

ITEM FOR FINANCE COMMITTEE

INNOVATION AND TECHNOLOGY FUND

HEAD 111 – INNOVATION AND TECHNOLOGY

New Subhead “Establishment of Integrated-Circuit Development Support Centre by the Hong Kong Science and Technology Parks Corporation”

Members are invited to approve the creation of a new subhead “Establishment of Integrated-Circuit Development Support Centre by the Hong Kong Science and Technology Parks Corporation” under Head 111 “Innovation and Technology” with a commitment of \$57,859,000 to support the establishment of an integrated-circuit development support centre in Hong Kong.

PROBLEM

The local integrated-circuit (IC) design industry needs infrastructural support to facilitate its upgrading in innovation and technology development and to enhance its competitiveness.

PROPOSAL

2. The Commissioner for Innovation and Technology, with the support of the Secretary for Commerce, Industry and Technology, proposes to allocate \$57,859,000 from the Innovation and Technology Fund (ITF) to support the Hong Kong Science and Technology Parks Corporation (HKSTPC) in establishing an IC development support centre, which aims to strengthen Hong Kong’s IC design capabilities.

/JUSTIFICATION

JUSTIFICATION

IC design in Hong Kong

3. The local electronics industry is Hong Kong's largest merchandise export earner, accounting for 39.1% of the total merchandise exports in 2002. Hong Kong's total exports of electronics reached \$610 billion in 2002, representing an increase of 13.4% over 2001.

4. IC design is a critical and high value-added segment in the production chain for electronics, which includes IC design, testing, wafer fabrication, assembly, packaging, equipment manufacturing and sales. IC design supports electronics industry and is also an industry in its own right. The applications of IC design are very wide-ranging including but not limited to computers, phones, calculators, watches, personal digital assistants (PDA), toys, remote controllers, alarm systems, television, etc.

5. As the IC design industry is capital-intensive and requires substantial investments, it presents a critical entry barrier to many of the relatively small and medium-sized local companies. Currently, most of the Hong Kong electronics manufacturers outsource their critical IC components to overseas suppliers. In order to upgrade Hong Kong's product design and innovation, it will be essential to raise the local electronics industry's capabilities in IC design. Studies conducted by the Federation of Hong Kong Industries and the Hong Kong Electronic Industries Association have concluded that Hong Kong's electronics industry has significant development potential, if supported by a stronger presence of the local IC design industry.

6. IC design presents good potential for Hong Kong because -
- (a) we have a strong user base with regard to the well-established electronics industry both in Hong Kong and the Pearl River Delta region;
 - (b) we are well supported with manufacturing facilities, including foundries, in the neighbouring region;
 - (c) we have a reasonably respectable design capability and presence, from training to small and medium-sized IC design enterprises; and

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- (d) Hong Kong has a strong intellectual property protection regime critical for the growth of knowledge-based industries like IC design.

Proposed IC Development Support Centre

7. HKSTPC has recently applied for funding from ITF to establish an IC Development Support Centre in the Science Park, where a nascent cluster of IC design companies is emerging^{Note}. Coupled with the IC design support facilities (with computer-aided design tools, software and supporting staff) that are being developed at the Science Park, the proposed support centre aims at providing a one-stop service to IC design companies from design stage to production release. The services to be provided include -

- (a) probe and test development services, with the aid of advanced systems for testing and debugging hardware and software design;
- (b) reliability and product analysis services; and
- (c) multi-project wafer shuttle services. This refers to the photo-masking process, which is generally very expensive for a user who has only a small number of designs. The centre will provide “bundled” photo-masking services so that a maximum of 16 different designs can be included in one mask set and users will only need to commit a portion of the total mask set cost.

Encl. HKSTPC’s proposal is detailed at Enclosure.

8. Potential clients of the proposed centre are tenants of the Science Park, HKSTPC’s incubatees, IC design companies based in Hong Kong and other strategic partners of HKSTPC. HKSTPC estimates that as the capital and resources in IC design, wafer shuttle, test development, reliability and product analysis, etc. will be shared out among a large number of users, and with a time-based charging scheme, individual users may expect to reduce the product development cost and cycle time by as much as 60%.

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^{Note} The Science Park is developing along four technology-based clusters, including electronics. As at end February 2003, the HKSTPC has approved admission of 25 companies as tenants and another eight companies as incubatees into the Science Park. 16 of them are in the electronics sector and some of them specialize in IC design.

9. The centre, when fully established, is expected to lower the entry barrier for the design and development of IC in terms of cost and technical know-how. It would help spawn new investments, both local and foreign, in the fabless IC design business in Hong Kong. More electronic end-product producers may be encouraged to invest in IC design, increasing the value of their products and encapsulating their intellectual property in IC.

10. The ITF Electronics Projects Vetting Committee has considered HKSTPC's proposal and has concluded that the proposed IC development support centre would be beneficial to Hong Kong's electronics industry by providing a platform to facilitate technology development of the industry. It would help the industry become more competitive and thus bring wider economic benefits to Hong Kong as a whole. It supports the establishment of the proposed centre and has recommended that a grant under ITF be made towards the centre's establishment cost and its operating cost for the first year.

FINANCIAL IMPLICATIONS

11. HKSTPC and ITF will share the aggregate of the start-up cost and operating expenditure for the first three years of operation, after deducting sponsorship to be obtained from industry and the centre's operating income, on a 50:50 basis. HKSTPC will provide the centre with the necessary technical support and services, including training and hardware maintenance. It will also absorb the staff cost beyond the initial year of operation. ITF will be responsible for the start-up cost and operating cost for the first year of operation. A grant of \$57.9 million, derived as follows, is required from ITF -

	\$'000
Costs	
(a) Staff cost for first year of operation	6,144
(b) Equipment	55,371
(c) Other direct costs	<u>11,119</u>
Sub-total	72,634
Less income	
(d) Sponsorship from industry	11,335
(e) Operating income	<u>3,440</u>
Grant from ITF	<u>57,859</u>

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The proposed centre is expected to become self-financing from the fourth year of operation, largely relying on fees charged for use of the centre's services and equipment.

12. As regards paragraph 11(a) above, the provision of \$6,144,000 covers the salaries and Mandatory Provident Fund contribution for engaging a centre manager, six test engineers, eight technicians and an office administrator for one year (staff costs to be incurred in subsequent years will be covered by HKSTPC).

13. As regards paragraph 11(b) above, the provision of \$55,371,000 is for acquiring equipment required for the provision of services in probe and test development, reliability testing and product analysis.

14. As regards paragraph 11(c) above, the provision of \$11,119,000 is to cover other direct costs such as hardware leasing, consumable parts and marketing expenses to promote the centre.

15. As regards paragraph 11(d) above, HKSTPC will secure the sponsorship of \$11,335,000 from industries. The sponsorship will be in the form of provision of equipment in kind.

16. As regards paragraph 11(e) above, the centre is expected to generate a modest income of \$3,440,000 in its first year of operation through charging fees for use of the centre's facilities and services.

17. Subject to Members' approval of the proposal, we will meet the grant of \$57,859,000 to HKSTPC by offsetting an equivalent amount under Subhead 101 Innovation and Technology (block vote).

CONTROL MECHANISM

18. To ensure that the grant under ITF is fully and properly applied to the establishment of the IC development support centre, HKSTPC will be required to submit half-yearly progress report and a final report to the ITF Electronics Projects Vetting Committee setting out the progress made in meeting the project milestones and deliverables as well as an account audited by an independent auditor.

/CONSULTATION

CONSULTATION WITH LEGISLATIVE COUNCIL PANEL

19. We consulted the Legislative Council Panel on Commerce and Industry on the proposal on 12 May 2003. Members supported the proposal.

BACKGROUND INFORMATION

20. The ITF was established on 30 June 1999 to finance projects to help promote innovation and technology upgrading in manufacturing and service industries with a view to enhancing Hong Kong's economic development. Members approved, on 9 July 1999 vide FCR(1999-2000)36, an appropriation of \$5 billion to the ITF and the arrangement whereby the Financial Secretary has delegated authority to approve individual projects not exceeding the prevailing funding ceiling of a Category D project in the Public Works Programme (currently at \$15 million). Projects exceeding the \$15 million funding ceiling require Members' approval under a separate individual subhead in Head 111 and the project cost will be offset by deleting an equivalent amount under Subhead 101 Innovation and Technology (block vote).

Commerce, Industry and Technology Bureau
June 2003

HKSTPC's proposal on IC development support centre

1. Project Title

Establishment of Integrated Circuit (IC) Development Support Centre by the Hong Kong Science and Technology Parks Corporation.

2. Abstract

This project aims to establish an integrated-circuits (IC) development support centre, which will be located at the Hong Kong Science Park. It will provide one-stop service to companies engaged in IC development - one of the most important technological foundations of a high value-added electronics industry. The centre will support the IC product development cycle by Hong Kong-based IC companies on an end-to-end basis with quality infrastructure and shared support services, which will in turn support the electronics end-product manufacturers in Hong Kong and attract international IC design firms to Hong Kong.

3. Objectives

The local electronics industry is facing a barrier in entering the high value-added market because the local capability of developing IC components still has room for further upgrading.

Today most of the Hong Kong electronic manufacturers outsource their critical IC components to overseas suppliers. In many cases, the intellectual property of these critical IC components is controlled by those who supply these IC components.

The main objectives of this project are to establish an IC development support centre to be shared among Hong Kong-based IC companies, and to enable the growth of an IC design and development industry in Hong Kong. With the quality infrastructure, IC development cycle time and cost will be greatly reduced and be able to supply these critical IC components to electronics manufacturers in Hong Kong and Pearl River Delta. In addition, the start-up capital requirements of an IC design company will be reduced substantially.

4. Deliverables

The IC Development Support Centre will include –

- Probe and Test Development services, which will be equipped with advanced automated test equipment, wafer preparation tools, RF equipment for shared use;
- Reliability Testing services, which will be equipped with IC life and environment test equipment for shared use;
- IC Product Analysis services, which will be equipped with advanced measurement and analysis equipment to support mixed signal/RF/analog IC development with upgrade capability to support 0.13µm/submicron IC evaluation and circuit editing; and
- Multi-Project Wafer Shuttle Service, which will allow up to 16 different vendors to pool their designs in one mask set and hence reduce wafer foundry costs.

5. Budget (1 September 2003 to 31 August 2004)

			Total
5.1	Expenditure		
	Manpower		\$6,144,000
	(including 1 Centre Manager, 6 Test Engineers, 8 Lab Technicians and 1 Office Administrator)		
	Equipment		\$55,371,000
	Probe and Test Development		(27,476,000)
	Reliability Testing		(8,482,000)
	IC Product Analysis		(19,413,000)
	Other Direct Costs		\$11,119,000
	(including hardware leasing, consumable parts and marketing expenses)		
	Sub-total		\$72,634,000
5.2	Amount of Sponsorship		<hr/>
	Sub-total		\$11,335,000 <hr/>
5.3	Net Amount Requested from the Innovation and Technology Fund		
	Total Expenditure	Total Sponsorship	Total Income
			Net Requested Amount
	\$72,634,000	\$11,335,000	\$3,440,000
			\$57,859,000

