



Application Note

AN_184

FTDI Device Input Output Pin States

Version 3.5

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This application note describes the reset, suspend and active states of the input / output pins of the following devices: FT232R, FT245R, FT232RN, FT245RN, FT232H, FT2232H/FT2232H-56Q, FT4232H/FT42323H-56Q, FT232HP/FT233HP, FT2232HP/FT2233HP, FT4232HP/FT4233HP, FT2232D, FT200XD, FT201X, FT220X, FT221X, FT230X, FT234XD, FT231X, FT240X, FT120, FT121, FT122, FT313H, FT4222H & FT260

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1 Introduction

This application note explains the various states of input and output pins of the following FTDI devices:

FT232R, FT245R, FT232RN, FT245RN, FT232H, FT2232H, FT2232H-56Q, FT4232H, FT4232H-56Q, FT232HP, FT233HP, FT2232HP, FT2233HP, FT4232HP, FT4233HP, FT2232D, FT200XD, FT201X, FT220X, FT221X, FT230X, FT231X, FT234XD, FT240X, FT120, FT121, FT122, FT313H, FT4222H and FT260.

Note: The convention used throughout this document for active low signals is the signal name followed by a #.

1.1 Applicable Documents

The following data sheets can be downloaded by clicking on the appropriate links below:

[FT232R USB UART IC Data Sheet](#)

[FT245R USB FIFO Data Sheet](#)

[FT232RN USB UART IC Data Sheet](#)

[FT245RN USB FIFO Data Sheet](#)

[FT232H Single Channel Hi-Speed USB to Multipurpose UART/FIFO IC Data Sheet](#)

[FT2232H Hi-Speed Dual USB UART/FIFO IC Data Sheet](#)

[FT4232H Hi-Speed Quad USB UART IC Data Sheet](#)

[FT233HP/FT232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)

[FT2233HP/FT2232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)

[FT4233HP/FT4232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)

[FT2232D Dual USB UART/FIFO IC Data Sheet](#)

[FT200XD Full-Speed USB to I2C bridge in 10 pin DFN package Data Sheet](#)

[FT201X Full-Speed USB to I2C bridge Data Sheet](#)

[FT220X Full-Speed USB to 4-bit SPI/FT1248 bridge Data Sheet](#)

[FT221X Full-Speed USB to 8-bit SPI/FT1248 bridge Data Sheet](#)

[FT230X Full-Speed USB to basic UART Data Sheet](#)

[FT231X Full-Speed USB to full handshake UART Data Sheet](#)

[FT234XD Full-Speed USB to basic UART Data Sheet](#)

[FT240X Full-Speed USB to 8-bit FIFO Data Sheet](#)

[FT120 USB Full-Speed Device Controller Data Sheet](#)

[FT121 USB Full-Speed Device Controller Data Sheet](#)

[FT122 USB Full-Speed Device Controller Data Sheet](#)

[FT313H Hi-Speed Host Controller](#)

[FT4222H Hi-Speed Quad SPI/I2C IC Data Sheet](#)

[FT260 Full speed HID Class USB to UART/I2C Datasheet](#)

2 FT232R/FT232RN – I/O Pins

FT232R/FT232RN							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
CBUS 0	22	23	TriSt- PU	Selected Function	TriSt-PD	Driving Low	Selected Function
CBUS 1	21	22	TriSt- PU	Selected Function	TriSt-PD	Driving Low	Selected Function
CBUS 2	10	13	TriSt- PU	Selected Function	TriSt-PD	Driving Low	Selected Function
CBUS 3	11	14	TriSt	Selected Function	TriSt-PD	Input	Selected Function
CBUS 4	9	12	TriSt	Selected Function	TriSt-PD	Input	Selected Function
TXD	30	1	TriSt- PU	Output	TriSt-PD	Output	Output
DTR#	31	2	TriSt- PU	Output	TriSt-PD	Output	Output
RTS#	32	3	TriSt- PU	Output	TriSt-PD	Output	Output
RXD	2	5	TriSt- PU	Input - PU	TriSt-PD	TriSt- PU	Input- PU
RI#	3	6	TriSt- PU	Input - PU	TriSt-PD	TriSt- PU	Input - PU
DSR#	6	9	TriSt- PU	Input - PU	TriSt-PD	TriSt- PU	Input - PU
DCD#	7	10	TriSt- PU	Input - PU	TriSt-PD	TriSt- PU	Input - PU
CTS#	8	11	TriSt- PU	Input - PU	TriSt-PD	TriSt- PU	Input - PU

Table 2.1 FT232R/FT232RN I/O States

2.1 FT232R/FT232RN - CBUS Selected Function

FT232R/FT232RN													
Pin	TX DN	PWR ON#	RXLE D#	TXLE D#	TX & RXLE D#	SLEEP#	CLK 48	CLK 24	CLK 12	CLK 6	I/O Mode	BitBang WRn	BitBang RDn
CBUS 0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CBUS 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CBUS 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓
CBUS 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓
CBUS 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x

Table 2.2 FT232R/FT232RN CBUS Selected Functions

3 FT245R/FT245RN – I/O Pins

FT245R/FT245RN							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPENDED (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
RXF#	22	23	TriSt-PU	RXF#	TriSt-PD	Driving Low	Output
TXE#	21	22	TriSt-PU	TXE#	TriSt-PD	Driving Low	Output
RD#	10	13	TriSt-PU	RD#	TriSt-PD	Driving Low	Input
WR	11	14	TriSt	WR#	TriSt-PD	Input	Input
PWREN#	9	12	TriSt	PWREN#	TriSt-PD	Input	PWREN#
D0	30	1	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	Output	Input- PU driving when RD# is low
D1	2	5	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	TriSt- PU	Input - PU driving when RD# is low
D2	32	3	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	Output	Input - PU driving when RD# is low
D3	8	11	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	TriSt- PU	Input - PU driving when RD# is low
D4	31	2	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	Output	Input - PU driving when RD# is low
D5	6	9	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	TriSt- PU	Input - PU driving when RD# is low
D6	7	10	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	TriSt- PU	Input - PU driving when RD# is low
D7	3	6	TriSt-PU	TriSt- PU driving when RD# is low	TriSt-PD	TriSt- PU	Input - PU driving when RD# is low

Table 3.1 FT245R/FT245RN I/O States

4 FT232H– I/O Pins

FT232H							
Pin Number	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
13	ADBUS0	TriSt	TXD	Function	TriSt-PD	Output	Function
14	ADBUS1	TriSt -PU	RXD	Function	TriSt-PD	Input-PU	Function
15	ADBUS2	TriSt	RTS#	Function	TriSt-PD	Output	Function
16	ADBUS3	TriSt -PU	CTS#	Function	TriSt-PD	Input-PU	Function
17	ADBUS4	TriSt	DTR#	Function	TriSt-PD	Output	Function
18	ADBUS5	TriSt -PU	DSR#	Function	TriSt-PD	Input-PU	Function
19	ADBUS6	TriSt -PU	DCD#	Function	TriSt-PD	Input-PU	Function
20	ADBUS7	TriSt -PU	RI#	Function	TriSt-PD	Input-PU	Function
21	ACBUS0	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt-PU	Function/Selection
25	ACBUS1	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
26	ACBUS2	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
27	ACBUS3	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
28	ACBUS4	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
29	ACBUS5	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
30	ACBUS6	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
31	ACBUS7	TriSt-PD	TriSt-PD	Input-PD or MPSSE	TriSt-PD	TriSt-PD	Input-PD or MPSSE
32	ACBUS8	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection
33	ACBUS9	TriSt-PU	TriSt-PU	Function/Selection	TriSt-PD	TriSt- PU	Function/Selection

Table 4.1 FT232H I/O States

4.1 FT232H - Selected Functions

FT232H										
Pin		Pin functions (depends on configuration)								
Pin #	Pin Name	ASYNC Serial RS232	245 FIFO SYNC	245 FIFO	ASYNC Bit-bang	SYNC Bit-bang	MPSSE	Fast Serial interface	CPU Style FIFO	FT1248
13	ADBUS0	TXD	D0	D0	D0	D0	TCK/SK	FSDI	D0	MIOSI0
14	ADBUS1	RXD	D1	D1	D1	D1	TDI/DO	FSCLK	D1	MIOSI1
15	ADBUS2	RTS#	D2	D2	D2	D2	TDO/DI	FSDO	D2	MIOSI2
16	ADBUS3	CTS#	D3	D3	D3	D3	TMS/C S	FSCTS	D3	MIOSI3
17	ADBUS4	DTR#	D4	D4	D4	D4	GPIOL0	** TriSt-UP	D4	MIOSI4
18	ADBUS5	DSR#	D5	D5	D5	D5	GPIOL1	** TriSt-UP	D5	MIOSI5
19	ADBUS6	DCD#	D6	D6	D6	D6	GPIOL2	** TriSt-UP	D6	MIOSI6
20	ADBUS7	RI#	D7	D7	D7	D7	GPIOL3	** TriSt-UP	D7	MIOSI7
21	ACBUS0	* TXDEN	RXF#	RXF#	ACBUS0	ACBUS0	GPIOH 0	** ACBUS0	CS#	SCLK
25	ACBUS1	** ACBUS1	TXE#	TXE#	WRSTB#	WRSTB#	GPIOH 1	** ACBUS1	A0	SS_N
26	ACBUS2	** ACBUS2	RD#	RD#	RDSTB#	RDSTB#	GPIOH 2	** ACBUS2	RD#	MISO
27	ACBUS3	* RXLED#	WR	WR	ACBUS3	ACBUS3	GPIOH 3	** ACBUS3	WR	ACBUS3
28	ACBUS4	* TXLED#	SIWU#	SIWU#	SIWU#	SIWU#	GPIOH 4	SIWU#	Note 1	ACBUS4
29	ACBUS5	** ACBUS5	CLKOUT	ACBUS5	** ACBUS5	** ACBUS5	GPIOH 5	** ACBUS5	** ACBUS5	ACBUS5
30	ACBUS6	** ACBUS6	OE#	ACBUS6	ACBUS6	ACBUS6	GPIOH 6	** ACBUS6	** ACBUS6	ACBUS6
31	ACBUS7	PWRSVAV#	PWRSVAV#	PWRSVAV#	PWRSVAV#	PWRSVAV#	*** GPIOH 7	PWRSVAV#	PWRSVAV#	PWRSVAV#
32	ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	ACBUS8
33	ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	ACBUS9

Table 4.2 FT232H Selected Functions

Pins marked * are EEPROM selectable.

Pins marked ** default to tri-stated inputs with an internal 75KΩ (approx.) pull up resistor to VCCIO.

Pin marked *** default to GPIO line with an internal 75KΩ pull down resistor to GND. This pin can be enabled USBVCC mode instead of GPIO mode using the EEPROM.

Note 1: To wake up the USB device in this mode, put ACBUS0 from "HIGH" to "LOW", set ACBUS1 To "HIGH", and put ACBUS3 from "HIGH" to "LOW"

5 FT232HP/FT233HP

FT232HP (56 pin) FT233HP (64 pin)								
Pin Number (56 pin - QFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
23	28	ADBUS0	TriSt	TXD	Function	TriSt-PD	Output	Function
24	29	ADBUS1	TriSt - PU	RXD	Function	TriSt-PD	Input-PU	Function
25	30	ADBUS2	TriSt	RTS#	Function	TriSt-PD	Output	Function
26	31	ADBUS3	TriSt - PU	CTS#	Function	TriSt-PD	Input-PU	Function
27	32	ADBUS4	TriSt	DTR#	Function	TriSt-PD	Output	Function
29	34	ADBUS5	TriSt - PU	DSR#	Function	TriSt-PD	Input-PU	Function
30	35	ADBUS6	TriSt - PU	DCD#	Function	TriSt-PD	Input-PU	Function
31	36	ADBUS7	TriSt - PU	RI#	Function	TriSt-PD	Input-PU	Function
32	37	ACBUS0	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt-PU	Function/ Selection
33	38	ACBUS1	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
34	39	ACBUS2	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
35	40	ACBUS3	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
37	42	ACBUS4	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
38	43	ACBUS5	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
39	44	ACBUS6	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
42	47	ACBUS7	TriSt-PD	TriSt-PD	Input-PD or MPSSE	TriSt-PD	TriSt-PD	Input-PD or MPSSE
43	48	ACBUS8	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection
44	49	ACBUS9	TriSt-PU	TriSt-PU	Function/ Selection	TriSt-PD	TriSt- PU	Function/ Selection

Table 5.1 FT232HP/ FT233HP I/O States

5.1 FT232HP/FT233HP - Selected Functions

FT232HP (56 pin) FT233HP (64 pin)											
Pin			Pin functions (depends on configuration)								
56 Pin #	64 Pin #	Pin Name	ASYNC Serial RS232	245 FIFO SYNC	245 FIFO	ASYNC Bit-bang	SYNC Bit-bang	MPSSE	Fast Serial interface	CPU Style FIFO	FT1248
23	28	ADBUS0	TXD	D0	D0	D0	D0	TCK/SK	FSDI	D0	MIOSI0
24	29	ADBUS1	RXD	D1	D1	D1	D1	TDI/DO	FSCLK	D1	MIOSI1
25	30	ADBUS2	RTS#	D2	D2	D2	D2	TDO/DI	FSDO	D2	MIOSI2
26	31	ADBUS3	CTS#	D3	D3	D3	D3	TMS/CS	FSCTS	D3	MIOSI3
27	32	ADBUS4	DTR#	D4	D4	D4	D4	GPIOL0	** TriSt-UP	D4	MIOSI4
29	34	ADBUS5	DSR#	D5	D5	D5	D5	GPIOL1	** TriSt-UP	D5	MIOSI5
30	35	ADBUS6	DCD#	D6	D6	D6	D6	GPIOL2	** TriSt-UP	D6	MIOSI6
31	36	ADBUS7	RI#	D7	D7	D7	D7	GPIOL3	** TriSt-UP	D7	MIOSI7
32	37	ACBUS0	* TXDEN	RXF#	RXF#	ACBUS0	ACBUS0	GPIOH0	** ACBUS0	CS#	SCLK
33	38	ACBUS1	** ACBUS1	TXE#	TXE#	WRSTB#	WRSTB#	GPIOH1	** ACBUS1	A0	SS_N
34	39	ACBUS2	** ACBUS2	RD#	RD#	RDSTB#	RDSTB#	GPIOH2	** ACBUS2	RD#	MISO
35	40	ACBUS3	* RXLED#	WR	WR	ACBUS3	ACBUS3	GPIOH3	** ACBUS3	WR	ACBUS3
37	42	ACBUS4	* TXLED#	SIWU#	SIWU#	SIWU#	SIWU#	GPIOH4	SIWU#	Note 1 **	ACBUS4
38	43	ACBUS5	** ACBUS5	CLKO UT	ACBUS5	** ACBUS5	** ACBUS5	GPIOH5	** ACBUS5	** ACBUS5	ACBUS5
39	44	ACBUS6	** ACBUS6	OE#	ACBUS6	ACBUS6	ACBUS6	GPIOH6	** ACBUS6	** ACBUS6	ACBUS6
42	47	ACBUS7	PWRSVAV #	PWRSVAV #	PWRSVAV #	PWRSVAV #	PWRSVAV #	*** GPIOH7	PWRSVAV #	PWRSVAV #	PWRSVAV #
43	48	ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	** ACBUS8	ACBUS8
44	49	ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	** ACBUS9	ACBUS9

Table 5.2 FT232HP/ FT233HP Selected Functions

Pins marked * are EEPROM selectable.

Pins marked ** default to tri-stated inputs with an internal 75KΩ (approx.) pull up resistor to VCCIO.

Pin marked *** default to GPIO line with an internal 75KΩ pull down resistor to GND. This pin can be enabled USBVCC mode instead of GPIO mode using the EEPROM.

Note 1: To wake up the USB device in this mode, put ACBUS0 from "HIGH" to "LOW", set ACBUS1 To "HIGH", and put ACBUS3 from "HIGH" to "LOW"

6 FT2232H/FT2232H-56Q

6.1 FT2232H/FT2232H-56Q – Channel A Pins

FT2232H Channel A								
Pin Number (56 pin - VQFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
12	16	ADBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
13	17	ADBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
14	18	ADBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
15	19	ADBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
17	21	ADBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
18	22	ADBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
19	23	ADBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
20	24	ADBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function
22	26	ACBUS0	TriSt	TXDEN	Function	TriSt-PD	TXDEN	Function
23	27	ACBUS1	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
24	28	ACBUS2	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
25	29	ACBUS3	TriSt-PU	RXLED#	Function	TriSt-PD	TriSt-PU	Function
26	30	ACBUS4	TriSt-PU	TXLED#	Function	TriSt-PD	TriSt-PU	Function
27	32	ACBUS5	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
28	33	ACBUS6	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
29	34	ACBUS7	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 6.1 FT2232H(-56Q) I/O States Channel A

6.2 FT2232H/FT2232H-56Q – Channel B Pins

FT2232H Channel B								
Pin Number (56 Pin - VQFN)	Pin Number (64 Pin - QFN/LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
32	38	BDBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
33	39	BDBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
34	40	BDBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
35	41	BDBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
37	43	BDBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
38	44	BDBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
39	45	BDBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
40	46	BDBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function
42	48	BCBUS0	TriSt	TXDEN	Function	TriSt-PD	TXDEN	Function
46	52	BCBUS1	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
47	53	BCBUS2	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
48	54	BCBUS3	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
49	55	BCBUS4	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
51	57	BCBUS5	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
52	58	BCBUS6	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
53	59	BCBUS7	TriSt-PD	TriSt-PD	Function	TriSt-PD	TriSt-PD	Function

Table 6.2 FT2232H(-56Q) I/O States Channel B

6.3 FT2232H / FT2232H -56Q - Selected Functions

FT2232H											
Pin			Pin functions (depends on configuration)								
56 Pin #	64 Pin #	Pin Name	ASYNCR Serial (RS232)	245 FIFO SYNC	245 FIFO	ASYNCR Bit-bang	SYNCR Bit-bang	MPSSE	Fast Serial interface	CPU Style FIFO	Host Bus Emulation
Channel A											
12	16	ADBUS0	TXD	D0	D0	D0	D0	TCK/SK	USES CHANNEL B	D0	AD0
13	17	ADBUS1	RXD	D1	D1	D1	D1	TDI/DO		D1	AD1
14	18	ADBUS2	RTS#	D2	D2	D2	D2	TDO/DI		D2	AD2
15	19	ADBUS3	CTS#	D3	D3	D3	D3	TMS/CS		D3	AD3
17	21	ADBUS4	DTR#	D4	D4	D4	D4	GPIOL0		D4	AD4
18	22	ADBUS5	DSR#	D5	D5	D5	D5	GPIOL1		D5	AD5
19	23	ADBUS6	DCD#	D6	D6	D6	D6	GPIOL2		D6	AD6
20	24	ADBUS7	RI#	D7	D7	D7	D7	GPIOL3		D7	AD7
22	26	ACBUS0	TXDEN	RXF#	RXF#	**	**	GPIOH0		CS#	A8
23	27	ACBUS1	**	TXE#	TXE#	WRSTB #	WRSTB #	GPIOH1		A0	A9
24	28	ACBUS2	**	RD#	RD#	RDSTB #	RDSTB #	GPIOH2		RD#	A10
25	29	ACBUS3	RXLED#	WR#	WR#	**	**	GPIOH3		WR#	A11
26	30	ACBUS4	TXLED#	SIWUA	SIWUA	SIWUA	SIWUA	GPIOH4		SIWUA	A12
27	32	ACBUS5	**	CLKOUT	**	**	**	GPIOH5		**	A13
28	33	ACBUS6	**	OE#	**	**	**	GPIOH6		**	A14
29	34	ACBUS7	**	**	**	**	**	GPIOH7	**	A15	
Channel B											
32	38	BDBUS0	TXD		D0	D0	D0	TCK/SK	FSDI	D0	CS#
33	39	BDBUS1	RXD		D1	D1	D1	TDI/DO	FSCLK	D1	ALE
34	40	BDBUS2	RTS#		D2	D2	D2	TDO/DI	FSDO	D2	RD#
35	41	BDBUS3	CTS#		D3	D3	D3	TMS/CS	FSCTS	D3	WR#
37	43	BDBUS4	DTR#		D4	D4	D4	GPIOL0		D4	IORDY
38	44	BDBUS5	DSR#		D5	D5	D5	GPIOL1		D5	CLKOUT
39	45	BDBUS6	DCD#		D6	D6	D6	GPIOL2		D6	I/O0
40	46	BDBUS7	RI#		D7	D7	D7	GPIOL3		D7	I/O1
42	48	BCBUS0	TXDEN		RXF#	**	**	GPIOH0		CS#	**
46	52	BCBUS1	**		TXE#	WRSTB #	WRSTB #	GPIOH1		A0	**
47	53	BCBUS2	**		RD#	RDSTB #	RDSTB #	GPIOH2		RD#	**
48	54	BCBUS3	RXLED#		WR#	**	**	GPIOH3		WR#	**
49	55	BCBUS4	TXLED#		SIWUB	SIWUB	SIWUB	GPIOH4	SIWUB	SIWUB	**
51	57	BCBUS5	**		**	**	**	GPIOH5		**	**
52	58	BCBUS6	**		**	**	**	GPIOH6		**	**
53	59	BCBUS7	PWRSVAV #	PWRSVAV #	PWRSVAV #	PWRSVAV #	PWRSVAV #	GPIOH7	PWRSVAV #	PWRSVAV #	PWRSVAV #

Table 6.3 FT2232H(-56Q) Selected Functions

Pins marked ** default to tri-stated inputs with an internal 75KΩ (approx.) pull up resistor to VCCIO.

7 FT2232HP / FT2233HP

7.1 FT2232HP / FT2233HP - Channel A pins

FT2232HP (68 pin) FT2233HP (76 pin/80 pin) Channel A									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
6	8	8	ADBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
7	9	9	ADBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
11	13	13	ADBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
12	14	14	ADBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
13	15	15	ADBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
14	16	16	ADBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
15	17	17	ADBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
16	18	18	ADBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function
17	19	19	ACBUS0	TriSt	TXDEN	Function	TriSt-PD	TXDEN	Function
18	20	21	ACBUS1	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
19	21	22	ACBUS2	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
20	22	23	ACBUS3	TriSt-PU	RXLED#	Function	TriSt-PD	TriSt-PU	Function
21	23	24	ACBUS4	TriSt-PU	TXLED#	Function	TriSt-PD	TriSt-PU	Function
22	24	25	ACBUS5	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
23	25	26	ACBUS6	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
24	26	27	ACBUS7	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 7.1 FT2232HP / FT2233HP I/O States Channel A

7.2 FT2232HP / FT2233HP - Channel B pins

FT2232HP (68 pin) FT2233HP (76 pin / 80 pin) Channel B									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
34	36	37	BDBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
35	37	38	BDBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
36	38	39	BDBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
37	39	40	BDBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
38	40	41	BDBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
40	42	43	BDBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
41	42	44	BDBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
42	44	45	BDBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function
45	48	50	BCBUS0	TriSt	TXDEN	Function	TriSt-PD	TXDEN	Function
46	49	51	BCBUS1	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
47	50	52	BCBUS2	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
48	51	53	BCBUS3	TriSt-PU	RXLED#	Function	TriSt-PD	TriSt-PU	Function
49	52	54	BCBUS4	TriSt-PU	TXLED#	Function	TriSt-PD	TriSt-PU	Function
50	53	55	BCBUS5	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
52	56	58	BCBUS6	TriSt-PU	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
53	57	59	BCBUS7	TriSt-PD	TriSt-PD	Function	TriSt-PD	TriSt-PD	Function

Table 7.2 FT2232HP / FT2233HP I/O States Channel B

7.3 FT2232HP / FT2233HP – Selected Functions

FT2232HP (68 pin) FT2233HP (76 pin/80 pin)												
Pin				Pin functions (depends on configuration)								
68 Pin #	76 Pin #	80 Pin #	Pin Name	ASYNCR Serial (RS232)	245 FIFO SYNC	245 FIFO	ASYNCR Bit-bang	SYNCR Bit-bang	MPSSE	Fast Serial interface	CPU Style FIFO	Host Bus Emulation
Channel A												
6	8	8	ADBUSH0	TXD	D0	D0	D0	D0	TCK/SK	USES CHANNEL B	D0	AD0
7	9	9	ADBUSH1	RXD	D1	D1	D1	D1	TDI/DO		D1	AD1
11	13	13	ADBUSH2	RTS#	D2	D2	D2	D2	TDO/DI		D2	AD2
12	14	14	ADBUSH3	CTS#	D3	D3	D3	D3	TMS/CS		D3	AD3
13	15	15	ADBUSH4	DTR#	D4	D4	D4	D4	GPIOL0		D4	AD4
14	16	16	ADBUSH5	DSR#	D5	D5	D5	D5	GPIOL1		D5	AD5
15	17	17	ADBUSH6	DCD#	D6	D6	D6	D6	GPIOL2		D6	AD6
16	18	18	ADBUSH7	RI#	D7	D7	D7	D7	GPIOL3		D7	AD7
17	19	19	ACBUS0	TXDEN	RXF#	RXF#	**	**	GPIOH0		CS#	A8
18	20	21	ACBUS1	**	TXE#	TXE#	WRSTB #	WRSTB #	GPIOH1		A0	A9
19	21	22	ACBUS2	**	RD#	RD#	RDSTB #	RDSTB #	GPIOH2		RD#	A10
20	22	23	ACBUS3	RXLED#	WR#	WR#	**	**	GPIOH3		WR#	A11
21	23	24	ACBUS4	TXLED#	SIWUA	SIWUA	SIWUA	SIWUA	GPIOH4		SIWUA	A12
22	24	25	ACBUS5	**	CLKOUT	**	**	**	GPIOH5		**	A13
23	25	26	ACBUS6	**	OE#	**	**	**	GPIOH6		**	A14
24	26	27	ACBUS7	**	**	**	**	**	GPIOH7	**	A15	
Channel B												
34	36	37	BDBUSH0	TXD		D0	D0	D0	TCK/SK	FSDI	D0	CS#
35	37	38	BDBUSH1	RXD		D1	D1	D1	TDI/DO	FSCLK	D1	ALE
36	38	39	BDBUSH2	RTS#		D2	D2	D2	TDO/DI	FSDO	D2	RD#
37	39	40	BDBUSH3	CTS#		D3	D3	D3	TMS/CS	FSCTS	D3	WR#
38	40	41	BDBUSH4	DTR#		D4	D4	D4	GPIOL0		D4	IORDY
40	42	43	BDBUSH5	DSR#		D5	D5	D5	GPIOL1		D5	CLKOUT
41	42	44	BDBUSH6	DCD#		D6	D6	D6	GPIOL2		D6	I/O0
42	44	45	BDBUSH7	RI#		D7	D7	D7	GPIOL3		D7	I/O1
45	48	50	BCBUS0	TXDEN		RXF#	**	**	GPIOH0		CS#	**
46	49	51	BCBUS1	**		TXE#	WRSTB #	WRSTB #	GPIOH1		A0	**
47	50	52	BCBUS2	**		RD#	RDSTB #	RDSTB #	GPIOH2		RD#	**
48	51	53	BCBUS3	RXLED#		WR#	**	**	GPIOH3		WR#	**
49	52	54	BCBUS4	TXLED#		SIWUB	SIWUB	SIWUB	GPIOH4	SIWUB	SIWUB	**
50	53	55	BCBUS5	**		**	**	**	GPIOH5		**	**
52	56	58	BCBUS6	**		**	**	**	GPIOH6		**	**
53	57	59	BCBUS7	PWRSVAV#	PWRS AV#	PWRS AV#	PWRSV AV#	PWRSV AV#	GPIOH7	PWRSVAV#	PWRS AV#	PWRSV AV#

Table 7.3 FT2232HP / FT2233HP Selected Functions

Pins marked ** default to tri-stated inputs with an internal 75KΩ (approx.) pull up resistor to VCCIO.

8 FT4232H / FT4232H -56Q

8.1 FT4232H / FT4232H -56Q – Channel A Pins

FT4232H Channel A								
Pin Number (56 Pin - VQFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
12	16	ADBUS0	TriSt-PU	TXD	TXD	TriSt-PD	TXD	TXD
13	17	ADBUS1	TriSt-PU	RXD	RXD	TriSt-PD	RXD	RXD
14	18	ADBUS2	TriSt-PU	RTS#	RTS#	TriSt-PD	RTS#	RTS#
15	19	ADBUS3	TriSt-PU	CTS#	CTS#	TriSt-PD	CTS#	CTS#
17	21	ADBUS4	TriSt-PU	DTR#	DTR#	TriSt-PD	DTR#	DTR#
18	22	ADBUS5	TriSt-PU	DSR#	DSR#	TriSt-PD	DSR#	DSR#
19	23	ADBUS6	TriSt-PU	DCD#	DCD#	TriSt-PD	DCD#	DCD#
20	24	ADBUS7	TriSt-PU	RI#	Selection	TriSt-PD	RI#	Selection

Table 8.1 FT4232H(-56Q) I/O States Channel A

8.2 FT4232H / FT4232H -56Q – Channel B Pins

FT4232H Channel B								
Pin Number (56 Pin - VQFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
22	26	BDBUS0	TriSt-PU	TXD	TXD	TriSt-PD	TXD	TXD
23	27	BDBUS1	TriSt-PU	RXD	RXD	TriSt-PD	RXD	RXD
24	28	BDBUS2	TriSt-PU	RTS#	RTS#	TriSt-PD	RTS#	RTS#
25	29	BDBUS3	TriSt-PU	CTS#	CTS#	TriSt-PD	CTS#	CTS#
26	30	BDBUS4	TriSt-PU	DTR#	DTR#	TriSt-PD	DTR#	DTR#
27	32	BDBUS5	TriSt-PU	DSR#	DSR#	TriSt-PD	DSR#	DSR#
28	33	BDBUS6	TriSt-PU	DCD#	DCD#	TriSt-PD	DCD#	DCD#
29	34	BDBUS7	TriSt-PU	RI#	Selection	TriSt-PD	RI#	Selection

Table 8.2 FT4232H(-56Q) I/O States Channel B

8.3 FT4232H / FT4232H -56Q – Channel C Pins

FT4232H Channel C								
Pin Number (56 Pin - VQFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
32	38	CDBUS0	TriSt-PU	TXD	TXD	TriSt-PD	TXD	TXD
33	39	CDBUS1	TriSt-PU	RXD	RXD	TriSt-PD	RXD	RXD
34	40	CDBUS2	TriSt-PU	RTS#	RTS#	TriSt-PD	RTS#	RTS#
35	41	CDBUS3	TriSt-PU	CTS#	CTS#	TriSt-PD	CTS#	CTS#
37	43	CDBUS4	TriSt-PU	DTR#	DTR#	TriSt-PD	DTR#	DTR#
38	44	CDBUS5	TriSt-PU	DSR#	DSR#	TriSt-PD	DSR#	DSR#
39	45	CDBUS6	TriSt-PU	DCD#	DCD#	TriSt-PD	DCD#	DCD#
40	46	CDBUS7	TriSt-PU	RI#	Selection	TriSt-PD	RI#	Selection

Table 8.3 FT4232H(-56Q) I/O States Channel C

8.4 FT4232H / FT4232H -56Q – Channel D Pins

FT4232H Channel D								
Pin Number (56 Pin - VQFN)	Pin Number (64 Pin - QFN/ LQFP)	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
42	48	DDBUS0	TriSt-PU	TXD	TXD	TriSt-PD	TXD	TXD
46	52	DDBUS1	TriSt-PU	RXD	RXD	TriSt-PD	RXD	RXD
47	53	DDBUS2	TriSt-PU	RTS#	RTS#	TriSt-PD	RTS#	RTS#
48	54	DDBUS3	TriSt-PU	CTS#	CTS#	TriSt-PD	CTS#	CTS#
49	55	DDBUS4	TriSt-PU	DTR#	DTR#	TriSt-PD	DTR#	DTR#
51	57	DDBUS5	TriSt-PU	DSR#	DSR#	TriSt-PD	DSR#	DSR#
52	58	DDBUS6	TriSt-PU	DCD#	DCD#	TriSt-PD	DCD#	DCD#
53	59	DDBUS7	TriSt-PD	RI#	Selection	TriSt-PD	RI#	Selection

Table 8.4 FT4232H(-56Q) I/O States Channel D

8.5 FT4232H / FT4232H -56Q - Selected Functions

FT4232H						
Pins			Pin functions (depend on configuration)			
56 Pin #	64 Pin #	Pin Name	ASYNC Serial (RS232)	ASYNC Bit-bang	SYNC Bit-bang	MPSSE
Channel A						
12	16	ADBUS0	TXD	D0	D0	TCK/SK
13	17	ADBUS1	RXD	D1	D1	TDI/DO
14	18	ADBUS2	RTS#	D2	D2	TDO/DI
15	19	ADBUS3	CTS#	D3	D3	TMS/CS
17	21	ADBUS4	DTR#	D4	D4	GPIOL0
18	22	ADBUS5	DSR#	D5	D5	GPIOL1
19	23	ADBUS6	DCD#	D6	D6	GPIOL2
20	24	ADBUS7	RI#/ TXDEN*	D7	D7	GPIOL3
Channel B						
22	26	BDBUS0	TXD	D0	D0	TCK/SK
23	27	BDBUS1	RXD	D1	D1	TDI/DO
24	28	BDBUS2	RTS#	D2	D2	TDO/DI
25	29	BDBUS3	CTS#	D3	D3	TMS/CS
26	30	BDBUS4	DTR#	D4	D4	GPIOL0
27	32	BDBUS5	DSR#	D5	D5	GPIOL1
28	33	BDBUS6	DCD#	D6	D6	GPIOL2
29	34	BDBUS7	RI#/ TXDEN*	D7	D7	GPIOL3
Channel C						
32	38	CDBUS0	TXD	D0	D0	RS232 or Bit-Bang interface
33	39	CDBUS1	RXD	D1	D1	RS232 or Bit-Bang interface
34	40	CDBUS2	RTS#	D2	D2	RS232 or Bit-Bang interface
35	41	CDBUS3	CTS#	D3	D3	RS232 or Bit-Bang interface
37	43	CDBUS4	DTR#	D4	D4	RS232 or Bit-Bang interface
38	44	CDBUS5	DSR#	D5	D5	RS232 or Bit-Bang interface
39	45	CDBUS6	DCD#	D6	D6	RS232 or Bit-Bang interface
40	46	CDBUS7	RI#/ TXDEN*	D7	D7	RS232 or Bit-Bang interface
Channel D						
42	48	DDBUS0	TXD	D0	D0	RS232 or Bit-Bang interface
46	52	DDBUS1	RXD	D1	D1	RS232 or Bit-Bang interface
47	53	DDBUS2	RTS#	D2	D2	RS232 or Bit-Bang interface
48	54	DDBUS3	CTS#	D3	D3	RS232 or Bit-Bang interface
49	55	DDBUS4	DTR#	D4	D4	RS232 or Bit-Bang interface
51	57	DDBUS5	DSR#	D5	D5	RS232 or Bit-Bang interface
52	58	DDBUS6	DCD#	D6	D6	RS232 or Bit-Bang interface
53	59	DDBUS7	RI#/ TXDEN*	D7	D7	RS232 or Bit-Bang interface

Table 8.5 FT4232H(-56Q) Selected Functions

Pins marked * are EEPROM selectable.

9 FT4232HP / FT4233HP

9.1 FT4232HP / FT4233HP – Channel A Pins

FT4232HP (68 pin) FT4233HP (76 pin / 80 pin) Channel A									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
6	8	8	ADBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
7	9	9	ADBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
11	13	13	ADBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
12	14	14	ADBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
13	15	15	ADBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
14	16	16	ADBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
15	17	17	ADBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
16	18	18	ADBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function

Table 9.1 FT4232HP / FT4233HP I/O States Channel A

9.2 FT4232HP / FT4233HP – Channel B Pins

FT4232HP (68 pin) FT4233HP (76 pin / 80 pin) Channel B									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
17	19	19	BDBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
18	20	21	BDBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
19	21	22	BDBUS2	TriSt-PU	RTS#	Function	TriSt-PD	RTS#	Function
20	22	23	BDBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
21	23	24	BDBUS4	TriSt-PU	DTR#	Function	TriSt-PD	DTR#	Function
22	24	25	BDBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
23	25	26	BDBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
24	26	27	BDBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function

Table 9.2 FT4232HP / FT4233HP I/O States Channel B

9.3 FT4232HP / FT4233HP – Channel C Pins

FT4232HP (68 pin) FT4233HP (76 pin / 80 pin) Channel C									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
34	36	37	CDBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
35	37	38	CDBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
36	38	39	CDBUS2	TriSt	RTS#	Function	TriSt-PD	RTS#	Function
37	39	40	CDBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
38	40	41	CDBUS4	TriSt	DTR#	Function	TriSt-PD	DTR#	Function
40	42	43	CDBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
41	43	44	CDBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
42	44	45	CDBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function

Table 9.3 FT4232HP / FT4233HP I/O States Channel C

9.4 FT4232HP / FT4233HP – Channel D Pins

FT4232HP (68 pin) FT4233HP (76 pin / 80 pin) Channel D									
Pin Number			Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
68 Pin #	76 Pin #	80 Pin #							
45	48	50	DDBUS0	TriSt	TXD	Function	TriSt-PD	TXD	Function
46	49	51	DDBUS1	TriSt-PU	RXD	Function	TriSt-PD	RXD	Function
47	50	52	DDBUS2	TriSt-PU	RTS#	Function	TriSt-PD	RTS#	Function
48	51	53	DDBUS3	TriSt-PU	CTS#	Function	TriSt-PD	CTS#	Function
49	52	54	DDBUS4	TriSt-PU	DTR#	Function	TriSt-PD	DTR#	Function
50	53	55	DDBUS5	TriSt-PU	DSR#	Function	TriSt-PD	DSR#	Function
51	56	58	DDBUS6	TriSt-PU	DCD#	Function	TriSt-PD	DCD#	Function
52	57	59	DDBUS7	TriSt-PU	RI#	Function	TriSt-PD	RI#	Function

Table 9.4 FT4232HP / FT4233HP I/O States Channel D

9.5 FT4232HP / FT4233HP – Selected Functions

FT4232HP (68 pin) FT4233HP (76 pin / 80 pin)							
Pins				Pin functions (depend on configuration)			
68 Pin #	76 Pin #	80 Pin #	Pin Name	ASYNC Serial (RS232)	ASYNC Bit-bang	SYNC Bit-bang	MPSSE
Channel A							
6	8	8	ADBUS0	TXD	D0	D0	TCK/SK
7	9	9	ADBUS1	RXD	D1	D1	TDI/DO
11	13	13	ADBUS2	RTS#	D2	D2	TDO/DI
12	14	14	ADBUS3	CTS#	D3	D3	TMS/CS
13	15	15	ADBUS4	DTR#	D4	D4	GPIOL0
14	16	16	ADBUS5	DSR#	D5	D5	GPIOL1
15	17	17	ADBUS6	DCD#	D6	D6	GPIOL2
16	18	18	ADBUS7	RI# / TXDEN*	D7	D7	GPIOL3
Channel B							
17	19	19	BDBUS0	TXD	D0	D0	TCK/SK
18	20	21	BDBUS1	RXD	D1	D1	TDI/DO
19	21	22	BDBUS2	RTS#	D2	D2	TDO/DI
20	22	23	BDBUS3	CTS#	D3	D3	TMS/CS
21	23	24	BDBUS4	DTR#	D4	D4	GPIOL0
22	24	25	BDBUS5	DSR#	D5	D5	GPIOL1
23	25	26	BDBUS6	DCD#	D6	D6	GPIOL2
24	26	27	BDBUS7	RI# / TXDEN*	D7	D7	GPIOL3
Channel C							
34	36	37	CDBUS0	TXD	D0	D0	RS232 or Bit-Bang interface
35	37	38	CDBUS1	RXD	D1	D1	RS232 or Bit-Bang interface
36	38	39	CDBUS2	RTS#	D2	D2	RS232 or Bit-Bang interface
37	39	40	CDBUS3	CTS#	D3	D3	RS232 or Bit-Bang interface
38	40	41	CDBUS4	DTR#	D4	D4	RS232 or Bit-Bang interface
40	42	43	CDBUS5	DSR#	D5	D5	RS232 or Bit-Bang interface
41	43	44	CDBUS6	DCD#	D6	D6	RS232 or Bit-Bang interface
42	44	45	CDBUS7	RI# / TXDEN*	D7	D7	RS232 or Bit-Bang interface
Channel D							
45	48	50	DDBUS0	TXD	D0	D0	RS232 or Bit-Bang interface
46	49	51	DDBUS1	RXD	D1	D1	RS232 or Bit-Bang interface
47	50	52	DDBUS2	RTS#	D2	D2	RS232 or Bit-Bang interface
48	51	53	DDBUS3	CTS#	D3	D3	RS232 or Bit-Bang interface
49	52	54	DDBUS4	DTR#	D4	D4	RS232 or Bit-Bang interface
50	53	55	DDBUS5	DSR#	D5	D5	RS232 or Bit-Bang interface
51	56	58	DDBUS6	DCD#	D6	D6	RS232 or Bit-Bang interface
52	57	59	DDBUS7	RI# / TXDEN*	D7	D7	RS232 or Bit-Bang interface

Table 9.5 FT4232HP / FT4233HP Selected Functions

Pins marked * are EEPROM selectable.

10 FT2232D – Channel A Pins

FT2232D Channel A							
Pin Number	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend – Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
24	ADBUS0	TriSt	TXD	Function	TriSt- PD	TriSt	Function
23	ADBUS1	TriSt-PU	RXD	Function	TriSt- PD	TriSt-PU	Function
22	ADBUS2	TriSt	RTS#	Function	TriSt- PD	TriSt	Function
21	ADBUS3	TriSt-PU	CTS#	Function	TriSt- PD	TriSt-PU	Function
20	ADBUS4	TriSt	DTR#	Function	TriSt- PD	TriSt	Function
19	ADBUS5	TriSt-PU	DSR#	Function	TriSt- PD	TriSt-PU	Function
17	ADBUS6	TriSt-PU	DCD#	Function	TriSt- PD	TriSt-PU	Function
16	ADBUS7	TriSt-PU	RI#	Function	TriSt- PD	TriSt-PU	Function
15	ACBUS0	TriSt	TXDEN	Function	TriSt- PD	TriSt	Function
13	ACBUS1	TriSt	SLEEP#	Function	TriSt- PD	TriSt	Function
12	ACBUS2	TriSt-PU	RXLED#	Function	TriSt- PD	TriSt-PU	Function
11	ACBUS3	TriSt-PU	TXLED#	Function	TriSt- PD	TriSt-PU	Function

Table 10.1 FT2232D I/O States Channel A

10.1 FT2232D – Channel B Pins

FT2232D Channel B							
Pin Number	Pin Name	RESET# Low	Default	SUSPEND (Pull Down IO Pins in Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend – Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
40	BDBUS0	TriSt	TXD	Function	TriSt- PD	TriSt	Function
39	BDBUS1	TriSt-PU	RXD	Function	TriSt- PD	TriSt-PU	Function
38	BDBUS2	TriSt	RTS#	Function	TriSt- PD	TriSt	Function
37	BDBUS3	TriSt-PU	CTS#	Function	TriSt- PD	TriSt-PU	Function
36	BDBUS4	TriSt	DTR#	Function	TriSt- PD	TriSt	Function
35	BDBUS5	TriSt-PU	DSR#	Function	TriSt- PD	TriSt-PU	Function
33	BDBUS6	TriSt-PU	DCD#	Function	TriSt- PD	TriSt-PU	Function
32	BDBUS7	TriSt-PU	RI#	Function	TriSt- PD	TriSt-PU	Function
30	BCBUS0	TriSt	TXDEN	Function	TriSt- PD	TriSt	Function
29	BCBUS1	TriSt	SLEEP#	Function	TriSt- PD	TriSt	Function
28	BCBUS2	TriSt-PU	RXLED#	Function	TriSt- PD	TriSt-PU	Function
27	BCBUS3	TriSt-PU	TXLED#	Function	TriSt- PD	TriSt-PU	Function

Table 10.2 FT2232D I/O States Channel B

10.2 FT2232D - Selected Functions – Channel A

Pin#	Generic Pin name	Pin Definitions by Chip Mode **Note 1						
		232 UART Mode	245 FIFO	Enhanced Asynchronous and Synchronous Serial	MPSSE **Note 3	MCU Host Bus Emulation Mode **Note 4	Fast Opto-Isolated Serial Mode	CPU FIFO Interface Mode
24	ADBUS0	TXD	D0	D0	TCK/SK AD0	**Note 2	D0	D0
23	ADBUS1	RXD	D1	D1	TDI/D0	AD1	D1	D1
22	ADBUS2	RTS#	D2	D2	TDO/DI	AD2	D2	D2
21	ADBUS3	CTS#	D3	D3	TMS/CS AD3	D3		D3
20	ADBUS4	DTR#	D4	D4	GPIOL0	AD4	D4	D4
19	ADBUS5	DSR#	D5	D5	GPIOL1	AD5	D5	D5
17	ADBUS6	DCD#	D6	D6	GPIOL2	AD6	D6	D6
16	ADBUS7	RI#	D7	D7	GPIOL3	AD7	D7	D7
15	ACBUS0	TXDEN	RXF#	WR# **Note 5	GPIOH0	I/O0	CS#	CS#
13	ACBUS1	SLEEP#	TXE#	RD# **Note 5	GPIOH1	I/O1	A0	A0
12	ACBUS2	RXLED#	RD#	WR# **Note 6	GPIOH2	IORDY	RD#	RD#
24	ADBUS0	TXD	D0	D0	TCK/SK AD0	**Note 2	D0	
11	ACBUS3	TXLED#	WR	RD# **Note 6	GPIOH3	OSC	WR#	WR#

Table 10.3 Pin Definition by Chip Mode - Channel A

Note 1: 232 UART, 245 FIFO, CPU FIFO Interface, and Fast Opto-Isolated modes are enabled in the external EEPROM. Enhanced Asynchronous and Synchronous Bit-Bang modes, MPSSE, and MCU Host Bus Emulation modes are enabled using the driver command set bit mode.

Note 2: Channel A can be configured in another IO mode if channel B is in Fast Opto-Isolated Serial Mode. If both Channel A and Channel B are in Fast Opto-Isolated Serial Mode all of the IO will be on Channel B.

Note 3: MPSSE is Channel A only.

Note 4: MCU Host Bus Emulation requires both Channels.

Note 5: The Bit-Bang Mode (synchronous and asynchronous) WR# and RD# strobes are on these pins when the main Channel mode is 245 FIFO, CPU FIFO interface, or Fast Opto-Isolated Serial Modes.

Note 6: The Bit-Bang Mode (synchronous and asynchronous) WR# and RD# strobes are on these pins when the main Channel mode is 232 UART Mode.

10.3 FT2232D - Selected Function – Channel B

Pin#	Generic Pin name	Pin Definitions by Chip Mode **Note 1						
		232 UART Mode	245 FIFO	Enhanced Asynchronous and Synchronous Serial	MPSSE **Note 3	MCU Host Bus Emulation Mode **Note 4	Fast Opto-Isolated Serial Mode	CPU FIFO Interface Mode
40	BDBUS0	TXD	D0	D0	A8	FSDI	D0	D0
39	BDBUS1	RXD	D1	D1	A9	FSCLK	D1	D1
38	BDBUS2	RTS#	D2	D2	A10	FSDO	D2	D2
37	BDBUS3	CTS#	D3	D3	A11	FSCTS	D3	D3
36	BDBUS4	DTR#	D4	D4	A12	**Note 2	D4	D4
35	BDBUS5	DSR#	D5	D5	A13	D5		D5
33	BDBUS6	DCD#	D6	D6	A14	D6		D6
32	BDBUS7	RI#	D7	D7	A15	D7		D7
30	BCBUS0	TXDEN	RXF#	WR# **Note 7	CS#	CS#		CS#
29	BCBUS1	SLEEP#	TXE#	RD# **Note 7	ALE	A0		A0
28	BCBUS2	RXLED#	RD#	WR# **Note 6	RD#	RD#		RD#
27	BCBUS3	TXLED#	WR	RD# **Note 6	WR#	WR#		WR#

Table 10.4 Pin Definition by Chip Mode - Channel B

Note 1: 232 UART, 245 FIFO, CPU FIFO Interface, and Fast Opto-Isolated modes are enabled in the external EEPROM. Enhanced Asynchronous and Synchronous Bit-Bang modes, MPSSE, and MCU Host Bus Emulation modes are enabled using the driver command set bit mode.

Note 2: Channel A can be configured in another IO mode if channel B is in Fast Opto-Isolated Serial Mode. If both Channel A and Channel B are in Fast Opto-Isolated Serial Mode all of the IO will be on Channel B.

Note 3: MPSSE is Channel A only.

Note 4: MCU Host Bus Emulation requires both Channels.

Note 5: The Bit-Bang Mode (synchronous and asynchronous) WR# and RD# strobes are on these pins when the main Channel mode is 245 FIFO, CPU FIFO interface, or Fast Opto-Isolated Serial Modes.

Note 6: The Bit-Bang Mode (synchronous and asynchronous) WR# and RD# strobes are on these pins when the main Channel mode is 232 UART Mode.

Note 7: The Bit-Bang Mode (synchronous and asynchronous) WR# and RD# strobes are on these pins when the main Channel mode is 245 FIFO, CPU FIFO interface. Bit-Bang mode is not available on Channel B when Fast Opto-Isolated Serial Mode is enabled.

8 FT200XD – I/O Pins

FT200XD						
Pin Name	Pin Number	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend – Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
SDA	8	TriSt-PU	SDA	TriSt-PD	SDA	SDA
SCL	6	TriSt-PU	SCL	TriSt-PD	SCL	SCL
CBUS0	5	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 8.1 FT200XD I/O States

Note 1: When used in Input Mode, the input pins are pulled to VCCIO via internal 75kΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

Note 2: Clock stretching is not supported.

9 FT201X – I/O Pins

FT201X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
SDA	2	4	TriSt-PU	SDA	TriSt-PD	SDA	SDA
SCL	16	2	TriSt-PU	SCL	TriSt-PD	SCL	SCL
CBUS 0	12	15	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS 1	11	14	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS 2	5	7	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS 3	14	16	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS 4	4	6	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS 5	15	1	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 9.1 FT201X I/O States

Note 1: When used in Input Mode, the input pins are pulled to VCCIO via internal 75kΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

Note 2: Clock stretching is not supported.

10 FT220X – I/O Pins

FT220X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
MIOSIO[0]	15	1	TriSt-PU	MIOSIO[0]	TriSt-PD	MIOSIO[0]	MIOSIO[0]
MIOSIO[1]	2	4	TriSt-PU	MIOSIO[1]	TriSt-PD	MIOSIO[1]	MIOSIO[1]
MIOSIO[2]	16	2	TriSt-PU	MIOSIO[2]	TriSt-PD	MIOSIO[2]	MIOSIO[2]
MIOSIO[3]	4	6	TriSt-PU	MIOSIO[3]	TriSt-PD	MIOSIO[3]	MIOSIO[3]
CLK	12	15	TriSt-PU	CLK (Input-PU)	TriSt-PD	CLK (Input-PU)	CLK (Input-PU)
CS#	11	14	TriSt-PU	CS# (Input-PU)	TriSt-PD	CS# (Input-PU)	CS# (Input-PU)
MISO	5	7	TriSt-PU	MISO	TriSt-PD	MISO	MISO
CBUS3	14	16	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 10.1 FT220X I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75kΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

11 FT221X – I/O Pins

FT221X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
MIOSIO[0]	17	20	TriSt-PU	MIOSIO[0]	TriSt-PD	MIOSIO[0]	MIOSIO[0]
MIOSIO[1]	1	4	TriSt-PU	MIOSIO[1]	TriSt-PD	MIOSIO[1]	MIOSIO[1]
MIOSIO[2]	19	2	TriSt-PU	MIOSIO[2]	TriSt-PD	MIOSIO[2]	MIOSIO[2]
MIOSIO[3]	6	9	TriSt-PU	MIOSIO[3]	TriSt-PD	MIOSIO[3]	MIOSIO[3]
MIOSIO[4]	18	1	TriSt-PU	MIOSIO[4]	TriSt-PD	MIOSIO[4]	MIOSIO[4]
MIOSIO[5]	4	7	TriSt-PU	MIOSIO[5]	TriSt-PD	MIOSIO[5]	MIOSIO[5]
MIOSIO[6]	5	8	TriSt-PU	MIOSIO[6]	TriSt-PD	MIOSIO[6]	MIOSIO[6]
MIOSIO[7]	2	5	TriSt-PU	MIOSIO[7]	TriSt-PD	MIOSIO[7]	MIOSIO[7]
CLK	15	18	TriSt-PU	Input-PU	TriSt-PD	Input-PU	CLK(Input-PU)
CS#	14	17	TriSt-PU	Input-PU	TriSt-PD	Input-PU	CS#(Input-PU)
MISO	7	10	TriSt-PU	MISO	TriSt-PD	MISO	MISO
CBUS3	16	19	TriSt-PU	Function	TriSt-PD	Function	Function

Table 11.1 FT221X I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75kΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

12 FT230X – I/O Pins

FT230X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
TXD	15	1	TriSt-PU	TXD	TriSt-PD	TXD	Output (TXD)
RXD	2	4	TriSt-PU	RXD	TriSt-PD	RXD	Input (RXD)
RTS#	16	2	TriSt-PU	RTS#	TriSt-PD	RTS#	Output (RTS#)
CTS#	4	6	TriSt-PU	CTS#	TriSt-PD	CTS#	Input (CTS#)
CBUS0	12	15	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS1	11	14	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS2	5	7	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS3	14	16	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 12.1 FT230X I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75KΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

13 FT231X – I/O Pins

FT231X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
TXD	17	20	TriSt-PU	TXD	TriSt-PD	TXD	TXD
RXD	1	4	TriSt-PU	RXD	TriSt-PD	RXD	RXD
RTS#	19	2	TriSt-PU	RTS#	TriSt-PD	RTS#	RTS#
CTS#	6	9	TriSt-PU	CTS#	TriSt-PD	CTS#	CTS#
DTR#	18	1	TriSt-PU	DTR#	TriSt-PD	DTR#	DTR#
DSR#	4	7	TriSt-PU	DSR#	TriSt-PD	DSR#	DSR#
DCD#	5	8	TriSt-PU	DCD#	TriSt-PD	DCD#	DCD#
RI#	2	5	TriSt-PU	RI#	TriSt-PD	RI#	RI#
CBUS0	15	18	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS1	14	17	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS2	7	10	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS3	16	19	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 13.1 FT231X I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75KΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

14 FT234XD – I/O Pins

FT234XD						
Pin Name	Pin Number	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
TXD	7	TriSt-PU	TXD	TriSt-PD	TXD	Output (TXD)
RXD	10	TriSt-PU	RXD	TriSt-PD	RXD	Input (RXD)
RTS#	8	TriSt-PU	RTS#	TriSt-PD	RTS#	Output (RTS#)
CTS#	11	TriSt-PU	CTS#	TriSt-PD	CTS#	Input (CTS#)
CBUS0	6	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function

Table 14.1 FT234XD I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75KΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

15 FT240X – I/O Pins

FT240X							
Pin Name	Pin Number (QFN)	Pin Number (SSOP)	RESET# Low	SUSPEND (Pull Down IO Pins in USB Suspend - Not Set)	SUSPEND (Pull Down IO Pins in USB Suspend - Set)	During Enumeration (out of reset prior to EEPROM read)	Active (device enumerated after EEPROM read)
RESET#	13	16	Input-PU	Input-PU	Input-PU	Input-PU	Input-PU
SIWU#	7	10	TriSt-PU	Input-PU	TriSt-PD	Input-PU	Input-PU
CBUS5	20	23	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
CBUS6	19	22	TriSt-PU	Function	TriSt-PD	TriSt-PU	Function
D0	21	24	TriSt-PU	D0	TriSt-PD	D0	D0
D1	1	4	TriSt-PU	D1	TriSt-PD	D1	D1
D2	23	2	TriSt-PU	D2	TriSt-PD	D2	D2
D3	6	9	TriSt-PU	D3	TriSt-PD	D3	D3
D4	22	1	TriSt-PU	D4	TriSt-PD	D4	D4
D5	4	7	TriSt-PU	D5	TriSt-PD	D5	D5
D6	5	8	TriSt-PU	D6	TriSt-PD	D6	D6
D7	2	5	TriSt-PU	D7	TriSt-PD	D7	D7
RD#	8	11	TriSt-PU	RD# (Input-PU)	TriSt-PD	RD# (Input-PU)	RD# (Input-PU)
WR	9	12	TriSt-PU	WR (Input-PD)	TriSt-PD	WR (Input-PD)	WR (Input-PD)
TXE#	17	20	TriSt-PU	TXE# (OP)	TriSt-PD	TXE# (OP)	TXE# (OP)
RXF#	18	21	TriSt-PU	RXF# (OP)	TriSt-PD	RXF# (OP)	RXF# (OP)

Table 15.1 FT240X I/O States

Note: When used in Input Mode, the input pins are pulled to VCCIO via internal 75KΩ (approx.) resistors. These pins can be programmed to gently pull low during USB suspend (PWREN# = "1") by setting an option in the MTP memory.

16 FT120 – I/O Pins

FT120						
Pin Name	Pin Number (QFN)	Pin Number (TSSOP)	RESET# Low	SUSPEND	During Enumeration (out of reset)	Active (device enumerated)
DATA0	26	1	TriSt	TriSt	TriSt, driving when RD_N is low and CS_N or DMACK_N is low	TriSt, driving when RD_N is low and CS_N is low or DMACK_N is low
DATA1	27	2	TriSt	TriSt		
DATA2	28	3	TriSt	TriSt		
DATA3	1	4	TriSt	TriSt		
DATA4	2	6	TriSt	TriSt		
DATA5	3	7	TriSt	TriSt		
DATA6	4	8	TriSt	TriSt		
DATA7	5	9	TriSt	TriSt		
SUSPEND	8	12	Driving Low	TriSt	Output	Output
CLKOUT	9	13	Driving Low	Output	Output	Output
INT_n	10	14	Driving High	Output	Output	Output
GL_n	17	21	Driving High	Output	Output	Output
DMREQ	13	17	Driving Low	Output	Output	Output

Table 16.1 FT120 I/O States

17 FT121 – I/O Pins

FT121						
Pin Name	Pin Number (QFN)	Pin Number (TSSOP)	RESET# Low	SUSPEND	During Enumeration (out of reset)	Active (device enumerated)
MOSI	7	9	TriSt	TriSt	Output	Output
MISO	6	8	TriSt	TriSt	Output	Output

Table 17.1 FT121 I/O States

18 FT122 – I/O Pins

FT122						
Pin Name	Pin Number (QFN)	Pin Number (TSSOP)	RESET# Low	SUSPEND	During Enumeration (out of reset)	Active (device enumerated)
D0	26	1	TriSt	TriSt	TriSt, driving when RD_N is low and CS_N or DMACK_N is low	TriSt, driving when RD_N is low and CS_N is low or DMACK_N is low
D1	27	2	TriSt	TriSt		
D2	28	3	TriSt	TriSt		
D3	1	4	TriSt	TriSt		
D4	3	6	TriSt	TriSt		
D5	4	7	TriSt	TriSt		
D6	5	8	TriSt	TriSt		
D7	6	9	TriSt	TriSt		
SUSPEND	9	12	Driving Low	TriSt	Output	Output
CLKOUT	10	13	Driving Low	Output	Output	Output
INT_n	11	14	Driving High	Output	Output	Output
GL_n	18	21	Driving High	Output	Output	Output
DMREQ	14	17	Driving Low	Output	Output	Output

Table 18.1 FT122 I/O States

19 FT313H – I/O Pins

FT313					
Pin Name	Pin Number (QFN)	Pin Number (LQFP)	Pin Number (TQFP)	RESET# Low	Active
AD0	2	2	2	TriSt	Input/Output
AD1	3	3	3	TriSt	Input/Output
AD2	4	4	4	TriSt	Input/Output
AD3	5	5	5	TriSt	Input/Output
AD4	7	7	7	TriSt	Input/Output
AD5	8	8	8	TriSt	Input/Output
AD6	9	9	9	TriSt	Input/Output
AD7	10	10	10	TriSt	Input/Output
AD8	11	11	11	TriSt	Input/Output
AD9	12	12	12	TriSt	Input/Output
AD10	13	13	13	TriSt	Input/Output
AD11	14	14	14	TriSt	Input/Output
AD12	16	16	16	TriSt	Input/Output
AD13	17	17	17	TriSt	Input/Output
AD14	18	18	18	TriSt	Input/Output
AD15	19	19	19	TriSt	Input/Output

Table 19.1 FT313H I/O States

20 FT4222H Rev A – I/O Pins

20.1 Configuration Mode 0

FT4222H CNFMODE0			I/O Status in Revision-A				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(Output-Low)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
13	GPIO0	GPIO0	TriSt	TriSt	Output-Low	(Output-Low)	Function*
14	GPIO1	GPIO1	TriSt	TriSt	Output-Low	(Output-Low)	Function*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	(Output-High)	Function**
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-Low	(Output-Low)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 20.1 FT4222H Rev. A I/O States Configuration Mode0

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

20.2 Configuration Mode 1

FT4222H CNFMODE1			I/O Status in Revision-A				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(Output-Low)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
13	GPIO0	SS10 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Default*
14	GPIO1	SS20 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Default*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	(Output-High)	Function**
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-Low	(Output-Low)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 20.2 FT4222H Rev. A I/O States Configuration Mode1

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

20.3 Configuration Mode 2

FT4222H CNFMODE2			I/O Status in Revision-A				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(Output-Low)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
13	GPIO0	SS10 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Default*
14	GPIO1	SS20 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Default*
15	GPIO2	SS30 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Default*
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-Low	(Output-Low)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 20.3 FT4222H Rev. A I/O States Configuration Mode2

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

20.4 Configuration Mode 3

FT4222H CNFMODE3			I/O Status in Revision-A				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(Output-Low)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	Output-Low	(Output-Low)	Function*
13	GPIO0	GPIO0	TriSt	TriSt	Output-Low	(Output-Low)	Function*
14	GPIO1	GPIO1	TriSt	TriSt	Output-Low	(Output-Low)	Function*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	Output-High	Default*
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Default*
17	SS00	SS00	Output	Output-High	Output-Low	(Output-Low)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 20.4 FT4222H Rev. A I/O States Configuration Mode3

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

21 FT4222H Rev B, C, D – I/O Pins

21.1 Configuration Mode 0

FT4222H CNFMODE0			I/O Status in Revision-B, C, D				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(TriSt)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-High	(TriSt)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
13	GPIO0	GPIO0	TriSt	TriSt	TriSt	(TriSt)	Function*
14	GPIO1	GPIO1	TriSt	TriSt	TriSt	(TriSt)	Function*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	(Output-High)	Function**
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-High	(Output-High)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 21.1 FT4222H Rev. B, C, D I/O States Configuration Mode0

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

21.2 Configuration Mode 1

FT4222H CNFMODE1			I/O Status in Revision-B, C, D				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(TriSt)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-High	(TriSt)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
13	GPIO0	SS10	TriSt	TriSt	Output-High	(Output-High)	Default*
14	GPIO1	SS20	TriSt	TriSt	Output-High	(Output-High)	Default*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	(Output-High)	Function**
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-High	(Output-High)	Default*
32	SS	SS	TriSt	TriSt	TriSt	(TriSt)	Default*

Table 21.2 FT4222H Rev. B, C, D I/O States Configuration Mode1

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

21.3 Configuration Mode 2

FT4222H CNFMODE2			I/O Status in Revision-B, C, D				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(TriSt)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-High	(TriSt)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
13	GPIO0	SS10	TriSt	TriSt	Output-High	(Output-High)	Default*
14	GPIO1	SS20	TriSt	TriSt	Output-High	(Output-High)	Default*
15	GPIO2	SS30	TriSt	TriSt	Output-High	(Output-High)	Default*
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Function**
17	SS00	SS00	Output	Output-High	Output-High	(Output-High)	Default*
32	SS	SS	TriSt	TriSt	TriSt	TriSt	Default*

Table 21.3 FT4222H Rev. B, C, D I/O States Configuration Mode2

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting

21.4 Configuration Mode 3

FT4222H CNFMODE3			I/O Status in Revision-B, C, D				
Pin Number	Pin Name	Default Function	When Reset	After Reset	During Enumeration	SUSPEND (Default)	Active Function (After Enum.)
8	SCK	SCK (Master)	Undefined	TriSt	Output-Low	(TriSt)	Function*
9	MISO	MISO (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
10	MOSI	MOSI (Master)	TriSt	TriSt	Output-High	(TriSt)	Function*
11	IO2	IO2 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
12	IO3	IO3 (Master)	TriSt	TriSt	TriSt	(TriSt)	Function*
13	GPIO0	GPIO0	TriSt	TriSt	TriSt	(TriSt)	Function*
14	GPIO1	GPIO1	TriSt	TriSt	TriSt	(TriSt)	Function*
15	GPIO2	SUSP_OUT	TriSt	TriSt	Output-Low	(Output-High)	Default*
16	GPIO3	WAKEUP	TriSt	TriSt	TriSt	(TriSt)	Default*
17	SS00	SS00	Output	Output-High	Output-High	(Output-High)	Default*
32	SS	SS	TriSt	TriSt	TriSt	(TriSt)	Default*

Table 21.4 FT4222H Rev. B, C, D I/O States Configuration Mode3

Default*: Default means the function is as referred to in the column – “Default Function”

Function*: Function means that the function for each pin can be selected by the support library (LibFT4222)

Function:** Function means that the function for each pin can be selected by the support library (LibFT4222) or FTDI - FT Prog Setting

(I/O Status): I/O Status with parentheses means the I/O status will be changed by the support library (LibFT4222) or can be set by FTDI - FT Prog Setting.

22 FT260 – I/O Pins

FT260				I/O Status			
Pin Number	Pin Name	Init. Default Function (During Enum.)	Active Function (After Enum.)	When Reset	After Reset	During Enumeration	SUSPEND (Default)
7	TX_ACTIVE	TX_ACTIVE *N3, *N4	As Init.	TriSt	TriSt	(Output-Low) *N3, *N4	(Output-Low) *N4, *U
8	RTSN	GPIOB	As Init./RTSN*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U
9	CTSN	GPIOE	As Init./CTSN*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U
10	RXD	RXD/ GPIOC* ^{N1}	As Init.	TriSt-PU	TriSt-PU	TriSt-PU	(TriSt-PU) *N4, *U
11	TXD	TXD/ GPIOD* ^{N1}	As Init.	TriSt	TriSt	Output-High/ TriSt* ^{N1}	(Output-High) / (TriSt)* ^{N1} *N4, *U
12	GPIO0	SCL	As Init.	TriSt	TriSt	TriSt* ^{N5}	(TriSt) *N4, *U
13	GPIO1	SDA	As Init.	TriSt	TriSt	TriSt* ^{N5}	(TriSt) *N4, *U
14	GPIO2	SUSP_OUT# *N3, *N4	As Init.	TriSt	TriSt	(Output-High) *N3, *N4	(Output-Low) *N4, *U
15	GPIO3	WAKEUP *N4	As Init./GPIO3*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U
17	GPIO4	GPIO4	As Init./DCD*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U
18	GPIO5	GPIO5	As Init./RI*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U
16	DTRN	GPIOF (see important notes)	As Init./DTRN*U	TriSt-PU	Output-High	TriSt-PU	(TriSt-PU) *N4, *U
27	BCD_DET	BCD_DET *N3, *N4	As Init.	Output-Low	Output-Low *N2	(Output-Low) *N3, *N4	(Output-Low) *N4, *U
28	DSRN	GPIOH	As Init./DSRN*U	TriSt	TriSt	TriSt	(TriSt) *N4, *U

Table 22.1 FT260 I/O States

- *N1 : Default function will be set as GPIO when CNFMODE1 (I2C only)
 - *N2 : BCD_DET polarity can be changed via eFuse
 - *N3 : function can be set or I/O status will be changed via eFuse
 - *N4 : function can be set or I/O status will be changed via EEPROM
 - *N5 : Internal TriSt(Open-drain) but with on-board pull-high resistor for I2C bus
 - *U : function can be enabled via USB command
- (I/O Status) :** I/O Status with parentheses means it can be changed.

Important Notes

Note 1: The DTRN pin must be high when the device is powered up and comes out of reset. If this pin is low during start-up, the device will enter test mode which is reserved for FTDI use only. Device pins will behave differently in test mode compared to the normal user mode shown in the table above and may drive out signals.

Note 2: The GPIO0 and GPIO1 pins act as SCL and SDA to check for, and to read from, the external EEPROM on start-up. If using as GPIO, the user should consider that there will be activity on these pins when designing their external circuit.

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Appendix A – References

Document References

- [FT232R USB UART IC Data Sheet](#)
- [FT245R USB FIFO Data Sheet](#)
- [FT232RN USB UART IC Data Sheet](#)
- [FT245RN USB FIFO Data Sheet](#)
- [FT232H Single Channel Hi-Speed USB to Multipurpose UART/FIFO IC Data Sheet](#)
- [FT2232H Hi-Speed Dual USB UART/FIFO IC Data Sheet](#)
- [FT4232H Hi-Speed Quad USB UART IC Data Sheet](#)
- [FT233HP/FT232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)
- [FT2233HP/FT2232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)
- [FT4233HP/FT4232HP High Speed USB Bridge with Type-C/PD3.0 Controller](#)
- [FT2232D Dual USB UART/FIFO IC Data Sheet](#)
- [FT200XD Full-Speed USB to I2C bridge in 10 pin DFN package Data Sheet](#)
- [FT201X Full-Speed USB to I2C bridge Data Sheet](#)
- [FT220X Full-Speed USB to 4-bit SPI/FT1248 bridge Data Sheet](#)
- [FT221X Full-Speed USB to 8-bit SPI/FT1248 bridge Data Sheet](#)
- [FT230X Full-Speed USB to basic UART Data Sheet](#)
- [FT231X Full-Speed USB to full handshake UART Data Sheet](#)
- [FT234XD Full-Speed USB to basic UART Data Sheet](#)
- [FT240X Full-Speed USB to 8-bit FIFO Data Sheet](#)
- [FT120 USB Full-Speed Device Controller Data Sheet](#)
- [FT121 USB Full-Speed Device Controller Data Sheet](#)
- [FT122 USB Full-Speed Device Controller Data Sheet](#)
- [FT313H Hi-Speed Host Controller](#)
- [FT4222H Hi-Speed Quad SPI/I2C IC Data Sheet](#)
- [FT260 Full speed HID Class USB to UART/I2C Datasheet](#)

Acronyms and Abbreviations

Terms	Description
PD	Internal pull-down resistor to GND
PU	Internal pull-up resistor to VCCIO
TriSt	High-impedance off-state ('tristate')
USB	Universal Serial Bus
USB-IF	USB Implementers Forum

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Appendix C – Revision History

Document Title: AN_184 FTDI Device Input Output Pin States
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 Clearance No.: FTDI#237
 Product Page: <https://ftdichip.com/product-category/products/ic/>
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Revision	Changes	Date
1.0	Initial Release	2011-11-24
2.0	Updated to include FT-X series, FT12 series & FT313H	2012-03-13
3.0	Updated to include FT4222H	10-09-2015
3.1	Updated FT4222H rev. D I/O Pins in section 21. Updated Table 2.2 Bit bang WR# strobe CBUS availability.	19-04-2018
3.2	Added FT260	12-05-2020
3.3	Updated Section 21 and 22	13-07-2020
3.4	Updated Table 6.3 and 6.4	14-05-2021
3.4	Added pin numbers for the FT2232H-56Q and FT4232H-56Q Updated to include Power delivery ICs Update Section 4-1, 5, 5-1 Updated section 6.3 and 7.3	04-08-2023
3.5	Edited Table 2.1 and 3.1. Added FT232RN/FT245RN.	21-11-2023