SCN8049, SCN8050, SCN8039, SCN8040 single-chip 8-bit microcontroller

SCN8049 SERIES

DESCRIPTION

The SCN8049 Series Microcontrollers are self-contained, 8-bit processors which contain the system timing, control logic, RAM data memory, ROM program memory (8048/49/50 only), and I/O lines necessary to implement dedicated control functions. All SCN8049 Series devices are pin and program compatible, differing only in the size of the on-board program ROM and data RAM, as follows:

TYPE	RAM SIZE	ROM SIZE
SCN8049	128 × 8	2k × 8
SCN8050	256 × 8	4k × 8
SCN8039	128 × 8	–
SCN8040	256 × 8	–

Program memory can be expanded externally up to a maximum total of 4k bytes without paging. Data memory can also be expanded externally. I/O capabilities can be expanded using standard devices or the 8243 I/O expander.
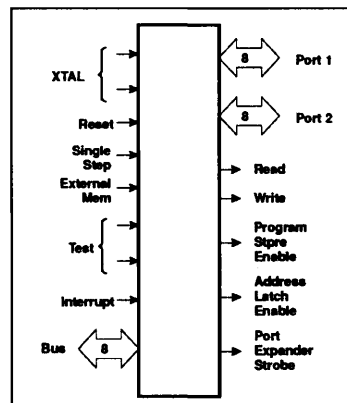
The SCN8049 Series processors are designed to be efficient control processors as well as arithmetic processors. They provide an instruction set which allows the user to directly set and reset individual lines within its I/O ports as well as test individual bits within the accumulator. A large variety of branch and table look-up instructions make these processors very efficient in implementing standard logic functions. Also, special attention has been given to code efficiency. Over 70% of the instructions are a single byte long and all others are only 2 bytes long.

An on-chip 8-bit counter is provided which can count, under program control, either internal clock pulses (with a divide by 32 prescaler) or external events. The counter can be programmed to cause an interrupt on terminal count.
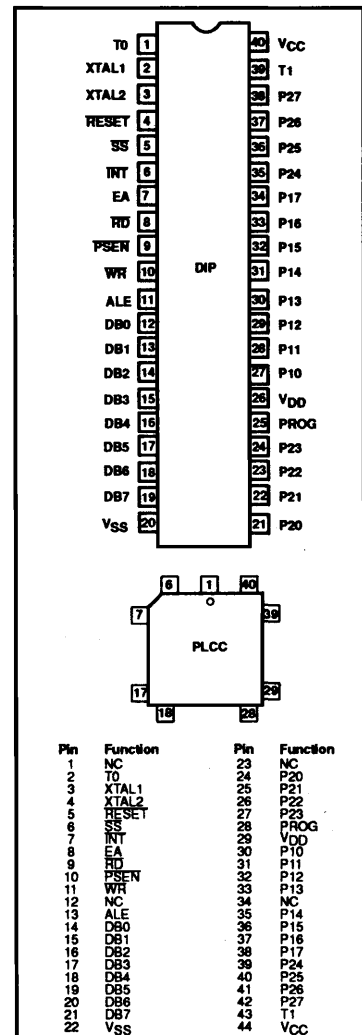
FEATURES

- 8-bit CPU, ROM, RAM, I/O in a 40-pin package
- 24 quasi-bidirectional I/O lines
- Two test inputs
- Internal counter/timer
- Single-level vectored interrupts: external, counter/timer
- Over 90 instructions, 70% single byte
- 1.36µs or 2.5µs instruction cycle, all instructions one or two cycles
- Expandable memory and I/O
- Low voltage standby
- TTL compatible inputs and outputs
- Single +5V power supply

LOGIC SYMBOL

PIN CONFIGURATIONS

Pin	Function	Pin	Function
1	NC	23	NC
2	T0	24	P20
3	XTAL1	25	P21
4	XTAL2	26	P22
5	RESET	27	P23
6	SS	28	PROG
7	INT	29	VDD
8	EA	30	P10
9	RD	31	P11
10	PSEN	32	P12
11	WR	33	P13
12	NC	34	NC
13	ALE	35	P14
14	DB0	36	P15
15	DB1	37	P16
16	DB2	38	P17
17	DB3	39	P24
18	DB4	40	P25
19	DB5	41	P26
20	DB6	42	P27
21	DB7	43	T1
22	VSS	44	VCC

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