Comimark CY7C68013A-56

Comimark CY7C68013A-56 EZ-USB FX2LP USB 2.0 Logic Analyzer Development Board User Manual

Model: CY7C68013A-56 | Brand: Comimark

1. Introduction

The Comimark CY7C68013A-56 EZ-USB FX2LP USB 2.0 Logic Analyzer Development Board is a versatile tool designed for electronic development, debugging, and signal analysis. Featuring the low-power CY7C68013A-56 chip with an enhanced 51 core, 16KB program data area, and a main frequency of 48MHz, it supports 480Mbps high-speed USB 2.0 transmission. This board is ideal for hobbyists, students, and professionals working with microcontrollers, embedded systems, and various digital protocols.

Figure 1: Comimark CY7C68013A-56 EZ-USB FX2LP USB 2.0 Logic Analyzer Development Board.

2. Product Features

- **CY7C68013A-56 Chip:** Low power version with enhanced 51 core, 16KB program data area, and 48MHz main frequency.
- **High-Speed USB 2.0:** Supports 480Mbps transmission, backward compatible with USB 1.1.
- **Firmware EEPROM:** On-board 16KB (24LC128) EEPROM for storing VID/PID and USB firmware, enabling in-system programming via USB cable.
- **GPIO Breakout:** All General Purpose Input/Output (GPIO) pins are led out by 2.54mm standard pin arrangement for easy expansion and custom designs.
- **Logic Analyzer Functionality:** Capable of functioning as a logic analyzer with appropriate firmware and software.
- **Compact Size:** Approximately 5 x 5 x 5 cm (1.97 x 1.97 x 1.97 inches) and lightweight (approx. 20g).

3. Setup Guide

3.1 Package Contents

Verify that all components are present in your package:

- 1 x Comimark CY7C68013A-56 EZ-USB FX2LP USB 2.0 Development Board
- *(Additional accessories like USB cables, jumper wires, or test clips may be included depending on the specific kit purchased.)*

3.2 Physical Overview

Figure 2: Close-up of the development board, highlighting the CY7C68013A-56 chip and pin headers.

The board features a mini-USB port for connectivity, various GPIO pins arranged in a 2.54mm standard pitch, and an on-board EEPROM. Familiarize yourself with the pinout for proper connections.

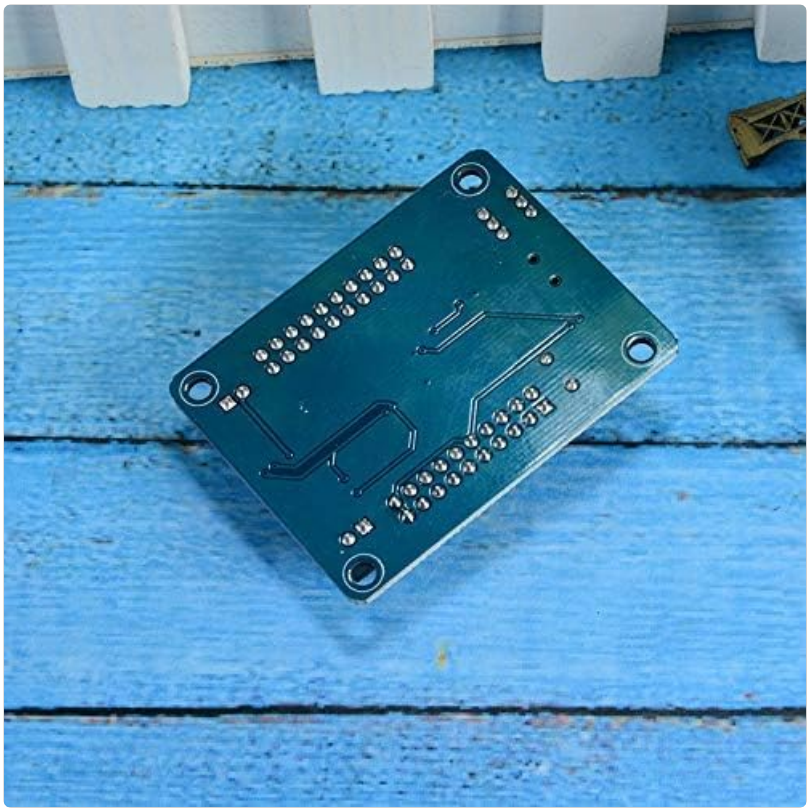

Figure 3: Detailed view of the board's pin headers for external connections.

3.3 Driver Installation

Before connecting the board to your computer, ensure you have the necessary drivers installed. Typically, the

EZ-USB FX2LP chip requires specific drivers for your operating system (Windows, Linux). These drivers are usually available from the chip manufacturer's website (Cypress/Infineon) or from the vendor of the development board. Follow the instructions provided with the driver package for installation.
For Windows users, the device might appear as an unknown device in Device Manager until the correct drivers are installed. Refer to the driver documentation for specific installation steps.

3.4 Connecting the Board

1. Connect one end of a mini-USB cable to the mini-USB port on the development board.
2. Connect the other end of the USB cable to an available USB 2.0 port on your computer.
3. Once connected, your operating system should detect the device. If drivers are correctly installed, it will be recognized.

Figure 4: The development board connected to a computer via a USB cable.

4. Operating Instructions

4.1 Firmware Programming

The on-board 16KB EEPROM (24LC128) allows for in-system programming of the USB firmware. This is crucial for configuring the device's Vendor ID (VID) and Product ID (PID), and for loading custom firmware to enable specific functionalities, such as logic analyzer mode.

- To program the EEPROM, you will typically use a dedicated programming utility provided by Cypress/Infineon or a compatible open-source tool.
- Ensure the board is connected to your computer and recognized by the programming software.
- Follow the software's instructions to load your desired firmware (.hex or .iic file) onto the EEPROM.

4.2 Using as a Logic Analyzer

With the correct firmware loaded, this board can function as a powerful logic analyzer. You will need compatible software on your computer to capture and analyze digital signals. Popular open-source software

like Sigrok (PulseView) is often used with FX2LP-based logic analyzers.

1. **Install Logic Analyzer Software:** Download and install a compatible logic analyzer software (e.g., Sigrok PulseView) on your computer.
2. **Connect to Target Circuit:** Use jumper wires or test clips to connect the GPIO pins of the development board to the test points on your target circuit. Ensure proper grounding (GND) connections.
3. **Configure Software:** Launch the logic analyzer software. Select the Comimark board (or the generic FX2LP device) as your hardware. Configure the sampling rate (up to 48MHz) and the channels you wish to monitor.
4. **Capture Data:** Start the capture process in the software. Trigger conditions can be set to capture data when specific signal changes occur.
5. **Analyze Signals:** Once data is captured, use the software's analysis tools to decode protocols (I2C, SPI, UART, etc.), measure timings, and debug your digital circuits.

Your browser does not support the video tag.

Video 1: Demonstration of a USB Logic Analyzer in use with analysis software. This video illustrates general logic analyzer software functionality.

5. Maintenance

- **Storage:** Store the board in a dry, anti-static environment away from direct sunlight and extreme temperatures.
- **Cleaning:** Use a soft, dry cloth to clean the board. Avoid using liquids or abrasive cleaners.
- **Handling:** Handle the board by its edges to avoid touching components, especially the pins, which can be sensitive to electrostatic discharge (ESD).
- **Firmware Updates:** Periodically check for updated drivers or firmware from the manufacturer or community resources to ensure optimal performance and compatibility.

6. Troubleshooting

- **Device Not Recognized:**
  - Ensure USB cable is securely connected.
  - Verify that the correct drivers for the CY7C68013A-56 chip are installed for your operating system.
  - Try a different USB port or cable.
- **No Signal Capture:**
  - Check all connections between the board and the target circuit, especially ground (GND).
  - Confirm that the logic analyzer software is correctly configured for the device and channels.
  - Ensure the target circuit is powered on and generating signals.
  - Verify that the firmware on the EEPROM is correctly loaded and enables logic analyzer functionality.
- **Incorrect Readings:**
  - Adjust the sampling rate in your software to match the speed of the signals being analyzed.
  - Check for noise or interference in your test setup.
  - Ensure proper voltage levels are being supplied to the board and the target circuit.

7. Specifications

Feature	Specification
Chipset	CY7C68013A-56 (EZ-USB FX2LP)
Processor Core	Enhanced 51 core
Main Frequency	48 MHz
Program Data Area	16 KB
USB Standard	USB 2.0 (480Mbps high-speed transmission), backward compatible with USB 1.1
On-board EEPROM	16KB (24LC128) for VID/PID and USB firmware storage
GPIO Pin Pitch	2.54mm standard pin arrangement
Dimensions (LxWxH)	Approx. 1.97 x 1.97 x 1.97 inches (5 x 5 x 5 cm)
Item Weight	Approx. 0.044 pounds (20g)
Operating System Compatibility	Linux, Windows 10 (and compatible versions)
Connectivity Technology	USB

8. Warranty and Support

This product is typically covered by a standard return/replacement policy. For specific warranty details, please refer to your purchase documentation or contact the seller directly. In case of any issues or dissatisfaction, it is recommended to contact the seller for the best possible solution.
For technical support, driver downloads, or community forums, please refer to the manufacturer's official website or relevant online resources for the CY7C68013A-56 EZ-USB FX2LP chip.