Technology to Inspire Innovation

JAE Corporate Philosophy
“Explore, Create and Practice”

In response to the boundless, changing needs of society, our duties are never-ending exploration and creation. Business enterprise must essentially be like the earth as it spins and revolves through the boundless universe, in the midst of incessant change.

Exploration and creation are born in an environment of freedom and independence, and raised by relentless quest and actions which rigorously transcend barriers and difficulties. Practicing this principle, and further making contributions to society, this more than anything is the goal of our business, and the source of our development.

Since our establishment in 1953, we at JAE, under the corporate philosophy of “Explore, Create and Practice”, have successfully developed and globally expanded our three core business areas of connectors, user interface related devices, and aviation electronics supported by our outstanding development capability in innovative and creative technologies. With our global corporate slogan “Technology to inspire Innovation”, JAE focuses on technological development and product creation that inspire customer’s innovation. For many years, as a basic management policy, JAE has promoted global business expansion based on the consolidated management of the JAE Group including all its subsidiaries, enhancement of global marketing and product development capabilities, and innovation of product quality and manufacturing technology, in order to gain a high level of trust as partners with our worldwide customers.

As employees of the JAE Group, as good corporate citizens, we will strive together to contribute to the prosperity of 21st century society.

Tsutomu Onohara
President
Corporate Data

Outline of Company
Company Name
Japan Aviation Electronics Industry, Limited
Establishment of Business
August 20, 1953
Head Office
2-1, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150-0043, Japan
Capital
¥10.68 billion
Stock Exchange Listing
Tokyo Stock Exchange, 1st Section
Activities
Manufacturing and sales of connectors, user interface solutions, and aerospace and related electronics

Directors and Auditors
President (Representative Director)
Tsutomu Onohara
Directors
Yasutoshi Ogino
Minoru Urano
Seiji Murano
Tetsuya Nakamura
Shiro Hirohata (Outside Director)
Mitsuo Sakaba (Outside Director)
Takayuki Morita (Part-time Director)
Statutory Auditors
Takashi Yamamoto (Full-time Statutory Auditor)
Tatsuo Shibuya (Full-time Statutory Auditor)
Shuichi Kashivagi (Outside Statutory Auditor)
Jin Takeda (Outside Statutory Auditor)

Corporate Officers
President
Tsutomu Onohara*
Executive Vice President
Yasutoshi Ogino*
Senior Vice President
Minoru Urano*
Associate Senior Vice Presidents
Hajime Saito
Seiji Murano*
Tetsuya Nakamura*
Kokichi Sasao
Toru Kono
Masahide Wakuri
Associate Senior Vice Presidents
Takashi Kosaka
Tsuneo Hashimoto
Masayuki Muraki
Masahiro Matsuo
Shunichi Naganuma
Noritaka Hiyama
Yasuhiro Nose
Kazuhiko Aoki
Shingo Nanao
* Directors are indicated by an asterisk (*).
(As of July, 2019)

Net Sales (Consolidated)
(¥ in 100 million)
<table>
<thead>
<tr>
<th>Segment</th>
<th>FY 2014</th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace</td>
<td>1,912</td>
<td>1,925</td>
<td>2,095</td>
<td>2,221</td>
<td>2,539</td>
</tr>
<tr>
<td>User Interface Solutions</td>
<td></td>
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<tr>
<td>Total</td>
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</tbody>
</table>

Total Assets (Consolidated)
(¥ in 100 million)
<table>
<thead>
<tr>
<th>Segment</th>
<th>FY 2014</th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>1,711</td>
<td>1,656</td>
<td>1,830</td>
<td>1,886</td>
<td>1,966</td>
</tr>
<tr>
<td>User Interface Solutions</td>
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<td></td>
</tr>
<tr>
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Total Assets-Net Assets (Consolidated)
(¥ in 100 million)
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</tbody>
</table>

Organization
Board of Directors
Board of Auditors
Connector Line
Internal Audit Office
Operational Staff
Aerospace Line
International Operations Line

JAE Group Companies
- JAE Inc.
- JAE Shanghai Co., Ltd.
- JAE Korea, Ltd.
- JAE Hong Kong, Ltd.
- JAE Shenzhen Co., Ltd.
- JAE Shanghai Co., Ltd.
- JAE Electronics, Inc.
- JAE Europe, Ltd.

Others
Niko Logistics, Corp.
JAE Business Support, Ltd.
JAE Foods, Ltd.

Subsidiaries in Japan
Subsidiaries Outside Japan
Business Line

Creating the future through "CONNECTION" technology

With three major business lines, we remain committed to providing the global market with innovative and creative technology and products.

Sales Ratio by Segment (Consolidated) (From April 1, 2018 to March 31, 2019)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Sales Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>29%</td>
</tr>
<tr>
<td>Overseas</td>
<td>71%</td>
</tr>
<tr>
<td>Connector</td>
<td>44%</td>
</tr>
<tr>
<td>User Interface</td>
<td>27%</td>
</tr>
<tr>
<td>Aerospace</td>
<td>48%</td>
</tr>
</tbody>
</table>

Connector

Connectors are key devices that provide links for electrical and optical signals. We, with advanced and reliable "CONNECTION" technology, support the evolving IoT society.

Mobile Devices
- Compact USB Type-C™ Connectors
- USB Type-C™ Connectors
- waterproof Mini D-connector
- Waterproof Mini D-connector

Automotive
- Automotive Shielded Connectors
- Automotive Shielded Connectors
- Automotive Shielded Connectors
- Automotive Shielded Connectors

Industrial and Infrastructure
- Industrial and others Connectors
- Industrial and others Connectors
- Industrial and others Connectors
- Industrial and others Connectors

Aerospace

Since our establishment, we have pursued "Motion Sensing & Control", and have developed various products using that technology. These products operate reliably and precisely under severe environmental conditions from outer space to deep sea.

User Interface Solutions

We develop products that connect people and equipment focused on input device technology, and provide optimal solutions tailored to users and environments in which they are used.

Automotive
- Capacitive Touch Panel for Automotive

Industrial and Medical
- Teaching Pendant

Defence and Space
- Inertial Measurement Unit for Launch Vehicle

Industrial, Infrastructure and Automotive
- MEMS IMU
**Topics**

"DX07 Series" of USB Type-C™ Connectors is widely accepted by various markets

IAE has expanded the lineup of the "DX07 Series" of connectors full compliant with "USB Type-C", the next generation USB specification, and has been successively acquiring USB certificates.

When acquiring certificates for devices equipped with USB Type-C, it is necessary to use certified connectors, so our customers can use the "DX07 Series" with peace of mind. The "DX07 Series" connector features a reversible plug structure that enables easy insertion without worrying about the orientation of the plug. The connector is capable of 10 Gbps high-speed communication (compliant with USB3.1 Gen2) and a maximum current of 5A for power supply (compliant with USB Power Delivery). The Type-C connector is already being adopted for use in many devices including smartphones, notebook PCs, game machines and cameras as a standard interface connector. It is expected to find wide use in the future for vehicles, industrial machines, and other applications where its durability enables use in harsh environments.
Products & Applications

Industrial & Infrastructure Equipment

- **Train Car Coupler**
- **Circular I/O**
- **Rectangular I/O**
- **Fiber Optic Connectors**
- **High-Brightness Liquid Crystal Color Display**
- **Optical Data Link**
- **High-Performance Compact POS Terminal System**
- **Energy Storage System**
- **High-CURRENT**
- **Connector**
- **Aerospace**

Our products support Shinkansen trains in Japan and new high-speed trains overseas.

- **Solar Panel**
- **Board to FPC**
- **SIM/SAM Card**
- **LED Lighting**
- **Power Plant Transmission**
- **Substation Transformation**
- **Smart Grid**
- **Photovoltaic Power Generation**
- **Substation**
- **Distribution**
- **EV Charging Connector for V2H**
- **Electric Vehicle Quick Charger**

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13 | 14
Products & Applications

Industrial & Infrastructure Equipment

Oil Drilling Equipment

- Drilling Tools
- Accelerometers for Oil Drilling
- Analog Directional Module

Earthquake/Tsunami Observation

- Accelerometer
- High Accuracy MEMS Accelerometer

Deterioration Diagnosis

- High Performance Compact ELG Inertial Navigation System
- MEMS IMU

Marine

- Deep Sea Drilling AVX YOKOHAMA
- i-Construction / Agricultural Machine

Aviation / Space / Others

Aviation

- SMART Directional Module for Aircraft Communication Protocol

- F-2 © JASDF

- 05-2 310X, Search and Rescue Amphibians © Shimizu Corporation Ltd.

Space

- Accelerometer
- Camera Stabilizer (HI-4K gyro-stabilized GIMBA)

- Asteroid probe Hayabusa2 © JAXA

Marine

- Camera Stabilizer (OS-18 gyro-stabilized GIMBA)

- Inertial Reference Unit for Scientific Satellite
- Ring Laser Gyro

- H-3A Launch Vehicle © JAXA

Aviation

- In addition, many of our products are used for umbilical connectors that connect launch vehicles and ground equipment, and for internal wiring and device connections.
**Research & Development**

**R&D Activities Supporting “Technology to Inspire Innovation”**

Since its founding, our company has put an emphasis on R&D and has invested continuously and aggressively in R&D. We are working hard to develop and strengthen the base technologies through R&D by both independent and cooperative operations in the connector, user interface and aerospace divisions, as well as in the Product Development Center (Corporate R&D).

We strive to ensure sustainable growth and to make contributions to society by supplying innovative and creative products. In order to achieve this goal, we aim at continual evolution of our core technologies that we have developed for providing solutions to meet the needs of customers and new technology development to be blended with the core technologies that will become a gateway to future IoT technology.

**JAE’s core technologies**

**Connector Division**
- Contact Reliability Technology / Connection Integrity Technology
- High-speed Transmission Design and Evaluation Technologies
- Stamping, Molding and Surface Treatment Technologies
- High-performance Assembly and Automation Technologies

**User Interface Solutions Division**
- Converting Technology
- Tactile Feel Technology
- Touch Interface Technology
- Switch Contact Technology
- High-performance Mechanical Design Technology
- A technology integrating various technical aspects of printing, bonding, coating and laminating to create new added values.

**Product Development Center**
- Material Analysis and Transmission Evaluation Technologies
- Next-generation Material Processing Technology (Thin Film Deposition, Fabrication of layered Structures, etc.)
- Next-generation Type Mounting Technology (Surface Treatment, Bonding, etc.)
- Next-generation Sensing Technology (Data Mining, Sensor Modulization, etc.)
- Sensor-Hybrid Technology (Data Integration, Software, etc.)

**Aerospace Division**
- Precision Motion Sensing Technology
- High-reliability Motion Control Technology
- Precision Microelectronics Technology
- Ruggedized Technology for Harsh Environment

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**More compact connectors with a higher density, a lower profile and a narrower width**

**“FLEXCONVERT™”, a printing-technology-based converting technology was established**

JAE started mass production of film sensors for capacitive touch panels for automotive use by employing “FLEXCONVERT™” technology. This is in response to market demands for highly sensitive, large screens, and curved surfaces.

**Camera stabilizer for 4K broadcast**

In order to facilitate 4K/8K TV broadcasts that have started in Japan in anticipation of the 2020 Tokyo Olympic and Paralympic Games, we have developed a camera stabilizer equipped with a 4K camera for aerial photography that cancels out helicopter vibrations with our high precision control technology.

**Robotic tactile sensor glove**

In order to respond to diversified and complex social demands, we work to create hybrid technology including “Sensor modularization technology,” “flexible electrical connection technology” and “robot control technology.” Currently in development is a flexible sensor glove that can be easily attached to and detached from a robot as an example of a flexible hybrid electronics module.

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**Develop and Expand Core Technologies for a Sustainable Society**

**Information / Electronics**

**Infrastructure**

Cooperative innovation is suggested through a solution system starting from the proposition of proprietary technology

& Application of cooperative innovation for a smart society (experimental demonstration by industry, government, and academia)

Conclusion of the “Agreement on Research Cooperation for Industry-Academia Collaboration” with the Institute of Industrial Science, the University of Tokyo

In March 2019, we concluded the “Agreement of Industry-Academia Research Collaboration” with the Institute of Industrial Science, the University of Tokyo with a view to promoting joint research and development of R&D human resources for a Model IoT society.

**Energy Environment**

Sustainable energy technology for future energy society

**Life Science**

Health care, Regenerative Medicine

Cooperative innovation project through industry-academia collaboration

Multipoint electrochemical sensing system dedicated for the life science market

JAE is working on the development of a multipoint electrochemical sensing system which is able to detect, at high speed and high sensitivity, trace amounts of substance from the specimens of living bodies such as cell masses, etc., expecting that this system will grow as a potential focal point in terms of the quality management of tissues used for living organ transplantation in the field of the regenerative medicine as well as in its application to efficiency evaluation of drugs for living bodies in the process of drug discovery. Joint research organization: Tohoku University

**Infra-monitoring technology**

We work on R&D activities for a high precision accelerometer-based measurement technology in order to upgrade the diagnostic management technology of infrastructure by the use of sensors. Joint research organizations: Kitami Institute of Technology, Nagasaki University of Technology

**Development of a quantum gyroscope for the next-generation inertial navigation system (self-positioning estimating device)**

In order to improve precision of the self-position estimating device which is essential for automation of moving bodies, JAE works on the R&D of a novel gyroscope that integrates quantum technology called atomic wave interference, through participation in the project by Japan Science and Technology Agency, joint research organizations: Tokyo Institute of Technology and Osaka University.
Manufacturing Technology Innovation

The JAE Group promotes "manufacturing technology innovation" to be recognized as the number one partner for our customers.

Fully utilizing the integrated production system of in-house manufacturing and flexible operation of our global group, the sectors of design, production engineering and manufacturing are always making a concerted effort to improve the degree of customer satisfaction in terms of

Quality
Cost
Delivery
which are the most essential points for a manufacturer.

Innovation of production capacity by in-house production, automation and labor saving efforts

JAE has established a robust in-house vertical integrated production system, operating 24 hours a day, 7 days a week, thanks to the wide use of JAE designed labor-saving, automated assembly machines at main factories in Japan such as JAE Hiroaki and JAE Yamagata. Aiming at higher manufacturing speed and cost reduction, we spare no effort to innovate the fundamental technologies and processes ranging from automated assembly machines to every production step such as turning, stamping, molding, plating and final product assembly.

We are striving for high quality and to be easy to work with for customers

We pursue high quality and ease to work with from the new product development phase utilizing material analysis, high-speed transmission evaluation and other fundamental performance tests, design verification, FMEA analysis and workmanship evaluation. In addition, we follow a diversified approach including production in a clean room, quality improvement activities, defect prevention in the manufacturing process … all these contribute to offering reliability to our customers.

Enhancement of the evaluation and test system to ensure highly reliable products are provided to customers

We are strengthening and enhancing our evaluation and test system in order to fully respond to the ever higher demands for quality and reliability from our customers. In addition to an anechoic chamber for electromagnetic compatibility (EMC) evaluation, the Integrated Evaluation & Test Laboratory was completed in May 2016, where more than 100 units of testing equipment, including combined environmental reliability test systems and vibration test devices are installed. This laboratory conducts environmental testing with even greater precision and efficiency by applying thermal and humidity stress, and mechanical testing by applying vibration and shock, and thus enables us to supply customers with reliable products.

Turning
Stamping die
Molding die
Stamping
Molding
Plating
Assembly
RF anechoic chamber
Evaluation equipment installed in the Integrated Evaluation & Test Laboratory
Corporate Social Responsibility (CSR) efforts

JAE Group Charter of Corporate Behavior

Based on our corporate philosophy, “Sustain, Create, and Practice”, Japan Aviation Electronics (JAE) Group will continue to expand efforts to maintain a fair profit, increase corporate value, and contribute to the creation of sustainable growth in society. At the same time, as a good corporate citizen, we will abide by relevant laws and rules, and fulfill social responsibilities toward customers, stockholders and investors, business partners and other related persons in the community at large.

CSR Initiatives

The JAE Group is expanding its regionally-based exchange and charitable activities at domestic and overseas group companies as a good corporate citizen under the JAE Group Charter of Corporate Behavior.

Initiatives for children who will lead the next generation

- Manzukuri Taikan Stadium (JAE)
  JAE participated in the Manzukuri Taikan Stadium with the goal of inspiring children’s interest in building things through firsthand experience in workshops, etc.

- Visiting a Welfare Institution (JAE Wuxi)
  We paid a visit to a nearby welfare institution providing care for children with disabilities. We played together with the children and gave presents of shoes, clothes and food.

- Donovar’s SMILE Toy Drive (JAE Electronics)
  We support the activities of Donovar’s SMILE, which provides toys to children who are battling cancer, and sent toys to a party at a local hospital.

Part of the local community

- Hiroaki Neputa Festival (JAE Hiroaki)
  Participated in the Hiroaki Neputa Festival in Hiroaki, a nationally-designated important Intangible cultural asset, and the JAE group recorded the 26th appearance in 24 years in a row.

- Mangrove Reforestation Project (JAE Philippines)
  In cooperation with the local government of the Province of Cavite, we planted 1,000 mangrove trees in the coastal wetland area. Mangrove trees contribute to environmental and biological conservation and regeneration.

- Water quality survey for the Izumida River (JAE Yamagata)
  As a part of the municipal government environmental awareness program, we conducted a water quality survey of the local river. The result indicated that the water quality was the “highest rank”.

Toward a society where everyone can live safely and securely

- Blood Donation Campaign (JAE Group Companies)
  The Akishima Plant conducted the 35th blood donation campaign on its premises in 2017, and the total number of persons donating blood exceeded 10,000. JAE was awarded, in November 2018, the prize as a distinguished blood donation entity by the Minister of Health, Labour and Welfare.

- “Bake-OFF” (JAE Europe)
  We held a Company “Bake-OFF” competition where employees were invited to create Christmas-inspired baked goods. The baked goods were sold in the office and the proceeds were donated to the Trussell Trust, an NGO who supports a nationwide network of food banks in the UK.

- Support Activities for Elderly Persons Living in Poverty (JAE Philippines)
  The International NGO “Tawad Kalinga” works to restore the dignity of the poor and end poverty. To support these activities, we provided daily necessities and offered health consultation sessions.

Environmental Management

Basic Philosophy

The JAE Group will, as a good corporate citizen, contribute to the attainment of a prosperous, sustainable, recycling-based society by fulfilling its corporate social responsibility through environmentally friendly business activities and respect for the natural environment and biological diversity.

Basic Approaches

- Compliance with environmental laws and regulations
- Measures to combat global warming
- Approaches for management of water resources
- Prevention of environmental pollution
- Reduction of hazardous chemical substance use
- Reduction of material use / Promotion of 3R activities for treatment of waste
- Promotion of green procurement -Compliance to the RoHS and REACH
- Promotion of eco-friendly designs
- Sales promotion of eco-friendly products

Forest of JAE Group

We received commendation as an “entity of distinguished service for Tokyo Green Policy” at the 42nd National Tree-Planting Festival

At the 42nd National Tree-Planting Festival held in Tokyo on November 17-18, 2018, JAE was given an award as an entity of distinguished service for tree planting, because of the activities of the “Forest of JAE Group”, under Tokyo Green Policy.

The “Forest of JAE Group” was established in June 2004 as the first “Corporate Forest” by participating in the divisional forestation activities of the Tokyo Development Foundation for Agriculture, Forestry and Fisheries (TDFAFF).

Since then, symbolic of our environmental activities, including afforestation and clearing underground we have been a center for raising environmental awareness through group employee participation in forest conservation. In addition, we have contributed to preservation of biodiversity and absorption greenhouse gases (CO2) as well as revitalization of water resources. These activities were recognized, and we were commended by the Forest Maintenance and Forest Conservation Division as an entity of distinguished service for Tokyo Green Policy.

Forest of JAE Group

Location: Hikawa, Okutama-machi
Area: 1.33ha
Outline: cheerful, colorful forest, with trees of different shapes and colors

Activities of forest maintenance (sidewalk maintenance and weeding)
Global Network

We operate a network of development, manufacturing and sales to be able to respond to customer demand worldwide.

Head Office / Japan

Head Office
21-1, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150-0043, Japan
Tel: +81-3-3780-2711  Fax: +81-3-3780-2733

Sales and Marketing

Head Sales Office
1-19, Aoi Bldg. 3-chome, Meguro-ku, Tokyo 153-8539, Japan

- Connector Sales Planning Div.  
  Connector 1st, 2nd, 3rd Sales Div.  
  Product Marketing Div.  
  Tel: +81-3-3780-2717  Fax: +81-3-3780-3869

- User Interface Solutions Div. Sales Dept.  
  Tel: +81-3-3780-2843  Fax: +81-3-3780-2812

Branches and Sales Offices

- Osaka Branch Office  
- Chubu Branch Office  
- Sendai Sales Office

Development and Manufacturing

Akishima Plant  
1-1, Rokukagawa 4-chome, Akishima-shi, Tokyo 196-8555, Japan  
Tel: +81-42-549-9112  Fax: +81-42-549-9559

- Connector Div.  
- User Interface Solutions Div.  
- Aerospace Div.  
- Product Development Center

Subsidiaries in Japan

JAE Fuji, Ltd.  
http://www.jae-fuji.co.jp

JAE Shinshu, Ltd.  
http://www.jae-shinshu.co.jp

Meiyu-Giken Co., Ltd.  
http://www.meiyu-giken.co.jp

JAE Hirosaki, Ltd.  
http://www.hirosaki.jae.co.jp

JAE Yamagata, Ltd.  
http://www.yamagata.jae.co.jp

JAE Hakko, Ltd.  
http://www.hakko.jae.co.jp

Nikko Logistics, Corp.  
http://www.nikko-logistics.co.jp

JAE Business Support, Ltd.  
http://www.jae-business-support.co.jp

JAE Foods, Ltd.  
http://www.jae-foods.co.jp