

Introduction

The A31G324 Starter Kit allows users to easily develop applications with the A31G324RLN general purpose microcontroller with the ARM Cortex®-M0+ 32-bit core. It includes everything required either for beginners or experienced users to get started quickly.

Based on A31G324RLN, it includes an ABOV CMSIS-DAP debugger embedded debug tool, LEDs, Full-Speed USB2.0 push buttons and a micro-B USB connector. Specialized function boards can be connected to the extension header connectors. The A31G32 Starter Kit comes with the ABOV software libraries and examples available with the AUDK32 software package.

Figure 1 shows a starter kit board of A31G324RLN. In Table 1, you can see main features of the starter kit board.

Figure 1. Starter Kit Board

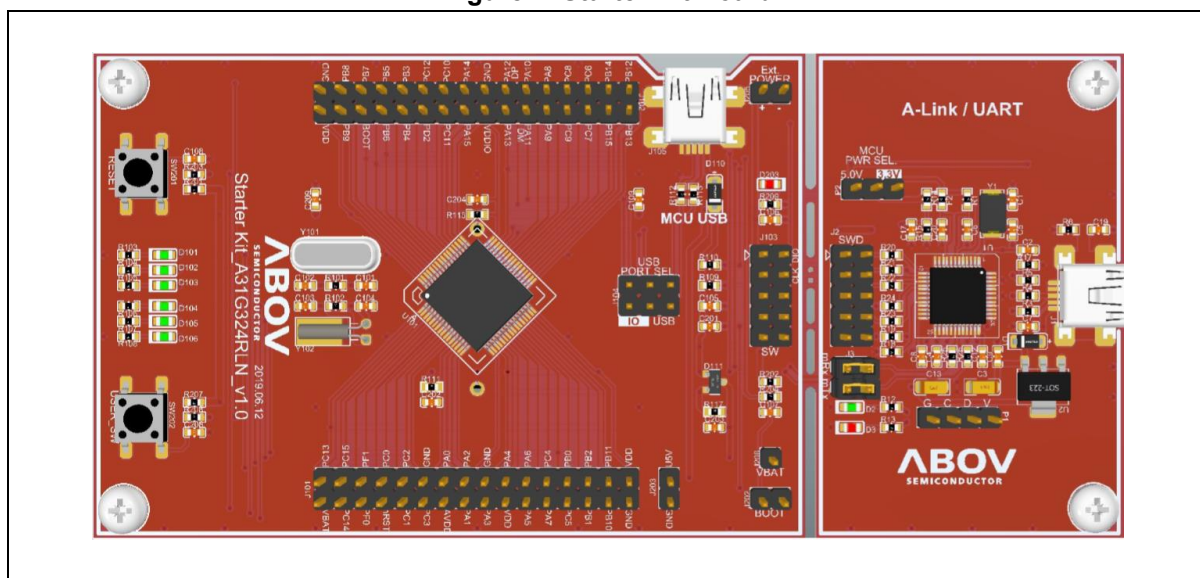


Table 1. Main Features of Starter Kit Board

Main feature	Specifications	Remark
MCU	A31G32x	ARM CORTEX-M0+
Operating clock	8MHz	Crystal Main
ROM	64KB / 128KB flash ROM	Code
RAM	16KB	
Communication Port	USB 2.0	Mini USB Type B 5-pin
Debugging Port	SWD	10-pin Connector
Input Buttons	1 reset, 1 event input	TACT Switch

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1. Ordering information

To order the starter kit board product of microcontrollers, refer to Table 2.

Additional information about starter kit board, please visit ABOV website (<http://www.abovsemi.com>).

Table 2. Ordering information

Order code	Board name	Target MCU
StarterKit-A31G324RLN	STK-A31G324-RLN-A	A31G324RLN

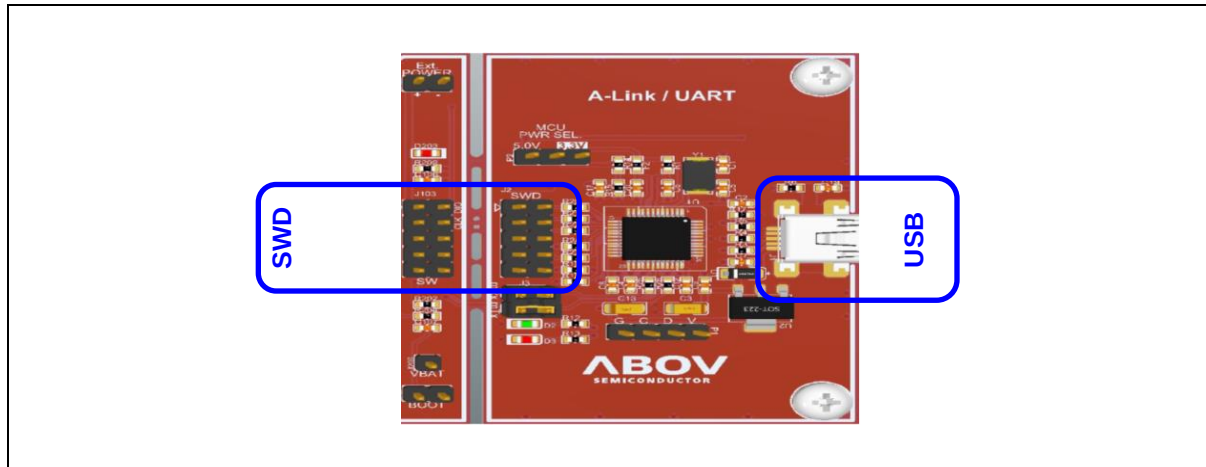
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2. A-link part

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 (mini-USB type B)

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

2.1.2 J103 (Box Header): JTAG Connector

Table 3. JTAG Pin Description

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

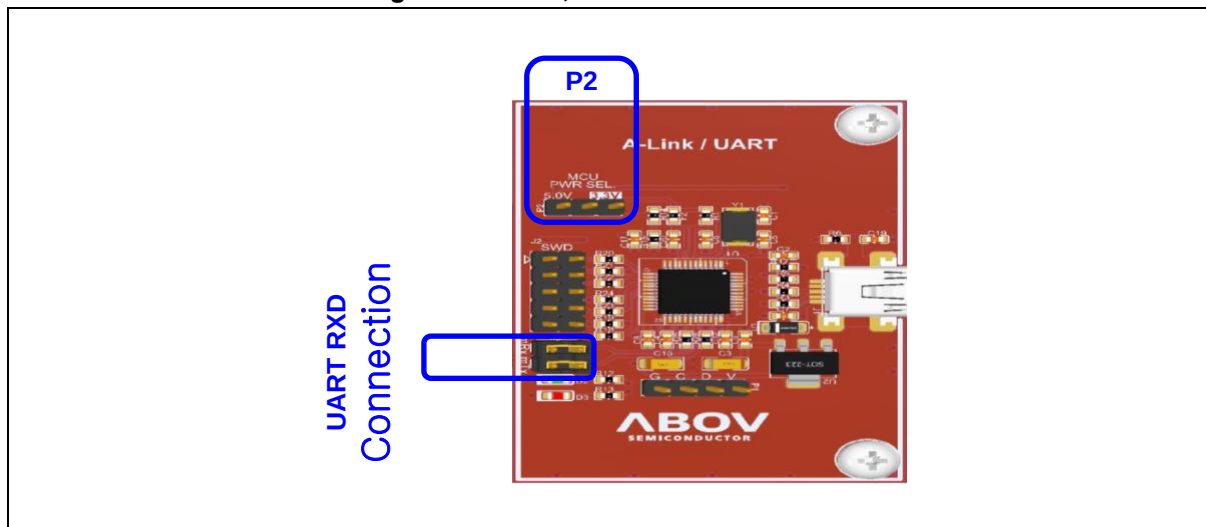
2.1.3 J2 (Pin Header): SWD Connector

Table 4. 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 5. P2 MCU Power Selector

P2	VDD
	5.0V
	3.3V
	External Power

2.2.2 J3: USB to UART connection

Table 6. USB to UART Description

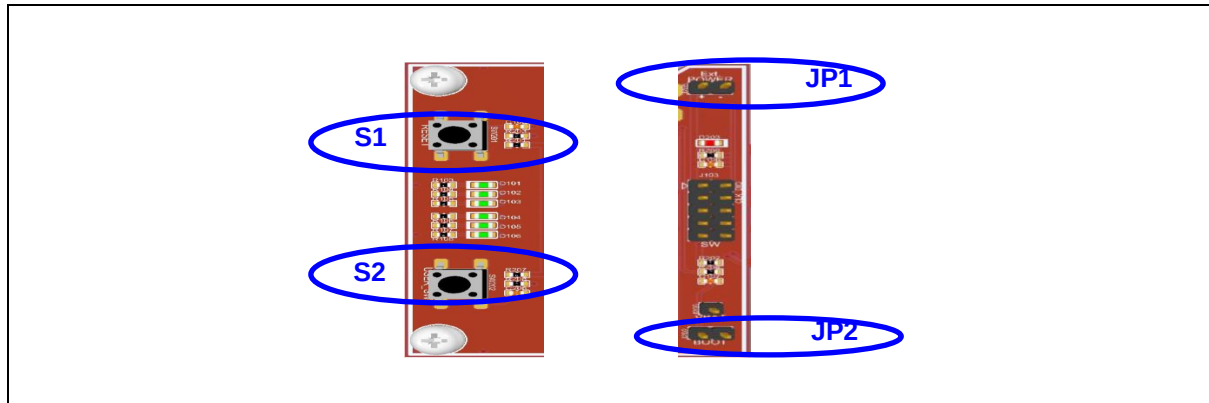
J8(mRX)	Pin	Connection
	Short	MCU RXD0 ← PC TXD MCU TXD0 ← PC RXD
	Open	MCU RXD0 Open MCU TXD0 Open

3. Device part

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

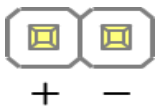
3.1 Power, Boot mode selector and switch

Figure 4. Power, Boot mode and Switch



3.1.1 JP1: external power (not used)

Table 7. JP1 Description and Connection

J1	Pin name	Connection
	VDD	+3.3 ~ 5.0V
	GND	0V

3.1.2 JP2: mode select (boot/normal) pins

Table 8. JP2 Boot Mode Selector

J1	Pin name	Connection
	VDD	+3.3 ~ 5.0V
	GND	0V

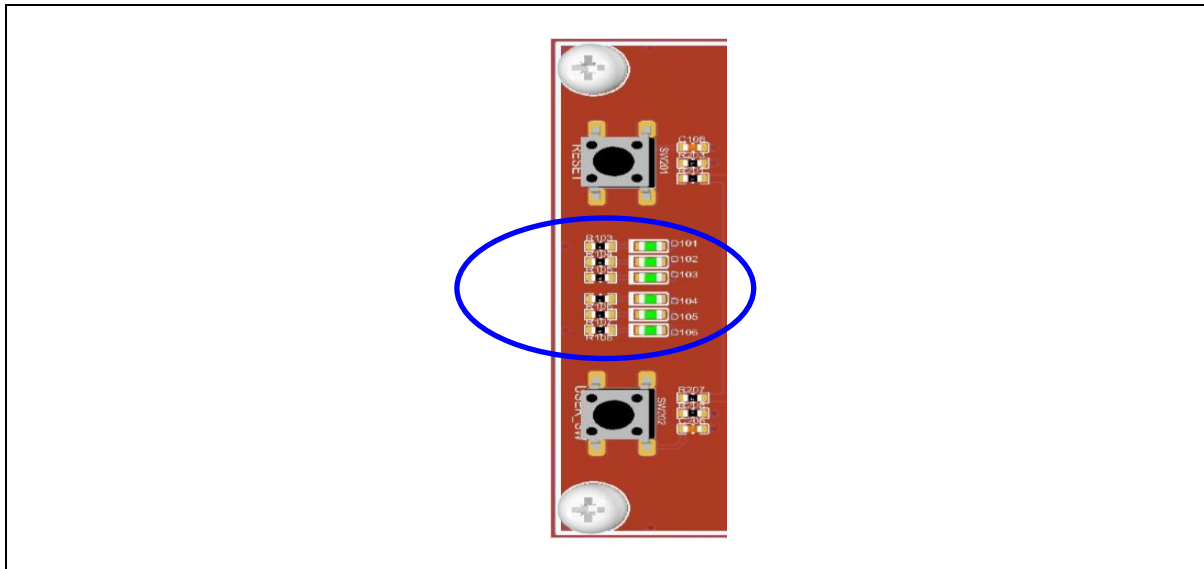
3.1.3 S1, S2: switch

Table 9. S1, S2 Description and Function

Switch	Function
S1	nRESET
S2	PC6

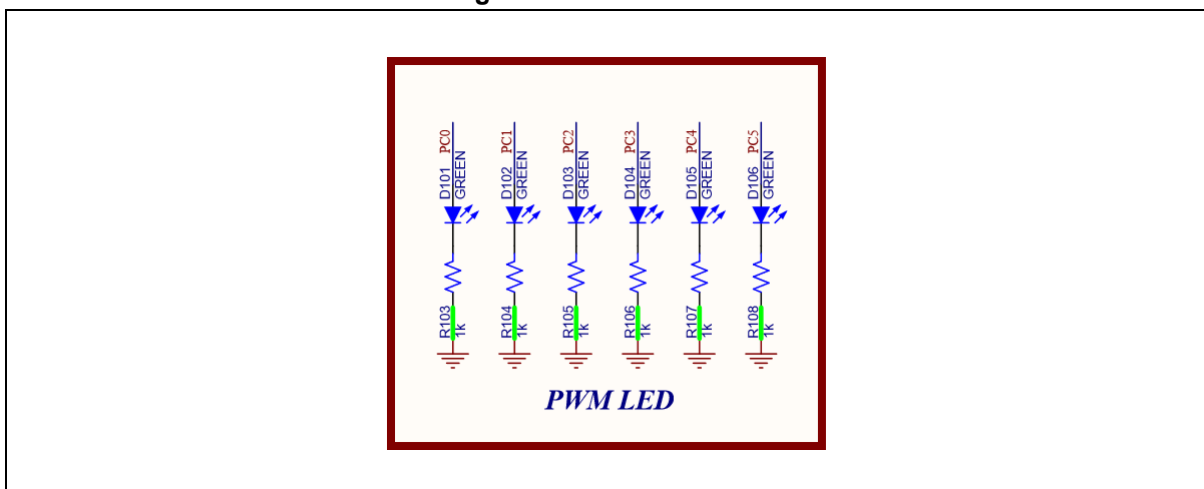
3.2 LED display (D101 – D106)

Figure 5. LED Display



3.2.1 LED schematic

Figure 6. LED Schematic



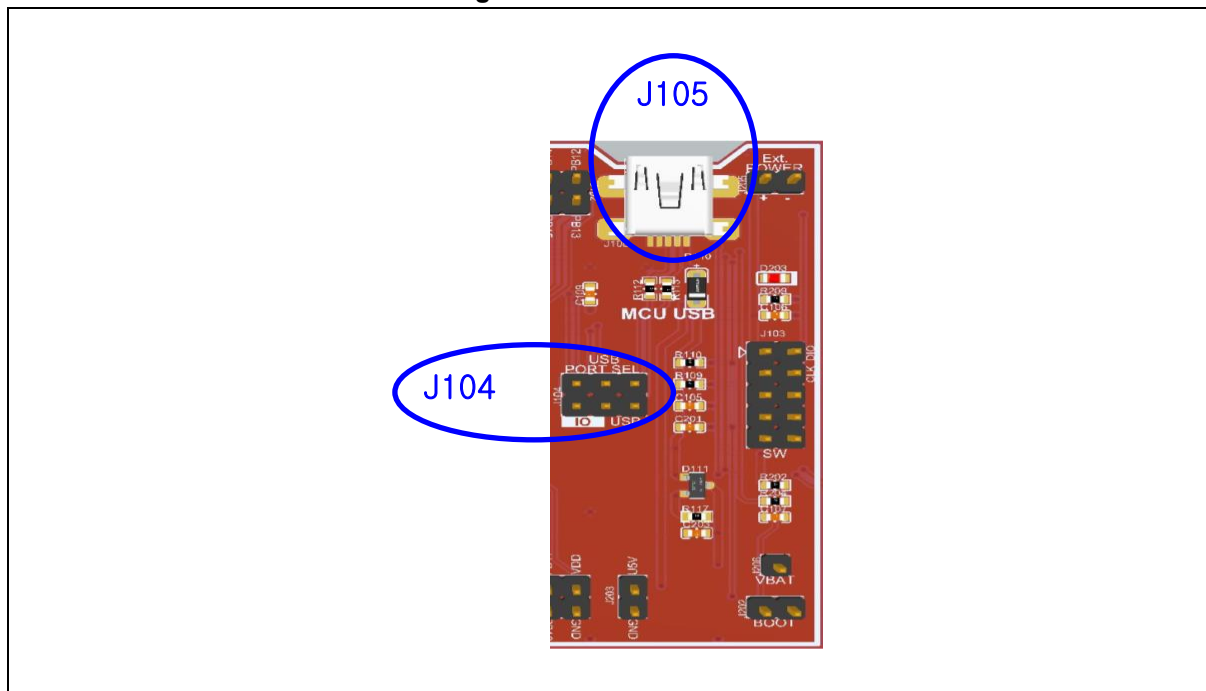
3.2.2 LED pin assignment

Table 10. LED Pin Description

LED name	PORT
D101	PC0
D102	PC1
D103	PC2
D104	PC3
D105	PC4
D106	PC5

3.3 MCU USB connector

Figure 7. USB Connector



3.3.1 MCU USB: J105

Table 11. J105 IO/USB Selector

J105	Function
	User IO (PA12, PA11)
	USB (USB DP, USB DM)

3.3.2 J105: MCU USB Connector

Table 12. USB Pin Description

J105	Function
1	VBUS
2	USB DM
3	USB DP
4	USB ID / NC
5	GND

3.4 Pin assignment

Figure 8. Pin Assignment

[CN1 description]		[Color index information]		[CN2 description]	
1	VBAT	PC13/RTC_TAMP1/RTC_OUT	2	64	VDD
3	PC14/SXIN	PC15/SXOUT	4	62	PB9/I2C0_SDA/SPI21_SS/T12OUT
5	PF0/CLKO/MIN	PF1/XOUT	6	60	BOOT
7	NRST	PC0	8	58	PB6/USART10_TXD/USART10_MOSI/I2C0_SCL/T11OUT/T40OUT
9	PC1	PC2/SPI21_MISO	10	56	PB4/SPI20_MISO/T40OUT
11	PC3/SPI21_MOSI/T13OUT	GND	12	54	PF2/USART12_SS/T21OUT
13	AVDD	PA0/USART13_TXD/USART13_MOSI	14	52	PC11/USART13_RXD/USART13_MISO/USART12_RXD/USART12_MISO
15	PA1/USART13_RXD/USART13_MISO/USART11_SS/T13OUT/T20OUT	PA2/USART11_TXD/USART13_MOSI/T10OUT/T20OUT	16	50	PA15/USART11_RXD/USART13_TXD/SWC_LK/USART11_MOSI
17	PA3/USART11_RXD/USART11_MISO/T10OUT/T20OUT	GND	18	48	VDDIO
19	VDD	PA4/SPI20_SS/USART11_SCK/T13OUT	20	46	PA13/SWDIO
21	PA5/SPI20_SCK	PA6/SPI20_MISO/CP0_OUT/BLINK30/EC11/T11CAP/T11OUT/T40CAP_CH1/T40UT/RD/AN6	22	44	PA11/USBDM
23	PA7/SPI20_MOSI/PWM30AB/EC12/T12OUT/T40OUT	PC4/USART12_TXD/USART12_MOSI/EC40/A18/AN14	24	42	PA9/USART10_TXD/USART10_MOSI/PWM30BA
25	PC5/USART12_RXD/USART12_MISO/T21OUT	PB0/USART12_SCK/PWM30BB/T21CAP/T21OUT/T40CAP_CH3/T40OUT/A16/A18	26	40	PC9
27	PB1/USART12_SS/PWM30CB/T13OUT	PB2/T13OUT	28	38	PC7/T40OUT
29	PB10/USART12_TXD/USART12_MOSI/I2C1_SCL/SPI21_SCK/T20OUT	PB11/USART12_RXD/USART12_MISO/I2C1_SDA/T20UT	30	36	PB15/SPI21_MOSI/PWM30CB/T10OUT/T21OUT
31	GND	VDD	32	34	PB13/SPI21_SCK/I2C1_SCL/PWM30AB
				33	PB12/SPI21_SS/USART12_SCK/T13OUT
				35	PB14/SPI21_MISO/USART12_SS/I2C1_SDA/PWM30BB/T10OUT
				37	PC6/T21OUT/T40OUT
				39	PC8/T40OUT
				41	PA8/USART10_SCK/PWM30AA
				43	PA10/USART10_RXD/USART10_MOSI/PWM30CA
				45	PA12/USART10_SS/USB_DP
				47	GND
				51	PC10/USART13_TXD/USART13_MOSI/USART12_TXD/USART12_MOSI
				53	PC12/USART13_SCK/USART12_SCK
				55	PB3/SPI20_SCK/T20OUT
				57	PB5/SPI20_MOSI/T21OUT/T40OUT
				59	PB7/USART10_RXD/USART10_MISO/I2C0_SDA/T12OUT
				61	PB8/I2C0_SCL/T11OUT
				63	GND

Revision history

Revision	Date	Notes
1.00	Dec. 4, 2020	First creation
1.01	Sept. 31, 2022	Update the template of this document
1.02	Dec. 2, 2024	Updated the disclaimer.

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