

## Tuesday 8 November

**09.30 – 11.00 Conference Opening:** *Session Chair – Allison Bertrand*

Keynote Presentation

*Space Agency Presentations from ESA, NASA and JAXA*

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**11.30 – 13.00 Networks and Protocols 1:** *Session Chair – Clifford Kimmerly*

Paul B. Wood, Sue A. Baldor, Dan Goes, Allison R. Bertrand; A GENERALIZED APPROACH TO PLUG-AND-PLAY NETWORK ATTACHED STORAGE USING SPACEWIRE (L)

Sue A. Baldor, Paul B. Wood, Allison R. Bertrand, Dan Goes; A SOFTWARE ADAPTATION LAYER FOR SUPPORTING MULTIPLE SPACEWIRE PLUG AND PLAY STANDARDIZATIONS (L)

Kody D. Mason, Justin W. Enderle; NEW TECHNIQUE FOR SPACEWIRE NETWORK DISCOVERY (L)

David Jameux; TOWARDS SPACEWIRE PLUG-AND-PLAY ECSS STANDARD (S)

Robert A. Klar, Dan Goes, Paul B. Wood, and Sue A. Baldor; PERFORMANCE OF SPACEWIRE PLUG-AND-PLAY PROTOCOLS (S)

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**14.20 – 16:00 Networks and Protocols 2:** *Session Chair: Robert Klar*

Hou Jianru, Sun Huixian, Chen Xiaomin, Cao Song; AN OPNET MODEL OF SPACEWIRE (S)

Sandi Habinc, Marko Isomäki, Daniel Hellström; CCSDS TIME DISTRIBUTION OVER SPACEWIRE (S)

Chen Xiaomin, Hou Jianru, Cao Song, Sun Huixian; THE QUANTITATIVE ANALYSIS AND RESEARCH OF SPACEWIRE DELAY JITTER (S)

Qiang ZHOU, Huijuan XIN, Yanhua SHI; REALTIME PERFORMANCE OF ARBITRATION SCHEME FOR SPACEWIRE (S)

David Jameux; NETWORK MANAGEMENT AND FDIR FOR SPACEWIRE NETWORKS (L)

Christopher T. Dailey, Michael W. Pagen; SPACEWIRE NETWORK PACKET ERROR HANDLING (L)

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**16.30 – 17.30 Components 1:** *Session Chair: Sandi Habinc*

Gilles Rouchaud, Jorgen Ilstad, Florent Mettendorff; LOW MASS SPACEWIRE (S)

Wahida Gasti, Jorgen Iltad, Farid Guettache, Giorgio Magistrati; IMPLEMENTATION ASPECTS OF THE PHYSICAL LAYER IN SPACEWIRE (S)

Omar A. Haddad; NASA-GSFC REMOTE MEMORY ACCESS PROTOCOL TARGET IP CORE (S)

Jennifer Larsen; 1553 TO SPACEWIRE BRIDGE (S)

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## Wednesday 9 November

### **09.00 – 10.00 Missions and Applications 1: Session Chair – Jim Lux**

Alan A. Mick, Joseph R. Hennawy, Christopher J. Krupiarz, Horace Malcom; SOLAR PROBE PLUS AND SPACEWIRE: VIRTUAL SPACECRAFT BUS (L)

Leonard Burczyk, Justin W. Enderle, Daniel Gallegos, Paul S.Graham, Richard D.Hunt, Jeffrey L . Kalb, David S. Lee, Jacob E. Leemaster, John M. Michel, and Justin L. Tripp; SPACEWIRE IN THE JOINT ARCHITECTURE STANDARD (L)

Frank Bubenhausen, Holger Michel, Harald Michalik, Björn Fiethe, Björn Osterloh, Wayne Sullivan, Alex Wishart, Jørgen Iltad; IMPLEMENTATION OF THE SOCWIRE PROTOCOL (SOCP) WITHIN THE DYNAMIC RECONFIGURABLE PROCESSING MODULE (L)

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### **10.00 – 11.00 Networks and Protocols 3: Session Chair - Hiroki Hihara**

Brian Van Leeuwen, John Eldridge, Jacob Leemaster; SPACEWIRE NETWORK SIMULATION OF SYSTEM TIME PRECISION (L)

Albert Ferrer, Steve Parkes, Alberto G. Villafranca, Martin Suess; HARDWARE IMPLEMENTATION OF AN RMAP NETWORK SCHEDULER (L)

Martin Suess, Albert Ferrer; AVOIDING SPACEWIRE NETWORK CONGESTION (L)

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### **11.30 – 12.50 Networks and Protocols 4: Session Chair – Chris Dailey**

Barry M Cook, C Paul H Walker; LOW-LATENCY PACKET DELIVERY IN SPACEWIRE NETWORKS (L)

Steve Parkes, Martin Suess; VIRTUAL CHANNELS, BROADCAST CHANNELS AND SPACEFIBRE (L)

Steve Belvin; RAPIDIO OVER SPACEWIRE: BLENDING COMPLEMENTARY PROTOCOLS (L)

Glenn P. Rakow, Eric T. Gorman, Alexander B. Kisin; SPACEAGE BUS: PROPOSED ELECTRO-MECHANICAL BUS FOR AVIONICS INTERCONNECTIONS (L)

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**14.20 – 15.50 Poster Presentations: Session Chair – Martin Suess**

Cara Christophe, Eric Doumayrou, Pinsard Frederic; TIME DISTRIBUTION OVER A SPACEWIRE NETWORK FOR THE ARTEMIS SUBMILLIMETRIC INSTRUMENT

Jinqiang Chen, Jian Su, Long Xi, Aihua Qiu, Yuelel Ling, Liang Fang; DESIGN OF FAIR SCHEDULER FOR ON-BOARD SPACEWIRE NETWORK

Sandi Habinc, Marko Isomäki, Jiri Gaisler; GR712RC – DUAL-CORE PROCESSOR WITH SIX SPACEWIRE LINKS – VERIFICATION RESULTS

Marko Isomäki, Sandi Habinc; CASCADING THE 10X SPACEWIRE ROUTER FPGA STANDARD PRODUCT IN A FLIGHT BOARD DESIGN

Paul Jaffe, Eric Rosslund, Eric Bradley, Greg Clifford, Herb Axe; TACSAT-4: SPACEWIRE FOR RESPONSIVE INTEGRATION AND LAUNCH

David Jameux; SPACEWIRE EVOLUTIONS

Satoko Kawakami, Kazuyuki Yamada, and Hiroki Hihara, Masaharu Nomachi, Takahiro Yamada, Motohide Kokubun, and Tadayuki Takahashi; DETERMINISTIC IMPLEMENTATION OF SPACEWIRE ON DATA RECORDER AND PAYLOAD INTERFACE UNITS

Guo Lin, Chen Xiaomin, Cao Song, Sun Huixian; A LOW-POWER SPACEWIRE CODEC IP CORE

Chris McClements, Stephen Mudie, Pete Scott, Stuart Mills, Steve Parkes; THE SPACEWIRE LINK ANALYSER MK2

Minoru Nakamura, Tatsuya Ito, Yasutaka Takeda, Isao Odagi, Ichiro Takahashi, Toshihiro Obata, Ryoichiro Yasumitsu; SPACEWIRE THERMAL INTERFACE NODE FOR SATELLITE THERMAL CONTROL

Vanderlei Cunha Parro, Sergio Ribeiro Augusto, Rafael Corsi Ferrão e Tiago Sanches, Philippe Plasson and Loic Gueguen; CAMERA SIMULATOR FOR PLATO MISSION

David Paterson, Alan Spark, Bruce Guoxia Yu, Steve Parkes; SPACEWIRE REMOTE TERMINAL CONTROLLER DEVELOPMENT SYSTEM

Cao Song, Guo Lin, Wang Rui, Chen Xiaomin, Sun Huixian; THE GENERAL SITUATION OF SPACEWIRE RESEARCH IN CHINA

P. Worsfold, A.Senior; INCORPORATION OF SPACEWIRE WITHIN THE BEPICOLOMBO RIUS

Takahiro Yamada; DEVELOPMENT OF SPACEWIRE HIGHER LAYER PROTOCOLS BASED ON THE CCSDS SOIS ARCHITECTURE

Qiang ZHOU, Yanhua SHI, Huijuan XIN; RELIABILITY MODELLING ON SPACEWIRE NETWORK

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**15.50 – 17.25 Test and Verification 1: Session Chair – David Jameux**

Zhiping SHI, Zhiquan DAI, Yong GUAN, Minhua WU, Shengzhen JIN, Jie ZHANG, Xiaojuan LI; SYSTEMIC AND COMPLETE VERIFICATION OF SPACEWIRE BUS WITH MODEL CHECKING (L)

Damaris L. Guevara, Omar A. Haddad ; USING TVS TO VERIFY SPACEWIRE DESIGNS (L)

Stephen Mudie, Paul E. McKechnie; SPACEWIRE EGSE (L)

Pete Scott, Paul Crawford, Steve Parkes, Jorgen Iltad; TESTING SPACEWIRE SYSTEMS ACROSS THE FULL RANGE OF PROTOCOL LEVELS WITH THE SPACEWIRE PHYSICAL LAYER TESTER (L)

Andreeva S., Koblyakova L., Stepanov V; THE TESTING OF SPACEWIRE NETWORK SWITCHING DEVICES (S)

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## Thursday 10 November

**09.00 – 10.15 Test and Verification 2: Session Chair - Barry Cook**

Shoji Komatsu, Naohisa Anabuki, Hiroshi Tsunemi, Masaharu Nomachi, THE DEVELOPMENT OF THE SPACEWIRE COMMUNICATION TESTER (SPACEWIRE TEST MODULE) (S)

A. Senior, P. Worsfold; ADVANTAGES OF A SPACEWIRE BACKPLANE DURING SPACECRAFT UNIT INTEGRATION AND TEST (S)

Kristoffer Glembo, Marko Isomäki, Sandi Habinc; ETHERNET TO SPACEWIRE BRIDGE - AN EVOLUTION OF SERVICES (S)

Eric Pritchard, Dick Durrant and Alan Fromberg, Jean Francois Dufour; OFF THE SHELF WIRELESS BRIDGES INTERFACING TO SPACEWIRE: POSSIBILITIES, PRACTICALITIES AND OPPORTUNITIES (S)

Xie Weihua, Jing Xiaochuan, Lin Xiaofeng, Chen Xianglong; STOCHASTIC PETRI NETS MODELING AND ANALYSIS OF FAULT TOLERANCE FOR SPACEWIRE BUS (S)

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**10.15 – 10.50 Standardisation:** *Session Chair – Takahiro Yamada*

Clifford E. Kimmerly; DC-BALANCED CHARACTER ENCODING FOR SPACEWIRE (L)

Stuart Mills, Alex Mason, Steve Parkes, Takayuki Yuasa; STANDARDISATION OF SPACEWIRE SOFTWARE APIS (S)

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**11.20 – 12.40 Components 2:** *Session Chair – Masaharu Nomachi*

Jan Andersson, Marko Isomäki, Sandi Habinc, Jiri Gaisler, Luca Fossati, Roland Weigand; NGMP – QUAD-CORE NEXT GENERATION MICROPROCESSOR WITH ON-CHIP SPACEWIRE ROUTER (L)

Marko Isomäki, Sandi Habinc; DEVELOPMENT OF A NOVEL 18X SPACEWIRE ROUTER (L)

Joseph Marshall, Steve Santee, Mary Hanley, Jeff Robertson, Dan Stanley; LEVERAGING SPACEWIRE NETWORK PROTOTYPING TO CREATE FLEXIBLE SPACEWIRE COMPONENTS AND SUPPORT SOFTWARE (L)

Steve Parkes, Chris McClements, Martin Suess; SPACEFIBRE CODEC: USE OF THE TLK2711-SP (L)

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**14.10 – 15.30 Missions and Applications 2:** *Session Chair – Glenn Rakow*

Shahana Aziz Pagen, Chris Dailey; BACKPLANE DESIGN CONSIDERATIONS FOR HIGH SPEED SPACEWIRE NETWORKS (L)

Hiroki Hihara, Toshiaki Ogawa and Kenji Kitade; NEXTAR: SMALL SATELLITE BUS BASED ON SPACEWIRE DETERMINISTIC IMPLEMENTATION (S)

Takayuki Yuasa, Tadayuki Takahashi, Masanobu Ozaki, Motohide Kokubun, Masaharu Nomachi, Hiroki Hihara, Kazuyo Mizushima, Takashi Kominato, Kuniyuki Omagari, Kazunori Masukawa; A DETERMINISTIC SPACEWIRE NETWORK ONBOARD THE ASTRO-H SPACE X-RAY OBSERVATORY (S)

Petr Eremeev, Sergey Kozyrev, Viacheslav Grishin; APPLICATION OF SPACEWIRE TECHNOLOGY IN HYDROACOUSTICS (S)

Nickl Mathias and Jörg Stefan, Bahls Thomas, Nothhelfer Alexander, Strasser Stefan; SPACEWIRE, A BACKBONE FOR HUMANOID ROBOTIC SYSTEMS (S)

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**15:30 Conference close (Steve Parkes)**

