

CN20018: PolarFire PF_SPI and UJTAG Timing Change

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Description

UJTAG:

- The timing model of most output signals from the UJTAG to the fabric were updated to be triggered on the falling edge of the clock rather than the rising edge.

From	To	Previous Triggering Edge	New Triggering Edge
TCK	UDRCAP	Rising	Falling
TCK	UDRSH	Rising	Falling
TCK	UDRUPD	Rising	Falling
TCK	UIREG [7:0]	Rising	Falling
TCK	TDI	Rising	Falling

- The reset signal, `fab_uj_trstb`, going into the fabric is now considered asynchronous.
- External timing checks are not included in the model.

PF_SPI:

- The timing model has been updated to allow proper timing checks through PF_SPI for CLK, SS, DI, DO signals.

Reason for Change

The change has been made to reflect the actual implementation on silicon.

Application Impact

UJTAG:

- Changing the clock polarity will divide the maximum performance on the UJTAG of existing designs by 2.
- This change adds more margin on the hold check.
- Although this change removes margin from the setup check, the internal regression suite still shows a remaining positive slack of more than 10 ns, mostly due to the fact that UJTAG is a slow interface limited to a maximum speed of 25 MHz.

PF_SPI:

- It is now possible to do proper timing analysis on the PF_SPI interface.

Action Required

UJTAG:

- No action is required unless the user had a tight timing margin on the UJTAG clock domain, which is unlikely given the maximum frequency in this domain.

PF_SPI:

- No action is required. Users interested in checking timing on the PF_SPI interface of their designs can do so starting with release Libero SoC 12.5.

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
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MPF300TL-FCSG536E	MPF300T-FCG484I	MPF200T-1FCG784I	MPF100T-FCSG325I	MPF500TS-1FCG1152I
				MPF300XT-1FCG484I

Contact Information

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Regards,

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