Transmission and distribution facilities are essential parts of the electricity supply infrastructure, and to ensure stability their components must meet stringent requirements for reliability, functionality and performance. Satisfying customer needs for sophisticated solutions, Mitsubishi Electric boasts a broad lineup of high-quality products that support such facilities.

**Transmission & Distribution Systems**

Next-generation SiC Inverter for Railcars

Mitsubishi Electric has developed and provided a traction inverter for railcars that incorporates silicon carbide (SiC), a new type of semiconductor. This new inverter, with its energy-efficient, compact, lightweight, low-maintenance, and low-noise design, contributes to play a major role in next-generation railcar propulsion systems.

Large-scale Visual Information System

Offerings in the Mitsubishi Electric Group’s lineup of large-scale visual information systems boast Diamond Vision™—a technology that helps fuel audience excitement in such venues as stadiums—along with cutting-edge information distribution platforms that employ the internet and data broadcasting. As such, the Group provides visual information systems that enrich people’s lives in various ways.

**Power Plants**

Mitsubishi Electric provides power system equipment for various power plants, which play a major role in power supply and are required to further reduce environmental impact. With high efficiency turbine generators and instrumentation control systems that combine advanced network and measurement technologies, Mitsubishi Electric power plants realize improved reliability and cost efficiency.

Energy and Electric Systems

The market of the social infrastructure systems business saw buoyant investment in the public utility for preventing and reducing disaster risks in Japan, also buoyant investment in train system business worldwide, and continued demand in the power systems in Japan due to the electricity system reform. In this environment, the business saw an increase in orders from the previous fiscal year due primarily to an increase in the power systems business worldwide and the public utility and transportation systems businesses in Japan. Revenue for this business remained substantially unchanged from the previous fiscal year due mainly to a decrease in thermal power generation business worldwide despite an increase in orders.

The market of the building systems business saw decreased demand for high-end, large-scale office projects in China, continued market stagnation in the Middle East, and an increase in renewals of elevators and escalators in Japan. In this environment, the business saw a decrease in orders from the previous fiscal year due primarily to market stagnation in China and the Middle East. Revenue for this business remained substantially unchanged from the previous fiscal year due mainly to an increase in new installations of elevators and escalators in Japan, mainly in the Tokyo metropolitan area despite a decrease in orders.

As a result, revenue for this segment increased by 1% from the previous fiscal year to 1,307.3 billion yen.

Operating profit decreased by 0.1 billion yen from the previous fiscal year to 82.3 billion yen, due primarily to the yen appreciating against other currencies and a shift in project portfolios.

**NEXIEZ Machine-room-less Elevators**

Compact, lightweight, and energy-saving, NEXIEZ machine-room-less elevators are the global flagship product. They are widely used throughout the world, mainly in low- to mid-rise buildings. Models designed with various functions and features for specific regions are also available to meet the preferences and customer needs of each region.

**Series Z Escalators**

The Z-Series escalators offer enhanced safety through several features that ease stepping on/off and help prevent clothing from getting caught, so that passengers of all ages, from small children to the elderly, can use the escalators safely. They also offer a higher level of energy conservation by providing optional features such as WVF inverters. Environmentally friendly, people-friendly, and beautiful, the Z-Series show the future of escalators.
Programmable Logic Controllers

Mitsubishi Electric’s MELSEC series of programmable logic controllers supports a wide array of production and social infrastructure applications; solutions range from control and safety devices to information and instrumentation management. As a leading global brand, the MELSEC series contributes to the construction of cutting-edge control systems owing to its capabilities, performance, product variety, and high reliability.

AC Servos

The MELSERVO Series enhance all aspects of production devices and facilities. From rotary servo motors to linear servo motors and direct drive motors, a wide range of products is available to meet any number of applications and to significantly improve the performance of all relevant devices.

Computerized Numerical Controllers—CNCs

A broad range of CNCs is available, including, for example, the M800/80 Series, which increases productivity and precision and optimizes machine tool operation through an independently developed dedicated CPU and abundant control functions. It is also compatible with the various field networks that are necessary for constructing automation systems.

Electric Power Steering

(Motors and Controllers)

Mitsubishi Electric was the first company in the world to mass produce motors and controllers for electric power steering to assist driver steering in line with driving conditions. Over the years, Mitsubishi Electric has helped to improve steering feel, response, and stability while delivering compact units and high-output performance, and contributing to reduced automobile CO$_2$ emissions.

Car Navigation System

The DIATONE SOUND NAVI car audio-navigation system eliminates the slight noise generated by audio devices and transmits sounds in full detail. In addition, it provides high-speed multi-task processing, fast responsiveness when searching and scrolling and beautiful images on the map screen and in video playback.

Motors and Inverters for Electric Motor Vehicles

Motors for both driving/power-generating, as well as for inverters that control the motors, which are mounted in electric vehicles, such as hybrid cars. These products contribute to the improvement of vehicle fuel efficiency and comfort; for example, through idle stop and start, energy regeneration during deceleration, or torque assistance during acceleration.

Industrial Automation Systems

Revenue Breakdown by Business Segment

- Programmable Logic Controllers: 26.6%
- AC Servos
- Computerized Numerical Controllers—CNCs
- Electric Power Steering (Motors and Controllers)
- Car Navigation System
- Motors and Inverters for Electric Motor Vehicles

Revenue

¥1,349.4 billion down 8% year on year

Operating Profit

¥68.9 billion down ¥73.6 billion year on year

The market of the factory automation systems business saw continued stagnation in demand for automotive-related investments worldwide, semiconductor and machinery-related investments in Japan, and investments related to organic light emitting diodes (OLED) and smartphones outside Japan. In this environment, the business saw decreases in both orders and revenue from the previous fiscal year due primarily to the yen appreciating against other currencies and a decrease in sales of factory automation devices, processing machines and numerical controllers.

The market of the automotive equipment business saw a slowdown in demand for new cars worldwide and the impact of COVID-19 becoming actual in the fourth quarter, while the market of electric-vehicle related equipment expanded worldwide. In this environment, the business saw decreases in both orders and revenue from the previous fiscal year due mainly to a decrease in sales of electrical components and the yen appreciating against other currencies, while sales of electric-vehicle related equipment such as motors and inverters increased.

As a result, revenue for this segment decreased by 8% from the previous fiscal year to 1,349.4 billion yen. Operating profit decreased by 73.6 billion yen from the previous fiscal year to 68.9 billion yen due primarily to a decrease in revenue, a shift in product mix and upfront investment for growth drivers.
### Information and Communication Systems

#### Revue Breakdown by Business Segment

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<th>Business Segment</th>
<th>Revenue Breakdown</th>
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<tr>
<td>Information Systems</td>
<td>¥455.5 billion</td>
<td>9.0%</td>
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<tr>
<td>Operating Profit</td>
<td>¥26.4 billion</td>
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#### Operating Profit

- **Revenue**: ¥455.5 billion, up 7% year on year
- **Operating Profit**: ¥26.4 billion, up ¥14.2 billion year on year

The market of the telecommunications systems business saw buoyant investment by telecommunications carriers to deal with increased traffic caused mainly by the expanding 5G communications networks. In this environment, the business saw increases in both orders and revenue from the previous fiscal year due primarily to increased demand for communications infrastructure equipment.

Specialist engineers are available 24/7 to remotely operate and monitor client information systems and to analyze and determine any problem that might occur using automated tools, enabling a rapid response to any system malfunction.

**Cybersecurity Services**

Mitsubishi Electric provides a one-stop service that encompasses operation outsourcing, from security diagnostics, risk assessment through security level maintenance, as well as company-wide security measures.

(Mitsubishi Electric Information Systems Corporation)

**Information System Integrated Control Center**

Specialist engineers are available 24/7 to remotely operate and monitor client information systems and to analyze and determine any problem that might occur using automated tools, enabling a rapid response to any system malfunction.

(Mitsubishi Electric Information Network Corporation)

**DS2000 Standard Satellite Platform**

The DS2000 is a standard satellite platform modeled after JAXA’s ETS-VIII. It meets the need for high-quality, low-cost satellites with shortened delivery times. It has already been adopted for use by Japan and other countries; more than ten satellites currently in orbit use it. It will eventually be incorporated into JAXA’s Engineering Test Satellite 9, which is being launched in response to the need for high-throughput communications satellites.

**Airport Doppler Lidar**

Our Airport Doppler Lidar radar can measure wind speed and wind direction in real time even when the weather is fine by catching the movement of aerosol and other fine particles in the atmosphere with a coherent laser. Therefore, it is useful in preventing turbulence accidents during takeoff and landing. This radar is already in operation at major airports across the world and is currently scheduled to be deployed at multiple airports.

**Broadband Optical Access Systems**

Mitsubishi Electric is progressively installing Gigabit Ethernet Passive Optical Network (GE-PON) systems, which play a central role in broadband services. The need for GE-PON systems is steadily expanding due to high-capacity broadband content, including the increased use of visual services.

**Network Camera System**

This Network Camera System meets the expanding range of needs for video surveillance systems, which is achieved through new digital technology incorporated into its high-resolution megapixel camera and its high level of scalability, which can accommodate even large-scale systems.
**Electronic Devices**

**Revenue Breakdown by Business Segment**

- **Power Semiconductor Modules**
  Our power semiconductor modules help reduce the power consumption of power electronics equipment such as home appliances, motion control, renewable energy, power supplies, power transmission, traction, and automobiles. The product lineup includes DIPIPM, IGBT modules and IPM, and contributes to global environmental innovation.

- **SiC* Power Semiconductor Devices**
  With a significantly lower power loss than Si and capabilities that include the enabling of high-speed switching operations and high-temperature operation among others, the SiC power device significantly reduces the power consumption of every type of power electronics equipment such as home appliances, industrial equipment, traction, and automobiles and contributes to the realization of both a low-carbon society and an affluent lifestyle in a sustainable future.

- **Optical Devices for Optical Communication**
  The product is optimal in using for all types of optical fiber communication facilities which are used in base stations for 5G, the fifth-generation mobile communication system whose deployment is expected to spread in full swing from 2020 onward, and also used in large-scale datacenters and other equipment that support the transition to cloud computing. This product lineup contributes to faster speeds, greater capacity and transmission distance, and equipment size reduction.

- **GaN* High Frequency Devices**
  GaN promises to provide higher efficiency, higher output and wider bandwidth than Si. By employing GaN transistors, GaN high frequency devices contribute to faster communication speeds, increased information transmission volume, and smaller power amplifiers for base transceiver station networks in fifth generation mobile communication systems (5G) and earth stations in satellite communication systems (SATCOM).

- **Thermal Diode Infrared Sensor MelDIR**
  With a larger pixel count and higher temperature-resolution, MelDIR obtains more detailed thermal images, distinguishes people from objects, and enables the identification of specific human behavior. MelDIR can be implemented into a wide range of applications including security, air conditioning, temperature measuring, surveillance, head-counting solutions, and smart buildings.

- **TFT-LCD Modules**
  Being highly vibration-resistant and possessing a wide operating temperature range, and a high-level display performance including a super-wide viewing angle and super-high brightness and contrast, the TFT-LCD module supports a wide range of industrial instruments such as construction machines used in harsh environments and those for outdoor use. The product lineup includes high value added products such as a touch panel mounted, a transflective, with a NFC* antenna, and an automotive grade.

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**Revenue Breakdown by Business Segment**

- **Revenue**
  - **Electronic Devices**: ¥208.7 billion, up 4% year on year

- **Operating Profit**
  - **Electronic Devices**: ¥8.7 billion, up ¥7.2 billion year on year

The market of the electronic devices saw emerging demand relating to 5G communications networks and next-generation data centers, and accelerated development and market launches of electric vehicles. In this environment, the business saw an increase in orders and revenue also increased by 4% from the previous fiscal year to 208.7 billion yen due primarily to increased demand for high frequency and optical devices, particularly for optical communication devices, and power modules used in automotive applications.

Operating profit increased by 7.2 billion yen from the previous fiscal year to 8.7 billion yen due mainly to an increase in revenue and a shift in product mix.

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*SiC: Silicon carbide, compound of silicon and carbon at a ratio of 1:1

*GaN: Gallium nitride

*MelDIR: Mitsubishi Electric Diode InfraRed sensor

*NFC: Near Field Communication
Mitsubishi Electric offers energy-saving home environments using highly efficient air conditioners and ventilation, water heaters and cooking equipment. Create a comfortable living environment for the whole family.

Air Conditioning & Refrigeration Systems
In addition to KIRIGAMINE room air conditioners, Mitsubishi Electric offers an extensive lineup of products with applications extending from stores, offices, and buildings to factories and industrial facilities while featuring environmentally compatible, energy-saving technologies. These qualities allow Mitsubishi Electric to meet air conditioning needs globally.

Home Equipment
Mitsubishi Electric offers energy-saving home environments using highly efficient air conditioners and ventilation, water heaters and cooking equipment. Create a comfortable living environment for the whole family.

Home Appliances
Mitsubishi Electric develops home appliances by incorporating its unique technologies and perspectives so that its products can be used in various scenes of daily life, such as the kitchen, living room, and bedroom. Efforts are made to develop products that contribute to making life more comfortable for users, meeting and even surpassing their expectations.

Lighting Fixtures and Light Bulbs
Mitsubishi Electric offers an extensive lineup of high-efficiency, long-lasting LED products that meet diverse needs for energy-saving light bulbs and equipment in households, stores, offices, and factories. The company’s LED products make the future brighter for families and society as a whole.

Visual Equipment for Public and Business Applications
Mitsubishi Electric’s high-quality image processing technologies deliver exceptionally sharp images with superior color reproduction and are incorporated in a wide range of products developed to suit a variety of application needs. These systems are being used in Japan and abroad for large-screen applications, such as digital signage used to display images, data, and information at public facilities and other venues.

Recycling Consumer Electronics and Home Appliances
Mitsubishi Electric has developed technologies for automatically sorting the three major types of plastic (polypropylene (PP), polystyrene (PS), and acrylonitrile-butadiene-styrene (ABS)) used in consumer electronics and home appliances. This original recycling system is being utilized to promote the reuse of plastics in the company’s products by improving the physical properties of the sorted materials.