



**GETTING STARTED
WITH THE iUP-200A/201A
(FOR DOS USERS)**





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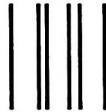
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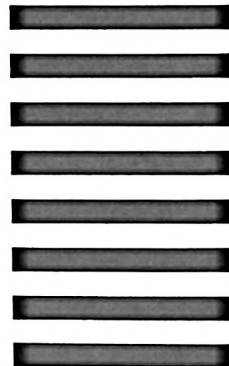
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About This Manual

This manual describes how to set-up and start to use the iUP-200A/201A universal programmer and the Intel PROM programming software (iPPS) to store programs and data into programmable read-only memory (PROM) devices. It is for engineers and designers who are developing firmware for ROM-, PROM-, EPROM-, or E²PROM-based systems.

The following describes the general contents of each chapter.

- Chapter 1 Describes support hardware requirements and how to set up the universal programmer.
- Chapter 2 Describes how to install and initialize the iPPS on an IBM PC XT or PC AT.
- Chapter 3 Describes the power-up cycle, self diagnostics, and how to install a PROM device.
- Chapter 4 Provides a simple, on-line (iPPS) example programming session.

Conventions Used in This Book

Throughout this book, the iUP-200A/201A universal programmer is called the universal programmer and the Intel PROM programming software is called the iPPS.

A section of text introduced by the symbol

NOTE

emphasizes comments with special significance.

A section of text introduced by the symbol

CAUTION

gives instructions necessary to avoid damage to equipment or loss of stored information.

Other Pertinent Intel Literature

This document is a brief start-up manual, intended to be used with the *iUP-200A/201A Universal Programmer User's Guide*, order number 166041.



REV.	REVISION HISTORY	DATE
-001	Original Issue.	8/85



CAUTIONS

intel

This section lists the cautions found in the manual, along with the pages on which they appear.

PAGE

CAUTION

1-2

To prevent possible damage to the universal programmer, before plugging in the unit and turning it on, verify that the AC line voltage select switches are set properly and the power fuse is the correct value for the line voltage that is to be used.

CAUTION

3-1

To prevent damage to the universal programmer, make sure that the line voltage select switches are set properly and the power fuse is the right value for the line voltage that is to be used before plugging in the unit and turning it on. Refer to Chapter 1 for instructions.

The universal programmer requires a minimum of three inches of clearance for proper cooling, and its air vents must be clear of any obstructions.

To prevent damage or accidental programming of a PROM device, remove any PROMs from the personality module before powering on the universal programmer.

CAUTION

3-2

Do not switch the universal programmer's power on or off when a PROM device is installed in a socket of the personality module. Damage to the PROM device can result.

CAUTION

3-3

If the personality module has more than one socket, install the PROM to be programmed or read only in the selected socket. Do not install a PROM or leave one in an unselected socket. Damage to the PROM can result.

CAUTION

3-3

The orientation mark on one end of the PROM must be toward the top of the socket. If a PROM is not oriented properly, it cannot be programmed and may be damaged. If the PROM is not oriented properly, the following error message may be displayed when the universal programmer attempts to access the PROM:

CHECK PROM INSTALLATION

CAUTION

4-3

Verify that the type of PROM that you are installing is the same as the type selected with the TYPE command. If you specify its type incorrectly, you can damage a PROM when you try to program it or read it.

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4. The shipping and billing address.
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6. Be sure to advise the Center personnel of any extended warranty agreements that apply.

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If available, use the original factory packaging material when preparing a product for shipment to the Intel Product Service Center. If the original packaging material is not available, wrap the product in a cushioning material such as Air Cap SD-240, manufactured by the Sealed Air Corporation, Hawthorne, N.J. Securely enclose it in a heavy-duty corrugated shipping carton, mark it "FRAGILE" to ensure careful handling, and ship it to the address specified by the Intel Product Service Center.

1

HARDWARE SET-UP



This chapter describes support hardware requirements and how to set up the universal programmer hardware.

Compatible On-Line Hosts

You may connect the universal programmer to the IBM Personal Computer XT or AT.

Communication between the universal programmer and the host takes place over the RS-232 cable supplied with the universal programmer software package. The universal programmer automatically adjusts itself during initialization to the host computer's serial baud rate (110 to 9600 baud).

The Intel PROM programming software (iPPS) runs under the DOS operating system (version 3.0). Refer to your DOS documentation for details on invoking the DOS operating system.

You need at least 128KB of host system memory to run the iPPS. The DOS operating system must be active when the iPPS is executing because DOS input/output (I/O) routines are used.

This version of iPPS runs only on DOS based microcomputer systems. Versions of iPPS are also available for use with various Intel microcomputer systems. Contact your local Intel field sales office for details. Also, the universal programmer uses the industry standard serial RS-232 interface, allowing it to communicate with computers not supported by iPPS. This communication can be accomplished in the following ways:

- With user written RS-232 control drivers
- With the iUP-201A universal programmer's down-load feature

User written RS-232 control drivers for operating the universal programmer in its on-line mode must follow a strictly defined command protocol. Refer to Appendix B of the *iUP-200A/201A Universal Programmer User's Guide* for further information on this command protocol.

The iUP-201A universal programmer's serial down-load feature allows data in Intel 8080 hexadecimal format to be loaded into the iUP-201A user RAM from any host system that has an RS-232 interface. In this mode, no special software drivers need to be written. Refer to the discussion of SHIFT-LOAD 3 in Chapter 5 of the *iUP-200A/201A Universal Programmer User's Guide* for detailed instructions on using this feature.

Hardware Installation Procedure

Perform the following steps to prepare the universal programmer hardware for use.

CAUTION

To prevent possible damage to the universal programmer, before plugging in the unit and turning it on, verify that the AC line voltage select switches are set properly and the power fuse is the correct value for the line voltage that is to be used.

1. Unpack the universal programmer and set it in the desired location.
2. Set the input line voltage switches to the appropriate value for your area. The universal programmer accepts one of four different AC line voltages. Before plugging in the universal programmer, you must set the line voltage switches to match the appropriate line voltage as follows:
 - a) Verify that the universal programmer is unplugged from its power source.
 - b) Locate the line voltage switches and note the four line voltage settings summarized on the back panel of the universal programmer. Figure 1-1 shows the switches set for 120 VAC.
 - c) Set SW1 and SW2 for the AC line voltage to be used to power the universal programmer (*verify that the letters are visible on the switches*) as follows:
 - 100 VAC: set both SW1 and SW2 to position A.
 - 120 VAC: set SW1 to position A and SW2 to position B.
 - 220 VAC: set SW1 to position B and SW2 to position A.
 - 240 VAC: set both SW1 and SW2 to position B.
3. Verify that the correct fuse is installed in the universal programmer as follows:
 - a) Locate the fuse directly beneath the MAIN POWER switch on the back panel of the universal programmer.
 - b) Verify that the universal programmer is unplugged from its power source.
 - c) Remove the fuse from the universal programmer using a flat blade screwdriver or a small coin, as shown in Figure 1-2.
 - d) Check the fuse for continuity and verify that it is the proper amperage rating.

If the fuse is damaged or the wrong amperage rating for the line voltage at which the unit is to be operated, replace the fuse with the appropriate replacement as follows:

 - 100 VAC: 2 ampere slow blow
 - 120 VAC: 2 ampere slow blow
 - 220 VAC: 1 ampere slow blow
 - 240 VAC: 1 ampere slow blow
 - e) Slide the fuse and fuseholder back into the fuse receptacle and tighten by turning the fuseholder clockwise.

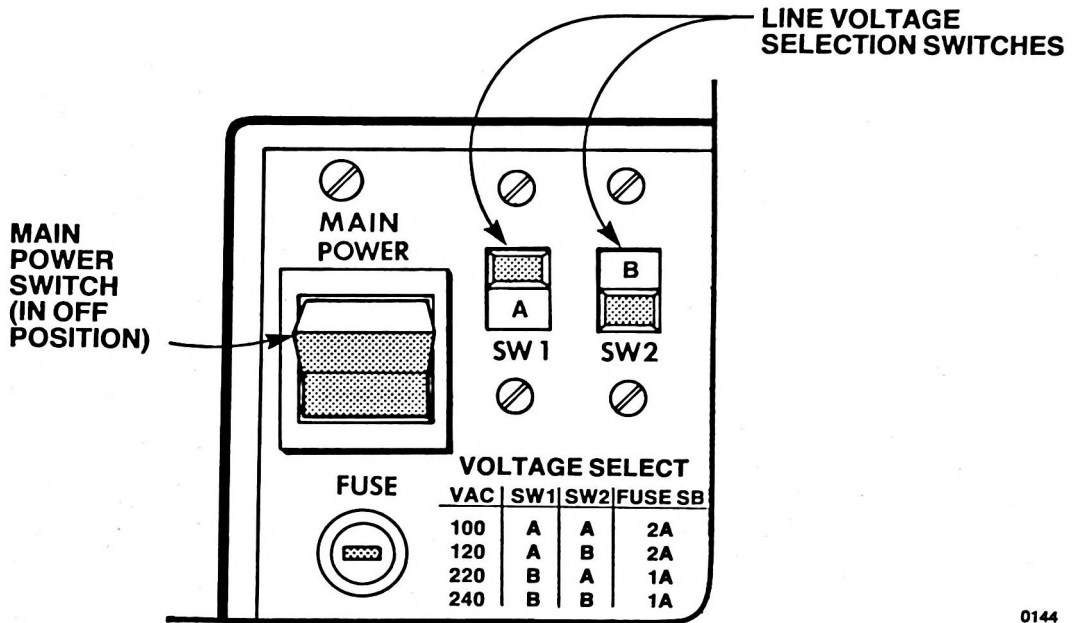
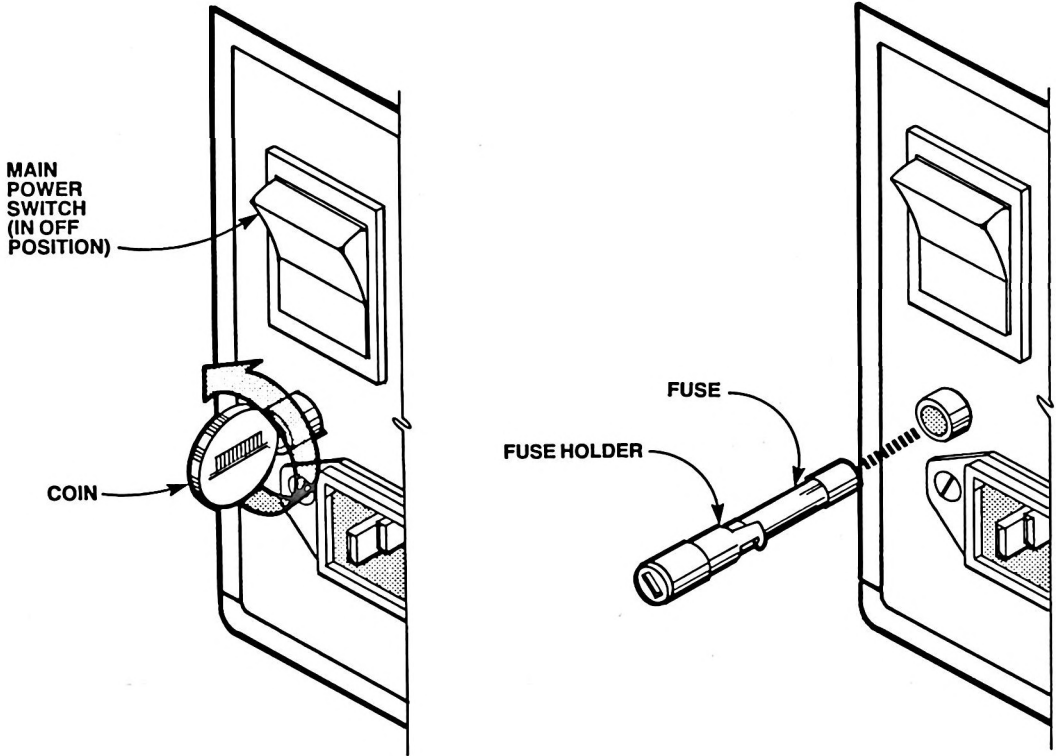


Figure 1-1 Setting the Line Voltage

4. Plug the main power plug into the power source and turn on the universal programmer.
5. Install the RS-232 serial cable between the universal programmer and the host microcomputer system (for on-line operation only) as follows:
 - a) Plug the 25 pin end of the RS-232 cable into the RS-232 connector on the back of the universal programmer. Refer to Figure 1-3. The main power can be either on or off. Connect the external ground wire of the cable to a screw on the left side of the large black universal programmer heat sink.
 - b) Plug the other end of the RS-232 cable into the serial channel on the host microcomputer system configured as COM1 or COM2 (refer to the host system's user manual for host system configuration instructions). This is the serial channel number you will specify when invoking the iPPS, in most cases, this will be serial channel 1 (COM1).
6. Install a personality module. Personality modules adapt the universal programmer to a particular family of PROM devices. You cannot use a personality module alone; it must be installed in the universal programmer or an Intel personal development system (iPDS™ system). The personality module plugs into the front panel of the universal programmer (see Figure 1-4). No further connections are required. During the insertion and removal of the personality module, the main power switch can be either on or off.



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Figure 1-2 Replacing the Power Fuse

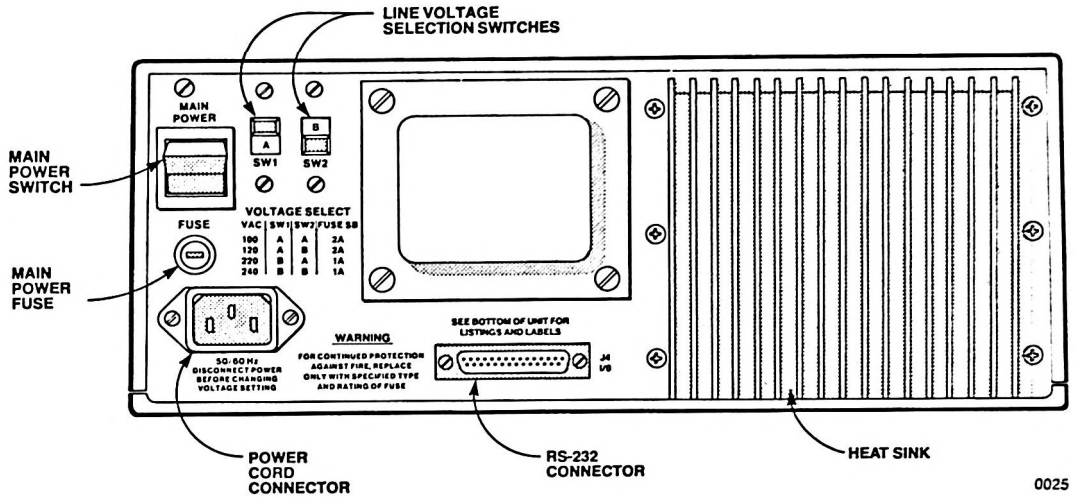
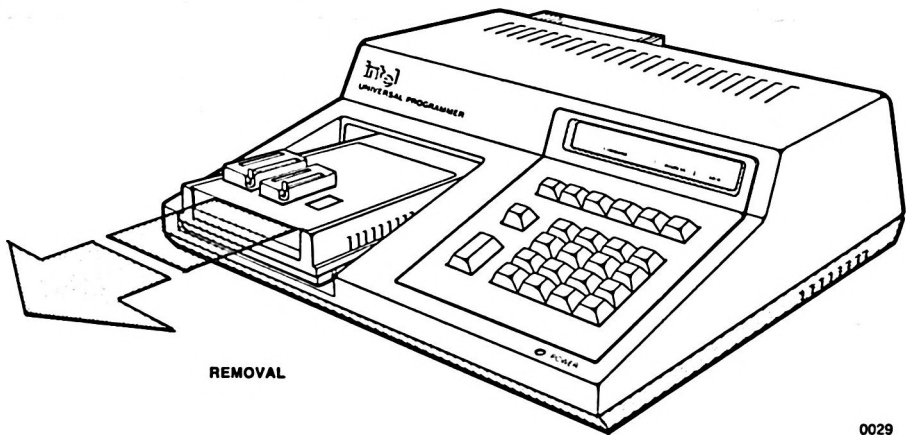
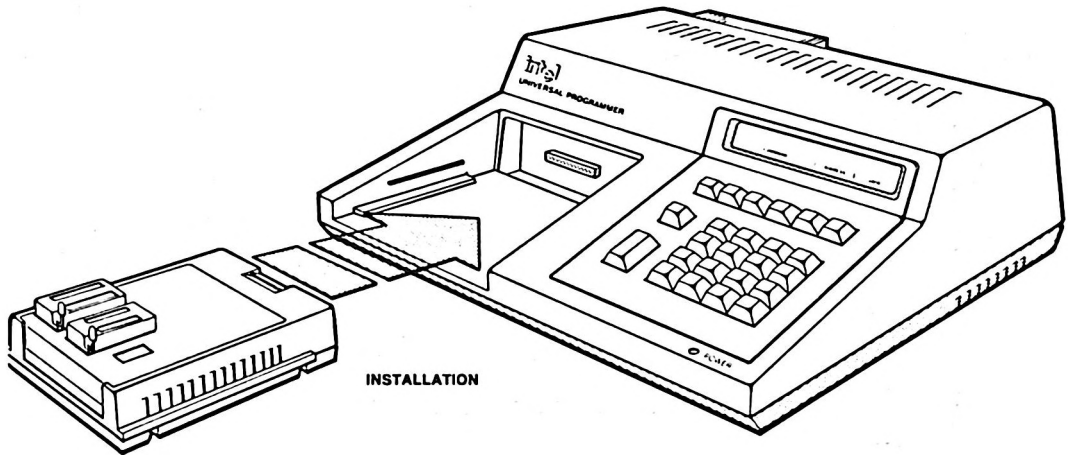


Figure 1-3 Universal Programmer Back Panel



0029

Figure 1-4 Personality Module Installation

2

SOFTWARE INITIALIZATION



This chapter describes how to install and initialize the iPPS. The iPPS should be initialized before applying power to the universal programmer, in order for the universal programmer's diagnostic messages to be displayed on the host microcomputer system's CRT.

iPPS Software Installation

Install the iPPS diskette into the host microcomputer system diskette drive. If you wish to transfer the iPPS files to another diskette or to a hard disk drive, the following files are necessary for normal iPPS operation:

IPPS.EXE	The main object file that is loaded under the DOS operating system.
IPPS.ERR	The error message file that contains the various iPPS error messages.
IPPS.HLP	The help message file that explains the various iPPS commands.

iPPS Software Initialization

Initialize the iPPS under the DOS operating system (version 3.0 or later) using the following syntax:

```
[device:] [directory] IPPS [CHANNEL(n)]
```

Where *device:* specifies the drive on which the iPPS files are located; *directory* specifies the directory or directory path in which the iPPS files are located, and CHANNEL(*n*) specifies the serial channel (*n* is 1 for COM1, or 2 for COM2) to which the RS-232 cable is connected.

In the following example, the iPPS files are located on disk drive A, and the serial RS-232 cable has been installed on serial channel 1 (COM1) of the microcomputer:

```
A:\IPPS
```

If you do not specify a channel or specify a channel incorrectly, the iPPS defaults to channel 1. You will get the following message when the iPPS overrides the channel specified in the initialization and assigns the default channel:

```
----- CAUTION ----- DEFAULTING TO SERIAL CHANNEL n
```

In the following example, the iPPS files are located on disk drive C, in directory BIN, and the serial RS-232 cable has been installed on serial channel 2 of the microcomputer:

```
C:\BIN\IPPS CHANNEL(2)
```

After successful initialization, the iPPS searches for its files (IPPS.ERR, IPPS.HLP) on drive C, in the BIN directory.

When you initialize iPPS, the host operating system loads and executes iPPS. After the software is properly initialized, it displays the following sign-on message:

```
INTEL PROM PROGRAMMING SOFTWARE Vx.x  
COPYRIGHT < years > INTEL CORP.  
PPS>
```

Vx.x is the current version number of the software. PPS> is the main iPPS prompt; it indicates that the iPPS is ready to receive commands. To return to the DOS operating system, use the EXIT command.

The iPPS can run under the control of a text file containing iPPS commands. The iPPS commands may be stored, in sequence, in a DOS text file. To execute the command string, initialize iPPS using the command line switch SUBMIT. In the following example, iPPS is initialized from disk drive A, 'submitting' the iPPS commands stored in a file named DOPROM:

```
A:\IPPS\SUBMIT <DOPROM
```

NOTE

You cannot use the interactive iPPS commands SUBSTITUTE and ALTER in a submit file.

The SUBMIT switch causes the iPPS to automatically scroll the screen display when multiple pages of data are displayed (in commands such a DISPLAY). Without the SUBMIT switch, user input is required.

3

POWER UP AND PROM INSTALLATION



This chapter describes the behavior of the universal programmer immediately after it is powered on, and how to install a PROM device. This section assumes a properly configured system (refer to Chapter 1).

Powering On

CAUTION

To prevent damage to the universal programmer, make sure that the line voltage select switches are set properly and the power fuse is the right value for the line voltage that is to be used before plugging in the unit and turning it on. Refer to Chapter 1 for instructions.

The universal programmer requires a minimum of three inches of clearance for proper cooling, and its air vents must be clear of any obstructions.

To prevent damage or accidental programming of a PROM device, remove any PROMs from the personality module before powering on the universal programmer.

After verifying that the line voltage selector and fuse are properly set, plug the universal programmer into a power source and set the MAIN POWER switch (rear panel) to ON.

Self-test diagnostics are automatically run when the universal programmer is powered on. If any of these tests fail, error messages are displayed.

If the universal programmer is model iUP-200A, error messages are displayed on the host microcomputer's CRT only after you enter the iPPS TYPE command (described in the *iUP-200A/201A Universal Programmer User's Guide*). If the iPPS is not running when the iUP-200A universal programmer is turned on, no error messages are displayed on the terminal. Therefore, Intel recommends that the iPPS be running before the universal programmer is powered on.

If your universal programmer is model iUP-201A, error messages are displayed on the unit's alphanumeric display because the iUP-201A universal programmer initializes in off-line mode. While diagnostics are being performed, the following message is displayed on the iUP-201A:

DIAGNOSTICS IN PROGRESS

The following self-test diagnostics are performed on the universal programmer:

1. A power supply test verifies that the universal programmer's internal voltages are within tolerance. If this test fails, then the following error message is displayed:

POWER SUPPLY FAILURE

2. The following tests verify that the universal programmer's motherboard is properly functioning:
 - CPU instruction test of the 8085 processor
 - Check-sum test on the internal firmware ROM
 - Read/write memory test on the 8085's RAM
 - Internal timer test

If any of these tests fail, the following error message is displayed:

MOTHERBOARD FAILURE

3. An interface test is performed (iUP-201A universal programmer only) with the iUP-201A universal programmer's KEY/RAM board. If this test fails, the following error message is displayed:

KEY/RAM BOARD FAILURE

The iUP-201A universal programmer displays the following message in the command, address, and data fields of the alphanumeric display if all the self-diagnostic tests have passed:

IUP READY 000000 55

You can then use the iUP-201A universal programmer in off-line mode or switch to on-line mode for control of the universal programmer by the iPPS on the host microcomputer system.

The iPPS will display diagnostic error messages when the TYPE command is entered, if the iPPS was initialized before powering on the iUP-200A. If the TYPE command is entered, and no failure messages appear, then the iUP-200A has passed the diagnostic tests.

PROM Device Installation

PROMs are programmed while mounted on the personality module. Perform the following steps to install the PROM to be programmed or read on the personality module.

1. Verify that the appropriate personality module for the device that is to be programmed is installed in the universal programmer (refer to Chapter 1).

CAUTION

Do not switch the universal programmer's power on or off when a PROM device is installed in a socket of the personality module. Damage to the PROM device can result.

2. If the universal programmer is not already powered on, switch on the power switch and wait for the initialization procedure to complete.
3. Set the universal programmer for the PROM type to be programmed or read, using either the TYPE command (during on-line operation) or the DEVICE SELECT key (during off-line operation). LEDs next to the PROM designations on the personality module indicate the PROM type selected. If the personality module has more than one socket, a socket indicator light indicates the appropriate socket for the selected PROM type. Refer to the appropriate personality module user's guide if your personality module has a master socket and a program socket.
4. Raise the socket locking arm on the selected socket (see Figure 3-1).

CAUTION

If the personality module has more than one socket, install the PROM to be programmed or read only in the selected socket. Do not install a PROM or leave one in an unselected socket. Damage to the PROM can result.

5. Insert the PROM to be programmed into the socket with pin 1 of the PROM going into the socket pin hole at the upper left corner of the socket.

CAUTION

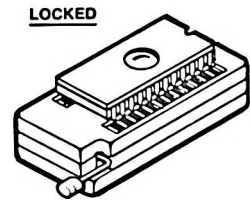
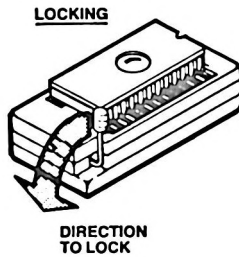
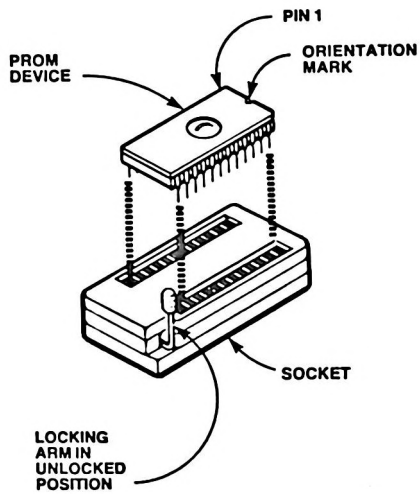
The orientation mark on one end of the PROM must be toward the top of the socket. If a PROM is not oriented properly, it cannot be programmed and may be damaged. If the PROM is not oriented properly, the following error message may be displayed when the universal programmer attempts to access the PROM:

CHECK PROM INSTALLATION

6. Secure the PROM in the socket by moving the locking arm forward and down, until it is parallel with the top of the personality module.

The PROM device is now ready for programming, reading, and verifying.

INSTALLATION



0146

Figure 3-1 PROM Device Installation

4

EXAMPLE PROGRAMMING SESSION



This chapter contains an example programming session which will familiarize you with the use of iPPS. Detailed descriptions of on-line and off-line operation of the universal programmer, including a dictionary of iPPS commands are presented in the *iUP-200A/201A Universal Programmer User's Guide*.

Table of Contents of Examples

The following table of contents is a quick reference to the examples in this chapter. It lists the programming or editing functions illustrated and the commands demonstrated in each example.

	EXAMPLE	PAGE
On-Line iPPS Initialization		4-1
TYPE		
MAP		
INITIALIZE		
HELP		
Interleaving a File Between Two PROMs		4-5
FORMAT		
Copying Files to PROMs		4-8
COPY		
Examining the Contents of a PROM		4-9
DISPLAY		

Examples

The following examples assume that the host microcomputer system has been powered on and is under control of the DOS operating system.

The screen examples are the microcomputer system screen. The red characters indicate user entries. Enter a carriage return (<CR>) to execute each command or response.

On-Line iPPS Initialization

You must initialize the iPPS software before performing any on-line functions. After checking that the DOS prompt is on the CRT screen, enter the following command to invoke the iPPS software.

```
A:\IPPS
INTEL PROM PROGRAMMING SOFTWARE Vx.x
COPYRIGHT <years>INTEL CORP
PPS>
```

Comments

You can locate iPPS files on any disk drive. In this example, they are located on drive A. The iPPS prompt (PPS>) indicates that the iPPS files have been loaded and the host microcomputer will now execute iPPS commands. The version number of the iPPS may be different, depending on your version. To return to DOS, enter EXIT and a carriage return anytime following the iPPS prompt.

Apply power to the universal programmer and install a personality module (refer to Chapter 1). Next, establish the PROM type. Entering the TYPE command without parameters gives you a list of the PROM types that can be programmed with the personality module that has been installed (in this example, an iUP-F27/128 personality module is installed in the universal programmer).

```
PPS> TYPE
  PROM TYPES:
271b
2732
2732A
2758
2758S
2764
27128
2715
2716
ENTER ONE PROM TYPE - 27128
PPS>
```

Comments

In this example, the PROM type was not specified in the TYPE command. All of the PROM types that the installed personality module supports are then displayed and the PROM type is requested. The PROM type is selected by entering the PROM number (27128).

Once the TYPE command has been executed, a 27128 is installed in the iUP-F27/128 personality module.

CAUTION

Verify that the type of PROM that you are installing is the same as the type selected with the TYPE command. If you specify its type incorrectly, you can damage a PROM when you try to program it or read it.

Using the MAP command, you can see that the data type and file type default values are initially set to hexadecimal and 286 (output file format), respectively.

```
PPS>MAP
STATUS:

BUFFER S.A. = 000000  BUFFER F.A. = 003fff
DEFAULT BASE = HEX
DEFAULT FILE TYPE = 286
PROM TYPE = 27128
PPS>
```

Comments

Besides showing the current values for the number base and file type, the MAP command also shows the boundaries of the iPPS buffer, and the PROM type selected.

With the INITIALIZE command you can specify the default number base, the default file type, or both.

```
PPS>I 80
PPS>
```

Comments

The INITIALIZE command is used in this example to set the default file type to Intel 8080 hexadecimal; the default number base remains at the initial setting of hexadecimal. The file type parameter sets up the iPPS to read and write files of a specified format. If you specify the wrong file type, an error message is displayed when you try to read or copy a file.

The iPPS offers a convenient help feature which displays a description of any iPPS command on the CRT screen.

```
PPS>HELP TYPE
```

```
TYPE
```

```
      {T}YPE [<{P}ROM device>]
```

```
The TYPE command is required prior to executing any command which interfaces with the memory device in the PROM programmer. It specifies the type of device which is to be programmed. If the command is entered without the argument, the user is prompted to enter one of the allowable PROM types for the Personality Module currently installed. If the selected PROM is larger than 8K then a virtual buffer is created on the workfile specified by the user. If the workfile is not specified the user is prompted for the same.
```

```
PPS>
```

Comments

In this example, a description of the TYPE command is requested. The HELP command is particularly useful in determining the correct syntax for an entry.

Interleaving a File Between Two PROMs

It is often desirable to have code or data arranged into 16-bit words and stored on a pair of PROMs. This is the case, for example, when working with an 8086 microprocessor that reads to and writes from memory on a 16-bit data bus. The data is interleaved between the two PROMs, the even (or low) bytes stored in one PROM and the odd (or high) bytes stored in the other PROM. The FORMAT command handles this interleaving automatically.

In the following example, a file written in Intel 8086 hexadecimal format is interleaved into two PROM devices. (Read the description of the FORMAT command in the *iUP-200A/201A Universal Programmer User's Guide* to familiarize yourself with the terminology of the command before doing this example.)

```

PPS> FORMAT A:\DOUBLE.BYT (0,FFFH)
LOGICAL UNIT (BIT=1,NIBBLE=2,BYTE=3,N-BYTE=4)
LU = 3
INPUT BLOCKSIZE (N BYTES)
N = 2
OUTPUT BLOCKSIZE (N BYTES)
N = 1
INPUT BLOCK STRUCTURE:
NUMBER OF INPUT LOGICAL UNITS = 002

LSB
-----
|00 |01 |
-----
NUMBER OF OUTPUT LOGICAL UNITS = 001
OUTPUT SPECIFICATION (<CR>) TO EXIT):
*
```

Comments

In this example, a file called DOUBLE.BYT is split into two files, with alternate bytes being loaded into alternate files. After establishing the FORMAT command and the file name with the first entry, the iPPS prompts for the logical unit that is going to be manipulated. Byte is selected as the logical unit. You are then prompted to set up the input block size (in this case two bytes) and the output block size (one byte). A diagram of the input block structure is then displayed with the logical units labeled. The least significant bit in the input block is displayed with the logical units labeled. The least significant bit in the input block is shown on the left. The number of logical units in the output block is also displayed. You are then prompted with an asterisk (*) to enter the output specification.

```
* 0 TO A:\LOWER.BYT
OUTPUT STORED
* 0 TO A:\UPPER.BYT
* <CR>
PPS>
```

Comments

The asterisk (*) is the prompt for the output specification (how you want the data in the file to be manipulated in terms of logical units). In this example, the least significant byte in each input block is stored in a file titled LOWER.BYT. The iPPS then sorts through the DOUBLE.BYT file and copies every even byte into the LOWER.BYT file. Next, it specifies that the most significant byte be stored in a file titled UPPER.BYT. The iPPS then sorts through the DOUBLE.BYT file and copies every odd byte to the UPPER.BYT file. OUTPUT STORED is then displayed after each output specification is implemented. You then have the option of entering another output specification, or a <CR> to exit.

```
PPS> DISPLAY A:\DOUBLE.BYT(0,L20)
000000: C3 40 00 20 20 44 20 2D 20 44 49 53 48 00 20 20   .a. D-DISK-
000010: 47 20 2D 20 47 45 4E 45 52 41 4C 00 20 20 48 20   G-GENERAL-K
PPS> DISPLAY A:\LOWER.BYT(0,L10)
000000: C3 00 20 20 20 49 48 20 47 2D 47 4E 52 4C 20 48   ..IKG-GNRLK
PPS> DISPLAY A:\UPPER.BYT(0,L10)
000000: 40 20 44 2D 44 53 00 20 20 20 45 45 41 00 20 20   @D-DS. EEA.
```

Comments

By displaying the first few lines of the DOUBLE.BYT, LOWER.BYT, and UPPER.BYT files, you can see that the even address bytes in the DOUBLE.BYT file are stored in the LOWER.BYT file and the odd address bytes are stored in the UPPER.BYT file.

Copying Files to PROMs

You can use the two files created with the following **FORMAT** operation to program two PROMs, which you can then install in parallel to provide 16-bit wide address data words to a 16-bit microprocessor. This is done using the **COPY FILE TO PROM** command.

```
PPS>COPY A:\LOWER.BYT TO PROM
CHECKSUM = A51B
PPS>COPY A:\UPPER.BYT TO PROM
CHECKSUM = 84AC
PPS>
```

Comments

You must install a blank PROM in the personality module before entering each **COPY** command.

Examining the Contents of a PROM

With the DISPLAY command you can examine the contents of a PROM or masked ROM.

```
PPS> DISPLAY PROM
000000: C3 40 00 20 20 44 20 2D 20 44 49 53 48 00 20 20 .@.D - DISK.
000010: 47 20 2D 20 47 45 4E 45 52 41 4C 00 20 20 48 20 G - GENERAL - K
000020: 2D 20 48 45 59 42 4F 41 52 44 2F 43 52 54 00 FF - KEYBOARD/CRT..
000030: FF FF FF FF FF FF FF FF C3 36 1C FF FF FF FF FF .....b.....
000040: F3 D8 80 E6 20 CA 03 08 3E 00 D3 D1 D8 80 E6 01 .....>.....
000050: C2 66 00 3E 4F D3 D0 3E 58 D3 D0 3E 89 D3 D0 3E .f->0..>X..>..>
000060: 99 D3 D0 C3 76 00 3E 4F D3 D0 3E 98 D3 D0 3E 8A ...v->0..>..>
000070: D3 D0 3E 9C D3 D0 21 00 00 11 00 08 AF 47 78 82 ..>.../.....G{.
000080: CA 8A 00 78 86 23 18 C3 7D 00 78 FE 55 C2 8D 00 ...x.#..>.x.U...
000090: 3E 34 D3 E3 3E 1F D3 E0 3E 00 D3 E0 01 30 00 D8 >4..>..>...0..
0000A0: 80 E6 01 C2 A9 00 01 2C 00 3E 72 D3 E3 79 D3 E1 .....>.r.y..
0000B0: 78 D3 E1 3E 82 D3 E3 3E 00 D3 E2 3E 16 D3 E2 D3 x..>..>..>...
0000C0: 10 3E 22 D3 60 D3 50 D8 80 E6 04 CA C7 00 D8 80 .>''.q.P.....>
0000D0: E6 04 C2 CE 00 AF D3 F0 D3 F0 D3 F0 D3 F1 3E A1 .....>
0000E0: D3 F8 3E 23 D3 60 3E C8 D3 E2 3E 00 D3 E2 D3 50 ..>#.q>..>...P
0000F0: 21 EF 00 28 7C 85 C2 F3 00 D8 80 E6 04 C2 F0 00 |.+|.....
000100: 3E 00 D3 E2 3E 16 D3 E2 D3 50 D8 80 E6 04 CA 0A >..>..>...P.....
000110: 10 D8 80 E6 04 C2 11 01 3E 22 D3 60 D3 50 D8 80 .....>''.q.P..
000120: E6 04 CA 1E 01 D8 80 E6 04 C2 25 01 21 00 40 11 .....>.z.'@.
ENTER <CR> TO CONTINUE
ABORTED
PPS>
```

Comments

This example shows the data in the PROM in hexadecimal format, which is the default base in this example. Press the ESC key to end the display. Note the ASCII code displayed in the far right column.



INTEL CORPORATION, 3065 Bowers Avenue, Santa Clara, California 95051 (408) 987-8080

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