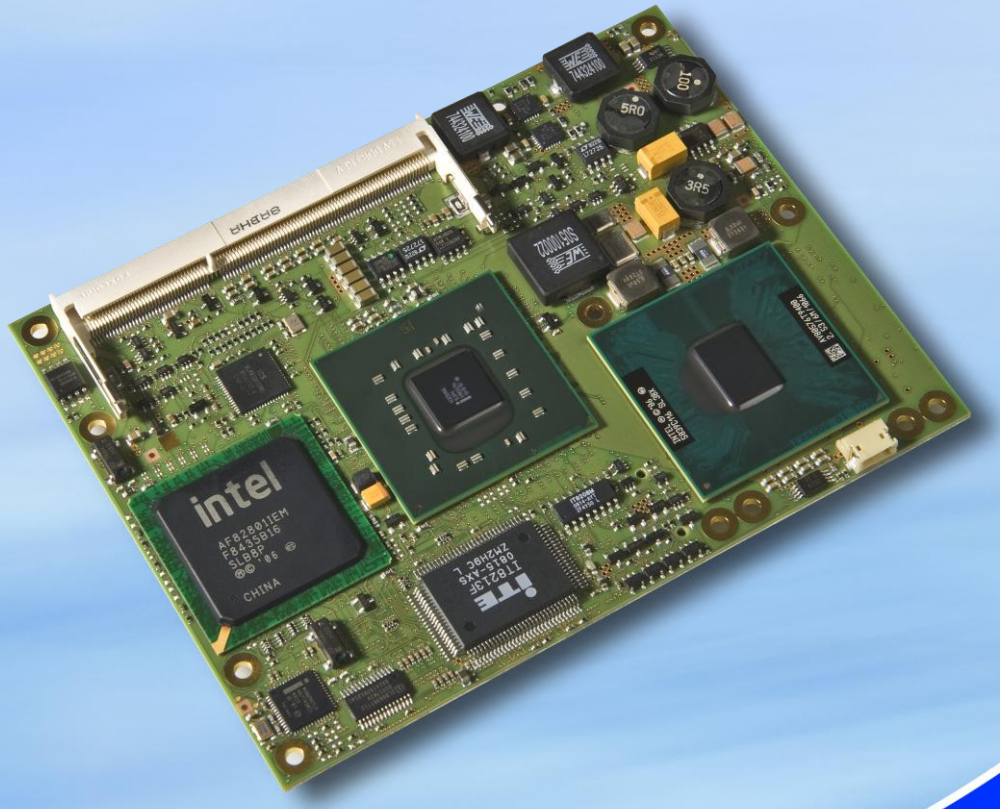

MSC CXB-GM45
COM Express™ Basic Module

- Heat sink mounting instructions -

Rev. 1.0

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1 Introduction

This document is designed to give the customer a better understanding of what needs to be considered when using MSC heat sinks on the MSC CXB-GM45 module. Below you will find important guidelines that must be followed to ensure that the heat sink 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.

2 Mounting Instructions

Photo 1 shows the heat sink as delivered.

The three frames show the thermal contact locations of the heat sink. According to the amount of heat that has to be transferred, different materials have to be chosen to achieve optimal thermal contact. The grey pads consist of a phase change material, that 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 aluminium, 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 blue pad is designed not only to conduct the heat but also to compensate for mechanical tolerances.

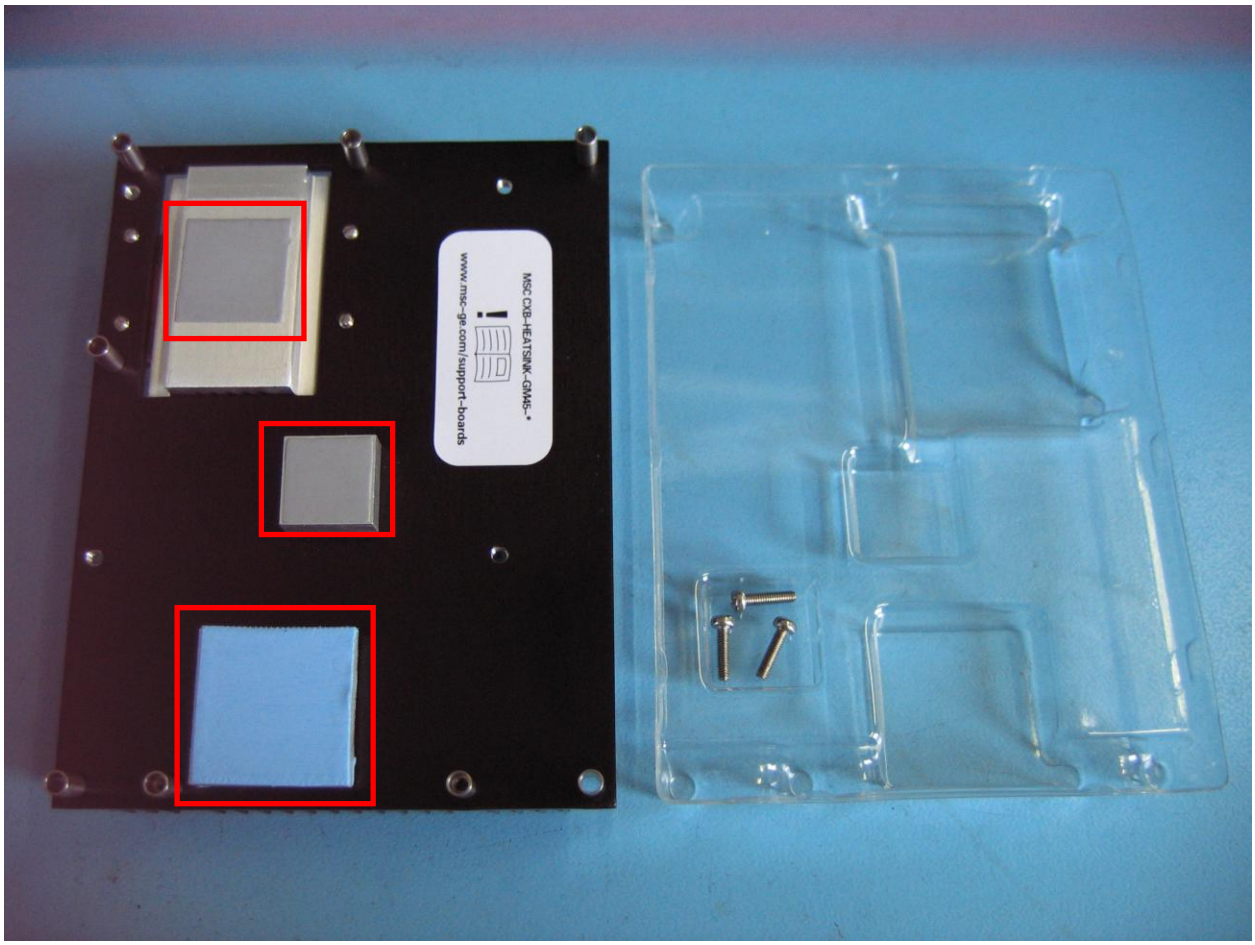
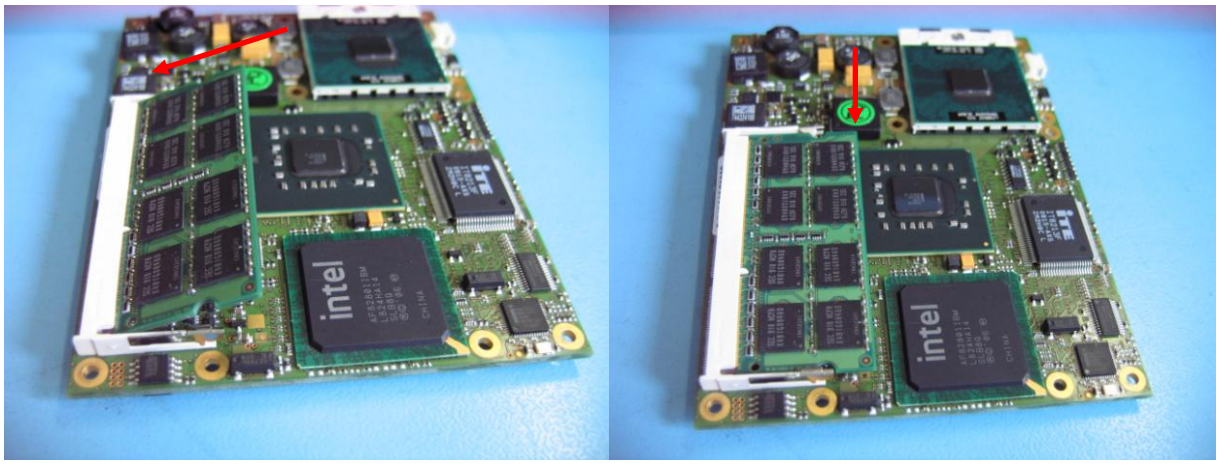
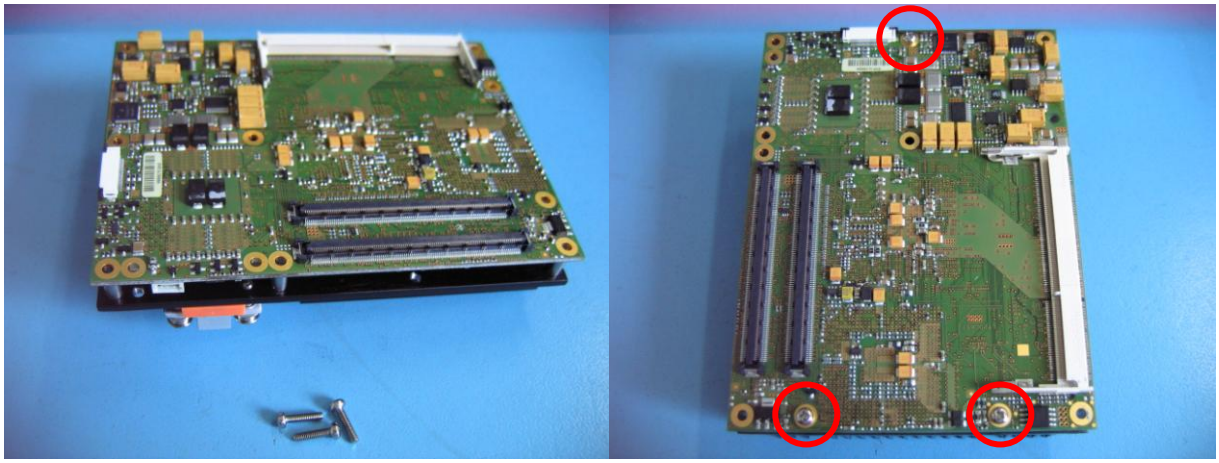


Photo 1

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

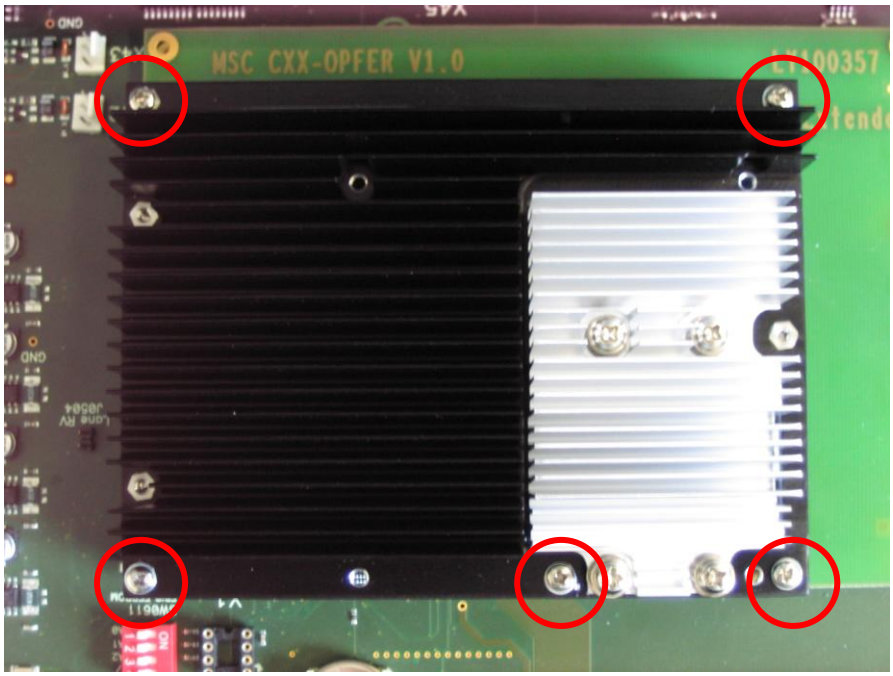


Step 2: Place the printed circuit board onto the heat spreader and fix it by tightening the three screws marhed below.



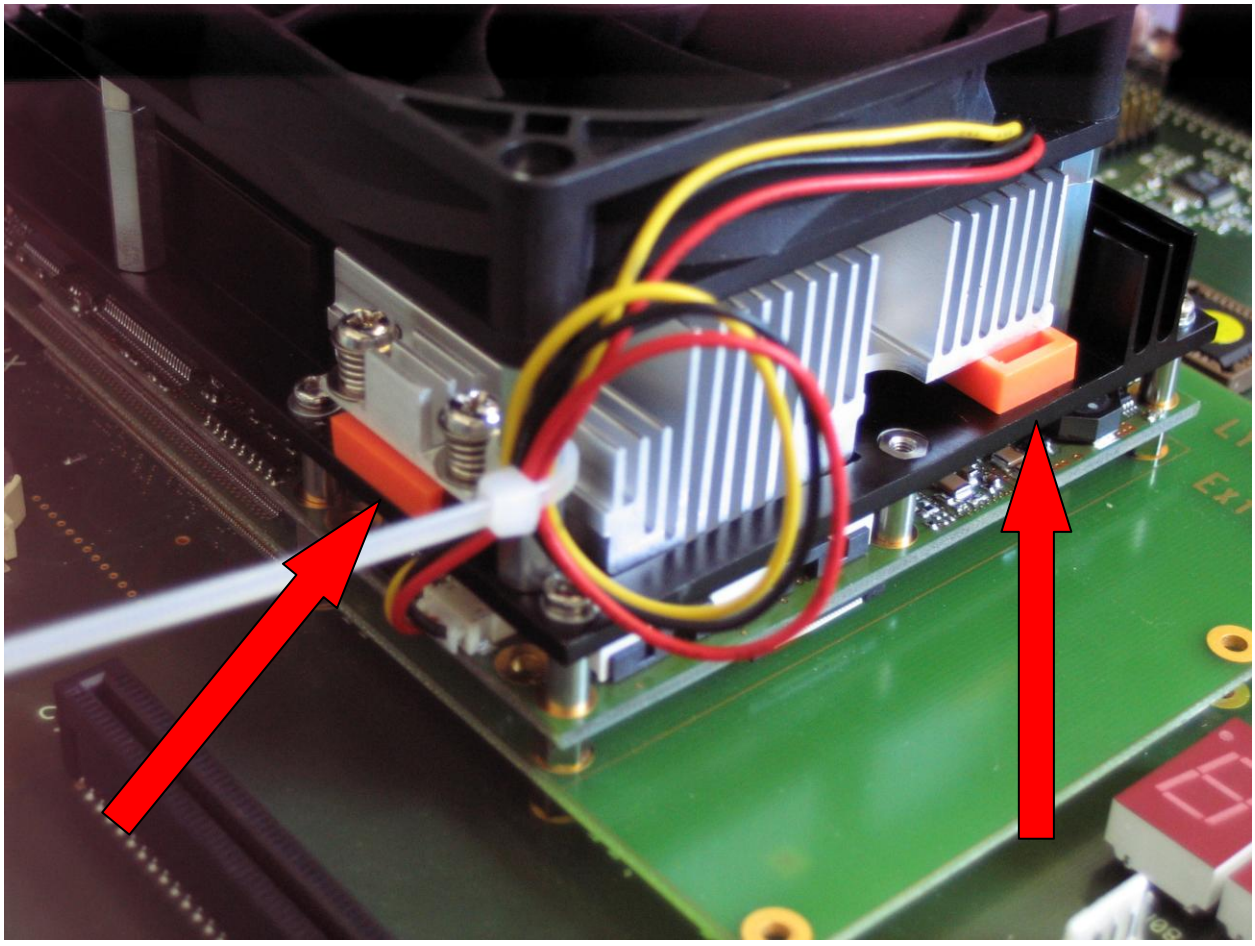
Step 3: Insert the memory module into the bottom memory socket.

Step 4: Mount the MSC CXB-GM45 module on the baseboard and fix it securely with the five screws provided and shown below.



Step 5: THE MOST IMPORTANT STEP – Carefully remove the two orange-coloured transportation locks and at the same time holding the heatsink, so that it does not suddenly hit the CPU die, due to the spring tension.. If the heatsink is released suddenly it could cause damage to the sensitive ceramic die.

As long as the transportation locks are not removed, there is a gap between CPU die and cooling element – *the CPU cannot then be cooled !!*



The transportation locks have to be inserted again whenever the CPU module is removed from the baseboard. This is necessary in order to prevent the printed circuit board from flexing due to the spring tension.

Step 6: If applicable, mount the fan and connect it to the appropriate connector. The fan has to blow downwards onto the module, in order to ensure that there is sufficient air flow to keep the module cool.

NOTE:

The grey heat conducting pads are intended for one-time mounting only. If you need to remove the heat sink 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 sink (see above, paragraph 2).