Connecting EBI Memory Daughter Boards to AT91SAM Evaluation Boards

1. Scope

This application note describes what is required to connect EBI Memory Daughter Boards to the compatible AT91 Evaluation Boards onto which a specific connector footprint has been designed.

As Atmel® does not supply any related connecting set with these Evaluation Kits, this application note is intended to provide a customer who wants to develop a particular EBI Memory Daughter Board, all the information required to connect it.

All dimensions given in this application note are expressed in millimeters.

2. Related Evaluation Kits

The compatible AT91 Evaluation Kits are listed below:

Table 2-1. Related Evaluation Kits

<table>
<thead>
<tr>
<th>Related Evaluation Kit</th>
<th>Connector Footprint Schematics Ref</th>
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<tbody>
<tr>
<td>AT91SAM7SE-EK</td>
<td>J14</td>
</tr>
<tr>
<td>AT91SAM9260-EK</td>
<td>J25</td>
</tr>
<tr>
<td>AT91SAM9XE-EK</td>
<td>J25</td>
</tr>
<tr>
<td>AT91SAM9RL-EK</td>
<td>J27</td>
</tr>
<tr>
<td>AT91SAM9G20-EK</td>
<td>J25</td>
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Note: 1. These Evaluation Kits serve the specified AT91SAM series of ARM® Thumb®-based Microcontrollers.

3. Connection Description

3.1 Amphenol InterCon Connector

The device intended to be fitted on the footprint designed on these evaluation boards is a high-speed connector chosen to take full advantage of the performance of all of the Memory Controllers interfaced to the EBI.

Its reference is the following:

Amphenol InterCon Systems, reference 7170-020

This connector is designed to ensure board-to-board mating on a stacking principle, the connector being kept between the two boards upon which similar footprints have been implemented.
3.2 Simple Assembly Solution
To ensure this stack (1st board + connector + 2nd board) is kept in place and to ensure the electrical contact, one can simply use the following American Screw items:

- 2 US Screws UNC # 2 - 56, L = 10 mm
- 4 US Washers UNC # 2, isolating material
- 2 US Nuts UNC # 2 - 56

Optionally, one can use a specific mechanical kit in order to ensure a more efficient electrical contact.

3.3 Mechanical Kit
This mechanical kit consists mainly of a bolster plate and a connector holder assembled with screws.

The following figures detail the kit's elements and mechanical assembly.

Figure 3-1. Assembly Drawing

NOTE: ASSEMBLY OF SCREW 2 WITH THE BOLSTER PLATE BY USING NORMAL BRAKE NET (LOCTITE 243)
NOTE: SCREW 1 IS A STAINLESS STEEL TC M1.6x6 SCREW
NOTE: SCREW 2 IS A US SCREW TC UNC #2 - 56, L = 19mm
Figure 3-2. Bolster Plate

Figure 3-3. Bolster Isolator
Figure 3-4.  Holder Isolator

Figure 3-5.  Connector Holder
Figure 3-6. Specific Nut
4. Related AT91 Evaluation Boards Layout and Pinout

This section shows the layout and pinout for each AT91 Evaluation Board upon which this connector has been designed.

Figure 4-1. AT91SAM7SE-EK EBI Connector Layout and Pinout
Figure 4-2. AT91SAM9260-EK EBI Connector Layout and Pinout
Figure 4-3. AT91SAM9XE-EK EBI Connector Layout and Pinout
Figure 4-4. AT91SAM9RL-EK EBI Connector Layout and Pinout
Figure 4-5. AT91SAM9G20-EK EBI Connector Layout and Pinout
## Revision History

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<th>Date</th>
<th>Comments</th>
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<td>6309A</td>
<td>19-Apr-07</td>
<td>First issue</td>
<td></td>
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<tr>
<td>6309B</td>
<td>16-Jun-09</td>
<td>Table 2-1 on page 1, Figure 4-4 on page 9, Figure 4-5 on page 10: Add AT91SAM9RL-EK and AT91SAM9G20-EK</td>
<td>5909</td>
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