
MICROCOMPUTER PRINCIPLE AND INTERFACE EXPERIMENT KIT



OVERVIEWS

This system is the best supporting experimental equipment for teaching courses such as "Microcomputer Control Technology" and "Sixteen-Bit Microcomputer Principles and Interfaces". With the design concept of small system, multi-function and easy expansion, the motherboard is mainly based on the experiments of "8086 Series Microcomputer Experiment Guide", adding address bus, data bus, control bus lead-out and expansion unit (area), so that the school can start from the needs, optional expansion modules provide a good experimental development environment for teaching experiments, curriculum design, and graduation projects in various colleges and universities.

There are two working modes: one is to run with a PC, and realize various debugging and running operations while being online with the host software; the other is to run offline, the experimental system comes with its own keyboard, display circuit and monitoring and management program. In the absence of a PC, the experimental program can also be debugged through memory reading and writing, single step, breakpoint, full speed and other methods.

Experimental openness: The experimental circuit unit should be as independent and open as possible, such as an open keyboard, an open display, an open serial port, etc., to provide the possibility to adapt to a variety of experiments.

Secondary development: The system leads out all the address bus, data bus, and control bus, leaving an expansion unit on the main board, and debugging the user board through the experimental system.

CONFIGURATION

Configuration	Introduction
Microcomputer system expansion	CPU (8088) compatible with CPU8086, system control chip (1032), 64K monitoring program memory, 64K user program and data memory (61256x2), 64K experimental program memory, open 4*6 keyboard circuit, open 6-digit dynamic digital tube display circuit, Equipped with serial port or USB communication mode, the factory configuration is serial port.
Input Output	128*64 LCD graphic circuit (or character 1602 LCD), 8-bit switch logic level input/output circuit, single pulse generator, 8MH clock frequency division, 16*16 LED dot matrix circuit, audio power amplifier, 0~5V Adjustable analog quantity, PWM circuit, emitter follower, printing port, user serial interface.
Commonly used interface chips	74LS273, 74LS244, 8279, 0832, 0809, 8259, 8250, 8253, 8251, 8255, 8237, RS232, etc.;
Control target	Horns, buzzers, small DC motors, stepper motors, pressure sensors, temperature sensors, relays, etc.;
Expansion unit interface	Provide bus interface, you can expand the design by yourself or choose our company's expansion module
Software	The system is equipped with microcomputer simulation and debugging software for Win7/10 and other operating platforms, supporting assembly and C language compilation and debugging.
Power supply:	The system has built-in high-performance DC regulated power supply.
Chassis:	The system is configured with a lightweight aluminum alloy box as the experimental instrument chassis.

TRAINING ITEMS

Software experiments

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- Binary multi-digit addition experiment
 - Binary to BCD code experiment
 - Convert BCD code to binary code
 - BCD code subtraction operation of decimal numbers
 - Memory clearing experiment
 - Digital display experiment
 - Find the maximum and minimum number
 - Data block transfer experiment
 - Branch programming.

Hardware experiment:

- A/D conversion experiment
- D/A conversion experiment (1)
- D/A conversion experiment (2)
- 8255A parallel port experiment (1)
- 8255A parallel port experiment (2)
- Timer/Counter Experiment
- 8259 single-stage interrupt controller experiment
- Serial port sending experiment (dual-machine communication)
- Serial port receiving experiment (dual-machine communication)
- Small DC motor speed regulation experiment;
- Stepper motor control
- Relay control
- Memory reading and writing experiment
- Electronic keyboard experiment
- Simple I/O port expansion experiment
- 8251 programmable communication interface and PC communication
- 16*16 LED dot matrix display experiment
- 128*64 LCD liquid crystal display experiment
- 8237 DMA transfer experiment
- 8250 programmable asynchronous communication interface experiment
- 8279 keyboard display experiment
- Temperature measurement experiment
- Pressure measurement experiment

Additional Product Information

Product Overview

The 8086 Microprocessor Trainer Kit is a comprehensive educational platform designed for learning and experimenting with the Intel 8086 microprocessor architecture. It provides hands-on experience in assembly language programming, interfacing techniques, and hardware-software integration. The kit is ideal for engineering students, technical institutes, and embedded system laboratories.

Key Features

- Based on Intel 8086 Microprocessor architecture
- On-board RAM and EPROM memory
- Hex keypad for data entry
- 7-segment / LCD display for output monitoring
- Built-in monitor program for execution
- Supports assembly language programming
- Expansion ports for interfacing external devices
- On-board RS232 serial communication interface
- Step-by-step program execution facility
- Stable regulated power supply

Applications

- Engineering and Polytechnic laboratories
- Microprocessor and Microcontroller training
- Assembly language programming practice
- Interfacing experiments (8255, 8253, 8251 etc.)
- Embedded system fundamentals training
- Academic projects and demonstrations
- Industrial training institutes