HP Family Series

Power Delivery Series

OVERVIEW

FTDI Chip's HP Series provides a two-in-one solution that seamlessly integrates USB Type-C with enhanced power delivery and data bridging. This unique feature allows higher power availability, either at the connected Host PC to draw more power, or for the HP Series to provide power to charge the Host PC.

Designed to eliminate the need for separate data bridge and PD ICs, it offers efficient data transfer and the ability to power and connect multiple peripherals through a single port, streamlining connectivity and performance and improving power management for both host PC charging and power sourcing.

* The HP Series is an enhanced series derived from the original H Series, offering an upgrade path that adds USB Type-C support.

KEY FEATURES

- Up to 2 x USB PD 3.0 Ports. One channel is for power and data while the other channel is for power only
- Supports 5V3A, 9V3A, 12V3A, 15V3A, 20V3A and more power profiles
- Single chip USB to up to 4 data ports
- Entire USB protocol handled on the chip. No USB specific firmware programming required
- USB 2.0 High Speed (480Mbits/Second) and Full Speed (12Mbits/second) compatible
- Two Multi-Protocol Synchronous Serial Engine (MPSSE) on channel A and channel B, to simplify synchronous serial protocol (USB to JTAG, I2C, SPI or bit-bang) design
- RS232/RS422/RS485 UART transfer data rate up to 12Mbaud
- Low operating USB suspend current
- Extended -40°C to 85°C industrial operating temperature range

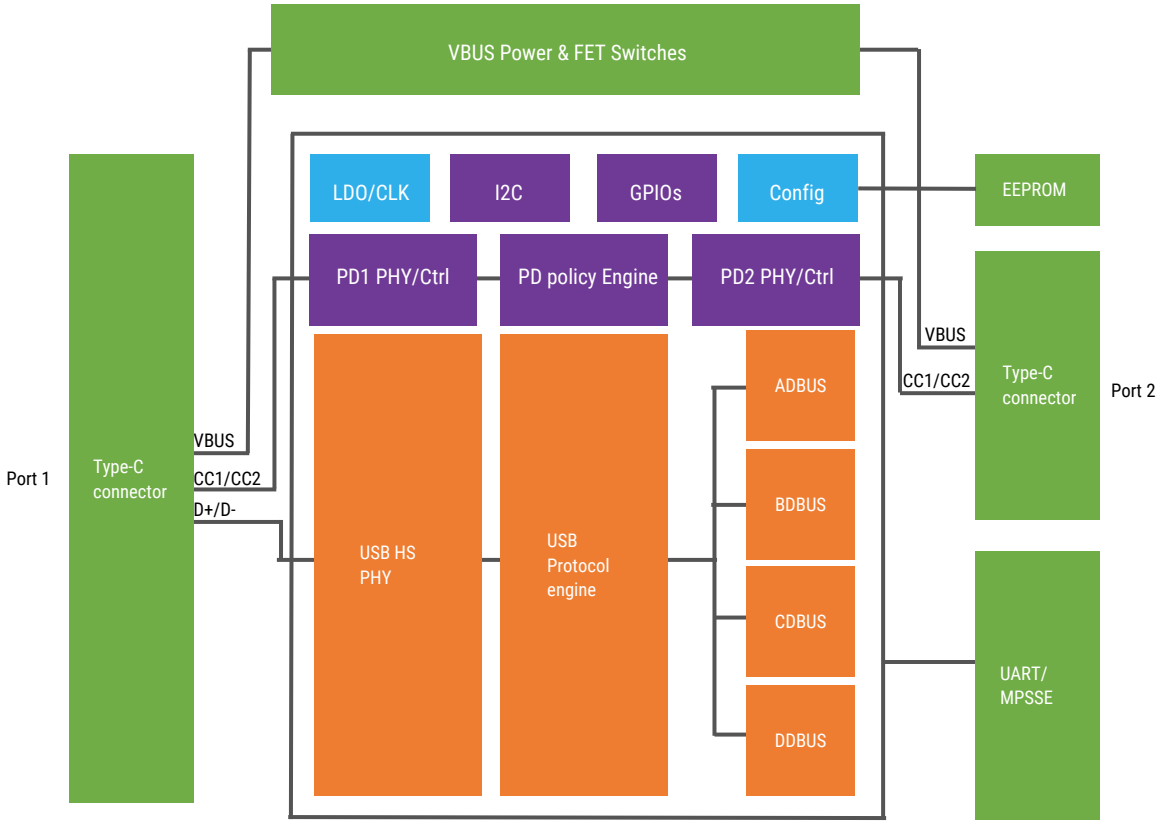

Figure 1: HP series block diagram

NOTE:

- GPIOs block is for PD control only
- FT232HP, FT2232HP or FT4232HP do not include port 2

** For description of each function please refer the dedicated product datasheet*

HP SERIES (POWER DELIVERY) CHIP COMPARISON TABLE

HP SERIES (POWER DELIVERY) CHIP							PACKING INFORMATION			DEVELOPMENT KIT				
PRODUCT CODE	PRODUCT NAME	APPLICATION INTERFACE	CHANNELS	POWER DELIVERY PORT	EEPROM	DATA THROUGHPUT (MAX)	PACKAGE PART NUMBER	PACKAGE	PACKING	PRODUCT CODE	NOTE	CHANNELS	USB CONNECTOR	I/O CONNECTOR
FT232HP	Single channel high speed USB bridge with Type-C/PD3.0 Controller	UART ASYNC FIFO SYNC FIFO MPSSE ASYNC BIT BANG SYNC BIT BANG	1	1	External	12MBaud 8MByte/s 40MByte/s 30Mbit/s	FT232HPQ-TRAY FT232HPQ-REEL	56 QFN	260/tray 3,000/reel	UMFT232HPEV-S	No EEPROM so sink is only at 5V/3A	Single	Type-C	Two 15-pin, single row header
FT233HP	Single channel high speed USB bridge with Type-C/PD3.0 Controller	UART ASYNC FIFO SYNC FIFO MPSSE ASYNC BIT BANG SYNC BIT BANG	1	2	External	12MBaud 8MByte/s 40MByte/s 30Mbit/s	FT233HPQ-TRAY FT233HPQ-REEL	64 QFN	260/tray 3,000/reel	UMFT233HPEV-SD UMFT233HPEV	Sink only but configurable with EEPROM All FTDI Chip power delivery feature and USB serial bridging modes of FT233HPQ	Single	Type-C	Two 20-pin, single row header Two 14-pin, 0.1" inch header
FT2232HP	Dual channel high speed USB bridge with Type-C/PD3.0 Controller	UART ASYNC FIFO SYNC FIFO MPSSE x 2 ASYNC BIT BANG SYNC BIT BANG	2	1	External	12MBaud 8MByte/s 40MByte/s 30Mbit/s	FT2232HPQ-TRAY FT2232HPQ-REEL	68 QFN	260/tray 3,000/reel	Not available				
FT2233HP	Dual channel high speed USB bridge with Type-C/PD3.0 Controller	UART ASYNC FIFO SYNC FIFO MPSSE x 2 ASYNC BIT BANG SYNC BIT BANG	2	2	External	12MBaud 8MByte/s 40MByte/s 30Mbit/s	FT2233HPQ-TRAY FT2233HPQ-REEL	76 QFN	260/tray 3,000/reel	UMFT4233HPEV	USB serial bridging modes can also be evaluated	Dual	Type-C	Two 26-pin, 0.1" dual-row headers
FT4232HP	Quad channel high speed USB bridge with Type-C/PD3.0 Controller	UART MPSSE x 2 ASYNC BIT BANG SYNC BIT BANG	4	1	External	12MBaud 30Mbit/s	FT4232HPQ-TRAY FT4232HPQ-REEL	68 QFN	260/tray 3,000/reel	Not available				
FT4233HP	Quad channel high speed USB bridge with Type-C/PD3.0 Controller	UART MPSSE x 2 ASYNC BIT BANG SYNC BIT BANG	4	2	External	12MBaud 30Mbit/s	FT4233HPQ-TRAY FT4233HPQ-REEL	76 QFN	260/tray 3,000/reel	UMFT4233HPEV	USB serial bridging modes can also be evaluated	Quad	Type-C	Two 26-pin, 0.1" dual-row headers

TECHNICAL SPECIFICATION

- Supports PD Specification 3.0
- Port 1 supports power role swap function while Port 2 supports sink mode with charge through function to Port 1
- Type-C/PD Physical Layer Protocol implemented
- PD policy engine implemented with PD mode configuration through external EEPROM
- Up to 8 configurable PD GPIO pins support
- Highly integrated design includes +1.2V LDO regulator for VCORE, integrated POR function and on chip clock multiplier PLL (12MHz – 480MHz)
- Configurable I/O drive strength (4,8,12 or 16mA) and slew rate
- +3.3V I/O interfacing which is also +5V tolerant
- +3.3V single supply operating voltage range

TYPICAL APPLICATIONS

- Sensor expansion (various sensors within the car, i.e. cameras, ultrasonic sensors, GPS fatigue detection etc)
- BLE expansion (Bluetooth low energy)
- T-Box (Telematics Box)
- Edge computing
- Game controller
- Monitor
- Smart camera
- Smart home controller
- Sweeping robot
- AI control (artificial intelligence)
- Defibrillator
- Medical X-Ray Machine

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

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