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.
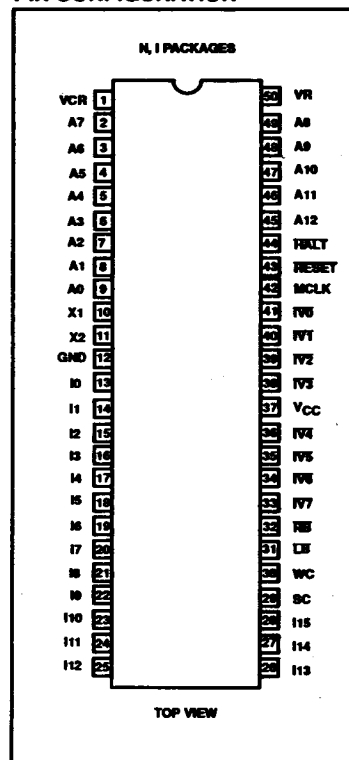
ASSOCIATED DOCUMENTATION

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

N, I PACKAGES

VCR	1	50	VR
A7	2	49	A8
A6	3	48	A9
A5	4	47	A10
A4	5	46	A11
A3	6	45	A12
A2	7	44	HALT
A1	8	43	RESET
A0	9	42	MCLK
X1	10	41	IV0
X2	11	40	IV1
GND	12	39	IV2
I0	13	38	IV3
I1	14	37	Vcc
I2	15	36	IV4
I3	16	35	IV5
I4	17	34	IV6
I5	18	33	IV7
I6	19	32	RB
I7	20	31	LB
I8	21	30	WC
I9	22	29	SC
I10	23	28	I15
I11	24	27	I14
I12	25	26	I13

TOP VIEW

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).