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Falcon
Owner's Manual

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Falcon Owner's Manual
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Chapter 1 - Introducing the Falcon

This chapter discusses:

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- What's included with the Falcon, and what else do you need to use it?
- What the Alpha Micro Operating System (AMOS®) can do for you.
- What information is in this manual, and what other books are available to help you?
- The symbols and conventions this book uses.
- Service information.

WHAT IS THE FALCON?

The Alpha Micro Falcon lets any PC based on an 80386 or later processor do double duty. Your computer continues to work as a personal computer running DOS or Microsoft® Windows, and also becomes a multi-user business computer running AMOS, Alpha Micro's operating system.

The PC Environment…
From here on, whenever we refer to DOS software or the DOS environment, we mean DOS or Windows—whichever environment you are using on your PC. For specific compatibility information, see the *Release Notes* for your version of the AM-PC software.

Falcon adds the advantages of AMOS—true multi-user capability and all the other features discussed later in this chapter—without taking away any of the features you bought your PC for: you can still use all of the DOS and Windows software that runs on your PC. The result is a computer combining all the personal productivity tools of the PC marketplace with the multi-user business solutions available under AMOS.

What the Falcon Does

Once the Falcon is installed in your PC, you can work within either DOS, Windows or AMOS, enjoying all the capabilities of both. In the DOS environment, your PC reads, writes, and executes DOS files on the hard disk or diskettes, just like any PC.

In the multi-user AMOS environment, your PC reads, writes and executes AMOS files from the hard disk or from a diskette. You can add other terminals and printers to your PC, so different people can use different AMOS programs at the same time. For example, one person can print a letter or report while another checks an invoice. And, the Falcon integrates DOS, Windows and AMOS. You can switch between operating systems with a few keystrokes, and share information between them using simple commands. Since text and data files created by your DOS, Windows and AMOS programs can be shared, you can have just the information you need in the format you want. For example, you can copy data from your AMOS application to use in a DOS spreadsheet or graphics software package.

In addition, you can connect your Falcon-based PC to an Ethernet network and communicate with more PCs or other host computers using standard Clarkson-compatible PC packet drivers with AlphaTCP or AlphaNET network protocols.

WHAT YOU GET

The Falcon consists of:

- The Falcon co-processor card that inserts easily into either an 8-bit or 16-bit expansion slot in any ISA- or EISA-bus PC. The Falcon uses the Motorola 68340 microprocessor which can be configured with 512KB, 2MB, or 8MB of memory for use by AMOS.

  The Falcon card itself contains two serial ports. Under AMOS, you can always use these ports, the PC main console, and the LPT1 parallel printer port, allowing you three simultaneous AMOS users. Depending on the software license you purchase, you may also be able to use the COM1, COM2, COM3, and COM4 serial ports for additional AMOS users, and the LPT2 and LPT3 parallel ports.
- The AM-PC™ software that supports the Falcon card, converting your PC into a multi-user AMOS computer. In addition to allowing you to run AMOS on the Falcon co-processor, the AM-PC software enables you to transfer files between DOS and AMOS.
- The multi-user Alpha Micro Operating System, AMOS, supplied on diskette or CD-ROM.
- Documentation. In addition to this manual, you receive the *Release Notes* for your version of the AM-PC software, hardware installation instructions for the Falcon co-processor, and a single sheet containing the Product Installation Code (PIC) which licenses you to have up to four AMOS users on your PC. If your software license is for more than four users, contact your Alpha Micro dealer to receive a new PIC.

WHAT YOU NEED

To use Falcon, you need an IBM-compatible PC with an 80386 or later microprocessor. In addition, your PC must have:

- An available 8- or 16-bit card slot.
- A hard disk drive with at least 15MB of free space to use for AMOS.
- A 3.5" diskette drive or a CD-ROM drive.
- DOS 5.0 or later.
- If you want to use Falcon with Windows, Windows 3.1 or later.
- If you want to use one or more SCSI devices from AMOS, a SCSI controller card with an ASPI manager.
- VESA-compatible VGA video controller.

In addition, if you are planning to configure your Falcon PC in a networking environment, you need:

- An 8-bit or 16-bit (preferred) or PCI Ethernet adapter for the Falcon PC to physically attach to your network.
- A Clarkson-compatible Ethernet packet driver software for your Ethernet adapter. Note: some drivers are contained in the AM-PC release.
- If you are configuring a TCP/IP network, you will need AlphaTCP 1.3B or later communication software for your Falcon PC. (Note: This requires at least 2MB of Falcon memory; 8MB is recommended.)
- If you are using Windows in addition to AlphaTCP, you need a WINPKT software driver, which is provided in the AM-PC release.

These are minimum requirements; see the *Release Notes* for your version of the AM-PC software for more detailed compatibility information.

Software Compatibility Warning

DO NOT USE POWER.EXE on a Falcon PC. This program spins down the disk drive to save power. AM-PC requires the disk drive to be spinning at all times. Check your AUTOEXEC.BAT and CONFIG.SYS files for this program and remove it.

Note that most Gateway PCs come from the factory with this program installed and will require this change to be used with Falcon.

What AMOS Can Do for You

Here is a brief overview of some of the features of the AMOS operating system:

- More than one person can perform different tasks on the computer at the same time.
- You can use one or more printers at the same time without tying up a terminal.
- You can run multiple tasks at preset times and dates without using a terminal.
- A sophisticated command language lets you invoke a series of commands and program input by entering a single command.
- The business-oriented AlphaBASIC® and AlphaBASIC Plus® programming languages are uniquely suited to programming business application software packages.
- The AlphaVUE® screen-oriented text editor provides an easy-to-use tool for creating documents.
- ISAM Plus, a machine language file management system, provides a method for quick information organization and retrieval.
- The Executive Screen Processor, ESP®, lets you design program screens without writing program code, and can handle screen input and output for your AlphaBASIC programs.
- A system initialization file allows you to change the peripheral devices connected to the PC, change user memory allocations, and customize the computer to your exact needs.

- AMOS supports many different kinds of printers and terminals, and gives you the ability to define your own type of terminal or printer to the computer.
- Networking is available through the AlphaTCP networking product, which offers the potential for significant system expansion. Use of an earlier software product, AlphaNET, is also possible.

ABOUT THIS BOOK

In addition to this introduction, this book contains these chapters:

- Chapter 2 describes how to install the AM-PC software and AMOS on your PC.
- Chapter 3 tells you how you can modify the AMOS configuration of your computer to add diskette drives, subsystem disks, terminals, printers, and so on.
- Chapter 4 shows you how to call up AMOS and switch between AMOS and PC environments.
- Chapter 5 discusses some of the features of AMOS and how you can use them.
- Chapter 6 discusses copying information between DOS and AMOS.
- Chapter 7 discusses network configurations using AlphaNET and AlphaTCP network products.

Appendices list AM-PC error messages and discuss some differences between the Falcon and other AMOS computers. International character support for non-English terminal emulation is also described.

Graphics Conventions

This manual uses the same graphics conventions as most other Alpha Micro publications. We hope these conventions simplify our examples and make this book easier for you to use.

Symbol	Meaning
TEXT	Bold text in an example of user/computer communication represents the characters you type. When the text is all capitals, type exactly what's shown. When it is lower case, it represents a variable part of an entry, such as a file name.
TEXT	We use text in this type face for: characters the computer displays on your screen, program examples, and command format. When showing command format, all capitals indicates a constant part of the command line, such as the command name, while lower case indicates variable information, such as a file name.
Text	Text in this bold, italic type face is a reference to part of a previous command format description or sample.
{Option}	Optional parts of a command appear in braces {}. You can enter exactly what is in the braces or substitute the correct value if it is a parameter. Do not include the braces themselves.
	This says "Halt!" and lets you know an important warning or message is being presented that could cause serious damage or inconvenience if ignored.

Symbol	Meaning
	This "Hint" symbol indicates a helpful bit of information, or a "short cut" that could save you time or trouble.
	This "Remember" symbol indicates something you should keep in mind while following a sets of instructions.
ENTER	This key symbol refers to a key on your keyboard. The name of the key appears inside the key symbol.
ALT/F10	These symbols tell you to press the first key shown and hold it down while you press the second key. For example, ALT/F10 tells you to press the ALT key and, while holding it down, press F10.

ADDITIONAL BOOKS

You'll need to know something about the PC and AMOS environments to make the best use of Falcon's features. We recommend you refer to the operating system information that came with your PC. Additionally, any book or computer store has many books available about DOS and Windows. For detailed information about AMOS, please refer to the following manuals available from your Alpha Micro dealer:

AMOS User's Guide, DSO-00042-00
AMOS System Operator's Guide, DSO-00001-00
AMOS System Operator's Guide to the System Initialization Command File, DSO-00002-00
AMOS System Commands Reference Manual, DSO-00043-00

Chapter 5 contains a more detailed list of Alpha Micro books you may find helpful.

SERVICE INFORMATION

The following sections give warranty and service information for the Falcon.

Post-Sales Support

Alpha Micro provides a comprehensive post-sales service and support program for its entire product line. Our service organization is structured to provide you with immediate access to support assistance and information.

Support is available through Alpha Micro Service Operations. Our nationwide field service organization provides direct repair services to Alpha Micro computer owners. Some of the many services available through Alpha Micro are site evaluation, computer installation, computer integration, network design and consultation, problem diagnosis, and field repair. Alpha Micro Field Engineers are factory-trained to ensure continuity of product servicing. Should you select hardware service from your servicing Alpha Micro dealer, you can be sure he or she is backed by, and in close touch with, Alpha Micro for full factory support.

For Further Assistance

If you are unable to contact your dealer, Alpha Micro will be glad to refer you to another one. If you relocate and want to learn the name and address of an Alpha Micro dealer near you, please call Alpha Micro at the number below or write us at the address inside the front cover. For information and the location of the Alpha Micro service location nearest you, call our toll free service number, (800) 253-3434.

Chapter 2 - Installing the AM-PC Software

After you have installed the AMOS co-processor in your PC, you are ready to begin the AM-PC software installation. If the co-processor card is not yet installed, follow the instructions in the *Falcon AMOS Application Processor Installation Instructions* before installing the software.

In this chapter you learn how to:

- Install the AM-PC and AMOS software.
- Enter your AMOS Product Installation Code (PIC).

If your PC came with the current AM-PC software already installed...
skip this chapter and go to Chapter 3.

WHAT YOU NEED TO BEGIN THE INSTALLATION

You must have at least 15MB free on a DOS disk before installing AM-PC. The default installation builds a dynamically allocated 90MB AMOS disk file with three logical disks. If you want a fixed mode disk, a disk of another size, or if you want to move the disk to another PC disk device, see Chapter 3 for instructions on making these changes after AM-PC is installed.

These software installation instructions guide you through the procedures for bringing up AMOS on your PC. To proceed with this installation you need the following:

- The AM-PC installation diskettes or CD-ROM.
- Your AMOS PIC.

Be sure you have these items before continuing with these installation instructions. As with all installation instructions, it is a good idea to read through this chapter to get an idea of the whole process before you actually begin the installation.

Before proceeding with these installation procedures, make sure that any existing data on your disk drive is fully backed up.

INSTALLING AM-PC

The AM-PC installation is automated—whenever you need to take action, a message appears on your screen telling you what to do. Installing the AM-PC software is very easy. The process is similar whether you are installing AM-PC under Windows or DOS.

The recommended installation is from a CD-ROM. However, if you do not have a CD-ROM you can install AM-PC from 3½" diskettes. Just be sure to enter the correct device name for the drive you are installing from.

Beginning the Installation Under Windows

To begin the installation under Windows, insert the AlphaCD, or AM-PC diskette #1, into the correct drive. If you use Windows 95, from the Start menu, select Run. Under older versions of Windows, from the Program Manager, pull down the File menu and select Run. At the Run screen, type one of these commands:

- If you are installing from a CD-ROM drive, type:

  `D:/AMPC42/CD/WINSETUP` ENTER

  CD-ROM installation can only be accomplished under Windows.

- If you are installing from a 3½" diskette drive, type:

  `A:WINSETUP` ENTER

Beginning the Installation Under DOS

To begin the installation under DOS, insert AM-PC diskette #1 into the floppy drive and type:

`A:DOSSETUP` ENTER

Continuing the AM-PC Installation

Whether you are installing AM-PC under Windows or DOS, the installation from this point on is pretty much the same. Total installation time is about 10 to 15 minutes. Various screens display letting you know what is going on, and asking you to insert the next diskette when appropriate.

At any time, you can interrupt and exit the installation by pressing the ESC key under Windows or CTRL/X under DOS.

When you start the installation, the program will install and configure AM-PC for your computer. The program also automatically checks all the existing drives and detects any previous installation of AM-PC on your system.

1. Click the **OK** button to accept the default installation directory, or type the directory name you want. If the AM-PC program has been previously installed, you may want to overwrite it or choose a different directory to install it into.

Installation directory…
The default installation directory is C:\AMPC. Make sure to change the path if you want to install AM-PC in a different disk or directory.

If you install AM-PC 4.2A, or later, in a folder other than "C:\AMPC," you may need to change the PIF files in the installed directory. To do this:

- Under Windows 95, in My Computer, right-click on the AM-PC boot icon you want to change and select Properties from the right-click menu. On the Programs tab, change the Command Line and Working Directory fields to the correct location. Also, select "Change Icon" and select ALPHY32.ICO in the installed directory. Repeat this procedure for all AM-PC icons, making sure they all refer to the correct drive and directory.
- In Windows 3.x, start the PIF editor, normally found in the Main program group. Open the AMPC.PIF file in the AM-PC installation directory and change all references to the location to the correct one for your installation. Also, select "Change Icon" and select the file ALPHY32.ICO in the installation directory. Repeat this for the AMPCB.PIF file. Also, display the README icon's properties (one way to do this is by pressing ALT/ENTER) and make sure it refers to the correct drive and directory.

2. If you are installing from diskettes, remember to insert the additional diskettes when the installation program requests you to do so.
3. If you already have the previous AM-PC software installed and do not want to update it, make sure to deselect the "`update AM-PC software`" box; then make your choice whether to install the new AMPC42A.DSK or not by selecting or deselecting "`Use new AMPC42A.DSK file`" and "`Do not add AMPC42A.DSK`" boxes. After making those upgrade choices, click the **OK** button to continue the installation or **Quit** to exit the installation program.

If you choose to update the AM-PC software by using the new AMPC42A.DSK file, the program will rename your old disk file to AMPCOLD.DSK. The current disk file device can be accessed as SUB0:-SUB2: when booted with AMOSL.INI.

4. For the AM-PC configuration pop-up window, the installation program asks if you have changed the base address of the Falcon card. As shipped to you, the Falcon card is configured for address 294. If you change it to avoid conflicting with another card in your computer, you must now tell the installation program the new address. (See the *Falcon AMOS Application Processor Installation Instructions* for details on changing the card address.)

   If you have an IDE CD-ROM, select "`Use IDE CD-ROM Interface`" and enter the CD-ROM driver name into the box or leave it as the default name "`MSCD001.`"

   If you have a SCSI CD-ROM, do not select the CD-ROM check box.

   Also, if you are installing a network, select "`enabled Network = CLARKSON.`"

5. During a Windows install, choose whether to create a new program group for the AM-PC icons, or add icons to an existing program group, or not create any icons.

   If you choose "`install in an existing group`," make sure to enter the program group name that you want to add the AM-PC icons to.

6. Various changes should be made to your CONFIG.SYS and AUTOEXEC.BAT files. At the pop up window screen, the installation program lets you select whether to :
   - `"Go ahead and modify."` Unmodified backup files will be created with the names AUTOEXEC.nn and CONFIG.nn, ***nn*** being an incrementing number (e.g., AUTOEXEC.02)

     You must reboot the system after completing the installation in order to run the new AM-PC software.
   - `"Create example files."` Examples will be created (AUTOEXEC.EXM and CONFIG.EXM) showing you what lines should be added or modified in your existing files so you can do it yourself.
   - "`Bypass these changes.`" The changes will be bypassed. Choose this option only if you know these changes have already been made in your CONFIG.SYS and AUTOEXEC.BAT files. Your answer affects the actions of subsequent installation steps.

     If you do not make any changes in your CONFIG.SYS and AUTOEXEC.BAT files, it is not necessary to reboot the system after the installation is completed.
7. The installation program lets you know when it is done:

   ```
   The installation of AMPC(tm) Version 4.x is now complete
   ```

   If you told the installation program you want to make any changes to AUTOEXEC.BAT and CONFIG.SYS yourself, it reminds you to make those changes.

Completing the Installation

The last step of the installation tells you to `Remember to reboot your computer.` Do so now. After rebooting, take a look at the DOS AMPC.INI file in the AM-PC installation directory, which controls the operating environment of AM-PC. It contains comments explaining the various sections in the file. You can now change your AMOSL.INI file to add devices as you would with any other version of AMOS. See Chapter 3 for instructions on doing this, including how to activate SCSI peripheral support.

Updating Considerations

If you install AM-PC 4.2A, or later, in the same directory more than once, the installation program renames your existing AMPC42A.DSK file to AMPCOLD.DSK. You can then access this file as a subsystem disk device by following the procedures described in Chapter 3.

If you have an existing AMOS disk file with another name, such as AMPC42.DSK, installing AM-PC 4.2A or later does not affect it. You can then define this file as a subsystem disk to access your existing programs and data.

DO NOT copy your old AMOS monitor, or other AMOS programs, from your old release to the new DSK device, as they may conflict with the new AMOS software and keep AMOS from working.

When you update older versions of AM-PC, the program automatically saves your existing AMPC.INI file by copying it to AMPC.OLD and displaying a message telling you it has done so.

BOOTING AMOS

- If you installed AM-PC under Windows, you should see the new AM-PC program group, where you can boot AMOS by double-clicking the icon labeled "Boot AM-PC."

  Running AMOS from Windows
  You should always run or boot AMOS from Windows by using one of the Windows icons, not by opening a DOS window and using the AMPC command. The AM-PC icons are designed so AMOS keeps running if you make another window active; if you start AMOS through a DOS window, all other AMOS users are suspended if you switch from AMOS to another window task.

- If you installed AM-PC under DOS, boot AMOS by typing:

  `AMPC/B` ENTER

  This defaults to the AMOSL.INI initialization file. If you want to specify an alternate initialization file, type:

  `AMPC/I:filename.INI` ENTER

  As you boot AMOS, you see:

```
AMPC Version X.X(xxx)
Copyright 1995, Alpha Microsystems
Initializing Falcon co-processor board...
```

ENABLING MULTIPLE AMOS USERS (INSTALLING THE AMOS PIC)

So far, you've been using AMOS in single-user mode. To enable multiple users, you need to enter the Product Installation Code (PIC). The PIC is coded to your specific Falcon card. The PIC to allow four AMOS users with your card is included with Falcon. If you want more than four users, contact your Alpha Micro dealer.

To enter the PIC, from AMOS command level, type:

`OSINST` ENTER

This displays a prompt requesting your PIC. Type it in, being sure to use the correct capitalization and include the "-" between the 4 sets of 5 characters, and press ENTER.

The next prompt asks you to confirm that you want to install AMOS using this PIC. Check your entry, and if it's correct, type **Y** ENTER. This enables multiple AMOS users. (Note that the PC console counts as one AMOS user, no matter how many virtual terminals you enable.)

The AlphaNET and AlphaTCP networking software is enabled when you install the AMOS PIC code.

SWITCHING FROM AMOS TO THE PC ENVIRONMENT

Once you have booted AMOS, to return to Windows or DOS, press ALT/F10.

Make sure all virtual terminals and other terminals have returned to the AMOS prompt, and AMOS has finished writing to the disk, before using ALT/F10. If you use ALT/F10 while a file is being written to the disk, and then reboot the PC or AMOS before re-entering AMOS, the bitmap may be corrupted, causing you to lose some or all of the data in the file. As a PC user, you already know you should let the PC finish writing to the disk and return to the DOS prompt before rebooting or powering off the PC (especially vital when you are using a PC disk cache program)—using ALT/F10 requires the same sort of care. You must also make sure that no one is in the process of printing when you shut down. Doing so will hang the print job.

Using ALT/F10 causes you to leave AMOS and return to the PC environment. A pop-up window warns you to be sure that all disk and network activities are completed. Type **Y** to exit AMOS or press ESC to cancel. Whatever was happening in AMOS is suspended. When you return to AMOS (if you have not rebooted the PC or AMOS), you return to the AMOS screen you left and action resumes.

See Chapter 4 for more information on switching back and forth between AMOS and the PC environment.

ENABLING FUNCTION KEY TRANSLATION

Each type of terminal or terminal emulation uses function key translation files to translate your PC function keys (F1 through F12) into the codes expected by various applications. These function key translation files have the name of the terminal driver your terminal or emulation is using, and an extension ending in X. For example, if you are going to use the AM-62 terminal driver or emulation with AlphaWRITE, an AM62.WRX file must exist in DSK0:[7,12]. For the console terminal, we recommend using the AM75.TDV if you are using a color monitor. If you use any applications that use function key translation files (such as AlphaCALC, AlphaWRITE, etc.), you must create the appropriate translation files.

TESTING THE INITIALIZATION FILE

When AMOS boots, it reads a file called AMOSL.INI—the system initialization file—to determine the hardware attached to the computer and other information it needs to determine the system configuration. AM-PC includes a prototype initialization file called FULL.INI. (See Appendix E, "Sample AMOS System Initialization File," for the complete FULL.INI file.) You must use this file as the basis for your permanent AMOSL.INI file—the AMOSL.INI file created during installation is designed as an interim file only.

The next step is to test FULL.INI to make sure AMOS can boot using it. To test a system initialization file, you use the MONTST command. At the AMOS prompt, type:

```
LOG OPR: ENTER
MONTST AMOSL,FULL.INI ENTER
```

Watch the PC screen to check that AMOS boots correctly. If you see any messages that begin with a question mark or a percent symbol, an error has occurred. Or, if the boot does not finish (the last statement on the display should be `MEMORY 0`), a problem has occurred. Contact your Alpha Micro dealer for help if you encounter difficulties.

If AMOS boots correctly, log into SYS: and copy FULL.INI to AMOSL.INI:

```
LOG SYS: ENTER
COPY AMOSL.INI=FULL.INI ENTER
```

FULL.INI contains complete definitions for the maximum number of terminals and printers that can be attached to the PC. These definitions are "commented out" until you need them. Chapter 3 describes the initialization file—it includes information on how you can modify your system initialization file to enable the devices you want.

For network installations, FULNET.INI is provided to assist you in configuring your network. Do not use this file until you have a working Falcon system in place and are ready to configure it for network use. See Chapter 7 for details.

For Experts Only—Creating Your Own Initialization File

If you are an experienced AMOS user, you may want to construct your own system initialization file. If so, please examine FULL.INI carefully first—it contains some statements unique to AM-PC that must be included. For example, the format of the DEVTBL and BITMAP statements may be slightly different than you are familiar with.

Also, if you ever use the AMOS MONGEN command to generate a new monitor, note that the disk driver program to select for the AMOSL.MON monitor is DSK0:AMPC.DVR[1,6]

WHAT NEXT?

AMOS is now up and running. Chapter 4 tells you how to switch between AMOS and DOS or Windows. Chapter 5 contains information on basic AMOS procedures, such as formatting diskettes, using the printer, and disk diagnostic procedures. Chapter 6 contains information on transferring files between AMOS and DOS. Chapter 7 discusses attaching your Falcon-based PC to a network.

Before you move on, however, you should go to Chapter 3 if you want to:

- Add terminals.
- Connect a printer.
- Change virtual terminal emulations.

- Define an AMOS disk subsystem.
- Define a diskette drive to AMOS.
- Change the AMOS disk allocation or location.
- Use a SCSI device.
- Create an alternate boot device.

Chapter 3 - Modifying the AMOS Configuration

This chapter discusses how to modify the AMOS system to:

- Define virtual terminals for the PC console.
- Define I/O ports.
- Define terminals and jobs.
- Define a printer to AMOS.
- Change the parameters of an AMOS disk file.
- Allow AMOS to use SCSI disk drives, tape drives, diskette drives and other devices.
- Create an alternate boot device.

On the Falcon, adding and defining these devices requires making changes to the AMOS system initialization file, AMOSL.INI, and the AM-PC initialization file, AMPC.INI. The following sections contain information on both files.

WHAT CAN I ADD TO THE FALCON?

Under AMOS, your PC can support up to six serial and three parallel devices in addition to the main PC console, and an Ethernet interface. (However, your AMOS license may not support the use of that many users or printers.) Your PC console can also use up to eight virtual terminals. In addition, you can add additional users and other system features by adding networking capability to your Falcon-based PC.

Some of the information in this chapter is rather detailed and technical. You might want to ask your Alpha Micro dealer for help in installing disks, printers and terminals if you are not familiar with these procedures.

The hardware you may want to add includes:

- Up to three standard IBM-compatible parallel printer ports (the ones you use for DOS printing), called LPT1 through LPT3 in the PC world.
- Up to four standard IBM compatible communication ports (referred to as COM1 through COM4 in the PC world). These allow you to add four serial devices (terminals or printers) to your system. You can also attach serial devices to the two ports on the Falcon card.

You may run into problems sharing certain devices between AMOS and Windows 95. Please refer to Chapter 4 for additional information.

- Additional SCSI disk drives, a SCSI tape drive for backup, or other SCSI device, such as a CD-ROM drive.
- A network using AlphaNET or AlphaTCP protocols.

Attaching an additional device to your computer is a two-step process: first, you physically connect the terminal or printer to the computer; second, you define the device to the operating system.

Your PC owner's manual and/or the documentation provided with the device describes how to install standard PC hardware devices, such as printers and tape drives. In general, for any device you want to use from both DOS and AMOS, you should attach the device and perform any necessary DOS software installation before you define it to AMOS.

If you want to attach additional serial terminals for AMOS use only, refer to the *Falcon AMOS Application Processor Installation Instructions* for cabling information.

After attaching the hardware and performing any necessary DOS setup, you can define the devices to AMOS. You do so by modifying the AMOS system initialization file and the AMPC.INI file, as described in this chapter.

If you remove I/O hardware...
containing any of the I/O ports defined in your AMOS system initialization file, you must first deactivate their definitions in the initialization file by placing semicolons in front of those lines. Otherwise, AMOS will not be able to continue booting or will display an error message when it tries to process the definition for the missing port.

THE AM-PC CONFIGURATION FILES

The following sections describe the two files used to control the operation of AM-PC and the various devices attached to your system. These files are:

- AMPC.INI - This file is in the installation directory under DOS, and defines your system's hardware to DOS.
- AMOSL.INI - This file resides in account DSK0:[1,4] and defines your system's hardware to AMOS.

All of the AMOS configuration changes described in this chapter require changes to one or both of these files.

AM-PC Initialization File (AMPC.INI)

The AMPC.INI file contains statements that control the operation of AM-PC. AMPC.INI resides in the installation directory under DOS, and you may edit it with any DOS text editor.

The major sections in the AMPC.INI file are:

- Falcon card address
- Virtual terminal emulation setup
- Subsystem disk and diskette drive definition

When you change AMPC.INI...
Any changes you make do not take effect until after you reboot AMOS.

- COM port interrupts and addresses
- Non-SCSI CD-ROM driver definition
- Clarkson Ethernet driver definition (for network configuration)

Later sections in this chapter contain instructions for changing these parameters.

The System Initialization File

The AMOS system initialization file is a special file in account DSK0:[1,4]. On your computer, it's called AMOSL.INI, and we often refer to it simply as the system .INI file. The system .INI file defines to AMOS all the hardware connected to your computer and allows you to customize your system to make its operation more convenient and efficient. When you boot AMOS, the computer consults the system .INI file in order to build the operating system in memory and customize it for your particular hardware. As AMOS boots, each line of the system .INI file displays on the PC console as the computer processes it.

> **Hint for DOS users…**
> For those of you familiar with DOS, it may be helpful to think of the system .INI file as a combination of the DOS files CONFIG.SYS and AUTOEXEC.BAT, but more complicated and powerful because of the greater flexibility of AMOS.

Besides defining the hardware attached to the computer, some of the things your system initialization file can do are:

- Define a Task Manager system that automates complicated and time-consuming tasks, and schedules them to run at preset times.
- Set up additional jobs to perform background tasks without tying up your terminal.
- Define print spooler queues to simplify printer use and schedule print requests.
- Optimize system memory use by loading programs into system memory so multiple users can access the same software without loading it into their area of memory.
- Automatically run software each time you boot AMOS.
- Change user memory allocations.
- Set up and initialize networking access.

It is impossible for us to explain here all the things you can make the system initialization file do. See the *AMOS System Operator's Guide to the System Initialization Command File* for more information.

Never modify the actual system initialization file your computer uses to boot because if you make a mistake, it's cumbersome to fix it. It is much safer and easier to make a test copy of the file, and modify the copy.

With AMOS active, type these commands to make and begin editing the test copy:

```
LOG SYS: ENTER
COPY TEST.INI=AMOSL.INI ENTER
VUE TEST.INI ENTER
```

The TEST.INI file now appears on your screen. The sample file in Appendix E, "Sample AMOS System Initialization File," should resemble your system .INI file quite closely.

To edit the system .INI file...
you need to use AlphaVUE, Alpha Micro's text editor. While AlphaVUE is easy to use, you may want to refer to the *AlphaVUE User's Guide* if you are unfamiliar with it.

For the most part, this chapter shows you how to enable already defined configurations. If you need to do something not provided for in the supplied system .INI file, such as defining an additional SCSI disk drive, you will need to know more about the system .INI file than we can explain here. See the *AMOS System Operator's Guide* and the *AMOS System Operator's Guide to the System Initialization Command File* for more information.

Your system .INI file contains standard definitions for most of the terminals and printers you are likely to want to connect to your PC. These definitions have been deactivated by placing a single semicolon at the front of the line. To activate these definitions, you delete the semicolon.

We suggest you enable only a single item at a time, then test the file to make sure your changes are correct.

Finishing Up

After you have made your changes to the TEST.INI file, the next step is to reboot AMOS with TEST.INI to see if the changes you made work.

Before you reboot...
Any time you plan to reboot AMOS you must warn everyone using the computer and give them time to finish their current task. Also, allow all print jobs to complete. If someone has entered data or typed text or program code without saving it onto the disk, it is lost when you reboot.

The MONTST command lets you boot the system using a test file. When everyone is ready, at AMOS command level type:

```
LOG OPR: ENTER
MONTST AMOSL,TEST.INI ENTER
```

AMOS reads your TEST.INI file and reconfigures the system according to its instructions. As AMOS processes the system .INI file, each statement appears on the PC screen, and when it gets to the last statement (`MEMORY 0`) the computer is ready to use. To see if AMOS recognizes the new devices you have enabled, type:

```
SYSTAT ENTER
```

The resulting display lists all the jobs defined on the system, the terminals they're attached to, and the amount of memory they have. You will also see the disk devices defined. Use AMOS for awhile and when you are convinced it is performing up to your expectations, you can make the test system .INI file your standard system .INI file by renaming it. Use the commands below. This procedure saves the previous version of the system .INI file—we recommend this in case you ever want to return to it:

```
LOG SYS: ENTER
COPY AMOSL.OLD=AMOSL.INI ENTER
RENAME/D AMOSL.INI=TEST.INI ENTER
```

If your Falcon does not boot successfully when you use MONTST, you can still reboot as long as you do not rename the TEST.INI file. Use ALT/F10 to return to DOS, then reboot AMOS, which will use your regular AMOSL.INI file.

If you receive this message during the MONTST:

```
Exceeds maximum number of terminals allowed
```

You are trying to add more terminals than your AMOS license allows. Check the Software License Agreement message that displays when AMOS boots to determine the number of terminals your computer can accept.

CHANGING THE FALCON CARD ADDRESS

The AMPC.INI file defines the address of the Falcon card. This address is also set on the card itself via hardware jumpers. The default address of the Falcon card is 294 (hex). If you have another card in the PC with the same address, you can change the Falcon card's address by changing the card switches and the AMPC.INI file. The format of the Falcon card address statement in the AMPC.INI file is:

```
Falcon = hex-address
```

hex-address is the Falcon card address in hexadecimal. See the *Falcon AMOS Application Processor Installation Instructions* for the switch settings you need for each available card address. The address you enter here must match the switch settings on the Falcon card or you will not be able to boot AMOS.

ADDING A VIRTUAL TERMINAL

You may define up to eight virtual terminals to be used on the PC console; AM-PC is shipped with four defined, VTM1-VMT4. Virtual terminals are defined both in the AMPC.INI file and the AMOS system initialization file. The first console port is always defined as VTM1=1; the terminal driver is AM75. VTM1 must always be defined, as it defines the emulation for the PC console when AMOS is booted.

The AMPC.INI VTMx entry defines the type of terminal to emulate and can also select various operating modes. The syntax for the `VTMx` statement is:

```
VTMx=emulation {option {option...}}
```

x is a number from 1 to 8 selecting the particular virtual terminal, ***emulation*** selects the terminal emulation to use; and ***option*** selects one of the operating modes listed below.

Option	Function
T	Display the top status line. VGA monitors normally have 25 active lines, whereas Alpha Micro terminals have 26 (top status line, 24 scroll lines, and bottom status line). If T is specified, the top status line will be displayed, but data sent to the bottom status line will not.
B	Display the bottom status line. Default. Used for 25-line monitors (see the explanation for "T," above). If B is specified, the bottom status line will be displayed, but data sent to the top status line will not.
E	Display the Ethernet debug screen only.
H	Display high intensity. With this option enabled, the blink emulation characteristic will not be displayed at the same time as the high intensity emulation.
I	Inhibit line wrap. When a character is printed in the last displayable column (i.e., 80 or 132), for the next character the cursor will be moved to the first column of the next line unless I is used to disable line wrapping.
M	Use white as the default color. Useful when using a monochrome VGA monitor with a monochrome emulation. If you use a monochrome VGA monitor (which is actually a grayscale monitor) with a color terminal emulation (e.g., AMPC, the native emulation), colors are translated into an appropriate gray level that matches the luminance of the color. If, however, you use a monochrome emulation (e.g., AM62 or AM60), the grayscale translation for green (the default color for AM60 and AM62 emulations) is very difficult to read, especially when using reverse video.
NRC	Used to specify National Replacement character set terminal emulation. See Appendix G for details.

The terminal emulations supported by AM-PC are:

Emulation Name	Emulates
AM60	Standard field terminal
AM62	Field terminal (use either AM62 or AM62A under AMOS)
AM62C	Field terminal with mode color
AM65	AM-65 terminal
AM70	Color field terminal
AM72	Color mode terminal, no graphics
AM75	AM-75 terminal

The default color emulation for AM-PC is AM-75; the default terminal driver for the console VTM1 port is AM75.TDV. To enable AM-65 or AM-75 emulation, simply specify "AM65" or "AM75" as the terminal type on the VTMx lines of AMPC.INI and ensure AMOS is set up with the appropriate terminal driver.

This emulation includes save and restore screen area functions, ensuring compatibility with products such as INMEMO® from MicroSabio.

If the display is in 132 columns, the shutdown procedure when you press ALT/F10 will put you back into 80-column mode so the shutdown warning box displays correctly.

Examples of `VTMx=` entries in AMPC.INI are:

```
VTM1 = AM75 T
VTM2 = AM62 T
VTM3 = AM62C
VTM4 = AM70
;VTM5 = AM60
;VTM6 = AM65
;VTM7 = AM75
;VTM8 = AM72
```

To enable more virtual terminals, remove the semicolon in front of the applicable `VTMx` statement in AMPC.INI and the appropriate TRMDEF statement in the system .INI file.

If you change the terminal emulation in a VTMx statement, be sure to change the terminal driver in the corresponding TRMDEF statement in the system .INI file, too. (See "Adding a Terminal," below.) Note that virtual terminals past the first are not counted as AMOS users for your AMOS license.

ADDING A COM PORT

Falcon lets you use the COM1 through COM4 serial ports on the PC to attach AMOS terminals. To define which COM ports you wish to use with AM-PC, you must modify the AMPC.INI file, along with the AMOS system initialization file, AMOSL.INI. See "Adding a Terminal" for examples of defining the COM ports in the AMOSL.INI file. The format of AMPC.INI entries is:

Choose unique interrupts…
The PC "standard" for COM ports dictates that COM1 and COM3 share the same interrupt, as do COM2 and COM4 (i.e., COM1 and COM3 both use interrupt 4). While this doesn't present a problem under DOS, it will cause problems under AM-PC (or other multi-tasking environments) because the PC hardware is not able to share interrupt levels simultaneously. You ***must*** assign each COM port a unique interrupt. Of course, changing the interrupt is only possible if the card containing the COM ports supports changing the IRQ settings.

```
COMx = hex-base-address, decimal-interrupt
```

hex-base-address gives the hexadecimal port address of the serial port, and ***decimal-interrupt*** gives the decimal interrupt used by that port.

For example, if you want to use COM1 and COM2 under AMOS, the AMPC.INI file should read something like this:

```
COM1 = 3F8,4
COM2 = 2F8,3
```

If you purchase a new serial card for additional COM ports for your PC, we recommend you find one that uses 16550 compatible serial controllers. These cards have sixteen-byte FIFOs (First In, First Out buffers) that ensure higher performance.

Do not initialize the COM1 or COM2 serial port if your serial mouse is installed on either of these ports.

ADDING A FALCON PORT

If you are connecting a terminal to a Falcon port, you do not need to make any changes to the AMPC.INI file. Just remove the semicolon in front of the appropriate TRMDEF statement in the system .INI file to enable the Falcon port definition. For example:

```
TRMDEF FAL0,FALCON=0:19200,AM65,100,100,100,EDITOR=10
```

See “Adding a Terminal” for more information.

ADDING A TERMINAL

When you attach a terminal to your PC to use from AMOS, or define a virtual terminal emulation to use on the PC console, you need to define it in your system .INI file. This section tells you how to define a terminal to AMOS, attach a job to it, and adjust the job’s memory allocation.

If you are adding or changing a virtual terminal... you need to make sure the terminal emulations in the VTMx entries in the AMPC.INI file match the terminal drivers used in the TRMDEF statements in the AMOSL.INI file that use the PCVTM interface.

First, make a TEST.INI file and edit it as described above.

There are several TRMDEF statements in the sample system initialization file. Each TRMDEF statement defines a terminal or printer attached to a specific serial port.

Here’s the format of the TRMDEF statement:

```
TRMDEF term,interface=n:baud,term-driver,200,200,200,EDITOR=5
```

Here's what each part of the TRMDEF statement means:

TRMDEF	Identifies this as a terminal definition statement.
term	The terminal name. You can give a terminal any descriptive name of up to six letters or numbers.
interface	The hardware interface driver name, which tells AMOS what type of hardware the terminal is connected to. Use PCVTM for the main console, PCCOM for serial ports COM1-COM4, and FALCON for the two serial ports on the Falcon card. If defining a printer (see "Adding a Printer," below), use the PCLPT interface driver.
n	The port number, which tells AMOS which port on the hardware device the terminal is attached to. For PCVTM (which defines virtual terminals for the PC console), specify 1-7 for virtual terminals VTM1-VTM7. For the eighth virtual terminal, VTM8, use port 10 (octal for the decimal number 8). For PCCOM, specify 1-4 for COM1 through COM4. For FALCON, specify 0 or 1 for the first and second ports. If defining a printer (see "Adding a Printer," below), use the PCLPT interface driver and ports 1-3.
baud	The port's baud rate. This must match the baud rate the terminal is set to. The maximum baud rate is 38,400 for the two Falcon ports and 19,200 for COM1-COM4. For the PC console and the parallel ports, do not specify the baud rate. Always use the colon separator when entering the baud rate.
term-driver	The software terminal driver. The terminal driver tells AMOS what type of terminal is attached to the port. The terminal driver for the PC console depends on the virtual terminal emulation selected in the AMPC.INI file (see the information on the AMPC.INI file VTMx entry earlier in this chapter). The driver for other terminals depends on the terminal type.
200,200,200	Input and output buffer sizes. The values shown are typical for terminals. Most printers use a smaller value.
EDITOR=5	Specifies the number of lines of typed-in commands the line editor can recall and modify.

Activate the TRMDEF statement that matches the port you want to connect the terminal to by removing the semicolon in front of it. Make sure the terminal name and the port number do not duplicate ones in existing TRMDEF statements.

Before you can actually use the terminal, you need to activate other statements to attach a job to it, as described in the next section.

Attaching a Job to the Terminal

The terminal defined in the first TRMDEF statement and the first job in the JOBALC statement are automatically attached to each other. These statements define the terminal and job for your PC console—the other terminals connected to your PC must be explicitly attached to their respective jobs.

In your TEST.INI, find a statement that begins with SETJOB and refers to the terminal name you activated. For example, if you have enabled the TRMDEF for terminal COM1, look for this line:

```
SETJOB COM1,COM1,32K, VER
```

This statement attaches job COM1 to the terminal COM1, assigns 32KB of memory to the job, and runs the VER program on the terminal when AMOS boots. To increase the amount of memory you require, simply change the ***32K*** to a larger number.

To enable the job you want, remove the semicolon at the beginning of the line.

Assigning Memory to Jobs

Under AMOS, you must assign each job an amount of memory to use as workspace; this area is called the job's memory partition. Each job's partition is taken from the total amount of memory available to AMOS—with Falcon, this total amount may be from 512KB to 8MB. The amount of memory to assign to each job depends on three things:

1. The total amount of memory available.
2. The number of jobs on your computer.
3. The total size of programs loaded in system memory.

When assigning memory partition sizes, keep in mind that memory is needed for more than terminals: the AMOS monitor (the operating system software that allows AMOS to run and access devices) takes up a certain amount of memory, as does the task manager. Also, you don't assign memory to the PC console—it automatically gets whatever memory has not been assigned when AMOS finishes booting.

As a general rule, you want to give each job enough memory to run any program it may need to, but no more. This preserves as much memory as possible for other users. On the other hand, it does no good to give each terminal only a small amount of memory, and end up with the PC console getting much more than it needs.

Once you've assigned the amount of memory you want to each job, leave AlphaVUE and test the TEST.INI file as described above in the section "Finishing Up."

DEFINING A NETWORK CONNECTION

When you want to configure your Falcon-based PC to attach to a network, uncomment the statement:

```
Network=Clarkson
```

in your AMPC.INI file.

This statement allows AM-PC to communicate with a Clarkson-compatible network card. Please refer to Chapter 7 for more information.

ADDING A PRINTER

Which print spooler?
AMOS offers two different print spoolers. The FULL.INI file enables the memory-based spooler. If you want to use the task manager spooler, or for more information about the memory-based spooler, refer to the *AMOS System Operator's Guide*.

The first step in adding a printer to your PC is to make sure it is defined and usable under DOS. Connect the printer to the parallel or serial port and define it to DOS as described in your PC owner's manual or your DOS documentation. If you use Windows, define it to Windows as well. If you are using a PC COM port, make sure it is defined in the AMPC.INI file (see "Adding a COM Port," above). Once the printer is defined and usable from DOS, switch to AMOS, make a TEST.INI file and edit it. Change the appropriate TRMDEF for the COM port you are using to use the TELTYP terminal driver, and remove the EDITOR statement. Change the baud rate to one appropriate for your printer.

If you have connected the printer to the LPT1: parallel port, activate the following line in the TEST.INI file:

```
trmdef lpt1,PCLPT=1,teltyp,100,100,100
```

For either a serial or parallel printer, you also need to activate the print spooler, which lets you use the AMOS PRINT command. For a parallel printer on port LPT1, enable these lines:

```
trmdef DUMMY,PSEUDO,NULL,100,100,100
...
SETJOB LPT1,DUMMY,10K,LPTINI LPT1.PIN
```

NOTE: The first line is much earlier in the file than the second.

Before you can use your printer, you need to create a printer initialization file for it. This is the LPT1.PIN file referred to in the last line above. See your *AMOS System Operator's Guide* for a description of this file, which tells AMOS the characteristics of your printer.

Here is a sample LPT1.PIN file:

```
DEVICE = TRM:LPT1
NAME = LPT1
DEFAULT= FALSE
OPERATOR = CON1
FOMFEED = TRUE
FORMS = NORMAL
BANNER = FALSE
HEADER = FALSE
LPP = 60
WIDTH = 80
```

For a serial printer, modify the SETJOB statement to refer to the correct job and change the printer initialization file to one appropriate for your serial printer.

Exit the AlphaVUE text editor and test the TEST.INI file as described in the section "Finishing Up."

ADDING A NON-SCSI CD-ROM DRIVE

In addition to supporting SCSI CD-ROM drives though the SCSI dispatcher and PC ASPI interface, AM-PC also allows inexpensive non-SCSI CD-ROM drives to be used with AMOS and the AlphaCD program, ACD.LIT.

If you install a non-SCSI CD-ROM drive in your PC, two programs are added to your system—a device driver and CD-ROM file system extender (normally called MSCDEX). AM-PC communicates with the device driver in order to read from the CD-ROM drive.

To inform AM-PC that you wish to use the CD-ROM device driver rather than the SCSI interface, add or enable an entry in the AMPC.INI file:

```
ACD = CD-ROM-driver-name
```

CD-ROM-driver-name is almost always MSCD001; however, if you have more than one CD-ROM drive in your system, it may be different.

When the AlphaCD installer (ACD.LIT) is run, it queries AM-PC to see if an `ACD =` entry exists in the AMPC.INI file. If it does, it uses the PC device driver specified; otherwise, it uses the SCSI interface as usual. Therefore, if you wish to use the SCSI interface, make sure no `ACD =` entry exists in your AMPC.INI file.

If you are using Windows 95 OSR2, you will not be able to access the CD-ROM from AMOS using the ACD program. You must restart your PC under DOS, then the CD-ROM interface will work. See Chapter 4 for more information.

ENABLING SCSI DEVICES

In order to use SCSI devices (other than drive C:) from AMOS, you must have a PC SCSI controller card with an ASPI (Advanced SCSI Protocol Interface) manager. These cards are available from your Alpha Micro dealer or at many computer stores.

For more information on SCSI devices...
See the *Release Notes* for your version of AM-PC for detailed information about the SCSI devices supported, and for peculiarities of defining SCSI devices to AMOS on a PC. Appendix A of this manual also contains information about using SCSI devices. Do not try to use a SCSI device from AMOS without referring to this information.

If you have DOS SCSI support installed, make a TEST.INI file and edit it as described earlier in this chapter. Find this line and remove the semicolon from the beginning:

```
SCZDSP SCZPC
```

Leave AlphaVUE and test the initialization file as described in “Finishing Up.” When this line is processed as AMOS boots, you will see a list of all the devices attached to the SCSI interface.

Activating this line merely allows AMOS to communicate with the SCSI bus; you must still define any individual SCSI devices you want to use. See the following sections, Appendix A, your *AM-PC Release*

Notes, the *AMOS System Operator's Guide*, and the installation instructions provided with the SCSI device for how to do this.

ADDING A TAPE DRIVE

You can access a SCSI streamer from AMOS as an STR: device, or a DAT drive as a DAT: device. First make sure the drive is working fully under DOS. Next, define it under AMOS as discussed in this section. After the drive is defined to AMOS, you can use the AMOS MTUSAV, MTURES, and MTUDIR commands to make and restore AMOS file-oriented backup tapes. See the *AMOS System Commands Reference Manual* for information on MTUSAV. You can also back up the entire AMOS disk device from DOS or Windows, like any other file on the DOS disk.

To back up the AMOS disk from Windows, be sure to shut down AM-PC before starting the backup, or you will get a "`file busy`" error from your Windows backup software. You can shut down AM-PC by pressing ALT/F10.

To Add a Streaming Tape Drive

First, create the appropriate driver for your tape backup unit. For a Tandberg streaming tape drive, at the AMOS prompt type:

```
LOG DVR: ENTER
COPY STR.DVR = 625DVR.DVR ENTER
```

Then, enable the following lines in the AMOS system .lNI file:

```
SCZDSP SCZPC
DEVTBL /STR0
...
SYSTEM DVR:STR
```

To Add a DAT Tape Drive

First, create the appropriate driver for your tape backup unit. For an Archive Python DAT drive, at the AMOS prompt type:

```
LOG DVR: ENTER
COPY DAT.DVR = 647DVR.DVR ENTER
```

Then, enable the following lines in the AMOS system .lNI file:

```
SCZDSP SCZPC
DEVTBL /DAT0
...
SYSTEM DVR:DAT
```

If you are installing the Adaptec EZ-SCSI software yourself, keep in mind that Adaptec EZ-SCSI contains drivers for Tandberg tape drives to be used from Windows or DOS. When you load the software, use the

Adaptec driver. Ensure that your CONFIG.SYS file contains the following line, and that it is not marked as a comment:

```
DEVICE=C:\SCSI\ASPIxDOS.SYS
```

x is a letter or number designating a particular type of Adaptec controller.

AMOS DISK FILE INFORMATION

The AM-PC software installation sets up the main AMOS disk file (known under AMOS as the "System Disk") for you on the PC disk you specify. You may want to add additional AMOS disks (called "subsystem disks") on C: or another PC disk, or move the AMOS System Disk to another PC disk drive. This section contains information on setting up a new subsystem disk file and moving the main AMOS disk file to another PC disk.

You can set up subsystem disk drives on the SCSI bus for use under AMOS provided they are not used by DOS. For more information on how to define a SCSI subsystem drive, see the *AMOS System Operator's Guide*.

A Note on AMOS Disk Files

When you make a new AMOS disk file, you choose how large to make it, how many logical devices it will contain (e.g., SUB1:, SUB2:, and SUB3:), and how it will be allocated on the disk:

If you have more than one logical drive…
The AMOS disk file must be on a single logical PC drive. It cannot span multiple drives.

- **Fixed Allocation Mode**. The size of the PC file allocated is equal to the size of the AMOS disk desired. For example, a 250MB AMOS disk requires 250MB of free space on the PC hard disk.
- **Dynamic Allocation Mode** allows the AMOS disk file to grow. When you set up an AMOS disk, you specify its maximum size, but only a fraction of that space is initially used. As more AMOS disk writes are made to blocks that have not been written to before, the PC file grows. This technique is transparent to the AMOS software. The more you do under AMOS, the more space you use on the PC. Dynamic allocation adds a 10 to 15 percent overhead to all disk operations, so results in slower AMOS operation than when fixed allocation is used. See the section "Dynamic Allocation Warning," below, for some cautions to keep in mind if you use dynamic allocation.

Generating an AMOS Disk

The GENDSK utility is used to set up AMOS disks, and is located in the installation directory. The program is menu driven, and so is quite easy to follow; it can be run in a DOS box under Windows. This is how to use it:

1. Under DOS, type:

   GENDSK ENTER

2. You'll be asked the name of the file you want to work on. Type any legal PC file name (including a path). Be sure to give a full DOS path (e.g., D:\BOOT\ALTDSK) so the disk file is created where you want it be located.

   If you're editing an existing file, statistics for that file will be displayed. If you change an existing file, a new, blank disk file will be created, so back up the AMOS files in the disk file first.

3. If you are editing a new file, use the following options at the GENDSK menu:

   L Set the number of logical devices on the AMOS disk.

   S Set the size per logical. **(Follow the size with a K or M to select kilobytes or megabytes; if you omit a K or M, the size will be in number of logical 512-byte records.)**

   B Change the blocking factor. You normally won't need to use this option. See Appendix F for details.

   F Select between fixed and dynamic allocation.

4. Type **C** ENTER to create the file.

5. Next use a text editor to edit AMPC.INI. Add a line to tell AMOS the relationship between the AMOS device and its PC file:

   ```
   AMOS-device: = pc-filename
   ```

   AMOS-device is a three-character legal AMOS device name, such as SUB:, and ***pc-filename*** is the DOS file containing the AMOS disk. For example, if you created a file called G:\AMOSDISK\ANOTHER.DSK and you wanted to refer to this as ANT: under AMOS, you would add:

   ```
   ANT: = g:\amosdisk\another.dsk
   ```

6. Now return to AMOS and make a copy of the subsystem driver PCDSK.DVR under the name you want to access the disk by. For example:

   ```
   LOG DVR: ENTER
   COPY ANT=PCDSK.DVR ENTER
   ```

7. Make a copy of the AMOSL.INI file and add the following at the appropriate places (again using our sample device name ANT:).

   ```
   DEVTBL ANT
   ...
   BITMAP ANT
   ...
   SYSTEM DVR:ANT
   ...
   MOUNT ANT:
   ```

Because the syntax of the DEVTBL, BITMAP, and MOUNT commands may be slightly different from what you are used to, please pay special attention to the following notes:

- DEVTBL allocates the appropriate number of logical devices based on the number of logicals you specified to GENDSK.
- BITMAP allocates a paged bitmap for all logicals on the specified drive. Although standard bitmaps are supported, paged bitmaps give significantly better performance.
- MOUNT allows you to specify all logicals on a disk simply by not specifying a logical unit number (e.g., `MOUNT SUB:` rather than `MOUNT SUB1:, MOUNT SUB2:`, etc.).

8. After you've changed the system .INI file, use MONTST to boot under it and you will see the new disk on your system. You can now use SYSACT to initialize it and add accounts, and otherwise treat the disk like any other disk. (See Chapter 5 for information on using SYSACT to initialize a disk and add accounts.)

Dynamic Allocation Warning

As mentioned above, when you set up an AMOS disk using dynamic allocation, you specify a maximum size for the disk, but only part of that space is initially allocated. So, what happens if there isn't enough free space on your PC's disk for the AMOS disk to grow to its maximum size?

The answer is that you will receive one of these error messages when you try to write to the AMOS disk:

```
Disk Error: DOS Phantom file full
```
(followed by another device error)

```
?Cannot output file - device full

%Unsuccessful copy - device full
```

If this condition occurs during a multiple file copy, the error message may scroll off your screen. If enough files queue up waiting to be copied, you may see this message:

```
Cannot open file - LOKSER queue is full
%No files transferred
```

If you receive one of these messages, use the SYSTAT command. If it shows that you still have blocks available, then the problem is that the DOS disk, not the AMOS disk file, is full. If this happens to you, follow the "Corrective Action" procedure below. To prevent this problem from happening again, or from happening to you at all, follow one of the suggestions in "Preventive Measures."

Corrective Action

Do not try to write to the AMOS disk!

First, log to OPR: and use DSKANA on each logical device. (See your *AMOS System Commands Reference Manual* for instructions on using DSKANA.) If the only file errors are on the logical disk you

were writing to when the error occurred, this should correct any existing file problems. You can continue with one of the preventive measured below.

If DSKANA shows file errors on other logical devices, the AMOS map blocks may be damaged. First, fix all file errors. Then, follow this procedure:

1. Use GENDSK to create a new AMOS.DSK file on a different DOS disk (one with more free space).
2. In the AMPC.INI file in the installation directory (\AMPC), add the new file name and DSK device.
3. Reboot AMOS and MOUNT the new disk device.
4. SYSACT each logical device of the new disk.
5. Copy all files from your old disk to the new one.
6. Exit to DOS and erase the old AMOS disk file.

Preventive Measures

If you have actually received an error because you're out of DOS disk space, perform the "Corrective Action" above before using any of these options.

There are three ways to keep this problem from happening to you:

1. Use Fixed Allocation when you create your AMOS disk.
2. Make sure there is always enough free space on the PC disk for the AMOS disk to expand to its maximum size. You can erase unused DOS files if you need to.
3. Move the AMOS disk file to another DOS device (the DOS C: drive will tend to fill up faster than other devices). If you do this, be sure to change the device name in the disk file definition in your \AMPC.INI file, which resides in your installation directory (i.e., \AMPC).

Moving or Changing the Main AMOS Disk

If, after AM-PC software is installed, you decide you want to move the main AMOS disk to another PC disk device, or you want to change the size or allocation mode for the main disk, you can do so.

Suppose your original AMOS disk is defined in the AMPC.INI file as:

```
DSK=C:\AMPC\AMPC40.DSK
```

1. Define an AMOS disk subsystem using the size, allocation mode, and PC disk location you desire. Let's say you define an AMOS subsystem disk SUB as D:\AMOSDISK\MAIN.DSK. (Follow the instructions in the section above.) Your AMPC.INI file should look like this:

```
DSK=C:\AMPC\AMPC40.DSK
SUB=D:\AMOSDISK\MAIN.DSK
```

2. Boot AMOS and make sure you mount both your original AMOS disk and the new subsystem disk.
3. From AMOS, copy all AMOS files from the original disk to the subsystem:

```
COPY SUB0:=DSK0:[]*.* ENTER
COPY SUB1:=DSK1:[]*.* ENTER
     .
     .
     .
```

> **For Windows users...**
> If you move the AMOS system disk files, follow the procedure in Chapter 2 to change the AM-PC PIF files to use the new location.

4. Edit the AMPC.INI file to change the definition of the subsystem, SUB, to the main disk, DSK, and delete or comment out the definition for the original main AMOS disk. For example:

```
;DSK=C:\AMPC\AMPC40.DSK
DSK=D:\AMOSDISK\MAIN.DSK
```

   Make sure you don't have two DSK devices defined at the same time.

5. Now you can delete the original, main disk if you want to, or you can create a subsystem driver for it and make it a subsystem disk.

Improved Disk Access Performance Option

There is a way to significantly improve performance when dealing with large fixed-size allocation AMOS disk files in a DOS environment. The performance improvement relates to reading from or writing to files under AMOS that are at the end of a large logical disk. Since disk access is actually handled by DOS, the DOS File Allocation Table (FAT) must be read to find the correct equivalent AMOS disk block. If the AMOS disk is very large, the DOS disk cache will not contain the entire FAT contents. Searching for the end of the FAT results in a significant amount of extra disk reads which can adversely affect system performance.

You can add an option to the disk specification of the AMPC.INI file to help alleviate this problem, as shown:

```
DSK = C:\AMPC\AMPC.DSK NONFAT
```

This statement causes AM-PC to use an alternate method to find DOS cluster numbers for equivalent AMOS disk blocks, avoiding the FAT search. Without using the NONFAT option in a DOS environment, the performance of AM-PC will degrade as the AMOS disk size increases. Using the NONFAT option, the performance degradation should not occur with increased AMOS disk size. The NONFAT option can be used with both fixed allocation and dynamic allocation AMOS drives.

Please note that the NONFAT option **MUST NOT** be used with Windows for Workgroups or Windows 95.

The NONFAT option uses direct BIOS calls instead of using DOS to access the disk. Because of this, DOS disk caches like SMARTDRV, which use the normal DOS disk access, will be ignored by AM-PC,

and will be effectively "shut off" for any AMOS file access. Other caches that use BIOS calls, such as Norton Speed Drive, will continue to be effective and will enhance AMOS file access whether or not the NONFAT option is used.

Because SMARTDRV is effectively ignored by the NONFAT option, you may want to do your own comparisons to decide which configuration results in better performance for a particular AMOS disk size.

ADDING DISKETTE DRIVES

To set up diskette drive support under AM-PC:

1. Use a DOS editor to edit the AMPC.INI file and add an entry following this syntax:

   ```
   AMOS-device: = pc-drive:format
   ```

   AMOS-device specifies the name the drive will be accessed under, ***pc-drive*** specifies the DOS diskette drive you want to access (either A: or B:), and ***format*** is a single-digit code selecting the diskette-format you want to use:

Code	Format	Bitmap Size
0	360KB 5 1/4" PC format	45
1	1.2MB 5 1/4" PC format	150
2	720KB 3 1/2" PC format	90
3	1.44MB 3 1/2" PC format	180
4	360KB 5 1/4" AMOS format	45
5	1.2MB 5 1/4" AMOS format	150
6	720KB 3 1/2" AMOS format	90
7	1.44MB 3 1/2" AMOS format	180

   Difference between AMOS and PC diskette formats…
   The difference between AMOS and PC formats is subtle. Both formats use an AMOS file system on the diskette, but the PC formats read all sectors on head 0 and then all sectors on head 1. AMOS formats flip-flop back and forth from head 0 to head 1 for successive sectors. AMOS formats are primarily used when exchanging data with non-Falcon AMOS systems.

2. Return to AMOS and create a disk driver for the diskette drive you want to support. For example, assume AMPC.INI contains `MAT:=B:3`. You need to create an AMOS disk driver named MAT.DVR from the AM-PC disk driver:

   ```
   LOG DVR: ENTER
   COPY MAT = PCDSK.DVR ENTER
   ```

   Notice that you use the same AM-PC disk driver, PCDSK.DVR, as when setting up subsystem disks. The DOS side of AM-PC knows via the AMPC.INI file which devices are hard disk files and which are diskette drives.

3. The final step is to enable the appropriate DEVTBL, BITMAP, and SYSTEM devices for the newly defined diskette drive:

```
;DEVTBL FAT0,FLP0,MAT0,MLP0
...
;BITMAP FAT,150,0 ; FAT is typically 5 1/4" 1.2Mb
;BITMAP FLP,45,0  ; FLP is typically 5 1/4" 360Kb
;BITMAP MAT,180,0 ; MAT is typically 3 1/2" 1.44Mb
;BITMAP MLP,90,0  ; MLP is typically 3 1/2" 720Kb
...
;SYSTEM DVR:FAT
;SYSTEM DVR:FLP
;SYSTEM DVR:MAT
;SYSTEM DVR:MLP
```

Note that it is normal to define the same physical diskette drive more than once to use more than one format. For example, you may define a single 3.5" diskette drive both as MAT0: to read 1.4MB diskettes and MLP0: to read 720KB diskettes. To read a particular format of diskette, just use the appropriate drive name (e.g., **`DIR MAT0:`**ENTER).

You can read and write diskettes in both PC and AMOS formats, and you can format diskettes either on the PC using standard DOS or Windows facilities, or from within AMOS by executing the FMTPC.LIT program. This program supports all AMOS formats except the older 800K 5-1/4" format. Note that floppies formatted with FMTPC may NOT be accessed from DOS or Windows.

The syntax for the FMTPC program is as follows:

```
FMTPC devn:ENTER
```

devn: is the device name of your diskette drive, depending on both the type of drive and the density of the diskettes you are using.

When performing any AMOS diskette operation from within Windows, we suggest you have the AMOS window maximized, and close as many other Windows tasks as possible, to get the best possible performance. Windows, especially Windows 95, can be slow to access a diskette drive.

See "Adding Subsystem Disk Files" for more information on defining disks. See Chapter 5 for information on using diskettes.

CREATING AN ALTERNATE BOOT DISK—BE PREPARED!

It is always a good idea to have more than one way to boot AMOS in case something goes wrong with your hardware or disk files. Because the AMPC.INI, AMOSL.MON, and AMPC.EXE files are DOS files external to the AMOS disk file, you can keep extra copies of them on a diskette or on multiple PC hard disks to safeguard your ability to boot AMOS. When AM-PC boots, it looks for AMOSL.MON, AMPC.INI, and AMPC.EXE in the directory and device set

Don't forget to back up!
The most important part of your strategy for handling emergencies is to always have a good backup of your AMOS disk file! You can recover from almost anything if your data is intact.

by the AMPC environment variable in the AUTOEXEC.BAT file. The location of the AMOS System Disk file (which contains the AMOSL.INI file, also necessary to boot AMOS) is defined in the AMPC.INI file.

One strategy in preparing an alternate boot device is to create a minimal AMOS disk file that contains just what you need to boot AMOS and recover from problems. To do this, you might create a small subsystem disk file as discussed in "Adding Subsystem Disk Files," above, and then copy just the AMOS files to it that are necessary to use it as a minimal AMOS System Disk. To get an idea of what files are needed, take a look at your AMOSL.INI file. You need to copy from DSK0: any command files mentioned in that file (e.g., LOAD.LIT, SYSTEM.LIT, DVR:RES.DVR, TRMDEF.LIT, CMDLIN.SYS, etc.), and any programs needed to repair or recover from disaster (e.g., DSKANA.LIT, COPY.LIT, DIR.LIT, VUE.LIT, DEL.LIT, MTURES.LIT, MTUDIR.LIT, ERASE.LIT, etc.). This is just a very partial list—it's rather complicated determining exactly what you will need, so contact your dealer for help if you are unsure. If you have enough disk space, it is easiest just to make the AMOS disk file big enough to copy the entire AMOS release to it.

Once you have a minimal disk file created, place it where you want it as an alternate boot device (e.g., a diskette or spare PC disk drive), and copy to that directory a modified version of AMPC.INI that defines the new disk file as the main system disk and your original main disk as a subsystem (discussed in "Moving or Changing the Main AMOS Disk," above). Also copy to that directory the AMOSL.MON and AMPC.EXE files. If you ever need to boot from that device, type the appropriate SET AMPC command at the DOS prompt and then reboot AMOS. For example, if your alternate boot disk is in D:\ALTBOOT, type:

```
SET AMPC=D:\ALTBOOT ENTER
AMPC/B ENTER
```

You should now be able to restore or repair your original AMOS disk file. Such repair work can be tricky. See the *AMOS System Operator's Guide* for hints. The best course is to avoid the need for such repair work by always having a good AMOS or DOS backup to fall back on.

WHAT NEXT?

If you have made all the changes you want, and everything seems to be working well, you can go on to the next chapter to start learning how to use AMOS.

If you want to see what else you can do in the system initialization file, refer to the *AMOS System Operator's Guide to the System Initialization Command File* for more information. If you need further help, your Alpha Micro dealer can assist you.

Chapter 4 - Moving Between Operating Systems

Once you have installed the Falcon card and the AM-PC software, you are ready to use AMOS on your PC. In this chapter you learn how to:

- Use virtual terminals on the PC console.
- Call up AMOS from DOS or Windows.
- Switch between AMOS and DOS or Windows.
- Reboot AMOS without rebooting DOS or Windows.

USING VIRTUAL TERMINALS

You will find virtual terminals on the PC console very easy to use. To switch from one virtual terminal to any other, press ALT/Fn, ***n*** being the number of the virtual terminal (VTM1 through VTM8) you want to switch to. As you switch from one virtual terminal to another, the processing continues for the task running on the virtual terminal you left. The PC console boots using the emulation set for the first virtual terminal defined in the AMPC.INI file.

As in any multi-tasking environment, be careful not to run conflicting tasks on multiple virtual terminals. For example, don't use one virtual terminal to run DSKANA to analyze the disk while another virtual terminal is editing a file on that disk, or you may damage the file.

See Chapter 3 for more information on virtual terminals and choosing the terminal emulations they use.

FOR WINDOWS USERS

If you use Windows, make sure:

- You are running in 386 enhanced mode to use AM-PC.
- If you are using Windows 3.x, you always load SHARE.EXE in your AUTOEXEC.BAT file to prevent possible file problems. This is not required if you are using Windows 95 or Windows for Workgroups.
- You keep in mind the restriction on simultaneous use of a SCSI device described in Appendix A.
- You don't use any of the following multi-tasking software: Windows NT™, DesqView, DesqView/X, or OS/2, since they don't support AM-PC 4.2 or later.
- You turn off any "green PC" features which shut down the PC based on inactivity. These features generally monitor only the PC keyboard for activity; they could shut down the PC while someone was using AMOS on one of the attached terminals.

Device Contention with Windows 95

You may run into problems sharing certain devices between AMOS and Windows 95.

Some Windows 95 device drivers work differently than those under previous versions of Windows or Windows for Workgroups. Once you access certain devices under Windows 95, the device driver does not "let it go" so the device can be used by AMOS, even after you exit the Windows 95 program which had been using it.

In practical terms, this means: ***You cannot use any device on a COM port or parallel port from AMOS after you have accessed it from Windows 95***, unless you do a hardware reset of the PC.

For example, if you have a modem on COM1, you can boot the PC, bring up AMOS, and use VersiCOMM or another communications program to dial out over the modem. You can then exit VersiCOMM, return to Windows 95, and dial your Internet Service Provider. However, even after you disconnect from your provider and exit the program, Windows does not completely release the modem port, and you cannot use it again from AMOS unless you perform a hardware reset.

This problem exists only under Windows 95; it is not an issue under DOS, Windows 3.1, or Windows for Workgroups. It is also not a problem if you boot your Windows 95 machine under DOS.

You will not find this type of conflict between AMOS and Windows 95 when using SCSI and IDE devices, such as CD-ROMs; you can access them from AMOS after they have been used from Windows. If you have an IDE CD-ROM, however, Windows 95 doesn't load the device driver and the MSCDEX programs for it. To allow access to the CD from AMOS, include the command SCZDSP SCZPC.SYS in the .INI file before the first DEVTBL line. Additionally, the AMPC file on the DOS side must have the ACD statement commented out.

If you are using Windows 95 OSR2, you will not be able to access the CD-ROM from AMOS using the ACD program. You must restart your PC under DOS, then the CD-ROM interface will work.

We recommend that you thoroughly test any Windows software, such as tape backup software, which could cause a problem with AMOS access.

With Windows 95, if you are using a serial mouse on COM1 you will need to comment out the COMx definition in the AMPC.INI file so AM-PC will not try to use the COMx port (typically this is COM1). The same is true for a bus-based modem board which typically uses COM2; comment out the definition for COM2 in AMPC.INI.

The following sections contain information for Windows users on how to boot AMOS and how to switch between AMOS and Windows once AMOS is booted.

Calling Up AMOS After You Turn on the PC

When you boot your PC, you are normally at the Windows Program Manager or the Windows 95 desktop, depending on how your PC is configured.

To boot AMOS from Windows, double-click on the "Boot AM-PC" icon in the AM-PC program group.

Use the AM-PC icons…
Always run or boot AMOS from Windows by using one of the Windows icons, not by opening a DOS window and using the AMPC command. The AM-PC icons are designed so AMOS keeps running if you make another window active. If you start AMOS through a DOS window, all other AMOS users are suspended if you activate another window.

The Alpha Micro banner and proprietary notice appear on your screen, followed by the system initialization file. The last statement in the initialization file is `MEMORY 0`. Next you see the AMOS system prompt (usually a dot). You can now log on to AMOS. Depending on how AMOS is set up, you may be logged on and start an application automatically.

Once you've booted AMOS, you have a full-screen AMOS window.

DO NOT try to open more than one AMOS window. This is not supported. If you do, it will cause severe and unpredictable AMOS problems, including hanging AMOS so you need to reboot it. If you need to simultaneously perform more than one AMOS task, use the PC console virtual terminals.

Now that AMOS is up and running, you can switch back and forth between AMOS and Windows at any time, using the procedures in the next section.

To boot AMOS automatically...
If you want your PC to boot AMOS automatically whenever you turn it on or restart Windows, move the "Boot AM-PC" icon into the Windows Startup program group. Then, whenever you bring up Windows, AMOS boots also, and you are transferred to the AMOS prompt.

Switching Between AMOS and Windows

Once you've called up AMOS, you can switch between AMOS and Windows with just a keystroke. There are two ways to leave AMOS and use other Windows programs:

1. Press ALT/F10 to exit and close the AMOS window.
2. Use any standard method, such as ALT/TAB, to activate another window.

Of these methods, the first is the same as returning to DOS: all AMOS activity is suspended, and other AMOS users cannot use the computer. The last method, however, doesn't really halt AMOS—it just moves it to the background so you can use another window. Therefore, any AMOS program currently running continues to work, and other AMOS terminals continue to function. So, with Windows, you can use Windows applications (or DOS applications if you open a DOS window) at the same time other users are running AMOS.

Make sure all virtual terminals and other terminals have returned to the AMOS prompt, and AMOS has finished writing to the disk, before using ALT/F10. If you use ALT/F10 while a file is being written to the disk, and then reboot the PC or AMOS before re-entering AMOS, the bitmap may be corrupted, causing you to lose some or all of the data in the file. As a PC user, you already know you should let the PC finish writing to the disk and return to the DOS prompt before rebooting or powering off the PC (especially vital when you are using a PC disk cache program)—using ALT/F10 requires the same sort of care.

If you've used ALT/F10 to exit from AMOS, you can return to AMOS by double-clicking on the "AM-PC" icon. You return to AMOS at the same point where you left it. (Or, if your PC or Windows has been rebooted since the last time you were in AMOS, AMOS reboots now.)

Booting AMOS without Rebooting the PC

From time to time, you may want to reboot the AMOS operating system without rebooting the PC. You do this the same way you boot AMOS for the first time after you turn on the PC.

You must be in Windows to reboot AMOS.

Before you reboot, make sure all users have returned to the AMOS prompt, and AMOS has finished writing to the disk. Rebooting before all files are closed can cause the same sorts of problems as resetting your PC while Windows is still writing to the disk—that is, some or all of your file data may be lost or program files damaged. Also, insure all network activity has stopped before rebooting.

Before you reboot AMOS, use ALT/F10 to exit AMOS and close the AMOS window. Then, to boot AMOS, double-click on the "Boot AM-PC" icon. AMOS boots and an AMOS window opens. Or, within AMOS, you can use the MONTST command to reboot:

```
LOG OPR: ENTER
MONTST AMOSL,AMOSL.INI ENTER
```

If you have an active network defined from AMOS, you may not be able to reboot using MONTST due to network activity. In this case, press ALT/F10 and select the boot icon.

You can specify a particular system .INI file to boot with on the MONTST command line or by using the AMPC /I option, as discussed in "Selecting a Specific System Initialization File," below.

Exit AMOS before rebooting!
Be sure to use ALT/F10 to exit AMOS. Don't just activate another window, leaving AMOS in the background before you reboot, because you should not run more than one AMOS window at a time. If you need multiple AMOS windows, use the PC console virtual terminal feature.

FOR DOS USERS

The following sections contain information for DOS users on how to boot AMOS and how to switch between AMOS and the PC environment once AMOS is booted.

Calling Up AMOS After You Turn on the PC

When you boot your PC, you are normally at the DOS prompt, depending on how your PC is configured.

Before you bring up AMOS, note the DOS device and directory you are in—this is the default if you transfer files between AMOS and DOS, as described in Chapter 6. It is also where you return to when you exit AMOS.

Type this command at the DOS prompt:

AMPC/B ENTER

To boot AMOS automatically…
If you want your PC to boot AMOS automatically whenever you turn it on or reboot DOS, add the AMPC/B command to the end of your AUTOEXEC.BAT file. Then, whenever you boot DOS, AMOS boots also, and you are transferred to the AMOS prompt.

AMOS also boots if you use the AMPC command with no options if AMOS hasn't been booted since the last time you reset your PC.

The Alpha Micro banner and proprietary notice appear on your screen, followed by the system initialization file. The last statement in the initialization file is `MEMORY 0`. Next you see the AMOS system prompt (usually a dot). You can now log on to AMOS. Depending on how AMOS is set up, you may be logged on and start an application automatically.

Once AMOS is up and running, you can switch back and forth between AMOS and DOS at any time, using the procedures described later in this chapter.

Switching Between AMOS and DOS

Once you've called up AMOS, you can switch between AMOS and the PC environment with just a keystroke. When you switch from one operating system to the other, the one you left is suspended until you return to it.

To switch from AMOS to DOS, hold down ALT and press F10. Your screen display switches to what it was when you left DOS. You can now use DOS commands and programs. Whatever was happening in AMOS is suspended. When you return to AMOS (if you have not rebooted the PC or AMOS), you return to the AMOS screen you left and action resumes.

Make sure all virtual terminals have returned to the AMOS prompt, and AMOS has finished writing to the disk, before using ALT/F10. If you use ALT/F10 while a file is being written to the disk, and then reboot the PC or AMOS before re-entering AMOS, the bitmap may be corrupted, causing you to lose some or all of the data in the file. As a PC user, you already know you should let the PC finish writing to the disk and return to the DOS prompt before rebooting or powering off the PC (especially vital when you are using a PC disk cache program)—using ALT/F10 requires the same sort of care.

If you have more than one AMOS user on your PC, all other AMOS users are suspended when you switch back to DOS on the main console. To be safe, you should have all other AMOS users exit the programs they are running and return to the AMOS prompt before you switch to DOS.

From the DOS prompt, you can return to AMOS by typing:

```
AMPC ENTER
```

You return to AMOS at the same point where you left it. As when you boot AMOS, you should note the current DOS device and directory before you leave DOS. If you switch to AMOS and AMOS has not been booted since the last time DOS booted, it boots now.

Booting AMOS without Rebooting DOS

From time to time, you may want to reboot the AMOS operating system without rebooting DOS. You do this the same way you boot AMOS for the first time after you turn on the PC.

Before you reboot, make sure all users have returned to the AMOS prompt, and AMOS has finished writing to the disk. Rebooting before all files are closed can cause the same sorts of problems as resetting your PC while DOS or Windows is still writing to the disk—that is, some or all of your file data may be lost or program files damaged.

To reboot AMOS, at the DOS prompt, type:

```
AMPC/B ENTER
```

Or, from within AMOS, you can use the MONTST command to reboot AMOS:

```
LOG OPR: ENTER
MONTST AMOSL,AMOSL.INI ENTER
```

You can specify a particular AMOS .INI file to boot with on the MONTST command line or by using the AMPC /I option from DOS, as discussed in "Selecting a Specific System Initialization File," below.

SELECTING A SPECIFIC SYSTEM INITIALIZATION FILE

To boot with a specific AMOS initialization file from DOS, use the AMPC /I: option. The format of the command is:

```
AMPC/I:ini-file
```

If you are using Windows, change the boot icon properties to include the following line:

```
AMPC.EXE/I:ini-file
```

(If you are using Windows 95, in Explorer, under desktop, select the boot icon you want to change. Select File, click on Properties and select the Shortcut tab to display and modify the command line entries.)

ini-file is the initialization file (e.g. TEST.INI or AMOSL.INI) you want to use. You must specify the file extension. Refer to Chapter 3, Appendix E, and your own AMOSL.INI file for examples of valid system initialization files. The AMOS initialization file must exist under your boot disk [1,4] account.

CHECKING THE VERSION OF AM-PC

Another AMPC command option displays the version number and date of your AM-PC software. To check your AM-PC version, at the DOS prompt, type:

AMPC/V ENTER

This displays the version information, in this format:

```
AMPC VERSION: X.X(###) Mon Day, Year
```

When you use the /V option, you do not reboot AMOS or switch from DOS to AMOS—you just see the version information for your AM-PC software. If you are using Windows, exit AMOS by using ALT/F10 and use this command from within a DOS window.

SEEING A LIST OF AMPC OPTIONS

You can display a list of all the options for the AMPC command using the /? switch. At the DOS prompt, type:

AMPC/? ENTER

You do not reboot, but simply see a list of options. If you are using Windows, exit AMOS by using ALT/F10 and use this command from within a DOS window.

Chapter 5 - AMOS Overview

This chapter is a brief overview of the AMOS operating system. The topics and procedures it discusses are:

- How AMOS recognizes the different devices on the computer.
- How you can organize your data into accounts under AMOS.
- User names and how to log on to AMOS.
- Using diskettes with AMOS.
- Safeguarding your data and maintaining your computer.
- What's included with AMOS, and some of the optional software and documentation you can order from your Alpha Micro dealer.

DEVICE NAMES

Device names are how AMOS identifies the different pieces of equipment that make up your computer. Each disk drive and other storage device has its own device name. As discussed in Chapter 3, these device names are defined in the system initialization file for your computer.

Alpha Micro device names have a specific format to make it easy for you and the computer to refer to the same piece of equipment. All device names contain three letters and a number, and end with a colon (:). For example, FLP0: and FAT0: are names for a 5.25" diskette drive.

Having names for each device lets you specify which device you want to use for a specific command. For example, you can see a list of files from just one of your disk drives, or copy data from your hard disk to a diskette.

You can set up your computer to use the AMOS disk file as if it were two or more separate devices. In this case, the AMOS disk file simulates a single disk drive, called the "physical device," and each portion of it is a "logical device." This is an important distinction, since in most cases with AMOS you refer to the logical device name. For example, a single disk could contain devices named DSK0:, DSK1: and DSK2:. The logical devices making up a single physical drive always have the same three-letter name, with different numbers, and are always the same size.

The disk device containing your AMOSL.INI file and other system software, the device AMOS "boots from," is always called DSK0:. This is the hard disk, or the first logical device on the hard disk. For more information on device names and defining them in the system initialization file, see the *AMOS System Operator's Guide* and the *AMOS System Operator's Guide to the System Initialization Command File*.

DISK ACCOUNTS

Theoretically, everyone could store their files on the disk without any type of organization. A list of all the files—the system software, your application programs and data, memos, everything—would be at least several pages long.

A better technique is to organize your files in separate disk accounts in which you store the files you want together. A disk account is an arbitrary designation for a group of files. Your system software is already organized into various accounts, and you can add as many or as few additional ones as you need.

Each disk account is identified by a two-part account number. The two parts of the number are separated by a comma. Often, when you enter the number, you enclose it in brackets. For example, these are valid account numbers: [1,2], [60,0], [60,100]. Account numbers are octal numbers, so you can't use the digits 8 or 9. The highest possible account number is [377,376].The two-part structure of the account number allows you another level of organization. Besides grouping files into accounts, you can, if you want, group related accounts in the same project (that is, give them accounts with the same first number). For example, all the accounts dealing with your payroll might be in project 50 ([50,0], [50,1] and so on).

> **Hint for DOS users…**
> If you're familiar with DOS, disk accounts are the AMOS equivalents of DOS directories.

To move from one account to another, use the LOG command, as described later in this chapter.
The account number list for each device on your system is separate, so you can have duplicate account numbers on different disk devices. Therefore, to completely specify an account you may need to enter both the device and account number. For example: DSK0:[7,12]. You have to enter the device name only if the same account exists on more than one device.

You can see a list of the accounts on any device by using the PPN command. Type PPN followed by the device name. For example:

```
PPN DSK1: ENTER
```

You can see a list of the files in any account with the DIR command. For example:

```
DIR/W ENTER
```

This command lists the files in the account you're logged into. You'll find more information on the PPN and DIR commands in the *AMOS User's Guide*.

Now that you have a general idea of what disk accounts are and how to use them, you can decide how you want to organize your own files into accounts. If you want to create more accounts on your diskette or hard disk, see the "Adding New Accounts" section later in this chapter.

Ersatz Names

If you find assigning and remembering account numbers cumbersome, you can define an "ersatz" name for any account. You can then use the ersatz name instead of the account number whenever you refer to that account. The file ERSATZ.INI in account [1,4] on DSK0: contains several predefined ersatz names, and you can add more of your own if you wish. For example, one of the predefined ersatz account names is

OPR: for DSK0:[1,2]. So whenever you need to log to this account, you can type LOG OPR: instead of LOG DSK0:[1,2]. The *AMOS User's Guide* contains more information on ersatz names and how you can use them.

Passwords

You can assign a password to any account. A password is a mild security measure to prevent anyone who doesn't know it from logging into the account. Passwords do not prevent files from being copied into or out of an account, and can be changed or erased using the SYSACT command described below.

Adding New Accounts

There is no specific number of accounts you must have—you can add as many as you wish, as long as there is room on the disk. When your system is brand new, the only accounts you have are the ones the system software is stored in. You may want to add more accounts from time to time as your business grows.

To add a disk account, follow this procedure:

Log into the System Operator's account:

`LOG OPR:` ENTER

If you want to see a list of the disk devices on your computer, type SYSTAT and press ENTER. The end of the display lists the available disk devices.

Type SYSACT followed by the name of the device you want to add the accounts to. For example:

`SYSACT DSK1:` ENTER

SYSACT displays an asterisk (*) as its prompt. To see a list of SYSACT's options, type H (for Help):

`H` ENTER

To add a new account, type A and the account number. For example, to add [100,5], type:

`A 100,5` ENTER

You now see

```
Password:
```

You can enter a password of up to six characters, or press ENTER if you don't want to assign a password to the account. If you enter a password, everyone who tries to log into the account has to type the password before they can log in.

If you want to see a list of all the account numbers on the disk and their passwords, type L:

L ENTER

When you are finished using SYSACT and are ready to return to AMOS, type:

E ENTER

You exit SYSACT and the AMOS prompt symbol appears on your screen.

For complete information on using SYSACT, see the *AMOS System Commands Reference Manual*.

USER NAMES

Your user name is how you identify yourself to AMOS. The user name system helps you control system security, allows you to send messages between users, and performs other functions.

You must enter your user name when you first log on to the computer, as described in the next section. You do not have to re-enter your user name when you switch between disk accounts. There are normally two user names set up when AMOS is installed: DEMO and SYSTEM SERVICE. You can define new user names with the MUSER program.

For more information on user names, and instructions on adding new ones, see the *AMOS System Operator's Guide*.

LOGGING ON

The LOG command serves two purposes: it identifies you to the computer and lets you choose what disk account you want to access. When you first log on to the computer—either after logging off or after booting the computer—you must tell the computer who you are and what account you want to use. You can do this by entering the disk account you want. For example:

LOG 25,1 ENTER

Extra security…
You can assign passwords to both user names and disk accounts. If the name or account you enter has a password, AMOS asks you for the password before logging you in. Once you're logged on to the computer, you use LOG to switch to a different account. You don't need to enter your user name again, just the account you want. If the account has a password assigned, you are asked for the password before you transfer to the account.

LOG then asks for your user name. Type it and press ENTER. You can also enter your user name in the LOG command instead of an account number. This logs you into the root account defined when your user name was set up. For example:

LOG LEE JOSEPH ENTER

This logs you into Lee Joseph's root account.

If you have duplicate account numbers on different disks, you need to enter both the device name and account number to completely specify the account you want. For example:

```
LOG DSK0:7,12 ENTER
```

You only have to enter the device name if the same account exists on more than one device. If the account you enter does not exist, you see a message on your screen indicating you've typed an invalid account number.

For more details about the LOG command, see the *AMOS System Commands Reference Manual.*

A WORD ABOUT DISKETTES

In general, you use diskettes with AMOS the same way you do with DOS—you can run programs from the diskette drive, copy data from your hard disk onto diskettes, and so on. This section mentions a few things to remember when you use your diskette drive under AMOS.

Before using any diskette under AMOS you need to format it. You can format the diskettes under DOS using the standard formatting program or under AMOS using the FMTPC command described in Chapter 3. After the diskette is formatted, but before you can use it under AMOS, you need to use the AMOS SYSACT command to initialize the diskette and add any account numbers you need. Be sure you are still logged into DSK0:[1,2] and type:

```
SYSACT devn: ENTER
I ENTER
Initializing the disk clear all files - Enter Y to confirm:[Y] ENTER
Create extended directory structure ? [NO] Y/N ENTER
```

The diskette is now initialized, and you can use SYSACT to create disk accounts on it, as described earlier. When you are done using SYSACT, type **E** ENTER to return to the AMOS prompt.

The device name of your diskette drive depends on both the type of drive and the density of the diskettes you're using. There are four possible device names:

Drive	Capacity	Device Name
5.25"	360KB	FLP0:
5.25"	1.2MB	FAT0:
3.5"	720KB	MLP0:
3.5"	1.44MB	MAT0:

If you have two diskette drives of the same type, the device names of the second drive end in 1 instead of 0. The device name doesn't change when you change diskettes; you use it to access whatever diskette is in the drive.

Mounting Diskettes

Before you can access the diskette in your drive, you need to use the MOUNT command to tell AMOS the diskette is there. You need to MOUNT the drive each time you put a diskette in—even if you are reinserting the same diskette you took out. MOUNT makes AMOS read the diskette to see how the data is arranged on it; if you don't MOUNT the drive when you insert a diskette, AMOS doesn't know what diskette is in the drive, and could corrupt or destroy your data.

Never change diskettes if the light on the drive shows the drive is busy; doing so could damage the data on the diskettes.

To mount the diskette drive, at AMOS command level, type MOUNT followed by the device name of the drive. For example:

```
MOUNT FLP0: ENTER
```

Remember to MOUNT the drive again whenever you change diskettes.

We recommend that you always access floppies from DOS or, if you want to do it from Windows, maximize the AMOS window and close as many other tasks as possible for best performance.

PROTECTING YOUR DATA

Your data is probably one of your most valuable possessions. Computers and data storage devices are very reliable, but nobody can guard against an unforeseen occurrence like a power outage, spilled cup of coffee, fire, or hardware malfunction. Such disaster can happen to anyone. So, no matter how smoothly everything goes with your computer, please remember one important thing—safeguard your data! There are two ways for you to do this: keep current backup copies of your data and run diagnostic checks to make sure nothing is going wrong with your disk.

You can back up your AMOS data to either diskettes or a SCSI backup device such as a 1/4" streaming tape cartridge. Since backing up to diskettes is extremely cumbersome, and requires a lot of diskettes, we strongly recommend you have some type of tape backup device on your computer.

Whatever your backup device, learn to use it! Develop regular backup procedures and follow them. If disaster strikes, you'll be glad you had a little foresight.

To back up your system to diskettes, use the AMOS COPY command; to back up to tape, use MTUSAV. Both of these commands are described in the *AMOS System Commands Reference Manual.*

Because both backup and the diagnostic procedures described below must usually be done when only one job is accessing the disk, it is normally wise, and convenient, to run them when no one else wants to use the computer—for example, in the middle of the night. You can do this by using the task manager or a command file with the SLEEPR command. See the *Task Manager User's Manual* or the *AMOS System Commands Reference Manual* for information on using SLEEPR.

ANALYZING THE DISK

A disk diagnostic program reads data from a disk. If it cannot read an area of the disk, it reports the problem to you. Checking your system frequently with disk diagnostic programs helps prevent data loss—the sooner you catch a malfunction, the less data is likely to be affected.

The type of problem found by disk diagnostics is known as a "hard error," because it means data is lost. A "soft error" means the computer had trouble reading the data, but no data was lost. The disk diagnostic programs discussed below do not report soft errors.

If a diagnostic program indicates problems, you may need to restore data from a backup copy or reconstruct the data on the disk. If you have this type of problem, consult the section "Recovering From Disk Errors" in the *AMOS System Operator's Guide*.

Before running any of the disk diagnostic tests, especially if you suspect a problem, it is a good idea to use the SET DSKERR command:

```
SET DSKERR ENTER
```

SET DSKERR causes the system to report the location of any errors the diagnostic program finds. If you don't use SET DSKERR, the diagnostic tells you only that an error occurred, not where on the disk it happened. You must run the diagnostic program from the same job where you used SET DSKERR.

The next two sections discuss two very useful diagnostic programs, REDALL and DSKANA. You can find more information on disk diagnostic programs in the *AMOS System Operator's Guide* and the *AMOS User's Guide*.

The REDALL Command

REDALL reads every block of data—or the number of blocks you choose—on the disk you specify, and reports any hard errors. It does not alter the data on your disk.

REDALL works on both hard disks and diskettes. It is a good idea to run REDALL for each disk on your PC occasionally, possibly once a week. That way, if any disk problems develop, you can be sure of detecting them quickly.

To read all the blocks on a disk, enter REDALL followed by the device name of the disk you want to read. For example:

```
REDALL DSK2: ENTER
```

If you don't want REDALL to read all blocks on the disk, follow the device name with the number of blocks you want read, with no space between. This command reads the first 100 blocks of DSK2:

```
REDALL DSK2:100 ENTER
```

REDALL displays the number of blocks it is reading. For example:

```
REDALL DSK2: ENTER
      Reading 13800 blocks
      EXIT
```

REDALL ends when it finishes reading the blocks. If any errors occur, REDALL displays the appropriate error message on your screen.

The DSKANA Command

The DSKANA command is an important part of your disk maintenance routine. DSKANA analyzes the data on a disk and reports lost and mislinked disk blocks, inconsistent block counts, and other file errors.

Each file on the disk is stored in one or more disk blocks. AMOS keeps track of which disk blocks are used in files and which are not by means of a special structure called a bitmap. Each disk has its own bitmap.

DSKANA compares the information in the bitmap with the actual data on the disk to make sure the bitmap is accurate. For example, if DSKANA finds a disk block that is part of a file, but the bitmap shows the block not in use, DSKANA reports an error. When DSKANA finishes analyzing the disk, it usually rewrites the bitmap.

Use DSKANA frequently on all of your disks. It is a good practice to use DSKANA on every disk just before you back up the files on that disk.

For more information on DSKANA, see the *AMOS System Commands Reference Manual.*

Never use DSKANA (unless you are using the /C option described below) while other users are accessing the specified disk; doing so may damage the bitmap and the files on the disk.

To use DSKANA, log into OPR: by typing:

```
LOG OPR: ENTER
```

Then, type DSKANA followed by the device name of the disk you want to analyze. For example, to analyze DSK1:, type:

```
DSKANA DSK1: ENTER
```

As DSKANA checks the disk, it displays the disk account numbers. When it finishes, it displays the results of its analysis. For example:

```
DSKANA DSK1: ENTER
[Begin analysis of DSK1:]
[1,2]
.
.
.
[100,20]
[The following blocks were marked in use but not in a file]
1767   1772   2562   3456   6265
[The following blocks were in a file but not marked in use]
[Rewriting BITMAP]
No file errors
```

If you see the `No file errors` message, the file structure on the disk is intact. If DSKANA lists file errors, there is a problem with the disk's file structure. Your next step is to run DSKANA again, using either the /L or /E option—discussed below—to see where the errors are.

For the complete procedure to follow if DSKANA finds any file errors, see "Recovering From Disk Errors" in the *AMOS System Operator's Guide*.

DSKANA Options

DSKANA's options allow you to select exactly what information you want to see. Your choices are:

None	Displays account numbers on disk and summary only.
/C	Same information as default, but does not rewrite bitmap.
/E	Lists files and blocks in which any errors occur.
/L	Lists all files and blocks on the disk.

To use one of these options, place it after the DSKANA command like this:

```
DSKANA DSK1:/C ENTER
```

As mentioned above, you need to use the /L or /E option to find the location of any file errors DSKANA detects. The /C option is discussed in the next section.

To see the list of DSKANA options, type DSKANA without specifying a device name.

DSKANA's Check Option and Automatic Backups

At times, you may want to have DSKANA examine a disk without rewriting the bitmap, especially when using an automated backup method such as a command file or the Task Manager.

The reason for this is simple: assume you run DSKANA at night as part of an automatic backup procedure. If anyone leaves a file—such as an AlphaWRITE document—open on the device DSKANA is

checking, DSKANA doesn't take the open file into account when it rewrites the bitmap. When the person returns in the morning and writes the file to the disk, it causes a bitmap error, because the system didn't know the file was open. This could corrupt the disk, causing you to lose data. In a case like this, you want DSKANA to check the disk for errors, but you don't want it to rewrite the bitmap, since that could cause disk problems.

To run DSKANA without rewriting the bitmap, use the /C option. You see DSKANA's normal display, except for the `[Rewriting BITMAP]` message.

WHERE DO I GO FROM HERE?

Your Alpha Micro computer is extremely versatile—it can do so many different things that, at this point, you might be somewhat undecided as to where to start.

Your next step is to learn something about the software you can run using Falcon. The following sections give some answers to these two questions:

- What software is available for Falcon?
- What Alpha Micro documents should I refer to next?

Introduction to AMOS Software

This section lists some of the software available for your Falcon.

The Operating System, AMOS

AMOS, the **A**lpha **M**icro **O**perating **S**ystem, supervises all of the programs that run on your computer. Regular updates to the AMOS operating system are available from your dealer.

Programming Languages

The AlphaBASIC and AlphaBASIC PLUS programming languages are a standard part of AMOS. These are enhanced versions of BASIC, containing many business-oriented features not found in standard BASICs. They also provide an ISAM (Indexed Sequential Access Method) interface.

Please see your dealer for information on other programming languages available for AMOS, such as AcuCOBOL-85, AlphaFORTRAN 77, and AlphaC.

AMOS also includes a text editing program designed specifically for programmers, AlphaXED. AlphaXED includes many features to make creating and updating your program files easier.

Text Preparation

If you are going to create documents on your computer, you will be interested in the word processing programs available. AlphaXED, a screen-oriented text editor, allows you to move quickly through a file, correcting and adding words, inserting or deleting lines, moving paragraphs, and so on.

Also, see the section on "Office Information Products" below for information on the AlphaWRITE word processing package.

Utility Programs

The standard AMOS release contains over 150 utility programs and device drivers. In addition, because of the unique way AMOS handles commands, you can easily create your own utility programs.

Some of the standard utility programs allow you to do functions such as: copy, rename, and erase files; sort the data inside files; back up and restore data using various tape devices; print files; use the ISAM system to organize and retrieve information quickly; and much more.

Application Programs

Your local Alpha Micro dealer has a variety of programs available for your Falcon, many of which are aimed at specific business needs such as: general accounting, dental office, legal office, real estate management, manufacturing inventory control, educational learning systems, restaurant management, medical office billing, laboratory analysis, and many others. Please see your dealer for details.

Office Information Products

Several Office Information Products are available separately from your Alpha Micro dealer. The Office Information Products series includes:

AlphaCALC, an electronic spreadsheet program that prepares "what if" financial models quickly and easily.

AlphaWRITE, a word processing package that provides spell checking, hyphenation, form letter preparation, automatic outlining, tables of contents and indexes, and much more.

AlphaTCP, Alpha Microsystems' implementation of the industry standard DARPA TCP/IP family of protocols. AlphaTCP allows your AMOS applications to communicate with applications running on a variety of systems.

AlphaMAIL, an electronic mail system for sending and receiving messages and reminders among multiple users.

MULTI, a window-based environment manager, lets you use multiple programs on one terminal at the same time, and provides a number of desk accessory features, including a phone list, alarm clock, notepad and others.

See your dealer for more information on these and other Alpha Micro Office Information Products.

Additional Documentation

Now that your system is up and running, you are ready to start exploring the world of Alpha Micro. Your guide is the Alpha Micro software documentation. This section gives you an idea of which documentation to consult depending on the path you want to take.

Your Falcon is a member of the AMOS family of Alpha Micro computers, and the software documentation that applies to other AMOS computers applies to yours, too.

You may separately purchase any book mentioned in this chapter; in addition, a multi-volume software documentation library is available containing all the AMOS software manuals listed below. You can order any of these books by calling your dealer.

Here's an idea of what to look at next:

"I Want to Start at the Beginning"

If you are new to Alpha Micro computers, we recommend you read the *AMOS User's Guide*. This book is a practical introduction to the Alpha Micro computer, containing instructions for many of the procedures you'll use every day. It expands on many of the topics discussed in this chapter.

"I Want to Learn How to Maintain My Computer"

If you are going to be responsible for making data backups, adding new terminals or printers to the computer, running disk diagnostics, and otherwise managing and maintaining the system, we highly recommend you refer to the *AMOS System Operator's Guide*, the *AMOS System Operator's Guide to the System Initialization Command File*, and the *AMOS System Commands Reference Manual*.

The first book explains how to perform the maintenance and diagnostic procedures required by the Alpha Micro system software. The second tells you how to modify your system initialization file to add new software or hardware to your computer or improve performance. The last is an invaluable reference tool—it contains concise reference sheets on over 150 AMOS programs.

"I Want to Write Computer Programs"

If you have programmed in BASIC before, and want to learn how to use the AlphaBASIC or AlphaBASIC Plus programming language, refer to the *AlphaBASIC User's Manual* or the *AlphaBASIC Plus User's Manual*, DSO-00045-00.

If you are an experienced assembly language programmer who wants to write machine language programs for your Alpha Micro computer, we recommend you read these manuals:

Alpha Micro Instruction Set, which contains information on the assembly language instruction set used by the Alpha Micro computers.

AMOS Assembly Language Programmer's Reference Guide, DSO-00052-00, which describes the assembler, linkage editor, object file librarian, and global cross reference program used by the assembly language programmer.

AMOS Monitor Calls Manual, DSO-00040-00, which contains information on the interfaces to the AMOS operating system available to the assembly language programmer.

AlphaFIX User's Manual, DSO-00017-00, which describes the screen-oriented debugger program, AlphaFIX.

Whatever programming language you use, refer to the *AlphaXED User's Guide*, DSO-00106-00, for instructions on using this programmer's text editor.

Chapter 6 - Copying Files Between AMOS and DOS

From AMOS, you can copy files between AMOS and DOS. The AMOS commands you use to do this are:

- TODOS to copy files from AMOS to DOS.
- FMDOS to copy files from DOS to AMOS.

To copy files from one operating system to the other, you must be at the AMOS prompt. The command names reflect this: you send files from AMOS to DOS and receive files from DOS to AMOS.

These utilities only support file names containing eight characters and a three character extension. They do not support long file names under Windows 95 or later.

When you use one of these commands, you do not change the file you copy—a copy of the file is moved to the other operating system and the original file remains where it was.

You can use these commands to copy files between AMOS and DOS on the hard disk and to and from diskette drives.

The next section gives some general information about copying files, then specific instructions on using FMDOS and TODOS. The end of the chapter describes how you can copy AMOS files from your PC to other computers

CONTIGUOUS FILE TRANSFER

Every file on your PC consists of a series of blocks on the disk. AMOS supports two file types: linked or sequential access files, and contiguous or random access files. A contiguous file has all of its disk blocks in adjacent order on the disk, while a linked file's blocks are in various locations on the disk.

DOS does not support contiguous files. When you transfer a contiguous file from AMOS to DOS, the file is converted to a linked file. If you transfer such a file back to AMOS, you need to use FMDOSs /R—for random access—option to convert it back into a contiguous file.

HOW TO COPY FILES BETWEEN OPERATING SYSTEMS

The next few sections describe general procedures for copying files between DOS and AMOS. The first one discusses preparing to copy the files, and the second describes the general command syntax you use.

Preparing to Copy

Both the TODOS and FMDOS commands work only from the PC console. TODOS and FMDOS allow you to specify the DOS directory and AMOS disk account for the source and destination files. But, for ease of use, you may want to change to the DOS directory you'll be copying to or from before you call up AMOS. You can only transfer files between the operating systems from AMOS, so once you're in the directory you want, switch to AMOS.

If you aren't careful about the directory and disk account you use, you may accidentally copy your files to the wrong location. If you do, at best you'll cause yourself some extra work to get the files to the proper location, and at worst you could copy over existing files, erasing data you need.

Command Formats

Both AMOS and DOS command syntax work with both TODOS and FMDOS. You can use whichever you're more comfortable with. The general syntax for AMOS commands is:

```
Command Destination=Source{ /option}
```

DOS command syntax has the general format:

```
Command Source Destination{ /option}
```

The source and destination file specifications are in opposite order in AMOS and DOS. When you separate the file specifications with a space, AM-PC interprets the command according to DOS syntax; when you use an equal sign, AM-PC uses AMOS syntax. Whichever syntax you use, be sure to put the file specifications in the right order or you could copy the wrong file, and possibly erase data you want to keep.

The options at the end of the FMDOS command line in either DOS or AMOS format let you select optional command features. The options for FMDOS are described in the FMDOS section. Note that you must place a space before any option.

AMOS and DOS File Names

DOS file names may be up to eight characters (or longer under newer versions of Windows), but AMOS file names cannot be longer than six characters. You need to take this difference into account when you use FMDOS to copy files from DOS to AMOS. You can either assign new names to the files you copy or FMDOS will automatically truncate the names to six characters.

When a file name is truncated, the three-character extension which follows the file name in both DOS and AMOS is not affected.

Wildcards

TODOS allows you to use * and ? wildcards as part of the file name and extension in the DOS and AMOS file specifications; FMDOS lets you use these characters only in the DOS specification. * replaces any number of characters in the file name or extension, while ? stands for any one character. You cannot use any wildcards in the DOS directory or AMOS device specification, but you can use wildcards in the AMOS account specification (for example, [100,*] represents all disk accounts in project 100).

For example:

`TODOS C:\USER\*.* = *.TXT[23,*]` ENTER

transfers all AMOS .TXT files in the accounts in project 23 on the current disk device to the DOS directory C:\USER using the AMOS file names. For more information on the use of wildcards in AMOS file specifications, see the *AMOS User's Guid*e.

SENDING FILES TO DOS FROM AMOS (TODOS)

TODOS copies files from AMOS to DOS. You can use either of these formats for TODOS:

```
TODOS {dos-pathname}=amos-filespec{,amos-filespec,...}
```

or:

```
TODOS amos-filespec{,amos-filespec,...} {dos-pathname}
```

amos-filespec is the name of the file you want to copy to DOS. If you leave out part or all of the file specification, it defaults to the current disk and account, and all files. As shown, you can enter multiple specifications, separating them with commas.

The optional ***dos-pathname*** is the file name and directory you want to copy the file to in DOS. It defaults to the directory you were in when you left DOS, and the same file name as the AMOS source file.

TODOS understands only DOS 8.3 file names, not long file names as used under Windows 95. The destination file name you enter must be eight characters or less with a three or less character extension.

If the destination file already exists—there is a DOS file in the directory with the same name—TODOS overwrites it with the file you're copying. Be careful not to accidentally overwrite existing files when you use TODOS.

Here are a few examples of TODOS:

If you want to send a file from the current AMOS account to the DOS directory you called AMOS from, and you don't need to rename the file, you need to enter only the AMOS file name:

`TODOS PAYROL.DAT` ENTER

If you want to send the file to another directory, and/or give the file a different name on the DOS side, you can specify something like this:

TODOS C:\USER\ONETEST.TXT=ONE.TXT ENTER

This example transfers the AMOS file ONE.TXT to DOS with the file name ONETEST.TXT in the directory C:\USER. C:\USER must already exist—TODOS can't create a new directory. If ONETEST.TXT already exists in C:\USER, TODOS overwrites it automatically.

Finally, if the file you want to copy is not in the current AMOS account, you need to use the complete syntax:

TODOS C:\USER\ONETEST.TXT=DSK2:ONE.TXT[23,4] ENTER

If the file is on the current disk, you could include just the account number and leave out the device name.

If you are more familiar with DOS syntax, you can use it instead. The last sample command would then be:

TODOS DSK2:ONE.TXT[23,4] C:\USER\ONETEST.TXT ENTER

RECEIVING FILES FROM DOS INTO AMOS (FMDOS)

The FMDOS command lets you copy DOS files to AMOS. You can use either of these formats:

```
FMDOS {amos-filespec}=dos-pathname{ /options}
```

or:

```
FMDOS dos-pathname {amos-filespec}{ /options}
```

The ***dos-pathname*** is the name and directory of the file you want to copy to AMOS. It defaults to the device and directory you transferred to AMOS from.

FMDOS understands only DOS eight-character file names, not long file names as used under Windows 95. If you want to copy a file with a long file name to AMOS, either use the DOS version of the name (generally ending with ~1) or change the file name under Windows before using FMDOS.

The optional ***amos-filespec*** is the disk account and file name you want to copy the file to. It defaults to the current account and the same name as the DOS file—see below for what to do if the DOS file name has more than six characters.

If the destination file already exists, FMDOS copies over it unless you include the /NOD switch described below.

The AMOS account where you want to put the file must already exist—FMDOS cannot create accounts.

The ***options*** let you choose various FMDOS features. Note you must place a space before the / that precedes the option. You can use any combination of the available options:

/NOD	If an AMOS file exists with same name as the file being copied, do not delete it. If you don't use /NOD, and there is an existing file with the same name as your destination file, FMDOS overwrites it.
/R	Make the AMOS file a random access (contiguous) file. This specifies how the file is arranged on the disk. See the section "Contiguous File Transfer" earlier in this chapter.

Here are some examples of FMDOS:

If you want to bring a file from the directory you were in when you left DOS into the current AMOS account, and you don't need to rename it, you can specify just the DOS file name:

```
FMDOS PAYROL.DAT ENTER
```

If you want to copy a file from a different DOS directory to another AMOS account, and/or give the file a different name, you can specify something like this:

```
FMDOS
ONE.TXT[23,4]=C:\USER\ONETEST.TXT
ENTER
```

If you see "Protection Violation"…
AMOS doesn't let you write to accounts outside the current project unless you are logged into [1,2]. If you try to copy to another account when you are not logged into [1,2], you receive a `Protection violation` error message.

This example copies the DOS file ONETEST.TXT from the C:\USER directory to the file ONE.TXT in account [23,4]. If the destination file already exists, FMDOS overwrites it.

If you are more familiar with DOS command syntax, you can use it. For example, you can enter the previous command as:

```
FMDOS C:\USER\ONETEST.TXT ONE.TXT[23,4] ENTER
```

FMDOS automatically truncates file names when copying DOS files to AMOS if they are longer than six characters, so you could let FMDOS shorten the file name for you instead of specifying a destination file:

```
FMDOS [23,4]=NEWSYSTM.TXT ENTER
```

creates the AMOS file NEWSYS.TXT.

COPYING FILES TO ANOTHER COMPUTER

To copy AMOS files to another PC, you can copy the AMOS files to the DOS partition with the TODOS command, then copy the files to whatever media you want to use for the transfer—diskettes or a tape device. With diskettes, you can save a step by using the TODOS command to copy directly from AMOS to a DOS diskette.

COPYING FILES TO ALPHA MICRO COMPUTERS

If you have a SCSI tape drive attached to the PC, the easiest way to copy files to or from other AMOS computers is by using the MTUSAV and MTURES commands. See the *AMOS System Commands Reference Manual* for information on these commands.

You can also copy AMOS files to and from non-AM-PC AMOS computers using diskettes. To have another AMOS computer read or write an AM-PC AMOS diskette, you need to use FIXFLP or FIX219 on the other computer to create a disk driver to read DOS format diskettes of the size and density you want. See the *AMOS System Commands Reference Manual* for instructions on using FIXFLP or FIX219. Some versions of FIXFLP are not able to create a driver for 5.25" 1.2MB diskettes.

See Chapter 5 for how to format and initialize diskettes for AMOS. Of course, if you have an AlphaTCP or AlphaNET connection to another AMOS computer, you can copy AMOS files over the network to and from AMOS/AM-PC.

Chapter 7 - Networking Your Falcon-Based PC

This chapter assumes you are experienced in installing AMOS-based network software. Please contact your Alpha Micro Value Added Reseller if you need additional information or assistance with these procedures.

INTRODUCTION

AM-PC allows you to connect via a network Falcon-based and traditional AMOS systems, PCs, and any other system a traditional AMOS system can communicate with. Both AlphaNET and AlphaTCP connections are included with AM-PC, allowing great flexibility in interconnecting systems. This chapter describes how to install and configure your Falcon-based system within a networked environment.

Before installing the network software on your Falcon-based system, make sure that the system is running properly in its stand-alone configuration. After you have thoroughly tested the stand-alone configuration, follow the guidelines in this chapter to install a networked configuration.

Networking with AM-PC requires specific revisions of the AMOS operating system to function correctly. Please check the *AM-PC Release Notes* to make sure you have the correct version of AMOS. If not, install the correct version before proceeding.

We recommend you have 8MB of AMOS memory if you are going to use networking with your Falcon. A typical network setup would include two console jobs, NETSER, VTSER, TCPEMU, and NETLOG. If you have only 2MB of memory, this will leave the console jobs with less than 100KB and 80KB of memory respectively.

To make the installation process straightforward, we provide several sample initialization files. If you use these as a pattern for your own files, much of the work of configuring the system is eliminated. The sample files include:

- FULNET.INI - Complete network-capable system initialization command file that can be customized to enable an AlphaNET-based network configuration.
- TCP.INI - Complete network-capable system initialization command file that can be customized to enable an AlphaTCP-based network configuration.
- MIKE.INI - Simplified network-capable system initialization file for a Falcon with 2MB of AMOS system memory, illustrating the simultaneous use of both AlphaNET and AlphaTCP configurations.

WHAT CAN I DO?

When properly configured, your Falcon acts like any other AMOS node on the network. You can use either AlphaNET or AlphaTCP protocols, or both, to transfer files, establish virtual terminal sessions, send electronic mail messages, and other network functions.

With Windows 95, you can use both AMOS and Windows networking at the same time. Follow the instructions in Chapter 8 instead of the ones in this chapter.

NAMING CONVENTIONS

Before we work with the initialization files, let's talk about our naming conventions with the files. We recommend using these conventions on all your systems so they will be consistent and easier to understand and maintain.

- INI—System initialization file
- JIN—Job initialization file
- EIN—Ethernet initialization file
- ERZ—Ersatz device definition file
- NIN—Network initialization file
- GIN—Gateway initialization file
- PIN—Printer initialization file

These conventions are used in the sample FULL.INI, FULNET.INI and TCP.INI files included with the AM-PC. With these conventions, it is easier to find the initialization files for each component of a system.

INSTALLATION PROCESS

This process assumes you have a fully operational standalone Falcon-based system. Make sure this is the case before proceeding.

Step One

The first step in the installation process is to have all the hardware and software available. You will need the following:

1. A Network Interface Card (NIC) to install into the PC. We recommend 16-bit cards such as an NE-2000 compatible NIC.
2. The NIC manufacturer's diskette with a Clarkson-compatible software driver for the NIC. We include some drivers with the AM-PC software, but others are available with the NIC.
3. Network media (cabling) to connect your computer to the network.
4. The *AlphaNET 2.4 Installation Notes.*

5. If you are installing Alpha TCP, the latest *AlphaTCP Release Notes* and the *AlphaTCP Administrator's Guide*.

Step Two

Remove power from your PC and install your Network Interface Card, reviewing the manufacturer's instructions for installation procedures. Make sure the IO address and interrupt (IRQ) level assigned to the NIC do not conflict with any other cards installed in your PC. We recommend setting an NE2000-compatible card to IO addresses 340-35F and IRQ 9, to minimize conflicts. You can, however, choose any setting supported by the NIC.

IO address and interrupt level conflicts are the most common cause of problems when installing network hardware and software. Use particular care to avoid conflicts.

Step Three

1. Power up and boot the PC to DOS level. Use the manufacturer's diskette and follow their instructions on installing the network software drivers. Be sure the driver you select is a Clarkson-compatible packet driver.

   For Windows 3.x users, there are sample batch files which load the drivers necessary to make AM-PC work with a network interface. However, you may have a more up-to-date driver which came with your network adapter. If you do, ***USE IT***. Use the drivers included with AM-PC only if you don't have a newer version on a manufacturer's diskette. The drivers can be found in the installation (\AMPC\) ANET subdirectory. Once your installation is up and running you can erase this subdirectory and all its contents to save disk space.

2. You must now initialize the NIC and the packet driver. There are a series of commands required for this, so the best way to do this is to create a DOS batch (.BAT) file in the installation (\AMPC) directory containing commands similar to those shown below. Note that you will need to change the driver names to match those used by your NIC.

```
C:
CD \AMPC
CD  ANET
LSL                  ; load link support layer
NE2000               ; load network interface driver
ODIPKT 0 101         ; ODI packet shim
WINPKT 0X65          ; windows packet driver
CD \AMPC
AMPC/I:FULNET.INI    ; BOOT up with fulnet ini under DOS
WIN                  ; execute Windows after exit from
AMPC
```

   These should sign on your console with a valid network ID. This file can be called from the AUTOEXEC.BAT file to initialize the system network interface and then bring up AM-PC. If you do not have an NE2000-compatible board, the filename of the network interface driver will need to

be changed to reflect the driver to match your NIC. These programs can be loaded high to conserve conventional memory if you are using a memory manager.

Step Four

Edit the AMPC.INI file in the AMPC directory and uncomment the `NETWORK=CLARKSON` statement at the end of the file. Make sure that only one uncommented `NETWORK=` statement exists.

Step Five

The sample FULNET.INI command file provided with AM-PC is designed to help you initialize AlphaNET. Modify this file as needed to enable the network components.

1. The lines you will need to change have a semi-colon (;) in the first column. To enable these commands, delete the semi-colon (;) from the start of each line. Locate each of the lines shown below and remove the semi-colon:

```
TRMDEF NETSER
TRMDEF VTSER          ; each are required
TRMDEF #5             ; used for type 2 terminal sessions
ETHZON 5              ; used for type 2 sessions
JOBS 20               ; increase for the number of active
                      ; users +1 for netser, +1 for vtser,
                      ; +1 for each network connection.
JOBALC NETSER,VTSER   ;required for Alpha Net
```

2. Uncomment the `NETINI` statement for network 1 and the `ERSATZ` command.
3. Uncomment the `RPC.SYS` and `RPCLOD` commands. These are used for remote procedure calls and are required for many AlphaNET functions. If you wish to use shared system memory for spawned jobs then uncomment the `SMEM` statement as well.
4. Now all that is left is to uncomment the network jobs statements. This will initialize the Network Service (NETSER) job and the Virtual Terminal Service (VTSER) job. If you did not uncomment the `SMEM` statement, you need to increase the amount of memory assigned to the VTSER job. Assign as much memory as is needed to support the maximum number of remote connections that will be accessing the Falcon at the same time. Additionally, if you are not using shared memory, you must modify the VTSER.JIN file and remove the /S switch from `VTSER` command.
5. You are now done editing FULNET.INI. Save the file and exit to AMOS command level.
6. Now edit the ETH001.NIN file. You can change the network number, but for now, leave it as it is in the sample file. You will want to change the `name=` statement to give your system a unique name.

```
driver=PCNDV       ; required for AMPC 4.2
network=1          ; change this number for your network
group=1            ; part of your network #
node=10            ; this system's node number
nodecount=100      ; maximum node count
groupcount=20      ; maximum group count
nodecheck=ON       ; check for the existence of a node
                   ; before trying to communicate with it.
name= AMPC 4.2 Falcon   ; system name for network ID.
```

7. Save the file and return to AMOS command level.
8. Now edit the file ETH001.ERZ, which defines ersatz device names for the rather cryptic network address numbers. This file should contain a symbolic system name (up to six characters, starting with a letter) equated to an actual network number followed by a '-'. In our example, the network numbers look like this:

```
AMPC41: = 16842763-
BOBPC:  = 16842753-
```

9. Change the ersatz names and network node numbers to match your configuration. Save the file and exit to AMOS command level.

Make sure you issue a SET LINK command for your network. This command initializes the network and makes it available for use. The name can be changed to reflect what you will call your network. If this is changed you need to edit the ersatz file ETH001.ERZ to rename the network to your new name—remember only six characters are allowed in the ersatz name.

10. After completing and saving the changes described above, log into DSK0: [1,2] and use the MONTST command to restart the system using the new system initialization command file:

`MONTST AMOSL.MON,FULNET.INI` ENTER

This will reboot AM-PC under the new system initialization command file. Watch carefully for any error messages as AM-PC boots. If errors occur, write down the message and edit the appropriate file to make the necessary corrections.

The most common error encountered is “uninitialized channel number.” This means you did not uncomment the “`Network=Clarkson`” line in the AMPC.INI file on the DOS side. To correct this, press ESC to remove the error message and ALT/F10 to exit back to DOS. Edit the AMPC.INI file and uncomment the “`Network=Clarkson`” line. From DOS use the following command to reboot the network configuration:

`AMPC/I:FULNET.INI` ENTER

This will restart the system. If you encounter an error message, take the appropriate corrective action to your batch files on the DOS side or the INI files on the AMOS side. If there is still a problem, perform a hardware reset of the system and try again.

If you make a major error which prevents you from proceeding with the system, exit to DOS with ALT/F10 and boot the system with the original system initialization command file with the command:

```
AMPC/I:AMOSL.INI ENTER
```

This will reboot the system so you can make corrections where necessary. Once the system is booted, make sure you can set the network link using the `SET LINK` command. Use the NTSTAT program to verify that the network is up and that you can see other computers on your the network.

If you want to use AlphaTCP, continue with the TCP initialization, below. For additional information, refer to Chapter 8.

FINAL CHECK LIST FOR AM-PC NETWORKING

If you are installing a network on your system, make sure to complete these "must do" conditions :

1.	√	You must set the environment variable in AUTOEXEC.BAT file for the AMPC directory
2.	√	You must install a Clarkson-compatible Ethernet Driver and initialize it.
3.	√	AMPC.INI must have the "`Network=Clarkson`" line uncommented.
4.	√	You must have the AMOS PIC code installed.

Check List for AM-PC Networking

SERIALNET

In addition to Ethernet, you can use SerialNet to connect your Falcon-based system to another AMOS machine. SerialNet should only be used via the serial ports contained on the Falcon card itself. The serial ports contained on the PC (COM1, etc.) will not perform correctly. You must also construct your serial cable to use RTS-CTS flow control for data reliability. Please refer to the *AlphaNET User's Guide* for more information on how to install SerialNet.

FULL NET INITIALIZATION

The following file is provided in DSK0:[1,4] to configure AM-PC for networking. The settings reflect the file ***before*** any of the preceding steps are taken.

```
;Example AM-PC 4.1 full system initialization command file with NETWORKING!
;
:T
LOAD SYSMSG.USA; ensures error messages displayed as text

;Define virtual terminals (i.e. the console port)
TRMDEF CON1,PCVTM=1,AM75,200,200,200,EDITOR=10      ; first virtual terminal
VER
TRMDEF CON2,PCVTM=2,AM62A,200,200,200,EDITOR=10     ; second virtual terminal
;TRMDEF CON3,PCVTM=3,AM62C,200,200,200,EDITOR=10    ; third virtual terminal
;TRMDEF CON4,PCVTM=4,AM70,200,200,200,EDITOR=10     ; fourth virtual terminal
;TRMDEF CON5,PCVTM=5,AM60,200,200,200,EDITOR=10     ; fifth virtual terminal
;TRMDEF CON6,PCVTM=6,AM62,200,200,200,EDITOR=10     ; sixth virtual terminal
;TRMDEF CON7,PCVTM=7,AM70,200,200,200,EDITOR=10     ; seventh virtual terminal
;TRMDEF CON8,PCVTM=10,AM72,200,200,200,EDITOR=10    ; eighth virtual terminal

;Define serial ports on the Falcon board
;TRMDEF FAL0,FALCON=0:19200,AM65,100,100,100,EDITOR=10     ; first falcon port
;TRMDEF FAL1,FALCON=1:19200,AM65,100,100,100,EDITOR=10     ; second falcon
port

;Define serial ports on the PC (note that there MUST be a corresponding entry
in
;AMPC.INI to inform AM-PC of the I/O address and interrupt used by the PC
serial
;port)
;TRMDEF COM1,PCCOM=1:19200,AM65,100,100,100,EDITOR=10 ; PC COM1 port
;TRMDEF COM2,PCCOM=2:19200,AM65,100,100,100,EDITOR=10 ; PC COM2 port
;TRMDEF COM3,PCCOM=3:19200,AM65,100,100,100,EDITOR=10 ; PC COM3 port
;TRMDEF COM4,PCCOM=4:19200,AM65,100,100,100,EDITOR=10 ; PC COM4 port

;Define parallel ports on the PC
;TRMDEF LPT1,PCLPT=1,TELTYP,100,100,100   ; PC LPT1 port
;TRMDEF LPT2,PCLPT=2,TELTYP,100,100,100   ; PC LPT2 port
;TRMDEF LPT3,PCLPT=3,TELTYP,100,100,100   ; PC LPT3 port

;Dummy port to get the spooler going
TRMDEF DUMMY,PSEUDO,NULL,80,80,80
;TRMDEF NETSER,PSEUDO,NULL,80,80,80
;TRMDEF VTSER,PSEUDO,NULL,100,100,100
;TRMDEF #5 100,100,100,EDITOR=5              ; 5 terminal slots reserved.
;TDVDEF AM75,AM65,AM65A,AM72,AM62,AM62A      ; networking terminal support
;ETHZON 5                                    ; 5 TYPE-2 sessions selected
JOBS 20
JOBALC CON1,CON2,CON3,CON4
;JOBALC CON5,CON6,CON7,CON8        ; extra virtual terminal
;JOBALC FAL0,FAL1                  ; falcon ports
;JOBALC COM1,COM2,COM3,COM4        ; pc serial ports
;JOBALC LPT1,LPT2,LPT3             ; printer spoolers
;JOBALC NETSER,VTSER               ; Network support jobs

QUEUE 200
;Setup the SCSI dispatcher if an ASPI manager exists under DOS
;SCZDSP SCZPC

;Note the automatic allocation syntax for the DSK device
DEVTBL DSK
DEVTBL TRM,RES,MEM

;Floppy definitions - cannot use auto-allocation
;DEVTBL FAT0,FLP0,MAT0,MLP0

;SCSI streamer driver
;DEVTBL /STR0

;SCSI DAT driver
;DEVTBL /DAT0
```

```
BITMAP DSK ; setup paged bitmaps for the DSK device

;Floppy bitmap definitions - must match floppy types specified in the
;AMPC.INI file
;BITMAP FAT,150,0         ; FAT is typically 5 1/4" 1.2Mb
;BITMAP FLP,45,0          ; FLP is typically 5 1/4" 360Kb
;BITMAP MAT,180,0         ; MAT is typically 3 1/2" 1.44Mb
;BITMAP MLP,90,0          ; MLP is typically 3 1/2" 720Kb

MSGINI 16K
;NETINI ETH001.NIN        ; Network INitialization for network 001
;ERSATZ ERSATZ.NEW
;ERSATZ ETH001.ERZ        ; Ersatz Names for network 001

SYSTEM SYSMSG.USA
SYSTEM CMDLIN.SYS
SYSTEM DCACHE.SYS/N/M/U  300K
;SYSTEM DVR:STR           ; required if the streamer is installed
;SYSTEM DVR:DAT           ; required if the DAT is installed
;SYSTEM DVR:ACD           ; recommended if using AlphaCD
;SYSTEM DVR:FAT           ; load floppy drivers into memory if used
;SYSTEM DVR:FLP
;SYSTEM DVR:MAT
;SYSTEM DVR:MLP
;Network Support programs
;SYSTEM RPC.SYS/N         ; AlphaNET Remote Procedure Call
;SYSTEM RPCLOD.LIT        ; RPC load program

SYSTEM
;SMEM  400K               ; Used with remote connected terminals.
LOG DEMO
SET HEX
SET DSKERR
MOUNT DSK:               ; automatic mount of all DSK logical units

;Setup Network Jobs
;SETJOB NETSER,NETSER,100K,NETSER.JIN
;WAIT NETSER
;SETJOB VTSER,VTSER,40K,VTSER.JIN ;Uses SMEM for job memory
;WAIT VTSER
;LOG OPR:
;SET LINK AMPC41:               ; Turn on network access
LOG SYS:

;Setup virtual terminal jobs
;SETJOB CON2,CON2,32K,VER
;SETJOB CON3,CON3,32K,VER
;SETJOB CON4,CON4,32K,VER
;SETJOB CON5,CON5,32K,VER
;SETJOB CON6,CON6,32K,VER
;SETJOB CON7,CON7,32K,VER
;SETJOB CON8,CON8,32K,VER

;Setup Falcon ports
;SETJOB FAL0,FAL0,32K,VER
;SETJOB FAL1,FAL1,32K,VER

;Setup PC COM ports
;SETJOB COM1,COM1,32K,VER
;SETJOB COM2,COM2,32K,VER
;SETJOB COM3,COM3,32K,VER
;SETJOB COM4,COM4,32K,VER
```

```
;Setup spoolers for the parallel ports
;SETJOB LPT1,DUMMY,10K,LPTINI LPT1.INI
;WAIT LPT1
;SETJOB LPT2,DUMMY,10K,LPTINI LPT2.INI
;WAIT LPT2
;SETJOB LPT3,DUMMY,10K,LPTINI LPT3.INI
;WAIT LPT3

MEMORY 0 ; All done, the system is now ready for use
```

TCP INITIALIZATION

AlphaTCP is included with AM-PC, as it is with all AMOS 2.3 and later releases. Sample initialization files are provided, but will require some modifications to customize them to your particular configuration. The following shows the content of TCP.INI, provided as an example of setting up both AlphaNET and AlphaTCP.

```
:T
JOBS 10
JOBALC CON1,CON2
JOBALC NETSER,VTSER     ;
JOBALC TCPEMU,NETLOG
TRMDEF CON1,PCVTM=1,AM75,200,200,200,EDITOR=20
LOAD SYSMSG.USA
VER
TRMDEF CON2,PCVTM=2,AM70,200,200,200,EDITOR=5
;TRMDEF CON3,PCVTM=3,AM62C,200,200,200,EDITOR=5
;TRMDEF CON4,PCVTM=4,AM70,200,200,200,EDITOR=5
;TRMDEF TRM2,PCCOM=2:9600,AM62A,100,100,100
;TRMDEF SER002,FALCON=0:38400,TELTYP,100,100,100,,NULL
TRMDEF NETSER,PSEUDO,NULL,80,80,80
TRMDEF VTSER,PSEUDO,NULL,80,80,80
;trmdef anser,pseudo,null,80,80,80
TRMDEF TCPEMU,PSEUDO,NULL,80,80,80
TRMDEF NETLOG,PSEUDO,NULL,80,80,80
TRMDEF #2 100,100,100,editor=5
TDVDEF AM62A,AM65,AM75
ETHZON 2
QUEUE 300
SCZDSP SCZPC
DEVTBL DSK
DEVTBL NEW
;devtbl sub
DEVTBL TRM,RES,MEM
devtbl /str0

BITMAP DSK
bitmap new
;bitmap sub
ERSATZ ERSATZ.NEW
ERSATZ ETH101.ERZ
;ersatz eth001.erz
MSGINI 20K
NETINI ETH101.NIN
;netini eth001.nin
;NETINI SER002.NIN
;
```

```
SYSTEM SYSMSG.USA
SYSTEM CMDLIN.SYS
SYSTEM DCACHE.SYS/N/M/U 200K
SYSTEM DVR:NEW.DVR
;system dvr:sub.dvr
system rpc.sys/n
system rpclod.lit
SYSTEM DVR:STR.DVR
;system dvr:nit
;system planet.lit
;system anser/n
; tcp stuff
mount tcp:
system tcp:ipcini/n 100 100k
system tcp:ftpd.lit
system tcp:ftpd.rti
system rti.lit
system telnet.lit
system telnet.rti
SYSTEM
SMEM 400k
MOUNT DSK:

LOG DEMO
SET HEX

SET DSKERR
setjob netser,netser,100k,netser.jin
wait netser
setjob vtser,vtser,50k,vtser.jin
wait vtser
;SETJOB JOB2,TRM2,70K,VER
SETJOB CON2,CON2,100K,VER
;SETJOB CON3,CON3,70K,VER
;SETJOB anser,anser,10k,anser.jin
log opr:
demo
SET LINK AMPC:

setjob netlog,netlog,45k
setjob tcpemu,tcpemu,700k,tcp:gotcp.cmd
MEMORY 0
```

This sample system initialization command file, TCP.INI, gives the user two terminal sessions and two connect sessions of 200KB. This initialization file will work with 2 MB of system memory.

In addition to the system initialization command file, there are other files which need to be generated in the TCP: account. Please follow the instructions in the *AlphaTCP Administrator's Guide* to finish the AlphaTCP setup.

OPERATING LIMITATIONS

This section discusses some operating limitations of AM-PC and networking and gives some ways of working within the limitations.

AM-PC has no support for the old VideoNet network and will not work with it.

When used with DOS, AM-PC has no specific limitation. However, when working with Windows 3.1 or Windows for Workgroups 3.11 there are some limitations caused by the fact that AM-PC must have access to the Network Interface Controller (NIC) hardware at all times. This means that when AM-PC has control of the NIC, it is not available to Windows. This means that when networking is being used under AMOS and AM-PC, networking is *not* available to Windows 3.x and applications running under Windows for Workgroups.

If you are using Windows 95 you will not have these limitations. You can use both Windows and AMOS networking. See Chapter 8.

There are some ways of working within these limitations:

- To allow networking under AM-PC, but not under Windows, initialize the network under DOS. Then start Windows for Workgroups 3.11 with the `WIN/N` command. By specifying the `/N` switch, you tell Windows to start without initializing its network support. Once Windows has started, you can use the AM-PC Boot icon to start AM-PC. Providing that all of the AM-PC network setup has been done, AM-PC will have control of the network hardware and allow you to use the AMOS networking features.
- To use Windows for Workgroups 3.11 with a Windows PC network, but not use networking from within AM-PC, use the WIN command to start Windows. This will initialize the PC network, and allow network access from within Windows. AM-PC can be booted up using the AM-PC Boot icon, but network access is denied because Windows 3.11 has taken control of the network interface. If you wish to use network connections from within AM-PC and Windows, then using a SerialNet connection from AM-PC will allow simultaneous networking.
- When using AlphaLAN and Windows 3.1 the limitations are very similar. Once you have started an AlphaLAN session under Windows, you will not be able to use AM-PC with networking. This includes using AlphaLAN in the background. To re-enable networking under AM-PC, close the AlphaLAN session and reboot AM-PC.
- When using AlphaLAN with TCP/IP connections, be aware that you will be loading a Windows Sockets (WINSOCK) manager in Windows before you bring up the AlphaLAN program. To switch from an AlphaLAN network session to networking under AM-PC, first close down the AlphaLAN session. Then close the WINSOCK manager. You can then reboot AM-PC, giving it control over the network hardware once again.
- Using TCP/IP from both Windows 95 and AMOS at the same time may slow down your terminal, but has no impact the performance of your entire network.

Chapter 8 - Simultaneous Networking with Windows 95

You can use Windows 95 Peer-to-Peer Networking, Windows PC-TCP/IP, and AMOS AlphaTCP or AlphaNET networking under AM-PC 4.2A, or later, at the same time, using a single Network Interface Card (NIC).

These installations have been successful in a number of separate PC configurations; however, due to the very large number of possible combinations of network hardware and software in the Windows 95 world, it is impossible for us to guarantee that it will work in all configurations.

This chapter describes the general procedure to follow to enable simultaneous networking in a Falcon PC. Due to the great variety of hardware/software combinations, we can't give specific instructions for all configurations. Instead, following the general instructions you'll find a detailed example of how we set up one of our installations.

We recommend you do not use TCP/IP from both Windows 95 and AMOS at the same time. It greatly increases network overhead and, therefore, reduces the performance of your entire network.

Also, do not enable any of the AlphaTCP SLIP interfaces when using Ethernet. Doing so will cause all packets destined for Windows to be re-sent by AM-PC to the default router, causing a lot of extra network traffic. It is not supported.

A note to Network Administrators: A PC running TCP under both Windows and AM-PC will appear on the network like a router using proxy-ARP. The PC's MAC address will have multiple IP addresses associated with it in the various network ARP caches.

Step 1 - Set Up Windows and Install Hardware

Make sure Windows 95 is installed and running. Turn off the PC and install the NIC, following the directions that came with the card. Make sure the jumper settings on the NIC do not conflict with any other board configuration. Connect the Ethernet cable to the correct connector on the NIC.

Step 2 - Configure Windows Networking

You must now configure Windows networking so it will not conflict with the AMOS network. To do so:

Be sure you have your Windows 95 setup CD or diskettes when you start this procedure. Windows may need to copy files to your hard disk.

1. From the Windows Task Bar, select **Start, Settings, Control Panel**.
2. From the Control Panel, select **Network**.
3. On the Network dialog Configuration tab page, double-click the selection for your type of NIC.

4. On the Driver Type tab page, select `Real Mode (16 bit) NDIS Driver.` You must use this driver even if the NIC supports a 32-bit driver!
5. Go to the Bindings tab page. Make sure the box to the left of `IPX/SPX Compatible Protocol` is checked.
6. Click **OK**.
7. If you do not already have TCP/IP networking enabled, follow these steps (you can skip this step if you want to run only Windows 95 Peer-to-Peer Networking, not TCP/IP):
   - On the Network dialog Configuration tab page, click **Add**.
   - Select Protocol.
   - Select Microsoft.
   - Select TCP/IP.
   - Click **OK**.
   - On the Network dialog Configuration tab page, double click TCP/IP.
   - Specify an IP address. ***This must be different*** than the address you will specify in the AMOS TCP:NETWRK. File (see step 7).
   - Perform any other network setup for your installation. For example, you may need to enter a subnet mask, go to the Gateway tab page and enter the gateway address, etc.
   - Click **OK**.
8. Click **OK**. Don't restart Windows when it asks if you want to; you'll restart the PC later in this procedure.
9. Close the Control Panel dialog box.

Step 3 - Edit the Windows Registry

You need to change one of the network entries in the Windows Registry. Follow these steps:

1. From the Task Bar, select **Start**, **Run**.
2. Type **`REGEDIT`** ENTER**.**
3. In the Registry Editor dialog box, navigate to the Real Mode Net folder. Under My Computer, select the following folders, in order:

```
HKEY_LOCAL_MACHINE
  SOFTWARE
    Microsoft
      Windows
        Current Version
          Network
            Real Mode Net
```

The right side of the Registry Editor now shows:

```
Default           value not set
LoadRMDrivers     01 00 00 00
netcard           depends on card type
preferreddir      "VREDIR"
transport         "nwlink,ndishlp.sys"
```

4. Double-click on `transport`. In the `Value data` field, add these characters to the end of the entry:

   `,dis_pkt.dos` ENTER

   The data field for transport should now read:

   `"nwlink,ndishlp.sys,dis_pkt.dos"`

5. Exit the Registry Editor.

You have just manually modified your network registry entries. From now on, any time you modify your networking setup, or view your network setup and exit by clicking **OK**, you will need to repeat this step. Each time you modify the network setup, Windows will rewrite the Registry, and your modification (adding ",dis_pkt.dos") will disappear. This will stop AMOS networking from working until you re-add it.

Step 4 - Edit System Files

1. From the Task Bar, select **Start**, **Run**.
2. Type **`SYSEDIT`** ENTER.
3. Select the C:\AUTOEXEC.BAT file. Make sure it contains these commands at the beginning of the file.

   ```
   C:\WINDOWS\NET START
   C:\WINDOWS\WINPKT 0X65
   ```

   The address in the WINPKT command (shown as `0x65`) can be any unused interrupt for your PC. Remember this interrupt, you will need it later.

   You may want to also check AUTOEXEC.BAT to make sure the PATH statement includes your AM-PC folder, and that the SET AMPC command has been added.

4. Make any necessary changes. Save the file and close the AUTOEXEC.BAT window.
5. Look at the PROTOCOL.INI file window. Following the `[data]` section, add a section defining the packet driver to use, as shown:

   ```
   [pktdrv]
   bindings=depends on NIC type
   intvec=0x65
   drivername=pktdrv$
   ```

   The `bindings` setting must be the correct one for your NIC. This should be listed in the `[data]` section of PROTOCOL.INI, on a line starting `netcards=`. The `[intvec]` setting must match that in the WINPKT statement in AUTOEXEC.BAT.

The rest of PROTOCOL.INI will vary depending on your network hardware and configuration; there is a sample file later in this chapter.

6. Save the file and close the PROTOCOL.INI window.
7. Close the SYSEDIT dialog box.

Step 5 - Modify the AMPC.INI File

1. From the Task Bar, select **Start**, **Programs**, **AMPC**, **AMPC.INI**.
2. At the end of this file, you should see this line:

   ```
   ;NETWORK = CLARKSON
   ```

3. Remove the semicolon (;) from the first column.
4. Save the file and close the window.

Step 6 - Restart Windows

Make sure you've closed all running programs. From the Task Bar, select **Start**, **Shut Down**. On the Shut Down Windows dialog box, select `Restart the Computer`.

Once Windows is running, you should see an Enter Network Password dialog box. Enter your name and password.

You should be able to see the other PCs on the network. Test your network access under Windows Explorer.

Step 7 - Modify AMOS Networking Files

You have now finished the Windows part of the setup. To configure AM-PC for networking:

1. Select the AM-PC Boot icon to boot AM-PC using the AMOSL.INI file.

If you did not do so when you installed AM-PC, run OSINST and enter your AMOS PIC.

2. You need to edit the AlphaTCP network configuration file. Type these commands:

   LOG TCP: ENTER
   VUE NETWRK. ENTER

3. In NETWRK., change the Ethernet line to enter your network IP address for AMOS on this PC. If you are also using PC-TCP/IP, ***this address must be different than the one you entered for the PC during your network setup.*** To use both AMOS and Windows TCP simultaneously, you need one IP address for the "AMOS computer" and one for the "Windows PC" even though they are physically the same machine.
4. Press ESC and use Finish to save and exit from the file.
5. Next, you can add ersatz names for your installation. Log to SYS: and VUE the ETH101.ERZ file to do so.

6. To activate AMOS networking (AlphaTCP and AlphaNET), type:

```
LOG OPR: ENTER
MONTST AMOSL,TCP.INI ENTER
```

AMOS will restart; it should display an Ethernet MAC address when it executes the ETH101.NIN file. Then it should finish initializing and spawn the TCP tasks.

Your Falcon PC is now running Windows Peer-to-Peer Networking, Windows TCP/IP, and AlphaTCP and/or AlphaNET under AMOS. For more details about AlphaNET and AlphaTCP features and installation, please refer to Chapter 7 and the manuals referred to there.

A SAMPLE NETWORK INSTALLATION

We started with a Falcon-equipped PC containing these components:

Component	Comments
Pentium 133MHz CPU	
COM1	IRQ=4, I/O Address Range 3F8-3FF, Mouse
COM2	IRQ=3, I/O Address Range 2F8-2FF
LPT1	I/O Address Range 3BC-3BE
Falcon	I/O Address Range 294-297, 8MB of memory
Kingston KNE40T PCI Network Adapter	PCI slot 0; SIA Mode set to Auto Detect
Video board	VGA compatible
Floppy drive	IRQ=6, I/O Address Range 3F2-3F5, DMA=2
Adaptec 1542C SCSI controller	IRQ=11 I/O Address Range 234-237, DMA=5
SCSI disks and CD-ROM	

Note that many of these settings (such as the SCSI controller information) do not directly affect the network setup. We include them here only for completeness.

Here is how we made Windows 95 Peer-to-Peer Networking, PC TCP/IP, and AMOS AlphaTCP and AlphaNET networking work on this PC, simultaneously.

Step 1 - Set Up Windows and Install Hardware

Since the Falcon and the NIC were already in the PC, we just checked to make sure everything was installed properly: jumper settings were correct, the Ethernet cable was attached, and there were no loose connections. Windows 95 was up and running with no problems.

We installed AM-PC, following the procedure earlier in this manual.

Step 2 - Configure Windows Networking

Next, we configured our Windows Peer-to-Peer and TCP/IP networking:

1. From the Windows Task Bar, we selected Start, Settings, Control Panel.

2. From the Control Panel, we selected **Network**.
3. On the Network dialog Configuration tab page, we double-clicked `PCI Ethernet 21041 Based Adapter`.
4. On the Driver Type tab page, we chose `Real Mode (16 bit) NDIS Driver`. Even though we had a 32-bit NIC, simultaneous networking is supported only with the 16-bit driver.
5. We went to the Bindings tab page and made sure the box to the left of `IPX/SPX Compatible Protocol` was checked.
6. We clicked **OK** to leave the Network dialog box.
7. We hadn't yet set up PC-TCP/IP networking, so we:
   - Clicked **Add** on the Network dialog Configuration tab page.
   - Selected Protocol.
   - Selected Microsoft.
   - Selected TCP/IP.
   - Clicked **OK**.
   - On the Network dialog box Configuration tab page, double-clicked TCP/IP.
   - Specified an IP address. We noted the address, so we could be sure to use a different one in the AMOS TCP:NETWRK. file (see step 7).
   - Entered the subnet mask and gateway address for our network.
   - Clicked **OK** to leave the TCP/IP Properties dialog box.
8. We clicked **OK** to leave the Network dialog box. We did not restart Windows; we waited until later in the setup procedure.
9. We closed the Control Panel.

Step 3 - Edit the Windows Registry

To make the needed change to the Windows Registry, we did the following:

1. Selected **Start**, **Run** from the Task Bar.
2. Typed **`REGEDIT`** ENTER.
3. In the Registry Editor dialog box, under My Computer, we selected the following folders:

```
HKEY_LOCAL_MACHINE
  SOFTWARE
    Microsoft
      Windows
        Current Version
          Network
            Real Mode Net
```

The right side of the Registry Editor showed:

```
Default           value not set
LoadRMDrivers     01 00 00 00
netcard           "dc21x4.dos"
preferredredir    "VREDIR"
transport         "nwlink,ndishlp.sys"
```

4. We double-clicked on `transport` and, in the `Value data` field, added these characters to the end of the entry:

   `,dis_pkt.dos` ENTER

   so the field read:

   `"nwlink,ndishlp.sys,dis_pkt.dos"`

5. We exited the Registry Editor.

Step 4 - Edit System Files

1. From the Task Bar, we selected **Start**, **Run**.
2. We typed **`SYSEDIT`** ENTER, then selected the C:\AUTOEXEC.BAT file. It looked like this:

```
C:\WINDOWS\NET START
C:\WINDOWS\WINPKT 0X65
@ECHO OFF
PROMPT $p$g
PATH C:\WINDOWS;C:\WINDOWS\COMMAND;C:\DOS;C:\AMPC
SET TEMP=C:\TEMP
SET AMPC=C:\AMPC
C:WINDOWS\COMMAND\DOSKEY
```

   Since it contained all the commands necessary for AMOS networking, we closed the file.

6. We selected the PROTOCOL.INI file window, and added the section shown in bold italics below, defining the packet driver to use. Notice that the bindings line matches the "netcards" entry from the [data] section. This example shows our entire PROTOCOL.INI file:

```
[ndishlp$]
DriverName=ndishlp$
Bindings=DC21X4$

[protman$]
DriverName=protman$
priority=ndishlp$

[data]
version=v4.00.1111
netcards=DC21X4$,PCI\VEN_1011&DEV_0014

[pktdrv]
bindings=DC21X4$
intvec=0x65
drivername=pktdrv$
```

```
[nwlink$]
DriverName=nwlink$
Frame_Type=4
cachesize=0
Bindings=DC21X4$

[DC21X4$]
DriverName=DC21X4$
SIA_Mode=AUTODETECT
```

8. After adding the lines shown in bold, we saved the file, closed the PROTOCOL.INI window, and closed the SYSEDIT dialog box.

Step 5 - Modify the AMPC.INI File

Next, we added the necessary network statement to the AM-PC initialization file. This statement is already in the default file but is commented out. Here are the steps:

1. From the Task Bar, we selected **Start**, **Programs**, **AMPC**, **AMPC.INI**.
2. The end of the file contained this line:

   ```
   ;NETWORK = CLARKSON
   ```

3. We removed the semicolon (;) from the first column, saved the file, and closed the window.

Step 6 - Restart Windows

Having made all necessary Windows changes, we made sure no programs were running and restarted the PC by selecting **Start**, **Shut Down** from the Task Bar. On the Shut Down Windows dialog box, we selected `Restart the Computer`.

After Windows restarted, we entered our name and password in the Enter Network Password dialog box.

In Windows Explorer, we could see and access the other PCs on our network, so we knew the Windows Peer-to-Peer Networking was working correctly. We also launched our Web browser and accessed Internet sites so we knew that PC-TCP/IP was functioning.

Step 7 - Modify AMOS Networking Files

To configure AM-PC for networking:

1. We selected the AM-PC Boot icon to boot AM-PC using the AMOSL.INI file.
2. To edit the AlphaTCP network configuration file, we typed these commands:

   LOG TCP: ENTER
   VUE NETWRK. ENTER

3. In NETWRK., we changed the IP address on the `Ethernet` line to the address we wanted. Since we were also using PC-TCP/IP, we set this to a different address than the one we used on the Network dialog box in step 2. ***To use both AMOS and Windows TCP, the Windows and AMOS IP addresses must be different***.
4. We saved and exited from the file.

5. We VUEd SYS:ETH101.ERZ and added the ersatz names we wanted for our installation.
6. We were now ready to activate AMOS networking. We typed these commands:

```
LOG OPR: ENTER
MONTST AMOSL,TCP.INI ENTER
```

As AMOS restarted, we watched to make sure it displayed an Ethernet MAC address when it executed the ETH101.NIN file. It then finished initializing and spawned the TCP tasks.

Now that we knew the basic setup was complete and correct, and we could run Windows Peer-to-Peer Networking, PC-TCP/IP, and AlphaTCP and/or AlphaNET under AMOS, we modified our AMOS initialization file so networking would always be enabled, following the instructions in our AMOS documentation.

Appendix A - Falcon Characteristics and Limitations

The AM-PC software and Falcon processor board combine to turn your PC into a multi-user AMOS computer. In almost all respects, a PC with an AMOS processor installed works just like any other AMOS computer. However, there are a few areas where a Falcon either functions differently than other AMOS computers, or cannot perform a specific task which other AMOS systems can. Also, there are certain PC/Falcon configurations which may cause problems under AMOS.

This appendix describes these areas:

- AMOS/DOS interaction limitations.
- File backup and restore limitations.
- Reading Falcon AMOS diskettes on other AMOS computers.
- Using AMOS/DOS file transfer in a command file.
- SCSI bus use characteristics.
- Video attributes.

Also, refer to the *Release Notes* for your version of the AM-PC software for compatibility information and other characteristics of your version of AM-PC.

RESTRICTIONS DUE TO AMOS/DOS INTERACTIONS

While Falcon allows AMOS and DOS to coexist, the operating systems are essentially separate computers running on the same hardware—DOS does not know what AMOS is doing at any given time, and vice versa. Therefore, you need to make sure AMOS and DOS do not try to use the same system resource at the same time. Specifically:

- Do not use a serial mouse in DOS and attempt to TRMDEF the same COM port under AMOS.
- Do not try to print from both operating systems at the same time. Wait until DOS finishes printing before switching to AMOS and printing, and vice versa.
- Do not start an AMOS print job and shut down with ALT/F10 as both the printer and print job will hang.
- Do not access the same SCSI device from both operating systems at the same time. See the SCSI limitation section, below, for more information.
- Be careful when using AMOS while memory-resident programs are loaded in DOS. The results are unpredictable; for example, the program may become active and suspend all AMOS users. Using TSRs in other windows does not affect using AMOS under Windows.

- If you are using Windows 95 OSR2, you will not be able to access the CD-ROM from AMOS using the ACD program. You must restart your PC under DOS, then the CD-ROM interface will work.
- Also, see the section "Device Contention with Windows 95," in Chapter 4.

FILE BACKUP AND RESTORE LIMITATIONS

You can back up the AMOS disk files of your Falcon to any supported SCSI tape device. However, the following are *not* supported:

- STRSAV/STRRES and associated utilities. You must use MTUSAV and MTURES.
- VCR backup or restore is not supported.
- Write Cache is not supported.
- Warm booting from a tape drive is not supported. Refer to the section below for information on alternate booting.

ALTERNATE BOOTING

You cannot warm boot Falcon from a tape drive; you can boot it only from the hard disk or from diskette. You should have an alternate boot disk so you can boot AMOS in case of a hard disk problem. See Chapter 3 for details.

READING FALCON DISKETTES ON OTHER AMOS COMPUTERS

Diskettes formatted for the Falcon using the standard DOS format program have the AMOS file structure superimposed on a DOS-format diskette; they are not standard AMOS-format diskettes. To read them on other AMOS computers, you must use the FIXFLP or FIX219 program to create a driver to read DOS-format diskettes under AMOS. See the FIXFLP or FIX219 reference sheet in the *AMOS System Commands Reference Manual.*

Some versions of FIXFLP do not support all types of DOS-format diskettes; all versions of FIX219 support all DOS formats.

USING AMOS/DOS FILE TRANSFER IN A COMMAND FILE

You cannot use the TODOS or FMDOS command in a command file while the :S (suppress output) option is in effect.

SCSI BUS USE CHARACTERISTICS

The following restrictions apply to the Falcon SCSI interface:

- As described above, STRSAV and associated utilities are not supported. They have been removed from the release.

- AMOS supports only one SCSI interface per system. This means any SCSI peripherals to be used with AMOS must be connected to the first ASPI card you define under DOS.
- You can set up subsystem disk drives on the SCSI bus for use under AMOS provided they are not used by DOS. How to define a subsystem physical disk (as opposed to the subsystem disk file discussed in Chapter 3) to AMOS is described in the *AMOS System Operator's Guide*.
- You must use FMTSCZ or FMTS2 on any subsystem disks before defining them to AMOS.
- If you do use SCSI subsystem drives, you must still have a bootable AMOS disk file on another drive. Subsystem drives controlled with the SCZPC driver cannot be made bootable, so you cannot MONTST from them. To define a SCSI subsystem drive, generate a driver using FIXLOG and specify SCZPC as the base driver as set forth in the *AMOS System Operator's Guide*.
- You can't use write buffering under AM-PC. This is due to the lack of a DMA controller for SCSI data movement under AMOS.
- There is no SCSI interlock between AMOS and DOS. You must ensure that DOS and AMOS don't try to access the same resource at the same time. For example, don't start a SCSI tape backup under DOS and then try an MTUSAV under AMOS.
- We don't recommend you attempt to swap back to DOS while doing something with the SCSI bus. Wait until SCSI activity has finished before switching back to DOS.
- If you remove the SCSI card from your PC, or the SCSI card dies, any attempt to boot AMOS will hang at the SCZPC command because AMOS is waiting for a response from the ASPI manager. If this happens, return to DOS and remove the ASPI manager from the CONFIG.SYS file. Then boot AMOS and remove the SCZPC command from your initialization file.

If your PC's drive C: is a SCSI disk, AMOS can access it even if you don't have an ASPI manager.

See the *Release Notes* for your version of AM-PC for information on supported SCSI devices.

VIDEO ATTRIBUTES

- Most VGA compatible video boards do not support underlining. TCRT codes (-1,30) and (-1,31) will not display.
- Reverse video, half intensity and blinking work, but only if high intensity is not enabled.
- Some video boards do not support 132 column mode.
- Some video boards are not totally VESA-compliant. When using one of these boards, AMOS programs which use 132-column mode, such as STAT1, may not display correctly. Typically, a compliant board will go into full screen mode (maximized) when running STAT1. In Windows 3.1 or 95, a non-compliant board may not do this, and may not display correctly because Windows will not reprogram the video board for a smaller font. The display will work correctly in full-screen mode. When you exit STAT1, the program will leave you in 80-column mode.

- If you are using Metropolis 7.4d, a new version of FLPCTL, and new FLiP terminal drivers are required with AM-PC 4.2A and later. These are available from the AlphaBase BBS. With this software, other PCs equipped with AlphaLAN can connect into the Falcon and FLiP across the Internet connection on your Falcon.

There is one Metropolis/AM-PC bug you should keep in mind. ***DO NOT*** login the console VTM1 port under Metropolis. Use VTM2 as the login port. The video attributes with the FLiP terminal drivers have a small problem displaying the first time on console 1. VTM2 (console 2) works fine. So, after booting, do a `MEMORY 0` for VTM1, ALT/F2 to CON2, and login under Metropolis. A sample INI file, SYS:ABTCP.INI has these changes made for you.

Appendix B - AM-PC Command Summary

The following table summarizes the DOS commands you can enter to use the AM-PC software. The reference column indicates where in this manual you can look for more information about the command:

Command	Function		Reference
AMPC /option	Switches from DOS to AMOS. Options are:		Chapter 4
	/B	Boot AMOSL.INI file	
	/I:{filename}	MONTST specified file.INI	
	/V	Display the AMPC version information	
	/?	Display a list of all the options available to the AMPC command	

The following table summarizes the AMOS commands specific to AM-PC. For information on other AMOS commands, see the *AMOS System Commands Reference Manual*.

Command	Function		Reference
ALT/F10	Exits from AMOS to DOS.		Chapter 4
`FMDOS dos amos /option` or: `FMDOS amos=dos /option`	Copies the DOS file ***dos*** to the AMOS file ***amos***. Options are:		Chapter 6
	/NOD	Do not copy over existing file (no delete)	
	/D	Overwrite the existing file	
	/Q	Ask for confirmation	
	/NOQ	No confirmation	
`TODOS amos dos` or `TODOS dos=amos`	Copies the AMOS file ***amos*** to the DOS file ***dos***.		Chapter 6
`FMTPC devn:`	Formats diskettes in various AMOS formats, specified by ***devn:***		Chapter 3

Appendix C - AM-PC Error Messages

Below are listed the different error messages displayed by AM-PC when you are booted under AMOS. For information on additional messages displayed by AMOS and DOS, see the reference manuals for those operating systems.

`CD-ROM driver xxx not found`

This message indicates that the non-SCSI CD-ROM device driver specified on the ACD=.... line of AMPC.INI is not loaded on the PC.

`Cannot open COMn port`

This error indicates that the COM port specified in one of the COMn=.... entries in AMPC.INI cannot be found. When running AM-PC under Windows, can mean that the COM port specified is not available because another task (such as the Windows mouse driver) is using the port.

`Illegal Falcon address xxx`

The Falcon=.... entry in AMPC.INI is not in hexadecimal or is otherwise incorrect.

`Illegal COMn assignment xxx`

The COMn=.... entry in AMPC.INI is incorrect. COMn=.... entries must include the base I/O address of the serial port in hexadecimal followed by a comma and the interrupt level used by the port in decimal.

`Illegal terminal assignment xxx`

This message indicates that the displayed VTMn=.... entry in AMPC.INI is incorrect.

`Illegal CD-ROM assignment xxx`

The ACD=.... entry in AMPC.INI is incorrect and does not reflect a valid PC device driver name.

`Illegal disk assignment xxx`

The disk definition entry shown in AMPC.INI is incorrect.

`Cannot open initialization file AMPC.INI`

The AMPC.INI file could not be located in either the current directory or the AMPC environment variable is pointing to a directory that does not contain an AMPC.INI file.

`Cannot open phantom file xxx`

The disk entry displayed from AMPC.INI does not reflect a valid AM-PC disk file or the file cannot be located.

```
Unrecognized packet type n received
Packet received for unassigned channel #n
Memory allocation failed trying to get n bytes
Invalid DOS system channel packet
Invalid AMOS system channel packet
```

Any of these error messages indicates a problem with either the PC or AMOS sides of AM-PC. If you receive any of these error messages first check your configuration of both AM-PC and AMOS. If everything looks correct, contact Alpha Micro for further assistance.

Appendix D - PC Function Keys Under AMOS

Many Alpha Micro software packages, such as AlphaWRITE and AlphaCALC, contain function key translation files that let you use the function keys on your terminal to perform actions while using the software. For example, when using AlphaWRITE on an AM-65 terminal, pressing F13 at your document display takes you to the Editing Menu.

Each software package has a separate translation table file for each Alpha Micro terminal driver (AM62.TDV, AM65.TDV, and so on).

When using AlphaWRITE, using the function keys may insert spaces. To avoid this, be sure to set ACKWAIT=TRUE in your AlphaWRITE initialization file.

Unless you are using the AM-70 emulation, the correct translation table for the PC's function keys is the same as the translation table for an AM62A terminal.

USING FUNCTION KEYS

Both the AM62A and AM-70 terminals have sixteen function keys. However, most PCs have either ten or twelve. To make up for the "missing" function keys, the PC uses the CTRL and ALT keys.

AM-PC uses the same function key translation as other popular Alpha Micro communications products, such as *in*Sight and AlphaLAN, except that function keys F11 and F12 are also used.

The following keys (or combinations of keys) on the PC correspond to the sixteen function keys—and some other keys many PC keyboards lack—on an Alpha Micro keyboard:

AMOS FUNCTION KEY TRANSLATION

AMOS Function Key	PC Key
FUNCT	ALT (for example, for FUNCT/1, press ALT/1)
F1 to F10	F1 to F10
SHIFT/F1 to SHIFT/F10	SHIFT/F1 to SHIFT/F10
F11 and F12	F11 and F12 or CTRL/F1 and CTRL/F2
SHIFT/F11 and SHIFT/F12	SHIFT/F11 and SHIFT/F12 or SHIFT/CTRL/F1 and SHIFT/CTRL/F2
F13 to F16	CTRL/F3 to CTRL/F6
SHIFT/F13 to SHIFT/F16	SHIFT/CTRL/F3 to SHIFT/CTRL/F6
HELP and SHIFT/HELP	CTRL/F7
EXEC	CTRL/F8
NEWLINE and SHIFT/NEWLINE	CTRL/F9
CANCEL and SHIFT/CANCEL	CTRL/F10
INS CHAR	INSERT
INS WORD	SHIFT/INSERT
INS LINE	CTRL/INSERT or CTRL/PAGE UP
DEL CHAR	DELETE
DEL WORD	SHIFT/DELETE
DEL LINE	CTRL/DELETE or CTRL/PAGE UP
PREV SCREEN	PAGE UP
NEXT SCREEN	PAGE DOWN
PREV WORD	CTRL/←
NEXT WORD	CTRL/→
COMPOSE	SHIFT/CTRL/Q

For example, to use AlphaWRITE's menu key—F13 on AM62 terminals—on the PC console, press CTRL/F3.

ALT/F1 through ALT/F8 select virtual terminal emulations on the PC console. ALT/F10 switches to AMOS.

Appendix E - Sample AMOS Initialization File

This section contains a copy of the full non-network compatible system initialization command file shipped with AM-PC—FULL.INI.

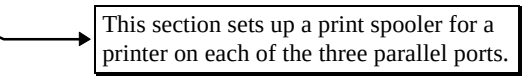
```
;
; Example AM-PC 4.X full system initialization command
; file
;
:T
LOAD SYSMSG.USA ; ensures error messages displayed as text

;Define virtual terminals (i.e., the console port)
TRMDEF CON1,PCVTM=1,AM75,200,200,200,EDITOR=20 ; first virtual ; terminal
VER
TRMDEF CON2,PCVTM=2,AM62A,200,200,200,EDITOR=10 ; second virtual terminal
TRMDEF CON3,PCVTM=3,AM62C,200,200,200,EDITOR=10 ; third virtual terminal
TRMDEF CON4,PCVTM=4,AM70,200,200,200,EDITOR=10 ; fourth virtual terminal
;TRMDEF CON5,PCVTM=5,AM60,200,200,200,EDITOR=10 ; fifth virtual terminal
;TRMDEF CON6,PCVTM=6,AM62,200,200,200,EDITOR=10 ; sixth virtual terminal
;TRMDEF CON7,PCVTM=7,AM70,200,200,200,EDITOR=10 ; seventh virtual terminal
;TRMDEF CON8,PCVTM=10,AM72,200,200,200,EDITOR=10 ; eighth virtual terminal

;Define serial ports on the Falcon board
;TRMDEF FAL0,FALCON=0:19200,AM65,100,100,100,EDITOR=10 ; first falcon port
;TRMDEF FAL1,FALCON=1:19200,AM65,100,100,100,EDITOR=10 ; second falcon port

;Define serial ports on the PC (note that there MUST be a corresponding
;entry in AMPC.INI to inform AM-PC of the I/O address and interrupt
;used by the PC serial port)
;TRMDEF COM1,PCCOM=1:19200,AM65,100,100,100,EDITOR=10 ; PC COM1 port
;TRMDEF COM2,PCCOM=2:19200,AM65,100,100,100,EDITOR=10 ; PC COM2 port
;TRMDEF COM3,PCCOM=3:19200,AM65,100,100,100,EDITOR=10 ; PC COM3 port
;TRMDEF COM4,PCCOM=4:19200,AM65,100,100,100,EDITOR=10 ; PC COM4 port

;Define parallel ports on the PC
;TRMDEF LPT1,PCLPT=1,TELTYP,100,100,100 ; PC LPT1 port
;TRMDEF LPT2,PCLPT=2,TELTYP,100,100,100 ; PC LPT2 port
;TRMDEF LPT3,PCLPT=3,TELTYP,100,100,100 ; PC LPT3 port

;Dummy port to get the spooler going
TRMDEF DUMMY,PSEUDO,NULL,100,100,100

JOBS 20
JOBALC CON1,CON2,CON3,CON4
;JOBALC CON5,CON6,CON7,CON8 ; extra virtual terminals
;JOBALC FAL0,FAL1 ; falcon ports
;JOBALC COM1,COM2,COM3,COM4 ; pc serial ports
;JOBALC LPT1,LPT2,LPT3 ; printer spoolers

QUEUE 100

;Set up the SCSI dispatcher if an ASPI manager exists under DOS
;SCZDSP SCZPC

;Note the automatic allocation syntax for the DSK device
DEVTBL DSK
DEVTBL TRM,RES,MEM
```

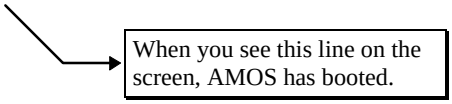
The PC console boots as the first virtual terminal defined, using the specified emulation. All virtual terminals use the PCVTM interface, and must also be defined in the AMPC.INI file.

```
;Floppy definitions - cannot use auto-allocation
;DEVTBL FAT0,FLP0,MAT0,MLP0

;SCSI streamer driver
;DEVTBL /STR0

;SCSI DAT driver
;DEVTBL /DAT0

BITMAP DSK ; setup paged bitmaps for the DSK device

;Floppy bitmap definitions - must match floppy types specified in the AMPC.INI
file
;BITMAP FAT,150,0 ; FAT is typically 5 1/4" 1.2Mb
;BITMAP FLP,45,0 ; FLP is typically 5 1/4" 360Kb
;BITMAP MAT,180,0 ; MAT is typically 3 1/2" 1.44Mb
;BITMAP MLP,90,0 ; MLP is typically 3 1/2" 720Kb

ERSATZ ERSATZ.NEW
MSGINI 10K

SYSTEM SYSMSG.USA
SYSTEM CMDLIN.SYS
SYSTEM DCACHE.SYS/N 100K
;SYSTEM DVR:STR ; required if the streamer is installed
;SYSTEM DVR:DAT ; required if the DAT is installed
;SYSTEM DVR:ACD ; recommended if using AlphaCD
;SYSTEM DVR:FAT ; load floppy drivers into memory if used
;SYSTEM DVR:FLP
;SYSTEM DVR:MAT
;SYSTEM DVR:MLP
SYSTEM

MOUNT DSK: ; automatic mount of all DSK logical units

LOG DEMO
SET HEX
SET DSKERR

;Set up virtual terminal jobs
SETJOB CON2,CON2,32K,VER
SETJOB CON3,CON3,32K,VER
SETJOB CON4,CON4,32K,VER
;SETJOB CON5,CON5,32K,VER
;SETJOB CON6,CON6,32K,VER
;SETJOB CON7,CON7,32K,VER
;SETJOB CON8,CON8,32K,VER

;Set up Falcon ports
;SETJOB FAL0,FAL0,32K,VER
;SETJOB FAL1,FAL1,32K,VER

;Set up PC COM ports
;SETJOB COM1,COM1,32K,VER
;SETJOB COM2,COM2,32K,VER
;SETJOB COM3,COM3,32K,VER
;SETJOB COM4,COM4,32K,VER
```

Diskette drives use slightly different format of DEVTBL and BITMAP statements than other types of disk drives.

```
;Set up spoolers for the parallel ports
;SETJOB LPT1,DUMMY,10K,LPTINI LPT1.INI
;WAIT LPT1
;SETJOB LPT2,DUMMY,10K,LPTINI LPT2.INI
;WAIT LPT2
;SETJOB LPT3,DUMMY,10K,LPTINI LPT3.INI
;WAIT LPT3

MEMORY 0 ; All done, the system is now ready for use
```





Appendix F - Changing the AMOS Disk File Blocking Factor

The GENDSK command, which allows you to create an AMOS disk file, also allows you to change the blocking factor for that disk. Changing the blocking factor is not usually done, but can be quite useful in special circumstances, and this appendix discusses when and how to do it.

For general information on GENDSK and AMOS disk files, see Chapter 3.

WHAT IS THE BLOCKING FACTOR?

When using GENDSK with a dynamically allocated disk file, the B option controls the blocking factor of the index AM-PC uses to track the blocks that have already been used by AMOS and therefore do not have to be re-allocated. Additionally, it allows AM-PC to find previously written blocks. The blocking factor controls the size of the entries in the index section of a dynamically allocated disk file. By default, a new disk file gets a blocking factor of 1. This means that for each disk block under AMOS a four-byte entry in the index is created. With this blocking factor, each time AMOS needs to read or write a block, the index area must be examined, which can slow down the operation of AM-PC. However, on the plus side, the size of the dynamically allocated disk only grows by one block at a time when new writes are made, therefore ensuring efficient use of the PC hard disk.

If the blocking factor is changed to 4, the size of the index will decrease, because now four AMOS blocks are allocated each time a previously unused AMOS block is written to the disk. Also, access to subsequent sequential blocks will be faster because AM-PC knows that three more AMOS blocks can be found directly after the first without having to read another entry from the index. The downside of this larger blocking factor is that each time a single AMOS block gets written to the disk, four PC blocks are allocated.

As you can see, there is a direct relationship between the blocking factor and the number of AMOS blocks allocated on the PC. A small blocking factor takes longer for overall operation because more reads of the index have to be made, but ensures that the AMOS disk file grows only by the number of blocks used. A large blocking factor generally means faster operation, but less efficient use of the PC disk.

The “best” blocking factor to use depends on the application being used. Generally, a blocking factor of eight works for most situations, but if your application performs a lot of random writes on the disk, consider using a smaller blocking factor as the size of the PC disk file may be growing faster than you anticipated.

CHANGING THE BLOCKING FACTOR

To change the blocking factor of an AM-PC disk, select the B option from the GENDSK menu. The actual blocking factor is a power of two; therefore, valid responses are 1, 2, 4, 8, 16, 32, etc. If you enter a non-power of two blocking factor, GENDSK will round it to the nearest one for you.

As you change the blocking factor, you'll see the size of the index change as well—the larger the blocking factor, the smaller the index because more blocks are represented by a single index entry.

When you have the correct blocking factor, use the C option to create or re-initialize the disk. This final step is required as the blocking factor is a non-dynamically allocated entity; therefore, note that if you change the blocking factor of a file with existing data, that data will be lost when you use the C option.

FIXED ALLOCATION DISKS

When using a fixed allocation disk, AM-PC uses a 1:1 mapping scheme that does not require an index (which is why fixed allocation disks are slightly faster than dynamically allocated disks). Therefore fixed allocation disks do not need a blocking factor but, of course, occupy all of the PC disk space that has been allocated to AMOS all of the time.

Appendix G - International Character Support

AM-PC now fully implements both 8-bit Latin-1 and 7-bit National Replacement Character set (NRC) terminal emulations, providing compatibility with programs being used in non-English speaking countries. Additionally, when using NRC, each virtual terminal may have a unique replacement character set associated with the virtual terminal, allowing multiple character sets to be supported on the console.

To enable either 8-bit Latin-1 or 7-bit NRC emulations, follow these steps:

1. Under DOS, load codepage 850 (see your DOS reference manual for instructions on changing the codepage).
2. Load the appropriate keyboard driver for your keyboard.
3. For 8-bit Latin-1 support, simply use an 8-bit compatible terminal driver under AMOS (for example, AM65AX).
4. For 7-bit NRC support, add the following to the end of the virtual terminal definitions:

   ```
   NRC=country-code,
   ```

   country-code is one of the following:

UK	for	United Kingdom
DK	for	Denmark
NO	for	Norway
FR	for	France
BE	for	Belgium
GR	for	Germany
PO	for	Portugal
SP	for	Spain
SV	for	Sweden
SU	for	Finland
SF	for	Switzerland (French)
SG	for	Switzerland (German)
IT	for	Italy

   For example:

   VTM1 = AMPC T NRC=UK
   VTM2 = AMPC T
   VTM3 = AM62A NRC=UK

Note that 8-bit language support is provided for AM-65 and AM-75 terminal emulations automatically whenever AM-PC detects codepage 850 as the active system page on the PC. If the normal codepage 437 is active, the AM-65 and AM-75 terminal emulations work in the 7-bit mode just like the other terminal emulations (AM60, AM62, etc.).

Activating codepage 850 is explained in your DOS manuals and usually involves setup in your CONFIG.SYS and AUTOEXEC.BAT files or explicit commands from the console after the PC starts up but before running AM-PC.

For example, commands similar to the following may be used:

In CONFIG.SYS:

```
.
.
country=001,850,c:\dos\country.sys
     device=c:\dos\display.sys con=(ega,850,1)
     install=c:\dos\nlsfunc.exe
.
.
```

In AUTOEXEC.BAT

```
.
.
mode con codepage prepare=((850)ega.cpi)
chcp 850
.
.
```

Index

D

E

F

G

I

J

L

M

N

O

P

R

S

T

U

V

W