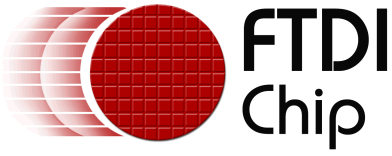

Future Technology Devices International Ltd.

AN2232-02 Bit Mode Functions for the FT2232

1 Bit Mode Functions For the FT2232

1.1 Overview

The D2XX functions FT_Set BitMode 3 and FT_GetBitMode 5 are used to enable several device IO modes for the FT2232. This document describes these functions in terms of the FT2232 and provides some examples.

1.2 FT_SetBitMode

Set the device IO bit mode.

FT_STATUS **FT_SetBitMode** (FT_HANDLE *ftHandle*, UCHAR *ucMask*, UCHAR *ucMode*)

Parameters
ftHandle
Handle of the device.

ucMask
Required value for bit mode mask. This sets up which bits are input and which bits are output. The ucMask byte sets the direction. A '0' means that the corresponding bit is to be an input, while a '1' means that the corresponding bit is to be an output.

ucMode
Mode value as shown in the following table:

Mode	Value (hex)
Reset the IO Bit Mode	0x0
Asynchronous Bit Bang Mode	0x1
MPSSE	0x2
Synchronous Bit Bang Mode	0x4
MCU Host Bus Emulation	0x8
Fast Serial For Opto-Isolation	0x10

Return Value
FT_OK if successful, otherwise the return value is an FT error code.

1.3 FT_SetBitMode Example

1) To enable MPSSE Mode:

```
HANDLE ftHandle;       // valid handle returned from FT_Open or FT_W32_CreateFile
FT_STATUS ftStatus;
UCHAR Mask = 0xff;     // set all IOs to output
UCHAR Mode = 2;        // set MPSSE mode
ftStatus = FT_SetBitMode(ftHandle,Mask,Mode);
if (ftStatus == FT_OK) {
        // MPSSE Mode enabled
}
else {
        // FT_SetBitMode FAILED!
}
```

2) To enable Asynchronous Bit Bang Mode (See AN232BM-01):

```
HANDLE ftHandle;       // valid handle returned from FT_Open or FT_W32_CreateFile
FT_STATUS ftStatus;
UCHAR Mask = 0x07;     // set bits 0, 1 and 2 to output
UCHAR Mode = 1;        // set Asynchronous Bit Bang mode
ftStatus = FT_SetBitMode(ftHandle,Mask,Mode);
if (ftStatus == FT_OK) {
        // Asynchronous Bit bang Mode enabled
}
else {
        // FT_SetBitMode FAILED!
}
```

3) To reset the IO bit mode:

```
ftStatus = FT_SetBitMode(ftHandle,0,0);
```

4) To enable Synchrounous Bit Bang mode (using D2XXUnit.pas for Delphi):

```
Set_USB_Device_BitMode($00,$04); to enable it
Set_USB_Device_BitMode($00,$00); to reset it
```

5) To enable For MCU Host Bus Emulation mode (using D2XXUnit.pas for Delphi):

```
Set_USB_Device_BitMode($00,$08); to enable it
Set_USB_Device_BitMode($00,$00); to reset it
```

1.4 FT_GetBitMode

Get the current value of the IO bit mode.

FT_STATUS **FT_GetBitMode** (FT_HANDLE *ftHandle*, PUCHAR *pucMode*)

Parameters
ftHandle
Handle of the device.

pucMode
Pointer to unsigned char to store bit mode value.

Return Value
FT_OK if successful, otherwise the return value is an FT error code.

1.5 FT_GetBitMode Example

To get the current bit mode value

```
HANDLE ftHandle;       // valid handle returned from FT_Open or FT_W32_CreateFile
UCHAR BitMode;
FT_STATUS ftStatus;
ftStatus = FT_GetBitMode(ftHandle,&BitMode);
if (ftStatus == FT_OK) {
        // BitMode contains current value
}
else {
        // FT_GetBitMode FAILED!
}
```

1.6 References

DS2232C - FT2232C Device datasheet
AN232-01 - FT232BM/FT245BM Bit Bang Mode
AN2232-01 - Command Processor for MPSSE and MCU Host Bus Emulation Modes
Sample Projects - MPSSE Code Examples
D2XX Programmer's Guide

2 History, Disclaimer, Contact

2.1 Document Revision History

Version	Release Date	Comments
1.0	April 2004	Initial release.
2.0	December 2005	New format.
2.1	October 2006	References to FT2232C changed to FT2232 after release of FT2232D.

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