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**What is "Embedded - Microcontrollers"?**

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

**Applications of "Embedded - Microcontrollers"**

| Details | |
|---|---|
| Product Status | Obsolete |
| Core Processor | Z8 LXM |
| Core Size | 8-Bit |
| Speed | 8MHz |
| Connectivity | UART/USART |
| Peripherals | Brown-out Detect/Reset, HLVD, POR, WDT |
| Number of I/O | 24 |
| Program Memory Size | 128KB (128K x 8) |
| Program Memory Type | OTP |
| EEPROM Size | - |
| RAM Size | 1K x 8 |
| Voltage - Supply (Vcc/Vdd) | 2V ~ 3.6V |
| Data Converters | - |
| Oscillator Type | Internal |
| Operating Temperature | 0°C ~ 70°C (TA) |
| Mounting Type | Through Hole |
| Package / Case | 28-DIP (0.600", 15.24mm) |
| Supplier Device Package | 28-PDIP |
| Purchase URL | https://www.e-xfl.com/product-detail/analog-devices/zlp12840p2828g |

# Crimzon® Infrared Microcontrollers

# ZLP12840 OTP MCU
## with Learning Amplification
### Product Brief

PB015605-1007

**Crimzon®**
*Microcontrollers*

## Overview

Zilog's ZLP12840 OTP MCU is a member of the Crimzon® MCU family of infrared microcontrollers. With 1 KB of general-purpose RAM and up to 128 KB of OTP, Zilog's CMOS microcontrollers offer fast executing, efficient use of memory, sophisticated interrupts, input/output bit manipulation capabilities, automated pulse generation/reception, and internal key-scan pull-up transistors.

## Product Block Diagram

| Power-On Reset | 32/64/96/128K OTP ROM | T8 Timer Capture and Transmit |
|---|---|---|
| High Battery Voltage Detection | **Z8® LXM Core** | T16 Timer Capture and Transmit |
| Low Battery Voltage Detection | | 8-Bit Timer w/ UART |
| 2 Comparators | 1 KB RAM | Watchdog Timer |
| Dedicated IR Amplifier | | |
| Port 0 8 I/O | Port 2 8 I/O | Port 3 8 I/O |

## Features

Key features of ZLP12840 OTP MCU include:

- Low power consumption
- Three standby modes
    - STOP—2 μA (typical)
    - HALT—0.8 mA (typical)
    - Low-Voltage Reset

- Infrared dedicated timers
    - Capture and transmit, 8- and 16-bit
    - 8-bit timer with full duplex UART
- Twenty priority interrupt sources
    - Three from UART Tx, UART Rx, UART BRG
    - Two assigned to T8, T16 time-out and capture
    - One low-voltage detection interrupt
    - Fourteen from Stop Mode Recovery sources P20–P27, P30–P33, P00, and P04
- High and Low voltage detection with Flag IRQ (Low voltage only)
- Programmable Watchdog Timer
- Power-On Reset circuits
- OTP-selectable pull-up transistors on Port 0 and Port 2
- Two comparators
- Infrared learning amplification comparator
- Up to 24 GPIO
    - Port 0: 0–3 (with pull-up option)
    - Port 0: 4–7 (with pull-up option)
    - Port 2: 0–7 (with pull-up option)
    - Port 3: 0–7
- Flexible Stop Mode Recovery
- Compatible with Zilog's Z86L98, ZLP32300, ZLR32300, and ZLR64400 product families.

# Block Diagram
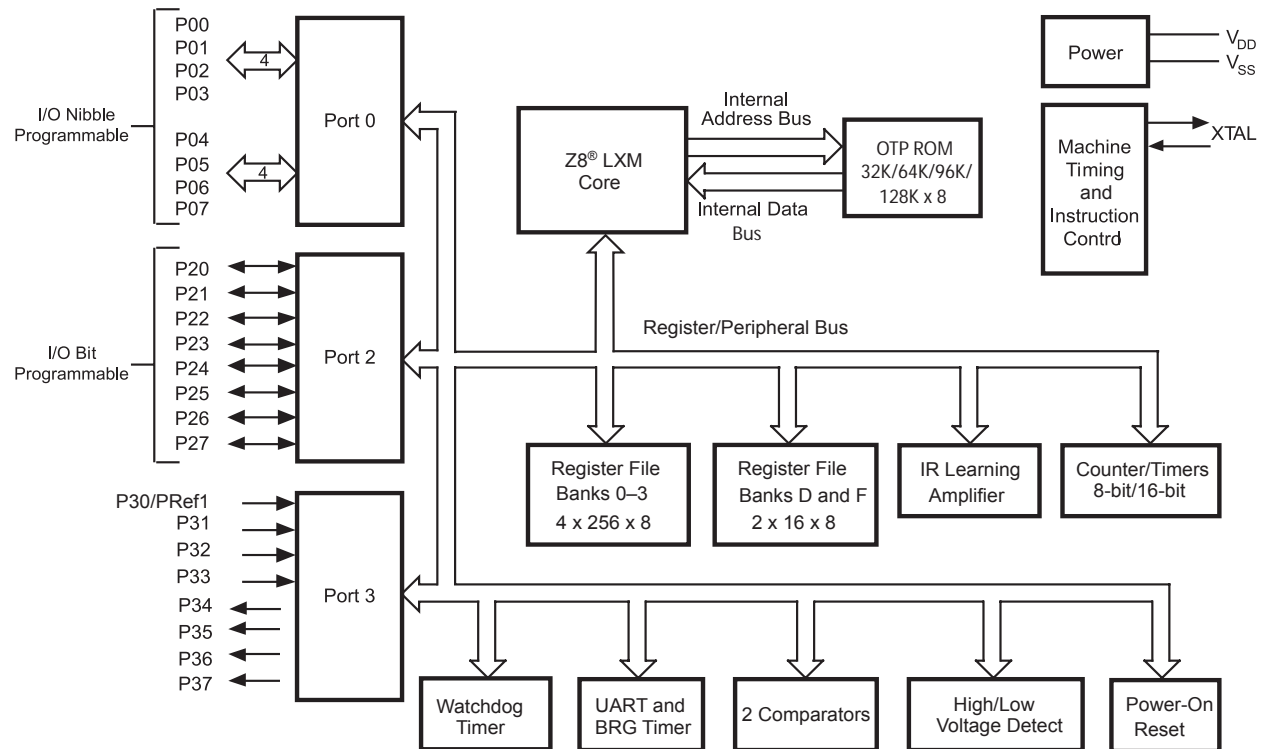
Figure 1 displays the functional block diagram.



**Figure 1. Functional Block Diagram**

# Pin-Outs and Pin Directions

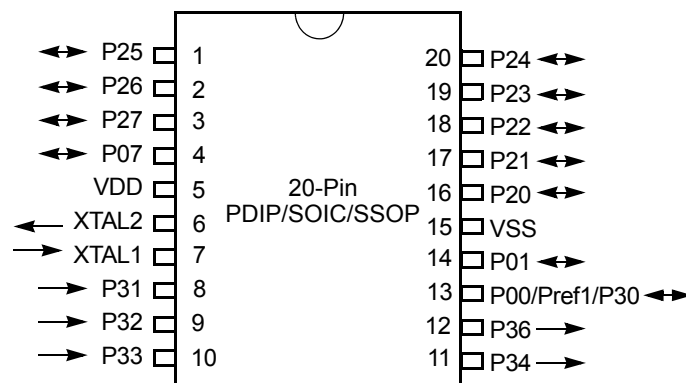Figure 2 displays the 20-pin PDIP, SOIC, and SSOP pin assignments.



**Figure 2. 20-Pin PDIP/SOIC/SSOP Pin Assignment**

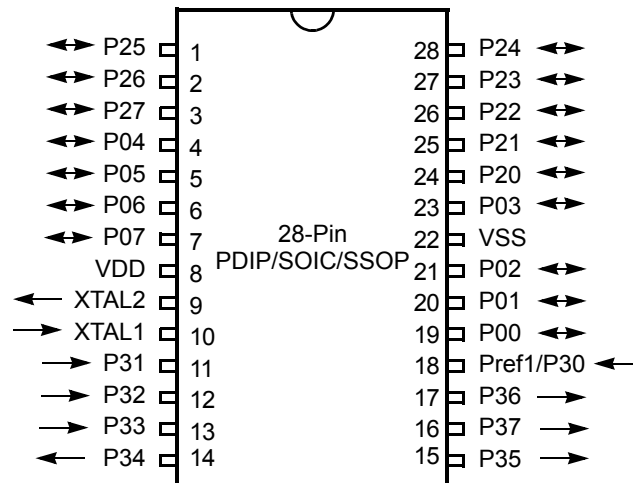Figure 3 displays the 28-pin PDIP, SOIC, and SSOP pin assignments.



**Figure 3. 28-Pin PDIP/SOIC/SSOP Pin Assignment**

## Applications and Support Tools

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

- ZCRMZNICE01ZEMG—Crimzon In-Circuit Emulator

- ZCRMZNICE01ZACG—20-pin Accessory Kit to the ZCRMZNICE01ZEMG

- ZCRMZNICE02ZACG—40-/48-pin Accessory Kit to the ZCRMZNICE01ZEMG

- ZCRMZN00100KITG—Crimzon IR Development Kit

- Zilog Developer Studio II (ZDSII), available for download at www.zilog.com

## Ordering Information

Each of the parts listed in table is available in a lead-free package that conforms to responsible environmental standards. To order a leaded package, contact Zilog Customer Service. For more information regarding ordering, contact your local Zilog sales office. Zilog web site, www.zilog.com, lists all regional offices and provides additional product information.

| Part Number | Description |
|---|---|
| ZLP12840H2828G | 28-pin SSOP 128K OTP |
| ZLP12840S2828G | 28-pin SOIC 128K OTP |
| ZLP12840P2828G | 28-pin PDIP 128K OTP |
| ZLP12840H2028G | 20-pin SSOP 128K OTP |
| ZLP12840S2028G | 20-pin SOIC 128K OTP |
| ZLP12840P2028G | 20-pin PDIP 128K OTP |

| Part Number | Description |
| --- | --- |
| ZLP12840H2896G | 28-pin SSOP 96K OTP |
| ZLP12840S2896G | 28-pin SOIC 96K OTP |
| ZLP12840P2896G | 28-pin PDIP 96K OTP |
| ZLP12840H2096G | 20-pin SSOP 96K OTP |
| ZLP12840S2096G | 20-pin SOIC 96K OTP |
| ZLP12840P2096G | 20-pin PDIP 96K OTP |
| | |
| ZLP12840H2864G | 28-pin SSOP 64K OTP |
| ZLP12840S2864G | 28-pin SOIC 64K OTP |
| ZLP12840P2864G | 28-pin PDIP 64K OTP |
| ZLP12840H2064G | 20-pin SSOP 64K OTP |
| ZLP12840S2064G | 20-pin SOIC 64K OTP |
| ZLP12840P2064G | 20-pin PDIP 64K OTP |
| | |
| ZLP12840H2832G | 28-pin SSOP 32K OTP |
| ZLP12840S2832G | 28-pin SOIC 32K OTP |
| ZLP12840P2832G | 28-pin PDIP 32K OTP |
| ZLP12840H2032G | 20-pin SSOP 32K OTP |
| ZLP12840S2032G | 20-pin SOIC 32K OTP |
| ZLP12840P2032G | 20-pin PDIP 32K OTP |
| | |
| ZCRMZNICE01ZEMG | Crimzon In-Circuit Emulator |

⚠ **Warning:**  DO NOT USE IN LIFE SUPPORT

**LIFE SUPPORT POLICY**

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**As used herein**

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

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