In this issue...

Special Articles

Ask Alpha Micro: Questions and Answers

Alpha Micro has checked the information contained in this newsletter and believes it to be accurate at the time of publication. However, readers should independently determine that any information used works correctly on their system and is appropriate for their application.

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Article Filing Instructions

We hope you find the *AMSD Journal* to be a valuable reference tool, and that you will want to refer to its articles frequently in the future. To make it easy and quick to find information, current articles are designed to be filed with articles from past issues. The entire set of *Journal* back issues forms three volumes: "General Information," "Software Information," and "Hardware Information." (The set of back issues is available for purchase. See "Subscription Information," above.)

The title of each feature article in this issue includes a reference number. Use the reference number to file the article in the back issue volume indicated at the top of each page of the article. For example, if the top of the first page of the article "6.5.5 One Hundred New Uses for MULTI," contains the words "Software Information," you know that article is to be filed in Section 6 of the "Software Information" back issue volume after article number 6.5.4.

The last pages of the *Journal* are new Tables of Contents for the back issue volumes, updated with entries for articles included in this month's issue.

Q&A Ask Alpha Micro: Questions and Answers

Q. Recently, I used the AMOS SET program's PFK option to create function key translation modules. This feature has let me assign the commands I use most often to just a keystroke or two. With this in mind, I have attempted to create a function key module to capture the editing features and sequences I use most often from within AlphaVUE. From AMOS, I LOAD the .PFK module into my memory partition, but when I call up AlphaVUE none of the function keys work as I've defined them. What gives?

ANSWER: Many software applications on AMOS make use of their own function key translation tables, for example, Alpha-WRITE, AlphaCALC and AlphaVUE. Because of this, any .PFK module you create will be ignored by software having its own function key translation table. An application's own translation table must take precedence so software features using keys operate in a standard fashion and are not different from computer to computer.

All is not entirely lost, however. Coming in AlphaVUE version 3.0, to be released with the AMOS 2.0 software, are two features which may be of help. One is the REPEAT feature and the other is the CAPTURE feature. Both features are implemented by function key and let you repeat one key sequence (REPEAT) or a series of key strokes and commands (CAPTURE).

Q. One of AlphaWRITE's best features is its spelling verification. But lately I've noticed the spell command is not as quick as it used to be. What could be causing this and what can I do about it?

ANSWER: There are a number of reasons why spell may not be working as quickly as it used to and some steps you can take to make spell work faster.

First, if you haven't already, load the dictionary file named SMALL.DCT into system memory via your AMOS initialization file. If you have system memory resources to do this, it can make quite a difference in how fast spell operates.

Second, if you frequently use spell's I option to insert an unrecognized word into your personal dictionary, this dictionary may be quite large. If so, one way to speed up the spell process is to use a duplicate of your personal dictionary as the basis for a professional dictionary you can create yourself.

There are two advantages for making a professional dictionary: it is earlier in the spell search path than a local dictionary so words will be located sooner, and the format for the professional dictionary is one spell can read faster than the one used for the local dictionary.

Appendix F - "The Dictionaries" in the AlphaWRITE Reference Guide gives complete instructions for making a professional dictionary, but here is a synopsis of what you do:

1. Duplicate the source of the dictionary list you want to use with the AMOS COPY command.

2. Use the AlphaWRITE DICSRT utility on the duplicate file to arrange the words in alphabetic order.

3. Use the AlphaWRITE BLDPRF utility on the alphabetized file which puts the file into the dictionary form the spell command understands.

4. Use AlphaVUE to edit AlphaWRITE's initialization file and then add the DICTIONARYTWO command to specify the professional dictionary's file name, extension and disk location.

2.8.2
Winchester Disk Performance Update

By Art Silverstein, Support Technician
Technical Services

Alpha Micro has used several Winchester type disk drives, Removable/Fixed cartridge disk drives and floppy disk drives throughout our product lines. This article updates the May 1985 Journal Hardware Volume article 2.8.1 - "Winchester Disk Performance and includes the most recent additions to our product line. This listing is also updated to include the new style Alpha Micro systems.

The following are important notes regarding the tables on the following pages:

- Only the full height 5-1/4" floppy drives were used as "DSK" devices on the AM-1000 series systems.

- The AM-5xx and AM-6xx systems used the 48 TPI half height floppy drive as back up and alternate boot devices. These systems are MS-DOS based and may include an AM-170 CPU card to operate under AMOS/L.

- Alpha Micro denotes all drive sizes in formatted capacity, the amount of actual data that may be stored on the device.

- Disk expansion chassis for VME based rack mount systems and AM-1001 subsystems can use a variety of disk drives. Therefore, you have to examine which drive(s) are installed before you can retrieve the performance specifications for that unit.

5-1/4" Winchester Disk Drives

Manufacturer:*	Tandon	Seagate	CMI	Mini-scribe	CMI	Quantum	Quantum	Vertex	Fujitsu	Micro-polis	Micro-polis	Maxtor
Model	504	ST412	5412	3425	6640	Q540	Q540	V170	M2242AS	1373 (1)	1375 (1)	2190
Cap-formatted Mbytes	10	10	10	20	30	30	35	55	70	70	145	150
Trans rate - Mbits/sec	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	5.0
Seek time (ms) - Min.	3 (2)	3 (2)	2 (3)	15	10	10	10	5	8	5	5	4
Seek time (ms) - Ave.	85 (2)	85 (2)	80 (3)	85	40	45	45	30	35	23	23	30
Seek time (ms) - Max.	205 (2)	205 (2)	174 (3)	190	80	80	80	65	60	50	50	54
Density - Tracks/in.	345	345	345	588	690	591	591	960	760	n/a	n/a	1022
Rotational Speed - rpm	3,600	3,600	3,600	3,600	3,570	3,530	3,530	3,600	3,600	3,600	3,600	3,600
# of Cylinders	306	306	306	615	640	512	512	987	754	1024	1024	1224
# of Data Heads	4	4	4	4	6	8	8	7	11	4	8	15
# of Disk Platters	2	2	2	2	3	4	4	4	6	3	5	8
Bit Density - Max.	9,074	9,074	9,180	10,030	9,275	9,200	9,200	9,897	10,200	n/a	n/a	11,155
Weight - lbs.	<5.0	4.6	<5.0	3.5	<5.0	7.0	7.0	6.0	6.0	6.0	6.0	6.3

NOTES: DESCRIPTION:

*   Drive interface is ST506 and requires XEBEC controller, unless specified otherwise.

(1)   SCSI Integral Controller.

(2)   No settle time available or included.

(3)   13ms Settle time not included.

2.8.2 (Continued)
Winchester Disk Performance Update

5-1/4" Floppy Disk Drives

Manufacturer:	MPI	Qume	Shugart	Tec	Panasonic
Model	92	n/a	SA465	n/a	SH465
Cap-formatted Kbytes	800	800	800	400	800
Trans rate - Kbits/sec	250	250	250	250	250
Seek time (ms) - Min.	5	3	3	6	3
Seek time (ms) - Ave.	150	94	94	93	94
Density - Tracks/in.	96	96	96	48	96
Rotational Speed - rpm	300	300	300	300	300
# of Cylinders	80	80	80	40	80
# of Data Heads	2	2	2	2	2
# of Disk Platters	1	1	1	1	1
Bit Density - Max.	5,876	n/a	5,922	n/a	5,922
Weight - lbs.	3.1	3.1	3.1	3.1	3.1

8" Floppy Disk Drives

Manufacturer:	CDC	Qume	Persci (1)
Model	9406	842	277 (2)
Cap-formatted Mbytes	1.2	1.2	0.8
Trans rate - Kbits/sec	250	250	250
Seek time (ms) - Min.	23	23	10
Seek time (ms) - Ave.	96	96	50
Seek time (ms) - Max	248	248	100
Density - Tracks/in.	n/a	n/a	n/a
Rotational Speed - rpm	360	360	360
# of Cylinders	77	77	77
# of Data Heads	2	2	2
# of Disk Platters	1	1	25
Bit Density - Max.	n/a	n/a	n/a
Weight - lbs.	12	12	20

NOTES: DESCRIPTION:

(1)   For use on AM-100 and AM-100/T systems only used prior to integrated systems.

(2)   Two diskette drives in one housing.

14" Winchester Drives

Manufacturer:	Priam (1)	Fujitsu
Model	6650-10	M2351
Cap-formatted Mbytes	60	400
Trans rate - Mbits/sec	8.3	14.9
Seek time (ms) - Min.	8	5
Seek time (ms) - Ave.	45	18
Seek time (ms) - Max	85	85
Density - Tracks/in.	960	880
Rotational Speed - rpm	3,100	3,960
# of Cylinders	1,121	842
# of Data Heads	3	20
# of Disk Platters	1	6
Bit Density - Max.	6,430	12,790
Weight - lbs.	52	132

NOTES: DESCRIPTION:

(1)   10-1/2" Drive housed as 14".

8" Winchester Disk Drives

Manufacturer:	Priam	Priam	Priam	Fujitsu
Model	1070-10	3450-10	7050-10	M2312
Cap-formatted Mbytes	8.5	30	60	70
Trans rate - Mbits/sec	7.2	6.4	6.4	9.8
Seek time (ms) - Min.	23	8	8	5
Seek time (ms) - Ave.	73	42	42	20
Seek time (ms) - Max	140	75	75	40
Density - Tracks/in.	180	480	960	720
Rotational Speed - rpm	3,450	3,600	3,600	3,600
# of Cylinders	190	525	1049	589
# of Data Heads	4	5	5	7
# of Disk Platters	2	3	3	4
Bit Density - Max.	7,475	6,670	6,670	9,550
Weight - lbs.	20	20	20	24.2

2.8.2 (Continued)
Winchester Disk Performance Update

14" Fixed/ Removable Drives

Manufacturer:	CDC	CDC
Model	Hawk 9427H (1)	Phoenix (2)
Cap-formatted Mbytes(3)	5/5	15/90
Trans rate - Mbits/sec	n/a	n/a
Seek time (ms) - Min.	7.5	6
Seek time (ms) - Ave.	35	30
Seek time (ms) - Max	60	55
Density - Tracks/in.	200	384
Rotational Speed - rpm	2,400	3,600
# of Cylinders	407	822
# of Data Heads (3)	1/1	1/5
# of Disk Platters (3)	1/1	1/3
Bit Density - Max.	2,200	6,038
Weight - lbs.	175	170

NOTES: DESCRIPTION:
(1)   Limited to 5Mb logicals.
(2)   Limited to 15Mb logicals.
(3)   Removable/fixed.

NOTES: DESCRIPTION:
*   Capacity in megabytes.
(1)   Floppy Based System.
(2)   Alpha Micro Workstation
(3)   SCSI Integral Controller

5-1/4" Drives - Capacity

SYSTEM	MFG.	CAP.*	REMARKS
AM-506 (1) (2)	Tec	800Kb	Two 400Kb drives, one controller.
AM-510 (2)	Tec	400Kb	
AM-510 (2)	Tandon	10Mb	Two drives on two controllers,
AM-1000 (1)	MPI	800Kb	
AM-1000 (1)	Qume	800Kb	
AM-1000 (1)	MPI	1.6Mb	Two 800Kb drives, one controller.
AM-1000 (1)	Qume	800Kb	
AM-1000	Seagate	10Mb	
AM-1000	CMI	10Mb	
AM-1000-A	Miniscribe	20Mb	
AM-1000-B	Miniscribe	20Mb	
AM-1000-E	CMI	30Mb	
AM-1000-E	Quantum	30Mb	
AM-1000-X	Vertex/Priam	55Mb	
AM-1000-XP	Fujitsu	70Mb	
AM-1200-B	Miniscribe	20Mb	
AM-1200-E	Quantum	35Mb	
AM-1200-XP	Fujitsu	70Mb	
AM-1200-M	Micropolis (3)	70Mb	
AM-1200-M	Micropolis (3)	145Mb	
AM-1545	Fujitsu	70Mb	
AM-1555	Fujitsu	140Mb	Two 70Mb drives, one controller.
AM-1500-06	Fujitsu	70Mb	
AM-1500-06	Fujitsu	140Mb	Two 70Mb drives, one controller
AM-1500-06	Maxtor	150Mb	
AM-1500-06	Maxtor	300Mb	Two 150Mb drives, one controller.
AM-2045	Fujitsu	70Mb	
AM-2055	Fujitsu	140Mb	Two 70Mb drives, one controller.
AM-2000-06	Fujitsu	70Mb	
AM-2000-06	Fujitsu	140Mb	Two 70Mb drives, one controller.
AM-2000-06	Maxtor	150Mb	
AM-2000-06	Maxtor	300Mb	Two 150Mb drives, one controller.
AM-2000-10	Fujitsu	70Mb	
AM-2000-10	Fujitsu	140Mb	Two 70Mb drives, one controller
AM-2000-10	Maxtor	150Mb	
AM-2000-10	Maxtor	300Mb	Two 150Mb drives, one controller.

2.8.2 (Continued)
Winchester Disk Performance Update

8" Drives - Capacity

SYSTEM	MFG.	CAP.*	REMARKS
AM-1010 (1)	CDC	1.2Mb	
AM-1010 (1)	Qume	1.2Mb	
AM-1011 (1)	CDC	1.2Mb	
AM-1011 (1)	Qume	1.2Mb	
AM-1020	Priam	8.5Mb	
AM-1021	Priam	8.5Mb	
AM-1040	Priam	30Mb	
AM-1041	Priam	30Mb	
AM-1042	Priam	30Mb	
AM-1042-E	Priam	60Mb	
AM-1072	Fujitsu	70Mb	
AM-1082	Fujitsu	140Mb	Two 70Mb drives, one controller.

NOTES: DESCRIPTION:
*   Capacity in megabytes.
(1)   Floppy Based System.

14" Drives - Capacity

SYSTEM	MFG.	CAP.*	REMARKS
AM-1030	CDC/Hawk	10Mb	5Mb removeable, 5Mb fixed.
AM-1031	CDC/Hawk	10Mb	5Mb removeable, 5Mb fixed.
AM-1050	CDC/Phoenix	90Mb	15Mb removeable, 75Mb fixed.
AM-1051	CDC/Phoenix	90Mb	15Mb removeable, 75 Mb fixed.
AM-1060	Priam	60Mb	
AM-1061	Priam	60Mb	
AM-1062	Priam	60Mb	
AM-1092	Fujitsu (1)	400Mb	
AM-1595	Fujitsu (1)	400Mb	
AM-1500-10	Fujitsu (1)	400Mb	
AM-2095	Fujitsu (1)	400Mb	
AM-2000-10	Fujitsu (1)	400Mb	

NOTES: DESCRIPTION:
*   Capacity in megabytes.
(1)   10-1/2" Drive housed as 14".

4.6.2
1/2" Magnetic Tape Drive Benchmarks

By Robert Currier
Director, Future Systems

Because it offers a combination of high speed and high capacity, 9-track 1/2" magnetic tape is often the choice for backup on large system configurations. These advantages, combined with the ability to read and write tapes for data interchange with a wide variety of other manufacturer's systems, give 9-track magnetic tape the edge over floppy disks, VCR tapes, or 1/4" tape cartridges.

Recent product announcements and enhancements from Alpha Micro have made 1/2" magnetic tape (mag tape) a better choice than ever. This article briefly describes some of the characteristics of the latest mag tape products to assist planning and configuring systems using 1/2" mag tape drives.

In August 1986 we announced the AM-640 VMEbus mag tape controller. This controller, incorporating the Herbie architecture used in the AM-515 and AM-520 disk controllers, brought mag tape capability to the AM-1500 and AM-2000 family systems with a "genius" DMA controller. This new controller can be used with a variety of different tape drives, including those with higher transfer rates than could previously be supported.

At the same time, we released new mag tape backup utilities-- MTUSAV, MTURES, and MTUDIR, that offer improved backup speed and tape capacity. While the new utilities were originally released with the AM-640 controller, they work just as well with the AM-600/T S-100 controller. By increasing backup speed and packing files more tightly on the tape, backup time and the number of reel changes required are reduced, saving both operator time and tape expense.

In July 1987, we continued the enhancement of our mag tape subsystems by announcing the availability of the AM-640-20 high speed 6250 BPI tape drive, manufactured by StorageTek (Model 2925.) By allowing faster tape speeds and greater tape density, backup time and reel changes are reduced again.

To help you plan for backup on larger system configurations, we have run some benchmarks with old and new hardware, software and tape drives. While we have attempted to make these benchmarks as "typical" as possible by using a mix of random and sequential files spread over several logical units without any arrangement, there will of course be differences between our numbers and what you may see in your installation. In particular, the disk controller, disk drive, and arrangement of data on the disk play a major role in backup performance. The new MTUSAV utility is far less dependent on file type and arrangement than the old FILTAP, but because it is so much faster, disk speed will have a major affect on its performance. Despite the caveats, we feel the data presented below offers reasonable guidelines for system planning.

The StorageTek 2925 offers the additional advantage of accepting 3600 foot reels of tape, which are not recommended for use with many other tape drives, such as the Cipher 890. This longer tape lets you pack as much as 210Mb on a single reel of tape.

4.6.2 (Continued)
1/2" Magnetic Tape Drive Benchmarks

CONFIGURATION	TRANSFER RATE	2400' REEL CAPACITY
AM-600/T, AM-415, 70Mb Fujitsu, using FILTAP on Cipher M891.	1.31 Mbytes/min.	Varies widely, up to 40Mb at 3200 BPI.
AM-640, AM-415, 70Mb Fujitsu, using FILTAP on Cipher M891.	1.63Mbytes/min.	Varies widely, up to 40Mb at 3200 BPI.
AM-640, AM-415, 70Mb Fujitsu, using MTUSAV on Cipher M891.	2.72 Mbytes/min.	70Mb at 3200 BPI.
AM-640, AM-520, 400Mb Fujitsu, using MTUSAV on Cipher M891.	4.27 Mbytes/min	70Mb at 3200 BPI.
AM-640, AM-520, 400Mb Fujitsu, using MTUSAV on STC 2925.	9.04 Mbytes/min.	140Mb at 6250 BPI.

13.1.26
Alpha Micro SCSI Bus Primer

This article generally discusses the development of the SCSI bus and specifically provides information for configuring SCSI bus compatible peripherals for use with Alpha Micro computer systems.

Development of the SCSI Bus

Over the past several years, it has become increasingly apparent that computer systems require a standard method of physically expanding their capabilities, particularly in the area of data storage and retrieval. Because many types of main computer busses exist and continue to evolve, it is also important to be able to expand these computer systems independently of the physical main computer bus.

In the early 1980's, Alpha Micro recognized this need, and introduced the AM-1000 product family of small business computers, incorporating a commercial small system parallel bus called the Shugart Associates System Interface (SASI). Since that time, all low end Alpha Micro computer systems have incorporated this bus into the basic system architecture, primarily for interconnecting low cost disk drives and controllers.

Much work has been done over the past few years by the American National Standards for Information systems (ANSI) committee X3T9 to standardize the SASI interface. This work has led to the formalizing and extending the SASI into what is now called the Small Computer System Interface (SCSI).

The original SASI has been extended to the SCSI in a number of ways, including:

o A differential electrical option has been added to allow use of longer cables (up to 25 meters) in relatively noisy environments.

o A synchronous transfer option has been developed allowing maximum transfer rates in the 3 to 4 megabyte per second range.

o An optional extended command set has been added allowing for very large capacity storage devices, as well as support for mag tape, printers, optical disks, scanners, etc.

Alpha Micro SCSI Specifications (SASI Subset)

Specifications for the SCSI bus configuration are:

o Single initiator, multiple target, as shown in figure 1.

o Maximum of four targets. (May be expanded to eight in future implementations.)

o Does not support arbitration phase.

o Does not support parity.

Cable requirements are:

o Single ended cable only: 50 conductor shielded flat cable.

o Shielded connector: 50 pin, two rows of ribbon contacts spaced .085" apart.

o Cable impedance: 70 ohms nominal.

o Maximum cable length: 6 meters, including any internal cabling with the chassis.

o Cable routing: Daisy chain with resistive terminators at each physical end of the daisy chain.

13.1.26 (Continued)
Alpha Micro SCSI Bus Primer

Peripheral devices such as
magnetic-disks, printers, optical-disks,
and magnetic tapes.

SINGLE INITIATOR, SINGLE TARGET

SINGLE INITIATOR, MULTIPLE TARGET
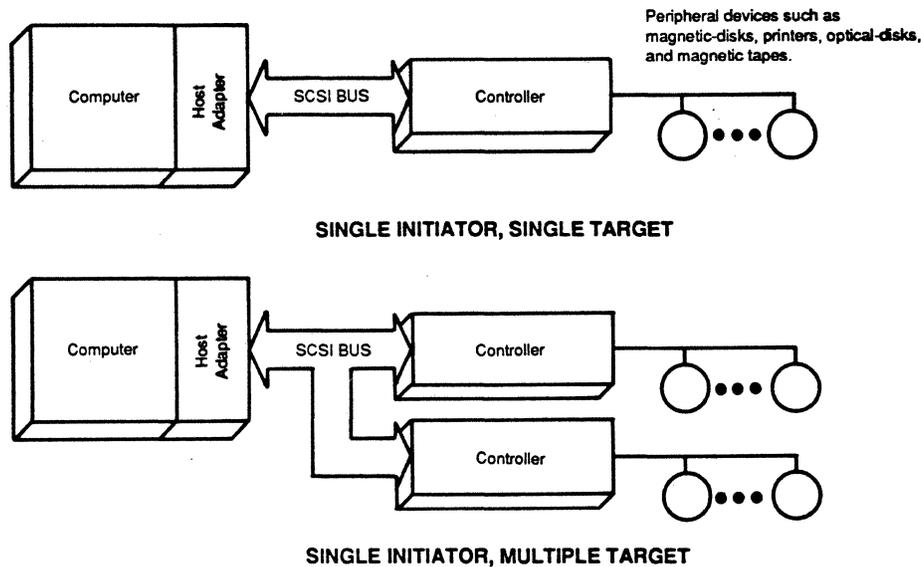
000276

Figure 1
Single Initiator and Targets

Cable termination requirements are:

o Resistive terminators at physical end of the daisy chain cable - 220 ohm to +5 volts, 330 ohm to ground.

o Terminator power option not supported.

Alpha Micro SCSI Related Products

Due to the market demand for low cost system expansion capability for small computers, plus the standardization of the SCSI interface, SCSI compatible host adapters, controllers, and peripheral devices are now widely manufactured around the world. Alpha Micro has recently expanded its use of the SCSI interface to include the following:

o "Embedded SCSI" 5-1/4" disk drives incorporated into the AM-1200 product line and AM-1001 disk subsystems, replacing the older ST-506 interface style disk drives.

o Release of the AM-405 SCSI host adapter for S-100 bus systems, with the same capability that is built into other systems in the Alpha Micro product line.

o Introduction of a 2Gb Laser Disk Drive using the SCSI interface.

o Research into potential future products including:

- Incorporation of embedded SCSI disk drives into the VME product line.

13.1.26 (Continued)
Alpha Micro SCSI Bus Primer

- Read only compact disk (CD-ROM) interface capability.

- High capacity 1/4" streaming tape peripherals.

- VCR backup and data broadcast capability over the SCSI bus.

From this list of products and potential products, it is clear that Alpha Micro intends to take advantage of and follow the standards work in the SCSI marketplace to be able to incorporate this technology into its system level products.

SCSI Configuration Guidelines for Alpha Micro Products

Due to increased use of the SCSI bus for system expansion and enhancements, it becomes increasingly important to understand the various configuration options and limitations that exist with this implementation. The following Alpha Micro systems include an Alpha Micro SCSI host adapter:

- AM-1000 and AM-1200: Contained on main logic board.

- All VME Systems: Contained on CPU board.

- S-100 Bus Systems: Require AM-405 host adapter board.

The following guidelines apply to the system configurations listed above.

o **SCSI Bus Termination:**
The host adapter (computer system chassis) must be physically located at one end of the SCSI bus, and always contains the bus termination resistors. All external devices attached to the SCSI bus must be attached in the daisy chain fashion, with the last physical device containing bus termination resistors. All other devices residing on the SCSI bus must have their bus termination resistors removed.

o **SCSI Bus Addresses:**
Each SCSI controller or peripheral must be configured with its own unique SCSI address (0 to 3). Any disk drives connected to the SCSI bus that are contained within the CPU chassis will be addressed starting at 0. When adding external peripherals to the SCSI bus, you must determine the appropriate address setting for the peripheral. Figures 2, 3 and 4 illustrate typical system configurations and the resulting SCSI address restrictions. The sequence of addresses on the bus is not important, and is shown consecutively for convenience only.

o **SCSI Bus Length:**
Total SCSI bus length, including internal components, must not exceed 6 meters.

o **AM-515 Disk Accelerator Considerations:**
The Alpha Micro AM-515 Disk accelerator contains its own special version of the SCSI bus, adding yet another set of considerations to the overall system configuration options.

Figure 4 illustrates a system configuration with an AM-515 disk accelerator. Note that the AM-515 contains a second SCSI host adapter, which effectively results in two SCSI busses in the system configuration. This second SCSI bus (from the AM-515) is used for control of SCSI compatible disk drives only that have been qualified for use with the AM-515.

13.1.26 (Continued)
Alpha Micro SCSI Bus Primer
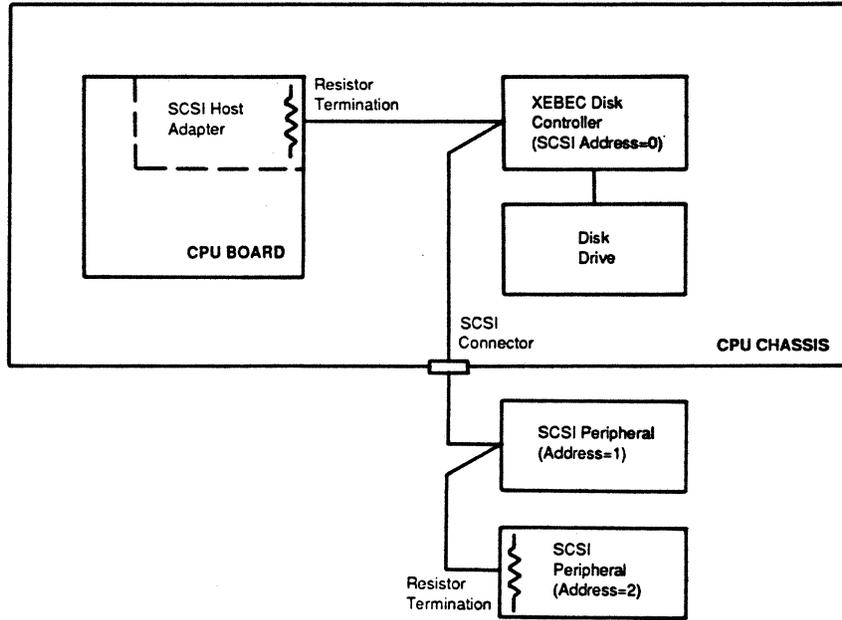
Figure 2
System Configuration with XEBEC
Controller (ST-506 Drives)
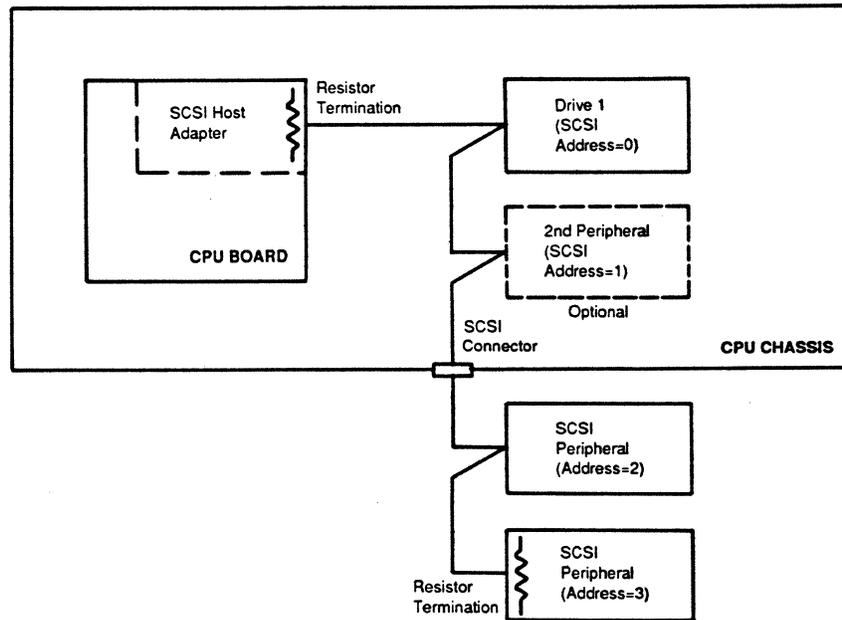
Figure 3
System Configuration with Embedded
SCSI Drives

13.1.26 (Continued)
Alpha Micro SCSI Bus Primer
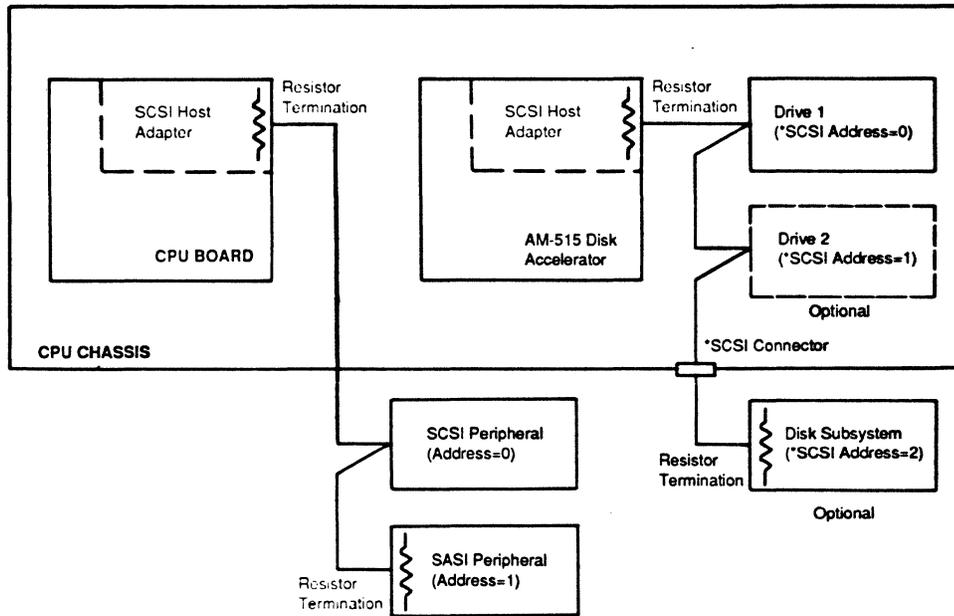
*AM-515 SCSI Bus for Disk Drive Subsystems Only.

000278

Figure 4
System Configuration with
Two SCSI Busses

3.2.26
New Software Patches Available from AMSD

The following list gives a description of the new software patches now available from AMSD. The products affected by these patches are: AMOS/L, AMOS/32, and AlphaNET.

Patches in the following list include SPNs 256 through 297, and are current through 15 July 1987. As indicated on the list,

some patches have already been released, some patches are still in test. See the June Journal Vol. 9, #7 - Software Article 3.2.25 for more information.

The SPN description in the purpose column ends with the software version(s) this patch is intended for.

SPN #	Module	Purpose
256-257	—	Still in test.
258-269	—	Released in a previous month.
270	—	In test.
271-273	—	Released in a previous month.
274-277	—	Cancelled.
278	NETSER	Corrects a problem where COPY would fail if used across the network with LOKSER installed. AlphaNET.
279	—	Released in a previous month.
280	ISAM.SYS	Corrects a problem with handling out of memory conditions which could occur using AlphaC or Cobol. AMOS/L version 1.3B and later.
281	ISAM.SYS	Corrects a problem with handling out of memory conditions which could occur using AlphaC or Cobol. AMOS/32 version 1.0 and later.
282-292	—	In test.
293	610DVR.DVR	Add support for the new black VCRs. Corrects a timing problem with the remote control rewind function. AMOS/L version 1.3C and AMOS/32 version 1.0A.
294	CRT610	Add support for the new black VCRs. Corrects a timing problem with the remote control rewind function during certification. AMOS/L version 1.3C and AMOS/32 version 1.0A.
295-296	—	In test.
297	CRT610	Corrects a problem using CRT610's /F option which was caused by SPN-294L. AMOS/L version 1.3C and AMOS/32 1.0A.

3.2.27
Support for New CPU-Controlled "Black" VCR SPN-293-00, SPN-294-00 and SPN-297-00

Alpha Micro continuously evaluates new video technology as it becomes available to ensure the products we offer meet or exceed our performance specifications for reliability, durability and data integrity. Consequently, we will soon begin delivering the latest remote controlled VCRs which we call the Black model, so called because of its housing color.

There is a difference in the rewind tape function between the newest Black model VCR's and the previous Grey and White model VCRs. To use the remote control features of the AMOS video backup software on this Black model VCR, you need to install three patches to the AMOS software. These patches modify the AMOS video backup software to use the remote control features of all CPU-controlled VCR models we have made available.

There are three patches involved in updating the AMOS video backup software:

- Patch to 610DVR.DVR - SPN-293-00
- Patch to CRT610.LIT - SPN-294-00
- Patch to CRT610.LIT - SPN-297-00

The next pages provide you with instructions and the content of each patch.

SPN-293-00
Patch to 610DVR.DVR
AMOS/L Version 1.3C (157)
AMOS/32 Version 1.0A (157)

This patch adds support for Alpha Micro's new CPU-controlled "Black" VCR and corrects a timing problem with the automatic rewind function.

IMPORTANT NOTE: For complete functionality, this patch requires SPN-294-00 to be installed at the same time.

Installation instructions:

1. LOG to DVR: and from command level type:

   DIR/H/V 610DVR.DVR [RET]

   Compare the existing hash total and version with the beginning hash and version listed in step 5 to ensure this patch has not already been installed. If it has not, proceed with the patch.

2. If one does not already exist, create a disk account to use for patch files.

3. Create an AlphaVUE file and name it:

   610DV2.M68

   Enter the patch text shown below, after step 6.

4. Create a copy of the file:

   DSK0:610DVR.DVR[1,6]

   into the account where you made 610DV2.M68. (For example: COPY = DVR:610DVR.DVR.)

5. Enter the command:

PATCH 610DVR.DVR WITH 610DV2 [RET]

   You will see the patch file being assembled and installed. You should see no error messages. If you do, check to make sure you have typed

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

the patch file correctly and are trying to patch the correct version of 610DVR.DVR. Further information on installing patches is in the <u>AMOS/L System Operator's Guide</u>.

Old hash:
        562-345-663-457

New hash:
        131-570-753-431

6. After the patch has been installed correctly, use the COPY command to transfer a copy of the patched version of 610DVR.DVR to DVR: (DSK0:[1,6]).

Then use the COPY command to make a copy of the patched 610DVR.DVR file in DVR: named VCR.DVR.

```
;Patch #1 to DVR:610DVR.DVR from AMOS/L 1.3C and AMOS/32 1.0A
;SPN-293L
;Copyright (C) 1987 - Alpha Microsystems

                COPY        PATCH

                OHASH       562,345,663,457
                NHASH       131,570,753,431

                RCIO=^H0FFFFFFD6

                .=^H0560
CCABT:

                .=^H05F6
RCREW:          SAVE        A0,A1,D0,D1
                MOV         #RCIO,A0
10$:            MOVB        @A0,D7
                ANDB        #4.,D7
                BEQ         30$
                TYPECR      <Insert Tape in Recorder>
20$:            MOVB        @A0,D7
                ANDB        #4.,D7
                BEQ         30$
                CTRLC       CCABT
                SLEEP       #18000.
                BR          20$

30$:            MOVB        @A0,D7
                ANDB        #2.,D7
                JEQ         110$
                TYPECR      <Tape is rewinding>
                MOVB        #1.,D7
```

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

```
              MOVB       D7,@A0
              SLEEP      #1000.
              CLRB       D7
              MOVB       D7,@A0
40$:          MOVB       @A0,D7
              ANDB       #1,D7
              BEQ        40$
              MOV        #1,D1
50$:          MOVB       #4,D7
              MOVB       D7,@A0
              MOV        #200.,D0
60$:          MOVB       @A0,D7
              ANDB       #1,d7
              BEQ        70$
              SLEEP      #100.
              DBF        D0,60$
              BR         120$


70$:          CLRB       D7
              MOVB       D7,@A0


80$:          MOVB       @A0,D7
              ANDB       #2,D7
              BEQ        90$
              MOVB       @A0,D7
              ANDB       #1,D7
              BEQ        80$
              DBF        D1,50$
              BR         120$


90$:          MOVB       @A0,D7
              ANDB       #1,D7
              BEQ        90$
              SLEEP      #10000.
100$:         MOVB       @A0,D7
              ANDB       #1,D7
              BEQ        100$
110$:         CLRB       D.ERR(A4)
              BR         130$
120$:         TYPECR     <Cannot rewind tape>
              MOVB       #D$ERDY,D.ERR(A4)
130$:         REST       A0,A1,D0,D1
              TSTB       D.ERR(A4)
              RTN


              END
```

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

SPN-294-00
Patch to CRT610.LIT
AMOS/L Version 1.3C (157)
AMOS/32 Version 1.0A (157)

This patch adds support for Alpha Micro's new CPU-controlled "Black" VCR and corrects a timing problem with the automatic rewind function.

IMPORTANT NOTE: For complete functionality, this patch requires SPN-293-00 to be installed at the same time.

Installation instructions:

1. LOG to SYS: and from command level type:

    DIR/H/V CRT610.LIT **[RET]**

    Compare the existing hash total and version with the beginning hash and version listed in step 5 to ensure this patch has not already been installed. If it has not, proceed with the patch.

2. If one does not already exist, create a disk account to be used for patch files.

3. Create an AlphaVUE file and name it:

    CRT601.M68

    Enter the patch text shown below, after step 6.

4. Create a copy of the file:

    DSK0:CRT610.LIT[1,4]

    into the account where you made CRT601.M68. (For example: COPY = SYS:CRT610.LIT.)

5. Enter the command:

PATCH CRT610 WITH CRT602 **[RET]**

You will see the patch file being assembled and installed. You should see no error messages. If you do,

check to make sure you have typed the patch file correctly and are trying to patch the correct version of CRT610.LIT. Further information on installing patches is in the AMOS/L System Operator's Guide.

Old hash and version:

    573-403-121-410 1.1(110)

New hash and version:

    146-212-450-043 1.1(110)-1

6. After the patch has been installed correctly, use the COPY command to transfer a copy of the patched version of CRT610.LIT to SYS: (DSK0:[1,4]).

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

```
;Patch #1 to SYS:CRT610.LIT Version 1.1(110)
;of AMOS/L 1.3C and AMOS/32 1.0A
;SPN-294L
;Copyright (C) 1987 - Alpha Microsystems
;
            COPY        PATCH

            OHASH       573,403,121,410
            NHASH       146,212,450,043
            OVER        1,1,0,110.,0
            NVER        1,1,0,110.,1

            RCIO=^H0FFFFFFD6
            RCVDDB=^H0146

            .=^H01002
RCREW:      SAVE        A0,A1,A4,D0,D1
            LEA         A4,RCVDDB(A5)
            MOV         #RCIO,A0
10$:        MOVB        @A0,D7
            ANDB        #4.,D7
            BEQ         30$
            TYPECR      <Insert Tape in Recorder>
20$:        MOVB        @A0,D7
            ANDB        #4.,D7
            BEQ         30$
            SLEEP       #18000.
            BR          20$

30$:        MOVB        @A0,D7
            ANDB        #2.,D7
            JEQ         110$
            TYPECR      <Tape is rewinding>
            MOVB        #1.,D7
            MOVB        D7,@A0
            SLEEP       #1000.
            CLRB        D7
            MOVB        D7,@A0
40$:        MOVB        @A0,D7
            ANDB        #1,D7
            BEQ         40$
            MOV         #1,D1
50$:        MOVB        #4,D7
            MOVB        D7,@A0
            MOV         #200.,D0
```

(Continued next page)

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

```
60$:        MOVB        @A0,D7
            ANDB        #1,D7
            BEQ         70$
            SLEEP       #100.
            DBF         D0,60$
            BR          120$

70$:        CLRB        D7
            MOVB        D7,@A0
80$:        MOVB        @A0,D7
            ANDB        #2,D7
            BEQ         90$
            MOVB        @A0,D7
            ANDB        #1,D7
            BEQ         80$
            DBF         D1,50$
            BR          120$

90$:        MOVB        @A0,D7
            ANDB        #1,D7
            BEQ         90$
            SLEEP       #10000.
100$:       MOVB        @A0,D7
            ANDB        #1,D7
            BEQ         100$
110$:       CLRB        D.ERR(A4)
            BR          130$
120$:       TYPECR      <Cannot rewind tape>
            MOVB        #D$ERDY,D.ERR(A4)
130$:       REST        A0,A1,A4,D0,D1
            TSTB        D.ERR(A4)
            RTN

            END
```

SPN-297-00
Patch to CRT610.LIT
AMOS/L Version 1.3C (157)
AMOS/32 Version 1.0A (157)

This patch corrects a dysfunction with CRT610/F which was introduced by SPN-297-00.

IMPORTANT NOTE: This patch requires SPN-294-00 to have already been installed.

Installation instructions:

1. LOG to SYS: and from command level type:

   DIR/H/V CRT610.LIT [RET]

   Compare the existing hash total and version with the beginning hash and version listed in step 5 to ensure this

3.2.27 (Continued)
Support for New CPU-Controlled "Black" VCR - SPN-293-00, SPN-294-00 and SPN-297-00

patch has not already been installed. If it has not, proceed with the patch.

2. If one does not already exist, create a disk account to be used for patch files.

3. Create an AlphaVUE file and name it:

   CRT602.M68

   Enter the patch text shown below, after step 6.

4. Create a copy of the file:

   DSK0:CRT610.LIT[1,4]

   into the account where you made CRT602.M68. (For example: COPY = SYS:CRT610.LIT.)

5. Enter the command:

   PATCH CRT610 WITH CRT601 [RET]

You will see the patch file being assembled and installed. You should see no error messages. If you do, check to make sure you have typed the patch file correctly and are trying to patch the correct version of CRT610.LIT. Further information on installing patches is in the AMOS/L System Operator's Guide.

Old hash and version:

   146-212-450-043 1.1(110)-1

New hash and version:

   121-750-623-427 1.1(110)-2

6. After the patch has been installed correctly, use the COPY command to transfer a copy of the patched version of CRT610.LIT to SYS: (DSK0:[1,4]).

```
;Patch #2 to SYS:CRT610.LIT Version 1.1(110)-1
;AMOS/L 1.3C and AMOS/32 1.0A
;SPN-297L
;Copyright (C) 1987 - Alpha Microsystems

          COPY      PATCH

          OVER      1,1,0,110.,1
          NVER      1,1,0,110.,2
          OHASH     146,212,450,043
          NHASH     121,750,623,427

          .=^H010F0
          TSTB      D.ERR(A4)
          REST      A0,A1,A4,D0,D1

          END
```

3.3.19
BITMAP Warning for New SCSI Drives

By Steve Albin
Support Specialist
Technical Support Group

The new modular builds of the AM-1200 product line may include the latest generation of disk drives, the embedded SCSI drive (embedded controller.) The release of these new drives also requires the release of new software and generation of new versions of existing software.

There are three new files associated with the embedded SCSI drive: the device driver SCZDVR.DVR, the real time driver SCZDVR.RTD, and a new format program FMTSCZ.LIT which is not yet available. There are also several operating system programs which were modified to support the features of the embedded SCSI drives: WRMGEN.LIT, STRSAV.LIT, FIXLOG.LIT, and BITMAP.LIT. BITMAP.LIT is the program I want to focus attention on.

One of the advantages of having a dedicated controller is the system's ability to self-configure the bitmap size. Without a dedicated controller, a standard BITMAP statement in your AMOS initialization file might look like this:

    BITMAP DSK,1234,0,1,2

But now, to take advantage of the self-configuring feature and cause the bitmap size to default to whatever the drive reports back to the system, the BITMAP statement looks like this:

    BITMAP DSK,,0,1,2

Although there are a number of advantages to having a self-configurable bitmap, there are some restrictions and precautions which you need to consider.

The BITMAP.LIT program which is part of the SCSI software has the hash total:

263-672-410-317 version 2.0(104)

With this SCSI version of BITMAP you have the option in your initialization file's BITMAP statement of specifying the bitmap size directly or implicitly. If you have SASI drives, you may also use this SCSI BITMAP version, but if you do, you **must** state the bitmap size **directly.**

The "older version" of BITMAP.LIT-- the one included in the AMOS 1.3C release-- is not designed to support a selfconfiguring bitmap. If you do not supply the bitmap size, you may find yourself in a dilemma. Here is a scenario to illustrate:

> You have an up-and-running system with an embedded SCSI drive as your bootable device. Your bitmap size is stated implicitly in a BITMAP statement in your initialization because you are using the "self-configuring" version of BITMAP.LIT. At some time, for whatever reason, you find you need to re-download the operating system. You take out your release version of AMOS/L and load it onto the system-- overlaying the SCSI software's self-configuring BITMAP.LIT with the operating system's BITMAP.LIT. Your system will not boot because it is expecting the the bitmap size to be specified directly in the initialization's file BITMAP statement and no bitmap size is supplied.

Currently, the SCSI software is distributed on a VCR tape separately from the operating system tape. If, for any reason, you need to re-download the operating system, make sure you first download the operating system, then download the SCSI software.

3.2.7
New Documentation Releases

Several new user manuals are available for sale in August. (See the August Alpha Micro Reseller Price List for prices.) The new documents are:

LaserDRIVE Owner's Manual,
DSO-00035-00

   Installation and user's guide for the LaserDRIVE laser disk archival system.

VIDEOTRAX Owner's Manual,
DSO-00033-00

   Installation and user's guide for the VIDEOTRAX VCR Backup System. This printing of the manual contains both the VIDEOTRAX 3.0 addendum and the original VIDEOTRAX manual, wirebound for easier use. It supersedes the earlier VIDEOTRAX manual, part number DSS-10189-00, and the VIDEOTRAX 3.0 addendum, part number DSO-00007-00.
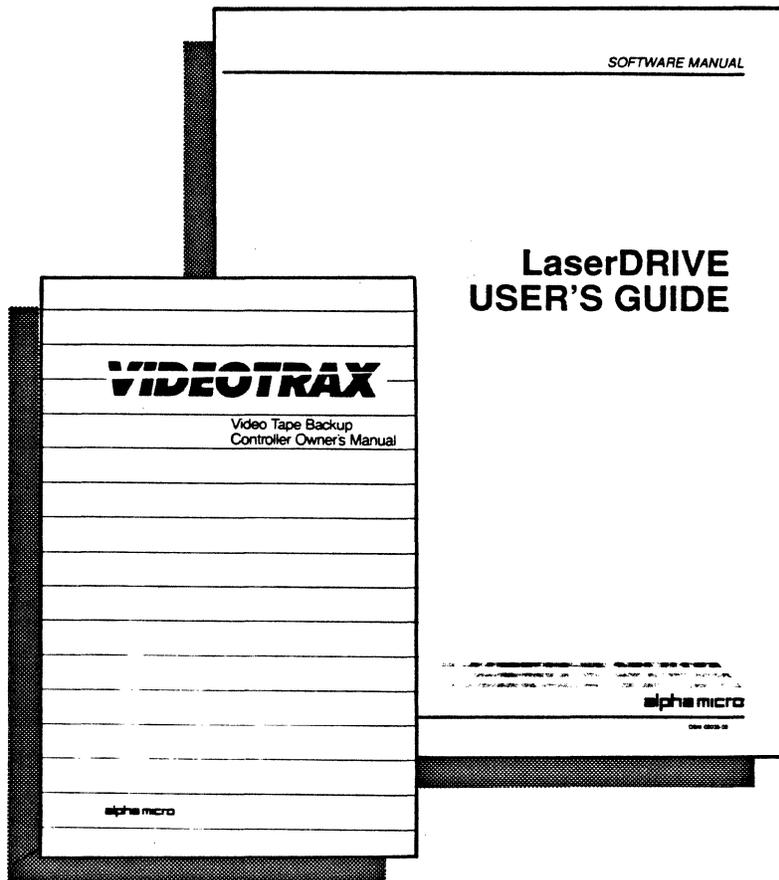
5.1.1
Announcing Alpha Micro Technical Exchange Center (AMTEC)

Yes, after many requests, the Alpha Micro Technical Exchange Center (AMTEC) is up and running as of 12 June 1987.

Currently, the AMTEC system allows our dealers to search and retrieve software patches. The file transfer utilities supported are:

- AlphaMATE
- Dyalog
- VersiCOMM
- XMODEM

AMTEC can also route printable files to your terminal's printer port should you have just a terminal, printer, and modem setup.

Alpha Micro dealers are invited to contact Technical Support at 714/641-7608 for details about logging onto the AMTEC system. An AMTEC User's Guide is available via the system and can be easily downloaded from the first AMTEC menu-- under "AMTEC User Info"-- to either an AlphaVUE or AlphaWRITE file.

New features are being finalized and will be added to AMTEC over the next months. The ones to be available next are:

- DIR files for use with the VERIFY command (release and patched versions.)

- 1987 Marketing Bulletins.

- VIDEOTRAX information.

- End user login.

Ones currently in the planning stages are:

- Keyword searches.

- SPR uploading.

- Mail uploading and downloading.

Next month's Journal will have more information about AMTEC. In the meantime, if you have any comments, suggestions or ideas about AMTEC, please send them to:

AMTEC Support Group
Department 110
Alpha Microsystems
P.O. 25059
Santa Ana, California 92799

AMSD JOURNAL TABLE OF CONTENTS UPDATE PAGES

The next pages of the <u>Journal</u> are updated Table of Contents pages for your back issue volumes. The updated pages are:

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- A footer line at the bottom of each table of contents page shows you revision information. This line shows month, year, volume and issue number of the <u>Journal</u> this table of contents page arrived with.

- All table of contents pages have a title line showing which volume they belong in: Hardware, Software or General Information.

- Entries for articles published since 1983 show the month and year of publication.

- Cross reference article entries use this format:

    <u>"Article Name" - Cross reference:</u> See Volume Name Article #.#.# - [Month Year]

    Where Volume Name is Hardware, Software or General Information. Where #.#.# is the article number designating section, category and article number. (For example, article 6.4.3 is filed in section 6, under category 4 and is the 3rd article in category 4.) [Month Year] is the <u>Journal</u> publication date for the article.

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