ALTOS 3068

FEATURES

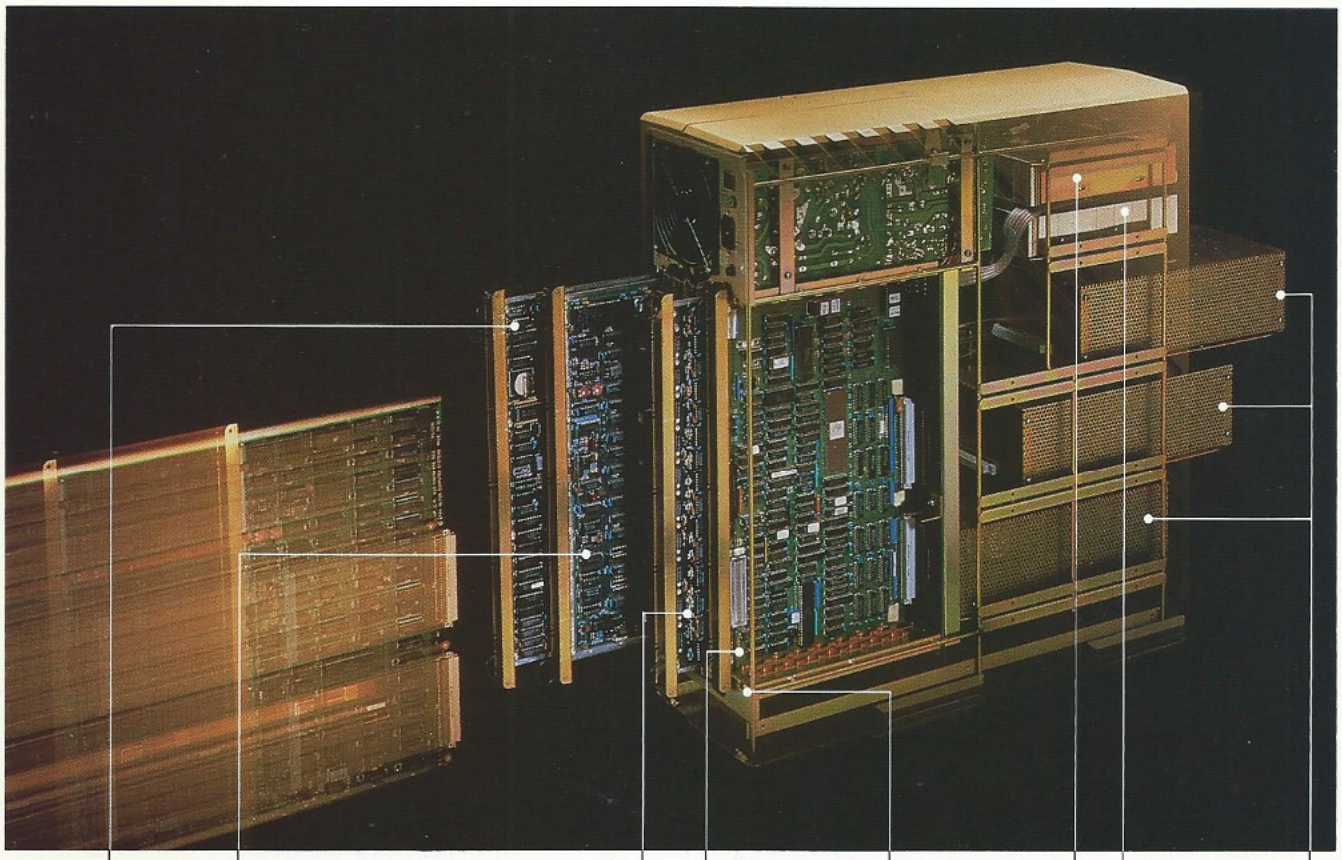
- Powerful 32-bit supermicrocomputer supporting up to 40 terminals.
- Motorola 68020 operating at 16.7 MHz with 16 MB of demand-paged virtual memory per process.
- Industry Standard. UNIX System V. Release 2.2 Operating System with zero wait states.
- 1 MB RAM expandable to 16 MB.
- Two 4 KB high speed associative data and instruction cache.
- From 50 to 570 MB of internal mass storage with up to three 5.25 inch 50 MB, 80 MB, or 190 MB Winchester Disk Drive.
- Integral 60 MB 1/4 inch Streaming Tape Drive.
- Integral 1.6 MB Floppy Disk Drive.
- Intelligent 8086-based File Processor Subsystem with 4 DMA Channels.
- Up to 4 intelligent 8086-based Serial Communications Modules with 128 KB of RAM each.
- Centronics Parallel Printer Port.
- Optional Floating Point Co-processor.
- Optional MultiBus Expansion.
- Local and Remote Hardware Diagnostics.
- Wide range of Communication Options including LAN, Async, Bisync, SNA, and X.25 Protocols.
- Complete set of Languages including C, FORTRAN, BASIC, Pascal, COBOL, DBL (Dibol compatible) & RPG II.
- Development Tools include Text Processing and Archival tools, symbolic debuggers, program tracing utilities, plus some Berkeley utilities.

OVERVIEW

▲ The Altos 3068 is a high performance, 32-bit supermicrocomputer based on the Motorola 68020 microprocessor and the UNIX System V, Release 2.2 Operating System. Its superior design, with demand-paged virtual memory, 8 KB of data and instruction cache, and efficient microprocessor-based File Processor and Communication Modules, provide support for up to 40 terminals at a fraction of the cost of a similarly performing superminicomputer or mainframe.

▲ The system is well suited for a vast variety of applications where a flexible, easily expandable multiuser solution is needed. With the Altos 3068, you may begin by supporting a few users with a low-cost, entry-level system and expand it as your needs change or you can begin with a powerful multiuser system with 16 MB of RAM and 570 MB of integral mass storage to automate a department or an entire business immediately.

▲ The Altos 3068 is just as well suited for the laboratory, factory or distributed processing environment as it is supporting sophisticated office automation and data processing requirements.



CPU BOARD
32 bit MC68020 microprocessor operating at 16.7 MHz with no wait states; 8 KB high speed cache memory; up to 16 MB virtual address space per process; optional floating point co-processor.

FILE PROCESSOR SUBSYSTEM
Controls 4 DMA channels for disk, tape, floppy, and parallel printer port; overlapped seeks on up to 3 disks.

SERIAL COMMUNICATION BOARD
8 MHz 8086 and 4 DMA channels with 10 serial ports; 128 KB local RAM is downloadable to support Async, IBM BSC 3270, 3780, SNA/SDLC, X.25, and LAN software.

RAM BOARD
May be configured to OEM needs, up to 16 MB, 2 MB, & 4 MB boards.

EXPANSION BOARD SLOTS
Up to three field installed boards can be added for more users or memory.

STREAMING TAPE
60 MB, 90 IPS cartridge tape drive.

1.6 MB FLOPPY DISK DRIVE

HARD DISK
Expandable to 570 MB (451.2 MB formatted) using up to three 50 MB, 80 MB or 190 MB drives, each with their own power supply.

HARDWARE

▲ *Main Processor*

The Altos 3068 is designed around the most powerful microprocessor available today – the Motorola 68020. This full 32-bit CPU, with its own high-speed on-chip address instruction cache, operating at 16.7 MHz with no wait states, offers the type of performance previously found only on expensive mainframe and superminicomputers. The efficient memory management unit is designed for high performance in the multiuser, multi-tasking environment. It supports both Altos' unique Multi-Context Caching™ Architecture and full demand-page virtual memory with 16 MBytes of virtual address space. The unit includes an 8 KByte, 2-set associative, data and instruction cache for even faster operations. In addition, its performance may be further enhanced with an optional MC68881 floating point co-processor.

▲ *Memory*

Memory capacity in the Altos 3068 is highly flexible and expandable. The system may be configured from 1 MB of RAM all the way up to a full 16 MB of RAM using any combination of 1 MB, 2 MB or 4 MB memory boards. This allows you to tailor the system to your specific needs while providing an economical upgrade path as your needs change.

▲ *File Processor Subsystem*

This subsystem improves the performance of the CPU by allowing the CPU to dedicate its processing power to what it was designed to do best, applications. The file processor subsystem offloads the I/O processing, required by peripheral devices, with its own 8 MHz Intel 8086 microprocessor. Additionally, a four channel DMA controller manages the peripherals to minimize I/O contention. Another important feature on this subsystem, which results in increased I/O throughput on the Winchester disk drives, is support for overlapped seeks. This subsystem also provides a Centronics parallel printer port for printer support at speeds up to 900 lines per minute.

▲ *Serial Communications Subsystem*

This 8 MHz Intel 8086-based subsystem offloads serial communications processing from the CPU. Each subsystem supports an additional 10 RS-232 ports with up to two ports configurable for synchronous data and another port configurable as an RS-422 networking channel to operate Altos Worknet II local area network. Additional flexibility is provided by allowing the line discipline for each port to be set independently with baud rates selectable up to 19.2 Kbps. When configured for synchronous or networking operation, up to 4 DMA channels can operate simultaneously to efficiently offload the Intel 8086 from character interrupts by managing data transfer directly to the 128 Kb on-board RAM. The board supports a variety of communications protocols including IBM BSC 3270, 3780, SNA/SDLC, and X.25.

▲ *Data Storage*

The Altos 3068 offers extremely flexible data storage. Each standard system has an integral 1.6 MB Floppy Disk Drive, a 60 MB Quarter-inch Streaming Tape Drive, and either a 50 MB, 80 MB or a 190 MB 5.25 inch Winchester Disk Drive. Systems may be upgraded to a total of three Winchester Disk Drives of any of the above capacities for a maximum of 570 MB (451 MB formatted) of internal disk storage.

▲ *Modularity*

An important design feature of the Altos 3068 is its modularity. While an entry-level system will support several users, expansion options allow for increased memory, increased users and increased mass storage for support for up to 40 interactive devices. The devices may be Altos terminals, printers, modems, or other standard ASCII devices. The three expansion slots may be used to support a combination of either increased memory or up to 32 simultaneous users.

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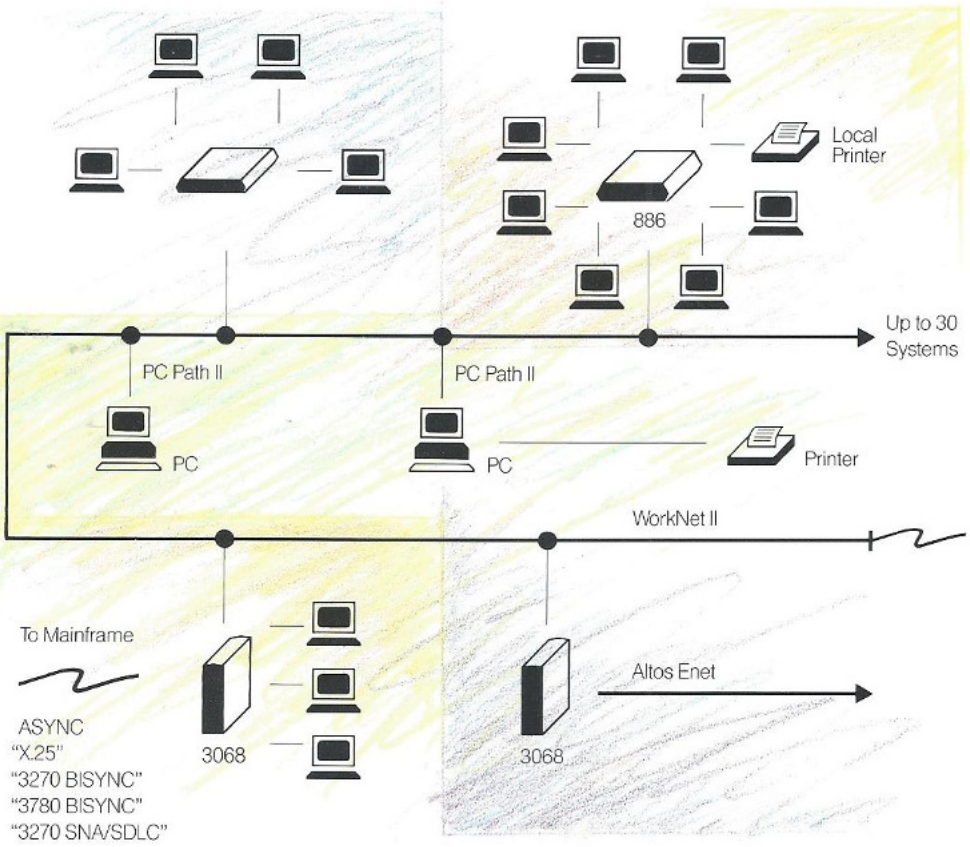
▲ *Communications Services*



▲ *Development Tools*

The Altos 3068 offers an ideal environment for software design, development, and maintenance. An optimized C compiler for the MC68020 is available along with a complete selection of industry standard languages including FORTRAN, COBOL, BASIC, Pascal, DBL (Dibol Compatible), and RPG II. *Text processing* and *archival* tools are available to create and maintain source code and documentation while a *symbolic debugger* and a program *tracing* utility may be used to simplify debugging. Berkeley utilities available include vi editor, C Shell and electronic mail. Some features of languages supported are:

SVS FORTRAN

- △ Full FORTRAN 77 ANSI X3.9-78 plus extensions
- △ IEEE standard representation of REAL data
- △ Data Types:
  INTEGER*1, 2, 4
  REAL*4, 8
  COMPLEX
  LOGICAL*1, 2, 4
  CHARACTER
- △ FORTRAN symbolic debugger
- △ Supports MC68881 floating point co-processor
- △ Fully optimized for MC68020 processor

SVS PASCAL

- △ A superset of ISO Standard Pascal
- △ Conforms to ANSI/IEEE 770x3.97 – 1983 Standard
- △ IEEE standard representation of floating point data
- △ Pascal symbolic debugger
- △ Supports MC68881 floating point coprocessor

SVS BASIC-PLUS

- △ Full IEEE double precision floating point
- △ Semi-compiled intermediate form for software distribution
- △ Compatibility with DEC™ BASIC-PLUS
- △ High level control structures
- △ Built-in math, vector, matrix, and string functions

DBL

- △ A superset of DEC's Dibol™
- △ Ability to interface with non-DBL programs and subroutines
- △ Fixed point decimal data type
- △ Multi-key ISAM support as well as random and sequential file access

RM/COBOL

- △ GSA certified ANSI X3.23 74 COBOL standard
- △ Full Level 2 relative and indexed file access methods
- △ Multi-keyed indexed files, with up to 14 alternate keys, including duplicates
- △ Powerful interactive screen handling facilities

SMC BASIC

- △ An enhanced Business Basic, compatible with Business Basic III
- △ Semi-compiled to save space and increase processing speed
- △ Comprehensive collection of system utilities for program maintenance
- △ Support of Indexed, Direct, Serial, Sort and Program files
- △ Conforms to "The C Programming Language," Kernighan/Ritchie 1978
- △ Source level symbolic debugger and a program tracing utility
- △ Support for MC68881 Floating Point coprocessor

RPG II

- △ Compatible with IBM System/3 and System/34
- △ A true compiler, producing fast, compact object code
- △ Fully supports LPI's multikeyed indexed sequential file handler
- △ Multiple, user-selectable levels of optimization

▲ *Diagnostics*

The Altos 3068 provides three major series of diagnostic tests to maintain maximum system availability. A "Power-On Test" confirms the operational status of major system components. A menu-driven "User Confidence Test" allows the non-technical system user to test the full functionality of the system. "Field Service Diagnostics" which can be run locally or executed remotely via a modem by a trained technician, will help isolate failures down to the field replacable unit. These features help isolate problems easily while system modularity offers quick servicing and maximum system availability to the user.

▲ *Productivity Tools*

Altos offers a full complement of application software solutions including the Altos Accounting Manager, a powerful general accounting software program, two outstanding database management systems, informix SQL and Unify, and the Altos Office Manager (AOM) Plus, a complete suite of office productivity tools combining word processing, electronic spreadsheet, database management, electronic mail, graphics, calendar management and communications in one menu-driven software program. In addition, an AOM Tool Kit is available as a development aid to facilitate installation of other vertical applications within the AOM Menu System. It also allows translation of AOM Menus into non-English languages and enables customization of Altos-supported software menus under the AOM Menu System.

S P E C I F I C A T I O N S

▲ ***Main Processor***

CPU	MC68020
Clock Rate	16.7 MHz
Data Bus Size	32 bits
Address Bus Size	32 bits
On-chip Cache Size	256 Bytes

▲ ***Floating Point Processor (Optional)***

Processor	MC68881
Data Format	IEEE-754 standard
Precision	32-bit single 64-bit double

▲ ***Main Memory***

Minimum RAM	1 MB
Maximum RAM	16 MB
RAM Board Sizes	1, 2, and 4 MB
Error Detection	parity

▲ ***Memory Management***

Memory Management Unit	MC68461
Address Translation Cache	512 entries
Virtual Memory	16 MB per process
Page Size	1 KB
Contexts	128 in hardware
Data/Instruction Cache-Size	8 KB
Organization	2 set associative

▲ ***Communication Processor Board***

Processor	8086, 8 MHz
On Board RAM	128 KB
DMA channels	4
Total Ports	10
Asynchronous Only	7
Asynchronous Speed	up to 19.2 Kbps
Synchronous Capable	1 full duplex 1 half duplex
Networking Capable	1 (RS-422)
Networking Speeds	.8 Mbps or 1.4 Mbps (software selectable)

▲ ***File ProcessorDevice Controller Boards***

Processor	8086, 8 MHz
DMA Channels	4
Parallel Port	1
Parallel Port Speed	50 Kbps

▲ ***Hard Disk Options***

Max Drive/Chassis	3
Platter Size	5.25"
Interface	ST-506
Unformatted Size	50 MB
Formatted Size	40 MB
Average Seek Time	30 ms
Data Transfer Rate	5 Mbps
Unformatted Size	80 MB
Formatted Size	63 MB
Average Seek Time	30 ms
Data Transfer Rate	5 Mbps
Unformatted Size	190 MB
Formatted Size	150 MB
Average Seek Time	30 ms
Data Transfer Rate	5 Mbps

▲ ***Floppy Disk Drive***

Max Drive/Chassis	1
Media Type	double sided/dual density
Media Size	5.25"
Media Capacity	1.6 MB unformatted 1.2 MB formatted

▲ ***Tape Drive***

Media type	1/4" DC600 cartridge
Operating Mode	90 ips, streaming
Capacity	60 MB per cartridge
Format	QIC-24
Interface	QIC-35
Number of tracks	9
Recording Mode	NRZI
Back up time (60 MB)	20 minutes

▲ ***Chassis Dimensions***

Height	24"
Width	8"
Depth	22"
Weight	68-86 lbs.

▲ ***Environmental and Safety Standards***

Meets FCC Docket 20780 Class A requirements.
UL, CSA, TUV (VDE 0806) approved.
Conforms to IEC 380 specifications.

Operating Temperature	+40 to +95 F. (+5 to +35 C.)
Relative Humidity	20 to 80% (noncondensing)
AC Power Range	100 to 127 VAC for 115 VAC 200 to 253 VAC for 230 VAC
Frequency Range	47 to 63 Hz

▲ ***Warranty***

This Altos product comes with a 90-day limited warranty.

▲ ***Ordering Information***

Prices and ordering information for this product are available through your Altos representative.

ALTOS COMPUTER SYSTEMS®

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