

# ULVAC's Value Creation <Research & Development and Global Expansion>

## Research & Development

### Ongoing value creation from a medium- to long-term perspective

ULVAC has long been a source of vacuum-technology-based products and materials indispensable for wide-ranging industries. Building on our strengths in vacuum technology, we will continue to promote innovative, pioneering R&D capable of addressing actual and potential needs and create high-added-value products and technologies, thus contributing to the progress of society.

To continue to provide innovative technologies and products in the everchanging market, our R&D projects undergo selection and focus in which a clear distinction is made between "development of innovative technology for principal products of the mainstay business" and "development of fundamental technologies in preparation for the future" based on analysis of customer needs and market trends. Moreover, our development structure leverages business partnerships with various companies and research institutions.

We are also striving to equip ourselves with the advanced technologies necessary to respond swiftly to the progress of 5G and IoT in line with the establishment of global network infrastructure and the smart society while flexibly addressing social issues, including environmental issues such as global warming and climate change, thus establishing a foundation for long-term sustainable growth.

**Principal themes**

- Logic
- NAND/DRAM
- Next-generation non-volatile memory
- Next-generation displays
- Next-generation batteries
- Communication devices
- Power devices
- Electronic devices, MEMS
- Electronic packaging
- Optical devices

**TOPICS** Relevant SDGs

### Initiatives of the ULVAC-Osaka University Joint Research Laboratory for Future Technology

On November 1, 2018, ULVAC, Inc. and the Graduate School of Engineering at Osaka University established the ULVAC-Osaka University Joint Research Laboratory for Future Technology (hereafter referred to as the "Joint Research Lab") in the Central Terrace Building of the University's Suita Campus. Through Osaka University's industry-academia collaboration framework, the Joint Research Lab is working to achieve practical applications of the seeds of basic research in the engineering field, contribute to academia and industry based on medicine-engineering collaboration in the medical field, and develop highly creative human resources by promoting industry-academia exchanges. ULVAC positions the Joint Research Lab as a center of excellence for basic research and aims to create new value, including creation of quantum dot phosphors employing ULVAC's proprietary technologies, which will lead to next-generation displays including full-color illumination, as well as technology for their mass-production, and the establishment of fundamental technologies in medicine and next-generation ceramics as part of development of application for the ultrafast freeze-drying technology.

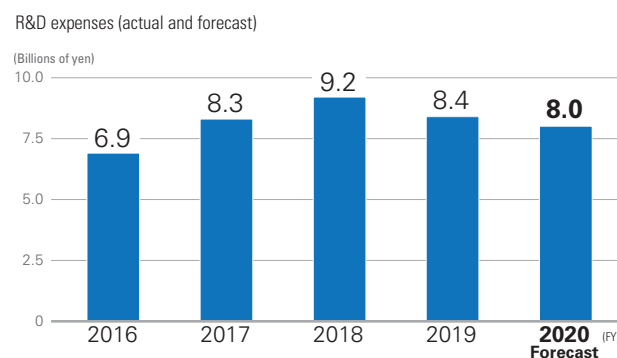
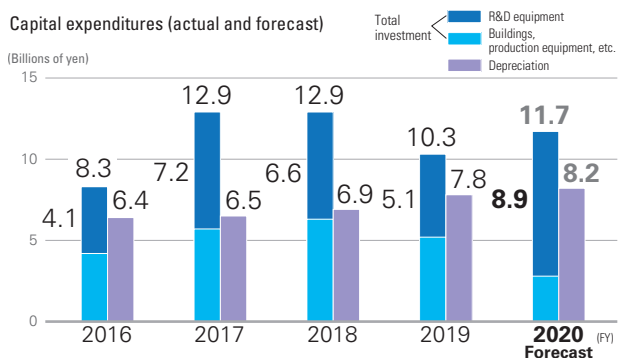
**Research themes**

- 1) Development of next-generation displays (quantum dot, LED)
- 2) Creation of next-generation devices using photon spin
- 3) Establishment of a cell preservation technique using ultrafast freeze-drying technology, etc.

Central Terrace Building at the Suita Campus of Osaka University

### Capital Expenditures and R&D Expenses (Actual and Forecast)

¥50.0 billion in R&D investments (capital expenditures for R&D and R&D expenses) is planned centering on the growing semiconductor and electronic device fields for the three years covered by the new mid-term management plan.



## Global Network

### Networks offering solutions to support industrial development worldwide

ULVAC has established optimal networks covering development, sales, manufacturing, and services not only for Japan but also for the United States, Europe and Asia.

To spur development by capitalizing on the global development system, ULVAC is promoting joint development with leading companies and research institutions around the world.

Head Office/Plant Kagoshima Plant Fuji Susono Plant Hachinohe Plant

China Plant South Korea Plant Taiwan Plant

In regard to manufacturing, ULVAC has expanded a production system centering on Japan, China, South Korea, and Taiwan. Going forward, we will emphasize improvement of production efficiency by promoting optimal production. Whereas each base has established its own local supply chain, the ULVAC Group will strive to optimize procurement by developing a global supply chain.

For details [▶ P.26](#) New Mid-term Management Plan "Enhancing Manufacturing Capabilities"

For details [▶ Website>>Support>Sales Offices](#)

For details [▶ Website>>Support>Service Center](#)

## Customer Support

### ULVAC's customer support solutions pool the Group's knowledge

Our customer support network (66 bases in 13 countries) in Japan and around the world underpins our customers' production operations in a manner that meets their needs throughout the life cycle. We offer comprehensive maintenance service covering components and make proposals for improvement and refurbishment covering customers' processes. Furthermore, by using information on customer needs as feedback for the development of new equipment, we aim to offer even more sophisticated vacuum technologies and service. We will also expand remote customer support packages utilizing IoT equipment for the future.

