1. Description

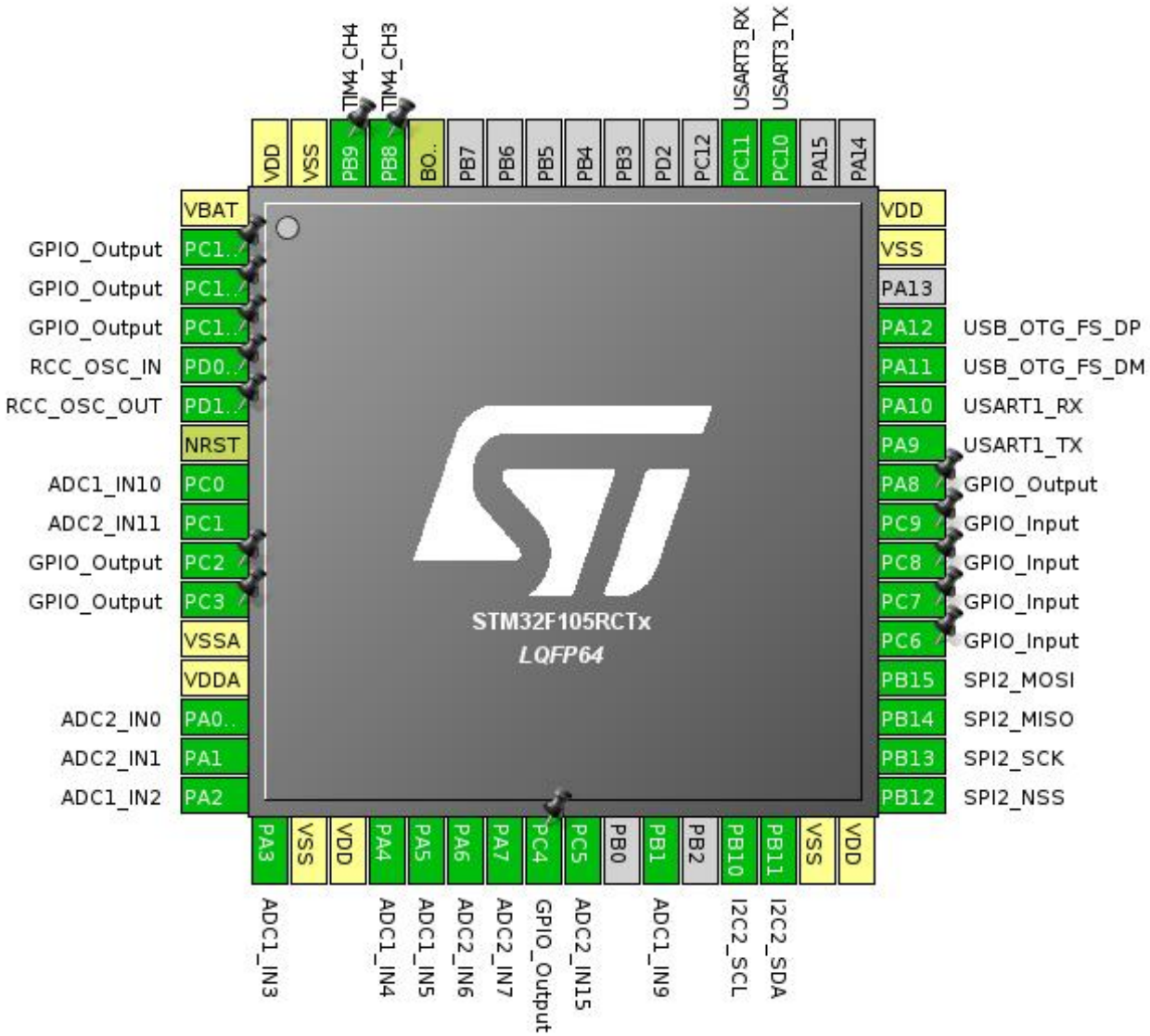
1.1. Project

Project Name	MicroKit_Cube
Board Name	No information
Generated with:	STM32CubeMX 4.14.0
Date	04/11/2016

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F105/107
MCU name	STM32F105RCTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



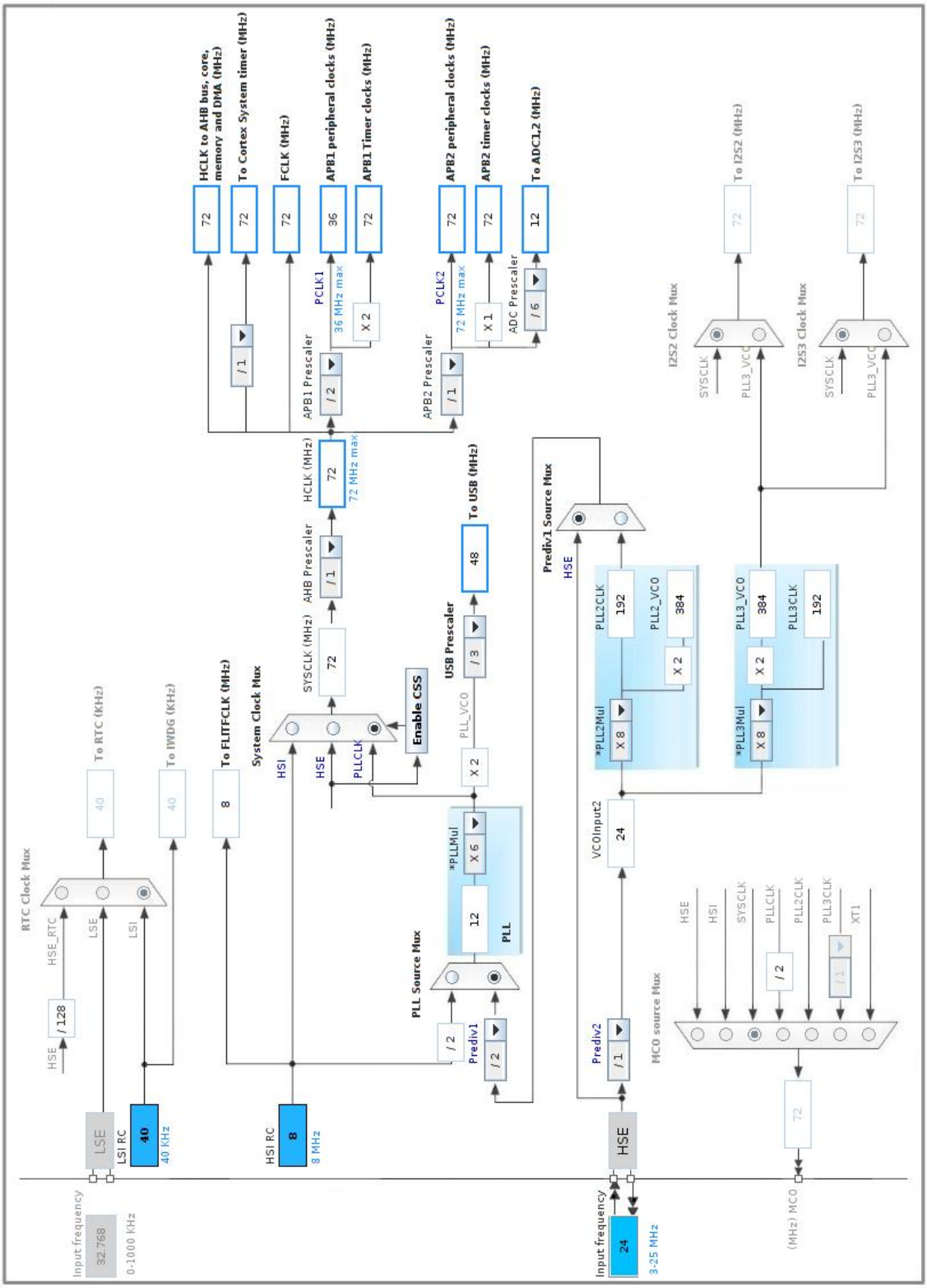
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-TAMPER-RTC *	I/O	GPIO_Output	
3	PC14-OSC32_IN *	I/O	GPIO_Output	
4	PC15-OSC32_OUT *	I/O	GPIO_Output	
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	PC0	I/O	ADC1_IN10	
9	PC1	I/O	ADC2_IN11	
10	PC2 *	I/O	GPIO_Output	
11	PC3 *	I/O	GPIO_Output	
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP	I/O	ADC2_IN0	
15	PA1	I/O	ADC2_IN1	
16	PA2	I/O	ADC1_IN2	
17	PA3	I/O	ADC1_IN3	
18	VSS	Power		
19	VDD	Power		
20	PA4	I/O	ADC1_IN4	
21	PA5	I/O	ADC1_IN5	
22	PA6	I/O	ADC2_IN6	
23	PA7	I/O	ADC2_IN7	
24	PC4 *	I/O	GPIO_Output	
25	PC5	I/O	ADC2_IN15	
27	PB1	I/O	ADC1_IN9	
29	PB10	I/O	I2C2_SCL	
30	PB11	I/O	I2C2_SDA	
31	VSS	Power		
32	VDD	Power		
33	PB12	I/O	SPI2_NSS	
34	PB13	I/O	SPI2_SCK	
35	PB14	I/O	SPI2_MISO	
36	PB15	I/O	SPI2_MOSI	
37	PC6 *	I/O	GPIO_Input	
38	PC7 *	I/O	GPIO_Input	

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
39	PC8 *	I/O	GPIO_Input	
40	PC9 *	I/O	GPIO_Input	
41	PA8 *	I/O	GPIO_Output	
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
44	PA11	I/O	USB_OTG_FS_DM	
45	PA12	I/O	USB_OTG_FS_DP	
47	VSS	Power		
48	VDD	Power		
51	PC10	I/O	USART3_TX	
52	PC11	I/O	USART3_RX	
60	BOOT0	Boot		
61	PB8	I/O	TIM4_CH3	
62	PB9	I/O	TIM4_CH4	
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN2

mode: IN3

mode: IN4

mode: IN5

mode: IN9

mode: IN10

5.1.1. Parameter Settings:

ADCs_Common_Settings:	
Mode	Independent mode
ADC_Settings:	
Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled
ADC_Regular_ConversionMode:	
Enable Regular Conversions	Enable
Number Of Conversion	1
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel 3 ***
Sampling Time	1.5 Cycles
ADC_Injected_ConversionMode:	
Number Of Conversions	0
WatchDog:	
Enable Analog WatchDog Mode	false

5.2. ADC2

mode: IN0

mode: IN1

mode: IN6
mode: IN7
mode: IN11
mode: IN15

5.2.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	**Enabled ***
Discontinuous Conversion Mode	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	1
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 0
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.3. I2C2

I2C: I2C

5.3.1. Parameter Settings:

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

5.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.4.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

5.5. SPI2

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Input Signal

5.5.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Input Hardware

5.6. SYS

Timebase Source: SysTick

5.7. TIM4

mode: Clock Source
Channel3: PWM Generation CH3
Channel4: PWM Generation CH4

5.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
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)

PWM Generation Channel 3:

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

PWM Generation Channel 4:

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

5.8. USART1

Mode: Asynchronous

5.8.1. 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

5.9. USART3

Mode: Asynchronous

5.9.1. 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

5.10. USB_OTG_FS

Mode: Device_Only

5.10.1. Parameter Settings:

Speed	Device Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Low power	Disabled
VBUS sensing	Disabled

5.11. USB_DEVICE

Class For FS IP: Communication Device Class (Virtual Port Com)

5.11.1. Parameter Settings:

Basic Parameters:

USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces)	1
USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration)	1
USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors)	512
USBD_SUPPORT_USER_STRING (Enable user string descriptor)	Disabled
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	0: No debug message

Class Parameters:

USBD_CDC_INTERVAL (Number of micro-frames interval)	1000

5.11.2. Device Descriptor:

Device Descriptor:

VID (Vendor IDentifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	**Lab Adaptive ***

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	STM32 Virtual ComPort
SERIALNUMBER_STRING (Serial number)	00000000001A
CONFIGURATION_STRING (Configuration Identifier)	CDC Config
INTERFACE_STRING (Interface Identifier)	CDC Interface

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PC0	ADC1_IN10	Analog mode	n/a	n/a	
	PA2	ADC1_IN2	Analog mode	n/a	n/a	
	PA3	ADC1_IN3	Analog mode	n/a	n/a	
	PA4	ADC1_IN4	Analog mode	n/a	n/a	
	PA5	ADC1_IN5	Analog mode	n/a	n/a	
	PB1	ADC1_IN9	Analog mode	n/a	n/a	
ADC2	PC1	ADC2_IN11	Analog mode	n/a	n/a	
	PA0-WKUP	ADC2_IN0	Analog mode	n/a	n/a	
	PA1	ADC2_IN1	Analog mode	n/a	n/a	
	PA6	ADC2_IN6	Analog mode	n/a	n/a	
	PA7	ADC2_IN7	Analog mode	n/a	n/a	
	PC5	ADC2_IN15	Analog mode	n/a	n/a	
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	n/a	**High ***	
	PB11	I2C2_SDA	Alternate Function Open Drain	n/a	**High ***	
RCC	PD0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PD1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI2	PB12	SPI2_NSS	Input mode	No pull-up and no pull-down	n/a	
	PB13	SPI2_SCK	Alternate Function Push Pull	n/a	**High ***	
	PB14	SPI2_MISO	Input mode	No pull-up and no pull-down	**n/a**	
	PB15	SPI2_MOSI	Alternate Function Push Pull	n/a	**High ***	
TIM4	PB8	TIM4_CH3	Alternate Function Push Pull	n/a	Low	
	PB9	TIM4_CH4	Alternate Function Push Pull	n/a	Low	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
USART3	PC10	USART3_TX	Alternate Function Push Pull	n/a	**High ***	
	PC11	USART3_RX	Input mode	No pull-up and no pull-down	**n/a**	
USB_OTG_FS	PA11	USB_OTG_FS_DM	n/a	n/a	n/a	
	PA12	USB_OTG_FS_DP	n/a	n/a	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
GPIO	PC13-TAMPER-RTC	GPIO_Output	Output Push Pull	n/a	Low	
	PC14-OSC32_IN	GPIO_Output	Output Push Pull	n/a	Low	
	PC15-OSC32_OUT	GPIO_Output	Output Push Pull	n/a	Low	
	PC2	GPIO_Output	Output Push Pull	n/a	Low	
	PC3	GPIO_Output	Output Push Pull	n/a	Low	
	PC4	GPIO_Output	Output Push Pull	n/a	Low	
	PC6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA8	GPIO_Output	Output Push Pull	n/a	Low	

6.2. DMA configuration

nothing configured in DMA service

6.3. NVIC configuration

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
Debug monitor	true	0	0
System tick timer	true	0	0
ADC1 and ADC2 global interrupts	true	0	0
I2C2 event interrupt	true	1	0
USB OTG FS global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM4 global interrupt	unused		
I2C2 error interrupt	unused		
SPI2 global interrupt	unused		
USART1 global interrupt	unused		
USART3 global interrupt	unused		

*** User modified value**

7. Power Plugin report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F105/107
MCU	STM32F105RCTx
Datasheet	15274_Rev9

7.2. Parameter Selection

Temperature	25
Vdd	3.3