

CHIPMOS TECHNOLOGIES BERMUDA LTD  
Form 20-F  
June 30, 2003

As filed with the Securities and Exchange Commission on June 30, 2003

---

## SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

---

### FORM 20-F

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

OR

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

For the fiscal year ended December 31, 2002

OR

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

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 0-31106

---

# ChipMOS TECHNOLOGIES (Bermuda) LTD.

(Exact Name of Registrant as Specified in Its Charter)

**Bermuda**

(Jurisdiction of Incorporation or Organization)

---

**No. 1, R & D Road 1**

**Science-Based Industrial Park**

**Hsinchu, Taiwan**

**Republic of China**

(Address of Principal Executive Offices)

---

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

<b>Title of Each Class</b>	<b>Name of Each Exchange on Which Registered</b>
<b>None</b>	<b>None</b>

---

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

**Common Shares**

**Common Shares, par value US\$0.01 each**

(Title of Class)

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

**None**

(Title of Class)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

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.

As of December 31, 2002, 58,873,038 Common Shares, par value US\$0.01 each were outstanding.

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  No

Indicate by check mark which financial statement item the registrant has elected to follow. Item 17  Item 18

The following disclosure items are omitted in this report: (i) an audit opinion for the registrant's financial statements for the year ended December 31, 2002; (ii) a consent from the previous auditor to reissue its audit opinion for the financial statements as of December 31, 2001 and for each of the two years then ended for inclusion in this report and (iii) a certification from each of the registrant's principal executive officer and principal financial officer.

---

**TABLE OF CONTENTS**

**ChipMOS TECHNOLOGIES (Bermuda) LTD.**

	<u>Page</u>
<u>CAUTIONARY STATEMENT FOR PURPOSES OF THE SAFE HARBOR PROVISIONS OF THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995</u>	ii
<b>PART I</b>	
Item 1.	<u>Identity of Directors, Senior Management and Advisers</u> 1
Item 2.	<u>Offer Statistics and Expected Timetable</u> 1
Item 3.	<u>Key Information</u> 1
Item 4.	<u>Information on the Company</u> 19
Item 5.	<u>Operating and Financial Reviews and Prospects</u> 45
Item 6.	<u>Directors, Senior Management and Employees</u> 60
Item 7.	<u>Major Shareholders and Related Party Transactions</u> 65
Item 8.	<u>Financial Information</u> 69
Item 9.	<u>The Offer and Listing</u> 70
Item 10.	<u>Additional Information</u> 70
Item 11.	<u>Quantitative and Qualitative Disclosure about Market Risk</u> 78
Item 12.	<u>Description of Securities Other Than Equity Securities</u> 79
<b>PART II</b>	
Item 13.	<u>Defaults, Dividend Arrearages and Delinquencies</u> 79
Item 14.	<u>Material Modifications to the Rights of Security Holders and Use of Proceeds</u> 79
Item 15.	<u>Controls and Procedures</u> 79
Item 16A.	<u>Audit Committee Financial Expert</u> 79
Item 16B.	<u>Code of Ethics</u> 79
Item 16C.	<u>Principal Accounting Fees and Services</u> 79
<b>PART III</b>	
Item 17.	<u>Financial Statements</u> 79
Item 18.	<u>Financial Statements</u> 80
Item 19.	<u>Exhibits</u> 81

**CAUTIONARY STATEMENT FOR PURPOSES OF THE SAFE HARBOR PROVISIONS OF  
THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995**

Except for historical matters, the matters discussed in this annual report on Form 20-F are forward-looking statements that are subject to significant risks and uncertainties. These statements are generally indicated by the use of forward-looking terminology such as the words believe, expect, intend, anticipate, estimate, plan, project, may, will or other similar words that express an indication of actions or results of actions that may or are expected to occur in the future. Forward-looking statements include, but are not limited to, statements under the following headings:

- **Item 3. Key Information Risk Factors Risks Relating to Our Industry** Our future results of operations could suffer from the trend of declining average selling prices for our services , about the trend of declining average selling price;
- **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, we may not be able to maintain or increase our current growth rate and our profits will suffer , about our anticipated capital needs;
- **Item 3. Key Information Risk Factors Risks Relating to Our Business** If we are unable to manage our growth effectively, our growth prospects may be limited and our future profitability may be affected, about our proposed expansion plans;
- **Item 4. Information on the Company Industry Background** , about expected growth in the semiconductor testing and assembly market and the expected compounded annual growth rate for outsourced assembly services;
- **Item 4. Information on the Company Strategy Maintain Our Leading Position in the Independent Testing Market and Strengthen Our Assembly Capability** , about expected rapid growth in the independent testing market and our plan to be a leader in such market;
- **Item 4. Information on the Company Strategy Expand Our Testing and Assembly Services to Modules and Subsystems** , about our plan to expand our products offerings to the manufacture of complete modules and subsystems;
- **Item 4. Information on the Company Strategy Focus on Developing Long-Term Relationships with, and Increase Sales to, Key Customers** , about future dependence by certain customers on sophisticated testing and assembly services provided by independent companies like us;
- **Item 4. Information on the Company Strategy Expand Our Testing and Assembly Services for LCD Driver Semiconductors** , about our plan for expansion for our testing and assembly services for LCD driver semiconductors;
- **Item 4. Information on the Company Facilities** , about our plan for constructing a new production facility in Shanghai;

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

- Item 4. Information on the Company Research and Development , about our plans to significantly increase spending on research and development; and
- Item 5. Operating and Financial Reviews and Prospects , about our assumptions related to our future growth, our expected capacity and utilization rates.

Actual results may be materially different from those indicated by our forward-looking statements. Please see Item 3. Key Information Risk Factors for a discussion of certain factors that may cause actual results to differ materially from those indicated by our forward-looking statements. Some of these forward-looking statements are derived from projections made and published by Gartner Dataquest, the Semiconductor Industry Association and Industrial Technology Information Services. We were not involved in the preparation of these projections.

**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 unaudited Financial Data**

The following tables set out our selected consolidated financial data. The selected unaudited consolidated balance sheet data as of December 31, 2002 and our unaudited consolidated statement of operations and cash flows data for the year ended December 31, 2002 are derived from our unaudited consolidated financial statements included herein and should be read in conjunction with, and are qualified in their entirety by reference to, these unaudited consolidated financial statements, including the notes to these unaudited consolidated financial statements. The selected unaudited consolidated balance sheet data as of December 31, 2001 and our unaudited consolidated statement of operations and cash flows data for the years ended December 31, 2000 and 2001 are derived from our unaudited consolidated financial statements included herein and should be read in conjunction with, and are qualified in their entirety by reference to, these unaudited consolidated financial statements, including the notes to these unaudited consolidated financial statements. The selected unaudited consolidated balance sheet data as of December 31, 1998, 1999 and 2000 and the unaudited consolidated statement of operations and cash flows data for the years ended 1998 and 1999 are derived from our unaudited consolidated financial statements not included herein. These unaudited consolidated financial statements have been prepared and presented in accordance with accounting principles generally accepted in the Republic of China, or ROC GAAP, which differ in some material respects from accounting principles generally accepted in the United States, or US GAAP. Please see Note 22 to our unaudited consolidated financial statements for a description of the principal differences between ROC GAAP and US GAAP for the periods covered by these financial statements. The financial data set out below have been presented as if (1) we have been in existence since July 28, 1997, and (2) we acquired our interest in ChipMOS TECHNOLOGIES INC., or ChipMOS Taiwan, on July 28, 1997.

	Year ended December 31,					
	1998	1999	2000	2001	2002	2002
	NT\$	NT\$	NT\$	NT\$	NT\$	US\$
(in thousands, except per share data)						
<b>Consolidated Statement of Operations Data:</b>						
<b>ROC GAAP:</b>						
Net revenues						
Related parties <sup>(1)</sup>	4,251,348	4,162,381	5,311,125	3,718,979	3,665,384	105,631
Others	213,517	2,221,515	2,913,066	1,526,116	2,860,481	82,435
Total net revenues	4,464,865	6,383,896	8,224,191	5,245,095	6,525,865	188,066
Cost of sales	2,965,839	4,936,431	5,510,992	6,029,309	6,711,706	193,420
Gross profit/(loss)	1,499,026	1,447,465	2,713,199	(784,214)	(185,841)	(5,354)
Income/(loss) from operations	1,150,188	912,532	1,979,300	(1,475,799)	(860,148)	(24,789)
Net non-operating income/(expenses)	152,900	(67,680)	(106,883)	(77,230)	(397,596)	(11,457)
Income/(loss) before income tax, minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary	1,303,088	844,852	1,872,417	(1,553,029)	(1,257,744)	(36,246)
Income tax expense/(benefit)	62,137	(102,115)	333,396	32,413	97,916	2,822
Income/(loss) before minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary	1,240,951	946,967	1,539,021	(1,585,442)	(1,355,660)	(39,068)
Minority interest in ChipMOS Taiwan	(380,724)	(290,435)	(465,708)	450,515	385,375	11,106
Interest in bonuses to directors, supervisors and employees paid by a subsidiary	(92,883)	(70,830)	(115,918)			
Net income/(loss)	767,344	585,702	957,395	(1,134,927)	(970,285)	(27,962)
Weighted-average number of shares outstanding	37,629	44,907	53,911	58,342	58,835	58,835
Earnings/(loss) per share	15.03	11.47	17.76	(19.45)	(16.49)	(0.48)
<b>US GAAP:<sup>(2)</sup></b>						
Net income/(loss)	792,300	631,157	879,815	(993,523)	(913,379)	(26,322)
Weighted-average shares outstanding	49,576	49,912	53,597	58,342	58,835	58,835
Earnings/(loss) per share	15.98	12.65	16.42	(17.03)	(15.52)	(0.44)

(1) Related parties include Mosel Vitelic Inc., or Mosel, Siliconware Precision Industries Co. Ltd., or Siliconware Precision, PlusMOS TECHNOLOGIES INC., or PlusMOS, Billion-Create TECHNOLOGIES Inc., or Billion Create, Ultima Electronics Corp., or Ultima, ProMOS TECHNOLOGIES INC., or ProMOS, ThaiLin Semiconductor Corp., or ThaiLin, CHANTEK ELECTRONIC CO. LTD., or Chantek, Best Home Corp. Ltd., or Best Home, DenMOS TECHNOLOGY Inc., or DenMOS, and Modern Mind Technology Limited, or Modern Mind and ChipMOS TECHNOLOGIES (Shanghai) LTD., or ChipMOS Shanghai. See Note 17 of the notes to the unaudited consolidated financial statements.

(2) Reflects the US GAAP adjustments as described in Note 22 of the notes to the unaudited consolidated financial statements.



## Year ended December 31,

	1998	1999	2000	2001	2002	2002
	NT\$	NT\$	NT\$	NT\$	NT\$	US\$
(in thousands, except operating data)						
<b>Consolidated Statement of Cash Flows Data:</b>						
Depreciation and amortization	897,104	1,470,515	2,013,091	2,815,351	2,820,619	81,283
Capital expenditure	4,350,428	2,849,081	7,022,019	991,968	2,029,471	58,486
Net cash provided by operating activities	941,759	1,498,259	4,295,393	1,620,464	1,463,733	42,179
Net cash used in investing activities	(3,986,596)	(3,264,294)	(7,548,433)	(1,409,718)	(3,135,892)	(90,370)
Net cash provided by (used in) financing activities	1,923,760	1,653,882	4,294,193	(219,775)	2,978,586	85,839
Net increase/(decrease) in cash	(1,121,077)	(112,106)	1,040,810	(9,420)	1,306,427	37,648
<b>Segment Data:</b>						
Net revenues:						
Testing	2,564,307	2,925,223	4,773,124	2,242,677	2,331,057	67,177
Assembly	1,900,558	1,974,731	2,257,038	1,610,879	1,415,196	40,784
LCD			89,913	131,505	991,774	28,581
Turnkey		1,483,942	1,104,116	1,260,034	1,787,838	51,523
Gross profit/(loss):						
Testing	1,289,508	1,162,352	2,119,769	(722,592)	(353,597)	(10,190)
Assembly	209,518	255,094	594,564	197,484	20,905	602
LCD			(10,541)	(272,483)	125,998	3,631
Turnkey		30,019	9,407	13,377	20,853	601
<b>Operating Data:</b>						
Testing gross profit/(loss) margin	50%	40%	44%	(32%)	(15%)	(15%)
Assembly gross profit/(loss) margin	11%	13%	26%	12%	1%	1%
LCD margin			(12%)	(207%)	13%	13%
Turnkey gross margin		2%	1%	1%	1%	1%
Overall gross profit/(loss) margin	34%	23%	33%	(15%)	(3%)	(3%)
Operating margin	26%	14%	24%	(28%)	(12%)	(12%)
ROC GAAP net margin	17%	9%	12%	(22%)	(20%)	(20%)
US GAAP net margin <sup>(1)</sup>	18%	10%	11%	(19%)	(14%)	(14%)

(1) Reflects the US GAAP adjustments as described in Note 22 of the notes to the unaudited consolidated financial statements.

## As of December 31,

	1998	1999	2000	2001	2002	2002
	NT\$	NT\$	NT\$	NT\$	NT\$	US\$
(in thousands)						
<b>Consolidated Balance Sheet Data:</b>						
<b>ROC GAAP:</b>						
Current assets	2,355,898	3,424,379	5,753,869	4,119,647	5,668,754	163,364
Net properties	6,414,301	7,942,980	12,428,838	10,799,607	9,981,758	287,659
Total assets	9,682,077	12,301,176	18,962,966	16,101,282	17,953,711	517,397
Current liabilities	3,042,614	2,450,745	3,209,864	3,020,943	4,083,385	117,677
Long-term debt		2,314,750	3,125,500	1,969,411	4,011,453	115,603
Total liabilities	3,047,133	4,775,158	6,515,766	5,165,380	8,353,254	240,728
Minority interest in ChipMOS Taiwan	2,060,141	2,323,208	3,738,375	3,336,721	2,887,109	83,202
Capital Stock	12,286	14,662	19,048	19,048	19,233	554
Shareholders' equity	4,574,803	5,202,810	8,708,825	7,599,181	6,713,348	193,467
<b>US GAAP<sup>(1)</sup>:</b>						
Total assets	9,064,731	11,901,331	18,554,219	16,123,467	17,903,215	519,335

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Long-term debt		2,314,750	3,125,500	1,969,411	4,011,593	115,608
Shareholders' equity	4,146,489	4,925,236	8,477,542	7,641,024	6,760,185	194,817

(1) Reflects the US GAAP adjustments as described in Note 22 of the notes to the unaudited consolidated financial statements.

## Exchange Rates

References to US\$ and U.S. dollars are to United States dollars and references to NT\$ and NT dollars are to New Taiwan dollars. This annual report contains translations of certain NT dollar amounts into U.S. dollars at specified rates solely for the convenience of the reader. Unless otherwise noted, all translations from NT dollars to U.S. dollars and from U.S. dollars to NT dollars were made at the noon buying rate in The City of New York for cable transfers in NT dollars per U.S. dollar as certified for customs purposes by the Federal Reserve Bank of New York as of December 31, 2002, which was NT\$34.70 to US\$1.00. We make no representation that the NT dollar or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or NT dollars, as the case may be, at any particular rate or at all. On June 26, 2003, the noon buying rate was NT\$34.60 to US\$1.00.

The following table sets out, for the years and the months indicated, information concerning the number of NT dollars for which one U.S. dollar could be exchanged based on the noon buying rate for cable transfers in NT dollars as certified for customs purposes by the Federal Reserve Bank of New York.

	NT dollars per U.S. dollar Noon buying rate			
	Average	High	Low	Period-End
1998	NT\$ 33.55	NT\$ 35.00	NT\$ 32.05	NT\$ 32.27
1999	32.32	33.40	31.39	31.39
2000	31.60	33.25	30.50	33.17
2001	33.82	35.13	32.23	35.08
2002	34.53	35.16	32.85	34.70
December 2002	34.80	34.89	34.70	34.70
January 2003	34.57	34.76	34.40	34.61
February 2003	34.73	34.82	34.61	34.78
March 2003	34.72	34.80	34.58	34.75
April 2003	34.82	34.98	34.79	34.85
May 2003	34.70	34.85	34.60	34.71
June (through June 26) 2003	34.64	34.70	34.52	34.60

Sources: Federal Reserve Statistical Release H.10 (512), 1997-2003, Board of Governors of the Federal Reserve System.

## Risk Factors

### Risks Relating to Our Industry

*Since we are dependent on the highly cyclical semiconductor industry, which has experienced significant and sometimes prolonged downturns, our revenues and earnings may fluctuate significantly.*

Our semiconductor testing and assembly business is affected by market conditions in the highly cyclical semiconductor industry. All of our customers operate in this industry, and variations in order levels from our customers and in service fee rates may result in volatility in our revenues and earnings. From time to time, the semiconductor industry has experienced significant, and sometimes prolonged, downturns. For

example, the aggregate sales in the global semiconductor market in July 1998 was 20% less than in October 1997. This decrease adversely impacted our results of operations for 1999. Prices for testing and assembly services improved due to an upturn in the industry in the second half of 1999 that continued through the second quarter of 2000. The semiconductor industry commenced a downturn in the second half of 2000. As a result of the downturn in the semiconductor industry, our net sales and net income for 2001 were 36% and 219%, respectively, less than the corresponding amounts in 2000. Although the semiconductor industry has recovered to some extent from the downturn and our net sales for 2002 have increased 24% from 2001, and our net loss for 2002 decreased 16% from 2001, we cannot give any assurances that the recovery will continue. Because our business is, and will continue to be, dependent on the requirements of semiconductor companies for independent testing and assembly services, any downturn in the semiconductor industry would reduce demand for our services.

*Any deterioration in the market for end-use applications for semiconductor products would reduce demand for our services and may result in a decrease in our earnings.*

Market conditions in the semiconductor industry depend, to a large degree, on conditions in the markets for end-use applications for electronic products. Any deterioration of conditions in the markets for end-use applications of the semiconductors we test and assemble would reduce demand for our services and, in turn, would likely have a material adverse effect on our financial condition and results of operations. Our revenues are largely attributable to the testing and assembly of semiconductors used in personal computers, consumer electronic products, graphic applications and communications equipment. We believe, based upon an understanding of the business of our customers and informal oral surveys of our current customers, that services performed on semiconductors for personal computers, consumer electronic products and graphic applications accounted for approximately 78% of our revenues in 2002. We also believe, based upon these surveys, that services performed on semiconductors for communications equipment accounted for approximately 21% of our revenues in 2002. These industries are subject to intense competition, and significant shifts in demand could put pricing pressure on our testing and assembly services and have a negative effect on our earnings. Due to the decrease in market demand for personal computers and communications equipment that began in the fourth quarter of 2000, our results of operations in 2000, 2001 and 2002 have been adversely affected.

*Our future results of operations could suffer from the trend of declining average selling prices for our services.*

Historically, prices for our testing and assembly services in relation to any given technology have declined over time. For example the average price of our testing services for synchronous dynamic random access memory semiconductors, or SDRAM, in 2002 was 11% less than the average price of our testing services in 2001. Also the average price of our thin small outline package, or TSOP, assembly services for SDRAM in 2002 was 15% less than the average price of that assembly of SDRAM in 2001. This trend, in part, has been driven by productivity improvements and the general trend towards lower prices for semiconductors of any particular technology over time. We expect that average selling prices for testing and assembly services for any given technology will continue to decline in the future. In addition, we expect the semiconductor industry downturn to continue to exert downward pressure on the average selling price for our testing and assembly services. If we cannot reduce the cost of our testing and assembly services, or shift to higher margin testing and assembly services, our future results of operations could suffer.

*A reversal or slowdown in the outsourcing trend for semiconductor testing and assembly services could reduce our profitability.*

In recent years, integrated semiconductor device manufacturers that have their own in-house testing and assembly capabilities have increasingly outsourced stages of the semiconductor production process, including testing and assembly, to independent companies like us to reduce time and shorten production cycles. In addition, the availability of advance independent semiconductor manufacturing services has also enabled the growth of so-called fabless semiconductor companies that focus exclusively on design and marketing, and that outsource their manufacturing, testing and assembly requirement to independent companies. Our revenues generated from these integrated semiconductor device manufacturers and fabless companies increased from 3% in 1998 to 5% in 2002. We cannot assure you that these companies will continue to outsource their testing and assembly requirements to independent companies like us. A reversal of, or a slowdown in, this outsourcing trend could result in reduced demand for our services and reduce our profitability.

## **Risks Relating to Our Business**

*If we are unable to compete effectively in the highly competitive semiconductor testing and assembly markets, we may lose customers and our income may decline.*

The semiconductor testing and assembly markets are very competitive. We face competition from a number of integrated device manufacturers with in-house testing and assembly capabilities, semiconductor assembly companies with in-house testing capabilities and other independent semiconductor testing and assembly companies.

Our competitors may have access to more advanced technologies and greater financial and other resources than we do. Many of our competitors have shown a willingness to quickly and sharply reduce prices, as they did in 1998 and 2001 to maintain capacity utilization in their facilities during periods of reduced demand. In addition, an increasing number of our competitors conduct their operations in lower cost centers in Asia such as China, Thailand, Vietnam and the Philippines. There were sharp reductions in our prices for testing and assembly of memory and mixed-signal semiconductors commencing in the second half of 2000 and continuing through 2001. In 2002 and the first quarter of 2003, prices for testing and assembly of memory and mixed-signal semiconductors have remained relatively stable. However, we cannot assure you that there will be no further price reductions. Any renewed or continued erosion in the prices or demand for our testing and assembly services as a result of increased competition could cause our profits to be adversely affected.

*We are highly dependent on the market for memory products. A downturn in the market for these products could significantly reduce our revenues and income.*

A significant percentage of our net revenues is derived from testing and assembling memory semiconductors. Our revenues derived from the testing and assembly, both separately and as part of semiconductor turnkey services, of memory semiconductors accounted for 85% of our total revenues in 2000, 73% of our total revenue in 2001 and 57% of our total revenue in 2002. We have been experiencing significant price reductions in testing and assembly of memory semiconductors since the second half of 2000 along with the drop in the average selling price of dynamic random access memory, or DRAM. The average selling price for DRAM declined 34% in 2002 from 2001. We cannot assure you that there will be no further decrease in DRAM prices. Any failure of the demand for DRAM to increase or any further decrease in the demand for memory products may therefore decrease the demand for our services and significantly reduce our revenues and income.

*Lack of significantly increased market demand for liquid crystal display driver semiconductor will adversely affect our profitability and may cause our losses to increase.*

We began offering testing and assembly services for liquid crystal display driver semiconductors, or LCD driver semiconductors, using tape carrier packages technology in the second quarter of 2000. In 2000, 2001 and 2002, we spent NT\$1,146 million, NT\$374 million and NT\$1,232 million, respectively, on equipment for tape carrier package technology. The majority of the equipment that we have and expect to purchase may not be used for services other than tape carrier package services. During 2000, 2001 and 2002 we had revenues of approximately NT\$90 million, NT\$132 million and NT\$992 million respectively, from testing and assembly services for LCD driver semiconductors. If demand for these services generally, and specifically the LCD driver semiconductor testing and assembly services we provide, does not increase significantly, our capacity utilization rates will be impaired, which will have an adverse impact on our profitability. Also, the significant depreciation expense for the equipment used for LCD driver semiconductor testing and assembly services may be greater than the revenues we generate from such services, which would cause our earnings to decrease.



*Our results of operations are subject to significant fluctuations, which may cause unexpected significant declines in the market price of our common shares.*

Our results of operations have varied significantly from period to period and may continue to vary in the future. Among the more important factors affecting our quarterly and annual results of operations are the following:

our ability to accurately predict customer demand, as we must commit to significant capital expenditures in anticipation of future orders;

our ability to quickly adjust to unanticipated declines or shortfalls in demand and market prices for our testing and assembly services, due to our high percentage of fixed cost;

changes in prices for our testing and assembly services;

volume of orders relative to our testing and assembly capacity;

capital expenditures and production uncertainties relating to the roll-out of new testing or assembly services;

our ability to obtain adequate testing and assembly equipment on a timely basis; and

changes in costs and availability of raw materials, equipment and labor.

changes in our product mix; and

earthquakes, drought and other natural disasters, as well as industrial accidents.

Due to the factors listed above, it is possible that our future results of operations or growth rates may be below the expectations of research analysts and investors. If so, the market price of our shares, and the market value of your investment, may fall.

*We depend on Mosel and other key customers for a substantial portion of our revenues and a loss of, or deterioration of the business of, any one of these customers would result in the loss of a significant portion of our revenues.*

We are dependent on a small group of customers for a substantial portion of our business. Mosel which is our largest customer, accounted for approximately 49% of our revenue in 2000, 48% in 2001 and 35% in 2002. Our second largest customer, Ultima, accounted for approximately 11% of our net revenue in 2000, 22% in 2001 and 19% in 2002. As of May 31, 2003, Mosel indirectly owned approximately 44.04% of our outstanding common shares through its wholly owned subsidiary, Giant Haven Investments Ltd.



We expect that we will continue to depend on a relatively limited number of customers for a significant portion of our revenue. Any adverse development in our key customers' operations, competitive position or customer base could have a material adverse effect on our business, future revenues and profitability. The recent decline in market demand for semiconductors and, in particular, the substantial decrease in the average selling price of DRAM, commencing in the fourth quarter of 2001, has adversely impacted Mosel. Our revenues derived from the testing and assembly of DRAM has decreased 46% from 2000 to 2001 and 60% from 2001 to 2002. In addition, since new customers usually require that we pass a lengthy and rigorous qualification process, if we lose any of our key customers, we may not be able to replace them in a timely manner. Also, semiconductor companies generally rely on service providers with which they have established relationships to meet their testing and assembly needs for existing and future applications. If any of our key customers reduces, delays or cancels its orders, any inability on our part to attract new key customers or shift our excess capacity to production for our remaining customers could materially adversely impact our business.

***Due to the high proportion of our total costs that are fixed, if we are unable to achieve relatively high capacity utilization rates, we will be unable to reverse our recent losses or achieve or surpass our past profitability levels.***

Our operations are characterized by a high proportion of fixed costs. For testing of memory and mixed signal semiconductors, our fixed costs represented 83% of our total costs in 2001 and 53% of our total costs in 2002. For assembly of memory and mixed signal semiconductors, our fixed costs represented 42% of our total costs in 2001 and 44% of our total costs in 2002. For LCD driver semiconductor testing and assembly services, our fixed costs represented 64% of our total costs in 2001 and 52% of our total costs in 2002. Our profitability depends in part not only on absolute pricing levels for our services, but also on the utilization rates for our testing and assembly equipment, commonly referred to as capacity utilization rates. Increases or decreases in our capacity utilization rates can have a significant effect on gross margins since the unit cost of testing and assembly services generally decreases as fixed costs are allocated over a larger number of units. As a result of the decline in the market demand for semiconductors that began in the second half of 2000, our average capacity utilization rate for testing of memory and mixed signal semiconductors decreased from 77% in 2000 to 47% in 2001, and our average capacity utilization rate for assembly of memory and mixed signal semiconductors decreased from 53% in 2000 to 43% in 2001. For 2002, our utilization rate for testing of memory and mixed signal semiconductors was 69%, our utilization rate for assembly of memory and mixed signal semiconductors was 60%, and our utilization rate for LCD driver semiconductor testing and assembly was 62%. If we fail to further increase our utilization rates we may be unable to return to profitability.

***The complexity of the semiconductor testing and assembly processes increases the costs and high production risks of our business.***

Semiconductor testing and assembly involves significant technological and process expertise and require high levels of precision. To improve capacity utilization and efficiency in our testing operations, we maintain advanced equipment and develop software conversion programs which enable us to test semiconductors utilizing different testing platforms. If we fail to successfully develop software conversion programs or if we are unable to effectively reduce the lead time necessary to adjust our testing equipment to be compatible with our customers' semiconductors, our operational efficiency could suffer.

In addition, our testing and assembly operations take place in clean rooms where air purity, temperature and humidity are controlled. If we are unable to effectively control our testing and assembly environment, semiconductors could be damaged. We have from time to time experienced, and may in the future experience, production interruptions due to technical problems or operator errors in our testing and assembly processes. Any interruption in our operations could have a material adverse effect on 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, we may not be able to maintain or increase our current growth rate and our profits will suffer.***

Our capital requirements are difficult to plan in our highly cyclical and rapidly changing industry. To remain competitive, we will need capital to fund the expansion of our facilities as well as to fund our equipment purchases and research and development activities. We believe that our current cash and cash equivalents and cash flow from operations and available credit facilities will be sufficient to meet our working capital and capital expenditure requirements under our existing arrangements, through the end of 2004, except for our investment in a new production facility in Shanghai. We will need to raise additional funds of approximately US\$250 million by the end of 2005 for the investment in our planned production facility in Shanghai. In addition, 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 testing and assembly companies; and

economic, political and other conditions in Taiwan and elsewhere.

In addition, we may be unable to accurately estimate the timing and amount of our capital requirements, which depend on a number of factors, including demand for our services and availability of equipment. If we are unable to obtain funding in a timely manner or on acceptable terms, we may be unable to complete our facility in Shanghai and our growth prospects and potential future profitability will suffer.

***If we are not able to respond to rapid technological changes in the semiconductor industry, we may become less competitive and less profitable.***

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 offer more sophisticated testing and assembly technologies and processes in order to respond to competitive industry conditions and customer requirements. If we fail to improve production efficiency, shift to higher-margin services and develop, or obtain access to, advances in testing or assembly 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 assembled or tested with older technologies or processes. As a result, if we cannot reduce the costs associated with our services, the profitability on a particular service and our overall profitability may decrease over time.

***Disputes over intellectual property rights could be costly and deprive us of technology necessary for us to stay competitive.***

Our ability to compete successfully and achieve future growth will depend, in part, on our ability to protect our proprietary technology and to secure on commercially acceptable terms critical technology that we do not own. We cannot assure you that we will be able to independently develop, or secure from any third party, the technology required for our testing and assembly services. Our failure to successfully obtain this technology may seriously harm our competitive position.

Our ability to compete successfully also depends on our ability to operate without infringing upon the proprietary rights of others.

The semiconductor testing and assembly industry is characterized by frequent litigation regarding patent and other intellectual property rights. We may suffer legal liabilities and damages if we infringe on the intellectual property or other proprietary rights of others or incur costs resulting from legal claims and adverse proceedings against us. Despite this, we have no means of knowing what patent applications have been filed in the United States or elsewhere until they are granted.

If any third party were to make valid intellectual property infringement claims against us or our customers, we could be required to:

discontinue using disputed process technologies which would prevent us from offering some of our testing and assembly services;

pay substantial monetary damages;

seek to develop non-infringing technologies, which may not be feasible; or

seek to acquire licenses to the infringed technology, which may not be available on commercially reasonable terms, if at all.

Any one of these developments could place substantial financial and administrative burdens on us and hinder our business. Litigation, which could result in substantial costs to us and diversion of our resources, may also be necessary to enforce our patents or other intellectual property rights or to defend us or our customers against claimed infringement of the rights of others. If we fail to obtain necessary licenses or if litigation relating to patent infringement or other intellectual property matters occurs, it could prevent us from manufacturing particular products or using particular technologies, which could reduce our opportunities to generate revenues.

***If we are unable to obtain raw materials and other necessary inputs from our suppliers in a timely manner, our production schedules would be delayed and we may lose customers and become less profitable.***

Our operations require us to obtain sufficient quantities of raw materials at acceptable prices in a timely manner. We source most of our raw materials, including critical materials like leadframes, organic substrates, epoxy, gold wire and molding compound for assembly, and tapes for tape carrier packages, from a limited group of suppliers. We purchase all of our materials on a purchase order basis and have no long-term contracts with any of our suppliers. From time to time, suppliers have extended lead times, increased the price or limited the supply of required materials to us because of limited supply. Consequently, we may, from time to time, experience difficulty in obtaining sufficient quantities of raw materials on a timely basis. In addition, from time to time, we may reject materials that do not meet our specifications, resulting in declines in output or yield. Although we typically maintain at least two suppliers for each key raw material, we cannot assure you that we will be able to obtain sufficient quantities of raw materials and other supplies of an acceptable quality in the future. It usually takes from three to six months to switch from one supplier to another, depending on the complexity of the raw material. As we implement our strategy of producing modules and subsystems, we will have to significantly change and expand the nature of raw materials and other inputs that we are required to purchase. Many of the new inputs we need to purchase will be mechanical or other non-semiconductor related products such as flat-panel displays or ink-jet printer heads. We currently do not have any arrangements with suppliers to provide the additional inputs that will be required for the modules and subsystems we currently contemplate producing. As a result, we cannot assure you that we will initially be able to purchase supplies of our non-semiconductor related inputs for our modules and subsystems. Any inability to obtain raw materials and other necessary inputs for our modules and subsystems in a timely and cost-effective manner would cause us to delay our production and delivery schedules, which may result in the loss of our customers and revenues.

***If we are unable to obtain additional testing and assembly equipment or facilities in a timely manner and at a reasonable cost, we may become less competitive and less profitable.***

The semiconductor testing and assembly business is capital intensive and requires significant investment in expensive equipment manufactured by a limited number of suppliers. The market for semiconductor testing and assembly 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 equipment from a limited number of suppliers in a timely manner. For example, there was in most of 2000 a shortage of testers due to significant global demand, and the lead time for the delivery of testers was six months or more following the time when orders were placed. We have no binding supply agreements with any of our suppliers and we acquire our testing and assembly equipment on a purchase order basis, which exposes us to changing market conditions and other substantial risks. Semiconductor testing and assembly also requires 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 negatively impact our financial condition and results of operations as well as our growth prospects.

*If we are unable to manage our expansion effectively, our growth prospects may be limited and our future profitability may be affected.*

We expect to continue to expand our operations and increase the number of our employees. Rapid expansion puts strain on our managerial, technical, financial, operational and other resources. As a result of our expansion, we will need to implement additional operational and financial controls and hire and train additional personnel. We cannot assure you that we will be able to do so in the future, and our failure to do so could jeopardize our expansion plans and seriously harm our operations.

*We depend on key personnel, and our revenues could decrease and our costs could increase if we lose their services.*

We depend on the continued service of our executive officers and skilled engineering, technical and other personnel. We will also be required to substantially increase the number of skilled employees in connection with our expansion plans, and there is intense competition for skilled employees in the semiconductor industry. In particular, we depend on a number of skilled employees in connection with our LCD driver semiconductor testing and assembly services, and the competition for such employees in Taiwan and mainland China is intense. We may not be able to either retain our present personnel or attract additional qualified personnel as and when needed. Moreover, we do not carry key person insurance on any of our executive officers, we do not have employment contracts with any of our executive officers or employees, and none of our executive officers or employees is bound by any non-competition agreement. If we lose any of our key personnel, it could be very difficult to find and integrate replacement personnel, which could seriously harm our business. In addition, we may need to increase employee compensation levels in order to retain our existing officers and employees and to attract the additional personnel that we expect to require. 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 regulations in Taiwan 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 reasonable cost.

*Our customers generally do not place purchase orders far in advance, which makes it difficult for us to predict our future revenues and to adjust production costs and allocate capacity efficiently and on a timely basis.*

Our customers generally do not place purchase orders far in advance and our contracts with customers do not require minimum purchases of our products or services. In addition, our customers' purchase orders have varied significantly from period to period because demand for their products is often volatile. As a result, it is difficult for us to forecast our revenues for future periods and our results of operations may fluctuate from period to period. Moreover, our expense levels are based in part on our expectations of future revenues and we may be unable to adjust costs in a timely manner to compensate for revenue shortfalls. We expect that in the future our revenues in any quarter will continue to be substantially dependent upon purchase orders received in that quarter. We cannot assure you that any of our customers will continue to place orders with us in the future at the same levels as in prior periods. We also cannot assure you that our customers' orders will be consistent with our expectations when we made or make the necessary investments in raw materials, labor and equipment.

*Potential conflicts of interest with our major shareholder, whose chairman is the same as ours, may cause us to turn down orders from other customers or lose opportunities to improve our technologies.*

As of May 31, 2003, Mosel indirectly owned approximately 44.04% of our outstanding equity securities through its wholly owned subsidiary, Giant Haven Investments Ltd. Mosel designs and manufactures semiconductor products, including static random access memory, which is a type of non-volatile memory product used in electronic systems to store data and program instructions, and flash memory, a type of non-volatile memory product that is erasable and reprogrammable. Mosel designs and through its 36% owned affiliate, ProMOS, manufactures dynamic random access memory, a type of volatile memory product that is used in electronic systems to store data and program instructions that can be retrieved in a non-sequential fashion. Mosel is also engaged in the semiconductor testing and assembly business through its shareholding in our company and in the semiconductor module services business through its 35% direct shareholding in PlusMOS. We, through ChipMOS Taiwan,

own a 25% shareholding in PlusMOS.

Mosel, with its significant ownership interest in us, has the ability to influence our major business decisions, including the allocation of testing and assembly service capacities and the development of our testing and assembly technologies. Mosel's involvement in the testing and assembly business may lead to conflicts of interest in providing testing and assembly services to our other customers. Such a situation would damage our relationship with our other customers and could encourage them to seek testing and assembly services from our competitors in the future. In addition, our chairman and some of our directors hold the same position at Mosel. As a result, conflicts of interest between his duty to Mosel and us may arise. We cannot assure you that when conflicts of interest arise, Mosel's directors on our board will act completely in our interests, or that conflicts of interest will be resolved in our favor. These conflicts may result in the loss of existing or potential customers or the loss of opportunities to improve our technologies.

*Mosel controls our company, which could disadvantage other investors.*

As of May 31, 2003, Mosel indirectly owned approximately 44.04% of our outstanding common shares, through its wholly owned subsidiary, Giant Haven Investments Ltd. As a result, Mosel effectively controls all matters submitted to our shareholders for approval. These matters could include:

election of directors;

approval of contracts between us and Mosel, Siliconware Precision or their affiliates, which could involve conflicts of interest; and

open market purchase programs or other purchases of our common shares.

Mosel's substantial interests in our company could also:

delay, defer or prevent a change in who controls us;

discourage bids for our shares at a premium over the market price; and

adversely affect the market price of our shares.

*Mosel, our majority shareholder as well as our largest customer, has been experiencing significant liquidity and other financial difficulty, which may adversely affect our financial condition and results of operations.*

In 2000, Mosel issued an aggregate amount of US\$158.5 million index bonds due 2003 and pledged 889.5 million common shares, representing 25% of the common shares of its affiliate, ProMOS Technologies Inc., or ProMOS, against the repayment of the bonds. In addition, Mosel issued an aggregate amount of US\$66.3 million convertible bonds due 2003. Mosel was required to repay a total amount of US\$158.5 million to the holders of the outstanding index bonds on April 25 and 26, 2003 and a total amount of US\$66.3 million to the holders of the outstanding convertible bonds on May 20, 2003. The downturn of the semiconductor industry commencing in the second half of 2000 and the substantial decrease in Mosel's average selling price for DRAM commencing in the fourth quarter of 2001 have adversely affected the financial condition and results of operations of Mosel. As a result, Mosel did not have sufficient cash on hand and credit available to meet these repayment obligations. On May 28, 2003, Mosel reached a settlement with all the holders of its index bonds. Under this settlement, Mosel is required to pay 35% of the principal amount outstanding of the index bonds as of June 2, 2003, and the remaining principal amount and interest payments in the



## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

next 10 months by installments. With respect to the US\$66.3 million convertible bonds due 2003, Mosel has repaid 38% of the principal amount of the convertible bonds outstanding and is currently in the process of negotiating with the bondholders to delay the payment of or restructure the remaining convertible bonds. The Taiwan Stock Exchange announced the suspension of trading of Mosel's common shares on May 19, 2003, as Mosel failed to provide the Taiwan Stock Exchange with its results of operations for the three months ended March 31, 2003 and for the year ended December 31, 2002.

-12-

If the financial condition and results of operations of Mosel continue to deteriorate further, Mosel may need to pledge or sell our common shares to obtain additional capital. Any pledge or sale of our common shares by Mosel could result in a change of control in our company. In addition, since the deterioration of Mosel's business we have experienced, and may continue to experience, a decrease in demand of our services from Mosel. Furthermore, we may not be able to benefit from our strategy to leverage our affiliations with Mosel and ProMOS to strengthen our service offering as Mosel may lose its customers or its ownership in ProMOS. Any failure to replace Mosel's demand in a timely manner or inability to benefit from our strategy would have an adverse material effect on our financial condition and results of operations.

Moreover, because Mosel has the power to direct or influence our corporate actions, our company may be required to engage in certain transactions that our other shareholders may not agree with or that may not be in the best interests of our other shareholders. On April 25, 2003, we purchased from certain third party bondholders an aggregate amount of NT\$290 million of the outstanding Mosel index bonds described above. In connection with this purchase we received approximately 50 million ProMOS shares as security against repayment of those bonds. Following the restructuring of the index bonds, in early June 2003 we sold the pledged ProMOS shares for an aggregate amount of approximately NT\$400 million. We retained approximately NT\$300 million in satisfaction of the index bonds we held, and returned the remaining amount to Mosel as excess collateral realization. If we acquire debt or other securities of Mosel in the future, there can be no assurance that we will be able to resell such securities or otherwise recoup any or all of our money used to acquire them.

***Potential defaults by Mosel under the terms of the joint venture agreement between Mosel and Siliconware Precision regarding the operation of ChipMOS Taiwan could harm our relationship with Mosel or require us to dilute our shareholding in ChipMOS Taiwan.***

Under the terms of the joint venture agreement between Mosel and Siliconware Precision regarding the operation of ChipMOS Taiwan, Mosel has agreed to cooperate with Siliconware Precision to ensure that the shares of ChipMOS Taiwan be listed on the Taiwan Stock Exchange or other stock exchange or the Republic of China Over-the-Counter Securities Exchange. Mosel has also agreed to maintain an equity interest in ChipMOS Taiwan of at least 29% for five years after such listing. We currently have no plans to seek such a listing by ChipMOS Taiwan, and Mosel currently has no direct equity interest in ChipMOS Taiwan. There can be no assurance that Siliconware Precision may not in the future seek to enforce against Mosel its obligations under the joint venture agreement. Remedies for breaches by Mosel of, or non-compliance by Mosel with, the terms of the joint venture agreement may include payment of damages by Mosel to Siliconware Precision and the right for Siliconware Precision to purchase additional shares of ChipMOS Taiwan owned by Mosel or to force Mosel to purchase Siliconware Precision's shares of ChipMOS Taiwan. These payments could result in a distraction to or a strain upon the resources of Mosel or adversely affect Mosel's financial condition, which could in turn adversely affect our relationship with Mosel, and could affect the ownership interests in and control of ChipMOS Taiwan or us. As a result of any breach by Mosel of the joint venture agreement, Siliconware Precision's right to purchase ChipMOS Taiwan shares from Mosel would be limited to the number of ChipMOS Taiwan shares then owned by Mosel, and Siliconware Precision would be entitled to require Mosel to purchase all of the ChipMOS Taiwan shares then owned by Siliconware Precision. There can be no assurance that resolution of any disputes between Siliconware Precision and Mosel in this regard will not have an adverse effect on our business or financial condition.

***Potential conflicts of interest with Siliconware Precision could interfere with our ability to conduct the operations of ChipMOS Taiwan.***

As of May 31, 2003, Siliconware Precision owned 28.73% of the outstanding equity securities of ChipMOS Taiwan. Siliconware Precision provides testing and assembly services for logic and mixed signal semiconductors. Under the terms of the joint venture agreement between Mosel and Siliconware Precision regarding the operation of ChipMOS Taiwan, Siliconware Precision is entitled to nominate two of the seven board members of ChipMOS Taiwan. Currently, two of our directors hold the same position at Siliconware Precision. As a result, conflicts of interest between those directors' duty to Siliconware Precision and us may arise. We cannot assure you that when conflicts of interest arise, Siliconware Precision's directors on our board will act completely in our interests or that conflicts of interest will be resolved in our favor. These conflicts may result in the loss by us of existing or potential customers to Siliconware Precision.

***Bermuda law may be less protective of shareholder rights than U.S. or other laws.***

Our corporate affairs are governed by our memorandum of association, our bye-laws and laws governing corporations incorporated in Bermuda. Shareholder suits such as class actions (as these terms are understood with respect to corporations incorporated in the United States) are generally not available in Bermuda. Therefore, our shareholders may be less able under Bermuda law than they would be under U.S. law to protect their interests in connection with actions by our management, members of our board of directors or our controlling shareholder.

***It may be difficult to bring and enforce suits against us in the United States.***

We are incorporated in Bermuda and some of our directors and most of our officers are not residents of the United States. A substantial portion of our assets is located outside the United States. As a result, it may be difficult for our shareholders to serve notice of a lawsuit on us or our directors and officers within the United States. Because most of our assets are located outside the United States, it may be difficult for our shareholders to enforce in the United States judgments of United States courts. Appleby Spurling & Kempe, our counsel in Bermuda, has advised us that there is some uncertainty as to the enforcement in Bermuda, in original actions or in actions for enforcement of judgments of United States courts, of liabilities predicated upon United States federal securities laws.

***Future environmental regulations may require us to spend additional funds, may impose significant liability on us for present, past or future actions, and may dramatically increase the cost of providing our services to our customers.***

We are subject to a variety of laws and regulations relating to the use, storage, discharge and disposal of chemical by-products of, and water used in, our assembly process. Although we have not suffered material environmental claims in the past, a failure or a claim that we have failed to comply with any future regulations could result in the assessment of damages or imposition of fines against us, suspension of production or a cessation of our operations or negative publicity. New regulations could require us to acquire costly equipment or to incur other significant expenses. Any failure on our part to control the use of, 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.

***Fluctuations in exchange rates could result in foreign exchange losses.***

Currently, the majority of our revenues from testing and assembly services are denominated in NT dollars. Our costs of revenues and operating expenses associated with testing and assembly services, on the other hand, are incurred in several currencies, including NT dollars, Japanese yen

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

and U.S. dollars. In addition, a substantial portion of our capital expenditures, primarily for the purchase of testing and assembly equipment, has been, and is expected to continue to be, denominated in Japanese yen with much of the remainder in U.S. dollars. We also have debt denominated in NT dollars, Japanese yen, U.S. dollars and Renminbi. Fluctuations in exchange rates, primarily among the U.S. dollar, the NT dollar and the Japanese yen, will affect our costs and operating margins in NT dollar terms. In addition, these fluctuations could result in exchange losses and increased costs in NT dollar terms. For example, we recorded foreign exchange gains of NT\$75 million in the year ended December 31, 2000, foreign exchange gains of NT\$55 million in the year ended December 31, 2001 and foreign exchange losses of NT\$62 million in 2002. Despite selective hedging and other mitigating techniques implemented by us, fluctuations in exchange rates have affected, and may continue to affect, our financial condition and results of operations.

*We may increase our inventory as a result of our strategy to expand our services to manufacturing modules and subsystems, which, in turn, could increase our working capital requirements.*

In order to expand our services to the manufacturing of modules and subsystems, such as memory modules, liquid crystal modules and ink-jet print head modules, we plan to purchase wafers, liquid crystal display panels, color filters, polarizer film, ink-jet print heads and other inputs related to our module and subsystems business. We anticipate that we will have to purchase many of these inputs in advance of our completion of the production of the corresponding module or subsystem and thus will hold some of these inputs, either alone or as part of work in progress, in inventory for a period of time. As a result, although we will try to minimize the time between purchase of the inputs and sale of the final modules or subsystems, we will be subject to the risk that the value of such inputs and work in progress will decline, perhaps significantly, prior to the completion of production and sale of the final module or subsystem.

Historically, companies in the semiconductor and liquid crystal display industry have expanded aggressively during periods of increased demand. As a result, periods of excess capacity, overproduction, inventory buildup, rapid declines in the average selling prices and technological obsolescence in the semiconductor or liquid crystal display industry have frequently followed periods of increased demand. Both the semiconductor and liquid crystal display industries have experienced deteriorating market conditions commencing at the end of 2000. This may result in an increase in our inventory levels, a decline in the average selling price of our products and a corresponding decrease in the stated value of our inventories. We cannot assure you that we will be able to maintain our inventories at a satisfactory level or that we will not incur losses on inventories in the future.

#### **Risks Relating to Countries in Which We Conduct Operations**

*Our investment in China may result in Mosel violating ROC laws governing investment in mainland China by ROC companies or persons. Any sanctions on Mosel as a result of any violation of ROC laws may cause Mosel to decrease its ownership in us to less than 20% or cause Mosel to take other actions that are not necessarily in the best interests of our other shareholders.*

The laws of the ROC regulate investment in mainland China by any entity organized in the ROC. These laws specifically prohibit any investment in mainland China in the semiconductor testing and assembly industry. Investment is defined for this purpose to mean:

establishing a new company or enterprise;

increasing one's equity interest in an existing company or enterprise in mainland China;

acquiring shares of an existing company or enterprise in mainland China, excluding shares of companies that are publicly traded; or

establishing or expanding a branch office in mainland China.

Under accounting principles that are applicable to us, Modern Mind is one of our controlled consolidated subsidiaries. ChipMOS Shanghai is a wholly owned subsidiary of Modern Mind. We do not own any shares in Modern Mind.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Because these regulations apply only to entities organized within the ROC, they are not directly applicable to ChipMOS Bermuda's investments in mainland China, such as ChipMOS Bermuda's investment in ChipMOS Shanghai. Under the current applicable regulations of ROC, however, if a company incorporated in the ROC has directly or indirectly invested in a company incorporated outside of the ROC and has the controlling power over the management and operations of that non-ROC company, investment by the non-ROC company in the PRC shall constitute an investment by the ROC shareholder that is subject to the ROC laws and regulations. Accordingly, for the purposes of these regulations, ChipMOS Bermuda's investment activities in mainland China may be deemed to be an investment in mainland China by Mosel if Mosel is determined to have controlling power over our management and operation. While there is no formal definition of what constitutes controlling power over management and operation of a non-ROC company for purposes of the regulations, we understand that Mosel may be considered by the ROC investment commission to have controlling power over our management and operations if it owns in excess of 20% of our common shares or has any representatives on our board of directors.

On May 29, 2003, in order to decrease the risk that it is in violation of the applicable ROC laws and regulations governing investment in mainland China, Mosel reduced its ownership of our equity interest from 64.08% to approximately 44.04% through a sale of our common shares to third party purchasers.

In the event that Mosel is determined to be in violation of the applicable ROC laws and regulations governing investment in mainland China, Mosel may be ordered by the ROC government to cease such investment activities in mainland China within a period of time to be specified by the ROC government and may be subject to a fine of between NT\$1 million and NT\$5 million. Mosel could comply with the order of the ROC investment commission either by causing us to terminate our investment activities in mainland China or by taking actions which will cause Mosel to cease to have controlling power over our management and operations. If Mosel does not take either of these actions within the prescribed period, consecutive fines may be imposed on Mosel. While Mosel has provided us with a written undertaking [in which Mosel agrees to address any of Mosel's legal concerns related to our investment in ChipMOS Shanghai without causing us to take any actions to terminate or dispose of our investment in ChipMOS Shanghai or otherwise affect our business relationship with ChipMOS Shanghai], our willingness to enforce such an agreement against Mosel may be influenced by Mosel's ability to influence our business decisions. We can provide no assurances that any actions taken by Mosel to address any orders by the ROC investment commission will be in the best interests of our other shareholders. See Potential conflicts of interest with our major shareholder, whose chairman is the same as ours, may cause us to turn down orders from other customers or lose opportunities to improve our technologies. Any termination or disposal of our operations in mainland China would have a material adverse effect on our financial condition, results of operations or prospects, as well as the market price of our common shares.

***The recent outbreak of severe acute respiratory syndrome in Taiwan may materially and adversely affect our business and operations, as well as our financial condition and results of operations.***

Since early 2003, Taiwan, mainland China, Hong Kong, Singapore and certain other areas have been experiencing an outbreak of a new and highly contagious form of atypical pneumonia now known as severe acute respiratory syndrome, or SARS. According to the World Health Organization, 8,360 cases of SARS and more than 760 deaths had been reported worldwide as of May 31, 2003. We cannot predict at this time the effect this outbreak could have on our company. In particular, this outbreak may generally disrupt our operations. Furthermore, this outbreak may restrict the level of economic activity in affected areas, which may also adversely affect our business and prospects. We have taken various preventive measures and established contingency plans to ensure the safety of our employees and fabs, and to reduce the adverse impact, if any, in case any of our employees contracts SARS. However, we cannot assure you that the recent outbreak of severe acute respiratory syndrome would not have a material adverse effect on our financial condition and results of operations.

***Adverse economic conditions in Asia could negatively affect our business, cause the demand for our services to decrease materially and increase the cost of our services in currencies other than the NT dollar.***

Our testing and assembly facilities are located in Taiwan, and our customers are primarily located in Taiwan, the United States and Japan. As a result, our business is subject to various uncertainties beyond our control, such as:

changes in laws and policies affecting trade and investment, including foreign exchange controls; and  
  
developing local infrastructure.

In addition, the currencies of several countries in Asia, including Taiwan, where all of our operating facilities are located and where many of our customers have facilities, have experienced substantial depreciation and volatility since July 1997. In response to this depreciation and volatility, some governments in the region took drastic steps to stabilize their currencies, including raising official interest rates.

*Strained relations between the Republic of China and the People's Republic of China could negatively affect our business and the market price of our shares.*

Our principal executive offices and our testing and assembly facilities are located in Taiwan. The Republic of China has a unique international political status. The People's Republic of China does not recognize the legitimacy of the Republic of China. Although significant economic and cultural relations have been established during recent years between the Republic of China and the People's Republic of China, relations have often been strained. The government of the People's Republic of China has indicated that it may use military force to gain control over Taiwan in some circumstances, such as a declaration of independence by Taiwan, the prolonged delay by the Republic of China to commence reunification negotiations, foreign power interference in Taiwanese affairs or the refusal by the Republic of China to accept the People's Republic of China's stated "one China" policy. In elections held on December 1, 2001, the Democratic Progressive Party became the political party controlling the largest number of seats in Taiwan's Legislature. Past developments in relations between the Republic of China and the People's Republic of China have on occasion depressed the market prices of the securities of Taiwanese companies, including our own. Relations between the Republic of China and the People's Republic of China and other factors affecting military, 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.

*We are vulnerable to disasters and other disruptive events.*

We currently provide most of our testing services through our facilities in the Hsinchu Science Park and in the Kaohsiung Export Processing Zone in Taiwan and all of our assembly services through our facility in the Tainan Science Park in Taiwan. Significant damage or other impediments to these facilities as a result of natural disasters, industrial strikes or industrial accidents could significantly increase our operating costs.

Taiwan is particularly susceptible to earthquakes. On September 21, October 22 and November 2, 1999, Taiwan experienced severe earthquakes that caused significant property damage and loss of life, particularly in the central part of Taiwan. These earthquakes damaged production facilities and adversely affected the operations of many companies involved in the semiconductor and other industries. We experienced NT\$1.3 million in damages to our machinery and equipment, NT\$5.5 million in damages to our facilities, NT\$0.9 million in damages to our inventory and five days of delay in our production schedule as a result of these earthquakes. Taiwan experienced additional, less severe earthquakes on May 17, 2000, June 11, 2000, and March 31, 2002.

In addition, the production facilities of many of our suppliers and customers and providers of complementary semiconductor manufacturing services, including foundries, are located in Taiwan. If our customers are affected, it could result in a decline in the demand for our testing and assembly services. If our suppliers and providers of complementary semiconductor manufacturing services are affected, our production schedule could be interrupted or delayed. As a result, a major earthquake, natural disaster or other disruptive event in Taiwan could severely disrupt the normal operation of business and have a material adverse effect on our financial condition and results of operations.



### **Risks Relating to Our Holding Company Structure**

*Our ability to receive dividends and other payments from our subsidiary may be restricted by commercial, statutory and legal restrictions.*

We are a holding company, and our only significant asset is our ownership interest in ChipMOS Taiwan. Dividends we receive from our subsidiary, if any, will be subject to taxation. The ability of our subsidiary to pay dividends, repay intercompany loans from us or make other distributions to us is restricted by, among other things, the availability of funds, the terms of various credit arrangements entered into by our subsidiary as well as statutory and other legal restrictions. In addition, although there are currently no foreign exchange control regulations which restrict the ability of our subsidiary to distribute dividends to us, we cannot assure you that the relevant regulations will not be changed and that the ability of our subsidiary to distribute dividends to us will not be restricted in the future.

*Our ability to make further investments in ChipMOS Taiwan may be dependent on regulatory and shareholder approvals.*

ChipMOS Taiwan is dependent on us for future equity-related financings, and any capital contribution by us to ChipMOS Taiwan may require the approval of the relevant authorities in the Republic of China. For example, any capital contribution by us to ChipMOS Taiwan will require the approval of the authorities of the Science-Based Industrial Park Administration. We may not be able to obtain any such approval in the future in a timely manner or at all. In addition, the joint venture agreement between Mosel and Siliconware Precision requires that any increase in capital by ChipMOS Taiwan must be approved by the shareholders of ChipMOS Taiwan, including Siliconware Precision. Siliconware Precision has a right, under the laws of the Republic of China, to purchase its pro rata share of any capital increase by ChipMOS Taiwan.

### **Risks Relating to Our Common Shares**

*Our Common Shares are subject to removal from the Nasdaq National Market if our Common Shares fail to maintain a minimum bid price of US\$1.00.*

Under the rules of the Nasdaq National Market, our Common Shares are subject to removal if the minimum bid price for our Common Shares fails to remain at or above US\$1 for a period of 30 consecutive business days. During the period from June 19, 2001 through May 31, 2003, the market price of our Common Shares ranged from US\$0.85 to US\$5.30. We can give no assurance that the bid price of our Common Shares will remain above US\$1.00.

*Volatility in the price of our common shares may result in shareholder litigation that could in turn result in substantial costs and a diversion of our management's attention and resources.*

The financial markets in the United States and other countries have experienced significant price and volume fluctuations, and market prices of technology companies have been and continue to be extremely volatile. Volatility in the price of our common shares may be caused by factors outside of our control and may be unrelated or disproportionate to our results of operations. In the past, following periods of volatility in the market price of a public company's securities, shareholders have frequently instituted securities class action litigation against that company. Litigation of this kind could result in substantial costs and a diversion of our management's attention and resources.

*Certain provisions in our bye-laws make the acquisition of us by another company more difficult and therefore may delay, defer or prevent a change of control.*

Our bye-laws provide that our board of directors is divided into three classes of directors, each class to be reelected only once every three years. As a result, shareholders would not generally be able to replace a majority of the directors until after two annual general meetings. In addition, any extraordinary corporate transaction such as a merger, amalgamation or consolidation, or a sale or transfer of all or substantially all of our assets, cannot be done without the approval of shareholders representing 70% of all votes present at a general meeting called to consider such extraordinary transaction.

*Future sales or issuance of common shares by us or our current shareholders could depress our share price and you may suffer dilution.*

Sales of substantial amounts of shares in the public market, or the perception that future sales may occur following the quotation of our common shares on the Nasdaq National Market, could depress the prevailing market price of our shares. We have approximately 59 million shares outstanding, approximately 20 million shares of which are currently freely tradeable within the United States without restriction or further registration under the Securities Act of 1933.

In addition, we plan to issue, from time to time, additional shares in connection with employee compensation and to finance possible future investments or acquisitions. The issuance of additional shares may have a dilutive effect on other shareholders and may cause the price of our common shares to decrease. See Item 6. Directors, Senior Management and Employees Share Option Plan for a discussion of the Share Option Plan that we have adopted for the benefit of all of our directors, officers, employees and consultants.

#### **Item 4. Information on the Company**

##### **Overview**

We believe that we are one of the leading independent providers of semiconductor testing and assembly services. We offer a full range of testing and assembly solutions for memory, mixed signal and LCD driver semiconductors. We focus on providing these services to customers that serve technologically advanced applications, including personal computers, communications equipment, consumer electronics and flat-panel displays. Our primary testing and assembly facilities are located in Taiwan. We also maintain a testing and assembly facility in Shanghai, China.

##### **Industry Background**

Semiconductors are the basic building blocks used to create 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 for manufacturers and users of electronic systems. As a result, semiconductor demand is expected to grow substantially in our primary markets of personal computer, communications equipment, consumer electronics and flat-panel displays and is expected to experience increased growth in additional markets, such as automotive products and industrial automation and control systems. According to projections announced by Gartner Dataquest in November 2002, the global semiconductor market is expected to grow from US\$153.3 billion in 2002 to US\$257.0 billion in 2005, representing a compound annual growth rate of 19%. The semiconductor industry experienced strong growth between 1992 and 1995 and between 1998 and 2000, with declines in the periods from 1996 to the first half of 1997 as well as in 1998. Starting from the fourth quarter of 2000, the semiconductor industry experienced a severe downturn due to a slowdown in the global economy, overcapacity in the semiconductor industry and worldwide inventory adjustment. The semiconductor industry has recovered to some extent from the downturn. We believe that the pattern of long-term growth and cyclical fluctuations will continue in the semiconductor industry. See Item 3. Key Information Risk Factors Risk Relating to Our Business. We are highly dependent on the market for memory products. A downturn in the market for these products could significantly reduce our revenues and income.

---

## 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 broadly divided into the following stages:

<u>Process</u>	<u>Description</u>
Semiconductor Design	The design of a semiconductor is developed by laying out circuit components and interconnections. A complex circuit may be designed with twenty or more layers of patterns.
Wafer Fabrication	This 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 processes. Each completed wafer contains many identical chips, each known as a die.
Wafer Probe and Test	Each individual die is electrically tested, or probed, for defects. Dies that fail this test are marked to be discarded or, in some cases, salvaged using laser repair.
Assembly	The assembly of semiconductors serves to protect individual dies, or chips, facilitate their integration into electronic systems and enable the dissipation of heat produced when operating. The assembly process begins when diamond saws separate wafers into chips. Each die is affixed to a leadframe-based or organic substrate-based package by an adhesive. Then, in most cases, machines called wire bonders make electrical connections by connecting the terminals on the die to the inner leads of the package using fine metal wires. Leads are connections between the integrated circuits and the printed circuit board that could be in many forms, such as solder plated protrusions, solder balls, pads and springs. Other techniques to connect the chip and the package include tape-automated bonding, in which a flexible tape containing a lead system is bonded to the chip using heat and pressure, and flip-chip technology, which replaces the wire bonds with soldered connections between chip and inner terminals. After the connections are completed, each chip is encapsulated for protection, usually in a molded epoxy enclosure. In leadframe based packages, leads are then trimmed and formed into various shapes.
Final Test	Assembled semiconductors are tested to ensure that the device meets performance specifications. Testing takes place on specialized equipment using software customized for each application. For memory semiconductors, this process includes burn-in testing to screen out unhealthy devices by applying high temperature and voltage on such devices. Final testing operations include top marking, final inspection and packing.

We are involved in the wafer probe and test, assembly and final testing stages of the semiconductor manufacturing process.

## Outsourcing Trends in Semiconductor Manufacturing

Historically, integrated device manufacturers designed, manufactured, tested and assembled semiconductors primarily in their own facilities. In recent years, there has been a trend in the industry to outsource stages in the manufacturing process to reduce the high fixed costs resulting from the increasingly complex manufacturing process. Virtually every significant stage of the manufacturing process can be outsourced. Wafer foundry services and semiconductor assembly are currently the largest segments of the independent semiconductor manufacturing services market. Most of the world's major integrated device manufacturers now use some independent manufacturing services to maintain a strategic mix of internal and external manufacturing capacity. We believe that many of these manufacturers are significantly reducing their investments in new semiconductor testing and assembly facilities and that several are contemplating the divestment of their in-house testing and assembly

operations.

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 fabrication, testing and assembly requirements to independent companies. Similarly, the availability of technologically advanced independent manufacturing services has encouraged systems companies, equipment manufacturers that traditionally outsourced their manufacturing of semiconductor components used in the assembly of their systems products to integrated device manufacturers, to increasingly outsource to independent semiconductor manufacturing companies.

We believe the outsourcing of semiconductor manufacturing services will increase for many reasons, including the following:

*Significant Capital Expenditure.* Driven by technological sophistication, semiconductor manufacturing, testing and assembly processes have become highly complex, requiring substantial investment in specialized equipment and facilities and sophisticated engineering and manufacturing expertise. In addition, product life cycles have been shortening, magnifying the need to continuously upgrade or replace manufacturing, testing and assembly equipment to accommodate new products. As a result, new investments in in-house testing, assembly and fabrication facilities are becoming less desirable for integrated device manufacturers because of the high investment costs as well as difficulties in achieving sufficient economies of scale and utilization rates to be competitive with the independent service providers. Independent testing, assembly and foundry 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.

*Increasing Focus on Core Competencies.* As the cost of semiconductor manufacturing facilities increases, semiconductor companies are expected to further outsource their semiconductor manufacturing, testing and assembly requirements 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, testing and assembly services.

*Growth of Fabless Semiconductor Companies and Outsourcing by Systems Companies.* The substantial growth in the number of fabless semiconductor companies and systems companies that increasingly outsource their manufacturing requirements to independent companies will also continue to drive growth in the market for independent foundry, testing and assembly services.

#### **Condition of Outsourcing in Taiwan**

Taiwan is one of the world's leading locations for outsourced semiconductor manufacturing. Many of the world's leading semiconductor companies that design, market and sell critical components for personal computers, communications equipment, consumer electronic and other end-use applications outsource some or all of their semiconductor manufacturing needs to Taiwan's semiconductor manufacturing service providers. Taiwan offers these customers several leading service providers, each of which offers substantial capacity, high-quality manufacturing, leading semiconductor wafer foundry, test, assembly and process technology, and a full range of services. Many of these customers also take advantage of the close proximity between the facilities of these service providers. Moreover, companies located in Taiwan also are very active in the design and manufacture of electronic systems, of which the primary components are semiconductor devices.

## Overview of the Company

### Introduction

We believe that we are one of the leading independent providers of semiconductor testing and assembly services. We provide a broad range of back-end testing services, including engineering testing, wafer probing and final testing for memory and mixed signal semiconductors. We also offer a broad selection of leadframe-based and organic substrate-based package assembly services for memory and mixed signal semiconductors. Our advanced leadframe-based packages include thin small outline packages, and our advanced organic substrate-based packages include mini-ball grid array packages. In addition, we provide testing and assembly services for LCD driver semiconductors and other flat-panel display driver semiconductors by employing tape carrier packages, chip-on-film and chip-on-glass technologies.

We provide semiconductor testing and assembly services. In addition, we provide semiconductor turnkey services, in which we purchase fabricated wafers and sell tested and assembled semiconductors, primarily memory products, to application and system manufacturers. In 2002, 36% of our net revenues were from testing services for memory and mixed signal semiconductors, 22% were from assembly services for memory and mixed signal semiconductors, 15% from LCD driver semiconductors testing and assembly services and 27% were from semiconductor turnkey services.

Semiconductors tested and assembled by us are used in personal computers, graphic applications, such as game stations and personal digital assistants, communications equipment, such as cellular phones, and consumer electronic products and display applications, such as flat-panel displays. We believe, based upon an understanding of the business of our customers and informal oral surveys of our current customers, that services performed on semiconductors for personal computers, consumer electronic products and graphic applications accounted for approximately 91% of our revenues in 2001 and 78% in 2002.

Our primary testing and assembly facilities are in Taiwan. We conduct most of our testing operations in our testing facility in the Hsinchu Science Park. Our assembly facility is located in the Tainan Science Park. In addition, we maintain a temporary testing and assembly facility in the Qingpu Industrial Zone in Shanghai, China. This temporary facility commenced production in November 2002. We have also commenced construction of a new testing and assembly facility in the Shanghai Qingpu Industrial Zone in June 2002 and plan to shift the production from the temporary facility to the new facility upon completion of the construction of the new facility in Qingpu Industrial Zone. We expect to complete the construction of our new facility and commence production in the fourth quarter of 2003.

From time to time we subcontract part of our assembly services, if we do not have sufficient capacity or the relevant assembly equipment required by our customers.

### Our Structure and History

We are a holding company, and all our operations are conducted through our majority-owned subsidiary, ChipMOS Taiwan. ChipMOS Taiwan was founded in 1997 as a joint venture among Mosel, Siliconware Precision and other investors. The remainder of our operations are conducted through ChipMOS Shanghai. We were incorporated as a Bermuda corporation on August 1, 2000. The ownership of ChipMOS Taiwan was restructured in a series of transactions that resulted in holders of 70.25% of the common shares of ChipMOS Taiwan becoming our shareholders. In turn, we became the holder of 70.25% of the outstanding common shares of ChipMOS Taiwan. In October 2001, ChipMOS Taiwan granted 6,911,732 ChipMOS Taiwan common shares as bonuses to certain of its employees. In December 2002, we granted 531,175 common shares to our employees in exchange for 5,633,442 ChipMOS Taiwan common shares. As of May 31, 2003, our ownership of the outstanding common

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

shares of ChipMOS Taiwan had increased to 70.34%. Siliconware Precision remains the holder of approximately 28.73% of the outstanding common shares of ChipMOS Taiwan. Under accounting principles that are applicable to us, Modern Mind is one of our controlled consolidated subsidiaries. ChipMOS Shanghai is a wholly owned subsidiary of Modern Mind. We do not own any shares in Modern Mind.



As of May 31, 2003, Mosel indirectly owned approximately 44.04% of our common shares.

- 
- (1) Under accounting principles that are applicable to us, Modern Mind is one of our controlled consolidated subsidiaries. ChipMOS Shanghai is a wholly owned subsidiary of Modern Mind. We do not own any shares in Modern Mind.

## **Strategy**

Our goal is to maintain our position as a leading independent provider of semiconductor testing services to leading integrated device manufacturers, fabless semiconductor companies and independent semiconductor foundries. We concentrate principally on testing and assembling high-density memory, mixed-signal and LCD driver semiconductors. The principal components of our business strategy are set out below.

*Maintain Our Leading Position in the Independent Testing Market and Strengthen Our Assembly Capability.*

We believe that the testing and assembly outsourcing market for semiconductors will continue to experience growth. Based on our core testing capabilities and strategic relationships, we believe that we will be able to maintain our leading position in the independent testing market. We expect to acquire more advanced assembly services to complement our testing capability acquired to enhance back-end services offered to our key customers. Towards this end, we are further increasing our capabilities in our successful mini-ball grid array packages and testing and assembly services on tape carrier packages and have recently introduced chip-on-film and chip-on-glass testing and assembly services for LCD driver semiconductors.

*Expand Our Testing and Assembly Services for LCD Driver Semiconductors.*

We commenced testing and assembly services for LCD driver semiconductors using tape carrier package technology in 2000 and purchased additional equipment for tape carrier package technology in 2001 and 2002. The primary use of the tape carrier packages is for LCD driver semiconductors that are used in handheld electronics, cellular phones, flat-panel displays and notebook computers. According to Industrial Technology Information Services, the market for the thin film transistor liquid crystal display that is used in notebook computers, monitors and televisions will grow from approximately US\$12,321 million in 1999 to approximately US\$25,171 million in 2003, representing an annual growth rate of 21%, and the market for the super twisted nematic liquid crystal display, or STN LCD, that is used in hand-held electronics, such as mobile phones and PDAs, will grow from approximately US\$4,465 million in 1999 to approximately US\$4,686 million in 2003. In April 2001, we began to provide testing and assembly services for LCD driver semiconductors using chip-on-film technology and in June 2002 we began to provide testing and assembly services for LCD driver semiconductors using chip-on-glass technology. We had net revenues of NT\$992 million from testing and assembly for LCD driver semiconductors in 2002 and plan to continue to increase our capacity of testing and assembly for LCD driver semiconductors, to meet the expected increasing demand for LCD driver semiconductors.

*Use Our Strategic Alliances to Expand Our Service Offering and Grow Our Business.*

We intend to leverage our affiliations with Mosel, ProMOS, ThaiLin and Chantek to strengthen our service offering with existing customers and to extend our offering to new customers. We believe that these affiliations, which offer complementary technologies, products and services, will continue to enhance our own development and expansion efforts into new and high-growth markets. For example, ThaiLin is dedicated to providing testing services for memory semiconductors and has a stable customer base. Our affiliation with ThaiLin will enhance the scope of our testing services as well as broaden our customer base. We also intend to establish new alliances with leading companies that will further expand our offering capabilities.

*Continued Expansion in China.*

While we have commenced operation in a temporary facility in Shanghai, we currently plan to move our operations in the temporary facility into our new facility upon its completion, which is expected in the fourth quarter of 2003. We currently intend to market most of our services at our facility in Shanghai to customers purchasing testing and assembly services for semiconductors to be sold within mainland China. We also currently intend to extend our services involving our facility in Shanghai to include the testing, assembly and manufacture of complete modules and subsystems that are comprised significantly of memory, opto-electronics and mixed signal semiconductors. A main focus of our current strategy is to capitalize on the expected growth of the advanced electronics manufacturing market in mainland China.

*Expand Our Testing and Assembly Services to Modules and Subsystems.*

In addition to our continued emphasis on stand-alone testing and assembly of semiconductors, we intend to expand our product offerings to the manufacture of complete modules and subsystems that are comprised significantly of memory and mixed signal semiconductors. We currently are planning to focus on memory modules, liquid crystal modules, liquid crystal on silicon microdisplay modules and ink-jet print head modules.

*Focus on Developing Long-Term Relationships with, and Increase Sales to, Key Customers.*

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

We plan to increase our sales to manufacturers of communications equipment and large-scale integrated device manufacturers. From time to time, we strategically allocate our testing and assembly capacity to those customers. We believe that these companies will be increasingly dependent on sophisticated testing and assembly services provided by independent companies like us and will continue to outsource their testing and assembly requirements. Many of the leading manufacturers of semiconductors for communications equipment, including Sharp Corporation, Texas Instrument Japan Limited and Toshiba Corporation Semiconductor Company, are already our customers. We currently intend to increase our sales to these companies because we believe they represent attractive long-term growth opportunities for us. We have been successful in attracting new customers in this sector, such as Integrated Silicon Solution, Inc., Atmel Corporation, Silicon Storage Technology Inc., Elpida Memory Inc., Powerchip Semiconductor Corp., National Semiconductor Inc. and Misubishi Electric Taiwan Co., Ltd.

*Enhance Our Research and Development Capability to Create New Testing and Assembly Services for Increasingly Sophisticated Semiconductors.*

We believe that our ability to provide progressively more advanced testing and assembly services to customers is critical to our business. As a result, we are focused on continuous investments in research and development. In 2001 and 2002, we spent approximately 8% and 5%, respectively, of our net revenues on research and development. We will continue to invest our resources to recruit and retain experienced research and development personnel. Our research and development team currently comprises 141 persons, 31 of whom have advanced degrees in electrical engineering or other related disciplines. In addition, we will continue to jointly pursue the development of new testing and assembly technologies with domestic and foreign research institutions and universities.

We expect to focus our research and development effort in the following areas:

developing new software conversion programs to increase the capabilities of our testers;

developing technologies for wafer level burn-in and testing before assembly;

acquiring three-dimensional technology and flip-chip assembly which, compared with traditional (face-up) configurations, provides shorter leads, higher frequency, higher density and smaller footprints by mounting the chip surface to the face of the substrate;

improving manufacturing yields for new assembly technologies; and

developing environmentally friendly packaging services that focus on eliminating the lead and halogen elements from the materials employed in the package and reducing the toxicity of gaseous chemical wastes.

### Principal Products and Services

The following table presents, for the periods shown, revenues by service segments as a percentage of our net revenues.

	Year ended December 31,				
	1998	1999	2000	2001	2002
Memory and mixed signal semiconductors					
Testing revenues	57	46	58	43	36
Assembly revenues	43	31	28	31	22
LCD driver semiconductors testing and assembly revenues			1	2	15
Semiconductor turnkey revenues		23	13	24	27
Total net revenues	100	100	100	100	100

### *Memory and Mixed Signal Semiconductors*

#### *Testing*

We provide a broad range of back-end semiconductor testing services, including engineering testing, wafer probing, laser repairing, burn-in testing, top marking, final testing and final inspection and packing. We provide testing services on memory and mixed-signal semiconductors. The testing of semiconductors requires technical expertise and knowledge of the specific applications and functions of the semiconductors tested. 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 and software conversion programs on many different types of equipment for particular semiconductors.

Following is a description of our testing services:

*Engineering Testing.* We provide engineering testing services, including software program development, electrical design validation, and reliability and failure analyses.

*Software Program Development.* Design and test engineers develop a customized software program and related hardware to test semiconductors on advanced testing equipment. A customized software program is required to test the conformity of each particular semiconductor type to its particular function and specification.

*Electrical Design Validation.* A prototype of the designed semiconductor is submitted to electrical tests using advanced test equipment, customized software programs and related hardware. 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 its intended applications. Reliability testing can include operating life evaluation services, in which high temperature and voltage is applied to a semiconductor 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 validation or reliability analysis processes, it is typically subjected to failure analysis to determine why it did not 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 assembly 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 employs sophisticated design and manufacturing technologies to connect the terminals of each chip for testing. Defective chips are marked on the surface or memorized in the electronic file, known as mapping file, to facilitate the subsequent processing.

*Laser Repairing.* In laser repairing on memory products, specific poly or metal fuses are blown after wafer probing to enable a spare row or column of a memory cell to replace a defective memory cell.

The above testing services are performed before assembly. After assembly, we perform the following testing services:

*Burn-In Testing.* This process screens out less reliable products by using high temperature, high voltage and prolonged stress to ensure that finished products will survive a long period of end-user service. This process is used only for memory products.

*Top Marking.* By using either a laser marker or an ink marker, we identify our products with characteristics specified by our customers, including each customer's logo, product type, date code and lot number.

*Final Testing.* Assembled semiconductors are tested to ensure that the devices meet performance specifications. Testing takes place on specialized equipment using software customized for each application in different temperature conditions ranging from minus 45 degrees celsius to 85 degrees celsius. One of the testing steps includes speed testing to classify the parts into different speed grades.

*Final Inspection and Packing.* Final inspection involves visual or auto-inspection of the devices to check for any bent leads, inaccurate markings or other construction defects. Packing involves dry packing, packing-in-tube and tape and reel. Dry pack involves heating semiconductors in the tray at 125 to 150 degrees celsius for about two hours to remove the moisture before the semiconductors are vacuum-sealed in an aluminium bag. Packing-in-tube involves the employment of anti-static tube to carry the product for shipping. Tape and reel pack involves transferring semiconductors from a tray or tube onto an anti-static embossed tape and rolling the tape onto a reel for shipment to customers.



We provide testing services on memory and mixed signal semiconductors:

*Memory.* We provide testing services for a variety of memory semiconductors and mostly high density semiconductors, such as static random access memory, or SRAM, DRAM, and flash memory semiconductors. To accelerate the time-consuming process of memory product testing, we provide multi-site testing, which can provide testing services simultaneously for up to 128 devices. The memory semiconductors we test are used primarily for personal notebook computers and handheld consumer electronic devices, and also in wireless communication devices.

*Mixed Signal.* We conduct tests on a wide variety of mixed signal semiconductors, with lead counts ranging from the single digits to over 640 and operating frequencies of up to 400 MHz. The semiconductors we test include those used for networking and wireless communications, data communications, graphics and disk controllers for home entertainment and personal computer applications. We also test a variety of application specific integrated circuits, or ASICs, for applications such as cellular phones, digital still cameras and personal digital assistants.

### *Assembly*

Our assembly services generally involve the following steps:

<i>Wafer Lapping</i>	The backsides of wafers are ground until the wafers are at their required thickness.
<i>Die Saw</i>	Wafers are cut into individual dies, or chips, in preparation for the die-attach process.
<i>Die Attach</i>	Each individual die is attached to the leadframe or substrate.
<i>Wire Bonding</i>	Using gold wires, the dies are connected to the package inner leads.
<i>Molding</i>	The encapsulation of the die and wires through the molding process provides physical support and protection for the die and wires.
<i>Marking</i>	Each individual package is marked to provide product identification.
<i>Dejunking and Trimming</i>	Mold flash is removed from between the lead shoulders through dejunking, and the dambar is cut during the trimming process.
<i>Electrical Plating</i>	A solderable coating is added to the package leads to prevent oxidization and to keep solder wettability of the package leads.
<i>Forming/Singulation</i>	Forming involves the proper configuration of the device packages leads, and singulation separates the packages from each other.
<i>Packages</i>	

We offer a broad range of package formats designed to provide our customers with a broad array of assembly services. The assembly services we offer customers are leadframe-based packages, which include thin small outline packages, and organic substrate-based packages, including mini ball grid array, or mini BGA.





The differentiating characteristics of these packages include:

the size of the package;

the number of electrical connections which the package can support;

the electrical performance and requirements of the package; and

heat dissipation requirements of the package.

As modern applications for semiconductor devices require smaller components, the size of packages has also decreased. In leading-edge packages, the size of the package is reduced to just slightly larger than the size of the individual chip itself, in a process known as chip scale packaging, or CSP.

As semiconductor devices increase in complexity, the number of electrical connections required also increases. Our leadframe-based products have electrical connections from the semiconductor device to the electronic product through leads on the perimeter of the package. Our organic substrate-based products have solder balls on the bottom of the package, which create the electrical connections with the product and can support large numbers of electrical connections.

#### *Leadframe-Based Packages*

Leadframe-based packages are the most widely used package category and are characterized by a semiconductor chip encapsulated in a plastic molding compound with metal leads on the perimeter. This package category has evolved from a design where the leads are plugged into holes on the circuit board to a design where the leads are soldered to the surface of the circuit board.

The following diagram presents the basic components of a standard leadframe-based package for memory semiconductors:

To satisfy the demand for miniaturization of portable electronic products, we are currently developing and will continue to develop increasingly smaller versions of leadframe-based packages to keep pace with continually shrinking semiconductor device sizes. Our advanced leadframe-based packages generally are similar in design to our conventional leadframe-based packages. However, our advanced leadframe-based packages generally are thinner and smaller, have more leads and have advanced thermal and electrical characteristics. As a result of our continued product development, we offer leadframe-based packages with a wide range of lead counts and sizes to satisfy our customers' requirements.

The following table presents our principal leadframe-based packages, including the number of leads in each package, commonly known as lead-count, a description of each package and the end-use applications of each package.



<u>Package</u>	<u>Lead-count</u>	<u>Description</u>	<u>End-Use Applications</u>
Small Outline J-lead Package (SOJ)	24-42	Designed for low lead-count memory devices, including dynamic random access memory and high speed static random access memory	Personal computers, consumer electronics, audio and video products
Plastic Dual-in-line Package (PDIP)	28	Package with insertion leads on longer sides used in consumer electronics products	Electronic games, monitors, copiers, printers, audio and video products, personal computers
Plastic Leaded Chip Carrier (PLCC)	32	Package with leads on four sides used in consumer electronics products in which the size of the package is not vital	Copiers, printers, scanners, personal computers, electronic games, monitors
Thin Small Outline Package I (TSOP I)	28-48	Designed for high volume production of low lead-count memory devices, including flash memory, static random access memory, and mask read only memory	Notebook computers, personal computers, still and video cameras and standard connections for peripherals for computers
Thin Small Outline Package II (TSOP II)	24-86	Designed for memory devices, including flash memory, static random access memory, dynamic random access memory, synchronous dynamic random access memory and double data rate dynamic random access memory	Disk drives, recordable optical disk drives, audio and video products, consumer electronics, communication products
Low-Profile Quad Flat Package (LQFP)	48-100	Low-profile and light weight package designed for application-specific integrated circuits, digital signal processors, microprocessors/controllers, graphic processors, gate arrays, synchronous static random access memory, synchronous dynamic random access memory, personal computer chipsets and mixed-signal devices	Wireless communication products, notebook computers, digital cameras, cordless/radio frequency devices
Thin Quad Flat Package (TQFP)	48-100	Designed for light weight portable electronics requiring broad performance characteristics and mixed-signal devices	Notebook computers, personal computers, disk drives, office equipment, audio and video products and wireless communication products
Small Outline Package (SOP)	8-32	Designed for low lead-count memory and logic semiconductors, including static random access memory and micro-control unit	Personal computers, consumer electronics, audio and video products, communication products
Multi-Chip Package (TSOP with organic substrate)	24-66	Our patented design for customers' special request for memory devices, including static random access memory, dynamic random access memory, synchronous dynamic random access memory	Notebook computers, personal computers, disk drives, audio and video products, consumer products, communication products

#### *Organic Substrate-based Packages*

As the number of leads surrounding a traditional leadframe-based package increases, the leads must be closer together to minimize the size of the package. The close proximity of one lead to another can result in electrical shorting problems and requires the development of increasingly sophisticated and expensive techniques for producing circuit boards to accommodate the high number of leads.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The BGA format solves this problem by effectively creating external terminals on the bottom of the package in the form of small bumps or balls. These balls can be evenly distributed across the entire bottom surface of the package, allowing greater distance between the individual leads. For the highest lead count device, the ball grid array configuration can be manufactured less expensively and requires less delicate handling at installation.

-28-

Our organic substrate-based packages employ mini BGA, design, which uses a plastic or tape laminate rather than a leadframe. Mini BGA design places the electrical connections, or leads, on the bottom of the package rather than around the perimeter. The mini BGA format was developed to address the need for the smaller footprint required by advanced memory devices. Benefits of ball grid array assembly over leadframe-based assembly include:

smaller size;

smaller footprint on a printed circuit board;

better electrical signal integrity; and

easier attachment to a printed circuit board.

The following diagram presents the basic component parts of a mini BGA package:

The following table presents the lead-count, the description and the end-use applications of mini BGA packages and the organic substrate-based package we currently assemble:

<u>Package</u>	<u>Connections</u>	<u>Description</u>	<u>End-Use Applications</u>
Mini BGA	36-208	Low-cost and space-saving assembly designed for low input/output count suitable for semiconductors that require a smaller package size than standard BGA	Memory, analog, flash memory, application specific integrated circuits, radio frequency devices, personal digital assistants, cellular phones, communication products, notebook computers, wireless systems
Substrate On Chip (SOC)	52-60	Our patented design for applications of dynamic random access memory products that require high performance and chip scale package	Notebook computers, cellular phones, global positioning systems, personal digital assistants, wireless systems
Multi-Chip BGA	48-208	Our patented design for application of two or more memory chips in one BGA package to increase memory density of memory and logic chips in one BGA	Notebook computers, digital cameras, personal digital assistants, global positioning systems, sub-notebooks, board processors, wireless products
Stacked-Chip CSP	48-72	Designed for applications of two or more memory chips or logic and memory chips integrated in one chip scale package	Cellular phones, digital cameras, personal digital assistants, wireless communications products, notebook computers, global positioning system products

The following table presents the organic substrate-based packages we currently plan to assemble in the future, including the number of connections, a description of the package and the end-use applications of each package:

<u>Package</u>	<u>Connections</u>	<u>Description</u>	<u>End-Use Applications</u>
Micro BGA	46-72	Designed for high speed, high density, high performance memory devices, such as Rambus dynamic random access memory, double data rate dynamic random access memory and flash memory	High performance computers, play stations, notebooks, visual cellular phones, mixed-signal, wireless communications

#### *Testing and Assembly for LCD Driver Semiconductors*

We employ tape carrier package, chip-on-film and chip-on-glass technologies for testing and assembling LCD driver semiconductors.

#### *Tape Carrier Package Technology*

Because of its flexibility and high number of inputs/outputs, tape carrier packages are primarily employed either for STN LCD or TFT LCD driver semiconductors. The LCD driver semiconductors we test and assemble are used primarily in handheld electronics, cellular phones, flat-panel displays and notebook computers.

We acquired our testing and assembly technology for tape carrier packages under a licensing agreement with Sharp Corporation. The term of the agreement with Sharp is for five years beginning February 10, 2000. Pursuant to this agreement, Sharp licensed to us tape carrier package-related technology and intellectual property rights. We in turn pay a royalty fee to Sharp ranging from 3% to 5% of the service fee paid to us by our customers minus the material cost incurred from providing tape carrier package-related services over the term of the licensing agreement, except for the tape carrier package-related services provided to Sharp. Sharp has granted us a grace period, which expires in September 2004, during which we may defer the payment of a portion of the royalty fee due to Sharp until the expiry of the grace period or until the amount of deferred royalty fee exceeds ¥150.9 million. In 2002 we have incurred a royalty obligation of ¥32 million to Sharp that is expected to be paid in 2004. We also provide tape carrier package-related services to other customers, including DenMOS Technology Inc., HiMAX Technologies Inc., National Semiconductor Inc., Texas Instrument Japan Limited, OKI Electric Industry Co., Ltd., NOVATEK Microelectronics Corp. and Toshiba Electronics Taiwan Corporation.

*Testing for tape carrier packages.* We conduct full function testing of LCD driver semiconductors with a specifically designed probe handler to ensure reliable contact to the designed test pads on the tape carrier package tape. With applications of STN LCD or TFT LCD driver semiconductors, the drivers may be tested with a frequency of up to 75 MHz and at a voltage up to 40V. The testing is performed in a temperature-controlled environment with the device in tape form. The assembled and tested LCD driver semiconductors in tape form are packed in between spacer tapes together with desiccant in an aluminum bag to avoid their touching each other during shipping.

*Assembly for tape carrier packages.* Tape carrier packages offer a high number of inputs/outputs, a thin package profile and a smaller footprint on the circuit board, without compromising performance. Key package features include surface mount technology design, fine pitch tape format and slide carrier handling. Tape carrier packages use a tape-automated bonding process to connect die and tape. The printed circuit tape is shipped with a reel. The reel is then placed onto an inner lead bonder, where the LCD driver semiconductor is configured onto the printed circuit tape.

The tape carrier package component consists of the device interconnected to a three-layer tape which includes a polyamide-down carrier film, an epoxy-based adhesive layer and a metal layer. The tape metallization area of the interconnections is tin plated over a metal layer. The silicon chip and inner lead area is encapsulated with a high temperature thermoset polymer coating after inner lead bonding. The backside of the chip is left uncoated for thermal connection to the printed circuit board.



The following diagram presents the basic components of a tape carrier package:

The tape carrier package assembly process involves the following steps:

<i>Die Saw</i>	Wafers are cut into individual die, or chips, in preparation for inner lead bonding.
<i>Inner Lead Bonding</i>	An inner lead bonder machine connects the chip to the printed circuit tape.
<i>Potting</i>	The package is sealed with an epoxy.
<i>Potting Cure</i>	The potting cure process matures the epoxy used during the potting stage with high temperatures.
<i>Marking</i>	A laser marker is used to provide product identification.
<i>Marking Cure</i>	The marking cure process matures the marking ink by subjecting the semiconductor to high temperatures.

***Chip-on-Film Technology***

In 2001, we commenced testing and assembly services using chip-on-film, or COF, technology. We have developed this proprietary technology from our existing tape carrier package technology, and it has been accepted by several customers. The primary use of the COF module is to replace liquid crystal module, or LCM, in certain applications. LCM is mainly employed in handheld electronics, such as PDAs and cellular phones. In responding to the growing market demand, we have invested our research and development resources in developing manufacturing and testing technologies for modules and subsystems that can be used in flat-panel displays.

COF technology provides several additional advantages. For example, COF is able to meet the continuing demand for compactness and light weight in electronic products, such as flat panel displays and high-resolution requirements, due to its structural design, including an adhesive-free two-layers tape that is capable of higher flexibility, and bending strength, and its capacity to receive finer patterning pitch.

### *Chip-on-Glass Technology*

Chip-on-glass, or COG, technology is a new electronic assembly technology with thinner, lighter and higher assembly density. COG technology is used more and more in assembly for LCD driver semiconductors for communication equipment. Compared to the traditional bonding process, which is difficult to rework and needs high bonding temperature, the new COG technology is easy to rework and requires lower bonding temperature. In addition, the new COG technology has lower cost as the bumps used in COG technology are cheaper than bumps used in the traditional bonding process.

### *Semiconductor Turnkey*

To efficiently utilize our excess capacity during the downturn in the semiconductor market in 1998 and 1999, we began to provide semiconductor turnkey services in early 1999. Our semiconductor turnkey services consist of our purchase of fabricated wafers, primarily memory semiconductors, from manufacturers such as Mosel, Winbond Electronics Corporation and Elite Memory Technology Inc. We then test and assemble the dies cut from the fabricated wafers and resell the completed semiconductors to our customers. The level of our semiconductor turnkey services declined by the end of the third quarter of 2000, as our testing and assembly utilization rates increased towards our full capacity, thereby reducing our need to fill our excess capacity. Starting in the first quarter of 2001, we increased the level of our semiconductor turnkey services to more efficiently utilize our excess capacity as a result of decreased testing and assembly utilization rates due to the decline in market demand for semiconductors.

### **Drop Shipment**

We offer drop shipment services for shipment of semiconductors directly to end users designated by our customers. We provide drop shipment services, including assembly in customer-approved and branded boxes, to a majority of our testing and assembly customers. Since drop shipment eliminates the additional step of inspection by the customer prior to shipment to end users, quality of service is a key to successful drop shipment service. 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.

### **Facilities**

We provide testing services through our two facilities in Taiwan, one in the Hsinchu Science Park and one in the Tainan Science Park. We provide assembly services through our facility in the Tainan Science Park. We lease the land for our Hsinchu testing facility and Tainan assembly facility from the Science-Based Industrial Park Administration under three 20-year leases. Two leases for our Hsinchu facility will expire in 2008 and 2017, respectively, and the lease for our Tainan facility will expire in 2017.

In March 2002 we entered into a cooperation agreement with the Shanghai Qingpu Industrial Zone Development Group Company in which we have agreed to construct a permanent wholly-owned facility in the Shanghai Qingpu Industrial Zone to provide testing and assembly services.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

We commenced construction of the facility in Shanghai in June 2002, and we expect to complete the construction of the facility and commence commercial testing and assembly services by the fourth quarter of 2003. We currently intend to initially offer TSOP packages, testing and assembly of LCD driver semiconductors and module and subsystem manufacturing, and expand throughout 2004 and 2005 into the various testing and assembly services offered by us. In connection with our planned operations in Shanghai, we have invested, through ChipMOS Shanghai, US\$38 million in the new testing and assembly facility in Shanghai and we have committed that we will invest a further US\$213 million by the end of 2005 in the permanent testing and assembly facility. Pending completion of our permanent facility, we are operating in a temporary facility leased to us by the Shanghai Qingpu Industrial Zone Development Group Company.

We leased the land previously used for our Kaohsiung testing facility from the Kaohsiung Export Processing Zone Administration under a lease which will expire on June 30, 2004. We currently do not have a definitive plan for the construction of this new facility due to the current market downturn.

The following table shows the location, primary use and size of each of our facilities, and the principal equipment installed at each facility, as of the end of December 2002.

<u>Location of Facility</u>	<u>Primary Use</u>	<u>Size of Land</u>	<u>Testers/Bonders</u>
Hsinchu Science Park, Taiwan	Testing	28,632 square meters	152 testers
Tainan Science Park, Taiwan	Assembly/Testing	56,680 square meters	109 wire bonders  62 inner lead bonders
Kaohsiung Export Processing Zone, Taiwan	Testing	7,497 square meters	53 testers 42 testers
Shanghai Qingpu Industrial Zone (temporary facility)	Assembly/Testing/ Modules and Subsystem Manufacturing	2,498 square meters	12 wire bonders  2 testers

### Raw Materials

Semiconductor testing requires minimal raw materials. Fabricated wafers are the main raw materials for our semiconductor turnkey services. Substantially all of the raw materials used in our memory and mixed signal semiconductors assembly processes are interconnect materials such as leadframes, organic substrates, gold wire and molding compound. Raw materials used in the LCD driver semiconductors testing and assembly process include carrier tape, resin, spacer tape, plastic reel, aluminum bags, and inner and outer boxes. Cost of raw materials represented 35% of our net revenues in both 2001 and 2002.

We do not maintain large inventories of leadframes, organic substrates, gold wire or molding compound, but generally maintain sufficient stock of each principal raw material for approximately one month's production 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, typically in amounts equal to the average monthly amounts supplied to us, 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. See Item 3. Key Information Risk Factors Risk Relating to Our Business. If we are unable to obtain raw materials and other necessary inputs from our suppliers in a timely manner, our production schedules would be delayed and we may lose customers and become less profitable for a discussion of the risks associated with our raw materials purchasing methods. For example, in 1997 and 1998, the industry experienced a shortage in the supply of advanced organic substrates used in BGA packages, which are currently available only from a limited number of suppliers located primarily in Japan. Similarly, with the exception of aluminum bags and inner and outer boxes, which we acquire from local sources, the raw materials used in our tape carrier package process and for modules are obtained from a limited number of Japanese suppliers.

### Equipment

#### *Testing for Memory and Mixed Signal Semiconductors*

Testing equipment is the most important and most capital intensive component of the testing process. Upon the acquisition of new testing equipment, we install, configure, calibrate and perform burn-in diagnostic tests on the equipment. We also establish parameters for the testing equipment based on anticipated requirements of existing and potential customers and considerations relating to market trends. As of December 31, 2002, we operated 247 testers. We generally seek to purchase testers with similar functionality and the ability to test a variety of different semiconductors. We purchase testers from major international manufacturers, including Advantest Corporation, Agilent Technologies and

Credence Systems Corporation.

In general, particular semiconductors can be tested on only a limited number of specially designed testers. As part of the qualification process, customers will specify the machines on which their semiconductors may be tested. We often develop test program conversion tools that enable us to test semiconductors on multiple equipment platforms. This portability between testers enables us to allocate semiconductors testing across our available testing capacity and thereby improve capacity utilization rates. In cases where a customer requires the testing of a semiconductor that is not yet fully developed, the customer consigns its testing software programs to us to test specific functions. In cases where a customer specifies testing equipment that is not widely applicable to other semiconductors which we test, we require the customer to furnish the equipment on a consignment basis. Currently, no testers are furnished to us on a consignment basis.

We will continue to place orders for and acquire additional testing equipment in future periods to the extent market conditions, cash generated from operations, the availability of financing and other factors make it desirable to do so. However, some of this equipment and related spare parts have been in short supply in recent years. Moreover, this equipment is only available from a limited number of vendors or is manufactured in relatively limited quantities and may have lead times from order to delivery in excess of six months.

#### *Assembly for Memory and Mixed Signal Semiconductors*

The number of wire bonders at a given facility is commonly used as a measure of the assembly capacity of the facility. Typically, wire bonders may be used, with minor modifications, for the assembly of different products. We purchase wire bonders principally from Shinkawa Co., Ltd. As of December 31, 2002, we operated 109 wire bonders. In addition to wire bonders, we maintain a variety of other types of assembly equipment, such as wafer grinders, wafer mounters, wafer saws, die bonders, automated molding machines, laser markers, solder platers, pad printers, dejunkers, trimmers, formers, substrate saws and lead scanners.

#### *Testing and Assembly for LCD Driver Semiconductors*

We acquired tape carrier package-related equipment from Sharp to initiate our tape carrier package-related services. We subsequently purchased additional tape carrier package-related testers from Yokogawa Electric Corp. and Advantest Corporation and assembly equipment from Shibaura Mechatronics Corp., Athlete FA Corp. and Sharp Takaya Electronics Corp. In addition, in April 2002, we purchased additional testing and assembly equipment for tape carrier package from Walsin Advanced Electronics Ltd. As of December 31, 2002, we operated 62 inner lead bonders for assembly and 53 testers for LCD driver semiconductors. We plan to purchase additional testing equipment in 2003.

#### **Software Development, Conversion and Optimization Program**

We work closely with our customers to provide sophisticated software engineering services, including test program development, conversion and optimization, and related hardware design. Generally, testing requires customized testing software and related hardware to be developed for each particular product. Software is often initially provided by the customer and then converted by us at our facilities for use on one or more of our testing machines and contains varying functionality depending on the specified testing procedures. Once a conversion test program has been developed, we perform correlation and trial tests on the semiconductors. Customer feedback on the test results enables us to adjust the conversion test programs prior to actual testing. We also typically assist our customers in collecting and analyzing the test results and recommend engineering solutions to improve their design and production process. While most of our test programs are created or prepared by our customers, any inability to successfully implement or convert test programs could materially and adversely affect our operations. See Item 3. Key Information Risk Factors Risk Relating to Our Business. The complexity of the semiconductor testing and assembly process increases the costs and production risks of our business for a discussion of the risks associated with software conversion programs.

## Sales and Marketing

### *Sales and Marketing Offices*

We maintain sales and marketing offices in Taiwan, Japan and the United States. Our sales and marketing strategy is to focus on memory semiconductors in Taiwan, mixed signal semiconductors in Taiwan, Japan and the United States, LCD driver semiconductors in Japan and Taiwan, and module and subsystem manufacturing in Taiwan. As of December 31, 2002, our sales and marketing efforts were primarily carried out by a team of 21 sales professionals, application engineers and technicians. Each of these teams focuses on specific customers and/or geographic regions. As part of our emphasis on customer service, these teams:

actively participate in the design process at the customers' facilities;

resolve customer testing and assembly issues; and

promote timely and individualized resolutions to customers' issues.

We conduct marketing research through our in-house customer service personnel and through our relationships with our customers and suppliers to keep abreast of market trends and developments. Furthermore, we do product/system benchmarking analyses to understand the application and assembly technology evolution, such as analysis on mobile phones and CD-/DVD-ROM players. In addition, we regularly collect data from different segments of the semiconductor industry and, when possible, we work closely with our customers to design and develop testing and assembly services for their new products. These co-development or sponsorship projects can be critical when customers seek large scale early market entry with a significant new product.

Under service agreements dated April 1, 2000, we have appointed a non-exclusive sales agent for promoting our services for memory semiconductors in the United States and Japan. Our sales agent helps us promote and market our semiconductors, maintain relations with our existing and potential customers and communicate with our customers on quality, specific requirement and delivery issues. We generally pay our sales agent a commission of 2.5% of our revenues from services for memory semiconductors in the United States and Japan. For the years ended December 31, 2001 and 2002, we paid NT\$6 million and NT\$4 million, respectively, in commissions to our sales agent.

### *Customers*

We believe that the following factors have been, and will continue to be, important factors in attracting and retaining customers:

our advanced testing and assembly technologies;

our focus on high density, memory products and mixed signal communication products;

our reputation for high quality and reliable services; and

our strong financial base to meet customers' demands that require capital investments.



The number of our customers has grown from seven in 1997 to 110 in 2002. Leading semiconductor companies among our top 15 customers in 2001 or 2002 include (in alphabetical order):

Advanced Semiconductor

Brilliance Semiconductor Inc.

Cypress Semiconductor

DenMOS Technology, Inc.

Elite Memory Technology Inc.

HiMAX Technologies, Inc.

Jen Shin Technology Ltd.

Mosel Vitelic Inc.

Macronix International Co., Ltd.

NOVATEK Microelectronics Corp.

OKI Electric Industry Co., Ltd.

Siltrontech Electronics Corporation

Toshiba Electronics Taiwan Corporation

Ultima Electronics Corp.

Wellwise Development Ltd.

Our largest customer, Mosel, accounted for 49%, 48% and 35% of our net revenues in 2000, 2001 and 2002, respectively. Our second largest customer, Ultima, accounted for approximately 11%, 22% and 19% of our net revenues in 2000, 2001 and 2002, respectively. We test and assemble for our customers a wide range of semiconductors with diverse end-use applications in the personal computers, communications equipment and other sectors. We have been successful in attracting new customers such as National Semiconductor Inc., HiMAX Technologies Inc., NOVATEK Microelectronics Corp., Misubishi Electronic Taiwan Co., Ltd., Toshiba Corporation Semiconductor Company, Solomon Systech Limited and Texas Instrument Japan Limited.

We enter into annual contracts with a majority of our major customers. In 2000, 2001 and 2002, 80%, 64% and 53%, respectively, of our revenues were generated by customers with which we have annual contracts. These contracts normally provide that the quantities of semiconductors to be assembled and/or tested are updated by the customer every month, generally through three-month non-binding rolling forecasts. The contracts generally do not specify the price for our services, which will typically be agreed upon at the time of the placing of each purchase order.

We categorize our revenues based on the country in which the customer is headquartered. The following table sets out, for the periods indicated, the percentage breakdown of our net revenues, categorized by geographic region.

	Year ended December 31,				
	1998	1999	2000	2001	2002
Taiwan	95	90	79	89	88
Japan	4	8	9	4	3
United States	1	2	10	6	3
Thailand			2	1	0
Hong Kong		0 <sup>(1)</sup>	0 <sup>(1)</sup>		6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(1) Less than 1%.

### *Qualification and Correlation by Customers*

Our customers generally require that our facilities undergo a stringent qualification process during which the customer evaluates our operations, production processes and product reliability, including engineering, delivery control and testing capabilities. In addition, we are qualified by many of Mosel's customers, including major customers such as International Business Machines Corporation and Seagate Technology Inc. The qualification process typically takes up to eight weeks, but can take longer depending on the requirements of the customer. For test qualification, after we have been qualified by a customer and 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 test criteria, information regarding process flow and sample semiconductors to be tested and either provides us with the test program or requests that we develop a new or conversion program. In some cases, the customer also provides us with a data log of results of any testing of the semiconductor that 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.

### **Quality Control**

We believe that our reputation for high quality and reliable services has been an important factor in attracting and retaining leading international semiconductor companies as customers for our testing and assembly services. We are committed to delivering semiconductors that meet or exceed our customers' specifications on time and at a competitive cost. We maintain quality control staff at each of our facilities. Our quality control staff typically includes engineers, technicians and other employees who monitor testing and assembly processes in order to ensure high quality. We employ quality control procedures in the following critical areas:

sales quality assurance: following market trends to anticipate customers' future needs;

design quality assurance when developing new testing and assembly processes;

supplier quality assurance: consulting with our long-term suppliers;

manufacturing quality assurance: through a comprehensive monitoring program during mass production; and

service quality assurance: quickly and effectively responding to customers' claims after completion of sale.

All of our facilities have been certified as meeting the QS 9000 quality standards by the International Automotive Sector Group. Our facilities in Hsinchu and Tainan have also been certified as meeting the ISO 9002 quality standards. The ISO 9002 certification is required by many countries worldwide in connection with sales of industrial products in such countries. The QS 9000 quality standards provide for continuous improvement with an emphasis on the prevention of defects and reduction of variation and waste in the supply chain. Like the ISO certification, the QS 9000 certification is required by some semiconductor manufacturers as a threshold indicator of a company's quality control standards. We also earned the 1998 QC Group Award from The Chinese Society of Quality, an equivalent of the similar award from the American Society of Quality. In addition, our laboratories have been awarded Chinese National Laboratory Accreditation under the categories of electricity, electrical test and temperature calibration.

Our testing and assembly 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 209E class 1,000, 10,000 and 100,000 standards. A class 1,000 clean room means a room containing less than 1,000 particles of contaminants per cubic foot.

We have established manufacturing quality control systems that are designed to ensure high-quality services to our customers and maintain reliability and high production yields at our facilities. We employ specialized equipment for manufacturing quality and reliability control, including:

temperature cycling testers, thermal shock testers, pressure cook testers and highly accelerated stress testers for reliability analyses;

a scanning acoustic tomograph and scanning electronic microscope for physical failure analysis, semi-auto probe and curve tracer and direct current tester station for electrical failure analysis; and

three-dimensional measurement for full-dimension measurement.

In addition, to enhance our performance and our research and development ability, we also installed a series of high-cost equipment, such as temperature humidity bias testers, low temperature storage-life testers and highly accelerated stress testers. Most of our competitors do not own this equipment.

As a result of our ongoing focus on quality, we achieved monthly assembly yields of an average of 99.9% in our thin small outline package, and 99.6% in our tape carrier packaging for the year ended December 31, 2002. The assembly yield, which is the industry standard for measuring production yield, is equal to the number of integrated circuit packages that are shipped back to customers divided by the number of individual integrated circuits that are attached to leadframes or organic substrate.

## Employees

The following table sets out, as of the dates indicated, the number of our full-time employees serving in the capacities indicated:

<b>Function</b>	<b>As of December 31,</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
General operations	1,116	773	1008
Quality control	133	100	127
Engineering	443	334	401
Research and development	86	125	146
Sales, administration and finance	96	80	90
Others	188	240	268
<b>Total</b>	<b>2,062</b>	<b>1,652</b>	<b>2,040</b>

The following table sets out, as of the dates indicated, a breakdown of the number of our full-time employees by geographic location:

<b>Location of Facility</b>	<b>As of December 31,</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
Hsinchu Production Group	1,136	888	937
South Taiwan Production Group	926	764	1,103
Shanghai Production Group	0	0	203

Our employees are not covered by any collective bargaining agreements. We have not experienced any strikes or work stoppages by our employees and believe that our relationship with our employees is good.

**Competition**

The independent testing and assembly markets are very competitive. Our competitors include large integrated device manufacturers with in-house testing and assembly capabilities, semiconductor assembly companies with in-house testing capabilities and other independent semiconductor testing and assembly companies, especially those offering semiconductor turnkey testing and assembly services, such as Advanced Semiconductor Engineering Inc., ASE Test Limited, ASAT Limited, Siliconware Precision, ST Assembly Test Services Ltd. and ChipPAC Incorporated. We believe that the principal competitive factors in the independent semiconductor testing industry are:

engineering capability software development;

quality of service;

flexibility;

capacity;

production cycle time; and

price.

In assembly services, we compete primarily on the basis of:

production yield;

production cycle time;

process technology, including our chip-on-film technology for LCD driver semiconductors assembly services;

quality of service;

capacity;

location; and

price.

Integrated device manufacturers that use our services continuously evaluate our performance against their own in-house testing and assembly 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 and lower costs while maintaining an equivalent or higher level of quality for three reasons:

First, we offer a broader and more complex range of services for our customers as compared to the in-house testing and assembly operations of integrated device manufacturers. Integrated device manufacturers tend to focus their resources on improving their front-end operations;

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Second, we generally have lower unit costs because of our higher utilization rates as compared to the in-house testing operations of integrated device manufacturers; and

Finally, we tend to offer a wider range of services in terms of the complexity and technology as compared to the in-house testing operations of integrated device manufacturers.

### **Research and Development**

We believe that research and development is critical to our future success. In 2000, 2001 and 2002 we spent approximately 4%, 8% and 5%, respectively, of our net revenues on research and development. We intend to sustain our commitment to these efforts.



Our research and development efforts have focused primarily on improving the efficiency production yields and technology of our testing and assembly services. From time to time, we jointly develop new technology with universities and research institutions. For testing, our research and development efforts focus particularly on complex, high speed, high pin count and high density semiconductors in fine pitch and thin packages. Our projects include:

development of testing environments for simultaneous wafer probing and package testing;

development/conversion of test programs;

development of wafer-level burn-in;

development of wafer-level testing;

testing new products using existing machines;

providing customers remote access to monitor test results; and

development of testing technologies for module and subsystem for flat panel displays.

We are also continuing development of interface designed to provide for high frequency testing by minimizing electrical noise.

For assembly, our research and development efforts focus on:

high performance;

fine pitch;

miniaturization;

multi-chip assembly;

multi-chip modules;

stacked-chip CSP;

modules and subsystems for flat panel displays;

thinner and more flexible assembly such as chip-on-film packaging;

three-dimensional assembly; and

developing environmentally friendly assembly services.

Our projects include developing multi-chip package, lead-free products, 12 inch wafer technologies, 100 micron wafer thickness technology, and COF module, liquid crystal on silicon microdisplay, or LCOS microdisplay, and optical engine assembly technologies. We work closely with our customers to design and modify testing software and with equipment vendors to increase the efficiency and reliability of testing and assembling equipment. Our research and development operations also include a mechanical engineering group, which currently designs handler kits for semiconductor testing and wafer probing, as well as software to optimize capacity utilization.

As of December 31, 2002, we employed 146 professionals in our research and development activities. In addition, other management and operational personnel are also involved in research and development activities but are not separately identified as research and development professionals.

We maintain laboratory facilities to analyze the characteristics of semiconductor packages by computer simulation, and verify their performance by measurement devices. The use of computer simulation substantially reduces the time required to validate the suitability of a package for a given application, as compared with physical testing methods.

### **Intellectual Property**

As of May 31, 2003, we held 253 patents in Taiwan, two patents in Japan, five patents in the United States and one patent in the People's Republic of China, relating to various semiconductor testing and assembly technologies. These patents will expire at various dates from October 5, 2004 through March 7, 2020. As of May 31, 2003, we also had a total of 10 pending patent applications in the United States, 76 in Taiwan and 7 in the People's Republic of China. In addition, we have registered InPack as a software trademark in Taiwan.

We expect to continue to file patent applications where appropriate to protect our proprietary technologies. We may need to enforce our patents or other intellectual property rights or to defend ourselves against claimed infringement of the rights of others through litigation, which could result in a substantial cost and diversion of our resources. See Item 3. Key Information Risk Factors Risks Relating to Our Business Disputes over intellectual property rights could be costly and deprive us of technology necessary for us to stay competitive.

### **Environmental Matters**

Semiconductor testing does not generate significant pollutants. The semiconductor assembly process generates gaseous chemical wastes, principally at the molding stage. Liquid waste is produced at the stage where silicon wafers are diced into chips with the aid of diamond saws and cooled with running water. In addition, excess materials on leads and moldings are removed from packaged semiconductors in the trimming and dejunking processes, respectively. We have installed various types of anti-pollution equipment for the treatment of liquid and gaseous chemical waste generated at our semiconductor assembly facilities in the Tainan Science Park, where all of our assembly operations are located. We believe that we have adopted adequate anti-pollution measures for the effective maintenance of environmental protection standards that are consistent with semiconductor industry practices in Taiwan, where all of 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.

All of our facilities in Taiwan have been certified as meeting the ISO 14001 environmental standards by the International Standards Organization. Our testing facility in the Hsinchu Science Park won the Plant Greenery and Beautification Excellence Award from the Science-Based Industrial Park Administration and the Green Office Award from the Environment Protection Administration of ROC in 2000 and was awarded the Outstanding Voluntary Protection Programs System Award by the Labor Affairs Commission of the Republic of China in 1999. Our assembly facility in the Tainan Science Park won the Green Office Award from the Environment Protection Administration of ROC in 2002. We will continue to implement programs and measures to reduce industrial waste, save energy, control pollution and related training. In 2001 we also completed our lead-free process control program, which offers a lead-free method in a semiconductor package, a lead-free plating, a lead-free solder ball and a lead-free reliability method and specification.

## **Holding Company Operations**

We currently do not have any significant assets or business operations other than our ownership interests in ChipMOS Taiwan. Under accounting principles that are applicable to us, Modern Mind is one of our controlled consolidated subsidiaries. ChipMOS Shanghai is a wholly owned subsidiary of Modern Mind. We do not own any shares in Modern Mind. In the future, however, particularly if ChipMOS Bermuda acquires or expands into other businesses, ChipMOS Bermuda may establish its own administrative, accounting, sales and marketing, research and development or other functions, which it would then provide to ChipMOS Taiwan, its other business units, or ChipMOS Shanghai on a centralized basis. The purpose of establishing and maintaining this organizational structure would be to centralize functions that can be provided economically to multiple business units on centralized functions. To properly document and allocate the costs of providing these services, ChipMOS Bermuda would likely enter into servicing agreements or other similar arrangements with its business units.

## **Insurance**

We maintain insurance policies on our buildings, equipment and inventories. These insurance policies cover property damage and damage due to fire and lightning. The maximum coverage of our property insurance is approximately NT\$18 billion. We do not currently maintain any insurance against business interruption.

As of the end of 2000, we had received approximately NT\$113 million in insurance compensation in respect of the earthquake that occurred on September 21, 1999. See Item 3. Key Information Risk Factors Risks Relating to Countries in Which We Conduct Operations We are vulnerable to disasters and other disruptive events.

Insurance coverage on facilities under construction is maintained by us and our contractors, who are obligated to procure necessary insurance policies and bear the relevant expenses of which we are the beneficiary.

We also maintain insurance on the wafers delivered to us while these wafers are in our possession and during transportation from suppliers to us and from us to our customers.

We do not have insurance for public liability, general theft, loss of key personnel and other risks.

## **Item 5. Operating and Financial Reviews and Prospects**

### **Overview**

We believe that we are one of the leading independent providers of semiconductor testing and assembly services. We provide a broad range of back-end testing services, including engineering testing, water probing and final testing for memory and mixed-signal semiconductors. We also offer a broad selection of lead frame-base and organic substitute-based package assembly services for memory and mixed signal semiconductors. Our advanced lead frame-based packages include thin small outline packages and our advanced organic substrate-based packages include miniball grid array packages. In addition, we provide testing and assembly services for LCD driver semiconductors and other flat-panel display driver semiconductors by employing tape carrier packages, chip-on-film and chip-on-glass technologies.

We provide semiconductor testing and assembly services. In addition, we provide semiconductor turnkey services, in which we purchase fabricated wafers and sell tested and assembled semiconductors, primarily memory products, to application and system manufacturers. In 2002, 36% of our net revenues were from testing services for memory and mixed signal semiconductors, 22% were from assembly services for memory and mixed signal semiconductors, 15% from LCD driver semiconductors testing and assembly services and 27% were from semiconductor turnkey services. Our largest customer, Mosel, accounted for approximately 48% of our revenues in 2001 and 35% of our revenues in 2002 and our second largest customer, Ultima, accounted for approximately 22% of our revenues in 2001 and 11% of our revenues in 2002.

Semiconductors tested and assembled by us are used in personal computers, graphic applications, such as game stations and personal digital assistants, communications equipment, such as cellular phones, and consumer electronic products and display applications, such as flat-panel displays. We believe, based upon an understanding of the business of our customers and informal oral surveys of our current customers, that services performed on semiconductors for personal computers, consumer electronic products and graphic applications accounted for approximately 91% of our revenues in 2001 and 78% in 2002. Services performed on semiconductors for communications equipment accounted for approximately 9% of our revenues in 2001 and 21% of our revenues in 2002.

The following table sets out, for the periods indicated, our consolidated net revenues, gross profit and gross margin.

	Year ended December 31,			
	2000	2001	2002	2002
	NT\$	NT\$	NT\$	US\$
	(in thousands, except percentages)			
Net revenues:				
Memory and mixed signal semiconductors				
Testing	4,773,124	2,242,677	2,331,057	67,177
Assembly	2,257,038	1,610,879	1,415,196	40,784
LCD driver semiconductors testing and assembly	89,913	131,505	991,774	28,581
Semiconductor turnkey	1,104,116	1,260,034	1,787,838	51,523
Total	8,224,191	5,245,095	6,525,865	188,066
Gross profit/(loss):				
Memory and mixed signal semiconductors				
Testing	2,119,769	(722,592)	(353,597)	(10,190)
Assembly	594,564	197,483	20,905	602
LCD driver semiconductors				
Testing and assembly	(10,541)	(272,483)	125,998	3,631
Semiconductor turnkey	9,407	13,377	20,853	601
Total	2,713,199	(784,214)	(185,841)	(5,354)
Gross profit/(loss) margin:				
Memory and mixed signal Semiconductors				
Testing	44 %	(32)%	(15)%	15 %
Assembly	26 %	12 %	1 %	1 %
LCD driver semiconductors testing and assembly	(12)%	(207)%	13 %	13 %
Semiconductor turnkey	1 %	1 %	1 %	1 %
Overall	33 %	(15)%	(3)%	(3)%

Our results of operations have been primarily affected by the following factors:

Market conditions in the highly cyclical semiconductor industry. From time to time, the semiconductor industry has experienced significant, and sometimes prolonged, downturns. These downturns have been characterized by overcapacity, reduced demand and lower prices. Our results of operations for 1999 were adversely affected by a downturn in the semiconductor market in 1998. Due to a significant decrease in market demand for semiconductors that began in the second half of 2000, our results of operations for 2000 and 2001 were adversely affected. Starting from the fourth quarter of 2002, the semiconductor industry has been recovering from the downturn and our results of operations in 2002 have slightly improved. In periods of decreased demand for assembled semiconductors, some of our customers may forego or simplify final testing of certain types of semiconductors such as DRAM.

Declining average selling prices of our testing and assembly services. Historically, prices for our testing and assembly services for a particular technology have declined over time. This trend is driven by productivity improvements and the general trend toward lower prices for semiconductor devices of any particular technology over time. We expect that average selling prices for our semiconductor testing and assembly services for any given technology will continue to decline in the future. A decline in average selling prices, if not offset by a reduction in our costs, will decrease our gross margin.

To offset the effects of decreasing average selling prices, we will continue seeking to:

- improve production efficiency and maintain a high capacity utilization rate;
- concentrate on testing for high-demand, high-growth semiconductors;
- implement improvement programs to increase the efficiency of our testers;
- develop new assembly technologies; and
- improve production efficiencies for conventional assembly technologies.

Market conditions for the end-use applications for semiconductor products. Our revenues are largely attributable to the testing and assembly of semiconductors used in personal computers, graphic application, communications equipment and consumer electronic products. Our results of operations for 2000, 2001 and 2002 were adversely affected by a moderation in market demand for personal computers and communications equipment that began in the fourth quarter of 2000 and a decrease in market demand for personal computers that began in the first quarter of 2001.

### **Capacity and Utilization Rates**

Our results of operations are affected by the capital intensive nature of our business. Depreciation expenses for equipment such as testers, wire bonders and inner-lead bonders constitute a significant portion of our total costs. Testers cost between US\$2 million and US\$3 million each, wire bonders for memory and mixed signal semiconductors assembly cost approximately US\$100,000 each and inner-lead bonders for tape carrier package assembly cost approximately US\$420,000 each. Increases or decreases in capacity utilization rates can have a significant effect on gross profit margins, as the unit cost of testing services generally decreases as fixed charges, such as equipment depreciation expense, are allocated over a larger number of units. Depreciation expense as a percentage of revenues was 22% in 2000, 50% in 2001 and 41% in 2002. We expect our depreciation expense to increase in 2003 because of additional capital expenditures.

As of December 31, 2002, we had 249 testers, 121 wire bonders and 62 inner-lead bonders. We use inner-lead bonders for assembly of LCD driver semiconductors using tape carrier package technology, and wire bonders for TSOP, BGA and some other package assembly technologies. As a result of the decline in the market demand for semiconductors that began in the second half of 2000, our average capacity utilization rate for testing of memory and mixed signal semiconductors decreased from 77% in 2000 to 47% in 2001. Due to the recovery of the semiconductor industry, our average utilization rate for testing for memory and mixed signal semiconductor increased to 69% in 2002. Our average capacity utilization rate for assembly of memory and mixed signal semiconductors increased to 60% in 2002 from 43% in 2001 and 53% in 2000. In addition, our average capacity utilization rate for LCD driver semiconductors testing and assembly increased to 62% in 2002 from 19% in 2001 and 50% in 2000. Our capacity utilization rate is determined by us based on the capacity ratings given by manufacturers of the equipment used in our fabs without adjustment for actual output during uninterrupted trial runs and expected down time due to setup for production runs and maintenance. We cannot assure you that we will be able to increase our profitability levels if we cannot consistently increase capacity utilization rates for testing and assembly. We believe that our utilization rates for testing and assembly, excluding semiconductor turnkey, will improve in

2003 due to recovery in the semiconductor industry.



## Net Revenues and Pricing

We generate our revenues from testing for memory and mixed signal semiconductors, assembly for memory and mixed signal semiconductors, testing and assembly for LCD driver semiconductors and semiconductor turnkey operations. Our revenues consist primarily of our service fees for testing and assembly. We also earn revenues from fees for engineering testing and equipment use paid by semiconductor manufacturers who rent our equipment to test semiconductors. With the exception of our semiconductor turnkey services, our costs do not include the cost of semiconductors because the ownership of the semiconductors that we test and assemble remains with our customers.

Our revenues are recognized in the period when our customers receive the tested and assembled semiconductors. We submit invoices at the time of shipping and currently require the customers to pay within 90 days after the date of invoice. Prior to July 2001, we required most customers to pay within 60 days after the date of the invoice. In June 2002, we increased our credit terms for Mosel from 60 days to 90 days. In May 2003, we increased our credit terms for Mosel from 90 days to 120 days. In November 2001, we increased our credit terms for Ultima from 30 days to 90 days after the date of the invoice. We have not experienced any significant collection problems.

We offer special discounts to key customers, who are generally those who purchase large quantities of our services, or those who utilize our turnkey services, or those who have technology alliance with us. To other customers, we apply the same pricing principles.

### *Testing for Memory and Mixed Signal Semiconductors*

We price our testing services principally on the basis of the amount of time taken by our automated testing equipment, including testers and handlers, to execute the test programs that are specific to the customer's products. The price per unit for each particular product is based on a number of factors, including:

the complexity and structure of the product;

the number of functions and patterns tested;

the time required to test the product pursuant to the customer's specifications;

labor costs and overhead expenses;

the ability of the machine to conduct multi-site tests, which involve testing multiple semiconductors simultaneously; and

the cost of the testers used to perform the testing services.

Due to the difference in testing time required and the need for burn-in testing, the testing for memory products is priced at significantly higher levels per unit than the other products we test.



*Assembly for Memory and Mixed Signal Semiconductors*

We price our assembly services on a per unit basis, taking into account the complexity of the package, the materials and equipment used, prevailing market conditions, the order size, the strength and history of our relationship with the customer and our capacity utilization.

When we subcontract assembly services to other subcontractors, we recognize the amount we charge to our customers for assembly services as revenues and we record the fees charged by our subcontractors as cost of goods sold.

*Testing and Assembly for LCD Driver Semiconductors*

We price our testing and assembly services for LCD driver semiconductors on the basis of our costs, including the costs of the required material and components, the depreciation expenses relating to the equipment involved and our overhead expenses, and the price for comparable services.

*Semiconductor Turnkey*

Because we purchase wafers for our turnkey services, we price our semiconductor turnkey services based on the market price of the wafers as well as the factors we use to price our testing and assembly services, as described above.

**Change in Product Mix**

*Testing for Memory and Mixed Signal Semiconductors*

Despite the downturn in 2001 in global demand for communications equipment, such as cellular phones, we believe that a growth potential remains for mixed signal semiconductors testing services due to the wide scope of end-use applications for these semiconductors. To capture the opportunity offered by this growing market, we began to shift our testing services to mixed-signal semiconductors since the third quarter of 1999. Subject to market conditions, we plan to continue to increase our testing services for mixed signal semiconductors.

*Assembly for Memory and Mixed Signal Semiconductors*

Due to customer demand, our assembly services have historically focused on leadframe-based assembly, primarily thin small outline packages for memory semiconductors. In response to the increasing demands of today's high-performance electronics, we introduced organic substrate-based packages, including mini BGA, to complement leadframe-based packages. Our organic substrate-based packages employ the mini BGA design, which uses a plastic or tape laminate rather than a leadframe. The mini BGA format was developed to address the need for the smaller footprint required by advanced memory devices and higher frequency applications required by advanced memory devices. Organic substrate-based packages now represent a fast growing area in the semiconductor assembly industry. We began offering organic substrate-based

assembly services in July 2000.

*LCD Driver Semiconductor Testing and Assembly*

We began to provide testing and assembly services for LCD driver semiconductors in July 2000 and currently contemplate services for LCD driver semiconductors to represent a greater percentage of our services in 2003. Due to the unique nature of driver semiconductors used in liquid crystal displays and other flat-panel display systems, our testing and assembly of those driver semiconductors is done as part of one integrated process. Prior to 2002, we considered the testing of LCD driver semiconductors to be part of our assembly services. Due to the increasing importance of our LCD driver semiconductor services and the fact that those services include a combination of testing and assembly, commencing from 2002, we view LCD driver semiconductor services as a separate, distinct segment of our business. We include in this segment all of our testing and assembly for flat-panel display driver semiconductors, the vast majority of which are liquid crystal displays. As a result of the creation of our new business segment, we have restated our historical financial statements to include this new LCD driver semiconductor business segment and accordingly changed the historical information set forth regarding our testing and assembly segment. We have also clarified that our testing and assembly segments are for testing and assembly of memory and mixed signal semiconductors.

### **Critical Accounting Policies**

We prepare the consolidated financial statement of ChipMOS in conformity with ROC GAAP. Under ROC GAAP, we are required to make certain estimates, judgments and assumptions about matters that are highly uncertain at the time those estimates, judgments and assumptions are made, and our financial condition or results of operations may be materially impacted if we use different but nonetheless reasonable estimates, judgments or assumptions about those matters for that particular period or if we change our estimates, judgments or assumptions from period to period.

Under ROC GAAP, the significant accounting policies which we believe are the most critical in aiding us to understand and evaluate our reported financial results for all our segments are set forth below. In connection with the reconciliation of our consolidated financial statements to US GAAP, there are no additional accounting policies that we believe are critical to the Company.

### **Allowance for Doubtful Accounts**

Our accounts receivable balance on our balance sheet is affected by our allowance for doubtful accounts, which reflects our estimate of the expected amount of the receivables that we will not be able to collect.

Our determination of the allowance for doubtful accounts is based on our determination of two different types of reserves. The first type of reserve involves an individual examination of available information regarding any customer that we have reason to believe may have an inability to meet its financial obligations. For these customers, we use our judgment, based on the available facts and circumstances, and record a specific reserve for that customer against amounts due to reduce the receivable to the amount that is expected to be collected. These specific reserves are reevaluated and adjusted as additional information is received. The second type of reserve is a general reserve established for all customers based on a range of percentages applied to aging categories. These percentages are based on historical collection and write-off experience. If circumstances change, our estimates of the recoverability of amounts due to us could be reduced by a material amount. As of December 31, 2002, we provided NT\$12 million for the first type of reserve and NT\$33 million for the second type of reserve.

The allowance we set aside for doubtful receivables was NT\$71 million in 2000, NT\$30 million in 2001 and NT\$45 million in 2002. The allowances as of December 31, 2000, 2001 and 2002 represented 3.4%, 2.0%, and 2.4%, respectively, of our accounts receivable and other receivables as of those dates. The allowance in 2000 reflected a reduction of NT\$60 million in accounts receivable that was charged to marketing expenses, and the allowance in 2002 reflected a reduction of NT\$3 million in accounts receivable that was charged to marketing expenses. If we were to change our estimate on allowance for doubtful receivables either upward or downward 10%, our operating income would be affected by NT\$11 million for 2002.

An increase in our allowance for doubtful accounts would decrease our recorded revenue and our current assets.

### **Inventory Valuation**

We state our inventories at the lower of cost or market value. Market value represents net realizable value for finished goods and work in process and replacement value for raw materials. We use the standard cost method to determine the cost of our inventories, adjusted to approximate weighted-average cost at the end of the period. We periodically evaluate the composition of our inventory and identify slow-moving inventories. Inventory items identified as slow-moving are evaluated to determine whether reserves are required.

No inventory valuation allowance was recorded in 2000. In 2001 and 2002, we reserved NT\$66 million and NT\$51 million, respectively, for inventory valuation allowance, mainly due to the decrease in the prevailing market prices for tested and assembled DRAM and SDRAM below the historical cost of our inventory. In addition, we reserved NT\$35 million in 2001 and NT\$36 million in 2002 for identified slow-moving inventories.

As of December 31, 2002, we recorded inventory valuation allowances in the aggregate amount of NT\$87 million. If the prevailing market prices for our testing and assembling services had been 25% higher, we would not have been required to record any valuation allowance. That, in turn, would have increased our inventory value and income for the year ended December 31, 2002 by 31% and 5%, respectively. However, if the prevailing market price for our testing and assembling services had been 10% lower, we would have been required to recognize an additional valuation allowance of approximately NT\$20 million. That amount would have decreased our inventory value and income for the year ended December 31, 2002 by 12% and 2%, respectively.

### **Valuation Allowance for Deferred Tax Assets**

When we have net operating loss carry forwards, investment tax credits or temporary differences in the amount of tax recorded for tax purposes and accounting purposes, we may be able to reduce the amount of tax that we would otherwise be required to pay in future periods. We recognize all existing future tax benefits arising from these tax attributes as deferred tax assets and then, based on our internal estimates of our future profits, establish a valuation allowance equal to the extent, if any, that it is more likely than not that deferred tax assets will not be realized. We record a benefit or expense under the income tax expense/benefit line of our statement of operations when there is a net change in our total deferred tax assets and liabilities in a period. Because the calculation of income tax benefit is dependent on our internal estimation of our future profitability, it is inherently subjective. In 2000, 2001 and 2002, we recorded valuation allowances of NT\$251 million, NT\$772 million and NT\$181 million, respectively.

In calculating our valuation allowance for deferred taxes as of December 31, 2002 we have assumed that the semiconductor industry will continue its recovery in 2003. Furthermore, we have assumed that our revenue and profitability will be favorably impacted by this growth in the industry as a whole.

As of December 31, 2002, the ending balance for our valuation allowances was NT\$1,307 million. If our current estimate of future profit had been 10% higher, we would have decreased our valuation allowances accordingly. That, in turn, would have increased our deferred tax assets and we would have had a tax benefit instead of tax expense for the year ended December 31, 2002. In contrast, if our current estimate of future profit had been 10% lower, we would have been required to recognize an additional valuation allowance. That, in turn, would have decreased our deferred tax assets and increased our tax expense for the year ended December 31, 2002. In 2000, we had assumed steady growth in our sales and profitability for the following five years, but our actual sales declined by 36% in 2001. This decline and our near-term outlook as of December 31, 2002 was a key factors in determining the amount of our valuation allowance as of December 31, 2002.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

In addition, because the recording of deferred tax assets and income tax benefit is based on our assumptions of levels of profitability, if we subsequently determine that it is unlikely that we will achieve those profit levels, or otherwise believe that we will not incur sufficient tax liabilities to fully utilize the deferred tax assets, we will reduce our deferred tax assets in an amount equal to that determination and incur a charge to income in that amount at that time. Because our expectation for future income is generally less during periods of reduced income, we will be more likely to take significant valuation allowances in respect of income tax assets during those periods of already reduced income.

### **Impairment Loss of Long-Lived Assets**

We evaluate our long-lived assets for impairment whenever indicators of impairment exist. We record impairment losses on long-lived assets used in operations if events and circumstances indicate that the assets might be impaired and the undiscounted cash flows estimated to be generated by those assets are less than the carrying amount of those items. Assumptions about the carrying value of the long-lived assets require significant judgment on our expected cash flow. Our cash flow estimates are based on historical results adjusted to reflect our best estimate of future market and operating conditions. The net carrying value of assets not recoverable is reduced to fair value. Our management periodically reviews the carrying value of our long-lived assets and this review is based upon our projections of anticipated future cash flows. While we believe that our estimates of future cash flows are reasonable, different assumptions regarding such cash flows could materially affect our evaluations.

In determining whether any impairment charges were necessary as of December 31, 2002, we have assumed that the semiconductor industry will continue its growth in 2003. The Semiconductor Industry Association projects that the semiconductor industry will grow by approximately 1.7% in 2003, followed by strong double-digit growth in the subsequent two years. Based upon our assumption of growth in the semiconductor industry and our other assumptions in our internal budget, for the purpose of determining whether any impairment changes are necessary as of December 31, 2002, we estimate that our future cash flows, on an undiscounted basis, are greater than our NT\$9,982 million in long-lived assets. Any increases in estimated future cash flows would have no impact on the reported value of the long-lived assets. In contrast, if our current estimate of future cash flows from those assets had been 36% lower, those cash flows would have been less than the reported amount of long-lived assets. In that case, we would have been required to recognize an impairment loss that would have significantly increased our net loss before taxes for the year ended December 31, 2002.

### ***Senior Management's Discussion with the Audit Committee***

Our management has discussed the development and selection of those critical accounting estimates with the audit committee of our board of directors and the audit committee has reviewed our disclosure relating to the critical accounting policies in this section.



**Results of Operations**

The following table presents selected operating data as a percentage of net revenues for the periods indicated:

	<b>Year ended December 31,</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
	(percentage of net revenues)		
Net revenues	100	100	100
Cost of sales	67	(115)	(103)
Gross profit (loss) margin	33	(15)	(3)
Operating expenses			
Research and development	4	7	(5)
General and administrative	3	5	(4)
Marketing	2	1	(1)
Total operating expenses	9	13	(10)
Income/(loss) from operations	24	(28)	(13)
Non-operating income	5	10	3
Non-operating expenses			
Interest	4	6	(4)
Other	2	6	(5)
Total non-operating expense	6	12	(9)
Income/(loss) before income tax and minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary	23	(30)	(19)
Income tax benefit/(expense)	(4)	(1)	(2)
Income/(loss) before minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary	19	(31)	(20)
Minority interest in ChipMOS Taiwan	(6)	9	(6)
Interest in bonuses to directors, supervisors and employees paid by a subsidiary	(1)		0
Net income/(loss)	12	(22)	(15)

*Year Ended December 31, 2002 Compared to Year Ended December 31, 2001*

**Net Revenues.** Our net revenues increased 24% to NT\$6,526 million (US\$188 million) in 2002 from NT\$5,245 million in 2001 as a result of an increase in revenues from testing services for memory and mixed signal semiconductors, LCD driver semiconductor testing and assembly and turnkey services. Revenues from testing services for memory and mixed signal semiconductors increased 4% primarily due to an increase in volume for testing services for memory and mixed signal semiconductors as a result of an increase in demand. Revenues from assembly services for memory and mixed signal semiconductors decreased by 12% as a result of a decrease in prices for assembly services for memory and mixed signal semiconductors. Our revenues from LCD driver semiconductor testing and assembly services increased over six times to NT\$992 million (US\$29 million) primarily due to an increase in volume for LCD testing and assembly services as a result of an increase in demand for LCD driver semiconductor testing and assembly. Our revenues from semiconductor turnkey services increased by 42% to NT\$1,788 million (US\$52 million) due to an increase in demand and price for semiconductor turnkey services.

**Cost of Sales and Gross Margin.** Cost of sales increased 11% to NT\$6,712 million (US\$193 million) in 2002 from NT\$6,029 million in 2001. Cost of sales consists of depreciation and amortization expenses, raw material costs, and labor and overhead expenses. This NT\$681 million (US\$20 million) increase was primarily due to an increase of NT\$447 million in raw material costs associated with turnkey services as a result of an increase in volume of turnkey services and an increase of NT\$78 million in labor costs, NT\$222 million in overhead expenses, which was

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

partially offset by a decrease of NT\$115 million in inventory revaluation allowance. Overhead expenses increased primarily due to an increase of NT\$107 million in expensable equipment in service, an increase of NT\$49 million in maintenance costs and inventory supplies, and an increase of NT\$26 million in royalty fee payments to Sharp.

Gross loss margin was 3% in 2002, compared to gross loss margin of 15% in 2001, as gross loss decreased to NT\$186 million (US\$5 million) in 2002 from gross loss of NT\$784 million in 2001. Our gross loss margin for testing services for memory and mixed signal semiconductors was 15% in 2002, compared to gross loss margin of 32% in 2001, primarily due to the increase in our utilization rate in testing services for memory and mixed signal semiconductors. Our gross margin for assembly services for memory and mixed signal semiconductors decreased from a gross profit margin of 12% in 2001 to a gross profit margin of 1% in 2002, primarily due to a decrease in price for assembly services for memory and mixed signal semiconductors. Our gross margin for LCD driver semiconductor testing and assembly increased to a gross profit margin of 13% in 2002 from a gross loss margin of 207% in 2001, primarily due to an increase in utilization rate. Our gross margin for semiconductor turnkey services remains constant at 1% because the purchase cost of fabricated wafers is included in our costs of semiconductor turnkey services.

**Research and Development Expenses.** Research and development expenses decreased 20% to NT\$327 million (US\$9 million) in 2002 from NT\$409 million in 2001. This decrease was primarily due to a decrease of NT\$56 million in amortization expenses as no additional amortization expenses for the technology know-how transferred by Mosel were incurred in the second half of 2002 and a decrease of NT\$14 million in research and development material. We expect that our absolute level of research and development expenses will increase in 2003 as we will focus on the research and development projects relating to COF module, wafer level chip scale packaging or WLCSP, liquid crystal on silicon module, or LCOS module, and optical engine.

**General and Administrative Expenses.** General and administrative expenses increased 25% to NT\$310 million (US\$9 million) in 2002 from NT\$248 million in 2001. This increase was primarily due to an increase of NT\$25 million in stock option compensation expenses and our increased spending in general and administrative expenses relating to the development and expansion of our operation in China.

**Marketing Expenses.** Marketing expenses increased 6% to NT\$37 million (US\$2 million) in 2002 from NT\$35 million in 2001. This increase was primarily due to an increase of NT\$4 million in entertainment expenses, which was partially offset by a decrease of NT\$2 million in commissions paid to Richtime Technologies Limited.

**Net Non-Operating Income/Expenses.** Net non-operating expenses increased by 4 times to NT\$399 million (US\$11 million) in 2002 from NT\$77 million in 2001. This decrease was primarily due to a decrease of NT\$182 million in gain on sale of investment, an increase of NT\$169 million in allowance for loss on investment in Mosel and a decrease of NT\$30 million in net interest expenses.

**Income Taxes.** Income tax expense for the year ended December 31, 2002 was NT\$98 million, compared to an income tax expense of NT\$32 million for 2001. The NT\$98 million income tax expense was primarily due to a loss of NT\$1,237 million before income tax and minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary, offset by a valuation allowance of NT\$182 million taken in respect of deferred tax assets.

**Income (Loss) Before Income Tax and Minority Interest and Interest in Bonuses to Directors, Supervisors and Employees Paid by a Subsidiary.** Loss before income tax and minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary decreased 20% to NT\$1,237 million (US\$36 million) in 2002 from NT\$1,553 million in 2001. This decrease was primarily due to a decrease of NT\$625 million in operating loss, an increase of NT\$320 million in net non-operating expense and an increase of NT\$66 million in income tax expense.

In 2002, we had a minority interest of NT\$385 million (US\$11 million) compared with the NT\$451 million we had in 2001. The decrease was primarily due to the increase in our net revenue, partially offset by a decrease in operating expenses, an increase in net non-operating expenses and an increase in income tax.



*Year Ended December 31, 2001 Compared to Year Ended December 31, 2000*

**Net Revenues.** Our net revenues decreased 36% to NT\$5,245 million in 2001 from NT\$8,224 million in 2000 as a result of a decrease in testing and assembly revenues. Revenues from testing services for memory and mixed signal semiconductors decreased by 53% primarily due to a decrease in volume of testing services for memory and mixed signal semiconductors in 2001, particularly on mixed signal semiconductors, DRAM and SDRAM, and a decrease of 47% and 34% in the prices of our testing services on DRAM and SDRAM, respectively. Our volume of testing services for memory and mixed signal semiconductors decreased primarily because of the overall decrease in demand for semiconductors. In addition, certain of our DRAM testing customers decided to forego or simplify final testing of DRAM due to the low selling prices of DRAM. Revenues from assembly for memory and mixed signal semiconductors decreased by 29% as a result of an overall decrease in the number of semiconductors assembled in 2001, particularly DRAM and SRAM, and a decrease of 14% in the prices of our assembly services on DRAM, SRAM and SDRAM. Our revenues from LCD driver semiconductor testing and assembly increased 46% to NT\$132 million primarily due to expansion in capacity. Our revenues from semiconductor turnkey services increased by 14% to NT\$1,260 million due to the fact that we used less of our capacity for testing and assembly. Our volume and prices of assembly services for memory and mixed signal semiconductors decreased primarily because of the overall decrease in market demand for semiconductors and the significant oversupply of basic assembly capacity in Taiwan.

**Cost of Sales and Gross Margin.** Cost of sales increased 9% to NT\$6,029 million in 2001 from NT\$5,511 million in 2000. Cost of sales consists of depreciation and amortization expenses, raw material costs, and labor and overhead expenses. This NT\$518 million increase was primarily due to an increase of NT\$802 million in depreciation and amortization expenses, an increase of NT\$152 million in costs associated with semiconductor turnkey services, partially offset by a decrease of NT\$61 million in raw material costs and a decrease of NT\$495 million in labor and overhead expenses. Depreciation and amortization expenses increased primarily as a result of additional equipment we put into service in 2001 in connection with our capacity expansion program. Raw material costs decreased primarily as a result of the decreased volume of in-house assembly. Our labor and overhead expenses decreased primarily due to the decrease in testing and assembly services for memory and mixed signal semiconductors.

In 2001, we had a gross loss of NT\$784 million as opposed to a gross profit of NT\$2,713 million in 2000. In 2000, our gross profit margin was 33%. In 2000, our gross profit margin for assembly services for memory and mixed signal semiconductors was 26%. In 2001, we had a gross profit of NT\$197 million for assembly services for memory and mixed signal semiconductors, primarily reflecting the decrease in our utilization rate and prices of in-house assembly services. Our gross profit margin for testing services for memory and mixed signal semiconductors was 44% in 2000. In 2001, we had a gross loss of NT\$723 million for testing for memory and mixed signal semiconductors, and this decrease primarily reflects the decrease in our utilization rate and prices of testing services for memory and mixed signal semiconductors. Our gross loss margin for LCD driver semiconductor testing and assembly services decreased from 12% in 2000 to 207% in 2001, primarily due to the lower utilization rate for the newly introduced technology. We had a gross profit margin of 1% for semiconductor turnkey services in both 2000 and 2001.

**Research and Development Expenses.** Research and development expenses increased 14% to NT\$409 million in 2001 from NT\$357 million in 2000. This increase was primarily due to the increase in the rental expenses of equipment and an increase in research and development expenses relating to the known good die or KGD, and COF.

**General and Administrative Expenses.** General and administrative expenses increased 4% to NT\$248 million in 2001 from NT\$238 million in 2000. This increase was primarily due to an increase of NT\$9 million in audit and legal fees.

**Marketing Expenses.** Marketing expenses decreased 75% to NT\$35 million in 2001 from NT\$138 million in 2000. This decrease was primarily due to a large bad debt reserve of NT\$60 million created in 2000. The decrease in marketing expenses also reflects a decrease of NT\$10 million in compensation expenses, resulting from a 36% decrease in the number of employees in our marketing department, a decrease of NT\$8 million in traveling, entertainment and export expenses, and a decrease of NT\$10 million in commissions paid to our salesmen in Japan.

**Net Non-Operating Income/Expenses.** Net non-operating expenses decreased by 28% to NT\$77 million in 2001 from NT\$107 million in 2000. This decrease was primarily due to an increase of NT\$133 million gain on the sale of our short-term investments and a decrease of NT\$97 million of our investment loss in PlusMOS under the equity method, partially offset by a loss of NT\$103 million for early termination on certain of our machinery leases and a decrease of NT\$102 million in insurance compensation.

**Income Taxes.** Income tax expense for the year ended December 31, 2001 was NT\$32 million, compared to an income tax expenses of NT\$333 million for 2000. The NT\$32 million income tax expense was primarily due to a loss of NT\$1,553 million before income tax and minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary, offset by a valuation allowance of NT\$772 million taken in respect of deferred tax assets.

**Income (Loss) Before Minority Interest and Interest in Bonuses to Directors, Supervisors and Employees Paid by a Subsidiary.** Loss before minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary was NT\$1,585 million in 2001, and our income before minority interest and interest in bonuses to directors, supervisors and employees paid by a subsidiary was NT\$1,539 million in 2000. This loss was primarily due to the decrease in our net revenue and gross margin, partially offset by a decrease in operating expenses, a decrease in net non-operating expenses and a decrease in income tax.

In 2000, we had a minority interest of NT\$466 million, which was subtracted from our net income in 2000, and in 2001, due to the net loss of ChipMOS Taiwan, our minority interest effectively decreased our net loss by NT\$451 million.

## **Liquidity and Capital Resources**

Since our inception, we have funded our operations and growth primarily through issuance of equity, a mixture of short- and long-term loans and cash flow from operations. As of December 31, 2002, our primary sources of liquidity were cash and cash equivalents of NT\$1,984 million (US\$57 million) and NT\$1,646 million (US\$47 million) available to us in undrawn credit facilities, which have expired or will expire between February 2003 and November 2003.

### *Liquidity*

Net cash provided by operating activities totaled NT\$4,295 million in 2000, NT\$1,620 million in 2001 and NT\$1,464 million (US\$42 million) in 2002. Our depreciation and amortization expenses were NT\$2,013 million in 2000, NT\$2,815 million in 2001 and NT\$2,821 million (US\$81 million) in 2002. The increase in depreciation and amortization was due to additional equipment installed in connection with our capacity expansion program. See Results of Operations. Our aggregate accounts receivable were NT\$1,969 million as of December 31, 2000, NT\$1,451 million as of December 31, 2001 and NT\$1,667 million (U.S.\$48 million) as of December 31, 2002. Our accounts receivable with related parties increased from NT\$867 million as of December 31, 2000 to NT\$1,200 million as of December 31, 2001, primarily as a result of our decision in July 2001 to increase our credit terms to Mosel from 60 days to 120 days after shipment and our decision in November 2001 to increase our credit term to Ultima from 30 days to 90 days after shipment. We changed our credit terms to Mosel from 120 days back to 60 days in April 2002. Our accounts receivables with related parties decreased to NT\$1,104 million as of December 31, 2002 primarily due to the change in

credit terms to Mosel. In May 2003, we increased our credit terms for Mosel from 90 days to 120 days.

Net cash used in investing activities totaled NT\$7,548 million in 2000, NT\$1,410 million in 2001 and NT\$3,134 million (US\$90 million) in 2002. Net cash used for investing activities primarily reflected expenditure in acquiring properties and equipment, which was NT\$6,567 million in 2000, NT\$1,672 million in 2001 and NT\$2,029 million (US\$58 million) in 2002. Expenditure in acquiring long-term investments was NT\$357 million in 2000, NT\$11 million in 2001 and NT\$1,271 million (US\$37 million) in 2002. Our net cash used for investment activities in 2001 reflected a decrease of NT\$1,078 million in short-term investments from NT\$2,048 million as of December 31, 2000 to NT\$970 million as of December 31, 2001. We incurred capital expenditures of NT\$6,567 million in 2000 for the purchase of testing equipment for mixed-signal semiconductors and tape carrier packages, NT\$1,672 million in 2001 for the purchase of testing equipment for LCD driver semiconductors and tape carrier packages and NT\$1,964 million in 2002 for the purchase of testing and wafer sorting equipment for LCD driver semiconductors.

Net cash provided by financing activities totaled NT\$4,294 million in 2000, reflecting primarily proceeds of NT\$2,550 million from the issuance of common shares by ChipMOS Taiwan prior to our reorganization and NT\$1,568 million of net long-term borrowings in 2000. Net cash used in financing activities totaled NT\$220 million in 2001, primarily reflecting NT\$1,052 million repayment of long-term loans, partially offset by borrowings of NT\$833 million in bank loans. Net cash provided by financing activities totaled NT\$2,403 million in 2002, primarily reflecting NT\$1,214 million of net long-term borrowings, NT\$1,125 million of net short-term borrowings and NT\$63 million from the issuance of common shares.

### *Capital Resources*

Our capital expenditure in 2000 was funded by the proceeds of NT\$2,550 million from the issuance of common shares by ChipMOS Taiwan prior to our reorganization, a net increase of NT\$1,568 million of long-term borrowings and NT\$4,295 million of cash flow from operations. Capital expenditure in 2001 was funded by NT\$1,620 million cash flow from operations and NT\$1,078 million in short-term investments. Capital expenditure in 2002 was funded by NT\$1,192 million (US\$34 million) cash from operations and an increase of NT\$1,214 million (US\$35 million) of long-term borrowings.

We have budgeted capital expenditure of approximately NT\$1,294 million for 2003 and NT\$619 million for 2004. In connection with our planned operations in Shanghai, we have invested, through ChipMOS Shanghai, US\$38 million in the new testing and assembly facility in Shanghai and we have committed that we will invest a further US\$213 million by the end of 2005 in the permanent testing and assembly facility. Construction of the facility began in June 2002 and full-scale production is expected to begin by the fourth quarter of 2003. We currently expect to fund our investments in Shanghai through issuance of additional debt or equity securities and/or long-term borrowings through ChipMOS Shanghai. We currently expect a substantial portion of these new long-term borrowings by ChipMOS Shanghai to be from banks in the People's Republic of China and denominated in Renminbi (RMB). If we are unable to raise sufficient funds, we will decrease our investments accordingly. We expect to fund the remainder of capital expenditure with cash from operations. From time to time, subject to market conditions, we will also consider issuing additional debt or equity securities and raising short or long-term borrowings to fund our capital expenditure.

As of December 31, 2002, we had long-term bank loans amounting to NT\$3,164 million (US\$91 million), NT\$3,123 million (US\$90 million) of which are collateralized by equipment and buildings and NT\$41 million (US\$1.15 million) of which are collateralized by time deposit. NT\$623 million (US\$18 million) of these loans are floating rate loans (6.93% at December 31, 2001 and 5.425% at December 31, 2002) repayable semi-annually from November 2000 to December 2004. NT\$2,000 million (US\$58 million) of these loans are floating rate loans (4.75% at December 31, 2002) repayable semi-annually from September 2004 to September 2007. NT\$500 million (US\$14 million) of these loans are floating rate loans (4.875% at December 31, 2002) repayable semi-annually from September 2004 to September 2007. NT\$41 million (US\$1 million) is an interest-free research and development subsidy from the government for developing KGD solutions and COF assembly and testing technology, which is repayable quarterly from July 2003 to December 2005. As of December 31, 2002, the unused credit line of this loan was NT\$0.03 million.

On January 26, 2000, we issued NT\$1,200 million of secured bonds, which are due on January 26, 2005. The bonds bear interest at an annual rate of 5.95%.





On July 24, 2002, we obtained a syndicated loan facility in the amount of NT\$25 billion from a group of financial institutions for a term of five years, and this loan facility is secured by our testing and assembly equipment located within our facility in Hsinchu Science Park and Tainan Science Park.

In November 2002, ChipMOS Shanghai obtained a long-term loan facility for US\$172 million and Renminbi 161 million from the Agricultural Bank of China (Shanghai branch). As of December 31, 2002, ChipMOS Shanghai has made any draw down on the facility. The loan has a term of five years, with interest on all amounts borrowed in U.S. dollars at the London inter-bank three month borrowing rates plus 0.8% and interest on amounts borrowed in Renminbi at the rate announced by the Agricultural Bank of China. In addition, the loan agreement contains covenants requiring ChipMOS Shanghai to obtain the approval of the bank before ChipMOS Shanghai may engage in any joint ventures, transfer of assets and business combinations so long as any amount is outstanding under the loan agreement.

Certain loan agreements and indentures of ChipMOS Taiwan contain covenants that, if violated, could result in the obligations under these agreements becoming due prior to the originally scheduled maturity dates. These covenants include financial covenants that require us to:

maintain a current assets to current liabilities ratio above 1:1;

maintain total indebtedness to shareholders' equity (excluding goodwill and other intangible assets) ratio below 1.2:1;

maintain the earnings before interest, taxes, depreciation and amortization to gross interest expense ratio above 4:1; and

maintain the balance of guaranteed to issued capital ratio below 1:2.

As of December 31, 2002, we were in compliance with our financial covenants.

In addition, a substantial portion of our short-term and long-term borrowings may be subject to repayment upon a material deterioration of our financial condition, results of operations or our ability to perform under the loan agreements.

Set out below is the maturity of our long-term bank loans outstanding as of December 31, 2002:

	(in millions)	
Within the following year	NT\$ 352	US\$ 10
During the second year	650	19
During the third year	727	21
During the fourth year	720	21
During the fifth year	714	20
	NT\$ 3,164	US\$ 91

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

As of December 31, 2002, certain of our buildings and equipment with an aggregate net book value of \$4,622 million (US\$133 million) and time deposits in the aggregate amount of NT\$42 million (US\$1 million) were pledged as collateral in connection with our long-term borrowings.

Our unused credit lines for short-term loans as of December 31, 2002 were NT\$1,646 million (US\$47 million) and expire between February 2003 and November 2003. We are currently in the process of negotiating with our existing lenders to extend such credit facilities.

As of December 31, 2002, we had short-term working capital loans of NT\$1,390 million (US\$40 million) with floating rates between 2.5% to 3.0%, which are due in March 2003. NT\$ 1,115 million of these working capital loans have been extended to September 2003. We also had a letter of credit loan for imports of machinery in the amount of NT\$643 million (US\$18 million), which was paid on or before June 6, 2003.

We believe our financial resources will enable us to meet our capital spending and other capital needs, other than in respect of our new production facility in Shanghai, for the next 18 months. We currently believe that we will be able to borrow additional amounts and issue additional debt and/or equity securities on a timely basis to fund our capital needs, including our planned investment in our new Shanghai production facility.

From time to time, we evaluate possible investments and acquisitions in Taiwan, China and elsewhere and may, if a suitable opportunity arises, acquire additional capacity by making an investment or acquisition at an attractive price. We plan to finance these expenditures from cash flow from operations, amounts available under existing credit facilities and the issuance of securities.

*Contractual Obligations and Commercial Commitments*

The following table summarizes our contractual obligations and commitments for the periods indicated as of December 31, 2002:

<u>Contractual Obligations</u>	Payments Due by Period				
	Total	Less than			After
		1 year	1 - 3 years	4 5 years	5 years
	(in thousands of NT\$)				
Long-Term Debt <sup>(1)</sup>	5,012,728	569,868	2,941,261	1,501,599	
Short-Term Loans <sup>(1)</sup>	2,198,518	2,198,518			
Working Capital Loans	1,393,665	1,393,665			
Other Short-Term Obligations	804,853	804,853			
Operating Leases	236,627	16,738	31,871	31,336	156,677
Royalty or other License Payments <sup>(2)</sup>	85,338	20,065	65,273		
Investment <sup>(3)</sup>	7,373,750		7,373,750		
Total Contractual Cash Obligations	9,731,729	5,003,707	3,038,405	1,532,935	156,677

- (1) Includes interest payments. Assumes level of relevant interest rates remains at December 31, 2002 level throughout all relevant periods.  
(2) Assumes net sales of relevant products remain constant for all periods at the net sales amounts for the year ended December 31, 2002.  
(3) Represents commitment to Shanghai Qingpu Industrial Zone Company in respect of our new facility to be built in Shanghai Qingpu Industrial Zone.

In addition, the following table summarizes our other commercial commitments for the periods indicated as of December 31, 2002:

<u>Our Commercial Commitments</u>	Amount of Commitment				
	Total Amounts Committed	Expiration Per Period			
		Less than 1 year	1- 3 years	4 5 years	Over 5 years
	(in thousands of NT\$)				
Lines of Credit	254,130	254,130			
Standby Letters of Credit					
Guarantees	600,000	600,000			
Total Commercial Commitments	854,130	854,130			

**US GAAP Reconciliation**

Our unaudited consolidated financial statements are prepared in accordance with ROC GAAP, which differs in certain material respects from US GAAP. The following table sets forth a comparison of our net income, total assets and shareholders' equity in accordance with ROC GAAP and US GAAP for the periods indicated:



	Year ended and as of December 31,			
	2000	2001	2002	2002
	NT\$	NT\$ (in thousands)	NT\$	US\$
Net income in accordance with:				
ROC GAAP	957,395	(1,134,927)	(970,285)	(27,962)
US GAAP	879,815	(993,523)	(913,379)	(26,322)
Total Assets				
ROC GAAP	18,962,966	16,101,282	17,953,711	517,397
US GAAP	18,554,219	16,123,467	18,020,880	519,335
Shareholders' equity in accordance with:				
ROC GAAP	8,708,825	7,599,181	6,713,348	193,467
US GAAP	8,477,542	7,641,024	6,760,185	194,817

Note 22 to our unaudited consolidated financial statements describes the principal differences between ROC GAAP and US GAAP as they relate to us, and a reconciliation to US GAAP of certain items, including net income and shareholders' equity. Differences between ROC GAAP and US GAAP which have a material effect on our net income as reported under ROC GAAP, relate to compensation expenses, amortization of technology transfer in payment of capital stock, interest capitalization, and the minority interest in ChipMOS Taiwan.

## Taxation

ChipMOS Taiwan was granted an exemption from Republic of China income taxes for a period of four years on income attributable to the expansion of its production capacity as a result of purchases of new equipment funded by capital increases in 1998, 1999 and 2000. The tax exemption relating to the expansion of production capacity in 1998 and 1999 expired on December 31, 2002, which resulted in tax savings for ChipMOS Taiwan of approximately NT\$5 million in 1999 and NT\$163 million in 2000. The tax exemption relating to the expansion of production capacity in 2000 will expire on December 31, 2005.

ChipMOS Taiwan is also entitled to other tax incentives generally available to Taiwan companies under the Statute of Upgrading Industries, including tax credits of 30% for certain research and development and employee training expenses (and, if the amount of expenditure exceeds the average amount of expenditure for the preceding two years, 50% of the excess amount may be credited against tax payable) and from 5% to 20% for certain investments in automated equipment and technology. These tax credits must be utilized within five years from the date on which they were earned. In addition, except for the last year of the five-year period, the aggregate tax reduction from these tax credits for any year cannot exceed 50% of that year's income tax liability. Such tax credits resulted in tax savings for ChipMOS Taiwan of approximately NT\$64 million in 2000. ChipMOS did not enjoy any tax savings from such tax credits in 2001 and 2002.

Net income generated by ChipMOS Taiwan after January 1, 1998, which is not distributed in the year following the year the income was generated, is subject to income tax at the rate of 10%. If that net income is subsequently distributed, the income tax previously paid on that income is credited against the amount of withholding tax payable by shareholders, who are not individuals or entities of the Republic of China (for taxation purposes), in connection with the distribution.

## Item 6. Directors, Senior Management and Employees

### Directors and Executive Officers

Our board of directors currently comprises eight directors who are elected by our shareholders. The number of directors, which shall not be less than three nor greater than eight according to our bye-laws, is set by our directors but so long as a quorum of directors remains in office, casual vacancies on the board may be filled by the board. The quorum for a meeting of the directors is set by the board and otherwise is two in number. The chairman of the board is appointed from among the members of the board.

There is no requirement under Bermuda law that a director be a shareholder.

The following table sets out the name of each director and executive officer, such person's position with our company and his or her age. The business address for each of our directors and executive officers is No. 1, R&D Road 1, Science-Based Industrial Park, Hsinchu, Taiwan.

<u>Name</u>	<u>Age</u>	<u>Position</u>	<u>Term Expires</u>
Hung-Chiu Hu	64	Director and Chairman	2003
Shih-Jye Cheng	45	Director and Deputy Chairman/Chief Executive Officer	2005
Hsing-Ti Tuan	59	Director	2003
John Yee Woon Seto	59	Director	2003
Min-Liang Chen	52	Director	2004
Pierre Laflamme	57	Director	2004
Jwo-Yi Miao	54	Director	2005
Robert Ma Kam Fook	52	Director	2004
Shou-Kang Chen	42	Chief Financial Officer	

*Hung-Chiu Hu* has served as our director and chairman since our inception. He has also been the chairman of ChipMOS Taiwan from 1999 to June 2003, the chairman of Mosel Vitelic Inc. since 1991 and the chairman of ProMOS Technologies Inc. since 1997. He has been the president of Mosel Vitelic Inc. since 1993. Mr. Hu completed a program in information science at University of California at Los Angeles in 1976 and holds a bachelor's degree from National Cheng Kung University in Taiwan.

*Shih-Jye Cheng* has served as a director of ChipMOS Taiwan since 1997 and director and chairman of ChipMOS Taiwan since June 2003, and the chairman of ChipMOS (Shanghai) since 2002. He has also been Chairman of ThaiLin Semiconductor Corp. and CHANTEK ELECTRONIC CO., LTD. since 2002 and Advanced Micro Chip Technology Co., Ltd. since 2003 and a director of Ultima Electronics Corp. since 2000. He was a division head of the back-end operation of Mosel Vitelic Inc. from 1992 to 1997. He became PlusMOS Technologies Inc.'s chairman in March 2000. He has also been a director and president of ChipMOS Taiwan since 1997. Mr. Cheng has a master's degree in business administration from Saginaw Valley State University.

*Hsing-Ti Tuan* has served as a director of our company since August 2000. Mr. Tuan has served as a director of ProMOS Technology Inc. since 1997. He has also served as the executive vice president of research and development division of Mosel Vitelic Inc. since 1996. He has been the president of Mosel Vitelic Corp., U.S.A. since 1994. He was also the vice president of Mosel Vitelic Inc. from 1992 to 1996. Mr. Tuan holds a master's degree in electrical engineering from Utah State University and a bachelor's degree in electrical engineering from National Cheng Kung University in Taiwan.

*John Yee Woon Seto* has served as a director of our company since August 2000. He has served as the executive vice president of the business group of Mosel Vitelic Inc. since 1996 and before that he was the vice president of the memory business group. He was the senior vice president of strategic business development of Vitelic Corporation U.S.A. He has been a director of Mosel Vitelic Inc. since 1996. He served on the board of directors in a number of companies, such as ProMOS Technologies Inc. and Ultima Electronics Corp. He holds a Ph.D. in electrical engineering from University of California at Berkeley.

*Min-Liang Chen* has served as our director since January 2001. He has also served as a director and president of ProMOS Technologies Inc. since 1997. He was a vice president of ProMOS Technologies Inc. in 1996. He was also a vice president of Mosel Vitelic Inc. from 1992 to 1996 and has served as a director of Mosel Vitelic Inc. since 1999. Mr. Chen holds a Ph.D. in electrical engineering from Rutgers University and a



master s degree from National Tsing-Hua University in Taiwan.

*Pierre Laflamme* has served as a director of our company since February 2001. He has also been the president and chief operating officer of SGF Tech Inc. since 2000. Before that, he was the vice president of high technology of Société Générale de Financement du Québec from 1997 to 1999. He was the senior vice president of Solidarity Fund from 1996 to 1997 and a deputy minister of the Quebec Prime Minister's Department from 1995 to 1996. Mr. Laflamme holds a bachelor's degree in Architecture from Université de Montréal.

*Jwo-Yi Miao* has served as a director of our company since February 2001. He has also been the co-chairman of Pacific Energytech Co., Ltd. since 1999, supervisor of ChipMOS Taiwan since 1997, Director of Tamura Kaken Corporation since 1996, co-chairman of Corion Industrial Corp. since 1991, chairman of E-Fong Group since 1986 and director of Ta-Fong Electro-Chemical Industry Co., Ltd. since 1971 and president of Pacific Tamura Technology Co. Ltd. since 2001. Mr. Miao holds a degree from Tamkang University in Taiwan.

*Robert Ma Kam Fook* has served as a director since December 2001. He has also been a managing director of Trident (Asia) Limited since 1993, a managing director of Jensmart International Ltd. since 1998, a managing director of Wynfair (Asia) Ltd. since 2001 and a director of China Core Capital Management Ltd. since February 2002. He was a managing director of Laidlaw Pacific Financial Services (Holdings) Ltd. and an executive director of Sino-Pacific Light Industry Fund Managing Ltd. from 1994 to 2001. Mr. Ma received his Bachelor of Laws degree from The Nottingham Trent University and an honorary degree in Business Administration from The Chinese University of Hong Kong. Mr. Ma is a member of the Institute of Chartered Accountants in England and Wales, the Institute of Chartered Accountants of Canada and a fellow member of Hong Kong Society of Accountants.

*Shou-Kang Chen* has served as our chief financial officer since October 2002. He has also been a department manager of our investor relations department since 2001 and a manager of our strategy planning department since 2000. He was a department manager in our quality lab from 1998 to 2000. Mr. Chen holds a bachelor's degree in mining and petroleum engineering and a master of science and Ph.D from the graduate school of mining, metallurgy and material science of National Cheng-Kung University in Taiwan.

#### **Board Practice and Terms of Directorship**

Our board of directors is divided into three classes of directors. The first class of directors, consisting of Min-Liang Chen, Pierre Laflamme and Robert Ma Kam Fook, is up for re-election at the annual general meeting in 2004 and then every third annual general meeting thereafter. The second class of directors, consisting of Shih-Jye Cheng, and Jwo-Yi Miao, is up for re-election at the annual general meeting in 2005 and then every third annual general meeting thereafter. The third class of directors, consisting of Hung-Chiu Hu, Hsing-Ti Tuan and John Yee Woon Seto, is up for re-election at the annual general meeting in 2003 and then every third annual general meeting thereafter.

The office of director is vacated in the event any director:

is prohibited by law from being a director or ceases to be a director by virtue of the Companies Act 1981 of Bermuda;

resigns from his or her office;

becomes a bankrupt person under the laws of any country or compounds with his or her creditors;

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

becomes of unsound mind or a patient for the purpose of any statute or applicable law relating to mental health and the board resolves that his or her office is vacated; or

is removed by a resolution passed by our shareholders at a special general meeting called for that purpose.

### **Share Ownership**

As of May 31, 2003, none of our directors or executive officers held, for his or her own account, 1% or more of our outstanding common shares.

### **Compensation and Compensation Committee**

The aggregate compensation paid in 2002 to our directors and our executive officers, including cash and share bonuses, was approximately NT\$29 million. We did not set aside any monies for pension, retirement or similar benefits for our directors in 2002.

We do not provide our directors with any benefits upon termination of employment.

Our compensation committee currently consists of Shih-Jye Cheng and Shou-Kang Chen. This committee reviews and recommends to our board of directors the compensation of all our directors and officers on at least an annual basis.

### **Audit Committee**

Under our audit committee charter adopted on February 28, 2001 and amended on November 2, 2001, our audit committee will:

be responsible for the appointment, compensation and oversight of the work of our outside auditors;

oversee our accounting and financial reporting principles and policies, internal audit controls and procedures, financial statements and independent audits;

pre-approve all permitted non-audit services, if any, provided to us by our outside auditors;

establish our internal complaints procedure; and

evaluate the independence of the outside auditors.

The audit committee currently consists of Pierre Laflamme, Robert Ma Kam Fook and Jwo-Yi Miao, who are independent directors according to Nasdaq's requirements.

## Employees

The following table sets out, as of the dates indicated, the number of our full-time employees serving in the capacities indicated.

<b>Function</b>	<b>As of December 31,</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
General operations	1,116	773	1,008
Quality control	133	100	127
Engineering	443	334	401
Research and development	86	125	146
Sales, administration and finance	96	80	90
Others	188	240	268
<b>Total</b>	<b>2,062</b>	<b>1,652</b>	<b>2,040</b>

The following table sets out, as of the dates indicated, a breakdown of the number of our full-time employees by geographic location:

<b>Location of Facility</b>	<b>As of December 31,</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
Hsinchu Production Group	1,136	888	937
South Taiwan Production Group	926	764	1,103
Shanghai Production Group	0	0	203

Our employees are not covered by any collective bargaining agreements. We have not experienced any strikes or work stoppages by our employees and believe that our relationship with our employees is good.

On April 3, 2002, we granted 2,874,600 share options to our employees with an exercise price of US\$4.0375 per share, 399,500 of which have been cancelled as of March 31, 2003. Among those remaining outstanding, 618,775 are exercisable on or after April 3, 2003, 618,775 cannot be exercised until April 3, 2004, 618,775 cannot be exercised until April 3, 2005, and 618,775 cannot be exercised until April 3, 2006.

## Share Option Plan

We adopted a broad-based share option plan in 2001. This share option provides that our directors, officers, employees, consultants and those of our affiliates may, at the discretion of a committee, be granted options to purchase our shares at an exercise price of no less than the par value of our common shares. The board or the committee will have complete discretion to determine which eligible individuals are to receive option grants, the number of shares subject to each grant, the exercise price of all options granted, the vesting schedule to be in effect for each option grant and the maximum term for which each granted option is to remain outstanding, up to a maximum term of ten years. The board or the committee has sole discretion in determining the exercise price of the option, but in no event can such price be less than the par value of our

common shares.

**Item 7. Major Shareholders and Related Party Transactions****Major Shareholders**

The following table sets out certain information as of May 31, 2003 regarding the ownership of our common shares by (1) each person who is known to us to be the owner of more than five percent of our common shares and (2) the total amount owned by our directors and executive officers as a group.

<b>Identity of Person or Group</b>	<b>Number of Shares Owned</b>	<b>Percent Owned</b>
Mosel Vitelic Inc. <sup>(1) (2)</sup>	25,927,840	44.04%
PacMOS Technologies Holdings Limited <sup>(3)</sup>	4,007,284	7
Directors and executive officers, as a group <sup>(4)</sup>	1,165,612	2

- (1) Mosel owns 25,927,840 shares indirectly through its 100% owned subsidiary, Giant Haven Investments Ltd. Mosel is a public company listed on the Taiwan Stock Exchange whose largest known shareholder owns less than 2% of Mosel's outstanding shares.
- (2) Excludes shares owned by PacMOS Technologies Holdings Limited that may be beneficially owned by Mosel Vitelic Inc.
- (3) PacMOS Technologies Holdings Limited is a public company listed on the Stock Exchange of Hong Kong Limited and 43% owned by Texan Management Limited and 32% owned by Vision2000 Venture Ltd. Vision2000 Venture Ltd. is 100% owned by Mosel Vitelic Inc. As a result, each of Texan Management Limited, Vision2000 Venture Ltd. and Mosel Vitelic Inc. may be considered to be the beneficial owner of our common shares owned by PacMOS Technologies Holdings Limited. There are no voting or other arrangements among Texan Management Limited, Vision2000 Venture Ltd. and Mosel Vitelic Inc. with respect to control of PacMOS Technologies Holdings Limited.
- (4) Excludes shareholding of Mosel Vitelic Inc. owned by the group.

As of May 31, 2003, approximately 33% of our Common Shares were held of record by Shareholders located in the United States. All holders of our common shares have the same voting rights with respect to their shares.

**Related Party Transactions***Mosel Vitelic Inc.*

As of May 31, 2003, Mosel indirectly owned 44.04% of our outstanding shares through its wholly owned subsidiary, Giant Haven Investments Ltd. Mosel is engaged in the business of design, manufacture and marketing of various types of large-scale integrated circuits and other related semiconductor components. Mosel and its affiliates currently have, and will continue to have from time to time in the future, contractual and other business relationships with us. Our relationships include the following:

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

On April 25, 2003, we purchased from third-party bondholders NT\$290 million worth of index bonds, and Mosel pledged around 50 million common shares of ProMOS as collateral for repayment of the index bonds, including us. On May 28, 2003, Mosel reached a settlement with all the holders of its index bonds. Under this settlement, Mosel is required to pay 35% of the principal amount outstanding of the index bonds and pay the remaining in the next 10 years by installments. In early June 2003, we sold all the 50 million common shares of ProMOS for approximately NT\$400 million. We retained approximately NT\$300 million in satisfaction of the index bonds we held, and returned the remaining amount to Mosel as excess collateral realization.



On September 19 and 20, 2002, ChipMOS Taiwan entered into two inventory purchase agreements with Mosel under which Mosel is obligated to sell to ChipMOS Taiwan, and ChipMOS Taiwan is obligated to purchase, wafers from Mosel. Under these inventory purchase agreements, ChipMOS Taiwan paid Mosel a total amount of NT\$2,100 million in exchange for the wafers. The purchases of wafers from Mosel by ChipMOS Taiwan were subsequently cancelled and a total amount of NT\$2,100 million was refunded to ChipMOS Taiwan by Mosel and the inventory purchase agreements were terminated on September 26 and 30, 2002, respectively.

On August 10, 2000, ChipMOS Taiwan entered into a service agreement with Mosel pursuant to which we are obligated to provide testing and assembly services to Mosel (or its customers) whenever requested. This service agreement was amended on September 1, 2001 to change the terms of the storage services we provide to them. Mosel is required to provide us with a forecast for requested services for the following six months on a monthly basis. In 2000, we had total sales to Mosel of NT\$4,055 million, representing 49% of our net revenues. In 2001, we had total sales to Mosel of NT\$2,495 million, representing 48% of our net revenues. In 2002, we had total sales to Mosel of NT\$2,285 million, representing 35% of our net revenues.

Mosel is obligated under a joint venture agreement with Siliconware Precision to severally guarantee up to 70% of ChipMOS Taiwan's indebtedness if ChipMOS Taiwan requires a guarantee to secure financing. To date, Mosel has not issued guarantees for any of ChipMOS Taiwan's indebtedness.

Mosel is obligated to maintain an equity interest of at least 29% in ChipMOS Taiwan for five years after ChipMOS Taiwan is listed on the Taiwan Stock Exchange or other stock exchange or the ROC Over-the-Counter Securities Exchange, whichever is earlier, under the joint venture agreement with Siliconware Precision and under two other agreements in connection with a loan facility of NT\$2,500 million and a secured credit facility that ChipMOS Taiwan entered into in 1999 for corporate bonds issuance of NT\$1,200 million.

On September 24, 1997, ChipMOS Taiwan entered into an agreement with Mosel, pursuant to which Mosel is required to provide us with failure analysis, reliability testing and instrument calibration technology services and consultation upon our request. These requests are based on our requirements for related equipment on a quarterly basis.

*Siliconware Precision Industries Co., Ltd.*

As of May 31, 2003, Siliconware Precision owned 28.73% of the outstanding shares of ChipMOS Taiwan. Siliconware Precision is an independent provider of semiconductor testing and packaging services. Siliconware Precision currently has, and will continue to have from time to time in the future, contractual and other business relationships with us. Our relationships include the following:

From time to time, Siliconware Precision provides assembly services to us. Often, Siliconware Precision renders these assembly services directly to our customers through customer referrals from us. On January 1, 2001, ChipMOS Taiwan entered into a subcontracting agreement for a term of two years with Siliconware Precision, pursuant to which Siliconware Precision is obligated to provide assembly services to us. ChipMOS Taiwan is required to provide Siliconware Precision on a monthly basis with a rolling forecast for requested services for the following three months. The prices of these services are to be agreed upon from time to time taking into account the cost of the packaging of raw materials. In 2000 and 2001, we outsourced to Siliconware Precision total sales of NT\$214 million and NT\$5 million, representing 3% and 0.09%, respectively, of our net revenues. In 2003, we did not outsource any assembly services to Siliconware Precision.

Siliconware Precision is obligated under a joint venture agreement with Mosel to severally guarantee up to 30% of ChipMOS Taiwan's indebtedness if ChipMOS Taiwan requires a guarantee to secure financing. Siliconware Precision currently does not guarantee any of ChipMOS Taiwan's indebtedness.

Siliconware Precision is obligated to maintain an equity interest in ChipMOS Taiwan of at least 18% for five years after ChipMOS Taiwan is listed on any stock exchange or the ROC Over-the-Counter Securities Exchange, whichever is earlier, under the joint venture agreement with Mosel and under two other agreements in connection with a loan facility of NT\$2,500 million and a secured credit facility that ChipMOS Taiwan entered into in 1999 for corporate bonds issuance of NT\$1,200 million.

*Billion-Create TECHNOLOGIES Inc.*

Billion-Create was a 99% owned subsidiary of PlusMOS. We, through ChipMOS Taiwan, own 25% of PlusMOS. We provide turnkey services to Billion-Create. Sales to Billion-Create comprised 3% of our net revenues in 2000. Billion-Create was liquidated in November 2001.

*Ultima Electronics Corp.*

We, through ChipMOS Taiwan, owned 7.7% of Ultima's shares as of May 31, 2003. Our deputy chairman and chief executive officer and director are also members of the board of directors of Ultima. We provide mostly turnkey services and a small amount of independent testing and assembly services to Ultima. Sales to Ultima comprised 22% of our net revenues in 2001 and 19% in 2002. In 2002, ChipMOS Taiwan acted as a guarantor and provided collateral for a loan in the amount of NT\$600 million extended to Ultima by two Taiwan financing corporations.

*Joint Venture Agreement between Mosel and Siliconware Precision*

ChipMOS Taiwan is operated pursuant to a joint venture agreement between Mosel and Siliconware Precision. Under the terms of that agreement, Siliconware Precision is entitled to nominate two of the seven members of the board of directors of ChipMOS Taiwan. The joint venture agreement provides that any equity capital increases of ChipMOS Taiwan shall be approved by a resolution adopted at a shareholders meeting based upon a proposal submitted by the board of directors. Although we will be able to exercise control over the actions of ChipMOS Taiwan by virtue of our control of more than two-thirds of the outstanding shares of ChipMOS Taiwan and our ability to nominate more than two-thirds of the board of directors of ChipMOS Taiwan, Siliconware Precision may nevertheless seek to influence the corporate actions of ChipMOS Taiwan by virtue of its large shareholding and board representation.

Under the terms of the joint venture agreement between Mosel and Siliconware Precision regarding the operation of ChipMOS Taiwan, Mosel has agreed, among other things, to cooperate with Siliconware Precision to ensure that the shares of ChipMOS Taiwan are listed on the Taiwan Stock Exchange or other stock exchange or the Republic of China Over-the-Counter Securities Exchange, and to maintain an equity interest in ChipMOS Taiwan of at least 29% for five years after such listing. We currently have no plans to seek such a listing by ChipMOS Taiwan, and Mosel currently has no direct equity interest in ChipMOS Taiwan. Siliconware Precision has not objected to the restructuring transactions resulting in Mosel's becoming our controlling shareholder and becoming the controlling shareholder of ChipMOS Taiwan. We cannot assure you that Siliconware Precision will not in the future seek to enforce against Mosel its obligations under the joint venture agreement. Under the joint venture agreement, remedies for breaches by Mosel of or non-compliance by Mosel with these terms may include damage payments by Mosel to Siliconware Precision and the right for Siliconware Precision to purchase Mosel's shares of ChipMOS Taiwan or to force Mosel to purchase Siliconware Precision's shares in ChipMOS Taiwan. Mosel has provided an undertaking to us to resolve any disputes with Siliconware Precision in connection with the joint venture agreement in a manner that does not adversely affect the business, operations or financial condition of ChipMOS Taiwan or our company.



*DenMOS Technology Inc.*

As of May 31, 2003, Mosel owned 50.6% of common shares of DenMOS. We provided mostly storage services to DenMOS in 2002. Sales to DenMOS were less than NT\$153 million in 2002.

*SyncMOS Technologies Inc.*

As of May 31, 2003, Mosel indirectly owned 41% of the common shares of SyncMOS Technologies Inc. We provided storage services to SyncMOS Technologies Inc. in 2001. Rental revenue from SyncMOS Technologies Inc. was NT\$405 thousand in 2001.

*PlusMOS Technologies, Inc.*

As of May 31, 2003, PlusMOS, was 35% directly owned by Mosel and 25% owned by us.

We provided testing and assembly services, and we also purchased raw materials on PlusMOS behalf in connection with the testing and assembly services in 2001. The total sales to PlusMOS comprised 1% of our revenues in 2001 and 0.1% in 2002.

*Best Home Corp. Ltd.*

On October 23, 2002, ChipMOS Taiwan entered into a service agreement with Best Home, under which Best Home is obligated to provide meal and cafeteria services to the employees of ChipMOS Taiwan and ChipMOS is obligated to construct buildings and purchase equipment for the services provided by Best Home for a term of three years. We paid an aggregate of NT\$216 million to Best Home in 2002 under the service contract. In 2002, ChipMOS Taiwan acquired a 16.7% ownership interest of Sun Fund Securities Ltd. from Best Home. As of May 31, 2003, ChipMOS Taiwan had a 19.9% ownership interest in Best Home.

*Modern Mind Technology Limited*

We had a 100% ownership interest in Modern Mind from December 12, 2002 to December 31, 2002 at which date such ownership interest was transferred to Jesper Limited. ChipMOS TECHNOLOGIES (Shanghai) LTD., or ChipMOS Shanghai, a wholly owned subsidiary of Modern Mind, paid us US\$21 million for the license to use certain technology and systems for the period from August 2002 to July 2012. In addition, as of May 31, 2003, Modern Mind owed us an aggregate of US\$20,999,255 plus accrued interest of US\$15,458 and Modern Mind owed ChipMOS Taiwan an aggregate of US\$16,500,745 plus accrued interest of US\$41,252, and each of us and ChipMOS Taiwan may convert the respective amount of debt owned by Modern Mind into ordinary shares of Modern Mind at the ratio of one ordinary share for every US\$1.00 if the repayment is not made when due. See note 17 to the accompanied financial statements for a more detailed discussion.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

### *ChipMOS Technologies (Shanghai) Ltd.*

Under accounting standards that are applicable to us, ChipMOS Shanghai is treated as one of our subsidiaries. We do not own any shares in ChipMOS Shanghai. Under a technology transfer agreement dated August 1, 2002, we transferred certain technologies and systems, and agreed to provide certain technical support and consulting services to ChipMOS Shanghai relating to those technologies and systems, and ChipMOS Shanghai paid an aggregate of US\$25 million to us in 2002 for the technology and services we provided.

### *Chantek Electronic Co. Ltd.*

As of May 31, 2003, ChipMOS had a 34% ownership interest in Chantek, and PlusMOS had a 12% ownership interest in Chantek. Chantek leased equipment and provided raw material and integrated circuit processing services to ChipMOS Taiwan pursuant to certain agreements between Chantek and ChipMOS Taiwan. We paid an aggregate of approximately NT\$3 million to Chantek in 2002.

### *ThaiLin Semiconductor Corp.*

As of May 31, 2003, ChipMOS had a 41.78% ownership interest in ThaiLin. ChipMOS Taiwan leased equipment and transferred certain technology to ThaiLin pursuant to certain agreements between ThaiLin and ChipMOS Taiwan. ThaiLin paid an aggregate of approximately NT\$6 million to us in 2002.

**Item 8. Financial Information****Consolidated Financial Statements and Other Financial Information**

Please see Item 18: Financial Statements and pages F-1 through F-46.

**Legal Proceedings**

We are not involved in any material legal proceedings whose outcome we believe could have a material adverse effect on our business.

**Dividend Policy**

To date, we have not distributed any dividends. We currently intend to retain future earnings, if any, to finance the expansion of our business and thus do not expect to pay any cash dividends for the foreseeable future. In addition, we have no current plans to pay stock dividends. ChipMOS Taiwan, our 70% subsidiary, may continue to issue stock dividends in accordance with local practice in Taiwan.

**Item 9. The Offer and Listing****Listing**

Nasdaq National Market is the principal trading market for our common shares, which are not listed or quoted on any other markets in or outside the United States. We have been quoted on the Nasdaq National Market under the symbol IMOS since June 19, 2001. The CUSIP number for our common shares is G2110R106. As of December 31, 2001, there were 58,341,863 common shares issued and outstanding, and as of May 31, 2003, there were 58,873,038 common shares issued and outstanding. The table below sets forth, for the periods indicated, the high, low and average closing prices on the Nasdaq National Market for our common shares.

	Nasdaq <sup>(1)</sup> Price per share(US\$)		
	Average	High	Low
2001 (from June 19th through December 31st)	2.31	5.06	1.40
2002	3.23	5.25	1.48
First Quarter	3.34	5.25	1.65
Second Quarter	4.02	5.06	2.55
Third Quarter	3.52	4.56	1.61
Fourth Quarter	2.03	2.88	1.48
December	1.86	2.56	1.48
2003 (January 2 <sup>nd</sup> through June 26th)	1.50	2.36	0.85
First Quarter	1.80	2.36	1.31

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

January	2.11	2.36	1.94
February	1.74	1.99	1.61
March	1.52	1.68	1.31
Second Quarter (through June 26th)	1.22	1.60	0.85
April	1.45	1.55	1.15
May	1.02	1.14	0.85
June (through June 26th)	1.12	1.25	1.00

(1) Trading in our common shares commenced on June 19, 2001 on the Nasdaq National Market.

**Item 10. Additional Information**

**Description of Share Capital**

Our authorized share capital consists of 100 million common shares, par value US\$0.01 per share.

**Common Shares**

Each shareholder is entitled to one vote for each common share held on all matters submitted to a vote of shareholders. Cumulative voting for the election of directors is not provided for in our bye-laws, which means that the holders of a majority of the shares voted can elect all of the directors then standing for election. The common shares are not entitled to preemptive rights and are not subject to conversion or redemption. Upon the occurrence of a liquidation, dissolution or winding-up, the holders of common shares would be entitled to share ratably in the distribution of all of our assets remaining available for distribution after satisfaction of all liabilities.

**Bermuda Law**

We are an exempted company organized under the Companies Act 1981 of Bermuda. The rights of our shareholders are governed by Bermuda law and our memorandum of association and bye-laws. The Companies Act 1981 of Bermuda differs in some material respects from laws generally applicable to United States corporations and their shareholders.

**Dividends**

Under Bermuda law, a company may pay dividends that are declared from time to time by its board of directors unless there are reasonable grounds for believing that the company is or would be, after the payment, unable to pay its liabilities as they become due or that the realizable value of its assets would thereby be less than the aggregate of its liabilities, issued share capital and share premium accounts. The holders of common shares are entitled to receive dividends out of assets legally available for such purposes at times and in amounts as our board of directors may from time to time determine. Any dividend unclaimed for a period of six years from its date of declaration will be forfeited and will revert to the Company.

**Voting Rights**

Under Bermuda law, except as otherwise provided in the Companies Act 1981 of Bermuda or our bye-laws, questions brought before a general meeting of shareholders are decided by a majority vote of shareholders present at the meeting. Our bye-laws provide that, subject to the provisions of the Companies Act 1981 of Bermuda, and except for extraordinary resolutions, any question properly proposed for the consideration of the shareholders will be decided by a simple majority of the votes cast, either on a show of hands or on a poll, with each shareholder present (and each person holding proxies for any shareholder) entitled to one vote on a show of hands, or on a poll, one vote for each fully paid-up common share held by the shareholder. In the case of an equality of votes cast, the chairman of the meeting shall have a second or casting vote. Any resolution for any of the following extraordinary transactions will require the approval of shareholders holding at least 70% of the total voting rights of all the shareholders having the right to vote at such meeting:



a resolution for the merger, amalgamation or other consolidation of us into any other company;

a resolution for the sale, lease, exchange, transfer or other disposition of all or substantially of our consolidated assets; or

a resolution for the adoption of any plan or proposal for the liquidation of the Company.

### **Rights in Liquidation**

Under Bermuda law, in the event of liquidation or winding-up of a company, after satisfaction in full of all claims of creditors and subject to the preferential rights accorded to any series of preferred shares, the proceeds of the liquidation or winding-up are distributed pro rata in specie or in kind among the holders of our common shares.

### **Meetings of Shareholders**

Under Bermuda law, a company is required to convene at least one general shareholders' meeting each calendar year. Bermuda law provides that a special general meeting may be called by the board of directors and must be called upon the request of shareholders holding not less than 10% of the paid-up capital of the company carrying the right to vote. Bermuda law also requires that shareholders be given at least five days' advance notice of a general meeting but the accidental omission to give notice to any person does not invalidate the proceedings at a meeting. Under our bye-laws, we must give each shareholder written notice at least five days prior to the annual general meeting, unless otherwise agreed by all shareholders having the right to vote at that annual general meeting, and written notice at least five days prior to any special general meeting, unless otherwise agreed by a majority of shareholders having a right to vote at that special general meeting, and together holding at least 95% of the paid-up capital of the company carrying the right to vote at that meeting.

Under Bermuda law, the number of shareholders constituting a quorum at any general meeting of shareholders is determined by the bye-laws of the company. Our bye-laws provide that at least two shareholders present in person or by proxy and holding shares representing at least 50% of the total voting rights of all shareholders having the right to vote at the meeting constitute a quorum. Our bye-laws further provide that, in respect of a general meeting adjourned for want of quorum, at least two shareholders present in person or by proxy holding shares representing 33% of the total voting rights of all shareholders having the right to vote at the meeting constitute a quorum.

### **Access to Books and Records and Dissemination of Information**

Members of the general public have the right to inspect the public documents of a company available at the office of the Registrar of Companies in Bermuda. These documents include a company's certificate of incorporation, its memorandum of association (including its objects and powers) and any alteration to its memorandum of association. The shareholders have the additional right to inspect the bye-laws of the company, minutes of general meetings and the company's audited financial statements, which, unless agreed by all shareholders, must be laid before the annual general meeting. The register of shareholders of a company is also open to inspection by shareholders without charge and by members of the general public on the payment of a fee. A company is required to maintain its share register in Bermuda but may, subject to the provisions of Bermuda law, establish a branch register outside Bermuda. We maintain a share register in Hamilton, Bermuda and a branch register in New Jersey, U.S.A. A company is required to keep at its registered office a register of its directors and officers which is open for inspection for not less than two hours each day by members of the public without charge. Bermuda law does not, however, provide a general right for shareholders to inspect or obtain copies of any other corporate records.

### **Election or Removal of Directors**

Under Bermuda law and our bye-laws, directors are elected or appointed at an annual general meeting and serve until re-elected or re-appointed or until their successors are elected or appointed, unless they are earlier removed for cause or resign or otherwise cease to be directors under Bermuda law or our bye-laws.



A director may be removed for cause at a special general meeting of shareholders specifically called for that purpose, provided the director is served with at least 14 days' notice. The director has a right to be heard at that meeting. Any vacancy created by the removal of a director at a special general meeting may be filled at that meeting by the election of another director in his or her place or, in the absence of any election by the shareholders, by the board of directors.

### **Board Actions**

Our bye-laws provide that the quorum necessary for the transaction of business is two directors of the Board, and that questions arising at a properly convened meeting of the Board of Directors must be approved by a majority of the votes present and entitled to be cast. In the case of an equality of votes, the chairman of the meeting is entitled to a second or casting vote.

The Board of Directors may appoint any of our directors to act as a managing director or other senior executive of the Company, on such terms and conditions as it may determine, including with respect to remuneration.

### **Amendment of Memorandum of Association and Bye-laws**

Bermuda law provides that the memorandum of association of a company may be amended by a resolution passed at a general meeting of shareholders of which due notice has been given. An amendment to the memorandum of association, other than an amendment which alters or reduces a company's share capital as provided in the Companies Act 1981 of Bermuda, also requires the approval of the Bermuda Minister of Finance, who may grant or withhold approval at his discretion. Our bye-laws, other than the bye-laws separating our board of directors into three classes, may be amended by the Board of Directors if the amendment is approved by a majority of votes cast by our directors and by our shareholders by a resolution passed by a majority of votes cast at a general meeting. Any amendment to our bye-laws separating a board of directors into three classes must be approved by our board of directors and by shareholders of shares representing at least 60% of our outstanding shares.

Under Bermuda law, the holders of an aggregate of no less than 20% in par value of a company's issued share capital or any class of issued share capital have the right to apply to the Bermuda Court for an annulment of any amendment of the memorandum of association adopted by shareholders at any general meeting, other than an amendment that alters or reduces a company's share capital as provided in the Companies Act 1981 of Bermuda. Where an application is made, the amendment becomes effective only to the extent that it is confirmed by the Bermuda Court. An application for the annulment of an amendment of the memorandum of association must be made within 21 days after the date on which the resolution altering the company's memorandum of association is passed and may be made on behalf of the person entitled to make the application by one or more of their number as they may appoint in writing for the purpose. No application may be made by persons voting in favor of the amendment.

### **Appraisal Rights and Shareholder Suits**

Under Bermuda law, in the event of an amalgamation of two Bermuda companies, a shareholder who is not satisfied that fair value has been paid for his or her shares may apply to the Bermuda Court to appraise the fair value of his or her shares. The amalgamation of a company with another company requires the amalgamation agreement to be approved by the board of directors and, except where the amalgamation is between a holding company and one or more of its wholly owned subsidiaries or between two or more wholly owned subsidiaries, by meetings of the holders of shares of each company and of each class of such shares. Under Bermuda law, an amalgamation also requires the consent of the Bermuda Minister of Finance, who may grant or withhold his consent at his discretion.



Class actions and derivative actions are generally not available to shareholders under Bermuda law. The Bermuda Court, however, would ordinarily be expected to permit a shareholder to commence an action in the name of a company to remedy a wrong done to the company where the act complained of is alleged to be beyond the corporate power of the company or is illegal or would result in the violation of the company's memorandum of association or bye-laws. Further consideration would be given by the Bermuda Court to acts that are alleged to constitute a fraud against the minority shareholders or, for instance, where an act requires the approval of a greater percentage of the company's shareholders than that which actually approved it.

When the affairs of a company are being conducted in a manner oppressive or prejudicial to the interests of some part of the shareholders, one or more shareholders may apply to the Bermuda Court for an order regulating the company's conduct of affairs in the future or compelling the purchase of the shares by any shareholder, by other shareholders or by the company.

### **Certain Foreign Issuer Considerations**

The following discussion is based on the advice of Appleby Spurling & Kempe, our Bermuda counsel.

The Bermuda Monetary Authority, or BMA, has designated us as non-resident for exchange control purposes. The BMA has also granted its consent under the Exchange Control Act 1972 and regulations promulgated thereunder for the issue or transfer to non-residents of Bermuda for exchange control purposes of our common shares, subject to the common shares remaining quoted on the Nasdaq National Market.

#### *Share Issuance and Transfers by Non-Bermuda and Bermuda Residents*

Under Bermuda law, there are no limitations on the rights of non-Bermuda residents to hold or vote their shares of Bermuda companies. Because we have been designated as a non-resident for Bermuda exchange control purposes, there are no restrictions on our ability to transfer funds in and out of Bermuda or to pay dividends to United States residents who are holders of our common shares other than in respect of local Bermuda currency.

Under Bermuda law, we are an exempted company. An exempted company is exempt from the provisions of Bermuda law, which stipulate that at least 60% of the equity must be beneficially owned by Bermuda persons. Persons regarded as residents of Bermuda for exchange control purposes require specific consent under the Exchange Control Act 1972 to acquire securities issued by us. The Exchange Control Act 1972 permits companies to adopt bye-law provisions relating to the transfer of securities. None of Bermuda law, our memorandum of association or our bye-laws impose limitations on the right of foreign nationals or non-residents of Bermuda to hold our shares or vote such shares.

As an exempted company, we may not participate in certain business transactions, including: (1) the acquisition or holding of land in Bermuda (except that required for our business and held by way of lease or tenancy for terms of not more than 21 years) without the express authorization of the Bermuda legislature; (2) the taking of mortgages on land in Bermuda to secure an amount in excess of US\$50,000 without the consent of the Bermuda Minister of Finance; or (3) the carrying on of business of any kind in Bermuda, except in furtherance of our business carried on outside Bermuda or under a license granted by the Bermuda Minister of Finance. In addition, present BMA policy permits no more than 20% of the share capital of an exempted company to be held by Bermuda persons.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The Bermuda government actively encourages foreign investment in exempted entities like us that are based in Bermuda but do not operate in competition with local business. In addition to having no restrictions on the degree of foreign ownership, we are subject neither to taxes on our income or dividends nor to any foreign exchange controls in Bermuda. In addition, there is no capital gains tax in Bermuda, and profits can be accumulated by us without limitation.

-70-

### *Director's Interests*

Under the Bermuda Companies Act 1981, a director of a company may, notwithstanding his office, be a party to or otherwise interested in any transaction or arrangement with the company or in which the company is otherwise interested. He or she may also be a director or officer of, or employed by, or a party to any transaction or arrangement with, or otherwise interested in, any corporate body promoted by the same company or an interested company. Therefore, where it is necessary, so long as a director of a Bermuda company declares the nature of his or her interest at the first opportunity at a meeting of the board or by writing to the directors as required by the Bermuda Companies Act 1981, that director shall not by reason of his or her office be accountable to a company for any benefit he or she derives from any office or employment to which the bye-laws of the company allow him or her to be appointed or from any transaction or arrangement in which the bye-laws of such company allow him or her to be interested, and no such transaction or arrangement shall be liable to be avoided on the ground of any such interest or benefit. A general notice to the directors by a director or officer declaring that he or she is a director or officer or has an interest in a person and is to be regarded as interested in any transaction or arrangement made with that person shall be sufficient declaration of interest in relation to any transaction or arrangement so made.

### **Share Issuance and Transfer**

We have been designated as a non-resident for exchange control purposes by the BMA, whose permission for the issuance and transfer of common shares has been obtained subject to the common shares being quoted on the Nasdaq National Market.

The transfer of common shares between persons regarded as non-resident in Bermuda for exchange control purposes and the issuance of shares after the completion of the offering to those persons may be effected without specific consent under the Exchange Control Act 1972 of Bermuda and regulations thereunder subject to the common shares remaining quoted on the Nasdaq National Market. Issuance and transfer of shares to any person regarded as resident in Bermuda for exchange control purposes require specific prior approval under the Exchange Control Act 1972.

There are no limitations on the rights of persons regarded as non-residents of Bermuda for foreign exchange control purposes who own common shares to hold or vote their common shares. Since we have been designated as a non-resident for Bermuda exchange control purposes, there are no restrictions on our ability to transfer funds in and out of Bermuda or to pay dividends to United States residents or other non-residents of Bermuda who are holders of common shares, other than in respect of local Bermuda currency. Furthermore, it is not our intent to maintain Bermuda dollar deposits and, accordingly, will not pay dividends on the common shares in Bermuda currency.

Bermuda law requires that share certificates be issued only in the names of corporations or individuals. Where an applicant for common shares acts in a special capacity, such as an executor or trustee, certificates may, at the request of that applicant, record the capacity in which the applicant is acting. Our recording of any special capacity, however, shall not be construed as obliging us either to investigate, or to incur any responsibility or liability in respect of, the proper administration of any trust or estate. Regardless of whether or not we have had notice of a trust, no notice shall be taken of any trust, equitable, contingent, future or partial interest in any share or any interest in any fractional part of a share or any other right in respect of any common shares.

### **Transfer Agent and Registrar**

Reid Management Limited serves as our principal registrar and transfer agent in Bermuda for the common shares. Mellon Investor Services, L.L.C. serves as our United States transfer agent and registrar for the common shares.





## **Material Contracts**

We are not currently, and have not been in the last two years, party to any material contract, other than contracts entered into in the ordinary course of our business. Please see Item 7. Major Shareholders and Related Party Transactions Related Party Transactions for summary of contracts with certain of our related parties.

## **Bermuda Taxation**

This summary is based on laws, regulations, treaty provisions and interpretations now in effect and available as of the date of this annual report. The laws, regulations, treaty provisions and interpretations, however, may change at any time, and any change could be retroactive to the date of issuance of our common shares. These laws, regulations and treaty provisions are also subject to various interpretations, and the relevant tax authorities or the courts could later disagree with the explanations or conclusions set out below.

At the date hereof, there is no Bermuda income, corporation or profits tax, withholding tax, capital gains tax, capital transfer tax, estate duty or inheritance tax payable by us or our shareholders other than shareholders ordinarily resident in Bermuda. We are not subject to stamp or other similar duty on the issuance, transfer or redemption of our common shares.

We have obtained an assurance from the Minister of Finance of Bermuda under the Exempted Undertaking Tax Protection Act 1966 that, in the event there is enacted in Bermuda any legislation imposing tax computed on profits or income or computed on any capital assets, gain or appreciation or any tax in the nature of estate duty or inheritance tax, such tax shall not be applicable to us or to our operations, or to the common shares, debentures or our other obligations until March 28, 2016, except insofar as such tax applies to persons ordinarily resident in Bermuda and holding such common shares, debentures or our other obligations or any real property or leasehold interests in Bermuda owned by us. No reciprocal income tax treaty affecting us exists between Bermuda and the United States.

As an exempted company, we are liable to pay in Bermuda an annual registration fee calculated on a sliding scale basis by reference to our assessable capital, which is the aggregate of our authorized common share capital and the premium on our issued common shares currently at a rate not exceeding US\$27,825 per annum.

## **United States Federal Income Taxation**

### *In General*

This section describes the material United States federal income tax consequences of owning our common shares. It applies to you only if you are a U.S. holder (as defined below) and you hold your common shares as capital assets for tax purposes. This section does not apply to you if you are a member of a special class of holders subject to special rules, including:

a dealer in securities;

a trader in securities that elects to use a mark-to-market method of accounting for your securities holdings;

a tax-exempt organization;

a life insurance company;

a person liable for alternative minimum tax;

a person that actually or constructively owns 10% or more of the voting stock of ChipMOS TECHNOLOGIES (Bermuda) LTD.;

a person that holds common shares as part of a straddle or a hedging or conversion transaction; or

a person whose functional currency is not the U.S. dollar.

This section is based on the Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed regulations, published rulings and court decisions. These laws are subject to change, possibly on a retroactive basis. There is currently no comprehensive income tax treaty between the United States and Bermuda.

You are a U.S. holder if you are a beneficial owner of common shares and you are:

a citizen or resident of the United States;

a domestic corporation;

an estate whose income is subject to United States federal income tax regardless of its source; or

a trust if a United States court can exercise primary supervision over the trust's administration and one or more United States persons are authorized to control all substantial decisions of the trust.

#### *Dividend Distributions*

Under the United States federal income tax laws, and subject to the passive foreign investment company, or PFIC, rules discussed below, if you are a U.S. holder, the gross amount of any dividend we pay out of our current or accumulated earnings and profits (as determined for United States federal income tax purposes) is subject to United States federal income taxation. If you are a noncorporate U.S. holder, dividends paid to you in taxable years beginning after December 31, 2002 and before January 1, 2009 that constitute qualified dividend income will be taxable to you at a maximum tax rate of 15%, provided that you hold our common shares for more than 60 days during the 120-day period beginning 60 days before the ex-dividend date and meet other holding period requirements. Dividends we pay with respect to our common shares will generally be qualified dividend income, provided that, in the year that you receive the dividend, the common shares are readily tradable on an established securities market in the United States. The dividend is taxable to you when you receive the dividend, actually or constructively. The dividend will not be eligible for the dividends-received deduction generally allowed to United States corporations in respect of dividends received from other United States corporations. The amount of the dividend distribution that you must include in your income as a U.S. holder will be the U.S. dollar value of the Bermuda dollar payments made, determined at the spot Bermuda dollar/U.S. dollar rate on the date the dividend distribution is includible in your income, regardless of whether the payment is in fact converted into U.S. dollars. Generally, any gain or loss resulting from currency exchange fluctuations during the period from the date you include the dividend payment in income to the date you convert the payment into U.S. dollars will be treated as ordinary income or loss and will not be eligible for the special tax rate applicable to qualified dividend income. The gain or loss generally will be income or loss from sources within the United States for foreign tax credit limitation purposes. Currently, one Bermuda dollar is equivalent to one U.S. dollar as a result of the Bermuda Dollar Parity Order 1981 under the Bermuda Monetary Authority Act. Distributions in excess of current and accumulated earnings and profits, as determined for United States federal income tax purposes, will be treated as a non-taxable return of capital to the extent of your basis in the common shares and thereafter as capital gain.



Dividends will be income from sources outside the United States, but generally will be passive income or financial services income which is treated separately from other types of income for purposes of computing the foreign tax credit allowable to you.

#### *Taxation of Capital Gain*

Subject to the PFIC rules discussed below, if you are a U.S. holder and you sell or otherwise dispose of your common shares, you will recognize capital gain or loss for United States federal income tax purposes equal to the difference between the U.S. dollar value of the amount that you realize and your tax basis, determined in U.S. dollars, in your common shares. Capital gain of a noncorporate U.S. holder that is recognized on or after May 6, 2003 and before January 1, 2009 is generally taxed at a maximum rate of 15% where the property is held for more than one year. The gain or loss will generally be income or loss from sources within the United States for foreign tax credit limitation purposes.

#### *PFIC Rules*

We believe that common shares should not be treated as stock of a PFIC for United States federal income tax purposes, but this conclusion is a factual determination that is made annually and thus may be subject to change. If we were to be treated as a PFIC, unless a U.S. holder elects to be taxed annually on a mark-to-market basis with respect to the common shares, gain realized on the sale or other disposition of your common shares would in general not be treated as capital gain. Instead, if you are a U.S. holder, you would be treated as if you had realized such gain and certain excess distributions ratably over your holding period for the common shares and would be taxed at the highest tax rate in effect for each such year to which the gain was allocated, together with an interest charge in respect of the tax attributable to each such year. In addition, dividends that you receive from us will not be eligible for the special tax rates applicable to qualified dividend income if we are a PFIC either in the taxable year of the distribution or the preceding taxable year, but instead will be taxable at rates applicable to ordinary income.

*You should consult your own tax advisor regarding the United States federal, state and local and Bermuda and other tax consequences of owning and disposing of our common shares in your particular circumstances.*

#### **Document on Display**

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended. In accordance with these requirements, we file reports and other information with the Securities and Exchange Commission. These materials, including this annual report and the exhibits thereto, may be inspected and copied at the Commission's Public Reference Room at 450 Fifth Street, N.W., Washington, D.C. 20549. The public may obtain information on the operation of the Commission's Public Reference Room by calling the Commission in the United States at 1-800-SEC-0330. The Commission also maintains a web site at <http://www.sec.gov> that contains reports, proxy statements and other information regarding registrants that file electronically with the Commission.

#### **Item 11. Quantitative and Qualitative Disclosure about Market Risk**

##### **Market Risks**

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Our exposure to financial market risks relates primarily to changes in interest rates and foreign exchange rates. To mitigate these risks, we utilize derivative financial instruments, the application of which is primarily for hedging, and not for speculative, purposes.

*Interest Rate Risks*

As of December 31, 2002, we had aggregate debt outstanding of NT\$7,132 million (US\$206 million), which was incurred for capital expenditure and general operating expenses. Of our outstanding debt, 69% bears interest at variable rates. The interest rate for the majority of our variable rate debt varies based on a fixed percentage spread over the prime rate established by our lenders. Our variable rate debt had an annual weighted average interest rate of 4.23% as of December 31, 2002. Accordingly, we have cash flow and earnings exposure due to market interest rate changes for our variable rate debt. A fluctuation in interest rates of 1% would increase our annual interest charge by NT\$45 million based on our outstanding indebtedness as of December 31, 2002.

We currently do not enter into derivative transactions with regard to interest rates, but we would consider engaging in currency interest rate swaps to lock in favorable currency and interest rate levels from time to time, if available, on terms considered attractive by us. We had no interest rate derivative contracts outstanding as of December 31, 2002.

*Foreign Currency Risks*

Our foreign currency exposure gives rise to market risks associated with exchange rate movements against the NT dollar, the Japanese yen and the U.S. dollar. As of December 31, 2002, 22% of our accounts receivable are denominated in U.S. dollars and Japanese yen, and 45% of our accounts payable and payables for properties are denominated in Japanese yen and U.S. dollars. To minimize foreign currency exchange risk, we utilize forward exchange contracts and foreign currency options to hedge our exchange rate risk on foreign currency assets or liabilities positions. These hedging transactions help to reduce, but do not eliminate, the impact of foreign currency exchange rate movements. An average appreciation of the NT dollar against all other relevant foreign currencies of 5% would increase our annual exchange losses by NT\$42 million based on our outstanding assets and liabilities denominated in foreign currencies as of December 31, 2002. Please see note 19 of our unaudited consolidated financial statements for information on the net assets and liabilities hedged by these derivative transactions.

**Item 12. Description of Securities Other Than Equity Securities**

Not applicable.

**PART II**

**Item 13. Defaults, Dividend Arrearages and Delinquencies**

*None.*

**Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds**

The information set forth in Proposal No. 3 Approval of Proposed Amendments to Certain Other Bye-Laws in our Proxy Statement furnished under cover of Form 6-K, dated February 19, 2002, is incorporated herein by reference.



**Item 15. Controls and Procedures**

Our chief executive officer and chief financial officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-14(c) of the Securities Exchange Act of 1934, as amended) within 90 days of the date of this Form 20-F, have concluded that, as of such date, our disclosure controls and procedures were effective to ensure that material information relating to us was made known to them by others within our company particularly during the period in which this Form 20-F was being prepared.

There were no significant changes in our internal controls or in other factors that could significantly affect these controls subsequent to the date our chief executive officer and chief financial officer completed their evaluation, nor were there any significant deficiencies or material weaknesses in our internal controls requiring corrective actions.

**Item 16A. Committee Financial Expert  
Audit**

Not applicable.

**Item 16B. of Ethics  
Code**

Not applicable.

**Item 16C. Accounting Fees and Services  
Principal**

Not applicable.

**PART III**

**Item 17. Financial Statements**

The Company has elected to provide the financial statements and related information specified in Item 18 in lieu of Item 17.

**Item 18. Financial Statements**

**I N D E X TO U N A U D I T E D F I N A N C I A L S T A T E M E N T S**

	<b>Page</b>
ChipMOS TECHNOLOGIES (Bermuda) LTD. and Subsidiaries	
<u>Unaudited Consolidated Balance Sheets</u>	F-2
<u>Unaudited Consolidated Statements of Operations</u>	F-4
<u>Unaudited Consolidated Statements of Changes in Shareholders' Equity</u>	F-6
<u>Unaudited Consolidated Statements of Cash Flows</u>	F-7
<u>Notes to Unaudited Consolidated Financial Statements</u>	F-9

**Item 19. Exhibits**

<u>Exhibits</u>	<u>Description</u>
1.1	Memorandum of Association of ChipMOS TECHNOLOGIES (Bermuda) LTD. <sup>(1)</sup>
1.2	Bye-laws of ChipMOS TECHNOLOGIES (Bermuda) LTD. <sup>(2)</sup>
2.1	Certificate of Incorporation of ChipMOS TECHNOLOGIES (Bermuda) LTD., dated August 15, 2000. <sup>(1)</sup>
4.1	Joint Venture Agreement, dated July 14, 1997, between Mosel Vitelic Inc. and Siliconware Precision Industries Co., Ltd. <sup>(1)</sup>
4.2	Asset Sales Agreement, dated June 14, 1999, between Microchip Technology Taiwan and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.3	Tessera Compliant Chip License Agreement, dated April 20, 1999, between Tessera Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.4	License Agreement, dated April 1, 1999, between Fujitsu Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.5	Sales Agreement, dated February 10, 2000, between Sharp Corp. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.6	Raw Materials Processing Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.7	Raw Materials Processing Agreement, dated January 1, 2001, between Siliconware Precision Co. Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.8	Integrated Circuit Processing Agreement, dated January 1, 2001, between Siliconware Precision Co. Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.9	Integrated Circuit Processing and Warehousing Management Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.10	Land Lease Agreement, dated November 26, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.11	Land Lease Agreement, dated November 26, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.12	Land Lease Agreement, dated September 1, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.13	Purchase Agreement, dated July 31, 1997, between ChipMOS TECHNOLOGIES INC. and Mosel Vitelic Inc. <sup>(1)</sup>
4.14	Lease Agreement for Public Land in Custody of Kaohsiung Branch, Export Processing Zone Administration, Ministry of Economic Affairs, dated June 10, 2002, between Kaohsiung Branch, ChipMOS TECHNOLOGIES INC. and Kaohsiung Branch, Export Processing Zone Administration, Ministry of Economic Affairs. <sup>(1)</sup>
4.15	Form of Share Exchange Covenant Letter from the Company to the Shareholders. <sup>(1)</sup>
4.16	Amendment to the Integrated Circuit Processing and Warehousing Management Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC, dated September 1, 2001. <sup>(3)</sup>
4.17	Purchase Agreement between ChipMOS TECHNOLOGIES INC. and DenMOS Technology Inc. <sup>(3)</sup>
4.18	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Ron How Investment Corp. (English Translation)
4.19	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Yuan Shan Investment Corp. (English Translation)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Exhibits	Description
4.20	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Mosel Vitelec Inc. (English Translation)
4.21	Laser Stamping Machine Lease Agreement, dated November 1, 2002, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.22	Automatic Stamping Machine Lease Agreement, dated December 1, 2002, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.23	Raw Materials Processing Agreement, dated January 1, 2003, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.24	Integrated Circuit Processing Agreement, dated January 1, 2003, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.25	Technology Transfer Agreement, dated December 24, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.26	Tester Equipment Lease Agreement, dated November 14, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.27	Tester Equipment Lease Agreement, dated December 3, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.28	Joint Engagement Letter, undated, by and among Ultima Electronics Corp., ChipMOS TECHNOLOGIES INC. and Sun-Fund Securities Ltd. (English Translation)
4.29	Lease Agreement, dated June 1, 2002, between ChipMOS TECHNOLOGIES INC. and SyncMOS Technologies, Inc. (English Translation)
4.30	Technology Transfer Agreement, dated August 1, 2002, between ChipMOS TECHNOLOGIES (Bermuda) LTD. and ChipMOS TECHNOLOGIES (Shanghai) LTD.
4.31	Promissory Note from Modern Mind Technology Limited to Jesper Limited, dated November 4, 2002.
4.32	Deed of Variation, dated December 2, 2002, between Modern Mind Technology Limited to Jesper Limited.
4.33	Deed of Assignment, dated December 27, 2002, between Jesper Limited and ChipMOS TECHNOLOGIES (Bermuda) LTD.
4.34	Deed of Assignment, dated June 25, 2003, between Jesper Limited and ChipMOS TECHNOLOGIES INC.
4.35	Agreement, dated May 3, 2003, between Jesper Limited and ChipMOS TECHNOLOGIES (Bermuda) LTD.
4.36	Cooperation Agreement, dated March 27, 2002 between Shanghai Qingpu Industrial Park Development (Group) Company and Modern Mind Technology Limited. (English Translation)
8.1	List of subsidiaries of ChipMOS TECHNOLOGIES (Bermuda) LTD.
23.1	Consent of current auditors.*
23.2	Consent of previous auditors.*

(1) Incorporated by reference to our Registration Statement on Form F-1 (File No. 333-13218 ), filed on February 28, 2001.

(2) Incorporated by reference to our report on Form 6-K, dated February 19, 2002.

(3) Incorporated by reference to our Annual Report on Form 20-F (file No. 0-31106), filed on June 17, 2002.

\* To be filed by amendment.

We have not included as exhibits certain instruments with respect to our long-term debt, the amount of debt authorized under each of which does not exceed 10% of our total assets, and we agree to furnish a copy of any such instrument to the Commission upon request.



**SIGNATURES**

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant certifies that it has reasonable grounds to believe that it meets all the requirements for filing on Form 20-F and has duly caused this annual report to be signed on its behalf by the undersigned, thereunto duly authorized, in Taipei, Taiwan, Republic of China, on \_\_\_\_\_, 2003.

**CHIPMOS TECHNOLOGIES (BERMUDA) LTD.**

By: \_\_\_\_\_ /s/ HUNG-CHIU HU

Name: Hung-Chiu Hu  
Title: Chairman

**CERTIFICATIONS\***

I, Shih-Jye Cheng, certify that:

1. I have reviewed this annual report on Form 20-F of ChipMOS TECHNOLOGIES (Bermuda) LTD.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and have:

- c. designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
- d. evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and
- e. presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

- f. all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
- g. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6. The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

---

Name:  
Title:

Date:



I, Shou-Kang Chen, certify that:

1. I have reviewed this annual report on Form 20-F of ChipMOS TECHNOLOGIES (Bermuda) LTD.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and have:

- a. designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
- b. evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the Evaluation Date); and
- c. presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

- a. all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
- b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6. The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

---

Name:  
Title:

Date:

\* To be filed by amendment.

-81-

**ChipMOS TECHNOLOGIES (Bermuda) LTD. and Subsidiaries**

**Consolidated Financial Statements for the Years Ended December 31, 2000,**

**2001 and 2002**

## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED BALANCE SHEETS

December 31, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars, Except Par Value)

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$ (Note 3)
<b>ASSETS</b>			
<b>CURRENT ASSETS</b>			
Cash	1,181,105	980,009	28,242
Vanuatu Bank Account		1,507,523	43,444
Restricted cash and cash equivalents (Note 18)	234,001	76,868	2,215
Short-term investments (Notes 2 and 4)	969,945	874,932	25,214
Notes receivable			
Related parties (Note 17)	1,158		
Third parties	29,542	30,474	877
Accounts receivable net of allowance for doubtful receivables and sales return allowances of NT\$17,490 in 2001 and NT\$32,346 in 2002 (Notes 2 and 5)			
Related parties (Note 17)	1,200,123	1,104,475	31,829
Third parties	250,709	562,480	16,210
Other receivables net of allowance for doubtful receivables and sales return allowances of NT\$12,510 in 2001 and NT\$12,510 in 2002 (Notes 2 and 5)			
Related parties (Note 17)	11,600	11,547	334
Third parties	10,581	92,277	2,659
Inventories net (Notes 2 and 6)	172,254	166,493	4,798
Deferred income tax net (Notes 2 and 16)	40,748	38,467	1,109
Prepaid expenses and other current assets	17,881	223,209	6,433
<b>Total Current Assets</b>	<b>4,119,647</b>	<b>5,668,754</b>	<b>163,364</b>
<b>LONG-TERM INVESTMENTS (Notes 2 and 7)</b>	<b>271,375</b>	<b>1,441,866</b>	<b>41,552</b>
<b>PROPERTY, PLANT AND EQUIPMENT NET (Notes 2, 8, 12 and 13)</b>			
<b>Cost</b>			
Buildings and auxiliary equipment	2,533,231	2,655,633	76,531
Machinery and equipment	13,396,683	13,938,962	401,699
Furniture and fixtures	213,429	493,775	14,230
Transportation equipment	10,342	17,270	498
Tools	783,852	833,075	24,008
Leasehold improvements	14,319	8,811	254
<b>Total cost</b>	<b>16,951,856</b>	<b>17,947,526</b>	<b>517,220</b>
Accumulated depreciation	(6,529,508)	(8,915,451)	(256,929)
Construction in progress and advance payments	377,259	949,683	27,368
<b>Net Property, Plant and Equipment</b>	<b>10,799,607</b>	<b>9,981,758</b>	<b>287,659</b>
<b>INTANGIBLE ASSETS NET (Notes 2 and 9)</b>	<b>155,292</b>	<b>113,747</b>	<b>3,278</b>

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

<b>OTHER ASSETS</b>			
Restricted cash and cash equivalent (Note 18)	601,624	601,744	17,341
Employee dormitory building net of accumulated depreciation of NT\$23,271 in 2001 and NT\$32,367 in 2002 (Note 2)	138,765	129,978	3,746
Refundable deposits	14,972	14,953	431
Goodwill		911	26
<b>Total Other Assets</b>	<b>755,361</b>	<b>747,586</b>	<b>21,544</b>
<b>TOTAL ASSETS</b>			
(Forward)	16,101,282	17,953,711	517,397

The accompanying notes are an integral part of the consolidated financial statements.

## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED BALANCE SHEETS

December 31, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars, Except Par Value)

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$ (Note 3)
<b>LIABILITIES AND SHAREHOLDERS EQUITY</b>			
<b>CURRENT LIABILITIES</b>			
Bank loans (Note 10)	1,066,762	2,032,631	58,577
Current portion of long-term loans (Note 13)	1,180,000	352,160	10,149
Commercial paper payable (Note 11)		159,427	4,595
Promissory loan note (Note 11)		575,850	16,595
Accounts payable			
Third parties	120,085	145,352	4,189
Other payables			
Related parties (Note 17)	948	1,344	39
Third parties	105,860	192,747	5,555
Income tax payable (Notes 2 and 16)	35,731		
Payables to contractors and equipment suppliers	358,757	158,750	4,575
Accrued expenses and other current liabilities	152,800	465,124	13,403
<b>Total Current Liabilities</b>	<b>3,020,943</b>	<b>4,083,385</b>	<b>117,677</b>
<b>LONG-TERM LIABILITIES</b>			
Long-term bonds payable (Note 12)	1,200,000	1,200,000	34,582
Long-term loans (Note 13)	769,411	2,811,435	81,021
<b>Total Long-Term Liabilities</b>	<b>1,969,411</b>	<b>4,011,435</b>	<b>115,603</b>
<b>OTHER LIABILITIES</b>			
Deferred income tax net (Notes 2 and 16)	155,378	231,779	6,680
Accrued pension cost (Notes 2 and 14)	19,206	26,194	755
Guarantee deposits	442	461	13
<b>Total Other Liabilities</b>	<b>175,026</b>	<b>258,434</b>	<b>7,448</b>
<b>Total Liabilities</b>	<b>5,165,380</b>	<b>8,353,254</b>	<b>240,728</b>
<b>MINORITY INTEREST IN ChipMOS TECHNOLOGIES, INC.</b>	<b>3,336,721</b>	<b>2,887,109</b>	<b>83,202</b>
<b>COMMITMENTS AND CONTINGENCIES (Note 19)</b>			
<b>SHAREHOLDERS EQUITY (Notes 2 and 15)</b>			
Capital stock NT\$0.3267 (US\$0.01) par value			
Authorized 100,000 thousand shares			
Issued 2002: 58,873 thousand shares (2001: 58,342)	19,048	19,233	554
Capital surplus	7,582,172	7,645,968	220,344

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Option warrants		64,401	1,856
Deferred compensation		(39,245)	(1,131)
Retained earnings (accumulated deficits)	(1,561)	(976,917)	(28,153)
Treasury stock (Note 7)		420	12
Cumulative translation adjustments	(478)	(512)	(15)
		<u>          </u>	<u>          </u>
Total Shareholders' Equity		7,599,181	6,713,348
		<u>          </u>	<u>          </u>
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		16,101,282	17,953,711
		<u>          </u>	<u>          </u>

The accompanying notes are an integral part of the consolidated financial statements.

## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF OPERATIONS

For the Years Ended December 31, 2000, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars, Except Earnings (loss) Per Share)

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$ (Note 3)
<b>NET REVENUES (Notes 2 and 17)</b>				
Related parties	5,311,125	3,718,979	3,665,384	105,631
Third parties	2,913,066	1,526,116	2,860,481	82,435
<b>Total Net Revenues</b>	<b>8,224,191</b>	<b>5,245,095</b>	<b>6,525,865</b>	<b>188,066</b>
<b>COST OF REVENUES (Note 17)</b>				
Related parties	3,686,784	3,760,067	3,004,306	86,579
Third parties	1,824,208	2,269,242	3,707,400	106,841
<b>Total Cost of Revenues</b>	<b>5,510,992</b>	<b>6,029,309</b>	<b>6,711,706</b>	<b>193,420</b>
<b>GROSS PROFIT (LOSS)</b>	<b>2,713,199</b>	<b>(784,214)</b>	<b>(185,841)</b>	<b>(5,354)</b>
<b>OPERATING EXPENSES (Note 17)</b>				
Research and development (Note 2)	357,429	408,905	326,753	9,417
General and administrative	238,463	248,026	310,200	8,939
Marketing (Note 2)	138,007	34,654	37,354	1,076
<b>Total Operating Expenses</b>	<b>733,899</b>	<b>691,585</b>	<b>674,307</b>	<b>19,432</b>
<b>INCOME (LOSS) FROM OPERATIONS</b>	<b>1,979,300</b>	<b>(1,475,799)</b>	<b>(860,148)</b>	<b>(24,789)</b>
<b>NON-OPERATING INCOME</b>				
Gain on sales of investments (Note 2)	99,390	232,701	50,370	1,452
Rental (Note 17)	88,828	93,491	35,473	1,022
Interest	34,095	65,281	38,231	1,102
Foreign exchange gain (Note 2)	74,765	55,350		
Reversal of allowance for doubtful receivables (Note 5)		38,835		
Subsidy income	9,250	26,161	8,982	259
Gain on disposal of property, plant and equipment (Note 2)	4,108	240	37,698	1,086
Insurance compensation	101,936			
Reversal of allowance for loss on short-term investments (Note 2)	658			
Other	9,250	13,673	10,262	297
<b>Total Non-Operating Income</b>	<b>422,280</b>	<b>525,732</b>	<b>181,016</b>	<b>5,218</b>

The accompanying notes are an integral part of the consolidated financial statements.





## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF OPERATIONS

For the Years Ended December 31, 2000, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars, Except Earnings (loss) Per Share)

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$ (Note 3)
<b>NON-OPERATING EXPENSES</b>				
Interest	308,405	299,136	242,130	6,978
Loss on lease rescission net (Note 19)	13,533	116,622		
Public listing fees (Note 1)		82,687		
Investment loss recognized by equity method (Notes 2 and 7)	171,689	75,035	95,001	2,738
Financing cost	14,517	14,768	17,113	493
Allowance for loss on short-term investment			168,604	4,859
Loss on disposal of property, plant and equipment (Note 2)	2,928	1,079	640	18
Foreign exchange loss (Note 2)			42,296	1,219
Other	18,091	13,635	12,828	369
<b>Total Non-Operating Expenses</b>	<b>529,163</b>	<b>602,962</b>	<b>578,612</b>	<b>16,675</b>
<b>INCOME (LOSS) BEFORE INCOME TAX AND MINORITY INTEREST AND INTEREST IN BONUSES TO DIRECTORS, SUPERVISORS AND EMPLOYEES PAID BY A SUBSIDIARY</b>	<b>1,872,417</b>	<b>(1,553,029)</b>	<b>(1,257,744)</b>	<b>(36,246)</b>
INCOME TAX EXPENSE (Notes 2 and 16)	333,396	32,413	97,916	2,822
<b>INCOME (LOSS) BEFORE MINORITY INTEREST AND INTEREST IN BONUSES TO DIRECTORS, SUPERVISORS AND EMPLOYEES PAID BY A SUBSIDIARY</b>	<b>1,539,021</b>	<b>(1,585,442)</b>	<b>(1,355,660)</b>	<b>(39,068)</b>
MINORITY INTEREST IN ChipMOS TECHNOLOGIES INC.	(465,708)	450,515	385,375	11,106
INTEREST IN BONUSES TO DIRECTORS, SUPERVISORS AND EMPLOYEES PAID BY A SUBSIDIARY	(115,918)			
<b>NET INCOME (LOSS)</b>	<b>957,395</b>	<b>(1,134,927)</b>	<b>(970,285)</b>	<b>(27,962)</b>
<b>EARNINGS (LOSS) PER SHARE</b>	<b>17.76</b>	<b>(19.45)</b>	<b>(16.49)</b>	<b>(0.48)</b>
<b>WEIGHTED AVERAGE NUMBER OF SHARES OUTSTANDING</b>	<b>53,911</b>	<b>58,342</b>	<b>58,835</b>	<b>58,835</b>
<b>EARNINGS (LOSS) PER SHARE RETROACTIVELY ADJUSTED (Note 2)</b>	<b>17.76</b>	<b>(19.45)</b>	<b>(16.49)</b>	<b>(0.48)</b>
<b>WEIGHTED AVERAGE NUMBER OF SHARES OUTSTANDING RETROACTIVELY ADJUSTED (Note 2)</b>	<b>53,911</b>	<b>58,342</b>	<b>58,835</b>	<b>58,835</b>

The accompanying notes are an integral part of the consolidated financial statements.



## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

For the Years Ended December 31, 2000, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars, Except Number of Shares)

	CAPITAL STOCK ISSUED					RETAINED EARNINGS (ACCUMULATED DEFICITS)	UNREALISED LOSS ON LONG-TERM INVESTMENTS (Note 2)	CUMULATIVE TRANSLATION ADJUSTMENTS (Note 2)	TREASURY STOCK	SHARES
	Shares (Thousand)	Amount	CAPITAL SURPLUS	Option Warrants	Deferred Compensation					
		NT\$	NT\$	NT\$	NT\$					
JANUARY 1, 2000	44,907	14,662	4,480,008			708,107		33		
Reversal of 1999 earnings:										
- Issuance of 11.6% convertible preferred shares	5,300	1,730	528,257			(529,987)				
- Shares issued to employees settled by shares	849	277	84,647							
- Issuance of capital stock	7,286	2,379	2,547,574							
- Issuance for 2000						957,395				
- Disposal of property, plant and equipment			2,149			(2,149)				
- Loss on long-term investments							(38,906)			
- Arising from changes in exchange rate percentage in local currency			(47,112)							
- Adjustments								(239)		
DECEMBER 31, 2000	58,342	19,048	7,595,523			1,133,366	(38,906)	(206)		
JANUARY 1, 2001						(1,134,927)				
- Unrealized losses on long-term investments							38,906			
- Arising from changes in exchange rate percentage in local currency			(13,351)							
- Adjustments								(272)		
DECEMBER 31, 2001	58,342	19,048	7,582,172			(1,561)		(478)		
- Issuance of stock	531	185	63,052							
- Issuance of option warrants				64,401	(39,245)					
- Issuance for 2002						(970,285)				
- Issuance of equity method for investment			744			(5,071)			420	
- Adjustments								(34)		
DECEMBER 31, 2002	58,873	19,233	7,645,968	64,401	(39,245)	(976,917)		(512)	420	

The accompanying notes are an integral part of the consolidated financial statements.

## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Years Ended December 31, 2000, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars)

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$ (Note 3)
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>				
Net income (loss)	957,395	(1,134,927)	(970,285)	(27,962)
Adjustments to reconcile net income (loss) to net cash provided by operating activities				
Depreciation	1,825,274	2,625,559	2,690,657	77,538
Amortisation	187,817	189,792	129,962	3,745
Deferred compensation			25,154	725
Loss (gain) on disposal of property, plant and equipment net	(1,180)	839	(36,391)	(1,049)
Investment loss recognized by equity method	171,689	75,035	95,001	2,738
Accrued pension cost	7,910	2,550	6,988	201
Deferred income tax net	270,608	(5,240)	78,682	2,267
Minority interest in ChipMOS TECHNOLOGIES INC.	465,708	(450,515)	(449,612)	(12,957)
Changes in operating assets and liabilities				
Notes receivable	213,576	(11,645)	226	7
Accounts receivable	(40,125)	518,344	(216,123)	(6,228)
Other receivables	3,279	15,039	(81,643)	(2,353)
Inventories	(111,221)	152,944	5,761	166
Prepaid expenses and other current assets	(30,088)	69,715	(205,562)	(5,924)
Accounts payable	(26,735)	(108,139)	25,267	728
Other payables	67,280	(47,342)	(105,217)	(3,032)
Income tax payable	55,219	(25,831)	(35,731)	(1,030)
Accrued expenses and other current liabilities	278,987	(245,714)	432,193	12,455
Deferred income			74,406	2,144
<b>Net Cash Provided by Operating Activities</b>	<b>4,295,393</b>	<b>1,620,464</b>	<b>1,463,733</b>	<b>42,179</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>				
(Increase)/decrease in restricted cash and cash equivalents	(28,997)	(801,587)	157,013	4,525
(Increase)/decrease in short-term investments	(1,260,198)	1,078,262	95,004	2,738
Proceeds from sales of:				
Long-term investments	100			
Property, plant and equipment	719,626	2,981	218,757	6,304
Acquisitions of:				
Long-term investments	(357,408)	(10,698)	(1,271,038)	(36,629)
Property, plant and equipment	(6,567,185)	(1,671,604)	(2,246,150)	(64,730)
Intangible assets	(36,400)	(23,712)	(88,340)	(2,546)
Employee dormitory building	(2,361)	(14,870)	(310)	(9)
Goodwill			(918)	(26)
(Increase)/decrease in refundable deposits	(15,610)	31,510	90	3
<b>Net Cash Used in Investing Activities</b>	<b>(7,548,433)</b>	<b>(1,409,718)</b>	<b>(3,135,892)</b>	<b>(90,370)</b>

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

CASH FLOWS FROM FINANCING ACTIVITIES				
Payments on:				
Bank loans	(768,440)			
Long-term loans	(1,006,250)	(1,052,339)		
Proceeds from:				
Bank loans		833,144	965,869	27,835
Commercial paper payable			159,427	4,594
Long-term loans	1,374,000		1,214,184	34,991
Bonds payable	1,200,000			
Issuance of capital stock	2,549,953		63,237	1,822
Increase (decrease) in guarantee deposits	105	(580)	19	1
Loan from Jesper Ltd.			575,850	16,596
Bonus to directors, supervisors and employees	(5,222)			
Proceeds from issuance of capital stock	950,047			
	<u>4,294,193</u>	<u>(219,775)</u>	<u>2,978,586</u>	<u>85,839</u>
Net Cash Provided by (Used in) Financing Activities	4,294,193	(219,775)	2,978,586	85,839
EFFECT OF EXCHANGE RATE CHANGES ON CASH				
	<u>(343)</u>	<u>(391)</u>		
Net Increase (Decrease) in Cash	1,040,810	(9,420)	1,306,427	37,648

## ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Years Ended December 31, 2000, 2001 and 2002 (Notes 1 and 15)

(In Thousands of New Taiwan and U.S. Dollars)

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$ (Note 3)
Net Increase (Decrease) in Cash Brought Forward	1,040,810	(9,420)	1,306,427	37,648
Cash, beginning of the year	149,715	1,190,525	1,181,105	34,038
Cash, end of the year	1,190,525	1,181,105	2,487,532	71,686
<b>SUPPLEMENTAL INFORMATION</b>				
Income tax paid	7,782	63,484	56,766	1,636
Interest paid (excluding the amounts of NT\$82,548 capitalized in 2000)	261,388	367,495	243,652	7,022
<b>NON CASH FINANCING ACTIVITIES</b>				
Current portion of long-term loans	1,076,250	1,180,000	352,160	10,149
<b>PARTIAL CASH PAID FOR INVESTING ACTIVITIES</b>				
Cash paid for acquisition of property, plant and equipment				
Total acquisitions	7,022,019	991,968	2,029,471	58,486
Decrease (increase) in payables to contractors and equipment suppliers	(454,834)	679,636	216,679	6,245
	6,567,185	1,671,604	2,246,150	64,731

The accompanying notes are an integral part of the consolidated financial statements.



---

**ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES**

*NOTES TO CONSOLIDATED FINANCIAL STATEMENTS*

1. ORGANIZATION AND BUSINESS

ChipMOS TECHNOLOGIES (Bermuda) LTD. (ChipMOS Bermuda) was incorporated under the laws of Bermuda on August 1, 2000, and its common shares have been traded on the Nasdaq National Market since June 2001. In connection with a corporate restructuring on January 12, 2001, the holders of an aggregate of 583,419 thousand common shares of ChipMOS TECHNOLOGIES INC. (ChipMOS Taiwan) executed a Purchase and Subscription Agreement whereby they transferred their shares of ChipMOS Taiwan to ChipMOS Bermuda in exchange for 58,342 thousand newly-issued common shares of ChipMOS Bermuda. The selling shareholders, who previously held in an aggregate of 70.25% of the entire outstanding common shares of ChipMOS Taiwan, thus, became the holders of the entire outstanding common shares of ChipMOS Bermuda. As of December 31, 2002, ChipMOS Bermuda owned 70.34% of the outstanding common shares of ChipMOS Taiwan.

Because 100% of the outstanding common shares of ChipMOS Bermuda were owned by former shareholders of ChipMOS Taiwan, the exchange has been accounted for as a merger. Consequently, the financial statements present the historical results, assets and liabilities of ChipMOS Taiwan as if ChipMOS Taiwan was the acquirer. Therefore, the consolidated financial statements for the year ended December 31, 2000 are presented as if ChipMOS Bermuda had been in existence since, and as if it had acquired its interest in ChipMOS Taiwan on July 28, 1997 (the date of ChipMOS Taiwan's inception). The equity accounts have been restated to reflect the exchange ratio in the transaction and the net income and shareholders' equity of ChipMOS Taiwan. Equity and operations attributable to ChipMOS Taiwan shareholders not participating in the exchange offer have been reflected as minority interest in the historical financial statements.

ChipMOS Taiwan owns 100% of the outstanding shares of both ChipMOS Japan Inc. (ChipMOS Japan) and ChipMOS USA Inc. (ChipMOS USA) and 25% of the outstanding shares of PlusMOS TECHNOLOGIES Inc. (PlusMOS) and 34% of Chantek Electronic Co. Ltd. (Chantek) and 42% of ThaiLin Semiconductor Corp (ThaiLin). ChipMOS Bermuda also controls both Modern Minds Technology Limited (Modern Mind) and its 100% subsidiary ChipMOS TECHNOLOGIES (Shanghai) Limited (ChipMOS Shanghai) with the beneficial interest being in substance with ChipMOS Bermuda. Due to this reason Modern Mind Technology and ChipMOS Shanghai have been consolidated into these financial statements. The Company's structure is diagrammed below:

**ChipMOS TECHNOLOGIES (Bermuda) LTD. AND SUBSIDIARIES**

*NOTES TO CONSOLIDATED FINANCIAL STATEMENTS*

1. ORGANIZATION AND BUSINESS (CONTINUED)

ChipMOS Taiwan was incorporated on July 28, 1997 as a joint venture company of Mosel Vitelic, Inc. (MVI) and Siliconware Precision Industries Co. Ltd. (SPIL). Its operations consist of research and development, manufacturing, testing, and packaging of integrated circuits. The Company also provides semiconductor testing and assembly services on a turnkey basis, in which the Company purchases fabricated wafers and sells tested and assembled semiconductors to application and system manufacturers. MVI participated in the restructuring and share exchange described above and SPIL did not.

As of June 12, 2003, ChipMOS Bermuda is 44.04% owned by Giant Haven Investment Ltd., a subsidiary of MVI, and ChipMOS Taiwan is 70.34% owned by ChipMOS Bermuda and 29.66% owned by SPIL.

ChipMOS Japan was incorporated in Japan in June 1999, and ChipMOS USA was incorporated in the United States of America in October 1999. The two companies engage in research and development and testing of integrated circuits, and all the expenses incurred from the activities are charged to current income. ChipMOS Japan began generating revenue in 2000, while ChipMOS USA began generating revenue in 2001.

PlusMOS was incorporated on March 22, 2000, as a joint venture company of ChipMOS Taiwan (25%) and MVI (49.31% indirectly and directly). Its operations consist of manufacture, design and sale of DRAM modules.

ThaiLin was incorporated in May 1996, ThaiLin is a provider of semiconductor testing services primarily for semiconductors memory products including DRAM, SDRAM, and Flash. ThaiLin currently serves prominent names in the industry, such as UMC, Powerchip, Vanguard, Elite Semiconductor Technology Inc., Vigour Technology Corp., and etc. Its shares are listed on the OTC market of the Taiwan Stock Exchange.

ChipMOS Taiwan acquired shares in ThaiLin on December 31, 2002.

Chantek was incorporated in May 1989, Chantek is a provider of semiconductor assembly services. Its products include low density volatile and non-volatile memory ICs, Consumer ICs, Micro Controller ICs.

ChipMOS Taiwan acquired shares in Chantek on September 16, 2002.

Modern Mind was incorporated on January 29, 2002 and is legally owned by Jesper Limited, ChipMOS Bermuda in substance has the beneficial interest in Modern Mind as they own a convertible debt with Modern Mind accordingly Modern Mind is considered to be regarded a variable interest entity.

ChipMOS Shanghai was incorporated on June 7, 2002. The company is a joint venture enterprise established in the People's Republic of China with Modern Mind owning the share capital of the company. The principal activities of the company are manufacturing of semiconductors, module and the provision of packaging, testing, technical support and technology advancement services. The company is currently undergoing product development and has not commenced commercial production.

## 2. SIGNIFICANT ACCOUNTING POLICIES

### Basis of presentation

The consolidated financial statements include the accounts of ChipMOS Bermuda and all subsidiaries in which ChipMOS Bermuda (hereinafter, referred to individually or collectively as the Company) holds controlling voting interests in excess of 50% or that are variable interest entities under FASB Interpretation No. 46. All significant intercompany accounts and transactions have been eliminated.

Weighted-average minority interest of 30.26%, 29.85% and 30% in the results of operations for the years ended December 31, 2000 and 2001, 2002 respectively, of ChipMOS Taiwan, and minority interest of 30.30% and 29.66% of the net assets of ChipMOS Taiwan were recognized as of December 31, 2001 and 2002 and are presented separately in the financial statements.

## 2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Concentration of credit risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash and accounts receivable. At December 31, 2002 76% of cash is deposited with NM Bank which is registered in Vanuatu which is considered to be a high risk bank. Of the US\$42,895,429 balance at the year end US\$14,160,071 is still outstanding at May 31, 2003. This amount has been transferred to Jesper Limited to acquire convertible debt in Modern Mind on June 25, 2003.

A substantial portion of revenues is made to a small number of customers on credit and generally no collateral is required.

The Company had two customers that had balances greater than ten percent of total notes and accounts receivable as of December 31, 2001 and 2002:

	<u>December 31,</u>	
	<u>2001</u>	<u>2002</u>
<u>Related parties</u> (note 17)		
MVI	56%	45%
Ultima Electronics Corp. (Ultima)	25%	20%

Credit evaluation of each customer is performed and reserves for potential credit losses are maintained. Losses from bad debts, in the aggregate, have historically not exceeded management's expectations.

Cash equivalents

Commercial paper acquired under agreements that provide for their repurchase within less than three months from date of their acquisition are classified as cash equivalents.

Short-term investments

Short-term investments are carried at the lower of cost or market value. An allowance for losses is provided when the carrying value of the investments exceeds the total market value with the related provision for losses charged to income for the current year. Any recovery of the market value to the extent of the original carrying value is recognized as income.

Costs of investments sold are determined using the weighted-average method.

Allowance for doubtful receivables

Allowance for doubtful receivables are provided based on a review of the collectibility of individual receivables, primarily taking into account the age of the receivables and the financial condition of the debtors.

Inventories

Inventories are stated at the lower of cost or market value. Inventories are recorded at standard costs and adjusted to approximate weighted average cost at the end of the period. Market value represents net realizable value for finished goods and work in progress and replacement value for raw materials.

Long-term investments

Investments in shares of stock of companies where the Company exercises significant influence over the investee's operating and financial decisions are accounted for using the equity method. The Company's proportionate share in the net income or net loss of investee companies is recognized as part of the Investment gain or loss recognized by equity method net account in the consolidated statements of operations. The share in the net loss of investee recognized in the accompanying financial statements is not limited to the carrying value of the investment and any advances made if (a) the Company guarantees the obligations of, or is committed to provide further financial support to investees or (b) investees' losses are temporary and evidence sufficiently shows imminent return to profitable operations. The resulting credit balances of the long-term investment are presented as part of other receivables from related parties or as other current liabilities on the balance sheet. Translation adjustments resulting from the process of translating the investees' financial statements into the functional currency of the Company are recorded as cumulative translation adjustments in the statement of changes in shareholders' equity. When the Company subscribes to additional investee shares at a percentage different from its existing equity interest, the resulting investment in equity investee differs from the Company's proportionate amount of its share in the investee's net equity. The Company records such difference as an adjustment to Capital surplus and the Long-term investments accounts, respectively.

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Long-term investments (continued)

Other stock investments (listed stocks or stocks traded over the counter) are accounted for using the cost method. These investments are stated at cost less decline in market value, which is considered temporary, and a credit is made to an allowance for decline in value with a corresponding debit to shareholders' equity. The allowance is then reduced for any subsequent recovery of the market value to the extent of the balance of the allowance. However, if the decline in value is considered irrecoverable, the decline in value is recorded as a charge to income.

Cash dividends are recognized as income in the year received but are accounted for as a reduction in the carrying value of the long-term investments if the dividends are received in the same year that the related investments are acquired. Stock dividends are recognized only as an increase in the number of shares held on the ex-dividend date.

The cost of investments sold is determined using the weighted-average method.

Gains or losses transactions with investee companies wherein the Company owned at least 20% of the outstanding common stock but less than a controlling interest are deferred to in proportion to ownership percentage until realized through a subsequent transaction with a third party. The entire amount of gain or losses on sales to majority owned subsidiaries are deferred until such gains or losses are realized through the subsequent sale of the related products to third parties.

Property, plant and equipment and employee dormitory building

Property, plant and equipment and employee dormitory building (presented as part of Other Assets) are stated at cost less accumulated depreciation. Major additions, renewals and betterment are capitalized while maintenance and minor repairs are expensed currently.

Depreciation is provided using the straight-line method over estimated service lives: buildings and auxiliary equipment, 3 to 54 years; machinery and equipment, 2 to 5 years; furniture and fixtures, 2 to 5 years; transportation equipment, 5 years; tools, 2 years; leasehold improvements, 2 years; employee dormitory building, 5 to 50 years. Salvage value is considered when determining the basis of depreciated assets. If items of property, plant and equipment and employee dormitory building are still in good condition and useful at the end of their original service lives, the salvage value is depreciated over any extended useful life and property, plant and equipment and employee dormitory building are not depreciated beyond their original costs.

Upon sale or disposal of property, plant and equipment and employee dormitory building, the related cost and accumulated depreciation are removed from the accounts. Any resulting gain or loss is credited or charged to income. Any such gain generated before 2000, realized by ChipMOS Taiwan, less applicable income tax, was transferred to capital surplus.

Intangible assets

Intangible assets are amortized using the straight-line method over the following periods: goodwill, 5 years, technology know-how, 5 years; technology license fee, 5 years; software, 2 to 4 years and bond issuance cost, 5 years.

Revenue recognition

The four criteria for recognizing revenue are the evidence that an arrangement exists, receipt of products by customers, fixed or determinable selling price and reasonable assurance of collectibility. Revenue from testing and assembly services is recognized upon completion of assembly and testing services and receipt of products by customers. Revenue from product sales is recognized when title of products and risks of ownership are transferred to customers upon their receipt of the products.

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Research and development costs

Research and development costs consist of expenditures incurred during the course of planned research and investigation aimed at discovery of new knowledge which will be useful for developing new products or production processes, or significantly enhancing existing products or production processes, and the implementation of such through design, testing of product alternatives or construction of prototypes. All expenses incurred in connection with the Company's research and development activities are charged to current income.

Shipping and handling expense

The Company expenses, primarily as marketing expenses, all shipping and handling expenses incurred in delivering products to the customers designated locations. Shipping and handling expenses incurred in the years ended December 31, 2000, 2001 and 2002 were NT\$5,170 thousand, NT\$4,325 thousand and NT\$5,130 thousand (US\$148 thousand), respectively.

Pension cost

Net periodic pension cost is recorded on the basis of actuarial calculations. Unrecognized net transition obligations are amortized over 24 years while unrecognized net losses are amortized over the average remaining service period.

Income tax

The Company applies the inter-period income tax allocation method for income tax. Deferred income taxes are recognized for the tax effects of temporary differences, unused tax credits and operating loss carry forwards. A valuation allowance is recognized if, based on the weight of available evidence, it is more likely than not that some portion or all of the deferred tax asset will not be realized. A deferred tax asset or liability is, according to the classification of its related asset or liability, classified as current or non-current. However, if a deferred tax asset or liability cannot be related to an asset or liability in the financial statements, then it is classified as current or non-current based on the expected reversal dates of the temporary differences.

Adjustments of prior years' tax liabilities are added to or deducted from the current year's tax provision.

Income taxes (10%) on unappropriated earnings of ChipMOS Taiwan are recorded as an expense in the year when the shareholders have resolved that earnings shall be retained.

Derivative financial instruments



Foreign currency forward exchange contracts (forward contracts), entered into for purposes other than trading, are recorded as follows: the differences in the New Taiwan dollar amounts translated using the spot rates as of the contract date and the amounts translated using the contracted forward rates are amortized over the terms of the forward contract using the straight-line method. At the balance sheet dates, the receivables or payables arising from forward contracts are restated using the prevailing spot rates and the resulting differences are recognized in income. Also, the receivables and payables related to the forward contract are netted and the resulting net amount is presented as either an asset or liability.

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

The aggregate amount of the foreign currency to be acquired or sold under European option contracts, entered into as hedge of anticipated transactions, is not recorded as an asset or a liability. The amounts received on options written and the amounts paid on options purchased are amortized using the straight-line method over the term of the contract. The gains arising from the exercise of the options or the losses arising from options not exercised are recognized as adjustments to the carrying values when the hedged transaction occurs.

Other foreign-currency transactions

Other foreign-currency transactions are recorded in New Taiwan dollars at the exchange rates in effect when the transactions occur. Gains or losses caused by the application of different foreign exchange rates when cash in foreign currency is converted into New Taiwan dollars, or when foreign-currency assets and liabilities are settled, are credited or charged to income in the year of conversion or settlement. At year-end, the balances of foreign-currency assets and liabilities are restated based on prevailing exchange rates and any resulting gains or losses are credited or charged to income.

Translation of foreign-currency transactions

ROC Financial Accounting Standards (FAS) No. 14, Accounting for Foreign-Currency Transactions, applies to foreign operations, with the local currency of each foreign subsidiary as its functional currency. The financial statements of foreign subsidiaries are translated into New Taiwan dollars at the following exchange rates: assets and liabilities current rate; shareholders equity historical rates; income and expenses weighted-average rate during the year. The resulting translation adjustment is recorded as a separate component of shareholders equity.

Earnings per share

Earnings per share is calculated by dividing net income by the weighted-average number of shares outstanding in each period, adjusted retroactively for stock dividends and stock bonuses issued subsequently.

Stock based compensation

Employee stock-based compensation has been accounted for under the intrinsic value based method as prescribed by Accounting Principles Board APB Opinion No. 25. The proforma disclosure provisions of SFAS No. 123 Accounting for Stock-Based Compensation has been applied to employee stock-based compensation (Note 15).

3. TRANSLATION INTO U.S. DOLLAR AMOUNTS

The Company maintains its accounts and expresses its consolidated financial statements in New Taiwan dollars. For convenience purposes, U.S. dollar amounts presented in the accompanying consolidated financial statements have been translated from New Taiwan dollars at the noon

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

buying rate in the City of New York cable transfers in New Taiwan dollars as certified for customers purposes by the Federal Reserve Bank of New York as of December 31, 2002 which was NT\$34.7 to US\$1.00. The convenience translations should not be construed as representations that the New Taiwan dollar amounts have been, or could in the future be, converted into U.S. dollars at this or any other rate of exchange.

4. SHORT-TERM INVESTMENTS

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
		(in thousands)	
Stock		242,416	6,986
Open-ended funds	697,693	801,120	23,087
Corporate bonds	272,252		
Allowance for impairment of short-term investments		(168,604)	(4,859)
	969,945	874,932	25,214
Market value	969,945	874,932	25,214

The market value of open-ended funds and stocks are based on the market price at year-end and the average market price of the last month before balance sheet date respectively. Corporate bonds are Samurai bonds that were issued in Japan by MVI with a par value of JPY1,480,000 thousand (NT\$272,252) thousand). Those bonds were due on June 12, 2002 and bore interest at 2.8%. However, the Company sold the bonds on February 27, 2002 and an associated gain of JPY103,000 thousand was realized.

On March 21, 2002, the Company purchased 13,396,000 shares of common stock of MVI at the amount of NT\$242,416 thousand. The provision of allowance for market price decline on the common stock at the year end was NT\$168,604 thousand.

5. ALLOWANCE FOR DOUBTFUL RECEIVABLES AND SALES RETURN ALLOWANCES

The changes in the allowances are summarized as follows:

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
Balance, beginning of year	11,000	71,000	30,000	865
Additions	60,000		25,821	744
Reversals		(38,835)		
Write offs		(2,165)	(10,965)	(316)
Balance, end of year	71,000	30,000	44,856	1,293

6. INVENTORIES NET

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
Finished goods	46,900	45,452	1,310
Work in process	116,082	73,076	2,106
Raw materials	110,205	134,573	3,878
	273,187	253,101	7,294
Less allowance for losses	(100,933)	(86,608)	(2,496)
	172,254	166,493	4,798

The changes in the inventory valuation allowances are summarized as follows:

	December 31,		
	2001	2002	
	NT\$	NT\$ (in thousands)	US\$
Balance, beginning of year		100,933	2,909
Additions	101,337		
Write offs	(404)	(14,325)	(413)
Balance, end of year	100,933	86,608	2,496

## 7. LONG-TERM INVESTMENTS

	December 31,				
	2001		2002		
	Carrying Value	% of Ownership	Carrying value	% of Ownership	
	NT\$		NT\$ (in thousands)	US\$	
<b>Equity method:</b>					
PlusMOS	53,276	25	51,564	1,486	25
Chantek			117,314	3,381	34
ThaiLin			666,039	19,194	42
<b>Cost method:</b>					
Ultima, listed stock with market value of NT\$283,436 thousand in 2001 and NT\$331,016 thousand in 2002	218,099	8	218,099	6,285	8
Best Home			89,850	2,589	19
Sun Fund			299,000	8,617	17
	<u>271,375</u>		<u>1,441,866</u>	<u>41,552</u>	
Less allowance for decline in value					
	<u>271,375</u>		<u>1,441,866</u>	<u>41,552</u>	

The equity in net income or loss of investee companies for the year ended December 31, 2000, 2001 and 2002 was as follow:

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$ (in thousands)	NT\$	US\$
PlusMOS	(171,689)	(75,035)	(1,712)	(49)
Chantek			(90,921)	(2,621)
ThaiLin			(2,368)	(68)
	<u>(171,689)</u>	<u>(75,035)</u>	<u>(95,001)</u>	<u>(2,738)</u>

The foregoing equity in net income or loss is based on audited financial statements.

The summarized financial information for PlusMOS, Chantek and ThaiLin is as follows:

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
PlusMOS			
Current assets	507,017	526,106	15,162
Non-current assets	173,073	176,403	5,084
Current liabilities	465,217	492,681	14,198
Non-current liabilities	1,764	3,408	98

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>ThaiLin</b>			
Current assets	917,814	1,265,308	36,464
Non-current assets	2,232,134	1,852,366	53,382
Current liabilities	334,795	229,448	6,612
Non-current liabilities	1,305,467	1,209,508	34,856

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>Chantek</b>			
Current assets	260,935	393,123	11,329
Non-current assets	2,135,686	1,115,699	32,153
Current liabilities	732,931	113,776	3,279
Non-current liabilities	346,437	909,183	26,201

	Year Ended December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>PlusMOS</b>			
Net revenues	1,096,494	1,900,315	54,764
Cost of revenues	1,304,221	1,801,160	51,907
Gross profit (loss)	(207,727)	99,155	2,857
Net loss	(300,136)	(6,852)	(197)

Year Ended December 31,



Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	2001			2002		
	NT\$	NT\$		US\$		
		(in thousands)				
<b>ThaiLin</b>						
Net revenues	718,321	721,205		20,784		
Cost of revenues	659,640	891,069		25,679		
Gross profit (loss)	58,681	(169,864)		(4,895)		
Net loss	(110,338)	(499,368)		(14,391)		

	Year Ended December 31,					
	2001			2002		
	NT\$	NT\$		US\$		
	(in thousands)					
<b>Chantek</b>						
Net revenues	607,856	594,338		17,128		
Cost of revenues	876,999	765,679		22,066		
Gross profit (loss)	(269,143)	(171,341)		(4,938)		
Net loss	(774,887)	(1,159,989)		(33,429)		

Certain changes on the shareholders' equity of Chantek were made due to its long-term investments. ChipMOS Taiwan made the adjustments on the equity according to its ownership to the respective accounts, which increased capital reserve and treasury stock by NT\$1,057 thousand and NT\$598 thousand and decreased unappropriated earnings by NT\$7,210 thousand.

## 8. PROPERTY, PLANT AND EQUIPMENT NET

Accumulated depreciation consists of the following:

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
Buildings and auxiliary equipment	550,883	751,904	21,669
Machinery and equipment	5,376,592	7,372,617	212,467
Furniture and fixtures	116,560	157,883	4,550
Transportation equipment	4,335	6,273	181
Tools	473,933	624,025	17,983
Leasehold improvements	7,205	2,749	79
	<u>6,529,508</u>	<u>8,915,451</u>	<u>256,929</u>

As of December 31, 2002, certain of the above buildings and machinery were mortgaged as collateral for the bonds and the long-term loans (Notes 12 and 13).

## 9. INTANGIBLE ASSETS NET

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>Cost</b>			
Development costs		61,871	1,783
Technology know-how	750,000	750,000	21,614
Technology license fee (Note 19b)	15,888	15,888	458
Software	92,817	98,921	2,851
Bond issuance costs and others	27,545	46,398	1,337
Office rent deposit		152	4
Trade marks		1,430	41
	<u>886,250</u>	<u>974,660</u>	<u>28,088</u>
<b>Accumulated amortization</b>			
Technology know-how	(635,833)	(731,666)	(21,085)
Technology license fee (Note 19b)	(7,944)	(11,349)	(327)
Software	(68,492)	(83,582)	(2,409)
Bond issuance costs and others	(18,689)	(34,262)	(987)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Office rent deposit		(54)	(2)
Trade marks			
		<u>          </u>	<u>          </u>
		(730,958)	(860,913)
		<u>          </u>	<u>          </u>
Carrying value			
Development costs		61,871	1,783
Technology know-how	114,167	18,334	529
Technology license fee	7,944	4,539	131
Software	24,325	15,339	442
Bond issuance costs	8,856	12,136	350
Office rent deposit		98	2
Trade marks		1,430	41
		<u>          </u>	<u>          </u>
		155,292	113,747
		<u>          </u>	<u>          </u>

The amortization charge for the year amounted to NT\$129,962 thousand (2001: NT\$189,792 thousand, 2000: NT\$187,817).

Pursuant to a Joint Venture Agreement entered into between MVI and SPIL on July 28, 1997, MVI and SPIL contributed, as payment for their subscription to shares of stock of ChipMOS Taiwan, technologies related to testing and packaging of integrated circuits at an agreed valuation of NT\$750,000 thousand.

## 10. BANK LOANS

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
Unsecured loans:			
Working capital loans:			
NT\$1,019,000 thousand, repayable by May 2002, annual interest at 3.72% - 7.98%	1,019,000		
NT\$1,390,000 thousand, repayable by March 2003, annual interest at 2.5% - 3%		1,390,000	40,057
Loans for imports of machinery			
NT\$47,762 thousand, repayable by August 2002	47,762		
JPY2,193,280 thousand, repayable by June 2003, annual interest at 0.61% - 1.75%		642,631	18,520
	<u>1,066,762</u>	<u>2,032,631</u>	<u>58,577</u>

Unused credit lines as of December 31, 2002 aggregated approximately NT\$1,646,169 thousand, which will expire from January 2003 to November 2003. NT\$1,115 million of these working capital loan has been extended to September 2003.

## 11. SHORT-TERM NOTES PAYABLE

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
Promissory loan note		575,850	16,595
Commercial paper		160,000	4,611
Discount on par value		(573)	(16)
		<u>735,277</u>	<u>21,190</u>

The commercial paper's actual interest rate is 1.8%-2.22% in 2002, and the expiry date would be within 180 days from the issue date.

The promissory loan note is from Jesper Limited with an interest rate of 0.5% annum and maturity date of 6 May 2003. This debt has been extended to November 3, 2003, assigned to MVI, ChipMOS Bermuda's ultimate holding company on 29 May 2003 and then assigned to ChipMos Taiwan on 25 June, 2003.

## 12. LONG-TERM BONDS PAYABLE

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

ChipMOS Taiwan on January 26, 2000 issued secured bonds with face value of NT\$1,200,000 thousand. Those bonds are due on January 26, 2005 and bear annual interest at 5.95% that is payable annually.

Under the guaranteed facility agreement for the long-term bonds, ChipMOS Taiwan is required to:

- (1) Ensure that MVI and SPIL maintain a percentage of direct ownership in ChipMOS Taiwan of at least 28.8% and 18%, respectively. In addition, the Company must notify the banks in writing and get approval in advance in cases where additional shares are issued in connection with an initial public offering of its shares.
  
- (2) Maintain certain financial ratios.

As a result of the share exchange between ChipMOS Taiwan and the Company, MVI no longer maintains the required direct ownership in ChipMOS Taiwan. On October 16, 2000, the Company obtained the necessary waivers and consents from its lenders. These waivers and consents eliminated the MVI direct ownership percentage requirement permanently. The Company was in compliance with the financial ratio requirements as of December 31, 2002.

As of December 31, 2002, certain buildings with an aggregate net book value of NT\$558,859 thousand were mortgaged as collateral for the long-term bonds.

## 13. LONG-TERM LOANS

	December 31,		
	2001	2002	
	NT\$	NT\$ (in thousands)	US\$
Bank loans collateralized by equipment and buildings, repayable semi-annually from November 2000 to December 2004, interest at floating rate (6.93% and 5.425% as of December 31, 2001 and 2002, respectively)	968,500	622,500	17,939
Syndicated bank loans collateralized by equipment, repayable semi-annually from November 2000 to May 2003, interest at floating rate (8.3% as of December 31, 2001)	949,000		
Syndicated bank loans collateralized by equipment, repayable semi-annually from July 2004 to September 2007, interest at floating rate (4.75% as of December 31, 2002)		2,000,000	57,638
Syndicated bank loans collateralized by equipment, repayable semi-annually from July 2004 to September 2007, interest at floating rate (4.875% as of December 31, 2002)		500,000	14,409
Research and development subsidy loan, collateralized by time deposits in amounts of NT\$42,450 thousand, repayable quarterly from July 2003 to September 2006, with zero interest rate	31,911	41,095	1,184
	<u>1,949,411</u>	<u>3,163,595</u>	<u>91,170</u>
Less current portion	<u>(1,180,000)</u>	<u>(352,160)</u>	<u>(10,149)</u>
	<u>769,411</u>	<u>2,811,435</u>	<u>81,021</u>

As of December 31, 2002, the unused credit line for research and development subsidy loan was approximately NT\$26 thousand. The line expires upon completion of the research project. Also, according to the agreement signed by the Company with Industrial Development Bureau (IDB) in respect to the research and development subsidy loan, the Company is obligated to pay IDB a certain percentage (2%) of sales of the product developed for 3 years after completing the project. The original syndicated bank loan of NT\$949,000 thousand was paid off on May 30, 2002.

Under the new syndicated bank loan facility agreement, ChipMOS Taiwan is required to:

- (1) Ensure that ChipMOS Bermuda and SPIL maintain a percentage of direct ownership in ChipMOS Taiwan of at least 50% of outstanding shares and have control over its operation.
- (2) Maintain certain financial ratios.
- (3) Maintain that the balance of guaranteed provided to other business entities does not exceed 50% of issued capital.

As of December 31, 2002, ChipMOS Bermuda and SPIL have 99.07% of direct ownership in ChipMOS Taiwan and have control over its operation.

The Company was in compliance with the financial ratio requirements as of December 31, 2002.

As of December 31, 2002, certain buildings and machinery with an aggregate net book value of NT\$655,260 thousand and NT\$3,967,004 thousand and time deposits in an aggregate amount of NT\$42,450 thousand were mortgaged as collateral for the long-term loans.

At December 31, 2002, the maturities of long-term loans are as follows:

	Amount	
	NT\$	US\$
	(in thousands)	
2003	352,160	10,149
2004	650,090	18,734
2005	726,641	20,941
2006	720,481	20,763
2007	714,223	20,583
	3,163,595	91,170

#### 14. PENSION PLAN

ChipMOS Taiwan has established a defined benefit pension plan for all of its regular employees, which provides benefits based on length of service and average monthly salary for the six months period immediately before retirement.

ChipMOS Taiwan makes monthly contributions, equal to 2% of salaries and wages, to a pension fund that is administered by a pension fund monitoring committee and deposited in its name in the Central Trust of China in Republic of China.

Certain pension information is as follows:

a. Net pension cost

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
Service cost	22,375	23,363	21,323	614
Interest cost	2,030	3,384	3,529	102
Projected return on plan assets	(1,699)	(2,496)	(2,802)	(81)
Amortization	106	98	27	1
Curtailement gain		(6,902)		
	22,812	17,447	22,077	636

b. Reconciliation of the fund status of the plan and accrued pension cost



Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Actuarial present value of benefit Obligations				
Vested benefit obligation				
Nonvested benefit obligation	(17,475)	(25,932)	(55,647)	(1,604)
Accumulated benefit obligation	(17,475)	(25,932)	(55,647)	(1,604)
Additional benefits based on future salaries	(40,534)	(44,640)	(66,501)	(1,916)
Projected benefit obligation	(58,009)	(70,572)	(122,148)	(3,520)
Plan assets at fair value	33,101	49,642	66,005	1,902
Projected benefit obligation in excess of plan assets	(24,908)	(20,930)	(56,143)	(1,618)
Unrecognized net transition obligation	628	538	511	15
Unrecognized net loss	7,624	1,186	29,438	848
Accrued pension cost	(16,656)	(19,206)	(26,194)	(755)

## c. Actuarial assumptions

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Discount rate used in determining present values	6.0%	5.0%	3.50%	3.50%
Future salary increase rate	5.5%	4.5%	3.50%	3.50%
Expected rate of return on plan assets	6.0%	5.0%	3.50%	3.50%

## d. Changes in pension fund

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Contributions	14,902	14,886	15,332	442
Payment of benefits				

## 15. SHAREHOLDERS EQUITY

As described in note 1, these consolidated financial statements as of December 31, 2000 and for the year ended December 31, 2000 are presented as if ChipMOS Bermuda had been in existence since, and as if it had acquired its interest in ChipMOS Taiwan on July 28, 1997 (the date of ChipMOS Taiwan's inception). Thus, all reference to the number of shares and weighted average number of shares outstanding, and per share amounts, are presented on the same basis.

Under ROC Company Law, the capital surplus can only be used to offset deficits except those generated from the donations (donated capital) on the excess of the issue price over the par value of capital stock (including stocks issued for new capital and mergers, and the purchase of treasury stock). Capital surplus can be transferred to capital as stock dividends distributed to shareholders.

ChipMOS Taiwan's Articles of Incorporation provide that the following may be appropriated from the accumulated net income after deducting any previously accumulated deficit and 10% legal reserve, subject to shareholders' approval: (a) 10% as bonus to employees, (b) not more than 2% as remuneration to directors and supervisors, (c) a special reserve, if deemed necessary, and (d) dividends to shareholders.

These appropriations and the disposition of the remaining net income shall be resolved by the shareholders in the following year and given effect in the financial statements of that year.

## Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The aforementioned appropriation for legal reserve shall be made until the reserve equals aggregate par value of ChipMOS Taiwan's outstanding capital stock. The reserve can only be used to offset a deficit, or when its balance has reached 50% of the aggregate par value of the outstanding capital stock of ChipMOS Taiwan, up to 50% thereof can be distributed as stock dividends.

Employees' shares in ChipMOS Taiwan were transferred to ChipMOS Bermuda, in exchange for shares in ChipMOS Bermuda.

### Stock Options

On April 3, 2002 share options were granted. The Share Option plan which provides that the directors officer, employees, consultants and those of their affiliates are granted an option to purchase common shares of ChipMOS Bermuda at the following exercise price.

The following table summarizes information about incentive stock options outstanding at December 31, 2002.

<u>Exercise Price</u>	<u>Number outstanding</u>	<u>Market Price at grant</u>	<u>Market Price at Year End</u>
US\$ 4.0375	2,601,100	US\$ 4.75	US\$ 2.56

The Company applies APB Opinion No. 25, Accounting for Stock Issued to Employees, and related interpretations, for stock options issued to employees in accounting for its stock option plans. The stock options issued during 2002 had a market price of US\$4.75 at the date of grant. Therefore NT\$64,401,628 (US\$1,855,955) of compensation expense has been recognized with NT\$25,156,879 (US\$724,982) being accounted for through the profit and loss account for fiscal year 2002. The Company issued 2,874,600 stock options to employees of the Company during the year ended December 31, 2002, 25% are exercisable on or after April 3, 2003, 25% cannot be exercisable until April 3, 2004, 25% cannot be exercisable until April 3, 2005, and 25% cannot be exercised until April 3, 2006. 273,500 were forfeited during the year leaving 2,601,100 stock options at December 31, 2002.

16. INCOME TAX EXPENSE (BENEFIT)

- a. A reconciliation of income tax expense current before tax credits and income tax expense on income before income tax at statutory rate is shown below:

	<u>Year Ended December 31,</u>			
	<u>2000</u>	<u>2001</u>	<u>2002</u>	
	<u>NT\$</u>	<u>NT\$</u>	<u>NT\$</u>	<u>US\$</u>
	(in thousands)			
Tax on pretax income at Bermuda statutory rate (0%)				
Tax on pre-tax income at ROC statutory rate	374,483	(369,181)	(293,729)	(8,465)
Tax paid by subsidiary	10	73	54	2
Tax effect:				
Tax exempt income	(162,578)			
Permanent difference	14,507	(39,829)	58,879	1,697
Temporary difference	(98,102)	(102,958)	(72,383)	(2,086)
Income tax expense (benefit) current before tax credits	<u>128,320</u>	<u>(511,895)</u>	<u>(307,179)</u>	<u>(8,852)</u>

The ROC statutory rates for 2000, 2001 and 2002 were 20%, 25% and 25%, respectively.

- b. Income tax expense (benefit) consists of:

Year Ended December 31,

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
Income tax expense (benefit) current before tax credits	128,320	(511,895)	(307,179)	(8,852)
Additional 10% on the unappropriated Earnings		114,459		
Income tax credits	(64,155)	(57,230)		
Separate and foreign income tax			4,217	122
Income tax for the current year	64,165	(454,666)	(302,962)	(8,730)
Net change in deferred income tax assets (liabilities) for the year				
Tax credits	(78,414)	(434,872)	119,312	3,438
Temporary difference	98,102	170,078	78,155	2,252
Valuation allowance	250,920	772,006	181,393	5,228
Loss carry forward			7,055	203
Adjustment of prior years taxes	(1,377)	(20,133)	14,963	431
Income tax expense (benefit)	333,396	32,413	97,916	2,822

Since the Company is based in Bermuda, a tax-free country, tax on pretax income is calculated at Bermuda statutory rate of NT\$0 thousand for each period.

ChipMOS Taiwan, under Science-Based Industrial Park Regulations, is entitled to an exemption from ROC income taxes for a period of four years on income attributable to the expansion of its production capacity as a result of purchases of new equipment funded by capital increases. Such tax exemption, will expire on December 31, 2005.

- c. Deferred income tax assets and liabilities are summarized as follows:

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
Net current deferred income tax assets:			
Unrealized foreign exchange loss (gain)	10,556	5,439	157
Loss of market price decline and obsolete and slow-moving inventories	22,733	21,652	624
Unrealized loss on sale allowances		5,721	165
Others	7,459	5,655	163
	<u>40,748</u>	<u>38,467</u>	<u>1,109</u>
Net non-current deferred income tax assets (liabilities):			
Tax credits for investment in machinery and equipment and R&D expenditure	958,838	839,526	24,194
Loss carry forwards	512,452	812,630	23,419
Depreciation differences	(501,250)	(575,608)	(16,588)
Others	2,588	1,072	30
	<u>972,628</u>	<u>1,077,620</u>	<u>31,055</u>
Less: valuation allowances	(1,128,006)	(1,309,399)	(37,735)
	<u>(155,378)</u>	<u>(231,779)</u>	<u>(6,680)</u>

The rate at which deferred income tax components are measured was 25% as of December 31, 2001 and 2002.

- d. The balance and year of expiry of unused investment tax credits and loss carry forwards of ChipMOS Taiwan as of December 31, 2002 are as follows:

Year of Expiry	R & D	Machinery	Loss	
	Expenditures	& Equipment	Carry Forwards	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
2003	41,904	208,474		

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

2004	83,441	49,801		
2005	84,762	264,493		
2006	54,911	51,740	2,017,177	58,132
2007			1,228,930	35,416
	<u>265,018</u>	<u>574,508</u>	<u>3,246,107</u>	<u>93,548</u>

The deferred tax assets related to investment tax credits on R&D expenditure and purchases of machinery and equipment will expire from 2003 to 2006. Under ROC tax regulations, tax credits can be utilized to reduce current income tax obligations only to the extent of 50% of such income tax obligations except in the year when such tax credit will expire, in which case, the entire amount of expiring tax credit may be utilized to reduce the current income tax obligation. However, tax credits generated in the current year have to be utilized before prior year tax credits can be utilized to reduce current year income tax obligations. The foregoing limitation on the utilization of tax credits, the expiry dates of the tax credits, the level of tax credits expected to be generated from future operations and the level of non-taxable income attributable to the four-year income tax holiday on capacity expansion led management to conclude that it is unlikely that these investment tax credits will be realized. Loss carry forwards can be used to deduct current income tax obligations up to the extent of taxable income and will expire after 5 years if not fully utilized by the Company. Accordingly, a valuation allowance on deferred tax assets is recognized as of December 31, 2001 and 2002.

- e. According to ROC tax law, ChipMOS Taiwan's unappropriated earnings generated in 1998 and thereafter are subject to a tax of 10% in the year when the shareholders resolve that such earnings shall be retained. The accumulated deficit of ChipMOS Taiwan as of December 31, 2001 and 2002 consist of:

	December 31,		
	2001	2002	
	NT\$	NT\$ (in thousands)	US\$
Before FY1998	1,448		
FY1998 and thereafter	(375,648)	(1,648,057)	(47,494)
	<u>(374,200)</u>	<u>(1,648,057)</u>	<u>(47,494)</u>

The income tax returns of ChipMOS Taiwan through 1998 have been examined by the tax authorities, and no adjustment on taxable income was made.

#### 17. RELATED PARTY TRANSACTIONS

The Company engages in business transactions with the following related parties:

- a. MVI: An indirect major shareholder.
- b. SPIL: A major shareholder of ChipMOS Taiwan.
- c. PlusMOS: A 25% owned investee of ChipMOS Taiwan.
- d. Billion-Create Technology Co. (Billion-Create): A subsidiary of PlusMOS that was liquidated in November 2001.
- e. Ultima: An 8% owned investee of ChipMOS Taiwan; the chief executive officer of the Company is a member of board director of Ultima.
- f. ProMOS Technologies Inc. (ProMOS): An investee of MVI.
- g. ThaiLin : A 42% owned investee of ChipMOS Taiwan.
- h. Chantek : A 34% owned investee of ChipMOS Taiwan.
- i. DenMOS : A investee of MVI
- j. Best Home : A 20% investee of ChipMOS Taiwan.
- k. Jesper Ltd. : The legal owner of the stock in Modern Mind Technology.



Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The significant transactions with the aforementioned parties, other than those disclosed in other notes, are summarized as follows:

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$ (in thousands)	NT\$	US\$
<u>During the year</u>				
<b>Revenues</b>				
MVI	4,054,724	2,495,046	2,285,348	65,860
Ultima	893,835	1,163,383	1,218,265	35,109
PlusMOS	71,869	55,548	9,010	260
ProMOS		5,002		
Billion-Create	278,917			
SPIL	11,780			
DenMOS			152,761	4,402
	<u>5,311,125</u>	<u>3,718,979</u>	<u>3,665,384</u>	<u>105,631</u>
<b>Rental revenue</b>				
MVI	15,550	29,717	8,800	254
DenMOS			693	20
ThaiLin			2,212	64
	<u>15,550</u>	<u>29,717</u>	<u>11,705</u>	<u>338</u>
<b>Purchases of materials</b>				
MVI	192,708			
SPIL	348			
	<u>193,056</u>			
<b>Manufacturing expenses:</b>				
<b>Subcontract expenses</b>				
SPIL	130,184	3,886		
Chantek		2,950	2,719	78
	<u>130,184</u>	<u>6,836</u>	<u>2,719</u>	<u>78</u>
<b>Operating expenses:</b>				
<b>Administrative expenses MVI</b>				
	5,363	4,550	4,550	131
<b>Consulting fees MVI</b>				
	1,212			
<b>Rental expense MVI</b>				
	2,140	2,490	2,811	81
<b>R&amp;D Materials</b>				
PlusMOS		29,888		
MVI		86		
SPIL	4			

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	4	29,974		
Other expenses				
PlusMOS	1,060			
MVI	742			
Billion-Create	268			
	2,070			

	December 31,		
	2001	2002	
	NT\$	NT\$ (in thousands)	US\$
<b>At the end of year</b>			
Notes receivable Ultima	1,158		
Accounts receivable			
MVI	824,393	759,484	21,888
Ultima	373,992	331,940	9,566
PlusMOS	1,738	4,943	142
DenMOS		23,057	664
Less: allowances for doubtful receivables		(14,949)	(431)
	<u>1,200,123</u>	<u>1,104,475</u>	<u>31,829</u>
Other receivables			
MVI	11,600	4,347	126
Ultima		268	8
ThaiLin		6,301	182
Chantek		356	10
DenMOS		275	8
	<u>11,600</u>	<u>11,547</u>	<u>334</u>
Prepaid expenses Best Home		216,000	6,225
Other payables			
MVI	782	1,158	34
PlusMOS	166	186	5
	<u>948</u>	<u>1,344</u>	<u>39</u>
Promissory loan note		575,850	16,595

As of December 31, 2002, ChipMOS Taiwan provided commercial paper acquired under repurchase agreements as collateral for a loan amounting NT\$600,000 thousand (excluding the interest) obtained by Ultima (See Note 18). The guarantee period is from April 2002 to April 2003 and extended to January 2004.

The amount charged to Billion-Create and PlusMOS for products and services is based on the market price.

In 2000, 2001, and 2002, 49%, 48% and 35%, respectively, of ChipMOS Taiwan's sales were to MVI. Selling prices were determined based on hourly rates and machine hours incurred during the process of testing and packaging the semiconductors. The hourly rates were determined based on negotiations, which considered anticipated capacity requirements and commitments. Generally, the collection term for sales is 60 days after shipment. In 2002, in view of the market conditions, the collection term was extended to 90 days from the date of shipment.

The payment terms for purchases from related parties are the same as those from other suppliers. The selling price of turnkey services for Ultima is the same as those for other customers. The collection term for Ultima is 90 days after shipment, while other related parties have normal collection terms.

In 2002, the ChipMOS Taiwan acquired a 17% ownership of Sun Fund Securities Ltd. from Best Home Corp. (See Note 7).

Modern Mind has a promissory loan note with Jesper Limited, its parent company (see note 11).

ChipMOS Bermuda also has an option to purchase an additional US\$16,501 thousand of convertible debt with Modern Mind from Jesper Limited. Although the option expired on April 26, 2003.

ChipMOS Bermuda owned 100% of the share capital in Modern Mind Technology from the December 12, 2002 to December 31, 2002 at which date it was transferred to Jesper Ltd. The shares were transferred at their nominal value at both acquisition and disposal. ChipMOS Shanghai which is a 100% subsidiary of Modern Mind made a royalty payment of US\$21,375 thousand (NT\$744,064 thousand) net of tax, to ChipMOS Bermuda for the use of licensed technology and systems for the period August 1 2002 to July, 2012.

18. RESTRICTED CASH AND CASH EQUIVALENTS

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>Current:</b>			
Time deposits (mature from January to November 2003)	234,001	76,868	2,215
<b>Non-current:</b>			
Commercial paper acquired under repurchase agreements (matured in April 2002, and extended to January 2004 subsequently)	601,624	601,744	17,341
	<u>835,625</u>	<u>678,612</u>	<u>19,556</u>

Time deposits are pledged as collateral for the Company's customs duties payable, letters of credit and research and development subsidy loans, and the commercial paper acquired under repurchase agreements are pledged as collateral for the guarantee provided to Ultima (See Note 17).

19. SIGNIFICANT COMMITMENTS AND CONTINGENCIES AS OF DECEMBER 31, 2002

- a. As of December 31, 2002, ChipMOS Taiwan leased parcels of land from the Hsinchu and Tainan Science-Based Industrial Park (SBIP) under several agreements expiring on various dates from 2002 to 2017, with renewal options.

The future minimum lease payments under the above-mentioned leases as of December 31, 2002 are as follows:

Year	Amount	
	NT\$	US\$
	(in thousands)	
2003	16,738	482
2004	16,203	467
2005	15,668	452
2006	15,668	452
2007	15,668	452
Thereafter	156,676	4,515
<b>Total minimum lease payments</b>	<u>236,621</u>	<u>6,820</u>

- b. On April 20, 1999, ChipMOS Taiwan entered into a semiconductor packaging technology license agreement with TESSERA INC. Under this agreement, ChipMOS Taiwan agreed to pay a license fee of US\$500 thousand and a royalty fee at a certain percentage of the net sales of certain products. ChipMOS Taiwan paid the total license fee of US\$500 thousand (NT\$15,888 thousand) in 1999 and amortized the amount over 5 years using the straight-line method. ChipMOS Taiwan also has to pay certain additional license fees within five years if cumulative production and sales quantity of products bearing Tessera Compliant Chip packages do not meet the commitment schedule at a respective deadline as set in the agreement.



- c. ChipMOS Taiwan acquired testing and assembly technology for tape carrier packages under a licensing agreement with Sharp Corporation. The term of the agreement is for five years beginning February 10, 2000. Sharp licensed to the company tape carrier package-related technology and intellectual property rights. The company in turn pay a royalty fee to Sharp ranging from 3% to 5% of the service fee paid to the company by its customers minus the material cost incurred from providing tape carrier package-related services over the licensing agreement. Sharp has granted the company a grace period, which expires in September 2004, during which the company may defer the payment of a portion of the royalty fee due to Sharp until the expiring of the grace period or until the amount of deferred royalty fee exceeds JPY150.9 million. In 2002 we have incurred a royalty payment of JPY32 million to Sharp which will be paid in 2004.
- d. The Company has unused letters of credit aggregating approximately US\$118 thousand and JPY853,306 thousand, at December 31, 2002.

## 20. DERIVATIVE FINANCIAL INSTRUMENTS

The Company entered into forward exchange contracts and foreign currency options for the year ended December 31, 2000, 2001 and 2002 to hedge its exchange rate risk on foreign-currency assets or liabilities and anticipated transactions. Information on the derivative transactions is as follows:

- a. Forward exchange contracts

As of December 31, 2001 and 2002, the Company had no outstanding forward contracts. Net exchange gains on forward exchange contracts were NT\$9,455 thousand, NT\$13,869 thousand and NT\$0 for the year ended December 31, 2000, 2001 and 2002, respectively.

- b. European Option

The Company expects to receive U.S. dollars from its export sales and to pay Japanese yen for its importation of materials, machinery and equipment. It has entered into European-style foreign currency option contracts with banks to hedge exchange rate risks. As of December 31, 2002 and 2001 the Company had no outstanding foreign currency option contracts. For the year ended December 31, 2000, 2001 and 2002, ChipMOS Taiwan realized premium income of NT\$0, NT\$156 thousand and NT\$90 thousand respectively.

- c. Transaction risks

- 1) Credit risk. The banks with which the Company has entered into the above contracts are reputable and, therefore, the Company is not expected to be exposed to significant credit risks.
- 2) Market risk and hedge strategy. The Company is exposed to market risks arising from changes in currency exchange rates due to U.S. dollar denominated accounts receivable, Yen denominated accounts payable and U.S. dollar denominated debt. In order to manage these exposures, the Company sometimes enters into forward contracts and option contracts.
- 3) Liquidity and cash requirements. The cash flow requirements with respect to the Company's forward contracts are limited to the periodic premium payments and the net differences of the contracted settlement rates. On the other hand, call/put options may not have to be exercised at all in cases where the strike price is higher/lower than the related market price at exercise dates.

d. The estimated fair values of the Company's financial instruments are as follows:

	December 31,				
	2001		2002		
	Carrying		Carrying		
	Value	Fair Value	Value	Fair Value	
	NT\$	NT\$	NT\$	NT\$	US\$
(in thousands)					
<b>Non-derivative financial instruments</b>					
<b>Assets</b>					
Cash	1,181,105	1,181,105	2,487,532	2,487,532	71,686
Restricted cash and cash equivalents	835,625	835,625	678,612	678,612	19,556
Short term investments	969,945	969,945	874,932	874,932	25,214
Notes receivable:					
Related parties	1,158	1,158			
Third parties	29,542	29,542	30,474	30,474	877
Accounts receivable:					
Related parties	1,200,123	1,200,123	1,104,475	1,104,475	31,829
Third parties	250,709	250,709	562,480	562,480	16,210
Other receivables:					
Related parties	11,600	11,600	11,547	11,547	333
Third parties	10,581	10,581	92,277	92,277	2,659
Long-term investments	271,375	336,712	1,441,866	1,549,582	44,657
Refundable deposits	14,972	14,972	14,953	14,953	431
<b>Liabilities</b>					
Bank loans	1,066,762	1,066,762	2,032,631	2,032,631	58,577
Commercial paper payable			159,427	159,427	4,594
Accounts payable:					
Related parties					
Third parties	120,085	120,085	145,352	145,352	4,189
Other payables:					
Related parties	948	948	1,344	1,344	39
Third parties	105,860	105,860	192,747	192,747	5,555
Payables to contractors and equipment Suppliers	358,757	358,757	158,750	158,750	4,575
Long-term bonds payable	1,200,000	1,266,176	1,200,000	1,064,729	30,684
Long-term loans (including current portion)	1,949,411	1,949,411	3,163,595	3,163,595	91,170
Guarantee deposits	442	442	461	461	13

Fair values of financial instruments were determined as follows:

- 1) Short-term financial instruments market values.
- 2) Short-term investments market values.
- 3) Long-term investments market value for listed companies and net equity value for the others.
- 4) Refundable deposits and guarantees deposits future values.
- 5) Long-term liabilities based on forecasted cash flows discounted at current interest rates of similar long-term liabilities. Bonds payable are discounted at present value, using an annual interest rate of 5.95%. Other long-term liabilities are their carrying values as they use floating interest rates.



Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The fair value of non-financial instruments was not included in the fair values disclosed above. Accordingly, the sum of the fair values of the financial instruments listed above does not equal the fair value of the Company.

## 21. SEGMENT AND GEOGRAPHIC INFORMATION

The Company engages mainly in research and development, manufacturing, assembly, testing and turnkey of integrated circuits. In accordance with Statement of Financial Accounting Standards (SFAS) No. 131, "Disclosure About Segments of an Enterprise and Related Information", the Company chief operating decision maker has been identified as the Chief Executive Officer, who reviews these segment results by Testing, Assembly, Testing and assembly for LCD Drive Semiconductor and Turnkey when making decisions about allocating resources and assessing performance of the Company. Due to the increasing importance of our LCD driver semiconductor services and the fact that those services include a combination of testing and assembly, commencing from 2002, we view LCD driver semiconductor services as a separate, distinct segment of our business. Financial segment information required by SFAS No. 131 is as follows:

- a. The Company provides semiconductor testing, assembly, turnkey services and LCD driver semiconductors services.

2000							
					Corporate		
					&		
	Testing	Assembly	Turnkey	LCD	Segment Totals	Other assets	Consolidated Totals
	NT\$	NT\$	NT\$	NT\$	NT\$	NT\$	NT\$
	(in thousands)						
Revenue from customers	4,773,124	2,257,039	1,104,116	89,912	8,224,191		8,224,191
Cost of revenues	2,653,355	1,662,474	1,094,709	100,454	5,510,992		5,510,992
Segment gross profit	2,119,769	594,565	9,407	(10,542)	2,713,199		2,713,199
Depreciation and amortization	1,587,010	377,004		27,001	1,991,015	22,076	2,013,091
Segment assets	8,695,398	2,838,938		1,158,669	12,693,005	6,269,961	18,962,966
Expenditure for segment assets	4,839,623	996,725		1,185,671	7,022,019		7,022,019

2001							
					Corporate		
					&		
	Testing	Assembly	Turnkey	LCD	Segment Totals	Other assets	Consolidated Totals
	NT\$	NT\$	NT\$	NT\$	NT\$	NT\$	NT\$
	(in thousands)						
Revenue from customers	2,242,676	1,610,880	1,260,034	131,505	5,245,095		5,245,095
Cost of revenues	2,965,268	1,413,396	1,246,657	403,988	6,029,309		6,029,309
Segment gross profit	(722,592)	197,484	13,377	(272,483)	(784,214)		(784,214)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Depreciation and amortization	2,094,143	506,901	191,359	2,792,403	22,948	2,815,351
Segment assets	7,262,355	2,380,771	1,290,762	10,933,888	5,167,394	16,101,282
Expenditure for segment assets	650,340	18,177	323,451	991,968		991,968

2002							
	Testing	Assembly	Turnkey	LCD	Segment Totals	Corporate & Other assets	Consolidated Totals
	NT\$	NT\$	NT\$	NT\$	NT\$	NT\$	US\$
	(in thousands)						
Revenue from customers	2,331,057	1,415,196	1,787,838	991,774	6,525,865		188,066
Cost of revenues	2,684,654	1,394,291	1,766,985	865,776	6,711,706		193,420
Segment gross profit (loss)	(353,597)	20,905	20,853	125,998	(185,841)		(5,354)
Depreciation and amortization	2,055,221	443,718		310,239	2,809,178	11,335	81,283
Segment assets	5,724,785	2,035,886		2,209,521	9,970,192	6,433,868	472,739
Expenditure for segment assets	531,434	68,421		1,164,630	1,764,485		50,850

In providing turnkey services, the Company purchases fabricated wafers and sells tested and assembled semiconductors to application and system manufacturers. The process of conducting testing and assembling for the fabricated wafer is at a very limited level, which only uses a very small portion of the Company's facility capacity. Therefore, the Company allocated no specific assets to the turnkey segment and accordingly, no related depreciation and amortization was allocated.

The corporate and other assets consist of the total current assets, long-term investments, property and equipment located in US and Japan, long-term restricted cash equivalents, intangible assets of bond issuance costs, employee dormitory building and refundable deposits.

- b. The Company has no significant foreign operations.
- c. Net revenues:

Area	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
ROC	6,486,459	4,693,604	5,755,406	165,862
U.S.	860,755	295,541	204,067	5,881
Others	876,977	255,950	566,392	16,323

8,224,191 5,245,095 6,525,865 188,066

- d. Net sales to customers representing at least 10% of net total sales:

	Year Ended December 31,							
	2000		2001		2002			
	Amount	%	Amount	%	Amount	%	Amount	
	NT\$		NT\$		NT\$		US\$	
	(in thousands)							
<u>Customer</u>								
MVI	4,054,724	49	2,495,046	48	2,285,348	35	65,860	
Ultima	893,835	11	1,163,383	22	1,218,265	19	35,109	

22. SUMMARY OF SIGNIFICANT DIFFERENCES BETWEEN ACCOUNTING PRINCIPLES FOLLOWED BY THE COMPANY AND ACCOUNTING PRINCIPLES GENERALLY ACCEPTED IN THE UNITED STATES

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the Republic of China ( ROC GAAP ), which differ in the following respects from accounting principles generally accepted in the United States of America ( U.S. GAAP ):

a. Bonuses to employees, directors and supervisors

According to ROC regulations and the Articles of Incorporation of ChipMOS Taiwan, a portion of distributable earnings should be appropriated as bonuses to employees and remuneration to directors and supervisors of ChipMOS Taiwan. The remuneration to directors and supervisors is always paid in cash while bonuses to employees may be granted in cash or stock or both. ChipMOS Bermuda's portion of these appropriations is charged to earnings of ChipMOS Bermuda under ROC GAAP based on the amount to be paid as provided by ChipMOS Taiwan's Articles of Incorporation and is presented as a separate line item below minority interest in the accompanying consolidated statements of operations.

Under U.S. GAAP, such bonuses and remuneration are also charged to income currently and included in operating expenses as compensation. Since the amount and form of such bonuses and remuneration are not finally determinable until the shareholders' meeting, the total amount of such bonuses and remuneration are initially accrued based on the amount to be paid as provided by ChipMOS Taiwan's Articles of Incorporation. The percentage to be paid in stock is determined at the next shareholders' meeting in the following year. The number of shares to be issued is determined by dividing the amount to be paid in stock by the par value of the shares. Any differences between the initially accrued amount (the cash portion plus the par value of the shares) and the fair market value of the bonuses settled (the cash portion plus the fair value of the shares) is recognized in the year of approval by the shareholders.

b. Marketable securities

Under ROC GAAP, marketable equity securities are carried at the lower of aggregate cost or market, and debt securities at cost, with only unrealized losses recognized when losses are irrecoverable. Under SFAS No. 115, Accounting for Certain Investments in Debt and Equity Securities, debt and equity securities that have readily determinable fair values are to be classified as either trading, available-for-sale or held-to-maturity securities. Debt securities that the Company has the positive intent and ability to hold-to-maturity are classified as held-to-maturity securities and reported at amortized cost. Debt and equity securities that are bought and traded for short-term profit are classified as trading securities and reported at fair value, with unrealized gains and losses included in earnings. Debt and equity securities not classified as either held-to-maturity or trading are classified as available-for-sale securities and reported at fair value, with unrealized gains and losses excluded from earnings and reported in a separate component of shareholders' equity; however, unrealized losses relating to declines in fair value deemed to be other than temporary are recorded in earnings. The adjustment below relates to the Company's equity securities that are classified as trading and available-for-sale securities under U.S. GAAP.

c. Long-term investments

Under both ROC and U.S. GAAP, investments in shares of companies wherein the Company owns over 20% of the outstanding common stock and exercises significant influence over operating and financial policies of the investee companies are generally accounted for under the equity method. However, there are differences in applying equity accounting under ROC GAAP and U.S. GAAP. The Company's proportionate share of the income (loss) from an equity investee may differ if the equity investee's net income (loss) under ROC GAAP differs from that under U.S. GAAP. The differences between ROC GAAP and U.S. GAAP for the equity investee is nominal, thus do not appear in the reconciliations below.

d. Technologies transferred in payment of capital stock

As discussed in Note 9, MVI and SPIL contributed, as payment for their subscription in the shares of stock of ChipMOS Taiwan, technologies relating to the testing and packaging of integrated circuits at an agreed value of NT\$750,000 thousand. Under ROC GAAP, such technology transfers in payment of capital stock are recorded as an intangible asset, and amortized by systematic charges to income over the periods estimated to be benefited. As permitted under ROC GAAP, the Company uses a 5-years amortization period. Under U.S. GAAP, the technology contribution cannot be recognized due to the unavailability of a fair value for the technologies. Therefore, the carrying value of the technologies has been adjusted to zero under U.S. GAAP.

e. Start-up costs

ROC GAAP requires the deferral of start-up costs and the amortization of such costs into income in a systematic manner over the periods estimated to be benefited. Start-up costs include all costs incurred prior to production readiness. On the other hand, U.S. GAAP primarily requires that start-up costs be expensed as incurred.

f. Depreciation of fixed assets and employee dormitory building

Under ROC GAAP, the estimated life of a building can be as long as 55 years based on the ROC Internal Revenue Code. For U.S. GAAP purposes, building lives are estimated to be 25 years.

g. Transfer of building and facilities from MVI

The Company purchased building and facilities from MVI in 1997. The actual costs of assets purchased from MVI were based on MVI's book value of such building and facilities on a specified cut-off date plus an additional payment of NT\$173,174 thousand representing compensation to MVI. Such additional payment of NT\$173,174 thousand was capitalized by the Company as allowed under ROC GAAP. Under U.S. GAAP, assets acquired are recorded at amounts that do not exceed their fair values. Also, generally under U.S. GAAP, transfers of assets from related parties with significant influence should be recorded by the transferee on the predecessor's basis. Therefore, the transfer of the assets from MVI was recorded at MVI's predecessor cost basis and the NT\$173,174 thousand was deducted from the capital surplus and building and facilities for the purposes of U.S. GAAP.

h. Inventory

As discussed in paragraphs e. f. and g., the amortization of start-up costs, the depreciation of fixed assets and employee dormitory building, and depreciation on the assets transferred from MVI were reconciled for U.S. GAAP purposes. Some of such expenses were recorded in the manufacturing expenses and therefore affect ending inventory balances under U.S. GAAP.

i. Capital surplus

Under ROC GAAP, the following items are treated as capital surplus: (a) premium on issuance of common stock; and (b) gain, net of applicable income tax, on disposal of properties. Under U.S. GAAP, item (a) is the same as in ROC GAAP; and item (b) is recorded as part of net income, which is then included as a component of retained earnings. However, starting in 2001, the treatment of item (b) under ROC GAAP has become the same as under U.S. GAAP.





j. Impairment of long-lived assets

Under U.S. GAAP, impairment losses for assets to be held and used are recorded in current period earnings and create a new cost basis for related assets going forward, and cannot be reversed subsequently. Under U.S. GAAP, in accordance with SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*, long-lived assets held and used by the Company 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 to the next book value of the assets. If the recoverability test indicates that impairment has occurred, the impairment loss is the amount of the asset's net book value in excess of the related fair value. Under ROC GAAP, there is no requirement to provide for impairment of long-lived assets. Based on an assessment by the Company, there were no impairment losses for the Company as of December 31, 2001 and 2002.

k. Derivative financial instruments

Under ROC GAAP, there are no specific rules related to accounting for derivative financial instruments, nor any criteria for hedge accounting. Therefore, companies have the flexibility in choosing when to recognize derivative financial instruments and when to follow hedge accounting versus fair value accounting for such instruments. U.S. GAAP has restrictive rules on hedge accounting under SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities* and SFAS No. 138, *Accounting for Certain Derivative Instruments and Hedging Activities*. SFAS No. 133 and SFAS No. 138 are effective for fiscal years beginning after June 15, 2000, and establish accounting and reporting standards for all derivative financial instruments. The Company adopted those statements on January 1, 2001. The adoption of SFAS No. 133 and SFAS No. 138 had no material impact on the Company's financial statements. Under U.S. GAAP, the Company did not apply hedge accounting and derivatives have historically been, and continue to be, recorded on the balance sheets at fair value, with the changes in fair values recorded through current period earnings. In addition, the Company has no embedded derivatives from January 1 to December 31, 2002. The reconciling adjustments for all periods presented reflect those reconciliations from hedge accounting under ROC GAAP to non-hedge accounting under U.S. GAAP.

l. Employee share purchase

The Company has elected to apply Accounting Principles Board Opinion No. 25, *Accounting for Stock Issued to Employees* (APB Opinion No. 25) when new shares are issued to employees, which measures compensation expenses based on the difference, if any, between the quoted market price of the common stock and the exercise price on the date of issuance. In 2000, the total compensation expense of NT\$25,900 thousand was recognized in full immediately, representing the excess of the quoted market price over the amounts paid by employees on the date the shares were purchased.

m. Earnings per share (EPS)

In calculating the weighted average number of shares outstanding for EPS purposes under ROC GAAP, employee bonus shares have been treated as outstanding for all periods in a manner similar to a stock split or stock dividend. Under U.S. GAAP, employee bonus shares have been considered separately from the stock dividend or split and have been treated as outstanding from the date of shareholder approval.

n. Interest capitalization

Under ROC GAAP, interests on borrowings during construction conceptually should be capitalized in the assets that are constructed or produced for a company's own use. However, if equity capital is raised during a year, no capitalization interest is recorded for the amount of property acquired up to the equity capital raised in that year. Under U.S. GAAP, SFAS No. 34 *Capitalization of Interest Cost* interest is generally capitalized on assets until they are available and ready for use.



- o Under ROC GAAP goodwill has arisen which is the difference between acquisition cost and equity where under US GAAP no goodwill arises.
  
- p. Pension expenses

SFAS No. 87, Accounting for Pensions, and SFAS No. 88, Employer's Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits, were effective no later than the beginning of the first period for which a U.S. GAAP reconciliation is required for foreign issuers. A portion of the unrecognized net transition obligation on the adoption date is to be allocated directly to equity. The Company started to adopt SFAS No. 87 and SFAS No. 88 in 1997 and 2001, respectively. ROC SFAS No. 18, which is similar in many respects to SFAS No. 87 and SFAS No. 88, became effective in 1996. However, the treatment of certain expenses that comply with ROC SFAS No. 18 is different from SFAS No. 87 and SFAS No. 88.

The following reconciles net income (loss) and shareholders' equity under ROC GAAP as reported in the accompanying consolidated financial statements to net income(loss) and shareholders' equity amounts determined under U.S. GAAP, giving effect to adjustments for the differences listed above.

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
<b>Net income (loss)</b>				
Net income (loss) based on ROC GAAP	957,395	(1,134,927)	(970,285)	(27,962)
Adjustments:				
Adjustment for employee stock bonuses paid by subsidiary	(227,650)	(34,065)		
Amortization of technology transfers in payment of capital stocks	150,000	150,000	95,833	2,761
Amortization of start-up costs	13,244	13,424	14,699	424
Depreciation of property, plant and equipment and employee dormitory building	(13,525)	(13,829)	(14,270)	(411)
Transfer of building and facilities from MVI	30,007	28,841	15,634	451
Derivative financial instruments	(2,049)	2,049		
Compensation expenses for employees shares purchase	(25,900)			
Pension expenses		(1,898)		
Marketable securities trading		25,647	(31,139)	(897)
Interest capitalization		75,429	43,329	1,248
Depreciation of interest capitalization		(2,201)	(4,254)	(123)
Effect of U.S. GAAP adjustments on income taxes	(35,373)	(41,823)	(38,217)	(1,101)
Minority interest in ChipMOS TECHNOLOGIES INC.	33,666	(60,170)	(24,709)	(712)
Net increase (decrease) in net income (loss)	(77,580)	141,404	56,906	1,640
Net income (loss) based on U.S. GAAP	879,815	(993,523)	(913,379)	26,322
Earnings (loss) per share	16.42	(17.03)	(15.52)	(0.44)
Number of weighted average shares outstanding under U.S. GAAP	53,597	58,342	58,835	58,835



	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
(in thousands)				
<b>Shareholders' equity</b>				
Shareholders' equity based on ROC GAAP	8,708,825	7,599,181	6,713,348	193,467
<b>Adjustments:</b>				
Technology transfer in payment of capital stocks				
Original cost	(750,000)	(750,000)	(750,000)	(21,614)
Accumulated amortization of technology transfer in payment of capital stocks	485,833	635,833	731,666	21,085
Start-up costs				
Original cost	(90,376)	(90,376)	(86,523)	(2,493)
Accumulated amortization of start-up costs	27,869	41,245	51,998	1,499
Net effect on inventories	(393)	(345)	(252)	(7)
Depreciation of fixed assets and employee dormitory building				
Depreciation of fixed assets and employee dormitory building	(29,042)	(42,877)	(57,032)	(1,644)
Net effect on inventories	360	366	251	7
Transfer of building and facilities from MVI				
Original cost	(173,174)	(173,174)	(173,174)	(4,991)
Depreciation and gain on disposal of building and facilities from MVI	121,082	149,881	164,952	4,754
Net effect on inventories	(906)	(864)	(301)	(9)
Derivative financial instruments	(2,049)			
Unrealized holding gain on available-for-sale securities		153,621	79,277	2,285
Pension expenses		(1,898)	(1,898)	(55)
Marketable securities trading		25,647	(5,492)	(158)
Interest capitalization		75,429	118,757	3,422
Depreciation of interest capitalization		(2,201)	(6,455)	(186)
Effect of U.S. GAAP adjustments on income taxes	81,568	39,745	1,528	44
Minority interest in ChipMOS TECHNOLOGIES INC.	97,945	(18,189)	(20,465)	(590)
Net increase (decrease) in shareholders' equity	(231,283)	41,843	46,837	1,349
Shareholders' equity based on U.S. GAAP	8,477,542	7,641,024	6,760,185	194,816

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
(in thousands)				
<b>Changes in shareholders' equity based on U.S. GAAP</b>				
Balance, beginning of the year	4,925,236	8,477,542	7,641,024	220,201
Issuance of capital	2,549,953		63,237	1,822
Issuance of option warrants.			25,156	725
Adjustment for compensation expenses for employees shares purchase	18,063			
Adjustment for common shares issued as bonuses to employees	312,004			
Reversal of unrealized loss (gain) on available-for-sale securities	(49,701)	38,906	(107,073)	(3,086)
Unrealized gain (loss) on available-for-sale securities	(38,906)	107,073	55,763	1,607
Cumulative translation adjustments	(239)	(272)	(34)	(1)
Net income(loss) for the year	879,815	(993,523)	(913,379)	(26,322)
Adjustment of equity method for long-term investment			(3,907)	(114)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

Adjustment arising from changes in ownership percentage in subsidiaries	<u>(118,683)</u>	<u>11,298</u>	<u>(602)</u>	<u>(18)</u>
Balance, end of the year	<u>8,477,542</u>	<u>7,641,024</u>	<u>6,760,185</u>	<u>194,817</u>

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

A reconciliation of the significant balance sheet accounts to the approximate amounts determined under U.S. GAAP is as follows:

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b><u>Current assets</u></b>			
As reported	4,119,647	5,668,754	163,364
U.S. GAAP adjustments			
Marketable securities trading	25,647	(5,492)	(158)
Effect of inventory adjustments:			
Start-up costs	(345)	(252)	(7)
Depreciation of fixed assets and employee dormitory building	366	251	7
Transfer of building and facilities from MVI	(864)	(301)	(9)
As adjusted	<u>4,144,451</u>	<u>5,662,960</u>	<u>163,197</u>
<b><u>Long-term investments</u></b>			
As reported	271,375	1,441,866	41,552
U.S. GAAP adjustments			
Unrealized holding gain on available-for-sale securities	153,621	79,277	2,285
As adjusted	<u>424,996</u>	<u>1,521,143</u>	<u>43,837</u>
<b><u>Property, plant and equipment net</u></b>			
As reported	10,799,607	9,981,758	287,659
U.S. GAAP adjustments			
Start-up costs	(49,131)	(34,525)	(995)
Depreciation of fixed assets	(37,869)	(50,393)	(1,452)
Transfer of building and facilities from MVI	(23,293)	(8,222)	(237)
Interest capitalization	73,228	112,302	3,237
As adjusted	<u>10,762,542</u>	<u>10,000,920</u>	<u>288,212</u>
<b><u>Intangible assets net</u></b>			
As reported	155,292	113,747	3,278
U.S. GAAP adjustments			
Technology transfer in payment of capital stock	(114,167)	(18,334)	(528)
As adjusted	<u>41,125</u>	<u>95,413</u>	<u>2,750</u>
<b><u>Other assets</u></b>			
As reported	755,361	747,586	21,544
U.S. GAAP adjustments			
Depreciation of employee dormitory building	(5,008)	(6,639)	(191)
Amortization of goodwill		(503)	(14)
As adjusted	<u>750,353</u>	<u>740,444</u>	<u>21,339</u>





<u>Other liabilities</u>			
As reported	175,026	258,434	7,448
U.S. GAAP adjustments			
Pension expense	1,898	1,898	55
Effect of U.S. GAAP adjustments on income taxes	(39,745)	(1,528)	(44)
As adjusted	137,179	258,804	7,459

<u>Minority interest in ChipMOS TECHNOLOGIES INC.</u>			
As reported	3,336,721	2,887,109	83,202
U.S. GAAP adjustments			
Shareholders' equity	18,189	20,465	590
Other assets		(503)	(14)
As adjusted	3,354,910	2,907,071	83,778

As a result of the adjustments presented above, the approximate amounts of total assets under U.S. GAAP were NT\$16,123,467 thousand and NT\$18,020,880 thousand as of December 31, 2001, and 2002, respectively.

The following U.S. GAAP condensed statements of operation for the years ended December 31, 2000, 2001 and 2002 have been derived from the audited financial statements and reflect the adjustments presented above. Certain accounts have been reclassified to conform to U.S. GAAP. Reversal of allowance for doubtful receivables, gain (loss) on disposal of property, plant and equipment and loss on lease rescission are included as operating expenses.

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Net revenues	8,224,191	5,245,095	6,525,865	188,066
Cost of revenues	5,479,901	5,999,506	6,700,265	193,091
Gross profit (loss)	2,744,290	(754,411)	(174,400)	(5,025)
Operating expenses	849,535	658,443	497,960	14,350
Income (loss) from operations	1,894,755	(1,412,854)	(672,360)	(19,376)
Non-operating income (expenses) net	(98,211)	103,222	(467,114)	(13,461)
Income (loss) before income tax	1,796,544	(1,309,632)	(1,139,474)	(32,838)
Net income (loss)	879,815	(993,523)	(913,379)	(26,322)

23. ADDITIONAL DISCLOSURES REQUIRED BY U.S. GAAP

a. Recent accounting pronouncements

The Company is required by SEC Staff Accounting Bulletin No. 74 to make certain disclosures about the effect that recently issued accounting standards will have on the financial statements adopted for future periods.

In June 2001, the FASB issued SFAS No. 143, *Accounting for Asset Retirement Obligations*. The statement requires, among other provisions, retirement obligations to be recognized when they are incurred and displayed as liabilities, with a corresponding amount capitalized as part of the related long-lived asset. The capitalized element is required to be expensed using a systematic and rational method over its useful life. SFAS No. 143 will be adopted by the Company on January 1, 2003 and is not expected to have a material impact on the accompanying consolidated financial statements.

In July 2002 the Financial Accounting Standards Board issued SFAS No. 146, *Accounting for Costs Associated with Exit or Disposal Activities*. This standard requires companies to recognize costs associated with exit or disposal activities when they are incurred rather than at the date of a commitment to an exit or disposal plan. SFAS No. 146 nullifies Emerging Issues Task Force Issue No. 94-3, *Liability Recognition for Certain Employee Termination benefits and Other Costs to Exit an Activity (including certain costs incurred in a restructuring)*. SFAS No. 146 is applied prospectively to exit or disposal activities after December 31, 2002. The Company is currently evaluating the impact of adopting SFAS No. 146.

In January 2003, the Financial Accounting Standards Board issued FASB Interpretation No. 46, *Consolidation of Variable Interest Entities*. This interpretation requires the consolidation of variable interest entities by the company that is deemed to be the primary beneficiary of such entities. This represents a significant change from current rules, which require consolidation by the entity with voting control. The Company did not have any interest in variable interest entities at December 31, 2002 and therefore the adoption of FASB 46 will have no impact on the consolidated financial statements.

The Financial Accounting Standards Board issued SFAS No. 150 *Accounting for certain financial instruments with characteristics of both liabilities and equity*. This standard establishes standards regarding the manner in which an issuer classifies and measures certain types of financial instruments having characteristics of both liabilities and equity. Pursuant to SFAS No. 150, such freestanding financial instruments (i.e., those entered into separately from an entity's other financial instruments or equity transactions or that are legally detachable and separately exercisable) must be classified as liabilities or, in some cases assets. In addition, SFAS No. 150 requires that financial instruments containing obligations to repurchase the issuing entity's equity shares, and under certain circumstances, obligations that are settled by delivery of the issuer's shares be classified as liabilities. SFAS No. 150 amends SFAS No. 128 *Earnings per share* and SFAS No. 133 *Accounting for Derivative Instruments and Hedging Activities*. SFAS No. 150 is effective for financial instruments entered into or modified after May 31, 2003 and for contracts in existence at the start of the first interim period beginning after June 15, 2003. The company is currently evaluating the impact of adopting SFAS No. 150.

b. Marketable securities

On December 31, 2001 and 2002, certain investments carried at cost under ROC GAAP were revalued for purposes of U.S. GAAP presentation:

(U.S. GAAP)

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	<b>(ROC GAAP)</b>		<b>Fair Value</b>		
	<b>Carrying Value</b>				
	<b>2001</b>	<b>2002</b>	<b>2001</b>	<b>2002</b>	
	<b>NT\$</b>	<b>NT\$</b>	<b>NT\$</b>	<b>NT\$</b>	<b>US\$</b>
	<b>(in thousands)</b>				
Investment in trading securities (Note 4)	969,945	874,932	995,592	869,440	25,056
Long-term investments available-for-sale securities (Note 7)	218,099	218,099	371,720	297,376	8,570

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

The Company uses the weighted-average cost method for trading securities and available-for-sale securities when determining the cost basis. There were no sales of securities during 2001 and 2002. Proceeds from sales of available-for-sale securities during 2000 were NT\$100 thousand with realized gains of NT\$0 thousand.

c. Income tax expense (benefit)

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Income tax current payable	64,165	57,302	4,271	123
Deferred income tax	305,981	36,583	116,899	3,369
Adjustment of prior years' income taxes	(1,377)	(19,649)	14,963	431
<b>Income tax expense (benefit)</b>	<b>368,769</b>	<b>74,236</b>	<b>136,133</b>	<b>3,923</b>

Reconciliation between the income tax calculated on pre-tax financial statement income based on the statutory tax rate and the income tax expense (benefit) which conforms to U.S. GAAP is as follows:

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
			(in thousands)	
Tax on pretax income at Bermuda statutory rate (0%)				
Tax on pretax income at ROC statutory rate (25%)	424,702	(308,415)	(263,771)	(7,601)
SBIP tax exemption (5%)	(93,619)			
<b>Tax on pretax income at SBIP statutory rate</b>	<b>331,083</b>	<b>(308,415)</b>	<b>(263,771)</b>	<b>(7,601)</b>
Other tax & assessed additional income tax		114,459	4,217	122
Tax paid by subsidiaries	10	73	54	2
Tax effects of:				
Tax-exempt income	(162,578)		(3,149)	(91)
Permanent differences				
Non-taxable gain on sales of investment	(19,878)	(58,175)	2,820	81
Non-deductible investment losses	34,338	18,758	65,902	1,899
Bonus to employees and directors	78,773	8,600		
Others	47	(10,569)	7,337	211
Tax credits utilized	(64,155)	(57,230)		
deferred	(78,414)	(434,872)	119,312	3,438
Valuation allowance	250,920	772,006	181,393	5,228
Effect of increase in tax rate on deferred taxes		49,250		
Loss carry forward			7,055	203
Adjustment of prior years' income tax	(1,377)	(19,649)	14,963	431
<b>Income tax expense (benefit)</b>	<b>368,769</b>	<b>74,236</b>	<b>136,133</b>	<b>3,923</b>



The components of net deferred income tax assets (liabilities) were as follows:

	December 31,		
	2001	2002	
	NT\$	NT\$	US\$
	(in thousands)		
<b>Deferred income tax assets</b>			
Current			
Unrealized foreign exchange loss	10,556	5,439	157
Loss of market price decline and obsolescence and slow-moving inventories	22,733	21,652	624
Unrealized loss on sale allowances		5,721	165
Others	7,459	5,655	163
	<u>40,748</u>	<u>38,467</u>	<u>1,109</u>
Non-current			
Tax credits for investment in machinery and equipment and R&D expenditure	958,838	839,526	24,194
Loss carry forward	512,452	812,630	23,419
Technology transfer in payment of capital stocks	28,542	4,584	132
Start-up costs	12,369	8,694	251
Others	9,101	4,077	117
	<u>1,521,302</u>	<u>1,669,511</u>	<u>48,113</u>
Valuation allowances	(1,128,006)	(1,309,399)	(37,733)
	<u>393,296</u>	<u>360,112</u>	<u>10,378</u>
<b>Deferred income tax liabilities</b>			
Non-current			
Depreciation differences	(490,622)	(561,413)	(16,179)
Interest capitalization	(18,307)	(28,076)	(809)
Other		(874)	(25)
	<u>(508,929)</u>	<u>(590,363)</u>	<u>(17,013)</u>
	<u>(74,885)</u>	<u>(191,784)</u>	<u>(5,525)</u>

d. Pension

In accordance with SFAS No. 132 Employees Disclosures about Pensions and Other Post-retirement Benefits, pension information is disclosed below:

Year Ended December 31,		
2000	2001	2002

Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	NT\$	NT\$ (in thousands)	NT\$	US\$
<b>Components of net periodic benefit cost</b>				
Service cost	22,375	23,363	21,323	614
Interest cost	2,030	3,384	3,529	102
Project return on plan assets	(1,699)	(2,496)	(2,802)	(81)
<b>Net amortization and deferral:</b>				
Unrecognized net transition obligation			28	1
Unrecognized prior service cost	105	96		
Curtailement gain		(5,004)		
	<u>22,811</u>	<u>19,343</u>	<u>22,078</u>	<u>636</u>
<b>Net periodic benefit cost</b>				
<b>Changes in benefit obligation</b>				
Benefit obligation at beginning of year	31,224	58,009	70,572	2,034
Service cost	22,375	23,363	21,323	614
Interest cost	2,030	3,384	3,529	102
Curtailements		(7,180)		
Actuarial loss (gain)	2,380	(7,004)	26,724	770
	<u>58,009</u>	<u>70,572</u>	<u>122,148</u>	<u>3,520</u>
<b>Benefit obligation at end of year</b>				
<b>Changes in plan assets</b>				
Fair value of plan assets at beginning of year	16,912	33,101	49,610	1,430
Actual return on plan assets	1,287	1,655	1,306	38

Employer contribution	14,902	14,886	15,089	435
	33,101	49,642	66,005	1,903
Funds status	(24,908)	(20,930)	(56,143)	(1,617)
Unrecognized actuarial loss (gain)	8,243	(181)	28,043	808
Net amount recognized (recognized as accrued pension cost)	(16,665)	(21,111)	(28,100)	(809)
Actuarial assumptions				
Discount rate	6.0%	5.0%	3.5%	3.5%
Rate of compensation increase	5.5%	4.5%	3.5%	3.5%
Expected return on plan assets	6.0%	5.0%	3.5%	3.5%

The Company has no other post-retirement or post-employment benefit plans.

e. Statements of cash flows

ROC SFAS No. 17, Statement of Cash Flows has been applied. Its objectives and principles are similar to those set out in SFAS No. 95,

Statement of Cash Flows. The principle differences between the standards relate to classification. Cash flows from changes in short-term investments, refundable deposits, other assets and guarantee deposits and bonus to directors and supervisors are included as operating activities under SFAS No. 95. Summarized cash flow data by operating, investing and financing activities in accordance with SFAS No. 95 are as follows:

	Year Ended December 31,			
	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
		(in thousands)		
Net cash inflow (outflow) from:				
Operating activities	3,012,107	2,714,786	1,558,536	44,915
Investing activities	(6,241,267)	(1,703,033)	(3,387,689)	(97,628)
Financing activities	4,270,313	(419,158)	3,135,700	90,366
	1,041,153	592,595	1,306,547	37,653
Effect of changes in foreign exchange rate	(343)	(391)		
Cash and cash equivalents at the beginning of year	149,715	1,190,525	1,782,729	51,375
Cash and cash equivalents at the end of year	1,190,525	1,782,729	3,089,276	89,028

f. Statements of comprehensive income (loss)

Year Ended December 31,



Edgar Filing: CHIPMOS TECHNOLOGIES BERMUDA LTD - Form 20-F

	2000	2001	2002	
	NT\$	NT\$	NT\$	US\$
	(in thousands)			
Net income (loss) based on U.S. GAAP	879,815	(993,523)	(913,379)	(26,322)
Other comprehensive income (loss):				
Reversal of unrealized (gain) loss on available-for-sale security	(49,701)	38,906	(107,073)	(3,088)
Unrealized gain (loss) on available-for-sale security	(38,906)	107,073	55,763	1,606
Translation adjustment	(239)	(272)	(34)	(1)
<b>Comprehensive income (loss)</b>	<b>790,969</b>	<b>(847,816)</b>	<b>(964,723)</b>	<b>(27,805)</b>

Components in other comprehensive income (loss) refer to investments in Ultima. Under ROC laws, those losses and gains are not subject to income tax. Therefore, no tax expense or benefit are allocated to such investments.

## g. Statements of accumulated comprehensive income (loss)

	<b>Unrealized Gain (Loss) on Long-Term Investments</b>	<b>Translation Adjustment</b>	<b>Accumulated Other Comprehensive Income (loss)</b>
	<b>NT\$</b>	<b>NT\$ (in thousands)</b>	<b>NT\$</b>
Balance, as of December 31, 2000	(38,906)	(206)	(39,112)
Addition in 2001	145,979	(272)	145,707
Balance, as of December 31, 2001	107,073	(478)	106,595
Addition in 2002	(51,310)	(34)	(51,344)
Balance, as of December 31, 2002	55,763	(512)	55,251

---

**EXHIBIT INDEX**

<b>Exhibits</b>	<b>Description</b>
1.1	Memorandum of Association of ChipMOS TECHNOLOGIES (Bermuda) LTD. <sup>(1)</sup>
1.2	Bye-laws of ChipMOS TECHNOLOGIES (Bermuda) LTD. <sup>(2)</sup>
2.1	Certificate of Incorporation of ChipMOS TECHNOLOGIES (Bermuda) LTD., dated August 15, 2000. <sup>(1)</sup>
4.1	Joint Venture Agreement, dated July 14, 1997, between Mosel Vitelic Inc. and Siliconware Precision Industries Co., Ltd. <sup>(1)</sup>
4.2	Asset Sales Agreement, dated June 14, 1999, between Microchip Technology Taiwan and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.3	Tessera Compliant Chip License Agreement, dated April 20, 1999, between Tessera Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.4	License Agreement, dated April 1, 1999, between Fujitsu Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.5	Sales Agreement, dated February 10, 2000, between Sharp Corp. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.6	Raw Materials Processing Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.7	Raw Materials Processing Agreement, dated January 1, 2001, between Siliconware Precision Co. Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.8	Integrated Circuit Processing Agreement, dated January 1, 2001, between Siliconware Precision Co. Ltd. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.9	Integrated Circuit Processing and Warehousing Management Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.10	Land Lease Agreement, dated November 26, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.11	Land Lease Agreement, dated November 26, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.12	Land Lease Agreement, dated September 1, 1997, between Science Based Industrial Park Administration and ChipMOS TECHNOLOGIES INC. <sup>(1)</sup>
4.13	Purchase Agreement, dated July 31, 1997, between ChipMOS TECHNOLOGIES INC. and Mosel Vitelic Inc. <sup>(1)</sup>
4.14	Lease Agreement for Public Land in Custody of Kaohsiung Branch, Export Processing Zone Administration, Ministry of Economic Affairs, dated June 10, 2002, between Kaohsiung Branch, ChipMOS TECHNOLOGIES INC. and Kaohsiung Branch, Export Processing Zone Administration, Ministry of Economic Affairs. <sup>(1)</sup>
4.15	Form of Share Exchange Covenant Letter from the Company to the Shareholders. <sup>(1)</sup>
4.16	Amendment to the Integrated Circuit Processing and Warehousing Management Agreement, dated August 10, 2000, between Mosel Vitelic Inc. and ChipMOS TECHNOLOGIES INC, dated September 1, 2001. <sup>(3)</sup>
4.17	Purchase Agreement between ChipMOS TECHNOLOGIES INC. and DenMOS Technology Inc. <sup>(3)</sup>
4.18	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Ron How Investment Corp. (English Translation)
4.19	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Yuan Shan Investment Corp. (English Translation)
4.20	Sale and Purchase Agreement, dated April 25, 2003, between ChipMOS TECHNOLOGIES INC. and Mosel Vitelic Inc. (English Translation)

Exhibits	Description
4.21	Laser Stamping Machine Lease Agreement, dated November 1, 2002, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.22	Automatic Stamping Machine Lease Agreement, dated December 1, 2002, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.23	Raw Materials Processing Agreement, dated January 1, 2003, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.24	Integrated Circuit Processing Agreement, dated January 1, 2003, between ChipMOS TECHNOLOGIES INC. and CHANTEK ELECTRONIC CO., LTD. (English Translation)
4.25	Technology Transfer Agreement, dated December 24, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.26	Tester Equipment Lease Agreement, dated November 14, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.27	Tester Equipment Lease Agreement, dated December 3, 2002, between ChipMOS TECHNOLOGIES INC. and ThaiLin Semiconductor Corp. (English Translation)
4.28	Joint Engagement Letter, undated, by and among Ultima Electronics Corp., ChipMOS TECHNOLOGIES INC. and Sun-Fund Securities Ltd. (English Translation)
4.29	Lease Agreement, dated June 1, 2002, between ChipMOS TECHNOLOGIES INC. and  SyncMOS Technologies, Inc. (English Translation)
4.30	Technology Transfer Agreement, dated August 1, 2002, between ChipMOS TECHNOLOGIES (Bermuda) LTD. and ChipMOS TECHNOLOGIES (Shanghai) LTD.
4.31	Promissory Note from Modern Mind Technology Limited to Jesper Limited, dated November 4, 2002.
4.32	Deed of Variation, dated December 2, 2002, between Modern Mind Technology Limited to Jesper Limited.
4.33	Deed of Assignment, dated December 27, 2002, between Jesper Limited and ChipMOS TECHNOLOGIES (Bermuda) LTD.
4.34	Deed of Assignment, dated June 25, 2003, between Jesper Limited and ChipMOS TECHNOLOGIES INC.
4.35	Agreement, dated May 3, 2003, between Jesper Limited and ChipMOS TECHNOLOGIES (Bermuda) LTD.
4.36	Cooperation Agreement, dated March 27, 2002 between Shanghai Qingpu Industrial Park Development (Group) Company and Modern Mind Technology Limited. (English Translation)
8.1	List of subsidiaries of ChipMOS TECHNOLOGIES (Bermuda) LTD.
23.1	Consent of current auditors.*
23.2	Consent of previous auditors.*

(1) Incorporated by reference to our Registration Statement on Form F-1 (File No. 333-13218), filed on February 28, 2001.

(2) Incorporated by reference to our report on Form 6-K, dated February 19, 2002.

(3) Incorporated by reference to our Annual Report on Form 20-F (file No. 0-31106), filed on June 17, 2002.

\* To be filed by amendment.