

Table 5. High-density STM32F103xx pin definitions

| Pins   |        |         |        |         |         | Pin name                       | Type <sup>(1)</sup> | I / O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions |       |
|--------|--------|---------|--------|---------|---------|--------------------------------|---------------------|----------------------------|---|---------------------|-------|
| BGA144 | BGA100 | WLCSP64 | LQFP64 | LQFP100 | LQFP144 |                                |                     |                            |   | Default             | Remap |
| A3     | A3     | -       | -      | 1       | 1       | PE2                            | I/O                 | FT                         | PE2   | TRACECK/ FSMC_A23   |       |
| A2     | B3     | -       | -      | 2       | 2       | PE3                            | I/O                 | FT                         | PE3   | TRACED0/FSMC_A19    |       |
| B2     | C3     | -       | -      | 3       | 3       | PE4                            | I/O                 | FT                         | PE4   | TRACED1/FSMC_A20    |       |
| B3     | D3     | -       | -      | 4       | 4       | PE5                            | I/O                 | FT                         | PE5   | TRACED2/FSMC_A21    |       |
| B4     | E3     | -       | -      | 5       | 5       | PE6                            | I/O                 | FT                         | PE6   | TRACED3/FSMC_A22    |       |
| C2     | B2     | C6      | 1      | 6       | 6       | V <sub>BAT</sub>               | S                   |                            | V <sub>BAT</sub>                              |                     |       |
| A1     | A2     | C8      | 2      | 7       | 7       | PC13-TAMPER-RTC <sup>(4)</sup> | I/O                 |                            | PC13 <sup>(5)</sup>                           | TAMPER-RTC          |       |
| B1     | A1     | B8      | 3      | 8       | 8       | PC14-OSC32_IN <sup>(4)</sup>   | I/O                 |                            | PC14 <sup>(5)</sup>                           | OSC32_IN            |       |
| C1     | B1     | B7      | 4      | 9       | 9       | PC15-OSC32_OUT <sup>(4)</sup>  | I/O                 |                            | PC15 <sup>(5)</sup>                           | OSC32_OUT           |       |
| C3     | -      | -       | -      | -       | 10      | PF0                            | I/O                 | FT                         | PF0   | FSMC_A0             |       |
| C4     | -      | -       | -      | -       | 11      | PF1                            | I/O                 | FT                         | PF1   | FSMC_A1             |       |
| D4     | -      | -       | -      | -       | 12      | PF2                            | I/O                 | FT                         | PF2   | FSMC_A2             |       |
| E2     | -      | -       | -      | -       | 13      | PF3                            | I/O                 | FT                         | PF3   | FSMC_A3             |       |
| E3     | -      | -       | -      | -       | 14      | PF4                            | I/O                 | FT                         | PF4   | FSMC_A4             |       |
| E4     | -      | -       | -      | -       | 15      | PF5                            | I/O                 | FT                         | PF5   | FSMC_A5             |       |
| D2     | C2     | -       | -      | 10      | 16      | V <sub>SS_5</sub>              | S                   |                            | V <sub>SS_5</sub>                             |                     |       |
| D3     | D2     | -       | -      | 11      | 17      | V <sub>DD_5</sub>              | S                   |                            | V <sub>DD_5</sub>                             |                     |       |
| F3     | -      | -       | -      | -       | 18      | PF6                            | I/O                 |                            | PF6   | ADC3_IN4/FSMC_NIORD |       |
| F2     | -      | -       | -      | -       | 19      | PF7                            | I/O                 |                            | PF7   | ADC3_IN5/FSMC_NREG  |       |
| G3     | -      | -       | -      | -       | 20      | PF8                            | I/O                 |                            | PF8   | ADC3_IN6/FSMC_NIOWR |       |
| G2     | -      | -       | -      | -       | 21      | PF9                            | I/O                 |                            | PF9   | ADC3_IN7/FSMC_CD    |       |
| G1     | -      | -       | -      | -       | 22      | PF10                           | I/O                 |                            | PF10  | ADC3_IN8/FSMC_INTR  |       |
| D1     | C1     | D8      | 5      | 12      | 23      | OSC_IN                         | I                   |                            | OSC_IN  |                     |       |
| E1     | D1     | D7      | 6      | 13      | 24      | OSC_OUT                        | O                   |                            | OSC_OUT                                       |                     |       |
| F1     | E1     | C7      | 7      | 14      | 25      | NRST                           | I/O                 |                            | NRST  |                     |       |
| H1     | F1     | E8      | 8      | 15      | 26      | PC0                            | I/O                 |                            | PC0   | ADC123_IN10         |       |
| H2     | F2     | F8      | 9      | 16      | 27      | PC1                            | I/O                 |                            | PC1   | ADC123_IN11         |       |
| H3     | E2     | D6      | 10     | 17      | 28      | PC2                            | I/O                 |                            | PC2   | ADC123_IN12         |       |
| H4     | F3     | -       | 11     | 18      | 29      | PC3                            | I/O                 |                            | PC3   | ADC123_IN13         |       |
| J1     | G1     | E7      | 12     | 19      | 30      | V <sub>SSA</sub>               | S                   |                            | V <sub>SSA</sub>                              |                     |       |

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

| Pins   |        |                   |        |         |         | Pin name          | Type <sup>(1)</sup> | I/O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions   |           |
|--------|--------|-------------------|--------|---------|---------|-------------------|---------------------|--------------------------|---|---|-----------|
| BGA144 | BGA100 | WLCSP64           | LQFP64 | LQFP100 | LQFP144 |                   |                     |                          |   | Default   | Remap     |
| K1     | H1     | -                 | -      | 20      | 31      | V <sub>REF-</sub> | S                   |                          | V <sub>REF-</sub>                             |   |           |
| L1     | J1     | F7 <sup>(6)</sup> | -      | 21      | 32      | V <sub>REF+</sub> | S                   |                          | V <sub>REF+</sub>                             |   |           |
| M1     | K1     | G8                | 13     | 22      | 33      | V <sub>DDA</sub>  | S                   |                          | V <sub>DDA</sub>                              |   |           |
| J2     | G2     | F6                | 14     | 23      | 34      | PA0-WKUP          | I/O                 |                          | PA0   | WKUP/USART2_CTS <sup>(7)</sup><br>ADC123_IN0<br>TIM2_CH1_ETR<br>TIM5_CH1/TIM8_ETR |           |
| K2     | H2     | E6                | 15     | 24      | 35      | PA1               | I/O                 |                          | PA1   | USART2_RTS <sup>(7)</sup><br>ADC123_IN1/<br>TIM5_CH2/TIM2_CH2 <sup>(7)</sup>      |           |
| L2     | J2     | H8                | 16     | 25      | 36      | PA2               | I/O                 |                          | PA2   | USART2_TX <sup>(7)</sup> /TIM5_CH3<br>ADC123_IN2/<br>TIM2_CH3 <sup>(7)</sup>      |           |
| M2     | K2     | G7                | 17     | 26      | 37      | PA3               | I/O                 |                          | PA3   | USART2_RX <sup>(7)</sup> /TIM5_CH4<br>ADC123_IN3/TIM2_CH4 <sup>(7)</sup>          |           |
| G4     | E4     | F5                | 18     | 27      | 38      | V <sub>SS_4</sub> | S                   |                          | V <sub>SS_4</sub>                             |   |           |
| F4     | F4     | G6                | 19     | 28      | 39      | V <sub>DD_4</sub> | S                   |                          | V <sub>DD_4</sub>                             |   |           |
| J3     | G3     | H7                | 20     | 29      | 40      | PA4               | I/O                 |                          | PA4   | SPI1_NSS <sup>(7)</sup> /<br>USART2_CK <sup>(7)</sup><br>DAC_OUT1/ADC12_IN4       |           |
| K3     | H3     | E5                | 21     | 30      | 41      | PA5               | I/O                 |                          | PA5   | SPI1_SCK <sup>(7)</sup><br>DAC_OUT2 ADC12_IN5                                     |           |
| L3     | J3     | G5                | 22     | 31      | 42      | PA6               | I/O                 |                          | PA6   | SPI1_MISO <sup>(7)</sup><br>TIM8_BKIN/ADC12_IN6<br>TIM3_CH1 <sup>(7)</sup>        | TIM1_BKIN |
| M3     | K3     | G4                | 23     | 32      | 43      | PA7               | I/O                 |                          | PA7   | SPI1_MOSI <sup>(7)</sup> /<br>TIM8_CH1N/ADC12_IN7<br>TIM3_CH2 <sup>(7)</sup>      | TIM1_CH1N |
| J4     | G4     | H6                | 24     | 33      | 44      | PC4               | I/O                 |                          | PC4   | ADC12_IN14  |           |
| K4     | H4     | H5                | 25     | 34      | 45      | PC5               | I/O                 |                          | PC5   | ADC12_IN15  |           |
| L4     | J4     | H4                | 26     | 35      | 46      | PB0               | I/O                 |                          | PB0   | ADC12_IN8/TIM3_CH3<br>TIM8_CH2N   | TIM1_CH2N |
| M4     | K4     | F4                | 27     | 36      | 47      | PB1               | I/O                 |                          | PB1   | ADC12_IN9/TIM3_CH4 <sup>(7)</sup><br>TIM8_CH3N                                    | TIM1_CH3N |
| J5     | G5     | H3                | 28     | 37      | 48      | PB2               | I/O                 | FT                       | PB2/BOOT1                                     |   |           |
| M5     | -      | -                 | -      | -       | 49      | PF11              | I/O                 | FT                       | PF11  | FSMC_NIOS16   |           |
| L5     | -      | -                 | -      | -       | 50      | PF12              | I/O                 | FT                       | PF12  | FSMC_A6   |           |
| H5     | -      | -                 | -      | -       | 51      | V <sub>SS_6</sub> | S                   |                          | V <sub>SS_6</sub>                             |   |           |

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

| Pins   |        |         |        |         |         | Pin name          | Type <sup>(1)</sup> | I/O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions   |           |
|--------|--------|---------|--------|---------|---------|-------------------|---------------------|--------------------------|---|---|-----------|
| BGA144 | BGA100 | WLCSP64 | LQFP64 | LQFP100 | LQFP144 |                   |                     |                          |   | Default   | Remap     |
| G5     | -      | -       | -      | -       | 52      | V <sub>DD_6</sub> | S                   |                          | V <sub>DD_6</sub>                             |   |           |
| K5     | -      | -       | -      | -       | 53      | PF13              | I/O                 | FT                       | PF13  | FSMC_A7   |           |
| M6     | -      | -       | -      | -       | 54      | PF14              | I/O                 | FT                       | PF14  | FSMC_A8   |           |
| L6     | -      | -       | -      | -       | 55      | PF15              | I/O                 | FT                       | PF15  | FSMC_A9   |           |
| K6     | -      | -       | -      | -       | 56      | PG0               | I/O                 | FT                       | PG0   | FSMC_A10  |           |
| J6     | -      | -       | -      | -       | 57      | PG1               | I/O                 | FT                       | PG1   | FSMC_A11  |           |
| M7     | H5     | -       | -      | 38      | 58      | PE7               | I/O                 | FT                       | PE7   | FSMC_D4   | TIM1_ETR  |
| L7     | J5     | -       | -      | 39      | 59      | PE8               | I/O                 | FT                       | PE8   | FSMC_D5   | TIM1_CH1N |
| K7     | K5     | -       | -      | 40      | 60      | PE9               | I/O                 | FT                       | PE9   | FSMC_D6   | TIM1_CH1  |
| H6     | -      | -       | -      | -       | 61      | V <sub>SS_7</sub> | S                   |                          | V <sub>SS_7</sub>                             |   |           |
| G6     | -      | -       | -      | -       | 62      | V <sub>DD_7</sub> | S                   |                          | V <sub>DD_7</sub>                             |   |           |
| J7     | G6     | -       | -      | 41      | 63      | PE10              | I/O                 | FT                       | PE10  | FSMC_D7   | TIM1_CH2N |
| H8     | H6     | -       | -      | 42      | 64      | PE11              | I/O                 | FT                       | PE11  | FSMC_D8   | TIM1_CH2  |
| J8     | J6     | -       | -      | 43      | 65      | PE12              | I/O                 | FT                       | PE12  | FSMC_D9   | TIM1_CH3N |
| K8     | K6     | -       | -      | 44      | 66      | PE13              | I/O                 | FT                       | PE13  | FSMC_D10  | TIM1_CH3  |
| L8     | G7     | -       | -      | 45      | 67      | PE14              | I/O                 | FT                       | PE14  | FSMC_D11  | TIM1_CH4  |
| M8     | H7     | -       | -      | 46      | 68      | PE15              | I/O                 | FT                       | PE15  | FSMC_D12  | TIM1_BKIN |
| M9     | J7     | G3      | 29     | 47      | 69      | PB10              | I/O                 | FT                       | PB10  | I2C2_SCL/USART3_TX <sup>(7)</sup>   | TIM2_CH3  |
| M10    | K7     | F3      | 30     | 48      | 70      | PB11              | I/O                 | FT                       | PB11  | I2C2_SDA/USART3_RX <sup>(7)</sup>   | TIM2_CH4  |
| H7     | E7     | H2      | 31     | 49      | 71      | V <sub>SS_1</sub> | S                   |                          | V <sub>SS_1</sub>                             |   |           |
| G7     | F7     | H1      | 32     | 50      | 72      | V <sub>DD_1</sub> | S                   |                          | V <sub>DD_1</sub>                             |   |           |
| M11    | K8     | G2      | 33     | 51      | 73      | PB12              | I/O                 | FT                       | PB12  | SPI2_NSS/I2S2_WS/<br>I2C2_SMBA/<br>USART3_CK <sup>(7)</sup> /<br>TIM1_BKIN <sup>(7)</sup> |           |
| M12    | J8     | G1      | 34     | 52      | 74      | PB13              | I/O                 | FT                       | PB13  | SPI2_SCK/I2S2_CK<br>USART3_CTS <sup>(7)</sup> /<br>TIM1_CH1N                              |           |
| L11    | H8     | F2      | 35     | 53      | 75      | PB14              | I/O                 | FT                       | PB14  | SPI2_MISO/TIM1_CH2N<br>USART3_RTS <sup>(7)</sup>  |           |
| L12    | G8     | F1      | 36     | 54      | 76      | PB15              | I/O                 | FT                       | PB15  | SPI2_MOSI/I2S2_SD<br>TIM1_CH3N <sup>(7)</sup>   |           |
| L9     | K9     | -       | -      | 55      | 77      | PD8               | I/O                 | FT                       | PD8   | FSMC_D13  | USART3_TX |
| K9     | J9     | -       | -      | 56      | 78      | PD9               | I/O                 | FT                       | PD9   | FSMC_D14  | USART3_RX |
| J9     | H9     | -       | -      | 57      | 79      | PD10              | I/O                 | FT                       | PD10  | FSMC_D15  | USART3_CK |

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

| Pins   |        |         |        |         |         | Pin name          | Type <sup>(1)</sup> | I/O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions   |                          |
|--------|--------|---------|--------|---------|---------|-------------------|---------------------|--------------------------|---|---|--------------------------|
| BGA144 | BGA100 | WLCSP64 | LQFP64 | LQFP100 | LQFP144 |                   |                     |                          |   | Default   | Remap                    |
| H9     | G9     | -       | -      | 58      | 80      | PD11              | I/O                 | FT                       | PD11  | FSMC_A16  | USART3_CTS               |
| L10    | K10    | -       | -      | 59      | 81      | PD12              | I/O                 | FT                       | PD12  | FSMC_A17  | TIM4_CH1 /<br>USART3_RTS |
| K10    | J10    | -       | -      | 60      | 82      | PD13              | I/O                 | FT                       | PD13  | FSMC_A18  | TIM4_CH2                 |
| G8     | -      | -       | -      | -       | 83      | V <sub>SS_8</sub> | S                   |                          | V <sub>SS_8</sub>                             |   |                          |
| F8     | -      | -       | -      | -       | 84      | V <sub>DD_8</sub> | S                   |                          | V <sub>DD_8</sub>                             |   |                          |
| K11    | H10    | -       | -      | 61      | 85      | PD14              | I/O                 | FT                       | PD14  | FSMC_D0   | TIM4_CH3                 |
| K12    | G10    | -       | -      | 62      | 86      | PD15              | I/O                 | FT                       | PD15  | FSMC_D1   | TIM4_CH4                 |
| J12    | -      | -       | -      | -       | 87      | PG2               | I/O                 | FT                       | PG2   | FSMC_A12  |                          |
| J11    | -      | -       | -      | -       | 88      | PG3               | I/O                 | FT                       | PG3   | FSMC_A13  |                          |
| J10    | -      | -       | -      | -       | 89      | PG4               | I/O                 | FT                       | PG4   | FSMC_A14  |                          |
| H12    | -      | -       | -      | -       | 90      | PG5               | I/O                 | FT                       | PG5   | FSMC_A15  |                          |
| H11    | -      | -       | -      | -       | 91      | PG6               | I/O                 | FT                       | PG6   | FSMC_INT2   |                          |
| H10    | -      | -       | -      | -       | 92      | PG7               | I/O                 | FT                       | PG7   | FSMC_INT3   |                          |
| G11    | -      | -       | -      | -       | 93      | PG8               | I/O                 | FT                       | PG8   |   |                          |
| G10    | -      | -       | -      | -       | 94      | V <sub>SS_9</sub> | S                   |                          | V <sub>SS_9</sub>                             |   |                          |
| F10    | -      | -       | -      | -       | 95      | V <sub>DD_9</sub> | S                   |                          | V <sub>DD_9</sub>                             |   |                          |
| G12    | F10    | E1      | 37     | 63      | 96      | PC6               | I/O                 | FT                       | PC6   | I2S2_MCK/<br>TIM8_CH1/SDIO_D6                                       | TIM3_CH1                 |
| F12    | E10    | E2      | 38     | 64      | 97      | PC7               | I/O                 | FT                       | PC7   | I2S3_MCK/<br>TIM8_CH2/SDIO_D7                                       | TIM3_CH2                 |
| F11    | F9     | E3      | 39     | 65      | 98      | PC8               | I/O                 | FT                       | PC8   | TIM8_CH3/SDIO_D0  | TIM3_CH3                 |
| E11    | E9     | D1      | 40     | 66      | 99      | PC9               | I/O                 | FT                       | PC9   | TIM8_CH4/SDIO_D1  | TIM3_CH4                 |
| E12    | D9     | E4      | 41     | 67      | 100     | PA8               | I/O                 | FT                       | PA8   | USART1_CK/<br>TIM1_CH1 <sup>(7)</sup> /MCO                          |                          |
| D12    | C9     | D2      | 42     | 68      | 101     | PA9               | I/O                 | FT                       | PA9   | USART1_TX <sup>(7)</sup> /<br>TIM1_CH2 <sup>(7)</sup>               |                          |
| D11    | D10    | D3      | 43     | 69      | 102     | PA10              | I/O                 | FT                       | PA10  | USART1_RX <sup>(7)</sup> /<br>TIM1_CH3 <sup>(7)</sup>               |                          |
| C12    | C10    | C1      | 44     | 70      | 103     | PA11              | I/O                 | FT                       | PA11  | USART1_CTS/USBDM<br>CAN_RX <sup>(7)</sup> /TIM1_CH4 <sup>(7)</sup>  |                          |
| B12    | B10    | C2      | 45     | 71      | 104     | PA12              | I/O                 | FT                       | PA12  | USART1_RTS/USBDM/<br>CAN_TX <sup>(7)</sup> /TIM1_ETR <sup>(7)</sup> |                          |
| A12    | A10    | D4      | 46     | 72      | 105     | PA13              | I/O                 | FT                       | JTMS-<br>SWDIO                                |   | PA13                     |

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

| Pins   |        |         |        |         |         | Pin name           | Type <sup>(1)</sup> | I / O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions           |  |
|--------|--------|---------|--------|---------|---------|--------------------|---------------------|----------------------------|---|-------------------------------|--|
| BGA144 | BGA100 | WLCSP64 | LQFP64 | LQFP100 | LQFP144 |                    |                     |                            |   | Default                       | Remap                                  |
| C11    | F8     | -       | -      | 73      | 106     | Not connected      |                     |                            |   |                               |  |
| G9     | E6     | B1      | 47     | 74      | 107     | V <sub>SS_2</sub>  | S                   |                            | V <sub>SS_2</sub>                             |                               |  |
| F9     | F6     | A1      | 48     | 75      | 108     | V <sub>DD_2</sub>  | S                   |                            | V <sub>DD_2</sub>                             |                               |  |
| A11    | A9     | B2      | 49     | 76      | 109     | PA14               | I/O                 | FT                         | JTCK-SWCLK                                    |                               | PA14                                   |
| A10    | A8     | C3      | 50     | 77      | 110     | PA15               | I/O                 | FT                         | JTDI  | SPI3_NSS/<br>I2S3_WS          | TIM2_CH1_ETR<br>PA15 / SPI1_NSS        |
| B11    | B9     | A2      | 51     | 78      | 111     | PC10               | I/O                 | FT                         | PC10  | UART4_TX/SDIO_D2              | USART3_TX                              |
| B10    | B8     | B3      | 52     | 79      | 112     | PC11               | I/O                 | FT                         | PC11  | UART4_RX/SDIO_D3              | USART3_RX                              |
| C10    | C8     | C4      | 53     | 80      | 113     | PC12               | I/O                 | FT                         | PC12  | UART5_TX/SDIO_CK              | USART3_CK                              |
| E10    | D8     | D8      | 5      | 81      | 114     | PD0                | I/O                 | FT                         | OSC_IN <sup>(8)</sup>                         | FSMC_D2 <sup>(9)</sup>        | CAN_RX                                 |
| D10    | E8     | D7      | 6      | 82      | 115     | PD1                | I/O                 | FT                         | OSC_OUT <sup>(8)</sup>                        | FSMC_D3 <sup>(9)</sup>        | CAN_TX                                 |
| E9     | B7     | A3      | 54     | 83      | 116     | PD2                | I/O                 | FT                         | PD2   | TIM3_ETR/UART5_RX<br>SDIO_CMD |  |
| D9     | C7     | -       | -      | 84      | 117     | PD3                | I/O                 | FT                         | PD3   | FSMC_CLK                      | USART2_CTS                             |
| C9     | D7     | -       | -      | 85      | 118     | PD4                | I/O                 | FT                         | PD4   | FSMC_NOE                      | USART2_RTS                             |
| B9     | B6     | -       | -      | 86      | 119     | PD5                | I/O                 | FT                         | PD5   | FSMC_NWE                      | USART2_TX                              |
| E7     | -      | -       | -      | -       | 120     | V <sub>SS_10</sub> | S                   |                            | V <sub>SS_10</sub>                            |                               |  |
| F7     | -      | -       | -      | -       | 121     | V <sub>DD_10</sub> | S                   |                            | V <sub>DD_10</sub>                            |                               |  |
| A8     | C6     | -       | -      | 87      | 122     | PD6                | I/O                 | FT                         | PD6   | FSMC_NWAIT                    | USART2_RX                              |
| A9     | D6     | -       | -      | 88      | 123     | PD7                | I/O                 | FT                         | PD7   | FSMC_NE1/FSMC_NCE2            | USART2_CK                              |
| E8     | -      | -       | -      | -       | 124     | PG9                | I/O                 | FT                         | PG9   | FSMC_NE2/FSMC_NCE3            |  |
| D8     | -      | -       | -      | -       | 125     | PG10               | I/O                 | FT                         | PG10  | FSMC_NCE4_1/<br>FSMC_NE3      |  |
| C8     | -      | -       | -      | -       | 126     | PG11               | I/O                 | FT                         | PG11  | FSMC_NCE4_2                   |  |
| B8     | -      | -       | -      | -       | 127     | PG12               | I/O                 | FT                         | PG12  | FSMC_NE4                      |  |
| D7     | -      | -       | -      | -       | 128     | PG13               | I/O                 | FT                         | PG13  | FSMC_A24                      |  |
| C7     | -      | -       | -      | -       | 129     | PG14               | I/O                 | FT                         | PG14  | FSMC_A25                      |  |
| E6     | -      | -       | -      | -       | 130     | V <sub>SS_11</sub> | S                   |                            | V <sub>SS_11</sub>                            |                               |  |
| F6     | -      | -       | -      | -       | 131     | V <sub>DD_11</sub> | S                   |                            | V <sub>DD_11</sub>                            |                               |  |
| B7     | -      | -       | -      | -       | 132     | PG15               | I/O                 | FT                         | PG15  |                               |  |
| A7     | A7     | A4      | 55     | 89      | 133     | PB3/               | I/O                 | FT                         | JTDO  | SPI3_SCK / I2S3_CK/           | PB3/TRACESWO<br>TIM2_CH2 /<br>SPI1_SCK |

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

| Pins   |        |         |        |         |         | Pin name          | Type <sup>(1)</sup> | I/O Level <sup>(2)</sup> | Main function <sup>(3)</sup><br>(after reset) | Alternate functions   |                             |
|--------|--------|---------|--------|---------|---------|-------------------|---------------------|--------------------------|---|---|-----------------------------|
| BGA144 | BGA100 | WLCSP64 | LQFP64 | LQFP100 | LQFP144 |                   |                     |                          |   | Default   | Remap                       |
| A6     | A6     | B4      | 56     | 90      | 134     | PB4               | I/O                 | FT                       | NJTRST  | SPI3_MISO   | PB4 / TIM3_CH1<br>SPI1_MISO |
| B6     | C5     | A5      | 57     | 91      | 135     | PB5               | I/O                 |                          | PB5   | I2C1_SMBA/ SPI3_MOSI<br>I2S3_SD                                     | TIM3_CH2 /<br>SPI1_MOSI     |
| C6     | B5     | B5      | 58     | 92      | 136     | PB6               | I/O                 | FT                       | PB6   | I2C1_SCL <sup>(7)</sup> / TIM4_CH1 <sup>(7)</sup>                   | USART1_TX                   |
| D6     | A5     | C5      | 59     | 93      | 137     | PB7               | I/O                 | FT                       | PB7   | I2C1_SDA <sup>(7)</sup> /<br>FSMC_NADV /<br>TIM4_CH2 <sup>(7)</sup> | USART1_RX                   |
| D5     | D5     | A6      | 60     | 94      | 138     | BOOT0             | I                   |                          | BOOT0   |   |                             |
| C5     | B4     | D5      | 61     | 95      | 139     | PB8               | I/O                 | FT                       | PB8   | TIM4_CH3 <sup>(7)</sup> /SDIO_D4                                    | I2C1_SCL/<br>CAN_RX         |
| B5     | A4     | B6      | 62     | 96      | 140     | PB9               | I/O                 | FT                       | PB9   | TIM4_CH4 <sup>(7)</sup> /SDIO_D5                                    | I2C1_SDA /<br>CAN_TX        |
| A5     | D4     | -       | -      | 97      | 141     | PE0               | I/O                 | FT                       | PE0   | TIM4_ETR / FSMC_NBL0  |                             |
| A4     | C4     | -       | -      | 98      | 142     | PE1               | I/O                 | FT                       | PE1   | FSMC_NBL1   |                             |
| E5     | E5     | A7      | 63     | 99      | 143     | V <sub>SS_3</sub> | S                   |                          | V <sub>SS_3</sub>                             |   |                             |
| F5     | F5     | A8      | 64     | 100     | 144     | V <sub>DD_3</sub> | S                   |                          | V <sub>DD_3</sub>                             |   |                             |

1. I = input, O = output, S = supply, HiZ = high impedance.

2. FT = 5 V tolerant.

3. Function availability depends on the chosen device.

4. PC13, PC14 and PC15 are supplied through the power switch and since the switch only sinks a limited amount of current (3 mA), the use of GPIOs PC13 to PC15 is restricted: only one I/O at a time can be used as an output, the speed has to be limited to 2 MHz with a maximum load of 30 pF and these I/Os must not be used as a current source (e.g. to drive an LED).

5. 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 I/Os, refer to the Battery backup domain and BKP register description sections in the STM32F10xxx reference manual, available from the STMicroelectronics website: [www.st.com](http://www.st.com).

6. Unlike in the LQFP64 package, there is no PC3 in the WLCSP package. The V<sub>REF+</sub> functionality is provided instead.

7. 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](http://www.st.com).

8. For the LQFP64 package, the pins number 5 and 6 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/BGA100 and LQFP144/BGA144 packages, PD0 and PD1 are available by default, so there is no need for remapping. For more details, refer to Alternate function I/O and debug configuration section in the STM32F10xxx reference manual.

9. For devices delivered in LQFP64 packages, the FSMC function is not available.

Table 6. FSMC pin definition

| Pins | FSMC   |        |                    |               |             | LQFP100<br>BGA100 <sup>(1)</sup> |
|------|--------|--------|--------------------|---------------|-------------|----------------------------------|
|      | CF     | CF/IDE | NOR/PSRAM/<br>SRAM | NOR/PSRAM Mux | NAND 16 bit |                                  |
| PE2  |        |        | A23                | A23           |             | Yes                              |
| PE3  |        |        | A19                | A19           |             | Yes                              |
| PE4  |        |        | A20                | A20           |             | Yes                              |
| PE5  |        |        | A21                | A21           |             | Yes                              |
| PE6  |        |        | A22                | A22           |             | Yes                              |
| PF0  | A0     | A0     | A0                 |               |             | -                                |
| PF1  | A1     | A1     | A1                 |               |             | -                                |
| PF2  | A2     | A2     | A2                 |               |             | -                                |
| PF3  | A3     |        | A3                 |               |             | -                                |
| PF4  | A4     |        | A4                 |               |             | -                                |
| PF5  | A5     |        | A5                 |               |             | -                                |
| PF6  | NIORD  | NIORD  |                    |               |             | -                                |
| PF7  | NREG   | NREG   |                    |               |             | -                                |
| PF8  | NIOWR  | NIOWR  |                    |               |             | -                                |
| PF9  | CD     | CD     |                    |               |             | -                                |
| PF10 | INTR   | INTR   |                    |               |             | -                                |
| PF11 | NIOS16 | NIOS16 |                    |               |             | -                                |
| PF12 | A6     |        | A6                 |               |             | -                                |
| PF13 | A7     |        | A7                 |               |             | -                                |
| PF14 | A8     |        | A8                 |               |             | -                                |
| PF15 | A9     |        | A9                 |               |             | -                                |
| PG0  | A10    |        | A10                |               |             | -                                |
| PG1  |        |        | A11                |               |             | -                                |
| PE7  | D4     | D4     | D4                 | DA4           | D4          | Yes                              |
| PE8  | D5     | D5     | D5                 | DA5           | D5          | Yes                              |
| PE9  | D6     | D6     | D6                 | DA6           | D6          | Yes                              |
| PE10 | D7     | D7     | D7                 | DA7           | D7          | Yes                              |
| PE11 | D8     | D8     | D8                 | DA8           | D8          | Yes                              |
| PE12 | D9     | D9     | D9                 | DA9           | D9          | Yes                              |
| PE13 | D10    | D10    | D10                | DA10          | D10         | Yes                              |
| PE14 | D11    | D11    | D11                | DA11          | D11         | Yes                              |
| PE15 | D12    | D12    | D12                | DA12          | D12         | Yes                              |
| PD8  | D13    | D13    | D13                | DA13          | D13         | Yes                              |

Table 6. FSMC pin definition (continued)

| Pins | FSMC   |        |                    |               |             | LQFP100<br>BGA100 <sup>(1)</sup> |
|------|--------|--------|--------------------|---------------|-------------|----------------------------------|
|      | CF     | CF/IDE | NOR/PSRAM/<br>SRAM | NOR/PSRAM Mux | NAND 16 bit |                                  |
| PD9  | D14    | D14    | D14                | DA14          | D14         | Yes                              |
| PD10 | D15    | D15    | D15                | DA15          | D15         | Yes                              |
| PD11 |        |        | A16                | A16           | CLE         | Yes                              |
| PD12 |        |        | A17                | A17           | ALE         | Yes                              |
| PD13 |        |        | A18                | A18           |             | Yes                              |
| PD14 | D0     | D0     | D0                 | DA0           | D0          | Yes                              |
| PD15 | D1     | D1     | D1                 | DA1           | D1          | Yes                              |
| PG2  |        |        | A12                |               |             | -                                |
| PG3  |        |        | A13                |               |             | -                                |
| PG4  |        |        | A14                |               |             | -                                |
| PG5  |        |        | A15                |               |             | -                                |
| PG6  |        |        |                    |               | INT2        | -                                |
| PG7  |        |        |                    |               | INT3        | -                                |
| PD0  | D2     | D2     | D2                 | DA2           | D2          | Yes                              |
| PD1  | D3     | D3     | D3                 | DA3           | D3          | Yes                              |
| PD3  |        |        | CLK                | CLK           |             | Yes                              |
| PD4  | NOE    | NOE    | NOE                | NOE           | NOE         | Yes                              |
| PD5  | NWE    | NWE    | NWE                | NWE           | NWE         | Yes                              |
| PD6  | NWAIT  | NWAIT  | NWAIT              | NWAIT         | NWAIT       | Yes                              |
| PD7  |        |        | NE1                | NE1           | NCE2        | Yes                              |
| PG9  |        |        | NE2                | NE2           | NCE3        | -                                |
| PG10 | NCE4_1 | NCE4_1 | NE3                | NE3           |             | -                                |
| PG11 | NCE4_2 | NCE4_2 |                    |               |             | -                                |
| PG12 |        |        | NE4                | NE4           |             | -                                |
| PG13 |        |        | A24                | A24           |             | -                                |
| PG14 |        |        | A25                | A25           |             | -                                |
| PB7  |        |        | NADV               | NADV          |             | Yes                              |
| PE0  |        |        | NBL0               | NBL0          |             | Yes                              |
| PE1  |        |        | NBL1               | NBL1          |             | Yes                              |

1. Ports F and G are not available in devices delivered in 100-pin packages.



## 4

The memory map is shown in *Figure 9*.

**Figure 9. Memory map**

