



# AMICSA & DSP 2016

12th - 16th of June 2016  
Gothenburg, Sweden  
Radisson Blu Scandinavia Hotel





## ESA's DSP Day: 3<sup>rd</sup> ESA workshop on Digital Signal Processing for Space Applications, 15<sup>th</sup> - 16<sup>th</sup> June 2016

Organized this year in conjunction with AMICSA, provides an overview on relevant development roadmaps, updates on Digital Signal Processing technology for space applications, and the results of contractual activities for the development of DSP rad-hard components, related equipment, IP cores, and software.

### Sessions

- #1 Rad-hard DSP Chips
  - #2 Test, Verification & Qualification of DSP Chips
  - #3 COTS based DSP Systems and Boards
  - #4 DSP Day Reception & Poster session
  - #5 DSP Software and Applications
  - #6 IP Cores, FPGAs, and their Synergies with DSPs
- DSP Day Round Table Discussion – DSP and FPGA

**NEW:** previous events (2012, 2014) were held as “Final Presentation Days” at ESTEC, NL. This year: workshop character, open for non-ESA activities, conjunction with AMICSA, papers / posters / proceedings to be made available

# AMICSA & DSP 2016



This event is generously supported by our Sponsors ....

**COBHAM**

 **AIRBUS**  
DEFENCE & SPACE

 **microSS** components  
transforming speciality electronics

 **TESAT**  
SPACECOM  
PIONEERING WITH PASSION

 **imec**

  
life.augmented

**Atmel**

 **RECORE**

 **ThalesAlenia**  
Space

Together  
ahead. **RUAG**

 **ICsense**  
THE IC DESIGN COMPANY

**RAMONchips** 

 **OHB**

 **SAPHYRION**  
communication technologies

 **ISD S.A.**  
Integrated Systems Development

# AMICSA & DSP 2016



.... and enriched by our Exhibitors !

**Atmel**

**e2v** Bringing life  
to technology

 **Microsemi**

Thales Alenia Space España  
**ThalesAlenia**  
Space  
A Thales / Finmeccanica Company

**COBHAM**

Cobham Gaisler AB

**ITUBS**  
Innovationsgesellschaft  
Technische Universität  
Braunschweig mbH

 **RECORE**

**THALES**

**COBHAM**

Cobham RAD Europe

 **micross** components  
transforming specialty electronics

 **STAR-Dundee**





## AMICSA & DSP Day 2016 - organising committee

- Chairs
  - **Boris Glass**, ESA, The Netherlands
  - Roland Trautner, ESA, The Netherlands
  - **Sandi Habinc**, Cobham Gaisler, Sweden
- Members
  - **Teresa Farris**, Cobham, USA
  - **Mia Johansson**, Cobham Gaisler, Sweden
- Great additional supporters from Cobham, ESA, Industry: **THANK YOU !**

Presentations, papers, proceedings: soon at <http://amicsa.esa.int/2016>



## A few points on Safety / Logistics / Procedures

- Emergency exits at the back of the auditorium
- Restrooms outside behind registration desk
- WiFi – use Radisson free WiFi
- Mobiles – please turn off – pay respect to the speakers
- Laptops – avoid if you can

## And

- Speakers who have not yet provided the latest version of CV or presentation via email, provide asap to R. Trautner / B. Glass !



## DSP Day 2016 – Programme Day 1 / intro, KN, session 1

### **ESA DSP Day 2016 - Introduction - Radisson Blu Scandinavia Hotel (14:00-14:15)**

- Conveners: Dr. Trautner, Roland

| time  | [id] title                           | presenter            |
|-------|--------------------------------------|----------------------|
| 14:00 | [51] ESA DSP Day 2016 - Introduction | Dr. TRAUTNER, Roland |

### **Trends in space based Digital Signal Processing: Keynote Speech - The Challenges of Digital Signal Processing in Space - Radisson Blu Scandinavia Hotel (14:15-14:45)**

- Conveners: Mr. NOTEBAERT, Olivier

### **Session 1: Rad-Hard DSP Chips - Radisson Blu Scandinavia Hotel (14:45-15:45)**

- Conveners: Mr. Habinc, Sandi

| time  | [id] title                                                               | presenter          |
|-------|--------------------------------------------------------------------------|--------------------|
| 14:45 | [35] Scalable Sensor Data Processor: Architecture and Development Status | Mr. PINTO, Ricardo |
| 15:15 | [40] RC64: High Performance Rad-Hard Manycore DSP                        | Prof. GINOSAR, Ran |



## DSP Day 2016 – Programme Day 1 / sessions 2 & 3

### **Session 2: Test, Verification and Qualification of DSP Chips - Radisson Blu Scandinavia**

**Hotel (16:00-17:00)**

- Conveners: Mr. Glass, Boris

| time  | [id] title                                                                  | presenter              |
|-------|-----------------------------------------------------------------------------|------------------------|
| 16:00 | [44] ESCC Qualification of Space Components - Schemes and New Opportunities | Mr. MARTINEZ, Fernando |
| 16:30 | [37] Scalable Sensor Data Processor: Testing and Validation                 | Mr. PINTO, Ricardo     |

### **Session 3: COTS based DSP Systems and Boards - Radisson Blu Scandinavia Hotel**

**(17:00-18:00)**

- Conveners: Dr. Trautner, Roland

| time  | [id] title                                                                  | presenter              |
|-------|-----------------------------------------------------------------------------|------------------------|
| 17:00 | [25] High Performance COTS based Computer for Regenerative Telecom Payloads | Mr. NOTEBAERT, Olivier |
| 17:30 | [45] SpaceWire and SpaceFibre Interconnect for High Performance DSPs        | Prof. PARKES, Steve    |





## DSP Day 2016 – Programme Day 1 / wrap-up & posters

**ESA DSP Day - Day 1 Oral Sessions Wrap-up and Poster Session Introduction / Day 2 Logistics - (18:00-18:15)**

**Session 4: DSP Day Reception and Poster Session - (18:15-19:30)**

| time  | [id] title                                                                                  | presenter                                     |
|-------|---------------------------------------------------------------------------------------------|-----------------------------------------------|
| 18:15 | [7] Characterization and qualification of microcontrollers and DSPs in extreme temperatures | Mr. DOZOLME, Flavien                          |
| 18:15 | [24] Open-Source Instrument Flight Software for CHEOPS                                      | Dr. OTTENSAMER, Roland                        |
| 18:15 | [17] Radiation Intelligent Memory Controller IP Core                                        | Mr. WANG, Pierre-Xiao<br>Mr. SELLIER, Charles |
| 18:15 | [42] DVB-S2 Software Defined Radio Modem on the RC64 Manycore DSP                           | Prof. GINOSAR, Ran                            |



## Keynote Speech

# The Challenges of Digital Signal Processing in Space

**Mr. Olivier Notebaert, Airbus F**

# DSP Day 1 – Session 1: Rad-hard DSP Chips





**DSP Day 1**

*Coffee Break*

**15:45 to 16:00**



**DSP Day 1 – Session 2: Test, Verification &  
Qualification of DSP Chips**

**DSP Day 1 – Session 3: COTS based DSP  
Systems and Boards**





## DSP Day 1

## *Wrap-Up*



# **DSP Day Welcome Reception & Poster Session**

The Welcome Reception will be held  
in the conference area foyer

Posters will be on display starting NOW in adjacent room

**18:15 to 19:30**

Thursday sessions start at 9:00, this room !



## Posters & Authors

**Characterization and qualification of uC and DSPs in extreme temperatures**

Mr. Flavien DOZOLME

**Radiation Intelligent Memory Controller IP Core**

Mr. Pierre-Xiao WANG, Mr. Charles SELLIER

**Open-Source Instrument Flight Software for CHEOPS**

Mr. Roland Ottensamer, Mr. Armin Luntzer

**DVB-S2 Software Defined Radio Modem on the RC64 Manycore DSP**

Mr. Ran Ginosar

Posters will be on display starting NOW in adjacent room