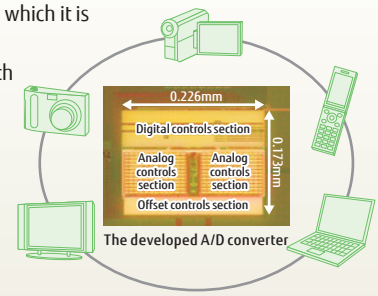
Strengthening Our R&D in New Green ICT to Contribute to the Creation of a Low-Carbon Society

Centered on Fujitsu Laboratories Ltd., the Fujitsu Group is carrying out R&D into leading-edge technologies and implementing them. Our goal is to help build the next-generation low-carbon society by contributing to energy and resource savings and to evaluating environmental burdens.

Fujitsu Develops A/D Converter with 1/10th Power Consumption of Previous Models

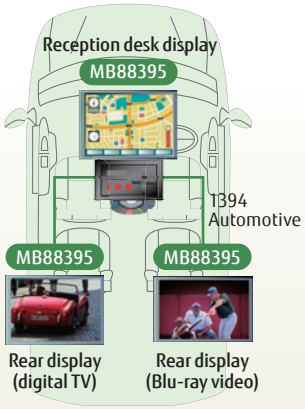
In February 2010, we completed the development of an A/D (analog to digital) converter with approximately 90% lower power consumption and surface area compared to a conventional device. This miniaturized, low power consumption A/D converter can significantly reduce the power consumption of any device within which it is installed, so we are pushing forward with further research toward its future adoption in a range of devices, such as digital home appliances and mobile phones.



The developed A/D converter

Development of the 1394 Automotive-Standard Compliant LSI, Which Contributes a Yearly 10kg Reduction in CO_2 Emissions

In April 2009, we completed the development of an LSI compliant with 1394 Automotive, the international standard for vehicle information networks. Using this LSI can help reduce the number of wire harnesses within a vehicle by up to 70%, helping to reduce weight and so fuel costs. We estimate that it will reduce annual CO_2 emissions by 10kg in a car traveling 10,000 km a year.



Fujitsu Develops Gallium Nitride HEMT, Which Contributes to a Yearly Reduction in CO_2 Emissions of about 330,000 Tons

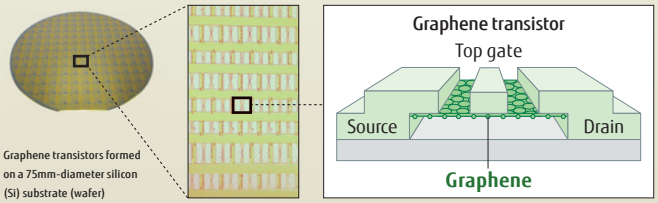
In June 2009, we developed a new structure for gallium nitride high electron-mobility transistors (HEMT) so that power loss can be reduced to one-third (1/3) that of power supplies based on conventional silicon transistors. Fujitsu's new GaN HEMT will be able to reduce total power consumption of internet data centers by 12%, thereby resulting in the effect of removing 330,000 tons of CO_2 from Japan as a whole. We are aiming to use it within our own power-supply units by about 2011. (Please refer to page 48.)


GaN-HEMT chip

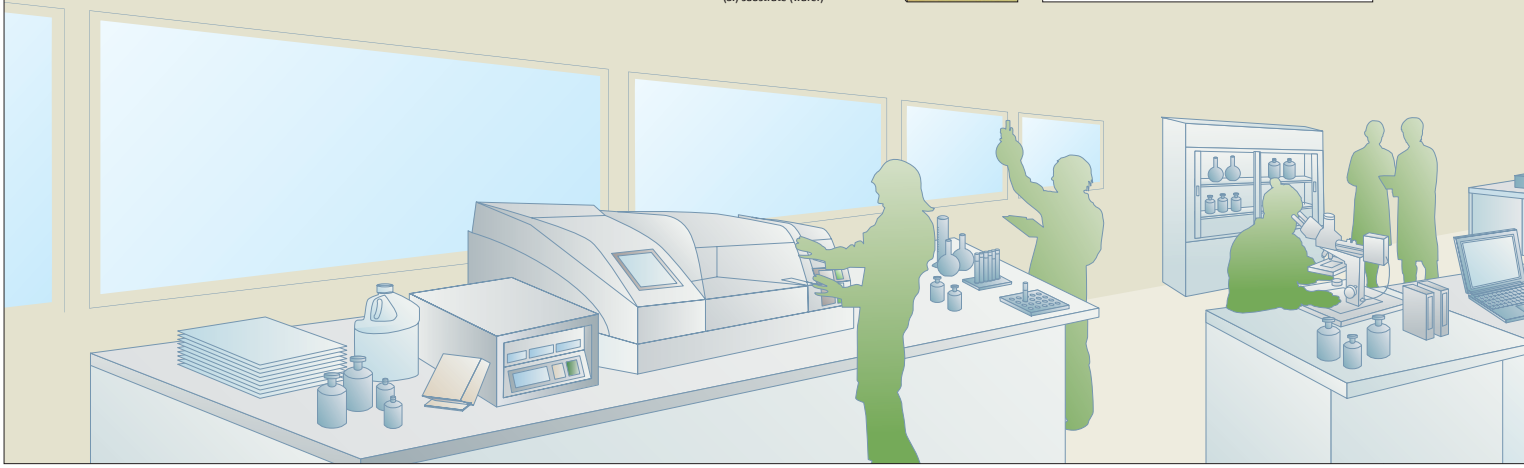

Package element

Fujitsu Develops Technology for Next-Generation Low-Voltage, Low-Power Transistors

We developed a novel technology for forming graphene transistors directly on the entire surface of large-scale insulating substrates at low temperatures, as a world first. This technology represents a major step forward for realizing low power consumption LSIs and for reducing power consumption in the ICT devices that adopt them.



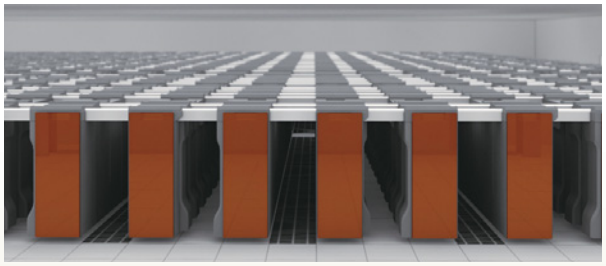
Graphene transistors formed on a 75mm-diameter silicon (Si) substrate (wafer)



Participation in Japan's Next-Generation Supercomputer Project

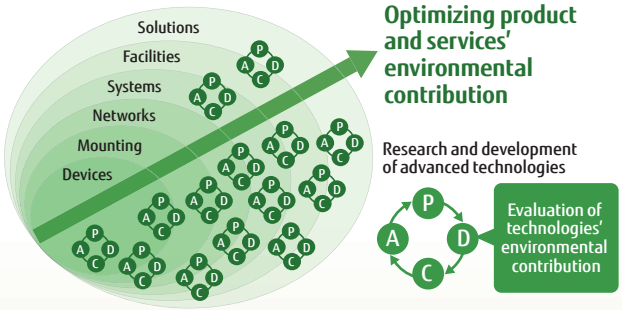
It is hoped that supercomputers will contribute significantly to developments in fields such as energy, science and technology, and medical treatment, as they are able to carry out the enormous and incredibly complex calculations required for tasks such as global warming forecasts and the development of next-generation energy sources.

Fujitsu has been participating in Japan's Next-Generation Supercomputer project—being sponsored by the Ministry of Education, Culture, Sports, Science and Technology—since fiscal 2006. Working together with Riken, we are pushing forward with this project and aiming to complete development of the Next- Generation Supercomputer by 2012.



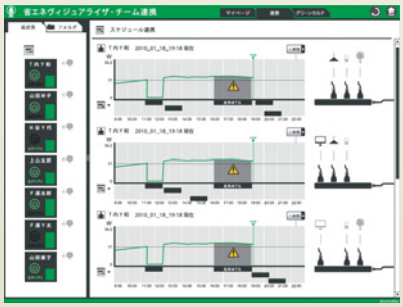
Evaluating CO_2 Reduction Potential from R&D to Use Stages

For all leading-edge technologies under development in our laboratories, Fujitsu Laboratories Ltd., began in April 2010 to evaluate the potential reduction in CO_2 emissions from using products and services that incorporate these technologies. Through these efforts, Fujitsu is broadly promoting designs optimized for their benefits to the environment, both in products and services incorporating each technology as well as in the systems that deploy them, including operations management.



Making Visible Power Consumption in the Office and Developing a 'Smart' Power Strip to Raise Awareness about Energy Saving

In March 2010, we developed our smart power strip, which features the smallest power strip with built-in power sensor in the industry. It enables power consumption to be visible on a per-outlet basis and also helps to raise user awareness about energy saving by indicating when they forget to turn their computers off. The product was tested in some of our offices and they achieved a 20% reduction in power consumption below their previous levels.



An illustration of how the system makes office power consumption visible

Demonstration of an 'Outpatient Guidance Solution' for Medical Facilities Using Low-Power Electronic Paper

In July 2009, we began demonstrating at Fujitsu Hospital some of our recently developed medical technologies, such as a solution to synchronize an electronic card holder with an electronic medical record system and to an outpatient navigation system, which guides patients to their treatment room and lets them know their place in the queue when waiting for their consultation. By installing low-power electronic paper in an electronic card holder, we are able to reduce power consumption to less than one tenth that of PHS devices and other hand-held terminals.