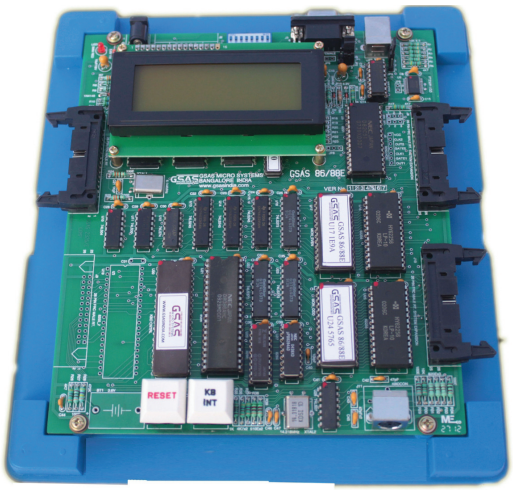
GSAS 86/88E
ECONOMICAL
16-bit MICROPROCESSOR TRAINER



GSAS 86/88E is an economical version of our advanced microprocessor trainer **GSAS 86/88E**. It is a powerful, general purpose microprocessor trainer which can be operated either with 8086 CPU or 8088 CPU in maximum mode of operation. It can be configured for different modes of operation. The basic system can be expanded through the system bus connector.

The powerful firmware provides keyboard monitor, serial monitor, one-line assembler, disassembler and driver programs for parallel printer interface and EPROM programmer interface. **GSAS 86/88E** is supported with comprehensive and user-friendly documentation.

GSAS 86/88E can communicate with host PC using the DOS/Windows based Driver Software supplied. All the standard commands of the serial monitor of **GSAS 86/88E** are fully supported by this package with online help. In addition, object code files (HEX files generated using PC native tools like MASM, TASM) can be downloaded to **GSAS 86/88E** from the host PC, permitting the development of powerful application software. All these features make **GSAS 86/88E** a complete single board microcomputer for development in R&D labs and industries or for training in research and educational institutions. The **GSAS 86/88E** Trainer communicates with host PC through USB or RS-232C in serial mode.

MAIN FEATURES

- ★ GSAS 86/88E operates on single +5V power supply either in stand-alone mode or with host PC through its USB or RS-232C interface in serial mode.
- ★ Works with either 8086 or 8088 CPU at 5 MHz.
- ★ Keyboard and serial monitor support the entry of user Program, editing and debugging facilities like breakpoint, Single-step and full speed execution of user program.
- ★ Built-in One Line Assembler, Disassembler in both serial and stand-alone modes of operation.
- ★ GSAS 86/88E has provision for on-board memory of 192K Bytes inclusive of 64K bytes of RAM with optional battery backup.
- ★ Monitor resident parallel printer diver.
- ★ 48 I/O lines and three 16-bit programmable interval timers.
- ★ Provision for system bus expansion through two 26 pin flat ribbon cable connectors.
- ★ User friendly menu driven windows driver software for file upload/download to/from host PC.
- ★ 64K Bytes of software breakpoints implemented through Windows driver

ACCESSORIES (Optional)

- ★ Power Adapter :+5V @ 3A (SMPS).
- ★ PC keyboard for stand-alone mode of operation.
- ★ EPROM Programmer Interface to program 2716 through 27512.
- ★ Interface modules for training purpose: Calculator type keypad, HEX Keypad, Elevator, Display, Dual DAC, 12 bit 8 channel ADC, Tone Generator, Stepper Motor, Opto Isolated Input, Opto Isolated Output,Relay Output, DC Motor Interface, TXDR ADC, Etc.,
- ★ Study Cards for 8255, 8279, 8251/8253 and 8259.
- ★ Power Supply : +5V@3A ; ±12V@250mA ; and +30V@100mA (**required for some of the above interfaces**)
- ★ 3.6V Ni-Cd battery for power backup to RAM.
- ★ Parallel Printer Interface Cable.
- ★ RS-232C cable.

SPECIFICATIONS

CENTRAL PROCESSOR

8086/8088 @ 5 MHz (Supplied with 8086)

MEMORY

4 JEDEC sockets provide the following Memory Configuration.

ROM : 128K bytes system firmware using 27C512 (64Kx2).

RAM : 64K bytes using 62256 (32Kx2)

PERIPHERALS

8255 : PPI; Three nos, of Programmable Peripheral Interface. (72 I/O lines) One 8255 used by system for mode selection & LCD,remaining two nos, are for user, one supplied ; another for user expansion.

8253 : PIT; Programmable Interval Timer. Three 16 bit programmable timers, timer 0 for baud, timer 1 and 2 available for user.

8251 : USART for serial communication supporting all standard bauds from 110 to 19200.

KBD CNTL : Universal Peripheral Interface used to Interface with PC keyboard in standalone mode.

8288 : Bus controller used to generate control signals.

8284 : Clock generator used to generate clock & RESET signals.

INTERRUPTS

External : NMI for user through KBINT key
INTR is Left unconnected.

Internal : INTI for single step
INT3 to break user program.

INTERFACING SIGNALS

CPU BUS : Demultiplexed and fully buffered, TTL compatible, Address, Data & Control Signals are available on two 26 pin flat ribbon cable connectors.

Parallel I/O : 48 programmable parallel I/O lines through two 26 pin ribbon cable connectors.

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

Timer Signals : Timer 1 & 2 signals are brought to a header.

GENERAL

Power Supply Requirement : +5V @ 1.4A (approx.)

Dimensions : (L) 240mm x (B) 210mm x (1) 50mm (Approx.)

Weight : 700gms. (approx.)

Housed in an Elegant translucent ABS/PC plastic Encloser

SCOPE OF SUPPLY

1. GSAS 86/88E Trainer
2. User's Manual with Schematics
3. DOS & Windows (98, 2000 & XP) Driver Software CD
4. MCS-86 Assembly Language Reference Guide
5. USB (A-B) Cable.

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

OUR PRODUCT RANGE : EDA Tools and FPGA development boards from ALTIUM, Zeroplus logic cum protocol analyzers, Portable Microscope , Testing & Measuring Equipment, Testing & Measuring Systems, Universal Device Programmers; ARM,PIC Trainer and Interface Modules, Incircuit test and Flash Systems; In-Circuit Emulators; ROM Emulators; Microcomputer Development Systems; Add-on Cards, AD/DA cards, DIO cards, Microprinters, Microprocessor Trainers for 8085, 8086/88 ; Microcontroller Trainers for 8031/51 etc.

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