



nepes

2023 INTRODUCTION



Semiconductor

Artificial Intelligence

IT Materials



ABOUT
NEPES



BUSINESS
PORTFOLIO



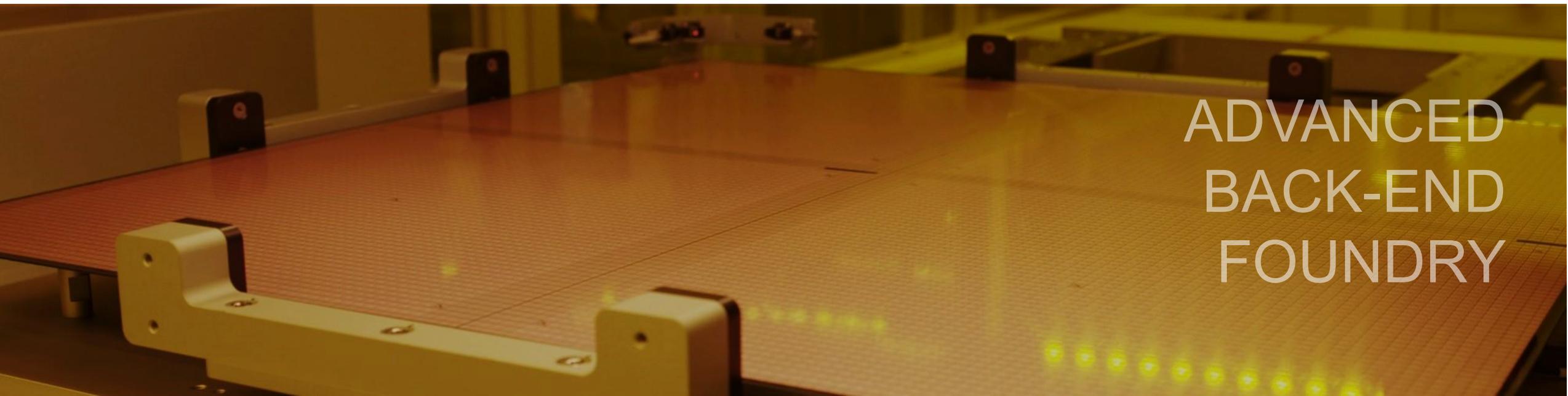
CORE
TECHNOLOGY



GLOBAL
NEPES



CORPORATE
CULTURE

A background image of a large industrial machine, possibly a semiconductor wafer, with a glowing yellow surface. The machine has several black rectangular components and a row of small yellow lights at the bottom right.

ADVANCED
BACK-END
FOUNDRY

네패스의 4차원 경영은 회사명을 결정하는 그 순간부터 시작되었습니다.



어원(히브리어)

נֶפֶשׁ(nephesh)

Eternal Life / Dynamic

장수기업



4차원 경영이란?

젓과 꿀이 흐르는 장수 기업이 되기 위해 **창조, 혁신, 개혁** 사건과 **재미, 만족, 기쁨** 사건이 계속적으로 일어나게 하는 경영

Corporate Identity

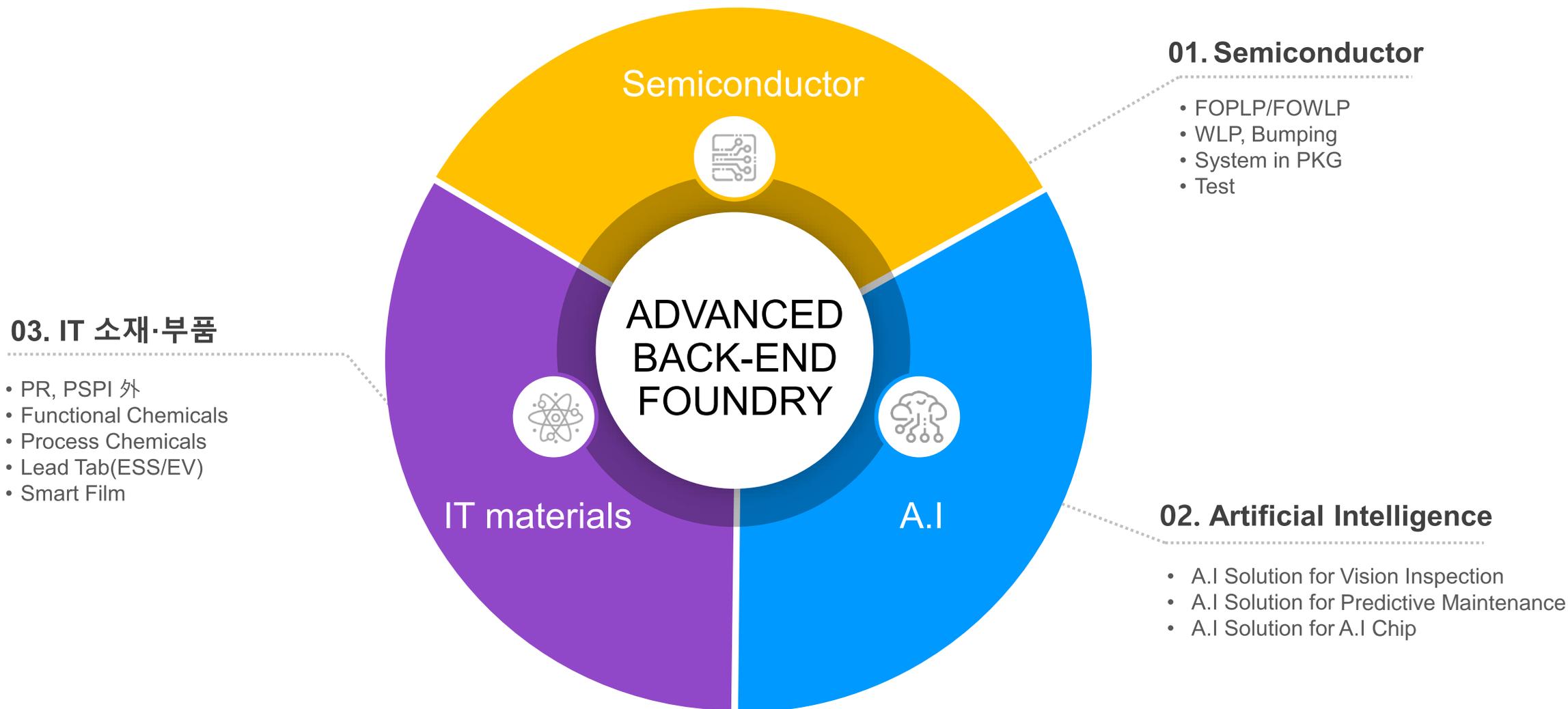


Trademark



회 사 명	주식회사 네패스
설 립 연 월	1990년 12월
상 장 연 월	1999년 12월(KOSDAQ 033640)
C E O	이병구 (Byung-Koo Lee, 李柄九)
해 외 법 인	CN, US, PHL, IDN

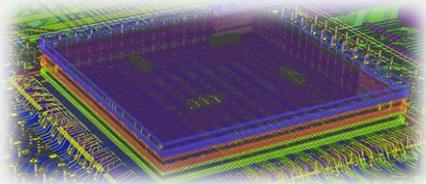
네패스는 **백엔드 파운드리(Advanced Back-end Foundry)** 전문 기업으로서 시스템 반도체 산업의 미래를 앞당깁니다.



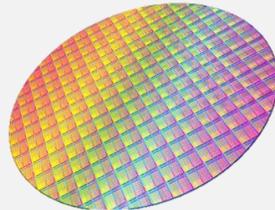


네패스는 FOPLP, nSiP 등의 첨단 반도체 기술로 글로벌 SCM의 지형을 바꾸고 있습니다.

Semiconductor Supply Chain



IC Design



Silicon Fabrication



Package(WLP¹ / PLP²)



Final Test

IDM

OSATS

Fabless IC Players

Wafer Foundry

Bumping, RDL³ Processing

Back-end Foundry



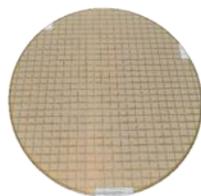
- ¹ Wafer Level Package
- ² Panel Level Package
- ³ Re-Distribution Layer

※ 2020년 국가핵심기술 지정



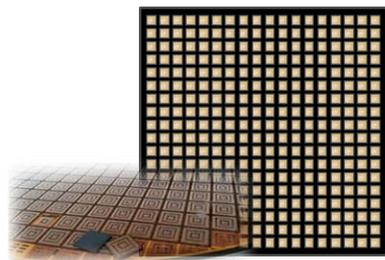
네패스의 End-fab 기술은 고성능 반도체를 경박단소화 하는 핵심 기술입니다.

Fan in WLP



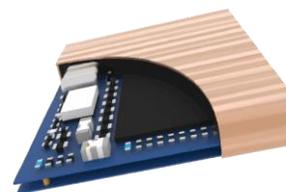
200mm / 300mm

Fan out WLP/PLP



300mm rd. / 600mm sq.

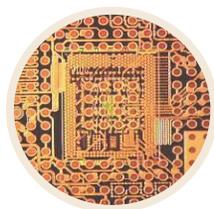
nSiP



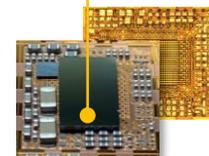
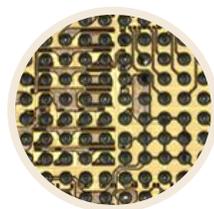
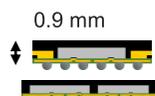
Small & Thin SiP(End fab+PLP)



0.4 mm



0.9 mm



Applications

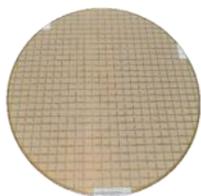




CORE TECHNOLOGY | 01. Semiconductor ① WLP

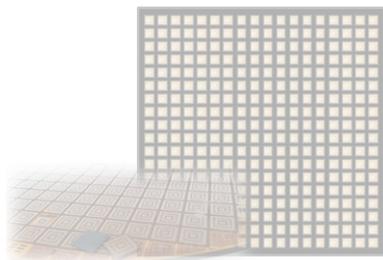
네패스의 End-fab 기술은 고성능 반도체를 경박단소화 하는 핵심 기술입니다.

Fan in WLP



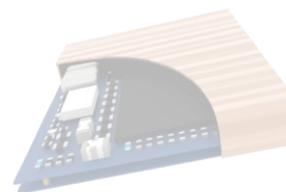
200mm / 300mm

Fan out WLP/PLP



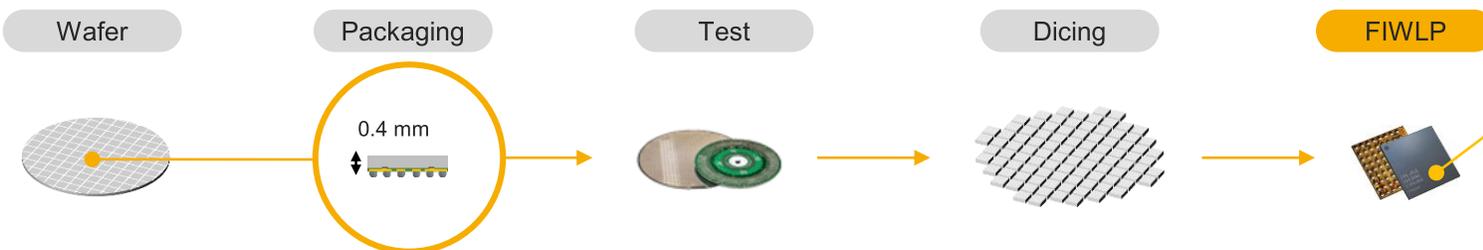
300mm rd. / 600mm sq.

nSiP



Small & Thin SiP(End fab+PLP)

▶ FIWLP(Fan in Wafer Level PKG) Process



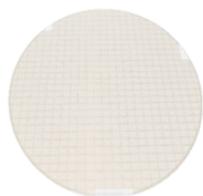
Applications



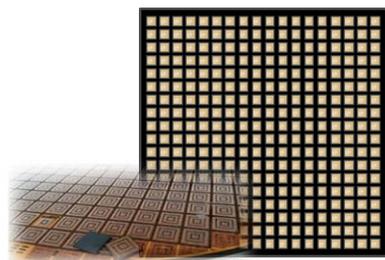


CORE TECHNOLOGY | 01. Semiconductor ② FOWLP/PLP

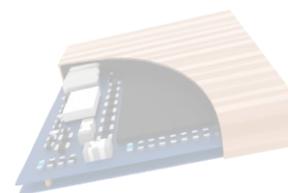
네패스의 End-fab 기술은 고성능 반도체를 경박단소화 하는 핵심 기술입니다.



200mm / 300mm

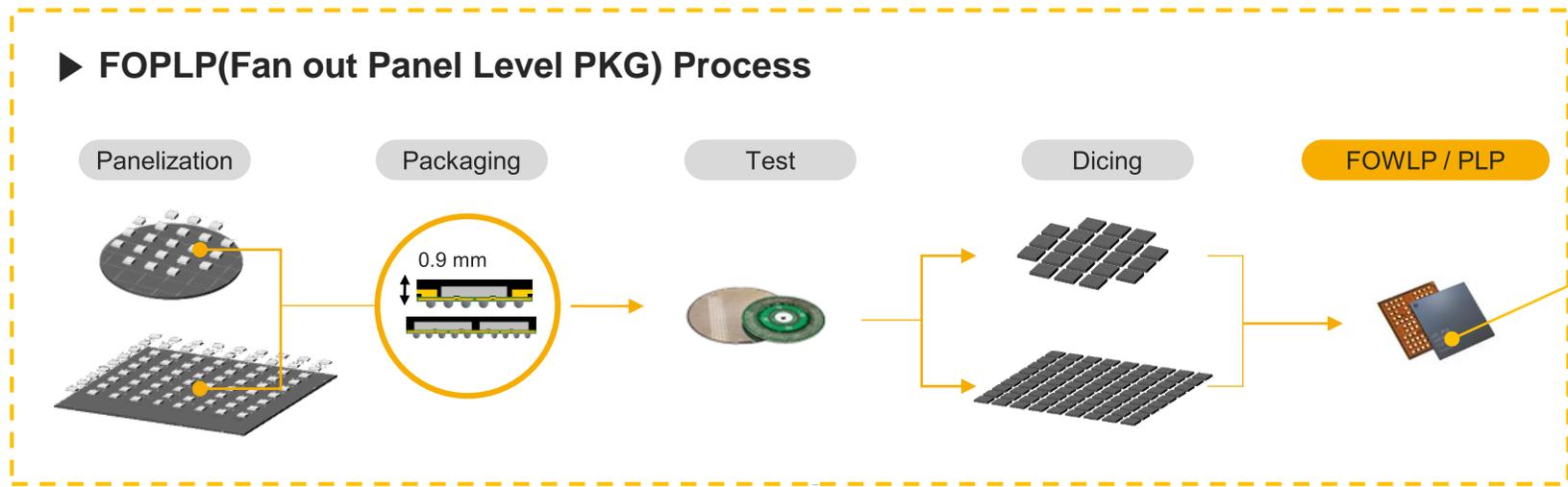


300mm rd. / 600mm sq.



Small & Thin SiP(End fab+PLP)

▶ FOPLP(Fan out Panel Level PKG) Process



Applications



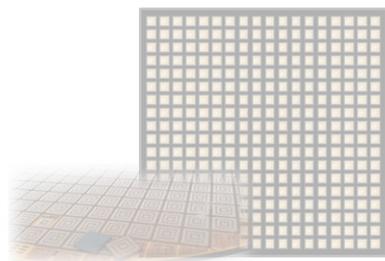


CORE TECHNOLOGY | 01. Semiconductor ③ nSiP

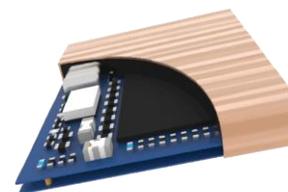
네패스의 End-fab 기술은 고성능 반도체를 경박단소화 하는 핵심 기술입니다.



200mm / 300mm

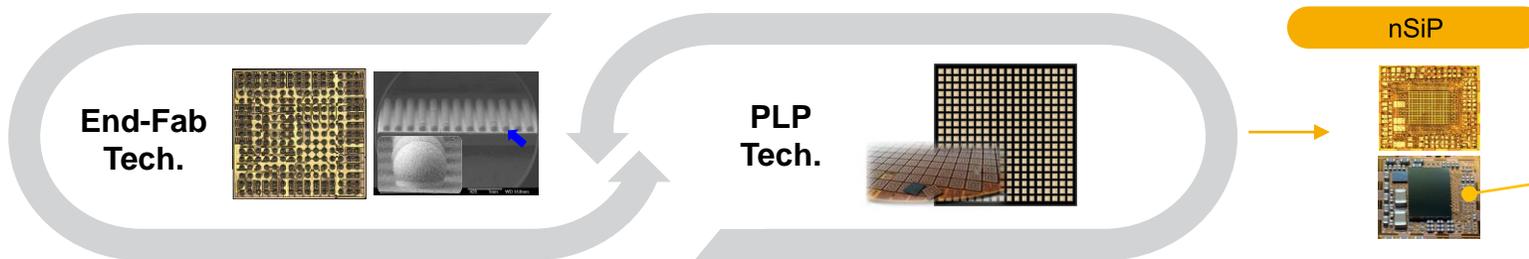


300mm rd. / 600mm sq.



Small & Thin SiP(End fab+PLP)

▶ What is nSiP(System in PKG)?



Applications

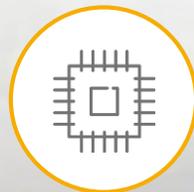




Predictive Maintenance



AI Chip



Vision Inspection



Process Automation



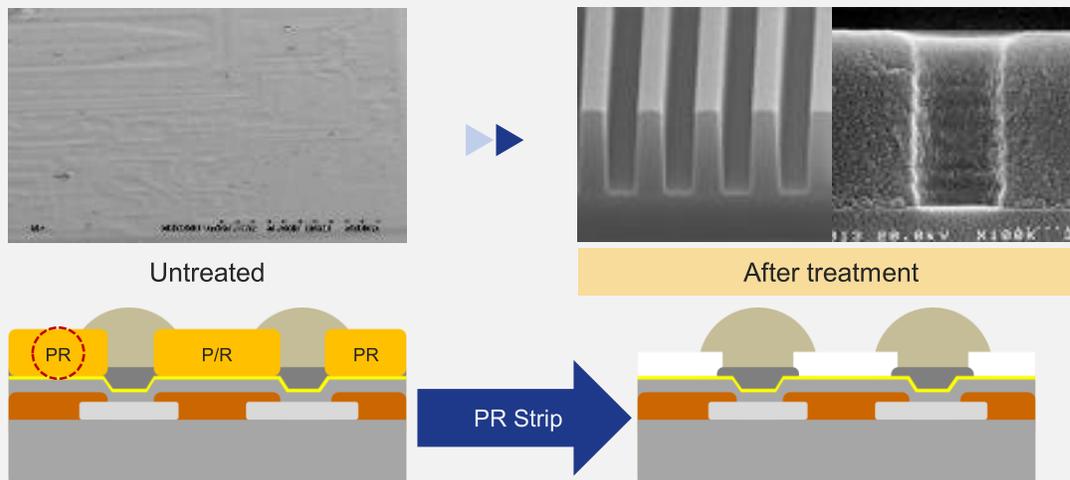
Service & Products

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



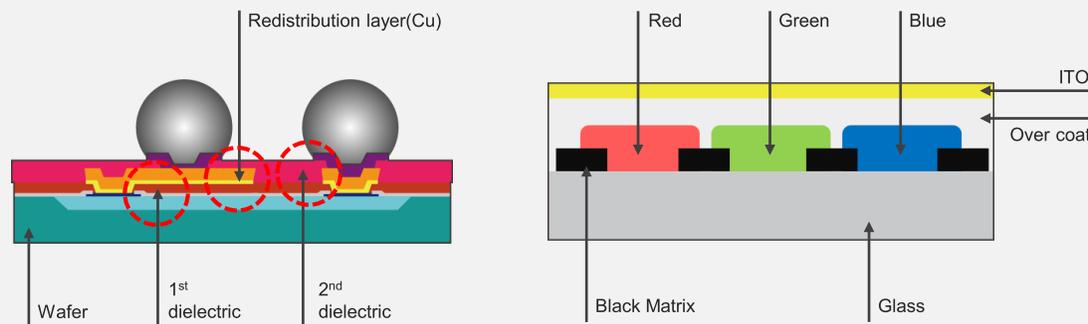
Process chemicals

- PR
- Developer
- Stripper
- Etchant
- HSN

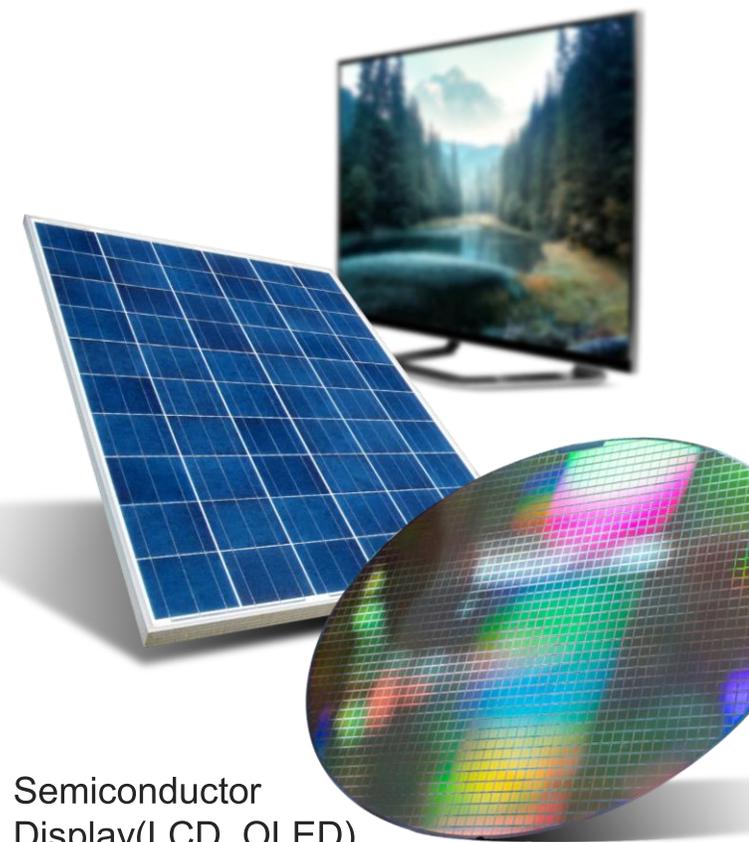


Functional chemicals

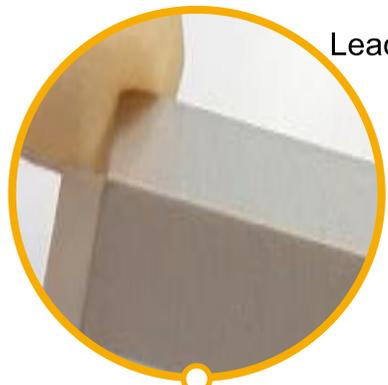
- ILD/PSPI
- Cu 도금액
- Color paste



Applications



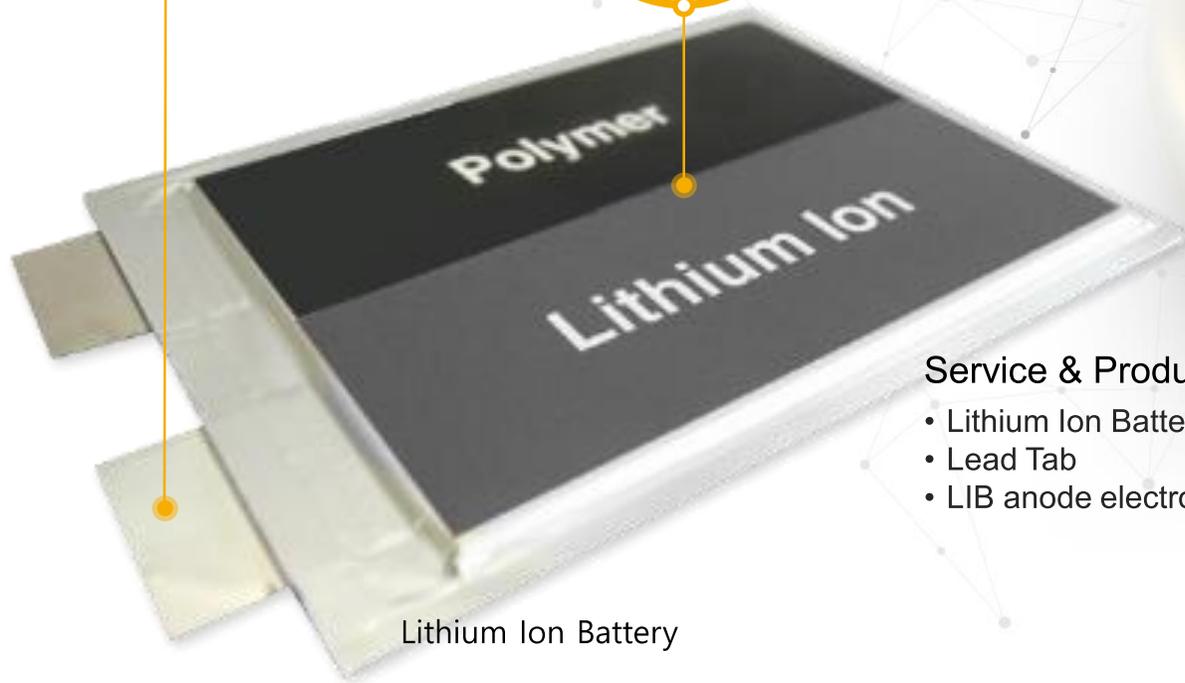
Semiconductor
Display(LCD, OLED)
Solar Cell



Lead Tab



LIB anode electrode

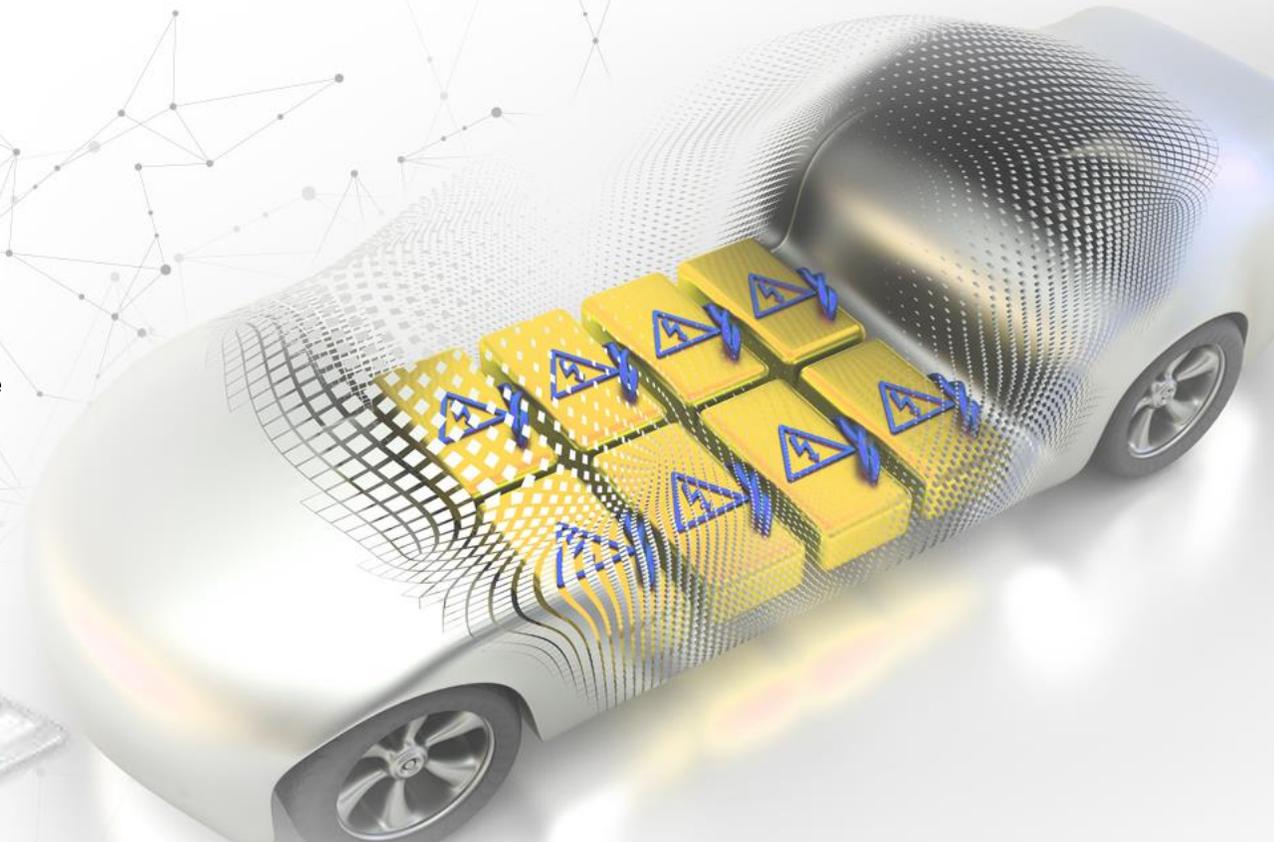


Lithium Ion Battery

Service & Products

- Lithium Ion Battery
- Lead Tab
- LIB anode electrode

Applications





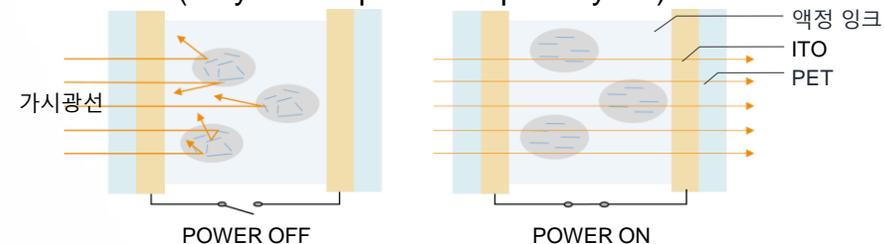
액정필름(Super LC)



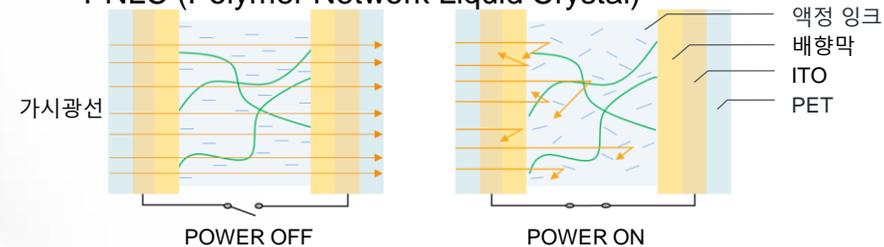
Signage 적용 사례

Super LC의 구조 및 원리

• PDLC (Polymer Dispersed Liquid Crystal)

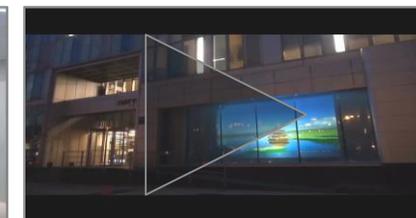


• PNLC (Polymer Network Liquid Crystal)



Service & Products

- Building & Interior
- Signage & Electronics

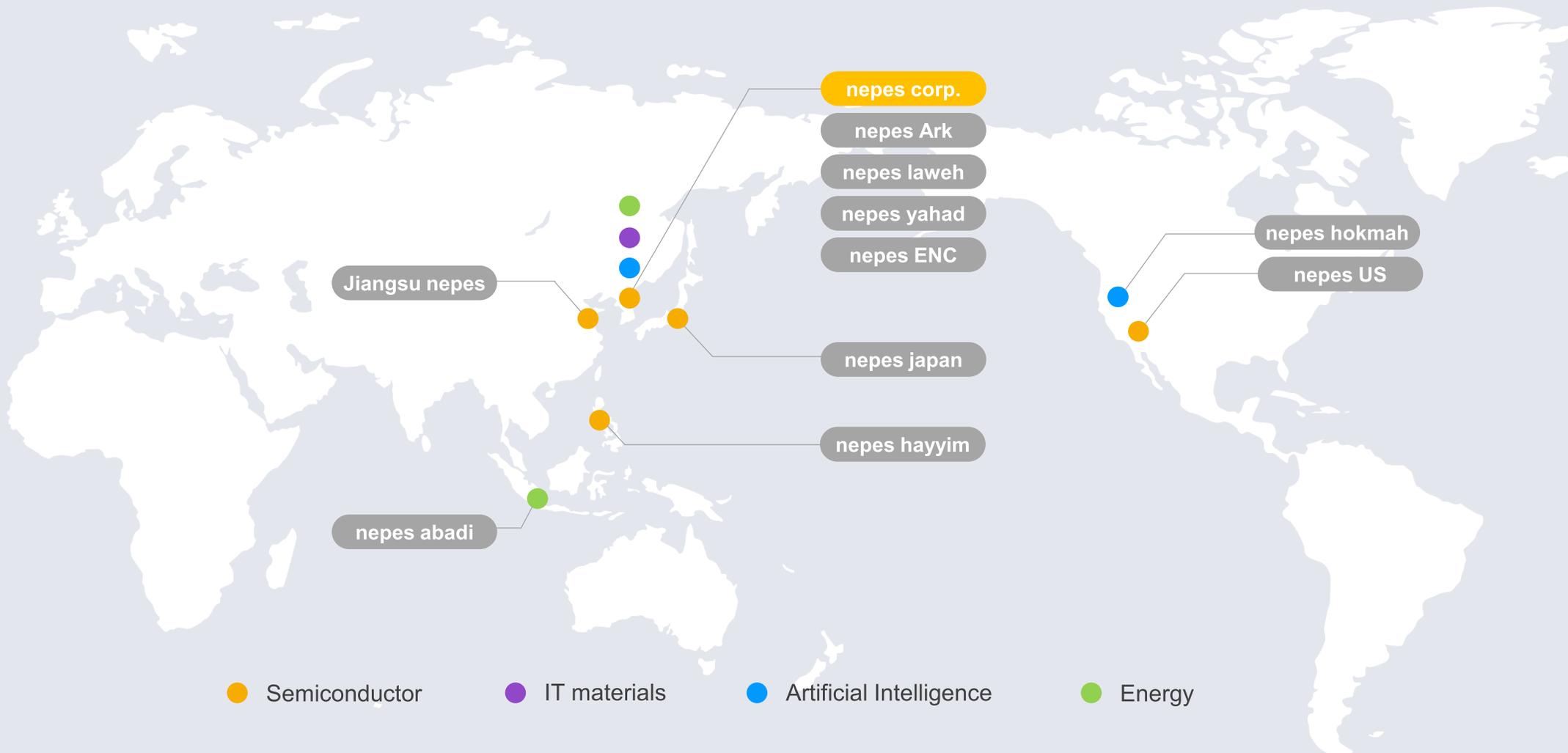




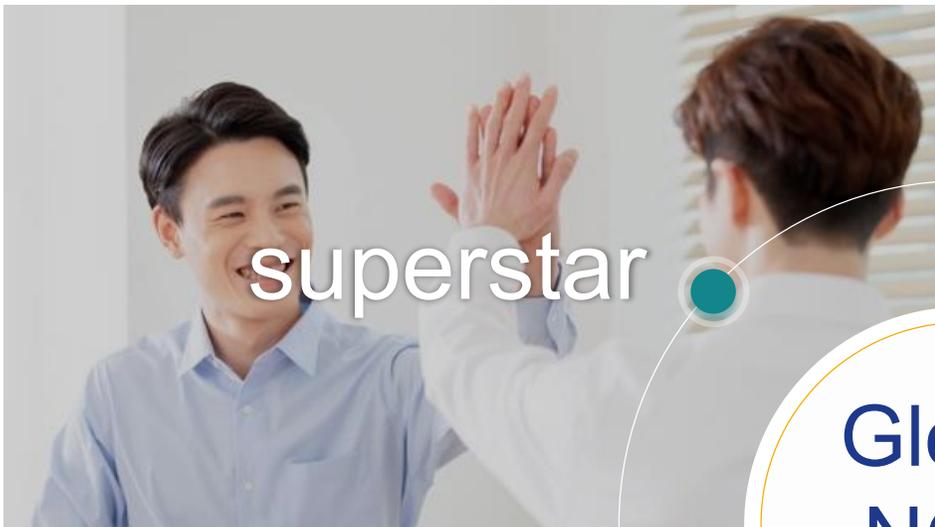
GLOBAL NEPES



우리의 기술과 제품을 가지고 **땅끝까지** 섬기겠습니다.



네패스는 기업문화 증강으로 성과를 창출하여 **지속 성장**합니다.



Global
NO.1
기업문화



3.3.7
LIFE

A close-up photograph of a dandelion seed head, with its seeds blowing away, set against a soft, golden sunset sky. The dandelion is the central focus, with its intricate structure of seeds and stems clearly visible. The background is a gradient of warm colors from yellow to blue.

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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

nepes corporation

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Fax : 02-3470-2708

URL: www.nepes.co.kr



바이든 대통령의 행정명령으로 백악관이 21년 6월 반도체 공급망 조사 검토 보고서 발표

- 보고서에는 국가 안보에 중요한 첨단 패키징의 필요성을 강조하여 국내 반도체 제조 생태계 강화하자는 제안과 함께 글로벌 Top10 첨단 패키징 기업 중 하나로 네패스를 조명함

**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

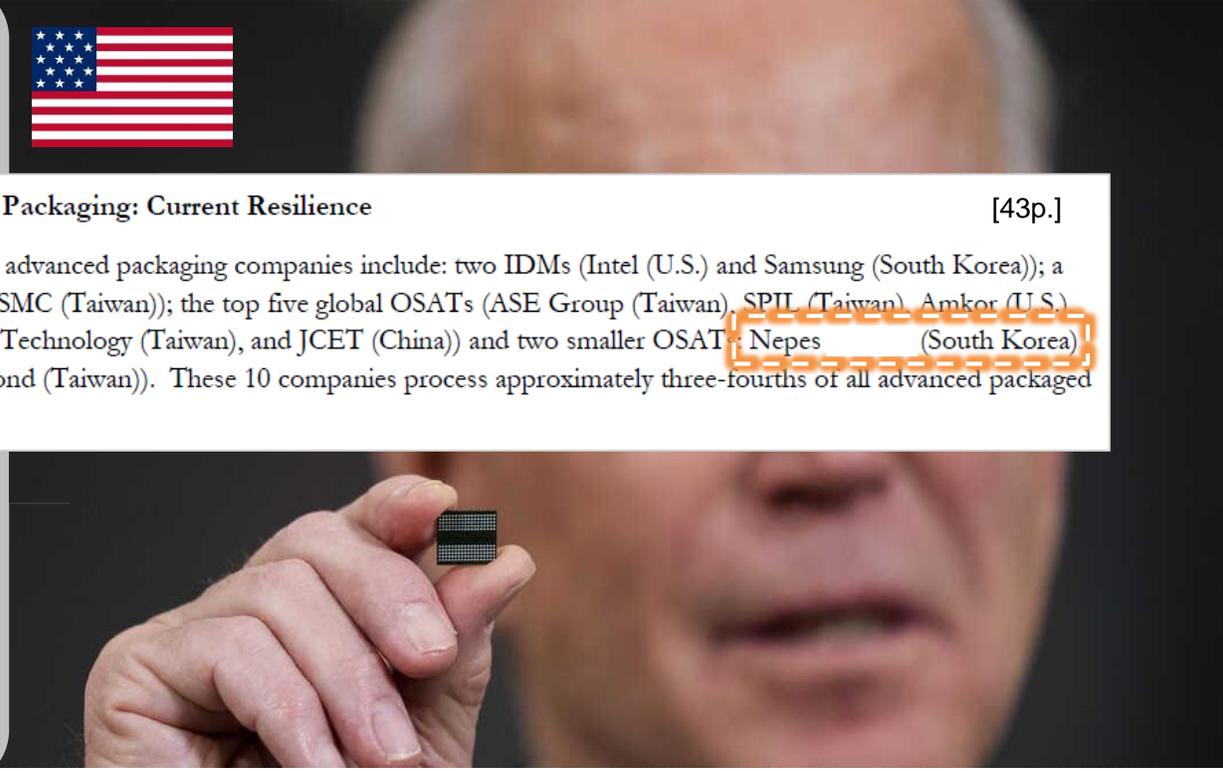
Including Reviews by
Department of Commerce
Department of Energy
Department of Defense
Department of Health and Human Services





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), SPIL (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



IBM의 초청으로 22년 5월 American Semiconductor Innovation Coalition (ASIC)에 가입

- IBM 및 회원들은 네페스의 WLP 및 FOPLP와 같은 첨단 패키징에 대한 전문지식이 연합에 큰 가치를 제공할 것으로 기대



www.asicoalition.org

Coalition Members Include

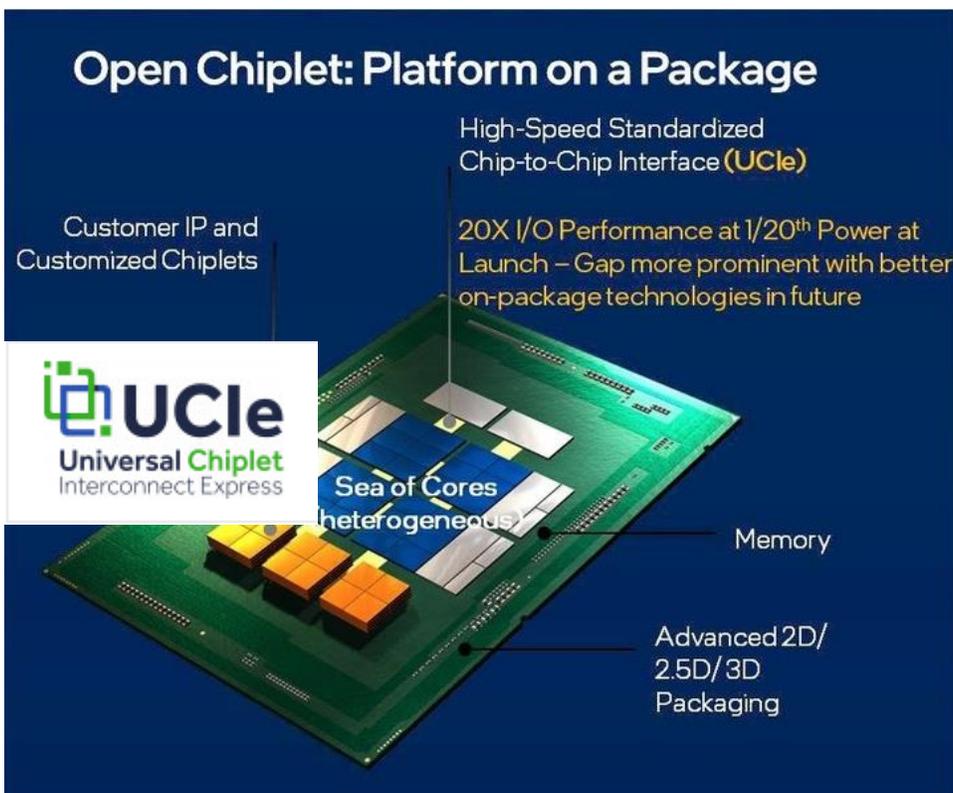




RECOGNITIONS 3 | Joining UCle™(차세대 반도체 기술 표준화 기구)

UCle™(Universal Chiplet Interconnect Express) 가입

- 초미세공정 전환에 따른 기술적 한계를 극복할 대안으로 평가받는 첨단패키지 기술 구조의 새로운 표준 정립을 위해 글로벌 주요 반도체(삼성, 인텔, AMD, Arm등)·IT 기업(마이크로소프트, 메타 등)들이 참여



으뜸기업
2022.01.10

핵심전략기술 분야에서
글로벌 수준의 성장
잠재력을 지닌 기업



올해의 브랜드 대상
2022.09.02

대국민 소비자 투표를 통해
한 해를 빛낸 최고의 브랜드로
선정된 기업



등대기업
2022.11.17

타기업의 방향성을 제시하는
혁신 모범 중견기업



차세대세계일류상품
2022.11.18

높은 기술력과 경쟁력으로 국가
경제발전에 기여하는 상품





네패스만의 독특한 경영철학은 조직을 지속 성장하게 하는 창조적 경쟁력으로 인정받아 각종 국제 학술대회에서 우수 경영 사례로 소개

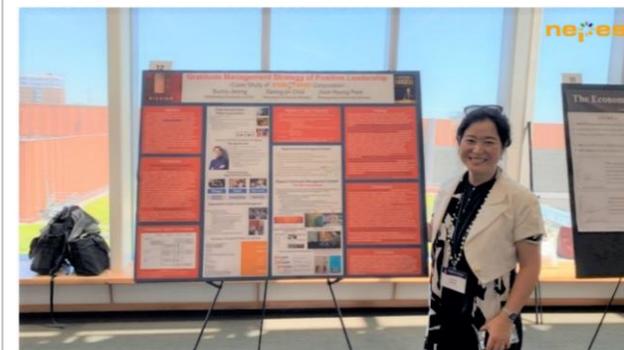
2022 GLOBAL CONFERENCE ON IHRM

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 neipes corporation.

Presented by:
 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

Conventional PKG	Bumping	WLP	Fan-out WLP/PLP	System in PKG
<p>1.4mm</p> <p>Chip</p> <p>QFP</p> <p>QFN</p> <p>FCBGA</p>	<p>Gold</p> <p>Solder</p> <p>Etc(Cu Pillar, CNA bumping)</p>	<p>8"WLP</p> <p>12"WLP</p> <p>Chip 0.4mm</p>	<p>nPLP™</p> <p>600x600mm</p> <p>Chip 0.9mm</p>	<p>Multi-Chip Packaging</p> <p>System in packaging</p> <p>One Package Module</p> <ul style="list-style-type: none"> - AP, PMIC - Flash Memory - Neuromorphic

Position

Other OSAT

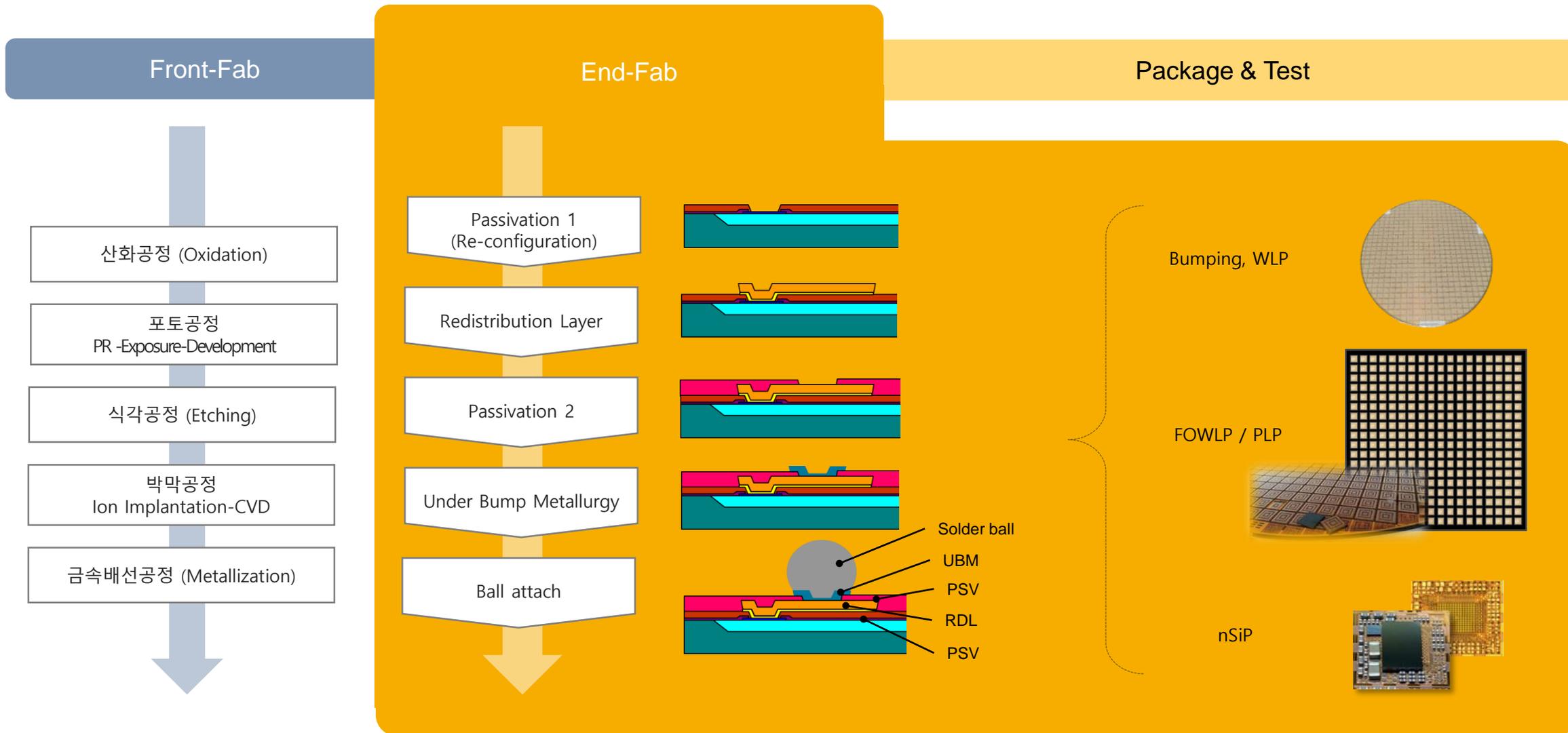
Conventional wire bonding packaging & Typical WLP technology

nepes

Back-end Foundry

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

Front-Fab 공정 이후 Passivation, RDL 공정 및 Bump 공정을 지칭합니다.



APPENDIX 3 | What is FOPLP?

- 네패스의 FOPLP는 업계 최대의 Panel 크기로 새로운 패널 표준입니다.
- FOWLP 경험과 재료 내재화, End-Fab 기술을 바탕으로 독자 FOPLP 기술을 확보하였습니다.

