HP E1485C Digital Signal Processor

Installation and Service Guide

Part Number E1485-90007

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Table of Contents

Installing the HP E1485C

Introduction

This chapter discusses:

- How to install the HP E1485C Digital Signal Processor in a VXI system
- How to set configuration switches on the HP E1485C

Signal Processor Operating System (SPOS)

This E1485C comes with a new version of the Signal Processor Operating System (SPOS). If your application software downloads SPOS (to control the E1485C) as part of an initialization process, it must use the new version; earlier versions do not work with the new E1485C. Replace all occurrences of the file "spos" on your system with the new version. This file can be downloaded from the WEB at the following URL:

```
ftp://hpls01.lsid.hp.com/dsp/products/e1485/software/spos/a0205
```

Download both of the following files and follow instructions in the readme file:

```
spos
readme
```

Notes

This version of SPOS (A.02.05) works with the E1485A.

No software is provided with the E1485C. The development software (e.g. programming library) is part of the HP 35635T Programming Toolkit.

Static Handling Precautions

The product life and performance designed and manufactured into this module will be decreased by improper handling. These guidelines should be followed by anyone handling the module.

Modern electronic components designed to work at low electrical power levels have parts with very small geometries inside them. These small (often less than one micron wide) features can be permanently destroyed or suffer latent (hidden) damage by the currents generated from the normal static electricity that resides on hands and table surfaces.

Caution To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

Required Tools

You will need the following tools to install your HP E1485C module:

- #1 pozidrive
  or
- flathead screwdriver

Installation

Caution Before installing the HP E1485C module in the VXI mainframe, be sure to turn the mainframe power switch to *Standby* or remove power from the mainframe. Inserting (or removing) the module with power on can damage the module or mainframe.

1 Set up your VXI mainframe. See the installation guide for your mainframe: ``HP 75000 Series C – C-Size VXIbus Systems – Installation and Getting Started Guide''.

Caution The E1485C may be damaged by incompatible interface circuitry in modules the are installed on either side of it. Be sure to install only ECL-compatible modules next to the HP E1485C. The Local Bus (LBUS) specification for the HP E1485C Digital Signal Processor is ECL on both the left and right sides.

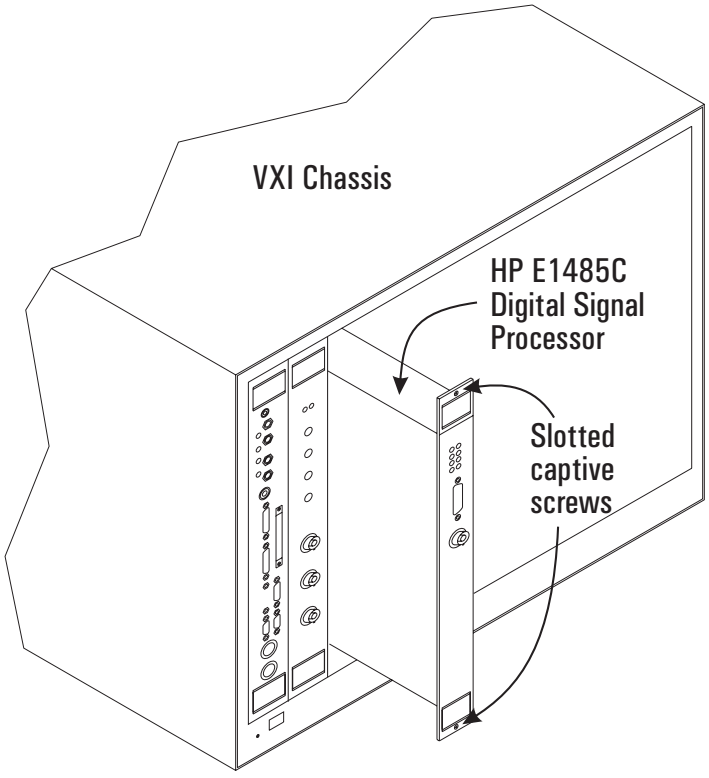
2 Select a slot in the VXI mainframe for the HP 1485C. If you are installing the HP 1485C with other VXI modules using the Local Bus, place the HP E1485C immediately to the right of any modules sending data to the HP E1485C. To properly operate the Local Bus, data must flow from left to right. Correct positioning of the HP E1485C is critical for proper operation of the Local Bus.

3 Set configuration switches on the HP E1485C (see the following pages).

4 Place the module's card edges (top and bottom) into the module guides in the slot.

5 Slide the module to the back of the mainframe until the module connects firmly with the backplane connectors. Make sure the module slides in straight.

6 Attach the module's front panel to the mainframe chassis using the module's captive mounting screws.



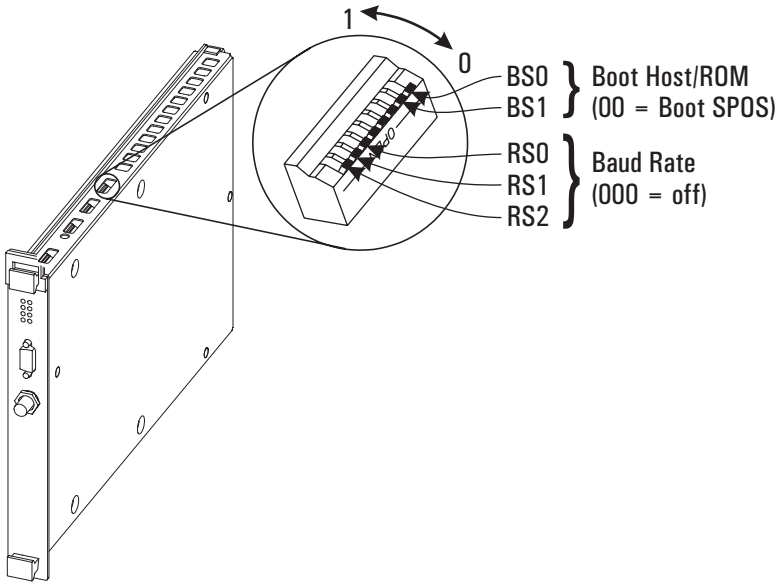
Install HP E1485C to the right of local bus modules

RS-232 Baud Rate

The baud rate for the RS-232 connector on the front panel is set as follows:

1. Locate the configuration switches for RS-232 baud rate (see drawing below).
2. Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switches.
3. Set the baud rate you want according to the table below.

The factory default setting is 100 (Baud Rate 9600). The data format for the RS-232 port is : 1 start bit, 8 data bits, 0 parity bits, 1 stop bit.



RS-232 Baud Rate (0 = switch is open)

	RS2	RS1	RS0
OFF	0	0	0
1200	0	0	1
2400	0	1	0
4800	0	1	1
9600	1	0	0
19200	1	0	1
38400	1	1	0
Reserved	1	1	1

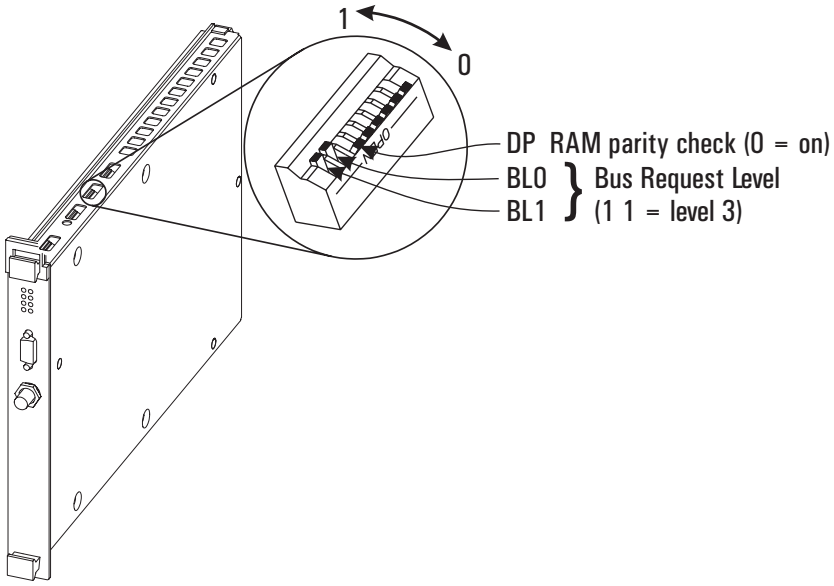
RAM Parity Checking

The RAM parity check control is set as follows:

1. Locate the configuration switch for Disable Parity (see drawing below).
2. Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switch.
3. The switch settings are as follows:

- Switch in position 1 (closed): Parity is ignored.
- Switch in position 0 (open): Parity is checked.

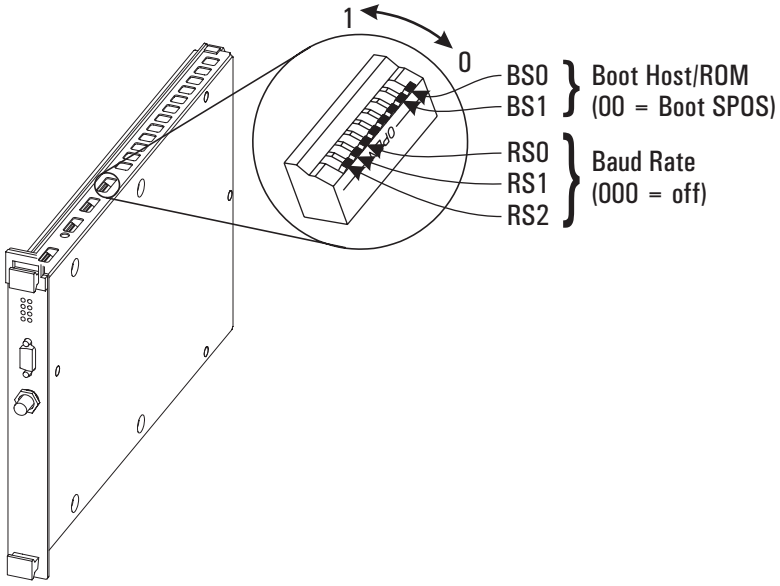
The factory default setting is 0 (Parity is checked).



Boot Source

The on-board processor system can boot from several sources. To select the source:

1. Locate the configuration switches for boot source (see drawing below).
2. Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switches.
3. Set the boot source you want according to the table below.



Boot Source (0 = switch is open)

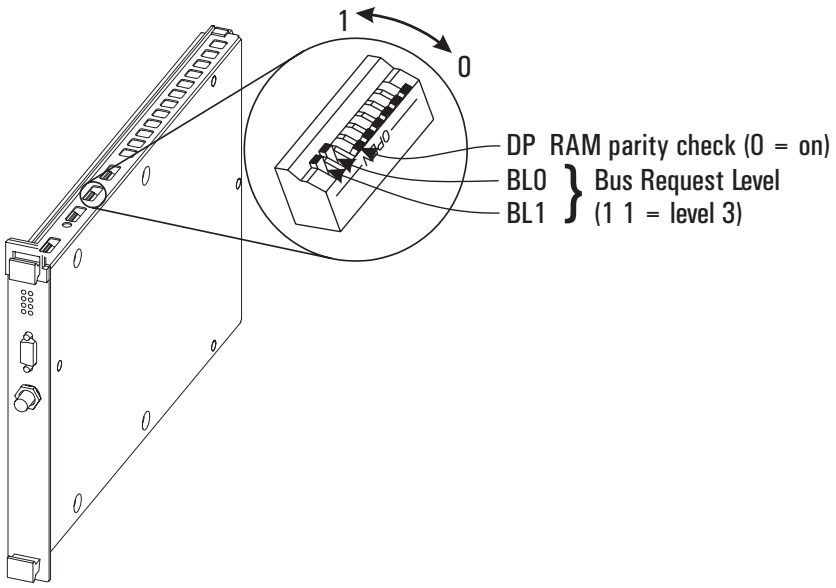
	BS1	BS0
Boot SPOS	0	0
Disable SPOS	0	1
Boot Application 1	1	0
Boot Application 2	1	1

The factory default setting is 00 (Boot SPOS).

Bus Request Level

1. Locate the configuration switches for Bus Request Level (see drawing below).
2. Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switches.
3. Set the bus request level you want according to the table below.

For more information see the section titled: "What is the Bus Request Level?" in the *HP 75000 Series C - C-Size VXIbus Systems - Installation and Getting Started Guide*.



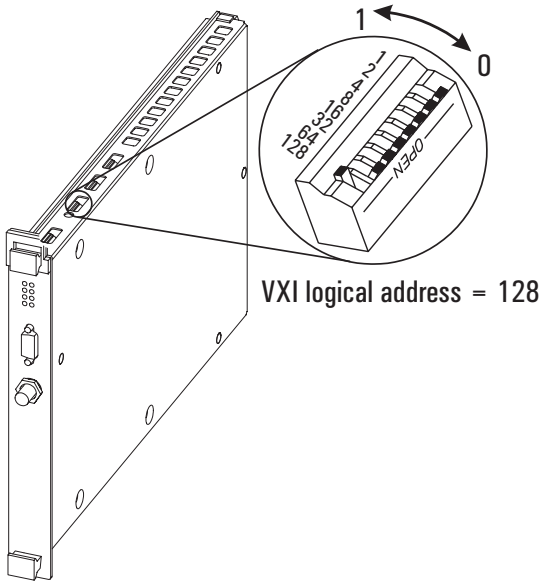
Bus Request Level (0 = switch is open)

	BL1	BL0
Level 0	0	0
Level 1	0	1
Level 2	1	0
Level 3	1	1

The factory default setting is 11 (Level 3)

Logical Address

1. Locate the configuration switches for Logical Address (see drawing below).
2. Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switches.
3. Set the logical address.
   The factory default setting is 1000 0000 (128).



Servant Area Size

1 Locate the configuration switches for setting the Servant Area size (see drawing below).

2 Using a small screwdriver or similar tool, reach through the hole in the side of the case to change the position of the switches.

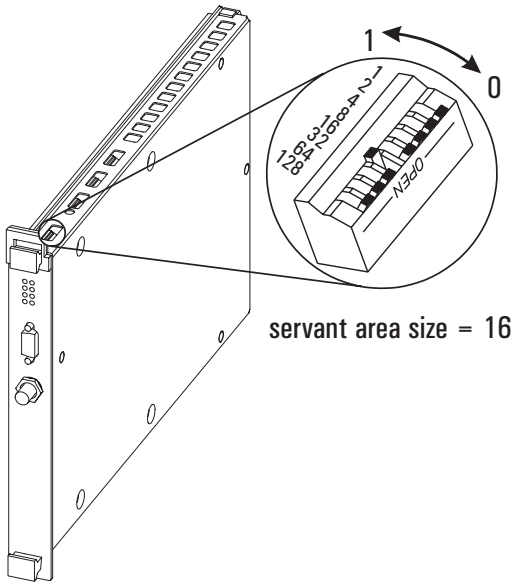
3 Set the Servant Area size value. The servant area defines a range of logical addresses over which the module has control.

The first value in the range is the logical address of the master module. The last (largest) value in the range is specified by adding the servant are size to the master's logical address as follows:

$$SA_{start} = LA$$
$$SA_{last} = LA + SAS$$

where SA is servant area, LA is logical address of the master, and SAS is servant area size. These settings (LA = 128 and SAS = 16) result in a servant area range from 128 through 144. The factory default setting is zero. The figure below shows the switch setting for a servant area size of 16.

For more information see the section titled: "What is the Servant Area?" in the *HP 75000 Series C - C-Size VXIbus Systems - Installation and Getting Started Guide*



Specifications

Introduction

This chapter includes the typical operating characteristics for the HP E1485C.

Caution To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

HP E1485C Typical Operating Characteristics

CPU

Processor:	Motorola 68EC030 40 MHz
RAM:	16 MBytes, upgradable to 64 MBytes
Floating Point Unit:	Motorola 68882 40 MHz

Data Transfer

FIT bus cycle time:	100 nsec
FIT transfer rate:	10 MHz (burst mode) 5 MHz (handshake mode)
Local Bus passthrough rate:	up to 100 MB/sec
Local Bus to DSP rate:	up to 20 MB/sec

Motorola 96002 DSP

Clock speed:	40 MHz
Operation rate:	60 MFLOPs, peak
FFT speed (1024 complex):	2 msec

Temperature

Operating temperature:	0° to 55° C
Storage temperature:	–40° to 70°C

Humidity

Operating humidity (max.):	95% at 40° C
Storage humidity (max.):	90% RH at 65°C

Troubleshooting

Introduction

This chapter shows you how to troubleshoot the HP E1485C Digital Signal Processor with the following diagnostic tests:

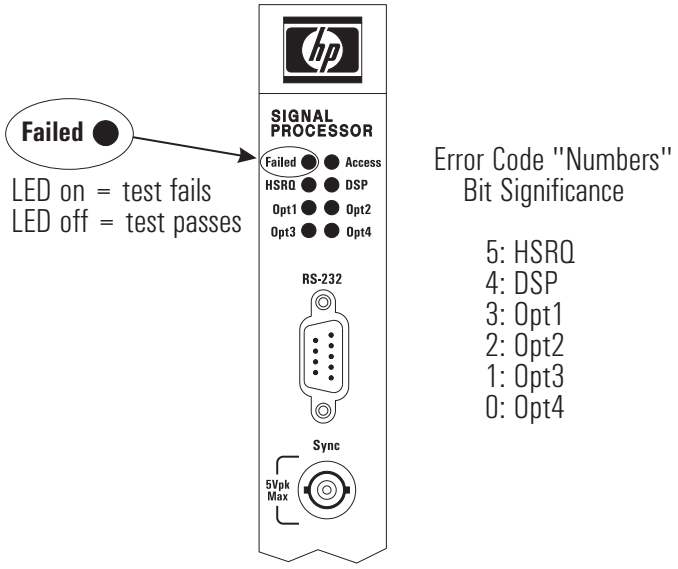
- HP E1485C Self Test
- HP E1485C Extended Test

In addition, there is a procedure to verify that the module recognizes all of the installed memory.

Caution To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

HP E1485C Self Test

At power up, the HP E1485C automatically runs a self test. If the test fails, the Failed LED on the front panel lights up and stays on. If the test passes, the Failed LED remains dark. See the illustration below.



The self test is composed of a sequence of tests, each of which is identified by a number. This number is “displayed” on the front panel LEDs while it runs. While the tests run, the “numbers” change so rapidly they cannot be read, but if a test fails, the sequence stops and the LED pattern indicates what test was running when it stopped (i.e. the test that failed). Some of the numbers in the following table are test names and others are error names.

Test Codes

Name	Number	Name	Number	Name	Number
Testing BOOTROM checksum	1	Parity error	9	Testing system ROM	17
Bad BOOTROM cksum table	2	FPC initialization error	10	Testing application ROM	18
Bad BOOTROM cksum value	3	Booting C	11	Configuring RAM	19
Initialize DRAM controller	4	Initializing General Registers	12	Printing configuration	20
RAM size	5	Initializing NOVRAM	13	Testing MFP	21
Testing RAM	6	Initializing RS-232	14	Initializing Mirage	22
Aligned RAM failure	7	Printing BOOTROM banner	15	Initializing RTC	23
Non-aligned RAM failure	8	Initializing BOOTROM error queue	16		

See also

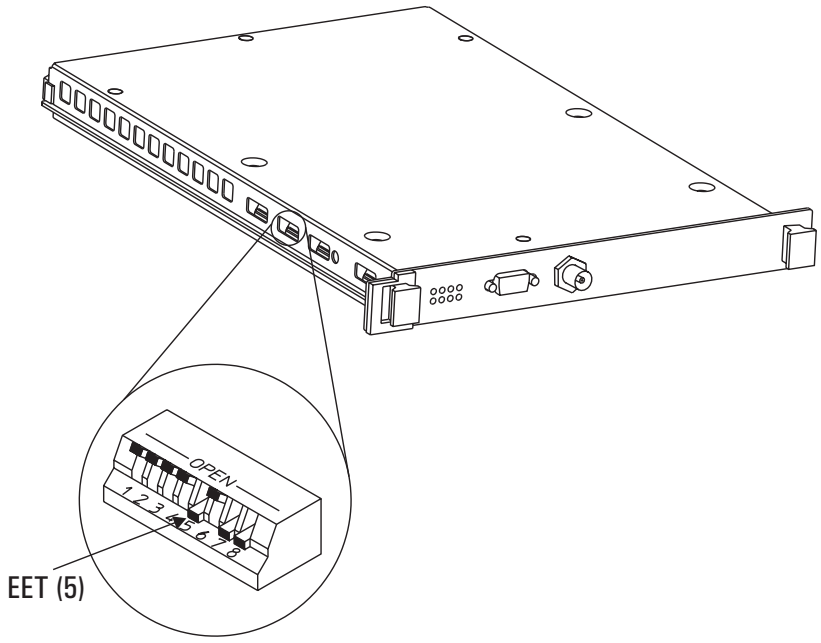
Error Codes, page 33

Activating the Extended Test

1. Locate the configuration switch for the Extended Test. See the illustration below. Set the EET switch to the closed position.
2. Set the baud rate of the HP E1485C. (See next page.)
3. Connect a terminal to the RS-232 port of the HP E1485C. Set the baud rate of the terminal to match the baud rate of the HP E1485C.
4. Turn the power on and check the diagnostic results on the terminal.

Note

Do not enable the Extended Test during normal system operation. The time required to perform the tests during power up may cause a VXI-bus timeout which disables communication between the HP E1485C and the VXI System Controller.



Caution

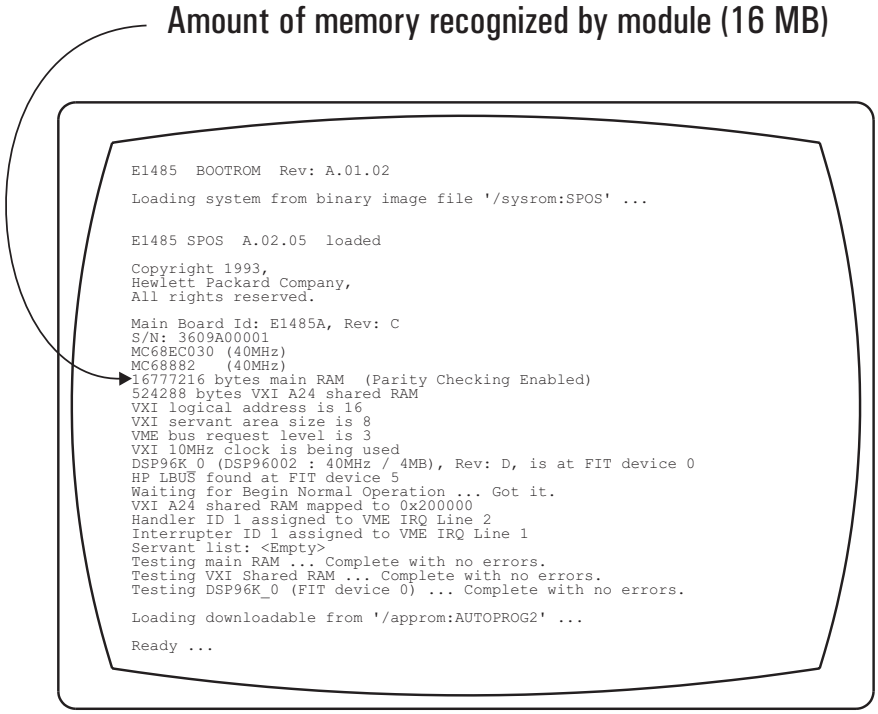
To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

Verifying the Amount of Installed Memory

1. Set the baud rate of the HP E1485C. See page 4.
2. Connect a terminal to the RS-232 port of the HP E1485C. Set the baud rate of the terminal to match the baud rate of the HP E1485C.
3. Turn the power on and check the amount of memory displayed on the terminal. See the illustration below.
4. If the amount of memory recognized by the module does *not* match the amount of memory you have installed, check to see if the largest SIMM is in the rear connector. See the table on the next page to verify your memory configuration.
5. If the largest SIMM is *not* in the rear connector, switch the SIMMs.
   a. Remove the memory board from the rear connector.
   b. Replace it with the memory board from the forward connector.
   c. Install the remaining memory board in the forward connector.
6. If the modules still does not recognize the amount of installed memory, contact your nearest Hewlett-Packard Sales and Service Office. The regional offices are listed on the inside of the back cover of this book.

Caution

To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.



Use the following table to determine your current RAM configuration.

HP E1485C Factory Option	Total Memory	Memory in Front Connector	Memory in Rear Connector
not available	4 MB	none	4 MB
not available	8 MB	none	8 MB
not available	8 MB	4 MB	4 MB
not available	12 MB	4 MB	8 MB
Standard	16 MB	none	16 MB
ANC	32 MB	none	32 MB
not available	36 MB	4 MB	32 MB
not available	40 MB	8 MB	32 MB
not available	48 MB	16 MB	32 MB
ANE	64 MB	32 MB	32 MB

Replacing Assemblies

Introduction

This chapter shows:

- How to remove optional DSP boards
- How to remove optional memory boards
- How to remove the main printed circuit board

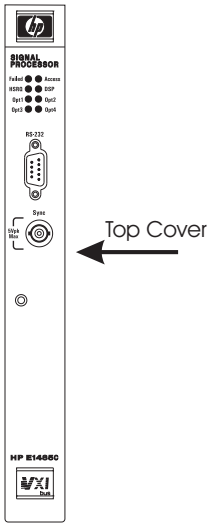
Caution To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

Removing the Top Cover

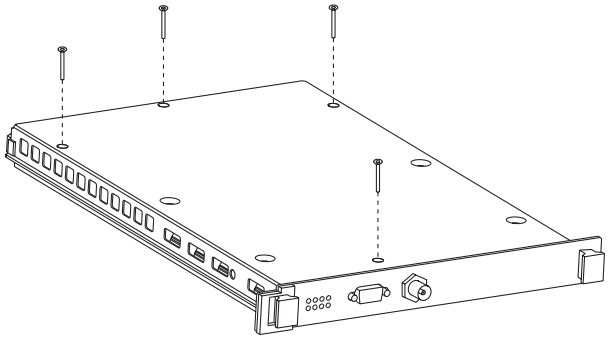
Caution

Before removing the HP E1485C module from the VXI mainframe, be sure to turn the mainframe power switch to *Standby* or remove power from the mainframe. Removing (or inserting) the module with power on can damage the module or mainframe.

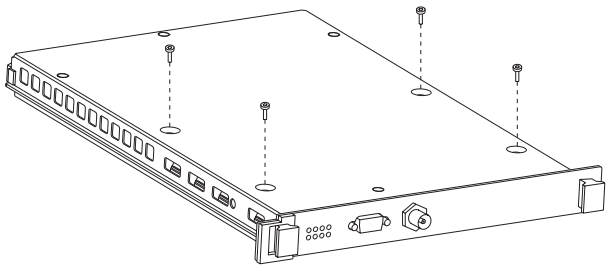
The top cover is on the right-hand side of the module as you view its front panel.



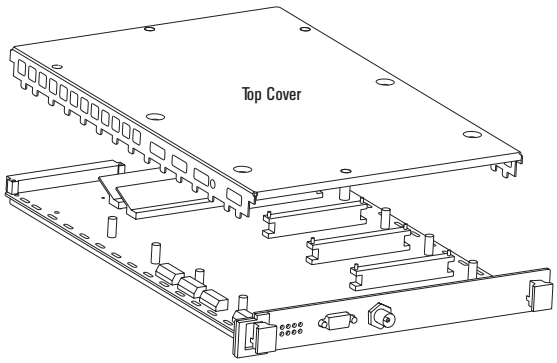
Step 1. Using a T-10 torx driver, remove four M3.0x25mm screws.



Step 2. Using the T-10 torx driver, remove four M3.0x8mm screws .

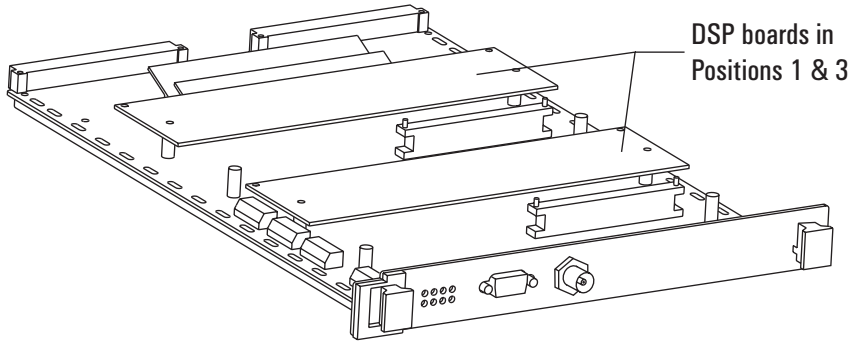


Step 3. Lift off the top cover

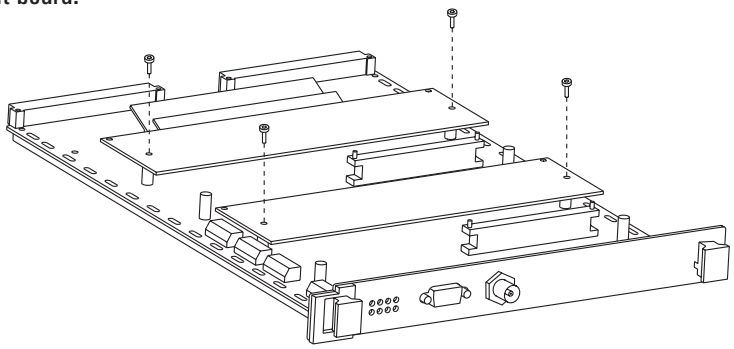


Removing a DSP Board from Position 1 or 3

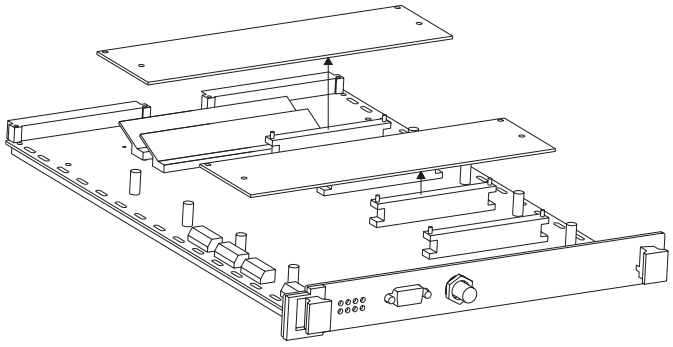
The DSP board (option 104) can be installed in any of four positions on the main printed circuit board. The installation and removal are slightly different for positions 1 and 3 than for positions 2 and 4.



Step 1. Using a T-10 torx driver, remove the two screws which attach the option board to the main printed circuit board.

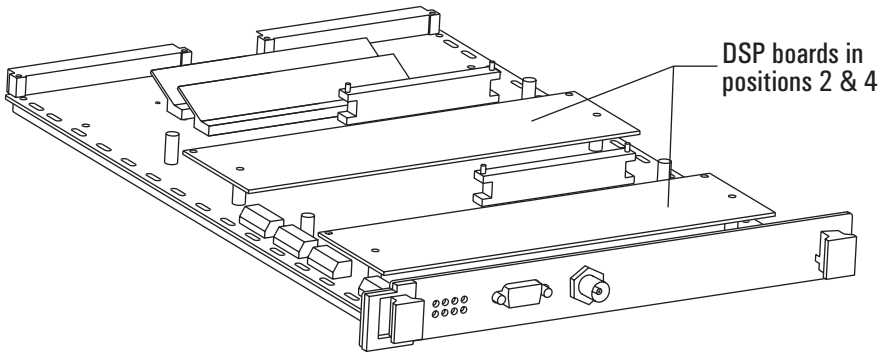


Step 2. Pull the option board from its connector. This is most easily done by curling the fingers under the board just behind the connector and pulling upward.

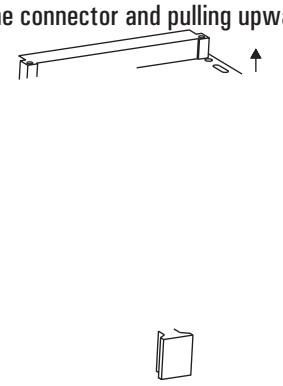


Removing a DSP Board from Position 2 or 4

The DSP board (option 104) can be installed in any of four positions on the main printed circuit board. Installation and removal are slightly different for positions 2 and 4 than for 1 and 3.



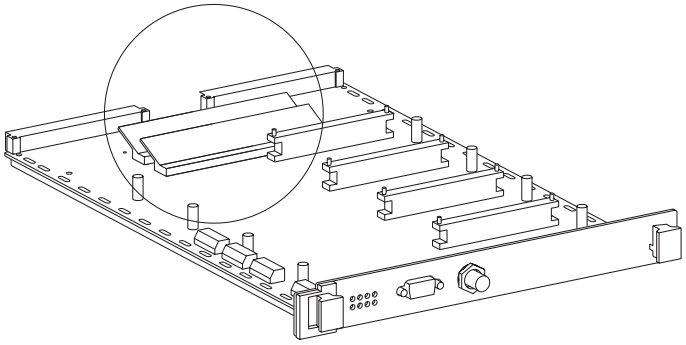
Step 1. Pull the option board from its connector. This is most easily done by curling the fingers under the board just behind the connector and pulling upward.



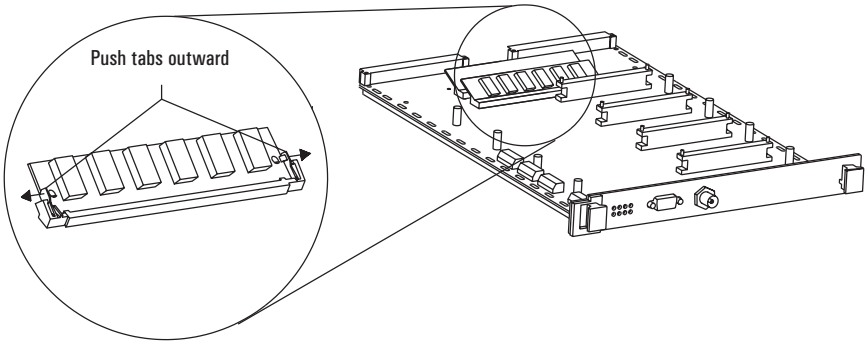
Caution

If you remove an option board from either position 2 or position 4 and plan to re-assemble the module without replacing the board, you must replace the 15mm hexagonal posts (standoffs) which connect the option board to the main board. Replace them with 16.7mm posts which will reach to the top cover. If you need the part number, refer to "Replaceable Parts" which appears later in this chapter.

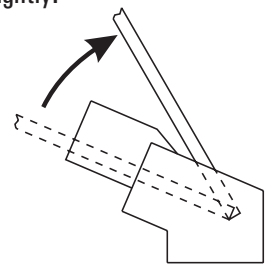
Removing a Memory Board



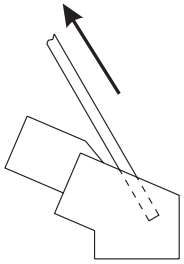
Step 2. Place the tips of your index fingers on the ends of the SIMM connector. Place your thumbs or thumbnails over the latch tabs and deflect the tabs outward, releasing the module board.



Step 3. When the latch tabs are clear of the module board, allow the module board to spring upward slightly.

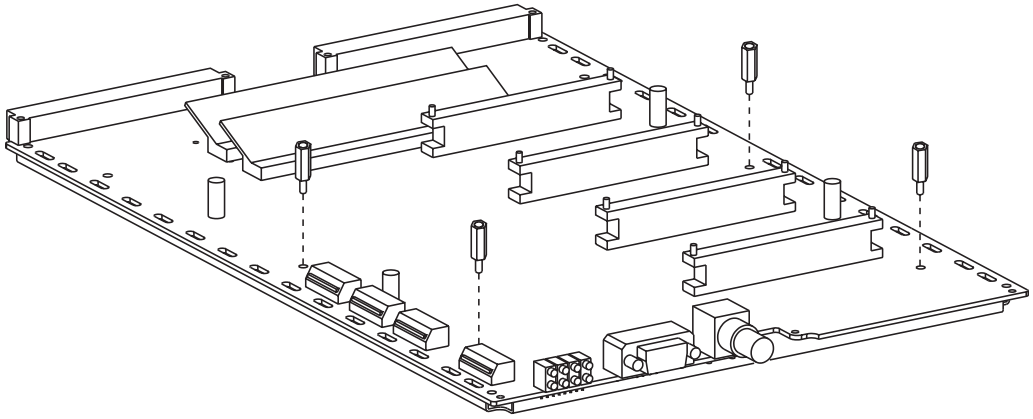


Step 4. Remove it from the slot by pulling it outward and upward at an angle of about 30 degrees from vertical

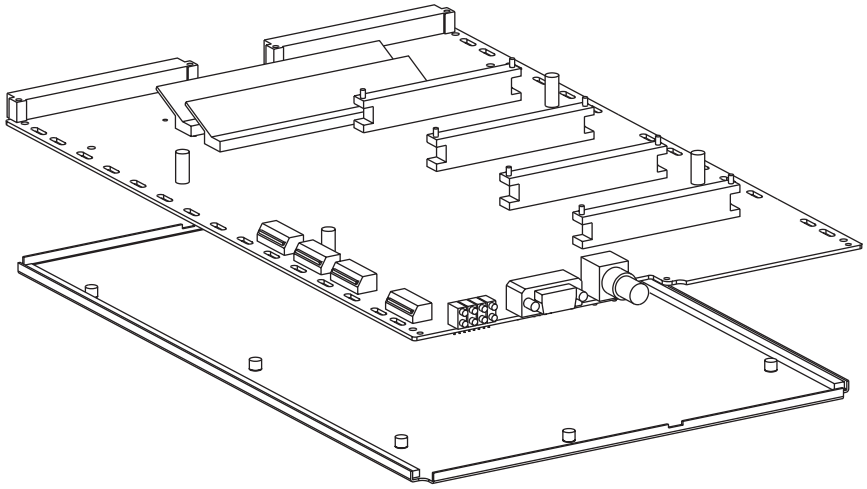


Removing the Main Circuit Board

Step 1. Remove the four hexagonal posts which attach the main board to the bottom cover.



Step 2. Lift the main circuit board away from the bottom cover.



Replaceable Parts

The following section lists replaceable parts for the HP E1485C Digital Signal Processor.

Replaceable parts for the HP E1485C Digital Signal Processor.

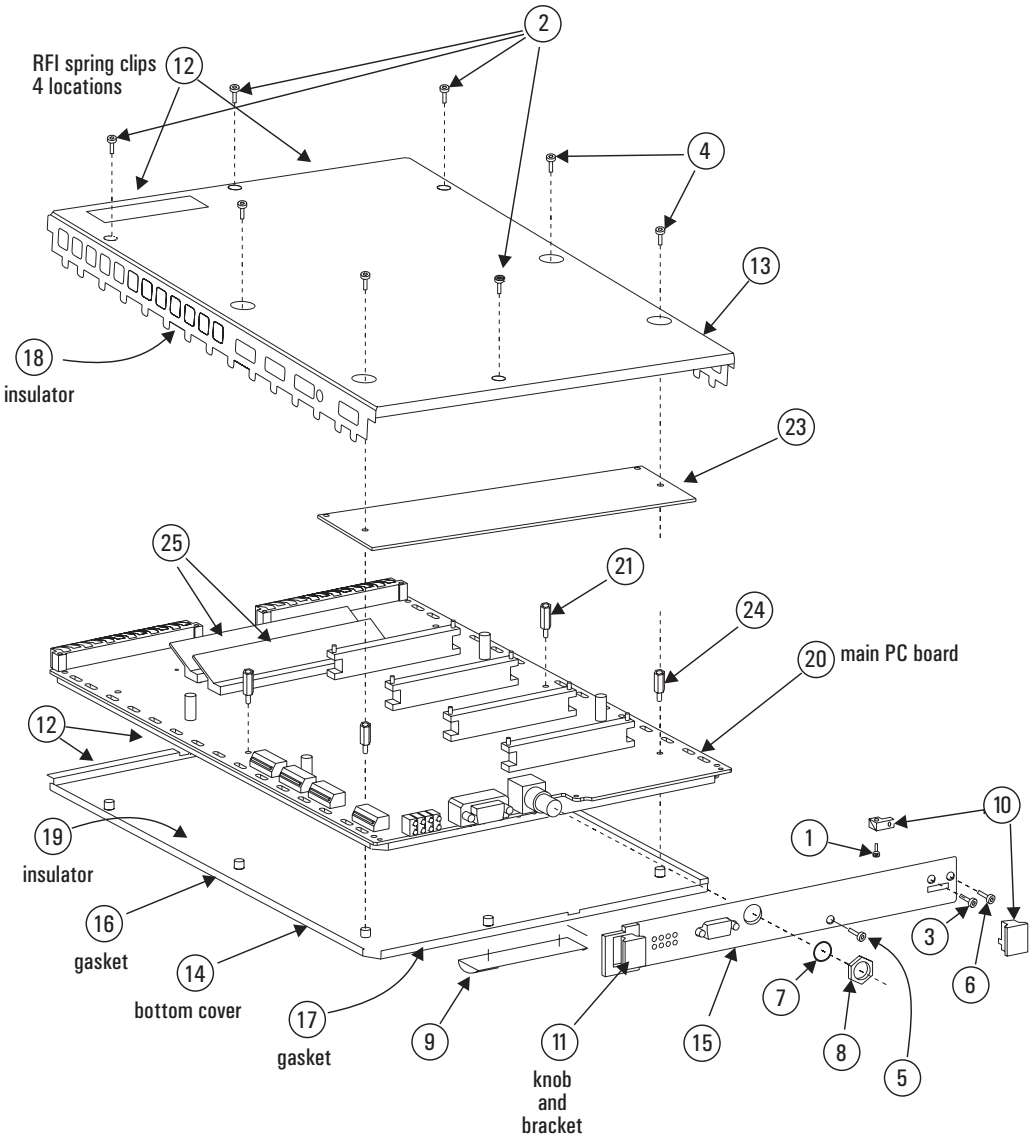


Table 5-1. Replaceable parts: HP E1485C Digital Signal Processor

REF	Part Number	Qty	Description
1	0515-0368	2	SCR-MCH M2.5 12MM
2	0515-1135	4	SCR-MCH M3.0 25MM
3	0515-1375	2	SCR-MCH M2.5 6MM
4	0515-0372	4	SCR-MCH M3.0 8MM
5	0515-1946	1	SCR-MCH M3.0 6MM
6	0515-1968	2	SCR-MCH M2.5 11MM
7	2190-0068	1	WSHR-LK .50 NTT
8	2950-0154	1	NUT-HXP.50-28
9	8160-0686	1	STMP RFI STRIP -
10	E1400-84105	1	KIT-BTTM EXTR HD
11	E1400-84106	1	KIT-TOP EXTR HND
12	8160-0634	4	RFI shield
13	E1485-00212	1	Shield, top
14	E1485-00213	1	Shield, btm
15	E1485-00210	1	Front panel - stand
16	E1485-40601	2	RFI gasket
17	E1485-40602	2	RFI gasket
18	E1485-44101	1	SHTF top-insulator
19	E1485-44103	1	SHTF bottom-insulator
20	E1485-69511	1	Exchange main board E1485C
21	0380-4042	4	Standoff male/female 16.7MM
23	E1485-69521	1	Option 104: Exchange DSP 96000 PC assembly
24	0380-4041	2	Option 104: Standoff-hex M/F M3.0 15MM
25	1818-6728	1	16 MB SIMM RAM
25	1818-6649	1	Option UT6: 32 MB SIMM RAM
25	1818-6649	2	Option ANE: 32 MB SIMM RAM

E1485C Reference

Introduction

This chapter contains the following information about the HP E1485C Digital Signal Processor:

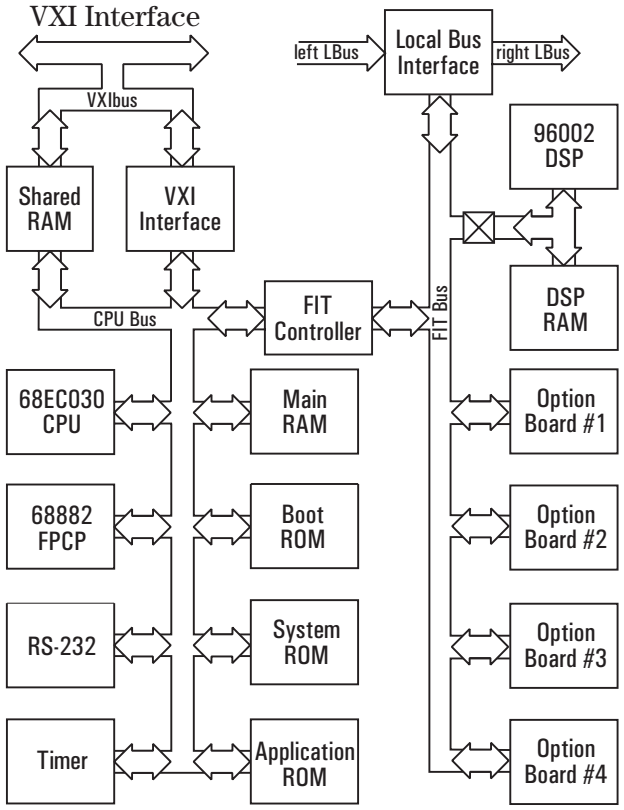
- Circuit description
- Front panel description
- Front-panel LED definitions

Caution To protect circuits from static discharge, remove or replace measurement hardware assemblies only at static-protected work stations.

HP E1485C Circuit Descriptions

The following discussion describes the hardware circuit operation at the block-diagram level.

E1485C Block Diagram



VXI Interface and Shared RAM

The VXI interface controls all the activities of the module that relate to the VXI/VME bus. It also controls and arbitrates shared RAM. Shared RAM is a section of 512 kBytes of memory in the HP E1485C. The shared RAM can be accessed by either the CPU (in the HP E1485C) or by another device which is bus master on the VXIbus.

CPU and FPCP

The CPU (Central Processing Unit) is an MC68EC030 with an MC68882 floating point co-processor (FPCP). Both are clocked at 40 Mhz.

Main RAM

Main RAM may be expanded up to 64 MBytes. See page 17 for memory configurations.

Boot ROM

This ROM performs a self-test and can boot the Signal Processor Operating System (SPOS) from another ROM or from the VXIbus. This ROM is 128 kBytes.

System ROM

This is 1-MByte of flash EPROM that contains the Signal Processor Operating System (SPOS). SPOS is system software that is required for any application. SPOS may also be downloaded (into main RAM) during initialization by the application program.

Application ROM

This is 1-MByte of flash EPROM that can contain one or more application programs.

Timer

The timer contains a time-of-day clock and two independent event timers. Each has a resolution of 10 mSec. The event timers can interrupt the CPU.

Fast Internal Transfer Bus (FITbus)

The FITbus controller is responsible for moving data within the HP E1485C Digital Signal Processor module. The sources and destinations of the data are: the CPU, the Local Bus, the DSP unit(s), and other installed options, if any.

DSP Section

The HP E1485C has one DSP96002 unit on its main printed circuit board. As many as 4 optional DSP boards may be added. Each option 104 board contains one DSP96002 unit.

Each DSP unit consists of a DSP processor, two banks of static RAM, and a FITbus interface. The DSP processors can directly access two memory banks, X/P RAM and Y RAM. Each memory bank contains 512k DSP words of RAM (2 MBytes; DSP words are 32-bit).

Local Bus (LBUS)

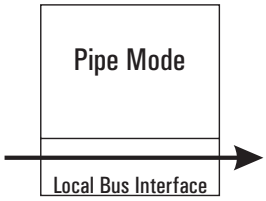
The local bus allows data to be transferred within the VXI measurement system by way of connections between adjacent modules. Each module has a local-bus connector which distinguishes between the modules to its left and to its right. The module can pass data which it receives from the module at its left on to the module at its right. The module can also accept input from the module at its left, operate on it, and produce output for the module at its right. The local bus can be very fast, since it does not require any bus arbitration. All local bus functions are programmed by the HP E1485C's CPU.

In the HP E1485C Digital Signal Processor, the local bus controller performs the following operations.

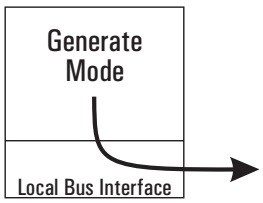
- Reads the incoming byte data from the left local bus and formats it into words that can be 8, 16, 24, or 32 bits wide.
- Breaks down output data (8, 16, 24, or 32 bits) into bytes and transmits it over the right local bus.
- Routes the formatted data to the FITbus where the FIT controller routes it to the programmed destination .
- Routes the byte data from the left local bus to the right local bus when in pass-through (pipe) mode.
- Handles the sequence of events for append mode .

The local bus operates in any of five basic modes. These can be combined to form other modes. The five basic modes are:

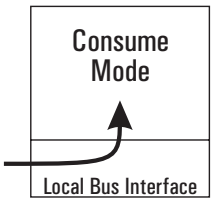
Pass-through/Pipe Mode (P)
Data received from the left local bus is sent on through to the right local bus. It is not received by the module that is in pass-through mode.



Generate Mode (G)
Data from within the module is sent out to the right local bus.

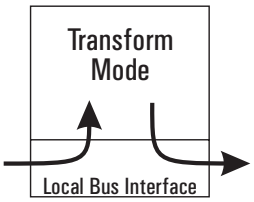


Consume Mode (C)
Data from the left local bus is received by the module; it is not sent on.



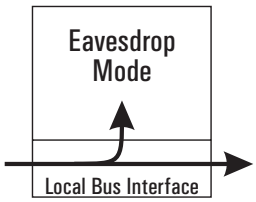
Transform Mode (T)

Data received from the left local bus is transformed in some way by the module. The new data is sent out to the right local bus.



Eavesdrop Mode (E)

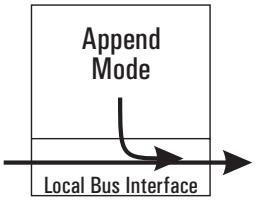
Data from the left local bus is received by the module and is also sent on to the right local bus.



The following is an example of a combined mode:

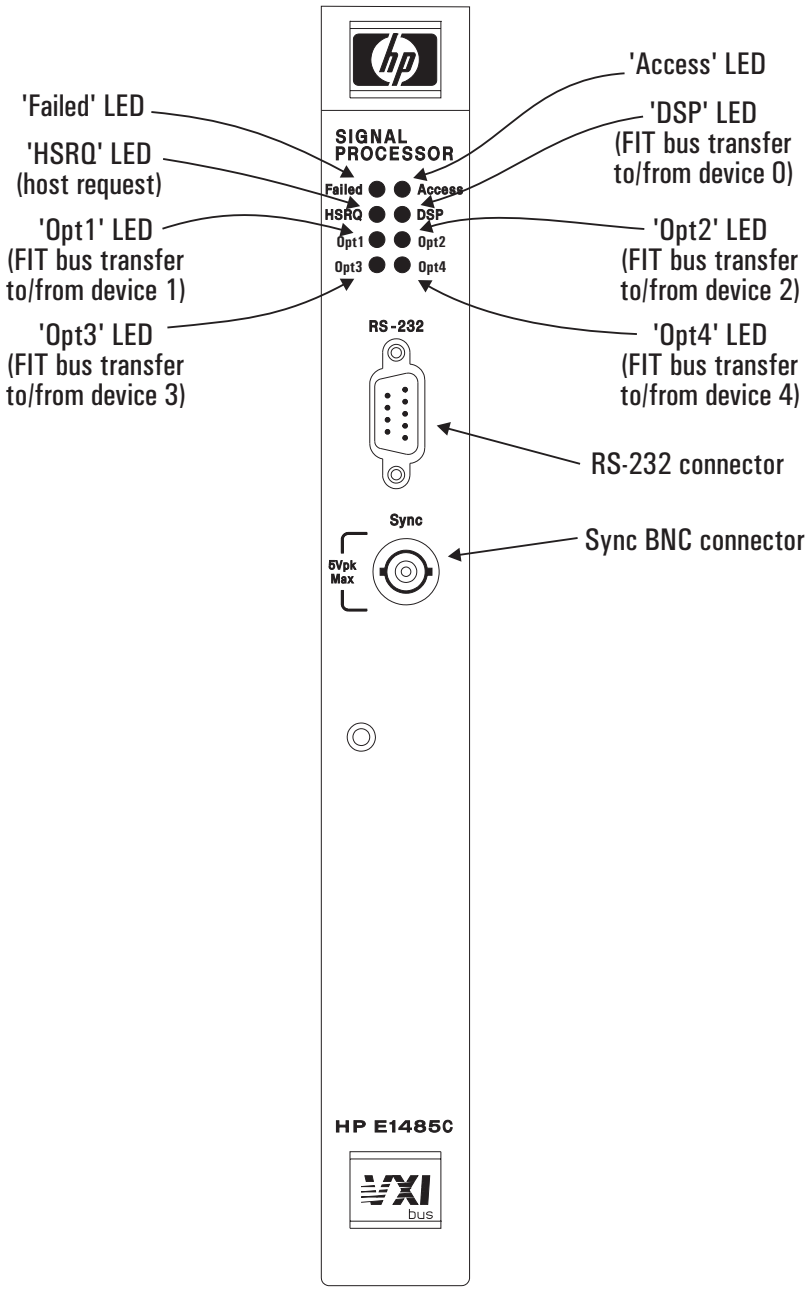
Append mode (PG)

This mode combines pass-through mode and generate mode. A block of data received from the left local bus is sent on to the right local bus; then a block of data originating in the module is appended to it and sent to the right local bus.



Many other modes are possible by combining the five basic modes.

Front-Panel Description



HP E1485C Front Panel

Error Codes

The codes listed in this appendix appear on a monitor attached to the RS-232 connector as appropriate during initialization and operation.

Error Codes Table

Error Code	Description
-212	Argument out of range
-144	Invalid message unit delimiter
-143	Argument delimiter error
-142	Too many arguments
-139	Missing non numeric argument
-134	Data Overflow: string or block too long
-133	Wrong Data Type (block type #A required)
-132	Wrong Data Type (string expected)
-129	Missing numeric argument
-120	Numeric argument error
-100	Command error (unknown command)
-33	FPCP not a number
-32	FPCP operand error
-31	FPCP inexact result
-30	FPCP unordered condition
-28	CPU trace exception
-26	I/O routine error
-25	undefined macro parameter
-21	unassigned CPU trap
-20	stopped by user
-19	bad argument BCD/real conversion
-18	bad argument real/BCD conversion
-17	bad argument SQRT
-16	bad argument LN
-15	bad argument SIN/COS
-14	CPU privilege violation
-13	illegal CPU instruction
-12	CPU bus error
-11	CPU word access to odd address
-10	Bad input format or String subscript out of range
-9	case value range error
-8	value range error
-7	real math underflow
-6	real math overflow
-5	divide by zero
-4	integer overflow
-3	reference to NIL pointer
-2	stack overflow
-1	unexpected interrupt
0	No Error
104	Output string buffer overflow.
105	Output request buffer overflow.
168	Module restarted because of booting error
170	Unable to complete transfer
200	System Bus is reset, unable to take control. (see TCF)

Error Code	Description
201	Other System Bus controller present. (see TCF)
202	System Bus read transfer timeout.
203	System Bus write transfer timeout.
204	System Bus read overflow.
205	E1485 System Bus address used.
206	E1485 not in control of the System Bus.
207	System Bus I/O aborted because no module present in specified slot
208	SYNC timeout error.
209	System Bus went into an unexpected reset state.
210	Trigger sequence timeout error.(Someone is asserting trig line)
211	Custom system bus transfer in progress
212	Wait for ready timeout
251	Unable to allocate downloadable stack
252	Unable to load downloadable
253	No downloadable loaded
418	A icode transfer of this type has not been set up. (RBLK, WBLK)
419	HP-IB transfer not completed. (Usually to the host)
545	novram checksum error
551	novram protocol error
501	Bad boot ROM checksum table
502	Boot ROM checksum error
510	Main RAM initial selftest error
511	Main RAM non-aligned selftest error
512	Main RAM parity error
530	CPU clock half speed error (E1485C not supported at half speed)
532	Invalid boot ROM programming password
533	Unable to program flash boot ROM because Vpp (+12V) is disabled
534	Unable to program flash system ROM because Vpp (+12V) is disabled
535	Unable to program flash application ROM because Vpp (+12V) is disabled
536	Failure while attempting to program the flash boot ROM.
537	Failure while attempting to program the flash system ROM.
538	Failure while attempting to program the flash application ROM.
539	ROM image too big for ROM.
540	Main RAM selftest error.
542	VXI RAM selftest error.
543	Unknown FIT device present.
546	novram format unknown.
547	Invalid RAM configuration error.
550	System ROM table checksum error.
551	System ROM byte 1 checksum error.
552	System ROM byte 2 checksum error.
553	System ROM byte 3 checksum error.
554	System ROM byte 4 checksum error.
560	Application ROM table checksum error.
561	Application ROM byte 1 checksum error.
562	Application ROM byte 2 checksum error.
563	Application ROM byte 3 checksum error.
564	Application ROM byte 4 checksum error.
2100	DSP96K_0: Board command/status register test failure.
2101	DSP96K_1: Board command/status register test failure.

Error Code	Description
2102	DSP96K_2: Board command/status register test failure.
2103	DSP96K_3: Board command/status register test failure.
2104	DSP96K_4: Board command/status register test failure.
2120	DSP96K_0: Chip register test failure.
2121	DSP96K_1: Chip register test failure.
2122	DSP96K_2: Chip register test failure.
2123	DSP96K_3: Chip register test failure.
2124	DSP96K_4: Chip register test failure.
2140	DSP96K_0: Unable to load selftest code.
2141	DSP96K_1: Unable to load selftest code.
2142	DSP96K_2: Unable to load selftest code.
2143	DSP96K_3: Unable to load selftest code.
2144	DSP96K_4: Unable to load selftest code.
2160	DSP96K_0: Unable to start Host Interface loopback test.
2161	DSP96K_1: Unable to start Host Interface loopback test.
2162	DSP96K_2: Unable to start Host Interface loopback test.
2163	DSP96K_3: Unable to start Host Interface loopback test.
2164	DSP96K_4: Unable to start Host Interface loopback test.
2180	DSP96K_0: Host Interface loopback test failure.
2181	DSP96K_1: Host Interface loopback test failure.
2182	DSP96K_2: Host Interface loopback test failure.
2183	DSP96K_3: Host Interface loopback test failure.
2184	DSP96K_4: Host Interface loopback test failure.
2200	DSP96K_0: Unable to start DSP/RAM selftest test.
2201	DSP96K_1: Unable to start DSP/RAM selftest test.
2202	DSP96K_2: Unable to start DSP/RAM selftest test.
2203	DSP96K_3: Unable to start DSP/RAM selftest test.
2204	DSP96K_4: Unable to start DSP/RAM selftest test.
2220	DSP96K_0: DSP/RAM selftest timeout.
2221	DSP96K_1: DSP/RAM selftest timeout.
2222	DSP96K_2: DSP/RAM selftest timeout.
2223	DSP96K_3: DSP/RAM selftest timeout.
2224	DSP96K_4: DSP/RAM selftest timeout.
2240	DSP96K_0: DSP/RAM selftest failure.
2241	DSP96K_1: DSP/RAM selftest failure.
2242	DSP96K_2: DSP/RAM selftest failure.
2243	DSP96K_3: DSP/RAM selftest failure.
2244	DSP96K_4: DSP/RAM selftest failure.
2260	DSP96K_0: External RAM failure.
2261	DSP96K_1: External RAM failure.
2262	DSP96K_2: External RAM failure.
2263	DSP96K_3: External RAM failure.
2264	DSP96K_4: External RAM failure.

Index

M

O

P

R

S

T

V

Declaration of Conformity

According to ISO/IEC Guide 22 and EN 45014

Manufacturer's name:	Hewlett-Packard Company
Manufacturer's address:	Lake Stevens Division 8600 Soper Hill Road Everett, Washington 98205-1298

declares, that the product

Product Name:	Dynamic Signal Processor Module
Model Number:	HP E1485A/B/C

conforms to the following specifications:

Safety:	IEC 348/HD401
EMC:	CISPR 11: 1990/EN55011 (1991), Group1, Class A IEC 801-2: 1991/EN50082-1 (1992): 4 kV CD, 8 kV AD IEC 801-3: 1984/EN50082-1 (1992): 3 V/m IEC 801-4: 1988/EN50082-1 (1992): 1 kV

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

Everett, Washington - December 8, 1997

Billy D Miracle

Billy D. Miracle, Quality Manger