## MARKET AND PRODUCT DEVELOPMENT (continued)

### Leadframe Division

Focusing on offering high density matrix stamped frames, fine pitch etched and palladium plated frames, our leadframe revenues grew 43% last year to reach US$75 million, representing 14.6% of the Group's turnover.

Our strategy of offering our customers a total packaging solution in the leadframe or metal-based substrate chip scale package (CSP) known as QFN (quad flat pack no-lead), has propelled ASM to a leading market position. Over 20 customers are working with us where we provide technical support and advice to them for the design of QFN leadframes, addressing the various process issues such as wire bonding, encapsulation and de-taping.

To meet the upcoming challenge of producing QFN leadframes in volume, we have ordered additional laser plotter, UV developer, etching and plating machines, to better prepare ourselves and to capitalise on this market opportunity.

## CAPACITY AND PLANT DEVELOPMENT

To cope with increased demands for all our products, last year we rapidly expanded our production facilities and increased the headcount in our China factory. We also completed the establishment of two satellite plants, both in the Shatoujiao area, and altogether our China factories now occupy over 600,000 sq.ft.

By fast implementation of additional die casting and CNC machining facilities, we successfully raised our in-house production capacity of fabricated parts, resulting in more than a doubling of our die bonder output and the production of 300 sets of gold wire bonders per month. We should have sufficient fabricated parts manufacturing capacity to deal with anticipated rise in demand occurring in the next 1-2 years.

Capital investment in 2000 amounted to HK$349 million, a higher spending than foreseen last year but essential to deal with our exceptional, and profitable, business expansion.

More typical of previous years, we have budgeted HK$200 million for 2001, mainly for analytical equipment, hardware and software to support R&D and management information, stamping dies for additional matrix leadframe products offerings, various production machines for QFN etched frames, and to further enhance our production capabilities.

## 市場及產品發展(續)

### 引線框架系列

引線框架系列專注提供高密度矩陣沖壓框架(high density matrix stamped frames)、微距蝕片及鈀電鍍框架，去年框架營銷增長百分之四十三，共達七千五百萬美元，佔集團營業額百分之十四點六。

集團策略致力向客戶提供全面的引線框架或金屬性基板之晶積度包裝(CSP)包裝方案，統稱作QFN(quad flat pack no-lead)，促使ASM建立了市場領導地位。目前共有超過二十名客戶與集團合作開發工序，由我們提供設計QFN引線框架的技術支援及諮詢，協助解決各種工序上的問題，例如接線焊接、塑封及除膜等。

為了應付大量生產QFN引線框架新挑戰，集團現已訂購額外的激光繪圖機、紫外光沖印機、蝕片及電鍍機器，藉以作好充分準備，把握這方面的市場機會。

## 生產力及廠房發展

為應付旗下所有產品需求激增的需要，集團去年迅速擴建國內廠房的生產設施，並增聘員工。兩間位於深圳沙頭角的衛星廠房現已設立，集團設在國內的廠房合計現有面積超過六十萬平方呎。

集團迅速擴建金屬壓鑄及電腦數控機設施，已成功提升內部組件生產，導致集團的管芯焊接機產量增加超過一倍，以及每月生產高達三百台金線焊機之能力。集團現已擁有充足的組件生產力，足以應付未來一至兩年需求冒增的需要。

二零零零年度資本性投資共達港幣三億四千九百萬元，為數高於去年預測，但是對集團的特殊而且有利可圖的業務擴展實屬重要。

一如過往數年，集團預備於二零零一年提撥預算港幣二億元，主要供作添置分析設備、硬件及軟件以支援研究發展及管理資訊、供其他矩陣引線框架產品用的沖壓管芯、各種QFN蝕片的生產機械，以及進一步提升集團的生產能力。

## RESEARCH AND DEVELOPMENT

ASM's research and product development goals are to create state-of-the-art products and cost effective solutions for our customers. We have also learnt that product time-to-market is a key to our company's success, so it is vital we innovate faster than our competitors.

To this end, it is our philosophy to spend 10% of our equipment sales on R&D. But as our assembly equipment product revenue went up by 129% last year, even though our gross R&D spending rose by 50% to HK$219.5 million, it only represented 6.6% of our equipment sales.

Nevertheless, our expanded program produced tremendous results. It not only funded new generations of existing products, but also our research efforts in wire bonding, epoxy dispensing, moulding process, new composite materials, packaging development (especially for QFN) and other fields. The development of a new series of equipment for the manufacturing of chip scale (CSP) and ball grid array (BGA) packages was accelerated, furthering our aim of providing integrated assembly lines or systems for both leaded, non-leaded and solder ball array products.

To broaden our in-house technology and product development, we also funded some exploratory research projects with universities and research institutes. We work closely with our vendors and extensively test the critical components or modules supplied by them. We also team up with other equipment and material suppliers, to provide packaging and automation solutions for our customers.

In year 2001, we have a program to launch many new and exciting products. Based on multi-phase linear motors and advanced motion control technology, we are developing a new generation IC die bonder capable of 200 and 300 mm diameter wafers, scheduled for market introduction in mid-2001. Major improvements over current models include 30% higher productivity, smaller footprint, better die placement accuracy, plus improved impact force control and bondline thickness.

Similarly, to address the growing flip chip in package niche market, we have conducted extensive process and prototype development in the past two years. Revenue contribution from this new flip chip bonder is expected to start in the year 2002.

## 研究發展

ASM的研究發展目標致力創造先進的產品以及為客戶提供具成本效益的方案。集團知悉快捷的產品產銷週期，是本公司經營成功的關鍵，因此比競爭對手捷足先登，更早推出創新產品，實屬重要。

為達到這個目的，集團的理念將銷售設備所得收益百分之十撥作研究發展經費。惟因去年集團的組裝設備收益上升百分之一百二十九，即使研究發展總開支上升百分之五十，增至港幣二億一千九百五十萬元，僅佔集團的設備銷售額百分之六點六。

然而，集團的擴展計劃收效甚宏。它不僅撥資發展新一代現有產品，同時投入接線焊接、環氧樹脂噴塗、塑封工序、新式合成物料、包裝發展(特別是QFN)及其他方面的研究。一系列生產晶積度包裝(CSP)及焊珠距陣包裝(BGA)設備的發展已經加速進行，進一步加強集團目標，提供引線、非引線及焊珠排列產品整合組裝生產線或系統。

為擴充內部的科技及產品發展，集團亦撥款投入一些與大學及研究所合作探討性研究項目。集團與供應商保持緊密合作，廣泛測試其供應的重要零件或組件。集團更與其他設備及物料供應商合作，向客戶提供包裝及自動化方案。

在二零零一年，集團已訂定計劃，推出多種令人振奮的嶄新產品。在多段線性馬達及先進移動操控科技的基礎上，集團正致力發展新一代的集成電路管芯焊接機，可應用於200及300毫米直徑的晶片，預期於二零零一年中推出。比現有型號的重大改良，包括提高生產力百分之三十、縮小體積、加強管芯放置準確性、改善沖壓力度控制以及焊接線的厚度等。

同樣地，集團針對覆晶焊接包裝市場日益壯大所需，在過往兩年大舉進行工序及原型的發展。預期在二零零二年，這種覆晶焊接機將開始提供收益。

## RESEARCH AND DEVELOPMENT (continued)

We have been developing and offering a host of post-encapsulation equipment for the ball array packages and QFN. While we have built a quality customer base for CSBGA and QFN singulation plus pick and place system, we intend to strengthen our market position by providing a complementary in-line strip test process. To meet the 0.4 mm solder ball pitch challenge, we target to complete an integrated ball placement, reflow and rinsing system, taking up only half of major competitors' machines floor area, before the end of 2001.

## FINANCIAL

ASM's current strong financial position is not only the result of last year's outstanding revenue performance, but is built on our conservative fiscal policy, shrewd investment planning and strict liquidity control.

2000 was a strong growth year for the semiconductor and assembly equipment industries. With sales more than doubling, ASM achieved record profit and strong liquidity. Current ratio stood at a healthy level of 1.92, despite a HK$332.8 million proposed dividend in the current liabilities. Cash on hand at the end of the year amounted to HK$648.8 million.

Stringent control on account receivables and diligent collection efforts resulted in 65 days sales outstanding, a major improvement over the previous years. Management has closely scrutinized all receivable accounts and concluded that bad debt exposure, if any, is immaterial and well covered by provisions made according to the Company's policy. With the major increase in turnover, asset utilization improved significantly resulting in an inventory turn of 6.91 (1999: 4.86).

Currently we have no long or short term borrowing outstanding at the banks; hence both our gearing and all bank debt to equity ratios have dropped to zero. Net interest income amounted to HK$22 million for the year.

Capital investment of HK$349 million was financed by current year depreciation of HK$181 million and current year profit, consistent with previous years.

Order backlog exceeded US$120 million as of 31 December 2000.

ASM will maintain its current corporate strategy of organic growth into the future, thus no major funding will be needed in the short term. The strong financial position of the Company should allow ASM to weather any industry fluctuation and emerge as one of the stronger leaders within its industry.

## 研究發展(續)

集團一直致力發展及提供一系列專為焊珠排列包裝及QFN而設的後塑封設備。在建立一個CSBGA及QFN分離及拾置系統(pick and place)的同時，集團計劃提供一系列輔助整線式整片測試工序，藉以強化市場地位。為了應付0.4毫米焊珠微距挑戰，集團已訂下目標，在二零零一年年底以前完成一種整合焊珠放置、回焊及清洗系統，此系統將比競爭對手的機械佔用面積減少一半。

## 財務表現

目前ASM雄厚財政狀況，不但是去年傑出的收益表現所得到成果，更有賴集團歷年採取穩健的財政策略、慎重投資計劃及嚴格控制流動資金所致。

二零零零年是半導體及組裝設備工業大幅增長的一年。隨著銷售額增長逾倍，ASM創下盈利紀錄之餘，同時保持強勁流動資金。儘管流動負債賬下建議派發股息總額共達港幣三億三千二百八十萬元，流動比率仍保持1.92的穩健水平。於年底，手頭現金共達港幣六億四千八百八十萬元。

嚴格控制應收賬款加上努力收賬，令應收賬款維持於六十五天數期，比較往年大為改善。管理層現已密切審查所有應收賬款，所得結論認為縱有任何壞賬風險，亦屬微不足道，並已依據公司的政策撥備。隨著營業額大幅增長，資產使用率已有顯著改善，形成存貨周轉率6.91(一九九九年：4.86)。

目前集團並無未償還的長期或短期銀行借貸，因此無論資本與負債比率及所有銀行負債與資本比率均已降至零。年內淨利息收入共達港幣二千二百萬元。

資本性投資港幣三億四千九百萬元，乃由本年折舊港幣一億八千一百萬元及本年溢利支付，與歷年保持一貫。

截至二零零零年十二月三十一日，積存訂單總額逾一億二千萬美元。

ASM將保持現行公司策略，致力本體增長，因此短期內並無集資需要。公司的穩健財政狀況應有助ASM安然過渡業內任何波動，並會崛起成為業內強勢領袖之一。