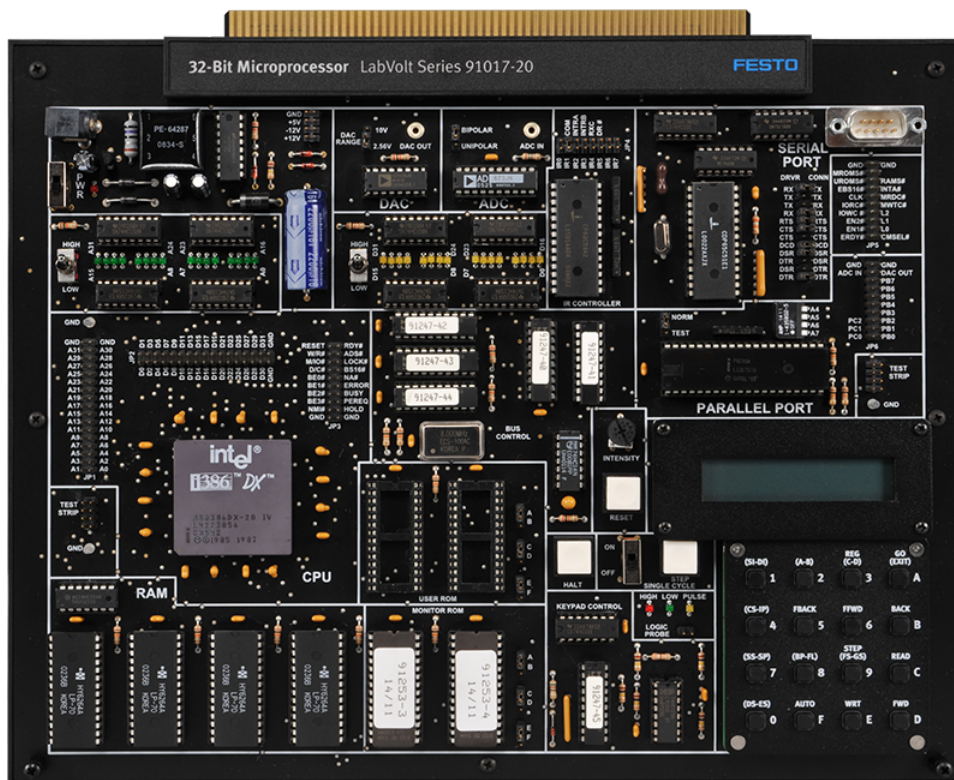


32-Bit Microprocessor FACET Board 581069 (91017-20)

FESTO

LabVolt Series

Datasheet



Festo Didactic

en

11/2024

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General Description

The 32-Bit Microprocessor module builds on the student's knowledge of digital circuitry gained in Digital Logic Fundamentals, Model 91014, and Digital Circuit Fundamentals 1 and 2, Models 91015 and 91016. The 80386DX CPU can be used as a stand-alone unit or in conjunction with the FACET base unit to demonstrate microprocessor, memory, and I/O concepts, and communication with analog systems via A-to-D and D-to-A converters.

A keypad and a 2-line x 16-character alphanumeric LCD display allow direct interaction with the CPU. All address, data, and control signals are connected to headers for easy access and expansion to off-board circuits. Additional hardware features include 32-kbyte static RAM, 16-kbyte ROM with monitor, RS-232 serial port, 8-bit parallel port, and LED indicators for address and data buses.

An on-board logic probe, single bus cycle execution mode, and the practical, hands-on approach of the courseware guide students in the analysis and troubleshooting of 32-bit microprocessor systems. The circuit board may be used in the FACET base unit or as a stand-alone trainer.

- When used in the FACET base unit, the course can be performed through the interactive Learning Management System (LMS) format.

- When used as a stand-alone trainer, the course is performed in a conventional way by using the provided student manual and instructor guide. In that case, a power pack (provided with the stand-alone trainer) must be used to supply power to the circuit board if it is used without a base unit.

Topic Coverage

- Introduction to the Circuit Board and its Operation
- Bus States, 32-Bit Bus Transfers
- Read and Write Cycles
- CPU Initialization
- Memory Control Signals, Address Decoding, Data Transfers
- Ports: DAC and ADC Ports, PPI and Keypad Interface, Display and Serial Ports
- Non-maskable and Maskable Interrupts, Exceptions
- Immediate, Register and Memory Addressing Modes
- Instruction Formats and Using the 80386 CPU Instructions
- Troubleshooting Basics and 32-Bit Microprocessor Troubleshooting
- Application Board Familiarization (Requires the Optional Microprocessor Application Board, Model 91602)
- DC Motor Control (Requires the Optional Microprocessor Application Board, Model 91602)
- Temperature Control (Requires the Optional Microprocessor Application Board, Model 91602)

Features & Benefits

- 16 KB monitor ROM/User ROM
- Serial data port (RS-232)
- Parallel data port (8-bit)
- Single-bus cycle control
- Single-instruction cycle control
- On-board applications interface
- On-board logic probe for signal tracing
- Optional microprocessor application board to demonstrate practical microprocessor-based temperature/motor control

- Interrupt controller
- ADC/DAC

Reflecting the commitment of Festo Didactic to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification.

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