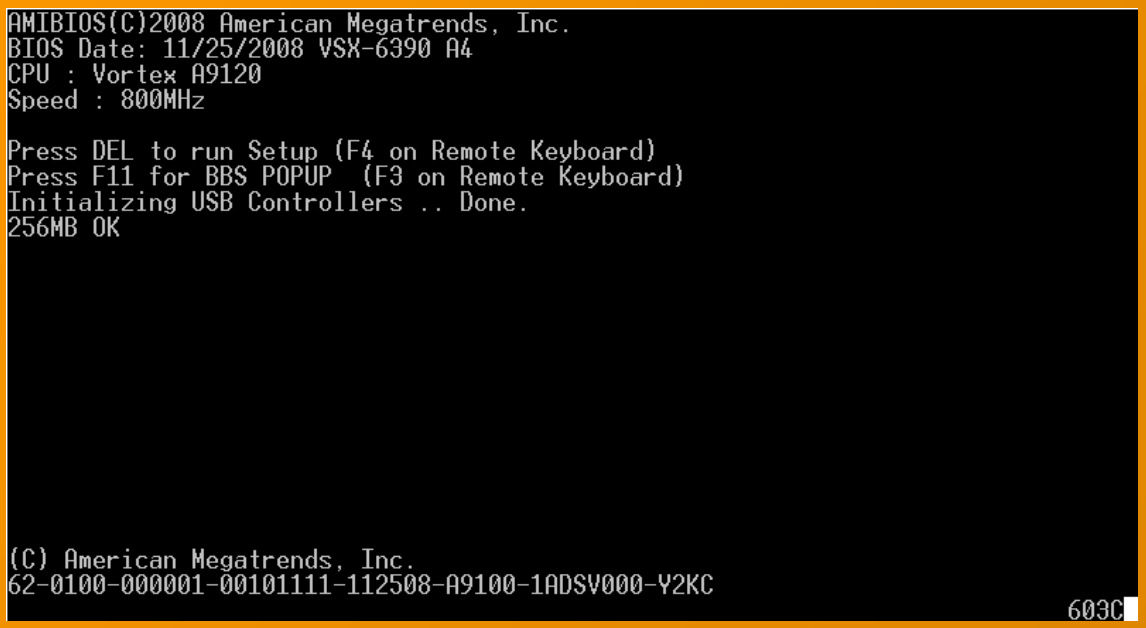
VDX/VSX Embedded CPU Board Series

AMI BIOS Brief Reference Manual

(Version1.0)



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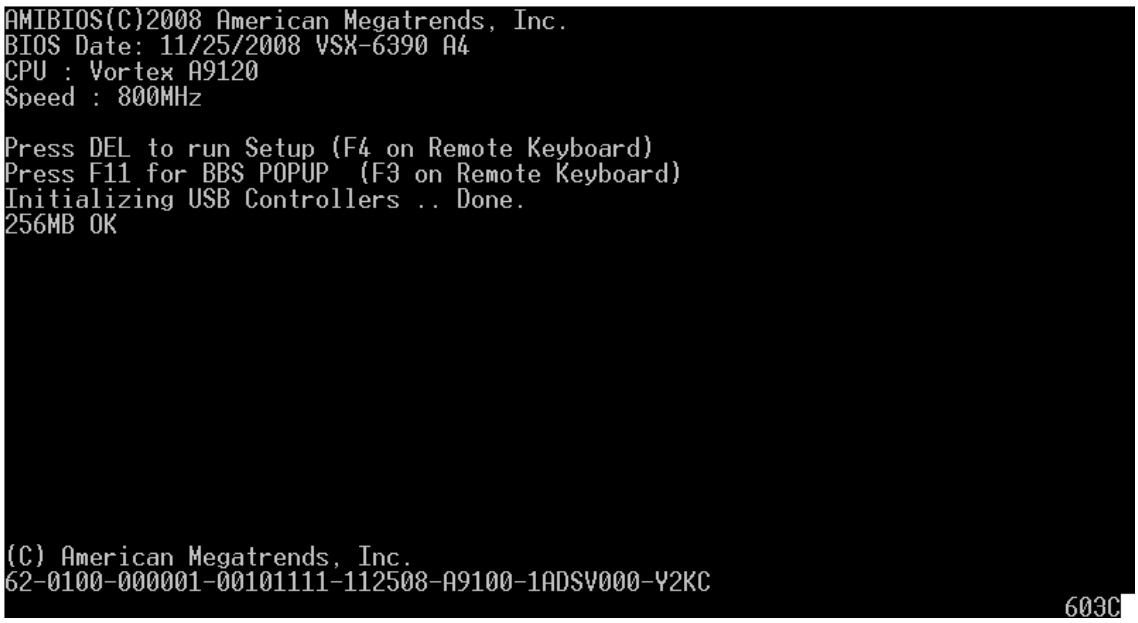
Introduction

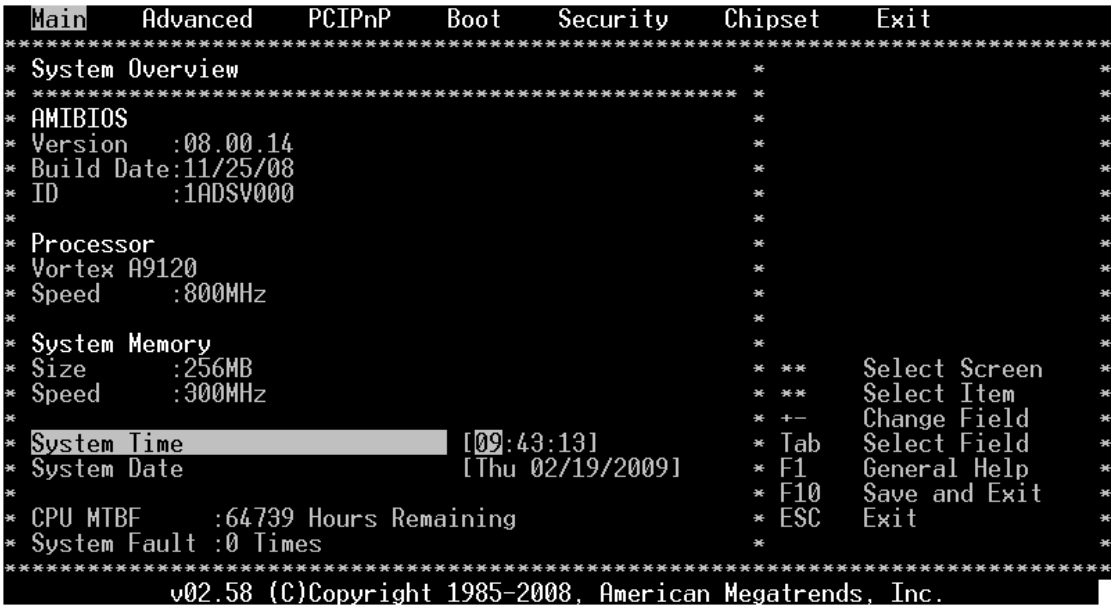
This manual is for the AMI BIOS Setup built with DX SBCs. The program allows users to modify the basic input/output system configuration and preserve settings into a battery-backed CMOS RAM which retains settings during AC power-off.

When a SBC is powered on with in few seconds, users are allowed to press “Delete” key to enter the setup program (F4 for console redirection).



The following sections will explicitly depict every settings of the setup program.

1. Main menu



1.1 MTBF

MTBF, Mean Time Before Failure, the remaining MTBF time of onboard Vortex86DX CPU is calculated by hour. MTBF is the average life time of electronic devices. The board might keep working even the MTBF time is expired, but it's highly recommended to replace a new board when it's expired. This is to ensure the stability of whole system.

1.2 System Fault

This function is to calculate the times of system fault during the operating. The system fault includes the external system fails and invalid OP codes. Please be aware when this number increased abnormally, for example one time per week, this means the whole system has experienced hardware/software unstable or compatible problem.

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2. Advanced

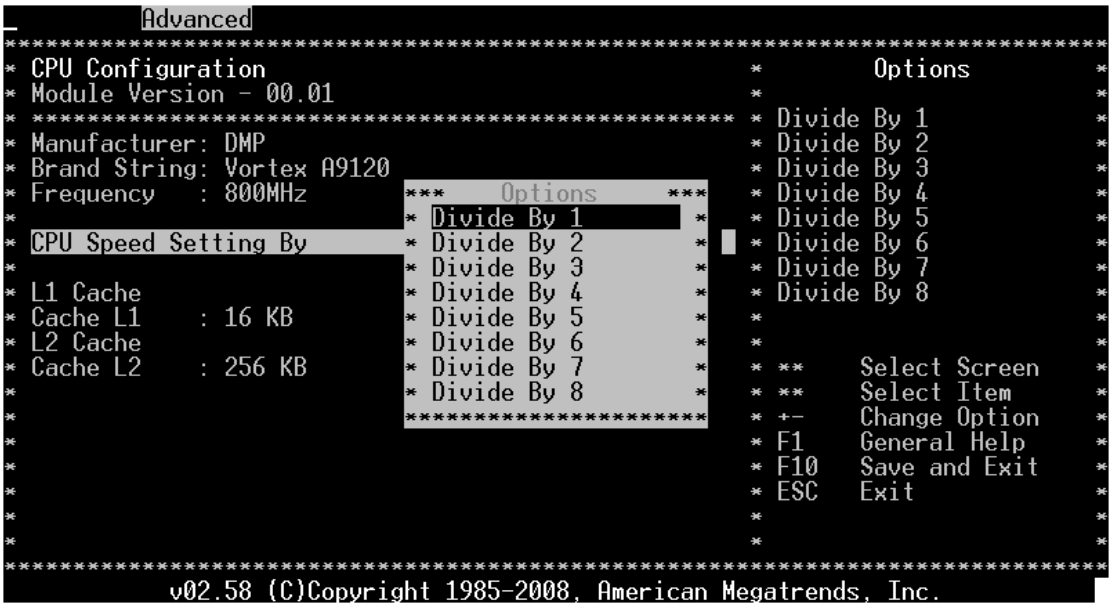
2.1 Board Configuration

It shows the board-related information including Chip Serial Number, Model Name, PCB Version, Shipment Date, and the Date Codes of key components.

2.2 CPU Configuration

2.2.1 CPU Speed

Default core speed, 800MHz, cab be divided by 1 to 8. For example, if divided by 8, the core will be 100MHz.



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2.3 IDE Configuration

2.3.1 On-board PCI IDE Controller

This option specifies the channel used by IDE controller on a motherboard.

Option	Description
Disabled	Set this value to prevent the computer system from using the onboard IDE controller.
Primary	Set this value to allow the computer system to detect only the Primary IDE channel. This includes both the Primary Master and the Primary Slave.
Secondary	Set this value to allow the computer system to detect only the Secondary IDE channel. This includes both the Secondary Master and the Secondary Slave.
Both	Set this value to allow the computer system to detect the Primary and Secondary IDE channels. This includes both the Primary Master, Primary Slave, Secondary Master, and Secondary Slave. This is the default setting.

2.3.2 Primary/Secondary IDE Master/Slave

When you entered the IDE devices, the bios auto-detects and shows the detail information of connected IDE devices. If changes are needed to the IDE configuration, simply select the item and press “Enter” to configure.

Type [Auto]

Option	Description
Not Installed	Set this value to prevent the BIOS from searching for an IDE disk drive on the specified channel.
Auto	Set this value to allow the BIOS auto detect the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel. This is the default setting.
CDROM	This option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS will not attempt to search for other types of IDE disk drives on the specified channel.
ARMD	This option specifies an ATAPI Removable Media Device. This includes, but is not limited to: • ZIP • LS-120

LBA/Large Mode [Auto]

Option	Description
Disabled	Set this value to prevent the BIOS from using Large Block Addressing mode control on the specified channel.
Auto	Set this value to allow the BIOS to auto detect the Large Block Addressing mode control on the specified channel. This is the default setting.

Block (Multi-sector Transfer) [Auto]

Option	Description
Disabled	Set this value to prevent the BIOS from using Multi-Sector Transfer on the specified channel. The data to and from the device will occur one sector at a time.
Auto	Set this value to allow the BIOS to auto detect device support for Multi-Sector Transfers on the specified channel. If supported, Set this value to allow the BIOS to auto detect the number of sectors per block for transfer from the hard disk drive to the memory. The data transfer to and from the device will occur multiple sectors at a time. This is the default setting.

PIO Mode [Auto]

Option	Description
Auto	Set this value to allow the BIOS to auto detect the PIO mode. Use this value if the IDE disk drive support cannot be determined. This is the default setting.
0	Set this value to allow the BIOS to use PIO mode 0. It has a data transfer rate of 3.3 MBs.
1	Set this value to allow the BIOS to use PIO mode 1. It has a data transfer rate of 5.2 MBs.
2	Set this value to allow the BIOS to use PIO mode 2. It has a data transfer rate of 8.3 MBs.
3	Set this value to allow the BIOS to use PIO mode 3. It has a data transfer rate of 11.1 MBs.
4	Set this value to allow the BIOS to use PIO mode 4. It has a data transfer rate of 16.6 MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drive, such as IDE CD-ROM drives, check the specifications of the drive.

DMA Mode [Auto]

The default setting is auto, it is fixed by default for better transmitting efficiency.

SMART [Auto]

S.M.A.R.T. stands for Smart Monitoring, Analysis, and Reporting Technology. It allows AMI BIOS to use the S.M.A.R.T. protocol to report server over a network.

Option	Description
Auto	Set this value to allow the BIOS to auto detect hard disk drive support. Use this setting if the IDE disk drive support cannot be determined. This is the default setting.
Disabled	Set this value to prevent the BIOS from using the SMART feature.
Enabled	Set this value to allow the BIOS to use the SMART feature on support hard disk drives.

32Bit Data Transfer [Enabled]

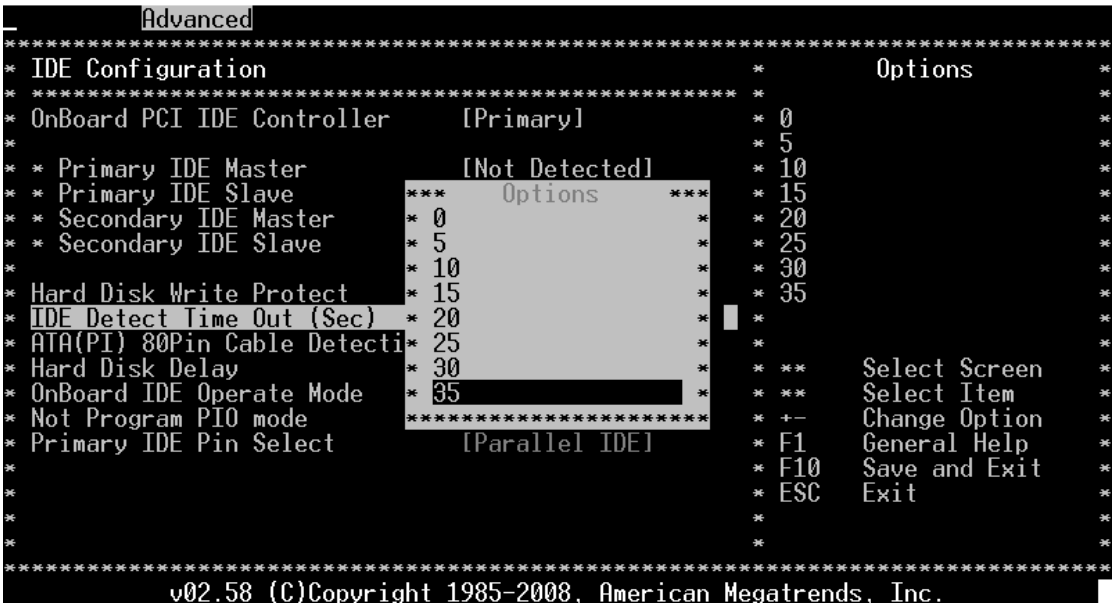
Option	Description
Disabled	Set this value to prevent the BIOS from using 32-bit data transfers.
Enabled	Set this value to allow the BIOS to use 32-bit data transfers on support hard disk drives. This is the default setting.

2.3.3 Hard Disk Write Protect

Option	Description
Disabled	Set this value to allow the hard disk drive to be used normally. Read, write, and erase functions can be performed to the hard disk drive. This is the default setting.
Enabled	Set this value to prevent the hard disk drive from being erased.

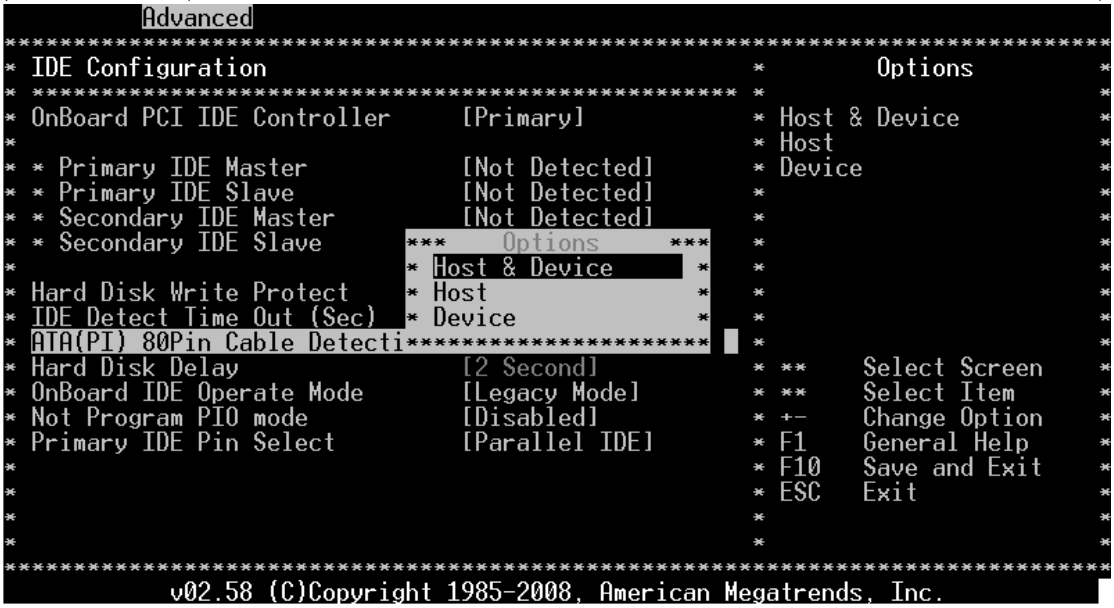
2.3.4 IDE Detect Time Out (Sec)

Option	Description
0	This value is the best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the AMIBIOS.
5	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in five seconds. A large majority of ultra ATA hard disk drives can be detected well within five seconds.
10	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 10 seconds.
15	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 15 seconds.
20	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 20 seconds.
25	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 25 seconds.
30	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 30 seconds.
35	*35* is the default value. It is the recommended setting when all IDE connectors are set to *AUTO* in the AMIBIOS setting.



2.3.5 ATA (PI) 80 pin Cable Detection

Option	Description
Host & Device	Set this value to use both the motherboard onboard IDE controller and IDE disk drive to detect the type of IDE cable used. This is the default setting.
Host	Set this value to use motherboard onboard IDE controller to detect the type of IDE cable used.
Device	Set this value to use IDE disk drive to detect the type of IDE cable used.



An 80-conductor ATA cable is compatible with the downstream, a standard 40-conductor ATA cable. The presence of the correct cable must be determined before use. Host & Device is the default setting for better stability.

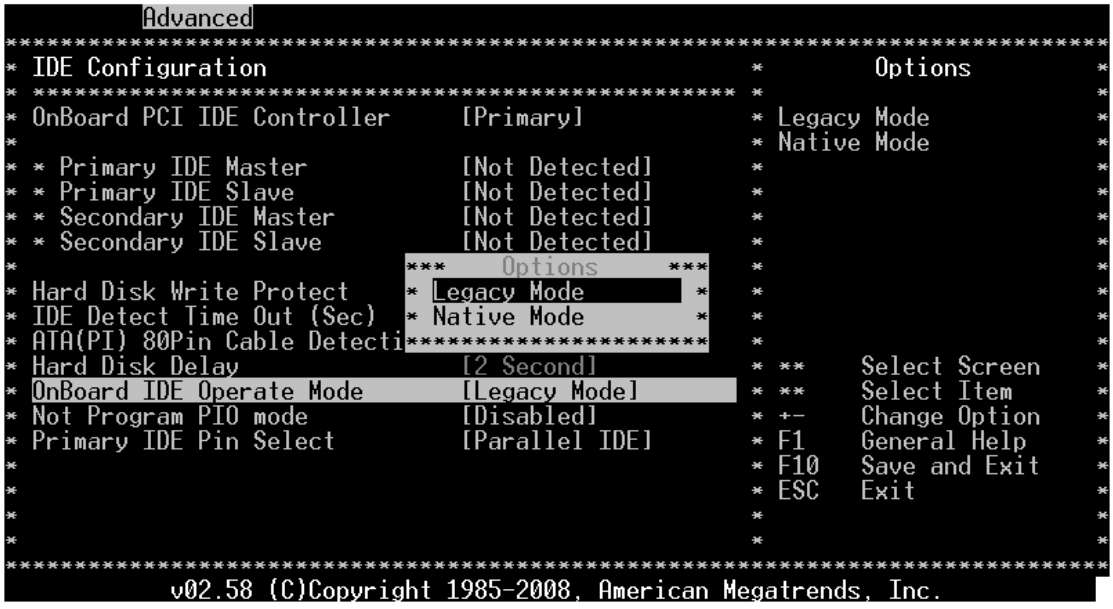
The use of an 80-conductor ATA cable is mandatory for running Ultra ATA/66, Ultra ATA/100 and Ultra ATA/133 IDE hard disk drives. A standard 40-conductor ATA cable cannot run with these higher speeds. Otherwise, a direct attachment on IDE sockets results in a highest speed.

2.3.6 Hard Disk Delay

Delays in seconds before a HDD ready.

2.3.7 On-board IDE Operate Mode

Option	Description
Disabled	Set this value to prevent the computer system from using the onboard IDE controller.
Primary	Set this value to allow the computer system to detect only the Primary IDE channel. This includes both the Primary Master and the Primary Slave.
Secondary	Set this value to allow the computer system to detect only the Secondary IDE channel. This includes both the Secondary Master and the Secondary Slave.
Both	Set this value to allow the computer system to detect the Primary and Secondary IDE channels. This includes both the Primary Master, Primary Slave, Secondary Master, and Secondary Slave. This is the default setting.



2.3.8 Not Program PIO mode

This option allows you to assign the CF or IDE card to Primary Channel or Secondary Channel.

2.3.9 Primary IDE Pin Select

To enable SD-to-IDE on primary IDE without an extra controller, please select SD Card. Otherwise, Parallel IDE should be chosen for utmost IDE supports.

2.4 Super IO Configuration

2.4.1 On-board Floppy Controller

To enable/disable the extra floppy controller of the super I/O chip of SBC.

2.4.2 Serials Port Address

This option specifies the “base I/O address” and “interrupt request address” of serial ports. Options of COM5/6 can be “Disabled”, 338/IRQ4, 238/IRQ3, 228/IRQ10, and 220/IRQ11. COM7/8 has no IRQ and their addresses can be assigned to 338/238/228/220

2.4.3 Parallel Port

Address

Option	Description
Disabled	Set this value to prevent the parallel port from accessing any system resources. When the value of this option is set to *Disabled*, the printer port becomes unavailable.
378	Set this value to allow the parallel port to use 378 as its I/O port address. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.
278	Set this value to allow the parallel port to use 278 as its I/O port address.
3BC	Set this value to allow the parallel port to use 3BC as its I/O port address.

Mode

This option specifies the parallel port mode. The Optimal setting is Normal. The Fail-Safe setting is Disabled.

Option	Description
Normal	Set this value to allow the standard parallel port mode to be used. This is the default setting.
Bi-Directional	Set this value to allow data to be sent to and received from the parallel port.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bi-directional communication.

IRQ

This option specifies the IRQ to the parallel port. The Optimal and Fail-Safe default setting is 7.

Option	Description
5	Set this value to allow the serial port to use Interrupt 3.
7	Set this value to allow the serial port to use Interrupt 7. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.

2.4.4 On-board Smart Card Reader

On-board smart card reader cab be assigned to address 3E8/2E8 or disabled.

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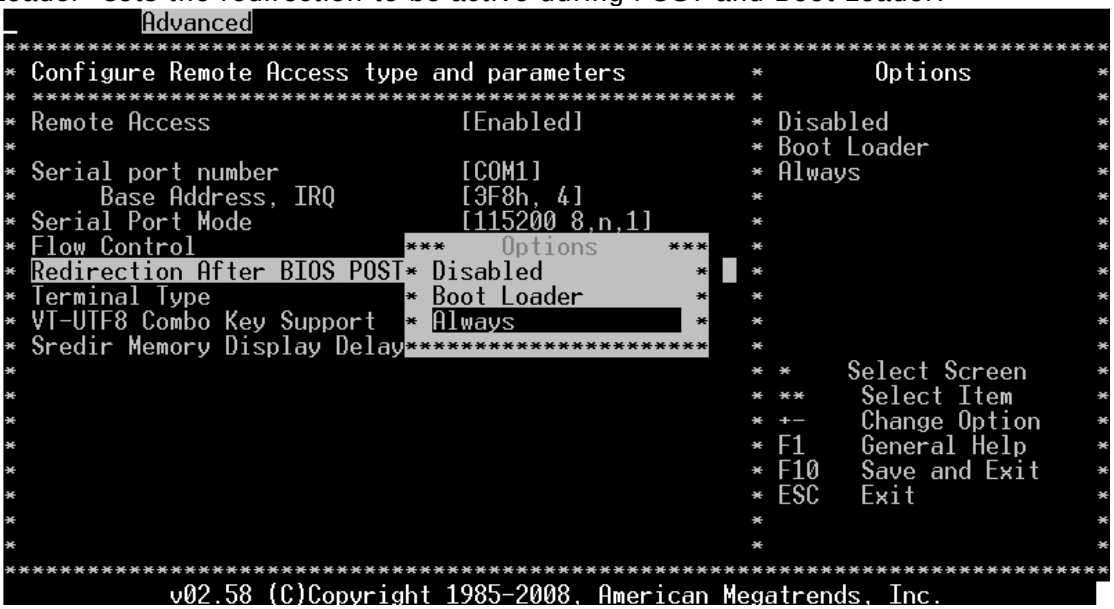
2.5 Remote Access Configuration

This menu allows you to enable or disable remote access.

Redirection After BIOS POST:

“Boot Loader” sets the redirection to be active during POST and Boot Loader.



Sredir Memory Display Delay

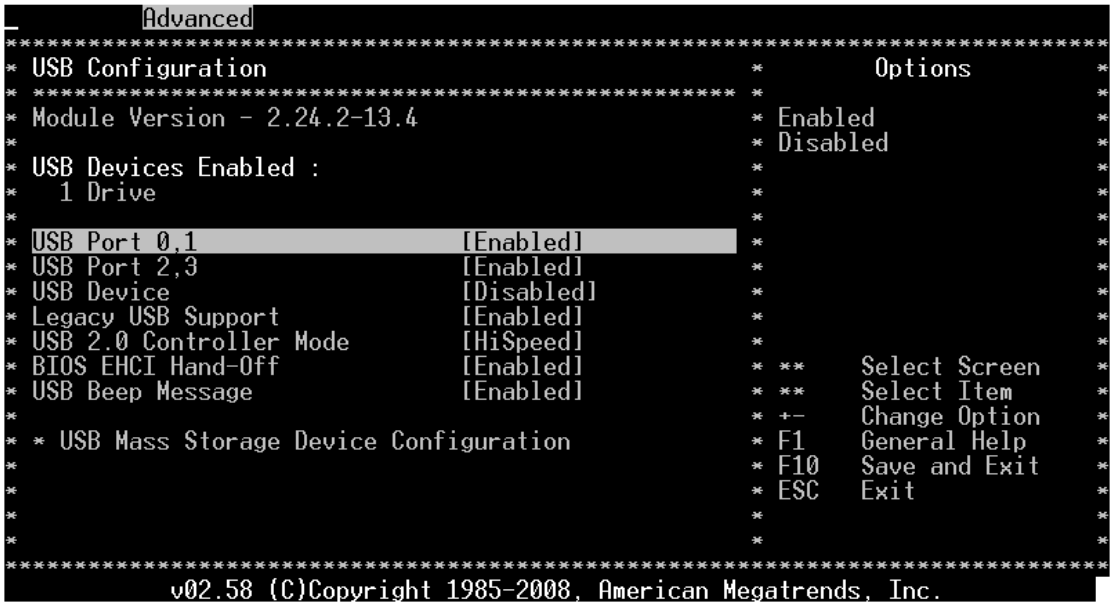
This allows you to indicate the length of time in seconds to the Memory Display Delay

2.6 USB Configuration

2.6.1 USB Ports

Set this value to allow the system to enable or disable the onboard USB ports. The Optimal and Fail-Safe default setting is Enabled.

Option	Description
Disabled	This setting makes the onboard USB ports unavailable.
Enabled	This setting allows the use of the USB ports. This is the default setting.



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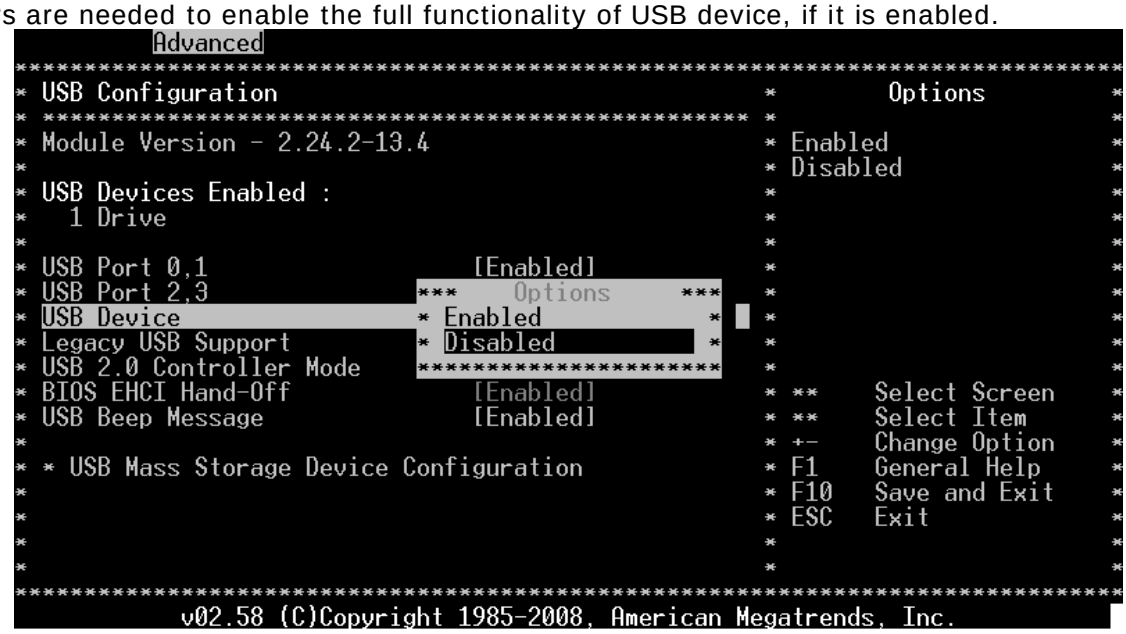
2.6.2 USB Device

Drivers are needed to enable the full functionality of USB device, if it is enabled.



2.6.3 Legacy USB Support

Legacy USB Support refers to the USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard will not become available until a USB compatible operating system is fully loaded with USB drivers. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB drivers loaded on the system. Set this value to enable or disable the Legacy USB Support. The Optimal and Fail-Safe default setting is Disabled.

Option	Description
Disabled	Set this value to prevent the use of any USB device in DOS or during system boot. This is the default setting.
Enabled	Set this value to allow the use of USB devices during boot and while using DOS.
Auto	This option auto detects USB Keyboards or Mice and if found, allows them to be utilized during boot and while using DOS.

2.6.4 USB 2.0 Controller Mode

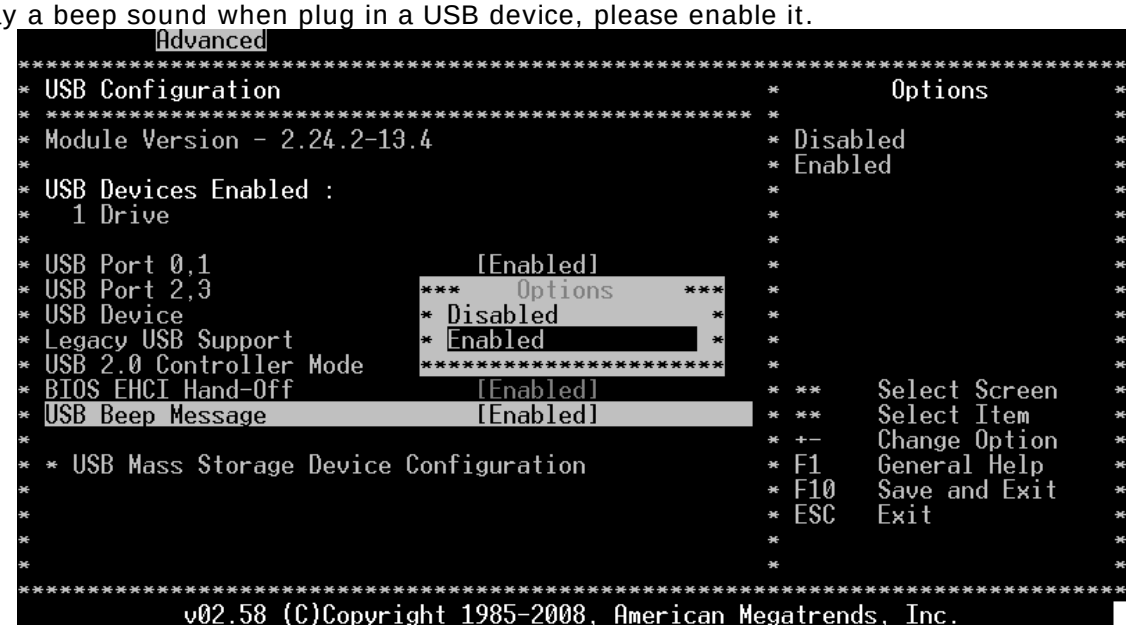
Allow you configure the USB 2.0 controller in HiSpeed or Full Speed.

2.6.5 BIOS EHCI Hand-Off

Allow you to enable or disable support for the operating system without an EHCI hand-off feature.

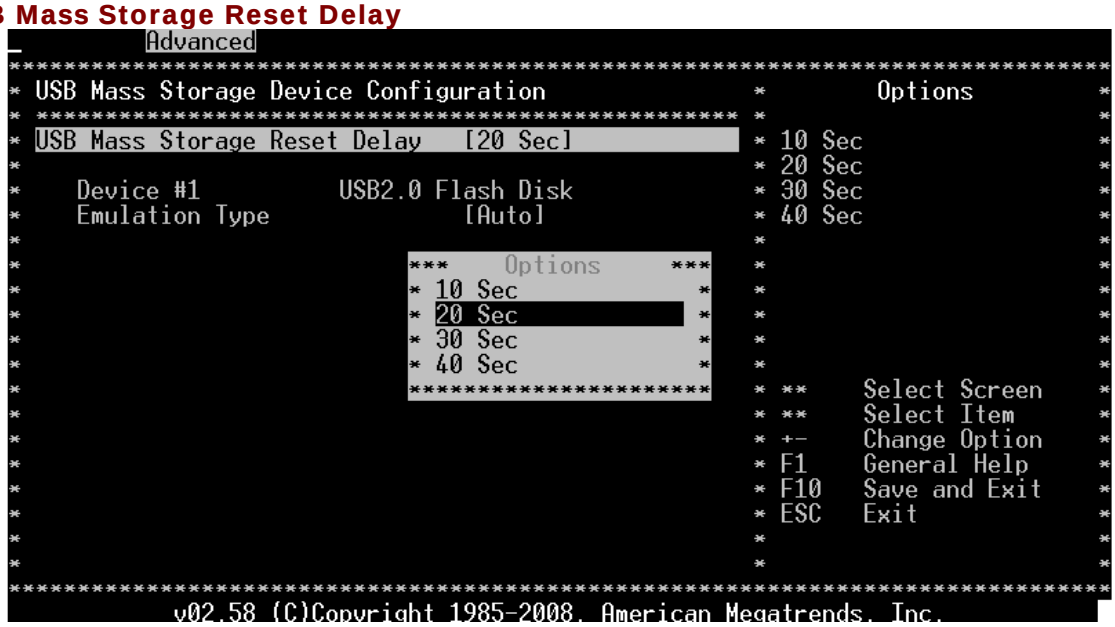
2.6.6 USB Beep Message

To play a beep sound when plug in a USB device, please enable it.



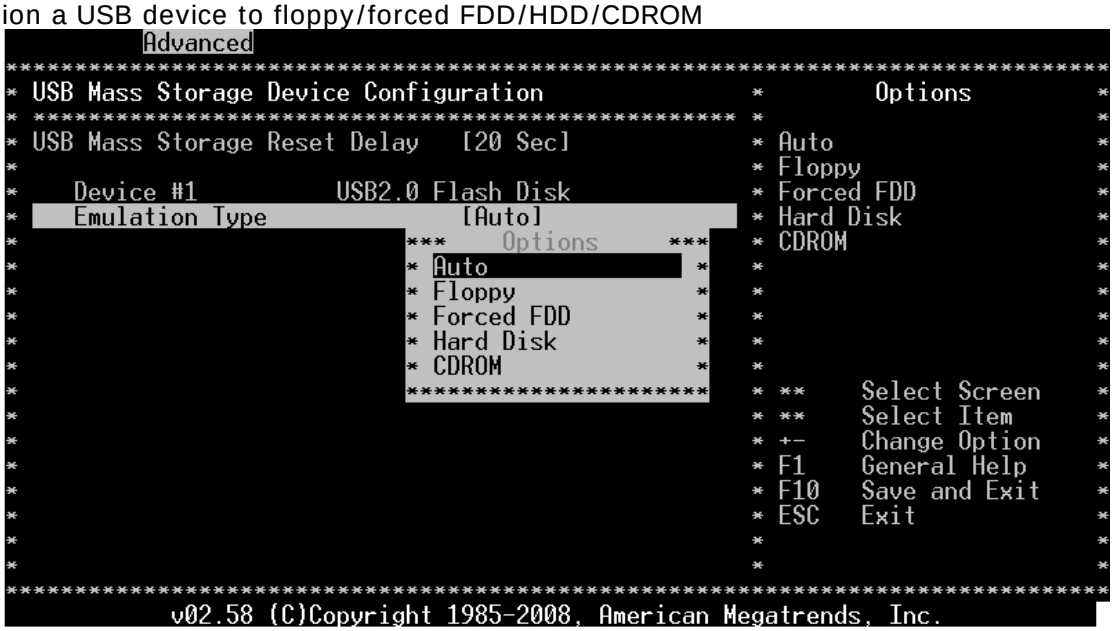
2.6.7 USB Mass Storage Device Configuration

USB Mass Storage Reset Delay



Emulation Type

Emulation a USB device to floppy/forced FDD/HDD/CDROM



2.7 SB LAN

Allow you to enable or disable internal LAN. MAC address is as followings.

3. PCIPnP

3.1 PCI Latency Timer

It allows you to select the value of PCI clocks for all of the PCI device latency timing register, in which it decides how long a PCI device can hog the PCI bus. Lower the values lets go quicker but some devices like PCI sound cards may crackle. Default is 64.

Option	Description
32	This option sets the PCI latency to 32 PCI clock cycles.
64	This option sets the PCI latency to 64 PCI clock cycles. This is the default setting.
96	This option sets the PCI latency to 96 PCI clock cycles.
128	This option sets the PCI latency to 128 PCI clock cycles.
160	This option sets the PCI latency to 160 PCI clock cycles.
192	This option sets the PCI latency to 192 PCI clock cycles.
224	This option sets the PCI latency to 224 PCI clock cycles.
248	This option sets the PCI latency to 248 PCI clock cycles.

3.2 Allocate IRQ to PCI VGA

Set this value to allow or restrict the system from giving addresses to PCI VGA. The Optimal and Fail-Safe default setting is yes.

Option	Description
Yes	Set this value to allow the allocation of an IRQ to a VGA adapter card that uses the PCI local bus. This is the default setting.
No	Set this value to prevent the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.

3.3 Palette Snooping

When set to “Enabled”, the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled, Enabled].

Option	Description
Disabled	This is the default setting and should not be changed unless the VGA card manufacturer requires Palette Snooping to be Enabled.
Enabled	This setting informs the PCI devices that an ISA based Graphics device is installed in the system. It does this so the ISA based Graphics card will function correctly. This does not necessarily indicate a physical ISA adapter card. The graphics chipset can be mounted on a PCI card. Always check with your adapter card’s manuals first, before modifying the default settings in the BIOS.

3.4 PCI IDE BusMaster.

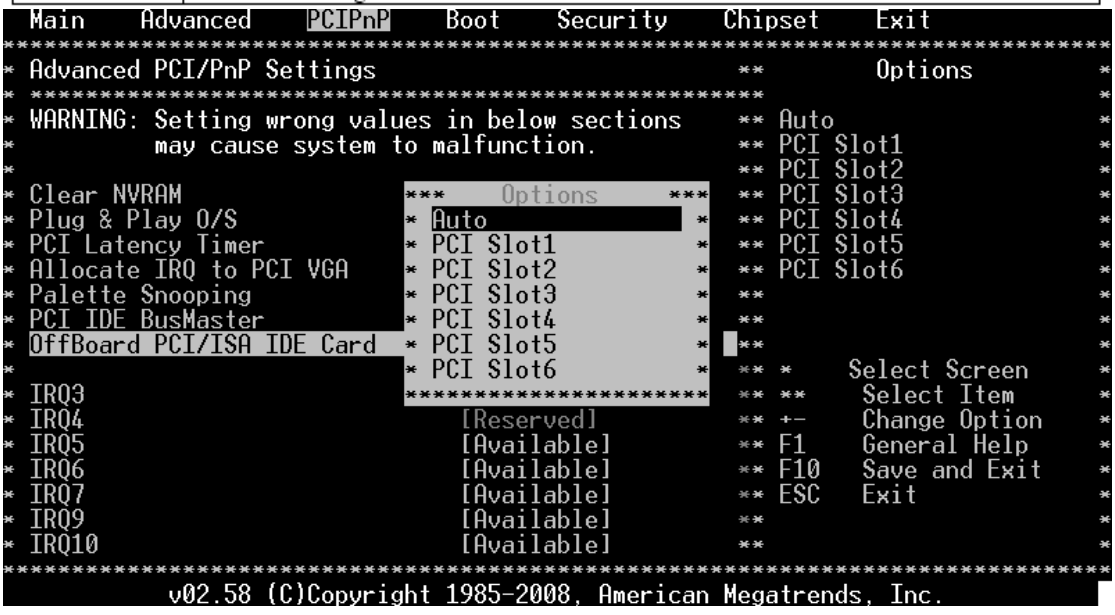
Sets this value to allow or prevent the use of PCI IDE bus mastering.

Option	Description
Disabled	Set this value to prevent PCI busmastering. This is the default setting.
Enabled	This option specifies that the IDE controller on the PCI local bus has mastering capabilities.

3.5 Off-board PCI / ISA IDE Card

Set this value to allow the off-board PCI/ISA IDE Card to be selected. The Optimal and Fail-Safe default setting is auto.

Option	Description
Auto	This setting will auto select the location of an OffBoard PCI IDE adapter card. This is the default setting.
PCI Slot1	This setting will select PCI Slot 1 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 1.
PCI Slot2	This setting will select PCI Slot 2 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 2.
PCI Slot3	This setting will select PCI Slot 3 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 3. This option is available even if the motherboard does not have a PCI Slot 3. If the motherboard does not have a PCI Slot 3, do not use this setting.
PCI Slot4	This setting will select PCI Slot 4 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 4. This option is available even if the motherboard does not have a PCI Slot 4. If the motherboard does not have a PCI Slot 4, do not use this setting.
PCI Slot5	This setting will select PCI Slot 5 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 5. This option is available even if the motherboard does not have a PCI Slot 5. If the motherboard does not have a PCI Slot 5, do not use this setting.
PCI Slot6	This setting will select PCI Slot 6 as the location of the OffBoard PCI IDE adapter card. Use this setting only if there is an IDE adapter card installed in PCI Slot 6. This option is available even if the motherboard does not have a PCI Slot 6. If the motherboard does not have a PCI Slot 6, do not use this setting.



3.6 IRQ

This item can select the IRQ with available or reserved. The default settings of IRQ3, 4 are reserved while others are set available. When you set available, the specified IRQ is to be used by a PCI/PnP device; as you set reserved, the IRQ will reserved for legacy ISA devices.

Interrupt	Option	Description
IRQ3 IRQ4 IRQ5 IRQ7	Available	This setting allows the specified IRQ to be used by a PCI/PnP device. This is the default setting.
IRQ9 IRQ10 IRQ11 IRQ14 IRQ15	Reserved	This setting allows the specified IRQ to be used by a legacy ISA device.

3.7 DMA Channel

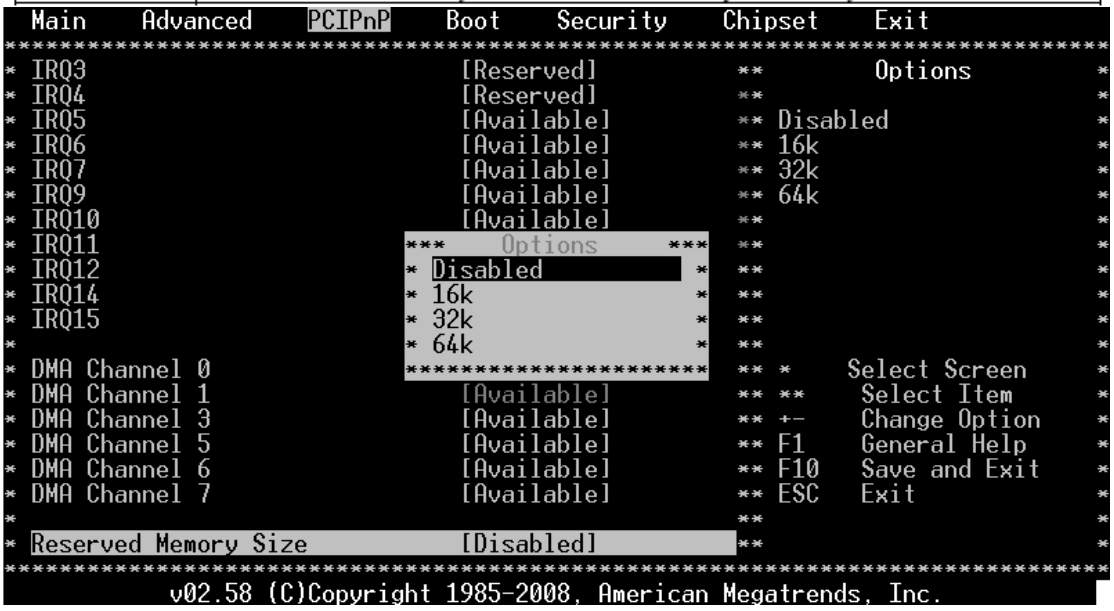
This item can select the DMA Channel with available or reserved. When set to available, the specified DMA is available to be used by PCI/PnP devices; when set to reserved , the specified DMA to be used by a legacy ISA device.

DMA Channel	Option	Description
DMA Channel 0 DMA Channel 1 DMA Channel 3	Available	This setting allows the specified DMA to be used by PCI/PnP device. This is the default setting.
DMA Channel 5 DMA Channel 6 DMA Channel 7	Reserved	This setting allows the specified DMA to be used by a legacy ISA device.

3.8 Reserved Memory Size

Set this value to allow the system to reserve memory that is used by ISA devices. The optimal and Fail-Safe default setting is disabled.

Option	Description
Disabled	Set this value to prevent BIOS from reserving memory to ISA devices.
16K	Set this value to allow the system to reserve 16K of the system memory to the ISA devices.
32K	Set this value to allow the system to reserve 32K of the system memory to the ISA devices.
64K	Set this value to allow the system to reserve 64K of the system memory to the ISA devices.



4 Boot Settings Configuration

4.1 Quick Boot

Set the value to enable to allow the BIOS to skip some Power On Self Tests (POST) while booting. When you set the value to disable the BIOS will performs all the POST items.

Option	Description
Disabled	Set this value to allow the BIOS to perform all POST tests.
Enabled	Set this value to allow the BIOS to skip certain POST tests to boot faster.

4.2 Quiet Boot

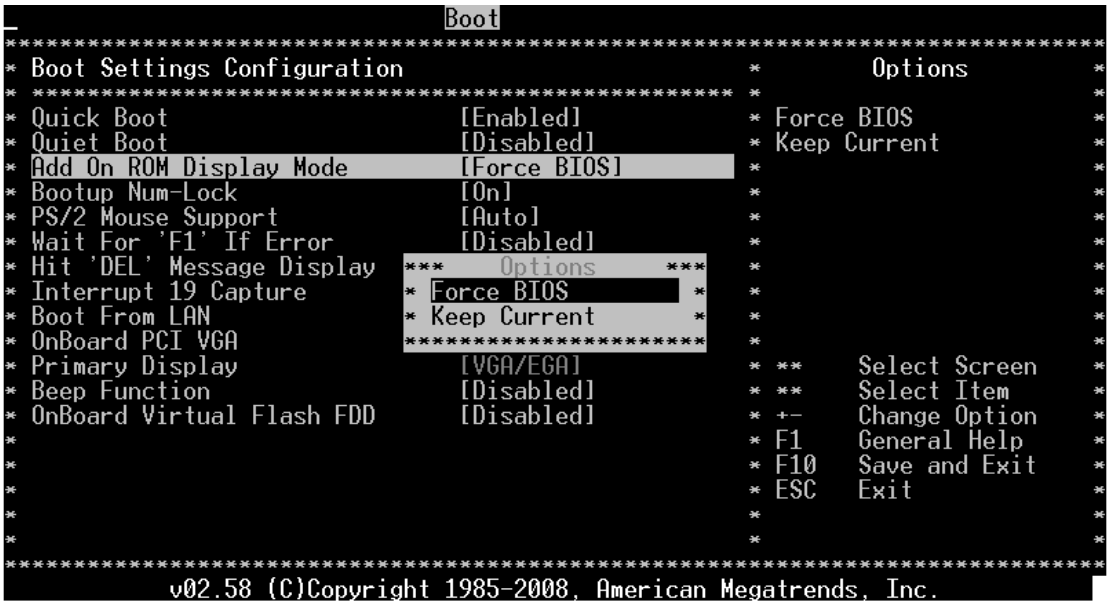
Set this value to allow the boot up screen options to be modified between POST messages or OEM logo. The Optimal and Fail-Safe default setting is enabled.

Option	Description
Disabled	Set this value to allow the computer system to display the POST messages.
Enabled	Set this value to allow the computer system to display the OEM logo. This is the default setting.

4.3 Add-on ROM Display Mode

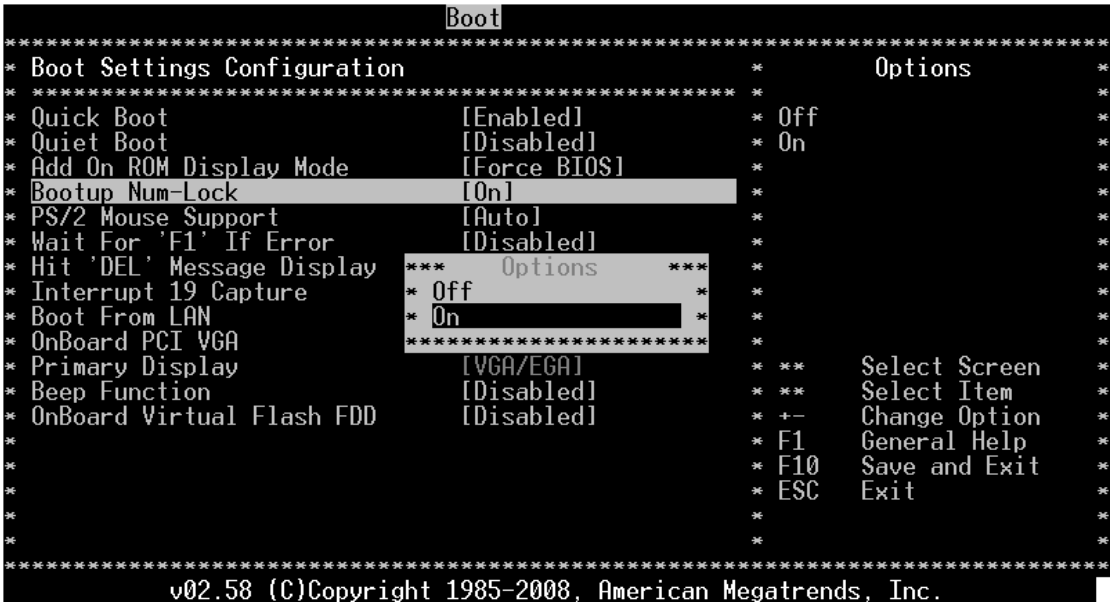
Set this option to display add-on ROM (read-only memory) messages. The Optimal and Fail-Safe default setting is Force BIOS. An example of this is a SCSI BIOS or VGA BIOS.

Option	Description
Force BIOS	Set this value to allow the computer system to force a third party BIOS to display during system boot. This is the default setting.
Keep Current	Set this value to allow the computer system to display the ezPORT information during system boot.



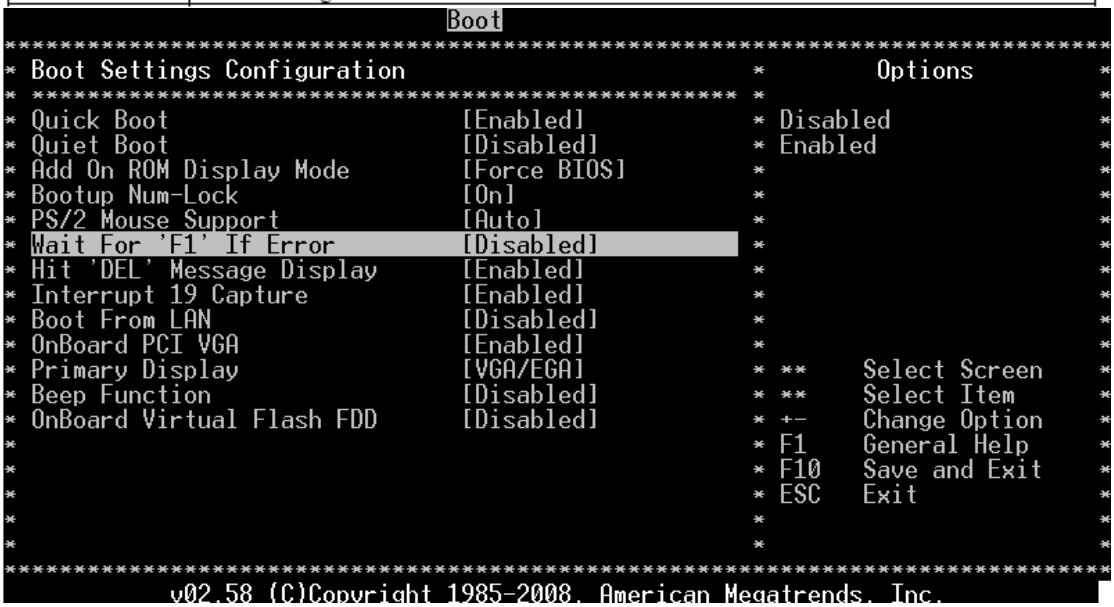
4.4 Bootup Num-Lock

Option	Description
Off	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.
On	Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.



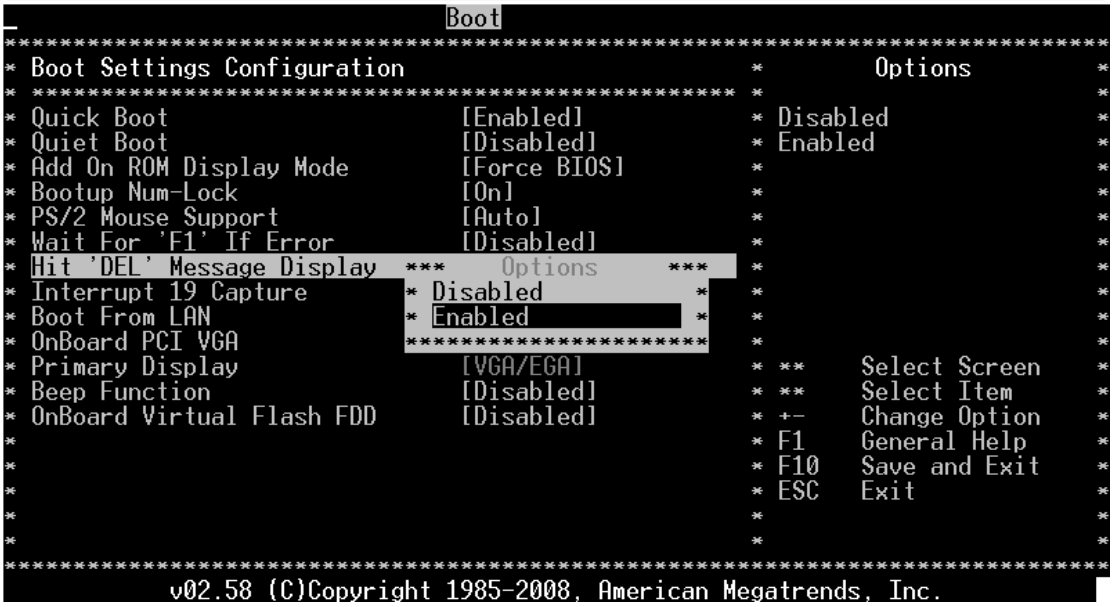
4.5 Wait For “F1” If Error

Option	Description
Disabled	This prevents the ezPORT to wait on an error for user intervention. This setting should be used if there is a known reason for a BIOS error to appear. An example would be a system administrator must remote boot the system. The computer system does not have a keyboard currently attached. If this setting is set, the system will continue to boot up in to the operating system. If ‘F1’ is enabled, the system will wait until the BIOS setup is entered.
Enabled	Set this value to allow the system BIOS to wait for any error. If an error is detected, pressing <F1> will enter Setup and the BIOS setting can be adjusted to fix the problem. This normally happens when upgrading the hardware and not setting the BIOS to recognize it. This is the default setting.



4.6 Hit “DEL” Massage Display

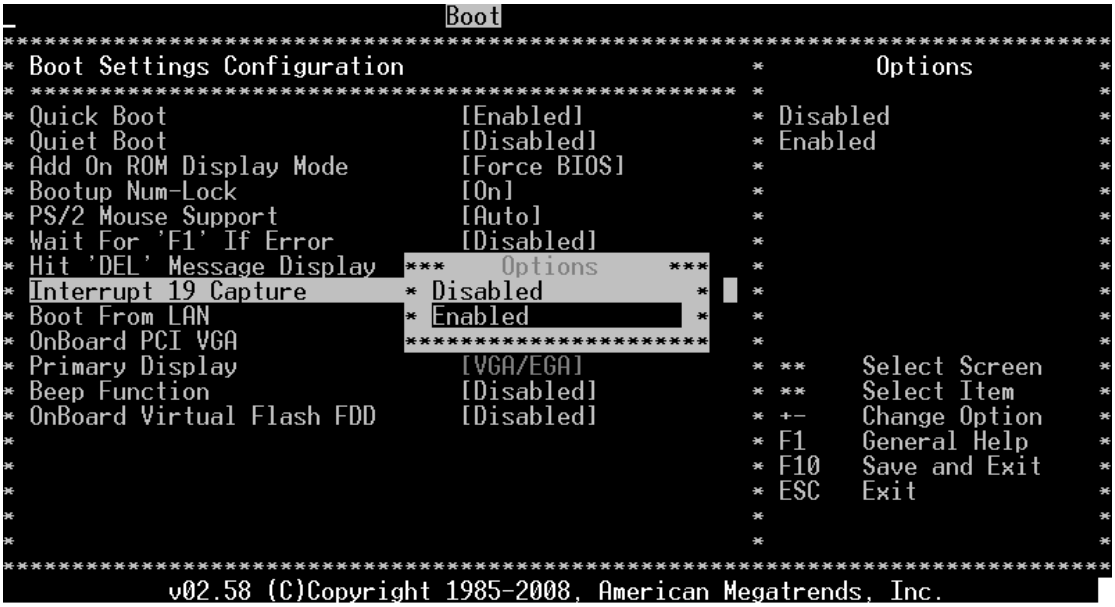
Option	Description
Disabled	This prevents the ezPORT to display Hit Del to enter Setup during memory initialization. If Quiet Boot is enabled, the Hit ‘DEL’ message will not display.
Enabled	This allows the ezPORT to display Hit Del to enter Setup during memory initialization. This is the default setting.



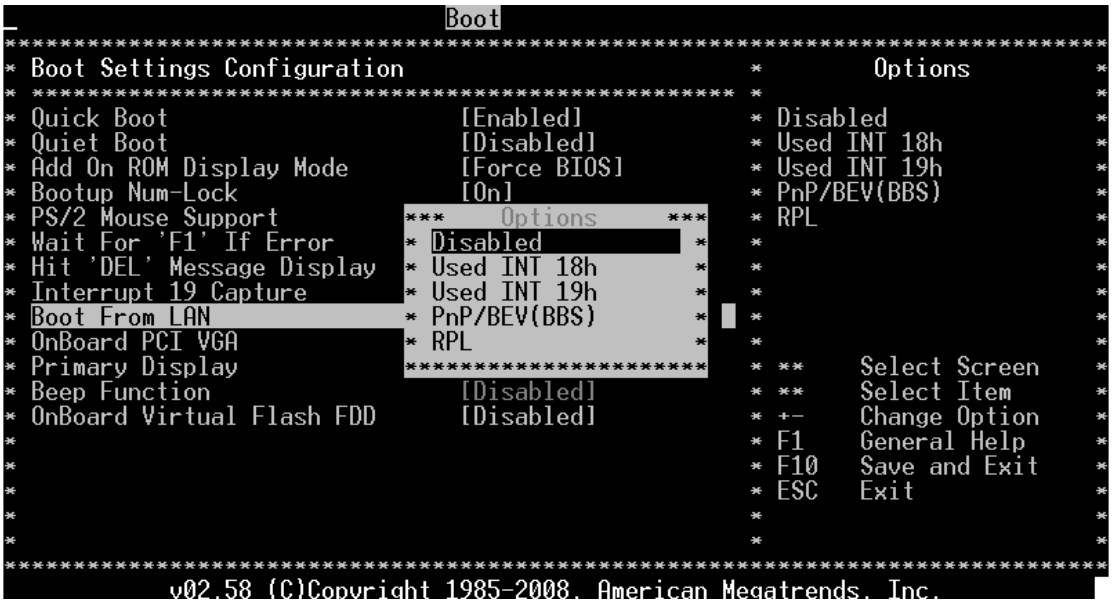
4.7 Interrupt 19 Capture

Set this value to allow option ROMs such as network controllers to trap BIOS interrupt 19.

Option	Description
Disabled	The BIOS prevents option ROMs from trapping interrupt 19.
Enabled	The BIOS allows option ROMs to trap interrupt 19.

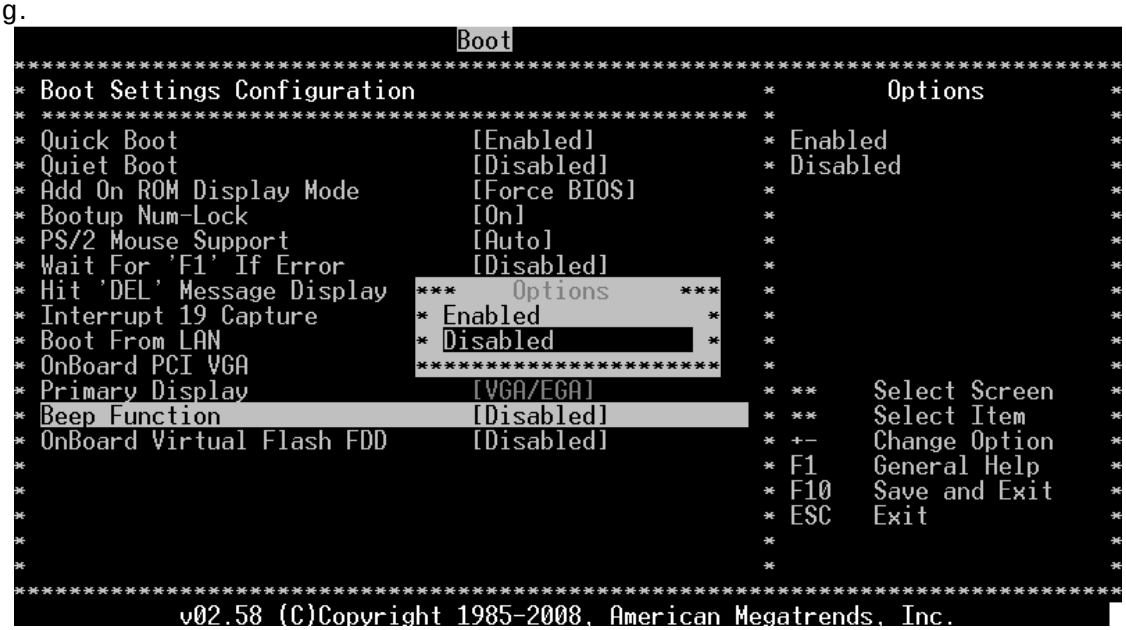


4.8 Boot From LAN



4.9 Beep Function

Set this value to allow the system to enable or disable generating a beep after a successful posting.



4.10 OnBoard Virtural Flash FDD

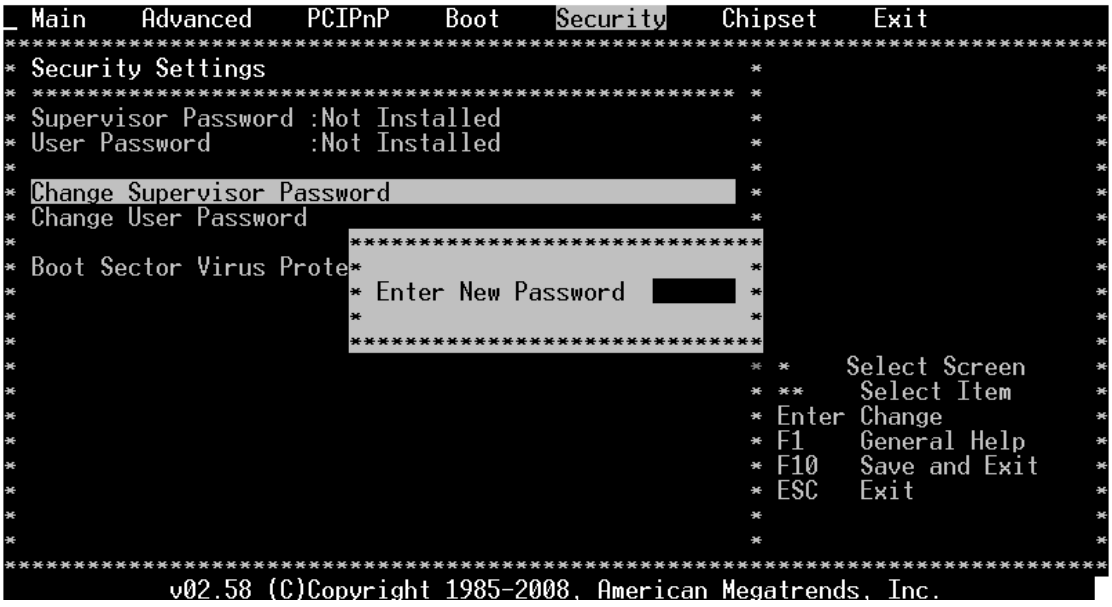
This allows you to “Enable” or “Disable” the onboard SPI FLASH-DISK

.

4.11 Boot Device Priority

5 Securities

5.1 Change Supervisor Password



5.2 Change User Password

5.3 Boot Sector Virus Protection

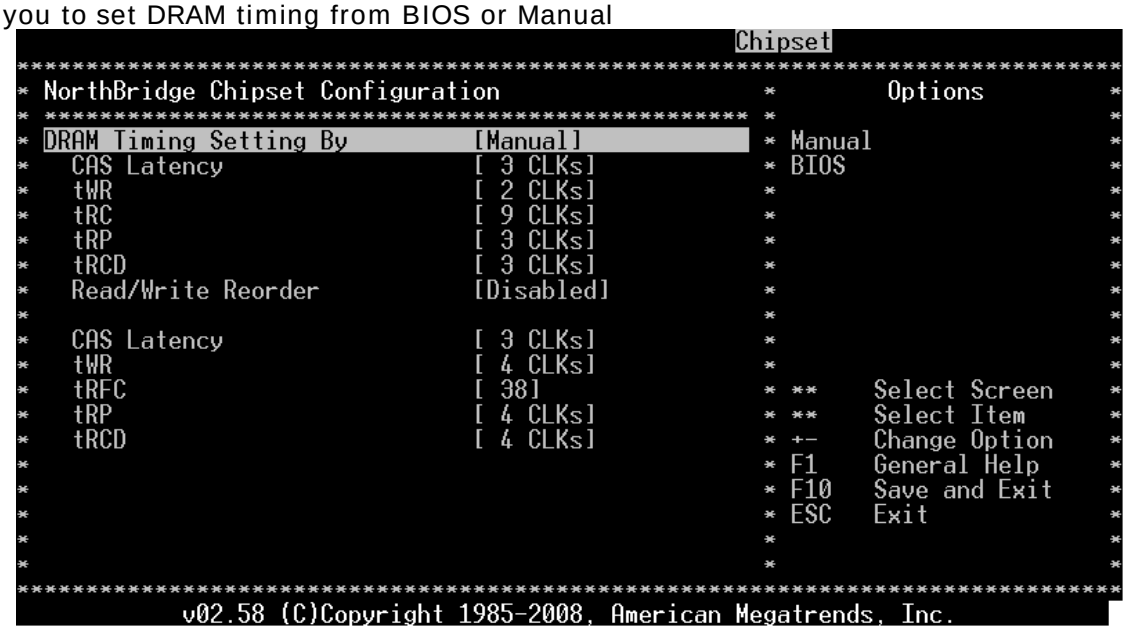
Option	Description
Disabled	Set this value to prevent the Boot Sector Virus Protection. This is the default setting.
Enabled	Select Enabled to enable boot sector protection. ezPORT displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. If enabled, the following appears when a write is attempted to the boot sector. You may have to type N several times to prevent the boot sector write. Boot Sector Write! Possible VIRUS: Continue (Y/N)? _ The following appears after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard disk drive Service: Format!!! Possible VIRUS: Continue (Y/N)? _

6 Chipset

6.1 NorthBridge Configuration

6.1.1 DRAM Timing Setting By

Allow you to set DRAM timing from BIOS or Manual



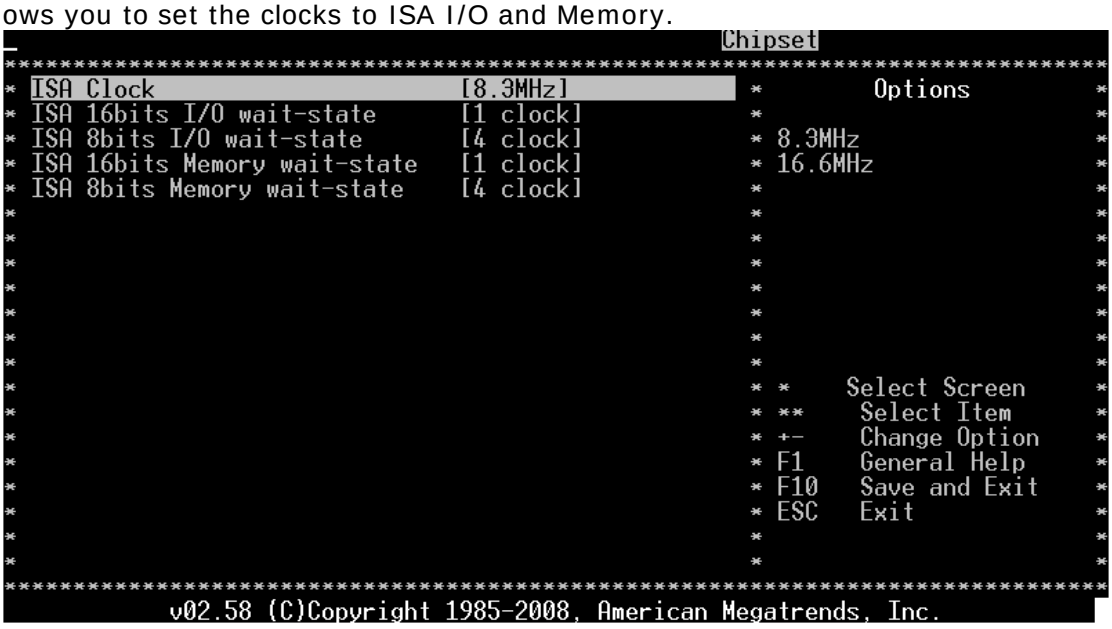
6.2 SouthBridge Configuration

6.2.1 P.O.S.T. Forward, To

This allow you to set the P.O.S.T. Forward to COM1.

6.2.2 ISA Configuration

This allows you to set the clocks to ISA I/O and Memory.



6.2.3 Serial/Parallel Port Configuration

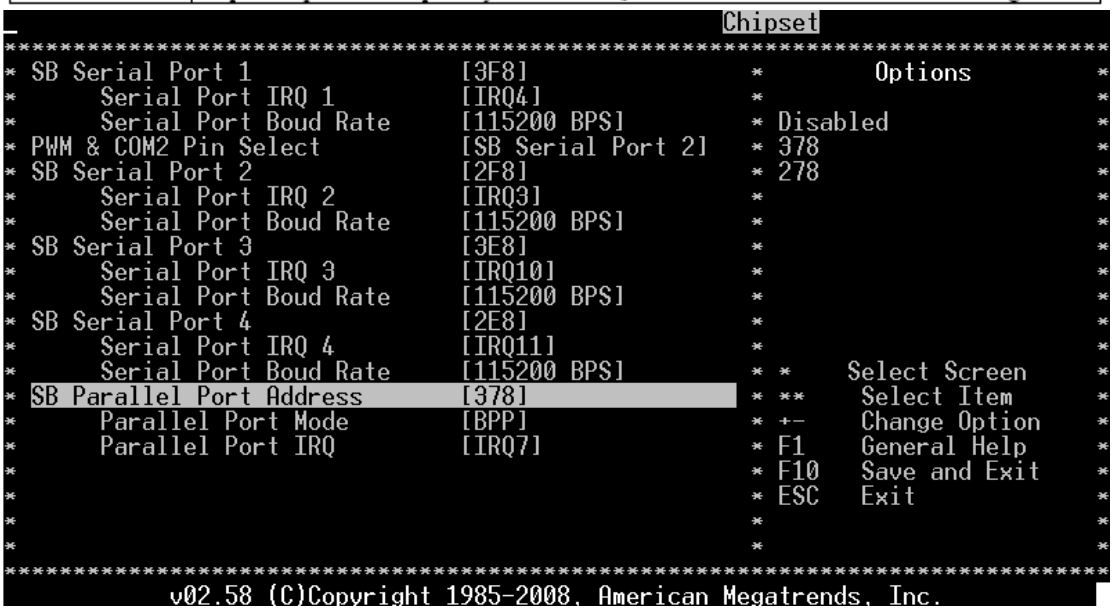
This option specifies the address/mode/IRQ for serial, parallel ports.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.
3F8/IRQ4	Set this value to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. This is the default setting. The majority of serial port 1 or COM1 ports on computer systems use IRQ4 and I/O Port 3F8 as the standard setting. The most common serial device connected to this port is a mouse. If the system will not use a serial device, it is best to set this port to *Disabled*.
2F8/IRQ3	Set this value to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to *Disabled*.
3E8/IRQ4	Set this value to allow the serial port to use 3E8 as its I/O port address and IRQ 4 for the interrupt address. If the system will not use a serial device, it is best to set this port to *Disabled*.
2E8/IRQ3	Set this value to allow the serial port to use 2E8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to *Disabled*.

Option	Description
Disabled	Set this value to prevent the parallel port from accessing any system resources. When the value of this option is set to *Disabled*, the printer port becomes unavailable.
378	Set this value to allow the parallel port to use 378 as its I/O port address. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.
278	Set this value to allow the parallel port to use 278 as its I/O port address.

Option	Description
Normal	Set this value to allow the standard parallel port mode to be used. This is the default setting.
Bi-Directional	Set this value to allow data to be sent to and received from the parallel port.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bi-directional communication.

Option	Description
5	Set this value to allow the serial port to use Interrupt 3.
7	Set this value to allow the serial port to use Interrupt 7. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.



6.2.4 WatchDog Configuration

This option allows a SBC to detect an application failure.

Watchdog Signal Select

This defines the action that will be undertaken once the watchdog has timed out. The action can be either RESET, NMI or to signal on IRQ 3/4/5/6/7/9/10/11/12/14/15.

Watchdog Timer

Time-out period can be set as1/2/4/8/16/32/64/128/256 seconds. The watchdog timer is a decreased timer. If set to 16 seconds, it will count down to 0 and invoke a RESET, NMI or IRQ. During the countdown period, if the watchdog receives a reset signal, it aborts the countdown and starts a new countdown sequence from 16.

.

6.2.5 Multi-funtion Port Configuration

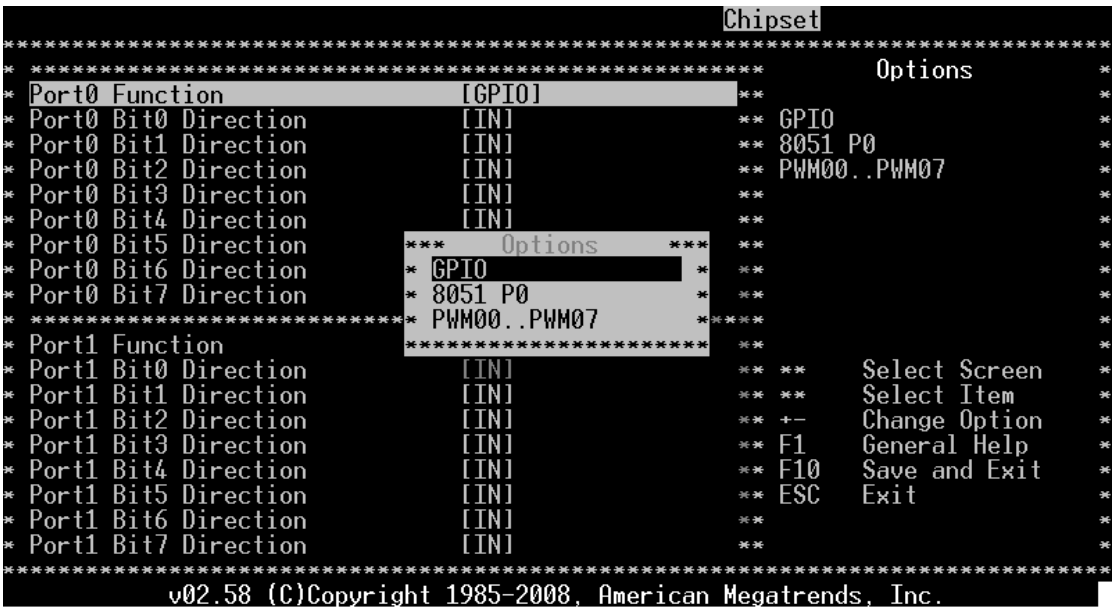
Generally, GPIO and PWM share the same outputs/ports routed from SoC. Thus, a pin-selecting function is built into BIOS settings to determine the physical modes of the ports.

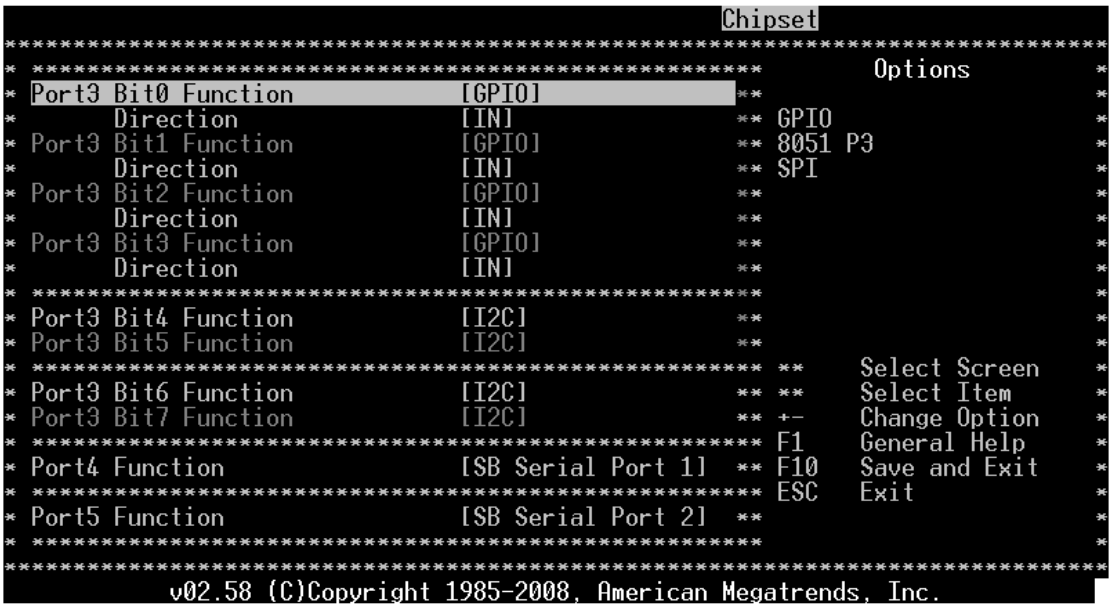
Moreover, logically, VDX series supports 32 channels PWM and 40 channels GPIO. However, in real appliances, it depends whether these ports are physically routed from SoC to external connectors or not.

The I/O port sharing mechanism is as the below table.

Port	Sharing
PORT0 bit0~7	GPIO0~7/8051 P0/PWM0~7
PORT1 bit0~7	GPIO8~15/8051 P1/PWM8~15
PORT2 bit0~7	GPIO16~23/8051 P1/PWM16~23
PORT3 bit0~3	GPIO24~27/8051 P3/SPI
PORT3 bit4~5	GPIO28~29/I^2C
PORT3 bit6~7	GPIO30~31/I^2C
PORT4 bit0~7	GPIO32~40/PWM24~31/SB Serial Port 1
PORT5 bit0~7	SB Serial Port 2/8254 Timer Counter

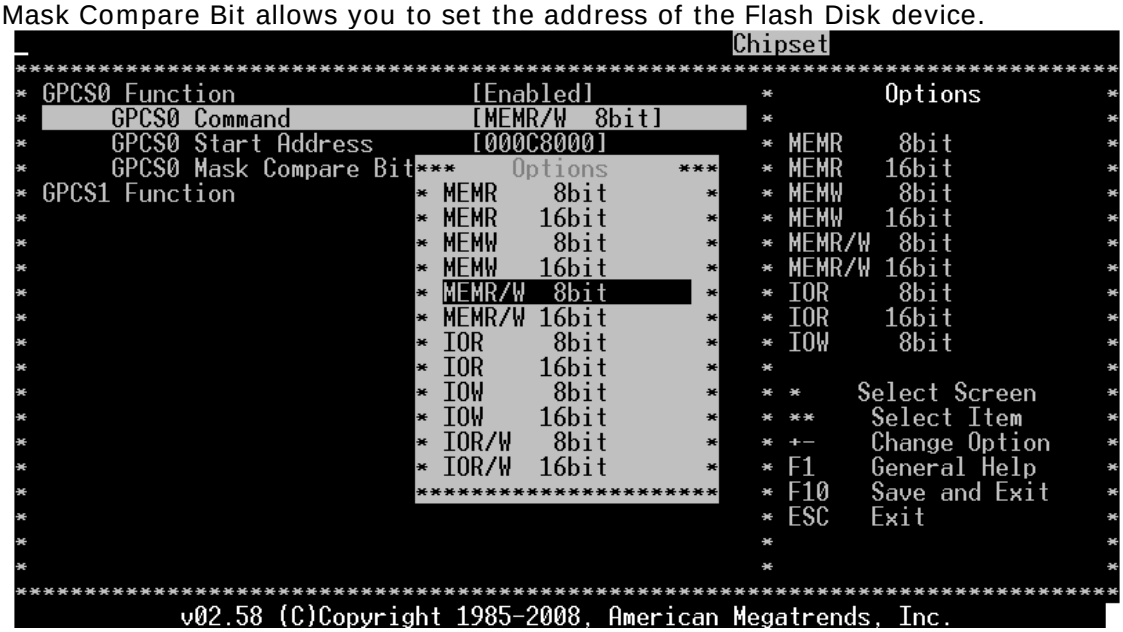
.


Chipset
Port0 Function [GPIO]
Port0 Bit0 Direction [IN]
Port0 Bit1 Direction [IN]
Port0 Bit2 Direction [IN]
Port0 Bit3 Direction [IN]
Port0 Bit4 Direction [IN]
Port0 Bit5 Direction [IN]
Port0 Bit6 Direction [IN]
Port0 Bit7 Direction [IN]
Port1 Function
Port1 Bit0 Direction [IN]
Port1 Bit1 Direction [IN]
Port1 Bit2 Direction [IN]
Port1 Bit3 Direction [IN]
Port1 Bit4 Direction [IN]
Port1 Bit5 Direction [IN]
Port1 Bit6 Direction [IN]
Port1 Bit7 Direction [IN]
Options
GPIO
8051 P0
PWM00..PWM07
Options
GPIO
8051 P0
PWM00..PWM07
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2008, American Megatrends, Inc.


Chipset
Port3 Bit0 Function [GPIO]
Direction [IN]
Port3 Bit1 Function [GPIO]
Direction [IN]
Port3 Bit2 Function [GPIO]
Direction [IN]
Port3 Bit3 Function [GPIO]
Direction [IN]
Port3 Bit4 Function [I2C]
Port3 Bit5 Function [I2C]
Port3 Bit6 Function [I2C]
Port3 Bit7 Function [I2C]
Port4 Function [SB Serial Port 1]
Port5 Function [SB Serial Port 2]
Options
GPIO
8051 P3
SPI
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2008, American Megatrends, Inc.

6.2.6 GPCS Configuration

This option allows you to set address for Flash Disk devices as below.
GPCS Start Address sets the beginning of GPCS address.
GPCS Mask Compare Bit allows you to set the address of the Flash Disk device.



6.2.7 Redundancy Control Configuration

The mechanism of redundancy can provide extraordinary reliability towards a computing environment where it may easily cause system failure. For example, a system which serves military purposes should never fail. Through a duplication/slave device to the master device below, the slave device can constantly backup vital runtime information from master device. Therefore, once the master is down, the slave shoulders the responsibility, continuously carries on the execution of application, and replaces the master device. Moreover, if the failure one is back to live, the wakened one, previously master, automatically becomes a slave device.

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Options	Description
WatchDog0 Condition	If mechanism of WatchDog0 is enable and this option, 'WatchDog0 Condition' is enable as well, any events occurred from WatchDog0 will trigger the mechanism of redundancy.
WatchDog1 Condition	Same as the description of 'WatchDog0 Condition'
Invalid OPCODE Condition	If CPU operates any invalid OPCode, it will trigger the mechanism of redundancy.
KB/MS System Fail	If Keyboard or mouse falls, it will trigger the mechanism of redundancy.
GPIO PORT0 System Fail	GPIO POR0 can be tri-state/floating, once the mechanism of redundancy is triggered.
GPIO PORT1 System Fail	Same as the description of 'GPIO PORT0 System Fail'
GPIO PORT2 System Fail	Same as the description of 'GPIO PORT0 System Fail'
LPT PORT System Fail	Same as the description of 'GPIO PORT0 System Fail'
UART1 System Fail	Same as the description of 'GPIO PORT0 System Fail'
UART2 System Fail	Same as the description of 'GPIO PORT0 System Fail'
UART3 System Fail	Same as the description of 'GPIO PORT0 System Fail'
UART4 System Fail	Same as the description of 'GPIO PORT0 System Fail'

7 Exit


Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
* Select Screen
** Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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