USER MANUAL

MH-T01T

10.1" Windows Rugged Tablet
with Intel® 11th Gen. Core™
i7/ i5 / i3 / Celeron® Processor

MH-T01T M4

MH-T01T

10.1" Windows Rugged Tablet with Intel® 11th Gen. Core™ i7/ i5 / i3 / Celeron® Processor

DISCLAIMER
This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A 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.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

	**CAUTION:** Danger of explosion may occur when the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

	**WARNING:** Some internal parts of the system may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna. -Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help. Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF Exposure Information (SAR)
This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov after searching on FCC ID: 2AMRA-MHT01TNA

Contents

Revision History

The revision history of MH-T01T User Manual is described below:

Version No.	Revision History	Date
M4	• In the **COPYRIGHT NOTICE & TRADEMARK** section of the MH-T01T User Manual M4 (Pages 4-5 of the PDF file), added the Part 15 of the FCC Rules compliance warning message, Federal Communications Commission Interference Statement, and RF Exposure Information (SAR).	2025/06/10
M3	• The version of **Prox Control Board** and **Prox Service** of MH-T01T Prox Utility has been updated to **0.7.12.5** as shown in version information in Section 4.11 Installing / Uninstalling MH-T01T Prox Utility and Section 4.12 Using MH-T01T Prox Utility. • Added the compatible mobile broad band modem module Sierra 4G EM7421 in Note 1. (Page 4-47) • Added a new picture and descriptions on Page 4-50. • Added “Using Utility: ProxCamera” section. in **Utility** Page of MH-T01T Prox Utility. (Page 4-56) • Added “Using Utility: Vehicle Cradle” section. in **Utility** Page of MH-T01T Prox Utility. (Page 4-56) • Revised the “About” page picture under **Information** Page of Prox Control Board of Prox Utility. (Page 4-67)	2025/02/11
M2	The contents of Section 2.3 System Specifications have been revised. (Page 2-8 ~ Page 2-11)	2024/07/16
M1	Initial Release	2023/12/27

1 Introduction

This chapter provides the introduction for the MH-T01T system as well as the framework of the user manual.

The following topic is included:

- About This Manual

1.1 About This Manual

Thank you for purchasing our MH-T01T Tablet. MH-T01T is a high-performance Windows Rugged Tablet empowered by Intel® 11th Gen. Core™ i7 / i5 / i3 / Celeron® Processor. It features 10.1" WUXGA (1920 x 1200 Resolution) Display OCA direct bonding with Anti-Fingerprint / Corning Gorilla Glass P-Cap Multi-Touch and highlights durable design with IP65 Rating (per IEC 60529) and 1.5m Drop Test (per MIL-STD-810H), dual-main battery design with hot-swap and up to 8h operating time. It provides wide-ranged temperatures and weighs about 1.28 kg (Tablet only) in light weight. It is also integrated with VP3300 3 IN 1 Mobile Compact Reader for payment application. Users can configure the tablet according to their own needs. This user manual is intended for service personnel with strong hardware background. It is not intended for general users.

The following section outlines the structure of this user manual.

Chapter 1 Introduction

This chapter introduces the framework of MH-T01T user manual.

Chapter 2 Getting Started

This chapter describes the package contents and outlines the system specifications. It also includes the physical illustrations and quick setup for MH-T01T system. Read the safety reminders carefully on how to take care of your system properly.

Chapter 3 Hardware Configuration

This chapter outlines the locations of the motherboard and daughter board components and their respective functions. You will learn how to set the jumpers and configure the system to meet your own needs.

Chapter 4 Software Utilities

This chapter contains helpful information for proper installations of the Intel Chipset Software Installation Utility, Graphics Driver Utility, Intel Management Engine Firmware Driver Utility, Sound Driver Utility, Serial I/O Driver Utility, Dynamic Tuning Installer Driver Utility, HID Event Filter Driver Utility, Integrated Sensor Solution Driver Utility and G-Sensor Driver Utility.

Appendix A System Assembly Diagrams

This appendix provides the exploded diagrams and part numbers of MH-T01T.

Appendix B Technical Summary

This appendix introduces the allocation maps for the system resources and guide you how to enter the Battery Shipping Mode. In addition, it also describes the common problems that you may encounter when you use MH-T01T system for general operations as well as scanning barcodes and provide the corresponding solutions.

2 Getting Started

This chapter provides the information for the MH-T01T system. This chapter describes the package contents, system overview and outlines the system specifications.

The following topics are included:

- Package List
- System Overview
- Quick Setup
- System Specifications
- Safety Precautions

Experienced users can go to Chapter 3 Hardware Configuration on page 3-1 for a quick start.

2.1 Package List

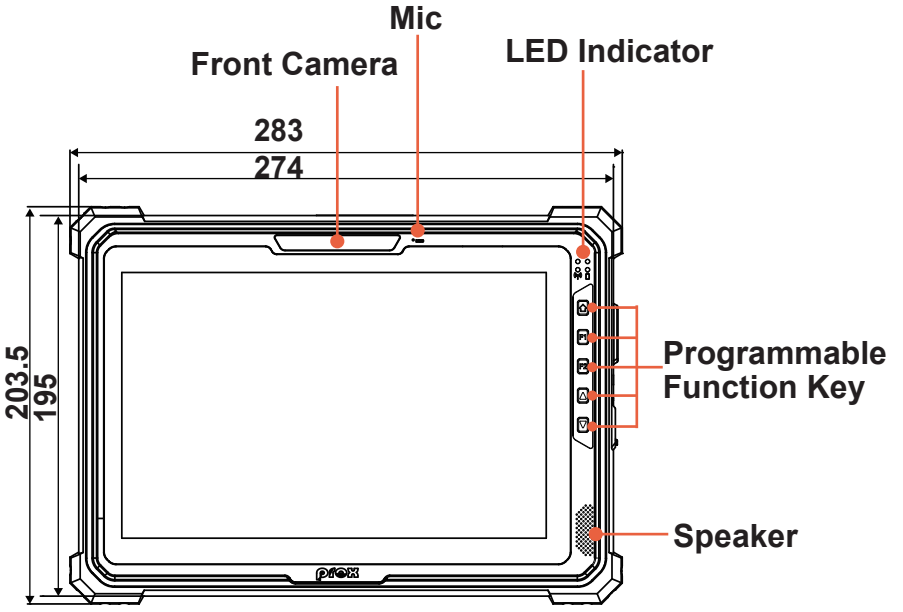
If you discover any of the items listed below are damaged or lost, please contact your local distributor immediately.

Item	Q'ty
MH-T01T 10.1" Windows Rugged Tablet	1
Quick Reference Guide	1
AC Power Adaptor (optional)	1
AC Power Cord (optional)	1
Hand Strap (optional)	1
Shoulder Strap (optional)	1

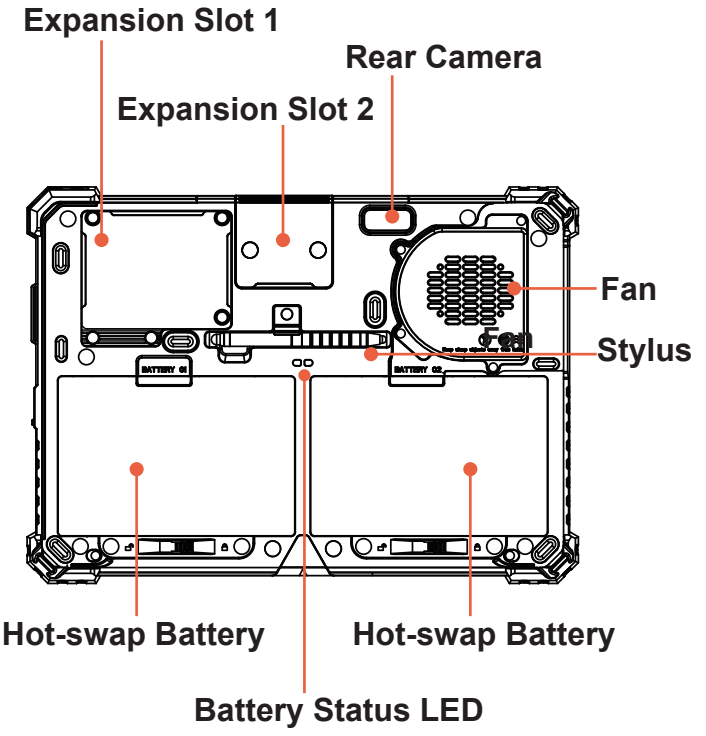
2.2 System Overview

Unit: mm

2.2.1 Front View

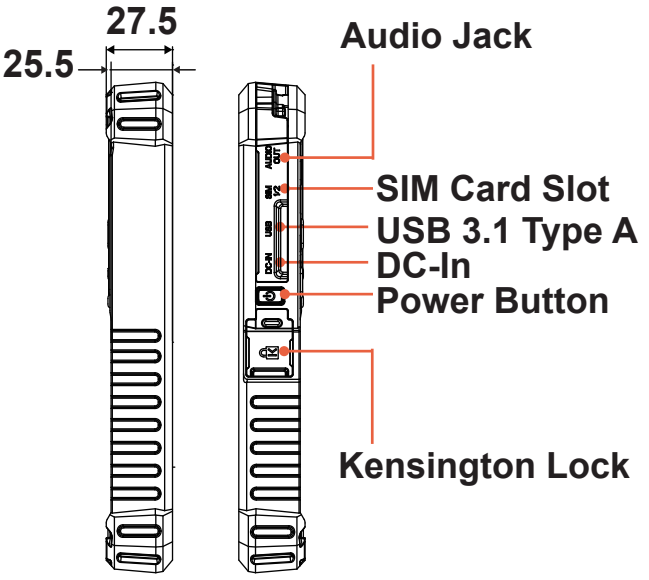


2.2.2 Rear View



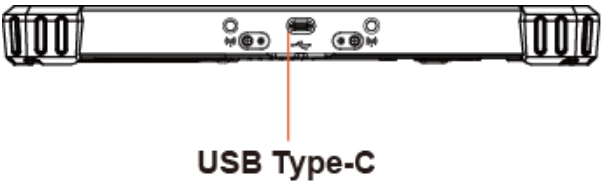
Unit: mm

2.2.3 Side View

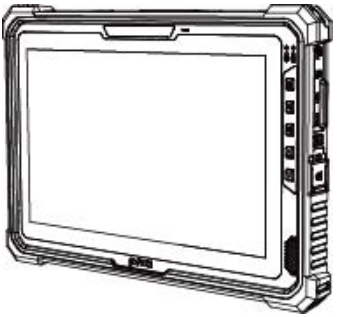


2.2.4 Top View

2.2.5 Bottom View



2.2.6 Quarter View



2.3 System Specifications

Display Specification	
Size	➢ 10.1”
Resolution	➢ WUXGA (1920 x 1200 pixels, 16:10)
Brightness	➢ 1,000 nits for Sunlight readable
Backlight lifetime	➢ 30,000 hours
Touch	➢ P-CAP Multi-Touch with Anti-Fingerprint and Corning Gorilla Glass (Support Finger/ Stylus/ Glove/ Raindrop)
Bonding Technology	➢ LCD Optical Clear Adhesive direct bonding with Touch
System Specification	
Processor	➢ Intel® Core™ i7-1185G7E (4C) 1.80 GHz ➢ Intel® Core™ i5-1145G7E (4C) 1.50 GHz ➢ Intel® Core™ i3-1115G4E (2C) 2.20 GHz ➢ Intel® Celeron® 6305E (2C) 1.80 GHz
Operating System	➢ Windows® 10 IoT Enterprise 2021 LTSC ➢ Windows® 11 IoT Enterprise 2024 LTSC
Memory	➢ 1 x DDR4 3200 SO-DIMM socket (up to 16 GB)
Storage	➢ 1 x M.2 NVMe SSD (up to 1TB)
Audio	➢ 1 x 2 W Speaker and 1 x Mic
Sensor	➢ G-Sensor, Ambient Light Sensor
Vibrator	➢ Yes
TPM	➢ TPM 2.0
LED Indicators	➢ 1 x tri-color LED (Green/ Yellow/ Red) for Power/ Battery status indication ➢ 1 x Green LED for WiFi/ LTE/ 5G connection indication
Buttons	➢ 6 x Buttons (1 x Power Button, 1 x Home Key, 2 x Function Key, 1 x Volume+, 1 x Volume-, Function Keys are programmable)
Battery	➢ 2 x 10.8 V/ 2330 mAh Li-Ion Battery for Hot-swap and up to 8 hours operating (per Mobilemark 2014)
AC Adapter	➢ DC Jack 19V or USB Type-C Power Delivery 20V
Dimensions (W x H x D)	➢ 274 x 195 x 22 mm (without 4-corner rubber)
Weight	➢ 1.28 kg (Tablet only)

I/O Ports	
USB	➢ 1 x USB 3.0 Type A ➢ 1 x USB 3.0 Type-C for Charging with PD/Data Transmission/ Display ➢ 1 x USB 3.0 Type A (optional)
Audio Jack	➢ 1 x Headset (Headphone out/ Mic-in combo)
Nano-SIM Slot	➢ 1 x Dual-Nano-SIM 4G LTE/ 5G
Expansion Slots	➢ Expansion Slot 1 for 3D Camera, Card Reader, Fingerprint, etc. (optional) ➢ Expansion Slot 2 for 2D barcode, COM port, USB 3.0 Type A, MicroSD card, LAN port (optional)
Communications	
WLAN	➢ 802.11 a/b/g/n/ac/ax (WiFi 6E)
Bluetooth	➢ Bluetooth 5.3
GNSS	➢ GPS, GLONASS (optional)
WWAN	➢ 4G LTE or 5G for North America/ Europe/ Taiwan/ Japan (optional)
Optional Peripherals & Accessories	
1D/2D Barcode	➢ Honeywell N4680
Camera	➢ 2 MP Front Camera (optional, Windows hello Camera) ➢ 8 MP Rear Camera (optional) ➢ 3D Camera for Logistics dimension measurement application (optional)
Hand Strap	➢ Yes
Shoulder Strap	➢ Yes
Stylus	➢ Capacitive Stylus
TP Protector	➢ 9H Glass Touch Panel Protector
Cradle	➢ Yes (optional)
Vehicle Cradle	➢ Yes (optional)
Fingerprint Reader	➢ Yes (optional)
Card Reader	➢ Yes (optional)

3 IN 1 Mobile Compact Reader	
Contactless (NFC) Features	➢ Poll on Demand Mode ➢ Pass-thru Mode
ICC Contact Card Features	➢ EMVCo Contact L1& L2 compliant
Magnetic Stripe	➢ Meets ISO 7810/ISO 7811 specification ➢ Supports AAMVA format ➢ Supports JIS I/II card format ➢ Supports single, dual and triple tracks ➢ Bi-directional reading
Reliability & Environment	
ESD	➢ Contact +/-8 kV and Air +/- 15 kV
EMI	➢ Class B
IP Rating	➢ IP65 per IEC 60529
Drop Test	➢ 1.5 m per MIL-STD-810H
Tumble Test	➢ 1000 tumbles, 0.5 m per IEC 60068-2-32
Shock	➢ Per MIL-STD-810H
Vibration	➢ Per MIL-STD-810H
Operating Temp.	➢ -20°C~60°C (AC mode) and -10°C~50°C (Battery mode) ➢ Above 0°C (Boot up)
Storage Temp.	➢ -20°C~60°C (-4°F~140°F)
Humidity	➢ 10%~90% non-condensing
Certification	
Certificate	➢ CE, FCC, BSMI, PSE, Battery with UN 38.3 and IEC 62133

2.4 Safety Precautions

Before operating this system, read the following information carefully to protect your system from damages, and extend the life cycle of the system.

1. Check the Line Voltage
   - The operating voltage for the power supply should be within the range of 100V to 240V AC; otherwise, the system may be damaged.

2. Environmental Conditions
   - Place your MH-T01T on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   - Avoid installing your MH-T01T system in extremely hot or cold places.
   - Avoid direct sunlight exposure for a long period of time (for example, in a closed car in summer time. Also avoid the system from any heating device.). Or do not use MH-T01T when it has been left outdoors in a cold winter day.
   - Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.
   - Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
   - Always shut down the operating system before turning off the power.
3. Handling
   - Avoid placing heavy objects on the top of the system.
   - Do not allow any objects to fall into this device.
4. Good Care
   - When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
   - Never use strong agents such as benzene and thinner to clean the surface of the case.
   - If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
   - If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

3 System Configuration

This chapter contains helpful information about the jumper & connector settings, and component locations for the main board and daughter boards.

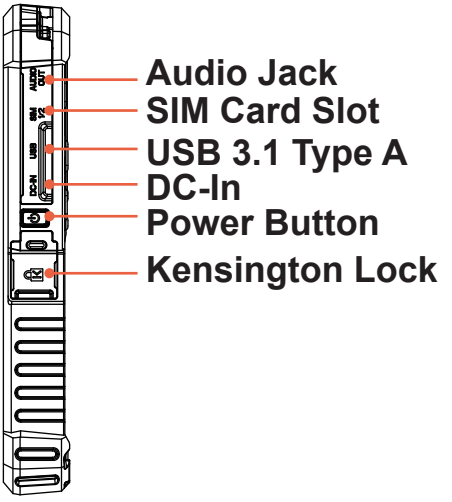
The following sections are included:

- External I/O Ports Diagram
- Main Board Component Locations
- Main Board Connectors Quick Reference Table
- Setting Main Board Connectors and Jumpers
- Daughter Boards Component Locations
- Daughter Boards Connectors Quick Reference Table
- Setting Daughter Boards Connectors

3.1 External I/O Ports Diagram

3.1.1 Side I/O Ports Diagram

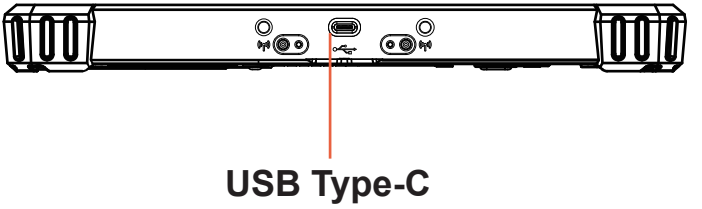
Right Side I/O Ports Diagram



The **Dual-Nano-SIM Card Slot** is located on the right side of the tablet. You can use your finger or a pin to pull out the SIM Card holder. See the picture above.

3.1.2 Bottom I/O Port Diagram

The USB Type-C port is located on the bottom side of the Rugged Tablet as illustrated below:



3.2 Main Board Component Locations

3.2.1 Top View of Main Board Component Locations

M/B: MB-T01T

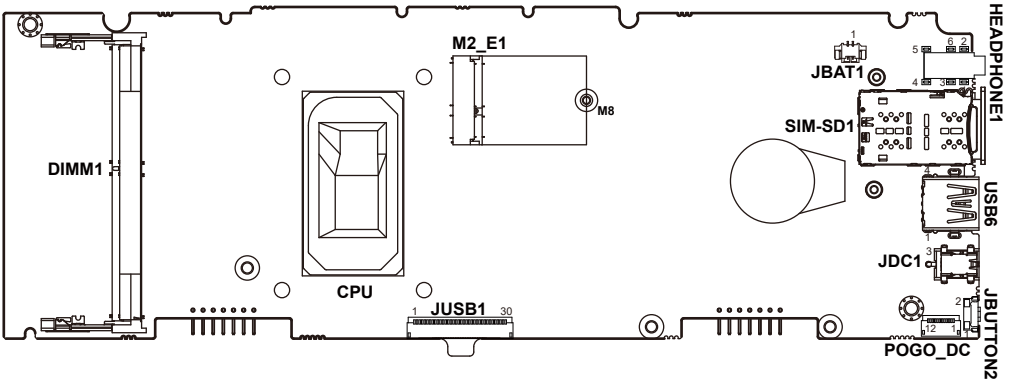


Figure 3-1. MB-T01T Main Board Component Locations (Top View)

	**WARNING:** Always disconnect the power cord when you are working with the connectors on the main board. Make sure both the system and the external devices are turned OFF as sudden surge of power could ruin sensitive components. Make sure MB-T01T is properly grounded.
	**CAUTION:** Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while configuring the connectors. Use a grounding wrist strap and place all electronic components in any static-shielded devices.

3.2.2 Bottom View of Pad Main Board Component Locations

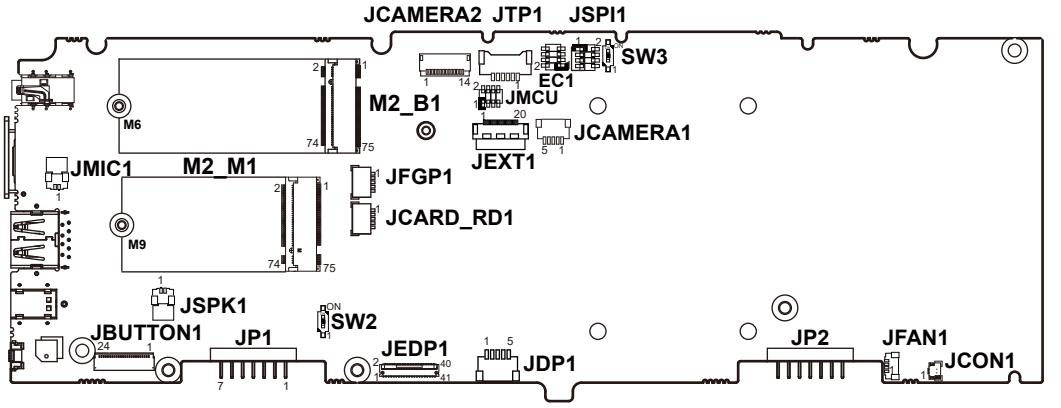


Figure 3-2. MB-T01T Main Board Component Locations (Bottom View)

3.3 Main Board Jumpers and Connectors Quick Reference Table

Jumper Description	NAME
PWM Program Enable Switch	SW2
RTC Battery Switch	SW3

CONNECTOR Description	NAME
DC IN Jack Connector (MB top side)	JDC1
RTC Battery Connector (MB top side)	JBAT1
Power Button Connector (MB top side)	JBUTTON2
Main to Button BD Connector	JBUTTON1
Rear Camera Connector	JCAMERA1
Front Camera Connector	JCAMERA2
USB Type-C Connector (MB top side)	JUSB1
Expansion 1 Slot Connector A	JCARD_RD1
Expansion 1 Slot Connector B	JFGP1
Vibrator Connector	JCON1
EDP Connector	JEDP1
Expansion 2 Slot Connector	JEXT1
System Fan Connector	JFAN1
MCU Update Connector	JMCU
POGO IN Power Connector (MB top side)	POGO_DC
Microphone Connector	JMIC1
Speaker Connector	JSPK1
Headphone Connector (MB top side)	HEADPHONE1
Battery Connectors	JP1, JP2
PD Update Connector	JPD1
SPI Update Connector	JSPI1
Touch Screen Connector	JTP1
EC Update Connector	EC1

CONNECTOR Description	NAME
M.2 B Key Slot	M2_B1
M.2 M Key Slot	M2_M1
M.2 E Key Slot (MB top side)	M2_E1
Dual-Nano-SIM Slot	SIM-SD1

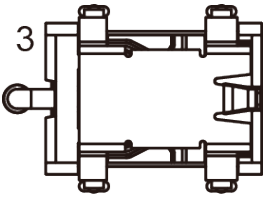
3.4 Setting Main Board Connectors

3.4.1 DC IN Jack Connector (JDC1)

Connector Location: JDC1

Description: DC IN Jack Connector (located on the top side of the main board)

PIN	ASSIGNMENT
3	DCIN
G1	GND
G2	GND
G3	GND
G4	GND



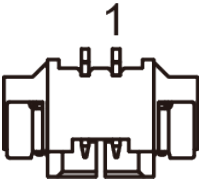
JDC1

3.4.2 RTC Battery Connector (JBAT1)

Connector Location: JBAT1

Description: RTC Battery Connector (located on the top side of the main board)

PIN	ASSIGNMENT
1	VRTC_BATT
2	GND



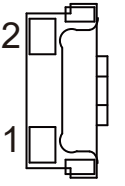
JBAT1

3.4.3 Power Button Connector (JBUTTON2)

Connector Location: JBUTTON2

Description: Power Button Connector 2 (located on the top side of the main board)

PIN	ASSIGNMENT
2	PS_ON_SW
1	GND



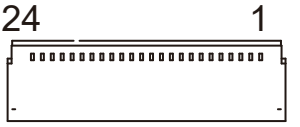
JBUTTON2

3.4.4 Main to Button BD Connector (JBUTTON1)

Connector Location: JBUTTON1

Description: Main to Button BD Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V3P3A
2	V3P3A
3	VOLUM_UP
4	VOLUM_DOWN
5	WIN_KEY
6	ROTATE_LOCK
7	FN_BARCODE_SW
8	BAT_LOW_LED
9	PWR_LED
10	ALARM_LED
11	GND
12	ALS_INT
13	ISH_I2C1_SDA_ALS
14	ISH_I2C1_SCL_ALS
15	GND
16	V5P0A
17	V5P0A
18	WIFI_RF_SW
19	5G_RF_SW
20	NC
21	V3.3A_WLAN
22	WIFI_5G_LED
23	V3.3A_WWAN
24	NC



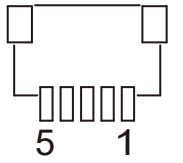
JBUTTON1

3.4.5 Rear Camera Connector (JCAMERA1)

Connector Location: JCAMERA1

Description: Rear Camera Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V5P0_CAM1
2	USB2_P2_DN
3	USB2_P2_DP
4	GND
5	NC



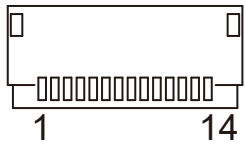
JCAMERA1

3.4.6 Front Camera Connector (JCAMERA2)

Connector Location: JCAMERA2

Description: Front Camera Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V5P0_CAM2
2	V5P0_CAM2
3	V5P0_CAM2
4	V3P3_CAM2
5	V3P3_CAM2
6	USB2_P3_DN
7	USB2_P3_DP
8	GND
9	GND
10	ISH_I2C2_SDA_ALS
11	ISH_I2C2_SCL_ALS
12	CAMERA_ALS_INT
13	NC
14	GND

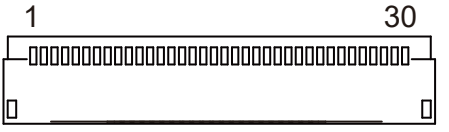


JCAMERA2

3.4.7 USB Type-C Connector (JUSB1)

Connector Location: JUSB1

Description: USB Type-C Connector (located on the top side of the main board)



JUSB1

PIN	ASSIGNMENT
1	VBUS_OUT
2	VBUS_OUT
3	VBUS_OUT
4	VBUS_OUT
5	VBUS_OUT
6	VBUS_OUT
7	VBUS_OUT
8	VBUS_OUT
9	VBUS_OUT
10	VBUS_OUT
11	GND
12	TCP2_TX1_DN
13	TCP2_TX1_DP
14	GND
15	TCP2_TXRX1_DP
16	TCP2_TXRX1_DN
17	GND
18	CCG5_SBU1
19	CCG5_CC1
20	EC_HALL_SW1
21	GND
22	TCP2_TX0_DP
23	TCP2_TX0_DN
24	GND
25	TCP2_TXRX0_DP
26	TCP2_TXRX0_DN
27	GND
28	CCG5_SBU2
29	CCG5_CC2

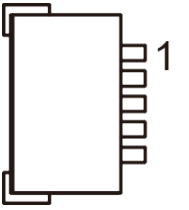
PIN	ASSIGNMENT
30	EC_HALL_SW2
31	GND
32	GND
33	GND
34	USB2_P6_DP
35	USB2_P6_DN
36	+3.3V

3.4.8 Expansion 1 Slot Connector A (JCARD_RD1)

Connector Location: JCARD_RD1

Description: USB 2.0 Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	+5V
2	+5V
3	USB2_P7_DN
4	USB2_P7_DP
5	GND



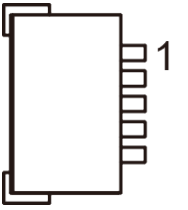
JCARD_RD1

3.4.9 Expansion 1 Slot Connector B (JFGP1)

Connector Location: JFGP1

Description: USB 2.0 Connector

PIN	ASSIGNMENT
1	+5V
2	+5V
3	USB2_P8_DN
4	USB2_P8_DP
5	GND



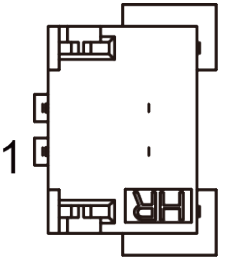
JFGP1

3.4.10 Vibrator Connector (JCON1)

Connector Location: JCON1

Description: Vibrator Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V3P3A
2	GND

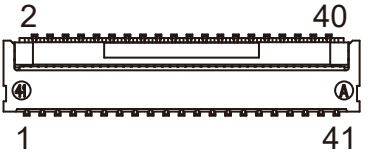


JCON1

3.4.11 EDP Connector (JEDP1)

Connector Location: JEDP1

Description: EDP (EmbeddedDisplay) Connector (located on the bottom side of the main board)



JEDP1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	2	V12P0_INV
3	V12P0_INV	4	V12P0_INV
5	V12P0_INV	6	NC
7	NC	8	NC
9	NC	10	NC
11	NC	12	EDP1_BKLT_CTRL
13	EDP1_BKLT_EN	14	NC
15	NC	16	GND
17	GND	18	GND
19	GND	20	EDP_HPD_A_R
21	GND	22	GND
23	NC	24	NC
25	NC	26	LVDS_VDD
27	LVDS_VDD	28	LVDS_VDD
29	LVDS_VDD	30	NC
31	NC	32	GND
33	eDP_AUX_DN	34	eDP_AUX_DP
35	GND	36	eDP_LANE0_DP
37	eDP_LANE0_DN	38	GND
39	eDP_LANE1_DP	40	eDP_LANE1_DN
41	GND	42	-

3.4.12 Expansion 2 Slot Connector (JEXT1)

Connector Location: JEXT1

Description: Expansion 2 Slot Connector (located on the bottom side of the main board)

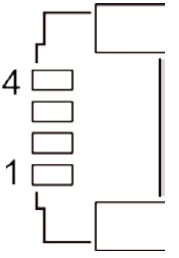
PIN	ASSIGNMENT
1	+5V
2	+5V
3	+5V
4	+5V
5	SCAN_PDN
6	BEEPER_OUT
7	WAKE_IN_BARCODE
8	SCAN_EN_SW_D
9	GND
10	USB2_P9_DN
11	USB2_P9_DP
12	GND
13	USB31_P4_RX_DN
14	USB31_P4_RX_DP
15	GND
16	USB31_P4_TX_DN
17	USB31_P4_TX_DP
18	GND
19	PM_SLP_LAN_N
20	NC

3.4.13 System Fan Connector (JFAN1)

Connector Location: JFAN1

Description: System Fan Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	GND
2	CPU_FAN_TACH
3	+5V
4	CPU_FAN_OUT



JFAN1

3.4.14 MCU Update Connector (JMCU)

Connector Location: JMCU

Description: MCU Update Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3V	2	GND
3	M-SWDIO	4	NC
5	M-SWCLK	6	NC
7	M-NRST	8	-

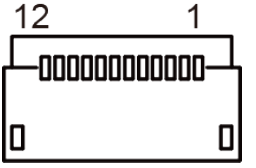
JMCU

3.4.15 POGO IN Power Connector (POGO_DC)

Connector Location: POGO_DC

Description: POGO In Power Connector (located on the top side of the main board)

PIN	ASSIGNMENT
1	GND
2	GND
3	GND
4	GND
5	GND
6	GND
7	DC19V_IN
8	DC19V_IN
9	DC19V_IN
10	DC19V_IN
11	DC19V_IN
12	DC19V_IN



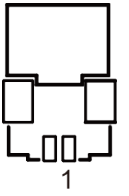
POGO_DC

3.4.16 Microphone Connector (JMIC1)

Connector Location: JMIC1

Description: Microphone Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	GND
2	MIC1



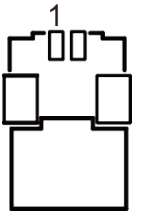
JMIC1

3.4.17 Speaker Connector (JSPK1)

Connector Location: JSPK1

Description: Speaker Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	VOUTP
2	VOUTN



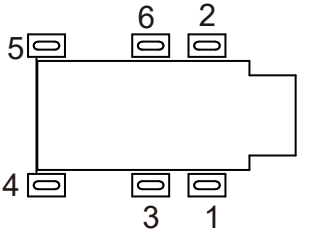
JSPK1

3.4.18 Headphone Connector (HEADPHONE1)

Connector Location: HEADPHONE1

Description: Headphone Connector (located on the top side of the main board)

PIN	ASSIGNMENT
1	HD_MIC2-R_L
2	GND
3	LINE-OUT-R
4	LINE-OUT-L
5	LINE2-JD
6	GND



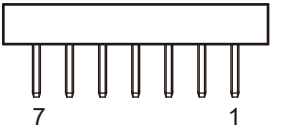
HEADPHONE1

3.4.19 Battery Connector 1 (JP1)

Connector Location: JP1

Description: Battery Connector 1 (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V_B1
2	V_B1
3	EC_BATT_SENSE1
4	BAT_SCL1
5	BAT_SDA1
6	GND
7	GND



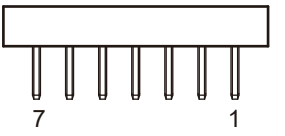
JP1

3.4.20 Battery Connector 2 (JP2)

Connector Location: JP2

Description: Battery Connector 2 (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	V_B2
2	V_B2
3	EC_BATT_SENSE2
4	BAT_SCL2
5	BAT_SDA2
6	GND
7	GND



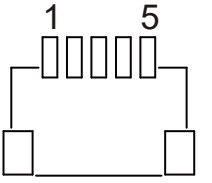
JP2

3.4.21 PD Update Connector (JPD1)

Connector Location: JPD1

Description: PD (Power Display) Update Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	VDDD_SUPPLY
2	GND
3	CCG5_XRES
4	CCG5_SWD_CLK
5	CCG5_SWD_IO



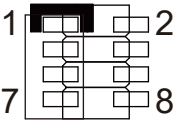
JPD1

3.4.22 SPI Update Connector (JSPI1)

Connector Location: JSPI1

Description: SPI Update Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	SPI_VDD	2	GND
3	SPI0_CS0_R_N	4	SPI0_CLK_R
5	SPI0_MISO_R	6	SPI0_MOSI_R
7	SPI0_HOLD_N	8	SPI0_WP_N

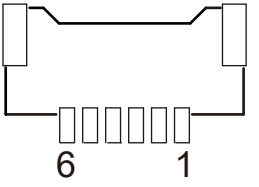


JSPI1

3.4.23 Touch Screen Connector (JTP1)

Connector Location: JTP1
Description: Touch Screen Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	WAKE_RST
2	I2C0_SCL
3	I2C0_SDA
4	INT_TP
5	GND
6	+3.3V



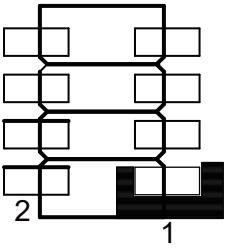
JTP1

3.4.24 EC Update Connector (EC1)

Connector Location: EC1

Description: EC (Embedded Controller) Update Connector (located on the bottom side of the main board)

PIN	ASSIGNMENT
1	+3.3V
2	GND
3	EC_UART_RX_R
4	VAL_EC_JTAG_TCK_R
5	EC_UART_TX_R
6	VAL_EC_JTAG_TMS_R
7	NC
8	NC

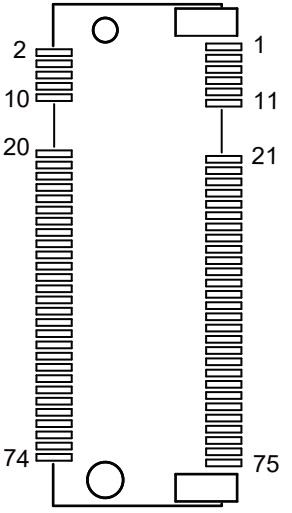


EC1

3.4.25 M.2 B Key Slot (M2_B1)

Connector Location: M2_B1

Description: M.2 B Key Connector for SSD (located on the bottom side of the main board)



M2_B1

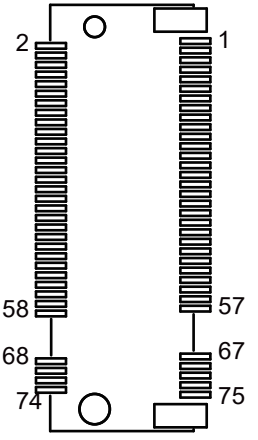
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	M.2_WWAN_DET	2	V3.3A_WWAN
3	GND	4	V3.3A_WWAN
5	GND	6	GPPC_WWAN_FCP_OFF
7	USB2_P4_DP	8	M.2_WWAN_DISABLE
9	USB2_P4_DN	10	5G_LED
11	GND	12	Mechanical Key
13	Mechanical Key	14	Mechanical Key
15	Mechanical Key	16	Mechanical Key
17	Mechanical Key	18	Mechanical Key
19	Mechanical Key	20	NC
21	M_2_B_CONFIG0	22	NC
23	NC	24	NC
25	SAR_DPR_WWAN	26	NC
27	GND	28	NC
29	USB31_P2_RX_DN	30	SIM1_RESET
31	USB31_P2_RX_DP	32	SIM1_CLK

PIN	ASSIGNMENT	PIN	ASSIGNMENT
33	GND	34	SIM1_DATA
35	USB31_P2_TX_DN	36	SIM1_PWR
37	USB31_P2_TX_DP	38	NC
39	GND	40	SIM_DET_CONN
41	PCIE3_P9_RX_DN	42	SIM2_DATA
43	PCIE3_P9_RX_DP	44	SIM2_CLK
45	GND	46	SIM2_RESET
47	PCIE3_P9_TX_DN	48	SIM2_PWR
49	PCIE3_P9_TX_DP	50	M.2_WWAN_PERST
51	GND	52	M.2_CLKREQ61
53	CLK_SRC61_DN	54	M.2_WWAN_WAKE
55	CLK_SRC61_DP	56	NC
57	GND	58	NC
59	NC	60	COEX3
61	NC	62	COEX2
63	NC	64	COEX1
65	NC	66	M.2_SIM1_DET
67	GPPC_C10	68	NC
69	NC	70	V3.3A_WWAN
71	GND	72	V3.3A_WWAN
73	GND	74	V3.3A_WWAN
75	NC	-	-

3.4.26 M.2 M Key Slot (M2_M1)

Connector Location: M2_M1

Description: M.2 M Key Connector for SSD (located on the bottom side of the main board)



M2_M1

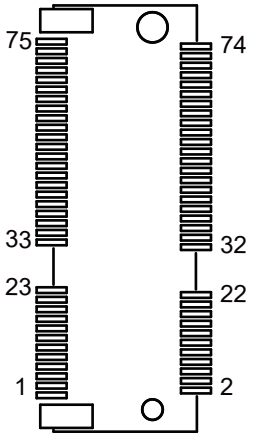
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	V3P3S
3	GND	4	V3P3S
5	PCIE4_RX_N3	6	M.2_SSD_PWROFF
7	PCIE4_RX_P3	8	M2_SSD_PLN
9	GND	10	DAS/DSS
11	PCIE4_TX_N3	12	V3P3S
13	PCIE4_TX_P3	14	V3P3S
15	GND	16	V3P3S
17	PCIE4_RX_N2	18	V3P3S
19	PCIE4_RX_P2	20	NC
21	GND	22	NC
23	PCIE4_TX_N2	24	NC
25	PCIE4_TX_P2	26	NC
27	GND	28	NC
29	PCIE4_RX_N1	30	NC
31	PCIE4_RX_P1	32	NC
33	GND	34	NC

PIN	ASSIGNMENT	PIN	ASSIGNMENT
35	PCIE4_TX_N1	36	NC
37	PCIE4_TX_P1	38	NC
39	GND	40	NC
41	PCIE4_RX_N0_SATA1_RXP	42	NC
43	PCIE4_RX_P0_SATA1_RXN	44	NC
45	GND	46	NC
47	PCIE4_TX_N0_SATA1_TXN	48	NC
49	PCIE4_TX_P0_SATA1_TXP	50	M2_KEYM_SSD_RST
51	GND	52	GPPC_D5_SRCCLKREQ
53	CLK_SRC0_DN	54	WAKE
55	CLK_SRC0_DP	56	NC
57	GND	58	NC
59	M_KEY_59	60	M_KEY_60
61	M_KEY_61	62	M_KEY_62
63	M_KEY_63	64	M_KEY_64
65	M_KEY_65	66	M_KEY_66
67	NC	68	SUS_CLK
69	M2_SSD_PEDET	70	V3P3S
71	GND	72	V3P3S
73	GND	74	V3P3S
75	GND	-	-

3.4.27 M.2 E Key Slot (M2_E1)

Connector Location: M2_E1

Description: M.2 E Key Connector for SSD (located on the top side of the main board)



M2_E1

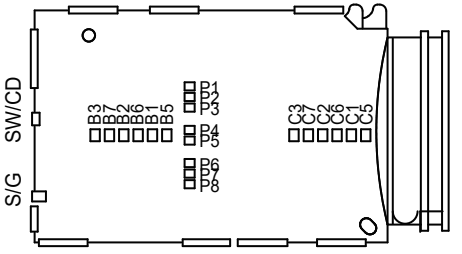
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	V3.3A_WLAN
3	USB2_P10_DP	4	V3.3A_WLAN
5	USB2_P10_DN	6	WIFI_LED
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	GND	14	NC
15	NC	16	NC
17	NC	18	GND
19	GND	20	NC
21	NC	22	NC
23	NC	24	Connector E Key
25	Connector E Key	26	Connector E Key
27	Connector E Key	28	Connector E Key
29	Connector E Key	30	Connector E Key
31	Connector E Key	32	NC

PIN	ASSIGNMENT	PIN	ASSIGNMENT
33	GND	34	NC
35	PCIE3_M2_WLAN_TX_DP	36	NC
37	PCIE3_M2_WLAN_TX_DN	38	MLK_RST_N
39	GND	40	MLK_DATA
41	PCIE3_P10_RX_DP	42	MLK_CLK
43	PCIE3_P10_RX_DN	44	DISC_WLAN_COFX3
45	GND	46	DISC_WLAN_COFX2
47	CLK_SRC5_DP	48	DISC_WLAN_COFX1
49	CLK_SRC5_DN	50	SUS_CLK
51	GND	52	M.2_WLAN_PERST
53	SRCCLKREQ5	54	GPPC_A13_BT_RF_KILL
55	WIFI_WAKE	56	WIFI_RF_KILL
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	V3.3A_WLAN
73	NC	74	V3.3A_WLAN
75	GND	-	-

3.4.28 Dual-Nano-SIM Slot (SIM-SD1)

Connector Location: SIM-SD1

Description: Dual-Nano-SIM Slot (located on the top side of the main board)



SIM-SD1

PIN	ASSIGNMENT
SW/CD	SIM_DET_CONN
S/GND	GND
P1	NC
P2	NC
P3	NC
P4	NC
P5	NC
P6	NC
P7	NC
P8	NC
C1	SIM1_PWR
B1	SIM2_PWR
C2	SIM1_RESET
B2	SIM2_RESET
C3	SIM1_CLK
B3	SIM2_CLK
C5	GND
B5	GND
C6	NC
B6	NC
C7	SIM1_DATA
B7	SIM2_DATA

3.5 Setting Main Board Jumpers

3.5.1 RTC Switch Jumper (SW3)

Jumper Location: SW3
Description: RTC Switch Jumper

1Y (Default)	**Normal**
ON	**Clear CMOS**

SW3

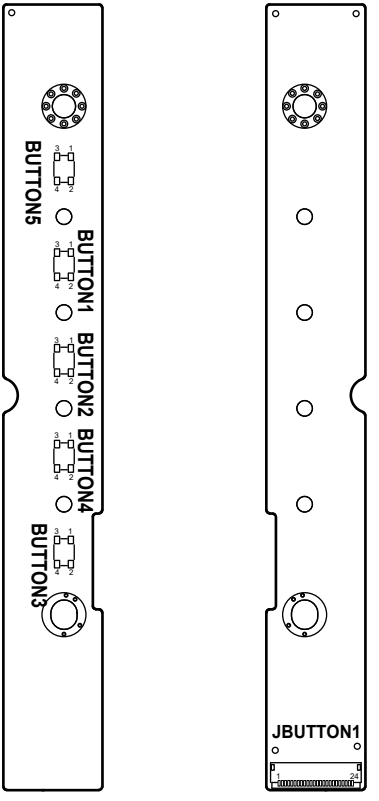
3.5.2 PWM Program Switch Jumper (SW2)

Jumper Location: SW2
Description: PWM Program Switch Jumper

1Y (Default)	**Not used**
ON	**Program enable**

SW2

3.6 Button Board MR-T01T-GxA-1 Component Locations



Top View **Bottom View**

3.7 Button Board MR-T01T-GxA-1 Connectors Quick Reference Table

Top Side

CONNECTOR Description	NAME
Volume Button Connector	BUTTON1
Volume Button Connector	BUTTON2
ROTATE LOCK Button Connector	BUTTON3
CAMERA CAPTURE Button Connector	BUTTON4
WINDOWS Button Connector	BUTTON5

Bottom Side

CONNECTOR Description	NAME
Main to Button BD Connector	JBUTTON1

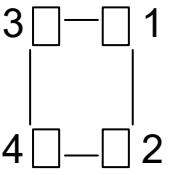
3.8 Setting Button Board MR-T01T-GxA-1Connectors

3.8.1 Volume Button Connector (BUTTON1)

Connector Location: BUTTON1

Description: Volume Button Connector (located on the top side of Button Board)

PIN	ASSIGNMENT
1	VOLUME_UP
4	GND



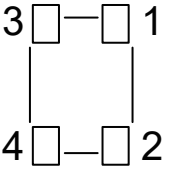
BUTTON1

3.8.2 Volume Button Connector (BUTTON2)

Connector Location: BUTTON2

Description: Volume Button Connector (located on the top side of Button Board)

PIN	ASSIGNMENT
1	VOLUME_DOWN
4	GND



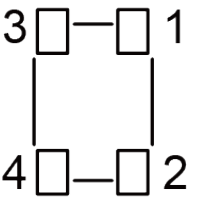
BUTTON2

3.8.3 Rotate Clock Button Connector (BUTTON3)

Connector Location: BUTTON3

Description: Rotate Lock Button Connector (located on the top side of Button Board)

PIN	ASSIGNMENT
1	ROTATE_LOCK
4	GND



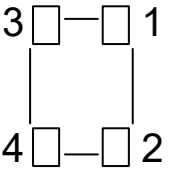
BUTTON3

3.8.4 Camera Capture Button Connector (BUTTON4)

Connector Location: BUTTON4

Description: Camera Capture Button Connector (located on the top side of Button Board)

PIN	ASSIGNMENT
1	FN_BARCODE_SE
4	GND



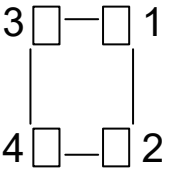
BUTTON4

3.8.5 WINDOWS Button Connector (BUTTON5)

Connector Location: BUTTON5

Description: WINDOWS Button Connector (located on the top side of Button Board)

PIN	ASSIGNMENT
1	WIN_KEY
4	GND



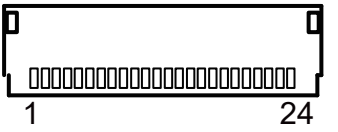
BUTTON5

3.8.6 Main to Button BD Connector (JBUTTON1)

Connector Location: JBUTTON1

Description: Main to Button BD Connector (located on the bottom side of Button Board)

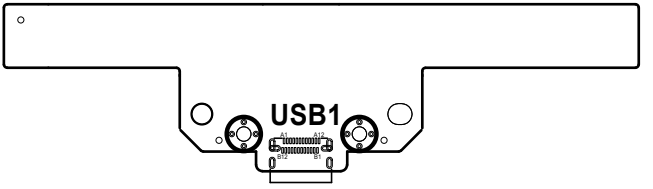
PIN	ASSIGNMENT
1	NC
2	V3.3A_WWAN
3	WIFI_5G_LED
4	V3.3A_WLAN
5	NC
6	5G_RF_SW
7	WIFI_RF_SW
8	V5P0A
9	V5P0A
10	GND
11	ISH_I2C1_SCL_ALS
12	ISH_I2C1_SDA_ALS
13	ALS_INT
14	GND
15	ALARM_LED
16	PWR_LED
17	BAT_LOW_LED
18	FN_BARCODE_SW
19	ROTATE_LOCK
20	WIN_KEY
21	VOLUM_DOWN
22	VOLUM_UP
23	V3P3A
24	V3P3A



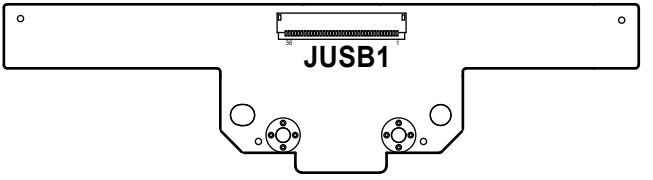
JBUTTON1

3.9 USB Type-C MR-T01T-GxA-2 Board Component Locations

Top View



Bottom View



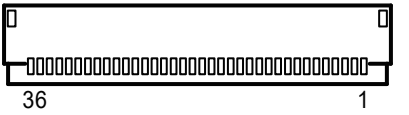
3.10 Setting USB Type-C MR-T01T-GxA-2 Board Connectors

3.10.1 Main to button BD Connector (JUSB1)

Connector Location: JUSB1

Description: Main to button BD Connector (located on the bottom side of USB Type-C Board)

PIN	ASSIGNMENT
1	VBUS_OUT
2	VBUS_OUT
3	VBUS_OUT
4	VBUS_OUT
5	VBUS_OUT
6	VBUS_OUT
7	VBUS_OUT
8	VBUS_OUT
9	VBUS_OUT
10	VBUS_OUT
11	GND
12	TCP2_TX1_DN
13	TCP2_TX1_DP
14	GND
15	TCP2_TXRX1_DP
16	TCP2_TXRX1_DN
17	GND
18	CCG5_SBU1
19	CCG5_CC1
20	EC_HALL_SW1
21	GND
22	TCP2_TX0_DP
23	TCP2_TX0_DN
24	GND
25	TCP2_TXRX0_DP
26	TCP2_TXRX0_DN
27	GND
28	CCG5_SBU2
29	CCG5_CC2
30	EC_HALL_SW2
31	GND
32	GND



JUSB1

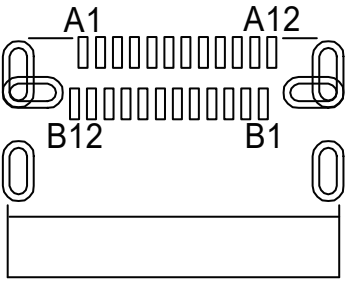
PIN	ASSIGNMENT
33	GND
34	USB2_P6_DP
35	USB2_P6_DN
36	+3.3V

3.10.2 USB Type-C Connector (USB1)

Connector Location: USB1

Description: USB Type-C Connector (located on the top side of USB Type-C Board)

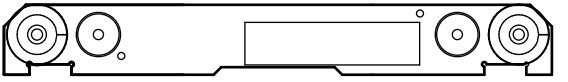
PIN	ASSIGNMENT
A1	GND
A2	SSTXP1
A3	SSTXN1
A4	VBUS
A5	CC1
A6	D+
A7	D-
A8	SUB1
A9	VBUS
A10	SSRXN2
A11	SSRXP2
A12	GND
B1	GND
B2	SSTXP2
B3	SSTXN2
B4	VBUS
B5	CC2
B6	D+
B7	D-
B8	SUB2
B9	VBUS
B10	SSRXN1
B11	SSRXP1
B12	GND



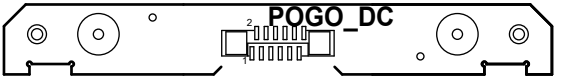
USB1

3.11 POGO Pin Board MR-T01T-GxA-14 Component Locations

Top View



Bottom View



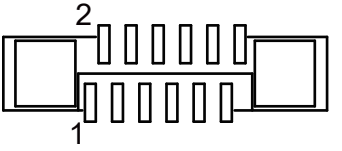
3.12 Setting POGO Pin Board MR-T01T-GxA-14 Connectors

3.12.1 POGO IN Power Connector (POGO_DC)

Connector Location: POGO_DC

Description: POGO IN Power Connector (located on the bottom side of MR-T01T-GxA-14 daughter board)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DC19V_IN	2	DC19V_IN
3	DC19V_IN	4	DC19V_IN
5	DC19V_IN	6	DC19V_IN
7	GND	8	GND
9	GND	10	GND
11	GND	12	GND



POGO_DC

4 Software Utilities

This chapter provides the detailed information that guides users to install driver utilities for the system as well as Prox Utilities.

The following topics are included:

- Installing Intel® Chipset Software Installation Utility
- Installing Graphics Driver Utility
- Installing Intel® Management Engine Firmware Driver Utility
- Installing Sound Codec Driver Utility
- Installing Serial I/O Driver Utility
- Installing Dynamic Tuning Installer Driver Utility
- Installing HID Event Filter Driver Utility
- Installing Integrated Sensor Solution Driver Utility
- Installing G-Sensor Driver Utility
- MH-T01T Prox Utility

4.1 Introduction

Enclosed with the MH-T01T Series package is our driver utilities contained in a DVD-ROM disk. Refer to the following table for driver locations:

Windows 10 IoT Enterprise 21H2 64Bit

Filename (Assume that DVD- ROM drive is D :)	Purpose
D:\Driver\Platform\01_Main Chip	Intel(R) Chipset Device Software Installation Utility
D:\Driver\Platform\02_Graphics	Intel Graphics Driver installation
D:\Driver\Platform\03_CSME	Intel(R) Management Engine Firmware
D:\Driver\Platform\04_Sound Codec	Realtek High Definition Audio driver installation
D:\Driver\Platform\05_Serial IO	Intel(R) Serial IO Driver
D:\Driver\Platform\06_DTT	Intel(R) Dynamic Tuning Installer
D:\Driver\Platform\07_HID Event Filter	Intel(R) HID Event Filter Driver
D:\Driver\Platform\08_ISH	Intel(R) Integrated Sensor Solution
D:\Driver\Platform\09_G sensor	G sensor Driver

Note: After the OS installation is completed, the driver utilities will also be installed at the same time.

Windows 11 IoT Enterprise 22H2 64Bit

Filename (Assume that DVD- ROM drive is D :)	Purpose
D:\Driver\Platform\01_Main Chip	Intel(R) Chipset Device Software Installation Utility
D:\Driver\Platform\02_Graphics	Intel Graphics Driver installation
D:\Driver\Platform\03_CSME	Intel(R) Management Engine Firmware
D:\Driver\Platform\04_Sound Codec	Realtek High Definition Audio driver installation
D:\Driver\Platform\05_Serial IO	Intel(R) Serial IO Driver
D:\Driver\Platform\06_DTT	Intel(R) Dynamic Tuning Installer
D:\Driver\Platform\07_HID Event Filter	Intel(R) HID Event Filter Driver
D:\Driver\Platform\08_ISH	Intel(R) Integrated Sensor Solution
D:\Driver\Platform\09_G sensor	G sensor Driver

4.2 Installing Intel® Chipset Software Installation Utility

4.2.1 Introduction

The Intel® Chipset Software Installation Utility installs the Windows *.INF files to the target system. These files outline to the operating system how to configure the Intel chipset components in order to ensure that the following functions work properly:

- Core PCI and ISAPNP Services
- PCIe Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in the Device Manager

4.2.2 Intel® Chipset Software Installation Utility

The utility pack is to be installed only for Windows® 10 / Windows® 11 series, and it should be installed immediately after the OS installation is finished. Please follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Enter the **Main Chip** folder where the Chipset driver is located.
3. Click **SetupChipset.exe** driver installation file for driver installation.
4. Follow the on-screen instructions to install the driver.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.3 Installing Graphics Driver Utility

To install the Graphics driver utility, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Enter the **Graphics** folder where the driver is located.
3. Click **Installer.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.4 Installing Intel® Management Engine Firmware Driver Utility

To install the Intel® Management Engine Firmware Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Enter the **CSME** folder where the driver is located.
3. Click **SetupME.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.5 Installing Sound Codec Driver Utility

The sound function enhanced in this system is fully compatible with Windows® 10 / Windows® 11 series.

To install the Sound Codec Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **Sound Codec** folder where the driver is located.
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.6 Installing Serial I/O Driver Utility

To install the Serial I/O Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **Serial IO** folder where the driver is located.
3. Click the **SetupSerialIO.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.7 Installing Dynamic Tuning Installer Driver Utility

To install the Dynamic Tuning Installer driver utility, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **DTT** folder where the driver is located.
3. Click **Dtt_8.7.10700.22502_Install.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.8 Installing HID Event Filter Driver Utility

To install the HID Event Filter Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **HID Event Filter** folder where the driver is located.
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.9 Installing Integrated Sensor Solution Driver Utility

To install the Integrated Sensor Solution Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **ISH** folder where the driver is located.
3. Click **SetupISS.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.10 Installing G-Sensor Driver Utility

To install the G-Sensor Driver, follow the steps below:

1. Connect the USB DVD-ROM device to MH-T01T and insert the driver disk.
2. Open the **G Sensor** folder where the driver is located.
3. Click **STAccelGyro_v1.2.3.0.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart MH-T01T for the changes to take effect.

4.11 Installing / Uninstalling MH-T01T Prox Utility

Application Information
Version

Prox Camera: 0.5.1.0	Update Date: 2024/05/24
Prox Control Board: 0.7.12.5	Update Date: 2025/01/10
Prox Service: 0.7.12.5	Update Date: 2025/01/10

Prox Utility includes 3 Software & 1 Service Software

1. **Prox Service (Background Software & Service Software):** MH-T101T Utility Background Service System. Include Prox Service (P logo) running on the background and ProxService (No icon) guard service to make sure Prox Service (P logo) starts up properly and runs smoothly
2. **Prox Control Board:** User Control Interface for System Settings, Button Pool, Q-Start, Battery Information, Notification. Some of the functions need to be used with Prox Service.
3. **Prox Camera:** Camera Software. Hardware Button functions need to be used with Prox Control Board.

4.11.1 Program Installation Sequences

To facilitate the Prox Utility program installations process and make sure the programs operates properly, it is highly recommended that you follow the sequence below to install the Prox Utility programs:

Follow the sequence below to install Prox Utility Programs:
1. Prox Camera
2. Prox Control Board
3. Prox Service (Select **Restart the computer** now)
4. Restart Computer
5. Done

Follow the sequence below to uninstall Prox Utility Programs:
1. Prox Service
2. Prox Control Board
3. Prox Camera
4. Done

4.11.2 Precautions

1. Whenever a new version of the program is updated, please remove the old version of the program first and then manually install the updated version of the program.
2. Prox Camera can be installed and used separately but the function key camera function cannot be used.
3. Be cautioned that many of Prox Control Board features need to be used with the same or specific version Prox Service.
4. Prox Service should not to be used by itself. It needs to be used with Prox Control Board in accompaniment.

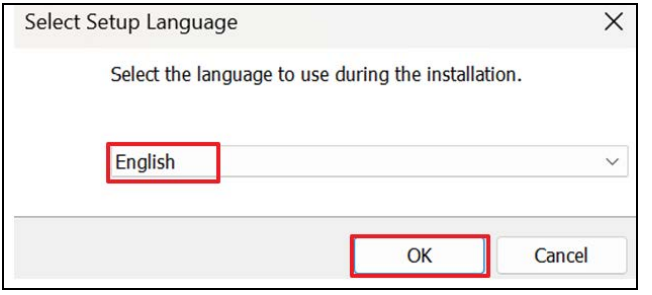
Program or Feature Dependency Table

Program or Feature	Feature	Required Program
Prox Camera	Function Key Camera	Prox Control Board
Prox Control Board	SIM Slot Auto Selection Antenna Mode Button Pool Battery Shipping Mode PD Charger Detect	Prox Service
Prox Service	All features	Use Prox Control Board to interact with users
Function Keys	Function Keys	Use: Prox Control Board Adjust: Prox Service

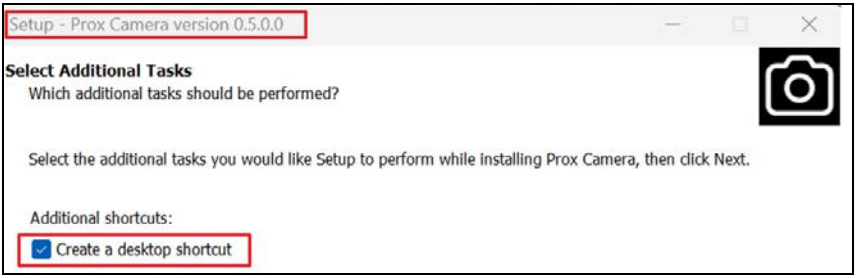
4.11.3 Installing Prox Camera

1. Select **Prox Camera Setup.**

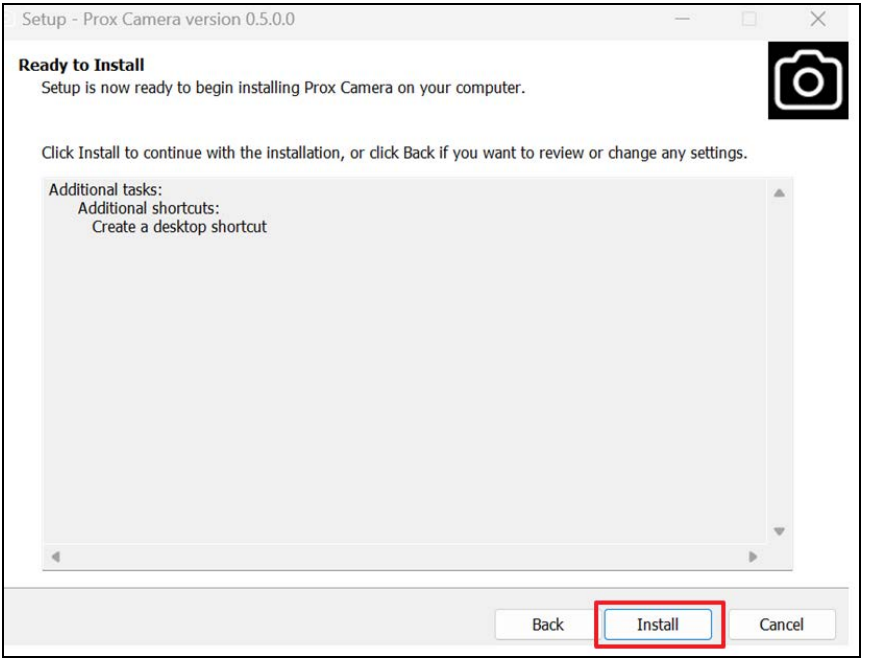
2. Select a language to run the installation program (Example：English) and press [**OK**].



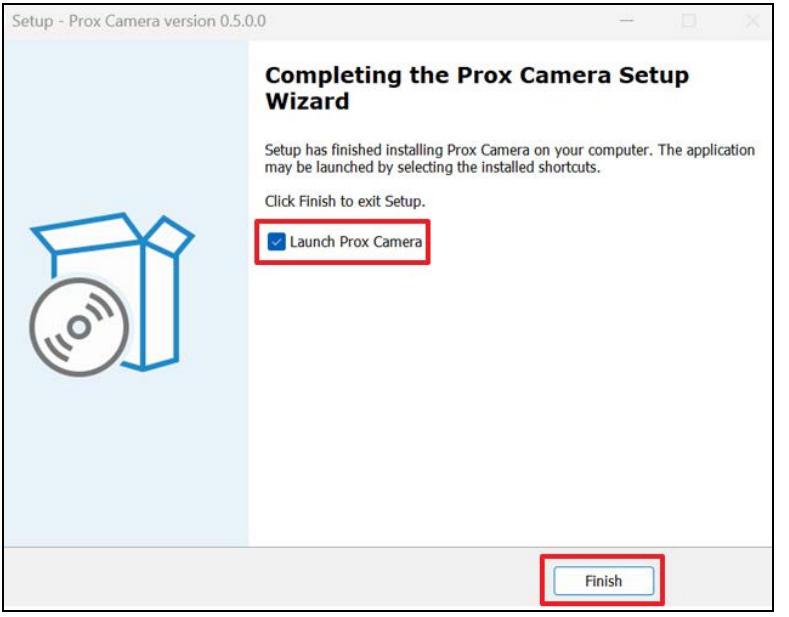
3. Check if the version number shown of Prox Camera is correct. Select the checkbox to add a desktop shortcut. (Optional, Default: Checked). Press [**Next**] to continue.



4. Confirm the task of Prox Camera installation and press [**Install**].



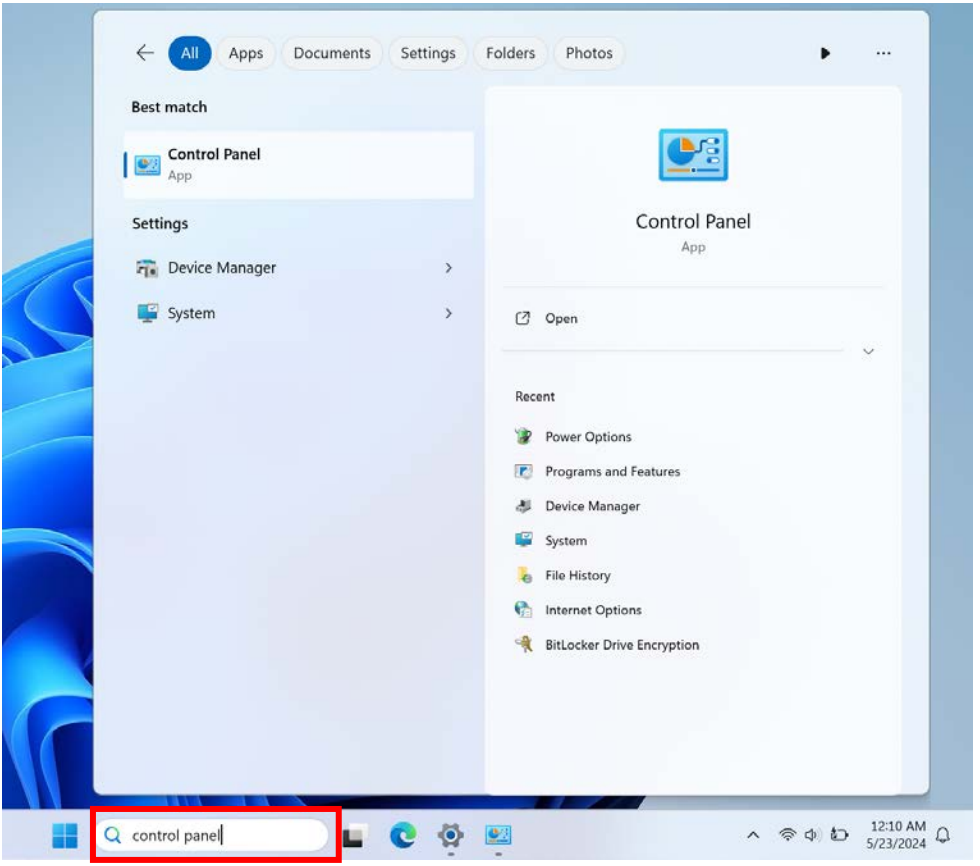
5. Please wait for the program installation process to complete. Click the checkbox to automatically launch the program after the Prox Camera installation is completed. (Optional, Default: Checked) Press [**Finish**] to complete.



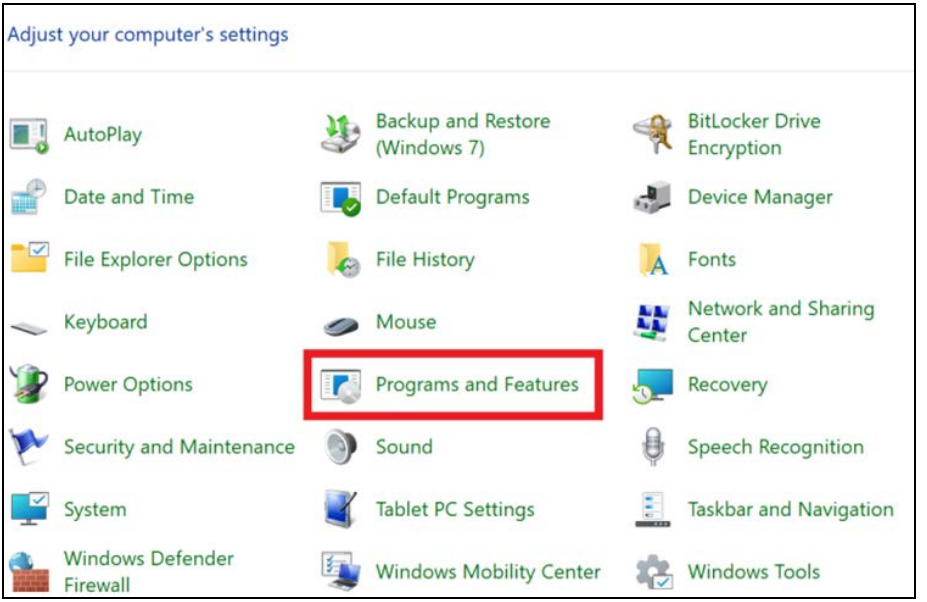
4.11.4 Uninstalling Prox Camera

Install from Control Panel (Windows 10/11)
If you are running Windows 11, follow the instructions below to remove Prox Camera:

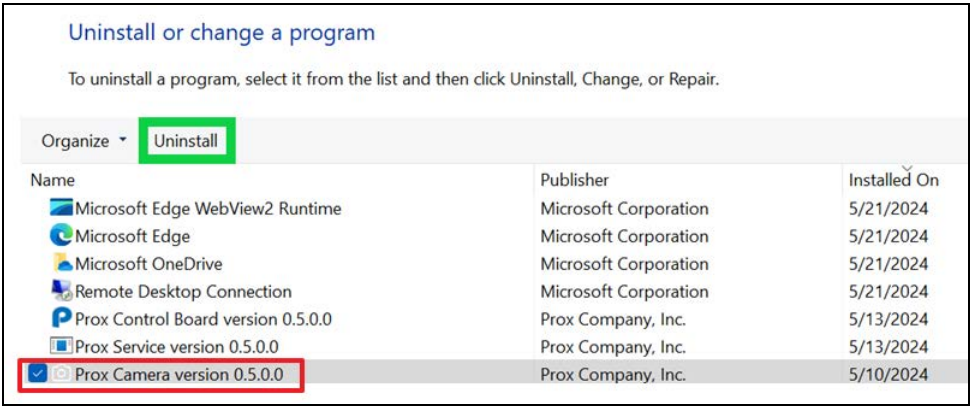
1. Search **Control Panel** as shown below: (Red Square)



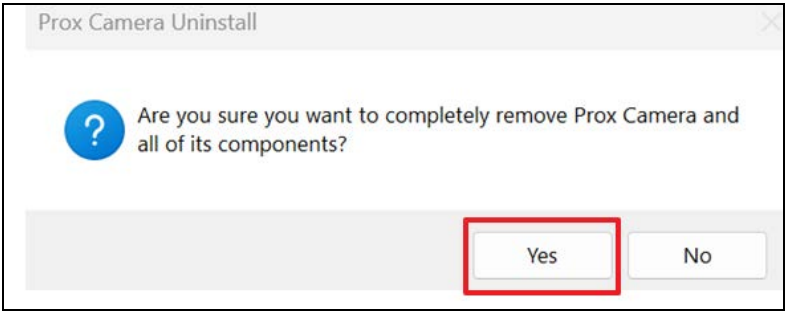
2. Select **Programs and Features** icon (Red Square).



3. Find and click the checkbox of **Prox Camera Version 0.5.X.0** (Red Square), and then click **Uninstall** (Green Square) to remove the Prox Camera program.



4. Click [**Yes**] to uninstall the **Prox Camera** program.

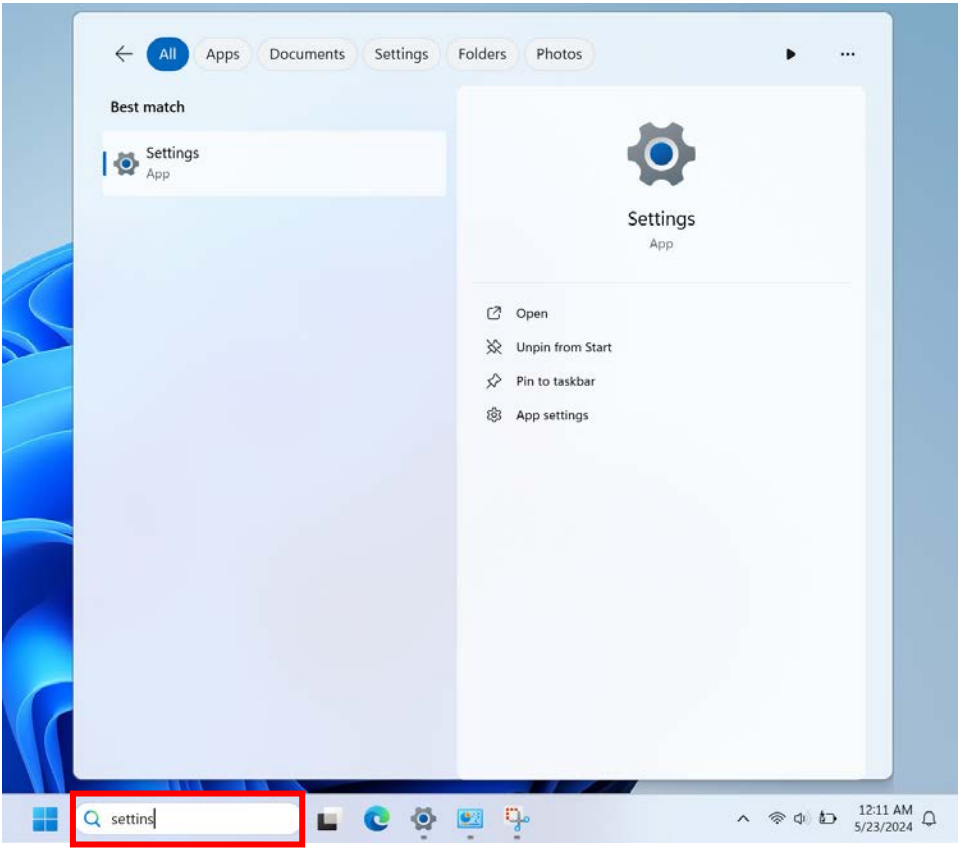


5. Please wait while the uninstallation process is running and then click [**OK**] after the Prox Camera program has been removed successfully from your device.

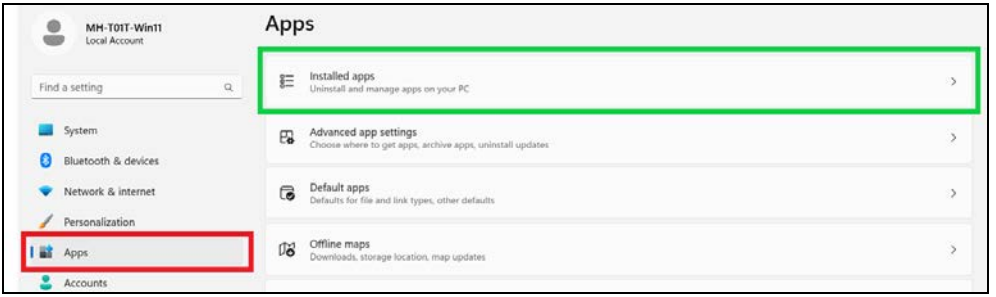
Install from Settings (Windows 11)

If you are running Windows 11, follow the instructions below to remove Prox Camera:

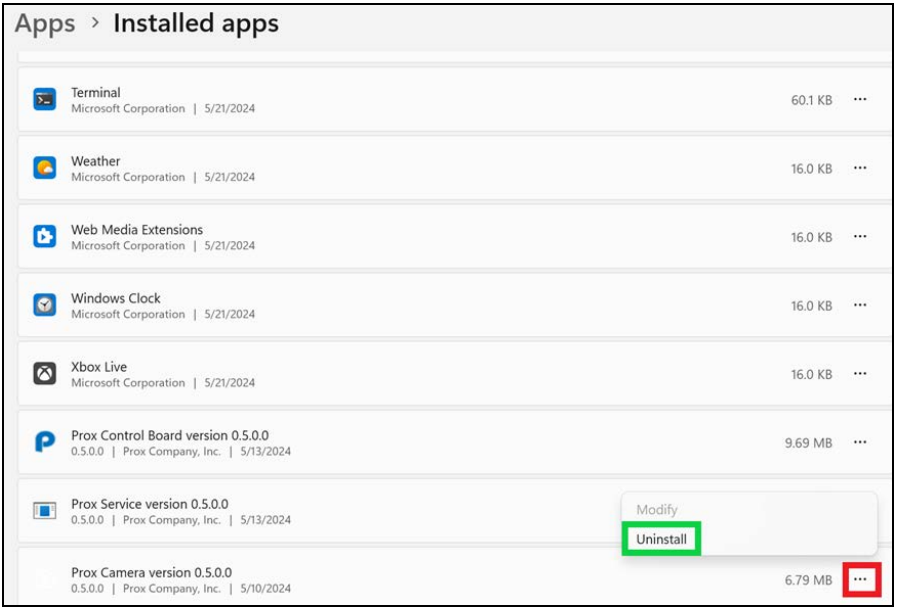
1. Search **Settings** as shown below:(Red Square)



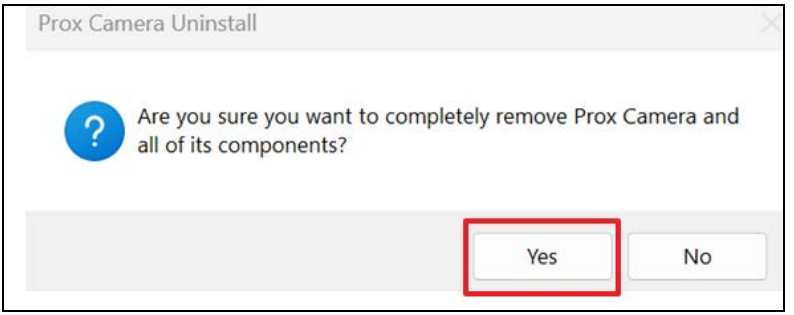
2. Select **Apps** (Red Square) > **Installed apps** (Green Square).



3. Click **Prox Camera version 0.5.X.0 "More" icon [...]** (Red Square), and then click **Uninstall** (Green Square).



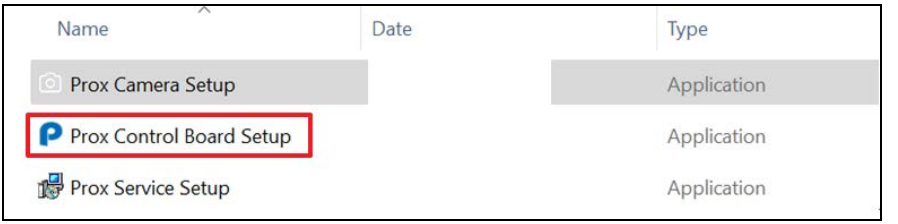
4. Click [**Yes**] to uninstall the **Prox Camera** program.



5. Please wait while the uninstallation process is running and then click [**OK**] after the Prox Camera program has been removed successfully from your device.

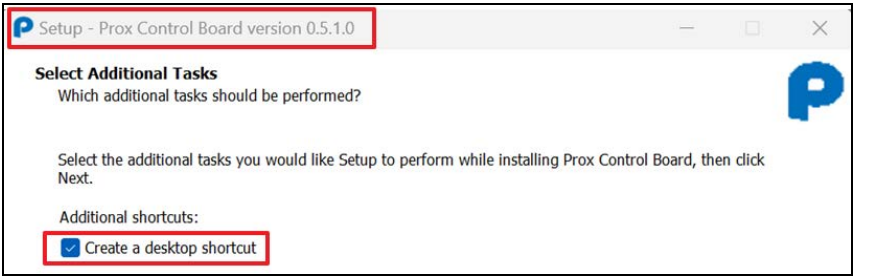
4.11.5 Installing Prox Control Board

1. Select **Prox Control Board Setup** (Red Square)**.**

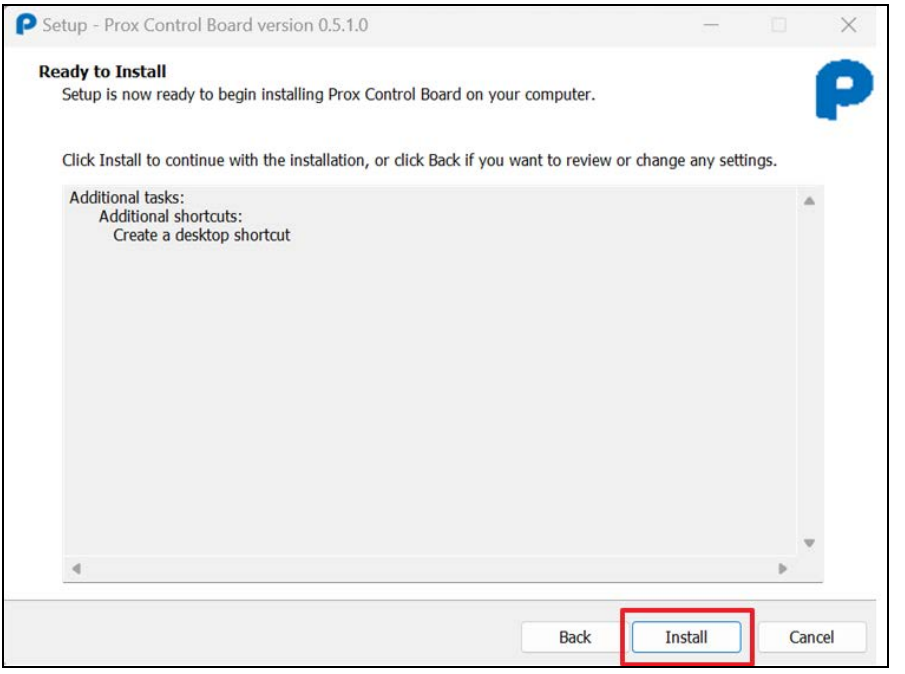


2. Select a language to run the installation program (Example：English), and press [**OK**].

3. Check if the version number shown of Prox Control Board is correct. Check whether to add a desktop shortcut.(Optional, Default: Checked). Press [**Next**] to continue.

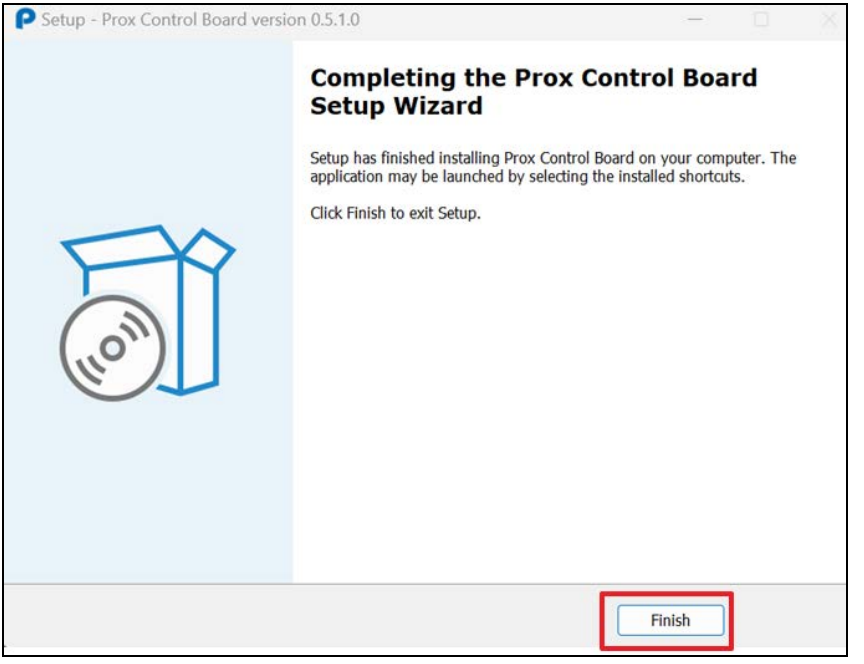


4. Confirm the installation task and press [**Install**].



5. Please wait for the installation process to complete. Click [**Finish**] after the installation procedure has completed.

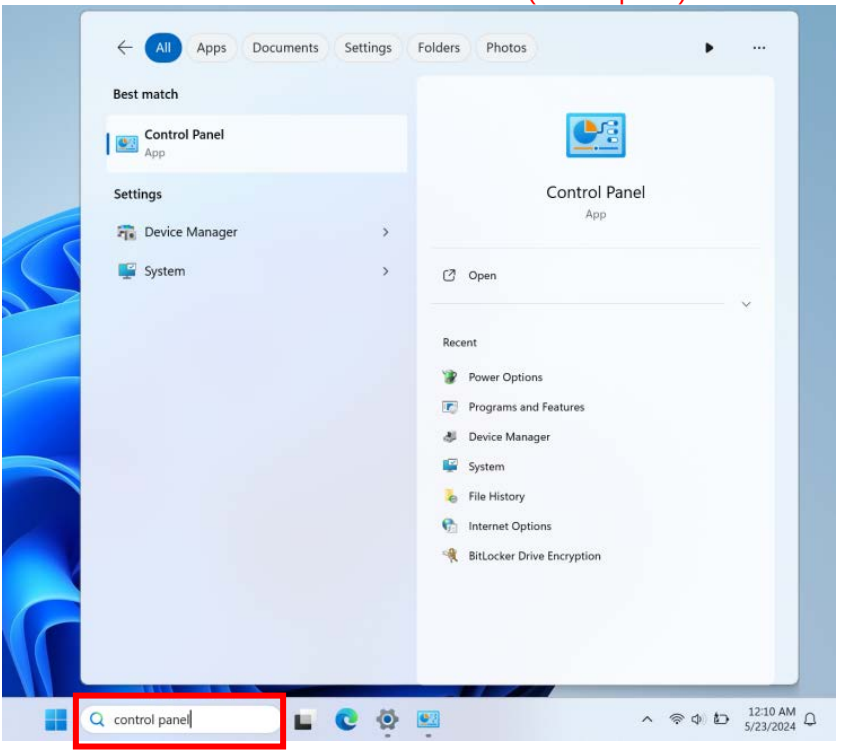
Note: On this page shown below, the Prox Control Board has been activated in the background.(The program activation is only effective for the user with the Administrator privilege who starts the installation. Other users need to restart the system.)



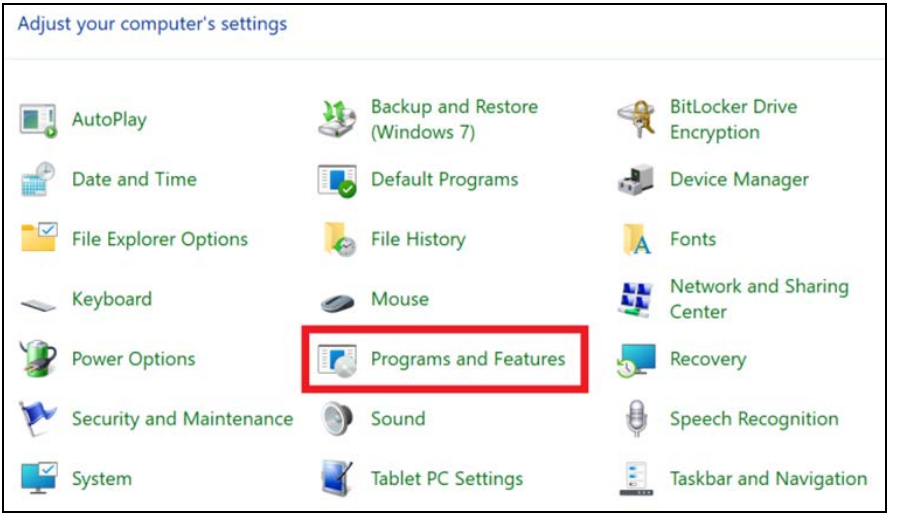
4.11.6 Uninstalling Prox Control Board

Uninstall from Control Panel (Windows 10/11)
If you are running Windows 11, follow the instructions below to remove Prox Control Board

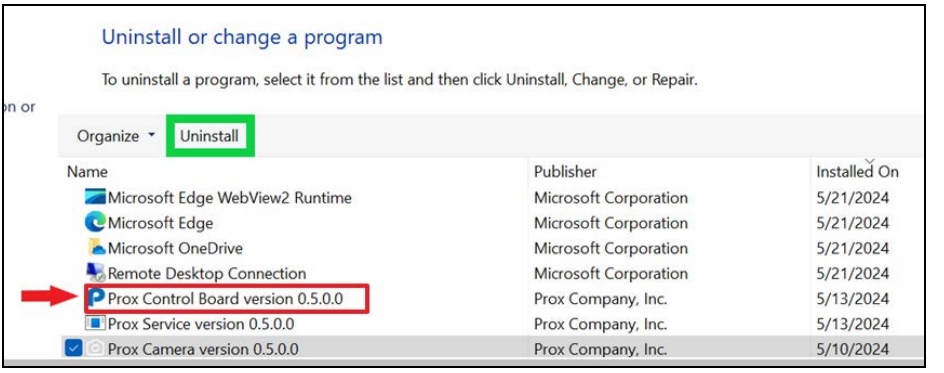
1. Search **Control Panel** as shown below: (Red Square)



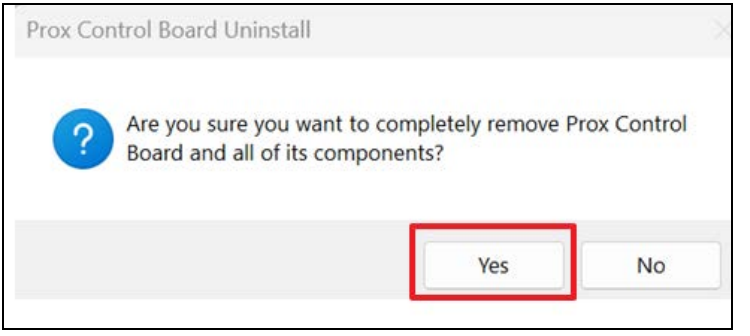
2. Select **Programs and Features** icon (Red Square).



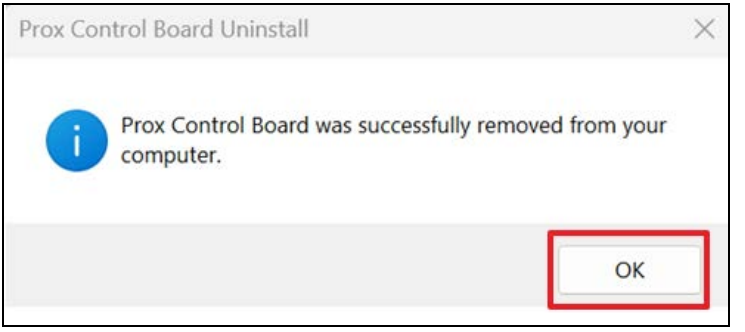
3. Find and click **Prox Control Board Version 0.5.X.0 (0.5.0.0 or 0.5.1.0)** (Red Arrow), and then click **Uninstall** (Green Square).



4. Click [**Yes**] to uninstall the **Prox Control Board** program.



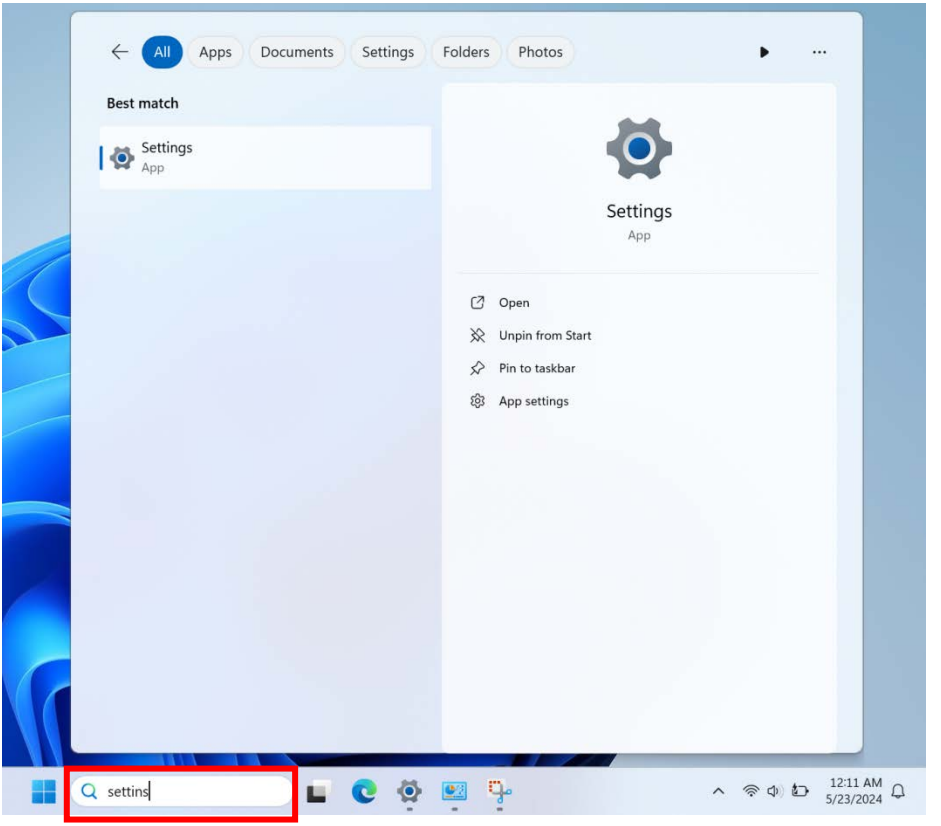
5. Please wait while the uninstallation process is running and then click [OK] after the Prox Control Board has been removed successfully from your device.



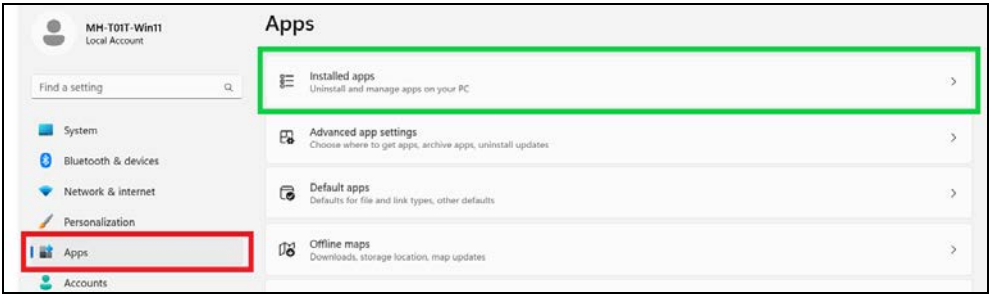
Uninstall from Settings(Windows 11)

If you are running Windows 11, follow the instructions below to remove Prox Control Board program.

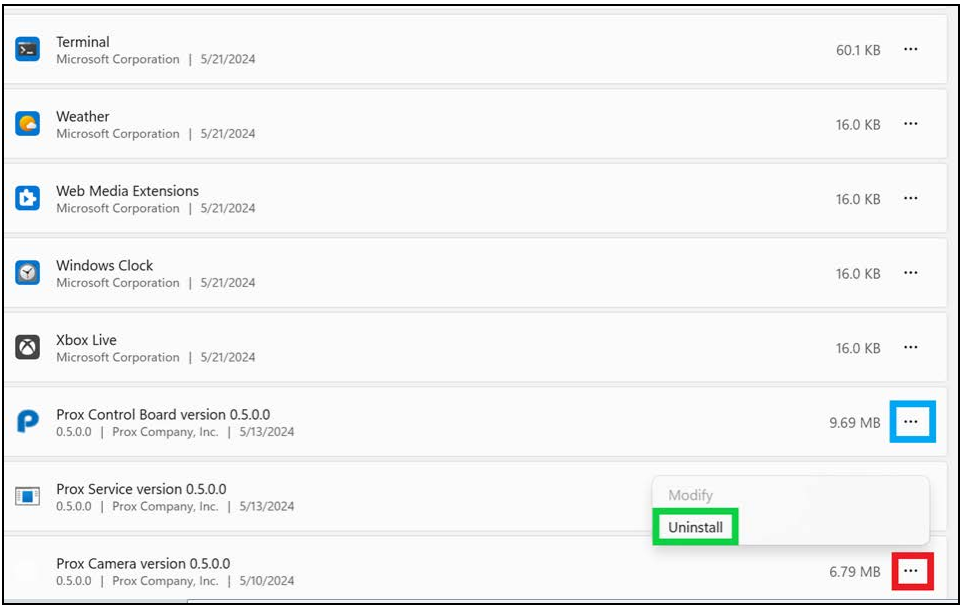
1. Search **Settings** as shown below: (Red Square)



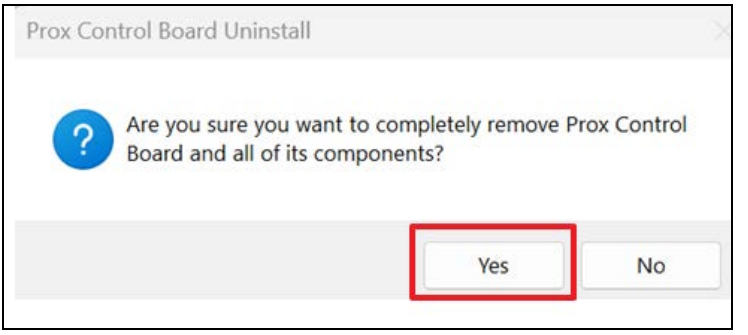
2. Select **Apps** (Red Square) > **Installed apps** (Green Square).



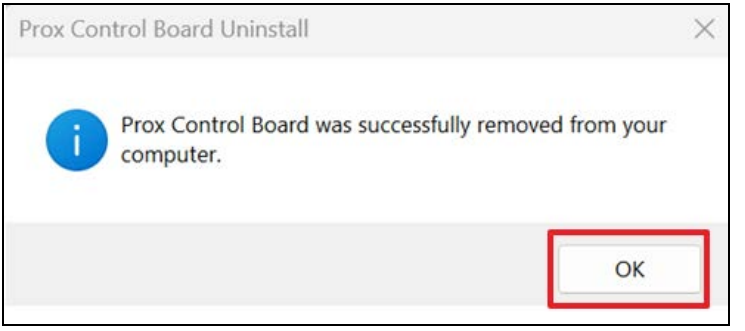
3. Click **Prox Control Board version 0.5.X.0 (0.5.0.0 or 0.5.1.0) "More" icon [...]** (Blue Square) and click **Uninstall** (Green Square)



6. Click [**Yes**] to uninstall the **Prox Control Board** program.

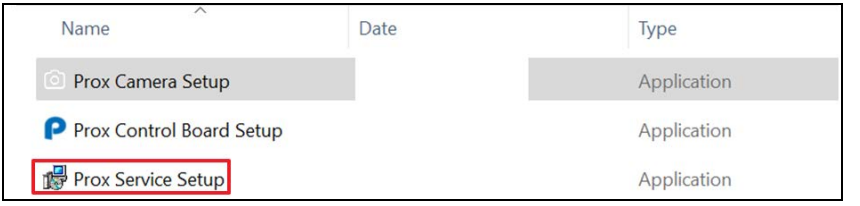


7. Please wait while the uninstallation process is running and then click [OK] after the Prox Control Board has been removed successfully from your device.

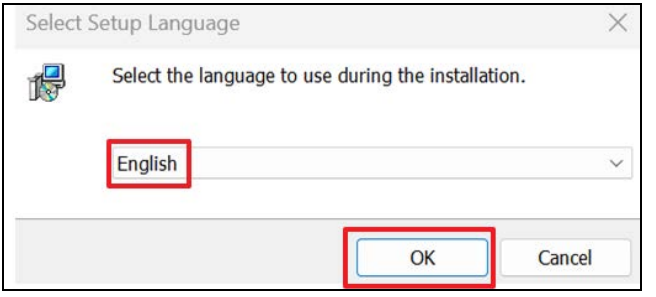


4.11.7 Installing Prox Service

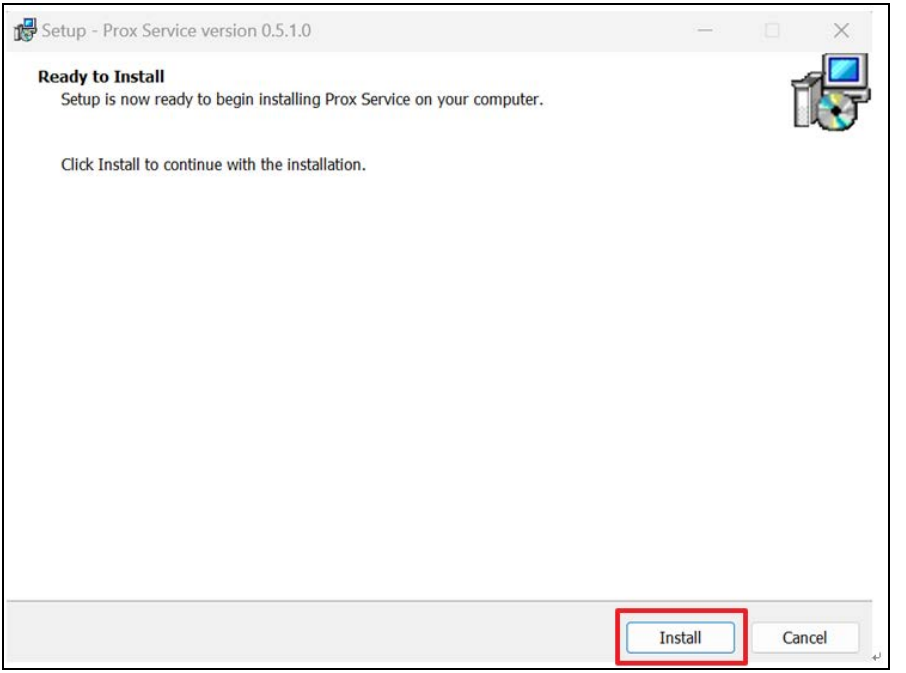
1. Select **Prox Service Setup** (Red Square).



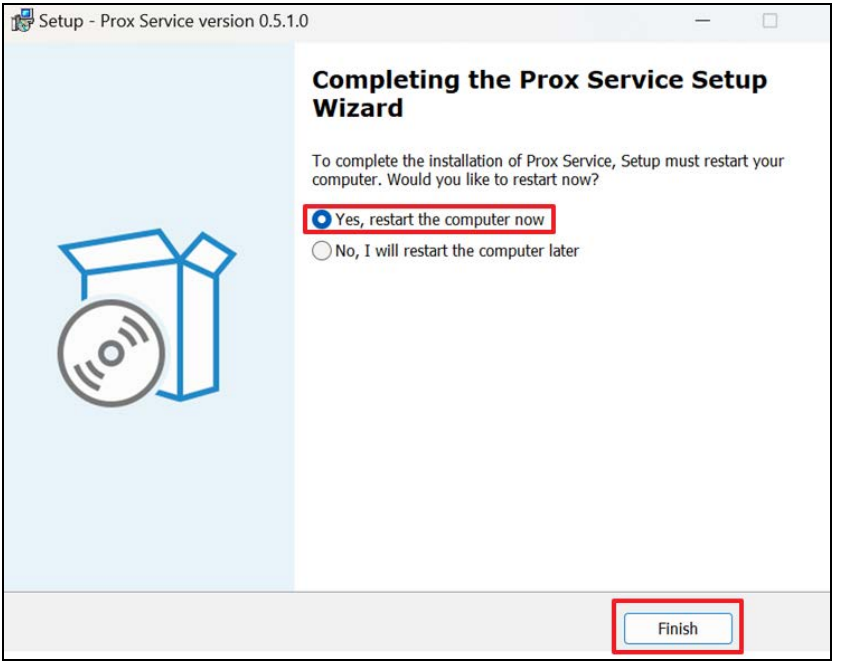
2. Select a language to run the installation program (Example：English) and press [**OK**].



3. Confirm you are ready to install **Prox Service** on your tablet, and press [**Install**] to start the installation process.



4. Make sure the installed service and programs have been enabled correctly. Click "**Yes"** radio button to restart the computer now. (Ensure all work and files have been processed and saved.).
   Click [**Finish**] and the System restarts immediately.

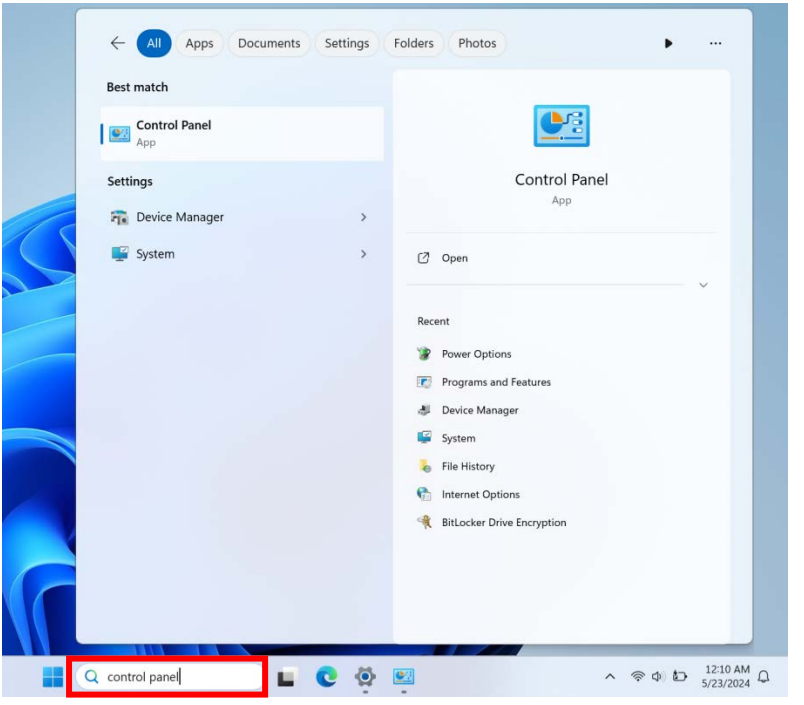


4.11.8 Uninstalling Prox Service

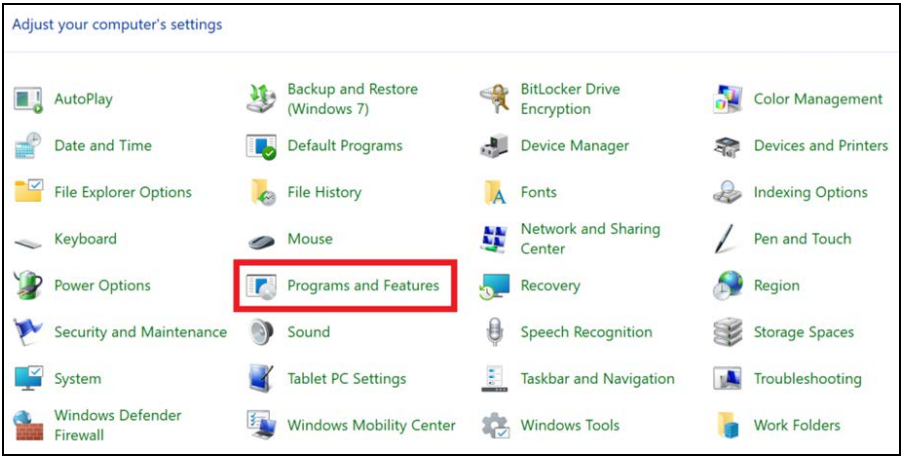
Uninstall from Control Panel (Windows 10/11)

If you are running Windows 11, follow the instructions below to remove Prox Service from your Tablet:

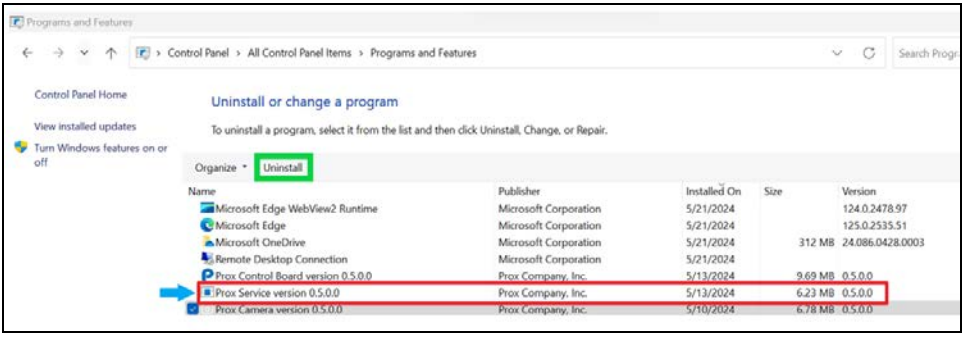
1. Search **Control Panel** as shown below (Red Square):



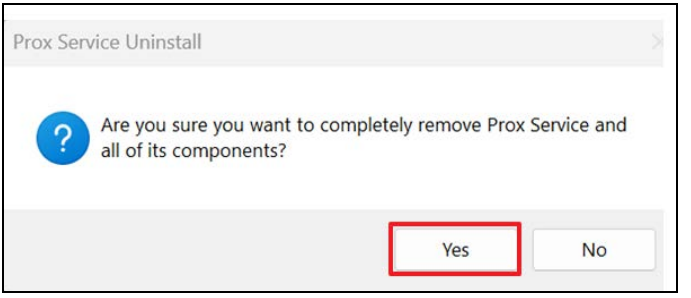
2. Select **Programs and Features** icon (Red Square).



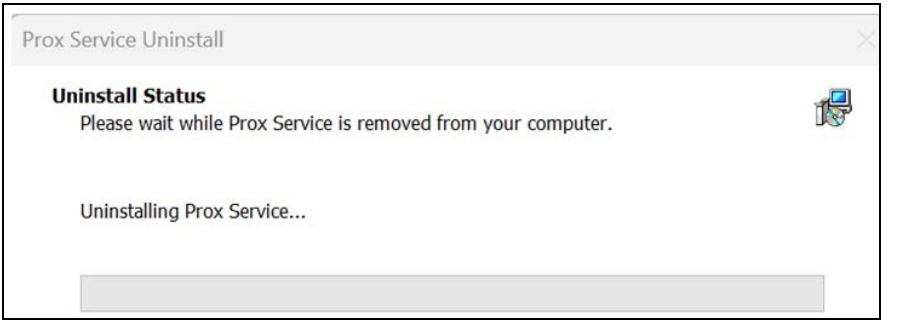
3. Click the "**Prox Service Version 0.5.X.0 (0.5.0.0 or 0.5.1.0)**" item (Blue Arrow and Red Square), and then click **Uninstall** (Green Square).



4. Click [**Yes**] to uninstall the Prox Service and all of its components.



5. Please wait while the uninstallation process is running. The uninstallation procedure will last for 5 to 10 seconds.

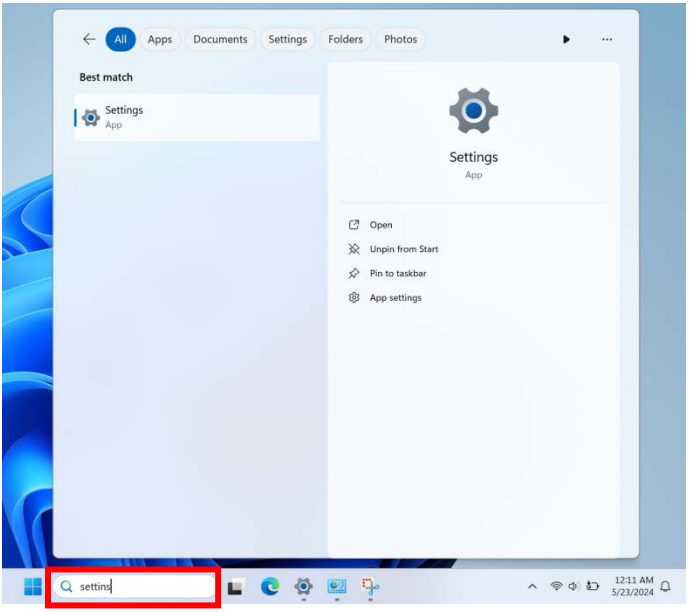


6. Click [**OK**] after the Prox Service has been removed completely and successfully from your device.

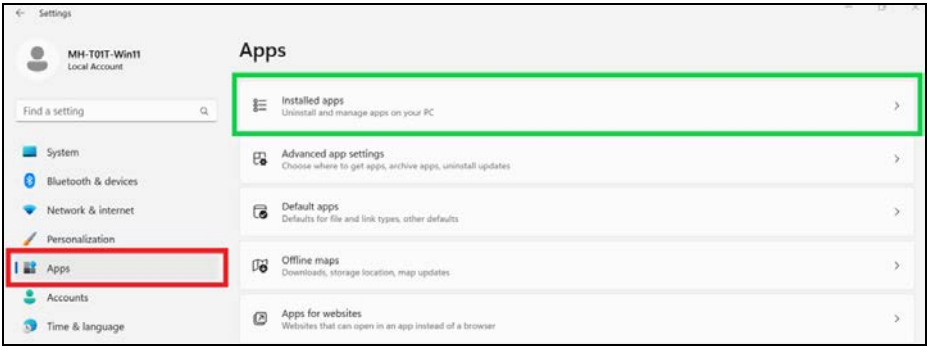
Uninstall from Settings (Windows 11)

If you are running Windows 11, follow the instructions below to remove Prox Service from your Tablet:

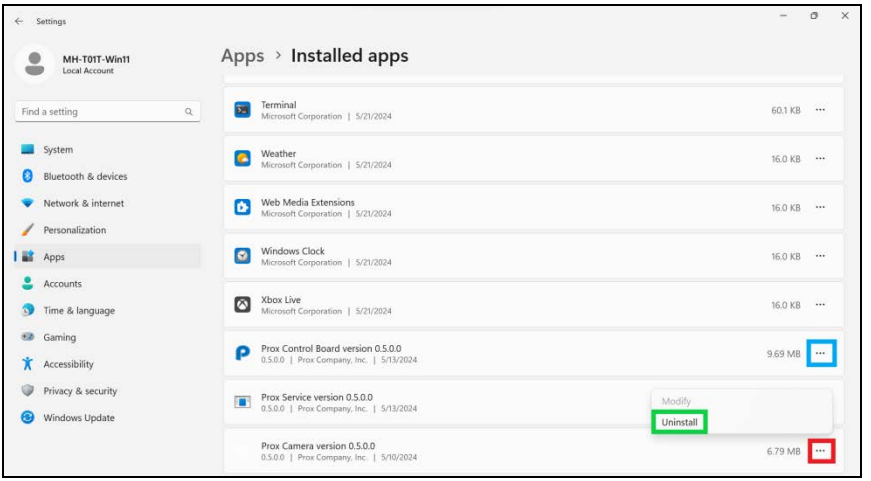
1. Search **Settings** as shown below: (Red Square)



2. Select **Apps** (Red Square) > **Installed apps** (Green Square).

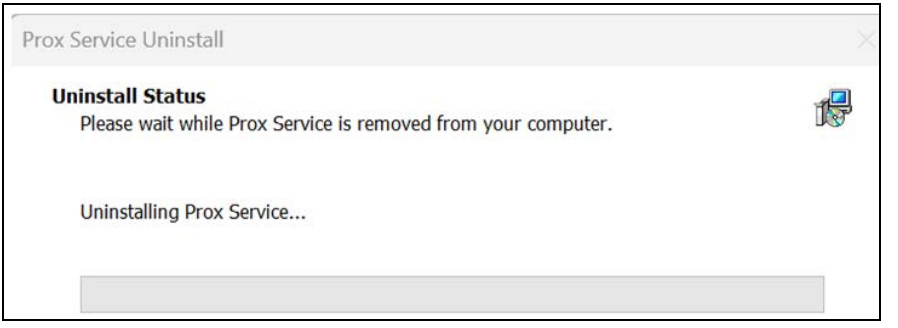


3. Select **Prox Service version 0.5.X.0 (0.5.0.0 or 0.5.1.0) "More" icon [...]**, and then click **Uninstall** (Green Square)



4. Click [**Yes**] to completely remove the Prox Service and all of its components.

Please wait while the uninstallation process is running. The uninstallation procedure will last for 5 to 10 seconds.



5. Click [**OK**] after the Prox Service has been removed completely and successfully from your device.

4.12 Using MH-T01T Prox Utility

Application Information
Version

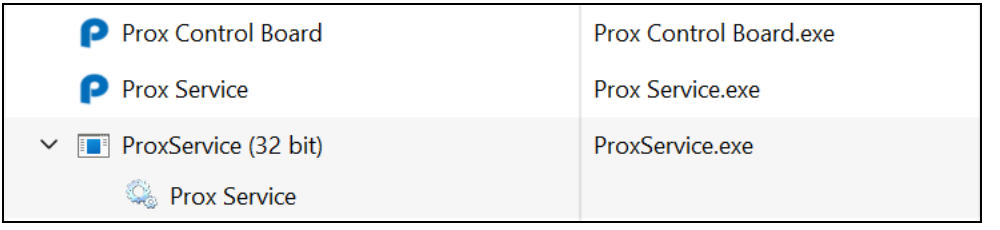
Prox Camera: 0.5.1.0	Update Date: 2024/05/24
Prox Control Board: 0.7.12.5	Update Date: 2025/01/10
Prox Service: 0.7.12.5	Update Date: 2025/01/10

Prox Utility includes 3 Software & 1 Service Software

1. **Prox Service** (Background Software & Service Software): MH-T101T Utility Background Service System. Include Prox Service (P logo) running on the background and ProxService (No icon) guard service to make sure Prox Service (P logo) starts up properly and runs smoothly.
2. **Prox Control Board:** User Control Interface for System Settings, Button Pool, Q-Start, Battery Information, Notification. Some of the functions need to be used with Prox Service.
3. **Prox Camera:** Camera Software. Hardware Button functions need to be used with Prox Control Board.

Prox Server

Prox Server is a program running on the background when the tablet starts up. You can find the program execution information at Windows Task Manager Background Processes.

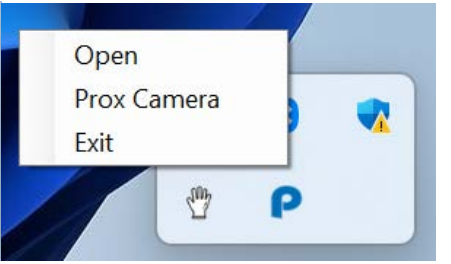


Prox Service (P logo): Used with Prox Control Board.
ProxService (No icon): Guard Service Protect Prox Service (P logo).

4.13 Prox Control Board

Prox Control Board is a control center app that will start in the background when the system starts up. You can find the program icon from the windows taskbar. (Red Square)

Picture 1



Picture 2

You can use one of the following two methods to launch the Prox Control Board application program.

Method 1: Left-click the mouse on the **P** logo or use your finger to touch the logo, and the software UI Main Page opens quickly. < See Section 4.13.1 Main Page>.

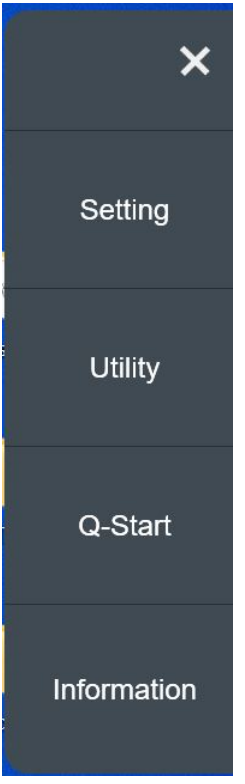
Method 2: Right-click the mouse on the **P** logo or use your finger to long press on the logo to bring up the Prox Control Board function menu (See Picture 2) that includes the following menu items:

- **Open:** Software UI Main Page displays. <See Section 4.13.1 Main Page>.
- **Prox Camera:** Open Camera Software.
- **Exit:** Used only when the program is running abnormally. Make sure the program is always running in the background. If you exit the program, you need to turn it on manually.

Next we will explain all the functions of all pages in order.
<Note> Some of the functions can be used properly only after **Prox Service** has been installed successfully.

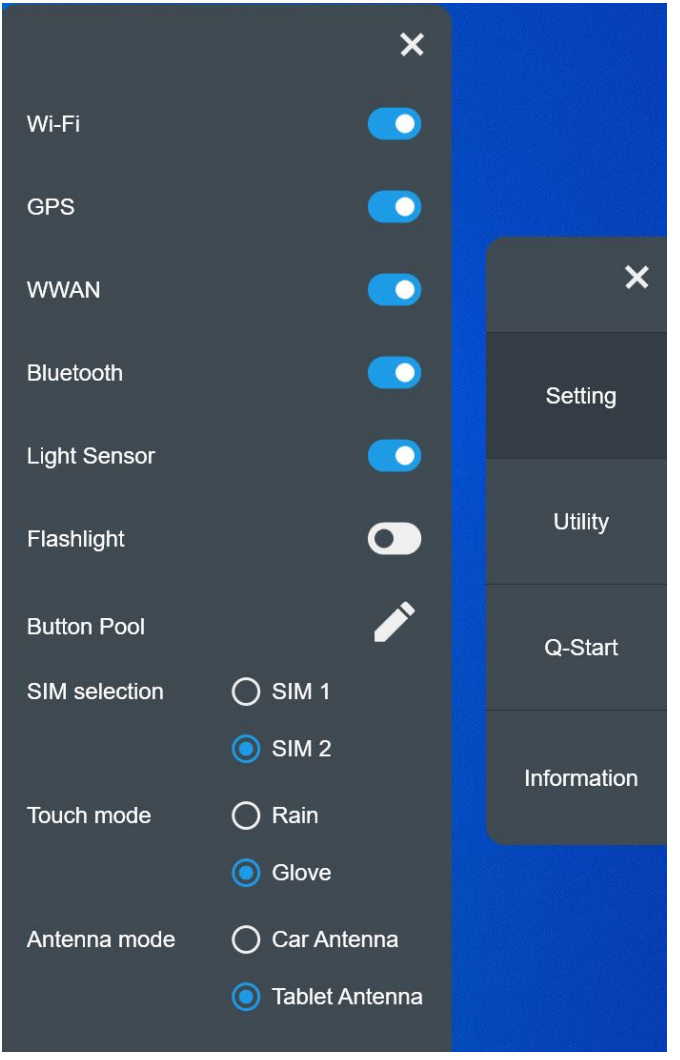
4.13.1 Main Page

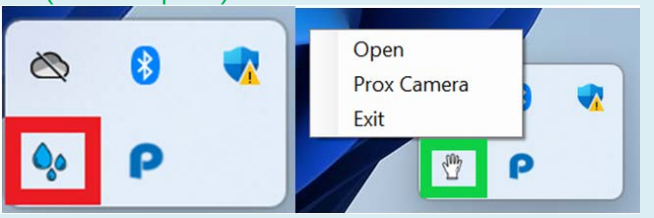
Prox Control Board consists of 4 main functions: Setting, Utility, Q-Start, Information.



4.13.2 Setting Page

The main functions of the **Setting** page include adjusting system settings, change button pool (tablet front button functions), MH-T01T Tablet unique functions Setting.

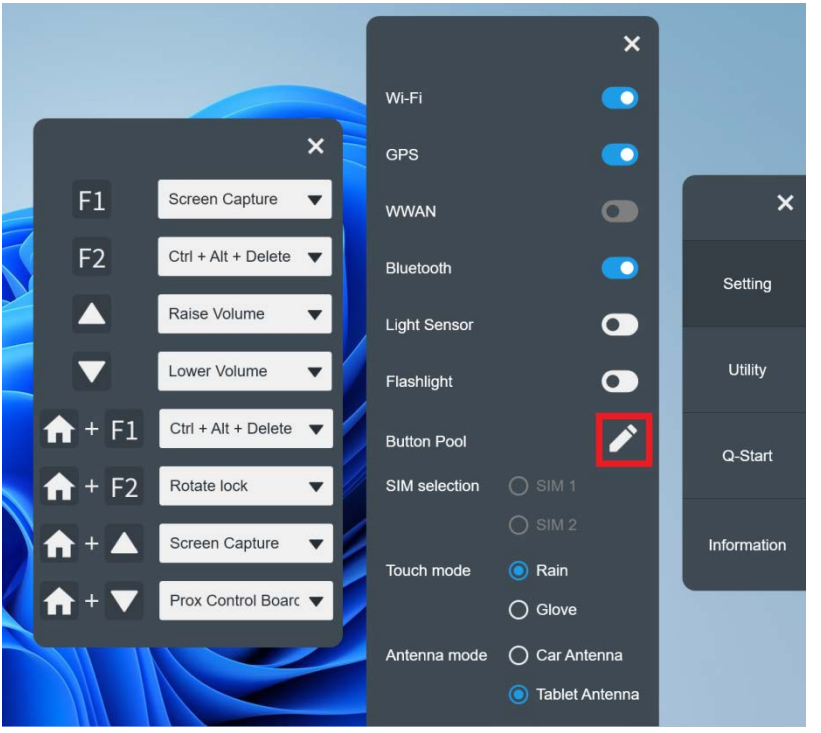


Function Item	Description
Wi-Fi	Turn On or Off Wi-Fi function.
GPS	Turn On or Off System Location setting & 4G/5G Modem GNSS switch (Note 1).
WWAN	Turn On or Off Mobile broad band Switch.
Bluetooth	Turn On or Off Bluetooth function.
Light Sensor	Turn On or Off Screen auto brightness adjustment function.
Flashlight	Turn On or Off Tablet back camera Flashlight.
Button Pool	Configures the 5 programmable function keys on the front of your tablet.<See Section 4.13.3 Button Pool Page.>
SIM selection	Switch between SIM card slots (See Note 1).
Touch mode	Change Touch Screen Mode. ➢ **Rain ->** The Stylus cannot be used. (Red Square) ➢ **Glove->** The Stylus can be used. (Green Square)  You can see the **Touch mode** icon on the Windows taskbar. Check the mode or touch the icon to switch between Rain and Glove modes.
Antenna mode	Switch Internal antenna (Tablet) or external antenna (Car).

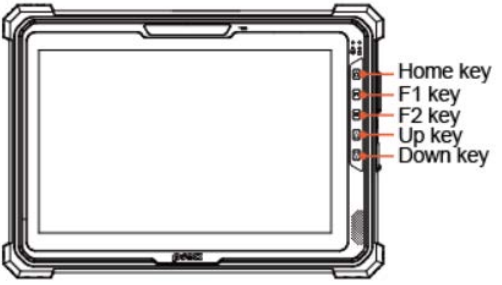
Note 1: The GPS function can only be used if a compatible mobile broad band modem module is installed.
Compatible modules：Quectel 4G EM060K-GL, Quectel 5G RM520N, **Sierra 4G EM7421**.

4.13.3 Button Pool (Function Keys) Page

The tablet is equipped of 5 programmable function keys (Home key, F1 key, F2 key, Up key and Down key) and specific combo keys. Before the system starts up into OS (BIOS mode), the functions of the buttons are fixed. Please see the default function table on Page 4-49. After the system enters into OS system, the button functions can be configured in Button Pool. (Red Square)



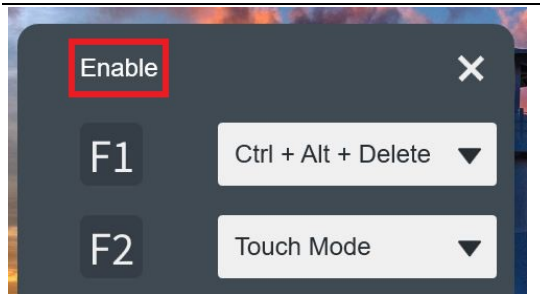
Please see the locations of the 5 programmable function keys located on the right side of the tablet.



Default function table:

Key\System State	BIOS mode (Before into OS)	After into OS
Home key	Keyboard ESC key	Windows Start Menu
F1 key	Keyboard right arrow key	Camera Capture (Note1)
F2 key	Keyboard left arrow key	Barcode Reader (Note1)
Up key	Keyboard up arrow key	Raise Volume (Note1)
Down key	Keyboard down arrow key	Lower Volume (Note1)
Home + F1 keys	Keyboard Enter key	Ctrl + Alt +Delete (Note1)
Home + F2 keys	N/A	Rotate lock (Note1)
Home + Up keys	N/A	Screen Capture (Note1)
Home + Down keys	N/A	Prox Control Board (Note1)

(Note1) Adjust functions on Button Pool page.
(Note2) Install **Prox Service** first before you can use the Button Pool functions properly. (continued on the next page)

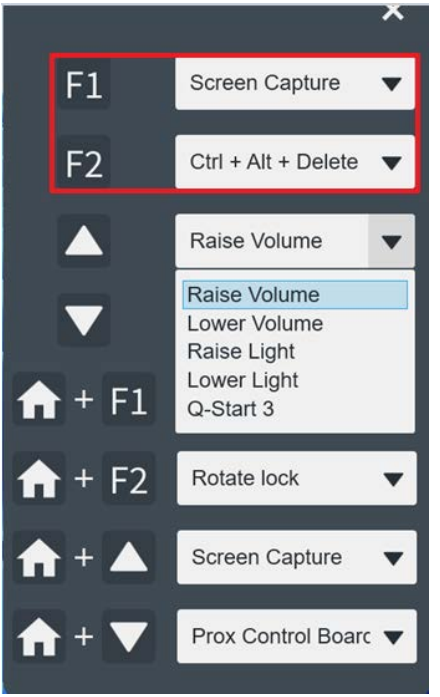


Button Pool function can be enabled / disabled at BIOS Setup menu. (Specific BIOS version required)
The status will be displayed at the top of the page. (Red Square)
(Control Board Version 0.7.12.5 & after)

Configuring F1, F2 Key Shortcuts
You can customize **F1** / **F2** function key shortcut by assigning it to a specific function from the function drop-down list. Follow the instructions below:

1. Go to **Prox Control Board** > **Setting** page and click the **Button Pool** icon as shown below:

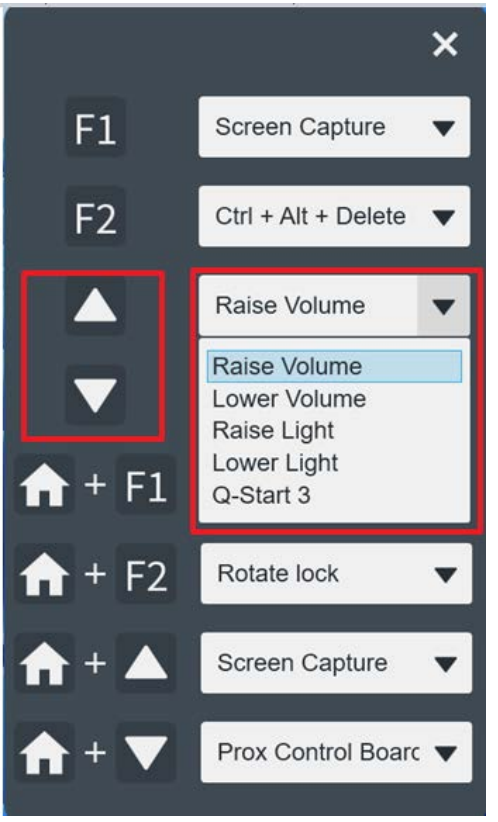
The programmable function keys configuration page shown appears. You are allowed to select and assign a specific function from F1 and F2 function drop-down lists.



The functions available for F1 & F2 key shortcuts selections are listed below:

Function	Description
Camera Capture	Open Prox Camera and capture pictures. (You need to install **Prox Camera** first).
Barcode Reader	Optional Tablet Accessories. Press to scan barcode reader.
Ctrl+Alt+Delete	Bring up Windows Security.
Rotate Lock	Control Screen Rotate lock.
Screen Capture	Screenshot into clipboard.
Q-Start	Program shortcut key (Please see section 4.13.5 Q-Start Page).
Touch mode	Adjust Touch Screen mode, rain mode or glove mode.<See Section 4.13.2 Setting page on page 4-46.>

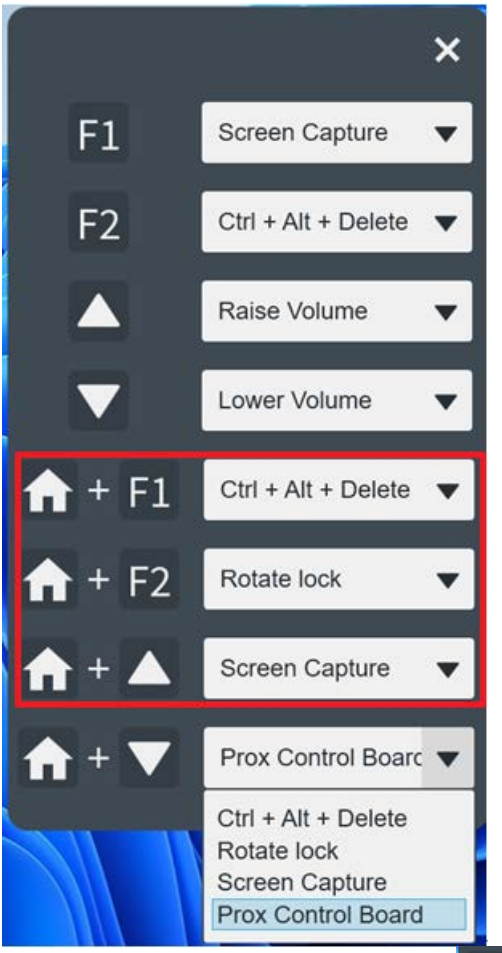
Configuring Up Key and Down Key Shortcuts:

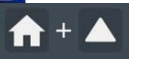


You can customize **Up / Down** function key shortcut by assigning it to a specific function from the function drop-down list. The functions available for **Up / Down** key shortcuts selections are listed below:

Function	Description
Raise Volume / Lower Volume	Adjust System Volume.
Raise Light / Lower Light	Adjust Screen Brightness.
Q-Start	Program shortcut key (Please see Section 4.13.5 Q-Start Page).

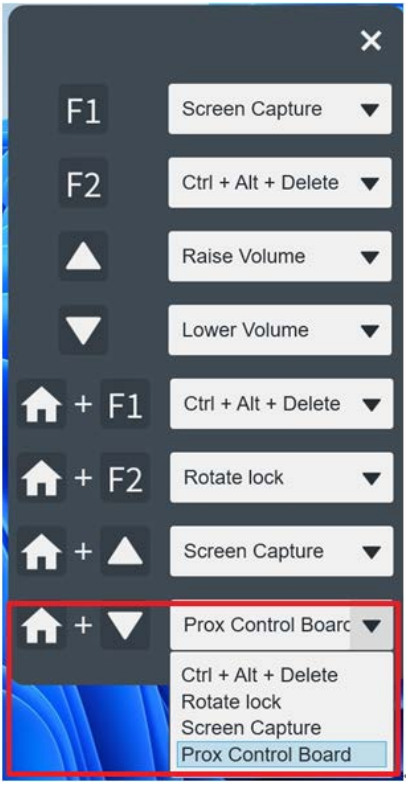
Configuring Home + F1, Home + F2, Home + Up Combo key Shortcuts:



Home + F1 key, Home + F2 key, Home + Up key  (as shown above) can be configured as combo shortcut keys to perform one of the functions below quickly:

Function	Description
Ctrl+Alt+Delete	Bring up Windows Security.
Rotate Lock	Control Screen Rotate lock.
Screen Capture	Screenshot into clipboard.

Configuring Home + Down key as a Combo Key Shortcut:



You can customize the **Home + Down key**  combo key shortcut from the drop-down lists to assign a specific function quickly: The functions available for selections are listed below:

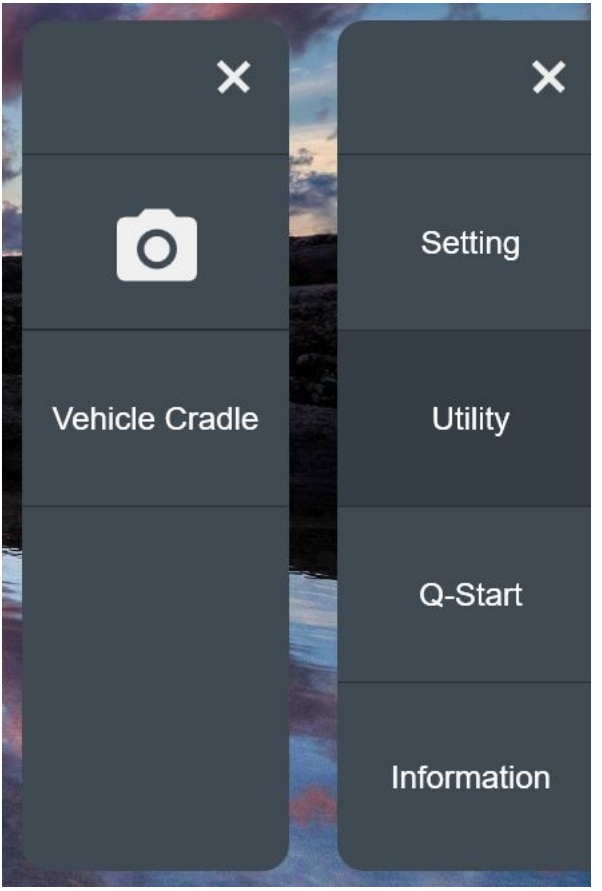
Function	Description
Ctrl+Alt+Delete	Bring up Windows Security.
Rotate Lock	Control Screen Rotate lock.
Screen Capture	Screenshot into clipboard.
Prox Control Board	Open Prox Control Board.

Note that you can only launch the Prox Control Board by configuring **Home + Down** combo key shortcut  .

4.13.4 Utility Page

All application tools have been developed for MH-T01T Tablet by Protech Systems.

<Note> Other programs will be added in the future at this page.

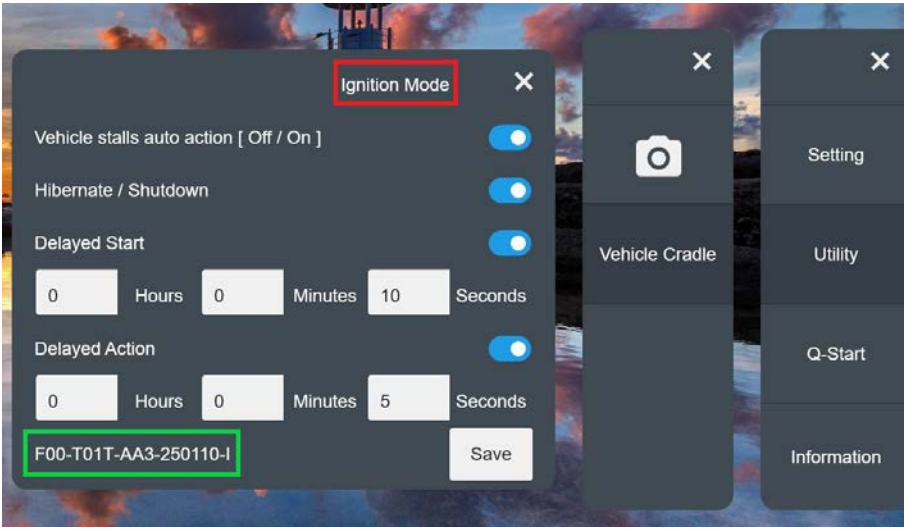


Using Utility: ProxCamera

Tap the camera icon to quickly open the camera app. (See Chapter 4.14 Prox Camera for details.)

Using Utility: Vehicle Cradle

The tablet can be used with vehicle Cradle to achieve delayed startup and delayed shutdown functions.
(The Delayed Start function is available in specific BIOS & EC version)



Mode Status (Red Square): The vehicle cradle provides two modes according to its functions. Ignition Mode & CIG Mode (Vehicle Cradle has different firmware versions).

Vehicle Cradle firmware version (Green Square): The version number will be displayed after the Vehicle Cradle is successfully connected.

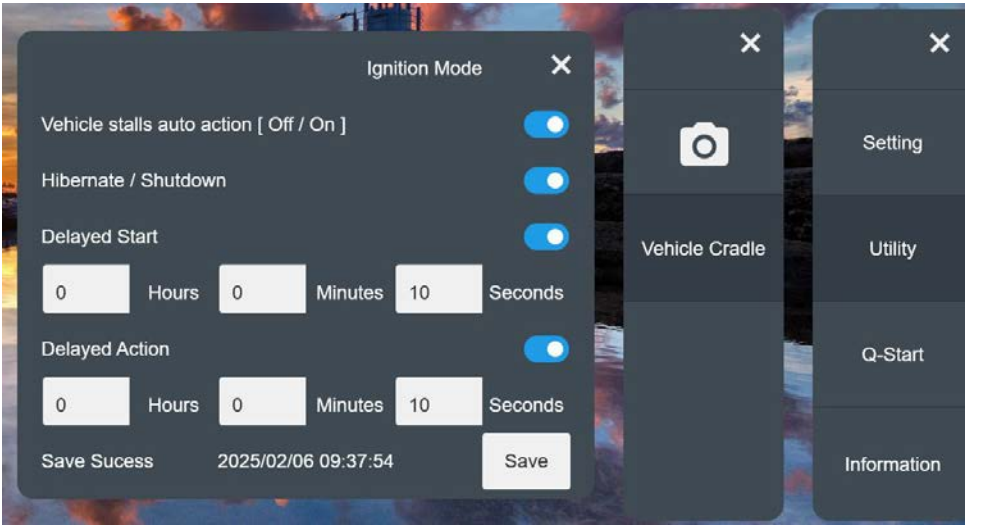
- **Vehicle stalls auto action:** When this function is turned on and after the tablet is powered off, the tablet will start timing according to the delayed action time setting.

- **Hibernate / Shutdown:** Select vehicle stalls action.

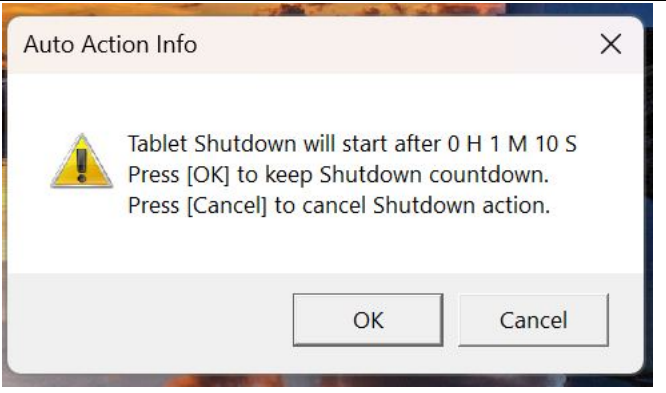
- **Delayed Start:** When the **Vehicle stalls auto action** function is turned off, startup tablet immediately. When the **Vehicle stalls auto action** function is turned on, the system will delay startup according to the set time.(Maximum time: 1 Hours 59 Minutes 59 Seconds)

- **Delayed Action:** When the **Vehicle stalls auto action** function is turned off, perform the action immediately. When the **Vehicle stalls auto action** function is turned on, the system will delay the action specified according to the set time. (Maximum time：1 Hours 59 Minutes 59 Seconds)

- Click the **Save** button to transfer the setting data to the Vehicle Cradle for storage.

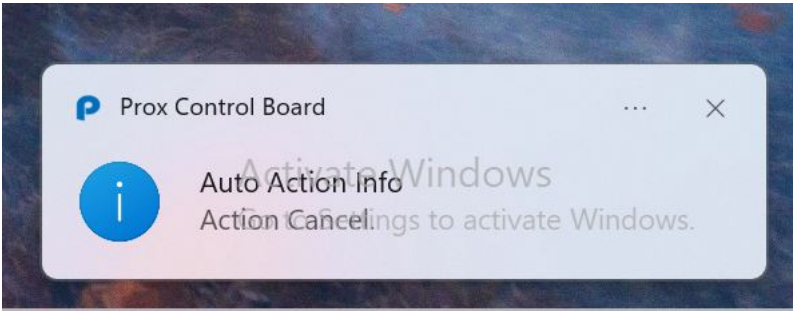


When the data is successfully transferred, the page will display the transfer success time and message.



When the tablet power is cut off & vehicle stalls auto action function is ON, **Auto Action Info** window will display the **Hibernate / Shutdown** action specified & delayed action time info.

Press [OK] to keep the action.



Press [Cancel] to cancel the action & display the cancel notification.

4.13.5 Q-Start Page

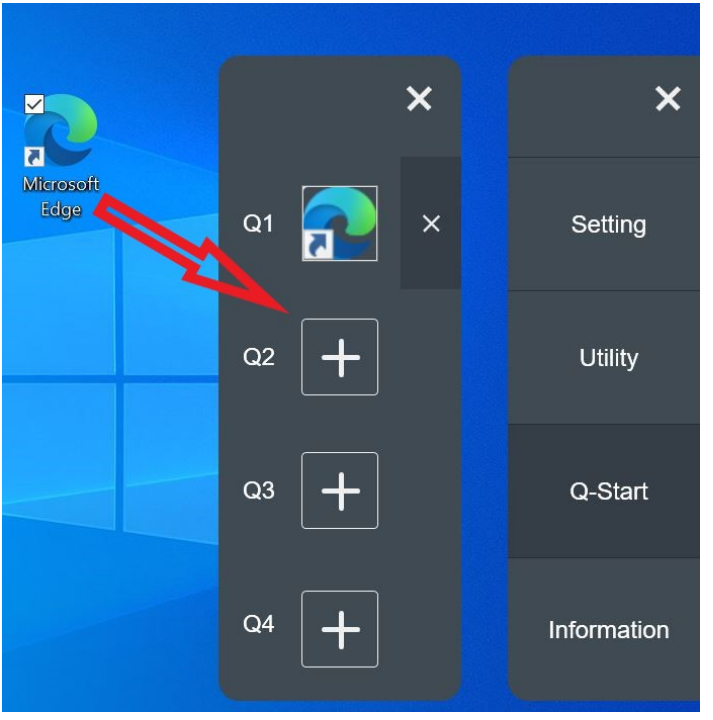
The **Q-Start** function allows user to quickly start up an application program or a file. The function can be set and triggered from this page (click the **Q-Start** menu icon from Prox Control Board) or use the tablet front buttons (See page 4-59 and set **Q-Start** function from **Button Pool** page).

Setting Q-Start

To set the **Q-Start** function for an application program or a file, use the two methods described below:

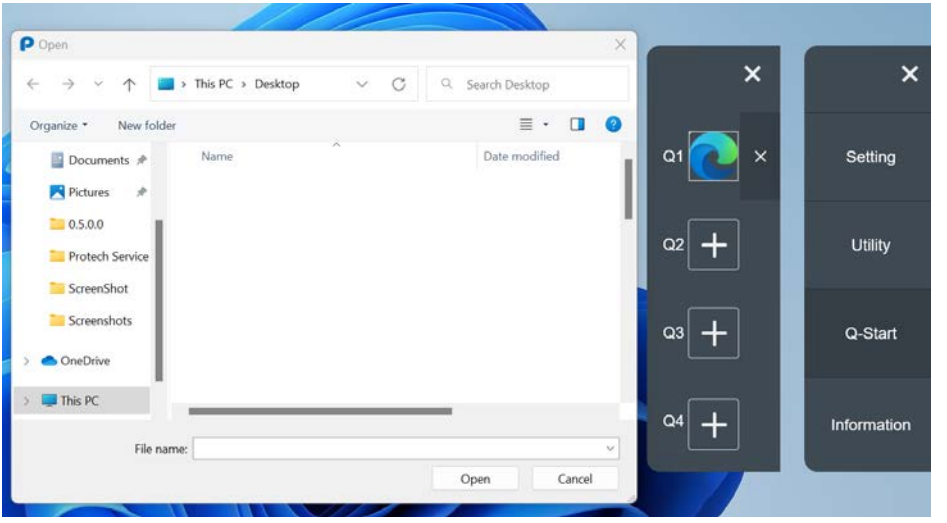
1. Dragging an intended file

Drag an application program file or a file into the **"+"** icon as shown below:



2. Using Program Selector Window

Click + icon to open the file selector window. Select a file and then click **Open**.

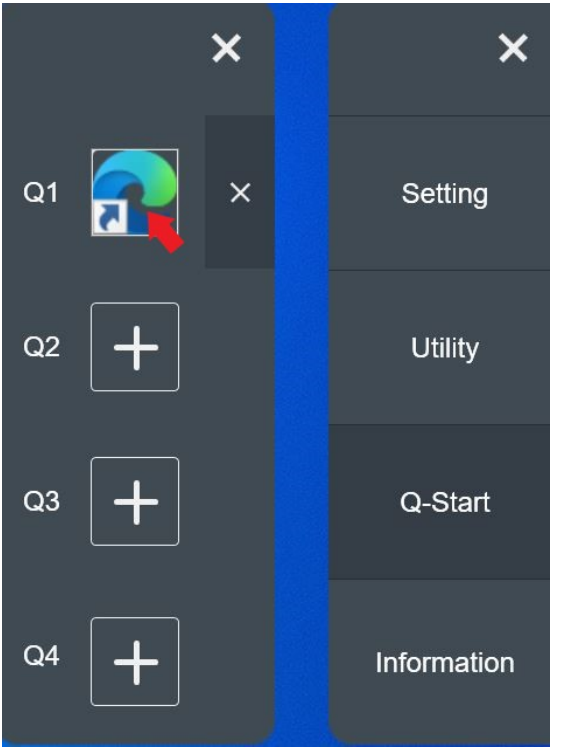


Trigger Q-Start

To trigger and quickly start up an application program or a file set previously under **Q-Start** menu, use the two methods described below:

1. Click Icon

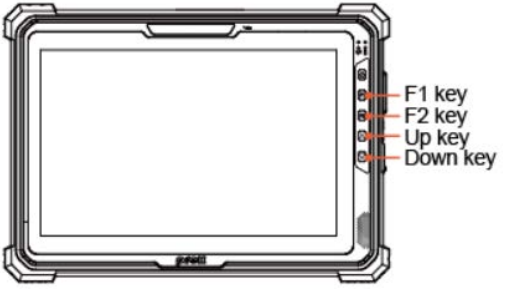
Click Q1 icon for example to quickly open the application program (as shown below):



2. Using Tablet Button

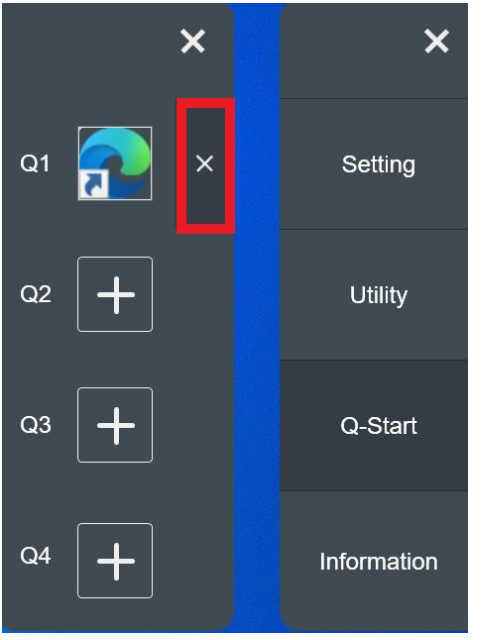
You can also select to use Tablet Programmable Function Keys F1(Q1), F2(Q2), Up(Q3), Down(Q4) keys to quickly open an application programs or a file.

Before you can use the programmable function keys (F1(Q1), F2(Q2), Up(Q3), Down(Q4)) to quickly open up an application program or file, you need to first set **Q-Start** function in **Button Pool** menu. See Section 4.13.3 Button Pool Page.



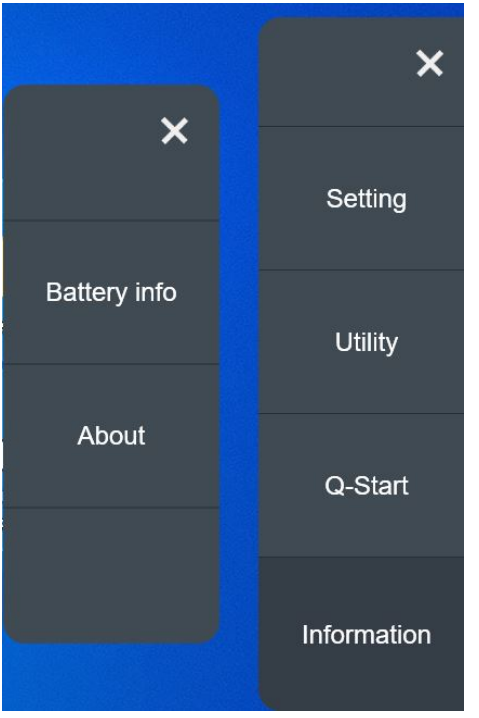
Cancel Q-Start

Click the "**X**" on the right side of the Q1 icon (for example) to cancel the Q-Start setting. (Red Rectangle)



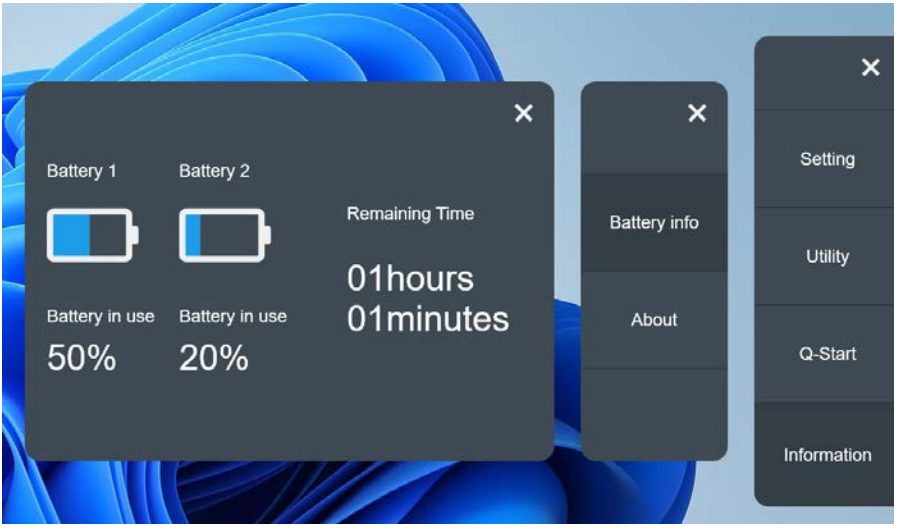
4.13.6 Information Page

Information page allows users to view battery information, change language options, check app version and view user manual.



Battery info

The **Battery info** item allows users to check two battery percentage, system remaining time.

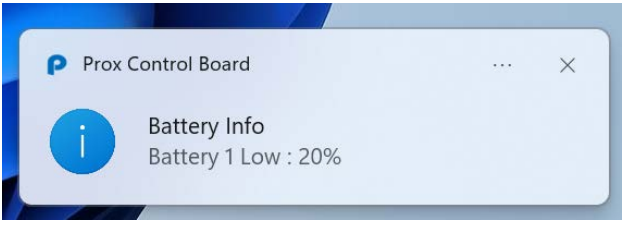


Notification

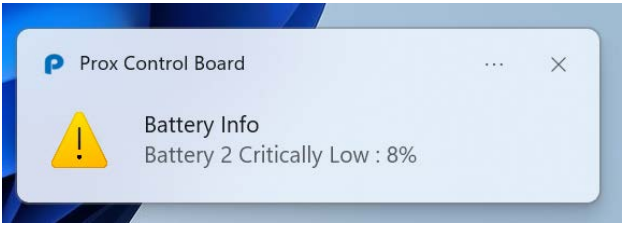
The **Notification** warning messages will display to alert users when the following conditions occur on your tablet:

The following low battery notification message will appear on the tablet screen when the tablet battery 1/2 is running low:

- **Low Battery** notification message will pop up when the tablet battery 1/2 reaches the low battery level **20%**.

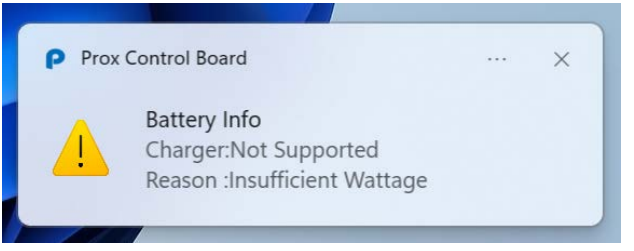


- **Critically Low Battery** notification message will pop up when the tablet battery 1/2 reaches the critically low battery level **8%**.



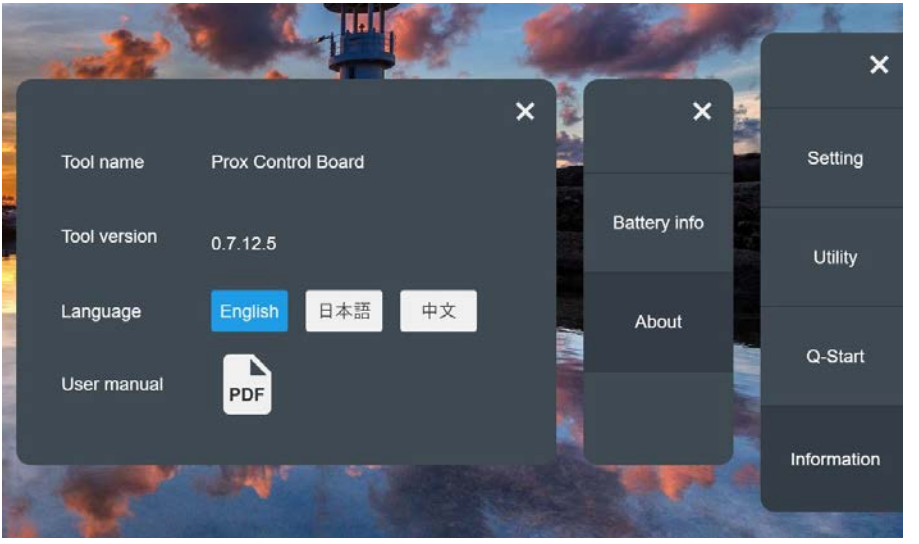
The notification message below will appear on the tablet screen when the power supply of the inserted PD Charger is disqualified:

- **Charger: Not Supported** notification message will pop up when the power supply of the plugged-in PD charger is lower than **65W**.



About

The **About** item allows users to change language option, check app version and view user manual.



4.13.7 Battery Shipping Mode

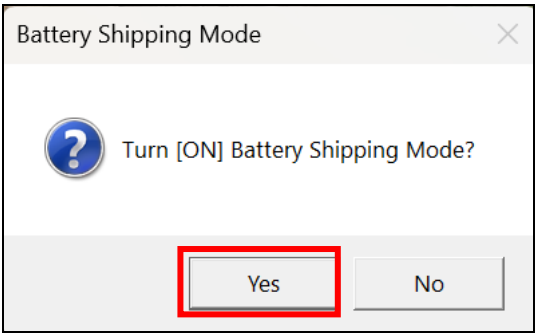
Preventing Battery Over-Discharging

To prevent the battery from over-discharging, it is highly recommended that you enable the Battery Shipping Mode for MH-T01T tablet if users need to store the purchased tablets (with battery) for a long time.

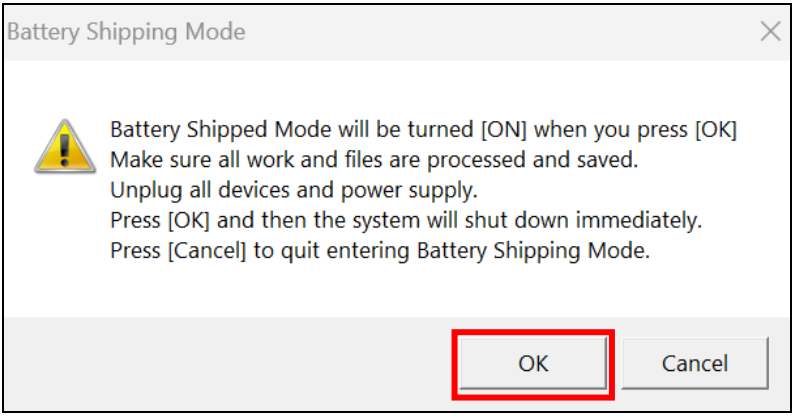
Enabling Battery Shipping Mode:
Follow the instructions below to enable Battery Shipping Mode for the purchased MH-T01T tablet:

1. From **Information** page, quick click **Battery info** icon for 5 times within 4 seconds.

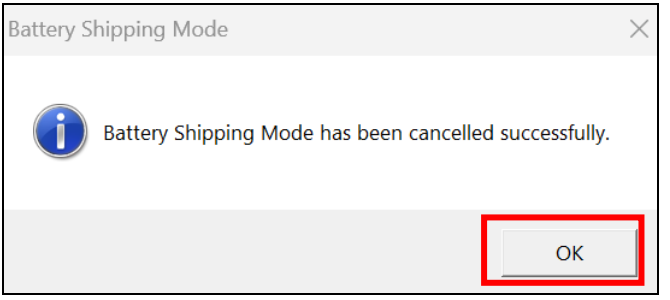
2. Select [Yes] to turn [ON] Shipping Mode.



3. Check if all your work and files have been processed and saved successfully. Unplug all devices and power supply. Press [OK] and then the system will shut down immediately and the Battery Shipping Mode will be turned [ON].



If you don't need MH-T01T tablet to enter Battery Shipping Mode, simply press [Cancel] to quit enter Battery Shipping Mode. The following message box appears.



4. When the tablet shuts down, you will see battery LED indicator light flashes back and forth between red, yellow, and green until the tablet enters Battery Shipping mode successfully.

Exit Battery Shipping Mode:

1. Plug in any power supply: AC adaptor or Type-C PD charger (Power > 65W).
2. The plug-in time must be at least greater than 30 seconds.
3. Make sure the battery LED indicator light displays properly.
4. Now you can use your device normally.

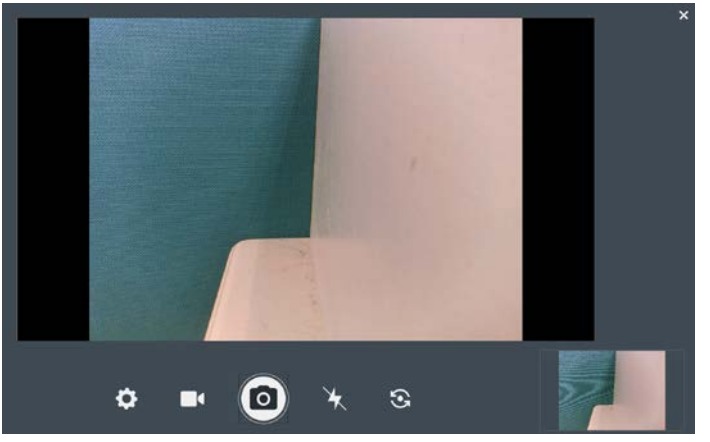
4.14 Prox Camera

Prox Camera is a basic capture photo and video recording camera application. It can be used with Prox Control Board to achieve the function of using Tablet front-side physical buttons to launch the program and take photos. (See Section 4.13.3 Button Pool Page on how to use camera functions by configuring Tablet programmable front-side buttons.) <Note> You need to install **Prox Control Board** first before you can use Tablet front-side button to capture photos.

4.14.1 Photo Mode

The function menu items at the bottom from left to right are listed below:

Function Item	Description
Setting	Provides settings parameters.
Video Mode	Please see Section 4.14.2 Video Mode.
Photo Mode	Click to take photos.
Flashlight	Click to turn on or off Flashlight.
Switch Camera	Click to switch between front camera and rear camera.

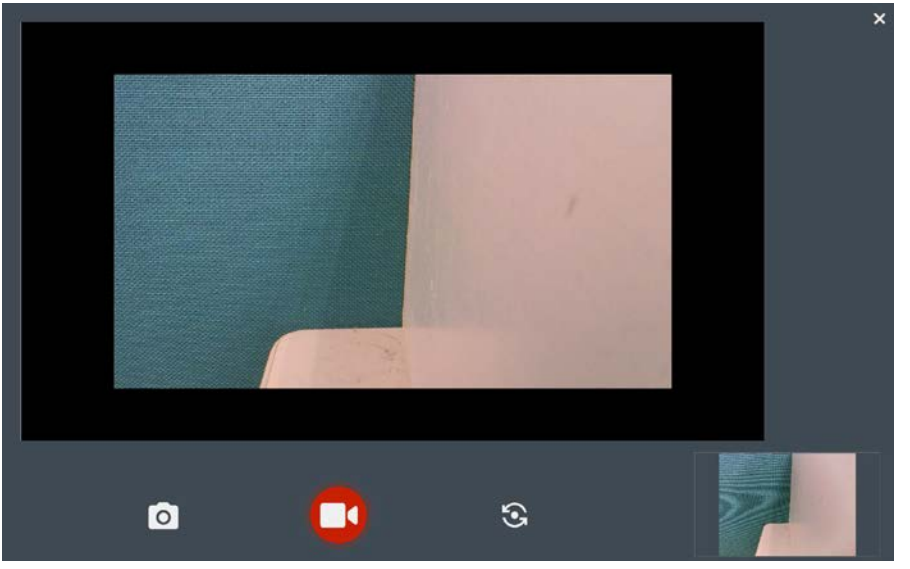


Click the thumbnail from the lower right corner to open the latest shot photo or a recorded video.

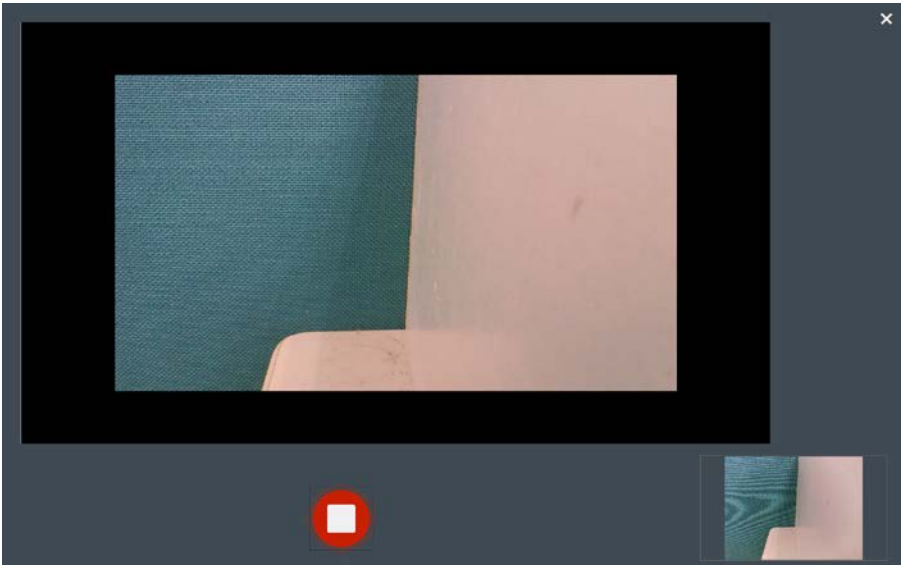
4.14.2 Video Mode

The function menu items of Video Mode are located at the bottom of the screen and are described below (from left to right):

Function Item	Description
 **Photo Mode**	Click to take photos. (Please see **Section 4.14.1 Photo Mode** for details.)
Recording Video	The red Recording Video icon indicates a video is being recorded.
 **Switch Camera**	Click to switch between front camera and rear camera.

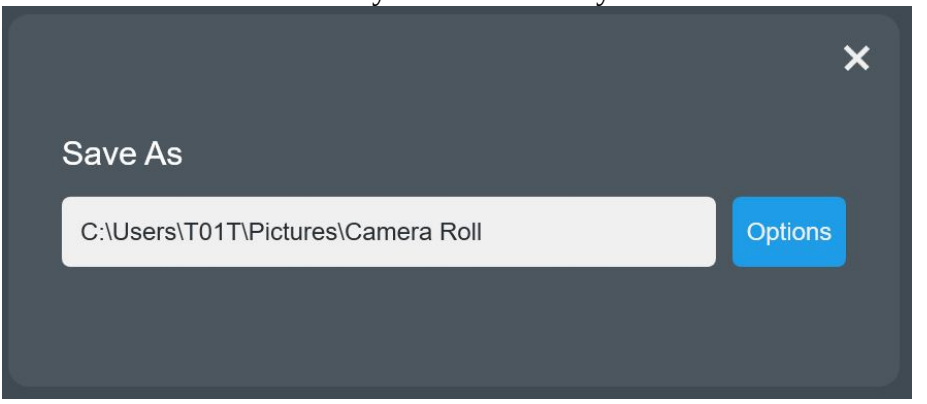


While a video is being recorded, click the red button  as shown below to stop the recording process.

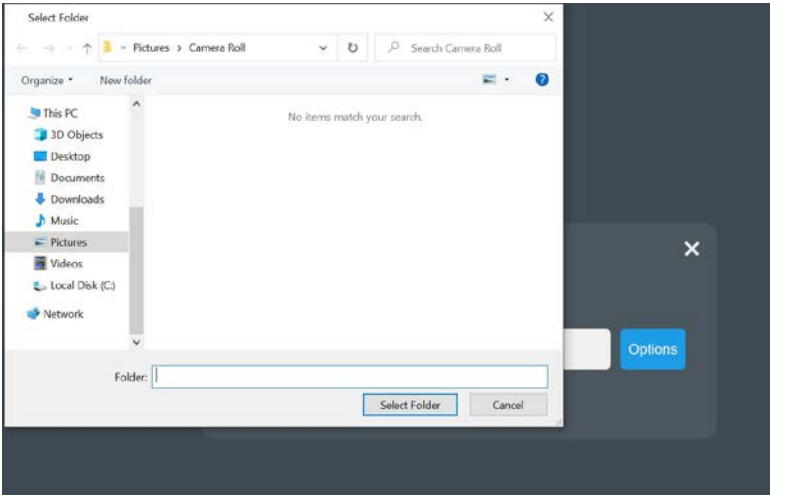


4.14.3 Changing Video File Saving Path

To save a recorded video file to a specific file folder (different from the system default saving path), click the **Setting** icon on the bottom (see page 4-71) and follow the instructions below to change the intended folder under which you want to save your video.



1. Click **Options** to open the folder selector window. (see the picture above)
2. Browse and select a folder to save the file and then click **Select Folder** button.
3. Click "**X**" located on the upper right corner to close the window and go back to Prox Camera menu.



5 BIOS Setup

This chapter guides users how to configure the basic system configurations via the BIOS Setup Utilities. The information of the system configuration is saved in battery-backed CMOS RAM and BIOS NVRAM so that the Setup information is retained when the system is powered off. The BIOS Setup Utilities consist of the following menu items:

- Accessing Setup Utilities
- Main Menu
- Advanced Menu
- Chipset Menu
- Security Menu
- Boot Menu
- Save & Exit Menu

5.1 BIOS Operation

5.1.1 BIOS Setup

The MH-T01T System uses an AMI (American Megatrends Incorporated) Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the built-in BIOS setup program, Power-On Self-Test (POST), PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Aptio is AMI's BIOS firmware based on the UEFI (Unified Extensible Firmware Interface) Specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between an operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These elements provide standard environment for booting an operating system and running pre-boot applications. The following diagram shows the Extensible Firmware Interface's location in the software stack.

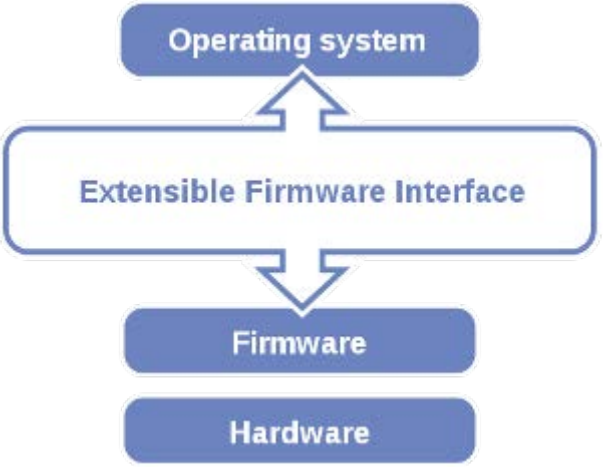


Figure 5-1. Extensible Firmware Interface Diagram

EFI BIOS provides an user interface allow users the ability to modify hardware configuration, e.g. change the system date and time, enable or disable a system component, decide bootable device priorities, setup personal password, etc., which is convenient for modifications and customization of the computer system and allows technicians another method for finding solutions if hardware has any problems.

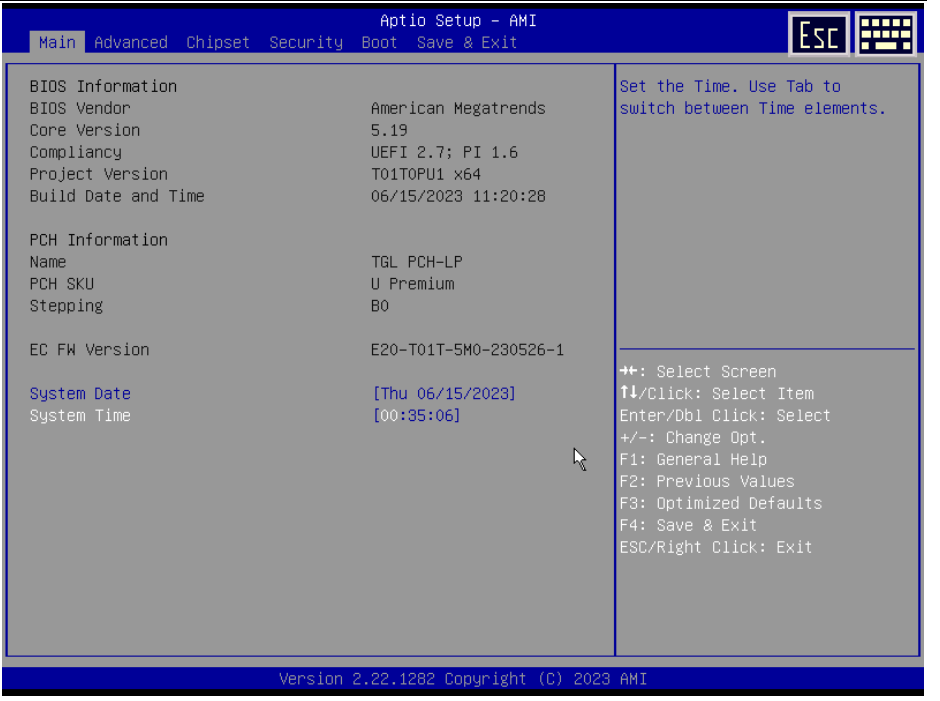
The BIOS Setup program can be used to view and change the BIOS settings for the computer. The BIOS Setup program is accessed by pressing the <Del> or <ESC> key after the POST memory test begins and before the operating system boot begins. The settings are shown below.

5.2 Accessing Setup Utility

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

POST Screen with AMI Logo

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Aptio Setup Utility will appear on the screen:



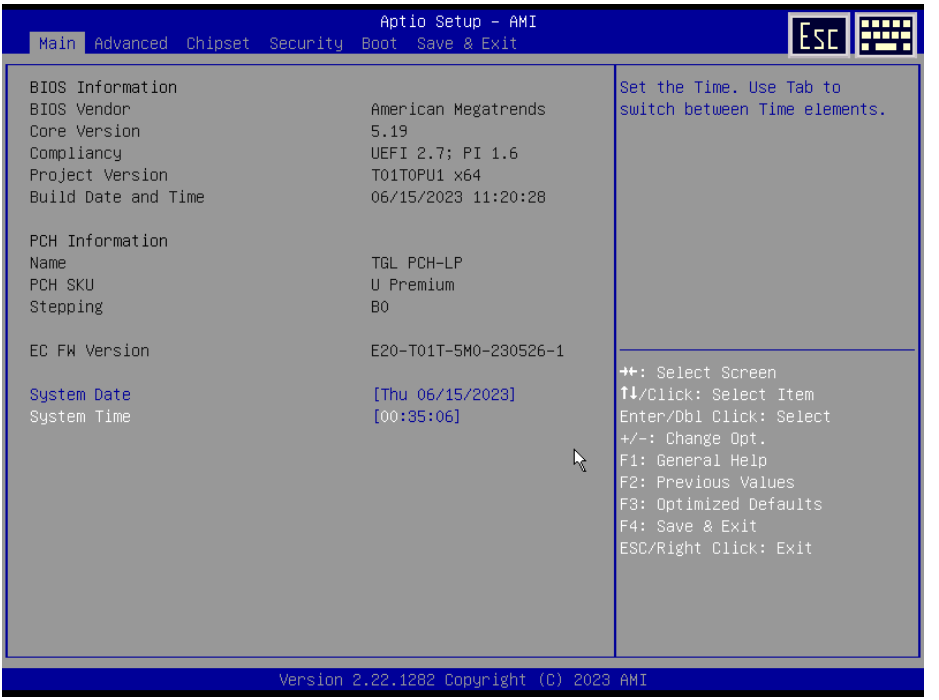
BIOS Setup Menu Initialization Screen

You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

5.2.1 Main

Menu Path *Main*

The **Main** menu allows you to view the BIOS Information and change the system date and time. Use tab to switch between date elements. Use <↑> or <↓> arrow keys to highlight the item and enter the value you want in each item. This screen also displays the BIOS version (project) and BIOS Build Date and Time.



BIOS Main Menu

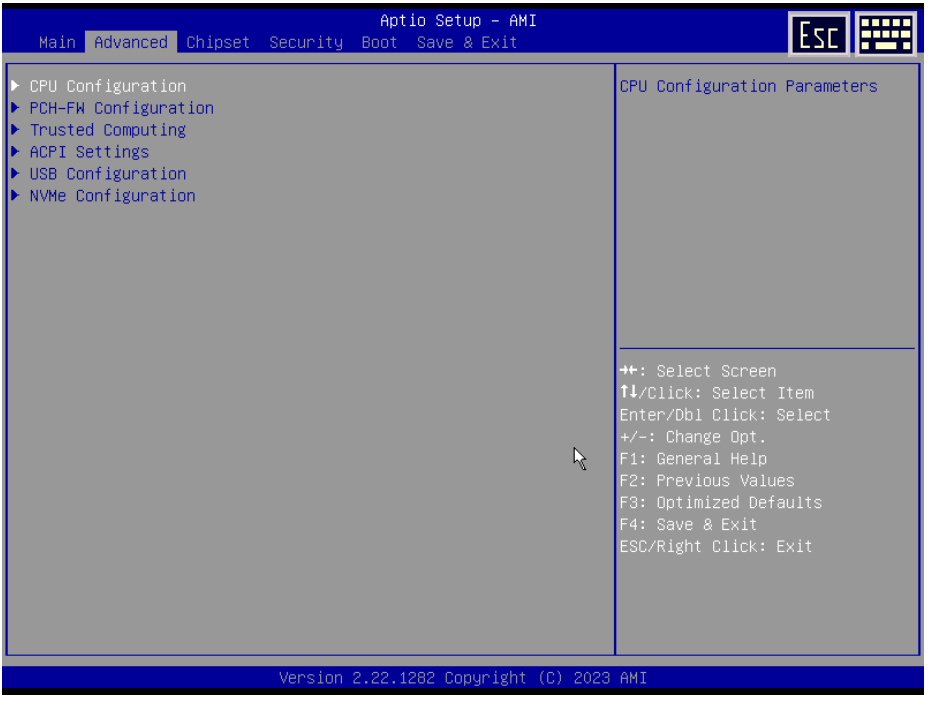
BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays the current UEFI version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Displays the date of the current BIOS version.
Name	No changeable options	Displays the name of the PCH
PCH SKU	No changeable options	Displays the SKU for the PCH
Stepping	No changeable options	Displays the stepping of the PCH
EC FW Version	No changeable options	Display the EC FW Version

BIOS Setting	Options	Description/Purpose
System Date	Month, day, year	Sets the system date. The format is [Day Month/ Date/ Year]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it. The "Day" is automatically changed.
System Time	Hour, minute, second	Sets the system time. The format is [Hour: Minute: Second]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it.

5.2.2 Advanced

Menu Path *Advanced*

This menu provides advanced configurations such as CPU Configuration, PCH-FW Configuration, Trusted Computing, ACPI Settings, USB Configuration and NVMe Configuration.



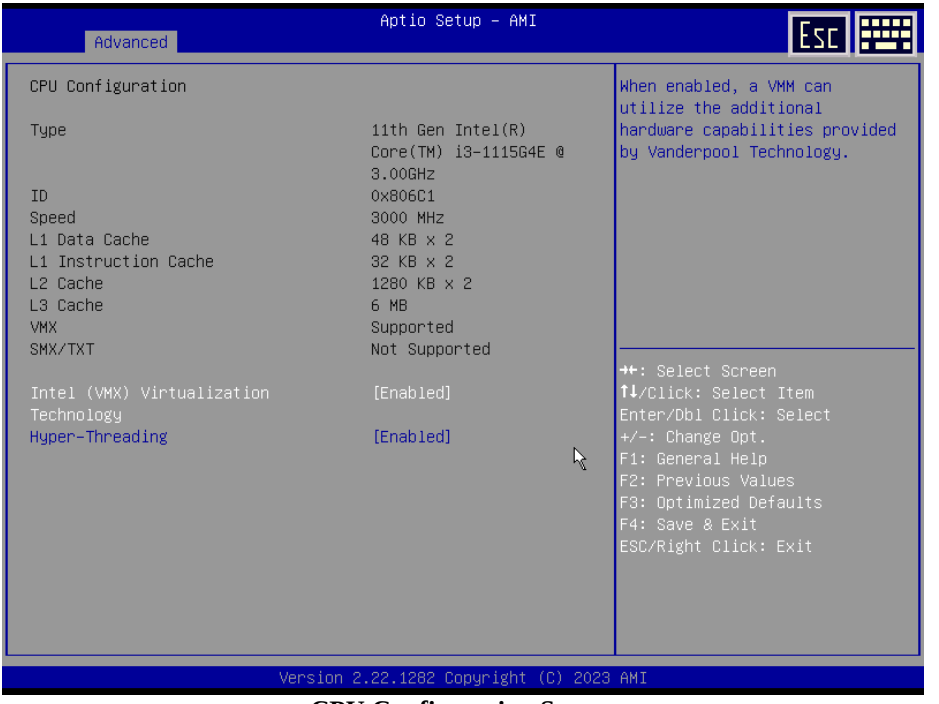
BIOS Advanced Menu

BIOS Setting	Options	Description/Purpose
CPU Configuration	Sub-Menu	CPU Configuration Parameters.
PCH-FW Configuration	Sub-Menu	Management Engine Technology Parameters.
Trusted Computing	Sub-Menu	Trusted Computing Settings.
ACPI Settings	Sub-Menu	System ACPI Parameters.
USB Configuration	Sub-Menu	USB Configuration Parameters.
NVMe Configuration	Sub-Menu	NVMe Device Options Settings.

5.2.3 Advanced – CPU Configuration

Menu Path *Advanced > CPU Configuration*

The **CPU Configuration** provides advanced CPU settings and some information about CPU.



CPU Configuration Screen

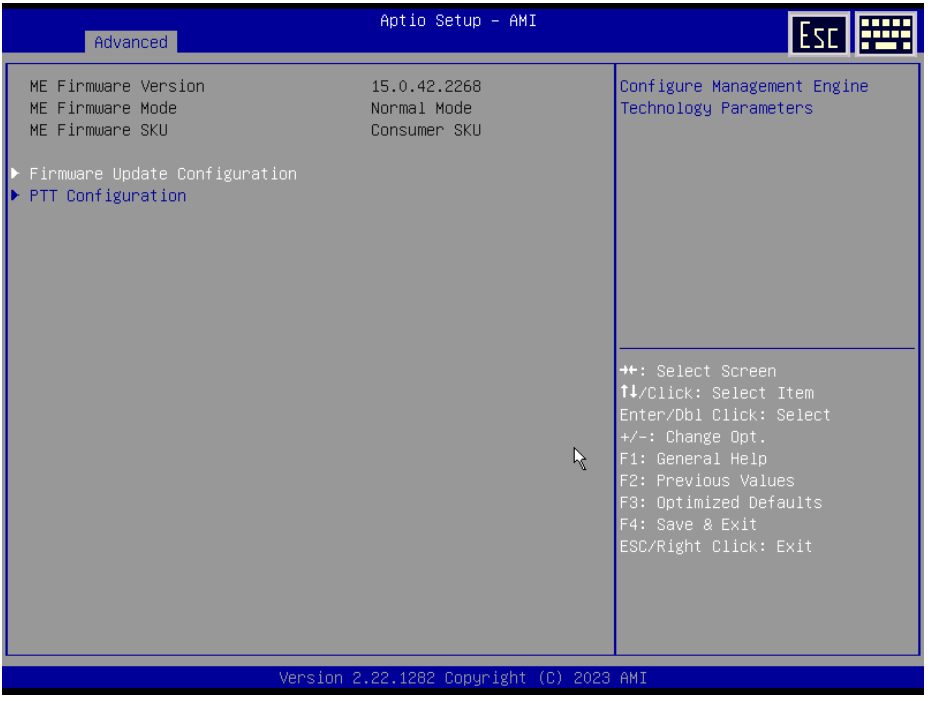
BIOS Setting	Options	Description/Purpose
Type	No changeable options	Displays the CPU Type.
ID	No changeable options	Displays the CPU ID.
Speed	No changeable options	Displays the CPU Speed.
L1 Data Cache	No changeable options	L1 Data Cache Size.
L1 Instruction Cache	No changeable options	L1 Instruction Cache Size.
L2 Cache	No changeable options	L2 Cache Size.
L3 Cache	No changeable options	L3 Cache Size.
VMX	No changeable options	CPU VMX hardware support for virtual machines.
SMX (Secure Mode Extensions) /TXT	No changeable options	Secure Mode extensions support.
Hyper-Threading	- Disabled - Enabled	When disabled, only one thread per enabled core is enabled.

BIOS Setting	Options	Description/Purpose
Intel (VMX) Virtualization Technology	- Disabled - Enabled	When enabled, VMM can utilize the additional hardware capabilities provided by Vanderpool Technology
Hyper-threading	- Disabled - Enabled (Default)	When Disabled, only one thread per enabled core is enabled.

5.2.4 Advanced – PCH-FW Configuration

Menu Path *Advanced > PCH-FW Configuration*

The **PCH-FW** allows users to view the information about ME (Management Engine) firmware information, such ME firmware version, firmware mode and firmware SKU, Firmware Update Configuration and PTT Configuration.

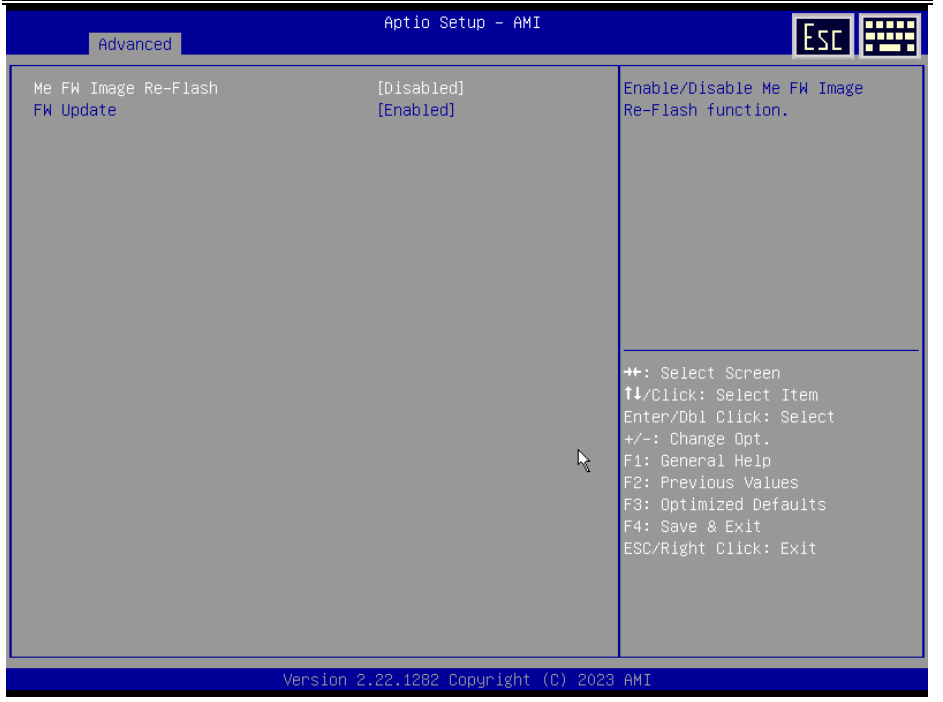


PCH-FW Configuration Screen

BIOS Setting	Options	Description/Purpose
ME Firmware Version	No changeable options	Displays the ME Firmware Version.
ME Firmware Mode	No changeable options	Displays the ME Firmware Mode.
ME Firmware SKU	No changeable options	Displays the ME Firmware SKU.
Firmware Update Configuration	Sub-Menu	Configures Management Engine Technology Parameters.
PTT Configuration	Sub-Menu	Configures PTT.

Advanced – PCH-FW Configuration – Firmware Update Configuration

Menu Path *Advanced > PCH-FW Configuration > Firmware Update Configuration*

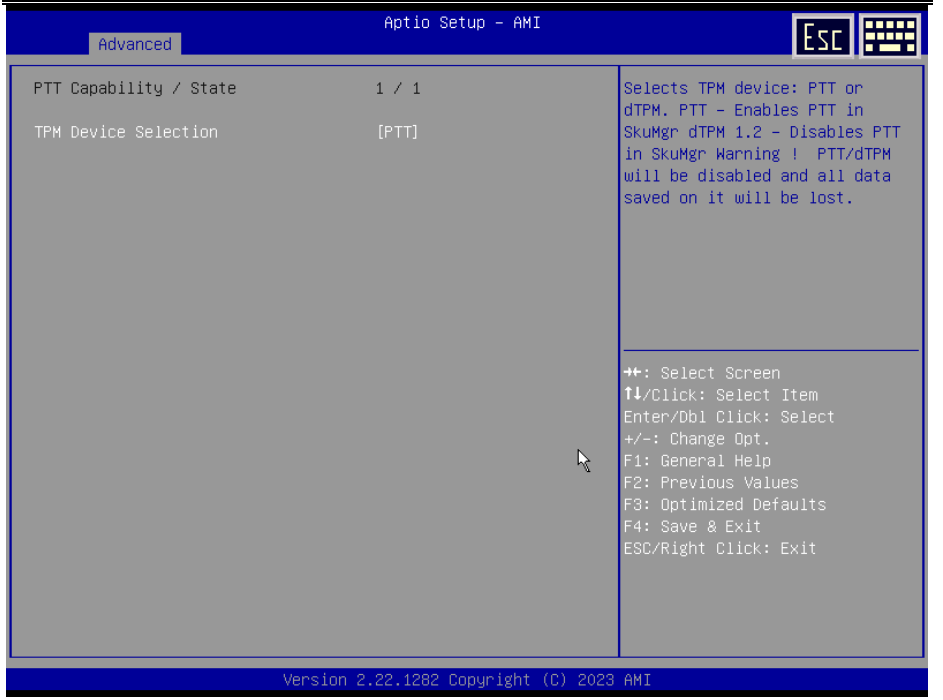


Firmware Update Configuration Screen

BIOS Setting	Options	Description/Purpose
Me FW Image Re-Flash	- Disabled (Default) - Enabled	Enables / Disables ME FW Image Re-Flash function.
FW Update	- Disabled - Enabled (Default)	Enables / Disables ME FW Update Function.

Advanced – PCH-FW Configuration – PTT Configuration

Menu Path *Advanced > PCH-FW Configuration > PTT Configuration*



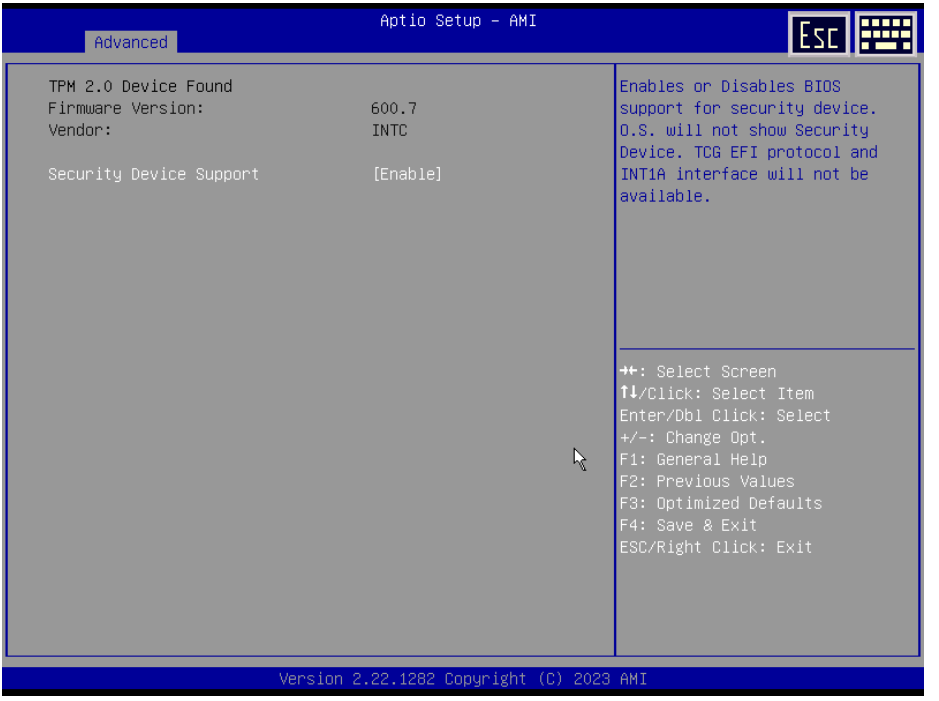
PTT Configuration Screen

BIOS Setting	Options	Description/Purpose
TPM Device Selection	- PTT (Default) - dTPM	Selects TPM device: PTT or dTPM.

5.2.5 Advanced – Trusted Computing

Menu Path *Advanced > Trusted Computing*

The Trusted Computing allows users to enable/disable BIOS support for security device. The operating system will now show Security Device. The TCG EFI protocol and INT1A interface will not be available.



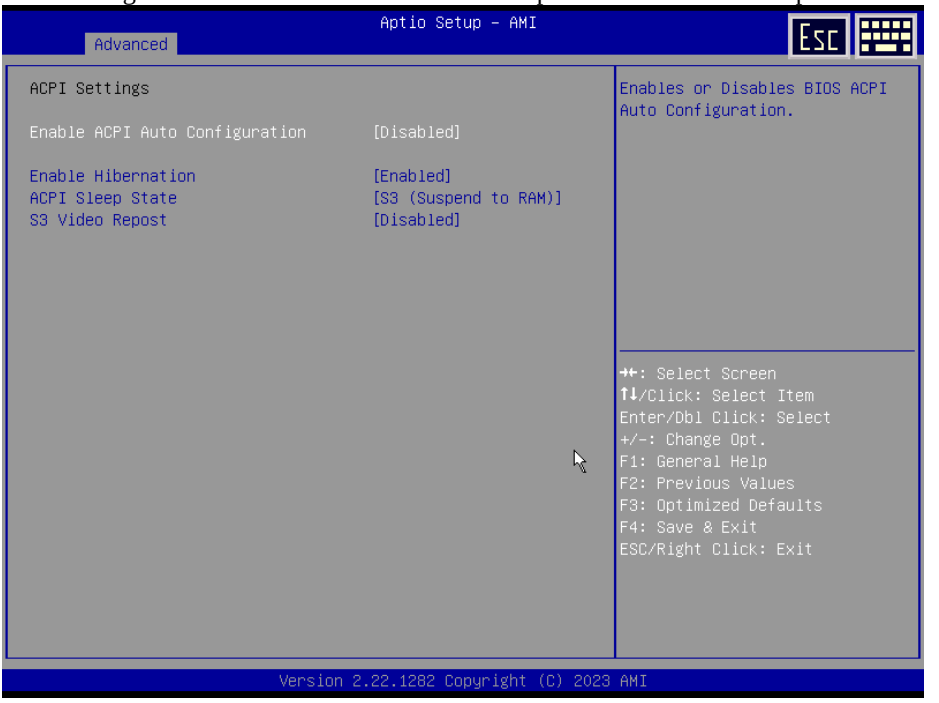
Trusted Computing Screen

BIOS Setting	Options	Description/Purpose
Firmware Version	No changeable options	Displays the Firmware Version.
Vendor	No changeable options	Displays the Vendor.
Security Device Support	- Disabled - Enabled (Default)	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

5.2.6 Advanced – ACPI Settings

Menu Path *Advanced > ACPI Settings*

The **ACPI Settings** allows users to configure relevant ACPI (Advanced Configuration and Power Management Interface) settings, such as enabling ACPI Auto Configuration & Hibernation and ACPI Sleep State and S3 Video Repost.



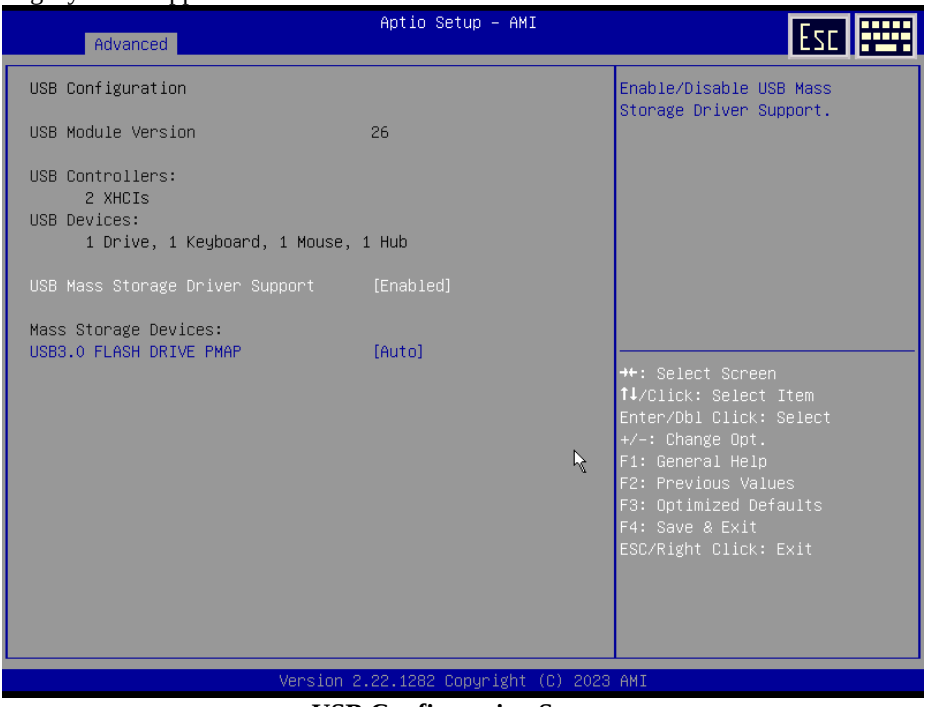
ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
Enable ACPI Auto Configuration	- Disabled (Default) - Enabled	Enables or Disables BIOS ACPI Auto Configuration
Enable Hibernation	- Disabled - Enabled (Default)	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	- Suspend Disabled - S3 (Suspend to RAM) (Default)	Selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
S3 Video Repost	- Disabled (Default) - Enabled	Enables or Disables S3 Video Repost.

5.2.7 Advanced – USB Configuration

Menu Path *Advanced > USB Configuration*

The **USB Configuration** allows users to configure advanced USB settings such as Legacy USB support.

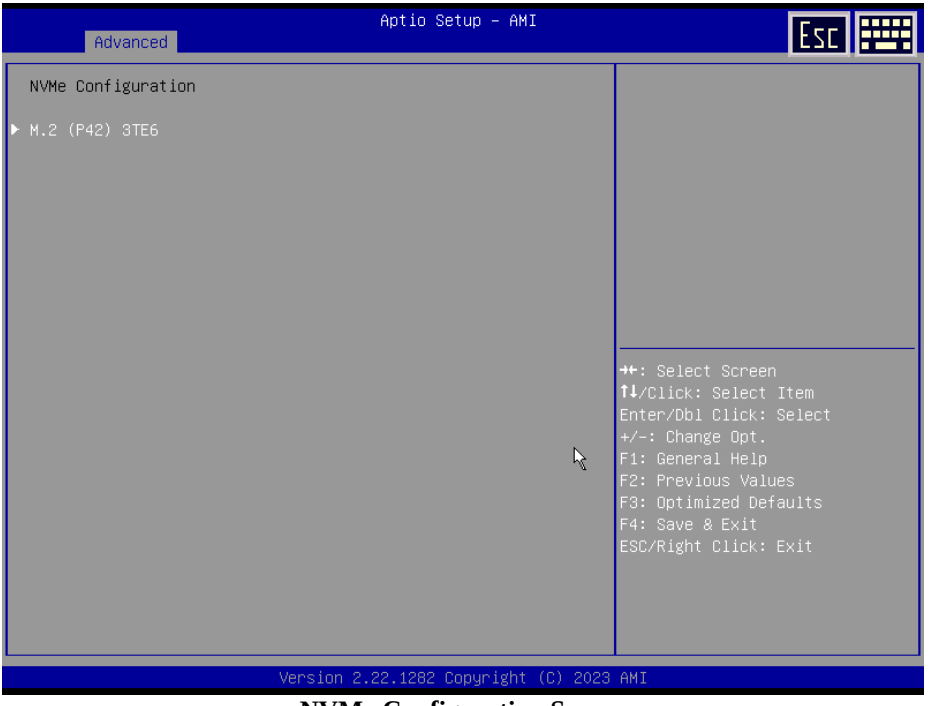


USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Module Version	No changeable options	Displays USB module version.
USB Controllers	No changeable options	Displays number and type of USB controllers (if any).
USB Devices	No changeable options	Displays number and type of connected USB devices (if any).
USB Mass Storage Driver Support	- Disabled - Enabled (Default)	Enable/Disable USB Mass Storage Driver Support.
Mass Storage Devices: [drive(s)]	- Auto (Default) - Floppy - Forced FDD - Hard Disk - CD-ROM	'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

5.2.8 Advanced – NVMe Configuration

Menu Path *Advanced >NVMe Configuration*



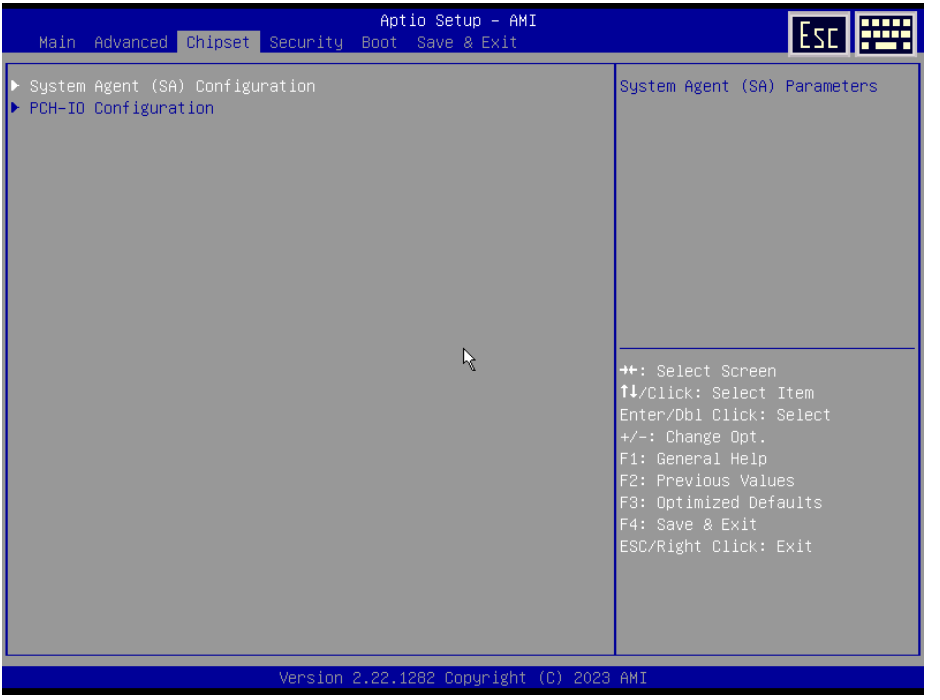
NVMe Configuration Screen

BIOS Setting	Options	Description/Purpose
NVMe Configuration	No changeable options	Displays NVMe device

5.3 Chipset

Menu Path *Chipset*

This menu allows users to configure advanced Chipset settings such as System Agent (SA) and PCH-IO configuration parameters.



Chipset Screen

BIOS Setting	Options	Description/Purpose
System Agent (SA) Configuration	Sub-Menu	System Agent (SA) parameters.
PCH-IO Configuration	Sub-Menu	PCH-IO parameters.

5.3.1 Chipset – System Agent (SA) Configuration

Menu Path *Chipset > System Agent (SA) Configuration*

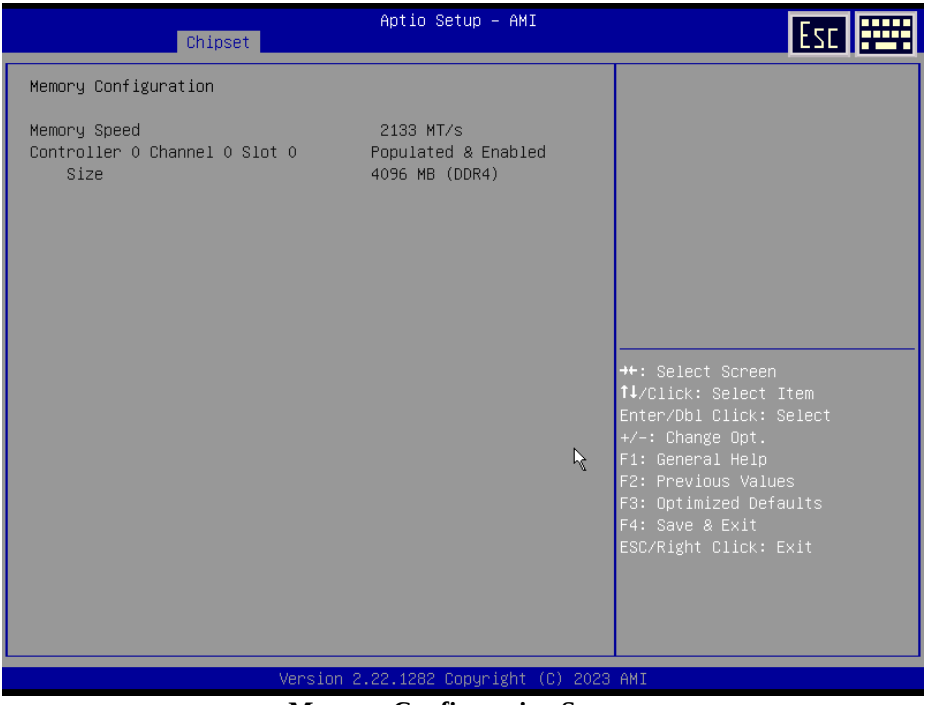
The **System Agent (SA) Configuration** allows displaying the DRAM information on the platform.

System Agent (SA) Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory Configuration	Sub-Menu	Memory Configuration
PCI Express Configuration	Sub-Menu	PCI Express Configuration
VT-d	- Disabled - Enabled (Default)	Enables or Disables VT-d function.

Menu Path *Chipset > System Agent (SA) Configuration > Memory Configuration*

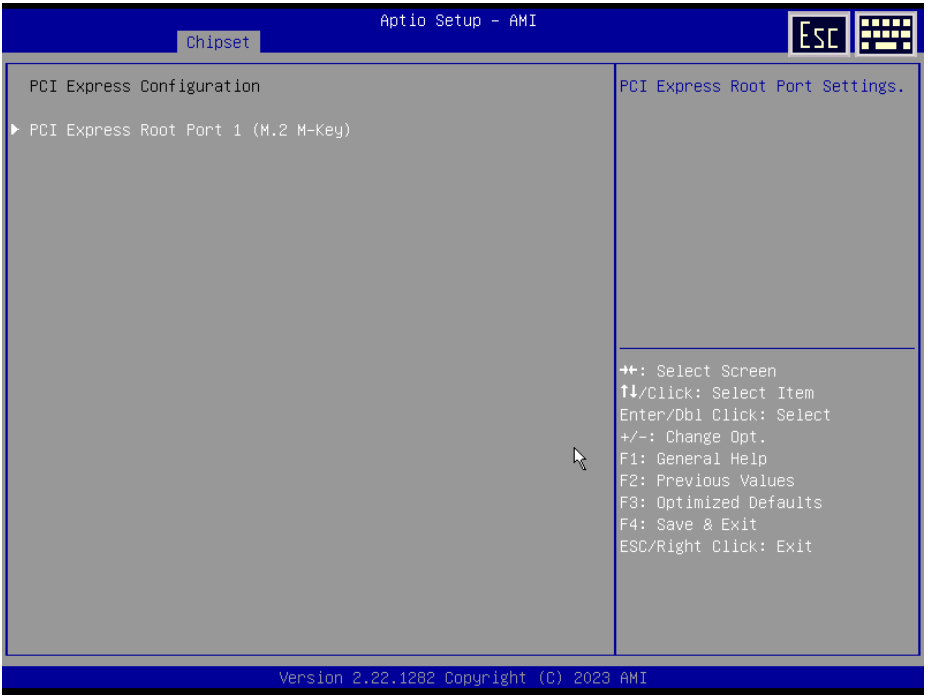
The **Memory Configuration** allows users to check for the information about the memory frequency, total memory, and memory timings.



Memory Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory Speed	No changeable options	Displays the Frequency of Memory.
Controller 0 Channel 0 Slot 0	No changeable options	Display the Controller 0 Channel 0 Slot 0 Subtitle.
Size	No changeable options	Display the size of Controller 0 Channel 0 Slot 0

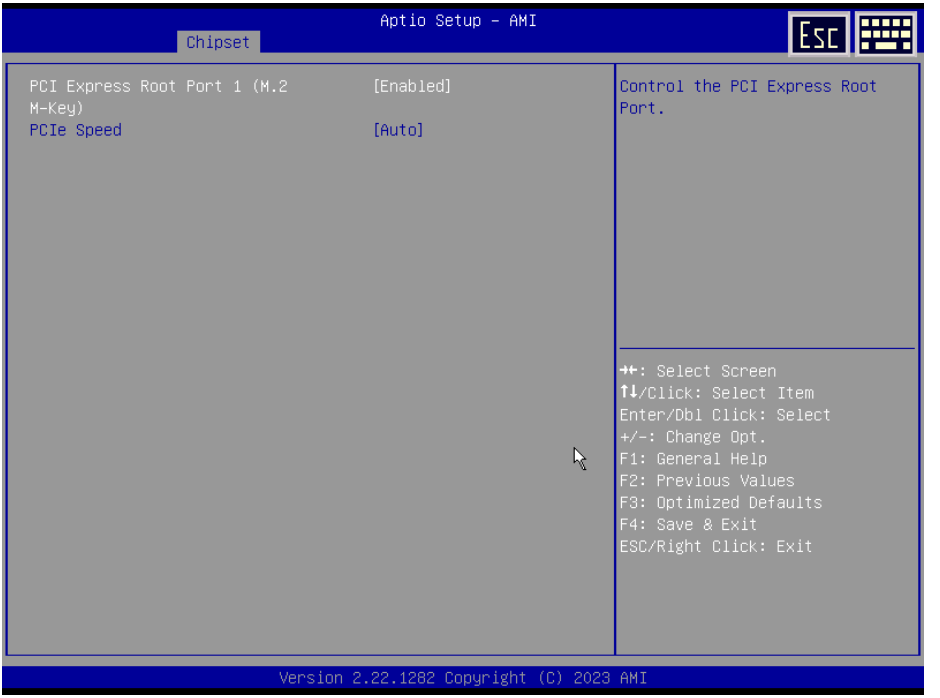
Menu Path *Chipset > System Agent (SA) Configuration > PCI Express Configuration*



PCI Express Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 1 (M.2 M-Key)	Sub-Menu	PCI Express Root Port 1 (M.2 M-Key) Settings.

Menu Path	*Chipset > System Agent (SA) Configuration > PCI Express Configuration > PCI Express Root Port 1 (M.2 M-Key)*



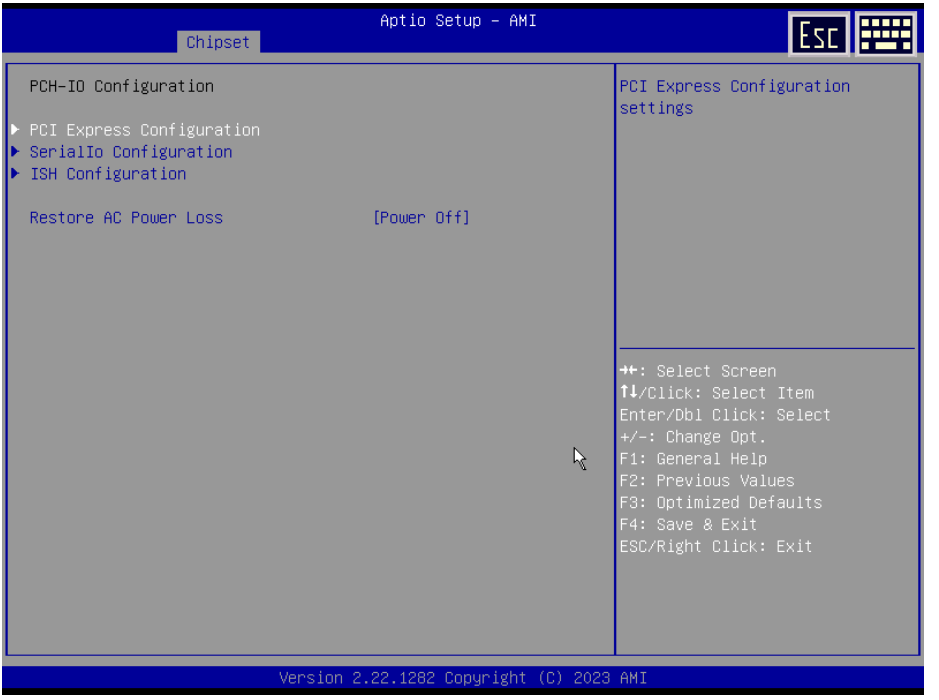
PCI Express Root Port 1 (M.2 M-Key) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 1 (M.2 M-Key)	- Disabled - Enabled (Default)	Controls the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3 - Gen4	Configures PCIe Speed

5.3.2 Chipset – PCH-IO Configuration

Menu Path *Chipset > PCH-IO Configuration*

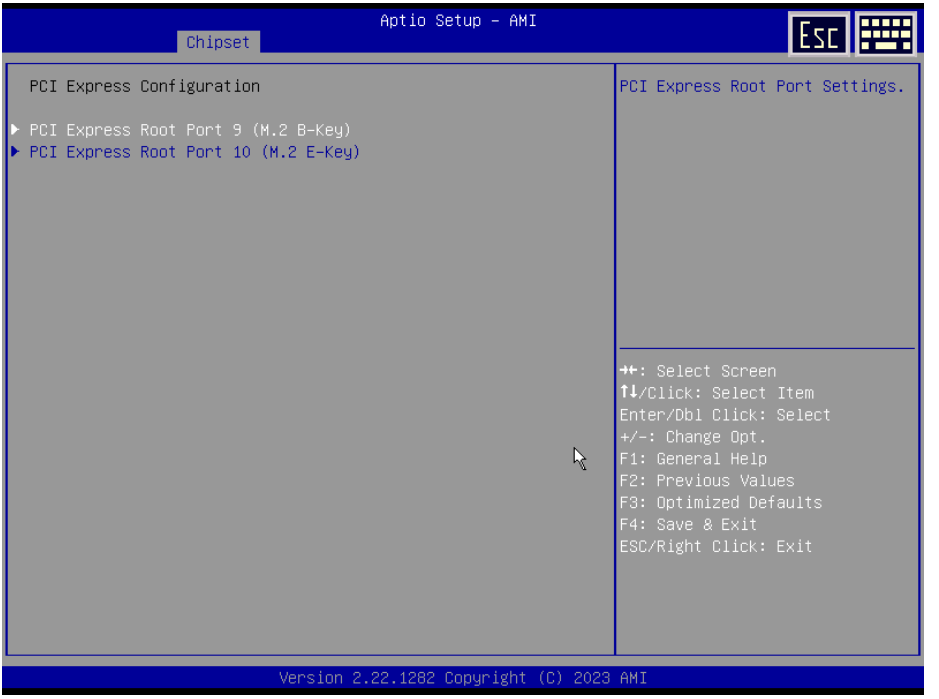
The **PCH-IO** Configuration allows users to set PCI Express configuration parameters, set Serial I/O Configuration and ISH Configuration and determine the power on/off state that the system will go to following a power failure (G3 state).



PCH-IO Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Configuration	Sub-Menu	PCI Express Configuration settings.
SerialIo Configuration	Sub-Menu	Serial I/O Configuration settings.
ISH Configuration	Sub-Menu	Integrated Sensor Hub (ISH) Configuration settings.
Restore AC Power Loss	- Power On - Power Off (Default)	Specify what state to go to when power is re-applied after a power failure (G3 state).

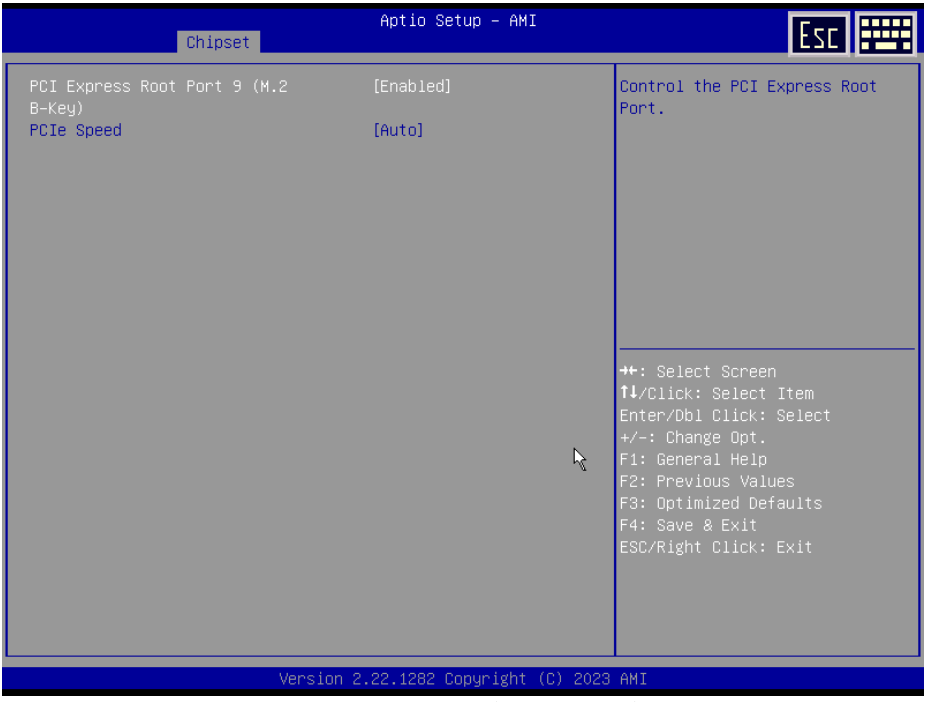
Menu Path *Chipset > PCH-IO Configuration > PCI Express Configuration*



PCI Express Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 9 (M.2 B-Key)	Sub-Menu	PCI Express Root Port 9 (M.2 B-Key) Settings.
PCI Express Root Port 10 (M.2 E-Key)	Sub-Menu	PCI Express Root Port 10 (M.2 M-Eey) Settings.

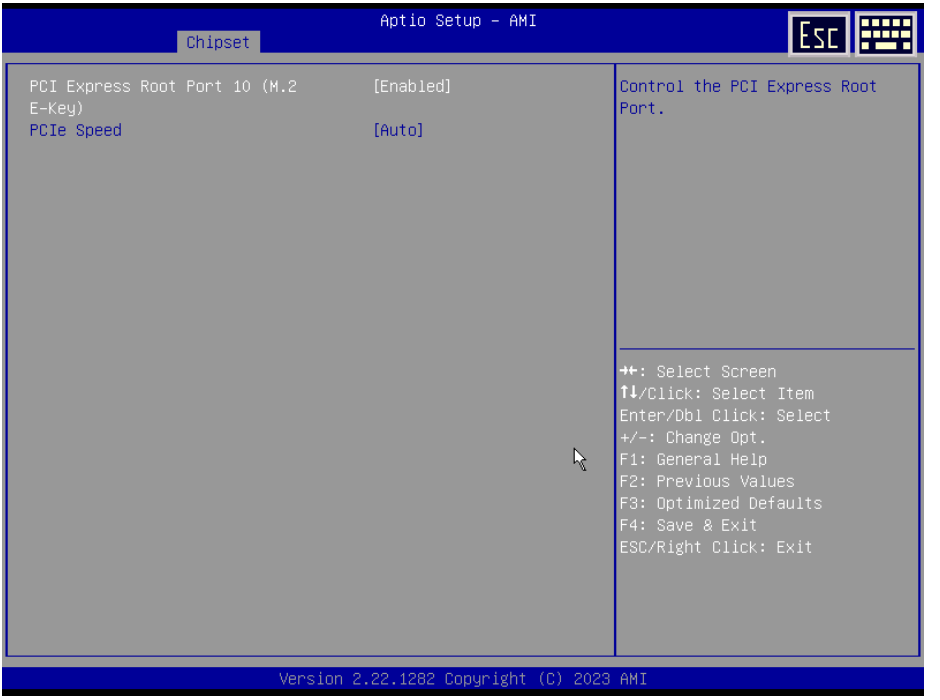
Menu Path *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 9 (M.2 B-KEY)*



PCI Express Root Port 9 (M.2 B-KEY) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 9 (M.2 B-Key)	- Disabled - Enabled (Default)	Controls the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed

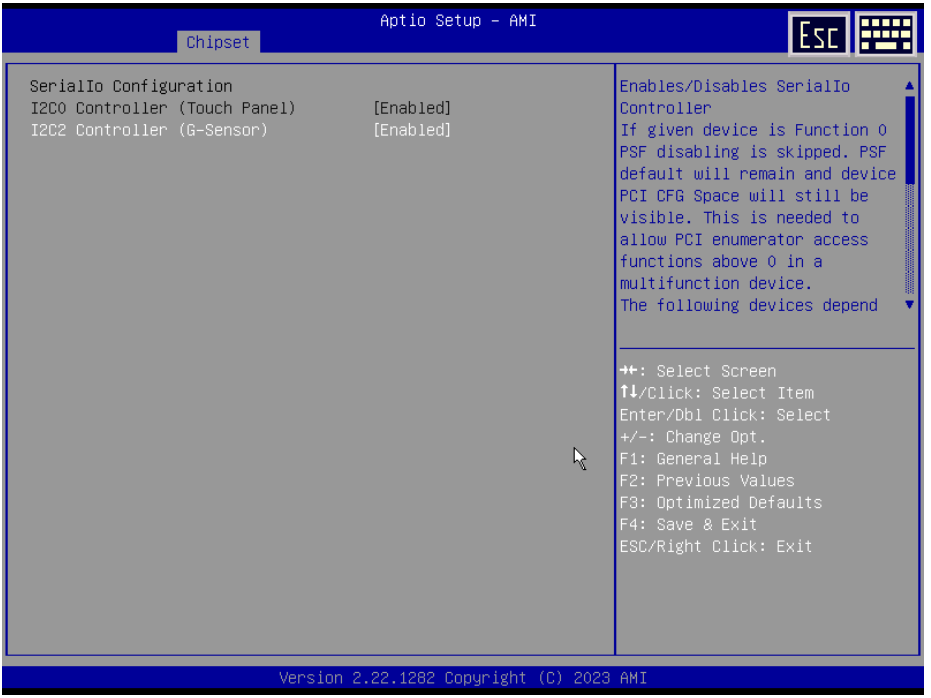
Menu Path *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 10 (M.2 E-Key)*



PCI Express Root Port 10 (M.2 E-Key) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 10 (M.2 E-Key)	- Disabled - Enabled (Default)	Controls the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed

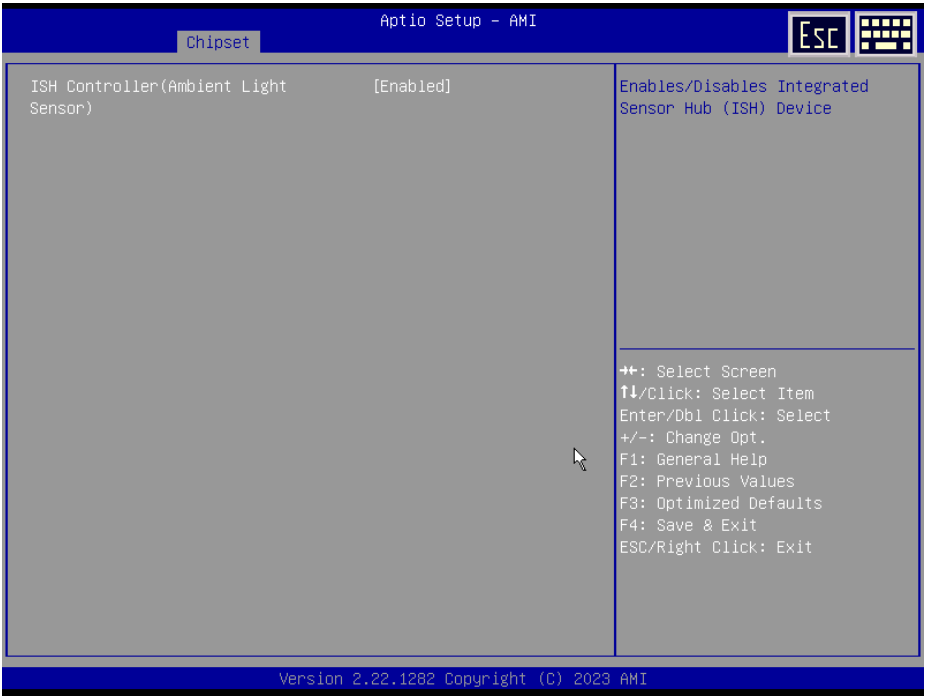
Menu Path *Chipset > PCH-IO Configuration > SerialO Configuration*



SerialIO Configuration Screen

BIOS Setting	Options	Description/Purpose
I2C0 Controller (Touch Panel)	- Disabled - Enabled (Default)	Enables/Disables SerialIO I2C0 Controller (Touch Panel).
I2C2 Controller (G-Sensor)	- Disabled - Enabled (Default)	Enables/Disables SerialIO I2C2 Controller (G-Sensor).

Menu Path *Chipset > PCH-IO Configuration > ISH Configuration*



ISH Configuration Screen

BIOS Setting	Options	Description/Purpose
ISH Controller (Ambient Light Sensor)	- Disabled - Enabled (Default)	Enables/Disables Integrated Sensor Hub (ISH) Device (Ambient Light Sensor).

5.4 Security

Menu Path *Security*

From the **Security** menu, you are allowed to configure or change the administrator password. You will be asked to enter the configured administrator password before you can access the Setup Utility. By setting an administrator password, you will prevent other users from changing your BIOS settings. You can configure an Administrator password and then configure a user password. Heed that a user password does not provide access to most of the features in the Setup utility.

Security Menu Screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.

5.5 Boot

Menu Path *Boot*

This menu provides control items for system boot configuration such as setting setup prompt timeout, enabling/disabling quiet boot and fast boot, selecting the boot sequence from the available device(s) and BBS option priorities as well as enabling / disabling Battery Shipping Mode.

Boot Menu Screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric (from 1 to 65535)	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On (Default) - Off	Specifies the power-on state of the NumLock Key.
Quiet Boot	- Disabled (Default) - Enabled	Enables or Disables Quiet Boot options.
Fast Boot	- Disabled (Default) - Enabled	Enables or Disables Fast Boot options.

BIOS Setting	Options	Description/Purpose
Screen Rotation Policy	- Normal - Right Rotation (Default) - Left Rotation - Reversion	Controls Screen display direction.
Boot Option #1~#n	- [Drive(s)] - Disabled	Sets the system boot order.
Battery Shipping Mode	- Disabled (Default) - Enabled	Enabling this feature will make system automatically power off at next boot and place it in a low-power state which prolongs battery life during shipment and while on the shelf. Notes: Please remove all external power (AC & PD adaptor) before into shipping mode. Users need to put the system back into the charging base for disabling shipping mode.

5.6 Save & Exit

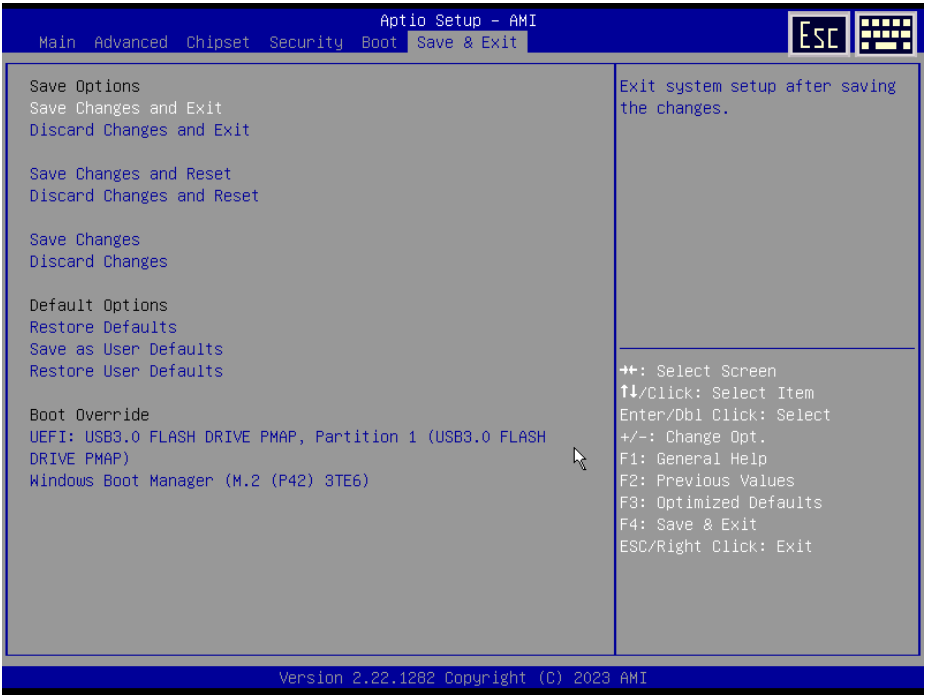
Menu Path *Save & Exit*

The **Save & Exit** allows users to save or discard changed BIOS settings as well as load factory default settings.

Save Changed BIOS Settings
To save and validate the changed BIOS settings, select **Save Changes** from the **Save & Exit** menu to validate the changes and then exit the system. Select **Save Changes and Reset** to validate the changed BIOS settings and then restart the system

Discard Changed BIOS Settings
To cancel the BIOS settings you have previously configured, select **Discard Changes and Exit** from this menu, or simply press **Esc** to exit the BIOS setup. You can also select **Discard Changes and Reset** to discard any changes you have made and restore the factory BIOS defaults.

Load User Defaults
You may simply press **F3** at any time to load the **Optimized Values** which resets all BIOS settings to the factory defaults.



Save & Exit Menu Screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.
Save Changes	No changeable options	Saves changes done so far to any of the setup options.
Discard Changes	No changeable options	Discards changes done so far to any of the setup options.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Save as User Defaults	No changeable options	Saves the changes done so far as User Defaults.
Restore User Defaults	No changeable options	Restores the User Defaults to all the setup options.
Boot Override	- [Drive(s)]	Forces to boot from selected [drive(s)].

Appendix A System Diagrams

This appendix includes the exploded diagrams of the system and the parts list as well as the part numbers of the MH-T01T system.

- Optional Accessories Assembly Exploded Diagrams
- Barcode Scanner Module Assembly Exploded Diagram
- LAN Module Assembly Exploded Diagram
- RS-232 Module Assembly Exploded Diagram
- USB 3.0 Type A Module Assembly Exploded Diagram
- MicroSD Card Slot Assembly Exploded Diagram
- 3D Camera Module Assembly Exploded Diagram
- Battery Charger Assembly Exploded Diagram

Optional Accessories Assembly Exploded Diagram (1)