FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER

Product name: FT232H
Model: 0

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Introduction

The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is a high-speed USB 2.0 to multi-protocol synchronous serial engine. It provides a flexible interface to a wide range of serial protocols, including SPI, I2C, JTAG, and GPIO. The device is powered by the USB bus and does not require an external power supply.

The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is ideal for prototyping and developing embedded systems, testing and debugging hardware, and interfacing with sensors and other peripherals. The device is also suitable for production applications where a flexible and high-speed serial interface is required.

Hardware Overview

The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER consists of a single printed circuit board (PCB) with the following components:

- FT232H integrated circuit (IC)
- USB 2.0 connector
- Power supply circuitry
- Clock generation circuitry
- Buffer circuitry
- Protection circuitry
- Connectors for the serial interfaces

Software Overview

The software for the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER consists of the following components:

- FT232H driver
- FT232H library
- FT232H application programming interface (API)
- FT232H configuration utility
- FT232H demonstration software

The FT232H driver is a kernel-mode driver that provides a low-level interface to the FT232H hardware. The FT232H library is a user-mode library that provides a high-level interface to the FT232H driver. The FT232H API is a set of functions that provides a high-level interface to the FT232H library. The FT232H configuration utility is a graphical user interface (GUI) application that allows the user to configure the FT232H hardware. The FT232H demonstration software is a set of sample applications that demonstrate the capabilities of the FT232H hardware and software.

Quick Start Guide

1. Connect the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER to a USB port on your computer.
2. Install the FT232H driver.
3. Install the FT232H library.
4. Install the FT232H API.
5. Install the FT232H configuration utility.
6. Install the FT232H demonstration software.
7. Run the FT232H configuration utility to configure the FT232H hardware.
8. Run the FT232H demonstration software to test the FT232H hardware and software.

Installation Guide

Hardware Installation

1. Connect the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER to a USB port on your computer.
2. Wait for the operating system to detect the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER and install the driver.

Software Installation

1. Install the FT232H driver.
2. Install the FT232H library.
3. Install the FT232H API.
4. Install the FT232H configuration utility.
5. Install the FT232H demonstration software.

Application Notes

Application Note 1: Interfacing with a SPI Device

This application note describes how to interface the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER with a SPI device. The SPI protocol is a synchronous serial protocol that is used to communicate between a master device and one or more slave devices. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER can be configured to act as a SPI master or slave device. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports all four SPI modes, including mode 0, mode 1, mode 2, and mode 3. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum clock rate of 30 MHz. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum data rate of 30 Mbit/s. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 slave devices. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 chip select lines. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 interrupt lines. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 GPIO lines.

Application Note 2: Interfacing with an I2C Device

This application note describes how to interface the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER with an I2C device. The I2C protocol is a synchronous serial protocol that is used to communicate between a master device and one or more slave devices. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER can be configured to act as a I2C master or slave device. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports all four I2C modes, including standard mode, fast mode, fast mode plus, and high speed mode. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum clock rate of 30 MHz. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum data rate of 30 Mbit/s. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 slave devices. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 chip select lines. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 interrupt lines. The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supports a maximum number of 16 GPIO lines.

Troubleshooting

Problem: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is not detected by the operating system.

Solution: Check the USB cable and connection. Try a different USB port. Install the FT232H driver.

Problem: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is detected by the operating system but the driver is not installed.

Solution: Install the FT232H driver.

Problem: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is detected by the operating system but the driver is installed but the device is not working.

Solution: Check the FT232H configuration utility. Check the FT232H demonstration software.

Frequently Asked Questions

Q: What is the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER?

A: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is a high-speed USB 2.0 to multi-protocol synchronous serial engine. It provides a flexible interface to a wide range of serial protocols, including SPI, I2C, JTAG, and GPIO. The device is powered by the USB bus and does not require an external power supply.

Q: What is the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER used for?

A: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is ideal for prototyping and developing embedded systems, testing and debugging hardware, and interfacing with sensors and other peripherals. The device is also suitable for production applications where a flexible and high-speed serial interface is required.

Q: What is the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER supported by?

A: The FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER is supported by the FT232H driver, the FT232H library, the FT232H API, the FT232H configuration utility, and the FT232H demonstration software.

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Glossary

API: Application programming interface.

Buffer: A temporary storage area for data.

Clock generation circuitry: Circuitry that generates the clock signal for the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER.

Connectors for the serial interfaces: Connectors that provide a physical interface to the serial interfaces of the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER.

FT232H: A high-speed USB 2.0 to multi-protocol synchronous serial engine.

FT232H driver: A kernel-mode driver that provides a low-level interface to the FT232H hardware.

FT232H library: A user-mode library that provides a high-level interface to the FT232H driver.

FT232H API: A set of functions that provides a high-level interface to the FT232H library.

FT232H configuration utility: A graphical user interface (GUI) application that allows the user to configure the FT232H hardware.

FT232H demonstration software: A set of sample applications that demonstrate the capabilities of the FT232H hardware and software.

GPIO: General purpose input/output.

I2C: Inter-integrated circuit.

JTAG: Joint test action group.

Power supply circuitry: Circuitry that provides power to the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER.

Protection circuitry: Circuitry that protects the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER from damage.

SPI: Serial peripheral interface.

USB 2.0: Universal serial bus 2.0.

USB bus: The universal serial bus.

USB connector: A connector that provides a physical interface to the USB bus.

USB port: A port that provides a physical interface to the USB bus.

USB cable: A cable that provides a physical interface to the USB bus.

USB driver: A driver that provides a low-level interface to the USB bus.

USB library: A library that provides a high-level interface to the USB driver.

USB API: A set of functions that provides a high-level interface to the USB library.

USB configuration utility: A graphical user interface (GUI) application that allows the user to configure the USB hardware.

USB demonstration software: A set of sample applications that demonstrate the capabilities of the USB hardware and software.

Appendix A - Hardware Specifications

Product name	FT232H
Model	0
Power supply	USB bus
Power consumption	0 mA
Operating temperature	0 °C to 0 °C
Storage temperature	0 °C to 0 °C
Dimensions	0 mm x 0 mm x 0 mm
Weight	0 g
Connectors	USB connector, connectors for the serial interfaces
Clock generation circuitry	Circuitry that generates the clock signal for the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER.
Buffer circuitry	Circuitry that provides a temporary storage area for data.
Protection circuitry	Circuitry that protects the FT232H USB TO MULTI-PROTOCOL SYNCHRONOUS SERIAL ENGINEER from damage.

Appendix B - Software Specifications

FT232H driver	A kernel-mode driver that provides a low-level interface to the FT232H hardware.
FT232H library	A user-mode library that provides a high-level interface to the FT232H driver.
FT232H API	A set of functions that provides a high-level interface to the FT232H library.
FT232H configuration utility	A graphical user interface (GUI) application that allows the user to configure the FT232H hardware.
FT232H demonstration software	A set of sample applications that demonstrate the capabilities of the FT232H hardware and software.

Appendix C - Connector Pinouts