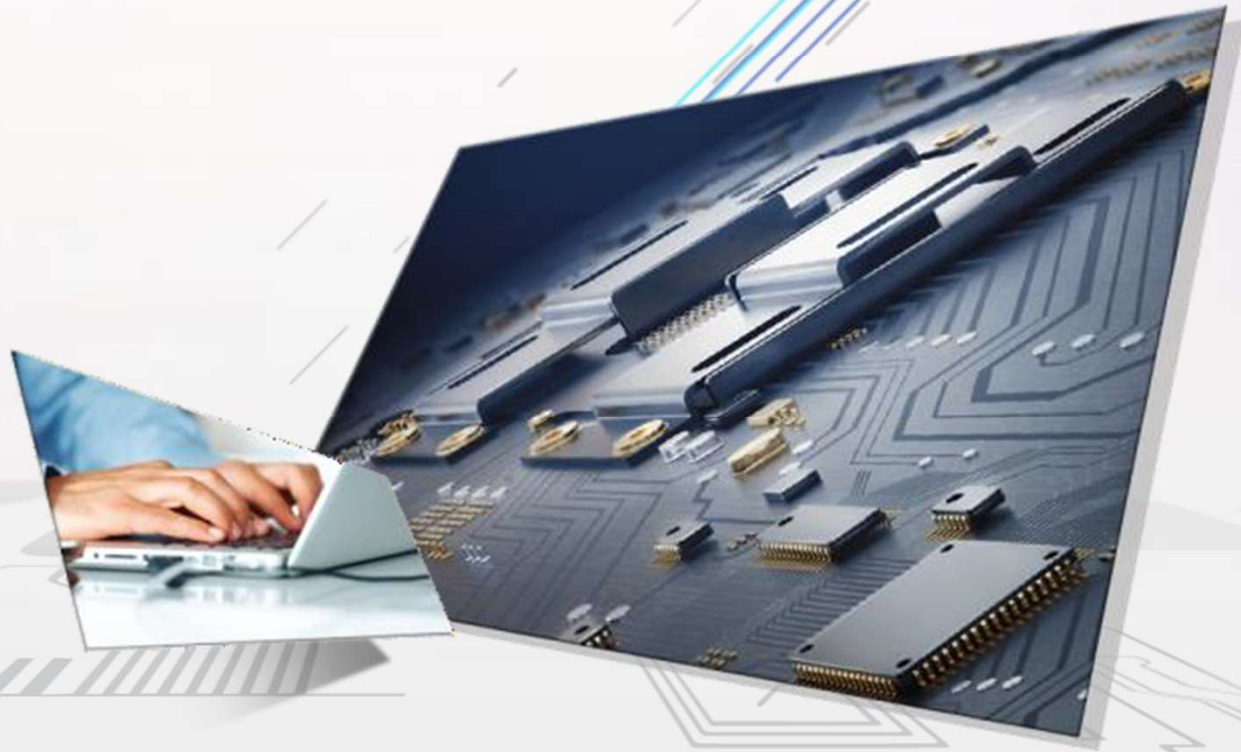




International Collaboration Programs of Korea in Semiconductor R&D

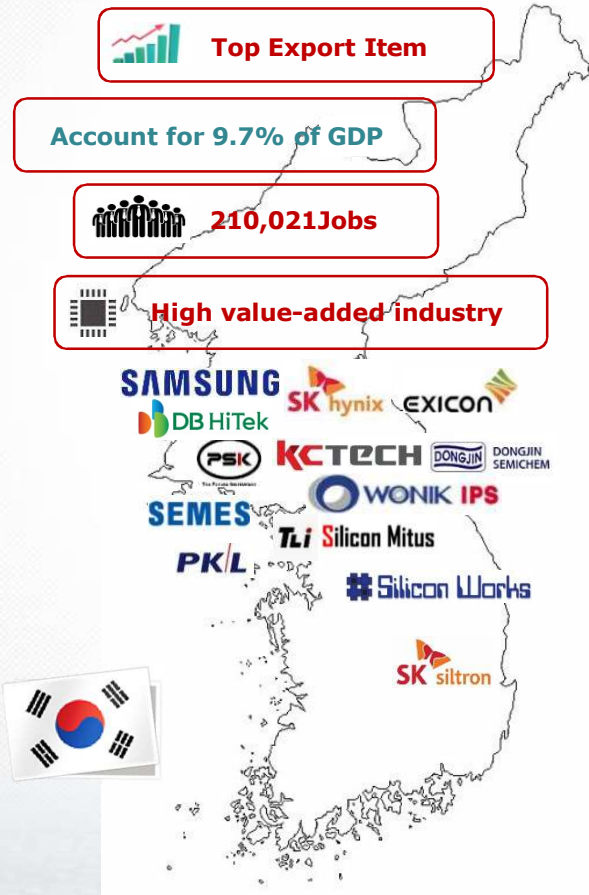
Speaker: Sang-Wan Ryu (NRF)

March 25, 2024



Korea Semiconductor Industry Overview

Account for 11.3% from Manufacturing



* Source : Kostat

Total Semiconductor

Market Share 17.7%
('22 revenue : 105.2b\$)



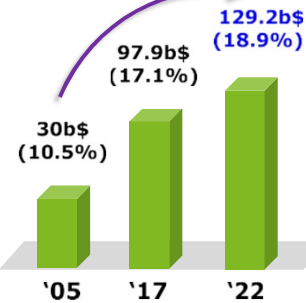
*Source : OMDIA 2021

Memory Semiconductor

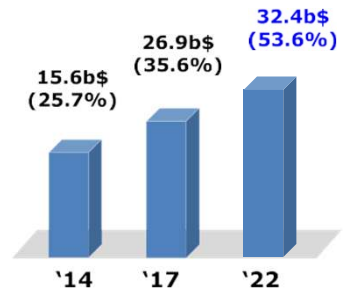
Market Share 60.5%
('22 revenue : 87.2b\$)



No.1 Export Item



Capital Expenditure

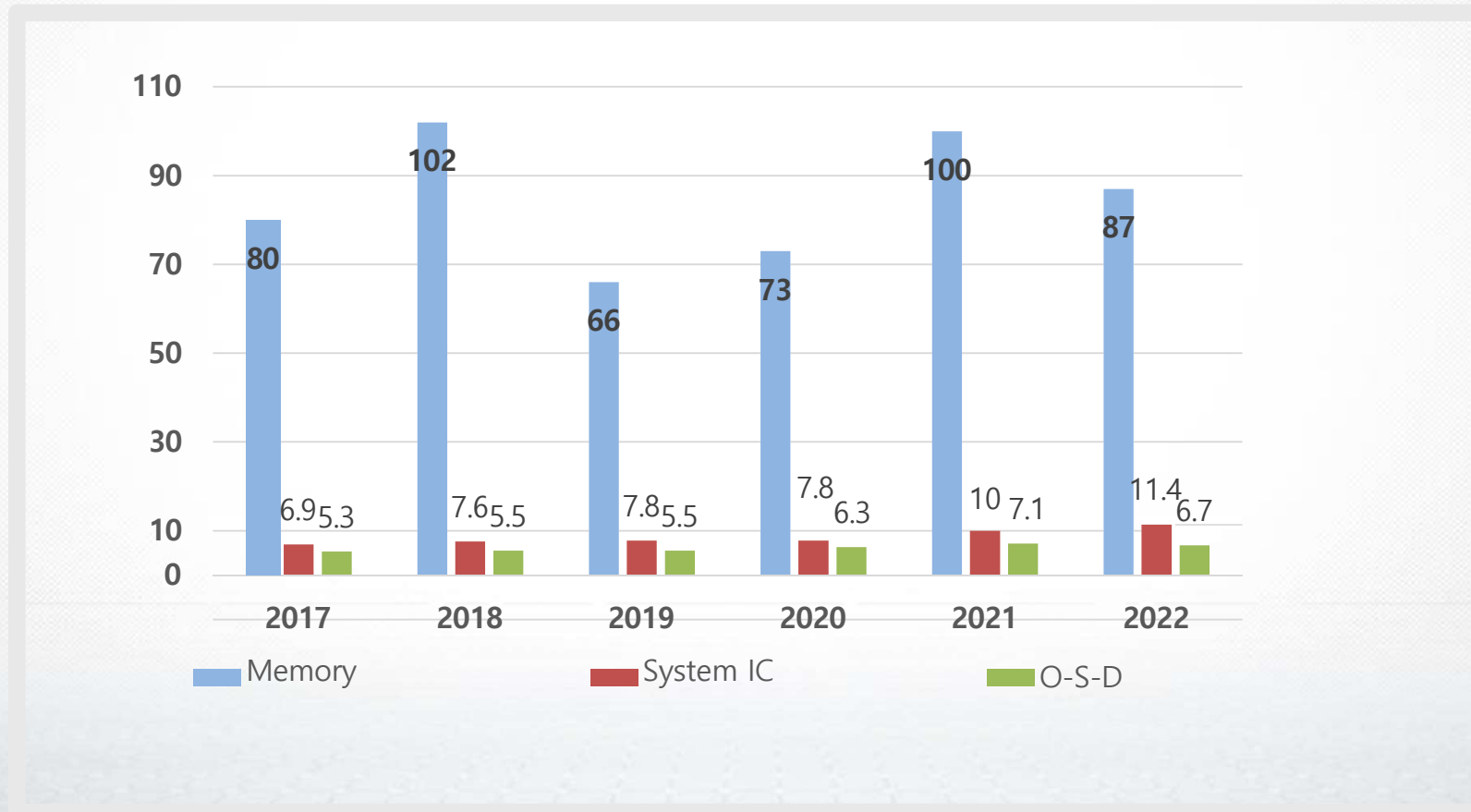


* Source : KITA, Gartner 2022

■ Korea's Semiconductor Industry Size

- ➔ Growth in the semiconductor industry in 2022 : Memory \$87.2B, System IC \$11.4B, O-S-D \$6.7B.

[Billions/\$]

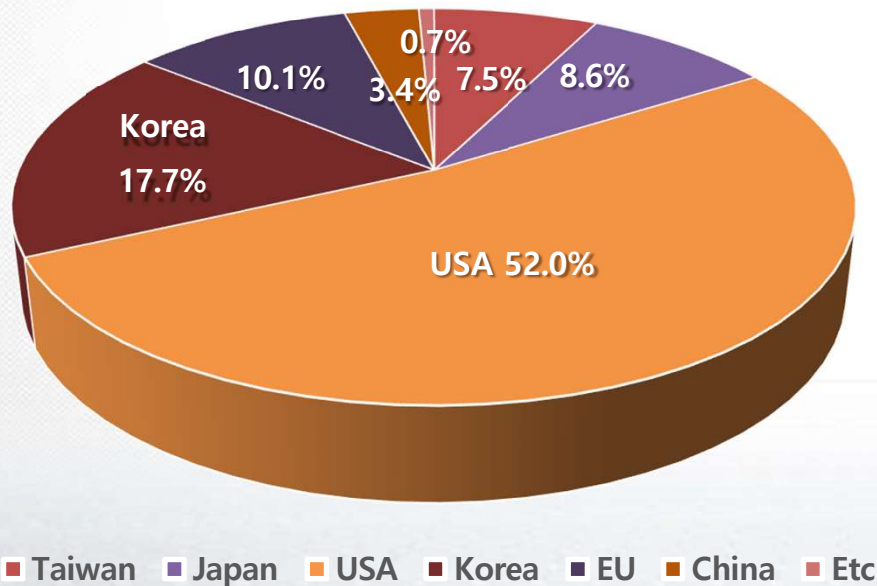


※ Source : Omdia 2022

■ Korea Semiconductor State

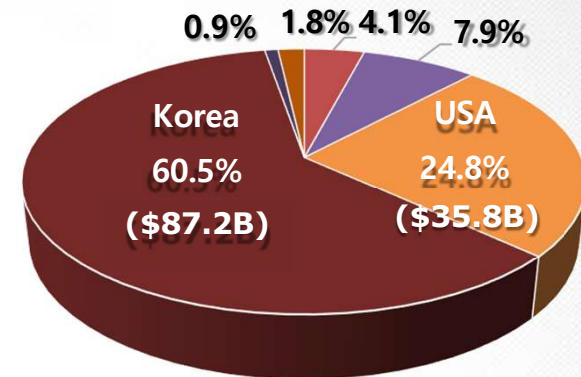
- ➔ Korea's market share in the global semiconductor industry was 17.7% in 2022.
- ➔ Korea's market share in the system IC global market was 3.1% while in the memory market was 60.5% in 2022.

World Wide Market Share ('22)



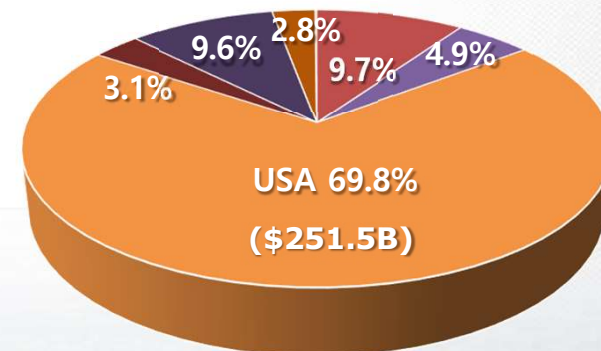
※ Source : OMDIA 2022

Memory



■ Taiwan ■ Japan ■ USA ■ Korea ■ EU ■ China ■ Etc

System IC



■ Taiwan ■ Japan ■ USA ■ Korea ■ EU ■ China ■ Etc

※ Source : OMDIA 2022

■ K-Semiconductor Strategies

Infra

- Tax Benefits for R&D and Infra Investment
- Fundraising to support facility Investment
- Regulatory rationalization
- Support for water, electricity & wastewater management

Cluster

- Memory & foundry factory expansion
- Build new industrial complex for materials, parts, equipment sectors
- Build foreign business cluster
- Establish fabless business cluster called "Fabless Valley "

**'21 - '30
Investment
\$500B+**

Risk Reduction

- Enacting Special Legislation for Semiconductor Industry
- Reinforcement of domestic supply chain
- Prevention of technology leaks
- Reduction of greenhouse gases

Value Chain

- HR training support
- Cooperation & solidarity systems setup
- Support for next-generation power semiconductor

■ Government Programs (MSIT)

To Support Semiconductor Research and Industry (in 2023)

	Program	Budget
R&D	<ul style="list-style-type: none">• Next-generation intelligent semiconductor technology• Processing-in-memory AI semiconductor technology• National semiconductor laboratory• AI semiconductors for autonomous driving	125 M\$
Manpower	<ul style="list-style-type: none">• Training & Development of System IC Expertise• Highly experienced professional consultancy• AI semiconductor innovative talent development	16 M\$
Infra	<ul style="list-style-type: none">• Inter-university semiconductor research center• Semiconductor testbed facility• Nano Fab center	23 M\$
Incubation	<ul style="list-style-type: none">• AI semiconductor innovative enterprise• Implementation of AI semiconductors• Global ICT innovation clusters	19 M\$

Total 183M\$

International Collaboration Programs

Semiconductor international Joint Research

KR-US

- Agency: NRF-NSF
- Scope: semiconductors (device, design, process, packaging)
- # of Awards: 6
- Budget: 677k\$
- Period: 3 years
- Supplementary to NSF awards

KR-EU

- Agency: NRF-Chips JU
- Scope: heterogeneous integration, neuromorphic computing
- # of Awards: 4
- Budget: 1.5M€ (each)
- Period: 3 years
- Mutual Award Funding

Unspecified

- Agency: NRF
- Scope: semiconductors/display
- # of Awards: 8
- Budget: 386k\$
- Period: 2 years
- Awards from Korean government only

THANK YOU