General Purpose I/O Interface for Windows 95/NT

Data Sheet

- Supported on Windows 95/NT
- Language support for Agilent HP VEE, BASIC, C/C++, Visual Basic

HP VEE supports access to the GPIO card in a fixed configuration that is appropriate for communicating with the Agilent 3852 data acquisition box's 44704 fast DMM. To allow the E2075A to auto-handshake, either wire PFLAG to PCTL through an external hardware inverter, or short PFLAG to PCTL (pin 19 to 44) and check the "PFLAG: Hi = Ready" box in the E2075 configuration of the IO Config program. The GPIO manual shipped with the product supplies necessary detail on wiring and pin functions.

Agilent E2075A

Description

The Agilent E2075A General Purpose I/O card is an ISA PC interface which can be used to communicate with programmable measurement devices. It provides 16 (open-collector) output lines and 16 separate (Schmitt-trigger) input lines, plus a set of handshake and I/O control lines; the card can be programmed for a wide variety of handshake protocols. It can be set to an "enhanced mode" in which the 16 data-in lines can be used in bi-direction, and the 16 output lines can be used as auxiliary control signals.

The E2075A ISA GPIO Interface for the PC can be accessed by C/C++ under Agilent SICL, by HP VEE, and by BASIC under Windows 95/NT.

Refer to the Agilent Technologies Website for instrument driver availability and downloading instructions, as well as for recent product updates, if applicable.

GPIO Application Information

The E2075A provides compatibility for Agilent customers with existing GPIO-based systems. Custom GPIO cables can be built using pinout and signal levels that are provided in the GPIO card manual. The card is shipped with a 1.6-meter unterminated cable (5061-4209).

Accessories and Configurations

Configuration hardware on the card is a 4-position DIP switch that determines the card I/O address. The DIP switch it can be set as follows, where the left column gives the switch settings and "0" is the "closed" position:

4321	I/O Address	I/O Address Range
0000	228	228:22F / 628-62F
0001	238	238:23F / 638-63F
0010	258	258:25F / 658-65F
0011	288	288:28F / 688-68F
0100	328	328:32F / 728-72F
0101	348	348:34F / 748-74F
0110	388	388:38F / 788-78F
0111	398	398:39F / 798-79F

Data and Control Lines

DI0-DI7:	Low input byte
DI8-DI15:	High input byte
DO0-DO7:	Low output byte
DO8-DO15:	High output byte
PCTL:	Peripheral control line
PFLG:	Peripheral flag line
PSTS:	Peripheral status line
STI0:	Extended status input line 0
STI1:	Extended status input line 1
CTL0:	Extended control output line 0
CTL1:	Extended control output line 1
I/O:	Input/output direction control line
P_RESET:	Peripheral reset line
EIR:	External interrupt request line

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Data and Control Lines Functions

DI0-DI7,DI8-D15: The 16 Schmitt-trigger data-input lines. Their logic sense can be inverted via a hardware setting. In Enhanced mode, they operate in both directions.

DO0-DO7,DO8-DO15: The 16 open-collector data-output lines. Their logic sense can be inverted via a hardware setting. In Enhanced mode these are used as auxiliary control lines.

PCTL, PFLG: The peripheral control output line and the peripheral flag input line are used as a 2-wire handshake between the GPIO card and the peripheral. Their logic sense can be inverted via a hardware setting.

PSTS: The peripheral status line is an input that is generally used to detect if the peripheral is operational. The logic sense can be inverted via a hardware setting.

STI0, STI1: The two extended status input lines have no specific function and can be used for any purpose; their values can be read via bits 0 & 1 of GPIO STATUS register 5.

CTL0, CTL1: The two extended control output lines have no specific purpose and can be used for any purpose; they are set and cleared via bits 0 & 1 of GPIO CONTROL register 2. Note that they will not change state after a reset.

I/O: The input/output control line is an output that indicates the direction of data transfer. It is valid when PCTL is asserted; it is high for an input operation and low for an output operation.

PRESET: The peripheral reset line is an output used to reset or initialize an external device; it is pulsed low (minimum pulse width 12 microseconds) when the computer or interface is reset.

EIR: The external interrupt request line is an input from the peripheral, and can be used to trigger an ON INTR. This line is level-sensitive and should be held low until the interrupt is acknowledged.

GPIO Line Color Code Designation

Data In/Low Byte	Pin	Color Code
DI0	42	black
DI1	41	brown
DI2	40	red
DI3	39	orange
DI4	38	yellow
DI5	37	green
DI6	36	blue
DI7	35	violet

Data In/High Byte	Pin	Color Code
DI8	34	white/brown/red
DI9	33	white/brown/orange
DI10	32	white/brown/yellow
DI11	31	white/brown/green
DI12	30	white/red/orange
DI13	29	white/red/yellow
DI14	28	white/red/green
DI15	27	white/red/blue

Data Out/Low Byte	Pin	Color Code
DO0	17	white/black
DO1	16	white/brown
DO2	15	white/red
DO3	14	white/orange
DO4	13	white/yellow
DO5	12	white/green
DO6	11	white/blue
DO7	10	white/violet

Data Out/High Byte	Pin	Color Code
DO8	9	white/orange/yellow
DO9	8	white/orange/green
DO10	7	white/orange/blue
DO11	6	white/orange/violet
DO12	5	white/yellow/green
DO13	4	white/yellow/blue
DO14	3	white/yellow/violet
DO15	2	white/yellow/gray

Control Lines

PCTL:	peripheral control	19	white/gray
PFLG:	peripheral flag	44	gray
PSTS:	peripheral status	45	white/black/gray
STI0:	extended status 0	47	white/brown/blue
STI1:	extended status 1	48	white/brown/violet
CTL0:	extended control 0	22	white/red/violet
CTL1:	extended control 1	23	white/red/gray
I/O:	I/O direction control	20	white/black/brown
PRESET	peripheral reset	21	white/black/red
EIR	ext interrupt request	46	white/brown/gray

Other Lines

GND:	Ground	1	white/black/green
GND:	Ground	18	white
GND:	Ground	24	white/black/orange
GND:	Ground	26	white/black/blue
GND:	Ground	49	white/black/yellow
SAFETY GND:	Ground	25	outer shield
GND:	Ground	43	inner shield
NC:	Not connected	50	not connected

Note: *There is a white/black/violet spare cable wire.*

Product Specifications

Power Consumption

Typical power consumption: 10 watts

Ordering Information

Description	Product No.
GPIO for Windows 95/NT	E2075A

Related Literature

2000 Test System and VXI Catalog CD-ROM,
Agilent Pub. No. 5980-0308E (detailed specifications for VXI products)

2000 Test System and VXI Catalog,
Agilent Pub. No. 5980-0307E (overview of VXI products)

1998 Test System and VXI Products Data Book,
Agilent Pub. No. 5966-2812E

Online

Internet access for Agilent product information, services and support
 www.agilent.com/find/tmdir

VXI product information
 www.agilent.com/find/vxi

Defense Electronics Applications
 www.agilent.com/find/defense_ATE

Agilent Technologies VXI Channel Partners
 www.agilent.com/find/vxichanpart

Agilent Technologies' HP VEE Application Website
 www.agilent.com/find/vee

Agilent Technologies Data Acquisition and Control Website
 www.agilent.com/find/data_acq

Agilent Technologies Instrument Driver Downloads
 www.agilent.com/find/inst_drivers

Agilent Technologies Electronics Manufacturing Test Solutions
 www.agilent.com/go/manufacturing

Get assistance with all your test and measurement needs at
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