Table 5. Medium-density STM32F103xx pin definitions

Pins							Pin name	Type(1)	I / O Level(2)	Main function(3) (after reset)	Alternate functions(4)	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
A3	B2	-	-	-	1	-	PE2	I/O	FT	PE2	TRACECK	-
B3	A1	-	-	-	2	-	PE3	I/O	FT	PE3	TRACED0	-
C3	B1	-	-	-	3	-	PE4	I/O	FT	PE4	TRACED1	-
D3	C2	-	-	-	4	-	PE5	I/O	FT	PE5	TRACED2	-
E3	D2	-	-	-	5	-	PE6	I/O	FT	PE6	TRACED3	-
B2	E2	1	B2	1	6	-	V_{BAT}	S	-	V_{BAT}	-	-
A2	C1	2	A2	2	7	-	PC13-TAMPER-RTC(5)	I/O	-	PC13(6)	TAMPER-RTC	-
A1	D1	3	A1	3	8	-	PC14-OSC32_IN(5)	I/O	-	PC14(6)	OSC32_IN	-
B1	E1	4	B1	4	9	-	PC15-OSC32_OUT(5)	I/O	-	PC15(6)	OSC32_OUT	-
C2	F2	-	-	-	10	-	V_{SS_5}	S	-	V_{SS_5}	-	-
D2	G2	-	-	-	11	-	V_{DD_5}	S	-	V_{DD_5}	-	
C1	F1	5	C1	5	12	2	OSC_IN	I	-	OSC_IN	-	PD0(7)
D1	G1	6	D1	6	13	3	OSC_OUT	O	-	OSC_OUT		PD1(7)
E1	H2	7	E1	7	14	4	NRST	I/O	-	NRST	-	-
F1	H1	-	E3	8	15	-	PC0	I/O	-	PC0	ADC12_IN10	-
F2	J2	-	E2	9	16	-	PC1	I/O	-	PC1	ADC12_IN11	-
E2	J3	-	F2	10	17	-	PC2	I/O	-	PC2	ADC12_IN12	-
F3	K2	-	-(8)	11	18	-	PC3	I/O	-	PC3	ADC12_IN13	-
G1	J1	8	F1	12	19	5	V_{SSA}	S	-	V_{SSA}	-	-
H1	K1	-	-	-	20	-	V_{REF-}	S	-	V_{REF-}	-	-
J1	L1	-	G1(8)	-	21	-	V_{REF+}	S	-	V_{REF+}	-	-
K1	M1	9	H1	13	22	6	V_{DDA}	S	-	V_{DDA}	-	-

Table 5. Medium-density STM32F103xx pin definitions (continued)

Pins							Pin name	Type(1)	I / O Level(2)	Main function(3) (after reset)	Alternate functions(4)	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
G2	L2	10	G2	14	23	7	PA0-WKUP	I/O	-	PA0	WKUP/ USART2_CTS(9)/ ADC12_IN0/ TIM2_CH1_ ETR(9)	-
H2	M2	11	H2	15	24	8	PA1	I/O	-	PA1	USART2_RTS(9)/ ADC12_IN1/ TIM2_CH2(9)	-
J2	K3	12	F3	16	25	9	PA2	I/O	-	PA2	USART2_TX(9)/ ADC12_IN2/ TIM2_CH3(9)	-
K2	L3	13	G3	17	26	10	PA3	I/O	-	PA3	USART2_RX(9)/ ADC12_IN3/ TIM2_CH4(9)	-
E4	E3	-	C2	18	27	-	V_{SS_4}	S	-	V_{SS_4}	-	-
F4	H3	-	D2	19	28	-	V_{DD_4}	S	-	V_{DD_4}	-	-
G3	M3	14	H3	20	29	11	PA4	I/O	-	PA4	SPI1_NSS(9)/ USART2_CK(9)/ ADC12_IN4	-
H3	K4	15	F4	21	30	12	PA5	I/O	-	PA5	SPI1_SCK(9)/ ADC12_IN5	-
J3	L4	16	G4	22	31	13	PA6	I/O	-	PA6	SPI1_MISO(9)/ ADC12_IN6/ TIM3_CH1(9)	TIM1_BKIN
K3	M4	17	H4	23	32	14	PA7	I/O	-	PA7	SPI1_MOSI(9)/ ADC12_IN7/ TIM3_CH2(9)	TIM1_CH1N
G4	K5	-	H5	24	33		PC4	I/O	-	PC4	ADC12_IN14	-
H4	L5	-	H6	25	34		PC5	I/O	-	PC5	ADC12_IN15	-
J4	M5	18	F5	26	35	15	PB0	I/O	-	PB0	ADC12_IN8/ TIM3_CH3(9)	TIM1_CH2N
K4	M6	19	G5	27	36	16	PB1	I/O	-	PB1	ADC12_IN9/ TIM3_CH4(9)	TIM1_CH3N

Table 5. Medium-density STM32F103xx pin definitions (continued)

Pins							Pin name	Type(1)	I / O Level(2)	Main function(3) (after reset)	Alternate functions(4)	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
G5	L6	20	G6	28	37	17	PB2	I/O	FT	PB2/BOOT1	-	-
H5	M7	-	-	-	38	-	PE7	I/O	FT	PE7	-	TIM1_ETR
J5	L7	-	-	-	39	-	PE8	I/O	FT	PE8	-	TIM1_CH1N
K5	M8	-	-	-	40	-	PE9	I/O	FT	PE9	-	TIM1_CH1
G6	L8	-	-	-	41	-	PE10	I/O	FT	PE10	-	TIM1_CH2N
H6	M9	-	-	-	42	-	PE11	I/O	FT	PE11	-	TIM1_CH2
J6	L9	-	-	-	43	-	PE12	I/O	FT	PE12	-	TIM1_CH3N
K6	M10	-	-	-	44	-	PE13	I/O	FT	PE13	-	TIM1_CH3
G7	M11	-	-	-	45	-	PE14	I/O	FT	PE14	-	TIM1_CH4
H7	M12	-	-	-	46	-	PE15	I/O	FT	PE15	-	TIM1_BKIN
J7	L10	21	G7	29	47	-	PB10	I/O	FT	PB10	I2C2_SCL/ USART3_TX(9)	TIM2_CH3
K7	L11	22	H7	30	48	-	PB11	I/O	FT	PB11	I2C2_SDA/ USART3_RX(9)	TIM2_CH4
E7	F12	23	D6	31	49	18	V_{SS_1}	S	-	V_{SS_1}	-	-
F7	G12	24	E6	32	50	19	V_{DD_1}	S	-	V_{DD_1}	-	-
K8	L12	25	H8	33	51	-	PB12	I/O	FT	PB12	SPI2_NSS/ I2C2_SMBAI/ USART3_CK(9)/ TIM1_BKIN(9)	-
J8	K12	26	G8	34	52	-	PB13	I/O	FT	PB13	SPI2_SCK/ USART3_CTS(9)/ TIM1_CH1N (9)	-
H8	K11	27	F8	35	53	-	PB14	I/O	FT	PB14	SPI2_MISO/ USART3_RTS(9) TIM1_CH2N (9)	-
G8	K10	28	F7	36	54	-	PB15	I/O	FT	PB15	SPI2_MOSI/ TIM1_CH3N(9)	-
K9	K9	-	-	-	55	-	PD8	I/O	FT	PD8	-	USART3_TX
J9	K8	-	-	-	56	-	PD9	I/O	FT	PD9	-	USART3_RX

Table 5. Medium-density STM32F103xx pin definitions (continued)

Pins							Pin name	Type(1)	I / O Level(2)	Main function(3) (after reset)	Alternate functions(4)	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
H9	J12	-	-	-	57	-	PD10	I/O	FT	PD10	-	USART3_CK
G9	J11	-	-	-	58	-	PD11	I/O	FT	PD11	-	USART3_CTS
K10	J10	-	-	-	59	-	PD12	I/O	FT	PD12	-	TIM4_CH1 / USART3_RTS
J10	H12	-	-	-	60	-	PD13	I/O	FT	PD13	-	TIM4_CH2
H10	H11	-	-	-	61	-	PD14	I/O	FT	PD14	-	TIM4_CH3
G10	H10	-	-	-	62	-	PD15	I/O	FT	PD15	-	TIM4_CH4
F10	E12	-	F6	37	63	-	PC6	I/O	FT	PC6	-	TIM3_CH1
E10	E11		E7	38	64	-	PC7	I/O	FT	PC7	-	TIM3_CH2
F9	E10		E8	39	65	-	PC8	I/O	FT	PC8	-	TIM3_CH3
E9	D12	-	D8	40	66	-	PC9	I/O	FT	PC9	-	TIM3_CH4
D9	D11	29	D7	41	67	20	PA8	I/O	FT	PA8	USART1_CK/ TIM1_CH1(9)/ MCO	-
C9	D10	30	C7	42	68	21	PA9	I/O	FT	PA9	USART1_TX(9)/ TIM1_CH2(9)	-
D10	C12	31	C6	43	69	22	PA10	I/O	FT	PA10	USART1_RX(9)/ TIM1_CH3(9)	-
C10	B12	32	C8	44	70	23	PA11	I/O	FT	PA11	USART1_CTS/ CANRX(9)/ USBDM/ TIM1_CH4(9)	-
B10	A12	33	B8	45	71	24	PA12	I/O	FT	PA12	USART1_RTS/ CANTX(9) /USBDP TIM1_ETR(9)	-
A10	A11	34	A8	46	72	25	PA13	I/O	FT	JTMS/SWDIO	-	PA13
F8	C11	-	-	-	73	-	Not connected					-
E6	F11	35	D5	47	74	26	V_{SS_2}	S	-	V_{SS_2}	-	-
F6	G11	36	E5	48	75	27	V_{DD_2}	S	-	V_{DD_2}	-	-

Table 5. Medium-density STM32F103xx pin definitions (continued)

Pins							Pin name	Type(1)	I / O Level(2)	Main function(3) (after reset)	Alternate functions(4)	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
A9	A10	37	A7	49	76	28	PA14	I/O	FT	JTCK/SWCLK	-	PA14
A8	A9	38	A6	50	77	29	PA15	I/O	FT	JTDI	-	TIM2_CH1_ ETR/ PA15 /SPI1_NSS
B9	B11	-	B7	51	78		PC10	I/O	FT	PC10	-	USART3_TX
B8	C10	-	B6	52	79		PC11	I/O	FT	PC11	-	USART3_RX
C8	B10	-	C5	53	80		PC12	I/O	FT	PC12	-	USART3_CK
-	C9	-	C1	-	81	2	PD0	I/O	FT	PD0	-	CANRX
-	B9	-	D1	-	82	3	PD1	I/O	FT	PD1	-	CANTX
B7	C8		B5	54	83	-	PD2	I/O	FT	PD2	TIM3_ETR	-
C7	B8	-	-	-	84	-	PD3	I/O	FT	PD3	-	USART2_CTS
D7	B7	-	-	-	85	-	PD4	I/O	FT	PD4	-	USART2_RTS
B6	A6	-	-	-	86	-	PD5	I/O	FT	PD5	-	USART2_TX
C6	B6	-	-	-	87	-	PD6	I/O	FT	PD6	-	USART2_RX
D6	A5	-	-	-	88	-	PD7	I/O	FT	PD7	-	USART2_CK
A7	A8	39	A5	55	89	30	PB3	I/O	FT	JTDO	-	TIM2_CH2 / PB3 TRACESWO SPI1_SCK
A6	A7	40	A4	56	90	31	PB4	I/O	FT	JNTRST	-	TIM3_CH1/ PB4/ SPI1_MISO
C5	C5	41	C4	57	91	32	PB5	I/O		PB5	I2C1_SMBAI	TIM3_CH2 / SPI1_MOSI
B5	B5	42	D3	58	92	33	PB6	I/O	FT	PB6	I2C1_SCL(9)/ TIM4_CH1(9)	USART1_TX
A5	B4	43	C3	59	93	34	PB7	I/O	FT	PB7	I2C1_SDA(9)/ TIM4_CH2(9)	USART1_RX
D5	A4	44	B4	60	94	35	BOOT0	I		BOOT0	-	-

Table 5. Medium-density STM32F103xx pin definitions (continued)

Pins							Pin name	Type[1]	I / O Level[2]	Main function[3] (after reset)	Alternate functions[4]	
LFBGA100	UFBG100	LQFP48/UFQFPN48	TFBGA64	LQFP64	LQFP100	VFQFPN36					Default	Remap
B4	A3	45	B3	61	95	-	PB8	I/O	FT	PB8	TIM4_CH3[9]	I2C1_SCL / CANRX
A4	B3	46	A3	62	96	-	PB9	I/O	FT	PB9	TIM4_CH4[9]	I2C1_SDA/ CANTX
D4	C3	-	-	-	97	-	PE0	I/O	FT	PE0	TIM4_ETR	-
C4	A2	-	-	-	98	-	PE1	I/O	FT	PE1	-	-
E5	D3	47	D4	63	99	36	V_{SS_3}	S	-	V_{SS_3}	-	-
F5	C4	48	E4	64	100	1	V_{DD_3}	S	-	V_{DD_3}	-	-

1. I = input, O = output, S = supply.
2. FT = 5 V tolerant.
3. Function availability depends on the chosen device. For devices having reduced peripheral counts, it is always the lower number of peripheral that is included. For example, if a device has only one SPI and two USARTs, they will be called SPI1 and USART1 & USART2, respectively. Refer to *Table 2 on page 10*.
4. If several peripherals share the same I/O pin, to avoid conflict between these alternate functions only one peripheral should be enabled at a time through the peripheral clock enable bit (in the corresponding RCC peripheral clock enable register).
5. PC13, PC14 and PC15 are supplied through the power switch. Since the switch only sinks a limited amount of current (3 mA), the use of GPIOs PC13 to PC15 in output mode is limited: the speed should not exceed 2 MHz with a maximum load of 30 pF and these IOs must not be used as a current source (e.g. to drive an LED).
6. Main function after the first backup domain power-up. Later on, it depends on the contents of the Backup registers even after reset (because these registers are not reset by the main reset). For details on how to manage these IOs, refer to the Battery backup domain and BKP register description sections in the STM32F10xxx reference manual, available from the STMicroelectronics website: *www.st.com*.
7. The pins number 2 and 3 in the VFQFPN36 package, 5 and 6 in the LQFP48, UFQFP48 and LQFP64 packages, and C1 and C2 in the TFBGA64 package are configured as OSC_IN/OSC_OUT after reset, however the functionality of PD0 and PD1 can be remapped by software on these pins. For the LQFP100 package, PD0 and PD1 are available by default, so there is no need for remapping. For more details, refer to the Alternate function I/O and debug configuration section in the STM32F10xxx reference manual.
   The use of PD0 and PD1 in output mode is limited as they can only be used at 50 MHz in output mode.
8. Unlike in the LQFP64 package, there is no PC3 in the TFBGA64 package. The V_{REF+} functionality is provided instead.
9. This alternate function can be remapped by software to some other port pins (if available on the used package). For more details, refer to the Alternate function I/O and debug configuration section in the STM32F10xxx reference manual, available from the STMicroelectronics website: *www.st.com*.