Thermal Test Report

Model Name : SR10569

Rev : A

Approved by: Jounghwa Lin Issued by: Doreen Lee

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1. Executive Summary of Results

The Chenbro Micom SR10569 Chassis provides adequate cooling for the ASUS P5E-VM HDMI motherboard with four Western Digital 500GB SATAII Hard Drives and one Intel Core 2 Quad Q6600 processors.

Thermal Test	Test Results
Processor 1	PASS

Table 1 – Summary of Results

2. Introduction

The purpose of this test is to ensure that the design of tested chassis model can pass the thermal goal under specific configuration which is either inquired or the most critical one.

The components examined during this test are processors. The Room Ambient Temperature (T-Room) is specified to 35 degree C.

This report has defined test configuration, test setup, test procedures and all the relevant modifications. The test result would be valid only when the same circumstance has been applied.

The test was done by Chenbro Micom Co., Ltd. which is located at following address:

15Fl., No.150,Jian Yi Road, Chung Ho City, Taipei Hsien, Taiwan, R.O.C.

3. Test Configuration

The tested system configuration is as following.

Component	Manufacturer	Model Number	Q'ty	Specification
Chassis	Chenbro	SR10569	1	Pedestal Server chassis
Main Board	ASUS	P5E-VM HDMI	1	Full function
CPU Type	Intel	Core 2 Quad Q6600	1	2.4GHz PCG05A
Memory	ADATA	DDR2 800(5) 1GX8	2	1GB DDR2
Chipset	Intel	I946GZ	1	Full Function
VGA Card	Intel	GMA 3000	1	On board
Hard Drive	Western Digital	WD50000YS-01MPB1	4	SATAII 500GB
CD-ROM	ASUS	CD-S520/A4	1	52X speed CD-ROM
PSU	FSP	Engineer Sample (FSP600-80GLN)	1	600W
HDD Cooling Fan (middle)	TOP MOTOR	DF121225SL-3	1	120x120x25/1500RPM
System Fan (Rear)	Magic	MGT12012LB-O25	1	120x120x25/1500RPM
CPU Cooler	Noise Limit	Engineer Sample	1	Active Heatsink (2500RPM)

Table 2 – System Configuration

4. Chassis Description (as Tested)

The SR10569 chassis is a Pedestal Server chassis that may ship with a FSP 600W power supply (optional) and two system fans. It has one exposed Standard CD-ROM drive bay and four 3.5” Hot-swap HDD drive bays.

The dimensions of this chassis are 20.9”D x 7.8”W x 16.7”H

The chassis is manufactured by Chenbro Micom Co., Ltd. which is located at following address:

15Fl., No.150,Jian Yi Road, Chung Ho City, Taipei Hsien, Taiwan, R.O.C.

5. Test Equipment Used

Thermal Chamber

The thermal chamber’s picture is as following. This thermal chamber can control the Room Ambient Temperature (T-Room) at 35 degree C.

Fig. 1 – Thermal Chamber

Thermocouples

T-type, 36AWG thermocouples are attached to the components.

Data Acquisition System

The picture of Data Acquisition System is as following. The Data Acquisition System includes one Agilent BenchLink Data Logger,48 channel temperature recorder and one PC for logging the measured temperature data. The communication interface between recorder and PC is RS-232C.

Fig. 2 – Data Acquisition System

6. Support Software

The following software was used in this test.

- Maximum Power Program for the Kentsfield Processor Rev1.1.
- I/O Meter. Rev.2003.05.10
- Agilent BenchLink Data Logger Rev.1.5.030305.
- Intel Frequency Display
- Windows XP + SP2

7. Test Setup and Procedure

- Installation of the tested system
- Installation of the operating system with device drivers
- Installation of the stress software utilities
- Installation of the thermocouples
- Place the tested system into thermal chamber
- Power up the tested system
- Run the processor stress utility at 85% loading for both processors
- Run the utilities of the other devices such as HDD for simulating maximum loading
- Run the Data Logging Software to record the measurements
- Power on the process controller on the thermal chamber and control the room ambient at 35 degree C
- After the measured temperatures are settled, record the test duration and analyze the measurements.

8. Test Results

Summary

With Maximum Power Program for the Kentsfield Processor Rev1.1 running, the case temperature of processors did not exceed the specification for the one Intel Core 2 Quad Q6600 processors under specified configuration. **Intel Frequency Display window did NOT have the instant warning message** (to present the over-heat status includes message color changed).

Detail

Measured Points	Max. Specified Temp Limit (deg C)	Measurements @35 (deg C)	Compensated Data* (deg C)
1.T-CASE1	70	60.2	60.3
2.T-A	Reference	38.3	38.4
3.VRM	105	72.3	72.4
4.North Bridge	99	43.6	43.7
5.South Bridge	115	46.5	46.6
6.Memory	Reference	45.0	45.1
7.Memory	Reference	43.7	43.8
8.HDD-1	55	48.2	48.3
9.HDD-2	55	50.7	50.8
10.HDD-3	55	50.0	50.1
11. T-ROOM	35	34.9	35.0

Table 3 – Detail of Test Results

*Compensated Data = Measurement+(35–T-Room)
= Measurement+(35–34.9)
= Measurement + 0.1

Test Duration: 24 hours.

9. Conclusion

The SR10569 chassis (as tested) does provide adequate cooling for the one Intel Core 2 Quad Q6600 processors.
The maximum temperatures of processors, which were at 85% loading of processors stress utility under 35 degree C room ambient. The most important part of the test result was that Intel Frequency Display window did NOT present the warning message.

The tested system does not necessarily represent the absolute worst-case that the system is subject to.

The system is not maximally loaded with add-in cards and their associated cables that could cause the internal temperatures to increase and reroute airflow.

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10. Appendix A - System Setup

Fig. 3 – System Setup

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11. Appendix B - Measured Points

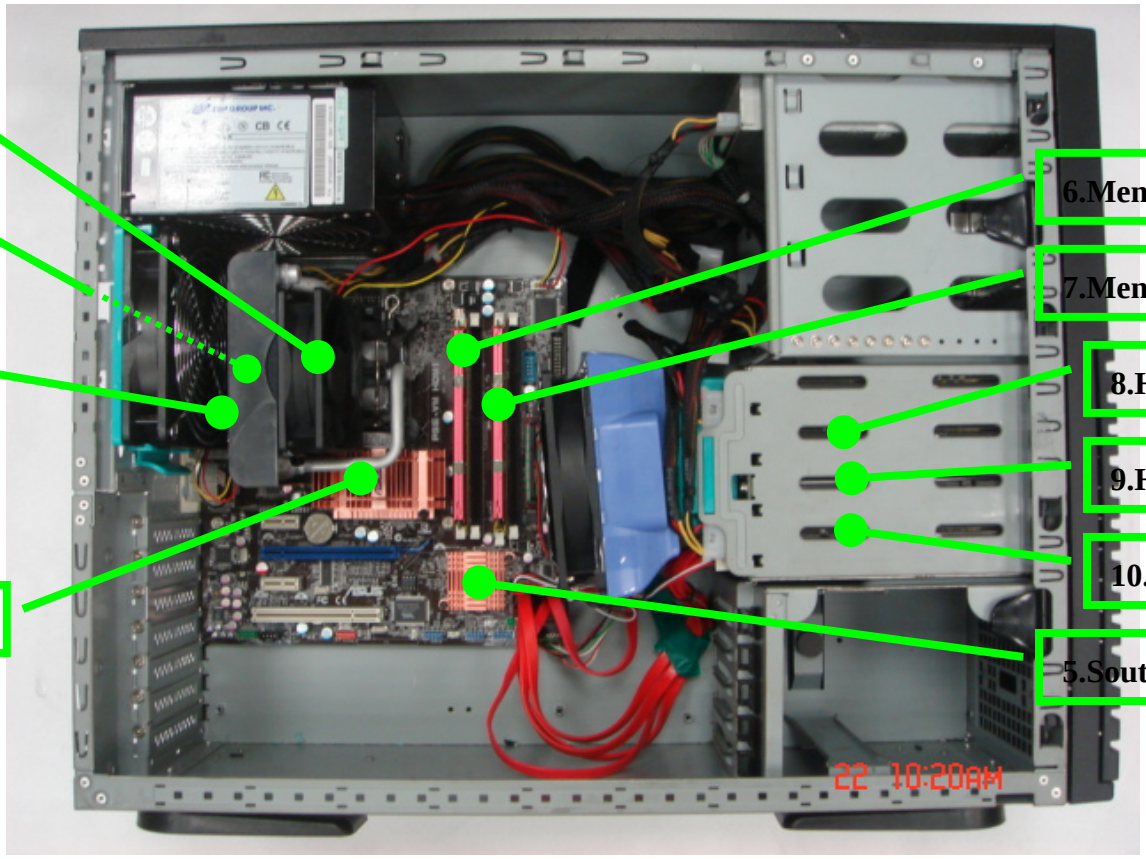

Fig. 4 – Measured Points

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12. Appendix C - Real-Time Trend

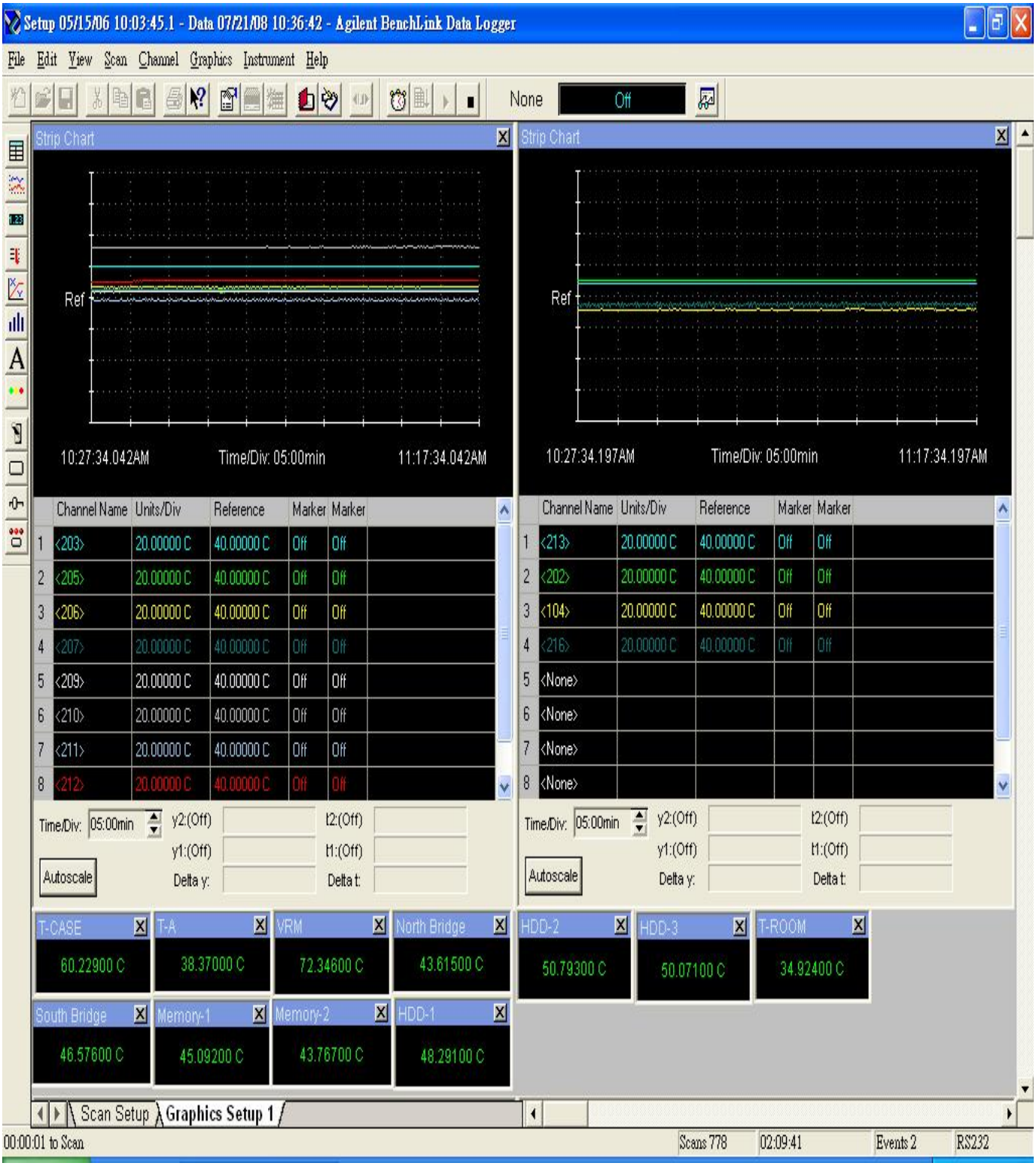

Fig. 5 – Real-time Trend

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13. Appendix D - Intel Frequency Display

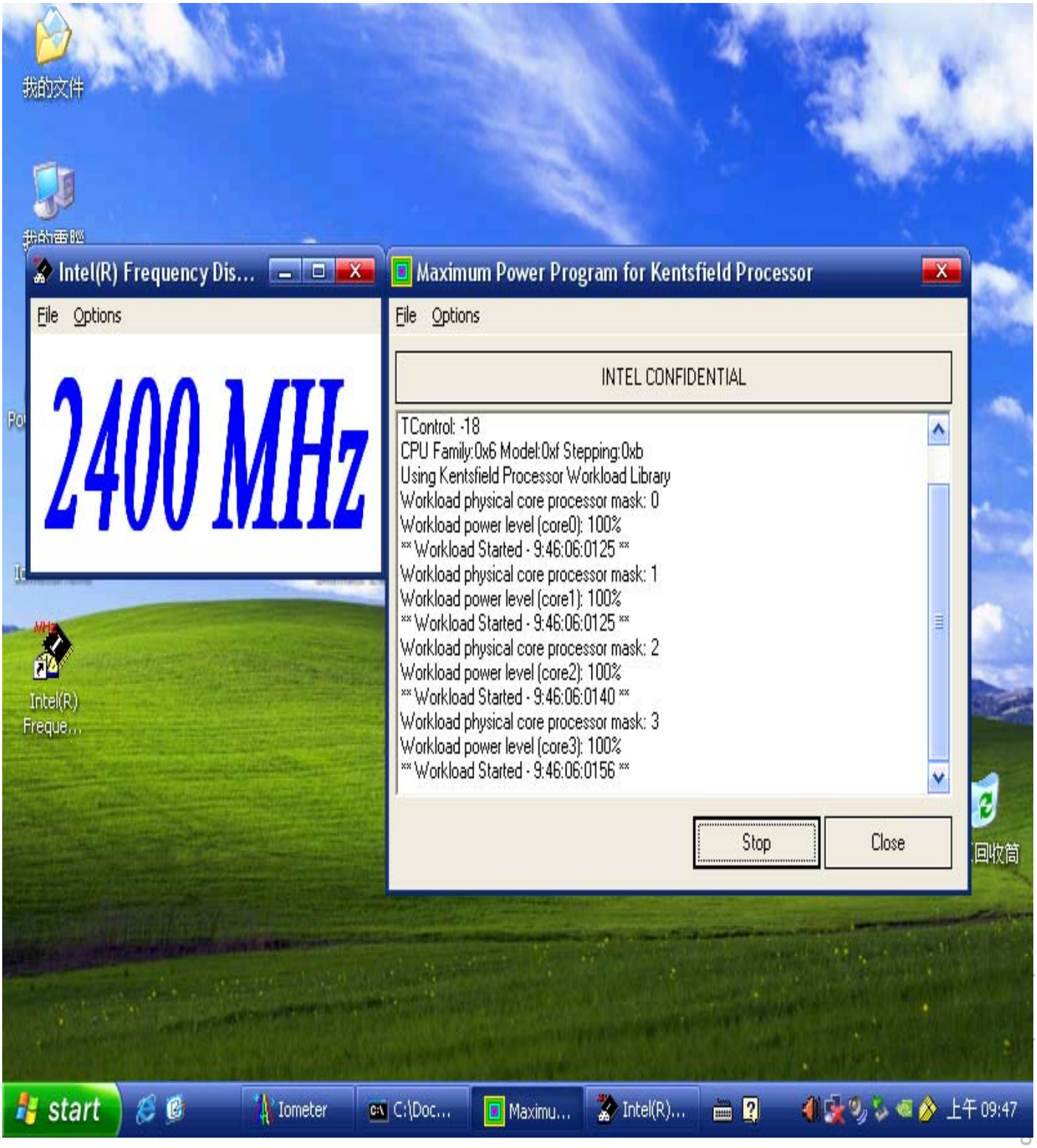

Fig. 6 – Intel Frequency Display