Migrating from STM32WB10/30 to STM32WB15/35 microcontrollers

Introduction

For designers of STM32 microcontroller applications, the ability to smoothly replace one microcontroller with another from the same product family is an important asset. Migrating an application to a different microcontroller is often a must when product requirements grow. This puts extra demand on memory size, or needs an increase of the number of I/Os. Cost reduction is another motivation to switch to smaller components, and shrink the PCB area.

This document analyzes the key steps required for migrating between STM32WB10/15/30/35 microcontrollers, namely hardware, peripheral availability, firmware, security, and tools. For a full understanding, the end user must be familiar with STM32WB series microcontrollers (see the documents in Table 2).

Table 1. Applicable products

Type	Part numbers
Microcontrollers	STM32WB10CC, STM32WB15CC, STM32WB30CE, STM32WB35CC, STM32WB35CE, STM32WB35CZ

1 General information

This document applies to STM32WB10/15/30/35 microcontrollers, based on Arm® Cortex® cores.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

arm

Table 2. Reference documents and tools

Reference	Document ID	Title
R1	RM0434	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® Low Energy and 802.15.4 radio solution(1)
R2	DS11929	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 and 802.15.4 radio solution(1)
R3	-	STM32CubeMX: video(1)
R4	AN5185	ST firmware upgrade services for STM32WB Series(1)
R5	AN5105	Getting started with touch sensing control on STM32 microcontrollers(1)
R6	RM0473	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 radio solution(1)
R7	RM0478	Multiprotocol wireless 32-bit MCUArm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 radio solution(1)
R8	RM0471	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® Low Energy or 802.15.4 radio solution(1)
R9	DS13258	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 radio solution(1)
R10	DS13259	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 radio solution(1)
R11	DS13047	Multiprotocol wireless 32-bit MCU Arm®-based Cortex®-M4 with FPU, Bluetooth® 5.2 or 802.15.4 radio solution(1)
R12	ES0394	STM32WB55xx/STM32WB35Cx device errata(1)
R13	ES0492	STM32WB50CG/30CE device errata(1)
R14	ES0556	STM32WB10CC device errata(1)
R15	ES0557	STM32WB15CC device errata(1)

1. *Available at www.st.com.*

2 Hardware migration

This section presents a summary of the main hardware differences.

2.1 Package overview

Table 3 details the available packages.

Table 3. Package information

Package[1]	Number of pins	STM32WB15	STM32WB35	STM32WB10	STM32WB30	Part numbers
UFQFPN48[2]	48	X	X	X	X	STM32WB15CCU STM32WB35CxU STM32WB10CCU STM32WB30CEU
UFQFPN48 with extended IOs option	48	X	-	-	-	STM32WB15CCUxE
WLCSP49	49	X	-	-	-	STM32WB15CCY

1. *"X" = available, "-" = device is not produced with this package.*
2. *On UFQFPN48 packages of ST32WB3x, there is excessive current on VDDA or VDD when V_{DD} is different from V_{DDA}. The limitation is detailed in R12and R13.*

2.2 RF performance

The STM32WB30/35 microcontrollers embed a powerful and ultra-low power radio compliant with Bluetooth® Low Energy stack and with IEEE 802.15.4- 2011. The STM32WB10/15 microcontrollers embed a powerful and ultra-low power radio compliant with Bluetooth® Low Energy stack.

Table 4. Bluetooth Low Energy on-air data rate

Bluetooth Low Energy on-air data rate	STM32WB15	STM32WB35	STM32WB10	STM32WB30
2 Mbit/s	X	X	-	-
1 Mbit/s	X	X	X	X

Note: For more details regarding RF electrical characteristics refer to the datasheets.

2.3 Pinout differences

The STM32WB10/15/30/35 microcontrollers have different packages, therefore migration requires a particular attention regarding GPIOs and their associated alternate functions. The pin-to-pin compatible devices are listed below (for other packages refer to the datasheets).

- STM32WB35 in UFQFPN48 package is pin-to-pin compatible with STM32WB15 in UFQFPN48 package.
- STM32WB30 in UFQFPN48 package is pin-to-pin compatible with STM32WB10 in UFQFPN48 package.

2.4 Clock tree

The STM32WB35 and STM32WB15 clock trees are shown, respectively, in Figure 1 and Figure 2. The 802.15.4, the AHB3, the PLLSAI1, the SAI1, the USB, and the HSI48 RC, are not available on STM32WB15, but the LSI can be selected for BLE wake-up.

The STM32WB30 and STM32WB10 clock trees are shown, respectively, in Figure 3 and Figure 4. The 802.15.4 and the HSI48 RC are not available on STM32WB10, but the LSI can be selected for BLE wake-up.

Figure 1. STM32WB35 clock tree

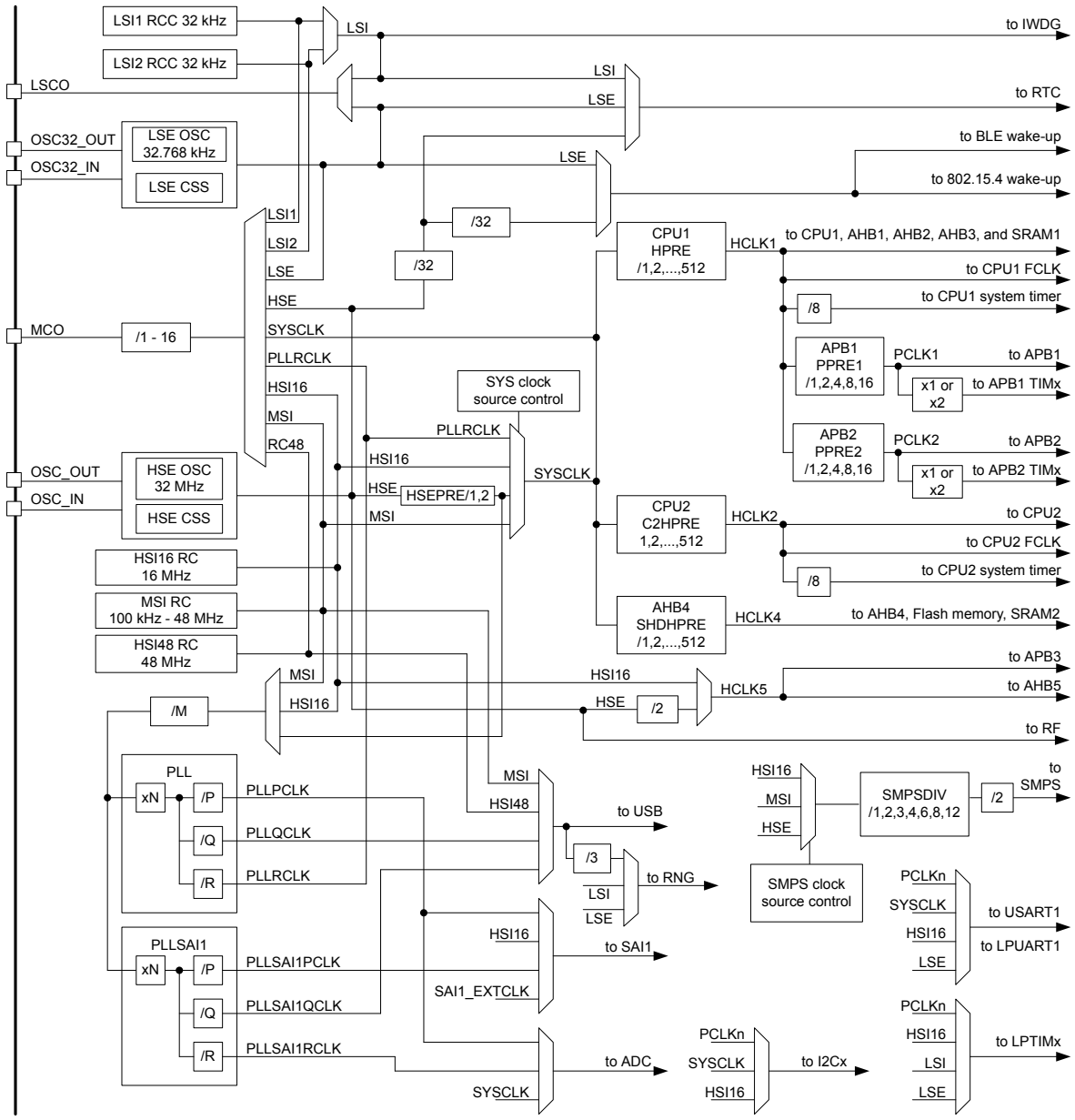


Figure 2. **STM32WB15 clock tree**

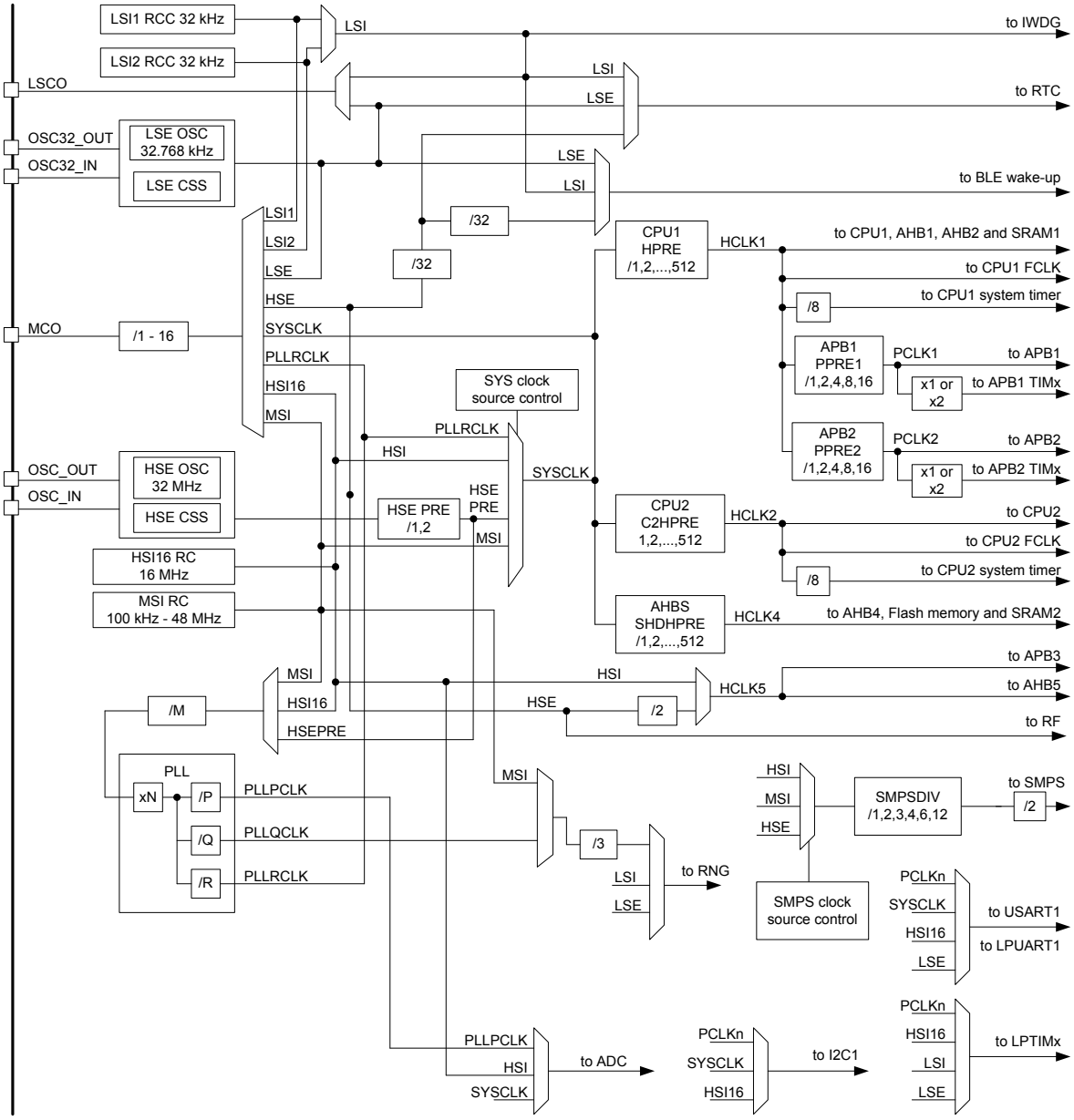


Figure 3. **STM32WB30 clock tree**

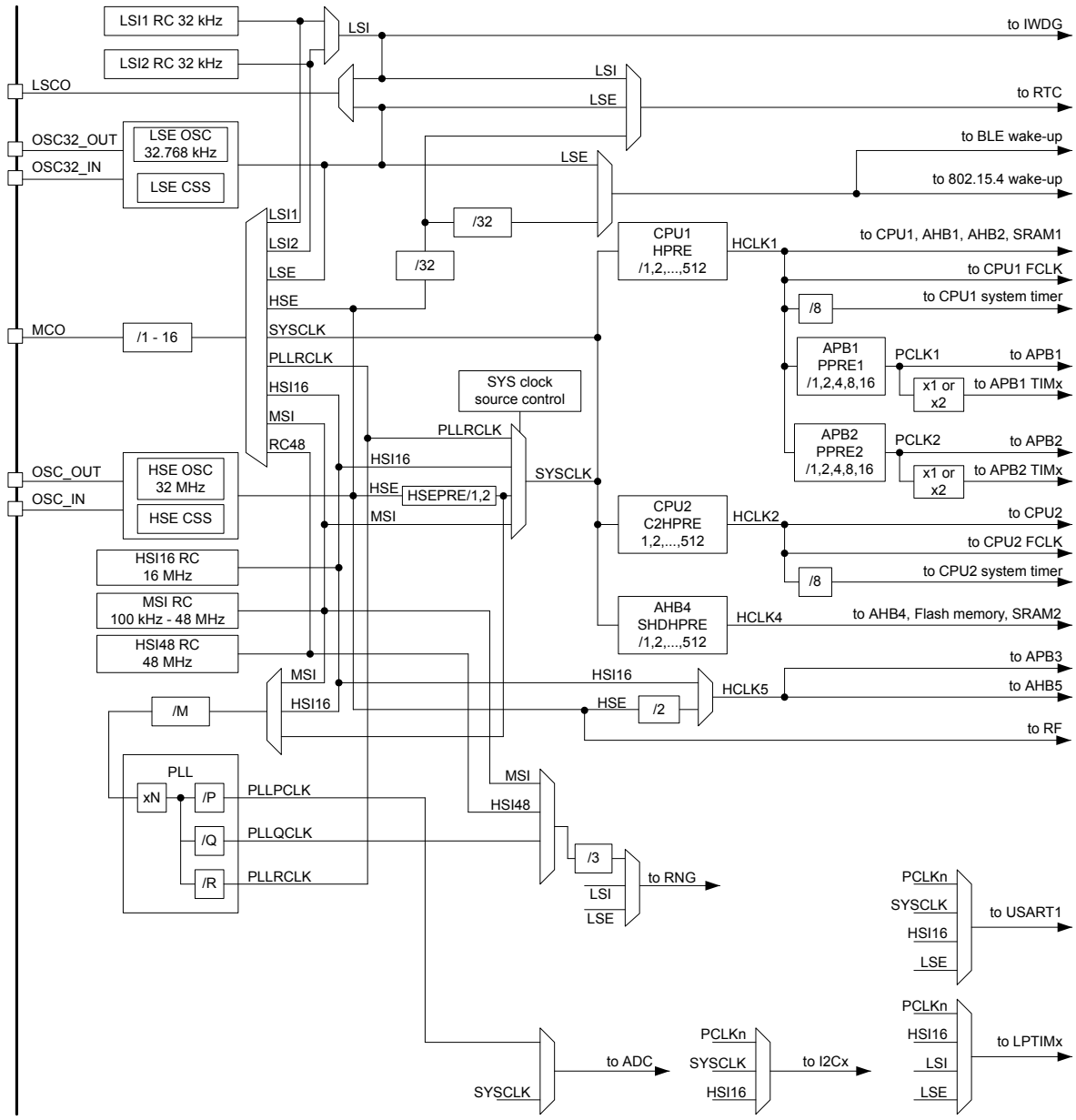
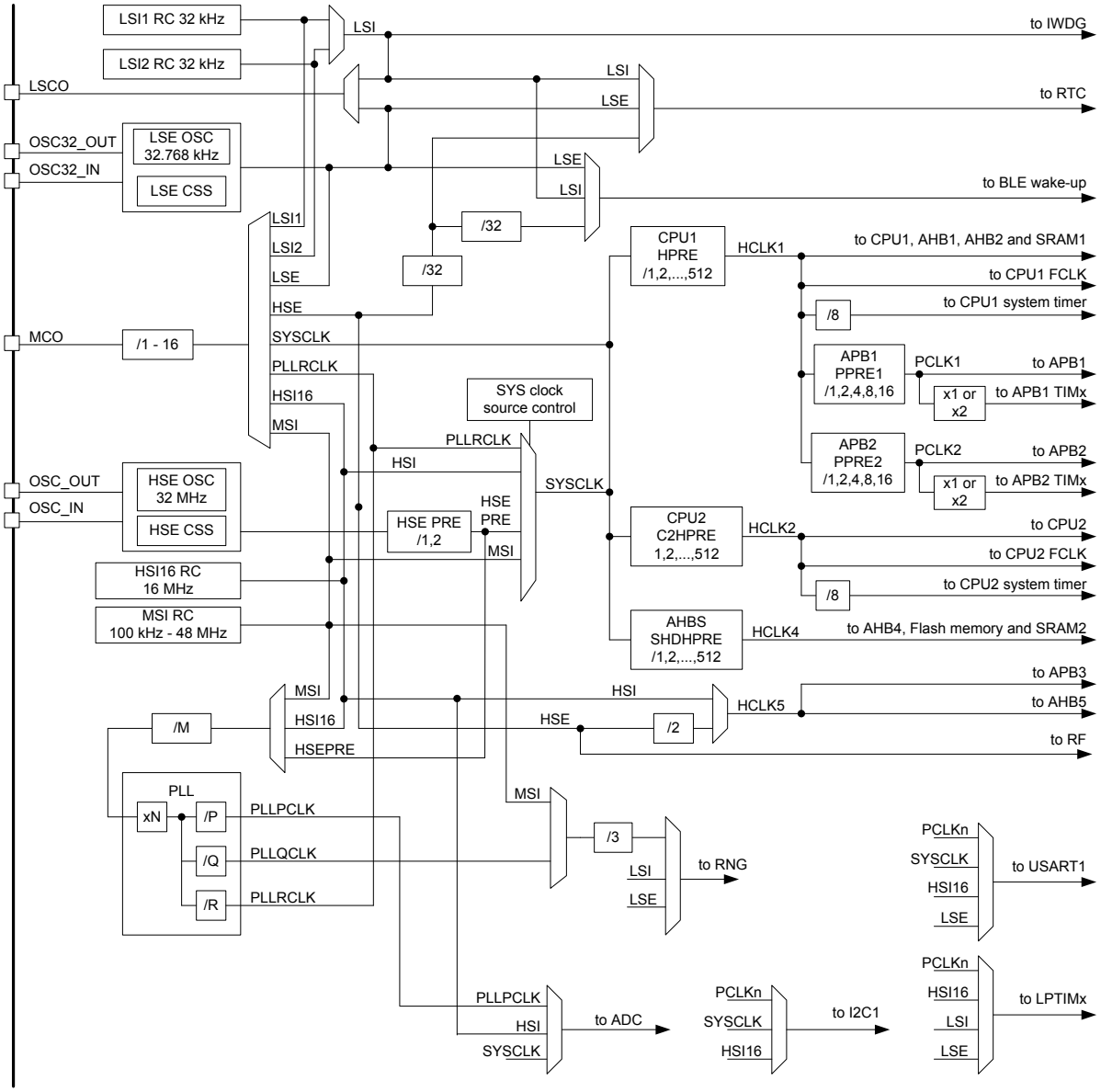


Figure 4. **STM32WB10 clock tree**



3 Peripheral migration

Table 5 summarizes the compatibility of peripherals, and the features changes.

Table 5. Peripheral compatibility and features

Peripheral / Features	STM32WB15		STM32WB35	STM32WB10	STM32WB30
	UFQFPN48[1]	WLCSP49	UFQFPN48	UFQFPN48	UFQFPN48
Bluetooth 5	Yes				
IEEE 802.15.4	No		Yes	No	Yes
Dual core CPU (Cortex-M4 and M0+)	Yes				
Flash memory (Kbytes)	320		Up to 512	320	512
SRAM (Kbytes)	48		96	48	96
QUADSPI	0		1	0	
DMA	1 (7 channels)		2 (14 channels)	1 (7 channels)	
16-bit advanced timer (TIM1)	1				
32-bit general purpose timer (TIM2)	1				
16-bit general purpose timers (TIM16/TIM17)	0		2	0	2
16-bit low-power timers (LPTIM1/LPTIM2)	2				
Watchdog timer	2				
SysTick timer	1				
SPI	1				
I^2C (inter-integrated circuit)	1		2	1	2
USART (can be used as SPI)	1				
LPUART	1			No	
SAI (serial audio interface)	No		1 (dual channel)	No	
USB FS	No		1	No	
RTC	1				
Tamper pins	1				
Wake-up pins	2				
GPIOs	30 (37 for extended IOs option)	25	30		
TSC (capacitive touch sensing)	3 (8 for extended IOs option)	2	No	3	No
12-bit ADC	13 channels				
Internal V_{REF}	Yes				
Analog comparator (COMP)	1		2	No	
Max CPU frequency	64 MHz				
JTAG / SW-DP	1 / 1				
PLL	1		2	1	
Operating temperature range 1	-40 to +85 °C			-10 to +85 °C	
Operating temperature range 2	-40 to +105 °C			No	
Operating voltage	1.71 to 3.6 V			2.0 to 3.6 V	
SMPS	Yes (No for extended IOs option)		Yes	No	

1. *Two configurations available, with SMPS or with extended IOs.*

3.1 Hardware migration

This section presents a summary of the main hardware differences.

3.1.1 Flash memory mapping

Different memory sizes are available according to the package selected, for more information refer to the table below. The page size is 4 Kbytes for STM32WB30/5 devices, 2 Kbytes for STM32WB10/5 devices.

Table 6. Flash memory sizes and their mapping

Device	Flash memory size (Kbytes)	Mapping addresses	Description
STM32WB15	320	0x0800 0000 – 0x0804 FFFF	The start addresses are the same for all STM32WB10/15/30/35 microcontrollers.
STM32WB10	320	0x0800 0000 – 0x0804 FFFF	
STM32WB35	256, 512	0x0800 0000 – 0x0807 FFFF	
STM32WB30	512	0x0800 0000 – 0x0807 FFFF	

3.1.2 SRAM mapping

As shown in Table 7 the SRAM1 density of STM32WB15 and STM32WB10 is reduced when compared with, respectively, STM32WB35 and STM32WB30.

Table 7. SRAM sizes and their mapping

Device	SRAM(1)	Size (Kbytes)	Mapping addresses	STM32WB1x versus STM32WB3x
STM32WB15	SRAM1 SRAM2a SRAM2b	12 32 4 Total: 48	0x2000 0000 - 0x2000 2FFF 0x2003 0000 - 0x2003 7FFF 0x2003 8000 - 0x2003 8FFF	• SRAM1 size is reduced from 32 to 12 Kbytes, and starts at the same address. • SRAM2a has the same size, and starts at the same address.
STM32WB35	SRAM1 SRAM2a SRAM2b	32 32 32 Total: 96	0x2000 0000 - 0x2000 7FFF 0x2003 0000 - 0x2003 7FFF 0x2003 8000 - 0x2003 FFFF	
STM32WB10	SRAM1 SRAM2a SRAM2b	12 32 4 Total: 48	0x2000 0000 - 0x2000 2FFF 0x2003 0000 - 0x2003 7FFF 0x2003 8000 - 0x2003 8FFF	• SRAM1 size is reduced from 32 to 12 Kbytes, and starts at the same address. • SRAM2a has the same size, and starts at the same address. • SRAM2b size is reduced from 32 to 4 Kbytes, and starts at the same address.
STM32WB30	SRAM1 SRAM2a SRAM2b	32 32 32 Total: 96	0x2000 0000 - 0x2000 7FFF 0x2003 0000 - 0x2003 7FFF 0x2003 8000 - 0x2003 FFFF	

1. *SRAM2a is retained in Standby mode for all products. SRAM1 and SRAM2b are retained in Standby mode for STM32WB10/15 products.*

3.1.3 Peripheral migration compatibility

This section presents a complete view of the number of available peripherals. For more details regarding electrical characteristics refer to the datasheets.

Table 8. Peripheral compatibility analysis

Peripheral[1]	STM32WB15		STM32WB35	STM32WB10	STM32WB30
	UFQFPN48[2]	WLCSP49	UFQFPN48	UFQFPN48	UFQFPN48
QUADSPI	NA		1	NA	
DMA	1 (7 channels)		2 (14 channels)	1 (7 channels)	
SPI	1				
I^2C (inter-integrated circuit)	1				
SAI (serial audio interface)	NA		1	NA	
LPUART	1			NA	
USB	NA		1	NA	
ADC[3]	1 × 13 channels				
COMP	NA		2	NA	
GPIOs[4]	30 (37 for extended IOs option)	25	30		
TSC[5]	3 (8 for extended IOs option)	2	0	3	0
Tamper pins	1				
JTAG / SWD	1 / 1				
PLL (phase-locked loop)	1				

1. *NA: Not available.*
2. *Two configurations available, with SMPS or with extended IOs.*
3. *For the ADC sampling rate refer to Table 9.*
4. *STM32WB10/15/30/35 microcontrollers in UFQFPN48 package are pin-to-pin compatible.*
5. *Number of keys including the shield that can be driven with the TSC peripheral. For more information about TSC and connection of sensors refer to R5.*

Table 9. ADC sampling rate (Mbit/s)

Resolution	STM32WB35		STM32WB15		STM32WB30	STM32WB10
	Fast channels	Slow channels	V_{DDA} > 2.0 V	V_{DDA} ≤ 2.0 V		
12 bits	4.26	3.36	2.50	2.18	2.13	2.50
10 bits	4.92	4.00	2.92	2.50	2.46	2.92
8 bits	5.81	4.57	3.50	2.92	2.91	3.50
6 bits	7.11	7.11	4.38	3.50	3.55	4.38

4 Software migration

This section gives an overview of the possible use cases, and information on the available free memory space for flash memory and SRAM when implementing the different scenarios.

The wireless stack and the application firmware can be upgraded over-the-air (OTA feature).

4.1 Memory density

Table 10. Flash memory and SRAM densities

Footprint (Kbytes)	STM32WB15	STM32WB35		STM32WB10	STM32WB30
	Density 1	Density 1	Density 2		
Flash memory	320	256	512	320	512
SRAM1	12	32		12	32
SRAM2a	32				
SRAM2b	4	32		4	32

4.2 Memory space availability

The following tables give the free memory space available after implementing each scenario (a dash indicates "Not supported"). The values (expressed in Kbytes) are estimated and can change according to the scenario and to the code used by Cortex-M0+.

Table 11. STM32WB35 free memory space by density, without OTA

STM32WB_Copro_Wireless_Binaries FW1.14.1	Density 1				Density 2			
	Flash(1)	SRAM1	SRAM2a	SRAM2b	Flash(1)	SRAM1	SRAM2a	SRAM2b
stm32wb5x_BLE_Stack_full_extended_fw	71	32	2	10	327	32	2	10
stm32wb5x_BLE_Stack_full_fw	107	32	10	15	363	32	10	15
stm32wb5x_BLE_Stack_light_fw	135	32	18	13	391	32	18	13
stm32wb5x_BLE_HCILayer_extended_fw	155	32	9	25(2)	411	32	9	25(2)
stm32wb5x_BLE_HCILayer_fw	179	32	19	25(2)	435	32	19	25(2)
stm32wb5x_BLE_HCI_AdvScan_fw	221	32	23	25(2)	477	32	23	25(2)
stm32wb5x_BLE_LLD_fw	230	32	31	16	486	32	31	16
stm32wb5x_Thread_FTD_fw	-	-	-	-	-	-	-	-
stm32wb5x_Thread_MTD_fw	-	-	-	-	-	-	-	-
stm32wb5x_Thread_RCP_fw	176	32	4	0	432	32	4	0
stm32wb5x_Zigbee_FFD_fw	-	-	-	-	185	32	4	0
stm32wb5x_Zigbee_RFD_fw	-	-	-	-	244	32	4	0
stm32wb5x_BLE_Mac_fw	22	32	23	23(2)	278	32	23	23(2)
stm32wb5x_BLE_Thread_static_fw	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Thread_dynamic_fw	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_static_fw	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_static_fw	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_dynamic_fw	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_dynamic_fw	-	-	-	-	-	-	-	-
stm32wb5x_Mac_802_15_4_fw	188	32	4	0	444	32	4	0
stm32wb5x_802_15_4_valid_cli	169	32	32	0	425	32	32	0

1. *The FUS is an internally secured memory.*
2. *When FUS (48 KB flash and 16 KB SRAM2b) is executed, available SRAM2b is reduced to 16 KB.*

Table 12. STM32WB15/30/10 free memory space, without OTA

STM32WB_Copro_Wireless_Binaries FW1.14.1	STM32WB15				STM32WB30				STM32WB10			
	Flash	SRAM1	SRAM2a	SRAM2b	Flash(1)	SRAM1	SRAM2a	SRAM2b	Flash	SRAM1	SRAM2a	SRAM2b
stm32wb5x_BLE_Stack_full_extended_fw	95	12	4	0	327	32	2	10	135	12	4	0
stm32wb5x_BLE_Stack_full_fw	133	12	10	0	363	32	10	15	173	12	10	0
stm32wb5x_BLE_Stack_light_fw	161	12	12	0	391	32	18	13	201	12	12	0
stm32wb5x_BLE_HCILayer_extended_fw	184	12	13	0	411	32	9	25(2)	224	12	13	0
stm32wb5x_BLE_HCILayer_fw	205	12	19	0	435	32	19	25(2)	245	12	18	0
stm32wb5x_BLE_HCI_AdvScan_fw	245	12	21(3)	0	477	32	23	25(2)	285	12	21(3)	0
stm32wb5x_BLE_LLD_fw	255	12	10	0	486	32	31	16	295	12	10	0
stm32wb5x_Thread_FTD_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Thread_MTD_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Thread_RCP_fw	-	-	-	-	432	32	4	0	-	-	-	-
stm32wb5x_Zigbee_FFD_fw	-	-	-	-	185	32	4	0	-	-	-	-
stm32wb5x_Zigbee_RFD_fw	-	-	-	-	244	32	4	0	-	-	-	-
stm32wb5x_BLE_Mac_fw	-	-	-	-	278	32	23	23(2)	-	-	-	-
stm32wb5x_BLE_Thread_static_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Thread_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_static_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_static_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Mac_802_15_4_fw	-	-	-	-	444	32	4	0	-	-	-	-
stm32wb5x_802_15_4_valid_cli	-	-	-	-	424	32	32	0	-	-	-	-

1. *The FUS is an internally secured memory.*
2. *When FUS (48 KB flash and 16 KB SRAM2b) is executed, available SRAM2b is reduced to 16 KB.*
3. *When FUS (40 KB flash, 4 KB SRAM2b and 12 KB SRAM2a) is executed, available SRAM2a is reduced to 20 KB.*

Table 13. **Cortex M0+ code size**

M0 code STM32Cube_FW_WB_V1.14.1	STM32WB15				STM32WB35				STM32WB10				STM32WB30			
	Flash	SRAM1	SRAM2a	SRAM2b	Flash	SRAM1	SRAM2a	SRAM2b	Flash	SRAM1	SRAM2a	SRAM2b	Flash	SRAM1	SRAM2a	SRAM2b
stm32wb5x_BLE_Stack_full_extended_fw	185	0	28	4	185	0	30	22	185	0	28	4	185	0	30	22
stm32wb5x_BLE_Stack_full_fw	147	0	22	4	149	0	22	17	147	0	22	4	149	0	22	17
stm32wb5x_BLE_Stack_light_fw	119	0	20	4	121	0	14	19	119	0	20	4	121	0	14	19
stm32wb5x_BLE_HCILayer_extended_fw	96	0	19	4	101	0	23	7	96	0	19	4	101	0	23	7
stm32wb5x_BLE_HCILayer_fw	75	0	13	4	77	0	13	7	75	0	13	4	77	0	13	7
stm32wb5x_BLE_HCI_AdvScan_fw	35	0	11	4	35	0	9	7	35	0	11	4	35	0	9	7
stm32wb5x_BLE_LLD_fw	25	0	22	4	26	0	1	16	25	0	22	4	26	0	1	16
stm32wb5x_Thread_FTD_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Thread_MTD_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Thread_RCP_fw	-	-	-	-	80	0	28	32	-	-	-	-	80	0	28	32
stm32wb5x_Zigbee_FFD_fw	-	-	-	-	327	0	28	32	-	-	-	-	327	0	28	32
stm32wb5x_Zigbee_RFD_fw	-	-	-	-	268	0	28	32	-	-	-	-	268	0	28	32
stm32wb5x_BLE_Mac_fw	-	-	-	-	234	0	9	9	-	-	-	-	234	0	9	9
stm32wb5x_BLE_Thread_static_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Thread_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_static_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_static_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_FFD_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_BLE_Zigbee_RFD_dynamic_fw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stm32wb5x_Mac_802_15_4_fw	-	-	-	-	68	0	28	32	-	-	-	-	68	0	28	32
stm32wb5x_802_15_4_valid_cli	-	-	-	-	88	0	0	32	-	-	-	-	88	0	0	32

4.3 Application examples

Table 14 gives examples of footprints, depending upon the application. The values of memory size (expressed in Kbytes) are estimated and can change according to the scenario.

Table 14. **Used memory (Kbytes)**

Example	Cortex M0+				FUS			Cortex M4 (application) (2)				Total used memory (without OTA)			
	Flash	SRAM1	SRAM2a	SRAM2b	Flash	SRAM2b	SRAM2a	Flash	SRAM1	SRAM2a	SRAM2b	Flash	SRAM1	SRAM2a	SRAM2b
STM32WB3x heart rate	149	0	22	17	48	16	0	19	6	3	0	216	6	25	17
STM32WB1x heart rate	147	0	22	4	40	4	12	22	6	3	0	209	6	25	4

1. *Code from STM32Cube_FW_WB_V1.16 delivery.*
2. *Code compiled with EWARM version IAR™ 9.30.1.*

4.4 HAL (hardware abstraction layer)

The STM32 hardware abstraction layer is available, the prototype of the HAL is for all devices, only its implementation differs. The update of the HAL implementation of the HAL is facilitated through STM32CubeMX, refer to R3 for more information.

4.5 Wireless stack

The wireless stack is available for each device and the setup uses the same process for all devices. For more information refer to R3.

4.6 FUS (firmware upgrade service)

The firmware upgrade service is available for each device and the setup uses the same process for all devices. For more information refer to R4.

5 Security and identifier migration

The table below summarizes security and identifier compatibility and features changes when migrating between STM32WB10/15/30/35 microcontrollers.

Table 15. Security and identifier compatibility

Features	STM32WB35	STM32WB10 STM32WB15 STM32WB30
Secure firmware installation (SFI) for Bluetooth Low Energy and 802.15.4 SW stack	Yes	
Hardware encryption AES maximum 256-bit for the application, the Bluetooth Low Energy and IEEE802.15.4(1)	3	2
Customer key storage/key manager services	Yes	No
HW public key authority (PKA)	Yes	
Cryptographic algorithms: RSA, Diffie-Helman, ECC over GF(p)	Yes	
True random number generator (RNG)	Yes	
Sector protection against R/W operation (PCROP)	Yes	
CRC calculation unit	Yes	
Die information: 96-bit unique identifier	Yes	
IEEE 64-bit unique identifier. Possibility to derive 802.15.4 64-bit and Bluetooth Low Energy 48-bit.	Yes	

1. *The internal AES is used to encrypt/decrypt Bluetooth Low Energy packets (LL). In parallel, the host running on Cortex M0+ may need to compute keys. In this case, it uses AES2, but it is possible to use an AES software available in the Bluetooth Low Energy host stack. This solution has been implemented on STM32WB1x devices, but not on STM32WB30 (where there is no AES available for Cortex M4). AES2/AES1 are available for Cortex M4, respectively, on STM32WB1x/ STM32WB35.*

The part number codification defined in the engineering bytes area at 0x1FFF 77DC address is associated to the part number as given in the table below.

Table 16. Part number codification

Part number	Address byte
STM32WB10	0x0000 3031
STM32WB15	0x0000 3531
STM32WB30	0x0000 3033
STM32WB35	0x0000 3533

6 Tools

The tools listed below are for all STM32WB10/15/30/35 devices and are backward compatible.

- STM32CubeMX
- STM32CubeProgrammer
- STM32CubeMonitor-RF

STM32CubeMX is recommended for the migration between STM32WB10/15/30/35 microcontrollers.

Revision history

Table 17. **Document revision history**

Date	Revision	Changes
12-May-2022	1	Initial release.
02-Aug-2022	2	Updated Table 11. STM32WB35 free memory space by density, without OTA, Table 12. STM32WB15/30/10 free memory space, without OTA, Table 13. Cortex M0+ code size, and footnote (1) of Table 14. Used memory (Kbytes).
02-May-2023	3	Updated document title and Section Introduction. Added footnote to Table 3. Package information . Updated Table 11. STM32WB35 free memory space by density, without OTA, Table 12. STM32WB15/30/10 free memory space, without OTA, Table 13. Cortex M0+ code size, Table 14. Used memory (Kbytes) and its footnotes.

Contents

List of tables

List of figures