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 2013 Achievements

Targets under the Fujitsu Group Environmental Action Plan (Stage VII) (toward FY 2015)	Increase resource efficiency of newly developed products by **20%** or more (compared to FY 2011)
FY 2013 Targets	Increase resource efficiency of new products by **10%** or more (compared to FY 2011)
FY 2013 Key Performance	Increased resource efficiency of new products by **21.3%** (compared to FY2011)

FY 2013 Performance and Results

Improving the Resource Efficiency of New Products

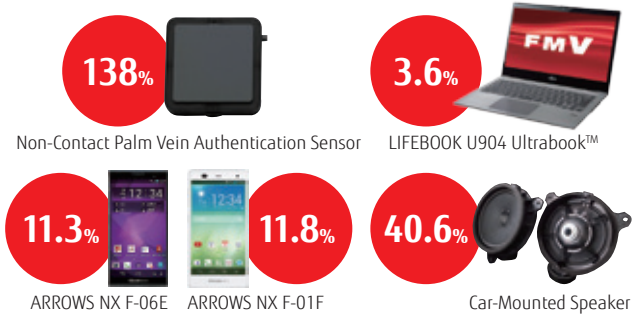
In the past, there have been no officially released indicators of efficiency of resource, or mechanisms for its comprehensive, quantitative evaluation. In response, in FY 2012 the Fujitsu Group created its own definition of "resource efficiency". In FY 2013 we began using our indicators in the evaluation 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 21.3% Improvement in Resource Efficiency

Fujitsu has achieved a 21.3% improvement in FY 2013 resource efficiency, against a target of 10%. This is the result of smaller size and lighter weight, primarily in smartphones, PCs, servers, palm vein authentication devices, and mobile phone base stations.

Examples of New Products (Resource Efficiency Improved)



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)

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".

FY 2014 Targets and Plans

Aiming for Further Improvements in Resource Efficiency

Toward our fiscal year goal of improving resource efficiency of new products by 15% or more compared to FY 2011, the Fujitsu Group is not only continuing its FY 2013 initiatives but is 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.

Main activities in FY 2013

Commercializing the World's Smallest, Thinnest, and Lightest Non-Contact Palm Vein Sensor for Use in Thin PCs and Tablets

The Fujitsu Group has commercialized the world's smallest, thinnest, and lightest (as of April 2013) non-contact palm vein sensor. Using non-contact, reflective-based authentication, this palm vein authentication sensor is adapted to applications calling for compact and slim form. By using an ultra-compact image sensor and a new lens design, we have achieved dimensions of 25.0mm width x 25.0mm depth x 6.0mm height (a 61% volume reduction from previous sensor) and a 4.0g weight (a 56% reduction in weight). Through repeated testing and simulation we have ensured the same high quality as in previous models, avoiding any loss of strength and precision in parts despite the smaller and lighter form. By adopting energy-saving sensors and ultra-compact, high luminous efficiency LEDs, we also reduced power consumption by 18% from previous models.

The sensor is easily incorporated into slim-type laptop PCs and tablets, and will broaden the uses of palm vein authentication.

Announcing the World's Thinnest Notebook PC

Fujitsu has achieved both thinness and toughness in the LIFEBOOK U904 Ultrabook™, the world's thinnest (as of June 2013) HDD-equipped laptop PC. We modified the sheet thickness of the palm rest component and the underside plate to better fit the form of the electronic components, slimming the thickest parts of components while thickening those parts that require strength.

A variety of improvements, including a thinner and lighter liquid crystal display unit, a smaller-circumference hinge, aggregation of motherboard-mounted components onto one side of the board, and lower height due to a folding, slide-out LAN connector, bring the thickness of the body down to 15.5mm.

Advancing 3R Design

Through our proprietary product environmental assessments and green product evaluations, the Fujitsu Group is working toward the application of reduced resource usage, improved recyclability, and other 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.

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. This information is used by the designers in improving product recyclability.

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 receycling center study tour