



**ZNEO32! Family of Microcontrollers**

**Z32F0642 Evaluation Kit**

**User Manual**

UM028401-0317

***ZNEO*32!**  
***32 Bit Microcontrollers***



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

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## Revision History

Each instance in this document's revision history reflects a change from its previous edition. To learn more, refer to the corresponding page(s) or appropriate links furnished in the table below.

| Date     | Revision Level | Description     | Page |
|----------|----------------|-----------------|------|
| Mar 2017 | 01             | Original issue. | n/a  |

## Overview

Zilog's Z32F0642 Evaluation Kit (part number Z32F0642100KITG) enables developers to start programming projects using the Z32F0642 microcontroller, a member of the ZNEO32! Family of MCUs. The kit exposes the ports to allow them to be connected by the user for prototyping and creating proofs of concept.

This Evaluation Kit consists of 5 LEDs, 2 switches, and a USB-to-UART connection for serial communications and powering. The board also includes a standard 20-pin JTAG header.

This user manual provides a description of the Z32F0642 Evaluation Board. It includes features of the Z32F0642 MCU, schematic diagrams of the board, and kit contents and requirements.

## Kit Contents

The Z32F0642 Evaluation Kit contains the following items:

- 1 Z32F0642 Evaluation Board
- 1 A (male) to Mini-B USB cable
- 1 ZNEO32! Evaluation Kit flyer

Additional requirements (to be obtained by user):

- JTAG Debugger tool
- Cortex M0 development tools, such as Keil  $\mu$ Vision 5 or IAR Embedded workbench for ARM
- Zilog CMSIS Pack file, available at [www.zilog.com](http://www.zilog.com)
- Z32F0642 MCU product specification ([PS0392](#)), available from the Zilog website.

Figure 1 shows the contents of the Z32F0642 Evaluation Kit.



Figure 1. The Z32F0642 Evaluation Kit

## Z32F0642 MCU Features

Key features of the Z32F0642 MCU include:

- High performance low-power Cortex-M0 core
- 64KB code Flash memory
  - Endurance: 10,000 times at room temperature
  - Retention: 10 years
- 4KB SRAM
- General Purpose I/O (GPIO)
  - 44 ports (PA[15:0], PB[7:0], PC[15:0], PD[3:0]) : 48-Pin
  - 30 Ports (PA[9:0], PB[7:0], PC[1:0], PC[8:7], PC[15:10], PD[3:2]) : 32-Pin
- 3-Phase Motor PWM (MPWM) with ADC triggering function: 1 channel
- 1MSPS high-speed 12-bit ADC with sequential conversion function
  - 12-channel: 48-pin
  - 10-channel: 32-pin
- Timer: 16-bit 4-channel
- Free Run Timer (FRT): 32-bit 1-channel
- Watchdog Timer (WDT): 32-bit 1-channel
- External communication ports:
  - 2-channel UARTS
  - 1-channel I<sup>2</sup>C
  - 1-channel SPI
- System fail-safe function by clock monitoring
- XTAL OSC fail monitoring
- Power on reset
- Programmable low voltage detector (brown-out detector)
- Debug and emergency stop function
- SWD debugger
- Supports UART and SPI ISP
- Power Down mode: IDLE, STOP1, STOP2 modes
- Sub-active mode: External 32.768 kHz crystal or Internal 40 kHz LSI
- Operating frequency

- 40 kHz–40 MHz
- External 32.768 kHz crystal
- Operating voltage: 2.2V ~ 5.5V
- Two package options: LQFP-32, LQFP-48

To learn more about the Z32F0642 MCU, refer to the Z32F0642 MCU Product Specification ([PS0392](#)).

## Mini Board

Figure 2 shows the Mini Board and Table 1 lists its characteristics.



Figure 2. Mini Board

Table 1. Mini Board Characteristics

| Contents           | Main Characteristics | Note                 |
|--------------------|----------------------|----------------------|
| MCU                | Z32F06423AKE         | ARM Cortex M0        |
| Operating clock    | 16MHz                | Crystal              |
| ROM                | 64KB Flash ROM       |                      |
| RAM                | 4KB                  |                      |
| Communication port | USB to UART port     | Mini-B USB connector |
| Debugging port     | SWD                  | 20-pin connector     |
| Input buttons      | 1 reset, 1 AUX       | Tactile switch       |

Figure 3 displays the Mini Board MCU's external pin connections.

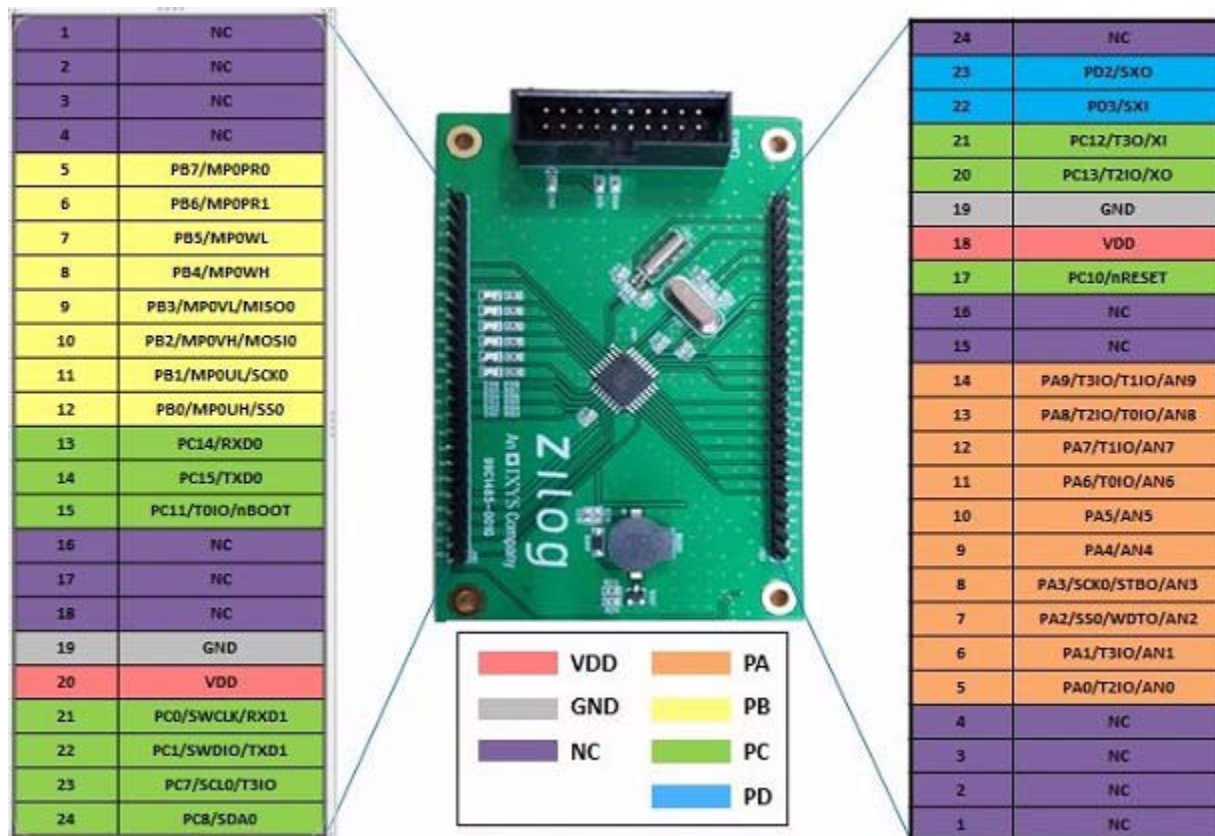


Figure 3. Mini Board MCU's External Pin Connections

The jumper settings are shown in Figure 4.

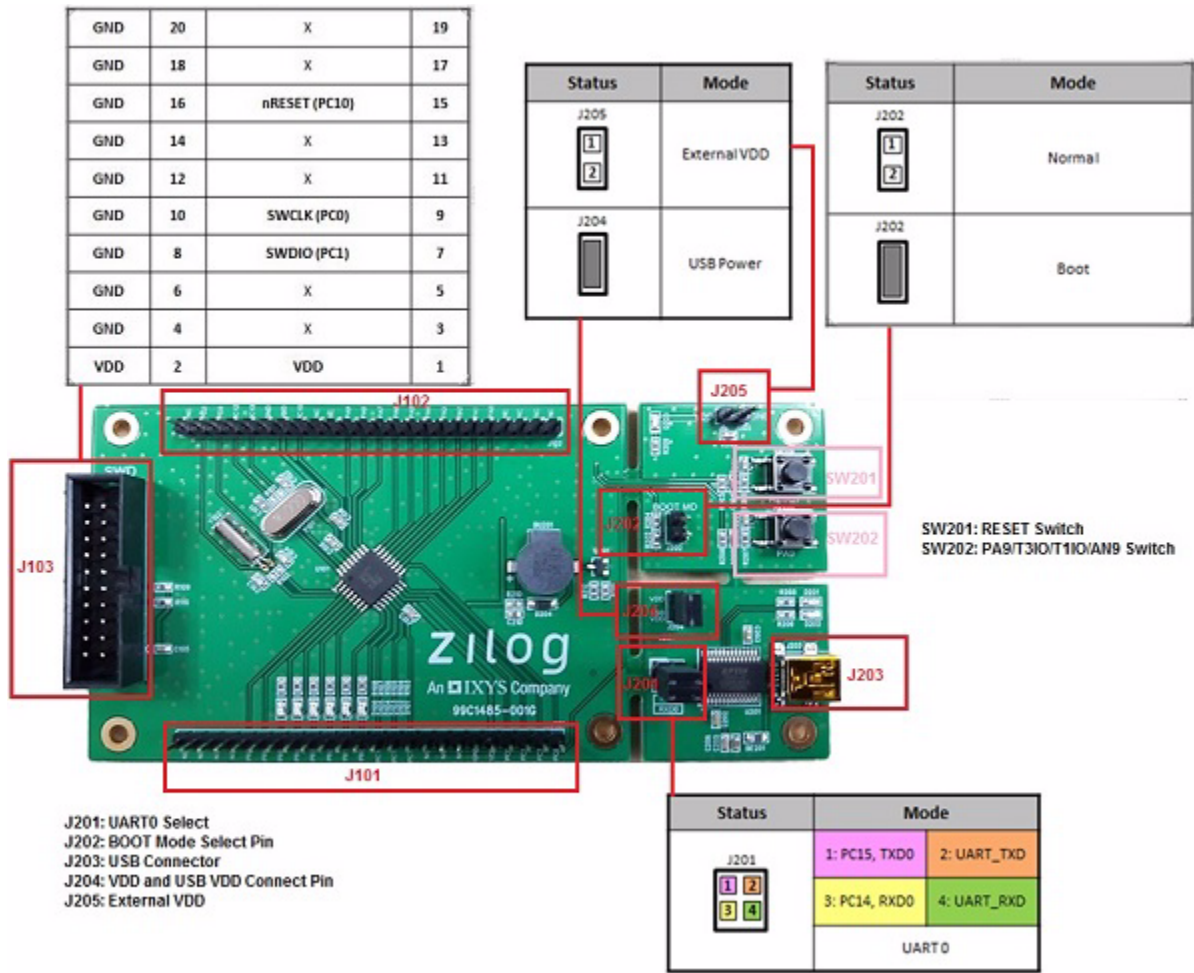


Figure 4. Jumper Settings

## Z32F0642 Evaluation Kit Documentation

The documents associated with the Z32F0642 Evaluation Kit are listed in Table 2. Each of these documents can be obtained from the Zilog website by clicking the link associated with its Document Number.

**Table 2. Z32F0642 Evaluation Kit Documentation**

| Document               | Description                         |
|------------------------|-------------------------------------|
| <a href="#">UM0284</a> | Z32F0642 Evaluation Kit User Manual |
| <a href="#">PS0392</a> | Z32F0642 Product Specification      |
| <a href="#">FL0189</a> | ZNEO32! M0/M0+ Evaluation Kit Flyer |

## Appendix A. Schematic Diagrams

Figures 5 and 6 present schematic diagrams of the Z32F0642 Evaluation Board with the 32-pin LQFP package MCU.

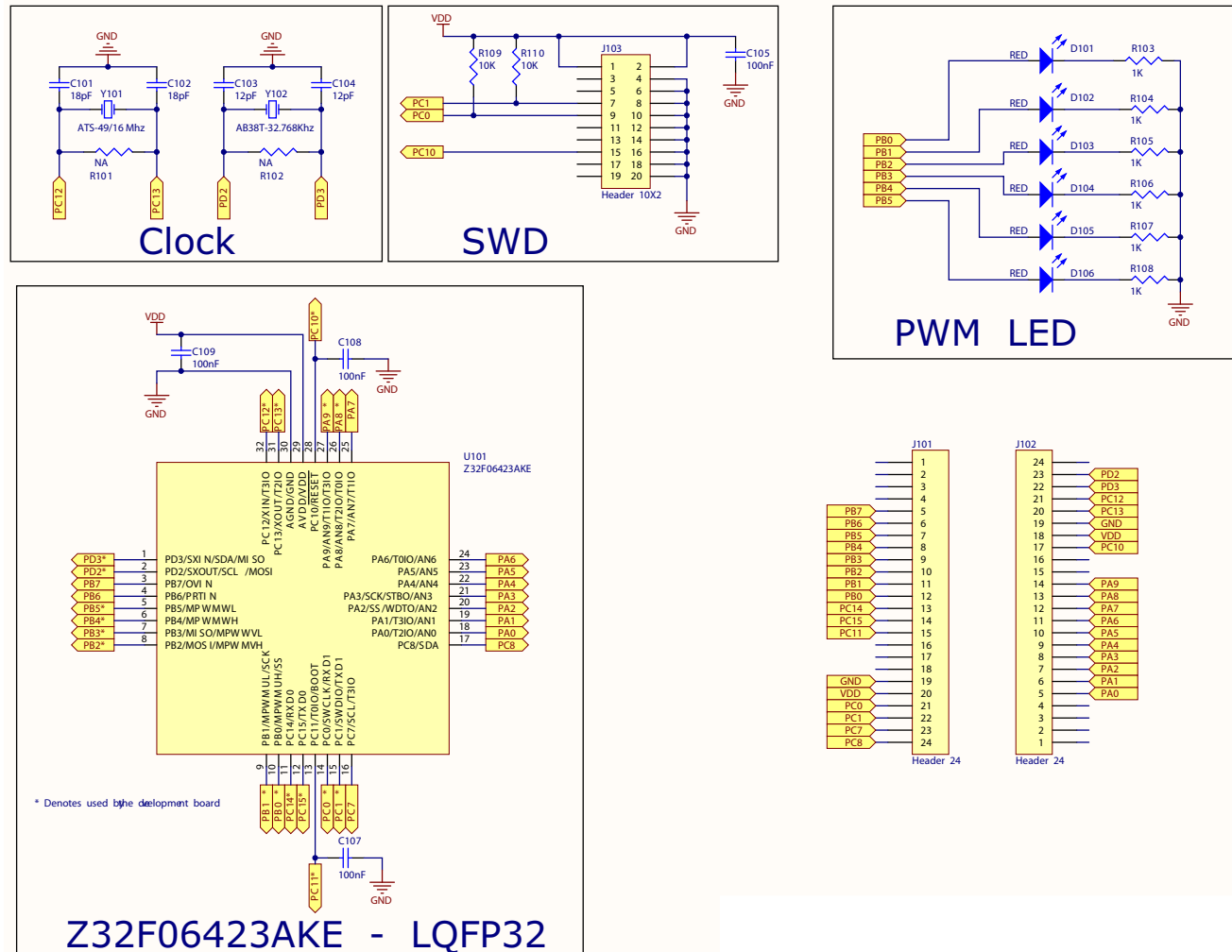


Figure 5. Z32F0642 Evaluation Board Schematic Diagram, #1 of 2

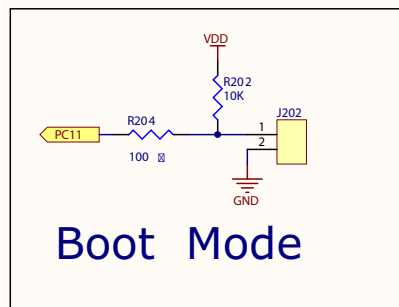
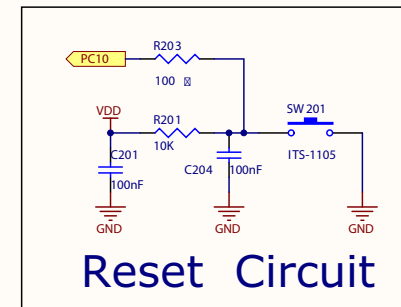
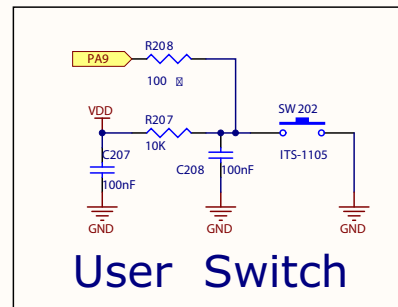
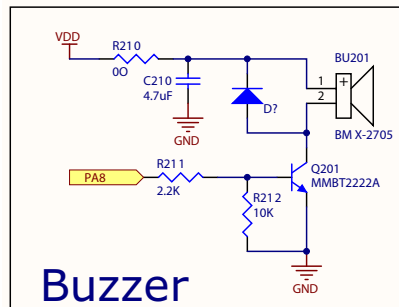
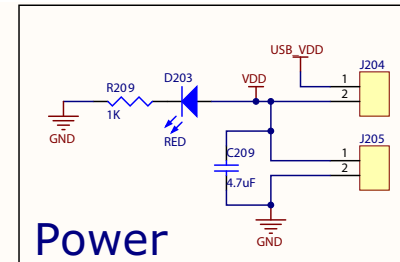
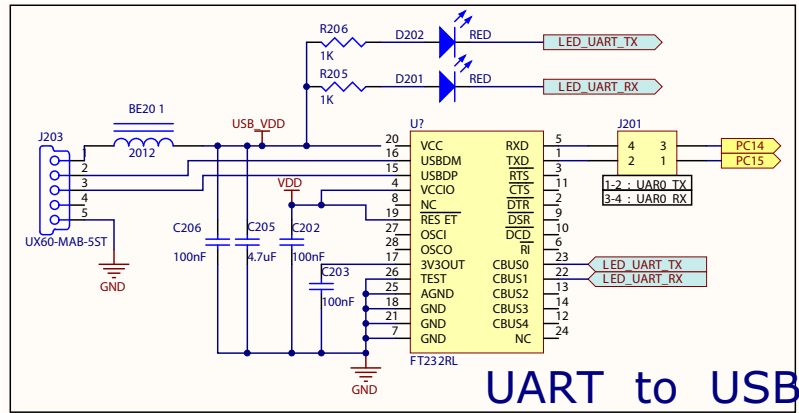


Figure 6. Z32F0642 Evaluation Board Schematic Diagram, #2 of 2

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