

PRODUCT PORTFOLIO

USB SILICON AND SOFTWARE SOLUTIONS



USB MADE EASY

USB AS EASY AS 123

At FTDI Chip our goal can be simply stated, "USB Made Easy". When a designer needs to add a USB port, rest assured that FTDI Chip has a full range of USB solutions to get the job done.

The Universal Serial Bus (USB) interface is now established as the de-facto interface for connecting systems with a reliable, low-cost digital link. USB has expanded beyond PC usage, and can now be found in all market segments, including Industrial, Medical, Consumer, Communications, Networking, and more. Enabling designers to implement USB quickly into a design, FTDI Chip provides total solutions including silicon chips, development tools, application notes, and software support. Expertise in USB bridges provides seamless integration for a variety of interfaces such as UART, FIFO, I²C, SPI, PWM and GPIO, where the bridge converts the signalling and protocol from the selected interface to USB. USB solutions are delivered in packages as small as 10 pin DFN (3x3mm); in modules that can be inserted into boards for development and production; or in cables that bridge USB to numerous interfaces. Whenever your development or product needs USB, check out FTDI Chip (www.ftdichip.com) for complete solutions that can shorten your design time, while providing robust system implementations, and realise why FTDI Chip is USB Made Easy.



USB MADE EASY

USB Made Easy

Whether your design needs silicon chips, cables, or modules, check out FTDI Chip's large portfolio of USB and system level products.



Peripheral Or Host

USB connectivity designs are constructed from two distinct functional capabilities: a host and a device/peripheral type. As part of the total solution, FTDI Chip is able to offer both types of capabilities. With over 30 USB peripheral chips offered in 5 product families, designers can choose the device which best matches their system need. On the USB host side, the FT311 targets the Android ecosystem and joins the Vinculum family which provides system level capabilities with its micro-controller capability, USB host, and USB peripheral support.

Speed

FTDI Chip devices are aimed at full speed and high speed solutions. While the high speed designs offer greater data throughput, full speed devices continue to be a robust, growing market where matching system needs with device features can provide the optimum USB implementation.

Advanced Features

To conserve PCB area and offer additional system value, FTDI Chip adds unique features to enhance USB functionality, like battery charging detection which enables faster charging. FTDI Chip also offers devices linking one USB port to 1, 2, or 4 application interfaces without requiring a USB hub. Save space, power, and system cost when EEPROM (MTP) memory, or unique clocking features are utilized in your system design (see chart on pages 4-5).



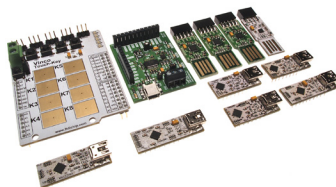
Software

Drivers for most major operating systems such as Windows, MAC OS, Android and Linux are available for free download thus allowing for easy integration with minimum development effort.



The Vinculum family of host controllers is also supported with free, precompiled firmware as well as a free toolchain for designers wishing to tailor the firmware to their specific requirements.

Modules



Development modules are available to enable rapid design development. The modules are available in a variety of mechanical formats to allow easy bread-boarding or immediate access to the bridge interfaces. Additionally application modules are available which provide specific system functionality (see pages 9, 10 and 11).

Cables



Similar to the module solutions are a range of cables offering TTL, RS232, RS422 or RS485 level interfaces. These cables can be used for development purposes or as accessories for accessing existing products over USB (see pages 12 and 13)

So when it comes to adding USB into your system design, let FTDI Chip make it easy ...

USB AS EASY AS 123

USB DEVICE (PERIPHERAL) SOLUTIONS

FTDI offers a comprehensive range of ICs for USB peripherals, including bridge chips and devices targeted at standard class driver support.

Device	FT200XD	FT201X	FT220X	FT221X	FT230X	FT231X	FT234XD	FT240X
External interfaces	I ² C slave	I ² C slave	SPI/FT1248 (4-bits)	SPI/FT1248 (8-bits)	Basic handshake UART	Full handshake UART	Basic handshake UART	8 bit RIFO
USB Speed	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)
USB Transfer Type	Bulk	Bulk	Bulk	Bulk	Bulk	Bulk	Bulk	Bulk
No. External Channels	1	1	1	1	1	1	1	1
Internal memory	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX	512B – RX 512B – TX
Port Speed	Up to 3.4Mbit/s	Up to 3.4Mbit/s	Up to 500kB/s	Up to 1MB/s	Up to 3MBaud	Up to 3MBaud	Up to 3MBaud	Up to 1MB/s
Clock Oscillator	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal
Data configuration memory	Internal MTP	Internal MTP	Internal MTP	Internal MTP	Internal MTP	Internal MTP	Internal MTP	Internal MTP
Operating Temp.	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Core supply	3.3V to 5V	3.3V to 5V	3.3V to 5V	3.3V to 5V	3.3V to 5V	3.3V to 5V	3.3V to 5V	3.3V to 5V
IO supply	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V	1.8V to 3.3V
Battery Charger Detection	YES	YES	YES	YES	YES	YES	YES	YES
Internal DMA	NO	NO	NO	NO	NO	NO	NO	NO
Packages	10 DFN	16 SSOP/ 16 QFN	16 SSOP/ 16 QFN	20 SSOP/ 20 QFN	16 SSOP/ 16 QFN	20 SSOP/ 20 QFN	12 DFN	24 SSOP/ 24 QFN



FT120	FT121	FT122	FT232H	FT2232H	FT4232H	FT2232D	FT232R FT245R
8/16 bit, Multiplexed	SPI slave	8/16 bit, Multiplexed	UART, FIFO, FT1248, 1 x MPSSE* Controllers	UART, FIFO, 2 x MPSSE*, Fast serial, 8051 interface	UART 2 x MPSSE*	UART, FIFO, MPSSE*, Fast serial, 8051 interface	FT232 – UART FT245 – FIFO
Full Speed (12Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)	High (480Mbps)	High (480Mbps)	High (480Mbps)	Full Speed (12Mbps)	Full Speed (12Mbps)
Bulk Isochronous Interrupt	Bulk Isochronous Interrupt	Bulk Isochronous Interrupt	Bulk	Bulk	Bulk	Bulk	Bulk
1	1	1	1	2	4	2	1
320B/ configured by application	2kB/ configured by application	2kB/ configured by application	4kB RX/TX buffer per channel	4kB RX/TX buffer per channel	2kB RX/TX buffer per channel	384B – RX 128B – TX per channel	256B – RX 128B – TX
Up to 1MB/s	Up to 1MB/s	Up to 1MB/s	Up to 12Mbaud	Up to 12Mbaud	Up to 12Mbaud	Up to 3Mbaud	Up to 3Mbaud
6MHz crystal	Internal	Internal	12MHz crystal	12MHz crystal	12MHz crystal	6MHz crystal	Internal
Internal registers	Internal registers	Internal registers	External EEPROM	External EEPROM	External EEPROM	External EEPROM	Internal EEPROM
-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
3.3V to 5V	3.3V to 5V	3.3V to 5V	1.8V	1.8V	1.8V	5V	4V to 5V
3.3V	1.8V to 3.3V	1.8V to 3.3V	3.3V	3.3V	3.3V	3.3V to 5V	1.8V to 5V
NO	YES	YES	NO	NO	NO	NO	NO
YES	YES	YES	NO	NO	NO	NO	NO
28 TSSOP/ 28 QFN	16 TSSOP/ 16 QFN	28 TSSOP/ 28 QFN	48 LQFP/ 48 QFN	64 LQFP/ 64 QFN	64 LQFP/ 64 QFN	48 LQFP	32 QFN/ 28 SSOP

* MPSSE is a configurable interface, see application note, AN_135

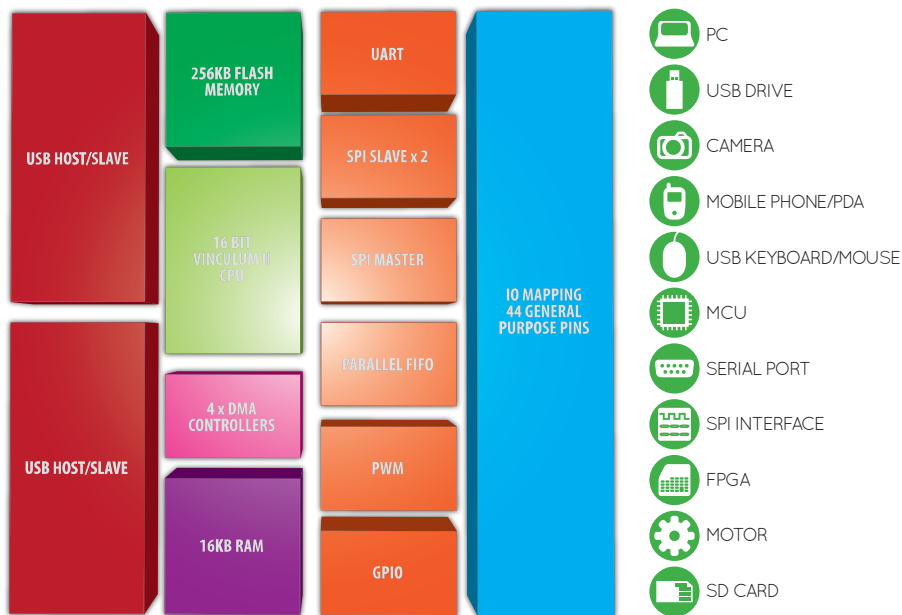
USB HOST SOLUTIONS

As mobility accelerates, the need for host support in tablets, handsets, and consumer equipment becomes critical to enable USB connections. FTDI Chip is expanding its USB host solutions with a focus on: Android Open Accessories Initiative, add-on USB host capability for USB2.0 Hi-Speed, and continued support for system level solutions that include USB technology (16 bit micro-controller, USB host, and USB device capabilities).

Integrated circuits that provide USB host ports in a system solution are provided in the Vinculum family of devices. The Vinculum II (VNC2) provides ample hardware support including 16 bit microcontroller, USB host and device capabilities, embedded flash memory, and extensive interface options. In addition, the VNC2 has an extensive suite of application ROM design files, and a toolchain for developing application specific designs.

	VNC2	FT311D	FT313H
Description	Programmable USB 2.0 Host/ Device Controller	ANDROID USB Host	Programmable USB 2.0 Host
USB Speed	Full (12Mbps) / Low speed (1.5Mbps)	Full-Speed (12Mbps)	Hi-Speed (480Mbps)
USB Transfer Types	Bulk, Interrupt, Isochronous	Bulk	Bulk, Interrupt, Isochronous
No. of USB ports	2	1	1
No. of external channels	Flexible	1	1
Supported External Interfaces	ASYNCFIFO, SYNC FIFO, UART, 2 x SPI SLAVE, 1 x SPI MASTER, GPIO, PWM, DEBUG PORT	GPIO, PWM, UART, I ² C Master, SPI Master, SPI Slave	8/16 bit multiplexed bus, SRAM, NOR
Core	16/32-bit Harvard MCU Core	-	-
Internal Memory	16kB RAM 256kB FLASH	-	320 B
Data rates	Up to 6MBAud	Up to 6MBAud	2-25 MB/s
Configuration Storage	Internal flash	-	Internal Registers
Clocking	12MHz Crystal	12MHz Crystal	6MHz Crustal
Operating temp.	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Core supply	1.8V	1.8V	3.3V
IO Supply	3.3V	3.3V	1.8V to 3.3V
Packages	32/48/64 LQFP and QFN	32 LQFP and QFN	64 QFN/LQFP/TQFP

VNC2 Block Diagram



Android Host (FT311D)

The FT311D IC is designed to specifically host Android platforms that support Android Open Accessories Mode (Android 3.1 onwards). This chip will enumerate and enable an Android platform to provide a bridge to a variety of platforms selectable from 3 GPIO lines. The interfaces include GPIO, UART, PWM, I²C Master, SPI Master and SPI slave. Packaged in 32 pin QFN or LQFP options the device offers a small, reliable bridge to allow Android devices such as mobile phones or tablets to communicate with peripheral hardware over USB. The device does not require any drivers to be loaded on the Android platform and draws no power from the Android USB port as the FT311D is the USB host.



To support the FT311D host chip, FTDI is offering a development kit and GPIO interface board to jump-start engineers' designs and provide easy access and integration into users' end systems.

With this fixed function, bridged host chip, designers can quickly and easily add USB functionality into products and connect to the expanding Android ecosystem.

USB2.0 Hi-Speed Host Solution (FT313H)

The FT313H is FTDI Chip's first Hi-Speed USB host controller, offering a faster rate of data transfer, 480Mbps. The device interfaces a single USB channel to a parallel bus, with DMA engine for optimized data transfer. The device also supports battery charge host emulation.

VINCULUM DEVELOPMENT SUPPORT

Pre-Compiled ROMs

As the Vinculum devices are microcontroller based they require a ROM file to be loaded into the internal flash to perform their required functions. To reduce development time, some common application ROMs are available for download without any coding required. The VNC2 versions are also supplied with source code for quick customisation.

VNC2L	Description
V2DAP	UART /SPI to generic USB host
V2DPS	One USB host/one peripheral port
V2F2F	USB memory to USB memory copier
UART to USB Memory Bridge	Access a USB Memory stick from a UART interface
UART to HID Class Host Bridge	Access a HID class USB device (e.g. keyboard) from a UART interface
UART to FT232 class Host Bridge	Access an FTDI peripheral device from a UART interface
UART to CDC Modem class Host Bridge	Access a CDC class USB device from a UART interface
UART to FT232 Class USB Device	Create a FT232 class USB port and bridge to a UART interface
UART to SPI Master	Convert a UART port to an SPI Master port
USB HID to SPI Master	Host a HID class USB device and bridge the data to an SPI master interface
SPI Slave to USB HID Class Device	Create a HID class USB port and bridge data to an SPI slave interface
SPI Master to FT232 Class USB Device	Create a FT232 class USB port and bridge data to an SPI master interface

Toolchain

For additional flexibility a free toolchain, VNC2 IDE, is available to assist developers in creating application specific ROM files. The toolchain is supplied with a suite of libraries to control each of the functional blocks of the device as well as a collection of device class libraries to enable the VNC2 to host different classes of USB devices. All coding is done with the C programming language enabling developers to write high level, maintainable code.

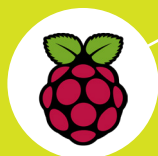
In addition to code creation, the toolchain provides a compiler to generate the ROM file output and a programmer / debugger interface to allow users to load code into the target VNC2 and single step through the code for debugging any coding issues.

APPLICATIONS AND INSTANT SOLUTIONS

As USB is used everywhere in various forms, FTDI Chip strives to provide products that can be applied easily and quickly for various form and function requirements. Outlined below are a few, select products that offer a specific solution set.



DB9 modules (completely encapsulated) are ideal for an easy upgrade to a legacy serial port based product. The module contains an FT232R and RS232 transceiver packaged into a DB9 footprint. Not only does this facilitate the electronic conversion from RS232 to USB, the footprint and moulding facilitate a low risk, rapid upgrade allowing existing footprints to be used while enabling a new product feature with only a minor change to the bill of material.



Raspberry Pi Support: The small form factor, low cost Raspberry Pi development board is a popular ARM processor based development tool that was released in 2012. These small boards can be enhanced by providing additional IO. The RPI-HUB-MODULE fills this gap in the market by utilising the FT2232H to provide additional UART, FIFO or I²C and SPI master interfaces. In addition to these extra ports, the module offers some protection to the core processor as a buffer from wrongly wired circuitry. The module also includes a USB hub IC which expands the USB port count.



GPS Dongle: Never be lost again. This GPS dongle reference design will plug directly into the USB port of your PC or laptop to enable reception of GPS data. This data may be used with free software to indicate your current location. The module form-factor is typical of standard-sized USB memory sticks. Monitor this area for new capabilities in the future.



VMUSIC3: Converting audio files from a USB memory stick to an output on a headphone is simple with the VMUSIC3. Whether the audio is for an instructional guide at the museum or for music in the elevator, the VMUSIC3 module can play it for you. To change the audio message, simply change the content on the USB memory stick.



Cables: For rapid debug or firmware upgrades, a family of cables provide for a simple to use, easy to connect link between the debug PC and the target hardware, including: TTL cables, USB2.0 Hi-Speed Cables, and cables that interface to standard interfaces (I²C, UART, FIFO, SPI, and JTAG).

Check out www.ftdichip.com for more system level modules and cables.

DEVELOPMENT MODULES

USB HOST SUPPORT

UMFT311EV



Description: FT311 host development module connects to an Android USB device port. This development system enables the bridge from SPI master, SPI slave, I²C, UART, GPIO, and PWM to a USB host port.

USB connector:
1 x Type-A

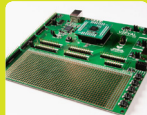
UMFT313EV



Description: FT313 Hi-Speed USB host development module

USB connector:
1 x Type-A

V2EVAL



Description: Motherboard for VNC2 daughter cards. Includes connectors for all IO and USB plus a prototyping area

USB connector: Type-B for debug port. 2 x Type-A

Notes: Supports 3 VNC2 package sizes
EXT32 (32 pin daughter card)
EXT48 (48 pin daughter card)
EXT64 (64 pin daughter card)

VINCO



Description: Arduino inspired form factor for VNC2 development. Based on VNC2-64L and includes additional 10-bit ADC

USB connector: Type A and mini-B

Notes: May be used with Arduino or VNC2 shields

VNC2 Debugger / Programmer



Description: VNC2 Programmer/debugger module for use with the IDE development tools

USB connector: Mini-B

Notes: Used to load and debug firmware in VNC2 devices, via the debug pin

H-CHIP SERIES SUPPORT

USB2.0 Hi-Speed support with multi-channel capabilities

UM232HB



Chip:
FT232HL

USB connector:
PCB tracks only

Form Factor: Breakout module

Application:
USB to UART, ASYNC FIFO, SYNC FIFO, or MPSSE

UM232H



Chip:
FT232HL

USB connector: Mini-B

Form Factor:
28 pin 0.6" wide DIP

Application:
USB to UART, ASYNC FIFO, SYNC FIFO, or MPSSE

FT2232H Mini Module



Chip:
FT2232HL

USB connector: Mini-B

Form Factor:
Two 26 pin double row headers

Application:
USB to UART, ASYNC FIFO, SYNC FIFO, or MPSSE x 2

FT4232H Mini Module



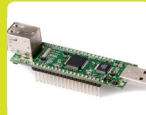
Chip:
FT4232HL

USB connector: Mini-B

Form Factor:
Two 26 pin double row headers

Application:
USB to UART or MPSSE x 2

FT4232H Hi-Speed Serial/Hub



Chip: FT4232HL

USB connector: Type A

Form Factor: 36 pin 0.6" wide DIP with one USB upstream connector and two downstream connectors

Application: USB to UART, MPSSE or a USB hub. May act as an expansion device to VNC2 USB host.

X-CHIP SERIES SUPPORT

An advanced USB2.0 Full Speed Family with optimized power, footprint and feature set

UMFTxxxXB*

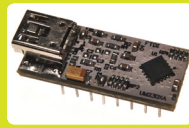


Description:
Breakout Module

Supported IC's:
FT200XD, FT201XQ, FT220XQ,
FT230XQ

USB connector: PCB tracks only

UMFTxxxXA*

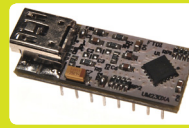


Description:
0.3" wide development

Supported IC's:
FT201XS, FT220XS, FT221XS,
FT230XS, FT231XS, FT240XS

USB connector: Mini-B

UMFTxxxXE*



Description:
0.6" wide development

Supported IC's:
FT201XS, FT221XS, FT231XS,
FT240XS

USB connector: Mini-B

UMFT231XC



Description:
Battery Charger Detection
Module

Supported IC's:
FT231XS

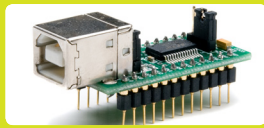
USB connector: Micro-B

* 'xxx' correlates to the numbers of the supported part types

R-CHIP SERIES SUPPORT

FTDI Chip's popular USB2.0 Full Speed Family

UM232R



Chip: FT232RL

USB connector: Type B

Form Factor: 24 pin, 0.6" wide DIP

Application: USB to UART

MM232R



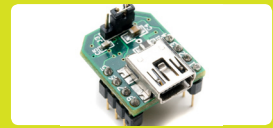
Chip: FT232RL

USB connector: Type B

Form Factor: 16 pin 0.1" pitch

Application: USB to UART

UB232R



Chip: FT232RL

USB connector: Type B

Form Factor: 8 contacts, 0.1" pitch

Application: USB to UART

EVAL232R



Chip: FT232RL

USB connector: Type B

Form Factor: USB to DB9 converter

Application: USB to RS232

USB-Key



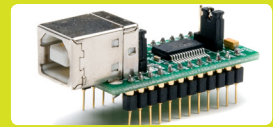
Chip: FT232RL

USB connector: Type A

Form Factor: Dongle

Application: ChipID

UM245R



Chip: FT245RL

USB connector: Type B

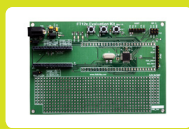
Form Factor: 24 pin 0.6" wide DIP

Application: USB to FIFO

FT12 SERIES SUPPORT

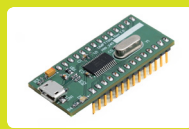
Inspired by the D12, industry standard, with value-added features and footprints

UMFT12XE



Description: Development
system with LPC1114 micro-
controller for use with daughter-
cards for system development

UMFT120DC



Chip: FT120T

USB Connector: Micro-B

Footprint: 28 pin 0.8" wide DIP

UMFT121DC



Chip: FT121T

USB Connector: Micro-B

Footprint: 14 pin 0.8" wide DIP

UMFT122DC



Chip: FT122T

USB Connector: Micro-B

Footprint: 28 pin 0.8" wide DIP

CABLE SOLUTIONS

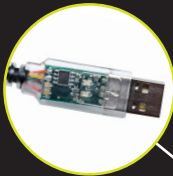
USB TO LEGACY RS232 CONVERTER CABLES



Premium USB to Legacy RS232 Converter

	PART NUMBER	IO LEVELS
USB-Serial Converter	US232R-10	RS232
	US232R-100	
	US232R-500	
	UT232R-200	RS232
	UT232R-500	
Chipt-x	CHIPI-X10	RS232

USB TO LEGACY RS232 OR RS422 OR RS485 CONVERTER CABLES



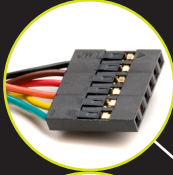
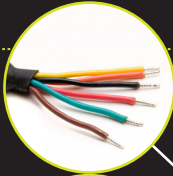
RS232 Converter

RS422 Converter

RS485 Converter

	PART NUMBER	IO LEVELS
RS232 Converter	USB-RS232-WE-1800-BT_0.0	RS232
	USB-RS232-WE-1800-BT_3.3	
	USB-RS232-WE-1800-BT_5.0	
	USB-RS232-WE-5000-BT_0.0	
	USB-RS232-WE-5000-BT_3.3	
	USB-RS232-WE-5000-BT_5.0	
RS422 Converter	USB-RS422-WE-1800-BT	RS422
	USB-RS422-WE-5000-BT	
RS485 Converter	USB-RS485-WE-1800-BT	RS485
	USB-RS485-WE-5000-BT	

USB TO TTL SERIAL CABLES



Type A USB to wire end TTL Serial

Type A USB to SIP Connector

Type A USB to 3.5mm Audio Jack

	PART NUMBER	IO LEVELS
Type A USB to wire end TTL Serial	TTL-232RG-VREG1V8-WE	1.8V
	TTL-232RG-VREG3V3-WE	3.3V
	TTL-232RG-VSW3V3-WE	3.3V
	TTL-232RG-VSW5V-WE	5V
	TTL-232RG-VIP-WE	1.8V to 5.25V ¹
	TTL-232R-3V3-WE	3.3V
	TTL-232R-5V-WE	5V
	TTL-232R-5V	5V
	TTL-232R-3V3	3.3V
	TTL-232R-3V3-2MM	3.3V
Type A USB to SIP Connector	TTL-232R-5V-AJ	5V
	TTL-232R-3V3-AJ	3.3V

FTDI Chip's instant USB converter cables provide connectivity options from USB to RS232, RS422, or RS485 and TTL based signalling interfaces. The cables feature integrated electronics assemblies by using FTDI Chip's ICs, to provide an easy-to-use USB conversion. Custom cable versions are available upon request.

MAX BAUD RATE	RX/TX LED	CABLE LENGTH	CABLE TERMINATION	TEMPERATURE RANGE	NOTES
1Mbaud	RX/TX LED	10cm	DB9	-20°C to +80°C	Retaining nut on DB9 connector.
		1m			
		5m			
1Mbaud	–	2m	DB9	-20°C to +80°C	Thumb screw on DB9 connector.
		5m			
250 kBaud	–	10cm	DB9	-40°C to +85°C	

POWER OUTPUT PIN	MAX BAUD RATE	RX/TX LED	CABLE LENGTH	CABLE TERMINATION	TEMPERATURE RANGE	NOTES
0V	1Mbaud	RX/TX LED	18m	Wire ended	-40°C to +85°C	Option of transparent or black USB connector.
3.3V			18m			
5V			18m			LEDs for visual indication of traffic on the cable. Also available as PCB.
0V			5m			
3.3V			5m			
5V			5m			
0V	3 Mbaud	RX/TX LED	18m	Wire ended	-40°C to +85°C	
			5m			
0V	3 Mbaud	RX/TX LED	18m	Wire ended	-40°C to +85°C	
			5m			

POWER OUTPUT PIN	MAX BAUD RATE	RX/TX LED	CABLE LENGTH	CABLE END	TEMPERATURE RANGE	NOTES
1.8V @ 100mA	3 Mbaud	RX/TX LED	18m	Wire ended	-40°C to +85°C	LEDs for visual indication of traffic on the cable.
3.3V @ 250mA						
3.3V @ 50mA						
5V @ 450mA		—	18m	Wire ended	-40°C to +85°C	Transparent USB connector.
1.8V to 5.25V ¹						
5V @ 75mA						
5V @ 75mA	3 Mbaud	—	18m	Single in line socket	-40°C to +85°C	Available as PCB.
5V @ 75mA						0.1" pitch
5V @ 75mA						2mm pitch, for VMUSIC2 and VDRIVE2
5V @ 75mA						
—	3 Mbaud	—	18m	Audio Jack	-40°C to +85°C	Tip - Tx, Ring - Rx, Sleeve - Ground

¹ adj logic threshold level (from external supply)

* All cables are powered from the host USB port, except TTL-232RG-VIP-WE
All cables use FTDI royalty free drivers - available on Windows, MAC, Linux, and WinCE
All cables FCC/CE approved • Custom cable options on request subject to MOQ/NRE

FTDI CHIP TOOLS AND SUPPORT

In addition to silicon chips, FTDI Chip provides a wide range of support including application notes, detailed datasheets, development hardware and software, as well as a world-wide network of customer support engineers to address technical items and concerns.

Driver Support:

The first item a user needs when connecting a peripheral to a host PC is driver support.

The VCP driver creates a Virtual COM Port on the host PC allowing legacy applications that were used to control serial ports to connect over USB with minimal changes to existing application software. The D2xx driver interface operates more directly with the device and offers greater control to access features such as on-chip memory for storing device descriptors.

The devices are supported for all Windows OS from Windows XP through to Windows 7 including 32 and 64 bit support. These drivers are approved by Microsoft via their WHQL certification program. Future Windows OS versions are targeted for support.

Linux is catered for in both VCP and D2xx variants of the driver. The VCP driver is actually available with the kernel, while the D2xx driver may be freely downloaded and installed by the user.

MAC OS, Android, and WinCE are also supported in both VCP and D2xx formats.

All drivers and updates are provided free of charge, and may be downloaded from:

www.ftdichip.com/FTDrivers.htm

Utilities:

FTDI Chip offer a suite of free utilities to help with system design and debug, including:

FT_PROG: For users wishing to customize design descriptors in the EEPROM via a GUI based tool. This utility removes the need to write any code to customize the design (Windows only).

FT_INF: Depending on the changes made to the EEPROM it may also be necessary to edit the driver to match. This may be done manually, or with the FT_INF utility (Windows only).

USBVIEW: A useful debug tool that will allow users to determine if a device has been connected and recognized. It is typically used to determine the device descriptors to identify if they match the driver the user is trying to install.

COMPort Assignment: A Windows tool to allow users to change the COM port assigned to a device without needing to access Device Manager.

CDM Uninstaller: A Windows tool to allow full uninstalling of all FTDI drivers from a GUI interface to ensure a "clean" machine for testing.

These free utilities may be downloaded from:
www.ftdichip.com/Support/Utilities.htm

Documentation:

A comprehensive suite of datasheets, application notes and technical notes is also available on the FTDI Chip website:

www.ftdichip.com/Support/FTDocuments.htm

Application Engineers:

For any enquiry not covered by the online literature or supporting utilities FTDI Chip have a global team of application engineers based in UK, USA, China and Taiwan, with many years of experience in designing in FTDI Chip chipsets, available to offer direct one to one support via e-mail or phone.

ABOUT FTDI CHIP



FTDI Chip specialises in the design and supply of silicon and software solutions with a focus on providing easy to use, robust products that enable fast time to market while offering differentiated solutions through unique features that bring value to customers' end equipment designs. FTDI Chip is a global fabless semiconductor company with local sales and technical support within all major regions of the world.

FTDI Chip is widely known and recognised for USB products that offer a simple route to USB migration (USB Made Easy), by combining easy to implement IC devices with proven, ready to use, royalty-free USB firmware and driver software. Whatever the USB need; Hi-Speed or Full-speed, a USB peripheral chip or a USB host device, a cable or a module, or a system solution with micro-controller and advanced USB technology, FTDI Chip has products to meet the requirement. Starting with bridge devices that can be used in the conversion to USB from RS232/RS422/RS485 or from board level interfaces, such as I²C, SPI, and FIFO's, and now continuing to hi-performance chips, the priority is to make designers' system integrations easier while providing solutions that offer premium value.

As the market continues to evolve with a greater focus on mobility, connectivity, and user interfaces, FTDI Chip is expanding its development horizon while maintaining its core principles of ease-of-use, robust solutions, and premium value. An expansion of the product portfolio for the Android operating system



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and for USB2.0 Hi-Speed will enable more embedded applications, as the PC becomes less prevalent in the mobile ecosystem, and the need to connect to the enormous USB installed base of product grows.

Constant throughout all product offerings is an awareness of the need to provide the necessary development hardware, software, and technical support; so that designers have the complete tools they need to finalise their product designs. FTDI Chip solutions are supported by industry certified software drivers (WHQL/Microsoft certified) for Windows, with support for Linux, MAC OS, and Android. All product drivers and software, including updates, are provided free of charge.

FTDI Chip is a global semiconductor supplier with an expanding array of unique, well documented, well supported products, which are detailed in depth at www.ftdichip.com. Research and development facilities are located in Glasgow, UK; Singapore; and Tallinn, Estonia, with regional sales and technical support in Glasgow, UK; Portland, Oregon, USA; Shanghai, China; and Taipei, Taiwan.

Global Headquarters

Europe, Middle East, Africa

Unit 1, 2 Seaward Place Centurion
Business Park, Glasgow, G41 1HH, UK
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758
E-Mail (Sales):
sales1@ftdichip.com
E-Mail (Support):
support1@ftdichip.com

Americas

7130 SW Fir Loop, Tigard, Oregon
97223-8160, USA
Tel: +1 (503) 547 0988
Fax: +1 (503) 547 0987
E-Mail (Sales):
us.sales@ftdichip.com
E-Mail (Support):
us.support@ftdichip.com

Asia/Pacific

Room 1103, No. 666 West Huaihai
Road, Shanghai, 200052, China
Tel: +86 (0)21 6235 1596
Fax: +86 (0)21 6235 1595
E-Mail (Sales):
cn.sales@ftdichip.com
E-Mail (Support):
cn.support@ftdichip.com

2F, No. 516, Sec. 1, Neihu Road, Taipei
114, Taiwan Republic Of China
Tel: +886-2-8797 1330
Fax: +886-2-8751 9737
E-Mail (Sales):
tw.sales1@ftdichip.com
E-Mail (Support):
tw.support1@ftdichip.com

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