

Thermal Test Report

Model Name : **ES34069**

Rev : **A**



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1. Executive Summary of Results

The Chenbro Micom [ES34069](#) Chassis provides adequate cooling for the [Albatron KI690-AM2](#) motherboard with [four Seagate 750GB SATAII](#) Hard Drives and [one AMD Athlon 64X2 3800](#) processor.

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 the processor. The Room Ambient Temperature (T-Room) is specified to 30 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	ES34069	1	Mini-Tower chassis
Main Board	Albatron	KI690-AM2	1	Full function
CPU Type	AMD	Athlon64X2 3800	1	Socket AM2
Memory	Kingston	KVR667D2S5/512	1	DDR2 667 SO-DIMM memory module
Chipset	AMD	690G	1	Full Function
VGA	ATI	Radeon Xpress 1250	1	On Board VGA
LAN (on board)	Marvell	88E8056	1	1Gb/s Controller
Hard Drive	Seagate	ST3750640AS	4	SATAII 750GB
PSU	FSP	FSP150-AAA	1	150W PSU
System Fan (rear)	Migac	Engineer Sample	1	70x70x20/2000 RPM
CPU Cooler	ZAWARD	Engineer Sample	1	Aluminum Heatsink
CPU Fan	ZAWARD	Engineer Sample	1	80x80x15/2500 RPM

Table 2 – System Configuration

4. Chassis Description (as Tested)

The ES34069 chassis is a Mini-Tower chassis that may ship with a FSP 150W power supply (optional) and two system fans. It has one exposed slim CD-ROM drive bay and four 3.5" Hotswap HDD drive bays.

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 30 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 34970A, 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.

- ♦ [AMD ThermNow!_Setup_v3.0.0.61](#)
- ♦ [I/O Meter. Rev.2003.05.10](#)
- ♦ [Agilent BenchLink Data Logger Rev.1.5.030305.](#)
- ♦ Windows XP + SP2 (English version)

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 100% loading for the processor
- ♦ 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 30 degree C
- ♦ After the measured temperatures are settled, record the test duration and analyze the measurements.

8. Test Results

Summary

With [AMD ThermNow!](#) running, the case temperature of processors did not exceed the specification for the [one AMD Athlon64X2 3800](#) processor under specified configuration. The temperatures measured were within specification by a minimum margin of [7.3](#) degree C.

Detail

Measured Points	Max. Specified Temp Limit (deg C)	Measurements @35 (deg C)	Compensated Data* (deg C)	Margin (deg C)
1.T-CASE	69	61.7	61.7	7.3
2.T-A	Reference	31.8	31.8	
3.VRM	105	91.8	91.8	
4.Memory	70	61.1	61.1	
5.North-Bridge	99	73.0	73.0	
6.South-Bridge	115	61.7	61.7	
7.HDD-1	55	51.4	51.4	
8.HDD-2	55	53.2	53.2	
9.HDD-3	55	48.4	48.4	
10.HDD-4	55	49.8	49.8	
11.T-ROOM	30	30.0	30.0	

Table 3 – Detail of Test Results

*Compensated Data = Measurement+(30–T-Room)
= Measurement+(30–[30.0](#))
= Measurement – [0.0](#)

Test Duration: [24 hours](#).

9. Conclusion

The [ES34069](#) chassis (as tested) does provide adequate cooling for the [one AMD Athlon64X2 3800](#) processor.

The maximum temperatures of processor, which were at [100%](#) loading of processor stress utility under [30](#) degree C room ambient, were below the maximum limit of temperature which is defined by the manufacturers. The margins in this report reflect a combination of worst cases.

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.

10. Appendix A - System Setup



Fig. 3 – System Setup

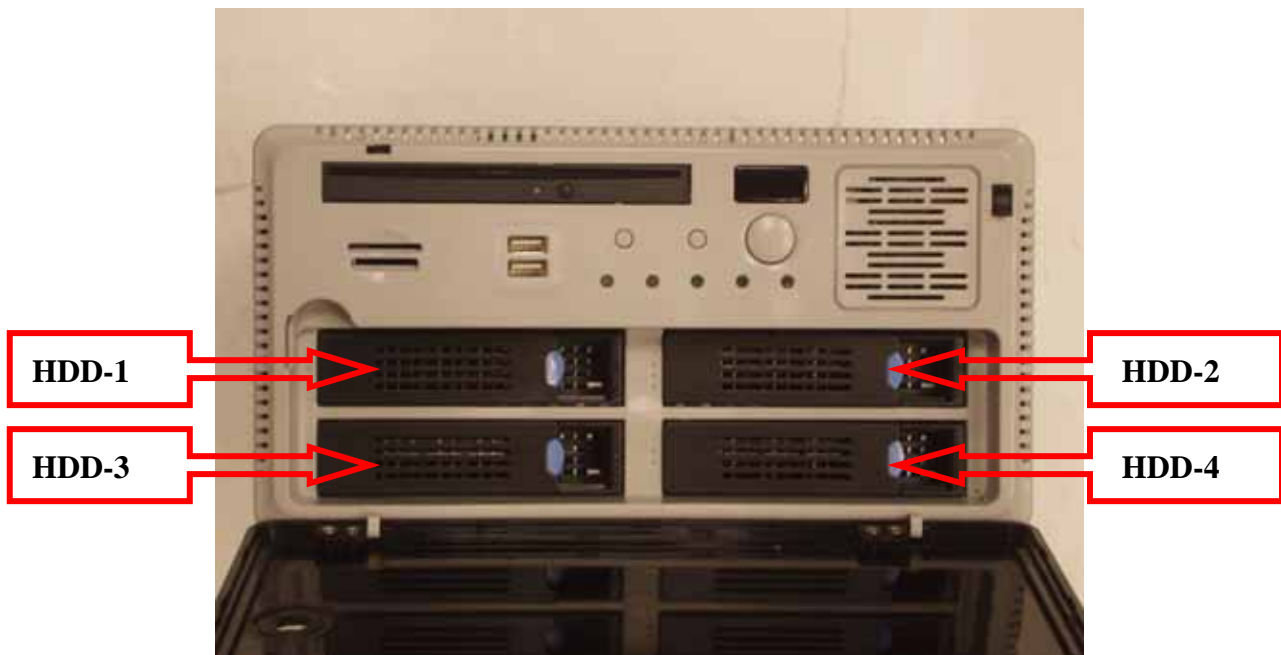


Fig. 4 –HDD Setup

11. Appendix B - Measured Points

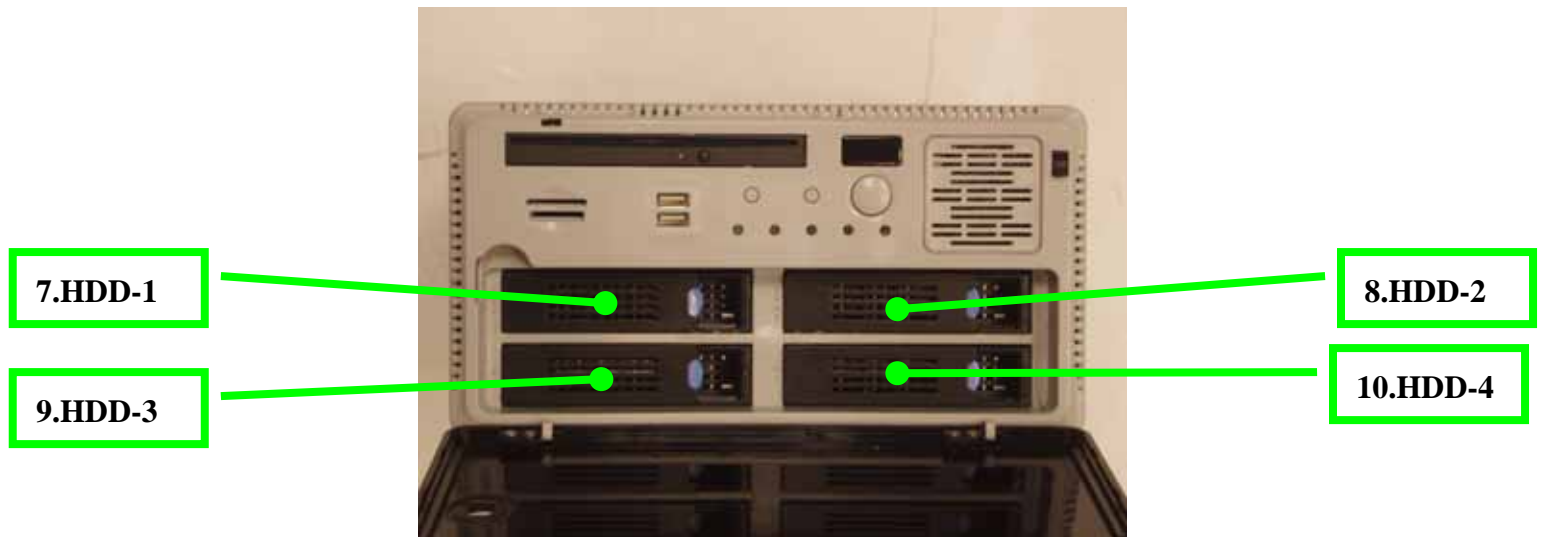
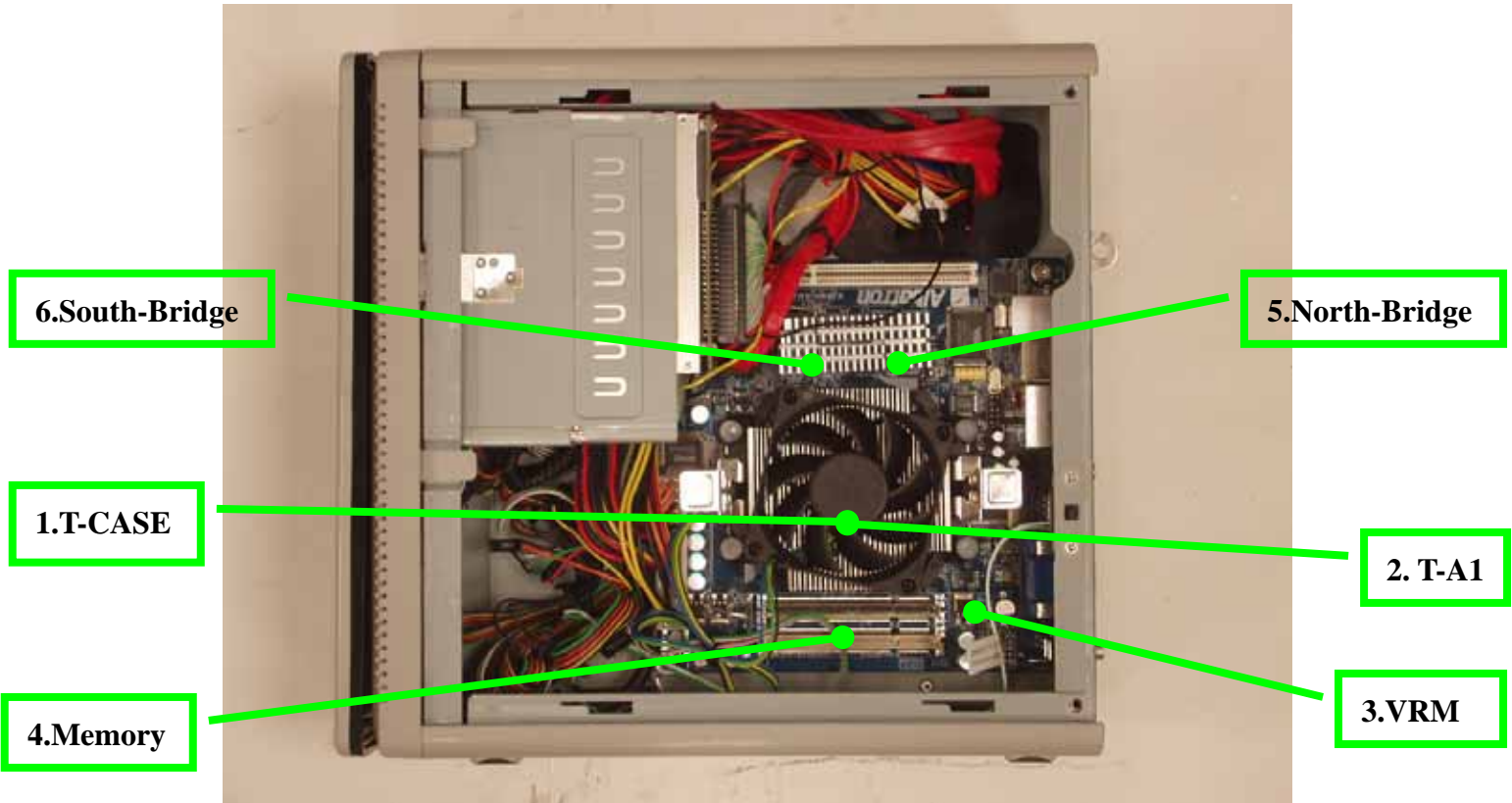


Fig. 5 – Measured Points

12. Appendix C - Real-Time Trend

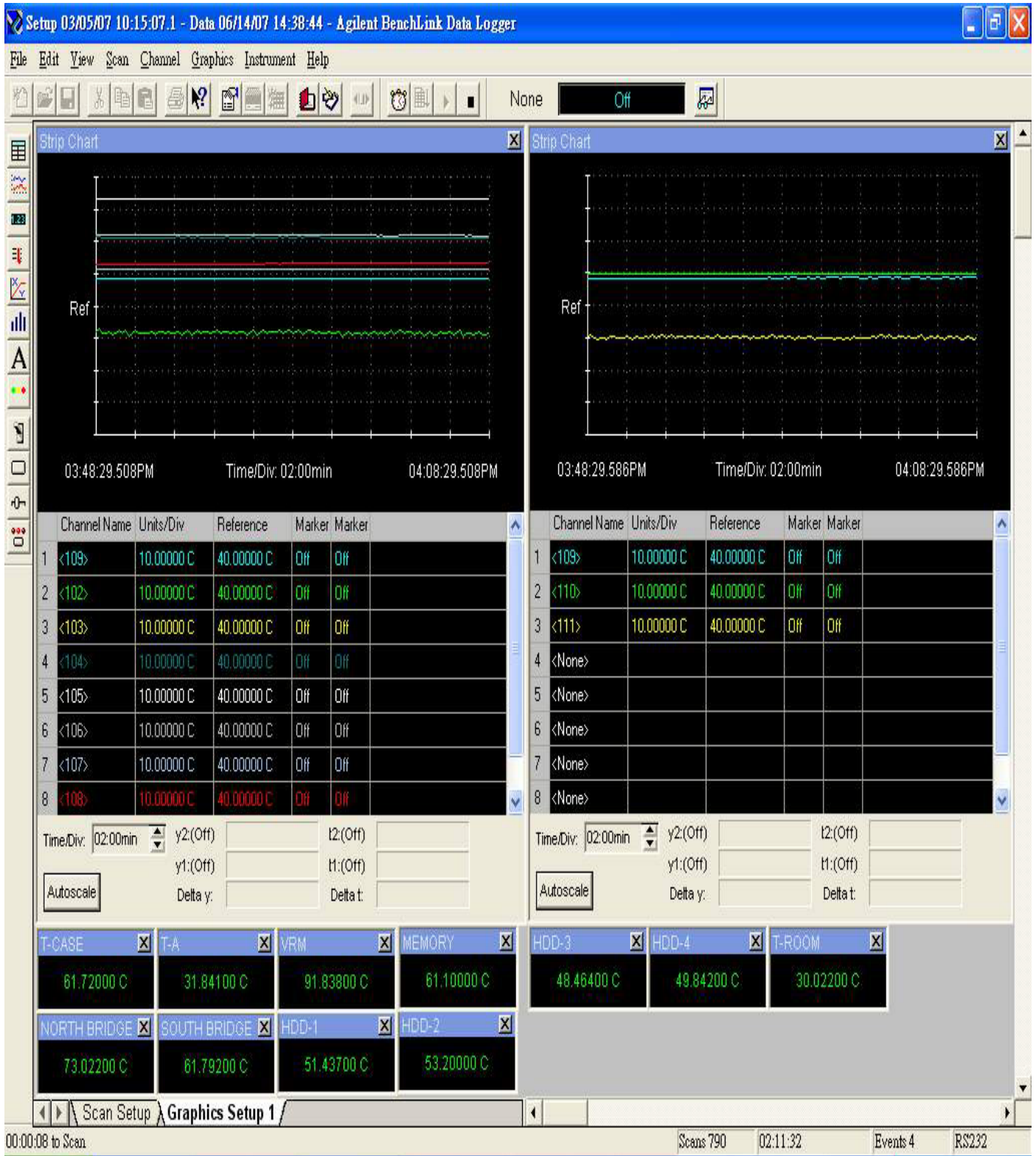


Fig.6 – Real-Time Trend