



nepes 2023 INTRODUCTION



Semiconductor

Artificial Intelligence

IT Materials



ABOUT
NEPES



BUSINESS
PORTFOLIO



CORE
TECHNOLOGY



GLOBAL
NEPES



CORPORATE
CULTURE

ADVANCED
BACK-END
FOUNDARY

nepes' 4D management began at the very moment when the company name was chosen



From Hebrew

נֶפֶשׁ(nephesh)

Eternal Life / Dynamic

Longevity Corporation



4D(4th dimension) management?

The management that generate **creation/innovation/**
pioneering and **fun/satisfaction/happiness**

Corporate Identity

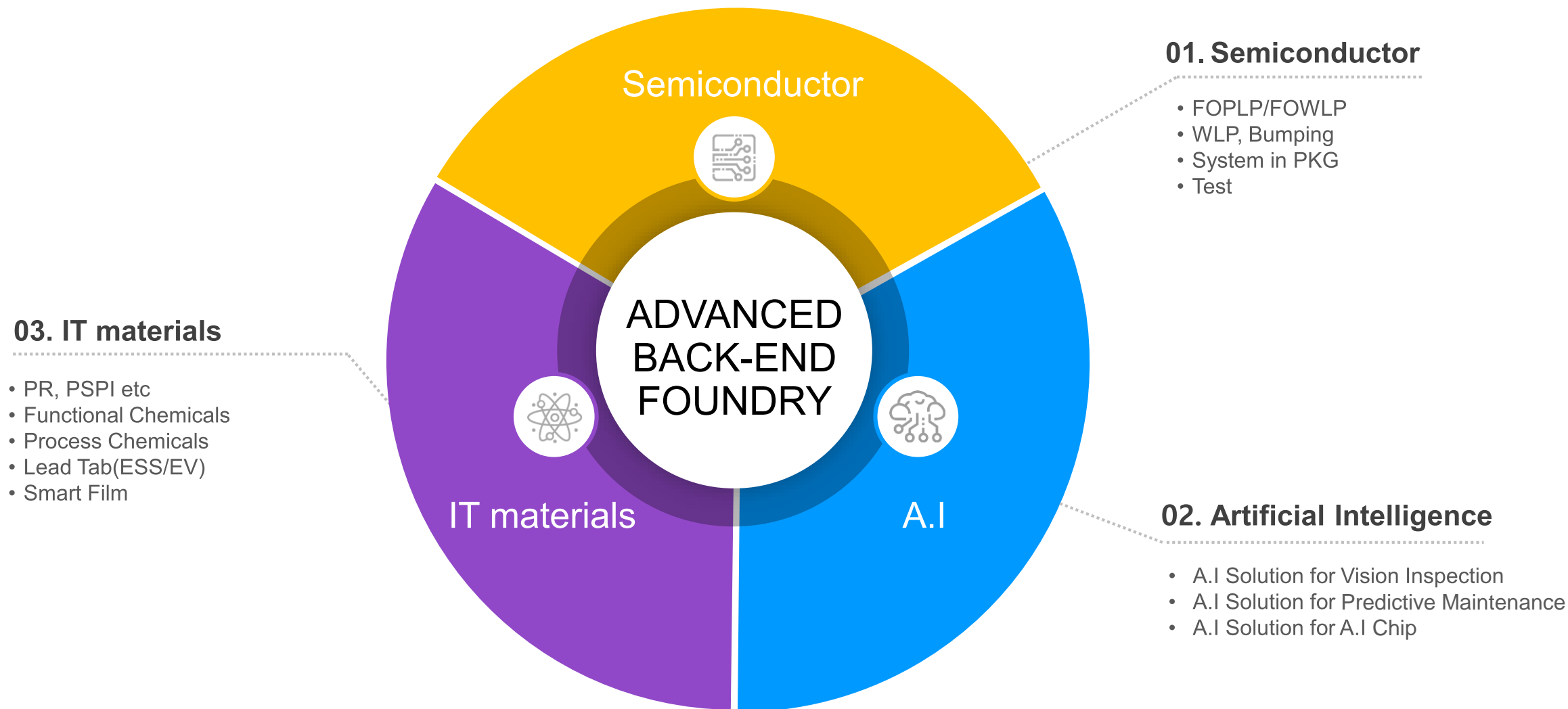


Trademark



Name of company	nepes
Date of establishment	1990.12
Date of Listing	1999.12(KOSDAQ 033640)
CEO	Byung-Koo Lee(李柄九)
Overseas corporation	CN, US, PHL, IDN

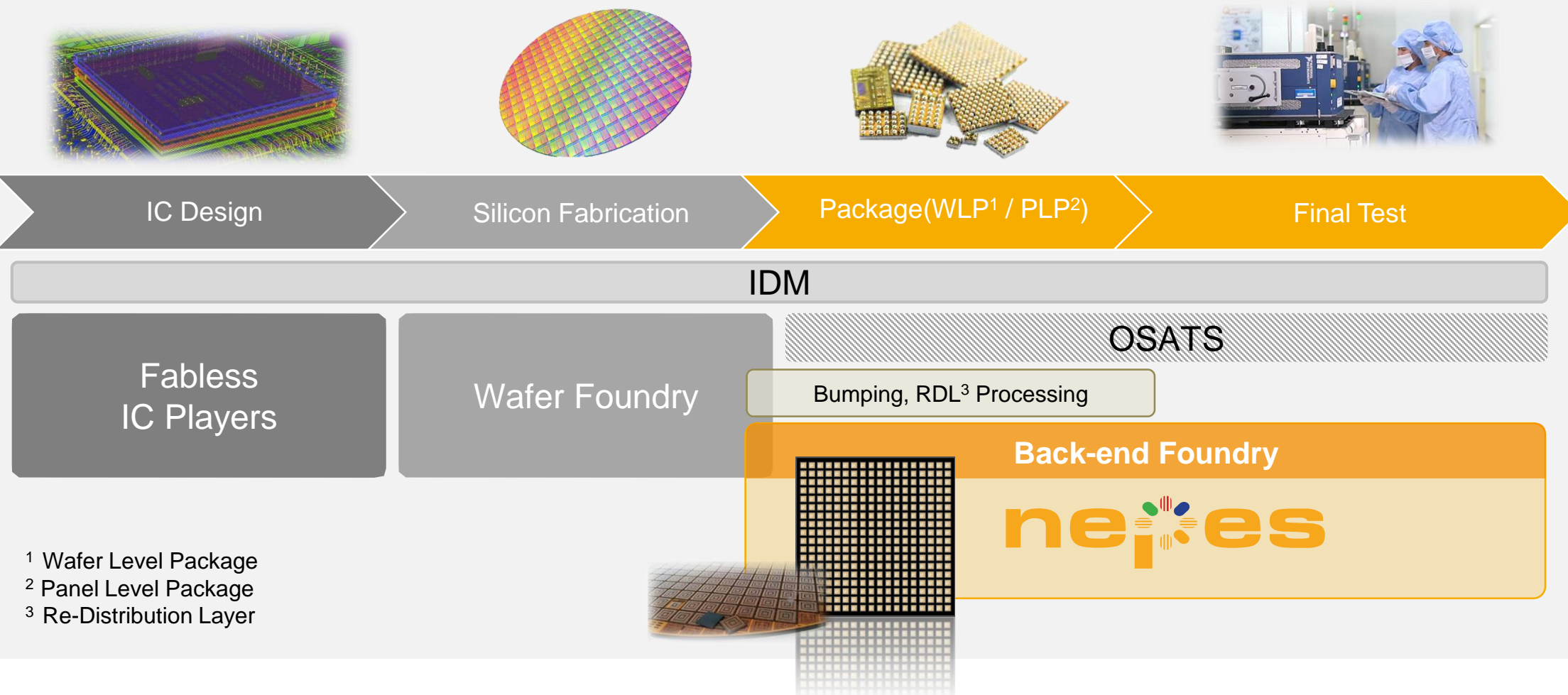
Advanced Back-end Foundry company nipes leads the future of system semiconductors





nepes' advanced semiconductor technologies including FOPLP and nSiP changes global supply chain

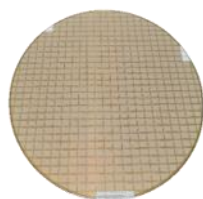
Semiconductor Supply Chain





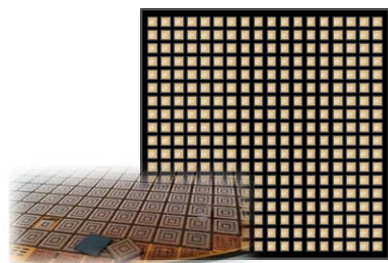
nepes' End-fab technology enables high-end semiconductor to be advanced and smaller

Fan in WLP



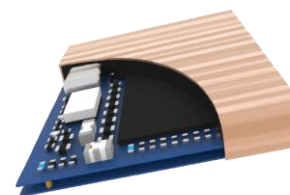
200mm / 300mm

Fan out WLP/PLP



300mm rd. / 600mm sq.

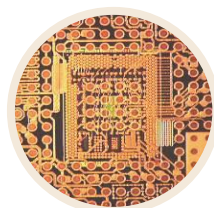
nSiP



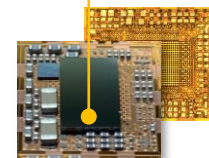
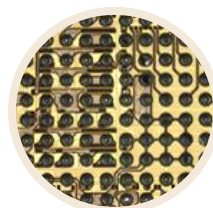
Small & Thin SiP(End fab+PLP)



0.4 mm



0.9 mm



Applications



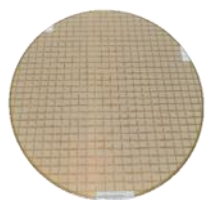


CORE TECHNOLOGY | 01. Semiconductor ① WLP



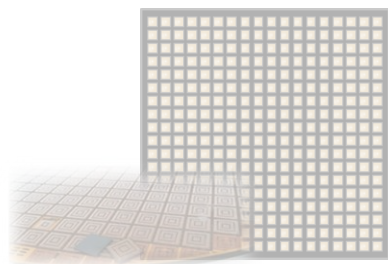
nepes' End-fab technology enables high-end semiconductor to be advanced and smaller

Fan in WLP



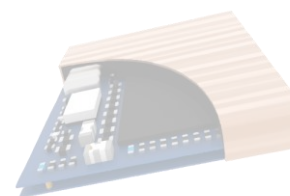
200mm / 300mm

Fan out WLP/PLP



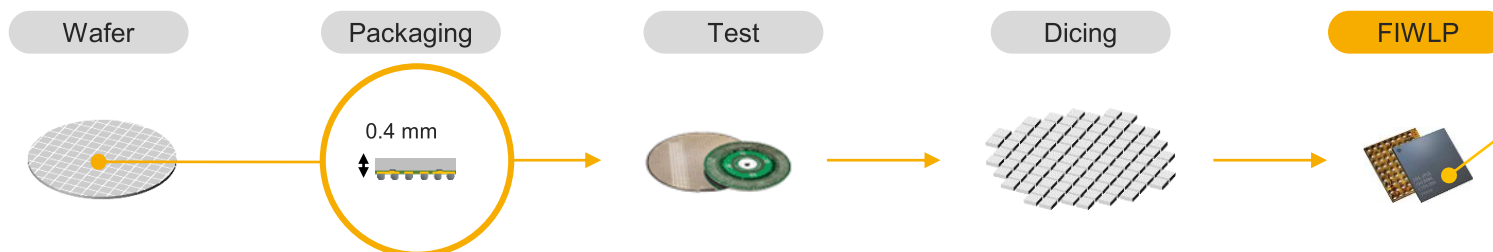
300mm rd. / 600mm sq.

nSiP



Small & Thin SiP(End fab+PLP)

► FIWLP(Fan in Wafer Level PKG) Process



Applications





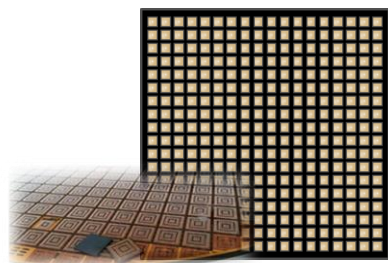
nepes' End-fab technology enables high-end semiconductor to be advanced and smaller

Fan in WLP



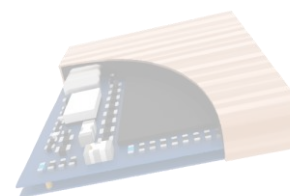
200mm / 300mm

Fan out WLP/PLP



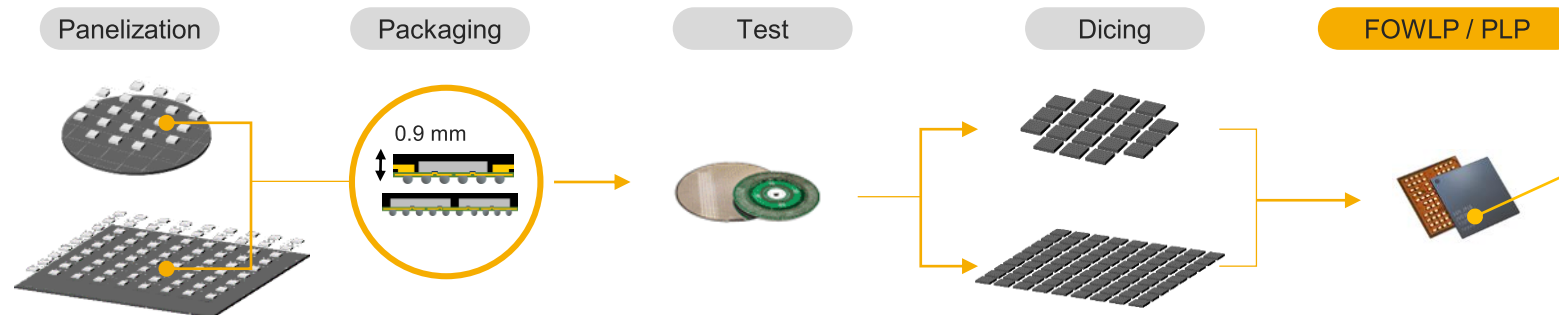
300mm rd. / 600mm sq.

nSiP



Small & Thin SiP(End fab+PLP)

► FOPLP(Fan out Panel Level PKG) Process



Applications





CORE TECHNOLOGY | 01. Semiconductor ③ nSiP



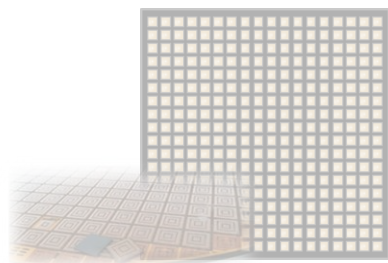
nepes' End-fab technology enables high-end semiconductor to be advanced and smaller

Fan in WLP



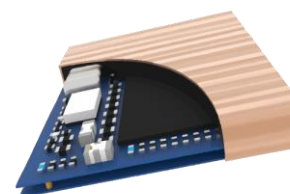
200mm / 300mm

Fan out WLP/PLP



300mm rd. / 600mm sq.

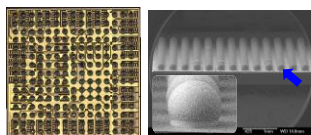
nSiP



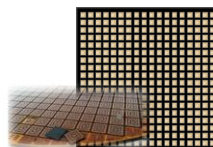
Small & Thin SiP(End fab+PLP)

► What is nSiP(System in PKG)?

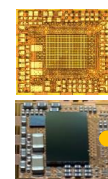
End-Fab
Tech.



PLP
Tech.



nSiP



Applications





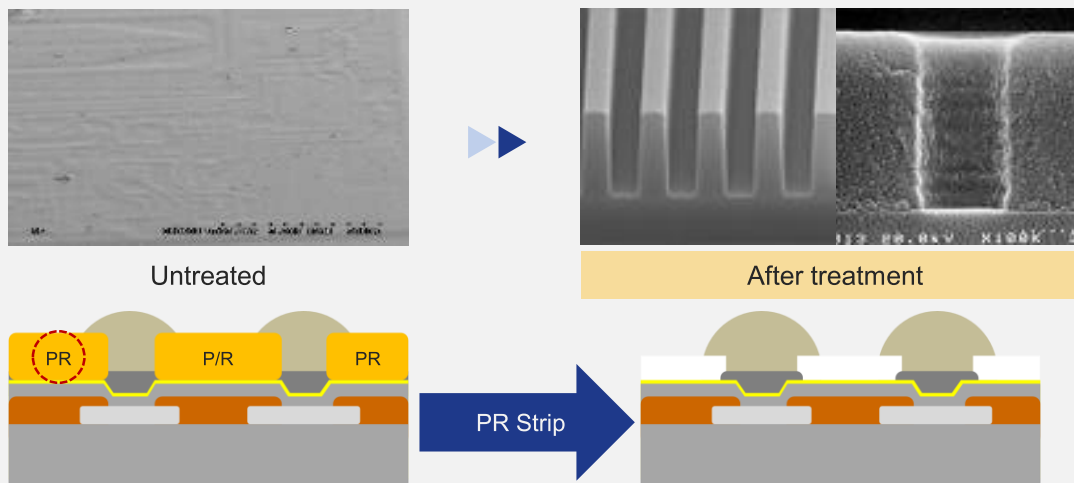
Service & Products

- A.I Solution for Vision Inspection
- A.I Solution for Predictive Maintenance
- A.I Solution for A.I chip



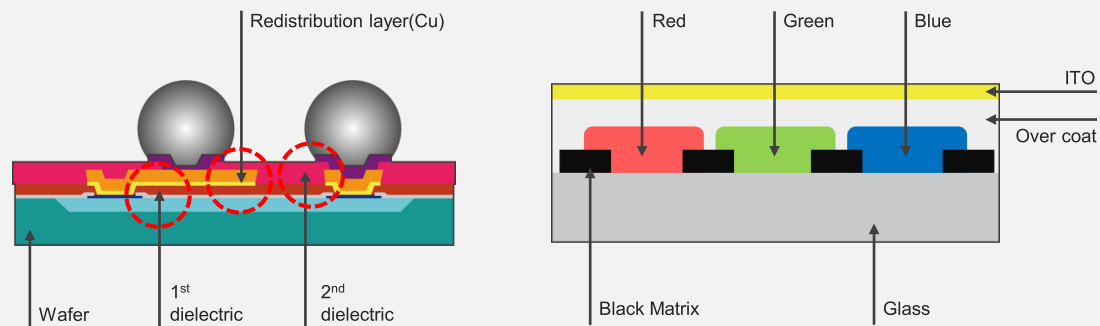
Process chemicals

- PR
- Developer
- Stripper
- Etchant
- HSN

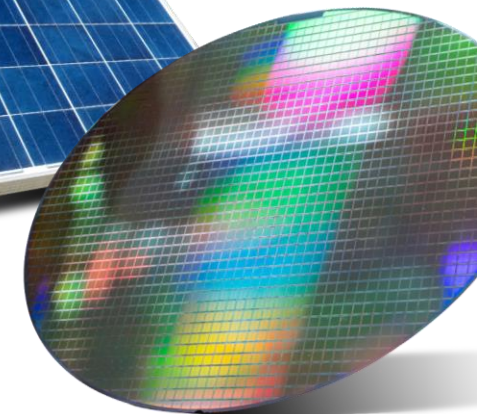


Functional chemicals

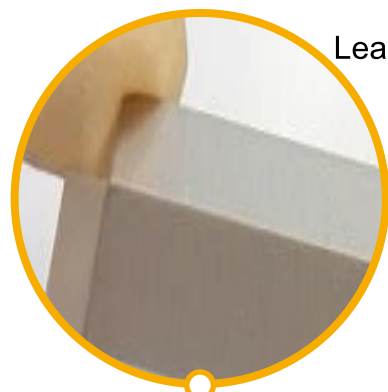
- ILD/PSPI
- Cu Plating
- Color paste



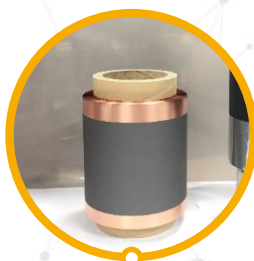
Applications



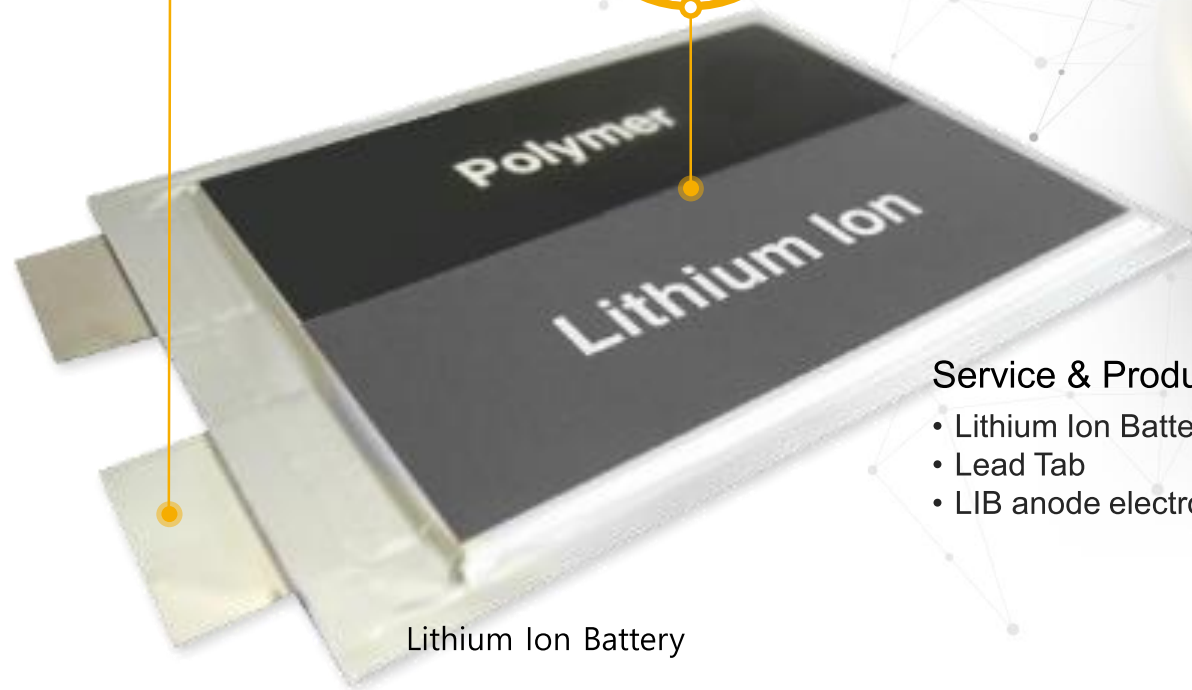
Semiconductor
Display(LCD,
OLED)
Solar Cell



Lead Tab



LIB anode electrode



Lithium Ion Battery

Service & Products

- Lithium Ion Battery
- Lead Tab
- LIB anode electrode

Applications





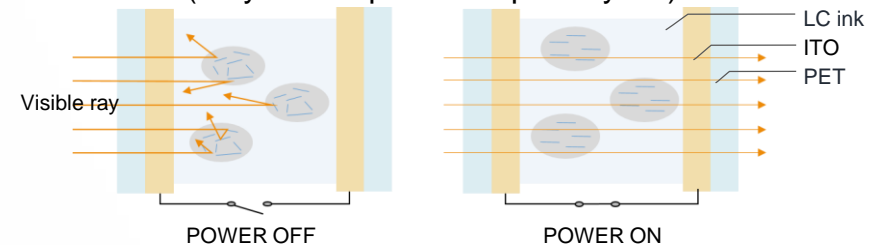
PDLC(Super LC)



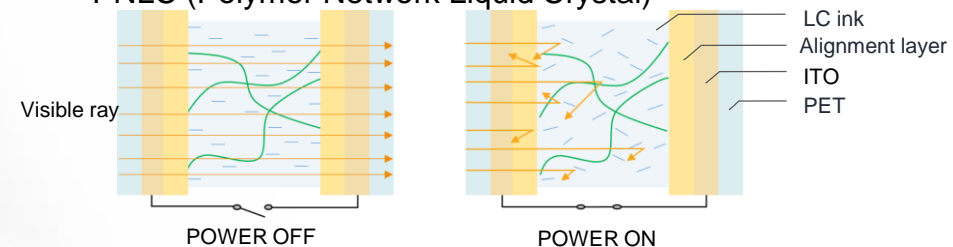
Signage application case

Super LC Structure and Principles

• PDLC (Polymer Dispersed Liquid Crystal)

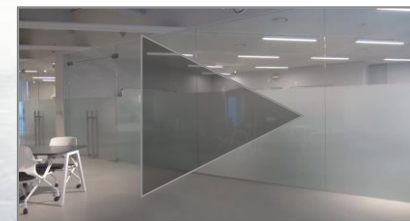


• PNLC (Polymer Network Liquid Crystal)



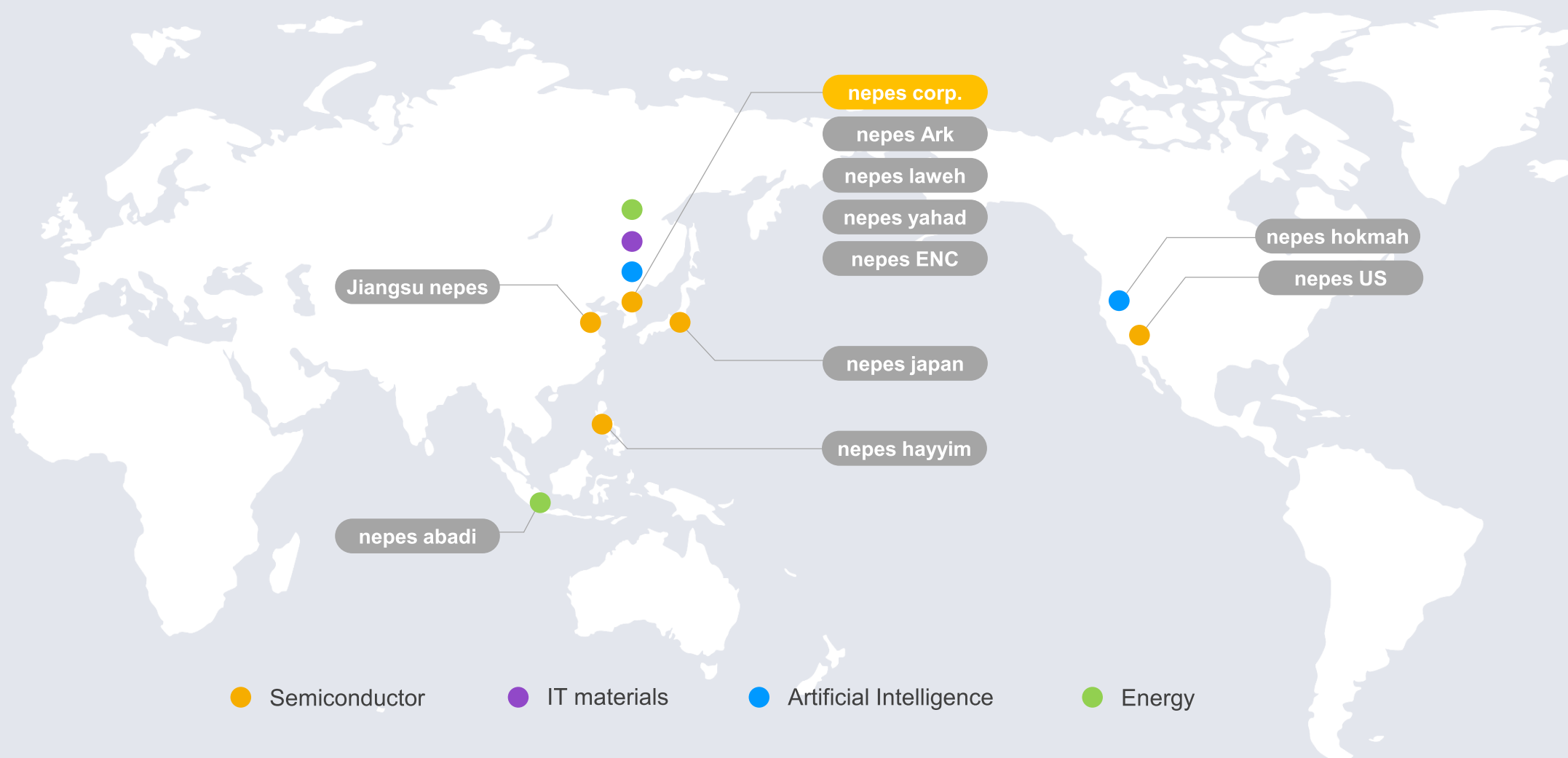
Service & Products

- Building & Interior
- Signage & Electronics





We will **serve the earth** with our technology and products



nepes continues to grow by creating performances through the development of **corporate culture** in nepes' own ways

unique



Global
NO.1
corporate
culture



3.3.7
LIFE

A large, detailed dandelion seed head is the central focus, set against a soft, warm sunset sky with orange and yellow hues. The dandelion's seeds are delicate and wispy, some still attached to the head and others floating away. The overall mood is peaceful and contemplative.

nepes
nepes corporation

THANK YOU

To Him who alone does great wonders, His love endures forever. Psalm 136:4

* A dandelion means 'Gratitude' in the language of flowers

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RECOGNITIONS 1 | White House report quotation

President Biden ordered an executive order directing an investigation into US semiconductor supply chain, and the White House released a review report (June, '21).

- It contained the proposal of strengthening the domestic semiconductor manufacturing ecosystem by highlighting advance packaging necessary for important national security other than commercial use, and this shed light on nepes among the global top10 companies.

**BUILDING RESILIENT
SUPPLY CHAINS,
REVITALIZING AMERICAN
MANUFACTURING, AND
FOSTERING BROAD-BASED
GROWTH**

100-Day Reviews under
Executive Order 14017

June 2021

A Report by
The White House

Including Reviews by
Department of Commerce
Department of Energy
Department of Defense
Department of Health and Human Services


THE WHITE HOUSE
WASHINGTON



Advanced Packaging: Current Resilience [43p.]

The top 10 advanced packaging companies include: two IDMs (Intel (U.S.) and Samsung (South Korea)); a foundry (TSMC (Taiwan)); the top five global OSATs (ASE Group (Taiwan), SPII (Taiwan), Amkor (U.S.), Powertech Technology (Taiwan), and JCET (China)) and two smaller OSATs: **Nepes (South Korea)** and Chipbond (Taiwan)). These 10 companies process approximately three-fourths of all advanced packaged chips.⁹²



[Source: The White House, 'Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-based Growth', Jun '21]



RECOGNITIONS 2 | Joining ASIC membership



American Semiconductor Innovation Coalition (ASIC) membership is by invitation-only and IBM has asked nepes to join the Coalition in May '22

- IBM and other coalition members feel that nepes can bring a tremendous value to the coalition with its expertise in the advanced packaging such as wafer level processing and fan-out technologies



www.asicoalition.org

Coalition Members Include

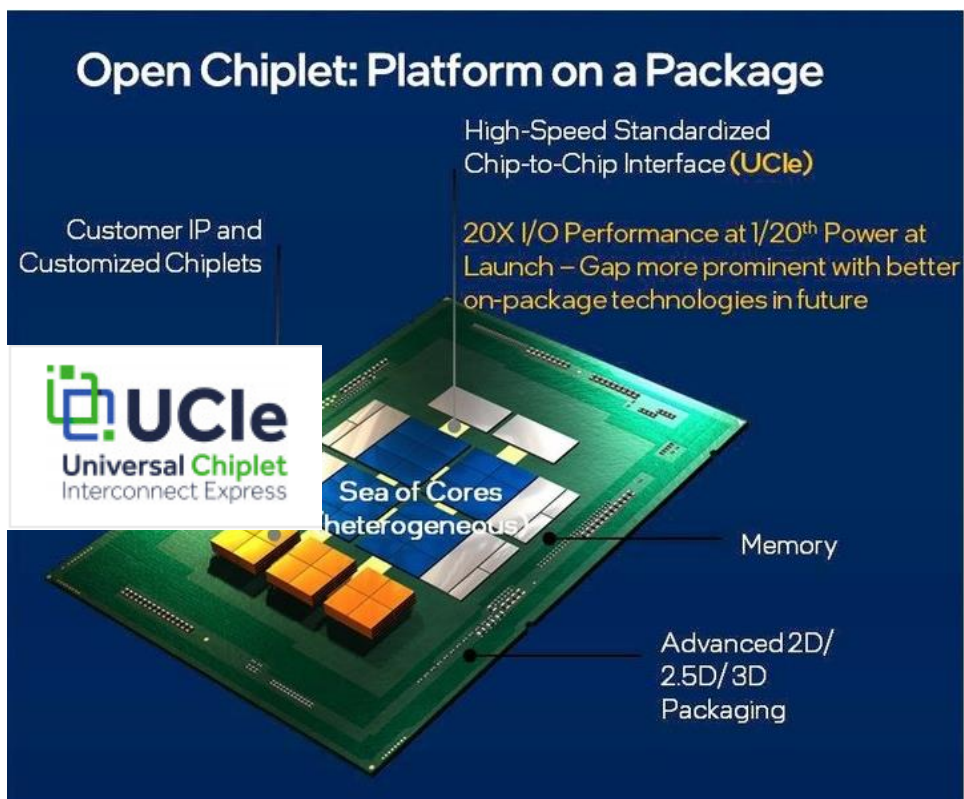




RECOGNITIONS 3 | Joining UCle™

Join UCle™(Universal Chiplet Interconnect Express)

- Major global semiconductors (Samsung, Intel, AMD, Arm, etc.) and IT companies (Microsoft, Meta, etc.) participate to establish a new standard for advanced package technology structure, which is evaluated as an alternative to overcome technological limitations due to ultra-fine process conversion.





GLOBAL TOP SPECIALTY

2022.01.10

A company with global growth potential in the field of core strategic technology



WINNER 2022

2022.09.02

A company selected as the best brand of the year through a public consumer vote



LIGHTHOUSE ENTERPRISE

2022.11.17

An exemplary medium-sized enterprise that provides a direction for other companies



KOREA WORLD CLASS

2022.11.18

Products that contribute to national economic development with high technology and competitiveness





RECOGNITIONS 5 | International case study presentation

Nepes' unique management philosophy has been recognized as a creative competitiveness that drives continuous growth of the organization and has been introduced as an excellent management case at various international academic conferences.

2022 GLOBAL CONFERENCE ON IHRM

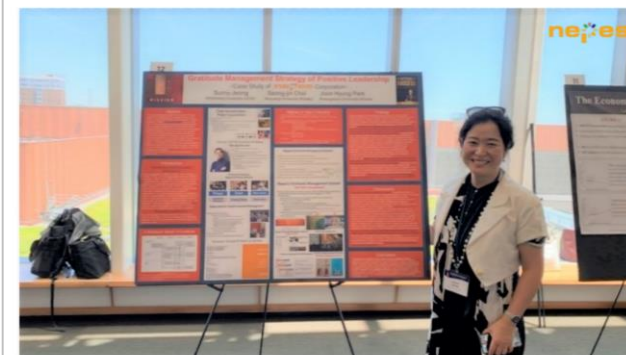


SAVE THE DATE! MAY 19-21, 2022

FIFTH GLOBAL CONFERENCE ON INTERNATIONAL HUMAN RESOURCE MANAGEMENT



CIHRS
Center for International
Human Resource Studies



Professor Sunny Jeong (Wittenberg University) presented the case of nepes corporation.

Presented by:
M | MICHIGAN ROSS
CENTER FOR POSITIVE ORGANIZATIONS

May 20, 2022 @St.John's Univ.
Global Conference on
International HR Management

June 22-23, 2022 @ Michigan Univ.
Global Conference on Positive
Organization

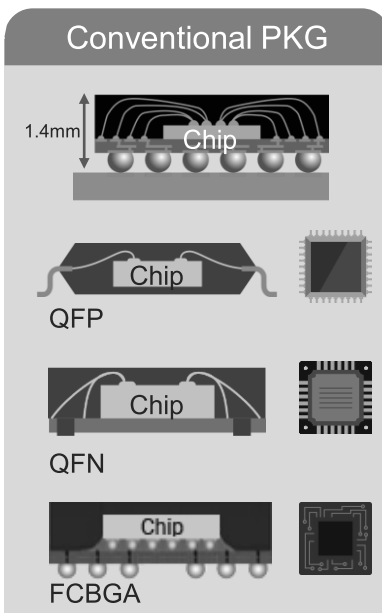


Market
Trend

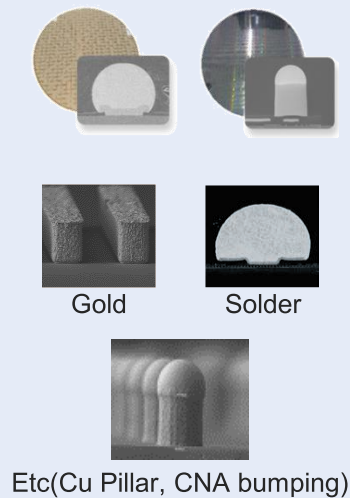
Smaller form factor
(Based on Wafer-Level Platform)

Highly integrated Wafer-Level System in Package

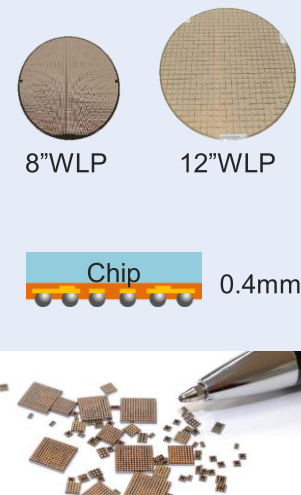
Tech.
Roadmap



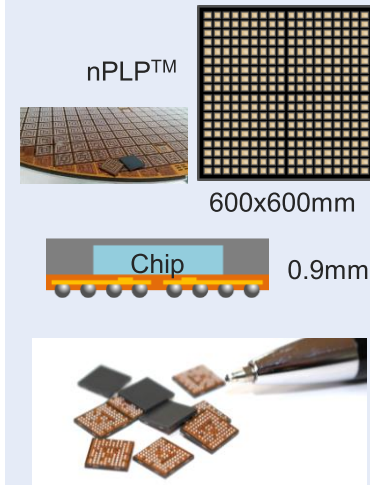
Bumping



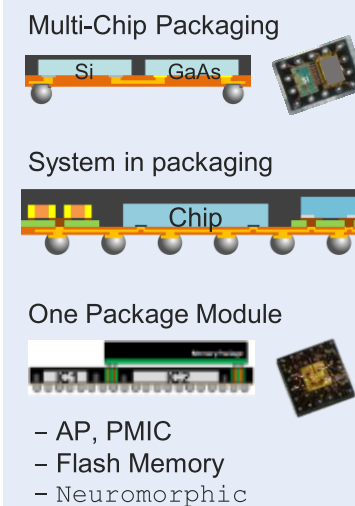
WLP



Fan-out WLP/PLP



System in PKG



Position

Other OSAT

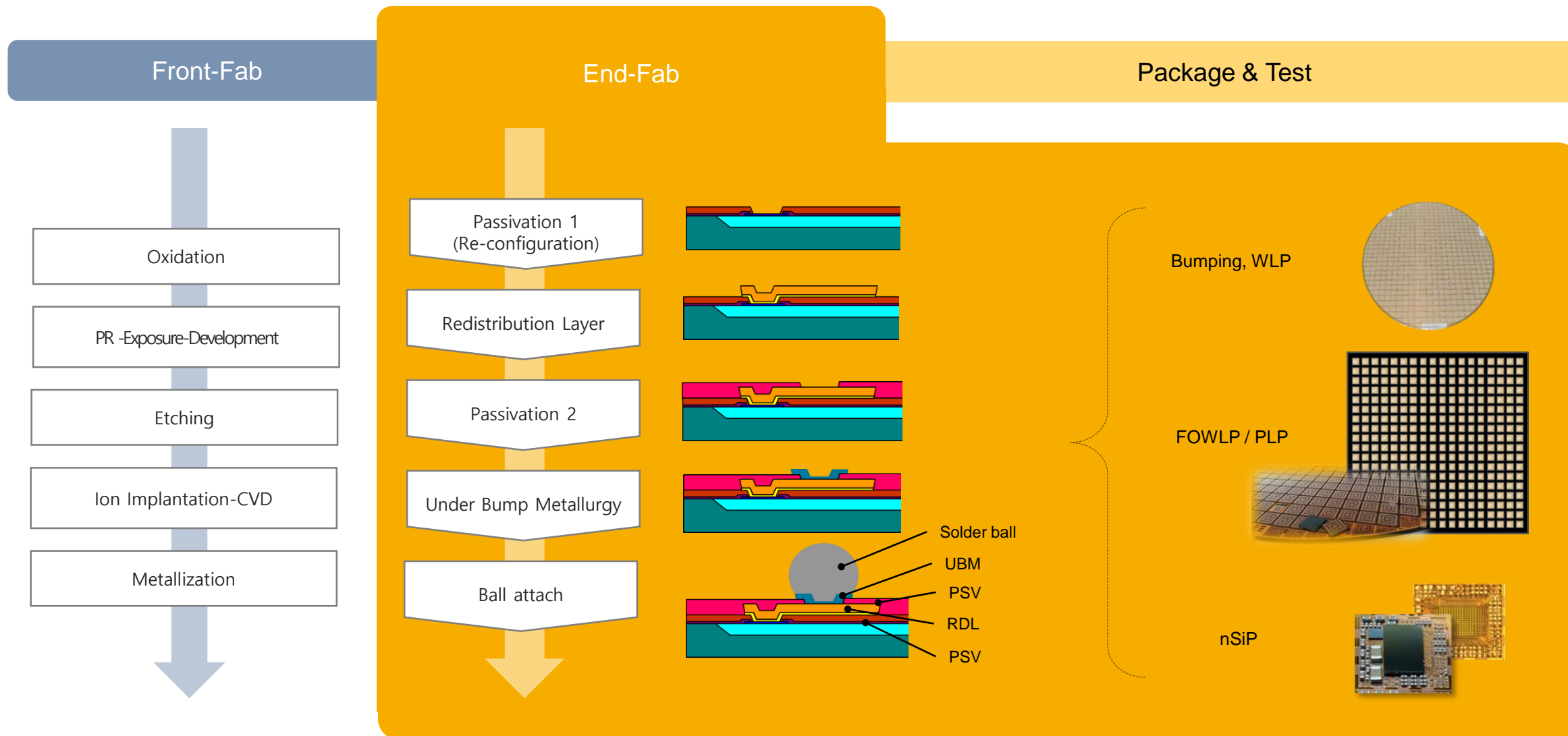
Conventional wire bonding packaging & Typical WLP technology

nepes

Back-end Foundry

(Bump, WLP, FOWLP, FOPLP, nSiP, TEST)

End-fab refers to Passivation, RDL, and Bump processes after Front-Fab



APPENDIX 3 | What is FOPLP?

- nepes sets new standards for FOPLP with the world's largest panel size
- nepes has created a unique FOPLP technology based on FOWLP, internal materials (chemicals) development, and End-fab

