

7206F FIFO Read Problem Revision A

Summary

Maxwell has been working with Atmel to better understand the read issue with the Atmel 62706F FIFO. This error was identified by the European Space Agency as shown in the attached ESA Alert, EA-2002-EEE-02-A.

The error occurs when the next to last word in the FIFO is being read and a write to the FIFO occurs too close to that read. If the leading edge of the write occurs within 11 ns of the trailing edge of the read then the last word in the FIFO can be corrupted.

Sequence of operations that cause corruption:

FIFO Empty

Write Data 1

Write Data 2

Read Data 1 Read next to last data word from FIFO.

Write Data 3 If falling edge of this Write is within 11 ns of rising edge of previous Read then...

Read Data 2 Data 2 can be corrupted and Data 3 is read at this point.

Read Data 3 Data 3 is read and FIFO is empty.

There is no information on the probability of losing Data 2. This condition can occur in any normal use of the FIFO and must be avoided by hardware or software arbitration. The problem also occurs when using Width or Depth expansion (XO/XI). No other operating modes are affected.

The 7206E products are not affected by this error.

Products Affected

1. 7206F

Additional Information

Additional information on this product as well as other Maxwell products is available on our web site. Please direct any requests for additional information or questions about this Application Note or any other of our products directly to Maxwell at: microelectronics@maxwell.com

