

# ATARI®

## XEP80™

# Interface Module

80-Column Video Display Controller  
and Parallel Printer Port

For use with all ATARI XE™, XL™,  
400™, and 800™ Computers



Owner's Manual

## **IMPORTANT INFORMATION**

Like any electrical appliance, the ATARI XEP80 Interface Module uses and produces radio-frequency energy. If not installed and used according to the instructions in this manual, the equipment may cause interference with your radio and television reception.

If you believe that this equipment is causing interference with your radio or television reception, try switching the equipment off and on. If the interference problem stops when the equipment is switched off, then the equipment is probably causing the interference. With the equipment switched on, you may be able to correct the problem by trying one or more of the following measures:

- Adjust the position of the radio or television antenna.
- Reposition the equipment in relation to the radio or television.
- Move the equipment away from the radio or television.
- Plug the equipment into a different wall outlet so that the equipment and the radio or television are connected to different branch circuits.

If necessary, consult your ATARI Computer retailer or an experienced radio-television technician for additional suggestions.

The Federal Communications Commission booklet *How to Identify and Resolve Radio-TV Interference Problems* is a helpful resource. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

**WARNING:** This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of the FCC rules. These rules are designed to provide reasonable protection against such interference when the equipment is used in a residential setting. However, there is no guarantee that interference will not occur in a particular home or residence. Only those computing devices (your computer and computer input/output devices—monitors, printers, etc.) that have been certified to comply with the Class B limits may be attached to this equipment. Operation of noncertified devices with this equipment is likely to result in interference with radio and television reception. Shielded cables must be used on all I/O connectors (except the joystick connector); otherwise, radio emissions may exceed Class B limits.

Every effort has been made to ensure the accuracy of the product documentation in this manual. However, because it is constantly improving and updating its computer hardware and software, Atari Corporation is unable to guarantee the accuracy of printed material after the date of publication and disclaims liability for changes, errors, or omissions.

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# **ATARI<sup>®</sup>** **XEP80<sup>™</sup>** **Interface Module**

**80-Column Video Display Controller  
and Parallel Printer Port**

**Owner's Manual**

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# INTRODUCTION



## Meet the ATARI XEP80 Interface Module

The ATARI XEP80 Interface Module lets you display a full 80 columns across your monitor screen. When connected to your ATARI XE, XL, 400, or 800 Computer system, the XEP80 Module provides a 256-character wide by 25-line high display window. Up to 80 characters are displayed horizontally at once, and you can scroll horizontally all the way to the 256th character, depending on the application you're running.

The XEP80 Module interprets commands from the computer for screen display or output to a printer. The XEP80 Handler program supplied on disk automatically loads into the computer during booting, providing the means for the module and computer to work together. The module is supplied with an industry-standard parallel port so you can connect a parallel printer to your ATARI Computer system.

## XEP80-Compatible Software

The XEP80 Module displays 80 columns when the program that is running, such as the ATARI BASIC™ program, uses the standard screen call (E:). Most commercial applications programs manipulate screen RAM directly (enabling sophisticated graphics display); these programs are incompatible with the XEP80. However, ATARI BASIC, ATARI DOS, and many other programs use the screen "legally," and are compatible with the XEP80 Module.

New programs are under development and many popular applications programs are currently being revised to take advantage of the ATARI XEP80 Interface Module. Contact their manufacturers for more information and to request updated XEP80-compatible versions.

## Using the Manual

This manual is designed to help you learn how to use the XEP80 Module correctly. Read the manual from beginning to end, working with it step by step through the procedures. Whether you're a novice or a seasoned computer user, you'll find valuable information relating to all aspects of using the module.

Make a working copy of the XEP80 boot disk as explained in Chapter 1 before you begin using the XEP80 Module. Having a backup disk safeguards you from losing or damaging any of the disk information.

The following outline summarizes the contents of the manual:

**Chapter 1: Using the XEP80 Module** explains how to unpack the XEP80 Module, connect it to your computer, and copy the XEP80 boot disk. You'll also learn how to get your system up and running with the module connected.

**Chapter 2: Troubleshooting and Preventive Maintenance** offers solutions to problems you may encounter while setting up or operating your XEP80 Module. You'll also find helpful hints for care and maintenance of the unit.

**Appendix A: XEP80 Character Set** contains charts showing the dot patterns for all characters, and gives their decimal and hexadecimal codes.

**Appendix B: XEP80 Module Specifications** details the pin assignments of the joystick (PIA) and parallel ports.

**Customer Support** tells you where to find more information about the XEP80 Module and other ATARI Computer products.

# CHAPTER 1

## USING THE XEP80 MODULE



### Unpacking the Module

Carefully lift the XEP80 Module in its packing materials out of the box. Remove the packing materials and place the module on a firm, level surface. Inside the box you should find these items:

- ATARI XEP80 Interface Module
- XEP80 Boot Disk
- Video Cable
- Power Adapter
- Owner's Manual
- Warranty Card

Make sure you received all items. If anything is missing, contact your ATARI Computer retailer.

**Note:** Save all packing materials for storing and shipping your XEP80 Module.

### System Components

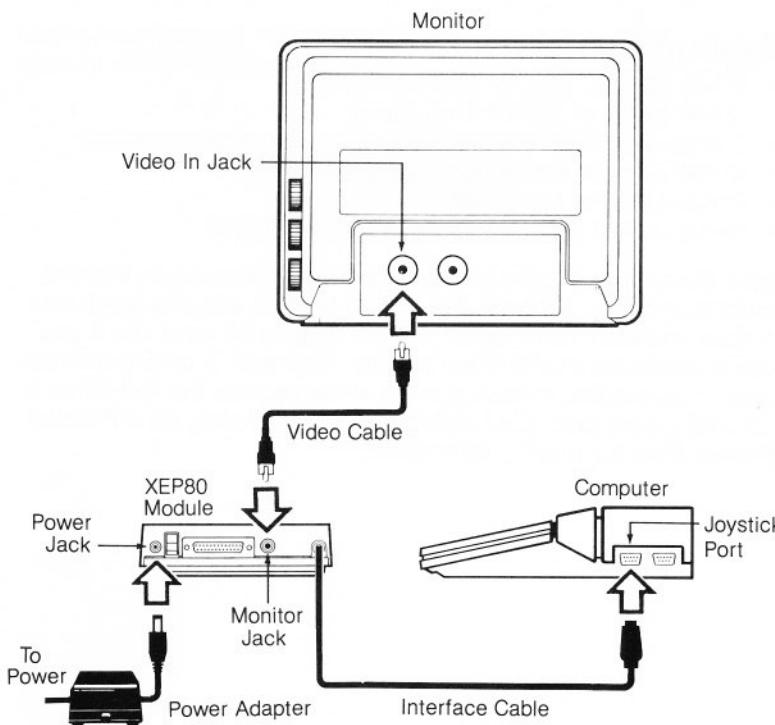
- ATARI XE, XL, 400, or 800 Computer
- ATARI 810™ or 1050™ Disk Drive
- Composite Video Monitor (monochrome recommended)
- ATARI Monitor Cable (for sound; optional)
- Parallel Printer (optional)
- Serial (ATARI SIO Interface) Printer (optional)

Your 80-column display will look best when viewed on a monochrome monitor, although the XEP80 Module will also work with a color monitor. The module will not display 80 columns if you use a television as the video display. However, a television may remain connected to your system while you use the XEP80 as a parallel printer port. (See **Using the XEP80 Solely as a Parallel Printer Port** for more information.)

## Connecting the XEP80 to Your System

To connect your XEP80 Module to your computer system, follow these steps:

1. Set up your ATARI Computer system. Connect all system components as explained in the manuals you received with the equipment. Do not connect the video display monitor.
2. Make sure all system components are switched off.
3. One end of the XEP80 Module's interface cable is fixed into the module's back panel. Plug the other end of the cable into either joystick port 1 or 2 on your computer.
4. Plug one end of the video cable into the jack marked "Monitor" on the back panel of the XEP80 Module. Plug the other end of the cable into your monitor's Video In jack. Now connect the monitor's power cable as instructed in the manual supplied with the monitor.
5. Plug the rounded end of the XEP80 Module's power adapter into the jack marked "Power" on the back of the module. Plug the adapter's line plug into a wall outlet or power strip.



## Wiring the System for Sound

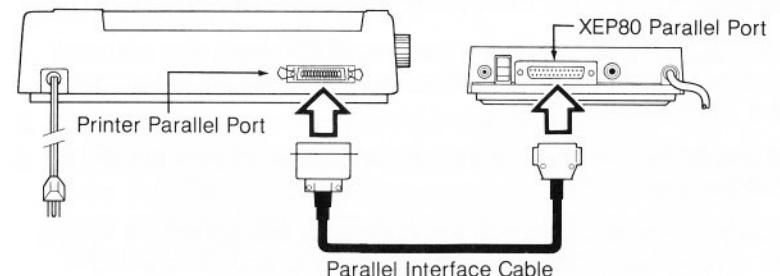
The XEP80 Module does not send an audio signal to the monitor. If your monitor has an Audio In jack and you want to wire it for sound (for instance, for keyclick response), follow these steps:

1. Obtain an ATARI-compatible monitor cable. This cable has a 5-pin DIN connector on one end and two RCA-type plugs (one for video, one for audio) on the other.
2. Make sure all system components are switched off.
3. Insert the 5-pin DIN plug into the jack marked "Monitor" on the back panel of your computer.
4. Determine which RCA-type plug is for audio (see the instructions supplied with the monitor cable). Insert that plug into the Audio In jack on your monitor, or into some other audio device (such as a portable stereo or radio).

## The XEP80's Parallel Port

The industry-standard 8-bit parallel port on the back panel of your XEP80 Module allows you to connect a parallel printer to your computer system. Follow these steps:

1. Make sure all system components are switched off.
2. Plug one end of the parallel interface cable that came with your printer into the XEP80 Module's parallel port.
3. Plug the other end of the cable into the printer's parallel port.



For more information, see **Using the XEP80 Solely as a Parallel Printer Port** and **Selecting the Printer Port**.

## Making a Backup Disk

Making a backup copy of your original XEP80 boot disk protects you from losing or damaging any of its information. To make a backup copy, follow the instructions in your DOS Manual. Once you've made the copy, use it as your working boot disk, and safely store the original.

## **Working with the XEP80**

### **XEP80 Boot Disk**

The XEP80 boot disk contains the programs and files described below:

DOS.SYS and DUP.SYS are the ATARI DOS 2.5 files.

AUTORUN.SYS is the XEP80 Handler. This program loads automatically during booting and allows your computer and XEP80 Module to work together to display an 80-column screen.

XEP80.DOC is the XEP80 hardware and software specification file, containing technical information on how to program for the XEP80 Module. Advanced users can either read the file information on screen or print it out from DOS.

XEP80HAN.SRC is the XEP80 Handler source code, supplied for advanced users. For more information, read the XEP80.DOC file.

RELOC.SRC is the relocator program source code, supplied for advanced users. For more information, read the XEP80.DOC file.

PRINTER.BAS is a BASIC program for revising the printer port configuration, and is supplied for advanced users. For more information, read the XEP80.DOC file.

MAKER.BAS is a BASIC program that creates an AUTORUN.SYS file from a custom-made XEP80 Handler, and is supplied for advanced users. For more information, see the XEP80.DOC file.

The following files contained on the XEP80 boot disk are an assortment of BASIC programs demonstrating some features of the XEP80 Module:

DEMO80.BAS is an overview demonstration of how the XEP80 Module works.

ATRIBUTE.BAS introduces the command that controls a variety of special text features, such as blinking and double-width characters.

EIGHTY.BAS displays a spreadsheet-like grid showing the width and height of the 80-column screen display.

GRAPHICS.BAS demonstrates the module's graphics capability by drawing a sphere on screen.

WINDOW.BAS reveals the XEP80's 256-character wide window. (Plug a joystick into your computer and use it to scroll across the window.)

Except for AUTORUN.SYS (the XEP80 Handler) and DOS.SYS, none of the files on the boot disk are essential to running the XEP80 Module. You can copy AUTORUN.SYS and DOS.SYS onto any disk you wish to boot your system with. (Refer to your DOS Manual for information on copying files.)

### **Booting Your System**

To start your system with the XEP80 Module connected, follow these steps:

1. Switch on your XEP80 Module, monitor, disk drive(s), and all other peripherals in your system.
2. Insert the XEP80 boot disk into Drive 1.
3. Switch on your computer.

As Drive 1 whirs, the XEP80 Handler loads into your computer. This program allows your computer to work with the XEP80 Module, enabling an 80-column display.

### **Using the XEP80 Solely as a Parallel Printer Port**

Sometimes you may want to use the XEP80 Module as a parallel printer port without using its 80-column display. For instance, you may have a parallel printer but not a composite video monitor; or you may be running programs that are compatible with a parallel printer but require a 40-column color display.

To use the XEP80 Module solely as a parallel printer port, follow these steps:

1. Connect the XEP80 Module to your system, using a television as the computer's video display.
2. Follow steps 1 and 2 in **Booting Your System**.
3. Hold down the [Shift] key while switching on your computer. Keep the [Shift] key depressed until the XEP80 Handler loads and the drive stops whirring. Doing this disables the 80-column display, redirecting the display to a television.

When you boot your system this way, the XEP80 Module still allows output to a parallel printer, although the computer's television display is in the standard 40 columns.

## Selecting the Printer Port

When you start up your system with the XEP80 Module, the module is prepared to direct output to a printer through the parallel port (P1:). Specifying P2: directs output to the ATARI 850™ Interface Module; P3: outputs to the 1025™ Printer; P4: to the 1020™ Color Plotter; P5: to the 1027™ Printer; P6: to the 1029™ Printer; P7: to the XMM801™ Printer; and P8: to the XDM121™ Printer.

Most printer-dependent applications programs compatible with the XEP80 Module will let you choose the printer port (parallel or serial) within the application itself.

Advanced users of BASIC can use the XIO command to change the printer port configuration. Or use the PRINTER.BAS program provided on disk. For more information on either method, see the XEP80.DOC file, also on disk.

## Technical Notes

### Graphics

When you use the XEP80 Module, which is a text-based 80-column display device, some of the standard graphics capabilities of your ATARI Computer are unavailable. For example, when BASIC is run with the 80-column display, its graphics command PLOT can be used, while SETCOLOR and DRAWTO cannot be used.

The XEP80 Module includes its own special set of graphics commands. For more information, read the XEP80.DOC file.

### Appending the AUTORUN.SYS File

Sometimes an application that is compatible with the XEP80 Module boots with an AUTORUN.SYS file other than the XEP80 Handler. For example, the Microsoft® BASIC Extension disk has its own AUTORUN.SYS file.

You can append an application's AUTORUN.SYS file to the XEP80 Module's AUTORUN.SYS file using the DOS Copy File utility's /A procedure. It is easiest to do this with two disk drives. Follow these steps:

1. Format two blank disks using DOS.
2. Copy the files on the application disk to one of the newly formatted disks. Copy the XEP80 Module's AUTORUN.SYS file to the second newly formatted disk.
3. Insert the disk containing the XEP80's AUTORUN.SYS file into Drive 1.

4. Insert the new disk containing the application files into Drive 2.
5. Type C and press [Return].
6. Type D2:AUTORUN.SYS,AUTORUN.SYS/A and press [Return]. This appends the AUTORUN.SYS file from Drive 2 onto the AUTORUN.SYS file in Drive 1.
7. Delete the AUTORUN.SYS file from the disk in Drive 2 (the application disk).
8. Now copy the AUTORUN.SYS file from Drive 1 onto the disk in Drive 2.

**Note:** If difficulties occur when you now run the application, try appending the XEP80 Module's AUTORUN.SYS file to the application's AUTORUN.SYS file. To do that, repeat steps 1 and 2. Next, insert the disk containing the application files into Drive 1, and insert the disk containing the XEP80's AUTORUN.SYS file into Drive 2. Then repeat steps 5 and 6.

### Macro Assembler

You can use ATARI Macro Assembler with the XEP80 Module. However, MEDIT, the editor on the Macro Assembler disk, cannot be used with the module.

To create the source code, use another editor that's compatible with the XEP80 Module, then assemble the source code using Macro Assembler. Or, create the source code with MEDIT using a 40-column display monitor, then assemble it using Macro Assembler.

## CHAPTER 2

# TROUBLESHOOTING AND PREVENTIVE MAINTENANCE



### Troubleshooting

If you run into problems while hooking up or operating your XEP80 Interface Module, chances are the difficulty is a minor hitch that you can take care of yourself. This chapter describes some possible problems and suggests simple solutions.

#### It Just Won't Work

Sometimes the equipment just won't work. If your system won't budge (for instance, your screen stays blank), take the following steps:

1. Switch off all components of your computer system. Then check each cable connection to make sure it's properly connected and secure.
2. Switch all components on, with the exception of your computer. Insert your working XEP80 boot disk into Drive 1. Now switch on your computer. Always switch on all peripherals, including your XEP80 Module, before switching on the computer.

#### Software Problems

If you continue having difficulty getting the system up and running consistently, it may be that your working boot disk contains garbled data. Try booting your system with the original XEP80 boot disk. If this works, make a new copy of the disk and use it as your current working boot disk.

If you have trouble using a particular applications program with your XEP80 Module, it may be that the program was not designed to work with the module. Contact the program's manufacturer for confirmation and possibly an update of the program.

## Preventive Maintenance

To ensure top performance from both your XEP80 Interface Module and your entire computer system, follow these guidelines:

- Always have your system securely placed on a firm, level surface.
- Avoid dusty or greasy work areas.
- Keep all components away from extreme heat or moisture.
- Keep all components out of direct sunlight.
- Keep liquids away from the components.
- Avoid smoking near your computer system.
- Clean the outside of the components with a soft, slightly damp, lint-free cloth only. Do not use cleansers, abrasives, or solvents, which may damage the components' housings.
- Do not move the components more than is necessary.
- Repack your XEP80 Interface Module in the original packing materials to store or ship it.

## A Final Note

Your ATARI XEP80 Interface Module and your entire ATARI Computer system are designed for low maintenance and high reliability. But like anything electronic and mechanical, the equipment can break down.

If you experience problems that you think may be serious, take your XEP80 Module (or any other component) to an authorized ATARI Service Center. For the location of the nearest ATARI Service Center, contact your ATARI retailer (or see **Customer Support** at the end of this manual).

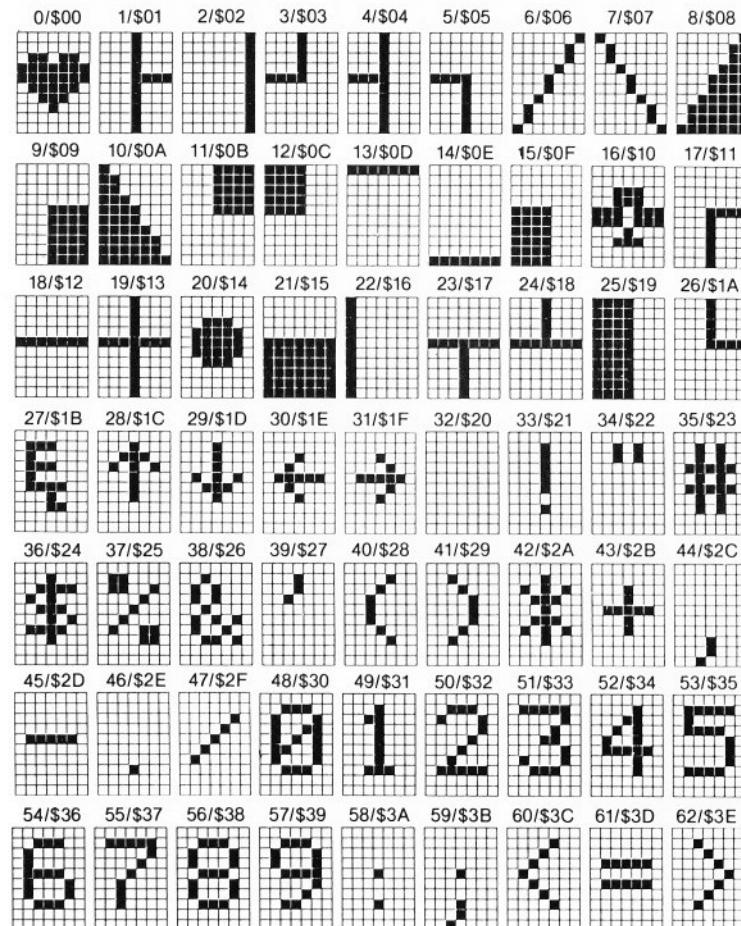
## APPENDIX A XEP80 CHARACTER SET

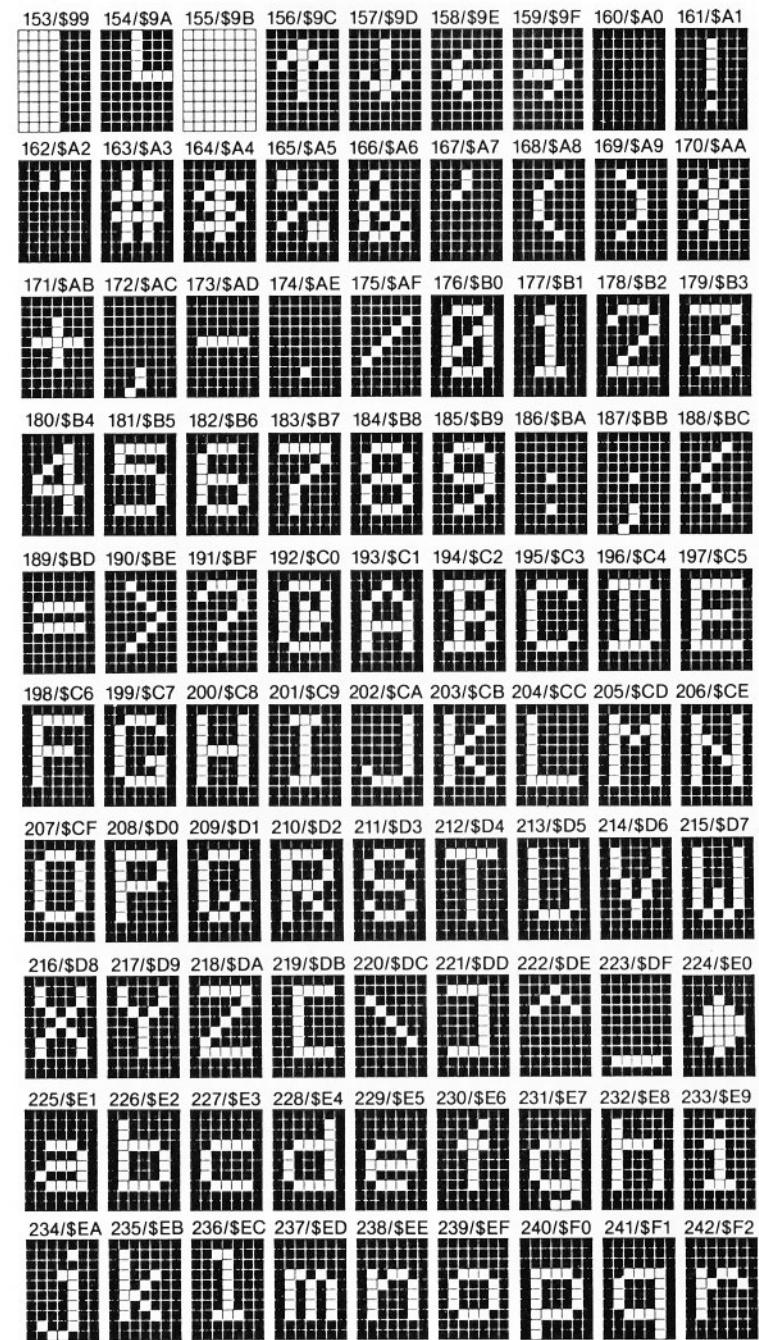
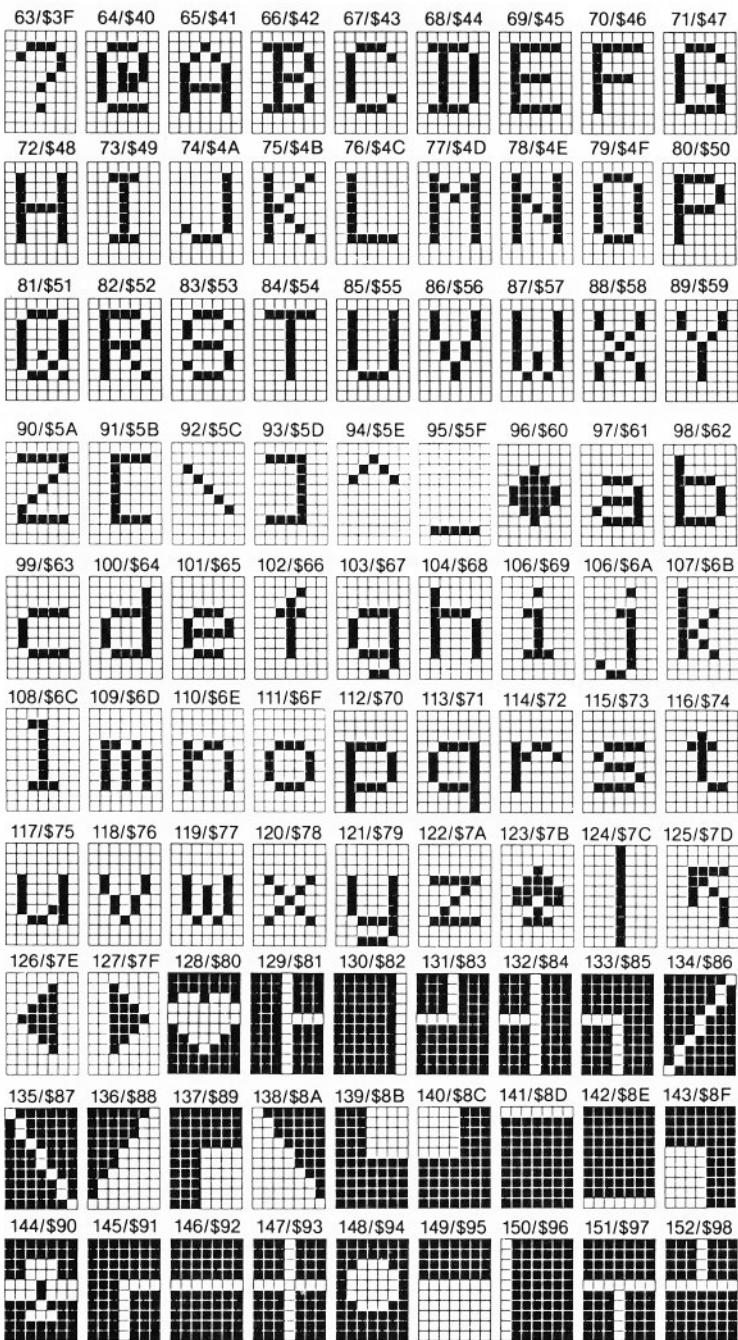


The XEP80 Module supports the entire ATASCII character set. Each character is defined within a 7 x 10 character cell.

The charts that follow show the dot patterns for all characters as displayed by the module, and give their decimal and hexadecimal codes. For example, in the number 0/\$00, 0 is the decimal code and \$00 is the hexadecimal code.

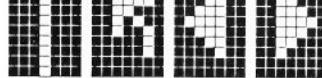
### Non-International Character Mode





243/\$F3 244/\$F4 245/\$F5 246/\$F6 247/\$F7 248/\$F8 249/\$F9 250/\$FA 251/\$FB

252/\$FC 253/\$FD 254/\$FE 255/\$FF



### International Character Mode

0/\$00 1/\$01 2/\$02 3/\$03 4/\$04 5/\$05 6/\$06 7/\$07 8/\$08

9/\$09 10/\$0A 11/\$0B 12/\$0C 13/\$0D 14/\$0E 15/\$0F 16/\$10 17/\$11

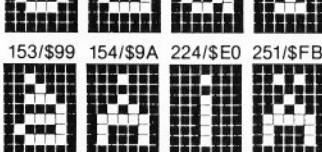
18/\$12 19/\$13 20/\$14 21/\$15 22/\$16 23/\$17 24/\$18 25/\$19 26/\$1A

96/\$60 123/\$7B 128/\$80 129/\$81 130/\$82 131/\$83 132/\$84 133/\$85 134/\$86

135/\$87 136/\$88 137/\$89 138/\$8A 139/\$8B 140/\$8C 141/\$8D 142/\$8E 143/\$8F

144/\$90 145/\$91 146/\$92 147/\$93 148/\$94 149/\$95 150/\$96 151/\$97 152/\$98

153/\$99 154/\$9A 224/\$E0 251/\$FB



## APPENDIX B XEP80 MODULE SPECIFICATIONS

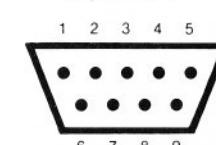


### Joystick (PIA) Interface

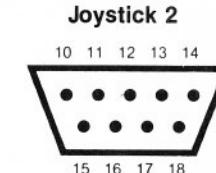
The XEP80 Module uses two joystick port lines: one PIA line for input from the module and one PIA line for output to the module. The XEP80 Module and the computer share a common ground line. Either joystick port (1 or 2) may be used with the supplied software.

### Male (Console) Pin Configurations

Pin	Function	Joystick 1
1	Data to 80 column	1 2 3 4 5
2	Data from 80 column	● ● ● ● ●
3-7	Not used	
8	Common ground	6 7 8 9
9	Not used	

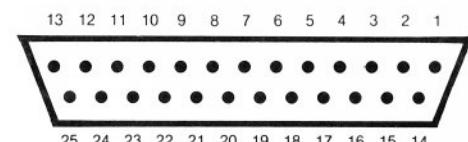


Pin	Function	Joystick 2
10	Data to 80 column	10 11 12 13 14
11	Data from 80 column	● ● ● ● ●
12-16	Not used	
17	Common ground	15 16 17 18
18	Not used	



### Eight-Bit Parallel Interface

Pin	Function	
1	Strobe	13 12 11 10 9 8 7 6 5 4 3 2 1
2-9	Parallel Data	● ● ● ● ● ● ● ● ● ● ● ●
10	Not Used	● ● ● ● ● ● ● ● ● ● ● ●
11	Busy	● ● ● ● ● ● ● ● ● ● ● ●
12-17	Not Used	● ● ● ● ● ● ● ● ● ● ● ●
18-25	Ground	25 24 23 22 21 20 19 18 17 16 15 14



## **CUSTOMER SUPPORT**



Atari Corporation welcomes questions about your ATARI Computer products. Write to:

ATARI Customer Relations  
P.O. Box 61657  
Sunnyvale, CA 94088

Please write the subject of your letter on the outside of the envelope.

ATARI User Groups are outstanding sources of information on how to get the most from your ATARI Computer. To receive a list of ATARI User Groups in your area, send a self-addressed, stamped envelope to:

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