



# COP8640C/COP8641C/COP8642C/ COP8620C/COP8621C/COP8622C

## Single-Chip microCMOS Microcontrollers

### General Description

The COP8640C/COP8620C is a member of the COPSTM microcontroller family. They are fully static parts, fabricated using double-metal silicon gate microCMOS technology. This low cost microcontroller is a complete microcomputer containing all system timing, interrupt logic, ROM, RAM, EEPROM, and I/O necessary to implement dedicated control functions in a variety of applications. Features include an 8-bit memory mapped architecture, MICROWIRE/PLUSTM 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 COP8640C/COP8620C to the specific application. The part operates over a voltage range of 4.5V to 6.0V. High throughput is achieved with an efficient, regular instruction set operating at a 1 microsecond per instruction rate. The part 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  $\mu$ s instruction time (20 MHz clock)
- Low current drain (2.2 mA at 3  $\mu$ s instruction rate)  
Low current static HALT mode (Typically < 1  $\mu$ A)
- Single supply operation: 2.5 to 6.0V
- 2048 Bytes ROM/64 Bytes RAM/64 Bytes EEPROM on COP8640C
- 1024 bytes ROM/64 bytes RAM/64 bytes EEPROM on COP8620C
- 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
  - Reset master clear
  - External interrupt with selectable edge
  - Timer interrupt or capture interrupt
  - Software interrupt
- 8-bit stack pointer (stack in RAM)
- Powerful instruction set, most instructions single byte
- BCD arithmetic instructions
- MICROWIRE PLUSTM serial I/O
- 28 pin package (optionally 24 or 20 pin package)
- 24 input/output pins (28-pin package)
- Software selectable I/O options (TRI-STATE®, push-pull, weak pull-up)
- Schmitt trigger inputs on Port G
- Temperature range: -40°C to +85°C
- ROMless mode for accurate emulation and external program capability—expandable to 32k bytes in ROMless mode
- COP8620C Series compatible with COP8720C Series
- Fully supported by National's Development Systems

### Block Diagram

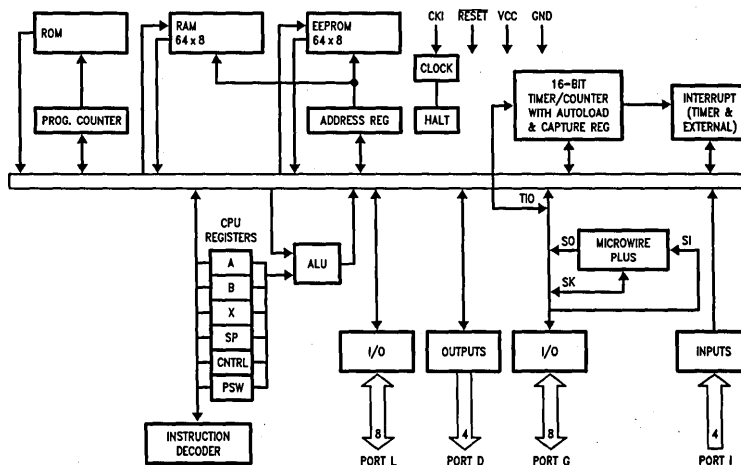


FIGURE 1

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