

## Report from Europractice Venture Capital Start-up Funding Forum, London, 4 Oct 2002

Readers of MST News may remember that the June issue featured a call for proposals by the Europractice project. The competition was aimed at providing assistance for 10 microsystems start-up projects to prepare for and be presented to venture investors at a specially designed funding forum, in addition to a range of follow up support actions.

The competition was open to all companies working on Microsystems, including components manufacturers, those offering specific process steps (front-end, back-end, packaging), dedicated microsystems equipment - or innovative MST based product manufacturers and service suppliers (CAD tools, design houses, packaging, integration, test, etc.).

The criteria used for the selection of the winning projects included:

- Time to market
- Intellectual property position
- Risk identification and management
- A focused business offer, targeted at a specified commercial opportunity
- Return on investment
- Implementation process
- Market potential
- Degree of innovation

Following great deliberation, a final selection was made, comprising 10 of the most promising MNT (Micro & Nanotechnology) start-up projects from the UK, Ireland, Spain and Switzerland.

Germany, Italy, Holland, Belgium, Ireland, Greece, Switzerland, and Spain, and in a large number from the UK.

Attendees were given elevator pitches by each start-up company, followed by a number of smaller breakout sessions, which allowed VCs to liaise more closely with start-ups. This is the second such event to be organised by TFI on behalf of Europractice. The first was held as part of COMS 2001 in Oxford, and was highly successful in attracting both VCs and high quality start-ups alike.

Plans are already being drawn up for another EURO PRACTICE competition in 2003, with a forum to be held in Frankfurt during September. Dates will be published later.

**Plasma Antennas** (Southampton, UK) - developing electronically Steerable Plasma Antennas  
**Starbridge Systems Ltd** (Swansea, UK) - developing Microfluidics for drug delivery  
**Photon Detection Systems** (Cork, Ireland) - developing Avalanche Photodiodes for Optical Microsystems  
**Acolt SA** (Yverdon, Switzerland) - developing Single Walled Carbon Nanotubes & Fullerenes  
**Metrocom** (Bristol, UK) - developing Photonic Integrated Circuits  
**NanoCo Technologies Ltd** (Manchester, UK/California, USA) - developing Quantum Dot Production.  
**Nanofabricate Ltd** (Warrington, UK) - developing Nanoscale Instrumentation  
**Southside Thermal Sciences** (London, UK) - developing Sensor Coatings for Monitoring Gas Turbine Blades  
**AnaFocus Microelectronics** (Seville, Spain) - developing Artificial Vision Systems on a Chip  
**Impact Microelectronics** (Cork, Ireland) - developing Embedded Protocol RF Modules

Figure 1: Winning Projects Start-up Companies presenting at the forum

All submitted projects were received at the beginning of August and examined by a panel of independent experts: Malcolm Wilkinson, Managing Director of (TFI) Technology for Industry Ltd, (UK) Jean-Christophe Eloy of Yole Developpement (France) and Rob Turner of KBIC (UK). The panel was chaired by Gisele Roesems of the European Commission.

Organised by TFI with the support of the European Commission Directorate General, the funding forum was held in the dignified surroundings of the Institute of Physics, London. The event hosted almost 60 attendees, including thirty representatives from Venture Capital firms and Start-up incubators throughout Europe. Participants came from France,

#### Contact:

Dr J Malcolm Wilkinson  
 Technology For Industry Ltd, UK  
 Phone: +44 1353 865 400  
 Fax: +44 1353 865 401  
 E-Mail: [jmw@tfi-ltd.co.uk](mailto:jmw@tfi-ltd.co.uk)  
[www.tfi-ltd.co.uk](http://www.tfi-ltd.co.uk)

## Europractice Booth at Nanotech, 26-28 Nov 2002, Montreux/CH

The NanoTech conference is a forum gathering researchers and users in the field of micro- and nano-scale technologies for the biosciences and clinical diagnostics.

A Europractice booth, organised by TFI (Technology For Industry Ltd), will give an overview of Europractice service offers - a good opportunity to meet service providers and get their latest information.

For more information:  
 E-Mail: [sarah@tfi-ltd.co.uk](mailto:sarah@tfi-ltd.co.uk)  
[www.nanotech-montreux.com](http://www.nanotech-montreux.com)

## MEDICS Update

Since July 2002, the Swiss Centre of Electronics and Microtechnology (CSEM) has been strengthening the Competence Centre for Biomedical Microdevices 'MEDICS'. As early as January 2002, i2m Design from Spain and Zarlink Semiconductor from France joined Fraunhofer IBMT from Germany as partners for the MEDICS consortium.

The CSEM is a Swiss-based industrial non-profit company that will bring its extensive network of clinicians and its expertise in ophthalmology systems, sensors for in vitro diagnostics and wearable medical monitoring systems into MEDICS.

MEDICS offers a complete portfolio of services from concept evaluation & feasibility studies to design, prototyping, low/medium volume manufacturing & testing. These technical services are completed by information and consulting services that accompany and support new product developments.

MEDICS core competencies are:

- Development and low volume

manufacturing of active biomedical implants for monitoring and stimulation. Active biomedical implants are one of the most fascinating and challenging biomedical devices. MEDICS represents a one-stop shop for the development of active biomedical implants including implantable, flexible & rigid electrodes, telemetry units, external & implantable stimulators, flexible & rigid encapsulation, sterilisation and other essential components such as leads & plugs.

- Development of sensors for in vitro diagnosis. MEDICS develops multi-electrode arrays (MEAs) based on standard CMOS technologies followed by dedicated post processing steps. These tools and improved techniques will allow accessing and probing the electrical activity of small neuronal cells. It is expected to have a major impact on the study of drugs and toxins, and potentially on the development of effective drug screening methods.

- Development of telemetry systems for applications in home monitoring and health telematics. Among the existing developments are portable devices to monitor the activity of parkinson patients or the fall of elderly people by means of accelerometers worn on the body. The data is transferred to the main portable unit by wireless RF telemetry. In case of a fall detector, an identified fall will generate alarms calling for assistance.
- Design and volume manufacturing of application specific integrated circuits (ASICs) that excel in lowest power consumption, highest level of integration and reliability dedicated to applications in hearing aids, active biomedical implants and portable devices.

**Contact:**

Andreas Schneider, MEDICS

Fraunhofer IBMT, Germany

Phone: +49 6897 907142

E-Mail: [medics@medics-network.com](mailto:medics@medics-network.com)

[www.medics-network.com](http://www.medics-network.com)

## First Service Offer from INTEGRAM

INTEGRAM (Integrated Microsystems Manufacturing Cluster) announces its first Europractice offering, providing access to two MST processes:

**Deep dry etch service**

This flexible service, for customers with their own designs, mask plates or pre-patterned wafers, can be used to etch from a few wafers up to several hundred. Customers can now get direct access to QinetiQ's state-of-the-art deep reactive ion etch (DRIE) equipment and expertise based on over 5 years' experience:

- high-rate (\*ASEHRM) cluster and standard (\*ASE) multiplex STS tools (\*Advanced Silicon Etch)
- 100, 125 and 150mm wafer sizes
- bulk silicon and silicon-on-insulator (SOI) wafers
- etch depths of 1 mm to 500 mm (through wafer)
- feature sizes of 2 mm to several mm, aspect ratios of up to 30:1
- standard process recipes or optimisation to customer's requirements.

The STS ASPECT silicon etch cluster has recently been qualified at QinetiQ

by major companies including Philips, Olivetti and Analog for throughput, anisotropy, notching, uniformity and reliability in the EC Semiconductor Equipment Assessment Project 'MICROSPECT'

([www.sea.rl.ac.uk/newsea/newpubs/microspect/microspect\\_factfile.pdf](http://www.sea.rl.ac.uk/newsea/newpubs/microspect/microspect_factfile.pdf)).

**Polysilicon Prototyping Kit (PPK)**

User-friendly design kits are now available to facilitate MST design and access to QinetiQ's 2-level thin (2 mm) polysilicon sacrificial surface micromachining process. This stable process has been used to fabricate numerous MEMS devices including accelerometers, microswitches, micromirrors and RF filters. The PPK product offer includes:

- an engineering design kit with process flow details, materials parameters and design rules to access the stable process window
- a 4-month license for CoventorWare INTEGRAM software including DesignerTM and AnalyzerTM for design, simulation and lay-out generation

- a reserved slot on a scheduled QinetiQ single process wafer (SPW) run providing two full 100 mm wafers, each with over 50 prototype chips.

First SPW customer runs are scheduled for early next year, with up to 3 runs per year. Please contact the INTEGRAM sales office for dates, options and prices.

Additional design and consultancy services are also available for customers not familiar with MST design. Further design kits and associated MPW services are now in alpha-test for our novel CMOS-compatible processes - metal/nitride surface micromachining and SOI high aspect ratio micromachining using DRIE, with full service launch anticipated for Q1 2003.

**Contact:**

QinetiQ Ltd, United Kingdom

Phone: +44 1684 89 6262

E-Mail: [INTEGRAM@QinetiQ.com](mailto:INTEGRAM@QinetiQ.com)

[www.QinetiQ.com/europractice](http://www.QinetiQ.com/europractice)

## News from the MEMSOI Project



MEMSOI is the Europractice service dedicated to the development and production of MEMS for high-end applications based on SOI micromachining technologies. This service is led by TRONIC'S Microsystems, a technology leader in the contract manufacturing of high performance MEMS devices.

### Multi-Project Wafer Service

MEMSOI is pursuing its Multi-Project Wafer service based on TRONIC'S Microsystems standard Epi-SOI surface micromachining technology.

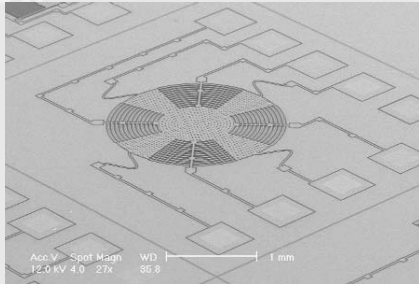


Figure 1: Gyro design on MPW

A new pricing policy has just been established that further reduces the prototyping cost for both companies and institutes.

Price/location/run	Corporate	Academic
For 1 location	7,500 €	5,000 €
For 2-3 locations	6,750 €	4,500 €
For 4-5 locations	6,000 €	4,000 €

For each location booked, the customer will receive 20 chips of its design protected by a silicon cap and with the structures previously released. The following regular runs are already planned:

Run	Design submission (GDSII format)	Delivery (20 chips)
13	<b>Dec. 20 - 2002</b>	April 30 - 2003
14	<b>April 1 - 2003</b>	July 31 - 2003
15	<b>July 1 - 2003</b>	Oct. 31 - 2003
16	<b>Oct. 1 - 2003</b>	Jan. 30 - 2004
17	<b>Dec. 19 - 2003</b>	April 30 - 2004

More information is available at [www.tronics-mst.com/memsoi.html](http://www.tronics-mst.com/memsoi.html)

### Optical MEMS devices

TRONIC'S Microsystems is now offering through MEMSOI a new SOI technology

dedicated to the development of optical MEMS devices such as laser scanners, micromirror arrays, and other optical telecom switching and attenuating apparatus.

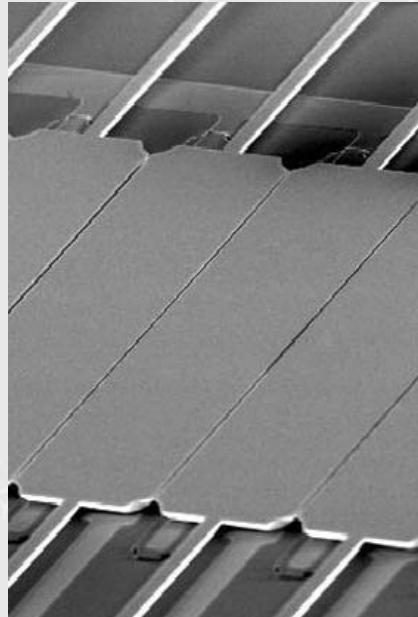


Figure 2: Micromirror array and its optical wafer level packaging

This technology (based on the High Aspect Ratio Micromachining of SOI wafers) is proposed together with an optical wafer level packaging solution and is available to companies willing to develop new optical devices.

Design services are proposed by TRONIC'S Microsystems and its network of 8 European Design Houses: ACREO, AML, CEA-Leti, CNM, CNRS-LAAS, FhG ISiT, NMRC, SINTEF.

### Contact:

Vincent Gaff  
TRONIC'S Microsystems, France  
Phone: +33 4 38 78 94 08  
E-Mail: [memsoi@tronics-mst.com](mailto:memsoi@tronics-mst.com)  
[www.tronics-mst.com](http://www.tronics-mst.com)

## Contact

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Information Society  
Technologies

EUROPRACTICE Programme Manager:  
Gisele Roesems  
EUROPEAN COMMISSION  
DG INFSO E5, BU 29 3/47  
200, Rue de la Loi  
1049 Brussels, Belgium  
Tel: +32 2 296 99 64  
Fax: +32 2 299 82 49  
E-mail: [gisele.roesems@cec.eu.int](mailto:gisele.roesems@cec.eu.int)

EUROPRACTICE News Editor:  
Patric Salomon  
4M2C PATRIC SALOMON  
Cranachstrasse 1  
12157 Berlin, Germany  
Tel: +49 30 24 35 78 70  
Fax: +49 69 1330 6496 553  
E-mail: [patric.salomon@web.de](mailto:patric.salomon@web.de)

For information on specific activities within Europractice, please contact Competence Centers, Design Houses and Manufacturing Centers directly. General information will be found at [www.europractice.com](http://www.europractice.com)