

Description

The A31S134 Starter Kit helps develop applications using the A31S134RLN general-purpose microcontroller with Cortex-M0+. The A31S134 Starter Kit includes the elements needed for starters and experienced users to start their development.

This A31S134 Starter Kit contains an A31S134 in 64LQFP package, an ABOV A-Link debugger embedded debug tool, LEDs, push buttons, and a micro-B USB connector. Also, this starter kit has expansion header connectors for either user function circuits or specialized function boards for A31S134.

The A31S134 Starter Kit comes with the ABOV software libraries and examples available with the reference software package.

Figure 1. Starter Kit board

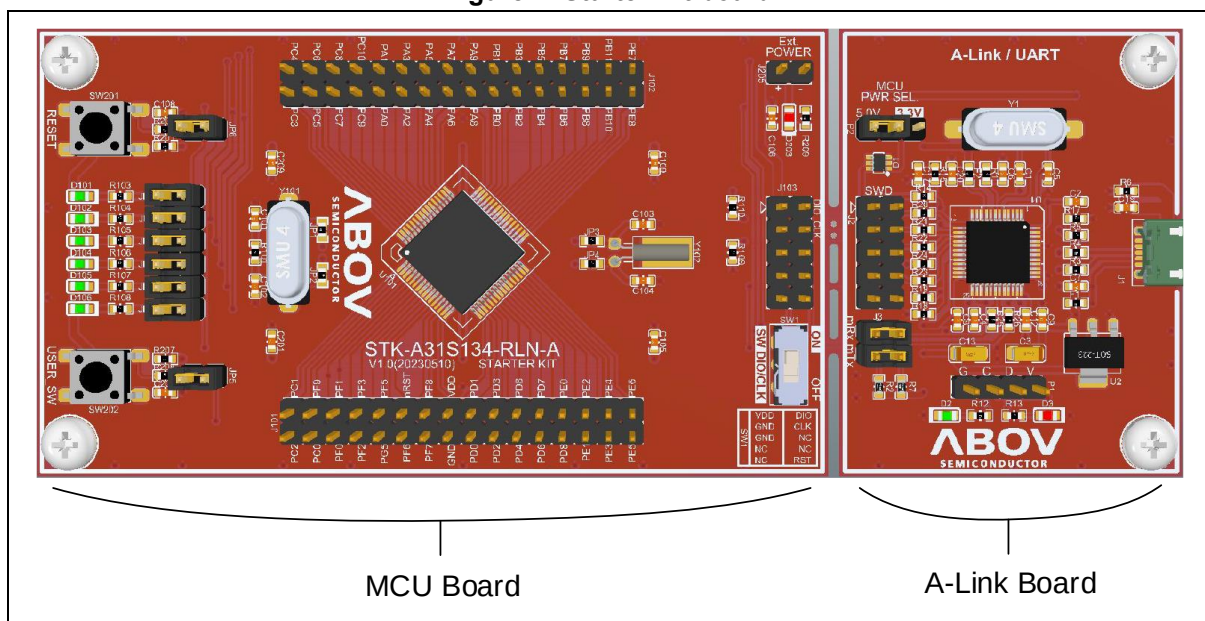


Table 1. Main Features of Starter Kit Board

Main feature	Specifications	Remark
MCU	A31S134RLN	Cortex-M0+, 64LQFP
Operating Clock	Internal 40 kHz Internal 32 MHz External 32.768 kHz External 8 MHz	WDTRC (LSI) HIRC (HSI) SX-TAL (LSE) X-TAL (HSE)
ROM	128 KB Flash ROM	Code
Data Fash	4 KB	Data
SRAM	16 KB	Code/Data
Communication Port	USB 2.0 FS	Micro USB Type B 5-pin
Debugging Port	SWD	10-pin connector
Input Buttons	1 reset and 1 event input	TACT switch

Reference Document

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

- A31S134 User's Manual
- A31S134 Datasheet

For information on relevant technical materials, refer to [StarterKit-A31S134RLN](#).

Contents

Description	1
Reference Document	2
1. Ordering Information	6
2. Hardware Configuration: A-Link Board Part.....	7
2.1 A-Link Board.....	7
2.1.1 J1: A-Link USB Connector.....	7
2.1.2 P2 (Pin Header): MCU Power Connection	8
2.1.3 J2 (Pin Header): SWD Connector	9
2.1.4 J3 (Pin Header): USB-to-UART Connection.....	9
3. Hardware Configuration: MCU Board Part.....	10
3.1 Power, A-Link Interface, and Switch	10
3.1.1 J205: External Power	10
3.1.2 J103 (Pin Header): A-Link Connector	11
3.1.3 SW1: A-Link SWCLK/SWDIO Connection Switch.....	11
3.2 nRESET and External GPIO Input Switches	12
3.2.1 SW201, SW202, JP6, JP5: 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. MCU Power Selector (P2)	8
Table 4. SWD Connector (J2)	9
Table 5. USB-to-UART Description (J3)	9
Table 6. Description of Power Supply Pin (J205)	10
Table 7. A-Link Interface (J103)	11
Table 8. SWCLK/SWDIO Connection Switch	11
Table 9. Switch Description of External Input Switch (SW201, SW202)	12
Table 10. Pin Description of Switch Selector (JP6)	12
Table 11. Pin Description of Switch Selector (JP5)	12
Table 12. LED Pin Description (D101 to D106)	13
Table 13. Usage of LED Pin by LED Connection (JP10 to JP15)	13

List of Figures

Figure 1. Starter Kit board.....	1
Figure 2. A-Link Board Part of Starter Kit.....	7
Figure 3. Power, A-Link Interface, and Switch.....	10
Figure 4. External Input Switch (SW201, SW202) and Switch Selector (JP6, JP5)	12
Figure 5. LED Array(D101 to D106) and LED Jumpers(JP10 to JP16)	13
Figure 6. Pin Assignment of Starter Kit-A31S134RLN.....	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 (<http://www.abovsemi.com>).

Table 2. Ordering Information

Order Code	Board Name	Target MCU
StarterKit-A31S134RLN	STK-A31S134-RLN-A	A31S134RLN

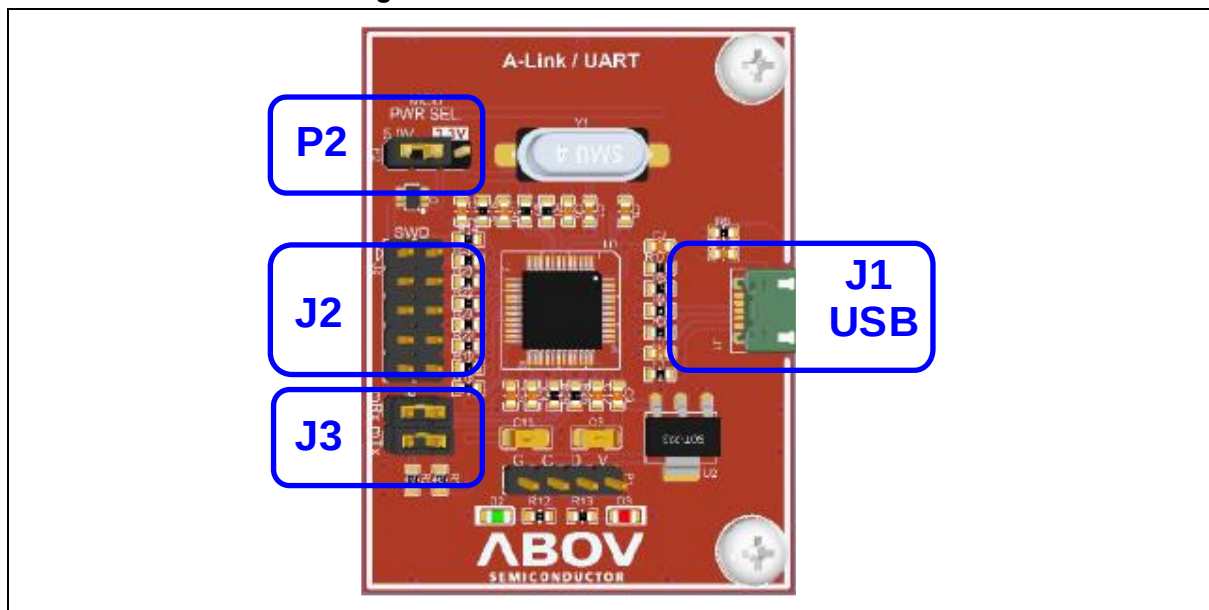
2. Hardware Configuration: A-Link Board Part

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

2.1 A-Link Board

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

Figure 2. A-Link Board Part of Starter Kit



2.1.1 J1: A-Link USB Connector

The J1 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:

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

2.1.2 P2 (Pin Header): MCU Power Connection

The operating voltage varies by device. See device specifications.

Table 3. MCU Power Selector (P2)

P2 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 J2 (Pin Header): SWD Connector

Table 4. SWD Connector (J2)

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 J3 (Pin Header): USB-to-UART Connection

Table 5. USB-to-UART Description (J3)

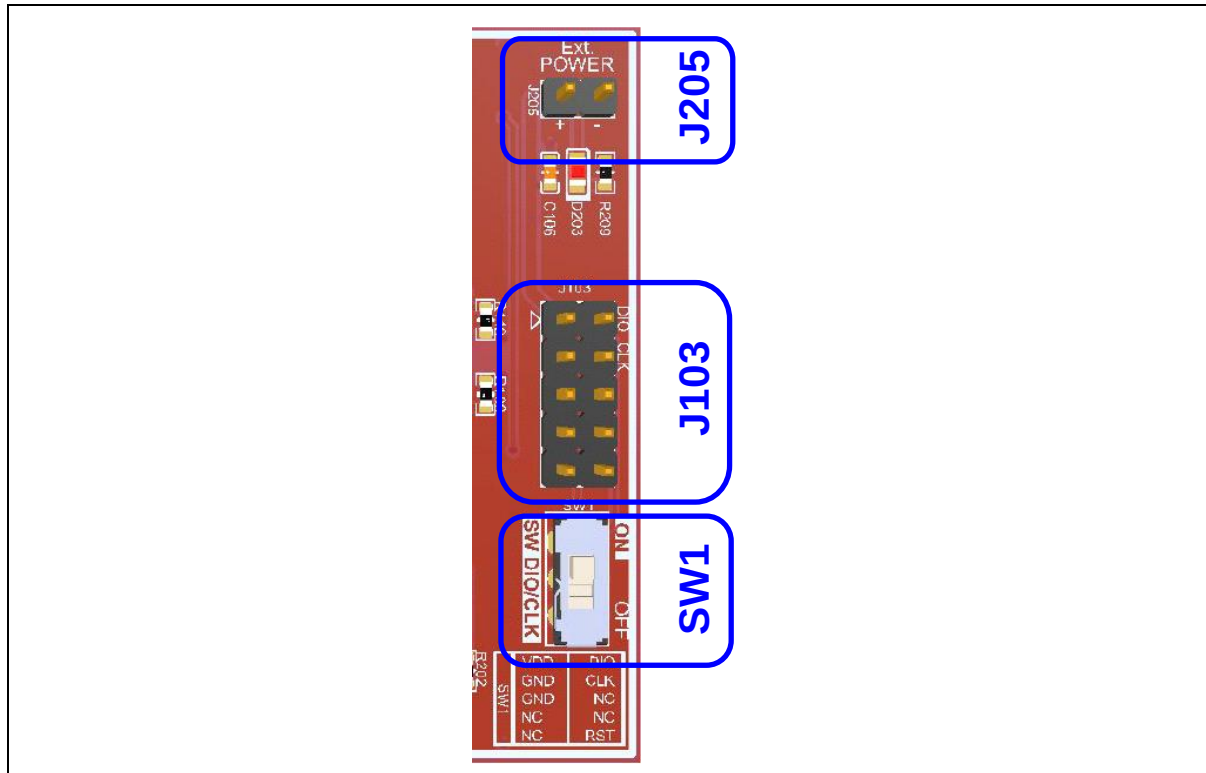
J3 state	Pin	Connection
	Short	PB1/RXD10 is connected with A-Link UART_TXD PB2/TXD10 is connected with A-Link UART_RXD
	Open	PB1/RXD10 is not connected with A-Link UART_TXD PB2/TXD10 is not connected with A-Link UART_RXD

3. Hardware Configuration: MCU Board Part

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

3.1 Power, A-Link Interface, and Switch

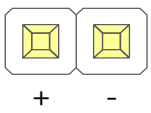
Figure 3. Power, A-Link Interface, and Switch



3.1.1 J205: External Power

J205 is the external power connector for the MCU board. If the MCU board does not use power of the A-Link board, it uses external power through the J205 connector.

Table 6. Description of Power Supply Pin (J205)

J205	Pin Name	Description
	VDD	3.3 to 5.0 V
	GND	Ground

3.1.2 J103 (Pin Header): A-Link Connector

J103 is the 10-pin standard SWD connector.

Table 7. A-Link Interface (J103)

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

3.1.3 SW1: A-Link SWCLK/SWDIO Connection Switch

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

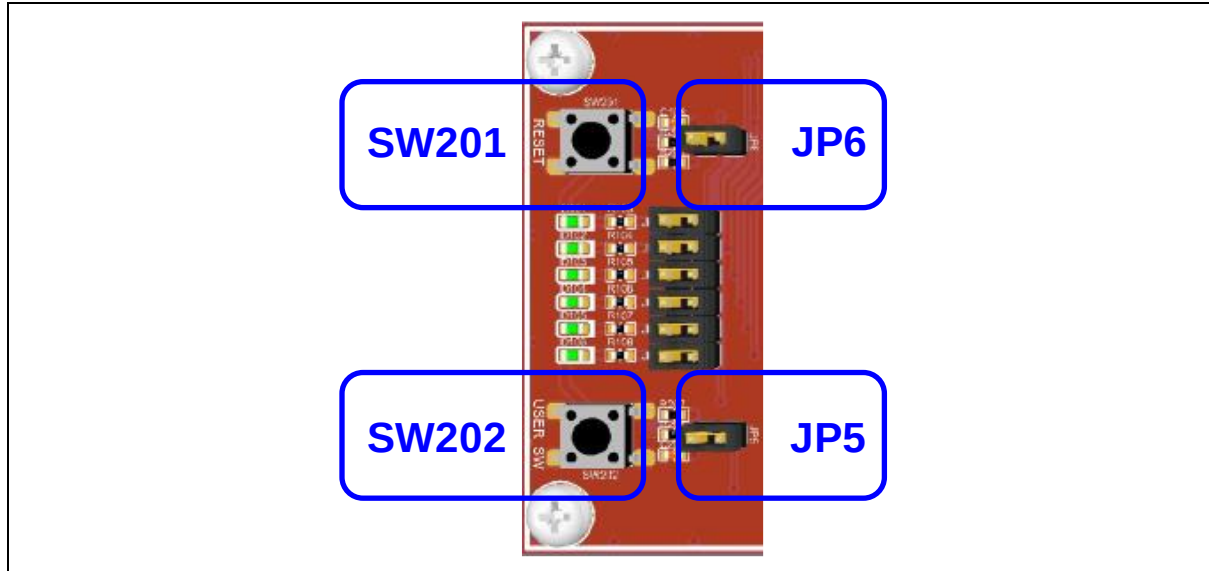
Table 8. SWCLK/SWDIO Connection Switch

SW1 State	ON	SW1 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 one user button for implementing user functions.

Figure 4. External Input Switch (SW201, SW202) and Switch Selector (JP6, JP5)



3.2.1 SW201, SW202, JP6, JP5: External Input Switch and Switch Selector

Table 9. Switch Description of External Input Switch (SW201, SW202)

Switch	Function	Connection Pin
SW201	Ext. reset input switch	nRESET connected by JP6
SW202	Ext. user input switch	PE3 connected by JP5

Table 10. Pin Description of Switch Selector (JP6)

JP6	Connection Status	Description
	Short	Connected to nRESET pin
	Open	Not connected to SW201

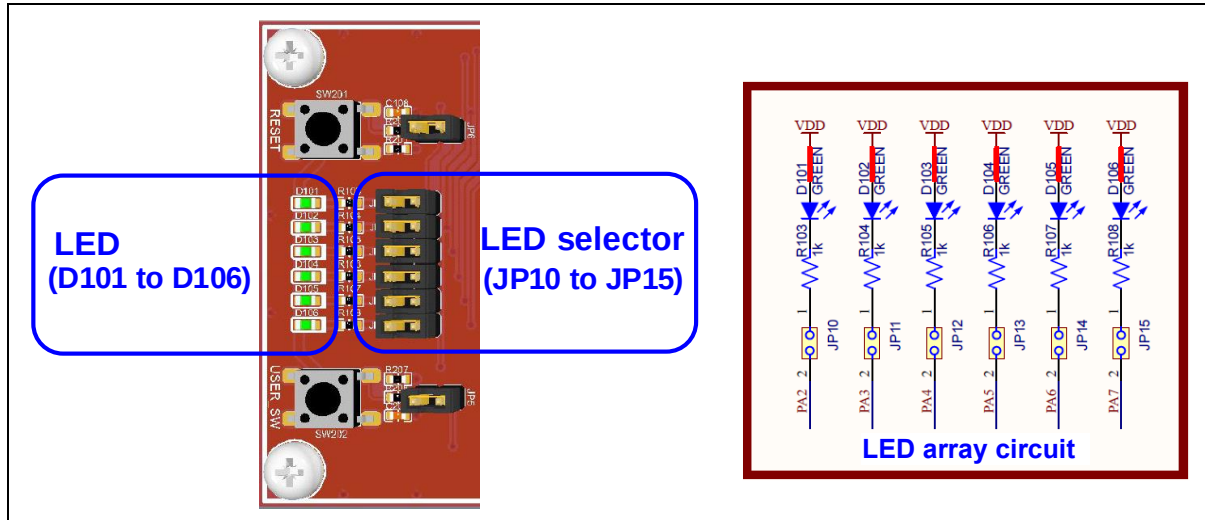
Table 11. Pin Description of Switch Selector (JP5)

JP5	Connection Status	Description
	Short	Connected to PE3 pin
	Open	Not connected to SW202

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(D101 to D106) and LED Jumpers(JP10 to JP16)



3.3.1 LED Pin Assignment

Table 12. LED Pin Description (D101 to D106)

LED Name	LED Jumper	A31S134 Pin
D101	JP10	PA2
D102	JP11	PA3
D103	JP12	PA4
D104	JP13	PA5
D105	JP14	PA6
D106	JP15	PA7

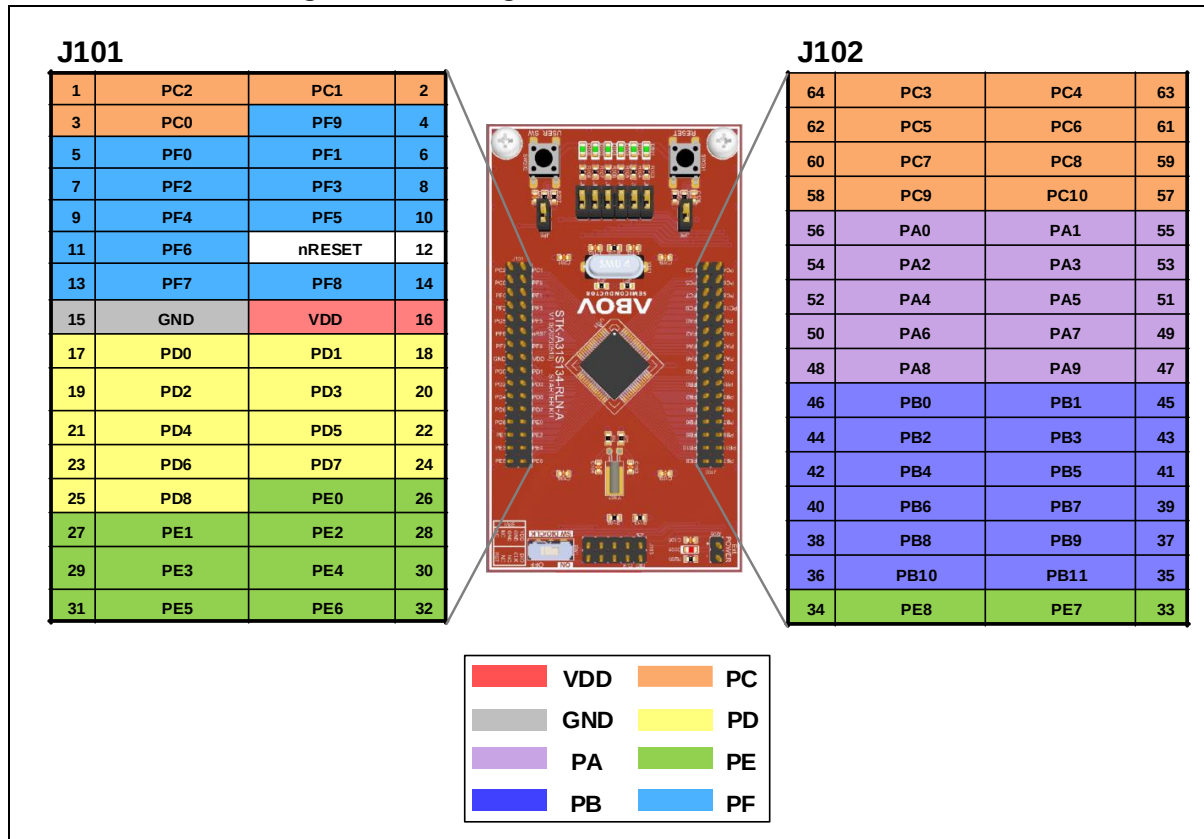
Table 13. Usage of LED Pin by LED Connection (JP10 to JP15)

JP10 to JP15	Connection Status	Description
	Short	LED is connected with A31S134.
	Open	LED is not used.

3.4 Expansion Pin Headers

The A31S134 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-A31S134RLN



Revision history

Revision	Date	Notes
1.00	Aug. 17, 2023	Initial release
1.10	Dec. 2, 2024	Updated the disclaimer.

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