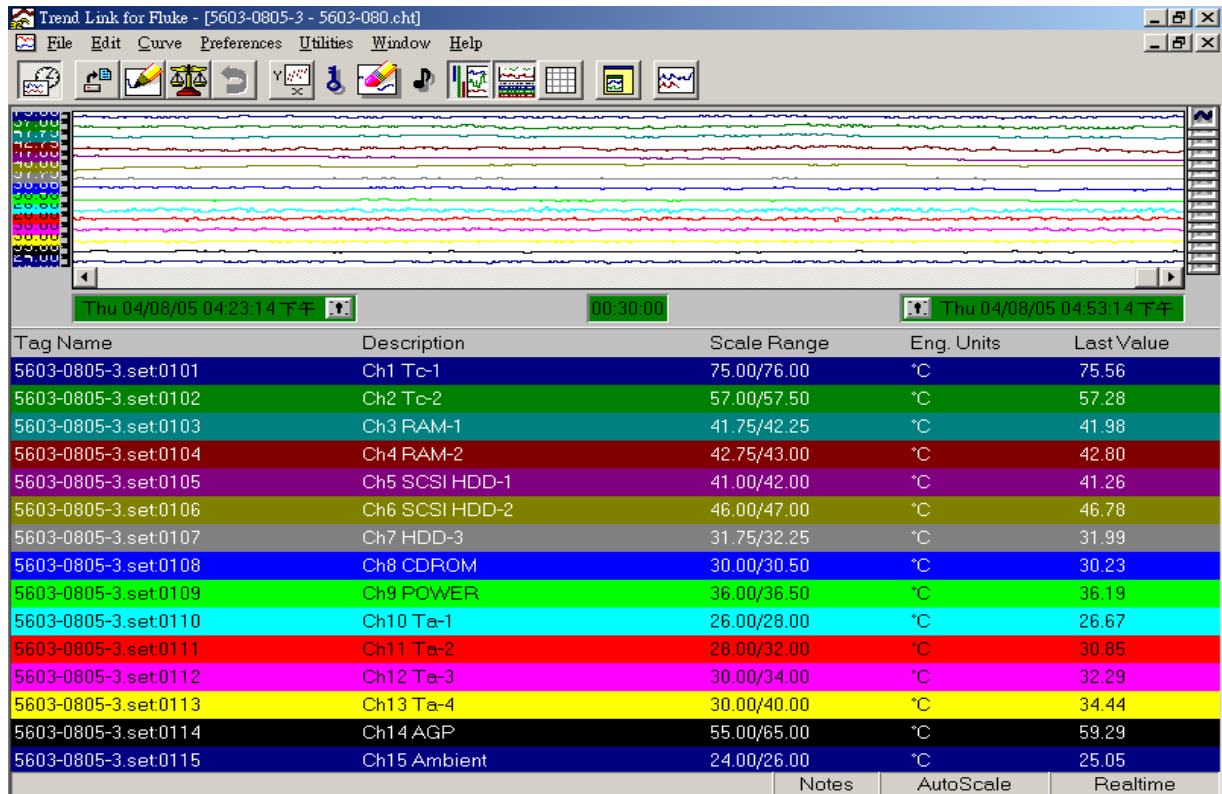
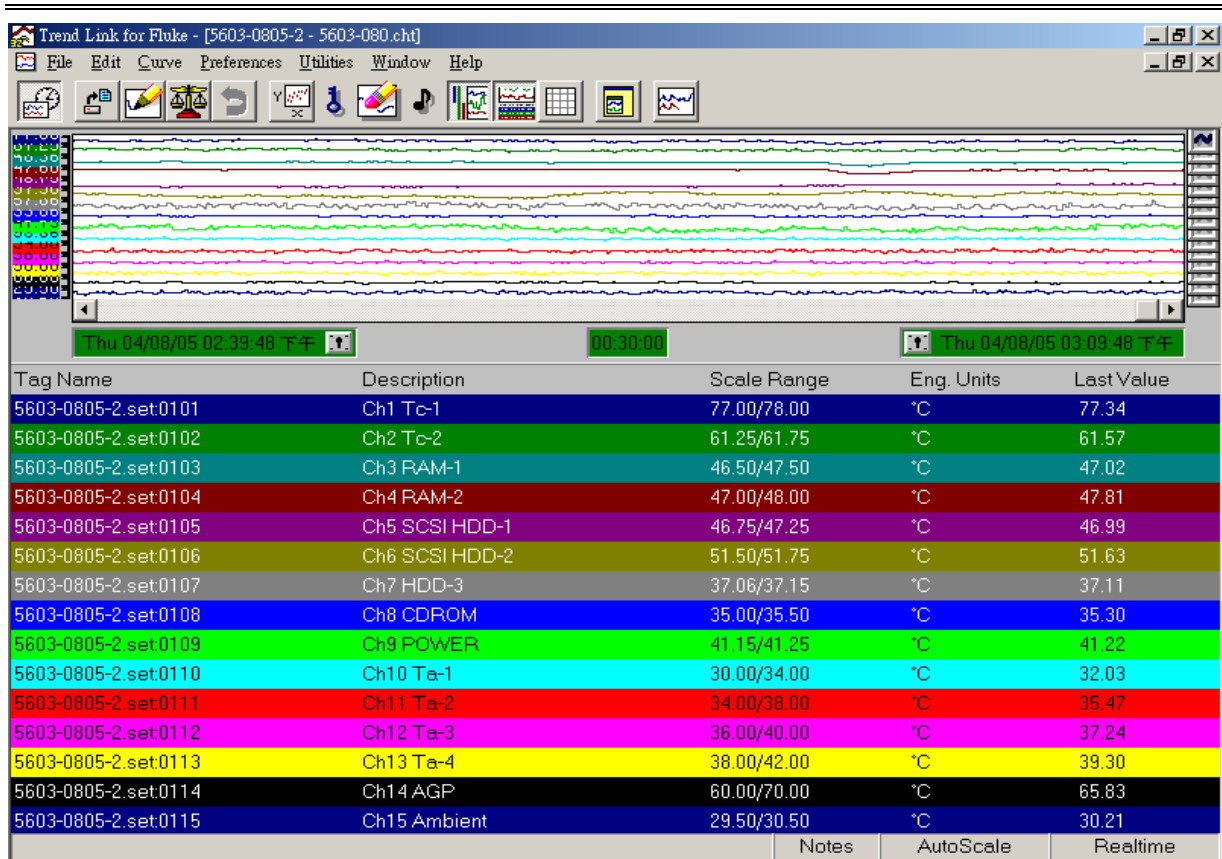
Table 4.1
Date: Aug.05.2004

Mode Introductions	Mode 1	Mode 2	Mode 3	Mode 4
Power Model	EMACS PSM-6600P (with 8cm Fan for airflow out, vents for air flow out)			
System Fan-12 cm (Mounted in front side of chassis)	Yes	Yes	Yes	Yes
System Fan-12 cm (Mounted in rear side of chassis)	Yes	Yes-1238 mm	Yes-1238 mm	Yes-1238 mm
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	54.1	51.9	47	42
DIMM-2	56.1	53.3	47.8	42.8
SCSI HDD-1	52.8	51.5	47	41.3
SCSI HDD-2	57.8	57	51.6	46.8
HDD-3	41.9	41.5	37.1	32
CD ROM	41.7	40	35.3	30.2
POWER	46.7	45.9	41.2	36.2
AGP Card	75	69.5	65.8	59.3
T-inlet 1	39.8	37	32	26.7
T-inlet 2	40.6	40.3	35.5	30.9
T-inlets average Tambient(1~2)	<u>40.2</u>	<u>38.7</u>	<u>33.8</u>	<u>28.8</u>
T-case-1	<u>79.9</u>	<u>79.1</u>	<u>77.3</u>	<u>75.6</u>
T-inlet 3	43.4	42.2	37.2	32.3
T-inlet 4	44.4	44.5	39.3	34.4
T-inlets average Tambient(3~4)	<u>43.9</u>	<u>43.4</u>	<u>38.3</u>	<u>33.4</u>
T-case-2	<u>65.7</u>	<u>64.6</u>	<u>61.6</u>	<u>57.3</u>
Ambient(case outside)	<u>35.2</u>	<u>35.1</u>	<u>30.2</u>	<u>25.1</u>

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Maximum Power Program for Nocona/Prescott Processor v1.3.2
File Options
INTEL CONFIDENTIAL
Results:
Maximum Power Program for Nocona/Prescott Processor v1.3.2
OS Version: Windows 2000
Processor with Hyper-Threading Technology
CPU Family:0xf Model:0x3 Stepping:0x4
Using Maximum Power Program for Nocona/Prescott Processor
Workload physical processor mask: 0
Workload power level (CPU0): 100%
*** Workload Started - 9:04:32:0859 ***
Workload physical processor mask: 1
Workload power level (CPU1): 100%
*** Workload Started - 9:04:32:0859 ***

Winthrax
Start Drives... Pause Options Quit About
Winthrax Version 3.09.02
0 Days, 03 Hrs, 27 Mins **NCR**

Task List	Copy	Comp	Err	Status
C: [F:]	40166	40165	0	Working
F: [G:]	156325	156249	0	Working
G: [H:]	122529	122527	0	Working
H: [C:]	130575	130573	0	Working

Windows Task Manager
File Options View Help
Applications Processes Performance
CPU Usage: 100%
CPU Usage History
MEM Usage: 296172
Memory Usage History
Totals:
Handles: 3829
Threads: 297
Processes: 31
Physical Memory (K):
Total: 1046956
Available: 681028
System Cache: 311784
Commit Charge (K):
Total: 296172
Limit: 2520472
Peak: 340500
Kernel Memory (K):
Total: 47896
Paged: 23316
Nonpaged: 24580
Processes: 31 CPU Usage: 100% Mem Usage: 296172K / 2520472

Start My Computer unttled - Paint 12:32 PM

Table 4.2



The view of the chassis front side.



The view of the chassis right side.



The view of the chassis left side.



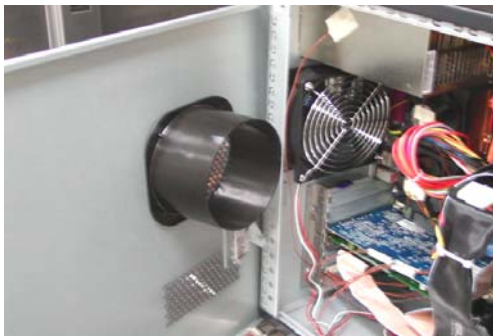
The view of the chassis back side.



The view of the thermocouples connections.



The view of SCSI HDD Module.



The view of Airguide(CAG 1.1) & 1238 Fan .