ECSS-E-50-11
SpaceWire Protocols

11th SpaceWire WG Meeting

Introduction

- The ECSS-E-50-11 Working Group has formally been kick-off in December 2007

- Title of the document is "SpaceWire Protocols"

- A draft standard document was produced, reviewed and iterated within the ECSS WG

- The draft v0.8 was provided the SpW WG for review and comments

- The review of the draft and the discussion of the comments received is the objective of the meeting today

Objectives

- The ECSS-E-50-11 SpaceWire Protocols Standard is to define:
  - Protocol ID definition
  - Remote Memory Access Protocol
  - Any additional protocols over SpW which are to be standardised under ECSS
- The objective of the ECSS WG was to transfer the following two draft documents into a draft ECSS Standard Document.
  - SpaceWire Protocol ID, Draft A, November 2004
  - SpaceWire RMAP Protocol, Draft F, 4th December 2006
- During this conversion the technical content was tobe kept unchanged and to be described without ambiguity

Document Structure (1)

Chapter 1

Scope

Chapter 2

Normative References

Chapter 3

Terms, definitions and abbreviated terms

– To contain only definitions which are common to all protocols defined in the standard

Chapter 4

Principles

– Explanation of the document structure

Document Structure (2)

Chapter 5

Protocol Identification

– Definition of the PID

– To contains information from SpaceWire Protocol ID, Draft A, November 2004

– Protocol Identifier allocation table

– Future additional PIDs are to be published in amendment sheets on the ECSS website

Chapter 6

Remote Memory Access Protocol

– To contain information from SpaceWire RMAP Protocol, Draft F, 4th December 2006

– 6.10. Annex RMAP CRC Implementation (informative)

– 6.11. Annex RMAP Service Interface Specification (informative)

  • To explain mapping of CCSDS SOIS services to RMAP

Document Structure (2)

Chapter 7

CCSDS Packet Encapsulation Protocol

– On initiative of the BepiColombo project

– A first version of protocol has been presented at the last SpW WG meeting

Chapter 8, 9, ..

Future SpaceWire Protocols

– Future SpaceWire protocols which are standardised in ECSS are to be defined in additional chapters

ECSS-E-50-11 WG Members

Name:	Role:	Company:
Martin Suess	Convener	ESA/ESTEC
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Alain Girard	Member	ThalesAlenia Space
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Paul Rastetter	Member	Astrium GmbH

Thank you for your help!

Discussion of ECSS-E-50-11 in the SpW WG

Particular attention on deviations from Draft F

- Byte order of data field made implementation dependent

  ## 6.2.13. Data field

  – The Data field shall be a variable length field containing the data bytes that are written in a write command or the data bytes that are read in a read reply, or read and written in a read-modify-write command and reply.

  – Versus in Draft F, which stated that "when writing to memory organized in words (e.g. 32-bit words) then the first byte sent is the most significant byte of the word."

Particular attention on deviations from Draft F

- In Daft F there are only four principle write error types defined:
  - Write Command Header Error,
  - Write Authorisation Rejection,
  - Write Command Data Error,
  - Write Reply Error
- **6.4.3.10. Write not OK** has been added to cover memory write failures at the target mode.
  - The General Error code will be returned if the Reply bit in the command field is set