Thermal Test Report

Model Name : SR107

REV : A

Approved by: Jounghwa Lin Issued by: Max Cheng

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1. Executive Summary of Results

The Chenbro Micom SR107 Chassis provides adequate cooling for the Intel S5000PSL board with one Western Digital 80GB SATAII Hard Drive, eight HITACHI SCSI Ultra320 Hard Drives and Dual 3.0GHz Intel Dempsey processors.

Thermal Test	Test Results
Processor 1	PASS
Processor 2	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	SR107	1	Pedestal Server chassis
Main Board	Intel	S5000PSL	1	Full function
CPU Type	Intel	3.0GHz Dempsey	2	Socket 771
Memory	Kingston	KVR533D2D8F4/1G	8	1GB Fully Buffer Dimm modules
Chipset	Intel	5000P	1	Full Function
VGA	MSI	NX6600-TD256E	1	nVidia 6600
Hard Drive	Western Digital	WD800JD-22LSA0	1	SATAII 80GB
Hard Drive	HITACHI	IC35L036UCDY10-0	8	SCSI Ultra 320 HDD
CD-ROM	ASUS	CD-S520/A4	1	52X speed
SCSI RAID CARD	Adapter	2200S	1	SCSI ULTRA 320
PSU	FSP	FSP600-80GLC	1	600W PSU
System Fan (middle)	DELTA	AFB1212SH-4L10	2	120x120x25/3400RPM
System Fan (Rear)	DELTA	AFB1212SH-4L10	1	120x120x25/3400RPM
CPU Cooler	CPUMATE	Engineer Sample	2	Active Heatsink

Table 2 – System Configuration

4. Chassis Description (as Tested)

The SR107 chassis is a Pedestal Server chassis that may ship with a FSP 600W power supply (optional) and three system fans. It has three exposed Standard CD-ROM drive bays,one exposed standard FDD drive bay and eight 3.5” Hotswap HDD drive bays..

The dimensions of this chassis are 24.4”D x 8.7”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,48channel 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 Dempsey Processor
- I/O Meter. Rev.2003.05.10
- Agilent BenchLink Data Logger Rev.1.5.030305.
- Intel Frequency Display
- 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 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 Dempsey Processor running, the case temperature of processors did not exceed the specification for the Dual 3.0GHz Intel Dempsey 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	Reference	59.3	59.2
2.T-CASE2	Reference	57.2	57.1
3.Memory-1	Reference	71.0	70.9
4.Memory-2	Reference	76.9	76.8
5.Memory-3	Reference	72.9	72.8
6.Memory-4	Reference	76.3	76.2
7.Memory-5	Reference	70.4	70.3
8.Memory-6	Reference	74.4	74.3
9.Memory	Reference	69.9	69.8
10.Memory	Reference	67.2	67.1
11.Memory In	Reference	52.8	52.7
12.Memory Out	Reference	51.0	50.9
13.VRM	105	59.8	59.7
14.NORTH BRIDGE	85	67.7	67.6
15.SOUTH BRIDGE	85	55.8	55.7
16.T-ROOM	35	35.1	35.0

Table 3 – Detail of Test Results

*Compensated Data = Measurement+(35–T-Room)
= Measurement+(35–35.1)
= Measurement – 0.1

Test Duration: 24 hours.

9. Conclusion

The SR107 chassis (as tested) does provide adequate cooling for the Dual 3.0GHz Intel Dempsey processors.

The maximum temperatures of processors, which were at 100% loading of processor 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.

10. Appendix A - System Setup

Fig. 3 – System Setup

11. Appendix B - Measured Points

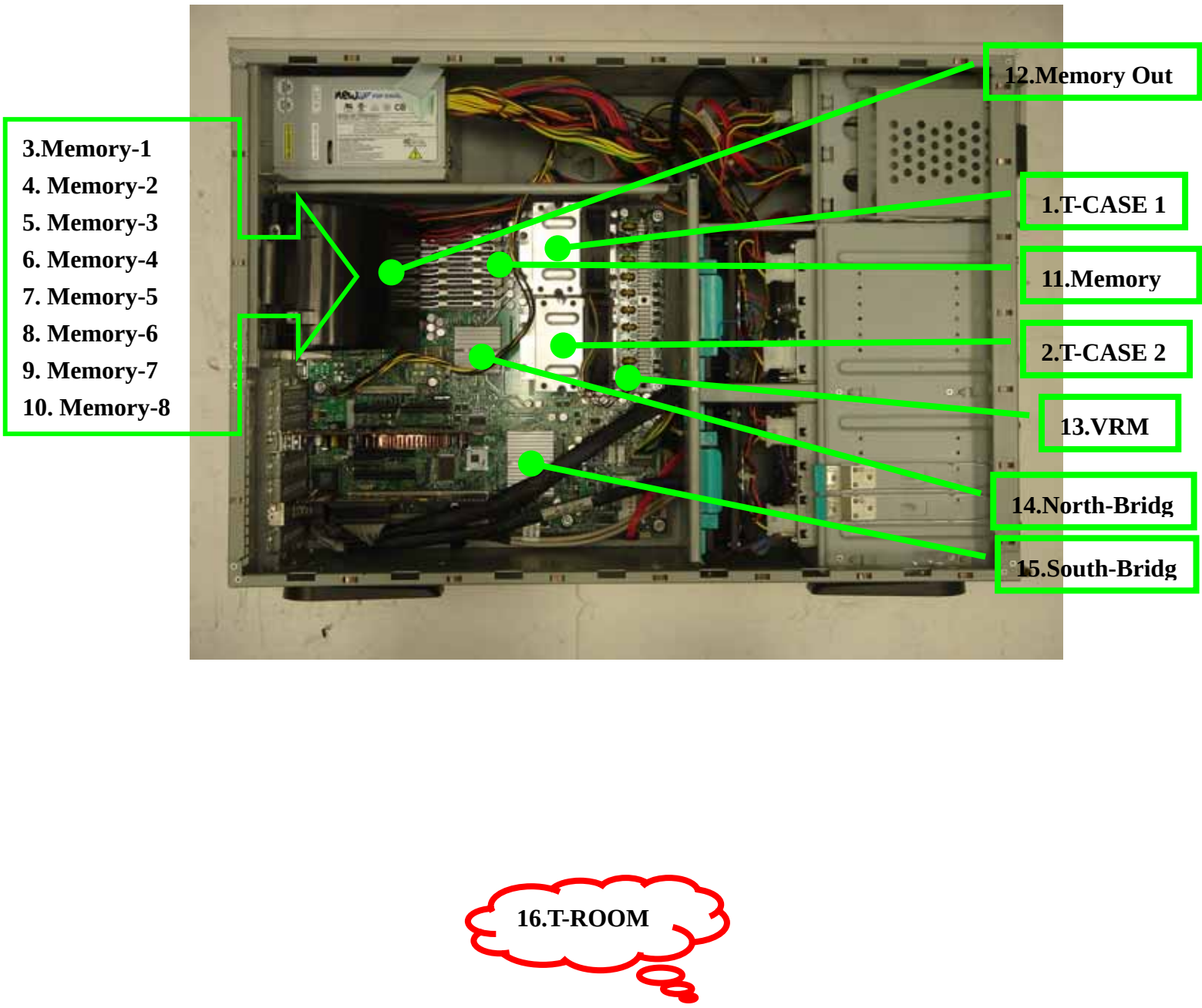

Fig. 4 – Measured Points

12. Appendix C - Real-Time Trend

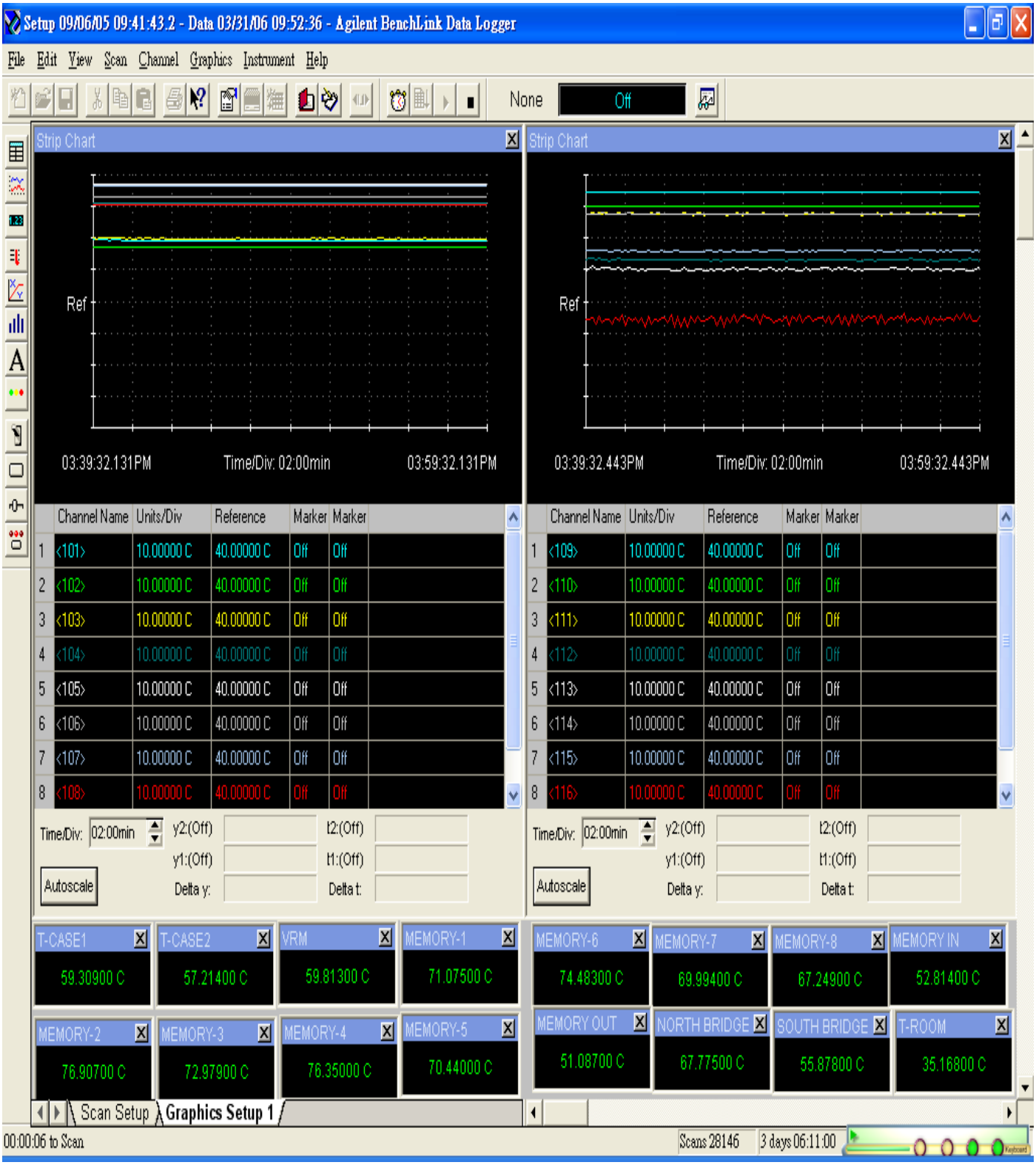

Fig. 5 – Real-time Trend

13. Appendix D - Intel Frequency Display

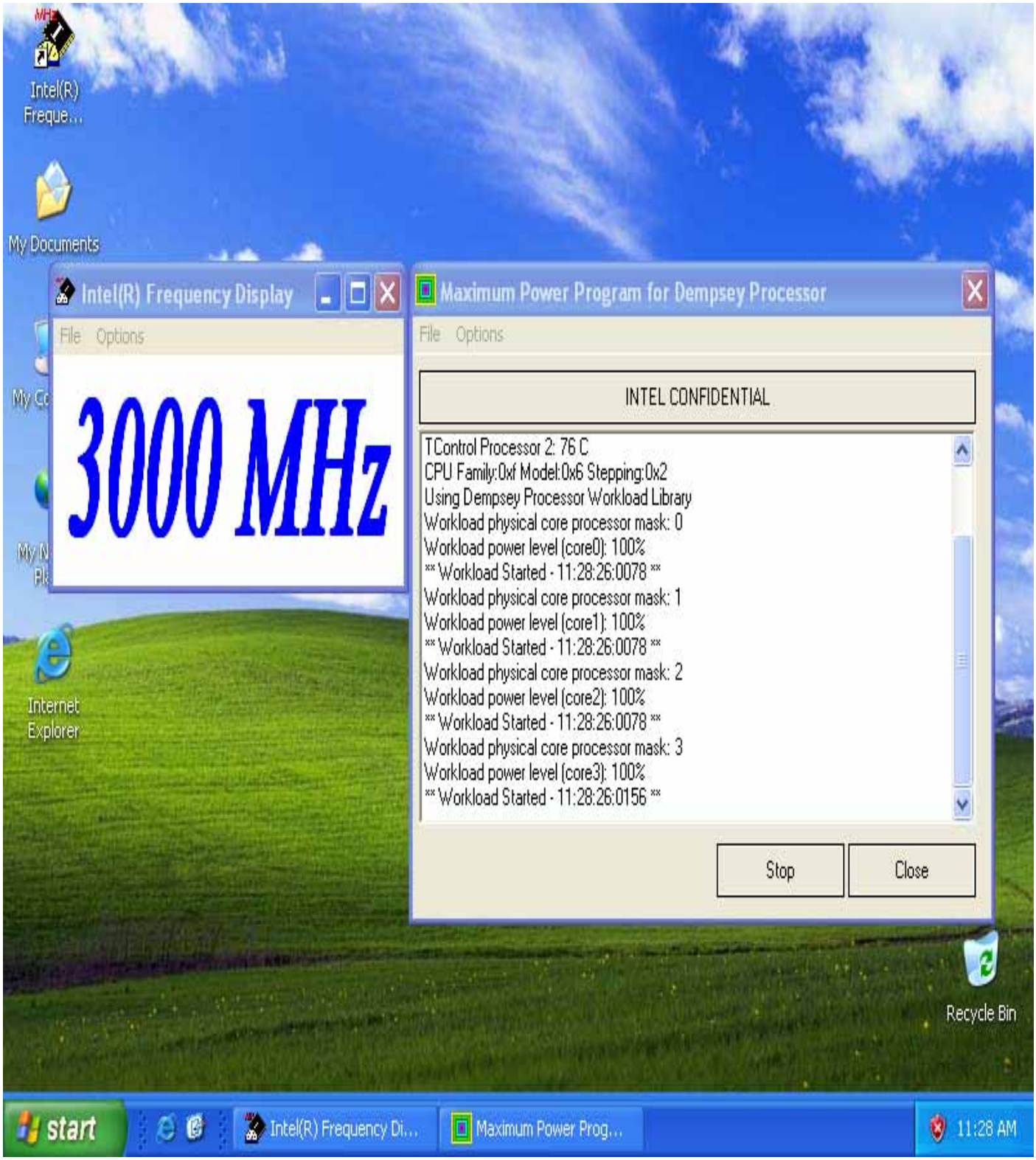

Fig. 6 – Intel Frequency Display