white bream

AMI BIOS

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9 BIOS Setup Description

The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

9.1 Entering the BIOS Setup Program.

The BIOS setup program can be accessed by pressing the <DEL> key during POST.

9.1.1 Boot Selection Popup

The BIOS offers the possibility to access a Boot Selection Popup menu by pressing the <F11> key during POST. If this option is used, a selection will be displayed immediately after POST allowing the operator to select either the boot device that should be used or an option to enter the BIOS setup program.

9.2 Setup Menu and Navigation

The congatec BIOS setup screen is composed of the menu bar and two main frames. The menu bar is shown below:

Main	Advanced	Boot	Security	Save & Exit

The left frame displays all the options that can be configured in the selected menu. Grayed-out options cannot be configured. Only the blue options can be configured. When an option is selected, it is highlighted in white.

The right frame displays the key legend. Above the key legend is an area reserved for text messages. These text messages explain the options and the possible impacts when changing the selected option in the left frame.

Note

Entries in the option column that are displayed in bold print indicate BIOS default values.

The setup program uses a key-based navigation system. Most of the keys can be used at any time while in setup. The table below explains the supported keys:

Key	Description
← → Left/Right	Select a setup menu (e.g. Main, Boot, Exit).
↑ ↓ Up/Down	Select a setup item or sub menu.
+ - Plus/Minus	Change the field value of a particular setup item.
Tab	Select setup fields (e.g. in date and time).
F1	Display General Help screen.
F2	Load previous settings.
F9	Load optimal default settings.
F10	Save changes and exit setup.
ESC	Discard changes and exit setup.
ENTER	Display options of a particular setup item or enter submenu.

9.3 Main Setup Screen

When you first enter the BIOS setup, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab.

The Main screen reports BIOS, processor, memory and board information and is for configuring the system date and time.

Feature	Options	Description
BIOS Information		
Main BIOS Version	no option	Displays the main BIOS version.
OEM BIOS Version	no option	Displays the additional OEM BIOS version.
Build Date	no option	Displays the date the BIOS was built.
Board Information		
Product Revision	no option	Displays the hardware revision of the board.
Serial Number	no option	Displays the serial number of the board.
BC Firmware Rev.	no option	Displays the revision of the congatec board controller.
MAC Address	no option	Displays the MAC address of the onboard ethernet controller.
Boot Counter	no option	Displays the number of boot-ups. (max. 16777215).
Running Time	no option	Displays the time the board is running [in hours max. 65535].
Memory Information		
Total Memory	no option	Displays amount of installed memory.
Memory Clock	no option	Displays current memory clock.
CPU Information	no option	Displays CPU type and feature information.
System Date	Day of week, month/day/year	Specifies the current system date. *Note: The date is in month-day-year format.*
System Time	Hour:Minute:Second	Specifies the current system time. *Note: The time is in 24-hour format.*

9.4 Advanced Setup

Select the Advanced tab from the setup menu to enter the Advanced BIOS Setup screen. The menu is used for setting advanced features:

Main	Advanced	Boot	Security	Save & Exit
	Graphics Configuration			
	Watchdog Configuration			
	PCI & PCI Express Configuration			
	ACPI Configuration			
	RTC Wake Settings			
	Trusted Computing Configuration			
	CPU Configuration			
	Chipset Configuration			
	Hardware Health Monitoring			
	SATA/PATA Configuration			
	USB Configuration			
	Super I/O Configuration			
	Serial Port Console Redirection			

9.4.1 Graphics Configuration Submenu

Feature	Options	Description
Primary Graphics Device	IGD **PCI/PCIe**	Select primary graphics adapter to be used during boot up. IGD: Internal Graphics Device PCI/PCIe: Try to use external standard PCI Express or PCI Graphics Device. If not present, IGD is used.
Integrated Graphics Device	**Auto Configuration** Disabled Manual Configuration	Deactivate IGD or select frame buffer configuration mode. In auto mode, the frame buffer size will be defined based on the amount of physical memory present.
IGD Frame buffer Size	32M 64M 128M **256M** 512M	Only visible if IGD is set to manual configuration. Set fixed graphics frame buffer size for IGD. The graphics driver might allocate additional memory.
Display Channel 0 Output	**LVDS** Disabled	Define output mode and connection of the integrated digital display channel 0.
Display Channel 1 Output	**Display Port** HDMI Disabled	Define output mode and connection of the integrated digital display channel 1. *Note: The different output options require different, additional hardware support. Thus not all options can actually work on the same board variant.*
IGD Boot Display Device	**Auto** CRT Only Display Channel 0 Display Channel 1 CRT + Display Channel 0 CRT + Display Channel 1 Display Channel 0 + 1	Select the IGD display device(s) used for boot up.
Always Try Auto Panel Detect	**No** Yes	If set to 'Yes' the BIOS will first look for an EDID data set in an external EEPROM to configure the LVDS flat panel output. Only if no external EDID data set can be found, the data set selected under 'Local Flat Panel Type' will be used as fallback data set.
Local Flat Panel Type	**Auto** VGA 640x480 1x18 (002h) VGA 640x480 1x18 (013h) WVGA 800x480 1x24 (01Bh) SVGA 800x600 1x18 (01Ah) XGA 1024x768 1x18 (006h) XGA 1024x768 2x18 (007h) XGA 1024x768 1x24 (008h) XGA 1024x768 2x24 (012h) WXGA 1280x768 1x24 (01Ch) SXGA 1280x1024 2x24 (00Ah) SXGA 1280x1024 2x24 (018h) UXGA 1600x1200 2x24 (00Ch) HD 1920x1080 2x24 (01Dh) WUXGA 1920x1200 2x18 (015h) WUXGA 1920x1200 2x24 (00Dh) Customized EDID™ 1 Customized EDID™ 2 Customized EDID™ 3	Select a predefined LFP type or choose Auto to let the BIOS automatically detect and configure the attached LVDS panel. Auto detection is performed by reading an EDID data set via the video I²C bus. The number in brackets specifies the congatec internal number of the respective panel data set. *Note: Customized EDID™ utilizes an OEM defined EDID™ data set stored in the BIOS flash device.*
Backlight Inverter Type	**None** PWM I2C PWM (no ACPI)	Select the type of backlight inverter used. PWM = Use IGD PWM signal. I2C = Use I2C backlight inverter device connected to the video I²C bus.

Feature	Options	Description
		PWM (no ACPI) = Use IGD PWM signal; no ACPI interface provided.
PWM Inverter Frequency (Hz)	**200**-40000	Only visible if Backlight Inverter Type is set to PWM. Set the PWM inverter frequency in hertz.
Backlight Setting	0%, 10%, 25%, 40%, 50%, 60%, 75%, 90%, **100%**	Actual backlight value in percent of the maximum setting.
Inhibit Backlight	**No** Permanent Until End Of POST	Decide whether the backlight on signal should be activated when the panel is activated or whether it should remain inhibited until the end of BIOS POST or permanently.
Invert Backlight Setting	**No** Yes	Allow to invert backlight setting values if required for the actual backlight hardware controller.
LVDS SSC	**Disabled** Enabled	Enable or disable LVDS spread spectrum clock modulation.
SSC Modulation Frequency	**30kHz** 35kHz 40kHz	Select the LVDS SSC modulation frequency.
SSC Modulation Percentage	**0.25%**, 0.50%, 0.75%, 1.00%, 1.25%, 1.50%, 1.75%	Select the LVDS SSC modulation percentage.

9.4.2 Watchdog Configuration Submenu

Feature	Options	Description
POST Watchdog	**Disabled** 30sec 1min 2min 5min 10min 30min	Select the timeout value for the POST watchdog. The watchdog is only active during the power-on-self-test of the system and provides a facility to prevent errors during boot up by performing a reset.
Stop Watchdog For User Interaction	No **Yes**	Select whether the POST watchdog should be stopped during the popup boot selection menu or while waiting for setup password insertion.
Runtime Watchdog	**Disabled** One-time Trigger Single Event Repeated Event	Selects the operating mode of the runtime watchdog. This watchdog will be initialized just before the operating system starts booting. If set to '*One-time Trigger'* the watchdog will be disabled after the first trigger. If set to *'Single Event'*, every stage will be executed only once, then the watchdog will be disabled. If set to *'Repeated Event'* the last stage will be executed repeatedly until a reset occurs.
Delay	**Disabled** 10sec 30sec 1min 2min 5min 10min 30min	Select the delay time before the runtime watchdog becomes active. This ensures that an operating system has enough time to load.
Event 1	NMI ACPI Event **Reset** Power Button	Selects the type of event that will be generated when timeout 1 is reached. For more information about *ACPI Event* see note below.

Feature	Options	Description
Event 2	**Disabled** NMI ACPI Event Reset Power Button	Selects the type of event that will be generated when timeout 2 is reached.
Event 3	**Disabled** NMI ACPI Event Reset Power Button	Selects the type of event that will be generated when timeout 3 is reached.
Timeout 1	1sec 2sec 5sec 10sec **30sec** 1min 2min 5min 10min 30min	Selects the timeout value for the first stage watchdog event.
Timeout 2	see above	Selects the timeout value for the second stage watchdog event.
Timeout 3	see above	Selects the timeout value for the third stage watchdog event.
Watchdog ACPI Event	**Shutdown** Restart	Select the operating system event that is initiated by the watchdog ACPI event. These options perform a critical but orderly operating system shutdown or restart.

Note

In ACPI mode it is not possible for a “Watchdog ACPI Event” handler to directly restart or shutdown the OS. For this reason the congatec BIOS will do one of the following:

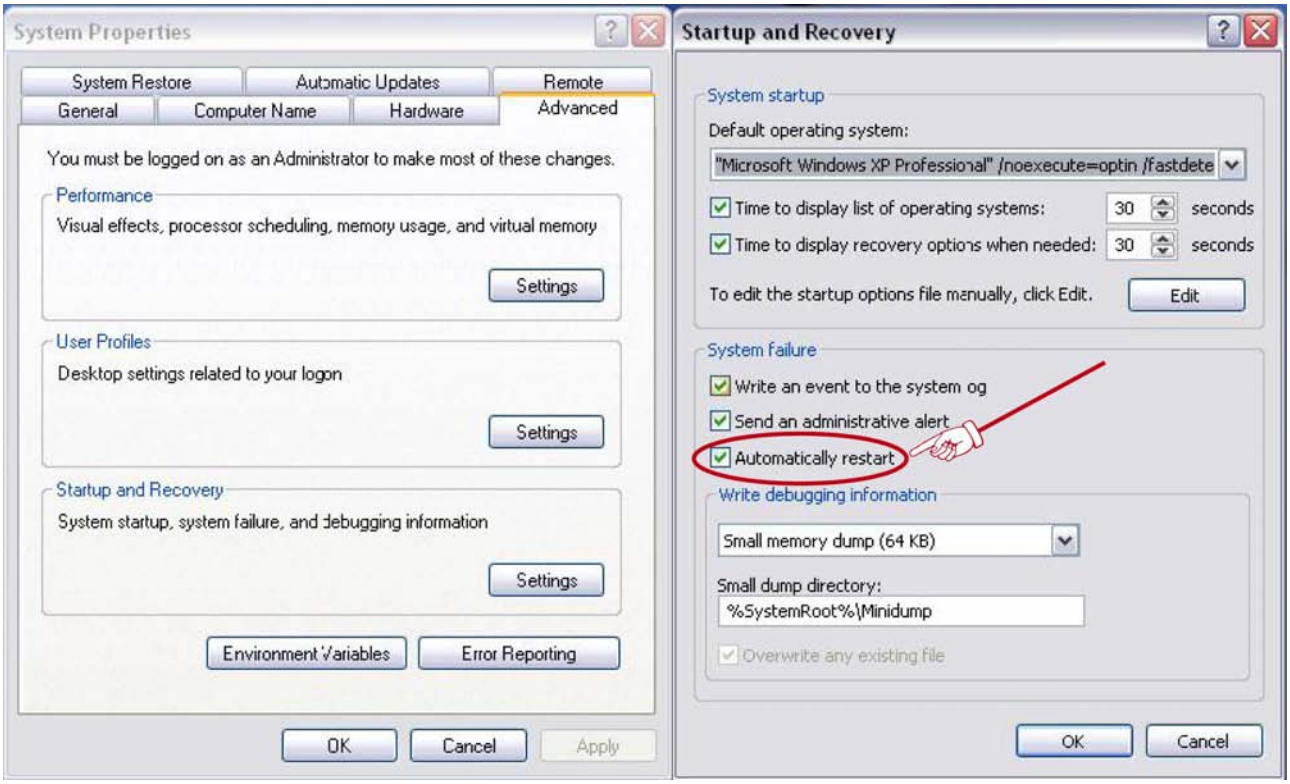
For Shutdown: An over temperature notification is executed. This causes the OS to shut down in an orderly fashion.

For Restart: An ACPI fatal error is reported to the OS.

It depends on your particular OS as to how this reported fatal error will be handled when the Restart function is selected. If you are using Windows XP/2000 there is a setting that can be enabled to ensure that the OS will perform a restart when a fatal error is detected. After a very brief blue-screen the system will restart.

You can enable this setting by going to the “System Properties” dialog box and choosing the “Advanced” tab. Once there choose the “Settings” button for the “Startup and Recovery” section. This will open the “Startup and Recovery” dialog box. In this dialog box under “System failure” there are three check boxes that define what Windows will do when a fatal error has been detected. In order to ensure that the system restarts after a 'Watchdog ACPI Event” that is set to 'Restart', you must make sure that the check box for the selection “Automatically restart” has been checked. If this option is not selected then Windows will remain at a blue-screen after a 'Watchdog ACPI Event” that has been configured for 'Restart' has been generated. Below is a Windows screen-shot showing the proper configuration.

Win XP Watchdog ACPI Event restart configuration



9.4.3 PCI & PCI Express Configuration Submenu

Feature	Options	Description
PCI ROM Priority	Legacy ROM **EFI Compatible ROM**	Specify which PCI option ROM to launch in case that multiple option ROMs (legacy and EFI compatible) are present.
Launch PXE Option ROM	**Disabled** Enabled	Enable or disable start of PXE option ROMs for external legacy network devices.
Launch Storage Option ROM	Disabled **Enabled**	Enable or disable start of option ROMs for legacy mass storage devices.
PCI Settings		
PCI Latency Timer	**32,** 64, 96, 128, 160, 192, 224, 248 PCI Bus Clocks	Select value to be programmed into PCI latency timer register.
VGA Palette Snoop	**Disabled** Enabled	Enable or disable VGA palette registers snooping.
PERR# Generation	**Disabled** Enabled	Enable or disable PCI device SERR# generation.
SERR# Generation	**Disabled** Enabled	Enable or disable PCI device SERR# generation.
►PIRQ Routing	submenu	Opens the PIRQ routing submenu.
PCI Express Device & Link Settings		
Relaxed Ordering	**Disabled** Enabled	Enable or disable PCI Express device relaxed ordering.
Extended Tag	**Disabled** Enabled	If enabled a device may use an 8-bit tag filed as a requester.
No Snoop	Disabled **Enabled**	Enable or disable PCI Express device 'No Snoop' option.
Maximum Payload	**Auto** 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set maximum payload of PCI Express devices or allow system BIOS to select the value.
Maximum Read Request	**Auto** 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set maximum read request size of PCI Express devices or allow system BIOS to select the value.
Extended Synch	**Disabled** Enabled	If enabled, the generation of extended PCI Express synchronization patterns is allowed.

9.4.3.1 PIRQ Routing Submenu

Feature	Options	Description
PIRQA	**Auto** IRQ3 IRQ4 IRQ6 IRQ7 IRQ10 IRQ11 IRQ14 IRQ15	Set interrupt for selected PIRQ. Refer to board's resource list of devices connected to the respective PIRQ. *Note: These settings will only be effective while operating in PIC (non IOAPIC) interrupt mode.*
PIRQB	See above	See above
PIRQC	See above	See above
PIRQD	See above	See above
PIRQE (PCI INTA)	See above	See above
PIRQF (PCI INTA)	See above	See above
PIRQG (PCI INTA)	See above	See above
PIRQH (PCI INTA)	See above	See above

9.4.4 ACPI Configuration Submenu

Feature	Options	Description
Hibernation Support	Disabled **Enabled**	Enable or disable system ability to hibernate (operating system S4 sleep state). This option may not be effective with some operating systems.
ACPI Sleep State	Suspend Disabled **S3 (Suspend to RAM)**	Select the state used for ACPI system sleep/suspend.
S3 Video Repost	**Disabled** Enabled	Enable or disable video BIOS re-post on S3 resume. Required by some operating systems.
USB Device Wakeup From S3 or S4	Disabled **Enabled**	Enable or disable USB device wakeup support from S3 or S4. Additional operating systems may be required as well.
Active Trip Point	**Disabled**, 20, 30, 40, 50, 60, 70, 80, 90, 95°C	Specifies the temperature threshold at which the ACPI aware OS turns the fan on/off.
Passive Trip Point	**Disabled**, 60, 70, 80, 90, 95°C	Specifies the temperature threshold at which the ACPI aware OS starts/stops CPU clock throttling.
LID Button Support	**Disabled** Enabled	Configure XTX GPE1 to act as ACPI LID button.

9.4.5 RTC Wake Settings Submenu

Feature	Options	Description
Wake System At Fixed Time	**Disabled** Enabled	Enable system to wake from S5 using RTC alarm.
Wake up hour		Specify wake up hour.
Wake up minute		Specify wake up minute.
Wake up second		Specify wake up second.

9.4.6 Trusted Computing Configuration Submenu

Feature	Options	Description
TPM Support	**Disabled** Enabled	Enable or disable TPM support. System reset is required after change.
TPM State	**Disabled** Enabled	Enable or disable TPM chip. *Note: System might restart several times during POST to acquire target state.*
Pending TPM Operation	**None,** Enable Take Ownership, Disable Take Ownership, TPM Clear	Perform selected TPM chip operation. *Note: System might restart several times during POST to perform selected operation.*

Note

This submenu is visible only if the optional TPM chip is implemented. By default, the TPM chip is not implemented.

9.4.7 CPU Configuration Submenu

Feature	Options	Description
Limit CPUID Maximum	**Disabled** Enabled	When **enabled**, the processor will limit the maximum CPUID input value to **03h** when queried, even if the processor supports a higher CPUID input value. When **disabled**, the processor will return the actual maximum CPUID input value of the processor when queried. Limiting the CPUID input value may be required for older operating systems that cannot handle the extra CPUID information returned when using the full CPUID input value.
AMD PowerNow! Support	Disabled **Enabled**	Enable or disable support for AMD PowerNow! Technology. Allows operating systems to control CPU performance states.
Maximum OS P-State	**P-State 0** P-State 1 P-State 2 P-State 3 P-State 4	Select the maximum CPU performance state the operating system should support. Higher numbers mean lower performance. P-state 0 is the highest performance state.
Maximum Power Up P-State	**P-State 0** P-State 1 P-State 2 P-State 3 P-State 4	Select the maximum CPU performance state to be set at power up. Higher numbers mean lower performance. P-state 0 is the highest performance state.
NX Mode	Disabled **Enabled**	Enable or disable the 'no-execute' page protection function.
Virtualization Technology	Disabled **Enabled**	When enabled, a Virtual Machine Manager (VMM) can utilize the integrated hardware virtualization support.
C6 Support	**Disabled** Enabled	Enable or disable CPU C6 low power state support.
Core Performance Boost	**Auto** Disabled	Controls usage of boosted CPU P-states, i.e. P-states above the standard CPU P-state limit. Availability of boosted P-states depends on CPU type and revision, actual usage on total CPU/GPU power consumption.

9.4.8 Chipset Configuration Submenu

Feature	Options	Description
Memory Bank Interleaving	**Disabled** Enabled	Enable or disable memory bank interleaving.
Memory Bus Clock	**Auto** 400MHz (DDR3-800) 533MHz (DDR3-1066)	Select or limit memory frequency.
HDA Controller	Auto Disabled **Enabled**	Control activation of the High Definition Audio controller.
HDMI/DP Audio Support	Disabled **Enabled**	Enable or disable HDMI/DisplayPort integrated audio support.
Onboard LAN	Disabled **Enabled**	Enable or disable the onboard Ethernet controller.
Launch Onboard LAN PXE ROM	**Disabled** Enabled	Enable or disable PXE option ROM execution of the onboard Ethernet controller.
UMI (NB to SB) PCIE Gen2 Support	Disabled **Enabled**	Enable or disable PCI Express generation 2 link speed for the UMI chipset interface.
PCI Express Port 0-3 Configuration	1 x4 Port 2 x2 Ports 1 x2 Port + 2 x1 Ports **4 x1 Ports**	Select configuration of PCI Express ports 0-3.
PCI Express Port 0	Disabled **Enabled**	Enable or disable PCI Express port. *Note: Unless the hotplug support for this port is enabled as well, an unpopulated port will still be disabled if no PCI Express devcie is connected.*
Link Speed	**Auto** PCIE Gen1 PCIE Gen2	Control link speed for this PCIExpress port.
Hotplug Support	**Disabled** Enabled	Enable or disable hotplug support for the respective port.
PCI Express Port 1	Disabled **Enabled**	Enable or disable PCI Express port. *Note: Unless the hotplug support for this port is enabled as well, an unpopulated port will still be disabled if no PCI Express devcie is connected.*
Link Speed	**Auto** PCIE Gen1 PCIE Gen2	Control link speed for this PCIExpress port.
Hotplug Support	**Disabled** Enabled	Enable or disable hotplug support for the respective port.
PCI Express Port 2	Disabled **Enabled**	Enable or disable PCI Express port. *Note: Unless the hotplug support for this port is enabled as well, an unpopulated port will still be disabled if no PCI Express devcie is connected.*
Link Speed	**Auto** PCIE Gen1 PCIE Gen2	Control link speed for this PCIExpress port.
Hotplug Support	**Disabled** Enabled	Enable or disable hotplug support for the respective port.

Feature	Options	Description
PCI Express Port 3	Disabled **Enabled**	Enable or disable PCI Express port. *Note: Unless the hotplug support for this port is enabled as well, an unpopulated port will still be disabled if no PCI Express devcie is connected.*
Link Speed	**Auto** PCIE Gen1 PCIE Gen2	Control link speed for this PCIExpress port.
Hotplug Support	**Disabled** Enabled	Enable or disable hotplug support for the respective port.

9.4.9 Hardware Health Monitoring Submenu

Feature	Options	Description
CPU Temperature	no option	Current CPU temperature.
Southbridge Temperature	no option	Current Southbridge temperature.
Board Temperature	no option	Current board temperature.
DIMM Env. Temperature	no option	Current DIMM environment temperature.
5V Standard	no option	Current 5V input reading.
5V Standby	no option	Current 5V standby input reading.
Memory Voltage	no option	Current memory voltage reading.
CPU Fan Speed	no option	Current CPU fan speed reading.

9.4.10 SATA/PATA Configuration Submenu

Feature	Options	Description
SATA Controller	Disabled **Enabled**	Enable or disable the onboard SATA controller.
SATA Interface Mode	**Native IDE** RAID AHCI Legacy IDE	Select onboard SATA controller interface mode.
SATA Port 0	**Enabled** Disabled	Enable or disable selected port.
Port Speed	**Auto** Gen1 Gen2	Select SATA speed generation for the selected port.
SATA Port 1	**Enabled** Disabled	Enable or disable selected port.
Port Speed	**Auto** Gen1 Gen2	Select SATA speed generation for the selected port.
SATA Port 2	**Enabled** Disabled	Enable or disable selected port.
Port Speed	**Auto** Gen1 Gen2	Select SATA speed generation for the selected port.
SATA Port 3	**Enabled** Disabled	Enable or disable selected port.
Port Speed	**Auto** Gen1 Gen2	Select SATA speed generation for the selected port.
Primary PATA Controller	Disabled **Enabled**	Enable or disable the primary onboard PATA controller.
Maximum UDMA Mode	UDMA0 UDMA1 UDMA2 UDMA3 UDMA4 UDMA5 UDMA6	Allows to limit the UDMA mode that should be supported for drives connected to this controller.
Secondary PATA Controller	Disabled **Enabled**	Enable or disable the secondary onboard PATA controller.
Maximum UDMA Mode	UDMA0 UDMA1 UDMA2 UDMA3 UDMA4 UDMA5 UDMA6	Allows to limit the UDMA mode that should be supported for drives connected to this controller.

9.4.11 USB Configuration Submenu

Feature	Options	Description
USB Port 0	Disabled **Enabled**	Enable or disable selected port.
USB Port 1	Disabled **Enabled**	Enable or disable selected port.
USB Port 2	Disabled **Enabled**	Enable or disable selected port.
USB Port 3	Disabled **Enabled**	Enable or disable selected port.
USB Port 4	Disabled **Enabled**	Enable or disable selected port.
USB Port 5	Disabled **Enabled**	Enable or disable selected port.
USB Overcurrent Reporting	Disabled **Enabled**	Select whether activation of the USB overcurrent signals results in USB overcurrent register reporting and software event handling as well.
Legacy USB Support	**Enabled** Disabled Auto	Enables legacy USB support. Auto option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications and setup.
EHCI Hand-off	**Disabled** Enabled	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by the EHCI OS driver.
►Per-Port Legacy USB Support Control	submenu	Opens the Per-Port Legacy USB Support Control submenu
USB Transfer Timeout	1 sec 5sec 10 sec **20 sec**	Timeout value for legacy USB control, bulk and interrupt transfers.
Device Reset Timeout	10 sec **20 sec** 30 sec 40 sec	USB legacy mass storage device start unit command timeout.
Device Power-Up Delay Selection	**Auto** Manual	Define maximum time a USB device might need before it properly reports itself to the host controller. Auto selects a default value which is 100ms for a root port or derived from the hub descriptor for a hub port.
Device Power-Up Delay Value	**5** 1-40	Actual power-up delay value in seconds.
USB Mass Storage Device Name *(Auto detected USB mass storage devices are listed here dynamically)*	**Auto** Floppy Forced FDD Hard Disk CD-ROM	Every USB mass storage device that is enumerated by the BIOS will have an emulation type setup option. This option specifies the type of emulation the BIOS has to provide for the device. *Note: The device's formatted type and the emulation type provided by the BIOS must match for the device to boot properly.* Select *AUTO* to let the BIOS auto detect the current formatted media. If Floppy is selected then the device will be emulated as a floppy drive. *Forced FDD* allows a hard disk image to be connected as a floppy image. Works only for drives formatted with FAT12, FAT16 or FAT32. *Hard Disk* allows the device to be emulated as hard disk. *CDROM* assumes the CD.ROM is formatted as bootable media, specified by the 'El Torito' Format Specification.

9.4.11.1 Per-Port Legacy USB Support Control Submenu

Feature	Options	Description
USB0 Port Legacy Support	Disabled **Enabled**	Enable or disable legacy USB support for this port. Enabled is only effective if the port is not disabled by another setting in the USB configuration menu.
USB1 Port Legacy Support	See above	See above
USB2 Port Legacy Support	See above	See above
USB3 Port Legacy Support	See above	See above
USB4 Port Legacy Support	See above	See above
USB5 Port Legacy Support	See above	See above

9.4.12 Super I/O Configuration Submenu

Feature	Options	Description
Onboard Super IO Configuration		
Serial Port 0	Disabled **Enabled**	Enable or disable serial port 0.
Device Settings	*IO=3F8h; IRQ=4;*	*Fixed configuration of serial port 0 if enabled.*
Serial Port 1	Disabled **Enabled**	Enable or disable serial port 1.
Device Settings	*IO=2F8h; IRQ=3;*	*Fixed configuration of serial port 1 if enabled.*
Parallel Port	Disabled **Enabled**	Enable or disable parallel port.
Device Settings	*IO=378h; IRQ=7;*	*Fixed configuration of the parallel port if enabled.*
Device Mode	**Standard Parallel Mode** EPP Mode ECP Mode EPP Mode & ECP Mode	Set the parallel port mode.

9.4.13 Serial Port Console Redirection

Feature	Options	Description
COM0 Console Redirection	**Disabled** Enabled	Enable or disable serial port 0 console redirection.
►Console Redirection Settings	submenu	Opens console redirection configuration sub menu.
COM1 Console Redirection	**Disabled** Enabled	Enable or disable serial port 0 console redirection.
►Console Redirection Settings	submenu	Opens console redirection configuration sub menu.

9.4.13.1 Console Redirection Settings Submenu

Feature	Options	Description
Terminal Type	VT100 VT100+ VT-UTF8 **ANSI**	Select terminal type.
Baud rate	9600, 19200, 38400, 57600, **115200**	Select baud rate.
Data Bits	7, **8**	Set number of data bits.
Parity	**None** Even Odd Mark Space	Select parity.
Stop Bits	**1** 2	Set number of stop bits.
Flow Control	**None** Hardware RTS/CTS	Select flow control.
Recorder Mode	**Disabled** Enabled	With recorder mode enabled, only text output will be sent over the terminal. This is helpful to capture and record terminal data.
Resolution 100x31	**Disabled** Enabled	Enables or disables extended terminal resolution in UEFI environment.
Legacy OS Redirection Resolution	**80x24** 80x25	Number of rows and columns supported for legacy OS redirection.

9.5 Boot Setup

Select the Boot tab from the setup menu to enter the Boot setup screen.

9.5.1 Boot Settings Configuration

Feature	Options	Description
Quiet Boot	**Disabled** Enabled	*Disabled* displays normal POST diagnostic messages. *Enabled* displays OEM logo instead of POST messages. *Note: The default OEM logo is a dark screen.*
Setup Prompt Timeout	**1** 0 - 65535	Number of seconds to wait for setup activation key. 0 means no wait for fastest boot, 65535 means infinite wait.
POST/Setup VGA Support	**Disabled** Enabled	Select VGA mode for setup and POST screen. Enables setup and POST screen output support for VGA and WVGA display resolutions.
Bootup NumLock State	**On** Off	Select the keyboard numlock state.
Enter Setup If No Boot Device	No **Yes**	Select whether the setup menu should be started if no boot device is connected.
Enable Popup Boot Menu	No **Yes**	Select whether the popup boot menu can be started.
Boot Priority Selection	Device Based **Type Based**	Select between device and type based boot priority lists. The “Device Based” boot priority list allows you to select from a list of currently detected devices only. The “Type Based” boot priority list allows you to select device types, even if a respective device is not yet present. Moreover, the “Device Based” boot priority list might change dynamically in cases when devices are physically removed or added to the system. The “Type Based” boot menu is static and can only be changed by the user.
1st, 2nd, 3rd, ... Boot Device (Up to 12 boot devices can be prioritized if device based priority list control is selected. If “Type Based” priority list control is enabled only 8 boot devices can be prioritized.)	Disabled SATA 0 Drive SATA 1 Drive SATA 2 Drive SATA 3 Drive Primary PATA Master Primary PATA Slave Secondary PATA Master Secondary PATA Slave USB Floppy USB Harddisk USB CDROM Onboard LAN External LAN Other BEV Device OEM BEV Device	This view is only available when in the default “Type Based” mode. When in “Device Based” mode you will only see the devices that are currently connected to the system.
Power Loss Control	**Remain Off** Turn On Last State	Specifies the mode of operation if an AC power loss occurs. *Remain Off* keeps the power off until the power button is pressed. *Turn On* restores power to the computer. *Last State* restores the previous power state before power loss occurred. *Note: Only works with an ATX type power supply.*
AT Shutdown Mode	**System Reboot** Hot S5	Determines the behavior of an AT-powered system after a shutdown.
System Off Mode	**G3/Mech Off** S5/Soft Off	Define system state after shutdown when a battery system is present.
GateA20 Active	**Upon Request**	Gate A20 control.

Feature	Options	Description
	Always	Upon Request = Gate A20 can be disabled using BIOS services. Always = Do not allow disabling Gate A20
Option ROM Messages	**Force BIOS** Keep Current	Set display mode for option ROMs.
Interrupt 19 Capture	**Disabled** Enabled	Defines whether option ROMs may trap the INT19h legacy boot vector.

Note

1. *The term 'AC power loss' stands for the state when the module looses the standby voltage on the 5V_SB pins. On congatec modules, the standby voltage is continuously monitored after the system is turned off. If within 30 seconds the standby voltage is no longer detected, then this is considered an AC power loss condition. If the standby voltage remains stable for 30 seconds, then it is assumed that the system was switched off properly.*

2. *Inexpensive ATX power supplies often have problems with short AC power sags. When using these ATX power supplies it is possible that the system turns off but does not switch back on, even when the PS_ON# signal is asserted correctly by the module. In this case, the internal circuitry of the ATX power supply has become confused. Usually another AC power off/on cycle is necessary to recover from this situation.*

9.6 Security Setup

Select the Security tab from the setup menu to enter the Security setup screen.

9.6.1 Security Settings

Feature	Options	Description
Administrator Password	enter password	Specifies the setup administrator password.
HDD Security Configuration		
List of all detected harddisks supporting the security feature set	Select device to open device security configuration submenu	

9.6.2 Hard Disk Security

This feature enables the users to set, reset or disable passwords for each hard drive in Setup without rebooting. If the user enables password support, a power cycle must occur for the hard drive to lock using the new password. Both user and master password can be set independently however the drive will only lock if a user password is installed.

9.6.3 Save & Exit Menu

Select the Save & Exit tab from the setup menu to enter the Save & Exit setup screen.

You can display an Save & Exit screen option by highlighting it using the <Arrow> keys.

Feature	Description
Save Changes and Exit	Exit setup menu after saving the changes. The system is only reset if settings have been changed.
Discard Changes and Exit	Exit setup menu without saving any changes.
Save Changes and Reset	Save changes and reset the system.
Discard Changes and Reset	Reset the system without saving any changes.
Save Options	
Save Changes	Save changes made so far to any of the setup options. Stay in setup menu.
Discard Changes	Discard changes made so far to any of the setup options. Stay in setup menu.
Restore Defaults	Restore default values for all the setup options.
Boot Override	
List of all boot devices currently detected	Select device to leave setup menu and boot from the selected device. Only visible and active if Boot Priority Selection setup node is set to “Device Based”.

10 Additional BIOS Features

The conga-XAF uses a congatec/AMI Aptio UEFI firmware that is stored in an onboard Flash Rom chip and can be updated using the congatec System Utility, which is available in a DOS based command line, Win32 command line, Win32 GUI, and Linux version.

The BIOS displays a message during POST and on the main setup screen identifying the BIOS project name and a revision code. The initial production BIOS is identified as XBRAR1xx where XBRA is the congatec internal project name, R is the identifier for a BIOS ROM file, 1 is the so called feature number and xx is the major and minor revision number.

10.1 Updating the BIOS

BIOS updates are often used by OEMs to correct platform issues discovered after the board has been shipped or when new features are added to the BIOS.

For more information about “Updating the BIOS” please refer to the user's guide for the congatec System Utility, which is called CGUTLm1x.pdf and can be found on the congatec AG website at www.congatec.com.

10.2 BIOS Security Features

The BIOS provides a setup administrator password that limits access to the BIOS setup menu.

10.3 Hard Disk Security Features

Hard Disk Security uses the Security Mode feature commands defined in the ATA specification. This functionality allows users to protect data using drive-level passwords. The passwords are kept within the drive, so data is protected even if the drive is moved to another computer system.

The BIOS provides the ability to 'lock' and 'unlock' drives using the security password. A 'locked' drive will be detected by the system, but no data can be accessed. Accessing data on a 'locked' drive requires the proper password to 'unlock' the disk.

The BIOS enables users to enable/disable hard disk security for each hard drive in setup. A master password is available if the user can not remember the user password. Both passwords can be set independently however the drive will only lock if a user password is installed. The max length of the passwords is 32 bytes.

During POST each hard drive is checked for security mode feature support. In case the drive supports the feature and it is locked, the BIOS prompts the user for the user password. If the user does not enter the correct user password within five attempts, the user is notified that the drive is locked and POST continues as normal. If the user enters the correct password, the drive is unlocked until the next reboot.

In order to ensure that the ATA security features are not compromised by viruses or malicious programs when the drive is typically unlocked, the BIOS disables the ATA security features at the end of POST to prevent their misuse. Without this protection it would be possible for viruses or malicious programs to set a password on a drive thereby blocking the user from accessing the data.