



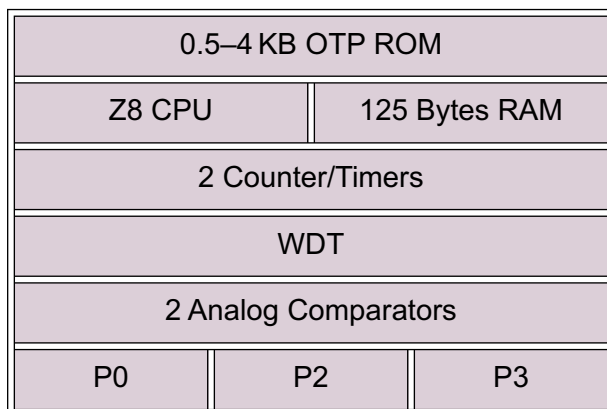
Z i L O G

PB006801-0401

Z86E02/E04/E08/E09

General-Purpose OTP MCU with 14 I/O Lines

Product Block Diagram



General Description

ZiLOG's Z86E02/E04/E08/E09 Microcontrollers (MCU) are One-Time Programmable (OTP) members of ZiLOG's single-chip Z8[®] MCU family that allow easy software development, debug, prototyping, and small production runs not economically desirable with masked ROM versions. There are 4 parts with differing ROM sizes:

Z86E02	0.5KB OTP ROM
Z86E04	1.0KB OTP ROM
Z86E08	2.0KB OTP ROM
Z86E09	4.0KB OTP ROM

For applications demanding powerful I/O capabilities, the Z86E02/E04/E08/E09's dedicated input and output lines are grouped into three ports, and are configurable under software control to provide timing, status signals, or parallel I/O.

Two on-chip counter/timers, with a large number of user-selectable modes, offload the system of administering real-time tasks such as counting/timing and I/O data communications.

Operating Characteristics

- 12-MHz Operation
- Operating Voltage:
 - Standard Temperature—3.0V–5.5V
 - Extended Temperature—4.5V–5.5V
- Low Power Consumption 50mW, typical

Key Features

- Fast Instruction Pointer (1 μ s @ 12 MHz)
- 2 Analog Comparators
- Program Options:
 - Low Noise
 - ROM Protect
 - Auto Latch
 - Watch-Dog Timer (WDT)
 - EPROM/Test Mode Disable
 - RC Oscillator
- WDT/Power-On Reset (POR)
- On-Chip Oscillator that accepts Crystal, Ceramic Resonance, LC, RC, or External Clock
- Clock-Free WDT Reset
- 125 Bytes RAM
- POR Delay Time 6 ms @ 5V, typical

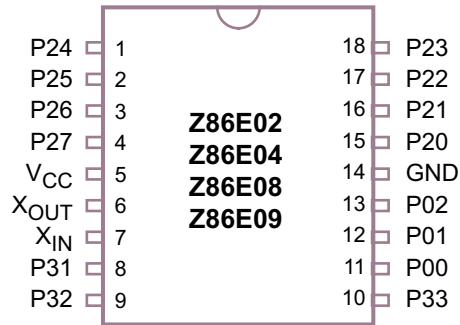
Counter/Timer Structure

- 2 Programmable 8-Bit Counter/Timers, each with 6-bit Programmable Prescaler

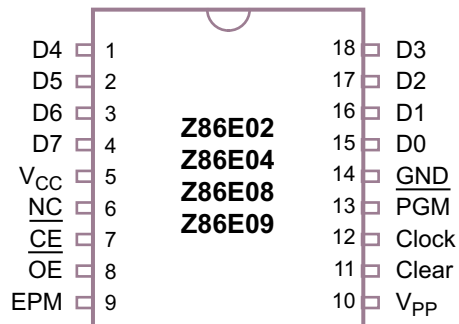
Input/Output and Interrupts

- 14 Input/Output Lines
- 6 Vectored, Prioritized Interrupts (3 falling edge, 1 rising edge, 2 timers)

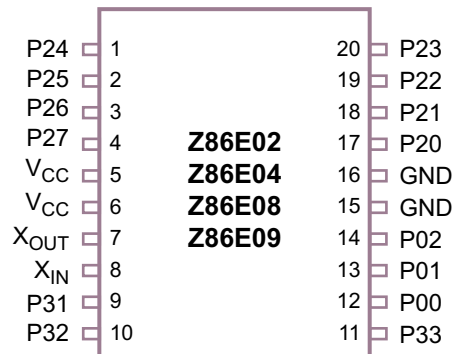
Pin-Outs and Pin Direction



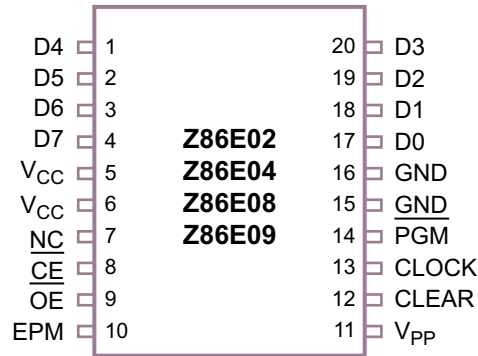
Z86E02 18-Pin DIP/SOIC Configuration, Standard Mode



Z86E02 18-Pin DIP/SOIC Configuration, EPROM Mode



Z86E02 20-Pin SSOP Configuration, Standard Mode



Z86E02 20-Pin SSOP Configuration, EPROM Mode

Applications and Support Tools

The following development tools are available for programming and debugging this device:

- Z86CCP01ZEM and Z86C1200ZEM Emulator/Programmers
- Z86E0700ZDP 18-Pin SOIC to 18-Pin DIP Adapter
- Z86E0200ZDH 20-Pin SSOP to 18-Pin DIP Adapter

Electrical Features Summary

- 3.0V–5.5V Operating Range @ 0°C to +70°C Standard Temperature
- 4.5V–5.5V Operating Range @ –40°C to +105°C Extended Temperature

Z8 Device Selection

Device	Applications	Package	ROM	RAM (Bytes)	Comparators	I/O
Z86E02	General-Purpose MCU	18 DIP/SOIC 20 SSOP	0.5-KB OTP	125	2	14
Z86E04	General-Purpose MCU	18 DIP/SOIC 20 SSOP	1.0-KB OTP	125	2	14
Z86E08	General-Purpose MCU	18 DIP/SOIC 20 SSOP	2.0-KB OTP	125	2	14
Z86E09	General-Purpose MCU	18 DIP/SOIC 20 SSOP	4.0-KB OTP	125	2	14



Ordering Information

To order your ZiLOG parts, please refer to the following table.

Part	PSI	Description
Z86E02	Z86E0212PSC1995	18-Pin DIP Standard Temperature
	Z86E0212SSC1995	18-Pin SOIC Standard Temperature
	Z86E0212HSC1995	20-Pin SSOP Standard Temperature
	Z86E0212PEC1995	18-Pin DIP Extended Temperature
	Z86E0212SEC1995	18-Pin SOIC Extended Temperature
	Z86E0212HEC1995	20-Pin SSOP Extended Temperature
Z86E04	Z86E0412PSC1995	18-Pin DIP Standard Temperature
	Z86E0412SSC1995	18-Pin SOIC Standard Temperature
	Z86E0412HSC1995	20-Pin SSOP Standard Temperature
	Z86E0412PEC1995	18-Pin DIP Extended Temperature
	Z86E0412SEC1995	18-Pin SOIC Extended Temperature
	Z86E0412HEC1995	20-Pin SSOP Extended Temperature
Z86E08	Z86E0812PSC1995	18-Pin DIP Standard Temperature
	Z86E0812SSC1995	18-Pin SOIC Standard Temperature
	Z86E0812HSC1995	20-Pin SSOP Standard Temperature
	Z86E0812PEC1995	18-Pin DIP Extended Temperature
	Z86E0812SEC1995	18-Pin SOIC Extended Temperature
	Z86E0812HEC1995	20-Pin SSOP Extended Temperature
Z86E09	Z86E0912PSC1995	18-Pin DIP Standard Temperature
	Z86E0912SSC1995	18-Pin SOIC Standard Temperature
	Z86E0912HSC1995	20-Pin SSOP Standard Temperature
	Z86E0912PEC1995	18-Pin DIP Extended Temperature
	Z86E0912SEC1995	18-Pin SOIC Extended Temperature
	Z86E0912HEC1995	20-Pin SSOP Extended Temperature
Z86E08F0100ZDP	Z86E08F0100ZDP	Required DIP adapter for SL1995 parts
Z86E08F0100ZDH	Z86E08F0100ZDH	Required SSOP adapter for SL1995 parts
Z86E08F0100ZDS	Z86E08F0100ZDS	Required SOIC adapter for SL1995 parts
Z86CCP01ZEM	Z86CCP01ZEM	Single-Board Emulator/Programmer
Z86E0700ZDP	Z86E0700ZDP	18-Pin SOIC to 18-Pin DIP Adapter
Z86E0200ZDH	Z86E0200ZDH	20-Pin SSOP to 18-Pin DIP Adapter
Z86C1200ZEM	Z86C1200ZEM	ICEBOX Emulator/Programmer