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FTDI – located in Glasgow/UK, are specialists in converting peripherals with FIFO/UART and other industrial interfaces to Universal Serial Bus (USB). They offer the easiest route to USB migration by combining USB Serial (USB RS232) and USB FIFO silicon solutions.

FTDI, který sídlí v Glasgow ve Velké Británii je specialistou na konverzi periférií s FIFO / UART a jinými průmyslovými rozhraními na USB rozhraní. Nabízí tu nejjednodušší cestu na migraci přes USB kombinováním USB sériových portů (USB RS232) a USB FIFO řešení.

FTDI mit Sitz in Glasgow in Großbritannien ist ein Spezialist für die Umwandlung von Peripheriegeräten mit FIFO / UART und anderen industriellen Schnittstellen auf USB-Schnittstelle. Es bietet den einfachsten Weg zur USB-Migration durch Kombination von seriellen USB-Schnittstellen (USB RS232) und USB-FIFO-Silizium-Lösungen.

Az FTDI, melynek székhelye a nagy-britanniai Glasgowban található, a FIFO / UART perifériák és más ipari interfészek USB-re való átalakításának specialista. A leggyeszerűbb módot kínálja az USB-re történő migrációra az USB soros portok (USB RS232) kombinációjával és az USB FIFO szilíciumos megoldásaival.

FTDI z siedzibą w Glasgow / Wielka Brytania, jest specjalistą w konwersji peryferii z przemysłowymi złączami FIFO / UART oraz innymi, dla interfejsów USB. Oferuje najprostszą możliwą drogę do migracji za pośrednictwem USB, za pomocą kombinacji portów szeregowych USB (USB RS232) oraz krzemowych rozwiązań USB FIFO.

FTDI – cu sediul în Glasgow/UK, este o societate specializată în convertirea perifericelor cu FIFO/UART și a altor interfețe industriale către Universal Serial Bus (USB). Oferă cea mai ușoară cale spre migrarea USB prin combinarea Serialului USB (USB RS232) cu soluțiile USB FIFO din silicon.

FTDI, ktorý sídlí v Glasgove vo Veľkej Británii, je špecialistom pre konverziu periférií s FIFO / UART a inými priemyselnými rozhraniami na USB rozhranie. Ponúkajú tú najjednoduchšiu cestu na migráciu cez USB kombinováním USB sériových portov (USB RS232) a USB FIFO kremikových riešení.

FTDI's USB to serial UART interface devices simplifies USB to serial designs. Virtual COM port (VCP) drivers cause the USB device to appear as an additional COM port available to the PC. Application software can access the USB device in the same way as it would access a standard COM port. A common feature of all FTDI products is an extensive support and royalty free USB drivers. FTDI's "total" solutions offer reduced development and debug costs and a fast time to market. FTDI products are very popular because of their simple incorporation into a target device, providing a full USB connectivity of a target device in a very short time.

Why FTDI?

- very popular easy to use USB connectivity ICs and modules
- extensive customer support
- royalty free drivers

FTDI - USB Host/ Device Interface Controllers

Device	VINCULUM		FT SERIES					
	Vinculum-I	Vinculum-II	Hi-Speed			Full-Speed		
	VNC1L	VNC2	FT232H	FT2232H	FT4232H	FT2232D	FT232R	FT245R
Description	USB 2.0 Host/ Device Controller	Programmable ¹ USB 2.0 Host / Device Controller	Hi-Speed USB 2.0 Device to Single UART/FIFO IC	Hi-Speed USB 2.0 Device to Dual UART/FIFO IC	Hi-Speed USB 2.0 Device to Quad UART IC	USB 2.0 Device to Dual UART / FIFO IC	USB 2.0 Device to UART IC	USB 2.0 Device to FIFO IC
USB Speed	Full / Low Speed ^a / Full / Low Speed ^a	High / Full Speed ^a	High/ Full Speed ^a	High / Full Speed ^a	Full Speed ^a Full Speed ^a	Full Speed ^a		
USB Transfer Types	Bulk / Interrupt	Bulk / Interrupt/ Isochronous	Bulk	Bulk	Bulk	Bulk	Bulk	Bulk
No. USB Ports	2	2	1	1	1	1	1	1
No. External Channels	Flexible ²	Flexible ²	1	2	4	2	1	1
Supported External Interfaces	ASYNF FIFO, UART, SPI slave, GPIO	ASYNF FIFO, SYNC FIFO, UART, 2x SPI slave, 1 x SPI master, GPIO, PWM, Debug Port	UART, ASYNF FIFO, SYNC FIFO, MPSSE ³ , SPI/I2C/JTAG, Fast Serial, GPIO, FT1248 ⁷	UART, ASYNF FIFO, SYNC FIFO, 2 x MPSSE ³ , Fast serial, 8051 MCU emulation, 16 GPIOs	UART, 2 x MPSSE ³ Controllers, 32 GPIOs	UART, ASYNF FIFO, MPSSE ³ , Fast serial, 8051 MCU emulation, 8 GPIOs	UART with 4 GPIO pins	ASYNF FIFO
Core	8-bit Harvard MCU core	16/32-bit Harvard MCU Core	–	–	–	–	–	–
Internal Memory	4KB RAM 64KB Flash	16KB RAM 256KB Flash	1KB RX/TX buffer per channel	4KB RX/TX buffer per channel	2KB RX/TX buffer per channel	384Byte – RX 128Byte – TX per channel	256Byte – TX 128Byte – RX	256Byte – TX 128Byte – RX
Port Speed	Up to 1Mbaud	Up to 6Mbaud	Up to 40MByte/s (FIFO) / Up to 12Mbaud (UART)	Up to 40MByte/s				
(FIFO) / Up to 12Mbaud (UART)	Up to 12Mbaud	Up to 3Mbaud	Up to 3Mbaud	Up to 1MByte/s				
Configuration Data Storage	Internal Flash	Internal Flash	External EEPROM	External EEPROM	External			
EEPROM	External EPROM	Internal EEPROM	Internal EEPROM					
Clocking	12MHz crystal	12MHz crystal	12MHz crystal	12MHz crystal	12MHz crystal	6MHz crystal	Internal ⁶	Internal ⁶
Operating Temperature	-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 Power Supply	+3V3	+1V8 ⁵	+1V8 ⁵	+3V3	+3V3	+5V	+3V3 to +5V25 ⁴	+3V3 to +5V25 ⁴
I/O Power Supply	+3V3	+3V3	+3V3 ⁵	+3V3	+3V3	+3V3 to +5V	+1V8V to +5V	+1V8 to +5V
Packages	48-pin LQFP	32/48/64-pin LQFP & QFN	48-pin LQFP & QFN	64-pin LQFP & QFN	64-pin LQFP & QFN	48-pin LQFP	32-pin QFN / 28-pin SSOP	32-pin QFN / 28-pin SSOP

¹ VNC2 supports ability to run user developed custom firmware. Firmware development supported via Vinculum-II Software toolchain.

² Vinculum devices support flexible IO configuration. VNC1L I/O configuration is set by available firmware image. VNC2 supports user configurable I/O settings through the on-chip I/O multiplexing feature.

³ MPSSE - Multi-Protocol Synchronous Serial Engine, configurable serial controller for supporting SPI, I2C, JTAG & GPIO interfacing, supports speeds up to 30Mbps.

⁴ Power supply range, using external crystal +3V3 to +5V25, using internal oscillator +4V to +5V25.

⁵ Internally generated from +3V3 supply.






⁶ Internal regulator.






⁷ Serial/ Parallel synchronous interface.

⁸ Low Speed (1.5 Mbit/s), Full Speed (12 Mbit/s) and Hi-speed (480 Mbit/s)

Vinculum-II Development Modules

Vinculum-II (VNC2) is FTDI's 2nd generation, user programmable dual USB 2.0 Host/ Device Controller. The device features a powerful 16/32-bit wide (instruction/data) MCU core with 256kB Flash & 16kB RAM. UART, FIFO, SPI Slave, SPI Master and a PWM interface are supported.

Part Number	V2DIP1-32	V2DIP1-48	V2DIP1-64	V2DIP2-32	V2DIP2-48
Description	VNC2 Module with single SB connector	VNC2 Module with single USB connector	VNC2 Module with single USB connector	VNC2 Module with two USB connectors	VNC2 Module with two USB connectors
					
FTDI Chip	VNC2-32L	VNC2-48L	VNC2-64L	VNC2-32L	VNC2-48L
Footprint	24 pin x 0.6" wide x 0.1" pitch DIP	24 pin x 0.6" wide x 0.1" pitch DIP	60 pin x 0.8" wide x 0.1" pitch DIP	24 pin x 0.6" wide x 0.1" pitch DIP	40 pin x 0.6" wide x 0.1" pitch DIP
Other connections	1 type A USB socket. 6 way key 0.1" SIL Debug connector	1 type A USB socket. 6 way key 0.1" SIL Debug connector	1 type A USB socket 6 way key 0.1" SIL Debug connector	2 type A USB socket 6 way key 0.1" SIL Debug connector	2 type A USB socket 6 way key 0.1" SIL Debug connector
USB speed	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)
USB Host/Device	Host/ Device	Host/ Device	Host/ Device	Host/ Device	Host/ Device
Interfaces	as per VNC2	as per VNC2	as per VNC2	as per VNC2	as per VNC2
Supply voltages	5V	5V	5V	5V	5V
Temp range	-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
Notes	2nd VNC2 USB port available on DIP pins. Requires VNC2 Debug/ Programmer Module for IDE connection.	2nd VNC2 USB port available on DIP pins. Requires VNC2 Debug/ Programmer Module for IDE connection.	2nd VNC2 USB port available on DIP pins. Requires VNC2 Debug/ Programmer Module for IDE connection.	Requires VNC2 Debug/ Programmer Module for IDE connection.	Requires VNC2 Debug/ Programmer Module for IDE connection.

Part Number	V2DIP2-64	VNC2 DEBUG MODULE	VNCLO-MB1A	VNCLO-SHLD-1A	V2-EVAL
Description	VNC2 Module with two USB connectors	Vinculum-II Debug/ Programmer Module	Vinco Vinculum-II Development Platform	Prototyping shield PCB and components for VNCLO-MB1A	Complete VNC2 Evaluation & Development Kit
					
FTDI Chip	VNC2-64L	FT232R	VNC2-64L	—	Requires a daughtercard with VNC2.
Footprint	60 pin x 0.8" wide x 0.1" pitch DIP	12.8x28mm	Arduino-enhanced	Arduino-enhanced	—
Other connections	2 type A USB socket 6 way key 0.1" SIL Debug connector	1 type B Mini USB socket. 6 way key 0.1" SIL Debug connector	1 Mini-B USB socket 1 type A USB socket 46 0.1" pitch IO pins 6 way key 0.1" SIL Debug connector	3 LEDs, 2 switches (one reset), 3 resistors, 6 socket strips and prototyping area for PTH & SMT	2 Type A USB sockets 1 Type B USB Socket All IO available on pin headers
USB speed	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)	—	12Mbit/s (FS)
USB Host/Device	Host/ Device	USB Device	Host/ Device	—	Host/ Device
Interfaces	as per VNC2	—	UART, SPI Master, SPI Slave, Parallel FIFO, ACD	—	UART, SPI Master, SPI Slave, Parallel FIFO
Supply voltages	5V	5V (bus powered)	9V/bus powered option (PSU optional)	—	5V/bus powered option (PSU supplied)
Temp range	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	— -40°C to +85°C	
Notes	Requires VNC2 Debug/ Programmer Module for IDE connection.	Provides interface to V2DIP/ Vinco modules for debug and programming.	Requires VNC2 Debug/ Programmer Module for IDE connection. Inspired by the Arduino form factor. Compatible with Arduino shields.	Inspired by the Arduino form factor and will mechanically fit to Arduino shields.	Fully integrated development module containing the debug port and prototyping area. Requires daughtercard: V2-EVALEXT32, V2-EVAL-EXT48, V2-EVALEXT64.

* Free Toolchain (IDE) for firmware development • Free VNC2 drivers provided with IDE • Free sample code tutorials provided with IDE • VNC2 Interfaces are defined by user firmware

FTDI - USB Host/ Device Interface Controllers

Part Number	VDIP1	VDIP2	VDRIVE2	VMUSIC2	VF2F2
Description	VNC1L Module with single USB connector	VNC1L Module with two USB connectors	VNC1L Flash Drive Module	VNC1L Audio Player Module	Disk to Disk Copier
FTDI Chip	VNC1L	VNC1L	VNC1L	VNC1L	VNC1L
Footprint	24 pin x 0.6" wide x 0.1" pitch DIP	40 pin x 0.6" wide x 0.1" pitch DIP	–	–	–
Other connections	1 Type A USB	2 Type A USB	1 Type A USB socket 8 way key 2mm SIL connector	1 Type A USB socket 3.5mm stereo audio jack 8 way key 2mm SIL connector	2 Type A USB socket
USB speed	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)	12Mbit/s (FS)
Interfaces	UART, SPI Slave, ASYNC FIFO	UART, SPI Slave, ASYNC FIFO	UART, SPI Slave	UART, SPI Slave	UART, SPI Master, SPI Slave, Parallel FIFO
Supply voltages	5V	5V	5V	5V	5V
Temp range	-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
Notes	Supplied with VDAP firmware pre-installed.	Supplied with VDAP firmware pre-installed.	Supplied with VDAP firmware pre-installed.	Supplied with VMSC firmware pre-installed.	Supplied with VF2F firmware pre-installed.






Part Number	V-EVAL (EU, JPN, UK, US)	VPROG- 1
Description	Complete VNC1L evaluation & development kit	Kit for programming VNC1L/VNC2-48L devices
FTDI Chip	VNC1L	FT232R
Footprint	–	–
Other connections	2 Type A USB sockets 1 Type B USB Socket All I/O available on pin headers	1 Mini-B USB connector to PC
USB speed	12Mbit/s (FS)	12Mbit/s (FS)
Interfaces	UART, SPI Slave, ASYNC FIFO	UART, SPI Slave, ASYNC FIFO
Supply voltages	5V/bus powered option PSU supplied	5V (bus powered)
Temp range	-40°C to +85°C	-40°C to +85°C
Notes	Fully integrated development module containing prototyping area.	Program VNC1L / VNC2-48L IC's before assembly. Daughtercards for IC's DIP modules sold separately.








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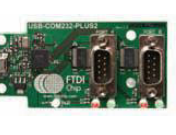


USB Converter Modules based on FTDI Hi-Speed ICs (480Mbit/s)

Part Number	UM232H	FT2232H MINI MODULE	FT4232H MINI MODULE	FT-MOD-4232HUB	MORPH-IC-II
Description	Single Channel USB 2.0 Hi-Speed Module	Dual Channel USB 2.0 Hi-Speed Module	Quad Channel USB 2.0 Hi-Speed Module	USB Hi-Speed FT4232H Serial/ Hub Module	USB 2.0 based FPGA Development Platform
					
FTDI Chip	FT232H	FT2232H	FT4232H	FT4232H	FT2232H
Footprint	28 pin x 0.6" wide x 0.1" pitch DIP	2 double row 0.1" pitch male connectors	2 double row 0.1" pitch male connectors	36 pin x 0.8" wide x 0.1" pitch DIP	2 double row 0.1" pitch male connectors
Other connections	1 mini-B USB connector	1 mini-B USB connector	1 mini-B USB connector	2 Type A USB sockets, 1 Type A USB plug	Type B USB Socket, JTAG 10 pin 0.1" header
External ports	1	2	4	1	VHDL Configured
Interfaces	UART, FIFO, MPSSE, FT1248	UART, FIFO, MPSSE	UART, MPSSE	UART, MPSSE	VHDL Configured
I/O levels	3V3	3V3	3V3	3V3	1V5/ 1V8/ 2V5/3V3
Notes	Bus powered or self powered	Bus powered or self powered	Bus powered or self powered	3 downstream USB ports, 2 MPSSE, 2 UART ports. Bus powered.	Supplied with VHDL reference designs, software samples & utilities. Temp range 0°C to +85°C

USB Converter Modules based on FTDI Full Speed ICs (12MBit/s)

Part Number	UM232R	UM245R	MM232R	UB232R	FTDI USB-KEY
Description	FT232R USB to UART DIP Module	FT245R USB to FIFO DIP Module	FT232R USB to UART Miniature Module	USB Mini-B to UART Module	USB Security Access Dongle
					
FTDI Chip	FT232R	FT245R	FT232R	FT232R	FT232R
Footprint	24 pin x 0.6" wide x 0.1" pitch DIP	24 pin x 0.6" wide x 0.1" pitch DIP	16 pin x 0.1" pitch	8 pin x 0.1" pitch DIP	—
Other connections	1 Type B USB socket	1 Type B USB socket	1 Type B USB socket	1 Mini-B USB connector	1 Type A USB Plug
No. of external ports	1	1	1	1	—
Interfaces	UART	FIFO	UART	UART	—
I/O levels	1V8 to 5V	1V8 to 5V	1V8 to 5V	1V8 to 5V	5V (bus powered)
Notes	Bus powered or self powered	Bus powered or self powered	Bus powered or self powered	Bus powered or self powered	Uses FTDI Chip-ID

Instant USB Application Modules

Part Number	DB9-USB-X	USB-COMXXX-PLUS1	USB-COMXXX-PLUS2	USB-COMXXX-PLUS4	EVAL232R
Description	Instant USB Adapter Retrofit Connector Module with integrated RS232	Single port USB to RS232/RS422/RS485 Module - defined by XXX	2 Port USB to RS232/RS422/RS485 Module - defined by XXX	4 Port USB to RS232/RS422/RS485 Module - defined by XXX	USB to RS232 module
					
FTDI Chip	FT232R	FT232R	FT2232H	FT4232H	FT232R
Serial Interfaces	RS232	RS232 / RS422/ RS485	RS232 / RS422/ RS485	RS232 / RS422 / RS485	RS232
Other connections	1 Mini-B USB	1 Type B USB Socket, 1 DB9M	1 Mini-B USB, 2 DB9M	1 Mini-B USB, 4 DB9M	1 Type B USB, 1 DB9M
USB speed	12Mbit/s (FS)	12Mbit/s (FS)	480Mbit/s (HS)	480Mbit/s (HS)	12Mbit/s (FS)
No. of external ports	1	1	2	4	1
Max Baud Rate	1 Mbaud	1 / 3 / 3 Mbaud	3 / 10 / 10 Mbaud	3 / 10 / 10 Mbaud	1 Mbaud
Power Supply	5V (bus powered)	5V (bus powered), 55mA	5V (bus powered), 60mA	5V (bus powered), 70mA	5V (bus powered)
Notes	PC-AT standard footprints X = DB9F = Female X = DB9M = Male	LEDs indicate Power, RX/TX activity	LEDs indicate Power, RX/TX activity	LEDs indicate Power, RX/TX activity	LEDs indicate RX/ TX activity. CBUS I/O available on header pins

USB to Legacy RS232 Converter Cables

	Part Number	IO Levels	Max Baud Rate	RX/TX LED	Cable Length	Cable Termination	Temperature Range	Notes
Premium USB to Legacy RS232 Converter 	US232R-10	RS232	1 Mbaud	RX/TX LED	10cm	DB9	-20°C to +80°C	Retaining nut on DB9 connector.
	US232R-100				1m			
	US232R-500				5m			
USB-Serial Converter	UT232R-200	RS232	1 Mbaud	-	2m	DB9	-20°C to +80°C	Retaining screw on DB9 connector.
	UT232R-500				5m			
Economy USB to Serial Converter 	UC232R-10	RS232	230 kBaud	-	10cm	DB9	-20°C to +80°C	With plastic enclosure.
	UC232R-10-NE				10cm			No plastic enclosure.

USB to Legacy RS232 Converter Cables

	Part Number	IO Levels	Power Output PIN	Max Baud Rate	RX/TX LED	Cable Length	Cable Termination	Temperature Range	Notes
RS232 Converter 	USB-RS232-WE-1800-BT_0.0	RS232	0V	1 Mbaud	RX/TX LED	1.8m	Wire ended	-40°C to +85°C	Option of transparent or black USB connector. LEDs for visual indication of traffic on the cable.
	USB-RS232-WE-1800-BT_3.3		3V3			1.8m			
	USB-RS232-WE-1800-BT_5.0		5V			1.8m			
	USB-RS232-WE-5000-BT_0.0		0V			5m			
	USB-RS232-WE-5000-BT_3.3		3V3			5m			
	USB-RS232-WE-5000-BT_5.0		5V			5m			
RS422 Converter	USB-RS422-WE-1800-BT	RS422	0V	3 Mbaud	RX/TX LED	1.8m	Wire ended	-40°C to +85°C	Also available as PCB.
	USB-RS422-WE-5000-BT		5m						
RS485 Converter	USB-RS485-WE-1800-BT	RS485	0V	3 Mbaud	RX/TX LED	1.8m	Wire ended	-40°C to +85°C	
	USB-RS485-WE-5000-BT		5m						

USB to TTL Serial Cables

	Part Number	IO Levels	Power Output PIN	Max Baud Rate	RX/TX LED	Cable Length	Cable End	Temperature Range	Notes	
Type A USB to wire end TTL Serial 	TTL-232RG-VREG1V8-WE	1V8	1V8@100mA	3 Mbaud	RX/TX LED	1.8m	Wire ended	-40°C to +85°C	LEDs for visual indication of traffic on the cable. Transparent USB connector.	
	TTL-232RG-VREG3V3-WE	3V3	3V3@250mA							
	TTL-232RG-VSW3V3-WE	3V3	3V3@50mA							
	TTL-232RG-VSW5V-WE	5V	5V@450mA							
	TTL-232RG-VIP-WE	1V8 to 5V25'	V8 to 5V25'							
	TTL-232R-3V3-WE	3V3	5V@75mA						-	Available as PCB.
	TTL-232R-5V-WE	5V	5V@75mA						-	Available as PCB.
Type A USB to SIP Connector 	TTL-232R-5V	5V	5V@75mA	3 Mbaud	-	1.8m	Single in line socket	-40°C to +85°C	0.1" pitch	
	TTL-232R-3V3	3V3	5V@75mA						2mm pitch, for VMUSIC2 & VDRIVE2	
	TTL-232R-3V3-2MM	3V3	5V@75mA							
Type A USB to 3.5mm Audio Jack 	TTL-232R-5V-AJ	5V	-	3 Mbaud	-	1.8m	Audio Jack	-40°C to +85°C	Tip - Tx, Ring - Rx, Sleeve Ground	
	TTL-232R-3V3-AJ	3V3	-							

* 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

FT-X series Chips

- Battery charger detection to enable higher current, faster charging.
- Extensive clocking features; internal clock generation and external clock out.
- Internal 3V3 level converter.
- Integrated crystal and MTP memory to save board space and maximize flexibility.

- Extended temperature range support, -40° to +85°C.
- Low power consumption:
 - 8mA active (typical)
 - 125uA suspend (typical)
- Input/ output voltage support, 1.8V to 3.3V, with 5V tolerance.

Device	FT200XD	FT201X	FT220X	FT221X	FT230X	FT231X	FT240X
Description	I ² C slave to USB 2.0 Full Speed	I ² C slave to USB 2.0 Full Speed	SPI/FT1248 (4-bits) to USB 2.0 Full Speed	SPI/FT1248 (8-bits) to USB2.0 Full Speed	Basic UART to USB 2.0 Full Speed	Full UART to USB 2.0 Full Speed	FIFO to USB 2.0 Full Speed
Performance	3.4 Mbits/sec	3.4 Mbits/sec	.5 MByte/sec	1 MByte/sec	3 Mbaud	3 Mbaud	1 Mbyte/sec
CBUS Pins *	1	6	1	1	4	4	2
Clock Oscillator	Internal	Internal	Internal	Internal	Internal	Internal	Internal
EE/MTP Memory	Internal	Internal	Internal	Internal	Internal	Internal	Internal
Packages	10-pin DFN	16-pin SSOP/ 16-pin QFN	16-pin SSOP/ 16-pin QFN	20-pin SSOP/ 20-pin QFN	16-pin SSOP/ 16-pin QFN	20-pin SSOP/ 20-pin QFN	24-pin SSOP/ 24-pin QFN

* Configurable as GPIO, LED drivers, or clock signals

Breakout Modules

Breakout modules, such as the USB to I2C, UMFT200XD, provide the simplest method to connect to a USB host, and interface directly into your system via the appropriate IO.



- 4 PCB traces slot directly into a USB Host (A Port)
- USB protocol engine and interface bridge integrated into FT-X Series silicon devices
- Interface connector provided for system integration
- Choice of module per interface required

Module	Interface
UMFT201XB	I2C
UMFT200XD	I2C
UMFT220XB	FT1248
UMFT230XB	UART

UMFT231XC -Battery Charging Detection (BCD)

Development board provides for USB to UART bridge functionality as well as battery charging detection (BCD), and battery charging via LTC4053.

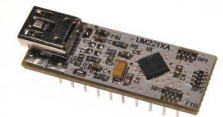


FT231X device supports BCD to simplify and optimize battery charging in portable systems.

- Detects Dedicated Charging Port (DCP) or Standard Downstream Port (SDP,) enabling selection of higher battery charging current, 1.8A or .5A.
- CBUS pins enable control of charging rate.
- Complete sleep and suspend capabilities.

FT-X Series Support, Evaluation Modules

Evaluation modules are larger than breakout modules, and provide access to all pins.



- Manufactured in DIP form factor (0.3" wide).
- Easy to integrate into system boards for thorough prototyping, system emulation, and check-out.
- USB protocol engine and interface bridge integrated into FT-X Series silicon devices.
- Choice of module per interface required.

Module	Interface
UMFT201XA	FT1248 (4 bit)
UMFT220XA	I2C
UMFT221XA	Basic UART
UMFT231XA	FullUART
UMFT240XA	FIFO

