Tokyo Electron
Corporate Update
August 3, 2020
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Appendix 4: Deposition System  
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TEL Overview
**TEL is Innovative and Flexible to Market Change**

<table>
<thead>
<tr>
<th>Year (FY)</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-67</td>
<td>Established first manufacturing JV (TEL-Thermco)</td>
</tr>
<tr>
<td>71-75</td>
<td>Established development/manufacturing functions</td>
</tr>
<tr>
<td>80-84</td>
<td>Globalization</td>
</tr>
<tr>
<td>88-92</td>
<td>Production reform</td>
</tr>
<tr>
<td>96-100</td>
<td>Striving for new growth</td>
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</table>

<table>
<thead>
<tr>
<th>(Billion Yen)</th>
<th>TEL consolidated net sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
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<tr>
<td>600</td>
<td></td>
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<tr>
<td>900</td>
<td></td>
</tr>
<tr>
<td>1,200</td>
<td></td>
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<tr>
<td>1,500</td>
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</tr>
</tbody>
</table>

**Key Events**

- Listed on TSE #2 in 1980 and #1 in 1984
- Strengthened corporate governance
- Began overseas direct operations

**Product Applications**

- Semiconductor applications
- Mainframe computer
- PC
- Mobile phone
- Consumer electronics, etc.
Financial Performance: Sales and Operating Margin

- **4M DRAM oversupply**
- **IT bubble crash**
- **Excessive logic foundry investment**
- **World financial crisis**
- **Memory oversupply**
- **Effects of European debt crisis, slowdown in emerging markets**
- **Weak demand for PC, mobile**

<table>
<thead>
<tr>
<th>Year</th>
<th>TEL Net sales</th>
<th>Operating income</th>
<th>Operating margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>723.8</td>
<td>-4.4%</td>
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<tr>
<td>91</td>
<td>1,130.7</td>
<td>14.6%</td>
<td></td>
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<tr>
<td>92</td>
<td>1,280.0</td>
<td>21.0%</td>
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<tr>
<td>93</td>
<td>1,127.2</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>1,127.2</td>
<td>21.0%</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>1,127.2</td>
<td>21.0%</td>
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<td>96</td>
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<td>97</td>
<td>1,127.2</td>
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<td>98</td>
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<td>99</td>
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<tr>
<td>02</td>
<td>1,127.2</td>
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</tr>
<tr>
<td>03</td>
<td>1,127.2</td>
<td>21.0%</td>
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<tr>
<td>04</td>
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<td>08</td>
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<tr>
<td>09</td>
<td>1,127.2</td>
<td>21.0%</td>
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</tr>
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</table>

Note: The table above shows the financial performance of TEL from 1990 to 2003, with specific events and market conditions highlighted in the corresponding years.
The Market TEL Participates in

CY2019 World Market

Electronic System US$ 1,999B
Semiconductor US$ 419B
WFE* CAPEX US$ 55B

Source: Gartner, "Forecast: Semiconductor Wafer Fab Equipment, Worldwide, 1Q20 Update", Bob Johnson, Gaurav Gupta, 27 April 2020
Charts/graphics created by Tokyo Electron based on Gartner research.

Electronic System = Electronic Equipment Production/Semiconductor = Semiconductor Revenue (Excluding Solar)/WFE* CAPEX = Total Wafer Fab Equipment (including Wafer-Level Packaging)
TEL Main Products World Market Share (CY2019)

Semiconductor Production Equipment

Coater/Developer: 91%
Dry Etch System: 28%
Deposition System: 37%
Cleaning System: 27%
Wafer Prober*: 40%

FPD Production Equipment (FY2020)

FPD Coater/Developer: 21%
FPD Etcher/Asher: 65%
ALD: 28%
CVD: 40%
Oxidation/Diffusion: 53%

Source (FPD): TEL survey
Source (SPE): TEL survey

* SPE (Wafer Prober): VLSI Research, Preliminary, May 2020
Charts/graphics created by Tokyo Electron based on VLSI Research
CY2019 SPE Makers Top 15

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>CY2019 Sales (Billions of US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Applied Materials</td>
<td>13.46</td>
</tr>
<tr>
<td>2</td>
<td>ASML</td>
<td>12.76</td>
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<tr>
<td>3</td>
<td>Tokyo Electron</td>
<td>9.55</td>
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<tr>
<td>4</td>
<td>Lam Research</td>
<td>9.54</td>
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<tr>
<td>5</td>
<td>KLA</td>
<td>4.66</td>
</tr>
<tr>
<td>6</td>
<td>Advantest</td>
<td>2.46</td>
</tr>
<tr>
<td>7</td>
<td>SCREEN Semiconductor Solutions</td>
<td>2.20</td>
</tr>
<tr>
<td>8</td>
<td>Teradyne</td>
<td>1.55</td>
</tr>
<tr>
<td>9</td>
<td>Hitachi High-Technologies</td>
<td>1.53</td>
</tr>
<tr>
<td>10</td>
<td>ASMI</td>
<td>1.26</td>
</tr>
<tr>
<td>11</td>
<td>Kokusai</td>
<td>1.13</td>
</tr>
<tr>
<td>12</td>
<td>Daifuku</td>
<td>1.10</td>
</tr>
<tr>
<td>13</td>
<td>Nikon</td>
<td>1.10</td>
</tr>
<tr>
<td>14</td>
<td>ASM Pacific</td>
<td>0.89</td>
</tr>
<tr>
<td>15</td>
<td>Canon</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Source: VLSI Research, May 2020
As a leading corporation in environmental management, Tokyo Electron works actively to conserve the global environment. We strive to contribute to the development of a dream-inspiring society by proactively promoting the reduction of environmental burden of both our facilities and products, and at the same time, providing evolutionary manufacturing technologies that effectively reduce the power consumption of electronic products.
External assessments toward our activities

TEL is included on several ESG-related indices

TEL ESG programs have received very positive reviews
TEL Initiatives for Medium-term Business Growth
Rising Added-value in SPE

WFE investment (100k WSPM*, greenfield/TEL estimates)

Expanding business opportunities for SPE manufacturers on arrival of new applications and rising level of technological difficulty
Etch System Growth Scenario

Focus on processes with growing SAM and aim to capture a high SAM share

- **HARC process**
  - Increase sales by growing 3D NAND and DRAM SAM and capturing new PORs

- **Patterning process**
  - Expand SAM share by offering production cost reductions

- **Interconnect/contact process**
  - Maintain high market share with growing SAM and by differentiating technology

- **Gas chemical etch process**
  - Increase sales by creating new markets

Sales targets by process type within TEL’s SAM for etch systems*

* TEL forecasts. SAM shown on a dollar basis and sales on a yen basis

Aim for 30-35% SAM share by CY2023

* Presentations - Medium-term Management Plan announced on May 28, 2019
Expand business by choosing the most appropriate method among batch, semi-batch and single wafer, and providing high value-added technologies.

- In deposition technologies, which are becoming increasingly advanced, accelerate development of new materials and new deposition method by leveraging our strengths. Aim for further growth
  - Deposition of new metal material to achieve lower resistance
  - New deposition methods to promote scaling, such as anisotropic deposition and selective deposition
  - Pre-treatment technology to realize better electric characteristics

Focus on high value-added deposition processes, aim for 40%+ SAM share by CY2023
Cleaning System Growth Scenario

Sales targets by system type within TEL’s SAM for cleaning systems*

* TEL forecasts. SAM shown on a dollar basis and sales on a yen basis

- **Single wafer cleaning**
  - Grow sales with pattern collapse reduction technology and by improving productivity
  - Maintain a high market share for bevel wet etch and expand applications through removal of new materials

- **Batch cleaning**
  - Expand POR in 3D NAND critical processes

- **Scrubber cleaning**
  - SAM will grow as importance of back/bevel processing increases due to introduction of EUV

Aim for 30% SAM share by CY2023
FPD Manufacturing Equipment Growth Scenario

Sales and operating margin

- Raise competitiveness of dry etch system and coater/developer
- Create inkjet market for large OLED displays
- Launch new products that reflect evolution of displays

Aim for 30% operating margin by CY2023
Field Solutions (FS) Sales Results and Growth Strategy

Leverage our strengths as an equipment manufacturer to increase earnings in both the used equipment/modification and parts/services segments.

**Growth strategy key points**

- Grow SAM through increase in installed units (installed base of over 72,000 units)
- Respond to new customer needs
  - 200mm renewal equipment
  - Comprehensive contract services
- Enhance business efficiency by cooperating with Business Innovation Project
Financial Model of Medium-term Management Plan and Growth Investment
## Medium-term Management Plan

<table>
<thead>
<tr>
<th>WFE market</th>
<th>FY2020 (Actual)</th>
<th>By FY2024 (Plan)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$54B</td>
<td>$55 – 60B</td>
<td>$60 – 65B</td>
<td>$65 – 70B</td>
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</tr>
<tr>
<td>Net sales</td>
<td>1,127.2</td>
<td>1,500.0</td>
<td>1,700.0</td>
<td>2,000.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPE</td>
<td>1,060.9</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>FPD</td>
<td>66.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gross profit</td>
<td>451.9</td>
<td>650.0</td>
<td>740.0</td>
<td>890.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>40.1%</td>
<td>43.3%</td>
<td>43.5%</td>
<td>44.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG&amp;A expenses</td>
<td>214.6</td>
<td>252.0</td>
<td>264.0</td>
<td>290.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG&amp;A expenses to sales ratio</td>
<td>19.1%</td>
<td>16.8%</td>
<td>15.5%</td>
<td>14.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating income</td>
<td>237.2</td>
<td>398.0</td>
<td>476.0</td>
<td>&gt;600.0</td>
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<tr>
<td>Operating margin</td>
<td>21.0%</td>
<td>26.5%</td>
<td>28.0%</td>
<td>&gt;30.0%</td>
<td></td>
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<tr>
<td>ROE</td>
<td>21.8%</td>
<td>&gt;30%</td>
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No change to financial model
Gross Profit, SG&A Expenses (Sales ¥2,000.0B Model)

<table>
<thead>
<tr>
<th></th>
<th>FY2020 (Actual)</th>
<th>FY2021 (Estimates)</th>
<th>By FY2024 (Plan)</th>
<th>Growth rate (FY’20-FY’24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross profit</td>
<td>451.9</td>
<td>520.0</td>
<td>890.0</td>
<td>+96.9%</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>40.1%</td>
<td>40.6%</td>
<td>44.5%</td>
<td>+4.4pts</td>
</tr>
</tbody>
</table>

- Raise gross profit margin of core SPE, FPD products
  - Timely introduction of new products to an expanding market
  - Lower cost ratio through product quality improvements

<table>
<thead>
<tr>
<th></th>
<th>FY2020 (Actual)</th>
<th>FY2021 (Estimates)</th>
<th>By FY2024 (Plan)</th>
<th>Growth rate (FY’20-FY’24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG&amp;A expenses</td>
<td>214.6</td>
<td>245.0</td>
<td>290.0</td>
<td>+35.1%</td>
</tr>
<tr>
<td>SG&amp;A expenses to sales ratio</td>
<td>19.1%</td>
<td>19.1%</td>
<td>14.5%</td>
<td>-4.6pts</td>
</tr>
</tbody>
</table>

- Proactively invest in growth areas while planning appropriate SG&A and R&D expenses
R&D Expenses, Capex Plan

Conduct proactive investment towards further growth
Enhancing development and production structures in growth areas
Business Environment and Financial Estimates
FY2020 (April 2019 – March 2020) Highlights

- **Net Sales and Gross Profit Margin**
  - FY'16: 663.9\(¥B\)
  - FY'17: 799.7\(¥B\)
  - FY'18: 1,130.7\(¥B\)
  - FY'19: 1,278.2\(¥B\)
  - FY'20: 1,127.2\(¥B\)
  - Gross profit margin:
    - FY'16: 40.2\%\n    - FY'17: 40.3\%\n    - FY'18: 41.2\%\n    - FY'19: 40.1\%\n    - FY'20: \%

- **Operating Income and Operating Margin**
  - FY'16: 116.7\(¥B\)
  - FY'17: 155.6\(¥B\)
  - FY'18: 281.1\(¥B\)
  - FY'19: 310.5\(¥B\)
  - FY'20: 237.2\(¥B\)
  - Operating margin:
    - FY'16: 17.6\%
    - FY'17: 19.5\%
    - FY'18: 24.9\%
    - FY'19: 24.3\%
    - FY'20: 21.0\%

- **Net Income Attributable to Owners of Parent and ROE**
  - FY'16: 77.8\(¥B\)
  - FY'17: 115.2\(¥B\)
  - FY'18: 204.3\(¥B\)
  - FY'19: 248.2\(¥B\)
  - FY'20: 185.2\(¥B\)
  - ROE:
    - FY'16: 13.0\%
    - FY'17: 19.1\%
    - FY'18: 29.0\%
    - FY'19: 30.1\%
    - FY'20: 21.8\%

- Although net sales decreased on the effect of adjustments in SPE*1 and FPD*2 capex, there was continued growth investment in response to market growth.
- TEL was able to maintain profitability as a result of initiatives to optimize and sustain earnings even amid lower sales.

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*1 SPE: Semiconductor production equipment  *2 FPD: Flat panel display production equipment
Business Environment (Outlook as of July 2020)

► WFE*¹ capex

Expecting CY2020 investment to increase approx. 10% YoY
While the macro economy needs to be watched closely, there is strong demand for equipment at present
The WFE market is forecast to reach a record size

► FPD production equipment capex for TFT array process*²

Continuing investment in large panels for TVs and a recovery in investment in OLED for mobile applications
Expecting approx. 15% YoY growth in CY2020

No change to business environment outlook announced on June 18

*¹ WFE (Wafer fab equipment): The semiconductor production process is divided into front-end production, in which circuits are formed on wafers and inspected, and back-end production, in which wafers are cut into chips, assembled and inspected again. Wafer fab equipment refers to the production equipment used in front-end production and in wafer-level packaging production.

*² TFT array process: The processes of manufacturing the substrates with the electric circuit functions that drive displays
FY2021 Business Opportunities and Focus Areas

- **Logic/Foundry**
  - EUV: Coater/Developer and etch for new resist materials
  - Contacts: High selectivity etch, low resistance metal deposition
  - GAA*¹: New processes (Si/SiGe Fin etch, selective and isotropic etch, cleaning for highly scaled 3D structures)

- **DRAM**
  - Patterning: Solutions to achieve further scaling
  - Capacitor module: HARC etch, electrode deposition, wet cleaning for anti-pattern collapse and high-k dielectric deposition

- **3D NAND**
  - High aspect ratio: High process performance and productivity etch for more than 200 layers, and ALD/CVD for super gapfill
  - RGM*²: High selectivity wet etch of sacrificial film and deposition of new materials

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*¹ GAA: Gate-all-around
*² RGM: Replacement gate metal
## FY2021 Financial Estimates (no change from June 18, 2020 announcement)

(Billion yen)

<table>
<thead>
<tr>
<th></th>
<th>FY2020 (Actual)</th>
<th>FY2021 (Estimates)</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>H1</td>
<td>H2</td>
<td>Full year</td>
<td>Full year</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>YoY change</td>
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<tr>
<td><strong>Net sales</strong></td>
<td>1,127.2</td>
<td>620.0</td>
<td>660.0</td>
<td>1,280.0</td>
<td>+13.5%</td>
</tr>
<tr>
<td><strong>SPE</strong></td>
<td>1,060.9</td>
<td>585.0</td>
<td>615.0</td>
<td>1,200.0</td>
<td>+13.1%</td>
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<tr>
<td><strong>FPD</strong></td>
<td>66.0</td>
<td>35.0</td>
<td>45.0</td>
<td>80.0</td>
<td>+21.0%</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>451.9</td>
<td>248.0</td>
<td>272.0</td>
<td>520.0</td>
<td>+67.9%</td>
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<tr>
<td><strong>Gross profit margin</strong></td>
<td>40.1%</td>
<td>40.0%</td>
<td>41.2%</td>
<td>40.6%</td>
<td>+0.5pts</td>
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<tr>
<td><strong>SG&amp;A expenses</strong></td>
<td>214.6</td>
<td>121.0</td>
<td>124.0</td>
<td>245.0</td>
<td>+30.3%</td>
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<tr>
<td><strong>Operating income</strong></td>
<td>237.2</td>
<td>127.0</td>
<td>148.0</td>
<td>275.0</td>
<td>+37.6%</td>
</tr>
<tr>
<td><strong>Operating margin</strong></td>
<td>21.0%</td>
<td>20.5%</td>
<td>22.4%</td>
<td>21.5%</td>
<td>+0.5pts</td>
</tr>
<tr>
<td><strong>Income before income taxes</strong></td>
<td>244.6</td>
<td>127.0</td>
<td>148.0</td>
<td>275.0</td>
<td>+30.3%</td>
</tr>
<tr>
<td><strong>Net income attributable to owners of parent</strong></td>
<td>185.2</td>
<td>95.0</td>
<td>110.0</td>
<td>205.0</td>
<td>+19.7%</td>
</tr>
<tr>
<td><strong>Net income per share (Yen)</strong></td>
<td>1,170.57</td>
<td>610.83</td>
<td>-</td>
<td>1,318.10</td>
<td>+147.53</td>
</tr>
</tbody>
</table>

**Aim for higher net sales and income while continuing growth investment**

SPE: Semiconductor production equipment, FPD: Flat panel display production equipment
FY2021 Dividend Forecast

Expect to pay DPS of 660 yen, in-line with 50% dividend payout ratio

TEL shareholder return policy

**Dividend payout ratio:** 50%

**Annual DPS of not less than 150 yen**

We will review our dividend policy if the company does not generate net income for two consecutive fiscal years

We will flexibly consider share buybacks
Appendix 1: Diversity of Semiconductor Technology and TEL’s Business Strategies
Performance Enhancement through Scaling, Material Development and 3D Structures

Architecture, design, process are also being actively investigated
Semiconductor Technology Roadmap

**Demand for ultra-low power consumption technology**
- RF analog for IoT
- Power device for IoT
- High productivity SPE tool
- Low energy consumption

**AI chip (Analog memory)**
- ReRAM
- MRAM
- Scaling
- >2 Tiers

**DRAM**
- Scaling (WL/BL)
- Higher-k capacitor
- New architecture

**NAND**
- CMOS under array
- >150 layers
- WL metal
- >2 Tiers

**Logic**
- BEOL structure
- Contact metal
- GAA Tr.*

**Patterning**
- Ad-SAQP
- EUV single
- EUV double
- Ad-package

TEL forecasts

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* Gate-all-around transistor

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**Future device systems for HPC/Al/IoT**

Systemize technology by integrating chips
- DRAM tower with via
- Analog/NAND/Logic by stacking
- Built-in AI (Analog memory)
- Moore’s Law by package scaling
Market Heading Towards Diversification

Moore’s Law
Improved performance through transistor integration

Customization
Multi-functionality

Hyper-mass
Pursuit of ultra-efficient productivity

Applications increase, production technology diversifies too
Maximize Utilization of TEL’s Comprehensive Strengths

Sales
Customer trust

Marketing
Advanced data collection and analysis abilities

Broad product coverage
- Coater/Developer
- Deposition
- Etch
- Cleaning
- Test

R&D
- Strong next generation product development
- Process integration

Manufacuring
- High quality
- Robust supply chain

FS
- Largest installed base in industry: over 72,000 units
- Advanced FS
Continually Pursuing the Best Products and Best Service

- Share roadmap for next several generations with customers
- Promote early engagement
- Realize maximum yield of customer devices and equipment availability from early stage of customers’ mass production and reduce burden on the environment
- Further increase investment in human resources/R&D by raising operational efficiency and driving higher per-employee productivity

Vision: A truly global company generating high added value and profits in the semiconductor and FPD industries through innovative technologies and groundbreaking proactive solutions that integrate diverse technologies

Advanced field solutions

- Business development leveraging industry’s largest installed base of 72,000 units
- TELEMetrics™ remote maintenance
- Predictive maintenance with machine learning
Appendix 2: Technical Challenges for Application and Effects of EUV Lithography Adoption
DRAM Process Challenges at a Glance

- Scaling increasingly difficult due to capacitor pitch limitation
  - Multi-patterning at Capacitor, WL, BL, STI levels
- To scale capacitor EOT, high-\(k\) (\(\text{ZrO}_2/\text{Al}_2\text{O}/\text{ZrO}_2\)) dielectrics have been introduced with metal (MIM)
- CMOS (periphery) portion moving to HKMG\(^*\) & FinFETs to reduce area
- Capacitors will change from cylinders (dielectric on outside and in center) to pillars (dielectric on outside only) with thinner high-\(k\) for space saving
  - Aspect ratio increases to >50:1 @D16 node and continues to ~80:1
- All aspects of high aspect ratio structure difficult to fabricate (etch, film deposition, cleaning, …)

*HKMG: High-k metal gate

* HKMG: High-k metal gate

STI Capacitor Interconnects Contact Bitline

Conventional 6\(F^2\) cell structure

DRAM faces scaling, materials and integration challenges
NAND Process Challenges at a Glance

- Scaling is no longer limited by lithography. Rather, it is limited by the number of ONON or OPOP device layers one can stack for higher capacity
- The high aspect ratio of the device structure is proving to be more challenging for every new generation
- CMOS (periphery) portion moving under memory to reduce area creates a difficult thermal budget problem

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># of 3D tiers</td>
<td>4X</td>
<td>6X</td>
<td>9X</td>
<td>12X</td>
</tr>
<tr>
<td>Hole CD (nm)</td>
<td>65 - 100</td>
<td>65 - 100</td>
<td>65 - 100</td>
<td>65 - 100</td>
</tr>
<tr>
<td>Holes between slits</td>
<td>4</td>
<td>4</td>
<td>4 - 8</td>
<td>8</td>
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<tr>
<td>Vertical pitch (nm)</td>
<td>50 - 70</td>
<td>40 - 60</td>
<td>40 - 50</td>
<td>40 - 50</td>
</tr>
<tr>
<td>Bitline CD (nm)</td>
<td>20</td>
<td>20</td>
<td>20 - 40</td>
<td>~40</td>
</tr>
</tbody>
</table>

Etch and deposition of the multi-layering progressively difficult as AR increases
Logic: Overcoming Technological Hurdles (Placement Errors) with EUV

Cross section of a logic structure

Step 1: Line/Space
- Self-aligned multiple patterning (SAMP)
  - high etch and dep usage

Step 2: Cut
- LELELE = (Litho-Etch)_3
  - limited etch and dep usage

Three exposures: (Litho + Etch) x 3
- Lower yield

Conventional exposure
- Each exposure process creates placement errors
  - Too close
  - Too far
  - Closer

Exposure using EUV
- Placement errors reduced
- Increased yield

One exposure: (Litho + Etch) x 1

Each exposure process creates placement errors
- Too close
- Too far
- Closer

1 mask
- Increased yield
(Litho-etch)$_n$ Patterning for Logic MOL Contact/Cut Module

- PMD dep
- Hard mask1 dep
- Hard mask2 dep

(Litho-etch)$_n$ patterning

- Lithography1
  - Contact HM2 etch1 $\leftarrow$ short etch time
- Lithography2
- Lithography3
- Contact HM2 etch2 $\leftarrow$ short etch time
- Contact HM2 etch3 $\leftarrow$ short etch time
- Contact HM1 etch $\leftarrow$ short etch time
- Contact PMD etch $\leftarrow$ long etch time

Post etch clean
- Barrier metal Ti/TiN dep
- Contact plug W dep
- Contact plug W CMP

✓ Thicker layer
✓ Higher etch selectivity

or

EUV lithography

Contact HM2 etch
Self-aligned Multiple Patterning for Line/Space

- Lithography
  - Hard mask1 dep
  - Hard mask2 dep
  - Mandrel1 dep
  - Hard mask3 dep
  - Hard mask4 dep
  - Mandrel2 dep
  - Hard mask5 dep
  - Hard mask5 etch
  - Mandrel2 etch
  - Sidewall1 dep
  - Sidewall1 etch back
  - Mandrel2 pull
  - Hard mask4 etch
  - Hard mask3 etch
  - Mandrel1 etch
  - Sidewall2 dep
  - Sidewall2 etch back

Lithography
Deposition
Etch

SADP: Self-aligned double patterning
SAQP: Self-aligned quadruple patterning
Effects of EUV Lithography Adoption

- EUV adoption will solve sophisticated technological hurdles our customers face (i.e. placement errors), bringing about quite positive effects on semiconductor and SPE industries
  - Advance miniaturization
  - Accelerate customers’ investment in next generation technologies by enhancing the yield

- Further miniaturization led by EUV will create more differentiation of our products and business opportunities
  - Increase our coater/developer market share even further
  - Expand demand for etch, deposition and cleaning equipment
  - Differentiate our product through advancing self-aligned patterning technology
  - Expand business with process integration, leveraging our robust product lineup
Appendix 3: Etch System
HARC process
– SAM will increase due to advancement of 3D NAND and DRAM scaling

Patterning process
– Multi-patterning will continue to be used, even after the adoption of EUV for mass production, and SAM will remain at high levels

Interconnect/contact process
– SAM will grow due to adoption of copper dual damascene interconnects for DRAM and increasing number of logic interconnects layers

Critical conductor process
– Stable investment will continue despite low SAM ratio

Gas chemical etch process
– Growth trend for SAM due to introduction of 3D structures in devices
Etch System Strategy

- **HARC process**
  - 3D NAND (multi-level contact, word line isolation), DRAM (capacitor): Continue to differentiate through process performance and productivity
  - 3D NAND (channel): Launch new systems that can differentiate by providing both precise process controllability and even higher productivity

- **Patterning process**
  - DRAM: Reduce customer production costs by combining etch steps
  - Logic: Differentiate through integration of etch and deposition technologies

- **Interconnect/contact process**
  - Apply knowledge cultivated in logic to DRAM

- **Gas chemical etch process**
  - Create a new market through plasma assist technology

Source: N. Loubet, *et al.*, Stacked Nanosheet Gate-All-Around Transistor to Enable Scaling Beyond FinFET
Appendix 4: Deposition System
Deposition System SAM Outlook

Deposition system SAM by application*

($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>NAND</th>
<th>DRAM</th>
<th>Logic/Foundry</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY'17</td>
<td>4.5</td>
<td>3.9</td>
<td>4.5</td>
</tr>
<tr>
<td>CY'18</td>
<td>5.0</td>
<td>5.2</td>
<td>5.0</td>
</tr>
<tr>
<td>CY'19</td>
<td>5.8</td>
<td>5.8</td>
<td>5.8</td>
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<tr>
<td>CY'20</td>
<td>6.1</td>
<td>6.1</td>
<td>6.1</td>
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<tr>
<td>CY'21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CY'22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* TEL forecasts

- NAND
  - Investment for 3D NAND scaling will continue. Particularly, demand for high quality dielectric film, mainly with ALD, is increasing for high aspect ratio step

- DRAM
  - Scaling will continue. Investment is expected in new structures and materials to improve capacitor performance

- Logic/Foundry
  - SAM ratio will decrease, but stable investment expected. Continued demand for technological innovation to suppress resistance increase in thin wire

* Presentations - Medium-term Management Plan announced on May 28, 2019

Corporation IR / 2020.08.03
Deposition Business Strategy

**DRAM**
- Lower temperatures
- High-k dielectric film
- Capacitor electrode

**3D NAND**
- Channel silicon film
- Charge trap film
- Block high-k dielectric film
- Buried oxide film
- Buried silicon film

**Single-wafer System**
**Trias™ EX-II Pro™ TiN**

- Dia: 20nm, AR = 50:1
- Top
- Bottom
- S/C > 95%

**Vertical Furnace**
**TELINDY PLUS™ Super Large Batch**

- Initial profile
  - AR ≃ 16:1
  - S/N = 13.0nm
  - H = 5.0nm
  - 300nm

- 100/125
- 150/175

**Semi-batch System**
**NT333™**

- Gap-fill SiO₂ Dep
- Si precursor

Provide high value-added technology by leveraging our advantage of having batch, semi-batch and single wafer technologies.
Appendix 5: Cleaning System
Cleaning System SAM Outlook

No significant changes to SAM ratios for cleaning systems

- **Single wafer cleaning**
  - Will continue to be the largest market
  - Technological innovation aimed at reducing defects and improving etch/drying performance will continue

- **Batch cleaning**
  - Demand will continue in the market for wet etch for 3D NAND critical processes

- **Scrubber cleaning**
  - The importance of physical back/bevel cleaning is increasing in pre-lithography process and other areas
Single Wafer Cleaning Strategy

- **Single wafer cleaning**
  - **Bevel wet etch**
    - Expect annual market growth rate of around 10%
    - Contribute to improving customers’ yields.
      Maintain a high market share by differentiating through performance in precisely removing film from the outer part of the wafer
  - **Prevent pattern collapse**
    Expand market share by TEL original technology to reduce collapse of high aspect ratio pattern
  - **Metal etch**
    Launched new dedicated SPM chambers for controlling selectivity for metal in order to solve reduced yield issues caused by dry etch damage and residue

![Diagram showing conventional and new drying technology with and without bevel wet etch, and metal etch process comparison between TiN and W](image-url)
Batch and Scrubber Cleaning Strategy

- **Batch cleaning**
  - SiN etch and W etch processes for 3D NAND
    Focus on processes that require long durations and advanced process technology. Differentiate by realizing high uniformity, high selectivity and high productivity in wet etch

- **Scrubber cleaning**
  - Pre-lithography process
    Provide high-value solutions such as reducing particles brought in by wafers, contributing to the improvement of exposure tool availability which have grown increasingly important due to the introduction of EUV
Appendix 6: Financial Data
## Financial Summary

<table>
<thead>
<tr>
<th></th>
<th>FY2019</th>
<th>FY2020</th>
<th>YoY Change</th>
<th>(Reference) FY2020 estimates announced on Oct. 31, 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>1,278.2</td>
<td>1,127.2</td>
<td>-11.8%</td>
<td>1,110.0</td>
</tr>
<tr>
<td><strong>SPE</strong></td>
<td>1,166.7</td>
<td>1,060.9</td>
<td>-9.1%</td>
<td>1,035.0</td>
</tr>
<tr>
<td><strong>FPD</strong></td>
<td>111.2</td>
<td>66.0</td>
<td>-40.6%</td>
<td>74.8</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>526.1</td>
<td>451.9</td>
<td>-14.1%</td>
<td>445.0</td>
</tr>
<tr>
<td><strong>Gross profit margin</strong></td>
<td>41.2%</td>
<td>40.1%</td>
<td>-1.1pts</td>
<td>40.1%</td>
</tr>
<tr>
<td><strong>SG&amp;A expenses</strong></td>
<td>215.6</td>
<td>214.6</td>
<td>-0.4%</td>
<td>220.0</td>
</tr>
<tr>
<td><strong>Operating income</strong></td>
<td>310.5</td>
<td>237.2</td>
<td>-23.6%</td>
<td>225.0</td>
</tr>
<tr>
<td><strong>Operating margin</strong></td>
<td>24.3%</td>
<td>21.0%</td>
<td>-3.3pts</td>
<td>20.3%</td>
</tr>
<tr>
<td><strong>Income before income taxes</strong></td>
<td>321.5</td>
<td>244.6</td>
<td>-23.9%</td>
<td>229.0</td>
</tr>
<tr>
<td><strong>Net income attributable to owners of parent</strong></td>
<td>248.2</td>
<td>185.2</td>
<td>-25.4%</td>
<td>170.0</td>
</tr>
<tr>
<td><strong>EPS (Yen)</strong></td>
<td>1,513.58</td>
<td>1,170.57</td>
<td>-22.7%</td>
<td>1,074.47†</td>
</tr>
<tr>
<td><strong>R&amp;D expenses</strong></td>
<td>113.9</td>
<td>120.2</td>
<td>+5.5%</td>
<td>123.0</td>
</tr>
<tr>
<td><strong>Capital expenditures</strong></td>
<td>49.7</td>
<td>54.6</td>
<td>+9.9%</td>
<td>56.0</td>
</tr>
<tr>
<td><strong>Depreciation and amortization</strong></td>
<td>24.3</td>
<td>29.1</td>
<td>+19.7%</td>
<td>33.0</td>
</tr>
</tbody>
</table>

1. In principle, export sales of Tokyo Electron’s mainstay semiconductor and FPD production equipment are denominated in yen. While some settlements are denominated in dollars, exchange risk is hedged as forward exchange contracts are made individually at the time of booking.
2. Profit ratios are calculated using full amounts, before rounding.
3. EPS forecast was announced on January 30, 2020.
### Segment Information

#### SPE (Semiconductor Production Equipment)
- **Sales**: 
  - FY'19: 1,166.7 Billion Yen
  - FY'20: 1,060.9 Billion Yen
- **Segment income**: 
  - FY'19: 326.7 Billion Yen
  - FY'20: 270.4 Billion Yen
- **Segment profit margin**: 
  - FY'19: 28.0%
  - FY'20: 25.5%

#### FPD (Flat Panel Display Production Equipment)
- **Sales**: 
  - FY'19: 111.2 Billion Yen
  - FY'20: 66.0 Billion Yen
- **Segment income**: 
  - FY'19: 24.2 Billion Yen
  - FY'20: 10.5 Billion Yen
- **Segment profit margin**: 
  - FY'19: 21.8%
  - FY'20: 16.0%

#### Composition of Net Sales
- **SPE (Semiconductor Production Equipment)**
  - FY'19: 91%
  - FY'20: 94%
- **FPD (Flat Panel Display Production Equipment)**
  - FY'19: 9%
  - FY'20: 6%

1. Segment income is based on income before income taxes.
2. R&D expenses such as fundamental research and element research are not included in above reportable segments.
3. Composition of net sales figures is based on the sales to customers.
SPE Division: New Equipment Sales by Application

- In logic/foundry, increased investment to raise production capacity of leading-edge technology made a significant contribution to sales amid stronger demand for high performance processors for data centers and 5G smartphones.

- In memory, investment underwent an adjustment amid a lull following several years of investment to increase production capacity.

Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.
SPE Division: New Equipment Sales by Product

- Coater/developer sales proportion rose amid increased investment for leading-edge logic/foundry while investment for non-volatile memory decreased.
- Etch systems sales proportion decreased as a result of the higher ratio of investment in matured technologies including power devices and discrete semiconductors.

Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.
Field Solutions Sales

- FY2020 sales in the Field Solutions were ¥304.8 billion, +5.7% YoY

- Parts and services sales were firm on growth in installed base and customers’ high utilization rate. Sales also rose in used equipment and modification, which enables customers to effectively utilize their assets
# Financial Summary (Quarterly)

<table>
<thead>
<tr>
<th></th>
<th>FY2020</th>
<th>Q1</th>
<th>FY2021</th>
<th>Q1</th>
<th>vs. Q4 FY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>216.4</td>
<td>292.0</td>
<td>295.4</td>
<td>323.3</td>
<td>314.8 -2.6%</td>
</tr>
<tr>
<td><strong>SPE</strong></td>
<td>198.1</td>
<td>271.8</td>
<td>282.0</td>
<td>308.9</td>
<td>303.7 -1.7%</td>
</tr>
<tr>
<td><strong>FPD</strong></td>
<td>18.2</td>
<td>20.1</td>
<td>13.3</td>
<td>14.3</td>
<td>11.0 -23.4%</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>89.8</td>
<td>114.6</td>
<td>117.5</td>
<td>129.8</td>
<td>128.4 -1.1%</td>
</tr>
<tr>
<td><strong>Gross profit margin</strong></td>
<td>41.5%</td>
<td>39.3%</td>
<td>39.8%</td>
<td>40.2%</td>
<td>40.8% +0.6pts</td>
</tr>
<tr>
<td><strong>SG&amp;A expenses</strong></td>
<td>47.3</td>
<td>54.7</td>
<td>52.8</td>
<td>59.7</td>
<td>54.6 -8.5%</td>
</tr>
<tr>
<td><strong>Operating income</strong></td>
<td>42.5</td>
<td>59.9</td>
<td>64.7</td>
<td>70.1</td>
<td>73.8 +5.3%</td>
</tr>
<tr>
<td><strong>Operating margin</strong></td>
<td>19.7%</td>
<td>20.5%</td>
<td>21.9%</td>
<td>21.7%</td>
<td>23.5% +1.8pts</td>
</tr>
<tr>
<td><strong>Income before income taxes</strong></td>
<td>44.5</td>
<td>62.0</td>
<td>64.6</td>
<td>73.3</td>
<td>74.6 +1.8%</td>
</tr>
<tr>
<td>Net income attributable to owners of parent</td>
<td>31.8</td>
<td>46.8</td>
<td>49.3</td>
<td>57.1</td>
<td>56.4 -1.2%</td>
</tr>
<tr>
<td><strong>R&amp;D expenses</strong></td>
<td>25.6</td>
<td>31.2</td>
<td>29.8</td>
<td>33.4</td>
<td>30.1 -10.0%</td>
</tr>
<tr>
<td><strong>Capital expenditures</strong></td>
<td>7.6</td>
<td>22.0</td>
<td>13.2</td>
<td>11.7</td>
<td>13.2 +12.6%</td>
</tr>
<tr>
<td><strong>Depreciation and amortization</strong></td>
<td>6.0</td>
<td>6.7</td>
<td>7.6</td>
<td>8.6</td>
<td>7.1 -16.9%</td>
</tr>
</tbody>
</table>

1. In principle, export sales of Tokyo Electron’s mainstay semiconductor and FPD production equipment are denominated in yen. While some settlements are denominated in dollars, exchange risk is hedged as forward exchange contracts are made individually at the time of booking.
2. Profit ratios are calculated using full amounts, before rounding.

SPE: Semiconductor production equipment, FPD: Flat panel display production equipment
Segment Information (Quarterly)

1. Segment income is based on income before income taxes.
2. R&D expenses such as fundamental research and element research, etc. and other general and administrative expenses are not included in the above reportable segments.
3. Composition of net sales figures is based on the sales to customers.
SPE Division: Sales by Region (Quarterly)

(Billion Yen)

<table>
<thead>
<tr>
<th>Region</th>
<th>Q1 FY'19</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'20</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>51.1</td>
<td>58.0</td>
<td>54.0</td>
<td>42.7</td>
<td>32.5</td>
<td>41.0</td>
<td>35.9</td>
<td>49.6</td>
<td>49.1</td>
</tr>
<tr>
<td>North America</td>
<td>28.4</td>
<td>45.9</td>
<td>22.7</td>
<td>34.7</td>
<td>28.5</td>
<td>58.8</td>
<td>61.0</td>
<td>57.2</td>
<td>42.3</td>
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<td>Europe</td>
<td>17.7</td>
<td>31.3</td>
<td>18.6</td>
<td>25.3</td>
<td>20.2</td>
<td>14.4</td>
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<td>South Korea</td>
<td>88.9</td>
<td>86.5</td>
<td>60.9</td>
<td>68.9</td>
<td>36.9</td>
<td>36.4</td>
<td>31.0</td>
<td>47.1</td>
<td>67.0</td>
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<tr>
<td>Taiwan</td>
<td>26.3</td>
<td>48.0</td>
<td>29.3</td>
<td>59.1</td>
<td>48.3</td>
<td>48.7</td>
<td>76.2</td>
<td>83.1</td>
<td>50.9</td>
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<tr>
<td>China</td>
<td>54.9</td>
<td>71.3</td>
<td>38.0</td>
<td>42.5</td>
<td>27.0</td>
<td>56.8</td>
<td>59.1</td>
<td>50.6</td>
<td>73.9</td>
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<tr>
<td>S. E. Asia, Others</td>
<td>12.7</td>
<td>16.8</td>
<td>15.6</td>
<td>15.2</td>
<td>4.4</td>
<td>15.5</td>
<td>7.7</td>
<td>7.7</td>
<td>4.6</td>
</tr>
</tbody>
</table>
SPE Division: New Equipment Sales by Application (Quarterly)

Percentages on the graph show the composition ratio of new equipment sales. Field Solutions sales are not included.
## Field Solutions Sales (Quarterly)

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY'19</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'20</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'21</th>
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</thead>
<tbody>
<tr>
<td>SPE Sales</td>
<td>60.6</td>
<td>73.4</td>
<td>69.6</td>
<td>74.2</td>
<td>67.4</td>
<td>73.4</td>
<td>72.2</td>
<td>82.6</td>
<td>81.8</td>
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<tr>
<td>FPD Sales</td>
<td>2.5</td>
<td>2.7</td>
<td>2.8</td>
<td>2.1</td>
<td>2.1</td>
<td>2.3</td>
<td>2.3</td>
<td>2.0</td>
<td>1.8</td>
</tr>
</tbody>
</table>
## Balance Sheet (Quarterly)

### Asset Breakdown (Billion Yen)

<table>
<thead>
<tr>
<th>Q1 FY'20</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash &amp; cash equivalents*</td>
<td>340.8</td>
<td>339.9</td>
<td>292.2</td>
<td>338.4</td>
</tr>
<tr>
<td>Trade notes, accounts receivables</td>
<td>96.3</td>
<td>111.8</td>
<td>125.6</td>
<td>150.1</td>
</tr>
<tr>
<td>Inventories</td>
<td>381.0</td>
<td>376.3</td>
<td>385.7</td>
<td>392.0</td>
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<tr>
<td>Other current assets</td>
<td>53.0</td>
<td>42.9</td>
<td>62.0</td>
<td>81.8</td>
</tr>
<tr>
<td>Tangible assets</td>
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<td>166.8</td>
<td>173.2</td>
<td>175.5</td>
</tr>
<tr>
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<td>8.8</td>
<td>9.3</td>
<td>9.5</td>
<td>10.9</td>
</tr>
<tr>
<td>Investment &amp; other assets</td>
<td>117.2</td>
<td>120.2</td>
<td>128.4</td>
<td>129.5</td>
</tr>
</tbody>
</table>

### Liabilities & Net Assets Breakdown (Billion Yen)

<table>
<thead>
<tr>
<th>Q1 FY'20</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY'21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities &amp; Net Assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash &amp; cash equivalents*</td>
<td>330.0</td>
<td>364.4</td>
<td>396.8</td>
<td>448.8</td>
</tr>
<tr>
<td>Trade notes, accounts receivables</td>
<td>819.3</td>
<td>803.1</td>
<td>780.1</td>
<td>829.6</td>
</tr>
<tr>
<td>Inventories</td>
<td>330.0</td>
<td>364.4</td>
<td>396.8</td>
<td>448.8</td>
</tr>
<tr>
<td>Other current assets</td>
<td>819.3</td>
<td>803.1</td>
<td>780.1</td>
<td>829.6</td>
</tr>
<tr>
<td>Tangible assets</td>
<td>819.3</td>
<td>803.1</td>
<td>780.1</td>
<td>829.6</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>330.0</td>
<td>364.4</td>
<td>396.8</td>
<td>448.8</td>
</tr>
<tr>
<td>Investment &amp; other assets</td>
<td>330.0</td>
<td>364.4</td>
<td>396.8</td>
<td>448.8</td>
</tr>
</tbody>
</table>

* Cash and cash equivalents: Cash and deposits + Short-term investments, etc. (Securities in B/S).
Turnover days = inventory or accounts receivable at the end of each quarter / last 12 months sales x 365
Cash Flow (Quarterly)

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY’19</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY’20</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 FY’21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flow from operating activities</td>
<td>51.4</td>
<td>84.0</td>
<td>-11.0</td>
<td>65.0</td>
<td>59.4</td>
<td>81.7</td>
<td>52.1</td>
<td>59.7</td>
<td>52.7</td>
</tr>
<tr>
<td>Cash flow from investing activities*1</td>
<td>-12.1</td>
<td>-12.2</td>
<td>-1.1</td>
<td>-14.4</td>
<td>-8.5</td>
<td>-15.8</td>
<td>-17.7</td>
<td>-11.4</td>
<td>-15.1</td>
</tr>
<tr>
<td>Cash flow from financing activities</td>
<td>-56.9</td>
<td>-5.0</td>
<td>-67.8</td>
<td>-0.0</td>
<td>-99.9</td>
<td>-65.4</td>
<td>-84.4</td>
<td>-0.4</td>
<td>-53.5</td>
</tr>
<tr>
<td>Free cash flow*2</td>
<td>39.3</td>
<td>71.7</td>
<td>-12.1</td>
<td>50.5</td>
<td>50.9</td>
<td>65.8</td>
<td>34.4</td>
<td>48.3</td>
<td>37.6</td>
</tr>
<tr>
<td>Cash on hand*3</td>
<td>355.5</td>
<td>423.7</td>
<td>341.1</td>
<td>392.6</td>
<td>340.8</td>
<td>339.9</td>
<td>292.2</td>
<td>338.4</td>
<td>322.6</td>
</tr>
</tbody>
</table>

*1 Cash flow from investing activities excludes changes in time deposits and short-term investments.

*2 Free cash flow = cash flow from operating activities + cash flow from investing activities (excluding changes in time deposits and short-term investments).

*3 Cash on hand includes cash and cash equivalents + time deposits and short-term investments with original maturities of more than three months.
## Consolidated 10-year Financial Summary

### (Millions of Yen)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>668,722</td>
<td>633,091</td>
<td>497,299</td>
<td>612,170</td>
<td>613,124</td>
<td>663,948</td>
<td>799,719</td>
<td>1,130,728</td>
<td>1,278,240</td>
<td>1,127,286</td>
</tr>
<tr>
<td><strong>Semiconductor production equipment</strong></td>
<td>511,331</td>
<td>477,873</td>
<td>392,026</td>
<td>478,841</td>
<td>576,242</td>
<td>613,032</td>
<td>749,893</td>
<td>1,055,234</td>
<td>1,166,781</td>
<td>1,060,997</td>
</tr>
<tr>
<td><strong>FPD production equipment</strong></td>
<td>66,721</td>
<td>69,888</td>
<td>20,160</td>
<td>28,377</td>
<td>32,709</td>
<td>44,687</td>
<td>49,387</td>
<td>75,068</td>
<td>111,261</td>
<td>66,092</td>
</tr>
<tr>
<td><strong>PV production equipment</strong></td>
<td>90,216</td>
<td>84,867</td>
<td>84,664</td>
<td>100,726</td>
<td>111,261</td>
<td>111,261</td>
<td>111,261</td>
<td>111,261</td>
<td>111,261</td>
<td>111,261</td>
</tr>
<tr>
<td><strong>Computer network</strong></td>
<td>461</td>
<td>448</td>
<td>479</td>
<td>495</td>
<td>527</td>
<td>555</td>
<td>6,228</td>
<td>438</td>
<td>425</td>
<td>197</td>
</tr>
<tr>
<td><strong>Electronic components</strong></td>
<td>401,73</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
<td>398,32</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>234,758</td>
<td>211,444</td>
<td>158,754</td>
<td>201,892</td>
<td>242,773</td>
<td>267,209</td>
<td>322,291</td>
<td>475,032</td>
<td>526,183</td>
<td>451,941</td>
</tr>
<tr>
<td><strong>Gross profit margin</strong></td>
<td>35.1%</td>
<td>33.4%</td>
<td>31.9%</td>
<td>33.0%</td>
<td>39.6%</td>
<td>40.2%</td>
<td>40.3%</td>
<td>42.0%</td>
<td>41.2%</td>
<td>40.1%</td>
</tr>
<tr>
<td><strong>SG&amp;A expenses</strong></td>
<td>136,887</td>
<td>151,001</td>
<td>146,206</td>
<td>169,687</td>
<td>154,660</td>
<td>150,420</td>
<td>166,594</td>
<td>193,860</td>
<td>215,612</td>
<td>214,649</td>
</tr>
<tr>
<td><strong>Operating income</strong></td>
<td>97,870</td>
<td>60,443</td>
<td>12,548</td>
<td>32,204</td>
<td>88,113</td>
<td>116,788</td>
<td>155,697</td>
<td>281,172</td>
<td>310,571</td>
<td>237,292</td>
</tr>
<tr>
<td><strong>Operating margin</strong></td>
<td>14.6%</td>
<td>9.5%</td>
<td>2.5%</td>
<td>5.3%</td>
<td>14.4%</td>
<td>17.6%</td>
<td>19.5%</td>
<td>24.9%</td>
<td>24.3%</td>
<td>21.0%</td>
</tr>
<tr>
<td><strong>Ordinary income</strong></td>
<td>99,579</td>
<td>60,602</td>
<td>17,766</td>
<td>11,756</td>
<td>92,949</td>
<td>106,466</td>
<td>149,116</td>
<td>275,242</td>
<td>321,508</td>
<td>244,626</td>
</tr>
<tr>
<td><strong>Net income attributable to owners of parent</strong></td>
<td>71,924</td>
<td>36,725</td>
<td>6,076</td>
<td>-19,408</td>
<td>71,888</td>
<td>77,891</td>
<td>115,208</td>
<td>248,228</td>
<td>185,206</td>
<td>185,206</td>
</tr>
<tr>
<td><strong>Depreciation and amortization</strong></td>
<td>17,707</td>
<td>24,197</td>
<td>26,630</td>
<td>24,888</td>
<td>20,878</td>
<td>19,257</td>
<td>17,872</td>
<td>20,619</td>
<td>24,323</td>
<td>29,107</td>
</tr>
<tr>
<td><strong>Capital expenditures</strong></td>
<td>101,919</td>
<td>64,046</td>
<td>16,686</td>
<td>35,487</td>
<td>92,449</td>
<td>157,549</td>
<td>280,737</td>
<td>321,662</td>
<td>244,976</td>
<td></td>
</tr>
<tr>
<td><strong>R&amp;D expenses</strong></td>
<td>70,568</td>
<td>81,506</td>
<td>73,248</td>
<td>78,863</td>
<td>71,349</td>
<td>76,286</td>
<td>83,000</td>
<td>97,103</td>
<td>113,980</td>
<td></td>
</tr>
<tr>
<td><strong>Interest-bearing debt</strong></td>
<td>7,996</td>
<td>4,402</td>
<td>3,756</td>
<td>13,531</td>
<td>71,888</td>
<td>77,891</td>
<td>115,208</td>
<td>248,228</td>
<td>185,206</td>
<td>185,206</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td>572,741</td>
<td>586,789</td>
<td>593,032</td>
<td>578,091</td>
<td>639,483</td>
<td>562,369</td>
<td>643,094</td>
<td>767,146</td>
<td>880,748</td>
<td>819,301</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>809,205</td>
<td>783,610</td>
<td>775,527</td>
<td>828,591</td>
<td>876,153</td>
<td>793,367</td>
<td>957,447</td>
<td>1,202,796</td>
<td>1,257,627</td>
<td>1,278,495</td>
</tr>
<tr>
<td><strong>Debt-to-equity ratio</strong></td>
<td>1.4%</td>
<td>3.6%</td>
<td>2.6%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td><strong>Equity ratio</strong></td>
<td>70.8%</td>
<td>74.6%</td>
<td>76.5%</td>
<td>69.8%</td>
<td>73.0%</td>
<td>67.2%</td>
<td>63.8%</td>
<td>70.0%</td>
<td>64.1%</td>
<td></td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>13.3%</td>
<td>6.3%</td>
<td>1.0%</td>
<td>-3.3%</td>
<td>11.8%</td>
<td>13.0%</td>
<td>19.1%</td>
<td>29.0%</td>
<td>30.1%</td>
<td>21.8%</td>
</tr>
<tr>
<td><strong>Cash flow from operating activities</strong></td>
<td>83,238</td>
<td>29,712</td>
<td>84,266</td>
<td>44,449</td>
<td>71,806</td>
<td>69,398</td>
<td>136,948</td>
<td>186,582</td>
<td>189,572</td>
<td>253,117</td>
</tr>
<tr>
<td><strong>Cash flow from investing activities</strong></td>
<td>-35,881</td>
<td>-8,352</td>
<td>-141,769</td>
<td>-19,599</td>
<td>155,737</td>
<td>150,013</td>
<td>28,893</td>
<td>-11,833</td>
<td>-84,033</td>
<td>15,951</td>
</tr>
<tr>
<td><strong>Net income per share</strong></td>
<td>10,343</td>
<td>10,684</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
</tr>
<tr>
<td><strong>Cash dividends per share</strong></td>
<td>65</td>
<td>80</td>
<td>51</td>
<td>50</td>
<td>143</td>
<td>237</td>
<td>352</td>
<td>624</td>
<td>758</td>
<td>588</td>
</tr>
<tr>
<td><strong>Number of employees</strong></td>
<td>10,343</td>
<td>10,684</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
<td>12,201</td>
</tr>
</tbody>
</table>

* From FY2019, the Company adopts “Partial Amendments to Accounting Standard for Tax Effect Accounting” (ASBJ Statement No. 28, revision on February 16, 2018). “Total assets” and "equity ratio" for FY2018 have been restated in the table in accordance with the revised accounting standard.


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  For the amount listed, because fractions are rounded down, there may be the cases where the total for certain account titles does not correspond to the sum of the respective figures for account titles. Percentages are calculated using full amounts, before rounding.

• Exchange risk
  In principle, export sales of Tokyo Electron’s mainstay semiconductor and FPD panel production equipment are denominated in yen. While some settlements are denominated in dollars, exchange risk is hedged as forward exchange contracts are made individually at the time of booking. Accordingly, the effect of exchange rates on profits is negligible.

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