

Top Message	Interview to Head of Corporate Environmental Strategy Unit	Special Feature 1: Fujitsu Group Environmental Action Plan Stage VIII	Special Feature 2: Digital Innovation	Chapter I Contribution to Society	Chapter II Reducing Our Environmental Burden	Environmental Management	Data Overview
GHG Emission Reduction through the Provision of ICT	Deploying Sustainability Solutions	Development of Top-Level Energy Efficient Products	Improving the Resource Efficiency of Products		Research and Development of Advanced Green ICT	Collaborating with Communities and Taking Action as a Good Corporate Citizen	

# 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 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. Up to now, we have worked to improve the energy efficiency of products through development of "Super Green" products. As we now seek to further increase energy efficiency, in our Environmental Action Plan (Stage VII) we have set a target of making over 50% of all new products top-level energy efficient.

## Summary of FY 2015 Achievements

Targets under the Fujitsu Group Environmental Action Plan (Stage VII) (toward FY 2015)	Achieve top-level energy efficiency of more than <b>50%</b> of newly developed products.
FY2015 Targets	Make <b>50%</b> or more of new products top-level energy efficient.
FY2015 Key Performance	Made <b>52.8%</b> of new products top-level energy efficient.

## FY 2015 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 2013–15.

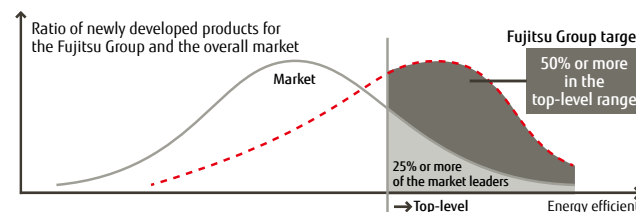
Applications of energy-saving technologies include new, high-efficiency microprocessors and power supplies, energy-saving displays, optimized energy-saving controls, and the strengthening of power management features. In addition to these, we are actively undertaking the aggregation of LSIs and the reduction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

### Achieved Top-Level Energy Efficiency for 52.8% 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 2.8% our 50% target (vs. FY 2015) for new product top-level 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 achieve 25% or more of the market benchmark in 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 (in effect) compliant	PCs, imaging equipment, etc.
Top-level achievement rate of the Top Runner Program (FY 2011) 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.

## FY 2016 Targets and Plans

### Deploying Outstanding Energy-Saving Technology and Expanding Its Application

In Environmental Action Plan (Stage VIII), Fujitsu revised the definition of top level products to be "products that meet standards comparable to those at top places in external indicators" and will continue to proceed with top-level product development to achieve our target. 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.

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## Development of Top-Level Energy Efficient Products

### Main Activities in FY 2015

#### High Performance Servers Able to Operate in 45°C Environments Due to Super Efficient Cooling Design

##### PRIMERGY RX2540M2



Fujitsu's PRIMERGY RX2540M2 is designed to run in high temperature environments as hot as 45°C. Examples of these cooling features include placing heat-producing components (such as CPUs, memory, and HDD) closer to cooling fans, and using heat sinks as well as power supply units with high cooling efficiency. The power supply unit in the server has received 80 PLUS® Titanium certification. It achieves power conversion efficiency as high as 96% and minimizes power loss and heat from AC/DC conversion. Furthermore, airflow within the server is optimized by using a fan inside the power supply to provide focused cooling for the supply unit.

ASHRAE (the American Society of Heating, Refrigerating, and Air-Conditioning Engineers) has stipulated environmental classes depending on the temperature and humidity ranges for a device's normal operation. Devices operating in 45°C environments fall into class A4, the highest class defined by ASHRAE. Since PRIMERGY RX2540M2 can operate in a hotter environment than previous 35°C models, the new product contributes to energy conservation and reduced CO<sub>2</sub> emissions.

#### High-Performance Waterproof Tablets with Energy-Saving Designs for Long Battery Life

##### ARROWS Tab Q736/M



The Windows-equipped ARROWS Tab Q736/M for corporate clients uses the latest Intel® Core™ i processor and an IGZO energy-saving display to achieve approximately 9.1 hours\*<sup>1</sup> of battery life. The tablet is Energy Star compliant and achieves an energy efficiency rate of 500% or more (vs. FY 2011) based on the Law Concerning the Rational Use of Energy.

Furthermore, by using hybrid molded components made of magnesium alloy and glass fiber reinforced plastic for the internal cover, it was possible to create the sturdy screen while maintaining trimming weight. Post-consumer recycled materials\*<sup>2</sup> are employed in the glass fiber reinforced plastic. Additionally, the new tablet's internal cover can be reused instead of being disposed of when refurbished. The device's technology includes a fan and heat pipe without sacrificing the waterproof design, thereby enabling efficient cooling of the high-performance internal CPU and also reducing resources used and size.

\*<sup>1</sup> Measured based on the JEITA battery operating time measuring method (Ver. 2.0); battery life is approximately 15.2 hours when using the additional battery.

\*<sup>2</sup> Material recovered and reused from post-consumer products.

#### Developing the World's Smallest and Most Efficient AC Adapter



GaN-HEMT AC adapter

Fujitsu Laboratories Ltd. has developed an AC adapter that allows rapid charging of smartphones and other devices. By using gallium nitride (GaN)\*<sup>1</sup> High Electron Mobility Transistors (HEMT)\*<sup>2</sup> (GaN-HEMT) with low dynamic resistance to switching elements, the adapter limits current loss during high speed operation and emits current with optimal timing. When charging from a home outlet, the charging time is approximately one-third\*<sup>3</sup> that of conventional adapters. The new product is the smallest 12-watt AC adapter (15.6 cm<sup>3</sup>) in the world and has a world-leading 87% power supply efficiency.

Use of this AC adapter will help limit wasteful electricity consumption and will contribute to reducing CO<sub>2</sub>. Current plans aim to commercialize the product in FY 2017 and promote its use in laptop computers and other devices.

\*<sup>1</sup> **Gallium nitride (GaN):** A wide band-gap semiconductor material that operates with a higher breakdown-voltage than semiconductor technologies based on previous materials, such as silicon (Si)- or gallium-arsenide (GaAs)-based technologies.

\*<sup>2</sup> **High Electron Mobility Transistor (HEMT):** A field-effect transistor that takes advantage of operation of the electron layer at the boundary between semiconductor materials with different bandgaps, which is relatively rapid compared to that within conventional semiconductors.

\*<sup>3</sup> Data vary depending on the device being charged.