

# Microsemi Corporation

May 21, 2019

**Customer Notification No:** CN19010

## Subject

Libero SoC Timing Change and IO Glitch Notification

### CAN 19010.1 Clock Source Latency Calculation

#### Description of the Issue

Due to an error introduced in Libero SoC v11.7-SP1, when a clock source latency constraint is applied to a generated clock, an additional delay (= late – early) is incorrectly added to the net driven by the clock source and impacting the required time calculation. As a result, the clock source latency constraint is ignored on the generated clock. Up until Libero SoC v12.0, this constraint has been recommended as a way to capture clock jitter information and pass it on to be used by the static timing analysis tool, SmartTime, during its Max Delay Analysis.

#### Reason for Notification

Libero SoC v11.9 SP2 and beyond restores the correct value for the data required time calculation. This correction is also addressed in Libero SoC v12.0. The respective software release notes include a reference to this change. In addition, starting with Libero SoC v12.0, jitter can also be modeled using simple clock uncertainty constraints.

#### Application Impact

Starting with Libero SoC v11.7 SP1 to v11.9 SP1, a clock source latency constraint set on a generated clock to capture, for example, internal PLL output jitter may have shown no timing violations in SmartTime that a proper accounting for the jitter might have flagged. There is no timing risk issue for cases where the slack of the max delay path is greater than the total jitter window (late-to-early value). However, if such slack is less than the jitter window, there is a risk for a timing violation that the tool would have not flagged in the affected versions. See Table 283 in the SmartFusion2/IGLOO2 datasheet for jitter specifications.

#### Action Required

Re-run static timing analysis with SmartTime using Libero SoC v11.9 SP2 or later, if you are setting a clock source latency constraint on a generated clock and the margin you have is less than the constraint window (for example, jitter window).

### CAN 19010.2 IO Glitches During Auto-Update

#### Description of Change

Auto-update is a method to automatically update the FPGA image on a power-up. If enabled, the system controller will check the design version of a bitstream in an external SPI flash and compare it to the programmed version. If the external bitstream is newer than the programmed bitstream, then the system controller will use the new bitstream to program the device. If auto-update is enabled, an auto-update action will occur. Under these conditions during device power-up or the de-assertion of DEVRST\_N, an IO glitch will occur on banks 0, 1, and 2 of the the M2S005/010/025 or M2GL005/010/025 devices. If auto-update is not enabled, the glitch does not occur. The amplitude of the glitch correlates to the VDDI bank voltage level.

#### Reason for Notification

IO glitches on banks 0, 1, and 2 of the the M2S005/010/025 or M2GL005/010/025 devices during auto-update programming mode.

## Application Impact

The IO glitch is a drive-high glitch with <10 ns duration. The glitch occurs before the FPGA user IOs are activated and the FPGA fabric comes out of reset. Note that DEVRST\_N is not needed for proper device operation. DEVRST\_N resets the system controller effectively causing a warm boot of the device. Users should always use a GPIO to perform a user design reset.

## Workaround

- Utilize In-Application Programming (IAP) in place of auto-update.
- Move sensitive outputs to a non-glitch bank.

## Contact Information

If you have further questions about this subject, contact Microsemi Technical Support department by using the support portal at <https://soc.microsemi.com/Portal/Default.aspx>

## Regards,

Microsemi Corporation

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## Affected Part Numbers

SmartFusion2 Leaded Parts	SmartFusion2 Lead-Free Parts	IGLOO2 Leaded Parts	IGLOO2 Lead-Free Parts
M2S005-TQ144	M2S005-TQG144	M2GL005-TQ144	M2GL005-TQG144
M2S010-TQ144	M2S010-TQG144	M2GL010-TQ144	M2GL010-TQG144
M2S005-VF256	M2S005-VFG256	M2GL005-VF256	M2GL005-VFG256
M2S010-VF256	M2S010-VFG256	M2GL010-VF256	M2GL010-VFG256
M2S025-VF256	M2S025-VFG256	M2GL025-VF256	M2GL025-VFG256
M2S025-FCS325	M2S025-FCSG325	M2GL025-FCS325	M2GL025-FCSG325
M2S005-VF400	M2S005-VFG400	M2GL005-VF400	M2GL005-VFG400
M2S010-VF400	M2S010-VFG400	M2GL010-VF400	M2GL010-VFG400
M2S025-VF400	M2S025-VFG400	M2GL025-VF400	M2GL025-VFG400
M2S005-FG484	M2S005-FGG484	M2GL005-FG484	M2GL005-FGG484
M2S010-FG484	M2S010-FGG484	M2GL010-FG484	M2GL010-FGG484
M2S025-FG484	M2S025-FGG484	M2GL025-FG484	M2GL025-FGG484
M2S010T-VF256	M2S010T-VFG256	M2GL010T-VF256	M2GL010T-VFG256
M2S025T-VF256	M2S025T-VFG256	M2GL025T-VF256	M2GL025T-VFG256
M2S025T-FCS325	M2S025T-FCSG325	M2GL025T-FCS325	M2GL025T-FCSG325
M2S010T-VF400	M2S010T-VFG400	M2GL010T-VF400	M2GL010T-VFG400
M2S025T-VF400	M2S025T-VFG400	M2GL025T-VF400	M2GL025T-VFG400
M2S010T-FG484	M2S010T-FGG484	M2GL010T-FG484	M2GL010T-FGG484
M2S025T-FG484	M2S025T-FGG484	M2GL025T-FG484	M2GL025T-FGG484
M2S050T-FG484	M2S050T-FGG484	M2GL050T-FG484	M2GL050T-FGG484
M2S005S-TQ144	M2S005S-TQG144	M2GL005S-TQ144	M2GL005S-TQG144

<b>SmartFusion2 Leaded Parts</b>	<b>SmartFusion2 Lead-Free Parts</b>	<b>IGLOO2 Leaded Parts</b>	<b>IGLOO2 Lead-Free Parts</b>
M2S010S-TQ144	M2S010S-TQG144	M2GL010S-TQ144	M2GL010S-TQG144
M2S005S-VF256	M2S005S-VFG256	M2GL005S-VF256	M2GL005S-VFG256
M2S005S-VF400	M2S005S-VFG400	M2GL005S-VF400	M2GL005S-VFG400
M2S005S-FG484	M2S005S-FGG484	M2GL005S-FG484	M2GL005S-FGG484
M2S010TS-VF256	M2S010TS-VFG256	M2GL010TS-VF256	M2GL010TS-VFG256
M2S025TS-VF256	M2S025TS-VFG256	M2GL025TS-VF256	M2GL025TS-VFG256
M2S025TS-FCS325	M2S025TS-FCSG325	M2GL025TS-FCS325	M2GL025TS-FCSG325
M2S010TS-VF400	M2S010TS-VFG400	M2GL010TS-VF400	M2GL010TS-VFG400
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M2S010TS-FG484	M2S010TS-FGG484	M2GL010TS-FG484	M2GL010TS-FGG484
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M2S005-1VF256	M2S005-1VFG256	M2GL005-1VF256	M2GL005-1VFG256
M2S010-1VF256	M2S010-1VFG256	M2GL010-1VF256	M2GL010-1VFG256
M2S025-1VF256	M2S025-1VFG256	M2GL025-1VF256	M2GL025-1VFG256
M2S025-1FCS325	M2S025-1FCSG325	M2GL025-1FCS325	M2GL025-1FCSG325
M2S005-1VF400	M2S005-1VFG400	M2GL005-1VF400	M2GL005-1VFG400
M2S010-1VF400	M2S010-1VFG400	M2GL010-1VF400	M2GL010-1VFG400
M2S025-1VF400	M2S025-1VFG400	M2GL025-1VF400	M2GL025-1VFG400
M2S005-1FG484	M2S005-1FGG484	M2GL005-1FG484	M2GL005-1FGG484
M2S010-1FG484	M2S010-1FGG484	M2GL010-1FG484	M2GL010-1FGG484
M2S025-1FG484	M2S025-1FGG484	M2GL025-1FG484	M2GL025-1FGG484
M2S010T-1VF256	M2S010T-1VFG256	M2GL010T-1VF256	M2GL010T-1VFG256
M2S025T-1VF256	M2S025T-1VFG256	M2GL025T-1VF256	M2GL025T-1VFG256
M2S025T-1FCS325	M2S025T-1FCSG325	M2GL025T-1FCS325	M2GL025T-1FCSG325
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M2S010T-1VF400	M2S010T-1VFG400	M2GL010T-1VF400	M2GL010T-1VFG400
M2S025T-1VF400	M2S025T-1VFG400	M2GL025T-1VF400	M2GL025T-1VFG400
M2S010T-1FG484	M2S010T-1FGG484	M2GL010T-1FG484	M2GL010T-1FGG484
M2S025T-1FG484	M2S025T-1FGG484	M2GL025T-1FG484	M2GL025T-1FGG484
M2S005S-1TQ144	M2S005S-1TQG144	M2GL005S-1TQ144	M2GL005S-1TQG144
M2S010S-1TQ144	M2S010S-1TQG144	M2GL010S-1TQ144	M2GL010S-1TQG144
M2S005S-1VF256	M2S005S-1VFG256	M2GL005S-1VF256	M2GL005S-1VFG256
M2S005S-1VF400	M2S005S-1VFG400	M2GL005S-1VF400	M2GL005S-1VFG400
M2S005S-1FG484	M2S005S-1FGG484	M2GL005S-1FG484	M2GL005S-1FGG484
M2S010TS-1VF256	M2S010TS-1VFG256	M2GL010TS-1VF256	M2GL010TS-1VFG256

<b>SmartFusion2 Leaded Parts</b>	<b>SmartFusion2 Lead-Free Parts</b>	<b>IGLOO2 Leaded Parts</b>	<b>IGLOO2 Lead-Free Parts</b>
M2S025TS-1VF256	M2S025TS-1VFG256	M2GL025TS-1VF256	M2GL025TS-1VFG256
M2S025TS-1FCS325	M2S025TS-1FCSG325	M2GL025TS-1FCS325	M2GL025TS-1FCSG325
M2S010TS-1VF400	M2S010TS-1VFG400	M2GL010TS-1VF400	M2GL010TS-1VFG400
M2S025TS-1VF400	M2S025TS-1VFG400	M2GL025TS-1VF400	M2GL025TS-1VFG400
M2S010TS-1FG484	M2S010TS-1FGG484	M2GL010TS-1FG484	M2GL010TS-1FGG484
M2S025TS-1FG484	M2S025TS-1FGG484	M2GL025TS-1FG484	M2GL025TS-1FGG484
M2S005-TQ144I	M2S005-TQG144I	M2GL005-TQ144I	M2GL005-TQG144I
M2S010-TQ144I	M2S010-TQG144I	M2GL010-TQ144I	M2GL010-TQG144I
M2S005-VF256I	M2S005-VFG256I	M2GL005-VF256I	M2GL005-VFG256I
M2S010-VF256I	M2S010-VFG256I	M2GL010-VF256I	M2GL010-VFG256I
M2S025-VF256I	M2S025-VFG256I	M2GL025-VF256I	M2GL025-VFG256I
M2S025-FCS325I	M2S025-FCSG325I	M2GL025-FCS325I	M2GL025-FCSG325I
M2S005-VF400I	M2S005-VFG400I	M2GL005-VF400I	M2GL005-VFG400I
M2S010-VF400I	M2S010-VFG400I	M2GL010-VF400I	M2GL010-VFG400I
M2S025-VF400I	M2S025-VFG400I	M2GL025-VF400I	M2GL025-VFG400I
M2S005-FG484I	M2S005-FGG484I	M2GL005-FG484I	M2GL005-FGG484I
M2S010-FG484I	M2S010-FGG484I	M2GL010-FG484I	M2GL010-FGG484I
M2S025-FG484I	M2S025-FGG484I	M2GL025-FG484I	M2GL025-FGG484I
M2S010T-VF256I	M2S010T-VFG256I	M2GL010T-VF256I	M2GL010T-VFG256I
M2S025T-VF256I	M2S025T-VFG256I	M2GL025T-VF256I	M2GL025T-VFG256I
M2S025T-FCS325I	M2S025T-FCSG325I	M2GL025T-FCS325I	M2GL025T-FCSG325I
M2S050T-FCS325I	M2S050T-FCSG325I	M2GL050T-FCS325I	M2GL050T-FCSG325I
M2S010T-VF400I	M2S010T-VFG400I	M2GL010T-VF400I	M2GL010T-VFG400I
M2S025T-VF400I	M2S025T-VFG400I	M2GL025T-VF400I	M2GL025T-VFG400I
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M2S025T-FG484I	M2S025T-FGG484I	M2GL025T-FG484I	M2GL025T-FGG484I
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M2S010S-TQ144I	M2S010S-TQG144I	M2GL010S-TQ144I	M2GL010S-TQG144I
M2S005S-VF256I	M2S005S-VFG256I	M2GL005S-VF256I	M2GL005S-VFG256I
M2S005S-VF400I	M2S005S-VFG400I	M2GL005S-VF400I	M2GL005S-VFG400I
M2S005S-FG484I	M2S005S-FGG484I	M2GL005S-FG484I	M2GL005S-FGG484I
M2S010TS-VF256I	M2S010TS-VFG256I	M2GL010TS-VF256I	M2GL010TS-VFG256I
M2S025TS-VF256I	M2S025TS-VFG256I	M2GL025TS-VF256I	M2GL025TS-VFG256I
M2S025TS-FCS325I	M2S025TS-FCSG325I	M2GL025TS-FCS325I	M2GL025TS-FCSG325I
M2S010TS-VF400I	M2S010TS-VFG400I	M2GL010TS-VF400I	M2GL010TS-VFG400I
M2S025TS-VF400I	M2S025TS-VFG400I	M2GL025TS-VF400I	M2GL025TS-VFG400I
M2S010TS-FG484I	M2S010TS-FGG484I	M2GL010TS-FG484I	M2GL010TS-FGG484I
M2S025TS-FG484I	M2S025TS-FGG484I	M2GL025TS-FG484I	M2GL025TS-FGG484I

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M2S005-1TQ144I	M2S005-1TQG144I	M2GL005-1TQ144I	M2GL005-1TQG144I
M2S010-1TQ144I	M2S010-1TQG144I	M2GL010-1TQ144I	M2GL010-1TQG144I
M2S005-1VF256I	M2S005-1VFG256I	M2GL005-1VF256I	M2GL005-1VFG256I
M2S010-1VF256I	M2S010-1VFG256I	M2GL010-1VF256I	M2GL010-1VFG256I
M2S025-1VF256I	M2S025-1VFG256I	M2GL025-1VF256I	M2GL025-1VFG256I
M2S025-1FCS325I	M2S025-1FCSG325I	M2GL025-1FCS325I	M2GL025-1FCSG325I
M2S005-1VF400I	M2S005-1VFG400I	M2GL005-1VF400I	M2GL005-1VFG400I
M2S010-1VF400I	M2S010-1VFG400I	M2GL010-1VF400I	M2GL010-1VFG400I
M2S025-1VF400I	M2S025-1VFG400I	M2GL025-1VF400I	M2GL025-1VFG400I
M2S050-1VF400I	M2S050-1VFG400I	M2GL050-1VF400I	M2GL050-1VFG400I
M2S005-1FG484I	M2S005-1FGG484I	M2GL005-1FG484I	M2GL005-1FGG484I
M2S010-1FG484I	M2S010-1FGG484I	M2GL010-1FG484I	M2GL010-1FGG484I
M2S025-1FG484I	M2S025-1FGG484I	M2GL025-1FG484I	M2GL025-1FGG484I
M2S010T-1VF256I	M2S010T-1VFG256I	M2GL010T-1VF256I	M2GL010T-1VFG256I
M2S025T-1VF256I	M2S025T-1VFG256I	M2GL025T-1VF256I	M2GL025T-1VFG256I
M2S025T-1FCS325I	M2S025T-1FCSG325I	M2GL025T-1FCS325I	M2GL025T-1FCSG325I
M2S010T-1VF400I	M2S010T-1VFG400I	M2GL010T-1VF400I	M2GL010T-1VFG400I
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M2S010T-1FG484I	M2S010T-1FGG484I	M2GL010T-1FG484I	M2GL010T-1FGG484I
M2S025T-1FG484I	M2S025T-1FGG484I	M2GL025T-1FG484I	M2GL025T-1FGG484I
M2S005S-1TQ144I	M2S005S-1TQG144I	M2GL005S-1TQ144I	M2GL005S-1TQG144I
M2S010S-1TQ144I	M2S010S-1TQG144I	M2GL010S-1TQ144I	M2GL010S-1TQG144I
M2S005S-1VF256I	M2S005S-1VFG256I	M2GL005S-1VF256I	M2GL005S-1VFG256I
M2S005S-1VF400I	M2S005S-1VFG400I	M2GL005S-1VF400I	M2GL005S-1VFG400I
M2S005S-1FG484I	M2S005S-1FGG484I	M2GL005S-1FG484I	M2GL005S-1FGG484I
M2S010TS-1VF256I	M2S010TS-1VFG256I	M2GL010TS-1VF256I	M2GL010TS-1VFG256I
M2S025TS-1VF256I	M2S025TS-1VFG256I	M2GL025TS-1VF256I	M2GL025TS-1VFG256I
M2S025TS-1FCS325I	M2S025TS-1FCSG325I	M2GL025TS-1FCS325I	M2GL025TS-1FCSG325I
M2S010TS-1VF400I	M2S010TS-1VFG400I	M2GL010TS-1VF400I	M2GL010TS-1VFG400I
M2S025TS-1VF400I	M2S025TS-1VFG400I	M2GL025TS-1VF400I	M2GL025TS-1VFG400I
M2S050TS-1VF400I	M2S050TS-1VFG400I	M2GL050TS-1VF400I	M2GL050TS-1VFG400I
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M2S025TS-1FG484M	M2S025TS-1FGG484M	M2GL025TS-1FG484M	M2GL025TS-1FGG484M
	M2S005S-1FGG484T2		M2GL005-1FGG484T1
	M2S010TS-1FGG484T2		M2GL010-1FGG484T1

<b>SmartFusion2 Leaded Parts</b>	<b>SmartFusion2 Lead-Free Parts</b>	<b>IGLOO2 Leaded Parts</b>	<b>IGLOO2 Lead-Free Parts</b>
	M2S025TS-1FGG484T2		M2GL025-1FGG484T1
	M2S005S-1VFG256T2		M2GL005S-1FGG484T2
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	M2S010TS-1VFG400T2		M2GL010TS-1VFG256T2
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			M2GL005S-1VFG400T2
			M2GL010TS-1VFG400T2
			M2GL025TS-1VFG400T2



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