

1. Description

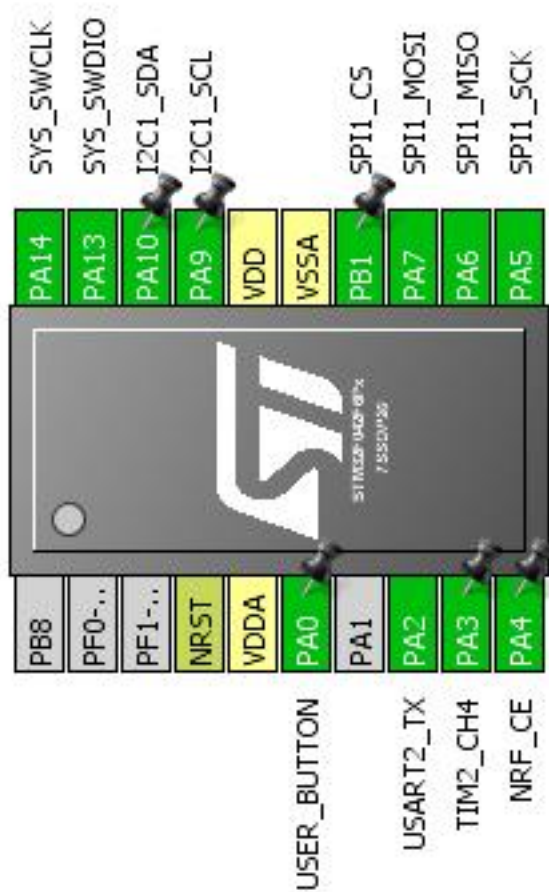
1.1. Project

Project Name	tx
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	11/15/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F042F6Px
MCU Package	TSSOP20
MCU Pin number	20

2. Pinout Configuration



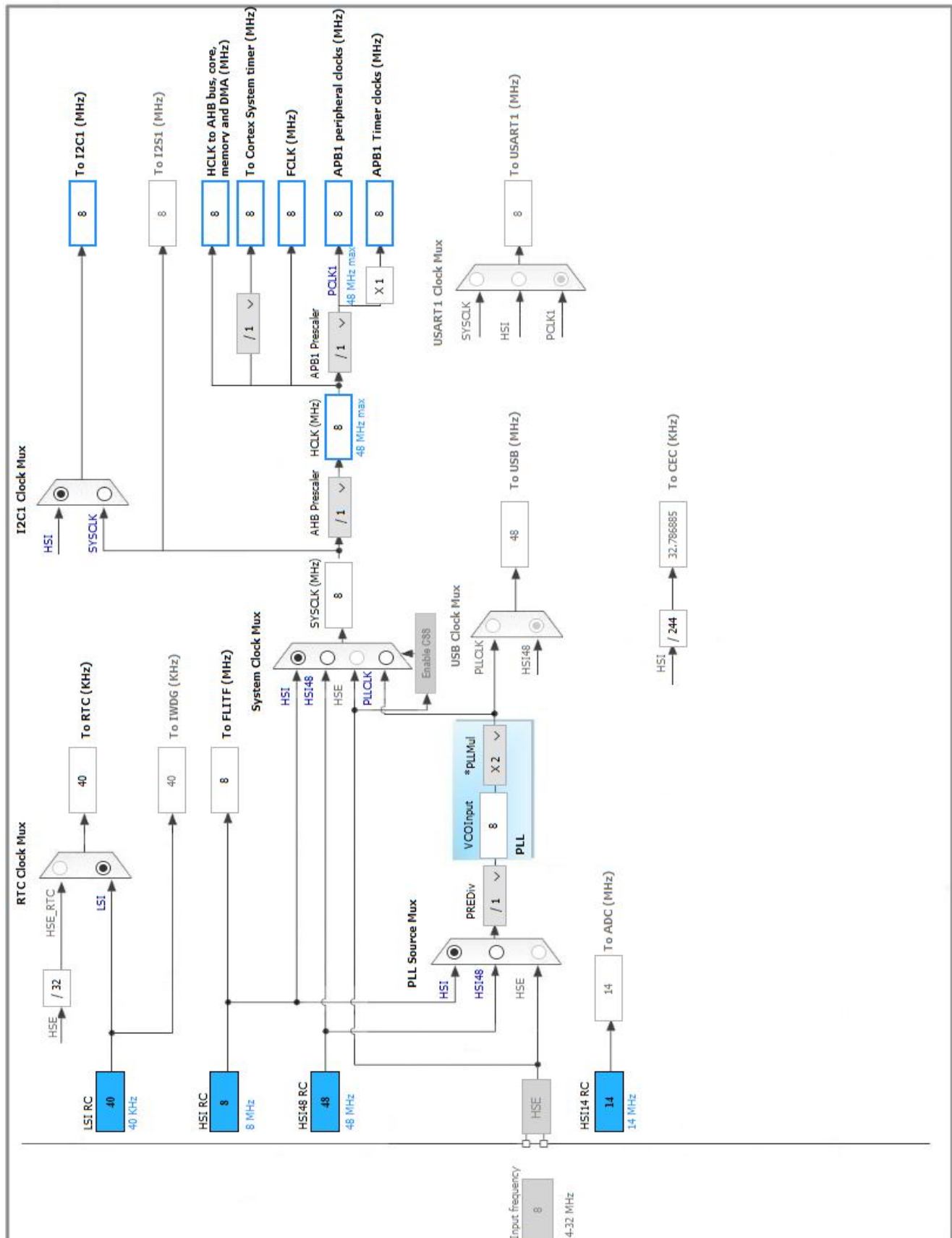
(Rotated -90°)

3. Pins Configuration

Pin Number TSSOP20	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
4	NRST	Reset		
5	VDDA	Power		
6	PA0 *	I/O	GPIO_Input	USER_BUTTON
8	PA2	I/O	USART2_TX	
9	PA3	I/O	TIM2_CH4	
10	PA4 *	I/O	GPIO_Output	NRF_CE
11	PA5	I/O	SPI1_SCK	
12	PA6	I/O	SPI1_MISO	
13	PA7	I/O	SPI1_MOSI	
14	PB1 *	I/O	GPIO_Output	SPI1_CS
15	VSSA	Power		
16	VDD	Power		
17	PA9	I/O	I2C1_SCL	
18	PA10	I/O	I2C1_SDA	
19	PA13	I/O	SYS_SWDIO	
20	PA14	I/O	SYS_SWCLK	

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. I2C1

I2C: I2C

5.1.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x2000090E

Slave Features:

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

5.2. RTC

mode: Activate Clock Source

mode: Activate Calendar

mode: Alarm A

5.2.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	16 *
Synchronous Predivider value	4 *

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

Alarm A:

Hours	0
Minutes	0
Seconds	5 *
Sub Seconds	0
Alarm Mask Date Week day	Enable *
Alarm Mask Hours	Enable *
Alarm Mask Minutes	Enable *
Alarm Mask Seconds	Disable
Alarm Sub Second Mask	All Alarm SS fields are masked.
Alarm Date Week Day Sel	Date
Alarm Date	1

5.3. SPI1

Mode: Full-Duplex Master**5.3.1. Parameter Settings:****Basic Parameters:**

Frame Format	Motorola
Data Size	8 Bits *
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	16 *
Baud Rate	500.0 KBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

5.4. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

5.5. TIM2

Clock Source : Internal Clock

Channel4: PWM Generation CH4

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	70 *
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	255 *
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (32 bits value)	0
Fast Mode	Disable
CH Polarity	High

5.6. TIM17

mode: Activated

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	7 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	16666 *
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

5.7. USART2

Mode: Single Wire (Half-Duplex)

5.7.1. Parameter Settings:

Basic Parameters:

Baud Rate	19200 *
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Transmit Only *
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

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

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
I2C1	PA9	I2C1_SCL	Alternate Function Open Drain	Pull-up	High *	
	PA10	I2C1_SDA	Alternate Function Open Drain	Pull-up	High *	
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	High *	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	High *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	High *	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
TIM2	PA3	TIM2_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USART2	PA2	USART2_TX	Alternate Function Open Drain	Pull-up	High *	
GPIO	PA0	GPIO_Input	Input mode	Pull-up *	n/a	USER_BUTTON
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	NRF_CE
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI1_CS

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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
RTC interrupt through EXTI lines 17, 19 and 20	true	0	0
TIM17 global interrupt	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
TIM2 global interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
SPI1 global interrupt	unused		
USART2 global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F042F6Px
Datasheet	025832_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	tx
Project Folder	C:\Users\allen\Desktop\repos\daytripper\firmware\tx
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

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	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)	No

9. Software Pack Report