

Pentamaster International Ltd.
Stock ticker: 1665 Hong Kong
檳傑科達國際有限公司

Investor Presentation
as of NOV 2024

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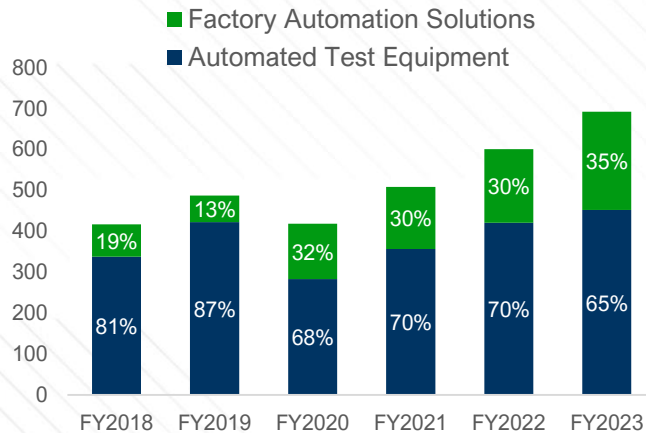


Pentamaster International Limited (the “Company” or “Pentamaster”) together with its affiliates and subsidiaries (the “Group” or “Pentamaster Group”) provides automation technology and solution to multinational manufacturers including but not limited to the semiconductor, telecommunications, consumer electronics and automotive sectors, spanning across APAC, North America and Europe.

Headquarters: Penang, Malaysia
Founded: 1991

The parent company, **Pentamaster Corporation Berhad** (“PCB”), is listed on the Bursa Malaysia Stock Exchange with stock code: PENT.MK (Bloomberg).

The two (2) main revenue sources are:



One of the **market leaders in Malaysia** in terms of revenue and profit with high growth in the back-end semiconductor ATE market



Five (5) years being (2017, 2018, 2019, 2020, 2024) ranked in the **top 200 Forbes “Best Under a Billion”** list of companies that are publicly listed in APAC

For two (2) years in a row **“Highest Growth in Profit After Tax Over Three Years”** for the technology sector in THE EDGE’s Billion Ringgit Club (“BRC”) award 2019, 2020.

“The Exporter of The Year” in 2021 for Mid-tier & Large Companies by The Star Export Excellence Awards in recognising and honouring successful exporters and their contribution to Malaysian economy.



Best Employer 2023 (Penang), as accorded by Malaysia’s Employees Provident Fund (EPF) for a subsidiary of the group



Ability to **innovate and deliver high value-add integrated products and solutions**

As of 30 September 2024, total headcount of 952 with more than 740 in-house engineers. Current Group’s total production gross floor estimated to be more than 200,000 sq.ft. A third production plant measuring 720,000 sq ft is currently undergoing construction with estimated completion by Q1 2025.

High visibility of secured purchase orders given the nature of business proposition that is mainly in new “features” product launch / forefront technology solutions

Company profile



6,000+ projects deployed



900+ employees



700+ Engineering R&D staff

Key market segments



Semiconductor



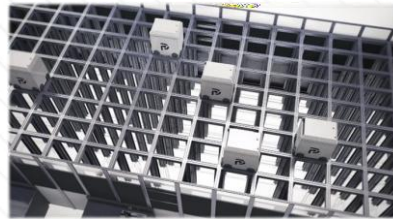
Electro-Optical



Automotive



Medical



Warehouse Automation Solution
i-Hub: Automated Bin Storage Retrieval System



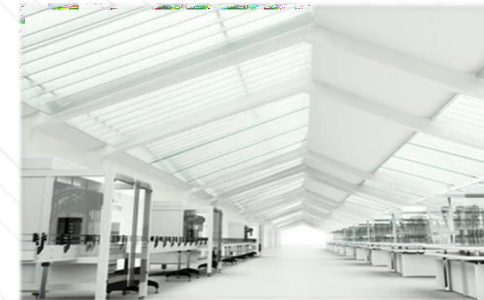
Factory Automation Solution
i-ARMS: intelligent-Automated Robotic Manufacturing System



Medical Automation Solution
Custom automated assembly, vision inspection and test equipment for medical devices.



Automated Test Equipment
Full turnkey solution for wafer burn-in and optical sensors testing.



Contract Manufacturing Services
Turnkey repetitive manufacturing services for complex machines.

Investment case

- 1 The Group has a headcount of close to 920 at the end of FY2023, with a **CAGR revenue growth at 16.9% from FY2017 to FY2023**
- 2 High visibility of secured purchase orders given the nature of business proposition
- 3
 - **Achieved revenue record in 2023**, driven by the Group's ATE and FAS business segments and witnessing strong revenue growth across most of its industry sectors coverage.
 - The Group proactively broadening its business exposure towards the ever-growing medical device segment via Pentamaster MediQ Sdn. Bhd. ("PDSB"), with respective qualifications obtained.
 - Comprehensive WBG Power Semiconductor equipment and solutions - from front-end to back-end. **One of 4 Top Manufacturers in the Global SiC Wafer-Level Test and Burn-in Market***
- 4 For 5 years, the Group was honored to be listed on Forbes' "Asia's 200 Best Under A Billion company" - for 2017, 2018, 2019, 2020 & 2024 + other awards and accreditation since 2017
- 5 Strong financial ratio and positive net operating cashflow. The Group net cash position amount to approx. USD100m as at FY2023.
- 6 Strong and stable management team with extensive technology expertise and industry experience
- 7 Broadening and undertaking strategic expansion in the APAC and Europe region, with the incorporation of Pentamaster Automation (Japan) Co., Ltd. ("PAJ"), in addition to the Group's wholly owned foreign subsidiary in China; Pentamaster Technology (Jiangsu) Ltd. In Europe, the Group incorporated Pentamaster Automation (Germany) GmbH in Munich

*Source: ResearchMoz US

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Milestone

2004

PCB transferred listing to the Main Board of Bursa Malaysia Securities Berhad in October 2004.

Establishment of Pentamaster Instrumentation.

2003

PCB was officially listed in Second Board of Kuala Lumpur Stock Exchange (KLSE) in July 2003.

2001

Establishment of Pentamaster Technology.

1995

Establishment of first representative office in Shanghai.

1991

Company Establishment.

2006

Establishment of Pentamaster Equipment.

2015

Pentamaster Equipment developed i-ARMS to address manufacturing needs under Industry 4.0.

2017

Forbes' list of Asia's Best Under A Billion 2017.

PCB was named as one of the 200 Asia Pacific public companies with less than US\$1.0 billion in revenue.

2018

Listing of the Pentamaster International Limited on The Main Board of Stock Exchange of Hong Kong Limited.

Incorporation of sales and technical support office in California, USA.

Forbes' list of Asia's Best Under A Billion 2018.

Opening of Batu Kawan second plant.

2019

Forbes' list of Asia's Best Under A Billion 2019.

THE EDGE'S Billion Ringgit Club ("BRC") award 2019.

Acquisition of TP Concept Sdn. Bhd.

2024

Opening of Batu Kawan Campus 3.0.

Forbes' LIST OF Asia'S Best Under A Billion 2024

Pentamaster MediQ obtained CE mark certification

2023

Incorporation of Pentamaster Automation (Germany) GmbH.

2022

Export Excellence Awards Gold Award 2021.

Export Excellence Awards -The Exporter of The Year 2021 (Mid tier & Large Companies).

2021

Top 500 High Growth Companies Asia Pacific.

Malaysia's Growth Champion 2021.

Incorporation of, Pentamaster Technology (Jiangsu) Ltd. Pentamaster Automation (Japan) Co, Ltd. Pentamaster InnoTeq Sdn. Bhd.

2020

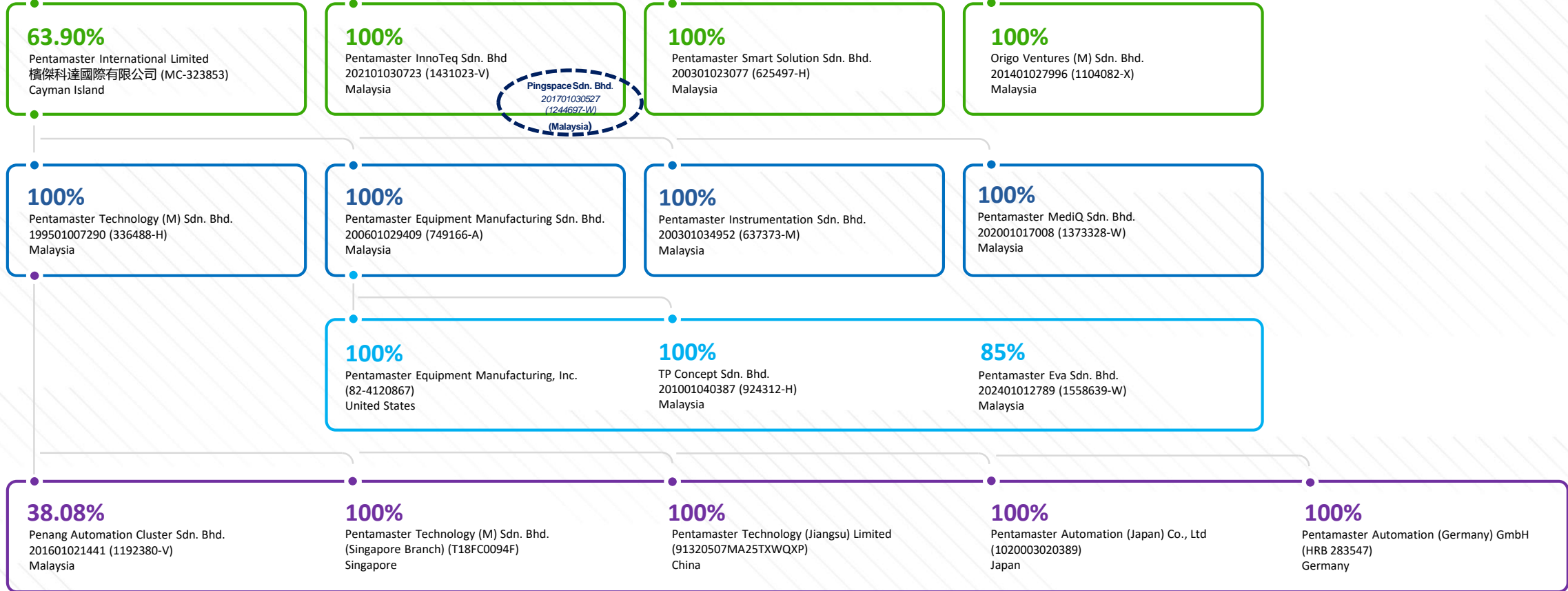
Forbes' list of Asia's Best Under A Billion 2020.

Incorporation of Pentamaster MediQ.

The Edge Billion Ringgit Club Award 2020 – The Highest Growth In Profit After Tax For 3 Years (Technology Sector).

Corporate Structure

● **Pentamaster Corporation Berhad 200201004644 (572307-U) Malaysia**



Shareholder structure

PIL (As at 30 September 2024)

Shareholder	Management	No. of Shares	Ownership
PCB	-	1,533,549,989	63.90%
Chuah Choon Bin	Yes	26,611,200	1.11%
Gan Pei Joo	Yes	8,403,544	0.35%
Dr Chuah Jin Chong	No	280,000	0.01%
Leng Kean Yong	No	250,000	0.01%
Employees	Yes	108,697,471	4.53%
Public Float	-	722,207,796	30.09%
TOTAL		2,400,000,000	100.00%

Source: Bloomberg / HKEX.com

PCB (As at 30 September 2024)

Shareholder	Management	No. of Shares	Ownership
Chuah Choon Bin	Yes	140,420,120	19.74%
Employees Provident Fund Board	-	54,329,150	7.64%
Kumpulan Wang Persaraan KWAP	-	42,505,675	5.97%
Lembaga Tabung Haji	No	38,962,600	5.48%
Loh Nam Hooi	No	437,400	0.06%
Gan Pei Joo	Yes	50,486	0.01%
Leng Kean Yong	No	55,000	0.01%
Public Float	-	434,556,690	61.09%
TOTAL		711,317,121*	100.00%

Source: Bloomberg / Bursa Malaysia

* Excluding a total of 1,000,000 Shares retained as treasury shares

Board of directors



Chuah Choon Bin
Executive Chairman

- 30+ years experience in design and manufacturing of automation equipment and vision inspection system
- Degree in Engineering (Honours) and Master's degree majoring in Electrical and Electronics both from the University of Auckland
- Chairman of the Board for PCB



Gan Pei Joo
Executive Director and CFO

- 20+ years experience in finance and accounting
- Member of CPA Australia and Malaysian Institute of Accountants
- Degree in Accounting from Curtin University of Technology
- Board member of PCB



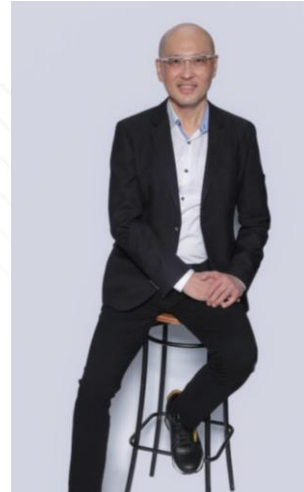
Leng Kean Yong
Non-Executive Director

- 20+ years experience in consulting, corporate finance and business strategy
- Degree (Cum Laude) in Business Administration from Western Michigan University
- Board member of PCB



Sim Seng Loong
Independent Non-Executive Director

- 30+ years experience in consulting, accounting and finance
- Member of CPA Australia and Malaysian Institute of Accountants



Dr. Chuah Jin Choong
Independent Non-Executive Director

- 30+ years experience in medical industry
- fellow of the Hong Kong Academy of Medicine (Anesthesiology) and a fellow of the Australian and New Zealand College of Anesthetists
- Degree in Medicine and Surgery from University of Queensland



Chan May May
Independent Non-Executive Director

- 20+ years experience in legal practice
- Admitted to the Bar (Malaysia) since March 1991
- Degree in Law (Honours) from University of Malaya

Management team



Hon Tuck Weng
Operations Director

- 25+ years experience in automation solution industry
- Postgraduate Certificate in Engineering Business Management from University of Warwick
- Higher Diploma in Computer Studies from University of Humber



You Chin Teik
Chief Operating Officer
(Automated Test Equipment)

- 20+ years experience in vision engineering
- Oversees research and development activities
- Master of Business Administration (MBA) from University of South Australia



Teh Eng Chuan
Chief Operating Officer
(Automated Test Equipment)

- 20+ years experience in machine vision inspection, design and control
- Oversees daily operation of automated test equipment division
- Higher Diploma in Computer Science from Kolej Damansara Utama



Ng Chin Keng
Chief Operating Officer
(Factory Automation Solutions)

- 20+ years experience in automation solution industry
- Oversees daily operation of Pentamaster Equipment Sdn Bhd
- Degree (Honours) in Computing and Information System from University of Lincolnshire & Humber



Ong Thean Lye
Chief Operating Officer
(Medical Devices)

- 30+ years experience in engineering and medical engineering
- Oversees medical devices division
- Master of Business Administration (MBA) and Degree (Honours) in Applied Science majoring in Electronic Technology from University Science of Malaysia

Commitment to minority shareholders

We are committed to create value for minority shareholders and act in their best interests through:

Regular engagement with minority shareholders:-

1. Quarterly results conference call
2. Ad-hoc conference call
3. Dedicated IR emails / contacts
4. Conduct Annual Shareholders General Meeting

Minority Shareholders protection:-

1. Outlined procedures for shareholders to propose for election of directors other than retiring directors
2. > 50% of Board members are independent / non executive directors

Timely disclosure of relevant Information:-

1. Promptly distributing and releasing announcement and results via website and email circulation

Shareholders Return:-

1. Adopting a Sustainable dividend policy, balancing mid-to-short working capital needs and cash balances

Dividend policy and history

The Company adopts a “Sustainable Dividend Policy”, balancing its working capital needs for the short-to-medium term and its cash balances

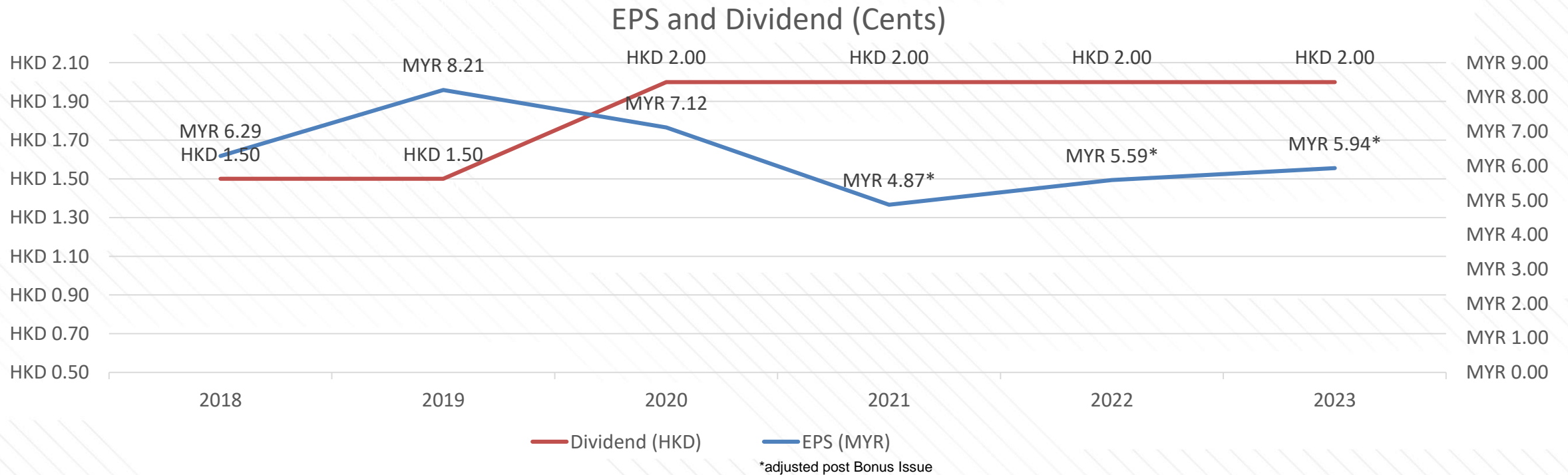


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Business model – AUTOMATED TEST EQUIPMENT (ATE)

Pentamaster Technology (M) Sdn. Bhd.

Our Machine Design Platform

High Speed Turret Base

High Speed Glass Turret Base

Linear Gantry Pick & Place Base

Gravity Feed Base

Reel to Reel Base

Equipment Front End Module (EFEM)

Lead Frame Base

Automated Test Solutions

Discrete & ICs

SiC | GaN | Power Modules

Electro-Optical/MEMS Sensors

Laser Marking & Cutting Solutions

Wafer-Level Packages

Strip-Level Packages

Tray-Level Packages

Pentamaster Instrumentation (M) Sdn. Bhd.

Automated Assembly

Discrete & ICs

SiC | GaN | Power Modules

Burn-in Solutions

Discrete & ICs

SiC | GaN | Power Modules

Automated Optical Inspection (AOI) Solutions

Discrete & ICs

SiC | GaN | Power Modules

Electro-Optical/MEMS Sensors




Business model – FACTORY AUTOMATION SOLUTIONS (FAS)

Pentamaster Equipment Manufacturing Sdn. Bhd. / Pentamaster Equipment Manufacturing, INC.


Factory Automation

Intelligent-Automated Robotics Manufacturing System i-ARMS


Our Market Sectors:




Food & Beverage




Consumer Products




Semiconductor




Automotive



MediTech Manufacturing



Poultry Farm



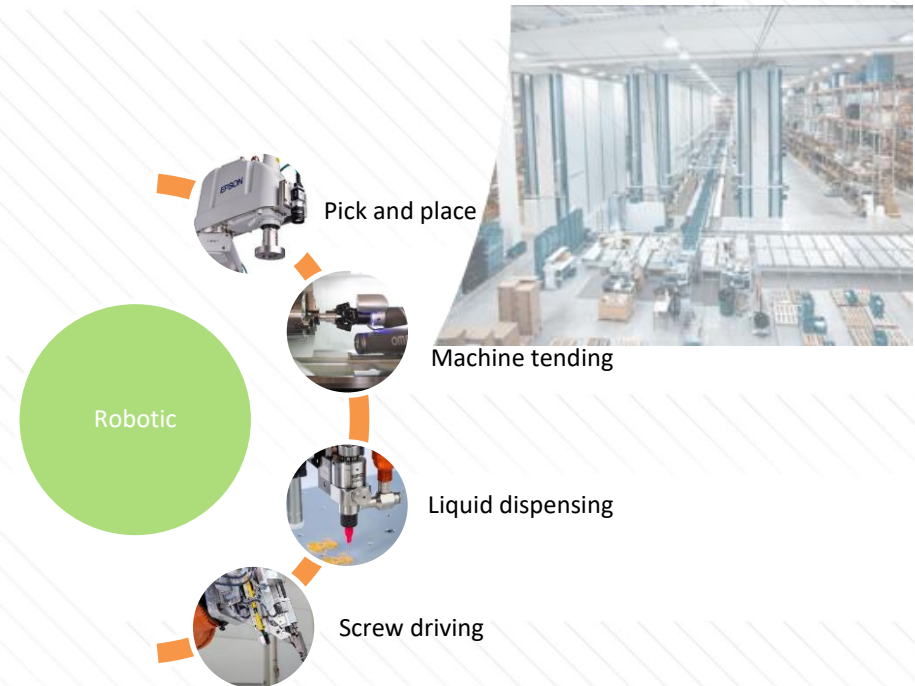
Renewable Energy

Warehouse Automation

- Automated Storage & Retrieval System
- Mini ASRS Stockers System
- High Speed Sortation System

Product Contract Manufacturing

- Automated Storage & Retrieval System
- Mini ASRS Stockers System
- Build to Print/Reference
- Supply Chain Sourcing
- Site Commissioning
- After Sales Services



Business model - WAREHOUSE AUTOMATION SOLUTIONS (WAS)

Pentamaster Equipment Manufacturing Sdn. Bhd. / Pentamaster Equipment Manufacturing, INC.

Mini ASRS Stocker System

A mini ASRS system that is designed to store and retrieve smaller loads such as totes, cases, trays and more depending on customer's specific requirements.

- Secure & inaccessible to unauthorized personnel
- Compact footprint with higher storage capacity
- Enhance picking accuracy up to 95%
- Reduce labor costs
- Utilize every space of overhead compartment
- Real time visibility and tracking with WMS



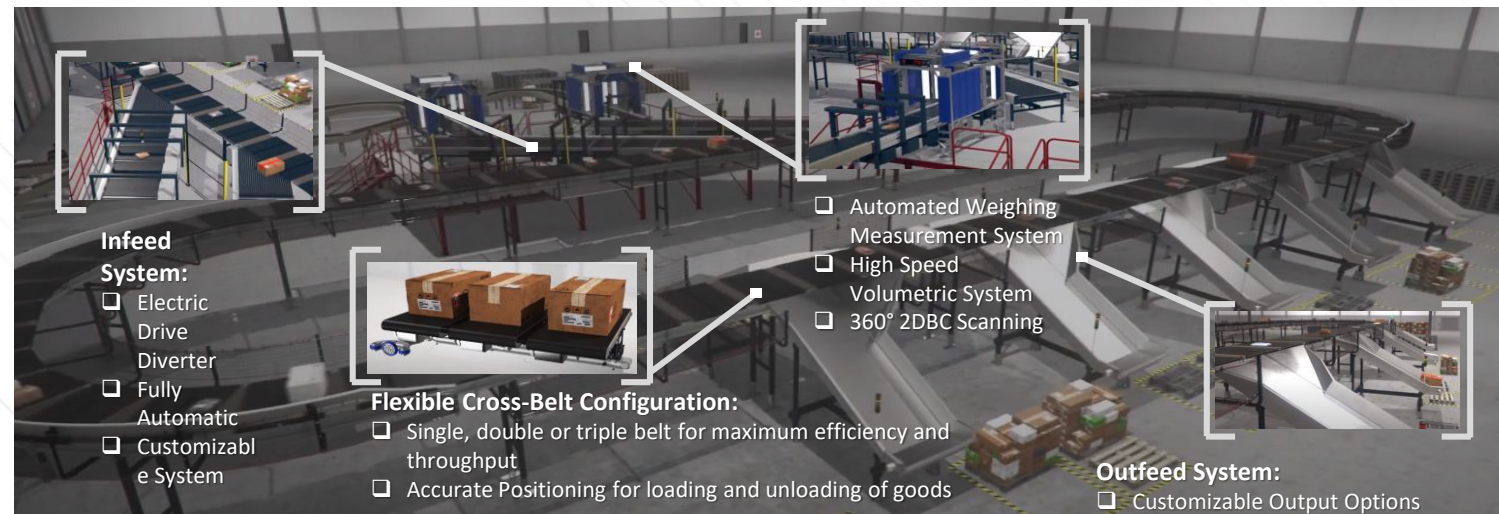
Automated Storage & Retrieval System (SCOOT-CAR)



- Better Utilization of Floor Space
- Efficient Time Management
- Increased Throughputs & Productivities
- Enhanced Inventory Data
- Efficient Labor Allocation

High Speed Sortation System

- Flexible, fast, and high quality products sorting.
- Suitable for all kinds of goods with variable shape, size and weight.
- Customizable to suit any warehouse operations.
- Increase product handling capacity
- Reduce labor costs.



Business model – MEDICAL DEVICE AUTOMATION TECHNOLOGY

Pentamaster MediQ Sdn Bhd

We design and build custom automated assembly, vision inspection and test equipment for catheters, pen needles, surgical instruments and laryngeal masks.



OUR APPLICATIONS

Safety Lancet Assembly System



Intravenous Catheter Assembly System



Laryngeal Mask Assembly System



Surgical Suture Assembly System



Pen Needle Assembly System

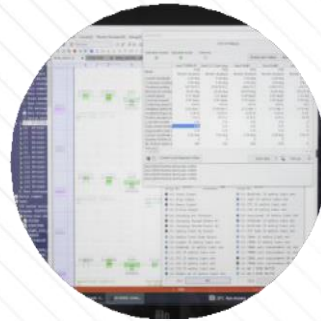


Business model

Core competencies



**Mechanical & Electrical
Engineering Design**



**Automation & Vision Software
Programming Technology**



**Tester Algorithm
Development**



**PCB Board
Engineering Design**



**Burn-in & Reliability
Test Solutions**



**MEMS Stimulus
Engineering Design**



**Optical Sensor
Measurement Solutions**



**Factory Automation Solutions
Warehouse Automation Solutions**

Value chain, suppliers, customers

Managing the complex value chain of the Group in ensuring a sustainable and ethical business culture:



Global Network



Germany



United States



China



Japan



Malaysia



Singapore



Vietnam

Malaysia

Campus 1.0

Plot 18 & 19, Technoplex, Medan Bayan Lepas,
Taman Perindustrian Bayan Lepas, Phase IV,
11900 Penang, Malaysia.

Campus 2.0

749, Persiaran Cassia Selatan 4, Taman
Perindustrian Batu Kawan, Bandar Cassia, 14110
Simpang Ampat, Penang, Malaysia.

Campus 3.0

51392, Plot 1 (B), H.S.(D) PT6171, Persiaran
Cassia Selatan 6 Taman Perindustrian Batu
Kawan 14100 Simpang Ampat, Penang,
Malaysia.

China

SuZhou Office

Room 102, 1st Floor, Building 5, 88 Wanli Road,
Yuanhe Street, Xiangcheng District, Suzhou
City, Jiangsu Province, 215006 China.

United States

California Office

830 Stewart Drive, Suite 177, Sunnyvale, CA
94085

Japan

Yokohama Office

YS Yokohama Nishiguchi Building 7F 2-25-1
Tsuruya-cho, Kanagawa-ku, Yokohama-shi,
Kanagawa, Japan, 221-0835

Germany

Gilching Office

Lilienthalstr. 2a 82205 Gilching, Germany

Singapore

Singapore Branch

3 Shenton Way #15-08 Shenton House Singapore
(068805).

Vietnam

Ho Chi Minh Office

Office 403, Songha Building, No.10, Street 33,
Town 2, An Khanh Ward, Thu Duc, Ho Chi
Minh City, Vietnam.



952 Employees

Corporate Headquarters

Plot 18 & 19, Technoplex, Medan Bayan Lepas, Taman Perindustrian Bayan Lepas, Phase IV, 11900 Penang, Malaysia.

Campus 2.0

PMT 749, Persiaran Cassia Selatan 4, Taman Perindustrian Batu Kawan, 14110 Bandar Cassia, Penang, Malaysia.

Campus 3.0

51392, Plot 1 (B), H.S.(D) PT6171, Persiaran Cassia Selatan 6 Taman Perindustrian Batu Kawan 14100 Simpang Ampat, Penang, Malaysia.



Stock Name – Penta Stock Code - 7160
(Kuala Lumpur Stock Exchange) - 2 Board (July 2003)
(Bursa Malaysia Securities Berhad) - Main Board (October 2004)
. Build up - 140,000 sq ft



Stock Name - Pentamaster Stock Code - 1665
(The Stock Exchange of Hong Kong Limited) - January 2018
. Build up - 100,000 sq ft

720,000 SQFT
BATU KAWAN, PENANG

Production facilities

Progress of Third plant at site



Front View

Aerial View

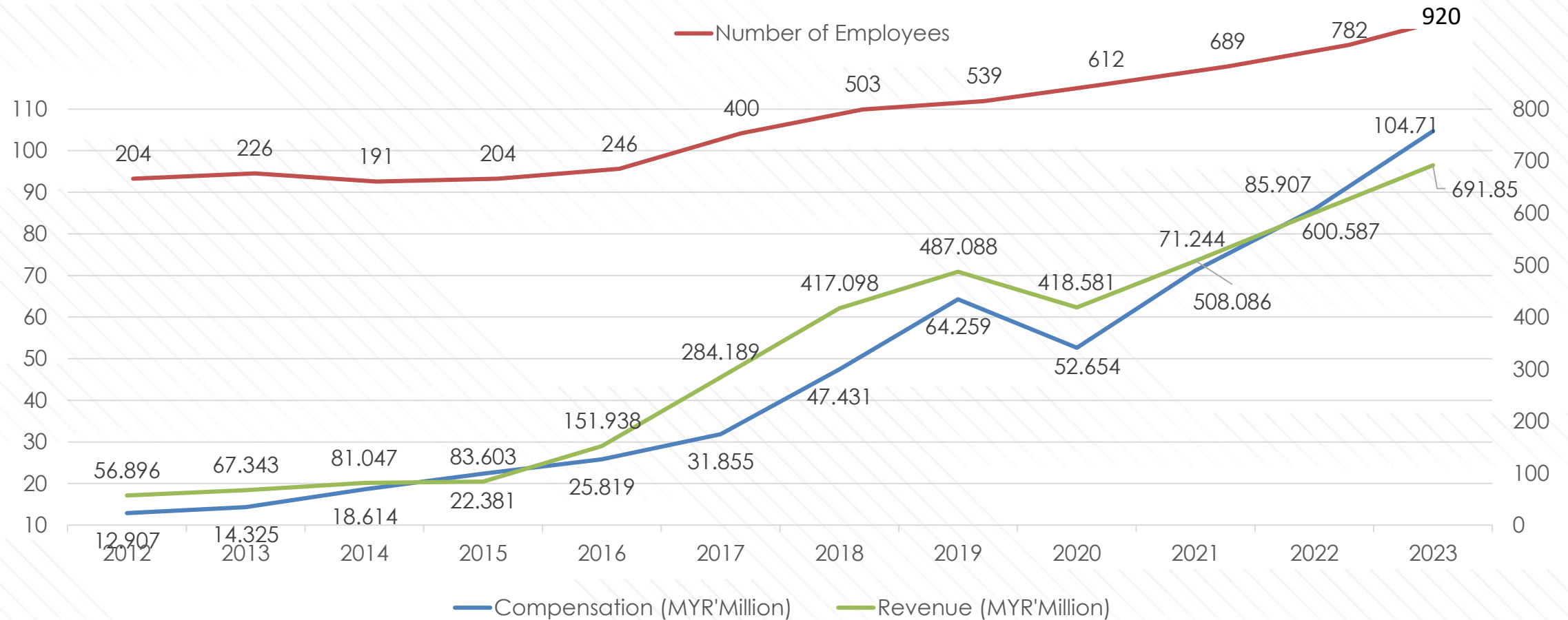


Side View

Human capital

The Group recognizes its employees as one of its most important assets. It strongly believes in hiring the right talent, nurturing and retaining these talented employees with competitive remuneration packages.

As of 31 December 2023, the Group had a total workforce of 920, more than triple the number of employees 10 years ago.



Corporate governance

The Group maintain a high standard of governance that is important for the Group's business in the long run

One of the Board functions is to provide independent and effective leadership to supervise the management of the Group's business and affairs, and to grow responsibly in a profitable and sustainable manner that is in the best interest of stakeholders. The Board also develops and reviews the Group's policies and practices on corporate governance including the Group's internal control and risk management framework.



Board diversity taking into account (including but not limited to) skills, knowledge, gender, age, cultural and educational background or professional experience



33% **Female** Directors

18.2% **Female** Employees (as of 31 Dec 2023)



50% Independent Board Members / Non Executive Directors

Audit Committee, Remuneration Committee and Nomination Committee are made up of **independent Board Members / Non Executive Directors**

Emissions

The Group's total emissions between 2021 to 2023 is summarized in the table below:

Emission	Breakdown	Target ^(a)	31 December 2023		31 December 2022		31 December 2021	
			Amount	Intensity ⁽¹⁾	Amount	Intensity ⁽¹⁾	Amount	Intensity ⁽¹⁾
Greenhouse Gas	Direct	Intensity < 20% by 2030	1.21	0.0020	1.33	0.0022	1.18	0.0023
	Indirect	Intensity < 20% by 2030	4,030.22	6.7105	4,313.92	7.1828	3,733.57	7.3483
Hazardous Waste	Industrial Wastage	Intensity < 20% by 2030	0.75	0.0012	0.21	0.0003	0.59	0.0012
Non-hazardous Waste	Solid Wastage	Intensity < 20% by 2030	148.39	0.2471	117.09	0.1950	108.39	0.2133

The Group total use of resources between 2021 to 2023 is summarized in the table below:

Resources	Target ^(a)	31 December 2023		31 December 2022		31 December 2021	
		Amount	Intensity ⁽¹⁾	Amount	Intensity ⁽¹⁾	Amount	Intensity ⁽¹⁾
Energy (electricity)	Intensity < 20% by 2030	6,040.32	10.0574	6,464.24	10.7632	5,576.63	10.9758
Water	Intensity < 20% by 2030	30,033.00	50.0061	30,293.00	50.4390	33,048.00	65.0441
Packing Materials	Intensity < 20% by 2030	148.39	0.2471	117.09	0.1950	108.39	0.2133
Papers	Intensity < 20% by 2030	1.37	0.0023	2.35	0.0039	2.43	0.0048

(a) Reduction target, setting 2020 as the base year

(1) Intensity of total use resources is calculated based on the amount of emission divided by the Group's revenue (MYR' million) in 2023, 2022 and 2021 respectively.

Compliance and monitoring of greenhouse gas emissions and hazardous waste

- A dedicated ESG committee from different functional groups reviews and monitors the environment management system at all factories of the Group.
- With ISO 9001:2015, the Group strictly comply with relevant environmental laws and regulations.

CSR Initiatives







Environmental, Social and Governance




Through our commitment to ESG, we actively work to support social well-being and uphold strong governance practices, ensuring a positive contribution to both society and our business.



Sustainability investments

Sustainable Development Goals (SDG)	The Group's View	The Group's Efforts and Programmes
 <p>Goal 3 Good health and well-being Ensure healthy lives and promote well-being for all at all ages.</p>	<p>The Group takes any potential risk to the health and safety on the workplace seriously. The Group promotes health, safety and well-being at the workplace.</p>	<p>Workplace health and safety: The Group keeps the work environment safe for the Group's employees. The Group has various sports recreational facility.</p>
 <p>Goal 4 Quality education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	<p>The Group views the progress, development and inclusion of employees and community through the support of education and skills development opportunities.</p>	<p>Staff training and development The Group invests in learning development for our employees to support the Group's future business strategy. The Group also invests in the education for community.</p>
 <p>Goal 8 Decent Work and Economic Growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>The Group is committed to make the company a vibrant workplace among its employees.</p>	<p>Fair Opportunity The Group offers equal employment opportunity without discrimination from career advancement. The Group has zero tolerance towards sexual harassment.</p>
 <p>Goal 9 Industry, Innovation and Infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation</p>	<p>The Group views innovation as priority for the Group's future solutions across different business segments.</p>	<p>Research & Development The Group sets KPIs to develop new solution and/or improve the productivity of existing solution so they could better serve the customer.</p>

Sustainability investments

SDG	The Group's View	The Group's Efforts and Programmes
 <p>Goal 10 Reduced Inequalities Reduce inequality within and among countries</p>	<p>The Group is committed to creating equal opportunity for employees.</p>	<p>Equal opportunities There are equal opportunities for employment and promotion for all staff at all levels. The Group does not discriminate and values significant contributions based on merits, expertise, experience and dedication.</p>
 <p>Goal 12 Responsible Consumption and Production Ensure sustainable consumption and production patterns</p>	<p>The Group monitors waste management practices as part of the Group's business operations.</p>	<p>Responsible waste management Electronic and packaging are sources of wastes generated across the Group's operations. Hazardous wastages are collected by a certified supplier regularly.</p>
 <p>Goal 13 Climate Action Take urgent action to combat climate change and its impacts</p>	<p>The Group is committed to minimising environmental footprint across the Group's business operations.</p>	<p>Reduction target The Group sets a reduction target as a whole by 20% by 2030, stating 2020 as the base year.</p>

Awards and recognition



Good Employership

Technological Advancements



Entrepreneurship



Strategic Partnerships & Outstanding Supplier



ESG



FTSE4Good

FTSE Russell confirms that Pentamaster Corporation Berhad has been independently assessed according to the FTSE4Good criteria, and has satisfied the requirements to become a constituent of the FTSE4Good Index Series. Created by the global index provider FTSE Russell, the FTSE4Good Index Series is designed to measure the performance of companies demonstrating strong Environmental, Social and Governance (ESG) practices. The FTSE4Good indices are used by a wide variety of market participants to create and assess responsible investment funds and other products

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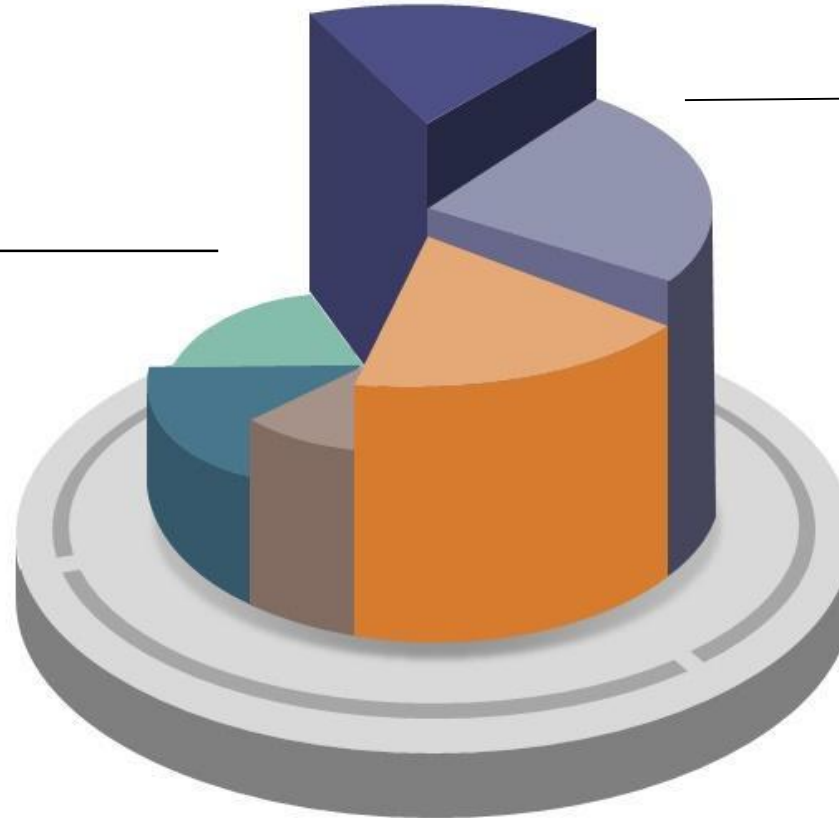
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Growth strategy

Product / Solution Diversification

- To develop deeper solutions into e-mobility with the electrification of the transportation and automotive industries
- To vertically and horizontally integrate and customized solutions for the electro-optical segment



Geographical Diversification

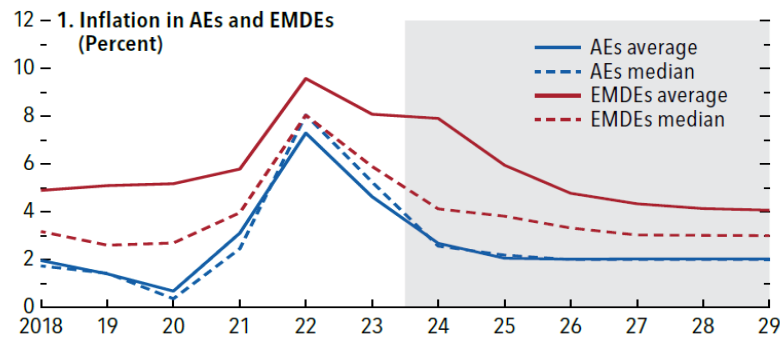
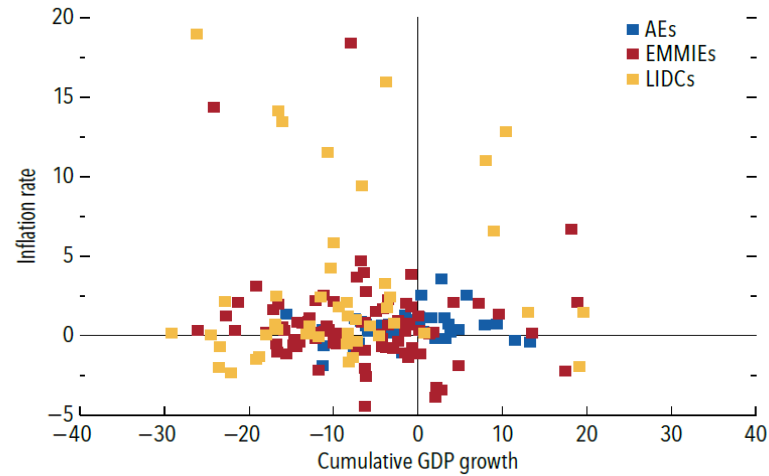
- To expand deeper into Greater China region
- To establish presence into key automotive markets (Japan / Germany)

Segmental Diversification

- To aggressively grow its medical division, leveraging on TP Concept's technical know-how for single use medical devices via Pentamaster MediQ
- To ride on Industry 4.0 and IoT adaptation with i-ARMS solution

Macroeconomic tailwinds

Figure 1.1. Growth and Inflation Revisions
(Percentage points, relative to January 2020 WEO Update)



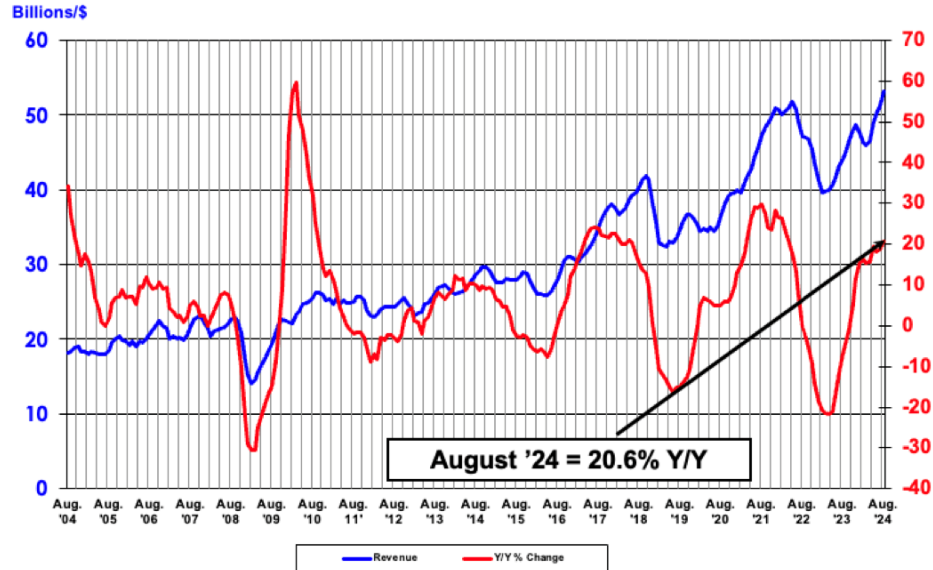
Source: IMF, World Economic Outlook, Oct 2024 ([link](#))

Policy Pivot, Rising Threats

- Global growth is expected to remain stable yet underwhelming. **The growth projection is set to remain at 3.2% for 2024 and 2025.** However, notable revision have taken place beneath the surface, with upgrades to the forecast of the US offsetting downgrades to those for other advanced economies in particular European countries. Disruption to production and shipping in commodities, especially oil, conflicts and civil unrest, and extreme weather events had led to downward revisions to the outlook of emerging markets and developing countries like the Middle East and Central Asia.
- These have been compensated for by the upgrades to the forecast for emerging Asia, **where surging demand for semiconductors and electronics, driven by significant investments in artificial intelligence, has bolstered growth.**
- **The latest forecast for global growth five years from now is at 3.1%; remains mediocre compared with the pre-pandemic average.** Persistent structural headwinds such as population aging and weak productivity are holding back potential growth in many countries.
- Global headline inflation is expected to fall from an annual average of 6.7% in 2023 to 5.8% in 2024 and 4.3% in 2025.
- **Risks to the global outlook are tilted towards the downside amid elevated policy uncertainty. Sudden eruptions in financial market volatility could tighten financial conditions and weigh on investment and growth,** especially in developing economies in which large near-term external financing needs may trigger capital outflows and debt distress. Further disruptions to the disinflation process, potentially triggered by new spikes in commodity prices amid persistent geopolitical tensions, could prevent central banks from easing monetary policy, which would pose significant challenges to fiscal policy and financial stability.
- Deeper or longer-than-expected contraction in China's property sector, especially if it leads to financial instability, could weaken consumer sentiment and generate negative global spillovers given China's large footprint in global trade.
- As cyclical imbalances in the global economy wane, near-term policy priorities should be carefully calibrated to ensure a smooth landing. Multilateral cooperation is needed more than ever to accelerate the green transition and to support debt restructuring efforts. Mitigating the risks of geoeconomic fragmentation and strengthening rules-based multilateral frameworks are essential to ensure that all economies can reap the benefits of future growth.

Industry growth drivers

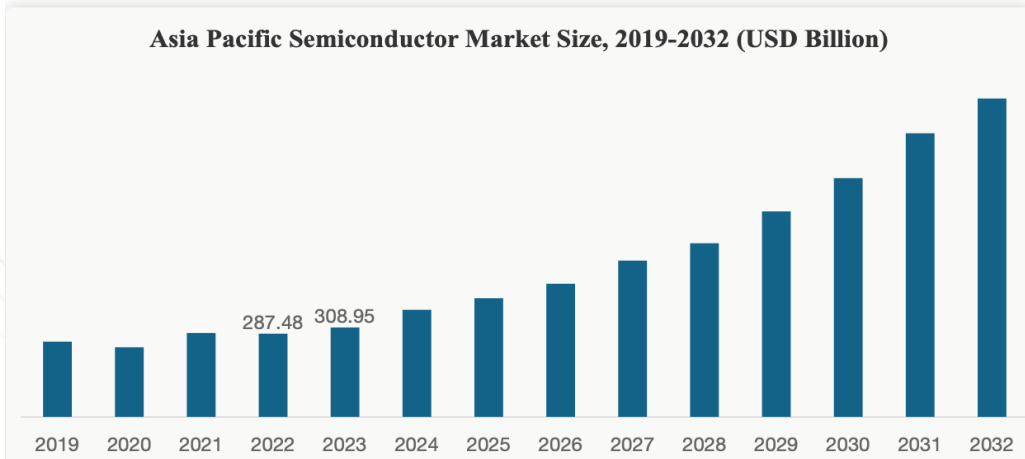
Worldwide Semiconductor Revenues Year-to-Year Percent Change



Global Semiconductor Sales Increase 20.6% Year-to-Year in August

- Global sales hit highest-ever recorded numbers in August; worldwide chip sales increase 3.5% month-to-month. Global semiconductor sales hit \$53.1 billion during the month of August 2024, an increase of 20.6% compared to August 2023 total of \$44.0 billion and 3.5% more than the July 2024 total of \$51.3 billion.
- Y-o-Y sales increased by the largest percentage since April 2022, driven by 43.9% y-o-y sales increase into the Americas, and M-o-M sales were up across all regions for the first time since October 2023. Regionally, Y-o-Y sales were up in the Americas (43.9%), China (19.2%), Asia Pacific/All Other (17.1%) and Japan (2.0%) but down in Europe (-9.0%).
- Several factors are driving the demand for semiconductors in 2024;
 - a) Artificial Intelligence - growing demand for AI chips and rapid adoption of HBM has driven the shift in semiconductor industry in 2nd half of 2024.
 - b) Digital Transformation Across Industries - the ongoing digital transformation sweeping various industries is driving a surge in semiconductor demand. Businesses are increasingly adopting automation and IoT technologies all of which rely heavily on advanced chips for functionality.
 - c) Emerging Technologies - Developing and adopting cutting-edge technologies like AI, 5G, and virtual reality (VR) require ever more sophisticated semiconductors. These create new markets for chipmakers and contribute to the overall semiconductor ecosystem.
 - d) Electric Vehicles and Autonomous Driving - the rise of EVs and autonomous driving technologies presents a significant opportunity for the semiconductor industry. EVs require specialized chips for power management, battery control and other critical functions.
 - e) Sustained Demand for Consumer Electronics - the core market for consumer electronics remain strong and these devices, coupled with ever-increasing processing power and functionality, drives semiconductor sales.

Industry growth drivers



Spring 2024	Amounts in US\$M			Year on Year Growth in %		
	2023	2024	2025	2023	2024	2025
Americas	134,377	168,062	192,941	-4.8	25.1	14.8
Europe	55,763	56,038	60,901	3.5	0.5	8.7
Japan	46,751	46,254	50,578	-2.9	-1.1	9.3
Asia Pacific	289,994	340,877	382,961	-12.4	17.5	12.3
Total World - \$M	526,885	611,231	687,380	-8.2	16.0	12.5
Discrete Semiconductors	35,530	32,773	35,310	4.5	-7.8	7.7
Optoelectronics	43,184	42,736	44,232	-1.6	-1.0	3.5
Sensors	19,730	18,265	19,414	-9.4	-7.4	6.3
Integrated Circuits	428,442	517,457	588,425	-9.7	20.8	13.7
Analog	81,225	79,058	84,344	-8.7	-2.7	6.7
Micro	76,340	77,590	81,611	-3.5	1.6	5.2
Logic	178,589	197,656	218,189	1.1	10.7	10.4
Memory	92,288	163,153	204,281	-28.9	76.8	25.2
Total Products - \$M	526,885	611,231	687,380	-8.2	16.0	12.5

Global Semiconductor Industry Outlook Worth \$2062.6B by 2032

- The global semiconductor market size was valued at USD 611.35 billion in 2023 and is projected to grow from USD 681.05 billion in 2024 to USD 2062.59 billion by 2032, exhibiting a CAGR of 14.9% for the period of 2024- 20232. The Asia Pacific region held a market share of 50.53% in 2023 and the US semiconductor market is expected to grow significantly, reaching an estimated value of \$258.3 billion by 2032, driven by growing product use in consumer electronics and IC integration.
- Global semiconductor revenue is projected to grow 14% in 2025 to total \$717 billion. In 2024, the market is forecast to grow 19% and reach \$630 billion. The Graphic Processing Units (GPUs) and memory business will support the revenue growth. In 2025, the global memory revenue market is forecast to record a 20.5% growth, reaching \$196.3 billion. It is anticipated that NAND flash sales will reach \$75.5 billion in 2025, up 12% from 2024, due to softer pricing landscape and lower supply.
- Fueled largely by Intel’s establishment of its foundry business and China’s capacity expansion, the foundry segment is projected to increase capacity 11% in 2024 and 10% in 2025, reaching 12.7million wafers per month (wpm) by 2026. Rapid adoption of HBM to meet rising demand for faster processors are required by AI servers is powering unprecedented capacity growth in the memory sector.
- Malaysia’s semiconductors industry, a crucial component of the global supply network, now stands at a pivotal moment with an opportunity to redefine its trajectory and strengthen its position in the supply chain. The electrical and electronics sector accounted for some 5.8% of country’s GDP, Malaysia is recognized as the sixth largest exporters of semiconductors, commanding 13% of the global market for semiconductor packaging, assembly and testing while driving 40% of the nations export output.

Source: Gartner, Gartner Forecast Worldwide Semiconductor Revenue, Oct 2024 ([link](#))
 The Edge, Securing Malaysia’s Position in the Global Semiconductor Supply Chain, Sept 2024 ([link](#))

Market share and competitive advantages

Unique competitive advantages

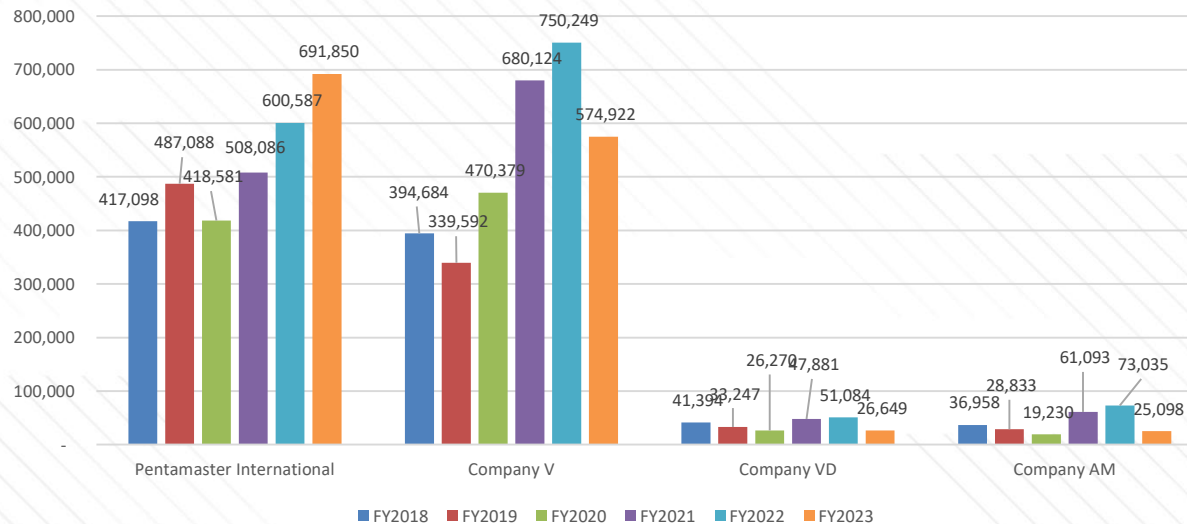
- Our Group is in a position to customise its non-memory ATE and test handlers as part of its FAS business segment. Our diverse engineering skills in robotics, mechanical engineering, vision inspection, control optimisation, optics, software automation and firmware programming are unique selling points of our Group.
- Our Group’s management team has, on average, over 20 years of working experience in the semiconductor relevant industry. Their knowledge and understanding of the manufacturing processes, distribution channels and sound professional relationships with stakeholders in the value chain are factors that have been and will be crucial to our Group’s success in the ATE and FAS markets.
- Our Group’s customer base mainly includes multinational corporations that have been depending on us for the development of reliable testing equipment and automation solutions. Our Group has a good reputation domestically and abroad, having been listed for 5 years (2017, 2018, 2019, 2020, 2024) in “Forbes Best Under a Billion” list of companies that are publicly listed in APAC.

Market share

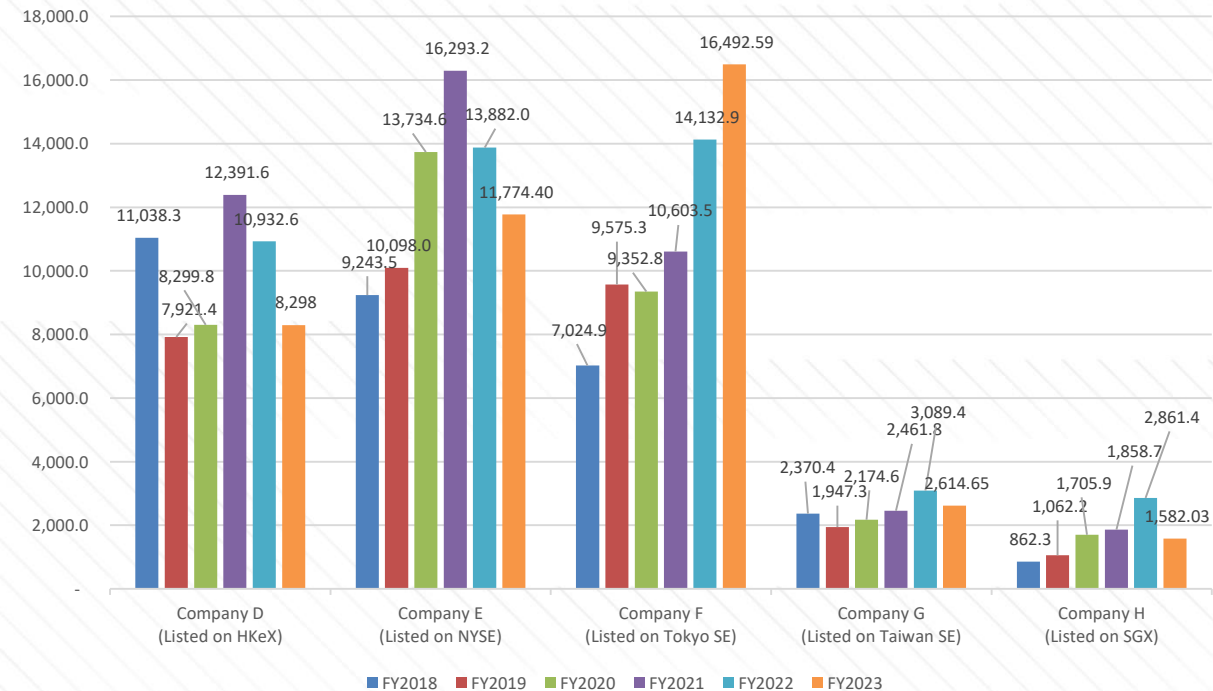
**The profiles of the back-end ATE competitors are based on each company’s financial reports. A fair comparison between our Group and our competitors would require revenue information on just the back-end test equipment, which is not readily available.*

Additionally our Group and some of our competitors are also involved other business segments

Local Market Share - Revenue (MYR 'Thousand)



Global Market Share - Revenue (MYR 'Million)



New business

Pentamaster Wafer / Die Level WBG Power Semiconductor Equipment Solutions



Trooper-BI 1
Single Chuck System
Up to 1800 die parallelism HTGB & HTRB



Trooper-BI 8-G
Octa Chucks Wafer-Level Burn-in System Up to 32,000
die parallelism HTGB



An All-in-one die-level test handler for identifying known-good-dies (KGD) before IC packaging.

- Dicing Ring & Waffle Pack / Blister Tape Input & Output Configurations
- All-in-One Test, Vision & Handling Solution
- Complete Test Coverage DC, AC and UIS
- High-Pressure Electrical Arcing Suppression Control
- Built-in High-Powered Active Thermal Control System



Trooper-BI 2, 4, 6
Multi Chucks Wafer-Level Burn-in System Up to 10,800
die parallelism HTGB & HTRB

- Fully Automated System
- Single to multi-wafers parallel burn-in
- Up to 200°C wafer chuck temperature
- HTRB stress up to 3,000V
- HTRB and HTGB 2in1 probe card
- Pre and Post burn-in test with Vth measurement
- Online IDSS and IGSS monitoring during burn-in
- Accurate leakage measurement down to <5nA



Business outlook

In the near term, the global macroeconomic environment is expected to remain murky and uncertain as the pace of economic recovery continues to fall short of expectations with heightened geopolitical risk. The prevailing weakness at the macro front is placing significant constraints on the Group's ability to drive revenue growth. Weak demand across key segments, particularly in the automotive sector, where capital investments are sensitive to economic cycles and shifting government policies has prolonged the expected structural growth trend, leading to slow demand up-tick for the Group's solution offerings. Additionally, aggressive pricing war in domestic China market continues to challenge margin preservation and expansion strategies for the Group's ATE segment. Given these conditions, the Group expects sluggish demand to persist across its key segments for the remainder of 2024 and anticipates closing the financial year with flat revenue momentum.

Despite these short-term headwinds, the Group remains committed to addressing the challenges in the ATE segment while continuing to leverage growth opportunities within the FAS segment. Key initiatives are being undertaken to streamline operations and improve efficiencies which are critical steps for enhancing margins in future reporting periods. Simultaneously, the Group is working to strengthen its presence in high-growth industries and pursue long-term strategic initiatives that will position it strategically in the ever-evolving technology market, particularly given the current high demand for high-performance, high-bandwidth, and low-latency chipset used in Artificial Intelligence, data centers, high-performance computing and advanced networking. With a diversified product portfolio aligned with global trends, the Group aims to mitigate risks from sector-specific downturns while capturing emerging growth opportunities in line with industry trends. As it is, the Group's new campus 3 facility, covering 720,000 sq.ft. mainly to support the growing needs of the FAS and medical devices segments, is nearing completion and expected to be operational by the first quarter of 2025.

As the Group navigates both opportunities and challenges, it remains focused on staying agile, innovative and customer centric. The Group is also honoured to be listed for the fifth time in Forbes' "Asia's Best Under a Billion" in August 2024, reflecting its strong track record.

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Growth Drivers

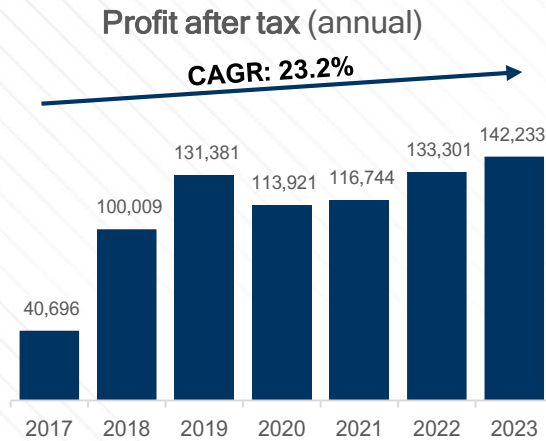
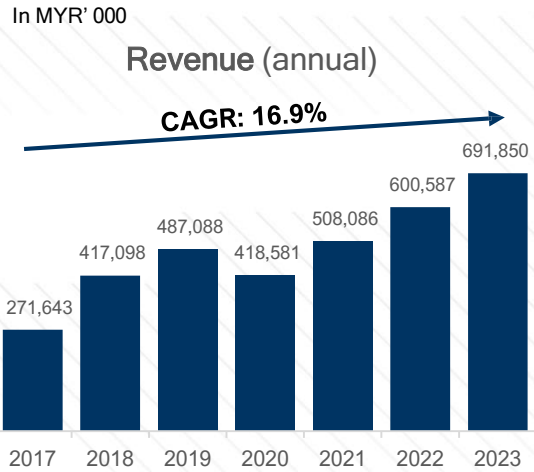
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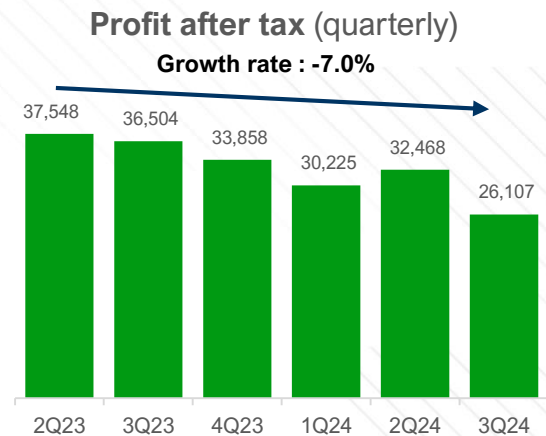
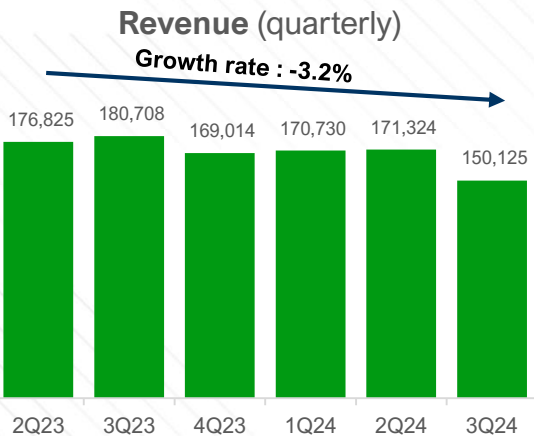
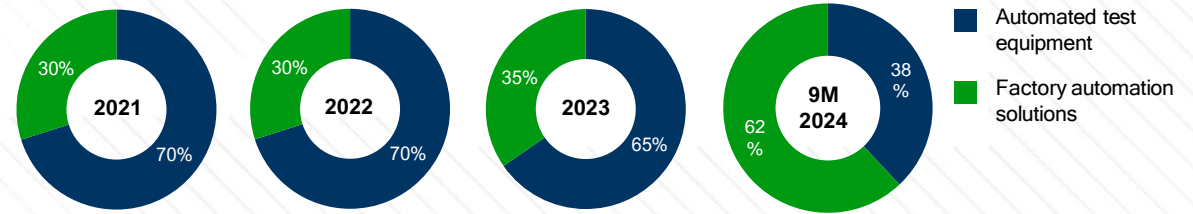
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Financial highlights

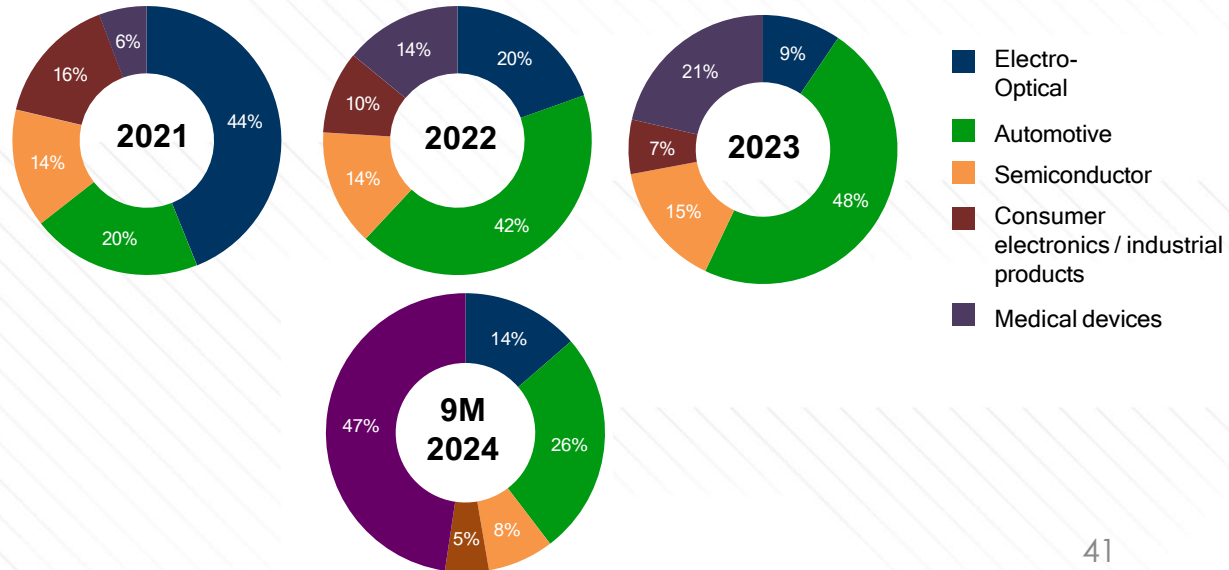
The Group continuously achieved record-breaking revenue and PAT since 2017, with CAGR of revenue >16% and PAT >20%, from FY 2017 to FY 2023. The solid result generated arises from the Group's consistent focus on its business strategies with its key strengths in designing and developing holistic customized automation and test solutions backed by a dedicated team of management team and employees.



Revenue by segment



Revenue by customer



Income statement summary

Income statement					
in thousands	2019	2020	2021	2022	2023
Revenue	487,088	418,581	508,086	600,587	691,850
Cost of sales	(308,034)	(278,188)	(353,172)	(415,135)	(482,206)
Gross profit	179,054	140,393	154,914	185,452	209,644
<i>Gross profit margin</i>	<i>36.8%</i>	<i>33.5%</i>	<i>30.5%</i>	<i>30.9%</i>	<i>30.3%</i>
Other income	14,332	10,455	15,187	11,402	17,917
Administrative expenses	(45,874)	(26,871)	(37,226)	(50,322)	(75,067)
Distribution costs	(7,201)	(7,808)	(10,623)	(9,965)	(9,254)
Other operating expenses	(211)	(45)	(101)	(86)	(174)
Operating profit	140,100	116,124	122,151	136,481	143,066
<i>Operating margin</i>	<i>28.8%</i>	<i>27.7%</i>	<i>24.0%</i>	<i>22.7%</i>	<i>20.7%</i>
Finance costs	(186)	(117)	(92)	(87)	-
Share of results of associates	(734)	(1,203)	(1,485)	(1,636)	41
Profit before tax	139,180	114,804	120,574	134,758	143,107
<i>PBT margin</i>	<i>28.6%</i>	<i>27.4%</i>	<i>23.7%</i>	<i>22.4%</i>	<i>20.7%</i>
Taxation	(7,799)	(883)	(3,830)	(1,457)	(874)
<i>Effective tax rate</i>	<i>5.6%</i>	<i>0.8%</i>	<i>3.2%</i>	<i>1.1%</i>	<i>0.6%</i>
Profit after tax	131,381	113,921	116,744	133,301	142,233
<i>PAT margin</i>	<i>27.0%</i>	<i>27.2%</i>	<i>23.0%</i>	<i>22.2%</i>	<i>20.6%</i>

Important ratios					
	2019	2020	2021	2022	2023
Net profit margin (adjusted) ¹	27.0%	27.2%	23.0%	22.2%	20.6%
Return on equity	29.9%	21.4%	18.3%	18.1%	16.8%
Return on total assets	22.7%	17.3%	14.1%	13.3%	12.3%
Current ratio	3.4x	4.1x	3.3x	3.0x	2.7x
Quick ratio	2.9x	3.8x	2.9x	2.3x	2.0x
Inventory turnover (days)	117.1	61.2	54.7	106.8	136.8
Debtors' turnover (days)	41.4	87.9	109.2	122.1	114.5
Creditors' turnover (days)	41.4	61.8	72.5	87.5	90.7

Note:

(1) Net profit margin (adjusted) is calculated based on the profit for the year excluding non-recurring listing expenses, divided by revenue during the year.

Income statement summary (by Quarters)

Income statement					
in thousands	Q32023	Q42023	Q12024	Q22024	Q32024
Revenue	180,708	169,014	170,730	171,324	150,125
Cost of sales	(125,553)	(115,046)	(120,868)	(123,265)	(106,879)
Gross profit	55,155	53,968	49,862	48,059	43,246
<i>Gross profit margin</i>	<i>30.5%</i>	<i>31.9%</i>	<i>29.2%</i>	<i>28.1%</i>	<i>28.8%</i>
Other income	5,596	8,709	2,828	2,607	8,785
Administrative expenses	(19,876)	(28,360)	(19,092)	(15,766)	(24,002)
Distribution costs	(2,868)	(2,032)	(2,597)	(1,898)	(1,639)
Other operating expenses	(19)	(54)	(66)	(59)	(43)
Operating profit	37,988	32,231	30,935	32,943	26,347
<i>Operating margin</i>	<i>21.0%</i>	<i>19.1%</i>	<i>18.1%</i>	<i>19.2%</i>	<i>17.6%</i>
Finance costs	-	-	-	-	-
Share of results of associates	(644)	(42)	(222)	(30)	(58)
Profit before tax	37,344	32,189	30,713	32,913	26,289
<i>PBT margin</i>	<i>20.7%</i>	<i>19.0%</i>	<i>18.0%</i>	<i>19.2%</i>	<i>17.5%</i>
(Taxation) / Tax Credit	(840)	1,669	(488)	(445)	(182)
<i>Effective tax rate</i>	<i>2.2%</i>	<i>(5.2%)</i>	<i>1.6%</i>	<i>1.4%</i>	<i>0.7%</i>
Profit after tax	36,504	33,858	30,225	32,468	26,107
<i>PAT margin</i>	<i>20.2%</i>	<i>20.0%</i>	<i>17.7%</i>	<i>19.0%</i>	<i>17.4%</i>

Important ratios					
	Q32023	Q42023	Q12024	Q22024	Q32024
Return on equity	17.8%	16.0%	13.7%	14.7%	11.5%
Return on total assets	12.5%	11.7%	10.6%	11.7%	9.2%
Current ratio	2.5	2.7	3.0	3.1	3.1
Quick ratio	2.0	2.0	2.3	2.6	2.6
Inventory turnover (days)	132.1	151.2	121.4	79.9	84.9
Debtors' turnover (days)	104.3	106.0	110.3	102.8	99.0
Creditors' turnover (days)	102.5	93.6	78.0	62.0	96.4

Balance sheet summary

Balance Sheet					
in thousands	2019	2020	2021	2022	2023
Cash and cash equivalents	303,955	300,280	349,959	328,628	395,797
Inventories	59,458	33,836	72,006	170,934	190,608
Trade receivables	61,692	139,896	164,043	237,926	196,289
Trade payables	31,478	62,671	77,553	121,528	118,022
Total assets	578,357	659,276	825,080	1,001,661	1,159,041
Total liabilities	139,434	125,731	188,337	264,948	311,069

Balance Sheet					
in thousands	Q32023	Q42023	Q12024	Q22024	Q32024
Cash and cash equivalents	430,724	395,797	351,079	350,687	366,591
Inventories	181,774	190,608	160,744	107,922	99,458
Trade receivables	206,469	196,289	206,332	192,958	162,914
Trade payables	141,091	118,022	103,302	83,741	112,919
Total assets	1,164,482	1,159,041	1,140,444	1,113,191	1,139,515
Total liabilities	346,406	311,069	260,348	227,982	229,731

Important ratios					
	2019	2020	2021	2022	2023
Gearing ratio	0.8%	0.6%	0.4%	0.02%	0.0%
Debt-to-equity ratio	0.8%	0.6%	0.4%	0.0%	0.0%

Important ratios					
	Q32023	Q42023	Q12024	Q22024	Q32024
Gearing ratio	0.0%	0.0%	0.0%	0.0%	0.0%
Debt-to-equity ratio	0.0%	0.0%	0.0%	0.0%	0.0%

Earnings guidance



- The Company does not provide any sales and earnings guidance
- The Company's internal target - double-digit growth in sales and earnings
- To achieve MYR1 billion in sales by FY 2025

THANK YOU Think Automation ● Think PENTAMASTER 

Investor Relations Team

Gan Pei Joo, Executive Director and CFO (pjgan@pentamaster.com.my)

Leng Kean Yong, Non-executive Director (yang@pentamaster.com.my)

investor.relation@pentamaster.com.my / pentamaster@icaasia.com