

A31G213

Starter Kit

STK-A31G213-CL2N-A

Starter Kit H/W Manual

Version 1.04

Contents

1	Introduction of starter kit board	4
2	A-link part	5
2.1	A-link section	5
2.1.1	USB connector (mini USB type B).....	5
2.1.2	J103 (Box Header): SWD Connector on MCU Board	5
2.1.3	J2 (Box Header): SWD Connector on A-Link Board	5
2.2	Power, USB to UART section	6
2.2.1	P2: MCU Power Selector.....	6
2.2.2	J3: USB to UART connection	6
3	Device part	7
3.1	Power, Boot mode selector and switch	7
3.1.1	J205: external power (not used).....	7
3.1.2	J202: mode select (boot/normal) pins	7
3.1.3	SW201, SW202: switch	7
3.2	LED display (D101 – D106)	8
3.2.1	LED schematic	8
3.2.2	LED pin assignment	8
3.3	Pin assignment.....	9
	Revision history	10

List of figures

Figure 1. Starter Kit Board	4
Figure 2. A-Link Section	5
Figure 3. Power, USB to UART Section	6
Figure 4. Power, Boot mode and Switch	7
Figure 5. LED Display	8
Figure 6. LED Schematic	8
Figure 7. Pin Assignment	9

List of tables

Table 1. Main Features of Starter Kit Board	4
Table 2. SWD Pin Description on MCU Board	5
Table 3. A-Link SWD Pin Description	5
Table 4. P2 MCU Power Selector	6
Table 5. USB to UART Description	6
Table 6. J205 Description and Connection	7
Table 7. J202 Boot Mode Selector	7
Table 8. SW201, SW202 Description and Function	7
Table 9. LED Pin Description	8

1 Introduction of starter kit board

Figure 1 shows a starter kit board of A31G213CL2N. In Table 1, you can see main features of the starter kit board.

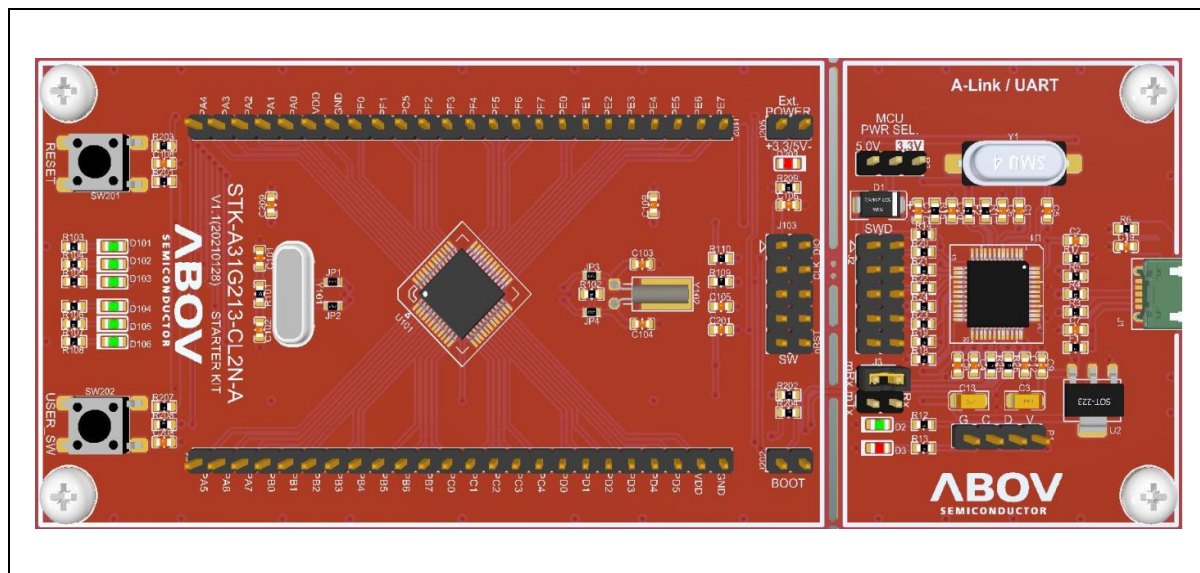


Figure 1. Starter Kit Board

Table 1. Main Features of Starter Kit Board

Main feature	Specifications	Remark
MCU	A31G213CL2N	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

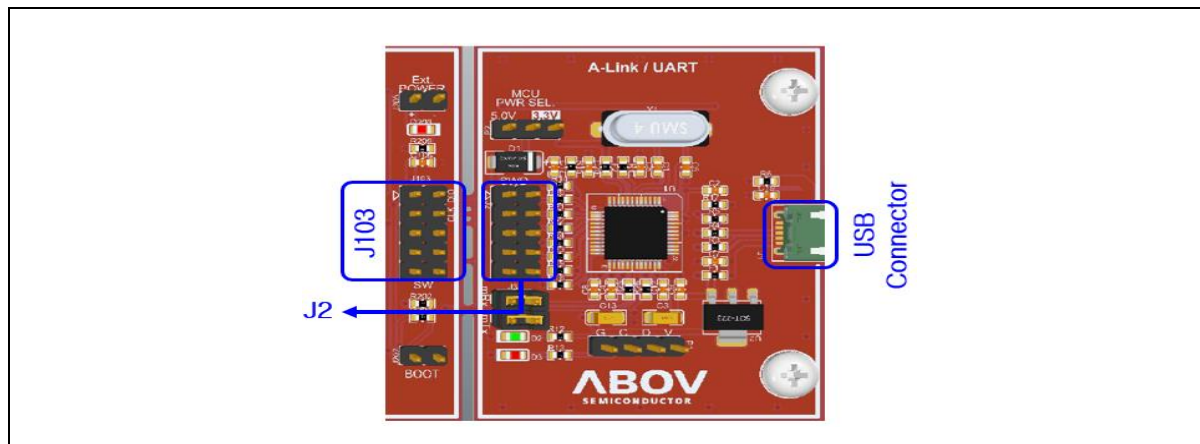


Figure 2. A-Link Section

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

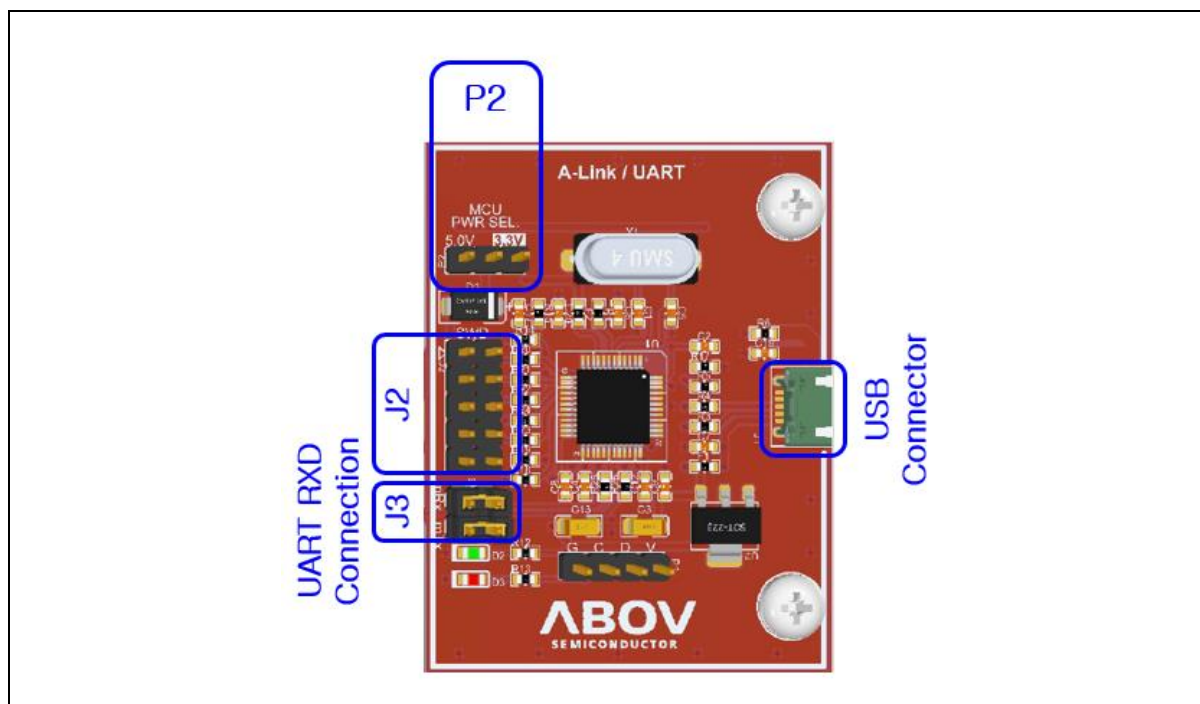


Figure 3. Power, USB to UART Section

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

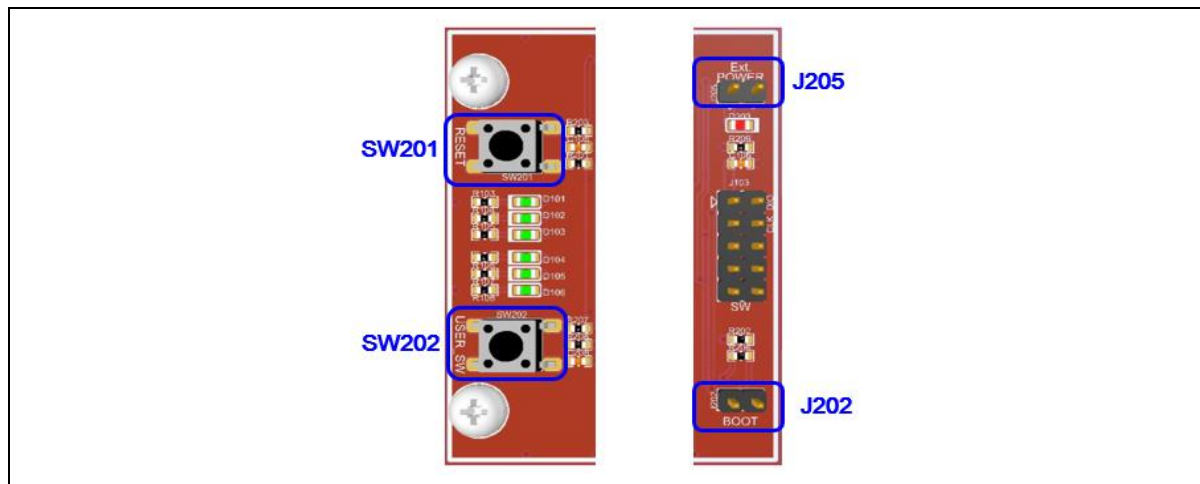
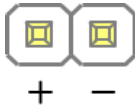


Figure 4. Power, Boot mode and Switch

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/PC5
SW202	PF6

3.2 LED display (D101 – D106)

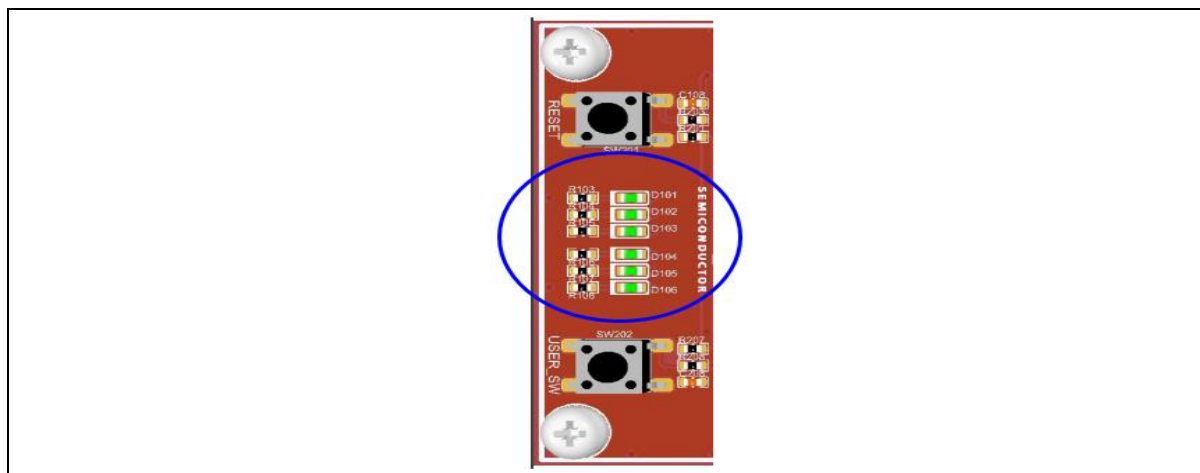


Figure 5. LED Display

3.2.1 LED schematic

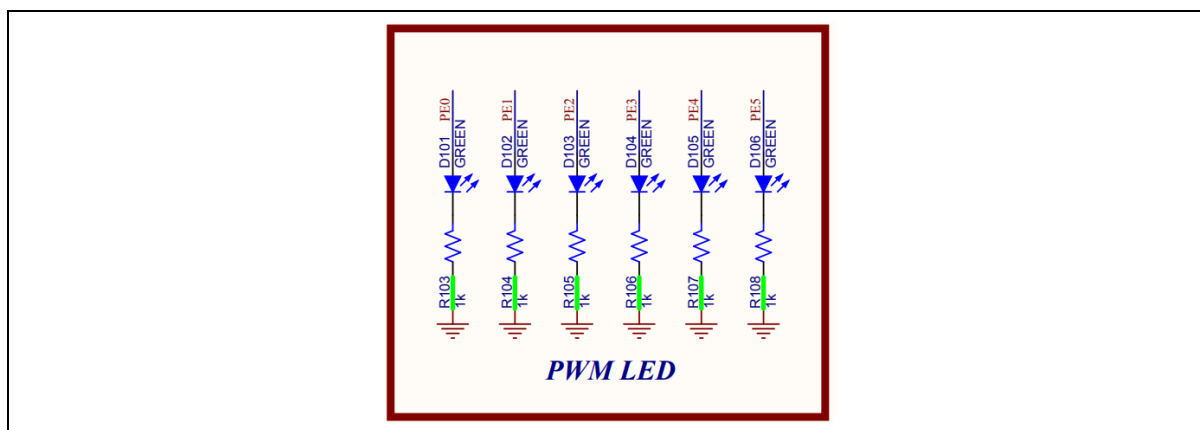


Figure 6. LED Schematic

3.2.2 LED pin assignment

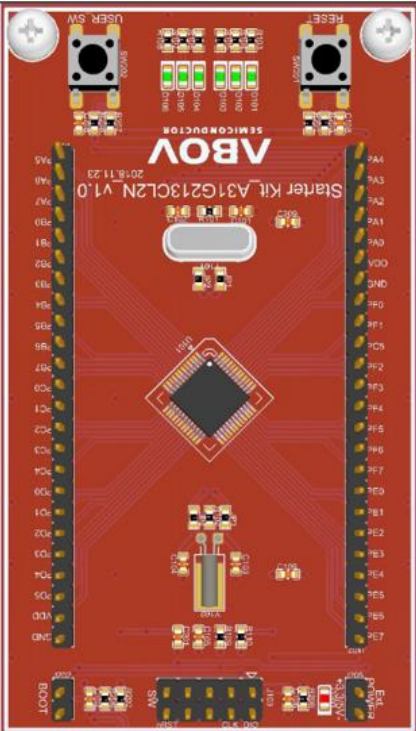
Table 9. LED Pin Description

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/T120/T12C/AN5/CS0/COM12
2	PA6/T110/T11C/AN6/CS1/COM11
3	PA7/T130/T13C/AN7/DAO/CS2/COM10
4	PB0/TXD10/MOSI10/AN8/CS8/COM9
5	PB1/RXD10/MISO10/AN9/CS9/COM8
6	PB2/EC13/SCK10/AN10/CS10/COM7
7	PB3/BOOT/SS10
8	PB4/TXD0/SWCLK
9	PB5/RXD0/SWDIO
10	PB6/TXD1/EC11/AN11/CS17
11	PB7/RXD1/AN12/CS18
12	PC0/T200/T20C/AN13/CS19/COM6
13	PC1/T210/T21C/CS20/COM5
14	PC2/EC20/MOSI20/CS21/COM4
15	PC3/EC21/MISO20/CS22/COM3
16	PC4/SCK20/CS23/COM2
17	PD0/SCL0/SS20/COM1
18	PD1/SDA0/EC10/COM0
19	PD2/TXD11/MOSI11/SEG9
20	PD3/RXD11/MISO11/SEG8
21	PD4/BLNK/SCK11/SEG7
22	PD5/SS11/SEG6
23	VDD
24	VSS



CN2	
48	PA4/AN4/CS7/COM13
47	PA3/AN3/CS6/COM14
46	PA2/EC12/AN2/AVREF/CS5/COM15
45	PA1/SCL1/AN1/CS4
44	PA0/SDA1/AN0/CS3
43	VDD
42	VSS
41	PF0/SCL1/XOUT
40	PF1/SDA1/XIN
39	PC5/RESET
38	PF2/TXD1/EC30/SXIN
37	PF3/RXD1/T30C/SXOUT
36	PF4/CLKO
35	PF5/BLNK/INT
34	PF6/EC30/SCL0
33	PF7/T30C/SDA0
32	PE0/PWM30AA
31	PE1/PWM30AB
30	PE2/PWM30BA/SS21/CS16/SEG0
29	PE3/PWM30BB/SCK21/CS15/SEG1
28	PE4/PWM30CA/MISO21/CS14/SEG2
27	PE5/PWM30CB/MOSI21/CS13/SEG3
26	PE6/T100/T10C/CS12/SEG4
25	PE7/T110/T11C/CS11/SEG5

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, 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.

Korea

Regional Office, Seoul
R&D, Marketing & Sales
8th Fl., 330, Yeongdong-daero,
Gangnam-gu, Seoul,
06177, Korea

Tel: +82-2-2193-2200
Fax: +82-2-508-6903
www.abovsemi.com

HQ, Ochang
R&D, QA, and Test Center
93, Gangni 1-gil, Ochang-eup,
Cheongwon-gun,
Chungcheongbuk-do,
28126, Korea

Tel: +82-43-219-5200
Fax: +82-43-217-3534
www.abovsemi.com

Domestic Sales Manager

Tel: +82-2-2193-2206
Fax: +82-2-508-6903
Email: sales_kr@abov.co.kr

Global Sales Manager

Tel: +82-2-2193-2281
Fax: +82-2-508-6903
Email: sales_gl@abov.co.kr

China Sales Manager

Tel: +86-755-8287-2205
Fax: +86-755-8287-2204
Email: sales_cn@abov.co.kr

ABOV Disclaimer**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

ABOV Semiconductor (“ABOV”) reserves the right to make changes, corrections, enhancements, modifications, and improvements to ABOV products and/or to this document at any time without notice. **ABOV DOES NOT GIVE WARRANTIES AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION INCLUDED HEREIN.** Purchasers should obtain the latest relevant information of ABOV products before placing orders. Purchasers are entirely responsible for the choice, selection, and use of ABOV products and ABOV assumes no liability for application assistance or the design of purchasers’ products. **NO LICENSE, EXPRESS OR IMPLIED, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY ABOV HEREIN. ABOV DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES AND SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY INJUIRES OR DAMAGES RELATED TO USE OF ABOV PRODUCTS IN SUCH UNAUTHORIZED APPLICATIONS.** ABOV and the ABOV logo are trademarks of ABOV. For additional information about ABOV trademarks, please refer to https://www.abov.co.kr/en/about/corporate_identity.php. All other product or service names are the property of their respective owners. Information in this document supersedes and replaces the information previously supplied in any former versions of this document.

© 2020 ABOV Semiconductor – All rights reserved