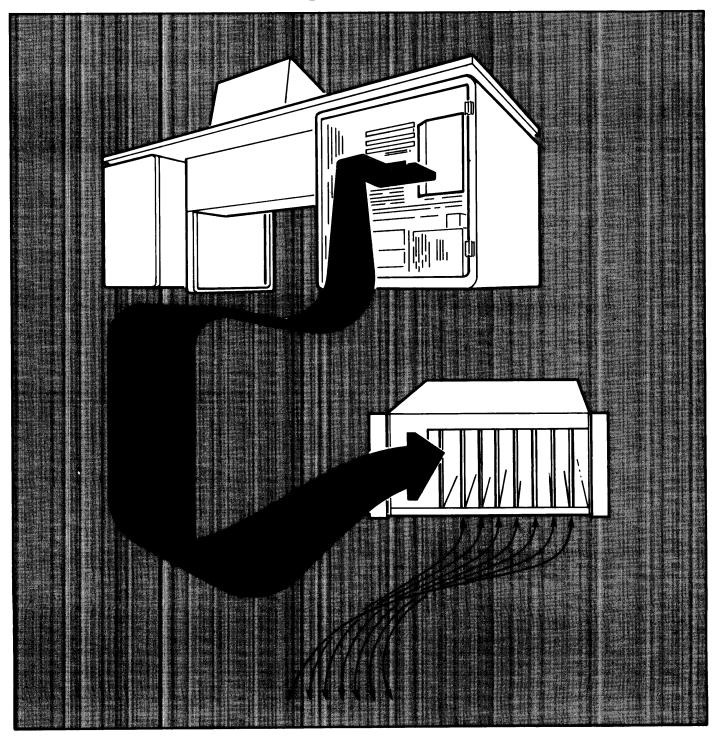# HP 12792B
8-Channel Asynchronous
Multiplexer Subsystem
Configuration Guide

For HP 1000 M/E/F-Series Computers

HP 12792B 8-Channel Asynchronous Multiplexer Subsystem

Configuration Guide

Printing History

The Printing History below identifies the Edition of this Manual and any Updates that are included. Periodically, Update packages are distributed which contain replacement pages to be merged into the manual, including an updated copy of this Printing History page. Also, the update may contain write-in instructions.

Each reprinting of this manual will incorporate all past Updates, however, no new information will be added. Thus, the reprinted copy will be identical in content to prior printings of the same edition with its user-inserted update information. New editions of this manual will contain new information, as well as all Updates.

To determine what manual edition and update is compatible with your current software revision code, refer to the appropriate Software Numbering Catalog, Software Product Catalog, or Diagnostic Configurator Manual.

First Edition................................... Jan 1983...
Update 1.. Jan 1985...

Table of Contents

Chapter 1
Overview

The purpose of this Configuration Guide is to give the System Manager specific instructions for generating the HP 12792B Multiplexer (MUX) into an RTE-IVB or RTE-6/VM system. Also included are instructions on initializing the devices attached to the multiplexer and on troubleshooting if problems arise upon installation.

For more detailed information on the operation of the HP 12792B Multiplexer, the reader is referred to the HP 12792B 8-Channel Asynchronous Multiplexer Users Manual, part no. 5955-8867 and the 12792B 8-Channel Asynchronous Multiplexer Subsystem Installation and Reference Manual, part no. 12792-90020.

Chapter 2
System Planning

Software Modules

Software modules provided with the HP 12792B multiplexer are listed in Table 2-1 along with their approximate sizes.

Table 2-1. Software Modules for 12792B.

Module	Approx size (decimal bytes)	Description
%DVM00	3000	Interface card driver
%PVM00	150	Pre-driver
%DDV05	500	26XX terminal screen mode device driver
%DDV12	320	2631/2635/7310 printer device driver
%$DVTB	6	Device driver address table

%DVM00 and %PVM00 are always used in every system generation. %$DVTB is always used but if the user writes an additional device driver $DVTB must be modified. %DDV05 and %DDV12 are used according to the needs of the user and the devices attached to the multiplexer interface. For more information on the tasks of these modules, refer to Chapter 4 of the 12792B users manual, part no. 5955-8867, covering Device Driver Writing.

Device Drivers

One of the features of the HP 12792B is its device driver capability. Users can write device drivers for RS-232-C or RS-423-A devices attached to the multiplexer to take care of special control required by the device. Device drivers are simply subroutines of the interface driver and use the interface driver to communicate with the CPU and devices. When writing device drivers, the user need only be concerned with adding the required character sequences to user data to control the devices.

HP supplies two device drivers with the 12792B product DDV05 (26XX terminal screen mode device driver) and DDV12 (2631/2635/7310 printer device driver). These device drivers, along with the interface driver (DVM00), the pre-driver (PVM00) and $DVTB can be relocated in a two page driver partition. Users adding their own device drivers may find that all of the software won't fit into a two page driver partition. There are several alternatives besides using a three page driver partition (which decreases maximum size of a user partition). Refer to Chapter 4 of the multiplexer users manual covering Device Driver Writing for the alternative locations of these modules.

The interface driver (DVM00) uses the device driver address table ($DVTB) to find the appropriate device driver when the device driver is selected with a control 33B request. The device drivers are selected by numbers which are determined by the device driver's position in the device driver address table. Each device driver to be used with the interface driver must have an entry in the device driver address table. Thus, users writing their own device drivers must modify $DVTB. $DVTB need not be modified if only the HP-supplied device drivers or a subset thereof are used.

If one of the HP-supplied device drivers is not relocated (e.g., DDV05 is to be used for terminals but DDV12 is not) and it is to be selected by the HP-supplied device driver address table $DVTB, an undefined external will result at system generation time. This will be the name of the device driver not used (e.g., DDV12).

The undefined external can be ignored, or it can be eliminated by recoding $DVTB specifically for the applicable device drivers. (Refer Chapter 4 of the users manual for instructions on recoding $DVTB.)

$DVTB, revision 2226 and later, contains an entry for device driver DDV63. DDV63 is supplied with MRJE subsystem software. The device driver address table includes DDV63 for the convenience of MRJE users.

Supported Devices

This section describes the extent of Hewlett-Packard's support for terminals and devices not specifically called out as supported by the HP 12792B Multiplexer Subsystem. Hewlett-Packard's responsibility extends only to insuring that the HP 12792B performs according to the following specifications when correctly installed and commanded to perform according to the instructions in the HP 12792B documentation supplied to the user.

Interface Support Definition

Electrical: The HP 12792B provides connection for two twisted pair data lines per channel. One pair provides send data, the other provides receive data. Two of the wires may be connected together to form a signal common. The electrical specifications of the data lines are RS-423-A, which is backwards compatible with RS-232-C.

Line Speeds: The 12792B will transmit and receive data simultaneously on any combination of channels at the following baud rates, provided that the aggregate throughput of 76800 baud (total for all 8 channels) is not exceeded.

SUPPORTED BAUD RATES

50	150	2400
75	300	4800
110	1200	9600
134.5	1800	19200

In addition, the rate at which the interface driver/card can process read and write requests (including device driver read and write requests) may not exceed 128 requests per second. This request rate may be reduced by other system activity.

User data reproduction: The character size may be specified at 5, 6, 7, or 8 bits per character not including an optional parity bit. On transmit, the user data will be processed byte by byte passing the 5, 6, 7, or 8 least significant bits in each byte to the character depending on character size. A parity bit will be added by the interface if parity is enabled. On receive, the user data from each character will be passed to the user's buffer into the 5, 6, 7, or 8 least significant bits of each byte, with the unused bits defined as follows:

Receive 8 bits/char:

        bits 0 - 7:   data
        parity bit: always stripped

Receive 7 bits/char:

        bits 0 - 6:   data
        bit 7:   always zero (parity bit is
                         always stripped)

Receive 6 bits/char:

        bits 0 - 5:   data
        bit 6:   parity bit or, if no parity
                         defined, is always 1
        bit 7:   always 0

Receive 5 bits/char:

        bits 0 - 4:   data
        bit 5:   parity bit or, if no parity
                         defined, is always 1
        bit 6:   always 1
        bit 7:   always 0

Character Insertion/Deletion: To support the broadest range of devices the HP 12792B may be configured to completely pass all user data in both directions. Character handshakes required by devices may be inserted or deleted from the user data with a user-written device driver. Devices using hardware handshaking between the multiplexer card and the device are not supported. XON/XOFF protocol and transmit handshaking controlled by the device are supported.

Additionally, the interface driver/card has the capability to perform the following character-oriented functions when configured by control requests:

TRANSMIT: Send ENQ (ASCII 5) and wait 5 seconds for an ACK (ASCII 6) response after every 80 characters.

             Add a CR LF after each record or, if the last character is an underscore, delete the underscore and don't add CR LF.

RECEIVE: End transfer on, and strip one or more of the following: CR, RS, EOT and DC2. Or, end transfer on count and strip nothing. On end transfer on EOT, the receive data is cancelled.

             On BS, strip the BS and delete the last character entered.

             On DEL, strip the DEL and delete all characters previously entered in the record, restarting the record.

             Echo all characters received and, on CR or DEL, echo CR LF.

Interface Driver With/without User Written Device Driver

The HP 12792B Multiplexer Subsystem will support any RS-232-C or RS-423-A asynchronous bit-serial character-mode device whose interface characteristics are compatible with the Electrical, Line Speed, and User Data Reproduction sections of the preceding Interface Support Definition. The user may be required to write a device driver for the device in order to obtain this support.

Interface Driver With DDV05

The HP-supplied device driver DDV05 supports character and block mode operation with the following HP terminals:

2382A	2624A/B	2628A	2647A
2621A/P/B	2625A	2635B	2648A
2622A	2626A	2640B	2649B/C/G
2623A	2627A	2645A	45610A

DDV05 provides no support for EQT subchannels. This includes cartridge tape units, printers, etc. A separate LU is required for a serial line printer, in which case it may be connected directly to the MUX via either DDV12 or a user-written device driver.

Interface Driver With DDV12

The HP-supplied DDV12 device driver supports write-only with optional lineprinter-like column one carriage control on the following HP devices:

2631A/B
2635A/B
7310

For more information on HP-supplied device drivers, refer to Appendix B of the Multiplexer Users Manual.

Other HP Subsystems

Support of non-HP terminals and devices by the HP 12792B Multiplexer Subsystem does not imply support of the devices by other HP systems or subsystems communicating with these devices through the HP 12792B. Consult the specific subsystem documentation for devices supported by that subsystem.

Modems

The MUX will passively support asynchronous, full duplex modems. Passive support means the MUX does not recognize or supply any modem control or status lines. The RS-232-C connectors on the HP 12828A have modem "clear to send" connected back to "request to send" and "carrier detect" wired back to "data terminal ready". ("Data set ready" is pulled to +12v through a 1k ohm resistor for those terminals that require it.) Use of the HP 12828A or connectors similar to these allow the passive support of modems. The user should be aware that "line loss" or other "modem not ready" problems cannot be detected by the MUX or user software through the MUX.

When using modems be aware that if the modem line (with auto answer) is disconnected, no provision is available to detect the condition. If the user was logged on under an RTE-IVB or RTE-6/VM session and the line is disconnected before the user logs off, anyone dialing in to that port will be re-connected to the session in progress at the time of the previous disconnect.

If the user wishes to have full modem capability, the HP 37214A Systems Modem subsystem should be used in place of the 12828A Multiplexer Panel. The systems modem subsystem consists of the HP 37214A Card Cage having eight slots to hold a modem controller card and any combination of up to seven of these optional cards:

* HP 37213A Modem Card, one for each telephone line
* HP 37215A External Modem Card, for user-supplied modems, or
* HP 37216A Terminal Interface Card

The 37213A Modem Card is compatible with Bell 212 and 103 modems. A modem control card is supplied with the 37214A card cage, and must always be used when communicating via telephone lines. Slot 7 (counting from zero) of the card cage is reserved for the modem control card. Connect the control card to port 7 of the multiplexer card. Refer to the Systems Modem Installation and Reference Manual (part no. 37214-90000), for more information.

Chapter 3
System Generation

The following paragraphs outline the recommended procedure for generating the HP 12792B Multiplexer into an RTE Operating System. Examples of input at each of the relevant phases is shown. An example listing of the relevant generation phases is shown in Appendix A.

General Considerations

The generation of the HP 12792B multiplexer driver software into RTE is very similar to that of other terminal drivers. Each multiplexer card may be assigned up to eight EQTs (one EQT per port). Each EQT to be used with this driver is assigned to an interface card at generation time by the select code designated when EQTs are specified. Any EQT associated with a particular interface card can be used for any port on that card, but EQTs cannot be moved from one card to another after generation.

The size of an extent assigned to an EQT is determined by adding the size required by the interface driver (27 words) to the largest of the extents required by any device drivers attached to that EQT. The HP-supplied device drivers both require four word extents, so when using only HP-supplied software the extent size would be 27 + 4 = 31 words.

A Device Reference Table (DRT) entry must be generated for each logical unit (LU) to be used. A different LU number must be assigned to each individual terminal or device.

On system boot-up, the WELCOM file should contain control requests needed to initialize the ports. It is at this time that the association between LU (and its EQT), and physical port (device) is made. The WELCOM file contents are covered in Chapter 4 (Initialization).

In the following examples the step numbers referred to in each phase refer to the steps in Section 2 of the RTE-IVB or RTE-6/VM On-Line Generator Reference Manual (part nos. 92068-90007 and 92084-90010, respectively).

Initialization Phase

Since the HP 12792B multiplexer driver is not privileged (as opposed to the HP 12920B multiplexer product), nothing related to the MUX needs to be done in this phase.

Program Input Phase

Step 16C (refer to the applicable On-Line Generator Reference Manual) specifies the modules to be relocated by their relocatable file names with optional security code and disc cartridge specification. Relocate %DVM00, %PVM00, %$DVTB, and all HP- and User-supplied device drivers to be included. Refer to Figure 3-1 which shows the HP-supplied software to be relocated.

16c) Enter the RELOCATE commands (with optional MAP, LINKS IN, and DISPLAY commands)

REL ____, %DVM00 ____ ____ ____   (REL [(name)] ,filename [: sc [: cartridge label]])

REL ____, %PVM00 ____ ____ ____   (RT4GN responds with a — after each user input)

REL ____, %DDV05 ____ ____ ____

REL ____, %DDV12 ____ ____ ____

REL ____, %$DVTB ____ ____ ____

Figure 3-1. Relocating HP-Supplied Software.

The steps listed below refer to the worksheets contained in Appendix D of the RTE-6/VM On-Line Generator Reference Manual, part no. 92084-90010.

Parameter Input Phase

In step 17 the user is required to change the program type of module PVM00 to 13. This forces PVM00 to reside in Table Area II. Refer to Figure 3-2.

Parameter Input Phase — (modify type, priority, and execution interval, or the ENT (entry) record of any of the programs specified during the Program Input Phase)

(17) PARAMETERS — (output by generator at start of Parameter Input Phase)

— (generator prompt)

PVM00 ,13 ___ , ___ , ___ — (name, Type [,priority [,execution interval]])

— name, SAVE = XXXX

___ , ___ , ___ , ___ — (terminate your final entry with a /E)

—

Figure 3-2. Changing PVM00 Parameter.

Table Generation Phase

Equipment Table Entries

In step 20, the user specifies the EQT entries for the multiplexer. All EQTs associated with devices on one interface card use that card's select code number. Each EQT may specify buffering (B), and should have an EQT extent as described at the beginning of this chapter (27 + largest extent required by device drivers). When using only HP-supplied device drivers, the extent will be 31. A timeout value may optionally be specified. Do not specify DMA usage ("D" option) at generation time. Refer to Figure 3-3. Note that EQTs shown here are contiguous, but they need not be. Also, "SC" refers to the select code of the multiplexer card.

(20) **EQUIPMENT TABLE ENTRY**

EQT XX?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____
  (oct. select code, driver [,B] [,D] [,S] [,M] [,T = ttttt] [,X = xxx])

EQT XX+1?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____
  (do not specify SDA for system disc driver)

EQT XX+2?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____
  (terminate your final entry with a /E)

EQT XX+3?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____

EQT XX+4?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____

EQT XX+5?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____

EQT XX+6?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____

EQT XX+7?

___SC___ , _DVM00_ , ___B___ , _X=31_ , _T=32767_ , _____ , _____ , _____

Figure 3-3.   Equipment Table Entries

Device Reference Table Entries

Step 21 specifies the Device Reference Table (DRT) entries for the MUX. There should be one entry for each port utilized by a terminal or device.

Each entry in the DRT is the EQT number of the equipment table entry for a port. The DRT entries are in LU number order. The terminal on that port will be referred to by the LU number of the current DRT entry.

No support is provided for EQT subchannels in the HP-supplied device drivers
or interface drivers (these drivers will ignore any subchannel specification
although for compatibility with future products it should be set to zero).
This includes cartridge tape units, printers, etc. Users may write their
own device drivers which will use EQT subchannels. Refer to Chapter 4 of
the Multiplexer Users Manual (part no. 5955-8867) covering Device Driver
Writing.

Refer to Figure 3-4 for the format of DRT entries, where XX refers to the
EQT number and YY refers to the LU number. Note that these entries are
sequential, but need not be.

---

(21)   **DEVICE REFERENCE TABLE**

     YY = EQT # ?

     <u> XX   </u> , <u>   </u>

     YY+1 = EQT # ?

     <u> XX+1 </u> , <u>   </u>

     YY+2 = EQT # ?

     <u> XX+2 </u> , <u>   </u>

     YY+3 = EQT # ?

     <u> XX+3 </u> , <u>   </u>

     YY+4 = EQT # ?

     <u> XX+4 </u> , <u>   </u>

     YY+5 = EQT # ?

     <u> XX+5 </u> , <u>   </u>

     YY+6 = EQT # ?

     <u> XX+6 </u> , <u>   </u>

     YY+7 = EQT # ?

     <u> XX+7 </u> , <u>   </u>

Figure 3-4.   DRT Entries For The MUX.

Interrupt Table Entries

Step 22 specifies the interrupt table entries for the HP 12792B Multiplexer. One entry is required for each interface card generated into the system. On systems using up to eight terminals, users will want to specify:

sc,PRG,PRMPT

to enable scheduling of PRMPT on unsolicited interrupts. Unsolicited interrupts are caused by striking a key on a terminal which does not have a read request pending on it. If a user-written program is to be scheduled upon receipt of an unsolicited interrupt, include that program's name in place of PRMPT. Note that the program specified is used for all channels on that card unless overridden on-line via a user request. If unsolicited interrupts are to be ignored, use:

sc,EQT,eqt#

where sc is the select code of the card and eqt# is the number of any one of the EQT's specified for that card. This will still allow communication with each port's EQT. The only effect it has is to ignore unsolicited interrupts, which can be overridden via an on-line request.

Refer to your operating system's On-Line Generator Reference Manual for more details. Figure 3-5 shows the entry used when devices are connected to the MUX.

Figure 3-5. Interrupt Table Entries.

Partition Definition Phase – SAM

Step 34 allows the system manager to increase the size of System Available Memory (SAM) by moving the starting page of the first user partition to a higher location in memory.

The system manager should keep in mind that since terminals on the MUX may be buffered, SAM will be required for programs to communicate with terminals. If there is not enough SAM, programs communicating with terminals may be suspended waiting for System Available Memory.

System Boundaries Phase

Step 23 reports the two-page default size of the driver partitions and asks for any change. If you are using DVM00, DDV05, and DDV12, the size should be increased to 3 pages.

```
DRIVR PART 00002
CHANGE DRIVR PART?
3                              (new size)
```

If your system must stay at 2 page driver partitions, then the generation must use DVT00 (in place of DVM00), DDT05 (in place of DDV05) and omit DDV12. The omission of DDV12 will cause it to be reported as undefined. This error is normal in this case and can be ignored. The 2 page versions of the drivers (DVT00 and DDT05) do not have CTU and modem support.

2 pp.	3 pp.
RE,%DVT00 ◄— prog MODEM not supported	RE,%DVM00 ◄— MODEM supported
RE,%PVM00	RE,%PVM00
RE,%DDT05 ◄— CTU's not supported	RE,%DDV05 ◄— CTU's supported
RE,%$DVTB (no line printer driver)	RE,%DDV12
:	RE,%$DVTB
Ignore the UNDEF on %DDV12	:
:	:
EQUIPMENT TABLE entry	EQUIPMENT TABLE entry
sc,DVM00,B,X=31	sc,DVM00,B,X=31

Chapter 4
Initialization

Initialization of the HP 12792B Multiplexer Subsystem is typically performed at boot-up in the WELCOM file by a sequence of control requests. Three requests are performed on each port:

> control 30B: Set port ID
>
> control 33B: Configure driver responses, if needed
>
> control 20B: Enable schedule, if needed
> (schedule a program on
> unsolicited interrupts)

These control functions must be given in the above order, and are defined in detail in the multiplexer users manual part no. 5955-8867.

The HP 12792B multiplexer interface card contains two baud rate generators. When employing the HP 12828A Multiplexer Panel with the standard cable, baud rate generator 0 (BRG0) is wired to port 0, and baud rate generator 1 (BRG1) is wired to ports 1-7. Typically, the printer port is port 0 (running at, say, 2400 baud) while the other seven ports are terminals running at 9600 baud. Note that these two baud rate generators can be split in other ways (2 or 3 or 4 ports on one baud rate generator and the rest on the other). Refer to the HP 12792B Multiplexer Subsystem Installation and Reference Manual for more information.

It is important to remember that devices must be configured to agree with the values specified in the control 30B request in the WELCOM file. For example, for a HP 7310 line printer, the switches on the back of it should be set for the baud rate and parity option at which it is to be used. All other switches should be in their normal positions.

Using the Default Device Driver

All ports must be associated with a device driver. For devices which do not require request processing beyond what the interface driver performs, a defaultdevice driver is included as part of the interface driver. Upon being sent a request by the interface driver, the default device driver simply passes the request back to the interface driver without performing any processing on the request.

The default device driver is selected by specifying device driver number one when issuing a control 33B request.

Enabling a DDV12 Device

The following could be used to initialize a line printer attached to port 0:

:CN,lu,30B,142310B   * Port 0, 2400 baud, ENQ/ACK enabled, no parity, 1 stop bit, BRG 0, 8 bits char.

:CN,lu,33B,2   * Attach device driver number 2, DDV12 (in the HP-supplied $DVTB, DDV12 is device driver number 2).

:CN,lu,21B   * Disable schedule (see below).

The last request (control 21B, disable schedule) is included so that the device driver is entered before any user request is given. This gives the driver a chance to set the port's driver type to 12B in case a user inquires driver type before any other request is given. Any reasonable control request may be given 21B was chosen since it also ensures that extraneous noise will not cause program scheduling.

Note that a control 20B is not used for a line printer since there will be no read requests or unsolicited interrupts from the printer.

As with all devices, when using an HP 7310 line printer, an HP 2631 terminal, or an HP 2635 terminal, be sure the switches are set for whatever baud rate and parity option is to be used. These must agree with the values specified using the control 30B request in the WELCOM file.

Enabling a DDV05 Device

The control requests that could be used to initialize a terminal port are shown below. Typically these are running off of baud rate generator one (BRG1).

:CN,lu,30B,152334B   * Port 4, 9600 baud, ENQ/ACK enabled, no parity, 1 stop bit, BRG 1, 8 bits per character.

:CN,lu,33B,3   * Attach device driver 3, DDV05 (in the HP-supplied $DVTB, DDV05 is device driver 3).

:CN,lu,20B   * Enable scheduling (schedule program on unsolicited interrupt).

Be sure that the terminal strapping configuration switches agree with the
commands given in the control request. Refer to the appropriate
terminal/device instruction manual.

Example

The following is a sample part of a WELCOM file which initializes each port
to 9600 baud, no parity, one stop bit, ENQ/ACK handshake enabled, attaches
device driver 3 (the 26XX screen mode terminal device driver), and puts the
port in type-ahead mode with cancel on break. Port 7 on the second card is
configured for an HP 7310 line printer (device driver 2). Note that the
default (hardwired) baud rate configuration is used (port 0 uses baud rate
generator 0, ports 1-7 use baud rate generator 1). With the HP 12828A
Multiplexer Panel, port 0 uses BRG0 and ports 1-7 use BRG1 unless the user
modifies the hood connector.

```
:*
:* SET PORT ID'S ON CARD 1
:*
:CN,19,30B,142330B
:CN,20,30B,152331B
:CN,21,30B,152332B
:CN,22,30B,152333B
:CN,23,30B,152334B
:CN,24,30B,152335B
:CN,25,30B,152336B
:CN,26,30B,152337B
:*
:* SET PORT ID'S ON CARD 2
:*
:CN,27,30B,142330B
:CN,28,30B,152331B
:CN,29,30B,152332B
:CN,30,30B,152333B
:CN,31,30B,152334B
:CN,32,30B,152335B
:CN,33,30B,152336B
:CN,34,30B,152337B
:*
:* CONFIGURE DRIVER RESPONSES ON ALL PORTS
:*
:CN,19,33B,23003B
:CN,20,33B,23003B
```

Update 1

```
            .
            .
        etc
            .
            .
            .
:CN,33,33B,23003B
:CN,34,33B,2
:*
:* ENABLE SCHEDULING ON ALL PORTS
:*
:CN,19,20B
:CN,20,20B
            .
            .
            .
        etc
            .
            .
            .
:CN,33,20B
:CN,34,21B
```

NOTE: For LUs greater than 63, use the CT command, instead of the CN
        command.

Chapter 5
Troubleshooting

When your system has been generated, booted up, and the multiplexer terminals are initialized according to the instructions in the preceding sections of this manual, your multiplexer terminals should respond to pressing of any key in a manner similar to that of any DVR05 or DVR00 terminal. If a multiplexer terminal fails to respond properly, the following checklist may help to correct the problem.

o   Verify that the baud rate of the terminal matches the baud rate expected by the software.

o   Verify that the Baud Rate Generator specified for each port during initialization agrees with the BRG strapped for that port on the edge connector.

o   If one port is not working, verify that the baud rate for the BRG on the port has not been changed. This could have happened by changing the baud rate of another port using the same BRG.

o   Check that the terminal strap switches are set according to the terminal instruction manual.

o   Verify that the cables are connected properly according to the HP 12792B Multiplexer Subsystem Installation and Reference Manual and the terminal and/or modem instruction manual.

o   Verify that the MUX board is in the appropriate select code.

o   Verify that PVM00 was set to type 13 in the parameter input phase of the system generation.

o   Check power-up echo. The card "comes up" in a state where it echoes everything that comes in and sends CR LF on CR. Rubout echoes CR LF. The default (power-up) baud rates are 2400 baud for BRG0 and 9600 baud for BRG1. If the terminal is attached to port 0, set the baud rate to 2400 and check to see if it echoes (set terminals connected to BRG1 to 9600 baud). This verifies that the card, terminal, and cable are operating. If this doesn't work, try the other seven terminals to determine if it is the cable or terminal.

o   Run the on-line or off-line diagnostics. Refer to the HP 12792B Multiplexer Subsystem Installation and Reference Manual for a detailed explanation.

Appendix A
Partial Sample System Generation

Below is listed some relevant sections of a system generation listing which includes the HP 12792B Multiplexer. Some irrelevant portions have been omitted due to space considerations.

RTE-6/VM GENERATOR MODEL 92084A   1:56 PM,   19 NOV., 1982

ECHO?
YES   * ECHO ON

OUTPUT FILE NAMR?
MXENSY::50::3500   * 800819

          .
          .
          .

PRIV. INT. SELECT CODE?
0   * NO PRIV. INT.

MEM. RES. ACCESS TABLE AREA II?
YES   * MR ACCESS TA II

RT MEMORY LOCK?
YES   * RT MEMORY LOCK

BG MEMORY LOCK?
YES   * BG MEMORY LOCK

SWAP DELAY?
50   * SWAP DELAY

MEM SIZE?
96   * MEM SIZE

BOOT FILE NAMR?
0   * NO BOOT FILE

```
PROG INPUT PHASE:
-
MAP GLOBALS,MODULES,LINKS
-
LINKS IN CURRENT


        .
        .
        .
*
-
REL,%DVM00              * MUX DRIVER
-
REL,%PVM00              * MUX PRE-DRIVER
-
REL,%DDV05              * 26XX DEVICE DRIVER
-
REL,%DDV12              * DEVICE DRIVER FOR 7310 LINE PRINTER
-
REL,%$DVTB              * DEVICE DRIVER ADDRESS TABLE
-
*
-
*
-
        .
        .
        .

PARAMETERS
-
D.RTR,3,1
-
WHZAT,3,51
-
PRMPT,1,10
-
R$PN$,1,10
-
MEM,1,9000
-
        .
        .
        .

AUTOR,1,1
-
PVM00,13
-
/E

CHANGE ENTS?
-
```

```
.MVW,RP,105777
-
.MBT,RP,105765
-
.LBT,RP,105763
-


        .
        .
        .

IFIX,RP,105100
-
FLOAT,RP,105120
-
/E


TABLE AREA I  <<PAGE 00001>>:

EQUIPMENT TABLE ENTRY

EQT 01?


        .
        .
        .

EQT 06?
13,DVM00,B,X=21                      * EQT  6  - MUX PORT

EQT 07?
13,DVM00,B,X=21                      * EQT  7  - MUX PORT

EQT 08?
13,DVM00,B,X=21                      * EQT  8  - MUX PORT

EQT 09?
13,DVM00,B,X=21                      * EQT  9  - MUX PORT

EQT 10?
13,DVM00,B,X=21                      * EQT  10 - MUX PORT

EQT 11?
13,DVM00,B,X=21                      * EQT  11 - MUX PORT


EQT 12?
13,DVM00,B,X=21                      * EQT  12 - MUX PORT

EQT 13?
```

13, DVM00, B, X=21   * EQT 13 - MUX PORT

EQT 14?
/E

DEVICE REFERENCE TABLE

 001 = EQT #?
2,0   * LU 1   - CONSOLE

        •
        •
        •

 012 = EQT #?
6   * LU 12   - MUX PORT

 013 = EQT #?
7   * LU 13   - MUX PORT

 014 = EQT #?
8   * LU 14   - MUX PORT

 015 = EQT #?
9   * LU 15   - MUX PORT

 016 = EQT #?
10   * LU 16   - MUX PORT

 017 = EQT #?
11   * LU 17   - MUX PORT

 018 = EQT #?
12   * LU 18   - MUX PORT

 019 = EQT #?
13   * LU 19   - MUX PORT

 020 = EQT #?
/E

INTERRUPT TABLE

```
-
4,ENT,$POWR                    * POWER FAIL
-


      .
      .
      .


13,PRG,PRMPT                   * MUX
-


      .
      .
      .


17,PRG,PRMPT                   * DVR05
-
/E
```

TABLE AREA I MODULES

```
$$TB1(0099)03011 03152  92084-1X481 REV.2121 810613
    *$ERAB   03021
    *$PVCN   03023
    *EXEC    03013
    *XLUEX   03016
    *$LIBR   03025
    *$LIBX   03032
    *$PVST   03024


      .
      .
      .


DRIVR PART 00002
 CHANGE DRIVR PART?
2                      * CHANGE DP SIZE    Specify 2 for DVT00 and DDT05
*                                             or 3 for DVM00 and DDV05

DP  01  <<PAGE 00005>>:


      .
      .
      .
```

.
.
.

SUBSYSTEM GLOBAL AREA <<PAGE 00007>>:

.
.
.

TABLE AREA II <<PAGE 00010>>:

OF I/O CLASSES?
40   * # OF I/O CLASSES

OF LU MAPPINGS?
5   * # OF LU MAPPINGS

OF RESOURCE NUMBERS?
30   * # OF RESOURCE NUMBERS

BUFFER LIMITS (LOW, HIGH)?
100,400   * BUFFER LIMITS

0024 LONG ID SEGMENTS USED
OF BLANK LONG ID SEGMENTS?
50   * # OF BLANK ID SEGMENTS

0012 SHORT ID SEGMENTS USED
OF BLANK SHORT ID SEGMENTS?
41   * # OF BLANK SHORT ID SEGMENTS

0000 ID EXTENSIONS USED
OF BLANK ID EXTENSIONS?
5   * # OF BLANK ID EXTENSIONS

MAXIMUM # OF PARTITIONS?
20   * MAX NUMBER OF PARTITIONS

TABLE AREA II MODULES

$$TB2(0099)33547 33653   92084-1X482 REV.2121 810519
    *$MATA   33547
    *$MCHN   33550
    *$MBGP   33551
    *$MRTP   33552
    *$DLTH   33553
    *$DVPT   33554
    *$TIME   33555
    *$BATM   33560

```
           *$DLP    33562
           *$PLP    33563
           *$SSCT   33602
           *$STRK   33601
           *$ENDS   33564
           *$MPFT   33567
           *$BGFR   33570
           *$RTFR   33571
           *$IDEX   33572
           *$MRMP   33573
           *$MPS2   33575
           *$EMRP   33607
           *$MPSA   33574
           *$SDA    33576
           *$SDT2   33577
           *$CMST   33600
           *$COML   33603
           *$CFR    33604
           *$MNP    33605
           *$DVMP   33606
           *$RLB    33610
           *$RLN    33611
           *$SBTB   33612
           *$OTAT   33565
           *$OPRI   33566
           *$SPCR   33620
           *$ELTB   33621
           *$PNTI   33631
           *$MAXI   33632
           *$SALI   33633
           *$SRTI   33634
           *$CES    33652
           *$LMES   33637
           *$SMEM   33635
BP LINKAGE 01420

PVM00(0099)33654 33765   12792-16001 REV.2032 800605 V.03
           *PM00    33654
BP LINKAGE 01420

$SUB2(0099)33766 33766   92084-1X052 REV.2226 820302
```

SYSTEM <<PAGE 00013>>:

$CR61(0099)33767 33766   92084-12024 REV.2226 820504
BP LINKAGE 00100

DISP6(0099)33770 41521   92084-1X471 REV.2121 811218
     *$RENT   34617
     *$BRED   41222
     *$ZZZZ   41322

        .
        .
        .

     *$NPGQ   70004
     *$GDPG   72565
     *$SAVE   65335
BP LINKAGE 01322

PARTITION DRIVERS

DP 02 <<PAGE 00030>>:

DVA05(0099)12102 15164   92084-16607   REV. CODE 2121   811020
     *IA05   12102
     *CA05   12200
BP LINKAGE 01367

DP 03 <<PAGE 00032>>:

DVM00(0099)12056 14566   12792-16002 REV.2301 821007 V.38
     *IM00   12117
     *CM00   12255
BP LINKAGE 01357
     $DVTB   14636 14640   12792-16005 REV.2226 820413 V.06
     *$DVTB   14636
BP LINKAGE 01356
     DDV05   14641 15174   12792-16003 REV.2301 820630 V.04
     *DDV05   14654
BP LINKAGE 01356
     DDV12   15175 15430   12792-16004 REV.2140 810821 V.09
     *DDV12   15206
BP LINKAGE 01356

DP 04 <<PAGE 00034>>:

        .
        .
        .

READER COMMENT SHEET

12792B MULTIPLEXER SUBSYSTEM
Configuration Guide

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