

OLIVETTI NetFRAME Network Server Mainframe

System Summary



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Contents

1. WHY A MAINFRAME SERVER FOR NETWORKS?	1-1
2. SYSTEM ARCHITECTURE AND MODELS	2-1
CHARACTERISTICS OF THE OLIVETTI NetFRAME FAMILY	2-1
MODULAR SYSTEM ARCHITECTURE ...	2-2
INDUSTRY STANDARD SOFTWARE	2-3
COMMON SYSTEM MANAGEMENT TOOLS	2-3
THE MODELS: THE IDEAL MAINFRAME SERVER FOR EVERY NETWORK	2-3
OLIVETTI NetFRAME 100: THE EASILY EXPANDABLE ENTRY-LEVEL MODEL	2-3
OLIVETTI NetFRAME 200: NEW POWER FOR DATABASES	2-4
OLIVETTI NetFRAME 300: HIGH CAPACITY FOR LARGE NETWORKS	2-5
OLIVETTI NetFRAME 400: THE GUARANTEE OF MAXIMUM EFFICIENCY	2-6
3. SYSTEM PERFORMANCE AND EXPANDIBILITY	3-1
PROCESSING POWER: UP TO TEN SIMULTANEOUS PROCESSORS	3-1
MAIN MEMORY	3-1
I/O CAPACITY	3-1
DISK CAPACITY	3-2
4. SYSTEM RELIABILITY AND MAINTAINABILITY	4-1
MEMORY WITH ECC	4-1
DATA PARITY CHECKING	4-1
BACKUP POWER MODULES	4-1
AUTOMATIC RETRY/RESTART	4-2
PHYSICAL SYSTEM SECURITY	4-2
TAPE BACKUP SYSTEM	4-2
UNINTERRUPTABLE POWER SUPPLY (UPS)	4-2
SERVER ACTIVATED MAINTENANCE (SAM)	4-2
REMOTE SYSTEM MANAGEMENT	4-2
5. SPECIFICATIONS	5-1

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1. Why a Mainframe Server for Networks?



The Olivetti NetFRAME Server family establishes a clear lead in the technology of PC network Servers.

Until the advent of Olivetti NetFRAME, networks had seen few innovations in the role of the Server; in most cases they were small networks and demanded little of the Server. A PC Server required only a modest processing speed and a modest amount of memory - sufficient

to handle efficient communications between a limited number of users, who were usually located nearby and had modest printer - and file-sharing demands.

Today, however, the extended and multiple communications, distributed applications and sophisticated services that an ever-increasing number of companies are demanding, are too much for a PC Server.

The Olivetti NetFRAME family is designed on modular lines using many common components, and is easily expanded. It is therefore ideal for a wide range of Server roles in LAN environments having different requirements: from small local systems to networks with large numbers of users and complex applications.

For small companies or departments requiring networks of one or two Servers and highly reliable machines that can be easily expanded, the ideal choice would be the Olivetti NetFRAME 100 model.

In mixed environments, where file sharing and communications are combined with the need for powerful database processing, the Olivetti NetFRAME 200 provides balanced combination of CPU performance and I/O throughput, unmatched by single bus PC designs.

Such medium and large users as Banks, Insurance companies and Retail chains - requiring large or multiple centrally-handled networks - could choose from either the Olivetti NetFRAME 300 or the Olivetti NetFRAME 400.

Small, medium and large companies will find that each model in the Olivetti NetFRAME family provides excellent performance at a highly competitive price. Olivetti NetFRAME systems are also a valid alternative to minis and mainframes in LAN environments with distributed applications.

Many suppliers are responding to these new demands by offering a number of PC Servers; this solution is difficult to administer, and the service and reliability levels are inadequate. Other companies offer solutions that are technically valid but expensive, as they are based on a mini-computer or mainframe Server.

Olivetti now offers a line of machines based on PC technologies that are specially designed to handle networks as efficiently and rapidly as possible. Olivetti NetFRAME Server mainframes are the perfect technical and economic answer for all networks, from small/medium to the large and complex.

The Olivetti NetFRAME family comprises four models: Olivetti NetFRAME 100, Olivetti NetFRAME 200, Olivetti NetFRAME 300 and Olivetti NetFRAME 400, all featuring the latest in technology and using the advanced multi-processor architecture typical of minis and mainframes.

The Olivetti NetFRAME family of Server mainframes offers:

- Economy, simplicity, flexibility, and compatibility with the market standards of current PC-based Servers. The four models of the Olivetti NetFRAME family support such key operating systems as Novell NetWare 386 and MS OS/2 LAN Manager.
- Advanced design featuring the power, reliability, security and ease of maintenance of minis and mainframes.

2. System Architecture and Models

CHARACTERISTICS OF THE OLIVETTI NetFRAME FAMILY

The heart of the Olivetti NetFRAME system is its hierarchically structured multiprocessor architecture, with multiple and independent buses. This enables the I/O processors to operate simultaneously with the CPU, communicating by sharing the main memory. Each Olivetti NetFRAME system comprises a main processor plus a number of I/O Processors and Application Processors.

The "I/O Processor" boards use an Intel i376 micro-processor, and provide an external bus with SCSI-II

interface, an Ethernet or Token-Ring connection and serial interfaces (RS-232 and RS-422) for synchronous and asynchronous communications.

Olivetti NetFRAME architecture will also be able to support up to eight independent boards for application processing.

These boards will use an Intel i486 processor and have their own memory, and will provide the performance of top-range PC models.

The boards are designed for such special applications as databases and image processing, and will introduce a new generation of systems with extremely high levels of productivity.

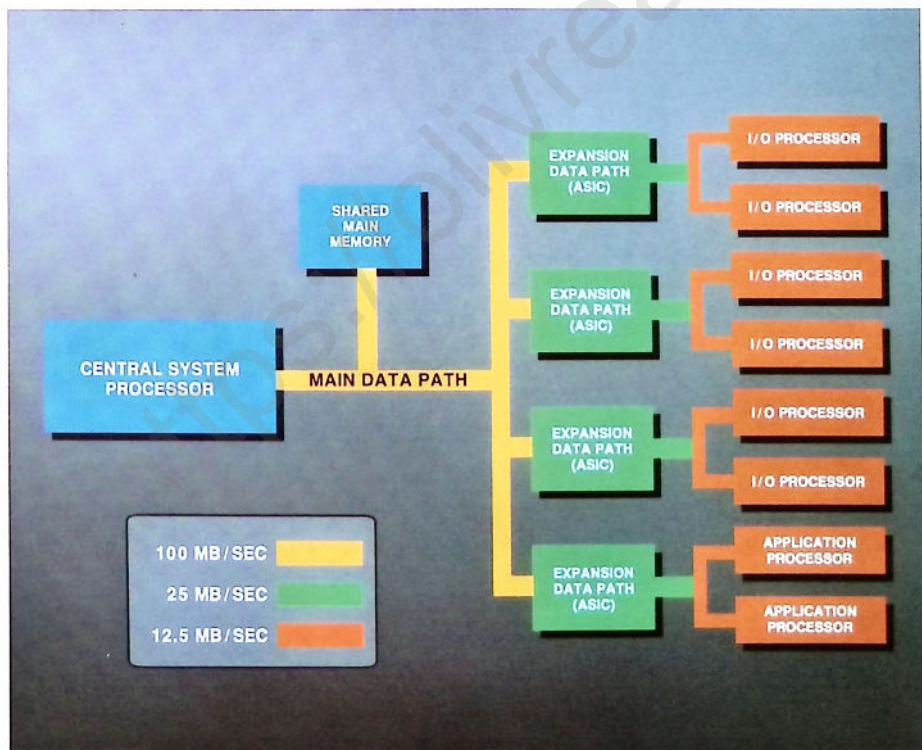


Fig. 2-1 Olivetti NetFRAME Multiprocessor Architecture

The Figure below shows the general layout of the Olivetti NetFRAME architecture.

As well as the cache, the CPU board integrates the ASIC (Application Specific Integrated Circuits) - special Olivetti NetFRAME circuits through which the main processor interfaces the various I/O buses and the main shared memory.

A major feature of the Olivetti NetFRAME architecture design is the particular care taken to ensure maximum system reliability, using backup power modules and an UPS (Uninterruptible Power Supply), which guarantee that the system will always be working on full power, both in normal circumstances and in the event of a power failure.

The memory modules are provided with ECC (Error Correction Code) mechanisms, and all the internal buses are continuously checked for parity errors.

The main design features of the Olivetti NetFRAME system family are:

- Modular system architecture
- Industry standard software
- Common system management tools

MODULAR SYSTEM ARCHITECTURE

The models of the Olivetti NetFRAME family are based on a common architectural design, which results in a highly modular hardware and software platform, in which the main components (processors, memory, hard disks and power supply modules, etc.) are interchangeable between the different models.

The Figure above shows the high level of modularity that has been achieved in the Olivetti NetFRAME system.

The common design of the system elements makes it possible to exploit all the advantages of expandability, and simplifies upgrading from one model to another. For example, to upgrade an Olivetti NetFRAME 300 model to NetFRAME 400, you simply have to replace the i386-based CPU with an i486-based CPU.

A further advantage of the modular design of the Olivetti NetFRAME system is that it safeguards your investments when your requirements increase.

With Olivetti NetFRAME you can start out with the entry-level Olivetti NetFRAME 100 model and subsequently expand it as your requirements develop, thus achieving an excellent price/performance ratio.

All the models in the Olivetti NetFRAME family use the same architecture for the shared main memory. This feature enables the various processors to exchange data at a speed of 100 MB/s.

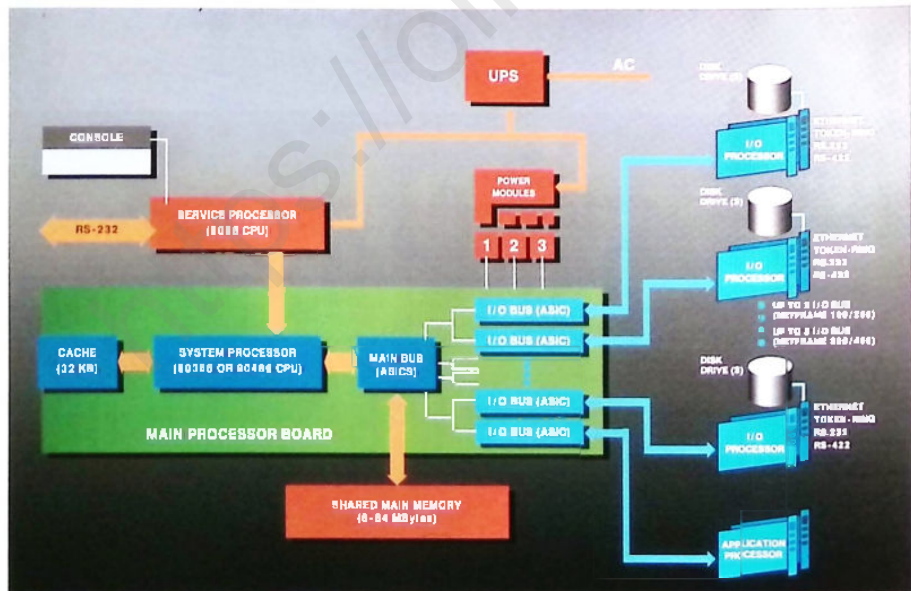


Fig. 2-2 Olivetti NetFRAME - General System Architecture

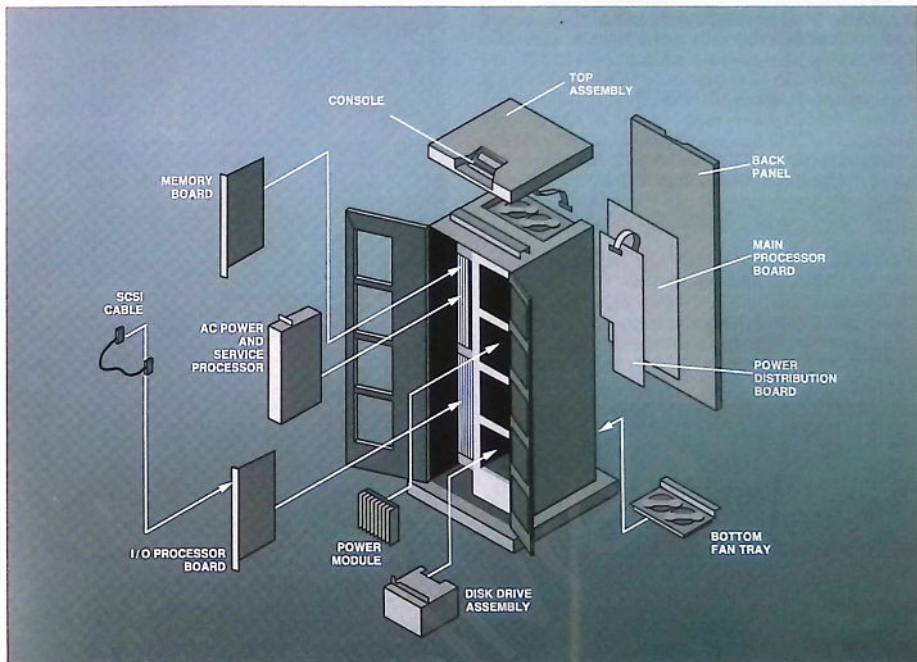


Fig. 2-3 Modularity of the Olivetti NetFRAME 300/400 Design

INDUSTRY STANDARD SOFTWARE

Olivetti NetFRAME network software has been chosen on the basis of the most widely-used standards available, and their quality and characteristics.

The entire Olivetti NetFRAME family supports the same industry standard software for the PC LAN network environment: Novell NetWare 386 or MS OS/2 LAN Manager.

By adopting industry standard network software and hardware based on latest-generation PC technology, Olivetti is able to offer not only a complete and technologically advanced product, but one that is open to evolution in hardware and software design. In this way, Olivetti NetFRAME systems can handle all your requirements - now and in the future.

COMMON SYSTEM MANAGEMENT TOOLS

Olivetti NetFRAME systems use the same network and disk "drivers", the same system management tools and the same software for remote diagnostics. This common design simplifies system management also after re-configuration, thus protecting your software investments.

For large local network configurations, the user can manage the numerous network components (workstations, peripherals, disks etc.) from a single Server, and use common utilities for controlling them as required.

THE MODELS: THE IDEAL MAINFRAME SERVER FOR EVERY NETWORK

The Olivetti NetFRAME family comprises four models: Olivetti NetFRAME 100, Olivetti NetFRAME 200, Olivetti NetFRAME 300 and Olivetti NetFRAME 400, each designed with the same multiprocessor architecture, but with different power and performance.

OLIVETTI NetFRAME 100: THE EASILY EXPANDABLE ENTRY-LEVEL MODEL

Olivetti NetFRAME 100 is the entry-level version of the Olivetti NetFRAME family. Its basic characteristics and modular design make it easily expandable as the user becomes more demanding. Olivetti NetFRAME 100 is compact and its cost can be compared to that of a Server based on an i386- or i486-based PC.

Olivetti NetFRAME 100 uses an i386 processor running at 25 MHz; in the standard configuration, it is supplied with 8 MB of ECC memory and a 380 MB hard disk. The main memory can be expanded up to 32 MB, the mass memory can be expanded up to 6.4 GB (33.6 GB with expansion cabinets).

It includes an "I/O Processor" board providing the following connections: SCSI-II, RS-232, RS-422, Ethernet or Token-Ring. Olivetti NetFRAME 100 includes system management software and the SAM "Server Activated Maintenance" remote diagnostics service.

It can host up to three boards with secondary processors, for both I/O and applications.

Olivetti NetFRAME 100 can also be configured with UPS (Uninterruptible Power Supply) to guarantee continuity of service and data integrity in the event of a power failure.

Olivetti NetFRAME 100 is suitable for departmental environments or business applications with small or medium-sized LAN networks, where reliability and expandability are essential.

An ideal role for Olivetti NetFRAME 100 would be as a Server instead of a top-range PC Server.

In its maximum configuration it has the power of three top-range PC Servers at the price of only two.



Fig. 2-4 Olivetti NetFRAME 100

Olivetti NetFRAME 100 Configurability

	Minimum Conf.	Maximum Conf.
Main processor (CPU)	80386 at 25 MHz	80386 at 25 MHz + 80387
Main Memory	8 MB	32 MB
Max capacity, hard disk:		
- integrated	380 MB	6.4 GB
- with expansions cabinets	—	33.6 GB
Secondary processors (I/O Processors and Application Processors)	1	3
Options	—	UPS Magnetic tape unit

OLIVETTI NetFRAME 200: NEW POWER FOR DATABASES

The Olivetti NetFRAME 200 is a high-performance version of the Olivetti NetFRAME 100, based on Intel 486 technology and designed to deliver high database and network application throughput. It can support up to three Ethernet or Token-Ring networks.

Olivetti NetFRAME 200 - packaged in an Olivetti NetFRAME 100 sized cabinet - uses an i486 processor running at 25 MHz; in the standard configuration, it is supplied with 8 MB of ECC memory and a 380 MB hard disk.

The main memory can be expanded up to 32 MB, the mass memory can be expanded up to 6.4 GB (33.6 GB with expansion cabinets). It includes an "I/O Processor" board providing the following connections: SCSI-II, RS-232, RS-422, Ethernet or Token-Ring. Olivetti NetFRAME 200 includes system management software and the SAM "Server Activated Maintenance" remote diagnostics service.

It can host up to three boards with secondary processors, for both I/O and applications.

Olivetti NetFRAME 200 can also be configured with UPS to guarantee continuity of service and data integrity in the event of a power failure.

The Olivetti NetFRAME 200 is a high-capacity, high-reliability network Server, designed specifically for department and branch office applications; it is ideal for growing PC LANs where file Server applications are combined with the need for powerful database processing.

It is particularly suitable for small or medium-sized LAN networks, where the reliability, expandability and economy of popular PC LANs are essential.



Fig. 2-5 Olivetti NetFRAME 200

Olivetti NetFRAME 200 Configurability

	Minimum Conf.	Maximum Conf.
Main processor (CPU)	Intel 486 at 25 MHz	Intel 486 at 25 MHz
Main Memory	8 MB	32 MB
Max capacity, hard disk:		
- integrated	380 MB	6.4 GB
- with expansion cabinets	—	33.6 GB
Secondary processors (I/O Processors and Application Processors)	1	3
Options	—	UPS Magnetic tape unit

OLIVETTI NetFRAME 300: HIGH CAPACITY FOR LARGE NETWORKS

Olivetti NetFRAME 300 is the Server system for mid-range PC LAN networks, and has greater I/O capacity and increased configurability. It can support up to eight Ethernet or Token-Ring networks.

Olivetti NetFRAME 300 has a structure of the floor-standing type and is fitted with an i386 processor running at 25 MHz; in the standard configuration it is supplied with 8 MB of ECC memory and a 380 MB hard disk.

The main memory can be expanded up to 64 MB, the mass memory can be expanded up to 12.8 GB (89.6 GB with expansion cabinets). It includes an "I/O Processor" board providing the following connections: SCSI-II, RS-232, RS-422, Ethernet or Token-Ring.

Olivetti NetFRAME 300 includes system management software and the SAM "Server Activated Maintenance" remote diagnostics service.

It can host up to eight boards with secondary processors, for both I/O and applications.

Olivetti NetFRAME 300 can also be configured with additional power modules and UPS (Uninterruptable Power Supply) to guarantee continuity of service and data integrity in the event of a power failure.

Olivetti NetFRAME 300 is designed mainly for the LAN networks of medium- to large-sized companies, usually departmental, where expandability is an important requirement.



Fig. 2-6 Olivetti NetFRAME 300

Olivetti NetFRAME 300 Configurability

	Minimum Conf.	Maximum Conf.
Main processor (CPU)	80386 at 25 MHz	80386 at 25 MHz + 80387
Main Memory	8 MB	64 MB
Max capacity, hard disk:		
- integrated	380 MB	12.8 GB
- with expansion cabinets	—	89.6 GB
Secondary processors (I/O Processors and Application Processors)	1	8
Options	—	UPS Add. power modules Magnetic tape units

OLIVETTI NetFRAME 400: THE GUARANTEE OF MAXIMUM EFFICIENCY

Olivetti NetFRAME 400 is the top-range Server system of the Olivetti NetFRAME family. It can support up to eight Ethernet or Token-Ring networks.

Olivetti NetFRAME 400 has a floor-standing type structure and uses an i486 processor running at 25 MHz; it is offered in the standard configuration with 16 MB of ECC memory, and a 380 MB hard disk.

The main memory can be expanded up to 64 MB, and the mass memory can be expanded up to 12.8 GB (89.6 GB with expansion cabinets).

It includes an "I/O Processor" board providing the following connections: SCSI-II, RS-232, RS-422, Ethernet or Token-Ring.

Olivetti NetFRAME 400 includes system management software and the SAM "Server Activated Maintenance" remote diagnostics service. It can host up to eight boards with secondary processors, for both I/O and applications.

Olivetti NetFRAME 400 can also be configured with supplementary power modules and UPS (Uninterruptible Power Supply) to guarantee continuity of service and data integrity in the event of a power failure.

The Olivetti NetFRAME 400 can handle complex networks with power to spare, is easy to operate and has space for expansion to meet the needs of the most demanding user. Olivetti NetFRAME 400 is suitable for departments of large organizations having a large number of users and intensive I/O activities, which require a high performance Server system with high access speeds to disks and shared peripherals, guaranteed service, efficiency and ease of use.



Fig. 2-7 Olivetti NetFRAME 400

Olivetti NetFRAME 400 Configurability

	Minimum Conf.	Maximum Conf.
Main processor (CPU)	Intel 486 at 25 MHz	Intel 486 at 25 MHz
Main Memory	16 MB	64 MB
Max capacity, hard disk:		
- integrated	380 MB	12.8 GB
- with expansion cabinets	—	89.6 GB
Secondary processors (I/O Processors and Application Processors)	1	8
Options	—	UPS Add. power modules Magnetic tape units

3. System Performance and Expandability

Increasing use of local networks of PCs having large numbers of workstations demands guaranteed service and efficiency, to ensure that company productivity is always at maximum level. Sometimes the company workload is particularly heavy at certain times (for accounting or administrative reasons, for example). In these situations the network's efficiency is of vital importance, and may become problematical if the Servers installed have not been correctly designed in terms of I/O capacity, use of memory, processing performance, etc.

Also, in most cases the number of users in a LAN grows over time, as well as the workload that needs to be supported by the Server. Because of this continuously growing demand for power, the ability of the Server architecture to follow this pattern is of critical importance; Olivetti NetFRAME Server systems guarantee this by providing seamless expandability in all the significant areas:

- Processing power
- Main memory size
- I/O throughput
- Disk capacity

PROCESSING POWER: UP TO TEN SIMULTANEOUS PROCESSORS

Olivetti NetFRAME systems have multiprocessor architecture and can be fitted with **up to ten processors**, which function simultaneously and with the maximum efficiency. As well as the Main Processor and the Service Processor, the Olivetti NetFRAME can have up to eight integrated processors (I/O Processors or Application Processors). Thanks to the multiple-bus architecture the processors function independently, and thus each activity (whether I/O or Application) is executed without adversely affecting the network's traffic level or the system's processing ability.

MAIN MEMORY

Olivetti NetFRAME's main memory is shared by the various processors. Access to these processors is synchronized using a mechanism designed using ASIC (Ap-

plication Specific Integrated Circuit) technology, which enable throughput to achieve rates of up to 100 MB/s. Each expansion module has its own memory dedicated to the local processor, which can thus operate at maximum efficiency.

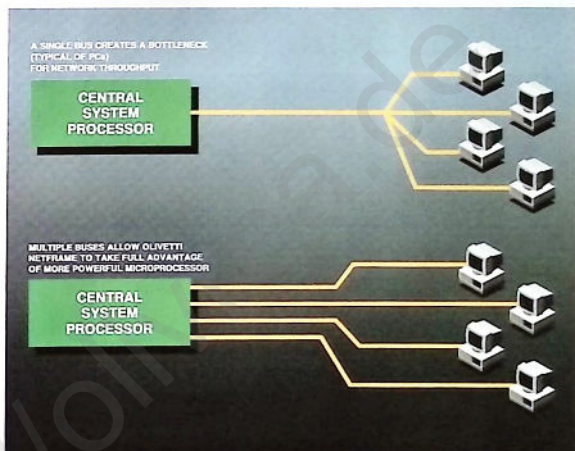


Fig. 3-1 Olivetti NetFRAME: Multiple Bus Architecture

The main memory can be expanded up to **64 MB** (Olivetti NetFRAME models 300/400); the expansion modules have 1 MB for the "I/O Processor" and 16 MB for the "Application Processor". A cache memory of 32 KB is also available, to increase system performance still further.

The size of the main memory and the general throughput guarantee a high level of system efficiency at all times, even in the largest configurations.

I/O CAPACITY

Thanks to the mainframe-type multiple bus architecture of each Olivetti NetFRAME model, the power of its processor can be exploited to the maximum. This provides a system that can support multiple networks and plenty of hard disk capacity (up to 89.6 GB) without reducing the system's capacity in terms of network throughput and I/O activity.

The Olivetti NetFRAME Server handles the disks, local network, and peripherals using one or more specific boards for input/output activity. The I/O board is

based on an Intel 80376 processor (equivalent to the i386) which provides a throughput of over 6 MB/s. It connects disks and peripherals using the SCSI-II industry standard interface, with RS-232 (SDLC compatible), RS-422, Ethernet or Token-Ring ports.

Olivetti NetFRAME models 300/400 can handle I/O activities for a maximum of **eight different local networks** with extremely high network and disk sub-system throughput.

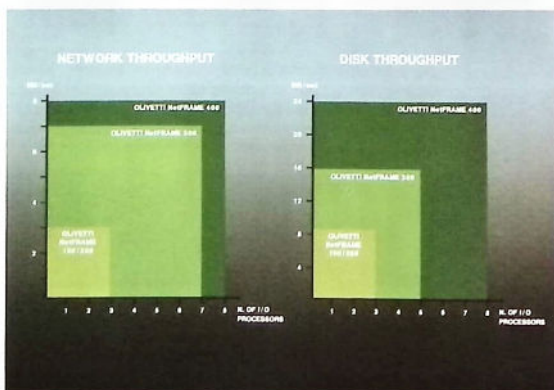


Fig. 3-2 Network Throughput and I/O Activity (*)

The same machine may be fitted with I/O boards with connections to Ethernet or Token-Ring.

(*) Note that the Olivetti NetFRAME 200, with similar I/O throughput to the Olivetti NetFRAME 100, provides additional processing power for databases and applications.

DISK CAPACITY

All Olivetti NetFRAME models use 5.25" hard disks, SCSI-II interface (the latest version of SCSI) with capacities of 380 MB, 760 MB and 1.6 GB. Each SCSI-II channel can connect up to seven hard disks.

All Olivetti NetFRAME systems can also use 400 MB 3.5" paired hard disk drives with a SCSI-II interface, which provide the highest performance.

The hard disks are integrated in the system cabinet and, to increase mass memory capacity, an expansion cabinet is available (Olivetti NetFRAME Storage System), which has the same structure as the Olivetti NetFRAME 300/400 models and can host up to eight hard disks.

Depending on the model, each system can connect up to six expansion cabinets (up to a total of 56 hard disks).

The possible configurations are shown in the Table below.

INTEGRATED DISKS			DISKS WITH EXPANSION CABINETS	
MODEL	N. OF DISKS	MAX. CAPACITY	N. OF DISKS	MAX. CAPACITY
Olivetti NetFRAME 100	4	6.4 GB	21 (with three cabinets)	33.6 GB
Olivetti NetFRAME 200	4	6.4 GB	21 (with three cabinets)	33.6 GB
Olivetti NetFRAME 300	8	12.8 GB	56 (with six cabinets)	89.6 GB
Olivetti NetFRAME 400	8	12.8 GB	56 (with six cabinets)	89.6 GB

4. System Reliability and Maintainability

Each model in the Olivetti NetFRAME family has all the characteristics of reliability more often found in mainframes, such as Error Correction Code (ECC), parity checking, supplementary power input modules and automatic restart/retry.

By means of disk backup subsystems - "disk duplexing" and "disk mirroring" - Olivetti NetFRAME systems guarantee not only high resistance to breakdowns, but continuity of service even in the event of problems with such important components as disks.

I/O bus duplexing, which can be provided on all Olivetti NetFRAME models, ensures extremely high levels of reliability.

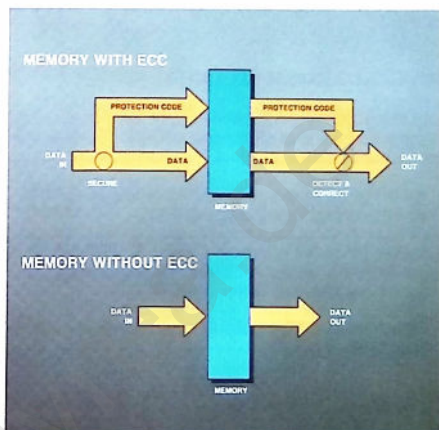
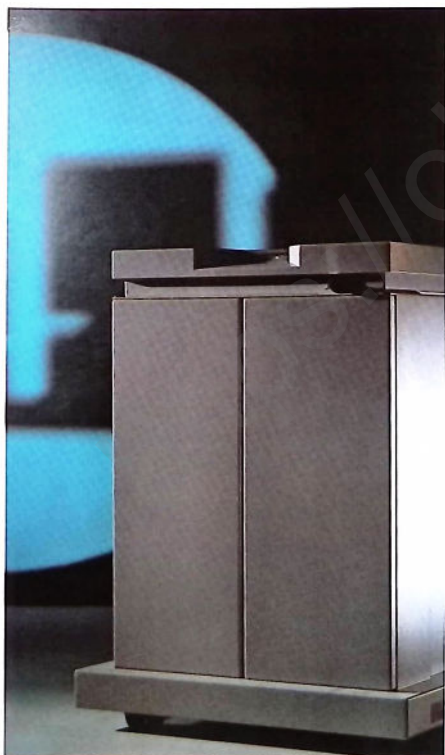


Fig. 4-1 ECC Memory Layout

MEMORY WITH ECC

Adoption of the ECC mechanism in the main memory of Olivetti NetFRAME guarantees the detection and automatic correction of errors without interrupting system functioning, thus ensuring complete integrity of the data processed.

DATA PARITY CHECKING

In Olivetti NetFRAME architecture, all the main data flow channels are subject to parity checking, which guarantees the integrity of data passing through the Server. Parity checking ensures protection of data integrity from the moment it accesses the Server to the moment in which it is re-transmitted on line.

BACKUP POWER MODULES

Continuity of Olivetti NetFRAME system functioning is guaranteed by providing additional power input modules.

Up to three modules can be installed, connected in parallel, to enable the Olivetti NetFRAME Server also to automatically balance the power loading of each one during normal operations.

AUTOMATIC RETRY/RESTART

In the event of a temporary fault, Olivetti NetFRAME systems can make automatic retries, which are transparent to network users. If the fault persists, the Olivetti NetFRAME system transfers the contents of memory to a reserved disk area, so that diagnostics can be effected on it by specialized personnel. This type of problem is often caused by network faults and normally the Olivetti NetFRAME Server enables operations to be quickly restarted.

PHYSICAL SYSTEM SECURITY

All Olivetti NetFRAME models have been designed to guarantee a high level of physical security. The main system elements covered are:

- **Access to the system:** allowed according to three levels of privilege using a physical key.
- **System operating interface:** Olivetti NetFRAME does not require a keyboard or monitor and unauthorized operations are thus impossible.
- **Protection of cabling:** cabling cannot be accessed from outside the machine.

TAPE BACKUP SYSTEM

All Olivetti NetFRAME systems support the connection of two tape units for backup purpose: a 2.2 GB 8 mm tape drive and a 1.3 GB 4 mm DAT drive. The backup software installed with the unit allows for centralized and transparent backup, without disturbing the current users of the LAN.

UNINTERRUPTABLE POWER SUPPLY (UPS)

All Olivetti NetFRAME systems support the connection of an UPS to compensate for AC outages of up to one hour. The UPS is connected to the Service Processor, which keeps a record of all the problems encountered in the power supply.

In the event of an AC power loss that lasts longer than the backup period that the UPS can provide for, an unattended system shutdown is automatically started.

SERVER ACTIVATED MAINTENANCE (SAM)

This function, common to all NetFRAME models, provides remote diagnostics of the system 24 hours a day, and records all system events, including errors.

In the event of major errors endangering the effectiveness of the system, SAM can automatically call a predefined telephone number, giving a warning (dial-out).

SAM also supports a remote diagnosis function, which allows the source of hardware and software problems to be identified even when the Server is out of action, using its independent power supply module (dial-in).

REMOTE SYSTEM MANAGEMENT

The Olivetti NetFRAME "Remote Console" software function enables you to manage the system from any i286/i386 PC connected in the network. The "Remote Console" includes special functions for network management, such as network configuration, installation of software, making backups, etc.

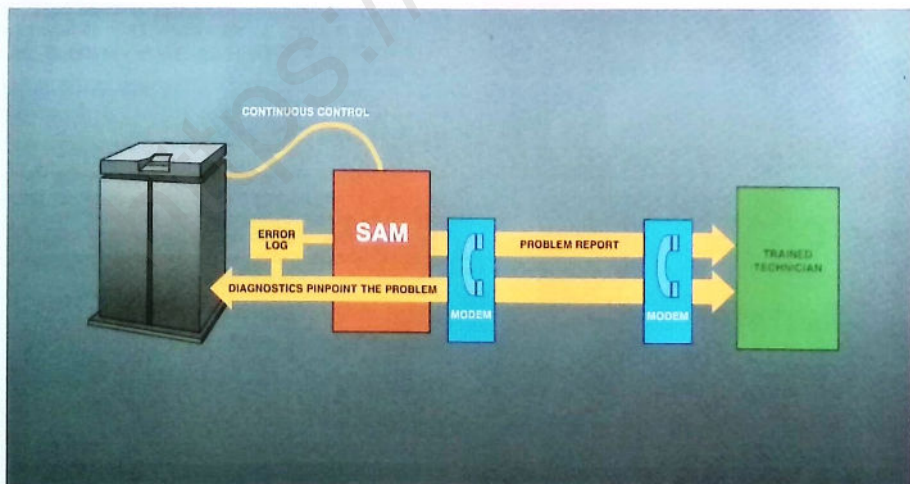


Fig. 4-2 SAM - Server Activated Maintenance

5. Specifications

The following tables show the technical data and main characteristics of Olivetti NetFRAME Servers.

OLIVETTI NetFRAME SPECIFICATIONS

	Olivetti NetFRAME 100	Olivetti NetFRAME 200	Olivetti NetFRAME 300	Olivetti NetFRAME 400
Main processor (CPU)	Intel 386	Intel 486	Intel 386	Intel 486
Clock	25 MHz	25 MHz	25 MHz	25 MHz
Coprocessor	80387	—	80387	—
Secondary processors: (I/O Processors and Application Processors)	3	3	8	8
I/O System: - I/O throughput - sustained I/O throughput - buses	50 MB/s 15 MB/s 2	50 MB/s 15 MB/s 2	100 MB/s 25 MB/s 4	100 MB/s 35 MB/s 4
Main shared memory: - size - max. n. of boards	8/32 MB 2	8/32 MB 2	8/64 MB 4	16/64 MB 4
Cache	32 KB	32 KB	32 KB	32 KB
Disk storage: - standard - max. (internal) - max. (with expansion cabinets)	380 MB 6.4 GB 33.6 GB	380 MB 6.4 GB 33.6 GB	380 MB 12.8 GB 89.6 GB	380 MB 12.8 GB 89.6 GB
Enclosure dimensions (mm)	650x475x475	650x475x475	1050x475x475	1050x475x475
Weight standard	29 Kg	29 Kg	67 Kg	67 KG
Power max.	500 W	500 W	1500 W	1500 W

OLIVETTI NetFRAME SPECIFICATIONS AND FEATURES

MAINTENANCE FEATURES	Remote power control Remote board level revision identification Voice synthesized error reporting Telephone error notification Independent service processor Automatically saves memory to disk during a failure Non-volatile error log Built-in administration/diagnostics modem Disk mirroring Disk duplexing I/O bus duplexing Server based tape backup system
ADMINISTRATION FEATURES	Remote console software Multiple Server administration
RELIABILITY FEATURES	ECC memory Internal parity on all main buses Automatic restart and retry Optional redundant power modules (Olivetti NetFRAME 300/400 only) Multiple independent I/O buses UPS communication port
SOFTWARE	Novell NetWare 386 MS OS/2 LAN Manager
VOLTAGE REQUIREMENTS	Nominal line: 115VAC or 230VAC at 50/60 Hz autoranging Line deviation: 90VAC to 130VAC, 180VAC to 226VAC
PHYSICAL SECURITY	System lock protects on/off switch, cards, cables, and administrative keypad
ENVIRONMENT	Ambient temperature: 10° to 40° degrees C Humidity: 10 percent to 80 percent R.H. Altitude: 10000 feet/3000 meters Acoustic noise: 53 dBA max.
REGULATORY	Safety: UL, CSA, TUV RFI/EMI: FCC Class B, VDE Level B

I/O PROCESSOR SPECIFICATIONS

STANDARD I/O PROCESSOR	I/O Processor with Intel 376 (386X equivalent) I/O Processor interfaces: Ethernet or Token-Ring, SCSI-II, RS-232, RS-422
ETHERNET INTERFACE	Controller based on Intel 82590 Data transfer rate: 10 Mb/s IEEE 802.3 AU1 compatible Standard DB-15 connector (requires external transceiver)
TOKEN-RING INTERFACE	Controller based on Texas Instruments microprocessor Data transfer rate: 4/16 Mb/s (software selectable) IEEE 802.5 AU1 compatible Standard DB-9 connector
CPU	Intel 80376 at 16 MHz, 32-bit registers with 16-bit data bus
MEMORY	1 MB of DRAM, 128 KB of PROM
SCSI INTERFACE	Controller based on NCR 53C94 Single-ended asynchronous transfer Peak transfer rate: 5 MB/s CCS, multi-thread I/O Standard SCSI-II connector
SERIAL COMMUNICATION	Controller based on Zilog 85C30 (SCC) Asynchronous transfer rate up to 19.2 Kbps Synchronous transfer rate up to 100 Kbps SDLC/HDLC compatible RS-232C compatible Standard DB-25 connector

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TRADEMARKS

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