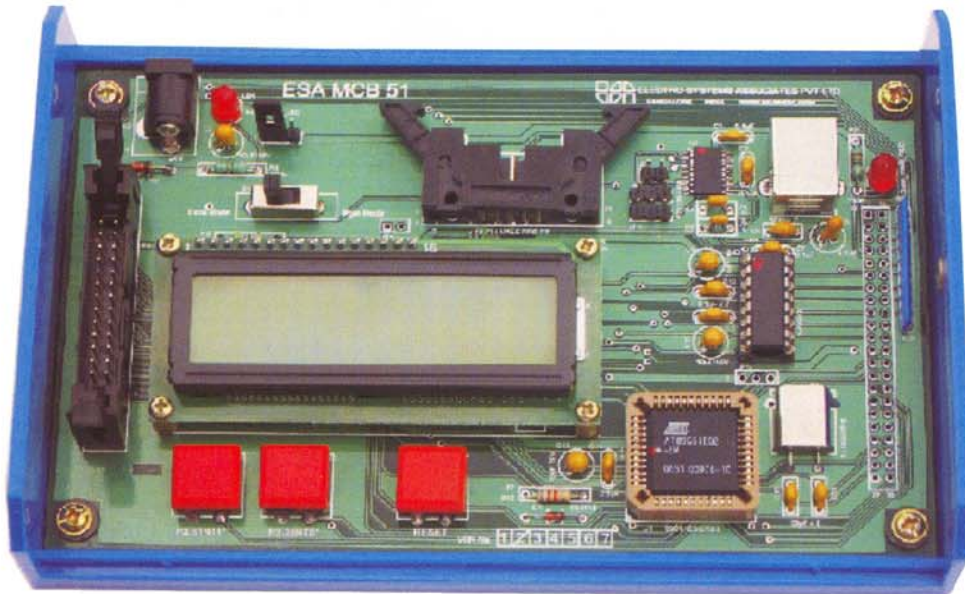# ESA MCB 51
SINGLE CHIP MCU TRAINER

ESA introduces **USB** based micro controller board, which is an advanced version (ver.2) of **ESA MCB 51**. **ESA MCB 51** is a development board supports a wide variety of popular 8051 family devices in the stand alone mode of operation. The 8051 family of micro controllers are extensively used for embedded and real-time applications. **ESA MCB 51** board is supplied with Atmel AT89C51ED2 MCU. The board communicates with Host PC through RS-232C or USB. µc/OS-Ⅱ RTOS is ported on **ESA MCB 51**.

MAIN FEATURES

★ ESA MCB 51 operates on both USB as well as +5V DC external power supply.

★ Optional Power Supply is required if ESA Interface modules are to be connected to the ESA MCB 51 board

★ On-chip Flash Monitor supports Keil µVision Debugger, to download and debug the user application programs.

★ The Flash Monitor assists the user with the debugging features like Source level debugging, Single Step, Break points, full speed execution etc.,available in Keil µVision Debugger.

★ On-Board (16x2) LCD

★ 24 port lines (i.e. P0, P1 and P2) are terminated on a 26-pin IDC header connector, which are compatible to ESA Interface Modules.

★ All the CPU Signals are terminated on a 44-pin IDC header connector (site) for system expansion.

★ ESA MCB 51 driver CD contains Keil evaluation software, sample programs for interface modules, Atmel's FLIP utility for ISP, FTDI USB drivers etc..

ACCESSORIES (Optional)

★ **Power Adapter:** ESA ADP DC5; SMPS +5V DC @3A

★ **ESA Interface Modules for training purpose:** Calculator type Keyboard, Seven Segment Display, Dual DAC, RTD temperature sensor (TxDR), Stepper Motor, DC Motor, Elevator, 4x4 Matrix Keypad, ADC with DAC, 8 bit-16 channel ADC, 12 bit 8 channel ADC, Logic controller, Traffic light, Tone generator, Opto isolated input, Opto isolated output etc.,

★ **Power supply**: ESA PS M2;+5V DC@3A, ±12V@250mA and +30V@100mA (required for some of the above interfaces).

★ **Interface Extension**: The signals from 26 pin IDC header connector are brought out to four 26 pin IDC header connectors. Model : ESA IF EXTN

★ **RS-232C cable**

SPECIFICATIONS

PROCESSOR

AT89C51ED2/RD2 operating at 11.0592 MHz

PROCESSOR FEATURES

ON-CHIP MEMORY

Program Memory : 64K Bytes of on-chip Flash
Data Memory   : 256 Bytes of on-chip RAM
                  1792 Bytes of on-chip XRAM
                  2K Bytes of on-chip EEPROM

ON-CHIP PERIPHERALS

★ Three 16-bit on-chip Timers/Counters
★ Watch Dog Timer
★ Programmable Counter Array (PCA) on Port 1
  i.e. PWM, Capture & Compare
★ SPI (Serial Peripheral Interface) on Port 1
★ Full duplex enhanced UART

INTERRUPTS

Nine Sources of interrupts (both external and internal)

Two external interrupts INT0 and I NT1 are provided with tact switches; these can also be used as general-purpose switches.

INTERFACE SIGNALS

CPU:

All CPU signals available on a 44 pin IDC header connector site

I/O (PORT) LINES:

P0, P1 and P2 Port lines are available on a 26 pin IDC header connector compatible to ESA Interface Modules.

LCD

LCD compatible signals are available on a 16 pin flow strip connector.
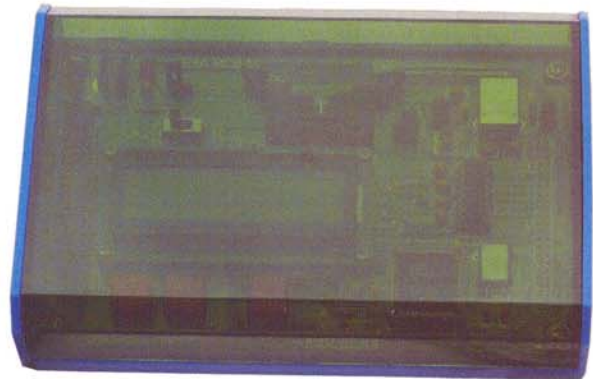
SERIAL I/O

On-Chip UART signals are available on a 10-pin right angle FRC connector and USB port through level shifter MAX 232 and FT232R drivers.

GENERAL

Power Supply Required : +5V @ 200mA
Dimensions   : 160mm x 100mm
Weight   : 270gms Gross

SCOPE OF SUPPLY

1. ESA MCB 51
2. ESA MCB 51 driver CD
3. USB cable
4. User's Manual
5. ESA MCB 51 Primer Manual
6. 8051 Family Instruction Reference Card

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.,

Dealer / Distributor

VP / 07-2009

Regional Sales Contacts → **Chennai** : 9841053251; **Delhi** : 9810260353; **Hyderabad** : 9848049183; **Pune** : 9822614702

NOTE : Specifications are subject to change without prior notice