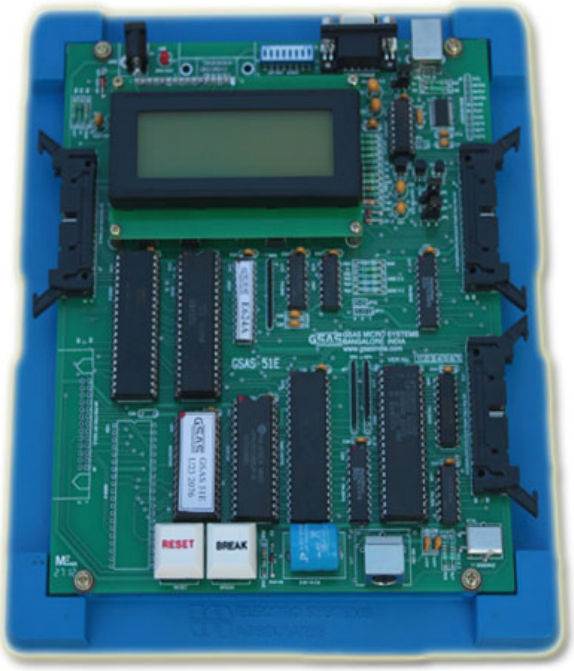
GSAS-51E
ECONOMICAL
MICROCONTROLLER TRAINER



8051 family of microcontrollers and its derivatives are increasingly becoming popular for instrumentation and control applications due to its speed and powerful instruction set which are essential for real-time applications. This has created the need for a good trainer and development tools. **GSAS 51E** (an economically priced microcontroller trainer) provides a complete solution for This requirement It can be used as a flexible instructional aid in academic institutions and a powerful development kit in R&D Labs.

The system firmware provides stand-alone monitor, serial monitor, one-line assembler, disassembler, driver for EPROM programmer and Parallel printer interfaces. **GSAS 51E** is supplied with comprehensive and user-friendly documentation as well as windows based communication software with online-help. The **GSAS 51E** trainer communicates with host **PC** through its onboard **USB** or **RS-232C** in serial mode.

MAIN FEATURES

- ★ GSAS 51E operates on single +5V power supply either stand - alone mode or with host PC through its USB or RS-232C interface in serial mode.
- ★ Stand-alone and serial monitor, support the entry of user programs, editing and debugging facilities like single stepping and full speed execution of user programs.
- ★ On-board memory is 128K bytes of which 88K bytes RAM has battery backup provision.
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- ★ 48 I/O lines and four programmable interval timers.
- ★ 9 Port lines of MCU brought out to the right angle ribbon cable connector including INT1.
- ★ Buffered Bus Signals are available through flat ribbon cable connector for easy system expansion.
- ★ Driver Software for file upload/download to/from host PC

ACCESSORIES (Optional)

- ★ Power Adapter : GSAS ADP-DC5; +5V@3A. (SMPS)
- ★ PC keyboard for stand - alone mode of operation.
- ★ EPROM Programmer Interface (2716 through 27512).
- ★ 8751 adapter for the above interface.
- ★ Interface modules for training purpose: Keyboard Elevator,7 Segment Display Dual DAC, 12 bit 8 Chanel ADC, Logic Controller, Traffic Lights, Tone Generator, Stepper Motor, Opto Isolated Ouptut, Relay Output, DC Motor Interface, TXDR ADC etc.,
- ★ Study cards for 8255, 8279, 8251/8253 and 8259.
- ★ Power Supply : +5V @ 3A; ±12V @ 250mA; +30V @100mA (required for some of the above interface).
- ★ 3.6V Ni-Cd battery for power backup to RAM.
- ★ Parallel Printer cable.
- ★ RS-232C Serial Cable.

SPECIFICATIONS

MCU

8031/51 @ 11.0592 MHz

MEMORY

Two JEDEC sockets provide following memory configuration.

ROM : 32K bytes of system firmware using 27C256.

RAM : 96K bytes, 32K bytes of Program memory (using upper half of 628128) and 64K bytes of data memory (using lower half of 628128). Upper most 8K bytes of data Memory are reserved for I/O addressing and I/O expansion.

PERIPHERALS

8155 : 256 bytes RAM with I/O ports and timer. RAM reserved for monitor, 14 bit timer is available for user and port lines are used for LCD & system configuration.

8255 : PPI, Two Programmable Peripheral Interface devices, provides (24x2) 48 I/O Lines; one supplied, another for user expansion and one of them is used for parallel printer interface.

8253 : PIT, Programmable Interval Timer. Three 16 bit programmable timers available for user.

KBD CNTRL : UPI, Universal Peripheral Interface used to interface PC keyboard in stand alone mode.

INTERRUPTS

External : **INT0** is used for single stepping and user's **BREAK key. INT1** is available to user.

Internal : Internal timer and serial interrupts are used by the system monitor.

IINTERFACE SIGNALS

MCU Bus : Bus signals are available through two 26 pin right angle flat ribbon cable connectors.

Parallel I/O : 48 TTL compatible lines (2 x 8255) brought out through two 26 pin right angle flat ribbon cable connectors.

Serial I/O : On-chip UART Signals are available on a 9 - Pin D-type female connector and USB Port through level shifter MAX232 and FT232R Drivers.

Time Signals : Three 8253 and one 8155 timer signals are available at the 26 pin right angle flat ribbon connector

GENERAL

Power supply requirement : +5V @0.9A (approx .)

Dimensions : (L) 240mm x (B) 210mm x (H) 50mm (approx).

Weight : 700 grams (approx)

SCOPE OF SUPPLY

1. GSAS 51E Trainer
2. User's Manual
3. Driver Software (CD) for Windows (98,2000&XP) and DOS.
4. MCS51 Family Instruction Quick Reference.
5. USB (A-B) Cable.

(Note : Specifications are subject to change without prior notice)

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