

FUJITSU

G l o b a l S e r v e r

GS8900



The GlobalServer in a network computing environment

Introducing the Fujitsu GlobalServer GS8900 Model Group featuring high performance and reliability to help our customers install new enterprise information systems in the Internet era

The business environment that corporations face today is rapidly changing, information systems that can offer management solutions such as higher speed and globalization are needed now more than ever. It is time for "network computing" to be practiced across business lines, making the best use of network tools like PCs and the Internet.

The "GS8900" consists of advanced high-end servers that fully utilize the most advanced CMOS and parallel technology, addressing today's network computing environment.

We respond to the demanding requirements of your management strategy for the 21st century: effective utilization of information and improvement of business efficiency.

•The "GlobalServer" is composed of "multi-server" type enterprise servers

Multi-server systems utilize GlobalServer, UNIX servers and IA servers to make the best use of their respective strengths by connecting them with each other.

Multi-server type information systems are highly productive systems that add the openness (easy access high-speed communications and a wealth of applications) of UNIX/IA servers to the features of your existing systems.

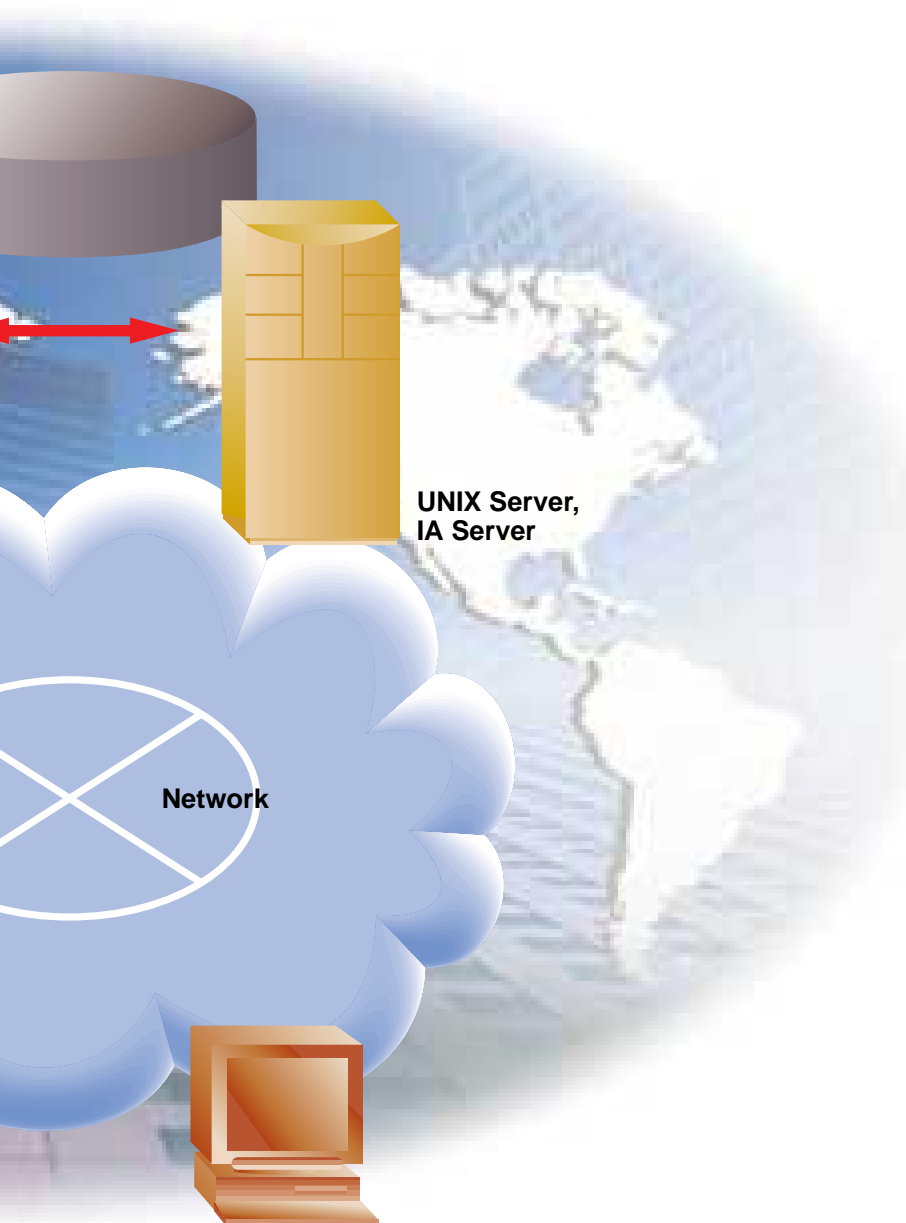
With optimal allocation of servers based on the use and the scale of a system, this enables both process distribution and management centralization, for example, by assigning IA servers mailing tasks, UNIX servers order receiving/issuing tasks and GlobalServer overall system operation control.

Thus, multi-server information systems can operate seamlessly, not only from the user's point of view but also from that of the system operators.

It also allows for business expansion and provision of additional functions in a timely and flexible manner.

GS8900

Internet/Intranet



•Internet and Intranet Applications

The GlobalServer can accommodate and use applications and data from the Intranet as easily as it can from corporate Intranets. First of all, we provide our customers with the technology needed to interact with WWW servers. The GlobalServer coordinates with the gateway functions of WWW servers in a way that allows it to directory access WWW servers and browsers for information gathering and data transmission. More concretely, a user can make use of a host of system operations: everything from transactions and database searches to batch processing and more. The GlobalServer also processes large volumes of data via the Net it keeps those transactions secure by protecting information with SET, an EC (Electric Commerce)—specified standard.

•Effective use of all corporate data

In the past, a corporate system design that surely and efficiently executed daily operations was thought to be enough. However, the capabilities of the GlobalServer offer many more benefits than that. Effective business decisions can only be made on the basis of multi-dimensional analysis of information and data. A problem facing corporations today, indeed, one whose correct solution may determine a company's very survival, is not simply the effective storage of ever-increasing amounts of information, but rather the organization of that storage. Corporate decision makers need to be able to manipulate all the information they process and examine it in as many different ways as possible before they commit to a course of action. So a basic question is: how can data stored on corporate systems be stored on a company-wide level in a way that maximizes business operations? The GlobalServer introduces the ideal solution. It offers an innovative framework for organizing data collected on corporate systems and makes optimal use of it for all variety of management undertakings.

•A new configuration for corporate operations making use of PCs

A network computing environment is a configuration of computers in which multiple servers are used to carry out different operations. The design of such configurations must fulfill certain requirements: (a) operations must be carried out in such a way that the client is not aware of the server; (b) single operations or a series of them must be carried out seamlessly between individual servers. The GlobalServer has a relationship with middleware, e.g. opening up databases, among multi-platform servers. This enhances each of the allied technologies now shared among the multi-servers.

Taking Traditional Computing into the Era of the Network Computing

At Fujitsu, we define Network Computing as the seamless integration of all servers in a network, including potentially the Internet and enterprise intranets, in order to act as a single integrated IT system as seen from the client interface. This total system solution increases the efficient flow of information throughout your organization while sharply reducing the difficult aspects of implementation, operation and maintenance.

•Supporting a 24-hour continuous operation solution

VRMGR

VRMGR offers functions to create copies of volumes used in online business without interrupting the business and affecting the system load, or cutting them off at any point. Even while creating copies of volumes, it allows business applications to access the source volumes copied. At this time, even if demand increases call for the source volumes, consistency of data for both volumes will be guaranteed by reflecting this increase in demand in both volumes.

We provide the following functions to improve business operations significantly by incorporating both the current and future releases of associated products.

1) 24-hour continuous operation

Enables copying of master databases online and creates database duplicates, then uses them as the basis for data warehouses, and applying them to various business operations such as independent/parallel operation on online machines and batch machines. Also with the redundancy of the database duplicates, it allows cut-over between two online systems for 24h/7 days continuous online operation.

2) High-speed disk backup

It will be possible to back up data used for online business on disk systems at high speed during online processes. Since it only requires the time to isolate these two disks from the system, backup time is reduced significantly.

3) Non-stop disk transfer

It is possible to copy the volumes during online processing and then transfer the disk completely under non-stop conditions. This allows scheduling of disk transfer freely without considering interruption of the business operation schedule when the system must be transferred to a new disk system or re-deployed.

•Internet enabler for host applications

NETSTAGE/Partner

NETSTAGE/Partner provides the Internet link function between the PC client and the GS8900 series OLTP application with AIM. This allows a user with browser software on their PC to access and use AIM applications stored on the GS8900 series.

NETSTAGE/Partner eliminates the need to create complicated CGI applications—users only need to redefine a screen definition with HTML. All connections can be touted via NETSTAGE/Partner on the GS8900 series and NETSTAGE/Internet WWW-GW on Internet servers. A big boost to productivity.

Another advantage to NETSTAGE/Partner is that it controls the number of simultaneous accesses to address the problem of poor response times via Internet/Intranet environments.

•High-performance databases for an enterprise system

SymfoWARE

SymfoWARE and the GS8900 series form the nucleus of the Fujitsu data warehouse. Together they support mission critical systems that require high performance and high reliability. SymfoWARE offers the following features:

Random storage function to improve online response

SymfoWARE supports the random storage function which improves online processing response times. The random storage function uses hash commands to store data randomly. This reduces I/O bottlenecks, especially to the database index.

Automatic logging recovery

In the event of system failure, the automatic logging functions maintain the integrity of the data even if the failure should occur during a data update.

The Object Manager

The Object Manager function assists database operations like database creation, definition printing and data inquiry/update. The GUI interface can also be used to develop and maintain distributed databases.

PC tool support

SymfoWARE supports the standard interfaces such as ODBC, OLE and OLE-2. These interfaces support commonly used software such as Microsoft EXCEL, Lotus 1-2-3 and Visual Basic when accessing SymfoWARE data.

- TCP/IP networking handler for the GS8900 series

VTAM-G TISP

VTAM-G TISP significantly improves performance when compared to previous versions of TISP (an approximate five-fold improvement). Reliability against network failure has also been improved by way of the root setting between client/server and the GS8900 series.

- Support for OLTP application construction by PC/Windows tool products

PowerAIM

PowerAIM is a middleware product that uses distributed client/server computing to solve problems of developing and operating an OLTP system that is used throughout the company.

PowerAIM's API (Application Program Interface) is based on the SAG CLI open specification, making it possible to use a wide variety of PC/Windows products right off the shelf without special modifications. PowerAIM achieves a drastic improvement in productivity with OLTP application development.



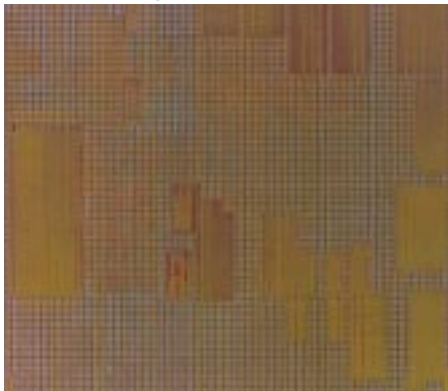
CMOS processors with world-class performance

Advanced CMOS and assembly technology

The GS8900 provides high performance and cost reduction, using advanced CMOS and assembly technology, resulting in processing capability and excellent cost performance. In addition, allowing for inheritance from software/hardware assets of GS8000/M Series makes the migration an optimized investment.

•Advanced CMOS LSI

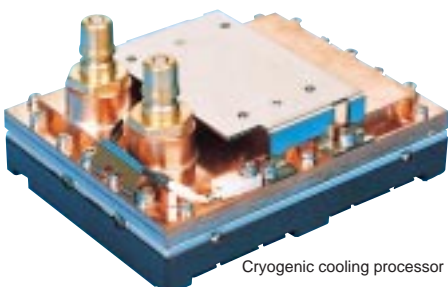
High performance processors such as those used in the M Series architecture have been realized using world-class CMOS LSIs, featuring manufacturing processes of 0.22μm, integration rates of a maximum of 33 million transistors and a gate delay time of 24 pico-seconds. This technology has far exceeded conventional ECL technology and enabled a complete migration from ECL machine.



Copper wiring CMOS

•CPU modules that apply high-density integration

We have adopted high-density integration technology: CMOS LSI chips are mounted on ceramic Multi-layered Chip Modules (MCM). Each CMOS LSI is directly connected to the ceramic module with a maximum of 7,800 bumps (i.e. terminals formed on the surface of a LSI chip). High-speed data access and compacting are all realized by installing two sets of single chip CPUs and large capacity secondary buffer storage (maximum 2MB) on the MCM.



Cryogenic cooling processor module

•Compact single-board system with high performance and reliability

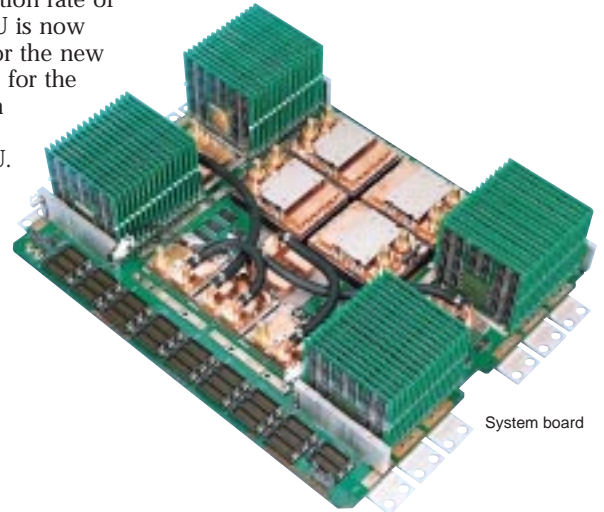
A maximum of 16 CPUs, a 64GB main memory device and a channel processor are installed on a 57cm × 47cm board. This results not only in a smaller case but also in higher information transfer speed between the units and contributes to better system performance. Since micro connectors are installed on the CPU modules, it becomes possible to attach/detach the modules to/from the board, resulting in significant improvement of serviceability for upgrading and replacement of CPUs.

Making use of the high integration rate of the advanced CMOS LSI, a CPU is now integrated with a single chip for the new GS8900, as opposed to 5 chips for the existing GS8600. This results in significant reduction in signal transmission time within a CPU. Furthermore, a 256KB large capacity local buffer storage is built into the same chip and improvements in logic,

such as enhancement of divergence forecast mechanisms effective for online processing, are adopted, resulting in CPUs with much higher performance than that of ECL machine.

•Advanced liquid-cooling

The GS8900 adopts advanced Cryogenic liquid-cooling for the heat that is inevitably generated by any high performance computer system. Compared to conventional water cooled machines, this type of cooling takes less space and is much easier to install.



System board



Single cluster (liquid-cooled)

Advanced parallel technology promises high performance and reliability

The existing parallel system, called the System Storage Coupled Multi-Processor System (SCMP) links more than one M Series with system storage devices.

The GS8900 has further extended the system to so called "scalable SCMP", making the operation look as if it were not a parallel system, but a single system, bringing flexible scalability to expand processing capability as required.

•Flexible system expansion

Parallel system configuration with a maximum of 16 clusters (256 CPUs) It offers flexible performance expandability in CPU upgrades and installation of additional clusters. This allows for optimized investment on as much process capability as necessary, whenever it is needed.

•Parallel transaction process

In order to meet numerous demands from company wide clients, GlobalServer execute parallel transaction processes across more than one cluster incorporated with the SURE SYSTEM.

•Parallel batch processing

In order to support batch processing of volumes across company wide businesses, GlobalServer offer a reduction of batch process time and increased throughput.

•GlobalServer's RAS functions

GlobalServer's RAS (Reliability Availability Serviceability) functions offer the ability to prevent troubles from occurring and, in the event they occur, to correct, restore and localize them. For example, hardware Error Checking and Correction (ECC), automatic chip replacement allocation, diagnosis, software diagnosis restoration, redundant volume control, and security function are provided.

•Continuous cluster operation

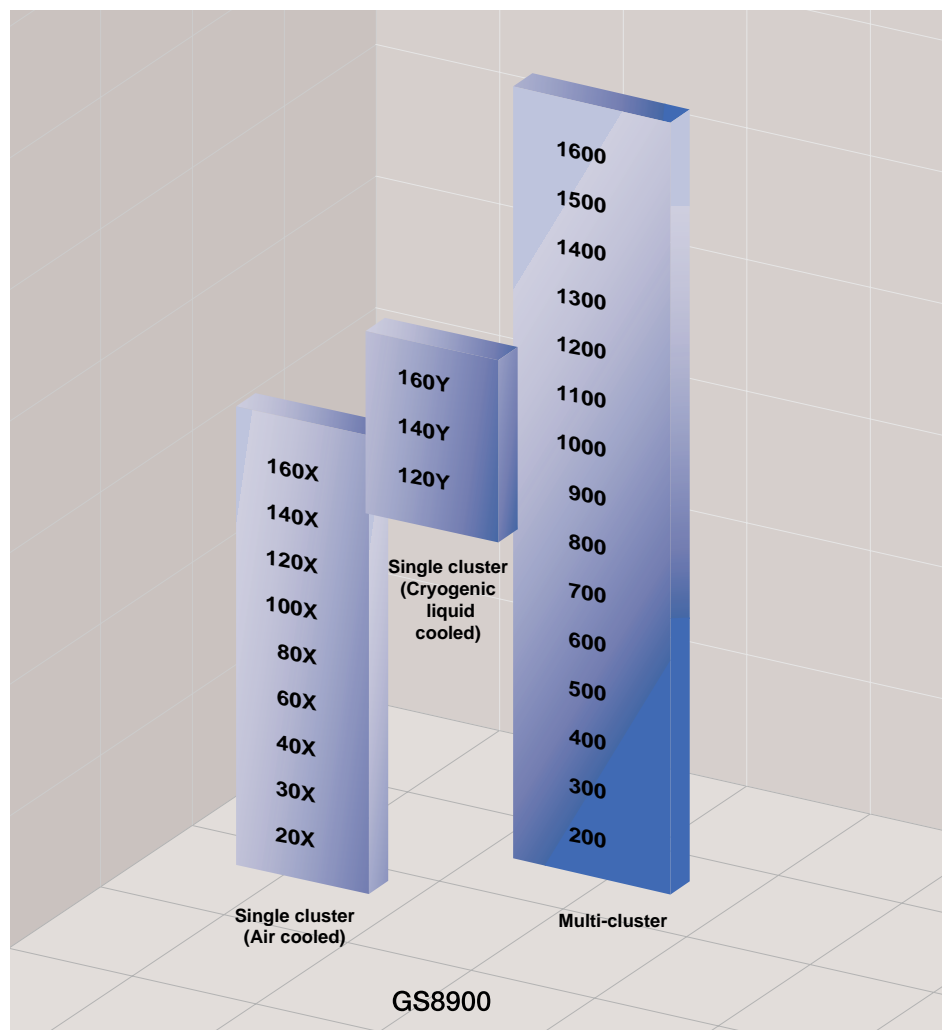
Allows for dynamic expansion and maintenance of the clusters while the system is running. 24h/7 days continuous service is also possible, thanks to load share configuration and high-speed hot standby configuration. In addition, adopting multi-module design and (n+1) redundant configurations within power supplies results in increased reliability of the power supplies. The multi-cluster design prevents the system from being interrupted due to abnormality of power supply system to the clusters and/or the power supplies themselves, and allows for a redundant power supply system.

•Continuous system operation

It supports continuous system operation not only for the GlobalServer but also peripherals and network systems, by allowing for dynamic expansion and maintenance of clusters. Peripheral systems utilize OCLINK channels and OCLINK stations, and network systems utilize the SURE SYSTEM and LR Series.

•High-speed hot stand-by

By connecting active/stand-by clusters with system storage units (SSUs), it is possible to set up hot stand-by systems for AIM online systems in units of seconds. Even if troubles occur to active clusters, the current session status of PCs/workstations under the SURE SYSTEM will be maintained and input data will be secured, resulting in a continuous operation system that is not affected by troubles.



Frame Colors



● **Light Silver**
Cool urban image



● **Luminous Rose**
Provides a refined, elegant image



● **Indigo Grey**
Provides a modern, forward image



● **Light Grey**
A natural color that harmonizes ideally with the environment. This is the standard Fujitsu color that has been to date for the GlobalServer and peripheral devices.

● Single cluster model specifications												
Models	20X	30X	40X	60X	80X	100X	120X	140X	140Y	120Y	140Y	160Y
No. of CPUs	2	3	4	6	8	10	12	14	16	12	14	16
Cooling types	Air cooled								Cryogenic liquid cooled			
Main capacity	Capacity	1 - 64 GB										
	No. of interleave	Max. 64 ways										
	Write length	64 bytes										
	Error check (extended ECC mechanism)	1 bit error automatic correction 2 bit error full detection 1 block error automatic correction 2 block error full detection										
	No. of channels	Max. 256										
Channels	No. of BMCs	Max. 96										
	No. of optical channels	Max. 112										
	No. of OCLINK channels	Max. 256										
	No. of SCSIs	Max. 16										
	No. of FC-SCSIs	Max. 16										
System storage	Memory capacity	Max. 128 GB										
	Data transfer speed rate	1.1 GB/sec.										
	Error check (extended ECC mechanism)	1 bit error automatic correction 2 bit error full detection 1 block error automatic correction 2 block error full detection										
	Non-volatile (optional)	Dedicated battery device										
	Double write (optional)	Redundant hardware										
Built-in LAN control devices	10M Ethernet: 1 (standard) 100M Ethernet: 1 (option) *1 FDDI: 1 (option) *1											
Redundant power-fed systems	Optional (clusters and system memory)											

*1 : Either one can be installed.

● Multicuster Model Elements															
Model name	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
Number of clusters	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Number of CPUs in cluster	2 - 16 CPU/cluster														
SSU	Configuration	Duplex configuration (standard), Quadplex configuration (optional)													
	Capacity	Max. 128 GB													
	Section partition system	Standard (max. 4)													
	Batteries	Optional													
CLCU	Configuration	Duplex (standard)													
	Ethernet	10 Mbps (standard), 100 Mbps (optional)													
	FDDI	Optional (either one can be installed)													
	ATM	Optional (either one can be installed)													
SVPM	Supervisory connection system	Optional													
	Configuration	Duplex (standard)													
	No. of consoles	2 - 6													
	No. of console panels	1 - 2 per SVPM													
	Power supply control	SCCI (max. 504), PPC (max. 504)													
	device control ports	0 - 1 port													
Automatic power restoration function	Standard														
Redundant power supply	Optional (SSU, CLCU, SVPM)														

Specifications are subject to change without notice.

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