## NEWS RELEASE

16 August 2007

# MedTech Capabilities offer SMEs Future Growth

1 For new business opportunities to grow into, local enterprises need look no further than the fast-growing Medical Technology (MedTech) industry with its projected global sales of $201 billion by 2010. To spread the word of the vast potential of this industry, government agencies SPRING Singapore, A*STAR's Institute of Microelectronics and Exploit Technologies teamed up to bring small and medium enterprises (SMEs) a special half-day forum on the MedTech industry – Its technologies and opportunities.

2 MedTech is an integral component of Singapore's biomedical manufacturing industry which almost quadrupled its output in six years from 2000. It builds on Singapore's traditional strengths in electronics, precision engineering (PE) and new capabilities in the biomedical sciences. Our track record for delivering high quality components, sub-assemblies and finished products efficiently has attracted many MedTech companies to establish their R&D and manufacturing facilities here.

3 The growing base of MedTech companies here presents many opportunities for our enterprises, especially those in the PE industry, to become key suppliers in the manufacture of medical devices. As it is, local PE companies are revving themselves up to meet global standards such as those set by the ISO and the US Food and Drug Administration. Many of our companies are already involved in providing high precision parts used in the manufacture of diagnostic and healthcare equipment, for example, drug delivery devices, surgical clamps, bone screws, dental implants, intravenous probes and micro-arrays.

4 Mr Edwin Chow, Director for Technology Innovation, SPRING Singapore, urged SMEs to upgrade their capabilities in order to diversify into new growth markets and move up the value chain. He said, "SMEs can tap niche technologies to offer more cost-effective and competitive solutions for their customers. Many of these technologies are already in A*STAR's research labs. We are working with A*STAR to encourage and support our SMEs in making full use of the scientific expertise, facilities and resources available in the research institutes."

5 LNE Holdings (LNE) is one SME who is determined to be in the right place when the MedTech market is in full swing. A local plastic components manufacturer, LNE is enhancing its micro-injection moulding capabilities to enable it to produce parts with accuracy and reliability that far exceed those of conventional moulding. With its new capabilities, LNE intends to take on projects in new and highly-specialised biomedical segments such as lab-on-chips and micro-electromechanical systems (MEMS), which require micro- or even nano-level production techniques. The same technology also allows them to move into the lucrative inkjet cartridge market.

4 “We want to raise our company to a different playing field,” said Mr Philip Han, Director of LNE. “To do that, we have to build capabilities in new and challenging areas.” With the help of SPRING Singapore and A*Star’s Institute of Microelectronics (IME), LNE is developing capabilities in micro-fluidics, an area of study that is new to SE Asia. LNE today signed a developmental license of IME’s bio-cartridge technology with Exploit Technologies, the strategic marketing and commercialisation arm of A*STAR. This will enable LNE to produce bio-cartridges to transport or analyse biological fluids such as saliva, urine and blood – a vital tool in the management of health and disease. Mr Han expects sales revenue to hit S$13.4 million by 2010.

5 The credit-card sized, disposable cartridge developed by IME offers a cost effective and convenient way to allow health practitioners to quickly detect strains of Avian Flu and other infectious viruses. Currently the smallest size in the market, it is expected to bring down the cost of each cartridge by tenfold to less than US$10 a piece. The self-contained cartridge is also fully enclosed, which means that any potential infectious viral RNA will not be exposed to the environment.

6 Professor Kwong Dim-Lee, Executive Director of IME, said, “We are pleased to license our bio-cartridge technology to a local manufacturer like LNE to commercialise this device that is applicable to the point-of-care diagnostic setting. This will greatly enhance our capabilities to diagnose diseases very quickly and accurately.” Other than the bio-cartridge, IME has developed a suite of medical technologies ready for commercialisation. These include:

- Miniaturised probe station for point-of-care biosensor chip – a highly sensitive and low cost chip based on silicon nano-wire technology. The applications include early cancer detection and genetic testing.

- Miniaturised 3D scanning optical probe for bio imaging applications – a mini probe (less than 3 mm in diameter) which integrates a 3D scanning micro-mirror to offer OCT capability for bio-imaging as well as endoscopic applications.

(See Annex for more details on the IME technologies)

7 As the marketing and commercialisation arm of A*STAR, Exploit Technologies is a key driver of technology transfer in Singapore. Mr. Yow Tau Keon, Senior Vice President of Strategy and Marketing at Exploit, said, "We work closely with SPRING to identify the technology needs of SMEs and to offer them a flexible licensing model so that they can quickly prototype their new product, thus shortening the time-to-market."

8 The half-day forum held at the IME Auditorium in Science Park II attracted some 100 participants, mainly from the precision engineering sector. It is the first in a series of workshops that SPRING and A*STAR plan to hold for SMEs. The next seminar in September 2007 is on Radio Frequency Identification (RFID) technology.

**~~~ End of Media Release ~~~**

**About SPRING Singapore**
As the agency for enterprise development, SPRING Singapore aims to enhance the competitiveness of enterprises. We help to nurture a pro-business environment, facilitate the growth of industries and enhance innovation and enterprise capabilities of small and medium enterprises for better access to markets and business opportunities.

SPRING Singapore is also the national standards and conformance body. We help to lower technical barriers to trade, provide quality assurance for products and services and promote industry use of Singapore and international standards.

Please visit www.spring.gov.sg for more information and news about SPRING Singapore.

**About A*STAR, Exploit Technologies and IME**

The **Agency for Science, Technology and Research**, or A*STAR, is Singapore's lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based Singapore.

A*STAR actively nurtures public sector research and development in Biomedical Sciences, Physical Sciences and Engineering, with a particular focus on fields essential to Singapore's manufacturing industry and new growth industries. It oversees 14 research institutes and supports extramural research with the universities, hospital research centres and other local and international partners.

At the heart of this knowledge intensive work is human capital. Top local and international scientific talent drive knowledge creation at A*STAR research institutes. The Agency also sends scholars for undergraduate, graduate and post-doctoral training in the best universities, a reflection of the high priority A*STAR places on nurturing the next generation of scientific talent. (Website: www.a-star.edu.sg)

**Exploit Technologies** is the marketing and commercialisation arm of A*STAR. Its charter is to identify, protect and exploit promising intellectual property (IP) created by A*STAR's research

institutes. This includes facilitating the IP management process (ie the protection of inventions through patents and copyrights, etc), analysing the strength of our IP and the market that they could serve, and working with companies to commercialise the technologies. (Website: www.exploit-tech.com)

The **Institute of Microelectronics (IME)** is a research institute of A*STAR. Positioned to bridge the R&D between academia and industry, IME's mission is to increase value-add to the electronics industry in Singapore by engaging in relevant R&D in strategic fields of microelectronics; supporting and partnering the electronics industry; and developing skilled R&D personnel. Its key research areas are in integrated circuits and systems; semiconductor process technologies and microsystems, modules and components. (Website: www.ime.a-star.edu.sg)

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**ANNEX**

# IME's Medical Technologies Ready for Commercialisation

## 1 . Bio-cartridge for extraction of RNA for virus detection

The credit-card sized, disposable cartridge developed by IME offers a cost effective and convenient way to allow health practitioners to quickly detect strains of Avian Flu and other infectious viruses. Currently the smallest sized in the market, it is expected to bring down the cost of each cartridge by ten fold to less than US$10.

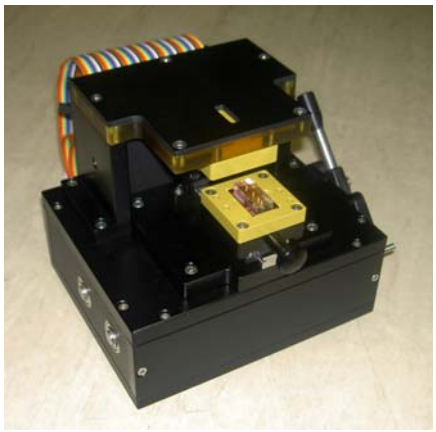
The self-contained cartridge integrates the reservoirs, valves, collector tube and waste bag into a compact system. It has a switch valve which toggles between collection of RNA product and waste. The cartridge is also fully enclosed, which means that any potential infectious viral RNA will not be exposed to the environment.

*IME's self contained bio-cartridge*

## 2. Miniaturised probe station for point-of-care biosensor chip

IME has developed a miniaturised biosensor chip measurement system suitable for silicon nanowire biochips, which promises to play a significant role in new generation of diagnostics. The system is easy to use, portable and useful for point-of-care applications such as early cancer detection and genetic testing. It is suitable for highly sensitive nanowire chips and several arrays on a chip can be tested simultaneously, leading to multiplexed detection of bio-molecules.

The biosensor chip system can be manufactured cost-effectively, and allows faster measurement compared to the conventional measurement system.

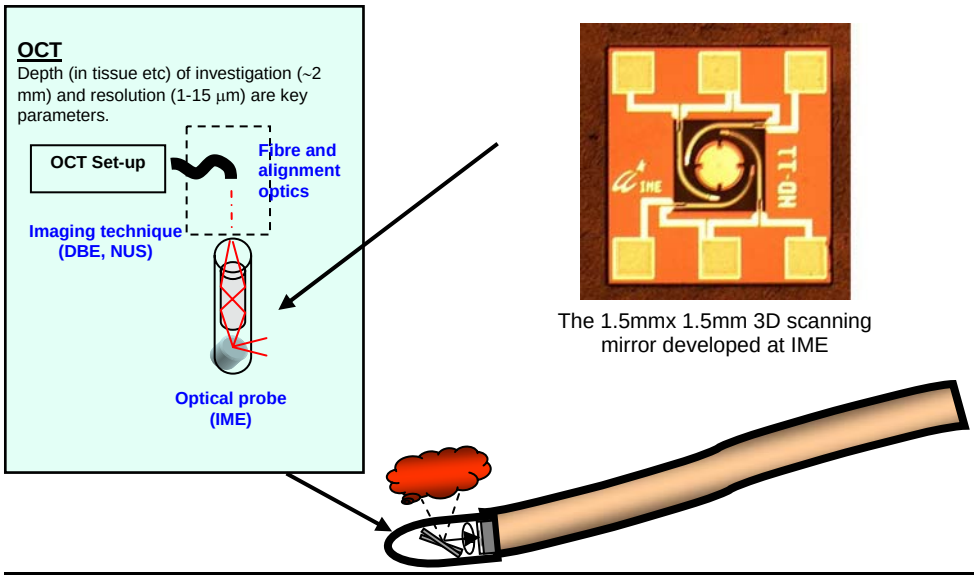


*IME's biosensor chip measurement systen*

## 3. Miniaturised 3D scanning optical probe for bio imaging applications

Optical probe is fast becoming an important tool in endoscopic diagnostics. IME's miniaturised probe integrates a 3D scanning micro-mirror with associated optics to offer optical coherence tomography (OCT) capability for bio-imaging modalities and endoscopic applications.

Utilising micro-fabrication capabilities, IME has developed a 3D scanning mirror measuring 1.5 mm x 1.5 mm in die size. This integrated device forms the main optical probe assembly which is less than 3 mm in diameter. The current micro-mirror based optical probes has an overall size of 4 to 5 mm and can only be used to image gastrointestinal tract. With its overall size reduced to just < 3 mm in diameter with scanning feature, IME's miniaturised optical probe can be used for endoscopic applications with larger field of view.




The 1.5mmx 1.5mm 3D scanning mirror developed at IME