



**Organized by:** CNES, ESA and ATMEL  
**Date:** 31st March 2011  
**Where:** IAS (Institut Aeronautique et Spatial)  
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**Fee:** No fee is charged

**Please send a confirmation email to the contact persons.**

## **Atmel FPGA User Group 4th Workshop**

AT40K  
ATF280                    MCM AT697+ATF280  
ATFS450                 MCM 2x(ATF280+AT69170)

ATMEL has proven the principle of the Radiation Hardened By Design (RHBD) FPGA after its first experience on the AT40KEL device with the support of European Space Agency and CNES. Through the use of a RHBD FPGA, users do not have to take into account any difficult SEU induced error mitigation techniques. By designing its FPGA as a commercial FPGA, users will get a radiation hardened device without any lengthy qualification or final processing and verification at the end. TID (Total Ionizing Dose) and SEE (Single Event Effects) are guaranteed by design.

ATMEL is currently introducing its 280 Kgates ATF280F device and is designing Multi Chip Modules (MCMs) and a new 450 Kgates ATFS450 FPGA on a 150nm SOI (Silicon-On-Insulator) process.

American FPGA competitors have the ability to support their software development on a large worldwide consumer basis, however, ATMEL space FPGAs have more difficulties in reaching the same levels of quality and ease of use. To improve the offering and to enhance the Space Designer software tools, CNES has launched an ATMEL FPGA User Group whose main objectives are to collect all improvements requests, define priorities and exchange user experiences. Space Designer includes Precision synthesis from Mentor and IDS homemade tools. Mentor and Atmel have signed a 3 years agreement to raise the tools to a reasonable level and ensure that new features will be available in the ATMEL offer.

The FPGA User's Group Web is based on a public website where the relevant information and files related to ATMEL FPGA families can be found. In addition to such information already available through the normal channels (ATMEL main website, protected site, CD-ROMs...), the User Group web will also include a Forum where users can post questions and answers. The forum will shortly be open to all users.

## **Agenda**

### **Introduction**

09:00 Introduction by CNES, ESA and ATMEL

### **Technical Presentations : (25mn pres. + 5mn questions)**

09:15 ATMEL status, radiation results, Bernard Bancelin

09:45 ATMEL User Group presentation, Giorgio Macor

10:15 IAS Orsay (Institut d'Astrophysique Spatiale) experience: Bepi-Colombo Main Electronic (ME) equipment, Vincent Carlier

10:45 CNES experience: ATF280 evaluation with different designs, Laurent Perraud

### **11:15 Break**

11:30 CNES experience: In-flight reconfiguration using ATF280 FPGA (based on Astrium study), Jean Bertrand

12:00 ESA experience: Design-dependant reliability tools and IDS tools improvement study, internal work of CAN IPs with the ATF280, David Merodio

12:30 TAS Toulouse (Thales Alenia Space) experience: ATF280 evaluation with different designs and different versions of the tools, Grégory Grimonet

### **13:00 Lunch**

14:00 MENTOR: Status on Precision, Olivier Takeznount

14:30 ATMEL: Space FPGA designer status, Giorgio Macor, Didier Campos

15:00 ATMEL: FAQ, support status, Giorgio Macor, Didier Campos

15:30 ATMEL / ESA: IP offer, ESA, PSI, SITAEL, ATMEL

16:00 ATMEL: Review of users priorities on IDS and Mentor development, new improvements coming in the next coming months, Giorgio Macor, Didier Campos

16:30 Back room Workshops

- IDS (how to use IDS)
- User Group (Web demo)
- Evaluation Kit demo

### **18:00 Close**