MS-9A82

Point of Sale System

msi

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Trademarks

All trademarks are the properties of their respective owners.

Revision History

Revision	Date
V1.0	2016/03

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

Visit the MSI website for technical guide, BIOS updates, driver updates and other information, or contact our technical staff via http://www.msi.com/support/
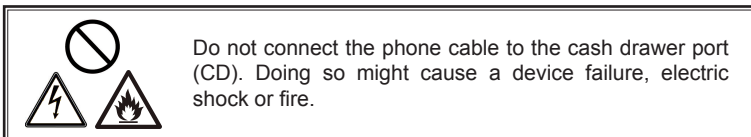
Safety Instructions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always Unplug the Power Cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that could damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
  ○ The power cord or plug is damaged.
  ○ Liquid has penetrated into the equipment.
  ○ The equipment has been exposed to moisture.
  ○ The equipment does not work well or you can not get it work according to User's Manual.
  ○ The equipment has dropped and damaged.
  ○ The equipment has obvious sign of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 80℃, IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:
這是甲類資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Do not connect the phone cable to the cash drawer port (CD). Doing so might cause a device failure, electric shock or fire.

Chemical Substances Information

In compliance with chemical substances regulations, such as the EU REACH Regulation (Regulation EC No. 1907/2006 of the European Parliament and the Council), MSI provides the information of chemical substances in products at:

http://www.msi.com/html/popup/csr/evmtprtt_pcm.html

Battery Information

	European Union: Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.
廢電池請回收	Taiwan: For better environmental protection, waste batteries should be collected separately for recycling or special disposal.
	California, USA: The button cell battery may contain perchlorate material and requires special handling when recycled or disposed of in California. For further information please visit: http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

CE Conformity

Hereby, Micro-Star International CO., LTD declares that this device is in compliance with the essential safety requirements and other relevant provisions set out in the European Directive.

FCC-A Radio Frequency Interference Statement

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

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

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.

WEEE Statement

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

CONTENTS

1 **Overview**

Thank you for choosing the MS-9A82, an excellent POS system from MSI.

The all-in-one terminal contains everything the customer needs in a POS environment and is designed to make installation easier. There are many advantages to MS-9A82 including compact design, an anti-glare touch screen, more ports for devices and built-in accessories like Magnetic Stripe Reader and customer display.

System Overview

➤ **System I/O**

	DC Power Jack
1	Power supplied through this jack supplies power to the system.

	System Power Button
2	Press the system power button to turn the system on or off.

	RJ11 Connector
3	The RJ11 connector is provided for cash drawers.
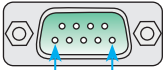
	PS/2 Keyboard/Mouse Port
4	This port is provided to connect a PS/2 keyboard or mouse.

	RJ45 LAN Jack
5	The standard RJ45 LAN jack is provided for connection to the Local Area Network (LAN). You can connect a network cable to it.

	LED	**Color**	**State**	**NIC State**
	Link/ Active (Left)	Yellow	On	LAN link is established
		Yellow	Blinking	LAN activity is occurring
Active LED —— Speed LED		Off	Off	LAN link is not established
	Speed (Right)	Orange	On	1GbE
		Green	On	100M
		Off	Off	10M

6 **RS232/422/485 Serial Port**

The serial port supports barcode scanners, barcode printers, bill printers, credit card machine, etc.

Mode	Pin	Signal
RS422	1	TX-B
	2	TX-A
	3	RX-A
	4	RX-B
RS485	1	DATA-B
	2	DATA-A

Pin 5   1

7 **VGA Port**

The DB15-pin female connector is provided for VGA-interface devices.

8 **USB 3.0 Port**

The USB 3.0 port is backward-compatible with USB 2.0 devices. It supports up to 5Gbit/s (SuperSpeed) data transfer rate.

9 **USB 2.0 Port**

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices. It supports up to 480Mbit/s (Hi-Speed) data transfer rate.

10 **RS232 Serial Port (8-pin RJ45)**

The serial port supports barcode scanners, barcode printers, bill printers, credit card machine, etc.

Pin	Signal
1	VCC_COM
2	DCD
3	DTR
4	GND
5	RX
6	TX
7	CTS
8	RTS

Pin 1

11 **Line-Out Jack**

This connector is provided for headphones or speakers.

➤ **Front View**

➤ **Rear View**

➤ Side View

1 **Touch Screen**
The 15-inch anti-glare touch screen is with an optimal resolution of 1024 x 768 pixels.

2 **Magnetic Stripe Reader (Optional)**
The MSR (Magnetic Stripe Reader) allows customers to input information into the POS system quickly by using a plastic card with a magnetic stripe on the back.

3 **VFD Customer Display (Optional)**
The VFD (Vacuum Fluorescent Display) customer display improves the ordering process by providing real-time information to customers.

System Specifications

Processor

- Intel® BayTrail-D J1900, 2.0GHz

Memory

- 2 x DDR3L 1333MHz SO-DIMM slots
- Up to 8GB Non-ECC DDR3L memory

Network

- Realtek® RTL8111E Gigabit Fast Ethernet controller

Storage

- 1 x 2.5" SATA HDD bay
- 1 x mSATA socket

Graphics

- Integrated graphics engine within processor
- 1 x LVDS 18/24-bit dual channel
- 1 x VGA

Audio

- Realtek® ALC887 High Definition Audio codec

System I/O

- 1 x DC Power Jack
- 1 x System Power Button
- 1 x RJ11 Connector
- 1 x PS/2 Keyboard/Mouse Port
- 1 x RJ45 LAN Jack
- 1 x VGA Port
- 5 x USB 2.0 Ports
- 1 x USB 3.0 Port
- 2 x RS232/422/485 Serial Ports
- 2 x RS232 Serial Ports (8-pin RJ45)
- 1 x Line-Out Jack

Regulatory Compliance

- EMC: CE, FCC Class A, BSMI, VCCI, C-Tick
- Safety: CE, BSMI

Power Supply

- 84 Watt AC/DC Adapter
- Input: 100-240V~, 1.3A, 50-60Hz
- Output: 12V --- 7A MAX

OS Support

- Windows 7 32/64 Bit
- Windows 8.1 32/64 Bit
- Windows 10 32/64 Bit
- Linux Kernel 3.11+

Environmental

- Operation Temperature: 0 ~ 40°C
- Storage Temperature: -20 ~ 80°C
- Relative Humidity: 5 ~ 95%, non-condensing

2 Getting Started

This chapter provides you with the information on hardware setup procedures. While connecting peripheral devices, be careful in holding the devices and use a grounded wrist strap to avoid static electricity.

Installing/Replacing Components

SO-DIMM x 2
mSATA x 1
2.5" HDD x 1

➤ Memory

1. Locate the system top cover. Remove the cover and set it aside for later use.

2. Unscrew the SO-DIMM compartment.

3. Remove the cover and set it aside for later use.

4. Locate the SO-DIMM slots.
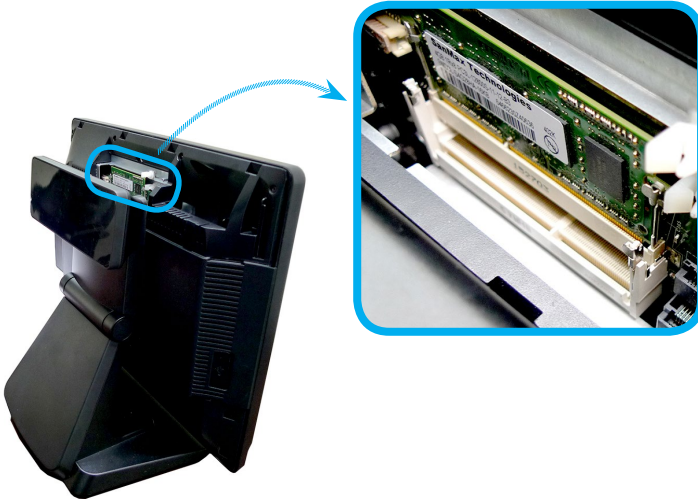
5. To install the second memory, first align the notch on the DIMM with the key on the slot and insert the DIMM into the slot. Then push the DIMM gently downwards until the slot levers click and lock the DIMM in place.

Important

• *You can barely see the golden finger if the DIMM is properly inserted in the DIMM slot.*

• *To uninstall the DIMM, flip the slot levers outwards and the DIMM will be released instantly.*

➢ **mSATA Card**

1. Locate the mSATA slot.
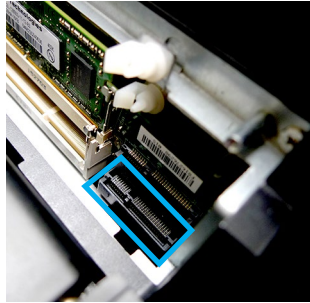
2. Fit the mSATA card into the slot.
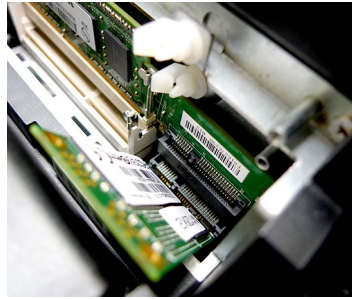
3. Locate the spacer support and use it to secure the mSATA card in place.
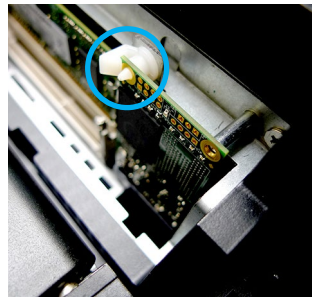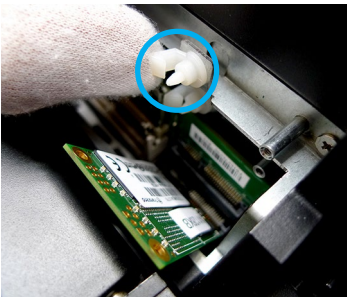
➤ **Hard Disk Drive**

1. To remove the HDD set from the system, first locate the levers and the retaining lip of the HDD set.

2. And then gently push the tray levers inwards and carefully pull the retaining lip to release the HDD set out of the bay.

Installing Peripherals

A POS system will generally have a receipt printer, a touch screen, a magnetic stripe reader and/or a cash drawer. Before connecting the power, install the peripherals first.

- Network cable plugs into the RJ45 LAN jack.
- Video cable plugs into the 15 pin VGA connector.
- Connect the cash drawer to the POS system via the RJ11 port.
- The receipt printer may be Parallel, Serial, USB or Ethernet.
- If a receipt printer is installed, connect one end of the network cable to the jack on the receipt printer and then connect the other end of the network cable to the cash drawer.

Connecting Power

Important

For safety concerns, we suggest that you connect the AC/DC adapter to the system first and then connect the AC power cord to the electrical outlet.

1. Place the system horizontally on a flat, steady surface and tilt the screen to a 180-degree angle.

2. Locate the release points on the I/O cover.
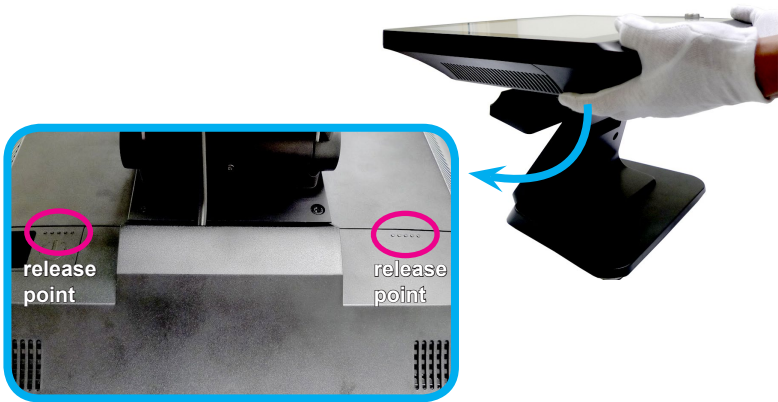
3. Press the release points and simultaneously slide the I/O cover outwards.

4. The I/O cover should instantly drop when released.

5. Turn the system upside down. To avoid damaging the Magnetic Stripe Reader, make sure it is placed against the desk edge.

desk edge
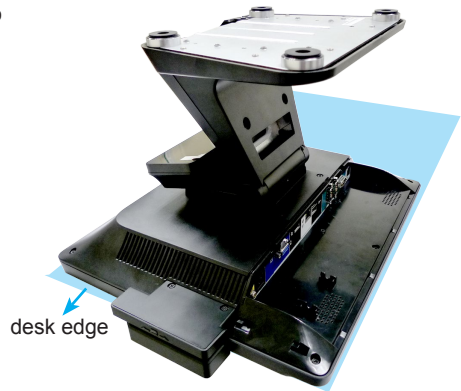
6. Unscrew the front cover of the system stand.
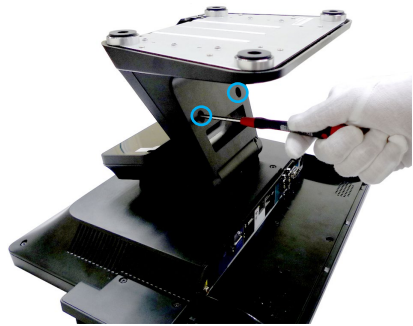
7. Unscrew the rear cover of the system stand.

8. Gently rotate the VFD display outwards.
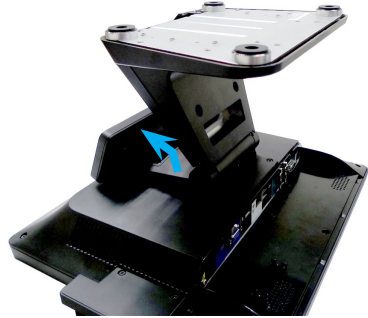
9. Remove the rear cover of the system stand.

10. Route the power cord through the cable routing hole in the system stand.

11. Secure the power connector to the DC power jack.

12. To avoid clutter, tidy up the power cord with the cable routing design.
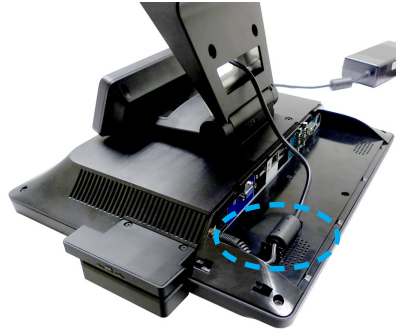
13. Replace the I/O cover. Press the release points and simultaneously slide the I/O cover inwards. An audible click should be heard if the cover is properly installed.
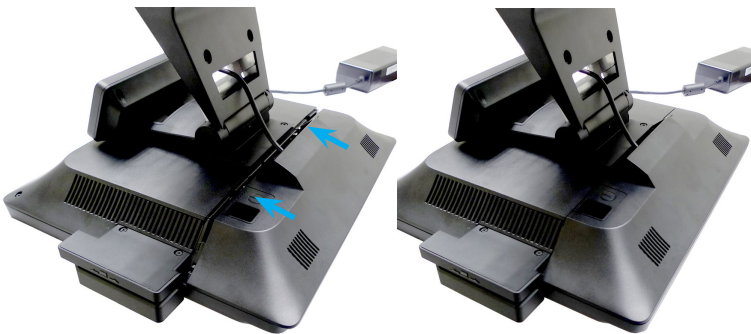
14. On the back of the system stand, a cable routing clip is provided to hold and organize cables.
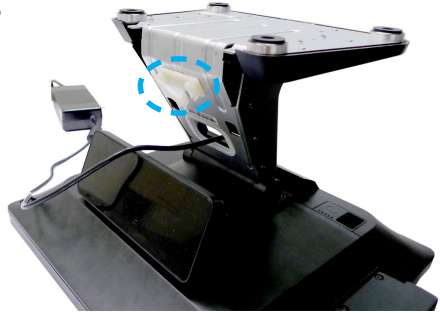
15. Route the power cord through the cable routing clip.
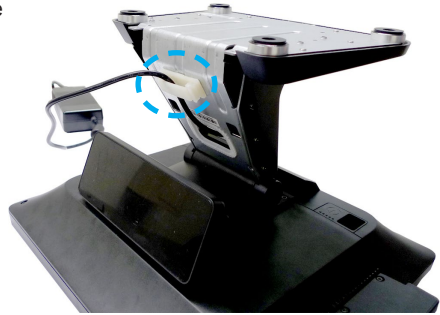
16. Replace the rear cover of the system stand.

17. Screw the front cover back to the system stand.

18. Screw the rear cover back to the system stand.

Powering on the System

Press the power button to power on the system.
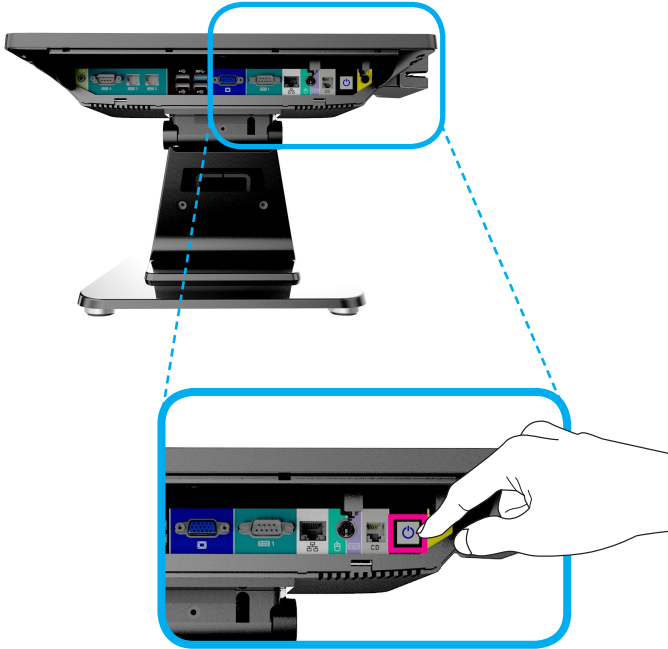
3 BIOS Setup

This chapter provides information on the BIOS Setup program and allows users to configure the system for optimal use.

Users may need to run the Setup program when:

- ■ An error message appears on the screen at system startup and requests users to run SETUP.
- ■ Users want to change the default settings for customized features.

Important

- • *Please note that BIOS update assumes technician-level experience.*
- • *As the system BIOS is under continuous update for better system performance, the illustrations in this chapter should be held for reference only.*

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> or <F2> key to enter Setup.

Press <DEL> or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

Control Keys

← →	Select Screen
↑↓	Select Item
Enter	Select
+ -	Change Option
F1	General Help
F7	Previous Values
F9	Optimized Defaults
F10	Save & Reset
Esc	Exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

The Menu Bar
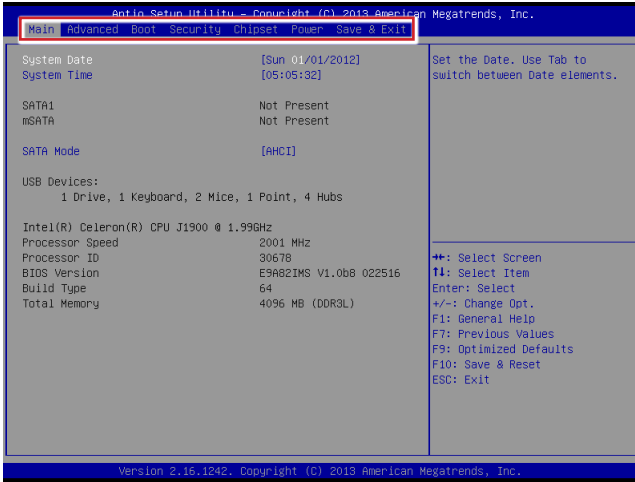
▶ **Main**

Use this menu for basic system configurations, such as time, date, etc.

▶ **Advanced**

Use this menu to set up the items of special enhanced features.

▶ **Boot**

Use this menu to specify the priority of boot devices.

▶ **Security**

Use this menu to set supervisor and user passwords.

▶ **Chipset**

This menu controls the advanced features of the onboard chipsets.

▶ **Power**

Use this menu to specify your settings for power management.

▶ **Save & Exit**

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

Main

```
                 Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  Advanced  Boot  Security  Chipset  Power  Save & Exit

  System Date                      [Sun 01/01/2012]        Set the Date. Use Tab to
  System Time                      [05:05:32]              switch between Date elements.

  SATA1                            Not Present
  mSATA                            Not Present

  SATA Mode                        [AHCI]

  USB Devices:
        1 Drive, 1 Keyboard, 2 Mice, 1 Point, 4 Hubs

  Intel(R) Celeron(R) CPU J1900 @ 1.99GHz
  Processor Speed                  2001 MHz
  Processor ID                     30678                  →←: Select Screen
  BIOS Version                     E9A82IMS V1.0b8 022516 ↑↓: Select Item
  Build Type                       64                     Enter: Select
  Total Memory                     4096 MB (DDR3L)        +/-: Change Opt.
                                                          F1: General Help
                                                          F7: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save & Reset
                                                          ESC: Exit

                 Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

▸ **System Date**

This setting allows you to set the system date. The date format is <Day>, <Month> <Date> <Year>.

▸ **System Time**

This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

▸ **SATA Mode**

This setting specifies the SATA controller mode.

Advanced
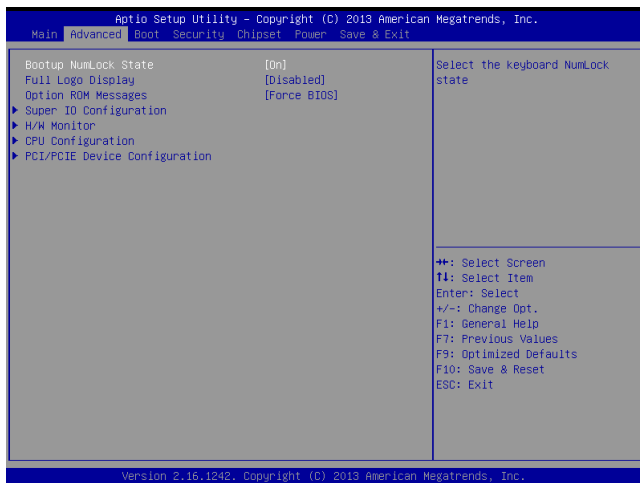
▶ **Bootup NumLock State**

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

▶ **Full Logo Display**

This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo.

When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.

When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo.

Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

▶ **Option ROM Messages**

This item is used to determine the display mode when an optional ROM is initialized during POST. When set to [Force BIOS], the display mode used by AMI BIOS is used. Select [Keep Current] if you want to use the display mode of optional ROM.

▸ **Super IO Configuration**

```
                    Advanced

    Super IO Configuration

    Serial Port 1                    [Enabled]
     Device Settings                 IO=3F8h; IRQ=4;
     Change Settings                 [Auto]
     Mode Select                     [RS232]
     Power Voltage                   [OV]
    Serial Port 2                    [Enabled]
     Device Settings                 IO=2F8h; IRQ=3;
     Change Settings                 [Auto]
     Power Voltage                   [OV]
    Serial Port 3                    [Enabled]
     Device Settings                 IO=3E8h; IRQ=7;
     Change Settings                 [Auto]
     Power Voltage                   [OV]
    Serial Port 4                    [Enabled]
     Device Settings                 IO=2E8h; IRQ=7;
     Change Settings                 [Auto]
     Mode Select                     [RS232]
     Power Voltage                   [OV]

    Watch Dog Timer                  [Disabled]
    FIFO Mode                        [128-byte]
    Shared IRQ Mode                  [Level]
```

▸ **Serial Port 1/ 2/ 3/ 4**

This setting enables/disables the specified serial port.

▸ **Change Settings**

This setting is used to change the address & IRQ settings of the specified serial port.

▸ **Mode Select**

Select an operation mode for the specified serial port.

▸ **Power Voltage**

Select a power voltage for the specified serial port.

▸ **Watch Dog Timer**

You can enable the system watch-dog timer, a hardware timer that generates a reset when the software that it monitors does not respond as expected each time the watch dog polls it.

▸ **FIFO Mode**

This setting controls the FIFO data transfer mode.

▸ **Shared IRQ Mode**

This setting provides the system with the ability to share interrupts among its serial ports.

▶ **H/W Monitor**

These items display the current status of all monitored hardware devices/ components such as voltages, temperatures and all fans' speeds.
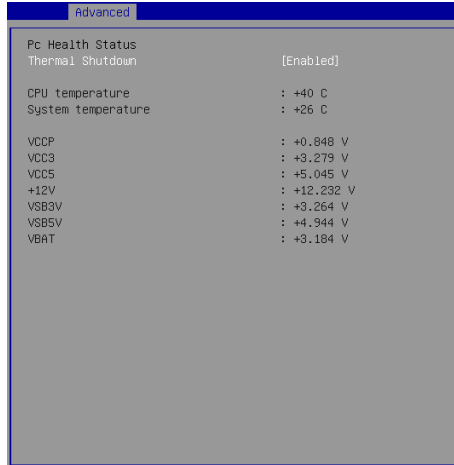
▶ **Thermal Shutdown**

This setting enables/disables the thermal shutdown function for system thermal protection.

▶ **CPU Configuration**

▶ **Active Processor Cores**

This setting specifies the number of active processor cores.

▶ **Execute Disable Bit**

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

▶ **Intel Virtualization Technology**

Virtualization enhanced by Intel Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple "Virtual" systems.

▶ **EIST**

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

▶ **PCI/PCIE Device Configuration**

Advanced	
PCI Latency Timer	[32 PCI Bus Clocks]
OS Selection	[Windows 7]
XHCI Mode	[Enabled]
USB 2.0(EHCI) Support	[Disabled]
Legacy USB Support	[Enabled]
Audio Controller	[Enabled]
Launch OnBoard Lan OpRom	[Disabled]

▶ **PCI Latency Timer**

This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

▶ **OS Selection**

This setting allows users to select the Operating System.

▸ **XHCI Mode**

This setting disables/enables the USB XHCI controller. The eXtensible Host Controller Interface (XHCI) is a computer interface specification that defines a register-level description of a Host Controller for Universal Serial bus (USB), which is capable of interfacing to USB 1.0, 2.0, and 3.0 compatible devices. The specification is also referred to as the USB 3.0 Host Controller specification.

▸ **USB 2.0 (EHCI) Support**

This setting disables/enables the USB EHCI controller. The Enhanced Host Controller Interface (EHCI) specification describes the register-level interface for a Host Controller for the Universal Serial Bus (USB) Revision 2.0.

▸ **Legacy USB Support**

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix.

▸ **Audio Controller**

This setting enables/disables the onboard audio controller.

▸ **Launch OnBoard LAN OpROM**

These settings enable/disable the initialization of the onboard/onchip LAN Boot ROM during bootup. Selecting [Disabled] will speed up the boot process.

Boot
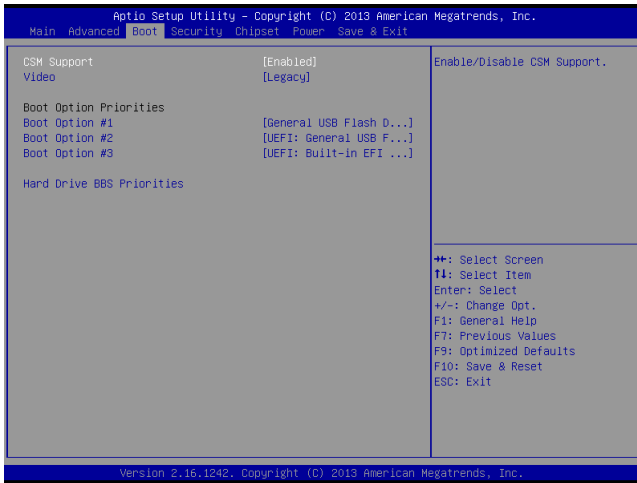
▸**CSM Support**

This setting enables/disables the support for Compatibility Support Module, a part of the Intel Platform Innovation Framework for EFI providing the capability to support legacy BIOS interfaces.

▸**Video**

This setting selects the video mode.

▸**Boot Option Priorities**

This setting allows users to set the sequence of boot devices where BIOS attempts to load the disk operating system.

▸**Hard Drive BBS Priorities**

This setting allows users to set the priority of the specified devices. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

Security

```
                  Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main  Advanced  Boot  Security  Chipset  Power  Save & Exit

    Administrator Password                                    Set Administrator Password
    User Password

  ▶ Serial Port Console Redirection
  ▶ Security Configuration







                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F7: Previous Values
                                                             F9: Optimized Defaults
                                                             F10: Save & Reset
                                                             ESC: Exit



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```

▸ **Administrator Password**

Administrator Password controls access to the BIOS Setup utility.

▸ **User Password**

User Password controls access to the system at boot and to the BIOS Setup utility.

▶ **Serial Port Console Redirection**

```
                    Security

 COM1
 Console Redirection            [Disabled]
▶ Console Redirection Settings
```

▶ **Console Redirection**

Console Redirection operates in host systems that do not have a monitor and keyboard attached. This setting enables/disables the operation of console re-direction. When set to [Enabled], BIOS redirects and sends all contents that should be displayed on the screen to the serial COM port for display on the terminal screen. Besides, all data received from the serial port is interpreted as keystrokes from a local keyboard.

▶ **Console Redirection Settings**

```
                    Security

 COM1
 Console Redirection Settings

 Terminal Type                  [ANSI]
 Bits per second                [115200]
 Data Bits                      [8]
 Parity                         [None]
 Stop Bits                      [1]
 Flow Control                   [None]
 VT-UTF8 Combo Key Support      [Enabled]
 Recorder Mode                  [Disabled]
 Resolution 100x31              [Disabled]
 Legacy OS Redirection Resolution  [80x24]
 Putty KeyPad                   [VT100]
 Redirection After BIOS POST    [Always Enable]
```
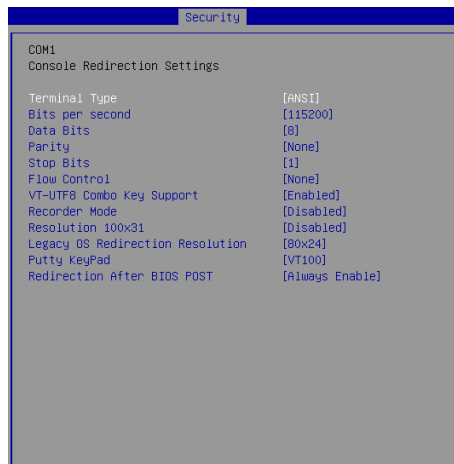
▸ **Terminal Type**

To operate the system's console redirection, you need a terminal supporting ANSI terminal protocol and a RS-232 null modem cable connected between the host system and terminal(s). This setting specifies the type of terminal device for console redirection.

▸ **Bits per second, Data Bits, Parity, Stop Bits**

This setting specifies the transfer rate (bits per second, data bits, parity, stop bits) of Console Redirection.

▸ **Flow Control**

Flow control is the process of managing the rate of data transmission between two nodes. It's the process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all of the incoming data. This is particularly important where the sending device is capable of sending data much faster than the receiving device can receive it.

▸ **VT-UTF8 Combo Key Support**

This setting enables/disables the VT-UTF8 combination key support for ANSI/VT100 terminals.

▸ **Recorder Mode, Resolution 100x31**

These settings enable/disable the recorder mode and the resolution 100x31.

▸ **Legacy OS Redirection Resolution**

This setting specifies the redirection resolution of legacy OS.

▸ **Putty Keypad**

PuTTY is a terminal emulator for Windows. This setting controls the numeric keypad for use in PuTTY.

▸ **Redirection After BIOS POST**

This setting determines whether or not to keep terminals' console redirection running after the BIOS POST has booted.

▶ **Security Configuration**

```
                          Security
   Intel(R) TXE Configuration
   TXE FW Version                      01.01.02.1120
   TXE                                 [Enabled]
   TXE HMRFPO                          [Disabled]
   TXE Firmware Update                 [Enabled]
   TXE EOP Message                     [Enabled]
   TXE Unconfiguration Perform

   Intel(R) Anti-Theft Technology Configuration
   Intel(R) AT                         [Disabled]
   Intel(R) AT Platform PBA            [Enabled]
   Intel(R) AT Suspend Mode            [Disabled]
```

▶ **TXE FW Version**

The setting shows the firmware information of the Intel Trusted Execution En-
gine (TXE).

▶ **TXE**

The setting enables/disables the Intel Trusted Execution Engine (TXE).

▶ **TXE HMRFPO**

The setting enables/disables TXE HMRFPO (Host ME Region Flash Protec-
tion Override).

▶ **TXE Firmware Update**

This setting enables/disables TXE FW update.

▶ **TXE EOP Message**

This setting determines whether or not to send EOP (Exchange Online Pro-
tection) message before entering OS.

▶ **Intel(R) Anti-Theft Technology Configuration**

Systems with Intel Anti-Theft Technology provide IT administrators with intelli-
gent protection of lost or stolen assets.

Chipset
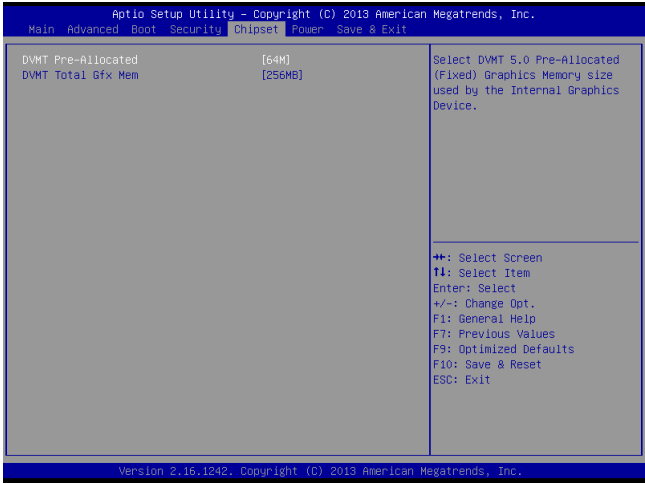
▸ **DVMT Pre-Allocated**

This setting defines the DVMT pre-allocated memory. Pre-allocated memory is the small amount of system memory made available at boot time by the system BIOS for video. Pre-allocated memory is also known as locked memory. This is because it is "locked" for video use only and as such, is invisible and unable to be used by the operating system.

▸ **DVMT Total Gfx Mem**

This setting specifies the memory size for DVMT.

Power

```
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         Main  Advanced  Boot  Security  Chipset  Power  Save & Exit

    Restore AC Power Loss              [Last State]              Select AC power state when
    Deep S5                            [Enabled]                 power is re-applied after a
                                                                 power failure.
    Advanced Resume Events Control
    PCIE PME                           [Disabled]
    USB from S3/S4                     [Enabled]
    RTC                                [Disabled]



                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/-: Change Opt.
                                                                 F1: General Help
                                                                 F7: Previous Values
                                                                 F9: Optimized Defaults
                                                                 F10: Save & Reset
                                                                 ESC: Exit


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```

▶ **Restore AC Power Loss**

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Power Off]	Leaves the computer in the power off state.
[Power On]	Leaves the computer in the power on state.
[Last State]	Restores the system to the previous status before power failure or interrupt occurred.

▶ **Deep S5**

The setting enables/disables the Deep S5 power saving mode. S5 is almost the same as G3 Mechanical Off, except that the PSU still supplies power, at a minimum, to the power button to allow return to S0. A full reboot is required. No previous content is retained. Other components may remain powered so the computer can "wake" on input from the keyboard, clock, modem, LAN, or USB device.

** Advanced Resume Events Control **

▶ **PCIE PME**

This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard PCIE PME is detected.
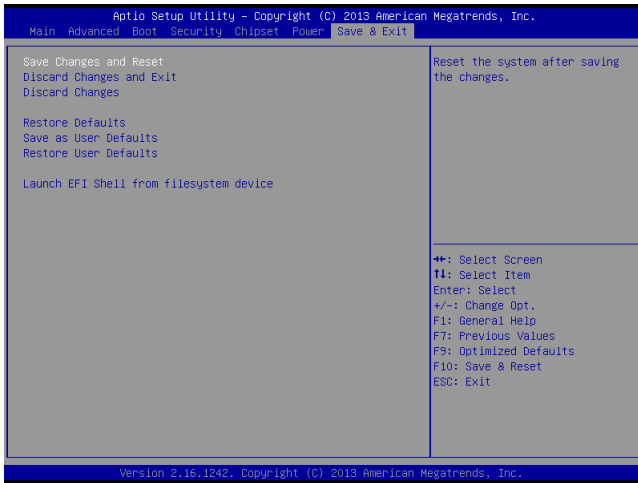
▸ **USB from S3/S4**

The item allows the activity of the USB device to wake up the system from S3/S4 sleep state.

▸ **RTC**

When [Enabled], your can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

Save & Exit

```
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   Main  Advanced  Boot  Security  Chipset  Power  Save & Exit

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

 Restore Defaults
 Save as User Defaults
 Restore User Defaults

 Launch EFI Shell from filesystem device



                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/−: Change Opt.
                                                     F1: General Help
                                                     F7: Previous Values
                                                     F9: Optimized Defaults
                                                     F10: Save & Reset
                                                     ESC: Exit

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```

▶ **Save Changes and Reset**

Save changes to CMOS and reset the system.

▶ **Discard Changes and Exit**

Abandon all changes and exit the Setup Utility.

▶ **Discard Changes**

Abandon all changes.

▶ **Restore Defaults**

Use this setting to load the default values set by the motherboard manufacturer specifically for optimal performance of the motherboard.

▶ **Save as User Defaults**

Save changes as the user's default profile.

▶ **Restore User Defaults**

Restore the user's default profile.

▶ **Launch EFI Shell from filesystem device**

This setting helps to launch the EFI Shell application from one of the available file system devices.

Appendix
WDT

This appendix provides the sample codes of WDT (Watch Dog Timer).

WDT Sample Code

```
SIO_INDEX_Port      equ 04Eh
SIO_DATA_Port       equ 04Fh
SIO_UnLock_Value    equ 087h
SIO_Lock_Value      equ 0AAh
WatchDog_LDN        equ 007h
WDT_UNIT            equ 60h      ;60h=second, 68h=minute, 40h=Disabled Watchdog timer
WDT_Timer           equ 30       ;ex. 30 seconds

Sample code:
;Enable config mode
    mov     dx, SIO_INDEX_Port
    mov     al, SIO_UnLock_Value
    out     dx, al
    jmp     short $+2            ;Io_delay
    jmp     short $+2            ;Io_delay
    out     dx, al
;Change to WDT
    mov     dx, SIO_INDEX_Port
    mov     al, 07h
    out     dx, al
    mov     dx, SIO_DATA_Port
    mov     al, WatchDog_LDN
    out     dx, al
;Acive WDT
    mov     dx, SIO_INDEX_Port
    mov     al, 30h
    out     dx, al
    mov     dx, SIO_DATA_Port
    in      al, dx
    or      al, 01h
    out     dx, al
 ;set timer
    mov     dx, SIO_INDEX_Port
    mov     al, 0F6h
    out     dx, al
    mov     dx, SIO_DATA_Port
    mov     al, WDT_Timer
    out     dx, al
;set UINT
    mov     dx, SIO_INDEX_Port
    mov     al, 0F5h
    out     dx, al
    mov     dx, SIO_DATA_Port
    mov     al, WDT_UNIT
    out     dx, al
;enable reset
    mov     dx, SIO_INDEX_Port
    mov     al, 0FAh
    out     dx, al
    mov     dx, SIO_DATA_Port
    in      al, dx
    or      al, 01h
    out     dx, al
;close config mode
    mov     dx, SIO_INDEX_Port
    mov     al, SIO_Lock_Value
    out     dx, al
```