Improving the Resource Efficiency of Products

Our Approach

Amid the depletion of national resources, rising international resource prices, uncertain supply of rare metals, and other growing threats to the sustainability of companies and society, there is also a growing view worldwide of the importance of resource efficiency. An example can be seen in the EU's designation of resource efficiency as a growth strategy and its establishment of the Resource Efficiency Flagship Initiative.

The Fujitsu Group, too, believes in the importance of efficiently using resources in the ICT products that we provide to customers. Toward that end, we have engaged in "3R design" that draws on the principles of reduce, reuse, and recycle, and have developed our products with technology that is effective in reducing the use of resources. We are making efforts to reduce environmental burdens through improved resource efficiency, which is made possible by designing products to be lighter and smaller, using recycled plastics, reducing the number of parts, enhancing ease of disassembly, and improving recyclability. Our goal is to offer outstanding products that provide customers with benefits including compactness, light weight, and space savings.

Summary of FY 2014 Achievements

Targets under the Fujitsu Group Environmental Action Plan (Stage VII) (toward FY 2015)	Increase resource efficiency of newly developed products by **35%** or more (compared to FY 2011)
FY 2014 Targets	Increase resource efficiency of new products by **15%** or more (compared to FY 2011)
FY 2014 Key Performance	Increased resource efficiency of new products by **33.6%** (compared to FY2011)

FY 2014 Performance and Results

Improving the Resource Efficiency of New Products

In FY 2012, the Fujitsu Group created its own definition of "resource efficiency" since no official indicator existed.

In FY 2014, following the previous fiscal year, we continued to use our indicators in the evaluation of products newly developed by Fujitsu*, while also undertaking initiatives aimed at reducing the number of parts in products and reducing the size of products through smaller, thinner, and lighter parts and higher-density mountings.

* Products newly developed by Fujitsu: Excludes products for which resource efficiency would be determined by customer specifications or standards.

Achieving 33.6% Improvement in Resource Efficiency

Fujitsu has achieved a 33.6% improvement in FY 2014 resource efficiency, against a target of 15%. This is the result of smaller size and lighter weight, primarily in tablets, PC servers, mobile phone base stations, and mainframes.

Reference Information

Definition and Calculation of Resource Efficiency

Resource efficiency is evaluated by dividing the value of a production, by the environmental burden (in terms of use and disposal) of the elements (resources) comprising the products.

$$\text{Resource efficiency} = \frac{\text{Product value}}{\text{Environmental burden from resource usage} + \text{Environmental burden from resource disposal}}$$

Environmental burden from resource usage = Σ (Resource burden coefficient x Resource usage volume)

Environmental burden from resource disposal = Σ (Resource burden coefficient x Resource disposal volume)

FY 2015 Targets and Plans

Target Revised Upwards and Further Improvements in Resource Efficiency in Our Sights

Since the Fujitsu Group achieved its FY 2015 target ahead of schedule, we revised the target upward and have set our sights on improving resource efficiency of new products by 35% or more compared to FY 2011.

Toward achieving this goal for the fiscal year, we are not only continuing current initiatives, but are also working to expand development of new lightweight, rigid materials and the use of recycled materials. We also seek to widely publicize our products' environmental performance to increase recognition of this factor, which we will link to sales growth.

Definition of Each Item

Product value	To place emphasis on the valuation of reduction in environmental burden due to resource usage and disposal, product value is limited to those that related to resource usage and is set on a per-product basis. (Example of factor not considered: CPU performance improvements)
Resource burden coefficient	Environmental burden weighting coefficient that is specific to a particular resource and considers factors like exhaustibility, scarcity, and environmental impact from mining and disposal. Activities will begin with this figure set to a value of "1" for all resources.
Resource usage volume	Mass of each resource used in the product (excluding the mass of recycled plastic used).
Resource disposal volume	Mass of each resource disposed of (not reused) in connection with a post-use product (design value). Activities will begin with this figure set to a value of "0."

Improving the Resource Efficiency of Products

Main Activities in FY 2014

FUJITSU Server GS21 2600, an Environmentally Conscious Mainframe with Superior Performance

FUJITSU Server GS21 2600

138.6% resource efficiency improvement (over conventional models)

The FUJITSU Server GS21 2600 uses system-on-chip*1 technology to aggregate 14 LSI chips into 1. An approximate boost in processing performance by as much as 40% is achieved, along with an approximate reduction in power consumption by as much as 50%. With 80 PLUS®*2 Gold certification, the server meets the highest standards in the industry.

The server also utilizes significantly reduced component numbers, more compact sizes for each component, plus aggregation and integration, to create a footprint (including maintenance space) that is as much as 70% smaller than conventional models, in a design as much as 58% lighter.

Solventless powder paint for the housing, complete elimination of volatile organic chemicals (VOCs), and completely lead-free soldering of electronic components to printed circuit boards are among some of the server's other achievements.

*1 **System-on-chip:** Technology that aggregates multiple functions onto a single IC chip.
*2 **80 PLUS®:** A certification program for the energy efficiency of computer power supplies.

ARROWS Tab F-03G, the World's Lightest Tablet with Extended, Worry-Free Battery Life

ARROWS Tab F-03G

37.9% resource efficiency improvement (over conventional models)

The ARROWS Tab F-03G tablet, launched in the winter of 2014, is 86 grams lighter than the model from winter 2013. With a weight of just 433 grams, the F-03G is the lightest in the world among tablets with screens 10 inches or larger.

The tablet's structure was improved using optimal materials in order to satisfy the dual objectives of lightness and durability. The frame was made thinner thanks to both stronger materials with low-density glass and the addition of stress-resistant, high-strength aluminum used for some of the internal components.

In addition, energy saving performance was emphasized so that the device can be conveniently carried without its battery charger. Other energy saving technologies were developed to new levels with features including a "human-centric engine" with fewer CPU cores and fewer clocks—for less battery usage when the screen is off—as well as optimized CPU performance for each app used on the device. These advances made it possible to maintain conventional battery life and to employ a compact and lightweight 7840-mAh battery.

Advancing 3R Design

Through our proprietary product environmental assessments and green product evaluations, the Fujitsu Group is working toward the application of technologies that take into account the 3Rs. Examples of the effective resource-saving technologies that we are deploying in our products include reductions in the number of components and cables, performance enhancements, space savings through higher-density integration, and digital product manuals. Furthermore, we are using Fujitsu's own 3-D Virtual Product Simulator (VPS), which is popular with many of our customers during their product design processes, and we are testing the steps involved and the convenience of product assembly and disassembly before creating prototypes.

From 2010, we have also conducted regular study tours for designers at the Fujitsu Group recycling centers. In addition to hands-on experience with dismantling used products, designers gain feedback from staff in charge of recycling through idea exchanges and explanations of the obstacles to ease of dismantling.

From here on out, the Fujitsu Group will summarize examples of the obstacles to ease of dismantling that we have learned from the recycling centers, and from the product development stage will incorporate these lessons into design for easier dismantling of post-use products.

Gaining experience in dismantling at recycling center study tour