

# **2001 Environmental Report**

**Focused on the Green** 

# Contents

	Corporate Profile
	Message from the President
	"Creating Things in Harmony with Nature"
	Fujitsu's Commitment to the Environment (Summary)
	Development of the "Green Life 21" Philosophy
	Fujitsu Environmental Protection Program (Stage II, Summary)
	Fujitsu Environmental Protection Program (Stage III)
	The Relationship between Business Operations and the Environment
Green Management	
	Environmental Management System1
	Environmental Accounting1
	Environmental Education & Awareness Activities1
	Environmental Communications1
Green Products	
	Product Recycling1
	Creating Green Products2
	Life-cycle Assessment (LCA)/Lead Elimination
	Green Procurement2
Green Factories	
	Industrial Waste Reduction
	Chemical Emission Reduction
	Energy-saving Measures (Against Global Warming)
	Plant Environmental Control (Environmental Risk Countermeasures)3
	Plant Environmental Control (Water/Air/Noise/Vibration Pollution Data)3
Green Solutions	
	Environmental Solutions
	Eco-friendly Products/Environmental Technologies
Green Earth	
	International Greenification Activities3
	Environmental Social Service Activities4
	Fujitsu Group Environmental Activities4
	Fujitsu Group Company Activities (Domestic)4
	Fujitsu Group Company Activities (Overseas)4
	Distribution & Environmental Protection4
	External Awards4
	Independent Deview Deview
	Independent Review Report
	History of Environmental Activities4
	Glossary of Terms

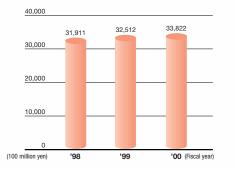
This report concerns Fujitsu's environmental protection activities in fiscal 2000 as well as our plans for fiscal 2001. The data contained were accurate as of fiscal 2000 year-end. This report is published annually; the next edition is scheduled for publication in June 2002.

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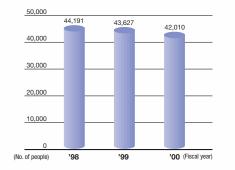
# Corporate Profile (as of March 31, 2001)

Company name:	FUJITSU LIMITED
Address:	Main Branch:
	1-1 Kamikodanaka 4-chome, Nakahara-ku, Kawasaki, Kanagawa 211-8588, JAPAN
	Office Headquarters:
	Marunouchi Center Bldg., 6-1 Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8211, JAPAN
<b>Representative:</b>	Naoyuki Akikusa, President
Established:	June 20, 1935
Main businesses:	Manufacture and sales of software and services, computers and information-processing
	platforms, telecommunications systems, semiconductors and electronic devices
Capital:	¥314,652 million
Financial year-end:	March 31
Employees:	42,010
Group companies:	Consolidated subsidiaries: 517
	Affiliates (using the applied equity method): 28

## **Net Sales (unconsolidated)**

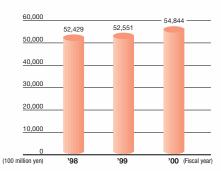


## **Employees at Fiscal Year-end (unconsolidated)**

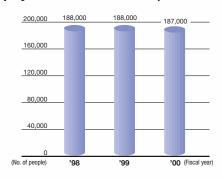


URL: http://jp.fujitsu.com/about/

## **Net Sales (consolidated)**



**Employees at Fiscal Year-end (consolidated)** 



If you have any inquiries, please contact:

Environmental Engineering Center, Corporate Environmental Affairs Group, FUJITSU LIMITED

1-1 Kamikodanaka 4-chome, Nakahara-ku, Kawasaki, Kanagawa 211-8588, JAPAN Tel.: +81-44-754-3413 Fax: +81-44-754-3326

You may also use the fax questionnaire at the end of this booklet or visit our environmental homepage.

# Creating Things in Harmony with Nature



Pictured (left to right): Naoyuki Akikusa, President, and Akio Moridera, Senior Executive Vice President and Chief Environmental Officer

# A New Approach for a New Century

The 21st century has been called the "Century of the Environment." In this new age, it is incumbent upon us as a responsible corporate global citizen to do more than merely obey local and national regulations and observe international conventions. We must also strengthen the program of autonomous measures we are implementing to protect Earth and its environment according to the characteristics of our business operations.

We at Fujitsu consequently consider it our responsibility to society to adopt eco-friendly approaches to business. Because our operations are global, this must be a worldwide commitment. We must not only deal with such issues as waste management and energy and resources conservation, but we must also strive to make our products and services as compatible with the environment as possible.

With these considerations in mind, we have moved beginning with this fiscal year to extend the Fujitsu Environmental Protection Program to encompass all our subsidiaries and affiliates, in Japan and overseas. This will enable us to implement powerful, integrated environmental protection policies as a global corporate group.

I personally believe in the importance of making every single employee of the worldwide Fujitsu Group aware of our environmental efforts, and of involving each of them in some way. I have expressed my thoughts and feelings concerning the environment through an internal homepage in an effort to spread the message. I am also working to give environmental conservation a higher profile in Japanese society through my chairmanship of the Committee on Environment and Safety, which operates under the auspices of Keidanren.

In closing, I pledge that we will strive conscientiously as a company to reduce the environmental burden imposed by our activities in every aspect of our business. We intend to take the lead in contributing to the environment in order to make this commitment a recognized attribute of the Fujitsu corporate culture.

Vaoyulni Alrilmso-

Naoyuki Akikusa President, Fujitsu Limited

# Towards the Sustainable Development of Society

It gives me great pleasure to report, to begin with, that we achieved all the targets designated for completion by the end of fiscal 2000 in the Fujitsu Environmental Protection Program (Stage II). I believe we owe this accomplishment to the considerable daily efforts of the Fujitsu employees.

We have now advanced the process a step further with the formulation of a new three-year plan, the product of a year of intensive cooperative planning involving every Fujitsu manufacturing plant, business unit and Group member company. Effective as of fiscal 2001, this new plan commits us to a variety of initiatives designed to reduce the environmental burden in all our activities.

We are working to reduce the environmental burden generated directly in our operations to the greatest extent possible—through the conservation of resources and energy and reduction of waste. We are, at the same time, implementing a number of measures that exert an indirect effect—such as designing, developing and procuring more Green Products and recycling waste products.

We intend to disclose the characteristics and progress of this ongoing program in future editions of this report. We ask that you do not hesitate to give us the benefit of your honest opinions on these matters.

Akio Moridera Senior Executive Vice President and Chief Environmental Officer

# Fujitsu's Commitment to the Environment (Summary)

# **Tackling Environmental Issues from a Global Perspective**

Fujitsu is committed to responding to global environmental issues based on the fundamental concept, principles and conduct guidelines presented in our environmental charter, formulated in July 1992 and entitled "Fujitsu's Commitment to the Environment."

# **Fundamental Concept**

Fujitsu pledges to use its creativity and technologies to harmonize human activities with the global environment.

## **Fundamental Principles**

- 1. Organization-wide commitment and activities
- 2. Maintaining environmentally sound business operations
- 3. Contributing to society

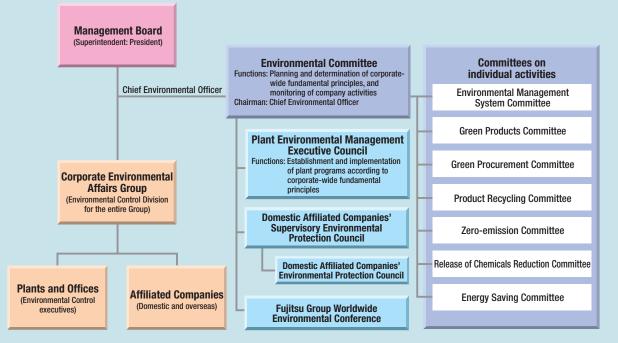
## **Conduct Guidelines**

- 1. Taking account of the environmental burden of operations
- 2. Making efficient use of resources and energy
- 3. Developing technology that contributes to the protection of the global environment
- 4. Promoting governmental environmental policies
- 5. Participating in community environmental activities
- 6. Raising consciousness through environmental education
- 7. Establishing a system to promote environmental protection
- 8. Cooperating with affiliated companies

URL: http://eco.fujitsu.com/en/info/fjc-e.html

# **Environmental Organization**

Fujitsu's organizational system for environmental activities is as follows:



# Development of the "Green Life 21" Philosophy

# Adopting "Focused on the Green."

It is essential for corporations today to combine eco-friendly management with economic concerns. To address environmental issues that require action on a global scale, companies must improve their production methods to conserve resources and save energy. These kinds of activities need not contradict the ongoing creation of profit, which is essential to corporate viability. Fujitsu and the Group companies have encapsulated eco-friendly management principles in a philosophy entitled "Green Life 21." We have entered the third stage of our environmental protection plan in fiscal 2001, guided by the spirit of the slogan "Focused on the Green."

# The Five "G's" of Green Life 21

Since its establishment in 1935, Fujitsu has placed a top priority on the environment in its management policies, emphasizing the establishment of plants that operate in harmony with nature without harming the environment. Our Green Life 21 philosophy is five-faceted. The **"Green Earth"** core refers to environmental activities on a global scale. **"Green Products"** encompasses eco-friendly procurement and the development of Green Products in which environmental consideration was intensified. **"Green Factories"** reflects the goal of achieving Zero-emission at all Fujitsu manufacturing plants. **"Green Solutions"** refers to the use of environmental technologies and IT expertise to provide clients with environmental management methods and solutions. All these facets are



supported by the "Green Management" base, which signifies the implementation of an ISO14001-compliant\*1 environmental management system (EMS), application of environmental accounting and public disclosure of environmental information.

Green Management	One pillar of Green Management at Fujitsu is the establishment of EMS in compliance with ISO14001 standards. Another is the introduction of environmental accounting methods that achieve a harmonious balance between economics and ecology. Fujitsu adopts various means, including this report, to inform society about its environmental activities. It also promotes greater eco-consciousness among all Fujitsu employees through environmental education and awareness activities.	
Green Products	<b>Promoting recycling and Green Product development</b> Green Product development refers to environmental activities undertak It entails preferential procurement of components with a lower environ reduction of the burden on the environment throughout product life cyc	mental burden, development of more eco-friendly products,
Green Factories	<b>Ensuring eco-friendly manufacturing activities</b> Actions to this end begin with assessing the environmental burden of o environmental efficiency while minimizing risk to the environment. The public. A second aspect of the Green Factories initiative is an internal p recycling of waste materials. Every plant targets an extremely high leve also promoted.	results of these actions are then evaluated and disseminated to the program to achieve Zero-emission at all plants through full re-use or
Green Solutions	Support for other companies' efforts to reduce their envir Fujitsu employs its Group's accumulated environmental technologies a management methods. We offer consulting and planning services to cl development techniques, and state-of-the-art IT. These environmental system for 21st-century society.	nd expertise to help other companies adopt more eco-friendly ient firms, making optimal use of the Internet, leading-edge product
Green Earth	Environmental contributions by Fujitsu employees around the globe Green Earth encompasses activities growing out of the desire of individual Fujitsu employees to contribute to the global environ the past, nature was able to absorb and cleanse the results of humankind's activities. Today, however, the capacity of the envir absorb these effects has clearly been exceeded. As citizens of Earth, Fujitsu employees have the individual responsibility to ma environment around their plants and offices greener, and to participate in voluntary environmental activities. They are finding n to contribute to the global environment.	
URL: http://eco.f	ujitsu.com/en/info/eco2001greenlife21_e.html	Please refer to page 49 for the definition of term *1.

# Employing creativity and technologies to harmonize human activities with the global environment

The Fujitsu Environmental Protection Program (Stage II) announced in April 1996 defines concrete numerical targets for the implementation of "Fujitsu's Commitment to the Environment" at every plant and office. All targets have been achieved in five years. The table below specifies the targets and results achieved in fiscal 2000.

# **Targets**

ltom	Fiscal 2000		Soo nono	
Item	Target	Target	Result	See page
Environmental Management System	Establish and implement environmental management system in plants and offices (including development and service) based on the ISO standard by the end of fiscal 2000	*1	*1	11
Product Recycling	Attain a recycling rate of 90% on collected waste products by the end of fiscal 2000	90%	92% (achieved)	19
Industrial Waste Cuts	Industrial waste output to be cut 80% by the end of fiscal 2000 based on fiscal 1991 results	88% reduction*2	93% reduction (achieved)	25
Reduction of Release of Chemicals	Release of chemicals to be cut 20% by the end of fiscal 2000 based on fiscal 1995 results	20% reduction	25.6% reduction (achieved)	27
Energy-saving Measures (against global warming)	Sales-based electricity consumption per unit to be cut 20 to 30% by the end of fiscal 2000 based on fiscal 1990 results	40% reduction* <sup>2</sup>	40.1% reduction (achieved)	29

\*1: Since targets have already been achieved, no target or result is mentioned for fiscal 2000.

\*2: Since the original industrial waste-cutting and energy-saving targets had already been met by the end of fiscal 1998, the targets for fiscal 2000 have been raised.

# **Major Measures for Attaining Targets**

#### Environmental Management System

Attain ISO certification of 11 manufacturing sites and 4 development and service sites

Establish and implement the system through arrangement of common specifications

Evaluate and enhance environmental performance\*3

#### **Product Recycling**

Establish 5 recycling centers; implement a Fujitsu recycling system

Implement a system for re-using PC parts (for repairs) Implement Life-cycle Assessment (LCA)

#### **Energy-saving Measures**

Introduce energy-saving technologies, such as waste heat recycling and inversion equipment

Develop and install power consumption monitors

Implement energy-saving technology and know-how in plants and offices

#### **Industrial Waste Cuts**

Make efficient use of desiccated sludge (cement raw material, copper recovery)

Use mixed waste plastics as fuel

Maintain and make practical use of waste reduction manuals and case study documents

#### **Reduction of Release of Chemical**

Improve production line processes (usage avoidance, separation/recovery)

Establish detoxification facilities (exhaust gases/wastewater) and functional improvements

Avoid painting through expanded use of stainless materials

# Progress through the participation of all Fujitsu Group companies and employees

In the third stage of the Fujitsu Environmental Protection Program, conducted based on the Green Life 21 slogan, "Focused on the Green," the company's environmental activities are being extended beyond the manufacturing plants to encompass all employees of the Fujitsu Group worldwide. New targets have been set for Green Products and Green Procurement to support the launch of more products with a low environmental burden. To assess the total environmental burden of Fujitsu Group targets have been formulated that include all Fujitsu consolidated subsidiaries and affiliates worldwide.

# **Targets**

Items		Fujitsu Group's targets (Action targets for activities of Fujitsu Japan and consolidated affiliates as a whole)	Fujitsu Japan's targets (Action targets for Fujitsu Japan only)
Green Products Green Products		All newly developed products to be "Green Products" by the end of fiscal 2003	All newly developed products to be "Green Products" by the end of fiscal 2002
		Abolishment of lead-solder from products manufactured by Fujitsu group must be achieved by the end of fiscal 2003	Abolishment of lead-solder from products manufactured by Fujitsu Japan must be achieved by the end of December 2002
Green Procurement*1		Percentage of green materials and parts for products to be 99% or more of procured money by the end of fiscal 2003	<ul> <li>Materials and parts for products: Percentage of green materials and parts for products to be 99% or more of procured money by the end of fiscal 2002</li> <li>Office supplies: 100% of procured office supplies to be Green Products certified by public corporation or organization by the end of fiscal 2002</li> </ul>
Product Recycling		Recycle system for collected waste products to be established by the end of fiscal 2003	Reuse and recycle rate on collected waste products to be 90% by the end of fiscal 2003
Energy-saving Measures against Global Warming		Sales-based energy (electricity, oil, and gas) consumption per unit to be cut 25% by the end of fiscal 2003 based on fiscal 1990 results	Sales-based energy (electricity, oil, and gas) consumption per unit to be cut 40% by the end of fiscal 2003 based on fiscal 1990 results
Zero-emission		Waste to be cut 60% by the end of fiscal 2003 based on fiscal 1998 results	Zero-emission to be achieved by the end of fiscal 2003
Reduction of Release of Chemicals		Release of main chemicals to be cut 30% by the end of fiscal 2003 based on fiscal 1998 results	Release of main chemicals to be cut 30% by the end of fiscal 2003 based on fiscal 1998 results

## Key Features of the Stage III Program:

Conversion of all products to Green Products (including elimination of lead solder)

Thoroughgoing Green Procurement

Expansion of waste product recycling

Energy-saving measures for electricity, oil and gas

Zero-emission of cafeteria and other waste

Expansion of range of chemicals to be reduced

# An environmental concern as well as a business

Fujitsu's environmental efforts begin with an accurate assessment of the effects its business operations exert on the environment. All our activities, from the purchasing of raw materials to the recovery of waste products, impact the environment in some way. Our mission is to provide products and services with high added value while continuing efforts to reduce the environmental burden.

# A Two-faceted Approach to Environmental Effect Assessment/Reduction

Fujitsu's business activities cover a broad range, from the manufacture of information systems, personal computers, mobile phones and other products to the provision of business solutions. We intend to assess the effect of all these activities on the environment, and then move to minimize the environmental burden.

Fujitsu also helps other companies reduce the environmental burden of their activities by enhancing their business efficiency. We supply state-of-the-art technologies, most notably Internet-compatible technologies, and networking products, while providing various business solutions. Our approach is thus two-faceted: implementing direct measures to lower the environmental burden of our own activities while at the same time offering society new technologies and services that achieve the same effect.

#### **Procurement stage**

Parts and materials for use in products are selected to minimize the environmental burden.

#### **Design/development stage**

Design specifications are developed to maximize energy efficiency during use and boost re-usability or recyclability of waste products.

## Manufacturing stage

Consumption of material resources; energy resources such as electricity, oil and gas; water; and chemicals is minimized. Emission of waste gas, wastewater, noise, vibrations and waste is reduced.

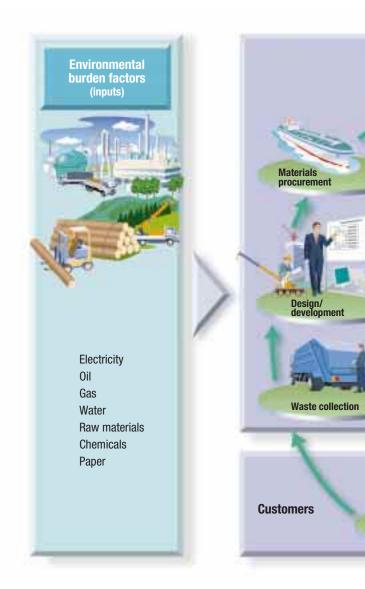
#### **Distribution/sales stage**

Consumption of energy generated during transportation of products is minimized to reduce emission of waste gases into atmosphere.

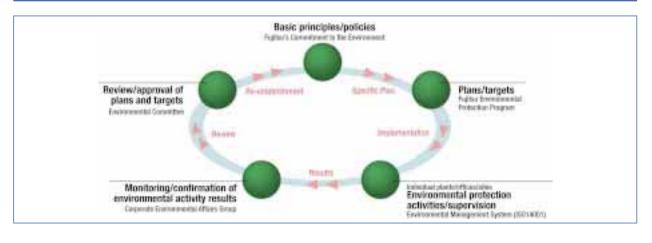
## Collection/re-use/recycling stage

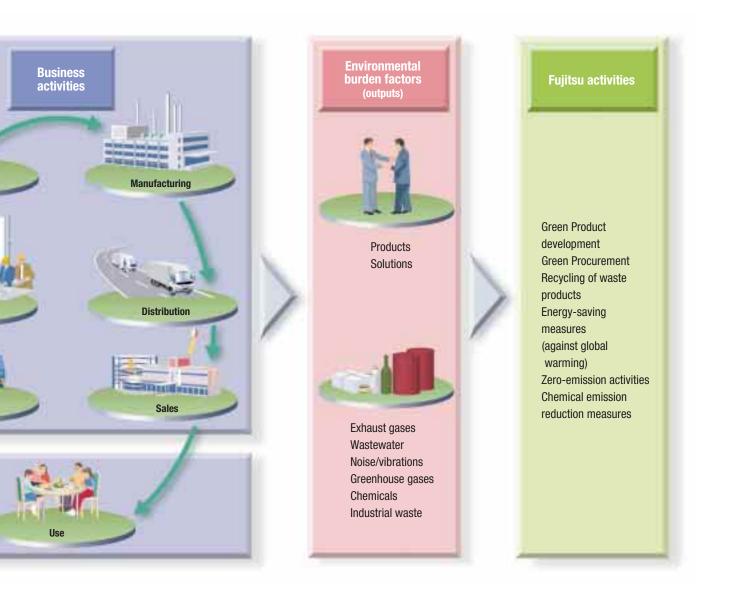
Consumption of energy is minimized in activities promoting waste product collection, reuse and recycling. Although effective use of industrial waste is promoted, some is unavoidably sent to landfill.

# **Overview of Fujitsu's Environmental Burden**



# **Environmental Efforts**

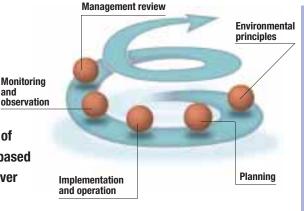




# Environmental Management System

# An environmental management system integrating all local Fujitsu operations

Fujitsu is working to establish and implement an environmental management system based on ISO14001 international standards. We and all members of the Fujitsu Group are constructing an effective system based on local organizations to enable the entire system to cover all our plants and offices worldwide.



# **Environmental Management System Activities**

The plans for obtaining ISO14001 certification are as follows:

All domestic manufacturing plants by fiscal 1997 (All 11 sites were certified.) Principal development and service-related sites and offices by fiscal 2000 year-end (Four sites were certified.) EMS comprises the basis for Fujitsu's environmental management, and it is essential that it be applied in all Fujitsu Group members' activities. Domestic and overseas affiliates<sup>\*1</sup> also aimed to attain ISO14001 certification.

Principal domestic and overseas affiliates by fiscal 2000 year-end (76 sites and offices)



An audit in proce Kawasaki site

# \*1: Affiliates include consolidated subsidiaries and affiliates by the applied equity method.

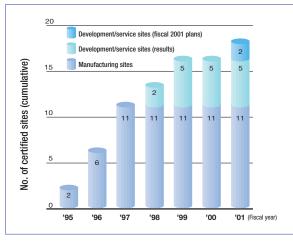
#### **Development and Service Offices**

Plans for the Atsugi Technical Center to acquire certification in fiscal 2000 were postponed to fit in with the companywide EMS integration plan.

At the 16 sites already certified, a surveillance audit\*<sup>2</sup> was conducted, producing a total of 48 suggestions for improvement all of which were acted upon.

\*2: A surveillance audit is conducted every year to check EMS effectiveness and determine possible improvements.

#### Results and Plans for ISO14001 Site Certification [Fujitsu]



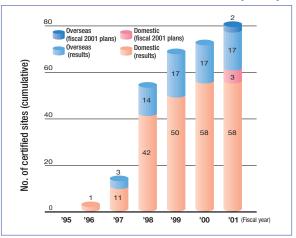
#### Affiliated Companies

During fiscal 2000, seven domestic affiliates acquired certification, raising the total number of certified affiliated company sites to 75 (58 domestic and 17 overseas).

#### **Certified Domestic Affiliates**

Fujitsu Oita Software Laboratory ···· October Fujitsu Denso (head office) ······· November Fujitsu Denso (head office) ······· November	· · · · · · · · · · · · · · · · · · ·	Takamisawa Electric (Miyazaki Tec) January Yonago Fujitsu February Fujitsu Devices March
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#### Results and Plans for ISO14001 Site Certification [affiliates]



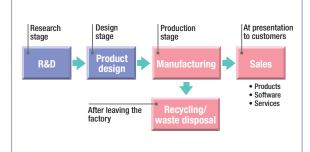
# **Principal Activities**

We strive to conduct business planning, personnel, advertising and general affairs activities, primarily at the Head Office, in conformity with the best environmental practices. Kansai System Laboratories has also begun implementing systems that apply similar principles to systems engineering operations.

EMS was established and implemented with the commencement of operations at the new Akiruno Technology Center in October 2000.

Work is under way to ensure that product development at both the process conception and facilities design stages conforms to the best environmental practices.

## **Environmental Consideration in Every Stage of Business**



We began implementing a system to ensure that all architectural designs and plans for constructing or demolishing buildings were checked in advance for conformity to the best environmental practices. 13 training sessions were held to educate internal environmental auditors. The training of 260 auditors under this system raised the total number of internal auditors to 833. A total of 13 lectures involving 285 participants were conducted at various sites and offices during the year to increase employee awareness of environmental concerns.

# Activities at the Fujitsu Group Level

Internal environmental audits were conducted, and 938 points for improvement identified in the process were addressed.

127 emergency drills were conducted to prepare personnel for various disasters.

Fujitsu ensures that employees receive basic training in environmental issues. Staff throughout the organization are encouraged to make effective use of time to study such matters on Group intranets.

Fujitsu sought the understanding and participation of a total of 974 partner firms (comprising 541 parts suppliers and 433 service providers) in its various environmental activities. One technical exchange meeting involving 64 participants was conducted during the year to help those responsible for parallel development and transfer of EMS and related expertise between sites.

29 internal audits and sessions with consultants were held during the year to determine criteria for EMS construction. A variety of information on certification stipulations and related educational matters was distributed on company intranets.





# Plans for ISO14001 Certification

- Development and service offices: 2 sites
  - Head office
  - Atsugi Technical Center

Domestic and overseas affiliates: 5 sites

- Fujitsu AMD Semiconductor
- Fujitsu Kansai Systems
- Fujitsu Personals
- Fujitsu Compound Semiconductor (U.S.A.)
- Fujitsu Microelectronics

#### **EMS Improvements**

Further efforts will be directed to achieving timely management of environmental information, as well as to creating a comprehensive audit system to support inter-site performance comparisons, with the aim of achieving companywide EMS integration in fiscal 2001.



**Environmental Accounting** 

# Evaluating environmental activities from both the "cost" and "effect" perspectives

Fujitsu introduced environmental accounting in March 1999 to provide guantitative assessments of the costs and effects of environmental protection measures throughout the company. Despite a revision of the environmental accounting guidelines in fiscal 2000 in accordance with guidelines published by Japan's Ministry of the Environment, new items were added to the system without altering the central focus on existing effect collation methods to maintain consistency with the previous year.

# **Environmental Accounting System**

#### **System Objectives**

To disclose information and the company's position to those concerned

To implement continuous environmental activities with a long-term perspective

To raise the effectiveness of environmental investments To vitalize Fujitsu's program of environmental protection activities

#### **Principal Points Amended Since Fiscal 1999**

Amendment of accounting criteria to conform to guidelines issued by the Ministry of the Environment in 2000 Replacement of previous cost-inclusion criterion of "environmental purpose exceeding 50%" with system of counting all costs incurred in lowering environmental burden of operations

Addition of wastewater treatment fees as new criterion; elimination of paperless costs and effects for purposes of business improvement

Introduction of intranet-based environmental accounting support system to facilitate input of costs and effects at source

#### **Fiscal 2000 Environmental Accounting Results**

	I	tem	Scope	
	O sata in	Pollution prevention costs	Costs of preventing air/water pollution and soil contamination and other activities	
	Costs in business	Environmental protection costs	Costs incurred through energy-saving measures, plus costs of measures to combat global warming	
	operations	Resource recycling costs	Costs of waste reduction and disposal, plus costs of efficient resource usage measures, such as water conservation and rainwater use	
	operations	Wastewater treatment fees	Fees for water treatment utilities	
	Upstream/down	stream costs	Costs of lowering upstream/downstream environmental burden of manufacturing and service activities	
			(recycling/re-use costs for waste products and packaging, costs of Green Procurement, etc.)	
Costs	Management co	osts	Management-related environmental protection costs (personnel expenses for environmental promotion activities, costs of gaining/maintaining	
ට			IS014001 certification, costs of measuring environmental burden, etc.)	
	R&D/solutions b	usiness costs	Environmental protection costs for R&D activities and costs associated with environmental solutions business	
			(design/development costs for Green Products and environmental technologies, environmental solutions business costs)	
	Social activities	costs	Environmental protection costs of social activities	
			(costs of greenification programs, environmental report production and environmental publicity)	
	Environmental cl	ean-up costs (Risk avoidance)	Costs of environmental clean-up operations (costs of eliminating soil/groundwater contamination, environmental compensation, etc.)	
			Total	
	Effects in	Pollution prevention effects	Savings from avoiding losses*1 from plant closure due to failure to observe environmental laws and regulations, plus contribution of	
	business		environmental protection activities to the value added*2 by manufacturing activities	
	operations	Environmental protection effects	Cost savings from reductions in consumption of electricity, oil and gas	
0	oporationo	Resource recycling effects	Cost savings from reductions and effective use of waste	
Effects	Upstream/down	stream effects	Sales value of recycled and re-used products	
Eff	Management ef	fects	Efficiency improvements due to ISO14001 systems, effects of in-house employee training	
	R&D/solutions b	usiness effects	Sales contribution of Green Products, other eco-friendly products and environmental solutions business	
	Social activities	effects	Value of corporate image enhancement from environment-related publicity	
	Environmental pollution prevention effects (Risk avoida		Savings from avoiding compensation payments to residents for groundwater and soil contamination	
			Total	

\*1: Savings from avoiding losses = Value added/Days of operation × Days lost \*2: Contribution of environmental protection activities to the value added = Value added × Maintenance and management costs to facilities related to environmental protection/

# **Third-party Audits**

As in previous years, Fujitsu ensured the reliability and transparency of its data by receiving third-party auditing of its environmental accounting (from Shin Nihon Environmental Management and Quality Research Institute\*<sup>1</sup>). Conducted at local sites, the audit covered a sample of Fujitsu's manufacturing plants and affiliated companies in Japan and overseas. It examined the data collection processes used to assess environmental costs and effects, and checked the various internal control processes associated with environmental accounting procedures. An audit of the documents used to provide data for all the other Fujitsu plants and affiliates was also conducted.

\*1: Formerly Ota Showa Environment & Quality Research Institute

# **Results of Implementation of Environmental Accounting**

Environmental accounting is required to assess the cost increases associated with efforts to improve environmental efficiency and manage the effects. Its introduction has shed light on various environmental costs and effects that were previously difficult to measure, with the following results:

Increased consciousness of involvement in environmental protection
(Expansion of activities to include marketing and service as well as plant-
oriented activities)

Increased program effectiveness due to intra-company cooperation (Improved effect from thorough applications of energy-saving/waste reduction guidelines among all plants and affiliates)

Increased transparency of cost reduction items

(Extraction of items to be improved in facilities' maintenance and management costs related to the environment by analysis and evaluation of environmental costs)

Environmental Impact-reduction Improvement Indicators: Fiscal 2000 (Fujitsu)

Item	Result	
Environmental improvement indicator (EI)*2 [Ton-C/100 million yen]*3	176*4	
Environmental efficiency indicator (EE)*5 [100 million yen/Ton-C]	0.18	
*3: Ton-C is a unit denoting the weight of carbon contained in the		

\*3: Ton-C is a unit denoting the weight of carbon contained in the corresponding carbon dioxide (CO<sub>2</sub>).

\*4: The environmental improvement indicator has registered improvement since fiscal 1999 due to reductions in CO<sub>2</sub> emission volumes resulting from energy savings achieved through the adoption of co-generation systems. (Approx. 1.55 X fiscal 1999 indicator)

## Fiscal 2000 Environmental

# Burden-reduction Effect (for reference) Effect/C02 equivalents [Ton-C]

14,600\*6

\*6: This value shows the fiscal 2000 environmental burden reduction effect achieved through energy savings (lower consumption of electricity, oil and gas) and waste reduction (reduced disposal of wastepaper, waste plastic, waste oil and wood chips).

Fujitsu Affiliated companies Total 27 58 27, 28, 33 ~ 36 31 19 20 39 29, 30, 32 14 26 40 25, 26 4 8 4 6 19, 20, 24 1 5 12 13 25 11, 12, 15, 16 3 10 21 ~ 23, 37, 38 7 1 2 3 17, 18, 39 2 31, 32 1 82 109 191 69 151 27, 28, 33 ~ 36 82 29. 30. 32 9 16 7 48 25, 26 5 43 19.20 5 6 4 11, 12, 15, 16 21 ~ 23, 37, 38 q 13 4 2 17, 18 6 31, 32 2

246

135

Fiscal 2000 results

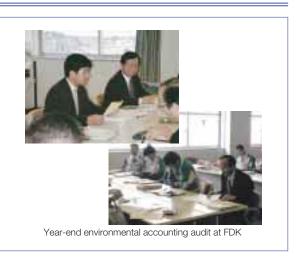
(Unit: 100 million yen)

See pages

Total generated cost

111

(Fujitsu)





**Green Management** 

# Educating employees to encourage active participation in environmental activities

Ongoing education is essential to continually enhance employees' awareness of their individual roles in Fujitsu's environmental protection activities. We conduct a wide variety of environmental education and training programs involving every employee to ensure this growing awareness.

# **Environmental Education**

Fujitsu offers various technical and general education programs based on environmental education criteria that are standardized companywide. A new lecture on environmental business for sales representatives and sales department staff was added to the curriculum during fiscal 2000. The aim of this course is to raise awareness of the importance of global environmental issues. With customers growing increasingly concerned about the environment as well, the course also treats environmental awareness as a potentially vital source of new business. Establishing this course extended educational coverage from the design divisions to the sales divisions.



An environmental business lecture

# **Technical Education**

#### **Common Courses**

	Lectures	Attendees
Environmentally sensitive product design	3	76
Environmental business	1	25

Divisional Courses (Environmental Control Division)

	Lectures	Attendees
Course for newly assigned plant managers and Environmental Control Division senior managers	2	12
Course for new personnel	1	11
Course for staff	1	12

# **General Education**

# Basic Training Programs

	Lectures	Allenuees
Program for senior managers	1	200
Program for middle managers and other staff	1	133
Programs for new employees	12	610

# **Awareness Activities**

Fujitsu's activities aimed at promoting greater knowledge and awareness of environmental issues include staging events and publishing regular bulletins.

## **Events for Environment Month**

During June 2000, designated "Environment Month" by the Environment Agency, Fujitsu organized several events at the company and its domestic affiliates. An open-air seminar on wild birds, an environmental photograph exhibition and public tours of environmental facilities were among the highlights.

## Main events

Environmental lectures ......30 lectures, 1,540 attendees Video presentations on environmental topics .......16 presentations, 1,969 attendees

Environmental puzzle ......853 entries



A wild bird seminar, Kawasaki Plant



An environmental lecture, Kumagaya Plant

## **Environmental Contribution Awards**

Since fiscal 1995, Fujitsu has presented awards to recognize outstanding environmental protection activities by plants, divisions and individuals. These awards cover all Fujitsu operations, including its domestic and overseas affiliates. In fiscal 2000, 73 entries were submitted for awards (69 domestic, 4 overseas). Five entrants, one of which was singled out as exceptional, were selected for Environmental Contribution Awards, and ten others received Environmental Contribution Incentive Awards. All the awards were presented by the President of the Corporate Environmental Affairs Group.



Presentation of Environmental Contribution Awards

#### **Environmental Contribution Awards: Fiscal 2000**

Achievement of Zero-emission (Numazu Plant) Development of the most energy-efficient room airconditioning unit in its category (Fujitsu General) Reforestation in Thailand (Fujitsu Thailand) Elimination of water leaks as part of zero water waste program (Nagano Plant) Development of printer toner ideal for used paper recycling (Fujitsu Laboratories)

#### Eco-Plaza Environmental Bulletin

First published in 1994, *Eco-Plaza* is an in-house quarterly bulletin focusing on the Group's various environmental activities and highlighting environmental issues. In fiscal 2000, the publication began a new series informing employees about afforestation and greenification programs undertaken by Fujitsu's domestic and overseas affiliates on the intranet.



#### **Environmental Photo Contest**

Since fiscal 1995, Fujitsu has conducted an annual photo contest open to all employees of Fujitsu and its domestic and overseas affiliates and their families. The contest themes in fiscal 2000 were "Coexistence of Humankind and Nature," "The Environment in Our Daily Lives," and "Global Environmental Protection." The contest attracted a total of 427 entries (122 domestic, 305 overseas), and one first prize, two second prizes, one special prize, five third prizes and eight honorable mentions were presented to winning entries by the President of the Corporate Environmental Affairs Group. The overall winner, "Aurora," was a magnificent portrayal of a human living environment set against the backdrop of the Aurora Borealis, one of nature's most spectacular atmospheric phenomena.



Environmental Photo Contest 1st prize-winning photo "Aurora'



# Environmental Communications

# Fujitsu communicates actively concerning its environmental activities

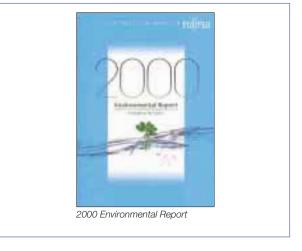
In seeking the opinions and ideas of a wide range of people, we publish an annual environmental report, use the Internet extensively to disseminate environmental information, and participate actively in a variety of environmental exhibitions. In the future, we will continue to employ various media to share information concerning the environment with the public.

# 2000 Environmental Report

Fujitsu has published its Environmental Report regularly since fiscal 1996 to inform the public about its environmental protection activities and obtain understanding of them among a wide audience. The *2000 Environmental Report* detailed the results achieved by the company's various environmental protection programs in fiscal 1999. Besides introducing the Green Life 21 philosophy and other new concepts and extending Fujitsu's environmental accounting to the consolidated subsidiaries, the report addressed such new topics as environmental protection in distribution and the efforts of Fujitsu Group affiliates. It also presented such activities as Green Product development and efforts to achieve Zeroemission in greater detail.

## Main Responses to the Fax Questionnaire

- The report gave a strong impression of Fujitsu's commitment to full public disclosure of information concerning wastewater emissions at its plants and other data.
- The inclusion of new environmental accounting criteria is a positive addition.



The calculation of environmental accounting indicators such as EE and EI is interesting; Fujitsu should continue working to reduce overall environmental impact as well as to improve relative efficiency.

Increased use of flowcharts would help readers better understand how the various processes work. (See page 9.) Such concerns have been reflected in future activities and reports.

URL: http://eco.fujitsu.com/en/info/eco20001023b\_e.html

# **Internet Homepage**

Fujitsu added an environmental section to its homepage in fiscal 1997. Visitors find links to online editions of our Environmental Report as well as information on our environmental activities and details concerning our Green Products. We plan to use this channel actively to publish information about our environmental activities. We also welcome online inquiries from visitors to the site. **Customer inquiries** (fiscal 2000)

Number of information postings on Internet by Fujitsu: External homepage: 73 (54 in Japanese, 19 in English) Internal homepage: 227 (192 in Japanese, 35 in English) Number of inquiries: 683 (607 domestic, 76 from overseas)



# Participation in Exhibitions

Fujitsu participates actively in environmental exhibitions throughout Japan to introduce its efforts to address environmental issues to a wider audience. We took part in 27 exhibitions in fiscal 2000 alone.

Exhibition name	Sponsor
International Environmental Fair	Tokyo International Trade Fair Commission
Kagoshima International Conference on World Natural Heritage	KICWNH Action Committee
Environment Total Business Fair 2000	Nikkan Kogyo Shimbun
Eco-Fair 2000	Akiruno Youth Chamber
Ishikawa Environmental Fair	Ishikawa Environment Partnership Prefectural-Public Conference
2000 Environment Festival & Citizens' Life Exhibition	Aizuwakamatsu City
Kumagaya Hometown Festival & Environment Fair	Kumagaya City, Kumagaya Youth Chamber
Eco-Products 2000	Japan Environmental Management Association for Industry

URL: http://eco.fujitsu.com/info/eco20010222b.html

# **Press Advertisements**

Fujitsu placed two separate series of full-page advertisements in the Nihon Keizai Shimbun newspaper to promote its environmental activities in Japan. The advertisements conveyed simple yet eloquent messages concerning daily life and the environment. The series were honored with an award at the 10th Environmental Advertising Concours in 2000, an event sponsored jointly by the NPO Regional Exchange Center and the Nihon Keizai Shimbun.







This series of three press advertisements appeared in the Nihon Keizai Shimbun (individual executions featured June 14–16, 2000).

# Product Recycling

# Treating waste products as an important resource, with the goal of over 90% product recyclability

Aware of its responsibility to society as a manufacturer, Fujitsu collects and recycles waste products generated by other companies within the framework of the Fujitsu recycling system. We are now undertaking development of waste plastic recycling technologies.

# **Results of Waste Product Recycling**

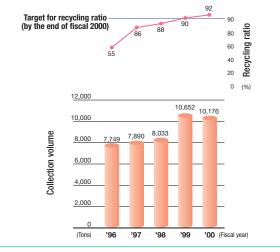
By the end of fiscal 2000, product recyclability had reached 92%, surpassing the goal of 90% specified in Fujitsu Environmental Protection Program (Stage II). The Kawasaki Plant began recycling in-house produced waste products in 1995. We followed this move during fiscal 1996–1997 by establishing recycling centers at five different locations throughout Japan, beginning with the Fujitsu Metropolitan Area Recycle Center. Since December 1998, the Fujitsu recycling system, which emphasizes recycling of waste products collected from companies, has been linked to our nationwide distribution network.

#### **FMV Model Disassembly Manual**



# Waste Product Collection Volumes and Recycling Ratio\*

Volume of Waste Products Collected/Recycling Ratio



\*Recycling ratio =  $\frac{\text{Amount of recycled parts and materials}}{\text{Amount of treated waste products}}$ 



## **Principal Achievements**

Establishment of five recycle centers (by fiscal 1997 year-end) Construction of Fujitsu recycling system linked to distribution network (fiscal 1998) Development of recycling technology for waste plastic (used in pointing holders, fiscal 1998) Standardization of disassembly manuals (manuals produced for 69 models, fiscal 1999) Establishment of recycling status management system (fiscal 1999) Collection of 10,000 tons of materials (fiscal 1999) Attainment of 90% recycling ratio (fiscal 1999) Introduction of component re-use system (fiscal 2000) Development of support software for recycling industry (22 types of product slips produced, fiscal 2000) Development of hard disk data erasure method (fiscal 2000)

#### **Locations of Fujitsu Recycle Centers**



# "We will do our utmost to continue our efforts as a company at the forefront of recycling activities."

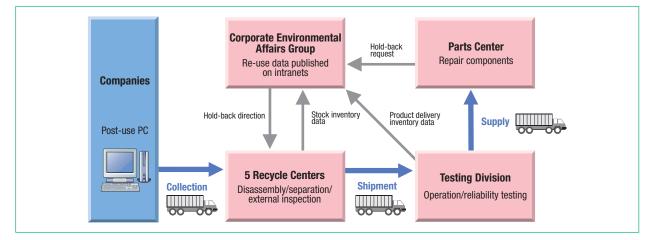
Since its establishment in March 1997, this center has endeavored to recycle information processing and communications equipment. In fiscal 2000, the treated amount reached approximately 2,400 tons. We are striving to improve our technology and boost innovation for the benefit of the global environment in anticipation of the April 2001 enactment of revised recycling legislation.



Toshiaki Urushihara General Manager, Fujitsu Western Japan Recycle Center

# **Component Re-use System Organization**

Fujitsu is making use of intranet-based systematization in its efforts to re-use parts in the repair and maintenance of personal computers.



# Development of Recycling Industry Support Software

Operational efficiency improved as system functions were strengthened, including the amounts and types of waste products collected, volumes managed and collection slips produced.

# Development of Software for Erasing Hard Disk Data

We developed a software system targeting client data security issues that is capable of erasing hard disk data.

Compatible HDD types: SCSI, ATA

No. of connections: Serial erasing of up to 7 hard disks Erasing method: Overwriting of all HDD blocks with dummy code

Waste product processing requ	est form Recycling center recycling status management system screen	Hard disk data erasing system screen



In line with the revised recycling legislation enacted in April 2001, Fujitsu plans to use its current recycling system for the collection and recycling of waste PCs from companies. We are planning our approach to handling waste PCs collected from individual users when the law applicable to these items comes into effect in fiscal 2002.

# **Creating Green Products**

# Working to develop superior eco-friendly products based on internal standards

Fujitsu takes the environment into consideration with every product it manufactures. This approach underpins the Green Products system implemented in 1998. We develop products featuring superior eco-friendly performance based on internal criteria referred to as the "Green Product Evaluation Standard."

# **Green Product Development Results**

In fiscal 2000, the list of Green Products was extended to include consumer goods such as personal computors and mobile telephones as well as mainstay products such as UNIX servers and disk arrays. The number of products developed as "Green Products" totaled 134, bringing the cumulative total to 275.

## Green Products

	book computers ··· 41 models top PCs ······ 24 models	Financial institution workstations
CRTs	(cathode-ray tubes)/	Line printers * ······ 1 model
LCDs	····· 15 models	Network shelters 1 model
Scanr	ners 8 models	Data communications
Page	printers7 models	terminals * ····· 1 model
Small	magnetic disks … 6 models	Secure archivers * 1 model
UNIX	servers * ····· 6 models	Bar-code readers * 1 model
Disk a	arrays * ····· 6 models	Card readers * ······ 1 model
IA ser	vers ······ 4 models	Store servers * ······ 1 model
Mobil	e telephones ······ 4 models	Total: 134 models
Opto-	magnetic disks ····· 4 models	<ul> <li>indicates new product category.</li> </ul>

# **Green Product Evaluation Standard**

Process for Evaluating Green Products:		
Step 1: Product environmental assessment (45 items)		
Total number of points evaluated: over 90		
Step 2: Evaluation based on Green Product Evaluation Standard [essential criteria (16 items)]		
Product meets all relevant criteria.		
Green Products		

# Eco-mark Approved Products

As of January 2001, four Fujitsu desktop PC models had received Eco-mark certification from the Japan Environmental Association. Fujitsu was the first PC manufacturer in Japan to receive Eco-mark certification. (Excluding display)

- Eco-mark product approval number: 00119005
- Product brand name: FMV desktop series Models: FMV6MLB120
  - FMV6MLB120 FMV6MLB121 FMV6MLB160 FMV6MLB161



#### **Examples of Green Products**



Disk arrays GR720 (GR72A01) Conforms to Energy Conservation Law 2005 target standards (energy efficiency 0.59 G classification) Labeling of all plastic parts weighing more than 25 q

Conforms to Energy Conservation Law 2005 target standards (energy efficiency\* 0.001 S classification) Use of halogen-free flame retardant in plastic computer case Use of Eco-mark approved recycled paper for manual



#### Green Product Evaluation Standard [essential criteria (16 items)]

Resource	Minimum recyclability of 75% for all parts
Conservation	Minimum recyclability of 70% by weight of all plastics weighing 25 g or
	more
Energy Saving	Compliance with Japanese legal energy consumption efficiency labeling
	requirements and related standards
	Compliance and registration with the International Energy Star Program
	Power-saving function
Recyclability	Capable of separation and disassembly into component materials or units,
	either by hand or with general-purpose tools
	Labeling of any plastic parts weighing more than 25 g
	Minimizing use of painting or coating on plastic parts weighing more than
	25 g
	Clear labeling of products requiring nickel-cadmium (Ni-Cd) batteries;
	making batteries easily removable
Compliance with	Freedom of product and packaging materials from PCBs, asbestos or
Hazardous Materials	ozone-destroying substances
Regulations	Freedom of product and packaging materials from internally regulated
	hazardous materials such as alternative freons or halons
Environmental	Attachment of warning labels to packaging to ensure proper disposal of
Information Disclosure	products containing toxic substances such as cadmium or mercury
Packaging	Making packaging boxes only from recycled paper and eliminating surface
	treatment that prevents recycling
	Limitation of expanded polystyrene foam to a maximum of 10% of all
	packing materials by weight
	Use of only easily recyclable polyethylene or paper as materials for
	protective bags
	Marking of any plastic used as packaging weighing more than 20 g or
	greater than 200 cm <sup>2</sup> in volume

# "We are pursuing Green Product development centered on notebook PCs."

"Our section is mainly concerned with PC development. We try to reduce the environmental burden of products throughout their life cycle. In fiscal 2000, we completed development of 41 models, bringing the total number of Green Products to 78. We will continue to design more Green Products that help save energy, conserve resources and include less chemical content and more recycled materials."

Yuji Isobe Director, Platform Design Department, Mobile Computing Division

# Green Product Evaluation Standard Revision

Fujitsu revised its Green Product Evaluation Standard in March 2001 to make all products "Green Products," and divided it into common standards applicable to all products and five "specific standards" applicable to specific product groups.

## Points of Revision

Resources conservation:	Improvement of designs to reduce resources consumption by increasing product durability and extending warranty periods
Hazardous chemicals:	Expansion of internal regulations to prohibit use of
	hazardous materials in plastic components, printed circuit boards, etc.
Energy saving:	Meeting all criteria deemed essential for those products marked as compliant with the Energy Saving Law or International Energy Star program
Products must conform to	b both "common standards" and "specific standards" for
five separate product gro	ups.

## **Common Standards Applicable to All Products (27 items)**

Resource conservation	Product durability *1	Ensuring expandable product structures that support function or performance improvements
	Product warranties *1	Extension of unconditional manufacturer's warranties by six months, and of those for PC products by one year
1 , 0 , 1		10%+ reduction in product weight, size and parts number compared to past products, or 30%+ reduction per unit of performance
		Achievement of a usage ratio of recyclable or easily recyclable plastics of at least 90% for products with a minimum of 25 g of plastic by
	and recyclable plastics used *1	weight
	Potential resource recyclability *1	Minimum use of potentially resource-recyclable parts of 75% of product weight; minimum use of 50% for products with LCD unit
Recyclable design	Plastic parts	Labeling of all plastic parts weighing more than 25 g, and/or parts with flat surface areas exceeding 200 mm <sup>2</sup>
		Minimized painting or coating of any plastic parts weighing more than 25 g
		Elimination of PVC use in plastic parts
	Primary/secondary batteries	Products whose batteries are changed by the consumer: adoption of structures permitting battery exchange or removal
		Products whose batteries are not changed by the consumer: adoption of structures permitting battery exchange without complete PCB
		exchange
	Disassembly and separation capabilities *1	Permitting separation and disassemby into component materials or units by hand or with general-purpose tools
		Creation of manuals for equipment disassembly (effective April 2002)
Products containing	Plastics	Freedom of plastic parts from PBB, PBB0* <sup>2</sup> or chlorinated hydrocarbons
chemicals	Printed circuit boards	Freedom of printed circuit boards from PBB, PBBO or chlorinated hydrocarbons
	Lead	Freedom of in-house manufactured products from lead solder (beginning January 2003)
Prevention of global warming	LCA	Assessment of product carbon dioxide emissions (effective October 2001)
Energy saving	Energy-saving function *1	Products to be equipped with an energy-saving function
	Power consumption	Reduction in average power consumption per unit of product performance from previous products
Environmental information disclosure *1		Inclusion in product documentation of information on waste product collection and recycling system
Manual		All documents to be produced using a minimum of 70% recycled paper
Packaging	Resource conservation	Use of a minimum of 70% recycled paper in boxes
		Over 5% reduction in packaging materials compared with previous products, or reduction of empty space to less than 30%
	Recyclable design	Elimination of all kinds of plastic attachments from paper materials
		Compliance of labels on packaging and plastic parts with the following standards:
		<ul> <li>Labeling of all plastic parts weighing more than 20 g (with polystyrene foam, those weighing more than 10 g)</li> </ul>
Location of labels in easily perceptible positions     Elimination of PVCs from plastic materials     Use of only easily recyclable plastics or paper as protective bag mate		<ul> <li>Location of labels in easily perceptible positions</li> </ul>
		Elimination of PVCs from plastic materials
		Use of only easily recyclable plastics or paper as protective bag materials
	Hazardous chemicals	Freedom from PBB or PBBO

\*1 Not applicable to electronic parts or customer-specified products \*2 PBB: Polybrominated biphenyl; PBBO: Polybrominated biphenyl oxide

# **Green Product Labeling**

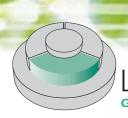
Since November 1998, Fujitsu has labeled Green Products with an "Environmental Emblem," both in catalogs and on packing boxes. Since fiscal 2000, a separate exclusive Fujitsu logo indicating compliance with fiscal 2005 original Energy Conservation Law standards has also been applied.



Expand the number of Green Products compliant with revised standards, such as electronic parts and communications equipment.



URL: http://eco.fujitsu.com/en/info/emblem-e.html



# Life-cycle Assessment (LCA) / Lead Elimination

# Implementing eco-friendly manufacturing processes

Fujitsu is making use of LCA<sup>\*1</sup> methods to evaluate the environmental burden and working to eliminate lead solder as part of its concerted efforts to reduce the environmental burden of its products, from materials procurement to the product disposal and recycling stages.

# **Progress through LCA**

Fujitsu pursues product development aimed at reducing the environmental burden of products throughout their life cycle and contributing to the prevention of global warming. Our primary focus in fiscal 1999 was on evaluating the environmental burden of consumer products during their life cycles in terms of total CO<sub>2</sub> emissions. In fiscal 2000, Fujitsu completed LCA evaluations of 21 mainstay product models.

# Example of Evaluation Results/Improvement in a Workstation for Financial Institutions

#### Evaluation results

Workstation UBT-SP2001 for financial institutions recorded reductions in  $CO_2$  emission of 59% for materials and 52% during use as compared with UBT-ST systems in the same series, thus achieving a 53% overall reduction.

#### Improvement

- Materials stage: Increased compactness and light weight (from approx. 150 kg to 20 kg)
- Usage stage: Reduced power consumption (from 371 W to 179 W)

# **Progress in Eliminating Lead Solder**

Fujitsu's lead solder elimination plans call for discontinuing the use of lead solder in all in-house manufacturing processes.

#### Lead Solder Elimination Plans

Switch to lead-free solder in all LSI products as of October 2000

Eliminate use of lead solder in 50% of all in-house manufactured printed circuit assemblies by December 2001.

Eliminate lead solder from all in-house manufactured product lines by the end of December 2002.

#### **Results of Application**

Once the technology for lead-free soldering was developed, a system was established to apply it to eliminate lead from the terminals (solder plating, solder balls) of LSI products in October 2000.

Countermeasure technologies:

Lead-free materials developed

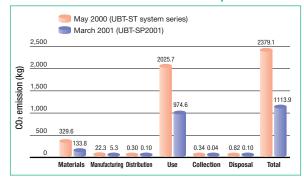
(Sn-Ag-Cu, Sn-Bi-Ag, Sn-Bi)

Mounting reliability tested: Temperature cycle, joint strength [repeated twisting of circuit board, dropping test] Improved package heat-resistance: Revision of heatresistance assessment, materials and pattern design

## **Products Evaluated by LCA Process**

••	••••••	• • • • • • • • • • • • • • • •		• • • • • • • • • • • • • • • • • • • •
	Disk arrays	6 models	Routers	1 model
	UNIX servers	6 models	Scanners	1 model
	Magnetic disk devices .	4 models	Secure archivers	1 model
	Workstation for financial institutions .	2 models		Total: 21 models

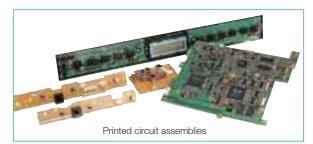
#### Workstation for Financial Institutions Example



#### **Printed Circuit Assemblies**

The application of the lead-free solder first used in the GS8900 global server model launched in October 1999 has been extended to other products.

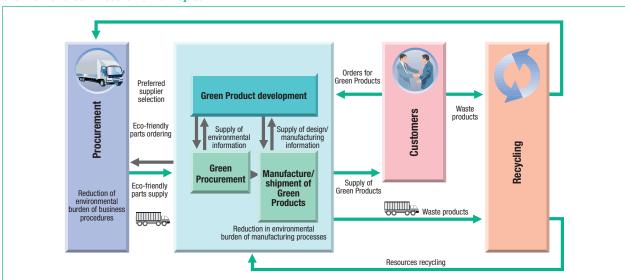
Product	Application date	Usage application	Lead-free solder type	Solder application method
GS8500 server group	April 2000	Part of main printed circuit assembly	Sn-Bi-Ag	Reflow
Handy terminals: Team Pad 7500 series	April 2000	Main printed circuit assembly	Sn-Ag-Cu	Reflow
GS8500FX server group	December 2000	Part of main printed circuit assembly	Sn-Bi-Ag	Reflow
Liquid-crystal displays: VL series	December 2000	Panel printed circuit assembly	Sn-Ag-Cu	Flow
VSP3700 line printer	March 2001	Panel printed circuit assembly	Sn-Ag-Cu	Flow
Page printers: PS2160 series	March 2001	Panel printed circuit assembly	Sn-Ag-Cu	Flow





# Cooperating with suppliers for progress on environmental issues

Fujitsu is not only working internally but also in conjunction with suppliers to promote Green Procurement. Our products are created using a system that takes the environmental burden into account at every stage, from materials procurement to recycling.



#### **Overview of Green Procurement at Fujitsu**

# **Assessing Suppliers' Environmental Policies**

Fujitsu favors suppliers that take a progressive approach to environmental issues. In order to promote joint environmental activities with suppliers, Fujitsu assesses their business operations to determine how they approach environmental issues. In fiscal 2000, Fujitsu conducted a survey among its 379 leading suppliers concerning the contents of the

Introduction to Green Procurement it had published. Based on the survey results, Fujitsu established Green Procurement goals for Fujitsu Environmental Protection Program (Stage III). Suppliers who are not in conformity with Fujitsu's published criteria are being encouraged and helped to improve their activities.



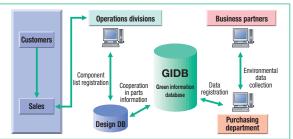
# **Green Procurement of Office Supplies**

As concerns office supplies such as business stationery, we are expanding purchasing of products certified with an Eco mark or Green mark.

# **Selection of Eco-friendly Procured Parts**

Fujitsu has compiled an environmental information database concerning parts and materials procured and has established a system for incorporating only eco-friendly components in Green Products at the design and development stages. In fiscal 2000, Fujitsu conducted a survey of parts procured for desktop PCs and notebook computers (a total of 696 parts from 168 suppliers) covering matters such as the presence of banned or regulated substances or materials and marking of plastic parts. The results were then compiled into the database. Fiscal 2001 plans call for expanding the system's functions and developing it further to link up with the completed design systems in the various departments.

#### **Green Information Database (GIDB)**



Industrial Waste Reduction

# **Targeting Zero-emission**

Fujitsu is striving to raise every employee's awareness of the need to promote reduction, effective use and minimized emission of waste. These activities are aimed at realizing Zero-emission at the earliest date possible.

# **Results Achieved in Industrial** Waste Reduction

The volume of industrial waste disposed of in fiscal 2000 totaled 2,037 tons, 51% less than in the previous year and 93% below fiscal 1991 levels. This represented achievement of the targeted total reduction of over 88% relative to 1991 levels by the end of fiscal 2000.\*<sup>1</sup>

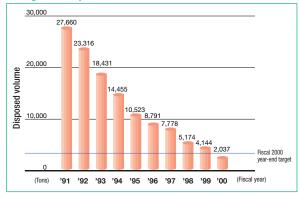
As part of ongoing efforts to fulfill our responsibility as an emitting company, we have established new "Waste Management Standards" designed to ensure proper handling of waste.

\*1: High-performance plants in FY2000 are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Suzaka, Iwate, Aizuwakamatsu and Mie plants and Fujitsu Laboratories (Atsugi)

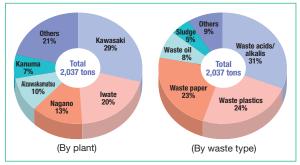
#### **Targeted Waste**

Waste acids and alkalis Metal scraps Waste plastics Waste oil Wood chips Sludge Waste paper Glass/ceramic shards Fiber scraps

#### **Changes in Disposed Volume of Industrial Waste**



#### Volume of Waste Disposed (Fiscal 2000)



# Zero-emission Program

Fujitsu aims to achieve Zero-emission at 14 sites\*<sup>2</sup> by the end of fiscal 2003. The Kumagaya Plant achieved Zero-emission in fiscal 2000. In the wake of this achievement, it set the new goal of even further reduction of re-usable waste at a rate of 5% in the three years following the year it achieved Zero-emission.

\*2: The 14 sites are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Iwate, Aizuwakamatsu and Mie plants, the Akiruno Technology Center and Fujitsu Laboratories (Atsugi).

#### **Definition of Zero-emission**

100% effective use of all output waste

#### **Targeted Zero-emission Waste**

Waste acids and alkalis	Waste paper
Metal scraps	Glass/ceramic shards
Waste plastics	Fiber scraps
Waste oil	Animal/vegetable matter
Wood chips	(kitchen waste)
Sludge	Purification vat sludge

#### Zero-emission Measures

Thorough waste separation and collection procedures (especially for mixed waste plastics) Restrictions on volumes of waste generated Pursuing a manufacturing process that does not generate waste Development of processing technologies for certain categories of waste

## **Re-use of Kitchen Waste in Organic Fertilizer**

Fujitsu recycles kitchen waste from various sites as organic fertilizer, which is employed on farms to cultivate organic vegetables. These are supplied, in turn, to Fujitsu site cafeterias

and sold to employees. In fiscal 2000, this program was extended to a further five sites\*<sup>3</sup>. Plans also call for introduction of a food circulation system by the end of fiscal 2003.



\*3: The five sites are the Kumagaya, Minami-Tama, Iwate and Aizuwakamatsu plants and the Akiruno Technology Center

# "All our employees are joining hands in efforts to re-use all waste."

"In the past, we disposed of all highly concentrated waste sludge from processing by sending it to landfill. We now process it in-house with resource recycling equipment we have installed. In fiscal 1999, we achieved the goal of Zeroemission. In fiscal 2000, better internal processes enabled us to reduce the volumes of pharmaceuticals used and improve our separation techniques. These moves helped to reduce the total volume of waste by 20% relative to fiscal 1999 levels. We remain committed to the complete re-use of all waste through the cooperation of all our employees."

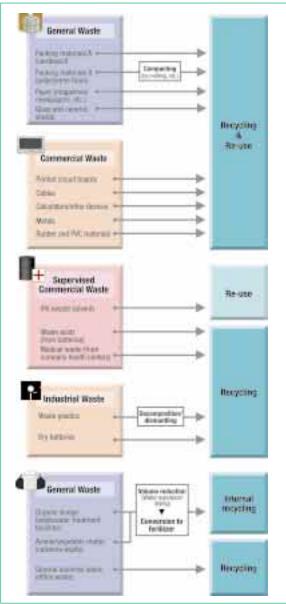


Toshinari Wadahama General Manager, Akashi Plant

#### **Plants achieving Zero-emission**

Numazu Plant and Akashi Plant (fiscal 1999) Kumagaya Plant (fiscal 2000)

## Efforts toward Zero-emission at Numazu Plant



# **Momentum toward Paperless Operations**

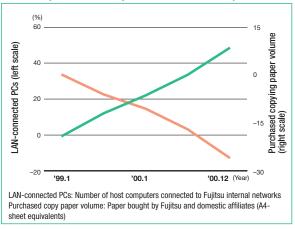
Fujitsu is working to reduce paper use by such means as promoting the use of PC networks and converting manuals to an electronic format. In fiscal 2000, we cut paper use by the equivalent of approximately 110 million A4 sheets.

**Paper Use Reduction Results** 

(Estimated A4-sheet Equivalents)	(Million sheets)
Fiscal 1999 use	860
Fiscal 2000 use	750
Reduction achieved	110

Fujitsu and domestic affiliates

#### **Relationship between LAN Systems and Purchased Paper Volumes**



An internal survey has shown that the volume of paper purchased has declined over the past decade as the number of computers linked to company networks has risen. We think this is a result of conversion of internal documents and standard information to electronic data. In the future, we also plan to change sales communications to an electronic format to cut paper use further.



# Zero-emission Measures

- Development of biological processing technology to deal with purification vat sludge
- Development of in-house processing technology for waste that is currently difficult to process (such as some waste acids/alkalis)
- Processing of metal-containing sludge into a saleable commodity

# Chemical Emission Reduction

# Implementing chemical emission reduction and an integrated management system

Fujitsu has been working to reduce emission of such targeted chemicals as fluorine compounds, xylene and toluene from its manufacturing plants.<sup>\*1</sup> The methods adopted to achieve this target include reducing the amounts of the target substances employed, switching to substitute chemicals and restricting emissions in general. We are also implementing an integrated management system to handle chemical pollutants in accordance with the new PRTR<sup>\*2</sup> (Pollutant Release & Transfer Register) Law.

\*1: The manufacuturing plants are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Suzaka, Iwate, Aizuwakamatsu and Mie plants.

# **Reduction in Chemical Emission**

Our goal for fiscal 2000 was to surpass our overall 20% reduction target with respect to the fiscal 1995 result by reducing emission by 3.4% relative to the previous year. The total volume of chemical emission\*<sup>3</sup> in fiscal 2000 was 38.8 tons, a year-on-year reduction of 9.8%. By the end of fiscal 2000, we had achieved a reduction relative to fiscal 1995 levels of 25.6% (13.3 tons equivalent ), thus substantially surpassing our original goal.

#### **Targeted Chemical Substances**

Fluorine compounds	Xylene
Toluene	Nickel compounds
Manganese compounds	Lead compounds
Cadmium compounds	Chromium compounds
Arsenic compounds	Bromine compounds
Cyanide compounds	Phosphine
Hydrazine derivatives	Phenols
3,3-dichloro-4,4-diaminodiphenylmethane	9

# Principal Chemical Emission Reduction Measures

Reduction of xylene emission by 4.4 tons at the Aizuwakamatsu Plant through improved performance of organic chemical waste processing equipment

Cut in concentration of fluorine-containing acids in CVD (chemical vapor deposition) and diffusion processes at the Mie Plant by 50%

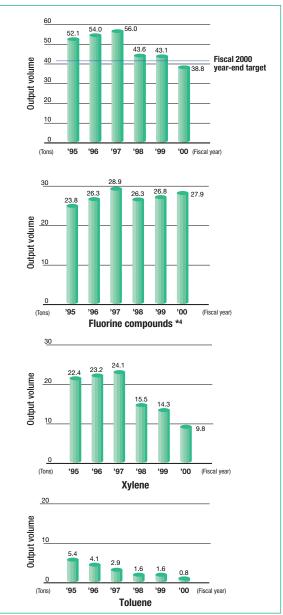
Improvement of 5% in electrolytic regeneration equipment's permanganic acid resources recycling capacity at the Akashi Plant



equipment (Aizuwakamatsu Plant)

\*3: Methods of calculating chemical emission reduction: Values are calculated by multiplying total volumes of effluent (fluorine, nickel, manganese and other compounds) or atmospheric emissions (xylene, toluene and other chemicals) by the concentrations of the relevant substances measured at the points of discharge from the site. Values for xylene, toluene and other chemicals, may also be based on the amounts of chemicals purchased and used.





\*4: Despite efforts to reduce emission of fluorine compounds, increased production volumes resulted in higher emission in fiscal 1999 and 2000 than in fiscal 1998. In fiscal 2001, Fujitsu plans to achieve reductions in line with its emission reduction plans for specific chemicals from fiscal 2001 to fiscal 2003.

# "We will reduce hazardous chemicals by optimizing every aspect of our manufacturing process"

"Treating nature as important and continually helping to create a better environment are key elements of our plant's environmental policy. In fiscal 2000, we succeeded in making substantial cuts in the amounts of hazardous chemical such as xylene and fluorine, measured per unit of production, we employ in semiconductor manufacturing. We achieved this by substituting a non-xylene-based chemical, altering some of our production process specifications and reconstructing our organic waste processing equipment. We have now reduced xylene emission by 75% relative to fiscal 1998 levels. We plan to continue taking this kind of proactive approach to making our plant as eco-friendly as possible." Yutaka Tabata General Manager, Aizuwakamatsu Plant



# PRTR Law Compliance Measures

To achieve compliance with the PRTR (Pollutant Release & Transfer Register) Law enacted in Japan in March 2000, we implemented a new integrated intranet-based chemical management system\*1 that manages chemicals from procurement to disposal and calculates chemical transfer and emission at 13 sites\*2 in March 2001. Our total use of chemicals falling under the jurisdiction of the PRTR Law in fiscal 2000 was 762 tons. This figure represented a 14% reduction from fiscal 1999, a result achieved through our chemical reduction measures along with modifications of our data collection methods implemented to comply with the new legal standards.

We have also issued a separate report in accordance with the PRTR guidelines issued jointly by four organizations related to the electric and electronic appliance industries in Japan.

\*1: A new integrated intranet-based chemical management system Material safety data sheet registration and examination system Registration and examination system for divisions using chemicals Chemical balance management system responding to PRTR

\*2: The 13 sites are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Iwate, Aizuwakamatsu and Mie plants and the Akiruno Technology Center.

# Akashi 3.1% Others 1.7% 0yama Total 38.8 tons Iwate 14.7% (By plant) Mie 28.9% Others 0.7% Toluene 2.1% Xylene 25.3% Total 38.8 tons (By substance) Fluorine comp 71.9%

#### PRTR Survey Results (Fiscal 2000)

PRTR Survey Results (Fiscal 2000) (Fujitsu)								
Culture and California and Californi	Amount handlad	Amo	ount emitted or transferr	ed	Volume of waste	Amount consumed	Amount diseased of	Amount required
Substances	Amount handled	Air emission	Water emission	Subtotal	transferred	(product, etc.)	Amount disposed of	Amount recycled
Water-soluble copper salts (excepting complex salts)	236.3	0	4.1	4.1	0	0	2.7	229.5
2-amino ethanol	214.4	0	0	0	151.5	0	0	62.8
Hydrogen fluoride and its water-soluble salts	183.0	0.8	30.3	31.0	97.2	0	1.6	53.2
Xylene	86.5	8.8	0	8.8	77.5	0	0	0.1
Formaldehyde	15.5	0	0	0	10.5	0	5.0	0
Nickel compounds	7.3	0	0.5	0.5	6.8	0	0	0
Lead and lead compounds	5.8	0	0	0	0	0.3	0	5.5
Pyrocatechol	3.6	0	0	0	0	0	0	3.6
Inorganic cyanide compounds (excepting complex salts and cyanates)	2.6	0	0	0	2.6	0	0	0
2-ethoxyethyl acetate	2.1	0	0	0	1.0	0	0.9	0.1
Hydrazine	2.0	0	0	0	0	0	2.0	0
Ethylene glycol monoethyl ether	1.6	0	0	0	1.6	0	0	0
Ethylene glycol monomethyl ether	1.2	0	0	0	1.2	0	0	0
Total	761.8	9.6	34.9	44.3	349.9	0.3	12.2	354.9
The total differs slightly from the sums of the figures due to rounding off. (Tons)								

\* The total differs slightly from the sums of the figures due to rounding off.

\*The data shown here are total amounts summed up from the results totaled at each site.

\* Fujitsu Media Device (Suzaka Plant) has been excluded.

\* Amounts under 1 ton handled are excluded from the survey and summary



- Recycling of fluorine-containing acids by installing machinery at the Aizuwakamatsu Plant to recover those used in the CVD process and used as quartz tool cleaning agents
- Reconstruction of organic waste gas processing equipment at the lwate Plant to boost the absorption ratio by a newly adopted recycling method

**Chemical Emission Volume (Fiscal 2000)** 



Energy-saving Measures (Against Global Warming)

# Efforts to reduce electric power consumption at manufacturing and other sites

Fujitsu has been implementing various energy-saving measures to reduce electric power consumption per unit of sales at manufacturing plants and other sites<sup>\*1</sup> by 40% by designating the energy conservation rate as a management target. These include the introduction of energy-saving equipment such as co-generation systems<sup>\*2</sup> and activities to promote efficient operation.

\*1: The sites are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Iwate, Aizuwakamatsu and Mie plants and the Tatebayashi System Center.

# **Energy-saving Results**

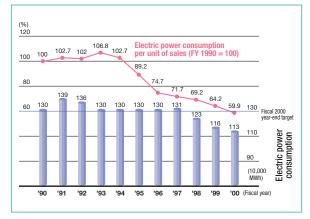
Actual power consumption per unit of sales in fiscal 2000 totaled 33.4 MWh per billion yen of sales—a reduction of 7.0% compared with the previous year and 40.1% below the level recorded in fiscal 1990. This represented successful achievement of our goal of reducing power consumption by 40% from fiscal 1990 levels by the end of fiscal 2000.

Reference note: Expressed in terms of  $CO_2$  emission equivalents, total energy consumption (electricity, oil and gas) in fiscal 2000 amounted to approximately 177,000 Ton-C (or 52,000 Ton-C/100 million yen per unit of sales). This was 9.0% below the fiscal 1990 level.

## **Principal Energy-saving Measures**

- Restriction of air-conditioning motor operation through inverter-mediated load-switching: Numazu Plant (4 motors)
- Annual reduction in power consumption: 310 MWh Effective use of cold external air during winter: Nagano Plant (Use of outdoor air to cool water in cooling towers to lessen the load on refrigeration equipment) Annual reduction in power consumption: 110 MWh Equipment of overhead lighting with energy-saving stabilizers: Kumagaya Plant (440 lights) Annual reduction in power consumption: 150 MWh Restriction of number of air-conditioning units used in computation center: Tatebayashi System Center
- Annual reduction in power consumption: 1,980 MWh Analysis of energy-saving activities by an external organization: Oyama Plant

#### **Reduction in Electric Power Consumption**





Inverter control board, Numazu Plant

## "We are saving 3-5% more energy every year through individual efforts"

"All the Nagano Plant employees are engaged in efforts to save energy. Besides introducing a system that uses cold air from outside as part of our cooling system, we have reduced the operating times for our manufacturing and testing equipment. We have been attempting to reduce our energy use by around 3-5%per year. In the future, as we will be producing more key components such as hard-disk drive heads here, we anticipate an increase in energy consumption. We will respond by applying greater efforts and expertise to increasing energy conservation further."



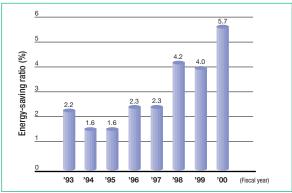
Atsuo Akutagawa General Manager, Nagano Plant

# Site Management Based on Energy-saving Ratio\*1

Fujitsu has introduced an energy-saving ratio to measure and manage the effects of energy-saving measures at each of its sites. In fiscal 2000, the total amount of energy saved\*<sup>2</sup> amounted to 990,941GJ\*<sup>3</sup>, while total energy consumption\*<sup>4</sup> was 16,384,620GJ. The energy-saving ratio was therefore 5.7%.

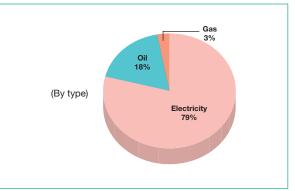
- \*1: Energy-saving ratio:
  - = Amount of energy saved (Total energy consumption + Amount of energy saved)
- \*2: Amount of energy saved:
- Total energy reduction resulting from energy-saving measures \*3: GJ: Gigajoules
- \*4: Total energy consumption: Total of electricity, oil and gas energy consumption

### **Energy-saving Ratios**



# Actual Electric Power Consumption (Fiscal 2000)

#### **Actual Energy Consumption (Fiscal 2000)**





- Introduction of ice storage air-conditioning equipment
- Introduction/expansion of energy-saving equipment and technology:
- Inverters: Kawasaki, Nagano, Numazu, Kanuma and Mie plants
- Lighting/economizing devices: Oyama, Nagano, Numazu, Kumagaya and Minami-Tama plants
- Efficient use of outdoor air and waste heat: Nagano, Mie, Kawasaki and Aizuwakamatsu plants
- Energy-saving measures with semiconductor production equipment

Intensification of energy management through IT monitoring

Plant Environmental Control (Environmental Risk Countermeasures)

# **Risk-reduction Measures to Protect the Environment**

Fujitsu is undertaking a variety of risk-reduction measures to protect the environment in and around its plants. Besides purifying soil and groundwater, the company is working to restrict emissions of greenhouse gases. No environment-related accidents occurred at Fujitsu plants during fiscal 2000.

# **Soil and Groundwater Purification**

Soil purification efforts aimed at removing organic chlorine compounds continue in parts of some Fujitsu manufacturing sites and affiliated companies where concentrations exceed regulated limits. All samples from the observation wells on a vacant lot at the Aizuwakamatsu Plant examined in tests conducted in October 1999 were within the limits. Official measurements conducted over the following five months confirmed these results, and the relevant authorities were notified that purification work was completed at that site in June 2000.

Fujitsu's internal regulations require a full survey of soil or groundwater contamination following the demolition of any company building and the implementation of appropriate countermeasures, if required. During fiscal 2000, a program of survey and countermeasures was completed on a vacant lot at one manufacturing plant, and surveys were initiated at two additional plants. One affiliated company completed soil purification in February 2001 and reported its completion to the relevant authorities in March 2001. The company has also formulated internal regulations to institute measures to prevent the occurrence of environmental pollution due to soil or groundwater contamination by chemicals.



Purification equipment (Kawasaki Plant)

# Elimination of Ozone-depleting Substance Use

Fujitsu has completely eliminated the use of ozone-depleting substances in its manufacturing operations. We have also taken measures to ensure that no CFC coolants used in air-conditioning or refrigeration equipment leak into the atmosphere. When such equipment is renovated, we use the opportunity to replace the coolants with non-CFC alternatives.

# **Dioxin Emission Prevention Measures**

All five Fujitsu plants with functioning incinerators in May 1998 formed committees to oversee the implementation of countermeasures to prevent dioxin emission. Operation of all five incinerators had ceased by January 2000, and the last of them, the incinerator at the Numazu Plant, was demolished in March 2001 in accordance with the (then) Ministry of Health and Welfare notification, "Prevention of Threats to Health from Dioxins in Dismantling Waste Combustion Facilities (Emergency Measure)" (September 2000). Various other dioxin emission prevention measures introduced included stopping operation of incinerators owned by ten affiliates by March 2000. Dioxin levels in wastewater are currently undergoing analysis at all our manufacturing plants to reconfirm the safety of all emission.



#### Elimination of Ozone-depleting Substances

Ozone-depleting substance	Date of elimination
Cleaning freons (CFC-113, CFC-115)	End of 1992
Carbon tetrachloride	End of 1992
1,1,1-trichloroethane	End of October 1994
Substitute freons (HCFCs)	End of March 1999

# Surveys of Environmental Facilities Maintenance/Management Situation

From our own manufacturing facilities and those of our affiliates to our R&D sites, we have been implementing surveys of the environmental facility<sup>\*1</sup> maintenance/management situation employing original standards since fiscal 2000. We are striving to improve such aspects of environmental facilities maintenance as accident prevention and stable plant operation and to enhance our maintenance and management functions.

\*1: Environmental facility: electroplating, boilers, water purification, wastewater treatment and chemical supply facilities.

#### **Main Survey Criteria**

Reporting system for environmental facility management status

Overview of each facility (capacity, processing systems) Facility operation management status (daily supervision, maintenance, emergency countermeasures)

Degradation countermeasures (checks on degree of aging, renovation plans, etc.)

Survey/countermeasure status for environmental risks Measures for waste product management and energy saving

#### **Anticipated Program Benefits**

Accident prevention Safe plant operation Improvement in ongoing supervision levels Exchanges of information and views among those responsible for environmental facility management in various Fujitsu organizations

#### Number of Fiscal 2000 Surveys

Domestic affiliates: 13 Overseas affiliates: 3

# Measures against Environmental Endocrine Disruptors

Since fiscal 1997, Fujitsu has been evaluating and reducing the use by its plants of 67 chemicals designated as exerting a potentially harmful effect on the human endocrine system. During fiscal 2000, we used 206.7 kg of such substances, 47% more than in the previous fiscal year mainly due to increased production at our plants. We plan to switch to substitutes and revise our processing formulae to move further toward elimination of those chemicals.

#### **Environmental Endocrine Disruptor Usage Status in Plants**

Substance	Amount used*2	Principal uses
Nonyl phenol	160	Degreasing agent
Di-n-butyl phthalate	39	Raw material for resins

\*2: Amount used: amount of a substance used exceeding 1/100 of (Unit: kg) 1.0 t/year, which is over the limit for management under the PRTR Law.



A facility management survey of Kyushu Fujitsu Electronics' waste gas cleaning facility



A facility management survey of Fujitsu VLSI's wastewater treatment facility

# **Greenhouse Gas Emission Prevention**

The Japanese semiconductor industry has established a voluntary code of conduct to cut emission of potentially harmful greenhouse gases such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF6). Fujitsu's efforts in this area are spearheaded by the Electronic Devices Division, which has formulated plans to ensure that internal emission countermeasures meet both Japanese and international standards. Specific ongoing measures include the following:

Use of substitutes for liquid PFCs

Application of emission reduction technology to new production lines

Survey/measurement of emission levels

Support for R&D programs focusing on substitute,

collection and re-use technologies



Plant Environmental Control (Water/Air/Noise/Vibration Pollution Data)

# Protecting water for the benefit of wildlife

Fujitsu manufacturing plants use water in various processes such as cleaning of coatings and cooling of equipment.

We make every effort to ensure that this water is used as efficiently as possible. At the Nagano Plant, for example, clean water is re-used in manufacturing, while at the Akashi Plant, pure water used in printed circuit assembly production, previously drawn from the municipal water supply, is now supplied from industrial water. Such measures enabled us to limit the total volume of water used at the 15 Fujitsu sites\*1 during fiscal 2000 to approximately 19,480,000 tons. Industrial water at the Kawasaki Plant supplies a garden pond that supports a variety of wildlife, including fish and spotbill ducks, creating a "plant in harmony with nature."



\*1: The 15 sites are the Kawasaki, Oyama, Nasu, Nagano, Numazu, Kumagaya, Minami-Tama, Akashi, Kanuma, Suzaka, Iwate, Aizuwakamatsu and Mie plants, the Akiruno Technology Center and Fujitsu Laboratories (Atsugi).

## Kawasaki Plant (Kawasaki, Kanagawa Prefecture)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	86
Hydrogen ion concentration (pH)	5.7~8.7	5.7~8.7	6.0~8.5	6.2~7.8
BOD (biochemical oxygen demand)	300	300	80	12.3
COD (chemical oxygen demand)	—	—	80	61.9
SS (suspended solids)	300	300	50	43.4
Total cyanide	1	1	0.5	Undetected (<0.05)
Hexavalent chromium	0.5	0.5	0.1	Undetected (<0.01)
Total chromium	2	2	0.5	Undetected (<0.06)
Fluorine	15	15	10	6.07

Levels of the following substances were far below in-house and detection limits: cadmium, lead, arsenic, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, phenols, copper, zinc, soluble iron, soluble manganese, nitrogen and phosphorus.

Levels of atmospheric pollution (due to exhaust gases from five boilers) and noise/vibration pollution were far below in-house limits.

## Oyama Plant (Oyama, Tochigi Prefecture)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	2,417
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.0	6.9~7.6
BOD (biochemical oxygen demand)	160	30	20	7.3
COD (chemical oxygen demand)	160	30	20	10.4
SS (suspended solids)	200	50	30	21
Cadmium	0.1	0.1	0.01	Undetected (<0.005)
Total cyanide	1	1	0.5	Undetected (<0.01)
Total mercury	0.005	0.005	0.0005	Undetected (<0.0005)

Levels of the following substances were far below in-house and detection limits: organic phosphorus, lead, hexavalent chromium, arsenic, organic mercury, PCB, selenium, benzene, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, dichloromethane, 1.2-dichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, cis-1,2dichloroethylene, n-hexane, phenols, copper, zinc, soluble iron, soluble manganese, total chromium, fluorine, nitrogen and phosphorus.

Levels of atmospheric pollution (due to exhaust gases from a boiler) and noise/vibration pollution were far below in-house limits.

## Nasu Plant (Otawara, Tochigi Prefecture)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	126
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.5~7.5	6.8~7.2
BOD (biochemical oxygen demand)	160	25	6	8.9*2
COD (chemical oxygen demand)	160	25	13	8.5
SS (suspended solids)	200	50	2	1
Nitrogen	120	120	20	5.3
Phosphorus	16	16	8	2.6

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, lead, hexavalent chromium, arsenic, total mercury, organic mercury, PCB, selenium, benzene, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, dichloromethane, 1.2-dichloroethane. 1.1.2-trichloroethane. 1.1-dichloroethylene. cis-1,2-dichloroethylene, n-hexane, phenols, copper, zinc, soluble iron, soluble manganese, total chromium and fluorine. Levels of atmospheric pollution (due to exhaust gases from a boiler) and noise/vibration pollution were far below in-house limits.

\*2: Levels exceeded in-house limits due to contamination of the wastewater tanks; the tanks were cleaned

Notes: • Actual values are recorded maxima, independent of effluent load or pH. • Effluent load values are averages stated as m3/day. · pH values express observed ranges in effluent

- All units except those for effluent load and pH values represent mg/l.

Fujitsu sets in-house limits for air, water, noise and vibration pollution levels at plants and related sites that are stricter than the levels established by law or local ordinance. We strive to prevent pollution through regular measurement, maintenance and management of environmental protection equipment, and we implement remedial measures whenever these in-house limits are exceeded. (Values below the in-house limit and detection limit are not reported in this section.)

### Nagano Plant (Nagano, Nagano Prefecture)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	_	—	—	4,500
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.2	6.1~8.0
BOD (biochemical oxygen demand)	160	160	100	65
COD (chemical oxygen demand)	160	_	_	—
SS (suspended solids)	200	200	30	30
Total cyanide	1	0.5	0.1	0.07
Lead	0.1	0.1	0.07	0.06
Copper	3	2	0.7	0.68
Zinc	5	3	0.7	0.38
Soluble iron	10	10	4	1
Soluble manganese	10	10	3	0.15
Total chromium	2	1	0.2	0.1
Fluorine	15	15	7	4.1

Levels of the following substances were far below in-house and detection limits: cadmium, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, n-hexane, phenols, nitrogen and phosphorus.

Levels of atmospheric pollution (due to exhaust gases from seven boilers) and noise/vibration pollution were far below inhouse limits.

## Numazu Plant (Numazu, Shizuoka Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	_	—	_	241
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.8~7.6	7.3~7.6
BOD (biochemical oxygen demand)	160	160	1.7	1.5
COD (chemical oxygen demand)	160	160	7.6	6.7
SS (suspended solids)	200	200	1	Undetected (<1.0)
Nitrogen	120	120	6.2	4.2
Phosphorus	16	16	2.6	2.4

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, total mercury, lead, arsenic, selenium, benzene, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, dichloromethane, 1,2-dichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, n-hexane, copper, zinc, soluble iron, soluble manganese, total chromium and fluorine. Levels of atmospheric pollution (due to exhaust gases from three boilers) and noise/vibration pollution were far below inhouse limits.

## Kumagaya Plant (Kumagaya, Saitama Prefecture)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	69
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.5	6.6~7.7
BOD (biochemical oxygen demand)	160	25	6	5.7
COD (chemical oxygen demand)	160	160	20	9.9
SS (suspended solids)	200	60	10	2.9
Nitrogen	120	120	40	34
Phosphorus	16	16	6	7.1*1

Levels of the following substances were far below in-house and detection limits: cadmium, n-hexane, phenols, copper, zinc, soluble iron, soluble manganese, total chromium and fluorine. Levels of atmospheric pollution (due to exhaust gases from four boilers) and noise/vibration pollution were far below inhouse limits.

\*1: Levels exceeded in-house limits due to bacterial degradation over an extended holiday period; the bacteria were flushed away by dilution after the holiday

# Minami-Tama Plant (Inagi, Tokyo)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	133
Hydrogen ion concentration (pH)	5.0~9.0	5.0~9.0	6.0~8.6	7.6~8.6
BOD (biochemical oxygen demand)	600	600	400	100
COD (chemical oxygen demand)	—	—	—	—
SS (suspended solids)	600	600	300	190
Fluorine	15	15	5	1.1
Nitrogen	150	120	96	120*2
Phosphorus	20	16	12	7.3

Noise

Noise			(Units: dB)
Item	Tokyo limit	In-house limit	Fiscal 2000 actual
Daytime	60	55	54
Morning/evening	55	50	54*3
Night	50	45	51* <sup>3</sup>

#### **Atomosphere (Boiler 2)**

Item	National limit	Tokyo limit	In-house limit	Fiscal 2000 actual
Nitrogen oxide (ppm)	250	120	96	109*4
Sulfer oxide (Nm <sup>3</sup> /h)	7.4	7.4	5.9	0.019
Soot/dust/particulate (g/Nm <sup>3</sup> )	0.3	0.3	0.24	0.002

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, lead, hexavalent chromium, trichloroethylene, tetrachloroethylene,

1,1,1-trichloroethane, carbon tetrachloride, n-hexane, copper, zinc, soluble iron, soluble manganese and total chromium. Levels of atmospheric pollution (due to exhaust gases from two of three boilers) and noise/vibration pollution were far below inhouse limits.

- \*2: Levels exceeded in-house limits due to the use of manual-flush men's toilets; these have since been fitted with automatic sensors
- \*3: Levels exceeded in-house limits due to noise created by purification systems: installation of sound-insulation panels is planned
- \*4: Levels exceeded in-house limits due to an aging boiler; plans have been made for boiler replacement

Notes: • Actual values are recorded maxima, independent of effluent load or pH. • Effluent load values are averages stated as m3/day.

pH values express observed ranges in effluent.

All units except those for effluent load and pH values represent mg/l.

Plant Environmental Control (Water/Air/Noise/Vibration Pollution Data)

## Akashi Plant (Akashi, Hyogo Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	4,483
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.2~8.2	7.0~8.1
BOD (biochemical oxygen demand)	160	35	12	25*1
COD (chemical oxygen demand)	160	35	12.1	11.3
SS (suspended solids)	200	50	11.2	10.6
Total cyanide	1	0.7	0.08	Undetected (<0.02)
n-hexane	30	30	16	0.33
Copper	3	3	1	0.31
Soluble iron	10	10	2	0.14
Soluble manganese	10	10	1	0.55
Fluorine	15	15	10	1.5
Nitrogen	120	120	48	10
Phosphorus	16	16	1	0.27

Levels of the following substances were far below in-house and detection limits: cadmium, organic phosphorus, lead, hexavalent chromium, arsenic, total mercury, organic mercury,

PCB, phenols, zinc and total chromium. Levels of atmospheric pollution (due to exhaust gases from six boilers) and noise/vibration pollution were far below in-house limits.

\*1: Levels exceeded in-house limits due to activated sludge equipment breakdown; the frequency of inspection checks has since been increased.

## Kanuma Plant (Kanuma, Tochigi Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual	
Effluent load (m <sup>3</sup> /day)	—	—	—	1,459	
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.4	6.4~7.7	
BOD (biochemical oxygen demand)	160	25	20	19	
COD (chemical oxygen demand)	160	25	20	8.5	
SS (suspended solids)	200	50	30	14.7	
Copper	3	3	0.7	0.45	
Soluble manganese	10	3	1	Undetected (<0.05)	
Fluorine	15	8	5	0.5	
Noise (Units: dB)					
Item	Tokyo limit		In-house limit	Fiscal 2000 actual	
Daytime	75		65	67.2 <sup>*2</sup>	

70

60

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, lead, hexavalent chromium, total mercury, organic mercury, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, zinc, soluble iron, total chromium, nitrogen and phosphorus.

Levels of atmospheric pollution (due to exhaust gases from three boilers) and noise/vibration pollution were far below inhouse limits.

\*2: Levels exceeded in-house limits due to repairment of a dust collector breakdown; the dust collector was repaired and sound-insulation panels were installed (completed March 2000).

# Suzaka Plant (Suzaka, Nagano Prefecture)

69.7\*2

57.5\*2

60

55

#### Water Quality

Morning/evening

Niaht

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	480
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.0	6.1~7.8
BOD (biochemical oxygen demand)	160	30	24	7.02
COD (chemical oxygen demand)	160	30	24	19
SS (suspended solids)	200	50	19	12.8
Total cyanide	1	0.5	0.35	Undetected (<0.01)
Lead	0.1	0.1	0.05	Undetected (<0.01)
n-hexane	30	30	15	10
Copper	3	2	0.5	Undetected (<0.01)

Levels of the following substances were far below in-house and detection limits: zinc, soluble iron, fluorine and nitrogen. Levels of atmospheric pollution (due to exhaust gases from six boilers) and noise/vibration pollution were far below in-house limits.

# Iwate Plant (Isawa, Iwate Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	12,550
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	5.9~8.5	6.2~7.2
BOD (biochemical oxygen demand)	160	160	25	15.5
COD (chemical oxygen demand)	160	160	30	3.76
SS (suspended solids)	200	200	30	5.8
n-hexane	30	30	30	Undetected (<0.5)
Fluorine	15	15	5	4.62
Nitrogen	120	120	70	27.4
Phosphorus	16	16	5	0.94

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, organic phosphorus, lead, hexavalent chromium, arsenic, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, copper, zinc, soluble iron, soluble manganese and total chromium.

Levels of atmospheric pollution (due to exhaust gases from five boilers) and noise/vibration pollution were far below in-house limits.

Notes: • Actual values are recorded maxima, independent of effluent load or pH. • Effluent load values are averages stated as m<sup>3</sup>/day.

• pH values express observed ranges in effluent.

• All units except those for effluent load and pH values represent mg/l.

### Aizuwakamatsu Plant (Aizuwakamatsu, Fukushima Prefecture)

Mie Plant (Kuwana, Mie Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	7,519
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.0~8.0	6.6~7.9
BOD (biochemical oxygen demand)	160	25	16	16
COD (chemical oxygen demand)	160	160	16	7.7
SS (suspended solids)	200	70	20	12
Fluorine	15	10	8	7.9
Nitrogen	120	120	48	28
Phosphorus	16	16	4	3.7

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, organic phosphorus, lead, hexavalent chromium, arsenic, total mercury, organic mercury, PCB, selenium, benzene, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, dichloromethane, 1,2-dichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, n-hexane, phenols, copper, zinc, soluble iron, soluble manganese and total chromium.

Levels of atmospheric pollution (due to exhaust gases from a boiler) and noise pollution were far below in-house limits.

Vibration pollution measurements are not applicable to this site.

## Water Quality

Water quality				
Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	10,068
Hydrogen ion concentration (pH)	5.8~8.6	5.8~8.6	6.5~7.5	6.6 ~ 7.0
BOD (biochemical oxygen demand)	160	130	8	3
COD (chemical oxygen demand)	160	130	15	9
SS (suspended solids)	200	130	1	1
Lead	0.1	0.1	0.005	Undetected (<0.005)
Hexavalent chromium	0.5	0.5	0.04	Undetected (<0.005)
Fluorine	15	15	5	3.1
Nitrogen	120	120	35	44.7 <sup>*1</sup>
Phosphorus	16	16	2	0.4

Levels of the following substances were far below in-house and detection limits: arsenic, n-hexane and copper. Levels of atmospheric pollution (due to exhaust gases from three boilers) and noise/vibration pollution were far below in-house limits.

\*1: Levels exceeded in-house limits due to cleaning draft equipment breakdown; monitoring by abnormal pharmaceutical volume usage alarm was intensified.

### Akiruno Technology Center (Akiruno, Tokyo)

#### Water Quality

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)	—	—	—	42
Hydrogen ion concentration (pH)	5.7~8.7	5.7~8.7	5.8~8.6	6.2~8.1
BOD (biochemical oxygen demand)	300	300	270	65.6
COD (chemical oxygen demand)	—	—	150	39.4
SS (suspended solids)	300	300	270	49.5
n-hexane	30	30	30	16.2
Fluorine	15	15	6	1.98
Nitrogen	150	120	100	16
Phosphorus	20	16	12	2.37

Levels of the following substances were far below in-house and detection limits: phenols and total chromium. Levels of atmospheric pollution (due to exhaust gases from a boiler) and noise/vibration pollution were far below in-house limits.

### Fujitsu Laboratories (Atsugi) (Kanagawa Prefecture)

#### **Water Quality**

Item	National limit	Local govt. limit	In-house limit	Fiscal 2000 actual
Effluent load (m <sup>3</sup> /day)		—	—	448
Hydrogen ion concentration (pH)	5.0 ~ 9.0	5.5 ~ 8.7	6.0 ~ 8.6	6.7 ~ 8.7
BOD (biochemical oxygen demand)	600	600	80	37
COD (chemical oxygen demand)	—	—	80	18
SS (suspended solids)	600	600	50	10
Lead	0.1	0.1	0.05	0.03
n-hexane	30	30	15	8.9
Copper	3	3	1	0.18
Zinc	5	3	1	0.98
Soluble iron	10	10	2	0.97
Soluble manganese	10	1	0.8	0.07
Total chromium	2	2	0.5	Undetected (<0.05)
Fluorine	15	15	10	9.9

Levels of the following substances were far below in-house and detection limits: cadmium, total cyanide, hexavalent chromium, arsenic, total mercury, selenium, benzene, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, dichloroethane, 1,2-dichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, phenols, nitrogen and phosphorus.

Levels of atmospheric pollution (due to exhaust gases from eight boilers) and noise/vibration pollution were far below inhouse limits.

Notes: • Actual values are recorded maxima, independent of effluent load or pH. • Effluent load values are averages stated as m<sup>3</sup>/day.

pH values express observed ranges in effluent.

All units except those for effluent load and pH values represent mg/l.

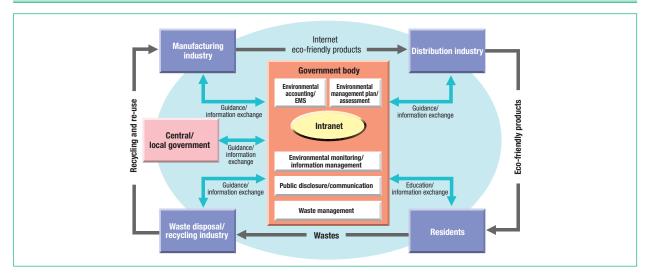


# **@EcoVISION: Four eco-friendly business solutions designed to support customers in the transition to a recycling-oriented "Eco-society"**

Governments and public-sector enterprises today are expected to lead society in creation of a new recycling-oriented paradigm. Besides environmental protection and monitoring, this includes activities such as proper waste disposal, recycling, ongoing improvement through ISO14001 certification and public disclosure of environmental information. @EcoVISION refers to environmental solutions that are designed to help customers tackle such environmental management issues. @EcoVISION solution packages bring together the accumulated experience of the Fujitsu Group and provide users with up-to-date solutions employing the latest Internet technology, thus contributing to realization of an "Eco-society." @EcoVISION solutions fall into the following four primary categories:

Environmental management system solutions Environmental accounting solutions Environmental solutions for manufacturing industries Environmental solutions for local government bodies

## Fujitsu's Suggestions for the 21st-century "Eco-society"



### **Examples of Solutions**

### **Environmental Accounting Solutions**

This Web-based online system supports fast collection and organization of data on the costs and effects of environmental protection activities and permits dispersal of the burden on the system resulting from occasional high-volume inputting. The survey criteria employed are consistent with the environmental accounting system guidelines released by the Ministry of the Environment in 2000.



### **Environmental Solutions for Local Government Bodies**

The CLENALIFE waste collection data management system can support all the waste management activities of a local government body, from large household trash collection and consumer inquiry receipt to industrial waste producer registration and waste collection plan formulation.





# Eco-friendly Products/Environmental Technologies

# Eco-friendly solutions extending to product and technology development

In addition to @EcoVision solutions, Fujitsu has developed a wide range of easily recycled and energy-saving products. Fujitsu offers customers various technologies it has developed for the decomposition and elimination of environmental pollutants, a few of which are introduced here.





Color Printia LASER XL-C3100 • International Energy Star program compliant (standby mode power consumption: 20.2W) • Used toner cartridge collection



fi-4010CU image scanner • International Energy Star program compliant (standby mode power consumption: 4.4W) • Labeling of all plastic parts exceeding 25g



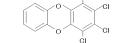
#### PRIMEPOWER 600 pedestal

- Energy Law 2005 target standard compliant (energy consumption efficiency: 0.23/F classification)
- Resource recyclability ratio: 97%

### Plasma/Catalyst Technology for High-concentration Dioxin Decomposition

Working in conjunction with the Japan Fine Ceramics Center, Fujitsu Laboratories have succeeded in developing a technology that employs plasma\*<sup>1</sup> and catalysts\*<sup>2</sup> to decompose environmentally polluting gaseous dioxin\*<sup>3</sup> mixtures and transform them into non-toxic compounds. This method is capable of detoxifying over 100 times the dioxin concentrations possible with high-capacity plasma decomposition methods. Basic patents have been obtained for the technology in Japan and the United States.

1234TCDD



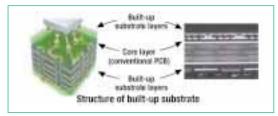
"Non-toxic dioxin compounds" used in experiments

### URL: http://pr.fujitsu.com/en/news/2000/06/28.html

### ....

### Eco-friendly, Halogen-free Built-up Substrate Insulator

Fujitsu has developed an eco-friendly built-up substrate insulator for use in multi-layered printed circuit boards that does not contain halogens or heavy metals. A special structural design gives the substrates higher bending resistance<sup>\*4</sup>, a feature that promises to eliminate the tendency to release toxic hydrogen bromide or dioxin bromides during baking associated with conventional built-up substrates.<sup>\*5</sup> The new insulator is an attractive substitute employing a halogen-free flame retardant that is safe to burn.



### Recycling Technology for a Magnesium Alloy Used in Notebook PCs

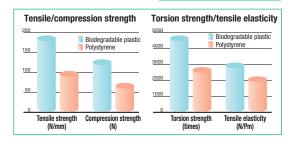
Fujitsu has developed a recycling process to ensure that no surplus magnesium alloy produced during the manufacture of notebook PCs is wasted. This process involves melting unnecessary parts and adjusting ingredients. Tests to make the housing of notebook PCs from recycled material have confirmed that the alloy can be recycled up to ten times without any loss of material quality or degradation. This process is already being applied on our production lines.

Eco-friendly Biodegradable LSI Embossing Tape

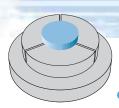
The first manufacturer of information products to develop LSI embossing tape that uses poly-lactide biodegradable plastic, Fujitsu introduced the material for LSI products in 2000. This biodegradable material is broken down by bacteria in landfills to

produce water and carbon dioxide. And since it has a low thermal energy similar to that of wood, damage to incinerators is limited as well.





Please refer to page 49 for the definitions of terms \*1~\*5.



# International Greenification Activities

# Working with employees to protect the environment

Besides promoting greenification of manufacturing plant and office sites, Fujitsu is promoting reforestation mainly in Southeast Asia. Employees participate in these activities on a voluntary basis as a personal contribution to their community. Fujitsu continues to promote opportunities for its employees to join together in similar ways, both overseas and in Japan.

## **Greenification Activities**

**Contributing to Rejuvenation of the Local Natural Environment** True to the vision of its founder, Fujitsu strives to build plants that harmonize with the surrounding nature by maintaining greenery at every plant. Though only a tiny part of the global environment at our sites, these green oases support various forms of life. We energetically promote such causes as biodiversity, green zone creation and environmental restoration. More than simply planting greenery, we seek to make a significant contribution to the greening of the local environment.



Use of waste timber in a promenade (Numazu Plant)



An artist's rendering of a plant integrated into the surrounding environment

## **Greenification Activities in Southeast Asia**

### FCV\*1: "Forest of Friendship" Planting

Greenification efforts begun in fiscal 1999 in the Fujitsu Vietnam "Forest of Friendship" were continued on August 4, 2000, when 250,000 mangrove trees were planted over the remaining 25-hectare area of Nhon Trach in Vietnam's Dong Nai Province. This brought the total number of trees planted to 500,000. The funds for the program were provided by donations from Fujitsu workers, and many employees from FCV and Japan participated in the program as volunteers. The event was commemorated by a special ceremony attended by local government officials of Dong Nai Province. Fujitsu is now considering ways to expand this program.

\*1 FCV: Fujitsu Computer Products of Vietnam \*2 FTC: Fujitsu (Thailand) Co.

### FTC\*2: 2nd Tropical Forest Regeneration Project

On April 29, 2000, employees of FTC planted 80,000 trees as part of the country's first greenification project funded by employee donations. This marked the second year of Fujitsu's reforestation efforts in Thailand, which began in 1998. Besides offering a unique chance for the local people to revitalize the rain forest through their own efforts, the program was honored with an award in Thailand's Golden Jubilee Tree-planting Contest the first award presented to a Japanese company in Thailand.



Greenification commemoration ceremony

# Environmental Social Service Activities

# Joint environmental protection efforts conducted with citizen and government organizations

Cooperation on environmental issues among government bodies, the public, corporations, NGOs and NPOs is essential. Fujitsu conducts a variety of volunteer programs and events at individual sites to make the environment greener and cleaner. Our other environmental protection activities include placing teachers in educational institutions to offer courses on the environment.

### **Examples of Environmental Programs in which Fujitsu Participates**

# Flowerbed at a Bus Stop (Makuhari System Laboratories)

Interested employees gathered voluntarily with the intention of starting with familiar activities and planted flowers in a public flower bed at a bus stop.

·



### Participation in the Aizuwakamatsu Environment Festival (Aizuwakamatsu Plant)

Visitors to the company learned about the Fujitsu recycling system and tried their hand at disassembling PCs as well.

The exhibit also stressed the importance of separating waste.



### **Cooperation with External Organizations**

### Recycling Market (Co-sponsored by Workers and Management, Kumagaya Plant)

Employees and their families donate out-of-use sports and leisure equipment for low-priced resale at this recycling

market. A portion of the profits is donated to a local charitable foundation.



### Spring/fall Beach Clean-up in Tottori (Co-sponsored by Tottori Branch/Fujitsu Support and Service/Fujitsu Isotec)

Twice in fiscal 2000, teams from Fujitsu assembled to clean sand dunes centered in the San-in Seashore National Park in

Tottori Prefecture, picking up garbage and debris along the beach and surrounding dunes.



Fujitsu is a keen contributor to activities conducted by a number of outside organizations (totaling approximately 30 groups and institutions).

Optimal Energy Demand Management Study Committee, Agency of Natural Resources and Energy, Ministry of Economy, Trade and Industry High-Tech Industry Environmental Protection Committee, Kawasaki City Networking Group, Keidanren Committee on Nature Conservation Environment and Product Safety Department, Japan Electronics and Information Technology Industries Association

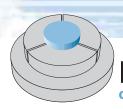
Environmental Preservation Committee, Communications Industry Association of Japan Life Cycle Assessment Society of Japan, Japan Environmental Management Association for Industry

Examination Committee for Environmental Management Standards, Japanese Standards Association

Green Purchasing Network, Japan Environment Association

Japan Forest Policy Research Institute

Network for Environmental Reporting, Environmental Partnership Office



Fujitsu Group Environmental Activities

# Over 400 companies working together to promote global environmental protection

The Fujitsu Group comprises over 400 companies operating around the globe. To promote environmental activities among all its members, Fujitsu's domestic and overseas affiliates meet regularly to exchange technical information, share results and discuss joint approaches to environmental issues. This fosters a spirit of unity in their efforts and ensures Fujitsu's ability to deal with environmental issues on a global scale.

### **Domestic Group Environmental Conference**

Affiliated Companies' Environmental Protection Council The delegates to these meetings, which bring together representatives of 37 affiliates (mainly Japanese manufacturing companies), are responsible for environmental issues at their respective companies. The meetings provide a forum for discussion of common Fujitsu Group policies and topics, the status of the Group's environmental activities and recent progress. Their primary aim is to facilitate debate concerning goals and methods for environmental activities. Three meetings were held during the past year, raising the cumulative total to 16.



Environmental Protection Council

### **Main Topics of Discussion**

Setting new environmental protection program targets Emphasizing the use of environmental accounting

### Affiliated Companies' Technical Exchange Meeting

The Group held a total of four technical exchange meetings focusing on various themes in fiscal 2000, lifting the cumulative total to 38. These provided opportunities for companies to exchange information on effective environmental technologies and related expertise.

### **Main Themes**

Zero-emission\*1 Environmental Management System Product recycling measure

\*1: The term "industrial waste cuts" has been changed to "Zero-emission" to make the objective of achieving a zero-emission condition clear.

### The 3rd Fujitsu Ecoforum

The 3rd Fujitsu Ecoforum afforded Group member companies an opportunity to present case studies and their environmental technology. Associate Professor Katsuhiko Kokubu of the Graduate School of Kobe University, a leading proponent of environmental economics and environmental accounting, presented the keynote address on the theme of environmental management systems of the 21st century before approximately 180 employees. The awards ceremony for the Environmental Contribution Awards and the Environmental Photo Contest was also held at this event.

### **Examples of Presentation Topics**

- Zero-emission attainment at Numazu Plant (Numazu Plant)
- Development of the most energy-efficient room air-conditioning unit in its category (Fujitsu General)\*<sup>2</sup> Volunteer Tottori sand dune clean-up program at Fujitsu Tottori (Tottori branch)

\*2: See page 43 for further information.



The 3rd Fujitsu Ecoforum

Fujitsu Group Worldwide Environmental Conference

The full conference includes representatives from affiliates in North America, Asia and Oceania, and Europe with responsibility for environmental issues at their respective companies. The meetings provided them with an opportunity to discuss common Fujitsu Group policies and topics and to exchange a variety of information. In February 2000, a local conference was held in Europe (with 17 participants from 10 companies) to explore the main themes of the previous meeting further. The fourth worldwide conference is scheduled for 2001.



Participants in a European local conference

### Main European Local Conference Themes

European conference participants

### **Participating Affiliates**

Europe	
Fujitsu Microelectronics Europe	(Germany)
Fujitsu Telecom Deutschland	(Germany)
Fujitsu Deutschland	(Germany)
Fujitsu Europe	(UK)
Fujitsu Isotec Ireland	(Ireland)
Fujitsu Italia	(Italy)
Fujitsu	(Japan)
Fujitsu-Siemens Computers	(Germany)
ICL	(UK)
Shinko Microelectronics Ireland	(Ireland)

The following topics were the focus of discussion at the two-day conference held February 14 and 15, 2000.

Recycling concepts, product collection program, packaging, distribution process

Two important EU environmental directives

WEEE (Directive on Waste Electrical and Electronic Equipment)

RoHS (Directive on restriction of the use of certain hazardous substances in electrical and electronic equipment))

Fujitsu affiliates in Europe and Fujitsu agreed to hold a series of workshops to discuss and promote cooperation in realizing the goals of the Fujitsu Environmental Protection Program (Stage III).

### **Overseas Environmental Information Network**

This information network connecting Fujitsu's overseas Example affiliates permits sharing of environmental information and expertise, providing those responsible for environmental Survemeasures with a useful communications channel and a source of expertise.

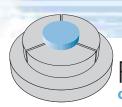
Examples of Information Shared over the Network

Information on worldwide Fujitsu Group activities Survey of Environmental Protection Program (Stage III) Information on Group project progress in areas such as reforestation programs, ISO14001, etc.

### Participating Network Affiliates

North & South America: 13 companies

- Asia & Oceania: 28 companies
- Europe: 14 companies



Fujitsu Group Company Activities (Domestic)

# Applying unique skills in various environmental protection projects

Domestic affiliates are working energetically to reduce the use of harmful chemicals and cut energy consumption, as well as conducting other environmental protection projects drawing on their specialized technology and skills. This section introduces the efforts of two of these companies, FDK and Fujitsu General.

## **Fujitsu General's Environmental Protection Activities**

Fujitsu General strives to make its operations attractive to all concerned. Placing a priority on environmental protection, it is working in various ways to reduce the environmental burden of its operations and products, from development and design to procurement, production and sales.

### Development of the Most Energy-efficient Room Air-conditioner

Development of the special "IPAM" air-conditioner technology featuring greater thermal exchange efficiency and an advanced compressor motor has enabled Fujitsu General's air conditioner to surpass stringent energy-saving standards. The air conditioner passes the 2004 standard figure of 4.90 specified in the Energy Saving Law. The 28 model scores 5.51 on this indicator, moreover, and attains a power consumption rating of just 944 KWh, making it the most energy-efficient model in its category. Also 72% recyclable by weight, it employs cardboard for all of its packing materials.

### **Main Features**

The 28 model is the most energy-efficient air-conditioning unit in its category. Passes new energy-saving standards Uses non-ozone-depleting coolant (R410A) Zero-power standby switch

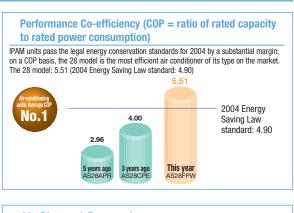
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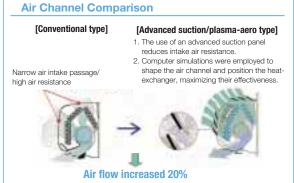
## **FDK's Environmental Activities**

Adopting "Everything made from excellent materials" as its guiding slogan, the FDK Group is implementing positive environmental activities. These include the incorporation of eco-friendly materials at the R&D stage, resources and energy saving, and recycling and waste disposal process simplification. The Group works to reduce the environmental burden of its manufacturing operations through proper pollutant management, reduced waste production and development and introduction of energy-efficient processes.

### Results

FDK discontinued the use of PVC film, a potential source of dioxin formation. Elimination of the label backing paper led to a reduction in paper waste of 49.4 tons in FY2000.





# Improved Labeling of Alkali Manganese Dry Cell Batteries (A and AA)

In the past, PVC film was the base material used for labels that

were peeled from backing paper and applied to the external surface of alkali dry cell batteries. A switch to thermal-application labels has lowered the environmental burden by eliminating both the waste caused by the backing paper and the use of PVC.





# Fujitsu Group Company Activities (Overseas)

# A global corporation participating in environmental activities around the world

Affiliates around the world, from Europe and North America to Asia and Oceania, are also actively involved in a variety of environmental protection programs. This section describes some of these activities in Vietnam, the Philippines, Germany and the United States.

# Zero-emission Measures at a PCB Plant at FCV\*1

### **Recycling Resources from Sludge**

The copper-plating process employed in printed circuit board (PCB) production generates large volumes of sludge containing copper. FCV has succeeded in recycling this sludge by employing a certain dehydrating agent to produce copper

concentrates in a process developed in-house. This has turned a waste material into a valuable copper raw material that is exported to Japan and recycled.



Copper-plating waste liquidprocessing equipment

Recycling of Printed Circuit Board Waste By-products The defective boards and PCB scraps produced as by-products of the manufacturing process are carefully classified, and the

copper content is increased. They are then transported to Japan and recycled as copper raw materials, road paving materials and other products.



### **Environmental Activities in FCPP\*2**

To reduce industrial waste and gain profits, FCPP sells the used ethanol (5,688 liters) and IPA (2,902 liters) generated monthly in its manufacturing processes to other companies to save costs. These chemicals can be re-used as printing additives. FCPP also separates packing materials such as cardboard and trays received from external sources and sells these to recycling firms.

### **Environmental Activities at FME\*3**

FME collects plasma display packing materials from customers, separates them into cardboard, wooden boards and

polypropylene shock-absorbent materials, and recycles them. FME has also introduced packaging boxes that can be reused multiple times and machinery to make shockabsorbent materials from paper.



Separated packing materials

### Environmental Activities of AMDAHL\*4

Over 16 years ago, AMDAHL implemented a system for collecting and recycling items such as office paper, beverage cans and bottles. In fiscal 2000, this program saved AMDAHL an estimated US\$180,650 in trash disposal fees. The system has also been recognized with a number of awards by federal and state government bodies.

### **Outline of System Elements**

Purchase of recycled products (paper towels, packing materials, office stationery, toner cartridges, etc.) Measures to promote paper conservation (double-sided copying, use of e-mail)

Recycling (floppy disks, packaging materials, construction

waste materials) Collection and re-sale of products from obsolete products/facilities (precious metals, regenerated ICs, iron and non-ferrous metals)



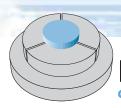
Recycling equipment for packing materials

\*2 FCPP: Fujitsu Computer Products Corporation of the Philippines

\*4 AMDAHL: AMDAHL (America)

<sup>\*1</sup> FCV: Fujitsu Computer Products of Vietnam

<sup>\*3</sup> FME: Fujitsu Microelectronics Europe



Distribution & Environmental Protection

# Promoting various eco-friendly measures in the distribution process

Fujitsu Group environmental activities are not limited to the manufacturing and social spheres alone. Fujitsu Logistics, which handles the distribution of products, parts, materials and recycled items for the Fujitsu Group, endeavors to reduce the environmental burden of the entire distribution process from packaging design to product storage and transportation. The Fujitsu Group will continue to develop and implement a variety of measures.

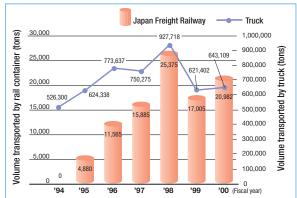
## **Principal Environmental Measures and Progress Status**

### Promotion of Modal Shifting\*1

To reduce emissions of CO<sub>2</sub>, NOx and SOx in its transportation processes, Fujitsu Logistics has been shifting freight loads from exclusive road transportation to a combined road/rail system since fiscal 1995.

### **Promotion of Cardboard Recycling**

Recycling targets for cardboard have been set at Fujitsu's Tokyo Distribution Center as part of its EMS activities. Waste cardboard is being used, for instance, to produce paper-based shock-absorbing packaging materials at Fujitsu facilities.



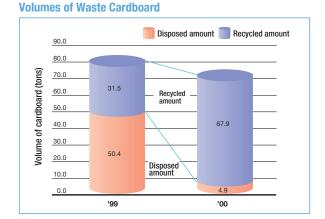
### **Transportation Volumes by Distribution Mode**

### Reduced Use of Packaging Materials; Increased Returnability\*2

To protect the world's forests and eliminate the need for wood sterilization (by fumigation), Fujitsu Logistics is replacing wooden packing cases for exports with steel containers. This change is adopted for overseas communications products, in particular.



Steel export container



To reduce packaging volumes for deliveries of domestic pointof-sale terminals, Fujitsu Logistics has developed a returnable wheeled platform that can transport the products without packaging. These are replacing standard cardboard boxes. The idea is now also being applied to transference of other products, such as PCs.



Returnable wheeled platform

# **External recognition for Fujitsu's environmental efforts**

Fujitsu was honored with a number of awards and commendations in fiscal 2000 in recognition of its involvement in environmental issues and its environmental technologies. Both Fujitsu and the Fujitsu Group companies remain highly committed to environmental activities aimed at creating a better future for Earth and for society.

Award	Date received	Sponsor/Patron	Achievements receiving recognition
Letter of appreciation	August 2000	Sponsor: Akiruno Forestry Association	Recipient: Akiruno Technology Center In recognition of contributions to local environmental issues through the choice of locally felled cypress timber (from a forest-thinning program) to make cafeteria dining tables
Dow Jones Sustainability Group Index (Included in top 10 companies of the world)	October 2000	Sponsors: Dow Jones SAM Sustainability Group	Recipient: Fujitsu Ltd. In recognition of the high priority placed on environmental performance and development of eco-friendly products and solutions
48th Electrical Science & Technology Awards: Ohm Technology Award	November 2000	Sponsor: Electrical Science & Technology Promotion Council	Recipient: For development of lead-free, low-melting-point solder materials and technology In recognition of development of commercial technology for low melting-point Sn-Bi solder for use in large-scale servers in conjunction with high-density mounting technology
2000 <i>Hanazono</i> Contest: Excellence Award	November 2000	Sponsor: Citizens' Charter Promotion Committee, Aizuwakamatsu City	Recipient: Aizuwakamatsu Plant In recognition of planting of seasonal flower varieties that create a visually pleasing environment for employees
33rd Flower Contest: Excellence Award	November 2000	Sponsors: <i>Fukushima Minyu Shimbun</i> , Fukushima Prefecture Greenery Promotion Committee, Central Cooperative Bank for Agriculture and Forestry (Fukushima Branch) Patrons: Fukushima Prefecture, Fukushima Prefecture Education Committee, etc.	Recipient: Aizuwakamatsu Plant In recognition of planting of seasonal flower varieties that create a visually pleasing environment for employees
Letter of appreciation	November 2000	Sponsor: Kumagaya City	Recipient: Kumagaya Plant In recognition of the donation of part of the proceeds of a plant-sponsored recycling market to a local charitable foundation
10th Environmental Advertising Concours	December 2000	Sponsors: NPO Regional Exchange Center, <i>Nihon Keizai Shimbun</i> Patrons: Environment Agency, Ministry of Construction, etc.	For a series of environment-related corporate press advertisements In recognition of excellence in environmental advertising Placement: <i>Nihon Keizai Shimbun</i>
Electricity-Usage Rationalization Committee Award: Distinguished Award	February 2001	Sponsor: Kanto Region Electricity-Usage Rationalization Committee	Recipient: Minami-Tama Plant In recognition of exceptional results achieved through measures using power efficiently, promoting energy saving and boosting load ratios
4th Environmental Report Award: Excellence Award	May 2001	Sponsor: Toyo Keizai Green Reporting Forum	Recipient: 2000 Environmental Report In recognition of a sincere attitude toward explanation of the environmental burden
Corporate Social Contribution Award: Environmental Protection Award	May 2001	Sponsor: Asahi Newspaper Culture Fundation	Recipient: Fujitsu Ltd. In recognition of early establishment of a clear environmental concept and translation into concrete action.

## Awards from External Organizations



Dining tables made from locally felled cypress, Akiruno Technology Center



48th Electrical Science & Technology Awards: Ohm Technology Award



Presentation of Environmental Protection Award; Corporate Social Contribution Award

# Independent Review Report

To ensure the reliability and transparency of this report, we have obtained an Independent Review Report from a third party (Shin Nihon Environmental Management and Quality Research Institute) beginning with last year's edition.

	Independent Review Report on "Fujitsu 2001 Environmental Report"
	June 26, 2001
	sident and Representative Director itsu Limited
1.	Purpose and Scope of our Review
	We have reviewed the "Fujitsu 2001 Environmental Report" (the "Report") of Fujitsu Limited (the "Company") and its principal subsidiaries, published by the Company who is responsible for its contents. The review consisted of performing certain procedures as described below in relation to the collection, compilation and calculation of the information included in the Report.
	Our work does not constitute an audit or examination. We therefore do not express an opinion on the accuracy or completeness of the information or data bases used to compile the information or the representations made by the Company in the Report.
2.	Procedures Performed
	We have performed the following review procedures agreed upon with the Company;
	(1) We reviewed the procedures performed by the Company and the methods of accounting followed in the preparation of the "Environmental Performance" and the "Environmental Cost and Effect" information.
	(2) We compared the "Environmental Performance" and "Environmental Cost and Effect" information presented in the Report on a sample basis with the respective supporting documents and verified the accuracy of the calculations on a sample basis.
	(3) We compared the "Descriptive Information" other than the "Environmental Performance" and the "Environmental Cost and Effect" information presented in the Report with the respective supporting documents and verified the accuracy of the descriptions.
	(4) When deemed necessary, we made inquiries to the responsible individuals at the Company's factories and subsidiaries, conducted on-site inspections of these sites and reviewed the decision-making process at each location.
i.	Results of the Procedures Performed
	As a result of the procedures which we performed,
	(1) We are not aware of any material modifications which should be made to the "Environmental Performance" and the "Environmental Cost and Effect" information presented in the Report in order for them to comply with the Company's policies for gathering and reporting such information.
	(2) We are not aware of any material modifications which should be made to the "Descriptive Information" presented in the Report in order for them to comply with the Company's policies for gathering and reporting such information.
	Yasuo Kurihara J. Kurihara Representative Director
	Shin Nihon Environmental Management

# History of Environmental Activities

# Throughout the 66 years since its founding, Fujitsu has promoted harmony with nature.

### 2001

Fujitsu Environmental Protection Program (Stage III) formulated

### 2000

IS014001 certification gained by four development and service sites in Japan Corporate Environmental Affairs Group established First desktop PC model awarded Eco-mark

### 1997

Environmental Management System Committee

Recycling system established and implemented

1995

established

"The Fujitsu Group

Worldwide Environmental

Conference" established

1990

1987

Environmental homepage established IS014001 certification acquired by all domestic manufacturing plants

1999

introduced Forestation program undertaken in Vietnam

Environmental accounting

# 1998

Forestation program undertaken in Thailand Green Product program launched



Fujitsu Environmental Protection Program (Stage II) formulated Environmental Engineering Center homepage set up on intranet Chemical Emissions Reduction Committee established First Environmental Activity Report published

### 1994

"Fujitsu's Commitment to the Environment"

Use of CFCs and carbon tetrachloride for

Energy Saving Committee established

Environmental control evaluation system implemented

Inaugural issue of Eco-Plaza environmental bulletin published Use of 1,1,1-trichloroethane abolished "The 1st Fujitsu Group Environmental Technology Exhibition" held Fujitsu Environmental Emblem determined **Overseas Environmental Information Network** begins operation



### 1993

Product Recycling Committee established Waste Control Committee established Fujitsu Environmental Protection Program (Stage I) formulated Product Environmental Assessment Guideline formulated Domestic Affiliated Companies' Environmental Protection Council established Environmental Information Service (FJ-CUG) opened

1991

**Environmental Engineering** Center established

### 1989

Environmental Committee established

Ozone Layer Protection Committee established

1992

formulated

cleaning eliminated



Environmental control sections established at each plant

### 1935

Park-style design adopted for Kawasaki Plant on suggestion of the first President Yoshimura



# Glossary of Terms

### ISO14001 (Note\*1, page 6)

The standard set by the International Organization for Standardization for environmental management systems (EMS). It certifies that a company's organization and systems take the environment into consideration, and that the systems are designed to ensure ongoing reduction of the environmental burden of the company's operations.

### Environmental Performance Evaluation (EPE) (Note\*3, page 7)

An evaluation of an organization's environmental behavior and results based on both qualitative and quantitative parameters.

### Green Procurement (Note\*1, page 8)

Purchasing that places a preference on products with a low environmental burden.

### Environmental improvement (EI) indicator (Note\*2, page 14)

A measure of the environmental burden reduction effect per unit cost (unit Ton-C/¥100 million). The El indicator shows the effect of money spent (in this case, ¥100 million) on environmental measures in terms of the consequent reduction in the environmental burden as measured by the weight of CO<sub>2</sub>. It permits comparison of the effectiveness of environmental measures in different periods and segments.

### Environmental efficiency (EE) indicator (Note\*5, page 14)

A measure of total sales relative to the environmental burden (unit: ¥100 million/Ton-C). The EE indicator shows the value added in terms of sales by reduction of the environmental burden. It permits evaluation of the direct environmental burden resulting from business activities.

### Life-cycle Assessment (LCA) (Note\*1, page 23)

A method of analyzing a product's burden on the environment quantitatively throughout its life cycle.

### PRTR Law (Note\*2, page 27)

A law passed in Japan in March 2000 requiring companies to report the amounts of chemical substances released or transferred into the environment as emissions or waste, based on the idea that enforced public disclosure will help to reduce the environmental risks associated with chemicals and other pollutants. PRTR stands for Pollutant Release & Transfer Register.

### **Co-generation system** (Note\*2, page 29)

A system that produces power with an engine or turbine and uses the waste heat generated in the process for hot water supply, heating or cooling, thus increasing total energy efficiency.

### Plasma (Note\*1, page 38)

A mixture of positive ions and electrons with a neutral charge formed when free electrons acquire energy through acceleration and then collide into other particles. Low-temperature plasmas are typically used in the applications described in the text.

### Catalyst (Note\*2, page 38)

A substance that can markedly alter the rate and selectivity of thermodynamically possible reactions when used in small amounts without being consumed itself in the process.

### Dioxins (Note\*3, page 38)

A class of chlorinated organic compound variants of the chemical compound 2378TCDD that are among the most toxic non-naturally occurring chemical compounds known. Well-documented as potential causes of cancer and birth defects, they vary in toxicity depending on the number and position of chlorine atoms in their triple-ring structure.

#### Bending resistance (Note\*4, page 38)

A measure of the amount of repeated flexion a printed circuit board or other substrate can endure before suffering damage. Bending resistance is an important indicator of reliability, because today's substrates are more likely to suffer torsion during mounting or use than their ceramic or metal predecessors.

### Built-up substrate (Note\*5, page 38)

A substrate formed by building alternate layers of insulators and circuitry onto a printed circuit board base to form complex micro-circuitry. Used in notebook computers, mobile phones and digital camcorders, built-up substrates have contributed substantially to the development of more compact, lighter weight products.

### Modal shift (Note\*1, page 45)

A concept of shifting freight shipments from road transportation, such as trucking, to transportation modes such as rail or sea that can handle larger freight volumes per trip. This contributes to environmental conservation by reducing  $CO_2$  and NOx emissions and saving energy.

### Increased returnability (Note\*2, page 45)

This means that steel containers can be returned by customers and reused repeatedly.

### **Fax Questionnaire**

### To: Environmental Engineering Center, Corporate Environmental Affairs Group, Fujitsu Limited

Thank you for reading our 2001 Environmental Report. We hope you will spare us a few more minutes to fill in this questionnaire and fax it to us, as it will help us in preparing next year's report. We will send a copy of our 2002 Environmental Report, scheduled for publication in June 2002, to everyone who sends us a completed fax questionnaire.

Good     Average     Not good       4. Which sections of this report interested you most? (Please select one or more sections.)     Message from the President     Product Recycling     Environmental Solutions       Fujitsu's Commitment to the Environment     Dreduct Recycling     Environmental Solutions     Eco-friendly Products/Environmental       Life-cycle Assessment (LCA/Lead Elimination     Environmental Solutions     Environmental Solutions     Environmental Solutions       Fujitsu Environmental Protection Program (Stage III)     Industrial Waste Reduction     Environmental Activities (Densitic)     Environmental Activities (Densitic)       Operations and the Environment     Energy-saving Measures (Against Global Warming)     Fujitsu Group Company Activities (Densitic)       Environmental Accounting     Environmental Control     Fujitsu Group Company Activities (Densitic)       Environmental Accounting     Environmental Control     Environmental Protection Program       Environmental Accounting     Environmental Control     Environmental Accounting       Environmental Accounting     Environmental Control     Environmental Accounting       Environmental Communications     Water/Air/Noise/Vibration Pollution Data)     External Avarids       5. Please use the space below to communicate any comments or requests you may have concerning Fujitsu's environmental Activities     Environmental Accounting       Evironmental specialist     Environmental Staff Companies     Environmental		Same	Worse
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