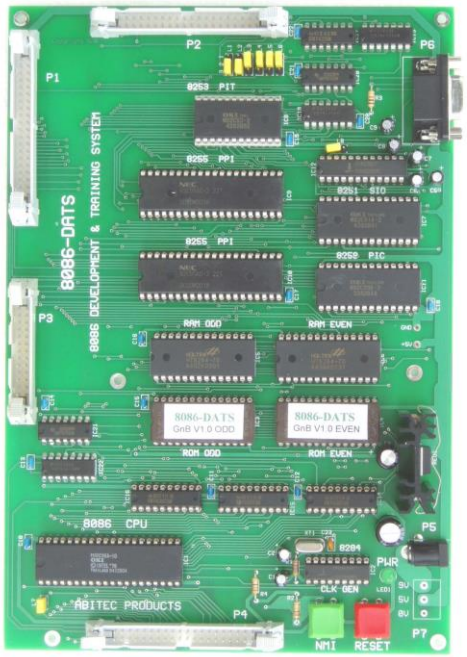
8086-DATS

8086 DEVELOPMENT & TRAINING SYSTEM

The 8086-DATS includes a comprehensive target board based on the true 16-bit 8086 microprocessor. Designed as a general purpose unit it simplifies the teaching of the 8086 CPU and its commonly used peripherals. Suitable for use at all levels, from simple programs flashing an LED to use as a controller in complex projects.
The **8086-DATS** offers a wide variety of hardware and software facilities whilst retaining simplicity in operation.
Ideally suited to **EDUCATIONAL** and **TRAINING** applications, **8086-DATS** is usedas a development system for **8086 Assembler Code** programs, the EPROM based monitor providing a user interface to a standard Personal Computer via its serial port.



8086 assembler code programs are constructed on the standard Personal Computer running **WIN95** or higher and downloaded from the host in lntel Hex format. Programs can be entered into the integral **WINDOWS** based, **LINE-by-LINE assembler, Disassembled** and easily **debugged** with the powerful **MONITOR** facilities. **LINE Assembled** programs can also be **saved** and **re-loaded** when required. When **SINGLE STEPPING**, the current program position is highlighted in either the **LINE** assembler or **DISASSEMBLER** windows. The **floating windows** format of the 8086-DATS communication software enables both **REGISTER and MEMORY** contents to be displayed on the screen in their respective windows and a **Watch Window** enables specific selected memory locations to be displayed and monitored. The **PORTS** window allows the reading and writing of data to specified PORT addresses. Also, **PORT** addresses can be selected and added to a **PORT WATCH** list.
Alternatively, programs may be developed using a standard **Assembler and Linker** producing **Intel Hex format code** for down loading to the **8086-DATS**.

Standard connectors give full access to Data and Address buses so that logic analysers and other diagnostic equipment can be connected easily for demonstration and debugging purposes.
The 8086 PCB is supplied mounted on an acrylic base with rubber feet for stability whilst in use on the bench.
All major components are retained in turned pin I/C sockets This enables faults to be easily applied without fear of damage to the target board for the teaching of fault finding techniques.
The teaching of Logic and Signature Analysis and In-Circuit Emulation techniques is enhanced because the board may be set up for a realistic dedicated application.

Major Hardware Features include:

- External bus expansion
- Full address decoding
- Two 16-bit programmable parallel I/0 ports
- Fully buffered, programmable serial port
- 3 channel programmable timer
- 7 levels of prioritised interrupts

The **8086-DATS** target board is supplied complete with its powerful "on board" EPROM based monitor, a Windows based host control software and comprehensive technical reference manual.

8086-DATS is manufactured as a double Eurocard size (16Omm x 233.4mm) printed circuit board with through plated holes, solder mask and screen printed component identification. Serial port connection is via 9 way D type connector. 40 way IDC connector is used for access to the Parallel Input/Output port. A 40 way IDC connector is also used for direct access to all of the connections to the 8086 Microprocessor. A standard 2.l mm

power inlet socket is fitted for use with an unregulated power supply or alternatively screw terminals allow direct connection of a 5V DC supply.

8086-DATS Hardware Features

- 8086 Microprocessor running at 4.9152 MHz from Clock Generator Driver (8284A).
- CPU connections accessed via a 40 way IDC connector for external processor bus expansion.
- RS232 port using the (8251) USART & fully buffered by MAX238 line receiver/drivers.
- Powered from a simple unregulated 8 to 13V dc or from a regulated +5V dc source.
- Two Programmable Peripheral Interface chips (8255) giving 2 -16 bit programmable I/0 ports.
- I/0 connections compatible with Abitec's range of Application products.
- Programmable Interval Timer (8253) providing 3 channel 16 bit counter/timer channels.
- Programmable Interrupt Controller (8259) provides 8 levels of prioritised interrupts for peripherals.
- Two 27256 EPROMs with embedded Monitor provide 64Kbyte EPROM memory.
- Two 6264 RAM chips providing 16Kbyte RAM memory expandable to 64Kbyte.
- Full address decoding and additional isolated I/O decoded signals for external expansion.
- Hardware reset and Non-maskable interrupt push buttons.
- Non-maskable interrupt control of 8086 from external signal source.
- Power supply, serial cable, communication software and comprehensive manual included.
- 8086 board is mounted on acrylic base and supplied in a rugged moulded storage case.

8086-DATS Windows Software/Monitor Features

- Line Assemble - to enter code line at a time. (programs can be saved, reloaded and downloaded to the board when required).
- Memory - examine/alter memory contents.
- Register - examine/alter registers contents
- Memory Block - displays 256 bytes memory.
- Single Step - highlights and steps through code a single instruction at a time.
- Port Input - read & display specified port.
- Port Output - output byte to specified port.
- Disassemble - disassembles code to screen.
- Breakpoint - Sets up to 4 breakpoints
- Download - loads extended Intel hex files.
- Full specified memory mapping
- Jump Calculator - 16 & 8 bit 2's compliment jump calculator

The on-board monitor software is provided in a pair of 27256 EPROMs (or optionally in 28C256 EEPROMs). The monitor communicates with the host computer via the RS232 interface operating at 9600 baud; interface

8086-DATS standard package consists of the 8086 PCB supplied in a rugged moulded storage case, the Technical/User Manual, Experiments Manual, Power Supply (9V1A), Serial cable and Disk based PC Communications.

To operate the 8086-DATS a PC is required running an operating system of WIN95 or higher.

Interface connecting cables and a range of parallel I/O applications products are also available along with low cost and professional grade development software.

Ordering Information

8086-DATS ……8086 training system (specify UK, US or EU PSU)

ABITEC PRODUCTS, OAK HOUSE, No 4 THE FARM, Littleton Panell, Nr Devizes, SN1 4AX, UK
Tel No: +44 (0) 1380 812378,
E-mail :Sales@abitec.co.uk