

1. Description

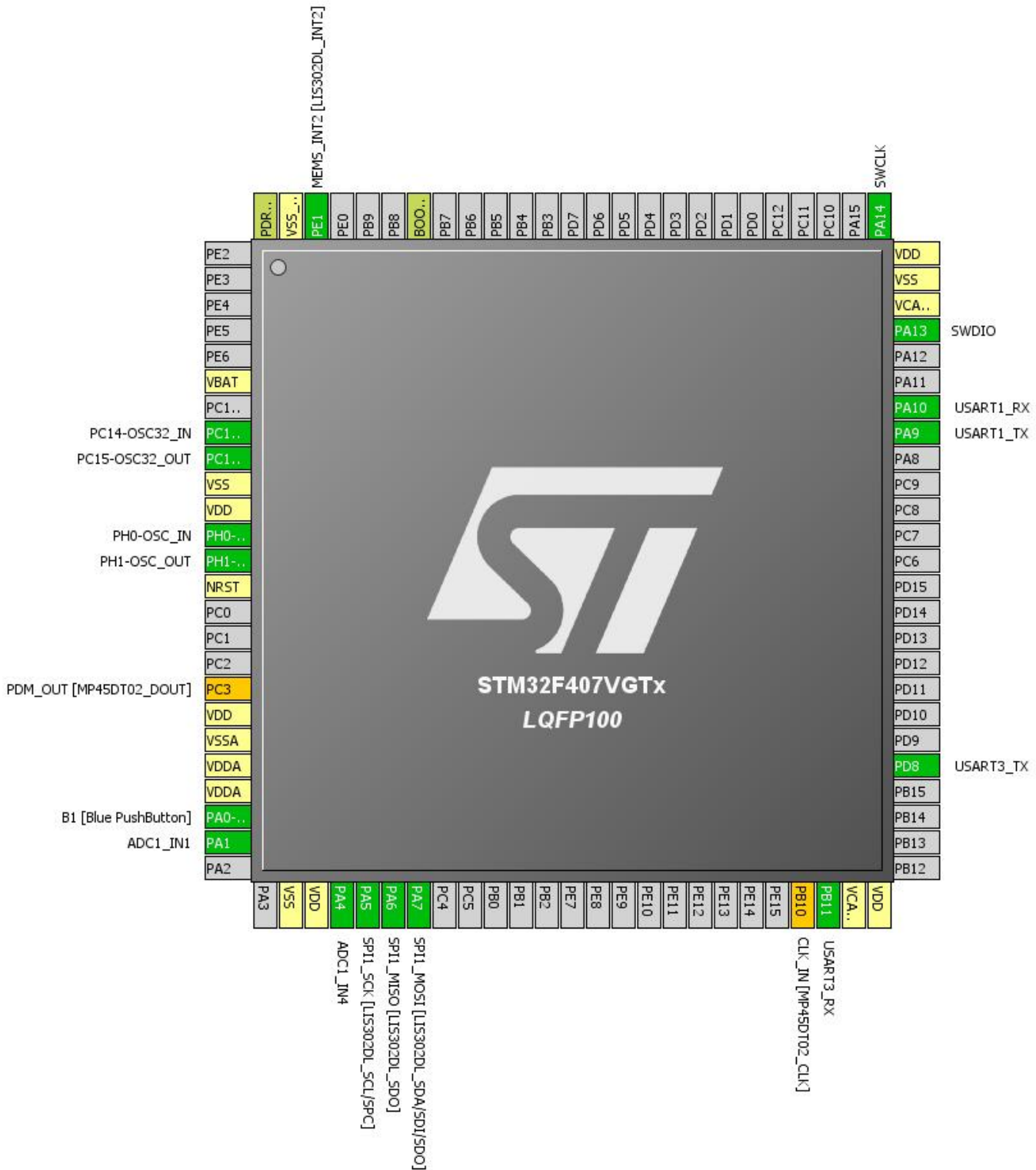
1.1. Project

Project Name	Dashboard
Generated with:	STM32CubeMX 4.2.0
Date	06/05/2014

1.2. MCU

MCU Serie	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407VGTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. IPs and Middlewares Configuration

IP	Mode	Fonction	Pin
ADC1	IN1	ADC1_IN1	PA1
	IN4	ADC1_IN4	PA4
RCC	High Speed Clock (HSE): Crystal/Ceramic Resonator	RCC_OSC_IN	PH0-OSC_IN
		RCC_OSC_OUT	PH1-OSC_OUT
	Low Speed Clock (LSE) : Crystal/Ceramic Resonator	RCC_OSC32_IN	PC14-OSC32_IN
		RCC_OSC32_OUT	PC15-OSC32_OUT
SPI1	Mode: Full-Duplex Master	SPI1_MISO	PA6
		SPI1_MOSI	PA7
		SPI1_SCK	PA5
SYS	Debug: Serial Wire Debug (SWD)	SYS_JTCK-SWCLK	PA14
		SYS_JTMS-SWDIO	PA13
TIM2	Trigger Source: ITR1	N/A	N/A
	Clock Source : Internal Clock	N/A	N/A
TIM5	Trigger Source: ITR2	N/A	N/A
	Clock Source	N/A	N/A
USART1	Mode: Asynchronous	USART1_RX	PA10
		USART1_TX	PA9
USART3	Mode: Asynchronous	USART3_RX	PB11
		USART3_TX	PD8

4. Pins Configuration

Pin	Pos	Function(s)	Label
PC14-OSC32_IN	8	RCC_OSC32_IN	PC14-OSC32_IN
PC15-OSC32_OUT	9	RCC_OSC32_OUT	PC15-OSC32_OUT
PH0-OSC_IN	12	RCC_OSC_IN	PH0-OSC_IN
PH1-OSC_OUT	13	RCC_OSC_OUT	PH1-OSC_OUT
PC3 *	18	I2S2_SD	PDM_OUT [MP45DT02_DOUT]
PA0-WKUP	23	GPIO_EXTI0	B1 [Blue PushButton]
PA1	24	ADC1_IN1	
PA4	29	ADC1_IN4	
PA5	30	SPI1_SCK	SPI1_SCK [LIS302DL_SCL/SPC]
PA6	31	SPI1_MISO	SPI1_MISO [LIS302DL_SDO]
PA7	32	SPI1_MOSI	SPI1_MOSI [LIS302DL_SDA/SDI/SDO]
PB10 *	47	I2S2_CK	CLK_IN [MP45DT02_CLK]
PB11	48	USART3_RX	
PD8	55	USART3_TX	
PA9	68	USART1_TX	
PA10	69	USART1_RX	
PA13	72	SYS_JTMS-SWDIO	SWDIO
PA14	76	SYS_JTCK-SWCLK	SWCLK
PE1	98	GPIO_EXTI1	MEMS_INT2 [LIS302DL_INT2]

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

5. Power Plugin report

5.1. Microcontroller Selection

Serie	STM32F4
Line	STM32F407/417
MCU	STM32F407VGTx
Datasheet	022152_Rev5

5.2. Parameter Selection

Temperature	25
Vdd	3.3

5.3. Battery Selection

Battery	Alkaline(9V)
Capacity	625.0 mAh
Self discharge	0.3 %/month
Nominal voltage	9.0 V
Max Cont Current	200.0 mA
Max Pulse Current	0.0 mA
Cells in series	1
Cells in parallel	1

5.4. Sequence

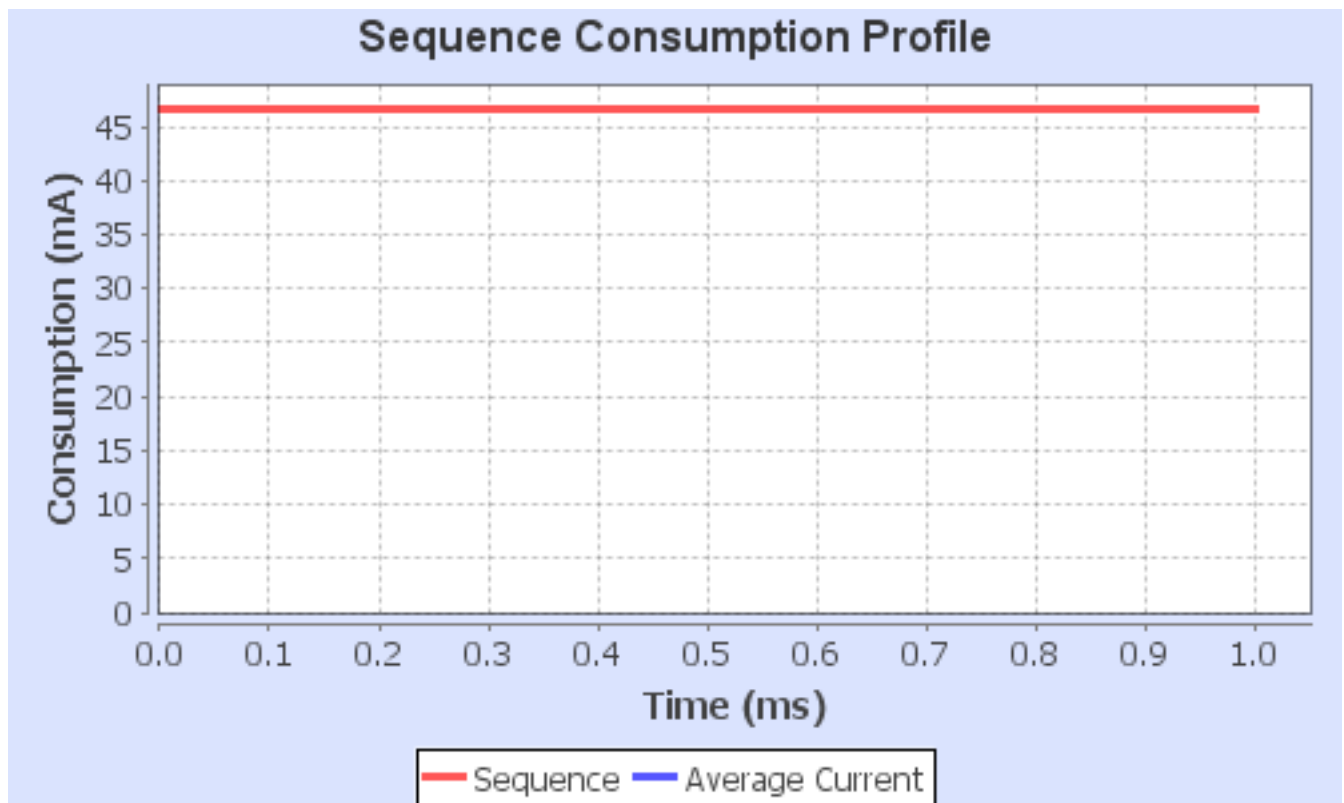
Step	STEP1
Mode	RUN
Range	Scale1-High
Fetch type	RAM/FLASH-ART ON
Clock Config.	HSE PLL ON

Clock Source Freq.	4.0 MHz
CPU Freq.	168.0 MHz
Periph.	ADC1 GPIOA GPIOB GPIOC GPIOD GPIOE GPIOH SPI1 TIM2 TIM5 USART1 USART3
Additional Cons.	0 mA
Average Current	46.53542 mA
Duration	1 ms
DMIPS	210.0

5.5. Results

Sequence time	1.0 ms	Average current	46.535 mA
Battery Life	13 hours	Average DMIPS	210.0 DMIPS

5.6. Chart



6. Software Project

6.1. Project Settings

Name	Value
Project Name	Dashboard
Project Folder	D:\02 Dashboard\STM32CubeMX project\Dashboard
Toolchain / IDE	MDK-ARM 4.73
Firmware Package Name and Version	STM32Cube FW_F4 V1.1.0

6.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Add necessary library files as reference in the toolchain project configuration file
Generate peripheral initialization as a pair of '.c/.h' files	No
Backup previously generated files when re-generating	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	Yes

6.3. Toolchains Settings

Name	Value
Compiler Optimizations	Balanced Size/Speed