

R-CarM2N System Evaluation Board

GOSE

Setup Manual

RTP0RC7793SEB00010S

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Table of Contents

1.	Introduction	1
1.1.	Location of Connectors on the GOSE Board	1
1.2.	Location of Switches on the GOSE Board.....	2
1.3.	Quick Setup of the GOSE Board.....	3
1.3.1.	Installing the USB Driver	3
1.3.2.	Connecting the PC and GOSE Board	3
1.3.3.	Settings for Terminal Emulation Software on the PC Side	3
1.3.4.	Confirming Activation of the Mini-Monitor on the GOSE Board	3
1.3.5.	VR1	4
1.3.6.	Precautions	4
1.3.7.	Notes on Pin Function Control	4
2.	Switch Settings.....	5
2.1.	Initial Settings of Slide Switches.....	5
2.1.1.	SW1 (SSI_SDATA1 Connection Selection) Specifications	6
2.1.2.	SW2 (Software Switch) Specifications	6
2.1.3.	SW3 (TRST#) Specifications	7
2.1.4.	SW4 (Spectrum Spread Settings of Clock for SATA) Specifications	7
2.1.5.	SW5 (USB2.0 Channel 0 Host/Function) Specifications	8
2.1.6.	SW6 (USB2.0 Channel 0 Host/Function) Specifications	9
2.1.7.	SW8 (Mode Setting A) Specifications	10
2.1.8.	SW9 (Mode Setting B) Specifications	12
2.1.9.	SW10 (Mode Setting C) Specifications	13
2.1.10.	SW16 (A25/SSL Connection Selection) Specifications	14
2.1.11.	SW17 (SPI Flash Memory Connection Selection) Specifications	14
2.1.12.	SW18 (A[24:20]/QSPI Connection Selection) Specifications	15
2.1.13.	SW20 (SD1_CMD/TRST2 Pin Processing Selection) Specifications	16
2.1.14.	SW21 (SDHI1/DBG2 Interface Voltage Setting) Specifications	16
2.1.15.	SW23 (V11_CLK Connection Selection) Specifications	17
2.1.16.	SW24 (V11_DATA Connection Selection) Specifications	17
2.1.17.	SW42 (M0BKPRST# Setting) Specifications.....	18
2.2.	Push-Switch Specifications	19
2.2.1.	SW7 (System Reset Switch) Specifications	19
2.2.2.	SW30 to SW36 (Tactile Switches) Specifications	19
2.3.	Toggle Switch Specifications.....	20
2.3.1.	SW25 (Board Power-Supply Circuit Control) Specifications	20
2.4.	Jumper Pin Specifications	20
2.4.1.	JP3 (SD Card Slot Power-Supply Voltage Selection) Specifications	20

Table Numbers

Table 2.1.1 Initial Setting of Slide Switches	5
Table 2.1.2 SSI_SDATA1 Connection Selection	6
Table 2.1.3 Spectrum Spread Specifications of Clock for SATA	7
Table 2.1.4 USB Channel 0 Host/Function.....	8
Table 2.1.5 Combinations of Settings of SW5 and SW6	8
Table 2.1.6 USB Channel 0 Host/Function.....	9
Table 2.1.7 CS0 Space Size Selection (MD4).....	10
Table 2.1.8 DDR3-SDRAM Bus Clock Selection (MD19)	10
Table 2.1.9 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, and MDT[1:0])	10
Table 2.1.10 Selectable Debug Functions.....	10
Table 2.1.11 Reserved (MD12)	11
Table 2.1.12 Reserved (MD6).....	11
Table 2.1.13 Master Boot Processor Selection (MD7).....	11
Table 2.1.14 Free-running Mode/Step-up Mode Selection (MD0).....	12
Table 2.1.15 Boot Device Selection (MD[3:1]).....	12
Table 2.1.16 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, and MDT[1:0]).....	12
Table 2.1.17 Secure/Non-secure Selection (MD5).....	13
Table 2.1.18 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, MDT[1:0])	13
Table 2.1.19 Relationship between Combinations of SW16 and SW17 Settings and SSL/A25 Pin Connections.....	14
Table 2.1.20 A[24:20]/QSPI Connection Selection Specifications.....	15
Table 2.1.21 Function selection by the combination of SW20,SW21,and JP3.....	16
Table 2.1.22 SDHI1/DBG2 Interface Voltage Selection Specifications	16
Table 2.1.23 VI1_CLK Connection Selection Specifications.....	17
Table 2.1.24 VI1_DATA[7:0] Connection Selection Specifications.....	17
Table 2.2.1 System Reset Switch	19
Table 2.2.2 Correspondence between Tactile Switch Number and GPIO Pin.....	19
Table 2.3.1 Accessory Power-Supply Switch.....	20

Figure Numbers

Figure 1.1.1 Location of Connectors on the GOSE Board.....	1
Figure 1.2.1 Location of Switches on the GOSE Board (Component Side)	2
Figure 1.2.2 Locations of Switches on the GOSE Board (Solder Side)	2
Figure 2.1.1 SW1 Settings.....	6
Figure 2.1.2 SW2 Settings (POSNEG Register='1')	6
Figure 2.1.3 SW3 Settings.....	7
Figure 2.1.4 SW4 Settings.....	7
Figure 2.1.5 SW5 Settings.....	8
Figure 2.1.6 SW6 Settings.....	9
Figure 2.1.7 SW8 Settings.....	10
Figure 2.1.8 SW9 Settings.....	12
Figure 2.1.9 SW10 Settings.....	13
Figure 2.1.10 SW16 Settings	14
Figure 2.1.11 SW17 Settings	14
Figure 2.1.12 SW18 Settings	15
Figure 2.1.13 SW20 Settings	16
Figure 2.1.14 SW21 Settings	16
Figure 2.1.15 SW23 Settings	17
Figure 2.1.16 SW24 Settings	17
Figure 2.1.17 SW42 Settings	18
Figure 2.2.1 SW7 System Reset Switch	19
Figure 2.2.2 SW30 to SW36 Tactile Switches.....	19
Figure 2.3.1 SW25 Accessory Power-Supply Switch	20
Figure 2.4.1 JP3 Jumper Pin Settings	20

1. Introduction

This setup manual describes the settings of switches mounted on the R-CarM2N system evaluation board "GOSE."

For the correspondence between the functions of the GOSE board and the connectors mounted on the board, see section 1.1, Location of Connectors on the GOSE Board.

For the correspondence between the numbers and locations of the switches mounted on the GOSE board, see section 1.2, Location of Switches on the GOSE Board.

For the initial settings of slide switches mounted on the GOSE board, see section 2.1, Initial Settings of Slide Switches.

1.1. Location of Connectors on the GOSE Board

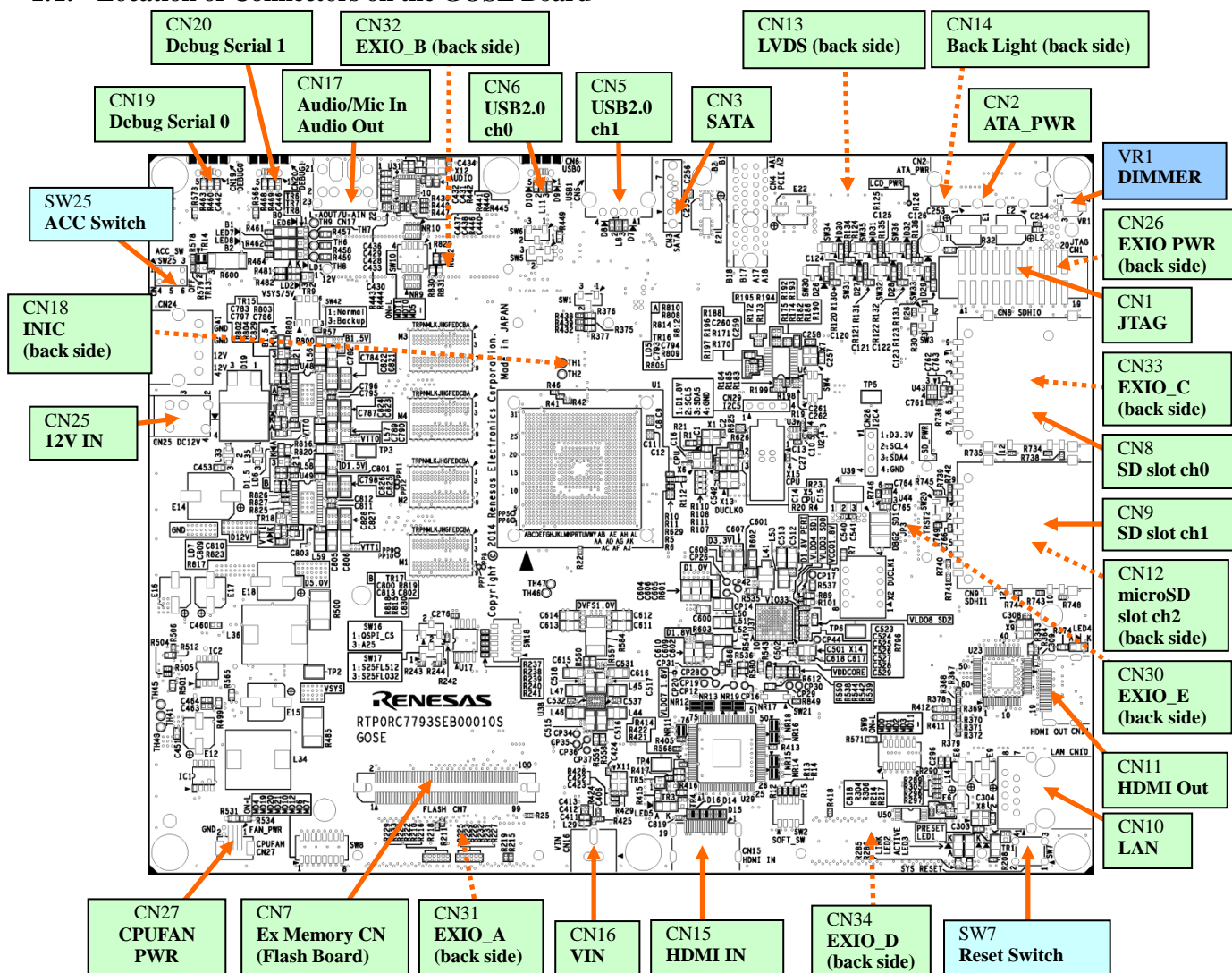


Figure 1.1.1 Location of Connectors on the GOSE Board

1.2. Location of Switches on the GOSE Board

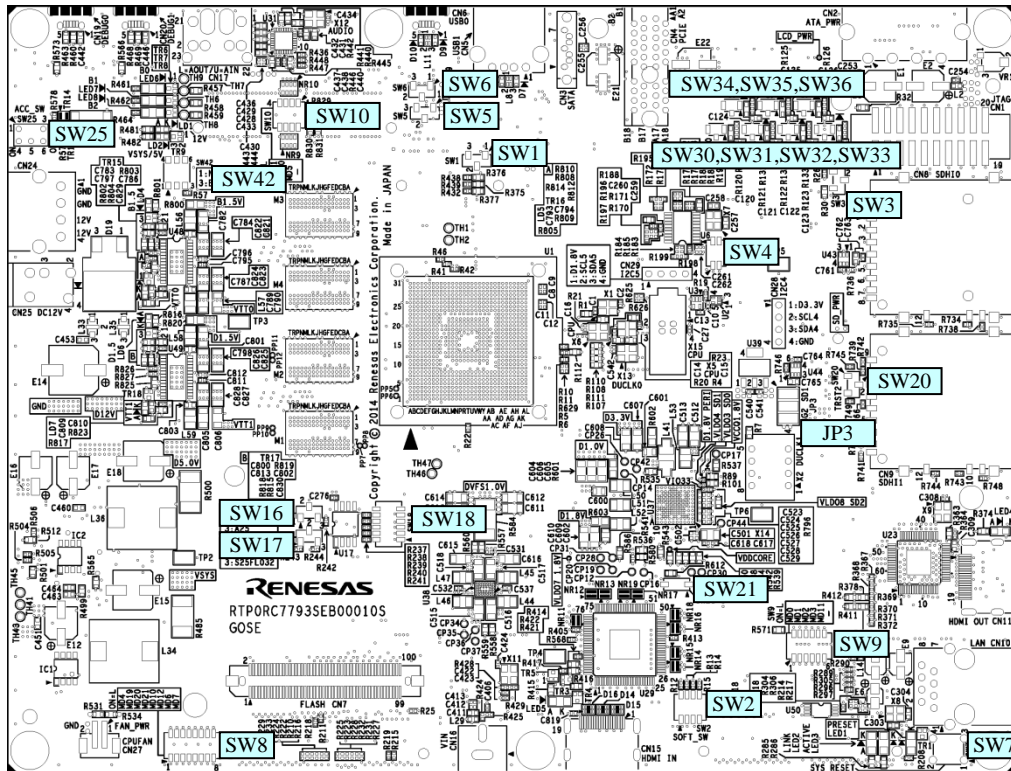


Figure 1.2.1 Location of Switches on the GOSE Board (Component Side)

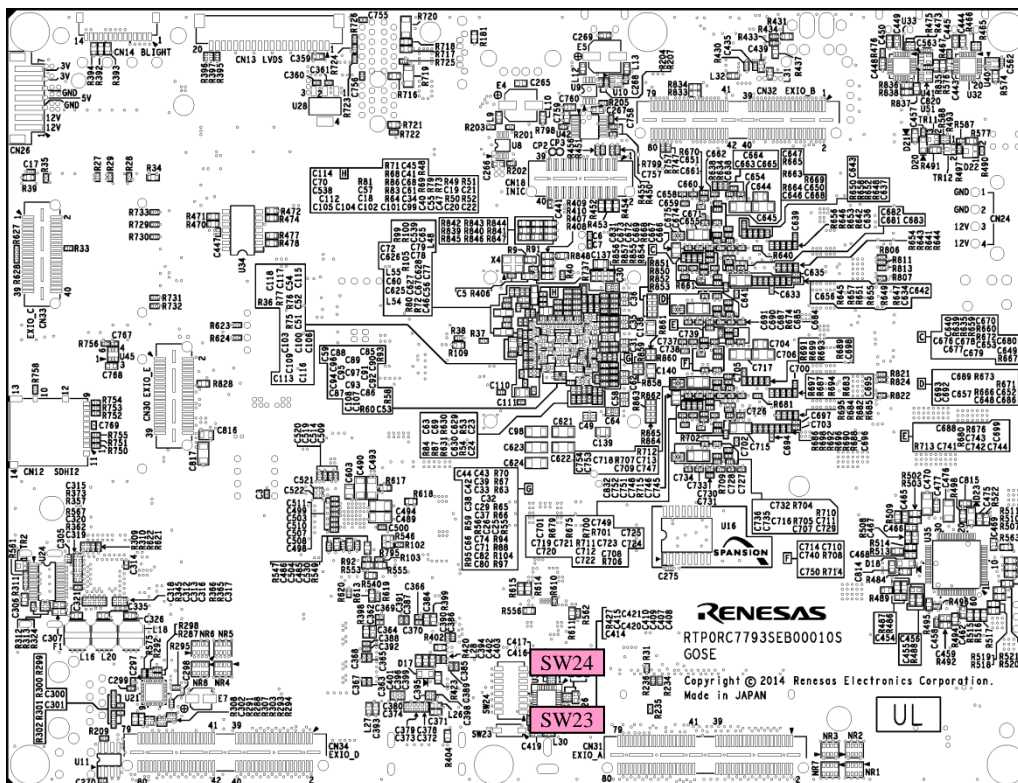


Figure 1.2.2 Locations of Switches on the GOSE Board (Solder Side)

1.3. Quick Setup of the GOSE Board

1.3.1. Installing the USB Driver

The GOSE board uses Silicon Labs' USB-to-UART Bridge controller, CP2102. Firstly, install a USB driver for the CP2102 (a virtual COM port driver). Download the driver from the website below.

[VCP Driver kit]

<http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>

1.3.2. Connecting the PC and GOSE Board

For connection between the PC and GOSE board, use a USB cable (type A to micro B). Connect the type A end to the PC and the micro B end to CN19 (Debug Serial 0) on the GOSE board. For the location of CN19, refer to Figure 1.1.1 Location of Connectors on the GOSE Board.

1.3.3. Settings for Terminal Emulation Software on the PC Side

Set up the serial communications protocol for the terminal emulation software on the PC side as follows.

Communications rate	38.4 kbps (38,400 bps)
Data length	8 bits
Parity bits	None
Stop bits	1 bit
Flow control	None

1.3.4. Confirming Activation of the Mini-Monitor on the GOSE Board

Connect the 12-V DC plug of the AC adapter supplied with the GOSE board to CN25 and then plug the other end of the adapter into the outlet. Subsequently, switch ACC switch SW25 to the on side. The GOSE board is activated and the following message is displayed on the screen of the terminal emulation software.

```
GOSE SPI_LOADER(DDR3L) Vx.xx 2014.xx.xx  
DEVICE S25FL032  
  
GOSE MiniMonitor SPI_BOOT  
Work memory DRAM (H'40200000-)  
2014.xx.xx Ver x.xx ** Program on DRAM (H'40000000-) **  
  
>
```

For the location of ACC switch SW25, see Figure 1.1.1 Location of Connectors on the GOSE Board.

1.3.5. VR1

The GOSE board is equipped with a trimmer potentiometer (VR1) used to dim the backlight of the LCD monitor connected to CN13 (LVDS). VR1 (DIMMER) allows dimming the backlight of the LCD monitor, which is supplied from CN14 (Back Light).

For the location of VR1, refer to Figure 1.1.1 Location of Connectors on the GOSE Board.

1.3.6. Precautions

When the AC adapter is connected to the outlet, the 12-V DC power is supplied to the GOSE board and some of the circuitry start operating. Setting the ACC switch (SW25) to the on side after that leads to the generation of various power supply levels (including 5.0-V DC and 3.3-V DC) from the 12-V DC power.

Notes on Usage

- Performing the following operations while the AC adapter is plugged into the outlet might fatally damage the GOSE board.
 - (1) Mounting or dismounting an optional board
 - (2) Plugging in or unplugging a cable
 - (3) Modifying switch settingsUnplug the AC adapter from the outlet when performing the above operations.
- For the GOSE board, be sure to use the power supply that comes with it. Applying a voltage greater than 12 V may damage devices on the GOSE board.
- There are sequences for turning on and off the power supply to the R-CarM2N. For the GOSE board, be sure to obey the notes below.
 - (1) When power is turned on
 - Before plugging the AC adapter into the power source, be sure to confirm that the ACC switch (SW25) is off.
 - It is prohibited to plug the AC adapter into a power source while the ACC switch (SW25) is on.
 - (2) When power is shut off
 - Before unplugging the AC adapter from the power source, be sure to turn off the ACC switch (SW25).
 - It is prohibited to unplug the AC adapter from the power source while the ACC switch (SW25) is on.
- The typical default value for overcurrent detection by the power IC (R2A11302FT) is defined as 7 A in the specifications. The maximum current drawn by the VSYS and D5.0V pins on the GOSE board is thus 7 A each. Therefore, operation should be such that the current drawn by either pin does not exceed 7 A. Also ensure that the current drawn does not exceed 7 A if an IO expansion board or external storage device is connected to the GOSE board.

1.3.7. Notes on Pin Function Control

For connection with the mini-monitor which comes with the GOSE board, the following signals are set as GPIO outputs.

- GP7_7/MLB_CK/HSC1
- GP7_8/MLB_SIG/HCTS1#
- GP7_9/MLB_DAT/HRTS1#

In evaluation of the MLB, HSCIF1, and so on (evaluation which entails data output from the peripheral devices) with the GOSE board, be sure to change the settings for pin function control beforehand in order to avoid collision of the R-CarM2N and output signals.

2. Switch Settings

This section describes the settings of slide switches mounted on the GOSE board.

2.1. Initial Settings of Slide Switches

The following describes the initial setting and function of each slide switch on the GOSE board. **These settings are valid only when the GOSE board is switched on along with the launching of the mini-monitor supplied with the GOSE board. To launch any other program than the mini-monitor, reconfigure the slide switches according to the pin function (PFC) and GPIO functions related to that program.**

Table 2.1.1 Initial Setting of Slide Switches

Switch Number	Switch Name	Switch Surface	Pin1 ▲	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
SW1	SSI_SDAT1	T	✓			-	-	-	-	-
SW2	SOFTSW	T	OFF	OFF	OFF	OFF	-	-	-	-
SW3	TRST#	T			✓	-	-	-	-	-
SW4	SATA	T	OFF	OFF	-	-	-	-	-	-
SW5	USB SW-A	T	✓			-	-	-	-	-
SW6	USB SW-B	T	✓	-		-	-	-	-	-
SW7	PRESET#	T	Push SW	-	-	-	-	-	-	-
SW8	MODESW-A	T	ON	ON	ON	ON	ON	ON	ON	ON
SW9	MODESW-B	T	ON	ON	OFF	ON	ON	OFF	-	-
SW10	MODESW-C	T	OFF	OFF	ON	ON	-	-	-	-
SW16	QSPI/A25	T	✓	-		-	-	-	-	-
SW17	QSPI0/QSPI1	T		-	✓	-	-	-	-	-
SW18	A[24:20]/QSPI	T	All OFF					OFF	-	-
SW20	SDHI1/DBG2-A	T	✓	-		-	-	-	-	-
JP3	SDHI1/DBG2-B	T	✓	-		-	-	-	-	-
SW21	SDHI1-C	T	✓		-	-	-	-	-	-
SW23	VIN1-A	B		✓ (ON)	-	-	-	-	-	-
SW24	VIN1-B	B	All ON							
SW25	ACCSW	T	-	-	-	-	-	-	-	-
SW42	MOBKPRST#	T	✓	-		-	-	-	-	-

2.1.1. SW1 (SSI_SDATA1 Connection Selection) Specifications

SW1 selects a device to be connected to the SSI_SDATA1 (GP-2-5) pin of the R-CarM2N. The following shows the initial setting at shipment.
[SW1].

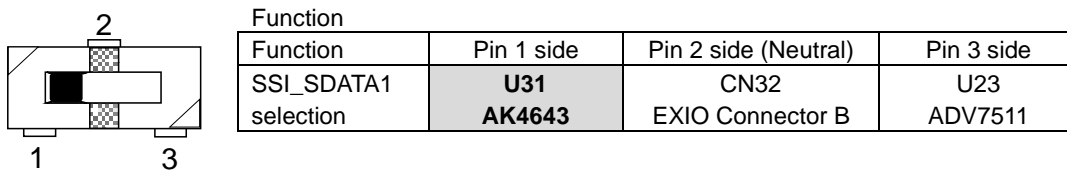


Figure 2.1.1 SW1 Settings

Table 2.1.2 SSI_SDATA1 Connection Selection

Setting	Function
Pin 1 side	<ul style="list-style-type: none"> Connects the SSI_SDATA1 pin of the R-CarM2N to the SDTO pin (pin 12) of the AK4643 (U31). (Initial setting) Sets the SSI_SDATA1 pin of the R-CarM2N to input.
Pin 2 side (Neutral)	<ul style="list-style-type: none"> Connects the SSI_SDATA1 pin of the R-CarM2N to only EXIO connector B (CN32). This setting should be made when the SSI_SDATA1 pin or the pin function multiplexed with the SSI_SDATA1 pin is in use for the EXIO board through CN32.
Pin 3 side	<ul style="list-style-type: none"> Connects the SSI_SDATA1 pin of the R-CarM2N to the I2S1 pin (pin 6) of the ADV7511 (U23). Sets the SSI_SDATA1 pin of the R-CarM2N to output.

2.1.2. SW2 (Software Switch) Specifications

SW2 can be used as a general-purpose input switch. This slide switch is connected to the GPIO of the R-CarM2N. When a bit in the 'POSNEG' register is equal to '1' (active low configuration) and moreover a bit in the switch is off, the corresponding bit in the GPIO general input register becomes '0.' When a bit in the switch is on, the corresponding bit becomes '1.'

For details, refer to the section on GPIO in the R-CarM2N Hardware Manual. The following shows the initial setting at shipment.

[SW2]

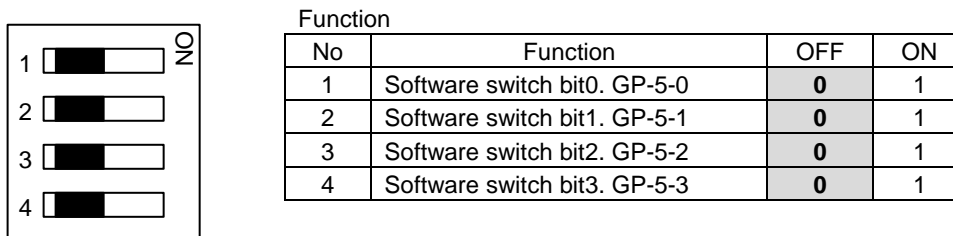


Figure 2.1.2 SW2 Settings (POSNEG Register='1')

Note:

Before using SW2 as a general-purpose input switch, set up the GPSR5 register of the R-CarM2N to select the GPIO function and set up the PUPR5 register to enable pulling up. For details, refer to the section on PFC in the R-CarM2N Hardware Manual.

SW2 should be set to OFF when the GPIO pins (GP-5-0, GP-5-1, GP-5-2, and GP-5-3) connected to SW2 or the pin functions multiplexed with the GPIO pins are in use for the EXIO board through CN34.

2.1.3. SW3 (TRST#) Specifications

SW3 selects whether to pull up or down the TRST# pin of the R-CarM2N. The following shows the initial setting at shipment.

[SW3]

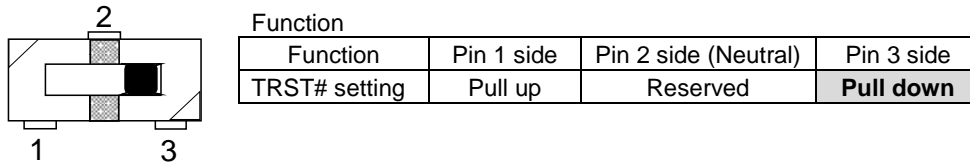


Figure 2.1.3 SW3 Settings

2.1.4. SW4 (Spectrum Spread Settings of Clock for SATA) Specifications

SW4 specifies the logic for the S0 and S1 pins of a clock driver (U6: IDT5V41066) for SATA. The following shows the initial setting at shipment.

[SW4]

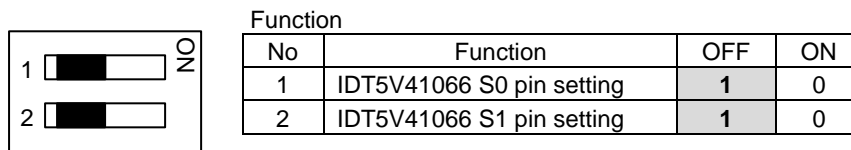


Figure 2.1.4 SW4 Settings

Table 2.1.3 Spectrum Spread Specifications of Clock for SATA

Pin 1 Setting	Pin 2 Setting	Function
ON (0)	ON (0)	Spreads the clock-signal's spectrum across a range of minus 0.5% assuming an initial frequency of 100 MHz.
OFF (1)	ON (0)	Spreads the clock-signal's spectrum across a range of minus 1.0% assuming an initial frequency of 100 MHz.
ON (0)	OFF (1)	Spreads the clock-signal's spectrum across a range of minus 1.5% assuming an initial frequency of 100 MHz.
OFF (1)	OFF (1)	Disables spectrum spread. (Initial setting).

2.1.5. SW5 (USB2.0 Channel 0 Host/Function) Specifications

SW5 selects the USB 2.0 channel 0 (CN6) mode of the R-CarM2N from (1) USB Host, or (2) USB Function. The following shows the initial setting at shipment.

[SW5]

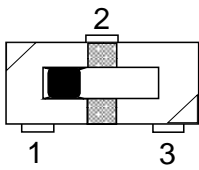
	Function		
	Function	Pin 1 side	Pin 2 side (Neutral)
USB0 setting	USB Host USB0_PWEN	USB Function	Setting prohibited

Figure 2.1.5 SW5 Settings

Table 2.1.4 USB Channel 0 Host/Function

Setting	Function
Pin 1 side	USB channel 0 is used as a USB host interface. (Initial setting). The USB0_PWEN pin of the R-CarM2N is connected to the EN pin of the USB power switch BD82065FVJ (U9). Setting the level of the USB0_PWEN pin to high (1) switches on the supply of VBUS power from the GOSE board. Setting it to low (0) stops the supply of VBUS power. [Note] Setting of SW6 is also required. Refer to Table 2.1.5 for the combinations of the SW5 and SW6 settings.
Pin 2 side (Neutral)	USB channel 0 is used as a USB function interface. [Note] Setting of SW6 is also required. Refer to Table 2.1.5 for the combinations of the SW5 and SW6 settings.
Pin 3 side	Setting prohibited.

* Related switch: SW6

Table 2.1.5 Combinations of Settings of SW5 and SW6

SW5			SW6		USB micro AB Connector (CN6)
Pin 1 side	Neutral	Pin 3 side	Pin1 side	Pin 3 side	
✓			✓		USB Host. The EN pin of the BD82065 is controlled by the USB0_PWEN.
	✓			✓	USB Function. VBUS is always connected to the R-CarM2N.
		✓		✓	Setting prohibited

2.1.6. SW6 (USB2.0 Channel 0 Host/Function) Specifications

SW6 selects USB2.0 channel 0 (CN6) mode of the R-CarM2N from (1) USB Host, or (2) USB Function. The following shows the initial setting at shipment.

[SW6]

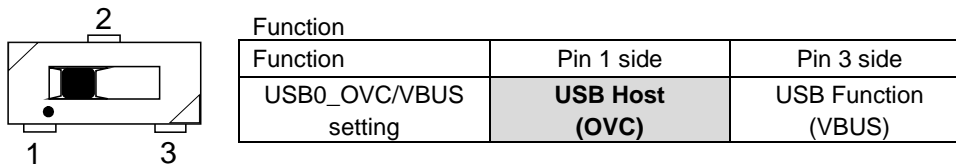


Figure 2.1.6 SW6 Settings

Table 2.1.6 USB Channel 0 Host/Function

Setting	Function
Pin 1 side	USB channel 0 is used as a USB host interface. (Initial setting) When the overcurrent is detected by the USB power switch BD82065FVJ (U9), the USB0_OVC/VBUS pin of the R-CarM2N becomes low (0). [Note] Setting of SW5 is also required. Refer to Table 2.1.5 for the combinations of the SW5 and SW6 settings.
Pin 3 side	USB channel 0 is used as a USB function interface. The VBUS logic on the USB micro AB connector (CN6) is signaled to the USB0_OVC/VBUS pin of the R-CarM2N. [Note] Setting of SW5 is also required. Refer to Table 2.1.5 for the combinations of the SW5 and SW6 settings.

* Related switch: SW5

2.1.7. SW8 (Mode Setting A) Specifications

SW8 specifies the mode pins (MD4, MD19, MD20, MD21, MD10, MD12, MD6, and MD7) of the R-CarM2N. The following shows the initial setting at shipment.

[SW8]

	Function			
	No	Function	OFF	ON
	1	MD4 pin setting	1	0
	2	MD19 pin setting	1	0
	3	MD20 pin setting	1	0
	4	MD21 pin setting	1	0
	5	MD10 pin setting	1	0
	6	MD12 pin setting	1	0
	7	MD6 pin setting	1	0
	8	MD7 pin setting	1	0

Figure 2.1.7 SW8 Settings

Table 2.1.7 CS0 Space Size Selection (MD4)

Pin 1 Setting	Function
ON (0)	MD4 = 0: Selects 64 Mbytes for area 0. (Initial setting)
OFF (1)	MD4 = 1: Selects 128 Mbytes for area 0.

Table 2.1.8 DDR3-SDRAM Bus Clock Selection (MD19)

Pin 2 Setting	Function
ON (0)	MD19 = 0: Sets the DDR3-SDRAM bus clock to DDR3-1600 mode. (Initial value)
OFF (1)	MD19 = 1: Sets the DDR3-SDRAM bus clock to DDR3-1333 mode.

Table 2.1.9 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, and MDT[1:0])

Pin 3 Setting	Pin 4 Setting	Pin 5 Setting	Function
ON (0)	ON (0)	ON (0)	MD20 = 0, MD21 = 0, MD10 = 0 : JTAG = Boundary SCAN mode, SDHI1, SDHI2 = Normal function. (Initial setting)

For the R-CarM2N, debugging through the JTAG, DBG2 (SDHI1), or DBG3 (SDHI2) interface can be selected by the combination of the MD21, MD20, MD11, MD10, and MDT[1:0] settings. Refer to Table 2.1.10 for the selectable functions.

Table 2.1.10 Selectable Debug Functions

MD10	MD[21:20]	MD11	MDT[1:0]	JTAG	SDHI1/DBG2	SDHI2/DBG3
0	00	-	--	Boundary SCAN	Normal function	Normal function
0	10	0	--	Coresight Debug Port	Normal function	Normal function
0	10	1	00	Coresight Debug Port	Audio DSP	Normal function
0	10	1	01	Coresight Debug Port	SH-4A	Normal function
0	10	1	10	Coresight Debug Port	Normal function	Audio DSP
0	10	1	11	Coresight Debug Port	Normal function	SH-4A
0	11	0	--	SH-4A	Normal function	Normal function
0	11	1	00	SH-4A	Coresight Debug Port	Normal function
1	01	0	--	Coresight Debug Port	Normal function	Normal function
1	01	1	00	Coresight Debug Port	GPS	Normal function
1	01	1	01	Coresight Debug Port	SH-4A	Normal function
1	10	0	--	SH-4A	Normal function	Normal function

For the GOSE board, pins 3, 4, and 5 of SW8 are used for the MD20, MD21 and MD10 settings.

The GOSE board is equipped with a JTAG connector (CN1) and one of the SD card slots (CN9) is used for DBG2 (SDHI1). This enables the use of both JTAG and DBG2. The GOSE board is also equipped with a microSD card slot (CN12) which is used for SDHI2, but does not have a peripheral circuit for DBG3, so a DBG3 interface is not available.

Table 2.1.11 Reserved (MD12)

Pin 6 Setting	Function
ON (0)	MD12 = 0: (Initial setting)
OFF (1)	MD12 = 1: (Setting prohibited)

Setting of pin 6 (MD12) is reserved for evaluation by Renesas Electronics. Do not change the initial setting (ON).

Table 2.1.12 Reserved (MD6)

Pin 7 Setting	Function
ON (0)	MD6 = 0: (Initial setting)
OFF (1)	MD6 = 1: (Setting prohibited)

Setting of pin 7 (MD6) is reserved for evaluation by Renesas Electronics. Do not change the initial setting (ON).

Table 2.1.13 Master Boot Processor Selection (MD7)

Pin 8 Setting	Function
ON (0)	MD7 = 0: Boots up from the Cortex-A15. (Initial setting)
OFF (1)	MD7 = 1: Boots up from the SH. 32-bit mode.

2.1.8. SW9 (Mode Setting B) Specifications

SW9 specifies the mode pins (MD0, MD1, MD2, MD3, and MD11) of the R-CarM2N. The following shows the initial setting at shipment.

[SW9]

Function			
No	Function	OFF	ON
1	MD0 pin setting	1	0
2	MD1 pin setting	1	0
3	MD2 pin setting	1	0
4	MD3 pin setting	1	0
5	MD11 pin setting	1	0
6	-	-	-

Figure 2.1.8 SW9 Settings

Table 2.1.14 Free-running Mode/Step-up Mode Selection (MD0)

Pin 1 Setting	Function
ON (0)	MD0 = 0: Free-running mode (Initial setting)
OFF (1)	MD0 = 1: Step-up mode

Table 2.1.15 Boot Device Selection (MD[3:1])

Pin 2 MD1	Pin 3 MD2	Pin 4 MD3	Function
ON (0)	ON (0)	ON (0)	MD1 = 0, MD2 = 0, MD3 = 0: Area 0 boot (boot from external NOR flash memory) • Boots up from the device allocated to area 0 (CS0#). • Boots up from the NOR flash memory on the flash memory board when booting up is to be from a flash memory board such as the R0P0400C0001FS through CN7 (external memory connector).
ON (0)	OFF (1)	ON (0)	MD1 = 0, MD2 = 1, MD3 = 0: QSPI (48.75 MHz, 16-KB transfer) • Boots up from the SPI flash memory on the GOSE board. (Initial setting)
ON (0)	ON (0)	OFF (1)	MD1 = 0, MD2 = 0, MD3 = 1: QSPI (39 MHz, 16-KB transfer) • Boots up from the SPI flash memory on the GOSE board.
ON (0)	OFF (1)	OFF (1)	MD1 = 0, MD2 = 1, MD3 = 1: QSPI (39 MHz, 4-KB transfer) • Boots up from the SPI flash memory on the GOSE board.
Other than above			Setting prohibited.

* Related switch: SW16, SW17, and SW18

SW16 must be set to the pin 1 side when booting up is from the SPI flash memory on the GOSE board.

The GOSE board is equipped with the SPI flash memory of 512 Mbits (U16: S25FL512SAGMFIG11) and the SPI flash memory of 32 Mbits (U17: S25FL032P0XMFIO11). When SW17 is set to the pin 1 side, the SPI flash memory of 512 Mbits is accessed from the R-CarM2N. When SW17 is set to the pin 3 side, the SPI flash memory of 32 Mbits is accessed from the R-CarM2N.

According to the specifications of the pin function controller for the R-CarM2N, the QSPI signals (SSL, IO3, IO2, MISO/IO1, MOSI/IO0, and SPCLK) and LBSC address signals (A20 to A25) are allocated to the same pin. When any of the QSPI signals is used, the LBSC address space is limited to 1 Mbit (A0 to A19).

Table 2.1.16 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, and MDT[1:0])

Pin 5 Setting	Function
ON (0)	MD11 = 0: JTAG = Boundary SCAN mode, SDHI1, SDHI2 = Normal function. (Initial setting)

For the R-CarM2N, debugging through the JTAG, DBG2 (SDHI1), or DBG3 (SDHI2) interface can be selected by the combination of the MD21, MD20, MD11, MD10, and MDT[1:0] settings. Refer to Table 2.1.10 for the selectable functions.

For the GOSE board, pin 5 of SW9 is used for the MD11 setting.

2.1.9. SW10 (Mode Setting C) Specifications

SW10 specifies the mode pins (MD5, MDT0, and MDT1) of the R-CarM2N. The following shows the initial setting at shipment.

[SW10]

		Function			
No	Function	OFF	ON		
1	-	-	-		
2	MD5 pin setting	1	0		
3	MDT0 pin setting	1	0		
4	MDT1 pin setting	1	0		

Figure 2.1.9 SW10 Settings

Table 2.1.17 Secure/Non-secure Selection (MD5)

Pin 2 Setting	Function
OFF (1)	MD5 = 1: Non-secure (Initial setting)
ON (0)	MD5 = 0: Secure

Table 2.1.18 JTAG/SDHI1/SDHI2 Selection (MD21, MD20, MD11, MD10, MDT[1:0])

Pin 3 Setting	Pin 4 Setting	Function
ON (0)	On (0)	MDT0 = 0, MDT1 = 0: JTAG = Boundary SCAN mode, SDHI1, SDHI2 = Normal function. (Initial setting)

For the R-CarM2N, debugging through the JTAG, DBG2 (SDHI1), or DBG3 (SDHI2) interface can be selected by the combination of the MD21, MD20, MD11, MD10, and MDT[1:0] settings. Refer to Table 2.1.10 for the selectable functions.

For the GOSE board, pins 3 and 4 of SW10 are used for the MDT0 and MDT1 settings.

2.1.10. SW16 (A25/SSL Connection Selection) Specifications

SW16 selects a device to be connected to the A25/SSL pin of the R-CarM2N. When SW16 is set to the pin 1 side, the A25/SSL pin is connected to the SPI flash memory (U16 or U17). When SW16 is set to the pin 3 side, the A25/SSL pin is connected to CN7 (external memory connector). The following shows the initial setting at shipment.

[SW16]

Function		
Function	Pin 1 side	Pin 3 side
A25/SSL selection	U16 or U17 SPI flash memory	CN7 External memory connector

Figure 2.1.10 SW16 Settings

2.1.11. SW17 (SPI Flash Memory Connection Selection) Specifications

The GOSE board is equipped with the SPI flash memory of 512 Mbits (U16: S25FL512SAGMFIG11) and the SPI flash memory of 32 Mbits (U17: S25FL032P0XMF1011).

When SW16 is set to the pin 1 side, SW17 selects the SPI flash memory to be connected to the A25/SSL pin of the R-CarM2N. When SW17 is set to the pin 1 side, the SSL pin of the R-CarM2N is connected to the flash memory of 512 Mbits. When SW17 is set to the pin 3 side, the SSL pin of the R-CarM2N is connected to the flash memory of 32 Mbits.

When SW16 is set to the pin 3 side, the SPI flash memory is inaccessible.

The device to be connected to the A25/SSL pin of the R-CarM2N depends on the combination of the SW16 and SW17 settings. Refer to Table 2.1.19 for the combinations.

The following shows the initial setting at shipment.

[SW17]

Function		
Function	Pin 1 side	Pin 3 side
SPI flash memory selection	U16 S25FL512SAGMFIG11	U17 S25FL032P0XMF1011

Figure 2.1.11 SW17 Settings

Table 2.1.19 Relationship between Combinations of SW16 and SW17 Settings and SSL/A25 Pin Connections

SW16		SW17		Selects Device Connected to the A25/SSL Pin of the R-CarM2N
Pin1	Pin3	Pin1	Pin3	
✓		✓		512-Mbit SPI flash memory (U16). Pin is used as QSPI_CS# (SSL).
✓			✓	32-Mbit SPI flash memory (U17). Pin is used as QSPI_CS# (SSL).
	✓	-	-	External memory connector (CN7). Pin is used as LBSC_A25.

2.1.12. SW18 (A[24:20]/QSPI Connection Selection) Specifications

SW18 selects whether to connect the A[24:20]/QSPI pins of the R-CarM2N to the external memory connector (CN7). The following shows the initial setting at shipment.

[SW18]

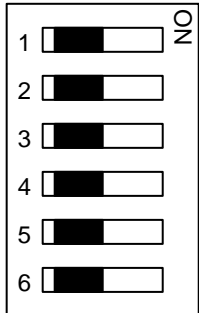
	Function		OFF	ON
	No	Function		
	1	A24/IO3 select	Deselects external memory connector	Selects external memory connector
	2	A23/IO2 select		
	3	A22/MISO/IO1 select		
	4	A21/MOSI/IO0 select		
	5	A20/SPCLK select		
	6	-	-	-

Figure 2.1.12 SW18 Settings

Table 2.1.20 A[24:20]/QSPI Connection Selection Specifications

Settings of Pins 1 to 5	Function
All ON	<ul style="list-style-type: none"> Connects the A[24:20]/QSPI pins of the R-CarM2N to the external memory connector (CN7). This setting should be made when a flash memory board such as the NOR flash board connected to CN7 is used in a space of 64 Mbytes (or 128 Mbytes).
All OFF	<ul style="list-style-type: none"> Does not connect the A[24:20]/QSPI pins of the R-CarM2N to the external memory connector (CN7). (Initial setting) The A[24:20] pins on the external memory connector (CN7) are set to '0' by the pull-down resistors (R237 to R241) on the GOSE board. This setting should be made when the SPI flash memory on the GOSE board is accessed. When this setting is made, the memory space of a NOR flash memory board, etc. connected to CN7 is limited to 1 MB (A0 to A19).

In addition to the above setting, the pin function setting must be made in the peripheral function select register (IPSR) of the R-CarM2N. For details, refer to the section on the pin function controller in the R-CarM2N Hardware Manual.

2.1.13. SW20 (SD1_CMD/TRST2 Pin Processing Selection) Specifications

SW20 selects whether to pull up the SD1_CMD/TRST2 pin of the R-CarM2N for SDHI1 or pull down the pin for DBG2. Selection of whether SDHI1 function or DBG2 function depends on the combination of the SW20, SW21, and JP3. Refer to Table 2.1.21 for the combinations.

The following shows the initial setting at shipment.

[SW20]

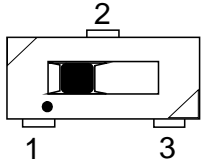
	Function	
	Function	Pin 1 side
	Pull up/down selection	SDHI1 (Pull up)

Figure 2.1.13 SW20 Settings

Table 2.1.21 Function selection by the combination of SW20,SW21,and JP3

SW20		SW21	JP3	Selects function at the SD card slot 'CN9'.
Pin 1	Pin 3			
✓		OFF	[1-2]	Selects SDHI1 function at the 'CN9'.
	✓	ON	[2-3]	Selects DBG2 function at the 'CN9'.

2.1.14. SW21 (SDHI1/DBG2 Interface Voltage Setting) Specifications

For using SDHI1 function on the GOSE board, the GPIO pin (GP-2-13) sets the VCCQ_SD1 pin of the R-CarM2N, that is the interface voltage for SDHI1/DBG2, to 3.3V or 1.8V. Additionally, for using DGB2 function, SW21 sets the VCCQ_SD2 pin of the R-CarM2N to 1.8V without configuring GPIO.

Selection of whether SDHI1 function or DBG2 function depends on the combination of the SW20, SW21, and JP3. Refer to Table 2.1.21 for the combinations.

The following shows the initial setting at shipment.

[SW21]

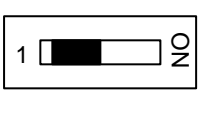
	Function	
	Function	OFF
	SDHI1/DBG2 Interface voltage	SDHI1 Controlled by GP-2-13

Figure 2.1.14 SW21 Settings

Table 2.1.22 SDHI1/DBG2 Interface Voltage Selection Specifications

Setting	Function
OFF	<ul style="list-style-type: none"> Uses the GP-2-13 setting to select the interface voltage (VCCQ_SD2) of the SD card slot (CN9). (Initial setting) When GP-2-13 is set to '1,' VCCQ_SD2 is set to 3.3 V. When GP-2-13 is set to '0,' VCCQ_SD2 is set to 1.8 V.
ON	<ul style="list-style-type: none"> Sets the interface voltage (VCCQ_SD2) of the SD card slot (CN9) to 1.8 V. GP-2-13 should remain in the state immediately after a power-on reset (GPIO being set for input, pull-up resistor enabled).

2.1.15. SW23 (VI1_CLK Connection Selection) Specifications

SW23 selects whether to connect the VI1_CLK pin (VIN1) of the R-CarM2N to the ADV7180 (U30). The following shows the initial setting at shipment.

[SW23]

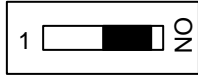
	Function		
	Function	OFF	ON
	VI1_CLK select	Deselects	Selects

Figure 2.1.15 SW23 Settings

Table 2.1.23 VI1_CLK Connection Selection Specifications

Setting	Function
ON	<ul style="list-style-type: none"> Connects the VI1_CLK pin of the R-CarM2N to the ADV7180 (U30). (Initial setting)
OFF	<ul style="list-style-type: none"> Does not connect the VI1_CLK pin of the R-CarM2N to the ADV7180 (U30). This setting should be made when the VI1_CLK pin or the pin function multiplexed with the VI1_CLK pin is in use for the EXIO board through CN34.

In addition to the above setting, the pin function setting must be made in the peripheral function select register (IPSR) of the R-CarM2N. For details, refer to the section on the pin function controller in the R-CarM2N Hardware Manual.

[Note] SW24 must be set to ON when SW23 is set to ON. Likewise, SW24 must be set to OFF when SW23 is set to OFF.

2.1.16. SW24 (VI1_DATA Connection Selection) Specifications

SW24 selects whether to connect the VI1_DATA[7:0] pins (VIN1) of the R-CarM2N to the ADV7180 (U30). The following shows the initial setting at shipment.

[SW24]

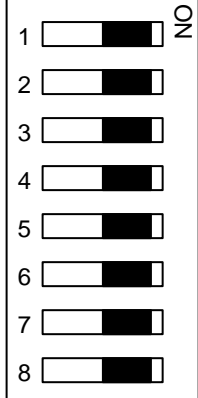
	Function			
	No	Function	OFF	ON
	1	VI1_DATA0 select	Deselects	Selects
	2	VI1_DATA1 select		
	3	VI1_DATA2 select		
	4	VI1_DATA3 select		
	5	VI1_DATA4 select		
	6	VI1_DATA5 select		
	7	VI1_DATA6 select		
	8	VI1_DATA7 select		

Figure 2.1.16 SW24 Settings

Table 2.1.24 VI1_DATA[7:0] Connection Selection Specifications

Settings of Pins 1 to 8	Function
All ON	<ul style="list-style-type: none"> Connects the VI1_DATA[7:0] pins of the R-CarM2N to the ADV7180 (U30). (Initial setting)
All OFF	<ul style="list-style-type: none"> Does not connect the VI1_DATA[7:0] pins of the R-CarM2N to the ADV7180 (U30). This setting should be made when the VI1_DATA[7:0] pins or the pin functions multiplexed with the VI1_DATA[7:0] pins are in use for the EXIO board through CN34.

In addition to the above setting, the pin function setting must be made in the peripheral function select register (IPSR) of the R-CarM2N. For details, refer to the section on the pin function controller in the R-CarM2N Hardware Manual.

[Note] SW23 must be set to ON when SW24 is set to ON. Likewise, SW23 must be set to OFF when SW24 is set to OFF.

2.1.17. SW42 (M0BKPRST# Setting) Specifications

SW42 specifies the value of the M0BKPRST# pin of the R-CarM2N. The following shows the initial setting at shipment.
 [SW42]

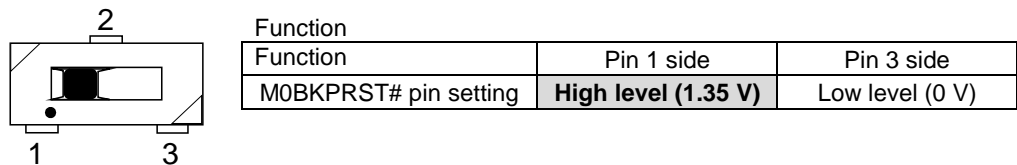


Figure 2.1.17 SW42 Settings

2.2. Push-Switch Specifications

2.2.1. SW7 (System Reset Switch) Specifications

Pushing SW7 resets the R-CarM2N.

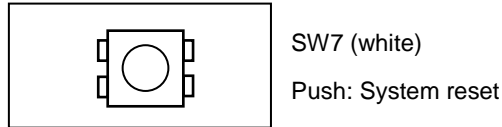


Figure 2.2.1 SW7 System Reset Switch

Table 2.2.1 System Reset Switch

SW Setting	Function
Push	Resets the R-CarM2N. A reset signal is applied to the power-on reset pin (PRESET#) of the R-CarM2N. As a result, the R-CarM2N outputs a reset signal to peripheral devices.

2.2.2. SW30 to SW36 (Tactile Switches) Specifications

Seven tactile switches (SW30 to SW36) are mounted on the GOSE board. Pressing any of these switches makes the level on the corresponding GPIO of the R-CarM2N low (0) by default. To make the level on the GPIO high (1) when a switch is pressed, set the corresponding bit of the POSNEG register to 1. For details, refer to the section on GPIO in the R-CarM2N Hardware Manual.



Figure 2.2.2 SW30 to SW36 Tactile Switches

Table 2.2.2 Correspondence between Tactile Switch Number and GPIO Pin

Tactile SW	GPIO Pin of the R-CarM2N
SW30	GP-7-0
SW31	GP-7-1
SW32	GP-7-2
SW33	GP-7-3
SW34	GP-7-4
SW35	GP-7-5
SW36	GP-7-6

2.3. Toggle Switch Specifications

2.3.1. SW25 (Board Power-Supply Circuit Control) Specifications

The power-supply circuit on the GOSE board is controlled by using SW25 (accessory (ACC) switch).

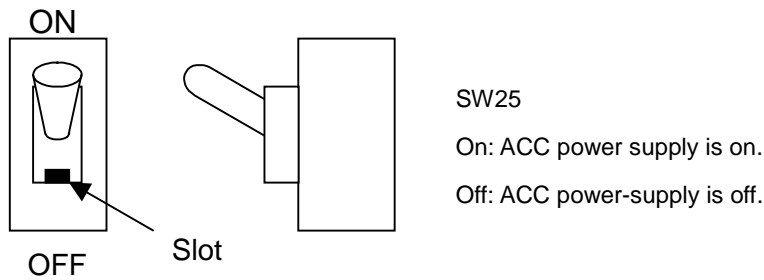


Figure 2.3.1 SW25 Accessory Power-Supply Switch

Table 2.3.1 Accessory Power-Supply Switch

SW25 Setting	Function
Towards the 'ON' marking	Turns on the GOSE board accessory power. As a result, the power-supply voltage is supplied to the system.

When the switch is pushed to 'ON,' the switching regulator (such as U35: R2A11302FT) starts generating the power.

2.4. Jumper Pin Specifications

2.4.1. JP3 (SD Card Slot Power-Supply Voltage Selection) Specifications

JP3 selects the power-supply voltage for the pin4(VDD) of the SD card slot(CN9). When using the CN9 as a SDHI1 function, supply 3.3V power to the VDD by setting JP3 to the 1-2 side. When using the CN9 as a DBG2 function, supply 1.8V power to the VDD by setting JP3 to the 2-3 side.

Selection of whether SDHI1 function or DBG2 function depends on the combination of the SW20, SW21, and JP3. Refer to Table 2.1.21 for the combinations.

The following shows the initial setting at shipment.

[JP3]

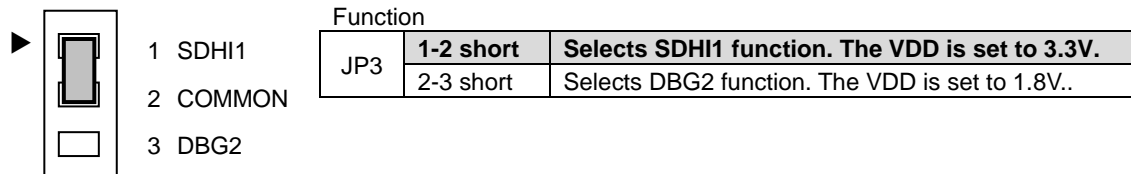


Figure 2.4.1 JP3 Jumper Pin Settings

R-CarM2N System Evaluation Board (RTP0RC7793SEB00010S)
Setup Manual

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