

MicroSlys

User's Manual

GM250 Rev. 2

1st edition

Declaration of Conformity

We, Manufacturer
MicroSys Electronics GmbH
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Germany

declare that the product

GM250

is in conformity with:

EN 50081-1 **Generic emission standard**
EN 50082-1 **Generic immunity standard**

in accordance with **89/336 EEC-EMC** Directive.

We also declare the conformity of the above mentioned product with the actual required safety standards in accordance with Low Voltage Directive **73/23 EEC**.

Date:

Signature:

Position: General Manager

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Edition

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Datei: GM2502AB.doc	Archivierung: 5	EW292MA-02AA	Page 4 of 9
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Short Description

GM250 Rev. 2

1. Introduction

The Graphics Module GM250 is designed for use with the Carrier CR250 and the processor module XM250. It offers the following inputs and outputs:

- DVI-compliant digital graphics output for the integrated graphics controller of the Intel PXA255 processor
- RGB analog output for the integrated graphics controller of the Intel PXA255 processor
- Audio: 1x Stereo Line In, 1x Mono Microphone In, 1x Stereo Line Out, 1x Stereo Headphones Out

1. Installation

1. Switch off the power supply on the carrier CR250.
2. Plug the module GM250 **only into ST6 of the carrier CR250!**

ATTENTION: Use ST6 on Carrier CR250 ONLY! Usage of other positions on the carrier may lead to damage of the carrier, module GM250 and/or processor module XM250!

3. Connect the DVI- and/or analog monitor to the GM250.

Note: The DVI output of the GM250 is capable of hotplugging, i.e. the monitor on the DVI output may be connected or disconnected at any time during operation.

4. Switch on the power supply on the carrier.

Note: The GM250 needs a special initialization by the respective operating system. Therefore most likely there will be no image on the screen after power-up. Configure the GM250 via the I²C-Bus of the XScale. The Chrontel chip on the GM250 is responding on **I²C address 0x75** as standard, optionally on 0x76. The Chrontel CH7303A has a set of 128 addressable registers, which have to be set up appropriately. However, not all of them are used. Refer to Chrontel datasheets for details. A standard sample initialization for VGA mode can be obtained from MicroSys on request.

2. Graphics

The GM250 offers a convenient interface to the integrated graphics controller of the Intel PXA255 processor. Therefore the possibilities of graphics output are mainly defined by the capabilities of the PXA255 along with the operating system in use.

The maximum available resolution to date is 640x480 pixel at 60 Hz refresh rate.

The DVI output and the RGB analog output can be separately switched on and off by software.

Both outputs can be used simultaneously, however both of them can only display the same content at the same refresh rate at any time.

The DVI controller CH7303A on the GM250 is configurable only per software via the I²C-Bus.

Datei: GM2502AB.doc	Archivierung: 5	EW292MA-02AA	Page 5 of 9
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3. Audio

The GM250 offers access to the audio lines of the PXA255 via three 3.5 mm jacks and wrap headers (Line-Out and Headphones-Out only).

3.1 3.5 mm Jacks

The 3.5 mm audio jacks have the following assignments:

Red: Tip: Microphone-In
 Ring: Microphone-Bias (Supply for Electret Microphone, 3.3 V via 1 kΩ resistor)
 Sleeve: Ground

Green: selectable as Line-Out (default) or Headphones-Out by jumpers on the wrap headers
 Tip: Left channel
 Ring: Right channel
 Sleeve: Ground

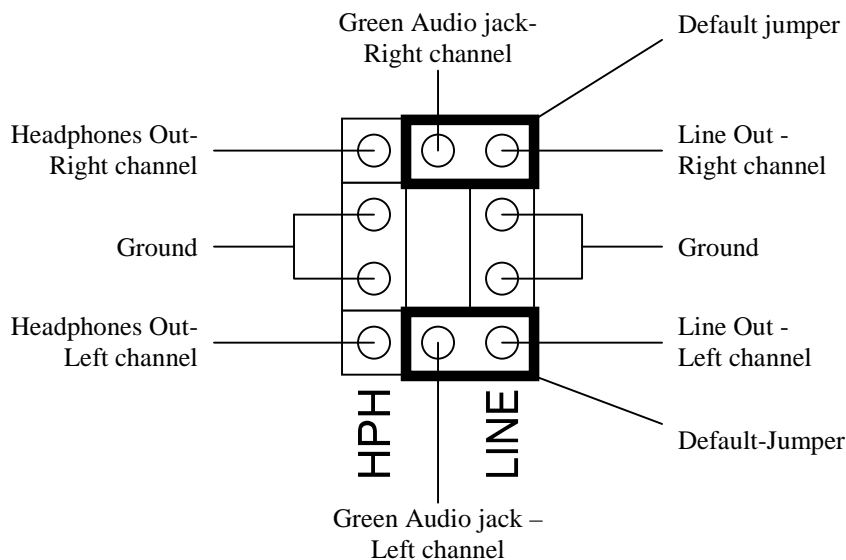
Blue: Tip: Line-In, left channel
 Ring: Line-In, right channel
 Sleeve: Ground

3.2 Wrap headers

By means of the wrap headers, either the Headphones-Out or the Line-Out signals (Stereo) can be routed to the green 3.5 mm jack.

The other (stereo) signal (the one not jumpered to the green output jack) can be picked up at the wrap header with a standard 4-wire cable, as it is used e.g. for audio connection of internal CD-ROM drives, so that both output signals can be used simultaneously.

By default, the Line-Out signal is connected to the green jack (see drawing).



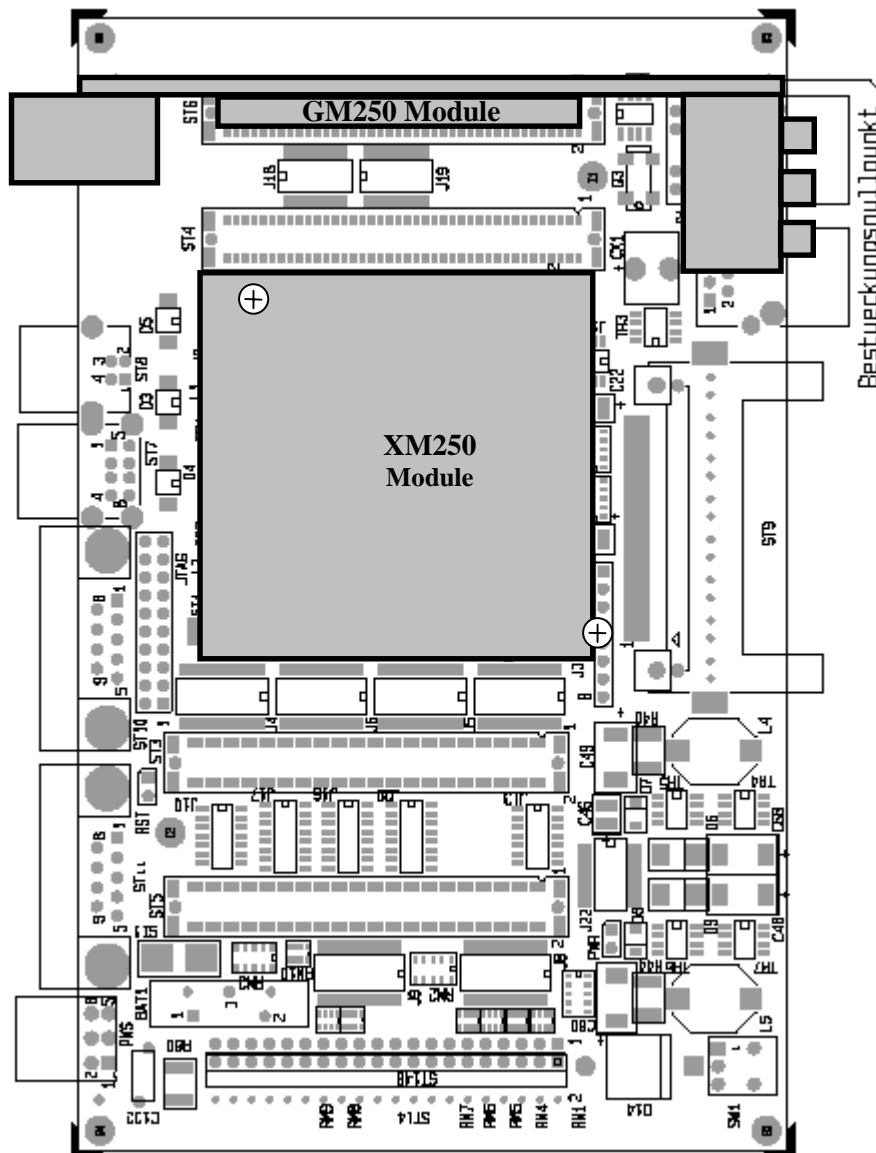
Audio Wrap Headers

4. Mounting of the GM250

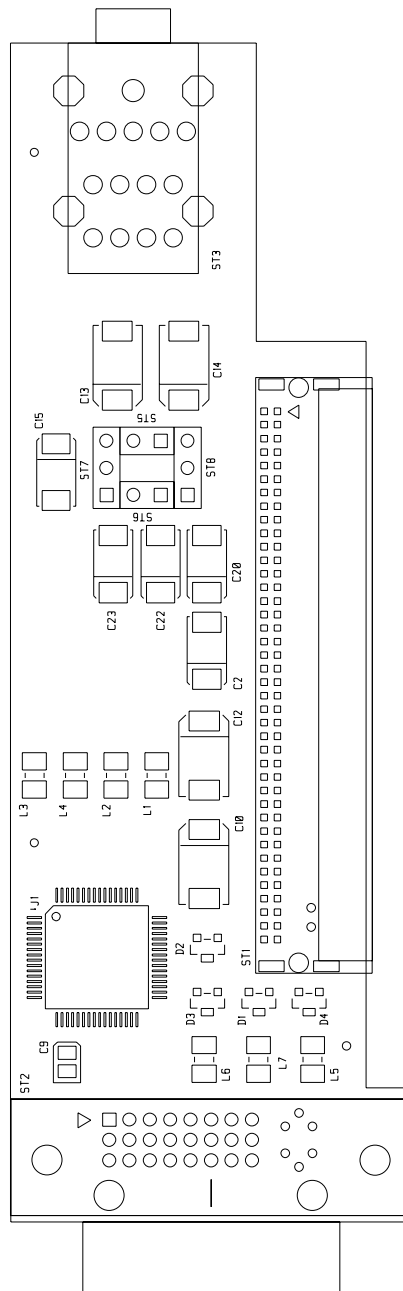
Be sure to have the power supply to the carrier CR250 switched off!

Carefully plug the GM250 board onto ST6 of the carrier CR250 (see drawing).

Do not tilt or bend the module on insertion. The module must slide straight into the slot without applying force!



5. Layout Component Side



6. Layout Solder Side

