PolarFire® FPGA Production Devices Errata

Introduction

The PolarFire® MPF050T, MPF100T, MPF200T, MPF300T, and MPF500T production FPGA devices are subject to the limitations described in this document. This document describes updates about known issues, available limitations, and workarounds. It provides a snapshot of the current validation status for feature sets. The document highlights dependencies that may exist between silicon device revisions and specific support by Libero® SoC software versions. Contact Microchip Technical Support for more information.

Table 1. Device Revisions

Device	Package	Revisions
MPF050T, TL, TS, TLS, TC	FCSG325 and FCVG484	0, 1
MPF100T, TL, TS, TLS, TC	FCG484, FCVG484, and FCSG325	0, 1, 2
MPF200T, TL, TS, TLS, TC	FCG784, FCG484, FCVG484, FCSG536, and FCSG325	0, 1, 2
MPF300T, TL, TS, TLS, TC	FCG1152, FCG784, FCG484, FCVG484, and FCSG536	0, 1, 2
MPF500T, TL, TS, TLS, TC	FCG1152 and FCG784	0, 1

Note: See CN19014 for details on revision 1 devices.

Table 2. Device Options

Device	Extended Commercial 0 °C–100 °C	Industrial –40 °C–100 °C	STD	–1	Transceivers T	Lower Static Power L	Data Security S
MPF050T, MPF100T, MPF200T, MPF300T, MPF500T	Yes	Yes	Yes	Yes	Yes	—	—
MPF050TL, MPF100TL, MPF200TL, MPF300TL, MPF500TL	Yes	Yes	Yes	—	Yes	Yes	—
MPF050TS, MPF100TS, MPF200TS, MPF300TS, MPF500TS	—	Yes	Yes	Yes	Yes	—	Yes
MPF050TLS, MPF100TLS, MPF200TLS, MPF300TLS, MPF500TLS	—	Yes	Yes	—	Yes	Yes	Yes
MPF050TC, MPF100TC, MPF200TC, MPF300TC, MPF500TC	Yes	Yes	Yes	—	No	—	—

For specifications, see PolarFire FPGA Datasheet.

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1. Errata Descriptions and Workaround

The following sections describe device errata and workarounds wherever applicable. This document is intended to describe variations or deviations from information in the PolarFire FPGA Datasheet or any PolarFire user or demo guide.

The following table lists the specific device erratas and the affected PolarFire production devices.

Table 1-1. Summary of PolarFire FPGA Errata

Description	MPF050T, TL, TS, TLS, TC	MPF100T, TL, TS, TLS, TC	MPF200T, TL, TS, TLS, TC	MPF300T, TL, TS, TLS, TC	MPF500T, TL, TS, TLS, TC
MPF300T-ES bitstream compatibility	N/A	N/A	N/A	*	N/A
System controller suspend mode interaction with JTAG	*	*	*	*	*
PCIe SECDED ECC reporting counters and interrupts	*	*	*	*	*
External VERIFY_DIGEST with POR Digest Check for Fabric Components	*	*	*	*	*

* indicates that the errata exists for that particular device. Details are discussed in the following sections.

For feature clarifications about supported transceiver protocols, see section Supported Transceiver Protocol Status for Production Devices.

1.1. Bitstream Compatibility

MPF300T-ES bitstreams cannot be used to program pre-production (PP) or production MPF300T devices.

1.2. System Controller Suspend Mode Interaction with JTAG

If system controller suspend mode is enabled, device initialization may be interrupted after exiting JTAG programming. As workaround, reset the device after JTAG programming.

1.3. PCIe® SECDED Reporting Defeatured

When ECC is enabled (default) within the PCIe hard IP block, the single error correction and double error detection error reporting counters and interrupt registers show erroneous values. The following features of the PCIe SECDED are being defeatured:

- Single error correction reporting features
- Double error detection feature

More information about this is available in the change impact analysis document.

1.4. Deprecated Feature: Use of External VERIFY_DIGEST with POR Digest Check for Fabric Components

When the device is configured for Fabric Power-On-Reset (POR) digest check, VERIFY_DIGEST of fabric components via JTAG/SPI may report false failures and is deprecated. This issue does not affect:

- VERIFY_DIGEST of non-fabric components
- CHECK_DIGEST via system service call
- VERIFY_DIGEST functionality for fabric components when Fabric POR digest check is disabled

For more information, refer to the latest revision of the PolarFire Family FPGA Security User Guide.

2. Supported Transceiver Protocol Status for Production Devices

Transceiver protocol capabilities are validated and tested for robustness as per the specifications listed in the PolarFire FPGA Datasheet and PolarFire Family Transceiver User Guide.

The following table summarizes transceiver protocols and validation status for production devices. This table is not applicable to PolarFire core devices (MPFxxxTC).

Table 2-1. Supported Transceiver Protocols

Transceiver Protocol by Device	MPF050T/MPF100T/ MPF200T/MPF300T/ MPF500T Status	Details
SGMII/1000BASE-X	Complete	Transceiver: 1.25 Gbps with CoreTSE IP core. TxPLL SyncE validation is in-progress. Contact factory.
CPRI	Complete	Support for CPRI data rates 1–7 and 7A, 8, 9.
10GBASE-R	Complete	Transceiver: 10.3125 Gbps with Core10GMAC IP core. TxPLL SyncE is supported. IEEE® 1588 time stamping is not supported.
10GBASE-KR	Complete	Contact Microchip for complete solution.
Interlaken	Complete	—
JESD204B	Complete	Up to 12.5G with CoreJESD20BTX/RX IP core.
PCIE Endpoint Gen1/Gen2	Complete	—
PCIE Rootport Gen1/Gen2	Complete	—
LiteFast	Complete	Up to 12.7 Gbps (8b10b only).
XAUI	Complete	—
RXAUI	Complete	—
HiGig/HiGig+	Complete	—
Display Port	Complete	Per VESA DisplayPort Standard 1.2a.
SRIO	Complete	—
PMA only	Complete	—
SATA	Complete	Contact factory.
Fiber channel	Complete	Tested for electrical compliance.
SDI	Complete	HD-SDI (1.485 Gbps) and 3G-SDI (2.970 Gbps) are supported. SD-SDI (270 Mbps) are supported. 6G-SDIand 12G-SDI are supported.
OTN	Complete	Tested for electrical compliance.
QSGMII	Complete	—
USXGMII	Complete	—
CoaXPress	Complete	Tested with external PHY.
SLVS-EC	Complete	—
Half-duplex (independent Rx/Tx)	Complete	—

3. Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

Revision	Date	Description
B	08/2025	• Added MPF050T and TC information throughout document. • Updated Table 1. Device Revisions. • Deprecated Feature: Use of External VERIFY_DIGEST with POR Digest Check for Fabric Components. • Noted that Table 2-1. Supported Transceiver Protocols is not applicable to PolarFire core devices (MPFxxxTC).
A	01/2024	• Defeatured PCIe SECDED reporting. More information about this is available in the change impact analysis document. • Added references to MPF050T in Errata Summary and Supported Transceiver Protocols. • Updated to Microchip template. • Updated document number from ER0218 to DS80001111.
6.0	05/2021	• Updated details for SGMII/1000BASE-X row in Table 4 Supported Transceiver Protocols.
5.0	12/2020	• Removed information for "Dynamic Training of HSIO/GPIO IOD Interfaces" and "Temperature-Voltage Sensor (TVS) Temperature Flags Values". • Updated status for SDI, SLVS-EC, and Half-duplex (independent Rx/Tx) to "Complete". • "SD-SDI (270 Mbps)" and "6G-SDI and 12G-SDI" are supported. • Deleted "Enhanced Receiver Management (ERM) is not supported".
4.0	12/2019	• Removed MIPI D-PHY support information. For MIPI D-PHY support information, see the PolarFire Datasheet Revision 1.7. • Added Temperature-Voltage Sensor (TVS) information (per CN19030). • Added system control suspend mode interaction with JTAG.
3.0	09/2019	• Removed memory interface limitation from errata for production silicon using Libero SoC version 12.0 or later software. • Removed IOCDR limitations from errata for production silicon using Libero SoC version 12.1 or later software. • Removed RxPLL behavior and DFE calibration limitations from errata for production silicon using Libero SoC version 12.1 or later software using PF_XCVR_ERM core. • Removed errata on the IBIS-AMI DFE support. The released IBIS-AMI models offer full feature support.
2.0	11/2018	• MPF100T device offerings were added.
1.0	11/2018	• It was the first publication of this document including the MPF200T and MPF300T device offerings.

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