



MEDIA RELEASE

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EDB Pumps S\$16 million to train 150 integrated circuit designers over 5 years

Post-graduate scholarship is aimed at students in the schools of Electrical and Electronic Engineering (NTU) and Electrical and Computing Engineering (NUS)

The Singapore Economic Development Board (EDB) is investing S\$16 million into a new initiative to encourage postgraduate students to specialize in integrated circuit (IC) design. The Integrated Circuit Design Postgraduate Scholarship (ICPS) aims to train 150 IC designers for the semiconductor industry. IC design has been identified by the EDB as a key enabler for existing electronics applications as well as for newer areas, such as green electronics and bioelectronics.

1. Under this ICPS, EDB will work with Nanyang Technological University (NTU) and National University of Singapore (NUS) to reach out to postgraduates in the schools of Electrical and Electronic Engineering (NTU) and Electrical and Computing Engineering (NUS) to take up the specialization after their undergraduate studies.

This scholarship will provide 100% sponsorship to 150 postgraduate students over 5 years. The sponsorship will cover components such as research and course fees, as well as stipends. The scholars will also have attachment and training opportunities with local companies engaged in IC design activities.

2. Mr Damian Chan, Director of Electronics, EDB, shared that Singapore currently has a vibrant semiconductor ecosystem comprising about 40 IC design houses, 14 wafer fabrication facilities and 20 assembly and test plants. In particular, six out of the world's top ten fabless companies have IC design activities in Singapore. In 2008, EDB attracted 14 new semiconductor product development projects which created 335 R&D jobs, including IC design jobs. In 2009, despite the global economic downturn, there continues to be strong interest in setting up or growing IC design activities in Singapore.
3. With the increasing need for miniaturization, multifunctionality, and energy efficiency in electronics devices, designing ICs becomes even more complex and there is an increasing demand for IC designers with postgraduate training. "IC design is a knowledge-intensive and innovation-intensive activity which is a critical part of the semiconductor value chain. The ICPS will help to address Singapore's IC design talent needs by nurturing high quality IC designers", said Mr. Chan.
4. "The world's advanced economies are all underpinned by high-technology, high-growth and high value-add. The School of Electrical and Electronic Engineering at NTU will continue to place great emphasis on nurturing and building skilled talent for the continuing growth of our electronics and semiconductor industry. This ICPS initiative by EDB builds on NTU's strengths in IC design and demonstrates a continued focus on research that meets real-world needs", said Professor Chan Kam Hin, Chair of NTU's School of Electrical and Electronic Engineering.

5. Said Professor Lawrence Wong, Head, Department of Electrical and Computer Engineering, NUS: “In the IC design field, students need to develop sufficient depth in their knowledge before they can embark on innovative design. To cultivate well rounded IC designers, it is essential to have a strong background on devices, processes, and modeling coupled with familiarity of Electronic Design Automation tools to design circuits in application domains, such as digital communications and signal processing. In NUS, not only do we provide design-centric IC design modules with strong emphasis on practical hands-on projects that are relevant to the industry, but we also offer many cross-disciplinary modules that are important for IC design training. This EDB initiative will encourage more students to pursue research careers in IC design and further strengthen Singapore’s knowledge and innovation capabilities and competitiveness.”

6. The EDB is currently in talks with schools and companies to kick-start the ICPS initiative and is optimistic about its role in helping to boost the electronics sector in Singapore. The ICPS is fully funded by EDB with courses from NTU and NUS.

Interested applicants, please contact the following for more information:

NTU	NUS
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Annexes

- A. Electronics Factsheet (separately attached)
- B. List of IC Design Companies and Activities in Singapore.
- C. List of Company Contacts for quotes.

Media Contacts

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Annex B: List of IC Design Companies and Activities in Singapore

Broadcom Corporation is a major technology innovator and global leader in semiconductors for wired and wireless communications. Broadcom provides the industry's broadest portfolio of state-of-the-art, system-on-a-chip and software solutions to manufacturers of computing and networking equipment, digital entertainment and broadband access products, and mobile devices. In Singapore, Broadcom has an IC design centre developing IP cores and chip solutions for a wide range of digital, analog and mixed-signal applications.

Infineon Technologies offers semiconductor and system solutions addressing three central challenges to modern society: energy efficiency, communications, and security in the areas of automotive, industrial, mobile phones, broadband access, smartcard and secured ID. In Singapore, Infineon's microelectronics design centre has over 300 IC design engineers engaging in the development of microcontrollers, power management devices, communications ICs and ASICs.

Mediatek INC is the 5th largest fabless IC design company in the world specializing in System-on-Chip wireless communications and digital

multimedia solutions. In Singapore, it has a substantial Radio-Frequency IC design team that is one of the largest here.

Sigma Designs is a leading fabless provider of highly integrated system-on-chip, or SoC, solutions that are used to deliver multimedia entertainment throughout the home. Sigma's SoC solutions combine its semiconductors and software and are a critical component of multiple high-growth, consumer applications that process digital video and audio content, including internet protocol TV, or IPTV, high definition DVD players, high definition TVs, or HDTVs, and portable media players. Corporate headquarters for the company is California, while it maintains its operations headquarters in Singapore, with plans to grow a R&D team that could include IC design and software development in the near future.

Silicon Laboratories INC, headquartered in Austin, Texas, is one of the top 20 fabless semiconductor companies in the world, with strong expertise in designing and developing analog, mixed-signal integrated circuits for a broad range of applications such as consumer, communications, computing, industrial and automotive. Silicon Labs first established its international headquarters in Singapore to oversee its non US business, which accounts for more than 80% of its global revenues today. In 2006, Singapore was chosen as the location for its first microcontroller IC design centre outside of the US and the design team has expanded its presence locally over the past 3 years. Its F336 MCU designed in Singapore received international recognition and was awarded best product in the MCU category by E&E Magazine in Germany in 2008. The Singapore design center has also become the company's center for excellence for human interface technology and Silicon Labs just announced the F700 touch-sense MCU developed by this team.

Solomon Systech Limited is a leading semiconductor company that specializes in design, development and sales of proprietary IC products and system solutions that enable a wide range of display applications in mobile phones, portable devices, LCD TVs, consumer electronic product, industrial appliances and lighting. In its Singapore Technology Center, it has a design team in R&D of intellectual property (IP), multimedia processor SoCs and embedded software for mobile multimedia devices.

ST Microelectronics N.V. is a Switzerland headquartered Integrated Device Manufacturer ("IDM") and possesses a diverse portfolio of products including consumer, automotive, computer, industrial & smartcards, and telecom infrastructure. Its operations in Singapore spanned the entire range of IDM

activities and hired more than 5,000 employees. Product segments supported by the multiple IC design teams in Singapore include analogue devices, storage and consumer products.

Annex C: List of Company Contacts for Quotes

- **Infineon Technologies**
-Ulf Schenider, Vice President, ulf.schneider@infineon.com; +65 6876 2990
- **Silicon Labs**
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About the Singapore Economic Development Board

EDB is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre and grow the Singapore economy. We dream, design and deliver solutions that create value for investors and companies in Singapore. In so doing, we generate economic opportunities and jobs for the people of Singapore; and help shape Singapore's economic future.

'Host to Home' articulates how EDB is sharpening its economic development strategies to position Singapore for the future. It is about extending Singapore's value proposition to businesses not just in helping them improve their bottom line, but also in helping them grow their top line. EDB plans to build on existing strengths and add new layers of capabilities to enable Singapore to become a *'Home for Business'*, a *'Home for Innovation'* and a *'Home for Talent'*.

For more information on how EDB can help your business, please visit www.sedb.com

About Nanyang Technological University

Nanyang Technological University (NTU) is a research-intensive university ranked among the world's top 100 universities. The Yunnan Garden campus, NTU's main campus, is located in the south-western part of Singapore and will be the Youth Olympic Village of the inaugural Youth Olympic Games in 2010. The NTU@one-north campus, home to educational and alumni clubhouse facilities, is located near Singapore's biomedical research hub, Biopolis; and the new engineering and physical sciences hub, Fusionopolis.

NTU has four colleges, namely:

- The Nanyang Business School (the College of Business), the first and only Singapore business school to be ranked in the top 25 of the Financial Times Global MBA 2008 rankings
- The College of Engineering, with six schools focused on technology and innovation and a research output among the top four in the world
- The College of Humanities, Arts, & Social Sciences, home to Singapore's first professional art school offering degree courses in art, design and interactive digital media; the Humanities and Social Science School; and the Wee Kim Wee School of Communication and Information, a top journalism and media school in Asia
- The College of Science is home to award-winning faculty, world-class laboratories, and Olympiad medal winners.

The S Rajaratnam School of International Studies, one of three autonomous institutes of NTU, is a world authority on strategic studies and security research. NTU is also home to the internationally-acclaimed National Institute of Education, Singapore's only teacher-training institute. The Earth Observatory of Singapore, established in 2009 with \$150 million in state funding, is dedicated to hazards-related earth science.

As Singapore's main science and technology university, NTU makes significant contributions to the nation's renewed drive for research and innovation spearheaded by the Singapore National Research Foundation (NRF). NTU's strengths in biomedical sciences, environmental and water technologies, and interactive and digital media mirror the NRF's research focus. Impressed by the vibrant entrepreneurship environment at NTU, the Ewing Marion Kauffman Foundation, widely known as 'The Foundation of Entrepreneurship', has chosen NTU to be the first Kauffman campus outside the United States of America.

NTU has a strong and broad international reach covering academic and research partnerships with top institutions in the US, Europe and Asia, such as MIT, Stanford University, Cornell University, Caltech, University of Washington, Georgia Institute of Technology, and Carnegie Mellon University; Cambridge University, Imperial College and Swiss Federal Institute of

Technology; and Peking University, Shanghai Jiaotong University, Waseda University, and Indian Institute of Technology.

For more information, visit www.ntu.edu.sg

About National University of Singapore (NUS)

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 14 faculties and schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multi-disciplinary courses and cross-faculty enrichment. Over 30,000 students from 100 countries enrich the community with their diverse social and cultural perspectives.

Well-known for its research strengths in engineering, life sciences and biomedicine, social sciences and natural sciences, NUS shares a close affiliation with 22 university-level, 16 national-level and more than 80 faculty-based research institutes and centres. The University also strives to create a supportive and innovative environment to promote creative enterprise within its community.

For more information, visit www.nus.edu.sg