H Chip Series

USB2.0 High-Speed Bridge Solutions

OVERVIEW

The FTDI H Chip Series is a family of high-speed USB bridge solutions designed to simplify system complexity and reduce the overall component count. The combination of multiple interfaces into one USB connection eliminates the need for additional USB components, streamlining system design and the Bill of Materials (BOM).

Each channel in the FTDI H Chip Series is presented to the host system as a separate device, allowing independent configuration for protocol such as UART, MPSSE, FIFO, and/or GPIO. This flexibility enables application such as four UARTs operating with different baud rates on the same chip. For battery-powered devices, the FT4222H chip includes battery charger detection, supporting higher charging currents (when supported by the USB host) enabling faster battery charging times.

As one of the recognized leaders in the USB-to-digital interface industry, FTDI Chip is known for its reliable, high-performance USB2.0 high-speed bridge products that deliver outstanding quality across a wide range of applications.

***Royalty-free device drivers are available for all major operating systems, including Windows, MacOS, Linux and Android.*

KEY FEATURES

- Single chip USB supports up to 4 ts with a variety of configurations
- Complete USB protocol handled on the chip
- Supports high-speed (480Mbits) and full-speed (12Mbits) compatible
- USB bulk data transfer mode (512byte packets in high-speed mode)
- Single or dual MPSSE to simplify synchronous serial protocol (USB to JTAG, I^2C, SPI or bit-bang) design (excluding FT4222H)
- FT232H and FT4222H optimized for open-drain I^2C IOs
- Support bus powered and self-powered USB configurations
- Low operating and USB suspend current
- Integrated with power-on-reset circuit
- Configurable SPI and I^2C Master/Slave interface controller*
- On-chip OTP memory, stores USB Vendor ID (VID), Product ID (PID), device serial number, product description string and various other vendor specific data*
- Compatible with four I^2C speeds: Standard Mode (SM) up to 100Kbit/s, Fast Mode (FM) up to 400Kbit/s, Fast Mode Plus (FM+) up to 1Mbit/s, and High-Speed Mode (HS) up to 3.4Mbit/s*

** Applicable to FT4222H only*

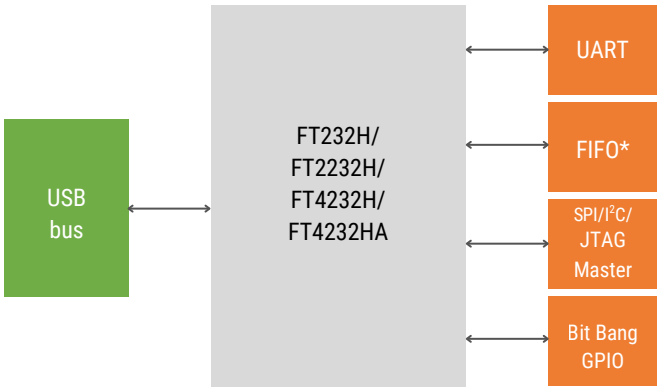


Figure 1: FT232H/FT2232H/FT4232H/FT4232HA block diagram
**FIFO does not apply to FT4232H & FT4232HA*

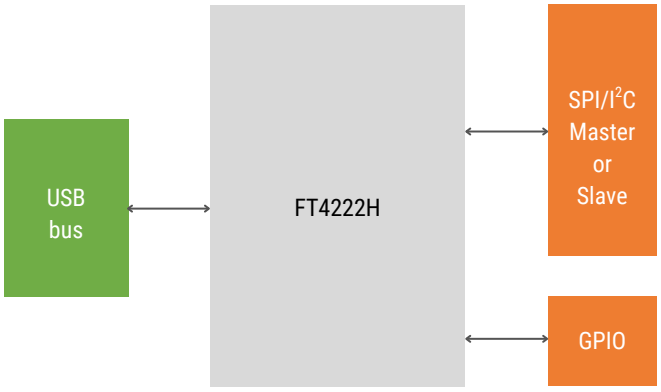


Figure 2: FT4222H block diagram

H CHIP SERIES COMPARISON TABLE

H CHIP SERIES							PACKING INFORMATION			DEVELOPMENT KIT			
PRODUCT CODE	PRODUCT NAME	APPLICATION INTERFACE	CHANNELS	CLOCKING	EEPROM	DATA THROUGHPUT (MAX)	PACKAGE PART NUMBER	PACKAGE	PACKING	PRODUCT CODE	CHANNELS	USB CONNECTOR	I/O CONNECTOR
FT232H	Single Channel High-Speed USB to Multipurpose Interfaces	UART ASYNC FIFO x1 SYNC FIFO x1 MPSSE x1 GPIO x16	1	External (12MHz)	External	12MBaud 8MByte/s 40MByte/s 30Mbit/s	FT232HQ-TRAY FT232HQ-REEL	48 QFN	260/tray 3,000/reel	UM232H	Single	Mini B	0.6" wide 28 pin DIP
FT2232H	Dual Channel High-Speed USB to Multipurpose Interfaces	UART x2 ASYNC FIFO x2 SYNC FIFO x1 MPSSE x2 GPIO x32	2	External (12MHz)	External	12MBaud UART 8MByte/s Async FIFO 40MByte/s Sync FIFO 30Mbit/s MPSSE	FT2232HQ-TRAY FT2232H-56Q-TRAY	64 QFN 56 QFN	260/tray	FT2232H Mini Module FT2232H -56Q Mini Module	Dual	Mini B Micro B	Two 26-pin, 0.1" dual-row headers
							FT2232HQ-REEL FT2232H-56Q-REEL	64 QFN 56 QFN	3,000/reel	FT2232H Mini Module FT2232H -56Q Mini Module		Mini B Micro B	
FT4232H	Quad Channel High-Speed USB to Multipurpose Interfaces	UART x4 MPSSE x2 GPIO x32	4	External (12MHz)	External	12MBaud UART 30Mbit/s MPSSE	FT4232HQ-TRAY FT4232H-56Q-TRAY	64 QFN 56 QFN	260/tray	FT4232H Mini Module FT4232H -56Q Mini Module	Quad	Mini B Micro B	Two 26-pin, 0.1" dual-row headers
							FT4232HQ-REEL FT4232H-56Q-REEL	64 QFN 56 QFN	3,000/reel	FT4232H Mini Module FT4232H -56Q Mini Module		Mini B Micro B	
FT4232HA	**Automotive Grade** - Quad Channel High-Speed USB to Multipurpose Interfaces	UART x4 MPSSE x2 GPIO x32	4	External (12MHz)	External	12MBaud 30Mbit/s	FT4232HAQ-TRAY FT4232HAQ-REEL	64 QFN	260/tray 2,600/reel	FT4232HA Mini Module	Quad	Mini B	Two 26-pin, 0.1" dual-row headers
FT4222H	Multi-Channel High-Speed USB to SPI/I²C Bridge	SPI/ I²C (MASTER/SLAVE) GPIO	4 Channels SPI Slave Selection	External (12MHz)	Internal OTP	53.8Mbit/s SPI 3.4 Mbit/s I²C	FT4222HQ-D-TRAY FT4222HQ-D-REEL	32 VQFN	490/tray 5,000/reel	UMFT4222EV-D	up to 4 (depending on mode)	Micro B	0.8" wide 24 pin DIP

TECHNICAL SPECIFICATIONS

- Configurable ACBUS I/O pins (FT232H)
- Low 1.2V or 1.8V chip core
- +3.3 V I/O interfacing (+5 V Tolerant) excluding FT4222H
- UHCI/OHCI/EHCI host controller compatible
- Typical operating current 70mA
- Wide temperature ranges from -40ºC to 85ºC

FT4232HA

- 1.2 V (chip core)
- +3.3V single supply operating voltage range
- Supports an **extended automotive grade 2** operating temperature range of **-40ºC to 105ºC**

FT4222H

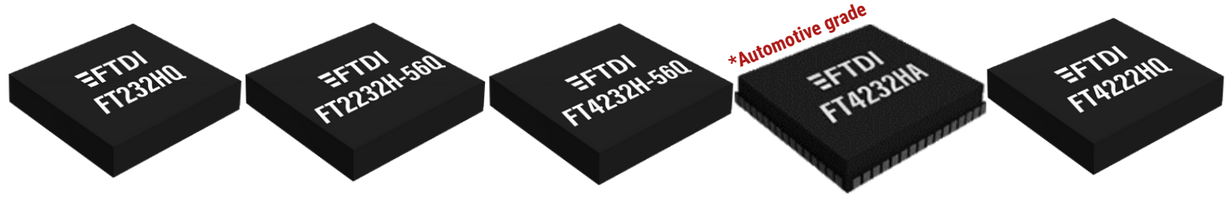
- 1.8 to 3.3 V I/O interfacing (+5 V Tolerant)
- Configurable I/O pin output drive strength; 4mA (min) and 16mA (max)

TYPICAL APPLICATIONS

- ADAS Systems
- Sensor expansion
- BLE expansion
- EV charger
- T-Box (Telematics Box)
- Data Center Server
- 5G Network
- FPGA Programming
- Server Tooling
- Edge computing
- Game controller
- Monitor
- AI Control

FTDI Chip offers royalty free VCP (Virtual Com Port) and D2XX direct driver for Windows, Linux, Mac and Android (J2xx/D2xx only). Visit http://ftdichip.com/drivers/ for the full driver support list including OS versions and legacy OS.

For installation guide, please visit our webpage at https://ftdichip.com/document/installation-guides/ for details on how to install the drivers. Additional installation guides, application notes and technical note are also available.



ABOUT FTDI CHIP

FTDI Chip develops innovative silicon solutions that enhance interaction with the latest global technologies. Our primary objective is to "bridge technologies" to empower engineers with sophisticated, feature-rich, robust and easy-to-use product platforms. These platforms enable creation of high-performance electronic designs with minimal peripheral components, low power consumption, and efficient use of board space.

FTDI Chip's long-established, continuously expanding Universal Serial Bus (USB) product line features universally recognized brands such as the ubiquitous R-Chip, X-Chip, Hi-Speed, and SuperSpeed USB 3.0 series.

FTDI Chip is a fabless semiconductor company, partnered with the world's leading foundries. Our headquarter is in Glasgow, UK and is supported with research and development facilities in Glasgow, and Singapore. We maintain a wide network of sales and technical support in Glasgow, Tigard (Oregon, USA) and Shanghai (China).

For more information go to: www.ftdichip.com

EUROPE, MIDDLE EAST, AFRICA

Future Technology Devices International Limited
Unit 1, 2 Seaward Place,
Centurion Business Park,
Glasgow, G41 1HH,
United Kingdom
Tel: +44 (0) 141 429 2777
Email: sales1@ftdichip.com

AMERICAS

Future Technology Devices International Limited (USA)
7130 SW Fir Loop Tigard,
OR97223-8160,
United States of America

Tel: +1 (503) 547-0988
Email: us.sales@ftdichip.com

CHINA

Future Technology Devices International Limited (China)
Room 1103, No. 666
West Huaihai Road,
200052, Shanghai,
P.R. China
Tel: +86 (21) 62351596
Email: cn.sales@ftdichip.com

ASIA PACIFIC

Future Technology Devices International Limited (Singapore)
Tai Seng Avenue,
Tower A #03-06,
Singapore 536464

Tel: +65 6841 1174
Email: tw.sales1@ftdichip.com

08/2025-h-chip-series-en-factsheet-document-no:ft_001627/v1/ftdi#613