



(Press Release)

October 20, 2026

NTT, Inc.

NTT Innovative Devices Corporation

Japan Semiconductor Corporation

Furukawa Electric Co., Ltd.

SHINKO ELECTRIC INDUSTRIES CO., LTD.

Accelerating Development of Mass-Production Technologies for Photonics-Electronics Convergence Devices to Support Next-Generation AI Computing

~Innovative optical chiplet manufacturing R&D selected for NEDO's Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems~

TOKYO, Japan, October 20, 2026 – NTT, Inc. (NTT), NTT Innovative Devices Corporation (NTT Innovative Devices), Japan Semiconductor Corporation* (Japan Semiconductor), Furukawa Electric Co., Ltd. (Furukawa Electric), and SHINKO ELECTRIC INDUSTRIES CO., LTD. (Shinko Electric Industries) today announced that a four-company joint R&D proposal led by NTT Innovative Devices has been selected under the New Energy and Industrial Technology Development Organization (NEDO)'s Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems / Development of Manufacturing Technologies for Advanced Semiconductors. The project aims to establish mass-production technologies for photonics-electronics convergence (PEC) devices that support next-generation AI and data-intensive computing. The participating companies will jointly develop mass-production technologies for optical chiplets, with NTT serving as an advisor.¹

The rapid adoption of generative AI is driving unprecedented growth in demand for data processing across AI data centers and high-performance computing (HPC) systems. At the same time, rising power consumption associated with chip-to-chip communications has emerged as a major challenge. As a result, PEC technologies, which enable high-speed data transfer with significantly lower power consumption, are attracting increasing attention worldwide.

Against this backdrop, NTT has been leading research and development of optical chiplet² packaging technologies that use light to connect semiconductor packages and semiconductor

chips under NEDO's Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems / Development of Manufacturing Technologies for Advanced Semiconductors since fiscal year 2023. NTT serves as the lead company for this initiative, which has advanced the development of optical chiplet technologies for next-generation semiconductor systems.³

Under the project, the participating companies will develop innovative manufacturing technologies for semiconductor devices incorporating optical chiplets to enable the high-capacity, low-power data transmission required by next-generation AI computing platforms. The project aims to achieve more than a tenfold increase in manufacturing productivity compared with current R&D-stage processes.

To accomplish this goal, the participating companies will combine their expertise in optical semiconductors, silicon photonics, optical interconnects, semiconductor packaging, and mass production processes. They will establish and evaluate a pilot production line designed for future commercial manufacturing. NTT will participate in the project as an advisor, promoting industry collaboration and supply chain development to help accelerate the commercialization and large-scale production of PEC devices.

The selected R&D project and the roles of the participating companies are outlined below.

Announcement Date: October 20, 2026

Program	R&D Project	Participants
Research and Development Project of the Enhanced Infrastructures for Post-5G Information and Communication Systems / Development of Manufacturing Technologies for Advanced Semiconductors	(d8) Development of Semiconductor Device Manufacturing Technology Using Photonics Chiplet Implementation Technology [GX]	NTT Innovative Devices Japan Semiconductor Furukawa Electric Shinko Electric Industries

【Roles of Participating Companies】

NTT	As an advisor, NTT will promote industry collaboration and supply chain development to establish mass-production technologies for PEC devices.
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NTT Innovative Devices	Development of manufacturing, testing, and packaging technologies required for the mass production of optical chiplets.
Japan Semiconductor	Development of mass-production technologies for silicon photonics optimized for heterogeneous material integration in optical chiplets.
Furukawa Electric	Development of mass-production technologies for compound semiconductor-based optical devices for optical chiplets.
Shinko Electric Industries	Development of optical chiplet packaging technologies and mass production processes, including in-process inspection technologies.

Through the project, the participating companies will establish mass-production technologies for optical chiplets spanning the entire manufacturing value chain, from photonic device fabrication and testing to optical interconnects and advanced packaging, in anticipation of the emerging market for PEC devices.

These efforts will enable the high-speed, high-capacity, and low-power data transmission required by next-generation AI computing infrastructure while accelerating the commercialization of PEC devices and strengthening Japan's domestic semiconductor manufacturing capabilities.

The project will also foster collaboration among companies and research institutions involved in the development and production of PEC technologies, helping to establish a globally competitive supply chain. Through these initiatives, the participating companies aim to contribute to reducing the growing energy consumption of data centers driven by the rapid adoption of generative AI and to supporting the realization of a more sustainable information and communications society.

* Japan Semiconductor Corporation is a wholly owned subsidiary of Toshiba Electronic Devices & Storage Corporation.

【Notes】

1. https://www.nedo.go.jp/koubo/IT3_100377.html

2. Optical Chiplet

A photonics-electronics convergence device that combines a photonic integrated circuit (PIC), including photonic semiconductor devices, with an electronic integrated circuit (EIC) through high-density packaging. It replaces electrical signals with optical signals for data transmission between processing chips such as CPUs and GPUs. As a core technology for photonics-electronics convergence, it overcomes the increases in power consumption associated with transmission

distance and the limitations of bandwidth, enabling high-capacity, ultra-low-power servers and data centers for the AI era.

3. NEDO News Release (January 30, 2024):

https://www.nedo.go.jp/koubo/IT3_100302.html

About NTT

NTT is a leading global technology innovator, providing a broad range of services to both consumers and businesses. As a mobile operator and provider of infrastructure, networks, and services, NTT is dedicated to promoting a sustainable future through cutting-edge innovations. Our portfolio includes business consulting, AI-powered solutions, application services, global networks, cybersecurity, data center and edge computing, all supported by our deep global industry expertise. Generating over \$90 billion in revenue and employing 340,000 professionals, we allocate 30% of our annual profits to fundamental research and development. With operations spanning more than 70 countries and regions, our clients include over 75% of Fortune Global 100 companies, alongside thousands of enterprises, government organizations, and millions of consumers.

About NTT Innovative Devices

At NTT Innovative Devices, we have commercialized COSA (Coherent Optical Sub Assembly), which consists of miniaturized integrated optical transmitter/receiver with silicon-photonics technology and digital signal processing LSI technologies developed over many years. Furthermore, we have been developing commercialized co-packaged devices integrated with a digital signal processing LSI. We will continue to develop PEC-related technologies and actively develop products that meet the requirements of our customers in the growing areas of data centers and computing industries in addition to the conventional optical communication applications.

About Japan Semiconductor Corporation

Japan Semiconductor, a core company of Toshiba Electronic Devices & Storage Corporation Group, has promoted innovation in semiconductor manufacturing for over 50 years. Leveraging technological capabilities and expertise cultivated in product development and mass production, we meet diverse customer and market needs with a broad lineup that includes microcontrollers, ASICs, analog ICs, image sensors, power semiconductors and silicon photonics. While constantly striving for innovations in technology, manufacturing and quality, Japan Semiconductor supports society's continued development.

About Furukawa Electric Group

Leveraging our 4 core technologies of metals, polymers, photonics and high frequency, Furukawa Electric Group operates a wide range of businesses in fields including infrastructure such as telecommunications and energy, automotive products and electronics.

Based on our Purpose of “Composing the core of a brighter world”, we strive to solve social issues such as supporting faster optical communications, addressing carbon neutrality and evolving mobility, and contribute to the establishment and development of next-generation infrastructure.

<https://www.furukawaelectric.com/en/>

About SHINKO ELECTRIC INDUSTRIES CO., LTD.

SHINKO ELECTRIC INDUSTRIES CO., LTD. is a leading manufacturer of semiconductor and microelectronic packaging products including Organic Laminate Build-up Substrates, Etched and Stamped Lead Frames, Integrated Heat Spreaders, and IC Assembly. SHINKO ELECTRIC INDUSTRIES CO., LTD. will pursue their own development and growth while contributing to the creation of a prosperous society through technology leadership, state of the art manufacturing, and offering a wide variety of high quality products for diverse markets in the semiconductor industry.

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