

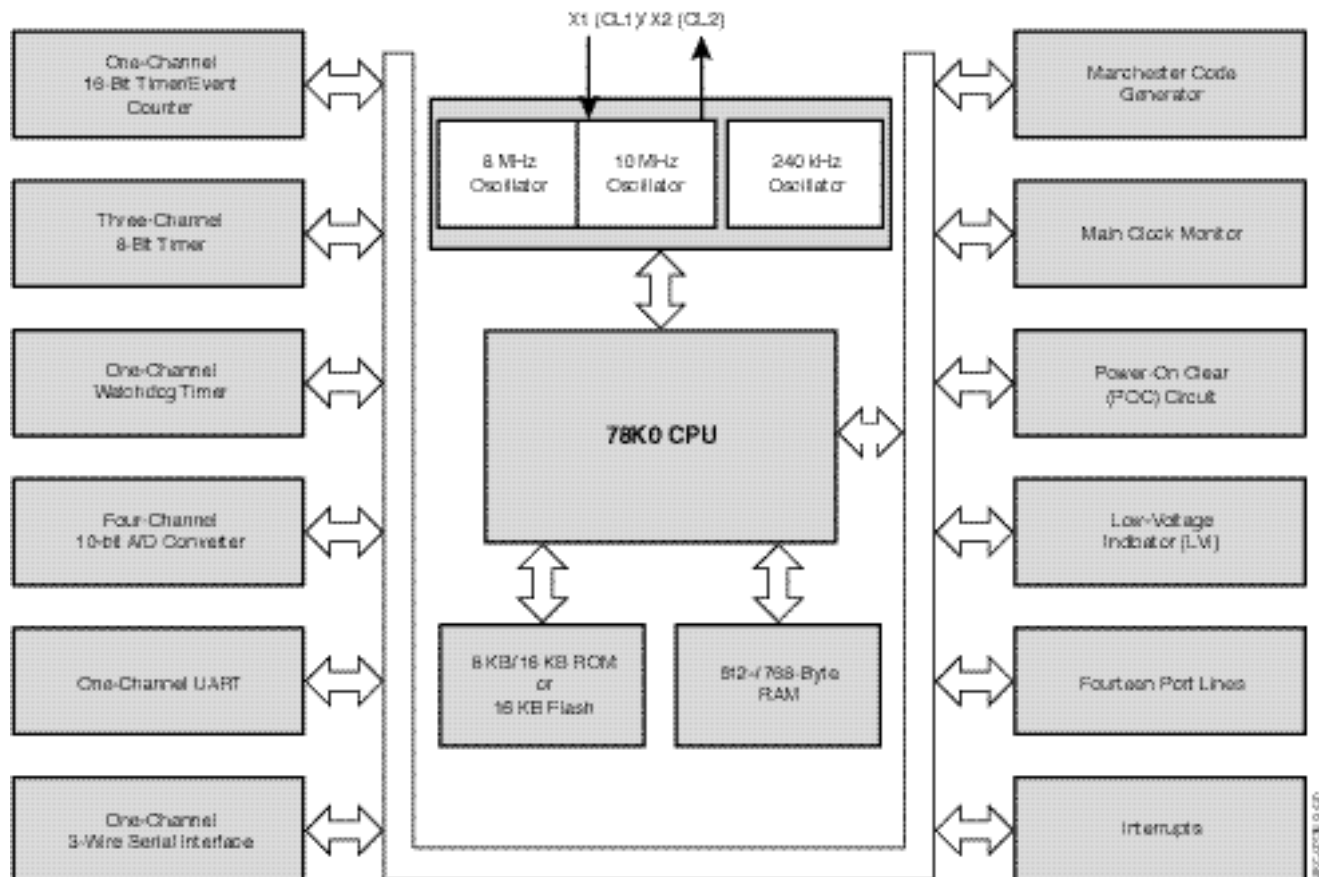
Description

The μ PD78F0862 microcontroller series contains multiple safety features that make these devices ideal for appliance applications. A clock monitor circuit monitors the main clock and switches to an on-chip clock if the main clock fails. A power-on-clear (POC) circuit and low-voltage indicator (LVI) monitor the MCU's supply voltage to protect a system in the event of a power failure. A watchdog timer (WDT) prevents program runaway and can be set so the WDT is always running in all modes using the ring-oscillator. This 8-bit subseries contains mask ROM and flash versions, the latter of which are single-voltage and can be remotely reprogrammed using the MCU's self-programming feature.

Applications

- Appliances
- Home security systems
- Industrial sensors
- Personal home health care equipment
- Power tools
- Small motor control products

Block Diagram



Features

Architecture

- 8-bit CPU
- Instruction set that operates on bits, bytes or words
- 200 ns min. instruction execution time
- Four register banks with eight 8-bit registers each

Memory

- 64 KB linear address space
- 8 KB/16 KB ROM
- 16 KB flash memory
 - Single-voltage
 - Remotely self-programmable
- 512- and 768-byte internal RAM

Timers

- One 16-bit timer/event counter; 16-bit PWM
- Three 8-bit timers; two with 8-bit PWM
- One watchdog timer

A/D Converter

- Four-channel 10-bit
- Power failure detection

Serial Interface

- One-channel UART that supports LINBus
- One-channel 3-wire

Voltage Detection

- Low-voltage indicator with seven levels
- Power-on-clear circuit that resets the microcontroller at low voltages; no external RC needed at reset pin

Oscillators

- External input for 10 MHz crystal or RC input
- 8 MHz on-chip oscillator
- 240 kHz on-chip oscillator; clocks CPU 70 μs after power on

Main Clock Monitor

- Monitors main external clock for failure; restarts microcontroller using 240 kHz clock

Manchester Code Generator

- Generates Manchester code
 - Can program to send 1 to 8 bits
 - Can send LSB or MSB first

Ports

- 14 port lines

Interrupts

- Four external maskable interrupts
- 11 internal maskable interrupts
- Automatic release of Halt and Stop modes

Standby Modes

- Halt and stop modes

Technology

- 0.35-micron process technology

Operating Temperature/Voltage

- -40° to +85°C / 2.7 to 5.5V

| Part Number | Mask ROM | Flash | RAM | Package |
|------------------|----------|-------|-----|-------------|
| μPD780861MC-5A4 | 8 KB | — | 512 | 20-pin SSOP |
| μPD780862MC-5A4 | 16 KB | — | 768 | |
| μPD78F0862MC-5A4 | — | 16 KB | 768 | |

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