



1. Description

1.1. Project

Project Name	Mini2CV
Board Name	custom
Generated with:	STM32CubeMX 6.0.0
Date	12/23/2020

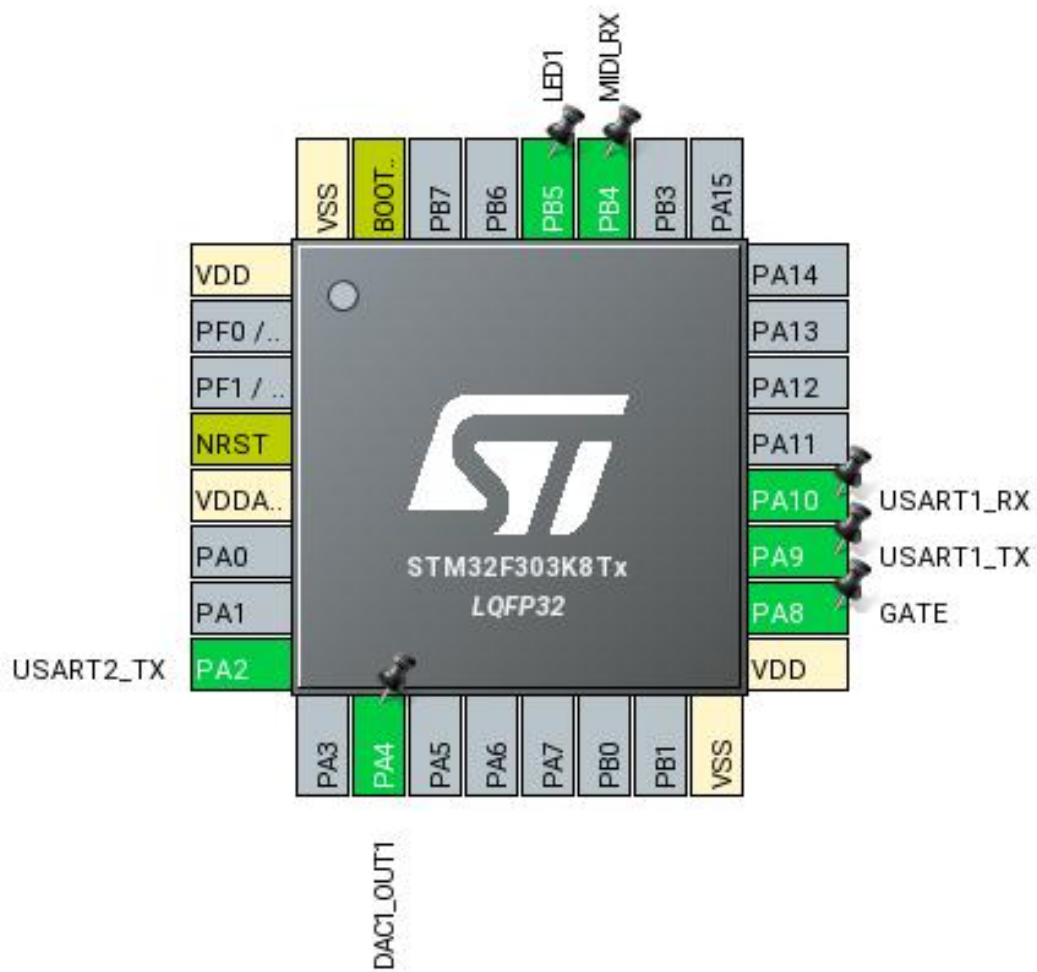
1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303K8Tx
MCU Package	LQFP32
MCU Pin number	32

1.3. Core(s) information

Core(s)	Arm Cortex-M4
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2. Pinout Configuration

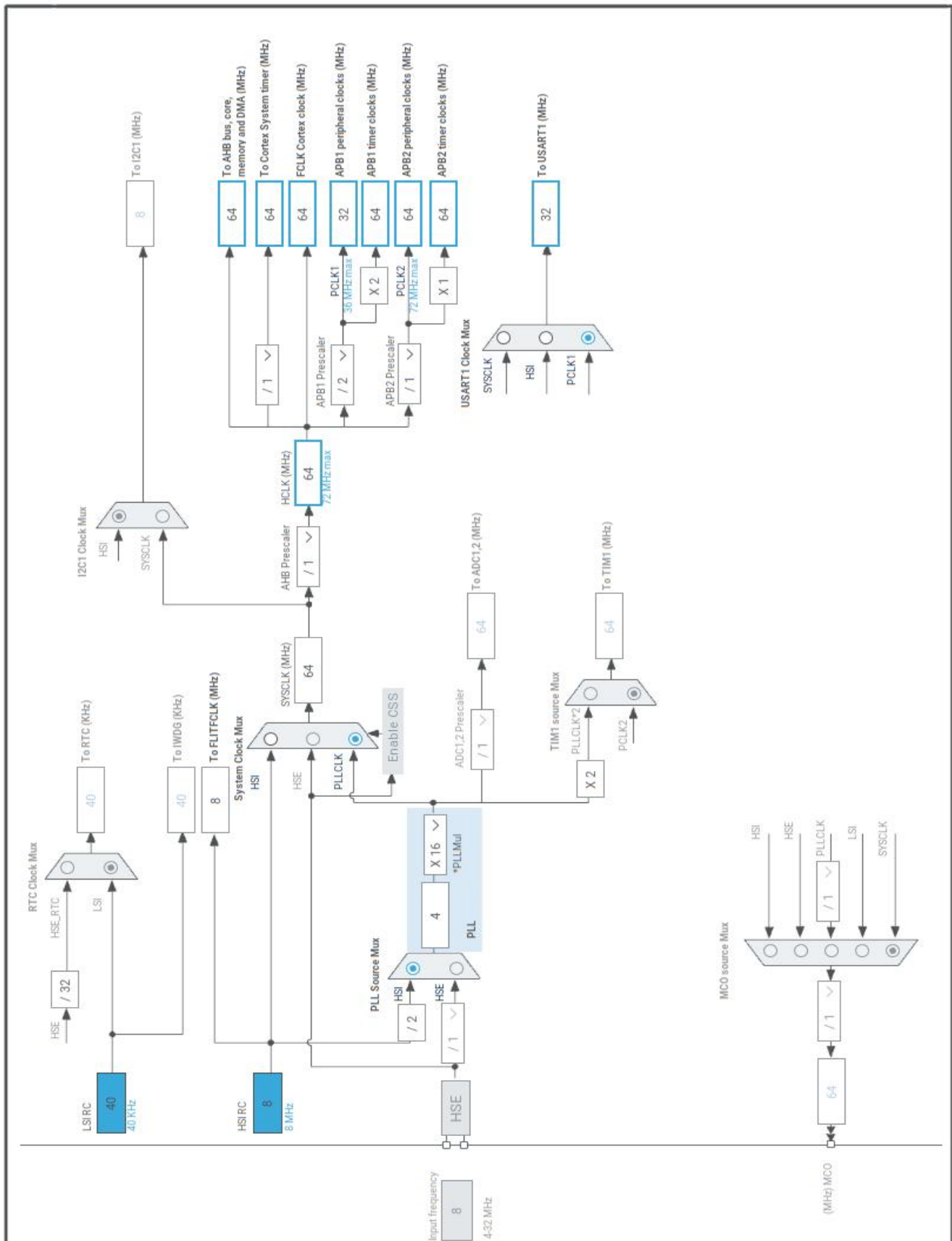


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA/VREF+	Power		
8	PA2	I/O	USART2_TX	
10	PA4	I/O	DAC1_OUT1	
16	VSS	Power		
17	VDD	Power		
18	PA8 *	I/O	GPIO_Output	GATE
19	PA9	I/O	USART1_TX	
20	PA10	I/O	USART1_RX	
27	PB4	I/O	USART2_RX	MIDI_RX
28	PB5 *	I/O	GPIO_Output	LED1
31	BOOT0	Boot		
32	VSS	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	Mini2CV
Project Folder	/home/jake/STM32Projects/Mini2CV
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F3 V1.11.2
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	IP Instance Name
1	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_DAC1_Init	DAC1
4	MX_USART1_UART_Init	USART1
5	MX_USART2_UART_Init	USART2

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F3
Line	STM32F303
MCU	STM32F303K8Tx
Datasheet	DS9866_Rev5

6.2. Parameter Selection

Temperature	25
Vdd	3.6

6.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

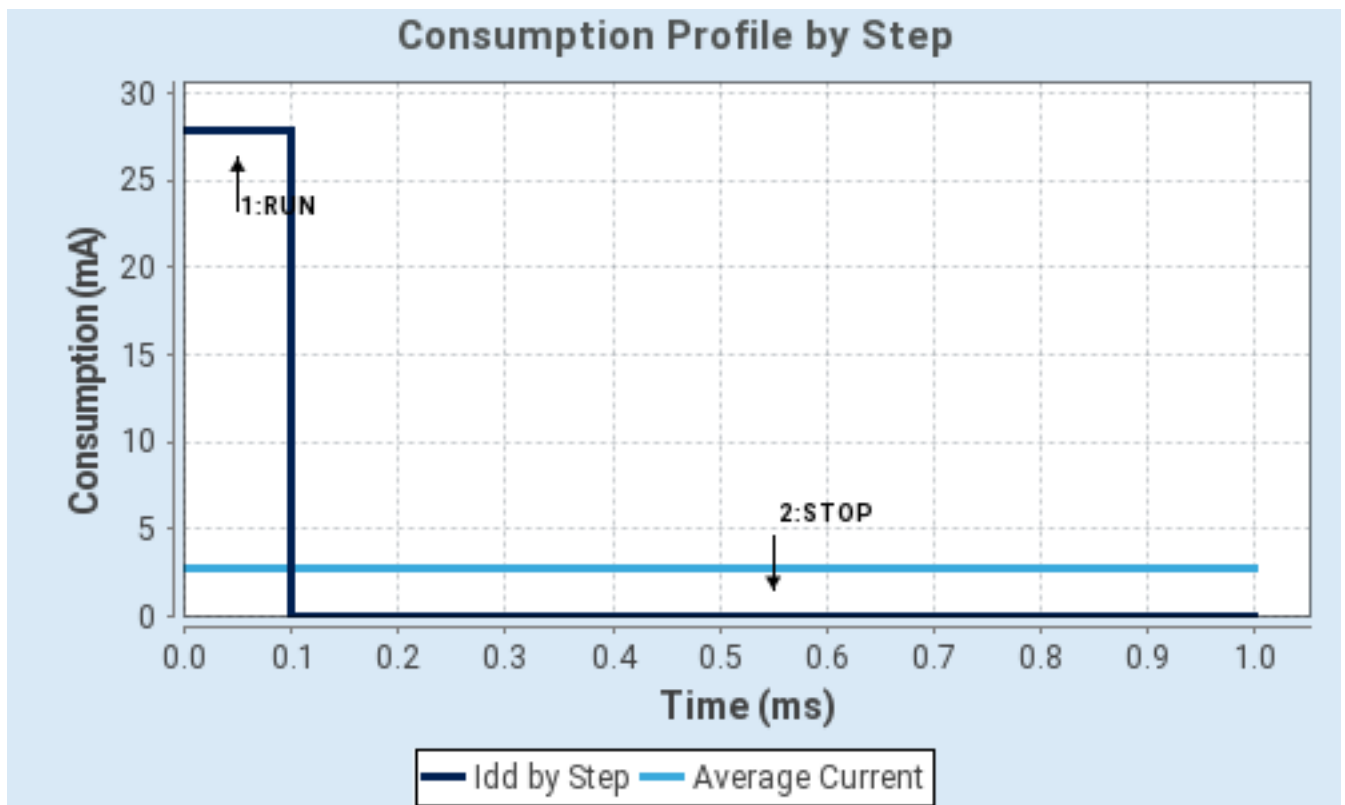
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.6	3.6
Voltage Source	Battery	Battery
Range	No Scale	No Scale
Fetch Type	RAM	n/a
CPU Frequency	72 MHz	0 Hz
Clock Configuration	HSEBYP PLL	Regulator LP
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	27.84 mA	9.55 μ A
Duration	0.1 ms	0.9 ms
DMIPS	90.0	0.0
Ta Max	98.99	105
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	2.79 mA
Battery Life	1 month, 20 days, 5 hours	Average DMIPS	90.0 DMIPS

6.6. Chart



7. IPs and Middleware Configuration

7.1. DAC1

mode: OUT1 Configuration

7.1.1. Parameter Settings:

DAC Out1 Settings:

Output Buffer	Enable
Trigger	None

7.2. GPIO

7.3. RCC

7.3.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

7.4. SYS

Timebase Source: SysTick

7.5. USART1

Mode: Asynchronous

7.5.1. 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
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
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

7.6. USART2

Mode: Asynchronous

7.6.1. Parameter Settings:

Basic Parameters:

Baud Rate	31250 *
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
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

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
DAC1	PA4	DAC1_OUT1	Analog mode	No pull up pull down	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull up pull down	High *	
	PA10	USART1_RX	Alternate Function Push Pull	No pull up pull down	High *	
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull up pull down	High *	
	PB4	USART2_RX	Alternate Function Push Pull	No pull up pull down	High *	MIDI_RX
GPIO	PA8	GPIO_Output	Output Push Pull	No pull up pull down	Low	GATE
	PB5	GPIO_Output	Output Push Pull	No pull up pull down	Low	LED1

8.2. DMA configuration

nothing configured in DMA service

8.3. NVIC configuration

8.3.1. NVIC

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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXT line 25	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXT line 26	unused		
TIM6 global and DAC1 underrun error interrupts	unused		
Floating point unit interrupt	unused		

8.3.2. NVIC Code generation

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	true	true	false
Hard fault interrupt	true	true	false
Memory management fault	true	true	false
Pre-fetch fault, memory access fault	true	true	false
Undefined instruction or illegal state	true	true	false
System service call via SWI instruction	true	true	false
Debug monitor	true	true	false
Pendable request for system service	true	true	false
System tick timer	true	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware				
System Core	Analog	Timers	Connectivity	Computing
DMA	DAC1 ✓		USART1 ✓	
GPIO ✓			USART2 ✓	
NVIC ✓				
RCC ✓				
SYS ✓				

10. Docs & Resources

Type	Link
Datasheet	http://www.st.com/resource/en/datasheet/DM00092070.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/DM00043574.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/DM00046982.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/DM00109011.pdf
Application note	http://www.st.com/resource/en/application_note/CD00160362.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.pdf
Application note	http://www.st.com/resource/en/application_note/CD00211314.pdf
Application note	http://www.st.com/resource/en/application_note/CD00259245.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264342.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00047998.pdf
Application note	http://www.st.com/resource/en/application_note/DM00053084.pdf
Application note	http://www.st.com/resource/en/application_note/DM00070391.pdf
Application note	http://www.st.com/resource/en/application_note/DM00072315.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00074240.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00083249.pdf
Application note	http://www.st.com/resource/en/application_note/DM00085385.pdf
Application note	http://www.st.com/resource/en/application_note/DM00087593.pdf
Application note	http://www.st.com/resource/en/application_note/DM00121474.pdf
Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf
Application note	http://www.st.com/resource/en/application_note/DM00157785.pdf
Application note	http://www.st.com/resource/en/application_note/DM00160482.pdf

Application note http://www.st.com/resource/en/application_note/DM00210617.pdf
Application note http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note http://www.st.com/resource/en/application_note/DM00257177.pdf
Application note http://www.st.com/resource/en/application_note/DM00260340.pdf
Application note http://www.st.com/resource/en/application_note/DM00272912.pdf
Application note http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note http://www.st.com/resource/en/application_note/DM00269146.pdf
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