

Asia/Pacific Research Center

Institute for International
Stanford University





Taipei's Changing Role in the Global IT Industry

Taipei Mayor Dr. Ying-Jeou Ma



Digital Taipei's New Vision

- **Technology cooperation springboard**
 - ▣ Focus moves to Asia-Pacific manufacturers
 - ▣ Taipei-Hsinchu corridor
 - ▣ High-tech paradise

- **Greater China's best test market**
 - ▣ Narrowly defined: China, Taiwan and HK
 - ▣ Broadly defined: Chinese-culture across the Asia-Pacific region



Taipei: The best IT application test market

1. Taipei – Cyber City

- **Rapid IT application development, high e-penetration**
 - 75% of citizens use computers
 - Highest mobile phone penetration in Asia
 - Highest proportion of Internet users in Asia
 - World's highest cable TV penetration
- **High quality application environment**
 - Internet penetration over 85%, including:
 - 66% of households and 72% of citizens
 - 42% of households have broadband access
 - 81% of citizens use mobile phones

A large orange arrow pointing from the left towards the award text.

2002 World Congress on Information Technology (WCIT)
“Public Sector Excellence” award presented to Taipei for its CyberCity initiative.



2. Taipei – East-West digital culture crucible



America

➤ Taiwan's advantages: marketing to core markets

- Most US-educated overseas students
- Highest proportion of Japanese speakers outside Japan
- Best understanding of China market
- Successful technology commercialization experience

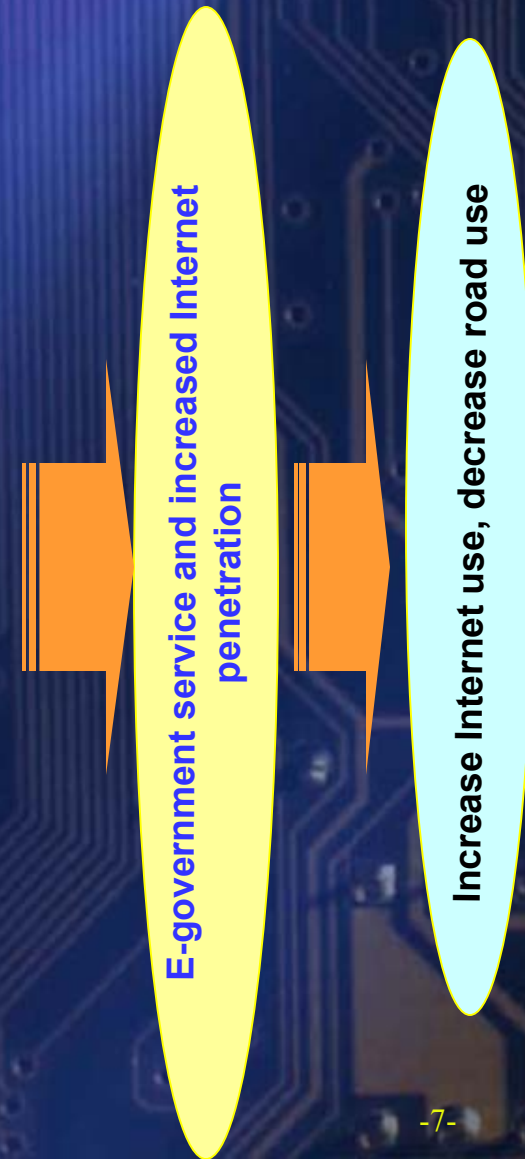
• China

To the world

Taipei

3. Network infrastructure

Type	Item	Indicator	
		2001	2002
Service	City residents going online	1.2m	1.6-2m
	City residents with email	1.2m	1.6-2m
	Public information service stations	400	800
Process	City government employees and agencies with email	100%	100%
	City government agencies with websites	100%	100%
	Electronic exchange of documents between city agencies	30%	40%
	Reduction of city government paper licenses, certificates, etc.	40%	60%
	City government application forms online	50%	80%
	One PC per city government employee	90%	100%
Education	Residents who have participated in three-hour, free Internet-use training	150,000	200,000
	Taipei public elementary and junior high school classes with Internet access	100%	100%
	Computer equipment in Taipei public elementary and junior high schools	1 PC/ 11 students	1PC/ 8.7students
	City government agencies with broadband access	100%	100%
Information infrastructure	Issuing electronic IDs for city residents	In the works	





Overview of Taiwan IC and IT Industry



Key Factors Influencing Taiwan IT and IC Industry

- More production moving to Asia
- OEM ratio increasing
- Rules of IC industry changing
- Stably growing Asian market
- Open architecture
- Own manufacturing => outsourcing



Shipment Projection for Taiwan's Main IT Products in 2003

Unit: Thousand sets

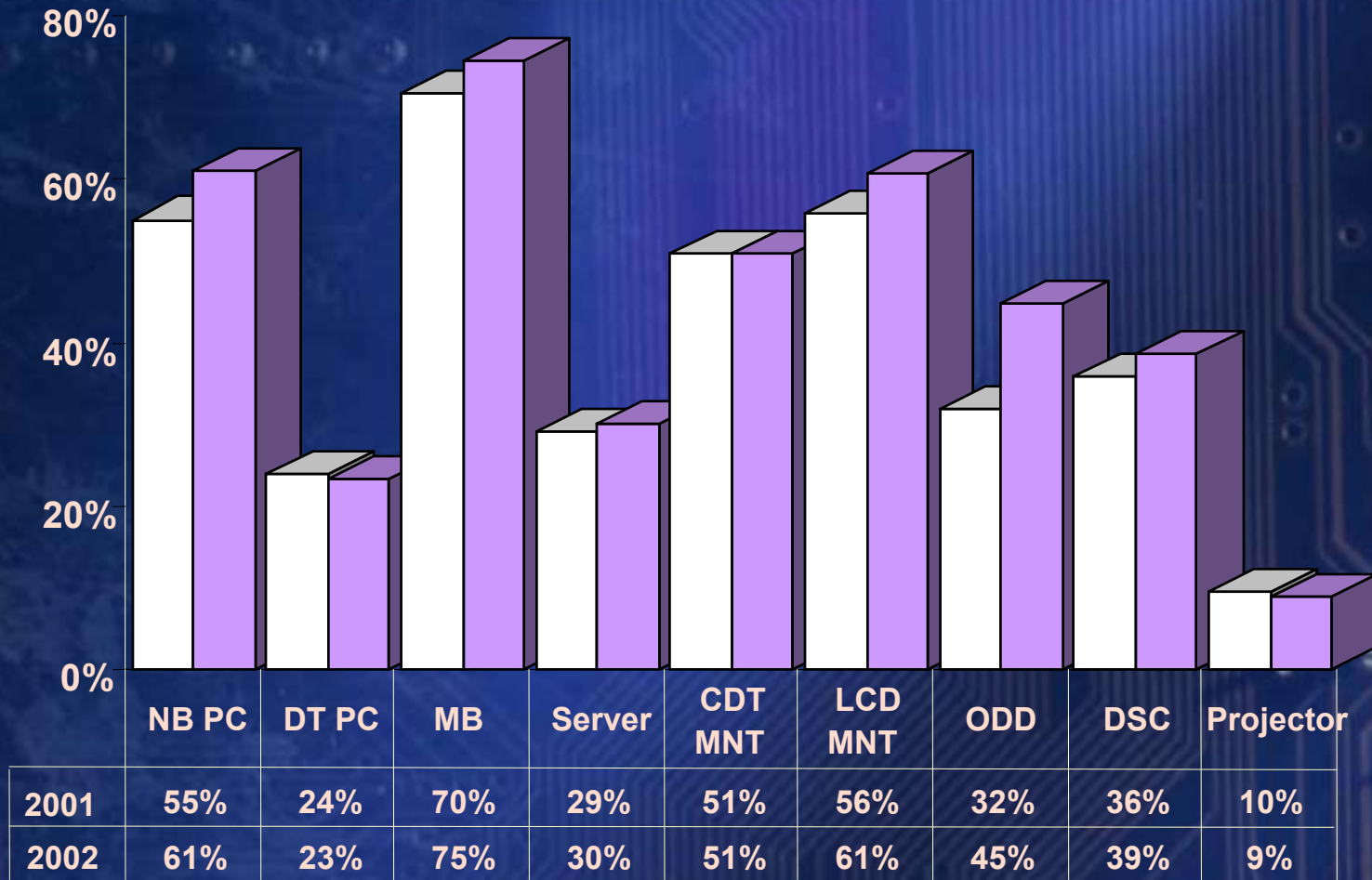
Products	2002	2003	G.R.(YoY)
Notebook PC	15,008	23,065	26.7%
Desktop PC	24,740	25,482	3.0%
Motherboard	86,551	97,482	12.6%
Server	1,438	1,656	11.5%
LCD Monitor	18,254	29,057	59.2%
CDT Monitor	42,910	40,648	-5.3%
ODD	79,410	81,000	2.0%
DSC	8,753	10,775	23.1%
Projector	149	223	49.7%

Source: MIC/III, Dec. 2002



WW Market Shares of Taiwan's Main IT Products

Volume ■ 2001 ■ 2002

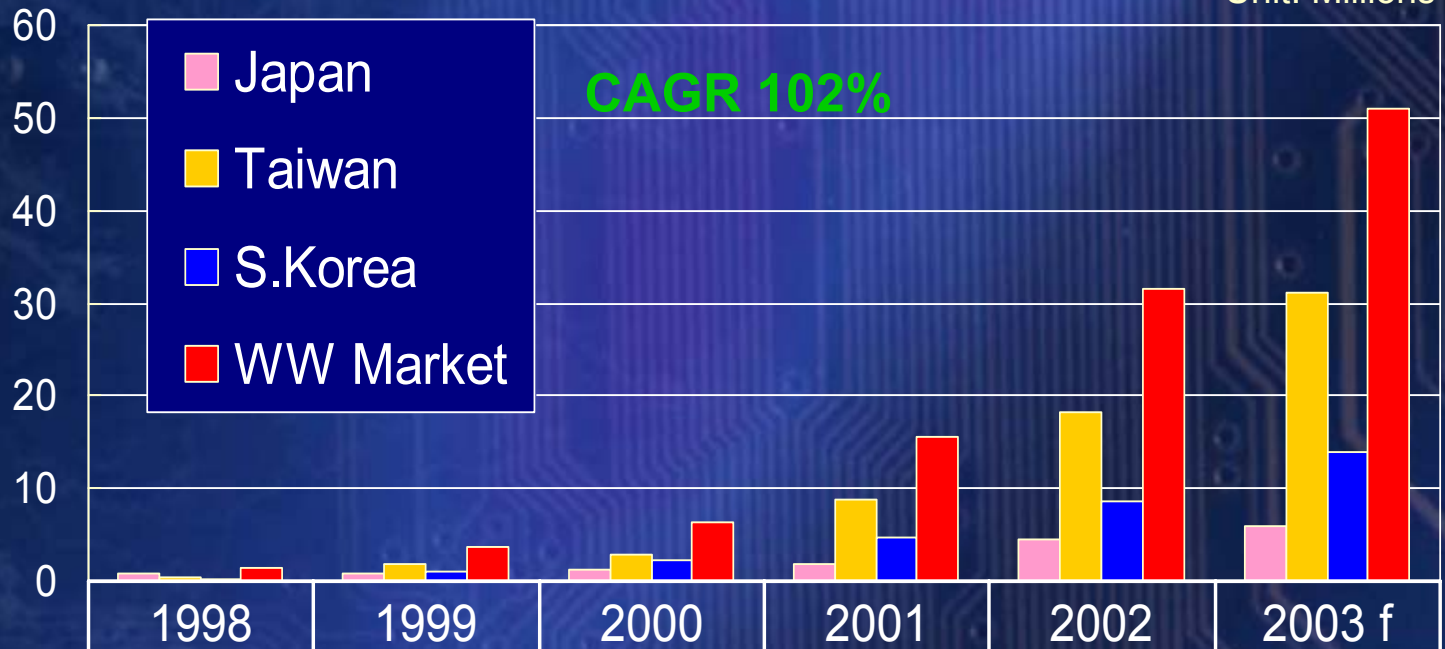


Source: MIC/III, Dec. 2002



WW LCD Monitor Shipment

Unit: Millions

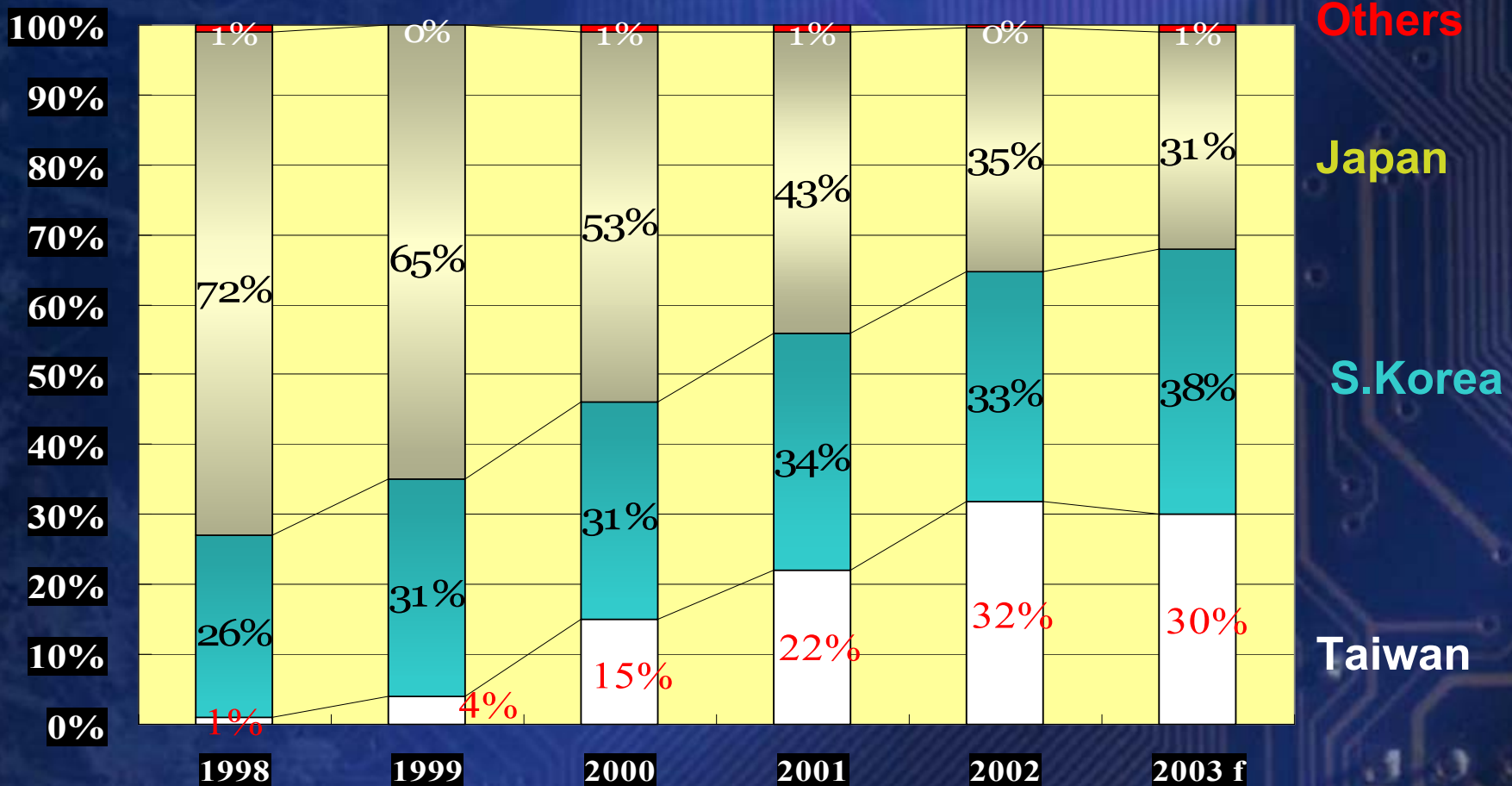


Japan	0.8	0.9	1.3	1.9	4.5	6.0
Taiwan	0.4	1.8	2.8	8.8	18.3	31.1
S.Korea	0.2	1.1	2.2	4.7	8.7	13.9
WW Market	1.5	3.7	6.4	15.6	31.5	51.0

Source: DisplaySearch, EIAJ, DigiTimes, August 2003

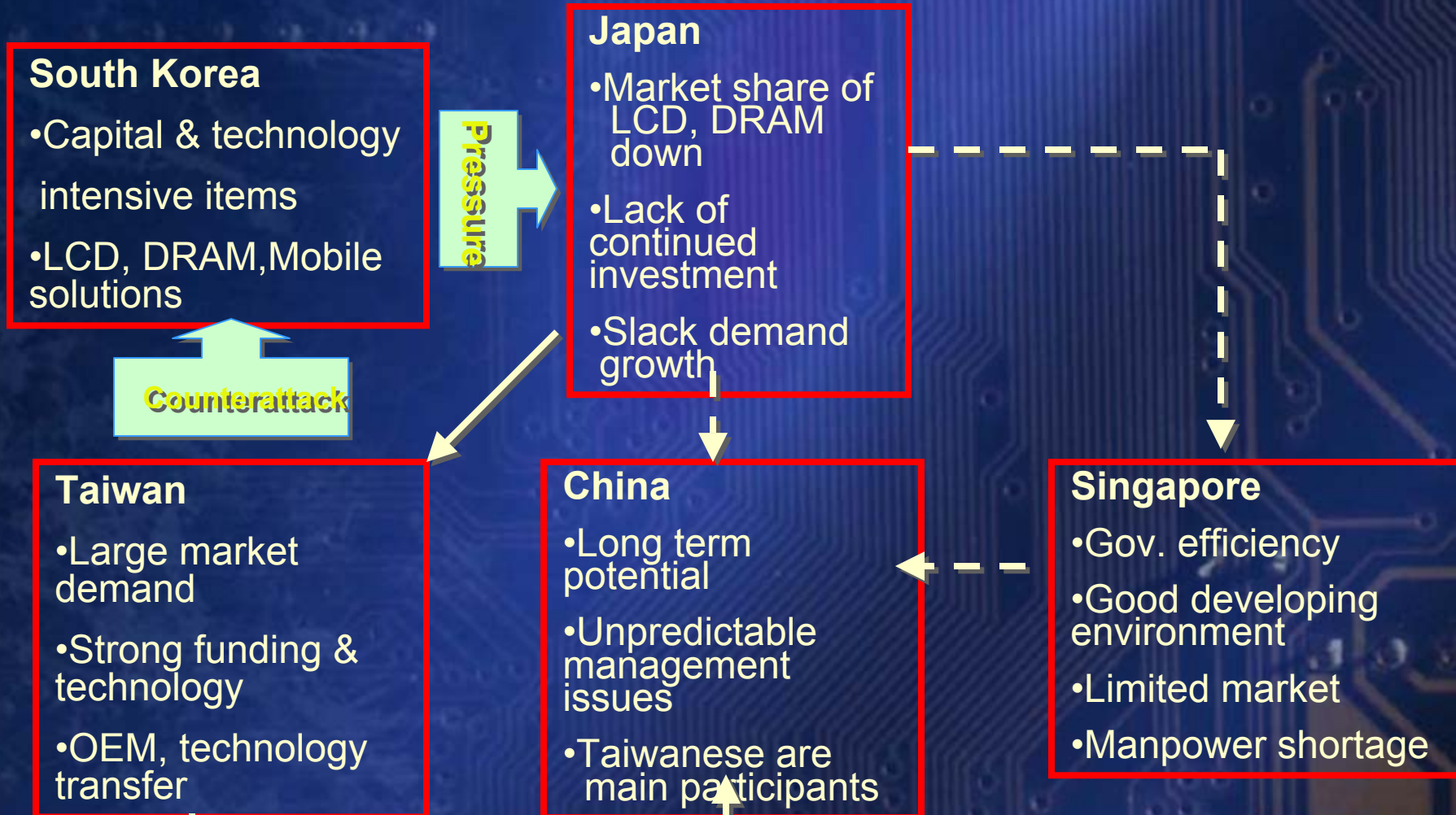


TFT LCD Panel W/W Market Share



The WW production value includes large & small/medium size TFT LCD
 Source: DigiTimes, August 2003

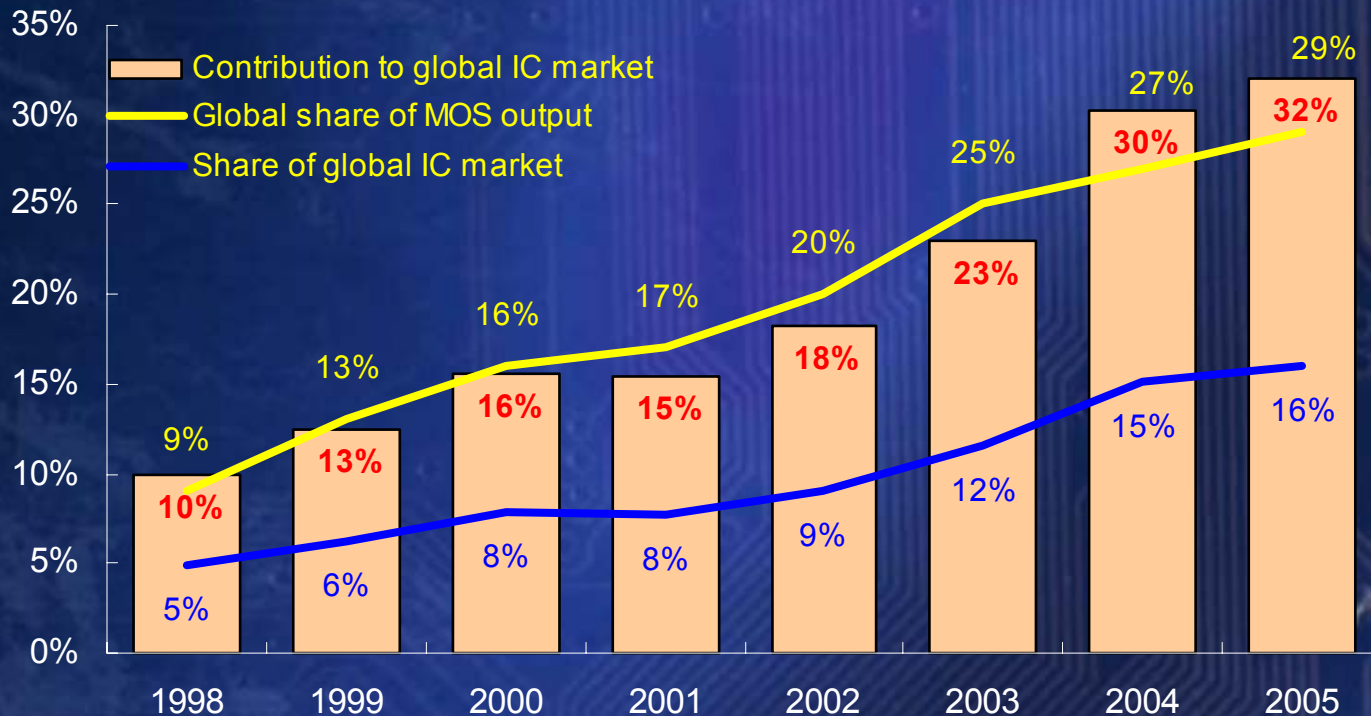
Asian Key Component Interaction





Foundry Output Contribution

Unit: %



Source: IC Insights, 2002



Top 5 Foundry Company Market Share(2003.1~6)

Ranking	Company	Revenue USD:million	Market Share
1	TSMC (Taiwan)	2,566	51%
2	UMC (Taiwan)	1,269	25%
3	Charter (Singapore)	305	6%
4	Dongbu (Korea)	175	4%
5	SMIC (China)	115	2%



Drivers of Taiwan's IC Industry

☞ Fabless

- ◆ Growing Worldwide Fabless Industry
- ◆ China becoming Huge Market
- ◆ Strong in PC & Communications
- ◆ Conventional Consumer Market to Digital Consumer

☞ IDM

- ◆ IDM Outsourcing & Joint-Venture
- ◆ More Diversified Product Strategy

☞ Foundry

- ◆ Leading Technology, Capacity and Productivity
- ◆ All Have 12-inch Fab Construction Plan



Taipei's competitive advantages



To the world

• **Guangzhou**
• **Shenzhen**

- Taipei-Hsinchu corridor
 - Taipei to Linkou : World's largest NBPC production base
 - Taipei County: Largest motherboard production base
 - Taipei & Taoyuan: Best support base for global PC industry
- Optimizes strategic location in double golden triangles
 - with Tokyo, Silicon Valley and China



Taipei – Asia-Pacific technology logistics hub

➤ Superior geographic position

- Regional center of business activity in Northeast Asia
- Relay station for air and sea transport
- 3 hours by air from the Western Pacific's 7 major cities

➤ Flexible financial markets

- Taiwan Stock Exchange – largest high-tech stock exchange after NASDAQ
- Unending supply of start-up firms, high success rate

➤ Abundance of high-quality human resources

- Population of 2.6 million, 27 colleges
- 10+ large research institutes, 15+ start-up incubators
- Greatest number of MBAs in Asia
- 39% of population college graduated
- Second-highest education expenditure per capita in Asia



Taipei Industry information exchange hub

- **Silicon Island - Taiwan**
 - ▣ World-class manufacturing industries
- **World-class supply-side information**
 - ▣ Digitimes.com
 - ▣ IEK/ITIS, MIC/III
- **Rapidly updated industry information system**
 - ▣ Real time Industry information
 - ▣ Taiwan, China, South Korea and Japan industry information
- **Most frequent high-tech symposia/forums**
 - ▣ Highest proportion of engineers
 - ▣ Needs for information quality and speed
 - ▣ Influences China IT industry's knowledge power



**Taipei's tomorrow
will be even better!**



1. Exhibitions help Taipei's position

➤ COMPUTEX Taipei

- ▣ World's second-largest computer exhibition
- ▣ Asia-Pacific industrial indicator exhibition

➤ SEMICON Taiwan

- ▣ World's major equipment market
- ▣ Equipment makers' best marketing base
- ▣ Potential market for IC design tools



3. Human resources incubator

- **Taiwan's competitive strengths**
 - ▣ Top-ranked universities in the Asia-Pacific region
 - ▣ Best publishing chains in the Asia-Pacific region
 - ▣ Dedicated, hard-working students
- **Taipei's opportunities**
 - ▣ Good living environment
 - ▣ City that operates close to round-the-clock
 - ▣ Worldwide high-tech company Asia R&D center
- **Operating model**
 - ▣ Source for high level executives
 - ▣ Applications design and innovation incubator

Industrial strategy

- Neihu, Nangang and Beitou districts as industry development centers
- Digital technology infrastructure and applications to create suitable development environment

Taipei MRT = industry development artery



- **Beitou**
 - ▣ Knowledge-based economy park
- **Neihu**
 - ▣ Technology Park
- **Nankang**
 - ▣ Software Park
 - ▣ Biotech Plaza
- **Taiwan's top EE/ME schools**
 - ▣ National Taiwan University of Science and Technology (NTUST)
 - ▣ National Taipei University of Technology (NTUT)
 - ▣ Cross-industry/university application design development center
- **Taiwan's top business schools**
 - ▣ NTU College of Management
 - ▣ NCCU College of Commerce
 - ▣ Industry-university cooperation
- ▣ **Taiwan's top universities**
 - ▣ National Taiwan
 - ▣ National Yang-Ming



1. Neihu Technology Park

- Cluster of 3C industry HQs and R&D centers
- Advanced telecom network
 - Three fixed-line operators located in Neihu
 - Internal, island-wide fiber-optic network
 - External, link to important Asia-Pacific cities and US West Coast
 - HQs of most new ISPs and IDCs located in Neihu
- Busy transportation network
 - Encircled by nine major highways, easy access to Songshan and Chiang Kai-shek airports, Hsinchu Science Park and Keelung port
 - Soon to be connected to Taipei by MRT
- Close to financial center and National Health Institute



2. Bio Taipei

➤ Seven major hospitals

- NTU Hospital, Veterans General Hospital, Tri-Service General Hospital,...

➤ International-level research

- Academia Sinica, National Health Research Institute, Development Center for Biotechnology...

➤ Concentration of biotechnology human resources

- NTU, Nat. Yang-Ming University, Nat. Defense Medical College

➤ Nankang Biotech Plaza

- Creating environment for biotech development
- Rent or purchase, first two-years low monthly rental ~80 cents/sq.ft
- Innovative education center planned



3. Knowledge-based economy park

- Development center targeting knowledge-based economy issues
- Close to major medical centers
 - Veteran's General Hospital, Shin Kong Wu Ho-Su Memorial Hospital
 - Cheng Hsing Rehabilitation Medical Center, Taipei Municipal Yang-Ming Hospital and National Yang-Ming University
- Adjacent to business districts
- Adjacent to the world-leading Taipei American School



4. Long-term partnerships

- **Leading international players**
 - Procurement and logistics
 - Product experiments and testing
- **Knowledge-based enterprises**
 - IC design and digital convergence
 - Consulting, training, media
 - Asia-Pacific headquarters
- **New industries including biotechnology**
 - Synergistic with mature IT industry
 - Able to leverage Taiwan's biotech strengths
- **Ready and willing to venture in new directions**



5. Government Support

- **Low-interest loans and tax incentives**
 - For companies in Neihu Technology Park & Nankang Software Park
 - >NT\$50 million for Taipei biotech start-ups and expansion
 - Low interest loans: facilitate access to low-interest capital or venture capital. Up to NT\$50 million at < 2.5% annual interest for 2 years.
 - Training: offer training or subsidize training (up to 50% of total, to maximum of NT\$500,000)
 - Land tax subsidies: for enterprises with own property, 100% tax subsidies for first two years, with 50% for following three years (to maximum of NT\$50 million)
- **Incentives for product commercialization, innovation**
- **Subsidies local and international patents**
- **Single contact window at Taipei City Government**

- **Technology is a field of unknowns**
- **Taipei City Government moving forward , by your side**



Thank You.



***Dr. Ying-jeou Ma
Mayor of Taipei City***



Appendix



Elitegroup Computer Systems (ECS)



- 2002 revenue: US\$1.88 billion
- Industry position
 - ▣ Taiwan's first publicly traded motherboard maker
 - ▣ One of world's top 2 motherboard makers
- Core business
 - ▣ Motherboards, graphics cards
 - ▣ Notebooks, barebone systems
 - ▣ IT product channel



Mitac-Synnex Group



- 2002 revenue: US\$10.144 billion
- Industry position
 - ▣ Taiwan's first IT industry corporate group
- Core business
 - ▣ Synnex: Asia's largest 3C distributor
 - ▣ Mitac International: Desktop PC, PDA & smart phone
 - ▣ Union Petrochemical: Plastic and textile
 - ▣ BOCLH: Major industrial gas supplier in Taiwan
 - ▣ LHIC: Major foodstuff manufacturer in Taiwan
 - ▣ Mitac Technology: Notebook PC manufacturer

Lite-On Group



- 2002 revenue: US\$4 billion
- Industry position
 - ▣ One of Taiwan's top 5 IT manufacturing groups
 - ▣ One of world's top 10 IT manufacturing groups
- Core business
 - ▣ Monitors, mobile phones, printers
 - ▣ LEDs and switching power supplies (SPS)
 - ▣ Lite-On IT: World's No.3 optical drive manufacturer
 - ▣ Dyna Image: Leading rectifier and CIS manufacturer



Ritek Group



- 2002 revenue: US\$556 million
- Industry position
 - Taiwan's first optical disc manufacturer
 - World's largest optical disc manufacturer
 - Leader in optoelectronics and fiber communications
- Core business
 - Ritek: World's largest optical disc manufacturer
 - RiT Display: Taiwan's No.1 OLED panel manufacturer
 - U-Tech: Taiwan's No.1 pre-recorded DVD manufacturer
 - Prorit: World's largest CD case and packing supplier



Compal Group



- 2002 revenue: US\$3.375 billion
- Industry position
 - World's top 2 notebook PC manufacturer
- Core business
 - World's top 2 notebook PC manufacturer
 - One of world's top ten display and mobile phone manufacturers
 - Compal Communication: GSM/GPRS and CDMA mobile phone developer and manufacturer
 - Toppoly: Taiwan's leading LTPS TFT-LCD panel manufacturer
 - International Semiconductor Technology: IC packaging services



Acer Group



- 2002 Group revenue: US\$1.9 billion
- Industry position
 - No.1 Chinese global brand
 - Europe's No.3 notebook PC brand
- Core business
 - Acer: Computer systems, PDAs, enterprise automation solutions
 - Acer CyberCentre Services (ACCSI): IDC services
 - Acer TWP: Internet games and commercial software



BenQ Group



- 2002 revenue: US\$3.58 billion
- Industry position
 - World's No.4 monitor, No.4 optical drive, and No.3 LCD panel supplier
 - Taiwan's No.1 mobile phone manufacturer
- Core business
 - AU Optronics: TFT-LCD
 - Darfon: Dedicated communications and precision component
 - Daxon: High-capacity optical storage media
 - Darly Venture: Investment window and new venture training center
 - BenQ Mobile System: 3G communications equipment
 - Copax Photonics: Integrated laser diode chip-out, optical and mechanical packaging, transceiver design and manufacturing capabilities



Delta Electronics



- 2002 revenue: US\$928 million
- Industry position
 - ▣ World's No.1 switching power supply manufacturer
- Core business
 - ▣ Delta: Power supplies for desktop & notebook PCs
 - ▣ Cyntec: Passive component & sensor manufacturer



- 2002 revenue: US\$185 million
- Industry position
 - Taiwan's No.1 industrial PC manufacturer
 - World's top 3 industrial PC manufacturer
- Core business
 - i4 (Internet Information Imaging): Solutions for document imaging in digital convergence applications
 - Axiomtek: Industrial PC manufacturer



Winbond Electronics



- 2002 revenue US\$930 million
- Industry position: World's No.7 DRAM maker in 1H 2003
- Core business: DRAM, Pseudo SRAM, Flash, LCD driver IC

- Other investments:
 - □ Hannstar: World's top 10 large-size TFT-LCD producer
 - □ Cheertek: IC design house specializing in DVD chipset, VCD chipset, CD-ROM decoder and servo
 - □ Hannstar Board: Multi-layer PCBs
 - □ WIC/ISD: IC design house specializing in audio ICs
 - □ Walton Advanced: Memory semiconductor assembly and test
 - □ Duratek: semiconductor spare parts & equipment, including CVD, PVD, Etcher...
 - □ VXIS: IC design house specializing in LCD and broadband video SOCs
 - □ AMCT: Gold bumping and micro nozzles
 - □ Avid: IC design house specializing in CD audio and scanner ICs