

# The International Space System Engineering Conference

Technologies and methodologies for development of systems, software and hardware components of computer-based data retrieval, processing and exploitation in aerospace, telecommunication and other areas of high reliability and complexity

## **DASIA 2009** **Data Systems In Aerospace**

organised by



## **Programme**

**26<sup>th</sup> – 29<sup>th</sup> May 2009**

**Barceló Eresin Topkapi Hotel  
Istanbul, Turkey**

**In co-ordination with**

**CANADIAN SPACE AGENCY – CNES  
ESA – EUMETSAT**

# Tuesday 26<sup>th</sup> May 2009

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<b>08:30</b>	REGISTRATION
<b>09:30</b>	WELCOME COFFEE
<b>10:00</b>	WELCOME BY CHAIRMAN
<b>10:10</b>	KEYNOTE SPEECH: "LATECOMER ADVANTAGE IN SPACE: A POSSE AD ESSE" BY U.M. LELOGLU, DIRECTOR, TÜBITAK UZAY (SPACE TECHNOLOGIES RESEARCH INSTITUTE)

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## ROOM A

### SESSION 1A ON-BOARD PROCESSORS & EMULATORS CHAIRPERSON: G. MOURY, CNES

<b>10:45</b>	<i>COTS Based Computers for Manned Space Applications</i> M. Gronowski, T. Vogel - Astrium ST, Germany
<b>11:15</b>	<i>LEON4 : Fourth Generation of the LEON Processor</i> M. Sjölander, S. Habinc, J. Gaisler - Aeroflex Gaisler, Sweden
<b>11:45</b>	<i>QERx : A High Performance Emulator for Software Validation and Simulations</i> A. Pidgeon, P. Robinson, S. McClellan - SciSys UK Ltd., UK F. Bellard – FFQTECH, France P. Marques, L. Pureza - University of Coimbra, Portugal F. Torelli - ESA/ESTEC, The Netherlands

### SESSION 2A EFFICIENT PROCESSING WITH LOW POWER & MASS R. WARD, SCISYS LTD.

<b>12:15</b>	<i>Small but perfectly formed; SSTL's ultra light weight computer for planetary missions</i> P. Davies, A. da Silva Curiel, A. Phipps, S. Prasad, Prof. Sir M. Sweeting – SSTL, UK S. Nozette - NASA HQ, USA
<b>13:00</b>	<b>Lunch</b>
<b>14:00</b>	<i>High Speed Broadband Low Power Digital-Analog Converter for Telecommunication Applications</i> H.-V. Heyer - Kayser-Threde GmbH, Germany Dr. G. Grau - advlCo GmbH, Germany L. Hili, P. Piironen - ESA/ESTEC, The Netherlands Dr. H. Gustat, Dr. K. Schrödinger - IHP GmbH, Germany H. Kemper - MASER Engineering B.V., The Netherlands O. Martinsson - RUAG Aerospace Sweden AB, Sweden
<b>14:30</b>	<i>Payloads with Resource-Efficient Integration for Science Missions (PRISM)</i> O. Emam, T. FitzGeorge, A. Whittaker, A. Wishart - Astrium Ltd., UK S.D. Fowell, M. Prochazka - SciSys Ltd., UK R.D. Bentley, R. E. Cole - Mullard Space Science Laboratory, UK P. Brown, C. M. Carr, E. Cupido, T. Oddy - The Blackett Laboratory, UK

### SESSION 3A RTEMS, ITS MAINTENANCE & FOR HRT MULTIPROCESSORS CHAIRPERSON: C. JØRGENSEN, TERMA A/S

<b>15:00</b>	<i>Distributed RTEMS prototyping for hard real-time systems</i> F. Bossard – CNES, France S. Jouanneau – ALTEN, France
<b>15:30</b>	<b>Coffee Break</b>
<b>16:00</b>	<i>RTEMS Centre – Support and Maintenance Centre to RTEMS Operating System</i> H. Silva, A. Constantino, D. Freitas, M. Coutinho, S. Faustino, M. Mota, P. Colaço, J. Sousa, L. Dias, B. Damjanovic - Edisoft S.A., Portugal M. Zulianello - ESA/ESTEC, The Netherlands J. Rufino – FCUL, Portugal

### SESSION 4A DEPENDABLE DISTRIBUTED PROCESSING CHAIRPERSON: C. JØRGENSEN, TERMA A/S

<b>16:30</b>	<i>Network Centric Core Avionics</i> S. Montenegro, E. Haririan – DLR, Germany G. Schoof - IHP-Microelectronics, Germany
<b>17:00</b>	<i>Distributed Processing On-Board X-Sat – A System and Software Perspective</i> P. Chee Wan Teng - DSO National Laboratories, Singapore S. Siok Lin Lim - Nanyang Technological University, Singapore

### SESSION 5A REUSE & BUILDING BLOCKS CHAIRPERSON: L. HALBACH, SPACEBEL SA

<b>17:30</b>	<i>SOFA High Integrity: Our Approach to SAVOIR</i> P. Hnetyнка, T. Bures - Charles University Prague, Czech Republic M. Prochazka, R. Ward - SciSys UK Ltd., UK Z. Hanzálek - Czech Technical University, Czech Republic
<b>18:00</b>	<i>Feature Management Applied to On-Board Software Building Blocks</i> A. Bourdoux, L. Demonceau, P. Parisi - Spacebel S.A., Belgium Q. Boucher, A. Classen - Faculté Universitaire Notre Dame de la Paix, Belgium

### 19:30 BUFFET DINNER AND ENTERTAINMENT HOSTED BY EUROSPACE

## ROOM B

<b>SESSION 1B</b>	<b>ON BOARD SENSOR BUS</b> <b>CHAIRPERSON: P. PLANCKE, ESA/ESTEC</b>
<b>10:45</b>	<i>Harness reduction efforts, transducer bus and TM/TC architecture optimization activities at ESA</i> G. Furano - ESA/ESTEC, The Netherlands
<b>11:15</b>	<i>Sensor Bus Network for Space Application</i> P. Elia, C. Maddaleno - Thales Alenia Space Italia, Italy A. Bardi, M. Porciani - Kayser Italia SRL, Italy G. Furano - ESA/ESTEC, The Netherlands
<b>11:45</b>	<i>On-Board sensor network : A proof of concept aiming at Telecom I/O optimisation</i> S. Gunes-Lasnet, O. Notebaert, O. Vidaud - Astrium Satellites SAS, France G. Furano - ESA/ESTEC, The Netherlands M. Melicher - ACRA Control Ltd., Ireland D. Gleeson - Space Industry Skillnet, Ireland W. O'Connor - Roving Ireland Ltd. - Ireland
<b>SESSION 2B</b>	<b>ON BOARD OPTICAL WIRELESS BUS</b> <b>CHAIRPERSON: J.F. COLDEFY, ASTRUM SATELLITES</b>
<b>12:15</b>	<i>Distributed On-Board Computer based on Optical Wireless CAN bus</i> S. Rodriguez, A. Martin-Ortega, J. Ramón de Mingo, I. Arruego – INTA, Spain
<b>13:00</b>	<b>Lunch</b>
<b>14:00</b>	<i>Technology Demonstrator for Optical Fibre Based TM/TC Architecture</i> B. Hespeler, R. Kurz - Tesat Spacecom GmbH & Co KG, Germany
<b>14:30</b>	<i>Wireless Network Architecture Demonstration: Present Technology and Advanced Concepts</i> I. Arruego, S. Rodríguez, H. Guerrero – INTA, Spain P. Plancke, E. Armandillo - ESA/ESTEC, The Netherlands P. Pelissou - Astrium SAS Satellites, France
<b>SESSION 3B</b>	<b>SPACEWIRE</b> <b>CHAIRPERSON: O. NOTEBAERT, ASTRUM SATELLITES</b>
<b>15:00</b>	<i>A real-time mechanism for SpaceWire</i> T. Ferrandiz, F. Francès – ISAE, France C. Fraboul - ENSEEIHT/IRIT, France X. Olive - Thales Alenia Space, France
<b>15:30</b>	<b>Coffee Break</b>
<b>16:00</b>	<i>Spacewire RMAP: Applications, IP Cores and Test Equipment</i> S. Parkes, C. McClements, M. Dunstan, S. Mills, P. Mendham - University of Dundee, Scotland
<b>SESSION 4B</b>	<b>BUS: CAN, MIL AND I2C</b> <b>CHAIRPERSON: G. MOURY, CNES</b>
<b>16:30</b>	<i>Use of the I2C Bus in Space Applications</i> J. Andersson, S. Habinc, J. Gaisler - Aeroflex Gaisler, Sweden G. Furano - ESA/ESTEC, The Netherlands
<b>17:00</b>	<i>Application of the Milbus extension standard (ECSS-E-ST-50C)</i> O. Notebaert, S. Gunes-Lasnet, J.-D. Shi - Astrium Satellites SAS, France V. Debus - Astrium GmbH, Germany
<b>17:30</b>	<i>CAN Bus on EXOMars</i> F. Tortosa López, G. Furano, A.J. Winton - ESA/ESTEC, The Netherlands M. Montagna, M. Caramia - Thales Alenia Space Italia – Italy B. Dean, M. Bhana - Astrium Satellites Ltd., UK
<b>19:30</b>	<b>BUFFET DINNER AND ENTERTAINMENT HOSTED BY EUROSPACE</b>

**Tuesday to Friday:**  
Tool demonstrations/Vendor exhibition any time

## ROOM A

### SESSION 6A INTERFACE & SERVICE STANDARDS CHAIRPERSON: P. BEERTHUIZEN, DUTCH SPACE

- 09:00** *A Standard for Basic I/O hardware Addressing in C Language – A step for efficient and reusable Building Blocks for Low Level Software*  
B. Auguet - Astrium ST, France
- 09:30** *Towards formal implementation of PUS standard*  
Dr. D. Ilić - Space Systems Finland, Finland
- 10:00** *Implementation and Application of SOIS*  
S.D. Fowell - SciSys UK Ltd., UK  
O. Notebaert - Astrium SAS, France
- 10:30** **Coffee Break**

### SESSION 7A SAFETY & SECURITY FOR AVIONICS & SPACE CHAIRPERSON: J.P. BLANQUART, ASTRIUM SATELLITES

- 11:00** *Safe and Secure Partitioning with Pikeos: Towards integrated Modular Avionics in Space*  
J. Almeida – SYSGO, France  
M. Prochazka - SciSys UK Ltd., UK
- 11:30** *Ensuring Safety and Security for Avionics: a Case Study*  
Y. Laarouchi, Y. Deswarte, D. Powell, J. Arlat - CNRS/Université de Toulouse, France  
E. De Nadai – Airbus, France

### SESSION 8A IMA & TSP DEVELOPMENT PROCESS, TOOLS AND PLATFORMS CHAIRPERSON: P. ARBERET, CNES

- 12:00** *Addressing system reconfiguration and incremental integration within IMA Systems*  
F. Ferrero, A.I. Rodriguez - GMV Aerospace and Defence, Spain
- 13:00** **Lunch**
- 14:00** *XtratuM: and Open Source Hypervisor for TSP Embedded Systems in Aerospace*  
A. Crespo, I. Ripoll, M. Masmano - Universidad Politécnica de Valencia, Spain  
P. Arberet, J.J. Metge – CNES, France
- 14:30** *AIR Technology: a step towards ARINC 653 in space*  
J. Rufino, J. Craveiro – FCUL, Portugal  
T. Schoofs, C. Tatibana - Skysoft Portugal, Portugal  
J. Windsor - ESA/ESTEC, The Netherlands
- 15:00** *Integrated Modular Avionics: The Challenges*  
O. Charrier – WindRiver, France
- 15:30** **Coffee Break**

### PANEL SESSION ARINC 653 TO TSP FRAMEWORK CHAIRPERSON: K. HJORTNAES, ESA/ESTEC

- 16:00** *Chairperson introduction*
- 16:20** *From ARINC653 to Time & Space Partitioning within On Board Software: a practical analysis*  
L. Planche - Astrium Satellites SAS, France  
P. Arberet – CNES, France
- 16:50** *TSP-based generic payload on-board software*  
P. Arberet, J.-J. Metge – CNES, France  
O. Gras - Sogeti HT, France  
A. Crespo - Universidad Politecnica de Valencia, Spain
- 17:20** *An IMA Development Environment*  
T. Schoofs, S. Santos, C. Tatibana, J. Anjos - Skysoft Portugal, Portugal  
J. Rufino - Faculdade de Ciências da Universidades de Lisboa, Portugal  
J. Windsor - ESA/ESTEC, The Netherlands

## ROOM B

### SESSION 5B GROUND SYSTEM MCC CHAIRPERSON: B. MULLET, EUMETSAT

- 09:00** *Expanding ESOC's Science Family of Mission Control Systems*  
A. Kowalczyk, A. Ercolani, M. Spada - ESA/ESOC, Germany
- 09:30** *Synergy in monitoring & control systems for spacecraft and ground stations*  
C. Lannes - ESA/ESOC, Germany
- 10:00** *The Development of the Pleiades Command Control Centre – First full SLE Command Control Centre at CNES*  
S. Teodomante, M.-L. Anadon, Y. Labrune, H. Pasquier – CNES, France  
D. Treluyer – CS Communication & Systèmes, France
- 10:30** **Coffee Break**

### SESSION 6B GROUND SYSTEM EO & DATA CENTERS CHAIRPERSON: H. PASQUIER, CNES

- 11:00** *Yggdrasyll, a concept for a Virtual Data Centre*  
H. de Wolf, P. Beerthuisen, C. Plevier - Dutch Space B.V., The Netherlands
- 11:30** *A Generic Ground Framework for Image Expertise Centres and Small-sized Production Centres*  
A. Sellé – CNES, France

### SESSION 7B MISSION PLANNING CHAIRPERSON: H. PASQUIER, CNES

- 12:00** *A Secure and Standardized Integration Platform for Joint Mission Planning using a Data Oriented Architecture*  
S. Oberoi – RTI, USA
- 13:00** **Lunch**
- 14:00** *AI Techniques for Space: The APSI approach*  
R. Steel, M. Niézette - VEGA Deutschland GmbH & Co. KG, Germany  
A. Cesta - ISTC-CNR, Italy  
G. Verfaillie – ONERA, France  
M. Lavagna - Politecnico di Milano, Italy  
A. Donati - ESA/ESOC, Germany

### SESSION 8B GROUND SYSTEM SIMULATORS CHAIRPERSON: P. BEERTHUIZEN, DUTCH SPACE

- 14:30** *Galileo Ground Mission Segment: End to End Simulator - First experimentations, Lessons Learned and Perspectives*  
A. Boyer, B. Amiel, F. Bauer - Thales Alenia Space, France  
R. Franco, A. Ballereau - ESA/ESTEC, The Netherlands
- 15:00** *Ground Station M&C Simulator (MAX) – Experience Using SMP2 and SIMSAT for a Non-Typical Use Case*  
C. Lannes - ESA/ESOC, Germany  
C. Laroque, M. Götzelmann – VEGA, Germany
- 15:30** **Coffee Break**

### PANEL SESSION (ROOM A) ARINC 653 TO TSP FRAMEWORK CHAIRPERSON: K. HJORTNAES, ESA/ESTEC

## ROOM A

<b>SESSION 9A</b>	<b>TIME &amp; DATA CONSISTENCY IN DISTR. SPACE PROCESSING</b> <b>CHAIRPERSON: B. MULLET, EUMETSAT</b>
09:00	<i>Data Consistency in a Component Based Space System</i> N. Pontisso, P. Quéinnec, G. Padiou - Université de Toulouse, France G. Veran - Thales Alenia Space, France
09:30	<i>Using Separability to Enable Time-Consistent Distributed Space Simulation</i> P. Mauran, G. Padiou, P. Quéinnec - Université de Toulouse/ENSEEIH, France B. Delatte – CNES, France
10:00	<i>Towards Reconfigurable, Separable and Hard Real-Time Hybrid Simulation and Test Systems</i> F. Quartier - Spacebel S.A., Belgium B. Delatte – CNES, France M. Joubert - Spacebel SAS, France
10:30	<b>Coffee Break</b>
11:00	<i>Simulating SpaceWire-Based Reliable and Timely protocols</i> D. Jameux - ESA/ESTEC, The Netherlands
<b>SESSION 10A</b>	<b>SOFTWARE FAULT &amp; BOUNDARY DETECTION, DYNAMIC, STATIC &amp; ABSTRACT INTERPRETATION ANALYSIS</b> <b>P. LACAN, ASTRION SPACE TRANSPORTATION</b>
11:30	<i>Space Software validation using Abstract Interpretation</i> E. Conquet - ESA/ESTEC, The Netherlands P. Cousot, R. Cousot – ENS, France E. Goubault, K. Ghorbal, S. Putot - CEA-LIST, France D. Lesens - Astrium SAS, France M. Turin - GTI6, France
12:00	<i>Static Analysis tools, a practical approach for safety-critical software verification</i> R. Lopes, D. Vicente, N. Silva - Critical Software SA, Portugal
13:00	<b>Lunch</b>
14:00	<i>Extracting Loop Bounds for WCET Analysis using the Instrumentation Point Graph</i> A. Betts, G. Bernat - Rapita Systems Ltd., UK
14:30	<i>Fault Identification Strategies</i> R. Gerlich, R. Gerlich - BSSE System and Software Engineering, Germany C. Dietrich – DLR, Germany
<b>SESSION 11A</b>	<b>MODELLING &amp; FORMAL V&amp;V OF REQUIREMENTS</b> <b>P. ARBERET, CNES</b>
15:00	<i>Formal Verification at System Level</i> S. Mazzini, S. Puri – INTECS, Italy F. Mari, I. Melatti, E. Tronci - La Sapienza University of Roma, Italy
15:30	<b>Coffee Break</b>
16:00	<i>Use of models to verify and validate requirements for critical software</i> K. Kvinnesland, Ø. Torget - Det Norske Veritas AS, Norway
<b>SESSION 12A</b>	<b>MODEL DRIVEN SOFTWARE DESIGN &amp; CODE EXTRACTION</b> <b>R. GERLICH, BSSE SYSTEM AND SOFTWARE ENGINEERING</b>
16:30	<i>Beyond ASSERT: Increasing the Effectiveness of Model-Driven Engineering</i> M. Bordin – AdaCore, France M. Panunzio, T. Vardanega - University of Padua, Italy
17:00	<i>Autocoded stellar dynamic estimation filter for DEMETER</i> B. Pontet, C. Pittet – CNES, France R. Penet - CS Communication & Systèmes, France
17:30	<i>Data Modelling Technologies for Dependable System-Software Engineering</i> J.P. Blanquart - Astrium Satellites SAS, France G. Bulsa, M. Perrotin - ESA/ESTEC, The Netherlands D. Lesens - Astrium ST SAS, France G. Mamais, M. Perdikeas, T. Tsiodras - Semantix Information Technologies, Greece

## ROOM B

<b>SESSION 9B</b>	<b>EGSE &amp; OPERATIONAL SIMULATORS</b> <b>CHAIRPERSON: F. HASS, DANSENIOR</b>
<b>09:00</b>	<i>Avoiding Obsolescence Pitfalls in Long- Lived Operational Simulators</i> M. Sarkarati, M. Spada, M. Jones - ESA/ESOC, Germany
<b>09:30</b>	<i>Test Console &amp; CMDVS</i> A. Armitage - Terma BV, The Netherlands
<b>SESSION 10B</b>	<b>ON BOARD SIMULATORS</b> <b>CHAIRPERSON: L. HALBACH, SPACEBEL SA</b>
<b>10:00</b>	<i>System Engineering Infrastructure evolution Galileo IOV and the steps beyond</i> J. Eickhoff, H.-J. Herpel, T. Steinle, R. Birn, W.-D. Steiner, H. Eisenmann, T. Ludwig - Astrium GmbH, Germany
<b>10:30</b>	<b>Coffee Break</b>
<b>11:00</b>	<i>New Simulation Concepts Applied to Formation Flying Testbed Design</i> R. Atori, D. Baudoux, D. Torette – Spacebel, Belgium K. Goode - SciSys UK Ltd., UK L. Tarabini - GMV Aerospace and Defence S.A., Spain R. Franco - ESA/ESTEC, The Netherlands
<b>11:30</b>	<i>TROPOMI System Engineering support using end-to-end simulation</i> J. de Vries, R. Voors, P. Beerthuizen, C. Plevier - Dutch Space B.V., The Netherlands
<b>SESSION 11B</b>	<b>ON BOARD APPLICATIONS</b> <b>CHAIRPERSON: A. MARTELLI, THALES ALENIA SPACE ITALIA</b>
<b>12:00</b>	<i>Pharao Atomic Clock Embedded Software</i> I. Zenone – CNES, France T. Nauleau - CS Communication & Systèmes, France
<b>13:00</b>	<b>Lunch</b>
<b>14:00</b>	<i>The Meteorological Station for the NASA's 2011 Mars Science Laboratory Rover</i> J. Moreno, A. Peña, J. Serrano – CRISA, Spain J. Gómez-Elvira - CSIC-INTA, Spain
<b>14:30</b>	<i>Astrosat 250 Core Avionics Hardware in the loop Demonstration using Fast prototyping Technologies</i> P. Diris, P. Baradat, C. Cazenave, J. Eguillon, Y. Laprade, P.-Y. Farges - Astrium Satellites SAS, France
<b>SESSION 12B</b>	<b>GNSS</b> <b>CHAIRPERSON: H.V. HEYER, KAYSER-THREDE</b>
<b>15:00</b>	<i>GNSS software receiver for the MAGIA (Missione Altimetrica Geofisica Geochimica lunAre) mission</i> G. Pirazzi, N. De Quattro, C. Dionisio - Intecs SpA, Italy
<b>15:30</b>	<b>Coffee Break</b>
<b>16:00</b>	<i>Vision Based Approach for Entry Descent Landing</i> P. Lanza, F. Cometto, A. Martelli - Thales Alenia Space Italia, Italy
<b>16:30</b>	<i>EXOMARS Descent Module GNC SW Breadboard and its usage in the avionics validation</i> M. Montagna, B. Acquaroli, S. de Sanctis - Thales Alenia Space Italia, Italy L. Brunengo - Società Italiana Avionica, Italy G. Garcia - Thales Alenia Space France, France
<b>17:00</b>	<i>Proximity-1: Simulating the CCSDS Proximity-1 protocol for ExoMars</i> R. Blommestijn, J. Lange, C. Taylor - ESA/ESTEC, The Netherlands
<b>SESSION 13B</b>	<b>ECSS &amp; CMMI</b> <b>G. MACCHIA, SPACE SOFTWARE ITALIA</b>
<b>17:30</b>	<i>What can you gain from CMMI appraisal? A way used through EADS divisions to improve processes, organisation, tools</i> G. Rebiere - Astrium ST, France

## ROOM A

<b>SESSION 13A</b>	<b>MODEL CHECKING &amp; MODEL BASED TEST CASE GENERATION</b> <b>A. MARTELLI, THALES ALENIA SPACE ITALIA</b>
<b>09:00</b>	<i>Practical results from the Application of Model Checking and Test Generation from UML/SysML models of on-board Space Applications</i> J.M. Faria, S. Mahomad, N. Silva - Critical Software S.A., Portugal
<b>09:30</b>	<i>UML for Validation: Experimenting automatic test generation for flight software validation</i> P. Hyounet - Astrium Satellites SAS, France J. Pouly – CNES, France
<b>SESSION 14A</b>	<b>CRITICAL S/W DEVELOPMENT: OPEN TOOLS, JAVA RTS, DETAILED DESIGN DOCUMENTATION</b> <b>M. RICHARD-FOY, AONIX</b>
<b>10:00</b>	<i>Towards Open-DO: Methodologies and Open Tools for Critical Systems</i> J.F. Ruiz, M. Bordin, C. Comar – AdaCore, France
<b>10:30</b>	<b>Coffee Break</b>
<b>11:00</b>	<i>Real-Time Java in Space: Potential Benefits and Open Challenges</i> T. Kalibera, F. Pizlo, J. Vitek - Purdue University, USA M. Prochazka - SciSys UK Ltd., UK M. Zulianello - ESA/ESTEC, The Netherlands M. Decky - Charles University, Czech Republic
<b>11:30</b>	<i>CodeRocket: Accelerating the Software Development Process</i> S. Parkes, C. Ramsay - University of Dundee, UK
<b>SESSION 15A</b>	<b>DEPENDABILITY, FDIR, SECURITY &amp; RELIABILITY IN SPACE</b> <b>P. LACAN, ASTRUM SPACE TRANSPORTATION</b>
<b>12:00</b>	<i>RODOS – Real Time Kernel Design for Dependability</i> Dr. S. Montenegro, F. Dannemann – DLR, Germany
<b>13:00</b>	<b>Lunch</b>
<b>14:00</b>	<i>Toward FDIR modelling in satellite design</i> X. Olive, B. Alison, G. Garcia - Thales Alenia Space, France M.C. Charneau, R. Soumagne – CNES, France
<b>14:30</b>	<i>Security needs and promising implementations in space systems</i> G. Herrgott, J.-P. Blanquart - Astrium Satellites SAS, France
<b>15:00</b>	<i>Prototyping of Processor Warm redundancy in Critical Phases</i> O. Rigaud, J. Villa, G. Garcia, B. Alison, H. Renault - Thales Alenia Space, France
<b>15:30</b>	<b>CONCLUSIONS BY THE CONFERENCE CHAIRMAN – END OF THE CONFERENCE</b>

## ROOM B

<b>SESSION 13B (CONTINUED)</b>	<b>ECSS &amp; CMMI G. MACCHIA, SPACE SOFTWARE ITALIA</b>
<b>09:00</b>	<i>CMMI-SW level 3 achievement and deployment in a trans-national ECSS SW development context</i> J.-P. Blanquart, C. Pinaud - Astrium Satellites, France
<b>09:30</b>	<i>CMMI: An Indispensable Lever for Process Maturity and Performance of Space Sector</i> J.-C. Fromenteau - Thales Alenia Space, France
<b>10:00</b>	<i>Evolving the ECSS standards and their use: Experience based on Industrial Case Studies</i> R. Feldt, E. Ahmad, B. Raza - Blekinge Institute of Technology, Sweden E. Hult - RUAG Aerospace Sweden AB, Sweden T. Nordebäck – SSC, Sweden
<b>10:30</b>	<b>Coffee Break</b>
<b>SESSION 14B</b>	<b>FILE TRANSFER AND MESSAGING G. MACCHIA, SPACE SOFTWARE ITALIA</b>
<b>11:00</b>	<i>Design and Implementation of CCSDS File Delivery protocol for ESA Ground Segment</i> F. Flentge - ESA/ESOC, Germany M. Jordan - SciSys UK, UK
<b>11:30</b>	<i>Proof of Concept of the Core Parameter Service using the CCSDS SM&amp;C MAL Service</i> E. Poupart, S. Steere – CNES, France F. Coccoluto - CS Communication & Systèmes, France D. Feliot – Scalagent, France
<b>12:00</b>	<i>CCSDS/ECSS Telemetry and Telecommand for RASTA</i> S. Habinc, K. Glembo, D. Hellström - Aeroflex Gaisler, Sweden G. Furano – ESA, The Netherlands
<b>13:00</b>	<b>Lunch</b>
<b>SESSION 15B</b>	<b>ON BOARD CONTROL PROCEDURES R. WARD, SciSYS LTD.</b>
<b>14:00</b>	<i>Development and Validation fo the On-Board Control Procedures Subsystem for the Herschel and Planck Satellites</i> M. Ferraguto, M. Paakko, V. Sipinen, M.-L. Pelttari - Space Systems Finland Ltd., Finland T. Wittrock, M. Barrenscheen - IDA, Technical University of Braunschweig, Germany
<b>14:30</b>	<i>Implementation of a new TC Authentication Unit for Space Systems</i> J. Johansson, K. Engström, T. Hult - RUAG Aerospace Sweden, Sweden
<b>15:00</b>	<i>Prototyping of a Virtual Machine for OBCP</i> G. Veran, G. Garcia - Thales Alenia Space, France P. Arberet – CNES, France
<b>15:30</b>	<b>CONCLUSIONS - IN ROOM A - AND END OF THE CONFERENCE</b>

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## GENERAL INFORMATION

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### LOCATION

Barceló Eresin Topkapi Hotel  
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34104 Istanbul, Turkey  
Tel. +90 212 631 12 12 - Fax. +90 212 631 37 02  
www.barceloeresintopkapi.com

### REGISTRATION

Advance: Please complete the enclosed Conference Registration Form and send it to Eurospace before **12 May 2009**.  
On-site: The Conference Secretariat will open on Tuesday, 26 May at 8:30 for late registration, documentation and information, and will remain in operation throughout the Conference.

### CONFERENCE FEES

A Conference fee of 900€ is requested from all participants, including speakers and chairmen. This fee will include lunches, coffee breaks, reception and proceedings.

Fee for vendor and tool exhibitions:

9 m<sup>2</sup>: 3400€, incl. one attendance fee for the Conference  
12 m<sup>2</sup>: 4100€, incl. one attendance fee for the Conference  
15 m<sup>2</sup>: 5000€, incl. one attendance fee for the Conference.

### PAYMENT

#### ***Before the Conference:***

- By **cheque** in Euro to the order of EUROSPACE payable in a French Bank to be sent to:  
EUROSPACE – 15/17, avenue de Ségur – 75007 PARIS, France.
- By **bank transfer** in Euro to:  
EUROSPACE – IBAN: FR76 3006 6100 9100 0103 6680 245 – B.I.C: CMCIFRPP  
C.I.C. Paris – Agence Bosquet – 16 ter avenue Bosquet – F-75007 PARIS.

<b>Charges on bank orders shall be borne by the sender.</b>
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***At the Conference:*** by cash in Euro only.

### CANCELLATIONS

Refunds of 50% will be made if a written request is received **before 18 May 2009**.  
No refunds will be made for cancellations received after this date, but substitutions are possible.

## HOTEL RESERVATIONS

A block reservation has been made at special Conference rates at the Barceló Eresin Topkapi Hotel.

It is recommended to reserve hotel accommodation very rapidly and at the latest before **17 April 2009** sending the attached Room Reservation Form directly to the Hotel.

## LANGUAGE

English will be the working language of the Conference. Each presentation will be followed by a 10 mn discussion.

## PRESENTATION FACILITIES

Video projectors are available in each room. Any other presentation facility (Video Cassette Recorder/Player) can also be supplied by applying to the Conference Manager before 18 May 2009.

## TRAVEL AND BANK FACILITIES

Travel and exchange arrangements can be made by the Concierge of the Hotel.

## PROCEEDINGS

The Proceedings will be published after the Conference on a CD-ROM containing the PDF files of final papers.

Authors are requested to deliver their final paper by ftp to ESTEC (following the instructions already provided to them) **by 30<sup>th</sup> May 2009 at the latest**, if they are to be included in the CD.

### **Editor of the Proceedings:**

Ms. Leny Ouwehand

ESA Publications Division

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Tel.: +31 71 565 4971 – Fax: +31 71 565 5433 – e-mail: leny.ouwehand@esa.int

## TOOL DEMONSTRATIONS / VENDOR PRESENTATION

A special show room next to the Conference room is allocated to present vendor profiles and tools. This room can be visited at any time during the Conference. In particular, coffee breaks will take place there and time slots in the flow of presentations are allocated as well as allocated before lunch as well as late in the afternoon. Tool presentations can be organised in the Conference room as well during these special periods. The preliminary list of exhibitors is as follows:

4LINKS

ADACORE

AEROFLEX GAISLER

SYSGO

## CHAIRMAN AND PROGRAMME COMMITTEE

Chairman: F. Hass, Dansenior – Head of the Eurospace S/W Engineering Panel

P. Arberet, CNES  
P. Armbruster, ESA/ESTEC  
C. Brunet, Canadian Space Agency  
K. Hjortnaes, ESA/ESTEC  
G. Moury, CNES  
B. Mullet, Eumetsat  
H. Pasquier, CNES  
P. Plancke, ESA/ESTEC

W. Busch, Astrium Space Transportation GmbH  
A. Canals, CS Communication & Systèmes, France  
A. Christen, Astrium Satellites GmbH  
J.F. Coldefy, Astrium Satellites  
P. Davies, Surrey Satellite Technology Ltd.  
C. Dionisio, Intecs  
G. Estaves, Thales Alenia Space  
R. Gerlich, BSSE System and Software Engineering  
C. Guilly, Eurospace  
L. Halbach, Spacebel SA  
H.V. Heyer, Kayser-Threde  
C. Jørgensen, Terma A/S  
P. Lacan, Astrium Space Transportation  
G. Lautenschläger, Astrium Satellites GmbH  
C. Lemerrier, Astrium Satellites  
G. Macchia, Space Software Italia  
A. Martelli, Thales Alenia Space Italia  
J.C. Nodet, Thales Alenia Space  
R. Plet, Eurospace  
M. Richard-Foy, Aonix  
A. Rossignol, Astrium Satellites  
M. Symonds, LogicaCMG  
R. Szczepaniak, Cortim  
R. Ward, SciSys Ltd.

## ORGANISING COMMITTEE

### Conference Manager:

Ms. Rosy PLET, Public Relations  
EUROSPACE  
15-17, avenue de Ségur - 75007 PARIS, France  
Tel.: +33 (0)1 44 42 00 70 / 73 – Fax: +33 (0)1 44 42 00 79  
e-mail: [rosy.plet@eurospace.org](mailto:rosy.plet@eurospace.org)

### Secretariat:

Ms. Claire GUILLY  
EUROSPACE (see address above)  
Tel.: +33 (0)1 44 42 00 70 – Fax: +33 (0)1 44 42 00 79  
e-mail: [claire.guilly@eurospace.org](mailto:claire.guilly@eurospace.org)

### Presentations and Panels:

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