ADVANCED SEMICONDUCTOR ENGINEERING INC
Form 20-F
April 20, 2012

As filed with the Securities and Exchange Commission on April 20, 2012

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F

o REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2011

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

o SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Commission file number: 001-16125

(Exact Name of Registrant as Specified in Its Charter)

Advanced Semiconductor Engineering, Inc.
(Translation of Registrant's Name into English)

REPUBLIC OF CHINA
(Jurisdiction of Incorporation or Organization)

26 Chin Third Road
Nantze Export Processing Zone
Nantze, Kaohsiung, Taiwan
Republic of China
(Address of Principal Executive Offices)

Joseph Tung
Room 1901, No. 333, Section 1 Keelung Rd.
Taipei, Taiwan, 110
Republic of China
Tel: 886-2-8780-5489
Fax: 882-2-2757-6121
Email: ir@aseglobal.com
(Name, Telephone, Email and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on which Registered
Common Shares, par value NT$10.00 each	The New York Stock Exchange*

*Traded in the form of American Depositary Receipts evidencing American Depositary Shares, each representing five Common Shares

(Title of Class)

Securities registered or to be registered pursuant to Section 12(g) of the Act:

None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act:

None
(Title of Class)

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

6,755,605,772 Common Shares, par value NT$10 each **

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes þ No ¨

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes ¨ No þ

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes þ No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ¨ No ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer þ Accelerated filer ¨ Non-accelerated filer ¨

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ¨ International Financial Reporting Standards as issued by the International Accounting Standards Board ¨ Other þ

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow:

Item 17 ¨ Item 18 þ

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ¨ No þ

** As a result of the exercise of employee stock options and retirement of treasury shares subsequent to December 31, 2011, as of March 31, 2012, we had 6,654,716,832 shares outstanding.

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USE OF CERTAIN TERMS

All references herein to (i) the "Company," "ASE Group," "ASE Inc.," "we," "us," or "our" are to Advanced Semiconductor Engineering, Inc. and, unless the context requires otherwise, its subsidiaries, (ii) "ASE Test" are to ASE Test Limited, a company incorporated under the laws of Singapore, (iii) "ASE Test Taiwan" are to ASE Test, Inc., a company incorporated under the laws of the ROC, (iv) "ASE Test Malaysia" are to ASE Electronics (M) Sdn. Bhd., a company incorporated under the laws of Malaysia, (v) "ISE Labs" are to ISE Labs, Inc., a corporation incorporated under the laws of the State of California, (vi) "ASE Korea" are to ASE (Korea) Inc., a company incorporated under the laws of the Republic of Korea, (vii) "ASE Japan" are to ASE Japan Co. Ltd., a company incorporated under the laws of Japan, (viii) "ASE Shanghai" are to ASE (Shanghai) Inc., a company incorporated under the laws of the PRC, (ix) "ASE Electronics" are to ASE Electronics Inc., a company incorporated under the laws of the ROC, (x) "PowerASE" are to PowerASE Technology, Inc., a company incorporated under the laws of the ROC, (xi) "ASESH AT" are to ASE Assembly & Test (Shanghai) Limited, formerly known as Global Advanced Packaging Technology Limited, a company incorporated under the laws of the PRC, or GAPT, (xii) "ASEN" are to Suzhou ASEN Semiconductors Co., Ltd., a company incorporated under the laws of the PRC, (xiii) "ASEWH" are to ASE (Weihai), Inc., a company incorporated under the laws of the PRC, (xiv) "ASEKS" are to ASE (KunShan) Inc., a company incorporated under the laws of the PRC, (xv) "Universal Scientific" or "USI" are to Universal Scientific Industrial Co., Ltd., a company incorporated under the laws of the ROC, and, unless the context requires otherwise, "Universal Scientific Group" are to Universal Scientific and its subsidiaries, (xvi) "Universal Scientific Shanghai" are to Universal Scientific Industrial (Shanghai) Co., Ltd., a company incorporated under the laws of the PRC, (xvii) "Hung Ching" are to Hung Ching Development & Construction Co. Ltd., a company incorporated under the laws of the ROC, (xviii) "EEMS Test Singapore" are to EEMS Test Singapore Pte. Ltd., a company incorporated under the laws of Singapore, which changed its name to ASE Singapore II Pte. Ltd. and was subsequently merged into ASE Singapore Pte. Ltd. on January 1, 2011, (xix) "ASE Material" are to ASE Material Inc., a company previously incorporated under the laws of the ROC that merged into ASE Inc. on August 1, 2004, (xx) "ASE Chung Li" are to ASE (Chung Li) Inc., a company previously incorporated under the laws of the ROC that merged into ASE Inc. on August 1, 2004, (xxi) "Yang Ting" are to Yang Ting Tech Co., Ltd., a company incorporated under the laws of the ROC, (xxii) the "SEC" are to the Securities and Exchange Commission of the U.S., (xxiii) the "Securities Act" are to the U.S. Securities Act of 1933, as amended, and (xxiv) the "Exchange Act" are to the U.S. Securities Exchange Act of 1934, as amended.

All references to the "Republic of China," the "ROC" and "Taiwan" are to the Republic of China, including Taiwan and certain other possessions. All references to "Korea" or "South Korea" are to the Republic of Korea. All references to the "PRC" are to the People's Republic of China and exclude Taiwan, Macau and Hong Kong.

We publish our financial statements in New Taiwan dollars, the lawful currency of the ROC. In this annual report, references to "United States dollars," "U.S. dollars" and "US$" are to the currency of the United States; references to "New Taiwan dollars," "NT dollars" and "NT$" are to the currency of the ROC; references to "RMB" are to the currency of the PRC; references to "JP¥" are to the currency of Japan; references to "MYR" are to the currency of Malaysia; references to "SGD" are to the currency of Republic of Singapore; references to "KRW" are to the currency of Republic of Korea; and references to "EUR" are to the currency of the European Union. Unless otherwise noted, all translations from NT dollars to U.S. dollars were made at the exchange rate as set forth in the H.10 weekly statistical release of the Federal Reserve System of the United States (the "Federal Reserve Board") as of December 30, 2011, which was NT$30.27=US$1.00, and all translations from RMB to U.S. dollars were made at the exchange rate as set forth in the H.10 weekly statistical release of the Federal Reserve Board as of December 30, 2011, which was RMB 6.2939=US$1.00. All amounts translated into U.S. dollars in this annual report are provided solely for your convenience and no representation is made that the NT dollar/RMB or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or NT dollars/RMB, as the case may be, at any particular rate or at all. On April 6, 2012, the exchange rate between NT dollars and U.S. dollars as set forth in the H.10 weekly statistical release by the Federal

Reserve Board was NT$29.50=US$1.00. On April 6, 2012, the exchange rate between RMB and U.S. dollars as set forth in the H.10 weekly statistical release by the Federal Reserve Board was RMB 6.3052=US$1.00.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This annual report on Form 20-F contains "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, including statements regarding our future results of operations and business prospects. Although these forward-looking statements, which may include statements regarding our future results of operations, financial conditions or business prospects, are based on our own information and information from other sources we believe to be reliable, you should not place undue reliance on these forward-looking statements, which apply only as of the date of this annual report. We were not involved in the preparation of these projections. The words "anticipate," "believe," "estimate," "expect," "intend," "plan" and similar expressi as they relate to us, are intended to identify these forward-looking statements in this annual report. Our actual results of operations, financial conditions or business prospects may differ materially from those expressed or implied in these forward-looking statements for a variety of reasons, including risks associated with cyclicality and market conditions in the semiconductor or electronic industry; demand for the outsourced semiconductor packaging, testing and electronic manufacturing services we offer and for such outsourced services generally; the highly competitive semiconductor or manufacturing industry we are involved in; our ability to introduce new technologies in order to remain competitive; international business activities; our business strategy; our future expansion plans and capital expenditures; the strained relationship between the ROC and the PRC; general economic and political conditions; the recent global economic crisis; possible disruptions in commercial activities caused by natural or human-induced disasters; fluctuations in foreign currency exchange rates; and other factors. For a discussion of these risks and other factors, see "Item 3. Key Information—Risk Factors."

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PART I

Item 1. Identity of Directors, Senior Management and Advisers

Not applicable.

Item 2. Offer Statistics and Expected Timetable

Not applicable.

Item 3. Key Information

SELECTED FINANCIAL DATA

The selected consolidated statements of income data and cash flow data for the years ended December 31, 2009, 2010 and 2011, and the selected consolidated balance sheet data as of December 31, 2010 and 2011, set forth below are derived from our audited consolidated financial statements included in this annual report and should be read in conjunction with, and are qualified in their entirety by reference to, these consolidated financial statements, including the notes thereto. The selected consolidated statements of income data and cash flow data for the years ended December 31, 2007 and 2008 and the selected consolidated balance sheet data as of December 31, 2007, 2008 and 2009, set forth below, are derived from our audited consolidated financial statements not included herein and have been classified to conform to the presentation of the consolidated financial statements in this annual report. Our consolidated financial statements have been prepared and presented in accordance with accounting principles generally accepted in the ROC, or ROC GAAP, which differ in some material respects from accounting principles generally accepted in the United States of America, or U.S. GAAP. See note 33 to our consolidated financial statements for a description of the significant differences between ROC GAAP and U.S. GAAP for the periods covered by these consolidated financial statements.

	As of and for the Year Ended December 31,					
	2007	2008	2009	2010	2011	
	NT$	NT$	NT$	NT$	NT$	US$
	(in millions, except earnings per share and per ADS data)					
ROC GAAP:						
Income Statement Data:						
Net revenues	101,163.1	94,430.9	85,775.3	188,742.8	185,347.2	6,123.1
Cost of revenues(1)	(72,714.4)	(72,347.7)	(67,433.6)	(148,198.2)	(150,338.4)	(4,966.6)
Gross profit	28,448.7	22,083.2	18,341.7	40,544.6	35,008.8	1,156.5
Total operating expenses	(9,580.6)	(10,524.1)	(9,131.8)	(16,445.6)	(18,187.6)	(600.8)
Income from operations	18,868.1	11,559.1	9,209.9	24,099.0	16,821.2	555.7
Non-operating income (expense), net (1)	(1,516.2)	(2,083.3)	(821.5)	(1,275.4)	175.9	5.8
Income before income tax	17,351.9	9,475.8	8,388.4	22,823.6	16,997.1	561.5
Income tax expense	(3,357.4)	(2,268.3)	(1,484.9)	(3,628.7)	(3,018.2)	(99.7)
Net income	13,994.5	7,207.5	6,903.5	19,194.9	13,978.9	461.8
Attributable to						
Shareholders of the parent	12,165.3	6,160.1	6,744.6	18,337.5	13,726.0	453.5
Minority interest	1,829.2	1,047.4	158.9	857.4	252.9	8.3
	13,994.5	7,207.5	6,903.5	19,194.9	13,978.9	461.8
Earnings per common share(2):						

Basic	1.84	0.93	1.07	2.78	2.08	0.07
Diluted	1.78	0.91	1.05	2.73	2.03	0.07
Dividends per common share(3)	2.96	2.00	0.50	1.20	1.80	0.06
Earnings per equivalent ADS(2):						
Basic	9.20	4.66	5.33	13.92	10.41	0.34
Diluted	8.89	4.56	5.26	13.64	10.16	0.34
Number of common shares(4):						
Basic	6,610.8	6,613.3	6,331.2	6,585.3	6,592.5	6,592.5
Diluted	6,907.9	6,692.3	6,386.0	6,669.1	6,755.1	6,755.1

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	As of and for the Year Ended December 31,					
	2007	2008	2009	2010	2011	
	NT$	NT$	NT$	NT$	NT$	US$
	(in millions, except earnings per share and per ADS data)					
Number of equivalent ADSs:						
Basic	1,322.2	1,322.6	1,266.2	1,317.1	1,318.5	1,318.5
Diluted	1,381.6	1,338.5	1,277.2	1,333.8	1,351.0	1,351.0
Balance Sheet Data:						
Current assets	56,902.0	46,347.2	61,398.7	85,598.9	90,131.7	2,977.6
Long-term investments	4,850.2	4,327.0	5,160.0	2,400.1	2,220.7	73.4
Property, plant and equipment, net	81,788.3	84,758.0	79,363.9	99,853.9	111,779.0	3,692.7
Intangible assets	4,732.3	12,592.0	12,232.7	15,248.1	15,772.5	521.0
Other assets	4,066.2	4,039.1	3,819.5	5,038.7	3,974.2	131.3
Total assets	152,339.0	152,063.3	161,974.8	208,139.7	223,878.1	7,396.0
Short-term borrowings(5)	15,773.9	11,473.2	13,960.3	17,173.5	26,426.1	873.0
Long-term liabilities(6)	23,897.6	51,495.5	49,306.0	52,533.8	50,225.1	1,659.2
Other liabilities(7)	22,927.6	17,133.8	23,994.8	46,593.1	44,944.4	1,484.8
Total liabilities	62,599.1	80,102.5	87,261.1	116,300.4	121,595.6	4,017.0
Capital stock	54,475.6	56,904.3	54,798.8	60,519.9	67,535.6	2,231.1
Minority interest in consolidated subsidiaries	14,566.5	2,288.7	3,097.7	3,283.0	1,113.0	36.8
Total shareholders' equity	89,739.9	71,960.8	74,713.7	91,839.3	102,282.5	3,379.0
Cash Flow Data:						
Net cash outflow from acquisition of property, plant and equipment	(17,190.4)	(18,583.3)	(11,445.6)	(34,109.1)	(29,417.9)	(971.9)
Depreciation and amortization	16,626.2	17,244.9	17,638.0	19,854.5	22,945.4	758.0
Net cash inflow from operating activities	28,310.6	30,728.8	15,517.2	36,965.1	31,936.7	1,055.1
Net cash outflow from investing activities	(18,108.4)	(36,359.2)	(15,980.7)	(36,085.5)	(32,030.7)	(1,058.2)
Net cash inflow (outflow) from financing activities	(8,492.7)	13,862.4	(2,778.5)	1,701.5	(342.6)	(11.3)
Segment Data:						
Net revenues:						
Packaging	78,516.3	73,391.6	67,935.5	101,071.3	102,677.3	3,392.0
Testing	20,007.8	19,021.4	15,795.1	21,957.0	21,932.2	724.6
Electronic manufacturing services(8)	—	—	—	59,577.4	57,850.4	1,911.1
Others	2,639.0	2,017.9	2,044.7	6,137.1	2,887.3	95.4
Gross profit:						
Packaging	20,413.4	14,474.6	12,547.9	21,320.6	20,206.4	667.5
Testing	7,373.5	6,255.3	4,453.0	8,245.7	6,978.6	230.5
Electronic manufacturing services(8)	—	—	—	6,482.2	6,350.4	209.8
Others	661.8	1,353.3	1,340.8	4,496.1	1,473.4	48.7

	As of and for the Year Ended December 31,					
	2007	2008	2009	2010	2011	
	NT$	NT$	NT$	NT$	NT$	US$

(in millions, except earnings per share and per ADS data)

U.S. GAAP:						
Income Statement Data:						
Net revenues	101,163.1	94,430.9	85,775.3	188,742.8	185,347.2	6,123.1
Cost of revenues	(75,139.9)	(73,001.9)	(68,350.9)	(148,887.5)	(150,793.7)	(4,981.6)
Gross profit	26,023.2	21,429.0	17,424.4	39,855.3	34,553.5	1,141.5
Total operating expenses	(10,898.1)	(10,615.0)	(9,431.5)	(16,877.3)	(18,450.9)	(609.5)
Income from operations	15,125.1	10,814.0	7,992.9	22,978.0	16,102.6	532.0
Non-operating income (expense), net	(134.0)	(1,664.9)	(679.5)	504.5	647.4	21.4
Income before income tax	14,991.1	9,149.1	7,313.4	23,482.5	16,750.0	553.4
Income tax expense	(3,262.5)	(2,503.5)	(1,793.0)	(4,581.5)	(2,969.6)	(98.1)
Net income	11,728.6	6,645.6	5,520.4	18,901.0	13,780.4	455.3
Attributable to						
Shareholders of the parent	9,931.1	5,492.1	5,317.5	18,158.2	13,532.5	447.1
Noncontrolling interest	1,797.5	1,153.5	202.9	742.8	247.9	8.2
	11,728.6	6,645.6	5,520.4	18,901.0	13,780.4	455.3

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	As of and for the Year Ended December 31,					
	2007	2008	2009	2010	2011	
	NT$	NT$	NT$	NT$	NT$	US$
	(in millions, except earnings per share and per ADS data)					
Earnings per common share(2):						
Basic	1.52	0.83	0.84	2.76	2.05	0.07
Diluted	1.47	0.82	0.83	2.73	2.04	0.07
Earnings per equivalent ADS(2):						
Basic	7.61	4.17	4.20	13.79	10.26	0.34
Diluted	7.36	4.11	4.16	13.64	10.18	0.34
Number of common shares(9):						
Basic	6,521.0	6,583.6	6,331.2	6,585.3	6,592.5	6,592.5
Diluted	6,825.7	6,628.4	6,353.0	6,617.2	6,646.0	6,646.0
Number of equivalent ADSs(9):						
Basic	1,304.2	1,316.7	1,266.2	1,317.1	1,318.5	1,318.5
Diluted	1,365.1	1,325.7	1,270.6	1,323.4	1,329.2	1,329.2
Balance Sheet Data:						
Current assets	56,902.0	46,347.2	61,398.7	85,598.9	89,610.0	2,960.3
Long-term investments	3,045.4	2,842.7	3,341.2	1,343.4	1,185.6	39.2
Property, plant and equipment, net	80,036.6	82,694.5	77,927.1	99,216.9	110,927.5	3,664.6
Intangible assets	5,255.8	12,940.6	12,522.8	15,360.8	15,896.2	525.2
Other assets	3,728.3	3,856.5	2,684.5	3,453.2	2,472.1	81.7
Total assets	148,968.1	148,681.5	157,874.3	204,973.2	220,091.4	7,271.0
Short-term borrowings(5)	15,773.9	11,473.2	13,960.3	17,173.5	26,426.1	873.0
Long-term liabilities(6)	23,897.6	51,495.5	49,306.0	52,533.8	50,225.1	1,659.2
Other liabilities(7)	24,746.0	18,307.1	25,092.3	48,813.7	46,822.3	1,546.9
Total liabilities	64,417.5	81,275.8	88,358.6	118,521.0	123,473.5	4,079.1
Capital stock	54,475.6	56,904.3	54,798.8	60,519.9	67,535.6	2,231.1
Equity attributable to shareholders of the parent	70,101.4	65,303.0	66,555.5	82,959.0	95,334.4	3,149.5
Noncontrolling interest in consolidated subsidiaries	14,449.2	2,102.7	2,960.2	3,493.2	1,283.5	42.4

(1) Effective January 1, 2009, we adopted the newly revised ROC Statement of Financial Accounting Standards, or SFAS, No. 10 “Accounting for Inventories.” Abnormal cost, write-downs of inventories and any reversal of write-downs are recorded as cost of revenues from non-operating expenses. Information in this annual report from our consolidated statements of income for each of the two years in the period ended December 31, 2008 has been adjusted to reflect the reclassification.

(2) The denominators for diluted earnings per common share and diluted earnings per equivalent ADS are calculated to account for the potential diluted factors, such as the exercise of options and conversion of our convertible bonds into our common shares and American depositary shares, or ADSs.

(3) Dividends per common share issued as a cash dividend, a stock dividend and distribution from capital surplus.

(4) Represents the weighted average number of shares after retroactive adjustments to give effect to (i) employee stock bonuses for earning year 2007 and (ii) stock dividends. Common shares held by consolidated subsidiaries are

classified as “treasury stock,” and are deducted from the number of common shares outstanding.

(5) Includes current portions of bonds payable, long-term bank loans and capital lease obligations.

(6) Excludes current portions of bonds payable, long-term bank loans and capital lease obligations.

(7) Includes current liabilities other than short-term borrowings.

(8) We have begun providing electronic manufacturing services as a result of our acquisition of the controlling interest of Universal Scientific in February 2010.

(9) Represents the weighted average number of common shares after retroactive adjustments to give effect to stock dividends.

Exchange Rates

Fluctuations in the exchange rate between NT dollars and U.S. dollars will affect the U.S. dollar equivalent of the NT dollar price of the common shares on the Taiwan Stock Exchange and, as a result, will likely affect the market price of the ADSs. Fluctuations will also affect the U.S. dollar conversion by the depositary under our ADS deposit agreement referred to below of cash dividends paid in NT dollars on, and the NT dollar proceeds received by the depositary from any sale of, common shares represented by ADSs, in each case, according to the terms of the deposit agreement dated September 29, 2000 and as amended and supplemented from time to time among us, Citibank N.A., as depositary, and the holders and beneficial owners from time to time of the ADSs, which we refer to as the deposit agreement.

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The following table sets forth, for the periods indicated, information concerning the number of NT dollars for which one U.S. dollar could be exchanged. For periods prior to January 1, 2009, the exchange rates reflected the noon buying rate for cable transfers in NT dollars as certified for customs purposes by the Federal Reserve Bank of New York. For periods after January 1, 2009, the exchange rates reflect the exchange rates set forth in the H.10 statistical release of the Federal Reserve Board.

	Exchange Rate			
	Average(1)	High	Low	Period-End
2007	32.82	33.41	32.26	32.43
2008	31.51	33.58	29.99	32.76
2009	32.96	35.21	31.95	31.95
2010	31.40	32.43	29.14	29.14
2011	29.42	30.67	28.50	30.27
October	30.26	30.67	29.86	29.91
November	30.22	30.43	30.02	30.31
December	30.25	30.38	30.10	30.27
2012				
January	29.99	30.28	29.61	29.61
February	29.53	29.65	29.37	29.37
March	29.52	29.61	29.37	29.50

(1) Annual averages were calculated by using the average of the exchange rates on the last day of each month during the relevant year. Monthly averages were calculated by using the average of the daily rates during the relevant month.

On April 6, 2012, the exchange rate as set forth in the H.10 weekly statistical release by the Federal Reserve Board was NT$29.50 =US$1.00.

CAPITALIZATION AND INDEBTEDNESS

Not applicable.

REASON FOR THE OFFER AND USE OF PROCEEDS

Not applicable.

RISK FACTORS

Risks Relating to Our Business

Since we are dependent on the highly cyclical semiconductor and electronic industries and conditions in the markets for the end-use applications of our products, our revenues and net income may fluctuate significantly.

Our business is affected by market conditions in the highly cyclical semiconductor and electronic industries. Most of our customers operate in this industry, and variations in order levels from our customers and service fee rates may result in volatility in our revenues and net income. From time to time, the semiconductor and electronic industries have experienced significant, and sometimes prolonged, downturns. As our business is, and will continue to be, dependent on the requirements for independent packaging, testing and electronic manufacturing services, any future downturn in the industry would reduce demand for our services. For example, in the fourth quarter of 2008, the global

economic crisis resulted in a significant deterioration in demand for our customers' products, which in turn affected demand for our services and adversely affected our operating results. Although demand has recovered, we expect there to be continued downward pressure on our average selling prices and continued volatility with

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respect to our sales volumes in the future. If we cannot reduce our costs or adjust our product mix to sufficiently offset any decline in sales volumes, our profitability will suffer and we may incur losses.

Market conditions in the semiconductor and electronic industries depend to a large degree on conditions in the markets for the end-use applications of various products, such as communications, computing and consumer electronics products. Any deterioration of conditions in the markets for the end-use applications would reduce demand for our services, and would likely have a material adverse effect on our financial condition and results of operations. In 2011, approximately 52.3%, 14.2% and 33.0% of our net revenues from packaging and testing were attributed to the packaging and testing of semiconductors used in communications, computing, and consumer electronics/industrial/automotive applications, respectively. In the same year, approximately 36.1%, 22.1%, 18.5% and 22.6% of our net revenues from electronic manufacturing services were attributed to the communications, computing, consumer electronics applications and industrial and automotive applications, respectively. Each of the markets for end-use applications is subject to intense competition and significant shifts in demand, which could put pricing pressure on our services and adversely affect our revenues and net income.

A reversal or slowdown in the outsourcing trend for semiconductor packaging and testing services and electronic manufacturing services could adversely affect our growth prospects and profitability.

Semiconductor manufacturers that have their own in-house packaging and testing capabilities, known as integrated device manufacturers and original equipment manufacturers, have increasingly outsourced stages of the production process, including packaging, testing, electronic manufacturing and assembly, to independent companies in order to reduce costs, eliminate product complexity and meet fast-to-market requirements. In addition, the availability of advanced independent semiconductor manufacturing services has also enabled the growth of so-called “fabless” semiconductor companies that focus exclusively on design and marketing and outsource their manufacturing, packaging and testing requirements to independent companies. We cannot assure you that these manufacturers and companies will continue to outsource their packaging, testing and manufacturing requirements to third parties like us. Furthermore, during an economic downturn, these integrated device manufacturers typically rely more on their own in-house packaging and testing capabilities, therefore decreasing their need to outsource. A reversal of, or a slowdown in, this outsourcing trend could result in reduced demand for our services and adversely affect our growth prospects and profitability.

Any global economic downturn could adversely affect the demand for our products and services, and a protracted global economic crisis would have a material adverse effect on us.

The global financial markets experienced significant disruptions in 2008 and the United States, Europe and other economies went into recession. The recovery from the lows of 2008 and 2009 was uneven and it is facing new challenges, including the escalation of the European sovereign debt crisis since 2011. It is unclear whether the European sovereign debt crisis will be contained and what effects it may have. There is considerable uncertainty over the long-term effects of the expansionary monetary and fiscal policies that have been adopted by the central banks and financial authorities of some of the world’s leading economies. There have also been concerns over unrest in the Middle East and Africa, which have resulted in higher oil prices and significant market volatility, and over the possibility of a war involving Iran. Any economic downturn or crisis may also cause our customers to do the following:

- cancel or reduce planned expenditures for our products and services;
- seek to lower their costs by renegotiating their contracts with us;
- consolidate the number of suppliers they use which may result in our loss of customers; and

- switch to lower-priced products or services provided by our competitors.

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Any uncertainty or significant volatility in global economic conditions may also make it difficult for our customers to accurately forecast and plan future business activities and may have a material adverse effect on us.

If we are unable to compete favorably in the highly competitive markets of semiconductor packaging and testing and electronic manufacturing services, our revenues and net income may decrease.

The markets of semiconductor packaging and testing and electronic manufacturing services are very competitive. We face competition from a number of sources, including other independent semiconductor packaging and testing companies, especially those that offer turnkey packaging and testing services, and other electronic manufacturing services providers which may have large-scale manufacturing capabilities and can react fast to market changes. We believe that the principal competitive factors are:

- technological expertise;
- price;
- the ability to provide total solutions to our customers, including integrated design, manufacturing, packaging and testing and electronic manufacturing services;
- range of package types and testing platforms available;
- the ability to work closely with our customers at the product development stage;
- responsiveness and flexibility;
- fast-to-market product development;
- capacity;
- diversity in facility locations; and
- production yield.

We face increasing competition, as most of our customers obtain services from more than one source. In addition, some of our competitors may have access to more advanced technologies and greater financial and other resources than we do. Any erosion in the prices for our services and/or products could cause our revenues and net income to decrease and have a material adverse effect on our financial condition and results of operations.

Our profitability depends on our ability to respond to rapid technological changes in the semiconductor industry.

The semiconductor industry is characterized by rapid increases in the diversity and complexity of semiconductors. As a result, we expect that we will need to constantly offer more sophisticated packaging and testing technologies and processes in order to respond to competitive industry conditions and customer requirements. If we fail to develop, or obtain access to, advances in packaging or testing technologies or processes, we may become less competitive and less profitable. In addition, advances in technology typically lead to declining average selling prices for semiconductors packaged or tested with older technologies or processes. As a result, if we cannot reduce the costs associated with our services, the profitability of a given service and our overall profitability may decrease over time.

Our operating results are subject to significant fluctuations, which could adversely affect the market value of your investment.

Our operating results have varied significantly from period to period and may continue to vary in the future. Downward fluctuations in our operating results may result in decreases in the market price of our common shares and the ADSs. Among the more important factors affecting our quarterly and annual operating results are the following:

- changes in general economic and business conditions, particularly the cyclical nature of the semiconductor and electronic industries and the markets served by our customers;

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- our ability to quickly adjust to unanticipated declines or shortfalls in demand and market prices;
- changes in prices for our products or services;
- volume of orders relative to our packaging, testing and manufacturing capacity;
- changes in costs and availability of raw materials, equipment and labor;
- our ability to obtain or develop substitute raw materials with lower cost;
- timing of capital expenditures in anticipation of future orders;
- our ability to acquire or design and produce advanced and cost-competitive interconnect materials, and provide integrated solutions for electronic manufacturing services;
- fluctuations in the exchange rate between the NT dollar and foreign currencies, especially the U.S. dollar; and
- earthquakes, drought, epidemics, tsunami and other natural disasters, as well as industrial and other incidents such as fires and power outages.

Due to the factors listed above, our future operating results or growth rates may be below the expectations of research analysts and investors. If so, the market price of our common shares and the ADSs, and thus the market value of your investment, may fall.

If we are not successful in maintaining our in-house interconnect materials capabilities, our margins and profitability may be adversely affected.

We expect that we will need to maintain our interconnect materials designs and production processes in order to respond to competitive industry conditions and customer requirements. In particular, our competitive position will depend on our ability to design and produce interconnect materials that are comparable to or better than those produced by independent suppliers and others. Many of these independent suppliers have dedicated greater resources than we have for the research and development and design and production of interconnect materials. In addition, we may not be able to acquire the technology and personnel that would enable us to maintain our in-house expertise and our design and production capabilities. For more information on our interconnect materials operations, see “Item 4. Information on the Company—Business Overview—Principal Products and Services—Packaging Services—Interconnect Materials.” If we are unable to maintain our in-house interconnect materials expertise to offer interconnect materials that meet the requirements of our customers, we may become less competitive and our margins and profitability may suffer as a result.

Due to our high percentage of fixed costs, we will be unable to maintain our gross margin at past levels if we are unable to achieve relatively high capacity utilization rates.

Our operations, in particular our testing operations, are characterized by relatively high fixed costs. We expect to continue to incur substantial depreciation and other expenses in connection with our acquisitions of equipment and facilities. Our profitability depends not only on the pricing levels for our services or products, but also on utilization rates for our machinery and equipment, commonly referred to as “capacity utilization rates.” In particular, increases or decreases in our capacity utilization rates can significantly affect gross margins since the unit cost generally decreases as fixed costs are allocated over a larger number of units. In periods of low demand, we experience relatively low

capacity utilization rates in our operations, which leads to reduced margins. For example, in the fourth quarter of 2008, we experienced lower than anticipated utilization rates in our operations due to a significant decline in worldwide demand for our packaging and testing services, which resulted in reduced margins during that period. Although capacity utilization rates have increased since 2009, we cannot assure you that we will be able to maintain or surpass our past gross margin levels if we cannot consistently achieve or maintain relatively high capacity utilization rates.

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If we are unable to manage our expansion or investments effectively, our growth prospects may be limited and our future profitability and core business operations may be adversely affected.

We have significantly expanded our operations through both organic growth and acquisitions in recent years. For example, we acquired the controlling interest of Universal Scientific through a tender offer in February 2010 and EEMS Test Singapore in August 2010 (EEMS Test Singapore was subsequently merged into ASE Singapore Pte. Ltd. on January 1, 2011). We also acquired Yang Ting in January 2012. We expect that we will continue to expand our operations in the future. The purpose of our expansion is mainly to provide total solutions to existing customers or attract new customers and broaden our product range for a variety of end-use applications. However, rapid expansion may place a strain on our managerial, technical, financial, operational and other resources. As a result of our expansion, we have implemented and will continue to implement additional operational and financial controls and hire and train additional personnel. Any failure to manage our growth effectively could lead to inefficiencies and redundancies and result in reduced growth prospects and profitability.

In addition, we have recently made investments in real estate development businesses mostly in China. The PRC property market is volatile and may experience undersupply or oversupply and property price fluctuations. The central and local governments frequently adjust monetary and other economic policies to prevent and curtail the overheating of the economy. Such policies may lead to changes in market conditions, including price instability and imbalance of supply and demand in respect of office, residential, retail, entertainment and cultural properties. We may continue to make investments in this area in the future and our diversification in this industry may put pressure on our managerial, financial, operational and other resources. Our exposure to risks related to real estate development in China may also increase over time as a result of our expansion into such a business. There can be no assurance that our investments in such a business will yield the anticipated returns and that our expansion into such a business, including the resulting diversion of management's attention, will not adversely affect our core business operations.

The packaging and testing businesses are capital intensive. If we cannot obtain additional capital when we need it, our growth prospects and future profitability may be adversely affected.

The packaging and testing businesses are capital intensive. We will need capital to fund the expansion of our facilities as well as fund our research and development activities in order to remain competitive. We believe that our existing cash, marketable securities, expected cash flow from operations and existing credit lines under our loan facilities will be sufficient to meet our capital expenditures, working capital, cash obligations under our existing debt and lease arrangements, and other requirements for at least the next twelve months. However, future capacity expansions or market or other developments may cause us to require additional funds. Our ability to obtain external financing in the future is subject to a variety of uncertainties, including:

- our future financial condition, results of operations and cash flows;
- general market conditions for financing activities by semiconductor or electronics companies; and
- economic, political and other conditions in Taiwan and elsewhere.

If we are unable to obtain funding in a timely manner or on acceptable terms, our growth prospects and future profitability may decline.

Restrictive covenants and broad default provisions in our existing debt agreements may materially restrict our operations as well as adversely affect our liquidity, financial condition and results of operations.

We are a party to numerous loan and other agreements relating to the incurrence of debt, many of which include restrictive covenants and broad default provisions. In general, covenants in the agreements governing our existing debt, and debt we may incur in the future, may materially restrict our operations, including our ability to incur debt, pay dividends, make certain investments and payments, other than in connection with restructurings of consolidated entities, and encumber or dispose of assets. In addition, any global economic deterioration or ineffective expansion may cause us to incur significant net losses or force us to assume considerable liabilities. We cannot assure you that we will be able to remain in compliance with our financial covenants which, as a result, may lead to a default. This

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may thereby restrict our ability to access unutilized credit facilities or the global capital markets to meet our liquidity needs. Furthermore, a default under one agreement by us or one of our subsidiaries may also trigger cross-defaults under our other agreements. In the event of default, we may not be able to cure the default or obtain a waiver on a timely basis. An event of default under any agreement timely governing our existing or future debt, if not cured or waived, could have a material adverse effect on our liquidity, financial condition and results of operations.

We have on occasion failed to comply with certain financial covenants in some of our loan agreements. Such non-compliance may also have, through broadly worded cross-default provisions, resulted in default under some of the agreements governing our other existing debt. For example, we failed to comply with certain financial covenants in some of our loan agreements as a result of our acquisition of the controlling interest of Universal Scientific in February 2010, for which we have timely obtained waivers from our counterparties. If we are unable to timely remedy any of our non-compliance under such loan agreements or obtain applicable waivers or amendments, we would breach our financial covenants and our financial condition would be adversely affected. As of March 31, 2012, no lender has sought to declare a default or enforce remedies in respect of our existing debt as a result of cross-default provisions, breaches of financial covenants or otherwise, although we cannot provide any assurance that they will not take action in the future.

We depend on select personnel and could be affected by the loss of their services.

We depend on the continued service of our executive officers and skilled technical and other personnel. Our business could suffer if we lose the services of any of these personnel and cannot adequately replace them. Although some of these management personnel have entered into employment agreements with us, they may nevertheless leave before the expiration of these agreements. We are not insured against the loss of any of our personnel. In addition, we may be required to increase substantially the number of these employees in connection with our expansion plans, and there is intense competition for their services in this industry. We may not be able to either retain our present personnel or attract additional qualified personnel as and when needed. In addition, we may need to increase employee compensation levels in order to attract and retain our existing officers and employees and the additional personnel that we expect to require. Furthermore, a portion of the workforce at our facilities in Taiwan are foreign workers employed by us under work permits which are subject to government regulations on renewal and other terms. Consequently, our business could also suffer if the Taiwan regulations relating to the employment of foreign workers were to become significantly more restrictive or if we are otherwise unable to attract or retain these workers at a reasonable cost.

If we are unable to obtain additional packaging and testing equipment or facilities in a timely manner and at a reasonable cost, our competitiveness and future profitability may be adversely affected.

The semiconductor packaging and testing businesses are capital intensive and require significant investment in expensive equipment manufactured by a limited number of suppliers. The market for semiconductor packaging and testing equipment is characterized, from time to time, by intense demand, limited supply and long delivery cycles. Our operations and expansion plans depend on our ability to obtain a significant amount of such equipment from a limited number of suppliers. From time to time we have also leased certain equipment. We have no binding supply agreements with any of our suppliers and acquire our packaging and testing equipment on a purchase order basis, which exposes us to changing market conditions and other substantial risks. For example, shortages of capital equipment could result in an increase in the price of equipment and longer delivery times. Semiconductor packaging and testing also require us to operate sizeable facilities. If we are unable to obtain equipment or facilities in a timely manner, we may be unable to fulfill our customers' orders, which could adversely affect our growth prospects as well as financial condition and results of operations. See "Item 4. Information on the Company—Business Overview—Equipment."

Fluctuations in exchange rates could result in foreign exchange losses.

Currently, the majority of our revenues are denominated in U.S. dollars, with a portion denominated in NT dollars and Japanese yen. Our cost of revenues and operating expenses, on the other hand, are incurred in several currencies, primarily NT dollars, U.S. dollars and Chinese yuan, as well as, to a lesser extent, Japanese yen, Korean won and Malaysian ringgit. In addition, a substantial portion of our capital expenditures, primarily for the purchase of packaging and testing equipment, has been, and is expected to continue to be, denominated in U.S. dollars, with

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much of the remainder in Japanese yen. Fluctuations in exchange rates, primarily among the U.S. dollar, the NT dollar, the Japanese yen and the Chinese yuan, will affect our costs and operating margins. In addition, these fluctuations could result in exchange losses and increased costs in NT dollar and other local currency terms. Despite hedging and mitigating techniques implemented by us, fluctuations in exchange rates have affected, and may continue to affect, our financial condition and results of operations. Although we recognized net foreign exchange gains of NT$4.2 million, NT$317.6 million and NT$36.2 million (US$1.2 million) in 2009, 2010 and 2011, respectively, we cannot assure you that we will achieve or sustain foreign exchange gains in the future. See "Item 11. Quantitative and Qualitative Disclosures about Market Risk—Market Risk—Foreign Currency Exchange Rate Risk."

The loss of a large customer or disruption of our strategic alliance or other commercial arrangements with semiconductor foundries and providers of other complementary semiconductor manufacturing services may result in a decline in our revenues and profitability.

Although we have over 200 customers for our businesses, we have derived and expect to continue to derive a large portion of our revenues from a small group of customers during any particular period due in part to the concentration of market share in the semiconductor and electronic industries. Our five largest customers together accounted for approximately 28.7%, 26.0% and 26.8% of our net revenues in 2009, 2010 and 2011, respectively. No customer accounted for more than 10% of our net revenues in 2009, 2010 and 2011. The demand for our services from a customer is directly dependent upon that customer's level of business activity, which could vary significantly from year to year. Our key customers typically operate in the cyclical semiconductor and electronic business and, in the past, have varied, and may vary in the future, order levels significantly from period to period. Some of these companies are relatively small, have limited operating histories and financial resources, and are highly exposed to the cyclicality of the industry. We cannot assure you that these customers or any other customers will continue to place orders with us in the future at the same levels as in past periods. The loss of one or more of our significant customers, or reduced orders by any one of them, and our inability to replace these customers or make up for such orders could adversely affect our revenues and profitability. In addition, we have in the past reduced, and may in the future be requested to reduce, our prices to limit the level of order cancellations. Any price reduction would likely reduce our margins and profitability.

Since 1997, we have maintained a strategic alliance with Taiwan Semiconductor Manufacturing Company Limited, or TSMC, one of the world's largest dedicated semiconductor foundries. TSMC designates us as their non-exclusive preferred provider of packaging and testing services for semiconductors manufactured by TSMC. In addition, on February 23, 2009, we and Advanced Microelectronic Products, Inc., or AMPI, a provider of foundry services, signed a memorandum of understanding to enter into a strategic alliance focused on providing semiconductor manufacturing turnkey services. These strategic alliances, as well as our other commercial arrangements with providers of other complementary semiconductor manufacturing services, enable us to offer total semiconductor manufacturing solutions to our customers. These strategic alliances and any of our other commercial arrangements may be terminated at any time. Any such termination, and our failure to enter into substantially similar strategic alliances or commercial arrangements, may adversely affect our competitiveness and our revenues and profitability.

Our revenues and profitability may decline if we are unable to obtain adequate supplies of raw materials in a timely manner and at a reasonable price.

Our operations, such as packaging operations, substrate operations and electronic manufacturing services, require that we obtain adequate supplies of raw materials on a timely basis. Shortages in the supply of raw materials have in the past resulted in occasional price increases and delivery delays. In addition, the operations of some of our suppliers are vulnerable to natural disasters, such as earthquakes and typhoons, the occurrences of which may deteriorate and prolong the shortage or increase the uncertainty of the supply of raw materials. For example, on March 11, 2011, a

major earthquake occurred off the coast of Japan resulting in a large tsunami and radiation leak at the Fukushima nuclear power plant. We experienced a disruption to the supply of raw materials from Japan for about three to four weeks due to the fear of radiation contamination and the reduction or postponement in production by some of our Japanese suppliers. Although the purchase of supplies from Japan has been restored to the previous level, we cannot assure you that we will not suffer long-term from the impact of the earthquake and the tsunami. In

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addition, further earthquakes, aftershocks thereof or other disasters in Japan or affecting any regions in which we operate may cause a decline in our sales. Any of the above events or developments may have a material adverse effect on our business, results of operations and financial condition.

Raw materials such as advanced substrates are prone to supply shortages since such materials are produced by a limited number of suppliers such as Kinsus Interconnect Technology Corporation, Nanya Printed Circuit Board Corporation and Unimicron Technology Corp. Our operations conducted through our wholly-owned subsidiary ASE Electronics and ASE Shanghai have improved our ability to obtain advanced substrates on a timely basis and at a reasonable cost. However, we do not expect that our internal interconnect materials operations will be able to meet all of our interconnect materials requirements. Consequently, we will remain dependent on market supply and demand for our raw materials. In addition, recent fluctuations in prices of precious metals, such as gold, have also affected the price at which we have been able to purchase the principal raw materials we use in our packaging processes. We cannot guarantee that we will not experience shortages in the near future or that we will be able to obtain adequate supplies of raw materials in a timely manner or at a reasonable price. Our revenues and net income could decline if we are unable to obtain adequate supplies of high quality raw materials in a timely manner or if there are significant increases in the costs of raw materials that we cannot pass on to our customers.

System failures could harm our business, financial condition and results of operations.

Our systems are vulnerable to damage or interruption from earthquakes, terrorist attacks, floods, fires, power loss, telecommunications failures, computer viruses, computer denial of service attacks or other attempts to harm our system, and similar events. Some of our data centers are located in areas with a high risk of major earthquakes. Our data centers are also subject to break-ins, sabotage and intentional acts of vandalism, and to potential disruptions if the operators of these facilities have financial difficulties. Some of our systems are not fully redundant, and our disaster recovery planning cannot account for all eventualities. The occurrence of a natural disaster, a decision to close a facility we are using without adequate notice for financial reasons or other unanticipated problems at our data centers could result in lengthy interruptions in our service. Any damage to or failure of our systems could result in interruptions in our service. Interruptions in our service could materially and aversely affect our business, financial condition and results of operations.

Any environmental claims or failure to comply with any present or future environmental regulations, as well as any fire or other industrial accident, may require us to spend additional funds and may materially and adversely affect our financial condition and results of operations.

We are subject to various laws and regulations relating to the use, storage, discharge and disposal of chemical by-products of, and water used in, our packaging and interconnect materials production processes, and the emission of volatile organic compounds and the discharge and disposal of solid industrial wastes from electronic manufacturing services operations. Although we have not suffered material environmental claims in the past, the failure to comply with any present or future regulations could result in the assessment of damages or imposition of fines against us, suspension of production or a cessation of our operations. New regulations could require us to acquire costly equipment or to incur other significant expenses that we may not be able to pass on to our customers. Additionally, any failure on our part to control the use, or adequately restrict the discharge, of hazardous substances could subject us to future liabilities that may have a material adverse effect on our financial condition and results of operations. Any failure on the environmental requests on our products, such as Directive 2002/95/EC, see “Item 4. Business Overview—Raw Materials and Suppliers—Packaging,” may have a material adverse effect on our results of operations.

Climate change, other environmental concerns and green initiatives also presents other commercial challenges, economic risks and physical risks that could harm our results of operations or affect the manner in which we conduct

our business.

Increasing climate change and environmental concerns could affect the results of our operations if any of our customers request that we exceed any standards set for environmentally compliant products and services, or if raw materials and/or products are required to meet strict inspection standards with respect to any radioactive contamination as a result of concerns arising from radiation leaking incidents, such as the radiation leak which occurred in March 2011 in Japan. If we are unable to offer such products or offer products that are compliant, but

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are not as reliable due to the lack of reasonably available alternative technologies, it may harm our results of operations.

Furthermore, energy costs in general could increase significantly due to climate change regulations. Therefore, our energy costs may increase substantially if utility or power companies pass on their costs, fully or partially, such as those associated with carbon taxes, emission cap and carbon credit trading programs.

Our major shareholders may take actions that are not in, or may conflict with, our public shareholders' best interest.

Members of the Chang family own, directly or indirectly, a significant interest in our outstanding common shares. See "Item 7. Major Shareholders and Related Party Transactions—Major Shareholders." Accordingly, these shareholders will continue to have the ability to exercise a significant influence over our business, including matters relating to:

- our management and policies;
- the timing and distribution of dividends; and
- the election of our directors and supervisors.

Members of the Chang family may take actions that you may not agree with or that are not in our or our public shareholders' best interests.

We may be subject to intellectual property rights disputes, which could materially adversely affect our business.

Our ability to compete successfully and achieve future growth depends, in part, on our ability to develop and protect our proprietary technologies and to secure on commercially acceptable terms certain technologies that we do not own. We cannot assure you that we will be able to independently develop, obtain patents for, protect or secure from any third party, the technologies required.

Our ability to compete successfully also depends, in part, on our ability to operate without infringing the proprietary rights of others. In particular, the semiconductor and electronic industries are characterized by frequent litigation regarding patent and other intellectual property rights. In February 2006, Tessera Inc. filed a suit against us and others alleging patent infringement. See "Item 8. Financial Information—Legal Proceedings." Any litigation, whether as plaintiff or defendant and regardless of the outcome, is costly and diverts company resources.

Any of the foregoing could harm our competitive position and render us unable to provide some of our services operations.

We are an ROC company and, because the rights of shareholders under ROC law differ from those under U.S. law and the laws of certain other countries, you may have difficulty protecting your shareholder rights.

Our corporate affairs are governed by our Articles of Incorporation and by the laws governing corporations incorporated in the ROC. The rights of shareholders and the responsibilities of management and the members of the board of directors under ROC law are different from those applicable to a corporation incorporated in the United States and certain other countries. As a result, public shareholders of ROC companies may have more difficulty in protecting their interests in connection with actions taken by management or members of the board of directors than they would as public shareholders of a corporation in the United States or certain other countries.

We face risks associated with uncertainties in PRC laws and regulations.

We operate, among other things, packaging and testing facilities, electronic manufacturing services and real estate in the PRC through our subsidiaries incorporated in the PRC. Under PRC laws and regulations, foreign investment projects, such as our subsidiaries, must obtain certain approvals from the relevant governmental authorities in the provinces or special economic zones in which they are located and, in some circumstances, from the relevant authorities in the PRC's central government. Foreign investment projects must also comply with certain

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regulatory requirements. However, PRC laws and regulations are often subject to varying interpretations and means of enforcement, and additional approvals from the relevant governmental authorities may be required for the operations of our PRC subsidiaries. If required, we cannot assure you that we will be able to obtain these approvals in a timely manner, if at all. Because the PRC government holds significant discretion in determining matters relating to foreign investment, we cannot assure you that the relevant governmental authorities will not take action that is materially adverse to our PRC operations.

Any impairment charges may have a material adverse effect on our net income.

Under ROC GAAP and U.S. GAAP, we are required to evaluate our assets, such as equipment, goodwill and investments, for possible impairment at least annually or whenever there is an indication of impairment. If certain criteria are met, we are required to record an impairment charge.

With respect to assets, in 2009, we recognized impairment charges of NT$11.1 million, primarily as a result of impaired idle equipment. In 2010, we recognized impairment charges of NT$251.4 million, primarily as a result of an impairment charge related to buildings and improvement, and impaired idle equipment and investment. In 2011, we recognized impairment charges of NT$ 448.1 million (US$14.8 million), primarily as a result of an impairment charge related to buildings and improvement, and impaired idle equipment and investment. As of December 31, 2011, goodwill under ROC GAAP and U.S. GAAP amounted to NT$10,374.5 million (US$342.7 million) and NT$10,244.3 million (US$338.4 million), respectively. See “Item 5. Operating and Financial Review and Prospects—Operating Results and Trend Information—Critical Accounting Policies and Estimates—Realizability of Long-Lived Assets” and “—Goodwill.”

We are unable to estimate the extent and timing of any impairment charges for future years under ROC GAAP or U.S. GAAP, and we cannot give any assurance that impairment charges will not be required in periods subsequent to December 31, 2011. Any impairment charge could have a material adverse effect on our net income. The determination of an impairment charge at any given time is based significantly on our expected results of operations over a number of years in the future. As a result, an impairment charge is more likely to occur during a period in which our operating results and outlook are otherwise already depressed.

Any failure to achieve and maintain effective internal controls could have a material adverse effect on our business and results of operations.

We are subject to reporting obligations under the U.S. securities laws. The SEC as required by Section 404 of the Sarbanes-Oxley Act of 2002 adopted rules requiring every public company to include a management report on the effectiveness of such company’s internal control over financial reporting in its annual report. In addition, an independent registered public accounting firm must report on such company’s internal control over financial reporting.

Our management concluded that our internal control over financial reporting was effective as of December 31, 2011 and our independent registered public accounting firm has issued an attestation report concluding that our internal control over financial reporting was effective in all material aspects. As effective internal control over financial reporting is necessary for us to produce reliable financial reports and are important to help prevent fraud, any failure to maintain effective internal control over financial reporting could harm our business and result in a loss of investor confidence in the reliability of our financial statements, which in turn could negatively impact the trading price of our common shares and ADSs. Furthermore, we may need to incur additional costs and use additional management and other resources in an effort to comply with Section 404 of the Sarbanes-Oxley Act and other requirements going forward.

Risks Relating to Taiwan, ROC

Strained relations between the ROC and the PRC could negatively affect our business and the market value of your investment.

Our principal executive offices and our principal facilities are located in Taiwan and approximately 63.3%, 49.8% and 50.8% of our net revenues in 2009, 2010 and 2011, respectively, were derived from our operations in

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Taiwan. The ROC has a unique international political status. The government of the PRC asserts sovereignty over all of China, including Taiwan, and does not recognize the legitimacy of the ROC government. Although significant economic and cultural relations have been established in recent years between the ROC and the PRC, relations have often been strained and the PRC government has indicated that it may use military force to gain control over Taiwan in some circumstances, such as the declaration of independence by the ROC. Political uncertainty could adversely affect the prices of our common shares and ADSs. Relations between the ROC and the PRC and other factors affecting the political or economic conditions in Taiwan could have a material adverse effect on our financial condition and results of operations, as well as the market price and the liquidity of our common shares and ADSs.

Currently, we manufacture interconnect materials in the PRC through our wholly-owned subsidiary ASE Shanghai. We also provide wire bond packaging and testing services in the PRC through some of our subsidiaries. In addition, we engage in the PRC in real estate development and the manufacturing of computer peripherals and electronic components through our subsidiaries in the PRC. See “Item 4. Information on the Company—Organizational Structure—Our Consolidated Subsidiaries.” In the past, ROC companies, including ourselves, were prohibited from investing in facilities for the packaging and testing of semiconductors in the PRC. Although the prohibitions have been relaxed since February 2010, the ROC government currently still restricts certain types of investments by ROC companies, including ourselves, in the PRC. We do not know when or if such laws and policies governing investment in the PRC will be amended, and we cannot assure you that such ROC investment laws and policies will permit us to make further investments of certain types in the PRC in the future that we consider beneficial to us. Our growth prospects and profitability may be adversely affected if we are restricted from making certain additional investments in the PRC and are not able to fully capitalize on the growth of the semiconductor industry in the PRC.

As a substantial portion of our business and operations is located in Taiwan, we are vulnerable to earthquakes, typhoons, drought and other natural disasters, as well as power outages and other industrial incidents, which could severely disrupt the normal operation of our business and adversely affect our results of operations.

Taiwan is susceptible to earthquakes and has experienced severe earthquakes which caused significant property damage and loss of life, particularly in the central and eastern parts of Taiwan. Earthquakes have damaged production facilities and adversely affected the operations of many companies involved in the semiconductor and other industries. We have never experienced structural damage to our facilities or damage to our machinery and equipment as a result of these earthquakes. In the past, however, we have experienced interruptions to our production schedule primarily as a result of power outages caused by earthquakes.

Taiwan is also susceptible to typhoons, which may cause damage and business interruptions to companies with facilities located in Taiwan. For example, in 2009, Taiwan experienced severe damage from typhoons, including typhoon Morakot on August 7, 2009 that caused over 600 deaths, severe flooding and extensive property damage. In the third quarter of 2004, a typhoon caused a partial interruption for approximately two weeks in our water supply at ASE Chung Li’s substrate operations.

Taiwan has experienced severe droughts in the past. Although we have not been directly affected by droughts, we are dependent upon water for our packaging and substrates operations and a drought could interrupt such operations. In addition, a drought could interrupt the manufacturing process of the foundries located in Taiwan, in turn disrupting some of our customers’ production, which could result in a decline in the demand for our services. In addition, the supply of electrical power in Taiwan, which is primarily provided by Taiwan Power Company, the state-owned electric utility, is susceptible to disruption that could be prolonged and frequent, caused by overload as a result of high demand or other reasons.

Our production facilities as well as many of our suppliers and customers and providers of complementary semiconductor manufacturing services, including foundries, are located in Taiwan. If our customers are affected by an earthquake, a typhoon, a drought or any other natural disasters, or power outage or other industrial incidents, it could result in a decline in the demand for our services. If our suppliers or providers of complementary semiconductor manufacturing services are affected, our production schedule could be interrupted or delayed. As a result, a major earthquake, typhoon, drought, or other natural disaster in Taiwan, or a power outage or other industrial incident could severely disrupt the normal operation of our business and have a material adverse effect on our financial condition and results of operations.

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We face risks related to health epidemics and outbreaks of contagious diseases, including H1N1 influenza, H5N1 influenza and Severe Acute Respiratory Syndrome, or SARS.

There have been reports of outbreaks of a highly pathogenic influenza caused by the H1N1 virus, as well as an influenza caused by the H5N1 virus, in certain regions of Asia and other parts of the world. An outbreak of such contagious diseases in the human population could result in a widespread health crisis that could adversely affect the economies and financial markets of many countries. Additionally, a recurrence of SARS, a highly contagious form of atypical pneumonia, similar to the occurrence in 2003 which affected the PRC, Hong Kong, Taiwan, Singapore, Vietnam and certain other countries, would also have similar adverse effects. Since most of our operations and customers and suppliers are based in Asia (mainly Taiwan), an outbreak of H1N1 influenza, H5N1 influenza, SARS or other contagious diseases in Asia or elsewhere, or the perception that such an outbreak could occur, and the measures taken by the governments of countries affected, including the ROC and the PRC, could adversely affect our business, financial conditions or results of operations.

Risks Relating to Ownership of the ADSs

The market for the common shares and the ADSs may not be liquid.

Active, liquid trading markets generally result in lower price volatility and more efficient execution of buy and sell orders for investors, compared to less active and less liquid markets. Liquidity of a securities market is often a function of the volume of the underlying shares that are publicly held by unrelated parties.

There has been no trading market outside the ROC for the common shares and the only trading market for the common shares is the Taiwan Stock Exchange. The outstanding ADSs are listed on the New York Stock Exchange. There is no assurance that the market for the common shares or the ADSs will be active or liquid.

Although ADS holders are entitled to withdraw the common shares underlying the ADSs from the depositary at any time, ROC law requires that the common shares be held in an account in the ROC or sold for the benefit of the holder on the Taiwan Stock Exchange. In connection with any withdrawal of common shares from our ADS facility, the ADSs evidencing these common shares will be cancelled. Unless additional ADSs are issued, the effect of withdrawals will be to reduce the number of outstanding ADSs. If a significant number of withdrawals are effected, the liquidity of our ADSs will be substantially reduced. We cannot assure you that the ADS depositary will be able to arrange for a sale of deposited shares in a timely manner or at a specified price, particularly during periods of illiquidity or volatility.

If a non-ROC holder of ADSs withdraws and holds common shares, such holder of ADSs will be required to appoint a tax guarantor, local agent and custodian bank in the ROC and register with the Taiwan Stock Exchange in order to buy and sell securities on the Taiwan Stock Exchange.

When a non-ROC holder of ADSs elects to withdraw and hold common shares represented by ADSs, such holder of the ADSs will be required to appoint an agent for filing tax returns and making tax payments in the ROC. Such agent will be required to meet the qualifications set by the ROC Ministry of Finance and, upon appointment, becomes the guarantor of the withdrawing holder’s tax payment obligations. Evidence of the appointment of a tax guarantor, the approval of such appointment by the ROC tax authorities and tax clearance certificates or evidentiary documents issued by such tax guarantor may be required as conditions to such holder repatriating the profits derived from the sale of common shares. We cannot assure you that a withdrawing holder will be able to appoint, and obtain approval for, a tax guarantor in a timely manner.

In addition, under current ROC law, such withdrawing holder is required to register with the Taiwan Stock Exchange and appoint a local agent in the ROC to, among other things, open a bank account and open a securities trading account with a local securities brokerage firm, pay taxes, remit funds and exercise such holder's rights as a shareholder. Furthermore, such withdrawing holder must appoint a local bank to act as custodian for confirmation and settlement of trades, safekeeping of securities and cash proceeds and reporting and declaration of information. Without satisfying these requirements, non-ROC withdrawing holders of ADSs would not be able to hold or otherwise subsequently sell the common shares on the Taiwan Stock Exchange or otherwise.

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The market value of your investment may fluctuate due to the volatility of the ROC securities market.

The trading price of our ADSs may be affected by the trading price of our common shares on the Taiwan Stock Exchange. The ROC securities market is smaller and more volatile than the securities markets in the United States and in many European countries. The Taiwan Stock Exchange has experienced substantial fluctuations in the prices and volumes of sales of listed securities and there are currently limits on the range of daily price movements on the Taiwan Stock Exchange. The Taiwan Stock Exchange Index peaked at 12,495.3 in February 1990, and subsequently fell to a low of 2,560.5 in October 1990. On March 13, 2000, the Taiwan Stock Exchange Index experienced a 617-point drop, which represented the single largest decrease in the Taiwan Stock Exchange Index in its history. During the period from January 1, 2011 to December 31, 2011, the Taiwan Stock Exchange Index peaked at 9,145.35 on January 28, 2011, and reached a low of 6,633.33 on December 19, 2011. Over the same period, the trading price of our common shares ranged from NT$37.80 per share to NT$23.75 per share. On April 10, 2012, the Taiwan Stock Exchange Index closed at 7,640.68, and the closing value of our common shares was NT$29.05 per share.

The Taiwan Stock Exchange is particularly volatile during times of political instability, including when relations between Taiwan and the PRC are strained. Several investment funds affiliated with the ROC government have also from time to time purchased securities from the Taiwan Stock Exchange to support the trading level of the Taiwan Stock Exchange. Moreover, the Taiwan Stock Exchange has experienced problems such as market manipulation, insider trading and settlement defaults. The recurrence of these or similar problems could have an adverse effect on the market price and liquidity of the securities of ROC companies, including our common shares and ADSs, in both the domestic and international markets.

Holders of common shares and ADSs may incur dilution as a result of the practice among ROC technology companies of issuing stock bonuses and stock options to employees.

Similar to other ROC technology companies, we issue bonuses from time to time in the form of common shares. Prior to 2009, bonuses issued in the form of our common shares were valued at par. Beginning in 2009, bonuses in the form of our common shares are valued at the closing price of the common shares on the day prior to our shareholders' meeting. In addition, under the ROC Company Law we may, upon approval from our board of directors and the ROC Securities and Futures Bureau of the Financial Supervisory Commission, Executive Yuan, establish employee stock option plans. We currently maintain four employee stock option plans pursuant to which our full-time employees and the full-time employees of our domestic and foreign subsidiaries are eligible to receive stock option grants. As of December 31, 2011, 371,033,620 options granted by ASE Inc. were outstanding. See "Item 6. Directors, Senior Management and Employees—Compensation—ASE Inc. Employee Bonus and Stock Option Plans." The issuance of our common shares pursuant to stock bonuses or stock options may have a dilutive effect on the holders of outstanding common shares and ADSs.

Restrictions on the ability to deposit our common shares into our ADS facility may adversely affect the liquidity and price of our ADSs.

The ability to deposit common shares into our ADS facility is restricted by ROC law. A significant number of withdrawals of common shares underlying our ADSs would reduce the liquidity of the ADSs by reducing the number of ADSs outstanding. As a result, the prevailing market price of our ADSs may differ from the prevailing market price of our common shares on the Taiwan Stock Exchange. Under current ROC law, no person or entity, including you and us, may deposit our common shares in our ADS facility without specific approval of the ROC Financial Supervisory Commission, Executive Yuan, unless:

(1) we pay stock dividends on our common shares;

(2) we make a free distribution of common shares;

(3) holders of ADSs exercise preemptive rights in the event of capital increases; or

(4) to the extent permitted under the deposit agreement and the relevant custody agreement, investors purchase our common shares, directly or through the depositary, on the Taiwan Stock Exchange, and deliver our

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common shares to the custodian for deposit into our ADS facility, or our existing shareholders deliver our common shares to the custodian for deposit into our ADS facility.

With respect to item (4) above, the depositary may issue ADSs against the deposit of those common shares only if the total number of ADSs outstanding following the deposit will not exceed the number of ADSs previously approved by the ROC Financial Supervisory Commission, Executive Yuan plus any ADSs issued pursuant to the events described in items (1), (2) and (3) above.

In addition, in the case of a deposit of our common shares requested under item (4) above, the depositary will refuse to accept deposit of our common shares if such deposit is not permitted under any legal, regulatory or other restrictions notified by us to the depositary from time to time, which restrictions may include blackout periods during which deposits may not be made, minimum and maximum amounts and frequency of deposits.

The depositary will not offer holders of ADSs preemptive rights unless the distribution of both the rights and the underlying common shares to our ADS holders are either registered under the Securities Act or exempt from registration under the Securities Act.

Holders of ADSs will not have the same voting rights as our shareholders, which may affect the value of their ADSs.

The voting rights of a holder of ADSs as to the common shares represented by its ADSs are governed by the deposit agreement. Holders of ADSs will not be able to exercise voting rights on an individual basis. If holders representing at least 51% of the ADSs outstanding at the relevant record date instruct the depositary to vote in the same manner regarding a resolution, including the election of directors and supervisors, the depositary will cause all common shares represented by the ADSs to be voted in that manner. If the depositary does not receive timely instructions representing at least 51% of the ADSs outstanding at the relevant record date to vote in the same manner for any resolution, including the election of directors and supervisors, holders of ADSs will be deemed to have instructed the depositary or its nominee to authorize all the common shares represented by the ADSs to be voted at the discretion of our chairman or his designee, which may not be in the interest of holders of ADSs. Moreover, while shareholders who own 1% or more of our outstanding shares are entitled to submit one proposal to be considered at our annual general meetings of shareholders, only holders representing at least 51% of our ADSs outstanding at the relevant record date are entitled to submit one proposal to be considered at our annual general meetings of shareholders. Hence, only one proposal may be submitted on behalf of all ADS holders.

The right of holders of ADSs to participate in our rights offerings is limited, which could cause dilution to your holdings.

We may from time to time distribute rights to our shareholders, including rights to acquire our securities. Under the deposit agreement, the depositary will not offer holders of ADSs those rights unless both the distribution of the rights and the underlying securities to all our ADS holders are either registered under the Securities Act or exempt from registration under the Securities Act. Although we may be eligible to take advantage of certain exemptions under the Securities Act available to certain foreign issuers for rights offerings, we can give no assurances that we will be able to establish an exemption from registration under the Securities Act, and we are under no obligation to file a registration statement for any of these rights. Accordingly, holders of ADSs may be unable to participate in our rights offerings and may experience dilution of their holdings.

If the depositary is unable to sell rights that are not exercised or not distributed or if the sale is not lawful or reasonably practicable, it will allow the rights to lapse, in which case holders of ADSs will receive no value for these rights.

Changes in exchange controls which restrict your ability to convert proceeds received from your ownership of ADSs may have an adverse effect on the value of your investment.

Under current ROC law, the depositary, without obtaining approvals from the Central Bank of the Republic of China (Taiwan) or any other governmental authority or agency of the ROC, may convert NT dollars into other currencies, including U.S. dollars, for:

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- the proceeds of the sale of common shares represented by ADSs or received as stock dividends from the common shares and deposited into the depositary receipt facility; and
- any cash dividends or distributions received from the common shares.

In addition, the depositary may also convert into NT dollars incoming payments for purchases of common shares for deposit in the ADS facility against the creation of additional ADSs. The depositary may be required to obtain foreign exchange approval from the Central Bank of the Republic of China (Taiwan) on a payment-by-payment basis for conversion from NT dollars into foreign currencies of the proceeds from the sale of subscription rights for new common shares. Although it is expected that the Central Bank of the Republic of China (Taiwan) will grant this approval as a routine matter, we cannot assure you that in the future any approval will be obtained in a timely manner, or at all.

Under current ROC law, a holder of the ADSs, without obtaining further approval from the Central Bank of the Republic of China (Taiwan), may convert from NT dollars into other currencies, including U.S. dollars, the following:

- the proceeds of the sale of any underlying common shares withdrawn from the depositary receipt facility or received as a stock dividend that has been deposited into the depositary receipt facility; and
- any cash dividends or distribution received from the common shares.

However, such holder may be required to obtain foreign exchange approval from the Central Bank of the Republic of China (Taiwan) on a payment-by-payment basis for conversion from NT dollars into foreign currencies of the proceeds from the sale of subscription rights for new common shares. Although the Central Bank of the Republic of China (Taiwan) is generally expected to grant this approval as a routine matter, we cannot assure you that you will actually obtain this approval in a timely manner, or at all.

Under the ROC Foreign Exchange Control Law, the Executive Yuan of the ROC government may, without prior notice but subject to subsequent legislative approval, impose foreign exchange controls in the event of, among other things, a material change in international economic conditions. We cannot assure you that foreign exchange controls or other restrictions will not be introduced in the future.

The value of your investment may be reduced by possible future sales of common shares or ADSs by us or our shareholders.

While we are not aware of any plans by any major shareholders to dispose of significant numbers of common shares, we cannot assure you that one or more existing shareholders or owners of securities convertible or exchangeable into or exercisable for our common shares or ADSs will not dispose of significant numbers of common shares or ADSs. In addition, several of our subsidiaries and affiliates hold common shares, depositary shares representing common shares and options to purchase common shares or ADSs. They may decide to sell those securities in the future. See “Item 7. Major Shareholders and Related Party Transactions—Major Shareholders” for a description of our significant shareholders and affiliates that hold our common shares.

We cannot predict the effect, if any, that future sales of common shares or ADSs, or the availability of common shares or ADSs for future sale, will have on the market price of the common shares or the ADSs prevailing from time to time. Sales of substantial numbers of common shares or ADSs in the public market, or the perception that such sales may occur, could depress the prevailing market prices of the common shares or the ADSs.

Item 4. Information on the Company

HISTORY AND DEVELOPMENT OF THE COMPANY

Advanced Semiconductor Engineering, Inc. was incorporated on March 23, 1984 as a company limited by shares under the ROC Company Law, with facilities in the Nantze Export Processing Zone located in Kaohsiung, Taiwan. We were listed on the Taiwan Stock Exchange in 1989. Our principal executive offices are located at 26 Chin Third Road, Nantze Export Processing Zone, Nantze, Kaohsiung, Taiwan, ROC and our telephone number at

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the above address is (886) 7361-7131. Our common shares have been listed on the Taiwan Stock Exchange under the symbol “2311” since July 1989 and ADSs representing our common shares have been listed on the New York Stock Exchange under the symbol “ASX” since September 2000.

Acquisition of Shares of Universal Scientific

In February 2010, we, along with our two subsidiaries, J&R Holding Limited and ASE Test, through a cash and stock tender offer, acquired 641,669,316 common shares of Universal Scientific at NT$21 per share, amounting to NT$13,475.1 million in total, resulting in our controlled ownership over Universal Scientific. As a result, Universal Scientific became our consolidated subsidiary. In August 2010, we acquired additional 222,243,661 shares of Universal Scientific through another tender offer at NT$21 per share, amounting to NT$4,667.1 million in total. We owned 99.2 % of the outstanding common shares of Universal Scientific as of March 31, 2012.

Acquisition of EEMS Test Singapore

On August 2, 2010, we, through our subsidiary ASE Singapore Pte. Ltd., entered into a share purchase agreement with EEMS Asia Pte. Ltd., a subsidiary of EEMS Italia S.p.A., in connection with the acquisition of 100.0% of EEMS Test Singapore, a Singapore-based provider of test solutions for the semiconductor industry, for a purchase price of US$72.2 million. On August 27, 2010, EEMS Test Singapore changed its name to ASE Singapore II Pte. Ltd., which was subsequently merged into ASE Singapore Pte. Ltd. on January 1, 2011.

Acquisition and Merger of PowerASE

In addition to our previous holdings of PowerASE, in November and December 2011, we acquired 106,808,182 shares of PowerASE mainly through tender offers, for a total consideration of NT$1,972.2 million (US$65.2 million). As of March 31, 2012, we own 99.6% of the outstanding common shares of PowerASE. On March 29, 2012, our board of directors adopted resolutions to acquire the remaining 0.4% of the outstanding shares of PowerASE for a consideration of NT$13.5 million (US$0.4 million) and merge PowerASE into ASE Inc.

Acquisition of Yang Ting

On January 13, 2012, we entered into share purchase agreement with the shareholders of Yang Ting, a ROC-based provider of semiconductor packaging and testing services, in connection with the acquisition of 100.0% of Yang Ting, for a total consideration of NT$300.0 million (US$9.9 million).

IPO of Universal Scientific Shanghai

In February 2012, Universal Scientific Shanghai, a subsidiary of Universal Scientific, completed its initial public offering, or IPO, on the Shanghai Stock Exchange. Total proceeds from the IPO was approximately RMB 811.7 million (US$129.0 million) prior to deducting underwriting discounts and commissions. As of March 31, 2012, we indirectly held 88.7% of the total outstanding shares of Universal Scientific Shanghai through our subsidiaries Universal Scientific and ASE Shanghai.

For more information on our history and development, see “—Organizational Structure.”

BUSINESS OVERVIEW

We are the world's largest independent provider of semiconductor packaging and testing services based on 2011 revenues. Our services include semiconductor packaging, production of interconnect materials, front-end engineering testing, wafer probing, final testing services and integrated solutions for electronics manufacturing services in relation to computers, peripherals, communications, industrial, automotive, and storage and server applications. We believe that, as a result of the following, we are better positioned than our competitors to meet customers' requirements across a wide range of end-use applications:

- our ability to provide a broad range of cost-effective semiconductor packaging and testing services on a large-scale turnkey basis in key centers of semiconductor manufacturing;

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- our expertise in developing and providing cost-effective packaging, interconnect materials and testing technologies and solutions;
- our ability to provide proactive original design manufacturing services using innovative solution-based designs;
- our scale of operations and financial position, which enable us to make significant investments in capacity expansion and research and development as well as to make selective acquisitions;
- our geographic presence in key centers of outsourced semiconductor and electronics manufacturing; and
- our long-term relationships with providers of complementary semiconductor manufacturing services, including our strategic alliance with TSMC, one of the world's largest dedicated semiconductor foundries.

We believe that it is still the trend for semiconductor companies to outsource their packaging, testing and manufacturing requirements as semiconductor companies rely on independent providers of foundry, advanced packaging, testing and electronic manufacturing services. In response to the increased pace of new product development and shortened product life and production cycles, semiconductor companies are increasingly seeking independent packaging and testing companies that can provide turnkey services in order to reduce time-to-market and electronic manufacturing companies that can provide large-scale production and have the proactive original design capabilities. We believe that our expertise and scale in advanced technology and our ability to integrate our broad range of solutions into turnkey services and electronic manufacturing services allow us to benefit from the accelerated outsourcing trend and better serve our existing and potential customers.

We believe that we have benefited, and will continue to benefit, from our geographic location in Taiwan. Taiwan is currently the largest center for outsourced semiconductor manufacturing in the world and has a high concentration of electronics manufacturing service providers, which are the end users of our customers' products. Our close proximity to foundries and other providers of complementary semiconductor manufacturing services is attractive to our customers who wish to take advantage of the efficiencies of a total semiconductor manufacturing solution by outsourcing several stages of their manufacturing requirements. Our close proximity to end users of our customers' products is attractive to our customers who wish to take advantage of the logistical efficiencies of direct shipment services that we offer. We believe that, as a result, we are well positioned to meet the advanced semiconductor engineering and manufacturing requirements of our customers.

Our global base of over 200 customers includes leading semiconductor companies across a wide range of end-use applications, such as:

- Atmel Corporation
- AU Optronics Corp.
- Broadcom Corporation
- Cambridge Silicon Radio Limited
- Freescale Semiconductor, Inc.
- Infineon Technologies
- Lenovo Computer Ltd.
- Marvell Technology Group Ltd.
- Media Tek Inc.
- Motorola, Inc.
- Mstar Semiconductor Inc.
- Qualcomm Incorporated
- Renesas Electronics Corporation
- Spreadtrum Communications, Inc.
- STMicroelectronics N.V.
- Toshiba Corporation
- Valeo Group

Industry Background

General

Semiconductors are the basic building blocks used to create an increasing variety of electronic products and systems. Continuous improvements in semiconductor process and design technologies have led to smaller, more complex and more reliable semiconductors at a lower cost per function. These improvements have resulted in significant performance and price benefits to manufacturers of electronic products. As a result, semiconductor demand has grown substantially in our primary end-user markets for communications, computing and consumer

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electronics, and has experienced increased growth in other markets such as automotive products and industrial automation and control systems.

The semiconductor industry is characterized by strong long-term growth, with periodic and sometimes severe cyclical downturns. The Semiconductor Industry Association reported that worldwide sales of semiconductors increased from approximately US$51 billion in 1990 to approximately US$299.5 billion in 2011. We believe that overall growth and cyclical fluctuations will continue over the long-term in the semiconductor industry.

Electronic Manufacturing Services

According to Gartner, Inc., the overall size of the global market for electronics manufacturing services and original design manufacturing was estimated at approximately US$439.0 billion for 2011. Electronics manufacturing service providers typically achieve large economies of scale in manufacturing by pooling together product design techniques and also provide value-added services such as warranties and repairs. Companies who do not need to manufacture a constant supply of products have increasingly outsourced their manufacturing to these service providers so that they are no longer forced to maintain large inventories of products. Outsourcing will also enable them to still respond quickly and efficiently to sudden spikes in demand.

Electronics manufacturing services are sought by companies in a wide range of industries including, among others, information, communications, consumer electronics, automotive electronics, medical treatment, industrial applications, aviation, navigation, national defense and transportation. Although affected by global economic fluctuations, we expect the electronics manufacturing services industry to continue to grow in the long-term and we have enhanced our presence in the industry through our acquisition of the controlling interest of Universal Scientific in 2010.

Outsourcing Trends in Semiconductor Manufacturing

Historically, semiconductor companies designed, manufactured, packaged and tested semiconductors primarily in their own facilities. There has been a trend in the industry to outsource stages in the manufacturing process. Virtually every significant stage of the manufacturing process can be outsourced. Wafer foundry services, semiconductor packaging and testing services, and electronic manufacturing services are currently the largest segments of the independent semiconductor manufacturing services market.

The availability of technologically advanced independent manufacturing services has also enabled the growth of “fabless” semiconductor companies that focus on semiconductor design and marketing and outsource their wafer fabrication, packaging and testing requirements to independent companies. We believe that the growth in the number and scale of fabless semiconductor companies that rely solely on independent companies to meet their manufacturing requirements will continue to be a driver of growth in the market for independent foundry, packaging and testing services. Similarly, the availability of technologically advanced independent manufacturing services has encouraged integrated device manufacturers, which had traditionally relied on in-house semiconductor manufacturing capacity, to increasingly outsource their manufacturing requirements to independent semiconductor manufacturing companies.

We believe the outsourcing of semiconductor manufacturing services will increase in the future from current levels for many reasons, including the following:

- Technological Expertise and Significant Capital Expenditure. Semiconductor manufacturing processes have become highly complex, requiring substantial investment in specialized equipment and facilities and sophisticated engineering and manufacturing expertise. Technical expertise becomes increasingly important as the industry transitions from one generation of technology to another, as evidenced by the current migration of the fabrication

process from 8-inches to 12-inches in sub-micron technology and the size of technology nodes fabricated from 65 nm to 45 nm, as well as the integration of different functions into a single chip. In addition, product life cycles have been shortening, magnifying the need to continuously upgrade or replace manufacturing equipment to accommodate new products. As a result, new investments in in-house facilities are becoming less desirable to integrated device manufacturers because of the high investment costs as well as the inability to achieve sufficient economies of scale and utilization rates

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necessary to be competitive with the independent service providers. Independent packaging, testing, foundry and electronic manufacturing services companies, on the other hand, are able to realize the benefits of specialization and achieve economies of scale by providing services to a large base of customers across a wide range of products. This enables them to reduce costs and shorten production cycles through high capacity utilization and process expertise. In the process, they are also able to focus on discrete stages of semiconductor manufacturing and deliver services of superior quality.

In recent years, semiconductor companies have significantly reduced their investment in in-house packaging and testing technologies and capacity. As a result, some semiconductor companies may have limited in-house expertise and capacity to accommodate large orders following a recovery in demand, particularly in the area of advanced technology. On the other hand, some semiconductor companies with in-house packaging and testing operations focusing on low-end leadframe-based packages are under increasing pressure to rationalize these operations by relocating to locations with lower costs or better infrastructure, such as the PRC, in order to lower manufacturing costs and shorten production cycle time. We expect semiconductor companies to increasingly outsource their packaging and testing requirements to take advantage of the advanced technology and scale of operations of independent packaging and testing companies and electronic manufacturing services providers.

- Increased Adoption of Copper Wire Bonding. With significant cost saving benefits over conventional gold wiring technology, semiconductor companies have been qualifying and converting volumes to copper wire based packages at a rapid pace. Independent packaging and testing companies have been more aggressive in building copper bonding capacity than integrated device manufacturers and have accumulated significantly more experience and know-how with regards to the new technology. Due to the inherent cost savings and comparable yield of copper and their lack of in-house capacity and experience, we believe that integrated device manufacturers will increase outsourcing of their manufacturing services for copper wire packages to independent packaging and test companies.

- Focus on Core Competencies. As the semiconductor industry becomes more competitive, semiconductor companies are expected to further outsource their semiconductor manufacturing requirements in order to focus their resources on core competencies, such as semiconductor design and marketing.

- Time-to-Market Pressure. The increasingly short product life cycle has accelerated time-to-market pressure for semiconductor companies, leading them to rely increasingly on outsourced suppliers as a key source for effective manufacturing solutions.

- Capitalize on the High Growth Rates in Emerging Markets. Emerging markets, and China in particular, have become both major manufacturing centers for the technology industry and growing markets for technology-based products. Thus, in order to gain direct access to the Chinese market, many semiconductor companies are seeking to establish manufacturing facilities in China by partnering with local subcontractors. As a result, certain stages of the semiconductor manufacturing process that were previously handled in-house will be increasingly outsourced in order to improve efficiency.

The Semiconductor Industry in Taiwan

The semiconductor industry in Taiwan has been a leader in, and a major beneficiary of, the trend in outsourcing. The growth of the semiconductor industry in Taiwan has been the result of several factors. First, semiconductor manufacturing companies in Taiwan typically focus on one or two stages of the semiconductor manufacturing process. As a result, these companies tend to be more efficient and are better able to achieve economies of scale and maintain higher capacity utilization rates. Second, semiconductor manufacturing companies in Taiwan that provide the major stages of the manufacturing process are located close to each other and typically enjoy close working

relationships. This close network is attractive to customers who wish to outsource multiple stages of the semiconductor manufacturing process. For instance, a customer could reduce production cycle time and unit cost and streamline logistics by outsourcing its foundry, packaging, testing and drop shipment services to electronics manufacturing companies in Taiwan. Third, Taiwan has an educated labor pool and a large number of engineers suitable for sophisticated manufacturing industries such as semiconductors.

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The semiconductor industry in Taiwan has over the past decade made significant capital expenditures to expand capacity and technological capabilities. The ROC government has also provided tax incentives and research and development support, both directly and indirectly through support of research institutes and universities. As a result of investments made in recent years, Taiwan has achieved substantial market share in the outsourced semiconductor manufacturing industry. Furthermore, the growth of Taiwan's electronics manufacturing industry, particularly in personal computer, mobile handset and digital camera design and manufacturing, has created substantial local demand for semiconductors.

The Semiconductor Industry in Other Asian Regions

Many of the factors that contributed to the growth of the semiconductor industry in Taiwan have also contributed to the recent development of the semiconductor industry in Southeast Asia. Access to expanding semiconductor foundry services in Singapore, convenient proximity to major downstream electronics manufacturing operations in Malaysia, Singapore and Thailand, government-sponsored infrastructure support, tax incentives and pools of skilled engineers and labor at relatively low cost have all encouraged the development of back-end semiconductor service operations in Southeast Asia. The downstream electronics manufacturers in Southeast Asia have typically focused on products used in the communications, industrial and consumer electronics and personal computer peripheral sectors. The proximity to both semiconductor foundries and end users has influenced local and international semiconductor companies increasingly to obtain packaging, testing and drop shipment services from companies in Southeast Asia.

In addition, the world's leading electronics manufacturing service providers, many of them from Taiwan, are increasingly establishing manufacturing facilities in the PRC and Vietnam in order to take advantage of lower labor costs, government incentives for investment and the potential size of the domestic market for end users of electronics products. Many of the factors that contributed to the growth of the semiconductor industry in Taiwan are beginning to emerge in the PRC and may play an increasingly important role in the growth of its semiconductor industry over the long term.

Overview of Semiconductor Manufacturing Process

The manufacturing of semiconductors is a complex process that requires increasingly sophisticated engineering and manufacturing expertise. The manufacturing process may be divided into the following stages:

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We are involved in all stages of the semiconductor manufacturing process except circuit design and wafer fabrication.

Process	Description
1. Circuit Design	The design of a semiconductor is developed by laying out circuit components and interconnections.
2. Engineering Test	Throughout and following the design process, prototype semiconductors undergo engineering testing, which involves software development, electrical design validation and reliability and failure analysis.
3. Wafer Fabrication	Process begins with the generation of a photomask through the definition of the circuit design pattern on a photographic negative, known as a mask, by an electron beam or laser beam writer. These circuit patterns are transferred to the wafers using various advanced processes.
4. Wafer Probe	Each individual die is electrically tested, or probed, for defects. Dies that fail this test are marked to be discarded.
5. Packaging (or Assembly)	Packaging, also called assembly, is the processing of bare semiconductors into finished semiconductors and serves to protect the die and facilitate electrical connections and heat dissipation. The patterned silicon wafers received from our customers are diced by means of diamond saws into separate dies, also called chips. Each die is attached to a leadframe or a laminate (plastic or tape) substrate by epoxy resin. A leadframe is a miniature sheet of metal, generally made of copper and silver alloys, on which the pattern of input/output leads has been cut. On a laminate substrate, typically used in ball grid array, or BGA, packages, the leads take the shape of small bumps or balls. Leads on the leadframe or the substrate are

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Process	Description
	connected by extremely fine gold or copper wires or bumps to the input/output terminals on the chips, through the use of automated machines known as “bonders.” Each chip is then encapsulated, generally in a plastic casing molded from a molding compound, with only the leads protruding from the finished casing, either from the edges of the package as in the case of the leadframe-based packages, or in the form of small bumps on a surface of the package as in the case of BGA or other substrate-based packages.
6. Final Test	Final testing is conducted to ensure that the packaged semiconductor meets performance specifications. Final testing involves using sophisticated testing equipment known as testers and customized software to electrically test a number of attributes of packaged semiconductors, including functionality, speed, predicted endurance and power consumption. The final testing of semiconductors is categorized by the functions of the semiconductors tested into logic/mixed-signal/RF final testing and memory final testing. Memory final testing typically requires simpler test software but longer testing time per device tested.
7. Module, Board Assembly and Test	Module, board assembly and test refers to the combination of one or more packaged semiconductors with other components in an integrated module or board to enable increased functionality.
8. Material	Material refers to the interconnection of materials which connect the input/output on the semiconductor dies to the printed circuit board, such as substrate, leadframe and flip-chip.

Strategy

Our objective is to provide integrated solutions, including packaging, testing services, interconnect materials design and production capabilities, which set industry standards and to lead and facilitate the industry trend towards outsourcing semiconductor manufacturing requirements. The principal elements of our strategy are to:

Grow Our Advanced Packaging Services and Expand into the Legacy Packaging Market

We believe that an important factor in our ability to attract leading semiconductor companies as our customers has been our ability to fulfill demand for a broad range of packaging solutions on a large scale. We intend to continue to develop process and product technologies to meet the requirements of clients using our advanced packaging services. Our expertise in packaging technology has enabled us to develop advanced solutions such as fine-pitch wire bonding,

stacked die packaging and bump chip carrier packaging. We are continuously investing in research and development in response to and in anticipation of migrations in technology and intend to continue to acquire access to new technologies through strategic alliances and licensing arrangements.

We also intend to expand our legacy leadframe-based packaging product offerings and services. We believe that our clients will continue to outsource their legacy packaging requirements. To capitalize on this trend, we plan to accelerate our legacy packaging production in Shanghai and Kunshan, China and expand into the discrete packaging business by leveraging the existing assets of ASEWH and ASEKS, and our acquisition of Yang Ting.

The increasing miniaturization of semiconductors and the growing complexity of interconnect technology have also resulted in the blurring of the traditional distinctions among assembly at different levels of integration: chip, module, board and system. We currently provide module assembly services primarily at our facilities in Korea. In

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addition, our subsidiary Universal Scientific has provided us with access to process and product technologies at the levels of module, board and system assembly and test, which helps us to better anticipate industry trends and take advantage of potential growth opportunities. We expect to combine our packaging, testing and materials technologies with the expertise of Universal Scientific at the systems level to develop our system-in-package (SiP) business.

Strategically Expand and Streamline Production Capacity

To capitalize on the growing demand for advanced and legacy packaging and testing services, we intend to strategically expand our production capacity, both through internal growth and through selective acquisitions and joint ventures, with a focus on providing cost competitive and innovative packaging and testing services.

For our advanced packaging and testing business, we intend to invest in trends that are essential to the development of the industry. We plan to expand our capacity with respect to, among other things, 12-inch wafer process, bumping, FC-CSP and system-in-a-package products to meet demand for smaller form factors, higher performance and higher packaging density. We believe rising commodity prices will expedite the migration from leadframe and BGA-based packaging to flip-chip packaging and wafer level packaging, as the cost differential narrows. We intend to increase our capacity for flip-chip packaging and wafer level packaging in order to cope with rising demand for these packaging technologies.

In addition, we intend to promote our copper wire solutions to our customers in addition to gold wire. Gold wire is a significant raw material for us. Gold prices, however, are subject to intense fluctuations and have in the past impacted our profitability. We believe that replacing gold wire in some of our packages with the copper wire technology will not only improve our profitability but will also enable us to provide more value to our customers by providing lower cost solutions compared to the conventional gold packages, which could enhance our competitiveness and market share. We are currently the industry leader in terms of copper wire capacity and have developed the most extensive operating experience with this material. We thus plan to capitalize on the overall industry trend of copper conversion by maintaining our leadership and focusing on integrating copper wire into a wider range of traditional leadframe-based packages and thereafter into higher end substrate-based packages.

For our legacy packaging and testing business, we expect to focus on providing cost competitive services through our China operations by leveraging China's lower cost of labor and land and a rapidly growing end market. Our clients may also benefit from easier inventory management and savings in transportation costs and taxes by outsourcing their packaging and testing requirements to China. Through better management of capacity utilization and efficiency improvements, we plan to offer cost competitive legacy packaging and testing services on a large scale with the intention of driving more integrated device manufacturer outsourcing in the long-run.

We evaluate acquisition and joint venture opportunities on the basis of access to new markets and technology, the enhancement of our production capacity, economies of scale and management resources, and closer proximity to existing and potential customers. In 2007, we completed the acquisition of GAPT, a company that provides wire bond packaging and testing services for a wide range of semiconductors, and formed a joint venture with NXP Semiconductors in Suzhou, China focused on semiconductor testing and packaging. In 2008, we completed the acquisition of ASEWH, a company that also engages in semiconductor packaging and testing services. In addition, we acquired an aggregate of 863,912,977 common shares of Universal Scientific through two tender offers in February 2010 and August 2010 and owned 99.2 % of its outstanding common shares as of March 31, 2012. Universal Scientific is an electronics manufacturing services company that provides integrated solutions for electronic manufacturing services in relation to computers, peripherals, communications, industrial, automotive, and storage and server applications. We intend to provide our customers with more value-added products through Universal Scientific. On August 2, 2010, we also completed the acquisition of 100.0% of EEMS Test Singapore from EEMS Asia Pte. Ltd.,

a subsidiary of EEMS Italia S.p.A. EEMS Test Singapore is a Singapore-based provider of test solutions for the semiconductor industry. On August 27, 2010, EEMS Test Singapore changed its name to ASE Singapore II Pte. Ltd., which was subsequently merged into ASE Singapore Pte. Ltd. on January 1, 2011. We also acquired Yang Ting in January 2012 to enhance our capacity to provide packaging and testing services for computing applications to existing customers and to attract new customers.

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Continue to Leverage Our Presence in Key Centers of Semiconductor and Electronics Manufacturing

We intend to continue leveraging our presence in key centers of semiconductor and electronics manufacturing to further grow our business. We have significant packaging, testing and electronics manufacturing services operations in Taiwan, currently the largest center for outsourced semiconductor and electronics manufacturing in the world. This presence enables our engineers to work closely with our customers as well as foundries and other providers of complementary semiconductor and electronics manufacturing services early in the design process, enhances our responsiveness to the requirements of our customers and shortens production cycles. In addition, as a turnkey service provider, we are able to offer, all within relatively close geographic proximity to our customers, complementary service providers and the end users of our customers' products. In addition to our current operations, we intend to expand our packaging and testing operations in Chung Li, Taiwan to better serve our customers located in northern Taiwan and customers who request that we maintain the capability of packaging and testing their products at more than one location in Taiwan.

In addition to our locations in Taiwan, we have primary operations in the following locations:

- PRC — a fast-growing market for semiconductor and electronics manufacturing for domestic consumption and our primary sites for serving legacy packaging clients and electronics manufacturing services;
    - Korea — an increasingly important center for the manufacturing of memory and communications devices;
- Malaysia and Singapore — an emerging center for outsourced semiconductor manufacturing in Southeast Asia;
- Silicon Valley in California — the preeminent center for semiconductor design, with a concentration of fabless customers; and
- Japan — an emerging market for semiconductor packaging and testing services as Japanese integrated device manufacturers increasingly outsource their semiconductor manufacturing requirements.

Strengthen and Develop Strategic Relationships with Our Customers and Providers of Complementary Semiconductor Manufacturing Services

We intend to strengthen existing and develop new strategic relationships with our customers and providers of other complementary semiconductor manufacturing services, such as foundries, as well as equipment vendors, raw material suppliers and technology research institutes, in order to offer our customers total semiconductor manufacturing solutions covering all stages of the manufacturing of their products from design to shipment. In addition, we are working with our customers to co-develop new packaging technologies and designs. In some cases, our customers co-invest in building capacities that support these new packaging technologies and designs.

Since 1997, we have maintained a strategic alliance with TSMC, currently one of the world's largest dedicated semiconductor foundries, which designates us as their non-exclusive preferred provider of packaging and testing services for semiconductors manufactured by TSMC. Through our strategic alliance with and close geographic proximity to TSMC, we are able to offer our customers a total semiconductor manufacturing solution that includes access to foundry services in addition to our packaging, testing and direct shipment services. In addition, on February 23, 2009, we and AMPI, a provider of foundry services, signed a memorandum of understanding to enter into a strategic alliance focused on providing semiconductor manufacturing turnkey services.

Principal Products and Services

We offer a broad range of advanced and legacy semiconductor packaging and testing services. In addition, we started providing electronic manufacturing services since our acquisition of the controlling interest of Universal Scientific in February 2010. Our package types employ either leadframes or substrates as interconnect materials. The semiconductors we package are used in a wide range of end-use applications, including communications,

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computing, consumer electronics, industrial, automotive and other applications. Our testing services include front-end engineering testing, which is performed during and following the initial circuit design stage of the semiconductor manufacturing process, wafer probe, final testing and other related semiconductor testing services. We focus on packaging and testing logic semiconductors. We offer our customers turnkey services which consist of packaging, testing and direct shipment of semiconductors to end users designated by our customers. Our electronics manufacturing services are used in a wide range of end-use applications, including, among others, computers, peripherals, communications, industrial applications, automotive electronics, and storage and server applications. In 2011, our revenues generated from packaging, testing and electronic manufacturing services accounted for 55.4%, 11.8% and 31.2% of our net revenues, respectively.

Packaging Services

We offer a broad range of package types to meet the requirements of our customers, with a focus on advanced packaging solutions. Within our portfolio of package types, we focus on the packaging of semiconductors for which there is expected to be strong demand. These include advanced leadframe-based package types such as quad flat packages (QFP), thin quad flat packages (TQFP), bump chip carrier (BCC) and quad flat no-lead (QFN) packages, aQFN (advanced QFN) and package types based on substrates, such as flip-chip BGA, flip-chip CSP and other BGA types as well as other advanced packages such as wafer-level products, aCSP (advanced chip scale packages) and aWLP (advanced wafer level packages, fan-out). In addition, to meet current trends towards low cost solutions, we provide copper wire bonding solutions which can be applied to current gold wire products. Low cost flip-chip packages (a-fcCSP) solutions are based on low cost substrate designs and mold only encapsulation. Furthermore, we provide 3D chip packages, such as MAP POP (package on package) and aMAP POP (advanced, laser ablation type), which enable our customers to mount packages more easily. We also offer other forms of stacked die solutions in different package types, e.g. stacked die QFN, hybrid BGAs containing stacked wire bond and fc die. With respect to our module assembly services, we also provide turnkey solutions regarding certain widely-used applications, such as WiMAX, GPS, WLAN and BT, for the integration of different package types into one module. We are among the leaders in such advanced packaging processes and technologies and are well positioned to lead the technology migration in the semiconductor packaging industry. We are also developing the latest generation of stacked die packages based on TSV technology. Our first product has been a CMOS image sensor with TSV to minimize the form factor.

The semiconductor packaging industry has evolved to meet the advanced packaging requirements of high-performance semiconductors. The development of high-performance electronics products has spurred the innovation of semiconductor packages that have higher interconnected density and better electrical performance. As a part of this technology migration, semiconductor packages have evolved from leadframe-based packages to substrate-based packages. The key differences of these package types are:

- the size of the package;
- the density of electrical connections the package can support;
- flexibility at lower costs;
- the thermal and electrical characteristics of the package; and
- environmentally-conscious designs.

Leadframe-Based Packages. Leadframe-based packages are packaged by connecting the die, using wire bonders, to the leadframe with gold wire or copper wire. As packaging technology improves, the number of leads per package

increases. Packages have evolved from the lower pin-count plastic dual in-line packages to higher pin-count quad flat packages. In addition, improvements in leadframe-based packages have reduced the footprint of the package on the circuit board and improved the electrical performance of the package.

The following table sets forth our principal leadframe-based packages.

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Package Types	Number of Leads	Description	End-Use Applications
Advanced Quad Flat No-Lead Package (aQFN)	104-276	aQFN allows for leadless, multi-row and fine-pitch leadframe packaging and is characterized by enhanced thermal and electrical performance. aQFN is a cost-effective packaging solution due to its cost-effective materials and simpler packaging process.	Telecommunications products, wireless local access networks, personal digital assistants, digital cameras, low to medium lead count packaging information appliances.
Quad Flat Package (QFP)/ Thin Quad Flat Package (TQFP)	44-256	Designed for advanced processors and controllers, application-specific integrated circuits and digital signal processors.	Multimedia applications, cellular phones, personal computers, automotive and industrial products, hard disk drives, communication boards such as ethernet, integrated services digital networks and notebook computers.
Quad Flat No-Lead Package (QFN)/Microchip Carrier (MCC)	12-84	QFN, also known as MCC, uses half-encapsulation technology to expose the rear side of the die pad and the tiny fingers, which are used to connect the chip and bonding wire with printed circuit boards.	Cellular phones, wireless local access networks, personal digital assistant devices and digital cameras.
Bump Chip Carrier (BCC)	16-156	BCC packages use plating metal pads to connect with printed circuit boards, creating enhanced thermal and electrical performance.	Cellular phones, wireless local access networks, personal digital assistant devices and digital cameras.
Small Outline Plastic Package (SOP)/Thin Small Outline Plastic Package (TSOP)	8-56	Designed for memory devices including static random access memory, or SRAM, dynamic random access memory, or DRAM, fast static RAM, also called FSRAM, and flash memory devices.	Consumer audio/video and entertainment products, cordless telephones, pagers, fax machines, printers, copiers, personal computer peripherals, automotive parts, telecommunications products, recordable optical disks and hard disk drives.
Small Outline Plastic J-Bend Package (SOJ)	20-44	Designed for memory and low pin-count applications.	DRAM memory devices, microcontrollers, digital analog conversions and audio/video applications.
Plastic Leaded Chip Carrier (PLCC)	28-84	Designed for applications that do	Personal computers, scanners,

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Package Types	Number of Leads	Description	End-Use Applications
		not require low-profile packages with high density of interconnects.	electronic games and monitors.
Plastic Dual In-line Package (PDIP)	8-64	Designed for consumer electronic products.	Telephones, televisions, audio/video applications and computer peripherals.
Discrete	2-3	Discrete packages are mainly separated Through Hole Device (THD) and Surface Mounting Device (SMD) type which are molded epoxy molding compound. According to JEDEC standards, there are several kinds of mold and lead shapes.	THD package is optimized for using power device (SMP, motor, transformer in LCD/PDP TV, PC, audio, automotive area) and also SMD package is designed for small signal module (cellular phone, MP3, camera, portable electronic device, etc.).

Substrate-Based Packages. Substrate-based packages generally employ the BGA design, which utilizes a substrate rather than a leadframe. Whereas traditional leadframe technology places the electrical connection around the perimeter of the package, the BGA package type places the electrical connection at the bottom of the package surface in the form of small bumps or balls. These small bumps or balls are typically distributed evenly across the bottom surface of the package, allowing greater distance between individual leads and higher pin-counts.

The BGA package type was developed in response to the requirements of advanced semiconductors. The benefits of the BGA package type include:

- smaller package size;
- thinner package;
- higher pin-count;
- greater reliability;
- superior electrical signal transmission; and
- better heat dissipation.

The industry demand for BGA packages has grown significantly in recent years. BGA packages are generally used in applications where size, density and performance are important considerations, such as cellular handsets and high pin-count graphic chipsets. Our expertise in BGA packages also includes capabilities in stacked-die BGA, which assembles multiple dies into a single package. As an extension to stacked-die BGA, we also assemble system-in-a-package (SiP) products, which involve the integration of more than one chip into the same package. We believe that we are among the leaders in these packaging technologies.

We believe that there will continue to be growing demand for packaging solutions with increased input/output density, smaller size and better heat dissipation characteristics. In anticipation of this demand, we have focused on developing our capabilities in some advanced packaging solutions, such as flip-chip BGA, Heat-Spreader FCBGA, flip-chip CSP, Hybrid FCCSP (Flip-Chip + W/B), Flip-Chip PiP (Package in Package), aMAP POP and aS3™ (Advanced Single Sided Substrate, which is currently under development). Flip-chip BGA technology replaces wire bonding with wafer bumping for interconnections within the package. Wafer bumping involves the placing of tiny

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solder balls, instead of wires, on top of dies for connection to substrates. As compared with more traditional packages, which allow input/output connection only on the boundaries of the dies, flip-chip packages significantly enhance the input/output flow by allowing input/output connection over the entire surface of the dies.

The following table sets forth our principal substrate-based packages.

Package Types	Number of Leads	Description	End-Use Applications
Plastic BGA	119-1520	Designed for semiconductors which require the enhanced performance provided by plastic BGA, including personal computer chipsets, graphic controllers and microprocessors, application-specific integrated circuits, digital signal processors and memory devices.	Telecommunications products, global positioning systems, notebook computers, disk drives and video cameras.
Cavity Down BGA	256-1140	Designed for memory devices such as flash memory devices, SRAM, DRAM and FSRAM, microprocessors/controllers and high-value, application-specific integrated circuits requiring a low profile, light and small package.	Telecommunications products, wireless and consumer systems, personal digital assistants, disk drives, notebook computers and memory boards.
Stacked-Die BGA	120-1520	Combination of multiple dies in a single package enables package to have multiple functions within a small surface area.	Telecommunications products, local area networks, graphics processor applications, digital cameras and pagers.
Flip-Chip Chip Scale Package (FC-CSP, a-fcCSP)	16-560	A lightweight package with a small, thin profile that provides better protection for chips and better solder joint reliability than other comparable package types.	RFICs and memory ICs such as digital cameras, DVDs, devices that utilize WiMAX technology, cellular phones, GPS devices and personal computer peripherals.
Flip-Chip PiP (Package in Package) (FC-CSP PiP)	500-980	System In Package for Flip-Chip+Memory die inside with a better electrical performance package types.	Application processor for smartphone, data modern on portable devices.
Package-on-Package (POP, aMAP POP)	136-904	This technology places one package on top of another to integrate different functionalities while maintaining a compact size. It offers procurement flexibility,	Cellular phones, personal digital assistants and system boards.

low cost of ownership, better total system cost and faster time to market. Designers typically use the topmost package for memory

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Package Types	Number of Leads	Description	End-Use Applications
		applications and the bottomost package for ASICs. By using this technology, the memory known good die issue can be mitigated and the development cycle time and cost can be reduced.	
Flip-Chip BGA	16-2916	Using advanced interconnect technology, the flip-chip BGA package allows higher density of input/output connection over the entire surface of the dies. Designed for high-performance semiconductors that require high density of interconnects in a small package.	High-performance networking, graphics and processor applications.
Hybrid (Flip-Chip and Wire Bonding)	49-608	A package technology which stacks a die on top of a probed good die to integrate ASIC and memory (flash, SRAM and DDR) into one package and interconnecting them with wire bonding and molding. This technology suffers from known good die issues (i.e., one bad die will ruin the entire module). Rework is also not an option in hybrid packages.	Digital cameras, smartphones, bluetooth applications and personal digital assistants.
Land Grid Array (LGA)	10-72	Leadless package which is essentially a BGA package without the solder balls. Based on laminate substrate, land grid array packages allow flexible routing and are capable of multichip module functions.	High frequency integrated circuits such as wireless communications products, computers servers and personal computer peripherals.
aS3	up to 300	Ultra-thin profile package which is excellent on middle pin count alternative solution; Standard BT material and manufacturing equipment; and Lower cost via on pad.	High I/O and short wire length package solution in high performance requirement.

Wafer-Level Packages. Chip scale packages typically have an area no greater than 1.2 times of the silicon die. Unlike substrate-based packages, where the die is usually mounted on an interposer which then contains electrical connections in the form of small bumps or balls, wafer-level packages do not include an interposer. The electrical connections are plated or printed directly onto the wafer itself, resulting in a package very close to the size of the silicon die. The traditional wafer-level package is also referred to as a fan-in package because I/O terminal of a wire bond pad pattern is redistributed in a grid array like pattern for flip chips.

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As advanced nodes and die shrink produce more I/O, fan-in WLP may no longer be able to support the required solder balls on the available die area. Fan-out WLP essentially enlarges the die with a special mold compound to accommodate the larger ball count. This type of packaging is done by reconstituting a wafer by over-molding known good die on a wafer shaped carrier followed by fan-in WLP processing to complete the package.

System in Package or Modules. As miniaturization requirements for electronic devices increase, smaller and lighter SiPs are garnering much attention within the industry. Wafer level integration-passive device technology has become increasingly important. Passive devices such as inductors, capacitors, resistors, filters and diplexers are those components occupying the largest area in printed circuit boards; therefore, miniaturization and integration is key to advanced SiPs. This can be achieved through integrating passive components on an individual substrate using a thin film process known as MCM-D or IPD (Integrated Passive Device). The IPD can then be used as a package substrate or interposer for SiP. This manufacturing method will enhance product performance and also reduce overall costs. The extension of our current RDL (Redistribution) process can be used to build high quality factor (Q) inductor and RF circuits on top of CMOS (Complementary Metal–Oxide–Semiconductor) wafers. IPD is an enabling technology for advanced SiP. It can be used in the following three approaches to enhance product performance: several solutions to replace discrete components such as Balun, Filter, etc. or to integrate certain passive components and act as interposer, or to replace PWB and act as a substrate of the module.

We provide numerous technologies to meet various customer demands. The following table sets forth our principal wafer-level packaging products:

Package Types	Number of Leads	Description	End-Use Applications
Wafer Level Chip Scale Package (aCSP)	6-100	A wafer level chip scale package that can be directly attached to the circuit board. Provides shortest electrical path from the die pad to the circuit board, thereby enhancing electrical performance.	Cellular phones, personal digital assistants, watches, MP3 players, digital cameras and camcorders.
Advanced Wafer Level Package (aWLP)	189-364	This technology allows the “fanout” of the package I/Os using an area larger than the die size without the need for a separate substrate. It offers cost effective alternatives to flip-chip and wire bumping packaging. 2D and 3D multi-die packages can enable leadless, multi-row and fine-pitch leadframe packages with enhanced thermal and electrical performance.	Telecommunications products, basebands and multiband transceivers.

3D Packaging. 3D packaging has recently received a lot of publicity because of the advent of TSV based chip stacking. Chip stacking has been implemented for many years, albeit without TSVs. Wire bond die is routinely stacked on leadframes as well as BGA substrates. A more recent implementation is the stacking of packages as package on package (PoP) and the more specialized package in package (PiP). ASE has advanced PoP by the invention of aMAPPoP which provides the package interconnects by exposing a molded in solder ball with a laser via. Aside from being cost effective due to block molding, this PoP also has much lower warpage, greatly improving

the stacking yield.

Module Assembly. We also offer module assembly services, which combine one or more packaged semiconductors with other components in an integrated module to enable increased functionality, typically using automated surface mount technology, or SMT, machines and other machinery and equipment for system-level assembly. End-use applications for modules include cellular phones, PDAs, wireless LAN applications, Bluetooth

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applications, camera modules, automotive applications and toys. We currently provide module assembly services primarily at our facilities in Korea for radio frequency and power amplifier modules used in wireless communications and automotive applications.

Interconnect Materials. Interconnect materials connect the input/output on the semiconductor dies to the printed circuit board. Interconnect materials include substrate, which is a multi-layer miniature printed circuit board, and is an important element of the electrical characteristics and overall performance of semiconductors. We produce substrates for use in our packaging operations.

The demand for higher performance semiconductors in smaller packages will continue to spur the development of advanced substrates that can support the advancement in circuit design and fabrication. As a result, we believe that the market for substrates will grow and the cost of substrates as a percentage of the total packaging process will increase. In the past, substrates we designed for our customers were produced by independent substrate manufacturers. Since 1997, we have been designing and producing a portion of our interconnect materials in-house. In 2011, our interconnect materials operations supplied approximately 37.8% of our consolidated substrate requirements by value.

The following table sets forth, for the periods indicated, the percentage of our packaging revenues accounted for by each principal type of packaging products or services.

	Year Ended December 31,		
	2009	2010	2011
	(percentage of packaging revenues)		
Advanced substrate and leadframe-based packages(1)	88.9 %	84.3 %	81.8 %
Traditional leadframe-based packages(2)	5.3	7.1	8.9
Module assembly	3.0	4.7	5.3
Other	2.8	3.9	4.0
Total	100.0 %	100.0 %	100.0 %

(1) Includes leadframe-based packages such as QFP/TQFP, QFN/MCC and BCC and substrate-based packages such as various BGA package types (including flip-chip and others) and LGA.

(2) Includes leadframe-based packages such as SOP/TSOP, SOJ, PLCC and PDIP.

Testing Services

We provide a complete range of semiconductor testing services, including front-end engineering testing, wafer probing, final testing of logic/mixed-signal/RF/Discrete and memory final testing and other test-related services.

The testing of semiconductors requires technical expertise and knowledge of the specific applications and functions of the semiconductors tested as well as the testing equipment utilized. We believe that our testing services employ technology and expertise which are among the most advanced in the semiconductor industry. In addition to maintaining different types of testing equipment, which enables us to test a variety of semiconductor functions, we work closely with our customers to design effective testing solutions on multiple equipment platforms for particular semiconductors.

In recent years, complex, high-performance logic/mixed-signal/RF/discrete semiconductors have accounted for an increasing portion of our testing revenues. As the testing of complex, high-performance semiconductors requires a

large number of functions to be tested using more advanced testing equipment, these products generate higher revenues per unit of testing time, as measured in central processing unit seconds.

Front-End Engineering Testing. We provide front-end engineering testing services, including customized software development, electrical design validation, and reliability and failure analysis.

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- Customized Software Development. Test engineers develop customized software to test the semiconductor using advanced testing equipment. Customized software, developed on specific test platforms, is required to test the conformity of each particular semiconductor type to its unique functionality and specification.

- Electrical Design Validation. A prototype of the designed semiconductor is subjected to electrical tests using advanced test equipment and customized software. These tests assess whether the prototype semiconductor complies with a variety of different operating specifications, including functionality, frequency, voltage, current, timing and temperature range.

- Reliability Analysis. Reliability analysis is designed to assess the long-term reliability of the semiconductor and its suitability of use for intended applications. Reliability testing can include “burn-in” services, which electrically stress a device, usually at high temperature and voltage, for a period of time long enough to cause the failure of marginal devices.

- Failure Analysis. In the event that the prototype semiconductor does not function to specifications during either the electrical design validation or reliability testing processes, it is typically subjected to failure analysis to determine the cause of the failure to perform as anticipated. As part of this analysis, the prototype semiconductor may be subjected to a variety of analyses, including electron beam probing and electrical testing.

Wafer Probing. Wafer probing is the step immediately before the packaging of semiconductors and involves visual inspection and electrical testing of the processed wafer for defects to ensure that it meets our customers’ specifications. Wafer probing services require expertise and testing equipment similar to that used in final testing, and most of our testers can also be used for wafer probing.

Logic/Mixed-signal/RF/Discrete Final Testing. We conduct final tests of a wide variety of logic/mixed-signal/RF/discrete semiconductors, with the number of leads or bumps ranging from the single digits to over ten thousand and operating frequencies of over 10 Gbps for digital semiconductors and 6 GHz for radio frequency semiconductors, which are at the high end of the range for the industry. The products we test include semiconductors used for wired, wireless and mobile communications, chipsets, graphics and disk controllers for home entertainment and personal computer applications, as well as a variety of consumer and application-specific integrated circuits for various specialized applications.

Memory Final Testing. We provide final testing services for a variety of memory products, such as SRAM, DRAM, single-bit erasable programmable read-only memory semiconductors and flash memory semiconductors.

Other Test-Related Services. We provide a broad range of additional test-related services, including:

- Electric Interface Board and Mechanical Test Tool Design. Process of designing individualized testing apparatuses such as test load boards, sockets, handler change kits, and probe cards for unique semiconductor devices and packages.

- Program Conversion. Process of converting program from one test platform to different test platforms to reduce cost of test.

- Program Efficiency Improvement. Process of optimizing the program code or increasing site count of parallel test to improve test throughout.

- Remote Program Debugging. Process of allowing the customer to debug their test program remotely through internet connection.

- Burn-in Testing. Burn-in testing is the process of electrically stressing a device, usually at high temperature and voltage, for a period of time to simulate the continuous use of the device to determine whether this use would cause the failure of marginal devices;

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- Module SiP Testing. We provide module SiP testing through integrated bench solution or automatic test equipment to our customers with a complete solution with respect to wireless connectivity devices, global positioning system devices, personal navigation devices and digital video broadcasting devices;

- Dry Pack. Process which involves heating semiconductors in order to remove moisture before packaging and shipping to customers;

- Tape and Reel. Process which involves transferring semiconductors from a tray or tube into a tape-like carrier for shipment to customers; and

Drop Shipment Services. We offer drop shipment services for shipment of semiconductors directly to end users designated by our customers. Drop shipment services are provided mostly in conjunction with logic/mixed-signal/RF/discrete testing. We provide drop shipment services to a significant percentage of our testing customers. A substantial portion of our customers at each of our facilities have qualified these facilities for drop shipment services. Since drop shipment eliminates the additional step of inspection by the customer before shipment to the end user, quality of service is a key consideration. We believe that our ability to successfully execute our full range of services, including drop shipment services, is an important factor in maintaining existing customers as well as attracting new customers.

The following table sets forth, for the periods indicated, the percentage of our testing revenues accounted for by each type of testing service.

	Year Ended December 31,		
	2009	2010	2011
	(percentage of testing revenues)		
Testing Services:			
Front-end engineering testing	2.9 %	2.2 %	2.1 %
Wafer probing	13.9	13.8	12.6
Final testing	83.2	84.0	85.3
Total	100.0 %	100.0 %	100.0 %

Electronic Manufacturing Services. Since our acquisition of the controlling interest of Universal Scientific in February 2010, we also provide integrated solutions for electronics manufacturing services in relation to computers, peripherals, communications, industrial, automotive, and storage and server applications. The key products and services we offer to our customers, for instance, include:

- Computers: motherboards for server & desktop PC; peripheral; port replicator; network attached storage; and technical services;

- Communications: Wi-Fi; WiMAX; SiP and Hybird SiP;

- Consumer products: control boards for flat panel devices;

- Automotive electronics: automotive electronic manufacturing services; car LED lighting; regulator/rectifier; and

- Industrial products: point-of-sale systems; smart handheld devices.

Seasonality

See “Item 5. Operating and Financial Review and Prospects—Operating Results and Trend Information—Quarterly Net Revenues, Gross Profit and Gross Margin.”

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Sales and Marketing

Sales and Marketing Offices

We maintain sales and marketing offices in Taiwan, the United States, Austria, Belgium, France, Germany, Singapore, the Philippines, the PRC, Korea, Malaysia, Japan, Mexico and other countries. Our sales and marketing offices in Taiwan are located in Hsinchu and Kaohsiung. We conduct marketing research through our customer service personnel and through our relationships with our customers and suppliers to keep abreast of market trends and developments. We also provide advice in the area of production process technology to our major customers planning the introduction of new products. In placing orders with us, our customers specify which of our facilities these orders will go to. Our customers conduct separate qualification and correlation processes for each of our facilities that they use. See "—Qualification and Correlation by Customers."

Customers

In 2011, our global base of over 200 customers includes leading semiconductor companies across a wide range of end-use applications, such as:

- Atmel Corporation
- AU Optronics Corp.
- Broadcom Corporation
- Cambridge Silicon Radio Limited
- Freescale Semiconductor, Inc.
- Infineon Technologies
- Lenovo Computer Ltd.
- Marvell Technology Group Ltd.
- Media Tek Inc.
- Motorola, Inc.
- Mstar Semiconductor Inc.
- Qualcomm Incorporated
- Renesas Electronics Corporation
- Spreadtrum Communications, Inc.
- STMicroelectronics N.V.
- Toshiba Corporation
- Valeo Group

Our five largest customers together accounted for approximately 28.7%, 26.0% and 26.8% of our net revenues in 2009, 2010 and 2011, respectively. No customer accounted for more than 10% of our net revenues in 2009, 2010 and 2011.

We package and test for our customers a wide range of products with end-use applications in the communications, computing, consumer electronics, industrial and automotive sectors. The following table sets forth a breakdown of the percentage of our net revenues generated from our packaging and testing services, for the periods indicated, by the principal end-use applications of the products which we packaged and tested.

	Year Ended December 31,					
	2009		2010		2011	
Communications	46.2	%	47.5	%	52.3	%
Computing	16.8		16.9		14.2	
Consumer electronics/industrial/automotive	36.0		35.2		33.0	
Other	1.0		0.4		0.5	
Total	100.0	%	100.0	%	100.0	%

In addition, we started providing electronic manufacturing services after acquiring the controlling interest of Universal Scientific in February 2010. Our electronic manufacturing services provide a wide range of products with end-use applications. The following table sets forth a breakdown of the percentage of our net revenues generated from our electronic manufacturing services for 2010 and 2011 by the principal end-use applications.

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	Year Ended December 31,			
	2010		2011	
Communications	34.7	%	36.1	%
Computing	25.9		22.1	
Consumer electronics	19.4		18.5	
Industrial and automotive	19.5		22.6	
Other	0.5		0.7	
Total	100.0	%	100.0	%

Many of our customers are leaders in their respective end-use markets. For example, we provide Freescale Semiconductor, Inc., an industry leader in automotive semiconductor products, with a substantial portion of its outsourced packaging and testing requirements. The following table sets forth some of our largest customers, in alphabetical order, categorized by the principal end-use applications of the products which we package and test for them.

Communications	Computing	Consumer Electronics/Industrial/Automotive
Atmel Corporation	Atmel Corporation	AU Optronics Corp.
Avago Technologies	Lenovo Computer Ltd.	Freescale Semiconductor, Inc.
Broadcom Corporation	Marvell Technology Group Ltd.	Motorola, Inc.
Cambridge Silicon Radio Limited	NVIDIA Corporation	Mstar International Inc.
Media Tek Inc.	STMicroelectronics N.V.	Renesas Electronics Corporation
Micron Technology, Inc.		STMicroelectronics N.V.
Qualcomm Incorporated		Toshiba Corporation
Spreadtrum Communications, Inc.		

We categorize our revenues geographically based on the country in which the customer is headquartered. The following table sets forth, for the periods indicated, the percentage breakdown by geographic regions of our revenues.

	Year Ended December 31,					
	2009		2010		2011	
America	52.6	%	55.9	%	58.1	%
Taiwan	20.8		19.7		20.0	
Asia	14.0		13.6		11.3	
Europe	12.6		10.8		10.6	
Total	100.0	%	100.0	%	100.0	%

The majority of our testing revenues is accounted for by the testing of semiconductors that were also packaged at our packaging facilities. The balance represented testing revenues from customers who delivered packaged semiconductors directly to our facilities for testing services alone. The majority of our packaging revenues is accounted for by the packaging of semiconductors which were subsequently tested at our facilities. We expect that more customers of our packaging facilities will begin to contract for our packaging and testing services on a turnkey basis.

Qualification and Correlation by Customers

Customers generally require that our facilities undergo a stringent qualification process during which the customer evaluates our operations and production processes, including engineering, delivery control and testing capabilities. The qualification process typically takes up to several weeks, but can take longer depending on the requirements of the customer. In the case of our testing operations, after we have been qualified by a customer and

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before the customer delivers semiconductors to us for testing in volume, a process known as correlation is undertaken. During the correlation process, the customer provides us with sample semiconductors to be tested and either provides us with the test program or requests that we develop a conversion program. In some cases, the customer also provides us with a data log of results of any testing of the semiconductors which the customer may have conducted previously. The correlation process typically takes up to two weeks, but can take longer depending on the requirements of the customer. We believe our ability to provide turnkey services reduces the amount of time spent by our customers in the qualification and correlation process. As a result, customers utilizing our turnkey services are able to achieve shorter production cycles.

Pricing

We price our packaging services and electronic manufacturing services primarily on a cost-plus basis with reference to prevailing market prices. We price our testing services primarily on the basis of the amount of time, measured in central processing unit seconds, taken by the automated testing equipment to execute the test programs specific to the products being tested, as well as the cost of the equipment, with reference to prevailing market prices. Prices for our packaging, testing and electronic manufacturing services are confirmed at the time orders are received from customers, which is typically several weeks before delivery.

Raw Materials and Suppliers

Packaging

The principal raw materials used in our packaging processes are interconnect materials such as leadframes and substrates, gold wire and molding compound. The silicon die, which is the functional unit of the semiconductor to be packaged, is supplied in the form of silicon wafers. Each silicon wafer contains a number of identical dies. We receive the wafers from the customers or the foundries on a consignment basis. Consequently, we generally do not incur inventory costs relating to the silicon wafers used in our packaging process.

We do not maintain large inventories of leadframes, substrates, gold wire or molding compound, but generally maintain sufficient stock of each principal raw material based on blanket orders and rolling forecasts of near-term requirements received from customers. In addition, several of our principal suppliers dedicate portions of their inventories as reserves to meet our production requirements. However, shortages in the supply of materials experienced by the semiconductor industry have in the past resulted in occasional price adjustments and delivery delays. For example, in the first half of 2000, the industry experienced a shortage in the supply of advanced substrates used in BGA packages, which, at the time, were only available from a limited number of suppliers located primarily in Japan. Recent fluctuations in gold prices have also affected the price at which we have been able to purchase the principal raw materials. In order to reduce the adverse impact caused by the price fluctuations of raw materials, we have developed substitute raw materials for copper, the cost of which is much cheaper than that of gold. However, we cannot guarantee that we will not experience shortages or price increase in the near future or that we will be able to obtain adequate supplies of raw materials in a timely manner and at a reasonable price or to develop any substitute raw materials. In the event of a shortage and/or price increase, we generally inform our customers and work together to accommodate changes in delivery schedules and/or the price increase of raw materials.

We produce substrates for use in our packaging operations. In 2011, our interconnect materials operations supplied approximately 37.8% of our consolidated substrate requirements by value. See “—Principal Products and Services—Packaging Services—Interconnect Materials.”

As a result of the “Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment,” or RoHS, which became effective on July 1, 2006, we have adjusted our purchases of raw materials and our production processes in order to use raw materials that comply with this legislation for part of our production. This legislation restricts the use in the European Union, or EU, of certain substances the EU deems harmful to consumers, which includes certain grades of molding compounds, solder and other raw materials that are used in our products. Manufacturers of electrical and electronic equipment must comply with this legislation in order to sell their products in an EU member state. Any failure on the environmental requests on our products, such as Directive 2002/95/EC may have a material adverse effect on our results of operations.

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Testing

Apart from packaged semiconductors, no other raw materials are needed for the functional and burn-in testing of semiconductors.

Electronic Manufacturing Services

Our manufacturing processes use many raw materials in our electronic manufacturing services. For 2011, the raw materials costs accounted for 80.0% of our net revenues from electronic manufacturing services. Our principal raw materials include, among others, printed circuit boards, integrated chips, ink, semiconductor devices, computer peripherals and related accessories and electronic components. Our principal raw materials varied in the past, depending on the end-use products we provided.

To ensure the quality, on-time delivery and pricing competitiveness, we have established both a standardized supplier assessment system and an evaluation mechanism, continued to maintain close working relationships with our suppliers and jointly created a stable and sustainable supply chain. In addition, we adjusted the procurement strategy in line with industry trends as well as the nature of raw materials and decentralized the sources of raw materials to lower the concentration risk of supply. However, we cannot assure you that we will not experience any shortage or price increase in the near future. See “Item 3. Risk Factor-Our revenues and profitability may decline if we are unable to obtain adequate supplies of raw materials in a timely manner and at a reasonable price.”

Equipment

Packaging

The most important equipment used in the semiconductor packaging process is the wire bonder. Wire bonders connect the input/output terminals on the silicon die using extremely fine gold wire to leads on leadframes or substrates. Typically, a wire bonder may be used, with minor modifications, for the packaging of different products. We purchase our wire bonders principally from Kulicke & Soffa Industries Inc and others. As of February 29, 2012, we operated an aggregate of 13,667 wire bonders, of which 13,386 were fine-pitch wire bonders. As of the same date, 42 of the wire bonders operated by us were consigned by customers. For the packaging of certain types of substrate-based packages, such as flip-chip BGA, die bonders are used in place of wire bonders. We purchase our die bonders principally from Esec AG, ASM Assembly Automation Ltd. and Hitachi High Technologies Corporation. The number of bonders at a given facility is commonly used as a measure of the packaging capacity of the facility. In addition to bonders, we maintain a variety of other types of packaging equipment, such as wafer grind, wafer mount, wafer saw, automated molding machines, laser markers, solder plate, pad printers, dejunkers, trimmers, formers, substrate saws and scanners. We purchase our molding machines principally from ASM Assembly Automation Ltd., Fico B.V. and Towa Corporation.

Testing

Testing equipment is the most capital intensive component of the testing process. We generally seek to purchase testers from different suppliers with similar functionality and the ability to test a variety of different semiconductors. We purchase testers from major international manufacturers, including Verigy Ltd., Teradyne, Inc., Credence Systems Corporation, LTX Corporation, Seiko Epson and Tokyo Electron Limited. Upon acquisition of new testers, we install, configure, calibrate, perform burn-in diagnostic tests on and establish parameters for the testers based on the anticipated requirements of existing and potential customers and considerations relating to market trends. As of February 29, 2012, we operated an aggregate of 2,576 testers, of which 592 were consigned by customers and 68 were leased under operating leases. In addition to testers, we maintain a variety of other types of testing equipment, such as

automated handlers and probers (special handlers for wafer probing), scanners, reformers and computer workstations for use in software development. Each tester may be attached to a handler or prober. Handlers attach to testers and transport individual packaged semiconductor to the tester interface. Probers similarly attach to the tester and align each individual die on a wafer with the interface to the tester.

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For the majority of our testing equipment, we often base our purchases on prior discussions with our customers about their forecast requirements. The balance consists of testing equipment on consignment from customers and which are dedicated exclusively to the testing of these customers' specific products.

Test programs, which are the software that drive the testing of specific semiconductors, are written for a specific testing platform. We often perform test program conversions that enable us to test semiconductors on multiple test platforms. This portability between testers enables us to allocate semiconductors tested across our available test capabilities and thereby improve capacity utilization rates. In cases where a customer requires the testing of a semiconductor product that is not yet fully developed, the customer may provide personal computer workstations to us to test specific functions. In cases where a customer has specified testing equipment that was not widely applicable to other products which we test, we have required the customer to furnish the equipment on a consignment basis.

Electronic Manufacturing Services

The SMT (Surface Mount Technology) assembly line is the key facility of our electronic manufacturing operations, and generally includes a printer and one or two high-speed mounters and/or a multi-function mounter. The SMT assembly process primarily consists of the following three manufacturing steps: (i) solder paste stencil printing (ii) component placement and (iii) solder reflow. High-speed SMT assembly systems offer both economical and technical advantages which may reduce both production cost and time while meeting quality requirements. Thus, SMT has become the most popular assembly method for sophisticated electronic devices. We had 110 SMT lines as of February 29, 2012.

Intellectual Property

As of February 29, 2012, we held 1,863 Taiwan patents, 687 U.S. patents, 559 PRC patents and 12 patents in other countries related to various semiconductor packaging technologies and invention, utility and design on our electronic manufacturing services. In addition, we also filed several trademarks applications in Taiwan, the United States and China. For example, "ASE", "aCSP", "Advanced CSP", " a_EASI", "a-fcCSP", "aMAPPoP", "aQFN" "a-QFN", "a-S3", "a-Ti "a-WLP", "iSiP", "iWLP" and "MAPPoP" have been registered in Taiwan.

We have also entered into various non-exclusive technology license agreements with other companies involved in the semiconductor manufacturing process, including Tessera Inc., Fujitsu Limited, Flip Chip International, L.L.C., Mitsui High-Tec, Inc., Infineon Technologies AG, Siliconware Precision Industries Co., Ltd. and Richwave Technology Corp. We paid royalties under our license agreements in the amount of NT$200.6 million, NT$335.8 million and NT$85.5 million (US$2.8 million) in 2009, 2010 and 2011, respectively. The technology we license from these companies includes solder bumping, redistribution, ultra CSP assembly, advanced QFN assembly, wafer level packaging and other technologies used in the production of package types, such as BCC, flip-chip BGA, film BGA and aQFN. The license agreement with Tessera Inc. will not expire until the expiration of the Tessera Inc. patents licensed by the agreement. For information regarding our intellectual property dispute with Tessera Inc., see "Item 8. Financial Information—Legal Proceedings." Our license agreements with Flip Chip International, L.L.C. and Siliconware Precision Industries Co., Ltd. will not expire until the expiration of the patents licensed by the agreement. Our license agreement with Infineon Technologies AG will expire on November 5, 2017, and our license agreement with Mitsui High-Tec, Inc. will expire on June 24, 2012. Our license agreement with Fujitsu Limited renews automatically each year unless the parties to the agreement agree otherwise. Our license agreement with Richwave Technology Corp. expired on February 11, 2011.

Our success depends in part on our ability to obtain, maintain and protect our patents, licenses and other intellectual property rights, including rights under our license agreements with third parties.

Quality Control

We believe that our advanced process technology and reputation for high quality and reliable services have been important factors in attracting and retaining leading international semiconductor companies as customers for our services and/or products. We maintain a quality control staff at each of our facilities. Our quality control staff typically includes engineers, technicians and other employees who monitor the processes in order to ensure high

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quality. Our quality assurance systems impose strict process controls, statistical in-line monitors, supplier control, data review and management, quality controls and corrective action systems. Our quality control employees operate quality control stations along production lines, monitor clean room environments and follow up on quality through outgoing product inspection and interaction with customer service staff. We have established quality control systems which are designed to ensure high quality service to customers, high product and testing reliability and high production yields at our facilities. We also have established an environmental management system in order to ensure that we can comply with the environmental standards of our customers and the countries within which they operate. See "—Raw Materials and Suppliers—Packaging." In addition, our facilities have been qualified by all of our major customers after satisfying stringent quality standards prescribed by these customers.

Our packaging and testing operations are undertaken in clean rooms where air purity, temperature and humidity are controlled. To ensure stability and integrity of our operations, we maintain clean rooms at our facilities that meet U.S. Federal Standard 209E class 1,000, 10,000 and 100,000 standards.

Our packaging, testing and interconnect materials facilities in Taiwan, Malaysia, Japan, the PRC, Singapore and Korea have been certified as meeting ISO/TS16949 standards. Such standards were originally created by the International Automotive Task Force in conjunction with the International Standards Organization, or ISO. These standards provide for continuous improvement with an emphasis on the prevention of defects and reduction of variation and waste in the supply chain. The ISO/TS16949 certification is required by some semiconductor manufacturers as a threshold indicator of company's quality control standards.

Our packaging, testing and interconnect materials facilities in Taiwan, Japan, Korea, Malaysia, the PRC, California and Singapore have been certified as meeting the ISO 9001 quality standards set by the ISO. Our packing, testing and interconnect materials facilities in Taiwan, Japan, Korea, Malaysia, the PRC, California and Singapore have also been certified as meeting the ISO 14001 quality standards. In addition, our packaging facilities in Kaohsiung, Taiwan have been certified as meeting the ISO 17025:2005 quality standards set by the ISO. ISO certifications are required by many countries in connection with sales of industrial products.

ISE Labs's testing facilities in Fremont, California is considered suitably equipped by Defense Logistics Agency to perform the MIL-STD-833 tests on monolithic microcircuits in accordance with the requirements of military specification MIL-PRF-38535.

Our packaging, testing and interconnect materials facilities in Taiwan, Malaysia, the PRC, Japan, Singapore and Korea have been certified as a "Sony Green Partner," which indicates our compliance with the "Sony Green Package" standard requirements.

Our packaging, testing and interconnect material facilities in Taiwan, the PRC, Japan, Korea and Malaysia have been certified to be in compliance with IECQ HSPM QC080000, a certification designed to manage, reduce and eliminate hazardous substances. Our packaging, testing and interconnect facilities in Taiwan have been certified to be in compliance with ISO 14064-1, which specifies the principles and requirements at the organization level for quantification and reporting of greenhouse gas emissions and removals.

Our packaging, testing and interconnect materials facilities in Taiwan, Korea, Singapore and the PRC have also been certified to be in compliance with OHSAS 18001, a set of standards designed upon collaboration with occupational health and safety experts and now offered by many certification organizations as an indication of compliance with certain standards for occupational health and safety. In addition, our facilities for the packaging, testing and interconnect materials in Taiwan have been certified to be in compliance with Taiwan Occupational and Health Management System, or TOSHMS, and SA8000, which is the most widely recognized global standard for managing

human rights in the workspace.

Since our acquisition of the controlling interest of Universal Scientific in February 2010, we have begun providing electronics manufacturing services, for which we also have strict process controls. The table below sets forth the certifications we have obtained for our electronics manufacturing services facilities.

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Location	ISO 14001	TL 9000 (1)	ISO 9001	ISO/TS 16949	OHSAS18001	IECQ QC 080000	ISO 14064-1
Taiwan	ü		ü	ü	ü	ü	ü
Shenzhen, PRC	ü	ü	ü		ü	ü	ü
Shanghai, PRC	ü	ü	ü	ü	ü	ü	ü
Kunshan, PRC	ü		ü		ü	ü	
Mexico	ü		ü	ü		ü	

(1) TL 9000 quality management system sets forth the supply chain quality requirements of the global communications industry.

In addition, we have received various vendor awards from our customers for the quality of our products and services.

Competition

We compete in the highly competitive independent semiconductor packaging and testing markets. We face competition from a number of sources, including other independent semiconductor packaging and testing companies. More importantly, we compete for the business of integrated device manufacturers with in-house packaging and testing capabilities and fabless semiconductor design companies with their own in-house testing capabilities. Some of these integrated device manufacturers have commenced, or may commence, in-house packaging and testing operations in Asia. Substantially all of the independent packaging and testing companies that compete with us have established operations in Taiwan.

Integrated device manufacturers that use our services continuously evaluate our performance against their own in-house packaging and testing capabilities. These integrated device manufacturers may have access to more advanced technologies and greater financial and other resources than we do. We believe, however, that we can offer greater efficiency at lower cost while maintaining equivalent or higher quality for several reasons. First, as we benefit from specialization and economies of scale by providing services to a large base of customers across a wide range of products, we are better able to reduce costs and shorten production cycles through high capacity utilization and process expertise. Second, as a result of our customer base and product offerings, our equipment generally has a longer useful life. Third, as a result of the continuing reduction of investments in in-house packaging and testing capacity and technology at integrated device manufacturers, we are better positioned to meet their advanced packaging and testing requirements on a large scale.

Since our acquisition of the controlling interest of Universal Scientific in February 2010, we also provide electronic manufacturing services. We face significant competition from other electronics manufacturing services providers, such as Hon Hai Precision Ind. Co., Ltd, with comprehensive integration, wide geographic coverage and large production capabilities that enable them to achieve economies of scale. We believe, however, that we can still achieve satisfactory performance in the market given that we have been able to provide products with high quality and we are capable of designing new products by cooperating with our customers.

Environmental Matters

Our operations of packaging, interconnect materials and electronic manufacturing services generate environmental wastes, including gaseous chemical, liquid and solid industrial wastes. We have installed various types of anti-pollution equipment for the treatment of liquid and gaseous chemical waste generated at our facilities. We believe

that we have adopted adequate anti-pollution measures for the effective maintenance of environmental protection standards that are consistent with the industry practice in the countries in which our facilities are located. In addition, we believe we are in compliance in all material respects with present environmental laws and regulations applicable to our operations and facilities.

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Insurance

We have insurance policies covering property damage and damage to our production facilities, buildings and machinery. In addition, we have insurance policies covering our public and product liabilities. Significant damage to any of our production facilities would have a material adverse effect on our results of operations.

We are not insured against the loss of key personnel.

ORGANIZATIONAL STRUCTURE

The following chart illustrates our corporate structure including our principal manufacturing subsidiaries as of March 31, 2012. The following chart does not include wholly-owned intermediate holding companies and internal trading companies.

Our Consolidated Subsidiaries

ASE Test Taiwan

ASE Test Taiwan, which was acquired in 1990, is our wholly-owned subsidiary. It is incorporated in Taiwan and is engaged in the testing of integrated circuits.

ASE Test Malaysia

ASE Test Malaysia, which was established in 1991, is our wholly-owned subsidiary. It is incorporated in Malaysia and is engaged in the packaging and testing of integrated circuits.

ISE Labs

ISE Labs is our wholly-owned subsidiary. It is a semiconductor company specializing in front-end engineering testing that is incorporated in the United States and has its principal facilities located in Fremont and Santa Clara,

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California. Through ASE Test, we acquired 70.0% of the outstanding shares of ISE Labs in 1999, and increased our holding to 100.0% through purchases made in 2000 and 2002.

ASE Singapore Pte. Ltd.

ASE Singapore Pte. Ltd. is incorporated in Singapore and provides testing services. It was previously our wholly-owned subsidiary through ISE Labs's 100% interest. Through a restructuring in November 2008, we acquired 100% of ASE Singapore Pte. Ltd. through one of our wholly-owned intermediate holding companies. In January 2011, ASE Singapore II Pte. Ltd. merged into ASE Singapore Pte. Ltd., which we acquired in August 2010. See "Item 4 – History and Development of the Company – Acquisition of EEMS Test Singapore."

ASE Electronics

ASE Material was established in 1997 as an ROC company for the production of interconnect materials, such as substrates, used in the packaging of semiconductors. We initially held a majority stake in ASE Material, but acquired the remaining equity by means of a merger of ASE Material with and into us in August 2004. In August 2006, we spun off the operations originally conducted through ASE Material into our wholly-owned subsidiary ASE Electronics. ASE Electronics currently supplies our packaging operations with a substantial portion of our substrate requirements. The facilities of ASE Electronics are primarily located in the Nantze Export Processing Zone near our packaging and testing facilities in Kaohsiung, Taiwan.

ASE Chung Li and ASE Korea

In July 1999, we purchased Motorola's Semiconductor Products Sector operations in Chung Li, Taiwan and Paju, South Korea for the packaging and testing of semiconductors with principally communications, consumer and automotive applications, thereby forming ASE Chung Li and ASE Korea. In August 2004, we acquired the remaining outstanding shares of ASE Chung Li that we did not already own and merged ASE Chung Li into us.

ASE Japan

ASE Japan, which we acquired from NEC Electronics Corporation in May 2004, is our wholly-owned subsidiary. It is incorporated in Japan and is engaged in the packaging and testing of semiconductors.

ASE Shanghai

ASE Shanghai was established in 2001 as a wholly-owned subsidiary of ASE Inc. and began operations in June 2004. ASE Shanghai primarily manufactures and supplies interconnect materials for our packaging operations.

PowerASE

In July 2006, we established PowerASE, a joint venture with Powerchip Technology Corporation, or Powerchip, focusing on the packaging and testing of memory semiconductors. PowerASE began operations in December 2006. Pursuant to the joint venture agreement, we invested US$30.0 million for 60.0% of the equity interest in PowerASE. In November and December 2011, we acquired a total of 106,808,182 shares of PowerASE mainly through tender offers, for a total consideration of NT$1,972.2 million (US$65.2 million). As of March 31, 2012, we own 99.6% of the outstanding common shares of PowerASE. On March 29, 2012, our board of directors adopted resolutions to acquire the remaining 0.4% of the outstanding shares of PowerASE for a consideration of NT$13.5 million (US$0.4 million) and merge PowerASE into ASE Inc.

ASESH AT

We acquired 100.0% of GAPT, now known as ASESH AT, in January 2007 for a purchase price of US$60.0 million. ASESH AT is a PRC company based in Shanghai, China that provides wire bond packaging and testing services for a wide range of semiconductors.

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ASEN

In September 2007, we acquired 60.0% of ASEN, formerly known as NXP Semiconductors Suzhou Ltd., from NXP Semiconductors for a purchase price of US$21.6 million. NXP Semiconductors holds the remaining 40.0% of ASEN. ASEN is based in Suzhou, China and is engaged in semiconductor packaging and testing.

ASEWH

In May 2008, we acquired 100.0% of the shares of ASEWH from Aimhigh Global Corp. and TCC Steel. ASEWH is based in Weihai, Shandong, China and is engaged in semiconductor packaging and testing.

ASEKS

ASEKS was set up in 2004 and began operating in 2010. ASEKS is based in KunShan, China and is engaged in semiconductor packaging and testing.

Yang Ting

We acquired 100.0% of the shares of Yang Ting in January 2012. Yang Ting is based in Taichung, ROC, and specializes in semiconductor packaging and testing services.

Universal Scientific Group

Universal Scientific, which is an ROC company, manufactures electronics products in varying degrees of system integration principally on a contract basis for original equipment manufacturers, including:

- electronic components such as thick film mixed-signal devices, thick film resistors, high frequency devices and automotive and power electronic devices;
- board and sub-system assemblies such as customized surface mount technology board assemblies, mother boards for personal computers, wireless local area network cards and fax control boards; and
- system assemblies such as portable computers, desktop personal computers, network computers and servers.

We purchased 22.6% of the outstanding shares of Universal Scientific in 1999. We subsequently increased our holding to 23.3% in 2000. As of December 31, 2009, we held approximately 18.1% of Universal Scientific's outstanding equity shares, which allowed us to exercise significant influence over Universal Scientific and therefore accounted for this investment by the equity method.

In February 2010, we, along with our two subsidiaries, J&R Holding Limited and ASE Test, through a cash and stock tender offer, acquired 641,669,316 common shares of Universal Scientific at NT$21 per share, amounting to NT$13,475.1 million in total, resulting in our controlling ownership over Universal Scientific. As a result, Universal Scientific became our subsidiary. In August 2010, we acquired additional 222,243,661 shares of Universal Scientific through another tender offer at NT$21 per share, amounting to NT$4,667.1 million in total. We owned 99.2% of the outstanding common shares of Universal Scientific as of March 31, 2012.

In February 2012, Universal Scientific Shanghai, a subsidiary of Universal Scientific, completed its IPO on the Shanghai Stock Exchange. Total proceeds from the IPO was approximately RMB 811.7 million (US$129.0 million) prior to deducting underwriting discounts and commissions. As of March 31, 2012, we indirectly held 88.7% of

Universal Scientific Shanghai's total outstanding shares through our subsidiaries Universal Scientific and ASE Shanghai.

Universal Scientific's principal manufacturing facilities are located in Nantou, Taiwan, and Shenzhen and Shanghai, China. The shares of Universal Scientific were listed on the Taiwan Stock Exchange under the symbol "2350" and delisted on June 17, 2010.

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PROPERTY, PLANTS AND EQUIPMENT

We operate a number of packaging, testing and electronic manufacturing facilities in Asia and the United States. Our facilities provide varying types or levels of services with respect to different end-product focus, customers, technologies and geographic locations. With our diverse facilities we are able to tailor our packaging, testing and electronic manufacturing solutions closely to our customers' needs. The following table sets forth the location, commencement of operation, primary use, approximate floor space and ownership of our principal facilities as of February 29, 2012.

Facility	Location	Commencement of Operation	Primary Use	Approximate Floor Space (in sq. ft.)	Owned or Leased
ASE Inc.	Kaohsiung, ROC	March 1984	Our primary packaging facility, which offers complete semiconductor manufacturing solutions in conjunction with ASE Test Taiwan and foundries located in Taiwan. Focuses primarily on advanced packaging services, including flip-chip, wafer bumping and fine-pitch wire bonding.	3,462,000	Land: leased Buildings: owned and leased
	Chung Li, ROC	Acquired in July 1999	An integrated packaging and testing facility that specializes in semiconductors for communications and consumer applications.	1,566,000	Land and buildings: owned
	Nantou, ROC	April 2011	Our facility that specializes the assembly and manufacture of DC (direct current) to DC converter and print head.	80,000	Land and buildings: leased
ASE Test Taiwan	Kaohsiung, ROC	December 1987	Our primary testing facilities, which offer complete semiconductor manufacturing solutions in conjunction with ASE Inc.'s facility in Kaohsiung and foundries located in Taiwan. Focuses primarily on advanced logic/mixed-signal/RF/discrete testing for integrated device manufacturers, fabless design companies and system companies.	826,000	Land: leased Buildings: owned and leased

	Chung Li, ROC	October 2001	Our primary wafer probing testing facilities.	37,000	Land and building: leased
ASE Test Malaysia	Penang, Malaysia	February 1991	An integrated packaging and testing facility that focuses primarily on the requirements of integrated device manufacturers.	828,000	Land: leased Buildings: owned
ASE Korea	Paju, Korea	Acquired in July 1999	An integrated packaging and testing facility that specializes in semiconductors for radio frequency, sensor and automotive applications.	810,000	Land and buildings: owned

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Facility	Location	Commencement of Operation	Primary Use	Approximate Floor Space (in sq. ft.)	Owned or Leased
ISE Labs	California, USA Texas, USA	Acquired in May 1999	Front-end engineering and final testing facilities located in northern California in close proximity to some of the world's largest fabless design companies. Testing facilities located in close proximity to integrated device manufacturers and fabless companies in Texas.	93,000	Land and buildings: owned and leased
ASE Singapore	Singapore	Acquired in May 1999	An integrated testing, sorting and related backend supporting facility that specializes in semiconductors for communication, computers and consumer applications.	282,000	Land: leased Buildings: owned and leased
ASE Shanghai	Shanghai, China	June 2004	Design and production of semiconductor packaging materials.	1,431,000	Land: leased Buildings: owned
ASE Japan	Takahata, Japan	Acquired in May 2004	An integrated packaging and testing facility that specializes in semiconductors for cellular phone, household appliance and automotive applications.	298,000	Land and buildings: leased
ASE Electronics	Kaohsiung, ROC	August 2006	Facilities for the design and production of interconnect materials such as substrates used in the packaging of semiconductors.	377,000	Land: leased Buildings: owned
PowerASE	Chung Li, ROC	December 2006	An integrated packaging and testing facility that specializes in memory semiconductors for personal computer applications.	130,000	Buildings: leased
ASESH AT	Shanghai, China	Acquired in January 2007	An integrated packaging and testing facility that specializes in semiconductors for communications and consumer	796,000	Land: leased Buildings: owned

			applications.		
ASEN	Suzhou, China	Acquired in September 2007	An integrated packaging and testing facility that specializes in communication applications.	433,000	Land: leased Buildings: owned
ASEWH	Shandong, China	Acquired in May 2008	An integrated packaging and testing facility that specializes in semiconductors for communications, computing and consumer applications.	226,000	Land: leased Buildings: owned
ASEKS	Kunshan, China	July 2010	An integrated packaging and testing facility that specializes in	1,141,000	Land: leased Buildings: owned

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Facility	Location	Commencement of Operation	Primary Use	Approximate Floor Space (in sq. ft.)	Owned or Leased
			semiconductors for communications and consumer applications.		
Yang Ting	Taichung, ROC	Acquired in January 2012	An integrated packaging and testing facility that specializes on computing applications.	84,000	Land: Leased Buildings: owned
Universal Scientific	Nantou, ROC	February 1974	The parent company of Universal Scientific Group, engages in research and development activities for notebook and desktop personal computers (PCs), desktop PC systems, communications products, and various electronic components such as thick film resistors, thick film hybrid integrated circuits (ICs) and automotive parts.	1,009,000	Land: owned Buildings: owned
Universal Scientific Industrial De Mexico S.A. De C.V.	Guadalajara, Mexico	September 1997	Manufacturing site, which offer Motherboard manufacture and system assembly.	383,000	Land: owned Buildings: owned
USI Electronics (Shenzhen) Co., Ltd.	Shenzhen, China	June 2000	Manufacturing site, design, manufacture and marketing of motherboards, electronic components, accessories and related products in China.	495,000	Land: leased Buildings: owned
Universal Scientific Shanghai	Shanghai, China	February 2003	Manufacturing site, design, manufacture and marketing of motherboards, electronic components, accessories and related products in China.	709,000	Land: leased Buildings: owned and leased
	Kunshan, China	May 2011	Manufacturing site, design, manufacture and marketing of motherboards, electronic components, accessories and	258,000	Land: leased Buildings: leased

			related products in China.		
Universal Global Technology (Shenzhen) Co., Ltd.	Shenzhen, China	April 2009	Manufacturing site, design, manufacture and marketing of electronic components, accessories and related products.	129,000	Land and buildings: leased
Universal Global Scientific Industrial Co., Ltd.	Nantou, ROC	February 2010	Design, manufacture and marketing of electronic components, accessories and related products.	314,000	Buildings: leased

Our leased property in Kaohsiung consists primarily of leases of land in the Kaohsiung Nantze Export Processing Zone between ASE Inc. and ASE Test Taiwan, as the lessees, and the Export Processing Zones Administration, or the EPZA, under the Ministry of Economic Affairs. The leases have ten year terms that expire between March 2012 and August 2020. No sublease or lending of the land is allowed. The EPZA has the right to

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adjust the rental price in the event the government revalues the land. The leases are typically renewable with three months notice prior to the termination date.

For information on the aggregate capacity of our facilities we operate, see "—Business Overview—Equipment."

Item 4A. Unresolved Staff Comments

None.

Item 5. Operating and Financial Review and Prospects

OPERATING RESULTS AND TREND INFORMATION

The following discussion of our business, financial condition and results of operations should be read in conjunction with our consolidated financial statements, which are included elsewhere in this annual report. This discussion contains forward-looking statements that reflect our current views with respect to future events and financial performance. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of any number of factors, such as those set forth under "Item 3. Key Information—Risk Factors" and elsewhere in this annual report. See "Special Note Regarding Forward-Looking Statements."

Overview

We offer a broad range of semiconductor packaging, testing services and we also offer electronic manufacturing services since our acquisition of the controlling interest of Universal Scientific in February 2010. In addition to offering each service separately, we also offer turnkey services, which consist of the integrated packaging, testing and direct shipment of semiconductors to end users designated by our customers and solution-based proactive original design manufacturing, or ODM, with our customers. In addition, we started generating revenues from our real estate business since 2010. Our net revenues changed from NT$85,775.3 million in 2009 and NT$188,742.8 million in 2010 to NT$185,347.2 million (US$6,123.1 million) in 2011.

Discussed below are several factors that have had a significant influence on our financial results in recent years.

Pricing and Revenue Mix

We price our services on a cost-plus basis, taking into account the actual costs involved in providing these services, with reference to prevailing market prices. The majority of our prices and revenues are denominated in U.S. dollars. Any significant fluctuation in the exchange rates, especially between NT dollars and U.S. dollars will affect our costs and, in turn, our pricing.

In the case of semiconductor packaging, the cost of the silicon die, typically the most costly component of the packaged semiconductor, is usually not reflected in our costs (or revenues) since it is generally supplied by our customers on a consignment basis.

The semiconductor industry is characterized by a general trend towards declining prices for products and services of a given technology over time. In addition, during periods of intense competition and adverse conditions in the semiconductor industry, the pace of this decline may be more rapid than in other years. The average selling prices of our packaging and testing services have experienced sharp declines during such periods as a result of intense price competition from other independent packaging and testing companies that attempt to maintain high capacity utilization levels in the face of reduced demand.

Declines in average selling prices have been partially offset over the last several years by changes in our revenue mix. In particular, revenues derived from packaging more advanced package types, such as flip-chip BGA, higher density packages with finer lead-to-lead spacing, or pitch, and testing of more complex, high-performance semiconductors have increased as a percentage of total revenues. We intend to continue to focus on packaging more advanced package types, such as BGA and flip-chip BGA, developing and offering new technologies in packaging and testing services and expanding our capacity to achieve economies of scale, as well as improving production

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efficiencies for older technologies, in order to mitigate the effects of declining average selling prices on our profitability.

Our profitability for a specific package type does not depend linearly on its average selling price. Some of our more traditional package types, which typically have low average selling prices, may well command steadier and sometimes higher margins than more advanced package types with higher average selling prices.

High Fixed Costs

Our operations, in particular our testing operations, are characterized by relatively high fixed costs. We expect to continue to incur substantial depreciation and other expenses as a result of our acquisitions of packaging and testing equipment and facilities. Our profitability depends in part not only on absolute pricing levels for our services, but also on utilization rates for our packaging and testing equipment, commonly referred to as "capacity utilization rates." In particular, increases or decreases in our capacity utilization rates could have a significant effect on gross margins since the unit cost of packaging and testing services generally decreases as fixed costs are allocated over a larger number of units. The capacity utilization rates of the machinery and equipment installed at our production facilities typically depend on factors such as the volume and variety of products packaged or tested using such machinery and equipment, the efficiency of our operations in terms of the loading and adjustment of machinery and equipment for the packaging or testing of different products, the complexity of the different products to be packaged or tested, the amount of time set aside for the maintenance and repair of the machinery and equipment, and the experience and schedule of work shifts of operators.

The current generation of advanced testers typically cost between US$1.0 million and US$3.0 million each, while wire bonders used in packaging typically cost between US$65,000 and US$70,000 each. In 2009, 2010 and 2011, our depreciation, amortization and rental expense included in cost of revenues as a percentage of net revenues was 19.4%, 9.9% and 11.6%, respectively. The increase in depreciation, amortization and rental expense as a percentage of net revenues in 2011 compared to 2010 was primarily a result of the depreciation of new equipment, particularly with respect to equipment acquired for packaging services. We begin depreciating our equipment when it is available for use. There may sometimes be a time lag between when our equipment is available for use and when it achieves high levels of utilization. In periods of depressed industry conditions, such as the fourth quarter of 2008, we experienced lower than expected demand from customers, resulting in an increase in depreciation relative to net revenues. In particular, the capacity utilization rates for our testing equipment are more severely affected during an industry downturn as a result of a decrease in outsourcing demand from integrated device manufacturers, which typically maintain larger in-house testing capacity than in-house packaging capacity.

In addition to purchasing testers, we also lease a portion of our testers, which we believe allows us to better manage our capacity utilization rates and cash flow. Since testers operated under operating leases can be replaced with more advanced testers upon the expiration of the lease, we believe that these operating leases have enabled us to improve our capacity utilization rates by allowing us to better align our capacity with changes in equipment technology. For more information about our testers, including the number of testers under lease, see "Item 4. Information on the Company—Business Overview—Equipment—Testing."

Raw Material Costs

As testing requires minimal raw materials, substantially all of our raw material costs are accounted for by packaging, the production of interconnect materials and electronic manufacturing services. In particular, our electronic manufacturing services acquired in 2010 require more significant demand of raw materials than our packaging and the production of interconnect materials. In 2009, 2010 and 2011, raw material cost as a percentage of our net revenues was 29.8%, 46.9% and 46.9%, respectively.

We have developed copper wire to gradually replace gold wire in the packing processes in order to benefit from the lower material cost of copper. However, gold wire is still one of the principal raw materials we use in our packaging processes, and the recent volatility in the price of gold has affected our cost of revenues. In 2011, the spot rate for gold fluctuated from approximately US$1,316 per ounce to approximately US$1,897 per ounce according to the statistics published by The London Bullion Market Association. It may be difficult for us to adjust our average selling prices to account for fluctuations in the price of gold. We expect that gold wire will continue to be an important raw material for us and we therefore expect to continue to be subject to significant fluctuations in the price of gold.

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Significant Acquisitions

In February 2010, we, along with our two subsidiaries, J&R Holding Limited and ASE Test, through a cash and stock tender offer, acquired 641,669,316 common shares of Universal Scientific at NT$21 per share, amounting to NT$13,475.1 million in total, resulting in our controlled ownership over Universal Scientific. As a result, Universal Scientific became our subsidiary. In August 2010, we acquired additional 222,243,661 shares of Universal Scientific through another tender offer at NT$21 per share, amounting to NT$4,667.1 million in total. We owned 99.2% of the outstanding common shares of Universal Scientific as of March 31, 2012. See "Item 4. Information on the Company—History and Development of the Company—Acquisition of Shares of Universal Scientific."

Since our acquisitions of Universal Scientific, their results of operations have been consolidated into our results of operations. Any losses by Universal Scientific may have significant adverse effects on our net income.

Recent ROC GAAP Accounting Pronouncements

Effective January 1, 2011, we adopted the newly issued ROC SFAS No. 41 "Operating Segments." The requirements of ROC SFAS No. 41 are based on the information about the components of the Company that the management uses to make decisions about operating matters. SFAS No. 41 requires identification of operating segments on the basis of internal reports that are regularly reviewed by a company's chief operating decision makers in order to allocate resources to the segments and assess their performance. ROC SFAS No. 41 supersedes ROC SFAS No. 20 "Segment Reporting."

Effective January 1, 2011, we adopted the newly revised ROC SFAS No. 34 "Financial Instruments: Recognition and Measurement." The main revision includes that loans and receivables originated by a company are now covered by ROC SFAS No. 34.

On May 14, 2009, the Financial Supervisory Commission of the ROC, or the FSC, announced the "Framework for Adoption of International Financial Reporting Standards by Companies in the ROC." In this framework, starting 2013, companies with shares listed on the Taiwan Stock Exchange or traded on the Taiwan GreTai Securities Market or Emerging Stock Market should prepare their financial statements in accordance with the Guidelines Governing the Preparation of Financial Reports by Securities Issuers and the International Financial Reporting Standards, International Accounting Standards, and the Interpretations as well as related guidance translated by the Accounting Research and Development Foundation and issued by the FSC. See note 32 to our consolidated financial statements included in this annual report for a description of our plans, status of execution and the material differences between the existing accounting policies and the accounting policies to be adopted under the International Financial Reporting Standards.

Critical Accounting Policies and Estimates

Preparation of our consolidated financial statements requires us to make estimates and judgments in applying our critical accounting policies which have a significant impact on the results we report in our consolidated financial statements. We continually evaluate these estimates and assumptions. Actual results may differ from these estimates under different assumptions and conditions. Significant accounting policies are summarized as follows.

Revenue Recognition. Revenues are recognized when the rewards of ownership or services and the significant risk of the goods or services has been transferred to the buyers. Other criteria that we use to determine when to recognize revenue are:

- existence of persuasive evidence of an arrangement;
- the selling price is fixed or determinable; and
- collectibility is reasonably assured.

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Our customers bear the title and risk of loss for those bare semiconductor wafers that we receive and package into finished semiconductors and/or those packaged semiconductors that we receive and test for performance specifications. Accordingly, the cost of customer-supplied semiconductor materials is not included in our consolidated financial statements.

An appropriate sales discount and return allowance is recognized in the period during which the sale is recognized, and is estimated based on historical experience, the management's judgment and relevant factors.

Impairment of Accounts Receivable. We periodically record a provision for doubtful accounts based on our evaluation of the collectibility of our accounts receivable. The total amount of this provision is determined by us as specified under ROC SFAS No. 34, "Financial Instruments: Recognition and Measurement." We first assess whether objective evidence of impairment exists individually in each customer for account receivable, then includes in a group basis with historical collective experience and similar credit risk characteristics and collectively assess them for impairment. As of December 31, 2009, 2010 and 2011, the allowance we set aside for doubtful accounts was NT$68.7 million, NT$134.0 million and NT$128.9 million (US$4.3 million), respectively. Additional allowances may be required in the future if the financial condition of our customers or general economic conditions further deteriorate, and this additional allowance would reduce our net income.

Inventories. Inventories are recorded at cost when acquired and stated at the lower of cost or net realizable values. Inventories are written down to net realizable value item by item. Materials received from customers for processing, mainly of semiconductor wafers, are excluded from inventories, as title and risk of loss remains with the customers. An allowance for loss on decline in market value and obsolescence is provided based on the difference between the cost of inventory and the estimated market value based upon assumptions about future demand and market conditions. An additional inventory provision may be required if actual market conditions are less favorable than those projected.

Valuation Allowances for Deferred Income Tax Assets. Tax benefits arising from deductible temporary differences, unused tax credits and net operating loss carryforwards are recognized as deferred income tax assets. We record a valuation allowance to the extent that we believe it is more likely than not that deferred income tax assets will not be realized. We have considered future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need and amount for the valuation allowance. In the event we were to determine that we would be able to realize our deferred income tax assets in the future in excess of our net recorded amount, an adjustment to our deferred income tax assets would increase income in the period such determination was made. Alternatively, should we determine that we would not be able to realize all or part of our deferred income tax assets in the future, an adjustment to our deferred income tax assets would decrease income in the period such determination was made.

Realizability of Long-Lived Assets. We are required to evaluate our equipment and other long-lived assets for impairment whenever there is an indication of impairment. If certain criteria are met, we are required to record an impairment charge.

In accordance with ROC SFAS No. 35, long-lived assets held and used by us are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Under ROC GAAP, if the recoverable amount increases in a future period, the amount previously recognized as impairment will be reversed and recognized as a gain. However, the adjusted amount may not exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss had been recognized. We measure any impairment for long-lived assets based on a projected future cash flow. If the long-lived assets are determined to be impaired, we recognize an impairment loss to the extent the present value of discounted cash flows attributable to the assets are less than their carrying value. We also perform a periodic review to identify assets that are no longer used and are not expected to be used in future periods. An impairment charge is recorded to the extent, if any, that the carrying amount of the idle assets exceeds their fair value. The process of evaluating the potential impairment of long-lived assets

requires significant judgment. We are required to review for impairment groups of assets related to the lowest level of identifiable independent cash flows. In addition, we must make subjective judgments regarding the remaining useful lives of assets and the expected future revenue and expenses associated with the assets. Any changes in these estimates based on changed economic conditions or business strategies may result in material impairment charges in future periods.

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In accordance with U.S. GAAP, long-lived assets held and used by us are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. For purposes of evaluating the recoverability of long-lived assets, the recoverability test is performed by comparing undiscounted net cash flows of the assets against the carrying amount of the assets. If the recoverability test indicates that an impairment has occurred, the impairment loss is the amount of the asset's carrying amount in excess of the related fair value.

In 2009, 2010 and 2011, we recognized impairment losses of nil, NT$169.9 million and NT$234.3 million (US$7.7 million), respectively, on property, plant and equipment, and NT$11.1 million, NT$37.1 million and NT$81.5 million (US$2.7 million) on idle assets, respectively. See note 13 and note 15 to our consolidated financial statements included in this annual report.

Business Combinations. When we acquire businesses, we allocate the purchase price to tangible assets and liabilities and identifiable intangible assets acquired. Any residual purchase price is recorded as goodwill. The allocation of the purchase price requires management to make significant estimates in determining the fair values of assets acquired and liabilities assumed, especially with respect to intangible assets. These estimates are based on historical experience, information obtained from the management of the acquired companies and independent external service providers' reports. These estimates can include, but are not limited to, the cash flows that an asset is expected to generate in the future, the appropriate weighted-average cost of capital, and the synergistic benefits expected to be derived from the acquired business. In addition, pursuant to the revised U.S. GAAP, we need to measure the fair value of the investment we originally held and the noncontrolling interest. Before the revised U.S. GAAP became effective on January 1, 2009, the noncontrolling interest was measured at carrying amount, the same way as current ROC GAAP does. These estimates are inherently uncertain and unpredictable. In addition, unanticipated events and circumstances may occur which may affect the accuracy or validity of such estimates.

For example, we acquired Universal Scientific through tender offers in February and August 2010 and EEMS Test Singapore in August 2010 (see "Item 4 – Information on the Company – History and Development of the Company"); pursuant to ROC SFAS No. 25 "Business Combinations," No. 37 "Intangible Assets," and U.S. GAAP guidance relating to business combinations and goodwill and other intangible assets, acquired tangible assets and liabilities as well as identified intangible assets were valued at estimates of their current fair values. The valuation of acquired intangible assets was determined based on management's estimates. In addition, the amortization method of these intangible assets is based on future economic benefits over the estimated life. In addition, we also recognized goodwill which represents the excess of the purchase price over the estimated fair value of the net assets acquired. See our consolidated statements of cash flow as well as note 14 and note 34(k) to our consolidated financial statements included in this annual report.

Goodwill. Goodwill is evaluated for impairment at least annually and we test for impairment between annual tests if an event occurs or circumstances change that would indicate that the carrying amount may be impaired. Goodwill is evaluated for impairment by comparing the carrying value of the cash-generating unit to which the goodwill has been allocated to its recoverable amount. Recoverable amount is defined as the higher of a cash-generating unit's fair value less costs to sell or its "value in use," which is defined as the present value of the expected future cash flows generated by the assets. In conducting the future cash flow valuation, we make assumptions about future operating cash flows, the discount rate used to determine present value of future cash flows, and capital expenditures. Future operating cash flows assumptions include sales growth assumptions, which are based on our historical trends and industry trends, and gross margin and operating expense growth assumptions, which are based on the historical relationship of those measures compared to sales and certain cost cutting initiatives. An impairment charge is incurred to the extent the carrying value exceeds the recoverable amount. As of December 31, 2011, we had goodwill of NT$10,374.5 million (US$342.7 million) and NT$10,244.3 million (US$338.4 million) under ROC GAAP and U.S. GAAP, respectively. In 2011, we recognized an impairment loss of NT$38.9 million (US$1.3 million) and NT$6.9 million

(US$0.2 million) under ROC GAAP and U.S. GAAP, respectively, due to our acquisition of Lu-Chu Development Corporation, or Lu-Chu. Our conclusion could, however, change in the future if actual results differ from our estimates and judgments under different assumptions and conditions.

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Valuation of Long-term Investments. We hold long-term investments in public and non-public entities. We evaluate these long-term investments periodically for impairment based on market prices, if available, the financial condition of the investee company, economic conditions in the industry, and our intent and ability to hold the investment for a long period of time. These assessments usually require a significant amount of judgment, as a significant decline in the market price may not be the best indicator of impairment. Whenever triggering events or changes in circumstances indicate that an investment may be impaired and carrying value may not be recoverable, we measure the impairment based on the market prices, if available, or the projected future cash flow of the investments, the underlying assumptions for which had been formulated by such investments internal management team, taking into account sales growth and capacity utilization. Under U.S. GAAP, we evaluate long-term investments using the above mentioned criteria and, to the extent any decline in the value of a long-term investment is determined to be other than temporary, an impairment charge is recorded in the current period. Under ROC GAAP, we use similar method to determine the impairment charge recorded in the current period but there is no such term called “other-than-temporary-impairment” under ROC GAAP. Several of the long-term investments held by us are recognized as the equity method investments, financial assets carried at cost or available-for-sale financial assets. Any significant decline in the investments or financial assets could affect the value of the long-term investment and an impairment charge may occur. In 2009, we did not record any impairments on long-term investments. In 2010 and 2011, we recognized impairment losses of NT$44.4 million and NT$93.4 million (US$3.1 million), respectively, on our investments. See note 6 and 12 to our consolidated financial statements included in this annual report.

Stock-based Compensation. Employee stock options granted on or after January 1, 2008 are accounted for under ROC SFAS No. 39, “Accounting for Share-based Payment.” Under the statement, the value of the stock options granted, which is equal to the best available estimate of the number of stock options expected to vest multiplied by the grant-date fair value, is expensed on a straight-line basis over the vesting period. The estimate is revised if subsequent information indicates that the number of stock options expected to vest differs from previous estimates. The grant-date fair value involves a number of factors, such as expected dividend yield, expected volatility, expected life and the effects of early exercise, which require the management’s judgments. Employee stock options granted on or before December 31, 2007 were accounted for under the interpretations issued by the ROC Accounting Research and Development Foundation. We adopted the intrinsic value method, under which compensation cost was recognized on a straight-line basis over the vesting period.

Under U.S. GAAP, stock-based compensation expense includes compensation expense for all unvested stock-based compensation awards granted prior to January 1, 2006 that are expected to vest, based on the grant-date fair value estimated in accordance with the transition method and the original provision of the U.S. guidance relating to accounting for stock-based compensation. Stock-based compensation expense for all stock-based compensation awards granted after January 1, 2006 is based on the grant-date fair value estimated in accordance with the provisions of the U.S. guidance relating to share-based payment.

Results of Operations

The following table sets forth, for the periods indicated, financial data from our consolidated statements of income, expressed as a percentage of net revenues.

	Year Ended December 31,		
	2009	2010	2011
	(percentage of net revenues)		
ROC GAAP:			
Net revenues	100.0 %	100.0 %	100.0 %
Packaging	79.2	53.5	55.4
Testing	18.4	11.6	11.8

Electronic manufacturing services	–	31.6	31.2
Others	2.4	3.3	1.6
Cost of revenues	(78.6)	(78.5)	(81.1)
Gross profit	21.4	21.5	18.9
Operating expenses	(10.7)	(8.7)	(9.8)

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	Year Ended December 31,		
	2009	2010	2011
	(percentage of net revenues)		
Income from operations	10.7	12.8	9.1
Non-operating income (expense), net	(0.9)	(0.7)	0.1
Income before income tax	9.8	12.1	9.2
Income tax expense	(1.7)	(1.9)	(1.6)
Net income	8.1%	10.2%	7.6%
Attributable to			
Net income of parent company's shareholders	7.9%	9.7%	7.4%
Minority interest in net income of subsidiaries	0.2	0.5	0.2
	8.1%	10.2%	7.6%

The following table sets forth, for the periods indicated, the gross margins for our packaging, testing services and electronic manufacturing services and our total gross margin. Gross margin is calculated by dividing gross profits by net revenues.

	Year Ended December 31,		
	2009	2010	2011
	(percentage of net revenues)		
ROC GAAP:			
Gross profit			
Packaging	18.5%	21.1%	19.7%
Testing	28.2%	37.6%	31.8%
Electronic manufacturing services	–	10.9%	11.0%
Overall	21.4%	21.5%	18.9%

The following table sets forth, for the periods indicated, a breakdown of our total cost of revenues and operating expenses, expressed as a percentage of net revenues.

	Year Ended December 31,		
	2009	2010	2011
	(percentage of net revenues)		
ROC GAAP:			
Cost of revenues			
Raw materials	29.8%	46.9%	46.9%
Labor	15.0	10.8	12.1
Depreciation, amortization and rental expense	19.4	9.9	11.6
Others	14.4	10.9	10.5
Total cost of revenues	78.6%	78.5%	81.1%
Operating expenses			
Selling	1.4%	1.5%	1.5%
General and administrative	5.1	3.9	4.5
Research and development	4.2	3.3	3.8
Total operating expenses	10.7%	8.7%	9.8%

Year Ended December 31, 2011 Compared to Year Ended December 31, 2010

Net Revenues. Net revenues decreased 1.8% to NT$185,347.2 million (US$6,123.1 million) in 2011 from NT$188,742.8 million in 2010, primarily due to the decline in revenues from our other businesses, including real estate business which decreased due to the cyclical nature of this business. Packaging revenues increased 1.6% to NT$102,677.3 million (US$3,392.0 million) in 2011 from NT$101,071.3 million in 2010. Testing revenues decreased 0.1% to NT$21,932.2 million (US$724.6 million) in 2011 from NT$21,957.0 million in 2010. Revenues from our electronic

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manufacturing services business decreased 2.9% to NT$57,850.4 million (US$1,911.1 million) in 2011 from NT$59,577.4 million in 2010. The increase in packaging revenues was primarily due to an increase in the demand for our services and an increase in the revenues generated from our copper wire bonding solutions. The decrease in testing revenues was primarily due to an decrease in volume of testing business. The decrease in the revenues from our electronic manufacturing services business was primarily due to our retreat from the manufacturing of computer motherboard as a result of our business strategy adjustment.

Gross Profit. Gross profit decreased 13.7% to NT$35,008.8 million (US$1,156.5 million) in 2011 from NT$40,544.6 million in 2010. Our gross profit as a percentage of net revenues, or gross margin, decreased to 18.9% in 2011 from 21.5% in 2010 primarily due to increases in deprecation expenses and labor cost as a percentage of our net revenues. Raw material costs in 2011 were NT$86,919.3 million (US$2,871.5 million) compared to NT$88,556.1 million in 2010. As a percentage of net revenues, raw material costs were 46.9% in 2011 which was the same as in 2010. Depreciation, amortization and rental expenses in 2011 were NT$21,536.5 million (US$711.5 million), compared to NT$18,584.3 million in 2010. As a percentage of net revenues, depreciation, amortization and rental expenses increased to 11.6% in 2011 from 9.9% in 2010. This increase was primarily due to acquisition of new equipment in 2010, in particular equipment we bought in the second and third quarters of 2010. Labor cost in 2011 was NT$22,380.0 million (US$739.3 million) compared to NT$20,394.6 million in 2010. As a percentage of net revenues, labor cost increased to 12.1% in 2011 from 10.8% in 2010, primarily due to an increase in salaries and bonuses from the increase in headcount. Our gross margin for packaging decreased to 19.7% in 2011 from 21.1% in 2010. This decrease was primarily due to increases in depreciation expense and labor cost as a percentage of our net packaging revenues and was partially offset by the decrease in the raw material costs as a percentage of our net packaging revenues. Our gross margin for testing decreased to 31.8% in 2011 from 37.6% in 2010. This decrease was primarily due to increases in depreciation expense and labor cost as a percentage of net testing revenues. Our gross margin for electronic manufacturing services increased to 11.0% in 2011 from 10.9% in 2010.

Operating Income. Operating income decreased 30.2% to NT$16,821.2 million (US$555.7 million) in 2011 compared to NT$24,099.0 million in 2010. Our operating income as a percentage of net revenues, or operating margin, decreased to 9.1% in 2011 from 12.8% in 2010, primarily due to a decrease in gross margin and partially due to an increase in operating expenses as a percentage of net revenues. Operating expenses increased 10.6% to NT$18,187.6 million (US$600.8 million) in 2011 compared to NT$16,445.6 million in 2010. The increase in operating expenses was primarily due to increases in general and administrative expense, as well as research and development expense. General and administrative expense increased 12.6% to NT$8,299.5 million (US$274.2 million) in 2011 from NT$7,373.7 million in 2010, primarily due to an increase in salaries and bonuses from the increase in headcount. General and administrative expense represented 4.5% of our net revenues in 2011 compared to 3.9% in 2010. Research and development expense increased 15.5% to NT$7,118.0 million (US$235.1 million), accounting for 3.8% of net revenues, in 2011 from NT$6,162.2 million, accounting for 3.3% of net revenues, in 2010. This increase in the research and development expense was primarily due to increases in salaries and bonuses from the increase in headcount. Selling expense decreased 4.8% to NT$2,770.1 million (US$91.5 million) in 2011 from NT$2,909.6 million in 2010. This decrease was primarily due to a decrease in commission and service expenses. Selling expense as a percentage of net revenues was 1.5% in 2011 which was the same as in 2010.

Non-Operating Income (Expense). We had net non-operating income of NT$175.9 million (US$5.8 million) in 2011 compared to net non-operating expense of NT$1,275.4 million in 2010. This overall increase was primarily due to (i) an increase of NT$609.9 million (US$20.1 million) in our dividend income primarily from financial assets carried at cost, (ii) an income increase from the changes of the net gain/loss on valuation of financial assets and liabilities and net foreign exchange gain/loss and (iii) an income increase from the changes of net gain/loss on disposal of property, plant and equipment, partially offset by (i) an increase of impairment loss and (ii) an increase in our net interest expense. We recognized a net gain on valuation of financial assets and liabilities and net foreign exchange gain of NT$904.3 million (US$29.9 million) in 2011 compared to NT$394.7 million in 2010. The increase was due to a

decrease of valuation loss on the derivative contracts which we utilized from time to time to reduce the impacts of foreign currency fluctuations on our results of operations. We recognized impairment losses of NT$448.1 million (US$14.8 million) in 2011 compared to NT$251.4 million in 2010, primarily due to an increase in impairment losses on the property, plant and equipment and available-for-sale financial assets in 2011. We recognized net interest expense of NT$1,335.6 million (US$ 44.1 million) in 2011 compared to NT$ 1,170.8 million in 2010 primarily due to increases in interest rates.

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Net Income. Net income, excluding minority interest, decreased 25.1% to NT$13.726.0 million (US$453.5 million) in 2011 from NT$18,337.5 million in 2010. Our diluted earnings per ADS decreased to NT$10.2 (US$0.34) in 2011 compared to diluted earnings per ADS of NT$13.6 in 2010. Our income tax expense decreased 16.8% to NT$3,018.2 million (US$99.7 million) in 2011 from NT$3,628.7 million in 2010, primarily due to decreases in income before tax and valuation allowance, and an increase in credits for investments and research used, which were offset by an increase in income tax on undistributed earnings.

Year Ended December 31, 2010 Compared to Year Ended December 31, 2009

Net Revenues. Net revenues increased 120.0% to NT$188,742.8 million in 2010 from NT$85,775.3 million in 2009, primarily due to the revenues contributed from the electronic manufacturing services business we acquired in 2010 and the recovery of the global economy. Packaging revenues increased 48.8% to NT$101,071.3 million in 2010 from NT$67,935.5 million in 2009. Testing revenues increased 39.0% to NT$21,957.0 million in 2010 from NT$15,795.1 million in 2009. In addition, we recorded revenues of NT$59,577.4 million generated from our electronic manufacturing services business as a result of our acquisition of Universal Scientific in 2010. The increase in packaging revenues was primarily due to an increase in the demand for our services and an increase in the revenues generated from our copper wire bonding solutions. The increase in testing revenues was primarily due to an increase in testing volume.

Gross Profit. Gross profit increased 121.1% to NT$40,544.6 million in 2010 from NT$18,341.7 million in 2009. Our gross profit as a percentage of net revenues, or gross margin, increased to 21.5% in 2010 from 21.4% in 2009. Our gross margin for packaging increased to 21.1% in 2010 from 18.5% in 2009. This increase was primarily due to a decrease in depreciation expense as a percentage of our net packaging revenues, partially offset by an increase in the raw material costs as a percentage of our net packaging revenues. Our gross margin for testing increased to 37.6% in 2010 from 28.2% in 2009. This increase was primarily due to a decrease in depreciation expense as a percentage of net testing revenues as a result of our improved capacity utilization. Our gross margin for electronic manufacturing services was 10.9% in 2010. Raw material costs in 2010 were NT$88,556.1 million compared to NT$25,536.0 million in 2009. As a percentage of net revenues, raw material costs increased to 46.9% in 2010 from 29.8% in 2009, primarily because, since we acquired Universal Scientific in February 2010, we started providing electronic manufacturing services, which entail greater raw material costs as a percentage to our net revenues. Depreciation, amortization and rental expenses in 2010 were NT$18,584.3 million, compared to NT$16,602.5 million in 2009. As a percentage of net revenues, depreciation, amortization and rental expenses decreased to 9.9% in 2010 from 19.4% in 2009. This decrease was primarily due to a relatively low depreciation expense as a percentage of net revenues in our electronic manufacturing business and an increase in our revenues. Labor cost in 2010 was NT$20,394.6 million compared to NT$12,897.2 million in 2009. As a percentage of net revenues, labor cost decreased to 10.8% in 2010 from 15.0% in 2009, primarily because our new electronic manufacturing business has lower labor costs as a percentage of our net revenues.

Operating Income. Operating income increased 161.7% to NT$24,099.0 million in 2010 compared to NT$9,209.9 million in 2009. Our operating income as a percentage of net revenues, or operating margin, increased to 12.8% in 2010 from 10.7% in 2009, primarily due to the improved capacity utilization, partially offset by the lower operating income generated from our electronic manufacturing services as a percentage of net revenues. Operating expenses increased 80.1% to NT$16,445.6 million in 2010 compared to NT$9,131.8 million in 2009. The increase in operating expenses was primarily due to increases in general and administrative expense, as well as the research and development expense. General and administrative expense increased 71.1% to NT$7,373.7 million in 2010 from NT$4,310.7 million in 2009, primarily due to the increase in salaries and bonuses as a result of (i) our acquisition of Universal Scientific in February 2010, (ii) option cost recognized for our newly granted options in 2010, and (iii) an increase in the accrued salaries and bonuses based on our net income that have increased. General and administrative expense represented 3.9% of our net revenues in 2010 compared to 5.1% in 2009. Research and development expense

increased 70.6% to NT$6,162.2 million, accounting for 3.3% of net revenues, in 2010 from NT$3,612.0 million, accounting for 4.2% of net revenues, in 2009. This increase in the research and development expense was primarily due to our acquisition of Universal Scientific in February 2010 and the increase of accrued salaries and bonuses based on our net income. Selling expense increased 140.6% to NT$2,909.6 million in 2010 from NT$1,209.2 million in 2009. This increase was primarily due to our acquisition of Universal Scientific in February 2010. Selling expense as a percentage of net revenues increased to 1.5% in 2010 from 1.4% in 2009.

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Non-Operating Income (Expense). We incurred a net non-operating expense of NT$1,275.4 million in 2010 compared to a net non-operating expense of NT$821.5 million in 2009. This overall increase was primarily due to (i) an increase in our loss on disposal of property, plant and equipment, (ii) an increase in our impairment loss and (iii) a decrease in the income earned from equity investments, partially offset by a decrease in our net interest expense. We recognized income from equity method investments of NT$73.0 million in 2010 compared to NT$330.1 million in 2009. The decrease was due to our acquisition of Universal Scientific, which was our equity-method investee and has become our consolidated subsidiary in 2010 after our acquisition. We recognized net interest expense of NT$1,170.8 million in 2010 compared to NT$1,334.2 million in 2009, primarily due to decreases in interest rates and the reallocation of capital funds among subsidiaries. We recognized impairment losses of NT$251.4 million in 2010 compared to NT$11.1 million in 2009, primarily due to the increase in impairment losses on equity method investments, property, plant and equipment in 2010.

Net Income. Net income, excluding minority interest, increased 171.9% to NT$18,337.5 million in 2010 from NT$6,744.6 million in 2009. Our diluted earnings per ADS increased to NT$13.6 in 2010 compared to diluted earnings per ADS of NT$5.3 in 2009. Our income tax expense increased 144.4% to NT$3,628.7 million in 2010 from NT$1,484.9 million in 2009, primarily due to the increase in our income tax on the profit from our operation of real estate and our new businesses in 2010, namely the electronic manufacturing business.

Quarterly Net Revenues, Gross Profit and Gross Margin

The following table sets forth our unaudited consolidated net revenues, gross profit and gross margin for the quarterly periods indicated. The unaudited quarterly results reflect all adjustments, consisting of normal recurring adjustments, that, in the opinion of management, are necessary for a fair presentation of the amounts, on a basis consistent with the audited consolidated financial statements included elsewhere in this annual report. You should read the following table in conjunction with the audited consolidated financial statements and related notes included elsewhere in this annual report. Our net revenues, gross profit and gross margin for any quarter are not necessarily indicative of the results for any future period. Our quarterly net revenues, gross profit and gross margin may fluctuate significantly.

	Quarter Ended							
	Mar. 31, 2010 NT$	Jun. 30, 2010 NT$	Sept. 30, 2010 NT$	Dec. 31, 2010 NT$	Mar. 31, 2011 NT$	Jun. 30, 2011 NT$	Sept. 30, 2011 NT$	Dec. 31, 2011 NT$
	(in millions)							
Consolidated Net Revenues								
Packaging	22,080.4	25,699.6	27,288.5	26,002.8	24,812.4	25,991.2	26,331.2	25,542.5
Testing	4,662.4	5,288.1	6,017.3	5,989.2	5,338.9	5,492.3	5,498.0	5,603.0
Electronic manufacturing services *	10,138.7	14,725.7	17,486.6	17,226.4	15,095.3	14,018.6	14,209.9	14,526.6
Others	673.0	702.5	696.9	4,064.7	758.9	752.2	658.7	717.5
Total	37,554.5	46,415.9	51,489.3	53,283.1	46,005.5	46,254.3	46,697.8	46,389.6
Consolidated Gross Profit								
Packaging	4,330.3	5,484.0	6,104.1	5,402.2	4,950.0	5,384.8	5,136.9	4,734.7
Testing	1,610.0	2,084.3	2,333.0	2,218.4	1,644.0	1,660.8	1,787.5	1,886.3
Electronic manufacturing services *	1,136.8	1,623.0	2,033.5	1,688.9	1,575.4	1,443.4	1,623.2	1,708.4

Others	545.9		657.6		634.8		2,657.8		488.3		475.8		364.4		144.9	
Total	7,623.0		9,848.9		11,105.4		11,967.3		8,657.7		8,964.8		8,912.0		8,474.3	
Consolidated Gross Profit (%)																
Packaging	19.6	%	21.3	%	22.4	%	20.8	%	19.9	%	20.7	%	19.5	%	18.5	%
Testing	34.5	%	39.4	%	38.8	%	37.0	%	30.8	%	30.2	%	32.5	%	33.7	%
Electronic manufacturing services *	11.2	%	11.0	%	11.6	%	9.8	%	10.4	%	10.3	%	11.4	%	11.8	%
Overall	20.3	%	21.2	%	21.6	%	22.5	%	18.8	%	19.4	%	19.1	%	18.3	%

* We have begun providing electronic manufacturing services as a result of our acquisition of the controlling interest of Universal Scientific in February 2010.

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Our results of operations are affected by seasonality. In general, our first quarter net revenues have historically decreased over the preceding fourth quarter, primarily due to the combined effects of holidays in the United States, Taiwan and elsewhere in Asia. Moreover, the increase or decrease in net revenues of a particular quarter as compared with the immediately preceding quarter varies significantly. See "Item 3. Key Information—Risk Factors—Risks Relating to Our Business—Our operating results are subject to significant fluctuations, which could adversely affect the market value of your investment."

Exchange Rate Fluctuations

For quantitative and qualitative disclosure of our exposure to foreign currency exchange rate risk, see "Item 11. Quantitative and Qualitative Disclosures about Market Risk—Market Risk—Foreign Currency Exchange Rate Risk."

Taxation

The corporate income tax rate in the ROC applicable to us decreased from 25% in 2009 to 17%, effective January 1, 2010. The tax incentives schemes under the ROC Statute for Upgrading Industries expired on December 31, 2009, and under this statute we had been granted tax holidays covering the portion of our income attributable to eligible machinery and equipment which were procured with cash infusion from our shareholders or after the capitalization of retained earnings through the issuance of stock dividends, and tax credits of 7% for the purchase of qualifying manufacturing equipment. We can continue to enjoy the tax holidays that have been granted to us by the ROC tax authority. On April 16, 2010, the Legislative Yuan of ROC passed the Industrial Innovation Act, effective from January 1, 2010 to December 31, 2019. Under the Industrial Innovation Act, a profit-seeking enterprise may deduct up to 15% of its research and development expenditures from its income tax payable for the fiscal year in which these expenditures are incurred. However, the deduction may not exceed 30% of the income tax payable for that fiscal year.

As of February 29, 2012, we had five five-year tax holidays on income derived from a portion of our operations in Kaohsiung, Taiwan. One tax exemption will expire on December 31, 2013 and two tax exemptions will expire on December 31, 2016. We are in the process of applying for the use of the remaining two exemptions in connection with our operations in Kaohsiung, Taiwan, following the completion of the related capacity expansions or application on the tax exemption period. In addition, some of our subsidiaries, such as ASE Test Taiwan and PowerASE, are entitled to certain tax exemptions on income derived from a portion of their respective operations. The aggregate tax benefits of such exemptions for the years ended December 31, 2009, 2010 and 2011 were NT$654.8 million, NT$979.0 million and NT$656.6 million (US$21.7 million), respectively.

In addition, since we have facilities located in special export zones such as the Nantze Export Processing Zone in Taiwan, we enjoy exemptions from various import duties, commodity taxes and sales taxes on imported machinery, equipment, raw materials and components which are directly used for manufacturing finished goods. Finished goods produced by companies located in these zones and exported or sold to others within the zones are exempt from otherwise applicable commodity or business taxes in Taiwan.

Under the ROC Income Tax Act, all earnings generated in a year which are not distributed to shareholders as dividends in the following year will be assessed a 10% undistributed earnings tax. As a result, if we do not distribute all of our annual earnings as either cash or stock dividends in the following year, these undistributed earnings will be subject to the 10% undistributed earnings tax.

The ROC government enacted Alternative Minimum Tax Act, or AMT Act, which became effective on January 1, 2006. The alternative minimum tax, or AMT, imposed under the AMT Act is a supplemental tax on basic income, which includes most income that is exempt from income tax under various legislation such as tax holidays. If the amount of income tax payable determined by the Income Tax Act falls below the amount of the AMT, any difference

will be payable. The AMT rate for business entities is 10%. However, the AMT Act grandfathered certain tax exemptions granted prior to the enactment of the AMT Act.

In 2010, our effective income tax rate decreased to 16% from 18% in 2009 primarily due to the decrease in the corporate income tax rate in the ROC. In 2011, our effective income tax rate increased to 18% from 16% in 2010

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primarily due to an increase in undistributed earnings tax. We believe that our future estimated taxable income will be sufficient to utilize the current and noncurrent portion of our net deferred tax assets recorded as of December 31, 2011.

Inflation

We do not believe that inflation in Taiwan or elsewhere has had a material impact on our results of operations.

U.S. GAAP Reconciliation

Our consolidated financial statements are prepared in accordance with ROC GAAP, which differ in certain material respects from U.S. GAAP. The following table sets forth a comparison of our net income and shareholders' equity in accordance with ROC GAAP and U.S. GAAP as of and for the periods indicated.

	As of and For the Year Ended December 31,			
	2009	2010	2011	
	NT$	NT$	NT$	US$
	(in millions)			
Net income:				
ROC GAAP	6,903.5	19,194.9	13,978.9	461.8
U.S. GAAP	5,520.4	18,901.0	13,780.4	455.3
Total shareholders' equity:				
ROC GAAP	74,713.7	91,839.3	102,282.5	3,379.0
U.S. GAAP	69,515.7	86,452.2	96,617.9	3,191.9

Note 33 to our consolidated financial statements included in this annual report provides a description of the significant differences between ROC GAAP and U.S. GAAP as they relate to us and a reconciliation of net income and shareholders' equity. Significant differences between ROC GAAP and U.S. GAAP include impairment loss reversal, undistributed earnings tax, stock-based compensation, business combination, defined benefit pension plans and noncontrolling interest treatment.

Recent U.S. GAAP Accounting Pronouncements

In September 2009, the FASB issued an accounting standard update which provides guidance on how to separate consideration in multiple-deliverable arrangements and significantly expands disclosure requirements. The standard establishes a hierarchy for determining the selling price of a deliverable, eliminates the residual method of allocation and requires that arrangement consideration be allocated at the inception of the arrangement to all deliverables using the relative selling price method. The update is effective for annual reporting periods beginning on or after June 15, 2010. This guidance is effective for us for the year ended December 31, 2011. The adoption of the guidance did not have a material effect on our results of operations, financial position and cash flows.

In January 2010, the FASB issued an accounting update that amended guidance and clarified the disclosure requirements about fair market value measurement. These amended standards require new disclosures for significant transfers of assets or liabilities between Level 1 and Level 2 in the fair value hierarchy; separate disclosures for purchases, sales, issuance and settlements of Level 3 fair value items on a gross, rather than net basis; and more robust disclosure of the valuation techniques and inputs used to measure Level 2 and Level 3 assets and liabilities. Except for the detailed disclosures of changes in Level 3 items, which are effective for us as of January 1, 2011, the remaining new disclosure requirements were effective for us as of January 1, 2010. We have included these new disclosures, as

applicable, in Note 34(j) to our consolidated financial statements included in this annual report.

In April 2010, the FASB issued an accounting update that provides guidance on defining a milestone and determining when it may be appropriate to apply the milestone method of revenue recognition for certain research and development transactions. Under this new standard, a company can recognize as revenue consideration that is contingent upon achievement of a milestone in the period in which it is achieved, only if the milestone meets all

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criteria to be considered substantive. This standard is effective for us on a prospective basis as of January 1, 2011. The adoption of the guidance did not have a material effect on our results of operations, financial position and cash flows.

In April 2010, the FASB issued an accounting update to clarify that a share-based payment award with an exercise price denominated in the currency of a market in which a substantial portion of the entity's equity securities trades must not be considered to contain a market, performance, or service condition. Therefore, an entity should not classify such an award as a liability if it otherwise qualifies for classification in equity. This guidance is effective for annual periods beginning on or after December 15, 2010, and will be applied prospectively. Affected entities will be required to record a cumulative catch-up adjustment to the opening balance of retained earnings for all awards outstanding as of the beginning of the annual period in which the guidance is adopted. Earlier application is permitted. This guidance is effective for us for the year ended December 31, 2011. The adoption of the guidance did not have a material effect on our results of operations, financial position and cash flows.

In December 2010, the FASB issued an accounting update to require that supplemental pro forma information disclosures pertaining to acquisitions should be presented as if the business combination(s) occurred as of the beginning of the prior annual period when comparative financial statements are presented. This guidance also expands the supplemental pro forma disclosures to include a description of the nature and amount of material, nonrecurring pro forma adjustments directly attributable to the business combination included in the reported pro forma revenue and earnings. This guidance is effective for business combinations consummated in periods beginning after December 15, 2010. Early adoption is permitted. This guidance is effective for us for the year ended December 31, 2011. We have included these new disclosures in Note 34(k) to our consolidated financial statements included in this annual report.

In December 2010, the FASB issued an accounting update to modify Step 1 of the goodwill impairment test for reporting units with zero or negative carrying amounts. For those reporting units, an entity is required to perform Step 2 of the goodwill impairment test if it is more likely than not that a goodwill impairment exists. In determining whether it is more likely than not that a goodwill impairment exists, an entity should consider whether there are any adverse qualitative factors indicating that an impairment may exist. For public entities, this guidance is effective for impairment tests performed during entities' fiscal years that begin after December 15, 2010. Early application will not be permitted. This guidance is effective for us for the year ended December 31, 2011. The adoption of the guidance did not have a material effect on our results of operations, financial position and cash flows.

In May 2011, the FASB issued an accounting update to amend the fair value measurement guidance and include some enhanced disclosure requirements. The most significant change in disclosures is an expansion of the information required for Level 3 measurements based on unobservable inputs. The standard is effective for fiscal years beginning after December 15, 2011. Early adoption is not permitted. We do not expect the adoption will have a material impact on our results of operations, financial position or cash flows.

In June and December 2011, the FASB issued accounting updates to eliminate the current option to report other comprehensive income and its components in the statement of stockholders' equity. Instead, an entity will be required to present items of net income and other comprehensive income in one continuous statement or in two separate, but consecutive, statements. The new requirements do not change which components of comprehensive income are recognized in net income or other comprehensive income, or when an item of other comprehensive income must be reclassified to net income. This guidance must be applied retroactively and is effective for fiscal years beginning after December 15, 2011. Earlier application is permitted. We are currently evaluating which presentation option we will elect, but the adoption of these provisions will have no effect on our results of operations, financial position or cash flows.

In September 2011, the FASB issued an accounting update, which is intended to reduce the cost and complexity of the annual goodwill impairment test by providing entities an option to perform a “qualitative” assessment to determine whether further impairment testing is necessary. Specifically, an entity has the option to first assess qualitative factors to determine whether it is necessary to perform the current two-step test. If an entity believes, as a result of its qualitative assessment, that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, the quantitative impairment test is required. Otherwise, no further testing is required. This standard is effective for annual and interim goodwill impairment tests performed for fiscal years beginning after

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December 15, 2011. Earlier adoption is permitted. The adoption of this guidance is not expected to have a material impact on our results of operations, financial position or cash flows.

In December 2011, the FASB issued an accounting update, which creates new disclosure requirements regarding the nature of an entity's rights of setoff and related arrangements associated with its financial instruments and derivative instruments. Certain disclosures of the amounts of certain instruments subject to enforceable master netting arrangements or similar agreements would be required, irrespective of whether the entity has elected to offset those instruments in the statement of financial position. The disclosure requirements are effective for annual reporting periods beginning on or after January 1, 2013 with retrospective application required. Since this standard impacts disclosure requirements only, its adoption is not expected to have a material impact on our results of operations, financial condition or cash flows.

LIQUIDITY AND CAPITAL RESOURCES

We have historically been able to satisfy our working capital needs from our cash flow from operations. We have historically funded our capacity expansion from internally generated cash and, to the extent necessary, the issuance of equity securities and borrowings. If adequate funds are not available on satisfactory terms, we may be forced to curtail our expansion plans. Moreover, our ability to meet our working capital needs from cash flow from operations will be affected by the demand for our packaging, testing services and electronics manufacturing services, which in turn may be affected by several factors. Many of these factors are outside of our control, such as economic downturns and declines in the prices of our services or products caused by a downturn in the industry. See "Item 3. Key Information—Risk Factors—Risks Relating to Our Business—Our operating results are subject to significant fluctuations, which could adversely affect the market value of your investment." To the extent we do not generate sufficient cash flow from our operations to meet our cash requirements, we will have to rely on external financing.

Net cash provided by operating activities amounted to NT$31,936.7 million (US$1,055.1 million) in 2011, primarily as a result of (i) our operation performance with net income of NT$13,978.9 million (US$461.8 million) and (ii) our non-cash depreciation and amortization in the amount of NT$22,945.4 million (US$758.0 million). Net cash provided by operating activities amounted to NT$36,965.1 million in 2010, primarily as a result of (i) our improved operation performance with net income of NT$19,194.9 million (ii) our non-cash depreciation and amortization in the amount of NT$19,854.5 million. Net cash provided by operating activities amounted to NT$15,517.2 million in 2009, primarily as a result of adjustment for non-cash depreciation and amortization of NT$17,638.0 million. The decrease in net cash provided by operating activities in 2011 compared to 2010 was primarily due to the decrease in net income. The increase in net cash provided by operating activities in 2010 compared to 2009 was primarily due to the cash inflows from (i) the increase of net income, (ii) the decrease in accounts receivables and (iii) the decrease in construction in process related to property development.

Net cash used in investing activities amounted to NT$32,030.7 million (US$1,058.2 million) in 2011, primarily due to our acquisition of property, plant and equipment of NT$29,417.9 million (US$971.9 million). Net cash used in investing activities amounted to NT$36,085.5 million in 2010, primarily due to the acquisition of property, plant and equipment of NT$34,109.1 million. Net cash used in investing activities amounted to NT$15,980.7 million in 2009, primarily due to the acquisition of property, plant and equipment of NT$11,445.6 million.

Net cash used in financing activities in 2011 amounted to NT$342.6 million (US$11.3 million) in 2011. This amount reflected primarily cash dividends of NT$3,858.3 million (US$ 127.5 million) and the repurchase of treasury stock of NT$2,772.6 million (US$ 91.6 million), which was partially offset by the net proceeds of NT$5,747.3 million (US$ 189.9 million) from bank loans, capital lease obligations and issuance of bonds. Net cash provided by financing activities in 2010 amounted to NT$1,701.5 million. This amount reflected primarily our proceeds obtained from

long-term bank loans in the amount of NT$32,586.2 million, partially offset by (i) our repayment of bank loans, including short-term borrowings, in the amount of NT$28,506.5 million, (ii) our distributed cash dividends in the amount of NT$1,940.7 million, and (iii) our repurchase of treasury stock in the amount of NT$1,185.2 million. Net cash used in financing activities in 2009 amounted to NT$2,778.5 million. This amount reflected primarily cash dividends of NT$2,575.7 million and the repurchase of treasury stock of NT$1,314.3 million, which was partially offset by the net proceeds from the bank loans and capital lease obligations of NT$2,005.5 million.

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As of December 31, 2011, our primary source of liquidity was NT$24,421.8 million (US$806.8 million) of cash and NT$846.4 million (US$28.0 million) of financial assets—current. Our financial assets—current primarily consisted of swap contracts, mutual funds and quoted stocks. As of December 31, 2011, we had total unused short-term credit lines of NT$67,171.3 million (US$2,219.1 million), and total unused long-term credit lines of NT$18,736.8 million (US$619.0 million). As of December 31, 2011, we had working capital of NT$23,369.8 million (US$772.0 million).

As of December 31, 2011, we had total borrowings of NT$76,593.0 million (US$2,530.3 million), NT$22,965.1 million (US$758.7 million) of which were short-term borrowings and NT$53,627.9 million (US$1,771.6 million) of which were long-term borrowings. In 2011, the maximum amount of our short-term borrowings was NT$32,043.1 million (US$1,058.6 million) and the average amount of our short-term borrowings was NT$27,193.0 million (US$898.3 million). The fluctuation was primarily because our working capital fluctuated during 2011 from time to time. The annual interest rate for borrowings under our short-term bank loans ranged from 0.96% to 7.32% as of December 31, 2011. Our short-term loans are primarily revolving facilities with a term of one year, each of which may be extended on an annual basis with lender consent. Our long-term borrowings consist of bank loans, bonds payable and capital lease obligations. As of December 31, 2011, we had outstanding long-term borrowings, less current portion, of NT$50,166.9 million (US$1,657.3 million). As of December 31, 2011, the current portion of our long-term borrowings was NT$3,461.0 million (US$114.3 million). Our long-term borrowings typically carried variable annual interest rates which ranged between 0.95% to 6.05% as of December 31, 2011.

We have pledged a portion of our assets, with a carrying value of NT$5,737.3 million (US$189.5 million) as of December 31, 2011, to secure our obligations under our short-term and long-term facilities.

In September 2011, Anstock Limited, our wholly owned subsidiary incorporated in the Cayman Islands with limited liability, issued RMB150.0 million (US$23.8 million) 3.125% Guaranteed Bonds due September 22, 2014 (the “2014 Bonds”) and RMB500.0 million (US$79.4 million) 4.250% Guaranteed Bonds due September 20, 2016 (the “2016 Bonds”) (the 2014 Bonds and the 2016 Bonds, collectively the “Bonds”). The Bonds are irrevocably and unconditionally guaranteed on an unsecured and unsubordinated basis by us. The 2014 Bonds bear interest from and including September 20, 2011 at the rate of 3.125% per annum. Interest on the 2014 Bonds is payable semi-annually in arrear on September 20 and March 20 of each year beginning on March 20, 2012. The 2014 Bonds will mature on September 22, 2014 unless previously redeemed or purchased and cancelled. The 2016 Bonds bear interest from and including September 20, 2011 at the rate of 4.250% per annum. Interest on the 2016 Bonds is payable semi-annually in arrear on September 20 and March 20 of each year beginning on March 20, 2012. The 2016 Bonds will mature on September 20, 2016 unless previously redeemed or purchased and cancelled. The net proceeds from the Bonds was advanced by Anstock Limited to ASESH AT in the form of an intercompany RMB loan for working capital and capital expenditure with maturity in September 2016.

In August 2011, we issued NT$8.0 billion (US$264.3 million) 1.45% secured corporate bonds with five year term (the “Corporate Bonds”), guaranteed by the Bank of Taiwan, Mega International Commercial Bank, Taiwan Cooperative Bank, First Bank and Hua Nan Bank. The Corporate Bonds bear an annual simple interest and payment by coupon rate from the issue date. The net proceeds from the Corporate Bonds will be used to repay our existing debts.

In June 2009, we entered into a syndicated loan agreement with a banking syndicate led by Citibank, N.A., Taipei Branch for a NT$12,000.0 million term loan facility for operating revolving fund, all of which we have fully repaid in 2011, mainly to finance our acquisition of Universal Scientific.

In March 2008, we entered into a syndicated loan agreement with a banking syndicate led by Citibank, N.A., Taipei Branch for a NT$24,750.0 million term loan facility, which we and the lenders subsequently agreed to reduce to NT$17,500.0 million to afford us more flexibility to request additional loans in the future. As of June 3, 2008, we had drawn down NT$17,500.0 million, the full amount of the facility, to finance a portion of the consideration for our

acquisition, by way of a scheme of arrangement under Singapore law, of all the outstanding ordinary shares of ASE Test that we did not already directly or indirectly own. In May 2008, we entered into an additional syndicated loan agreement with a banking syndicate led by Citibank, N.A., Taipei Branch for an US$200.0 million term loan facility, also for the purposes of financing our acquisition of ASE Test's outstanding ordinary shares. This US$200.0 million term loan was fully repaid in 2011.

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In March 2008, ASESH AT entered into a five-year syndicated credit facility of US$147.0 million for our repayment requests and operating revolving fund, which the DBS Bank (China) Limited, Shanghai Branch acted as an arranger and agent. The facility bears interest at LIBOR plus 0.9% per annum.

Our long-term loans and facilities contain various financial and other covenants that could trigger a requirement for early payment. Among other things, these covenants require the maintenance of certain financial ratios, such as liquidity ratio, indebtedness ratio, interest coverage ratio and other technical requirements. In general, covenants in the agreements governing our existing debt, and debt we may incur in the future, may materially restrict our operations, including our ability to incur debt, pay dividends, make certain investments and payments, other than in connection with restructurings of consolidated entities, and encumber or dispose of assets. A default under one debt instrument may also trigger cross-defaults under our other debt instruments. An event of default under any debt instrument, if not cured or waived, could have a material adverse effect on our liquidity, as well as our financial condition and operations.

We have on occasion failed to comply with certain financial covenants in some of our loan agreements. Such non-compliance may also have, through broadly worded cross-default provisions, resulted in default under some of the agreements governing our other existing debt. For example, we failed to comply with certain financial covenants in some of our loan agreements as a result of our acquisition of Universal Scientific in February 2010; however, we have timely obtained waivers from our counterparties. If we are unable to timely remedy any of our non-compliance under such loan agreements or obtain applicable waivers or amendments, we would breach our financial covenants and our financial condition would be adversely affected. See “Item 3. Key Information—Risk Factors—Risks Relating to Our Business—Restrictive covenants and broad default provisions in our existing debt agreements may materially restrict our operations as well as adversely affect our liquidity, financial condition and results of operations.”

Our contingent obligations consist of guarantees provided by us to our subsidiaries. As of December 31, 2011, we endorsed and guaranteed the bonds issued by our subsidiary, Anstock Limited, in the amount of RMB657.3 million (US$104.5 million). Other than such guarantee, we have no other contingent obligations.

We have made, and expect to continue to make, substantial capital expenditures in connection with the expansion of our production capacity. The table below sets forth our principal capital expenditures incurred for the periods indicated.

	Year Ended December 31,			
	2009	2010	2011	
	NT$	NT$	NT$	US$
	(in millions)			
Machinery and equipment	11,389.5	30,238.2	22,778.7	752.5
Building and improvements	1,242.4	4,522.9	8,253.3	272.7

We have budgeted capital expenditures of approximately US$700.0 million to US$790.0 million for 2012, primarily to purchase machinery and equipment in connection with the expansion of our packaging and testing operations. We may adjust the amount of our capital expenditures upward or downward based on market conditions, the progress of our expansion plans and cash flow from operations. Due to the rapid changes in technology in the semiconductor industry, we frequently need to invest in new machinery and equipment, which may require us to raise additional capital. We cannot assure you that we will be able to raise additional capital should it become necessary on terms acceptable to us or at all. See “Item 3. Key Information—Risk Factors—Risks Relating to Our Business—Because of the highly cyclical nature of our industry, our capital requirements are difficult to plan. If we cannot obtain additional capital when we need it, our growth prospects and future profitability may be adversely affected.”

We believe that our existing cash, marketable securities, expected cash flow from operations and existing credit lines under our loan facilities will be sufficient to meet our capital expenditures, working capital, cash obligations under our existing debt and lease arrangements, and other requirements for at least the next 12 months. We currently hold cash primarily in U.S. dollars, New Taiwan dollars, Chinese yuan, Japanese yen, Malaysian ringgit and Korean

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won. As of December 31, 2011, we had contractual obligations of NT$43,090.6 million (US$1,423.5 million) due in the next three years. We currently expect to meet our payment obligations through the expected cash flow from operations, long-term borrowings and the issuance of additional equity or equity-linked securities. We will continue to evaluate our capital structure and may decide from time to time to increase or decrease our financial leverage through equity offerings or borrowings. The issuance of additional equity or equity-linked securities may result in additional dilution to our shareholders.

From time to time, we evaluate possible investments, acquisitions or divestments and may, if a suitable opportunity arises, make an investment, acquisition or divestment.

Our treasury team, under the supervision of our chief financial officer, is responsible for setting our funding and treasury policies and objectives. Our exposure to financial market risks relate primarily to changes in interest rates and foreign currency exchange rates. To mitigate these risks, we utilize derivative financial instruments, the application of which is primarily to manage these exposures, and not for speculative purposes.

We have, from time to time, entered into interest rate swap transactions to hedge our interest rate exposure. As of December 31, 2011, we had NT$7,612.5 million (US$251.5 million) outstanding in interest rate swap contracts for NT dollar which will mature in March 2013. In addition, we have, from time to time, entered into forward exchange contracts, swap contracts, cross currency swap contracts and European foreign currency options contracts to hedge our existing assets and liabilities denominated in foreign currencies. See “Item 11. Quantitative and Qualitative Disclosures about Market Risk” and note 5 and note 26 to our consolidated financial statements included in this annual report.

RESEARCH AND DEVELOPMENT

For 2009, 2010 and 2011, our research and development expenditures totaled approximately NT$3,612.0 million, NT$6,162.2 million and NT$7,118.0 million (US$235.1 million), respectively. These expenditures represented approximately 4.2%, 3.3% and 3.8% of net revenues in 2009, 2010 and 2011, respectively. We have historically expensed all research and development costs as incurred and none is currently capitalized. As of March 31, 2012, we employed 5,669 employees in research and development.

Packaging

We centralize our research and development efforts in packaging technology in our Kaohsiung, Taiwan facilities. After initial phases of development, we conduct pilot runs in one of our facilities before new technologies or processes are implemented commercially at other sites. Facilities with special product expertise, such as ASE Korea, also conduct research and development of these specialized products and technologies at their sites. One of the areas of emphasis for our research and development efforts is improving the efficiency and technology of our packaging processes and these efforts are expected to continue. We are also putting significant research and development efforts into the development and adoption of innovative technology. We work closely with manufacturers of our packaging equipment and materials in designing and developing the equipment and materials used in our production process. We also collaborate with our significant customers to co-develop new product and process technologies.

In addition to investing in the development of advanced package assembly technology and improving production efficiency, a significant portion of our research and development efforts is focused on the development of advanced substrate production technology for BGA packaging. Substrate is the principal raw material for BGA packages. Development and production of advanced substrates involve complex technology. We are currently working closely with certain first-tier substrate suppliers in Asia, primarily including those located in Japan, Taiwan and Korea. We believe that our successful cooperation with substrate suppliers to enhance the overall substrate production capability and to meet future advanced package requirement has enabled us to capture an increasingly important value-added

component of the packaging process, helped ensure a stable and cost-effective supply of substrates for our BGA packaging operations and shortened time to market.

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Testing

Our research and development efforts in the area of testing have focused primarily on developing advanced test solutions for customer requirement. These efforts include developing test software of logic/mixed-signal/RF/discrete semiconductors, characterization of semiconductors, layout design, electrical simulation for high frequency test board and developing software of parametric test data analysis. We work closely with our customers on the leading edge test technologies, such as 3D IC test and contactless test. Our research and development operations also include an equipment development group, which currently designs testing hardware and software for specific semiconductors to offer our customers cost effective test solutions.

Electronics Manufacturing Services

To further enhance the quality of our services and products, we focus on developing diversified and innovative products to improve our competitiveness. By leveraging our proprietary research and development expertise, we are able to provide our customers with high performance and cost-effective products and services by optimizing our product design, engineering and manufacturing capabilities. During the process of designing, as well as developing the technology for, our software and hardware, our research and development team also dedicates itself to discovering new know-how, and then applying such know-how to create new, advanced and improved products, processes, methodology and services. We are currently investing in the development of products used in electronic manufacturing services in relation to computers and peripherals, communications, industrial, automotive, and storage and server applications.

OFF-BALANCE SHEET ARRANGEMENTS

There are no off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

TABULAR DISCLOSURE OF CONTRACTUAL OBLIGATIONS

The following table sets forth the maturity of our contractual obligations as of December 31, 2011.

		Payments Due by Period			
	Total	Under 1 Year	1 to 3 Years	3 to 5 Years	After 5 Years
	NT$	NT$	NT$	NT$	NT$
			(in millions)		
Contractual Obligations:					
Long-term debt(1)	53,863.0	12,626.9			