

EPIC-25 BIOS Setup - Part 1

This article and **VT1704 - EPIC-25 BIOS Setup - Part 2** provide reference information and tips for setting BIOS Setup parameters on the VL-EPIC-25 (Iguana). Start BIOS Setup by pressing Delete or F2 after hearing the Console Available Beep, or during the early boot cycle. The Main menu appears first. You can scroll to other menus using the left and right arrow keys. The BIOS Setup menus are:

- [Main Menu](#)
- [Advanced Menu](#)
 - [VersaLogic Features](#)
 - [PCI Subsystem Settings](#)
 - [PCI Express Settings](#)
 - [ACPI Settings](#)
 - [CPU Configuration](#)
 - [IDE Configuration](#)
 - [Intel Integrated Graphics Device](#)
 - [USB Configuration](#)
 - [Super I/O Configuration](#)
 - [Serial Port x Configuration](#)
 - [H/W Monitor](#)
 - [Serial Port Console Redirection](#)
 - [Console Redirection Settings](#)
- [Chipset Menu](#)
 - [Host Bridge](#)
 - [Memory Frequency and Timing](#)
 - [OnChip VGA Configuration](#)
 - [South Bridge](#)
- [Boot Menu](#)
- [Security Menu](#)
- [Save & Exit Menu](#)

The basic idea when using BIOS Setup is to navigate to the menus containing fields you want to review, and change those fields as desired. When your settings are complete, navigate to the Save & Exit menu, and select “Save Changes and Exit.” This causes the settings to be stored in nonvolatile memory in the system, and the system will reboot so that POST can configure itself with the new settings.

Once an operating system boots, BIOS Setup is no longer available. To reenter BIOS Setup after boot, simply reset the system or power off and power back on.

Note: The configurations and factory defaults described here are for VL-EPIC-25 BIOS version 1.02.

Main Menu

The Main menu displays BIOS, processor, and memory information and edits the system date and time. A record of system faults and MTBF is also displayed.



EPIC-25 BIOS Information	
BIOS Vendor	American Megatrends
Core Version	4.6.4.1
Compliance	UEFI 2.1
VersaLogic BIOS Version	1.02
BIOS Tag	LNAPR
BIOS Part Number	ZY-IP-1058
Build Date and Time	09/20/2012 11:41:58
<u>System Language</u>	[English]
<u>System Date</u>	[Sat 01/01/2012]
<u>System Time</u>	[13:57:23]
Access Level	Administrator

System Language

The system language is set to English and cannot be changed.

System Date and Time

The system date and time are editable. The V3 RTC Reset jumper will reset the date to 1/01/2011, but will not affect the time.

Advanced Menu

The Advanced menu provides access to configuration sub-menus and enables or disables Legacy OpROM support.

```
|
| Legacy OpROM Support
| Launch PXE OpROM [Disabled]
| Launch Storage OpROM [Enabled]
|
|> VersaLogic Features
|> PCI Subsystem Settings
|> ACPI Settings
|> CPU Configuration
|> IDE Configuration
|> Intel Integrated Graphics Device
|> USB Configuration
|> Super IO Configuration
|> H/W Monitor
|> Serial Port Console Redirection
|
```

Launch PXE OpROM

Values: Enabled, Disable

Enables or disables the boot option for legacy network devices. When disabled, PCI Option ROMs (BIOS extensions) with an Ethernet class code will not load.

Launch Storage OpROM

Values: Enabled, Disabled

Enables or disables the boot option for legacy mass storage devices with an option ROM. When disabled, PCI Option ROMs (BIOS extensions) with an IDE Controller class code will not load.

VersaLogic Features

The VersaLogic Features menu provides FPGA information and provides access to PCIe Mini Card settings.

FPGA Revision	02
FPGA Flags	ETEMP BETA
BIOS Select (V5[1-2])	Primary
Mini Card slot (J13)	[Pin 43 or 51 mSATA...]
Mini Card clock ctrl	[Use CLKREQ#]

Mini Card slot (J13)

Values: Pin 43 or 51 mSATA Detect, Pin 43 mSATA Detect, Pin 51 mSATA Detect, Force PCIe Mini Card Mode, Force mSATA SSD mode

Sets the detect method or function of the J13 PCIe Mini Card / mSATA interface. The Mini Card slot J13 can support either a PCIe Mini Card or an mSATA module. The mSATA specifications states that Pin 51 on the connector can be used to automatically detect an mSATA module. But some modules also use Pin 43 due to conflicts on Pin 51. Almost all modules will be correctly detected by using the setting of Pin 43 or Pin 51 mSATA Detect, but there may be cases on older or non-standard modules where more specific settings are required (including forcing the slot to always be a PCIe Mini Card or an mSATA module).

Mini Card clock ctrl

Values: Use CLKREQ#, Always on



Determines whether the PCIe clock is always provided to the Mini Card slot or dependent on the CLKREQ# signal. A PCIe Mini Card requires a reference clock. The PCIe Mini Card specification states that this clock shall be enabled by the reference clock request signal (CLKREQ# on pin 7) output from the module. But some non-standard modules do not supply this signal. If one of these non-standard modules are used, then the CLKREQ# BIOS setting needs to be set to Always On to turn on the reference clock for these modules. This setting does not apply to mSATA modules because they do not use a reference clock.

PCI Subsystem Settings

This menu provides access to PCI subsystem settings. PCI Express common and device settings are primarily for troubleshooting and are defined in the Intel PCI Express 1.0 specification.

+ ----- +		
PCI Bus Driver Version	V 2.04.01	
PCI Option ROM Handling		
PCI ROM Priority	[EFI Compatible ROM]	
PCI Common Settings		
PCI Latency Timer	[32 PCI Bus Clocks]	
VGA Palette Snoop	[Disabled]	
PERR# Generation	[Disabled]	
SERR# Generation	[Disabled]	
> PCI Express Settings		
+ ----- +		

PCI ROM Priority

Values: EFI Compatible ROM, Legacy ROM

A PCI device may have both a UEFI and Legacy Option ROM installed. Selects which Option ROM should have priority.

PCI Latency Timer

Values: 32, 64, 96, 128, 160, 192, 224, 248 PCI Bus Clocks

Sets the value to be programmed into the PCI Latency Timer register, affecting how much time a parallel PCI bus master can hold the bus and maximize throughput, potentially delaying other devices waiting for bus ownership. The latency timer does not apply to PCI Express devices.

VGA Palette Snoop

Values: Enabled, Disabled



Enables or disables VGA Palette Snoop for add-on display cards. VGA Palette Snooping for on-board Intel graphics is always disabled.

PERR# Generation

Values: Enabled, Disabled

Disable to suppress the PCI bridge data parity error generation capability.

SERR# Generation

Values: Enabled, Disabled

Disable to suppress the PCI bridge system error generation capability.

PCI Express Settings

This menu provides access to PCI Express device and link register settings.

+ -----+	
PCI Express Device Register Settings	
Relaxed Ordering	[Disabled]
Extended Tag	[Disabled]
No Snoop	[Enabled]
Maximum Payload	[Auto]
Maximum Read Request	[Auto]
PCI Express Link Register Settings	
ASPM Support	[Disabled]
WARNING: Enabling ASPM may cause some	
PCI-E devices to fail	
Extended Synch	[Disabled]
Link Training Retry	[5]
Link Training Timeout (uS)	100
Unpopulated Links	[Keep Link ON]
+ -----+	

Relaxed Ordering

Values: Enabled, Disabled

Enables or disables PCIe device relaxed ordering of PCI Express traffic through switches and the Root Complex.

Extended Tag

Values: Enabled, Disabled



Enables or disables Extended Tag. If enabled allows device to use 8-bit tag field in the Requester Transaction ID field. If Disabled, only 5 bits may be used, limiting the maximum number of outstanding Requests per Function to 32.

No Snoop

Values: Enabled, Disabled

Enables or disables the PCIe device No Snoop attribute of PCI Express traffic Refer to the PCI Express 1.0 specification.

Maximum Payload

Values: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes

Sets the maximum data payload size that a PCI Express device may transmit within a Transaction Layer Packet.

Maximum Read Request

Values: Auto, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, 4096 Bytes

Sets the maximum data payload size that a PCI Express device may request within a Transaction Layer Packet.

ASPM Support

Values: Disabled, Auto, Force L0s

Configures Active State Power Management, which can power down a link to a PCIe device even when the device is in a full power state. Forcing to L0s will keep the links powered up at all times, regardless of device presence.

Extended Synch

Values: Enabled, Disabled

Enabling this setting allows generation of extended synchronization patterns, which may help to allow logic analyzers to achieve symbol lock before the link changes power states and resumes communication.

Link Training Retry

Values: Disabled, 2, 3, 5

Sets or disables the number of retry attempts software will take to retrain the link if the first training attempt was unsuccessful.



Link Training Timeout (uS)

Values: 100, 110, 120, ... 1000

Sets the number of microseconds software will wait before polling the link training bit in the Link Status register.

Unpopulated Links

Values: Keep Link ON, Disable Link

If set to "Disable Link," software will disable unpopulated PCIe links to save power.

ACPI Settings

This menu provides access to ACPI settings.

+ ----- +	
ACPI Settings	
Enable ACPI Auto Configuration	[Disabled]
Enable Hibernation	[Enabled]
ACPI Sleep State	[S3 (Suspend to RAM)]
Lock Legacy Resources	[Disabled]
+ ----- +	

Enable ACPI Auto Configuration

Values: Enabled, Disabled

Enables or disables BIOS ACPI Auto Configurations. When enabled, the following two parameters are hidden.

Enable Hibernation

Values: Enabled, Disabled

Enables or disables the system's ability to hibernate (S4 Sleep State). The setting of this option may have no effect with some operating systems.

ACPI Sleep State

Values: S3 (Suspend to Ram), S1 (CPU Stop Clock), Suspend Disabled

Selects the highest ACPI Sleep State the system will enter when the power button is pressed.



Lock Legacy Resources

Values: Enabled, Disabled

Enables or disables locking of legacy resources.

CPU Configuration

The CPU Configuration menu sets CPU parameters.

+ -----+	
CPU Configuration	
Processor Type	Intel(R) Atom(TM) CPU
EMT64	Supported
Processor Speed	1800 MHz
System Bus Speed	800 MHz
Ratio Status	9
Actual Ratio	9
Processor Stepping	106ca
Microcode Revision	263
L1 Cache RAM	56 k
L2 Cache RAM	512 k
Processor Core	Single
Hyper-Threading	Supported
Hyper-Threading	[Enabled]
Execute Disable Bit	[Enabled]
Limit CPUID Maximum	[Disabled]
C-States	[Enabled]
+ -----+	

Hyper-Threading

Values: Enabled, Disabled

Enables or disables hyper-threading. This should be enabled for Windows XP and Linux (operating systems optimized for hyper-threading technology) and disabled for other operating systems that are not optimized.

Execute Disable Bit

Values: Enabled, Disabled

Enables or disables the Execute Disable bit, allowing data memory to be unusable as instruction memory and improving security.

Limit CPUID Maximum



Values: Enabled, Disabled

Enables or disables CPUID maximum. For Windows XP, this parameter is disabled.

C-States

Values: Enabled, Disabled

Enables or disables C2 and above. If disabled, the CPU remains at C0, full power.

IDE Configuration

The IDE Configuration menu sets IDE parameters and provides links to the IDE Master and Slave Configuration sub-menus. The Secondary IDE Master and Slave sub-menus have no function because the EPIC-17 has only one IDE controller.

PATA Master (CompactFlash)	Not Present
PATA Slave	Not Implemented
SATA Port0 (J11)	ST380811AS (80.0G
SATA Port1 (J12)	Not Present
SATA Port2 (J13 mSATA Module)	Not Present
ATA (IDE) Controller Mode	[Enhanced]
Configure SATA As	[IDE]
Misc Configuration for hard disk	
HDD Automatic Acoustic Management	[Disabled]
DiPM	[Disabled]

ATA (IDE) Controller Mode

Values: Enhanced, Disabled, Compatible

Sets the ATA (IDE) controller mode. When disabled, ATA controllers are disabled in PCI space. When set to Compatible, IDE channels are limited to two and the [Legacy IDE Channels parameter](#) appears. In Enhanced mode, all PATA and SATA device channels are available.

Configure SATA As

Values: IDE, AHCI

Sets the SATA controller mode. Note that the PCI device ID of the controller changes, and different OS drivers may be required when switching between IDE controller modes. When set to AHCI, the [Portx Speed Limit parameter](#) appears.



Portx Speed Limit

Values: No Limit, GEN1 Rate, GEN2 Rate

Sets the port AHCI speed limit. This parameter appears when Configure SATA As is set to AHCI. The EPIC-25 supports GEN2 speeds, at 3.0 Gb/s (300 MB/s).

Legacy IDE Channels

Values: SATA Only; SATA Pri, PATA Sec; PATA Only

Sets the legacy IDE channel configuration. This parameter appears when ATA Or IDE Configuration is set to Compatible. As only two IDE channels are available, the user must select between an unavailable PATA or an unavailable SATA channel.

HDD Automatic Acoustic Management

Values: Enabled, Disabled

Enables or disables Automatic Acoustic Management (AAM), trading drive performance and noise level. When enabled, the [HDD Acoustic Mode parameter](#) appears.

HDD Acoustic Mode

Values: Bypass, Quiet, Max Performance

Sets the HDD acoustic mode, letting the user select between a quieter or slightly higher performing drive. This parameter appears when HDD Acoustic Power Management is enabled.

DiPM

Values: Enabled, Disabled

Enables or disables Device-initiated Power Management (DiPM), allowing a SATA drive to initiate power down of the SATA link. AHCI controller mode is required for DiPM.

Intel Integrated Graphics Device

This menu sets video channel parameters.

```
+ -----+
| Intel Integrated Graphics Configuration |
| |
| DVMT Mode Select | [DVMT Mode] |
| DVMT/FIXED Memory | [256MB] |
| IGD - Boot Type | [CRT + LFP] |
| LCD Panel Type | [1024x768 LVDS] |
| Panel Scaling | [Auto] |
| BIA Control | [VBIOS Default ] |
```

	Spread Spectrum clock Chip	[Off]	
	Active LFP	[Int-LVDS]	
+	-----	-----	+

DVMT Mode Select

Values: DVMT Mode, Fixed Mode

Sets the Dynamic Video Memory Technology (DVMT) mode. DVMT mode dynamically allocates system memory for use as video memory. Fixed memory will be dedicated to the on-board graphics device. Feature is dependent upon OS graphics driver support.

DVMT/FIXED Memory

Values: 128MB, 256MB, Maximum

Sets the amount of system memory that can be used for video memory. Maximum setting will automatically set the maximum amount based on the installed memory size.

IGD - Boot Type

Values: CRT + LFP, CRT, LFP

Sets the video device activated during POST. This setting has no effect if an external graphics device is present.

LCD Panel Type

Values: 1024x768 LVDS, 1280x800 LVDS, 1280x600 LVDS, 640x480 LVDS, 800x600 LVDS

Sets the LCD panel type used by the Internal Graphics Device.

Panel Scaling

Values: Auto, Forced Scaling, Off, Maintain Aspect Ratio

Sets the LCD panel scaling mode used by the Internal Graphics Device. Affects how a text or graphical display mode that does not match the LCD panel type will scale up or down.

BIA Control

Values: VBIOS Default, Disable, Level 1-5

Sets or disables the Backlight Image Adaptation mode.



Spread Spectrum clock Chip

Values: Off, Hardware, Software

Sets the spread spectrum clock chip mode for the internal graphics. If set to Hardware, the spread is set by hardware defaults. If set to Software, the spread is controlled by the video BIOS.

Active LFP

Values: Int-LVDS, No LVDS

Not supported. Use the IGD – Boot Type option.

USB Configuration

The USB menu configures the USB controller.

+ ----- +	
USB Configuration	
USB Devices:	
1 Drive, 1 Keyboard	
Legacy USB Support	[Enabled]
EHCI Hand-off	[Disabled]
USB hardware delays and time-outs:	
USB transfer time-out	[20 sec]
Device reset time-out	[20 sec]
Device power-up delay	[Auto]
Mass Storage Devices	
Kingston Data Traveler G3 1.00	[Auto]
+ ----- +	

Legacy USB Support

Values: Enabled, Disabled, Auto

Enables or disables the BIOS emulation of USB keyboards and USB mass storage devices as legacy PS/2 keyboards, mice and ATA hard drives, primarily for use in DOS and pre-OS environments. BIOS Setup and EFI applications will recognize USB devices regardless of this setting, and USB controllers and ports will always be available for use by OS drivers. Auto will enable Legacy USB Support when booting to a legacy (non-UEFI) OS while a USB keyboard/mouse or mass storage device is attached.

EHCI Hand-Off



Values: Enabled, Disabled

Enables or disables a workaround for OSes with limited EHCI Hand-Off support. This parameter should normally be set to Disabled.

USB transfer time-out

Values: 20 sec, 1 sec, 5 sec, 10 sec

Sets the USB transfer timeout value for control, bulk, and interrupt transfers.

Device reset time-out

Values: 20 sec, 30 sec, 40 sec, 10 sec

Sets the timeout periods for USB device initialization and the Start Unit command to enable mass storage access operations.

Device power-up delay

Values: Auto, Manual

Selects the time allowed for devices to report themselves to the Host Controller, including through USB hubs. When set to Auto, root port devices will be given 100 ms, while devices connected to hubs will be given time as specified in the Hub descriptor. When this parameter is set to Manual, a delay from 1 to 40 seconds can be selected. The default is 5 seconds.

Mass Storage Device

Values: Auto, Floppy, Forced FDD, Hard Disk, CD-ROM

Sets the mass storage device emulation type. The Auto setting enumerates devices according to their media format. Optical drives are emulated as CD-ROM. Drives with no media will be emulated according to a drive type.

Super I/O Configuration

The Super I/O Configuration menus configure the serial ports.

```
+ -----+
| Super IO Configuration|
|
| Super IO Chip          SMSC SCH3114|
|> Serial Port 0 Configuration|
|> Serial Port 1 Configuration|
|> Serial Port 2 Configuration|
|> Serial Port 3 Configuration|
|
|
```

Serial Port Configuration

The parameters for each serial port are set on its own menu.

Serial Port x Configuration	
Serial Port x	[Enabled]
Device Settings	IO=3F8h; IRQ=4;
I/O Base Address	[IO=3F8h]
IRQ	[IRQ=4]
Device Mode	[Normal]
Transceiver Mode (Port x)	[RS-232 4-wire]

Serial Port x

Values: Enabled, Disabled

Enables or disables a serial port. When set to disabled, the remaining parameters are hidden.

I/O Base Address

Values: IO=3F8h, 2F8h, 3E8h, 2E8h, 200h, 208h, 220h, 228h, 238h, 338h

Sets the serial port base I/O address.

IRQ

Values: IRQ=3, 4, 5, 6, 7, 10, 11, 12

Selects the IRQ initially assigned to the serial port. Auto-routing will be used in the event of a conflict.

Device Mode

Values: Normal, High Speed

Sets the serial port device mode. High speed mode (faster than 115200 baud) requires OS driver support.

Transceiver Mode (Port x)

Values: RS-232 4-wire, RS-422, RS-485



Sets the serial port transceiver mode. Auto flow control is enabled in RS-485 mode. A transceiver mode change may require a termination jumper change. See the [EPIC-25 Reference Manual](#).

H/W Monitor

This screen provides information on hardware status.

+ ----- +	
Hardware Monitor	
CPU Diode Temperature	: +49 C
Super I/O Diode Temperature	: +29 C
Approx CPU deg C to therm shutdown	: +66 C
CPU Fan Speed	: 5527 RPM
+1.5V (DDR3)	: +1.51 V
+1.05V (CPU/ICH)	: +1.05 V
+3.3V (SIO VCC)	: +3.25 V
+5.0V (ATX Supply)	: +4.92 V
+3.3V (SIO VTR/trickle)	: +3.28 V
+2.2V - 3.6V (Vbat)	: +2.71 V
+ ----- +	

Serial Port Console Redirection

This menu configures console redirection parameters.

+ ----- +	
COM0	
Console Redirection	[Disabled]
> Console Redirection Settings	
COM1	
Console Redirection	[Disabled]
> Console Redirection Settings	
COM2	
Console Redirection	[Disabled]
> Console Redirection Settings	
COM3	
Console Redirection	[Disabled]
> Console Redirection Settings	
Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS)	
Console Redirection	[Enabled]
> Console Redirection Settings	
+ ----- +	

Console Redirection

Values: Enabled, Disabled

Enables or disables console redirection on a serial port.

Console Redirection Settings

Console redirection settings for each serial port are set on a separate menu. These settings should be matched with the terminal emulation program using the serial console.

COM0	
Console Redirection Settings	
<u>Terminal Type</u>	[ANSI]
<u>Bits per second</u>	[115200]
<u>Data Bits</u>	[8]
<u>Parity</u>	[None]
<u>Stop Bits</u>	[1]
<u>Flow Control</u>	[None]
<u>VT-UTF8 Combo Key Support</u>	[Enabled]
<u>Recorder Mode</u>	[Disabled]
<u>Resolution 100x31</u>	[Disabled]
<u>Legacy OS Redirection Resolution</u>	[80x24]
<u>Putty KeyPad</u>	[VT100]

Terminal Type

Values: ANSI, VT100, VT100+, VT-UTF8

Sets the console redirection terminal type.

Bits per second

Values: 115200, 9600, 19200, 57600

Sets the serial port baud rate.

Data Bits

Values: 8, 7

Sets the serial port data bits per character.



Parity

Values: None, Even, Odd, Mark, Space

Sets the console redirection parity.

Stop Bits

Values: Enabled, Disabled

Sets the serial port stop bits.

Flow Control

Values: None, Hardware RTS/CTS, Software Xon/Xoff [Windows EMS only]

Sets the serial port flow control. RTS/CTS flow control is valid only in RS-232 mode.

VT-UTF8 Combo Key Support

Values: Enabled, Disabled

Enables or disables VT-UTF8 combo key support for ANSI/VT100 terminals.

Recorder Mode

Values: Enabled, Disabled

Enables or disables recorder mode to capture terminal data.

Resolution 100x31

Values: Enabled, Disabled

Allows terminal display size of 100x31 characters. This expanded size also allows for full character dimensions for the video console when Console Redirection is enabled.

Legacy OS Redirection Resolution

Values: 80x24, 80x25

Selects between the two common early terminal screen dimensions.

Putty KeyPad

Values: VT100, LINUX, XTERMRG, SCO, ESCN, VT400



Selects FunctionKey and KeyPad on Putty.

Continued in **EPIC-25 BIOS Setup - Part 2**