CN20020: PolarFire LSRAM Configurator Write Byte Enable Fragments

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Description

A change has been implemented to the PolarFire two-port large SRAM configurator and dual-port large SRAM configurator. The LSRAM configurator engine for the Write Byte Enable selection divides the entire width of the memory into equal fragments controlled by each Write Byte Enable bit.

Reason for Change

The PolarFire LSRAM configurator engine in Libero SoC v12.4 and prior releases could generate unequal fragments for each Write Byte Enable selection bit. Typically, the total width of the memory would have been divided into fragments of 10 bits and the most significant fragment would be the remainder bits. For example, a two-port large SRAM memory with write width of 16 and the Write Byte Enable selection would be divided into 10-bit and 6-bit fragments.

Application Impact

Depending on the application, designs containing two-port large SRAM or dual-port large SRAM components with the Write Byte Enable selection generated by Libero SoC v12.4 and prior releases may control unequal fragments with each Write Byte Enable bit.This will be apparent in simulation of non-trivial test vectors at the pre-synthesis, post-synthesis, or back-annotation design stage. Asymmetric width configurations are not impacted.

Memory modules inferred by synthesis are not impacted. This equal distribution will be attempted even if the word width is not an exact multiple of the number of bytes. For example, a true dual-port LSRAM of width 30 will be divided into two blocks of 15 each. Within each block, the first byte will contain 8 bits and the second byte will contain 7 bits. So, the order of the fragments will be 8+7+8+7 (lsb to msb).

Action Required

No action is required if your design does not contain the Write Byte Enable selection for two-port large SRAM or dual-port large SRAM components, or the width of both ports are unequal, or the width is a multiple of 10, or the components read data properly in simulation.

Action is required for designs containing the Write Byte Enable selection for two-port large SRAM or dual-port large SRAM components, where the width of both ports are equal and is not a multiple of 10 and the components read incorrect data in simulation. The recommendation is to use Libero SoC v12.5 or later for regenerating the affected components.

The change is applied to the following:

- PolarFire two-port large SRAM configurator
- PolarFire dual-port large SRAM configurator

If viable, a simple workaround in Libero SoC v12.4 or prior release is to scale up the widths to be a multiple of 10 and ground the extra bits in each fragment of the instantiated module in the RTL.

Products Affected

MPF100T-FCG484E	MPF300TL-FCG1152E	MPF300T-FCVG484I	MPF200T-1FCSG325I	MPF200TS-FCG484I
MPF100T-FCVG484E	MPF500TL-FCG784E	MPF300T-FCG784I	MPF200T-1FCSG536I	MPF200TS-FCVG484I
MPF100T-FCSG325E	MPF500TL-FCG1152E	MPF300T-FCSG536I	MPF300T-1FCG484I	MPF200TS-FCG784I
MPF200T-FCG484E	MPF100T-1FCG484E	MPF300T-FCG1152I	MPF300T-1FCVG484I	MPF200TS-FCSG325I
MPF200T-FCVG484E	MPF100T-1FCVG484E	MPF500T-FCG784I	MPF300T-1FCG784I	MPF200TS-FCSG536I
MPF200T-FCG784E	MPF100T-1FCSG325E	MPF500T-FCG1152I	MPF300T-1FCSG536I	MPF300TS-FCG484I
MPF200T-FCSG325E	MPF200T-1FCG484E	MPF100TL-FCG484I	MPF300T-1FCG1152I	MPF300TS-FCVG484I
MPF200T-FCSG536E	MPF200T-1FCVG484E	MPF100TL-FCVG484I	MPF500T-1FCG784I	MPF300TS-FCG784I
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MPF300T-FCSG536E	MPF300T-1FCG484E	MPF200TL-FCG784I	MPF100TLS-FCSG325I	MPF500TS-FCG1152I
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MPF500T-FCG1152E	MPF300T-1FCSG536E	MPF300TL-FCG484I	MPF200TLS-FCG784I	MPF100TS-1FCSG325I
MPF100TL-FCG484E	MPF300T-1FCG1152E	MPF300TL-FCVG484I	MPF200TLS-FCSG325I	MPF200TS-1FCG484I
MPF100TL-FCVG484E	MPF500T-1FCG784E	MPF300TL-FCG784I	MPF200TLS-FCSG536I	MPF200TS-1FCVG484I
MPF100TL-FCSG325E	MPF500T-1FCG1152E	MPF300TL-FCSG536I	MPF300TLS-FCG484I	MPF200TS-1FCG784I
MPF200TL-FCG484E	MPF100T-FCG484I	MPF300TL-FCG1152I	MPF300TLS-FCVG484I	MPF200TS-1FCSG325I
MPF200TL-FCVG484E	MPF100T-FCVG484I	MPF500TL-FCG784I	MPF300TLS-FCG784I	MPF200TS-1FCSG536I
MPF200TL-FCG784E	MPF100T-FCSG325I	MPF500TL-FCG1152I	MPF300TLS-FCSG536I	MPF300TS-1FCG484I
MPF200TL-FCSG325E	MPF200T-FCG484I	MPF100T-1FCG484I	MPF300TLS-FCG1152I	MPF300TS-1FCVG484I
MPF200TL-FCSG536E	MPF200T-FCVG484I	MPF100T-1FCVG484I	MPF500TLS-FCG784I	MPF300TS-1FCG784I
MPF300TL-FCG484E	MPF200T-FCG784I	MPF100T-1FCSG325I	MPF500TLS-FCG1152I	MPF300TS-1FCSG536I
MPF300TL-FCVG484E	MPF200T-FCSG325I	MPF200T-1FCG484I	MPF100TS-FCG484I	MPF300TS-1FCG1152I
MPF300TL-FCG784E	MPF200T-FCSG536I	MPF200T-1FCVG484I	MPF100TS-FCVG484I	MPF500TS-1FCG784I
MPF300TL-FCSG536E	MPF300T-FCG484I	MPF200T-1FCG784I	MPF100TS-FCSG325I	MPF500TS-1FCG1152I
				MPF300XT-1FCG484I

Contact Information

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Regards,

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