1. Description

1.1. Project

Project Name	BaseMobile1
Board Name	No information
Generated with:	STM32CubeMX 4.9.0
Date	05/01/2016

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407ZGTx
MCU Package	LQFP144
MCU Pin number	144

2. Pinout Configuration
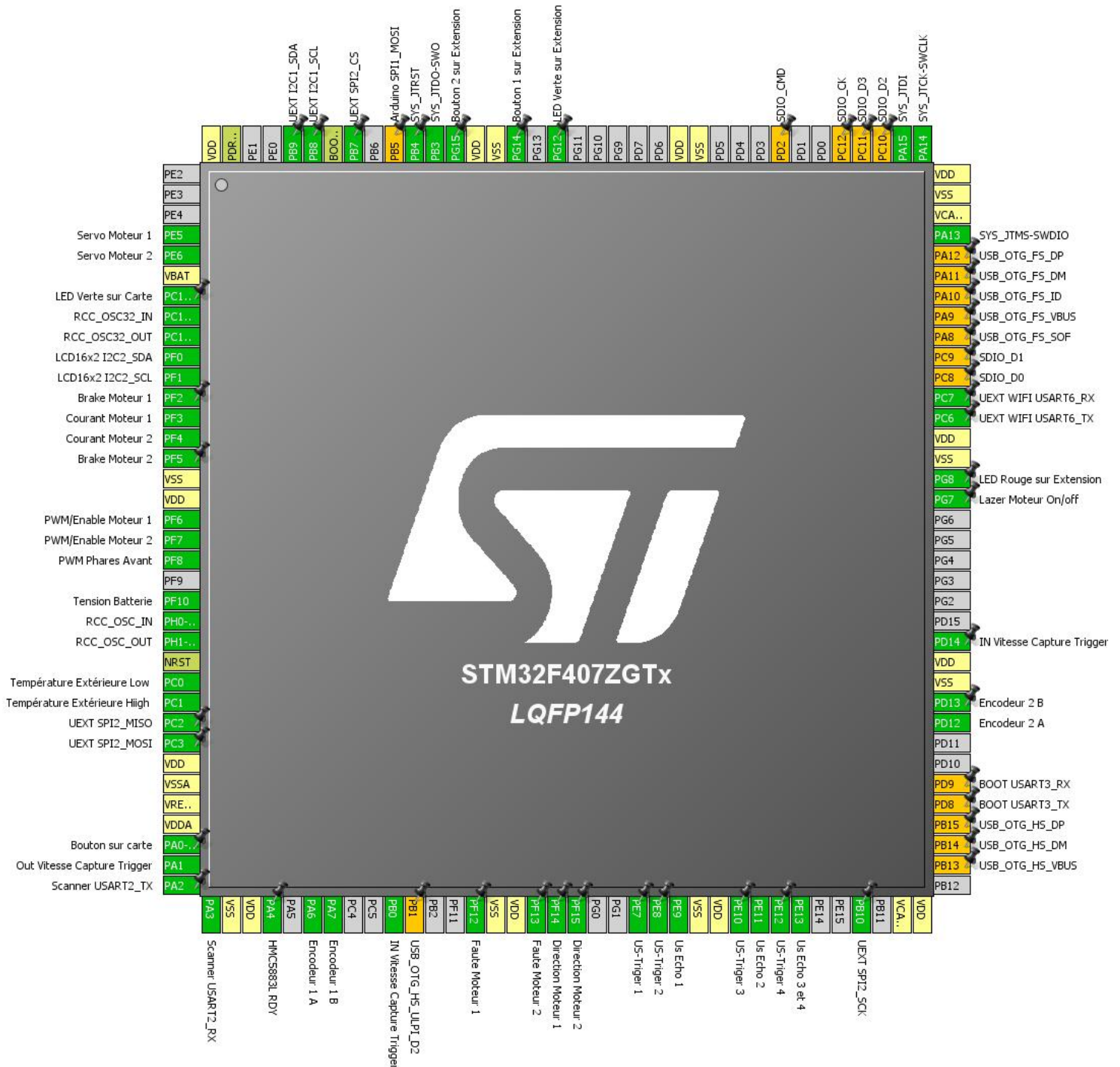
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
4	PE5	I/O	TIM9_CH1	Servo Moteur 1
5	PE6	I/O	TIM9_CH2	Servo Moteur 2
6	VBAT	Power		
7	PC13-ANTI_TAMP *	I/O	GPIO_Output	LED Verte sur Carte
8	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
9	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
10	PF0	I/O	I2C2_SDA	LCD16x2 I2C2_SDA
11	PF1	I/O	I2C2_SCL	LCD16x2 I2C2_SCL
12	PF2 *	I/O	GPIO_Output	Brake Moteur 1
13	PF3	I/O	ADC3_IN9	Courant Moteur 1
14	PF4	I/O	ADC3_IN14	Courant Moteur 2
15	PF5 *	I/O	GPIO_Output	Brake Moteur 2
16	VSS	Power		
17	VDD	Power		
18	PF6	I/O	TIM10_CH1	PWM/Enable Moteur 1
19	PF7	I/O	TIM11_CH1	PWM/Enable Moteur 2
20	PF8	I/O	TIM13_CH1	PWM Phares Avant
22	PF10	I/O	ADC3_IN8	Tension Batterie
23	PH0-OSC_IN	I/O	RCC_OSC_IN	
24	PH1-OSC_OUT	I/O	RCC_OSC_OUT	
25	NRST	Reset		
26	PC0	I/O	ADC3_IN10	Température Extérieure Low
27	PC1	I/O	ADC3_IN11	Température Extérieure Hiigh
28	PC2	I/O	SPI2_MISO	UEXT SPI2_MISO
29	PC3	I/O	SPI2_MOSI	UEXT SPI2_MOSI
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
34	PA0-WKUP *	I/O	GPIO_Input	Bouton sur carte
35	PA1	I/O	TIM5_CH2	Out Vitesse Capture Trigger
36	PA2	I/O	USART2_TX	Scanner USART2_TX
37	PA3	I/O	USART2_RX	Scanner USART2_RX
38	VSS	Power		
39	VDD	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
40	PA4	I/O	GPIO_EXTI4	HMC5883L RDY
42	PA6	I/O	TIM3_CH1	Encodeur 1 A
43	PA7	I/O	TIM3_CH2	Encodeur 1 B
46	PB0	I/O	TIM3_CH3	IN Vitesse Capture Trigger
47	PB1 **	I/O	USB_OTG_HS_ULPI_D2	
50	PF12 *	I/O	GPIO_Input	Faute Moteur 1
51	VSS	Power		
52	VDD	Power		
53	PF13 *	I/O	GPIO_Input	Faute Moteur 2
54	PF14 *	I/O	GPIO_Output	Direction Moteur 1
55	PF15 *	I/O	GPIO_Output	Direction Moteur 2
58	PE7 *	I/O	GPIO_Output	US-Triger 1
59	PE8 *	I/O	GPIO_Output	US-Triger 2
60	PE9	I/O	TIM1_CH1	Us Echo 1
61	VSS	Power		
62	VDD	Power		
63	PE10 *	I/O	GPIO_Output	US-Triger 3
64	PE11	I/O	TIM1_CH2	Us Echo 2
65	PE12 *	I/O	GPIO_Output	US-Triger 4
66	PE13	I/O	TIM1_CH3	Us Echo 3 et 4
69	PB10	I/O	SPI2_SCK	UEXT SPI2_SCK
71	VCAP_1	Power		
72	VDD	Power		
74	PB13 **	I/O	USB_OTG_HS_VBUS	
75	PB14 **	I/O	USB_OTG_HS_DM	
76	PB15 **	I/O	USB_OTG_HS_DP	
77	PD8 **	I/O	USART3_TX	BOOT USART3_TX
78	PD9 **	I/O	USART3_RX	BOOT USART3_RX
81	PD12	I/O	TIM4_CH1	Encodeur 2 A
82	PD13	I/O	TIM4_CH2	Encodeur 2 B
83	VSS	Power		
84	VDD	Power		
85	PD14	I/O	TIM4_CH3	IN Vitesse Capture Trigger
92	PG7 *	I/O	GPIO_Output	Lazer Moteur On/off
93	PG8 *	I/O	GPIO_Output	LED Rouge sur Extension
94	VSS	Power		
95	VDD	Power		
96	PC6	I/O	USART6_TX	UEXT WIFI USART6_TX
97	PC7	I/O	USART6_RX	UEXT WIFI USART6_RX

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
98	PC8 **	I/O	SDIO_D0	
99	PC9 **	I/O	SDIO_D1	
100	PA8 **	I/O	USB_OTG_FS_SOF	
101	PA9 **	I/O	USB_OTG_FS_VBUS	
102	PA10 **	I/O	USB_OTG_FS_ID	
103	PA11 **	I/O	USB_OTG_FS_DM	
104	PA12 **	I/O	USB_OTG_FS_DP	
105	PA13	I/O	SYS_JTMS-SWDIO	
106	VCAP_2	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
110	PA15	I/O	SYS_JTDI	
111	PC10 **	I/O	SDIO_D2	
112	PC11 **	I/O	SDIO_D3	
113	PC12 **	I/O	SDIO_CK	
116	PD2 **	I/O	SDIO_CMD	
120	VSS	Power		
121	VDD	Power		
127	PG12 *	I/O	GPIO_Output	LED Verte sur Extension
129	PG14 *	I/O	GPIO_Input	Bouton 1 sur Extension
130	VSS	Power		
131	VDD	Power		
132	PG15 *	I/O	GPIO_Input	Bouton 2 sur Extension
133	PB3	I/O	SYS_JTDO-SWO	
134	PB4	I/O	SYS_JTRST	
135	PB5 **	I/O	SPI1_MOSI	Arduino SPI1_MOSI
137	PB7 *	I/O	GPIO_Output	UEXT SPI2_CS
138	BOOT0	Boot		
139	PB8	I/O	I2C1_SCL	UEXT I2C1_SCL
140	PB9	I/O	I2C1_SDA	UEXT I2C1_SDA
143	PDR_ON	Reset		
144	VDD	Power		

 * The pin is affected with an I/O function

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

4. IPs and Middleware Configuration

4.1. ADC3

mode: IN8

mode: IN9

mode: IN10

mode: IN11

mode: IN14

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	PCLK2 divided by 4
Resolution	12 bits (15 ADC Clock cycles)
Data Alignment	Right alignment
Scan Conversion Mode	**Enabled ***
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	**Enabled ***
End Of Conversion Selection	EOC flag at the end of single channel conversion

ADCgroup:

Number Of Conversion	**5 ***
External Trigger Conversion Edge	**Trigger detection on the rising edge ***
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***
Number Of Conversions	0
Number Of Conversion	**5 ***
External Trigger Conversion Edge	**Trigger detection on the rising edge ***
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***
Number Of Conversion	**5 ***
External Trigger Conversion Edge	**Trigger detection on the rising edge ***
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***
Number Of Conversion	**5 ***
External Trigger Conversion Edge	**Trigger detection on the rising edge ***
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***
Number Of Conversion	**5 ***
External Trigger Conversion Edge	

	Trigger detection on the rising edge *
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***
Number Of Conversion	**5 ***
External Trigger Conversion Edge	**Trigger detection on the rising edge ***
External Trigger Conversion Source	**Timer 5 Capture Compare 2 event ***

WatchDog:

| Enable Analog WatchDog Mode | false |

ADC_Regular_ConversionMode:

Rank	1
Channel	**Channel 8 ***
Sampling Time	**112 Cycles ***
Rank	**2 ***
Channel	**Channel 9 ***
Sampling Time	**112 Cycles ***
Rank	**3 ***
Channel	**Channel 10 ***
Sampling Time	**112 Cycles ***
Rank	**4 ***
Channel	**Channel 11 ***
Sampling Time	**112 Cycles ***
Rank	**5 ***
Channel	**Channel 14 ***
Sampling Time	**112 Cycles ***

4.2. I2C1

I2C: I2C

Master Features:

| I2C Speed Mode | Standard Mode |
| I2C Clock Speed (Hz) | 100000 |

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

4.3. I2C2

I2C: I2C

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	**50000 ***

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

4.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator
Low Speed Clock (LSE) : Crystal/Ceramic Resonator

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	5 WS (6 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

Power Parameters:

Power Regulatror Voltage Scale	Power Regulator Voltage Scale 1

4.5. SPI2

Mode: Full-Duplex Master

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**21.0 MBits/s ***
Clock Polarity (CPOL)	**High ***
Clock Phase (CPHA)	**2 Edge ***

Advanced Parameters:

CRC Calculation	**Enabled ***
CRC Polynomial	X1+X3
NSS Signal Type	Software

4.6. SYS

Debug: JTAG (5 pins)

4.7. TIM1

Slave Mode: Reset Mode
Trigger Source: TI1_ED
Clock Source   : Internal Clock
Channel1: Input Capture direct mode
Channel2: Input Capture direct mode
Channel3: Input Capture direct mode
mode: XOR activation

Counter Settings:

Prescaler (PSC - 16 bits value)	**167 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**0xFFFF ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
Slave Mode Controller	Reset Mode

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Input Capture Channel 1:

Polarity Selection	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

Input Capture Channel 2:

Polarity Selection	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

Input Capture Channel 3:

Polarity Selection	**Falling Edge ***
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

4.8. TIM2

Clock Source   : Internal Clock
Channel1: Output Compare No Output
Channel2: Output Compare No Output
Channel3: Output Compare No Output
Channel4: Output Compare No Output

Counter Settings:

Prescaler (PSC - 16 bits value)	**83 ***
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**0xFFFFFFFF ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Output Compare No Output Channel 1:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

Output Compare No Output Channel 2:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

Output Compare No Output Channel 3:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

Output Compare No Output Channel 4:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

4.9. TIM3

Channel3: Input Capture direct mode

Combined Channels: Encoder Mode

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**0xFFFF ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Input Capture Channel 3:

Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

Encoder:

Encoder Mode	**Encoder Mode TI1 and TI2 ***
_____ Parameters for Channel 1 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**8 ***
_____ Parameters for Channel 2 _____	
Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**8 ***

4.10. TIM4

Channel3: Input Capture direct mode

Combined Channels: Encoder Mode

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**0xFFFF ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	**Enable (sync between this TIM (Master) and its Slaves (through TRGO)) ***
Trigger Event Selection	**Update Event ***

Input Capture Channel 3:

Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

Encoder:

Encoder Mode	**Encoder Mode TI1 and TI2 ***

_____ Parameters for Channel 1 _____

Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**8 ***

_____ Parameters for Channel 2 _____

Polarity	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter	**8 ***

4.11. TIM5

mode: Clock Source
Channel1: Output Compare No Output
Channel2: Output Compare CH2
Channel3: Output Compare No Output
Channel4: Output Compare No Output

Counter Settings:

Prescaler (PSC - 16 bits value)

83 *

Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**0xFFFFFFFF ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Output Compare No Output Channel 1:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

Output Compare Channel 2:

Mode	**Active Level on match ***
Pulse (32 bits value)	**0xFFFFFFFF ***
CH Polarity	High

Output Compare No Output Channel 3:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

Output Compare No Output Channel 4:

Mode	Frozen (used for Timing base)
Pulse (32 bits value)	0
CH Polarity	High

4.12. TIM9

mode: Clock Source
Channel1: PWM Generation CH1
Channel2: PWM Generation CH2

Counter Settings:

Prescaler (PSC - 16 bits value)	**167 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**19999 ***
Internal Clock Division (CKD)	No Division

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	**1500 ***

| Fast Mode | Disable |
| CH Polarity | High |

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	**1500 ***
Fast Mode	Disable
CH Polarity	High

4.13. TIM10

mode: Activated

Channel1: PWM Generation CH1

Counter Settings:

Prescaler (PSC - 16 bits value)	**7 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
Internal Clock Division (CKD)	No Division

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

4.14. TIM11

mode: Activated

Channel1: PWM Generation CH1

Counter Settings:

Prescaler (PSC - 16 bits value)	**7 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
Internal Clock Division (CKD)	No Division

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

4.15. TIM13

mode: Activated

Channel1: PWM Generation CH1

Counter Settings:

Prescaler (PSC - 16 bits value)	**840 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
Internal Clock Division (CKD)	No Division

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

4.16. USART2

Mode: Asynchronous

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

4.17. USART6

Mode: Asynchronous

Basic Parameters:

Baud Rate	**7372800 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction   Receive and Transmit

Over Sampling   **8 Samples ***

* User modified value

5. System Configuration

5.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC3	PF3	ADC3_IN9	Analog mode	No pull-up and no pull-down	n/a	Courant Moteur 1
	PF4	ADC3_IN14	Analog mode	No pull-up and no pull-down	n/a	Courant Moteur 2
	PF10	ADC3_IN8	Analog mode	No pull-up and no pull-down	n/a	Tension Batterie
	PC0	ADC3_IN10	Analog mode	No pull-up and no pull-down	n/a	Température Extérieure Low
	PC1	ADC3_IN11	Analog mode	No pull-up and no pull-down	n/a	Température Extérieure Hiigh
I2C1	PB8	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	UEXT I2C1_SCL
	PB9	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	UEXT I2C1_SDA
I2C2	PF0	I2C2_SDA	Alternate Function Open Drain	Pull-up	**High ***	LCD16x2 I2C2_SDA
	PF1	I2C2_SCL	Alternate Function Open Drain	Pull-up	**High ***	LCD16x2 I2C2_SCL
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI2	PC2	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	UEXT SPI2_MISO
	PC3	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	UEXT SPI2_MOSI
	PB10	SPI2_SCK	Alternate Function Push Pull	**Pull-down ***	**High ***	UEXT SPI2_SCK
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PA15	SYS_JTDI	n/a	n/a	n/a	
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	
	PB4	SYS_JTRST	n/a	n/a	n/a	
TIM1	PE9	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Us Echo 1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PE11	TIM1_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	Us Echo 2
	PE13	TIM1_CH3	Alternate Function Push Pull	**Pull-down ***	Low	Us Echo 3 et 4
TIM3	PA6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Encodeur 1 A
	PA7	TIM3_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	Encodeur 1 B
	PB0	TIM3_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	IN Vitesse Capture Trigger
TIM4	PD12	TIM4_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Encodeur 2 A
	PD13	TIM4_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	Encodeur 2 B
	PD14	TIM4_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	IN Vitesse Capture Trigger
TIM5	PA1	TIM5_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	Out Vitesse Capture Trigger
TIM9	PE5	TIM9_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Servo Moteur 1
	PE6	TIM9_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	Servo Moteur 2
TIM10	PF6	TIM10_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM/Enable Moteur 1
TIM11	PF7	TIM11_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM/Enable Moteur 2
TIM13	PF8	TIM13_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM Phares Avant
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**High ***	Scanner USART2_TX
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	**High ***	Scanner USART2_RX
USART6	PC6	USART6_TX	Alternate Function Push Pull	*	**High ***	UEXT WIFI USART6_TX
	PC7	USART6_RX	Alternate Function Push Pull	*	**High ***	UEXT WIFI USART6_RX
Single Mapped Signals	PB1	USB_OTG_HS_ULPI_D2	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB13	USB_OTG_HS_VBUS	Input mode	No pull-up and no pull-down	n/a	
	PB14	USB_OTG_HS_DM	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PB15	USB_OTG_HS_DP	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PD8	USART3_TX	Alternate Function Push Pull	**Pull-up ***	**High ***	BOOT USART3_TX
	PD9	USART3_RX	Alternate Function Push Pull	**Pull-up ***	**High ***	BOOT USART3_RX
	PC8	SDIO_D0	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC9	SDIO_D1	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PA8	USB_OTG_FS_SOF	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA9	USB_OTG_FS_VBUS	Input mode	No pull-up and no pull-down	**n/a**	
	PA10	USB_OTG_FS_ID	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PC10	SDIO_D2	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC11	SDIO_D3	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC12	SDIO_CK	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PD2	SDIO_CMD	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB5	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	Arduino SPI1_MOSI
GPIO	PC13-ANTI_TAMP	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED Verte sur Carte
	PF2	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	Low	Brake Moteur 1
	PF5	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	Low	Brake Moteur 2
	PA0-WKUP	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Bouton sur carte
	PA4	GPIO_EXTI4	**External Interrupt Mode with Rising edge trigger detection**	No pull-up and no pull-down	n/a	HMC5883L RDY
	PF12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Faute Moteur 1
	PF13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Faute Moteur 2
	PF14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Direction Moteur 1
	PF15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Direction Moteur 2
	PE7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US-Triger 1
	PE8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US-Triger 2
	PE10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US-Triger 3
	PE12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US-Triger 4
	PG7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Lazer Moteur On/off
	PG8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED Rouge sur Extension
	PG12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED Verte sur Extension
	PG14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Bouton 1 sur Extension
	PG15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Bouton 2 sur Extension
	PB7	GPIO_Output	Output Push Pull	**Pull-up ***	**High ***	UEXT SPI2_CS

5.2. DMA configuration

DMA request	Stream	Direction	Priority
USART6_RX	DMA2_Stream1	Peripheral To Memory	**Very High ***
USART6_TX	DMA2_Stream6	Memory To Peripheral	**High ***
ADC3	DMA2_Stream0	Peripheral To Memory	Low
USART2_RX	DMA1_Stream5	Peripheral To Memory	**High ***

USART6_RX: DMA2_Stream1 DMA request Settings:

Mode:	Normal
Use fifo:	Disable
PeripheralIncrement:	Disable
MemoryIncrement:	**Enable ***
Peripheral Data Width:	Byte

USART6_TX: DMA2_Stream6 DMA request Settings:

Mode:	Normal
Use fifo:	Disable
PeripheralIncrement:	Disable
MemoryIncrement:	**Enable ***
Peripheral Data Width:	Byte

ADC3: DMA2_Stream0 DMA request Settings:

Mode:	**Circular ***
Use fifo:	Disable
PeripheralIncrement:	Disable
MemoryIncrement:	**Enable ***
Peripheral Data Width:	**Word ***

USART2_RX: DMA1_Stream5 DMA request Settings:

Mode:	**Circular ***
Use fifo:	Disable
PeripheralIncrement:	Disable
MemoryIncrement:	

Enable *

Peripheral Data Width: Byte

5.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriority
System tick timer	true	0	4
EXTI Line4 interrupt	true	0	15
DMA1 Stream5 global interrupt	true	0	15
TIM1 Capture Compare interrupt	true	0	9
TIM2 global interrupt	true	0	5
I2C1 event interrupt	true	0	14
I2C1 error interrupt	true	0	14
I2C2 event interrupt	true	0	14
I2C2 error interrupt	true	0	14
USART2 global interrupt	true	0	11
TIM5 global interrupt	true	0	13
DMA2 Stream0 global interrupt	true	0	12
DMA2 Stream1 global interrupt	true	0	10
DMA2 Stream6 global interrupt	true	0	10
USART6 global interrupt	true	0	11
Non Maskable Interrupt	unused		
Memory management fault	unused		
Pre-fetch fault, memory access fault	unused		
Undefined instruction or illegal state	unused		
Debug Monitor	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
TIM1 Break interrupt and TIM9 global interrupt	unused		
TIM1 Update interrupt and TIM10 global interrupt	unused		
TIM1 Trigger and Commutation interrupts and TIM11 global interrupt	unused		
TIM3 global interrupt	unused		
TIM4 global interrupt	unused		
SPI2 global interrupt	unused		
TIM8 Update interrupt and TIM13 global interrupt	unused		

* User modified value

6. Clock Tree Configuration
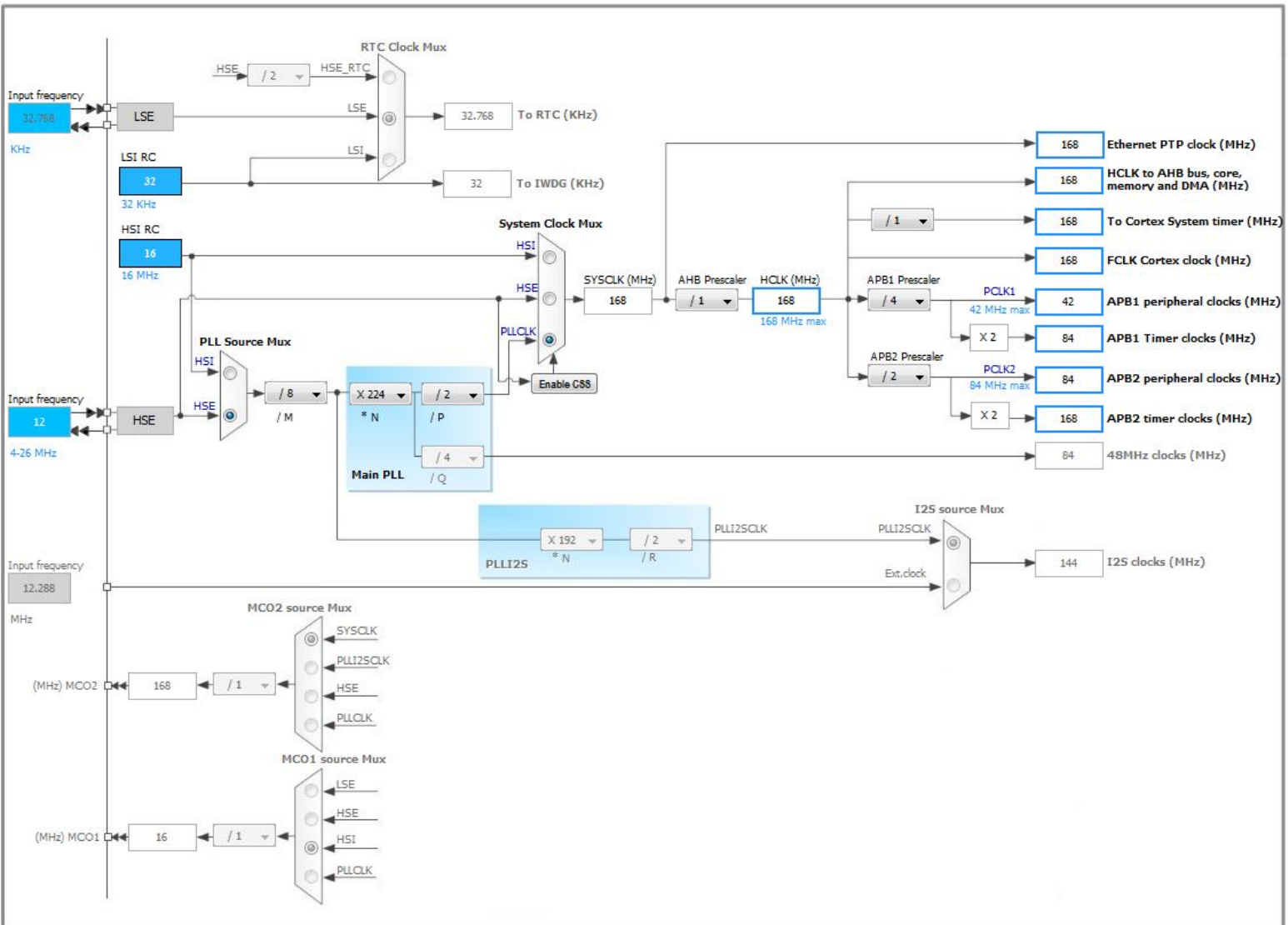
7. Power Plugin report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F407/417
MCU	STM32F407ZGTx
Datasheet	022152_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	BaseMobile1
Project Folder	D:\ARM Travail\Tank
Toolchain / IDE	MDK-ARM V4
Firmware Package Name and Version	STM32Cube FW_F4 V1.7.0

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	Yes
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)	No

8.3. Toolchains Settings

Name	Value
Compiler Optimizations	Balanced Size/Speed