

μ PD75328/P328 4-Bit, Single-Chip Microcomputers with LCD Controller/Driver and A/D Converter

T-49-19-44

T-49-19-59

Description

The μ PD75328 and μ PD75P328 are high-performance, single-chip CMOS microcomputers that contain a CPU, ROM, RAM, I/O ports, an interval timer, a timer/event counter, a watch timer, an LCD controller, an A/D converter, vectored interrupts, a subsystem clock, and a serial interface. The instruction set allows the user to manipulate RAM data and I/O ports in 1-, 4- and 8-bit units.

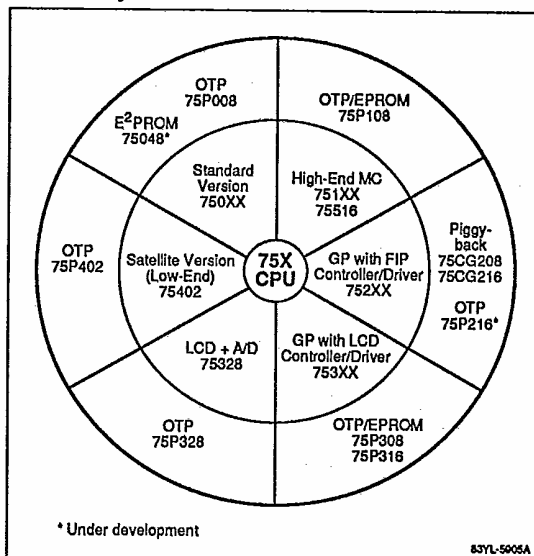
Features

- 103 instructions
 - Bit-manipulation instructions
 - 4-bit and 8-bit transfer instructions
 - 1-byte relative branch instructions
 - GETI instruction that converts one 2-byte instruction or two 1-byte instructions into one 1-byte instruction
- Variable instruction execution time for power saving
 - 0.95, 1.91, 15.3 μ s at 4.19 MHz
 - 122 μ s at 32.768 kHz
- Program ROM: 8064 bytes
- Data memory (RAM)
 - Allows operation on 1-, 4-, and 8-bits
 - Contains 512 $\times$ 4 bits
- Bit-sequential buffer
 - 16-bit, bit-manipulation memory
- Eight 4-bit registers
- Accumulators
 - 1-bit accumulator (CY)
 - 4-bit accumulator (A)
 - 8-bit accumulator (XA)
- 24 I/O lines
 - 12 outputs can drive a LED directly (sink 15 mA rms)
 - Eight N-channel open drain; withstands 10 V
- 12 input-only lines
- One external event input
- Timers
 - One 8-bit basic interval timer
 - One 8-bit timer/event counter
 - One 14-bit watch timer
- A/D converter
 - 6-channel
 - 8-bits
- LCD controller
 - Four common lines
 - 20 segment lines
 - Modes of operation: static; multiplexed 1/2 bias; triplexed 1/2 or 1/3 bias; quadruplexed 1/3 bias

- 8-bit serial interface
 - SBI mode
 - 2- or 3-wire mode
 - Data transfer can be MSB or LSB first
 - Full duplex mode
 - Receive-only mode
- Vectored interrupts
 - Three external interrupts
 - Three internal interrupts
 - Nine inputs which generate one interrupt request
- Standby modes
 - HALT mode: stops CPU only
 - STOP mode: stops total chip
- Mask options (not available on 75P328)
 - Pull-up resistors for ports 4 and 5
 - LCD resistor ladder
- Operates with oscillator or ceramic resonator
- CMOS technology at 5 V and 4.19 MHz
 - Normal operation: 2.5 mA typical
 - HALT mode: 0.5 mA typical
 - STOP mode: 0.1 μ A typical
- Programmable versions
 - OTP: μ PD75P328



75X Family Architecture



μPD75328/P328

NEC

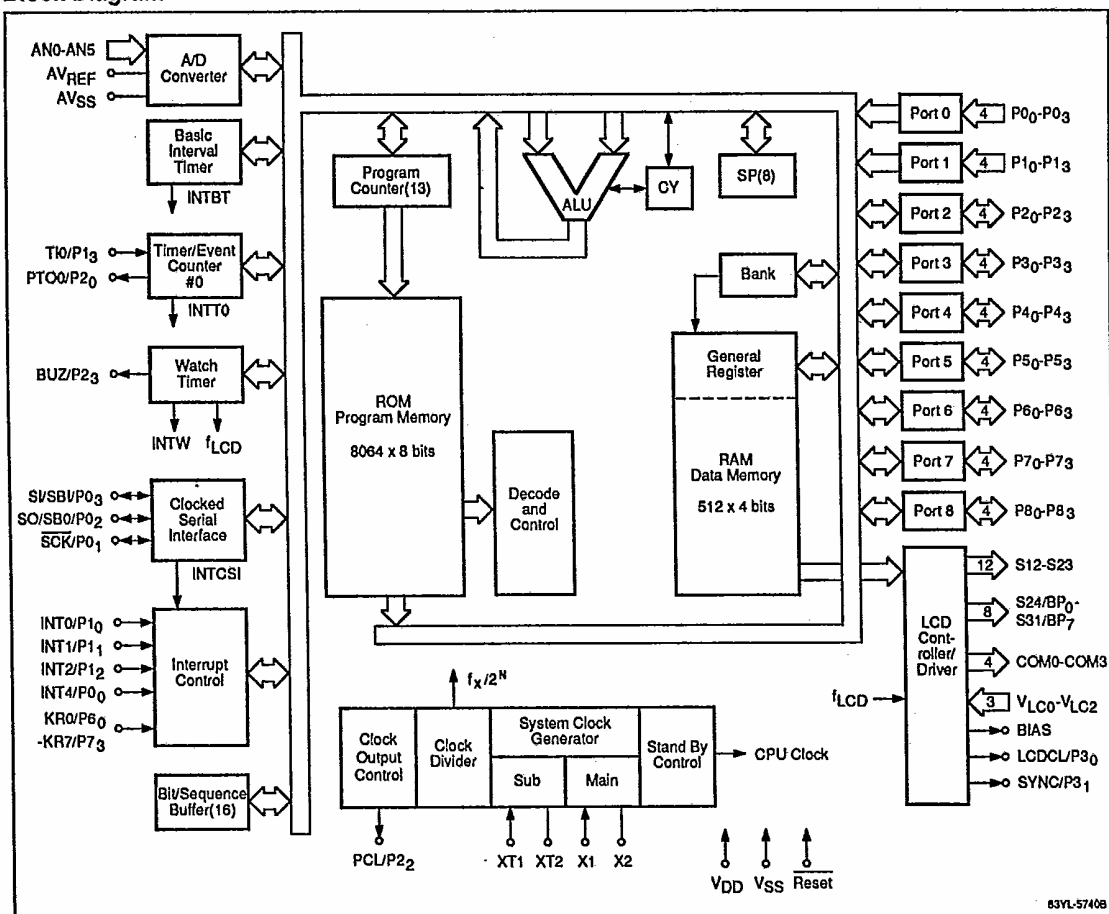
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Ordering Information

Part Number	Package	ROM
μPD75328GC-xxx-3B9	80-pin plastic miniflat	Mask ROM
μPD75P328GC	80-pin plastic miniflat	OTP

Block Diagram



83VL-57408