Japan Display Inc.

# FY25/3 Full-Year Corporate Presentation

May 15, 2025

# PersonalTech
# For A Better World

Japan Display Inc.

JDI

# FY25/3 Overview

# FY25/3 Overview ①

- **Ending production at Mobara Fab by March 2026 to accelerate BEYOND DISPLAY growth strategy & drive a return to profitability & sustainable growth**
- **Ishikawa Fab will transform into a low-cost MULTI-FAB producing high-end displays, sensors, and advanced semiconductor packaging to flexibly service a broad range of customers**
- **In discussion with foundry partners to build out a fabless eLEAP business model and global ecosystem**
- **Strategic investment & partnership with OLEDWorks to jointly launch an advanced fab & R&D to deliver high-performance displays for critical industries including defense, automotive, and medical applications**

# FY25/3 Overview ②

- **Sales decreased 21% YoY on back of lower shipments of LCD smartphones and VR**
- **Lower operating profit & EBITDA on lower sales**
- **Took restructuring expenses on ending production at Tottori & Mobara Fabs**
- **Paying down debt & strengthening financial position continue to be urgent priorities**

# Today's Announcements

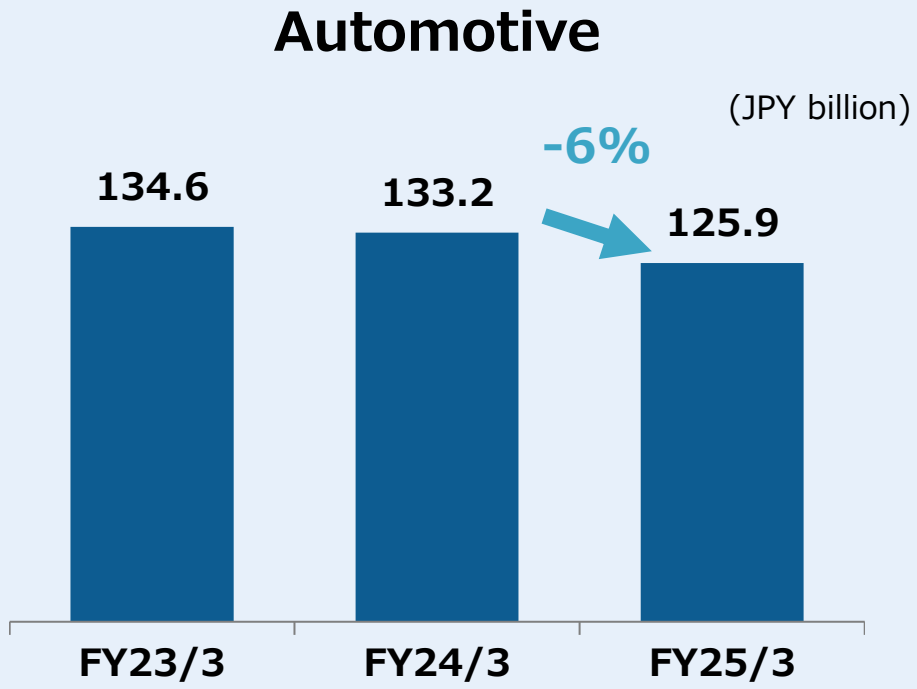
- **Workforce reduction to deliver fundamental improvement in cost structure & create an organization & workforce structure appropriate to business scale**
- **AutoTech automotive business becoming a new subsidiary on October 1st to increase speed of decisionmaking, expand external funding opportunities, & broaden strategic options**
- **MOU with Ichigo to strengthen financial position. Transferring to Ichigo Mobara Fab & part of JDI's IP to repay debt & secure funds to finance BEYOND DISPLAY growth strategy**
- **Scott Callon resigning as CEO to take responsibility for business performance – Jun Akema new CEO from June 1st**

# FY25/3 Overview | Automotive (Core)

**Lower Sales on Discontinuing Low-Margin Products, Lower End-Customer Demand, & Production End at Tottori Fab**

**AutoTech to Become New Subsidiary on October 1st to Increase Independence & Agility**

**Ishikawa MULTI-FAB to Be Foundry for AutoTech Business**



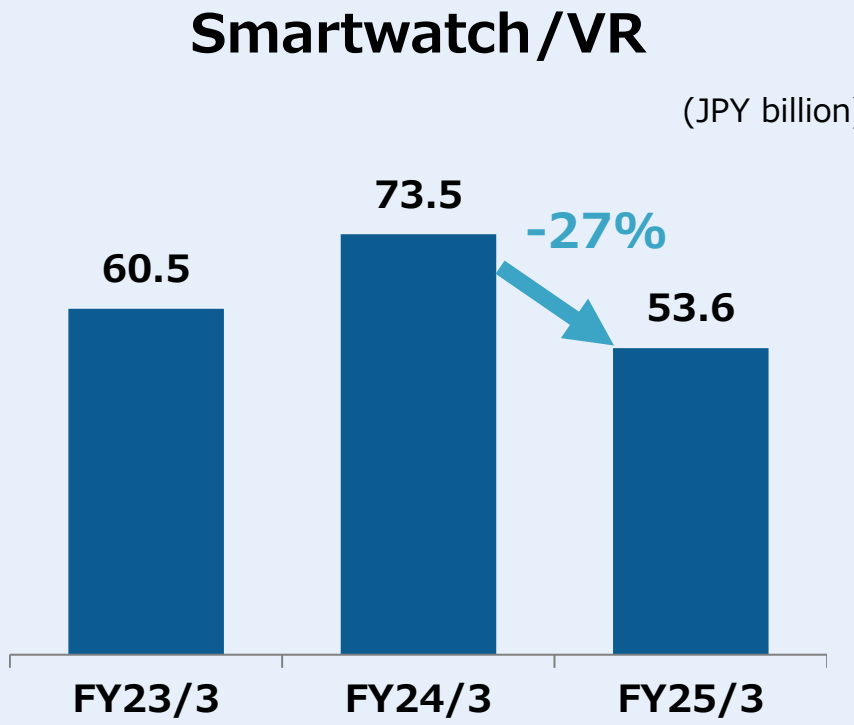

Note: To better reflect the nature of our business, JDI changed segment names from FY24/3 Q2 as follows: “Mobile” to “LCD Smartphone” and “Non-Mobile” to “Smartwatch/VR.” Please note that this is only a name change and does not impact the segment definitions themselves.

# FY25/3 Overview | Smartwatch/VR (Core)

**Lower Sales Due to Decreased Demand for High-Proportion Smartwatch and VR**

**Ishikawa MULTI-FAB Focusing on Higher-Profit DSC, Industrial, & Medical Businesses**

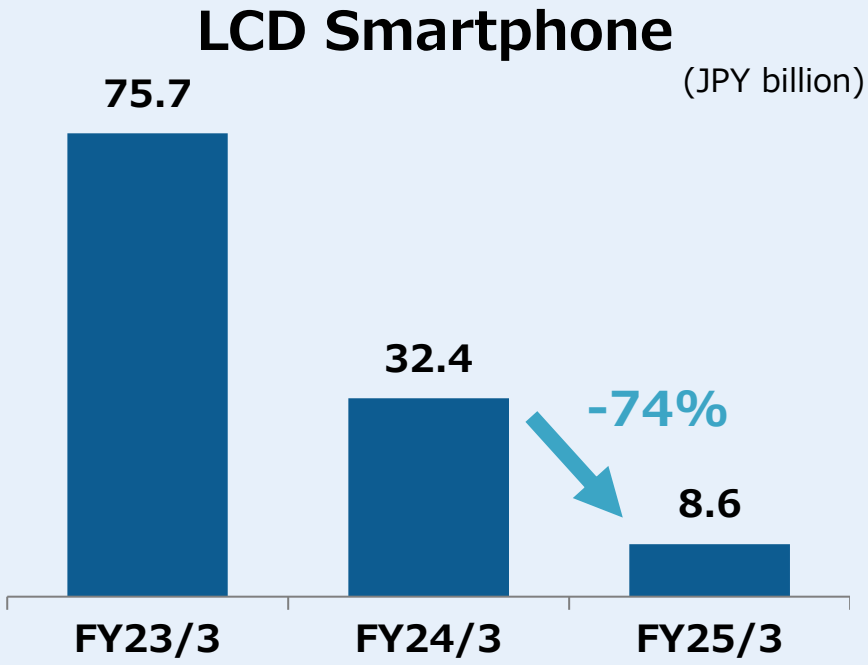
**eLEAP to Transition to Fabless Model with Foundry Partners**



# FY25/3 Overview | LCD Smartphone (Non-Core)

**Strategically Exiting Low-Profit LCD Smartphone Business**

**Shifting Engineering Resources to Sensors & Advanced Semiconductor Packaging to Drive BEYOND DISPLAY Growth Strategy**



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# FY25/3 Earnings

# FY25/3 Q4 (3M) Earnings Summary

## Reduced Fixed Costs, but EBITDA & OP Losses Widened on Lower Sales
## Net Loss Expanded on Recording One-Off Mobara & Tottori Fab Shutdown Costs & Impairments

| (Units: JPY billion) | Result | YoY | |
|---|---|---|---|
| Sales | 44.6 | -24% | Core businesses (Automotive & Smartwatch/VR) down on weaker end-customer demand. Continued to downsize non-core LCD smartphone business |
| Core Businesses | 44.3 | -15% | |
| Non-Core Businesses | 0.3 | -96% | |
| EBITDA | -12.3 | -7.1 | Despite fixed cost reductions, losses widened on lower sales & non-cash inventory effects |
| Operating Profit | -13.3 | -6.9 | |
| Net Income | -29.5 | -23.1 | JPY 0.7B impairment loss (JPY 0.1B in FY24/3 Q4)<br>JPY 14.3B Mobara & Tottori Fab shutdown costs |

# FY25/3 Earnings Summary

## Better Product Mix & Reduced Fixed Costs, but EBITDA & OP Losses Widened on Lower Sales. Net Loss Expanded on Recording One-Off Mobara & Tottori Fab Shutdown Costs & Impairments

| (Units: JPY billion) | Result | YoY | |
|---|---|---|---|
| Sales | 188.0 | -21% | Core businesses (Automotive & Smartwatch/VR) down on weaker end-customer demand. Continued to downsize non-core LCD smartphone business |
| Core Businesses | 179.4 | -13% | |
| Non-Core Businesses | 8.6 | -74% | |
| EBITDA | -33.0 | -4.8 | Despite positive effects of withdrawal from low-margin products and reduced fixed costs, lower EBITDA & OP due to lower sales |
| Operating Profit | -37.1 | -2.9 | |
| Net Income | -78.2 | -33.9 | JPY 21.6B Mobara Fab impairment (JPY 11.1B in FY24/3)<br>JPY 16.7B Mobara & Tottori Fab shutdown costs |

# FY25/3 Difference between Forecast & Actual Results

## EBITDA & OP Losses Widened on Mobara Fab Shutdown-Related Inventory Writedown
## Net Loss Widened on JPY 14.3B Mobara & Tottori Fab Shutdown Costs

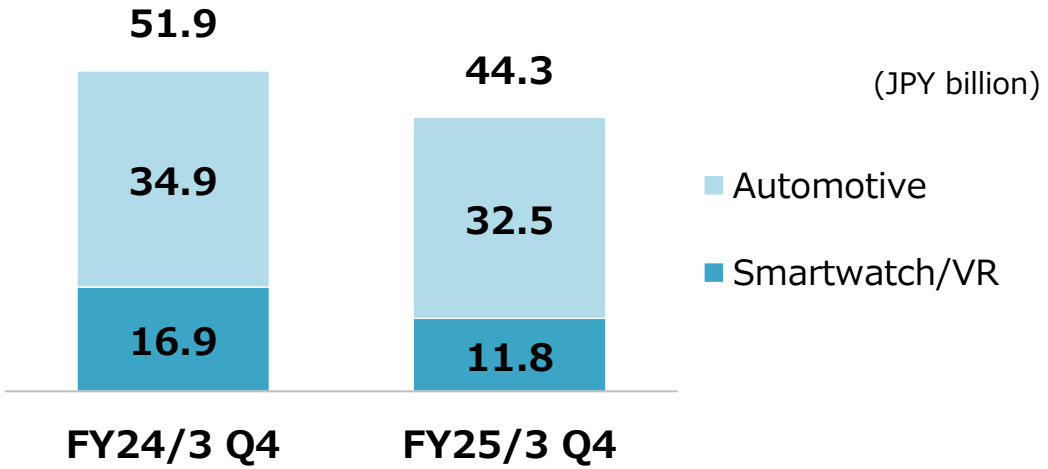
| (JPY billion) | FY25/3 FCST Full-Year | FY25/3 Full-Year | Diff |
|---|---|---|---|
| **Sales** | **180.0** | **188.0** | **+8.0** |
| Automotive (Core) | 119.7 | 125.9 | +6.2 |
| Smartwatch/VR (Core) | 51.7 | 53.6 | +1.9 |
| LCD Smartphone (Non-Core) | 8.6 | 8.6 | +0.0 |
| **EBITDA** | **-26.4** | **-33.0** | **-6.6** |
| **Operating Profit** | **-31.7** | **-37.1** | **-5.4** |
| **Recurring Profit** | **-36.8** | **-40.4** | **-3.6** |
| **Net Income** | **-62.1** | **-78.2** | **-16.2** |

※FX Avg : FY25/3 FCST USD/JPY=151.4, FY25/3 USD/JPY＝152.6

# FY25/3 Q4 (3M) Sales by Segments

## Core Business (Automotive, Smartwatch/VR) Sales Down on Weaker End-Customer Demand
## LCD Smartphone Down on Strategic Downsizing

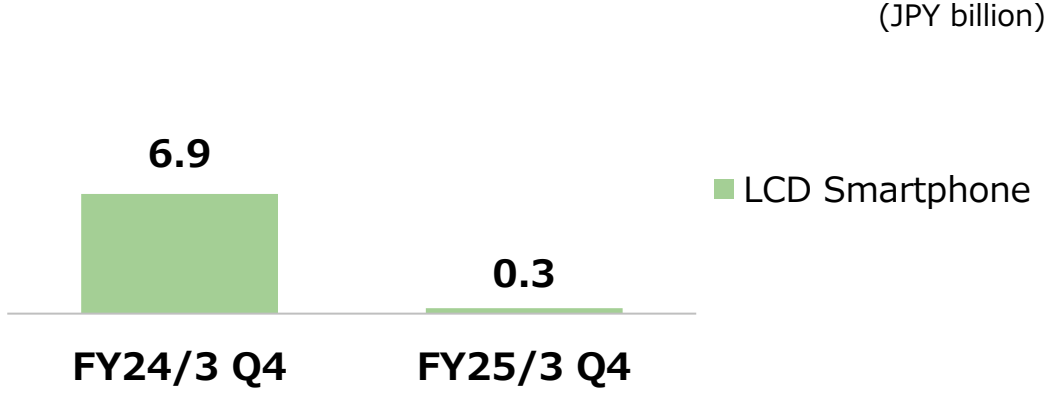
Core Businesses




**Automotive (YoY -7.0%)**
Despite increased new product sales, down on ending low-margin products & reduced end-customer demand from Chinese EV makers' market share growth

**Smartwatch/VR (YoY -30.3%)**
Reduced OLED smartwatch sales

Non-Core Businesses

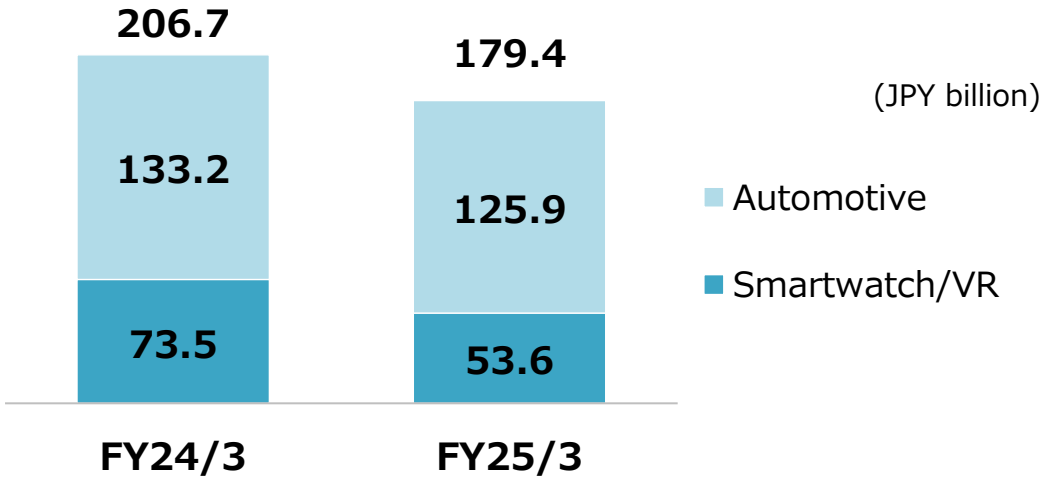



**LCD Smartphone (YoY -96.3%)**
Strategically exiting non-core LCD Smartphone business to focus resources on core businesses and next-generation products

# FY25/3 Sales by Segments

## Core (Automotive, Smartwatch/VR) Sales Down on Lower End-Customer Demand
## Non-Core LCD Smartphone Down on Strategic Downsizing

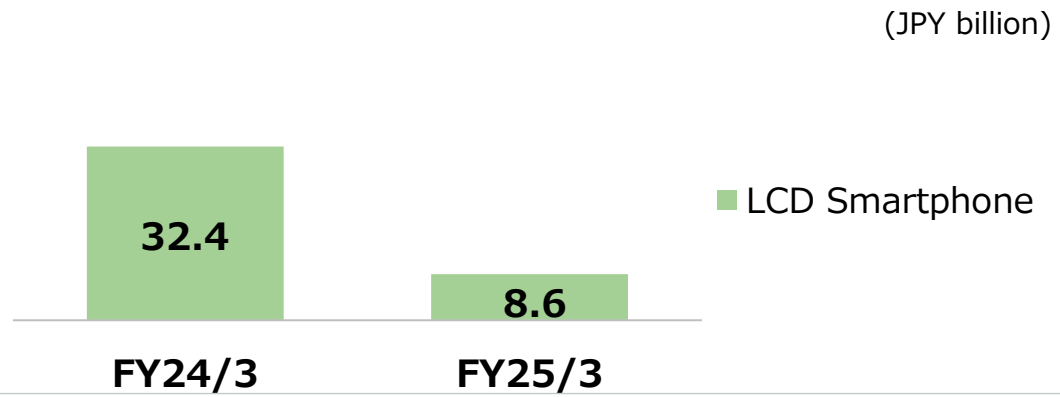
Core Businesses




**Automotive (YoY -5.5%)**
Despite increased new product sales, down on ending low-margin products & reduced end-customer demand from Chinese EV makers' market share growth

**Smartwatch/VR (YoY -27.1%)**
Lower sales across VR & OLED smartwatch

Non-Core Businesses

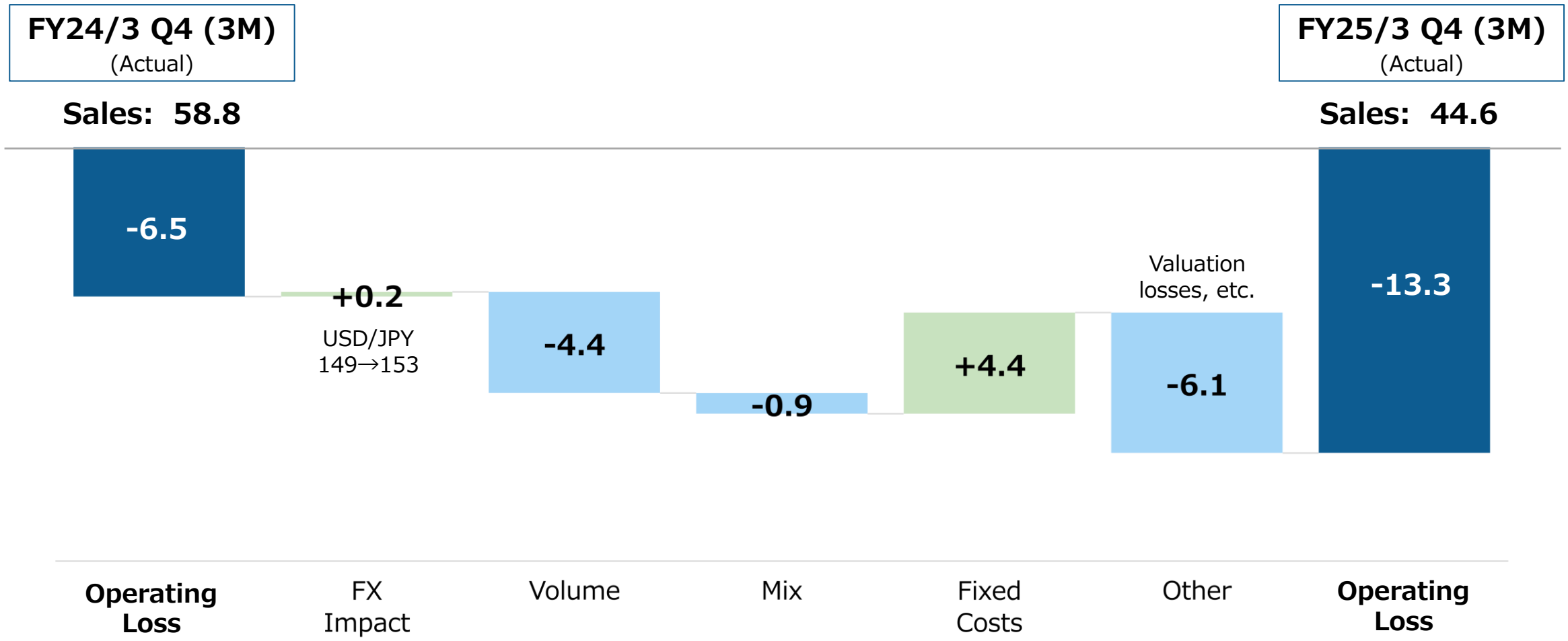



**LCD Smartphone (YoY -73.5%)**
Strategically exiting non-core LCD Smartphone business to focus resources on core businesses and next-generation products

# FY25/3 Q4 Operating Profit (YoY)

## Year-on-Year

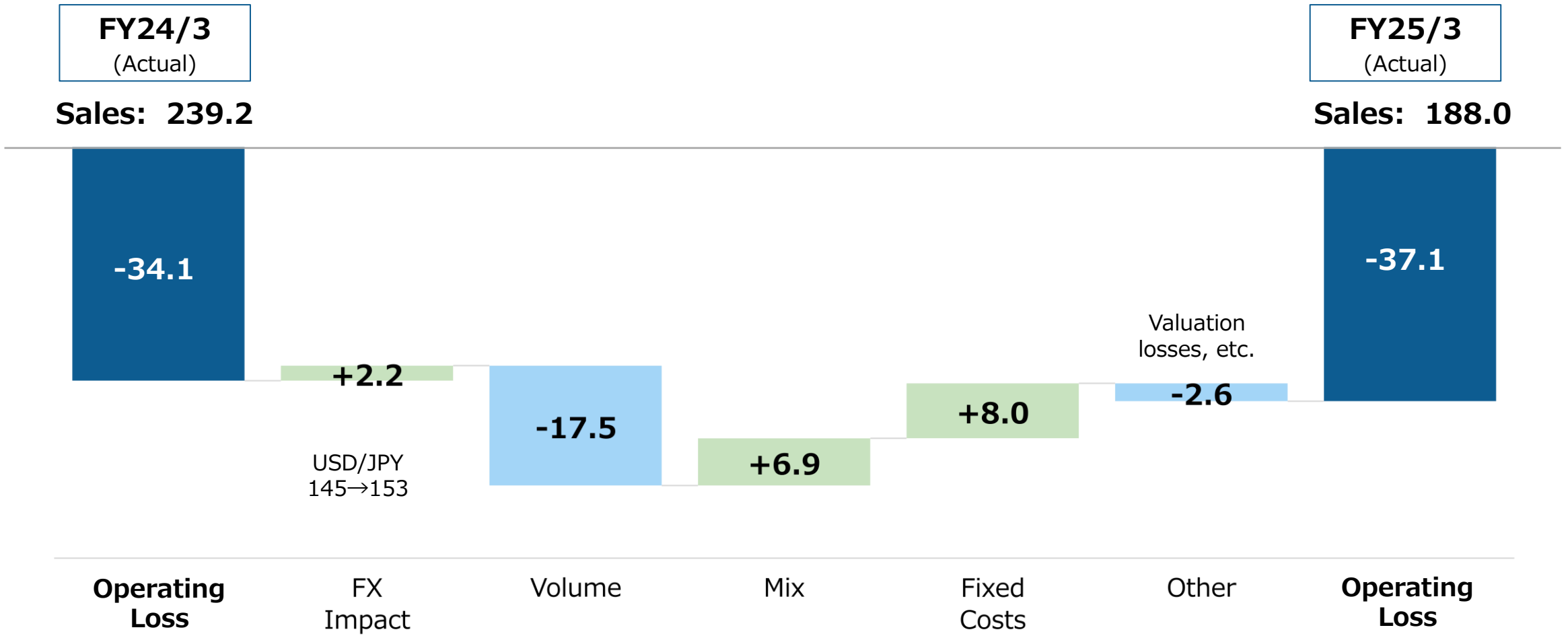
(JPY billion)



# FY25/3 Operating Profit (YoY)

## Year-on-Year

(JPY billion)



# FY26/3 Forecast

- **Due to the significant earnings impact from the actions JDI is taking this year to execute a significant transformation in its business model, earnings structure, and profitability, JDI is not disclosing an FY26/3 earnings forecast at this time**

- **JDI will promptly disclose its FY26/3 forecast heightened visibility on the details of these actions' earnings outcomes this year, including:**
  - **Mobara Fab & Partial IP Transfer to Ichigo**
  - **Creation of New AutoTech Subsidiary**
  - **Workforce reduction**
  - **BEYOND DISPLAY growth strategy execution**

# Roadmap to FY27/3 Profitability ①

## Cost Reductions & Earnings Growth to Drive Profitability from FY27/3

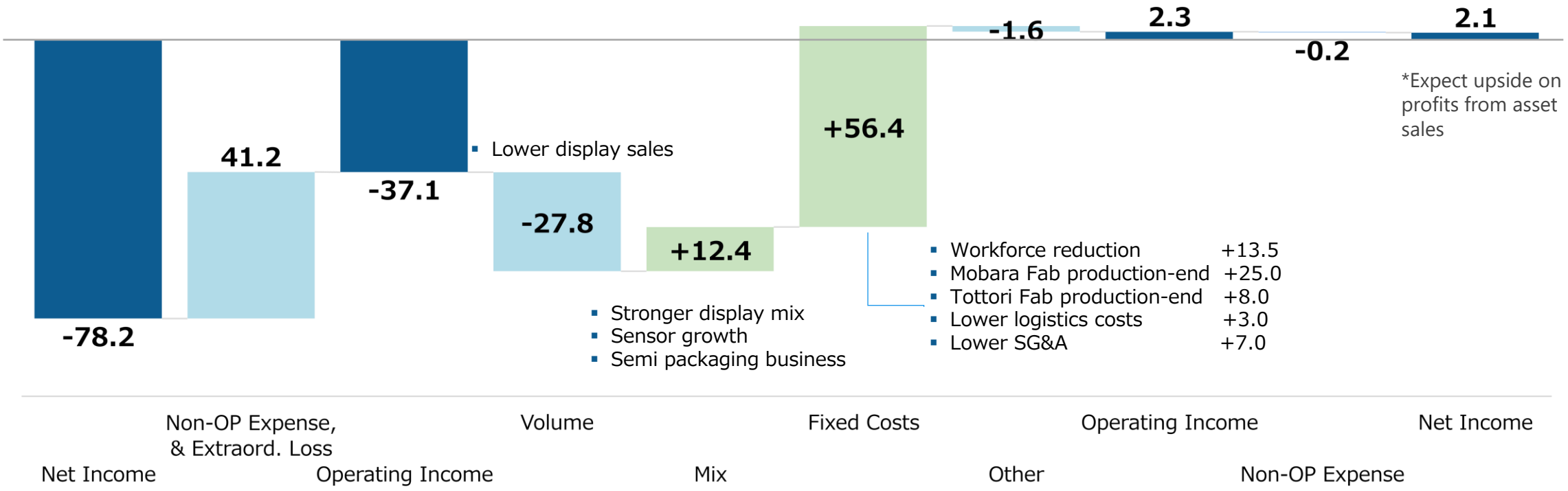
(JPY billion)

**FY25/3**
(Actual)

**Sales: 188.0**

**FY27/3**
(Forecast)

**Sales: 80.0**




- Lower display sales

- Stronger display mix
- Sensor growth
- Semi packaging business

- Workforce reduction +13.5
- Mobara Fab production-end +25.0
- Tottori Fab production-end +8.0
- Lower logistics costs +3.0
- Lower SG&A +7.0

*Expect upside on profits from asset sales

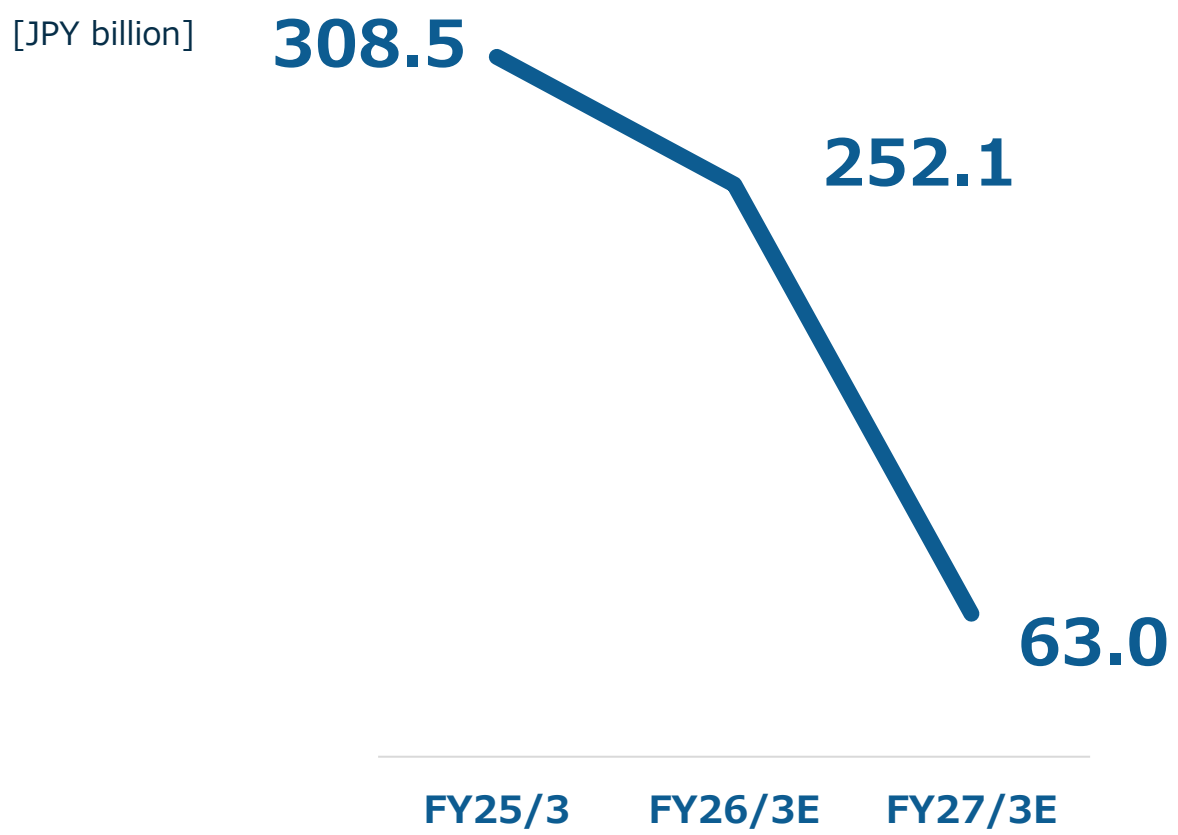
# Cost Reductions & Earnings Growth to Drive Profitability from FY27/3

| Actions | Breakdown | Earnings Contribution |
|---|---|---|
| BEYOND DISPLAY Strategy Execution | • Improved display product mix<br>• Sensor sale growth<br>• Advanced semiconductor packaging business launch | JPY +12.4B |
| Fixed Cost Reductions (Fabs & Workforce) | • Production end at Mobara Fab<br>• Production end at Tottori Fab<br>• Workforce reduction | JPY +46.4B |
| Fixed Cost Reductions (Logistics & SG&A) | ・Lower logistics costs<br>・Lower SG&A | JPY +10.0B |
| Total | | JPY +68.8B |

# Roadmap to FY27/3 Profitability ③

## 80% Reduction in Break-Even Point from FY25/3 to FY27/3

### Break-Even Point (Sales)



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# BEYOND DISPLAY
# Creating A New JDI

JDI

# BEYOND DISPLAY

# Relentless Focus on Driving Beyond Display Growth Strategy

**JDI is executing a radical transformation in its business**

**Executing on this BEYOND DISPLAY growth strategy is the fundamental objective for JDI's new business path**

**All JDI actions are aligned with this strategy, aiming to create the right cost structure, focus, & technology capabilities for JDI’s global customers**

# BEYOND DISPLAY: Deploy JDI Core Capabilities to High Growth Areas

## JDI Core Capabilities

| World-Class Technology | Robust IP Portfolio | Deep Customer Trust | Robust Geopolitical Position |
|---|---|---|---|
| JDI brings together deep technology & engineering capabilities from Hitachi, Sony, and Toshiba | Robust IP portfolio comprising over 16,000 patents means JDI receives substantial revenues from cross-licensing agreements with other display manufacturers | World-class quality coupled with established customer relationships results in customer trust and brand loyalty | JDI offers Japan-based supply chain diversification and risk reduction in a world plagued with rising geopolitical tensions |

# Setting the Right Conditions for BEYOND DISPLAY

## JDI is committed to having the right set of capabilities to win for our global customers

- **Right Technology** for high margin markets in which we can capitalize on our experience and process excellence
- **Right Cost Structure** to allow for market-oriented pricing while sustaining JDI's customer-centered engineering and production capabilities
- **Right Speed & Flexibility** to react to new demands and advancements on the high-paced display, sensor and semiconductor markets
- **Right Financial Stability** to deliver JDI's ongoing excellence
- **Right Geopolitical Position** to reduce geopolitical risks for customers

# BEYOND DISPLAY Shift to Stronger Structural Profitability

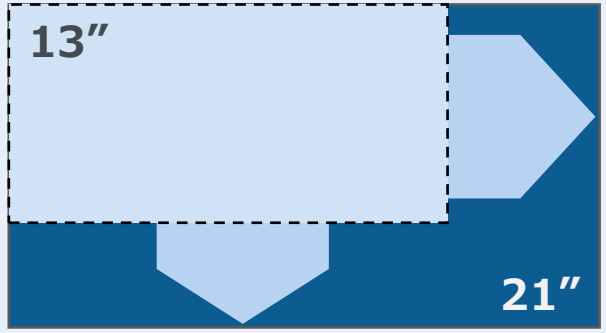
## Semiconductor, Sensor, & Micro-Display Manufacturing Economics Inherently Superior to Mass-Market Displays

### Semiconductors, Sensors, & Micro-Displays
### Miniaturization Principle


**Customers Prefer Smaller**

- Smaller sizes mean more product count per mother substrate
- Unit sale prices do not deteriorate with product size shrinkage
- Improving economics over time

### Mass-Market Displays
### Enlargement Principle




**Customers Prefer Bigger**

- Larger sizes mean less product count per mother substrate
- Increase of unit sale prices does not scale with growth in display sizes
- Worsening economics over time

# Greater Independence for JDI's Automotive Business

## BEYOND DISPLAY is delivering more speed & flexibility


**JDI's automotive display business become a subsidiary as AutoTech Inc. in October 2025**

This will support JDI AutoTech to achieve:

- **Independent management decisions and rapid decision-making**
- **Expand possibilities for external funding**
- **Increased future strategic options, including collaboration with external partners**

# Global Workforce Reduction

## JDI is Right-Sizing Its Organization & Workforce to Lower Costs & Increase Competitiveness

### Announced Measures

- Ending production at the Mobara Fab by March 2026
- Consolidating production at the Ishikawa Multi-Fab
- Also reduced executive and employee bonuses

Changes are expected to start showing major benefits from FY27/3.

### New Measures to Strengthen Financial position

Workforce reduction in Japan & global subsidiaries

**Japan Voluntary Retirement Target: ~1,500 Employees**

(Total number of Japan employees as of March 31, 2025: 2,639)

## Forecast Target Annual Cost Savings: c. JPY 13.5 Billion

# Ichigo MOU to Strengthen Financial Position

## MOU with Ichigo to Repay JPY 65B in Debt & Secure Funds to Finance BEYOND DISPLAY Growth Strategy

### Mobara Fab

**Transfer Mobara Fab to Ichigo**

### IP Sale

**Transfer certain JDI IP to Ichigo**

JDIDD = JDI Design and Development G.K.

# Ishikawa MULTI-FAB as Manufacturing Hub for BEYOND DISPLAY

## Ishikawa Fab to Become MULTI-FAB
## Highly Flexible, World-Leading Technology, & Low Cost

### Advanced G4.5 Displays

- 1/4 of the fixed costs of Mobara Fab
- Lower costs drive higher competitiveness & fab utilization & lower costs to customers
- After further review, to put more focus on building out new BEYOND DISPLAY products, JDI has decided not to relocate G6 equipment to Ishikawa

### Ishikawa MULTI-FAB

- ✓ **Highly Flexible**
- ✓ **World-Leading Technology**
- ✓ **Low Cost**

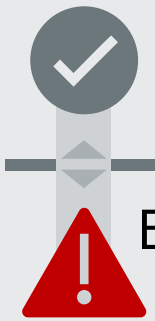
### Consolidation of JDI's Display, Semiconductor, and Sensor Businesses

- Smaller substrate sizes are more efficient for micro-display, semiconductor, & sensor production
- A single low-cost MULTI-FAB that can support the full range of JDI's BEYOND DISPLAY business portfolio

# Production End & Transformation of JDI's Mobara Fab

## To Reduce Fixed Costs & Generate Significant Sales Gains, JDI is Ending Mobara Fab Display Production & Selling as AI Data Center

Mobara Fab as
**G6 Display Fab**



Technologically Advanced Fab

BUT **Underloaded** & Thus Unprofitable

Mobara Fab as
**AI Datacenter**

- Mobara J1 building specs meet AI Datacenter requirements
- Mobara Fab currently offers **>100MW** of available power with room to grow
- Asset sale as data center will be robustly profitable

# Building Blocks Now in Place for JDI's BEYOND DISPLAY Strategy

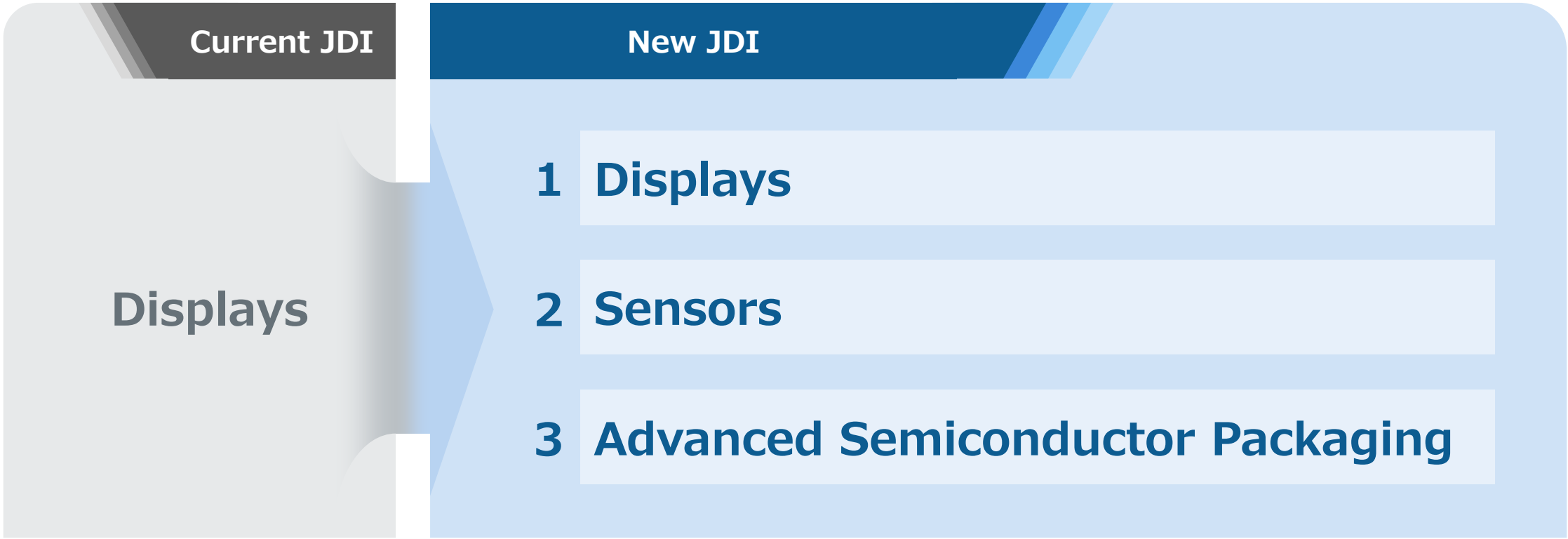
## BEYOND DISPLAY Will Drive Radical Increase in JDI Earnings, Growth, & Value for Shareholders and All Stakeholders


BEYOND DISPLAY

- Production End & Transformation of JDI's Mobara J1 Fab to AI Datacenter
- OLEDWorks Strategic Investment & Partnership for Advanced US Fab
- Ishikawa MULTI-FAB to Produce G4.5 Displays, Semiconductors, & Sensors
- PanelSemi Strategic Alliance for Advanced Semiconductor Packaging & Sensors
- eLEAP Fabless Transition & Large-Scale Capacity Expansion
- TEX Strategic Alliance for World-Leading Next-Gen 3D Semiconductor Integration
- Innovative Sensor Development & Alliances

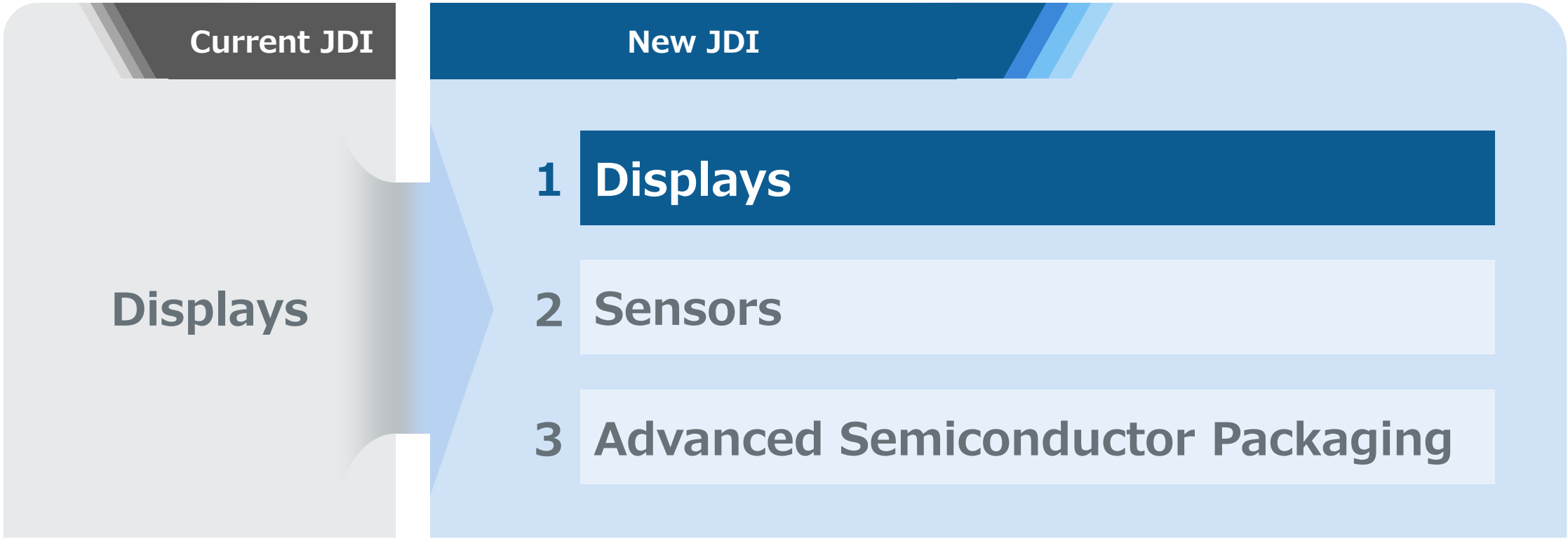
# BEYOND DISPLAY: Drive New Sources of Growth & Profitability

## Deploying JDI Resources to New High-Growth Areas




Note: JDI has shifted its approach to AI Datacenters to be asset sales that raise funds to finance the BEYOND DISPLAY growth strategy, so it is not an operational element of BEYOND DISPLAY.

# BEYOND DISPLAY: Drive New Sources of Growth & Profitability



# Displays: Structural Transformation to Profitability & Growth

**Displays are a foundational technology for modern society with a significant global market size of USD 120 billion annually**
**JDI has unmatched technological capabilities in displays to deliver customer & social value & improve people's lives**

## Key Actions for JDI Display Profitability

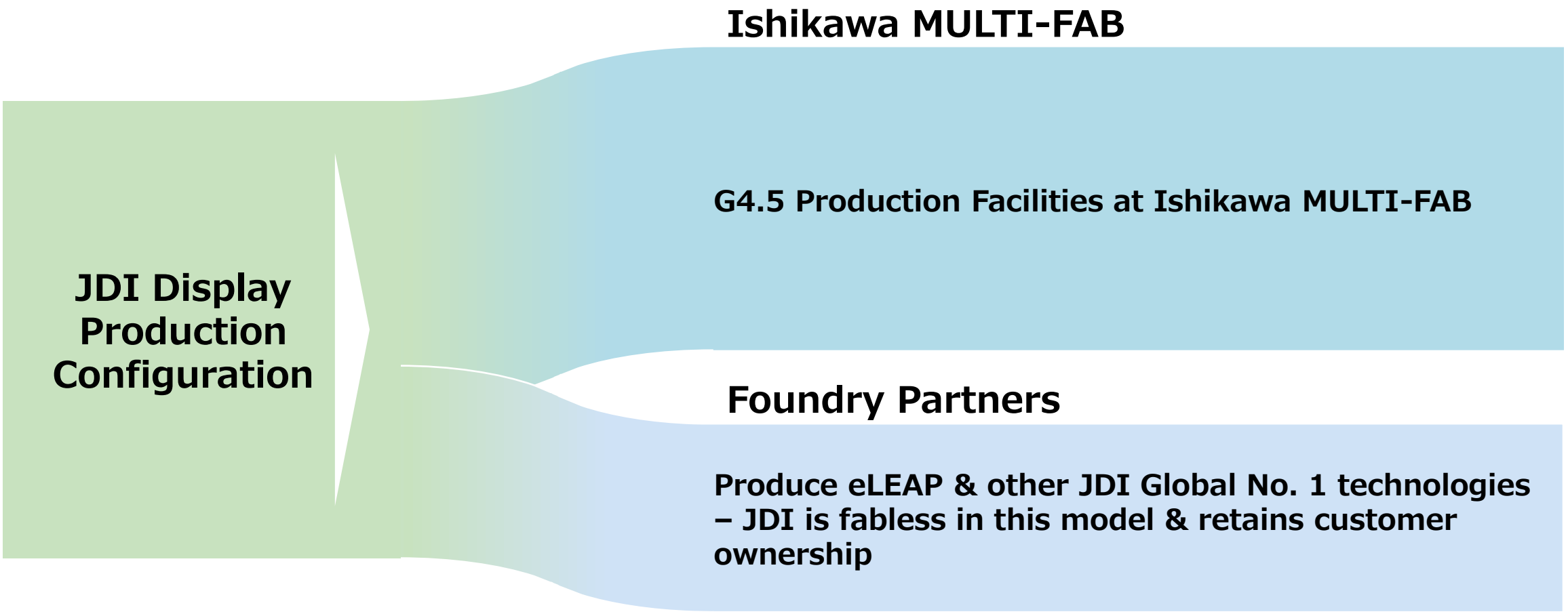
- **Deliver on JDI Global No. 1 Technology Leadership (eLEAP, 2VD, etc.)**
- **Sign Alliance Partnerships for eLEAP Global Ecosystem Buildout**
- **Drive Asset Light Business Model**
- **Further Cut Costs**



Source: TAM is from "Worldwide Flat Panel Display Market (Active Matrix)", OMDIA, October 2023

# JDI Ishikawa MULTI-FAB + Fabless Display Production

## JDI is shifting Mobara Fab display production to Ishikawa Fab & Foundry Partners



# OLEDWorks Partnership for US Advanced Display Manufacturing

## JDI is Partnering with OLEDWorks to Bring World-Leading Advanced Display Manufacturing to the United States

### OLEDWorks

- Global leader in multi-stack OLED technology
- Strong presence in the United States and multi-stack OLED technology, manufacturing, and product capabilities
- The only major OLED manufacturer outside of Asia

### JDI

- World-class know-how, technology, manufacturing, and product capabilities in advanced display and OLED
- Vast experience in Automotive, Industrial and Medical display projects and applications
- Established business relationships around the world with a strong footprint in North America

**The new U.S.-based fab will focus on delivering high-performance displays for critical industries including defense, automotive, and medical applications. Advanced displays are foundational to 21st century industrial competitiveness and national security.**

# OLEDWorks Partnership for US Advanced Display Manufacturing

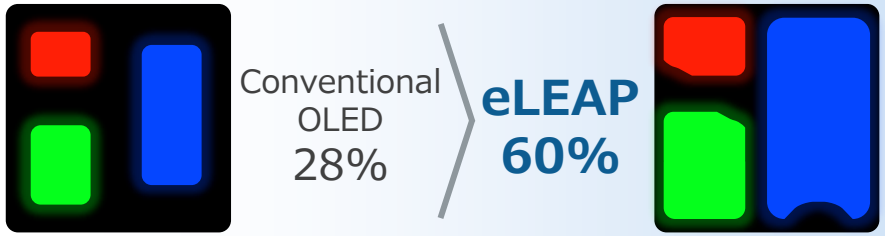
## Key Elements of OLEDWorks' and JDI's Display Manufacturing Plan

- Combination of world class display and OLED know-how, technology, manufacturing, and product capabilities
- Novel, scalable display manufacturing that will meet the needs of key stakeholders in U.S. defense, automotive, and medical industries
- Partnerships with customers to ensure long-term business sustainability
- Partnerships with U.S. suppliers of critical components, equipment, and materials for displays and display electronics
- Building a leading-edge U.S. advanced display R&D center and display manufacturing hub, working jointly with U.S. customers, suppliers, and technology partners
- Deepening of existing relationships with university partners to expand human resources required to expand display production in the U.S.
- Production of high-performance displays that meet both the near-term requirements and long-term technology roadmaps of our customers

# JDI Global No. 1 Technology Leadership: eLEAP

## eLEAP's Unprecedented Customer Value

### High Brightness (2X)




**Brightness, vividness & free shapes unimaginable with existing technology**

eLEAP

### Long Lifetime (3X)

| Lifetime Comparison | New | After 1yr | After 3yrs | After 5yrs |
|---|---|---|---|---|
| | 0h | 1000h | 3000h | 5000h |
| Conventional OLED |  |  |  |  |
| eLEAP |  |  |  |  |

※ Image assuming luminance deterioration due to 3h / day lighting with brightness equivalent to 600nit

# JDI Global No. 1 Technology Leadership: eLEAP

## eLEAP Is The Winning OLED Technology

### Despite Its Superb Performance, OLED Has Inherent Issues

These issues make OLED dysfunctional for a wide variety of display applications

- **Short Lifetime**
- **High Production Cost**

### eLEAP Powerfully Moves OLED Forward

eLEAP keeps all of OLED's advantages while solving its shortcomings

**eLEAP** + **Long Lifetime** + **Low Cost**

# JDI Global No. 1 Technology Leadership: eLEAP

## eLEAP's Unprecedented Environmental Value

**Maskless OLED deposition is a breakthrough, environment positive production process that eliminates mask cleaning chemicals**
**150k tons p.a. of CO2 emission reduction via deployment at JDI Mobara**

### 150k tons of yearly CO2 emissions =

**CO2 Absorption Volume of 17M cedar trees**

**Cedar forest the size of 3.7k Tokyo Domes**

CO2 emissions are JDI's calculations based on G6 Mobara plant at 30 k sheets/month

# eLEAP Transitions to a Fabless Model

**Now**

**eLEAP Line at Mobara J1**

**Going Forward**

## Fabless eLEAP Production with Foundry Partners

**Fabless + Foundry Model:**

- ✓ Increase eLEAP capacity
- ✓ Speed up eLEAP time to market
- ✓ Leverage foundry partners' highly competitive cost structures
- ✓ Reduce JDI capex

**JDI is in advanced discussions with foundry partners with respect to eLEAP production**

# JDI Global No. 1 Technology Leadership: 2 Vision Display (2VD)

## World's First Automotive Grade Dual Touch 2VD that Simultaneously Displays Different Content to Driver and Passenger

**JDI has developed the world's first 2 Vision Display (2VD) technology that meets automotive grade image quality requirements while simultaneously displaying different image content based on viewing direction**


**As another world first, JDI has incorporated Dual Touch into its new 2VD technology that identifies discrete touch operations from different users**



JDI Develops World's First Automotive Grade Dual Touch 2 Vision Display (2VD): LINK

# BEYOND DISPLAY: Drive New Sources of Growth & Profitability

| Current JDI | New JDI |
| --- | --- |
| Displays | 1 Displays |
| | **2 Sensors** |
| | 3 Advanced Semiconductor Packaging |

# Sensors: Massive Global Market with Strong Growth & Margins

**The sensor market is massive, with global market size of USD 295 billion in 2024, projected to grow to USD 426 billion by 2030**

**Sensors have a significant technical overlap with displays, so JDI has world-class advanced sensor technology that positions it to win in sensors**

**Sensors also have structurally higher margins – unlike displays, where increasingly larger display sizes push down profitability per surface area manufactured, sensors are much smaller and allow for significantly higher profitability per surface area**

**Smaller sensor sizes also mean that JDI can produce them efficiently with its current G4.5 fab – there's no need to do extraordinarily expensive capex and build next-generation fabs**



Source: Statista.com - Size of the global sensor market

# JDI's Highly Sophisticated Sensor Technology Portfolio

## JDI has a broad sensor technology portfolio which it can deploy towards the sensor market opportunity

**Virgo Smart Ring**

Life Science Sensor

**X-Ray Sensor**

Life Science Sensor

**Depth Sensor**

Industrial Sensor

**Fingerprint Sensor**

Security/IOT Sensor

**Biometric Sensor**

Life Science Sensor

**Flexible Tactile Sensor**

Life Science Sensor

**ZINNSIA**

Input/IOT Sensor

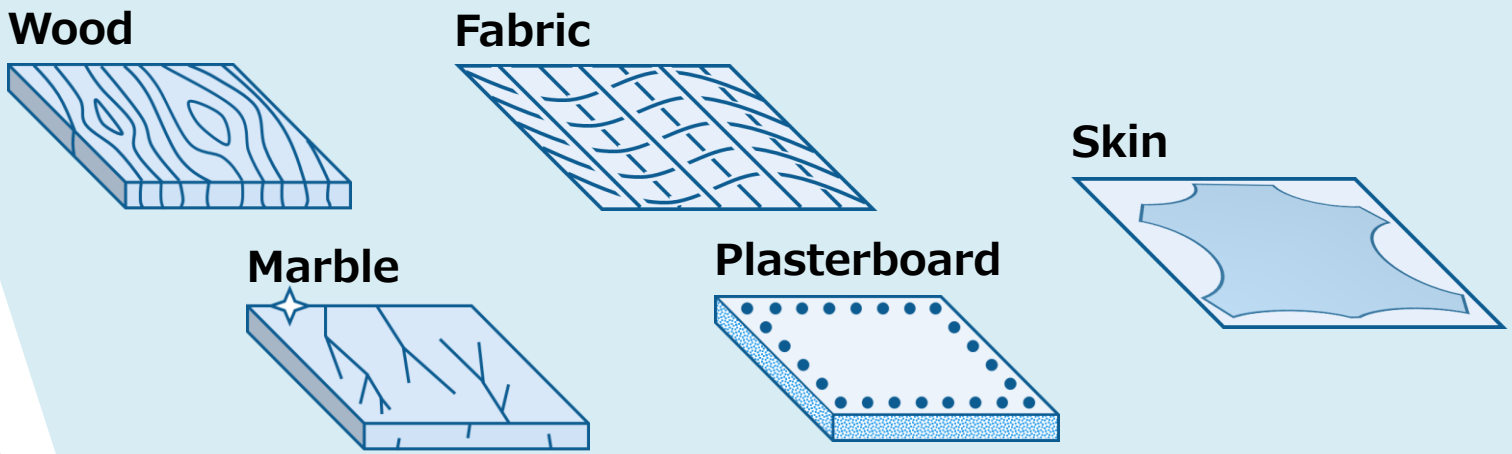
**5G Millimeter Wave Reflector**

Industrial Sensor

# JDI Global No. 1 Technology Leadership: ZINNSIA ①

## JDI's World-Leading High-Precision Sensor Interface that Transforms a Broad Range of Materials into Sensors and Touch Controls

**ZINNSIA makes it possible to sense movements even on materials that were previously difficult to use as sensors**




**Because ZINNSIA can be used across a broad range of materials, it will drive new applications of sensor & touch technology in a wide variety of new markets**

# With ZINNSIA, Everything Is A Switch

# ZINNSIA – Key Features ③

## Reasons for ZINNSIA Precise Detection Capabilities:

- Sensor Design ✓
- Proprietary Custom ICs ✓
- System Driven ✓
- Firmware (Algorithm) ✓

**Using JDI's advanced process knowledge and manufacturing expertise, ZINNSIA has:**

- Excellent Noise Resistance
- Unrestricted Sensor Substrate (Bendable)
- Full range of sizes
- Product-specific Firmware Adjustment

# Strategic Partnership with Obsidian Sensors

## JDI & Obsidian Sensors to Partner in Producing High-Resolution Thermal Imaging Sensors

### Obsidian Sensors (US)

By integrating TFT configurations on glass substrates and surface microfabrication technology through the LAMP process, Obsidian is the only company in the world capable of producing high-resolution thermal imaging sensors at low cost and in large quantities.

**High resolution uncooled microbolometers on glass**

### JDI Ishikawa Fab

Leadership role in high resolution displays. By applying the innovative design and manufacturing technology of Obsidian Sensors, Inc. along with our state-of-the-art high-resolution TFT glass substrate manufacturing technology to this sensor development, we aim to establish a competitive advantage.

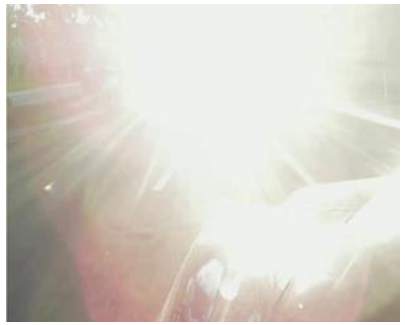


Image via Optical Camera


Image via Obsidian Thermal Sensor

The partnership will deliver thermal imaging sensors with improved resolution, leveraging the innovative design, manufacturing technology, and intellectual property of Obsidian Sensors, Inc.'s LAMP (Large Area MEMS Platform) and JDI’s fine processing technology, intellectual property, and production equipment cultivated in the manufacturing of high-resolution TFT (Thin Film Transistor) glass substrates.

# JDI Global No. 1 Technology Leadership: X-Ray Sensors

## Sensor Panels for X-ray Inspection Equipment Using Cutting-Edge Backplane Technology

JDI designs, sensors for medical and industrial X-ray inspection systems by applying our advanced semi-conductor and TFT technologies. Providing sensor panels with various features according to customers' needs

Usage for Healthcare Applications

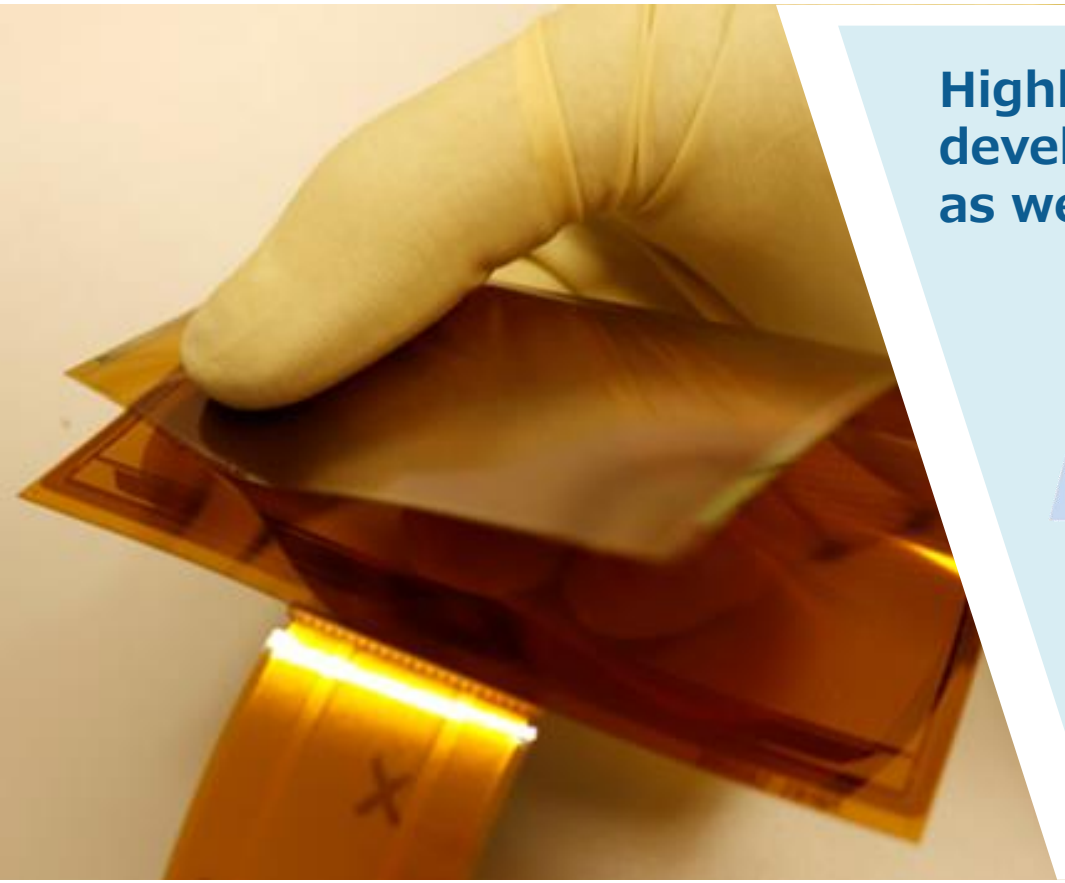
&

Usage for Industrial Applications

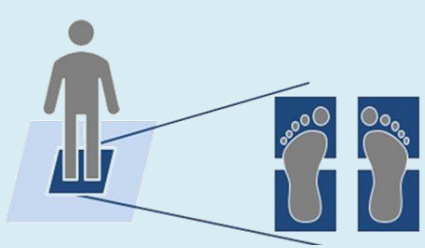
Capable of capturing high-resolution X-ray images, enabling accurate diagnoses in medical settings and precise inspections in industrial environments

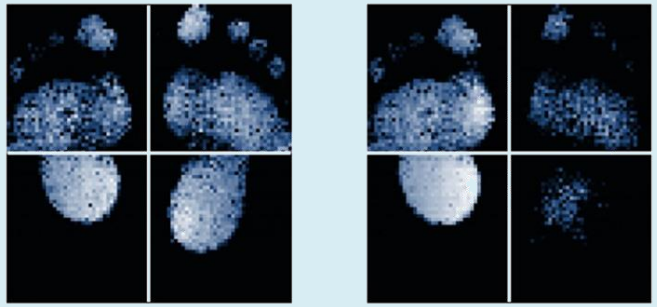
# JDI Global No. 1 Technology Leadership: Flexible Tactile Sensors

## JDI Flexible LTPS TFT Tactile Sensors with Active-Matrix Technology Enables High-Precision Measurement Over a Wide Area



**Highly accurate tactile measurement is required for the development of a number of new technologies & products, as well as for advanced sports and medical research**





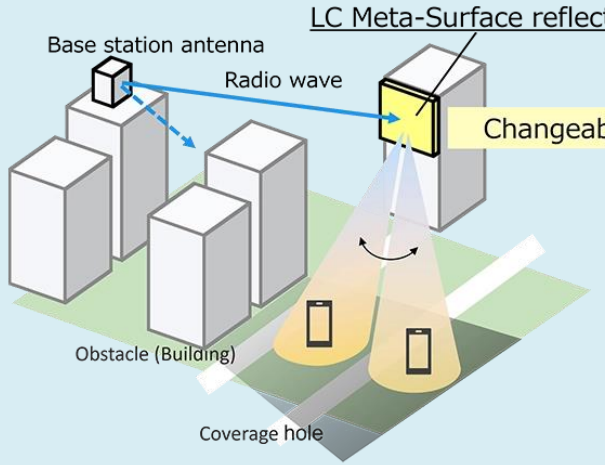
**Weight Distribution Measurement**

**A high-resolution, crosstalk-free flexible tactile sensor by combining advanced active-matrix tech used in displays with a conductive pressure sensitive layer**

# JDI Global No. 1 Technology Leadership: 5G Millimeter Wave

## World-Leading 5G Meta-Surface Millimeter Wave Reflectors that Significantly Improve 5G Transmissions Infrastructure


**5G Meta-Surface reflector technology applies JDI's world-leading expertise in liquid crystals to optimize and significantly improve 5G radio wave transmissions**

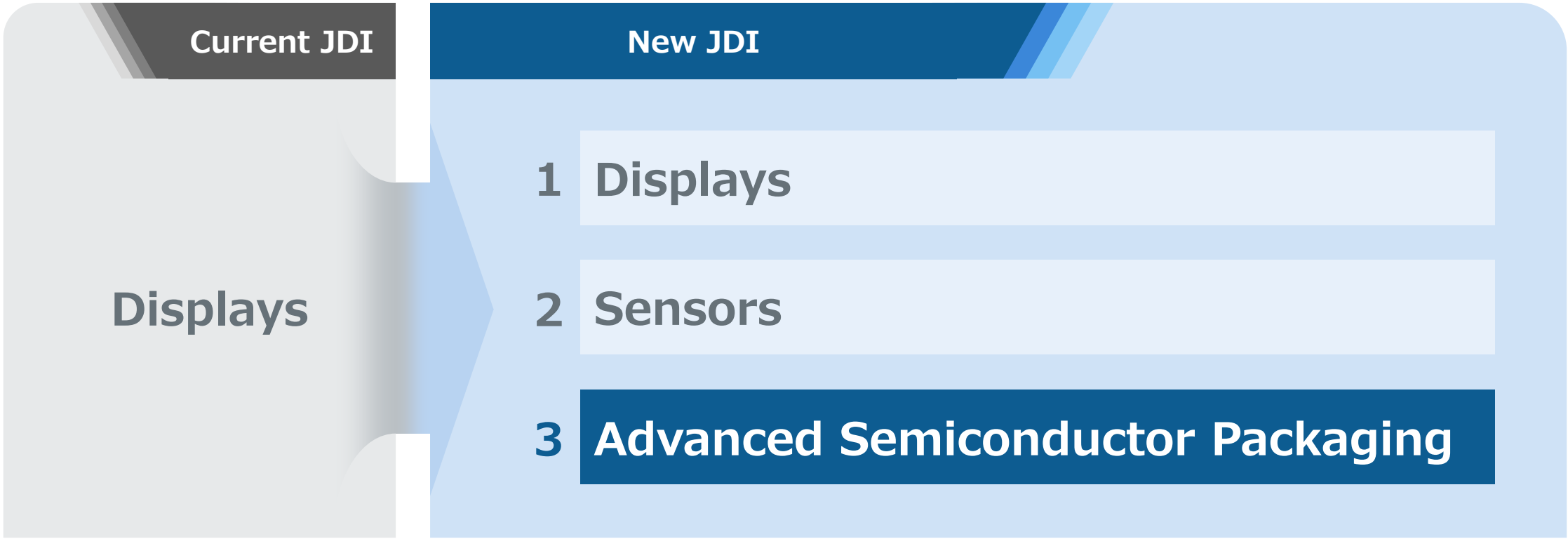



▶ **Area Adaptation**
Adjustment due to environmental change

▶ **Dynamic Area Construction**
Adjustment to changes in human flow

**Enables reflecting & controlling of high-capacity millimeter waves to optimize 5G transmission in areas with poor communication coverage**

# BEYOND DISPLAY: Drive New Sources of Growth & Profitability



# ASP: Technology Shift to Glass Requires JDI Capabilities ①

**Advanced Semiconductor Packaging (ASP) a large & growing market, with global market size of USD 50 billion in 2024, projected to grow to USD 133 billion by 2034**

**ASP undergoing a major technology shift from organic to glass substrates, because AI semiconductors' heat output exceeds the thermal tolerances of organic substrates and increasing use of chiplets requires larger glass substrates**

**Major semiconductor manufacturers are thus buying display fabs, which offer high-resolution glass processing capabilities (e.g., TSMC buying Innolux fabs (from Aug '24) , Micron buying AUO fabs (from Aug '24))**



Source: Precedence Research – Semiconductor Packaging Market

# ASP: Technology Shift to Glass Requires JDI Capabilities ②

**JDI is the world leader in ultra-high resolution processing of glass substrates for displays, such as its development of JDI's world's highest resolution VR displays (2500 ppi), so its capabilities are deeply relevant to ASP**

**JDI is currently in discussions with multiple semiconductor industry partners to pursue ASP together**

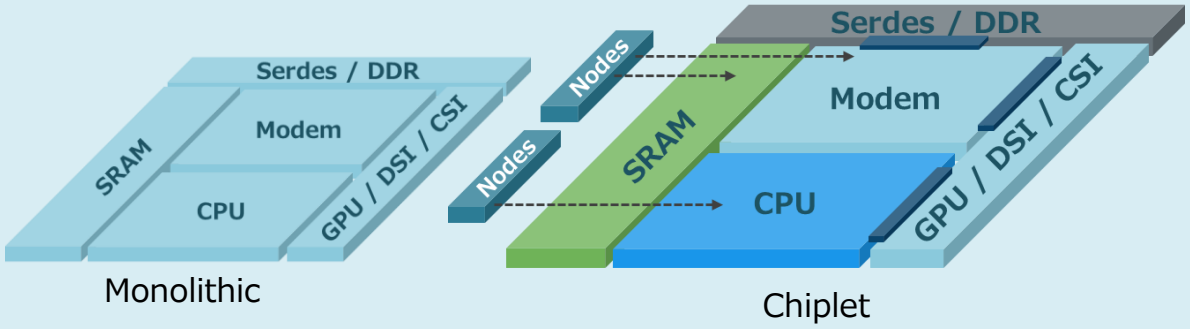
# Trends in Chiplets and Semiconductor Packaging Substrates

In response to the evolution of Moore's Law, not only Semiconductor Frontend processes but also **Backend processes are evolving**

Current trends and standards include chipletization, interposer adoption, high-density wiring, and low dielectric constant progress. This hints at the need for larger substrate sizes and increased usage of glass for substrates and interposers.

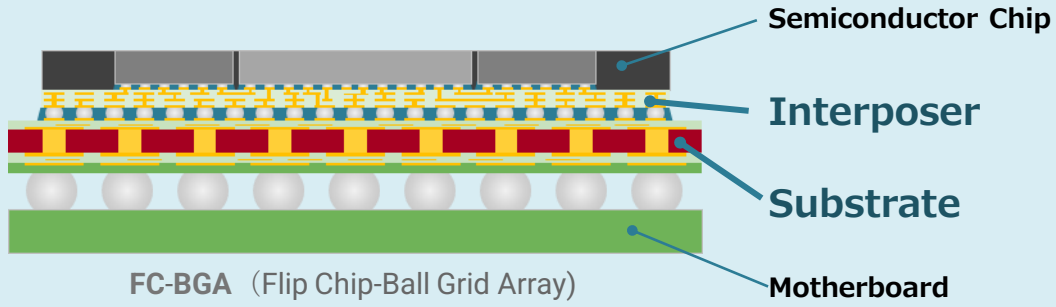
## Chipletization

- Standardization by a consortium, including major semiconductor manufacturers and fabless companies lead to emergence of chiplets instead of a monolithic setup
- It is difficult to make larger monolithic ICs, because wafer size and thus the number of units per wafer is limited.
- **As a result, larger substrate sizes are required for a chiplet approach**




## High-density wiring, low dielectric constant, & larger sizes

- AI processor manufacturers consider glass cores (base material for substrate) and aim for a **size enlargement** of up to 240 sqmm
- Large sizes are prone to warping if organic substrates are used, more rigid **glass substrates** support larger size manufacturing
- Also, high transfer speeds requires a low dielectric constant, for which **glass substrates** shows better performance
- **Glass** is also a highly promising target material for interposers




**The shift to larger substrate sizes, adoption of glass, & requirements for high density wiring are a significant JDI technology opportunity**

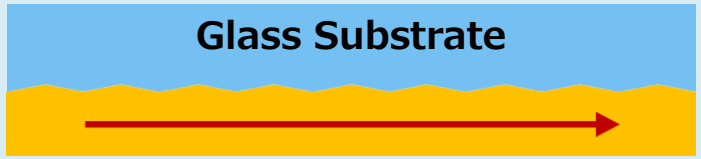
# JDI's Glass Substrates Are The Superior ASP Solution

## The use of the right substrate in advanced semiconductor packaging is crucial to reach the required performance criteria

**Glass has a smoother surface compared to Organic substrates, resulting in less transmission loss at high frequencies**

At high frequencies, due to the skin effect, signals are transmitted only on the surface, so the smooth surface of the glass substrate results in less signal loss


**Surface roughness approximately 2um (Skin depth approximately 0.4um @28Ghz)**




**Surface roughness < 0.01um**

**&** **Glass substrates are highly rigid, have low distortion, and excellent thermal stability, making it possible to create fine wiring patterns of several um lines/spaces suitable for high-density signal wiring.**

→ **Glass Substrates = Improvements to both Electrical and Mechanical Properties**

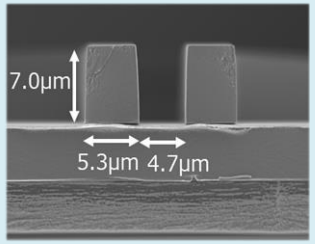
Major semiconductor manufacturers are accelerating the development of glass substrates as next-generation semiconductor package substrates (interposers), and expansion of glass substrate processing technology and supply chains can be expected.

## JDI can produce glass substrates using existing TFT backplane processes, enabling larger sizes and lower costs

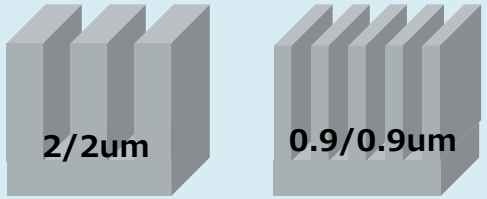
# JDI ASP Technology Applications & Capabilities

## High-Density Wiring

L/S=5/5um

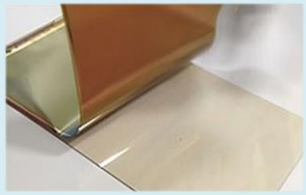



Further fine-processing

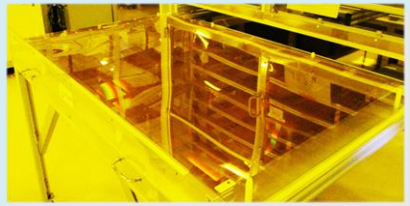



## Thin Film & Glass Processing Technology

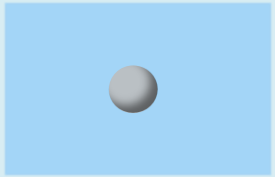
Applying film substrate technology



Film debonding from large glass

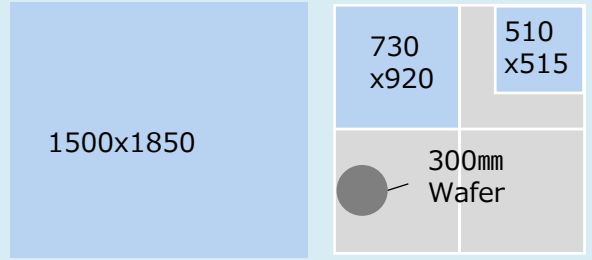


Glass etching, hole making

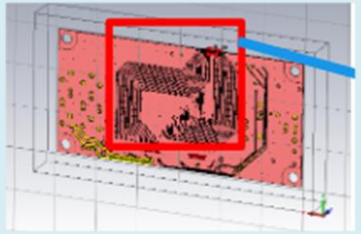


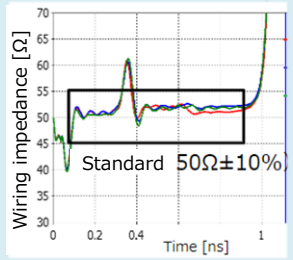
## High Quality & Low Cost

Large substrate processing




Wiring design and transmission characteristic simulation






Established Clean Room Environment

# Strategic Alliance with TECH EXTENSION (TEX)

## JDI and TEX to Partner in Creating a Powerfully Integrated and Streamlined Semiconductor Supply Chain at JDI's Ishikawa MULTI-FAB


## Using JDI's Ishikawa MULTI-FAB and TEX's world-leading technology, JDI and TEX will significantly progress the deployment and social use of next-gen 3D integration technology in the post-miniaturization era

**1 Wafer-on-Wafer (WOW) Technology**: A stacking technology that connects and stacks multiple wafers while bonding them on top of each other. This significantly contributes to productivity improvement in wafer stacking of identical chip sizes, such as DRAM.

**2 Chip-on-Wafer (COW) Technology**: A technology that connects and stacks chiplets on a wafer using WOW technology. By bonding chips onto the wafer, high-precision processing can be performed in subsequent semiconductor manufacturing processes using various wafer process equipment.

# Strategic Alliance with TECH EXTENSION (TEX)

## Jointly Launch Manufacturing Line at JDI's Ishikawa MULTI-FAB Deploying Next-Gen 3D Semiconductor Integration Leveraging TEX's World-Leading Technology

### TECH EXTENSION (TEX)

World's most advanced 3D semiconductor integration technology. Originated from the WOW Alliance of Science Tokyo

Key IP: deep-tech BBCube (Bumpless Build Cube)[1] technology

World-leading expertise in WOW (Wafer on Wafer) technology and COW (Chip on Wafer) technology (BBCube Technology Platforms)

**JDI Investment in TEX**

**Technology Transfer**

### JDI Ishikawa MULTI-FAB

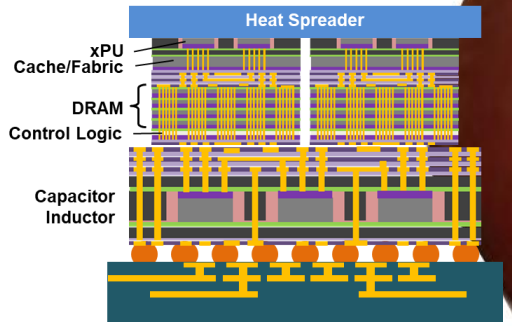
Fab for advanced semiconductor packaging using JDI's advanced high-density wiring technology, TFT and glass processing expertise

**New manufacturing line using next-generation 3D integration based on BBCube technology, encompassing manufacturing from WOW to PLP (Panel Level Packaging).**
**In addition, joint development of glass substrates for semiconductor packaging**

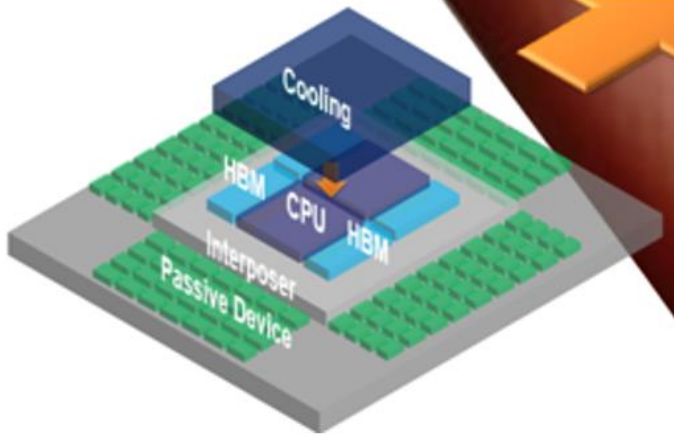
1 **BBCube Technology:** This architecture allows for compact three-dimensional integration of chips without using bumps, enabling system miniaturization and achieving 1/1000th the power consumption compared to conventional systems**.**

# Strategic Alliance with TECH EXTENSION (TEX)

## BBCube Era




BBCube 3D




Conventional 2.5D

### Tera-byte BBCube on Your Finger

**For minimizing cost with a high energy efficiency,**
**„Miniaturizing“ and a „Wafer-Scale 3D Process“ will be required.**

BBCube 3D

**BBCube = Bumpless Build Cube**
**Design-Process-Thermal Co-Optimized**
**300mm Wafer Process**
**WOW and COW Integration**
**Parallel-High-Dense Bumpless Interconnects**
**Ultra-Thinning <10µm**

**BBCube:** An architecture that compiles conventional flat chiplets into a compact 3-dimensional format without using bumps, enabling system miniaturization & low power consumption of 1/1000 compared to conventional systems

Source: TECH EXTENSION website

# Strategic Alliance with PanelSemi

## JDI's Partnership with PanelSemi to Accelerate Commercialization of New Substrates for Advanced Semiconductor Packaging & Sensors

Handling large amounts of data between logic and memory is causing increased power consumption and associated heat, which **exceeds the heat tolerance of existing organic substrates**

Strong need to **accommodate larger substrate sizes** due to the increase in chiplet-form semiconductors

JDI & PanelSemi can solve both technical challenges via new ceramic-based substrates for semiconductor packaging and flexible substrates for sensors

**JDI & PanelSemi will deliver high-quality next-gen semiconductor products at extraordinarily low cost & become leaders in the rapidly expanding advanced semiconductor packaging market**

# Strategic Alliance with PanelSemi

## JDI and PanelSemi to Leverage their Combined Expertise and Engineering Resources to Drive Rapid Commercialization

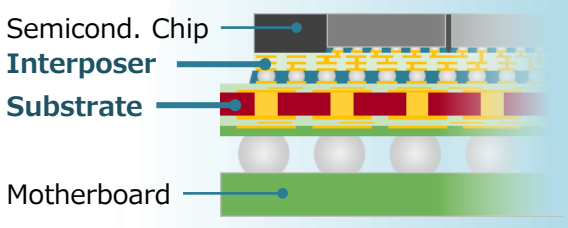
### PanelSemi Strengths

- Leading engineers with deeply routed TFT panel expertise and supply chain relationships
- Leverage access to leading edge ceramic material tech accessible via strategic relationship with NGK Insulators
- World-class tiling technology to overcome the size and accuracy limits of ceramic substrates

**JDI Investment in PanelSemi**

### JDI Strengths

- High-density wiring technology and thin film/glass processing technology cultivated via display business
- Best-in-class production technology from prototyping to mass production
- Ishikawa MULTI-FAB for flexible production and development of semiconductor & sensor tech




### Joint development and commercialization of:

- Ceramic substrates for semiconductor packaging
- Organic interposers using glass as a carrier
- Advanced sensor technologies

# JDI Advanced Semiconductor Packaging Development Timeline

## The combined alliances for advanced semiconductor packaging allow JDI to provide unique value to global customers

**JDI together with:**

**TECH EXTENSION (TEX)**
Enhancement of system performance, reduction of power consumption, and heat reduction through BBCube technology

&

**PanelSemi Corporation**
Cutting-edge processing technology for ceramic materials intended for use in semiconductor interposers

&

| | Step 1 | Step 2 | Step 3 |
|---|---|---|---|
| TEX | BBCube 2.5D<br>BBCube 3D | Glass substrate for semiconductor packaging | BBCube 2.5D/3D<br>+<br>Glass/Ceramic substrate for semiconductor packaging |
| JDI | | | |
| PanelSemi | Ceramic substrates for semiconductor packaging | | |

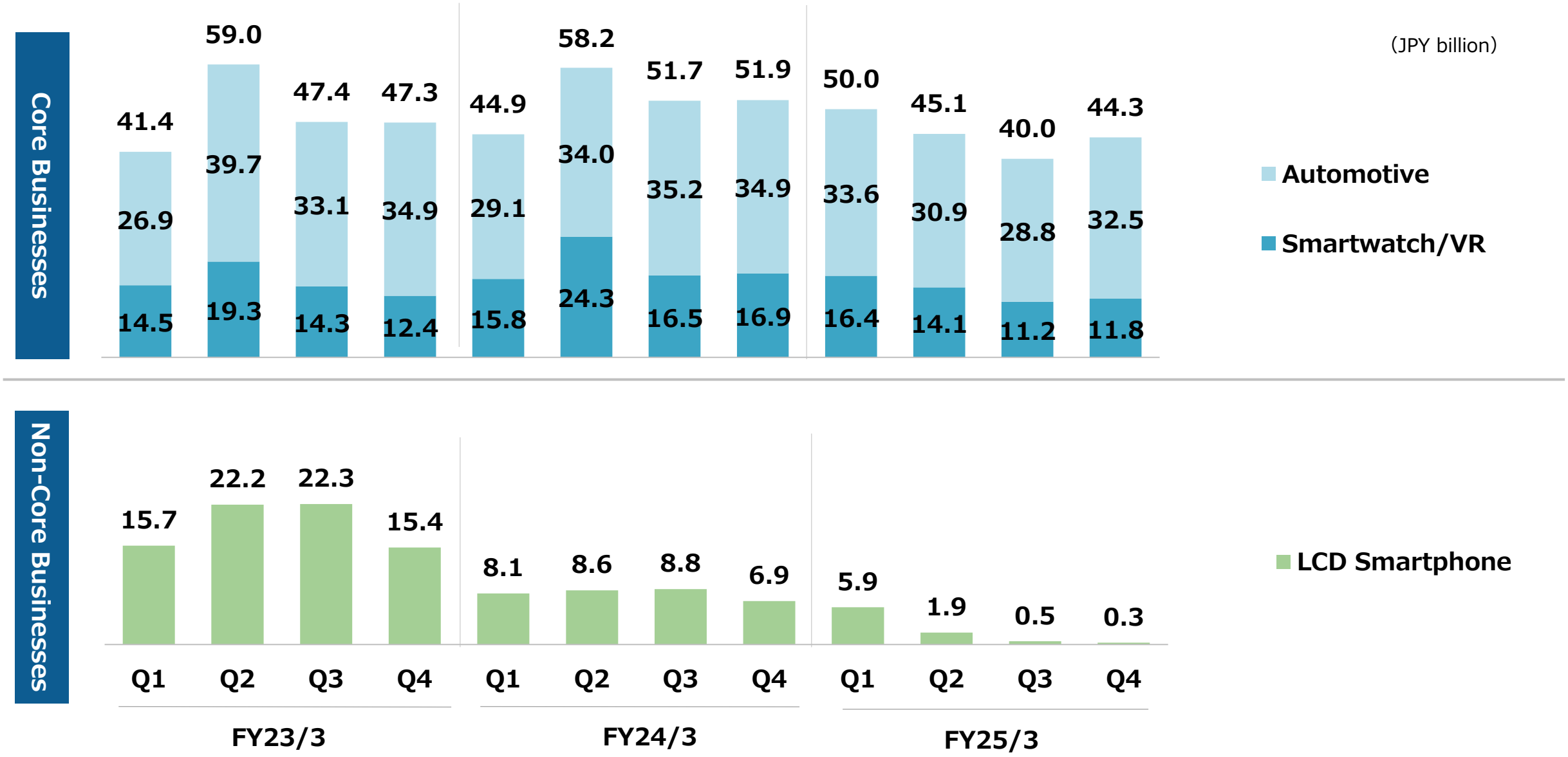
**JDI is deploying its world-class, ultra-high precision processing technology for large glass substrates in advanced semiconductor packaging. With the increasing performance needs of servers and PCs, there is a rapidly growing market for advanced semiconductor packages with unmet needs that JDI can fulfill**

Japan Display Inc.

JDI

# Appendix

# Quarterly Sales Breakdown by Segments



# Consolidated B/S

| (JPY billion) | FY24/3 | FY25/3 | *vs. FY24/3* |
|---|---|---|---|
| Cash and deposits | 29.3 | 21.1 | *-8.3* |
| Accounts receivable | 29.3 | 22.8 | *-6.5* |
| Accounts receivable (EMS) | 17.9 | 7.4 | *-10.5* |
| Inventories | 64.0 | 44.1 | *-19.9* |
| Other | 11.5 | 4.8 | *-6.7* |
| **Total Current Assets** | **152.0** | **100.2** | *-51.8* |
| **Total Fixed Assets** | **72.0** | **47.9** | *-24.1* |
| **Total Assets** | **224.0** | **148.0** | *-76.0* |
| Accounts payable | 46.3 | 28.2 | *-18.1* |
| Interest-bearing debt | 34.8 | 61.0 | *+26.2* |
| Equipment payables | 18.1 | 7.1 | *-11.0* |
| Other liabilities | 39.2 | 44.8 | *+5.6* |
| **Total Liabilities** | **138.3** | **141.1** | *+2.8* |
| **Total Net Assets** | **85.7** | **6.9** | *-78.8* |
| **Shareholders Equity Ratio** | **38.1%** | **4.5%** | *−33.6pts* |

Note: The difference between the amount of “Cash and Deposits” in the Balance Sheet & “Cash & Equivalents” in the Cash Flow Statement is Deposits.

# Consolidated P&L

| (JPY billion) | FY24/3 (12M) | FY25/3 (12M) | YoY | FY24/3 Q4 | FY25/3 Q4 | YoY |
|---|---|---|---|---|---|---|
| **Sales** | **239.2** | **188.0** | *-51.1* | **58.8** | **44.6** | *-14.2* |
| **EBITDA** | **-28.2** | **-33.0** | *-4.8* | **-5.2** | **-12.3** | *-7.1* |
| **Operating Profit** | **-34.1** | **-37.1** | *-2.9* | **-6.5** | **-13.3** | *-6.9* |
| Non-Operating Income | 6.9 | 2.7 | *-4.2* | 1.8 | 0.5 | *-1.3* |
| Non-Operating Expenses | -6.0 | -6.1 | *-0.1* | -2.0 | -1.5 | *+0.5* |
| **Recurring Profit** | **-33.2** | **-40.4** | *-7.2* | **-6.7** | **-14.4** | *-7.6* |
| Extraordinary Income | 0.5 | 1.8 | *+1.3* | 0.4 | 0.0 | *-0.4* |
| Extraordinary Losses | -11.1 | -38.5 | *-27.4* | -0.1 | -15.0 | *-14.8* |
| Income Before Income Taxes | -43.8 | -77.1 | *-33.3* | -6.4 | -29.3 | *-22.9* |
| **Net Income** | **-44.3** | **-78.2** | *-33.9* | **-6.3** | **-29.5** | *-23.1* |
| Avg. FX rate (USD/JPY) | 144.7 | 152.6 | | 148.6 | 152.6 | |
| Q-End FX rate (USD/JPY) | 151.4 | 149.5 | | 151.4 | 149.5 | |

# Consolidated Cash Flow Statement

| (JPY billion) | FY24/3 Q4 | FY25/3 Q4 | FY24/3 (12M) | FY25/3 (12M) | YoY |
|---|---|---|---|---|---|
| Income before income taxes | -6.4 | -29.3 | -43.8 | -77.1 | *-33.3* |
| Depreciation & amortization | 1.3 | 1.0 | 6.0 | 4.1 | *-1.9* |
| Impairment loss | 0.1 | 0.7 | 11.1 | 21.6 | *+10.4* |
| Change in working capital | -2.6 | 10.3 | 11.2 | 15.3 | *+4.1* |
| Other | 1.4 | 11.2 | -2.1 | 10.7 | *+12.8* |
| **Cash Flow from Operating Activities** | **-6.3** | **-6.2** | **-17.6** | **-25.5** | ***-7.9*** |
| Purchase of fixed assets | -1.8 | -3.8 | -12.1 | -10.5 | *+1.6* |
| Proceeds from sale of fixed assets | 0.0 | 0.0 | 0.2 | 5.9 | *+5.7* |
| Other | -0.3 | 0.1 | -1.5 | -3.6 | *-2.0* |
| **Cash Flow from Investing Activities** | **-2.1** | **-3.8** | **-13.4** | **-8.2** | ***+5.3*** |
| Net increase / decrease in short-term borrowings | 9.5 | 7.5 | 33.5 | 26.0 | *-7.5* |
| Other | -0.1 | -0.1 | -0.6 | -0.3 | *+0.3* |
| **Cash Flow from Financing Activities** | **9.4** | **7.4** | **32.9** | **25.7** | ***-7.2*** |
| Ending Balance, Cash & Equivalents | 28.7 | 20.4 | 28.7 | 20.4 | *-8.3* |
| **Free Cash Flow** | **-8.2** | **-10.0** | **-29.7** | **-36.0** | ***-6.3*** |

Note: Free Cash Flow = Cash Flow from Operating Activities less Capex


# Thank You!

Any information related to market trends or industries mentioned in this document is based on information available at present and JDI does not guarantee that this information is accurate or complete.

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