



Mali-C78AE (IV023)

Software Developer Errata Notice

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Non-Confidential

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Introduction

Scope

This document describes errata categorized by level of severity. Each description includes:

- The current status of the erratum.
- Where the implementation deviates from the specification and the conditions required for erroneous behavior to occur.
- The implications of the erratum with respect to typical applications.
- The application and limitations of a workaround where possible.

Categorization of errata

Errata are split into three levels of severity and further qualified as common or rare:

Category A	A critical error. No workaround is available or workarounds are impactful. The error is likely to be common for many systems and applications.
Category A (Rare)	A critical error. No workaround is available or workarounds are impactful. The error is likely to be rare for most systems and applications. Rare is determined by analysis, verification and usage.
Category B	A significant error or a critical error with an acceptable workaround. The error is likely to be common for many systems and applications.
Category B (Rare)	A significant error or a critical error with an acceptable workaround. The error is likely to be rare for most systems and applications. Rare is determined by analysis, verification and usage.
Category C	A minor error.

Change Control

Errata are listed in this section if they are new to the document, or marked as "updated" if there has been any change to the erratum text. Fixed errata are not shown as updated unless the erratum text has changed. The [errata summary table](#) identifies errata that have been fixed in each product revision.

28-Jul-2022: Changes in document version v5.0

ID	Status	Area	Category	Summary
2692234	New	Programmer	Category B	Recursive filter memory addresses in CNR do not span the required range limiting the frame width supported by CNR to 4096 pixels

11-Mar-2022: Changes in document version v4.0

ID	Status	Area	Category	Summary
2182897	New	Programmer	Category C	Static and dynamic defect pixel counters are not reset to zero after applying global FSM reset
2215653	New	Programmer	Category C	The Scaler RAW FIFO CRC check logic spuriously reports faults in single line mode
2468890	New	Programmer	Category C	YUV packed modes 38, 39, 40, 41 do not work correctly when the YUV LUT is bypassed

24-Jun-2021: Changes in document version v3.0

No new or updated errata in this document version.

13-May-2021: Changes in document version v2.0

No new or updated errata in this document version.

14-Jan-2021: Changes in document version v1.0

No errata in this document version.

Errata summary table

The errata associated with this product affect the product versions described in the following table.

ID	Area	Category	Summary	Found in versions	Fixed in version
2692234	Programmer	Category B	Recursive filter memory addresses in CNR do not span the required range limiting the frame width supported by CNR to 4096 pixels	r0p0 EAC	r1p0 EAC
2468890	Programmer	Category C	YUV packed modes 38, 39, 40, 41 do not work correctly when the YUV LUT is bypassed	r0p0 EAC	r1p0 EAC
2215653	Programmer	Category C	The Scaler RAW FIFO CRC check logic spuriously reports faults in single line mode	r0p0 EAC	r1p0 EAC
2182897	Programmer	Category C	Static and dynamic defect pixel counters are not reset to zero after applying global FSM reset	r0p0 EAC	r1p0 EAC

Errata descriptions

Category A

There are no errata in this category.

Category A (rare)

There are no errata in this category.

Category B

2692234

Recursive filter memory addresses in CNR do not span the required range limiting the frame width supported by CNR to 4096 pixels

Description

Due to a fault in the address generation logic in the recursive filter module instances in CNR, the recursive filters do not support frame widths greater than 4096 pixels. This in turn results in artefacts on the left-hand side and right-hand side of CNR output frames when the frame width at CNR input is greater than 4096 pixels.

Configuration / Use case affected

All use-cases where CNR is enabled and the maximum line length of the frame processed is greater than 4096 pixels.

The issue does not impact CNR for frame widths up to and including 4096 pixels and does not affect CNR memory sizing.

Conditions and Implications

The CNR will output frames which may have visible image artefacts that negatively impact image quality and may cause issues for computer vision systems.

Any such issue would represent a violation of the assumed toplevel safety requirements of the ISP. The proposed workaround shall be used in applications where functional safety is a requirement and frame widths exceed 4096 pixels. The safety analyses provided in the safety pack are valid in the presence of the workaround.

Workaround

Configure the CNR registers as follows: **uv_var_offset=0** and **uv_mean_offset=0**. This eliminates the artefacts with a small reduction in the strength of the CNR processing to 75% of maximum capability but image quality results show a small or virtually indistinguishable difference in the CNR processing effect when compared to full CNR capability.

Category B (rare)

There are no errata in this category.

Category C

2468890

YUV packed modes 38, 39, 40, 41 do not work correctly when the YUV LUT is bypassed

Description

The implementation of YUV interleaving in YUV422 mode does not work correctly with the output LUT bypassed. This is related to how YUV interleaving is implemented and how the LUT handles data valid in bypassed and non-bypassed modes.

Configuration / use-case affected

Output formatter YUV packed mode_select settings of 38, 39, 40, 41 with the YUV LUT bypassed.

Conditions and implications

For modes 38, 40: V component is not output (U component is repeated).

For modes 39, 41: U component is not output (V component is repeated).

Workaround

The output UV LUT must not be bypassed even if it is not required. However, it must be programmed with an identity transform (output = input).

2215653

The Scaler RAW FIFO CRC check logic spuriously reports faults in single line mode

Description

The Scaler RAW FIFO is used to reorder dual-line data format into single-line format. The FIFO memory is protected by CRC generators. The comparison logic was optimised for dual-line scenario and a bug was introduced when handling single-line scaler mode. Due to this bug, the reference CRC results for odd and even lines are swapped which leads to spurious reports of CRC mismatch in single-line mode.

Configuration / Use case affected

When the Scaler RAW is configured to process frames in single-line mode.

Conditions and Implications

The Scaler RAW module generates CRC error in single-line mode.

Workaround

Use the Scaler RAW in dual-line mode.

2182897

Static and dynamic defect pixel counters are not reset to zero after applying global FSM reset

Description

The pixel consistency module maintains counts of the dynamic and static defect pixels detected in the frame. When a *global_fsm_reset* is applied to recover from a fault these defect pixel count values should be reset to zero. However, due to a bug, the defect pixel counts retain their values.

Configuration / use-case affected

All use cases that use the pixel consistency metadata.

Conditions and implications

False count of dynamic and static defects in the first frame after error recovery.

Workaround

The pixel consistency counts for the first frame after the error recovery must be ignored. Alternatively, the standard recovery flow includes a frame to clear this fault. This additional frame is part of the standard recovery flow.