Rugged Laptop

RK12

User's Guide
Preliminary Version

Note : For FCC ID : IR5RK12, it does not support the WWAN function.

Notice

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Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Regulatory Information/ Disclaimers

Installation and use of this computer 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 are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

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 manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. 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.

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.

Note:
This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference 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.

I**mportant:**
Changes or modifications to this product not authorized by MilDef 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 equipment.

CE Declaration of Conformity

CE

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 (2014/30/EC) and Complies with the essential requirements of Article 3 of the R&TTE 2014/53/EC Directive, if used for its intended use and that the following standards have been applied:

1. **Health (Article 3.1(a) of the R&TTE Directive)**
   Applied Standard(s):
   EN 50566
   EN 62479:2010
   IEC 62209-2:2010
2. **Safety (Article 3.1(a) of the R&TTE Directive)**
   Applied Standard(s):
   EN 60950-1:2006 /A11:2009 /A1:2010 /A12:2011 /A2:2013
3. **Electromagnetic compatibility (Article 3.1 (b) of the R&TTE Directive)**
   Applied Standard(s):
   EN 301 489-1 V2.1.1/ -17 V3.1.1
4. **Radio frequency spectrum usage (Article 3.2 of the R&TTE Directive)**
   Applied Standard(s):
   EN 300 328 V2.1.1
5. **Electromagnetic Compatibility Directive (2004/108/EC)**
   EN 55032: 2012
   EN 55022:2010
   EN 55024:2010+A1:2015
   EN 61000-3-2:2014
   EN 61000-3-3:2013

Power Conservation

This handheld computer consumes less power compared to conventional consumer computers. The power consumption may be further reduced by properly configuring the Power Management Setup.

It is recommended that the power saving features be enabled even when not running on battery power. Power Management features can conserve power without degrading system performance.

Power Safety

There are specific power requirements for your handheld computer:

- Only use an approved AC adapter designed for this handheld computer.
- 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 to install a compatible outlet for you.
- 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 handheld computer, 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. Also, it is advisable to remove your battery to prevent your handheld computer from accidentally turning on.

Battery Precautions

- Only use batteries designed for this handheld computer. Using incompatible battery types may cause explosion, leakage or damage to the computer.
- Do not remove the battery from the computer while the computer 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 computer is able to continuously work with a damaged battery, the circuit damage may occur and possibly cause fire.
- Always use the charger designed for this computer to recharge the battery. Incorrect recharging may cause the battery to explode.
- Do not try to repair a battery by yourself. For battery service or replacement, please contact with your service representatives.
- Please dispose damaged battery promptly and carefully. Explosion or leakage may occur, if the battery is improperly handled or discarded.

Notice:
For safety, charging will stop if the internal temperature of the battery is out of range(<0°C; >50°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 officials for details in your area for recycling options or proper disposal. 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.

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 insignificant amount of hazardous substances for health and environment below control level.
- To avoid spreading such substances into the eco system and to minimize the pressure on the natural environment, you are encouraged to reuse or recycle most of the materials in a safe way after an end of the product life.
- For more information on collection, reuse and recycle of materials, please consult local or regional waste administrations for more information. You can also contact your dealer for more information on the environmental details of the equipment.
- The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

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Chapter One - Getting Started

Unpacking

The following components are along with your computer. If there is any missing or damaged, please notify the dealer immediately.

- Computer Unit
- Removable HDD (Hard Disk Drive)
- Removable ODD (Optical Disk Drive)
- AC Adapter
- AC Power Cord
- Utility DVD
- Quick Guide
- Carrying Bag

Quick Operation

- Loosen the battery screw, remove the battery insulation sheet, and mount the battery.
- Connect the AC adapter with the computer and start charging the battery for at least 10 minutes.
- Turn ON the computer by pressing the power switch.

Notice:

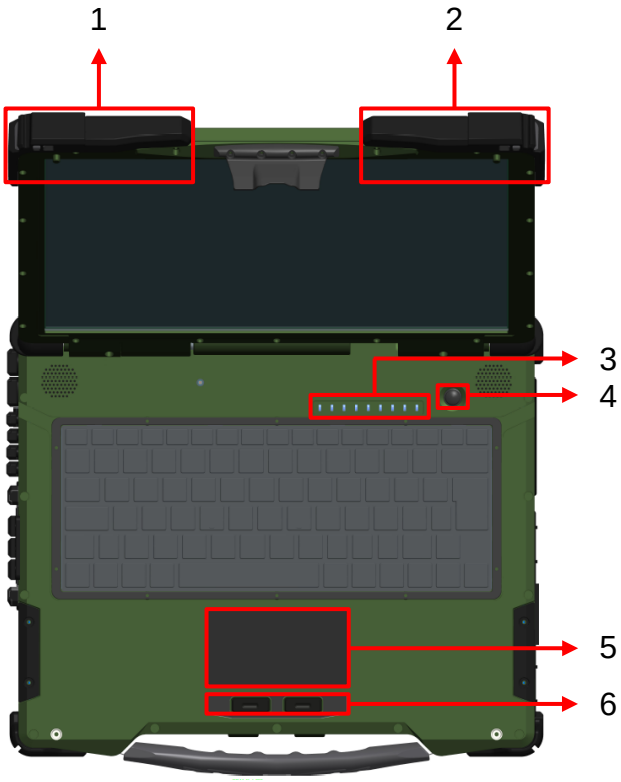
- When ambient temperature is under +5℃ (This is the default setting for this computer.), the system may not boot up immediately. System will beep with LED heater light flashing to remind the user while heater working. Also, the frequency of the LED will become faster to remind the user while the temperature is approaching to be suitable. After 5~15 minutes, the system will boot up automatically.
- Under an emergency situation, it is able to skip heating for booting up the system immediately by pressing the power switch for >9 seconds. The speaker will also beep with a special sound. (It is not guaranteed all devices on the computer are possible to work properly.)
- Press the power switch again during the heating process will shut down the computer.
- Driver or application installation may be necessary for further operation.
- The following procedures will help to Turn OFF the computer:
  1. Press power switch to "**Shut Down**", "**Sleep**"* or "**Hibernate**"* depending on operating system (OS) and power management settings.
  2. Press power switch for 4 seconds for a "Hard" power off. But, note that the system will shut down immediately without saving any data or parameters.
  3. Click **Start** → **Shut Down** in Windows to Turn OFF.

Note:

➢ *Some operating systems may not support the above-mentioned functions.*

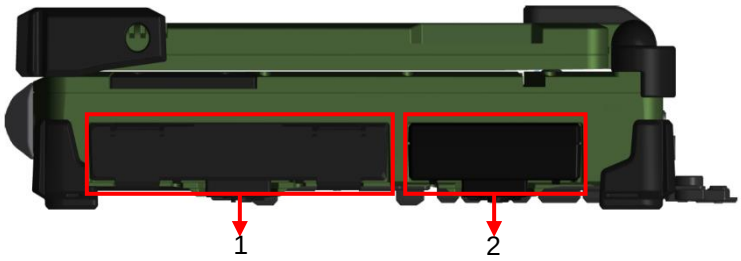
Appearance Overview

Display and Base



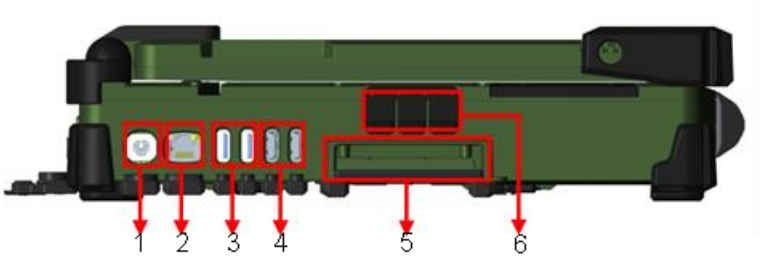
1. Embedded Antennas (Option): WLAN-L, Bluetooth, GPS
2. Embedded Antennas (Option): WLAN-R, WWAN
3. LED Indicators
4. Power Switch
5. Touchpad
6. Left-click and Right-click

Right



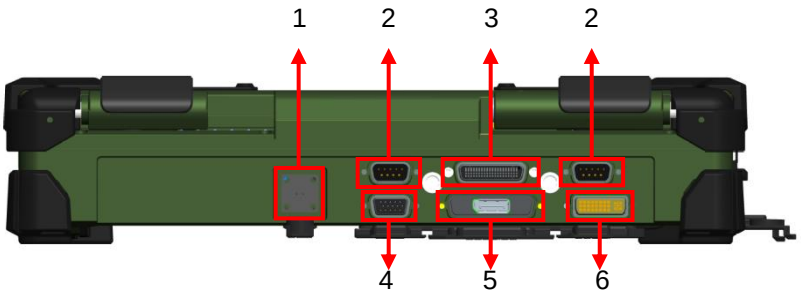
1. Flex Bay:
   a. Standard: SATA ODD (Optical Disk Drive)
   b. Optional: 2nd HDD or 2nd Battery
2. SATA HDD (Hard Disk Drive) / Optional SSD (Solid State Drive)

Left



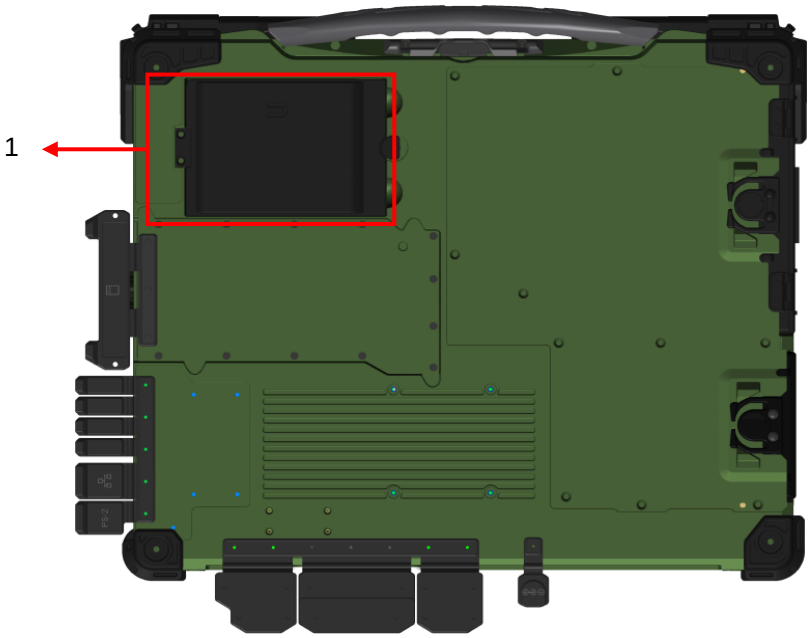
1. PS/2 (Key Board/Mouse)
2. GLAN (RJ45)
3. USB 3.1 Gen 1 x 2
4. USB 2.0 x 2
5. Express Card Slot (PCI-E)
6. Audio Jack (Line-In/Microphone/Headphone)

Rear



1. DC Jack
2. DB9
3. Docking Connector
4. VGA
5. Display port
6. DVI port

Bottom View



1. Primary Battery

Chapter Two - 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 television set, motor rotation area, etc.).
- Dust or high humidity.

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

Ruggedness

This notebook computer is designed with rugged features such as vibration, shock, dust, and rain/ water protection. However, it is still necessary to provide appropriate protection while operating in harsh environments.

The notebook computer is also designed to withstand rainfall from top with mild wind blowing only. Please keep the keyboard facing up, i.e. normal 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.

The D-sub connector caps on the rear of the computer are for dust and shock protection. The connectors are sealed internally. Other I/O ports and devices on the left or right must have caps tightly closed or cable inlets sealed while being exposed to water or dust.

There are optional gaskets for DB-9 and DB-25 connectors. You may install them to improve rain/ dust/ moisture resistance on your commercial type cable. Insert the packing into the male connector (with pins) and fasten the screws.

All connectors will be corroded if being exposed to water or moisture. Corrosion is accelerated if 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.

Operating System

Your computer is designed to operate with Microsoft Windows 7/8 32/64-bit Operating System. Please connect your computer with an external USB-interface drive, such as a USB thumb drive, and start the OS installation.

Work with Power Button

Since the notebook computer is equipped with a heater kit to enable the unit to work under low temperature, the heater will first heat HDD up to the temperature set by user, and the system will boot after then. Also, the heater will keep monitoring HDD temperature. Once the temperature becomes lower, the heater will heat up again to maintain the temperature set by user.

The function will be different from the way you use with the power button:

1. Press 12 seconds and release:
   USB port is enabled and you can set a new value in Heater AP.
2. Press 9~11 seconds:
   The system will be forced to boot up.
3. Press 5~8 seconds:
   Enable/Disable the sound of Heater.
4. Press 4 seconds under OS:
   Shut down the system.
5. Click the Power button.
   a. Power on the system in S5 status.
   b. Click while heating up, the system will be forced to shutdown
   c. Entering S3/S4 under OS.

Boot Up and POST

Boot up
The computer turns ON and loads the operating system (such as Windows) into the system memory. This start-up procedure is called “boot up”.

The ROM BIOS Power on Self-Test (POST)
Each time the computer powers on, it automatically performs a self-test of its memory and hardware devices.

Shut down

Before shutting down, please always remember to save the unfinished works and close the application for preventing from any possible data loss or HDD damage.

“Shut down” will totally turn OFF the power of your notebook computer. If you want to start your notebook computer again, you need to press the power switch.

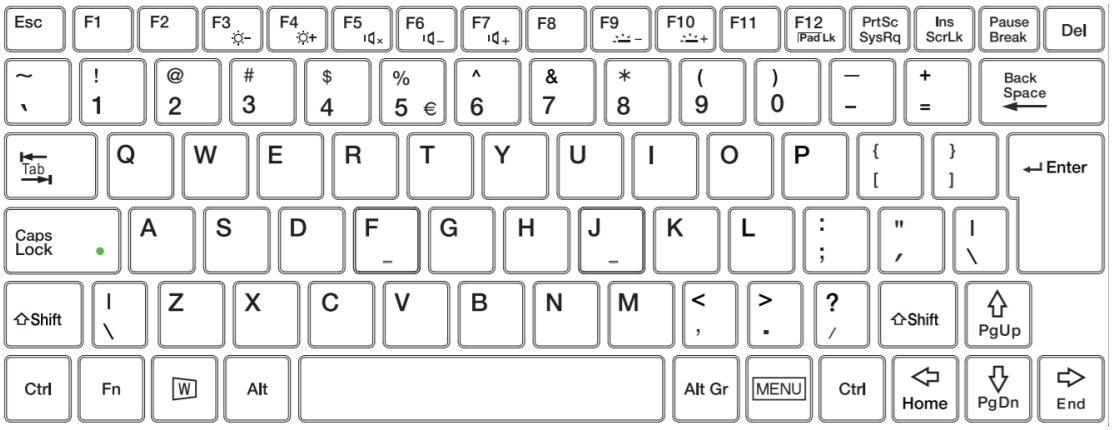
Sleep/Hibernate

Sleep
Under “Sleep” mode, the system will temporarily save your work into RAM.
You are able to do enter “Sleep” mode by directly clicking from your OS. Or, you can do the “Sleep” Mode settings in your OS. If you want to start your notebook computer again, all you need to press any key.

Hibernate
Under “Hibernate” mode, the system will save your work into HDD. You are able to do enter “Hibernate” mode by directly clicking from your OS. Or, you can do the “Hibernate” Mode in your OS. If you want to start your notebook computer again, you need to press the power switch.

Keyboard

The keyboard is functionally equivalent to a full size desktop keyboard. A sample layout is shown below.



Function Key Combinations

Key	Description
[Fn] + [F3]	Decrease LCD brightness
[Fn] + [F4]	Increase LCD brightness
[Fn] + [F5]	Keyboard Backlight (Option)
[Fn] + [F6]	Volume down
[Fn] + [F7]	Volume up
[Fn] + [F8]	Sleep Mode

Keyboard Backlight (Option)

Press **[Fn] + [F5]** key for approximately 1 second to turn the keyboard backlight ON or OFF.

LED Indicators

Your Notebook computer is designed with LED indicators to show computer status. The description of LED indicators and colors are provided for your operational reference.

LED Indicator	Description
	**Heater** Green
	**BT/WLAN/GPS/WWAN** Blue
	**Keyboard Number Lock** Green
	**Keyboard Caps Lock** Green
	**Keyboard Scroll Lock** Green
	**HDD in Use** Green
	**Secondary Battery Charging** Orange (Charging)/ Flashing Orange (Low battery)
	**Primary Battery** Orange (Charging)/ Flashing Orange (Low battery)
	**Power Indicator** Green (System ON)/ Flashing Red (S3 mode)

Hard Disk Drive (HDD) / Optional Solid State Drive (SSD)

Your Notebook computer is equipped with 2.5" SATA III Hard Disk Drive (HDD), or optional Solid State Drive (SSD) for data storage. HDD/SSD is user removable, providing convenience and security. It can **ONLY** be removed while power is **OFF**.

> ***Note:***
> *NEVER drop your HDD/SSD or expose them to high temperature, high humidity, or any hazardous environment. NEVER try to disassemble the module. Static discharge may destroy your device and data. Always pick up the modules by touching the case only.*

Optical Disk Device (ODD)

There is a 5.25" type/ 12.7mm height **SATAIII interface** ODD. The actual device will depend on the model you purchased. The ODD may be used as a boot device if properly set in the BIOS.

The ODD accepts a variety of standard 12cm CDs, DVD-ROM (Single Layer, Dual Layer), DVD-Video, DVD-R*10 (1.4 GB, 2.8 GB, 4.7GB), DVD-RW (Ver.1.1/1.2 1.4 GB, 2.8 GB, 4.7 GB, 9.4 GB), DVD-R DL (8.5 GB), DVD-RAM (1.4 GB, 2.8 GB, 4.7 GB, 9.4 GB), +R (4.7 GB), +R DL (8.5 GB), +RW (4.7 GB), CD-Audio, CD-ROM (XA compatible), CD-R, Photo CD (multiple session compatible), Video CD, CD EXTRA, CD-RW, CD-TEXT and etc.

Caution: Do not use the IDE-interface ODD; it may cause the computer malfunction.

The following procedure assumes that all the necessary ODD utilities were installed on the computer. For ODD utility installation, please refer to "**Utilities and Drivers**". ODD also can be removed and swapped with the 2nd battery or 2nd SATA HDD.

Put disk into the ODD

While the power is ON, push the ejecting button of ODD. The tray will release. Then gently pull the tray out. Put the disk with its label facing up on the holder and push the tray back into the cabinet. Any dirt on the data side of the disk may cause to the erroneous read. Please avoid touching the data side.

Read from the ODD

The ODD may be designated as drive D: or higher depending on your configuration. You may access to it in DOS or Windows. Please avoid shock or vibration when the optical device is active.

Express Cards

The computer supports 54 mm or 34 mm wide ExpressCard. You can install an ExpressCard while the computer is running. The computer automatically detects the card.

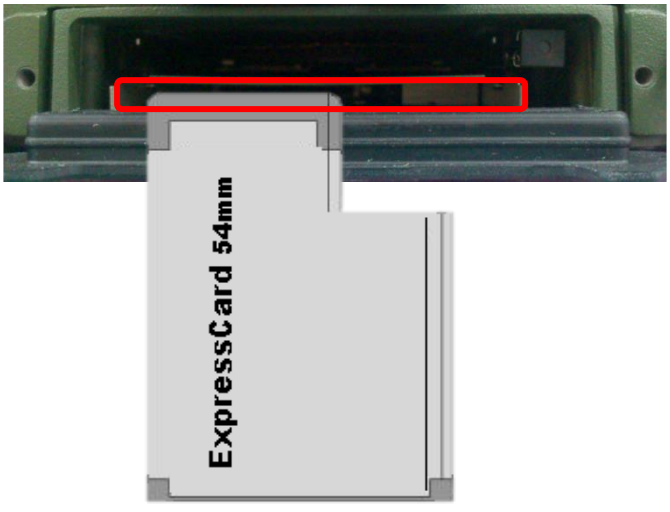
To install an ExpressCard:

- Hold the card with the top side of the card.
- Slide the card into the slot until the card is completely seated in its connector.

To remove an ExpressCard:

Press the card and remove the card gently.

The following illustration shows the insertion of ExpressCard 54mm:



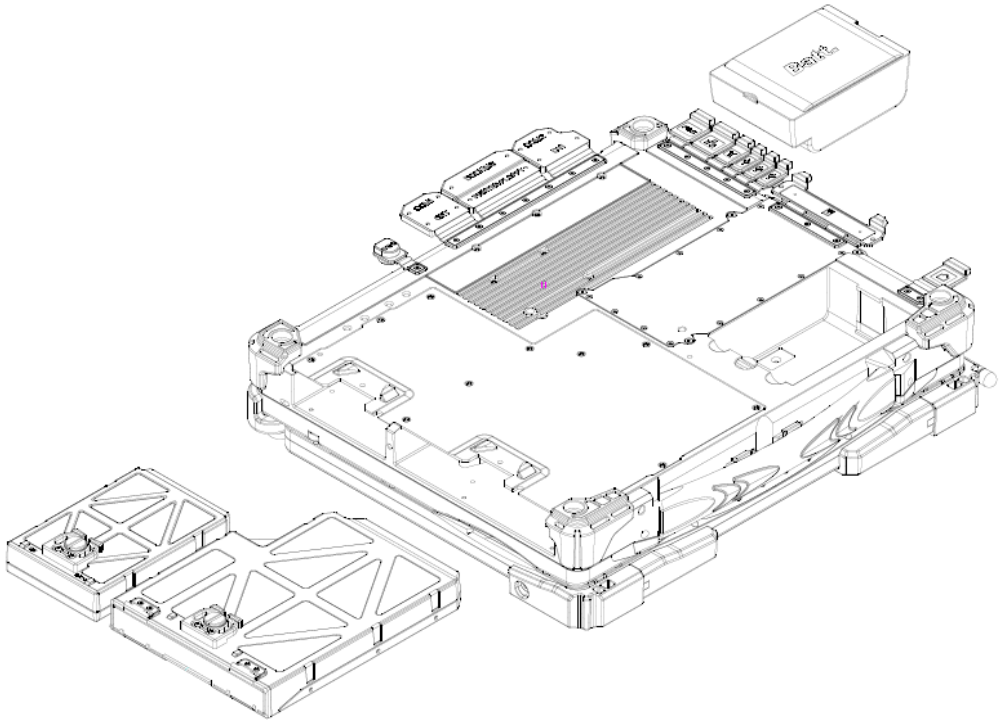
RTC

Battery backed up RTC (Real Time Clock/Calendar) is built in an on-board CMOS (Complementary Metal Oxide Semiconductor) chip. The RTC keeps track of the time and date while the computer is off. The CMOS chip also stores system setup information. RTC battery is also recharged when AC adapter is attached. Recharge the computer every six months to ensure RTC operation.

Replacing Modules

To remove the modules:

1. Turn OFF the computer or hibernate.
2. Disconnect all cables from the computer.
3. Use a coin to turn and loose the screws on the modules.
4. Remove the battery from the compartment.
5. Push the latch knob to release the ODD or HDD module and push them outward.
6. Remove the module from the computer.



To re-install the modules:

Gently push the module into the slot. Fasten the screw to fix the module.

Caution:

You must turn the power OFF before replacing the ODD and HDD modules.

Wireless Devices (Option)

Before using wireless devices, please use the Device Power Manager to turn on the wireless devices you plan to use.

The following instructions are only for the models with optional Wireless Devices (Wireless LAN/ Bluetooth/ WWAN/ GPS) and use Windows 7 OS as the example.

Wireless LAN

1. **Driver & Application Installation:**
   a. Install the Chipset Driver first.
   b. Then, install the Wireless Manager.

2. **Launch the Device Power Manager:**
   a. Launch the Device Power Manager.
   b. Click “Wireless LAN” for enabling the Wireless LAN function (click again for disabling the WLAN function). Once the Wireless LAN starts up, the RF LED will turn on accordingly. Please see the illustration as below (with Wireless LAN function “ON”):

Bluetooth

1. **Driver & Application Installation:**
   a. Install the Bluetooth driver first.
   b. Then, install the Wireless Manager.

2. **Launch the Device Power Manager:**
   a. Launch the Device Power Manager.
   b. Click “Bluetooth” for enabling the Bluetooth function (click again for disabling the Bluetooth function). Once the Bluetooth starts up, the RF LED will turn on accordingly. Please see the illustration as below (with Bluetooth function “ON”):

WWAN

1. Insert the SIM card:

a. Turn off your computer.
b. Reverse your computer to the bottom side.
c. Find the battery bay and loosen the screw beside it.

Loosen the screw beside the battery bay.

d. Remove the battery.

After removing the battery, you are able to see the SIM card lock.

e. Slide the SIM card lock to the left to open.

f. Pull up the SIM card slot.

g. Put your SIM card into the SIM card slot.
h. Push down the SIM card slot.

2. Driver & Application Installation:

a. Install the WWAN driver first.

b. Then, install the Wireless Manager.

3. Launch the Device Power Manager:

a. Launch the Device Power Manager.

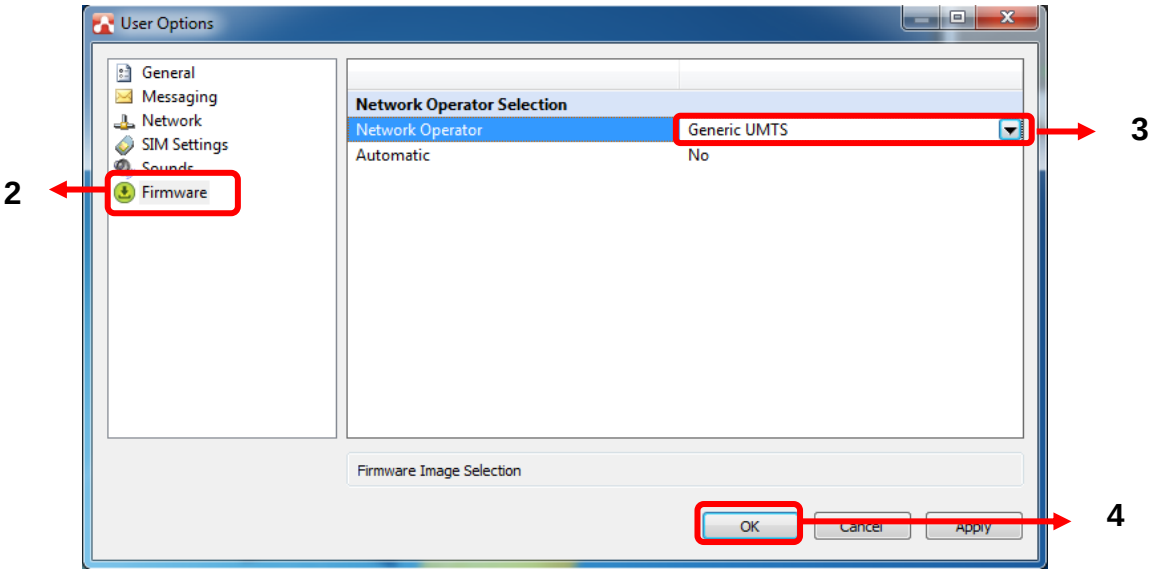
b. Click "**WWAN"** for enabling the WWAN function (click again for disabling the WWAN function). Once the WWAN starts up, the RF LED will turn on accordingly. Please see the illustration as below (with WWAN function "**ON**"):

4. Based on the OS (operation system) installed in your computer, please follow the corresponding setup procedure below. For Windows 7, please follow (a), and for Windows 8, please follow (b).

(a) Launch the AirCard Watcher (for Windows 7)

After installing appropriate drivers and applications, you can now access the WWAN AirCard Watcher and setup your WWAN connection parameters. The WWAN AirCard Watcher software can found from the Utility DVD. Follow the installation instructions to finish the software installation.

Screenshots of the WWAN AirCard Watcher are provided below for your reference. Please follow the procedure to set the connection.



1. Choose the Options first, and then a User Options window will pop up.
2. Click Firmware
3. Drop down the Network Operator list and choose an appropriate operator. If your operator is not on the list, please choose Generic UMTS.
4. Click OK to complete the setting.

Once the WWAN function starts up, the wireless device LED indicator will turn on (color blue).

GPS

1. **Driver & Application Installation:**
   a. Install the GPS driver first.
   b. Then, install the Device Power Manager.

2. **Launch the Device Power Manager:**
   a. Launch the Device Power Manager.
   b. Click "**GPS"** for enabling the GPS function (click again for disabling the GPS function). Once the GPS starts up, the RF LED will turn on accordingly.

3. **Navigation & Mapping Software Installation**

   Please install your 3rd party navigation and mapping software after installing your GPS driver. Refer to your navigation and mapping software manual for installation and procedures on application setup and access.

Note:

- *Wireless devices can be turned ON/OFF through BIOS. Once a device is turned off through BIOS, its button on the Device Power Manager will be shown in yellow background and with a prohibition marker. For example, the following illustration shows that WWAN and GPS devices are disabled through BIOS. To turn on, please enter into BIOS and enable the functions. For more information on BIOS setting, please refer to RF Device Control Configuration Sub-Menu section.*

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Chapter Three - Managing Power

AC Adapter

The AC adapter performs two functions:

- It powers the computer from an external AC source.
- It charges the computer battery.

The adapter automatically detects the AC line voltage (100V or 240V) and adjusts accordingly.

The following are recommended when using the AC adapter:

- Use a properly grounded AC outlet.
- Use one AC outlet exclusively for the computer. Having other appliances on the same line may cause interference.

Connecting the AC adapter:

- Plug the AC cord to the adapter.
- Plug the other end of the AC cord into the wall outlet. Make sure the green LED on the adapter turns on.
- Attach the DC plug into the power jack of the computer; and turn the lock ring clockwise to secure it.

AC Adapter Indicator:

The green LED indicates that AC power is ready.

Note:

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

Battery

The power source will automatically switch to battery when the external power source (AC adapter or optional vehicle adapter) is disconnected.

Battery Low

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

- Windows battery low warning (when operating system is Windows).
- The power LED flashes.

Once the Battery Low warning occurs, please:

- Save and close the files you are currently working on.
- Plug in the AC adapter to recharge the battery.

Charging the Battery

Plug in the AC adapter (or optional vehicle adapter) to start the battery charging. If the battery is already full, the sense circuitry will stop high current charge within several minutes.

There are two LED indicators next to the power indicator for the Primary and Secondary battery respectively. Indicator turns ON when the battery is charging and turns OFF when the battery charging is completed.

To charge the Secondary battery, simply install it into the computer and attach the AC adapter. The internal charger will charge the Primary battery first. The Secondary battery will be charged once the Primary battery charges full. Optional Dual Battery Charger can charge the Primary and Secondary batteries externally.

Battery Gauge

You may check battery status from battery gauge in Windows. Click the power/battery icon to reveal the battery gauge window.

Battery Power Saving Tips

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

- Setup power saving functions in Operating System Power Management options (e.g. Windows Power Options).
- Lower the intensity of the display by brightness control.
- Use standby option when computer is temporarily not in use.
- Shut down the computer when it will not be for a long-time use.

Replacing Battery

When the battery is nearly exhausted, there are two ways to keep your notebook computer working. Connecting the AC adapter and the power cord designed for this notebook computer to start charging is one method; directly replacing a charged battery designed for this notebook computer may be the other one.

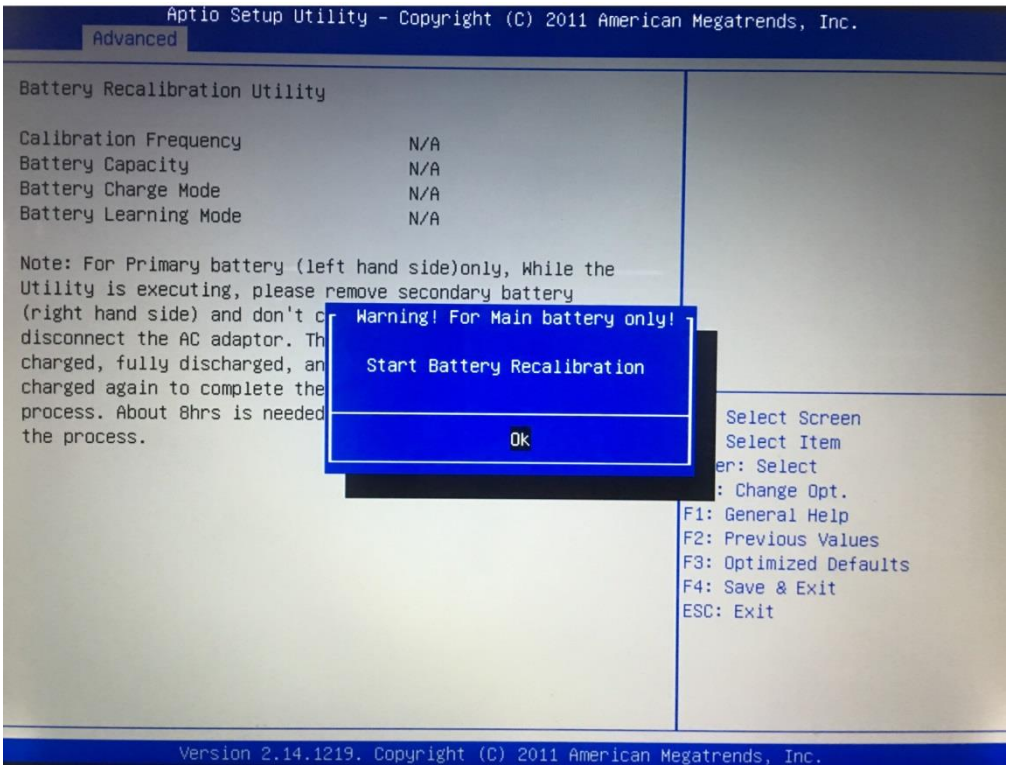
Note:

- *Always remember to turn OFF the power before replacing the battery.*

Battery Recalibration

Battery recalibration allows users to maintain the battery in a healthy condition. To perform battery recalibration, please follow the steps as below:

1. Update BIOS & EC to the latest version xxx.xxx or later.
2. Insert the battery to the computer, and connect it to AC adapter.
3. Enter the BIOS => Choose “Advanced menu” => Choose “Battery Recalibration” => Press “Enter”.
4. When “Start Battery Recalibration” pop-up appears, press “Yes” to continue.



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 is completed. Then click “OK”.
7. Press “Yes” to reboot the computer when “Reset Without Saving” pop-up appears.

Note:

- *Do not turn off the LCD and do not remove AC adapter during the calibration.*
- *One cycle of recalibration process indicates “Charge to Full => Start Learn Mode => Discharge => Complete Learn Mode => Charge to Full”. It will take approx. eight hours for a cycle.*
- *It requires five cycles to complete the battery recalibration. Then the recalibration will stop automatically.*
- *If you want to terminate the calibrating, simply shut down the computer by pressing Power Button or just press "CTRL+ALT+DEL" to restart.*

Power Conservation

This computer consumes much less power than conventional computers. However, power consumption may be reduced by configuring the Power Management Setup properly.

It is recommended the power saving functions to be enabled even when not running on battery power. Power Management will not degrade performance while saving power.

Supporting ACPI

Your notebook computer supports ACPI (Advanced Configuration and Power Interface) for power management. With ACPI and an ACPI-compliant operating system such as Windows, the feature will allow you to reduce the power consumption for energy saving. By supporting ACPI, the AC adapter LED and the Power indicator LED will show in different ways. The followings are the detailed description.

Sleep:
AC adapter LED is ON (while connecting with power)
Power LED indicator is ON; Other LED indicators are OFF

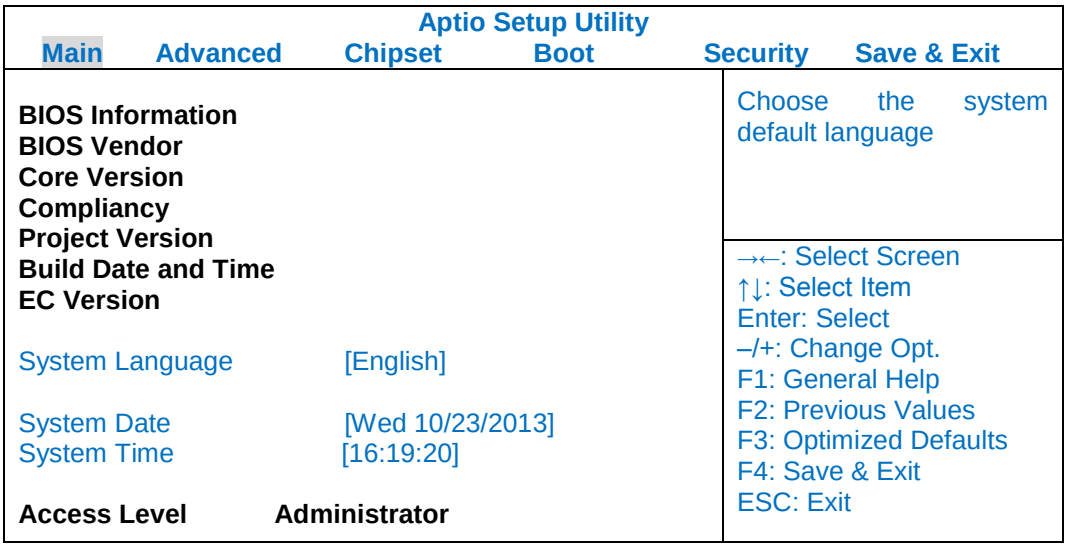
Under Hibernation:
AC adapter LED is ON (while connecting with power)
Power LED indicator is OFF; Other LED indicators are OFF

Shutdown:
AC adapter LED is ON (while connecting with power)
Power LED indicator is OFF; Other LED indicators are OFF

Chapter Four - BIOS Setup

Press **[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]**.

Main Menu



Note:

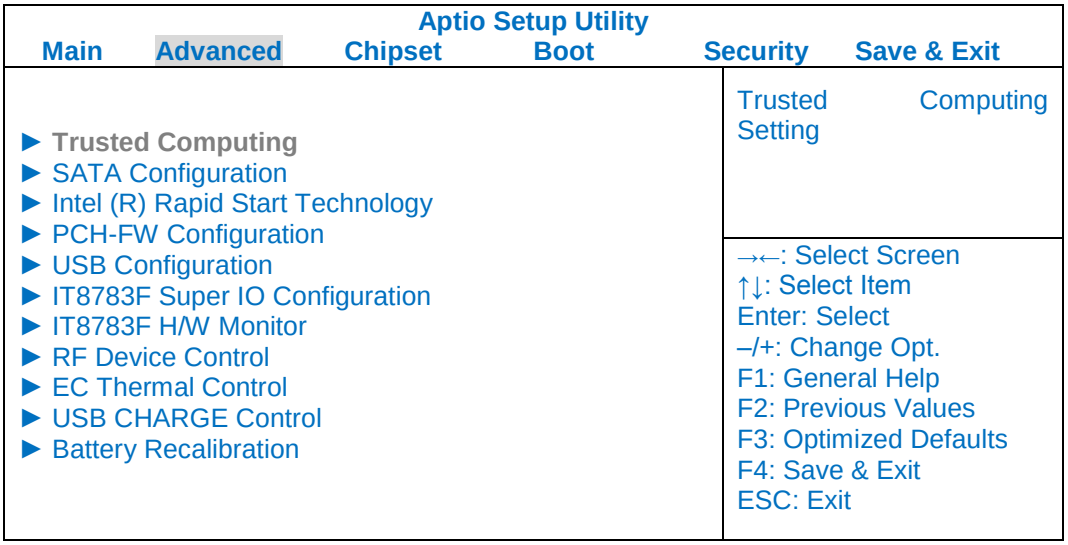
- *The contents may vary depending on computer configurations.*
- *Incorrect settings may cause system malfunction. To correct it, restore the Optimized Defaults with F3.*

Main Menu Selections

You can make the following selections on the Main Menu. Use the sub-menus for other selections.

Feature	Options	Description
System Date	MM/DD/YYYY	Set the system date Month, Day, Year.
System Time	HH:MM:SS	Set the system time Hour, Minute, Second.

Advanced Menu



Advanced Menu Selections

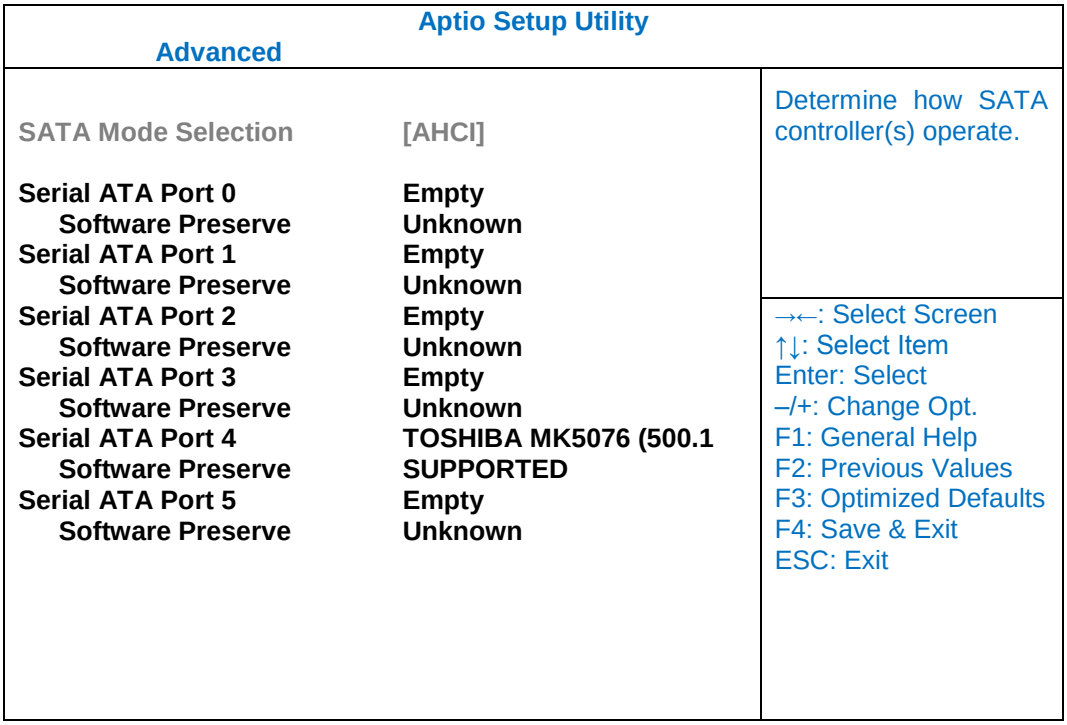
You can make the following selections on the Advanced Menu.

Feature	Options	Description
Trusted Computing	Disabled Enabled	TPM Support
SATA Configuration	SATA Mode Selection Serial ATA Port 0 Software Preserve	SATA Mode Selection: IDE, AHCI, RAID
Intel (R) Rapid Start Technology	Disabled Enabled	Enable or disable Intel (R) Rapid Start Technology.
PCH-FW Configuration	N/A	Configure Management Engine Technology Parameter
USB Configuration	Disabled Enabled	Legacy USB Support USB3.0 Support XHCI Hand-off EHCI Hand-off
IT8783F Super IO Configuration	Serial Port Change Settings COM 1 Mode Setting	Set Parameters of Serial Port 0 (COMA)
IT8783F H/W Monitor	N/A	Monitor hardware status
RF Device Control	Disabled Enabled	GSM, GPS, BLUETOOTH, WLAN
EC Thermal Control	Thermal cooling trip point	EC Thermal Control Setting
USB CHARGE Control	Disabled Enabled	USB CHARGE Setting
Battery Recalibration	Yes No	Start Battery recalibration function *For Main Battery Only!

Trusted Computing Sub-Menu

Aptio Setup Utility Advanced	
Configuration TPM SUPPORT [Disable] **Current Status Information** **SUPPORT TURNED OFF**	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.
	→←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

SATA Configuration Sub-Menu



SATA Configuration Sub-Menu Selections

You can make the following selections on the SATA configuration sub-menu.

Feature	Options	Description
SATA Mode Selection	IDE AHCI RAID	

Intel (R) Rapid Start Technology Sub-Menu

Aptio Setup Utility Advanced	
Intel (R) Rapid Start Technology [Disabled]	Enables or disable Intel (R) Rapid Start Technology
	→←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

USB Configuration Sub-Menu

Aptio Setup Utility Advanced	
USB Configuration **USB Devices:** **1 point** Legacy USB Support [Enabled] USB3.0 Support [Enabled] XHCI Hand-off [Enabled] EHCI Hand-off [Disabled]	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

USB Configuration Sub-Menu Selections

You can make the following selections on the USB configuration sub-menu.

Feature	Options	Description
Legacy USB enabled	Disabled Enabled	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
Usn3.0 Support	Disabled Enabled	Enable/Disable USB3.0 (XHCI) Controller support.
XHCI Hand-off	Disabled Enabled	This is a workaround for OSes without XHCI hand-off support. This XHCI ownership change should be claimed by XHCI driver.
EHCI Hand-off	Disabled Enabled	This is a workaround for OSes without EHCI hand-off support. This EHCI ownership change should be claimed by EHCI driver.

IT8783F Super IO Configuration Sub-Menu

Aptio Setup Utility Advanced	
IT8783F Super IO configuration **IT8783F Super IO Chip** **IT8783F** ►Serial Port 0 Configuration ►Serial Port 1 Configuration ►Serial Port 2 Configuration ►Serial Port 3 Configuration	Set Parameters of Serial Port 0 (COMA) →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

IT8783F Super IO Configuration Sub-Menu Selections

You can make the following selections on the IT8783F super IO configuration sub-menu.

Feature	Options	Description
Serial Port	Disabled Enabled	Enable or Disable Serial Port (COM)
Change Settings	Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,45,6,7,10,11,12; IO=2F8h; IRQ=3,45,6,7,10,11,12; IO=3E8h; IRQ=3,45,6,7,10,11,12; IO=2E8h; IRQ=3,45,6,7,10,11,12;	Select an optimal setting for Super IO device.
COM 1 Mode Setting	RS232 RS422 TTL 1 RS485	Change COM port Settings

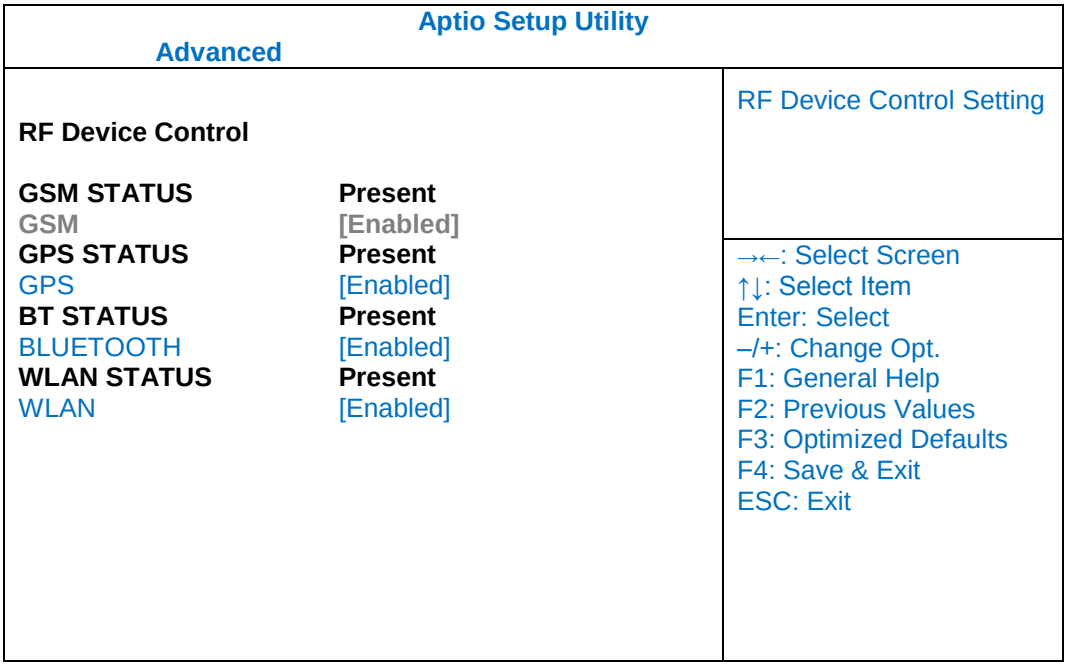
Note:

- *TTL signals are unavailable with DB9 connector. The selection here is reserved for customized usage.*

IT8783F H/W Monitor Sub-Menu

Aptio Setup Utility Advanced	
Pc Health Status **System temperature1** **System temperature2** **System temperature3** **Fan1 Speed** **Fan2 Speed** **Fan3 Speed** **VIN0** **VIN1** **VIN2** **VIN3** **VIN4** **VIN5** **VIN6** **VIN7** **VBAT**	→←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

RF Device Control Configuration Sub-Menu



RF Device Control Configuration Sub-Menu Selections

You can make the following selections on the RF Security Control sub-menu.

Feature	Options	Description
Wireless LAN	Disabled Enabled	Wireless Lan Control Enabled Wireless function
WWAN	Disabled Enabled	WWAN Control Enabled WWAN function
GPS	Disabled Enabled	GPS Control Enabled GPS function
BlueTooth	Disabled Enabled	BlueTooth Control Enabled Blue Tooth function

EC Thermal Control Sub-Menu

Aptio Setup Utility Advanced	
EC Thermal Control Thermal cooling trip point [87 C]	EC Thermal Control Setting
	→←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

USB CHARGE Control Sub-Menu

Aptio Setup Utility Advanced	
USB CHARGE USB CHARGE Control [Disabled]	USB CHARGE Setting
	→←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Note:

- *USB Charge control is for turn On /Off the USB charge function under S5 state (Power off) when connecting to AC Adapter*
- *When enable USB CHARGE control in BIOS, please cold boot your computer to enable the function.*

Battery Recalibration Sub-Menu

Aptio Setup Utility Advanced	
Battery Recalibration Utility Calibration Frequency 0 Times Battery Capacity 0x37 – 55 % Battery Charge Mode 0x80 – Charge Battery Learning Mode 0x04 – Normal Note: For Primary battery (left hand side) only, while the Utility is executing, please remove secondary battery (right hand side) and don't close the LCD and don't disconnect the AC adapter. The battery is first fully charged, dully discharged, and then it will be fully charged again to complete the battery recalibration process. About 8hrs is needed for the battery to completely the process.	Start Battery recalibration function *For Main Battery Only! →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Chipset Menu

Aptio Setup Utility Main Advanced Chipset Boot Security Save & Exit	
► System Agent (SA) Configuration ► PCH-IO Configuration	System Agent (SA) Parameters →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Chipset Menu Selections

You can make the following selections on the Chipset sub-menu.

Feature	Options	Description
System Agent (SA) Configuration	Graphics Configuration Memory Configuration	Memory Configuration Parameters
PCH-IO Configuration		PCH Parameter

System Agent Configuration Sub-Menu

Aptio Setup Utility Chipset	
► Graphics Configuration ► Memory Configuration	Config Graphics Settings →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Graphics Configuration Sub-Menu

Aptio Setup Utility Chipset	
Graphics Configuration IGFX VBIOS VERSION 2137 ►LCD Control	LCD Control →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

LCD Control Sub-Menu

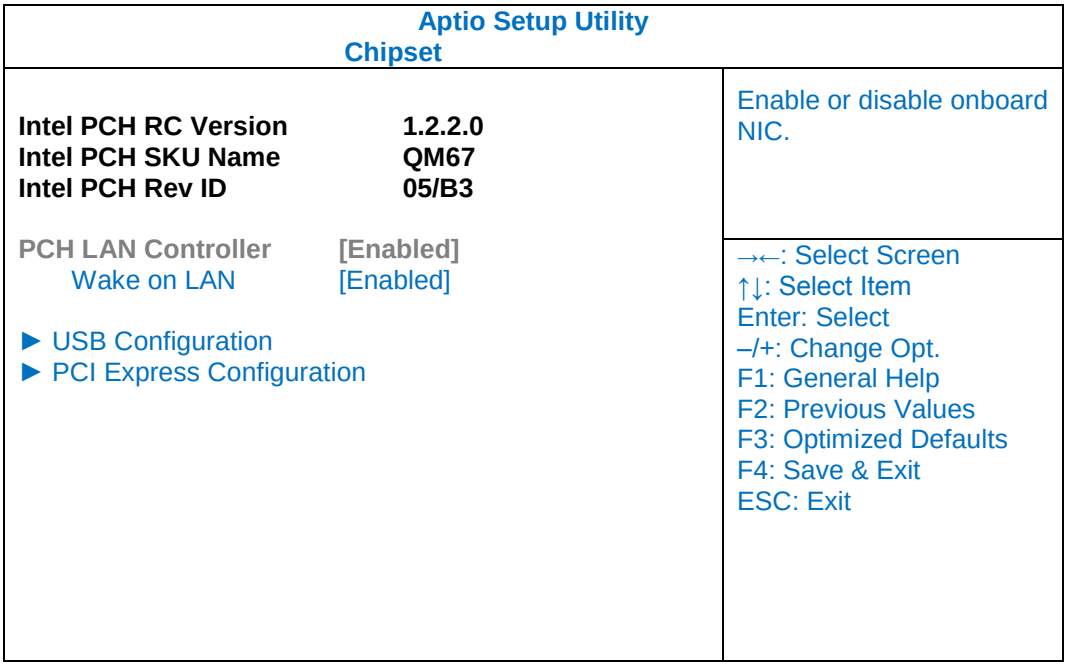
Aptio Setup Utility Chipset	
LCD Control Panel Type [XGA panel – 24 Bit]	Select Panel Type for RK/RF10 →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Panel Type Selections

You can make the following selections on the Panel Type sub-menu.

Feature	Options	Description
Panel Type	sXGA Panel - 18Bit XGA Panel - 24 Bit	Select Panel Type for RK/RF10

PCH-IO Configuration Sub-Menu

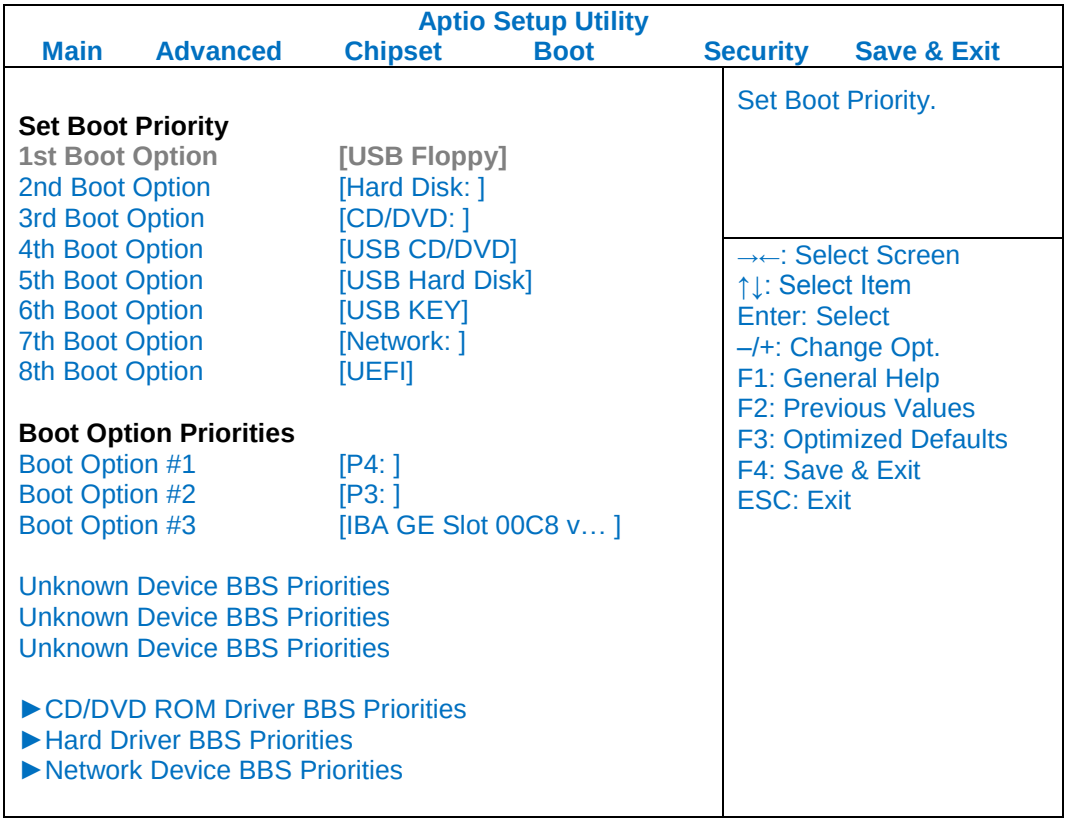


PCH-IO Configuration Sub-Menu Selections

You can make the following selections on the PCH-IO Configuration sub-menu.

Feature	Options	Description
PCH LAN Controller	Disabled Enabled	Enable or disable onboard NIC.
Wake on LAN	Disabled Enabled	Enable or disable integrated LAN to wake the system
USB Configuration	Disabled Enabled	USB Configuration settings
PCI Express Configuration	Disabled Enabled	PCI Express Configuration settings

Boot Menu



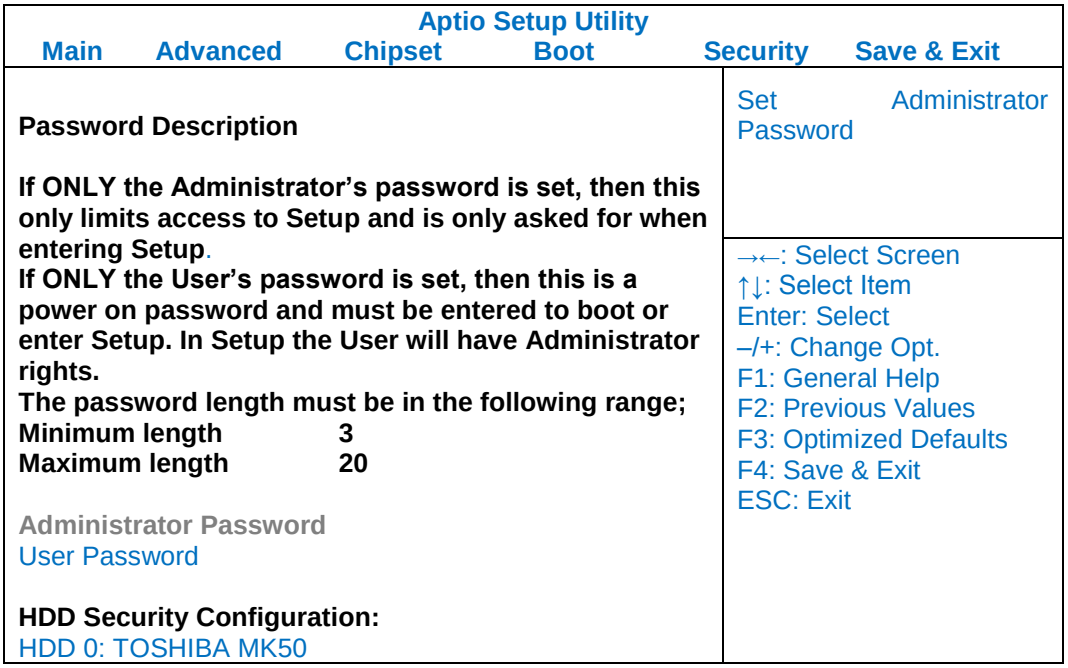
The system will try to boot from device on top then the 2nd and so on. If there is more than one device in each category, only the device on top of sub-menu can boot up.

Boot Menu Selections

You can make the following selections on the Boot menu.

Feature	Options	Description
1st~8th Boot	-	Set Boot Priority.
Boot Option #1~#3	-	Set Boot Priority.
Unknown Device BBS Priorities	-	Set the order of the legacy devices in this group
CD/DVD ROM Device BBS Priorities	-	Specifies the Boot Device Priority sequence from available CD/DVD Drives.
Hard Drive BBS Priorities	-	Specifies the Boot Device Priority sequence from available Hard Drives.
Network Device BBS Priorities	-	Specifies the Boot Device Priority sequence from available NETWORK Drives.

Security Menu



Security Menu Setting

You can set following feature in the Security Menu.

Feature	Setting	Description
Administrator password	Set / Change Administer password	Controls detection of Processor Serial No. System must be reset or restarted from power-on for settings to take effect.
User password	Set / Change User password	Supervisor Password controls access to the setup utility.
HDD Security Configuration : HDD 0	Enter HDD Security Configuration Sub-Menu	Allows Access to Set, Modify and Clear Hard Disk user and master Password.

HDD Security Configuration Sub-Menu

Aptio Setup Utility Security	
HDD Password Description: **Allows Access to Set, Modify and Clear Hard Disk User and Master Password. User Password need to be installed for Enabling Security. Master password can be Modified only when successfully unlocked with Master Password in POST.** **HDD PASSWORD CONFIGRATION:** **Security Supported : Yes** **Security Enabled : No** **Security Locked : No** **Security Frozen : No** **HDD User Pwd Status NOT INSTALLED** **HDD Master Pwd Status INSTALLED** **Set User Password** **Set Master Password**	Set HDD User Password. ***Advisable to Power Cycle System after setting Hard Disk Passwords*** →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Setting Password

1. Once you set HDD passwords successfully, you must enter 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 BIOS setup will also clear the current user password. Master password is used as a backup key, it's better 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 users password could be cleared with the master password.
3. Once the HDD is locked, users have no right to access. You can only enter again by the correct user password or clear it by 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)

Save & Exit Menu

Aptio Setup Utility Main Advanced Chipset Boot Security Save & Exit	
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset **Save Options** Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults **Boot Override** P4: P3: IBA GE Slot 00C8 v1365	Exit system setup after saving the changes →←: Select Screen ↑↓: Select Item Enter: Select –/+: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Chapter Five - Drivers and Applications

The Utility DVD includes all the drivers for the installed devices in your notebook computer. Please consult the dealer if there is any driver missing. Also, through Device Manager in Windows, you are able to perform “Driver Update” or check if there are still drivers for the devices needed to be installed. Please check the readme file on Utility DVD to get the latest information before installing device drivers.

Note:

- *Please install the chipset driver first.*
- *If the system requests for reboot after installing drivers, please reboot your notebook computer first before installing other drivers.*

Chipset

VGA

Audio

Intel ME

Intel Rapid Storage Technology

Wireless Power Manager

Touch Screen

USB3.0

Ricoh SD Controller

Turbo Boost Monitor

Gigabit LAN

WiFi (Option)

Bluetooth (Option)

GPS (Option)

WWAN (Option)

TPM (Option)

Chapter Six - Specifications

Platform

Intel® Skylake-H Platform

CPU

Intel® i7-6822EQ (4 MB Intel Smart Cache Memory)

PCH

Intel® QM170

Memory

Max. 32GB
- Industrial grade
- DDR4 SO-DIMM x 2, 2133MHz

Display

- Standard:
  - 15” XGA LCD with LED B/L
  - Resolution: 1024 x 768
  - Brightness (min. ~ typ.): 320~400 nits
- Optional:
  - 15” SXGA+ LCD with LED B/L
  - Resolution: 1400 x 1050
  - Brightness (min. ~ typ.): 320~400 nits

Keyboard

- Number of keys: 83 Keys
- Key Travel: 1.5+/-0.2 mm

Touchpad

- Type: PS/2 Resistive Touchpad
- Life time: Over 5,000,000 strokes lifetime

Hard Disk Drive (HDD) / Optional Solid State Drive (SSD)

- Type: 2.5” (Removable)
- Height: 9.5mm / 7mm
- Interface: SATAIII

Optical Disk Drive (ODD)

- Type: 5.25” (Removable)
- Height: 12.7mm
- Interface: SATAIII

I/O Ports

- PS/2 x1 (KB + mouse)
- USB 3.0 x 2
- USB 2.0 x 1 (USB Battery Charging)
- IEEE1394a (Fire Wire) x 1
- GLAN RJ45 x 1
- Audio Jack x 3 (Line-in, Microphone, Headphone)
- Express Card (PCI-e) x 1
- Serial Port DB9 x 2 (COM1/2)
- Serial Port DB9 x 2 (Optional: COM3/4)
- DC Jack x 1
  Optional: Military DC Jack
- Printer Port x 1
- VGA Port x 1
- DVI Port x 1
- Docking Port x 1
- Optional: Military Connector Port x 2

Note:

➢ *The max. baud rate for COM port supports to 115,200 bps.*

AC Adapter

- AC Input: 100 - 240 V
- Frequency: 50/60 Hz
- DC Output: 19V
- Maximum Power: 90 Watts Max. Output
- Dimension: 130mm (W) x 60mm (D) x 34mm (H)
- Weight: 430 g (0.9 lb.)

Battery

Primary Battery:

- Type: 9 x 18650 cells Lithium Ion
- Capacity: 10.8V 8700mAh
- Dimension: 103 mm (W) x 73 mm (D) x 38 mm (H)
- Weight: 435 g

2nd Battery (Optional):

- Type: 9 x 18650 cells Lithium Ion
- Capacity: 10.8V 8700mAh
- Dimension: 137 mm (W) x 170 mm (D) x 22 mm (H)
- Weight: 560 g

Note:

➢ *2nd battery is trade-off with ODD.*

System Unit Dimensions and Weight

- Dimensions (mm):
  341.4 (L) x 283.4 (W) x 70.2 (H) (without Bumpers)
  353 (L) x 301 (W) x 79.2 (H) (with Bumpers)

- Weight: 5.5Kg (including ODD and Primary battery)

Note:

➢ *Weight includes Primary battery, HDD, and ODD. Weight varies depending on system configurations.*

Materials and Recycling

Materials of the computer are as follows:

- Cabinet: Aluminum Alloy ADC-12
  Magnesium Alloy AZ91D
  UL grade PC+ABS GE C6200 or TN-3813BW
- Bracket: Aluminum 5052
  Steel with Nickel Plating or Stainless Steel S304
- Cushion pad: Silicon Rubber
  TPE
- PCB: FR-4
  UL 94V0
- Battery: Rechargeable Lithium Ion, 9 Cells per Pack
- Packing: Carton - Unbleached Paper
  Cushion - Recyclable EPE
  Carrying bag - Recyclable PE Fiber
  Quick Guide - Recycled/Recyclable Paper

Please recycle the parts according to the local regulations.

Environmental

Temperature:	-20 ~ +55ºC (-4 ~ +131ºF)	operating
	-40 ~ +70ºC (-40 ~ +158ºF)	storage
Humidity:	5~95% Non-condensing	operating
	95% maximum	storage
Altitude:	0 ~ 4,572 meters (0 ~ 15,000 feet)	operating

Certifications

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

Chapter Seven - Optional Devices

Communication

- WiFi/Bluetooth:
  - Intel Dual Band wireless- AC 8265
  - Board Form Factor: PCIe Half Mini Card
  - Wi-Fi Certified: 802.11 a/b/g/n/ac
  - Bluetooth: Supports BT 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)
  - Interface: PCIe (WiFi)/USB (BT)
- GPS:
  - U-blox M8N (USB interface)

Memory Card

The memory card will expand your memory to facilitate better system performance. Industrial grade DDR4 SO-DIMM x 2 is available, supporting 4/8/16GB DDR4 2133 memory cards. The maximum capacity is 32GB.

Touch Screen

The touch screen supports single touch function, featuring in normal or sunlight readable.

Surge Protector/BVA Module

Surge protector and BVA functions are integrated into one module in the computer. The module features in converting power from car lighters or truck batteries to DC +19V and contains the reverse polarity protection and the clamping of high voltage input.

Vehicle Adapter

- EVA1275 External Vehicle Adaptor
  - DC Input Range: 12 ~ 32 V
  - DC Output Voltage: 19 V
  - Output Current: 5 A (at 28 V Input Voltage)
  - Ripple Voltage: 200 mA
  - Input Reverse Voltage Protection
  - Output Overvoltage Protection
  - Short-Circuit Protection and Current Limit
  - Complying with MIL-461F
  - Complying with MIL-1275D

- EVA19040 External Vehicle Adaptor
  - DC Input Range: 12 ~ 32 V
  - DC Output Voltage: 19 V
  - Output Current: 4 A (at 28 V Input Voltage)
  - Ripple Voltage: 200 mA
  - Output Overvoltage Protection
  - Short-Circuit Protection and Current Limit
  - Complying with MIL-461F

2nd Battery

Trade-off with ODD, a Lithium Ion rechargeable 2nd battery may install into the ODD-compartment. It shares the same capacity of primary battery and smart battery compliance.

The computer's internal charger can detect 2nd battery and perform charging accordingly.

2nd HDD

- Trade-off with ODD; set as SATA primary slave drive.

ODD

- Removable ODD for disks playing
- Compatible with VCD-ROM, DVD-ROM, and etc.

KB Dust Cover

- KB Dust Cover is available for standard Keyboard

Dual Battery Charger RT202D

This charger provides two slots for charging the **Primary** and **Secondary Batteries** respectively. It accepts power from AC adapter or vehicle adapter and charged batteries.

Multi-Battery Charger MCRK

As an upgrade model of RT202D, MCRK also provides two slots, which work independently. Besides, performance of MCRK is improved and a battery could be fully charged within 5 hours while the operating temperature ranges from 0 to 45℃. The color of charge indicators is changed to orange.

COM 3/4 Additional Serial Ports

- Supporting RS232, RS422, and RS485 signal

Trust Platform Module (TPM)

There is an optional Trust Platform Module (TPM) equipped with this notebook computer for users to strengthen the security. The TPM module can support to -20ºC environment of operating temperature.

With TPM, users are able to encrypt the folders and files directly and make the important file be more secure and be with an additional protection. In other words, your TPM-encrypted files are basically protected with two layers. Even if your TPM-encrypted files are hacked, the files can not to be read without passwords and TPM chipset.

Chapter Eight - 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, 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. Be sure not to turn the computer upside down while there is water being applied.

Troubleshooting

Should the computer fail to function properly, the troubleshooting steps below may be followed.

- Check AC/vehicle adapter, battery, and the power source.
- Minimize the configuration, i.e. remove extra peripherals and devices.
- Remove the modules one by one (HDD, ODD, Battery, etc.).
- Remove the software suspected.
- Set BIOS fail-safe default.
- Re-install operating system and application software.

RMA Service

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

1. Remove any personal disks 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
   - A list of the hardware/software configuration, if applicable.

5. Clearly mark the outside of the shipping box with the RMA #. If 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.