

# MCX4000-T™

## THERMOELECTRIC HEATSINK

### INSTALLATION GUIDE

#### Parts list

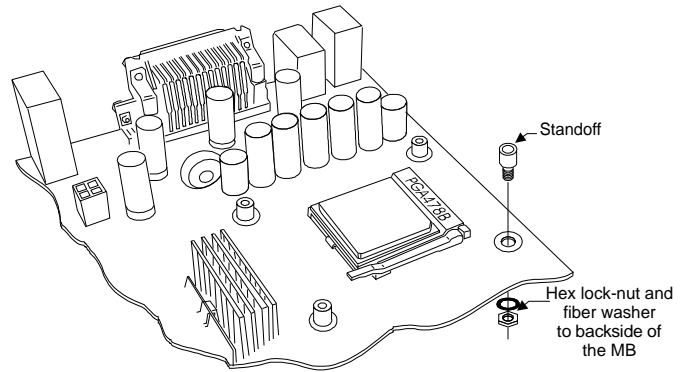
Parts	QTY	PARTS	QTY
MCX4000 with TEC & gaskets assy.	1	Arctic Alumina Thermal compound	1
Motherboard installation hardware pack	1	Euro-style connector	1
Fan retentions screws 1 ½"	4	Fan retention screws 2 ¼"	4
Fan retention screws 2 ½"	4		

This product is intended for expert users only. Please consult with a qualified technician for installation. Improper installation may result in damage to your components. **Swiftech assumes no liability whatsoever, expressed or implied, for the use of these products, nor their installation.** The following instructions are subject to change without notice. Please visit our web site at [www.swiftnets.com](http://www.swiftnets.com) for updates

#### 1. Preparing the motherboard:

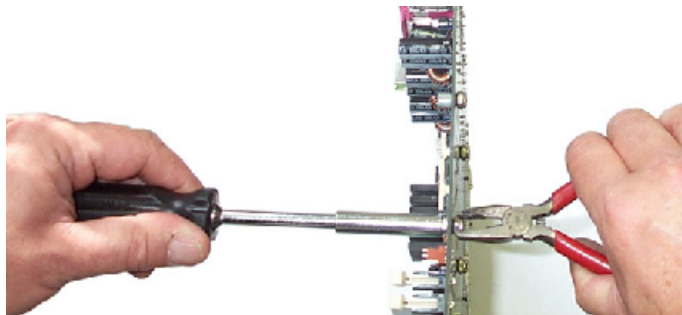
Remove the stock heatsink retention frame (the black plastic frame that clips down to your motherboard). This will reveal the four mounting holes used to install the MCX4000-T™ retention standoffs.

Install a standoff in each one of the holes. Diameter of the mounting holes is much larger than diameter of the standoff stem: keep the standoff approximately centered in the MB holes, and secure them with hex locknuts, and a fiber washer on backside of the MB.



**Figure 1**

Use a ¼" socket tool to drive the standoff, and a small pair of pliers to prevent the locknut from spinning. Torque value should not to exceed 16 in. lbs.



**Figure 2**

## 2. Condensation prevention:

### Fill-up the socket with dielectric grease.

Do not confuse dielectric grease with thermal compound. Dielectric grease is used to prevent condensation where parts are exposed to cold. We recommend Luberex (available on our web site under the accessories section), or any similar product, with good dielectric properties. Fill-up the socket center cavity (grease is to be level with the upper surface of the socket), and coat the socket pinholes with grease. Spread the grease with your finger so that it will penetrate inside the pinholes.

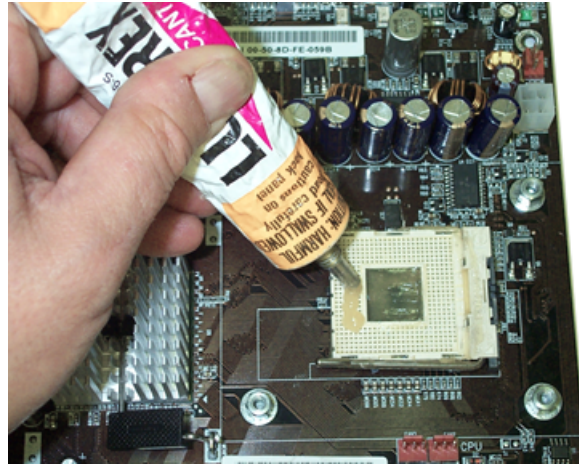


Figure 3

### Insert the processor into the socket.

Since you have grease inside the socket, some hydraulic pressure lift may occur: for this reason, make sure that the processor sits perfectly flat, and is inserted all the way into the socket. Then, coat the processor core with high quality thermal compound. **Only a paper-thin coat is necessary.** It should be applied using preferably a razor blade, or a credit card held between thumb and index at a 45-degree angle as shown on figure 4.

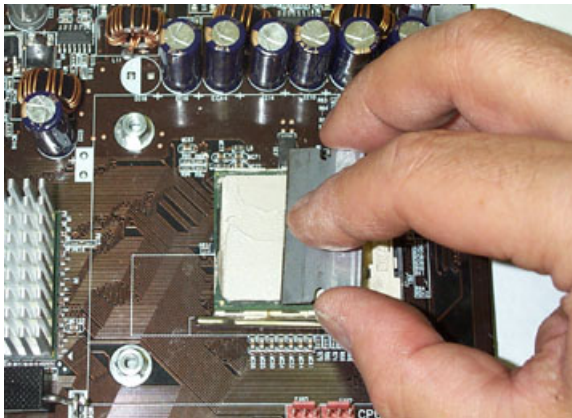


Figure 4

Remove the peel-off paper back from the motherboard gasket, and install it as shown Figure 5. The sticky side should be towards the motherboard.

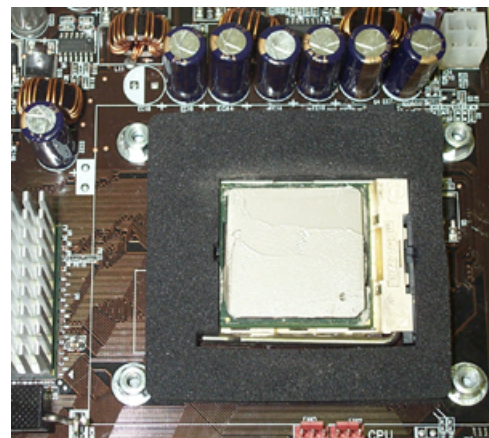


Figure 5



Figure 6

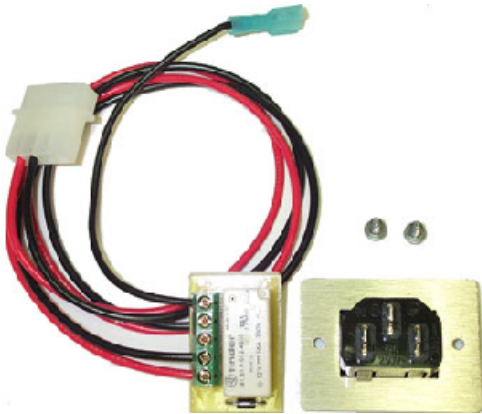


Figure 7

Install the MCX4000-T™ assembly onto your processor, as shown on figure 6.

Gradually tighten the screws in a crisscross pattern until you feel that they reach the bottom of the standoff. A “finger-tight” lock is sufficient. Conversely, adjustments such as tightening the screws only partially are **strictly prohibited**. Such attempts will result in improper contact between the CPU core and the heat sink, and result in CPU overheating.

To further prevent condensation to occur behind the motherboard, a neoprene sticker is provided with your MCX4000-T™ accessories. Apply it to the back of the motherboard, directly behind the processor.

#### CRITICAL INSTRUCTIONS:

**Never run a thermoelectric module without a fan. This will result in catastrophic failure of the cooling element, and may cause any/all of the following:**

- permanent failure of the Peltier module
- permanent damage to the CPU and/or motherboard due to excess heat

*It is highly recommended that you dedicate the auxiliary power supply for the thermoelectric module to the computer power-supply. This will prevent the Peltier module to operate without a fan. For this purpose, we recommend the following accessory, available in our online shopping cart:*

#### PRS Kit II,

Includes:

Relay Switch Circuit board AC socket, S/S socket cover, power cord

*This relay switch is rated for 110 to 220-240 volts and up to 50A inrush current. It is suitable for use with the S-320-12 Meanwell power supply recommended in paragraph 3, page 4.*

*If you run your computer unattended for extended periods of time, it is also a good practice to setup an alarm temperature, which will shut down the computer in case the CPU overheats. Such alarm/shut down process should be tested as functional.*

Now, you can re-install the MB inside the case.

### 3. Thermoelectric installation

**IMPORTANT WARNING:** Solder joints of the wires to the thermoelectric module are **extremely fragile**. Bending the wires at their root will break the solder joint, with no possible repair. **Swiftech will not honor the warranty for broken wires.**

**Connection to a dedicated auxiliary power supply (recommended):**

The TEC module is provided with "bare wires" to facilitate installation with screw type terminals. We recommend the "Meanwell S320-12" power supply, available on our website in the Thermoelectric accessories section.

Connect red wire from TEC module to the +V terminal, and black wire to the -V terminal as shown in figure 3 below:



Minimum requirements for a dedicated power supply: 25A @ +12 V. If adjustable voltage is available: setting the voltage higher than +12V is not recommended. Lower voltage, can be safely used, down to 9 volts.

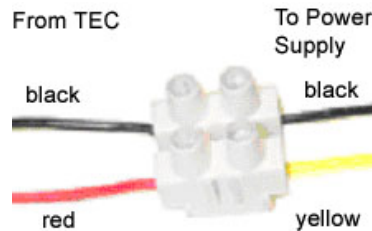
**Connection to an ATX computer power supply:**

**Important Warning:** to connect the MCX4000-T™ cooler to an ATX computer power supply, you must carefully consider the existing requirements of other devices connected on the +12V line. Connecting to an underpowered unit will definitely damage the power supply.

Minimum requirements for an ATX computer power supply: 37A at +12V in a typical computer setup.

If you are nevertheless going to connect the MCX4000-T™ to a computer power supply, you need to cut the wiring to one of the power supply Molex connectors, and use a different connector between power supply, and thermoelectric. This is because Molex connectors are not rated for 25 Amps current, and may overheat.

**Use a euro-style wire connector** as shown in fig 4 below, or similar device with a current rating of at least 25 amps. Connect red wire from TEC module to +12V of P/S (Yellow wire), and black wire to black wire:



**If you need wiring extensions: use 16 gage stranded wire.** Connect the extension to the existing wires with **terminal splices**, or solder the butts, and insulate with shrink tubing.

**FINAL TIPS:**

**FAN RECOMMENDATIONS: THE MINIMUM RECOMMENDED AIRFLOW RATING IS 68CFM. FOR OPTIMUM PERFORMANCE, 80 CFM IS PREFERRED.**

**AIR COOLED THERMOELECTRIC DEVICES REJECT A SIGNIFICANT AMOUNT OF HEAT INSIDE YOUR CASE. YOUR PROJECT DESIGN SHOULD INCLUDE CAREFUL CONSIDERATION TO CASE VENTILATION.**

**DISCLAIMER: Swiftech assumes no liability whatsoever, expressed or implied, for the use of these products.**