1/29/04

Errata: EP9301

Reference EP9301 Data Sheet revision DS636PP1 dated January 04

Ethernet

Description 1

The Ethernet controller does not correctly receive frames that have a size of 64 bytes.

Workaround

In order to receive frames of 64 bytes, enable the RCRCA bit in RxCTL. This will allow the Ethernet controller to ignore the CRC information and not discard the frames.

HDLC

Description 1

When the final byte of a received packet is read into the DMA controller's buffer, the software will be notified by an HDLC RFC interrupt. However, the DMA controller may not have written the currently buffered part of the packet to memory, so that the last one to fifteen bytes of a packet may not be accessible.

Workaround

To insure that the DMA channel empties the buffer, do the following (in the HDLC interrupt handler, for example):

1. Note the values in the MAXCNTx and REMAIN registers for the DMA channel. The difference is the number of bytes read from the UART/HDLC, which is the size of the HDLC packet. Call this number N. Note that the BC field of the UART1HDLCRXInfoBuf register should also be N.
2. Temporarily disable the UART DMA RX interface by clearing the RXDMAE bit in the UART1DMACtrl register.
3. Wait until the difference between the CURRENTx and BASEx registers in the DMA channel is equal to N + 1.

At this point, the rest of the packet is guaranteed to have been written to memory. Using this method will cause an extra byte to be read from the UART by the DMA channel and also written to memory. This last byte should be ignored.

Description 2

A synchronous HDLC frame consists of at least one opening flag, a series of bits, and at least one closing flag. The series of bits may consist of an address, control field, payload data, and a CRC.

Any time the HDLC has to transmit five consecutive one bits, it must append an extra zero bit, referred to as bit stuffing. For example, if ten consecutive ones appear, a zero is stuffed after the first five, and again after the second five.

This should also occur even if the series of ones appears at the end of a packet (possibly wholly within the CRC). The HDLC in the EP9301 implementation fails to stuff this extra zero bit at the end of a packet. The receiver will expect a stuffed zero bit, and ignore the bit transmitted after the last bit of the packet. This will be the first bit of the closing flag; the next six bits of the closing flag are all ones. The receiver will see them

not as part of a flag, but as part of the packet. This will cause the receiver to abort reception, because six ones cannot occur legally in a HDLC packet.

Workaround

The software workaround for this issue it is not trivial. The only way to circumvent this erratum is to avoid sending a packet with these properties:

1. The last N bits transmitted in the packet are ones, where N is a multiple of 5.
2. The preceding bit is zero. This could even be the final bit of the opening flag.

It is possible to examine any packet prior to transmission, calculating and appending the CRC if applicable, to determine the series of bits that will be transmitted. If the above property is satisfied, then the packet should be modified in some way (adding a byte, for example) prior to being sent.

ADC

Description 1

Pins ADC[3:1] have reduced dynamic range and are unusable.

Workaround

Currently, there is no workaround.

Description 2

ADC pins input impedance varies non-linearly with respect to voltage.

Workaround

Depending on the application, it may be necessary to use analog buffers to provide enough source current for each input pin to get correct readings from the ADC.

SDRAM Controller

Description 1

Using the EP9301 SDRAM controller in auto-precharge mode will produce system instability at external bus speeds greater than 50MHz.

Workaround

Do not turn on the auto-precharge feature of the EP9301 SDRAM controller if the external bus speed will be greater than 50 MHz.

Contacting Cirrus Logic Support

For all product questions and inquiries contact a Cirrus Logic Sales Representative.
To find the one nearest to you go to **www.cirrus.com**

IMPORTANT NOTICE

"Preliminary" product information describes products that are in production, but for which full characterization data is not yet available. Cirrus Logic, Inc. and its subsidiaries ("Cirrus") believe that the information contained in this document is accurate and reliable. However, the information is subject to change without notice and is provided "AS IS" without warranty of any kind (express or implied). Customers are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgment, including those pertaining to warranty, patent infringement, and limitation of liability. No responsibility is assumed by Cirrus for the use of this information, including use of this information as the basis for manufacture or sale of any items, or for infringement of patents or other rights of third parties. This document is the property of Cirrus and by furnishing this information, Cirrus grants no license, express or implied under any patents, mask work rights, copyrights, trademarks, trade secrets or other intellectual property rights. Cirrus owns the copyrights associated with the information contained herein and gives consent for copies to be made of the information only for use within your organization with respect to Cirrus integrated circuits or other products of Cirrus. This consent does not extend to other copying such as copying for general distribution, advertising or promotional purposes, or for creating any work for resale.

CERTAIN APPLICATIONS USING SEMICONDUCTOR PRODUCTS MAY INVOLVE POTENTIAL RISKS OF DEATH, PERSONAL INJURY, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE ("CRITICAL APPLICATIONS"). CIRRUS PRODUCTS ARE NOT DESIGNED, AUTHORIZED OR WARRANTED FOR USE IN AIRCRAFT SYSTEMS, MILITARY APPLICATIONS, PRODUCTS SURGICALLY IMPLANTED INTO THE BODY, LIFE SUPPORT PRODUCTS OR OTHER CRITICAL APPLICATIONS (INCLUDING MEDICAL DEVICES, AIRCRAFT SYSTEMS OR COMPONENTS AND PERSONAL OR AUTOMOTIVE SAFETY OR SECURITY DEVICES). INCLUSION OF CIRRUS PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE FULLY AT THE CUSTOMER'S RISK AND CIRRUS DISCLAIMS AND MAKES NO WARRANTY, EXPRESS, STATUTORY OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, WITH REGARD TO ANY CIRRUS PRODUCT THAT IS USED IN SUCH A MANNER. IF THE CUSTOMER OR CUSTOMER'S CUSTOMER USES OR PERMITS THE USE OF CIRRUS PRODUCTS IN CRITICAL APPLICATIONS, CUSTOMER AGREES, BY SUCH USE, TO FULLY INDEMNIFY CIRRUS, ITS OFFICERS, DIRECTORS, EMPLOYEES, DISTRIBUTORS AND OTHER AGENTS FROM ANY AND ALL LIABILITY, INCLUDING ATTORNEYS' FEES AND COSTS, THAT MAY RESULT FROM OR ARISE IN CONNECTION WITH THESE USES.

Cirrus Logic, Cirrus, MaverickCrunch, MaverickKey, and the Cirrus Logic logo designs are trademarks of Cirrus Logic, Inc. All other brand and product names in this document may be trademarks or service marks of their respective owners.

Microsoft and Windows are registered trademarks of Microsoft Corporation.

Microwire™ is a trademark of National Semiconductor Corp. National Semiconductor is a registered trademark of National Semiconductor Corp.

Texas Instruments is a registered trademark of Texas Instruments, Inc.

Motorola is a reigistered trademark of Motorola, Inc.

LINUX is a registered trademark of Linus Torvalds.