

# Microcontroller

# 8X305

## FEATURES

- Fetch, Decode, and Execute a 16-bit instruction in a minimum of 200ns (one machine cycle)
- Bit-oriented instruction set (addressable single-or-multiple bit subfields)
- Separate buses for Instruction, Instruction Address and Three-State I/O
- Thirteen 8-bit general-purpose working registers
- Source/destination architecture
- Bipolar low-power Schottky technology/TTL inputs and outputs
- On-chip oscillator and timing generation
- Single +5V supply
- 0.9-in. 50-pin DIP
- 68-pin PLCC

## DESCRIPTION

The 8X305 Microcontroller (Figure 1) is a high-speed bipolar microprocessor implemented with low-power Schottky technology. In a single chip, the 8X305 combines speed, flexibility, and a bit-oriented instruction set. These features and other basic characteristics of the chip combine to provide cost-effective solutions for a broad range of applications. The 8X305 is particularly useful in systems that require high-speed bit manipulations—sophisticated controllers, data communications, very fast interface control, and other applications of a similar nature.

The 8X305 can fetch, decode, and execute a 16-bit instruction in a minimum of 200ns. Within one instruction cycle, the 8-bit data-processing path can be programmed to rotate, mask, shift, and/or merge single or multiple bit subfields and, in addition, perform an ALU operation. In the same instruction, an external data field can be input, processed, and output to a specified destination—likewise, single or multiple bit data fields can be internally moved from a given source to a given destination. To summarize, fixed or variable-length data fields can be fetched, processed, operated on by the ALU, and moved to a different location—all in a timeframe of 200ns. To interface with I/O and program memory, the 8X305 uses a 13-bit instruction address bus, a 16-bit instruction bus, an 8-bit bidirectional multiplexed I/O data/address bus and a 5-bit I/O control bus.

A wide selection of I/O devices, interface chips, and special-purpose parts are available for systems use. In most applications, the more powerful 8X305 is functionally interchangeable with its predecessor—the 8X300.

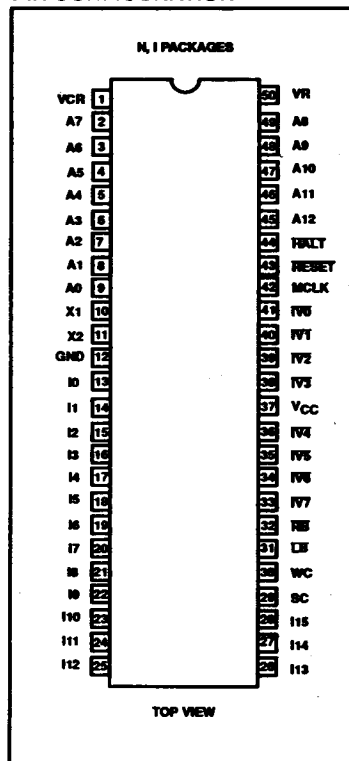
## ASSOCIATED DOCUMENTATION

Other documents directly relating to *design* and *applications use* of the 8X305 Microcontroller are:

- Product Capabilities Manual
- 8X305 Users Manual

These documents and other current literature (Data Sheets, Product Bulletins, Applications Notes, etc.) are available from you local Signetics Sales Office.

## PIN CONFIGURATION



## ORDERING INFORMATION

DESCRIPTION	ORDER CODE
50-Pin plastic DIP	N8X305N
50-Pin ceramic DIP	N8X305I
68-Pin PLCC	N8X305A

**FOR COMPLETE INFORMATION ON THIS PRODUCT, CONTACT YOUR LOCAL SIGNETICS SALES OFFICE (SEE SECTION 9 OF THIS DATA HANDBOOK).**