



Product Change Notification - SYST-22MLHR209

Date:

24 May 2019

Product Category:

32-bit Microcontrollers

Affected CPNs:



Notification subject:

ERRATA - SAM 4S Series Family Silicon Errata and Data Sheet Clarification

Notification text:

SYST-22MLHR209

Microchip has released a new DeviceDoc for the SAM 4S Series Family Silicon Errata and Data Sheet Clarification of devices. If you are using one of these read the document located at [SAM 4S Series Family Silicon Errata and Data Sheet Clarification](#).

Notification Status: Final

Description of Change: Silicon revision E0 added as primary die source to MRL A that resulted in data sheet clarifications to: 2. Module: Chip ID and 3. Module: Errata.

Impacts to Data Sheet: None

Reason for Change: To Improve Productivity

Change Implementation Status: Complete

Date Document Changes Effective: 24 May 2019

NOTE: Please be advised that this is a change to the document only the product has not been changed.

Markings to Distinguish Revised from Unrevised Devices: N/A

Attachment(s):

[SAM 4S Series Family Silicon Errata and Data Sheet Clarification](#)

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Affected Catalog Part Numbers (CPN)

ATSAM4SD32CA-CU
ATSAM4SD32CB-CN
ATSAM4SD32CA-CFU
ATSAM4SD32CB-CFN
ATSAM4SD32CA-AU
ATSAM4SD32CB-AN
ATSAM4SD32BA-MU
ATSAM4SD32BB-MN
ATSAM4SD32BA-AU
ATSAM4SD32BB-AN
ATSAM4SD32BA-UUR
ATSAM4SD32BB-UUR
ATSAM4SD16CA-CU
ATSAM4SD16CB-CN
ATSAM4SD16CA-CFU
ATSAM4SD16CB-CFN
ATSAM4SD16CA-AU
ATSAM4SD16CB-AN
ATSAM4SD16BA-MU
ATSAM4SD16BB-MN
ATSAM4SD16BA-AU
ATSAM4SD16BB-AN
ATSAM4SD16BA-UUR
ATSAM4SD16BB-UUR
ATSAM4SA16CA-CU
ATSAM4SA16CB-CN
ATSAM4SA16CA-CFU
ATSAM4SA16CB-CFN
ATSAM4SA16CA-AU
ATSAM4SA16CB-AN
ATSAM4SA16BA-MU
ATSAM4SA16BB-MN
ATSAM4SA16BA-AU
ATSAM4SA16BB-AN
ATSAM4S16CA-CU
ATSAM4S16CB-CN
ATSAM4S16CA-AU
ATSAM4S16CB-AN
ATSAM4S16CA-CFU
ATSAM4S16CB-CFN
ATSAM4S16BA-AU
ATSAM4S16BB-AN
ATSAM4S16BA-MU
ATSAM4S16BB-MN
ATSAM4S16BA-UUR
ATSAM4S16BB-UUR

ATSAM4S8CA-CU
ATSAM4S8CB-CN
ATSAM4S8CA-CFU
ATSAM4S8CB-CFN
ATSAM4S8CA-AU
ATSAM4S8CB-AN
ATSAM4S8BA-MU
ATSAM4S8BB-MN
ATSAM4S8BA-UUR
ATSAM4S8BB-UUR
ATSAM4S8BA-AU
ATSAM4S8BB-AN
ATSAM4S4CA-CU
ATSAM4S4CB-CN
ATSAM4S4CA-CFU
ATSAM4S4CB-CFN
ATSAM4S4CA-AU
ATSAM4S4CB-AN
ATSAM4S4BA-MU
ATSAM4S4BB-MN
ATSAM4S4BA-UUR
ATSAM4S4BB-UUR
ATSAM4S4BA-AU
ATSAM4S4BB-AN
ATSAM4S4AA-MU
ATSAM4S4AB-MN
ATSAM4S4AA-AU
ATSAM4S4AB-AN
ATSAM4S2CA-CU
ATSAM4S2CB-CN
ATSAM4S2CA-CFU
ATSAM4S2CB-CFN
ATSAM4S2CA-AU
ATSAM4S2CB-AN
ATSAM4S2BA-MU
ATSAM4S2BB-MN
ATSAM4S2BA-UUR
ATSAM4S2BB-UUR
ATSAM4S2BA-AU
ATSAM4S2BB-AN
ATSAM4S2AA-MU
ATSAM4S2AB-MN
ATSAM4S2AA-AU
ATSAM4S2AB-AN

SAM 4S Series Family Silicon Errata and Data Sheet Clarification

The SAM 4S Series family of devices that you have received conform functionally to the current Device Data Sheet (11100K-ATARM-SAM4S-Datasheet_09-Jun-15), except for the anomalies described in this document.

New Silicon Errata Issues

Note: This document provides information on new errata issues for the SAM 4S Series of devices. Please refer to the current device data sheet for all pre-existing silicon errata issues.

1. Module: Voltage Regulator

The embedded voltage regulator does not work under temperatures below +25°C when VDDIN is supplied below 2.8V.

Work around

VDDIN must be supplied at 2.8V minimum to guarantee embedded voltage regulator start-up down to -40°C.

Affected Silicon Revisions

A	B						
X							

Note: The voltage regulator errata is not applicable to ATSAM4S2 and ATSAM4S4 derivatives.

2. Module: ADC

Using ADC under these conditions: VDDANA < 2.4V or ADVREF < 2.4V, and temperature T° < 0°C, the ADC does not start.

Work around

Use reserved value of IBCTL field in the ADC Analog Control Register (ADC_ACR) IBCTL= 11b to ensure a correct startup of the ADC with a higher bias current (Typically, +50% higher than the standard configuration). This setup can be kept for standard analog conversions. If current consumption is critical, the IBCTL field setting must be kept to 11b at least during 20µs before being changed to its nominal value.

Affected Silicon Revisions

A	B						
X	X						

SAM 4S SERIES

Data Sheet Clarifications

1. Module: Ordering Information

In the current device data sheet, the SAM4S Ordering Codes table (Table 47-1) is incorrect. The correct information is provided in the following table.

TABLE 47-1: SAM4S ORDERING CODES TABLE

Ordering Code	MRL	Flash (Kbytes)	SRAM (Kbytes)	Package	Carrier Type	Operating Temperature Range
ATSAM4SD32CA-CU	A	2*1024	160	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD32CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4SD32CA-CFU	A	2*1024	160	VFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD32CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4SD32CA-AU	A	2*1024	160	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD32CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4SD32BA-MU	A	2*1024	160	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD32BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4SD32BA-AU	A	2*1024	160	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD32BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4SD32BA-UUR	A	2*1024	160	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4SD32BB-UUR	B					
ATSAM4SD16CA-CU	A	2*1024	160	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD16CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4SD16CA-CFU	A	2*512	160	VFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD16CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4SD16CA-AU	A	2*512	160	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD16CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4SD16BA-MU	A	2*512	160	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD16BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4SD16BA-AU	A	2*512	160	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SD16BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4SD16BA-UUR	A	2*512	160	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4SD16BB-UUR	B					
ATSAM4SA16CA-CU	A	1024	160	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SA16CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4SA16CA-CFU	A	1024	160	VFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SA16CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4SA16CA-AU	A	1024	160	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SA16CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4SA16BA-MU	A	1024	160	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SA16BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4SA16BA-AU	A	1024	160	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4SA16BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S16CA-CU	A	1024	128	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S16CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4S16CA-AU	A	1024	128	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S16CB-AN	B					Industrial (-40°C to +105°C)

SAM 4S SERIES

Ordering Code	MRL	Flash (Kbytes)	SRAM (Kbytes)	Package	Carrier Type	Operating Temperature Range
ATSAM4S16CA-CFU	A	1024	128	VFPGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S16CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4S16BA-AU	A	1024	128	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S16BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S16BA-MU	A	1024	128	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S16BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4S16BA-UUR	A	1024	128	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4S16BB-UUR	B					
ATSAM4S8CA-CU	A	512	128	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S8CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4S8CA-CFU	A	1024	128	VFPGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S8CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4S8CA-AU	A	1024	128	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S8CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S8BA-MU	A	1024	128	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S8BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4S8BA-UUR	A	512	128	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4S8BB-UUR	B					
ATSAM4S8BA-AU	A	512	128	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S8BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S4CA-CU	A	256	64	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4S4CA-CFU	A	256	64	VFPGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4S4CA-AU	A	256	64	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S4BA-MU	A	256	64	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4BB-MN	B					Industrial (-40°C to +105°C)
ATSAM4S4BA-UUR	A	256	64	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4S4BB-UUR	B					
ATSAM4S4BA-AU	A	256	64	LQFP64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S4AA-MU	A	256	64	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4AB-MN	B					Industrial (-40°C to +105°C)
ATSAM4S4AA-AU	A	256	64	LQFP48	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S4AB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S2CA-CU	A	256	64	TFBGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2CB-CN	B					Industrial (-40°C to +105°C)
ATSAM4S2CA-CFU	A	256	64	VFPGA100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2CB-CFN	B					Industrial (-40°C to +105°C)
ATSAM4S2CA-AU	A	256	64	LQFP100	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2CB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S2BA-MU	A	256	64	QFN64	Tray, Tape and Reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2BB-MN	B					Industrial (-40°C to +105°C)

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Ordering Code	MRL	Flash (Kbytes)	SRAM (Kbytes)	Package	Carrier Type	Operating Temperature Range
ATSAM4S2BA-UUR	A	128	64	WLCSP64	Tape and Reel	Industrial (-40°C to +85°C)
ATSAM4S2BB-UUR	B					
ATSAM4S2BA-AU	A	128	64	LQFP64	Tray, Tape and reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2BB-AN	B					Industrial (-40°C to +105°C)
ATSAM4S2AA-MU	A	256	64	QFN48	Tray, Tape and reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2AB-MN	B					Industrial (-40°C to +105°C)
ATSAM4S2AA-AU	A	256	64	LQFP48	Tray, Tape and reel (add R to ordering code)	Industrial (-40°C to +85°C)
ATSAM4S2AB-AN	B					Industrial (-40°C to +105°C)

2. Module: CHIP ID

Table 30-1. "SAM 4S Chip ID Registers" is updated with Chip ID information. The newly added information is shown in **BOLD**.

TABLE 30-1: SAM 4S CHIP ID REGISTERS

Chip Name	CHIPID_CIDR	CHIPID_EXID
SAM4SD32C (Rev A)	0x29A7_0EE0	0x0
SAM4SD32C (Rev B)	0x29A7_0EE1	0x0
SAM4SD32B (Rev A)	0x2997_0EE0	0x0
SAM4SD32B (Rev B)	0x2997_0EE1	0x0
SAM4SD16C (Rev A)	0x29A7_0CE0	0x0
SAM4SD16C (Rev B)	0x29A7_0CE1	0x0
SAM4SD16B (Rev A)	0x2997_0CE0	0x0
SAM4SD16B (Rev B)	0x2997_0CE1	0x0
SAM4SA16C (Rev A)	0x28A7_0CE0	0x0
SAM4SA16C (Rev B)	0x28A7_0CE1	0x0
SAM4SA16B (Rev A)	0x2897_0CE0	0x0
SAM4SA16B (Rev B)	0x2897_0CE1	0x0
SAM4S16B (Rev A)	0x289C_0CE0	0x0
SAM4S16B (Rev B)	0x289C_0CE1	0x0
SAM4S16C (Rev A)	0x28AC_0CE0	0x0
SAM4S16C (Rev B)	0x28AC_0CE1	0x0
SAM4S8B (Rev A)	0x289C_0AE0	0x0
SAM4S8B (Rev B)	0x289C_0AE1	0x0
SAM4S8C (Rev A)	0x28AC_0AE0	0x0
SAM4S8C (Rev B)	0x28AC_0AE1	0x0
SAM4S4C (Rev A)	0x28AB_09E0/ 0x28AB_09E1	0x0
SAM4S4C (Rev B)	0x28AB_09E1	0x0

SAM 4S SERIES

TABLE 30-1: SAM 4S CHIP ID REGISTERS

SAM4S4B (Rev A)	0x289B_09E0/ 0x289B_09E1	0x0
SAM4S4B (Rev B)	0x289B_09E1	0x0
SAM4S4A (Rev A)	0x288B_09E0/ 0x288B_09E1	0x0
SAM4S4A (Rev B)	0x288B_09E1	0x0
SAM4S2C (Rev A)	0x28AB_07E0/ 0x28AB_07E1	0x0
SAM4S2C (Rev B)	0x28AB_07E1	0x0
SAM4S2B (Rev A)	0x289B_07E0/ 0x289B_07E1	0x0
SAM4S2B (Rev B)	0x289B_07E1	0x0
SAM4S2A (Rev A)	0x288B_07E0/ 0x288B_07E1	0x0
SAM4S2A (Rev B)	0x288B_07E1	0x0

3. Module: Errata

Table 48-3. “Errata SAM 4S4/S2 Rev A Parts” is updated with Chip ID information. The newly added information is shown in **BOLD**.

TABLE 48-3: ERRATA SAM 4S4/S2 REV A PARTS

Device Name	Revision	Chip ID
SAM4S4C	A	0x28AB_09E0/ 0x28AB_09E1
SAM4S4B	A	0x289B_09E0/ 0x289B_09E1
SAM4S4A	A	0x288B_09E0/ 0x288B_09E1
SAM4S2C	A	0x28AB_07E0/ 0x28AB_07E1
SAM4S2B	A	0x289B_07E0/ 0x289B_07E1
SAM4S2A	A	0x288B_07E0/ 0x288B_07E1

SAM 4S SERIES

APPENDIX A: REVISION HISTORY

Rev A Document (3/2018)

This is the initial released version of this document.

Rev B Document (5/2019)

The following Data Sheet Clarifications were added:

- **2. Module: “CHIP ID”**
- **3. Module: “Errata”**

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