



**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 \$\frac{1}{2}\$ 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](#)^[7]):

```
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 Synchronous 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*, PCHAR *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's - FT2232C's Device](#)

[AN232-01's - FT232BM/FT245BM's Bit's](#)

[AN2232-01's - Command's Processor's for's MPSSE's and's MCU's](#)

[Sample's Projects's - MPSSE's Co](#)

[D2XX's Programmer's's](#)

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.

2.2 Disclaimer

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2.3 Contact Information

Head Office - Glasgow, UK

Future Technology Devices International Limited
373 Scotland Street
Glasgow
G5 8QB
United Kingdom
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

E-Mail (Sales): sales1@ftdichip.com
E-Mail (Support): support2@ftdichip.com
E-Mail (General Enquiries): admin1@ftdichip.com
Web Site URL: <http://www.ftdichip.com>
Web Shop URL: <http://apple.clickandbuild.com/cnb/shop/ftdichip>

Branch Office - Taiwan

Future Technology Devices International Limited (Taiwan)
4F, No 16-1, Sec. 6 Mincyuan East Road
Neihu District
Taipei 114
Taiwan
ROC
Tel: +886 2 8791 3570
Fax: +886 2 8791 3576

E-Mail (Sales): tw.sales1@ftdichip.com
E-Mail (Support): tw.support1@ftdichip.com
E-Mail (General Enquiries): tw.admin1@ftdichip.com
Web Site URL: <http://www.ftdichip.com>

Branch Office - Hillsboro, Oregon, USA

Future Technology Devices International Limited (USA)
5285 NE Elam Young Parkway
Suite B800
Hillsboro, OR 97124-6499
USA
Tel: +1 (503) 547-0988
Fax: +1 (503) 547-0987

E-Mail (Sales): us.sales@ftdichip.com
E-Mail (Support): support2@ftdichip.com
E-Mail (General Enquiries): admin1@ftdichip.com
Web Site URL: <http://www.ftdichip.com>

Agents and Sales Representatives

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