

# MCW462-U Water-block

## Installation Guide for AMD<sup>®</sup> processors

### Parts list

| Parts                         | AMD            | INTEL | QTY | PARTS               | AMD            | INTEL | QTY |
|-------------------------------|----------------|-------|-----|---------------------|----------------|-------|-----|
| Water-block                   | Common to both |       | 1   | Nylon 6-32 Hex nuts | Common to both |       | 4   |
| 6-32 x 1 1/2" screws (for HS) | Common to both |       | 4   | Black fiber washers | X              |       | 8   |
| Standoffs                     | Common to both |       | 4   | Thermal grease      | Common to both |       | 1   |
| Springs                       | Common to both |       | 4   | Tube insert         | Common to both |       | 2   |
| .230x.096 Nylon spacers       | X              |       | 8   | P4 brackets         |                | X     | 2   |
| .220x.046 Nylon spacers       | X              |       | 4   | 4-40 socket screws  |                | X     | 4   |

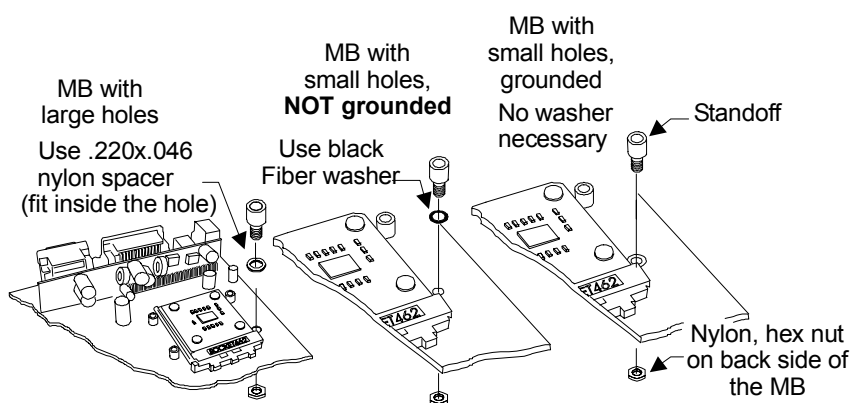
### I. Preparing the motherboard

You must uninstall your MB prior to installing the MCW462-U water-block.

#### • Install standoffs in MB

Determine which standoff washers to use, depending on your MB mounting holes:

- Large holes .230" (5.8mm) diameter : use .220x.046 Nylon spacers. The washers fit inside the MB hole.
- Small **grounded** holes .150" (3.8mm) diameter: you can recognize grounding by a silver ring around the holes; no washers needed nor necessary.
- Small holes, **NOT grounded** (bare circuit board): you **must** use black fiber washers, or damage to the MB may occur.



Install standoff in each one of the four holes surrounding the socket. Keep the standoff & washer centered over the MB holes, and secure with nylon hex nuts on backside of the MB. If you are going to assemble/disassemble the heat sink frequently, we recommend finishing the installation by putting a drop of "Crazy Glue" at the junction between standoff & MB, and between nylon hex nut & MB. This will lock the standoff onto the MB, and further prevent it from spinning loose during frequent assembly and disassembly operations.

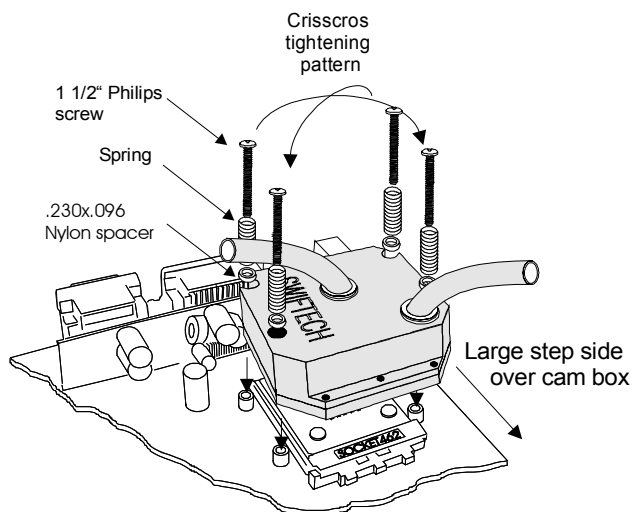
Figure 1

- **Re-install the MB** inside the case.

### II. Water-block installation

- **The case should** be laying flat on a table.
- **Insert the processor** into the socket, and lightly 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. It is critical to ascertain that the entire core is covered with a uniform coat of thermal compound. Thermal performance will dramatically decrease if any portion of the core is not covered by thermal compound. We recommend Arctic Silver or similar high-end compound for superior thermal conductivity.
- **Insert the tubing into your MCW462-U water-block prior to installing it onto the CPU.** The reason is that inserting the tubes into the fittings requires some strength, and it is preferable not to do this while the block is sitting on the CPU. If you are going to use soft vinyl tubing (transparent tubing), it is **IMPERATIVE** to use the two plastic inserts provided with your kit.
- **Prepare 4 assemblies** composed of a 1 1/2" screw, 1 nylon spacer, and 1 spring as shown in Figure 2. Drop each assembly into the MCW462-U mounting holes.

- **Orientation of the block is important for bleeding purposes.** Please look-up the critical bleeding instructions paragraph below prior to installing the block on the CPU.
- **Install the MCW462-U block on the CPU.** The copper base of the MCW462-U features a large step for clearance with the socket cam box. Make sure to respect this orientation. Keep the heat sink mounting holes lined up with the standoffs. Avoid twisting the block to prevent smearing the thermal compound.
- **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. Over tightening may result in stripping the nylon hex nut. 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.



It is preferable to have the tubes already inserted into the block prior to installing the MCW462-U onto the CPU.

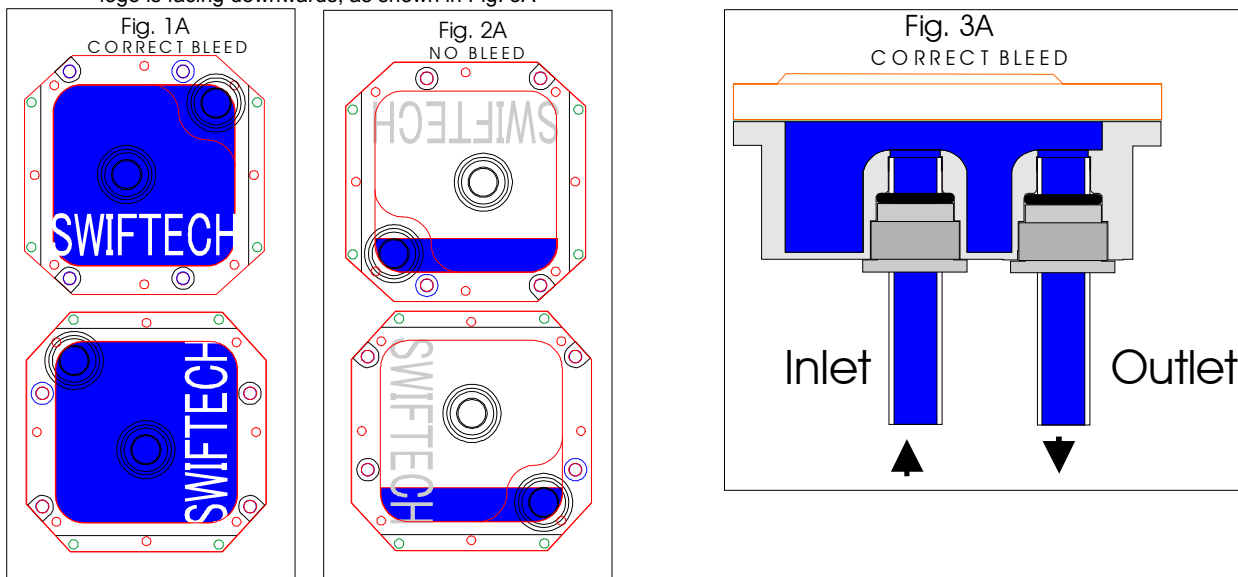
Figure 2

**CRITICAL BLEEDING INSTRUCTIONS:**

The following applies mostly to dual processor installations. Depending on the orientation of the socket, it is critical to observe the position in which your water-block is oriented for bleeding purposes. Assuming that the computer is standing up, and that the water-block is facing you as shown in Fig. 1A and Fig 2A. below, Fig. 1A shows the two positions in which the MCW462-U will bleed correctly, and Fig. 2A shows the two positions in which the MCW462-U will **not** bleed.

Two solutions are available to bleed the water-block correctly:

1. Bleed the water-block prior to installing on the CPU. Simply rotate the block in the position shown in Fig. 1A.
2. If you prefer to install the block first, then bleeding should be done with the computer laying down flat so that the Swiftch logo is facing downwards, as shown in Fig. 3A



**III. Temperature troubleshooting**

**IMPORTANT WARNING:** AMD compatible motherboards measure the CPU temperature via a thermal probe located inside the socket. The probe only measures the air temperature underneath the CPU. Motherboard manufacturers use mathematic formulas to extrapolate the actual CPU temperature. Such formulas use correction factors to account for airflow around the socket generated by a conventional heatsink fan cooler. In a liquid cooling environment, **there is no airflow** at all around the socket, since there is no fan attached to the water-block. This leads to erroneous readings from the motherboard thermal probe, which reports much higher CPU temperatures than actual. Troubleshooting help is available on our web site at <http://www.swiftch.com> in the Service & Support section, Troubleshooting sub-section.

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