



Reporting March-Oct 2017

Bucarest Meeting

Etienne SICARD

Professor

30 Oct. 2017



1. Who was involved

| INSA days 2017 | Manager | Researcher | Technicien | Admin | Total - As financed |
|-------------------------|----------|------------|------------|-----------|---------------------|
| Etienne SICARD | 5 | 48 | | | 53 |
| Sonia BEN DHIA | | 10 | | | 10 |
| Alexandre BOYER | | 28 | | | 28 |
| Virginie MIQUEL | | | | 10 | 10 |
| Thierry GAFFIER | | | | 19 | 19 |
| Alain BERARD | | | 10 | | 10 |
| David BARITAUD | | | 10 | | 10 |
| Frédéric SOULIER | | | 25 | | 25 |
| Total | 5 | 86 | 45 | 29 | 165 |



Alexandre BOYER
Senior Lecturer



Etienne SICARD
Professor/Manager



Sonia BEN DHIA
Professor



Thierry GAFFIER
Secretary

Frédéric SOULIER
Computer Eng.



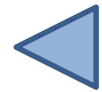
Alain BERARD
E-Learning Eng.

Virginie MIQUEL
Finances



2. .. To do what?

| Work Package | Days | Description |
|--------------|------|--|
| WP1 | 25 | Project management |
| WP2 | 22 | Need analysis |
| WP3 | 24 | Specification of the Cloud system |
| WP4 | 0 | Development of job-specific training modules |
| WP5 | 131 | Development of the mClouds system |
| WP6 | 54 | Pilot test |
| WP7 | 0 | Quality assurance |
| WP8 | 31 | Evaluation |
| WP9 | 26 | Dissemination |
| WP10 | 141 | Exploitation |

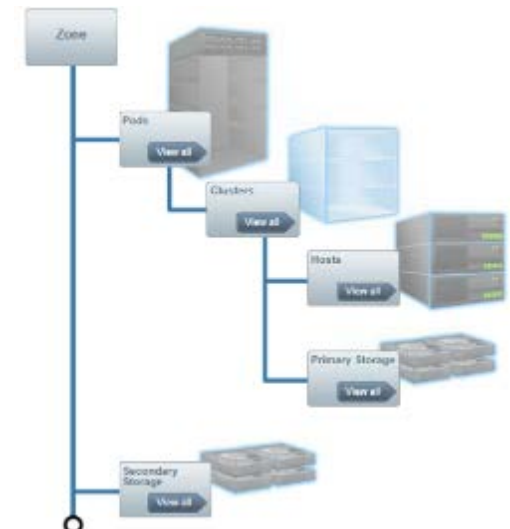
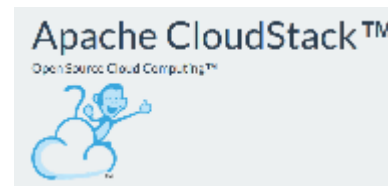




3. What was done (1/4)

- **WP3: Development of the mCloud system**

- Dell M520 server installed;
- FortiGate 1200D installed;
- NFS Storage 500 Gb installed.
- Cloud requirements completed
- Training of INSA Computer services and GEI colleagues to CloudStack
- Contact with partners Torino, e-Works, UNED to get CloudStack experience & best practice
- Contact: Frederic SOULIER





3. What was done (2/4)

- **WP5 : Development of the mCloud system**

- Reuse MECA web page template
- Build nano-CMOS course for mCloud
- Build EMC of Ics course for mCloud
- Update IC-EMC for mCloud
- Contact: Etienne SICARD

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Micro Electronics Cloud Alliance

Nano-CMOS cell design with Microwind

Course contents

Welcome to the e-Learning course focused on nano-CMOS cell design using Microwind, an educational tool for design, 2D and 3D view of the process, as well as 3D logic simulation. The course is written in three main parts: design, simulation, and the global technology roadmap, with specific focus on voltage, power, manufacturability, CMOS design and thermal design. The Microwind tool and its lambda based design is introduced. The ASIC device is automatically analyzed, with focus on switching performance and options. The 22nm



e-Learning Course

- Slides Part 1: Generalities
- Slides Part 2: Roadmap from 5nm
- Slides Part 3: Technology Trends
- Slides Part 4: Introducing Microwind
- Slides Part 5: The ASIC device

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Micro Electronics Cloud Alliance

Electromagnetic Compatibility of ICs

Course contents

Welcome to the five-day course focused on electromagnetic compatibility (EMC) of integrated circuits (ICs).

- A vision of the evolution of technology of the evolution of technology, roadmap and consequences on EMC of ICs is given as an introduction
- A set of basic concepts is proposed in the second part, covering specific units, parasitic impedance of I-Interconnects, origin of noise, noise margins



e-Learning Course

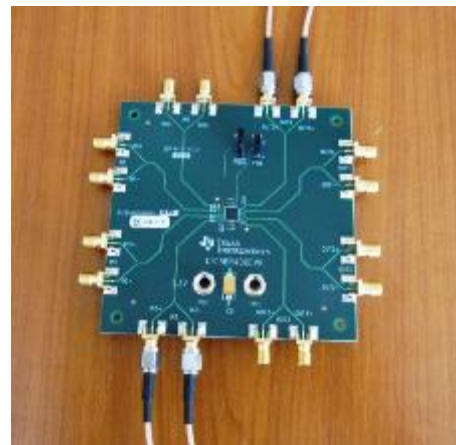
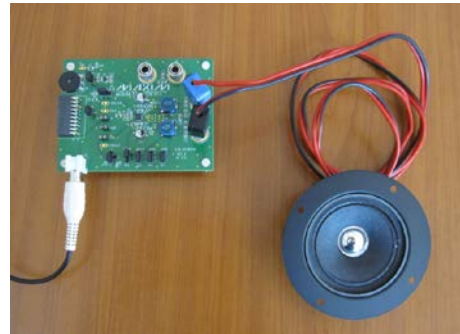
- Slides Part 1: Overview
- Slides Part 2: Basic concepts
- Slides Part 3: Main EMC parameters
- Slides Part 4: Modeling
- Slides Part 5: Noise margins



3. What was done (3/4)

WP5 : Development of the mCloud system

- Class D Speaker Amplifier
- Educational goals:
 - Illustrate conducted/radiated emission issues
 - Perform typical EMC measurements
 - Design a LC filter to eliminate HF noise
 - Illustrate spread spectrum modulation to reduce EMI
 - Optimize EMI reduction



- Quad LVDS Buffer/Repeater with Preemphasis
- Educational goals:
 - Illustrate high speed signal issues, role of matching, line loading
 - IBIS modeling
 - Signal Integrity simulation of high speed differential signal
 - Illustrate pre-emphasis and equalization effect on SI

- Contact: Alexandre BOYER



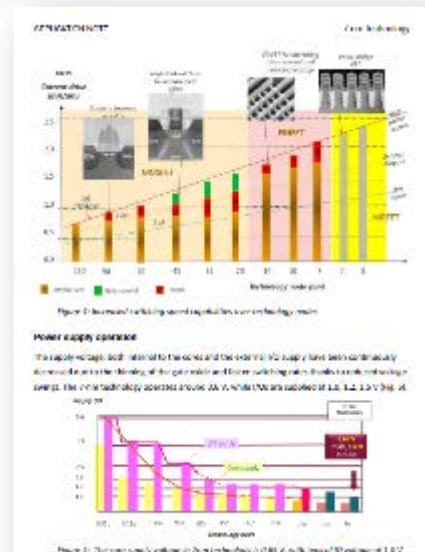
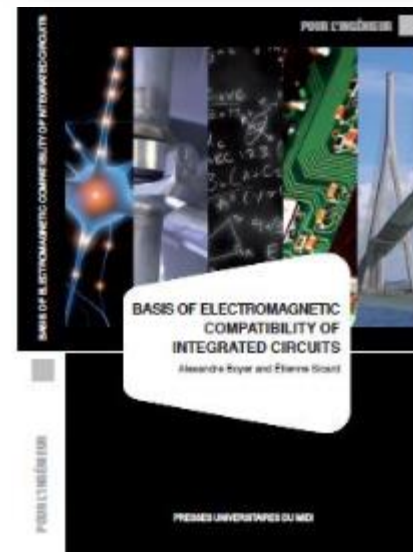
3. What was done (4/4)

• WP6: Pilot test

- Pilot test course EMC of ICs with 11 industrial & academic attendees
- Test of new modules, new exercises, updated software

• WP9: Dissemination

- Courses promoted at EMC Europe 17 Angers, EMC compo 17 St Petersburg
- Release of book “Basis of EMC of Integrated Circuits”
- Release of nano-CMOS application note
 - 14-nm FinFET
 - 10-nm FinFET
 - 7-nm FinFET
 - PDF available through Open Archive HAL CNRS





4. Forecast/plans for end of 2017 and 2018 (1/2)

- **WP5: Development of the mCloud system**
 - **Install CloudStack,**
 - Access security to INSA Cloudstack
 - Firewall rules
 - Users rules
 - **INSA Cloudstack configuration**
 - Tune local Cloudstack configuration to mCloud requirements
 - Virtual Machines (VMs) creation
 - VMs Internet Access
 - **Deploy CloudStack**
 - Make EMC & nanoCMOS course available
 - Allow students to access Cloud system





4. Forecast/plans for end of 2017 and 2018 (2/2)

WP5 : Development of the mCloud system

- Design & Record educational videos related to
 - Course EMC of Ics
 - Course nano-CMOS
- Contact: Alain BERARD

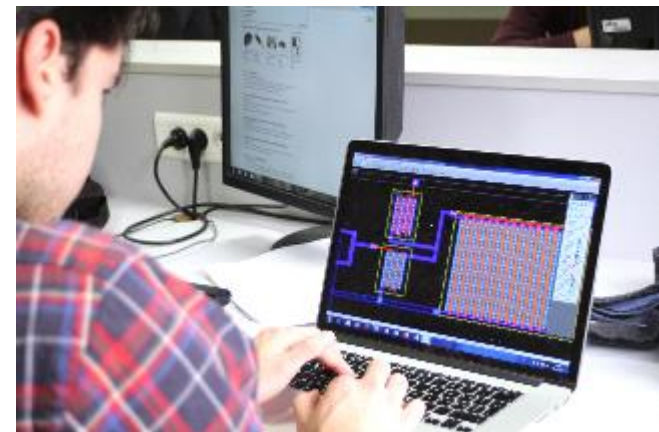
WP6: Pilot test

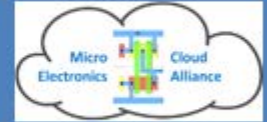
- Course nano-CMOS (Dec 17)

WP8: Evaluation of courses

WP10: Exploitation

- Course EMC of ICs (Sept 18) – Free for MECA





Thank you for your attention

Etienne SICARD

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