1/2.5-Inch 8Mp Digital Image Sensor

MT9E001

Silicon Revision 1 Errata

Refer to the MT9E001 data sheet at www.micron/imaging

Introduction

This errata summarizes known issues to date for Micron's MT9E001 Silicon Revision 1 (Rev1). This errata is provided for customer information at this time. Any permanent changes will be incorporated into the next revision of the data sheet.

Table 1: Known Issues and Work Arounds

Issue #	Title Description Work Around	Details
1	Title	Integration time oscillations.
	Description	The integration time might oscillate when changing to binning or skipping modes while the sensor is in streaming mode. This is a programming sequence issue.
	Work Around	The oscillations will go away after standby is entered or a restart is triggered. The oscillations will not appear at all if the settings are programmed when the sensor is in standby mode.

Table 1: Known Issues and Work Arounds (continued)

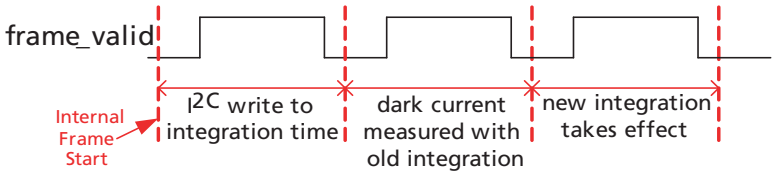
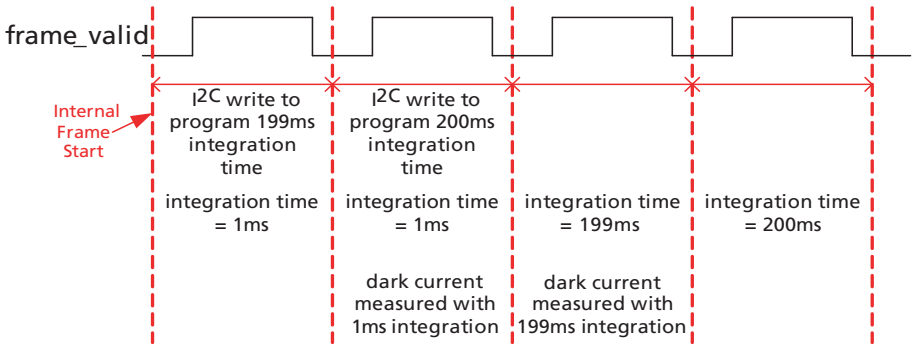
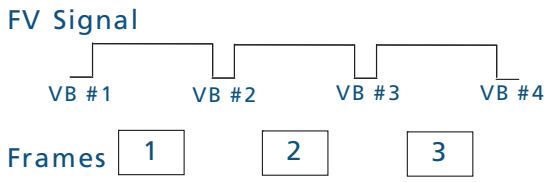
Issue #	Title Description Work Around	Details
2	Title	Dark current compensation.
	Description	An integration time change will take affect on the second frame after the integration time register was programmed. However, the delta dark algorithm will use the first frame after the integration time register was programmed to measure the dark current. Hence, the delta dark algorithm will compensate dark current based on the old integration time instead of the new integration time. This will be noticeable for large integration time changes as the dark level calculated for the new integration time will use the frame prior to when the new integration time was used. 
	Work Around	The integration time is changed in two successive frames where the first frame's integration time is only slightly different from the second. In this case, the dark level calculated for the second frame uses the prior frame that has a similar integration time, producing a very small difference in dark level. An example would be a change from 1ms to 199ms, and then to 200ms, where the ongoing dark level for 200ms would be calculated from a frame using 199ms. If the gain setting is also being changed, it should not be applied on the first of the two consecutive frames. An example is shown in the graphic below. 
3	Title	Column FPN seen with changing light conditions.
	Description	Column FPN might be observed when the lighting of the scene is changing.
	Work Around	Set reserved register bits 0x3044[2] to “1,” 0x30CA[2] to “0,” and 0x30D4[2] to “1.”
4	Title	Lens shading issue with vertical or flip modes applied to sensor.
	Description	The coefficients used in the lens shading correction algorithm are read in the wrong order when the sensor enables flip or mirror. This issue does not happen when mirror and flip are both enabled.
	Work Around	The workaround is a sequence of register changes used when setting a flip or mirror on the sensor. Contact the local Micron FAE representative for technical note TN0994 for additional information.

Table 1: Known Issues and Work Arounds (continued)

Issue #	Title Description Work Around	Details
5	Title	Intermittent video lines.
	Description	Intermittent video lines can be seen in images produced by the sensor when the LSC is enabled. The unexpected line injected by the LSC feature is triggered by I^2C writes. The video lines are infrequent.  Example of Line Seen in a Processed VGA Images
	Work Around	The video lines can be avoided when the LSC is enabled by only sending I^2C writes to the sensor during "vertical blanking" times. The vertical blanking is a time period between the readout of each frame. The grouped_parameter_hold feature can be used to write a set of registers over multiple frames.  Outline of FRAME_VALID Signal with Respect to Frame Output
6	Title	Rows #0 and #1 are not gained properly by LSC.
	Description	The even pixels of the first two rows are not gained properly by the LSC.
	Work Around	Output an extra four rows above the field-of-view. Discard the top four rows after the image has being received from the CMOS sensor.

Revision History

Rev. C 9/2007

- Update format
- Update Table 1, “Known Issues and Work Arounds,” on page 1 (add Issue #5 and Issue #6)

Rev. B 1/15/2007

- Update Table 1, “Known Issues and Work Arounds,” on page 1 (Issue #3 resolved; add new Issue #3)

Rev. A 9/13/2006

- Initial release

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