Please note that Cypress is an Infineon Technologies Company.
The document following this cover page is marked as “Cypress” document as this is the company that originally developed the product. Please note that Infineon will continue to offer the product to new and existing customers as part of the Infineon product portfolio.

Continuity of document content
The fact that Infineon offers the following product as part of the Infineon product portfolio does not lead to any changes to this document. Future revisions will occur when appropriate, and any changes will be set out on the document history page.

Continuity of ordering part numbers
Infineon continues to support existing part numbers. Please continue to use the ordering part numbers listed in the datasheet for ordering.

THIS SPEC IS OBSOLETE

Spec No: 001-15455

Spec Title: LUPA-1300 ANALOG OUTPUT BEHAVIOR AND ADC SAMPLING - AN6008

Sunset Owner: Evelyn Beard (EYB)

Replaced by: None

LUPA 1300 Analog Output Behavior and ADC Sampling

AN6008

Author: Pieter Willems
Associated Project: No
Associated Part Family: CYIL1S*1300AA
Software Version: NA
Associated Application Notes: None

OBSOLETE

Application Note Abstract

This application note describes the behavior of the analog output channels in the LUPA 1300 image sensor.

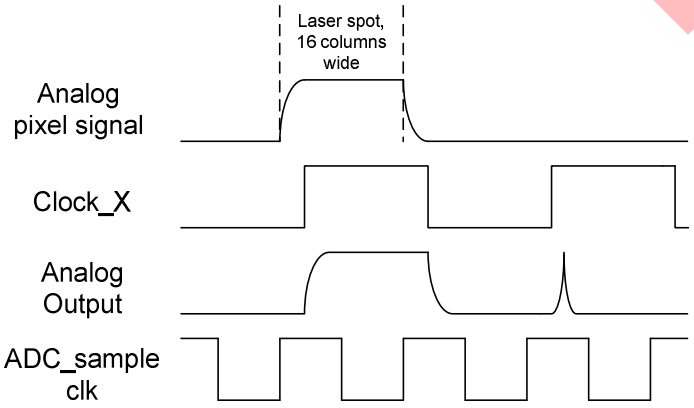
Description

In the readout sequence of the LUPA 1300, 32 columns are output in one CLOCK_X period (16 columns on the rising edge and 16 columns on the falling edge). This is done by a shift register and a multiplexer. The shift register selects 32 columns at once on the rising edge of CLOCK_X and the multiplexer selects the first 16 columns on this rising edge. On the falling edge, the multiplexer selects the next 16 columns.

However, the LUPA 1300 is designed in such a way that the multiplexer selects the first block of 16 pixels before the shift register selects the next block of 32 pixels (for a very short time). In case of a black/white transition, this causes a very small spike (±5 ns) at the output of the LUPA 1300. See Figure 1 for more details.

This spike is unavoidable and should be as short as possible. You must make sure that the bandwidth of the analog path from the LUPA 1300 to the external analog-to-digital converters (ADCs) is high enough so that the little spike is not smeared. If the analog path is fast enough, sampling after this little spike is possible and it is not visible in the image. (See the ADC_sample clock signal in Figure 1, sampling on the rising edge). It is best to keep the ADC sampling point flexible. Properly setting the ADC sampling point is very important to obtain optimal image quality.

Figure 1. Analog Output Behavior



Summary

This application note describes the LUPA 1300 image sensor's analog output behavior.

Document History

Document Title: LUPA 1300 Analog Output Behavior and ADC Sampling – AN6008

Document Number: 001-15455

Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	1047227	FPW	05/07/2007	Existing Application Note in the web - Added spec no., new disclaimer and updated the copyright date. Please post in the web - overwrite the existing AN6008 file.
*A	3040719	NPA	09/28/2010	Sunset review; no technical updates. Updated template.
*B	4113912	MTA	09/11/2013	Obsolete specs.

OBSOLETE

In March of 2007, Cypress recataloged all of its Application Notes using a new documentation number and revision code. This new documentation number and revision code (001-xxxxx, beginning with rev. **), located in the footer of the document, will be used in all subsequent revisions.

All trademarks or registered trademarks referenced herein are the property of their respective owners.

Cypress Semiconductor
198 Champion Court
San Jose, CA 95134-1709
Phone: 408-943-2600
Fax: 408-943-4730
http://www.cypress.com/

© Cypress Semiconductor Corporation, 2006-2013. The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

This Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress' product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.