Direct I/O HP-IB* Interface

Technical Data

**Product Number
98624A**

The HP 98624A HP-IB* Interface card implements the IEEE 488-1978 (and the supplement IEEE 488A-1980) Standard Digital Interface for Programmable Instrumentation. The interface can communicate with as many as 14 HP-IB compatible instruments connected with a maximum of 20 meters (65.5 feet) of cable.

Functional Specifications

Input/Output Lines

Either bi-directional data lines provide data input/output; three lines are for control and five lines are used for Interface Management (see figure 1).

Maximum Transfer Rates

See table 1 for transfer rates for the HP 98624A HP-IB interface and the internal HP-IB that is standard on the system.

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* The Hewlett-Packard Interface Bus (HP-IB) is HP's implementation of IEEE Standard 488-1978: "Digital Interface for programmable instrumentation" and identical ANSI Standard MC 1.1. The term "HP-IB" is also used to identify Hewlett-Packard instruments conforming with this standard.

Interface Functions

The chart below specifies the level of implemetation in terms of IEEE 488-1978 mnemonics. The Device Trigger, Device Clear, and Remote/Local state responses are achieved by programming the Series 200 computers for end-of-line interrupts on those conditions.

HP-IB Interface Bus Concept *Figure 1*
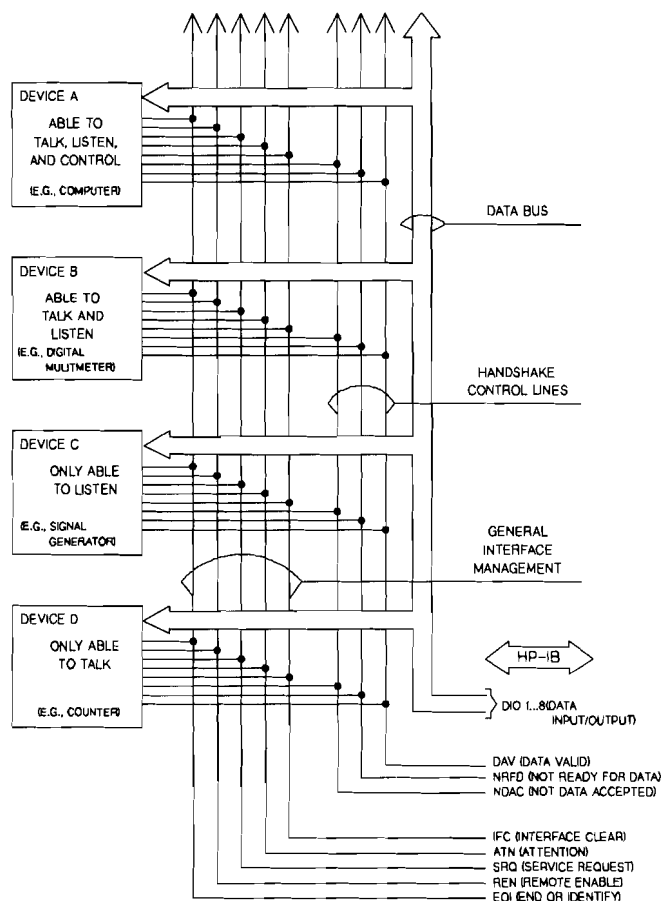
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Maximum Transfer Rates *Table 1*

	Input (bytes/s)	Output (bytes/s)
BASIC 2.0		
Handshake	42 K	65 K
BASIC Advanced Program Binary Capability		
Interrupt, burst	40 K	55 K
Fast handshake	110 K	80 K
DMA, regular	340 K	270 K
HPL 2.0		
Interrupt	6 K	6 K
Fast read/write	42 K	70 K
DMA, regular	330 K	230 K

Interrupt Capability *Table 2*

The internal and 98624A HP-IB are capable of generating interrupts under the following conditions (Pascal has no interrupt capabilities):

	HPL	BASIC
Controller addressec	X	X
Talker addressecd	X	X
Listener addressed	X	X
Service Request (SRQ) detected	X	X
Parallel Poll configuration change		X
EOI received		X
Serial Poll active		X
Remote/Local configuration change		X
MY Address mode change		X
Group Execute Trigger received	X	X
Source handshake error		X
Unrecognized universal command		X
Unrecognized address command		X
Secondary command received		X
Device Clear received	X	X
Interface Clear detected	X	X

DMA Capability

The internal and 98624A HP-IB interfaces are optionally capable of carrying out DMA transfer via the two-channel 98620A DMA Controller Card. Byte Mode DMA and Regular (no Burst) DMA transfers are supported.

Source Handshake	SH1
Acceptor Handshake	AH1
Talker	T6
Listener	L4
Service Request	SR1
Remote/Local	RL1
Parallel Poll	PP1
Device Clear	DC1
Device Trigger	DT1
Controller	
System Control	C1
IFC & Take Charge	C2
REN	C3
Respond SQR	C4
Miscellaneous control	C5
Drivers	E2

Interrupt Capability

See table 2

Switched Configuration

The following switches are configurable.

Select Code: The factory select code setting is 8 (select code 7 for internal HP-IB); valid select codes settings are:
BASIC & Pascal   8–31
HPL   1–6, 8–15

Interrupt Level: The factory priority level setting is 3 (internal HP-IB level is 3); valid interrupt level settings for the 98624A are from 3 to 6.

Interface Bus Address: A 5-bit talker/istener address. The factory-set bus address for the 98624A is 21 decimal (21 for internal HP-IB; if the computer is not a system controller, then its default bus address will be 20); the 98624A card can have a bus address setting from 0 to 30.

System Controller: A 1-bit switch allows the 98624A interface to act as a system controller or non-system controller. The factory setting is system controller.

Ordering Information

Earliest Language Version Required: BASIC 1.0, Pascal 1.0, HPL 1.0, and HP-UX 2.0.

The HP 98624A includes:

98624-66501 HP-IB Interface

98624-90000 Installation Note

Compatible Cables from Direct Marketing Division

10883A 1-meter cable

10833B 2-meter cable

10833C 4-meter cable

10833D 0.5-meter cable

Fuse for replacement/spare: 2110-0712