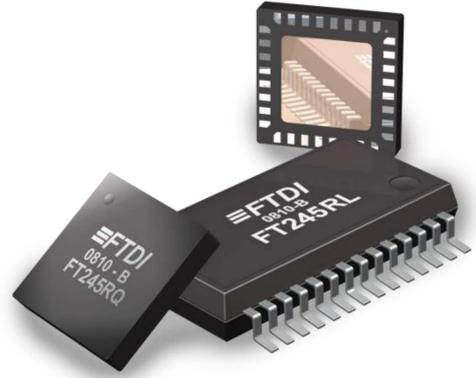


Future Technology Devices International Ltd.

FT245R USB FIFO IC



The FT245R is a USB to parallel FIFO interface with the following advanced features:

- Single chip USB to parallel FIFO bidirectional data transfer interface.
- Entire USB protocol handled on the chip. No USB specific firmware programming required.
- Fully integrated 1024 bit EEPROM storing device descriptors and FIFO I/O configuration.
- Fully integrated USB termination resistors.
- Fully integrated clock generation with no external crystal required.
- Data transfer rates up to 1Mbyte / second.
- 128 byte receive buffer and 256 byte transmit buffer utilising buffer smoothing technology to allow for high data throughput.
- FTDI's royalty-free Virtual Com Port (VCP) and Direct (D2XX) drivers eliminate the requirement for USB driver development in most cases.
- Unique USB FTDIChip-ID™ feature.
- Configurable FIFO interface I/O pins.
- Synchronous and asynchronous bit bang interface options.
- Device supplied pre-programmed with unique USB serial number.
- Supports bus powered, self powered and high-power bus powered USB configurations.
- Integrated +3.3V level converter for USB I/O.
- Integrated level converter on FIFO interface for interfacing to external logic running at between +1.8V and +5V.
- True 5V/3.3V/2.8V/1.8V CMOS drive output and TTL input.
- Configurable I/O pin output drive strength.
- Integrated power-on-reset circuit.
- Fully integrated AVCC supply filtering - no external filtering required.
- +3.3V (using external oscillator) to +5.25V (using internal oscillator) Single Supply Operation.
- Low operating and USB suspend current.
- Low USB bandwidth consumption.
- UHCI/OHCI/EHCI host controller compatible.
- USB 2.0 Full Speed compatible.
- -40°C to 85°C extended operating temperature range.
- Available in compact Pb-free 28 Pin SSOP and QFN-32 packages (both RoHS compliant).

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied. Future Technology Devices International Ltd will not accept any claim for damages howsoever arising as a result of use or failure of this product. Your statutory rights are not affected. This product or any variant of it is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH United Kingdom. Scotland Registered Company Number: SC136640

1 Typical Applications

- Upgrading Legacy Peripherals to USB
- Cellular and Cordless Phone USB data transfer cables and interfaces
- Interfacing MCU/PLD/FPGA based designs to USB
- USB Audio and Low Bandwidth Video data transfer
- PDA to USB data transfer
- USB Smart Card Readers
- USB Instrumentation
- USB Industrial Control
- USB MP3 Player Interface
- USB FLASH Card Reader and Writers
- Set Top Box PC - USB interface
- USB Digital Camera Interface
- USB Hardware Modems
- USB Wireless Modems
- USB Bar Code Readers
- USB Software and Hardware Encryption Dongles

1.1 Driver Support

Royalty free VIRTUAL COM PORT (VCP) DRIVERS for...

- Windows 7 32,64-bit
- Windows XP and XP 64-bit
- Windows Vista and Vista 64-bit
- Windows XP Embedded
- Windows 98, 98SE, ME, 2000, Server 2003, XP and Server 2008
- Windows CE 4.2, 5.0 and 6.0
- Mac OS 8/9, OS-X
- Linux 2.4 and greater

Royalty free D2XX Direct Drivers (USB Drivers + DLL S/W Interface)

- Windows 7 32,64-bit
- Windows XP and XP 64-bit
- Windows Vista and Vista 64-bit
- Windows XP Embedded
- Windows 98, 98SE, ME, 2000, Server 2003, XP and Server 2008
- Windows CE 4.2, 5.0 and 6.0
- Linux 2.4 and greater

The drivers listed above are all available to download for free from FTDI website (www.ftdichip.com). Various 3rd party drivers are also available for other operating systems - see FTDI website (www.ftdichip.com) for details. For driver installation, please refer to the application note AN232B-10.

For driver installation, please refer to <http://www.ftdichip.com/Documents/InstallGuides.htm>

1.2 Part Numbers

Part Number	Package
FT245RQ-xxxx	32 Pin QFN
FT245RL-xxxx	28 Pin SSOP

Note: Packaging codes for xxx is:

- Reel: Taped and Reel, (SSOP is 2,000pcs per reel, QFN is 6,000pcs per reel).
- Tube: Tube packing, 47pcs per tube (SSOP only)
- Tray: Tray packing, 490pcs per tray (QFN only)

For example: FT245RQ-Reel is 6,000pcs taped and reel packing

1.3 USB Compliant

The FT245R is fully compliant with the USB 2.0 specification and has been given the USB-IF Test-ID (TID) 40680005 (Rev B) and 40770019 (Rev C).



2 FT245R Block Diagram

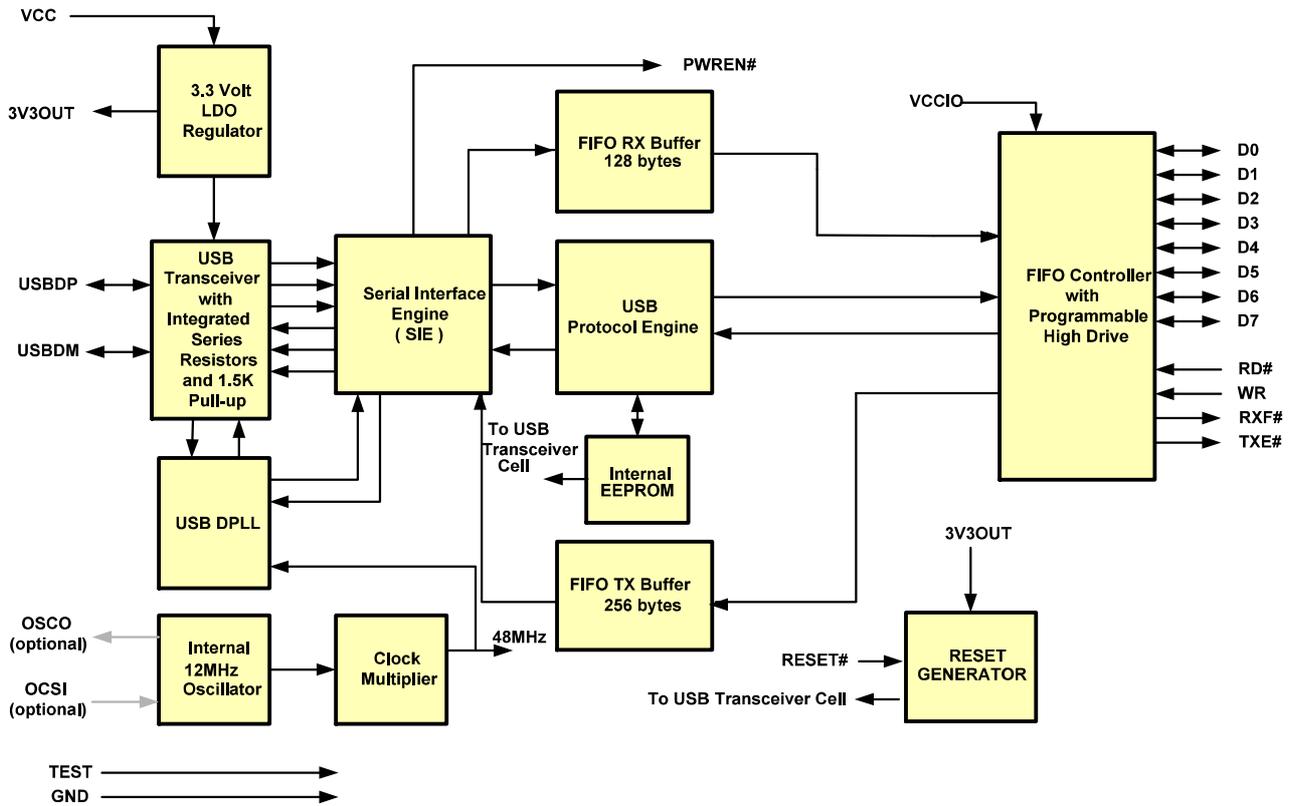


Figure 2.1 FT245R Block Diagram

For a description of each function please refer to Section 4.