Product Manuals

QS-Q670-NAS(R100)
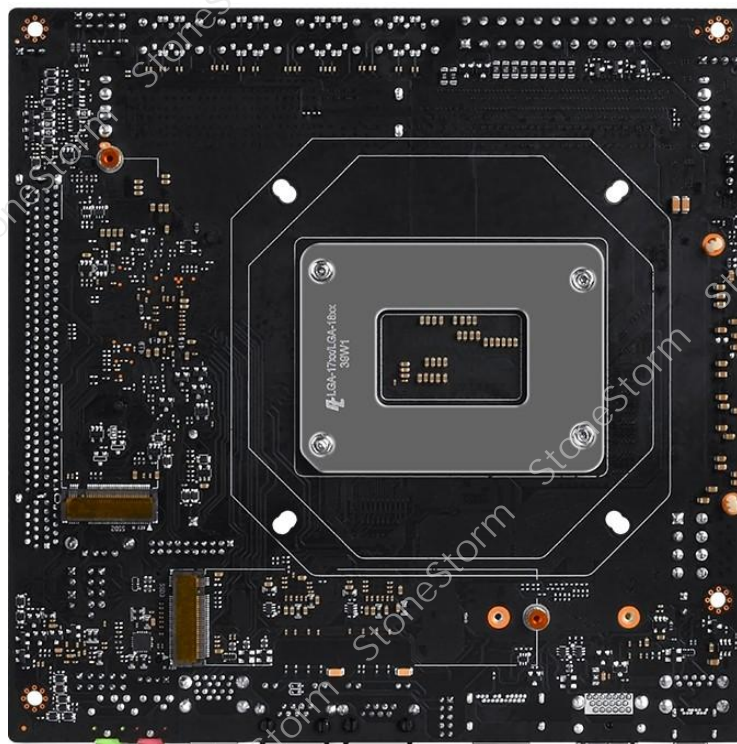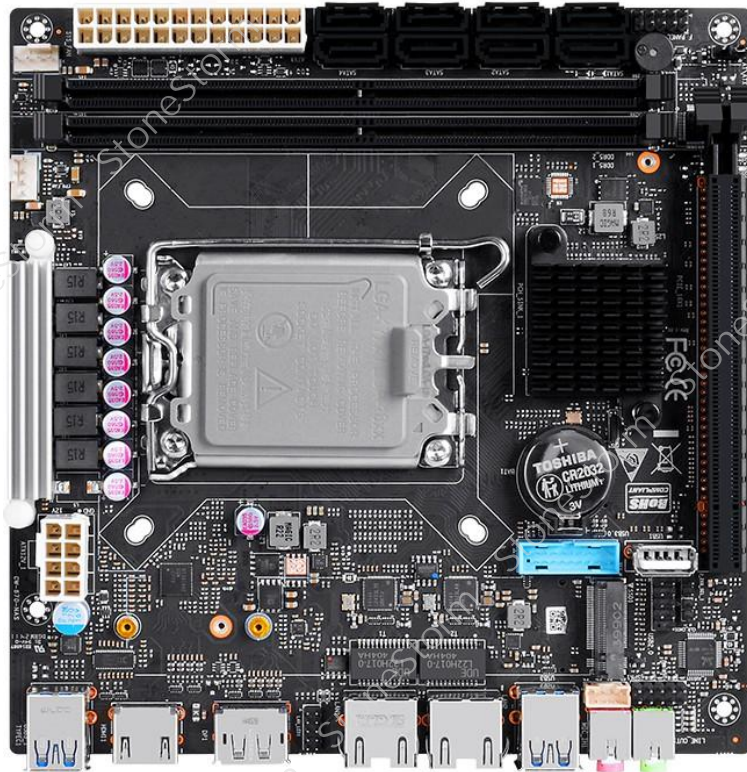

2024/04/28

Statement

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Catalogs

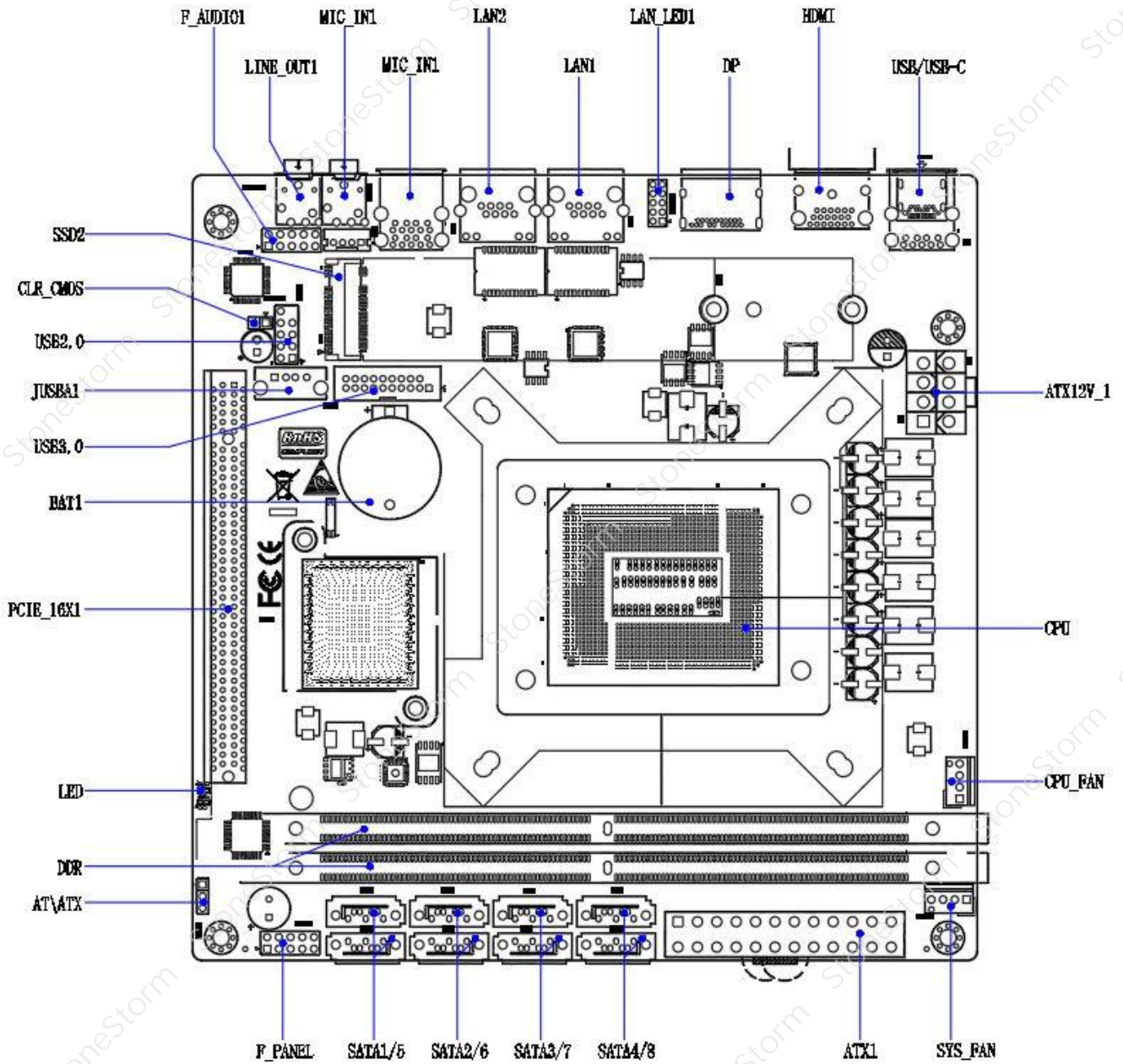# Chapter 1 Product Introduction

1.1 Physical Drawing of the Product

1.2 Product Functional Identification Chart

F_AUDIO1 MIC_IN1 LAN2 LAN_LED1 HDMI

LINE_OUT1 MIC_IN1 LAN1 DP USB/USB-C

SSD2

CLR_CMOS

USB2.0

JUSBA1

USB3.0

BAT1

PCIE_16X1

LED

DDR

AT\ATX

ATX12V_1

CPU

CPU_FAN

F_PANEL SATA1/5 SATA2/6 SATA3/7 SATA4/8 ATX1 SYS_FAN

1.3 Product Specifications

Processor system	Intel 12th Gen. Alder Lake-S series/13th Gen. Raptor Lake-S series, LGA1700, TDP 65W
	EFI BIOS
Memory	2*DDR5 SO-DIMM, supports up to 128GB (for 12th Gen., up to 4800Hz; for 13th Gen., up to 5600MHz)
Storage	3*M. 2 M-Key 2280 (Front: SSD1: PCIe4. 0_4x protocol; Back: SSD2 :PCIe3. 0_4x protocol, SSD3: PCIe4. 0_4x protocol)
	8*SATA3.0, RAID 0/1/5/10 (for H670: 8*SATA3. 0; for B660: 4*SATA3.0)
Display	1*HDMI2.0, supports 4K@60Hz
	1*DP1.4, supports 4K@60Hz
I/O Ports	3*USB3. 0, 1*Type-C (20Gbps)
	HDMI, DP, 2*LAN
	Line out, Mic in
Expansion Interface/Function	TPM2.0 is optional, not included by default
	1*PCIe_X16 (PCIe5.0_16x protocol)
	1 set of 2 USB3.0 pin headers, spacing 2.0mm
	1 set of 2 USB2.0 pin headers, spacing 2.54mm; 1 built-in vertical USB2.0
	LAN LED pin, spacing 2.54mm
	1*4Pin PWM CPU fan, 1*4Pin system fan
	1*F_Audio, 1*SPEAK
Power Supply	ATX 24-8 Pin, 200W or more (determined according to the actual use environment)
Working Environment	Working temperature: -20℃ ~ +60℃; Working humidity: 5%~90%
	Storage temperature: -40℃ ~ +85℃; Storage humidity: 5% ~ 90%
OS Support	Windows10, Windows11, Linux
Dimensions	6.7" x 6.7"
Weight	About 0.88lb

1.4 Product Dimension Drawing
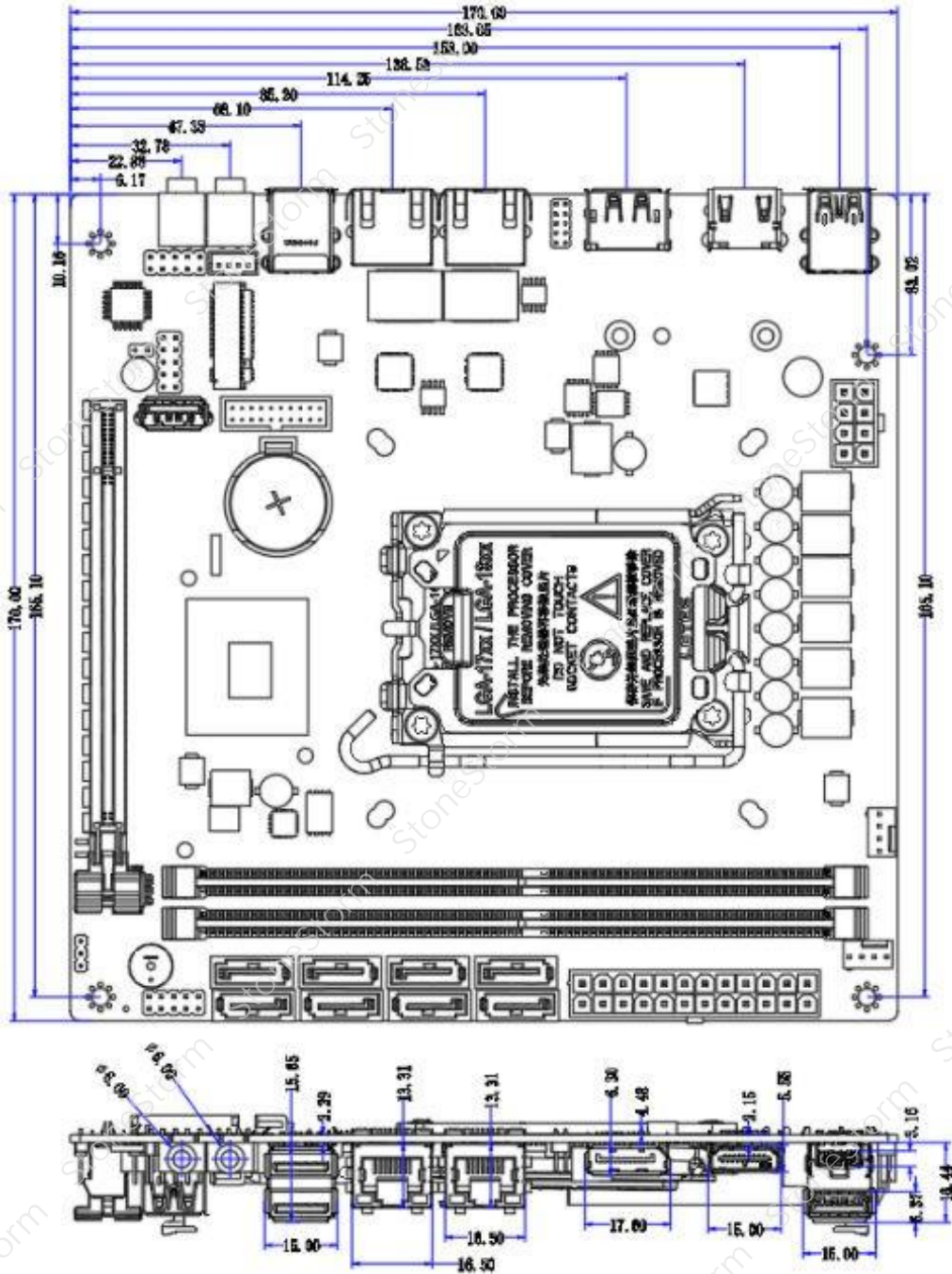
Chapter 2 Functional Description and Pin Definition

Warm Reminder:

1. How to identify the first pin of the jumper and interface?
   1) Observe the text mark next to the plug and socket, which will be indicated by a triangle symbol or "1" or a bold line;
   2) Look at the pad on the back, the square pad is the first pin, pay attention to distinguish the first pin when plugging the device and the connecting line, otherwise it will damage the motherboard.

2. How to identify the alarm sound?
   A long beep is a system memory error; a short "beep" is the boot sound.

2.1. The motherboard supports ATX24+8PIN power supply, the CPU supports a maximum power consumption of 65W, and the CPU socket is LGA1700.

2.2. SSD1 is on the front, it is an M.2 2280 M-Key interface, PCIe4.0_4x protocol.

2.3. SSD2 is on the back, it is an M.2 2280 M-Key interface, PCIe3.0_4x protocol.

2.4. SSD3 is on the back, it is an M.2 2280 M-Key interface, PCIe4.0_4x protocol.

2.5. PCIex16 slot is PCIe5.0 16x protocol.

2.6. AT/ATX, using 1x2Pin, 2.54mm spacing pin header, power-on mode selection function, defined as follows:

1, 2 (Close)	AT power supply startup mode
1, 2 (Open)	ATX power supply startup mode

2.7. CMOS, using 1x2Pin, 2.54mm spacing pin header, clear CMOS function, defined as follows:

1, 2 (Close)	Clear CMOS function
1, 2 (Open)	Default settings

2.8. SPK1 dual-channel independent amplifier interface, each channel supports 3W/8Ω speakers, 1x4Pin, spacing 2.0mm, defined as follows:

Pin1	Pin2	Pin3	Pin4
R+	R-	L-	L+

Note: The front panel AUDIO1 has the highest priority. If the front panel

AUDIO1 device is plugged in, MIC_IN and LINE_OUT cannot be used. If the LINE_OUT audio output device is plugged in, SPK1 will have no output.

2.9. AUDI01 is a 2x5Pin, 2.54mm pitch pin header, defined as follows:
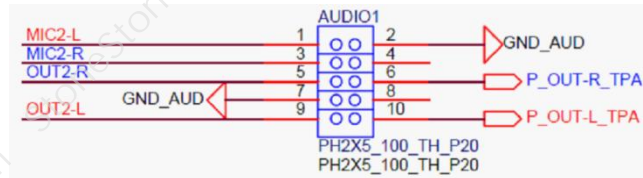
2.10. LAN LED is a 2x4Pin, 2.54mm pitch LAN LED pin header, defined as follows:
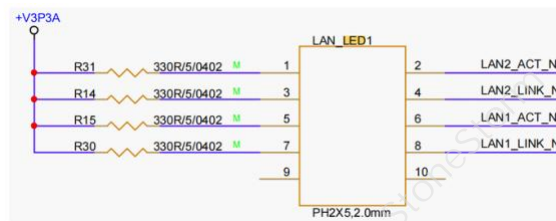
2.11. USB2.0 is a 2x5Pin, 2.54mm pitch USB2.0 pin header, supporting 2 USB2.0. Defined as follows:

Pin1	+5V	Pin2	+5V
Pin3	D1-	Pin4	D2-
Pin5	D1+	Pin6	D2+
Pin7	GND	Pin8	GND
Pin9	NC	Pin10	GND

2.12. JUSB1 is a 2x10Pin, 2.0mm pitch USB3.0 pin header, supporting 2 USB3.0. Defined as follows:
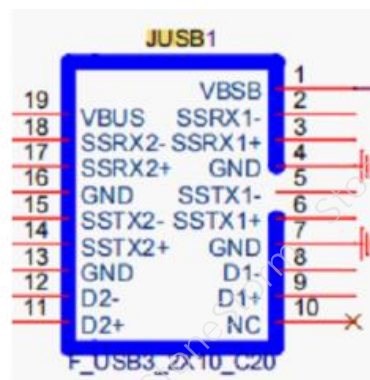
2.13. FP1, control panel interface, uses 2x5Pin, 2.54mm pitch pin header, integrated HDD_LED, PWR_LED, power switch, reset switch, SPEAKER function. Defined as follows:
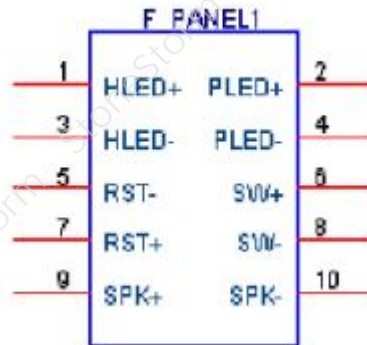
F_PANEL1	Pin definition
1, 3	Positive and negative signal pins for hard disk read/write indicator.
2, 4	Positive and negative signal pins for main power indicator.
5, 7	Positive and negative signal pins for motherboard reset signal.
6, 8	Positive and negative signal pins for motherboard power on/off signal.
9, 10	Backup buzzer interface.

2.14. CPU_FAN1, SYS_FAN1, both are 12V, CPU fan is intelligent temperature control fan. The FAN interface supports a maximum current of 0.3A, which is defined as follows:

Pin1	Pin2	Pin3	Pin4
GND	+12V	FAN TACH	FAN PWM

Chapter 3 BIOS Settings

3.1 BIOS Settings

3.1.1. Methods for entering the BIOS system and key functions
1. Turn on the system power or restart the system
2. After booting, when the self-test information appears on the screen, press <F2> to enter the BIOS, or press <F12> to enter the boot menu.

3.1.2. The functions of each key in the BOIS interface are as follows:
- →← : Selection Menu

- ↑↓ : Selection of items

- Enter : Confirm selection
- +/- : Change value
- F1 : Help
- F2 : Discard this change and return to the last set value
- F3 : Restore factory defaults
- F4 : Save changes and exit
- ESC : Return to previous screen

3.1.3. Precautions:

1. The setting of BT0S directly affects the performance of the computer and the use of its functions.

2. Setting wrong parameters will cause damage to the computer or even failure to boot.

3. If you can not boot the computer due to wrong settings, please restore the factory mode.

3.1.4. BIOS update procedure (if you need to update BIOS, please contact our technical support staff)

1. Prepare a USB flash disk in FAT32 format.

2. Copy the EFI directory provided by our company to the root directory of the USB flash disk.

3. Press F12 to select the boot item after booting up the computer, choose to boot from UEFI: USB flash disk, and enter into the SHELL interface as follows:
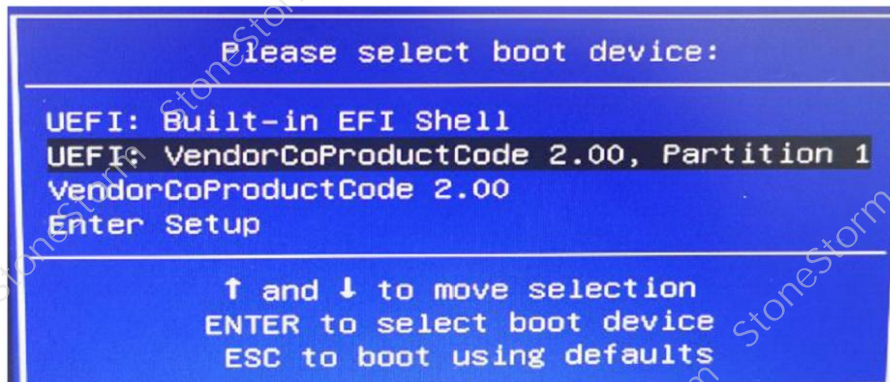
4. After entering the SHELL, wait for 5s, it will be refreshed automatically (the process of updating can not power off, if the update process interrupt the power, it will result in not powering on the computer).

Pictures of BIOS update process:

5. After updating the BIOS, reboot.

3.2 Main

The black font part is read-only information item; it contains BIOS ID, version, and CPU details, including CPU manufacturer, model, frequency, size of L1 cache, size of L2 cache, and so on.

3.3 Advanced

```
                              Aptio Setup – AMI
      Main  Advanced  Chipset  Security  Boot  Save & Exit  NVMe RPMB Key Migration

   ▶ RC ACPI Settings                          ▲   System ACPI Parameters.
   ▶ Connectivity Configuration
   ▶ CPU Configuration
   ▶ Power & Performance
   ▶ PCH-FW Configuration
   ▶ Thermal Configuration
   ▶ OverClocking Performance Menu
   ▶ Trusted Computing
   ▶ ACPI Settings
   ▶ IT8613 Super IO Configuration
   ▶ Hardware Monitor
   ▶ Power Management Configuration
   ▶ AMI Graphic Output Protocol Policy            ─────────────────────────
   ▶ PCI Subsystem Settings                        ←→: Select Screen
   ▶ USB Configuration                             ↑↓: Select Item
   ▶ Network Stack Configuration                   Enter: Select
   ▶ CSM Configuration                             +/-: Change Opt.
   ▶ NVMe Configuration                            F1: General Help
   ▶ SDIO Configuration                            F3: Previous Values
                                                   F9: Optimized Defaults
   ▶ RAM Disk Configuration                        F10: Save & Exit
   ▶ Tls Auth Configuration                        ESC: Exit
   ▶ Intel(R) Ethernet Controller I226-V – 00:90:27:F2:94:00
   ▶ Intel(R) Ethernet Controller I226-V – 00:90:27:F2:94:01  ▼

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```

RC ACPI Settings: Advanced configuration and power management.
CPU Configuraion: Processor parameter information and common setting options.
Power & Performance: BIOS power and performance.
ACPI Settings: Advanced configuration and power management.
IT8613 Super IO Configuration: WTD setup options.
Hardware Monitor: Fan-related information and setup options.
USB Configuration: USB information and control options.
CSM Configuration: UEFI, Legacy, PXE and other related settings.

3.4 Chipset

```
                            Aptio Setup - AMI
     Main   Advanced   Chipset   Security   Boot   Save & Exit   NVMe RPMB Key Migration

  ▶ System Agent (SA) Configuration                      System Agent (SA) Parameters
  ▶ PCH-IO Configuration










                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC: Exit




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3.5 Security

```
                            Aptio Setup - AMI
    Main  Advanced  Chipset  Security  Boot  Save & Exit  NVMe RPMB Key Migration

    Disable Block Sid                    [Disabled]         ▲ │Override to allow SID
                                                             │authentication of TCG Storage
    Password Description                                     │device.Modified value will be
                                                             │applicable only for next boot.
    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                      3                    │→←: Select Screen
    Maximum length                      20                   │↑↓: Select Item
                                                             │Enter: Select
    Administrator Password                                   │+/-: Change Opt.
    User Password                                            │F1: General Help
                                                             │F3: Previous Values
                                                             │F9: Optimized Defaults
                                                             │F10: Save & Exit
                                                             │ESC: Exit
    ► Secure Boot

    TCG Storage Security Configuration:                     ▼

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Administrator Password: This line is used to set the super user password.
User Password: The prompt line is used to set the normal user password.
Secure Boot: Secure Boot Settings
Note: The minimum length of password is 3 digits, the maximum length is
20 digits.
If you forget the password: short the pin RTC1 for 5 seconds or unplug
BAT1 and short the positive and negative terminals for 5 seconds to clear
the password.

3.6 Boot

```
                              Aptio Setup - AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit  NVMe RPMB Key Migration
─────────────────────────────────────────────────────────────────────────────────
   Boot Configuration                                      Number of seconds to wait for
   Setup Prompt Timeout               1                    setup activation key.
   Bootup NumLock State               [Off]                65535(0xFFFF) means indefinite
   Quiet Boot                         [Enabled]            waiting.

   Boot Option Priorities
   Boot Option #1                     [Windows Boot Manager
                                      (SAMSUNG
                                      MZVL2256HCHQ-00B00)]
   Boot Option #2                     [UEFI:  USB, Partition
                                      1 ( USB)]
   Fast Boot                          [Disabled]
                                                           ↔: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F3: Previous Values
                                                           F9: Optimized Defaults
                                                           F10: Save & Exit
                                                           ESC: Exit

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Bootup Numlock state: the option of switching the keypad light on/off after booting Quiet Boot: this item allows you to display the supplier logo on the boot screen

Boot Option # 1: First boot item setting

Boot Option # 2: Second Boot Item Setting

3.7 Save & Exit

```
                              Aptici Setup - AMI
   Main Advanced            Security   Boot   Save & Exit   NVMe RPME;  Key

   saue Options
   Saue Changes and Exit
   Discard Changes and Exit

   Save Changes and Reset
   Discard Changes and Reset

   Save Changes
   Discard Changes

   Default Opt ions
   Restore Defaults                                     ■H-:   Select Screen
   Save as User Defaults                                H; Select Item
   Restore User Defaults                                Enter: Select
                                                        +/-: Change Dpt.
   Boot Override                                        Fl:   General Help
   Windows Boot Manager (SAMSUNG MZVL225GHCHQ-00B00]    F3:   Previous Values
   UEFI:  USB, Partition 1 ( USB)                       F4:   Optimized Defaults
                                                        F10: Save & Exit
                                                        ESC:   Exit

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Download Links for Drivers for StoneStorm Q670/H670Motherboards:
https://mega.nz/folder/DSByHJRL#HmKtZNm_ZCEKJXr-8G0fxw

If you encounter this mini-itx motherboard can not boot up, please follow the steps below to troubleshoot and solve the problem:
1) Unplug the RAM and turn on the motherboard, will it make an alarm sound?
2) If it does, it means there is no problem with this NAS board, plug the memory in again, the first time the motherboard needs to read the memory information, please wait a few minutes after booting.
3) If it doesn't, please disconnect the BIOS battery from the motherboard and wait 5 minutes and repeat step2

If you have more questions, please leave us messages directly, we have a professional technical team to help you solve the problem.