HEWLETT PACKARD

GPIO Interface

Technical Data

For HP 9000 Series 500 Computer Systems Product Number 27112A

The HP 27112A General Purpose I/O Interface is designed to provide multipurpose 8 or 16-bit parallel communication capabilities between external devices and HP Computers using the CHANNEL I/O architecture.

Features

- Wide choice of programmable operating mode for ease of use with instrumentation
- TTL (+5 V) and +12 V output level capability
- Clocked mode for data transfers with handshake, transparent mode for transfers without handshake
- Selectable data-in clock source
- Positive true or negative true logic
- 8 or 16-bit operation
- Independent 16-bit input and output lines and storage registers
- Data handshake control and flag lines
- Two control and two status lines

Functional Specifications

Data Transfer

Protocol: Transfers with either 8 or 16 parallel bits at a time, without byte packing on 8-bit transfers

Maximum Data Rate: Rate depends on host processor.

In HP 9000 Series 500:

Transfer Mode	Operating System	Transfer Rate
Word Mode	BASIC	600 Kbytes/s
Byte Mode	BASIC; UNIX	300 Kbytes/s

These transfer rates assume that the card is in a quiescent backplane, i.e. that no other card in the backplane requires service and that if the transfer is a read transfer, that transfer is terminated on count.

Maximum Length of Data Transfer from Interface Backplane: 2 bytes per transfer

Line Characteristics

High Logic Level Choices: TTL (+5 V) is standard; repositioning a jumper converts the interface to +12 V level on outputs only. Inputs are TTL only.

Signal Lines:

PDIR		Peripheral Data Direction
DIN	0-15	Data Intput Bus
DOUT	0-15	Data Output Bus
STS	0-1	Status Input Buffer
CTL	0-1	Control Output Bus
PFLAG		Peripheral Flag
PCNTL		Peripheral Control
PEND		Peripheral End
PRESET		Peripheral Reset

Clocked Mode: The 27112A supports a clocked mode in which data transfers to/from external devices are synchronized by a command-flag handshake. Input data may be clocked on rising or falling edge, or on a Read command.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Internal Handshake Mode: The 27112A can also be used to send data to, or receive data from one or several devices, such as indicators or switches, that do not provide or use any type of handshaking (PFLAG) signal. Information is output to the destination device(s) exclusively under program control and input information may be read at any time.

Device Logic Sense Selection: The logic sense of DIN, DOUT, PCNTL, PFLAG, CTL, STS, PEND, and PRESET can be switch selectable independently. Switch open-high is positive true; switch closed-low is negative true.

Control and Status Bit Communication

Control Output: Two control output bits may be sent to the interface device via an output control byte for use as control, command, or address bits.

Status Input: Two status bits may be received from the interfaced device via an input control byte. Both status bits can be programmed to cause an asynchronous request interrupt (ARQ).

Electrical Specifications

Direct Current Requirements:

Voltage	Typical Current	Two-Standard Deviation Current
+5 V	2.06 A	2.20 A
+12 V	0.12 A	0.15 A

Physical Specifications

Dimensions: 17.3 cm (6.8 in.) long by 17.2 cm (6.75 in.) wide.

Weight:
Interface Card,
245 grams (8.6 oz);
Unterminated Cable,
990 grams (34.7 oz).

Environmental Characteristics

Operating Temperature: 0°C to 55°C (32°F to 131°F)

Operating Humidity: 5% to 95% RH @ 40°C (104°F)

Operating Altitude: 4600 meters (15,000 feet) maximum

Ordering Information

The HP 27112A inlcudes:

27112-60001 GPIO interface card

27112-63002 5-meter unterminated cable

27112-90001 Installation Manual

HP 27112A Option

001: Replaces unterminated cable with 2.5-meter HP 9885 Disc interface cable (27112-63003)

Note: Detailed technical information (e.g. cabling, schematics) for the GPIO interface can be obtained from the HP 27132A CHANNEL I/O Technical Reference Package.

A self-test loopback connector for optional use with the on-card self-test is available. Order HP part number 1251-8003.