
12. INDEPENDENT MARKET RESEARCH REPORT

(Prepared for inclusion in this Prospectus)

F R O S T & S U L L I V A N

To:

The Board of Directors
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**Re: Executive Summary of the Independent Market Research Report
on the Hard Disk Drive Market**

The purposes of the Executive Summary of the Independent Market Research for Notion VTec Berhad is prepared by Frost & Sullivan (M) Sdn Bhd for inclusion in the Prospectus of Notion VTec Berhad in relation to the proposed listing of and quotation for the entire issued and paid-up share capital of Notion VTec Berhad on the MESDAQ Market of the Bursa Malaysia Securities Berhad.

The original research report for this industry was conducted and finalised in March 2004. An executive summary and some minor amendments updating the industry were prepared in March 2005. Findings in this study may be used in the listing prospectus with consent from Frost and Sullivan.

Frost & Sullivan has prepared this report in an independent and objective manner and has taken adequate care to ensure the accuracy and completeness of the report. We believe that this report presents a true and fair view of the industry within the limitations of among others, secondary statistics and primary research. Our research has been conducted with an "overall industry" perspective and may not necessarily reflect the performance of individual companies in this industry. We are not responsible for the decisions and / or actions of the readers of this report. This report should also not be considered as a recommendation to buy or not to buy the shares of any company or companies.

Yours faithfully
For and behalf of
FROST & SULLIVAN (M) SDN BHD



.....
SANJAY SINGH
DIRECTOR

3 MAY 2005

12. INDEPENDENT MARKET RESEARCH REPORT *(Cont'd)*

Strategic Insights of the Hard Disk Drive Market

Executive Summary

March 2005

12. INDEPENDENT MARKET RESEARCH REPORT (Cont'd)

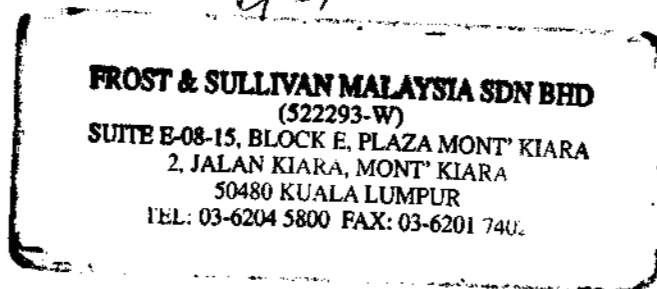
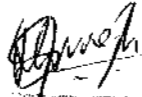
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The market research process for this study has been undertaken through detailed primary research which involves discussing the status of the industry with leading industry participants and industry experts. The methodology used is the Expert Opinion Consensus Methodology. Quantitative market information is based primarily on such interviews and therefore could be subject to fluctuations.

The executive summary provides an update of the report which was completed in March 2005 and is prepared solely for inclusion in the Prospectus.

For information regarding permission, write to:

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12. INDEPENDENT MARKET RESEARCH REPORT *(Cont'd)*

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Executive Summary

Overview of the Hard Disk Drive Market

A hard disk drive is a device that stores data on one or more rotating magnetic disks to allow fast access to non-volatile data for computing needs. Miniaturization and dropping prices are characteristic of the hard disk drive market, as well as the intense competition faced by players in the industry.

Current Stage and Development over Time

Technological changes and discoveries have made dramatic changes to the data storage industry. IBM introduced the first HDD in 1956, whereby, to store 5 megabytes of data, it has to use 50 platters measuring 24 inches in diameter. The initial significant development was IBM's introduction of the "thin film induction" head. It utilized a single element to read and write data to and from the disk. As hard disk drives expanded in storage capacity, the magnetic domains had to be miniaturized so as to accommodate more of them on a platter.

In 1991, IBM introduced the first "anisotropic magneto-resistive" (AMR) read heads for HDDs. With the creation of AMR read heads, HDD manufacturers were able to increase storage densities by approximately 60% a year during the nineties. However, this could not keep up to the demands of customers who requested ever higher-density HDDs.

In the meantime, IBM's Almaden Research Centre in San Jose, California had been experimenting with ways of increasing the storage density by using a technique called sputtering. By the end of 1997, IBM was ready to introduce the revolutionary giant magneto-resistive (GMR) head. This was the scientific and technological breakthrough that boosted the capacity of HDDs from a few gigabytes to 100 gigabytes and more. In the process, storage densities have rose from 1 to 2 gigabytes per square inch of the first GMR HDD to about 100 gigabytes per square inch presently. The record is a pocket-sized 120-gigabyte HDD manufactured by Western Digital. Overall, the USA has a slight technology lead in the overall data storage technology, especially in the 3.5-inch form factor for HDDs. The Japanese manufacturers, who are leaders in miniaturization technology, are leading in the 2.5-inch form factor and below for HDDs.

Industry Structure

The HDD cluster is quite established in Malaysia, as a result of a huge inflow of foreign direct investments into this industry during the early to mid-nineties. These inflows were diverted from Singapore when

12. INDEPENDENT MARKET RESEARCH REPORT *(Cont'd)*

F R O S T & S U L L I V A N

production costs became too high. Due to the tight competitive conditions in the disk drive market, lower-end production of disk drives and removable drives was relocated from Singapore to Malaysia in late eighties.

Correspondingly, a number of supporting industries in the value chain has also been established, in the areas of disk media, disk substrates, magnetic recording heads, actuators, head gimbals, arm assembly, spindle motors, bearings and PCB (printed circuit board) fabrication. Altogether, there are approximately 35 companies involved in the production and assembly of data storage devices in Malaysia; many are located in Penang or the Kulim Hi-Tech Park in neighboring Kedah. The major peripherals and component parts manufactured are:

- HDDs – Western Digital (Malaysia) Sdn. Bhd.
- Disk media – Fuji Electric (Malaysia) Sdn. Bhd. and Komag USA (Malaysia) Sdn. Bhd.
- Disk substrates – Advanced Disk Technology (Malaysia) Sdn. Bhd., Toyo Memory Technology Sdn. Bhd., and Fuji Electric (Malaysia) Sdn. Bhd.
- Magnetic recording heads – Penang Seagate Industries (M) Sdn. Bhd.
- Actuators – Eng Teknologi Sdn. Bhd.
- Head gimbal assemblies – Penang Seagate Industries (M) Sdn. Bhd.
- Voice coil motors – Shin-Etsu (Malaysia) Sdn. Bhd.
- Spindle motors – Sankyo Precision (Malaysia) Sdn. Bhd.

Market Position and Shares

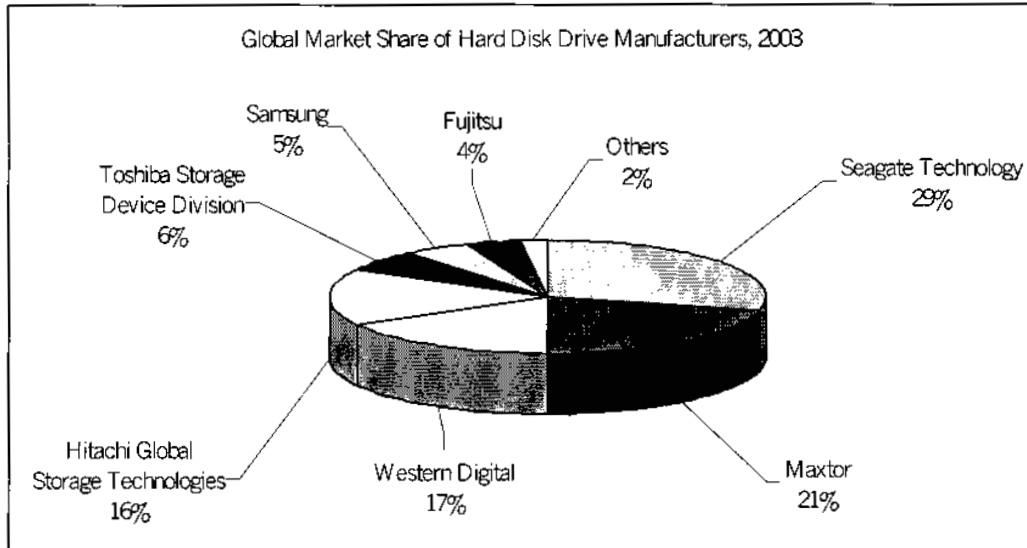
Demand for hard disk components is closely correlated with the demand for hard disk drives, which therefore necessitates a close look at the global hard disk drive industry. Globally, the industry has consolidated to around 20-odd companies. Increased consolidation in the hard disk drive industry has resulted in highly efficient operations, improved economies of scale, intense competition and supply chain optimization, all of which tend to reduce the average selling price. This pressure extends backwards throughout the supply chain, including the precision engineering companies. The global market concentration of the top three disk drive manufacturers was 67 percent in 2003.

Whilst magnetic data storage is a mature product with established market competitors with their supply chains, it is an extremely competitive market with low margins and advantages derived through scaling. Since 1980, prices of hard disk drives have decreased by about five orders of magnitude. Also, as existing companies continue to dominate the overall data storage market in terms of their revenue contribution, it will be extremely challenging for a new participant to enter this segment.

12. INDEPENDENT MARKET RESEARCH REPORT (Cont'd)

F R O S T & S U L L I V A N

Chart 1-1: Global Market Share of Hard Disk Drive Manufacturers, 2003

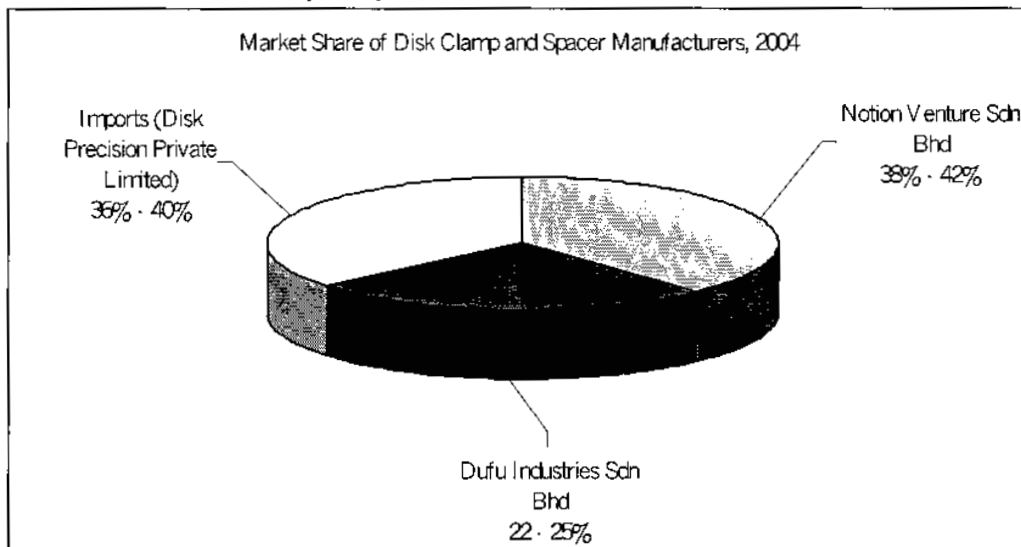


Source: Frost & Sullivan

Assembly of hard disk drives requires strong supporting industries like precision engineering in the value chain. MIDA estimates the presence of 150 companies specializing in metal precision engineering in Malaysia, and a majority of them do not have high precision capabilities and/or the capacity to serve global multinational corporations such as Western Digital. Notion Venture Sdn Bhd, however, has both the expertise and capability to produce the high precision components that are required by the HDD industry.

In 2004, there were two domestic companies involved in the supply of disk clamps and spacer rings to Western Digital; which is the sole hard disk drive assembler in Malaysia. NVSB was the top supplier of disk clamps to Western Digital and commanded between 38% to 42% market share of the local HDD disk clamp and spacer ring market.

Chart 1-2: Market Share of Disk Clamp and Spacer Manufacturers, 2004



Source: Frost & Sullivan

12. INDEPENDENT MARKET RESEARCH REPORT (Cont'd)

F R O S T & S U L L I V A N

Computer Market

Although demand for HDDs has been largely flat in the period from 2000 to 2001, HDD demand has turned positive and is seen to be growing steadily with improvements seen in Asia and US. The worldwide HDD shipment is expected to grow positively at a CAGR of 8.3% over the period 2004 to 2008.

The sources for HDD industry growth in the years ahead are poised to come from two major areas: the computer market and consumer electronics market. The computer market is further subdivided into 3 segments, which are the server market, personal computer market and notebook market. Growth from the respective segments of the HDD industry is highlighted below:

- The global HDD shipment is projected to grow at a CAGR of 8.3% from 2004 to 2008.
- The global server market is projected to grow at a CAGR of 9.7% from 2004 to 2008.
- The desktop / personal computers market is projected to grow at a CAGR of 6.8% from 2004 to 2008.
- The notebook market is projected to grow at a CAGR of 13.7% from 2004 to 2008.
- The non-traditional computing applications, namely consumer electronics market, with built in HDD, are projected to expand at a CAGR of 52.7% during the period 2004 to 2008. Nevertheless, personal computers and notebooks continue to be the main products that consume most of the HDD productions.

The market for servers is dependent on both business sentiments and business expansions, as they are mainly used in large corporations. To ensure the integrity and security of information, business corporations focus on data replication, and hence, data storage in servers. The telecommunications industry has been a major end-user influencing data storage demand. The global server market is projected to grow at a CAGR of 9.7% during the forecast period 2004 to 2008. The market in Malaysia is anticipated to expand at a lower pace, registering a CAGR of 8.4% during the corresponding period.

Over the last few years, there has been a gradual migration from desktop personal computers to the notebook platform. In addition, computer assemblers are keener to market notebooks, as they provide higher margins compared to desktops. The popularity of mobile electronics among consumers is also driving the notebook market. The advent of wireless LAN (local area network) and public Wi-Fi (wireless fidelity) hotspots has driven the sales of notebooks over the past two years. Declining Wi-Fi chipset prices have also accelerated the migration to notebooks.

Unit shipment of personal computers in the global market is anticipated to increase at a CAGR of 6.8% during the forecast period 2004 to 2008, surpassing the forecasted unit shipment CAGR in Malaysia, which is projected to be 6.1% during the corresponding period. On the other hand, unit shipment of notebooks in the global market is anticipated at a strong CAGR of 13.7% for the same forecast period, which is slightly higher than the unit shipment CAGR of 12.9% that is projected for the Malaysian market.

12. INDEPENDENT MARKET RESEARCH REPORT (Cont'd)

F R O S T & S U L L I V A N

Chart 1-3: Hard Disk Drives Market: Unit Shipment, 2001-2008

Year	Global (Million units)	Growth rate (%)	Malaysia (Million units)	Growth rate (%)	Share of global (%)
2001	196.0	-	0.96	-	0.49
2002	219.2	11.8	1.14	18.8	0.52
2003	254.3	16.0	1.34	17.5	0.53
2004	278.2	9.4	1.53	14.2	0.55
2005	303.4	9.1	1.67	9.2	0.55
2006	330.4	8.9	1.81	8.4	0.55
2007	357.0	8.1	1.93	6.6	0.54
2008	382.5	7.1	2.04	5.7	0.53
CAGR (2004-2008):	8.3%		7.5%		

Note: All figures are rounded; the base year is 2003. Source: Frost & Sullivan

Consumer Electronics Market

Besides producing hard disk drives for the computer market, most HDD manufacturers are now focusing on the rising demand for data storage from consumer electronics. A majority of such products would initially be consumed in the more developed countries like the USA, Europe and Japan, due to the relatively higher per capital income and better digital infrastructure. Global unit shipments of consumer electronics like digital still cameras, camera phones, personal digital assistants, digital camcorders, portable digital music players, gaming consoles, digital video disk recorders and car navigation systems are collectively anticipated to grow at a CAGR of 26.3% during the forecast period 2004 to 2008. However, consumer electronics with built-in hard disk drives are projected to expand at a much stronger CAGR of 52.7% during the same forecast period.

A projected growth summary of certain consumer electronics products using HDD applications, for the period 2004 to 2008, are indicated below:

- Unit shipment of digital cameras with built-in HDDs is forecasted to expand at a CAGR of 70.7%.
- Unit shipment of camera phones is projected to expand at a CAGR of 33.4%.

However, the growth of camera phones incorporating high-end features, which include functions of the PDA and compressed digital music, and incorporating a digital still camera may possibly cannibalise the sales of the standalone digital cameras, PDAs and portable digital music players in the market.

- Unit shipment of digital video recorders with built-in HDDs is projected to expand at a CAGR of 75.3%.
- Unit shipment of gaming consoles with a built-in HDD is projected to grow at a CAGR of 41.1%.

12. INDEPENDENT MARKET RESEARCH REPORT (Cont'd)

F R O S T & S U L L I V A N

- Unit shipment of PDAs with built-in HDDs is expected to chart a strong CAGR of 72.0%.
- Unit shipment of digital camcorders is projected to grow at a CAGR of 9.7%.
- Car navigation systems incorporating the HDDs are anticipated to expand at a CAGR of 49.5%.

Chart 1-4: Server, PC, Notebook, and Consumer Electronics with built-in HDD market, 2001-2008

YEAR	Servers		Desktops/PCs		Notebooks		Consumer electronics with built in HDDs	
	Shipment (Million units)	Growth Rate (%)	Shipment (Million units)	Growth Rate (%)	Shipment (Million units)	Growth Rate (%)	Shipment (Million units)	Growth Rate (%)
2001	4.4	-	111.5	-	22.0	-	1.7	-
2002	4.6	4.5	112.3	0.7	23.8	8.1	7.9	364.7
2003	5.5	19.6	121.8	8.4	30.2	27.0	9.5	20.3
2004	6.5	18.2	133.5	9.6	34.6	14.5	12.0	26.3
2005	7.4	13.8	144.5	8.3	39.4	13.6	19.8	65.0
2006	8.1	9.5	155.3	7.5	44.6	13.3	34.0	71.7
2007	8.8	8.6	163.9	5.5	51.8	16.1	50.3	47.9
2008	9.4	6.8	173.6	5.9	57.9	11.7	65.3	29.8
CAGR (2004- 2008)	9.7%		6.8%		13.7%		52.7%	

Note: All figures are rounded; the base year is 2003. Source: Frost & Sullivan

Prospects and Conclusion

Due to its basic importance and extensive forward and backward linkages, the precision engineering industry plays a key role in the country's manufacturing process that is far greater than its proportional contribution to the total manufacturing output and employment might suggest. The trend in corporate outsourcing instead of having precision machining and tooling workshops appended to principal manufacturers has also translated into more demand for the services of independent precision machining and tooling companies. Multinationals favor outsourcing because it leads to more flexibility in planning and production, as well as reduced capital expenditures, working capital, business risks and fixed overhead costs.

Manufacturing processes with higher levels of precision and miniaturization will continue to be the objective of manufacturing engineering worldwide. A wide range of advanced technology products is totally dependent on precision engineering. As a high technology product, the assembly of hard disk drives is heavily dependent on precision engineering component parts with exacting fit.

12. INDEPENDENT MARKET RESEARCH REPORT *(Cont'd)*

F R O S T & S U L L I V A N

Faster CPUs and bus standards make it possible to process all the new data-intensive applications and files in the computer. This in return, requires increased hard disk drive capacity and performance in order to read and write the data at a speed that matches the rest of the system's capabilities. Hence, in today's environment of almost limitless data, the capability of the hard disk drive component of a computer is a critical element in the overall performance of the system. With computers firmly entrenched, the need for storage has never been greater. There is no doubt that the data storage needs of modern society will increase astronomically in the coming years.

Improvements in data storage technologies are providing lower cost per gigabyte storage every year, a fact not missed by many end-users. The hard disk drive still appears to have a considerable remaining lifespan, although a slowing rate of progress is anticipated due to significant technical challenges, there is a widely held view that no alternative technology is likely to provide serious competition over the next ten years. The price of a hard disk drive typically constitutes less than 10 percent of the total cost of the systems it goes into, and present alternative technologies are still about two orders of magnitude more expensive than the hard disk drive, thus ruling them out as storage devices in the computing industry, except for consumer electronics.

High-speed semiconductor memory could compete with hard disk drives in the future. Semiconductor memory is much faster than magnetic disk drives, but currently is not competitive from a cost standpoint. Flash memory, a non-volatile semiconductor memory, is currently more costly and while it has a higher "read" performance than hard disk drives, it has a lower "write" performance. As both computers and consumer electronics become more commoditized, price differentiation, and not product differentiation in the market become the key consumer attribute in the decision to purchase. Flash memory could become competitive in the near future for applications requiring less data storage capacity than that provided by hard disk drives.

Overview of the Automotive Market in Malaysia

Market Overview

Malaysian vehicle sales made a strong comeback in 2004, and are estimated to register a strong growth of approximately 17%, as consumers who restrained themselves earlier proceed with their purchases after realising that AFTA is not going to result in lower prices for cars. Additionally, factors such as the aggressive launching of new car and low interest rates of between 3–5% for new cars are helping to boost car sales. All vehicle segments are forecasted to register positive growth during 2004.

In the year 2004, non-national makes registered clear gains at the expense of national vehicle makes, and are threatening to gain more ground as competition intensifies. Proton lost 3% market share in 2004, and Perodua suffered a drop in market share of about 4%, which can be attributed to a lack of new models and also the introduction of directly competing models like Kia's Picanto. Even so, other national players like Inokom and Naza continue to grow stronger with the support of re-branded

12. INDEPENDENT MARKET RESEARCH REPORT *(Cont'd)*

F R O S T & S U L L I V A N

Korean makes by taking advantage of the national car status and the privileges and incentives that comes with it. The outlook for the local automotive sector is very bright indeed and stands to gain further from a more open and liberalised market as the implementation of AFTA takes place.

Component Parts Market

In 2004, the Malaysian automotive component market was estimated at RM3.8 billion. This increase stems from higher consumption of OEM (original equipment market) component parts due to growing sales of new vehicles since 1998. OEM sales account for almost 60 percent of market revenues, while the aftermarket contributes the remaining 40 percent. In the OEM, parts sales mirror the production of new vehicles. Aftermarket revenues are derived from the existing vehicle population. Local component parts manufacturers focus on the OEM, while foreign parts manufacturers target the aftermarket. National vehicles provide a guaranteed and captive market for these OEM manufacturers who continue to thrive from the local content policy and high tariffs on new vehicles. Malaysian manufacturers have become more proficient at making car component parts ever since the Proton project was implemented and thus were able to secure orders for component parts from other car assemblers in Malaysia as well as from other ASEAN countries.

There are many opportunities for local automobile component producers to take advantage of the ASEAN Free Trade Area ("AFTA") to export these components. Under AFTA requirements, automotive imports must satisfy the "local content requirement", which means that at least 40% of the products content must originate from any single/cumulative ASEAN member(s).

Increasing competition in the region is forcing Malaysian parts manufacturers to reduce costs to become competitive. Some shifted overseas and collaborate with foreign partners to reduce costs, gain access to foreign markets through overseas network, and develop and share proprietary technologies. In addition, manufacturers can build parts component that lean towards the international market and conform to global standards rather than rely solely on the limited Malaysian market.

13. DIRECTORS' REPORT

NOTIONVTEC

NOTION VTEC BERHAD

Registered Office:

C15-1 Level 15, Tower C,
Megan Avenue II,
12 Jalan Yap Kwan Seng,
50450 Kuala Lumpur

3 MAY 2005

The Shareholders of Notion VTec Berhad

Dear Sir / Madam,

On behalf of the Board of Directors of Notion VTec Berhad ("NVB"), I report that after making due enquiries in relation to the interval between 31 December 2004, being the date to which the last audited financial statements of the Company and its subsidiaries have been made up, to the date hereof, being a date not earlier than fourteen (14) days before the issue of this Prospectus that:

- (a) the business of the Company and its subsidiaries has, in the opinion of the Directors, been satisfactorily maintained;
- (b) in the opinion of the Directors, no circumstances have arisen since the last audited financial statements of the Company and its subsidiaries which have adversely affected the trading or the value of the assets of the Company or its subsidiaries;
- (c) the current assets of the Company and its subsidiaries appear in the books at values which are believed to be realisable in the ordinary course of business;
- (d) save as disclosed in Section 9.4 of this Prospectus, no other contingent liabilities have arisen by reason of any guarantee or indemnity given by the Company or its subsidiaries;
- (e) the Board of Directors of NVB are not aware of any default or any known events that could give rise to a default situation, in respect of payments of either interest and/or principal sums in relation to any borrowings of the Group since the last audited financial statements of the Group; and
- (f) since the last audited financial statements of the Company and its subsidiaries, save as disclosed in the Accountants' Report as set out in Section 11 and the Proforma Consolidated Balance Sheets set out in Section 9.7 of this Prospectus, there have been no changes in published reserves nor any unusual factors affecting the profits of the Company and its subsidiaries.

Yours faithfully

For and on behalf of the Board of Directors

NOTION VTEC BERHAD



THOO CHOW FAH
Executive Chairman

NOTION VTEC BERHAD 637546-D

Lot 5028, Jalan Teratai, Batu 5½, Jalan Meru, 41050 Klang, Setangor Darul Ehsan, Malaysia.

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