

1. Description

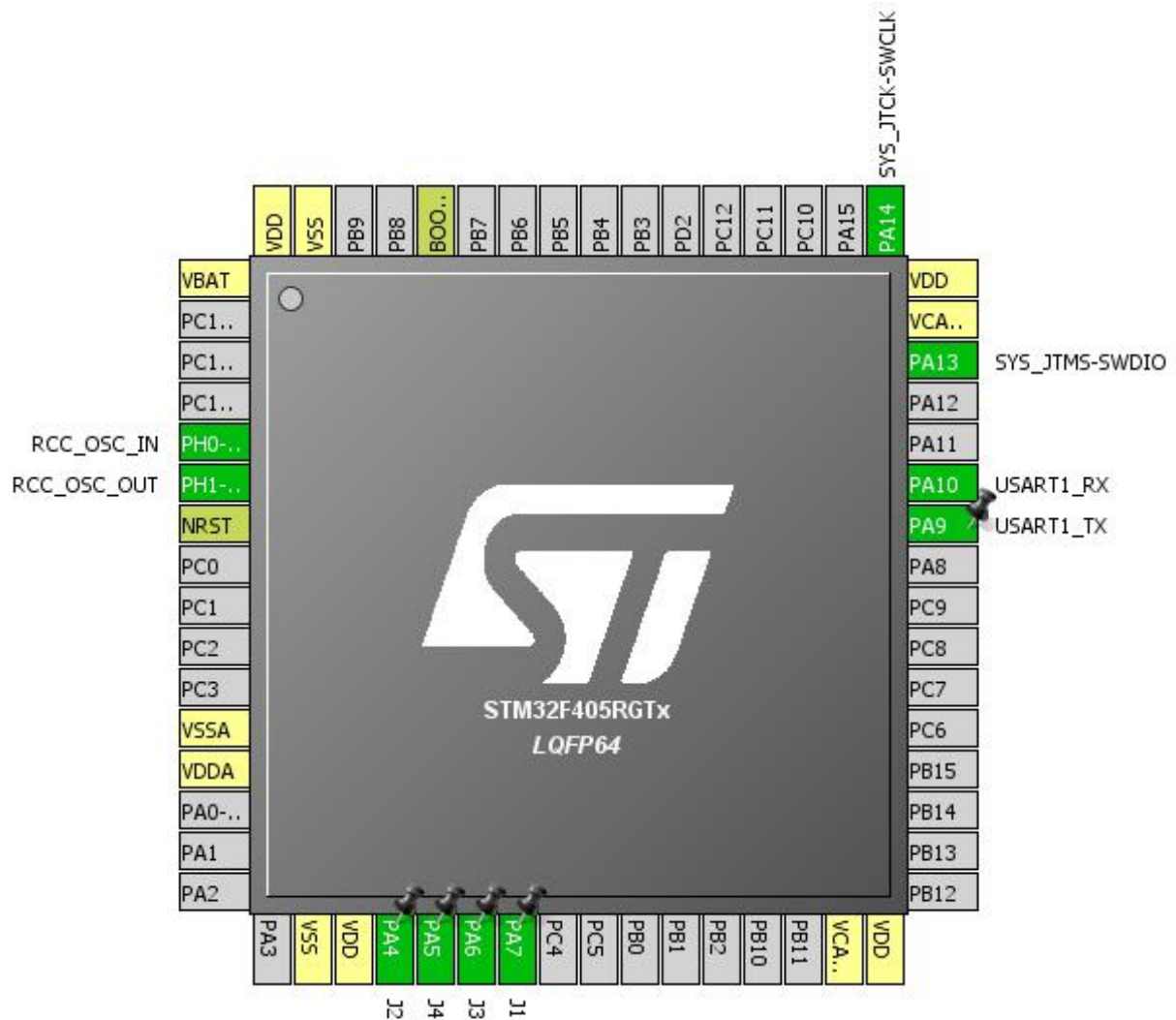
1.1. Project

Project Name	dantou
Board Name	dantou
Generated with:	STM32CubeMX 4.18.0
Date	01/06/2017

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F405/415
MCU name	STM32F405RGTx
MCU Package	LQFP64
MCU Pin number	64

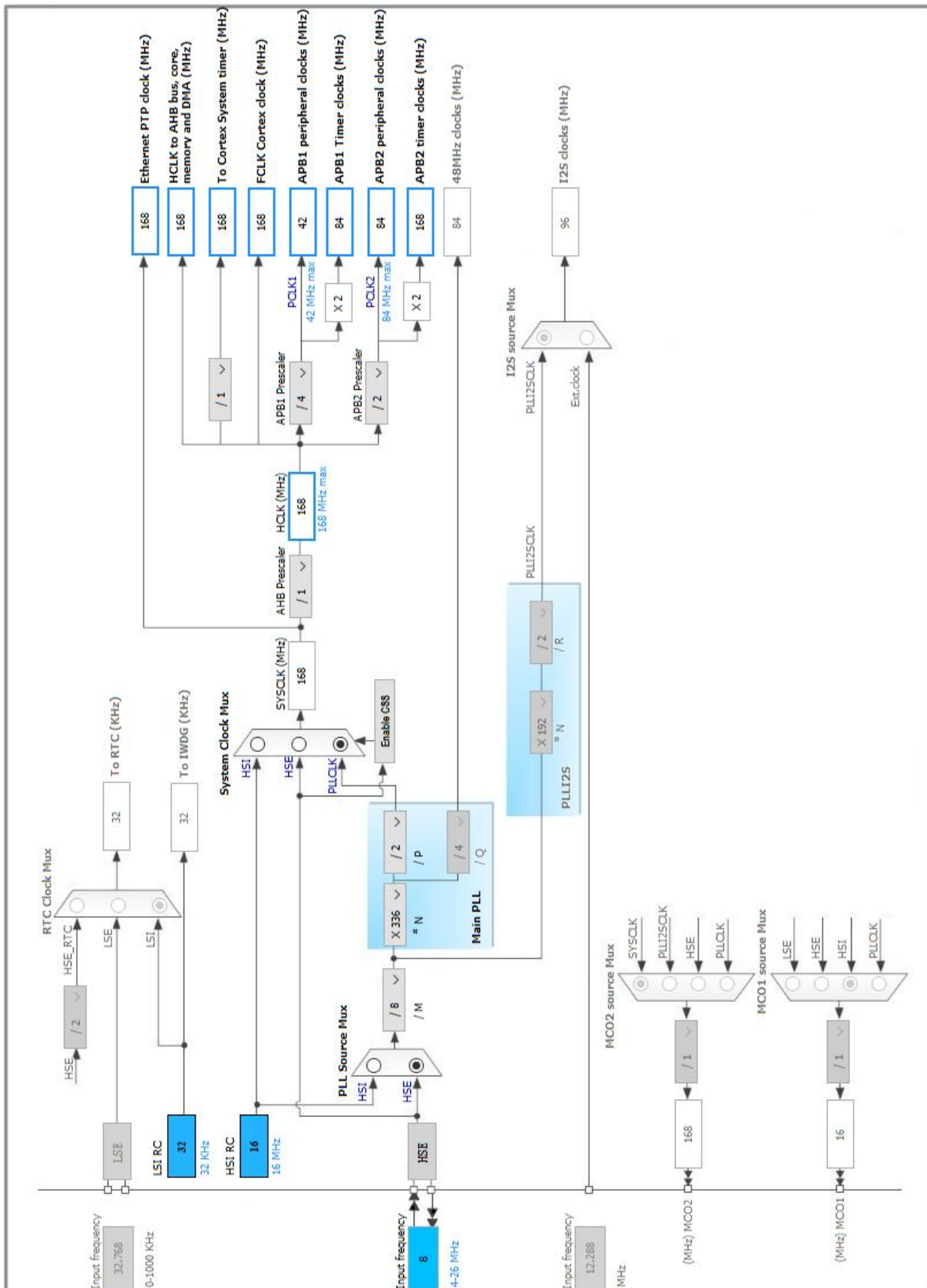
2. Pinout Configuration



3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
5	PH0-OSC_IN	I/O	RCC_OSC_IN	
6	PH1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
18	VSS	Power		
19	VDD	Power		
20	PA4	I/O	ADC1_IN4	J2
21	PA5	I/O	ADC1_IN5	J4
22	PA6	I/O	ADC1_IN6	J3
23	PA7	I/O	ADC1_IN7	J1
31	VCAP_1	Power		
32	VDD	Power		
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VCAP_2	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
60	BOOT0	Boot		
63	VSS	Power		
64	VDD	Power		

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN4

mode: IN5

mode: IN6

mode: IN7

5.1.1. Parameter Settings:

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 **Enabled ***

Discontinuous Conversion Mode Disabled

DMA Continuous Requests **Enabled ***

End Of Conversion Selection EOC flag at the end of single channel conversion

ADC_Regular_ConversionMode:

Number Of Conversion **4 ***

External Trigger Conversion Source Regular Conversion launched by software

External Trigger Conversion Edge None

Rank 1

Channel **Channel 7 ***

Sampling Time 3 Cycles

Rank **2 ***

Channel **Channel 6 ***

Sampling Time 3 Cycles

Rank **3 ***

Channel **Channel 5 ***

Sampling Time 3 Cycles

Rank **4 ***

Channel Channel 4

Sampling Time 3 Cycles

<u>Rank</u>	2 *
Channel	Channel 4
Sampling Time	3 Cycles
<u>Rank</u>	3 *
Channel	Channel 4
Sampling Time	3 Cycles
<u>Rank</u>	4 *
Channel	Channel 4
Sampling Time	3 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0
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WatchDog:

Enable Analog WatchDog Mode	false
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5.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.2.1. Parameter Settings:

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
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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5.3. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.4. USART1

Mode: Asynchronous

5.4.1. 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

* 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	PA4	ADC1_IN4	Analog mode	No pull-up and no pull-down	n/a	J2
	PA5	ADC1_IN5	Analog mode	No pull-up and no pull-down	n/a	J4
	PA6	ADC1_IN6	Analog mode	No pull-up and no pull-down	n/a	J3
	PA7	ADC1_IN7	Analog mode	No pull-up and no pull-down	n/a	J1
RCC	PH0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	Very High *	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	Very High *	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA2_Stream0	Peripheral To Memory	Low

ADC1: DMA2_Stream0 DMA request Settings:

Mode: Normal
Use fifo: Disable
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: **Word ***
Memory Data Width: **Word ***

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
Pre-fetch 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	0	0
DMA2 stream0 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
USART1 global interrupt	unused		
FPU global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F405/415
MCU	STM32F405RGTx
Datasheet	022152_Rev7

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	dantou
Project Folder	C:\Users\Link\Desktop\dantou
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F4 V1.14.0

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy all used libraries into the project folder
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