Offices

All Casio office sites are engaged in efforts to reduce CO_2 emissions and cut resource use by upgrading office equipment and improving work processes.

Reducing power consumption through server integration

Casio has vastly reduced its energy consumption by integrating the servers that had once been disparately located across the group.

Server integration results

902 servers had been integrated by March 2013.

Effects of reducing power consumption through server integration

This server integration effort is resulted in a total reduction in power consumption of 1,350,000 kWh, yielding a reduction in CO_2 emissions of 491 tons.

Contributing to Green IT Through Server Integration

	Through Mar. 2012	Apr. 2012 - Mar. 2013	Cumulative total
Number of servers integrated (machines)	815	87	902
Annual power consumption reduction (kWh)*1	1,222,500	130,500	1,353,000
Annual CO_2 reduction (tons-CO_2)*2	443.8	47.3	491.1
Number of Japanese cedars needed to absorb this amount (trees)*3	31,700	3,380	35,080

*1: Calculated based on a 1,500 kWh reduction per server per year.
*2: Calculated based on CO_2 emissions of 0.363 kg/kWh. From Japan's Ministry of Internal Affairs and Communications, "Report by the Study Group on ICT Policy for Addressing Global Warming," April 2008.
*3: Based on a document published by the Forest Agency of Japan's Ministry of the Environment, "Absorption Source Countermeasures for Greenery to Prevent Global Warming," indicating that a single Japanese cedar tree absorbs about 14 kg of CO_2 annually.

Casio Europe's energy-efficient building

Casio's office sites have shifted from focusing on reducing CO_2 per unit of production to cutting the total volume of CO_2 emitted across the entire Casio Group. In January 2009, Casio Europe integrated its offices, distribution center, and service center, which had previously been separately located around Germany, into a new energy-efficient building.

CASIO Europe

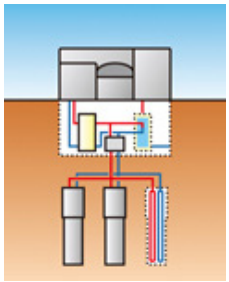
Diagram showing the use of geothermal heat

This building has an innovative air conditioning system that uses geothermal exchange equipment 130m below ground to pump water through pipes embedded in the concrete ceiling and floor of the building. The system pumps cool water in the summer and hot water in the winter to either cool or heat the building.
Energy consumption in the building is further reduced by controlling room temperatures using blinds that open and close automatically according to the weather as well as proper ventilation.

Hachioji R&D Center takes on the challenge of climate change and environmental preservation

The Hachioji R&D Center was designed and constructed to reduce CO_2 emissions in order to contribute to the fight against climate change. The center continues to take on the challenge of environment protection. Some of its innovations are highlighted below.

Ongoing power-saving activities

The Hachioji R&D Center completed in November 2003 is a research and development facility that incorporated environmentally friendly equipment from the initial design stage. It has been running efficiently for approximately ten years since it opened, boasting energy-saving features such as high-efficiency vertical thermal storage tanks, a natural ventilation system, automatic blinds, lighting control and equipment control based on weather forecasting. With the participation of the construction company, the center holds ongoing meetings to consider power-saving measures. Thus, instead of just relying on its hardware, the center has been enthusiastically pursuing other improvements such as finely tuned temperature control adjustments, and the revision of operation methods based on actual daily data.

As a result of these efforts, in fiscal 2010, five years after the base year of fiscal 2005, the center was able to reduce CO_2 emissions by 27.5%. Subsequently, the organization and the number of employees at the center underwent significant changes in fiscal 2011 and fiscal 2012 because some of its departments carried out business combinations with other companies, and substantial changes in singular values were also observed in the amount of CO_2 emissions. However, in fiscal 2013, CO_2 emissions were less than half of what they were in the base year of fiscal 2005.

	Base year emissions (FY2005)	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Emissions (tons)	2,952	2,802	2,618	2,452	2,303	2,140	705	961	1,319
Reduction rate compared to the base year		5%	11%	17%	22%	28%	76%	67%	55%

Figures reported up to fiscal 2010 differ due to a change in the CO_2 emissions calculation method

Click here to see CO_2 emissions from office sites (environmental data)

The Hachioji R&D Center – environmentally friendly since the design stage

Thermal storage tanks
The distinctive yellow tower is noticeable even from a distance, and the storage tank has become an energy-saving symbol for the entire Hachioji R&D Center. It holds roughly the same volume of cooled water as a 25-meter elementary school pool, and uses it for air conditioning.

The air-conditioning system at the Hachioji R&D Center features a large vertical thermal storage tank that passed through all the floors of the building. It contains water that is cooled during the night when electricity is cheaper, and then used for climate control during the day. Using a vertical thermal storage tank allows the system to make use of thermal stratification in the stored water to reduce the volume of cooled water used and makes it easier to draw water up to the upper floors of the building. Although the system can operate entirely on its own, it is actually run with human guidance for “semi-automatic” operation. In other words, by having human technicians make the finely tuned adjustments that the system cannot make automatically, greater savings in energy consumption and CO_2 emissions are being achieved to protect the environment.

Natural ventilation system maximizes use of outside weather conditions

No heating equipment is needed at the Hachioji R&D Center. This is because the building has comprehensive protection against cold weather, which prevents interior heat from escaping and improves thermal efficiency.
Since room temperatures increase even in winter, due to body heat and heat from equipment such as computers, the interior is cooled by letting outside air in as needed through ducts on each floor. This provides ventilation through natural airflow using the chimney effect to lower room temperatures. Thus, the temperature is adjusted using hardly any electric power.

Making the most of sunlight with automatic blinds

The opening and closing of the blinds is controlled automatically by calculating the position of the sun and using sensors to detect its intensity at the same time. Thanks to this technology, a comfortable interior environment is maintained.
In addition to this, the system reduces unnecessary usage of electricity by regulating air conditioning to match the number of people in the center obtained by using building entry data and automatically control interior lighting, switching it on and off and adjusting brightness with sensors that detect room brightness and human movement. The building also has a green wall of vegetation to prevent it from heating up. The center has developed educational tours for local elementary school students and others to explain the use of its features.

Related materials: See the “Environmental Communication” section for information about educational tours of the facility
http://world.casio.com/csr/env/communication/

Through these measures,the Hachioji R&D Center is contributing greatly to the reduction of CO_2 emissions, thereby helping in the fight against climate change and protecting the environment. While fully utilizing the environmentally friendly functions of this energy-saving building, the center is implementing cycles of improvement, operation, results,verification, and evaluation in order to achieve even more power savings in the future.

Automatic blinds
The automatic blinds help to maintain optimal interior temperatures and lighting through automatic control of natural light. They block the intense summer sun. In addition, employees came up with the idea of saving more electricity by opening the blinds at lunchtime to let light in and turning off the lights.

A green wall
The center sports a green wall of bitter gourd plants. While it only covers part of the exterior, it shields the surface of the building and the interior from direct sunlight to prevent increases in temperature.