
STM32
CubeMX

1. Description

1.1. Project

Project Name	ISM4343-WBU-L151
Board Name	custom
Generated with:	STM32CubeMX 6.11.1
Date	07/22/2024

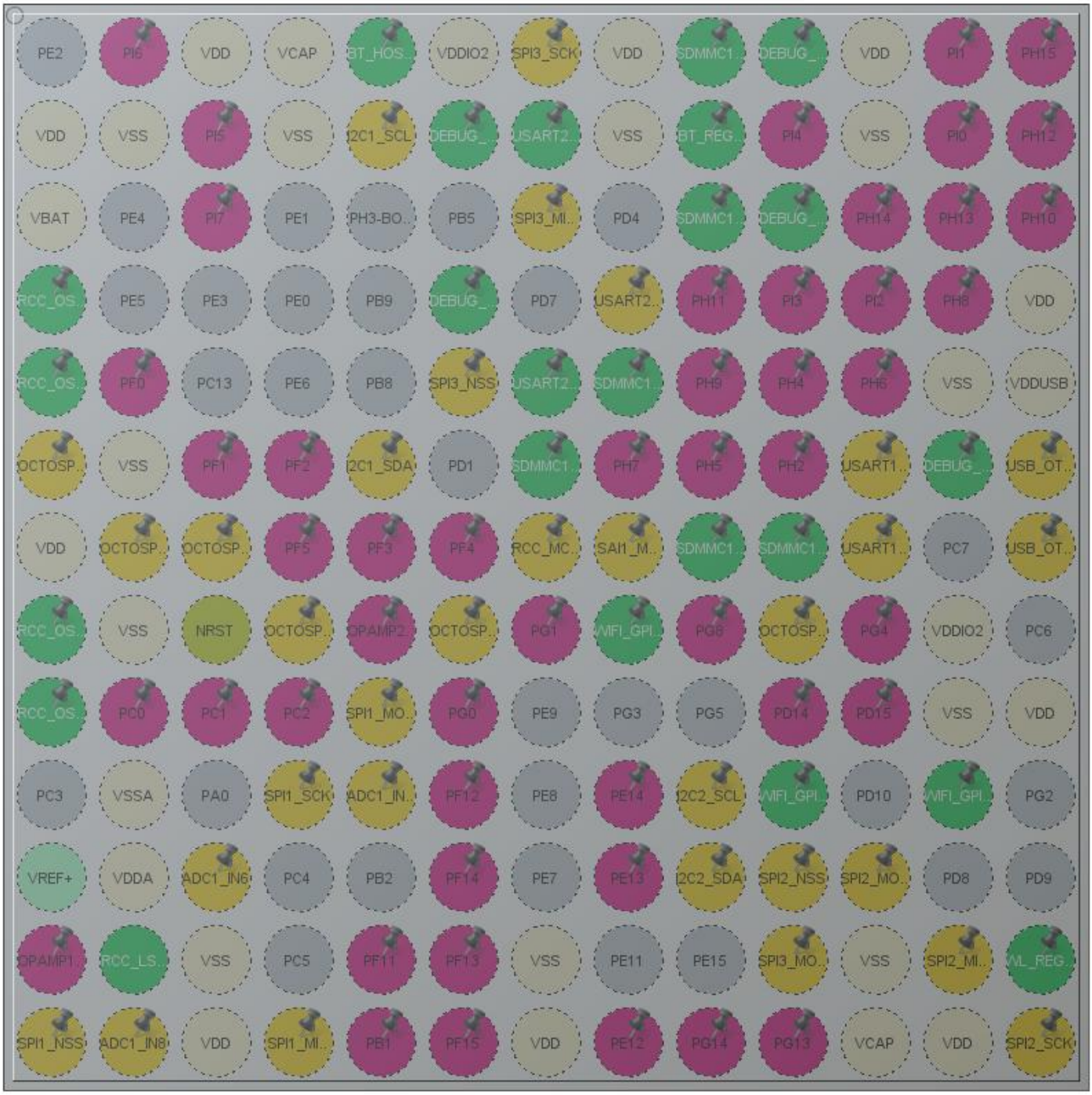
1.2. MCU

MCU Series	STM32U5
MCU Line	STM32U575/585
MCU name	STM32U585AIIx
MCU Package	UFBGA169
MCU Pin number	169

1.3. Core(s) information

Core(s)	ARM Cortex-M33

2. Pinout Configuration



UFBGA169 (Top view)

3. Pins Configuration

Pin Number UFBGA169	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
A2	PI6	I/O		
A3	VDD	Power		
A4	VCAP	Power		
A5	PG15 *	I/O	GPIO_Input	BT_HOST_WAKE
A6	VDDIO2	Power		
A7	PG9 **	I/O	SPI3_SCK	
A8	VDD	Power		
A9	PC11	I/O	SDMMC1_D3	
A10	PA15 (JTDI)	I/O	DEBUG_JTDI	
A11	VDD	Power		
A12	PI1	I/O		
A13	PH15	I/O		
B1	VDD	Power		
B2	VSS	Power		
B3	PI5	I/O		
B4	VSS	Power		
B5	PB6 **	I/O	I2C1_SCL	
B6	PB4 (NJTRST)	I/O	DEBUG_JTRST	
B7	PD6	I/O	USART2_RX	
B8	VSS	Power		
B9	PD0 *	I/O	GPIO_Output	BT_REG_ON
B10	PI4	I/O		
B11	VSS	Power		
B12	PI0	I/O		
B13	PH12	I/O		
C1	VBAT	Power		
C3	PI7	I/O		
C7	PG10 **	I/O	SPI3_MISO	
C9	PC10	I/O	SDMMC1_D2	
C10	PA14 (JTCK/SWCLK)	I/O	DEBUG_JTCK-SWCLK	
C11	PH14	I/O		
C12	PH13	I/O		
C13	PH10	I/O		
D1	PC14-OSC32_IN (PC14)	I/O	RCC_OSC32_IN	
D6	PB3 (JTDO/TRACESWO)	I/O	DEBUG_JTDO-SWO	
D8	PD3 **	I/O	USART2_CTS	

Pin Number UFBGA169	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
D9	PH11	I/O		
D10	PI3	I/O		
D11	PI2	I/O		
D12	PH8	I/O		
D13	VDD	Power		
E1	PC15-OSC32_OUT (PC15)	I/O	RCC_OSC32_OUT	
E2	PF0	I/O		
E6	PG12 **	I/O	SPI3_NSS	
E7	PD5	I/O	USART2_TX	
E8	PC12	I/O	SDMMC1_CK	
E9	PH9	I/O		
E10	PH4	I/O		
E11	PH6	I/O		
E12	VSS	Power		
E13	VDDUSB	Power		
F1	PF8 **	I/O	OCTOSPIM_P1_IO0	
F2	VSS	Power		
F3	PF1	I/O		
F4	PF2	I/O		
F5	PB7 **	I/O	I2C1_SDA	
F7	PD2	I/O	SDMMC1_CMD	
F8	PH7	I/O		
F9	PH5	I/O		
F10	PH2	I/O		
F11	PA10 **	I/O	USART1_RX	
F12	PA13 (JTMS/SWDIO)	I/O	DEBUG_JTMS-SWDIO	
F13	PA12 **	I/O	USB_OTG_FS_DP	
G1	VDD	Power		
G2	PF7 **	I/O	OCTOSPIM_P1_IO2	
G3	PF9 **	I/O	OCTOSPIM_P1_IO1	
G4	PF5	I/O		
G5	PF3	I/O		
G6	PF4	I/O		
G7	PA8 **	I/O	RCC_MCO	
G8	PG7 **	I/O	SAI1_MCLK_A	
G9	PC9	I/O	SDMMC1_D1	
G10	PC8	I/O	SDMMC1_D0	
G11	PA9 **	I/O	USART1_TX	
G13	PA11 **	I/O	USB_OTG_FS_DM	

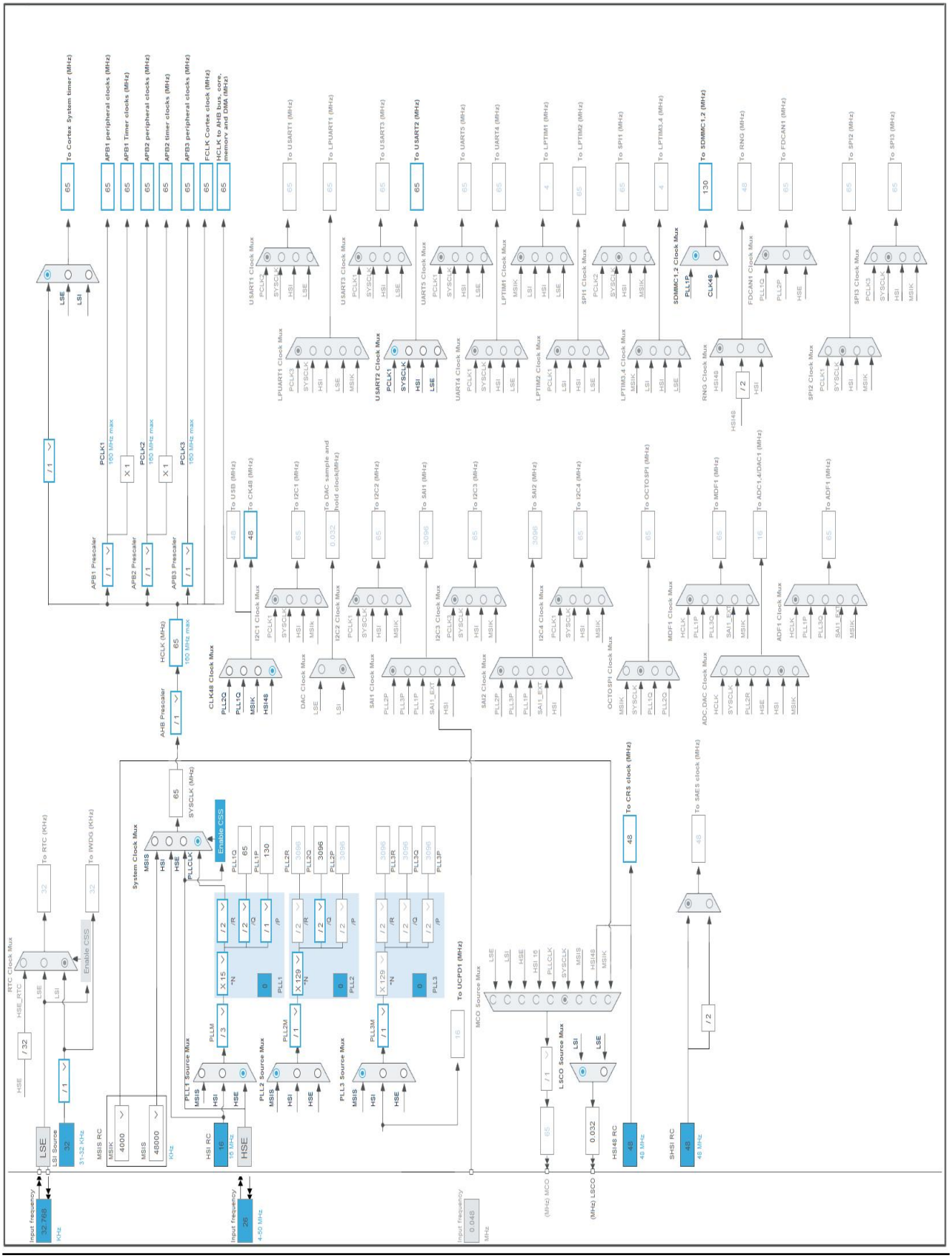
Pin Number UFBGA169	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
H1	PH0-OSC_IN (PH0)	I/O	RCC_OSC_IN	
H2	VSS	Power		
H3	NRST	Reset		
H4	PF10 **	I/O	OCTOSPIM_P1_CLK	
H5	OPAMP2_VINM	MonoIO		
H6	PF6 **	I/O	OCTOSPIM_P1_IO3	
H7	PG1	I/O		
H8	PE10 *	I/O	GPIO_Input	WIFI_GPIO_3
H9	PG8	I/O		
H10	PG6 **	I/O	OCTOSPIM_P1_DQS	
H11	PG4	I/O		
H12	VDDIO2	Power		
J1	PH1-OSC_OUT (PH1)	I/O	RCC_OSC_OUT	
J2	PC0	I/O		
J3	PC1	I/O		
J4	PC2	I/O		
J5	PA7 **	I/O	SPI1_MOSI	
J6	PG0	I/O		
J10	PD14	I/O		
J11	PD15	I/O		
J12	VSS	Power		
J13	VDD	Power		
K2	VSSA	Power		
K4	PA5 **	I/O	SPI1_SCK	
K5	PB0 **	I/O	ADC1_IN15	
K6	PF12	I/O		
K8	PE14	I/O		
K9	PB10 **	I/O	I2C2_SCL	
K10	PD12 *	I/O	GPIO_Output	WIFI_GPIO_0
K12	PD13 *	I/O	GPIO_Output	WIFI_GPIO_1
L2	VDDA	Power		
L3	PA1 **	I/O	ADC1_IN6	
L6	PF14	I/O		
L8	PE13	I/O		
L9	PB11 **	I/O	I2C2_SDA	
L10	PB12 **	I/O	SPI2_NSS	
L11	PB15 **	I/O	SPI2_MOSI	
M1	OPAMP1_VINM	MonoIO		
M2	PA2	I/O	RCC_LSCO	

Pin Number UFBGA169	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
M3	VSS	Power		
M5	PF11	I/O		
M6	PF13	I/O		
M7	VSS	Power		
M10	PG11 **	I/O	SPI3_MOSI	
M11	VSS	Power		
M12	PB14 **	I/O	SPI2_MISO	
M13	PD11 *	I/O	GPIO_Output	WL_REG_ON
N1	PA4 **	I/O	SPI1_NSS	
N2	PA3 **	I/O	ADC1_IN8	
N3	VDD	Power		
N4	PA6 **	I/O	SPI1_MISO	
N5	PB1	I/O		
N6	PF15	I/O		
N7	VDD	Power		
N8	PE12	I/O		
N9	PG14	I/O		
N10	PG13	I/O		
N11	VCAP	Power		
N12	VDD	Power		
N13	PB13 **	I/O	SPI2_SCK	

* The pin is affected with an I/O function

** The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	ISM4343-WBU-L151
Project Folder	C:\Users\steve\Documents\sandbox\stm32\ISM4343-WBU-L151
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_U5 V1.5.0
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	No
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_SDMMC1_SD_Init	SDMMC1
4	MX_USART2_UART_Init	USART2

1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32U5
Line	STM32U575/585
MCU	STM32U585AIIx
Datasheet	DS13086_Rev1

1.2. Parameter Selection

Temperature	25
Vdd	3.0

1.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

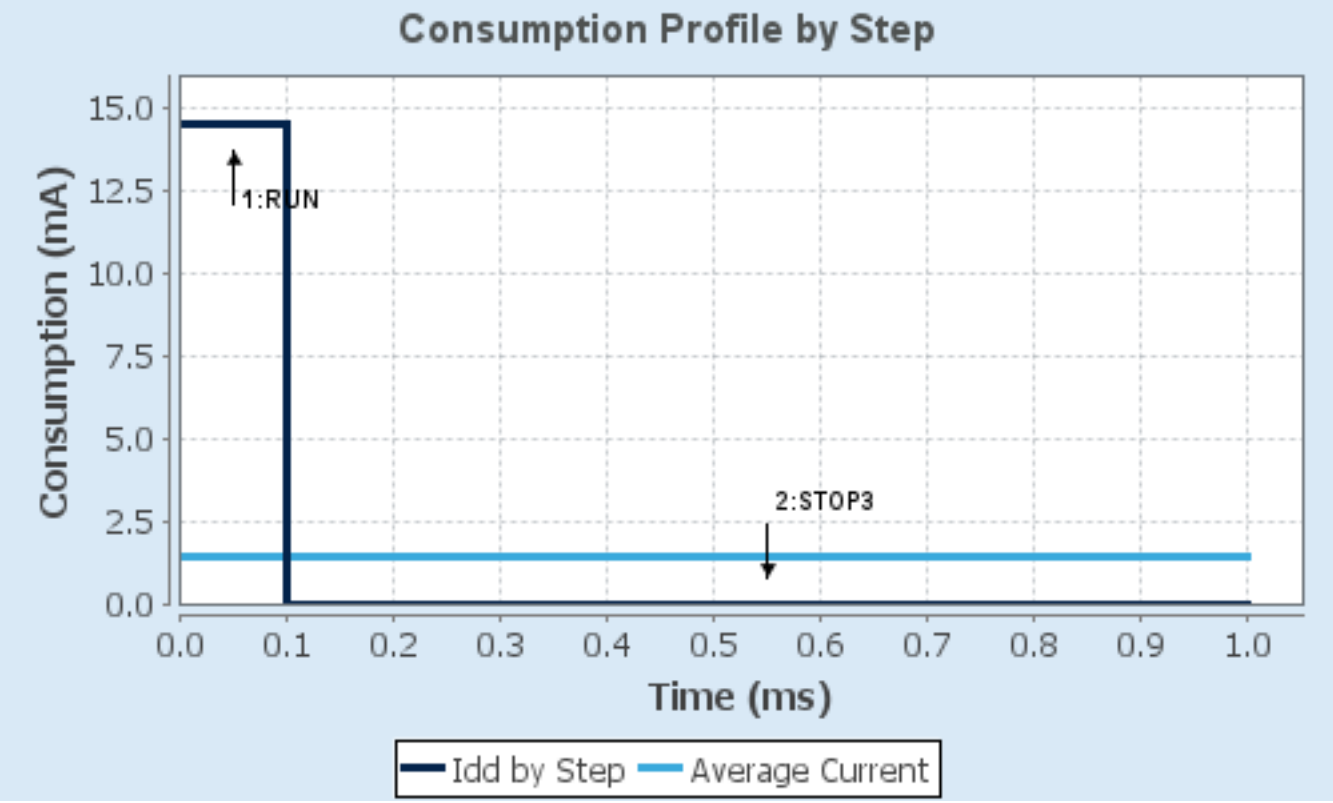
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP3
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	Range1-High	NoScale/SMPS
Fetch Type	FLASH_PwrDwnBank2/ART/ Cache2Ways	FLASH
CPU Frequency	160 MHz	0 Hz
Clock Configuration	HSE BYP PLL ALL_RAM_RETENTION	ALL_CLOCKS_OFF
Clock Source Frequency	16 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	14.5 mA	1.8 µA
Duration	0.1 ms	0.9 ms
DMIPS	200.0	0.0
Ta Max	103.43	105
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	1.45 mA
Battery Life	3 months, 6 days, 2 hours	Average DMIPS	20.0 DMIPS

1.6. Chart


Consumption Profile by Step
Consumption (mA)
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1:RUN
2:STOP3
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

2. Peripherals and Middlewares Configuration

2.1. DEBUG

Debug: JTAG (5 pins)

2.2. LPBAM

mode: LPBAM Scenario uses resources from Smart Run Domain only

mode: LPBAM Scenario is hosted by LPDMA1

2.3. LPBAMQUEUE

mode: QUEUE MODE

2.3.1. Parameter Settings:

DMA Channel Configuration:	
Priority	Low
DMA Channel Interrupt Configuration:	
Data Transfer Error Interrupt	Disable
Update Link Error Interrupt	Disable
User Setting Error Interrupt	Disable
Transfer Complete Interrupt	Disable
Trigger Overrun Interrupt	Disable

2.4. MEMORYMAP

mode: Activated

2.5. PWR

mode: Privilege attributes

2.5.1. PWR Privilege :

Privilege PWR:	
Privilege of PWR Secure Items	Disable
Privilege of PWR Non-Secure Items	Disable
PWR Privilege	Disable

2.5.2. PWR Security:

Secure PWR:

Wake-Up 1 secure protection	Disable
Wake-Up 2 secure protection	Disable
Wake-Up 3 secure protection	Disable
Wake-Up 4 secure protection	Disable
Wake-Up 5 secure protection	Disable
Wake-Up 6 secure protection	Disable
Wake-Up 7 secure protection	Disable
Wake-Up 8 secure protection	Disable
Voltage detection and monitoring secure protection	Disable
Pull-up/pull-down secure protection	Disable
Low power modes secure protection	Disable
Backup domain secure protection	Disable

2.6. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

mode: LSCO Clock Output

CRS SYNC: CRS SYNC Source LSE

2.6.1. RCC Privilege :

Privilege RCC:

Privilege of RCC Non-Secure Items	Disable

2.6.2. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
MSI Calibration Value	16
MSIS/MSIK Auto Calibration	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 2

CRS Parameters:

CRS Synchro Divider	1
CRS Synchro Polarity	Active on rising edge

CRS Synchro Reload Value Type	Automatic
CRS Synchro frequency (Hz)	32768
Error limit Value	34
HSI48 Calibration Value	32

PLL1/2/3 Parameters:

PLL1M BOOST EPOD Clock Divider	2
PLL1 input frequency range	Between 8 and 16 MHz

Low Power Parameters:

MSI in Stop mode	Disabled
HSI in Stop mode	Disabled

2.7. SDMMC1

Mode: SD 4 bits Wide bus

2.7.1. Parameter Settings:

SDMMC parameters:

Clock transition on which the bit capture is made	Rising transition
SDMMC Clock output enable when the bus is idle	Disable the power save for the clock
SDMMC hardware flow control	The hardware control flow is disabled
SDMMC clock divide factor	**1 ***
Is external transceiver present ?	no

2.8. SYS

Timebase Source: SysTick

2.9. USART2

Mode: Asynchronous

2.9.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

Single Sample	Disable
ClockPrescaler	1
Fifo Mode	Disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration
Autonomous Mode	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

*** User modified value**

3. System Configuration

3.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
DEBUG	PA15 (JTDI)	DEBUG_JTDI	n/a	n/a	n/a	
	PB4 (NJTRST)	DEBUG_JTRST	n/a	n/a	n/a	
	PA14 (JTCK/SWCLK)	DEBUG_JTCK-SWCLK	n/a	n/a	n/a	
	PB3 (JTDO/TRACESWO)	DEBUG_JTDO-SWO	n/a	n/a	n/a	
	PA13 (JTMS/SWDIO)	DEBUG_JTMS-SWDIO	n/a	n/a	n/a	
RCC	PC14-OSC32_IN (PC14)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT (PC15)	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0-OSC_IN (PH0)	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT (PH1)	RCC_OSC_OUT	n/a	n/a	n/a	
	PA2	RCC_LSCO	Analog mode	No pull-up and no pull-down	n/a	
SDMMC1	PC11	SDMMC1_D3	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC10	SDMMC1_D2	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC12	SDMMC1_CK	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PD2	SDMMC1_CMD	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC9	SDMMC1_D1	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC8	SDMMC1_D0	Alternate Function Push Pull	No pull-up and no pull-down	High	
USART2	PD6	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD5	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
Single Mapped Signals	PG9	SPI3_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB6	I2C1_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PG10	SPI3_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD3	USART2_CTS	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PG12	SPI3_NSS	Alternate Function Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PF8	OCTOSPIM_P1_IO0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PB7	I2C1_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PF7	OCTOSPIM_P1_IO2	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF9	OCTOSPIM_P1_IO1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PA8	RCC_MCO	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PG7	SAI1_MCLK_A	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PF10	OCTOSPIM_P1_CLK	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF6	OCTOSPIM_P1_IO3	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG6	OCTOSPIM_P1_DQS	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB0	ADC1_IN15	Analog mode	No pull-up and no pull-down	n/a	
	PB10	I2C2_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PA1	ADC1_IN6	Analog mode	No pull-up and no pull-down	n/a	
	PB11	I2C2_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PB12	SPI2_NSS	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PG11	SPI3_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA4	SPI1_NSS	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA3	ADC1_IN8	Analog mode	No pull-up and no pull-down	n/a	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PG15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	BT_HOST_WAKE
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	BT_REG_ON
	PE10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	WIFI_GPIO_3
	PD12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WIFI_GPIO_0
	PD13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WIFI_GPIO_1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PD11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WL_REG_ON

3.2. GPDMA1

3.3. LINKEDLIST

3.4. LPDMA1

3.5. NVIC configuration

3.5.1. NVIC

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
Prefetch fault, memory access fault	true	0	0
Undefined instruction or illegal state	true	0	0
System service call via SWI instruction	true	0	0
Debug monitor	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	15	0
SDMMC1 global interrupt	true	0	0
Flash non-secure global interrupt	unused		
RCC non-secure global interrupt	unused		
USART2 global interrupt	unused		
CRS global interrupt	unused		
FPU global interrupt	unused		

3.5.2. NVIC Code generation

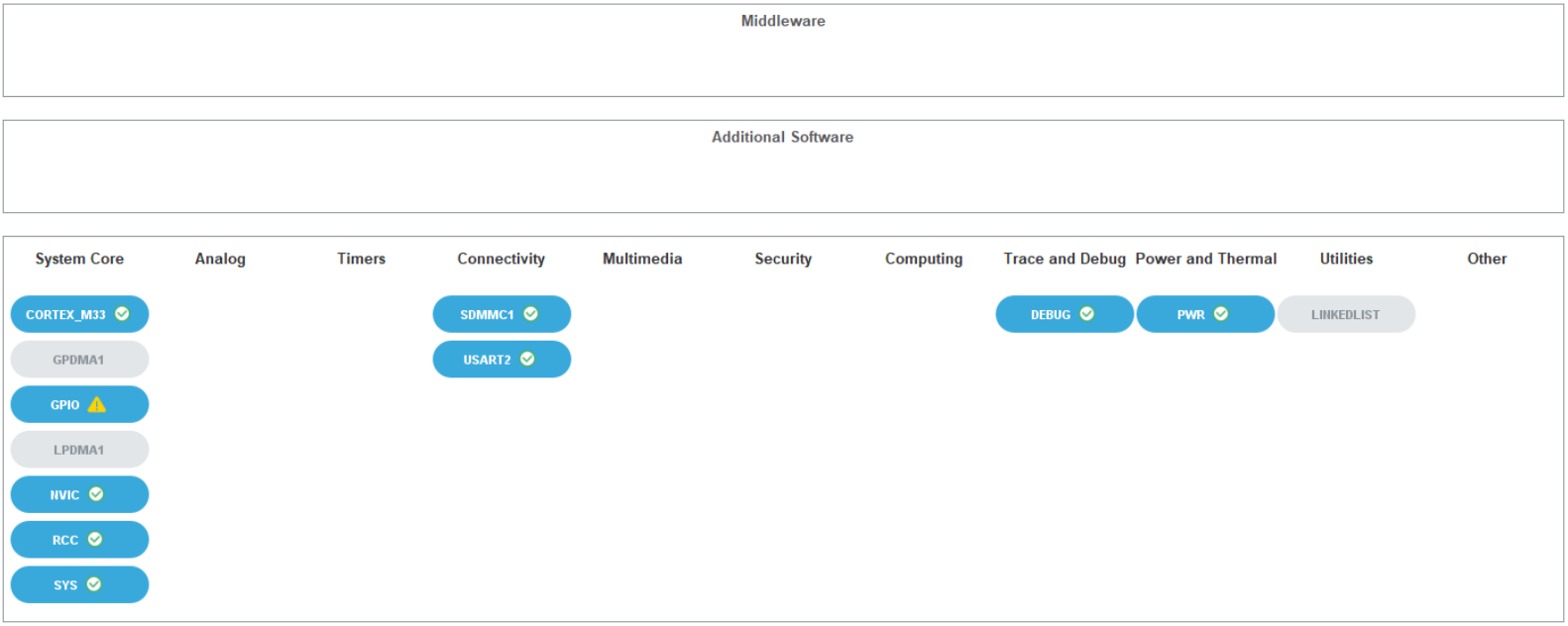
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Prefetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	true	false
Debug monitor	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
SDMMC1 global interrupt	false	true	true

*** User modified value**

4. System Views

4.1. Category view

4.1.1. Current



5. Software Pack Report

5.1. Software Pack selected

Vendor	Name	Version	Component
Infineon	AIROC-Wi-Fi-Bluetooth-STM32	1.6.0	Class : Wireless Group : Wifi SubGroup : network-interface Variant : NetXDuo Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : wcm Variant : WCM Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : wifi-host-driver Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : whd-bsp-integration Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : connectivity-utilities Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : mbedtls

			Version : 1.6.0 Class : Wireless Group : Wifi SubGroup : lpa Version : 1.6.0 Class : Wireless Group : Platform SubGroup : pal Version : 1.6.0 Class : Wireless Group : Platform SubGroup : abstraction-rtos Variant : ThreadX Version : 1.6.0 Class : Wireless Group : Platform SubGroup : device Variant : CYW4343W Version : 1.6.0 Class : Wireless Group : Platform SubGroup : module Variant : MURATA-1DX Version : 1.6.0

6. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32u5_bsdl.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32u5-ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32u5_svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_stm8_functional-safety-packages.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32u5-series-product-overview.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32u5-mcu-lines-for-advanced-graphics.pdf
Brochures	https://www.st.com/resource/en/brochure/brstm32ulp.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32nucleo.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32u5.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
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