

ULVAC's 9th President Takes Office

Aiming to create an *inspiring, stimulating* workplace that keeps growing

ULVAC, Inc.
President and CEO **Setsuo Iwashita**



My name is Setsuo Iwashita, and on July 1, 2017, I had the honor of being appointed ULVAC's president and CEO. As successor to Chairman of the Board Mr. Hisaharu Obinata, I will do my very best to steer this company toward further development.

In 1952, our business group was founded with the principle of "utilizing vacuum technology to contribute to industry." This principle inspired us to take on challenges boldly, and as a result, we developed Japan's first vacuum devices. The source of all this value creation came from people first and foremost. Based on this conviction, upon taking office as president, I called upon all of our group companies to create a growth-minded workplace where each individual employee engages in enjoyable and stimulating work. Our new medium-term management plan supports this, and aims to strengthen our management foundation with a focus on "developing human resources."

As the manufacturer of a full range of vacuum technology-related products, this group has grown and developed not only in the production of vacuum devices, components, and materials, but also in surface analysis and other areas. The synergistic effects that derive from all of our businesses collaborating and working together is one of our key strengths. However, this is not enough. In order to accelerate the pace of our global development and expand the contributions that our vacuum technology is making to the field of industry, it is vital that all of our group companies be involved in each other's activities. They must deepen their understanding of other business domains and strengthen their horizontal connections. We will strive to enhance inner-group information sharing and communication functions, and we will promote personnel exchange so that we can develop human resources capable of working beyond the framework of the organization. This will help us build an environment in which synergistic creation can flourish - which, in turn, will lead us to our goal of making the most extensive use of vacuum technology.

I have personally observed our overseas activities for nearly 30 years. I spent some of those years managing our subsidiaries in China. This perspective has shown me that the ULVAC group can and will grow even further. My mission is to reorient the awareness of all employees, so that we think globally, strengthen our foundation for growth, and open up new possibilities for the company as a full-range vacuum manufacturer.

Profile of Setsuo Iwashita
Date of Birth: February 4, 1953
Hometown: Kumamoto Prefecture

Career Overview

- Mar. 1978: Graduated from the Faculty of Science at Kagoshima University
- Mar. 1984: Joined ULVAC
- Aug. 1992: Manager of Beijing Business Office and Shanghai Business Office, Overseas Operations Division
- Sept. 1995: Director and CEO of ULVAC (NINGBO) Co., Ltd.
- July 1998: General Manager for Chinese Region, Asia Division
- Mar. 2006: Director and CEO of ULVAC (CHINA) HOLDING Co., Ltd.
- Oct. 2006: Chairman of ULVAC (Shanghai) Trading Co., Ltd. Chairman of ULVAC (SUZHOU) Co., Ltd.
- Sept. 2011: Director of the Company
- Sept/ 2013: Managing Executive Officer
- July 2015: Senior Managing Executive Officer Chairman of ULVAC (CHINA) HOLDING Co., Ltd.
- Sept. 2016: Director and Senior Managing Executive Officer of the Company
- July 2017: President and Chief Executive Officer (current position)

... My motto ...

"Opportunities of time vouchsafed by Heaven are not equal to advantages of situation afforded by the Earth, and advantages of situation afforded by the Earth are not equal to the union arising from the accord of Men." (Mencius) It is important to answer when opportunity knocks, but to get there first, you need to prepare and be in the right position. Don't just wait for opportunity to come to you - take action to go and find it. Human effort is more important than anything else. We should discover and develop our individual strengths, and we should value communication highly. I would like to focus on human resource development and create a company in which everyone can play an active role.

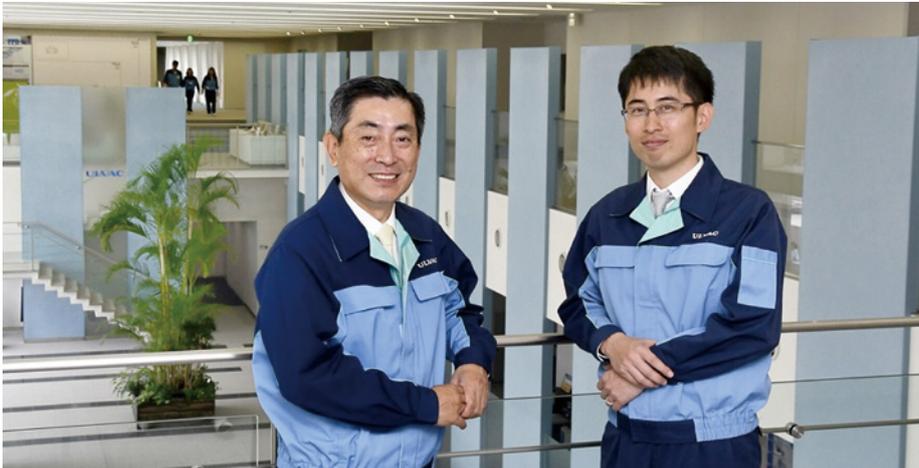
... In my free time ...

My passion is to communicate with anyone and everyone. I also enjoy dining out often. When I was in college, I practiced Okinawan karate. Currently, I work out at the gym to stay healthy and keep my brain active.



Certified by Japan's Ministry of Economy, Trade, and Industry as a 2018 "White 500 Company" Having Outstanding Health and Productivity Management

— Health Management at ULVAC



President and CEO Setsuo Iwashita (left) and Personnel Department, Health Promotion Office Physician Hiroyasu Ito

On February 20, 2018, ULVAC was recognized as a 2018 "White 500 Company" Having Outstanding Health and Productivity Management. This certification is awarded jointly by the Ministry of Economy, Trade, and Industry and the Nippon Kenko Kaigi (Japan Health Conference). It honors large enterprises, SMEs, and other corporations that engage in superior health and productivity management through initiatives for overcoming health-related challenges in regional communities, or by promoting health-conscious activities led by the Nippon Kenko Kaigi. The certification committee gave ULVAC particularly high marks in the fields of management philosophy, policy and evaluation, and improvement.

Ito: ULVAC received the White 500 certification this year. What exactly does "health" mean in this context?

"Health" isn't simply the absence of illness. I believe it's also a state of "wellness"; when we know what will make for a more successful life, and we actively pursue that life. Mr. Iwashita, what state of health do you think is best for ULVAC?

Iwashita: Well, I think mental health is important. ULVAC's motto is "the

company will prosper or perish by its people." I want to create a growth-minded workplace where each individual employee engages in enjoyable and stimulating work.

Ito: How would you describe "enjoyable and stimulating"? Why is enjoyable and stimulating work important?

Iwashita: When we're happy or having fun, we get excited and are able to give 120%! I think that's how a workplace should be, too. That's what would make me happiest. I think that true health is a state in which we have a dream, our work is fun, and we look forward to going to work. I want everyone to feel a sense of accomplishment and to experience success. To get to that point, it's the



The footprints on the walkway represent proper stride lengths by height, to help employees be mindful of improving their posture and leg strength.

responsibility of management to start by getting to know in depth the atmosphere of the workplace and each individual employee's morale.

Ito: I agree. Healthy thinking on the part of an organization leads to healthy living. ULVAC is actively pursuing initiatives such as management-led organization revitalization programs, a walking plan in which many different company departments participate, and a cafeteria committee. Exercise directly activates the brain and thus is good for work efficiency. It can also serve as a catalyst for communication.

What sort of things are you doing to manage your health day to day?

Iwashita: I do quite a bit. I train at the gym, and I'm also getting into walking. It helps clear my head.

Ito: Yes, exercise is essential for good health. What sort of people are a good fit for ULVAC?

Iwashita: A wave of change is coming over our business environment right now, and this is the perfect opportunity for dramatic growth. I want each employee to have his or her own sense of purpose, and to hone personal strengths to work toward that purpose. I want everyone to take on new challenges without being afraid of failure. I believe that ULVAC can contribute to society and create value only when we are healthy and active in both body and mind, and when we demonstrate the full potential of our abilities. To achieve this, we must make the promotion of employee health a key management issue, and we must continue our current health management initiatives and develop new ones.

Ito: The company must create an even healthier environment and healthier systems. I hope we can have a workplace in which every individual asks himself or herself, "What can I do to help make the people around me healthy and active in both mind and body?", and then acts accordingly. We will continue to work towards achieving this environment.

ULVAC CRYOGENICS INCORPORATED

**Expanded Production of Cryopumps in China and Korea
Established Kyoto Cryogenic Technology R&D Center**



Kyoto Cryogenic Technology R&D Center



ULVAC CRYOGENICS KOREA INCORPORATED, exterior

With its expanded production of cryopumps, ULVAC CRYOGENICS INC. relocated Chinese affiliate ULVAC CRYOGENICS (NINGBO) INC. within the city of Ningbo in July 2017 and built an addition onto the ULVAC CRYOGENICS KOREA INC. building in April 2018. The company's share of the global market of cryopumps for production of flat panel displays is 90% or more.

The relocation and building addition increased the factory floor area by approximately 1.7 times in China and 1.9 times in Korea. In Korea, workbench heights on production lines were standardized and robotics were

introduced to reduce workloads, which increased production efficiency. In China, the goal is to expand production and upgrade services by installing automation equipment on the test line in order to eventually manufacture cryopumps domestically in China.

The company also established the Kyoto Cryogenic Technology R&D Center in the Kyoto Factory in November 2016. The company began to manufacture and sell 4K cryocoolers in 2009. It began to sell cryogenic equipment after taking over the manufacture and sales of cryogenic equipment from IWATANI INDUSTRIAL GASES CORPORATION in May 2014.

Cryogenics technology is becoming more important in a wide range of fields, from space engineering to medicine and general industry. It is being used in elementary particle research that attempts to explain the origins of the universe, as well as in quantum computers and in the search for new superconducting materials. Only high-performance cryogenics systems can be used in these applications, and in order to meet customer needs for such equipment, the Kyoto Cryogenic Technology R&D Center is working with the world's leading cryogenics technology centers on advanced product development.

- Number of employees (as of April 2018)
 - ULVAC CRYOGENICS INCORPORATED 130
 - ULVAC CRYOGENICS KOREA INCORPORATED 95
 - ULVAC CRYOGENICS (NINGBO) INCORPORATED 38



Cryopump assembly plant (Korea)



Compressor unit assembly (China)



Robot assistance reduces workloads (Korea)



ULVAC CRYOGENICS (NINGBO) INCORPORATED, exterior (1st and 2nd floors of the building)



Cryopump test (China)

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ULVAC-PHI, Inc.

Relocation of Headquarters and Factory to the ULVAC Building Complex

— Potential Synergy Effect for ULVAC and ULVAC-PHI



Headquarters entrance



Product inspection



Equipment demonstration

ULVAC-PHI, Inc. was established in 1982 as a joint venture between Japan Vacuum Engineering Co., Ltd. (now ULVAC, Inc.) and the U.S. company Physical Electronics Inc., and is currently a wholly owned subsidiary of ULVAC. ULVAC-PHI is the world's leading manufacturer of surface analysis equipment using all three types of surface analysis: XPS, AES, and SIMS.

On August 15, 2017, ULVAC-PHI moved its headquarters and factory to a new location in the ULVAC building. The company's analytical laboratory,

which functions as a demonstration room, tripled in size. Each unit is now placed in a separate room, which provides a better environment in which to operate. Customers visiting the laboratory can also use the newly-added lounge to watch equipment demonstrations. The increase in the number of units from 7 to 10 has also allowed better customer service and application development.

The factory, previously located in two areas, is now integrated into one area, which has been equipped with new production facilities and cleanrooms,

contributing to improvements in productivity and efficiency.

ULVAC's Research & Development Division's analysis team also occupies the same floor as ULVAC-PHI's laboratory. The easier access to each other allowed by this arrangement should benefit both teams by increasing opportunities for collaboration in technical fields and other areas.

- Number of employees: 134 (as of April 2018)

- Analysis equipment in the lab (technique/models/quantity)
 - X-ray Photoelectron Spectroscopy (XPS) / 4 models / 6 units
 - Auger Electron Spectroscopy (AES) / 2 models / 2 units
 - Time-of-Flight Secondary Ion Mass Spectrometry (TOF-SIMS) / 1 model / 2 units



Factory integrated in one space



Individual room for each unit



Rest area in the analysis room

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“New Human Resource Center and Integrated Group Personnel Strategy Lead to Changes in Awareness and Sharing of Values”

— ULVAC, Inc.

ULVAC, Inc. established a new Human Resource Center in January 2018. Its purpose is to create a “corporate culture that strives to empower employees to be an active part of ULVAC’s next leap forward.” ULVAC’s Mid-Term Management Plan for FY2017 cites the creation of this culture as one of its objectives.

The business environment is experiencing a tumultuous wave of changes, but corporate development, technological innovation, and product competitiveness all still depend on people. People are the most important resource for the ULVAC Group. We intend to build a cross-Group personnel training system, to recruit and train global personnel, and to encourage personnel to engage actively with the outside world.

ULVAC Global Festival 2017

— ULVAC, Inc.



On November 11, 2017, at the Chigasaki Head Office and Factory, ULVAC, Inc. held the ULVAC Global Festival 2017 to thank all of its stakeholders.

On the day of the festival, there were factory tours, vacuum experiments, booths run by employees, mochi making, a Greenery Day corner, a gourmet grand prix by Japanese and overseas Group companies, and many other events. Over 5,000 people attended.

ULVAC Boy, a character unveiled at the festival, was also very popular, and many children had their pictures taken with him.

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ULVAC and MIT Establish Hayashi-ULVAC MISTI Seed Fund

— ULVAC, Inc.

In June 2017, ULVAC, Inc. established the Hayashi-ULVAC MISTI Seed Fund to support collaborative research between researchers at the Massachusetts Institute of Technology

(MIT) and their counterparts in Japan. This initiative was made possible by the generosity of the late Dr. Chikara Hayashi, former ULVAC president, who established funding for it in 2008.

ULVAC has a rich history of collaboration with MIT that dates back to the company’s establishment. In its early years, ULVAC received support in the form of free technology from the National Research Corporation (NRC), founded by an MIT alumnus. ULVAC has established this Fund not only to give back to the MIT research community, but also to build a bridge that will help maintain the close relationship between ULVAC and MIT and foster new exchanges.



Photo of a visit to MISTI in Boston, when the Hayashi MISTI Seed Fund was first established in October 2008 (the late President Chikara Hayashi is second from the left)

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ulvac-hayashi-misti-seed-grant

Agreement Signed to Establish Joint Research Office with the Chinese Academy of Sciences’ Institute of Microelectronics

— ULVAC, Inc.



IMECAS, as China’s top semiconductor research institution, leads the Chinese semiconductor industry in the application of advanced manufacturing technology and new materials, and in the development of verification technology. As such, it will play an important role in future developments of the Chinese semiconductor industry.

In its ten-year Made in China 2025 plan, the Chinese government indicates its intention

to strengthen the semiconductor industry. The Chinese semiconductor industry is important to ULVAC not only as a market, but also as a partner for breaking new technological ground.

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The Driving Company for the Regional Future Award

— ULVAC KIKO, Inc.



In December 2017, ULVAC KIKO, Inc. was selected as 1 of 2,148 companies in Japan and 1 of 38 companies in Miyazaki Prefecture to receive the Future of the Earth Award from the Ministry of Economy, Trade and Industry. This award was established to promote the use of methods that encourage investment in the future of the Earth.

Companies that receive the Future of the Earth Award are very influential in their regional economies based on their business, employment, and sales, both regionally and beyond. They are expected to grow, and they play or have the potential to play a central role in the value chain of their regional economies. This award makes it easier for recipients to get support in the form of consulting on business strategy and sales development, relief for capital investments and tax burdens, and easing of regulations.

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Ceremony to Open New Factory in Shenyang, China

— ULVAC (Shenyang), Co., Ltd.



Laser show on large-screen display (beginning of ceremony)

ULVAC (Shenyang), Co., Ltd. held an opening ceremony for its new factory on November 22, 2017.

The new factory was built with the aim of enhancing development of ULVAC Shenyang, which was previously a joint venture and

became a wholly owned ULVAC subsidiary in October 2016.

Over 100 people came to the ceremony, including customers from across China, government officials, and representatives from ULVAC Group companies.

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Received LG Display Partner Growth Award

— ULVAC KOREA, Ltd.

On December 6, 2017 ULVAC KOREA, Ltd. received the LG Display Partner Growth Award from Korean FPD maker

New Products

ULVAC, Inc.

Two Models of SOPHI Ion Implanter for Power Devices Developed



SOPHI-30

SOPHI-400

In July 2017, ULVAC, Inc. developed the SOPHI-30 low-acceleration ion implanter and SOPHI-400 high-acceleration ion implanter, both of which are compatible with ultra-thin wafers and can be used for power device manufacturing. The company is developing technology for power devices, including Insulated Gate Bipolar Transistors (IGBT), Silicon Carbide (SiC), and Gallium Nitride (GaN).

The SOPHI-30 low-acceleration, high-density ion implanter eliminates the disadvantages of previous implanters, makes low-acceleration, high-density processing possible in one-sixtieth of the previous time, and solves problems such as breakage of ultra-thin wafers in single-wafer processing.

The SOPHI-400 high-acceleration ion implanter makes improvements on many levels. It can process ultra-thin wafers with up to 2.4 MeV of energy using single-wafer processing, and can even form a field stop layer using hydrogen as a next generation process.

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To the left is Vice President and CPO of LG Display, Shin Sang-Moon. On the right is Chairman of ULVAC KOREA and Director and Managing Executive Officer of ULVAC, Dr. Choong Ryul Paik

LG Display for its outstanding contribution to FPD manufacturing. The award went to two material companies and three equipment companies. ULVAC KOREA received it in recognition of its quick delivery and process setup for generation 8.5 IGZO sputtering.

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ULVAC, Inc.

LS Series Dry Vacuum Pumps High Speed Pumping and Low Power Consumption



LS120A

In April 2018, ULVAC, Inc. launched sales of the LS Series dry vacuum pump. Ordinary low power consumption dry vacuum pumps tend to have low pumping speed at near atmospheric pressure, meaning that pumping takes a long time. In order to solve this issue, ULVAC developed the LS Series of dry vacuum pumps, which are designed for high pumping speed at low power consumption. ULVAC achieved a shorter pumping time by increasing pumping speed at near atmospheric pressure, and reduced power consumption by applying newly-developed proprietary technology.

There are four models in the LS Series with pumping speeds ranging from 120 to 1200 m³/h. The optimal pump model can be selected for the size of the customer's device and the conditions of use.

- **Pumping speed:** High pumping speed at near atmospheric pressure makes it possible to shorten pumping times.
- **Lower power consumption:** Power consumption at high pumping speed and ultimate pressure is an industry-leading 0.6 kW or less.
- **Low noise:** A built-in silencer keeps the noise level at 61 dB(A) or less.

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Japan

- ULVAC, Inc.
- ULVAC TECHNO, Ltd.
- ULVAC KYUSHU CORPORATION
- ULVAC TOHOKU, Inc.
- ULVAC KIKO, Inc.
- ULVAC EQUIPMENT SALES, Inc.
- ULVAC CRYOGENICS INCORPORATED
- ULVAC-PHI, Inc.
- TIGOLD CORPORATION
- ULVAC COATING CORPORATION
- Nisshin Seigyo Co., LTD
- ULVAC Human Relations, Ltd.
- SHINKU CERAMICS CO., LTD.
- FINE SURFACE TECHNOLOGY CO., LTD.
- REJ Co., Ltd.
- SHOWA SHINKU CO., LTD.

China

- ULVAC (China) Holding Co., Ltd.
- ULVAC (NINGBO) Co., Ltd.
- ULVAC (SUZHOU) CO. LTD.
- ULVAC Orient (Chengdu) Co., Ltd.
- ULVAC Automation Technology (Shanghai) Corporation
- ULVAC Tianma Electric (Jingjiang) Co., Ltd.
- ULVAC (Shenyang) Co., Ltd.
- ULVAC (Shanghai) Trading Co., Ltd.
- ULVAC Materials (Suzhou) CO., LTD
- ULVAC Opto-electronics Thin Film Technology (Shenzhen) Co., Ltd.
- ULVAC CRYOGENICS (NINGBO) INCORPORATED
- ULVAC NONFERROUS METALS (NINGBO) CO., LTD.
- ULVAC Research Center SUZHOU Co., Ltd.
- Hong Kong ULVAC Co., Ltd.
- ULVAC VACUUM EQUIPMENT (SHANGHAI) CO.,LTD.

Taiwan

- ULVAC TAIWAN INC.
- ULTRA CLEAN PRECISION TECHNOLOGIES CORP.
- ULCOAT TAIWAN, Inc.
- ULVAC AUTOMATION TAIWAN Inc.
- ULVAC SOFTWARE CREATIVE TECHNOLOGY, CO.,LTD.
- ULVAC Materials Taiwan, Inc.

South Korea

- ULVAC KOREA, Ltd.
- Ulvac Korea Precision, Ltd.
- Pure Surface Technology, Ltd.
- ULVAC CRYOGENICS KOREA INCORPORATED
- ULVAC Materials Korea, Ltd.
- UF TECH, Ltd.

Southeast Asia

- ULVAC SINGAPORE PTE LTD
- ULVAC MALAYSIA SDN. BHD.
- ULVAC (THAILAND) LTD.

North America

- ULVAC Technologies, Inc.
- Physical Electronics USA, Inc.

Europe

- ULVAC GmbH

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<https://www.ulvac.co.jp/wiki/en/>