

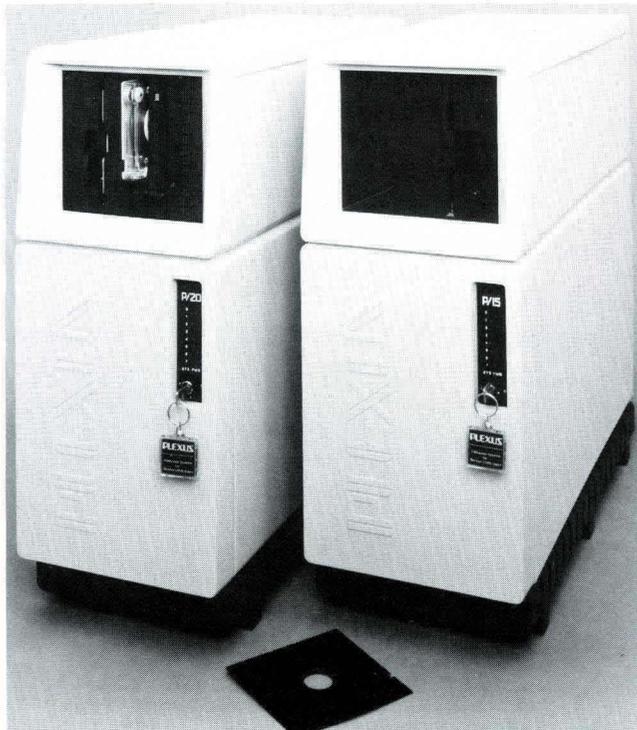
The Plexus P/15 and P/20 are powerful 16/32-bit super microcomputers specifically designed for the popular UNIX operating system.

The P/15 supports 8 users and the P/20 with the addition of the Intelligent Communications Processor (ICP) extends this configurability to 16 users. Both are ideal for applications that demand high processor performance and fast terminal response. They offer superior performance, reliability, and industry-standard hardware and software interfaces for maximum OEM flexibility.

Both systems employ a powerful microprocessor design featuring two MC68010 microprocessors, a large main memory, and a wide selection of industry-standard 5.25-inch peripherals with high speed intelligent controllers. This design closely links the multiprocessor architecture with a tuned implementation of the UNIX operating system to ensure maximum multiuser performance.

For enhanced OEM flexibility, the systems use the industry standard Small Computer Systems Interface (SCSI) for connecting peripheral devices. This allows them to be configured with a wide range of Winchester disks, floppy disks and cartridge tape drives.

The P/15 and P/20 run Sys5.2, the Plexus implementation of UNIX system V release 2, along with many industry-standard programming languages, making them compatible with a wide variety of existing applications. They are software compatible with all other members of the Plexus family allowing a smooth upgrade path as computing requirements expand.



FEATURES

Performance

- Multiprocessor architecture
- High performance 68010 processors
- Up to 2 Mbytes of main memory
- Dedicated 68010 I/O processor
- Full SCSI disk interface
- Up to 152 Mbytes of Winchester disk storage
- Floppy disk standard
- Streaming cartridge tape optional

Reliability

- Parity error control in main memory
- Error checking and correcting disk memory
- Extensive use of VLSI circuitry
- 10,000-hour MTBF disk drives
- UNIX Sys5.2 operating system
- Modular design for easy service

Compatible Hardware

- Industry-standard peripheral interfaces
- Industry-standard communications

Standard Software

- Sys5.2 runtime operating system
- Industry-standard languages

Designed for the Office

- Quiet
- Compact size, office compatible
- Uses standard AC power

MULTIPROCESSOR DESIGN

The high performance of the machines is made possible by a special multiprocessor architecture optimized for the UNIX operating system.

The architecture links a powerful 16/32-bit job processor with a second 16/32-bit I/O processor of equal power to remove I/O processing overhead from the job processor. During system operation, the job processor performs application processing and operating system functions while the second processor supervises all disk and magnetic tape I/O as well as handling the transfer of all data through the serial I/O ports.

PERFORMANCE PERIPHERALS

SCSI Peripheral Bus

The P/15 and P/20 incorporate a full implementation of the state-of-the-art Small Computer Systems Interface as the peripheral bus in the system. This ANSI standard bus is modeled after similar implementations that are widely used in large mainframe computers. The SCSI bus allows attachment of a wide variety of mass storage devices via intelligent full buffered controllers that interface each device to the SCSI bus. Each device controller gains control of the SCSI

bus when it wishes to transfer data. The data is transferred to or from main memory via a DMA operation on the I/O bus. This architecture insures optimum use of all devices on the bus regardless of their speed. In addition to its performance advantages, SCSI provides device independence by allowing the Job and I/O processors to address the peripherals with standard high-level commands.

Fast, High-Capacity Disk Drives

The disk subsystems consist of one or two 5.25-inch Winchester disk drives. The drives can be chosen from a family with a wide range of capacities and access times.

Cartridge Tape Drive

When high speed capacity disk backup is required, the system can be configured with a 45 Mbyte streaming tape drive. The cartridge tape can be used in place of, or in addition to, the standard floppy disk unit.

BUILT-IN RELIABILITY

The P/15 and P/20 design addresses the most common of computer system failure and employs safeguards against loss of data insuring maximum system reliability.

RAM Memory and Disk

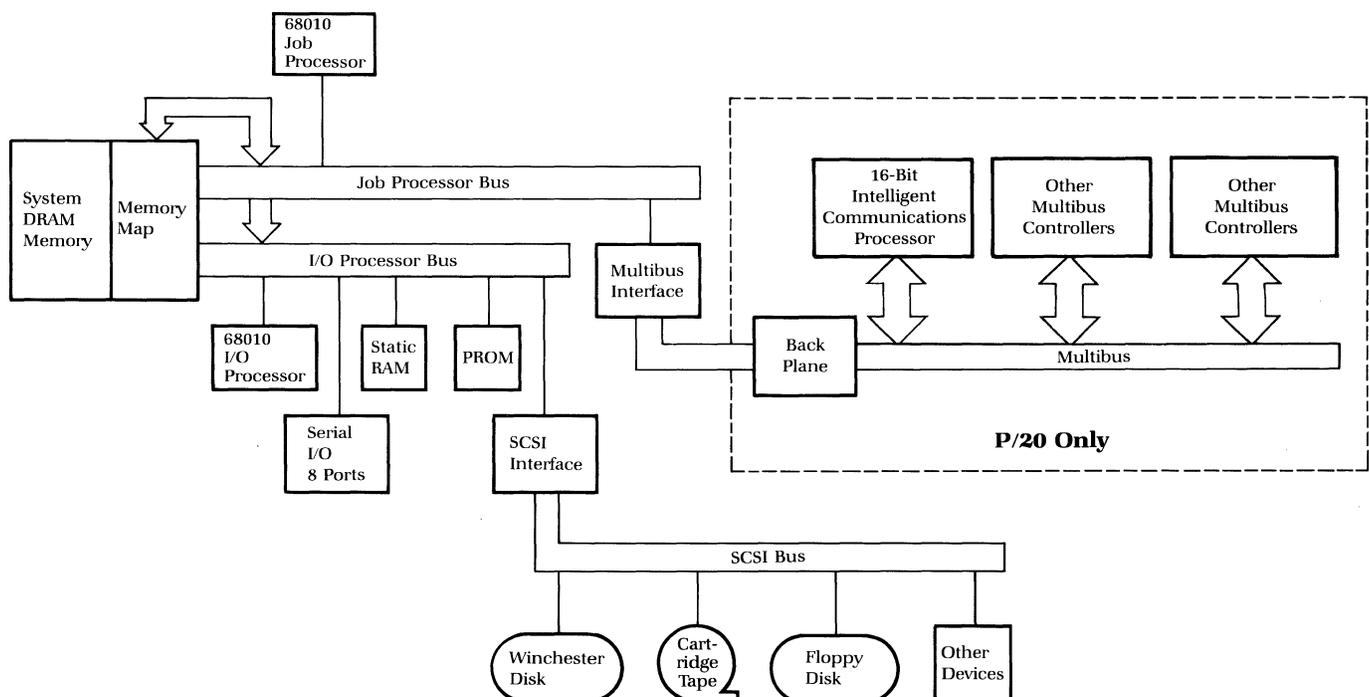
The system utilizes high-reliability hermetically sealed memory chips for maximum MTBF of the main memory subsystem. Parity error control consisting of one bit for each byte of main memory insures detection of single-bit data errors. The disk controller protects the data integrity of each sector with a 32-bit ECC (error correction code) allowing data errors up to 11 bits in length to be detected and corrected. This correction is handled automatically by the controller such that only error-free data reaches main memory.

Temperature and Power

The machine also allows the connection of an Uninterruptible Power Supply (UPS) between itself and the AC main power. The UPS allows normal operation to continue during brief power outages and provides for an orderly shutdown during lengthy power failures.

If the internal temperature should pass a predetermined threshold, an over-temperature sensing circuit alerts the job processor and an orderly shutdown may be initiated to save all data before a critical temperature is reached and a system failure results.

P/15-P/20 System Architecture



VLSI and LSI Circuitry

Extensive use is made of state-of-the-art VLSI and LSI circuits to minimize the number of components used, resulting in an inherently more reliable system. In addition, the cabinet is designed to channel cooling air to all parts of the system enclosure thus minimizing component heating and maximizing component life.

Self Test, Easy Repair

The P/15 and P/20 subject themselves to a comprehensive set of diagnostics every time they are powered on. These tests exercise every major subsystem including both processors, main memory, and all peripheral device paths.

Repair of the machines is facilitated by modular design and construction that begins with the easy access cover design that allows removal of the entire system outside cover with only two screws. All system modules, including the single-board of systems, are easily accessible for testing or replacement.

DESIGNED FOR THE OFFICE

The P/15 and P/20 are designed for ease of integration into the office environment. The dimensions of the system enclosures allow placement of the system in a variety of locations which include both under work tables and adjacent to desks. The systems have been engineered to emit very little sound so as to minimize the impact on office environment sound levels. The enclosure design is modern and the neutral colors blend well with any office decor.

SPECIFICATIONS

Job Processor

| | |
|----------------------|--|
| Processor | 16/32-bit MC68010 |
| Performance features | 12.5 MHz CPU clock Operates with no wait states Shared high speed memory map |
| User Address space | 8 Mbytes |
| Floating-point | Conforms to proposed IEEE standard |
| Clock/calendar | Battery-powered |
| Self-test | Standard, via on-board PROMs |

Memory

| | |
|------------|--|
| Capacity | Up to 2 Mbytes |
| Word size | 16 bits plus 2 parity bits |
| Access | Job processor bus or I/O processor bus |
| Technology | 256K-bit DRAM |
| Cycle time | 320 nsec |

I/O Processor

| | |
|----------------------|-----------------------------|
| Processor | 16/32-bit MC68010 |
| Performance features | 12.5 MHz CPU clock |
| PROM memory | 64 Kbytes |
| Static RAM | 16 Kbytes |
| Address space | 8 Mbytes |
| Self-test | Standard, via on-board PROM |

P/15–P/20 Communications Standard

| | |
|--------------|---|
| Serial ports | 8 (full-duplex) standard; all RS-232C 19.2 Kbaud rate |
|--------------|---|

P/20 I/O Bus

| | |
|-----------------|---------------------|
| Bus Standard | Multibus (IEEE 796) |
| Available Slots | 3 (max.) |

P/20 Communications Option

| | |
|-----------------|--|
| Intelligence | 16-bit processor |
| Memory | 32 Kbytes RAM (with parity); 16Kbytes PROM |
| Serial ports | 8 (full duplex); RS232C interface; 19.2 Kbaud rate (max.); modem support on all ports; hardware support for async and bisync protocols |
| Parallel ports | 1 Centronics-type interface |
| Configurability | ICP (max.) |

SCSI Interface P/15–P/20

| | |
|---------------------|---|
| Subsystem interface | SCSI (ANSI x 3T9.2/822) |
| Major functions | Error checking and recovery; full SCSI interface functions, multiple channel DMA controller |

Winchester Disk Subsystem

| | |
|---------------------------|-------------------------------|
| Drive interface | ST506 compatible |
| Host interface | SCSI |
| Configurability | 2 drives per system (maximum) |
| Subsystem capacity | 152Mb (maximum) |
| Disk drive options: | |
| Formatted capacity (Mb) | 12* 24 28 49 76 |
| Positioning time (msec) | 83 83 33 33 33 |
| Rotational latency (msec) | 8.3 8.3 8.3 8.3 8.3 |
| Transfer rate | 625 Kbytes/sec |

* P/15 only

SPECIFICATIONS (cont.)**Floppy Disk Subsystem**

| | |
|-------------------------|---|
| Disk drive | 5.25-in. floppy 96 tracks per inch Double sided double density |
| Drive interface | SA451 compatible |
| Host interface | SCSI |
| Configurability | 1 per system |
| Formatted capacity | 640Kbyte |
| Positioning time (msec) | 94 |

Tape Subsystem

| | |
|----------------------|-----------------------------------|
| Tape drive | Streaming cartridge (3M style) |
| Recording density | 8000 bpi, 9 tracks |
| Streaming speed | 90 ips |
| Formatted capacity | 45 Mbytes |
| Subsystem interface | SCSI |
| Controller interface | QIC-36 |
| Recording format | QIC-11 |
| Configurability | 1 drive per system |

AC Power Required **115 VAC** **230 VAC**

| | | |
|----------------|--------------|--------------|
| Line voltage | 115 VAC ±10% | 230 VAC ±10% |
| Line frequency | 60 Hz ±5% | 50 Hz ±5% |
| Current (max.) | | |

PHYSICAL CHARACTERISTICS**Overall Dimensions** **in.** **cm.**

| | | |
|--------|------|----|
| Width | 9.75 | 25 |
| Depth | 24 | 61 |
| Height | 24 | 61 |

Other Characteristics

| | | |
|----------------------|------------------------------|-------|
| Weight | 70 lbs. | 32 Kg |
| Audible noise | < 50db (A) | |
| Heat dissipation | 1710 BTU/hr 431 Kcal/hr | |
| Operating | 41F-95F degrees | |
| Temperature range | 5C-35C degrees | |
| Relative humidity | up to 90% non- condensing | |
| Regulatory approvals | UL, CSA, FCC, TUV, VDE | |
| Altitude | up to 10,000 feet | |
| Storage temperature | -40F-149F degrees | |
| range | -4°C-85C degrees | |

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