Development of Top-Level Energy Efficient Products

Our Approach

As ICT spreads, an increase in energy demand is expected in proportion to the higher performance and higher-density integration of servers and other ICT products. Accompanying this, energy-related regulations for ICT products are increasing in various countries and regions, such that energy efficiency is taking on importance within society in the form of energy label conformance and green procurement requirements.

The Fujitsu Group believes that we also must aim to improve the energy performance of products during their use, in order to reduce GHG emissions. In that context, we will actively implement energy-saving technologies and continue working to improve the energy efficiency of products. Through these and other product-development efforts, we will strive to reduce the power consumption of our offerings in customer usage settings.

Summary of FY 2016 Achievements

Targets under the Fujitsu Group Environmental Action Plan (Stage VIII) (toward FY 2018)	Achieve top-level energy efficiency for **50**% or more of the new products.
FY 2016 Targets	Make **40**% or more of new products top-level energy efficient.
FY 2016 Key Performance	Made **71.1**% of new products top-level energy efficient.

FY 2016 Performance and Results

Actively Applied Energy-Saving Technology

We have set targets for the achievement of top-level energy efficiency based on the number of product series that are expected to be developed during FY 2016–18.

Applications of energy-saving technologies include new, high-efficiency microprocessors and power supplies, energy-saving displays, optimized energy-saving controls, and the strengthening of power management features. In addition to these, we are actively undertaking the aggregation of LSIs and the reduction of components.

Achieved Top-Level Energy Efficiency for 71.1% of New Products

As a result of applying and expanding energy-saving technologies across our divisions in products including servers, PCs, network devices, and imaging devices, we were able to exceed by over 31.1% our 40% target (vs. FY 2016) for new product top-level energy efficiency.

Working toward Our Targets

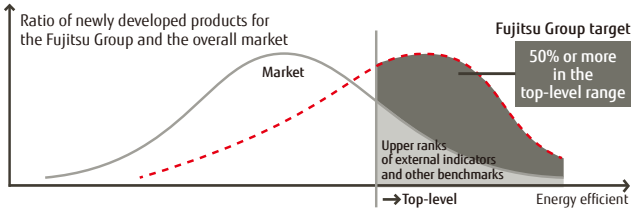
To help "achieve top-level energy efficiency for 50% or more of the new products," one of the objectives in our Environmental Action Plan, we will continue to make even stronger development efforts to give our products—from leading items in each division to the rest of the lineup—top-level energy efficiency.

In addition, we will deploy outstanding energy-saving technology and expand its application to products. Looking toward the future, we aim to push the development of advanced technology, which will contribute to revolutionary improvements in energy efficiency.

Reference Information

Top-Level Energy Efficient Products

Products, beginning with top-runner products (first in the world or industry, top of the world or industry), that meet criteria equivalent to the upper ranks of external indicators and other benchmarks of energy efficiency



Reference Information

Top-Level Energy Efficient Product Target Standards

Fujitsu sets targets that recognize top-level energy efficiency standards in each product area compared with the market overall or with conventional products.

Example of Target Standards*1

Reference Level	Product Categories
ENERGY STAR criteria compliant	PCs, displays, imaging equipment, etc.
Top-level Top Runner achievement rate under the Energy Conservation Law	Servers, storage systems, etc.
Industry-leading energy efficiency	LSI, products for specified fields, etc.
Industry's highest-level battery life	Smartphones
Power consumption reductions over prior products/prior performance	Network products*2, electronic components, etc.

*1 Depending on product specifications, standard values differ even for products within the same category.
*2 A larger number of stars designate the top-level, concerning the products which are assessed by Ecology Guideline For the ICT Industry.

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Main Development Initiatives in FY 2016

The Industry's First High-Efficiency Cooling Technology (VLLC) Unix Server

SPARC M12 Series

Fujitsu developed the industry's first Vapor and Liquid Loop Cooling (VLLC) technology using vaporization heat. Fujitsu has implemented the technology on the SPARC64 XII processors in the SPARC M12 Series, which debuted in April 2017. This enables the products to achieve cooling efficiency levels roughly double those of conventional cooling methods. Most existing servers use air-cooling systems, cooling the processor's surface heat sink with a fan. However, heat sinks—which release heat—continue to get bigger as higher-performance processors generate more heat. Fujitsu's new VLLC technology for vacuum-evaporative cooling delivers outstanding cooling performance by using water—which boasts excellent heat-transport capabilities—as its cooling medium and incorporating evaporation, a phenomenon that efficiently removes heat by decompressing the interior. This helps reduce fan power consumption.

The M12-2, part of the M12 Series, features a 80 PLUS® Platinum certified power-supply unit capable of converting power at an incredible 94% efficiency rate.

A Wireless Module with Higher Receiver Sensitivity and Less Power Consumption

FWM7BLZ20 Series

Fujitsu's FWM7BLZ20 Series of compact wireless modules compatible with Bluetooth version 4.2* features a wireless communication LSI with a built-in processor boasting excellent processing capabilities and low power consumption. By optimizing energy-management functions but maintaining the same size as existing products, the modules almost double the transmission distance of existing products at a receiving sensitivity of -94 dBm (measurement value), at half the power (around 5.4 mA; measurement value). Further, sensor data analysis traditionally done by servers is now possible within the module, so the module reduces network load, making systems less energy-intensive. A lighter internal layout reduces resource usage by 18%.

It is the ideal solution for customers considering remote maintenance, reduction of the power-consumption levels of Bluetooth devices, and boosting the speed of IoT devices.

* **Bluetooth version 4.2:** Bluetooth is the global wireless standard for exchanging data over short distances; version 4.2 introduces more features for IoT-related devices.

A Palm Vein Authentication Device that Cuts Power Consumption during Authentication by 80%

(L)
PalmSecure-F Pro Mouse
(C)
PalmSecure-F Pro Standard
(R)
PalmSecure-F Pro
(for embedding)

The PalmSecure-F Pro lineup uses a CMOS sensor with a higher frame rate* than the previous device, features a new current driving circuit, and shortens output of LED current (quickens shutter speed). By also capturing fewer frames during the imaging process, it cuts power consumption by 80% per authentication.

The device is also more compact. The product's smaller optical size, which enables smaller lenses, and the denser LED package configuration make it just one-third the total volume of the previous device. The device also expands the operating temperature range from the conventional 0–60°C to a much wider -40–85°C. As a viable solution for embedded devices and applications in automobiles, which normally present considerable challenges, it broadens the scope of palm vein authentication systems. Finally, the device improves the authentication rate from a 1,000-person scale to a 10,000-person scale, enabling implementation in larger infrastructures.

* **Frame rate:** A value indicating the number of still images (frames) in one second of content; higher frame rates make the subjects in a video appear to move more smoothly.