

X – TECHNOLOGY TRANSFER ACTIVITIES

Besides the manufacturing of circuits for industry, members of CMP are promoting technology transfer by the creation of start-ups and by participating to the board of companies. Thus CMP contribute to the development of High Tech Activities in Grenoble's region. The Appendix 16 gives an overview of Grenoble's environment.

A – Creation of spin-off companies

Recently, the members of CMP have contributed to the creation of several start-up companies. The Press Releases issued at the time of the launching are reproduced below.

MEMSCAP

MEMSCAP® : a CMP spin-off specialized in MEMS

Grenoble, France - December 1997. The challenges in Telecommunication, Automotive, Aerospace and Biomedical system design using Micro Electro Mechanical Systems (MEMS) have been clearly identified. To address this increasing demand, MEMSCAP®, a commercial spin-off from TIMA Laboratory research, provides Intellectual Properties (IP) enabling system designers to get access to the MEMS technology without excessive complexity and design time and cost. Very wide range temperature sensors, IR detectors, inertial sensors and other MEMS devices can be directly purchased in both software or hardware forms. The company is starting with 7 engineers, mainly composed from researchers getting out from the Microsystems Group of TIMA Laboratory. This group will keep a staff of 15 researchers addressing joint long and medium term research activities on CAD of MEMS, fault modeling, MEMS testing methodologies, microelectronics compatible manufacturing techniques and new MEMS device generations (e.g. Active Pixel Sensors, etc.). In addition, the CMP service will be the preferred source for prototyping and low-volume production of Integrated Circuits, MEMS and Multi-Chip-Modules for MEMSCAP®. MEMSCAP® design solution enables system designers to fully leverage MEMS component behavioral models in HDL-A¹ (soon into VHDL-AMS and Verilog-A standards) for system-level verification and manufacturability analysis, by providing technology specific MEMS Engineering Kits, Model Generation Tools and Services and MEMS Intellectual Properties.

MEMSCAP® is predicting 10 million dollars of turn-over in 2001. The company has already received the support of the Centre National d'Etudes Spatiales (CNES) in France, for the qualification of space technologies for MEMS and has established a partnership with Mentor Graphics Corporation in the area of CAD of MEMS.

AREXSYS

Start-up forms in Grenoble, France to deliver system design software for embedded systems

San-Fransisco, CA (Design Automation Conference) - June 15, 1998 - The founders of the Syntyx Technology project in Grenoble, France, today announced the formation of Arexsys, Inc. to deliver an innovative hardware/software co-design solution for embedded system and system-on-chip (SOC) designs.

François Constant, formerly regional manager of Southern Europe for Synopsys Inc., was named president and chief executive officer. In addition to Constant, Arexsys founders include Ahmed Jerraya, research director at the TIMA laboratory, and Jean-Pierre Moreau, director of research partnerships at STMicroelectronics. Arexsys' solutions are used as a high level front-end to industry standards EDA tools such as register-transfer level (RTL) synthesis and digital signal processing (DSP) design tools. The technology supports a full top-down system design methodology, reading and writing multi-languages description and performing co-simulation at any level. In contrast to other system-level design products that use proprietary languages, the Arexsys tools use SDL, the industry standard design language used by more than 25,000 system designers worldwide. Currently, system-level designers write SDL description to map out the major functional blocks in the system and then have to painstakingly hand-code a behavioral or RTL description, deciding piece by piece what gets implemented in hardware vs. software. Arexsys automates this process: the tools read in an SDL description, designers interactively partition the design into hardware and software, and the tools then compile the design into RTL hardware and low-level C software. Designers then send the RTL hardware portion to a hardware description language (HDL) synthesis tool to create gates. Arexsys automatically generates the interfaces required for communication between the hardware and the software at the RT level. Designers can explore different combinations of hardware and software along the way until the optimum solution is reached. The company expects to have its products into beta sites this

¹ HDL-A is a registered trademark of Mentor Graphics Corporation.

summer, and to have production software ready by end of 1998.

iRoC Technologies

A new start-up takes on soft errors challenge

Grenoble, France – March 13, 2000 - iRoC Technologies is providing unique and global design solutions for integrating Robustness on Chip, and is taking on one of the biggest challenges in the semiconductor industry: the “transient errors” issue. Soft Errors, coming from cosmic rays or alpha particles, and timing faults, coming from crosstalk, may stop the very deep submicron scaling progress. A commercial spin-off from TIMA laboratory research in Grenoble, France, iRoC Technologies offers a new design methodology to provide a breakthrough, by using fault tolerance concepts. Michael NICOLAIDIS, leader of the Reliable Integrated Systems group at TIMA Laboratory warns that technological progress in the semiconductor industry will be stunted abruptly if no specific actions are taken to cope with increasingly high soft-error rates and undetected timing faults, at reasonable costs. iRoC's products will consist in design tools for automatic fault tolerance insertion. iRoC combines a group of optimized circuits in a global technology named "Transient Fault Tolerant Architecture" (TFTArchitecture™).

"This TFTArchitecture™ is the result of a 5 years technology development by Michael NICOLAIDIS and his group" said Bernard COURTOIS, TIMA Director. "We trust TFTArchitecture™ technology, which is based on a portfolio of international patents, to be the most effective technology to protect ICs against soft-errors" he added.

Reduced power supply levels and the size of device, as well as increased operating speeds are known to dramatically affect the sensitivity of very deep submicron scaling technologies, to noise and in particular to alpha particles and cosmic rays. In the VLSI era, drastic reliability improvements reserved the costly technology “fault tolerance” in a narrow domain of high-end products. In the near future, increased sensitivity to perturbations will block the very deep submicron scaling. It is making fault tolerance mandatory, even for commodity products.

"Timing defects are a currently key problem in the semiconductor industry and soft errors are a major challenge for next generation of ICs. I strongly believe that ICs – at least 10% for the 180nm and 50% for the 130nm- will have to be fault tolerant. iRoC Technologies is providing the unique low-cost full solution for ICs and IPs, facing these challenges" said Eric DUPONT, President and CEO of iRoC Technologies.

In addition, iRoC Technologies provides professional services to characterize and simulate TFTArchitecture™ performance and cost on commercial deep submicron ICs. The founders of iRoC Technologies include Dr Michael NICOLAIDIS, leader of the Reliable Integrated Systems group at TIMA, Dr Jean-Michel KARAM, President and CEO of MEMScAP, Dr Bernard COURTOIS, Director of TIMA, Joel RODRIGUEZ-ALANIS, CEO of Mentor/Anacad and Eric DUPONT, President and CEO.

NanoSPRINT

Grenoble, France - June 21, 2005 - NanoSPRINT, an innovative provider of virtual representation solutions for science and technology, is undertaking the challenge of developing a new generation of foresight and decision making tools for emerging technologies. The new generation of tools will help both major corporations scouting the innovation space or start-ups interested in strategic positioning. As nanotechnology finds applications in traditional industries, the main challenge of both established companies and new comers is making the right bets on innovation trends. Today, the complexity of foresight becomes overwhelming due to the broader impact of nanoscale scientific and technological innovation.

NanoSPRINT spun off recently from TIMA Labs with the mission of developing a new methodology for foresight and decision-making for nanotechnology. The new approach is centered on a Nanotechnology Knowledge Repository that stores facts and meta-knowledge on nanotechnology and performs automated reasoning to provide custom reports based on multiple information sources. The methodology will be transposed into a suite of software tools finding applications from patent analytics to decision-making for national innovation policies.

Florin Ciontu, NanoSPRINT's Chief Executive Officer said:

“Behind the excitement brought up by developing technologies with applications in many industries, both Global 5000 companies and small start-ups face the challenge of monitoring the evolution of the field in real-time. We find this an exciting opportunity to be able to leverage the current rather empirical approaches on foresight using our knowledge management expertise.”

While still developing its IP portfolio, the company already generates revenue with its Virtual Communication Suite recently introduced at the NSTI's Nanotech 2005 Conference and Tradeshow. As nanotechnology companies are starting to take advantage of Virtual Presentations for intuitive explanations of technical

concepts and Virtual Demonstrators for realistic emulation of equipment using virtual reality techniques, NanoSPRINT is enriching its offer with content based products like its multimedia “Knowlet™ on Carbon Nanotubes”.

The founders of NanoSPRINT include Florin Ciontu and Cosmin Roman of TIMA Labs, Grenoble, France, Bernard Courtois, Director of TIMA Labs, Joel Monnier of Innovation Consulting and ex-Vice President of Research and Development for STMicroelectronics.

For more information, please contact Florin Ciontu at +1 800 754 1547 or florin.ciontu@nanosprint.com or Nathalie Eloisse at +33 4 76 57 48 34 or nathalie.eloisse@nanosprint.com.

B – Circuits manufactured for start-ups

CMP has also manufactured circuits for start-up companies. A few of them are:

- MEMSCAP (Grenoble, France) start-up of CMP, Grenoble, France
- iROC Technologies (Grenoble, France) start-up of CMP-TIMA, Grenoble, France
- TIEMPO (Montbonnot, France) start-up of TIMA, Grenoble, France
- STANTEC (Grenoble, France) start-up of IMEP, Grenoble France
- New Imaging Technologies SAS (Evry, France), start-up of l'INT (Evry)
- Novelda AS (Oslo, Norvège), start-up of University of Oslo (Norway)
- ACP (Zurich, Suisse), start-up of ETH (Zurich, Switzerland)
- Lime Microsystems Ltd. (Haslemere, UK), start-up of Middlesex University (London, UK)
- SiBEAM (Fremont, USA), start-up of BWRC, (Berkeley, USA)
- Achronix Semiconductor Llc, (Ithaca, USA), start-up of Cornell University (Ithaca, NY, USA)
- NANGATE A/S (Denmark)
- Forza Silicon Co (Pasadena, USA)
- INVIA (Meyreuil, France)
- CORTUS (Montpellier, France)
- Si-WARE systems (Cairo, Egypt)
- NewLANS (Massachusetts, USA)
- SP Devices AB (Linköping, Sweden)

C – Technical Advisory Board membership

Members of the Laboratory are presently or have been recently on the Technical Advisory Boards of the following companies:

- STMicroelectronics
- MEMSCAP
- iROC
- NanoSprint

In the past, a member of the Laboratory has been on the Technical Advisory Board of SUNRISE.