

Testing Methodology

Written by Administrator

Saturday, 07 February 2009 10:55 - Last Updated Wednesday, 16 December 2009 19:48

Heatsink testing methodology*

- Each heatsink test consists of two parts, Real Test and Synthetic Test.
- Real Testing is performed in a real system, while Synthetic is done using methods that simulate thermal loads.
 - Stable thermal loads are used in order to have accurate results, more specifically thermal load is produced by power resistors.
 - The thermal load wattage is 30,60,90,120,150,180,210 watts. This covers a really wide range of processors and also overclocked states at wattages of 180 and 210 watts.
 - Temp readings are taken from a sensor inside a copper plate that is the exact size of the processor tested in order to simulate the cpu with the best way.
 - For reading the temperature I am using a high sensitivity digital multimeter.
 - Thermal paste used in each test is Noctua NT-H1 because it has very quick break-in time.
 - The copper piece that simulates the processor is not perfectly sanded, because the actual processor heatspreaders are never mirror polished. This happens again to have as accurate results as possible.
 - Sound pressure levels are measured with a high sensitivity digital sound pressure meter, from 20cm away of the cooler inside a sound proof box to eliminate any external noise of echo.
 - Also please be informed that the installation procedure of each cpu cooler is shown in a dummy board without an actual cpu, just to take the photos and show the procedure.

**Testing methodology was different before, this one applies for reviews made after 5/5/2009.*

Power supply testing methodology

- Each psu test consists of two parts, Real Test(with a real system) and Synthetic Test(simulate loads).
 - For Synthetic testing of power supplies I am using a homemade tester that consists of multiple power resistors and amperometers.
 - This allows me to control with pin point accuracy the exact load at each rail
 - One more reason to test psu's with this method is that high power power supplies(800+ watts) are very difficult to be tested with a normal system. With the tester I am using I can achieve loads of up to 1800 watts.
 - Readings are taken with a high sensitivity digital multimeter, and if required a voltage drop diagram is made.
 - In order for a test to be considered successful the psu has to be able to perform it for 2

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hours.

- Noise levels are recorded from 10cm away from the back of the psu(air exhaust)

Thermal paste testing methodology

- For testing pastes, I use a 230w peltier in order to have a high thermal load and make the differences bigger and noticeable. *(plz note that actual thermal load produced is ~180w because the rated 230w is with 15.6v and I am using 12v)*
 - Room temp is at 24 dergees always
 - Coolermaster V8 with Nanoxia 12cm fan@1800rpm is used
 - Temps are taken from a copper plate between peltier and cooler(simulating a cpu heatspreader)
 - Temps are taken with a digital IR thermometer for accuracy
 - Before every new paste everything is cleaned with alcohol
 - For every paste I do the break-in time as is specified by the manufacturer
 - Each reading is taken 5 times to ensure accuracy, if anything abnormal is noticed the test is done from the beginning.

If any manufacturer wants to publish a reply after a review, please send it to admin@hwreviewlabs.com and I will post it.

We strongly encourage actions like this because communication of the manufacturer and the buyers is a must!

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