

Terminating 20 MHz Pattern I/O Module HP E1452A

Technical Specifications

- 32 I/O pins (4 ports of 8 bits each)
- Maximum 20 MHz pattern rate using an external clock
- 64 K segmentable pattern depth
- Output, record, real-time comparison per port
- Programmatic or triggered tri-state on the fly



Description

The HP E1452A Pattern Input/Output Module is a **Csize, 1-slot, register-based VXI module** that is used to send data to and receive data from a device under test. This module is part of the HP 75000 Model D20 but can be used standalone. Since it does not contain an internal time base, it is normally clocked over the local bus by the HP E1450A Timing Module in an HP 75000 Model D20 Digital Functional Test System. However, when used standalone, the E1452A is clocked by an externally supplied signal. Refer to the Functional Test section for details about the Model D20.

Refer to the HP Website directory of addresses (URLs) for instrument driver availability and downloading instructions.

Programming

The pattern I/O module must be programmed using the SCPI instrument control language. Therefore, your VXI system requires an HP E1406A Command Module and downloadable SCPI drivers or one of the supported I-SCPI or C-SCPI drivers for HP-supported controller platforms. Register-based programming is not supported. Therefore, either the downloadable or the C-SCPI driver must be purchased as a separate product.

32 Input/Output Pins per Module

Each pattern module contains 32 I/O pins arranged in four ports of eight bits. Each port can be statically programmed to output, record, or perform a real-time compare. Each port can also be tri-stated on the fly, either programmatically or externally. This allows two ports to be paralleled for bidirectional data transfers or to double I/O speed.

Deep Memory

The pattern module contains 64 KB of memory behind each I/O port. This memory is segmentable and may be dedicated to one large test or split into multiple tests.

Pattern Pods

The Pattern Pods (HP E1454A and E1456A) are 16-pin active devices with 2-meter cables. These allow for full drive capability at a 2-meter distance from the module. The HP E1454A is used for direct pod hookup to the device under test (DUT), while the HP E1456A is used with the HP 75000 Mass Interconnect System.

Connecting the HP E1452A to the DUT

There are three basic ways to connect the pattern I/O module to the DUT. These are described below:

- The HP E1454A Pattern Pod via pod cable assembly (HP E1493-61601) or printed circuit board connector
- The HP E1456A Pattern Pod via the Mass Interconnect System and general-purpose connector block and contacts with wires
- Direct connection to the pattern I/O module's front panel connector via the pattern module cable assembly or by user-supplied connector and cable allows DUT to be mounted directly to the front panel



HP E1454A Pattern Pod

Specifications

Specifications include the pods and apply with a 50 pf, 500 Ω (to ground) load.

General

Number of channels: Channel type: Output or input type: Memory: Max. pattern rate: 32-bit block transfer: Test synchronization: 32 Input or Output TTL/CMOS 64 K-vectors 20 M/s n/a Hardware triggers, software triggers

Memory Depth:	65,536 (64 k) vectors
Timing Pattern rate: Skew: Rise time: Fall time:	See external clock specifications (<i>between I/O Pins, same port</i>) 3 ns typical 6.5 ns typical 7.0 ns typical
Output Levels High, open circuit: Low, open circuit: High, sourcing 24 mA: Low, sinking 24 mA:	4.4 V min 0.1 V max 3.7 V min 0.44 V max
Input Levels High: Low:	>2.0 V <0.8 V
Tri-state Control In High: Low:	put Levels >2.0 V <0.8 V
External Tri-state D With pod: Without pod:	Delay 11 ns max 14 ns max
External Clock Minimum pulse width:	6 ns
Input Levels High: Low:	>2.0 V <0.8 V
VXI Characteristics VXI device type: Size: Slots: Connectors: Shared memory: VXI busses: C-size compatibility:	Register-based C 1 P1/2 No Local Bus A Yes
Instrument Drivers See the HP Website (http driver availability and de	p://www.hp.com/go/inst_drivers) for ownloading.
Command module firmware: Command module firmware rev: I-SCPI Win 3.1:	Downloadable A.06 Yes

Command module firmware rev: I-SCPI Win 3.1: I-SCPI Series 700: C-SCPI LynxOS: C-SCPI Series 700: HP VEE Drivers: VXI*plug&play* Win Framework: VXI*plug&play* Win95/NT Framework: VXI*plug&play* HP-UX Framework:

A.Ub Yes Yes (not available for V743) No Yes (not available for V743) Yes

No (not available at time of publication)

No

Module Current		
	I _{PM}	I _{DM}
+5 V:	1.5	0.04
+12 V:	0.1	0.01
—12 V:	0	0
+24 V:	0	0
—24 V:	0	0
-5.2 V:	2.2	0.2
−2 V :	0.6	0.08

Cooling/Slot

Watts/slot:	22.00
∆P mm H₂O:	0.12
Air Flow liter/s:	2.00

Data Subject to Change Copyright © January 1997 Hewlett Packard Co. HP Publication No.: 5965-5557E

Ordering Information

Description	Product No.
Terminating 20 MHz pattern I/O module	HP E1452A
Japan - Japanese localization	HP E1452A ABJ
3 yr. retn. to HP to 1 yr. OnSite warr.	HP E1452A W01
PATTERN I/O CABLE	HP E1454-61601
KIT, SCPI MODEL D20	HP E1450-80001
Pattern I/O pod for the HP E1451A/52A	HP E1454A
3 yr. retn. to HP to 1 yr. OnSite warr.	HP E1454A W01
CABLE CUSTOMER INTRFCE	HP E1493-61601
ICA pattern pod for the HP E1451A/52A	HP E1456A
3 yr. retn. to HP to 1 yr. OnSite warr.	HP E1456A W01
MNL KIT, SERVICE MNL	HP E1450-80002
SHIELD, BACKPLANE CONN	HP E1400-80920
VXI BACKPLANE CONN SHLD KT	HP E1421-80920

EPS4: D20-1 NOT EXIST

Pattern Module



HP E1452A Connection to DUT

(1) Refer to the Interconnect & wiring section (2) 50-pin, 2 x 25, male dual in line Connector: 3M 3596