

## Mid/Long-Term Management Policy

### Grand Design & Mid-Term Plan FY2018~FY2020

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## Objectives of Grand Design and Mid-Term Plan

Amidst the digital transformation driven by semiconductor evolution, Advantest's business environment is dramatically changing.

Our **Grand Design (10 years)** and **Mid-Term Plan (FY2018 – FY2020)** are designed to create customer value and to enhance corporate value.



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### ➤ Objectives of Grand Design and Mid-Term Plan

- New technologies such as AI, the IoT, 5G communication, self-driving cars and other innovations are gaining ground every day.
- I am convinced that the progress of this digital transformation, which gives semiconductors a major role to play in solving social issues, is dramatically changing Advantest's business environment.
- We have been discussing our response to these changes for the past year, since our new management structure was established in July 2017. The result of our discussions is our new Grand Design (10 years) and Mid-Term Plan (FY2018 – FY2020), formulated to clarify our mid-term management policies and goals, and to create customer value and enhance corporate value.

## Agenda

- 1 Business Environment**
- 2 Changes in the Tester Market**
- 3 Grand Design**
- 4 Mid-Term Plan (FY2018 - FY2020)**

**1**

## **Business Environment**

Data explosion sets the stage for a new era  
in the semiconductor market

## Megatrends

- ◆ Population Growth
- ◆ Aging population
- ◆ Urbanization
- ◆ Growth of developing countries

- Energy
- Water
- Food
- Environment
- Climate change

◆ Smart

◆ Global

● Security

**The Promise of the Digital Transformation:  
Semiconductors Can Solve Diverse Social Problems**

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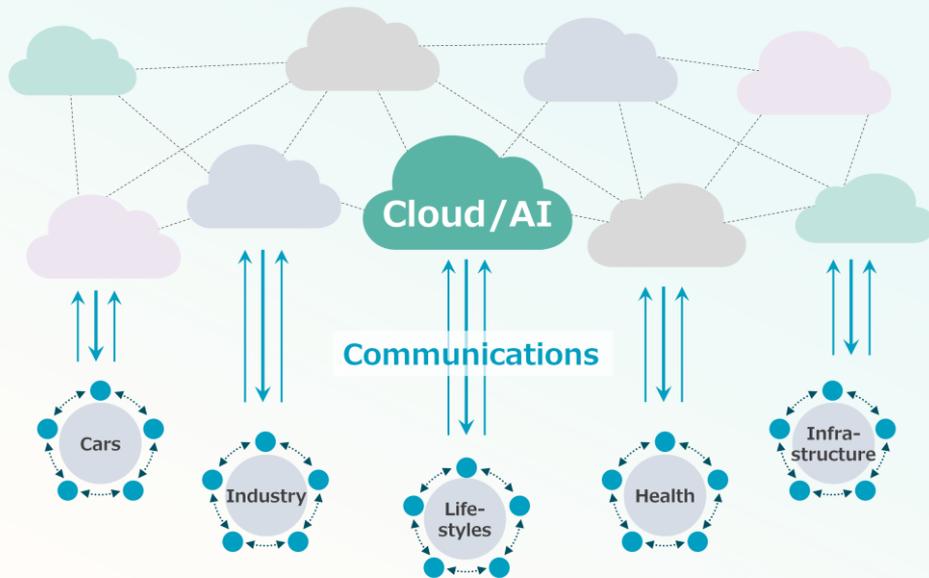
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### ➤ Megatrends

- We will first briefly discuss social megatrends.
- Expectations of population growth and increasing urbanization invoke issues of energy, water, and food security, as well as environmental challenges.
- Digitalization and globalization have progressed rapidly, bringing their own security problems, which threaten to be considerable.
- The digital transformation, which purports to be able to solve or mitigate these issues by deploying technology, is proceeding apace.

## The Promise of the Digital Transformation: Data Explosion



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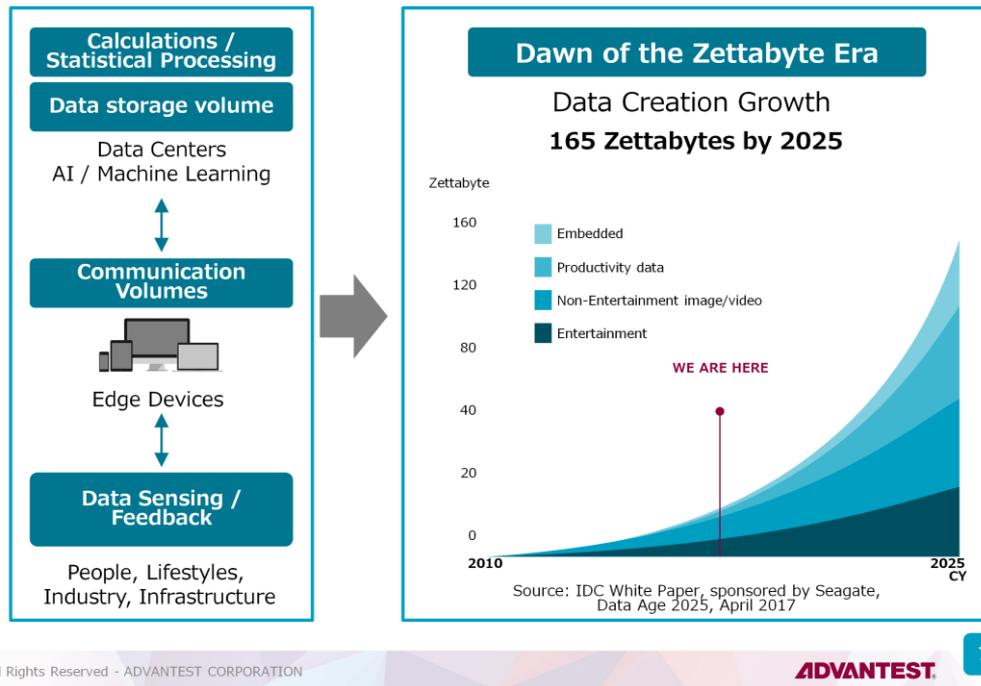
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### ➤ The digital transformation

- The foundation of the digital revolution is big data.
- The events of our daily lives are in the process of being converted into data.
- Data measured in various lifestyle and industrial contexts, including agriculture, is connecting various sites in networks that grow thicker all the time.
- The amount of data thus generated is increasing so dramatically that it may be termed a "data explosion."

## Data Explosion: A new era in the semiconductor market



- Explosive data growth sets the stage for a new era in the semiconductor market
- It is estimated that the amount of data generated will increase at an accelerating rate in the future, reaching 40 ZB\* in 2020 and 165 ZB in 2025.
- This "data explosion" opens new vistas for the semiconductor industry.
- Data sensing, edge devices, communications, data storage, computing, and statistically processing or computing these data—all these tasks are done using semiconductors. Semiconductors play a leading role.

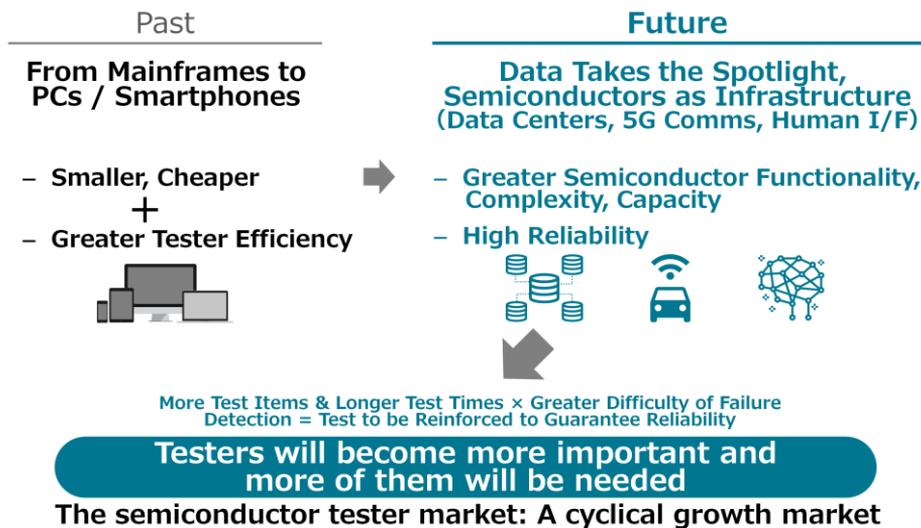
\* A zettabyte is  $10^{21}$  bytes (one sextillion bytes). GB (Giga bytes) , TB (Tera bytes), PB (Peta bytes), EB (Exa bytes), ZB (Zeta bytes) ...

# 2

## **Changes in the Tester Market** Evolving Together with the Semiconductor Market

## Changes in the Semiconductor Market Inducing Changes in the Tester Business Environment

### • Changes in the Semiconductor Market



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- Changes in the Semiconductor Market Inducing Changes in the Tester Business Environment
- So, how do the rapid increase in semiconductor production volumes, and the changes in semiconductors themselves, affect the tester market?
- Hitherto, the role of leading semiconductor demand driver has shifted in an orderly fashion from mainframes to PCs and smartphones, following linear trends of miniaturization and price reduction.
- In response, the tester industry has delivered more efficient products and cost reductions that stay ahead of the semiconductor market's requirements.
- However, after the global financial crisis, growth in the semiconductor market slowed, and the tester market seemed to come up against the limits of its growth potential.
- We think that trend is going to change.
- The mantle of demand driver is in the process of shifting from hardware terminals to data itself. As data becomes a form of infrastructure, higher and higher standards of reliability are required by the data centers, cars, and people who depend on it ... and higher reliability is also required of the semiconductors which, crucially, process it.
- Ensuring high reliability means testing, and furthermore, stringent testing. Thus test times have increased.
- In addition, semiconductors are becoming more sophisticated and more complex, with larger capacity. All of these factors lead to more test items, longer test times, and reinforcement of test processes.
- Due to the data explosion, the importance of testers will increase and demand for them will expand.
- These developments are transforming the semiconductor tester market into one which is cyclical, of course, but will grow in the mid-term: a cyclical growth market.
- These are the premises informing our Grand Design.

# 3

## **Grand Design** Adding Customer Value in an Evolving Semiconductor Value Chain

Note: The descriptions of tester market size that follow are based on estimates of the market value of the total semiconductor test equipment market, including test equipment that Advantest currently does not provide. These market size estimates use calendar years. Exchange rate assumptions for these market forecasts and our own future performance estimates are 1 USD = 110 yen and 1 euro = 135 yen.

## Corporate Mission

### ***Enabling the Leading-Edge Technology***

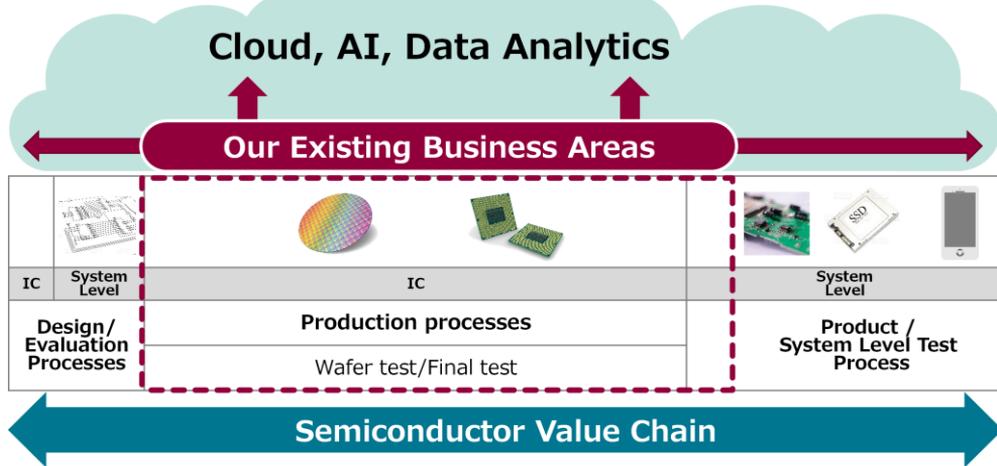
Our management philosophy of “enabling leading edge technology” drives continuous improvement in our mission to provide technologies, products and services that satisfy our customers around the world, while contributing to human flourishing through our advanced technologies.

- Corporate mission
- Our management philosophy is “Enabling the Leading-Edge Technology.”
- Formulated to help us embody this mission in the era of the data explosion, in step with customers’ leading-edge technological requirements, our Grand Design summarizes our high-level roadmap for the next ten years.

## Grand Design: Vision Statement

### Adding Customer Value in an Evolving Semiconductor Value Chain

- Advantest will further contribute to the semiconductor industry by enriching, expanding, and integrating our test and measurement solutions throughout the entire semiconductor value chain



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### ➤ Vision Statement

- The vision statement of our Grand Design is “Adding Customer Value in an Evolving Semiconductor Value Chain.”
- The digital revolution will cause the semiconductor value chain to evolve and expand further.
- Currently, our business domain is testers and test environments for the semiconductor production test market. We hope to expand our business by expanding our business domain to include related markets such as design and evaluation processes, and product and system level processes, which are conducted before and after production test, respectively. In addition to the front end and back end, we believe we can expand our business opportunities to the cloud by incorporating technology in areas such as software and data analytics.

## Grand Design: Commitments

- 1. Be the No.1 provider of test & measurement solutions**
- 2. Partner with leading-edge customers**
- 3. Develop leading-edge technologies**
- 4. Attract and retain the best talent in the industry**
- 5. Learning organization**
- 6. Improve financial KPI and increase corporate value**

### ➤ Grand Design: Commitments

- Our vision hinges on 6 commitments which enable us to create customer value.
  1. Become the No.1 provider of test and measurement solutions
  2. Partner with leading-edge customers as their best partners.
  3. Further improve the advanced technologies which only Advantest can offer.
  4. Foster the industry's best talent and become a company that attracts the best and brightest
  5. Maintain an organizational commitment to learning to respond positively to change
  6. Improve financial KPI and increase corporate value

## Grand Design: Strategies

1

**Reinforce Core Businesses, Invest Strategically**

2

**Seek Operational Excellence**

3

**Explore Value to Reach a Higher Level**

4

**Pioneer New Business Fields**

### ➤ Grand Design: Strategies

1. Reinforce core businesses and invest strategically. Our core businesses are semiconductor test and peripheral businesses. We will focus on investment to expand our portfolio of test solutions. The semiconductor test market is entering a new growth phase, representing an opportunity for significant expansion. Our strategic investment will support this alignment of market trends and Advantest's strengths.
2. Seek operational excellence. We will seek to improve the efficiency and quality of our R&D, production, sales, support, and management processes.
3. Explore value to reach a higher level. In the mid- to long-term perspective, this exploration will begin from three key jumping-off points:
  - Expansion of test solutions
  - Expansion of solutions by adopting new technologies such as AI and data analysis
  - A service business model. The concept of "test as a service" does not really exist yet, but we hope to invent it
4. Pioneer new business fields. We will continue to develop new businesses using our technologies.

## Grand Design: Sales Scenario

- Improve market share by 1% a year by focusing on growth areas and strengthening partnerships with customers
- Develop new business around our core business area

| FY2017 (actual) |       | Conservative Case              |       | Base Scenario                  |       |
|-----------------|-------|--------------------------------|-------|--------------------------------|-------|
|                 | ¥1B   | Tester market growth rate = 0% |       | Tester market growth rate = 4% |       |
|                 |       | FY2027 (Forecast)              | ¥1B   | FY2027 (Forecast)              | ¥1B   |
| Tester Market   | 363.0 | Tester Market                  | 380.0 | Tester Market                  | 580.0 |
| Advantest Share | 36%   | Advantest Share                | 46%   | Advantest Share                | 46%   |
|                 |       | Existing Business              | 240.0 | Existing Business              | 340.0 |
|                 |       | New Business                   | 60.0  | New Business                   | 60.0  |
| Sales           | 207.2 | Sales                          | 300.0 | Sales                          | 400.0 |

• The same pace as the semiconductor market growth

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### ➤ Grand Design: Sales Scenario

- In the future, we are confident we can increase our share of the tester market by focusing on growth fields and strengthening partnerships with customers. We aim to expand our share by 1 point a year.
- In addition, in terms of new businesses, we will aim to grow sales in areas including segments peripheral to our core business. This concept includes M&A to acquire solutions we do not currently have.
- We also assume that the size of the semiconductor tester market will grow by 4% per year in the future. Putting all these factors together, we believe we can reach net sales of 400 billion yen.
- The figure of 4% assumes that semiconductors will grow over the next 10 years as forecast by various market surveys. The semiconductor market does fluctuate, and a while ago there was a view that growth had stopped, but as we discussed earlier, Advantest believes that semiconductors can still grow. If testers can grow at the same pace of 4% per year, we believe that 400 billion yen in sales after 10 years would be a reasonable metric.
- As a risk scenario, we also assume a case where the tester market does not grow, although semiconductors grow. Even under this scenario, we think we can aim for sales of 300 billion yen in 10 years.

## Cost / Profit Structure Model

|                         | FY2017<br>(Actual) |   | Cost structure<br>model @ ¥300B |
|-------------------------|--------------------|---|---------------------------------|
| Sales                   | ¥207.2B            |   | ¥300.0B                         |
| Cost of Sales           | 49%                | → | 46%                             |
| SG&A as % of Sales      | 40%                |   | 32%                             |
| (of which R&D expenses) | 16%                |   | 13%                             |
| Operating Margin        | 11%                |   | 22%                             |

### Balancing growth investment with cost structure

- Consecutive R&D investment
- Improve cost of sales ratio
- Enhance production system flexibility to respond quickly to demand fluctuations
- Improve SG&A efficiency

### ➤ Cost / Profit Structure Model

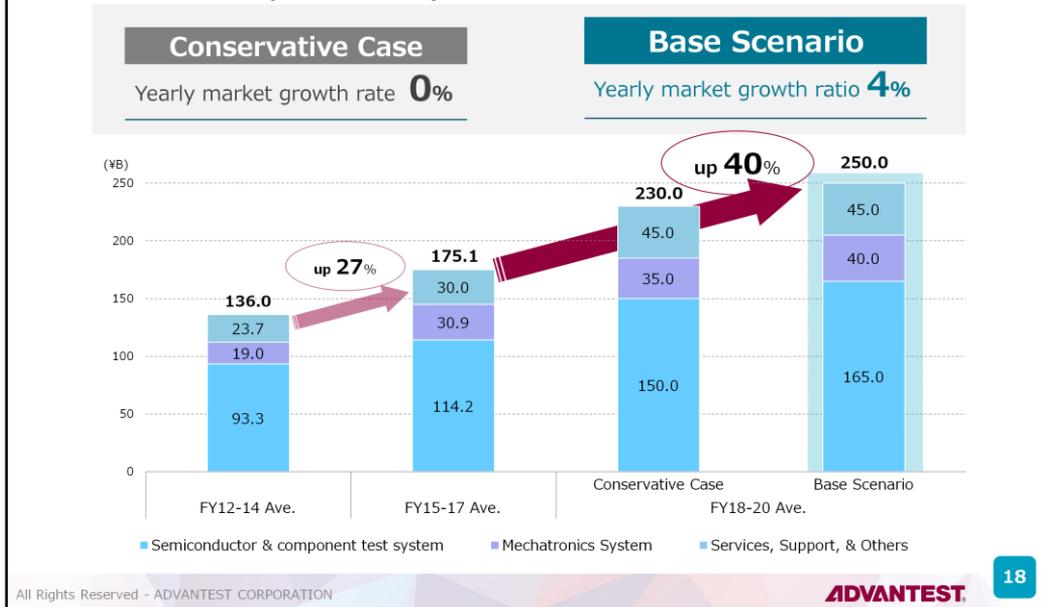
- What will our cost / profit structure model be like at that time?
- In fiscal 2017, we posted 207.2 billion yen in sales and an operating margin of 11%.
- With sales at the 300 billion yen level, our operating margin will exceed 20%. Although the actual amount of SG&A expenses will increase, we think we can suppress it as a ratio.
- This is a long-term grand design forecasting the next ten years. Our mid-term management plan details concrete plans for the next three years starting in 2018.



**Mid-Term Plan  
(FY2018 - FY2020)**

## Mid-Term Plan Objectives: Sales by Business

- 2018 tester market size; 400 billion yen
- Focus on growth areas, strengthen partnerships with customers, improve market share by 1% annually



### ➤ Mid-Term Plan Objectives: Sales by Business

- Our mid-term plan incorporates our Grand Design strategy into an action agenda for the first three years.
- It is inevitable that we would see ups and downs by fiscal year in the semiconductor manufacturing equipment market. Accounting for such fluctuations, this graph shows the average for the three years from 2012 to 2014, and the three years from 2015 to 2017. Under our base scenario of 4% annual growth mentioned above, we would see average annual sales of 250 billion yen, and under the conservative case, 230 billion yen.
- By business, compared to the average of 2015 to 2017, we aim to increase sales by 50 billion yen in our semiconductor and component test system business, by 10 billion yen in our mechatronics business, and by 15 billion yen in services and others.

## Business Strategy Highlights

- Provide outstanding solutions for the next generation of test needs

### Semiconductor & Component Test Systems

- Wave of next human/machine I/F

- ✓ 5G
- ✓ HPC
- ✓ ADAS
- ✓ IoT/Smart devices
- ✓ Cloud/AI
- ✓ Storage
- ✓ Mobile
- ✓ VR/AR

- Semiconductor process miniaturization:
  - Greater semiconductor
  - Capacity complexity
- Semiconductor as infrastructure:
  - Higher reliability

### Mechatronics

- Complete test cell solutions
- Thermal control support
- Support for high-reliability test

### Service & Others (incl. new businesses)

- Support evolving customer needs
  - Factory automation
  - Traceability
- SSD platform solutions
- M&A, alliances
- Open innovation

### ➤ Business Strategy Highlights

- As a business strategy, we aim to expand our business by offering outstanding solutions in each business segment.

In our semiconductor and component test system business, there are opportunities in 5G, HPC, ADAS, IoT / smart devices, cloud / AI, storage, mobile, and VR / AR. We have coverage of all these sectors.

- In our mechatronics business, we will continue to explore further integrated solutions leveraging our dominant market share in the tester market.
- In our services business, we will focus on M&A and alliances to our expand test and measurement solutions across the semiconductor value chain and create new businesses.

## Our Advantages in the Semiconductor Tester Market

### Global **No.1** Product Portfolio

- Highly scalable modular architecture platforms
- Dominant position in growth areas:  
DRAM, NVM, high performance computing, networks

### Global **No.1** Customer Base

- Unparalleled customer base nurtured over many years
- Greater presence in the growing Asia market

### Total Test Solutions Including Peripherals, Global Support

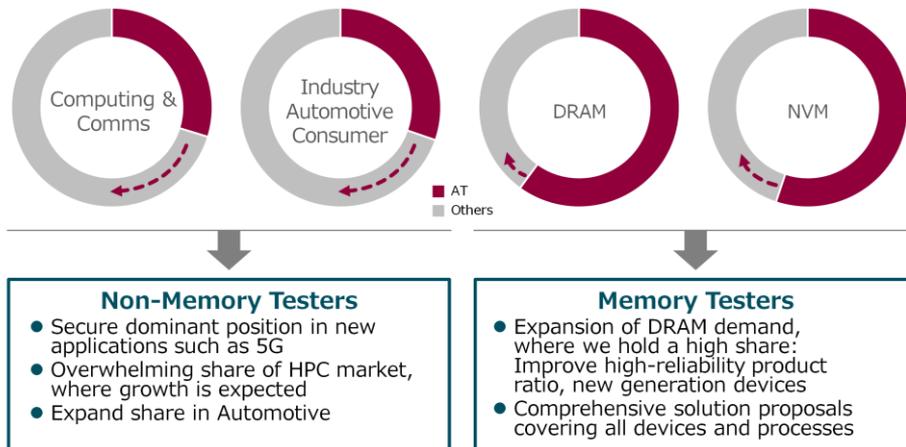
- We offer complete test environments including device I/F peripherals

### ➤ Our Advantages in the Semiconductor Tester Market

- Global No. 1 product portfolio  
Advantest already holds a dominant position in production test of DRAM and high-speed devices such as computing devices, communication processors, etc., where tester vendor technical strength is most decisive.
- Global No. 1 customer base  
We have an excellent customer base covering the IDM, fabless, foundry, OSAT and semiconductor market as a whole which we have developed and nurtured for many years. We cover all area of memory and non-memory.
- In particular, we have a greater presence in the growing Asia market including Korea, Taiwan and China.
- Our total test solutions, including test peripherals, and global support capabilities are additional strengths underpinning Advantest's market position.

## Sustaining & Reinforcing Our Competitive Advantages

### CY2017 Market Share Estimates by Application and Future Trend



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### ➤ Sustaining & Reinforcing Our Competitive Advantages

- Our market share in non-memory testers is 30% to 40%. Thus we believe that we can gain a much larger share of this market.
- We will ride the waves of next-generation technology, especially 5G, which is scheduled to ramp up in the next 1-2 years, to strengthen our customer partnerships and consolidate our dominant position.
- We have an overwhelming share in high-performance computing, which is expected to see great growth in the future. This will also fuel market share gains in the SoC tester market.
- Our share is also growing in automotive-related products. Also, we have a share of nearly 100% in display drivers, which we plan to keep.
- In memory testers, we have a share of over 50% and we still have room to grow it.
- We are the only company that provides solutions covering all memory devices and processes. We will leverage these comprehensive capabilities and respond promptly on a module basis to customers' demands to further increase our market share.

## Numerical Targets for 3-Year Mid-Term Plan

|                  | FY2012-2014<br>Average | FY2015-2017<br>Average | Mid-Term Plan<br>(FY2018-FY2020 Average) |         |
|------------------|------------------------|------------------------|--|---------|
|                  |                        |                        | Conservative                             | Base    |
| Sales            | ¥136.0B                | ¥175.1B                | ¥230.0B                                  | ¥250.0B |
| Operating Margin | -8%                    | 9%                     | 15%                                      | 17%     |
| ROE              | -7%                    | 12%                    | 15%                                      | 18%     |
| EPS              | -¥51                   | ¥74                    | ¥135                                     | ¥170    |

\* In case Euro / yen denominated convertible bonds with stock acquisition rights maturing in 2019 (¥30.0B) converted to shares

### Improving P/L, Efficient Use of Capital

- We will manage sales, operating margin, ROE, and earnings per share (EPS) in terms of KPI

### ➤ Numerical Targets for 3-year Mid-Term Plan

- With an emphasis on profit, we will promote improvement of P/L and efficient utilization of capital.
- Under our mid-term management plan, we use net sales, operating income margin, ROE and earnings per share (EPS) as KPIs.
- Numerical targets in this mid-term plan are net sales of 250 billion yen, operating profit ratio of 17%, ROE of 18%, and EPS of 170 yen (3-year average figures) under our base scenario. These figures assume the conversion of all convertible bonds.
- We also have a conservative scenario of 230 billion yen, but here I would like to focus on our target of 250 billion yen.
- The tester market was depressed for several years following the global financial crisis.
- We acquired Verigy, which was strong in SoC testers, in 2011, to strengthen our non-memory business. As a result, we now have systems that can stand up against the competition even in non-memory testers.
- And with the revival of the memory tester market that began last year, we have a perfect opportunity to expand our combined memory and non-memory market share.
- Until the financial crisis, we were confident in our status as the No. 1 tester provider, but then we got knocked for a loop.
- We believe we can make a big leap forward on the assumption that the memory tester market will revive, and that its positive momentum will continue.

# Financial Policy & Shareholder Returns

## Sustaining a Healthy Financial Status

- **Stable Free Cash Flow**
  - Create ¥85B~¥100B of cash flow in 3 years
- **Minimum cash reserves**
  - Hold ¥50B~¥60B for stable business activities
  - Excess cash will preferentially be invested in business growth, M&A, etc.

## Enhance Corporate Value through Mid-Term Investment

- **R&D Investments**
  - Continuous R&D investments of more than ¥30B annually
- **M&A Investment Frame**
  - ¥100B · Expand solutions across the semiconductor value chain

## Shareholder Returns

- **Returns Policy**
  - Half-term consolidated payout ratio 30%
  - If long-term residuals remain, we will aim to review our payout ratio, improve returns by repurchasing shares, etc.

### ➤ Financial Policy & Shareholder Returns

- We will create 85-100 billion yen of free cash flow in 3 years.
- Our minimum cash holding level for stable business activities is 50 to 60 billion yen, with excess funds to be used preferentially for growth investment.
- Regarding these excess funds, we have some solutions and technologies that still need to be supplemented for growth to increase sales. Therefore, we will spend more than 30 billion yen a year on R&D as a baseline, before extraordinary expenses. Apart from that, we consider 100 billion yen to be our frame for M&A. If necessary, capital investment will be done properly. So please understand our use of excess funds for growth for the time being.
- In terms of M&A, we would prioritize things that will lead to solution expansion within the semiconductor value chain. We don't intend to cast our eyes too far afield. Verigy, which we bought in 2011, was a good acquisition. In that sense we would like to think positively about M&A as a way of greatly extending our capabilities in areas we know well.
- Moving to shareholder returns, our semi-annual consolidated payout ratio is 30%.
- EPS is one of our mid-term KPIs. Since we want to improve shareholder returns through profit growth per share, we would like to maintain our dividend payout ratio of 30%.
- If surplus funds are expected to be retained for a long period of time, we will consider flexibly reviewing our dividend payout ratio and improving total shareholders' returns by repurchasing shares, taking growth investments into consideration.

## Governance & Human Resources Strategy

### Enhance Corporate Governance

- Diversity of Board of Directors (nationality, gender)
- Start Performance-based Stock Remuneration Plan

### Internal Business Management

- Introduction of ROIC-based tools for internal business management

### Human Resources Investment

- Foster global, frontier personnel
- Innovative workstyles

## Mid-Term Action Items

### Towards the Next Level

- Next wave business research team creation
- Greater involvement with customer processes in search of test solutions for each process
- AI, data analysis introduction and utilization
- Explore ways to win more recurring business



### ➤ Governance & Human Resources Strategy

- In the previous fiscal year, four out of nine members of Advantest's board of directors were outside directors, and two were non-Japanese.
- We will continue promoting further diversity of the board of directors and enhancing governance.
- In addition, we do business globally, and as mentioned our overseas sales ratio in fiscal 2017 was 93%, and nearly half of our 23 executive officers are non-Japanese. We promote local people in each region to respond to local customers. We think this is an important strategy as globalization progresses more and more.
- We have decided to introduce a Performance-Based Stock Remuneration Plan covering executive officers and senior employees, which was approved at today's board of directors meeting. By introducing a remuneration system linked to achievement of our mid-term management plan targets, we will promote management from the shareholders' perspective while strengthening incentives for competent employees.
- In terms of business management, we have introduced business management and evaluation tools based on ROIC (return on invested capital ratio). We intend to strengthen our business management by developing this as a priority.
- We prioritize investment in human resources as an indispensable strand of our mid- and long-term strategies.
- Through cultivating global human resources and frontier human resources and promoting workstyle reform, we will seek operational excellence as a long-term strategy. We will also seek management efficiencies by globalizing organization management appropriately.
- I spoke about three key areas we would explore under our mid- and long vision, but there are many things that experts do yet not understand, and much less can they foretell how they will be used: AI, data analysis, "test as a service", and so on. We will create a global research team to explore these topics.

## Contributing to a Sustainable Future



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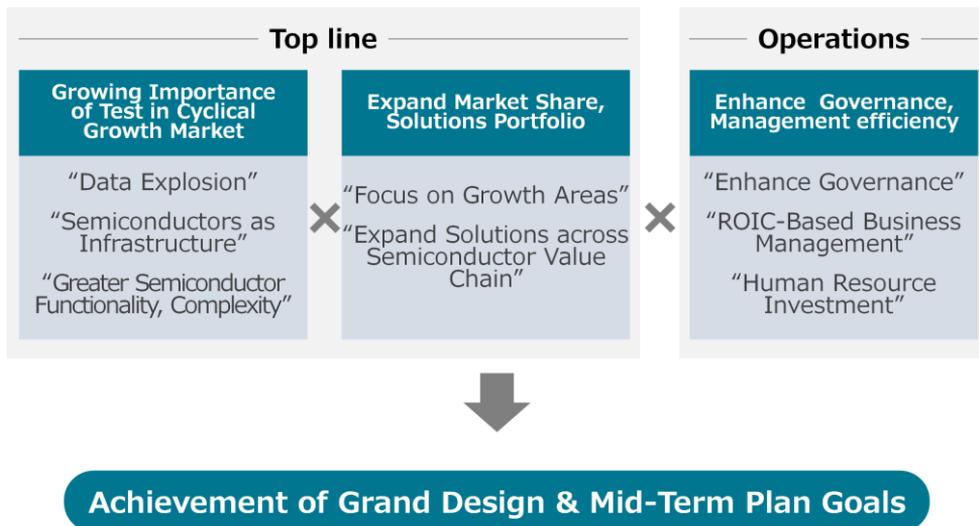
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### ➤ "Tested by Advantest"

- Semiconductors are increasingly important in solutions for social problems.
- "Tested by Advantest"! As I often tell my employees, when we expand Advantest's business, it means the world is getting brighter and better.
- Semiconductors tested with Advantest's testers are used all over the world.
- Through semiconductor test, Advantest contributes to a safer, more secure, more comfortable and more sustainable world.

## Conclusion



### ➤ Conclusion

- The tester market is growing in importance and becoming a cyclical growth market, driven by the data explosion, semiconductors as infrastructure, and the increased functionality and complexity of semiconductors themselves.
- Advantest will expand our market share and our solutions portfolio by focusing on growth markets and markets that play to our strengths while providing solutions across the semiconductor value chain
- In addition, we will seek greater management efficiency through enhanced governance, better internal business management with ROIC, and investment in human resources.
- These measures will achieve the goals of our Grand Design and Mid-Term Plan.
- Business invariably involves risks. If our broad business environment changes, we may review our plan. While we value dialogue with the financial market, we aim to respond to change without being overly risk-averse.

## NOTE

- ◆ **Accounting Standards**

Our outlook, described in this presentation, have been prepared in accordance with IFRS.

- ◆ **Cautionary Statement with Respect to Forward-Looking Statements**

This presentation contains “forward-looking statements” that are based on Advantest’s current expectations, estimates and projections. These statements include, among other things, the discussion of Advantest’s business strategy, outlook and expectations as to market and business developments, production and capacity plans. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as “anticipate,” “believe,” “estimate,” “expect,” “intend,” “project,” “should” and similar expressions. Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause Advantest’s actual results, levels of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking statements.

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