

1. Description

1.1. Project

Project Name	Nucleo-L496ZG_Test
Board Name	Nucleo-L496ZG_Test
Generated with:	STM32CubeMX 4.20.0
Date	04/01/2017

1.2. MCU

MCU Series	STM32L4
MCU Line	STM32L4x6
MCU name	STM32L496ZGTx
MCU Package	LQFP144
MCU Pin number	144



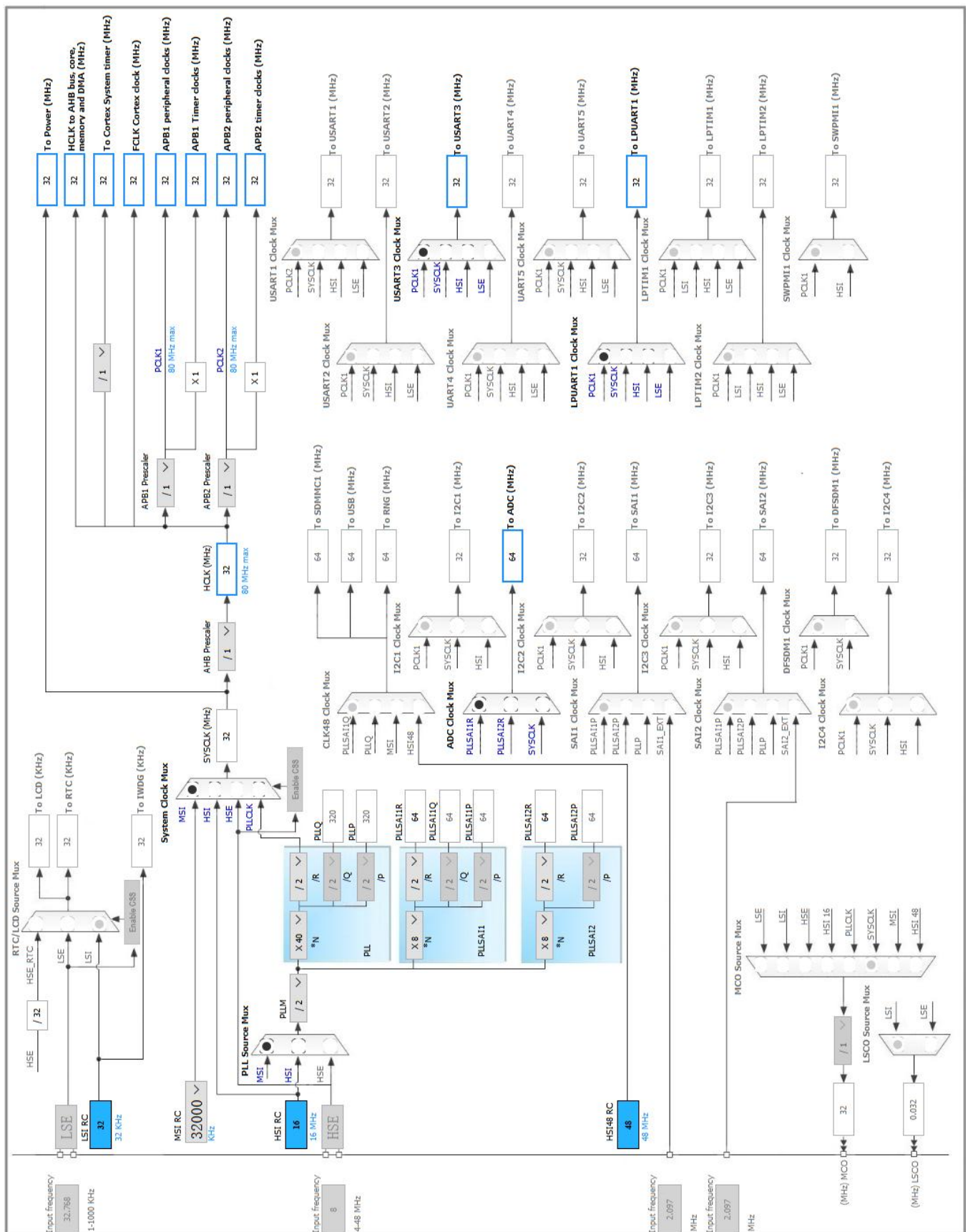
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
7	PC13 *	I/O	GPIO_Input	key2
16	VSS	Power		
17	VDD	Power		
25	NRST	Reset		
30	VSSA	Power		
31	VREF-	Power		
33	VDDA	Power		
35	PA1	I/O	SPI1_SCK	
38	VSS	Power		
39	VDD	Power		
43	PA7	I/O	SPI1_MOSI	
51	VSS	Power		
52	VDD	Power		
61	VSS	Power		
62	VDD	Power		
70	PB11 *	I/O	GPIO_Input	key1
71	VSS	Power		
72	VDD	Power		
75	PB14 *	I/O	GPIO_Output	LD3[Red]
77	PD8	I/O	USART3_TX	
78	PD9	I/O	USART3_RX	
83	VSS	Power		
84	VDD	Power		
92	PG7	I/O	LPUART1_TX	
93	PG8	I/O	LPUART1_RX	
94	VSS	Power		
95	VDDIO2	Power		
97	PC7 *	I/O	GPIO_Output	LD1[Green]
105	PA13 (JTMS/SWDIO)	I/O	SYS_JTMS-SWDIO	
106	VDDUSB	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14 (JTCK/SWCLK)	I/O	SYS_JTCK-SWCLK	
120	VSS	Power		
121	VDD	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
130	VSS	Power		
131	VDDIO2	Power		
137	PB7 *	I/O	GPIO_Output	LD2[Blue]
143	VSS	Power		
144	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: Temperature Sensor Channel

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode Independent mode

ADC_Settings:

Clock Prescaler Asynchronous clock mode divided by 1

Resolution ADC 12-bit resolution

Data Alignment Right alignment

Scan Conversion Mode Disabled

Continuous Conversion Mode **Enabled ***

Discontinuous Conversion Mode Disabled

DMA Continuous Requests **Enabled ***

End Of Conversion Selection End of single conversion

Overrun behaviour Overrun data preserved

Low Power Auto Wait Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions Enable

Enable Regular Oversampling Disable

Number Of Conversion 1

External Trigger Conversion Source Regular Conversion launched by software

External Trigger Conversion Edge None

Rank 1

Channel Channel Temperature Sensor

Sampling Time **12.5 Cycles ***

Offset Number No offset

ADC_Injected_ConversionMode:

Enable Injected Conversions Disable

Analog Watchdog 1:

Enable Analog WatchDog1 Mode false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode false

5.2. LPUART1

Mode: Asynchronous

5.2.1. 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
Single Sample	Disable

Advanced Features:

Auto Baudrate Mode	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

5.3. SPI1

Mode: Transmit Only 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)	4 *
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

5.4. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.5. TIM6

mode: Activated

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	31 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	999 *

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)
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5.6. TIM7

mode: Activated

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	31 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	999 *

Trigger Output (TRGO) Parameters:

Trigger Event Selection	Reset (UG bit from TIMx_EGR)
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5.7. USART3

Mode: Asynchronous

5.7.1. Parameter Settings:

Basic Parameters:

Baud Rate	9600 *
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

* User modified value

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
LPUART1	PG7	LPUART1_TX	Alternate Function Push Pull	Pull-up	Very High *	
	PG8	LPUART1_RX	Alternate Function Push Pull	Pull-up	Very High *	
SPI1	PA1	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
SYS	PA13 (JTMS/SWDIO)	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14 (JTCK/SWCLK)	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART3	PD8	USART3_TX	Alternate Function Push Pull	Pull-up	Very High *	
	PD9	USART3_RX	Alternate Function Push Pull	Pull-up	Very High *	
GPIO	PC13	GPIO_Input	Input mode	Pull-down *	n/a	key2
	PB11	GPIO_Input	Input mode	Pull-down *	n/a	key1
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Very High *	LD3[Red]
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Very High *	LD1[Green]
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Very High *	LD2[Blue]

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA1_Channel1	Peripheral To Memory	Medium *
SPI1_TX	DMA1_Channel3	Memory To Peripheral	Low

ADC1: DMA1_Channel1 DMA request Settings:

Mode: Normal
Peripheral Increment: Disable
Memory Increment: Disable
Peripheral Data Width: Half Word
Memory Data Width: Half Word

SPI1_TX: DMA1_Channel3 DMA request Settings:

Mode: Normal
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: Byte
Memory Data Width: Byte

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
Prefetch 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
DMA1 channel1 global interrupt	true	0	0
DMA1 channel3 global interrupt	true	0	0
USART3 global interrupt	true	1	0
TIM6 global interrupt, DAC channel1 and channel2 underrun error interrupts	true	2	0
TIM7 global interrupt	true	3	0
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/35/36/37/38	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 interrupts	unused		
SPI1 global interrupt	unused		
LPUART1 global interrupt	unused		
FPU global interrupt	unused		

* User modified value

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L4
Line	STM32L4x6
MCU	STM32L496ZGTx
Datasheet	029173_Rev2

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Project

8.1. Project Settings

Name	Value
Project Name	Nucleo-L496ZG_Test
Project Folder	C:\Users\DengQ\Desktop\Nucleo-L496ZG_Test
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_L4 V1.7.0

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)	Yes