

BIOS User Guide

B860M-SILVER



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BIOS Update

The BIOS can be updated using either of the following utilities:

- BIOSTAR BIOS-FLASHER: Using this utility, the BIOS can be updated from a file on a hard disk, a USB drive (a flash drive or a USB hard drive), or a CD-ROM.
- BIOSTAR BIOS Update Utility: It enables automated updating while in the Windows environment. Using this utility, the BIOS can be updated from a file on a hard disk, a USB drive (a flash drive or a USB hard drive), or a CD-ROM, or from the file location on the Web.

BIOSTAR BIO-FLASHER

►Note

- » This utility only allows storage device with FAT32/16 format and single partition.
- » Shutting down or resetting the system while updating the BIOS will lead to system boot failure.

Updating BIOS with BIOSTAR BIO-FLASHER

- 1. Go to the website to download the latest BIOS file for the motherboard.
- 2. Then, copy and save the BIOS file into a USB flash (pen) drive.(Only supported FAT/FAT32 format)
- 3. Insert the USB pen drive that contains the BIOS file to the USB port.
- 4. Power on or reset the computer and then press <F12> during the POST process.
- 5. After entering the POST screen, the BIO-FLASHER utility pops out. Choose <fs0> to search for the BIOS file.
- 6. Select the proper BIOS file, and a message asking if you are sure to flash the BIOS file. Click "Yes" to start updating BIOS.



7. A dialog pops out after BIOS flash is completed, asking you to restart the system. Press the <Y> key to restart system.

FFS	Information	
	Project Name : 2690CTA 8103 Date : 07/13/2021	
Total FFS : 2	#ile 8105 8105 #lash done,Reset system? (Y/R)	
Files	Stati	
8664/706.85T 34184706.838 H51H421.P82 8454/658.805 X51H6615.85T 26580733.85T APL00804.85S	Fishing (2000:11).01) III No Undert III III	

8. While the system boots up and the full screen logo shows up, press key to enter BIOS setup.

After entering the BIOS setup, please go to the <Save & Exit>, using the <Restore Defaults> function to load Optimized Defaults, and select <Save Changes and Reset> to restart the computer. Then the BIOS Update is completed.

BIOS Update Utility (through the Internet)

- 1. Installing BIOS Update Utility from the DVD Driver.
- 2. Please make sure the system is connected to the internet before using this function.
- 3. Launch BIOS Update Utility and click the "Online Update" button on the main screen.

- An open dialog will show up to request your agreement to start the BIOS update. Click "Yes" to start the online update procedure.
- 5. If there is a new BIOS version, the utility will ask you to download it. Click "Yes" to proceed.
- After the download is completed, you will be asked to program (update) the BIOS or not. Click "Yes" to proceed.



B860M-SILVER <

 After the updating process is finished, you will be asked you to reboot the system. Click "OK" to reboot.

Information	— ×
Update BIOS Finish ! Please Rebo	ot System !
	ОК

8. While the system boots up and the full screen logo shows up, press key to enter BIOS setup.

After entering the BIOS setup, please go to the <Save & Exit>, using the <Restore Defaults> function to load Optimized Defaults, and select <Save Changes> and <Reset> to restart the computer. Then, the BIOS Update is completed.

BIOS Update Utility (through a BIOS file)

- 1. Installing BIOS Update Utility from the DVD Driver.
- 2. Download the proper BIOS from http://www.biostar.com.tw/
- 3. Launch BIOS Update Utility and click the "Update BIOS" button on the main screen.

- 4. A warning message will show up to request your agreement to start the BIOS update. Click "OK" to start the update procedure.
- 5. Choose the location for your BIOS file in the system. Please select the proper BIOS file, and then click on "Open". It will take several minutes, please be patient.





6. After the BIOS Update process is finished, click on "OK" to reboot the system.



7. While the system boots up and the full screen logo shows up, press key to enter BIOS setup.

After entering the BIOS setup, please go to the <Save & Exit>, using the <Restore Defaults> function to load Optimized Defaults, and select <Save Changes and Reset> to restart the computer. Then, the BIOS Update is completed.

Backup BIOS

Click the Backup BIOS button on the main screen for the backup of BIOS, and select a proper location for your backup BIOS file in the system, and click "Save".

Save As		? 🛛
Save in:	My Documents 💌 🗢 🖆 🗊-	
My Recent Documents Desktop My Documents	ed Mr Mak ∰ Potuses in report	
My Computer		
My Network Places	File name: Itest	Save Cancel

UEFI BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

Plug and Play Support

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

ACPI Support

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI UEFI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

Using Setup

When starting up the computer, press **** during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

▶ Note

- » The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- » For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.
- » The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.



EZ Mode

In EZ mode, it allows you to quickly operate the basic system setting. Press <F7> to display the EZ Mode menu.

- 1. System Time: Display the system clock.
- 2. MB Info: Display the motherboard Information.
- **3. Hardware Information:** Shows the CPU/ MB temperature, memory size, BIOS version and build date.
- 4. Boot Priority Bar: you can move the device icons to change the boot priority.
- **5. Setup Function Keys:** This item allows you to sets Save & Exit. Press F6/ F7/ F12 key to switch between Vivid Led DJ, Advanced mode and BIO-Flasher.
- 6. Language Settings: This item allows you to change language.

7. EZ Settings: This item enable or disable the Intel Default Settings/ VMD(RAID)/ Erp Control/ UEFI LAN Driver.

8. CPU/ Memory/ Storage Information: This item display CPU/ Memory/ Storage information.

9. XMP Settings & AI FAN Palette Interface: Enables or disables the XMP menu. It also allows you to click or press the A.I FAN button to enter the fan setting interface.

▶ Note

» Menu contents will be different slightly, depending on different motherboard of users' computers.



A.I FAN Control

Press <F5> to display the A.I FAN Control menu.

- 1. CPU FAN/ CPU OPT/ System1/ System2: Click button to set the status value of CPU FAN, SYSTEM FAN.
- **2. PWM/ Temperature Panel:** According to the fan PWM value corresponding to CPU and system temperature to adjust the fan speed.
- » Allows you to adjust according to your preferences.
 - 3. Temperature: Shows the current CPU and system temperature.
 - 4. Control Mode: Allows you to control mode of the fans.
 - Quiet: Enable Quiet mode.
 - Aggressive: Enable Aggressive mode.
 - Manual: Enable Manual mode.
 - Full on: Enable Full On mode.
 - 5. User Selection: Sets the fan property controls the actual selection operation.
 - Auto: Allows you to adjust the Automatic detection Mode.
 - DC: Allows you to adjust the Direct Current (DC) Mode.
 - PWM: Allows you to adjust the Pulse Width Modulation (PWM) Mode.

Note

- » Menu contents will be different slightly, depending on different motherboard of users' computers.
- » Once you are finished making your selections, choose the <Save & Exit> menu to save.





VIVID LED Control

Press <F6> to display the VIVID LED DJ Control menu.

- 1. LED SPARKLE: Allows to you choose sparkle of the LEDs.
 - Permanent: LEDs are constantly lit.
 - Breath: LEDs gradually flash on and off.
 - Shine: LEDs flash at a specific frequency.
 - OFF: Allows you to enable or disable VIVID LED of a single item.
- 2. LED Type: Select the LED lighting blocks.
 - 12V LED: The 12V LED illumination. (12V_LED Device)
 - 5V LED1: The 5V LED illumination. (5V_LED Device)
 - 5V LED2: The 5V LED illumination. (5V_LED Device)
- **3. ON/OFF:** To enable or disable VIVID LED function.
- 4. Color Palette: Allows to you choose specific color of the LEDs.
- 5. LED Brightness Bar: Allows you to adjust the LED brightness.

⊳Note

- » Menu contents will be different slightly, depending on different motherboard of users' computers.
- » Once you are finished making your selections, choose the <Save & Exit> menu to save.



5	ILVE	R	F5	A.I FAN	F6 '	Vivid Le	d DJ	F7 EZ Mode	
6011	Favorite Ma	in Adva	anced	Chipse	t Bo	oot S	ecurity	Tweaker	Save & Exit
2497 MHZ 0.990 DRAM	Favorite ► Hemory Insight •Hemory profile					Default	Profile		++: Select Screen 1//Elicx: Select Tiem fmtr/Dit(Lick: Select +/-: Change Dot. F1: General Helo F2: Otimized Defaults F1: Print Screen F2: SIDS Flash ESC/Right Cilcx: Exit Insert: Add/Pel Favorite Idem
темр 1 эг: Jan ⁰⁹ ·14·19·									Memory Insight
5	ILVE	R	F5	A.I FAN	F6 '	Vivid Le	d DJ	F7 EZ Mode	
СРЧ	Favorite Ma	in Adva	F5 anced	A.I FAN Chipse	F6 t	Vivid Le	d DJ Security	F7 EZ Mode	Save & Exit
CPU 2498 MHZ 0.990 +	Favorite Ma DDR5_B2 Profil DDR Vendor DRM Hanuf. PartNumer Capacity	in Adva e Kingston SK Hynix Richtek KF556C36- DOR5 - 163	F5 anced	A.I FAN Chipse (29/202 (29/202 Rx8 166b)	F6 t Bc 3) A-Die	Vivid Le	d DJ	F7 EZ Mode	Save & Exit ++: Select Screen H//Click: Select Tree hter/Wbl Click: Select +/: Change Out. Select +/: Change Help F3: Optimized Defaults F1: Osave & Exit
CPU	Favorite Ma DORS_B2 Profil DORS_B2 Profil DOR Vendor DOR Vendor PAT Number Capacity	e Kingston SK Hynix Richtek KF556C36- DDR5 - 163 Standard	F5 anced ¹⁶ 384 MB (1 Custom	A.I FAN Chipse (29/202 Rx8 16Gb) XHP1	F6 t Bo 3) A-Die XHP2	Vivid Le	d DJ iecurity	F7 EZ Mode	Save & Exit ++: Select Screen H//Click: Select Tree heter/Dbi Click: Select +/-: Change QDL. F3: Optimized Defaults F3: Optimized Defaults F3: Optimized Defaults F3: Streen F1: F1: Pint Screen F1: Store F1: Storen F1: Store F1: Storen
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CPU eves werz o seet DRAM Uryse werz 1,110+ TEMP 1,01 32: 32: 1,00 09	Favorite Ma DORS_B2 Prof 11 DOR Vendor Part Numer Capacity FartNumer Capacity Frequency toL tRAS tCHL tRAS tCHL tRAS tCHL tRAS tCHL tRAS tRAS tRAS tRAS tRAS tRAS tRAS tRAS	In Advz e Kingston Kingston Standard 0085 16 Standard 4800Hrs 4800Hrs 77 38 24 480 706 72 18 2 1.000 1.000 1.100	FS anced 16 16 884 H8 (1) 40 4800Hhz 40 4800Hhz 8 24 46800 13 8 22 12 2 12 2 8 24 4 50 2 12 2 1 2 10 0 1.100	A.I FAN Chipse (29/202 (29/202 8463 86 86 86 86 86 86 86 86 86 86 86 86 86	F6' t Bc 3) A-Die 5200HHz 5200HHz 5200HHz 5079 5079 5079 5079 133 8 20 20 20 20 20 20 20 20 20 20	Expoil 5 5600Wm2 5600Wm2 54630Wm2 54630Wm2 54630 824 21 21 22 5463 24 21 21 21 21 21 21 21 21 21 21 21 21 21	EXPO2 5200MPz 5200MPz 50797 8 2077 7 2 2 2 2 579 7 8 2 7 5 7 8 2 7 5 7 8 2 7 5 7 8 2 7 5 7 5 6 2 0 7 8 8 2 7 5 7 5 6 5 7 5 6 5 7 5 6 5 7 5 6 5 7 5 7	F7 E2 Mode Tweaker	Save & Exit **: Select Screen H//Click: Select Item Enter/DDI Click: Select Fil: General Help Fil: Schlinzke Got. Fil: Schlinzke Schl Fil: Sight Click: Exit FaxOrite Item FaxOrite Item

1. Favorite

Memory Insight

These items display memory information.

DDR5_B1 Profile DDR5_B2 Profile DDR5_A1 Profile DDR5_A2 Profile DDR Vender DRAM Manuf. PMIC Vender DataCode Capacity



Frequency | Standard | Custom | XMP1 | EXPO1 tCL tRCD tRAS tCWL tFAW tREFI tRFC tRTP tWR tRRD L tRRD S tWTR L tWTR S NMode VDD

VDDQ

VPP

Memory profile

Select DIMM timing profile. The below values start with the currently running values and don't auto populate.

Default Profile Custom Profile XMP Profile 1 EXPO Profile 1

2. Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.

	ILVE	२ _{F5}	A.I FAN	F6 Vivid	l Led DJ	F7 EZ Mode	
сец	Favorite Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2497 MHZ 0.990+	BIOS Information Compliancy Project Code Model Name BIOS Version Build Date			UEFI 2 IB86A- B860M- B86AOC 12/03/	.9; PI 1.7 MDT SILVER 03.BST 2024		++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit
DRAM	Total Memory Memory Frequency XMP Profile 1 XMP Profile 2 XMP Profile 3 EXPO Profile 1 EXPO Profile 2			16384 4800 DDR5 DDR5 None DDR5 DDR5	MB MHz (DDR5) 5600 36-38-38 5200 40-40-40 5600 36-38-38 5200 40-40-40		F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
ТЕМР							Choose the system default language
ţ	Access Level System Language			Admini	strator English	_	
32:	System Date System Time			(Thu 0 (14:20	1/09/2025] :04]		
19025 Dan 09							
1420							

2-1 BIOS Information

It shows system information including UEFI BIOS version, Project Code, Model Name, Build Date and etc.

2-2 Total Memory

Shows system memory size, VGA shard memory will be excluded.

2-3 Memory Frequency

Shows the system memory frequency.

2-4 System Language

Choose the system default language.

2-5 System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

2-6 System Time

Set the system internal clock.



3. Advanced Menu

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

⊳ Note

» Beware of that setting inappropriate values in items of this menu may cause system to malfunction.

	ILVER	F 5 A.1 I	-AN F6 Vivi	d Led DJ	F7 EZ Mode	
5011	Favorite Main	Advanced Ch	ipset Boot	Security	Tweaker	Save & Exit
2498 MHZ 0.990+	 Connectivity Configuration CPU Configuration SATA Configuration VMD Configuration Trusted Computing ACPI Settings 	ration	_			++: Select Screen fl/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults
DRAM	 ITS625 Super ID ComH Hardware Monitor PCI Subsystem Settir USB Configuration Network Stack Config NVMe Configuration Offboard SATA Control 	iguration gS uration iller Configuration				F10: Save & Exit F11: Print Screen F12: B105 Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
темр 1∎						Configure Connectivity related options
328 2025 90 neL						
·14·20·						
	ilver	R F5 A.1 I	AN F6 Vivi	d Led DJ	F7 EZ Mode	
CPU	Favorite Main	Advanced Ch	ipset Boot	Security	Tweaker	Save & Exit
2497 MHZ 0.990+	CNVI CRF Present CNVI Configuration CNVI Mode WI-FI Core BT Core BT Audio Offload		No	to Detection Enabled Enabled Enabled		++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults
	Skip VDID Check			Disabled		F10: Save & Exit
DRHM	Operation the second states of the second second					FILL FILL SCIECH
	CoExistence Manager Preboot BLE			Disabled Disabled		F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del
4794 MHZ 1.110+	COEXISTENCE Manager Preboot BLE ▶ WWAN Configuration			Disabled Disabled		Fil: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item

3-1 Connectivity Configuration

This item shows Configure Connectivity related options.

CNVi Mode

This option configures Connectivity. [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Inegrated solution (CNVi) will be enabled; [Disable

Integrated] disables Integrated Solution.

» Note: When CNVi is present, the GPIO pins that are used for ratio.

Wi-Fi Core

This is an option intended to Enable/Disable Wi-Fi Core in CNVi.

BT Core

This is an option intended to Enable/Disable BT Core in CNVi.

BT Audio Offload

This is an option to Enable/Disable BT Audio Offload which enables audio input from BT device in HFP format to the audio DSP and enables power efficient audio output to BT device via A2DP format. This feature only support with Intel(R) Wireless-AX 22560.

Skip VDID Check

This is an option to Enable/Disable skip VDID Check for CNVd.

Preboot BLE

This item enables or disables Preboot Bluetooth function.

WWAN Configuration

Configure WWAN related options.

WWAN Device

Select the M.2 WWAN Device options to enable 4G - 7360/7560 (Intel), 5G - M80 (Media Tek) Modems.

Firmware Flash Device

Enable or Disable WWAN Fireware Flash Device.

Wireless CNV Config Device

Enable or Disable WCCD ACPI device node.

WWAN Reset Workaround

Enabling this workardound will result in BIOS asserting FULL_CARD_POWER_OFF#, PERST# and RESET#WWAN signals before the WWAN device Power-On Sequence is ecceuted. Disabling it has no impact.

WA - WWAN OEM SVID

WWAN OEM Sub-Vendor ID

WA - WWAN SVID Detect Timeout

The timeout value (ms) for detecting WWAN OEM SVID. Please notice it's workaround for OEM only.





3-2 CPU Configuration

This item shows CPU Information

Overclocking Lock

Enable/Disable Overclocking Lock (BIT 20) in FLEX_RATIO (194) MSR.

Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

AVX

This item enables or disables the AVX 2/3 Instructions. This is applicable for big core only.

Per Core Disable Configuration

Enable/Disable Per Core Disable. When Per Core Disable Configuration is enabled, selection of Active Cores and Active. Efficient-cores will be disabled.

Active Performance-cores

Number of P-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together. When both are {0,0}, Pcode will enable all cores.

Active Efficient-cores

Number of E-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together. When both are {0,0}, Pcode will enable all cores.

AES

Enable/Disable AES (Advanced Encryption Standard).

X2APIC Enable

Enable/Disable X2APIC Operating Mode. When this option is configured as 'Enabled', 'VT-d' option must be 'Enabled' and 'X2APIC Opt Out' option must be 'Disabled' as well. This option will be grayed out when 'VT-d' option is configured as 'Disabled'.

Legacy Game Compatibility Mode

When enabled, Pressing the scroll lock key will toggle the Efficient-cores between being parked when Scroll Lock LED is on and un-parked when LED is off.

	ILV		२ _{F5}	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
501	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	SATA Conf SATA Cont SMART Set	iguration roller(s) f Test				Enabled Disabled		++: Select Screen fl/Click: Select Item Enter/Dbl Click: Select +/-: Change Ont
0.990+	SATA Hot	Plug				Disabled		F1: General Help F3: Optimized Defaults
					Empty			F10: Save & Exit
DRAM 4794 MHZ 1.1 10+	SATA_2 SATA_3 SATA_4				Empty Empty Empty			Fl1: Print Screen Fl2: BlOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
темр								Enable/Disable SATA Device.
ţ.								
32:								
-2025 90 л 6L								
14,24,								

3-3 SATA Configuration

SATA Device Options Settings

SATA Controller(s)

This item enables or disables Serial ATA Device.

SMART Self Test

This item runs SMART Self Test on all HDDs during POST.

SATA Hot Plug

This item Designates SATA port as Hot Pluggable.





3-4 VMD Configuration

VMD Options Settings.

Enable VMD controller

Enable/Disable to VMD controller

SATA Mode Selection

Detetmines how SATA controller(s) operate.

PCIE Storage Mode Selection

Determines how PCIE Storage operate.

	ILVE	R F5	A.I FAN	F6 Vivid	l Led DJ	F7 EZ Mode	
сец	Favorite Mai	n Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	TPM 2.0 Devic Firmware Vers Vendor:						++: Select Screen †1/Click: Select Item Enter/Dbl Click: Select /-: Change Out
0.990 +	TPM Device Sele Security Dev: Active PCR ba	ection ice Support unks		SHA256	PTT Enabled		F1: General Help F3: Optimized Defaults F10: Save & Exit
	SHA256 PCR Be SHA256 PCR Be SHA384 PCR Be SM3 256 PCR F	r banks ank ank Aank		588256	, SHH384 , SM3 Enabled Disabled Disabled		Fil: Frint Screen Fil: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
4796 MHZ 1.110+	Pending opera Platform Hier	ation			None Enabled		
	Endorsement H Physical Pres TPM 2.0 Inter	arcny Hierarchy Sence Spec Version HfaceType			Enabled Enabled 1.3 CRB		SELECTS IPM device: PTT or dTPM. PTT - Enables PTT in SkuMgr dTPM 1.2 - Disables
₩ 928							PTT in SkuMgr Warning ! PTT/dTPM will be disabled and all data saved on it will be lost.
2025 Jan 09							
14,25,							

3-5 Trusted Computing

Trusted Computing Settings

TPM Device Selection

This item allows you to selects TPM device: PTT or dTPM. PTT - Enables PTT in SkuMgr dTPM 1.2 - Disables PTT/ dTPM will be disabled and all data saved on it will be lost.

Security Device Support

This item enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA256 PCR Bank

This item enables or disables SHA256 PCR Bank.

SHA384 PCR Bank

This item enables or disables SHA384 PCR Bank.

SM3_256 PCR Bank

This item enables or disables SM3_256 PCR Bank.

Pending operation

This item schedule an operation for the security device. » Note: Your comuter will reboot during restart in order to change state of security device.

Platform Hierarchy

This item enables or disables Platform Hierarchy.

Storage Hierarchy

This item enables or disables Storage Hierarchy.

Endorsement Hierarchy

This item enables or disables Endorsement Hierarchy.

Physical Presence Spec Version

This item select to tell O.S. to support PPI Spec Version 1.2 or 1.3.

» Note some HCK tests might not support 1.3.



H			२ _{F5}	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
сри	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	ACPI Sett	ings PI Auto C	onfiguration			Disabled		↔: Select Screen †↓/Click: Select Item Enter/Dbl Click: Select
2498 MHZ 0.990+	Enable Hi ACPI Slee	bernation p State			S3 (Su	Enabled spend to RAM)		+/-: Change Opt. F1: General Help F3: Optimized Defaults
DRAM	Stroke ke Specific PS2 Mouse	y key PowerOn				Wake Key Disabled		F10: Save & Exit F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit
4796 MHZ 1.110+	Restore A PME Wake Wake syst Wake up d	C Power L up from S em with F ate	oss 5 ixed Time		P	ower Off Disabled Disabled EveryDay		Insert: Add/Del Favorite Item
ТЕМР	Wake up h Wake up m Wake up s				0 0 0			Enables or Disables BIOS ACPI Auto Configuration.
ţ.								
32:								
_2202 09 neL								
14/27								

3-6 ACPI Settings

System ACPI Parameters

Enable ACPI Auto Configuration

This item enables or disables BIOS ACPI auto configuration function.

Enable Hibernation

This item enables or disables system ability to Hibernate (0S/S4 sleep state). This option may not be effective with some 0Ss.

ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Restore AC Power Loss

Specify what state to go to when power is re-applied after a power failure.

PME Wake up from S5

Enables or Disables BIOS ACPI Auto Configuration.

Wake system with Fixed Time

Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified.

Wake up date

Select Wakeup date

Wake up hour

Select 0-23 For example enter 3 for 3am and 15 for 3pm.

Wake up minute

0-59

Wake up second

0-59

	ILVE		5 A.I FAN	F6 Vivid	Led DJ	F7 EZ Mode	
COLI	Favorite Ma	ain Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2497 MHZ 0.990+	IT8625 Super 1 Super IO Chip ▶ Serial Port 1	IO Configuration Configuration		IT8625			++: Select Screen tJ/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults
DRAM							Fi0: Save & Exit Fi1: Print Screen Fi2: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
темр 1 э.г:							Set Parameters of Serial Port 1 (COMA)
1428							

3-7 IT8625 Super IO Configuration

System Super IO Chip Parameters

			२ _{F5}	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
5011	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	Serial P	ort 1 Conf	iguration					++: Select Screen 14/Click: Select Item
2498 MHZ	Device S	ettings			I0=2F8	ih; IRQ=3;		+/-: Change Opt.
0.990+	Change S					Auto		F1: General Help F3: Optimized Defaults F10: Save & Exit
DRAM								F11: Print Screen F12: BIOS Flash
								ESC/Right Click: Exit Insert: Add/Del Favorite Item
4796 MHZ 1.110+								
ТЕМР								Enable or Disable Serial Port (CDM)
ţ								
328								
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·14·28·								

Serial Port 1 Configuration

Set Parameters of Serail Port 1 (COMA).

Serial Port

This item enables or disables serial Port.

Change Settings

This item allows you to select an optimal settings for Super IO Device.



5	ilv		२ _{F5}	A.I FAN	F6 Vivio	d Led DJ	F7 EZ Mode	
сец	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2498 MHZ 0.990+	Pc Health A.I TP Con ShutDown T CPU temper MOS temper System tem CPU Ean So	Status trol emperatur ature ature perature eed	e		: +33 : +34 : +26 - 1940	Disabled Disabled °C °C S RPM	-	++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit F10: Save & Exit F11: Perior Screen
DRAM 4796 MHZ 1.110+	CPU Opt Sp System Fan System Fan CPU Vcore DOR Module CPU DDR IM +12V	eed 1 Speed 2 Speed Voltage C Voltage						F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
темр 1011 Э21								
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3-8 Hardware Monitor

Hardware Monitor Status

A.I TP Control

This item enables or disables A.I TP Control.

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.



3-9 PCI Subsystem Settings

Re-Size BAR Support

If system has Resizable BAR capable PCIe Devices, this option Enables or Disables Resizable BAR Support (Only if system supports 64 bit PCI Decoding).

BME DMA Mitigation

This item enables or disables BME DMA Mitigation. Re-enable Bus Master Attribute disabled during Pci enumeration for PCI Bridges after SMM Locked.





3-10 USB Configuration

Legacy USB Support

The item allows you to enable 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.

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

USB Mass Storage Driver Support

The item enables or disables USB Mass Storage Driver Support.

USB transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

Device reset time-out

The item sets USB mass storage device Start Unit command time-out.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

» The following items appear only when you set the Device power-up delay function to [Manual].

Device power-up delay in seconds

Delay range is 1 ~ 40 seconds, in one second increments.

USB FLASH DRIVE PMAP

This item Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.



3-11 Network Stack Configuration

Network Stack Settings

Network Stack

This item enables or disables UEFI network stack.

» The following items appear only when you set the Network Stack function to [Enabled]

IPv4 PXE Support

This item enables or disables IPv4 PXE Boot Support. If disabled IPv4 PXE boot support will not be available.

IPv4 HTTP Support

This item enables or disables IPv4 HTTP Boot Support. If disabled IPV4 HTTP boot support will not be available.

IPv6 PXE Support

This item enables or disables IPv6 PXE Boot Support. If disabled IPv6 PXE boot support will not be available.

IPv6 HTTP Support

This item enables or disables IPv6 HTTP Boot Support. If disabled IPv6 HTTP boot support will not be available.

PXE boot wait time

Wait time to press ESC key to abort the PXE boot.

Media detect count

Number of times presence of media will be checked.



	ILV		२ _{F5}	A.I FAN	F6 Vivio	Led DJ	F7 EZ Mode	
CPU	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
ß								++: Select Screen ↑↓/Click: Select Item
2497 MHZ 0.990+	NO NVME E)evice Fou						Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit E11: Roint Screen
								F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Eavnrite Item
4794 MHZ 1.110+								
темр								
ţ								
32:								
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3-12 NVMe Configuration

The item shows NVMe controller and driver information.

	iLV		२ _{F5}	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
COL I	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2498 MHZ 1.001+								++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit F10: Save & Exit F11: Period Screen
URAM 4796 MHZ 1.110+								F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
ТЕМР								
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14.31								

3-13 Offboard PCIe SATA Controller

Offboard PCIe SATA Controller

4. Chipset Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

⊳Note



4-1 CEC Ready

CEC Ready





4-2 System Agent (SA) Configuration

System Agent (SA) Parameters

Internal Graphics

This item keeps IGFX enabled based on the setup options.

Primary Display

This item selects which of IGFX/ PEG/ PCI Graphics device should be Primary Display or select SG for Switchable Gfx.

DVMT Pre-Allocated

This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

PAVP Enable

This item enables or disables PAVP.

Max TOLUD

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

Above 4GB MMIO BIOS assignment

This item enables or disables above 4GB Memory Mapped IO BIOS assignment. This is enabled automatically when Aperture Size is set to 2048MB.

VT-d setup menu

VT-d Configuration settings.

Pre-boot DMA Protection

Enable DMA Protection in Pre-boot environment (If DMAR table is installed in DXE and If VTD_ INFO_PPI is installed in PEI.)

DMA Control Guarantee

Enable/Disable DMA_CONTROL_GUARANTEE bit.

	iLV		२ _{F5}	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
сец	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2498 MHZ 0.990+ DRAM	PCIE Conf PCIEX16_1 PCIE Sp ASPM PCIEX16_2 PCIE Sp ASPM	iguration eed eed			Not Pr	esent Auto Disabled esent Auto Disabled		++: Select Screen TJ/Click: Select Hrem Enter/Obl Click: Select +/-: Change Opt. F3: Optimized Defaults F3: Optimized Defaults F10: Save & Exit F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit Inser1: Add/Del
ч796 мнz 1.110+								Favorite Item
ТЕМР								Configure PCIe Speed
ţ								
32:								
2025 90 neL								
·14·34·								

4-3 PCIE Configuration

PCIE Parameters

PCIe Speed

Configure PCIe Speed

ASPM

Set the ASPM Level: Force LOs - Force all links to LOs State. AUTO - BIOS auto configure. DISABLE - Disables ASPM.

PCIE Bifurcation Support

Configure PCIEG4X16 Slot PCIe Lanes.





4-4 PCH-IO Configuration

PCH Parameters

PCI Express Configuration

PCI Express Configuration Settings

HD Audio

Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled. Enabled = HDA will be unconditionally enabled. Auto = HDA will be enabled if present, disabled otherwise.

ErP Control

When ErP is enabled, the system will meet ErP requirement.

BIOS Lock

This item enables or disables the PCH BIOS Lock. Required to be enabled to ensure SMM protection of flash.



4-5 Onboard Device

Onboard LAN1

This item enables or disables Onbaord LAN1.



5. Boot Menu

This menu allows you to setup the system boot options.

Favorite Main Advanced Chipset Boot Security Tweaker Save & Exit Boot Security Tweaker Save & Exit ************************************		ILVER	F5	A.I FAN	F6 Vivi	d Led DJ	F7 EZ Mode	
Boot Configuration Boot Configuration Breach Boot States Boot States Boot States <td< th=""><th>5011</th><th>Favorite Main</th><th>Advanced</th><th>Chipset</th><th>Boot</th><th>Security</th><th>Tweaker</th><th>Save & Exit</th></td<>	5011	Favorite Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
And Constraints Part (12) Boot dotion 42 Part (12) Boot dotion 43 Part (12) Boot dotion 45 Boot	2498 MHZ 0.9904 DRAM	Boot Configuration Setup Promot Timeout Bootup NumLock State Full Screen Logo Dis Boot Success Beep BIOS Flash protectio Fast Boot MRC Fast Boot BIOSTAR Auto Install POST Delay Time(sec) FixED BOOT GREER Pri Boot Onclose t	play n er orities		1 Auto	On Enabled Enabled Enabled Disabled Enabled Enabled		++: Select Screen TJ/Click: Select Item Enterv(b) Click: Select +/: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit F11: Print Screen F12: BIDS Flash ESC/Fight Click: Exit Insert: Add/Del Favorite Item
32: Jen 09 -14:35.	темр ţ	Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 Boot Option #6 Boot Option #7			USE	NVME CD/DVD B Hard Disk JSB CD/DVD USB Key Network		Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
	32: 							

5-1 Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

5-2 Bootup NumLock State

This item selects the keyboard NumLock state.

5-3 Full Screen Logo Display

This item enables or disables Full Screen Logo Show function.

5-4 Boot Success Beep

When this item is set to Enabled, BIOS will let user know boot success with beep.

5-5 BIOS Flash protection

While enabled, it can't flash write and flash erase by SMI.

5-6 Fast Boot

This item allows you to enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

» The following items appear only when you set the Fast Boot function to [Enabled]

SATA Support

If Last Boot HDD Only, Only last boot HDD device will be available in Post. If All Sata Devices, all SATA devices, all SATA devices will be available in OS and Post.

USB Support

If Disabled, all USB devices will NOT be available until after OS boot. If Partial Initial, USB Mass Storage and specific USB port/device will NOT be available before OS boot. If Enabled, all USB devices will be available in OS and Post.

Network Stack Driver Support

If Disabled, Network Stack Drivers will be skipped.

Redirection Support

If Disabled, Redirection function will be disabled.

GateA20 Active

Upon Request – GA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB

Option ROM Messages

This item sets the display mode for Option ROM.

5-7 MRC Fast Boot

Enable/Disable fast path thru the MRC.

5-8 BIOSTAR Auto Installer

BIOSTAR windows Platform Auto Install.

5-9 POST Delay Time (sec)

POST Delay Time.

5-10 Fixed Boot order Priorities

Sets the system boot order.

Boot Option #1/ #2/ #3/ #4/ #5/ #6/ #7/ #8/ #9/ #10/ #11/ #12/ #13/ #14/ #15

It controls the placement of newly detected UEFI boot options.

#1 Options: UEFI Hard Disk (Default)

- #2 Options: UEFI NVME (Default)
- #3 Options: UEFI CD/DVD (Default)
- #4 Options: UEFI USB Hard Disk (Default)

#5 Options: UEFI USB CD/DVD (Default)

#6 Options: UEFI USB Key (Default)

#7 Options: UEFI Network (Default)

5-11 UEFI USB Key Driver BBS Priorities

Specifies the Boot Device Priority sequence from available UEFI USB Key Drives.

Boot Option #1

Sets the system boot order.



6. Security Menu

	ILVER	F5 A.I FAN	F6 Vivi	d Led DJ	F7 EZ Mode	
5011	Favorite Main Adv	anced Chipset	Boot	Security	Tweaker	Save & Exit
2497 MHZ 0.990+ DRAM	Passuord Description If ONLY the Administrator then this only limits according that of the administrator is a nour on passurd at boot or enter Setup. In 5 have Administrator right must The passuord length must in the following range: Hinimum length Maximum length					++: Select Screen 1/Click: Select Item Enter/Dbl Click: Select +/-: Change Got. Fi: General Helo F3: Outimized Defaults F1: Enternal Helo F1: Serven & Exit F11: Print Screen F12: BIOS Flach ESC/Right Click: Exit Insert: Add/Pel Favorite Item
ТЕМР	Administrator Password User Password	_	-			Set Administrator Password
	Secure Boot					
٦.						
32:						
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14,37						

6-1 Administrator Password

This item sets Administrator Password.

6-2 User Password

This item sets User Password.

6-3 Disable Sanitize Freeze Lock

If this option is enabled, then sending Sanitize Freeze Lock command to HDDs will be skipped in next boot.

6-4 Secure Boot

Secure Boot

Secure Boot feature is active if secure boot is Enabled, when Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset.

Secure Boot Mode

Secure Boot mode options: Standard or Custom mode. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

Restore Factory Keys

Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot Keys.

	ILV		२ _{F5}	A.I FAN	F6 Vivid	Led DJ	F7 EZ Mode	
COU	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2498 MHZ 0.990+	Vendor Ko Factory F Restore F Reset To	ey Provisi actory Key Setup Mode	on IS		Valid	Disabled		++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help F2: Dotimized Defaulte
DRAM	 Export Set Secure Bo Platform Key Excha Authorize Forbidder Authorize Oceperate 	icure Boot key inge Keys d Signatur Signatur d TimeStam	variables e Size (PK) 0 (KEK) 0 es (db) 0 es(dbx) 0 ps(dbt) 0	Keys Key Sou O No Keys O No Keys O No Keys O No Keys O No Keys O No Keys				For Sove & Exit Fil: Sove & Exit Fil: Print Screen Fi2: BIOS Flash ESC/Right Click: Exit Insert: Add/Del Favorite Item
темр 1011 Э21								Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode
Jan 09								

Expert Key Management

Enables expert users to modify Secure Boot Policy variables without variable authentication.

Factory Key Provision Restore Factory Keys Reset To Setup Mode Enroll Efi Image Export Secure Boot variables Secure Boot variable | Size | Keys | Key Source Platform Key (PK) Key Exchange Keys (KEK) Authorized Signatures (db) Forbidden Signatures (dbx) Authorized TimeStamps (dbt) OsRecovery Signatures (dbr)



7. Tweaker Menu

This submenu allows you to change voltage and clock of various devices.

⊳Note

- » We suggest you use the default setting. Changing the voltage and clock improperly may damage the device.
- » The options and default settings might be different by RAM or CPU models.
- » Beware of that setting inappropriate values in items of this menu may cause system to malfunction.
 - Values in Red: Danger
 - Values in Yellow: Warning
 - Values in White: Normal

	ILVER	F5 A.I FAN	F6 Vivid Led DJ	F7 EZ Mode	
	Favorite Main Advanced	Chipset	Boot Security	Tweaker	Save & Exit
2497 MHZ 0.990+	Tweaker Notice:Please Clear CMOS if sys after overclocking Start Page	tem no display	Page - Favorite		++: Select Screen 14/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. F1: General Help
DRAM	Target CPU Frequency : 2500 MHz Target RING Frequency : 2100 MH Target GT Frequency : 2000 MHz CPU Ratio Mode		Auto		F3: Optimized Defaults F10: Save & Exit F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit
4794 MHZ 1.110+	Ring Ratio Mode NGU Ratio Mode CPU D2D Ratio *Memory profile Memory Clock : Memory Controlle	r (Gear4)	Auto Auto Auto Default Profile Auto	-	Insert: Add/Del Favorite Item FF00)
темр 1. П:	Enhanced Memory Latency XMP Profile 1 XMP Profile 2 XMP Profile 3		Disabled Supported Supported Not Supported		You can set the entrance Page when you enter UEFI BIOS Setup
∋s: 1∭:	EXPO Profile 2 Memory Timing Voltage Configuration CPU Power Management		Supported Supported		
2505 60 neL	▶ GT Power Management ▶*Memory Insight				
14,42,					

7-1 Start Page

You can set the entrance page when you enter UEFI BIOS Setup.

7-2 CPU Base Clock

This item CPU Base Clock.

7-3 Spread Spectrum

This item Spread Spectrum can help reduce nosie and interference. (EMI)

7-4 CPU Ratio Mode

Setting CPU Ratio Mode.

7-5 Ring Ratio Mode

Setting Ring Ratio Mode.

7-6 NGU Ratio Mode

Setting NGU Ratio Mode.

7-7 CPU D2D Ratio

Set CPU D2D Ratio from Range 15 to 40. 0 indicates no setting.

7-8 Memory Profile

Select DIMM timing profile. The below values start with the currently running values and don't auto populate.

7-9 Memory Clock : Memory Controller (Gear4)

7-10 Enhanced Memory Latency

Enhanced Memory Latency.



			२ _{F5}	A.I FAN	F6 Vivid	Led DJ	F7 EZ Mode	
сец	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	Kemory Co	onfigurati	on				ŕ	↔+: Select Screen †↓/Click: Select Item
	Realtime	Memory Ti	ning			Disabled		Enter/Dbl Click: Select
2497 MHZ 0.990+	tCL tRCD/tRP tRAS				Auto Auto Auto			+/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit
DRAM	tCWL tFAW tREFI tRFC				Auto Auto Auto Auto			F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del
ч79ч мнz 1.110+	tRRD tRTP tWR tWTR				Auto Auto Auto Auto			Favorite Item EFF00)
TEMP	tRFCpb tRFC2 tRFC4 tRFC4				Auto Auto Auto Auto			Enable/Disable realtime memory timings. When enabled the sustem
₩	tRRD_S tWTR_L tCCD_L				Auto Auto Auto			will allow performing realtime memory timing changes after
2025	tCCD_L_WF tWTR_S NMode				Auto Auto Auto			HRC_DONE.
eo مدر ۱۲۰۲۲۰	▶ Turn Arou	und Timing					Ť	

7-11 Memory Timing

Memory Timing Settings.

	il V		२ _{F5}	A.I FAN	F6 Vivio	Led DJ	F7 EZ Mode	
5011	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	Nemory Co	nfigurati	on				i i i i i i i i i i i i i i i i i i i	++: Select Screen ↑↓/Click: Select Item
·	Realtime	Memory Ti	ming	_		Disabled		Enter/Dbl Click: Select
0.990+	tCL tRCD/tRP tRAS				Auto Auto Auto			F1: General Help F3: Optimized Defaults F10: Save & Exit
DRAM	tCWL tFAW tREFI				Auto Auto Auto			Fil: Print Screen Fil: BIOS Flash ESC/Right Click: Exit
	tRFC tRRD tRTP				Auto Auto Auto			Insert: Add/Del Favorite Item
1.110+					Auto Auto Auto			EFF00) Enable/Disable
TEMP	tRFC2 tRFC4 tRRD I				Auto Auto Auto			realtime memory timings. When enabled, the sustem
ţ.	tRRD_S tWTR_L tCCD_L				Auto Auto			will allow performing realtime memory timing changes after
32:	tCCD_L_HR tHTR_S NMode				Auto Auto Auto			HRC_DONE.
Jan 09	▶ Turn Arou	nd Timing						
1444								

Realtime Memory Timing

Enable.Disable realtime memory timings. When enabled, the system will allow performing realtime memory timing memory timing changes after MRC_DONE.

			२ F5	A.I FAN	F6 Vivid	Led DJ	F7 EZ Mode	
гри	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2498 MHZ 0.990+	Turn Arou tRD2RD_SG tRD2RD_DG tRD2RD_DR	nd Timing	Programming (12) (8) (16) (15)		Auto Auto Auto			++: Select Screen 1/Click: Select Item Enter/Dbl Click: Select +/-: Change Opt. Fi: General Help Fi: General Melp
DRAM	tWR2RD_DG tWR2RD_DG tWR2RD_DR tWR2RD_DR tWR2RD_DD tWR2WR_SG		(10) (70) (52) (12) (12) (48)		Auto Auto Auto Auto Auto			F10: Save & Exit F11: Print Screen F12: BIOS Flash ESC/Right Click: Exit Insert: Add/Del
4796 MHZ 1.110+	tWR2WR_DG tWR2WR_DR tWR2WR_DD tRD2WR_SG tRD2WR_DG		(8) (15) (15) (19) (19)		Auto Auto Auto Auto Auto			Favorite Item
	tRD2WR_DR tRD2WR_DD		(19) (19)		Auto Auto			Read-to-Read commands in the same Bank Group, 0-Auto, Range
ŢŴ								
32:								
70522 De uer								
1445								

Turn Around Timing

Knobs to override default timings. 0 is no override.

Delay between Real-to-Read commands in the same Bank Group. 0-Auto, Range 4-54.

			२ F5	A.I FAN	F6 Vivio	d Led DJ	F7 EZ Mode	
	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
	Advanced	Timing Co	nfiguration					++: Select Screen ↑↓/Click: Select Item
	tRDPRE		(18)		Auto			
2497 MHZ	tKRPRE		(120)		Auto			+/-: Change Opt.
0.990+	t XP		(18)		Auto			F1: General Help
	+PRPDEL		(0)		Auto			F10: Save & Evit
	TROPDEN		(49)		Auto			F11: Print Screen
DRAM	THRPDEN				Auto			F12: BIOS Flash
	tCPDED				Auto			ESC/Right Click: Exit
111111	tAONPD				Auto			Insert: Add/Del
	tREFIx9				Auto			Favorite Item
4794 MHZ					Auto			
1.110+	tXSR				Auto			
	tMRD		(34)		Auto			EFF00)
	tzucs				Auto	_	_	Holds DDR timing
TEMP								parameter tRUPRE. RU
								to FRE same bank
t ():								cucles Supported
10-								Range is d=dd
								Hunge 10 1 111
32:								
2025								
Jan 69								
111117								
1447								

Advanced Timing Configuration

Holds DDR timing parameter tRDPRE. RD to PRE same bank minimum delay in DCLK cycles. Supported Range is 4-44.





Romp Target

Romp Target Menu.

	ILVE	२ _{F5}	A.I FAN	F6 Vivio	Led DJ	F7 EZ Mode	
	Favorite Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
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Dimm ODT

Dimm ODT Menu.

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7-12 Voltage Configuration

Voltage Configuration.

BCLK Aware Adaptive Voltage

BCLK Aware Adaptive Voltage enable/disable. When enabled, code will be aware of the BCLK frequency when calculating the CPU V/F curves. This is ideal for BCLK OC to avoid hight voltage overrides. Uses OC Mailbox command ox15.

CPU Load-Line Calibration

Adjust CPU LLC function.

CPU Vcore Voltage

CPU Vcore Voltage.

CPU GT Voltage

CPU GT Voltage.

VSA Voltage

VSA Voltage.

DDR PMIC Mode

DDR PMIC Mode.

DDR Module Voltage

Memory Voltage.

VccDdq Voltage

DDR transmitter FIVR Voltage rail per technology and per data rate.

Vcclog Voltage

Data Tx PreDriver. Data receive, and analog FIVR voltage rail.

VccClk Voltage

IO Clock and clock distribution FIVR voltage rail.



CPU DDR IMC Voltage

CPU DDR IMC Voltage (1.0V ~ 1.600V). default 1.100V

CPU VccIO Voltage

CPU VccIO Voltage (1.0V ~ 1.600V). default 1.250V

VCCPRIM 1P8 PROC DDR

VCCPRIM 1P8 PROC DDR (1.750V ~ 2.500V) default 1.800V

VCCPRIM 1P8 PROC

VCCPRIM 1P8 PROC (1.750V ~ 2.500V) default 1.800V

VCCPRIM 1P8 PROC SOC

VCCPRIM 1P8 PROC SOC (1.750V ~ 2.500V) default 1.800V

	il.v		२ F5	A.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
5011	Favorite	Main	Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
2497 MHZ 0.990+ DRAM	Kemory MemSS Vo MemSS Add MemSS Vo Offset	ltage Mode aptive Vol Itage Offs Prefix	tage et		Auto Auto	Adaptive +		++: Select Screen 14/Click: Select Item Enter/Obl Click: Select +/-: Change Opt. F3: GotImized Defaults F10: Save & Exit F11: Frint Screen F12: BIOS Flash ESC/Right Click: Exit
ч79ч мнz 1.110+								Insert: Add/Del Favorite Item
темР 1.0 ∋2:								Selects between Adaptive and Override Voltage modes. In Override Mode the voltage selected will be applied over all operating frequencies. In Adaptive Mode the
Jan 09								voltage is interpolated only in ∰ turbo mode. Uses ▼

Memory

Memory Ratio adn Voltage Settings.

MemSS Voltage Mode

Selects between Adaptive and Override Voltage modes. In Override Mode the voltage selected will be applied over all operating frequencies. In Adaptive Mode the voltage is interpolated only in turbo mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11.

MemSS Adaptive Voltage

Specifies the adaptive voltage applied while memory subsystem is operating in adaptive mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11. Range 0-2000 mV.

MemSS Voltage Offset

Specifies the Offset Voltage applied to memory subsystem domain. This voltage is specified in millivolts. Range -500 to 500 mV.

Offset Prefix



Ring

Ring Ratio and Voltage Settings.

Ring Voltage Mode

Selects between Adaptive and Override Voltage modes. In Override Mode the voltage selected will be applied over all operating frequencies. In Adaptive Mode the voltage is interpolated only in turbo mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11.

Ring Adaptive Voltage

Specifies the adaptive voltage applied while memory subsystem is operating in adaptive mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11. Range 0-2000 mV.

Ring Voltage Offset

Specifies the Offset Voltage applied to memory subsystem domain. This voltage is specified in millivolts. Range -500 to 500 mV.

Offset Prefix





SA

SA Overclocking Menu.

SA Voltage Mode

Selects between Adaptive and Override Voltage modes. In Override Mode the voltage selected will be applied over all operating frequencies. In Adaptive Mode the voltage is interpolated only in turbo mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11.

SA Adaptive Voltage

Specifies the adaptive voltage applied while memory subsystem is operating in adaptive mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11. Range 0-2000 mV.

SA Voltage Offset

Specifies the Offset Voltage applied to memory subsystem domain. This voltage is specified in millivolts. Range -500 to 500 mV.

Offset Prefix



NGU

NGU Ratio and Voltage Settings.

NGU Voltage Mode

Selects between Adaptive and Override Voltage modes. In Override Mode the voltage selected will be applied over all operating frequencies. In Adaptive Mode the voltage is interpolated only in turbo mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11.

NGU Adaptive Voltage

Specifies the adaptive voltage applied while memory subsystem is operating in adaptive mode. Uses Mailbox MSR 0x150, cmd 0x10, 0x11. Range 0-2000 mV.

NGU Voltage Offset

Specifies the Offset Voltage applied to memory subsystem domain. This voltage is specified in millivolts. Range -500 to 500 mV.

Offset Prefix





PLL Trim Controls

PLL Trim Controls Menu.

Core PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

Ring PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

SOC System Agent PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

IA Atom PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

Memory COntroller PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

CPU System Agent PLL Voltage Offset

PLL Valtage offset, Range 17.5mV \sim 262.5mV. Default is 0. This control can be used to increase the range of this domain frequency in extreme overclocking conditions.

Core PLL IRef Tune Offset

PLL Current Reference Tuning Offset, Range 0-15. Default is 0. The value provided in this field is added to the PLL fuse. The value after adding offset cannot exceed 0xF, it is does, FW clips the value to 0xF before writing back the value to fuse.

IA Atom PLL IRef Tune Offset

PLL Current Reference Tuning Offset, Range 0-15. Default is 0. The value provided in this field is added to the PLL fuse. The value after adding offset cannot exceed 0xF, it is does, FW clips the value to 0xF before writing back the value to fuse.

		.I FAN	F6 Vivio	l Led DJ	F7 EZ Mode	
сри	Favorite Main Advanced	Chipset	Boot	Security	Tweaker	Save & Exit
ē	CPU Power Management Intel(R) SpeedStep(tm)		_	Enabled	Î	↔: Select Screen †↓/Click: Select Item Enter/Dbl Click: Select
2497 MHZ 0.990+	Turbo Power Limit Power Limit 1 Override Power Limit 2 Override			Auto Disabled Disabled		+/-: Change Opt. F1: General Help F3: Optimized Defaults
DRAM	C states Enhanced C-states C-State Auto Demotion			Enabled Enabled C1		F10: Save & Exit F11: Print Screen F12: BIOS Flash
	Package C-State Demotion Package C-State Un-demotion CState Pre-Make			Enabled Enabled Enabled		Insert: Add/Del Favorite Item
1.110+	IO MWAIT Redirection Dual Tau Boost CFG Lock			Disabled Disabled Disabled		FF00) Allows more than two
темр + О:	Thermal Monitor PVD Ratio Threshold for SOC PVD Mode Select for SOC		Auto Auto	Enabled		frequency ranges to be supported.
' ↓ ∭:	PVD Ratio Threshold for CPU PVD Mode Select for CPU FLL Overclook Mode Select		Auto Auto Auto			
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Jan 09	AVX2 Ratio Offset		Auto		Ť	
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7-13 CPU Power Management

Intel(R) SpeedStep(tm)

This item allows more than two frequency ranges to be supported.

Turbo Power Limit

Turbo Power Limit

Power Limit 1 Override

This item enables or disables Power Limit 1 Override. If this option is disabled, BIOS will program the default values for Power Limit 1 and Power Limit 1 Time Window.

» The following items appear only when you set the Power Limit 1 Override function to [Enabled]

Power Limit 1

This item Power Limit 1 value in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500.

Power Limit 2 Override

This item enables or disables Power Limit 2 Override. If this option is disabled, BIOS will program the default values for Power Limit 2.

» The following items appear only when you set the Power Limit 2 Override function to [Enabled]

Power Limit 2

This item Power Limit 2 value in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as 1.25*TDP. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

C states

This item enables or disables CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

Enhanced C-states

This item enables or disables C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.



C-States Auto Demotion

This item sets C-State Auto Demotion.

C-States Un-demotion

This item sets C-State Un-demotion.

Package C-State Demotion

This item sets Package C state Demotion.

Package C-State Un-demotion

This item sets Package C-State Un-demotion.

CState Pre-Wake

Disable - Sets bit 30 of POWER_CTL MSR(0x1FC) to 1 to disable the Cstate Pre-Wake.

IO MWAIT Redirection

This item allows you to set IO MWAIT Redirection. When set, will map IO_read instructions sent to IO registers PMG_IO_BASE_ADDRBASE+0 ffset to MWAIT (offset)

CFG Lock

This item confgire MSR 0xE2[15], CFG lock bit.

Thermal Monitor

This item enables or disables Thermal Monitor.

PVD Ratio Threshold for SOC

Select PVD Ratio Threshold Value from Range 1 to 63. 0 - Static PVD ratio specified by PvdMode for SOC.

PVD Mode Select for SOC

Select PVD Mode Value from Range 1 to 3. 0x0 = div-1 (VCO = Output clock), 0x1 = div-2 (VCO = 2x Output clock), 0x2 = div-4 (VCO = 4x Output Clock), 0x3 = div-8 (VCO = 8x Output clock)

PVD Ratio Threshold for CPU

Select PVD Ratio Threshold Value from Range 1 to 63. 0 - Static PVD ratio sprcofoed by PvdMode for CPU.

PVD Mode Select for CPU

Select PVD Mode Value from Range 1 to 3. 0x0 = div-1 (VCO = Output clock), 0x1 = div-2 (VCO = 2x Output clock), 0x2 = div-4 (VCO = 4x Output Clock), 0x3 = div-8 (VCO = 8x Output clock)

FLL Overclock Mode Select

Select FLL Mode Value from Range 1 to 3. 0x0 = no overclocking, 0x1 = ratio overclocking with nominal (0.5-1x) reference clock frequency, 0x2 = BCLK overclocking with elevated (1-3x) reference clock frequency, 0x3 = BCLK overclocking with extreme elevated (3-5x) reference clock frequency and ratio limited to 63.

SA PLL Frequency Override

Configure Sa PLL Frequency.

BCLK TSC HW Fixup

BCLK TSC HW Fixup disable during TSC copy from PMA to APIC.

Process Vmax Limit

Disabling the Vmax limit Setting will allow user to set any voltage. But disabling the voltage limit

checks may cause permanent damage to processor. Disaling limit check will persist until next cold boot.

AVX2 Ratio Offset

This item AVX2 Ratio Offset. Specifies number of bins to decrease AVX ratio vs. Core Ratio. AVX is a more stressful workload, it is helpful to lower the AVX ratio to ensure maximum possible ratio for SSE workloads.

AVX2 Voltage Guardband Scale Factor

AVX2 Voltage Guardband Scale Factor. Controls the voltage guardband applied to AVX workloads. Range 0 - 200 in 1/100 units, where 125 = 1.25 scale factor. A default value of 100 applies the default voltage guardband scale factor of 1.0. A value > 100 will increase the voltage guardband, and < 100 will decrease the voltage guardband.

TjMax Offset

This item TjMax Offset. Specified value here is clipped by pCode to support TjMax in the range of 62 to 115 deg Celsius.

TVB Voltage Optimizations

This service controls thermal based voltage optimizations for processors that implement the Intel Thermal Velocity Boost (TVB) feature. Uses Overclocking Mailbox command 0x18/ 0x19

TVB Tatio Clipping

> his service controls Core frequency reduction caused by high package temperatures for processors that implement the Intel Thermal Velocity Boost (TVB) feature. Uses Overclocking Mailbox command 0x18/0x19.

OC TVB

> This control will allow user to modify and program new parameters for temperature thresholds T0, T1 and delta DownBins for temp thresholds T0 and T1

Core VR Fast Vmode

Core VR Fast Vmode. Use to control Core Fast Vmode Enable/Disable.

VR Fast Vmode ICC Limit

Voltage Regulator Fast Vmode ICC Limit. A value of 400 = 100A. This value represents the current threshold where the VR would initiate reactive protection if Fast Vmode is enabled. The value is represented in 1/4 A increments.

VR Fast Vmode Offset

Voltage Regulator Fast Vmode Offset. This value represents the ICC Max Offset(dV/dT) to be configured if Fast Vmode is enabled. IGNORED if Fast Vmode ICC LIMIT = 0. The value is represented in 1 mV increments. 0 = Use processor default setting. Highly recommend to keep at the default setting.

GT VR Fast Vmod

GT VR Fast Vmode. Use to control GT Fast Vmode Enable/Disable.

VR Fast Vmode ICC Limit

Voltage Regulator Fast Vmode ICC Limit. A value of 400 = 100A. This value represents the current threshold where the VR would initiate reactive protection if Fast Vmode is enabled. The value is represented in 1/4 A increments.

VR Fast Vmode Offset

Voltage Regulator Fast Vmode Offset. This value represents the ICC Max Offset(dV/dT) to be configured if Fast Vmode is enabled. IGNORED if Fast Vmode ICC LIMIT = 0. The value is represented in 1 mV increments. 0 = Use processor default setting. Highly recommend to keep



at the default setting.

SA VR Fast Vmode

SA VR Fast Vmode. Use to control SA Fast Vmode Enable/Disable.

VR Fast Vmode ICC Limit

Voltage Regulator Fast Vmode ICC Limit. A value of 400 = 100A. This value represents the current threshold where the VR would initiate reactive protection if Fast Vmode is enabled. The value is represented in 1/4 A increments.

VR Fast Vmode Offset

Voltage Regulator Fast Vmode Offset. This value represents the ICC Max Offset(dV/dT) to be configured if Fast Vmode is enabled. IGNORED if Fast Vmode ICC LIMIT = 0. The value is represented in 1 mV increments. 0 = Use processor default setting. Highly recommend to keep at the default setting.

CEP Enable

Enable/Disable CEP (Current Excursion Protection) Support.

IA AC Loadine

AC Loadline defined in mOhms.

IA DC Loadine

DC Loadline defined in mOhms.

VR IccMax

Voltage Regulator Current Limit (IccMax). This value represents the Maximum instantaneous current allowed at any given time.



7-14 GT Power Management

RC6 (Render Standby)

This item enables or disables Render Standby.

Maximum GT frequency

This item maximum GT frequency limited by te user. Value beyond the range will be clipped to min/max supported by SKU.

Disable Turbo GT frequency

This item Disable Turbo GT frequency. Enabled: Disables Turbo GT frequency. Disabled: GT frequency is no limited.





7-15 Memory Insight

Memory Insight

These items display memory information. DDR5_B1 Profile DDR5_B2 Profile DDR5_A1 Profile DDR5_A2 Profile

DDR Vender DRAM Manuf. PMIC Vender DataCode Capacity

Frequency | Standard | Custom | XMP1 | EXPO1 tCL tRCD tRAS tCWL tFAW tREFI tRFC tRTP tWR tRRD_L tRRD_S tWTR_L tWTR_S NMode

VDD VDDQ VPP

Memory profile

Select DIMM timing profile. The below values start with the currently running values and don't auto populate.

Default Profile

Custom Profile

XMP Profile 1

EXPO Profile 1



8. Save & Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



8-1 Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

8-2 Save Changes and Reset

Reset the system after saving the changes.

8-3 Restore Defaults

Restore/Load Default values for all the setup options.

8-4 UEFI: USB FLASH DRIVE PMAP, Partition 4 (USB FLASH DRIVE PMAP)

8-5 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.

8-6 Saving SetupData to Profile

Saving SetupData to Profile.

8-7 Restoring SetupData from Profile

Restoring SetupData from Profile.

8-8 Saving SetupData to Storage

Saving SetupData to Storage.

8-9 Restoring SetupData from Storage

Saving SetupData to Storage.