

Test Drive Report for Thermaltake Silent 775

Foreword

When the summer bears down at full force it isn't just us human beings that feel uncomfortable because our computers tend to take the brunt as well. That is why a CPU cooler with higher cooling efficiency is not just a good choice – it's the only wise choice.

Usually, this entails having higher fan speeds (more noise) and bigger, heavier heatsinks. Looking beyond air coolers, we of course have heatpipe coolers and liquid coolers as well. Among the solutions mentioned, liquid coolers are known to provide the best cooling efficiency, but at prices that are hard on the wallet. Heatpipe coolers on the other hand, strike a better balance between price and performance, with noise usually very well controlled.

Today we put the spotlight on the Thermaltake Silent 775 heatpipe cooler.



The name alone tells us that this cooler is made specifically for the Intel LGA775 platform. It is constructed using two heatpipes, a 90mm fan, a copper base and aluminum fins.

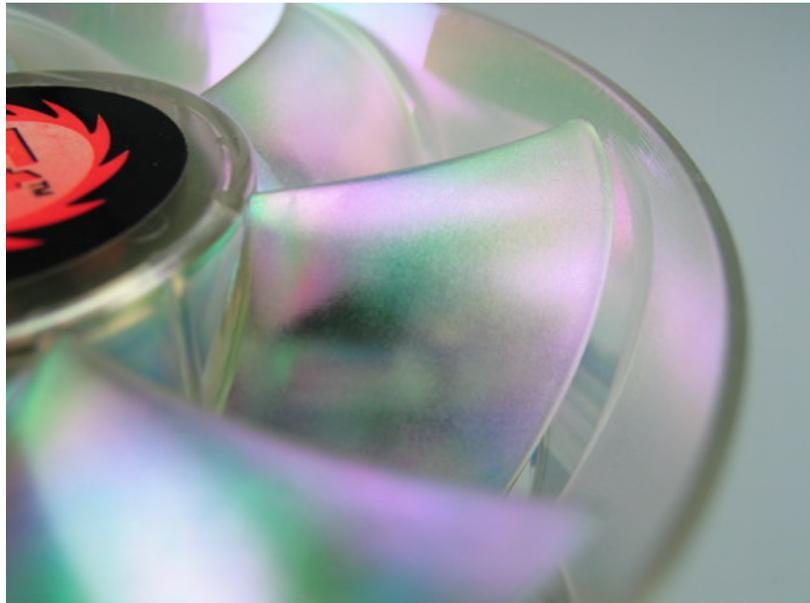


Silent 775 Rainbow Fan

The 90 x 90 x 25mm ball bearing fan (110mm opening) on the Silent 775 is stipulated to spin at $2500 \pm 10\%$ RPM to provide airflow of 42.91CFM. As shown in the image below, this is a seven-bladed funneled design, which has the effect of better concentrating the air before it hits the heatsink below.

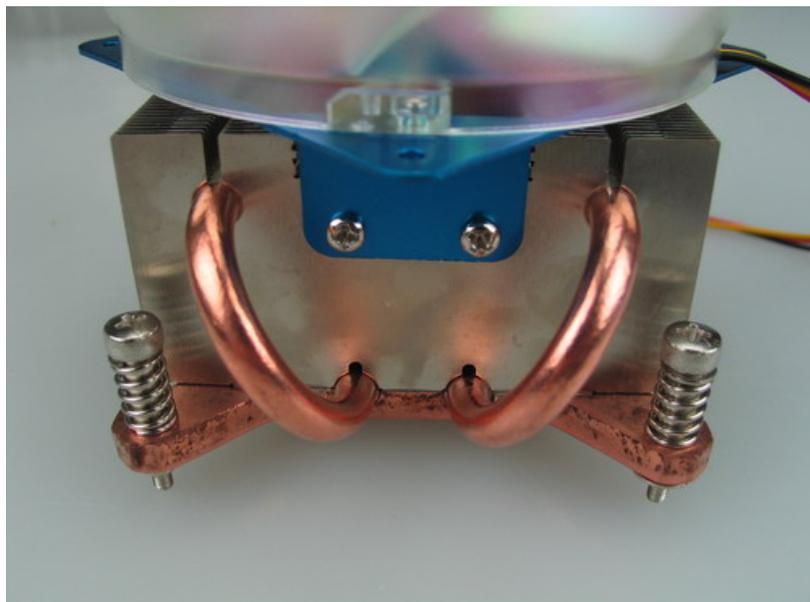


The fan looks to benefit from an interesting design, but isn't adorned with ultra-cool LED lights that so many high-end products enjoy now. What it is bestowed with is instead what Thermaltake simply calls rainbow color. To be precise, the fan and its funnel is constructed of durable semi transparent iridescent plastic. When this fan spins under adequate illumination, the resultant effects can be quite dazzling.

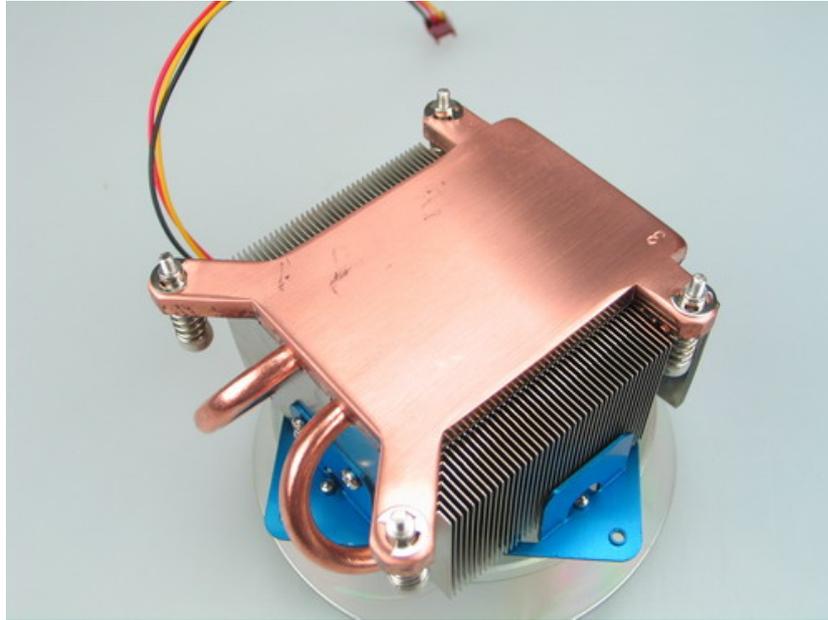


Silent 775 Heatpipes

This cooler utilizes two copper heatpipes which are designed to quickly transfer the heat absorbed by the copper base to the fins above to accelerate the transport of heat away from the CPU thus enhancing heat dissipation performance.

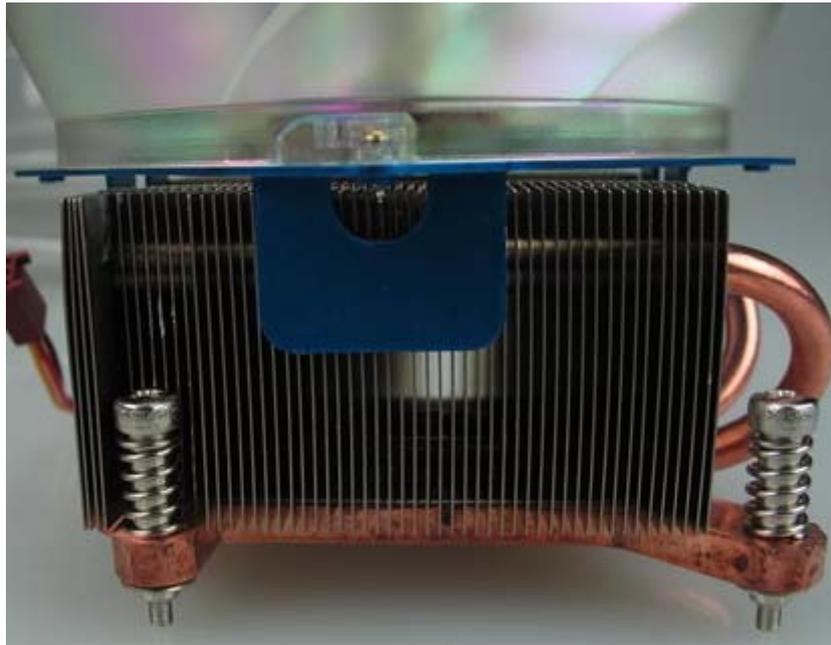


Similarly, the base of the Silent 775 is made of a large piece of copper for maximum heat absorption. As touched on above, this base is connected directly to the heatpipes for quick transport of heat to areas of the fins furthest away from the base. Of course, the base is also physically connected to the aluminum fins.



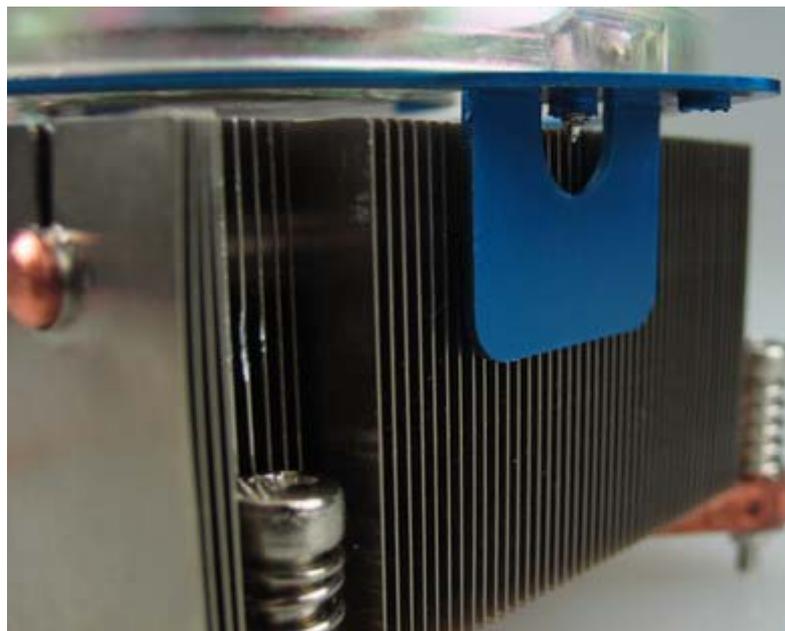
Silent 775 Cooling Fins

Thermaltake chose an all-aluminum heatsink for the Silent 775, and it exhibits the just the right density. Not every product can claim this as manufacturers try to cut costs in any way they possibly can; reducing the number of fins at the expense of cooling efficiency. On the flipside, the fins aren't too densely-packed either – fins that are too densely-packed can result in reduced cooling efficiency.



The benefit of aluminum is its lower density in comparison to other metallic materials used for heatsink construction. This allows an aluminum heatsink to be lighter compared to a similar design constructed using copper. In this case, the use of aluminum allows the Silent 775 to weigh in at 552g. A copper heatsink would entail not only increased costs, but mass as well without a fair tradeoff in terms of enhanced cooling efficiency.

Silent 775 demonstrate manufacturers' efforts to minimize mass whilst simultaneously attempting to find ways of boosting cooling efficiency.



Silent 775 Retention Mechanism

Unlike the standard Intel LGA775 CPU cooler, the Silent 775 does not use retention clips, but spring screws and a safety back plate instead (see images below) for better distribution of the cooler's weight and even contact with an LGA775 CPU's surface.



One of four spring screws



This next item isn't that big of a deal, but it is worth noting that the Silent 775 still adopts a 3-pin power connector, although it will fit perfectly over Intel's new standard 4-pin fan power header..



Noise Test

Here, the background noise is measured at just 36dB using the TES-1350 Sound Level Meter, which is affixed to a short tripod at a distance of 20cm from the cooler. As this test simulates actual working environments, the recorded noise value will exceed those stated by the manufacturer.



TES-1350A Sound Level Meter

Result:

Thermaltake Silent 775	49db
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Cooling Performance Test

To see what the Thermaltake Silent 775 really has to offer, we selected the red-hot Intel Prescott 3.6GHz Pentium 4 processor.

CPU: Intel Pentium 4 560ES (Prescott, 1MB L2 Cache, 3.6GHz)

Motherboard: Foxconn 915PL7AE-8S (915PL)

RAM: Kingston DDR400 ValueRAM 256MB x 2

HDD: Maxtor DiamondMax Plus 9 160G SATA (8MB Cache)

Graphics card: Leadtek PX6600GT TDH PCI-E (NVIDIA GeForce 6600GT, 128MB GDDR3)

Display: Viewsonic P95f+

PSU: Century Star 500W

Optical drive: LITE-ON 52x CD-ROM

All temperatures are measured using the Foxconn SuperStep utility, with idle conditions simulate by entering Windows and running no applications. The stable temperature given by the SuperStep utility after 10 minutes is the temperature recorded. Full loads are simulated using the SiSoft Sandra CPU benchmark with the stable full speed operating temperature recorded.

Results

Cooler	Actual fan speed	CPU temp @ idle	CPU temp @ Full load	Noise
Thermaltake Silent 775	2450RPM	47°C	65°C	49db

Conclusion

Most Intel Pentium 4 LGA775 CPUs available on the market today are retail versions, which means that virtually every one comes bundled with its own boxed cooler. However, the boxed cooler may not provide total peace of mind;, particularly at the height of summer.



Silent 775 in work

A Prescott processor can get pretty toasty without ample cooling, and should it pass the upper temperature threshold, it will automatically attempt to correct the situation through a reduction in performance, which is not something a user tends to appreciate. A CPU cooler with designed for higher cooling performance such as the Thermaltake Silent 775 can therefore be a very wise choice.