

1. Description

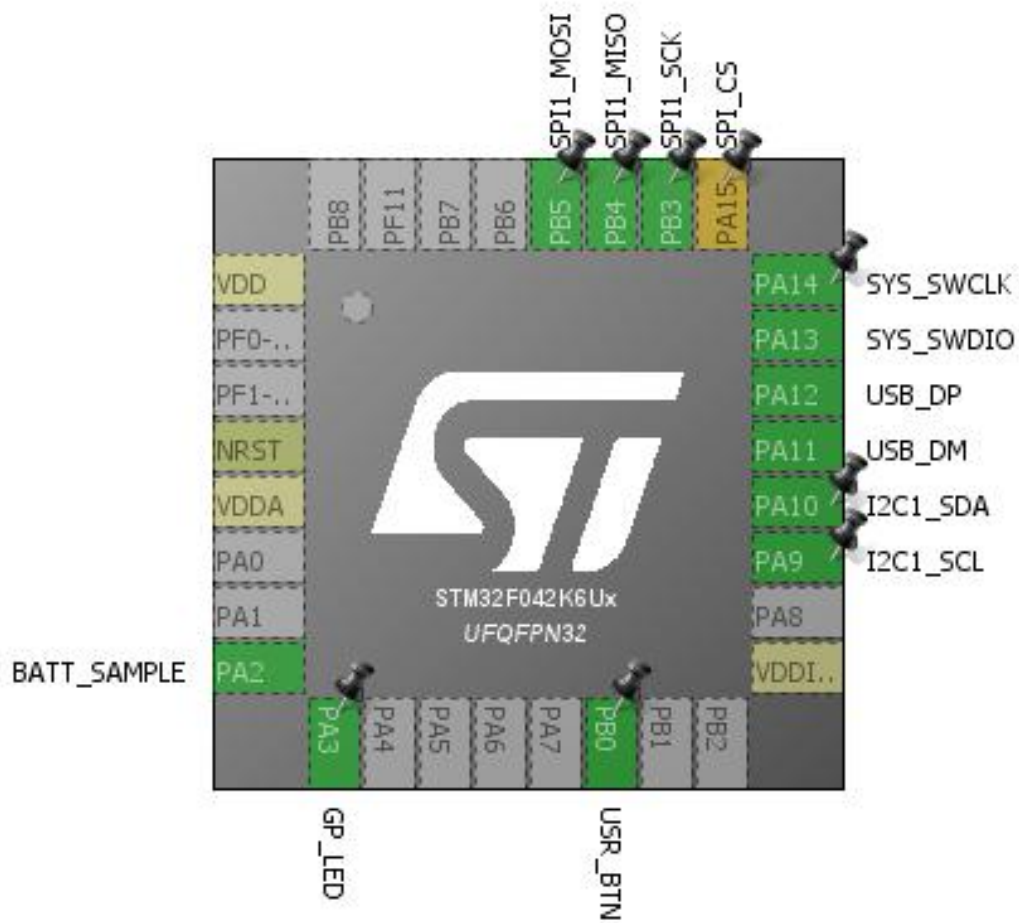
1.1. Project

Project Name	tempo_v2
Board Name	tempo_v2
Generated with:	STM32CubeMX 4.18.0
Date	01/05/2017

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F042K6Ux
MCU Package	UFQFPN32
MCU Pin number	32

2. Pinout Configuration



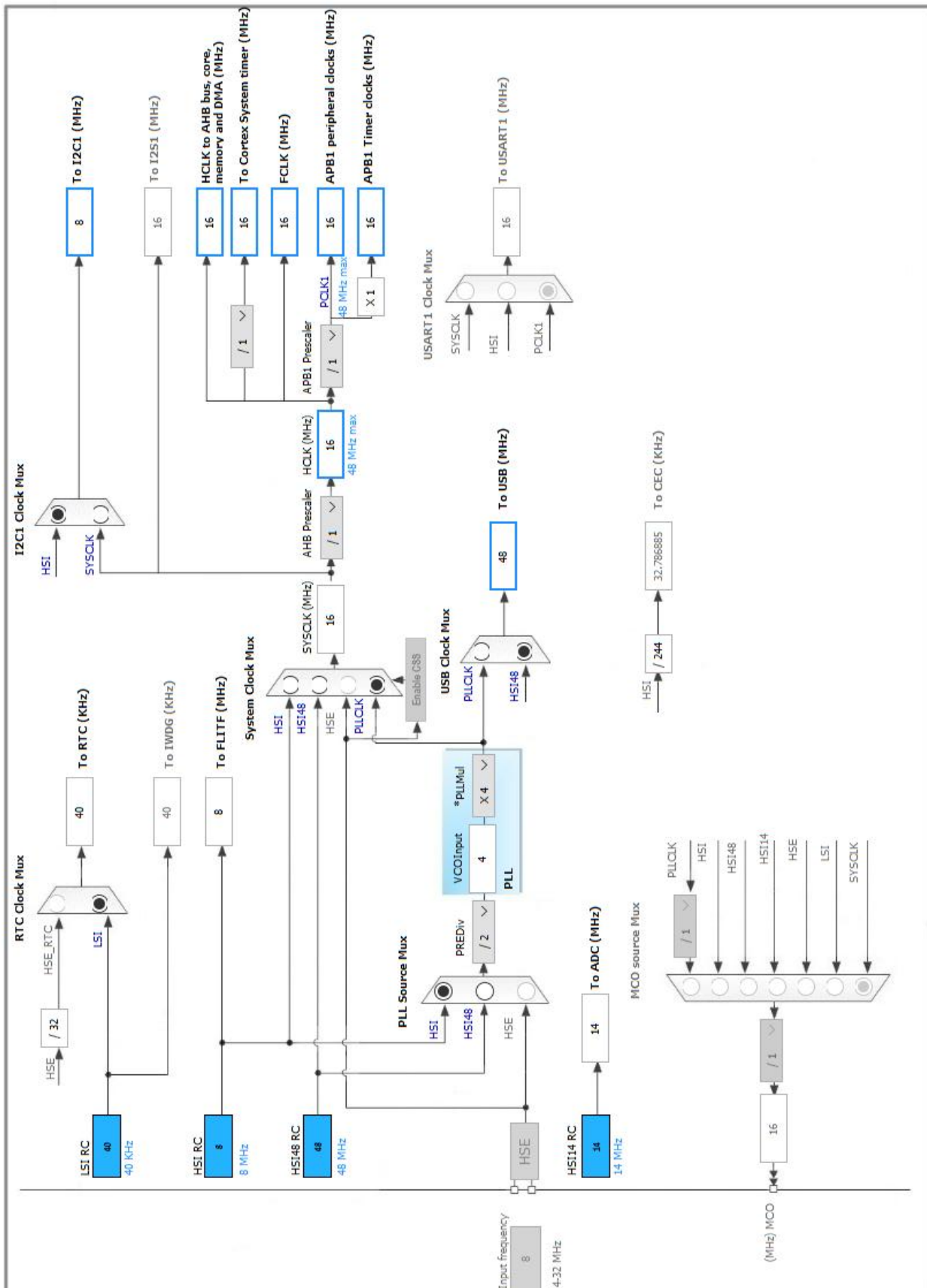
3. Pins Configuration

Pin Number UFQFPN32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA	Power		
8	PA2	I/O	ADC_IN2	BATT_SAMPLE
9	PA3 *	I/O	GPIO_Output	GP_LED
14	PB0 *	I/O	GPIO_Input	USR_BTN
17	VDDIO2	Power		
19	PA9	I/O	I2C1_SCL	
20	PA10	I/O	I2C1_SDA	
21	PA11	I/O	USB_DM	
22	PA12	I/O	USB_DP	
23	PA13	I/O	SYS_SWDIO	
24	PA14	I/O	SYS_SWCLK	
25	PA15 **	I/O	SPI1_NSS	SPI_CS
26	PB3	I/O	SPI1_SCK	
27	PB4	I/O	SPI1_MISO	
28	PB5	I/O	SPI1_MOSI	

* The pin is affected with an I/O function

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

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC

mode: IN2

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	Asynchronous clock mode
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Forward
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Power Auto Power Off	Disabled

ADC_Regular_ConversionMode:

Sampling Time	1.5 Cycles
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None

WatchDog:

Enable Analog WatchDog Mode	false
-----------------------------	-------

5.2. I2C1

I2C: I2C

5.2.1. 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

5.3. RTC

mode: Activate Clock Source

mode: Activate Calendar

mode: Alarm A

5.3.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

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	0
Sub Seconds	0
Alarm Mask Date Week day	Disable
Alarm Mask Hours	Disable

Alarm Mask Minutes	Disable
Alarm Mask Seconds	Disable
Alarm Sub Second Mask	All Alarm SS fields are masked.
Alarm Date Week Day Sel	Date
Alarm Date	1

5.4. SPI1

Mode: Full-Duplex Master

5.4.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	8.0 MBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

5.5. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

5.6. TIM1

Clock Source : Internal Clock

5.6.1. 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
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

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)

5.7. USB

mode: Device (FS)

5.7.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	64 Bytes
Physical interface	Internal Phy

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled

5.8. USB_DEVICE

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

5.8.1. 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
---	------

5.8.2. Device Descriptor:

Device Descriptor:

VID (Vendor Identifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	STMicroelectronics

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
ADC	PA2	ADC_IN2	Analog mode	No pull-up and no pull-down	n/a	BATT_SAMPLE
I2C1	PA9	I2C1_SCL	Alternate Function Open Drain	Pull-up	High *	
	PA10	I2C1_SDA	Alternate Function Open Drain	Pull-up	High *	
SPI1	PB3	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	High *	
	PB4	SPI1_MISO	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 *	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	
Single Mapped Signals	PA15	SPI1_NSS	Alternate Function Push Pull	Pull-up *	High *	SPI_CS
GPIO	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GP_LED
	PB0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	USR_BTN

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
USB global Interrupt / USB wake-up interrupt through EXTI line 18	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
RTC interrupt through EXTI lines 17, 19 and 20	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
ADC interrupt	unused		
TIM1 break, update, trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
SPI1 global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F042K6Ux
Datasheet	025832_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	tempo_v2
Project Folder	C:\Users\maor\Desktop\test\tempo_v2
Toolchain / IDE	TrueSTUDIO
Firmware Package Name and Version	STM32Cube FW_F0 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	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