



Vario L3
Small Form-Factor PC
User Guide

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Regulatory Statements

CE

This product meets the essential protection requirements of the European EMC Directive (89/336/EEC) and its amending Directives, and the Low Voltage Directive 73/23/EEC, and is eligible to bear the CE mark.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC

NOTE:

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.

WARNING:

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Safety Warning for North America

If the power lead (cord) is not supplied with the computer, select a power lead according to your local electrical regulations. In the USA use a 'UL listed' lead. In Canada use a CSA approved or 'cUL listed' lead.

Si le cordon secteur n'est pas livré avec l'ordinateur, utiliser un cordon secteur en accord avec votre code électrique nationale. En l'Etat Unis utiliser un cordon secteur 'UL listed'. En Canada utiliser un cordon secteur certifié CSA, ou 'cUL listed'.

Manual Organisation

This manual describes in detail the Vario L3 Small Form-Factor PC.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of the product.

The manual is sectioned as follows:

- Introduction;
- Overview, listing the unit's features and specification;
- Installation, including what software to install
- Layout, showing where the various connectors are located, and their pin-out details;
- How to upgrade the system;
- Bios Setup
- Maintenance details

We strongly recommend that you study this manual carefully before attempting to interface with the Vario L3 or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance. ***IT IS PARTICULARLY IMPORTANT THAT YOU READ THE SECTION 'PRECAUTIONS' BEFORE HANDLING ANY COMPONENTS INSIDE THE UNIT.***

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Technical Services department with the relevant details.

Introduction

The VARIO L3 is a powerful slim-line AMD AM2/AM3 based Personal Computer (PC) specifically designed to drive large plasma and other large displays panels. The unit is self-contained requiring as a minimum, only a power connection and a display. The applications are not limited to display applications: it may be used as a general purpose PC.

The basic unit comprises a highly integrated computer board employing either

1. AMD 780G North bridge and SB700 south bridge chipsets
2. AMD 785G North bridge and SB750 south bridge chipset

With the 780G variant there is support for memory options up to 2GB of ultra fast 800/667 MHz unbuffered ECC/ non-ECC DDR2 SODIMM SDRAM. With the 785G variant, this increases to 4GB. Storage is provided by either a Serial ATA II 3Gb/s hard disk drive or solid state storage. Solid state options include either Disk on Module or 2.5" HDD.

The integrated HD 3200 graphics (with 780G) supports Microsoft® DirectX 10.0, dual VGA out (RGB and DVI/HDMI). Meanwhile the 785G offers the HD 4200 graphics which supports Microsoft® DirectX 10.1 with the same output options. Both also provide HD Audio support via the HDMI connector. Alternatively, a Realtek ALC662-6 HD device provides HD Audio via standard Audio ports. Gigabit Ethernet is provided by the RTL 8111C device

The unit is housed in a strong sheet-steel enclosure providing both mechanical and EMC protection. The unit may be mounted on the plasma display, or separately to suit the particular installation. Mounting kits are available for specific plasma displays, wall or desktop.

Most connectors are on the front face of the chassis. There are connectors for a standard analogue VGA display, a standard Digital Display (Via HDMI or DVI connector), one serial port, four USB (2.0) ports [6 ports with the 785G], Ethernet (10/100/1Gb) LAN ports [dual ports with 780G, single port with 785G], two eSATA ports and Line-In, Line-Out, MIC-In audio connectors.

The DC power inlet connector is also on the front of the chassis, supporting a standard ID 2.5mm and OD 5.5mm short terminations plug.

External indicators and controls on the front face of the chassis are limited to a hard drive activity LED, a power on LED and a power/standby push-button switch. The LAN connectors also include LEDs indicating a connection and data rate.

Specification

CPU:	AMD Socket AM2+ / AM3
Chipset:	AMD 780G and SB700 or AMD 785G and SB750
Graphics Controller:	Integrated HD 3200 (with 780G) or HD4200 (with 785G) RGB, DVI / HDMI Maximum resolution of 2048x1536 for VGA output Picture rotation 0, 90, 180, 270 degrees
BIOS:	8Mb Flash EEPROM with LAN Boot, PnP, ACPI, DMI
Memory:	Dual Channel memory Architecture 1 x 200-pin SODIMM socket supporting up to 2GB of unbuffered non-ECC 800/667 MHz DDR2 memory modules
LAN	RTL 8111C, supporting 10/100/1Gb rates Dual Port with 780G, Single Port with 785G
Audio:	Realtek ALC662 plus integrated ATI
Expansion:	Single PCI Expansion supporting low power/Short PCI cards
Primary Storage:	One 3½” SATA II hard disk drive
Optional Storage:	One 2½” SATA Solid State HDD or One Disk On Module
External I/O:	Standard VGA connector Digital HDMI connector Digital DVI-D connector 2 x eSATA connectors 9-way Serial connector (16550 compatible) 2 x RJ-45 10/100/1Gb Base-T Ethernet LAN connector (780G) Or 1 x RJ-45 10/100/1GB Base-T Ethernet LAN (785G) Line Out, MIC-in, Line-In/SPDIF 4 x USB 2.0 connectors (with 780G) Or 6 x USB 2.0 connectors (with 785G)
Indicators:	Power On LED, Hard Drive Activity LED
Control:	Power Standby push button switch
System Management:	CPU & System temperature monitoring Voltage monitoring of CPU Core, DRAM, NB

Power: 12V DC Internal Power
External power via OD5.5mm, ID2.5mm short Jack Socket *

Typical Power Consumption: 60W based on 160Gb HDD, 2Gb RAM, AMD 5050e X2 CPU with XP professional running High CPU loading

***Note: the plug should be no longer than 10mm long to avoid damaging the socket housing**

Environmental Conditions: Operating temperature range +0°C¹ to +40°C in free air
Storage temperature range -20°C to +70°C
Relative humidity 10-85% non-condensing
Shock and vibration compatible with light industrial usage

¹ Due to mechanical parts, if a hard drive is fitted, the unit must not be powered on when the ambient temperature is less than 5°C

Construction: Painted zinc-plated sheet steel, welded and riveted construction

Dimensions: 300 x 200 x 57 mm, excluding the mounting brackets

Air vents must not be obstructed. A minimum gap of 25mm between faces containing vents and any adjacent items is recommended.

General Precautions

Your Single Board Computer is susceptible to damage by electrostatic discharges. In order to avoid damage, you should work at an anti-static bench and observe normal anti-static precautions. Wear an anti-static wrist strap connected to an earth point *before* opening any packaging.

Where a wrist strap is not available, discharge any static charge you may have built-up by touching an earth point. Avoid any further movement that could build up another static charge. Touch an earth point from time to time to avoid further build-up, and remove the items from their anti-static bags only when required

Electro-Static Discharges

If you are going to open up the unit, it is important to realise that the devices on the cards within this unit can be damaged by static electricity. Bear in mind that the damage caused by static electricity may vary from total destruction to partial damage, which may not be immediately obvious. This could have an effect on the product's reliability and warranty. Before opening the chassis, ensure that you take necessary static precautions. Ideally you should work at an anti-static bench and wear an approved wrist strap or if that is not possible, touch a suitable ground to discharge any static build up before touching the electronics. This should be repeated if the handling continues for any length of time.

If it is necessary to remove a board or electronic assembly, place it into an anti-static bag. This will prevent any static electricity build up damaging the board. Metallised bags are preferred. Do not use black anti-static bags for any item containing a battery because these tend to be conductive and will discharge the battery.

On-Board Battery

The processor board is fitted with a Lithium battery. Great care should be taken with this type of battery. If the battery is mistreated in any way there is a very real possibility of fire, explosion, and personal harm. Under NO circumstances should it be short-circuited, exposed to temperatures in excess of 100 °C or burnt, immersed in water, recharged or disassembled.

Expired batteries remain hazardous and must be disposed of in a safe manner, according to local regulations.

Le panneau de processeur est équipé d'une batterie de lithium. Le grand soin devrait être pris avec ce type de batterie. Si la batterie est mistreated il y a de dans de toute façon un possibility très vrai du feu, d'explosion et de mal personnel. Dans au cunes circonstances il est sous peu circuité, exposé aux températures au dessus de 100 degrés de centigrade ou brûlé, immergé dans l'eau, rechargée ou dissassambled.

Les batteries expirées restent dazaedous et doivent être reejetées d'une façon sûre, selon des règlements locaux.

BIOS & CMOS Memory

Please be aware that with personal computer products, it is possible to create configurations within the CMOS memory that make booting impossible. If this should happen, clear the CMOS settings; (see the description of the Jumper Settings for details).

Electromagnetic Compatibility

This product meets the requirements of the European EMC Directive (89/336/EEC) and is eligible to bear the CE mark.

It has been assessed operating in a Blue Chip Technology Industrial PC. However, because the board can be installed in a variety of computers, certain conditions have to be applied to ensure that the compatibility is maintained. Subject to those conditions, it meets the requirements for an industrial environment (Class A product).

- Connector bodies must be securely connected to the enclosure.
- The external cabling to boards causes most EMC problems. It is imperative that any external cabling to the board is totally screened, and that the screen of the cable connects to the metal end bracket of the board or the enclosure and hence to earth. It is recommended that round, screened cables with a braided wire screen are used in preference to those with a foil screen and drain wire. Use metal connector shells that connect around the full circumference of the cable screen: they are far superior to those that earth the screen by a simple “pig-tail”.
- The keyboard and mouse will play an important part in the compatibility of the processor card since they are ports into the board. Similarly, they will affect the compatibility of the complete system. Fully compatible peripherals must be used otherwise the complete system could be degraded. They may radiate or behave as if keys/buttons are pressed when subject to interference. Under these circumstances it may be beneficial to add a ferrite clamp on the leads as close as possible to the connector. A suitable type is the Chomerics type H8FE-1004-AS.
- USB cables should be high quality screened types.
- Ensure that the screens of any external cables are bonded to a good RF earth at the remote end of the cable.

Failure to observe these recommendations may invalidate the EMC compliance.

Quick Start

The following sections explain how to install your Vario L3 Computer.

First ensure that you are familiar with the contents of the section "Precautions". It contains important information to avoid damage to the board.

The unit may be used free-standing, but it is recommended that it be securely mounted to avoid accidental damage. The actual mounting details will vary depending upon the application.

There are four M3 tapped holes on each end of the chassis for mounting brackets, etc. Do not use screws longer than those supplied to mount the unit, otherwise internal damage may result. If alternative screws are used, please ensure that they do not enter the chassis by more than 5mm, otherwise internal damage may result.

If you did not purchase mounting brackets but find that you actually need them, then contact PlasmaPC@bluechiptechnology.co.uk with details of the particular mounting arrangement you require to see if something suitable already exists.

If the unit is to be used free-standing fit the adhesive synthetic rubber feet to the base. These will prevent the unit slipping on a smooth surface.

Connect the display to the VGA, DVI or HDMI connector, and connect any other signals, e.g. LAN. Connect the power lead to a suitable AC power source. It is recommended that the supply be fused at 5A. [Please note that the Vario L3 does not support Dual Digital operation]

Press the 'Power On' button and check that the unit boots up.

If your system was not supplied with an operating system pre-installed, load an operating system and drivers. The section "Software Configuration" contains details for the common operating systems.

Set up the required video display parameters.

The system is now ready to have the applications software loaded.

External Connections

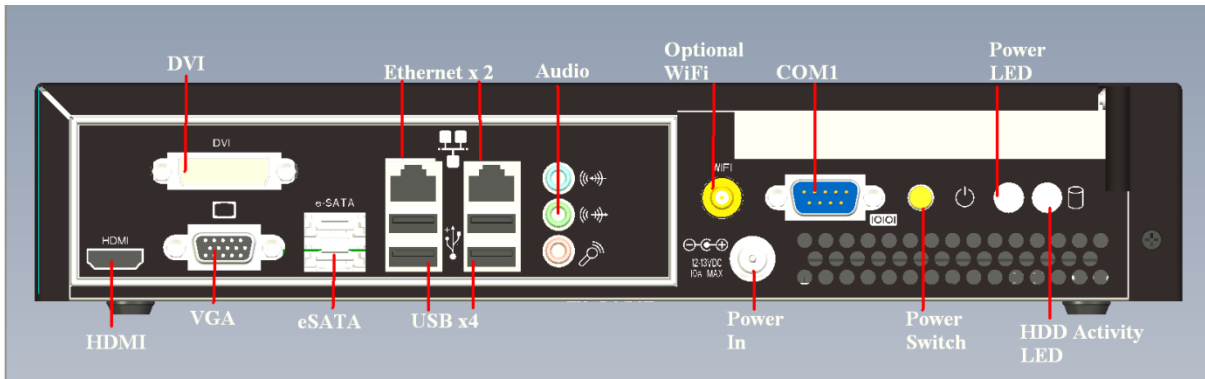


Figure 1a: External Connections 780G

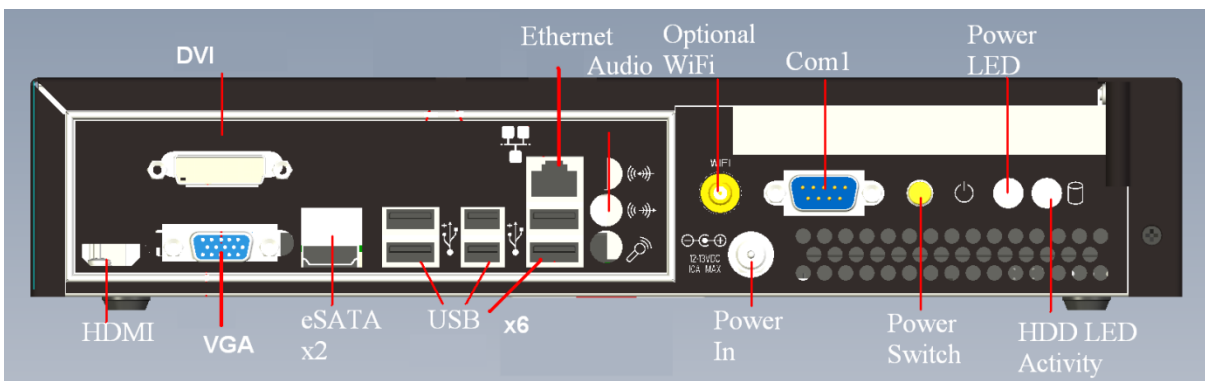


Figure 1b: External Connections 785G

Use the above two pictures to identify which particular configuration you have

Internal Connections

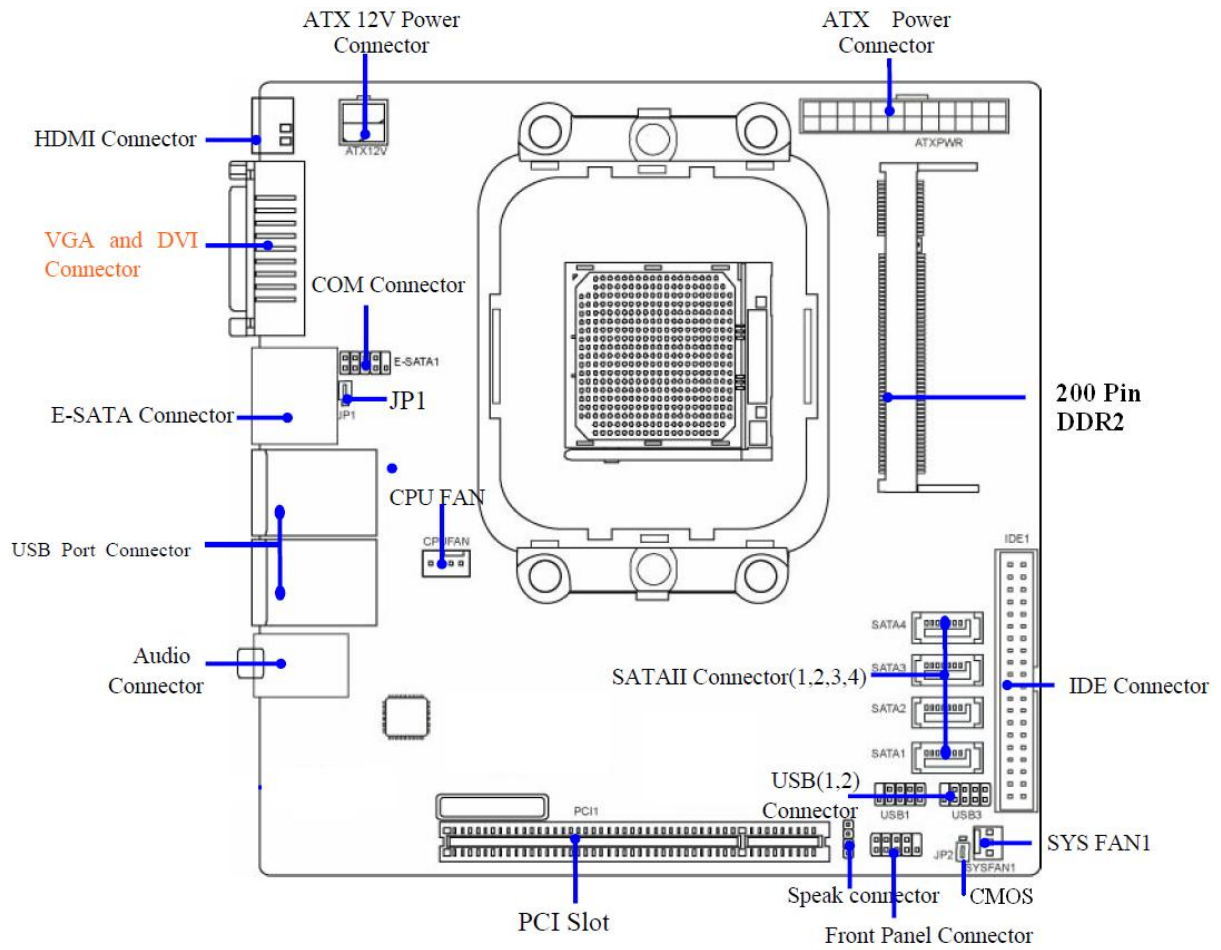


Figure 2A: Internal Connectors 780G

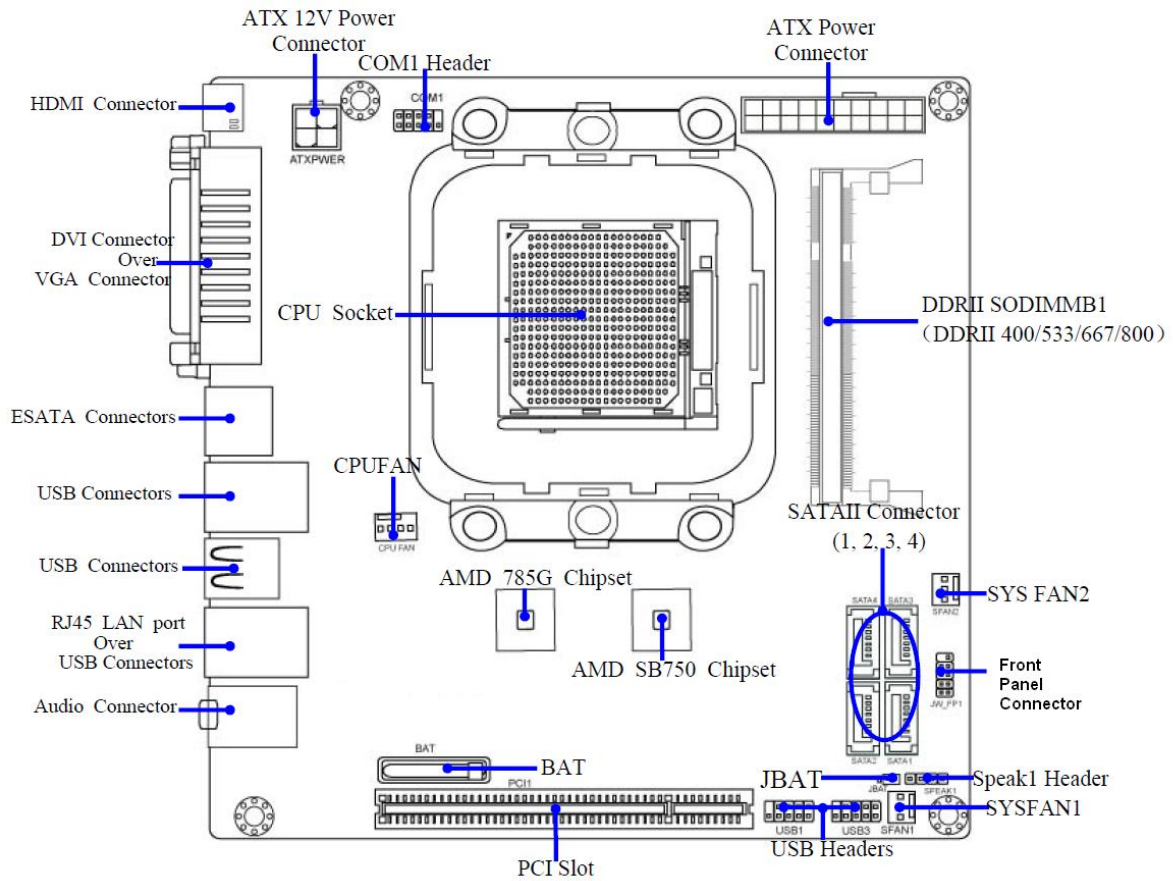


Figure 2B: Internal Connectors 785G

Jumpers

The processor board used in the VARIO L3 PC is largely free of selection jumpers. Most settings are controlled from the BIOS, and stored in the CMOS memory. Only the following jumpers are significant.

CMOS Clear

To clear the CMOS memory, first switch off the PC power, then locate the 3-pin header labelled ‘CLRTC’ (780G) or ‘JBAT’ (785G) on the processor board which is beside the SYSFAN and Front Panel connectors. Remove the link shorting pins 1 and 2, and place it on pins 2 and 3 for about 5 - 10 seconds. Remove the link and replace it in its original position. The CMOS has now been cleared and the BIOS will be reset to the default settings.

Having no link fitted is an invalid option.

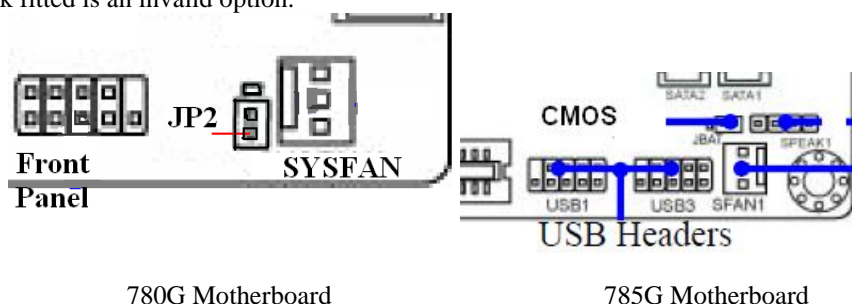


Figure 3: CMOS Jumper Default

Front Panel Connector

The front panel connectors are shown in Figure 2A and 2B above. They are wired the same, as follows

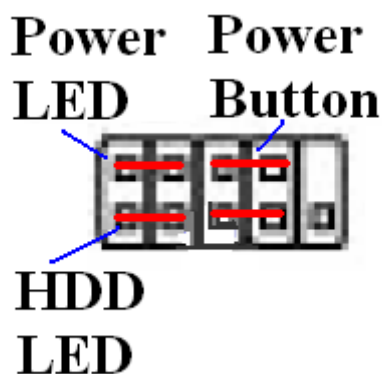


Figure 4: Front Panel Connector

Upgrading Hardware

Warning

Before attempting any upgrade to the VARIO L3 computer, please read the section "**Precautions**". For your personal safety it is important that you ensure that the unit is switched off, and the DC supply is disconnected.

For the safety of the equipment, it is important that you observe electrostatic discharge precautions. Do not remove items from anti-static bags until necessary.

When making any internal changes to the computer, it is imperative that the internal cables follow the original routes and additional cables are installed as described. Failure to observe this requirement could restrict the airflow through the unit and cause overheating problems.

Upgrade Options

Due to the small footprint of the unit, there are minimal options to upgradeable. Changing the AMD CPU may require a BIOS upgrade for the new processor to be recognised. The motherboard contains two memory sockets; however one is on the underside of the motherboard and requires a complete strip down for access.

Before attempting any upgrades, the user should check with Blue Chip Technical support to find out if your proposed upgrade is supported and if it will have any effect on the units' warranty. If a SATA Hard Drive is fitted, then possible upgrade is to fit a Disk on Module. Similarly, if a Disk on Module is fitted then a SATA HDD could be fitted.

Caution: Unauthorised upgrades may invalidate the warranty if they are not compatible or are not carried out correctly and with care.

Adding / Removing Mounting Brackets



Figure 6: Universal mounting option

If ordered, one or two Universal Mounting bracket(s) can be supplied. The bracket will be attached as shown in Picture 2 above, and to use, remove the screws, turn the bracket 180°, then re-insert the screws. The bracket can be fitted to either end of the unit as required.

Removing / Fitting the Cover Lid

The cover lid is held in place by six screws in the top (1), sides (2), front (3) and rear (4)



Figure 7:

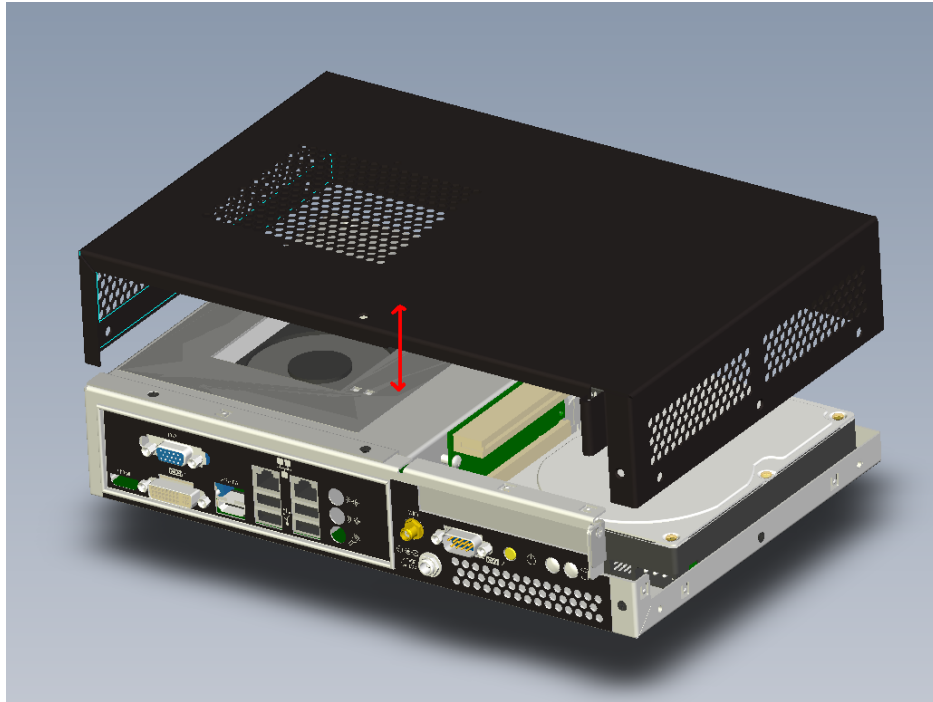


Figure 8: Cover lifts off and on

With Screws removed, the cover lid can be lifted vertically to remove. Fitting is the reverse process

Replacing / Fitting the Disk on Module

On the 780G motherboard, the Disk On Module is fitted directly to the IDE connector shown below

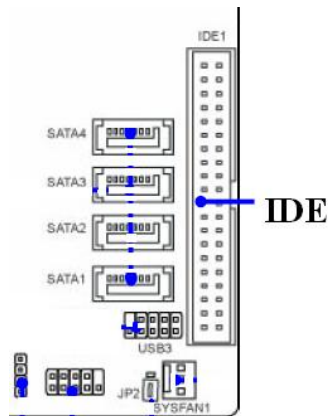


Figure 9: IDE Connector

On the 785G motherboard, there is no IDE connector so a SATA Disk On Module is used

Replacing the HDD

The HDD is fitted directly to the base of the chassis by means of 4 screws shown below

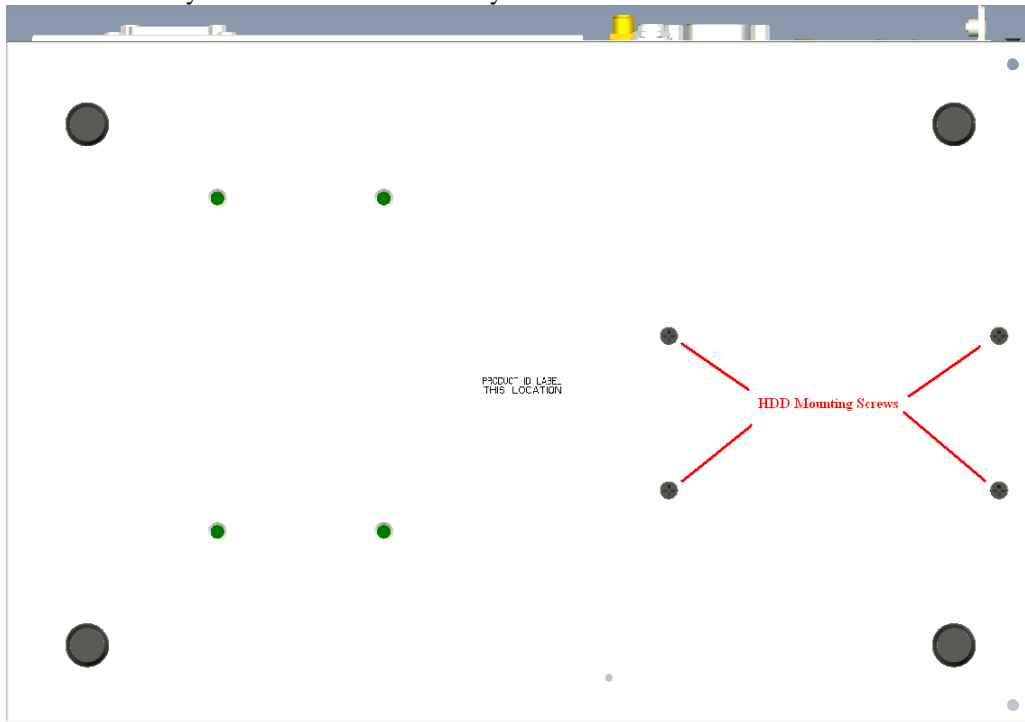


Figure 10: HDD mounting screws

If a 2.5" Solid State device is fitted instead, then this will be mounted in a caddy/plate which will also attach directly to the base using these screws.

Replacing the On/Off Switch Assembly

The Power Switch is shown below

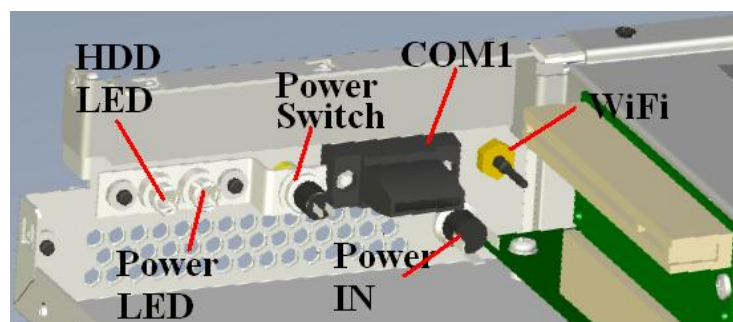


Figure 11: Switch Assembly

The switch is part of a utility cable loom which also contains two LEDs which plug into a bracket at the front of the chassis. The bracket is attached to the front of the chassis by means of two screws which can only be accessed when the front overlay is removed.

The Utility cable loom is plugged into the motherboard at the connector shown in [Figure 4](#)

PCI Expansion

Like its predecessor Vario L2, the Vario L3 can provide the option for fitting a low power, short form factor PCI card. The Expansion slot is a factory fitted option. Please check with Blue Chip Technology before fitting your own Adapters, as fitting one not tested or recommended, could draw more power than the build in PSU can supply causing instability and/or overheating within the unit.

Attached to the internal cover plate, a PCI extender card is fitted as shown below

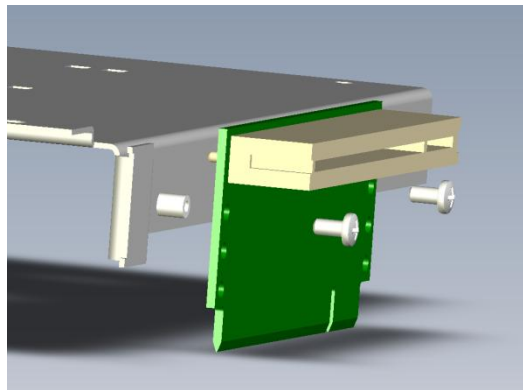


Figure 12: PCI riser

This is held in place by two screws. The completed assembly is inserted or removed vertically into the chassis as shown below

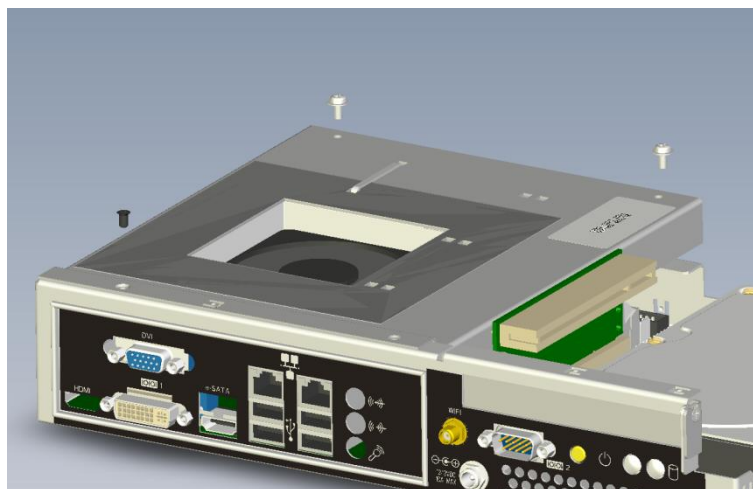


Figure 13: Cover Assembly

Care should be taken when inserting the riser card into the on board socket to ensure that they align correctly before fitting. The cover is held in place by three screws as shown above in Figure 13. There is a fourth screw hole in the internal cover – this is only fitted AFTER the cover lid has been fitted

A PCI Adapter card is fitted by first removing the blank expansion bracket as follows

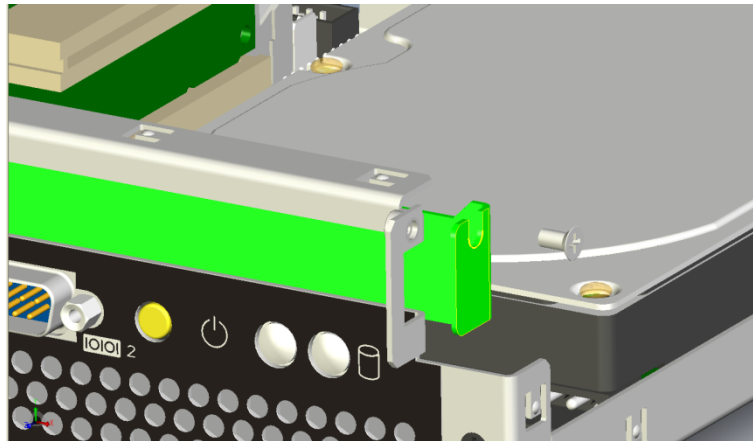


Figure 14:

When inserting a PCI Adapter, first loosen or remove the three screws retaining the internal cover plate. The PCI Adapter can then be slid into place, again carefully aligning the edge connector of the card with the riser slot.

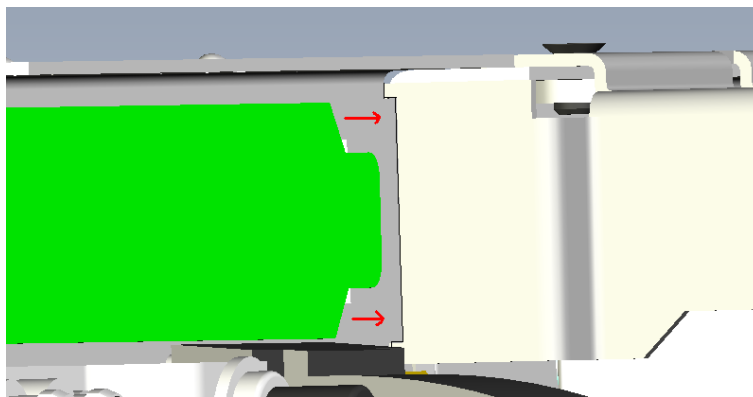


Figure 15: Adapter bracket tail

The Internal cover plate has a small notch at its end to allow the Adapter bracket tail to pass through. If the cover screws are fitted then this notch is too close to the front metalwork, forcing the Adapter tail to foul on the EMC gasket for the motherboard as shown below.



Figure 16: Potential Foul

Before inserting a PCI card, slightly bend the end of the Adapter bracket as shown below.

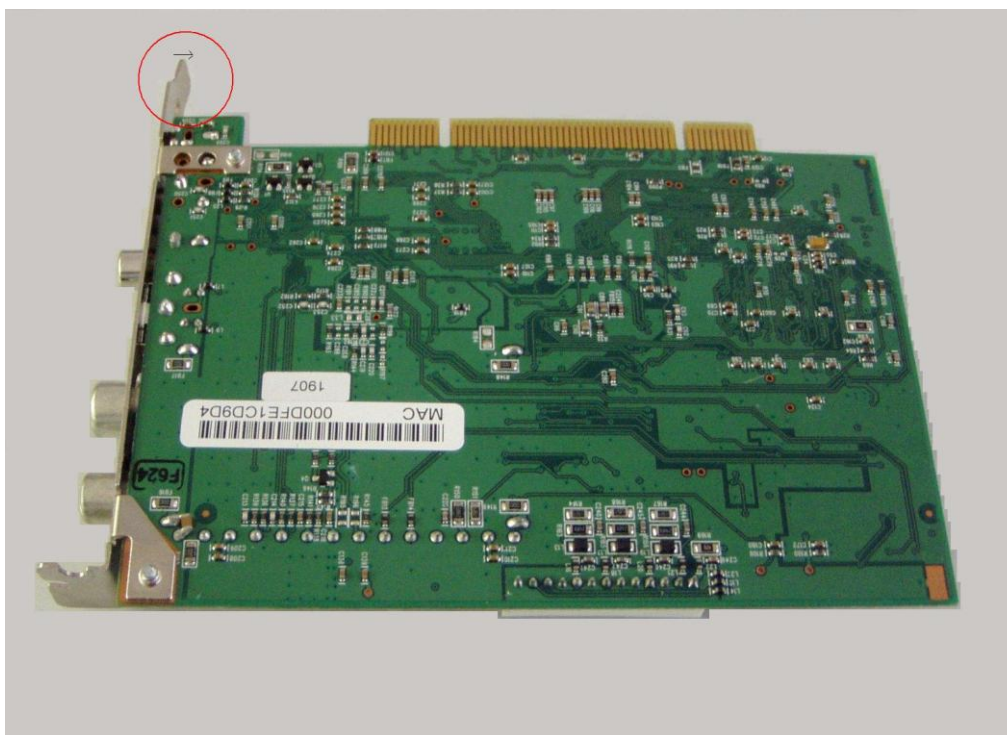


Figure 17: PCI Card bracket

This also helps prevent the bracket fouling on the front EMC gasket.

Once the Adapter card is fitted, the three internal cover screws can be tightened so that the Adapter bracket tail is locked in place. This helps prevent the Adapter from coming loose either in transit or during operation.

Optional Wi-Fi

The optional Wi-Fi card is attached to the underside of the internal cover as shown below

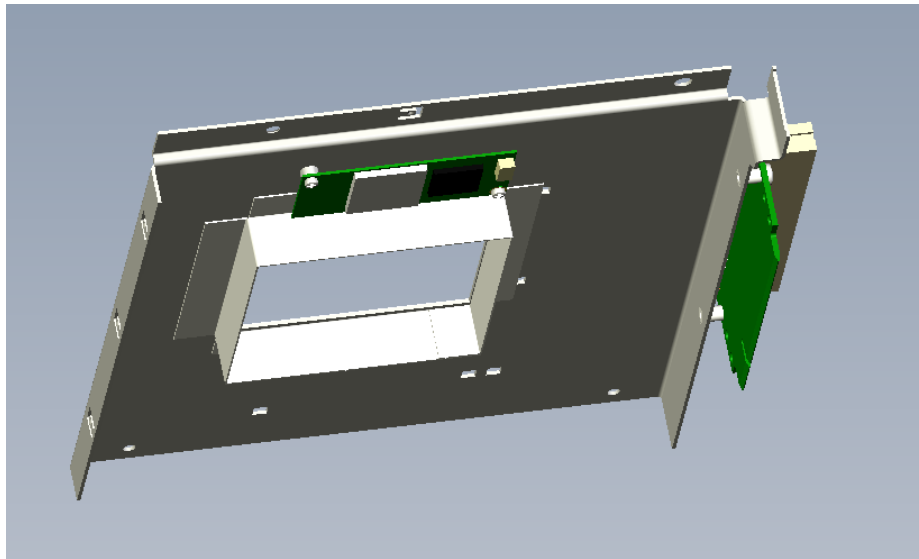


Figure 14: Optional Wi-Fi

The antenna is attached to the chassis as indicated in [Figure 11](#). The Wi-Fi is a USB device and the motherboard cable connects to the USB header on the motherboard as below

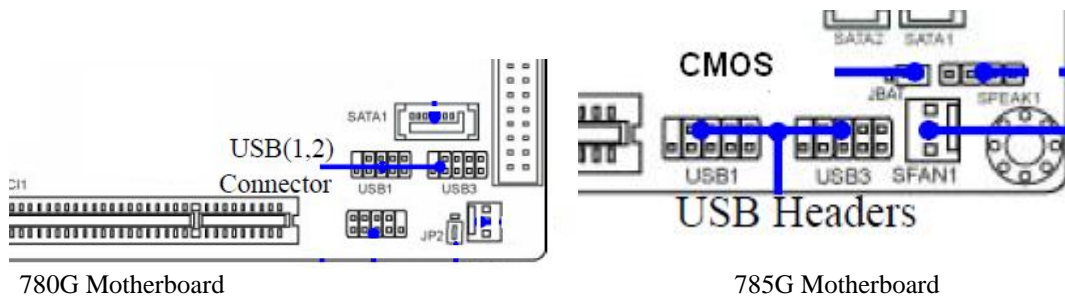


Figure 15: On-Board USB Headers

Installing Operating Systems

Your VARIO L3 Small Form-Factor PC may have been supplied complete with a software operating system, in which case the appropriate drivers will have been loaded.

If it has been supplied without an operating system, one must be loaded following the instructions supplied with the software. It is then necessary to add driver programs for the specific hardware of the motherboard and any additional expansion cards. The manner in which the drivers are loaded will vary depending upon the actual operating system used. Details follow for Microsoft XP.

Microsoft XP

To install the drivers for Windows XP, you can either follow the guided install from the Blue Chip Technology Support CD or manually install in order as follows.

To install, go to the following directories on the Support CD

780G Drivers Drivers\Vario L3\
785G Drivers Drivers\Vario L3 785\
chipset

lan

audio



Chipset

This should be run first, for example for the 780G

Chipset 1\setup.exe

This installs the On Board Chipset drivers for CPU, Memory, IDE etc as well as the Intel Graphics Media Accelerator Driver. If HD Audio is required via the HDMI port, then this must first be enabled in BIOS. Refer to the relevant [BIOS section](#) for details.

LAN

Again for the 780G, run Lan 2\setup.exe

Realtek Audio Drivers

For the 780G run Audio 3\win2kxp\setup.exe

This is the Audio drivers for the Line-In, Line-Out and MIC-In Audio ports

BIOS Setup

To enter the BIOS Setup pages, press during Power-On-Self-Test (POST).

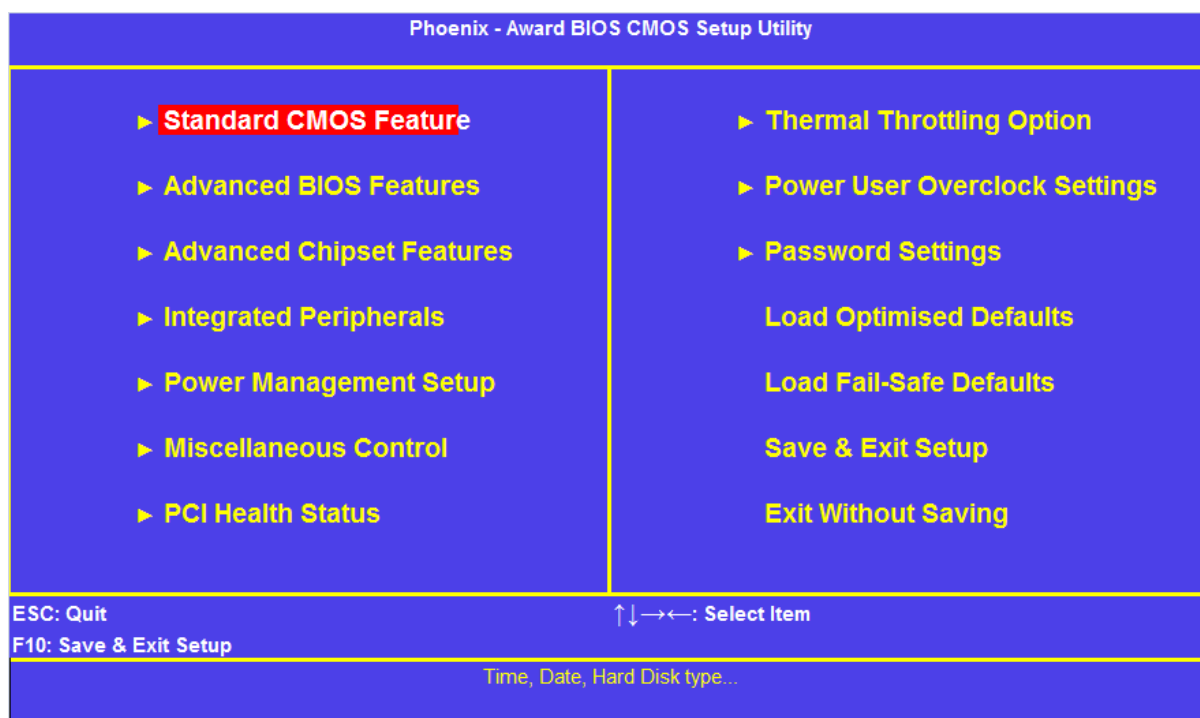
If you have made any changes to the BIOS Setup which you think may be causing you problems, then when you enter the BIOS Setup pages select LOAD Optimal Defaults to load the default BIOS settings.

If your' BIOS needs to be updated for any reason, please contact Technical Support. Due to the danger of damaging the system by trying to add the incorrect BIOS, any BIOS updates are not made available via the Blue Chip driver website.

Please note that, the motherboard and BIOS used in the Vario L3, has more options and functionality than is supported by the chassis. The following refer to the 780G motherboard, however the 785G BIOS settings are very similar

Main Menu

The main menu allows you to select from a list of setup functions together with two exit choices. Use the arrow keys to select a specific item and press <Enter> to go to the sub-menu. Each item in the main menu is explained below:



Standard CMOS Feature

This page displays the basic system configuration, such as system date, time and drive information. They all can be viewed or set up through this menu.

Advanced BIOS Features

The advanced system features can be set up through this menu, including boot up settings and boot device Priority.

Advanced Chipset Features

The menu offers settings to control Memory, Graphics and cache options.

Integrated Peripherals

All onboard peripherals can be set up through this menu. There are IDE devices, Super I/O devices such as Serial I/O and other USB devices... etc.

Power Management Setup

All the items related with power saving function features can be set up through this menu.

Miscellaneous

This menu offers options to assign resources.

PC Health Status

This setup enables you to read temperatures and voltages of your CPU/System, as well as setup smart fan operation and shutdown temperature if required

Thermal Throttling

This menu can set a temperature where CPU throttling can occur. This can be used to help prevent long term damage if the system temperature gets too hot.

Power User

This menu allows VDIMM and NB voltage settings to be changed for overclocking – this is recommended to be left as defaults

Password Settings

Supervisor and User passwords can be set if required

Load Fail-Safe/Optimal Defaults

These settings can be loaded through these two menu options.

Save & Exit Setup

Save setting values to CMOS and exit.

Exit Without Saving

Do not change anything and exit the setup.

CMOS Features

Standard CMOS Features		
Date(mm:dd:yy)	[Wed, Aug, 5 2009]	Help Item
Time (hh:mm:ss)	[13 : 51 : 45]	
▶ IDE Channel 0 Master	[None]	Menu Level ▶ Change the day, month, year and century
▶ IDE Channel 0 Slave	[None]	
▶ SATA Channel 5	[None]	
▶ SATA Channel 6	[None]	
▶ SATA Channel 1	[ST3160310CS]	
▶ SATA Channel 3	[None]	
▶ SATA Channel 2	[None]	
▶ SATA Channel 4	[None]	
Halt On	[No Errors]	
Base Memory	640K	
Extended Memory	1833984K	
Total Memory	1835008K	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help F5: Previous Values F6: Fail-safe defaults F7: Optimized defaults		

This sub-menu is used to set up the standard BIOS features, such as the date and time. Use the arrow up/down keys to select an item, then use the <+> or <-> keys to change the setting.

Advanced BIOS Features

Phoenix - Award BIOS CMOS Setup Utility Advanced BIOS Features			
▶ CPU Feature	[Press Enter]	Help Item	
▶ Hard Disk Boot Priority	[Press Enter]		
Virus Warning	[Disabled]	Menu Level ▶	
CPU Internal Cache	[Enabled]		
External Cache	[Enabled]		
Quick Power On Self test	[Enabled]		
First Boot Device	[Hard Disk]		
Second Boot Device	[CDROM]		
Third Boot Device	[Disabled]		
Boot Other Devices	[Enabled]		
Boot up NumLock Status	[On]		
Typematic Rate Setting	[Disabled]		
Typematic Rate (Char/Sec)	[6]		
Typematic Delay (Msec)	[250]		
Security Option	[Setup]		
APIC Mode	[Enabled]		
MPS version Control for OS	[1.4]		
OS Select For DRAM > 64MB	[Non-OS2]		
HDD S.M.A.R.T. Capability	[Disabled]		
Small Logo(EPA) Show	[Disabled]		
↑↓→←: Move Enter: Select +/-: Value F10: Save ESC: Exit F1 General Help F9: Optimized Settings			

The important settings in this page are quick and quiet boot, as well as the Boot Order
 When Enabled, Quick Power On Self Test allows BIOS to skip certain tests during POST to speed boot time

Advanced Chipset Features

Phoenix - Award BIOS CMOS Setup Utility		
Advanced Chipset Features		
▶ DRAM Configuration	[Press Enter]	Help Item Menu Level ▶
▶ HT Link Control	[Press Enter]	
▶ PCIE Configuration	[Press Enter]	
▶ IGX Configuration	[Press Enter]	
HDMI Audio	[Enabled]	
NB Power Management	[Auto]	
Memory Hole	[Disabled]	
System BIOS Cacheable	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help
 F5: Previous Values F6: Fail-safe defaults F7: Optimized defaults

Options include being able to enable the HDMI Audio and system cache. In the IGX Configuration sub menu, the Internal Graphics mode etc can be set

Phoenix - Award BIOS CMOS Setup Utility		
IGX Configuration		
Internal Graphics mode	[UMA+SidePort]	Help Item Menu Level ▶
UMA Frame Buffer Size	[Auto]	
Frame Buffer Location	[Above 4G]	
IGX Engine Clock Override	[Disabled]	
x IGX Engine Clock	[500]	
IGX Clock Speed	[400 MHz]	
UMA-SP Interleave Mode	[Auto]	
x Size	[4MB]	
x Ratio (SP:UMA)	[1:1]	
SP Power Management	[Auto]	
SP NB Termination	[Disabled]	
SP ODT	[Disabled]	
SP CMD Hold	[Auto]	
SP Data Hold	[Auto]	

Integrated Peripherals

Phoenix - Award BIOS CMOS Setup Utility		
Integrated Peripherals		
CIMx-SB700 Revision	[Press Enter]	Help Item
▶ Superio Function Setup	[Press Enter]	Menu Level ▶
▶ OnChip PCI Device	[Press Enter]	
▶ OnChip IDE Device	[Press Enter]	
▶ OnChip SATA Device	[Press Enter]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help F5: Previous Values F6: Fail-safe defaults F7: Optimized defaults		

This Menu allows access to following sub-menus to setup Drive options, control USB settings, Serial Port addressing

Phoenix - Award BIOS CMOS Setup Utility		
SuperIO Device Setup		
Onboard Serial Port 1	[3F8/IRQ4]	Help Item
UART Mode Select	[IrDA]	Menu Level ▶
IrDA Duplex Mode	[Half]	
PWRON After PWR-Fail	[On]	

The Important setting in the Super IO page is Power On After power Fail. When set to ON, the unit will always turn on when power is applied to the unit

Phoenix - Award BIOS CMOS Setup Utility		
OnChip PCI Device		
Onboard PCIE LAN Device	[Enabled]	Help Item
Onboard PCIE LAN BootROM	[Disabled]	Menu Level ▶
HD Audio	[Enabled]	
OnChip USB Controller	[Enabled]	
USB EHCI Controller	[Enabled]	
USB Keyboard Support	[Enabled]	

The PCI Device settings page provides configuration options for USB, **HD Audio** and The on board LAN devices, including LAN BootROM

Phoenix - Award BIOS CMOS Setup Utility		
OnChip IDE Device		
		Help Item
IDE HDD Block Mode	[Enabled]	Menu Level ►
IDE DMA Transfer	[Enabled]	
OnChip IDE Channel 0	[Enabled]	
Primary Master PIO	[Auto]	
Primary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	

The IDE Page provides options for how the IDE ports are configured. These will be configured at time of manufacture and the user should not need to change any of these settings

Phoenix - Award BIOS CMOS Setup Utility		
OnChip SATA Device		
		Help Item
OnChip SATA Channel	[Enabled]	Menu Level ►
OnChip SATA Type	[Native IDE]	
Combined Mode	[Enabled]	

The SATA devices page allows configuring how SATA devices are handled. Again, there is no need to change these settings from default

Power Management Setup

Phoenix - Award BIOS CMOS Setup Utility		
Power Management Setup		
		Help Item
ACPI Function	[Enabled]	Menu Level ►
ACPI Suspend type	[S1(POS)]	
C2 Disable/Enable	[Disabled]	
Power Management Option	[User Define]	
HDD Power Down	[Disabled]	
Video Off Option	[Suspend-> Off]	
Video Off Method	[V/H SUNC+Blank]	
MODEM Use IRQ	[3]	
Soft-Off by PWR-BTTN	[Instant-Off]	
PowerOn by PCI Card	[Disabled]	
ACPI XSDT Table	[Enabled]	
HPET Support	[Enabled]	
RTC Alarm Resume	[Disabled]	
Date(of Month) Alarm	[0]	
Time(hh:mm:ss) Alarm	[0 : 0 : 0]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help

This menu allows various options for controlling the power conditions of the Vario L3. Wake On LAN functionality can be turned on by Enabling the Wake-up By PCI Card setting

Miscellaneous Control Configurations

Phoenix - Award BIOS CMOS Setup Utility		
Miscellaneous Control		
Init Display First	[IGX]	Help Item Menu Level ►
Reset Configuration Data	[Enabled]	
Resources Controlled By	[Auto (ESCD)]	
x IRQ Resources	[Press Enter]	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ for VGA	[Enabled]	
Assign IRQ for USB	[Enabled]	
PCI Latency Timer (CLK)	[64]	
** PCI Express relative items **		
Maximum Payload Size	[4096]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help F5: Previous Values F6: Fail-safe defaults F7: Optimized defaults		

As there is limited expansion options on the Vario L3, there should be no need to adjust any of these settings

PC Health Status

Phoenix - Award BIOS CMOS Setup Utility		
PC Health Status		
Show PC Health In POST	[Disabled]	Help Item Menu Level ►
Shutdown Temperature	[Disabled]	
► SMART FAN Configuration	[Press Enter]	
VLDT	[1.38V]	
VDIMM	[1.96V]	
Vcore	[1.17V]	
NBVCC	[1.18V]	
CPU Temperature	[45°C]	
SYS Temperature	[47°C]	
CPUFan Speed	2225 RPM	
SYSFan1 Speed	0 RPM	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1 General Help F5: Previous Values F6: Fail-safe defaults F7: Optimized defaults		

This menu displays temperature and voltage details which can be used to identify if the unit is operating out of specification.

The Shutdown Temperature can be set to prevent damage to the CPU in the event of overheating.

The SMART FAN Function is used to control the speed of CPU FAN. At lower temperatures, this allows for quieter operation.

SMART Fan Configuration		Help Item
CPU SMART FAN Mode	[Enabled]	
CPU Full Speed Temp	[60]	
CPU Idle Temp	[40]	
		Menu Level ▶

Thermal Throttling

The Thermal Throttling page allows for the CPU to be put into throttling mode, if the temperature exceeds a set value

Thermal Throttling Option		Help Item
CPU Thermal Throttling	[Enabled]	
CPU Throttling Temp	[70°C]	
CPU Throttling Duty	[50.0%]	
		Menu Level ▶

This is useful in certain circumstances, however, if the CPU is reaching the throttling temperature, then it is an indication that the Vario L3 is operating close to or above its upper temperature limit. Extended operation at higher temperatures is not recommended.

Maintenance

On a regular basis the inside of the VARIO L3 should be cleaned out to prevent dust build up which could eventually lead to obstruction of the convection airflow within the unit and prevent efficient operation. Generally the enclosure design and the wiring layout will ensure that the cooling is stable. However, bear in mind that any modifications to the installation may cause a restriction of the air vents. After a period of several years, it may be necessary to replace the battery on the processor board, if it cannot maintain the CMOS memory whilst the AC power is disconnected.

Replacing the Battery

The processor board includes a small 3V lithium battery (type CR-2032) to retain the BIOS settings in the CMOS memory. Before attempting to replace the battery, please read the precautions detailed in the introductory section. Remember that even discharged batteries can present a real personnel hazard if mistreated.

Do NOT under any circumstances try to remove the battery with metallic tools (pliers, tweezers etc.). They may short out the battery with possible disastrous results.

Replace the battery by one of the same type, and check that the clip is fully engaged. When the battery has been replaced, the BIOS settings will revert to their default settings. Reset them as necessary to suit your application.

Fuses

There are no user-serviceable or replaceable fuses within the unit.

Amendment History

Issue Level	Issue Date	Author	Amendment Details
1.0	24-08-2009	TMCK	First Release
1.1	29-06-2010	TMCK	Addition of 785 Chipset

Contact Details

Blue Chip Technology Ltd.
Chowley Oak
Tattenhall
Chester
CH3 9EX
U.K.
Telephone: +44 (0)1829 772000
Facsimile: +44 (0)1829 772001
www.bluechiptechnology.co.uk

Plasma PC Sales

PlasmaPC@bluechiptechnology.co.uk

Single Board Computer Sales

singleboardcomputer@bluechiptechnology.co.uk

Rack mount PC Sales

rackmountpc@bluechiptechnology.co.uk

Data and IO Sales

DataIO@bluechiptechnology.co.uk

Technical Support

<http://support.bluechiptechnology.co.uk/>

Returns Authorisation

<http://rma.bluechiptechnology.co.uk/>