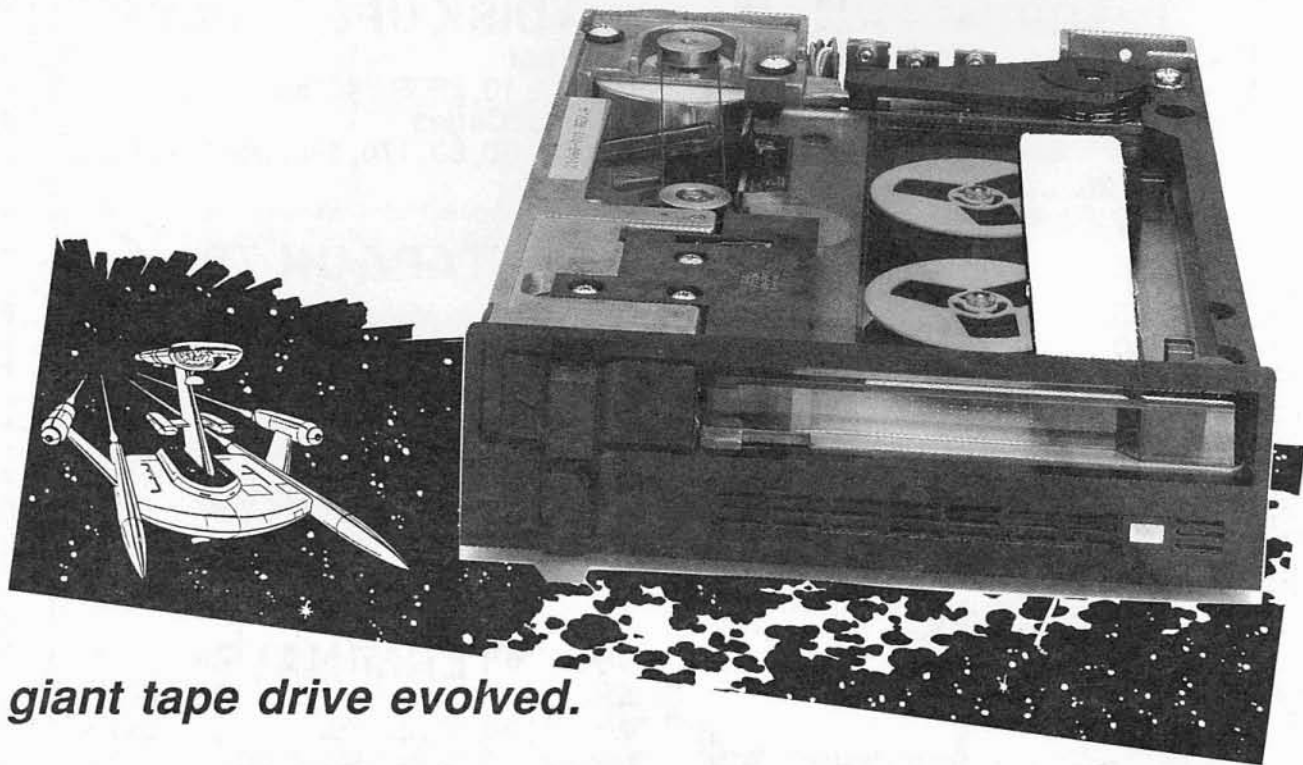




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LETTERS TO THE EDITOR

Dear Altogether,

We have recently upgraded our Series 2000's operating system from XENIX System V to Altos System V. After doing the upgrade, we noticed that it takes significantly longer to load a large application program than it had under XENIX System V. As a matter of fact, even our 1086 can load this program twice as fast as the 2000.

The application programs are 286 executables whose average size is around 700 KB. This speed degradation has been a rather unpleasant discovery of ours since customers don't really believe they have a "state of the art" machine when it runs their applications slower than the 1086 you just "upgraded" them from.

Is the problem caused by the fact that we are using 286 executables or is it simply the price we must pay for a more powerful operating system?

Sincerely,
Dale Van Voorst
Data Systems Services, Inc.

Dear Mr. Van Voorst:

You're the first person we've heard from who reported anything running slower on Series 2000 than it does on the 1086. We would welcome reports from any other readers who have had similar experiences.

I think your guess about the problem being the use of 286 executables is correct. Altos System V supports demand paging which does not require large amounts of swap time because pages of the program are loaded as needed. When loading 286 executables, the entire program must be loaded before execution begins. This operation may be slower because the system is optimized for loading pages as opposed to swapping entire programs. This is our guess. If anyone out there has any other information, please let us know.

Yours truly,
Bert

NEWS FLASH!

Sioux City, Iowa; Computer Support today announced the immediate availability of a 125 megabyte retrofit tape drive as a replacement for the OEM 60 megabyte drive. The ability to archive twice as much information to the same DC 600 tape drive cartridge currently in use should save end users a great deal of effort when performing the backup chores.

Since the frequency of data backup varies inversely with the number of tapes required to perform the backup, Computer Support is confident that many Altos users will improve their performance of this vital task when they are equipped with the new TAPE-125.

This new product will take some of the sting out of tape drive failures, because the replacement unit offers the user more than just the "same old thing". As an upgrade or replacement unit, this product offers a new profit making opportunity for the Altos VAR community.

ALTOS COMPUTER SYSTEMS PRODUCT ANNOUNCEMENT

Description

Altos Computer Systems is pleased to announce the availability of two new members of the Altos 80386 Series 1000 family. These two members are Model 1404 and Model 1404T. Both configurations are the same as the models 1204 and 1204T except that they have 4 MB RAMs. These models are ideal entry-level multi-user systems that can be expanded to support up to 24 users. All the features and capabilities of the existing Series 1000 configurations are carried over to these new configurations.

Configuration and Requirements

MODEL NO.	DESCRIPTION	PART NO.
1404 (US)	80386 CPU @ 16MHz, cache memory	540-20879-087
1404 (Int'l)	Socket for 80387 Math coprocessor	
1404 (Int'l)	4 MB memory board	540-20879-088
	40 MB SCSI hard disk	
	1.2 MB floppy diskette drive	
	8 Serial I/O ports	
	Altos terminal	
	110 volts (US) or 230 volts (Int'l)	
1404T (US)	1404 configuration with an addition of	540-20879-085
1404T (Int'l)	integral 125/150 MB streaming tape drive	540-20879-086

Requirement note:
Altos System V/386 software version 5.3bt1 or later release for the Altos 80386 Series 1000 is required.

Product Positioning and Market Strategy

Models 1404 and 1404T are positioned as small entry-level multi-user systems (two to six users) that can be expanded to support up to 24 users. These systems are ideal systems for small business such as small medical offices, CPA's, law offices, wholesalers, etc., and for small departmental information processing, or connectivity to company-wide network.

These systems are positioned to compete with systems such as AT&T 6386, AT&T 6386E, Convergent Tech S/220 and PC Server, NCR 916, Prime EXL 316, etc.



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THE SOFTWARE EXCHANGE

Use of Multiple File System Under UNIX or XENIX

Some of the most frequently heard questions about UNIX concern the use of multiple file systems (multiple physical volumes, usually hard disks). The UNIX file system provides a method of handling multiple file systems which is integrated with the standard file system. UNIX does not provide any means of making multiple physical volumes appear to the user as a single logical volume. This restriction has two significant consequences: no single file may be larger than the physical volume on which it resides, and some additional system administration effort is necessary to determine on which physical volume files are to be placed. The user (or system administrator) always determines the placement of files. **WHEN A VOLUME IS FULL, ANY OPERATION WHICH ATTEMPTS TO EXPAND OR CREATE A FILE WILL FAIL.**

The Mechanics of Multiple File Systems

Additional file system volumes are created using the **layout** and **mkfs** utilities. Because these commands are somewhat cryptic and subject to significant changes between operating system releases, Altos provides a shell script **add.hd** which automates the process. This script performs the following functions:

1. Prepare the disk for use (checking for bad blocks, etc.).
2. Create an empty file system on the volume. During this process, the user may be asked for the number of inodes to allocate on the device. The number of inodes represents the maximum number of files which can be stored on the volume. In the vast majority of cases, the default value is adequate.
3. Mount the file system. Mounting a file system means establishing a one-to-one relationship between the device file for the device on which the file system resides and an existing directory in the root file system. This relation is dynamic - it may be broken and reestablished as required by the operation of the system. In most cases, the volume will be mounted during the process of going to multiuser operation, and will remain intact until the machine is shut down.
4. Modify the procedures which are executed when going multiuser such that the additional physical volume is mounted when the system goes multiuser. By default, the first add-on volume is mounted as **/usr2** and the second add-on volume as **/usr3**. This is only a convention. Additional volumes can be mounted on any desired directory. The directories **/**, **/bin**, **/etc**, **/lib**, **/tmp**, and **/usr/bin** are used during the startup procedures before any volumes are mounted, therefore, these directories should never be used to mount points for additional file systems.

Use of Additional File Systems

There are three common methods for placing directories and files on an add-on volume: configuring the applications programs to look to the appropriate directory names (e.g. **/usr2/dirname/datafile**), creating user directories on the add-on volume (when specifying the home directory for a new user, select **/usr2/smith** rather than **/usr/smith**), and using the symbolic link facility. Symbolic links allow the operating system to create an alias for a name on the add-on volume. This method

essentially fools the applications programs into believing that a file or directory is on the root volume when it really is on the add-on volume.

Using Symbolic Links

Symbolic links are created using the **"-s"** option of the **ln** command. For example, if a program's data files are to be placed on an add-on drive, and the program requires the data to exist in the directory **/usr/screwball**, the following command will create the necessary symbolic link:

```
ln -s /usr2/progdata/screwball /usr/screwball
```

Functionally, this command tells the operating system that any reference to the name **/usr/screwball** should be interpreted as a reference to the name **/usr2/progdata/screwball**. This interpretation is completely transparent to any program referencing this name. Symbolic links are created as permanent parts of the file system and are preserved over shutdowns and start-ups.

Moving existing directories from the root file system to an add-on file system consists of three steps:

1. Create a new directory on the add-on drive.
2. Move files to the add-on drive.
3. Delete the directory from the root drive, and create a reference to the add-on drive.

For example, to move the directory from:

```
/usr/jones to /usr2/jones,
```

the following steps could be used.

1. **mkdir /usr2/jones**
2. **cd /usr/jones**
3. **tar cf - .profile * | (cd /usr2/jones; tar xvf -)**
4. **cd /usr2/jones**
5. Use a text editor to change the entry for **jones** in **etc/paswd** to specify **/usr2/jones** as the home directory.

When moving programs and data files rather than user directories, only the last step differs. If possible, it is best to specify the actual pathname to programs. For example, if programs reference **/usr/database**, move the directory to **/usr2** and change the program to reference **/usr2/database**. If this is not possible, create a symbolic link as follows:

```
ln -s /usr2/database /usr/database
```

This allows programs to reference file names in the root directory to access files on the add-on drive. The **"-L"** option of the **ls** command will display symbolic link information.

SPECIAL PRICING ANNOUNCEMENT

Due to changes in pricing and memory surcharges, all previously published memory board pricing is superseded by new pricing effective February 1, 1989. Please call for a correct quotation. Thanks.



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SPECIAL SOFTWARE BONUS

Since we have had a couple of hundred inquiries about our non-existent calendars for 1989, we thought an alternative would be in order. The original system was developed by HP to provide a highly structured method of performing this task.

In its simplest form the approach uses ten sets of media (each set being able to perform the entire backup) that are rotated in a precise pattern. Set one always is in use on Monday, set two does Tuesday, and so on, thru Thursday. Each Friday, being an end of week, gets a set of its own (sets five thru eight). The last day of the month is also significant, so sets nine and ten are used on an alternating basis.

The shell program included checks the system date and prompts the operator for the correct tape. The output is directed to a file in /tmp and the "tail" of the file is displayed at conclusion to insure that it runs to completion.

The files that are backed up are kept in a file that is appropriately named "files". As a variation on this program, you could use the variable \$wday to identify a different set of files for each media set - i.e., backing up only data files on Monday to Thursday and system backups on Friday and month ends.

If you get the "backup religion" and use this system, you can get files back from any day of the previous week, any week of the previous month and any of the previous two months. That's better than the business shell and its inability to recover files any time you need them.

```

: # Tape backup script
# HP 10-media set method
# Prepared by CSSC
# 1/12/87

time='date +%H%M'
monlen="0312931303130313130313031"
month='date +%m'
monlen='echo $monlen | awk "{print substr(\"$monlen\",$month * 2,2)}"'
jdate='date +%j'
wday='date +%w'
mday='date +%d'
week='expr $mday - 1'
week='expr $week / 7'
lastday='expr $jdate + $monlen - $mday'
if test $wday -eq 0 -o $wday -eq -6
then
    "
    *** No backups are scheduled for today! ***
    *** Go home and prepare yourself for Monday ***
    "
    exit
fi
backupset=$wday
if test $backupset -eq 5 -a 'expr $lastday -
    $jdate' -lt 3 -o $jdate -eq $lastday
then
    tempval='expr $month / 2 \* 2 - $month'
    daysleft='expr $lastday - $jdate'
    if test $daysleft -lt 3
    then
        backupset='expr 9 - $tempval'
    fi
fi
if test $backupset -eq 5
then
    backupset='expr $backupset + $week'
fi
clear
echo "Backups will be done using tape $backupset"

echo "
Please insert tape $backupset -- press any key to continue"
read x
clear
echo "

Backup in process....."

(tar cvbf 1 - 'cat /files' | dd of=/dev/zct conv=sync bs=512)
2>/tmp/backup.log

echo "

Backup complete -- press any key to continue"
read x

clear
tail /tmp/backup.log
    
```

Scott Bruce Ryan, MBA, CSP

Business BASIC - What Do You Say After It Says:



How To Develop and Maintain
"Plain Vanilla" / Transportable
Business BASIC Application Software

A simple, practical, and comprehensive
reference for all programmers. This is the first book
on the market for Business BASIC. - James R. King, CSP

Business Basic Services Offers First-ever Business BASIC Book

Business Basic Services, a division of Software & Research Enterprises, Inc., Maywood Park (Portland), Oregon, has published the first book on the second most commonly used business computer language - Business BASIC!

Business BASIC - What Do You Say After It Says: READY >, subtitled, "How To Develop and Maintain 'Plain Vanilla' / Transportable Business BASIC Application Software", contains over 500 pages and is divided into three sections:

Section One designed as a guide to programming - utilizing Business BASIC. Each of the "plain vanilla" set of directives and system functions/variables are examined and reinforced with examples. Part of the explanation even covers the sophisticated file-handling system built into the language.

Section Two presents full listings (explained in detail) of actual commercial application software currently in use by thousands of companies across a wide variety of industries. Stressing the use of "standards", the generic sub-assemblies common to all of these programs are identified. These programs provide a wealth of insight from the topflight programmers who wrote them, applying various techniques and features of Business BASIC.

Section Three "puts it all together", demonstrating the beauty of Business BASIC's capability to generate programs as well as provide for a highly efficient and effective means to develop, maintain, and use libraries of reusable software components.

Scott Ryan, the author, has taken his extensive knowledge of Business BASIC and blended it together with over ten years of experience in designing, developing, and maintaining multiuser Business BASIC commercial application software to write this book.

Scott is also the author of Convergent Open Systems **Business BASIC OPEN SYSTEMS (TM) Reference Manual** and Control C Software, Inc.'s **BI-2 BASIC INTERPRETER Level 2 Reference Manual**. In addition, Scott has taught classes on Business BASIC.

Business Basic Services is a company dedicated to serving the needs of the Business BASIC industry by providing various services, including, but not limited to: developing custom systems; enhancing existing systems; bailing-out poorly designed/implemented installations; documentation; on-going support; and training.

To order the book, send \$65.00, plus \$5.00 for shipping and handling charges, to Business Basic Services, Book Department, 9831 N.E. Skidmore, Maywood Park, OR 97220, U.S.A., or call (503) 254-3349. (International freight charges extra.)

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