

Description

The A31G346 Starter Kit helps develop applications using the A31G346RLN general-purpose microcontroller with Cortex-M0+ core. The A31G346 Starter Kit includes the elements needed for starters and experienced users to start their development.

This A31G346 Starter Kit contains an A31G346 in 64-LQFP package, an ABOV A-Link2 debugger embedded debug tool, LEDs, push buttons, and a USB Type-C connector. Also, this starter kit has expansion header connectors for either user function circuits or specialized function boards for A31G346.

The A31G346 Starter Kit comes with the ABOV software libraries and examples available with the reference software package.

Figure 1. Starter Kit Board

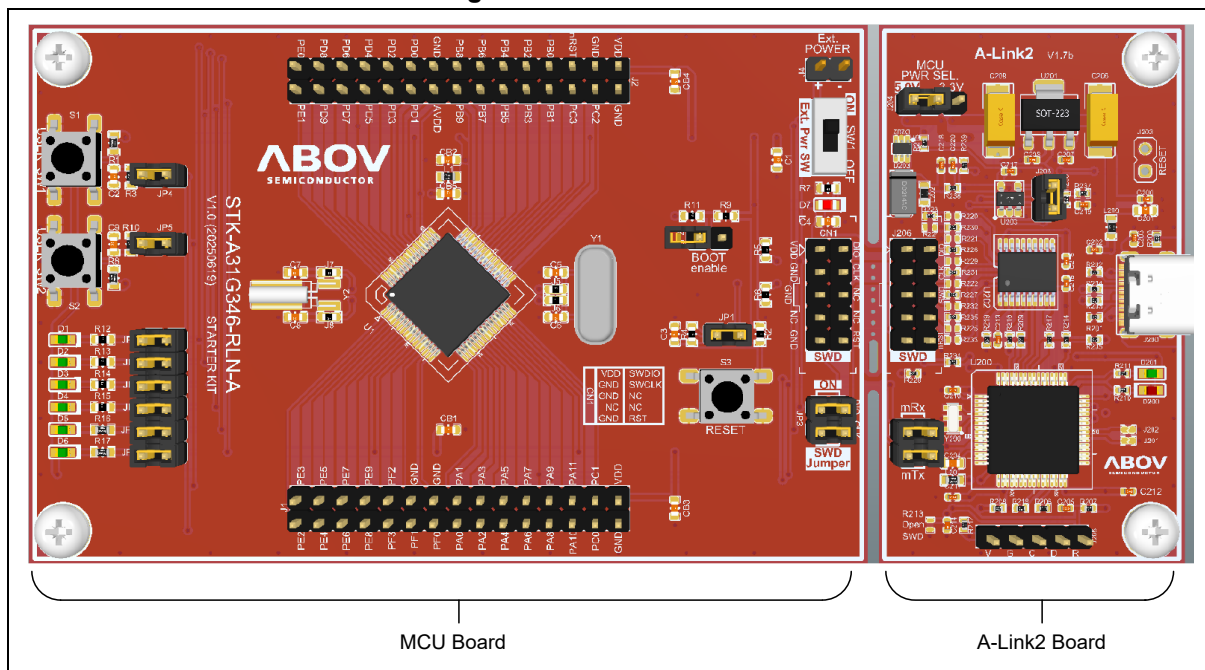


Table 1. Main Features of Starter Kit Board

Main Feature	Specifications	Remark
Microcontroller	A31G346RLN	Cortex-M0+, 64-LQFP
Operating Clock	Internal 40 kHz Internal 32 MHz External 32.768 kHz External 8 MHz	Low-Speed Internal OSC (LSI) High-Speed Internal OSC (HSI) Sub XTAL (LSE) XTAL (HSE)
Flash ROM	256 KB	Code
SRAM	32 KB	Code/Data
Communication Port	USB 2.0 FS	USB Type C
Debugging Port	SWD	10-pin connector
Input Buttons	1 reset and 2 event input	TACT switch

Reference Document

The following documents are available on www.abovsemi.com.

- A31G346 User's Manual
- A31G346 Datasheet

For information on relevant technical materials, refer to [StarterKit-A31G346RLN](#).

Contents

Description	1
Reference Document	2
1. Ordering Information	6
2. Hardware Configuration: A-Link2 Board Part.....	7
2.1 A-Link2 Board.....	7
2.1.1 J200: A-Link2 USB Connector.....	7
2.1.2 J204 (Pin Header): Microcontroller Power Connection	8
2.1.3 J206 (Pin Header): SWD Connector	8
2.1.4 J207 (Pin Header): USB-to-UART Connection	8
3. Hardware Configuration: Microcontroller Board Part	9
3.1 Power, A-Link2 Interface, Boot Mode Selector, and Switch	9
3.1.1 J4: External Power	9
3.1.2 SW1: VDD Power Switch	10
3.1.3 CN1 (Pin Header): A-Link2 Connector	10
3.1.4 JP2: Mode Select (Boot/Normal) Pins	10
3.1.5 JP3: A-Link2 SWCLK/SWDIO Connection Switch	11
3.2 nRESET and External GPIO Input Switches	12
3.2.1 S1, S2, S3, JP4, JP5, JP1: External Input Switch and Switch Selector	12
3.3 LED Array and LED Jumpers	13
3.3.1 LED Pin Assignment.....	13
3.4 Expansion Pin Headers.....	14
Revision History	15

List of Tables

Table 1. Main Features of Starter Kit Board	2
Table 2. Ordering Information	6
Table 3. Microcontroller Power Selector (J204)	8
Table 4. SWD Connector (J206)	8
Table 5. USB-to-UART Description (J207).....	8
Table 6. Description of Power Supply Pin (J4).....	9
Table 7. SW1: VDD Power Switch	10
Table 8. A-Link2 Interface (CN1).....	10
Table 9. Boot Mode Selector (JP2)	10
Table 10. SWCLK/SWDIO Connection Switch.....	11
Table 11. Switch Description of External Input Switch (S1, S2, S3)	12
Table 12. Pin Description of Switch Selector (JP1).....	12
Table 13. Pin Description of Switch Selector (JP4/JP5)	12
Table 14. LED Pin Description (D1 to D6).....	13
Table 15. Usage of LED Pin by LED Connection (JP6 to JP11)	13

List of Figures

Figure 1. Starter Kit Board	1
Figure 2. A-Link2 Board Part of Starter Kit.....	7
Figure 3. Power, A-Link2 Interface, Boot Mode Selector, and Switch	9
Figure 4. Buttons (S1~S3) and Button Jumpers (JP4, JP5, JP1)	12
Figure 5. LED Array (D1 to D6) and LED Jumpers (JP6 to JP11)	13
Figure 6. Pin Assignment of Starter Kit-A31G346RLN	14

1. Ordering Information

To order the Starter Kit board product for the microcontroller, refer to Table 2.

Additional information about the Starter Kit board, please visit [ABOV website](#).

Table 2. Ordering Information

Order Code	Board Name	Target Microcontroller
StarterKit-A31G346RLN	STK-A31G346-RLN-A	A31G346RLN

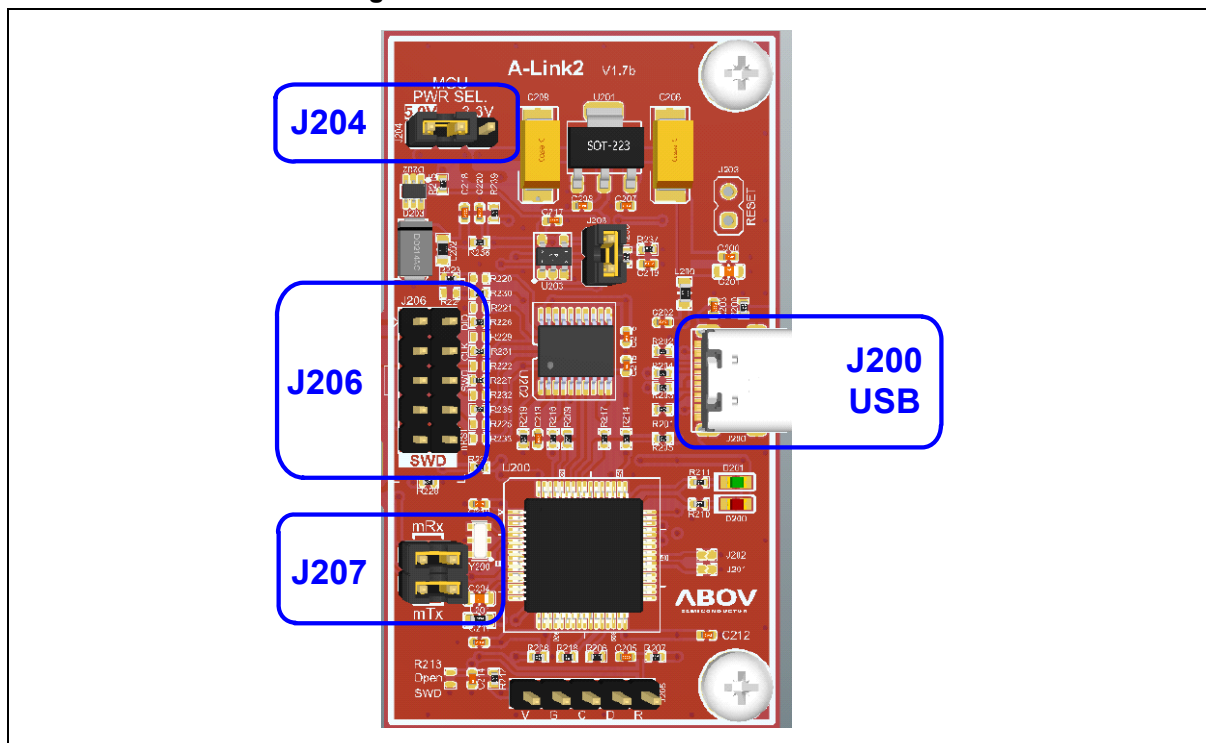
2. Hardware Configuration: A-Link2 Board Part

This chapter describes the A-Link2 part of the Starter Kit board.

2.1 A-Link2 Board

A-Link2 is a CMSIS-DAP compatible debug interface hardware. A-Link2 connects to a host computer to download or debug into starter kits.

Figure 2. A-Link2 Board Part of Starter Kit



2.1.1 J200: A-Link2 USB Connector

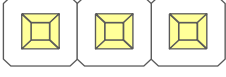
The J200 USB connector connects to the host computer. Through this connector, functions such as power supply, debug interface, and virtual serial port communication can be connected. An overview of the features of this connector is as follows:

- USB type C
- A-Link2 and Target power supply (USB 5 V)
- A-Link2 debug interface (CMSIS-DAP compatible)
- USB virtual serial port (COM port)

2.1.2 J204 (Pin Header): Microcontroller Power Connection

The operating voltage varies by device. See device specifications.

Table 3. Microcontroller Power Selector (J204)

J204 State	VDD Power Supply
	Use 5.0 V power from USB
	Use 3.3 V power from USB
	No power supply is connected. Use external power

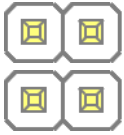
2.1.3 J206 (Pin Header): SWD Connector

Table 4. SWD Connector (J206)

Pin Number	Pin Name	Pin Number	Pin Name
1	V-Sense	2	SWDIO/TMS
3	GND	4	SWCLK/TCK
5	GND	6	NC/TDO
7	NC	8	NC/TDI
9	GND	10	nRESET

2.1.4 J207 (Pin Header): USB-to-UART Connection

Table 5. USB-to-UART Description (J207)

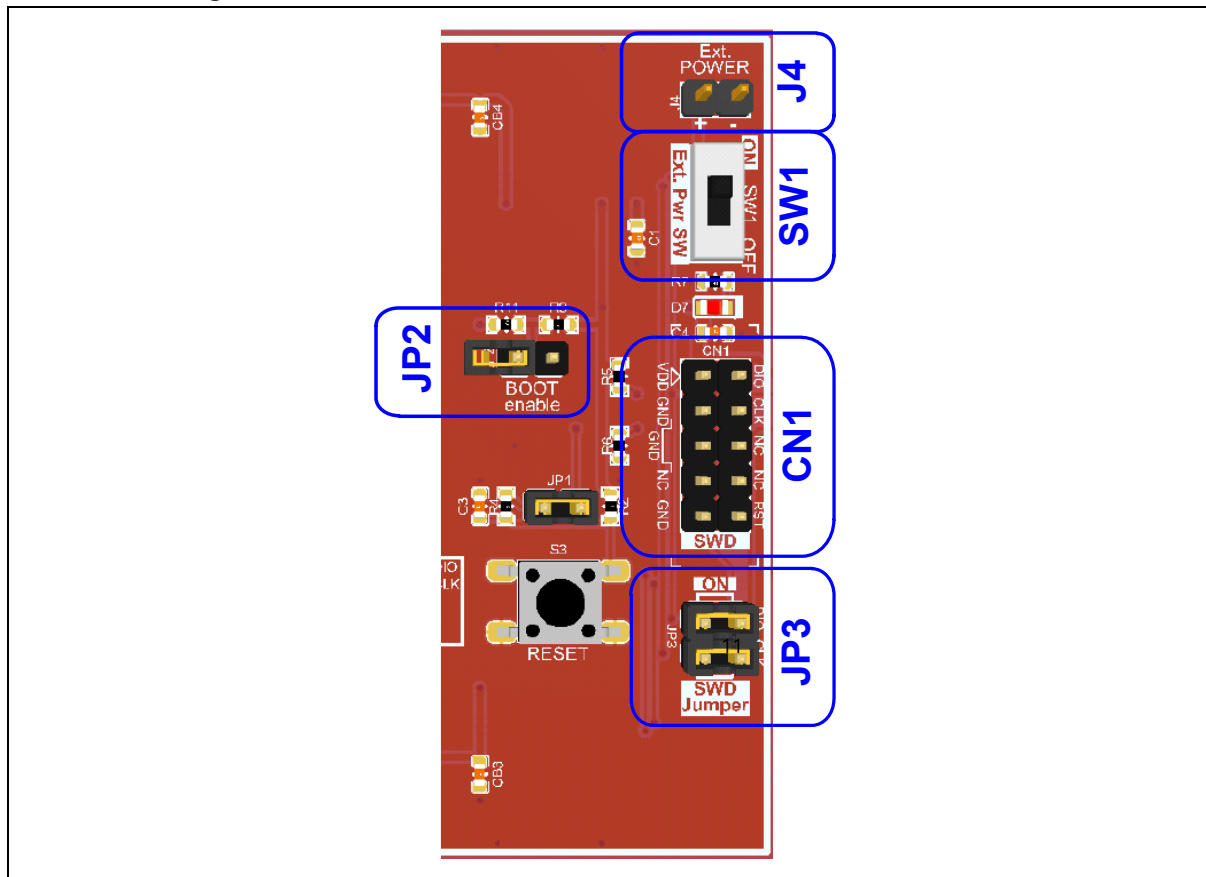
J207 State	Pin	Connection
	Short	PA3/RXD10 is connected with A-Link2 UART_TXD PA2/TXD10 is connected with A-Link2 UART_RXD
	Open	PA3/RXD10 is not connected with A-Link2 UART_TXD PA2/TXD10 is not connected with A-Link2 UART_RXD

3. Hardware Configuration: Microcontroller Board Part

This chapter describes the power, Boot mode selector, switches, and LEDs on the Starter Kit board.

3.1 Power, A-Link2 Interface, Boot Mode Selector, and Switch

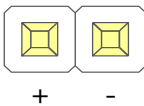
Figure 3. Power, A-Link2 Interface, Boot Mode Selector, and Switch



3.1.1 J4: External Power

J4 is the external power connector for the microcontroller board. If the microcontroller board does not use power of the A-Link2 board, it uses external power through the J4 connector.

Table 6. Description of Power Supply Pin (J4)

J4	Pin Name	Description
	VDD	3.3 to 5.0 V
	GND	Ground

3.1.2 SW1: VDD Power Switch

SW1 is the power switch, which turns the external power from J4 on or off for the microcontroller part.

Table 7. SW1: VDD Power Switch

SW1 State	ON	SW1 State	OFF
	VDD power on		VDD power off

3.1.3 CN1 (Pin Header): A-Link2 Connector

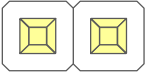
CN1 is the 10-pin standard SWD connector.

Table 8. A-Link2 Interface (CN1)

Pin Number	Pin Name	Pin Number	Pin Name
1	VDD	2	SWDIO
3	GND	4	SWCLK
5	GND	6	NC
7	NC	8	NC
9	GND	10	nRESET

3.1.4 JP2: Mode Select (Boot/Normal) Pins

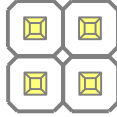
Table 9. Boot Mode Selector (JP2)

JP2	Connection Status	Description
	Short	Boot mode
	Open	Normal mode

3.1.5 JP3: A-Link2 SWCLK/SWDIO Connection Switch

SWCLK and SWDIO are Serial Wire Debug Clock and Data pins respectively, used as debug interfaces.

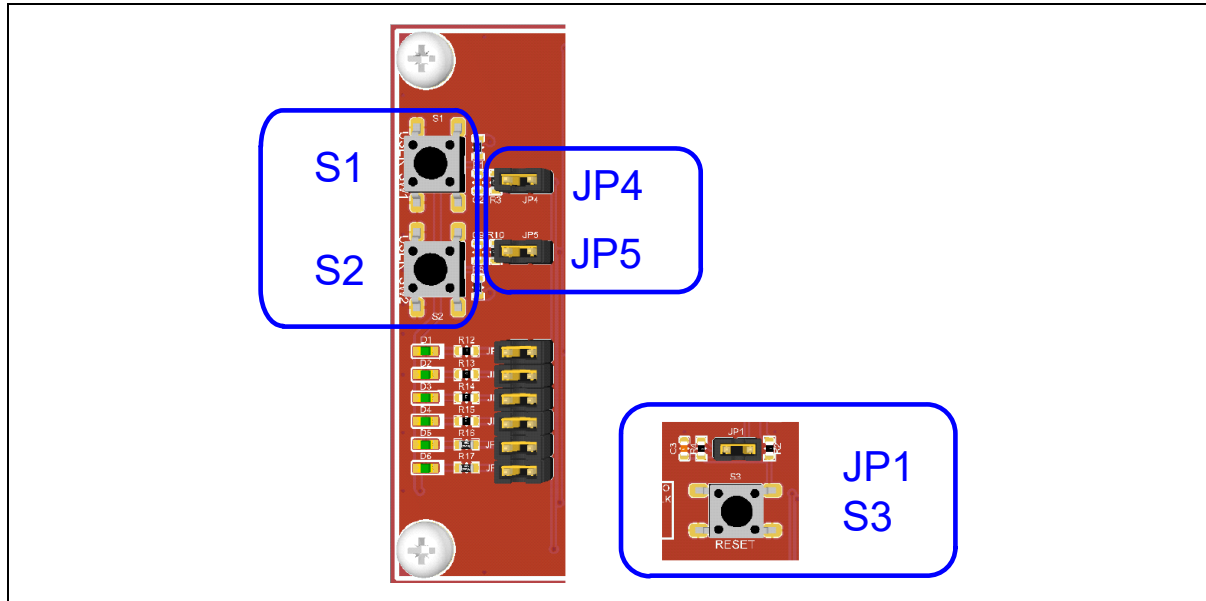
Table 10. SWCLK/SWDIO Connection Switch

JP3 State	ON	JP3 State	OFF
	SWCLK, SWDIO pins are connected to SWD interface		SWCLK, SWDIO pins are disconnected from SWD interface

3.2 nRESET and External GPIO Input Switches

The Starter Kit has one reset button and two user buttons for implementing user functions.

Figure 4. Buttons (S1~S3) and Button Jumpers (JP4, JP5, JP1)



3.2.1 S1, S2, S3, JP4, JP5, JP1: External Input Switch and Switch Selector

Table 11. Switch Description of External Input Switch (S1, S2, S3)

Switch	Function	Connection Pin
S3	Ext. reset input switch	nRESET connected by JP1
S1, S2	Ext. user input switch	PC0, PC1 connected by JP4, JP5

Table 12. Pin Description of Switch Selector (JP1)

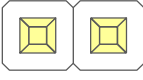
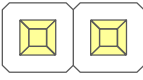
JP1	Connection Status	Description
	Short	Connected to nRESET pin
	Open	Not connected to S3

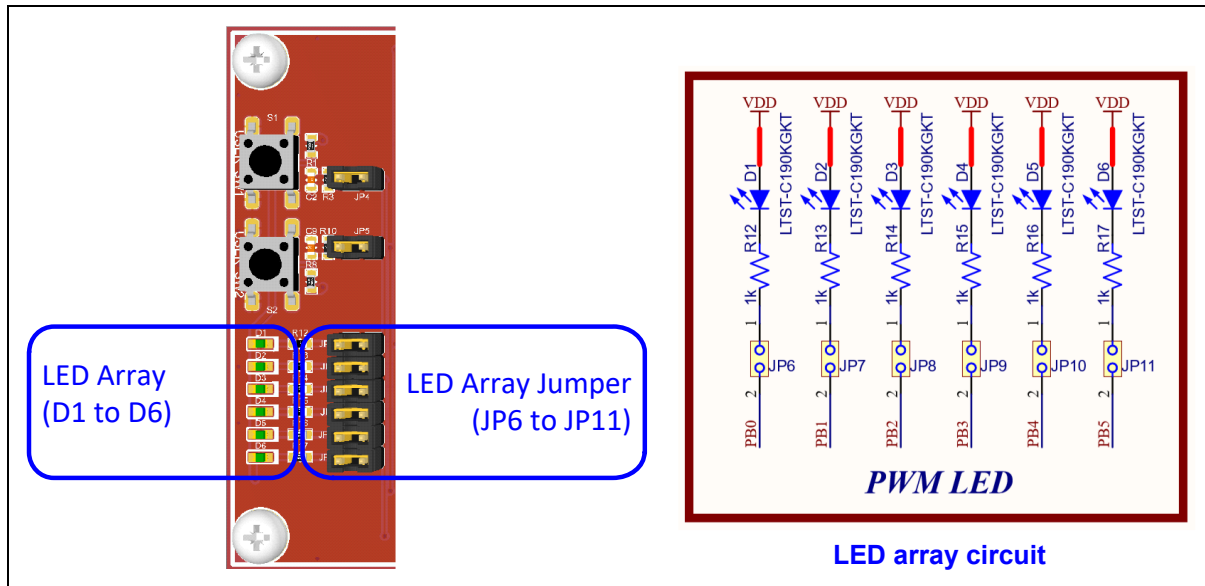
Table 13. Pin Description of Switch Selector (JP4/JP5)

JP4/JP5	Connection Status	Description
	Short	Connected to PC0/PC1 pin
	Open	Not connected to S1/S2

3.3 LED Array and LED Jumpers

A built-in array of six LEDs for operation tests is on the Starter Kit. The LED signals consist of multi-function pins with jumpers that can be connected or disconnected for other functions.

Figure 5. LED Array (D1 to D6) and LED Jumpers (JP6 to JP11)



3.3.1 LED Pin Assignment

Table 14. LED Pin Description (D1 to D6)

LED Name	LED Jumper	A31G346 Pin
D1	JP6	PB0
D2	JP7	PB1
D3	JP8	PB2
D4	JP9	PB3
D5	JP10	PB4
D6	JP11	PB5

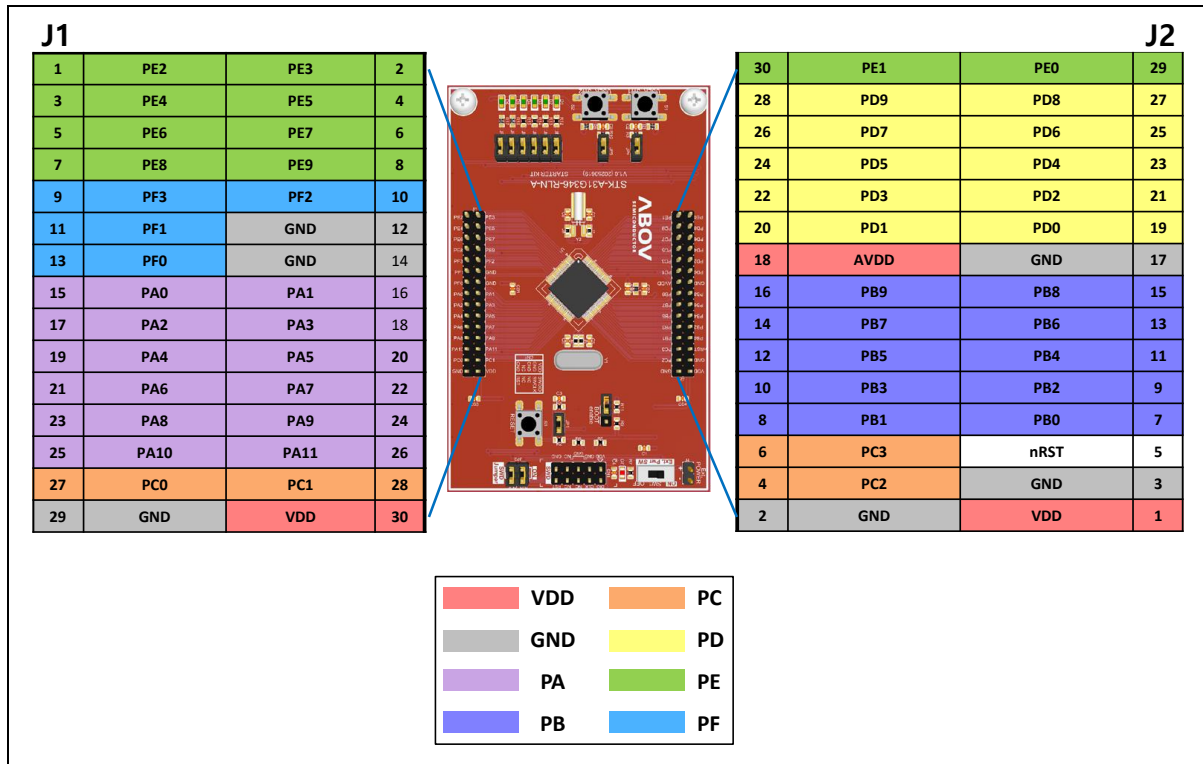
Table 15. Usage of LED Pin by LED Connection (JP6 to JP11)

JP6 to JP11	Connection Status	Description
	Short	LED is connected with A31G346.
	Open	LED is not used.

3.4 Expansion Pin Headers

The A31G346 starter kit has expansion pin headers for circuit expansion for various applications. Figure 6 shows the pin assignment of the pin headers.

Figure 6. Pin Assignment of Starter Kit-A31G346RLN



Revision History

Revision	Date	Notes
1.00	Aug. 25, 2025	Initial release

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**

37, 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

Tel: +82-2-2193-2206

Fax: +82-2-508-6903

Email: sales_kr@abov.co.kr

Global Sales

Tel: +82-2-2193-2281

Fax: +82-2-508-6903

Email: sales_gl@abov.co.kr

China Sales

Tel: +86-755-8287-2205

Fax: +86-755-8287-2204

Email: sales_cn@abov.co.kr

Japan Sales

Email: sales_jp@abov.co.kr

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