User's Manual

SIGM-2650

Version Note

No.	Ver.	Note	Date	Writer
1	A0.1	first publish	20200624	Echo Guo

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Product Warranty (2 years)

JHC warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for 2 years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by JHC, or which have been subject to misuse, abuse, accident or improper installation.

JHC assumes no liability under the terms of this warranty as a consequence of such events.

Because of JHC.s high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If a JHC product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, JHC products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications

when shielded cables are used for external wiring. We recommend the use

of shielded cables. This kind of cable is available from JHC. Please

contact your local supplier for ordering information. Test conditions for

passing included the equipment being operated within an industrial enclosure.

In order to protect the product from being damaged by ESD (Electrostatic

Discharge) and EMI leakage, we strongly recommend the use of

CE-compliant industrial enclosure products.

FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

Step 1.   Visit the JHC web site at www.jhctech.com.cn where you can find the latest information about the product.

Step 2.   Contact your distributor, sales representative, or JHC's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number

- Description of your peripheral attachments

- Description of your software (operating system, version, application software, etc.)

- A complete description of the problem

- The exact wording of any error messages

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1

CHAPTER

General Information

1.1 Introduction

SIGM-2650 is a fan-less reinforced on-board computer, and the mainboard and sub-board are designed with an all-in-one no-wire architecture. The SIGM-2650 is equipped with Intel® Apollo Lake E3950 CPU, dual channel (on-board +SODIMM) DDR3L, 1866MHz, up to 8GB, and the 9th generation Intel® HD core display.

The SIGM-2650 provides 1*DP, 1*VGA, 1*Smart Display, three Display interfaces, 2*POE, 2*USB3.0, 3*USB2.0, 2* isolation COM, 8-bit iso.dio, optional 2*CAN. 2*Mini PCIe with PCIe X1+USB signal, with dual SIM card slot, support for dual 4G LTE/Wifi/BT/GPS; 1*Mini PCIe with SATA+USB signal, can be used as a mSATA; 1*Mini PCIe with USB signal. When 2*CAN is selected, this Mini PCIe slot is occupied. 1*2.5" HDD SATA bay, 1* full mSATA (SATA+USB) for storage. The SIGM-2650-S001 power supply adopts DC 9~36V, ITPS, and the SIGM-2650-S002 power input adopts the railway standard DC 48/72/110V, which is suitable for the road vehicle, railway vehicle applications.

1.2 Features

Model No. ⟍ Specification	SIGM-2650-S001	SIGM-2650-S002
CPU	Intel® E3950	Intel® E3950
Memory	4GB+1*SODIMM DDR3L	4GB+1*SODIMM DDR3L
POE	2	2
USB3.0	2	2
USB2.0	3	3
COM	2	2
DIO	8-bit Iso. DIO	8-bit Iso. DIO
Smart Display	1	1
DP	1	1

VGA	1	1
Line out	1	1
Mic	1	1
mSATA	1	1
2.5" SATA bay	1	1
Power input	DC 9~36V, ITPS	DC 48/72/110V

Table 1.1: Features

1.3 Specifications

1.3.1 General

CPU: Intel® Apollo Lake E3950 CPU

System Memory: Dual channel (on-board +SODIMM) DDR3L, 1866MHz, up to 8GB

Watchdog Timer: 255-level interval timer, setup by software

USB: 2*USB3.0 (Type A); 1*USB2.0 (Type A); 2*USB2.0 (M12)

Serial Ports: 1*RS232 isolated (DB9), 1*RS485 isolated (DB9)

DIO： 8-bit isolated (DB9), 2.5KV opto-isolated input(H: 5-24V, L:0-1.5V) , opto- isolated output(200mA）

Expansion Interface:

2*Mini PCIe with PCIe X1+USB signal, 2*SIM slot, support 2*4G/LTE/Wifi/BT/GPS

1*Mini PCIe with SATA+USB signal，support mSATA

1*Mini PCIe with PCIe+USB signal, when using 2*CAN, This slot is occupied

Storage:

1*2.5" HDD/SSD bay,

1*mSATA (SATA+USB)

1.3.2 Display

Chipset: Intel Gen. 9th Intel HD Graphics

Display Memory: Shared system memory

Resolution: DP：4096*2160@60Hz, Smart Display：1920*1200@60Hz, VGA：1920*1200@60Hz

1.3.3 Ethernet

Chipset: 2*Intel I210AT

Speed: 10/100/1000 Mbps with POE 802.3af

Interface: M12

1.3.4 Audio

Chipset: Realtek ALC662VD

Interface:1*Line out，1*Mic，3.5mm phone jack

1.3.5 Power Consumption

Input Voltage:

DC 9-36V，with ITPS power management (S001)

Railway standard power input DC 48/72/110V（S002）

Power Consumption: TDP 12V/3.76A (Intel® E3950 CPU, 4GB DDR3L, 128G SSD)

Power Adapter: AC/DC 12V/5A 60W（S001）, S002（adapter is not provided）

1.4 Environmental Specifications

Operating temperature: EN50155 TX: -40～70℃(It can run for 10 minutes at 85℃)

Relative humidity: 10~90% @ 40°C (non-condensing)

Storage temperature: -40 ~ 85°C (-40 ~ 185°F)

Vibration loading during operation: MIL-STD-801G, EN50155

Shock during operation: MIL-STD-801G, EN50155

EMC/ Certification: EN50155, CE/FCC Class B

1.5 Mechanical Specifications

The SIGM-2650 is a fan-less reinforced on-board computer, consists of a mainboard (STX-I720), a sub-card (ECB-243).

STX-I720 Front
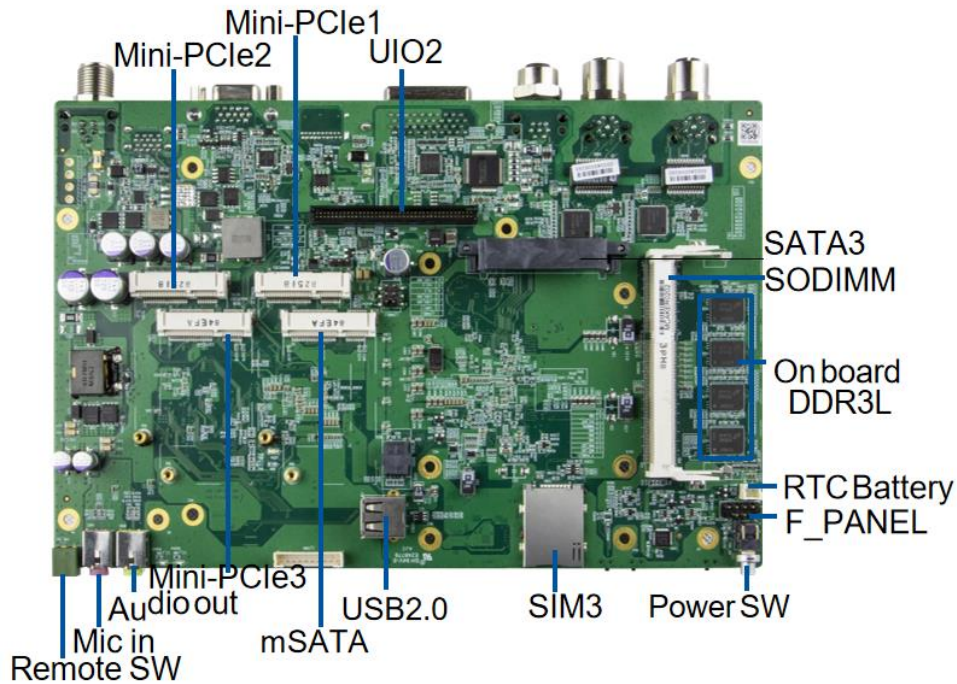
Picture 1.1: STX-I720 Front

STX-I720 Rear
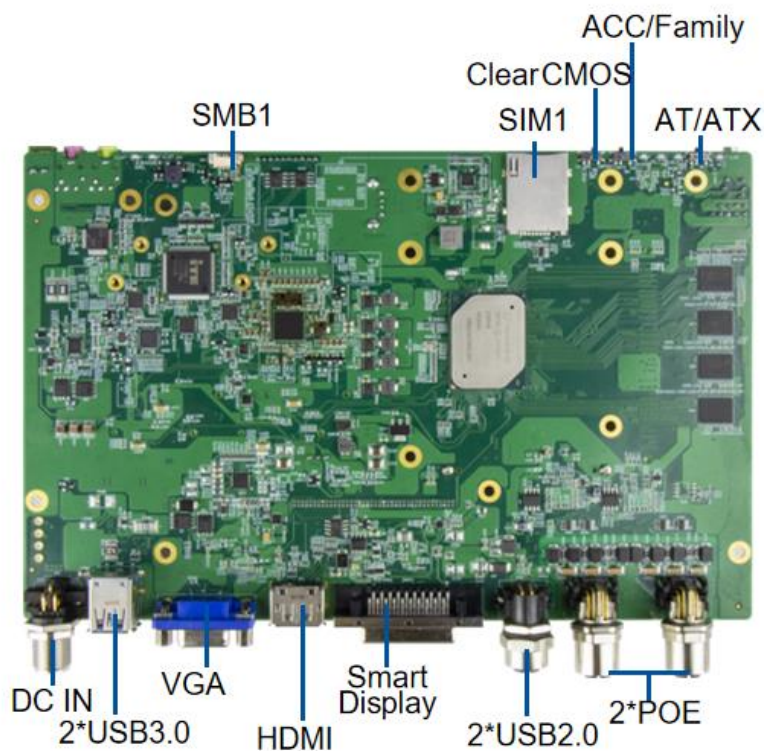
Picture 1.2: STX-I720 Rear

ECB-243 Front

Opt. 2*CAN 8-bit Iso. DIO 2*COM 1*USB2.0
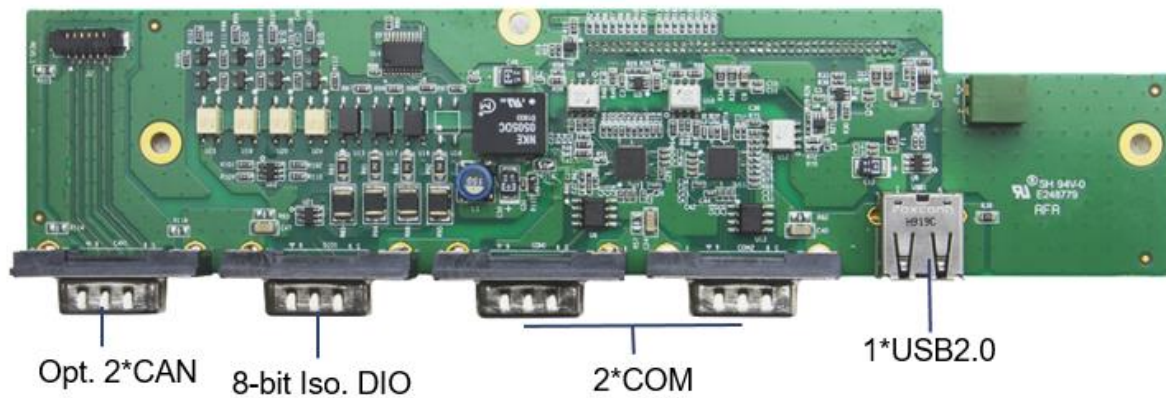
Picture 1.3: ECB-243

SIGM-2650 Front Panel

DC9~36V 2*USB3.0 VGA DP Smart Display 2*USB2.0 2*POE

DC48/72/110V USB2.0 COM2 COM1 8-bit iso. DIO Opt. 2*CAN
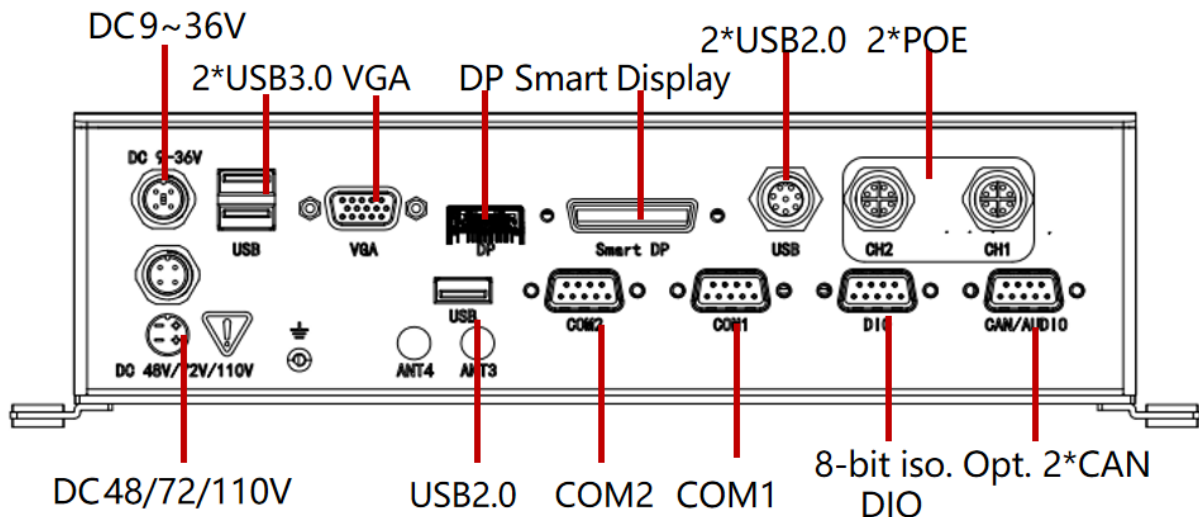
Picture 1.4: SIGM-2650 Front Panel

SIGM-2650 Rear Panel

AT/ATX SW ACC/Family SW CMOS Clear SW 2*SIM LAN LED Line-out MIC Remote SW

2.5″ SATA bay 4*Antenna
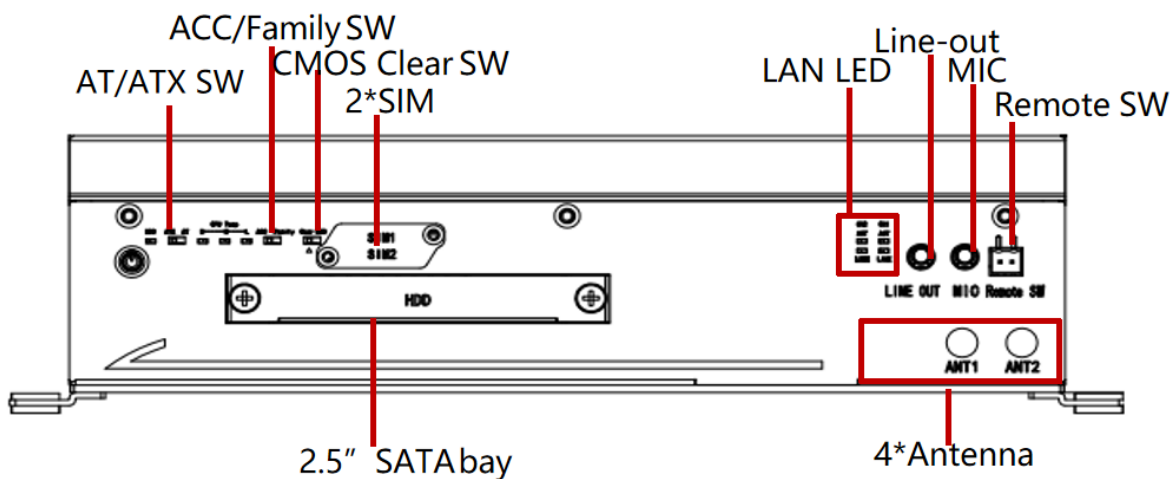
Picture 1.5: SIGM-2650 Rear Panel

SIGM-2650 Dimension：

Unit: mm
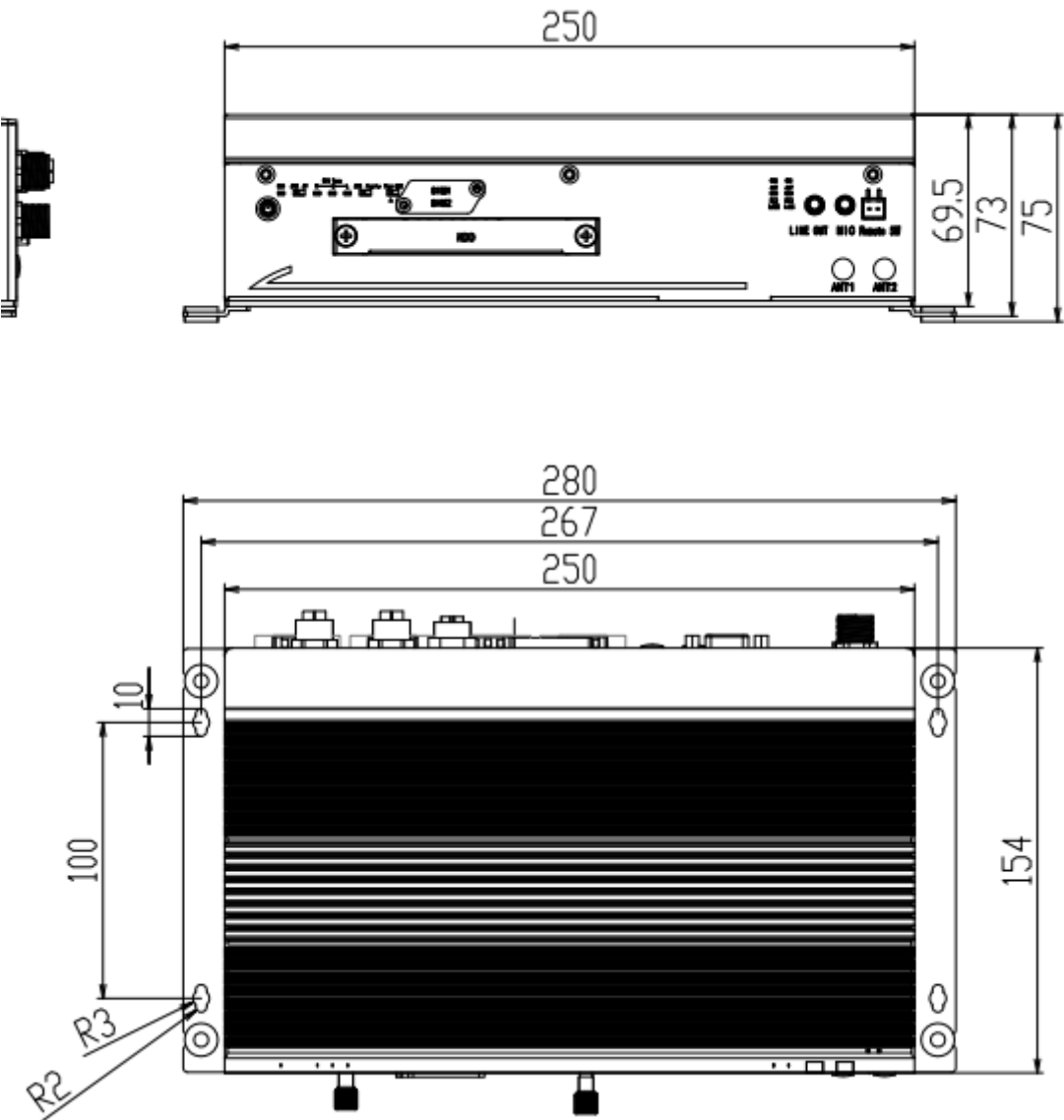
Picture 1.6 SIGM-2650 Dimension

CHAPTER 2

Hardware Installation

2.1 Introduction

The following sections show the internal switch settings and the external connectors and pin assignments

for applications.

2.2 Switches

The SIGM-2650 box computer has a number of switches inside the chassis that allows you to configure

your system to suit your application. The table below shows the function of each of the board's switches:

Switcher	Name	Description
CLEAR/CMOS	Clear CMOS Data Setting	3-Pin switch
AT/ATX	Set Power-on mode at AT or ATX	3-Pin switch
ACC/Family	Mode selector switch	3-Pin switch

2.2.1 CLEAR/COMS -Clear CMOS Data
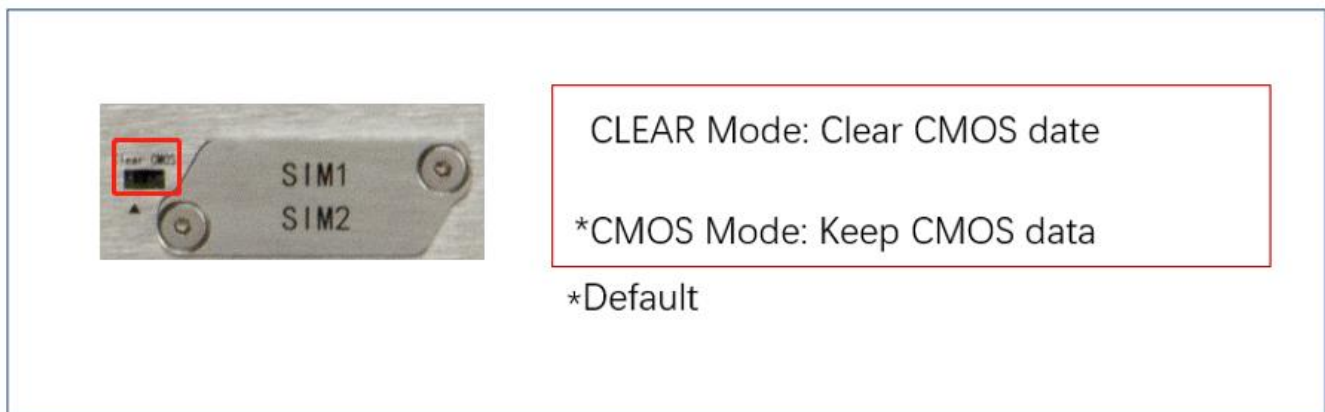
Picture 2.1: CLEAR/COMS

If you encounter the followings

a) CMOS data becomes corrupted.

b) You forget the supervisor or user password.

You can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

2. Dial the dip switch to CLEAR mode, stay for 5~6 seconds, and then revert to CMOS mode;

4. Power-On the computer, press the Del key to enter the BIOS setting and reload the optimal default value;

5. Save and exit the Settings.

2.2.2 AT/ATX Power on mode selection
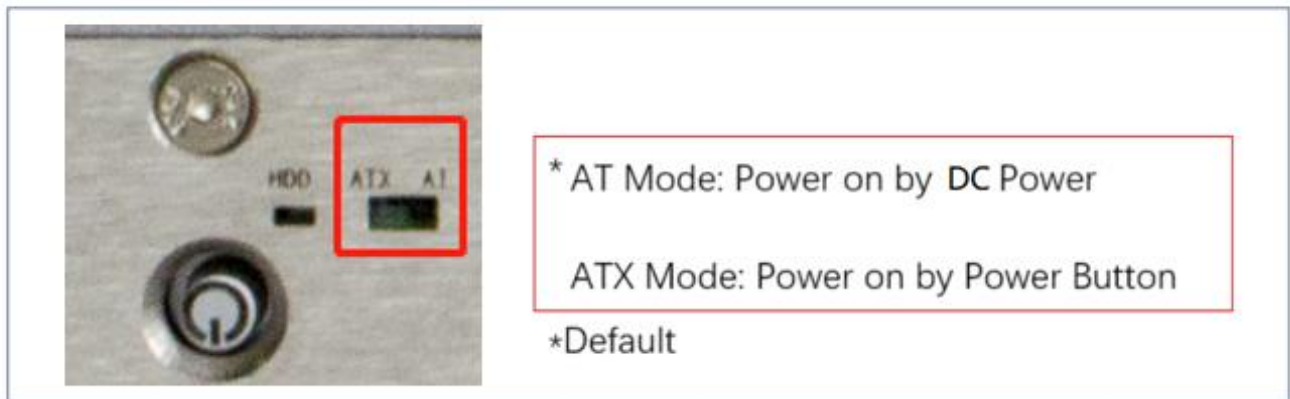
Picture 2.2: AT/ATX

The SIGM-2650 provides an AT/ATX SW, which users can set Power-on mode by it. When you dial it at AT, it means power on by AC Power; When you dial it at ATX, it means power on by Power button.

2.2.3 ACC/Family Mode selector switch
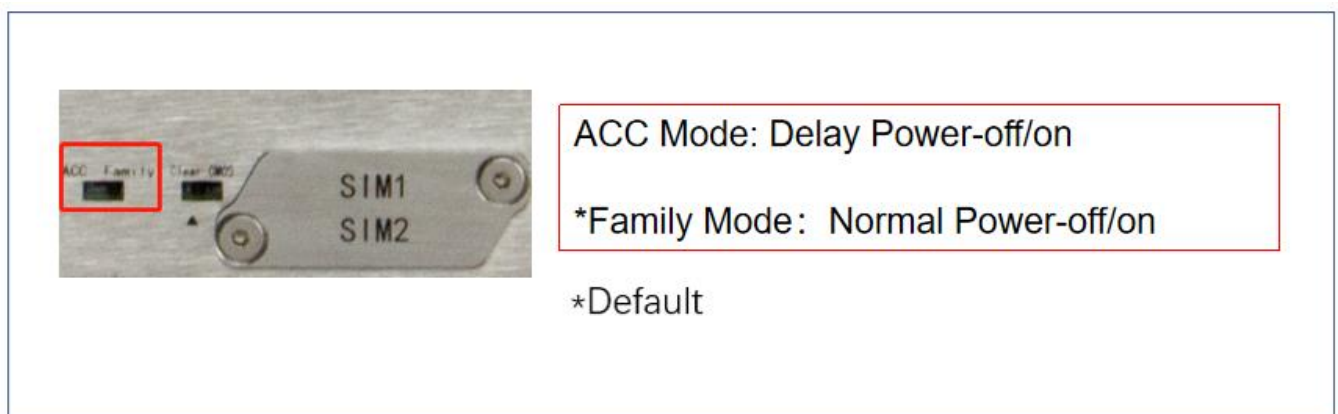
Picture 2.3: ACC/Family

The SIGM-2650 provides ACC/Family switch, and users can set the on-off mode of the machine by pushing the switch with tweezers. When you put it to ACC mode, it means that power on or power off will delay, until the voltage is stable; When dialed to Family, the machine is on and off normally.

2.3 I/O/Button/LED Indication

SIGM-2650 Front：
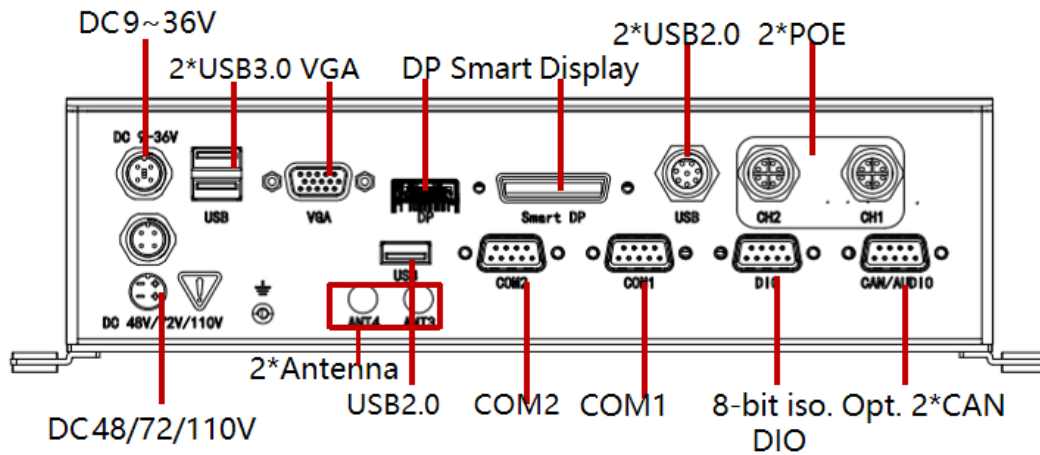
Picture 2.4: SIGM-2650 Front

The front panel contains the I/O interface：

- 1*DC-in Power: M12 A-Code 5-pole terminal　DC9~36V（S001）

- 1*DC-in Power: M12 A-Code 4-pole terminal　DC 48/72/110V（S002）

- 2*USB3.0 Type A,1*USB2.0 Type A,2*USB2.0　M12 A-Code

- 1*VGA,1*DP,1*Smart Display

- 2*POE:M12 X-Code

- 2*COM: DB9

- 2*8-bit DIO: DB9

- 2*Opt.CAN:DB9

- 2*Antenna

SIGM-2650 Rear：
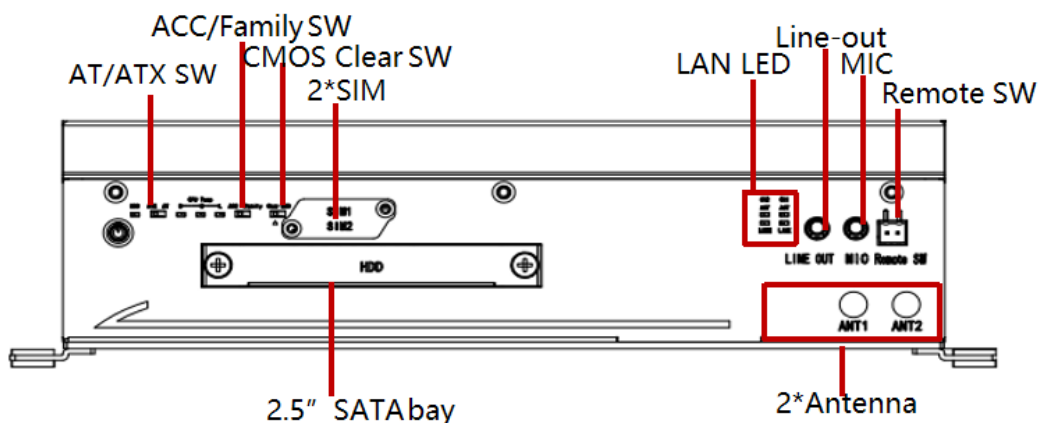
Picture 2.5: SIGM-2650 Rear

The rear panel contains the I/O interface：

- Power button

- HDD LED, CPU LEDs , POE LEDs

- AT/ATX SW, Clear CMOS SW, ACC/Family SW

- 2*SIM,1*2.5" SATA bay

- 1*Line-out,1*Mic

- 1*Remote SW

- 2*Antenna

2.3.1 Ethernet Connector (POE)

The SIGM-2650 is equipped with 2*Intel® I210AT, the Ethernet provides M12 interface, with POE function, and supports 802.3af (15.4w). Table 2.1 for pin assignments.
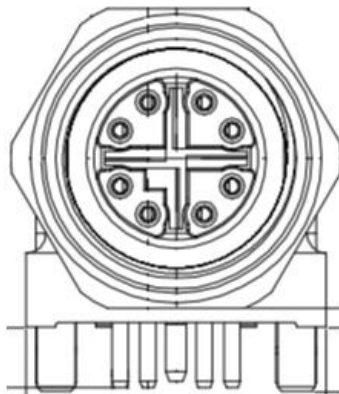
Picture 2.6: POE

Table 2.1: POE Connector Pin Assignments	
Pin	Signal
1	TXD0+
2	TXD0-
3	TXD1+
4	TXD2+
5	TXD2-
6	TXD1-
7	TXD3+

8	TXD3-

2.3.2 Power input (DC-IN)

SIGM-2650-S001 power input adopts DC 9~36V, ITPS, SIGM-2650-S002 power input adopts railway standard power DC 48/72/110V. The DC 9~36V equipped 5-Pin M12 A-code power socket can support up to 60W power. This is a low power solution that uses a 12V AC to DC adapter for input DC power to the socket. Railway standard power DC 48/72/110V is equipped with 4-Pin M12 A-code power socket, suitable for use in railway vehicle. If the voltage used is greater than the recommended voltage, the system will not start and may even damage the motherboard. Table 2.2 is the detailed introduction of pin allocation for 9-36V M12 A-code power supply interface. Table 2.3 provides detailed introduction of pin assignment for DC 48/72/110V M12 a-code power interface.
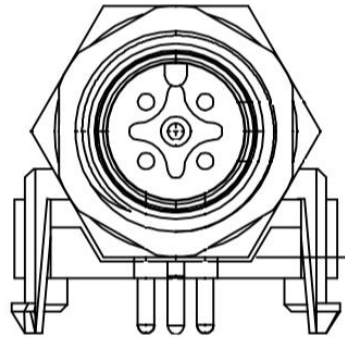
Picture 2.7: DC 9~36V M12 A-Code

Table 2.1: DC 9~36V M12 A-Code Connector Pin Assignments	
Pin	Signal
1	9~36V VIN
2	9~36V VIN
3	GND
4	GND
5	ITPS_ACC
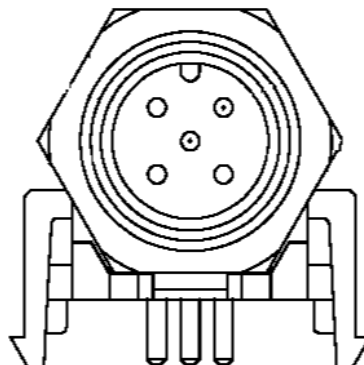
Picture 2.8: DC 48/72/110V M12 A-Code

Table 2.1: DC 48/72/110V M12 A-Code Connector Pin Assignments	
Pin	Signal
1	VIN+
2	VIN+
3	VIN-
4	VIN-

2.3.3 USB

SIGM-2650 supports 2*USB3.0 (Type A); 1*USB2.0 (Type A); 1*USB2.0 (8-pin M12 A-code), These USB connectors support plug and play and hot plug capabilities. Interface comply with the USB UHCI version 3.0 and 2.0 protocols and can be disabled through the system BIOS Settings.These USB can be connected to any other device with a USB interface and are suitable for many new digital devices. Table 2.4 provides detailed description of pin assignment for USB3.0 Type A. Table 2.5 provides a detailed description of pin assignment for USB2.0 Type A. Table 2.6 provides a detailed description of pin assignment for USB2.0 M12 A-Code.
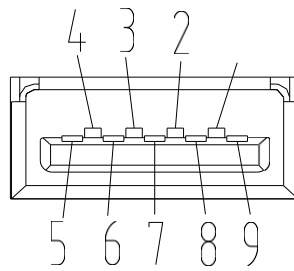
Picture 2.9: USB3.0 Type A

Table 2.4: USB3.0 Type A Connector Pin Assignments	
Pin	Signal
1	VBUS
2	D-
3	D+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND_DRAIN
8	StdA_SSTX-
9	StdA_SSTX+
Shell	Shield
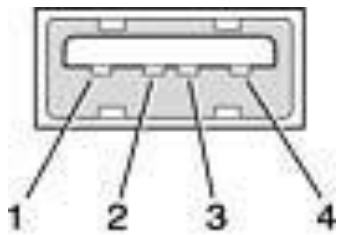
Picture 2.10: USB2.0 Type A

Table 2.5: USB3.0 Type A Connector Pin Assignments	
Pin	Signal
1	USB_VCC
2	USB_D-
3	USB_D+
4	USB_GND
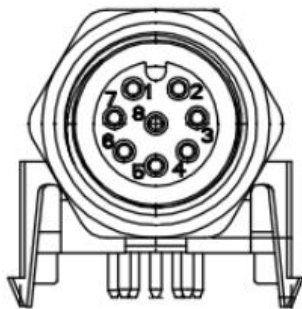
Picture 2.11: USB2.0 M12 A-Code

Table 2.6: USB2.0 M12 A-Code Connector Pin Assignments	
Pin	Signal
1	VBUS
2	DN1
3	DP1
4	GND
5	VBUS
6	DN2
7	DP2
8	GND

2.3.4 VGA

SIGM-2650 provides a standard VGA interface that supports up to a maximum resolution of 1920* 1200@60Hz. Detailed pin assignment is described in table 2.7.
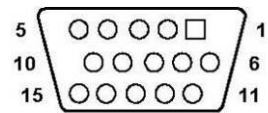
Picture 2.12: VGA

Table 2.6: VGA Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	SDA
5	GND	13	HS
6	GND	14	VS
7	GND	15	SCL
8	GND		

2.3.5 DP

The SIGM-2650 provides a high resolution DP interface that supports up to a maximum resolution of 4096* 2160@60Hz. Detailed pin assignment is described in table 2.7.
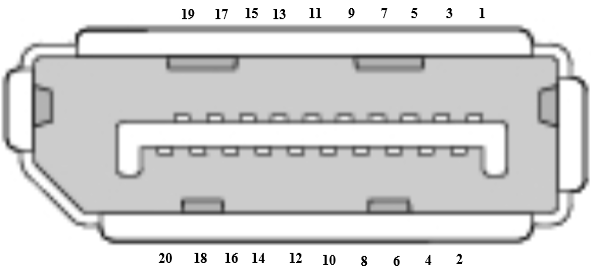
Picture 2.12: DP

Table 2.7: DP Connector Pin Assignments					
Pin	Signal	Pin	Signal	Pin	Signal

1	DATA0_P	8	GND	15	AUXP
2	GND	9	DATA2_N	16	GND
3	DATA0_N	10	DATA3_P	17	AUXN
4	DATA1_P	11	GND	18	HPD
5	GND	12	DATA3_N	19	GND
6	DATA1_N	13	CTRL	20	PWR
7	DATA2_P	14	GND		

2.3.6 Smart Display

The SIGM-2650 provides a Smart Display interface through a SCSI socket, supporting up to a maximum resolution of 1920* 1200@60 Hz. Detailed pin assignment is described in table 2.8.
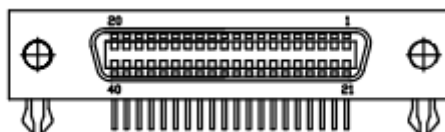
Picture 2.13: Smart Display

Table 2.8: Smart Display Connector Pin Assignments							
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	LVDS_CLKA_P	2	LVDS_CLKA_N	21	USB2_DN11	22	USB2_DP11
3	GND	4	GND	23	LVDS_VDD	24	LVDS_VDD
5	LVDS_DA_3P	6	LVDS_DA_3N	25	LVDS_VDD	26	GND
7	GND	8	GND	27	GND	28	LVDS_12V
9	LVDS_DA_2P	10	LVDS_DA_2N	29	LVDS_12V	30	LVDS_12V
11	GND	12	CTRL	31	RS232_RTS5	32	GND
13	LVDS_DA_1P	14	LVDS_DA_1N	33	RS232_TXD5	34	RS232_RXD5
15	GND	16	GND	35	RS232_TXD4	36	RS232_RXD4
17	LVDS_DA_0P	18	LVDS_DA_0N	37	SYS_RST#	38	PWRBTN#
19	PANEL_BLEN	20	PANEL_BLCTL	39	GND-AUD	40	LINE2_L_S

2.3.7 COM1/2

SIGM-2650 provides 2 COM1/2 isolated serial ports through the 2* d-sub 9-pin connector. COM1 can only be configured as RS485, COM2 can only be configured as RS232. Table 2.9 is a detailed description of pin assignment.
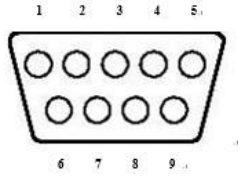
Picture 2.14: COM1/2

Table 2.9: COM1/2 Connector Pin Assignments		
Pin	RS-485 Signal	RS-232 Signal
1	RS485_D-	NC
2	RS485_D+	RS232_RX
3	NC	RS232_TX
4	NC	NC
5	GND	GND
6	NC	NC
7	NC	NC
8	NC	NC
9	NC	NC

2.3.8 Option CAN /AUDIO

SIGM-2650 provides 2* optional CAN/AUDIO port through 1* d-sub 9-pin connector. Table 2.10 provides detailed descriptions of pin assignments. (When selecting AUDIO, the signal definition can be customized according to the line.)
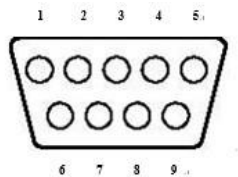
Picture 2.15: optional CAN/AUDIO

Table 2.10: Option CAN Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	NC	2	CAN1L
3	CAN1G	4	CAN2L
5	NC	6	NC
7	CAN1H	8	CAN2G

9	CAN2H		

2.3.9 DIO

SIGM-2650 provides 8-bit isolation DIO, 2.5KV photoelectric isolation input (H: 5-24V, L: 0-1.5V) and photoelectric isolation output (200Ma) through 1* d-sub 9-pin connector.
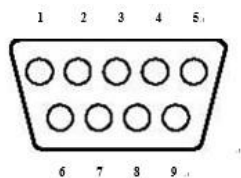
Picture 2.16: DIO

Table 2.11: DIO Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	DI0	6	DO0
2	DI1	7	DO1
3	DI2	8	DO2
4	DI3	9	DO3
5	GND		

2.3.10 Remote Switch

The remote switch signal interface for switching machine is a 2-pin terminal at the end of the sub-card coastline, pin definition is shown in table 2.12.
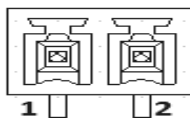
Picture 2.17: Remote Switch

Table 2.12: Remote Switch Connector Pin Assignments	
Pin	Signal
1	PWR_BTN
2	GND

2.3.11 Mini PCIe1/3

The SIGM-2650 mainboard (STX-I720) provides 2*Mini PCIe pin spacing 9.9mm interface (Mini PCIe1/3), with PCIe X1+USB signal, with dual SIM card slot, support for dual 4G LTE/Wifi/BT/GPS. The Mini PCIe 1/3 interface definition is shown in table 2.11.
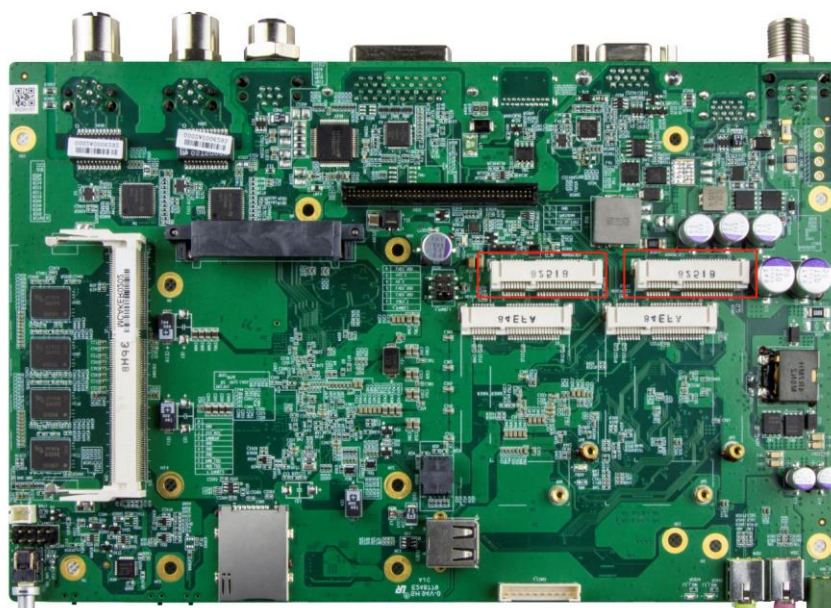
Picture 2.18: Mini PCIe1/3

Table 2.13: Mini PCIe 1/3 Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	PCIE_WAKE_N	2	V3P3_S
3	NC	4	GND
5	NC	6	V1P5_S
7	V3P3_S	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	SIM3_DISABLE
21	GND	22	PLTRST_N
23	NC	24	V3P3_S
25	NC	26	GND
27	GND	28	+V1.5
29	GND	30	SMB_SCL
31	NC	32	SMB_SDA
33	NC	34	GND
35	GND	36	USB2_DN9
37	GND	38	USB2_DP9
39	V3P3_S	40	GND

41	V3P3_S	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	V1P5_S
49	NC	50	GND
51	NC	52	V3P3_S

2.3.12 Mini PCIe2

The SIGM-2650 mainboard (STX-I720) also provides 1*Mini PCIe pin spacing 5.2mm interface (Mini PCIe2) with USB signal. When 2*CAN is selected, this Mini PCIe slot is occupied. Devices with USB signals can be extended, such as CAN Bus. The Mini PCIe2 interface definition is shown in table 2.14.
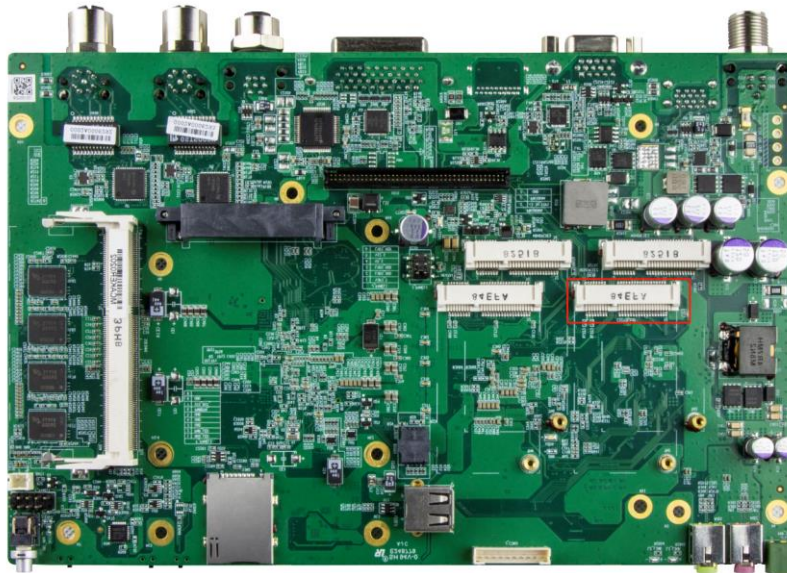
Picture 2.18: Mini PCIe2

Table 2.14: Mini PCIe2 Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	PCIE3_E2_WAKE	2	V3P3_S
3	NC	4	GND
5	NC	6	V1P5_S
7	V3P3_S	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC

17	NC	18	GND
19	NC	20	SIM3_DISANLE
21	GND	22	PLTRST_N
23	NC	24	V3P3_S
25	NC	26	GND
27	GND	28	V1P5_S
29	GND	30	SMB_SCL
31	NC	32	SMB_SDA
33	NC	34	GND
35	GND	36	USB2_DN9
37	GND	38	USB_DP9
39	V3P3_S	40	GND
41	V3P3_S	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	V1P5_S
49	NC	50	GND
51	NC	52	V3P3_S

2.3.13 mSATA

The SIGM-2650 mainboard (STX-I720) provides a standard mSATA interface with SATA+USB signal.
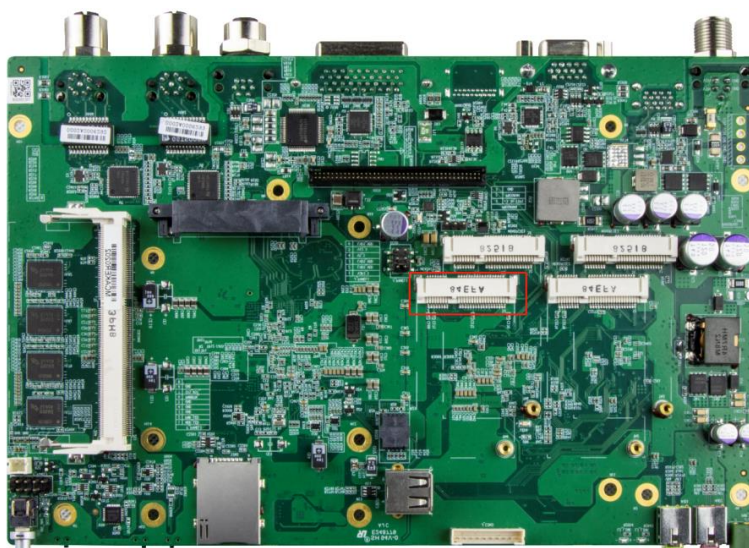
Picture 2.19: mSATA

2.3.14 LED

The SIGM-2650 panel has one power indicator, one hard disk indicator, three network connection status indicators, and three CPU operating temperature indicators. When the CPU operating temperature ≤85℃,

the green light; When the CPU temperature is between 86℃ and 95℃, the yellow light is on, and when the CPU operating temperature is ≥96℃, the red light is on. If you keep the CPU running at a red light, it will affect the life of the machine.

2.4 Installation

2.4.1 HDD/SSD installation

Step 1: unscrew the 2 screws on the HDD/SSD bracket of the rear panel.

Step 2: remove the HDD/SSD stent.

Step 3: load the HDD/SSD into the bracket and tighten the 4 screws on the left and right sides to fix the HDD/SSD.

Step 4: push the bracket with HDD/SSD into the slot and tighten the 2 screws on the bracket.

Picture 2.20: HDD/SSD installation（1）

Picture 2.21: HDD/SSD installation（2）

Picture 2.22: HDD/SSD installation（3）

Picture 2.23: HDD/SSD installation（4）

2.4.2 SIM1/SIM2 installation

Step 1: unscrew the 2 screws of the rear panel SIM1/SIM2 and remove the SIM1/SIM2 baffle

Step 2: push the SIM card into the corresponding SIM card slot

Step 3: fix the SIM1/SIM2 baffle with 2 screws

Picture 2.24: SIM1/SIM2 installation（1）

Picture 2.25: SIM1/SIM2 installation（2）

2.4.3 mSATA installation

Step 1: unscrew the 2 screws on the HDD/SSD bracket in the back panel, and remove the HDD/SSD bracket

Step 2: unscrew the 6 screws on the bottom cover and remove the mounting bracket and bottom cover

Step 2: unscrew 12 screws on left and right sides and back panel

Step 3: remove the back panel cover, insert the mSATA module, and screw

Step 5: complete the installation of the panel cover and bottom cover with the reverse step

Picture 2.26: mSATA installation（1）
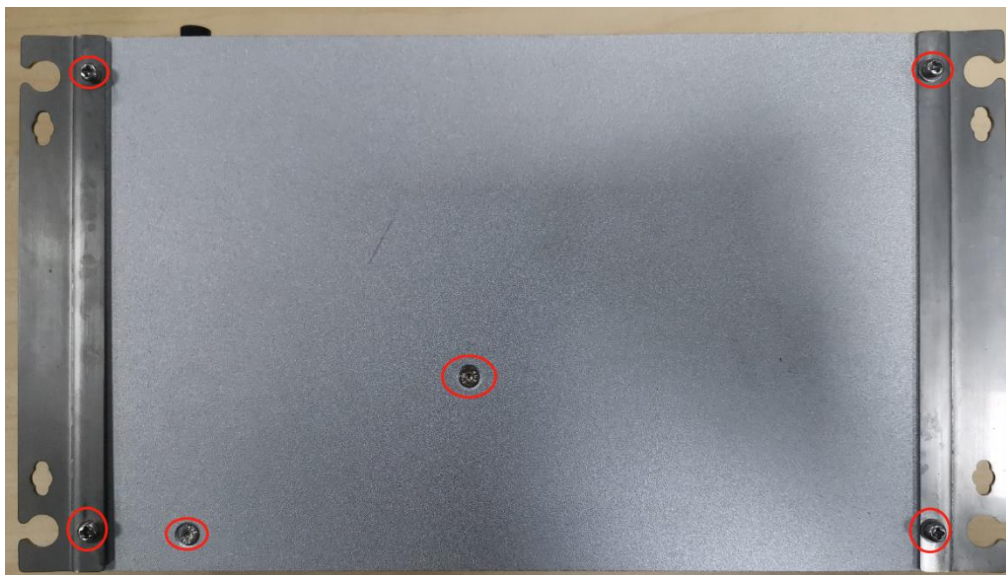
Picture 2.27: mSATA installation（2）
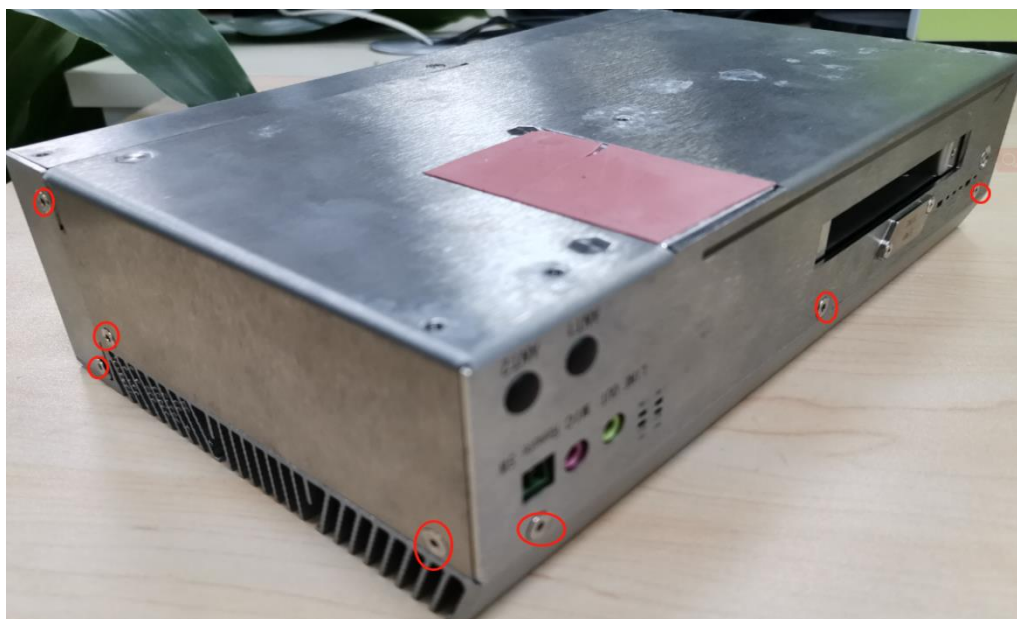
Picture 2.28: mSATA installation（3）

Picture 2.29: mSATA installation（4）

2.4.4 Mini PCIe installation

Step 1: it is consistent with mSATA module installation steps. For details, please refer to "2.4.3 mSATA installation".

Picture 2.30: Mini PCIe installation（1）

CHAPTER

3

BIOS Setup

3.1 BIOS Description

BIOS is the communication bridge between hardware and software. How to correctly set the BIOS parameters is crucial for the system to work stably and whether the system works at its best.

This chapter describes how to change the system settings through the BIOS settings.

Note: For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS.

You need to make SETUP settings as follows:

1. An error message appears on the screen during the system self-test and asks for the SETUP setting.

2. You want to change the factory default settings based on customer characteristics.

(But in general, customers are not recommended to set it up. In most cases, using the default value is already the best setting.)

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

3.1.1 Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self-Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, Press the "**DEL**" key to enter BIOS Setup Utility.

```
              Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

   BIOS Information                                        ▲ Choose the system default
   BIOS Vendor                     American Megatrends       language
   Core Version                    5.12
   Compliancy                      UEFI 2.5; PI 1.4
   Project Name                    V720S 0.06 x64
   Build Date and Time             12/11/2019 10:59:56
   Access Level                    Administrator

   Platform firmware Information
   BXT SOC                         B1
   MRC Version                     0.56
   PUNIT FW                        2E
   PMC FW                          03.28
   TXE FW                          3.0.20.1139            →←: Select Screen
   GOP                             0.0.0036               ↑↓: Select Item
   CPU Flavor                      BXT Notebook/Desktop ... Enter: Select
   Board ID                        Oxbow Hill CRB (06)    +/-: Change Opt.
   Fab ID                          FAB A                  F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
   Memory Information                                     F4: Save & Exit
   Total Memory                    4096 MB                ESC: Exit

   System Language                 [English]            ▼

              Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

3.2 BIOS parameter settings

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

3.2.1 BIOS Navigation Keys

Enter the SETUP settings interface, The BIOS navigation keys are listed below:

Table 3.1: The BIOS navigation keys	
KEY	**FUNCTION**
ESC	Exit the current menu
↑↓→←	Scrolls through the items on a menu
+/-	Change Opt.
Enter	Select
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit

3.2.2 Main Menu

When you enter the BIOS Setup program, the main menu appears, giving you an overview of the basic system information. Select an item and press <Enter> to display the submenu. Press <Esc> to back to the main menu.

The BIOS setup program provides a help screen. You can call up this help screen from any menu by simply pressing the <F1> key. This help screen lists the corresponding keys and possible selections. Press <Esc> to exit the help screen.

JHCTECH

```
              Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit
 ┌─────────────────────────────────────────────────────┬──────────────────────────┐
 │ BIOS Information                                    ▲│Choose the system default │
 │ BIOS Vendor              American Megatrends         │language                  │
 │ Core Version             5.12                        │                          │
 │ Compliancy               UEFI 2.5; PI 1.4            │                          │
 │ Project Name             V720S 0.06 x64              │                          │
 │ Build Date and Time      12/11/2019 10:59:56         │                          │
 │ Access Level             Administrator               │                          │
 │                                                      │                          │
 │ Platform firmware Information                        │                          │
 │ BXT SOC                  B1                          │                          │
 │ MRC Version              0.56                        │                          │
 │ PUNIT FW                 2E                          │                          │
 │ PMC FW                   03.28                       │──────────────────────────│
 │ TXE FW                   3.0.20.1139                 │→←: Select Screen         │
 │ GOP                      0.0.0036                    │↑↓: Select Item           │
 │ CPU Flavor               BXT Notebook/Desktop ...    │Enter: Select             │
 │ Board ID                 Oxbow Hill CRB (06)         │+/-: Change Opt.          │
 │ Fab ID                   FAB A                       │F1: General Help          │
 │                                                      │F2: Previous Values       │
 │                                                      │F3: Optimized Defaults    │
 │ Memory Information                                   │F4: Save & Exit           │
 │ Total Memory             4096 MB                     │ESC: Exit                 │
 │                                                      │                          │
 │ System Language          [English]                 ▼│                          │
 └─────────────────────────────────────────────────────┴──────────────────────────┘
              Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

```
                 Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

    Core Version                     5.12                  ▲ Set the Time. Use Tab to
    Compliancy                       UEFI 2.5; PI 1.4      ▓ switch between Time elements.
    Project Name                     V720S 0.06 x64
    Build Date and Time              12/11/2019 10:59:56
    Access Level                     Administrator

    Platform firmware Information
    BXT SOC                          B1
    MRC Version                      0.56
    PUNIT FW                         2E
    PMC FW                           03.28
    TXE FW                           3.0.20.1139
    GOP                              0.0.0036
    CPU Flavor                       BXT Notebook/Desktop ...  →←: Select Screen
    Board ID                         Oxbow Hill CRB (06)       ↑↓: Select Item
    Fab ID                           FAB A                     Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
    Memory Information                                         F2: Previous Values
    Total Memory                     4096 MB                   F3: Optimized Defaults
                                                               F4: Save & Exit
    System Language                  [English]                 ESC: Exit

    System Date                      [Sat 06/13/2020]
    System Time                      [16:02:10]             ▼

                 Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Vendor (American Megatrends)

This item shows the information of the BIOS vendor.

Core Version (5.13)

This item shows the information of the Core Version.

Project Version (V720S 0.06 X64)

This item shows the information of the motherboard Version.

Build Date and Time

This item shows the information of the BIOS build date and time

Processor Information

This item shows the basic information about the currently used processor, including name, type, speed.

IGFX VBIOS Version

This item shows the Current VBIOS version of the CPU integrated graphics.

Total Memory

This item shows the total memory size of the current motherboard.

Memory Frequency

This item shows the current memory operating frequency.

PCH Information

This item shows the basic information about PCH, including name, PCH SKU, etc.

System Language

Set the language interface of the BIOS.

System Date

Set the date. The format of the date is <week><month><day><year>.

System Time

Set the time. The format of the time is <hour><minute><second>.

3.2.3 Advanced Menu

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

```
        Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

  ▶ Trusted Computing                                Trusted Computing Settings
  ▶ ACPI Settings
  ▶ Serial Port Mode Setting
  ▶ IT8786 Super IO Configuration
  ▶ CPU Configuration
  ▶ CSM Configuration




                                                   ↔: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit




        Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**CPU Configuration**

The configuration of the central processor, enter this sub-menu, there will be detailed details of the CPU, as well as various settings of the CPU.

```
            Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
       Advanced

  CPU Configuration                                          Socket specific CPU Information

▶ Socket 0 CPU Information

  Speed                            1600 MHz
  64-bit                           Supported

▶ CPU Power Management
  Active Processor Cores           [Disabled]
  Intel Virtualization Technology  [Enabled]
  VT-d                             [Disabled]
  Bi-directional PROCHOT           [Enabled]
  Thermal Monitor                  [Enabled]
  Monitor Mwait                    [Disabled]
  P-STATE Coordination             [HW_ALL]
  DTS                              [Disabled]
                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




            Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**Power & Performance**

This item in the menu shows how to set the Power Management Control of CPU and GT.

```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
        Advanced

  CPU Configuration                                          CPU Power Management options

▶ Socket 0 CPU Information

  Speed                                1600 MHz
  64-bit                               Supported

▶ CPU Power Management
  Active Processor Cores               [Disabled]
  Intel Virtualization Technology      [Enabled]
  VT-d                                 [Disabled]
  Bi-directional PROCHOT               [Enabled]
  Thermal Monitor                      [Enabled]
  Monitor Mwait                        [Disabled]
  P-STATE Coordination                 [HW_ALL]
  DTS                                  [Disabled]
                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




                Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
        Advanced

CPU Power Management Configuration                            Select the performance state
EIST                              [Enabled]                   that the BIOS will set before
Turbo Mode                        [Enabled]                   OS handoff.
Boot performance mode             [Max Performance]
Power Limit 1 Enable              [Disabled]




                            ┌──── Boot performance mode ────┐
                            │ Max Performance               │
                            │ Max Battery                   │
                            └───────────────────────────────┘
                                                              →: Select Screen
                                                              ↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit




                Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**Trusted Computing**

Trusted computing, enter this sub-menu, there will be the setting of the encryption security module (the motherboard will install the encryption module hardware will take effect)

```
            Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
     Advanced

  TPM20 Device Found                                    Enables or Disables BIOS
  Vendor: INTC                                          support for security device.
  Firmware Version: 3.0                                 O.S. will not show Security
                                                        Device. TCG EFI protocol and
  Security Device Support          [Enable]             INT1A interface will not be
  Active PCR banks                 SHA-1,SHA256         available.
  Available PCR banks              SHA-1,SHA256

  SHA-1 PCR Bank                   [Enabled]
  SHA256 PCR Bank                  [Enabled]

  Pending operation                [None]
  Platform Hierarchy               [Enabled]            →←: Select Screen
  Storage Hierarchy                [Enabled]            ↑↓: Select Item
  Endorsement Hierarchy            [Enabled]            Enter: Select
  TPM2.0 UEFI Spec Version         [TCG_2]              +/-: Change Opt.
  Physical Presence Spec Version   [1.3]                F1: General Help
  TPM 20 InterfaceType             [CRB]                F2: Previous Values
  Device Select                    [Auto]               F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit


            Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**ACPI Settings**

Advanced configuration and power management interface settings, enter this submenu, there will be ACPI related settings.

```
                    Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
         Advanced

  ACPI Settings                                                          Enables or Disables BIOS ACPI
                                                                         Auto Configuration.
  Enable ACPI Auto Configuration        [Disabled]

  Enable Hibernation                    [Enabled]
  ACPI Sleep State                      [S3 (Suspend to RAM)]
  Lock Legacy Resources                 [Disabled]


                          ┌──── Enable ACPI Auto Configuration ────┐
                          │ Disabled                               │
                          │ Enabled                                │
                          │                                        │
                          └────────────────────────────────────────┘
                                                              elect Screen
                                                              elect Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




                    Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

ACPI Sleep State (S3 (Suspend to RAM))

This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State (default).

Press <Esc> to return to the Advanced Menu page.

```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
        Advanced

  ACPI Settings                                               Select the highest ACPI sleep
                                                              state the system will enter
  Enable ACPI Auto Configuration    [Disabled]                when the SUSPEND button is
                                                              pressed.
  Enable Hibernation                [Enabled]
  ACPI Sleep State                  [S3 (Suspend to RAM)]
  Lock Legacy Resources             [Disabled]


                          ┌──── ACPI Sleep State ────┐
                          │ Suspend Disabled         │
                          │ S3 (Suspend to RAM)      │
                          └──────────────────────────┘
                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit



                Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**SIO Configuration setting**

Super IO Configuration settings, enter this sub-menu, there will be set COM working mode or disabled the

Serial port function. COM1 can be set as RS485. COM2 can be RS232.

```
                 Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
        Advanced

   IT8786 Super IO Configuration                                    Set Parameters of Serial Port
                                                                    1 (COMA)
   Super IO Chip                          IT8786
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration
 ▶ Serial Port 5 Configuration



                                                                    ↔: Select Screen
                                                                    ↑↓: Select Item
                                                                    Enter: Select
                                                                    +/-: Change Opt.
                                                                    F1: General Help
                                                                    F2: Previous Values
                                                                    F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit




                 Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**CSM Configuration**

CSM (Compatibility Support Module) configuration, enter this sub-menu, there will be various settings to support UEFI startup and non-UEFI startup. If you need to start the traditional MBR device, you need to enable CSM. Turning off the CSM turns it into a pure UEFI boot.

```
                    Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
        Advanced

Compatibility Support Module Configuration              Enable/Disable CSM Support.

CSM Support                    [Enabled]

CSM16 Module Version           07.79

GateA20 Active                 [Upon Request]
Option ROM Messages            [Force BIOS]
INT19 Trap Response            [Immediate]

Boot option filter             [UEFI and Legacy]

Option ROM execution
                                                       →←: Select Screen
Network                        [Do not launch]         ↑↓: Select Item
Storage                        [Do not launch]         Enter: Select
Video                          [Legacy]                 +/-: Change Opt.
Other PCI devices              [Do not launch]         F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




                    Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
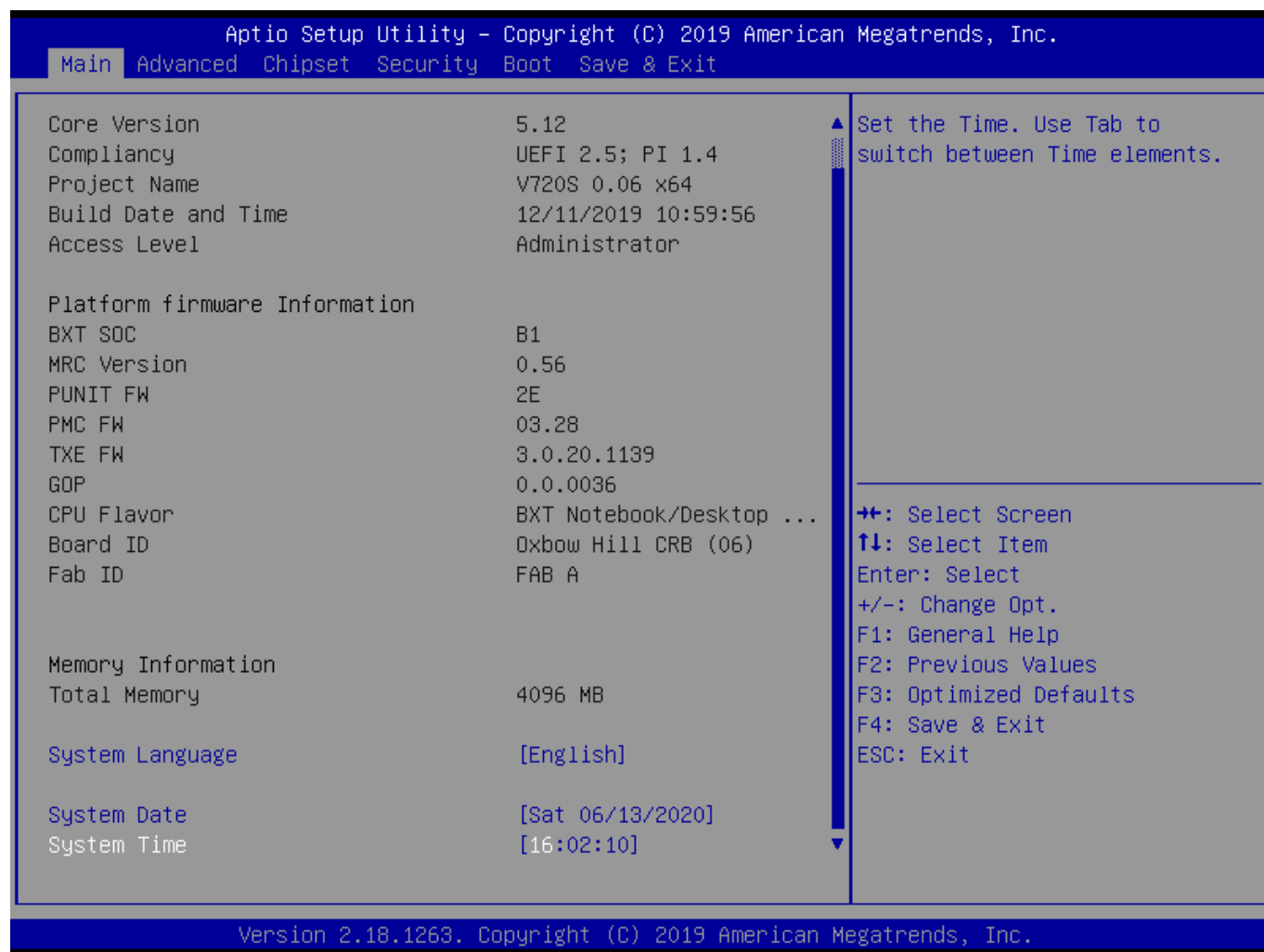
CSM Support

Compatibility Support Module, which is a compatibility module, is a special module of UEFI and provides compatibility support for system that do not support UEFI.

GateA20 Active

This item indicates whether to disable GA20 through the BIOS server or keep the activation status all the time.

Option ROM Messages

This item shows the display mode of option ROM Message.

Boot option filter

This item indicates the boot priority of controlling EFI or Legacy option ROM.

Network

This item is used to set the EFI network card Option ROM boot or the traditional network card Option ROM boot or priority boot.

Storage

This item is used to set the EFI storage Option ROM boot or the traditional storage Option ROM boot.

Video

This item is used to set EFI display Option ROM startup or traditional display Option ROM startup.

Other PCI devices

This item is used to set the EFI PCI device Option ROM boot or the traditional PCI device Option ROM boot.

3.2.4 Chipset Menu

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.

```
          Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

  ▶ North Bridge                                      North Bridge Parameters
  ▶ South Bridge
  ▶ South Cluster Configuration




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit




          Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

▶**LCD Control**

```
Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
 Chipset

▶ LCD Control                                         LCD Control

  Memory Information

  Total Memory                    4096 MB (LPDDR3)

  Memory Slot0                    Not Present
  Memory Slot1                    4096 MB (LPDDR3)
  Memory Slot2                    Not Present
  Memory Slot3                    Not Present

  Max TOLUD                       [2 GB]
  Above 4GB MMIO BIOS assignment  [Disabled]
  PCIE VGA Workaround             [Disabled]
                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

          Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
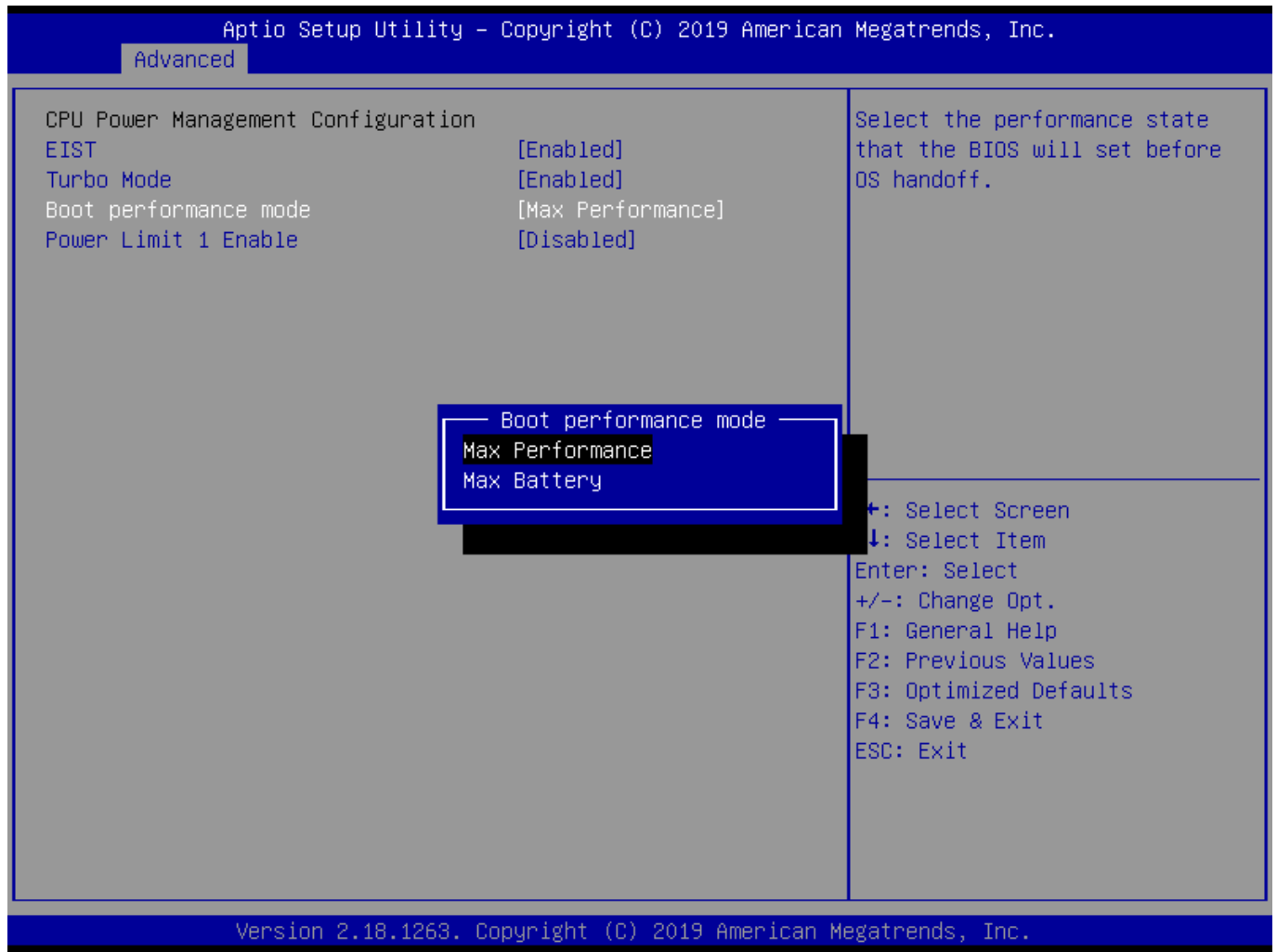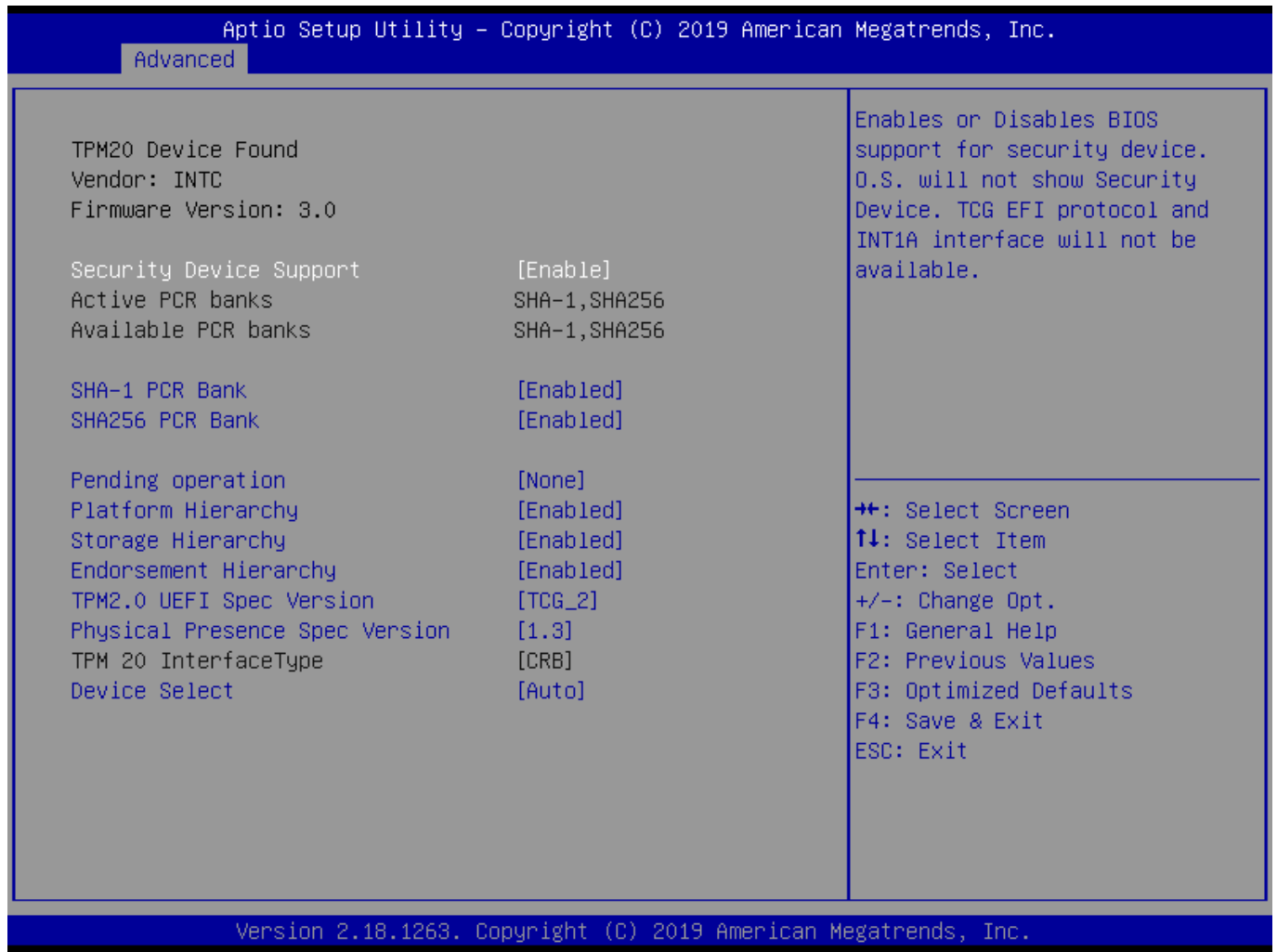
PCH-IO Configuration (South Bridge Configuration)

▶**PCI Express Configuration**

```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
                    Chipset

   PCI Express Configuration                                    PCI Express Clock Gating
   PCI Express Clock Gating             [Enabled]               Enable/Disable for each root
   PCIE Port assigned to LAN            5                       port.
   Port8xh Decode                       [Disabled]
   Peer Memory Write Enable             [Disabled]
   Compliance Mode                      [Disabled]
 ▶ PCI Express Root Port 1
 ▶ PCI Express Root Port 2
 ▶ PCI Express Root Port 3
 ▶ PCI Express Root Port 4
 ▶ PCI Express Root Port 5
 ▶ PCI Express Root Port 6

                                                               ➜←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4: Save & Exit
                                                               ESC: Exit



                Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
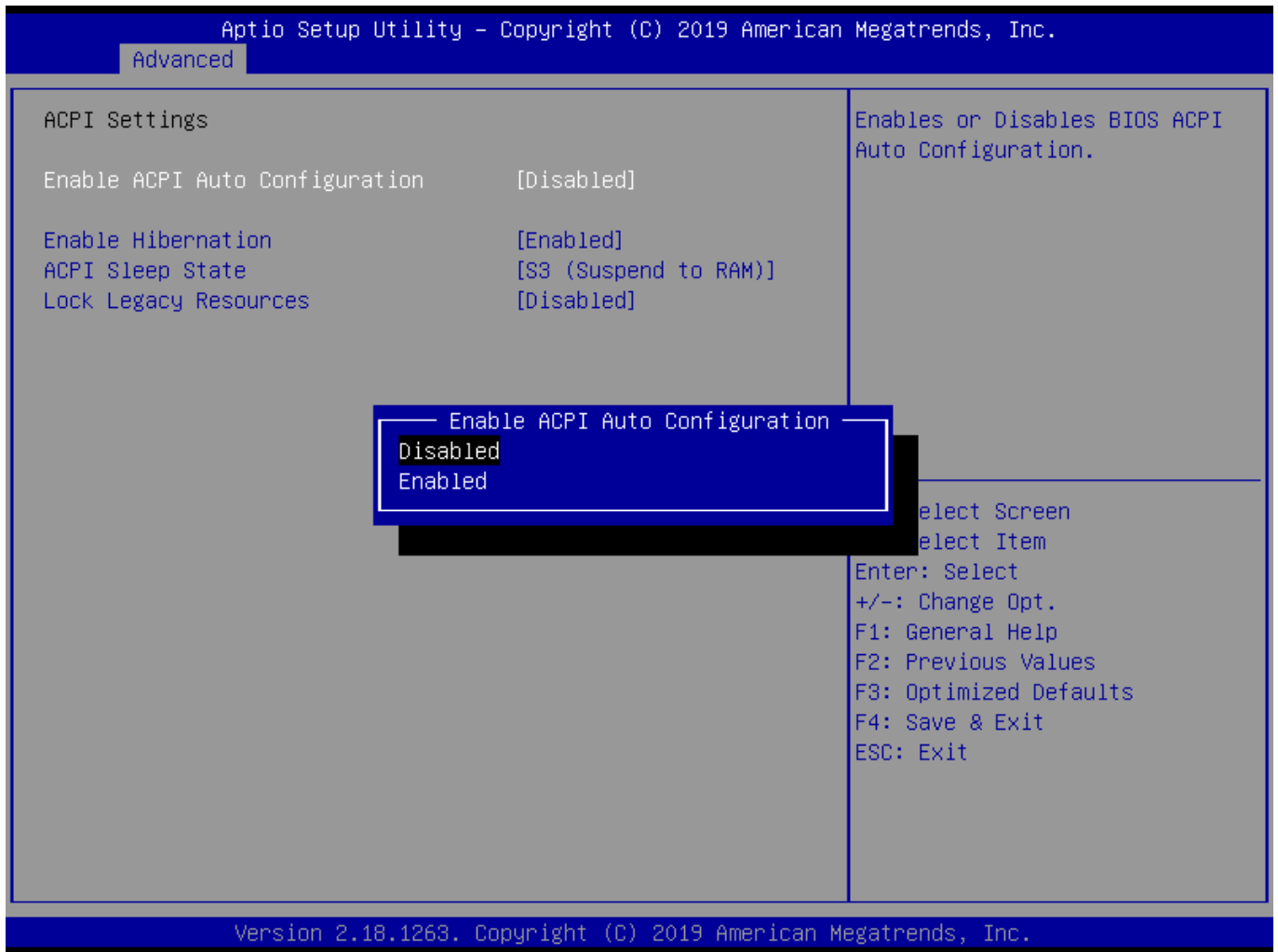
▶**SATA And RST Configuration**

SATA hard disk and fast storage configuration, enter this sub-menu, there will be related settings of the hard disk.

```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
                    Chipset

  SATA Drives                                                      ▲  Enables or Disables the
                                                                      Chipset SATA Controller.  The
  Chipset-SATA Controller Configuration                               Chipset SATA controller
   Chipset SATA                          [Enable]                     supports the 2 black internal
  SATA Mode Selection                    [AHCI]                       SATA ports (up to 3Gb/s
  SATA Test Mode                         [Disabled]                   supported per port).
  Aggressive LPM Support                 [Enabled]

   SATA Port 0                           [Not Installed]
   Software Preserve                     Unknown
   Port 0                                [Enabled]
   SATA Port 0 Hot Plug Capability       [Disabled]
   Configured as eSATA                   Hot Plug supported
   Mechanical Presence Switch            [Enabled]              ➜←: Select Screen
   Spin Up Device                        [Disabled]            ↑↓: Select Item
   SATA Device Type                      [Hard Disk Drive]     Enter: Select
   SATA Port 0 DevSlp                    [Disabled]            +/-: Change Opt.
   DITO Configuration                    [Disabled]            F1: General Help
   DITO Value                            625                   F2: Previous Values
   DM Value                              15                    F3: Optimized Defaults
                                                               F4: Save & Exit
   SATA Port 1                           [Not Installed]       ESC: Exit
   Software Preserve                     Unknown
   Port 1                                [Enabled]
   SATA Port 1 Hot Plug Capability       [Disabled]         ▼

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```

▶**USB Configuration**

```
              Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
              Chipset

                                                                    Options to disable XHCI Link
  XHCI Pre-Boot Driver              [Disable]                       Compliance Mode. Default is
  xHCI Mode                         [Enable]                        FALSE to not disable
                                                                    Compliance Mode. Set TRUE to
  USB VBUS                          [ON]                            disable Compliance Mode.
  USB HSIC1 Support                 [Disable]
  USB SSIC1 Support                 [Disable]

  USB Port Disable Override         [Disable]
  XDCI Support                      [Disable]
  XHCI Disable Compliance Mod ┌──── XHCI Disable Compliance Mode ────┐
  USB HW MODE AFE Comparators  │  FALSE                              │
                               │  TRUE                               │
                               └─────────────────────────────────────┘
                                                                    Select Screen
                                                                    Select Item
                                                                    Enter: Select
                                                                    +/-: Change Opt.
                                                                    F1: General Help
                                                                    F2: Previous Values
                                                                    F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit



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```

3.2.5 Security menu

```
              Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

  Password Description                                       Set Setup Administrator
                                                             Password
  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:
  Minimum length                        1
  Maximum length                        20
                                                            →←: Select Screen
                                                            ↑↓: Select Item
  Setup Administrator Password                              Enter: Select
  User Password                                             +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit



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```
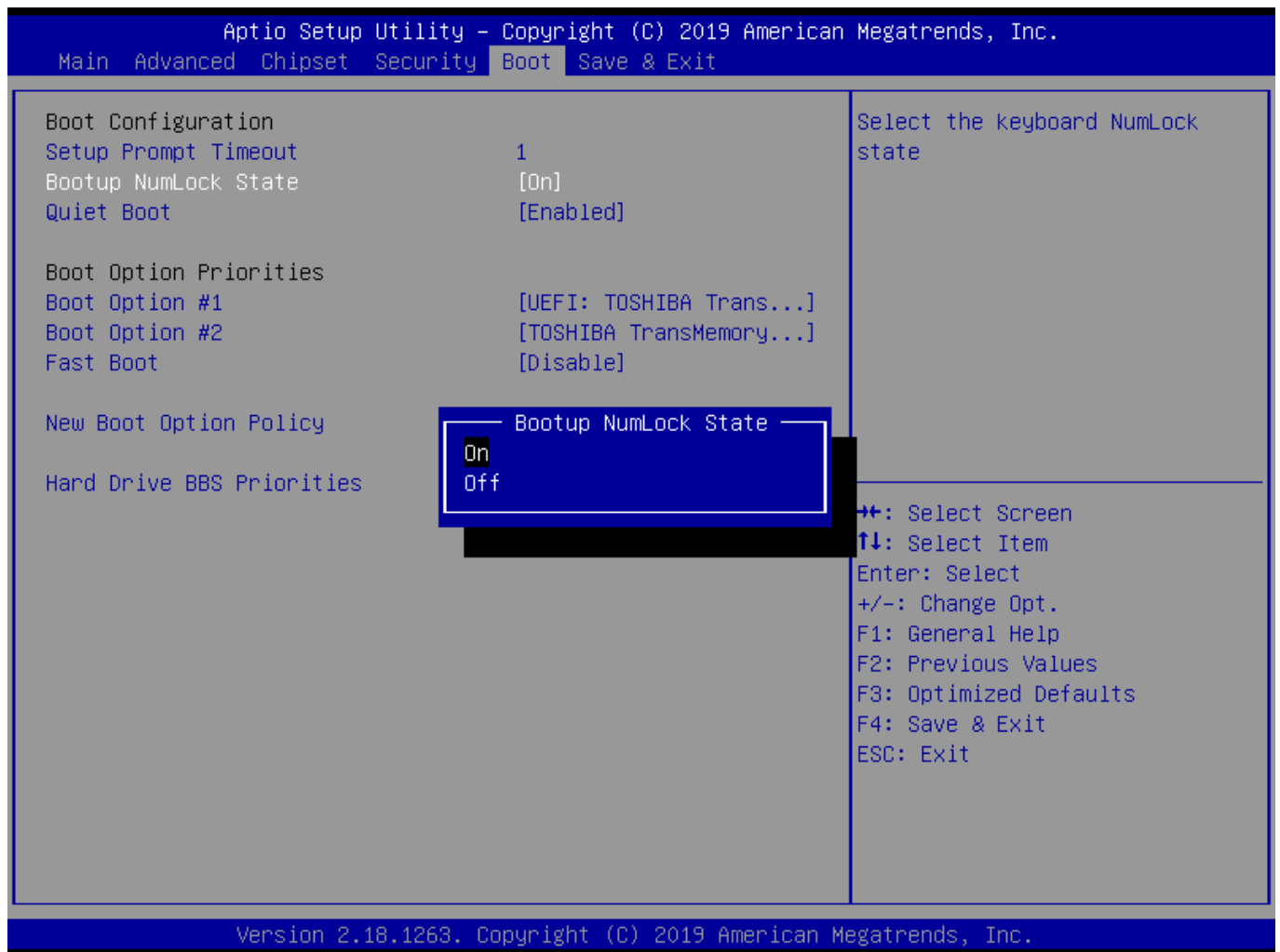
Administrator Password

This item sets the information of the administrator password.

User Password

This item sets the information of the normal user password.

3.2.6 Boot menu

```
          Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

  Boot Configuration                                   Select the keyboard NumLock
  Setup Prompt Timeout            1                    state
  Bootup NumLock State            [On]
  Quiet Boot                      [Enabled]

  Boot Option Priorities
  Boot Option #1                  [UEFI: TOSHIBA Trans...]
  Boot Option #2                  [TOSHIBA TransMemory...]
  Fast Boot                       [Disable]

  New Boot Option Policy      ┌─── Bootup NumLock State ───┐
                              │ On                         │
  Hard Drive BBS Priorities   │ Off                        │
                              └────────────────────────────┘
                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit



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```

Setup Prompt Timeout

Setup prompts for waiting time. This option is to set the time to wait for the Del key to enter the BIOS setup after booting.

Bootup NumLock State
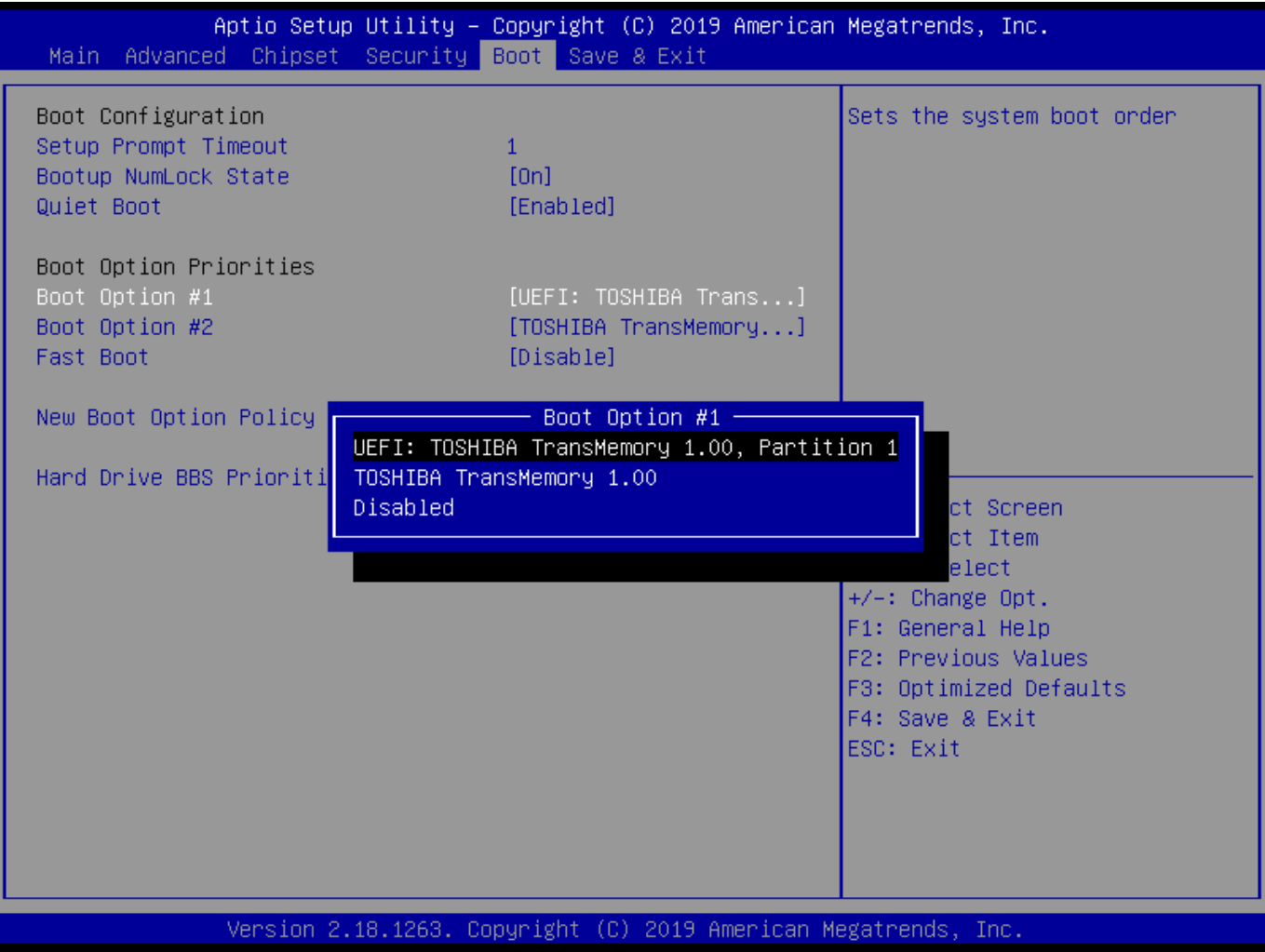
Set the state of the small numeric keypad at startup.
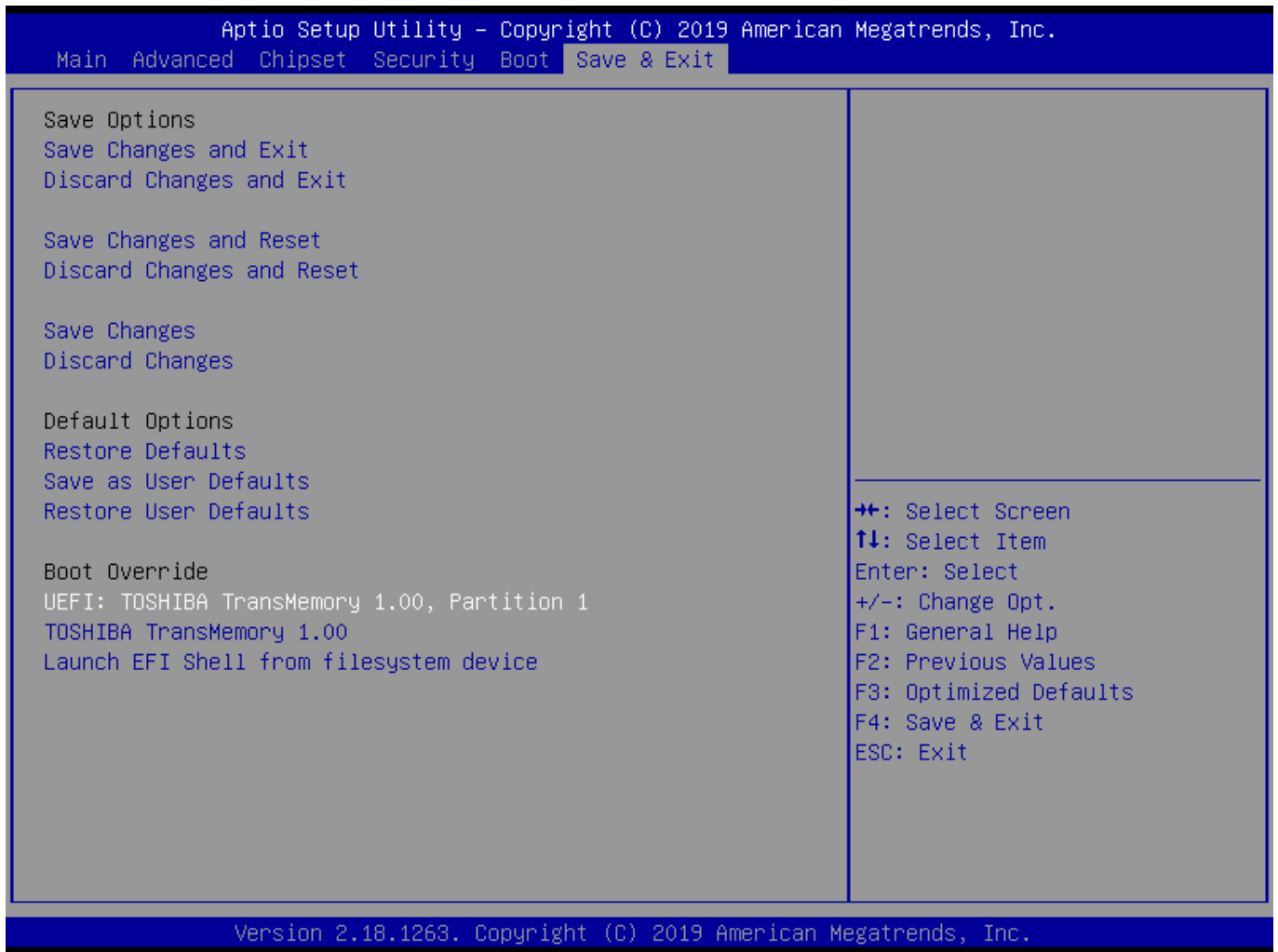
Quiet Boot

Switch full screen logo control

Fast Boot

Turn the quick start function on or off. When set to "Enabled", the system will skip some detection items and reduce the startup time.

New Boot Option Policy

```
               Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
    Main   Advanced   Chipset   Security  Boot  Save & Exit

   Boot Configuration                                       Sets the system boot order
    Setup Prompt Timeout              1
    Bootup NumLock State              [On]
    Quiet Boot                        [Enabled]

   Boot Option Priorities
    Boot Option #1                         [UEFI: TOSHIBA Trans...]
    Boot Option #2                         [TOSHIBA TransMemory...]
    Fast Boot                              [Disable]

    New Boot Option Policy  ┌──────── Boot Option #1 ────────┐
                            │ UEFI: TOSHIBA TransMemory 1.00, Partition 1 │
    Hard Drive BBS Prioriti │ TOSHIBA TransMemory 1.00        │
                            │ Disabled                        │ct Screen
                            └─────────────────────────────────┘ct Item
                                                                elect
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




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```

3.2.7 Save & Exit menu

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```
                Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
       Main  Advanced  Chipset  Security  Boot  Save & Exit

      Save Options
      Save Changes and Exit
      Discard Changes and Exit

      Save Changes and Reset
      Discard Changes and Reset

      Save Changes
      Discard Changes

      Default Options
      Restore Defaults
      Save as User Defaults                              ──────────────────────
      Restore User Defaults                              ++: Select Screen
                                                         ↑↓: Select Item
      Boot Override                                      Enter: Select
      UEFI: TOSHIBA TransMemory 1.00, Partition 1        +/-: Change Opt.
      TOSHIBA TransMemory 1.00                           F1: General Help
      Launch EFI Shell from filesystem device            F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

Save changes and Exit;

This item enables you to save the changes that you have made and exit.

Discard Changes and Exit;

This item enables you to discard the changes that you have made and exit.

Save Changes and Reset;

This item enables you to save the changes that you have made and reset.

Discard Changes and Reset;

This item enables you to discard the changes that you have made and reset.

Save Changes;

This item enables you to save the changes that you have made.

Discard Changes;

This item enables you to discard the changes that you have made.

Restore Defaults;

This item enables you to restore the system defaults.

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Save as User Defaults;

This item enables you to save the changes as user defaults that you have made.

Restore User Defaults;

This item enables you to restore the user defaults.

3.3 Updating the BIOS

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS provides the underlying driver for hardware resources and is the bridge between hardware and operating system. Now hardware and various applications are constantly updated. When your system encounters problems, such as the system does not support the latest published CPU, you need to upgrade your BIOS.

NOTE：

1. Only upgrade the BIOS if you encounter problems and need to.

2. To upgrade the BIOS, please use the BIOS read/write program attached to our driver CD or download the updated version of the program from the relevant website.

3. Do not turn off the power or reboot the system during the upgrade process, so your BIOS data will be damaged and the system may not boot.

4. After the refresh is complete, you need to manually optimize the LOAD Default.

5. To prevent accidents, please backup the current BIOS data first.

CHAPTER

4

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Driver Installation

The SIGM-2650 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

4.1 Follow the sequence below to install the drivers:

Audio	2020/4/28 15:31	文件夹
chipset	2020/4/28 15:31	文件夹
VGA	2020/4/28 15:31	文件夹
ME	2020/4/28 15:32	文件夹
LAN	2020/6/24 9:09	文件夹

Figure 5.1 win10 drivers

Step 1 – Install Audio Driver

Step 2 – Install Chipset Driver

Step 3 – Install VGA Driver

Step 4 – Install LAN Driver

Step 5 – Install ME Driver

Please read instructions below for further detailed installations.

4.2 Installation:

Insert the SIGM-2650 CD-ROM into the CD-ROM drive. And install the drivers in turn.

Step 1 – Install VGA Driver

1. Double click on the VGA folder and double click on the Setup.exe

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 2 – Install Audio Driver

1. Double click on the Audio folder and double click on the Setup.exe

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 3 –Install LAN Driver

1. Double click on the LAN folder and double click on the Setup.exe

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 4 –Install Chipset Driver

    1. Double click on the Chipset folder and double click on the Setup.exe

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 5 –Install ME Driver

    1. Double click on the ME folder and double click on the Setup.exe

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

4.3 CPU TEMP LED driver

The SIGM-2650 provides temperature showing in LEDs, economic and reliable. Users can monitor the working state of the CPU according to the display of the LED. Please perform the following operations, making LEDs work normally.

    Find the CPU temperature test tool folder and open it, as shown below;

    Run the exe application；

NOTE: Please add the exe application to the startup item to ensure that the program can run when power on.

名称 ^	修改日期
952_GPIO.exe	2020/6/2
jhctech.dll	2020/5/18
jhctech.exp	2020/5/18
jhctech.lib	2020/5/18
WinRing0x64.dll	2016/10/2
WinRing0x64.sys	2016/10/2

Figure 5.3

4.4 Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license. These software(s) are subject to change at any time without prior notice. Please refer to the support disk for available software.

JHCTECH

CHAPTER

5

62

SYSTEM RESOURCE

5.1 WDT and GPIO

/* ==

1   * void jhctech_init();

2   * function description: library initialization, This function must be called before calling other functions

3   * parameter description：

4   * creation date：

5*==*/

/* ==

1   * void jhctech_init();

2   * function description: library release, Pair with jhctech_init, release the library's occupied resources when not needed

3   * parameter description：

4   * creation date：

5* ==*/

/*==

1   * voidSecond_gpio_mode(int port,int mode);

2   *function description:Subcard input and output mode settings

3   *parameter description:

Parameter:port fill in subcard GPIO number, 1or 2

Mode 8 bit of a bit, each bit controls the input and output mode of a GPIO pin,

Bit=1,the corresponding pin is used as the input port.

Bit =0, the corresponding pin is used as an output port.

Note: output

Mode	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1

The value is

valid only when the pinis in output mode.

4*creation date：

5*==*/

/*==

2* voidSecond_gpio_output(int port,int level);

2* function description： high and low levelsoutput of thesubcard

3*parameter description:

Parameter:port fill in subcard GPIO number, 1 or 2

Level 8 bit of aByte, each bit controls a GPIO pin output value,

Bit=1, means output high level

Bit =0, means output low level

Level	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1

Note: The output value is valid only whenthe pin is in output mode.

4*creation date：

5*===*/

/*===

1* intSecond_gpio_input(int port);

2   * function description： read the motherboard GPIO input level

3   * parameter description：

Return value： return a byte (8 bit), eachbit of 8 bit corresponding to the level state of a GPIO pin

Return value	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO pin	PIN8	PIN7	PIN6	PIN5	PIN4	PIN3	PIN2	PIN1

parameter： port fill in subcard GPIO number, 1 or 2

Note:Thereadvalue is valid only when the pin is ininput mode

4*creation date：

5*===*/

Note: If you want more programs of the motherboard's watchdog and subcard's GPIO, please call +86-0755-86021176-(8021)/+86-0755-86021176-(8023) for more information.