HANDHELD COMPUTER

DH8

USER'S GUIDE

BC

Revision History

Revision	Date	Changes	Author
1.0.0	2022/11/18	Initial Release	Annabelle Wu

Notice

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FCC (Federal Communications Commission) Regulatory Compliance

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.

FCC 47 CFR Part 15 Subpart B
FCC 47 CFR Part 15 Subpart C
FCC 47 CFR Part 15 Subpart E
FCC§2.1093 (SAR)

Note:

This device 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 device generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, the device may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device 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 device and receiver.
- Connect the device to 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.

Important:

Changes or modifications to this product not authorized by MilDef Crete could void the electromagnetic compatibility (EMC) and wireless compliance and negate your authority to operate the product.

In order to maintain compliance with FCC regulations, compliant peripheral devices and shielded cables must be used with this device.

Radiation Exposure Statement:

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 for wireless devices employing a unit of measurement is known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg
RF exposure warning

Regulatory Information/ Disclaimers:

Installation and use of this device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that is not expressly approved by the manufacturer may void the user's authority to operate the device.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than the manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. The manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

EU Declaration of Conformity

$C\epsilon$

The device is hereby confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to the Electromagnetic Compatibility Directive (2014/30/EU), Radio Equipment Directive (2014/53/EU), and Low Voltage Directive (2014/35/EU), if used for its intended use and that the following standards have been applied:

1. **Safety**

   Applied Standard(s):

   EN 62368-1: 2020+A11:2020

2. **Health**

   Applied Standard(s):

   EN 62311 : 2020
   EN 50332-2: 2013

3. **Radio Frequency Spectrum Usage**

   Applied Standard(s):

   EN 300 328 V2.2.2 (2019-07)

   EN 301 893 V2.1.1 (2017-05)

   EN 303 413 V1.2.1 (2021-04)

4. **Electromagnetic Compatibility Directive**

   Applied Standard(s):

   EN 55032: 2015+A11:2020 Class B

   EN 61000-3-2: 2019+A1:2021 Class D
   EN 61000-3-3: 2013+A1:2019
   EN 55035: 2017+A11:2020
   ETSI EN 301 489-1 V2.2.3 (2019-11)

   ETSI EN 301 489-17 V3.2.4 (2020-09)

   ETSI EN 301 489-19 V2.2.0 (2020-09)

The device is hereby confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive 2016, Radio Equipment Directive 2017, and UKCA-Electrical Equipment (Safety) Regulation 2016, if used for its intended use and that the following standards have been applied:

1. **Safety**
   Applied Standard(s):
   BS EN 62368-1: 2020+A11:2020

2. **Health**
   Applied Standard(s):
   BS EN 62311 : 2020

3. **Radio Frequency Spectrum Usage**
   Applied Standard(s):
   ETSI EN 300 328 V2.2.2 (2019-07)
   ESTI EN 301 893 V2.1.1 (2017-05)
   ESTI EN 300 413 V1.2.1 (2021-04)

4. **Electromagnetic Compatibility Directive**
   Applied Standard(s):
   BS EN 55032: 2015+A11:2020 Class B
   BS EN 61000-3-2: 2019+A1:2021 Class D
   BS EN 61000-3-3 (2013+A1:2019)
   BS EN 55035: 2017+A11:2020
   ETSI EN 301 489-1 V2.2.3 (2019-11)
   ETSI EN 301 489-17 V3.2.4 (2020-09)
   ETSI EN 301 489-19 V2.2.0 (2020-09)

Power Conservation

This device consumes less power compared to conventional consumer computers. The power consumption may be further reduced by a proper configuration of the Power Management Setup.

It is recommended to enable the power-saving features even when not running with battery power. Power Management features can conserve power usage without degrading system performance.

Power Safety

There are specific power requirements for your device:

● Only use an approved AC Adapter designed for this device.
● There is a 3-prong grounded plug for the AC Adapter. The 3rd prong is an important mechanism for ensuring product safety. Please do not neglect the importance of this mechanism. If you are unable to access a compatible outlet, please hire a qualified electrician for the outlet installation.
● When unplugging the AC power cord, please make sure to disconnect the cord by pulling from the plug head instead of pulling from the wire to prevent wire damage.
● Make sure the power outlet and any other extension cord(s) you use can support the total current load of all the connected devices.
● Before cleaning the device, please make sure it is disconnected from any external power source.

⚠️ *Warning*

Before any upgrade procedures, make sure the power is turned off, and all the cables are disconnected (including telephone lines). Also, it is advisable to remove your battery to prevent turning on the device from accidentally.

Battery Precautions

- Only use batteries designed for this device. Using incompatible battery types may cause explosion, leakage, or damage to the device.
- Do not remove the battery while the device is powered on.
- Do not continuously use a battery that has been dropped, or that appears damaged (e.g., bent or twisted) in any way. Even if the device is able to continuously work with a damaged battery, the circuit damage may occur and possibly cause a fire.
- Always use the charger designed for this device to recharge the battery. Incorrect recharging may cause the battery to explode.
- Do not try to service a battery by yourself. For battery service or replacement, please contact your service representatives.
- Please dispose of the damaged battery promptly and carefully. Explosion or leakage may occur, if the battery is exposed to fire, improperly handled, or discarded.

Notice:

For safety, charging will stop if the internal temperature of the battery is out of range (<10°C; >45°C). Please note that charging could have stopped before the ambient temperature reaching these boundaries because the internal temperature of the battery does not equal to the ambient temperature.

⚠️ *Battery Disposal & Caution*

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its service life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste authority for recycling options or proper disposal. The danger of explosion may possibly occur if the battery is incorrectly replaced. Replace only with the same or the equivalent battery recommended by the manufacturer. Discard the used battery according to the manufacturer's instructions.

Water Resistance

The device has an optional rating of IP67 under IEC standard 60529 (maximum depth of 1 meter up to 30 minutes) and was tested under controlled laboratory conditions. Although it has excellent protection, please do not use it as a diving equipment. Splash, water, and dust resistance are not permanent conditions when using the product continuously in extreme environments and resistance might decrease as a result of normal wear. Also, please do not disassemble any part of your device because it might damage the resistance of your device.

Environmental Information, Material Safety & Recycling

All materials used in the manufacturing of this equipment are recyclable or environmentally friendly. Please recycle the packing materials in accordance with local regulations at the end of the product's service life.

Notice:

● The equipment may contain an insignificant amount of hazardous substances to health and the environment below the control level.

● To avoid releasing such substances into the ecosystem and to minimize the pressure on the natural environment, reuse or recycle most of the materials in a safe way after the product's service life is encouraged.

● For more information on the collection, reuse and recycle of materials, please consult local or regional waste administrations. You can also contact your dealer for more information on the environmental details of the equipment.

● The crossed-out wheeled bin symbol indicates that the product (electrical and electronic equipment) should not be treated as a municipal waste. Please refer to local regulations for the disposal instructions.

TABLE OF CONTENTS

Chapter 1 – Getting Started

Unpacking

The following components come with your computer. If anything is missing or damaged, please notify the dealer immediately.

- Handheld Computer
- Rugged USB-C AC Adapter
- AC Power Cord
- Quick Guide

Appearance Overview

Front
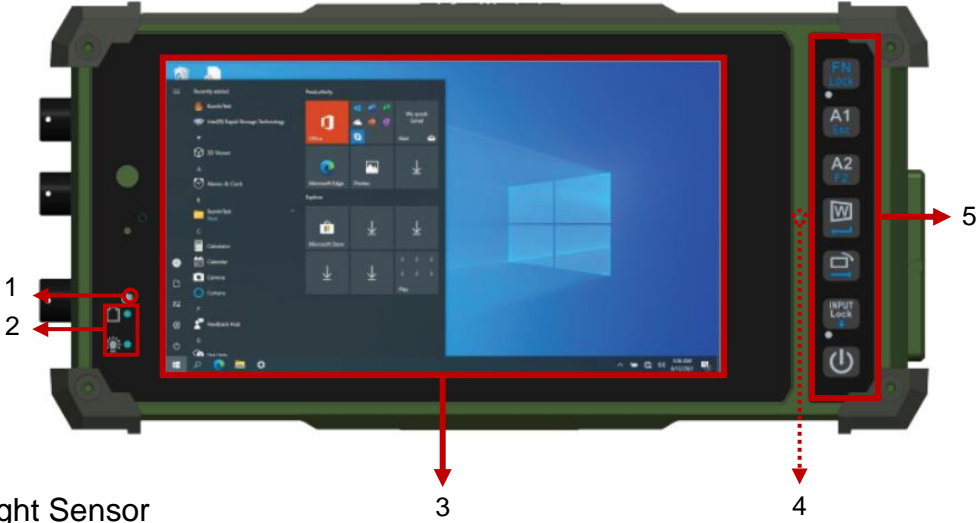
1. Light Sensor
2. LED Indicators
3. Display
4. Optional Embedded Digital Mic
5. Keypads

Rear
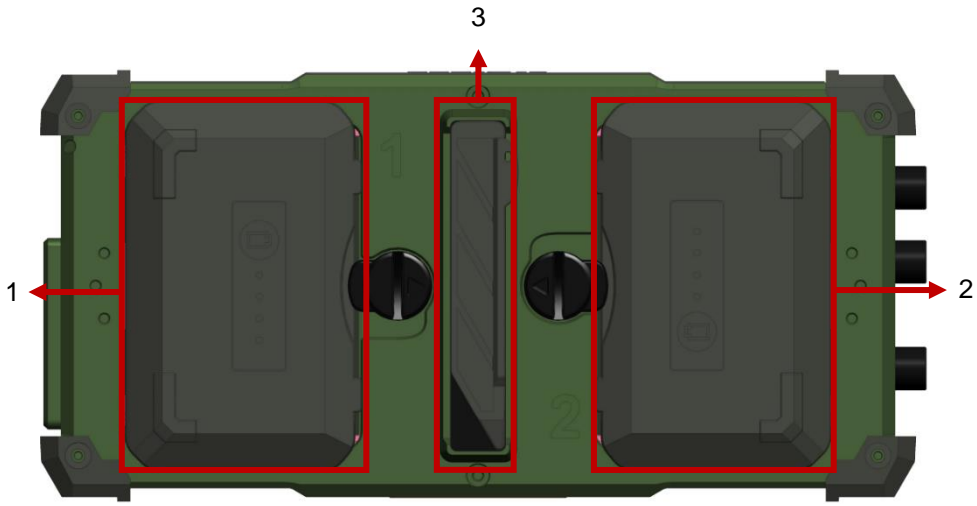
1. Primary Battery x 1
2. Secondary Battery x 1
3. Stylus Pen x 1

Left

Front

L1   L2   L3
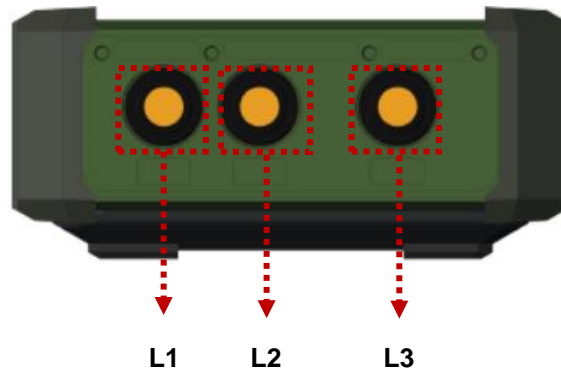
1. L1~L3*: Optional Fischer I/O x 3

   Choose for 3 Fischer Connectors out of 4 signals; non-repeatable

   - USB 2.0
   - Audio
   - GLAN
   - COM**

   **BIOS selectable: RS232/ RS422/RS485; default: RS232

   *L3: Trade-off with Optional Invisible Mode Switch

> *Note*
> ➢ *Fischer Options from L1 to L3: USB 2.0→Audio→GLAN→COM.*

Right

Front

1
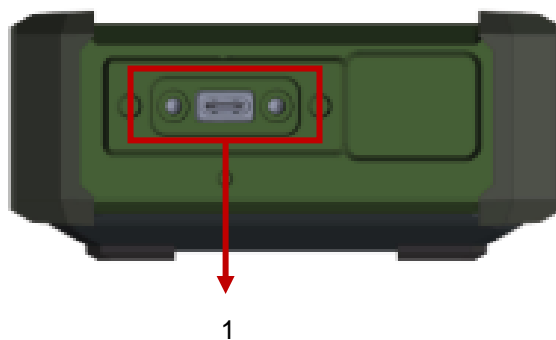
1. USB 3.2 Gen.2 Type C x 1

Top
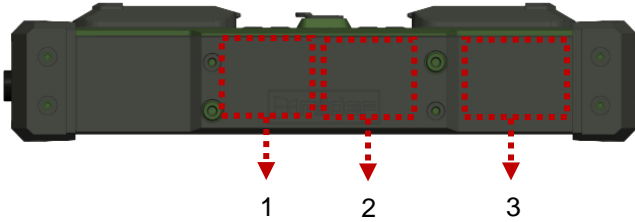
1. Optional WLAN/BT Main ANT

2. Optional GNSS ANT

3. Optional WLAN Aux. ANT

Bottom
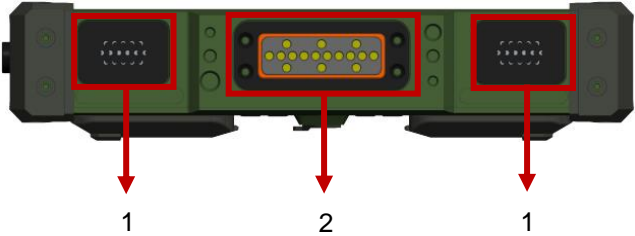
1. Speaker

2. Docklite Connector (16 pin POGO)

Chapter 2 – Operating Information

Workplace

A clean and moisture-free environment is preferred. Make room for air circulation. Remember to avoid areas from:

- Sudden or extreme changes in temperature.
- Extreme heat.
- Strong electromagnetic fields (near a television set, motor rotation area, etc.).
- Dust or high humidity.

If it is necessary to work in a hostile environment, please regularly maintain your workstation by cleaning dust, water, etc. to keep it in optimal condition.

Ruggedness

This handheld device is designed with rugged features such as vibration, shock, dust, and rain/water protection. However, appropriate protection is still necessary while operating in harsh environments.

The device is also designed to withstand rainfall from the top with a mild wind blowing only. Please keep the handheld facing up, i.e., in common operating direction, to maintain water resistance. NEVER immerse the unit in water, or spray water at an upside-down system. Doing so may cause permanent damage.

All connectors could be corroded if being exposed to water or moisture. Corrosion would accelerate when the power is ON. Please take proper water-resistant measures for cable connections. The DC jack and cables are sealed and may be operated with water splashing while attached. All port covers should be in place when no cable is attached.

Installing Operating System

The device is designed to operate with Microsoft Windows 10/ Windows 11 64-bit Operating System. Please connect your device to an external USB-interface drive to start the OS installation.

> *Note*
>
> ➢ *A USB external device may be required during installation to connect with an external USB-interface ODD, as the System USB port may not supply enough power. Please attach the USB hub with an extra power supply to complete the installation.*
>
> ➢ *Though Intel IOTG has not yet announced to support Windows 11 LTSC, in-house Windows 11 tests have been done and confirmed passed.*

Boot Up & POST

The standard operating procedure to turn on your device is via the power button. Press and hold the power button (approximately 3 seconds) until the device beeps. The device will boot up and start with the Operating System (OS) installed.

Boot Up

By pressing and holding the power button, the device will turn on and load the Operating System (OS) into the system memory. This start-up procedure called as "boot up".

Power ON Self-Test (POST)

Each time the device turned on, the BIOS will automatically perform a self-test of its memory and hardware devices.

Shut Down

Shut down

Directly click ⏻ (Shut down) from your OS to turn OFF the power. Before shutting down, remember to save any unfinished works and close the applications to prevent your SSD from suffering possible data loss or damage. Shutting down will turn OFF the power of the device. If you wish to turn on the device again, you are required to press the power button. Under Windows 10/ Windows 11, please shut down directly by

Click ⊞ (Start) → Click ⏻ (Power) → Click ⏻ (Shut down)

Force Shut Down

In the event that your device hangs or stops responding, you can perform a force shut down by pressing and holding the power button for 4~5 seconds. Please note that any unsaved work or data may be lost this way.

Sleep & Hibernate

Sleep

Under 🌙 mode, the system will temporarily save your work into the device's RAM. If you wish to start the device again, please press the power button to resume. Under Windows 10/ Windows 11, please enter this mode directly by

Click ⊞ (Start) → Click ⏻ (Power) → Click 🌙 (Sleep)

Hibernate

Under 🕐 mode, the system will save your work into SSD. If you wish to start your device again, please press and hold the power button (approximately 2 seconds) until the SSD indicator lights on. Under Windows 10/ Windows 11, please enter this mode directly by

Click ⊞ (Start) → Click ⏻ (Power) → Click 🕐 (Hibernate)

Indicators

The device is designed with LED indicators and backlight keypads for easy and quick operations. The description of each LED indicator and keypad function are for your operational reference.

LED Indicator	Description
🔅	**Power/ S3 Indicator** Green/ Flashing Green*
🔋	**Charging/ Battery Low Indicator** Orange/ Flashing Orange

*Power indicator pulsates ON and OFF slowly during S3.

Keypads

Keypad	1st Layer (White Legend)	2nd Layer (Blue Legend)
FN Lock	FN Lock	
A1 Esc	A1	Esc
A2 F2	A2	F2
W	Windows	Enter
Rotation	Rotation	→
INPUT Lock	Input Lock	↓
Power	Power Button	

Fn Lock Key is used to enable 2nd layer functions. To enable these functions, please

1. Press the Fn Lock Key.
2. Fn Lock Indicator will light green.
3. Press the Fn Lock Key again to cancel the function.

Input Lock Key is used to avoid unexpected inputs from keypads and touchscreen. To lock unexpected inputs, please

1. Press the Input Lock Key.
2. Input Lock Indicator will light green.
3. Press the Input Lock Key again to cancel the function.

Rotation Key is applied to rotate the display. The default display for the device is in portrait orientation, and if the landscape orientation is preferred, please

1. Press the Rotation Key.
2. Press the Rotation Key again to return to default display.

Adaptive Brightness

Light sensor mainly is to modify the display backlight by dynamically monitoring the brightness of the environment. Under Windows 10/ Windows 11, you can enable/disable light sensor directly by

Click [ ] (Start) → Click [ ] (Settings) → Click [ ] (System) → Click [ ] (Display) → Click "Change brightness automatically when light changes"

Windows 10
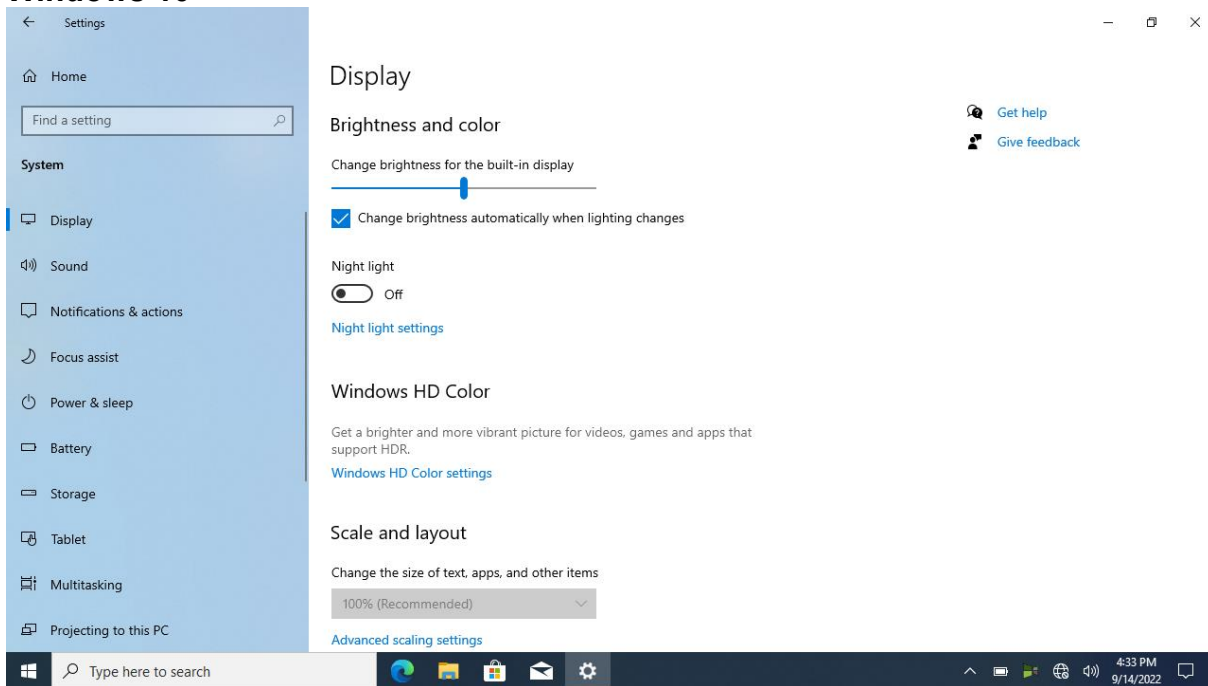
Windows 11
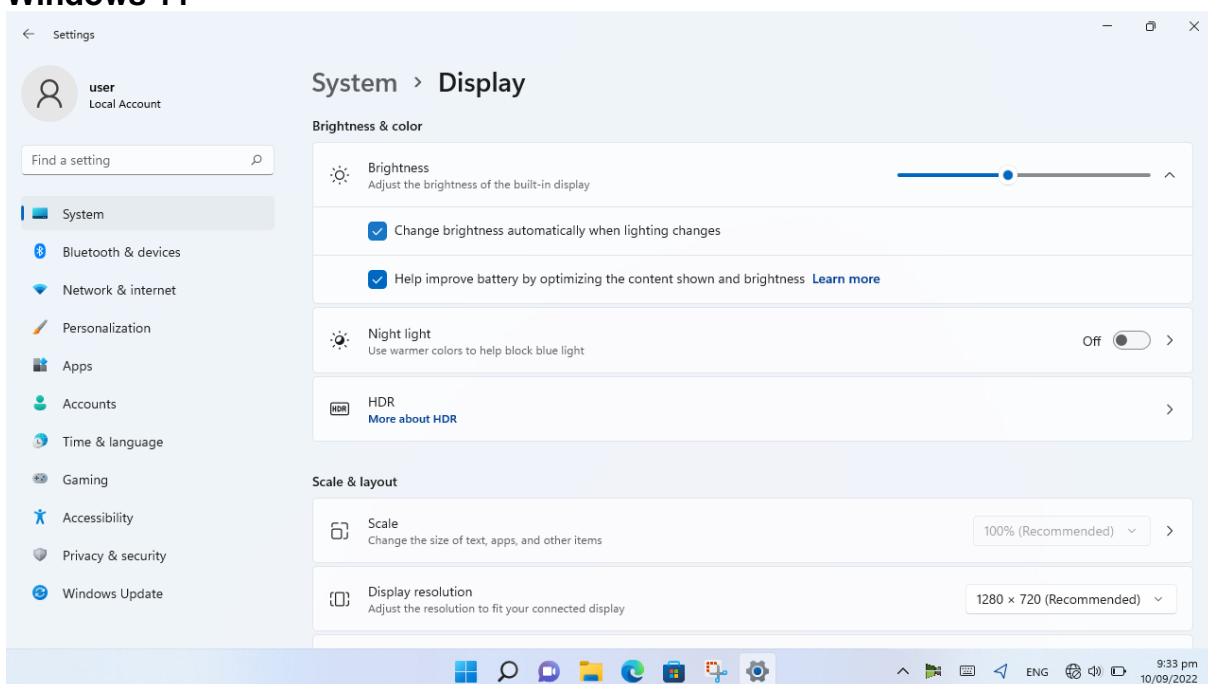
System Manager

System Manager is a universal application which allows users to access information (System, battery), and set RF device, function keys easily. Some pages may be different according to the system. For example, function key setting page will be unavailable for devices without user settable function keys.

1. System Information

2. Battery Information

3. RF Device Control Panel

4. Function Key Control Panel
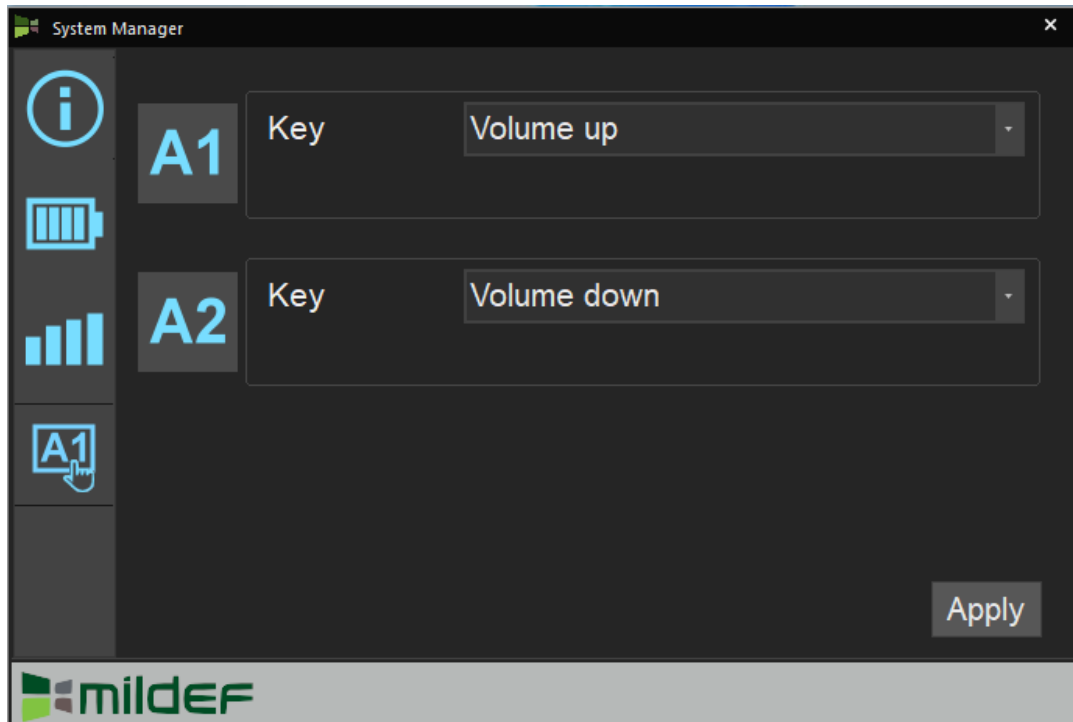
5. Key Function List
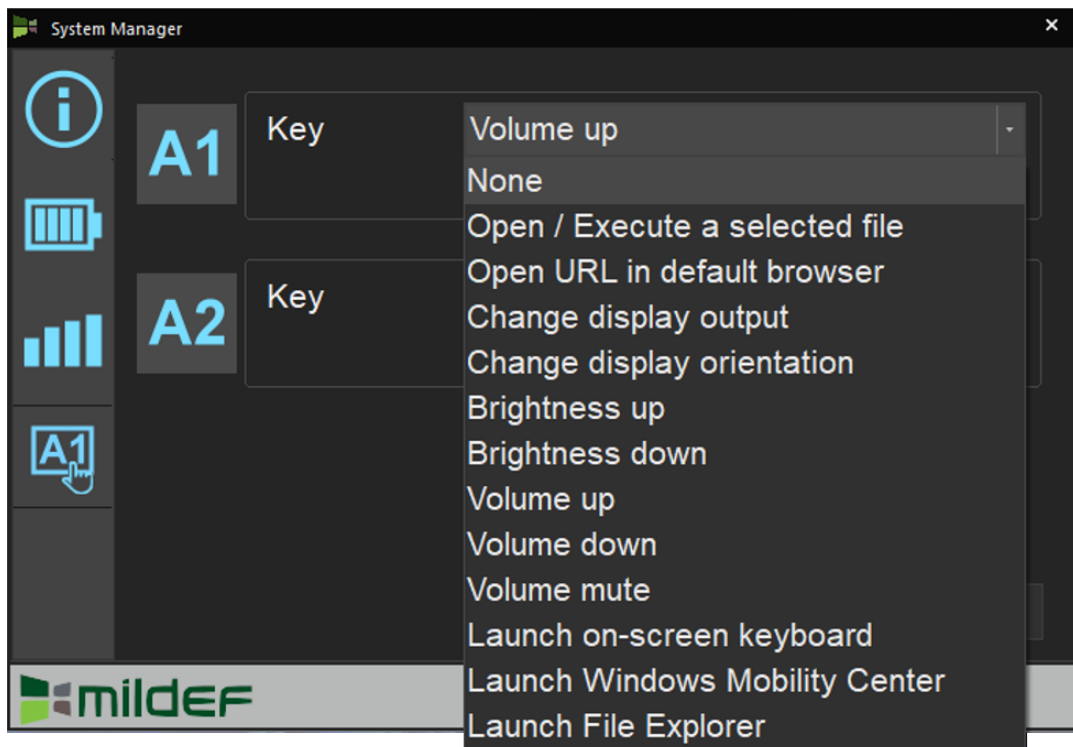
Note

➤ *Programmable keys (A1 and A2) are only settable by the Administrator Account.*

Hot Swapping the Battery

To hot swap the battery

1. Check the power supply.

    -Whether the is attached;

    -Whether the other battery percentage is sufficient enough.

2. Loosen the battery locks counterclockwise.
3. Remove and replace the battery.
4. Fasten the battery locks clockwise.
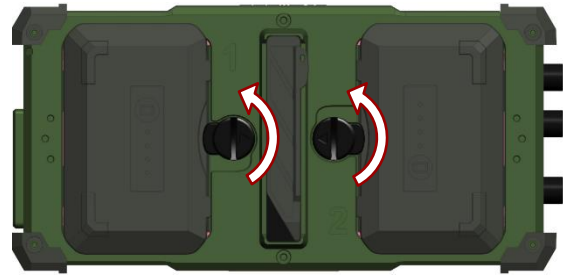
Note

➢ *Please refer to Chapter 3 for the detailed information on AC Adapter and Battery Pack.*

Connecting the USB-C AC Adapter

To connect with the USB-C AC Adapter

1. Plug the AC cord to the Adapter.
2. Plug the other end of the AC cord into the electrical outlet.
3. Attach the USB-C Jack into the charging port of the device firmly.
4. Fix the thumb screws clockwise.

thumb screws

Note

➢ *To ensure system stability, please connect your device to an external power source when operating at -20℃ ambient temperature.*

➢ *Power Adapter LED indicator lights green when the AC power is attached.*

➢ *For the device without batteries, Boot Up is recommended after the device is attached to the Power Adapter for approximately 3 seconds, so to ensure the power has been delivered to the device.*

Chapter 3 – Managing Power

Rugged USB-C AC Adapter

The AC Adapter automatically detects the AC line voltage (110V or 220V) and adjusts accordingly. It serves to power the device from an external AC source and charges the mounted battery.

Recommendations for the AC Adapter

● Use a properly grounded AC outlet.

● Use one AC outlet exclusively for the device. Having other appliances on the same line may cause interference.

● Use a power strip with built-in surge protection.

Battery

Battery Duration

Device	Battery Life
When power is ON	• Approximately 6 hours with two 100% batteries equipped. • The operating time depends on how and where the device is applied. Playing multimedia, setting backlight brightness high, and utilizing the device in a low temperature environment may be considerably power-consuming.
When power is OFF	• Approximately 180 days with two 100% batteries equipped. • Though Shutdown Mode is designed, It is still suggested that the battery be charged every 3 months so to avoid over discharging.

Battery Percentage & Level

The power source will automatically switch to battery when the external power source is disconnected. You may check battery status from Windows or via the LED indicators on the battery. Each indicator corresponds to 25% battery level.

● **LED Indicator on Battery**

Indicator (From Left to Right)	Battery Percentage
1	<25%
2	25% ~ 50%
3	50% ~ 75%
4	>75%
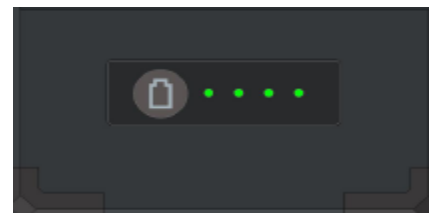
● **Windows 10**
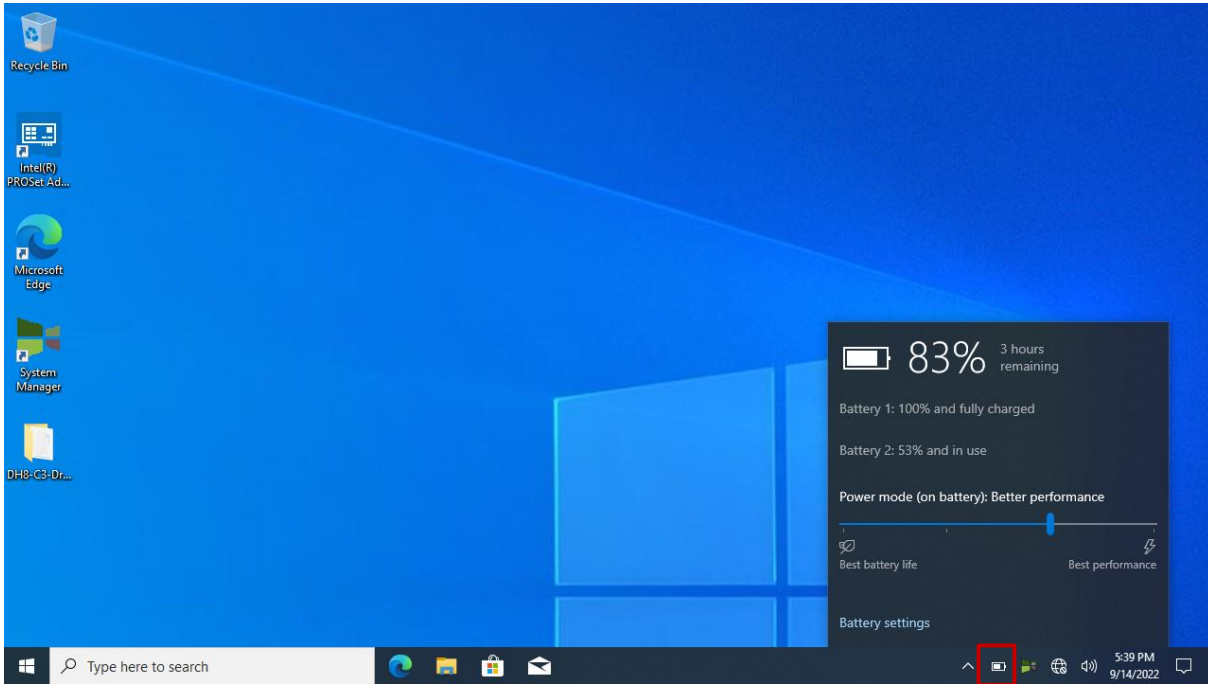
● **Windows 11**
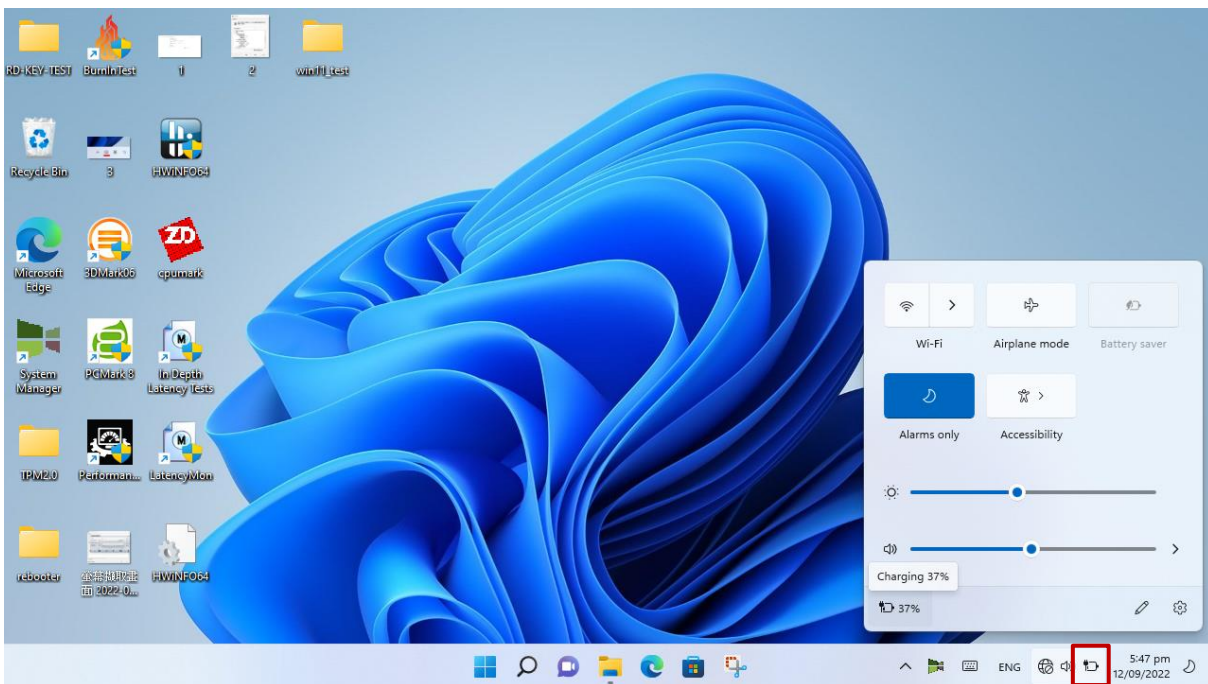
> **Note**
>
> ➢ *It is recommended to mount the secondary battery after the status reading of the primary battery is completed in OS, which is to ensure the stability of battery status.*
>
> ➢ *The battery gauge is for reference only. Please do not expect it to show the exact amount of the power remaining. There is no memory effect on Lithium-Ion battery cells. However, discharge the battery to nearly empty every month will help to calibrate the internal gauge.*

Power Saving Tips

The computer comes with an intelligent power-saving feature. You may extend the battery life by:

● Set up power saving functions in Operating System Power Management options (e.g., Windows Power Options).

● Lower the intensity of the display in brightness control.

● Turn the computer into standby (by Sleep or Power button) when it is temporarily not in use.

● Shut down the computer when it will not in used for a period of time.

Battery Low

When the battery is nearly exhausted, the device gives the following "Battery Low" warnings:

● Windows battery low warning.

● The power LED flashes.

Once "Battery Low" warnings occur, please follow the instructions below to avoid data loss.

● Save and close the files you are currently working on.

● Plug the AC Adapter to charge the batteries.

● Replace the battery with a fully charged one.

Battery Charging & Discharging

Plug in the AC Adapter to start the battery charging, and the charge indicator lights orange when the battery is charging. If the battery charging is completed, the indicator will automatically light OFF, and the sense circuitry will stop high current charge within several minutes.

When the device is connected to AC Adapter, the primary battery will be charged first, followed by the second battery; while the device is powered by the battery, the second battery will be discharged first, and then the primary one.

Battery	Charging (With AC Adapter attached)	Discharging (Without AC Adapter attached)
Primary Battery	First priority	Second priority
Secondary Battery	Second priority	First priority

Battery Charging Time

Charging Time		DH8 (With Battery x 1)	DH8 (With Battery x 2)
AC Adapter	**System ON**	2.5 hours	5 hours
	System OFF	2.5 hours	5 hours

Battery Recalibration

Battery recalibration allows a user to calibrate the GAUGE IC parameter of the battery pack. When the battery stays fully charged or in a low charge state for a long period of time, it causes the battery gauge to have some minor discrepancies. Therefore, users are recommended to carry out battery recalibration to ensure the accuracy of battery GAUGE IC. To perform battery recalibration, please follow the steps below:

1. Update BIOS & EC to the latest version.
2. Mount the battery to the device, and connect it to the AC Adapter.
3. Enter the BIOS → Choose "Advanced menu" → Choose "Battery Recalibration" → Press "Enter".
4. When the "Start Battery Recalibration" pop-up appears, press "Yes" to continue. (Before running the battery calibration, please make sure that the battery level must be LOWER than 95%; otherwise, the calibration cannot work.)
5. The recalibration is now processing. You can see the following recalibration status on the screen:
   - Calibration Frequency: How many times the calibration is processed
   - Battery Capacity: Current battery capacity
   - Battery Charge Mode: Charge/ Discharge
   - Battery Learning Mode: Normal (charge)/ Learn (discharge)
6. A pop-up appears when the calibration has completed. Then, click "OK".
7. Press "Yes" to reboot the computer when "Reset Without Saving" pop-up appears.

Note

➢ *Neither turn off the LCD nor the remove AC adapter during the calibration.*
➢ *Each cycle of recalibration process indicates "Charge to Full → Start Learn Mode → Discharge → Complete Learn Mode → Charge to Full". It will take approx. eight hours to complete a cycle.*
➢ *It requires five cycles to complete the battery recalibration. Then the recalibration will stop automatically.*
➢ *If you want to terminate the calibration, simply shut down the device by pressing the Power Button; or, restart the device via the external keyboard by pressing "CTRL+ALT+DEL".*

Battery Shutdown Mode

The battery is designed with Shutdown Mode and it will automatically enter this mode to prolong its storage time and to avoid itself from over-discharging. Shutdown Mode will be activated under the below two situations.

● When the battery itself is not in use for over 15 days

● When the device with batteries is OFF.

The battery in Shutdown Mode may sustain for approximately 180 days. To deactivate Shutdown Mode, please connect battery to the device and then to the AC Adapter. The charge indicator lights orange means the deactivation of Shutdown Mode has completed.

Battery Storage Recommendations

Battery power will decrease gradually in storage. Self-discharge rate of rechargeable batteries is approximately 1% per day; however, this rate may vary according to the storage environment. High humidity and high temperature accelerate discharge, while very low temperature may "freeze" the battery chemicals thus decrease the capacity. The following are guidelines for battery maintenance:

● The battery should be removed if the device will not be used for a long period of time (approximately one month).

● The battery should have 50% charge remaining before it is removed from the device and be stored separately.

  The battery should be recharged to 50% according to the different storage temperatures below so to prevent from damages because of over-discharging.

Storage Temperature	Battery Charging Frequency
-20°C ~ +20°C	Every 6 months
-20°C ~ +45°C	Every 3 months
-20°C ~ +60°C	Every month

● The battery without using for more than 2 years may result in battery aging and it is not recommended to use.

ACPI Support

This device supports ACPI (Advanced Configuration and Power Interface) for power management. With ACPI and an ACPI-compliant operating system (such as Microsoft Windows), this feature will allow you to reduce the power consumption and conserve energy. By supporting ACPI, the AC Adapter LED and the Power indicator LED will show in different ways. The followings are detailed descriptions of LED indicators and their meanings:

Sleep

AC Adapter LED is ON (while connecting with power)
Power LED indicator is flashing Green; other LED indicators are OFF

Hibernate

AC Adapter LED is ON (while connecting with power)
Power LED indicator is OFF; other LED indicators are OFF

Shut Down

AC Adapter LED is ON (while connecting with power)
Power LED indicator is OFF; other LED indicators are OFF

Chapter 4 – BIOS Setup

When connected with the external keyboard, under FN Lock, press ⏻, followed by **[F2]** at boot up to enter BIOS setup. Use arrow keys to select options and **[+/-]** to modify them. When finished, move to "**Exit**" and press **[Enter]**, then confirm save by pressing **[Y]**. The BIOS setup can be done with the touch screen mode as well.

The BIOS setup may vary depending on computer configurations. Incorrect settings may cause system malfunction. To correct it, restore the Optimized Defaults with **[F3]**.

Main Menu

```
                          Aptio Setup - AMI                        ESC ⌨
    Main  Advanced  Chipset  Security  Boot  Save & Exit

    BIOS Information                                       ▲
    BIOS Vendor            American Megatrends
    Core Version           5.19
    Compliancy             UEFI 2.7; PI 1.6
    Project Version        DH8 0.13 x64
    Build Date and Time    09/05/2022 10:44:23
    Access Level           Administrator
    EC Version             0.1.8


    Processor Information
    Name                   ElkhartLake ULX
    Type                   Intel Atom(R) x6211E          →←: Select Screen
                           Processor @ 1.30GHz           ↑↓/Click: Select Item
    Speed                  1300 MHz                      Enter/Dbl Click: Select
    Microcode Revision     16                            +/-: Change Opt.
    IGFX GOP Version       18.0.1034                     F1: General Help
    Total Memory           16384 MB                      F2: Previous Values
    ME FW Version          15.40.27.2664       ▼         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC/Right Click: Exit

              Version 2.21.1278 Copyright (C) 2022 AMI
                                                                          AB
```

Advanced Menu

```
                          Aptio Setup - AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit         ESC  ▦

 ▶ CPU Configuration                            CPU Configuration
 ▶ PCH-FW Configuration                         Parameters
 ▶ Trusted Computing
 ▶ RF Device Control
 ▶ AC In Boot Control
 ▶ USB Power Control
 ▶ Battery Recalibration
 ▶ IT8659 Super IO Configuration
 ▶ Network Stack Configuration

 ▶ Intel(R) I210 Gigabit  Network Connection -
   00:16:3F:62:20:05                            →←: Select Screen
                                                ↑↓/Click: Select Item
                                                Enter/Dbl Click: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC/Right Click: Exit

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                                                                   AB
```

CPU Configuration

```
                          Aptio Setup - AMI
   Main                                                          ESC  ▦

 CPU Configuration                              When enabled, a VMM can
                                                utilize the additional
 Intel (VMX)              [Enabled]             hardware capabilities
 Virtualization                                 provided by Vanderpool
 Technology                                     Technology.
 VT-d                     [Enabled]
 Turbo Mode               [Enabled]



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

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                                                                   AB
```

PCH-FW Configuration

```
                          Aptio Setup - AMI                  ESC  ⌨
   Advanced

   ME Firmware Version      15.40.27.2664       Configure Management
   ME Firmware Mode         Normal Mode         Engine Technology
   ME Firmware SKU          Consumer SKU        Parameters
 ▶ Firmware Update Configuration



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

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                                                                 AB
```

Firmware Update Configuration Sub-Menu

```
                          Aptio Setup - AMI                  ESC  ⌨
   Advanced

   Me FW Image Re-Flash      [Disabled]          Enable/Disable Me FW
                                                 Image Re-Flash function.




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

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                                                                 AB
```

Trusted Computing

```
                          Aptio Setup - AMI          ESC  ⌨
   Advanced

   TPM 2.0 Device Found                         Enables or Disables
   Firmware Version:      13.11                  BIOS support for
   Vendor:                IFX                     security device. O.S.
   Security Device        [Enable]               will not show Security
   Support                                        Device. TCG EFI
   Pending operation      [None]                  protocol and INT1A
                                                   interface will not be
                                                   available.

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

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                                                                      AB
```

RF Device Control

```
                          Aptio Setup - AMI          ESC  ⌨
   Advanced

   RF Device Control                            RF Device Control
                                                 Setting
   GSM STATUS             Not Present
   GPS STATUS             Present
   GPS                    [Enabled]
   BT STATUS             Present
   BT                    [Enabled]
   WLAN STATUS           Present
   WLAN                  [Enabled]


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

              Version 2.21.1278 Copyright (C) 2022 AMI
                                                                      AB
```

Battery Recalibration

```
                        Aptio Setup - AMI
  Advanced

 Battery Recalibration Utility

 Note: Only support single battery
 recalibration in the same time, while the
 Utility is executing, please don't close the
 LCD and don't disconnect the AC adaptor. The
 battery recalibration will follow the steps
 and take about 12hrs(by battery capacity) to
 complete the battery recalibration process.

 Calibration Frequency    N/A          →←: Select Screen
 Battery Capacity         N/A          ↑↓/Click: Select Item
 Battery Charge Mode      N/A          Enter/Dbl Click: Select
 Battery Learning Mode    N/A          +/-: Change Opt.
                                       F1: General Help
 Step 1 -> Fully          N/A          F2: Previous Values
 Charged                               F3: Optimized Defaults
 Step 2 -> Learning...    N/A          F4: Save & Exit
                                       ESC/Right Click: Exit

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                                                              AB
```

```
                        Aptio Setup - AMI
  Advanced

 Battery Recalibration Utility

 Note: Only support single battery
 recalibration in the same time, while the
 Utility is executing, please don't close the
 LCD and don't       ┌──── Warning!!! ────┐
 battery recali      │                    │
 and take about      │ Start Primary Battery Recalibration? │
 complete the b      │ Select NO will check Second Battery │
                     │                    │
 Calibration Fr      │ ┌─────┐            │    Screen
 Battery Capaci      │ │ Yes │      No    │    Select Item
 Battery Charge      │ └─────┘            │    Click: Select
 Battery Learning    └────────────────────┘    e Opt.
                                       F1: General Help
 Step 1 -> Fully          N/A          F2: Previous Values
 Charged                               F3: Optimized Defaults
 Step 2 -> Learning...    N/A          F4: Save & Exit
                                       ESC/Right Click: Exit

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                                                              AB
```

Battery Recalibration (Cont.)

```
                        Aptio Setup - AMI                    ESC  ⌨
     Advanced

  Battery Recalibration Utility                      ▲

  Note: Only support single battery
  recalibration in the same time, while the
  Utility is executing, please don't close the
  LCD and don't dis┌──────── Warning!!! ────────┐
  battery recalibra │                            │
  and take about 12 │ Start Second Battery Recalibration? │
  complete the batt │                            │
                    ├────────────────────────────┤ect Screen
  Calibration Frequ │   Yes              No      │k: Select Item
  Battery Capacity  └────────────────────────────┘bl Click: Select
  Battery Charge Mode                               +/-: Change Opt.
  Battery Learning Mode      N/A                    F1: General Help
                                                    F2: Previous Values
  Step 1 -> Fully            N/A                    F3: Optimized Defaults
  Charged                                         ▼ F4: Save & Exit
  Step 2 -> Learning...      N/A                     ESC/Right Click: Exit

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                                                              AB
```

IT8659 Super IO Configuration

```
                            Aptio Setup - AMI
    Advanced

    IT8659 Super IO Configuration                          Set Parameters of
                                                           Serial Port 1 (COMA)
    Super IO Chip              IT8659
 ▶  Serial Port 1 Configuration
 ▶  Serial Port 2 Configuration




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

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                                                                         AB
```

```
                            Aptio Setup - AMI
    Advanced

    Serial Port 1 Configuration                            Enable or Disable
                                                           Serial Port (COM)
    Serial Port              [Enabled]
    Device Settings          IO=3F8h; IRQ=4;

    COM 1 Mode Setting       [RS232]

    Change Settings          [Auto]




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

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                                                                         AB
```

Network Stack Configuration

```
                         Aptio Setup - AMI
      Advanced

 Network Stack            [Disabled]              Enable/Disable UEFI
                                                  Network Stack




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

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                                                                    AB
```

Intel® I210 Gigabit Network Connection

```
                        Aptio Setup - AMI
        Advanced                                           ESC  [keyboard]

  ▶ NIC Configuration                             Click to configure the
                                                  network device port.
    Blink LEDs                  0

    UEFI Driver                 Intel(R) PRO/1000
                                6.9.07 PCI-E
    Adapter PBA                 000200-000
    Device Name                 Intel(R) I210 Gigabit
                                Network Connection
    Chip Type                   Intel i210
    PCI Device ID         ▷     1533             ──────────────────────
    PCI Address                 01:00:00          →←: Select Screen
                                                  ↑↓/Click: Select Item
    Link Status                 [Disconnected]    Enter/Dbl Click: Select
                                                  +/-: Change Opt.
    MAC Address                 00:16:3F:62:20:05 F1: General Help
    Virtual MAC Address         00:00:00:00:00:00 F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC/Right Click: Exit

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                                                                      AB
```
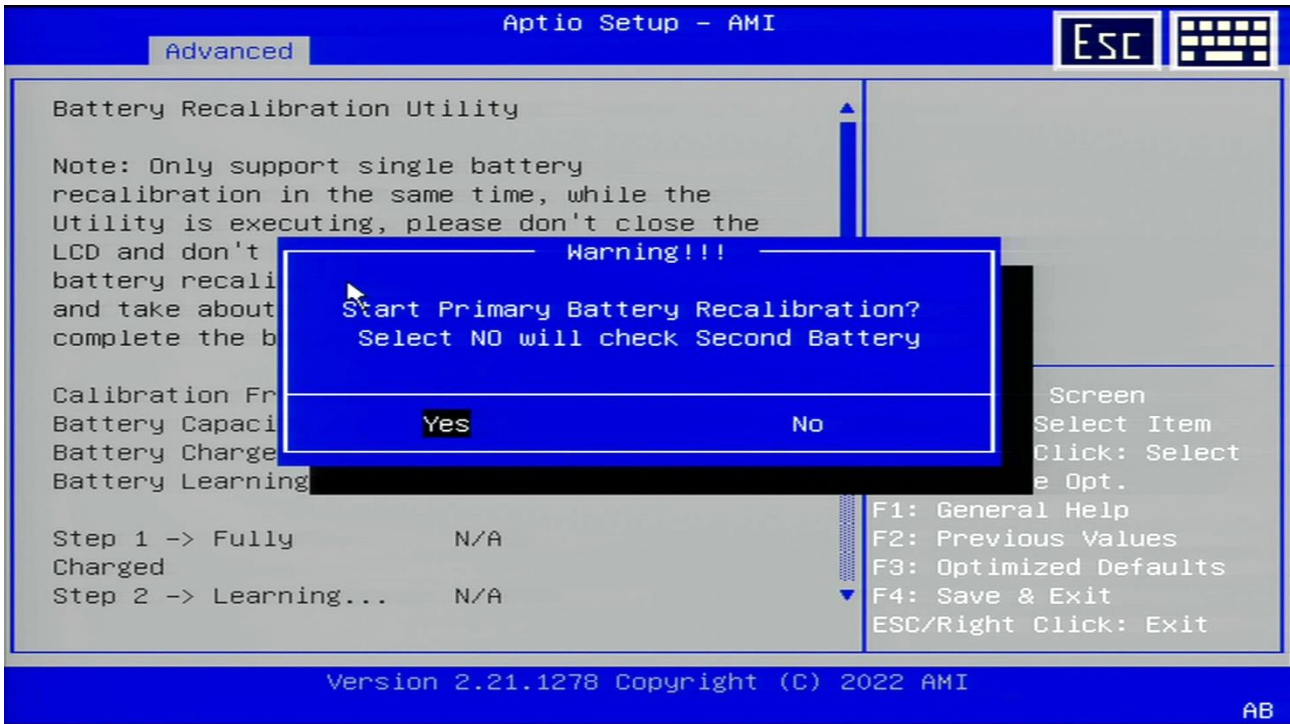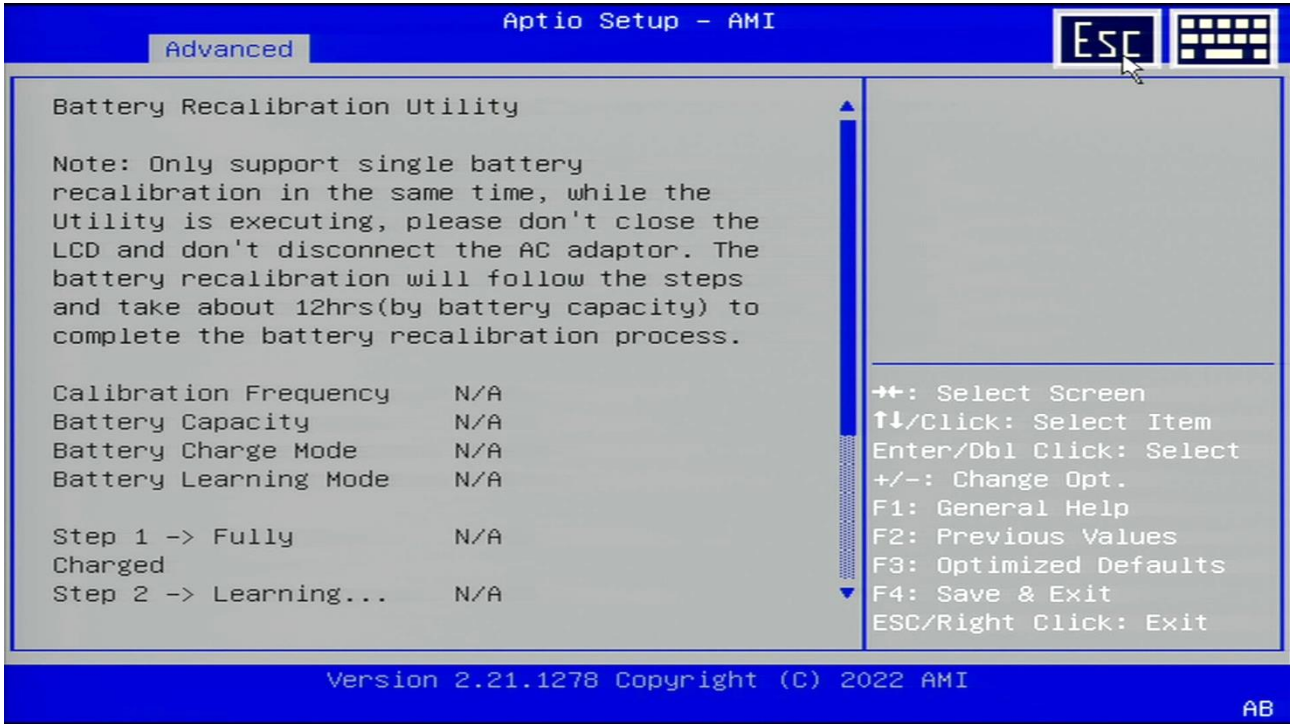
NIC Configuration Sub-Menu

```
                        Aptio Setup - AMI
        Advanced                                           ESC  [keyboard]

                                                  Specifies the port
                                                  speed used for the
    Link Speed              [Auto Negotiated]     selected boot protocol.
    Wake On LAN             [Disabled]








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

            Version 2.21.1278 Copyright (C) 2022 AMI
                                                                      AB
```
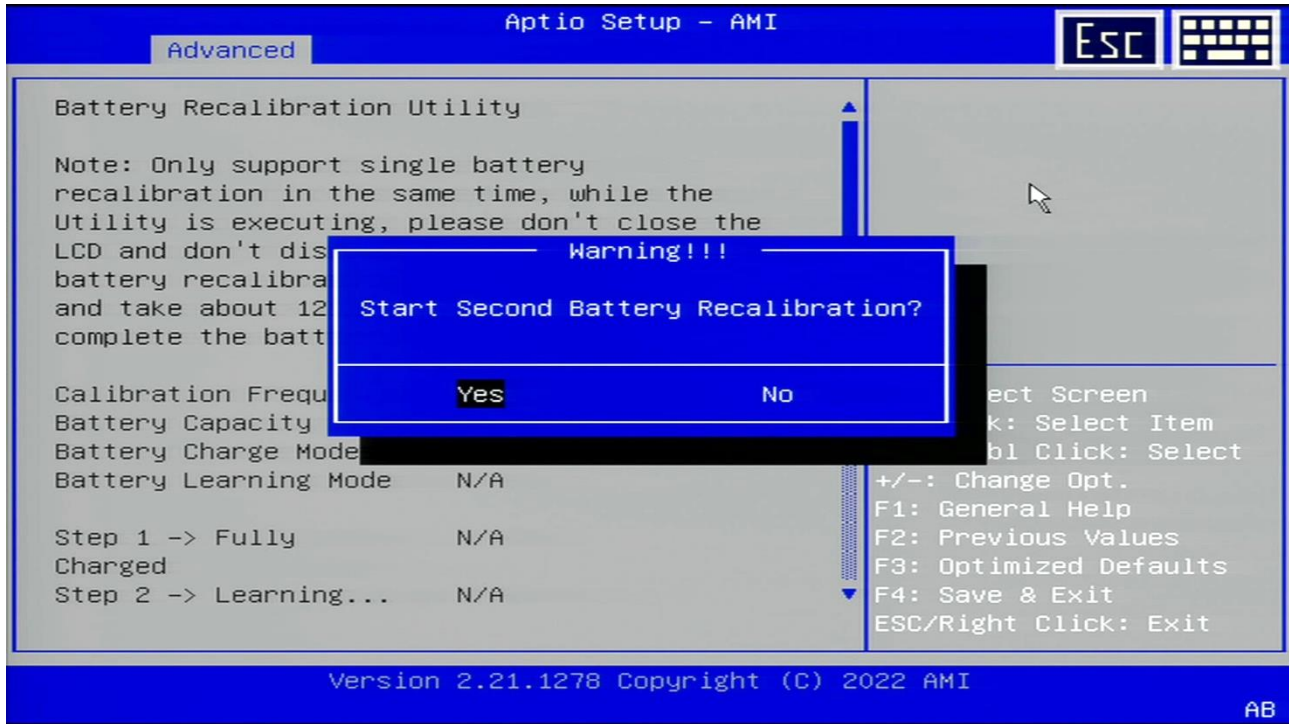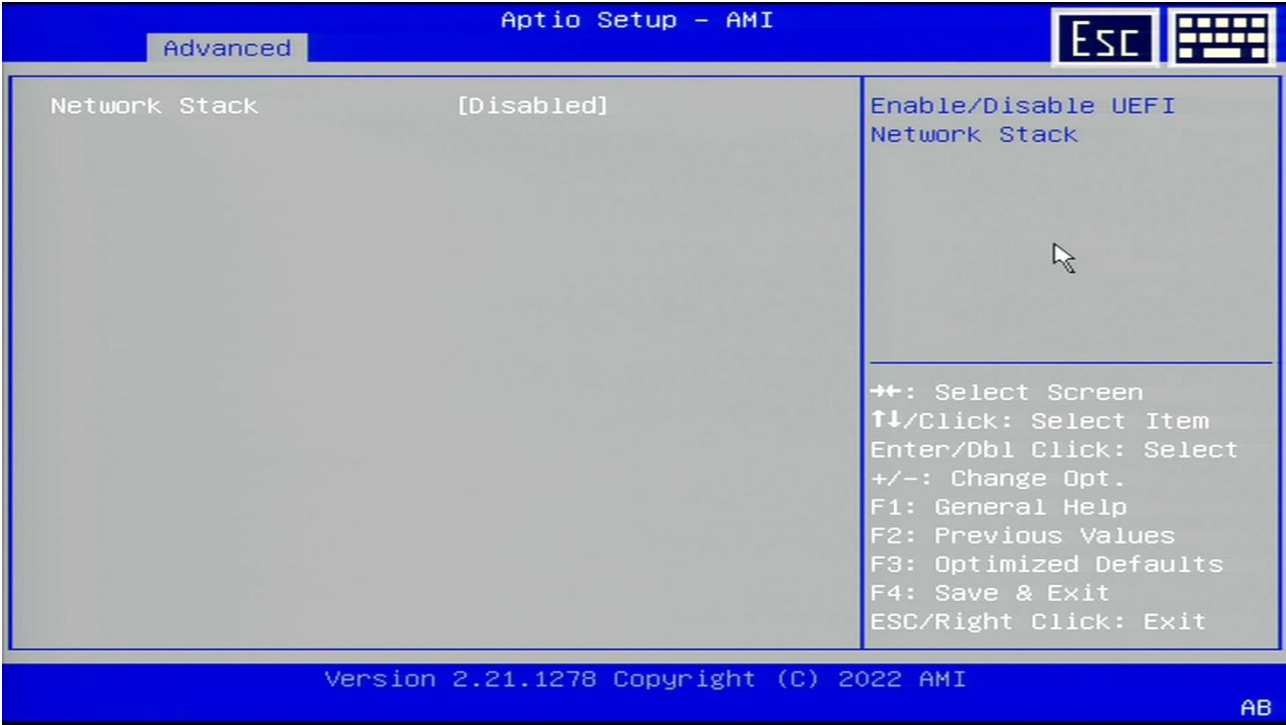
Security Menu

```
                        Aptio Setup - AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit        ESC  ⌨

 Password Description                    ▲  Set Administrator
                                           Password
 If ONLY the Administrator's password is set,
 then this only limits access to Setup and is
 only asked for when entering Setup.
 If ONLY the User's password is set, then this
 is a power on password and must be entered to
 boot or enter Setup. In Setup the User will
 have Administrator rights.
 The password length must be
 in the following range:
 Minimum length         3
 Maximum length         20

 Administrator Password
 User Password
                                           →←: Select Screen
                                           ↑↓/Click: Select Item
 HDD Security Configuration:               Enter/Dbl Click: Select
 P0:TS128GS42MI-CRE                        +/-: Change Opt.
                                           F1: General Help
 ▶ Secure Boot                             F2: Previous Values
                                           F3: Optimized Defaults
                                        ▼  F4: Save & Exit
                                           ESC/Right Click: Exit

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                                                              B4
```

HDD Security Configuration Sub-Menu

```
                          Aptio Setup - AMI
                     Security

 HDD Password Description :                  ▲  Set HDD User Password.
                                                *** Advisable to Power
 Allows Access to Set, Modify and Clear         Cycle System after
 Hard Disk    User    Password                  Setting Hard Disk
 and    Master   Password.                      Passwords  ***.
 User Password is mandatory to Enable HDD       Discard or Save changes
 Security.                                      option in setup does
 If Master password is installed (optional),    not have any impact on  ▼
 it can also be used to unlock the HDD.
 If the 'Set User Password' option is hidden,
 do power cycle to enable the option again.


 HDD PASSWORD CONFIGURATION:


 Security Supported :      Yes
 Security Enabled   :      No
 Security Locked    :      No                 →←: Select Screen
 Security Frozen    :      No                 ↑↓/Click: Select Item
 HDD User Pwd Status:      NOT INSTALLED      Enter/Dbl Click: Select
 HDD Master Pwd Status     NOT INSTALLED      +/-: Change Opt.
 :                                            F1: General Help
                                              F2: Previous Values
 Set User Password                            F3: Optimized Defaults
 Set Master Password                       ▼  F4: Save & Exit
                                              ESC/Right Click: Exit

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                                                             B4
```

Setting Password

1. Once you set HDD passwords successfully, you must enter the user password to boot in the future. The master password provides an alternative entry in case the user password is lost.

2. Clearing the master password in the BIOS setup will also clear the current user password. The master password served as a backup key, and is suggested not to be changed frequently.

3. You can set your master password and user password with a length between 1 and 32 characters. If you want to clear current password, type nothing when creating a new password.

4. After you set a password, "Pwd Status" will change from "NOT INSTALLED" to "INSTALLED", and the "security enabled" status will change to "YES".

5. Your setting will take effect after reboot.

Note

➢ *If the master password is lost or it is not set earlier than the user password, losing the user password would make accessing impossible. So please set the master password at first and keep it carefully.*

Resetting Password

1. After typing an invalid user password three times, a message will show "HDD is locked". Pressing "Enter" will leave the screen message.

2. Press "F2" immediately to enter the BIOS setup where the lost user password could be cleared with the master password.

3. Once the HDD is locked, users have no right to access. You can only re-enter with the correct user password or clear it with the master password.

4. A warm boot will cause HDD Security Frozen in the selection. Only a cold boot can lift the HDD Security frozen and allow further operations in the BIOS setup. (After a cold boot, users can try to enter again with the correct user password or just reset it with the master password)

Secure Boot Sub-Menu

```
                        Aptio Setup - AMI
                        Security                        ESC  ⌨

System Mode              User                   Enables expert users to
                                                modify
Secure Boot              [Disabled]             Secure Boot Policy
                         Not Active             variables
                                                without full
Secure Boot Mode         [Custom]               authentication
▶ Restore Factory Keys
▶ Reset To Setup Mode
▶ Enter Audit Mode
▶ Enter Deployed Mode                          ─────────────────────────
                                                ←→: Select Screen
▶ Key Management                                ↑↓/Click: Select Item
                                                Enter/Dbl Click: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC/Right Click: Exit

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                                                                    B4
```

```
                        Aptio Setup - AMI
                        Security                        ESC  ⌨

Vendor Keys              Valid               ▲ Enroll Factory Defaults ▲
                                               or load certificates
Factory Key Provision    [Enabled]            from a file:
▶ Restore Factory Keys                          1.Public Key
▶ Reset To Setup Mode                         Certificate:
▶ Export Secure Boot variables                  a)EFI_SIGNATURE_LIST
▶ Enroll Efi Image                              b)EFI_CERT_X509 (DER)
                                                c)EFI_CERT_RSA2048    ▼
Device Guard Ready
▶ Remove 'UEFI CA' from DB                     ─────────────────────────
▶ Restore DB defaults                          ←→: Select Screen
                                               ↑↓/Click: Select Item
Secure Boot variable | Size| Keys| Key Source  Enter/Dbl Click: Select
▶ Platform Key(PK)     |  862|    1| Test(AMI)  +/-: Change Opt.
▶ Key Exchange Keys    | 1560|    1| Factory    F1: General Help
▶ Authorized Signatures| 3143|    2| Factory    F2: Previous Values
▶ Forbidden  Signatures|11064|  192| Factory    F3: Optimized Defaults
▶ Authorized TimeStamps|    0|    0| No Keys ▼  F4: Save & Exit
                                               ESC/Right Click: Exit

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                                                                    B4
```

Boot Menu

```
                          Aptio Setup - AMI
   Main   Advanced   Chipset   Security   Boot   Save & Exit          ESC  ⌨

                                                         Sets the system boot
      FIXED BOOT ORDER Priorities                        order
      Boot Option #1           [Hard Disk:Windows
                               Boot Manager (P0:
                               TS128GS42MI-CRE)]
      Boot Option #2           [CD/DVD]
      Boot Option #3           [USB Device]
      Boot Option #4           [Network]

    ▶ UEFI Hard Disk Drive BBS Priorities
                                                         ↔: Select Screen
                                                         ↑↓/Click: Select Item
                                                         Enter/Dbl Click: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC/Right Click: Exit

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                                                                           AB
```

> *Note*
>
> ➢ *The system will try to boot from device on top then the 2nd and so on. If there is more than one device in each category, only the device on top of sub-menu can boot up.*

```
                          Aptio Setup - AMI
                                Boot                                 ESC  ⌨

      Boot Option #1           [Windows Boot Manager                Sets the system boot
                               (P0: TS128GS42MI-CRE)]               order




                                                        ⌐




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

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                                                                           AB
```

Chapter Four - 36

Save & Exit Menu

```
                          Aptio Setup - AMI                    [ESC] [⌨]
    Main  Advanced  Chipset  Security  Boot  Save & Exit

  Save Options                                   Reset the system after
  Save Changes and Reset                         saving the changes.
  Discard Changes and Reset

  Default Options
  Restore Defaults

  Boot Override
  Windows Boot Manager (P0: TS128GS42MI-CRE)
  Launch EFI Shell from filesystem device
                                                 ──────────────────────
                                                 →←: Select Screen
                                                 ↑↓/Click: Select Item
                                                 Enter/Dbl Click: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC/Right Click: Exit

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                                                                    AB
```

Chapter 5 – Drivers and Applications

The latest drivers and utilities will be available on Crete's website. To download the drivers and utilities, please follow the instructions below by

Visit Crete's website **www.mildef.com.tw** → **SERVICE/SUPPORT menu** → **DRIVERS & UTILITIES**

Via Device Manager in Windows, you may perform "Driver Update" and check if there are drivers that still needed to be installed for your device. If any driver is missing, please consult your dealer.

> *Note*
> ➢ *Please install the chipset driver first.*
> ➢ *If the system requests for a reboot after installing drivers, please reboot your device before installing other drivers.*

Chapter 6 – Specifications

Platform

Intel® Elkhart Lake Platform

Processor

Intel Atom® x6211E Processor (1.5 MB L2 Cache, up to 3 GHz)

Memory

Max. 32GB

- DDR4 SO-DIMM x 1, 3200 MHz
- Industrial Grade

Storage

- M.2 2242 SATAIII SSD
- 256GB/512GB/1TB
- Industrial Grade

Graphics

Intel® UHD Graphics

Display

- 5.7"
- Optical Bonding
- Resistive Multi-Touch Screen
- Resolution   : 1280 x 720 pixels
- Brightness (Min. ~ Typ.) : 560 ~ 640 nits
- Optional Invisible Mode On/Off
- Optional Protection Film

> ***Note***
> ➤ *Optional Invisible Mode On/Off controls all light sources on/off, including LCD backlight, LED Indicators, and Keypad backlight.*

Keypad

- Power button (front side)
- Membrane Function Keys with LED Backlight

Audio

- HD audio codec and amplifier
- Stereo Speaker
- Optional Embedded Digital Mic

Note

> *Devices with Optional Embedded Digital Mic support voice memos and microphone during calls, and users may adjust the microphone boost in "Microphone Properties" in Windows.*

I/O Ports

Right
- Amphenol USB 3.2 Gen.2 Type C x 1

Left
- L1~L3*: Optional Fischer I/O x 3
  Choose for 3 Fischer Connectors out of 4 signals; non-repeatable
  - USB 2.0
  - Audio
  - GLAN
  - COM**
  **BIOS selectable: RS232/ RS422/RS485; default: RS232
  *L3: Trade-off with Optional Invisible Mode Switch

Bottom
- 16-pin Docklite POGO Connector

Top
- Optional WLAN/BT/GNSS Antenna

Security

BIOS password is available to safely secure your computer. TPM (Trusted Platform Module) version 2.0 is also supported, preventing unauthorized access to your device.

Power

Battery Pack (BDH82A)

- Type : Prismatic Lithium Ion Cell
- Capacity : 7.2V/2500mAh (2S1P)
- Operating Temperature : Charge: 0 ~ 55ºC
  : Discharge: -30 ~ 60ºC
- Dimensions (L x D x H) : 85 x 54.5 x 23.7 mm
- Weight : approximately 125 g

USB-C Port

- Input Voltage: 20V
- Input Current: 3A

Rugged 60 W USB-C AC Adapter

- Input Voltage : 100V ~ 240V
- Input Frequency : 50/60 Hz
- Output Voltage : 20V
- Output Current : 3A
- Maximum Power : 60 Watts
- Dimensions (L x D x H) : TBD mm
- Weight : TBD g

Notes: The AC Adapter is still under fine-tuning for the G.A. solution. The specification above is the drafted version and will be updated once finalized.

Certification

CE, FCC, UKCA, WEEE, REACH, RoHS2.0, IP65, Optional IP67, MIL-STD-810H, MIL-STD-461G, Optional G.A.

Case

- CNC milled Aluminum
- Color: NATO Green

Environment Specifications

- Operating Temperature   : Standard: -20°C ~ +60°C

                                      : Optional : -30°C ~ +60°C

> *Note*
>
> ➢ *At +60°C, the temperature protection is activated and auto-adjusts the LCD brightness to below 300 nits.*

- Storage Temperature   : - 40°C ~ +70°C

Dimensions & Weight

- Dimensions (L x W x H): 201 x 99 x 44.5 mm
- Weight: 905 g

> *Note*
>
> ➢ *Length is 204 mm with Optional Fischer Options.*
> ➢ *Weight is with Battery x 2, but without any option, and it varies depending on system configurations.*

Materials & Recycling

Plastic case   : Recyclable UL grade PC + ABS GE C2800 or C6200

Magnesium case   : AL6061T6

Button   : PET + Rubber

Bumper   : Silicone Rubber, TPU

PCB   : FR-4

Battery   : Rechargeable Lithium Ion

(Electrochemistry system: $LiCoO_2+C=Li_{1-X}CoO_2+CLiX$)

Packing   : Carton - Recycled/Recyclable Paper (Unbleached)

Carrying Bag - Recyclable PE Fiber

Quick Guide - Recycled/Recyclable Paper

Please recycle the parts according to local regulations.

Chapter 7 – Optional Devices

Communication

- **WLAN / BT**

    - Intel® AX210
    - Board Form Factor   : M.2 2230 E-Key Card
    - WLAN Certified   : 802.11 a/b/g/n/ac/ax
    - BT   : BT 5.3
    - Interface   : PCIe (WLAN)/ USB (BT)

- **GNSS**

    - U-blox M9N
    - Interface   : USB

Military Fischer Connector

Optional Fischer connectors provide solutions for users to operate the device in harsh environments. Signals designed for usage include USB2.0, COM (RS232/RS422/RS485), GLAN, and Audio.

Chapter 8 – Maintenance and Service

Cleaning

ALWAYS turn OFF the power, unplug the power cord and remove the battery before cleaning.

The exterior of the system and display may be wiped with a clean, soft, and lint-free cloth. If there is difficulty removing dirt, apply non-ammonia, or non-alcohol-based glass cleaner to the cloth and wipe.

An air gun is recommended for cleaning water and dust. For salty water, please clean with fresh water then blow-dry with an air gun.

Troubleshooting

Should the device fail to function properly, follow the troubleshooting steps below.

- Power Problems:

When I turn on the Device, it does not respond.
  - If you are using battery power, check if the battery is able to supply charge.
  - If you are using AC power, ensure that the connection of AC Adapter is correct.

I cannot return from Hibernation while on battery power
  - The battery might be drained. Please plug the handheld into AC power.
  - Hard reset the device by pressing the power button for 4 seconds

Unexpected or improper shutdown causes BIOS to reset to Optimized Default
  - This could be a power problem. Please connect the AC adapter to fix the abnormal shutdown problem.
- Minimize the configuration, i.e., remove extra peripherals and devices.
- Remove the modules one by one (SSD, Battery, etc.).
- Remove the software suspected.
- Set BIOS fail-safe default.
- Re-install operating system and application software.
-

RMA Service & E-RMA

If troubleshooting solutions are unsuccessful, consult your dealer for RMA.
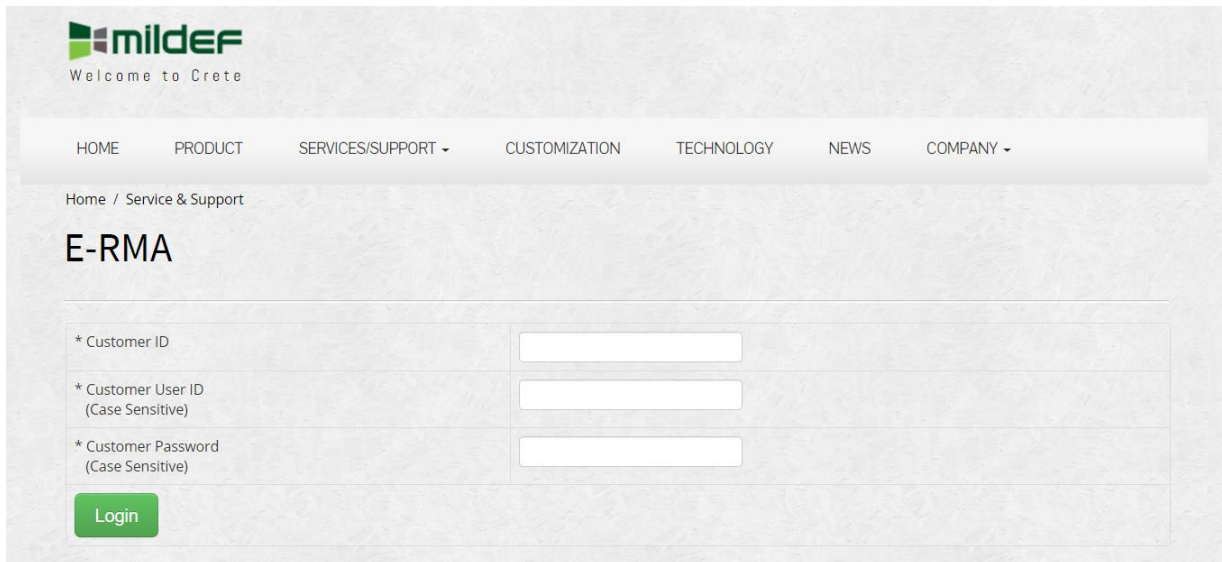
Shipping instructions

1. Remove any personal add-on devices or other media.
2. Use the original shipping container and packing materials, if possible.
3. If the original packing materials are not available, wrap the equipment with soft material (e.g., PU/PE form) then put the wrapped equipment into a hard cardboard shipping box.
4. Include a sheet with the following information: (Note: Please keep a copy of this sheet for your records.)
   - Name
   - Address
   - Unit serial number
   - Place and date of purchase or the original invoice number
   - Date of failure
   - A DETAILED description of the problems you have encountered including: The operating system, the add-on device installed (if any), the application software, the failure phenomenon, etc.
   - A list of the hardware/software configuration, if applicable.
5. Clearly mark the outside of the shipping box with the RMA #. If an RMA # is not present on the shipping box, receiving will be unable to identify it and it might be returned.
6. Unless prior arrangements have been made, the customer is responsible for all shipping costs. Unauthorized use of the company's shipping accounts is not permitted.

E-RMA

Instructions

1. Contact your dealer and provide users' names and passwords for authorization to E-RMA service.
2. Login E-RMA service platform

   Instructions: **Crete's website www.mildef.com.tw → SERVICE/SUPPORT menu → E-RMA**

3. Fill out the RMA Request Form to apply for an RMA number.

   *Please follow the instruction below for RMA Form Example:

   SERVICE/SUPPORT menu => E-RMA => Category => RMA Form Example
4. Check the status on the website after you receive the issued number.

Status descriptions

Status	Description
Approved	RMA number has been issued.
RCV	The device is received.
CHK	The device is in check.
REP	The device is in repair.
RPD	The device has been repaired.
FQC	The device is in function testing.
SHP	The device has been shipped.