Review of Operations

Energy and Electric 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.

D-SMiRee Smart Power Distribution Network
Systems for Medium or Low Voltage Direct Current
In response to growing calls for standalone power distribution structures in which individual buildings’ electricity needs are met by discrete on-site generation facilities, Mitsubishi Electric has created the Energy Management System (EMS), which is specifically designed for direct current distribution. Boasting predictive functions covering both generator output and electricity demand, the EMS helps control charging and discharging schedules to best utilize direct current generated by photovoltaic generators as well as that released from batteries, thus eliminating energy loss attributable to conversion to alternating current.

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.

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 VVF inverters. Environmentally friendly, people-friendly, and beautiful, the Z-Series show the future of escalators.

Revenue Breakdown by Business Segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>2019 Revenue</th>
<th>2018 Revenue</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Plants</td>
<td>¥1,296.7bn</td>
<td>¥1,259.2bn</td>
<td>2.9%</td>
</tr>
<tr>
<td>NEXIEZ Machine-room-less Elevators</td>
<td>¥119.0bn</td>
<td>¥116.7bn</td>
<td>2.7%</td>
</tr>
<tr>
<td>Series Z Escalators</td>
<td>¥108.7bn</td>
<td>¥105.8bn</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

The social infrastructure systems business remained substantially unchanged in orders compared to the previous fiscal year, while revenue increased compared to the previous fiscal year due primarily to increases in the transportation systems business inside and outside Japan and the power systems business in Japan.

The building systems business remained substantially unchanged in both orders and revenue compared to the previous fiscal year, experiencing a decrease in the new installation of elevators and escalators in China and buoyant growth in the renewal business in Japan and other factors.

As a result, revenue for this segment increased by 3% from the previous fiscal year to 1,296.7 billion yen. Operating profit increased by 17.0 billion yen from the previous fiscal year to 82.5 billion yen due primarily to an increase in revenue.
Revenue Breakdown by Business Segment

The factory automation systems business saw decreases in both orders and revenue from the previous fiscal year due primarily to a decrease in capital expenditures in the fields of organic light emitting diodes (OLED) and smartphones outside Japan, despite buoyant demand in Japan.

The automotive equipment business saw increases in both orders and revenue from the previous fiscal year due primarily to increases in Japan, Europe and other markets in Asia, as well as increased revenue in electric-vehicle related equipment in response to market growth worldwide.

As a result, revenue for this segment increased by 2% from the previous fiscal year to 1,467.6 billion yen. Operating profit decreased by 44.7 billion yen from the previous fiscal year to 142.5 billion yen due primarily to a shift in product mix, increases in material prices and upfront investment for growth drivers.

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.

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.

Beginning with the newly launched MP series, a strategic product on a global scale, Mitsubishi Electric provides a lineup of EDMs that add value and improve the manufacturing productivity of molds and precision components. Such equipment is indispensable to the production of automobiles, home electronics, and IT-related devices.

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 CO2 emissions.

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.
The telecommunications systems business saw decreases in both orders and revenue compared to the previous fiscal year due primarily to decreased demand in communications infrastructure equipment.

The information systems and service business remained substantially unchanged in orders, while revenue increased compared to the previous fiscal year owing to an increase in the system integrations business.

The electronic systems business saw a decrease in orders compared to the previous fiscal year mainly due to a decrease in the space systems business, while revenue experienced a decrease compared to the previous fiscal year due primarily to a decrease in the defense systems business.

As a result, revenue for this segment decreased by 3% from the previous fiscal year to 426.2 billion yen. Operating profit increased by 0.9 billion yen from the previous fiscal year to 12.2 billion yen due primarily to a shift in project portfolios.

### 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)

### “kizkia”: Video Analysis Solution using Artificial Intelligence

Powered by AI, this system can identify attributes of persons or things and automatically recognize their movements, conditions and situations by analyzing security footage in real-time. It notifies irregular situations which may require staff’s support but would otherwise been overlooked by human observers. The system also makes it possible to support forecasting future conditions.

(Mitsubishi Electric Information Systems 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.

### Vehicle-mounted Stations for Satellite Communications

Vehicle-mounted satellite communication equipment enables transmission of video and audio for broadcast news (satellite news gathering) and information for disaster management. Mitsubishi Electric products are employed by Japanese broadcasters, the public sector, and infrastructure companies such as gas and electricity utilities.

### 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.
By utilizing SiC, power loss is significantly reduced compared to Si (silicon). It achieves high-speed switching and downsizing of peripheral components, such as reactors, and will be instrumental in reducing power loss and downsizing for the power supply systems for infrastructure, photovoltaic power systems and charging equipment for electric vehicles.

*1 SiC: Silicon Carbide
*2 SBD: Schottky Barrier Diode

Downsizing, design simplification, and design flexibility of inverter systems of equipment such as fan motors of air conditioners are improved by utilizing a surface-mount package that allows reflow soldering, and by implementing optimized terminal layout and various ICs with protection functions.

**MISOP™ Surface-Mount Package IPM* Series**

These power amplifier GaN high frequency devices are suitable for satellite communication system earth stations, which are used for high-speed communication during natural disasters and in areas where ground networks are difficult to construct. This lineup of industry top-level*2 output power products will answer various needs related to satellite earth stations.

*1 GaN: Gallium Nitride
*2 Based on Mitsubishi Electric research as of September 27, 2016; compared with Ku-band GaN HEMT devices for use in satellite earth stations

**GaN* High Frequency Devices for Satellite Earth Stations**

These high-speed optical data transmission device for radio access networks within fifth-generation (5G) mobile base stations. With 25 Gbps transmission speed, higher data volumes for mobile communication systems and a 40% reduction in power consumption are achieved, contributing to mobile communications systems with low power consumption.

*1 EML: Electro-absorption Modulator Laser
*2 CAN (TO-CAN): Package with excellent productivity (for mass production) that is widely used in optical data transmission devices

**25 Gbps EML*1 CAN*2 for 5G Mobile Base Stations**

**TFT LCD Modules with Touch Panels for Industrial Use(7.0-inch WXGA,10.4-inch SVGA,15.0-inch XGA)**

TFT-modules with projected capacitive touch panels using cover glass of up to 5 mm thick, support maximum ten-point multitouch operation, and can be used even when using with thick, heat resistant gloves or when the screen is wet. They are ideal for outdoor applications that require impact resistance and water spill compatibility.

**Established Mass-Production Technology for Curved Color TFT-LCD Module and Began Taking Orders**

Mitsubishi Electric has established mass-production technology for a new curved (concave) color TFT-LCD module that combines environmental ruggedness to withstand extreme temperatures and an attractive design, making it ideal for use in automobiles and boats. The module offers a curvature radius* from 700 mm to less than 1,000 mm and optical performance equivalent to that of flat screens. Mitsubishi Electric has started accepting orders for the new module.

* Value of the radius of the curve if the curvature arc extended to a circle. The smaller the value, the higher the curvature.
In addition to KIRIGAME 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.

Air Conditioning Systems

Electricity generated by solar panels is charged in the batteries of electric vehicles, leveraging the use of renewable energy. 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 Equipment

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.

Home Appliances

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.

Lighting Fixtures and Light Bulbs

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.

Visual Equipment for Public and Business Applications

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.

Recycling Consumer Electronics and Home Appliances

The home appliances business saw a 2% increase in revenue from the previous fiscal year to 1,074.0 billion yen due to increases in revenue of air conditioners for Japan, Europe and North America. Operating profit increased by 3.9 billion yen compared to the previous fiscal year to 59.4 billion yen due primarily to an increase in revenue.

Revenue Breakdown by Business Segment

- **Revenue**: ¥1,074.0 billion, up 2% year on year
- **Operating Profit**: ¥59.4 billion, up ¥3.9 billion year on year

Customers

- **Hyper Cycle Systems Corporation**: Mixed plastics
- **Green Cycle Systems Corporation**: PP, PS, ABS

Materials

- **Manufacturers**: Mitsubishi Electric Corporation

Home Appliances

- **Consumer electronics and home appliances**: Used products
- **Original materials**: Sorted plastics
- **Recycled products**: Tackled products
- **Mitsubishi Electric Corporation**: Original materials

**Revenue Breakdown by Business Segment**

- **Revenue**: ¥1,074.0 billion, up 2% year on year
- **Operating Profit**: ¥59.4 billion, up ¥3.9 billion year on year