Nestar announces the Clustershared™ Microcomputer System — a major breakthrough for users of personal computers!

Palo Alto, CA.: Nestar Systems, Incorporated, announces a new Clustershared™ personal computer system with the introduction of the Cluster/One, Model A (for Apple). Now, up to 65 Apple II computers may be tied together in a local network. Users may communicate with one another, share data, and access the same files — while the individual computer remains free to tackle accounting or scientific problem solving without being tied down by other computers in the system.

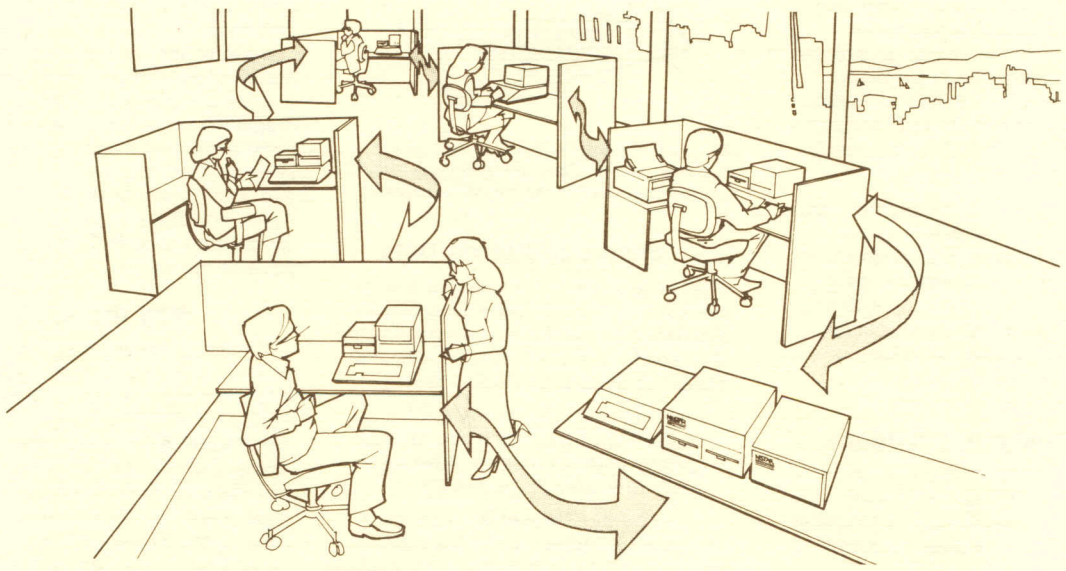
Professional and business offices as well as departments within large firms can now have a very cost-efficient Clustershared™ system, typically consisting of multiple Apple II computers, data recorders, plotters or graphics tablets. With up to 33 Mb of on-line storage in a single Model A, users may keep financial and operating records at their fingertips, may access training programs, or run statistical software. Memos and reports may be written, corrected, stored and 'mailed' to any other users on the Clustershared™ system.

Nestar President Harry J. Saal commented, "We have designed the Model A system to give personal computer users the features of so-called 'big' systems, without the penalties of inflexibility and cost. Being able to communicate within offices and to instantly access data are requirements of the office of *today* — not of the future!"

Key features of the Nestar Cluster/One, Model A are:

Cost effectiveness: In the ten-station system, with the Nestar 1,260,000 byte dual eight-inch floppy disk storage unit, the per station cost is less than $2,800. Due to resources sharing — of disks, printers, and other expensive peripheral equipment — the actual *cost-per-station* is considerably below what would be spent if each Apple were to have its own printer or large storage device.

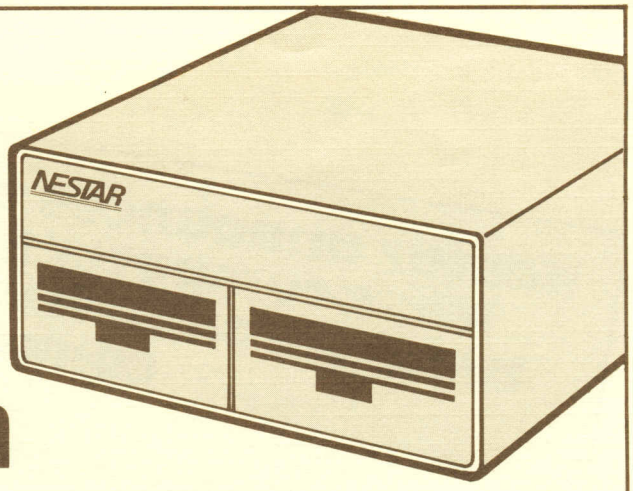
Expandability: Beginning with as few as three-Apple system, users may, at any



AS ADVERTISED:

The New Nestar Cluster/One "Model A"

Computer System Breakthrough



This white "black box" makes 2 to 65 low-cost Apple computers into a high-speed computer network with an unlimited number of multi-user applications.

A is for Apple...a first-rate personal computer. **"Model A"** is for the Nestar network that uses as few as two or as many as 65 standard Apple computers; one becomes a central processor; the others, interacting stations up to 1,000 feet away... Each station connects to a central storage system capable of storing up to 33 million bytes on a single hard disk... At an unbelievably low cost.

This is the new Nestar Cluster/One **"Model A"**...a unique proprietary network that allows the user to execute programs in either the Apple Disk Operating System or the Apple Pascal System environment. And the programs, files and data for either system reside in the central unit.

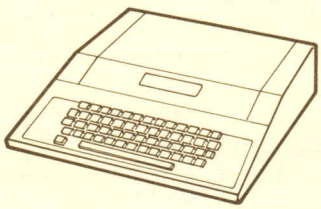
Information can be transmitted from machine to machine directly without going through disk files and without the need for modems. All stations share access either to private data or to a common read-only library of programs and data. All stations can update data bases simultaneously.

Limitless Applications

This allows—as only one example of an infinite number of multi-user applications—role playing by a number of executives in a business problem simulation.

Other user-written applications may include: classic central data-base systems • inventory control • accounting procedures • legal brief storage and reference • mailing list management • medical patient-information records • word processing with complete editing capability • electronic mail systems • inter-office memo systems • multi-user interactive simulations • financial planning systems • data acquisition • educational applications.

Applications limited only by the user's requirements and imagination.



This ordinary Apple computer has now become...without any modifications...the central controller in the Nestar network.

Shared or Private Data

All information can be shared among users or—using the system's protection mechanism—can be password-protected so that only one designated individual or group has access to specific data.

(As an example, a number of people may have permission to read specific data but may not have the ability to modify those data.)

In the Nestar **"Model A"** network, a standard 48K Apple can function as the dedicated central controller/mass storage manager, with connections to the Nestar storage subsystems and to other Apples that serve as user stations. Each station is connected to the ClusterBus which can be up to 1,000 feet of 26-wire ribbon cable or standard DB-25 round cable.

The White "Black Box"

The **"Model A"** consists of a compact metal box with two double-sided 8-inch floppy disks with formatted available storage of 1,260,000 bytes; the necessary electronics which plug into the central controller Apple; the ClusterBus communication card; the communication cards required for each Apple station, and all necessary software. Also available as an option is the Nestar hard disk drive with either 16.5 or 33 million bytes of formatted available storage in a single unit.

The user station communication cards contain 2KB of ROM, 1KB of RAM and all necessary bus electronics. They are compatible with standard Apple interface cards including those for mini-disks, serial and parallel printers, modems, sound, and graphics tablets. The ClusterBus communication card plugs into any of the peripheral connectors inside the Apple and is perceived by the Apple to be an Apple mini-disk controller card and thus will be automatically initialized when the Apple is turned on.

Why the Apple?

Programs written in language supported currently by Apple—Applesoft BASIC, Integer BASIC, machine language, Pascal—will function without change in the **"Model A."** Any hardware in the Apple universe obeying Apple standard conventions can be used. Most applications in automation, accounting, legal, or small business use can be immediately put to work without any reprogramming.

(Why did the Nestar people who developed the ***"Model A"*** *— the state of the art system — select the Apple? The Apple is extremely cost-effective. It's probably the best-regarded microcomputer in the business and education communities. It has a good service record, and has the best network of independent dealers in the business.)*

"Model A" Commands

The **"Model A"** provides a series of commands within either Apple DOS or Apple Pascal that manipulate what seem to be mini-disks but are in actuality subsections of the floppy or hard disks:

MOUNT	Has the logical effect of inserting a disk into a simulated mini-disk drive. It also allows the user to indicate if this disk will be used for exclusive access or shared access, read-write or read-only.
UNMOUNT	Simulates the removal of the disk from the drive.
CREATE	Allocates space for a new disk storage area within the larger library.
DELETE	Destroys the space allocated by the CREATE command.
PROTECT	Provides or modifies passwords which control access to the simulated disk.
SEND	Sends information to a specified station.
RECEIVE	Receives information from another station.
LOCK	Can be used to insure that no one else will update a specific data base while the user is updating the same data.
UNLOCK	Reverses the action of LOCK; permits others to access the particular data base.

(A variety of complex access protocols can be implemented using the LOCK/UNLOCK commands.)

Other Features

The **"Model A"** comes with utility programs for initializing new floppy disks, making back-up copies and selectively copying certain data for off-line retention.

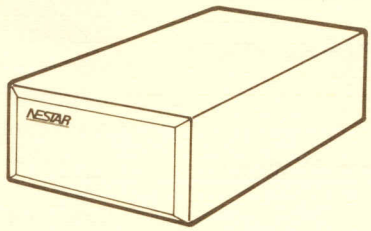
Program files, data files, binary files, picture files and random access or sequential text files may all be saved on the disk.

The **"Model A"** supports multiple printer stations. An application program can run in a user station and can search for files prepared for printing. It can then print those files with any Apple-compatible printer.

The **"Model A"** can be upgraded in the field by adding more individual stations, up to 64 units, at any time.

Nestar: the Pioneer

The **"Model A"** is a product of Nestar, the company dedicated to helping computers talk to each other... the company that developed the first personal computer cluster: several individual computers sharing a large program library yet preserving the individuality of each computer. The original Cluster/ One system combined the power and economy of individual microcomputers with the ability to share a million-byte program library.



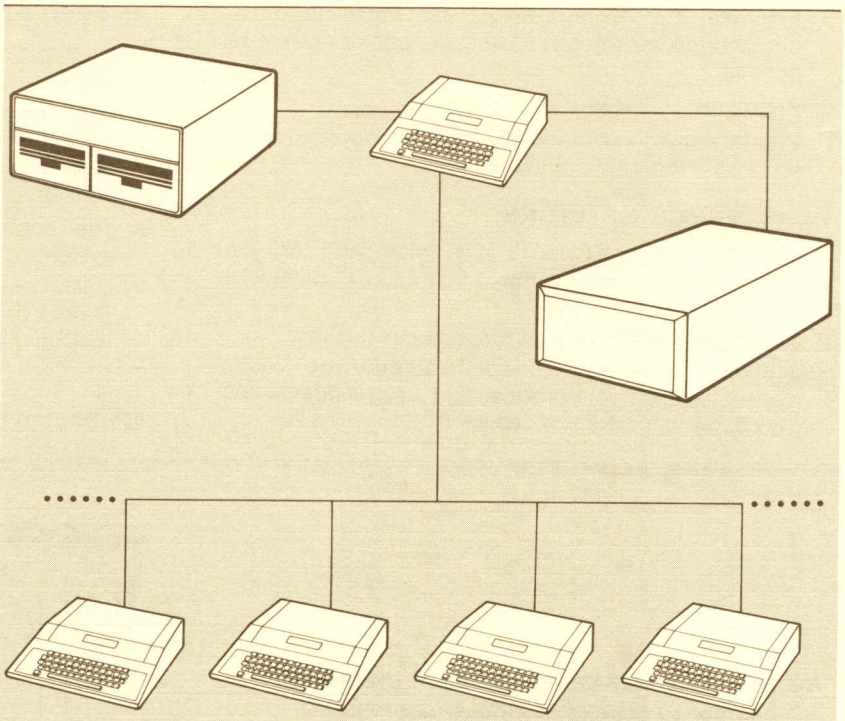
The Nestar Hard disk. Up to 33 million bytes of memory in a single unit.

The Nestar Cluster/One **"Model A"** is the proud state-of-the-art descendant of the original Cluster/One, with greatly expanded storage and a far more sophisticated communications network.

Above All-Value

Above all, the **"Model A"** represents the most cost-effective system of its kind available today. And the most reliable. The original Nestar Clustershared product has been tried, tested and found completely satisfactory in numerous applications. The **"Model A"** is even more effective. And the Apple computer is the most cost-effective, powerful and reliable microcomputer in the industry.

Together, these comprise a system with features seldom found in even the most sophisticated — and expensive — systems in the world... at a *complete* cost of — as an example — **less than $2800 per station in a ten-station network.** Even less, of course, in larger applications.



The Nestar ***"Model A"*** *system uses one dedicated Apple as central mass storage manager which connects with all the user stations through the Nestar Cluster Bus.*

CONTACT: SALES MANAGER

NESTAR SYSTEMS INCORPORATED (415) 327-0125

430 Sherman Avenue
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Cluster/One "Model A"

Summary of Specifications

FLOPPY DISK SUBSYSTEM

1. Formatted capacity (two drives): 1260 Kbytes.
2. Media: 8" single density, double sided, soft sectored.
3. Transfer rate: 250K bps into buffer, 83 msec average rotational latency, 6 msec per track seek time.
4. Mechanical: 20" wide x 10" high x 19" deep; 92 lbs. All steel cabinet (white with black trim).
5. Electrical: 105-125 VAC, 60 Hz. 200 watts maximum, 3 amp fuse. Other voltages available as options.
6. Approvals: UL listed, Office Appliance and Business Equipment.
7. Interface provided for installation in the Apple which is the central controller.

HARD DISK SUBSYSTEM

1. Formatted capacity: 16.5 Mbytes standard, 33 Mbytes optional.
2. Media: 14" Winchester technology.
3. Transfer rate: 300K bps into buffer, 15 msec average rotational latency, 43 msec average seek time.
4. Mechanical: 19" wide x 9" high x 29" deep, 110 lbs. All steel cabinet (white).
5. Electrical: 100-115 VAC, 60 Hz, 425 watts maximum, circuit breaker protection. Other voltages available as options.
6. Approvals: UL listed.
7. Interface provided for installation in the Apple which is used as the central controller.

CLUSTERBUS NETWORK

1. Cables: 26 wire flat cable (1.3" wide) with IDC pin connectors, or 25 wire round cable (0.37" diameter) with DB-25 connectors.
2. Maximum number of user stations per bus: 64.
3. Network topology: unconstrained tree (e.g., daisy chain, star, or combinations). Each interface has two bus connectors and cable tees are available.
4. Maximum total bus length: 1000 feet.
5. Transfer rate: approximately 120K bps.
6. Transfer protocol: packetized message blocks sent between any two stations.
7. Reliability features: redundancy checks on all addresses and data, packet retransmission as necessary, timeouts to avoid lockups.

APPLE INTERFACE

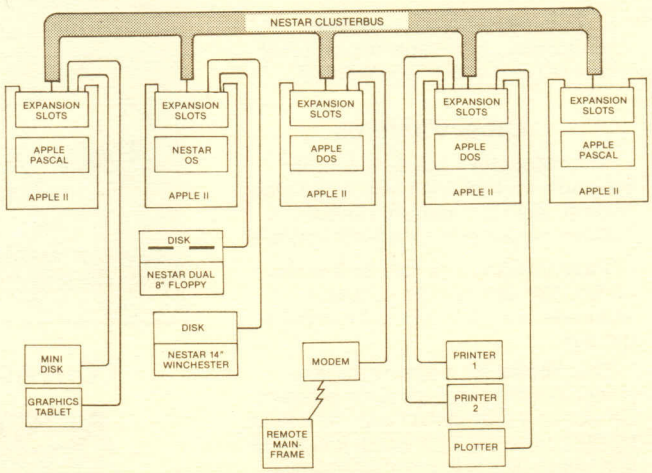
1. Plugs into any unused Apple peripheral slot.
2. Contains 1 Kbytes of RAM for transparent buffering, 2 Kbytes of ROM for network interface routines.
3. Obeys standard conventions for sharing the C800 address space.
4. Hardware comparator recognizes message addresses. Local address is set by a switch on the interface card.
5. Does not affect ClusterBus when powered off.
6. Simulates an Apple disk controller to allow autoboot across the network.
7. Compatible with local minidisks and peripherals which obey the standard conventions.

SOFTWARE SUPPORT

1. User station communications provided in ROM on the interface card.
2. User stations can run Apple DOS or Apple Pascal systems and transparently access shared central files. Necessary modifications to Apple-distributed software are supplied by Nestar.
3. The controller runs proprietary Nestar operating system which manages the central resources.
4. Utility programs are provided for maintenance of central disk subsystems. (Floppy disk formatting and testing, disk backup, etc.)

Specifications subject to change without notice.

Nestar's Clustershared™ computer system is composed of up to 65 independent Apple II microcomputers in a local communications, data, and resource sharing network.



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