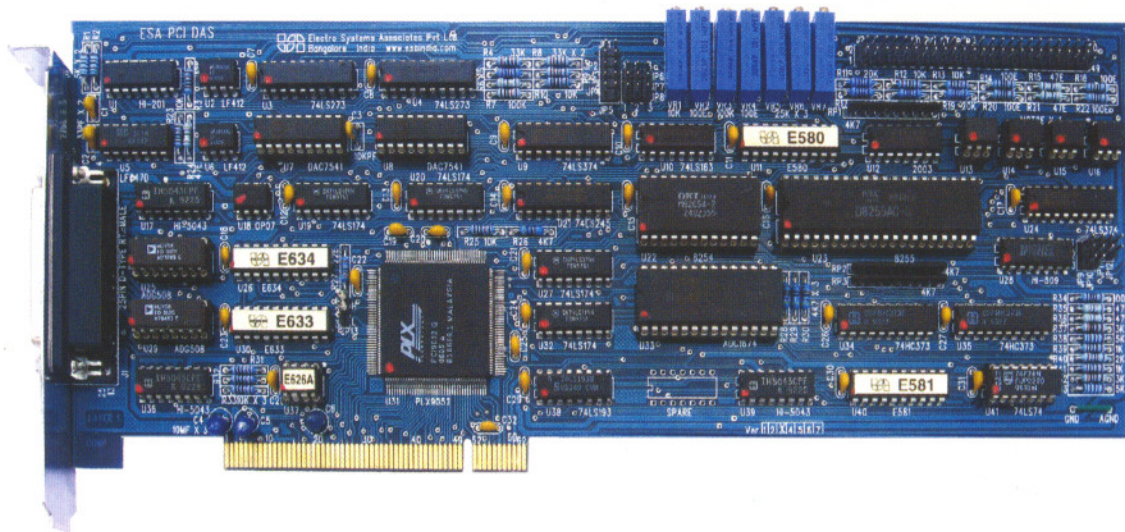


# ESA PCI DAS

## HIGH SPEED PCI BUS DATA ACQUISITION CARD



Electro Systems Associates Pvt Ltd (ESA) manufactures a variety of Microcomputer Development Systems inclusive of Microprocessor/Microcontroller Trainers, Interface Modules, In-Circuit Emulators, Device Programmers and PC Add-on Cards. ESA products have found wide acceptance in industry, R & D Labs and educational institutions as effective and convenient tools for Data acquisition, Interfacing solutions and a host of Microprocessor-based applications development. It is ESA's endeavor to constantly source the latest industry standard products and tools for applications in areas like Instrumentation, Embedded systems development, etc. The result of it is the ESA PCI DAS.

ESA PCI DAS is high performance PC Add-on which upgrades the PC system to a high-speed data acquisition and process control system. The PCI Bus ESA has higher bus transfer rate, thus increasing the speed and accuracy of the card manifold, compared to DAS card with ISA bus. The package provides versatile data acquisition and transfer options comprising ADC, DAC, timers, digital I/O, Opto-isolated I/O lines, etc. An Application Programmers Interface (API) is also provided in the package that makes developing customized user application programs easy and fast.

### 16 CHANNEL 12-BIT A/D CONVERTER

- AD1674 based 12-bit Analog to Digital Converter
- Conversion time of 10 $\mu$ s
- 16 Single-ended or 8 differential analog inputs
- Uni-polar or Bipolar operation in different voltage ranges. 0 to +10V,  $\pm$ 5V,  $\pm$ 10V
- Max Device Sampling rate: 100K Samples per sec.
- Three different modes of channel selection: Auto-increment, 2-Channel & Single Channel
- Data acquisition from ADC in polled mode.
- Fault/over-voltage protected Multiplexers

### TWO 12-BIT D/A CONVERTERS

- Two 12-Bit D/A Converters using AD7541
- Settling time: 500ns.
- Uni-polar or Bipolar output: 0 to +10V,  $\pm$ 10V
- Facility for data loading at programmed interval

### DIGITAL I/O

- 24 Programmable, Digital I/O Lines comprising
  - i. 8 TTL I/O lines
  - ii. 7 high-current lines through Relay driver
  - iii. 3 TTL output lines

- iv. 2 TTL input lines
  - v. 2 Opto-isolated output lines
  - vi. 2 Opto-isolated input lines
- Pull-up on all DIO lines
  - 8-line externally latched digital input port

### TIMER/COUNTER

- Three 16-bit Programmable Interval Timers/Counters using 8254.

### ESA PCI DAS FEATURES

- ◆ 16 Channel 12-Bit ADC
- ◆ Two 12-Bit D/A Converters
- ◆ 3 Programmable Timers/Counters
- ◆ 24 Digital I/O lines with Relay drivers, Opto-isolation and Interrupt facilities
- ◆ 8 Externally latched Digital Inputs
- ◆ S/W controlled Channel Selection, Mode, Gain, Trigger Selection
- ◆ Easy to use 16-Bit and 32-Bit API

## SOFTWARE SUPPORT

- Easy-to-use 16-Bit and 32-Bit API included in the package providing powerful device driver functions and linkable routines to access the card's utilities.
- DOS and Windows based Demo applications using the API included in the package. Sample programs illustrating different modes of triggering and data collection are provided.
- Software programmable Channel Selection, ADC Modes, Gain (1/2/5/10), type (Bipolar/Uni-polar), etc.
- Comprehensive documentation support comprising Block diagrams, Data sheets, Hardware & Software configurations, Calibration, Programming, Application notes and test programs.

## SPECIFICATIONS

### 1. Absolute Max Ratings

- ◆ Maximum +ve input voltage: +16.5V
- ◆ Maximum -ve input voltage: -11.4V
- ◆ Maximum difference between DGND and AGND:  $\pm 1.0$  V
- ◆ Relay Driver rating: 500mA

### 2. Analog Input

- ◆ No. of input channels: 16 Single-ended or 8 differential
- ◆ Analog resolution: 12 bits, 1 in 4096
- ◆ Type of A/D Conversion: Successive Approximation
- ◆ Input type: Uni-polar, Bipolar
- ◆ Analog input: 0 to 10 V,  $\pm 5$ V,  $\pm 10$ V  
Ranges: Software Selectable  
Input Impedance:  
Power ON ( $1\Omega$ ) Power OFF:  $> 1K\Omega$

### 3. Data Acquisition

- ◆ Device Sampling Rate: 100 K Samples/sec - Single Channel (Typical)

### 4. Analog Output

- ◆ No. of DACs: 2
- ◆ DAC Type: 12 bit multiplying
- ◆ Output Voltage Range: 0 to 10V,  $\pm 10$ V (Software Selectable)

NOTE : Specifications are subject to change without prior notice

**OUR PRODUCT RANGE:** Microprocessor Trainers for 8085, Z80, 6809, 8086/88, 68000; Microcontroller Trainers for 8031/51, 80C196 KB/KC, 68HC11, PIC Trainers and Interface Modules; DSP Trainers; Power PCs; In-Circuit Emulators; ROM Emulators; Microcomputer Development Systems; Universal Device Programmers; UV Erasers; PC compatible systems and Add-on Cards, Logic Analysers, AD/DA cards, DIO cards, etc.; Microprinters; Printer Support Products and Software Development Tools; etc.,



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### 5. Digital I/O

- ◆ I/O lines: 8, O/P lines: 3, I/P lines: 2
- ◆ High current relay driver lines: 7.
- ◆ Optically isolated lines: 2 input 2 output
- ◆ Externally latched lines: 8
- ◆ Signal Compatibility (INPUT): TTL

### 6. Timer Capability

- ◆ No. of Timers/Counters: 3
- ◆ Resolution: 16-bit
- ◆ Base Clock Options: 4.125/8\_25/16.5 MHz  
Signal Compatibility: TTL

### 7. Interfacing Connectors

- ◆ 16 Channel ADC input & DAC output are terminated on 25 pin D type male connector.
- ◆ 50-Pin Berg connector: for DIO lines.

### 8. Physical Dimensions

- ◆ Length x Height : 25.40 cm x 10.82 cm
- ◆ Multilayer(4 layer) PCB.

### 9. Operating Temperature: 0 to 70' C

### 10. System Requirements

- ◆ Any PC Compatible system with PCI Slots running MS-DOS 6.0 and above, Windows 95/98/2000/NT/XP Operating systems.
- ◆ Visual C++ 6.0 Development Environment in case of Systems running Windows 2000 / NT / XP.

## SCOPE OF SUPPLY

- ◆ ESA PCI DAS card
- ◆ Junction box with cable to feed Analog Signals
- ◆ ADC and DAC interface cable: 25-pin D-type female connector to 26-pin FRC connector of 1 Meter length
- ◆ DIO cable
- ◆ Windows driver and Demo software CD
- ◆ Users' manual

### Dealer / Distributor