1. Description

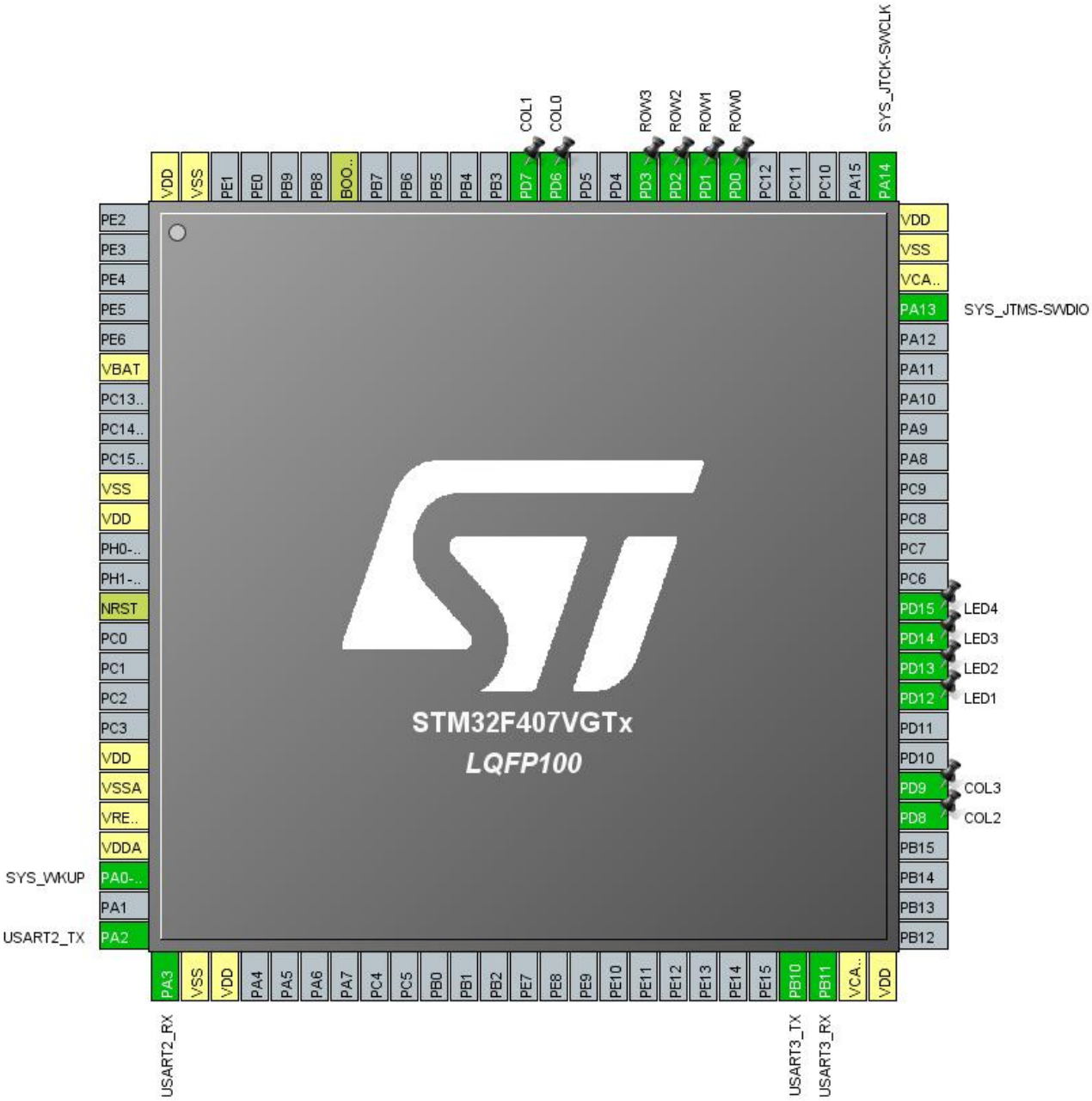
1.1. Project

Project Name	FUMAccessCheck
Board Name	STM32F4DISCOVERY
Generated with:	STM32CubeMX 5.0.1
Date	07/22/2019

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407VGTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



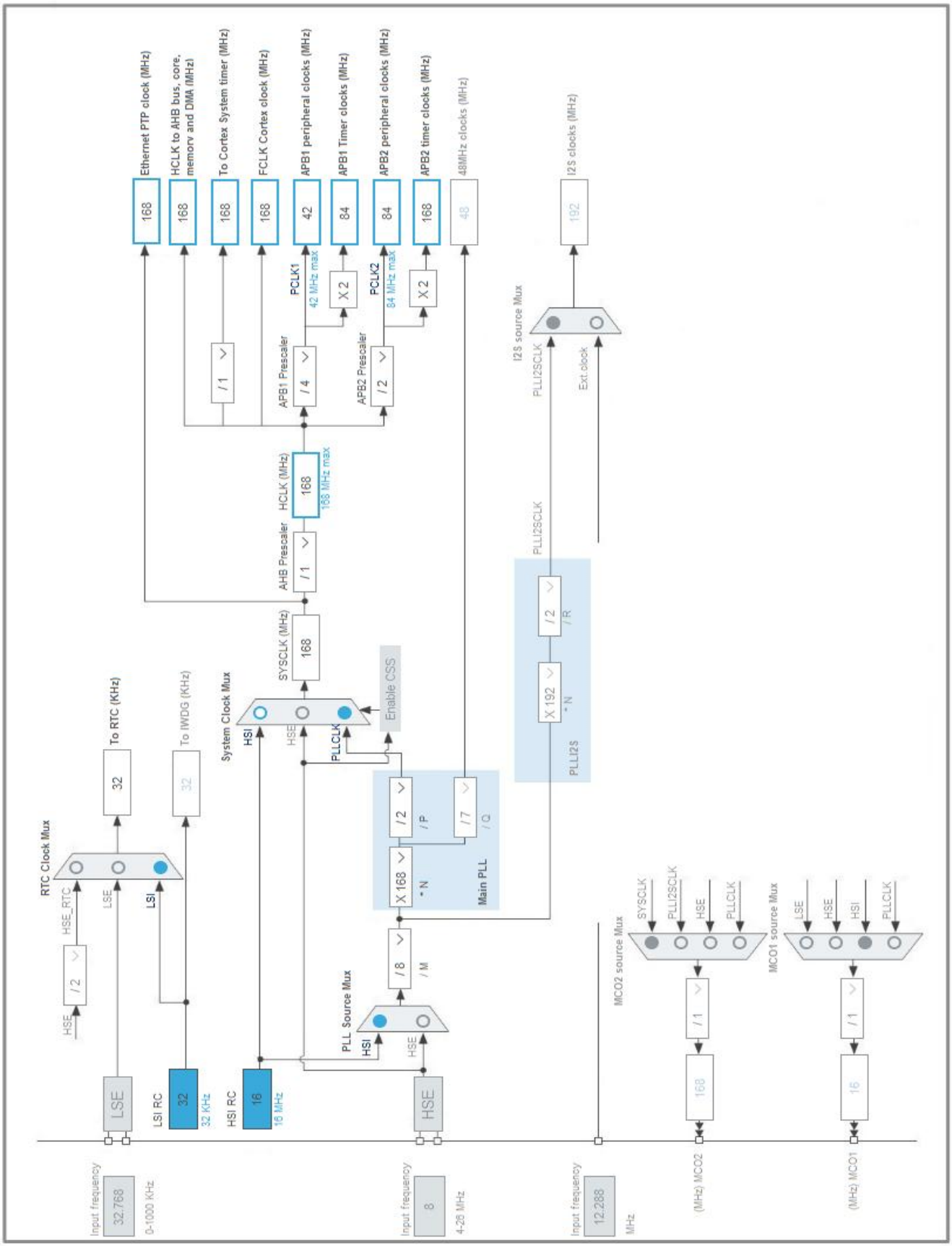
3. Pins Configuration

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
10	VSS	Power		
11	VDD	Power		
14	NRST	Reset		
19	VDD	Power		
20	VSSA	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0-WKUP	I/O	SYS_WKUP	
25	PA2	I/O	USART2_TX	
26	PA3	I/O	USART2_RX	
27	VSS	Power		
28	VDD	Power		
47	PB10	I/O	USART3_TX	
48	PB11	I/O	USART3_RX	
49	VCAP_1	Power		
50	VDD	Power		
55	PD8	I/O	GPIO_EXTI8	COL2
56	PD9	I/O	GPIO_EXTI9	COL3
59	PD12 *	I/O	GPIO_Output	LED1
60	PD13 *	I/O	GPIO_Output	LED2
61	PD14 *	I/O	GPIO_Output	LED3
62	PD15 *	I/O	GPIO_Output	LED4
72	PA13	I/O	SYS_JTMS-SWDIO	
73	VCAP_2	Power		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
81	PD0 *	I/O	GPIO_Output	ROW0
82	PD1 *	I/O	GPIO_Output	ROW1
83	PD2 *	I/O	GPIO_Output	ROW2
84	PD3 *	I/O	GPIO_Output	ROW3
87	PD6	I/O	GPIO_EXTI6	COL0
88	PD7	I/O	GPIO_EXTI7	COL1
94	BOOT0	Boot		
99	VSS	Power		

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
100	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	FUMAccessCheck
Project Folder	C:\Users\User\Desktop\MicroLabprj\FUMAccessCheck
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F4 V1.23.0

5.2. 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	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

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F4
Line	STM32F407/417
MCU	STM32F407VGTx
Datasheet	022152_Rev8

6.2. Parameter Selection

Temperature	25
Vdd	3.3

7. IPs and Middleware Configuration

7.1. RTC

mode: Activate Clock Source

mode: Activate Calendar

7.1.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	**31 ***
Synchronous Predivider value	**999 ***

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	**July ***
Date	**22 ***
Year	0

7.2. SYS

Debug: Serial Wire

mode: System Wake-Up

Timebase Source: TIM6

7.3. USART2

Mode: Asynchronous

7.3.1. 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

7.4. USART3

Mode: Asynchronous

7.4.1. 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

7.5. FREERTOS

mode: Enabled

7.5.1. Config parameters:

Versions:

FreeRTOS version	9.0.0
CMSIS-RTOS version	1.02

Kernel settings:

USE_PREEMPTION	Enabled
CPU_CLOCK_HZ	SystemCoreClock
TICK_RATE_HZ	1000
MAX_PRIORITIES	7
MINIMAL_STACK_SIZE	128
MAX_TASK_NAME_LEN	16
USE_16_BIT_TICKS	Disabled
IDLE_SHOULD_YIELD	Enabled
USE_MUTEXES	Enabled
USE_RECURSIVE_MUTEXES	Disabled
USE_COUNTING_SEMAPHORES	Disabled

QUEUE_REGISTRY_SIZE	8
USE_APPLICATION_TASK_TAG	Disabled
ENABLE_BACKWARD_COMPATIBILITY	Enabled
USE_PORT_OPTIMISED_TASK_SELECTION	Enabled
USE_TICKLESS_IDLE	Disabled
USE_TASK_NOTIFICATIONS	Enabled

Memory management settings:

Memory Allocation	Dynamic
TOTAL_HEAP_SIZE	15360
Memory Management scheme	heap_4

Hook function related definitions:

USE_IDLE_HOOK	Disabled
USE_TICK_HOOK	Disabled
USE_MALLOC_FAILED_HOOK	Disabled
USE_DAEMON_TASK_STARTUP_HOOK	Disabled
CHECK_FOR_STACK_OVERFLOW	Disabled

Run time and task stats gathering related definitions:

GENERATE_RUN_TIME_STATS	Disabled
USE_TRACE_FACILITY	Disabled
USE_STATS_FORMATTING_FUNCTIONS	Disabled

Co-routine related definitions:

USE_CO_ROUTINES	Disabled
MAX_CO_ROUTINE_PRIORITIES	2

Software timer definitions:

USE_TIMERS	**Enabled ***
TIMER_TASK_PRIORITY	2
TIMER_QUEUE_LENGTH	10
TIMER_TASK_STACK_DEPTH	256

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY	15
LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY	5

7.5.2. Include parameters:

Include definitions:

vTaskPrioritySet	Enabled
uxTaskPriorityGet	Enabled
vTaskDelete	Enabled
vTaskCleanUpResources	Disabled
vTaskSuspend	Enabled
vTaskDelayUntil	Disabled

vTaskDelay	Enabled
xTaskGetSchedulerState	Enabled
xTaskResumeFromISR	Enabled
xQueueGetMutexHolder	Disabled
xSemaphoreGetMutexHolder	Disabled
pcTaskGetTaskName	Disabled
uxTaskGetStackHighWaterMark	Disabled
xTaskGetCurrentTaskHandle	Disabled
eTaskGetState	Disabled
xEventGroupSetBitFromISR	Disabled
xTimerPendFunctionCall	Disabled
xTaskAbortDelay	Disabled
xTaskGetHandle	Disabled

*** User modified value**

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
SYS	PA0-WKUP	SYS_WKUP	n/a	n/a	n/a	
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
USART3	PB10	USART3_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PB11	USART3_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
GPIO	PD8	GPIO_EXTI8	External Interrupt Mode with Rising edge trigger detection	**Pull-down ***	n/a	COL2
	PD9	GPIO_EXTI9	External Interrupt Mode with Rising edge trigger detection	**Pull-down ***	n/a	COL3
	PD12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1
	PD13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED2
	PD14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3
	PD15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED4
	PD0	GPIO_Output	Output Push Pull	**Pull-down ***	Low	ROW0
	PD1	GPIO_Output	Output Push Pull	**Pull-down ***	Low	ROW1
	PD2	GPIO_Output	Output Push Pull	**Pull-down ***	Low	ROW2
	PD3	GPIO_Output	Output Push Pull	**Pull-down ***	Low	ROW3
	PD6	GPIO_EXTI6	External Interrupt Mode with Rising edge trigger detection	**Pull-down ***	n/a	COL0
	PD7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	**Pull-down ***	n/a	COL1

8.2. DMA configuration

nothing configured in DMA service

8.3. 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	15	0
System tick timer	true	15	0
EXTI line[9:5] interrupts	true	5	0
USART2 global interrupt	true	5	0
USART3 global interrupt	true	5	0
TIM6 global interrupt, DAC1 and DAC2 underrun error interrupts	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
FPU global interrupt	unused		

*** User modified value**

9. Software Pack Report