

HEWLETT  PACKARD



INSTALLATION MANUAL

**HP EMA FIRMWARE
FOR RTE-IV**

Manual part no. 92067-90006

Printed in U.S.A. APR 1978

(For Use with HP 1000 E-Series Computers
and HP 1000 F-Series Computers)

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Library Index No.
92067.030.92067-90006

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1. INTRODUCTION

This manual provides installation instructions for the HP Extended Memory Area (EMA) Firmware. This firmware is to be installed in an E-Series Computer or an F-Series Computer for use with RTE-IV. In addition to this manual your *Computer Installation and Service Manual* will be helpful in performing this installation.

switching (if required) and addressing to data words located in extended memory.



2. DESCRIPTION

The HP EMA firmware consists of 3 4K ROMs that install on the FAB board. The firmware routines handle map

The HP EMA firmware consists of the following:

| DESCRIPTION | PART NO. |
|------------------------|-------------|
| 4K ROM IC (Bits 23-16) | 92067-80003 |
| 4K ROM IC (Bits 15-8) | 92067-80002 |
| 4K ROM IC (Bits 7-0) | 92067-80001 |

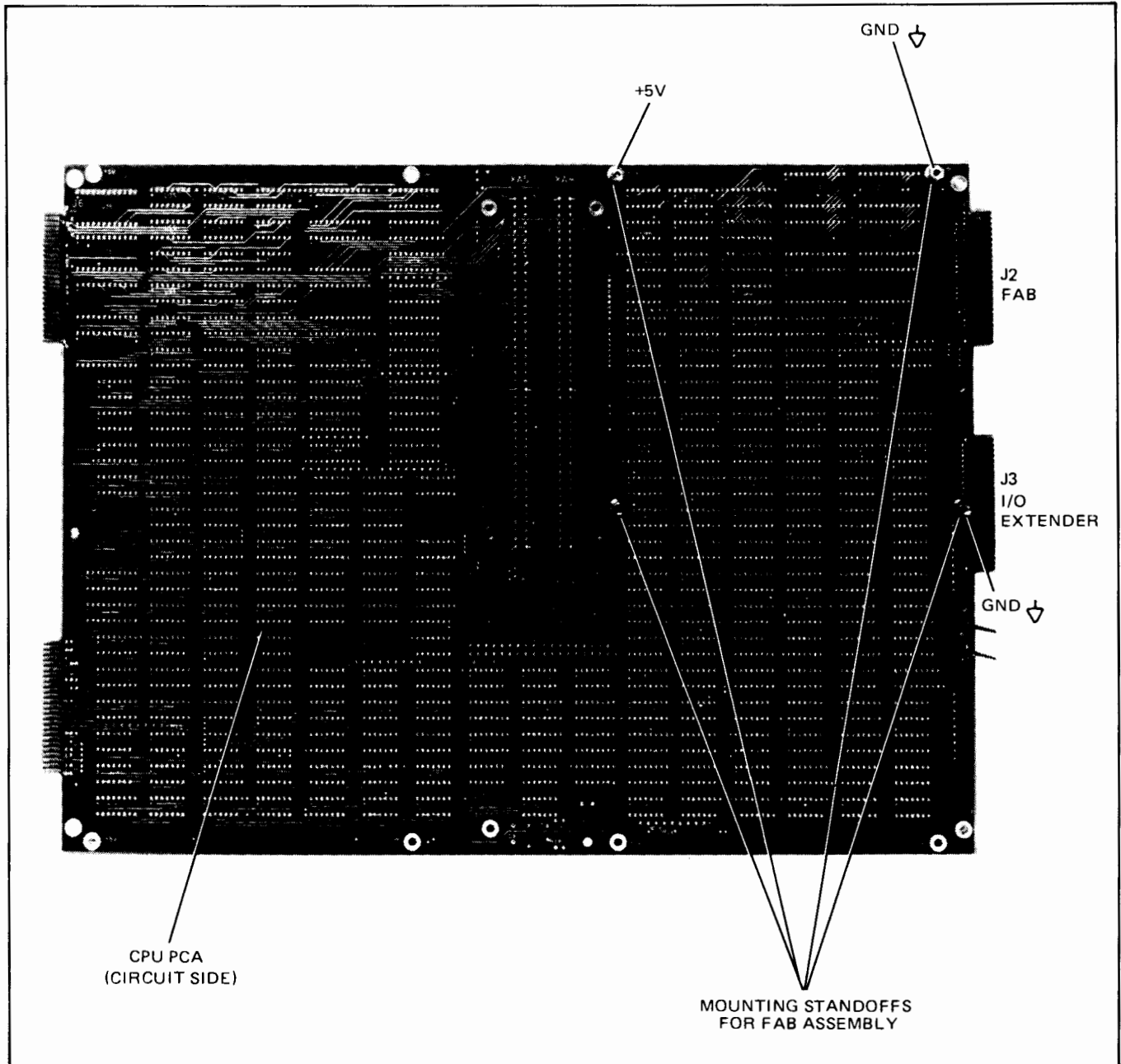


Figure 1. Firmware Accessory Board Mounting Details

3. DRIVER MICROCODE KIT INSTALLATION

To install the three 4K ROM IC's on the FAB, refer to figure 2 and proceed as follows:

- a. If the computer and FAB have not been removed perform steps b, c and d.
- b. Switch off the computer ~LINE power and battery supply. Refer to Computer Installation and Service Manual for switch locations. Remove the cables from the rear of the computer, slide the computer out of the rack and place it on a table with the bottom facing up.
- c. Loosen screw located in rear fold of bottom cover; slide cover towards rear and remove.
- d. If presently installed, remove FAB connector assembly from FAB J1 and CPU PCA connector J2. Remove the four screws and lockwashers attaching the FAB to CPU PCA standoffs and remove FAB (figure 1).
- e. Figure 2 shows the locations of the addressable block jumpers and the ROM IC sockets. The shaded areas show the location of the ROM sockets that may be used for the EMA microcode ROMs. The EMA microprogram operates in a least significant module pair (LSMP) block; therefore sockets B1 through B3, C1 through C3, or D1 through D3 may be used (see NOTE). Install the ROM IC's as shown in table 1. Ensure that the IC's are oriented correctly as shown in figure 2 by matching the notch of each IC with the notch of each IC socket.

NOTE

Sockets C1 through C3 are recommended for the EMA firmware location, due to location requirements of other HP firmware accessories, such as the HP 13306A Fast Fortran Processor.

If DS/1000 ROMs, part numbers 91740-80018, 91740-80019, and 91740-80020, are presently installed on the FAB board, they should be residing in the MSMP of blocks B, C, or D. For this case, the EMA ROMs should be installed in the LSMP of this block. For example, if DS/1000 ROMs are occupying C4, C5, and C6, then the EMA ROMs should be installed in sockets C1, C2, and C3 (refer to table 1 and figure 2 to associate each EMA ROM with the appropriate socket).

- f. Set jumpers 10 through 13 as shown in table 2. Jumper notations A, B, C, and D correspond to blocks A, B, C, and D respectively.

Table 1. EMA Microcode ROM Locations

| ROM PART NO. | BIT NO. | SOCKETS |
|------------------------------|---------|-------------------------------------|
| 92067-80001 (EMA ROM) | 7-0 | B1(XU401) C1(XU201) D1(XU101) |
| 92067-80002 (EMA ROM) | 15-8 | B2(XU402) C2(XU202) D2(XU102) |
| 92067-80003 (EMA ROM) | 23-16 | B3(XU404) C3(XU204) D3(XU104) |
| 91740-80020 (DS/1000 ROM) | 7-0 | B4(XU406) C4(XU206) D4(XU106) |
| 91740-80019 (DS/1000 ROM) | 15-8 | B5(XU408) C5(XU208) D5(XU108) |
| 91740-80018 (DS/1000 ROM) | 23-16 | B6(XU409) C6(XU209) D6(XU109) |

- h. Connect FAB connector assembly between FAB connector J1 and CPU connector J2.
- i. Replace bottom cover and reinstall computer in your system.

4. CHECKOUT

Installation

After installing the EMA ROMs, verify correct installation by running the EMA self-test. The EMA self-test checks for correct IC orientation and if the EMA firmware is correctly addressed.

To execute the EMA self-test proceed as follows:

- a. Set the A-Register equal to 105242 (octal).
- b. Set the P-Register equal to 0.
- c. Set the S-Register equal to 0.
- d. Press PRESET.
- e. Press INSTR STEP.

If the EMA self-test completes with the S-Register equal to 102077 then the firmware is operational. If the test completes with the S-Register NOT EQUAL to 102077, then check for the following conditions:

- a. Incorrect IC orientation on the FAB board.
- b. Incorrect jumper positioning on the FAB board (refer to table 2).
- c. IC pin(s) are bent under or broken off.

Rerun the EMA self-test. If failure still exists, isolate the faulty ROM IC(s) by substituting a known good ROM IC(s). If failure still exists, contact your nearest Hewlett-Packard Sales and Service Office. A list of HP Sales and

Service Offices is provided in your Computer Installation and Service Manual.

Operation

To verify functional operation of the EMA firmware, the EMA on-line diagnostic should be run. Refer to the EMA On-Line Diagnostic Reference Manual, part number 92067-90007, for operating instructions. Follow the troubleshooting procedures recommended in the EMA On-Line Diagnostic Reference Manual if a failure exists.



Table 2. Control Store Module Allocation and Jumper Configurations

| MODULE NO. | ADDRESS | | JUMPER PREFIX | | | UPPER/ LOWER 8K JUMPER 13 |
|------------|-------------|-------------|---------------|----|----|------------------------------------|
| | DECIMAL | OCTAL | 10 | 11 | 12 | |
| 36 | 09216-09571 | 22000-22377 | 1 | 0 | 0 | 1 |
| 37 | 09572-09727 | 22400-22777 | | | | |

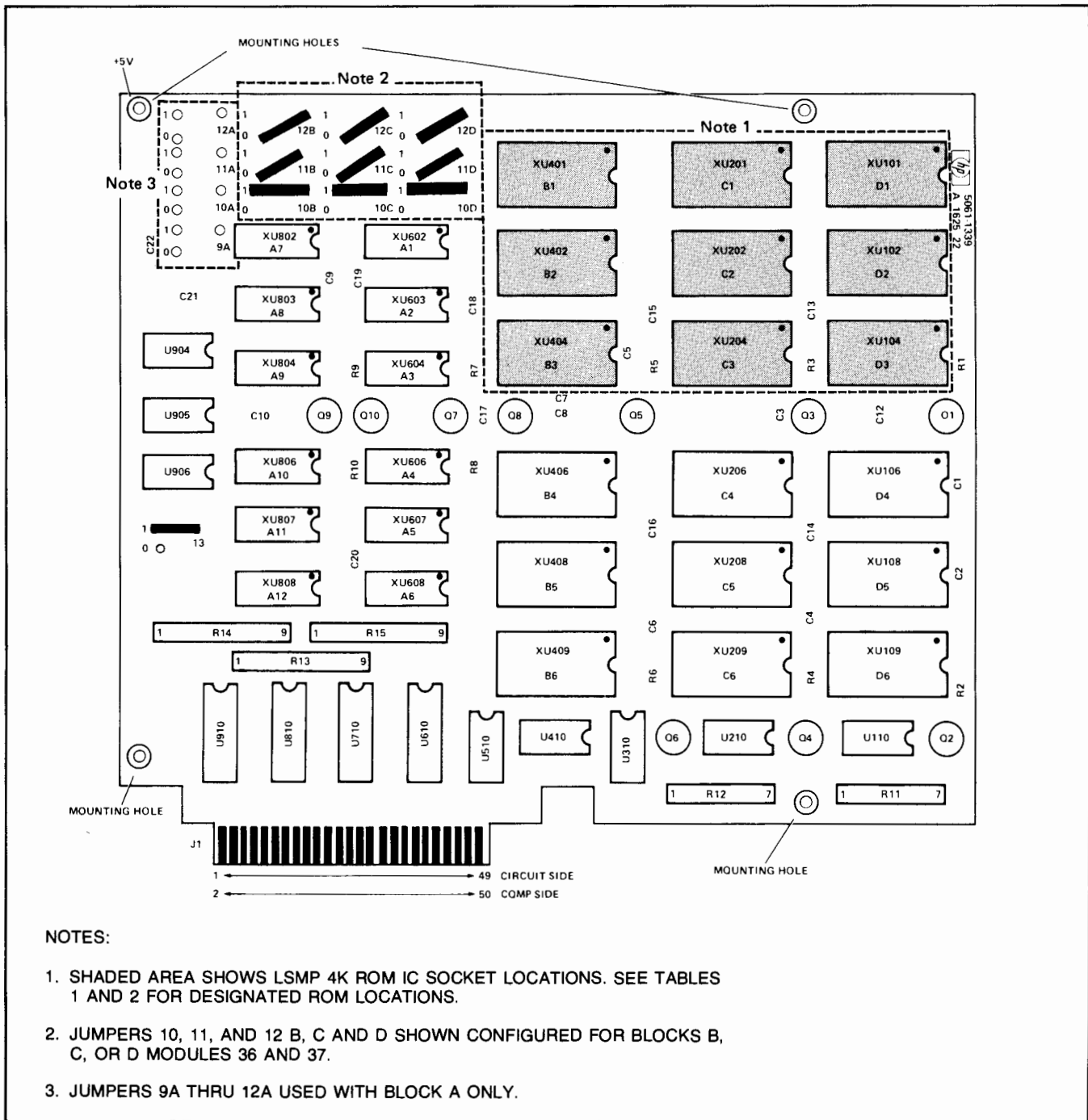


Figure 2. Firmware Accessory Board