

# 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<sup>(1)</sup>

| Related Evaluation Kit         | Connector Footprint Schematics Ref |
|--------------------------------|------------------------------------|
| <a href="#">AT91SAM7SE-EK</a>  | J14                                |
| <a href="#">AT91SAM9260-EK</a> | J25                                |
| <a href="#">AT91SAM9XE-EK</a>  | J25                                |
| <a href="#">AT91SAM9RL-EK</a>  | J27                                |
| <a href="#">AT91SAM9G20-EK</a> | J25                                |

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.



## AT91 ARM Thumb Microcontrollers

## Application Note



### 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

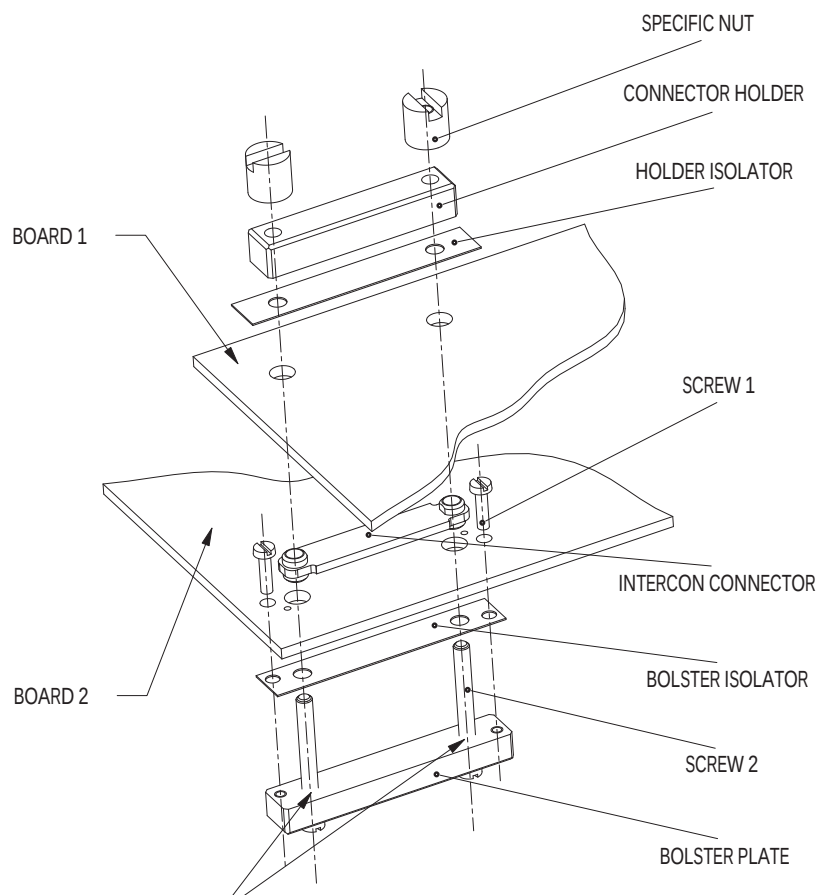
Optionally, one can use a specific mechanical kit in order to ensure a more efficient electrical contact.

### 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

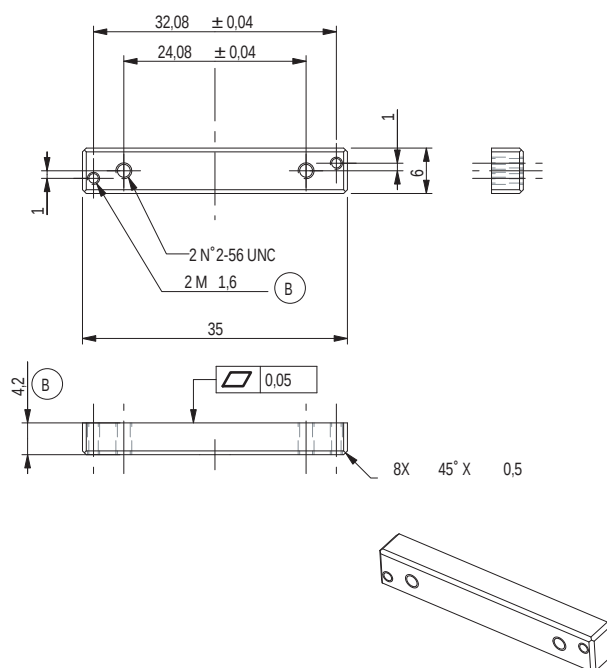


NOTE: ASSEMBLY OF SCREW 2 WITH THE BOLSTER PLATE BY USING NORMAL BRAKE NET (LOCTITE 243)

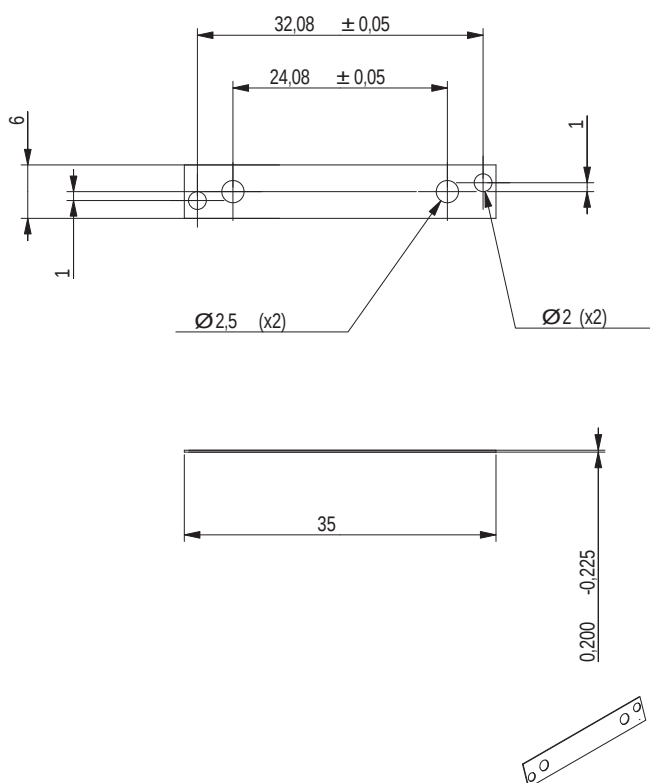
NOTE: SCREW 1 IS A STAINLESS STEEL TC M1.6X6 SCREW

NOTE: SCREW 2 IS A US SCREW TC UNC # 2 - 56, L = 19mm

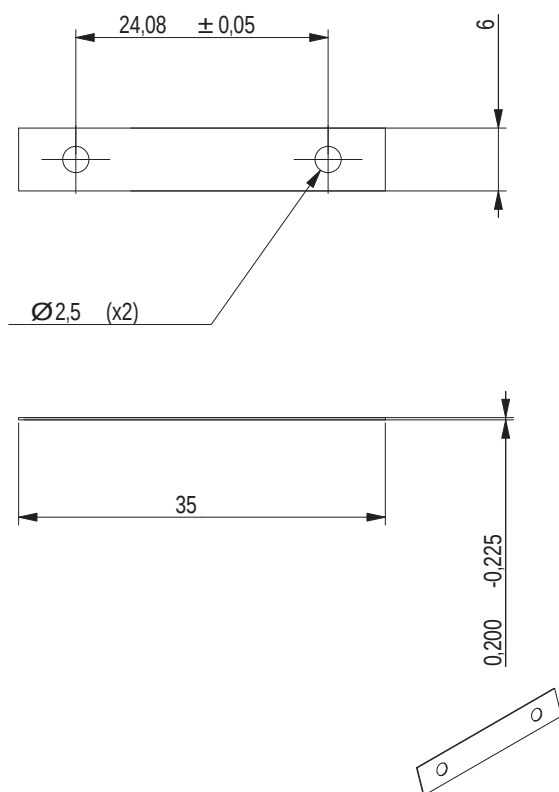
**Figure 3-2. Bolster Plate**



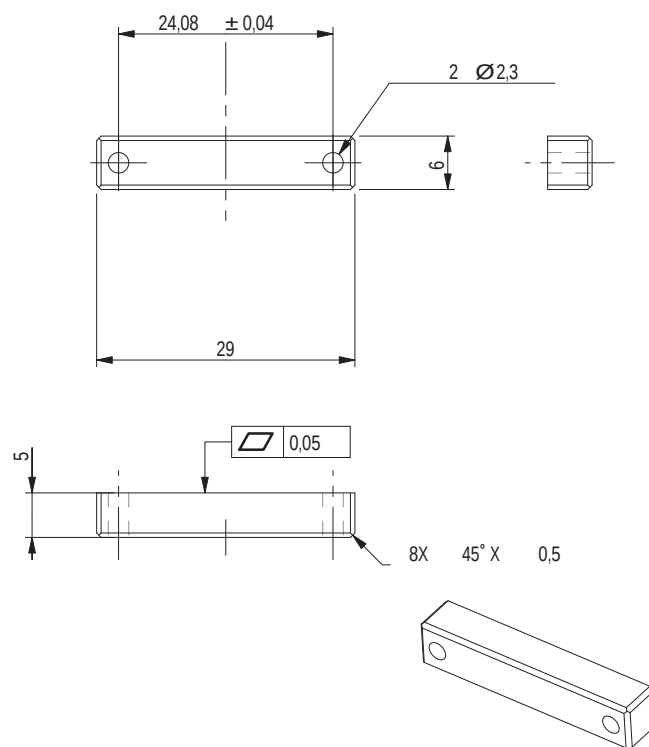
**Figure 3-3. Bolster Isolator**



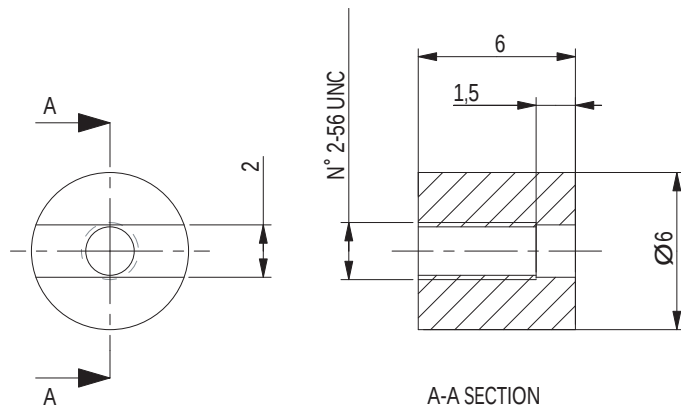
**Figure 3-4.** Holder Isolator



**Figure 3-5.** Connector Holder



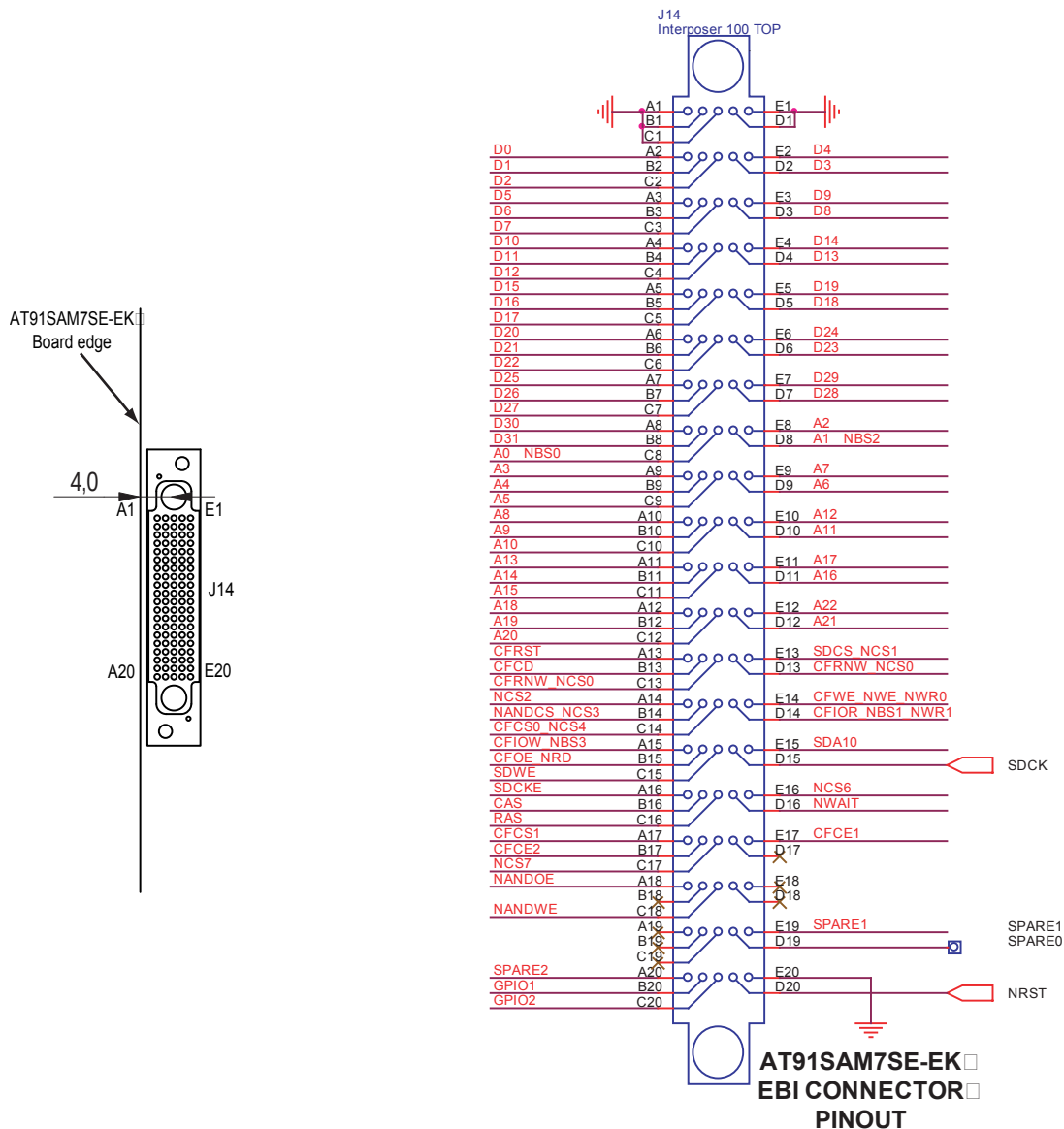
**Figure 3-6.** Specific Nut



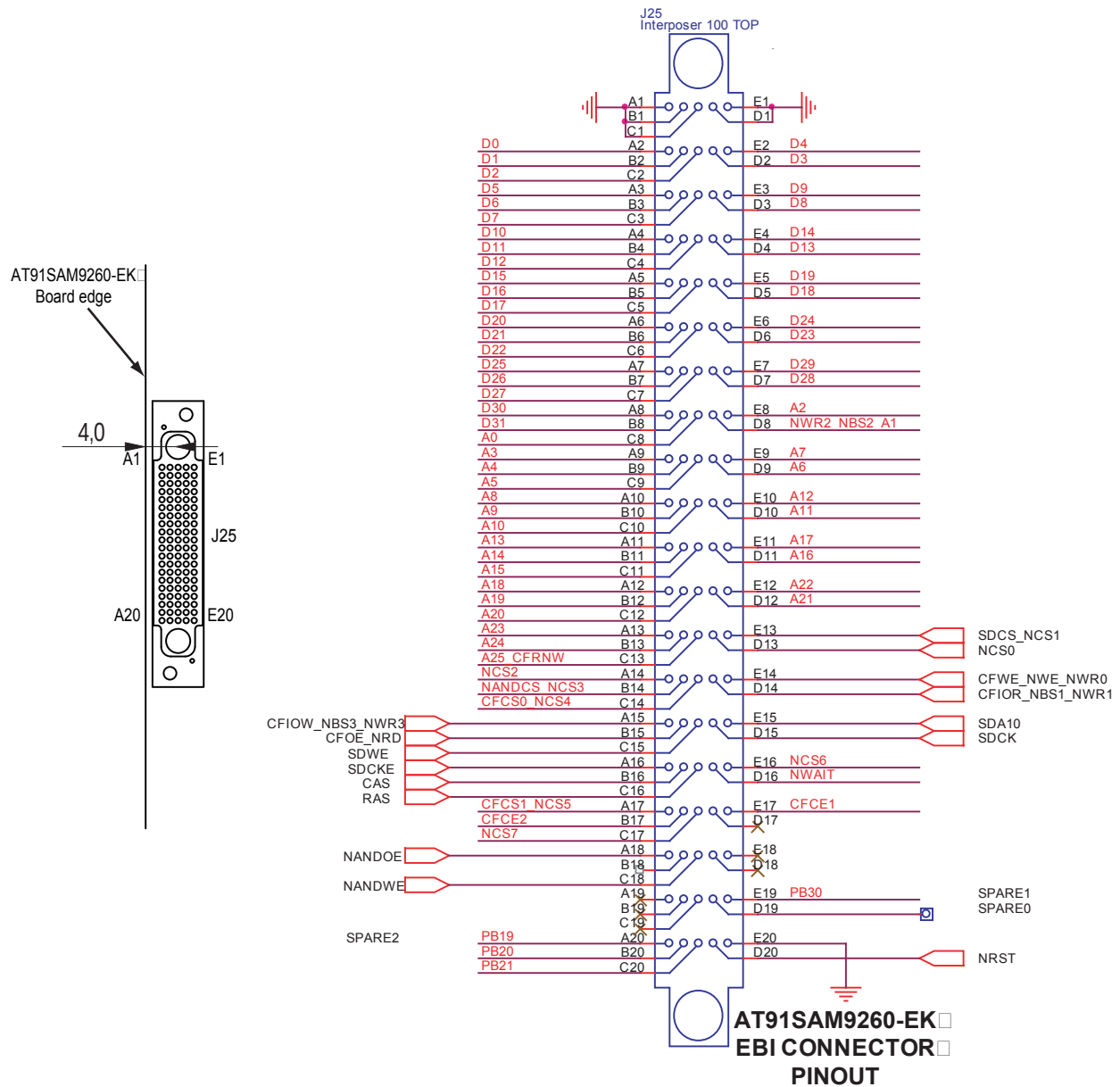
## 4. Related AT91 Evaluation Boards Layout and Pinout

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

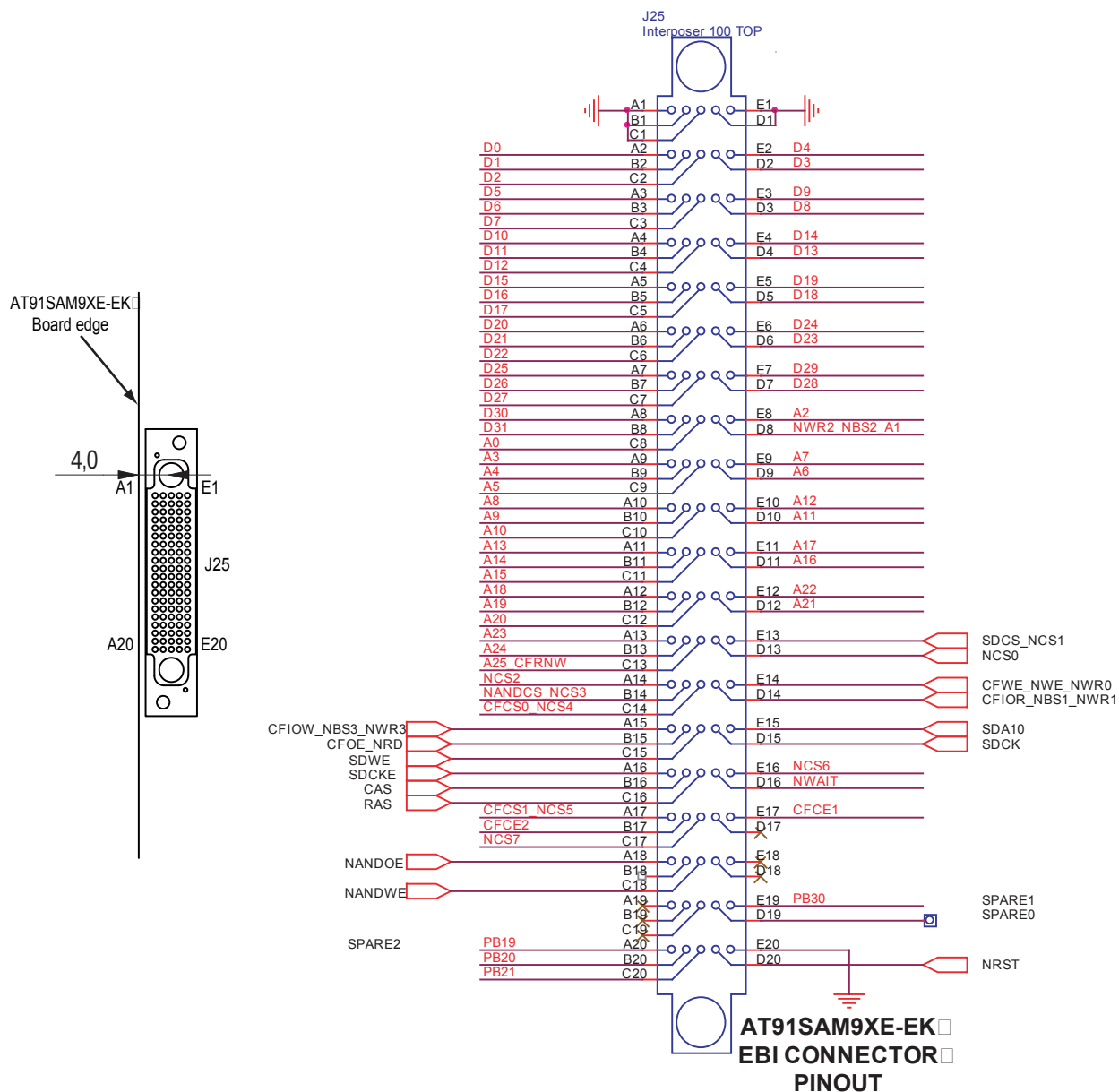
**Figure 4-1.** AT91SAM7SE-EK EBI Connector Layout and Pinout



**Figure 4-2.** AT91SAM9260-EK EBI Connector Layout and Pinout

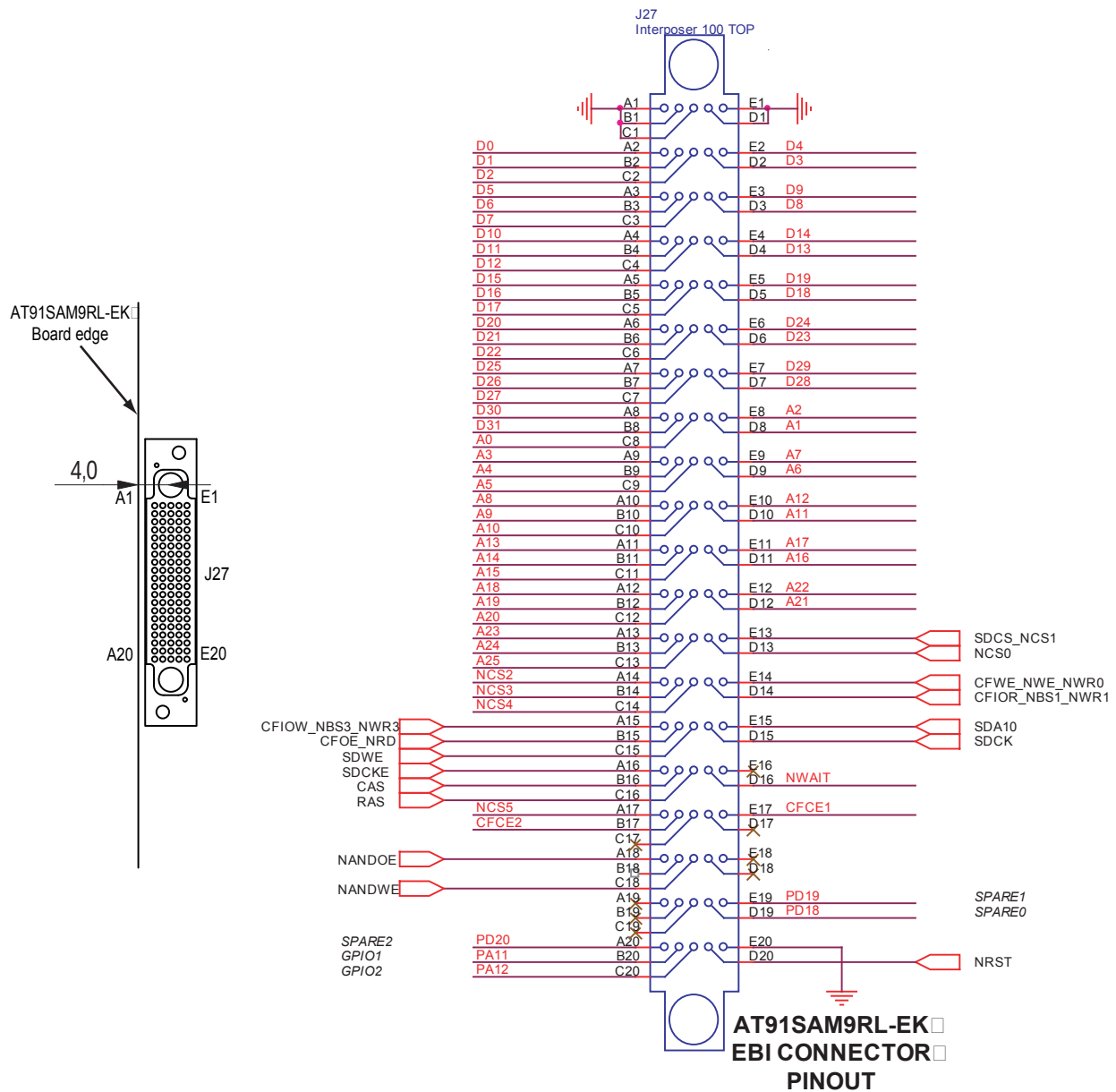


**Figure 4-3.** AT91SAM9XE-EK EBI Connector Layout and Pinout

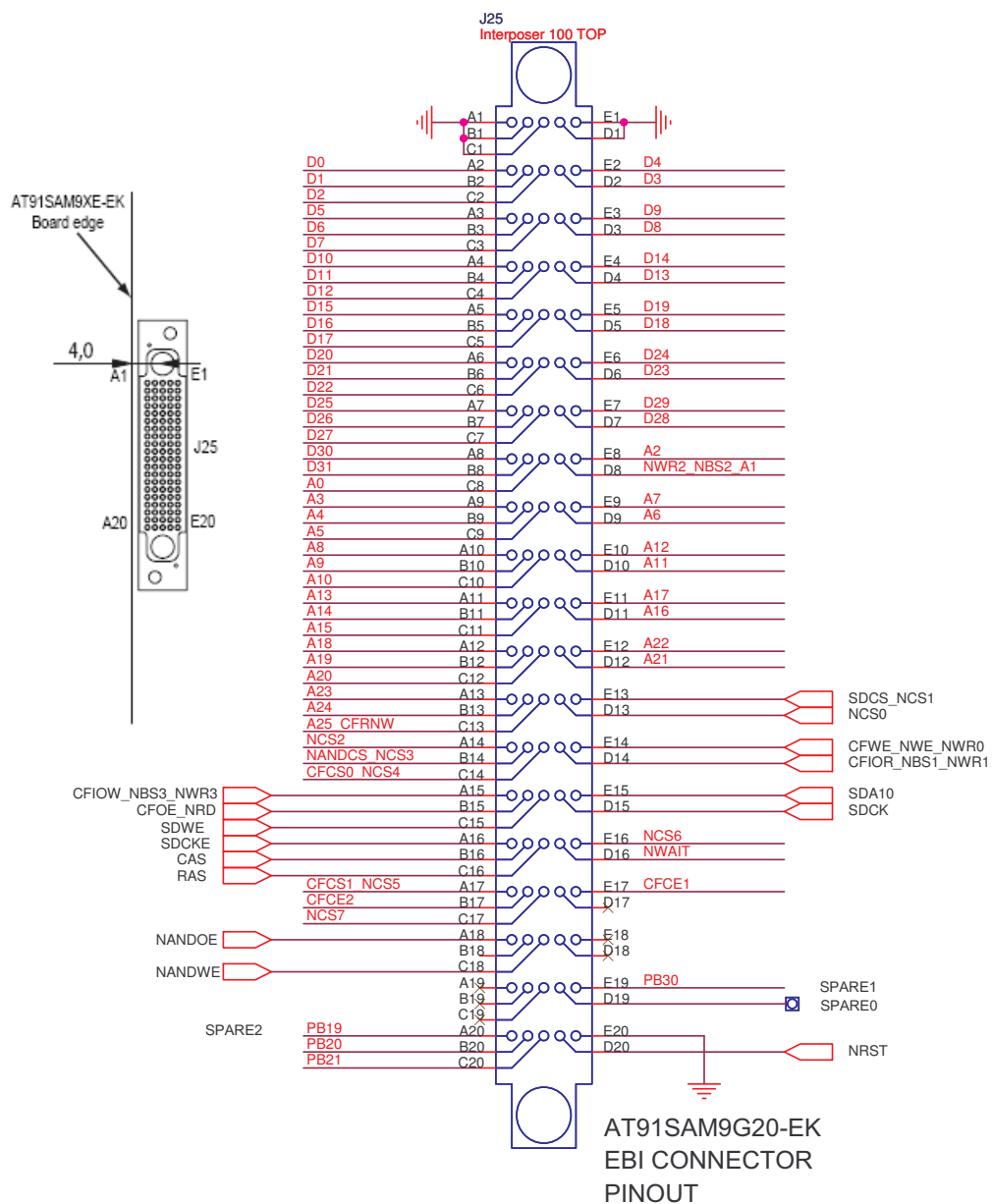




**Figure 4-4.** AT91SAM9RL-EK EBI Connector Layout and Pinout



**Figure 4-5.** AT91SAM9G20-EK EBI Connector Layout and Pinout



## Revision History

| Doc. Rev | Date      | Comments                                                                                                                                                  | Change Request Ref. |
|----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 6309A    | 19-Apr-07 | First issue                                                                                                                                               |                     |
| 6309B    | 16-Jun-09 | <a href="#">Table 2-1 on page 1</a> , <a href="#">Figure 4-4 on page 9</a> , <a href="#">Figure 4-5 on page 10</a> : Add AT91SAM9RL-EK and AT91SAM9G20-EK | 5909                |



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