

**Engineering Leadership**

# **Heat Spreader Mounting Instructions**

## **ETE/ETX Module**

### **MSC ETE-A945GSE**

## 1 Introduction

This document is designed to give the customer a better understanding of what needs to be considered when using MSC heatspreaders on the ETE-A945GSE module. Below you will find important guidelines that must be followed to ensure that the heatspreader is properly mounted.

### 1.1 General Information

Modern computers use very dense chip architectures that create a lot of heat in a relatively small area. To make sure that the parts are used within their specifications, it is necessary to provide a method to conduct the thermal energy away from the sensitive semiconductor dies. For this purpose MSC offers different cooling solutions.

### 1.2 The Difference between a Heat Sink and a Heat Spreader

A heat sink is capable to remove the heat that emerges by the electrical power that is used to operate a computer. This is usually done by dissipating the heat to the environment.

A heat spreader is just a means to lead the heat to the heat sink, which finally dissipates it. A heat spreader is not a heat sink!

## 2 Mounting Instructions

Photo 1 shows the heat spreader as delivered.

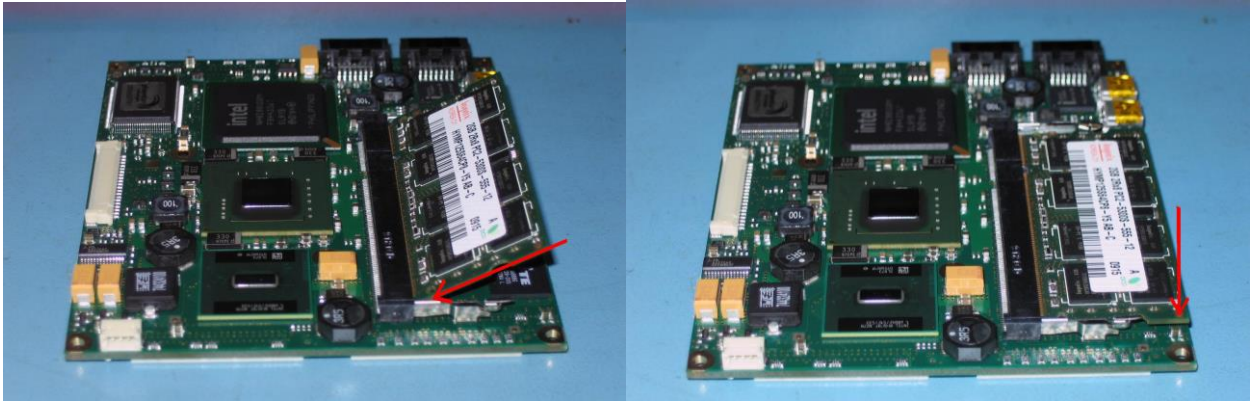
The three frames show the thermal contact locations of the heat spreader. According to the amount of heat that has to be transferred, different materials have been chosen to achieve optimal thermal contact. The grey pads consist of a phase change material, which melts the first time it is heated. Due to the mechanical pressure between die and heat sink, the residual material is pressed out of the gap; thus leaving behind only a very thin film with a very good thermal performance. Since these pads are printed on the aluminum, they are very soft and sensitive to scratches. **If you happen to damage the surface of the pad, use a clean knife or something similar and try to form it so that the die surfaces are completely covered.**

The white material is a standard heat-conductive paste.

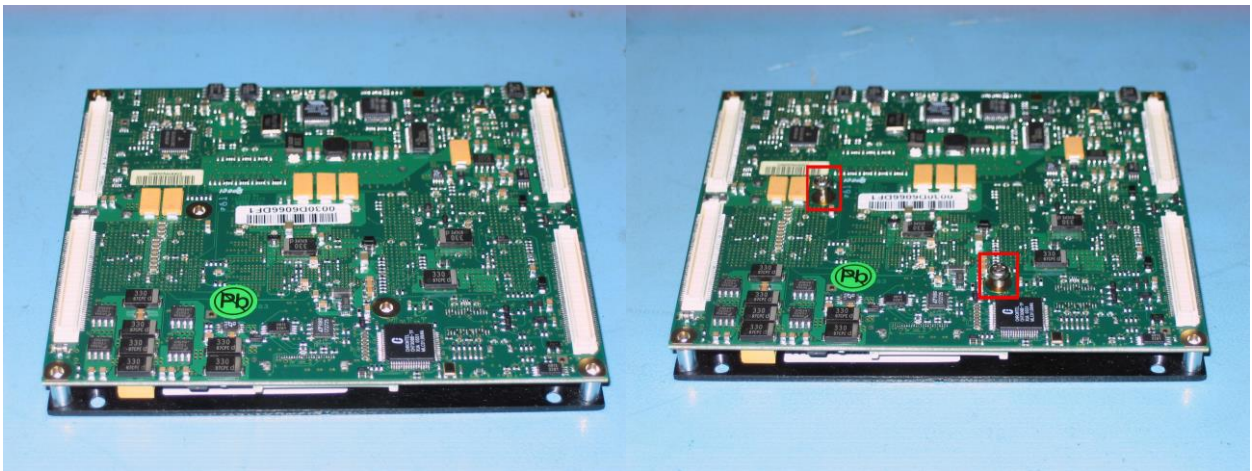


Photo 1

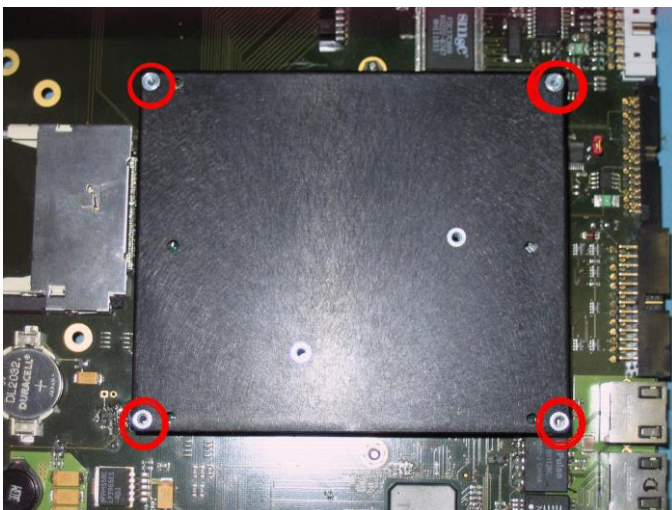
**Step 1:** Insert the memory module into the memory socket. Make sure it is inserted correctly!



**Step 2:** Place the printed circuit board onto the heat spreader and fix it by tightening the two screws marked below.



**Step 3:** Mount the ETE-A945GSE module on the baseboard and fix it securely with four screws as shown below. (M2.5, lengths depends on customer's mechanical solution, 8-25mm)



**NOTE:**

The grey heat conducting pads are intended for one-time mounting only. If you need to remove the heat spreader for service purposes and then reuse it, the wax-like material must be spread over the full die surface again before re-mounting the heat spreader (see above, paragraph 2).