![LOGIC PD™]

AM1808/OMAP-L138 SOM-M1 Compatibility
Application Note 442

Logic PD // Products
Published: July 2010

Abstract

This application note discusses effects of using an AM1808 SOM-M1 on an OMAP-L138 baseboard, and vice versa.

Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	JCA	-Initial release	JS	07/02/10

Table of Contents

1 Introduction

The AM1808 and OMAP-L138 SOMs are part of the same form factor family and type, SOM-M1. This means that they have the same PCB size, same board-to-board connectors, and share the essential electrical signals. Because of this similarity, it is possible to connect an AM1808 SOM-M1 to an OMAP-L138 baseboard, and vice versa. This application note discusses the experience a user can expect if they choose to do this.

2 Hardware Differences

The Texas Instruments (TI) OMAP-L138 low-power applications processor is a dual core system on chip (SoC) featuring one ARM9 core and one C674x DSP core. By comparison, the AM1808 microprocessor features only one ARM9 core. This distinction highlights the major differences between using the OMAP-L138 SOM-M1 and the AM1808 SOM-M1.

2.1 SOM Differences

The only difference between the SOMs is the additional C674x DSP core in the OMAP-L138 processor.

2.2 Baseboard Differences

The OMAP-L138 baseboard features a USB mini-B connector at reference designator J21. This connector features a USB100v1 JTAG emulator that connects directly to the C647x DSP core on the OMAP-L138 processor. Because this connector is only for use with the DSP core, it will not be available for accessing the AM1808 microprocessor.

The USB mini-B connector at reference designator J21 was removed from the AM1808 baseboard. Therefore, if an OMAP-L138 SOM-M1 is connected to an AM1808 baseboard, the USB100v1 JTAG emulator will not be available for accessing the C674x DSP core.

3 Software Differences

3.1 Board Support Library (BSL) Code

The AM1808 and OMAP-L138 utilize different Board Support Library (BSL) code. As a result, it is necessary to use the appropriate BSL code for the SOM that is being used. If the AM1808 SOM-M1 is connected to the baseboard, the AM1808 BSL code should be used; if the OMAP-L138 SOM-M1 is connected to the baseboard, the OMAP-L138 BSL code should be used.

3.2 TI Software

The majority of the TI created software is compatible with both platforms. However, it is considered best practice to use the software that is available from the specific processor's product page.

- AM1808: www.ti.com/am1808#toolssoftware
- OMAP-L138: www.ti.com/omap-l138-prprod1#toolssoftware

4 Summary

The AM1808 and OMAP-L138 SOMs may be used on each other's baseboards with limited impact. Use of the USB mini-B connector (J21) on the baseboard and the unique software offerings are the main points to be aware of if using mismatched SOMs and baseboards.