

PDMA-16 PDMA-32

16-Line High Speed Digital I/O Boards with DMA Capability



- Transfer up to 125,000 words per second (PDMA-16)
- Transfer up to 200,000 words per second (PDMA-32)
- 8-bit (PDMA-16) or 16-bit (PDMA-32) data transfers
- Handshaking signals provided
- Internally clock driven or externally triggered
- DMA, interrupt, or program controlled transfers
- DOS software driver simplifies programming

Ordering Information

PDMA-16 125,000 Words/
second Digital I/O
Board with DOS
Software

PDMA-32 200,000 Words/
second Digital I/O
Board with DOS
Software (PC/AT bus
only)

Functional Description

The PDMA-16 and PDMA-32 are high speed 16-bit digital input/output interface boards for the IBM PC/XT/AT, 386, 486, and compatible computers. These boards perform high-speed data transfers using direct memory access (DMA). They are ideal for applications requiring high-speed digital data streaming to and/or from external computers and peripheral devices such as hard drives. These boards can autonomously run digital I/O without asking for a reading. For applications not requiring full speed, the boards can be operated in an interrupt driven mode or under direct program control.

The PDMA-16 board is compatible with PC/XT (8-bit) or PC/AT (16-bit) I/O slots and performs data transfers 1 byte at a time. The PDMA-32 offers higher rates by performing transfers 1 word at a time. However, the PDMA-32 is only compatible with PC/AT (16-bit) slots. The maximum data transfer rates are 125,000 words per second with the PDMA-16, and 200,000 words per second with the PDMA-32.

The PDMA boards provide two 8-bit I/O ports. Each can be set as an input or output under software control, and each of the ports are addressed as standard I/O locations. However, when operating the board in high-speed mode

(under DMA control), both ports must be set to operate in the same direction.

The actual DMA transfers may be initiated by an external signal (XFER req) or by an internal timer. The internal timer consists of a 10MHz precision oscillator divided by a programmable 32-bit counter (2 counters from an 8254). On receipt of a positive edge on the XFER REQ input, the XFER ACK output goes low. Completion of the transfer is signified by the XFER ACO output returning to the high state. This system allows for simple handshaking even at high speeds.

Three auxiliary output bits AUX 1-3 are also available for controlling or signaling external systems. All external connections are made through a 37-pin D connector that extends out the rear of the computer. Field wiring can be greatly simplified with the optional STA-U or STP-37 screw terminal accessories.

Software

There are two software alternatives for the PDMA-16/32. The user can either use a fully integrated DOS data acquisition software package or write a custom program (in Basic, C, Pascal, etc.).

The PDMA-16/32 is supported by a comprehensive set of DOS drivers and programming tools. The standard software included with the PDMA-16/32 includes the following:

- Call Driver compatible with BASICA and QuickBasic.
- Call Driver compatible with Pascal, Turbo Pascal, most variants of C, and Fortran.
- PDMA-16/32 Installation and configuration program.
- A variety of example programs which show how to write PDMA-16/32 programs in all supported languages.
- Complete Calibration routine.

Mode Call Driver

The Mode Call Driver is designed to be used from Interpreted Basic, Compiled Basic, QuickBasic, Pascal, TurboPascal, C, and Fortran. The Call commands are a collection of functions which are accessed from your program through a single line Call statement. The various modes of the call routine select all of the functions of each board, format and error check data, and perform frequently used sequences of instructions.

APPLICATIONS

- Interface to high-speed peripherals
- High-speed memory transfers from other computers
- Digital I/O control
- Printer/plotter interfaces
- Interface to external high-speed A/D and D/A converters
- Digital pattern generation

High speed data transfers using direct memory access

PCI/ISA/PCMCIA

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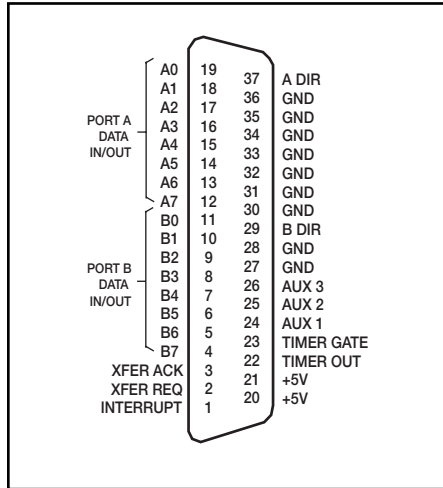
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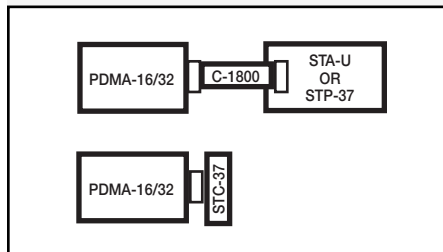
Connector Pin Assignment



ACCESSORIES AVAILABLE

C1800	PDMA-16/32 to STA-U or STP-37 Cable
MS-PDMA-16	Additional Hardware Manual and DOS Software for PDMA-16
MS-PDMA-32	Additional Hardware Manual and DOS Software for PDMA-32
STA-U	Universal Screw Terminal Accessory
STC-37	Direct Screw Terminal Connector
STP-37	Screw Terminal Panel
TESTPOINT	TestPoint Software Package

Configuration Diagram



Specifications

MAXIMUM DATA TRANSFER RATE

PDMA-16: 125,000 words (16-bit) per second (PC/XT).

PDMA-32: 200,000 words (16-bit) per second (PC/AT).

LOGIC LEVELS (TTL COMPATIBLE)

INPUT HIGH VOLTAGE: 2.0V min at 0.1mA.

INPUT LOW VOLTAGE: 0.8V max at -0.2mA.

OUTPUT HIGH VOLTAGE: 2.4V min at up to -3.0mA.

OUTPUT LOW VOLTAGE: 0.5V max at up to 24mA.

ENVIRONMENTAL

OPERATING TEMP: 0 to 60°C.

STORAGE TEMP: -40 to +100°C.

HUMIDITY: 0-95% non-condensing.

EMC: Conforms to European Union Directive 89/336/EEC (PDMA-32 only).

SAFETY: Meets EN61010-1/IEC 1010 (PDMA-32 only).

DIMENSIONS: 3.0in L × 4.25in H × 0.75in D (22.9cm × 10.8cm × 1.9cm). (PDMA-32 requires an AT slot.)

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