Implementing eco-friendly manufacturing processes

Fujitsu is making use of LCA*1 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_2 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.

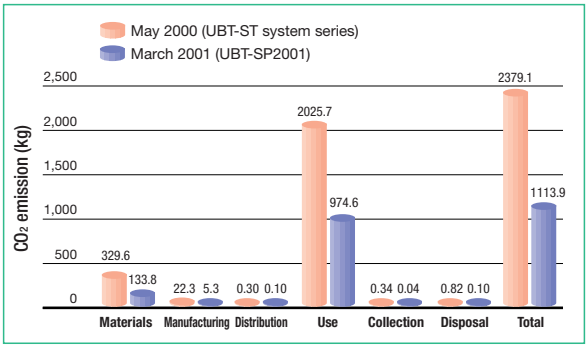
- Improvement
  - Materials stage: Increased compactness and light weight (from approx. 150 kg to 20 kg)
  - Usage stage: Reduced power consumption (from 371 W to 179 W)

Products Evaluated by LCA Process

- Disk arrays ····· 6 models
- UNIX servers ····· 6 models
- Magnetic disk devices ··· 4 models
- Workstation for financial institutions ··· 2 models
- Routers ····· 1 model
- Scanners ····· 1 model
- Secure archivers ····· 1 model

Total: 21 models

Workstation for Financial Institutions Example



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.

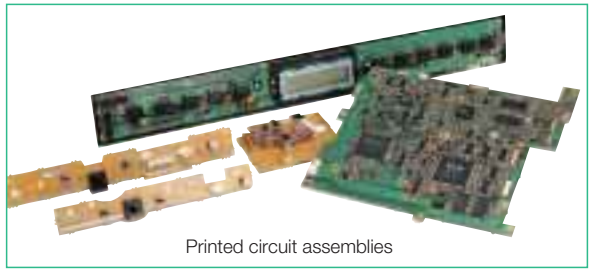
Countermeasure technologies:

- 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 heat-resistance assessment, materials and pattern design

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



Printed circuit assemblies

URL: http://eco.fujitsu.com/en/news/2000/eco20000321_e.html

Please refer to page 49 for the definition of term *1.