USER'S MANUAL

SCB184

Baseboard for SMARC 2.0/2.1 Compliant Modules

Hardware User's Manual

AXIOMTEK

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CAUTION

If you place the wrong batteries, it might cause the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose the used ones.

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ESD Precautions

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove the anti-static packaging from boards or integrated circuits until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

Trademarks Acknowledgments

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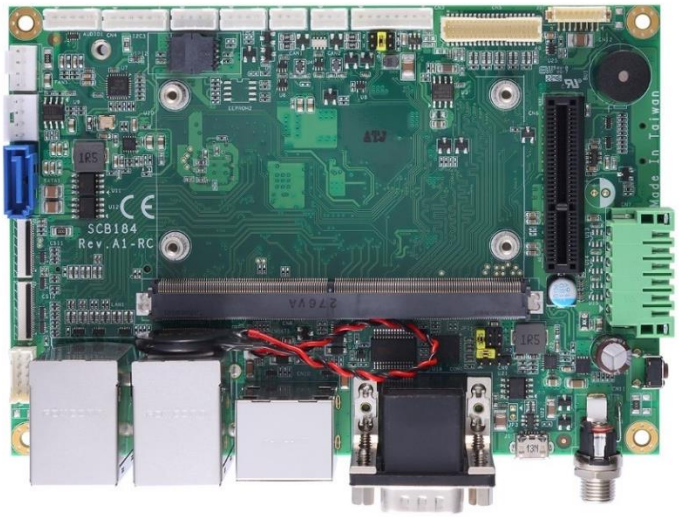
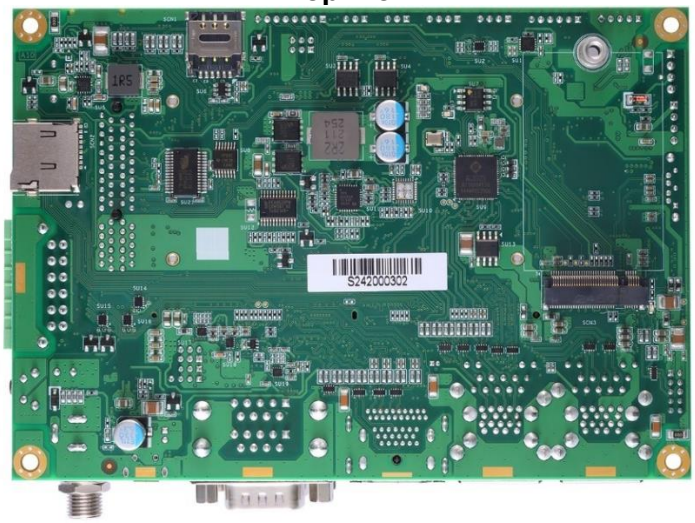
Section 1
Introduction

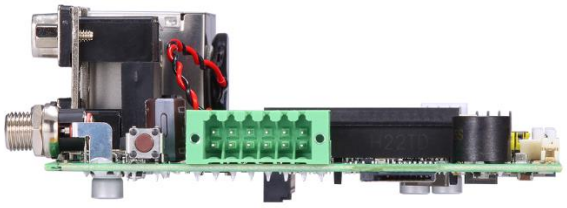


Top View



Rear View

Front View



Rear View

1.1 Specifications

The SCB184 is a baseboard for SMARC SoM (System-On-Module), ARM or x86 SMARC module. The connected SMARC module must also support the features for the connector to function. Refer to the SMARC module's datasheets for information about supported features.

- **Size**
  - 3.5" Form Factor, 146 mm x 102 mm (approx. 5.75" x 4.02")

- **Features**
  - Dual GbE LAN port
  - Quad USB 3.2 Gen1 Type A connectors
  - Single HDMI port
  - Single DP port
  - Single DB9 for RS232
  - Single DB9 for RS232/RS485
  - Single OS Flash port
  - User button for reset
  - GPIO x 10 ports
  - Single Dual-channel LVDS interface connector
  - Single Inverter Connector
  - Single QSPI connector
  - Single SPI connector
  - Dual CANbus
  - Dual I2C interface connectors
  - Audio Line Out/ Line In
  - Dual USB 2.0 wafer for 2 port
  - Single SATA for SATA III
  - Single SATA Power connector
  - Fan control
  - Single PCIe x4 connector
  - Buzzer
  - RTC-battery (CR2032) included
  - Single Micro SD card slot
  - 5G SIM card slot
  - M.2 B Key type 3052 card slot for 5G Module

- **Power Input**
  - +12V to +24V lockable DC jack

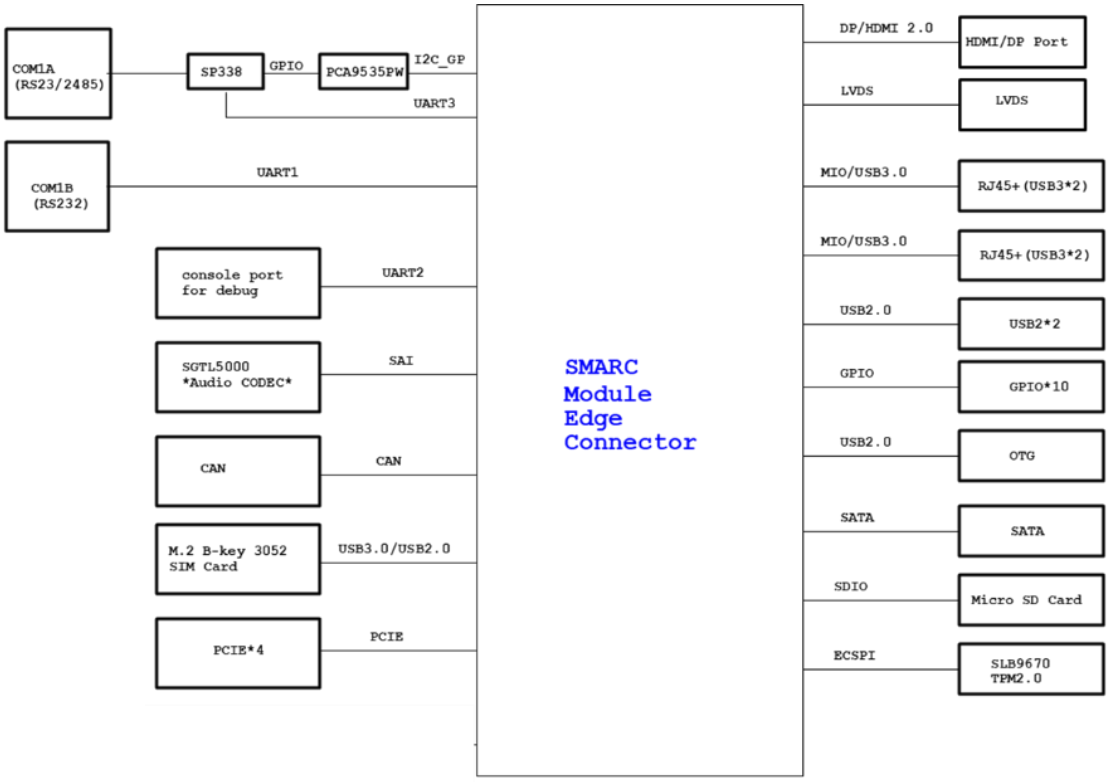
- **Environments**
  - Operating Temperature: -20°C to +70°C (-4°F to +158°F)
  - Storage Temperature: -40°C to +85°C (-40°F to +185°F)
  - Humidity: 10% to 95%, non-condensing

Note: ***All specifications and images are subject to change without notice.***
The connected SMARC module must also support the features for the connector to function. Refer to the SMARC module's user's guide for information about supported features.

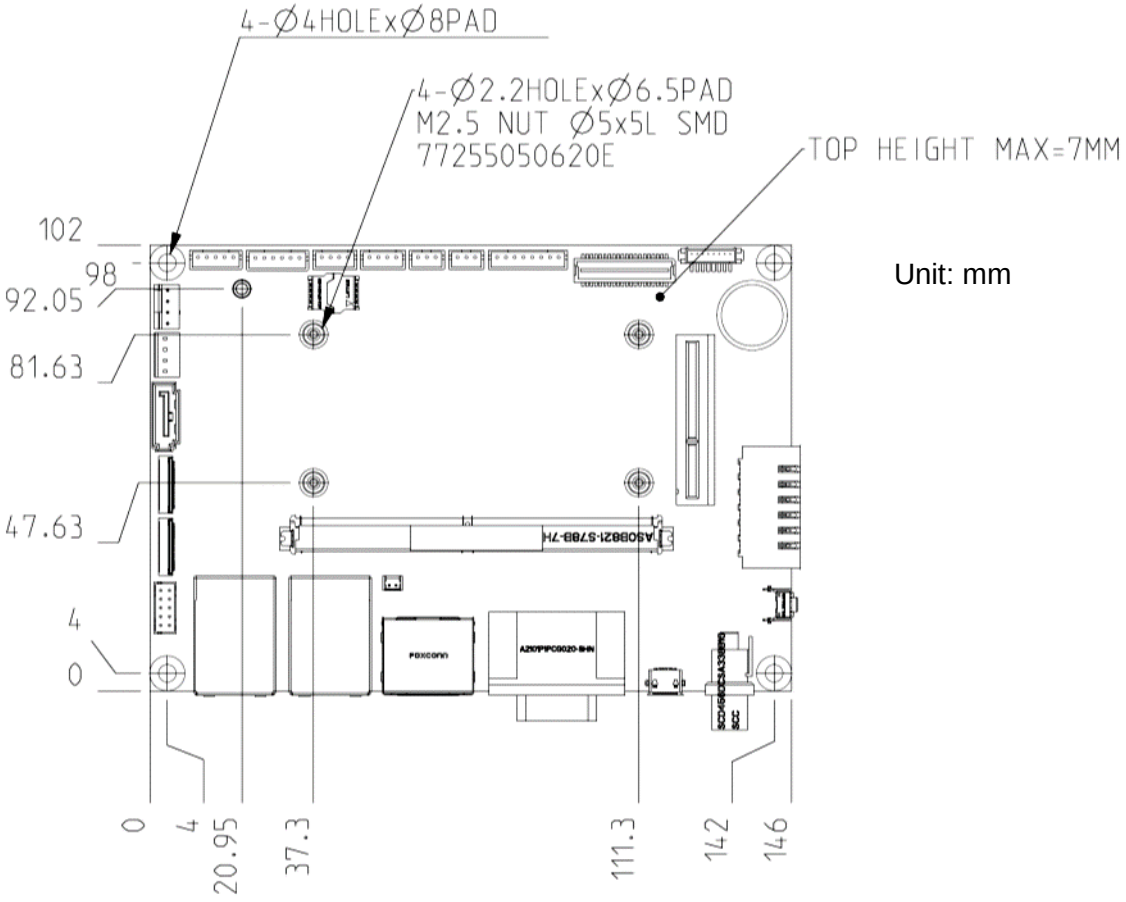
1.2 Model List

SCB184-EMMC-AX (P/N: E39E184100)	Baseboard of RISC Embedded SMARC Module, default at eMMC boot mode
SCB184-SD-AX (P/N: E39E184101)	Baseboard of RISC Embedded SMARC Module, default at SD card boot mode

1.3 Block Diagram

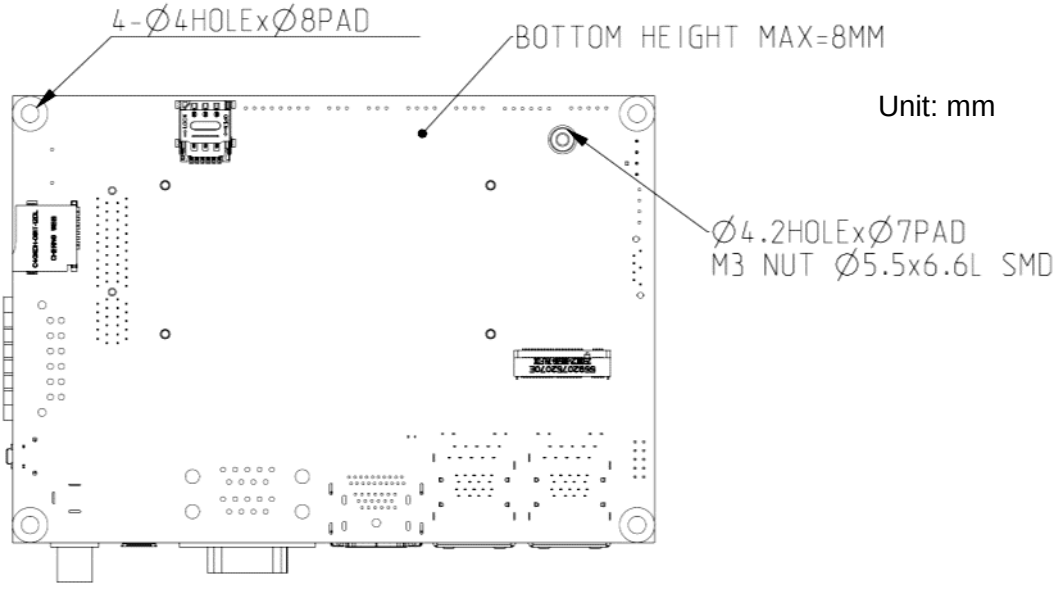


1.4 Dimensions and Fixing Holes



Unit: mm

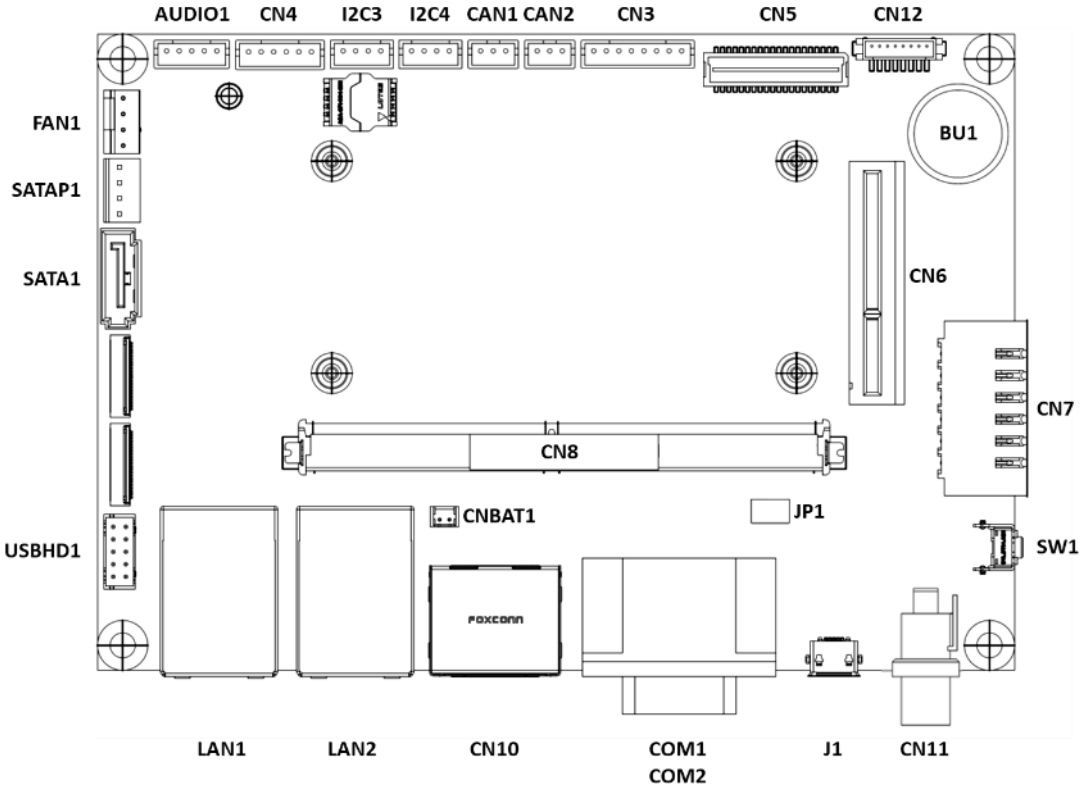
Top View



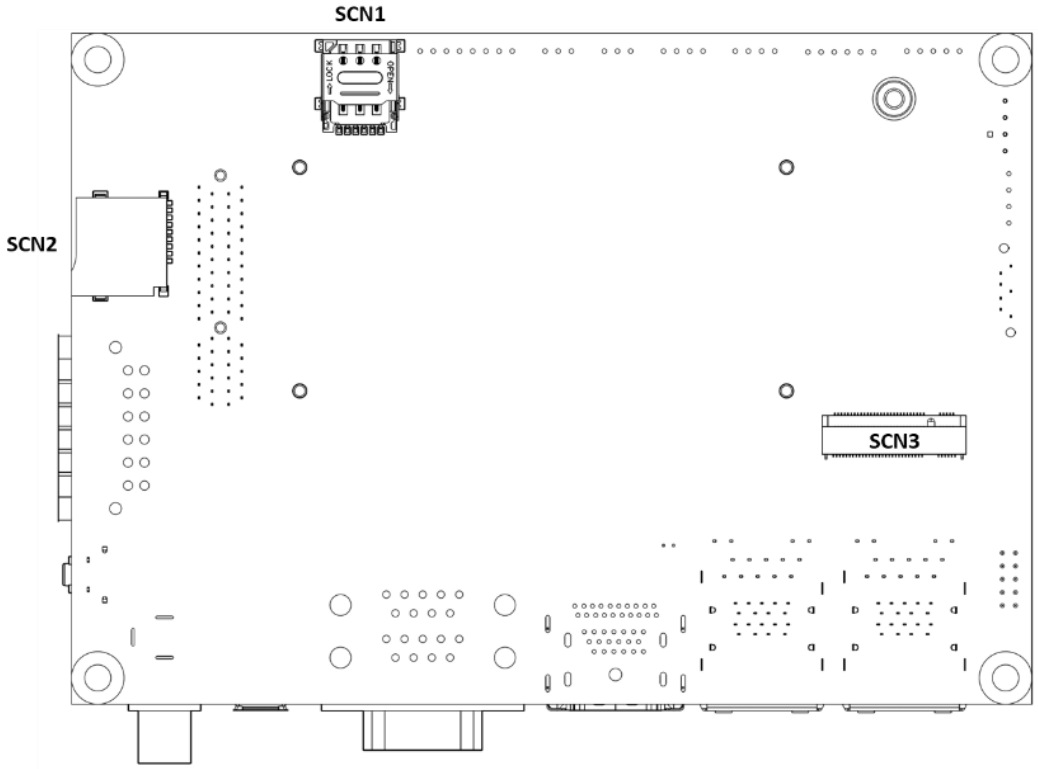
Unit: mm

Bottom View

1.5 Board Layout



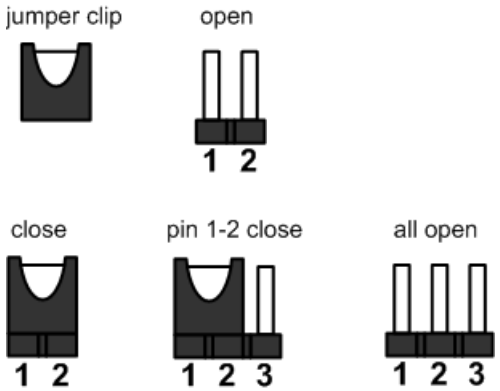
Top View



Bottom View

1.6 Jumper Setting

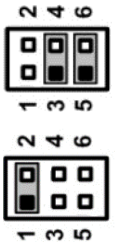
Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close. And remove jumper clip from 2 jumper pins to open. The following illustration shows how to set up jumper.



1.6.1 Boot Mode Selection (JP1)

These jumpers are for boot mode selection.

Function	Setting
Boot from SD Card	1-2 Open 3-4 Close 5-6 Close
Boot from eMMC (default)	1-2 Close 3-4 Open 5-6 Open



Section 2
Pin Assignments

2.1 Connectors

Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors on the hardware.

Connector	Description
CN3	QSPI Interface Connector – Top Side
CN4	SPI Interface Connector – Top Side
CN5	LVDS Interface Connector – Top Side
CN6	PCIe x4 Interface Connector – Top Side
CN7	10pin GPIO Interface Connector – Top Side
CN8	SMARC 314pin MXM Connector – Top Side
CN10	DP/HDMI 44pin Connector – I/O Side
CN11	DC Jack Power Connector – I/O Side
CN12	Inverter Connector – Top Side
BU1	Buzzer – Top Side
CAN1	CAN1 Interface Connector – Top Side
CAN2	CAN2 Interface Connector – Top Side
I2C3	I2C1 Interface Connector – Top Side
I2C4	I2C3 Interface Connector – Top Side
AUDIO1	Audio Line Out/ Line In Connector – Top Side
COM1	RS232 DB9 Connector – I/O Side
COM2	RS232/ RS485 DB9 Connector – I/O Side
USBHD1	USB 2.0 Wafer Connector – Top Side
LAN1	USB 2.0 Double Deck+1st GbE LAN Port – I/O Side
LAN2	USB 2.0 Double Deck+2nd GbE LAN Port – I/O Side
J1	OS Flash Port – I/O Side
SATA1	SATA for SATA III – Top Side
SATAP1	SATA Power Connector – Top Side
FAN1	FAN Control – Top Side
SW1	Power Reset Button – Top Side
CNBAT1	RTC Battery – Top Side
SCN1	5G SIM Card Slot – Bottom Side
SCN2	Micro SD Card Slot – Bottom Side
SCN3	M.2 Key B Type 3052 Card Slot for 5G Module – Bottom Side

Note: ***The connected SMARC module must also support the features for the connector to function. Refer to the SMARC module's datasheets for information about supported features.***

2.1.1 QSPI Interface Connector (CN3)

Connector Type: 8pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	+1.8V
2	QSPI_CS0#
3	QSPI_SCLK
4	QSPI_DATA1
5	QSPI_DATA0
6	QSPI_DATA2
7	QSPI_DATA3
8	GND

2.1.2 SPI Interface Connector (CN4)

Connector Type: 6pin Pitch=2.0mm Wafer 180D

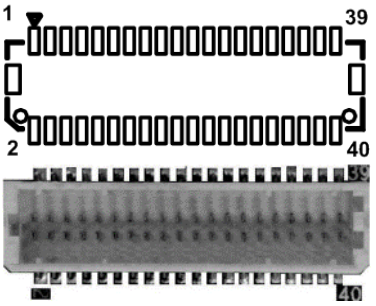
Pin	Signal
1	+1.8V
2	SPI_CS#
3	SPI_SCLK
4	SPI_MOSI
5	SPI_MISO
6	GND

2.1.3 LVDS Interface Connector (CN5)

This board has a 40-pin connector for LVDS LCD interface. It is strongly recommended to use the matching JST SHDR-40VS-B 40-pin connector for LVDS interface.

Connector Type: GLA1001WV-S 2X20pin Pitch=1.0mm 180D

Pin	Signal	Pin	Signal
1	+3.3V	2	+11.5V ~ +12V
3	+3.3V	4	+11.5V ~ +12V
5	+3.3V	6	+11.5V ~ +12V
	LVDS_BKLT_PWM	8	BLEN
9	GND	10	GND
11	LVDS0_TX0_N-	12	LVDS1_TX0_N-
13	LVDS0_TX0_P+	14	LVDS1_TX0_P+
15	GND	16	GND
17	LVDS0_TX1_N-	18	LVDS1_TX1_N-
19	LVDS0_TX1_P+	20	LVDS1_TX1_P+
21	GND	22	GND
23	LVDS0_TX2_N-	24	LVDS1_TX2_N-
25	LVDS0_TX2_P+	26	LVDS1_TX2_P+
27	GND	28	GND
29	LVDS0_CLK_N-	30	LVDS1_CLK_N-
31	LVDS0_CLK_P+	32	LVDS1_CLK_P+
33	GND	34	GND
35	LVDS0_TX3_N-	36	LVDS1_TX3_N-
37	LVDS0_TX3_P+	38	LVDS1_TX3_P+
39	GND	40	GND



2.1.4 PCIe x4 Interface Connector (CN6)

Connector Type: PCI-E x 4 Slot 64 pin FOXCONN L/F

Pin	Signal	Pin	Signal
B1	+11.5V ~ +12V	A1	+11.5V ~ +12V
B2	+11.5V ~ +12V	A2	+11.5V ~ +12V
B3	+11.5V ~ +12V	A3	+11.5V ~ +12V
B4	GND	A4	GND
B5	I2C_GP_SCL	A5	NC
B6	I2C_GP_SDA	A6	NC
B7	GND	A7	NC
B8	+3.3V	A8	NC
B9	NC	A9	+3.3V
B10	+3.3V	A10	+3.3V
B11	WAKE#	A11	PLTRST
B12	NC	A12	GND
B13	GND	A13	CLK_100M_P
B14	PCIE_TX_DP0	A14	CLK_100M_N
B15	PCIE_TX_DN0	A15	GND
B16	GND	A16	PCIE_RX_DP0
B17	NC	A17	PCIE_RX_DN0
B18	GND	A18	GND
B19	PCIE_TX_DP1	A19	NC
B20	PCIE_TX_DN1	A20	GND
B21	GND	A21	PCIE_RX_DP1
B22	GND	A22	PCIE_RX_DN1
B23	PCIE_TX_DP2	A23	GND
B24	PCIE_TX_DN2	A24	GND
B25	GND	A25	PCIE_RX_DP2
B26	GND	A26	PCIE_RX_DN2
B27	PCIE_TX_DP3	A27	GND
B28	PCIE_TX_DN3	A28	GND
B29	GND	A29	PCIE_RX_DP3
B30	NC	A30	PCIE_RX_DN3
B31	NC	A31	GND
B32	GND	A32	NC

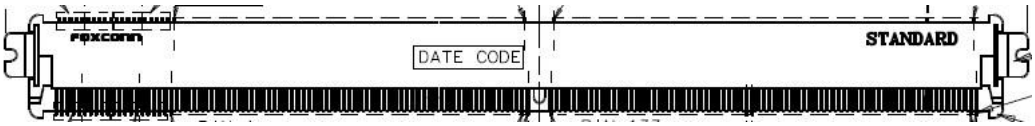
2.1.5 GPIO Interface Connector (CN7)

Connector Type: 0156-2812 6X2pin Pitch=3.5mm female 90D

Pin	Signal
1	+3.3V
2	GPIO0
3	GPIO1
4	GPIO2
5	GPIO3
6	GPIO4
7	GND
8	GPIO7
9	GPIO8
10	GPIO9
11	GPIO10
12	GPIO11

2.1.6 SMARC MXM Connector (CN8)

This is an SMT type 0.50mm (0.02") pitch, 314pin MXM connector with a height of 7.8mm.



Connector Type: SOCKET-S MXM 314pin H=7.8mm FOXCONN

P-Pin	Signal	S-Pin	Signal
P1	SMB_ALERT#	S1	I2C_CAM1_CK
P2	GND	S2	I2C_CAM1_DAT
P3	CSI1_CK+	S3	GND
P4	CSI1_CK-	S4	NC
P5	NC	S5	I2C_CAM0_CK
P6	NC	S6	NC
P7	CSI1_RX0+	S7	I2C_CAM0_DAT
P8	CSI1_RX0-	S8	CSI0_CK+
P9	GND	S9	CSI0_CK-
P10	CSI1_RX1+	S10	GND
P11	CSI1_RX1-	S11	CSI0_RX0+
P12	GND	S12	CSI0_RX0-
P13	CSI1_RX2+	S13	GND
P14	CSI1_RX2-	S14	CSI0_RX1+
P15	GND	S15	CSI0_RX1-
P16	CSI1_RX3+	S16	GND
P17	CSI1_RX3-	S17	GBE1_MDI0+
P18	GND	S18	GBE1_MDI0-
P19	GBE0_MDI3-	S19	GBE1_LINK100#
P20	GBE0_MDI3+	S20	GBE1_MDI1+
P21	GBE0_LINK100#	S21	GBE1_MDI1-
P22	GBE0_LINK1000#	S22	GBE1_LINK1000#
P23	GBE0_MDI2-	S23	GBE1_MDI2+
P24	GBE0_MDI2+	S24	GBE1_MDI2-
P25	GBE0_LINK_ACT#	S25	GND
P26	GBE0_MDI1-	S26	GBE1_MDI3+
P27	GBE0_MDI1+	S27	GBE1_MDI3-
P28	NC	S28	NC
P29	GBE0_MDI0-	S29	PCIE_D_TX+
P30	GBE0_MDI0+	S30	PCIE_D_TX-
P31	NC	S31	GBE1_LINK_ACT#
P32	GND	S32	PCIE_D_RX+
P33	SDIO_WP	S33	PCIE_D_RX-
P34	SDIO_CMD	S34	GND
P35	SDIO_CD#	S35	USB2.0_4D+
P36	SDIO_CK	S36	USB2.0_4D-
P37	SDIO_PWR_EN	S37	NC
P38	GND	S38	AUDIO_MCK
P39	SDIO_D0	S39	I2S0_LRCK
P40	SDIO_D1	S40	I2S0_SDOUT

P-Pin	Signal	S-Pin	Signal
P41	SDIO_D2	S41	I2S0_SDIN
P42	SDIO_D3	S42	I2S0_CK
P43	SPI0_CS0#	S43	NC
P44	SPI0_CK	S44	NC
P45	SPI0_DIN	S45	NC
P46	SPI0_DO	S46	NC
P47	GND	S47	GND
P48	SATA_TX+	S48	I2C_GP_CK
P49	SATA_TX-	S49	I2C_GP_DAT
P50	GND	S50	NC
P51	SATA_RX+	S51	NC
P52	SATA_RX-	S52	NC
P53	GND	S53	NC
P54	QSPI_CS0#	S54	NC
P55	NC	S55	NC
P56	QSPI_CK	S56	QSPI_IO_2
P57	QSPI_IO_1	S57	QSPI_IO_3
P58	QSPI_IO_0	S58	NC
P59	GND	S59	NC
P60	USB2.0_0D+	S60	NC
P61	USB2.0_0D-	S61	GND
P62	USB0_EN_OC#	S62	USB3.0_3TX+
P63	USB0_VBUS_DET	S63	USB3.0_3TX-
P64	USB0_OTG_ID	S64	GND
P65	USB2.0_1D+	S65	USB3.0_3RX+
P66	USB2.0_1D-	S66	USB3.0_3RX-
P67	USB1_EN_OC#	S67	GND
P68	GND	S68	USB2.0_3D+
P69	USB2.0_2D+	S69	USB2.0_3D-
P70	USB2.0_2D-	S70	GND
P71	USB2_EN_OC#	S71	USB3.0_2TX+
P72	NC	S72	USB3.0_2TX-
P73	NC	S73	GND
P74	NC	S74	USB3.0_2RX+
P75	PCIE_A_RST#	S75	USB3.0_2RX-
P76	USB4_EN_OC#	S76	NC
P77	NC	S77	NC
P78	NC	S78	PCIE_C_RX+
P79	GND	S79	PCIE_C_RX-
P80	NC	S80	GND
P81	NC	S81	PCIE_C_TX+
P82	GND	S82	PCIE_C_TX-
P83	PCIE_A_REFCK+	S83	GND
P84	PCIE_A_REFCK-	S84	NC
P85	GND	S85	NC
P86	PCIE_A_RX+	S86	GND
P87	PCIE_A_RX-	S87	PCIE_B_RX+
P88	GND	S88	PCIE_B_RX-
P89	PCIE_A_TX+	S89	GND

P-Pin	Signal	S-Pin	Signal
P90	PCIE_A_TX-	S90	PCIE_B_TX+
P91	GND	S91	PCIE_B_TX-
P92	HDMI_D2+	S92	GND
P93	HDMI_D2-	S93	DP_LANE0+
P94	GND	S94	DP_LANE0-
P95	HDMI_D1+	S95	NC
P96	HDMI_D1-	S96	DP_LANE1+
P97	GND	S97	DP_LANE1-
P98	HDMI_D0+	S98	DP_HPD
P99	HDMI_D0-	S99	DP_LANE2+
P100	GND	S100	DP_LANE2-
P101	HDMI_CK+	S101	GND
P102	HDMI_CK-	S102	DP_LANE3+
P103	GND	S103	DP_LANE3-
P104	HDMI_HPD	S104	NC
P105	HDMI_CTRL_CK	S105	DP_AUX+
P106	HDMI_CTRL_DAT	S106	DP_AUX-
P107	HDMI_CEC	S107	NC
P108	GPIO0	S108	LVDS1_CK+
P109	GPIO1	S109	LVDS1_CK-
P110	GPIO2	S110	GND
P111	GPIO3	S111	LVDS1_0+
P112	GPIO4	S112	LVDS1_0-
P113	GPIO5/FAN_PWM	S113	NC
P114	GPIO6/FAN_TACHIN	S114	LVDS1_1+
P115	GPIO7	S115	LVDS1_1-
P116	GPIO8	S116	NC
P117	GPIO9	S117	LVDS1_2+
P118	GPIO10	S118	LVDS1_2-
P119	GPIO11	S119	GND
P120	GND	S120	LVDS1_3+
P121	I2C_PM_CK	S121	LVDS1_3-
P122	I2C_PM_DAT	S122	NC
P123	BOOT_SEL0#	S123	NC
P124	BOOT_SEL1#	S124	GND
P125	BOOT_SEL2#	S125	LVDS0_0+
P126	RESET_OUT#	S126	LVDS0_0-
P127	RESET_IN#	S127	LCD0_BKLT_EN
P128	POWER_BTN#	S128	LVDS0_1+
P129	SER0_TX	S129	LVDS0_1-
P130	SER0_RX	S130	GND
P131	SER0_RTS#	S131	LVDS0_2+
P132	SER0_CTS#	S132	LVDS0_2-
P133	GND	S133	LCD0_VDD_EN
P134	SER1_TX	S134	LVDS0_CK+
P135	SER1_RX	S135	LVDS0_CK-
P136	SER2_TX	S136	GND

P-Pin	Signal	S-Pin	Signal
P137	SER2_RX	S137	LVDS0_3+
P138	SER2_RTS#	S138	LVDS0_3-
P139	SER2_CTS#	S139	NC
P140	NC	S140	NC
P141	NC	S141	LCD0_BKLT_PWM
P142	GND	S142	NC
P143	CAN0_TX	S143	GND
P144	CAN0_RX	S144	NC
P145	CAN1_TX	S145	NC
P146	CAN1_RX	S146	PCIE_WAKE#
P147	+5V	S147	VDD_RTC
P148	+5V	S148	NC
P149	+5V	S149	NC
P150	+5V	S150	VIN_PWR_BAD#
P151	+5V	S151	NC
P152	+5V	S152	NC
P153	+5V	S153	NC
P154	+5V	S154	CARRIER_PWR_ON
P155	+5V	S155	NC
P156	+5V	S156	NC
		S157	NC
		S158	GND

2.1.7 DisplayPort/ HDMI 44pin Connector (CN10)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video signal only (no audio signal). This port supports up to 1920x1080@60fps. Its interface is available through connector CN10 and when connected to the SMARC module which supports the features.

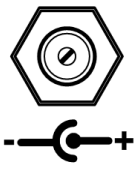
Connector Type: DP HDMI COMBO FOXCONN 3VD11203-HHJ0-4H

Pin	Signal(DP)	Pin	Signal(HDMI)
1	DP_0+	21	HDMI_D2P
2	GND	22	GND
3	DP_0-	23	HDMI_D2M
4	DP_1+	24	HDMI_D1P
5	GND	25	GND
6	DP_1-	26	HDMI_D1M
7	DP_2+	27	HDMI_D0P
8	GND	28	GND
9	DP_2-	29	HDMI_D0M
10	DP_3+	30	HDMI_CLKP
11	GND	31	GND
12	DP_3-	32	HDMI_CLKM
13	NC	33	HDMI_CEC
14	NC	34	NC
15	DP0_AUX+	35	HDMI_DDC_SCL
16	GND	36	HDMI_DDC_SDA
17	DP0_AUX-	37	GND
18	DP0_HPD	38	+5V
19	GND	39	HDMI_HPD
20	+3.3V		

Note: ***To use this port, the attached ARM or x86 module must support native DP/HDMI functionality.***

2.1.8 DC Jack Power Connector (CN11)

This is a +12V to +24V DC IN power jack with lock. Firmly insert at least 60W adapter into this connector. Loose connection may cause system instability and make sure all components/devices are properly installed before connecting the power jack.



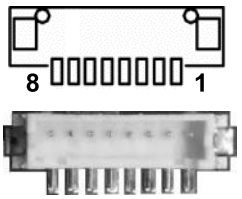
Connector Type: DC POWER JACK HDC102H4 3pin 2.5Φ w/N

2.1.9 Inverter Connector (CN12)

The CN12 is a DF13-8S-1.25V 8-pin connector for inverter. We strongly recommend you to use the matching DF13-8S-1.25C connector to avoid malfunction.

Connector Type: SMD GLA1252WV-S 8Pin Pitch=1.25mm 180D

Pin	Signal
1	+11.5V ~ +12V
2	+11.5V ~ +12V
3	+5V
4	Backlight Enable
5	GND
6	GND
7	GND
8	Backlight_PWM (Pulse-Width Modulation)



2.1.10 Buzzer (BU1)

The BU1 is a 5V 90dB buzzer, buzzer dimension is Φ12.0 x H9.5mm.

Connector Type: Buzzer 5V 12Φ H=9mm ZK-1205 Zeetek

2.1.11 CAN1 Interface Connector (CAN1)

Connector Type: 3pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	CAN1_L
2	CAN1_H
3	GND

2.1.12 CAN2 Interface Connector (CAN2)

Connector Type: 3pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	CAN2_L
2	CAN2_H
3	GND

2.1.13 I2C1 Interface Connector (I2C3)

Connector Type: 4pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	+3.3V
2	I2C_PM_SCL
3	I2C_PM_SDA
4	GND

2.1.14 I2C3 Interface Connector (I2C4)

Connector Type: 4pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	+3.3V
2	I2C_GP_SCL
3	I2C_GP_SDA
4	GND

2.1.15 Audio Line Out/ Line In Connector (AUDIO1)

The board comes with one audio Line Out/ Line In connector.

Connector Type: 5pin Pitch=2.0mm Wafer 180D

Pin	Signal
1	LINOUT_L
2	LINOUT_R
3	LINEIN_L
4	LINEIN_R
5	GND

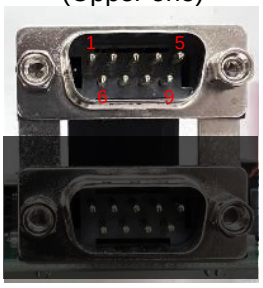
2.1.16 COM Connector (COM1)

These is a standard 9-pin D-Sub connector for interfacing to serial port. (Support RS232 only)

Connector Type: D-SUB Dual 9pin Pitch=2.77mm w/Screw 90D

Pin	Signal
1	NC
2	RS232_RX
3	RS232_TX
4	NC
5	GND
6	NC
7	RS232_RTS
8	RS232_CTS
9	NC

COM1
(Upper one)



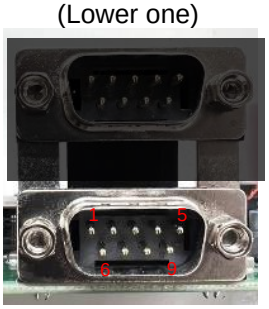
2.1.17 COM Connector (COM2)

These is a standard 9-pin D-Sub connector for interfacing to serial port. (Support RS232 or RS485, default setting is at RS232)

Connector Type: D-SUB Dual 9pin Pitch=2.77mm w/Screw 90D

Pin	Signal
1	NC
2	RS232_RX/RS485_D+
3	RS232_TX
4	NC
5	GND
6	NC
7	RS232_RTS
8	RS232_CTS/ RS485_D-
9	NC

COM2
(Lower one)



2.1.18 USB 2.0 Wafer Connector (USBHD1)

Connector Type: 2x5pin Pitch=2.0mm 180D

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	USB5_D-	4	USB6_D-
5	USB5_D+	6	USB6_D+
7	GND	8	GND
9	GND	10	GND

2.1.19 USB 3.2 Double Deck and RJ45 Connector (LAN1)

The board comes with one stacked Universal Serial Bus (compliant with USB 3.2 Gen1) connector on the I/O side for installing USB peripherals such as keyboard, mouse, scanner, etc.

The RJ-45 connector is for Ethernet. Just plug in one end of the cable and connect the other end to a 1000/100/10-Base-T hub.

Connector Type: RJ45+USB3 JFM38U1B-B313-4F

LED Indicator	Description
Left Side (L)	**Link LED Indicator** Off: 10 Mbps link speed LAN LED Green: 100 Mbps link speed Orange: 1000 Mbps link speed
Right Side (R)	**Active LED Indicator** Off: No Link Steady On in Yellow: Link established, no activity detected Blinking: Link established, activity detected

Pin	Signal	Pin	Signal
1	+5V	19	VCT
2	USB1D-	20	LAN1_MDIOP0
3	USB1D+	21	LAN1_MDION0
4	GND	22	LAN1_MDIOP1
5	USB_SSRXM1	23	LAN1_MDION1
6	USB_SSRXP1	24	LAN1_MDIOP2
7	GND	25	LAN1_MDION2
8	USB_SSTXM1	26	LAN1_MDIOP3
9	USB_SSTXP1	27	LAN1_MDION3
10	+5V	28	GND
11	USB2D-	29	LED_1000_N
12	USB2D+	30	LED_10_100_N
13	GND	31	+3.3V
14	USB_SSRXM2	32	LED_ACT_N
15	USB_SSRXP2		
16	GND		
17	USB_SSTXM2		
18	USB_SSTXP2		

***Note:** Support USB 3.2 or USB 2.0, depends on the attached ARM or x86 module features.*

2.1.20 USB 3.2 Double Deck and RJ45 Connector (LAN2)

The board comes with one stacked Universal Serial Bus (compliant with USB 3.2 Gen1) connector on the I/O side for installing USB peripherals such as keyboard, mouse, scanner, etc.

The RJ-45 connector is for Ethernet. Just plug in one end of the cable and connect the other end to a 1000/100/10-Base-T hub.

Connector Type: RJ45+USB3 JFM38U1B-B313-4F

LED Indicator	Description
Left Side (L)	**Link LED Indicator** Off: 10 Mbps link speed LAN LED Green: 100 Mbps link speed Orange: 1000 Mbps link speed
Right Side (R)	**Active LED Indicator** Off: No Link Steady On in Yellow: Link established, no activity detected Blinking: Link established, activity detected

Pin	Signal	Pin	Signal
1	+5V	19	VCT
2	USB3D-	20	LAN2_MDIOP0
3	USB3D+	21	LAN2_MDION0
4	GND	22	LAN2_MDIOP1
5	USB_SSRXM3	23	LAN2_MDION1
6	USB_SSRXP3	24	LAN2_MDIOP2
7	GND	25	LAN2_MDION2
8	USB_ SSTXM3	26	LAN2_MDIOP3
9	USB_ SSTXP3	27	LAN2_MDION3
10	+5V	28	GND
11	USB4D-	29	LED_1000_N
12	USB4D+	30	LED_10_100_N
13	GND	31	+3.3V
14	USB_SSRXM4	32	LED_ACT_N
15	USB_SSRXP4		
16	GND		
17	USB_SSTXM4		
18	USB_SSTXP4		

Note: ***The functionality of the 2nd RJ45 (LAN2) connector depends on the connected ARM or x86 module features.***

Note: ***Support USB 3.2 or USB 2.0, depends on the attached ARM or x86 module features.***

2.1.21 OS Flash Port (J1)

The systems can act as normal USB devices when attached to another host through OS Flash port connector.

Connector Type: Micro USB

Pin	USB Port (Device)
1	+5V
2	USB_OTG_D-
3	USB_OTG_D+
4	NC
5	GND

2.1.22 SATA Slot (SATA1)

The board provides a standard SATA port via connector SATA1. The port supports SATA device only.

Connector Type: SATA3 7pin DIP 180D

Pin	Signal
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

Note: ***The functionality of the connector depends on the connected ARM or x86 module features.***

2.1.23 SATA Power (SATAP1)

The board provides a 4-pin SATA power connector for HDD or SSD.

Connector Type: 4pin Pitch=2.54mm Wafer 180D

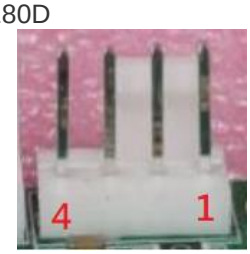
Pin	Signal
1	+11.5V ~ +12V
2	GND
3	GND
4	+5V

Note: ***The functionality of the connector depends on the connected ARM or x86 module features.***

2.1.24 FAN (FAN1)

Connector Type: 4pin Pitch=2.54mm 180D

Pin	Signal
1	GND
2	FAN_VOUT
3	FAN_TACHIN
4	FAN_PWM

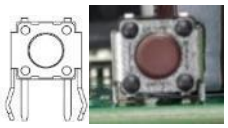


2.1.25 Reset Button (SW1)

The SW1 is the reset button that reboot your system.

Connector Type: TACT SWITCH DIP H:3.85mm DTSA-62N 90D

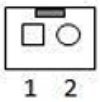
Reset Button	Description
SW1	Reboot system



2.1.26 RTC Battery (CNBAT1)

Connector Type: 2pin Pitch=1.25mm Wafer 180D

Pin	Signal
1	+3V
2	GND



2.1.27 SIM Card Slot (SCN1)

The SCN1 is for inserting SIM Card and mainly used in 5G wireless network application. In order to work properly, the SIM Card must be used together with 5G module inserted to SCN3.

Connector Type: NANO SIM Socket–S N0601B010 Tech Best

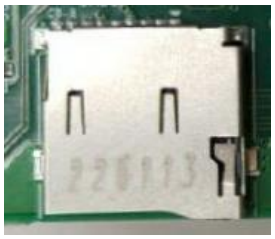
Pin	Signal
1	SIM_PWR
2	SIM_REST
3	SIM_CLK
4	NC
5	GND
6	SIM_VPP
7	SIM_DATA

2.1.28 SD Card Slot (SCN2)

This board has a Micro SD Card Socket. The Micro SD card is not only for the purpose of storage, but also can be the boot device. (SCM18 switch setting as "Boot from SD Card" mode is required.)

Connector Type: Micro SD Socket-S C40KDH-081T-12DL

Pin	Signal
1	SDIO_DATA2
2	SDIO_DATA3
3	SDIO_CMD
4	+3.3V
5	SDIO_CLK
6	GND
7	SDIO_DATA0
8	SDIO_DATA1
CD	SDIO_nCD
G	GND



2.1.29 M.2 Key B 3052 Card Slot (SCN3)

The SCN3 is for inserting 5G module (M.2 B Key, type 3052). In order to work properly, the 5G SIM Card (inserted to SCN1) must be used together with 5G module inserted to SCN3.

Connector Type: SOCKET-S M.2 H=8.5mm S85BB FOXCONN

Pin	Signal	Pin	Signal
1	CONFIG3	2	+3.3V
3	GND	4	+3.3V
5	GND	6	POWER_OFF#
7	USB_D+	8	DISABLE#
9	USB_D-	10	+3.3V
11	GND	20	NC
21	CONFIG0	22	NC
23	+1.8V	24	NC
25	NC	26	NC
27	GND	28	NC
29	SSRX1-	30	SIM_REST
31	SSRX1+	32	SIM_CLK
33	GND	34	SIM_DATA
35	SSTX1-	36	SIM_PWR
37	SSTX1+	38	NC
39	GND	40	NC
41	NC	42	NC
43	NC	44	NC
45	GND	46	NC
47	NC	48	NC
49	NC	50	PERST# 3.3V
51	GND	52	NC
53	NC	54	PEWAKE# 3.3V
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	RESET# 1.8V	68	TP
69	CONFIG1	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	CONFIG_2		