



Register Now!
Deep Computing Virtual Event 2010
 September 22, 2010



Platinum HPC Employer
 Creating Jobs in the HPC Community



Affirmative Action, Equal Opportunity Employer



Leading HPC Solution Providers



Welcome Guest
 Subscribe | Sign In

Since 1986 - Covering the Fastest Computers in the World and the People Who Run Them

View by Topic	Home	News	Features	Blogs	HPC Markets	Whitepapers	Multimedia	Events	Job Bank
---------------	------	------	----------	-------	-------------	-------------	------------	--------	----------

Applications
Developer Tools
Interconnects
Middleware
Networks
Processors
Storage
Systems
Visualization
View by Industry
Academia & Research
Financial Services
Government
Life Sciences
Manufacturing
Oil & Gas
Retail
About HPCwire
Contact Us
Site Map
Editorial Calendar
Reprints
Tabor Communications
Tabor Publications & Events

HPCwire >> [Topic](#) >> [Processors](#)

September 01, 2010

Imec's European Collaborative Research to Develop Lab-on-Chip System for Cancer Diagnosis

LEUVEN, Belgium, Sept. 1 -- Today, at the Engineering in Medicine and Biology Conference (EMBC) in Buenos Aires, Argentina, imec and its project partners have announced the launch of the European Seventh Framework Project MIRACLE. The MIRACLE project aims to develop an operational lab-on-chip for the isolation and detection of circulating and disseminated tumor cells (CTCs and DTCs) in blood. The new lab-on-chip is an essential step towards faster and cost-efficient diagnosis of cancer.

Detection of circulating and disseminated tumor cells in blood is a promising methodology to diagnose cancer dissemination or to follow up cancer patients during therapy. Today, the detection analyses of these cells are performed in medical laboratories requiring labor intensive, expensive and time-consuming sample processing and cell isolation steps. A full tumor cell detection analysis can take more than a day. A lab-on-chip, integrating the many processing steps, would enable a faster, easy-to-use, cost-effective detection of tumor cells in blood. They are therefore labor-saving and minimally invasive, increasing the patient's comfort and the efficiency of today's healthcare.

In a preceding joint project by some of the partners (MASCOT FP6-027652), individual microfluidic modules for cell isolation, cell counting, DNA amplification and detection have been developed. Based on this expertise and strengthened by additional partners, the development of a fully automated, lab-on-chip platform to isolate, count and genotype CTCs is envisaged within the framework of the MIRACLE project. For genotyping, genetic material (i.e. the mRNA) will be extracted from the cells and multiple cancer related markers will be amplified based on multiplex ligation dependent probe amplification (MLPA) followed by their detection using an array of electrochemical sensors. Full integration of all steps requires innovative research and processing steps that need a combination of the multidisciplinary and unique expertise of the different project partners (ranging from microfluidics to interfacing, miniaturization, and integration skills). The resulting lab-on-chip tumor detection system will be well ahead of the current state-of-the-art, revolutionizing cancer diagnostics and individualized therapeutics.

Within the framework of the MIRACLE project, imec as project coordinator, collaborates with the Universitat Rovira I Virgili (Spain), the Institut für Mikrotechnik Mainz, AdnaGen, ThinXXs and Consultech (Germany), MRC Holland (The Netherlands), the Oslo University Hospital (Norway), the KTH Royal Institute of Technology, Multi-D and Fujirebio Diagnostics (Sweden), ECCO - the European CanCer Organisation and ICsense (Belgium) and Labman (UK). The project aims at developing a fully automated and integrated microsystem providing the genotype (gene expression profile) of CTCs and DTCs starting from clinical samples. MIRACLE is partly funded by the European Commission (FP7-ICT-2009.3.9). More information on the project is available on the Web

Off the Wire | **Most Read** | Blogs

Sep 1, 2010

- ▶ C-to-FPGA Integration Accelerates Prototyping 10X
- ▶ Universities Across the Country Deploy New Dell High-Performance Computing Solutions
- ▶ Supercomputing Brings the Climate Picture into Focus
- ▶ Supercomputing on a Cell Phone
- ▶ RENCI Keeps an Eye on Earl
- ▶ Tata Motors Chooses ESI's Sheet Metal Forming

Feature Articles

Startup Makes Liquid Cooling an Immersive Experience

There's nothing like a blazing hot summer to focus one's attention on the best ways to keep cool. That goes for datacenter operators as well, who are equally worried about keeping their servers properly chilled. While there is no shortage of innovative cooling solutions being proffered by various vendors, a new liquid immersion



at www.miracle-fp7.eu.

About imec

Imec performs world-leading research in nanoelectronics. Imec leverages its scientific knowledge with the innovative power of its global partnerships in ICT, healthcare and energy. Imec delivers industry-relevant technology solutions. In a unique high-tech environment, its international top talent is committed to providing the building blocks for a better life in a sustainable society. Imec is headquartered in Leuven, Belgium, and has offices in Belgium, the Netherlands, Taiwan, US, China and Japan. Its staff of more than 1,750 people includes over 550 industrial residents and guest researchers. In 2009, imec's revenue (P&L) was 275 million euro. Further information on imec can be found at www.imec.be.

Source: imec



Article Tools

- [Email This Article](#)
- [Print This Page](#)
- [Bookmark This Article](#)

Share Options

- [ShareThis](#) (Digg, Technorati, more)

Subscribe

- [Subscribe to HPCwire](#)

cooling solution from startup Green Revolution Cooling could end up being the best of them all.

[Read More...](#)

The Week in Review

Researchers from TACC and MIT created lightweight supercomputing application for smart phone; and the tug of war over 3PAR continues, as Dell and HP both present counter-offers. We recap those stories and more in our weekly wrapup.

[Read More...](#)

AMD Blazes New Path with Bulldozer

Advanced Micro Devices is hoping Bulldozer, the company's first x86 microarchitecture redesign in seven years, will bring back the glory days for the Opteron. AMD revealed additional details about the new architecture this week during the Hot Chips conference at Stanford University.

[Read More...](#)

[▶ Read more HPCwire features...](#)

Around the Web

TED Talks for the IT Crowd

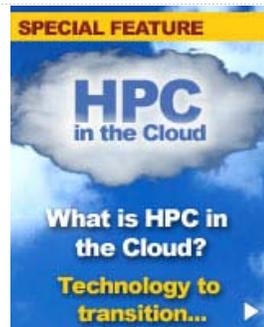
Sep 01 | A hand-picked selection of video presentations from the TED conference -- because the next big thing has to start somewhere. [Read more...](#)

LHC Compute Grid Teaches Some Valuable Lessons

Aug 30 | CERN project adapts its computation and storage strategy as hardware gets cheaper and better. [Read more...](#)

Godson CPUs Groomed for Supercomputing Duty

Aug 26 | Chinese-made chip adds vector SIMD unit; delivers 128 gigaflops in 40



Newsletters

Stay informed! Subscribe to HPCwire email Newsletters.

- Weekly Update
- Job Bank
- Conferences & Events
- Soundbite Podcasts
- HPC Cloud Update
- Product Showcases

Discussion

There are 0 discussion items posted. [RSS](#)

Join the Discussion



[Become a Registered User Today!](#)

Registered Users Log in Here to Comment

Email Address: Password (case sensitive)

Remember me [Forgot Password?](#)

[HPC Job Bank](#)