



## **FTDI Introduces New USB Controller Series Optimising Designers' Implementation Choices**

*Delivering maximum flexibility to USB implementations by targeting standard  
drivers & adding battery charger detection feature*

Future Technology Devices International Limited (FTDI) has announced the release of its FT12 series of high performance USB controller ICs, further cementing its position as the company with the largest portfolio of USB solutions within the industry. Operating at 12 Mbits/s and designed to the USB 2.0 specification, the new controllers support direct memory access (DMA) operation, while providing system interfaces for 8-bit parallel bus and SPI (Serial Peripheral Interface) Slave. The FT12 series is configurable as a standard device class, and as such there is no need to add USB drivers. It was designed specifically so that engineers can quickly understand the device functionality and architecture, as well as taking advantage of application software and standard class drivers currently available and installed within the market.

“With the FT12 series offering, FTDI is widening the choice for engineers’ USB implementations,” states Dave Sroka, Global Product Director at FTDI. “These ICs enable the native class drivers of an operating system to be used, while providing flexibility on the device side to optimise implementations for a

broad spectrum of applications. FTDI continues to strive to achieve its goal of ‘USB Made Easy’, by architecting the devices in a familiar fashion and at the same time providing high quality support through development tools, application notes and worldwide one-on-one technical assistance.”

Composed of three members, and inspired by the industry standard D12, the FT12 series offers unique features, like battery charging detection, numerous interface options and optimised device footprints - allowing the designer to choose the best-fit chip. A serial interface engine (SIE) built into each FT12 handles the USB protocol, as well as carrying out packet recognition, checking and sequencing. Multiple USB transfer modes are supported, enabling bulk and isochronous data transfer activity, as well as supporting interrupt protocol.

For the FT120 and FT122 ICs, microcontroller/FPGA connection takes the form of an 8-bit generic parallel interface, while the FT121 supports SPI Slave mode. The FT120 has 3 USB endpoints, with 320 Bytes of configurable endpoint buffer integrated into the controller. The FT121 and FT122 offerings have greater capacity, with up to 8 bi-directional endpoints available and 2 kBytes of endpoint buffer capacity. Both the FT121 and FT122 also have USB battery charger detection functionality - allowing extra power from a dedicated charging port (DCP) to be utilised, so that up to 1.8 A of current, rather than the usual 500 mA, can be drawn, without the need to add multiple external components into the circuit. Input voltages of 5 V or 3.3 V are supported, for all devices. The FT121 and FT122 handle all clock generation internally and require no crystal, thus freeing valuable PCB area and lowering system cost. A dedicated clock output pin with programmable clock frequency (from 4 MHz to 24 MHz) is also included.

The FT120 and FT122 are both supplied in TSSOP-28 and QFN-28 packages, while the FT121 is offered in TSSOP-16 and QFN-16 package options. All of these advanced USB controller ICs have an operating temperature range of -40 °C to 85 °C.

Development tool support is provided through 4 evaluation modules - the UMFT12XEV, UMFT120DC, UMFT121DC, and UMFT122DC - that can be used to implement and demonstrate USB functionality. The 'DC' denotes daughter-card functionality which enables the USB connection through a micro-B port and can be used in conjunction with the UMFT12XEV board or another microcontroller development system. The feature-rich UMFT12XEV board includes the LPC1114 microcontroller (preloaded with CDC class driver support), prototyping area, numerous connectors (SPI, JTAG, GPIO), LEDs for signal status and battery charging detection.

Pricing for the FT120 starts at \$1.78 (for 50-100 pcs), with the FT121 pricing starting at \$1.73 (for 50-100 pcs) and the FT122 pricing starting at \$1.85 (for 50-100 pcs). Single unit pricing for the developments kits are: UMFT12XEV at \$54.25, UMFT120DC at \$10.25, UMFT121DC at \$6.50 and UMFT122DC at \$10.25.

Further information on these products can be found at:

[http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS\\_FT120.pdf](http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT120.pdf)

[http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS\\_FT121.pdf](http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT121.pdf)

[http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS\\_FT122.pdf](http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT122.pdf)

[http://www.ftdichip.com/Support/Documents/DataSheets/Modules/DS\\_UMFT12xA.pdf](http://www.ftdichip.com/Support/Documents/DataSheets/Modules/DS_UMFT12xA.pdf)

## **About FTDI**

Future Technology Devices International (FTDI) specialises in the design and supply of silicon and software solutions for the Universal Serial Bus (USB). FTDI offers a simple route to USB migration by combining easy-to-implement IC devices with proven, ready-to-use, royalty-free USB firmware and driver software. The company's single and multi-channel USB peripheral devices come with an easy-to-use UART or FIFO interface. These popular devices can be used in legacy USB-to-RS232/RS422 converter applications or to quickly interface an MCU, PLD, or FPGA to USB. A wide range of evaluation kits and modules are available to evaluate FTDI's silicon prior to design-in. Vinculum is FTDI's brand name for a range of USB Host/Slave controller ICs that provide easy implementation of USB Host controller functionality within products and use FTDI's tried and tested firmware to significantly reduce development costs and time to market. FTDI is a fab-less semiconductor company headquartered in Glasgow, UK with R&D centres in Glasgow and Singapore and has regional sales offices in Oregon, USA, Shanghai, China and Taipei, Taiwan.

More information is available at <http://www.ftdichip.com>

Regional sales offices and distributor lists are available  
<http://www.ftdichip.com/FTSalesNetwork.htm>

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**September 2012 Ref: FTDIPR23 FT12**