Note to readers:
This is a first draft containing placeholders and very brief notes on proposed content.

Comments and (offers of) contributions are welcome:
Email Barry@4links.co.uk (subject “SpaceWire Handbook”, please)

I have given highest priority to Appendix A: a list of papers relating to SpaceWire. I know this list is incomplete and especially invite input here.

Introduction / Abstract / Executive summary

Status: To be written
Priority: high
History

20090107: Version1 - Draft B.M.Cook, 4Links Limited
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1. Context and concepts

Status: To be written
Priority: high

1.1 Comparison with existing standards
Briefly describe MIL1553 and indicate its limitations (speed, poor scaling, fault tolerance …). Do same for CANbus and also (very briefly) for USB/firewire. Describe SpaceWire (without too much detail) in contrast to busses (higher speed, good scaling, enhanced fault tolerance, …).

1.2 Concepts
SpaceWire links and networks in more detail:
Data: Packets, routing, addressing
Time: time code broadcast

3. Guide to ECSS standards

Include the useful material no longer in the standard(s) due to tighter rules. (Already removed from the Protocols standard and expected to be removed from the revised SpaceWire standard).

Describe meanings of terms used as aid to understanding the standards (e.g. normative/informative, shall/may, …)

Status: To be written
Priority: ?

3.1 SpaceWire ECSS (was ECSS)

Status: To be written (now or wait for revision?)
Priority: ?

3.2 SpaceWire Protocols

Status: To be written, any volunteers? (Steve Parkes / WG members?)
Priority: middle
4. Components

What are available

Status: To be written
Priority: high
Action: Compile list – may be problems with ESA document referencing commercial products/sites

5. Network architectures

Possibilities, merits and problems

Status: Some material available, more required
Priority: middle

6. Verification and Validation

Status: ?
Priority ?

7. Mission views

Reasons to choose SpaceWire
Benefits of choosing SpaceWire
Challenges from using SpaceWire

Status: Some material offered, more required
Priority: middle

8. Future evolution

Ongoing and possible

Status: To be written (RT / SpF: by group members?, other topics by ?)
Priority: middle
9. History

Status: material is available
Priority: low
Appendix A. Papers On or Relating-To SpaceWire

Status: Incomplete (Known to be missing: many DASIA, …)
Priority: high
Action: All readers: email Barry@4links.co.uk (subject: SpaceWire Handbook) with any missing items.
Action: All readers: comment on / suggest other topic headings

(Roughly) Sorted by topic, most recent first.

Abbreviations used

- CPA: Communicating Process Architectures (conference)
- DASIA: Data Systems in Aerospace
- IAC: International Astronautical Congress
- ICAED: International Conference on Advanced Engineering Design
- IGARSS: ???
- ISC: International SpaceWire Conference
- ISWS: International SpaceWire Seminar
- MAPLD: Military and Aerospace Programmable Logic Devices
- NPSS: IEEE-NPSS Real Time Conference
- SDSS: ???
- SmallSat: AIAA/USU Conference on Small Satellites
- Spaceops: International Conference on Space Operations
- SpW: SpaceWire
- WG: working group

Reference Documents

- ECSS-50-12A
- ECSS-50-11
- CCSDS SOIS Services Green Book (CCSDS 850.0-G-0b, November 2006)
- SpW-SnP-PID (Draft B, January 2005)
- SpW-SnP-RMAP (Draft F, 4th December 2006)
- GOES-R Reliable Data Delivery Protocol (GRDDP), (1st of July 2005)
- SpaceWire Router Data Sheet, UoD_SpW-10X_DataSheet (Issue 2.0, 18th August 2006)
Backplanes

- **Evaluation and Analysis of Connector Performance for the SpaceWire Back Plane**
  K. Shibuya, K. Yamagashi, H. Oh-hashi, S. Saito, M. Nomachi
  Abstract - Presentation
  ISC 2008-11

- **Introduction (to session on backplanes)**
  M. Nomachi (University of Osaka)
  SpW WG #11 2008-06

- **SpaceWire Active Backplanes & Backplanes-Hypertac-Connectors**
  A. Senior (SEA)
  SpW WG #11 2008-06

- **Serial Backplane for SpaceWire**
  Masaharu Nomachi, Shuuhei Ajimura,
  Abstract - Presentation
  ISC 2007-09

- **JAXA presentation on Backplanes**
  M. Nomachi
  SpW WG #6 2006-05

Cable / Connectors

- **SpaceWire Cabling in an Operationally Responsive Space Environment**
  Derek Schierlmann, Paul Jaffe,
  Abstract - Presentation
  ISC 2007-09

- **Mapping of SpaceWire signals into a 38999 series 4 circular connector**
  Schierlmann, NRL
  SpW WG #8 2007-01

- **Cables and Connectors**
  M. Wahl, GORE
  SpW WG #6 2006-05

- **ECSS-E50-12A Maintenance Specific issues on cables**
  Shaune S. Allen, NASA
  SpW WG #1 2004-09

CCSDS / SOIS

- **Proposed SOIS Plug-and-Play Architecture and Resulting Requirements on SpaceWire Mapping**
  Stuart D. Fowell, Chris Taylor,
  Abstract - Presentation
  ISC 2007-09

- **Introduction on SOIS**
  C. Taylor, ESA/ESTEC,
  SpW WG #9 2007-04

- **Overview and Specific Topics on Subnetwork Services**
  Keltik, D. Stanton
  SpW WG #9 2007-04

- **Overview and Specific Topics on Application layer support Services**
  Scisys, S. Fowell
  SpW WG #9 2007-04

- **Analysis of the CCSDS, SOIS services**
  T. Yamada, JAXA,
  SpW WG #9 2007-04

- **SpW and SOIS services–Overview**
  S. Parkes, UdO
  SpW WG #9 2007-04

- **SpW Implementation of SOIS SubNet Services assessment**
  D. Jameux, ESA/ESTEC,
  SpW WG #9 2007-04

- **SOIS Services and SpaceWire Features**
  Y. Sheynin, UoStPb
  SpW WG #9 2007-04
Major outcomes and Way forward
C.Taylor, ESA/ESTEC SpW WG #9 2007-04

Status of CCSDS SOIS Services definition
Ph. Armbuster, ESA/ESTEC, SpW WG #8 2007-01

CCSDS SOIS Services Green Book (CCSDS 850.0-G-0b, November 2006)
SpW WG #8 2007-01

Mapping of CCSDS services on Mil1553B
O. Notebaert, ECSS-E50-13 Convenor, Astrium,
SpW WG #8 2007-01

ESA Presentation on CCSDS SOIS Status
C. Taylor SpW WG #6 2006-05

UoD Presentation on CCSDS SOIS TCONS/OBL
S. Parkes SpW WG #6 2006-05

CCSDS Time-critical Onboard Networking Service
S. Parkes, R. Schnurr, J. Marquart, G. Menke, M. Ciccone
Spaceops 2006

SpaceWire and CCSDS SOIS
Parkes, UoD SpW WG #5 2005-11

CCSDS SOIS and SpW
S Parkes, UoD SpW WG #4 2005-07

CCSDS related activities
Steve Parkes, UoD SpW WG #1 2004-09

Components

- Evolution and Applications of System on a chip SpaceWire Components for Spaceborne Missions
  J. Marshall Abstract - Presentation ISC 2008-11

- SpW-10X Router ASIC Testing and Performance
  S. Parkes, C. McClements, G. Kempf, C. Gleiss, S. Fischer, P. Fabry Abstract - Presentation ISC 2008-11

- Design and Implementation of Synthesizable SpaceWire Cores
  P. Aguilar-Jiménez, V. López, S. Sánchez, M. Prieto, D. Meziat, Abstract - Presentation ISC 2007-09

- The GRSPW SpaceWire Codec IP Core and Its Application
  Sandi Habinc, Marko Isomäki, Jiri Gaisler Abstract - Presentation ISC 2007-09

- SpaceWire IP for Actel Radiation Tolerant FPGAs
  Steve Parkes, Chris McClements, Zaf Mahmood, Abstract - Presentation ISC 2007-09

- Monolithic Radiation Tolerant Multi-Gigabit SpaceWire Fiber/Copper Transponder with Minimal Delay Synchronization
  Vladimir Katzman, Glenn P. Rakow, Vladimir Bratov, Sean Woyciechowsky, Jeb Binkley Abstract
  Vladimir Katzman, Glenn P. Rakow, Vladimir Bratov, Sean Woyciechowsky, Jeb Binkley
  ISC 2007-09

- ATMEL SpaceWire Products Family
  Nicolas Renaud, Yohann Brizard, Abstract - Presentation ISC 2007-09

- SpaceWire Router ASIC
  Steve Parkes, Chris McClements, Gerald Kempf, Stephan Fischer, Agustin Leon, Abstract - Presentation
  ISC 2007-09

• **SpaceWire Remote Terminal Controller**  
  Jorgen Ilstad, Wahida Gasti, Peter Sinander, Sandi Habinc,  
  Abstract - Presentation  
  ISC 2007-09

• **SpaceWire Device Driver for the Remote Terminal Controller**  
  Albert Ferrer Florit, Wahida Gasti,  
  Abstract - Presentation  
  ISC 2007-09

• **‘Multibort’—the Chipset for Distributed Signal Processing and Control with SpaceWire Interconnections**  
  Tatiana Solokhina, Alexander Glushkov, Ilya Alexeev, Yuriy Sheynin, Elena Suvorova, Felix Shutenko,  
  Abstract - Presentation  
  ISC 2007-09

• **A System-on-chip Radiation Hardened Microcontroller ASIC with Embedded SpaceWire Router**  
  Richard Berger, Laura Burcin, David Hutcheson, Jennifer Koehler, Marla Lassa, Myrna Milliser, David Moser, Dan Stanley, Randy Zeger, Ben Blalock, Mark Hale,  
  Abstract - Presentation  
  ISC 2007-09

• **A Hardened One Chip Solution for High Speed SpaceWire System Implementations**  
  Joseph R. Marshall, Richard W. Berger, Glenn P. Rakow  
  Abstract - Presentation  
  ISC 2007-09

• **MCFlight™ - MULTICORE platform based chipset with SpaceWire links for distributed Aerospace systems**  
  T. Solokhina, Elvees,  
  SpW WG #8 2007-01

• **Remote Terminal Controller**  
  T. Hult, Saab Ericsson  
  SpW WG #6 2006-05

• **SpaceWire Interface products**  
  D. Stevenson, Aeroflex  
  SpW WG #6 2006-05

• **SpW Router Status**  
  Estec  
  SpW WG #6 2006-05

• **SMCS332-SpW and SMCS116-SpW Status**  
  Estec for Astrium  
  SpW WG #6 2006-05

• **SpW Devices Development Status in Russia**  
  Y. Sheynin, St.Petersburg, UoAI  
  SpW WG #6 2006-05

• **SpaceWire developments performed at Gaisler Research**  
  J. Gaisler  
  SpW WG #6 2006-05

• **SpW based Intelligent Camera for Navigation**  
  S. Parkes, UoD  
  SpW WG #6 2006-05

• **SpW/RMAP based Video Processing Chain**  
  K. Grange and F. Lachaud, Sodern  
  SpW WG #6 2006-05

• **Space Cube**  
  M. Nomachi  
  SpW WG #6 2006-05

• **SpaceWire Codec status and validation**  
  S. Parkes UoD (UK)  
  SpW WG #5 2005-11

• **SpW router ASIC development**  
  G Kempf, AAe  
  SpW WG #4 2005-07

• **RTC ASIC**  
  T. Hult, Saab Ericsson  
  SpW WG #4 2005-07

• **Status of the SMCS332SpW validation and the SMCS116WpW development**  
  P. Rastetter, Astrium GmbH  
  SpW WG #4 2005-07
- **SpaceWire Router Asic, features and status**  
  G. Kempf, Austrian Aerospace  
  SpW WG #3 2005-02

- **Differences between SMCS332/SMCS332-SpW, SMCS116/SMCS116-SpW**  
  L. Tunesi, ESA  
  SpW WG #1 2004-09

- **Summary of the Remote Terminal Controller preliminary specifications**  
  L. Tunesi, ESA  
  SpW WG #1 2004-09

- **Status of the SpW Router development**  
  S. Fischer, Astrium  
  SpW WG #1 2004-09

- **Short presentation of devices under development by NASA**  
  R. Schnurr, G. Rakow  
  SpW WG #1 2004-09

- **Short Presentation on design activities by Xilinx**  
  Francesco Contu  
  SpW WG #1 2004-09

- **Router Configuration port access/configuration management**  
  S. Parkes, UoD  
  SpW WG #1 2004-09

- **The SpaceWire CODEC**  
  Chris Mc Clements  
  ISWS 2003-11

- **Procurement of the ESA-UoD SpaceWire CODEC**  
  Agustin Fernandez-Leon  
  ISWS 2003-11

- **SpaceWire Router**  
  Steve Parkes  
  ISWS 2003-11

- **MCFlight-SOC Based Chipset with SpaceWire Links for Aerospace Applications**  
  Tatiana Solokhina  
  ISWS 2003-11

- **The ASTRIUM-Velizy SpaceWire IP core**  
  Jean-Francois Coldefy  
  ISWS 2003-11

- **SpaceWire-PCMCIA Card Development**  
  Jaakko Toivonen  
  ISWS 2003-11

- **The New SMCS332 / SMCSLite SpaceWire ASIC**  
  Stephan Fischer  
  ISWS 2003-11

- **Intervention from ATMEL**  
  Dominique de Saint-Roman  
  ISWS 2003-11

- **Customisable-off-the-shelf Digital Signal Processing Board for Space Applications**  
  H Reichinger & M Sust, Austrian Aerospace  
  DASIA 2003-06

- **Development and Test Results of a System On A Chip for a Data Handling System**  
  Christian Boleat, Jean-Francois Coldefy, Marc Lefebvre, Marc Souyri  
  DASIA 2003-06

- **MCM ERC32 Integrated SPARC Computer Core**  
  Christian Boleat, Jean-Francois Coldefy, Marc Souyri  
  DASIA 2003-06

**Distributed Interrupts**

- **Distributed Interrupts Mechanism Verification and Investigation by Modelling on SDL and SystemC**  
  L. Onishchenko, A. Eganyan, I. Lavrovskaya  
  Abstract  
  ISC 2008-11
• **Distributed Interrupts in SpaceWire networks**  
  Y. Sheynin, UoStP,  
  Presentation  
  SpW WG #8 2007-01

• **StP-UoAI presentation on Distributed Interrupts**  
  Y. Sheynin  
  SpW WG #6 2006-05

• **SpaceWire Interrupt Codes**  
  Y. Sheynin and S. Gorbachev, SUAI  
  SpW WG #2 2004-11

### Electrical

• **SpaceWire Physical Layer Fault Isolation**  
  B. Cook, W. Gasti, S. Landstroem  
  Abstract - Presentation  
  ISC 2008-11

• **SpaceWire Link interface: LVDS, Power & Cross-strapping Aspects**  
  W.Gasti & S.Landstroem (ESTEC)  
  SpW WG #11 2008-06

• **Reducing Electromagnetic Emissions from SpaceWire**  
  Barry M Cook, C Paul H Walker, 4Links  
  DASIA 2007-05

### IP

• **SpaceWire RMAP IP Core**  
  S. Parkes, C. McClements, M. Dunstan, W. Gasti  
  Abstract - Presentation  
  ISC 2008-11

• **SpaceWire CODEC IP Core Update**  
  C. McClements, S. Parkes, K. Marinis  
  Abstract - Presentation  
  ISC 2008-11

• **SpaceWire on FPGA – Challenges and Solutions**  
  B M Cook, C Paul H Walker  
  DASIA 2008-05

• **IP Macrocell for SpaceWire I/F Compliant with AMBA-APB BUS**  
  Luca Fanucci  
  ISWS 2003-11

• **SpaceWire: IP, Components, Development Support and Test Equipment**  
  S. Parkes, C. McClements, S. Mills, I. Martin  
  DASIA 2003-06

### Low Speed

• **SpaceWire Standard: Low Speed Signalling Rates**  
  C. McClements, S. Parkes,  
  Abstract - Presentation  
  ISC 2008-11

### Miscellaneous

• **Redundancy Mechanism Update**  
  G. Rakow, NASA GSFC  
  SpW WG #8 2007-01

• **Roscosmos and SpW achievements in Russia**  
  A. Stepanov, ROSCOSMOS,  
  SpW WG #8 2007-01

• **Further SpaceWire Support from 4Links**  
  P. Walker, 4Links  
  SpW WG #8 2007-01
Initial collection of headings and words

- **Prototyping with SpW in Japan**  
  M.Nomachi, UoO,  
  SpW WG #8 2007-01

- **SpaceWire Data Handling Demonstration System**  
  S. Mills, S. Parkes, N. O’Gribin  
  DASIA 2007-05

- **Unionics Requirements**  
  D. Durrant, SEA  
  SpW WG #1 2004-09

- **Short reminder of SpW packet structure and Addressing modes**  
  S. Parkes, UoD  
  SpW WG #1 2004-09

- **Building SpaceWire Systems**  
  Paul Walker  
  ISWS 2003-11

- **Networks, CCSDS SOIF and Support Tools: SpaceWire Research at Dundee**  
  S. Parkes  
  ISWS 2003-11

**Missions & Applications**

- **Data Acquisition System of the PoGOLite Balloon Experiment**  
  Abstract - Presentation  
  ISC 2008-11

- **SpaceWire in the Simbol-X Hard X-Ray Mission**  
  Abstract - Presentation  
  C. Cara, F. Pinsard  
  ISC 2008-11

- **RMAP over SpaceWire on the ExoMars Rover for Direct Memory Access by Instruments to Mass Memory**  
  Abstract - Presentation  
  B. Dean, R. Warren, B. Boyes  
  ISC 2008-11

- **Standard Onboard Data Handling Architecture based on SpaceWire**  
  Abstract - Presentation  
  T. Yamada, T. Takahashi  
  ISC 2008-11

- **SpaceWire Test and Demonstration Utilising the Integrated Payload Processing Module**  
  Abstract - Presentation  
  J. Ilstad, D. Jameux  
  ISC 2008-11

- **SpaceWire Application for the X-Ray Microcalorimeter Instrument onboard the Astro-H Mission**  
  Abstract - Presentation  
  ISC 2008-11

- **Digital Signal Processing Systems of an X-ray Microcalorimeter Array for Ground and Space Applications**  
  Abstract - Presentation  
  T. Hagihara, K. Mitsuda, N. Yamasaki, Y. Takei, H. Odaka, M. Nomachi, T. Yuasa  
  ISC 2008-11

- **System Aspects of SpaceWire Networks**  
  Abstract  
  P. Rastetter, S. Fischer, U. Liebstuckel, R. Wiest  
  ISC 2008-11

- **PaDaPAr Study and demonstrator**  
  Abstract  
  O. Notebaert, Astrium Satellites  
  SpW WG #9 2007-04

- **Magnetospheric MultiScale Mission (MMS) Implementation of SpaceWire**  
  Abstract  
  G. Jackson, D. Raphael and G. Rakow, NASA GSFC  
  SpW WG #8 2007-01
The Geostationary Operational Satellite R Series SpaceWire Implementation
William H. Anderson, Alexander Krimchansky, Glenn P. Rakow, Abstract - Presentation
ISC 2007-09

PnPSAT
Donald Fronterhouse, Abstract - Presentation
ISC 2007-09

Overview of the INTAµSAT’s Data Architecture Based on SpaceWire
D. Guzmán, M. Angulo, L. Seoane, S. Sánchez, M. Prieto, D. Meziat, Abstract - Presentation
ISC 2007-09

SpaceWire for Operationally Responsive Space as Part of TacSat-4
Paul Jaffe, Greg Clifford, Jeff Summers, Abstract - Presentation
ISC 2007-09

SWFU: SpW Interface Unit for Versatile Sensor Integration on the ExoMars Chassis Breadboard
C. G.-Y. Lee, R. Obstei, Abstract
ISC 2007-09

Application of SpaceWire to Future Satellite Data Processing System
Kenji Matsuda, Kazunori Masukawa, Shigeru Ishii, Yo Watanabe, Yoshikatsu Kuroda, Motohide Kokubun, Masanobu Ozaki, Tadayuki Takahashi, Masaharu Nomachi
ISC 2007-09

Development of a SpaceWire-based Data Acquisition System for a Semiconductor Compton Camera
Hirokazu Odaka, Motohide Kokubun, Takeshi Takahshima, Tadayuki Takahashi, Takayuki Yuasa, Kazuhiro Nakazawa, Kazuo Makishima, Masaharu No

The SpaceWire Interfaces for HERSCHEL/SCORE Suborbital Mission
M. Pancrazzi, A. Gherardi, M. Focardi, G. Rossi, D. Paganini, E. Pace, M. Romoli, E. Antonucci,
ISC 2007-09

Introduction of SpaceWire Applications for the MMO Spacecraft in BepiColombo Mission
T. Takashima, H. Hayakawa, H. Ogawa, Y. Kasaba, M. Koyama, K. Masukawa, M. Kawasaki, S. Ishii, Y. Kuroda, BepiColombo MMO Project Data-Handling Team,
ISC 2007-09

Development of a SpW/RMAP-based Data Acquisition Framework for Scientific Detector Applications
Takahuki Yuasa, Kazuhiko Nakazawa, Kazuo Makishima, Hirokazu Odaka, Motohide Kokubun, Takeshi Takahshima, Tadayuki Takahashi, Masaharu Nomachi, Iwao Fujishiro, Fumio Hodoshima,
ISC 2007-09

SpW Application at Alcatel Alenia Space
A. Girard
SpW WG #6 2006-05

SpW Applications for Robotics Applications at Canadian Space Agency
D. Jameux, Estec
SpW WG #6 2006-05

SpW Activities, update from JAXA
T. Yoshimitsu, M. Nomachi
SpW WG #6 2006-05

SpW Application to missions: BepiColombo & NeXT
Y. Kasaba, JAXA/ISAS
SpW WG #4 2005-07

Possible applications of Space Wire standard to Scientific missions
H. Hayakawa, ISAS/JAXA
SpW WG #1 2004-09

A Data Readout System with High-Speed Serial Data Link
M. Nomachi, Osaka University
SpW WG #1 2004-09

Highly Integrated Payload Suites and Related Data Link Requirements
Peter Falkner
ISWS 2003-11
Networks / Architectures & Protocols

- **Prototype Implementation of a Routing Policy using Flexray Frames Concept over a SpaceWire Network**
  S. Gunes-Lasnet, O. Notebaert
  Abstract - Presentation
  ISC 2008-11

- **SoCWire: A SpaceWire inspired fault tolerant Network-on-chip for Reconfigurable System-on-chip Designs in Space Applications**
  Osterloh, H. Michalik, B. Fiethe
  Abstract - Presentation
  ISC 2008-11

- **Design Considerations for Adapting Legacy System Architectures to SpaceWire**
  R. Klar, C. Mangels, S. Dykes, M. Brysch
  Abstract - Presentation
  ISC 2008-11

- **Embedded network architectures for mobile devices**
  M. Gillet and S. Balandin, Nokia,
  SpW WG #9 2007-04

- **Different uses of logical addresses: Implementation of bandwidth allocation schemes**
  A. Ferrer Florit, ESA/ESTEC
  SpW WG #9 2007-04

- **A Link-Layer Broadcast Service for SpaceWire Networks**
  S. Dykes, Southwest Research Institute,
  SpW WG #8 2007-01

- **Comparison of Communication Architectures for Spacecraft Modular Avionics Systems**
  SpW WG #8 2007-01

- **Network Management and Configuration Using RMAP**
  Peter Mendham, Stuart Mills, Steve Parkes,
  ISC 2007-09

- **Benchmarking SpW Networks**
  Asaf Baron, Isask'har Walter, Ran Ginosar, Isaac Keslassy, Ofer Lapid,
  ISC 2007-09

- **Integration of Internet Protocols with SpaceWire Using an Efficient Network Broadcast**
  Robert Klar, Sandra G. Dykes, Allison Bertrand, Christopher C. Mangels,
  Abstract - Presentation
  ISC 2007-09

- **A SpaceWire Implementation of Chainless Boundary Scan Architecture for Embedded Testing**
  Omar Emam, Mohammed Ali,
  Abstract - Presentation
  ISC 2007-09

- **SpaceWire Hot Modules**
  Asaf Baron, Isask'har Walter, Ran Ginosar, Isaac Keslassy, Ofer Lapid,
  ISC 2007-09

- **SpaceWire Network Topologies**
  Barry M. Cook, C. Paul H. Walker,
  Abstract - Presentation
  ISC 2007-09

- **The System Approach for a SpaceWire Network**
  Bruno Masson, Stephane Detheve, Bernard Alison,
  Abstract - Presentation
  ISC 2007-09

- **SpaceWire Network Functional Model**
  Elena Suvorova, Liudmila Onishchenko, Artur Eganyan,
  Abstract - Presentation
  ISC 2007-09

- **SpaceWire Networks for Payload Applications**
  Christophe Honvault, Olivier Notebaert,
  Abstract - Presentation
  ISC 2007-09

- **Ethernet over SpaceWire – Hardware Issues**
  Barry M. Cook, Paul Walker
Vol 61, Numbers 1-6, June/August 2007, ISSN 0094-5765, pp 243-249
Acta Astronautica (Journal of the International Academy of Astronautics) 2007

- Ethernet over SpaceWire – software Issues
  Barry M Cook, Paul Walker
  Vol 61, Numbers 1-6, June/August 2007, ISSN 0094-5765, pp 250-256
  Acta Astronautica (Journal of the International Academy of Astronautics) 2007

- Comparison of Communication Architectures for Spacecraft Modular Avionics Systems
  SpW WG #7 2006-09

- Modelling of SpaceWire Traffic
  A. Girard, Alcatel Alenia Space
  SpW WG #6 2006-05

- Ethernet over SpaceWire – Hardware Issues
  Barry M Cook, Paul Walker, 4Links
  IAC 2006

- Ethernet over SpaceWire – software Issues
  Barry M Cook, Paul Walker, 4Links
  IAC 2006

- SpaceWire Higher Layer Protocols
  S. Parkes, S. Mills, C. McClements
  IAC 2006

- SpaceWire Protocol ID: what does it mean to you?
  G. Rakow, R. Schnurr, S. Parkes
  IEEE Aerospace Conference 2006

- Multi Access Communication Protocol
  G. Saldi, Laben
  SpW WG #3 2005-02

- SpaceWire constitution, PID allocation rules and status
  SpW WG #3 2005-02

- SpaceWire Protocol ID
  S. Parkes UoD
  SpW WG #2 2004-11

- SpaceWire-SnP Protocol Identifiers
  S. Parkes UoD, All
  SpW WG #2 2004-11

- 4Links_Comment-on-protocols-etc
  SpW WG #2 2004-11

- Higher-level SpaceWire protocols for distributed on-board computing
  Y. Sheynin, S. Gorbachev, E. Pyatlina, St. Petersburg State University
  SpW WG #1 2004-09

- Protocol Identifiers are necessary: What else is necessary?
  P. Walker, 4links
  SpW WG #1 2004-09

- Protocol ID proposal and update on the transport layer development
  R. Schnurr, G. Rakow, NASA
  SpW WG #1 2004-09

- TCP/IP Over Spacewire
  S. Mills, S. Parkes
  DASIA 2003-06

- Architecture of Next Generation Highly Integrated Data Handling Systems
  Torbjorn Hult, Saab Ericsson Space AB
  DASIA 2003-06

- SpaceWire Networks
  S. Parkes, C. McClements
  DASIA 2002

Onboard Equipment & Software

- Modular Architecture for Robust Computation
  W. Gasti, A. Senior
  Abstract - Presentation
  ISC 2008-11
• **A Portable SpaceWire/RMAP Class Library for Scientific Detector Read Out Systems**
  
  T. Yuasa, W. Kokuyama, K. Makishima, K. Nakazawa, M. Nomachi, M. Kokubun, H. Odaka, T. Takashima, T. Takahashi  
  **Abstract - Presentation**  
  ISC 2008-11  

• **Crucial SpaceWire Elements in RASTA**
  
  S. Habinc, J. Gaisler  
  **Abstract - Presentation**  
  ISC 2008-11  

• **A CPU Module for a Spacecraft Controller with High Throughput SpaceWire Interfaces**
  
  T. Sasaki, M. Nakamura, T. Yoshimoto, M. Yoshida, S. Yoshikawa  
  **Abstract - Presentation**  
  ISC 2008-11  

• **Leveraging Serial Digital Interfaces Standardisation: the RASTA Reference Architecture Facility at ESA**
  
  A. Viana Sanchez, G. Furano, M. Ciccone, F. Guettache, C. Monteleone, C. Taylor, M. Prieto, I. Garcia Tejedor  
  **Abstract - Presentation**  
  ISC 2008-11  

• **RAD750 SpaceWire-Enabled Flight Computer for Lunar Reconnaissance Orbiter**
  
  Richard Berger, Alan Dennis, David Eckhardt, Suzanne Miller, Jeff Robertson, Dean Saridakis, Dan Stanley, Marc Vancampen, Quang Nguyen,  
  **Abstract - Presentation**  
  ISC 2007-09  

• **SpaceWire-RTC Development Suite**
  
  Sandi Habinc, Jorgen Ilstad,  
  **Abstract - Presentation**  
  ISC 2007-09  

• **Modular Architecture for Robust Computing (MARC)**
  
  Alan Senior, Phil Ireland, Stuart D. Fowell, Roger Ward, Ben Greene, Omar Emam,  
  **Abstract - Presentation**  
  ISC 2007-09  

• **SpaceCube 2 -- An Onboard Computer Based on SpaceCube Architecture**
  
  Tadayuki Takahashi, Takeshi Takashima, Satoshi Kuboyama, Masaharu Nomachi, Yasumasa Kasaba, Takayuki Tohma, Hiroki Hihara, Shuichi Moriyma, Toru Tamura,  
  **Abstract - Presentation**  
  ISC 2007-09  

#### Plug and Play

• **SpaceWire Plug-and-play: a Roadmap**
  
  P. Mendham, S. Parkes  
  **Abstract - Presentation**  
  ISC 2008-11  

• **SOIS Plug-and-Play**
  
  S. Fowell (SciSys)  
  **SpW WG #11 2008-06**  

• **Adapting SpaceWire PnP to RMAP and Other Recent Changes**
  
  P. Mendham, UoD  
  **SpW WG #10 2008-02**  

• **Plug and Play Technology for SpaceWire: Drivers and Alternatives**
  
  Peter Mendham, Steve Parkes, Stuart Mills, Chris McClements  
  **IAC 2007**  

• **Application of the SpaceWire Plug-and-Play Protocol**
  
  Clifford Kimmery, Patrick McGuirk, Glenn Rakow, Paul Jaffe, Robert Klar, Allison Bertrand,  
  **Abstract - Presentation**  
  ISC 2007-09  

• **SpaceWire Plug-and-Play: Fault-Tolerant Network Management for Arbitrary Network Topologies**
  
  Albert Ferrer Florit, Martin Suess,  
  **Abstract - Presentation**  
  ISC 2007-09  

• **SpaceWire Plug ’n’ Play**
  
  G. Rakow, NASA  
  **- Presentation**  
  **SpW WG #8 2007-01**  

• **PnP aspects, 4Links contribution**
  
  B. Cook, P. Walker  
  **SpW WG #8 2007-01**
• **PnP aspects, ESA contribution**
  A. Ferrer Florit

**Posters and Demonstrations**

• **Providing Guaranteed Packet Delivery Time in SpaceWire Networks**
  Y.Sheynin, E. Suvorova

• **UNIONICS - A New Scalable On-Board Processing Architecture**
  Mick Johnson

• **UNIONICS - A New Scalable On-board Processing Architecture**
  EADSASTRIUM, SEA & SciSys (UK)

• **Demonstration of SpaceWire Systems and EGSE**
  Paul Walker

• **Architecture for using spacewire links in a bus configuration**
  Francesco Ricci

• **SpaceWire Router Technology Makes ASIC Interfacing Easy**
  UoD

• **Monitoring & Analysis of SpaceWire Links**
  4Links (UK) & NASA-JPL (US)

• **SpaceWire DSP**
  University of Dundee & SciSys (UK)

• **Laben Current Application of SpaceWire Technology**
  Laben (I)

• **Architecture for using spacewire links in a bus configuration**
  XIPHOS (CA)

• **Demonstration of SpaceWire Systems and EGSE**
  4Links (UK)

**Real Time**

• **Providing Guaranteed Packet Delivery Time in SpaceWire Networks**
  Y.Sheynin, E. Suvorova

• **SpaceWire-RT**
  S. Parkes, A. Ferrer Florit,

• **SpaceWire-RT Prototyping**
  Ferrer Florit, S. Parkes

• **Time-triggered Services for SpaceWire**
  W. Steiner, R. Maier, D. Jameux, A. Ademaj

• **SpW-RT Initial Protocol Definition-v1.1**
  S. Parkes (UoD)

• **SpaceWire-RT Requirements**
  UoD
• **On-board SpW Networks and Real-time aspects**  
  W. Gasti (ESA)  
  SpW WG #10 2008-02

• **SpW for Command & Control**  
  D. Jameux (ESA)  
  SpW WG #10 2008-02

• **Time-Triggered Techniques for Quality of Service over SpaceWire**  
  W. Steiner (TTTech Computertechnik AG)  
  SpW WG #10 2008-02

• **Use Case Study for SpaceWire-RT**  
  T. Yamada (JAXA/ISAS)  
  SpW WG #10 2008-02

• **Real-Time Signalling in SpaceWire Networks**  
  Yuriy Sheynin, Sergey Gorbachev, Liudmila Onishchenko,  
  Abstract - Presentation  
  ISC 2007-09

• **A software development methodology for distributed real-time systems that shares the simplicity and applicability of SpaceWire**  
  K. Matsui, Prominent Network  
  SpW WG #5 2005-11

• **SpaceWire: a Spacecraft Onboard Network for Real-time Communications**  
  S. M. Parkes, P. Armbruster  
  NPSS 2005

• **Real-Time embedded CORBA over SpaceWire**  
  S. Parkes, S. Mills, S. Fowell, R. Ward  
  ISWS 2003-11

**Reduced Mass (Simplex, Half-Duplex)**

• **Half-Duplex SpaceWire: Reducing Harness Mass While Retaining Full Compatibility With SpaceWire’s Modularity, Configurability and Adaptability**  
  B M Cook, P Walker  
  IAC 2008

• **Simplex Mode in SpW Technology**  
  Eugenue Yablokov,  
  Abstract - Presentation  
  ISC 2007-09

**Remote / Virtual Integration**

• **TopNet pilot demonstrations: First returns of experience**  
  R. Vitulli, ESA  
  SpW WG #10 2008-02

• **TopNet - IP tunnel, R. Vitulli Estec**  
  S. Mills UoD  
  SpW WG #4 2005-07

• **SpaceWire Internet Tunnel**  
  S. Mills, S. Parkes, R. Vitulli  
  DASIA 2005

• **SpaceWire Networks Implementation, Validation & Remote Integration: TopNet**  
  Alberto Donadoni  
  ISWS 2003-11

• **Virtual Satellite Integration**  
  S. Parkes  
  DASIA 2001

• **Virtual System Integration**  
  S. Parkes  
  ICAED 2001

**Software**

• **Introduction to Standardised Programming support**  
  E. Verhulst, Open Lic. Soc.  
  SpW WG #2 2004-11
• **SpaceCommRTOS**
  E. Verhulst, Open License Society
  SpW WG #1 2004-09

**SpaceFibre**

- **Mixed SpaceWire - SpaceFibre Networks**
  M. Suess, S. Parkes,
  Abstract - Presentation
  ISC 2008-11

- **SpaceFibre Virtual Channels**
  C. Kimmery,
  Abstract - Presentation
  ISC 2008-11

- **SpaceFibre Status Update**
  M. Suess (ESTEC)
  SpW WG #11 2008-06

- **MLAS mission use of SpaceFibre**
  G. Rakow, NASA
  SpW WG #10 2008-02

- **SpaceFibre optical physical layer**
  J. Toivonen, PATRIA
  SpW WG #10 2008-02

- **Details of the SpaceFibre CODEC**
  S. Parkes, UoD
  SpW WG #10 2008-02

- **Comments on the SpaceFibre outline specification**
  G. Rakow, NASA
  SpW WG #10 2008-02

- **Ccollation of SpaceFibre Requirements**
  P. Walker, 4Links
  SpW WG #10 2008-02

- **SpaceFibre Outline Specification**
  SpW WG #10 2008-02

- **SpaceFibre**
  Abstract - Presentation
  ISC 2007-09

• **SpaceFibre: A Very High Speed Network For Space Flight Applications**
  S. Parkes, M. Suess, C. McClements, M. Dunstan, P. Mendham
  DASIA 2007-05

- **SpaceFibre Introduction**
  M. Suess, ESA/ESTEC,
  SpW WG #8 2007-01

- **SpaceFibre status**
  S. Parkes, UoD,
  SpW WG #8 2007-01

- **SiGe Interconnect Solutions**
  V. Katzman, ADSANTEC,
  SpW WG #8 2007-01

- **Future focus on SpaceFibre**
  M. Suess, ESA
  SpW WG #7 2006-09

- **UoD presentation on SpaceFibre**
  S. Parkes
  SpW WG #6 2006-05

- **NASA presentation on evolutions and SpaceFibre**
  G. Rakow
  SpW WG #6 2006-05

- **SpaceFibre development status**
  M. Suess & Iain Mckenzie, Estec
  SpW WG #4 2005-07

• **Space Fibre**
  Martin Suess
  ISWS 2003-11
SpaceWire (general)

- **SpaceWire Standard Evolution**
  M. Suess, Abstract - Presentation
  ISC 2008-11

- **Proposed updates and modifications of ECSS-E50-12A in InterAgency Steering Committee Dispositions**
  SpW WG #8 2007-01

- **SpaceWire and IEEE 1355 Revisited**
  Barry M. Cook, C. Paul H. Walker, Abstract - Presentation
  ISC 2007-09

- **SpaceWire origins and purpose, From IEEE 1355 to ECSS-E-50-12**
  Ph. Armbruster ESA, SpW WG #7 2006-09

- **UoD presentation on SpW Evolution**
  S. Parkes, SpW WG #6 2006-05

- **SpaceWire – DS Links Reborn**
  CPA 2006

- **SpaceWire – Key Principles brought out from 40 year history**
  Paul Walker, Barry Cook, SmallSat 2006

- **Reducing SpaceWire Time-code Jitter**
  Barry Cook, Paul Walker, MAPLD 2006

- **SpaceWire – Improvements in Support of Mission Requirements**
  Barry M Cook, Paul Walker, SDSS 2005

- **SpaceWire in future Spacecrafts**
  O. Notebaert, Astrium, SpW WG #5 2005-11

- **Other needs, Very high speed, Low speed links, PowerLinks**
  Ph. Armbruster, ESA/ESTEC, SpW WG #5 2005-11

- **SpW in Data systems Equipment**
  S. Asserhall, Saab Ericsson, SpW WG #5 2005-11

- **SpW based On-board Computers**
  P. Rastetter, Astrium, SpW WG #5 2005-11

- **SpaceWire Standard; SpW links, routers & networks (Tutorial)**
  S. Parkes, UoD, SpW WG #5 2005-11

- **SpaceWire in future Spacecrafts**
  O. Notebaert, Astrium, SpW WG #5 2005-11

- **Activities in NASA & USA**
  G. Rakow & S. Allen, NASA/GSFC, SpW WG #5 2005-11

- **Roadmap for space applications**
  T. Takahashi (ISAS/JAXA), SpW WG #5 2005-11

- **Technologies for commercial systems**
  M. Kobayashi (U. Tokyo), SpW WG #5 2005-11

- **Proposed Changes to SpaceWire Physical Layer**
  S. Allen, NASA/GSFC, SpW WG #5 2005-11
• **Video Processing Chain with SpW Interface**  
  F. Lachaud, Sodern  
  SpW WG #4 2005-07

• **SpW as seen by Astrium - system issues**  
  O. Notebaert, Astrium  
  SpW WG #4 2005-07

• **NASA SpW Activities**  
  G. Rakow, NASA  
  SpW WG #4 2005-07

• **SpW Development activities**  
  M. Nomachi, Osaka University  
  SpW WG #4 2005-07

• **Galvanically Isolated SpaceWire EGSE Building Blocks**  
  P. Walker, 4links  
  SpW WG #4 2005-07

• **Development Tools and Support Equipment**  
  Star Dundee  
  SpW WG #4 2005-07

• **SpW related activities by NASA**  
  SpW WG #3 2005-02

• **SpW related activities by ESA**  
  SpW WG #3 2005-02

• **SpW related activities by JAXA**  
  SpW WG #3 2005-02

• **Use Cases of SpaceWire Connections by JAXA**  
  SpW WG #3 2005-02

• **Test and diagnostics tools and safety aspects**  
  P. Walker, 4 Links  
  SpW WG #3 2005-02

• **SpaceWire development tools and support equipments**  
  S. Parkes, Star Dundee  
  SpW WG #3 2005-02

• **Presentation of Jaxa Developments**  
  T. Takahashi, JAXA  
  SpW WG #2 2004-11

• **NEC_Toshiba_SpaceWire Developments**  
  SpW WG #2 2004-11

• **The SpaceWire Onboard Network for Spacecraft**  
  S. Parkes, C. McClements  
  Spaceops 2004

• **The Origins of SpaceWire**  
  Paul Walker  
  ISWS 2003-11

• **SpaceWire Standard ECSS-E50-12A**  
  Steve Parkes  
  ISWS 2003-11

• **SpaceWire Developments & Test Equipment**  
  Steve Parkes  
  ISWS 2003-11

• **SpaceWire Standard Problems and Evolution Lines**  
  Yuriy Sheynin  
  ISWS 2003-11

• **The SpaceWire Transport Protocol**  
  Stuart Mills  
  ISWS 2003-11

• **Experience from Using SpaceWire in a Spacecraft Telemetry System**  
  Torbjorn Hult  
  ISWS 2003-11

• **SpaceWire - Links, Nodes, Routers and Networks**  
  S. Parkes, J. Rosello  
  DASIA 2001

• **SpaceWire: a Satellite On-board Data-handling Network**  
  S. Parkes  
  ???

• **SpaceWire: the Standard**  
  S. Parkes  
  DASIA 1999
SpaceWire Protocols (including RMAP)

- **ECSS-E50-11 Status**  
  M Suess (ESA)  
  SpW WG #11 2008-06

- **ECSS SpaceWire Protocols v0.8**  
  SpW WG #11 2008-06

- **Bepi Colombo MMO Data Handling System SpaceWire-RMAP Interface**  
  S. Davy et al  
  SpW WG #11 2008-06

- **RMAP over SpaceWire on the ExoMars Rover for Direct Memory Access by Instruments to Mass Memory**  
  B. Dean, R. Warren, B. Boyes  
  Abstract - Presentation  
  ISC 2008-11

- **RMAP Standardization, ECSS-E50-11**  
  M. Suess and E. Gonzalez Conde, ESA/ESTEC  
  SpW WG #9 2007-04

- **RMAP implementation issues**  
  S. Habinc, Gaisler Research,  
  SpW WG #9 2007-04

- **Evolution from Draft E to Draft F**  
  S. Parkes, UoD,  
  SpW WG #8 2007-01

- **RMAP Multi-master Network configuration**  
  A. Ferrer Florit, ESA/ESTEC  
  SpW WG #8 2007-01

- **RMAP CRC IMPLEMENTATION, submitted by ESA**  
  prepared by A. Ferrer Florit  
  SpW WG #7 2006-09

- **RMAP Presentation**  
  S. Parkes (UoD)  
  SpW WG #5 2005-11

- **Application for PID 239 for legacy device: SMCS116SpW**  
  P. Rastetter, Astrium GmbH  
  SpW WG #4 2005-0

- **CRC implementation variants**  
  T. Hult, Saab Ericsson Space  
  SpW WG #4 2005-07

- **Overview and review of ECSS-E50-12A Part 2 (RMAP)**  
  SpW WG #4 2005-07

- **Technical presentation supporting the Request for a Legacy PID for the SMCS116-SpW**  
  P. Rastetter, Astrium GmbH  
  SpW WG #3 2005-02

- **SpaceWire Remote Memory Access Protocol**  
  S. Parkes, C. McClements  
  DASIA 2005

- **SpW-SnP-RMAP**  
  S. Parkes UoD, All  
  SpW WG #2 2004-11

- **SpaceWire RMAP Protocol**  
  S. Parkes UoD SpW WG #2  
  2004-11
Task Synchronization

- JAXA presentation on Synchronization over SpW
  M. Nomachi
  SpW WG #6 2006-05

- Task synchronization over SpaceWire networks using RMAP
  M. Nomachi University of Osaka
  SpW WG #5 2005-11

Test / Verification / Certification

- Proposal of CSP based Network Design and Construction
  Abstract - Presentation
  K. Tanaka, S. Iwanami, T. Yamakawa, C. Fukunaga, K. Matsui, T. Yoshida
  ISC 2008-11

- The SpaceWire Internet Tunnel and the Advantages it Provides for Spacecraft Integration
  Abstract - Presentation
  S. Mills, S. Parkes, R. Vitulli
  ISC 2008-11

- SpaceWire Margins Tester
  Abstract - Presentation
  A. Kisin, G. Rakow
  ISC 2008-11

- Using SpaceWire as an EGSE Interface
  Abstract - Presentation
  A. Petersen, T. Hult
  ISC 2008-11

- Improvements in SpaceWire Test
  Abstract - Presentation
  P. Walker, B. Cook
  ISC 2008-11

- Toolset for Test and Verification of IP-blocks with SpaceWire Interface
  Abstract - Presentation
  E. Suvorova
  ISC 2008-11

- Designing SpaceCube 2 with Elegant Framework
  Abstract - Presentation
  H. Hihara, S. Moriyama, T. Takezawa, Y. Nishihara, M. Nomachi, T. Takahashi, T. Takashima
  ISC 2008-11

- Lessons Learned from Implementing non-standard SpaceWire Cabling for TACSAT-4
  Abstract - Presentation
  D. Schierlmann, E. Rossland, P. Jaffe
  ISC 2008-11

- Implementation of a Very Low Cost Portable SpaceWire Monitor and Debugger
  Abstract - Presentation
  P. Jaffe, K. Leisses
  ISC 2008-11

- Some Methodology and Tools for Test and Verification
  Abstract - Presentation
  Y. Sheynin (UoStPg) et al
  SpW WG #11 2008-06

- SpaceWire Test, Verification and Certification Requirements and Approaches
  Abstract - Presentation
  Y. Sheynin, St. Petersburg State University of Aerospace Instrumentation.
  SpW WG #10 2008-02

- SpaceWire – Test, Validation and Certification: Experiences, Thoughts, and Ideas for Discussion
  Abstract - Presentation
  B. Cook & Paul Walker, 4Links Limited
  SpW WG #10 2008-02

- An innovative method for SpaceWire Test and Verification
  Abstract - Presentation
  G. Magistrati, Carlo Gavazzi Space S.p.A
  SpW WG #10 2008-02

- SpaceWire Conformance Tester and Validation Software
  Abstract - Presentation
  Star Dundee
  SpW WG #10 2008-02
• **SpaceWire Cable and Connector Variations**
  Shaune S. Allen,
  **Abstract - Presentation**
  ISC 2007-09

• **Virtual Satellite Integration and the SpaceWire Internet Tunnel**
  Stuart Mills, Steve Parkes, Raffaele Vitulli,
  **Abstract - Presentation**
  ISC 2007-09

• **SpaceWire Cable and Connector Characterisation**
  Martin Suess, Steve Parkes, Paul Crawford,
  **Abstract - Presentation**
  ISC 2007-09

• **Measuring Time and Time-Related Aspects of SpaceWire**
  Barry M. Cook, C. Paul H. Walker,
  **Abstract - Presentation**
  ISC 2007-09

• **Debugging SpaceWire Devices using the Conformance Tester**
  Steve Parkes, Martin Dunstan,
  **Abstract - Presentation**
  ISC 2007-09

• **Integrated Development Tools Suite for the SpaceWire RTC ASIC**
  Walter Errico, Jorgen Ilstad, Annamaria Colonna, Fabrizio Bertuccelli,
  **Abstract - Presentation**
  ISC 2007-09

• **SpaceWire Protocol Analyser on SpaceCube**
  Hiroki Hihara, Shuichi Moriyama, Toru Tamura, Takayuki Tohma, Kenji Kitade, Steve Parkes, Stuart Mills, Masaharu Nomachi, Tadayuki Takahashi, Takeshi Takashima
  **Abstract - Presentation**
  ISC 2007-09

• **SpaceWire-cPCI vxWorks Support Software**
  Iain Martin, Steve Parkes, Stuart Mills,
  **Abstract - Presentation**
  ISC 2007-09

• **SpNSAW – The SpaceWire Network System Administrator Workstation**
  Elena Suvorova, Liudmila Onishchenko, Alexander Cherny,
  **Abstract - Presentation**
  ISC 2007-09

• **A Methodology and the Tool for Testing SpaceWire Routing Switches**
  Elena Suvorova,
  **Abstract - Presentation**
  ISC 2007-09

• **SpW Standard Problems**
  Y. Sheynin, St.Petersburg University of Aerospace Instrumentation
  **SpW WG #6 2006-05**

• **Update on SpW related developments**
  P. Walker, 4 Links
  **SpW WG #6 2006-05**

• **New SpaceWire Tools**
  S. Parkes, M. Dunstan, S. Mills, I. Martin, C. McClements, R. Vitulli, P. Fabry
  **DASIA 2006-05**

• **Verifying the Temporal Behaviour of SpaceWire Components and Systems**
  Barry M Cook, Paul Walker, 4Links
  **DASIA 2006-05**

• **Validation of SpW links with the Conformance Tester**
  G. Kempf, Austrian Aerospace
  **SpW WG #5 2005-11**

• **New capabilities in 4Links’ Gbit Ethernet based family of modular test and simulation equipment for SpaceWire**
  K. Matsui, Prominent Network (JPN), (presented on behalf of 4Links, UK)
  **SpW WG #5 2005-11**

• **SpaceWire Conformance Tester**
  Gerald Kempf
  **ISWS 2003-11**

**Time Codes**

• **Usage of Time codes and potential extensions**
  Y. Sheynin All
  **SpW WG #2 2004-11**
• **Reducing SpaceWire Time-Code Jitter**  
  Paul Walker  
  ISWS 2003-11

• **The Operation and Use of the SpaceWire Time Codes**  
  Steve Parkes  
  ISWS 2003-11

• **Reducing SpaceWire Time-code Jitter**  
  Barry Cook, Paul Walker  
  ISWS 2003-11

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