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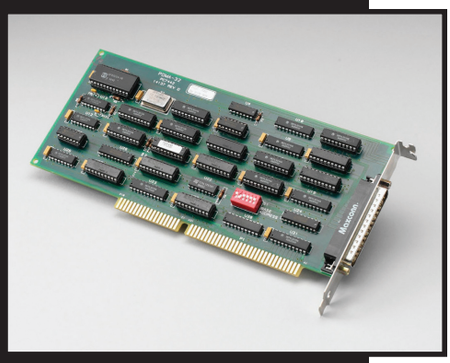
PDMA-32

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



- Transfer up to 200,000 words per second
- 16-bit 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-32 200,000 Words/ second Digital I/O Board with DOS Software (PC/AT bus only)

Functional Description

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

The PDMA-32 offers high 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 rate is 200,000 words per second.

The PDMA board provides 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-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-32 is supported by a comprehensive set of DOS drivers and programming tools. The standard software included with the PDMA-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-32 Installation and configuration program.
- A variety of example programs which show how to write PDMA-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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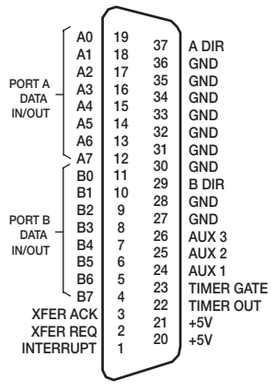
Connector Pin Assignment



ACCESSORIES AVAILABLE

C1800	PDMA-16/32 to STA-U or STP-37 Cable
STA-U	Universal Screw Terminal Accessory
STC-37	Direct Screw Terminal Connector
STP-37	Screw Terminal Panel
TESTPOINT	TestPoint Software Package

Specifications

MAXIMUM DATA TRANSFER RATE

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

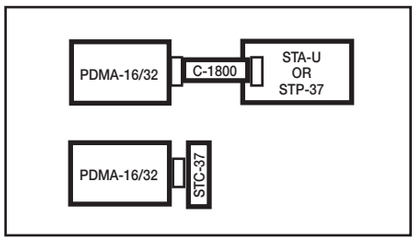
LOGIC LEVELS (TTL COMPATIBLE)

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.
SAFETY: Meets EN61010-1/IEC 1010.
DIMENSIONS: 3.0in L × 4.25in H × 0.75in D (22.9cm × 10.8cm × 1.9cm). (Requires an AT slot.)

Configuration Diagram



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