National Semiconductor

ADVANCE INFORMATION

# COP880
# Single Chip Microcontroller

## General Description

The COP880C is a member of the COPS™ 8-bit MicroController family. It is a fully static Microcontroller, fabricated using double-metal silicon gate microCMOS technology. This low cost Microcontroller is a complete microcomputer containing all system timing, interrupt logic, ROM, RAM, and I/O necessary to implement dedicated control functions in a variety of applications. Features include an 8-bit memory mapped architecture, MICROWIRE serial I/O, a 16-bit timer/counter with capture register and a multi-sourced interrupt. Each I/O pin has software selectable options to adapt the COP880C to the specific application. The COP880C operates over a voltage range of 2.5V to 6.0V. High throughput is achieved with an efficient, regular instruction set operating at a 1 μs per instruction rate. The COP880C may be operated in the ROMless mode to provide for accurate emulation and for applications requiring external program memory.

## Features

- Low cost 8-bit MicroController
- Fully static CMOS
- 1 μs instruction time (20 MHz clock)
- Low current drain (2.2 mA at 3 μs instruction rate)
- Extra-low current static HALT mode (Typically < 1 μA)
- Single supply operation: 2.5V to 6.0V
- 4096 x 8 on-chip ROM
  - Expandable to 32k bytes in ROMless mode
- 128 bytes on-chip RAM
- 16-bit read/write timer operates in a variety of modes
  - Timer with 16-bit auto reload register
  - 16-bit external event counter
  - Timer with 16-bit capture register (selectable edge)
- Multi-source interrupt
  - External interrupt with selectable edge
  - Timer interrupt or capture interrupt
  - Software interrupt
- 8-bit stack pointer (stack in RAM)
- Powerful instruction set, most instructions are single byte
- BCD arithmetic instructions
- MICROWIRE PLUS™ serial I/O
- Packages:
  - 44 PLCC with 36 I/O pins
  - 40 DIP with 36 I/O pins
  - 28 DIP and PLCC with 24 I/O pins
- Software selectable I/O options (TRI-STATE®, push-pull, weak pull-up)
- Schmitt trigger inputs on Port G
- Temperature ranges:
  - −40°C to +85°C
  - −55°C to +125°C
- ROMless mode for accurate emulation and external program capability
- Fully supported by National's Development Systems

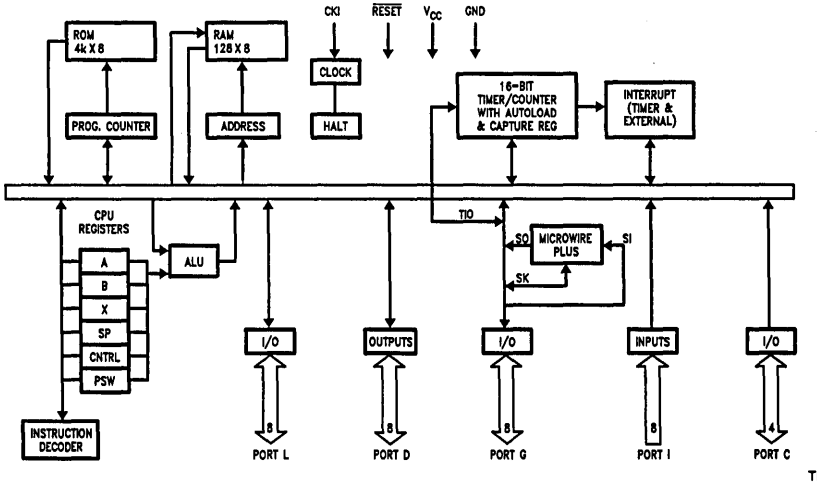


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**FIGURE 1. COP880C Block Diagram**