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"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	Active
Core Processor	ARM® Cortex®-M4
Core Size	32-Bit Single-Core
Speed	120MHz
Connectivity	CANbus, EBI/EMI, Ethernet, I²C, IrDA, SD, SPI, UART/USART, USB, USB OTG
Peripherals	DMA, I²S, LVD, POR, PWM, WDT
Number of I/O	100
Program Memory Size	512KB (512K x 8)
Program Memory Type	FLASH
EEPROM Size	16K x 8
RAM Size	128K x 8
Voltage - Supply (Vcc/Vdd)	1.71V ~ 3.6V
Data Converters	A/D 58x16b; D/A 2x12b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 105°C (TA)
Mounting Type	Surface Mount
Package / Case	144-LQFP
Supplier Device Package	144-LQFP (20x20)
Purchase URL	https://www.e-xfl.com/product-detail/nxp-semiconductors/mk60fx512vlq12

ZMOTION™ Detection Module Development Kit

Quick Start Guide **QS007308-1210**

Introduction

This quick start guide describes how to set up and use Zilog's ZMOTION Detection Module Development Kit. The Kit can be used to demonstrate and evaluate the operation of the ZMOTION Detection Module in both Hardware and Serial modes.

This quick start guide also provides the steps required for using Hardware mode. For additional information please refer to the ZMOTION Detection Module Development Kit User Manual (UM0223).

Kit Contents

All hardware (except an external adjustable power supply), software and documentation required to develop your motion detection application is included within the ZMOTION Detection Module Development Kit.

Hardware

The ZMOTION Detection Module Development Kit includes the following hardware:

- ZMOTION Detection Module Base Board
- ZMOTION Detection Module
- RS-232 Serial Cable DB9-DB9
- 5V DC Universal Power Supply

Documentation

The related technical documentation (on CD-ROM) includes:

- ZMOTION Detection Module Development Kit User Manual (UM0223)
- ZMOTION Detection Module Product Specification (PS0284)
- ZMOTION Detection Module Product Brief (PB0223)

Please refer to the Zilog website at www.zilog.com to obtain the most up-to-date documentation.

Figure 1. ZMOTION Detection Module Evaluation Kit Components

Setting up for Initial Operation

The simplest mode in which to use the module is Hardware Mode. In this mode, the sensitivity, ambient light level and LED “On” time are all adjusted using the controls on the Base Board. There are a few simple steps in order to begin using the kit in Hardware Mode; each of the following steps links to their respective descriptions on the pages that follow.

Step 1: Unpack the Hardware

Remove the ZMOTION Base Board, ZMOTION Module and Power Supply from their protective bags. ESD precautions must be used when handling the ZMOTION Base Board and the ZMOTION Module.

Step 2: Attach the ZMOTION Detection Module

Insert the ZMOTION Detection Module into J4 of the Base Board. Ensure that pin 1 is aligned correctly, as indicated by a square silkscreen on the J4 connector.

Figure 2. ZMOTION Detection Module

Step 3: Install the AC Plug Adapter

The universal power supply kit features four different plug adapters in one box and the power supply by itself in another. The power supply ships with a slide-out plate that must be removed to insert the location-specific plug adapter.

Follow the steps below to install the location specific adapter.

1. Remove the slide-out plate.
2. Select the appropriate AC plug adapter and insert it into the slot that remains after removing the slide-out plate.
3. Slide the new plug adapter into the slot until it snaps into place.

You can also leave the adapter slot cover in place and plug in a standard computer equipment AC power cord (purchased separately) between the AC cord receptacle on the end of the power supply and an electrical outlet.

Step 4: Configure Jumpers, Switches and Pots

Ensure that the base board is configured as indicated in Table 1.

Table 1. H/W Mode Demonstration Settings

Component	Status
SW1	Hardware
J7 – PA1/ANA3	AMBIENT (ON on shunted)
J11 – STATE	RUN (OFF or un-shunted)
R3 – SENS	Set mid-way
R4 – DELAY	Turned all the way to “-“
R6 – AMBIENT	Turned all the way to “-“ or “Light”

Step 5: Apply Power to the ZMOTION Detection Module

Connect the power supply to the Base Board at P2, then to an electrical outlet. Ensure that the green LED (D2) illuminates.

Step 6: Demonstrate the ZMOTION Detection Module

After no more than about 30 seconds, generate motion in front of the ZMOTION Detection Module and observe the blue LED D1, which should flash for about 2 seconds.

- Adjust R3 (Sense) to change motion sensitivity
- Adjust R4 (Delay) to change the duration in which the LED stays on
- Adjust R6 (Ambient) to change the amount of ambient light allowed to stop the LED from turning on

For additional information please refer to the ZMOTION Detection Module Development Kit User Manual (UM0223).

Warning: *DO NOT USE THIS PRODUCT IN LIFE SUPPORT SYSTEMS.*

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