

A31G123

Starter Kit

STK-A31G123-MLN-A

Starter Kit H/W Manual

Version 1.04

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1 Introduction of starter kit board

Figure 1 shows a starter kit board of A31G123ML. In Table 1, you can see main features of the starter kit board.

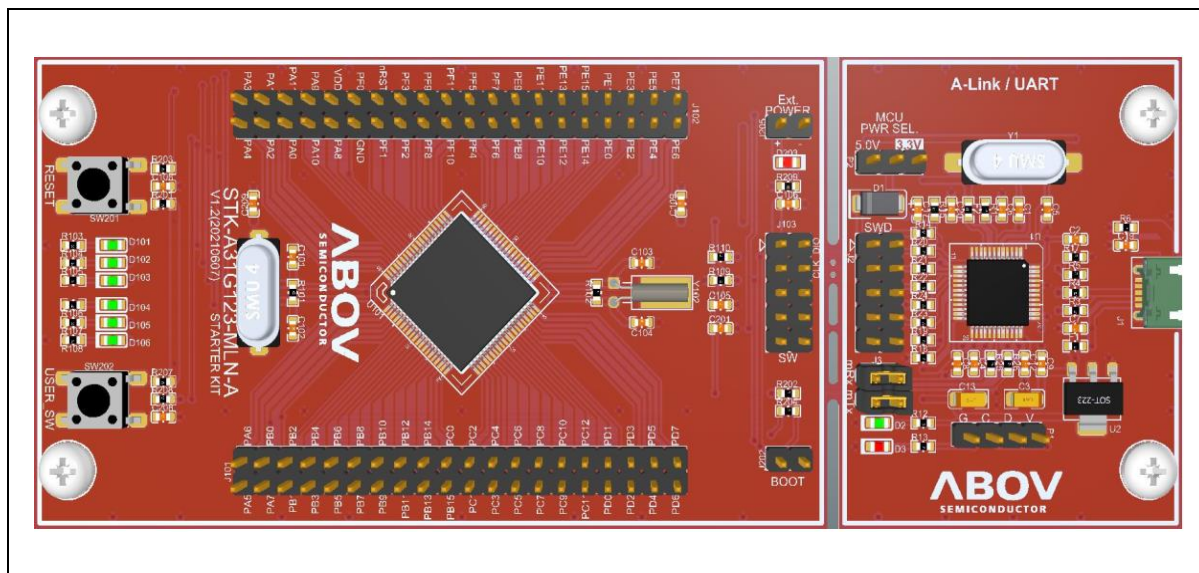


Figure 1. Starter Kit Board

Table 1. Main Features of Starter Kit Board

Main feature	Specifications	Remark
MCU	A31G123MLN	ARM CORTEX-M0+
Operating clock	8 MHz	Crystal Main
ROM	64 KB flash ROM	Code
RAM	6 KB	
Communication Port	USB 2.0	Micro USB Type B 5-pin
Debugging Port	SWD	10-pin Connector
Input Buttons	1 reset & 1 event input	TACT Switch

2 A-link part

In this chapter, A-link part of the starter kit board is introduced.

2.1 A-link section

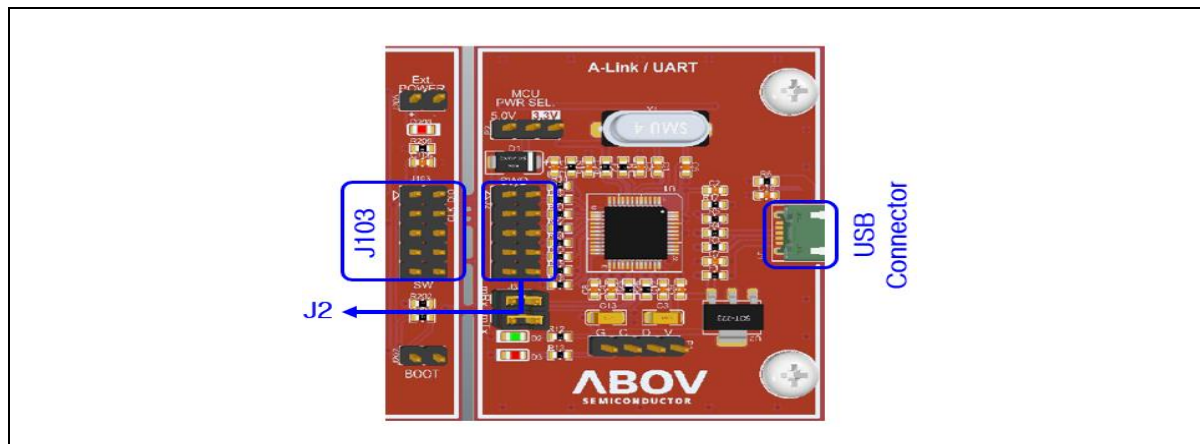


Figure 2. A-Link Section

2.1.1 USB connector (micro USB type B)

- PC USB interface (Debug Keil, IAR ..)
- CMSIS-DAP (Debug)
- COM Port

2.1.2 J103 (Box Header): SWD Connector on MCU Board

Table 2. SWD Pin Description on MCU Board

V-Sense	1	2	SWDIO
GND	3	4	SWCLK
GND	5	6	NC
NC	7	8	NC
GND	9	10	nRESET

2.1.3 J2 (Box Header): SWD Connector on A-Link Board

Table 3. A-Link SWD Pin Description

V-Sense	1	2	SWDIO
GND	3	4	SWCLK
GND	5	6	NC
NC	7	8	NC
GND	9	10	nRESET

2.2 Power, USB to UART section

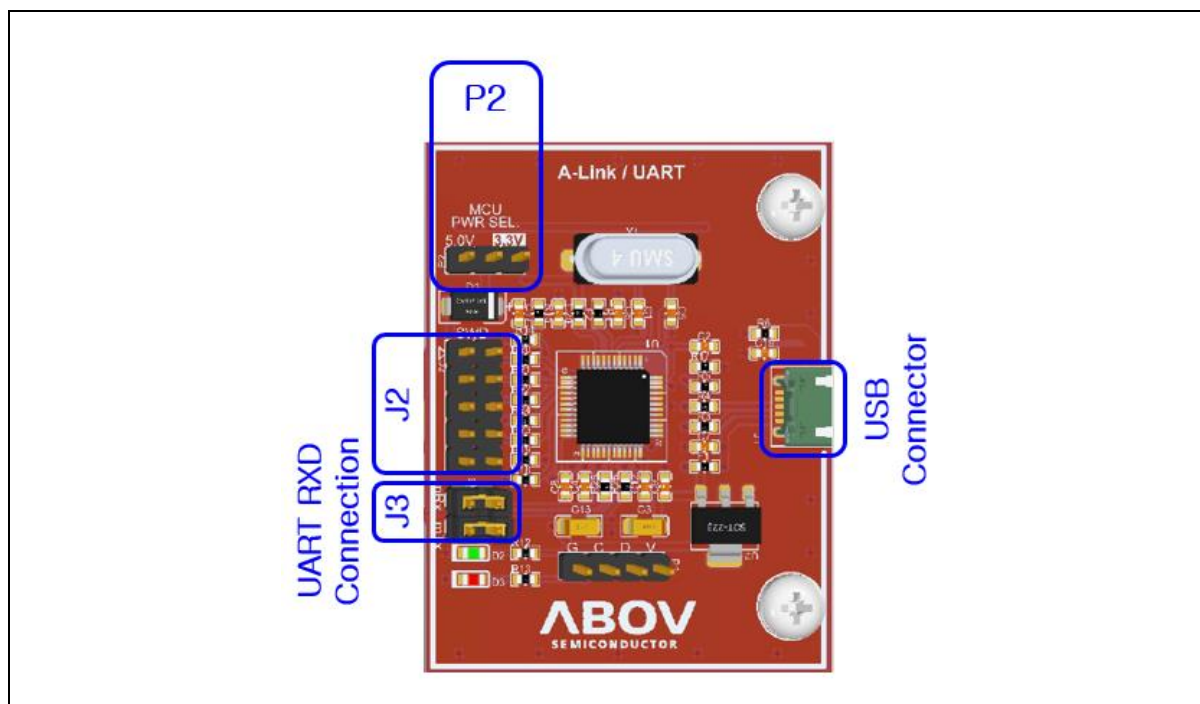


Figure 3. Power, USB to UART Section

2.2.1 P2: MCU Power Selector

Table 4. P2 MCU Power Selector

P2	VDD
	5.0V
	3.3V
	External Power

2.2.2 J3: USB to UART connection

Table 5. USB to UART Description

J3	Pin	Connection
	Short	(mRX) MCU RXD ← PC TXD (mTX) MCU TXD → PC RXD
	Open	(mRx) MCU RXD Open (mTx) MCU TXD Open

3 Device part

In this chapter, power, a boot mode selector and switches of the starter kit board are introduced.

3.1 Power, Boot mode selector and switch

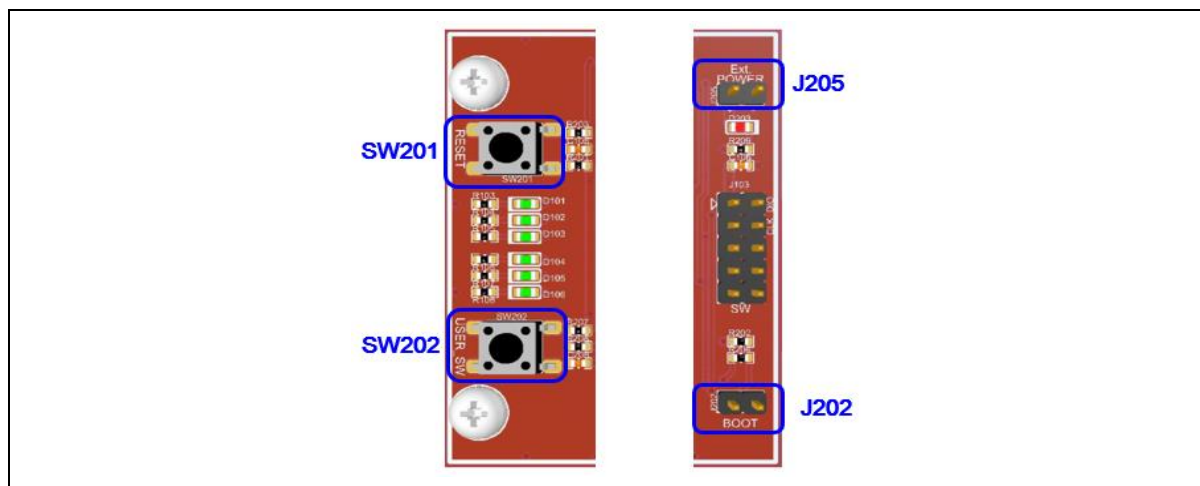
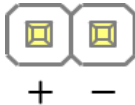


Figure 4. Power, Boot mode and Switch

3.1.1 J205: external power (not used)

Table 6. J205 Description and Connection

J205	Pin name	Connection
	VDD	+3.3 ~ 5.0V
	GND	0V

3.1.2 J202: mode select (boot/normal) pins

Table 7. J202 Boot Mode Selector

J202	Pin name	Connection
	Short	Boot mode
	Open	Normal mode

3.1.3 SW201, SW202: switch

Table 8. SW201, SW202 Description and Function

Switch	Function
SW201	nRESET
SW202	PF6

3.2 LED display (D101 – D106)

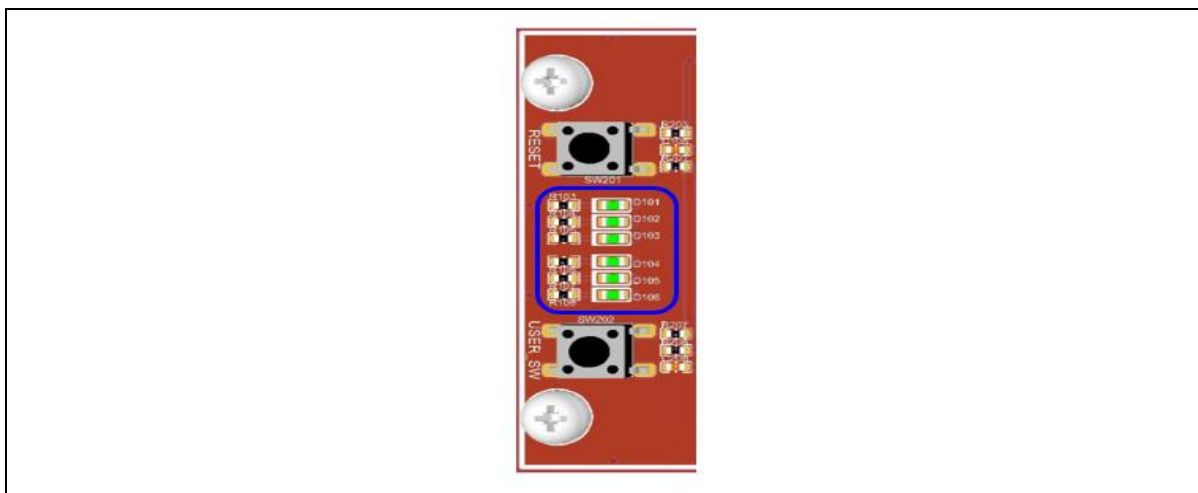


Figure 5. LED Display

3.2.1 LED schematic

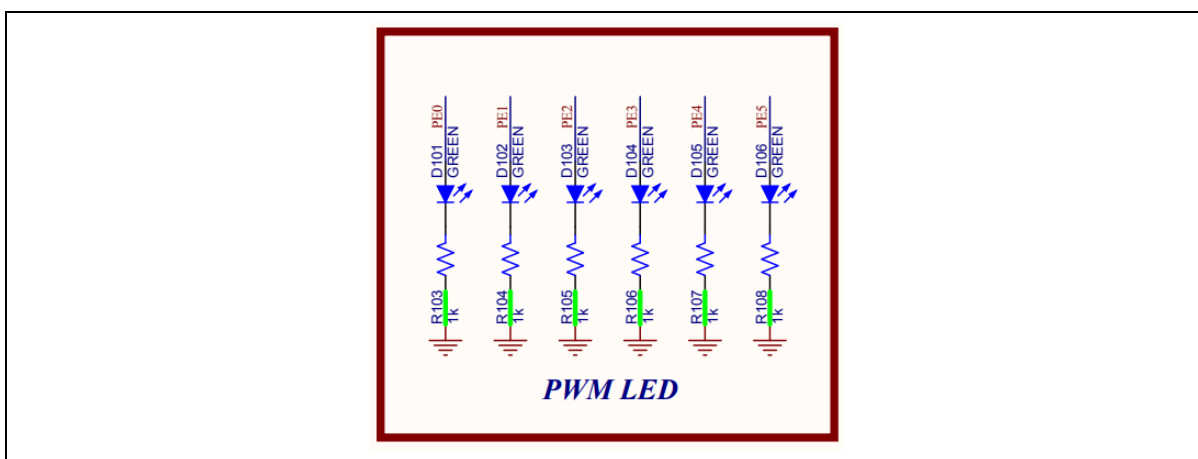


Figure 6. LED Schematic

3.2.2 LED pin assignment

Table 9. LED Pin Description

LED name	PORT
D101	PE0
D102	PE1
D103	PE2
D104	PE3
D105	PE4
D106	PE5

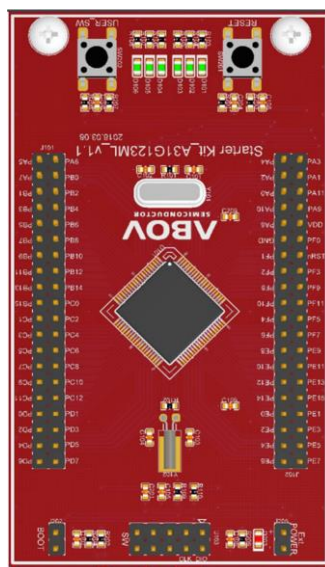
3.3 Pin assignment

Pin color legend

	VDD		PC
	GND		PD
	PA		PE
	PB		PF

CN1

1	PA5/AN5/ T12OUT/T12CAP	PA6/SEG43/AN6	2
3	PA7/SEG42/ AN7/AVREF	PB0/SEG41/AN8/ TXD10/MOSI10	4
5	PB1/SEG40/AN9/ RXD10/MISO10	PB2/SEG39/AN10/ SCK10	6
7	PB3/SEG38/SS10/ BOOT	PB4/SEG37/TXD0/ SWCLK	8
9	PB5/SEG36/RXD0/ SWDIO	PB6/SEG35/TXD1	10
11	PB7/SEG34/RXD1	PB8/SEG33/EC16	12
13	PB9/SEG32/EC15	PB10/SEG31/ T16OUT/T16CAP	14
15	PB11/SEG30/ T15OUT/T15CAP	PC0/SEG26/ T20OUT/T20CAP	16
17	PC1/SEG24/ T21OUT/T21CAP	PC2/SEG23/EC20	18
19	PC3/SEG22/EC2	PC4/SEG21	20
21	PC5/SEG20/SDA2	PC6/SEG19/SCL2	22
23	PC7/SEG18	PC8/SEG17	24
25	PD0/SEG12/SCL0	PD1/SEG11/SDA0	26
27	PD2/SEG10/ TXD11/MOSI11	PD3/SEG9/RXD11/ MISO11	28
29	PD4/SEG8/SCK11	PD5/SEG7/SS11	30
31	PD6/SEG6/EC11	PD7/SEG5/EC10	32



CN2

32	PA4/AN4	PA3/AN3	31
30	PA2/AN2/EC12	PA1/AN1/SCL1	29
28	PA0/AN0/SDA1	PA11	27
26	PA10/AN13	PA9/AN12	25
24	PA8/AN11	VDD	23
22	VSS	PF0/XOUT/(SCL1)	21
20	PF1/XIN/(SDA1)	NRESET	19
18	PF2/SXIN	PF3/SXOUT	17
16	PF4/CLKO	PF5/BLNK	15
14	PF6/EC30	PF7/T30CAP	13
12	PE8/TXD13/ MOSI13	PE9/RXD13/ MISO13	11
10	PE10/SCK13	PE11/SS13	9
8	PE0/COM0/ PWM30AA	PE1/COM1/ PWM30AB	7
6	PE2/COM2/ PWM30BA	PE3/COM3/ SEG0/PWM30BB	5
4	PE4/COM4/ SEG1/PWM30CA	PE5/COM5/ SEG2/PWM30CB	3
2	PE6/COM6/SEG3/ T10OUT/T10CAP	PE7/COM7/SEG4/ T11OUT/T11CAP	1

Figure 7. Pin Assignment

Revision history

Date	Version	Description
20.03.31	1.00	Document created
21.01.28	1.01	Updated Starter Kit figures. Modified item name to match STK with a PCB silk.
22.02.10	1.02	Revised Document Updated Table 1 (Crystal 16MHz → 8MHz), Figure 1, Figure 2, Figure 3, Figure 4.
22.11.22	1.03	Revised the font of this document
24.12.02	1.04	Updated the disclaimer.

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