ÅAC Sirius Product Family Errata

A

Introduction

Purpose of document

This document details the errata in the ÅAC Sirius Breadboard and its manual, RD1

Revision log

Rev	Date	Change description	Prepared
A	2016-10-07	First issue	E. Zachrisson

Reference documents

Rev	Document Ref	Document name
RD1	204911, PK5	Sirius Breadboard Manual

List of errata

Table 1 specifies which devices and what revisions that are affected by the errata described in this document.

Table 1 Affected units

Errata description	OBC-S Breadboard	TCM-S w. o. Software	TCM-S w. software
System			
#1061 Error detection and **recovery unverified**	All	All	All
TCM-S Core Application			
#1537 PUS packet size limitation			All
#1576 RMAP data checksums are not checked nor generated			All
#1558 Spurious warning generated when entering AD mode			All
#1785 Mass memory download support is experimental			All
#1818 TM timestamping not implemented			All
Spacewire			
#1784 Only one channel may be enabled at a time	All	All	All
ADC			
#1460 Sample rate fixed to ~200 kHz samples	All	All	All
GDB			
#1207 writing and reading to non-32-bit-aligned addresses does not work	All	All	All

System

#1061 Error detection and recovery unverified

Description	Many of the error detection and recovery mechanisms are currently unverified outside of radiation testing due to the lack of mechanisms of injecting errors..
Impact	Possible non-working error detection and recovery algorithms, non-working error counting registers
Suggested Workaround	None

TCM-S Core Application

#1537 PUS packet size limitation

Description	The current mass memory implementation only support 32 bit aligned reads. When unaligned packets are stacked on top of each other, packets will start on unaligned offsets which are forbidden.
Impact	If unaligned reads are performed the application may potentially crash. Data will not be successfully retrieved
Suggested Workaround	All PUS packet sizes must be 32 bit aligned, possibly extending the packet up to 3 bytes to reach an 32 bit aligned size.

#1576 RMAP data checksums are not checked nor generated

Description	Due to performance reasons the incoming data CRC on RMAP commands is not checked nor is any CRC generated on outgoing RMAP commands.
Impact	Corrupt data packets may enter / leave the system
Suggested Workaround	Do not check data CRC on messages from the TCM Core Application.

#1558 Spurious warning generated when entering AD mode

Description	An invalid warning is generated when the TCM Core Application changes to AD mode.
Impact	None
Suggested Workaround	Disregard message on the debug UART.

#1785 Mass memory download support is experimental

Description	Downloading from the mass memory is a complex procedure, not all scenarios have been fully verified and working
Impact	Not all data may get downloaded. The partition write and read pointers might get confused and invalid.
Suggested Workaround	Do not use download for now

#1818 TM timestamping not implemented

Description	The TM timestamping and TMTSControl RMAP command is

	currently not implemented
Impact	TM timestamping does not work
Suggested Workaround	None

Spacewire

#1155 Minimum pkt size limitation

Description	Packets smaller than 4 bytes are not received correctly.
Impact	Packets small than 4 bytes cannot be used.
Suggested Workaround	All spacewire packets must have size between 4 and 65535 octets

ADC

#1784 Only one channel may be enabled at a time

Description	Only one ADC channel may be enabled at a time.
Impact	If multiple channels are to be read the driver must be reconfigured for each channel between each read
Suggested Workaround	When reading multiple ADC channels the ADC_ENABLE_CHANNEL ioctl must be used between each read.

#1460 Sample rate fixed to ~200 kHz samples

Description	Not all sample rates are supported at this moment.Sample rate is fixed to 200 kHz
Impact	Higher resolution is not supported.
Suggested Workaround	None

GDB

#1207 writing and reading to non-32-bit-aligned addresses does not work

Description	The debugger interface to the OpenRISC CPU does not support byte writing and reading on non-32-bit-aligned addresses
Impact	When using gdb single bytes cannot be manipulated nor observed.
Suggested Workaround	Align all writes and read on a 32 bit data word basis, i.e. step the address by 4 and write 32 bits at a time.

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