BIOS User Guide

B850M-SILVER

BIOSTAR®

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.

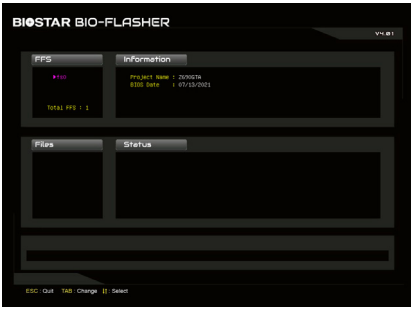
BIOSTAR BIO-FLASHER

Note

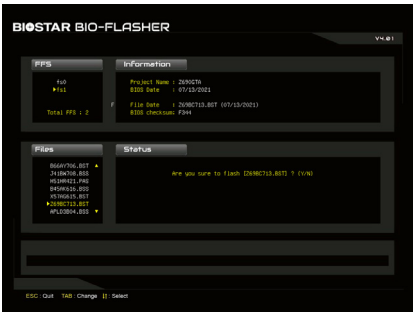
» *This utility only allows storage device with FAT32/16 format and single partition.*
» *Shutting down or resetting the system while updating the BIOS will lead to system boot failure.*

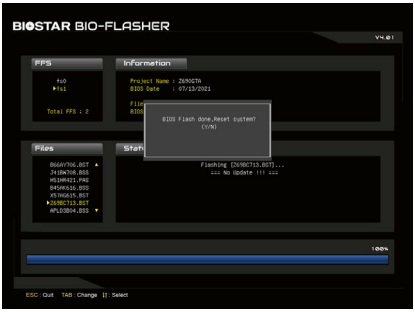
Updating BIOS with BIOSTAR BIO-FLASHER

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.

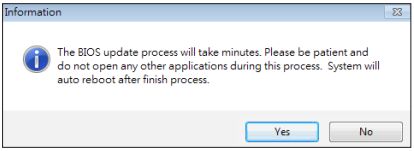
8. While the system boots up and the full screen logo shows up, press <DEL> key to enter BIOS setup.

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.

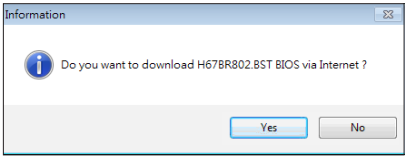
BIOS Update Utility (through the Internet)

1. Installing BIOS Update Utility from the DVD Driver.
2. Please make sure the system is connected to the internet before using this function.

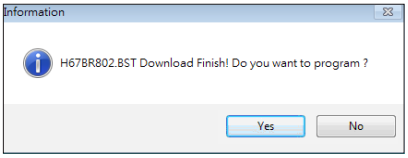
3. Launch BIOS Update Utility and click the “Online Update” button on the main screen.



4. An open dialog will show up to request your agreement to start the BIOS update. Click “Yes” to start the online update procedure.

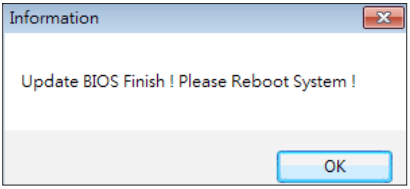


5. If there is a new BIOS version, the utility will ask you to download it. Click “Yes” to proceed.



6. After the download is completed, you will be asked to program (update) the BIOS or not. Click “Yes” to proceed.

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



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

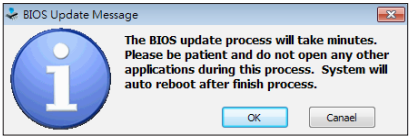
After entering the BIOS setup, please go to the <Save & Exit>, using the <Restore Defaults> function to load Optimized Defaults, and select <Save Changes> and <Reset> to restart the computer. Then, the BIOS Update is completed.

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/

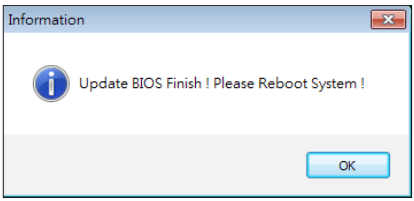
3. Launch BIOS Update Utility and click the “Update BIOS” button on the main screen.

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.

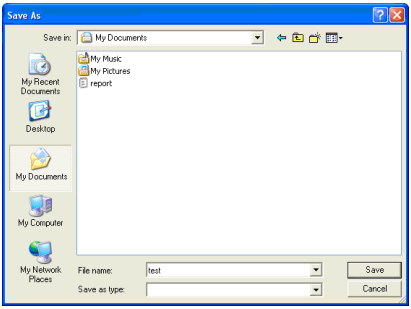


7. While the system boots up and the full screen logo shows up, press <DEL> key to enter BIOS setup.

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".



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 **<Del>** during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

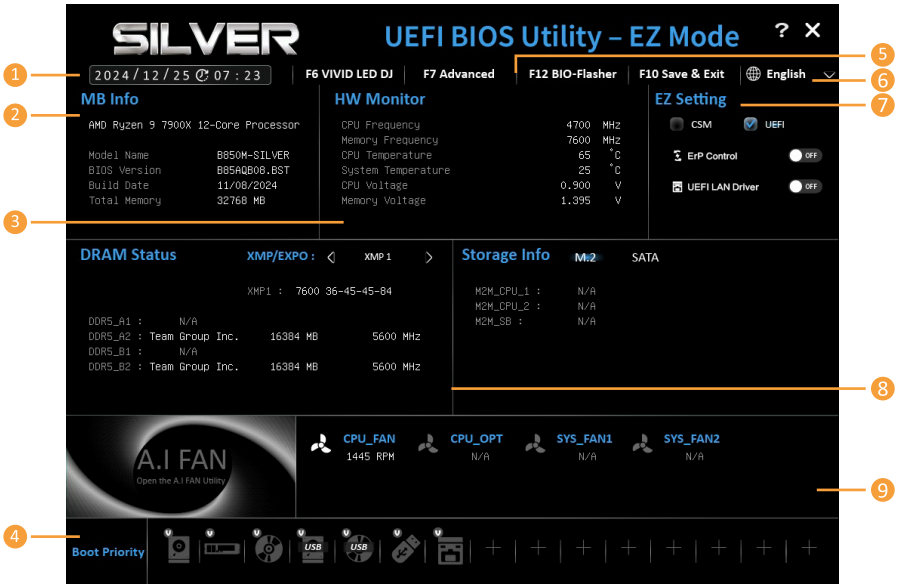
In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

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.



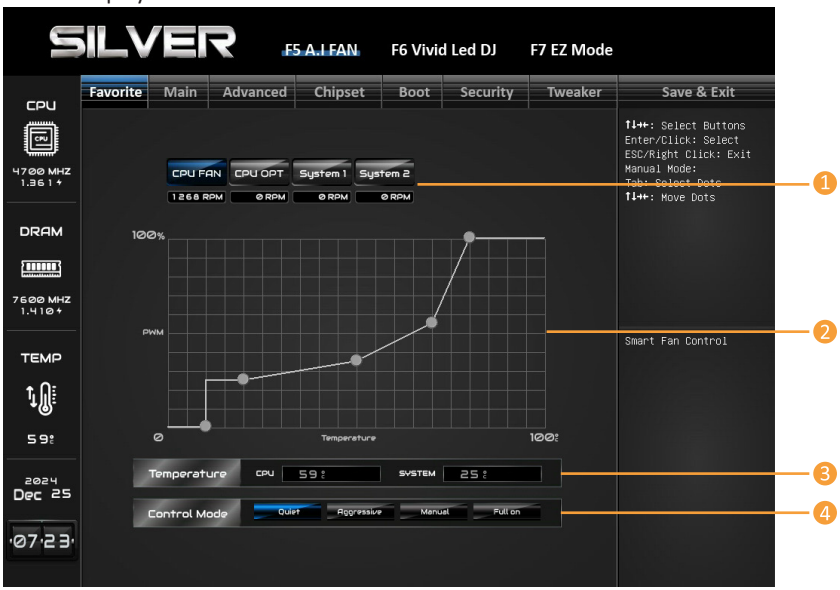
1. **System Time:** Display the system clock.
2. **Boot Priority Bar:** you can move the device icons to change the boot priority.
3. **Hardware Information:** Shows the CPU/ MB temperature, memory size, BIOS version and build date.
4. **AHCI/ RAID/ CSM/ UEFI Function Settings Buttons:** Click on this button to sets the AHCI/ RAID, CSM/ UEFI.
5. **Vivid Led DJ/ Erp Control/ UEFI LAN Driver Switch:** This item enable or disable the UEFI LAN Driver, ErP Control, Vivid Led DJ.
6. **Setup Function Keys:** This item allows you to sets Save & Exit. Press F7/ F12 key to switch between Advanced mode and BIO-Flasher.
7. **Language Settings:** This item allows you to change language.
8. **XMP/EXPO 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.
9. **CPU/ Memory/ Storage Information:** This item display CPU/ Memory/ Storage information.

Note

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

FAN Control

Press <F5> to display the 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.

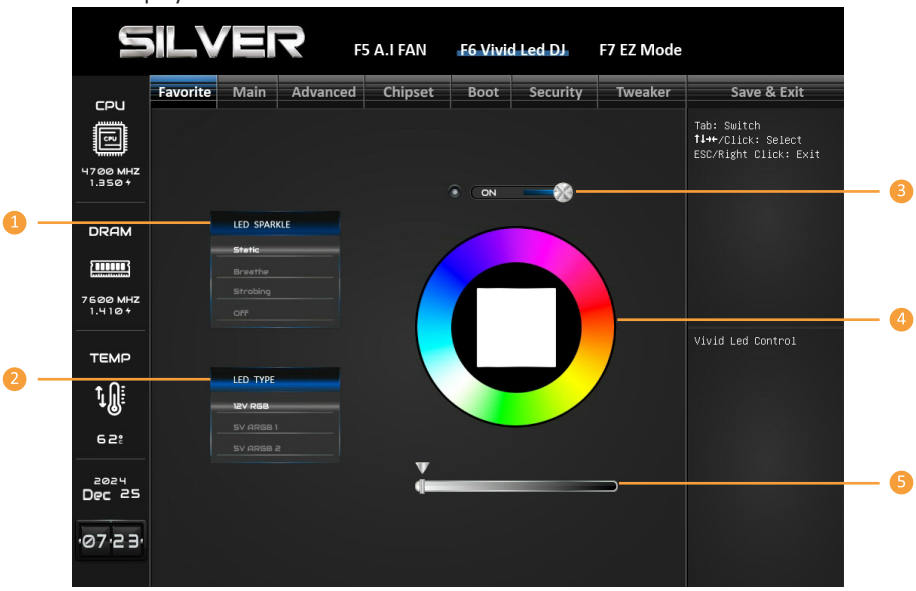
Note

» *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.

- **SYSTEM:** System LED illuminations. (ARMOR GEAR LED)
- **12V LED:** The 12V LED illumination. (12V_LED Device)
- **5V LED:** 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.

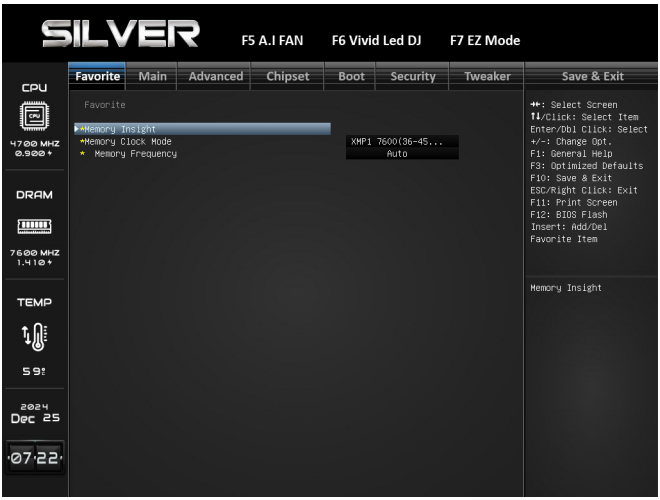
5. LED Brightness Bar: Allows you to adjust the LED brightness.

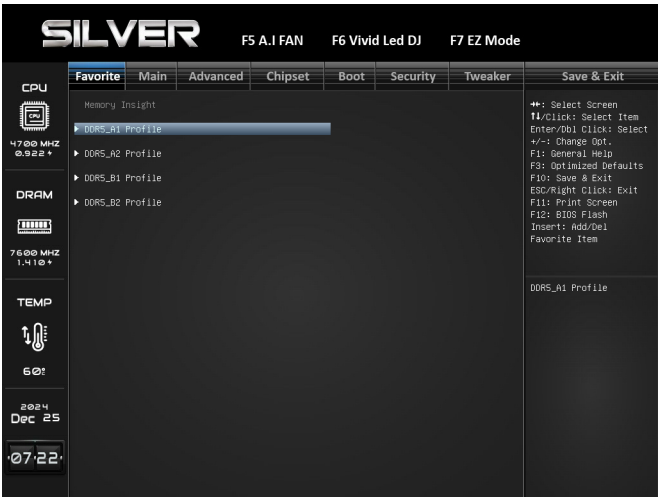
Note

» *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.*

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 Clock Mode

Memory Frequency

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

Default Profile

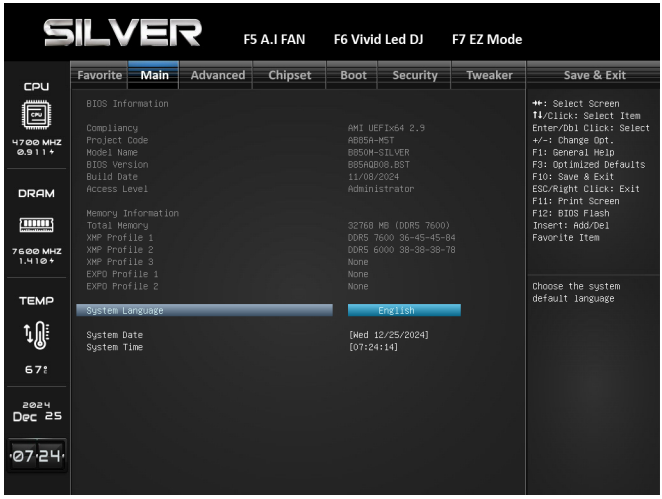
Custom Profile

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.



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

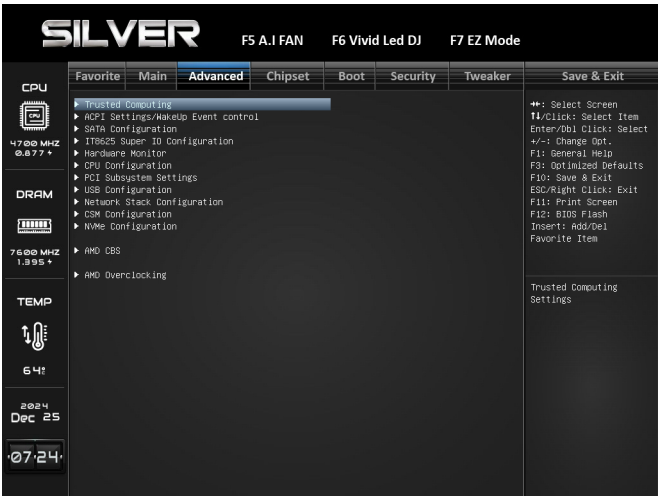
Set the system internal clock.

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.*



3-1 Trusted Computing

Trusted Computing Settings

Configuration

Security Device Support

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

Enable or Disable SHA256 PCR Bank

SHA384 PCR Bank

Enable or Disable SHA384 PCR Bank

Pending operation

Schedule an Operation for the Security Device.

» *Note: Your Computer will reboot during restart in order to change State of Security Device.*

Platform Hierarchy

Enable or Disable Platform Hierarchy

Storage Hierarchy

Enable or Disable Storage Hierarchy

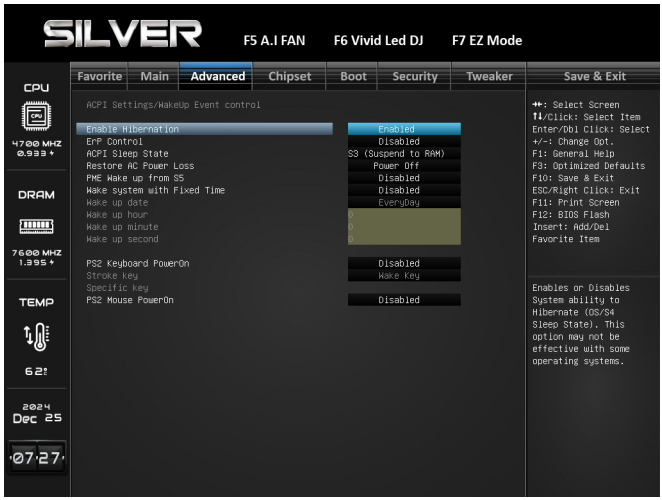
Endorsement Hierarchy

Enable or Disable Endorsement Hierarchy

Physical Presence Spec Version

Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3.

» *Note: some HCK tests might not support 1.3*



3-2 ACPI Settings/WakeUp Event control

System ACPI Parameters and Wakeup event control

Enable Hibernation

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

ErP Control

When ErP Enabled. System meets ErP requirment. All wake up events do not work except Power Button after power down system (S5).

ACPI Sleep State

Select ACPI sleep state the system will wnter 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

Enable system to wake from S5 using PME event.

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 Wake up date

Wake up hour

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

Wake up minute

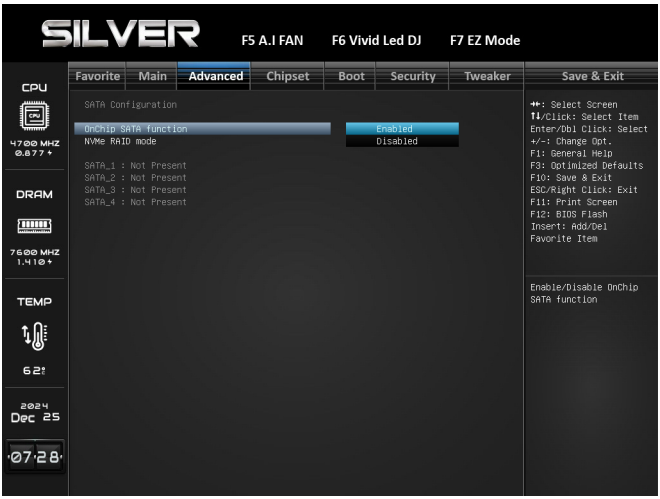
0-59

Wake up second

0-59

PS2 Keyboard PowerOn

PS2 Mouse PowerOn



3-3 SATA Configuration

SATA Devices configuration

OnChip SATA function

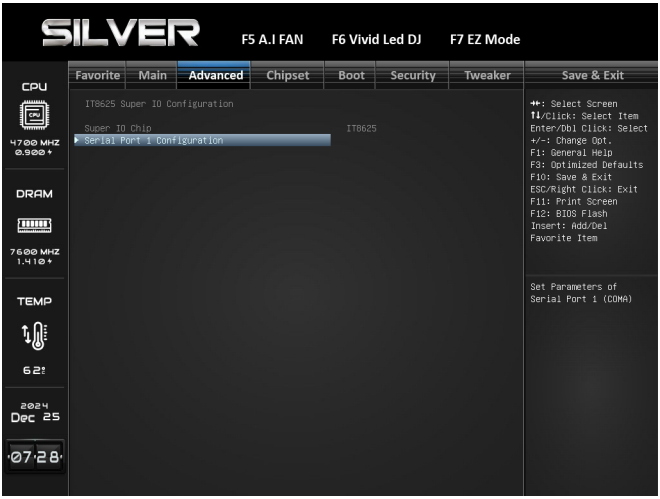
Enable/Disable OnChip SATA function

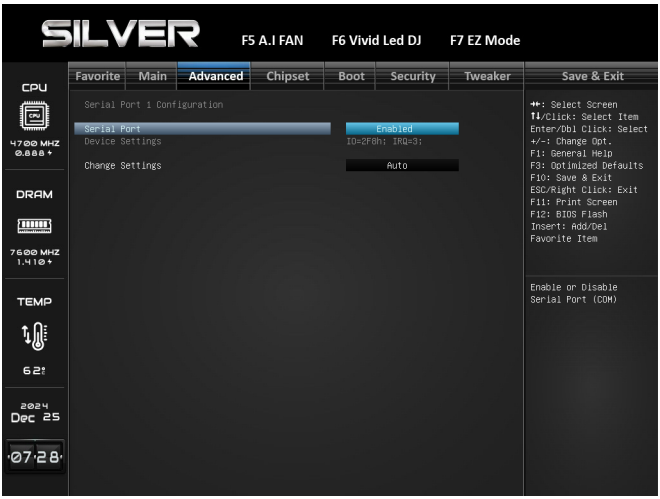
OnChip SATA Type

Select OnChip SATA Type

NVMe RAID mode

Enable or Disable NVMe RAID mode





3-4 IT8625 Super IO Configuration

System Super IO Chip Parameters

Super IO Chip

System Super IO Chip Parameters

Serial Port 1 Configuration

Set Parameters of Serial Port 1 (COMA)

Serial Port

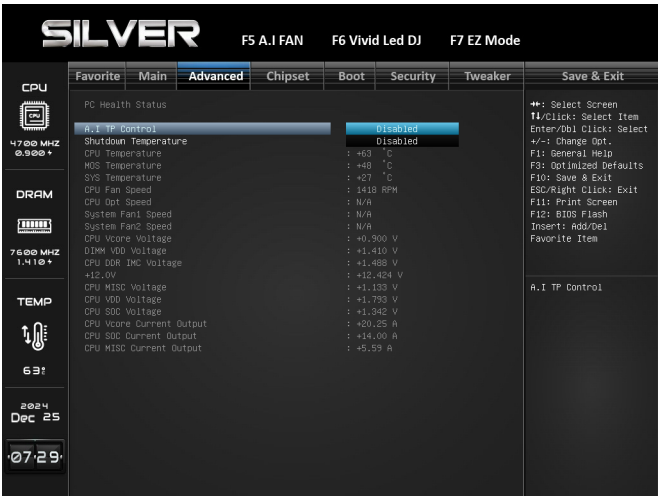
Enable or Disable Serial Port (COM)

Device Settings

Set Parameters of Serial Port 1 (COMA)

Change Settings

Select an optimal settings for Super IO Device



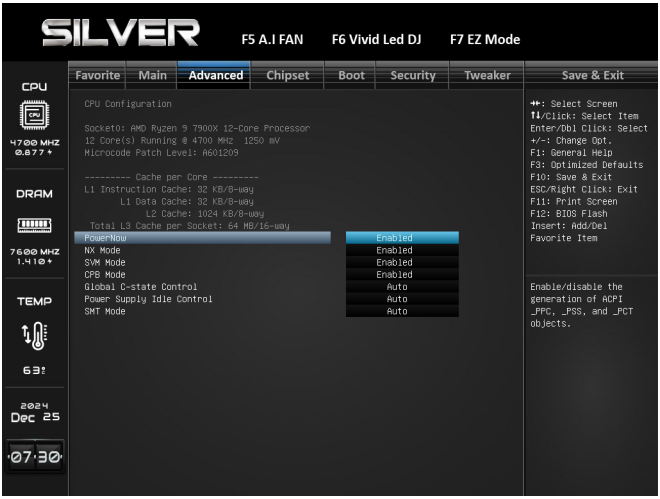
3-5 Hardware Monitor

Monitor hardware states

PC Health Status

A.I TP Control

Shutdown Temperature



3-6 CPU Configuration

CPU Configuration Parameters

PowerNow

Enable/Disable the generation of ACPI_PPC,_PPS, and _PCT objects.

NX Mode

Enable/Disable No-execute page protection Function.

SVM Mode

Enable/Disable CPU Virtualization

CPB Mode

Specifies the method of core performance boost enablement

Global C-state Control

Controls IO based C-state generation and DF C-states.

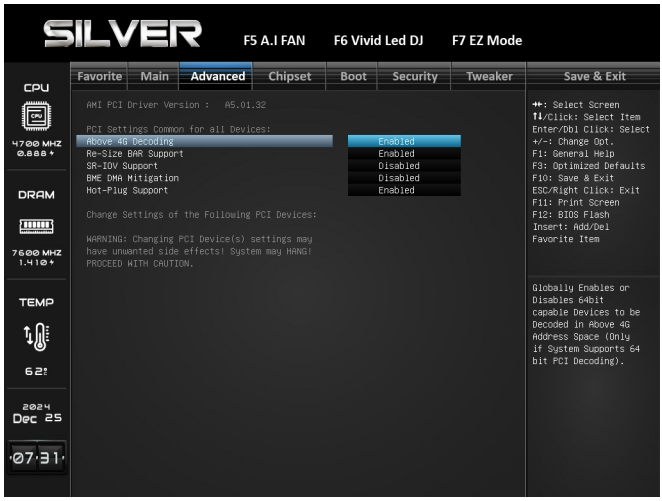
Power Supply Idle Control

Power Supply Idle Control.

SMT Mode

Enable/Disable Simultaneous multithreading.

» *WARING: S3 is NOT Supported on systems where SMT is disabled.*



3-7 PCI Subsystem Settings

PCI Subsystem Settings

PCI Settings Common for all Devices:

Above 4G Decoding

Globally Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64bit PCI Decoding)

Re-Size BAR Support

If system has Resizable BAR capable PCIe Devices, this option Enables or Disables Resizable BAR Support.

SR-IOV Support

If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.

BME DMA Mitigation

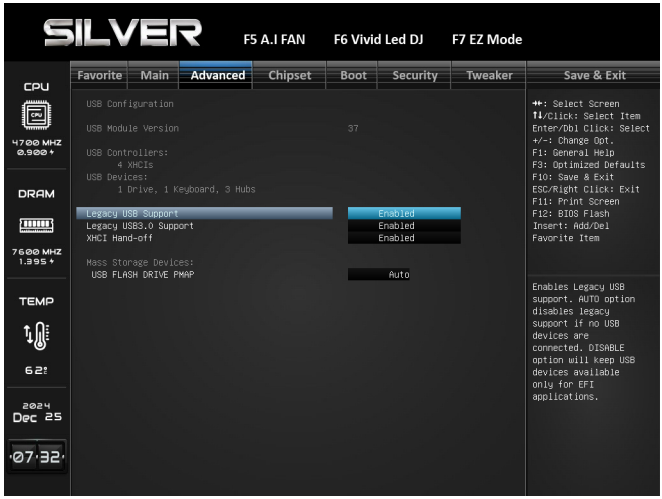
Re-enable Bus Master Attribute disabled during PCI enumeration for PCI Bridges after SMM Locked.

Hot-Plug Support

Globally Enables or Disables Hot-Plug support for the entire System. If System has Hot-Plug capable Slots and this option set to Enabled, it provides a Setup screen for selecting PCI resource padding for Hot-Plug.

Change Settings of the Following PCI Devices:

» *WARNING: Changing PCI Device(s) settings may have unwanted side effects! System may HANG! PROCEED WITH CAUTION.*



3-8 USB Configuration

USB Configuration Parameters

Legacy USB Support

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.

Legacy USB3.0 Support

Enable/Disable legacy USB 3.0 support.

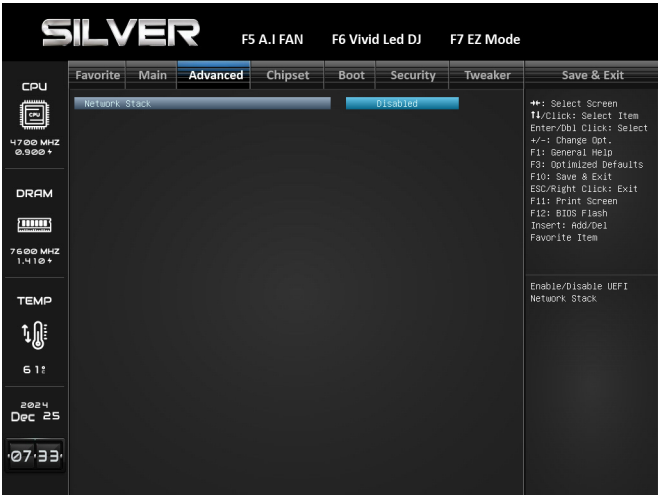
XHCI Hand-off

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

Mass Storage Devices:

USB FLASH DRIVE PMAP

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.



3-9 Network Stack Configuration

Network Stack Settings

Network Stack

Enable/Disable UEFI Network Stack

IPv4 PXE Support

Enable IPv4 PXE Boot Support. If disabled IPv4 PXE boot option will not be created.

IPv4 HTTP Support

Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

IPv6 PXE Support

Enable IPv6 PXE Boot Support. If disabled IPv6 PXE boot option will not be created.

IPv6 HTTP Support

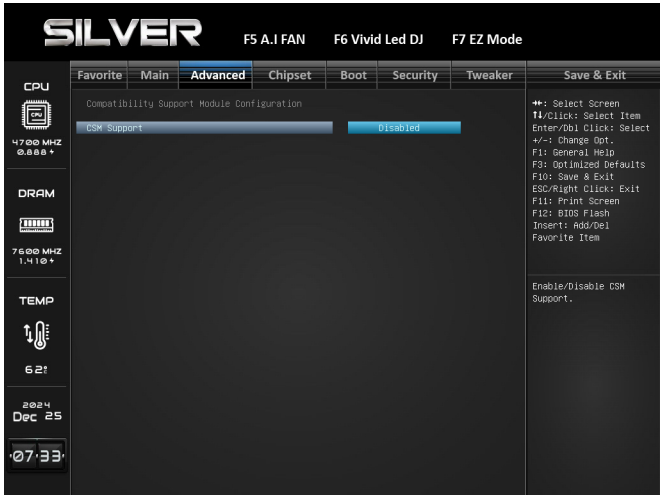
Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

PXE boot wait time

Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

Media detect count

Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.



3-10 CSM Configuration

CSM Configuration: Enable/Disable, Option ROM execution settings, etc.

Compatibility Support Module Configuration

CSM Support

Enable/Disable CSM Support

CSM16 Module Version

CSM16 Module Version

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

Set display mode for Option ROM

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - exexute the trap right away; POSTPONED - execute the trap during legacy boot.

HDD Connection Order

Some OS require HDD handles to be adjusted, i.e. OS is installed on drive 80h.

Option ROM execution

Network

Controls the execution of UEFI and Legacy Network OpROM.

Storage

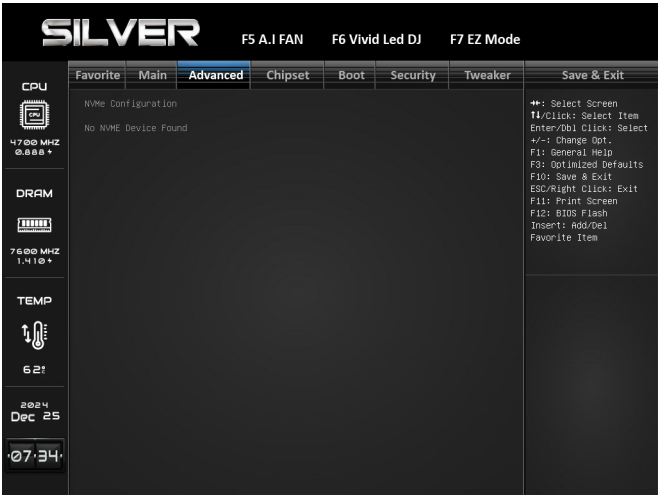
Controls the execution of UEFI and Legacy Storage OpROM.

Video

Controls the execution of UEFI and Legacy Video OpROM.

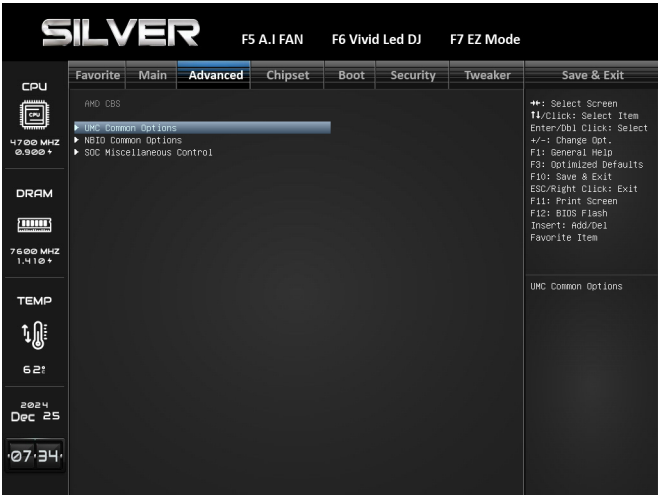
Other PCI device ROM priority

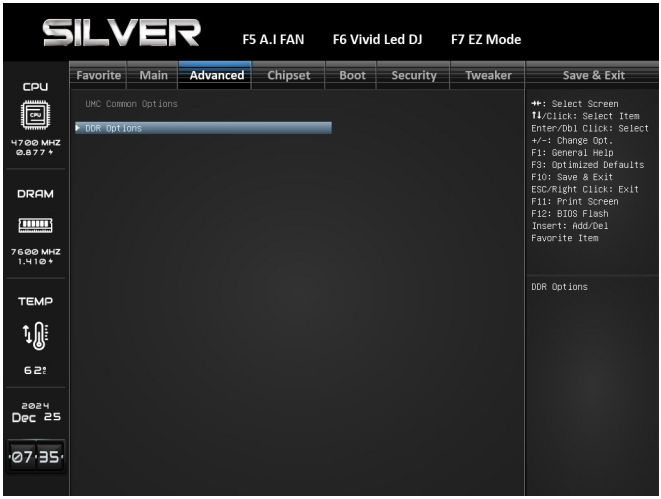
For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.

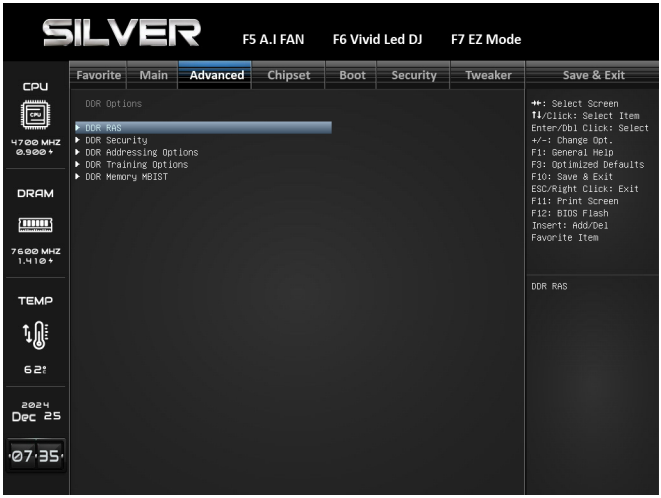


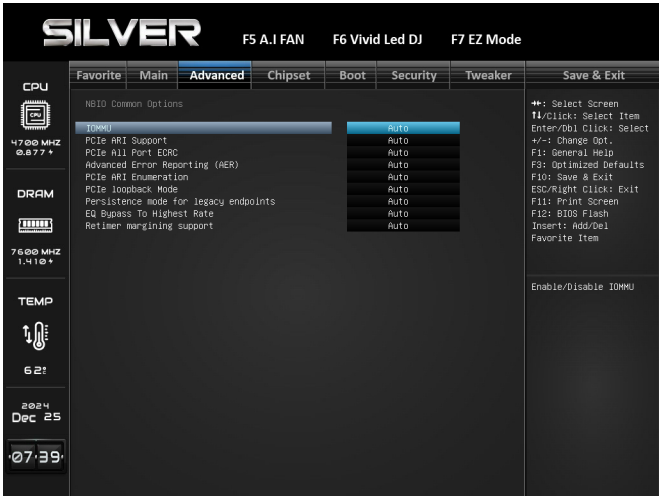
3-11 NVMe Configuration

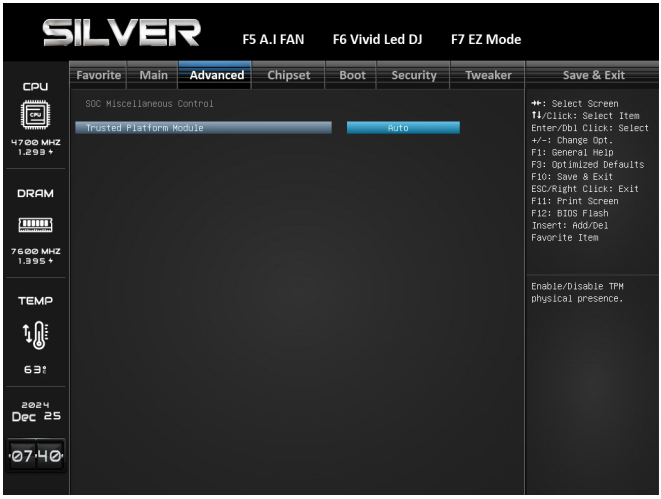
NVMe Device Options Settings
NVMe controller and Drive information


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.900 V
DRAM
7600 MHZ
1.410 V
TEMP
62°
2024
Dec 25
07:34
AMD CBS
UMC Common Options
NBIO Common Options
SOC Miscellaneous Control
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
UMC Common Options


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.877 V
DRAM
7600 MHZ
1.410 V
TEMP
62°
2024
Dec 25
07:35
UMC Common Options
DDR Options
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
DDR Options


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.900 +
DRAM
7600 MHZ
1.410 +
TEMP
62°
2024
Dec 25
07:35
DDR Options
DDR RAS
DDR Security
DDR Addressing Options
DDR Training Options
DDR Memory MBIST
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
DDR RAS


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.877 +
DRAM
7600 MHZ
1.410 +
TEMP
62°
2024
Dec 25
07:39
NBIO Common Options
IOMMU
PCIe ARI Support
PCIe All Port ECRC
Advanced Error Reporting (AER)
PCIe ARI Enumeration
PCIe loopback Mode
Persistence mode for legacy endpoints
EQ Bypass To Highest Rate
Retimer margining support
Auto
Auto
Auto
Auto
Auto
Auto
Auto
Auto
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
Enable/Disable IOMMU



3-12 AMD CBS

AMD CBS Setup Page

UMC Common Options

DDR Options

DDR RAS

Disable Memory Error Injection

DDR Security

TSME

Data Scramble

DDR Addressing Options

Chipselect Interleaving

Address Hash Bank

Address Hash CS

BankSwapMode

DDR Training Options

DFE Read Training

DRAM FDA Enumerate ID Programming Mode

DDR Memory MBIST

MBIST Enable

MBIST Test Mode

MBIST Aggressors

MBIST Per Bit Slave Die Reporting

DDR Data Eye

NBIO Common Options

IOMMU

PCIe ARI Support

PCIe ARI Enumeration

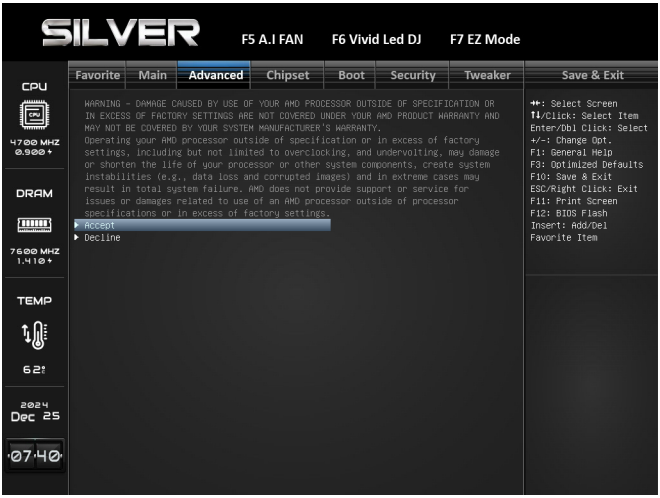
PSPP Ploicy

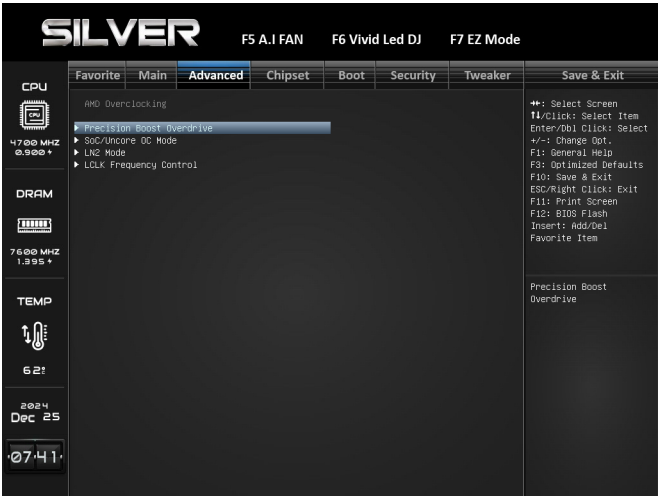
PCIe loopback Mode

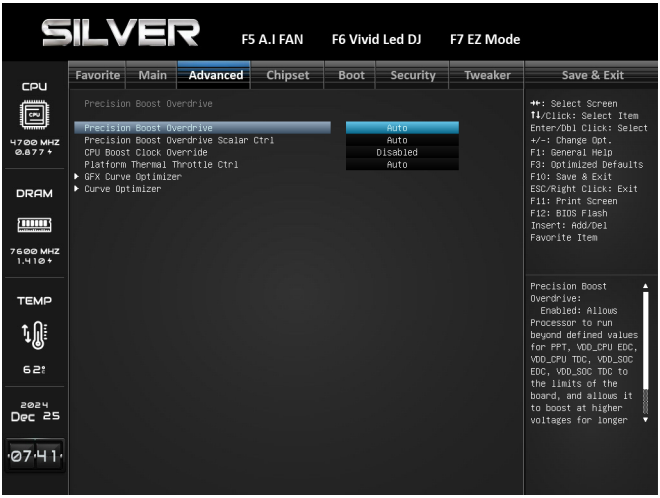
Advanced Error Reporting (AER)

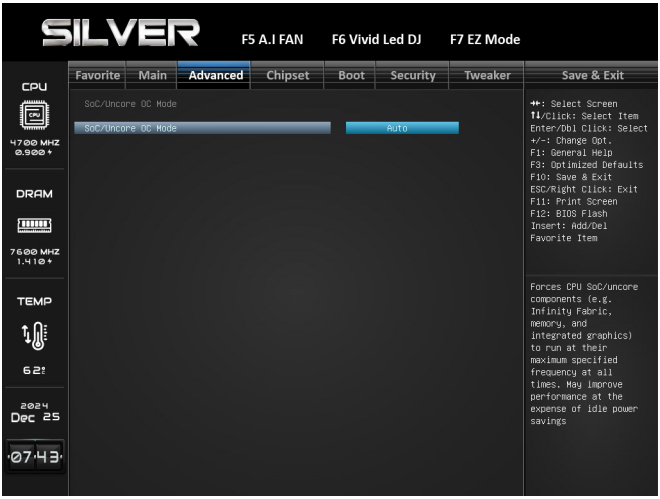
SOC Miscellaneous Control

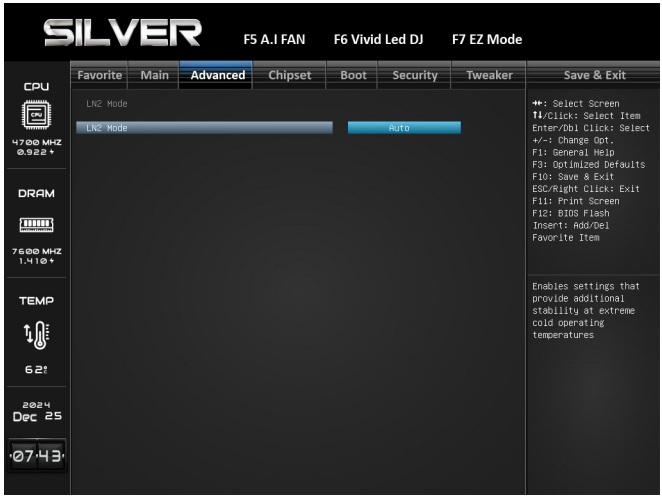
Trusted Platform Module

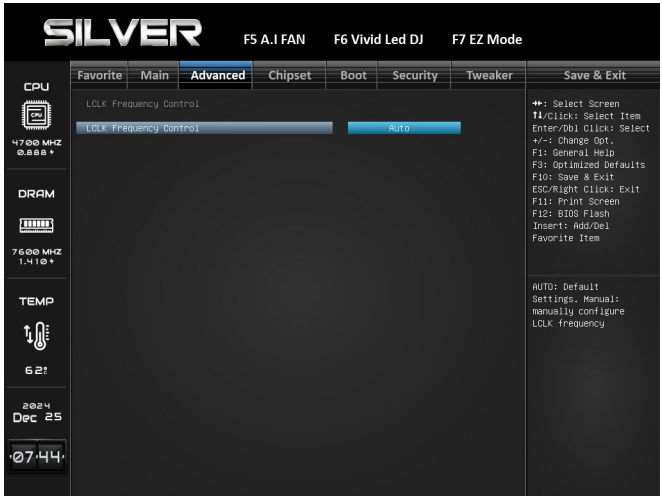

SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.900 +
DRAM
7600 MHZ
1.410 +
TEMP
62°
2024
Dec 25
07:40
WARNING - DAMAGE CAUSED BY USE OF YOUR AMD PROCESSOR OUTSIDE OF SPECIFICATION OR IN EXCESS OF FACTORY SETTINGS ARE NOT COVERED UNDER YOUR AMD PRODUCT WARRANTY AND MAY NOT BE COVERED BY YOUR SYSTEM MANUFACTURER'S WARRANTY.
Operating your AMD processor outside of specification or in excess of factory settings, including but not limited to overclocking, and undervolting, may damage or shorten the life of your processor or other system components, create system instabilities (e.g., data loss and corrupted images) and in extreme cases may result in total system failure. AMD does not provide support or service for issues or damages related to use of an AMD processor outside of processor specifications or in excess of factory settings.
Accept
Decline
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.900 +
DRAM
7600 MHZ
1.395 +
TEMP
62°
2024
Dec 25
07:41
AMD Overclocking
Precision Boost Overdrive
SoC/Uncore OC Mode
LN2 Mode
LCLK Frequency Control
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
Precision Boost Overdrive


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.877 +
DRAM
7600 MHZ
1.410 +
TEMP
62°
2024
Dec 25
07:41
Precision Boost Overdrive
Precision Boost Overdrive
Auto
Precision Boost Overdrive Scalar Ctrl
Auto
CPU Boost Clock Override
Disabled
Platform Thermal Throttle Ctrl
Auto
GFX Curve Optimizer
Curve Optimizer
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
Precision Boost Overdrive:
Enabled: Allows Processor to run beyond defined values for PPT, VDD_CPU EDC, VDD_CPU TDC, VDD_SOC EDC, VDD_SOC TDC to the limits of the board, and allows it to boost at higher voltages for longer


SILVER
F5 A.I FAN
F6 Vivid Led DJ
F7 EZ Mode
Favorite
Main
Advanced
Chipset
Boot
Security
Tweaker
Save & Exit
CPU
4700 MHZ
0.900 +
DRAM
7600 MHZ
1.410 +
TEMP
62°
2024
Dec 25
07:43
SoC/Uncore OC Mode
SoC/Uncore OC Mode
Auto
→←: Select Screen
↑↓/Click: Select Item
Enter/Dbl Click: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F10: Save & Exit
ESC/Right Click: Exit
F11: Print Screen
F12: BIOS Flash
Insert: Add/Del
Favorite Item
Forces CPU SoC/uncore components (e.g. Infinity Fabric, memory, and integrated graphics) to run at their maximum specified frequency at all times. May improve performance at the expense of idle power savings





3-13 AMD Overclocking

AMD Overclocking Setup Page

Accept

Precision Boost Overdrive

Precision Boost Overdrive

Precision Boost Overdrive Scalar Ctrl

CPU Boost Clock Override

» Increases (Positive) or Decreases (Negative) the maximum CPU frequency that may be automatically achieved by the CPU Boost Algorithm

Platform Thermal Throttle Ctrl

» Allow the user to decrease the maximum allowed processor temperature (celsius).

GFX Curve Optimizer

» Allows the user to shift the GFX Voltage/Frequency (AVFS) curve to include higher voltages (positive values) or lower voltages (nrgative values). The larger the value entered the larger the magnitude of the voltage shift.

Curve Optimizer

» Allows the user to shift the GFX Voltage/Frequency (AVFS) curve to include higher voltages (positive values) or lower voltages (nrgative values). The larger the value entered the larger the magnitude of the voltage shift.

LCLK Frequency Control

» AUTO: Default Settings, Manual: manually configure LCLK frequency.

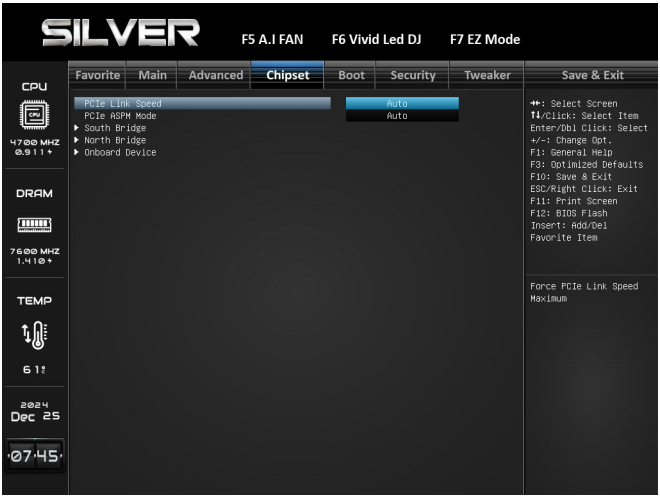
Decline

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

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

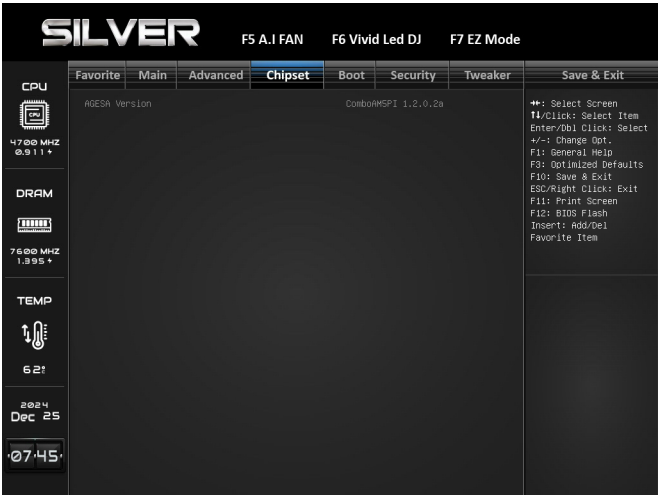


4-1 PCIe Link Speed

Force PCIe Link Speed Maximum

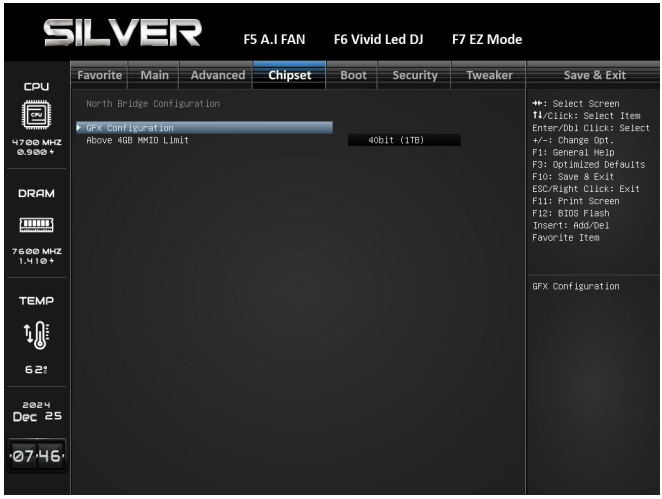
4-2 PCIe ASPM Mode

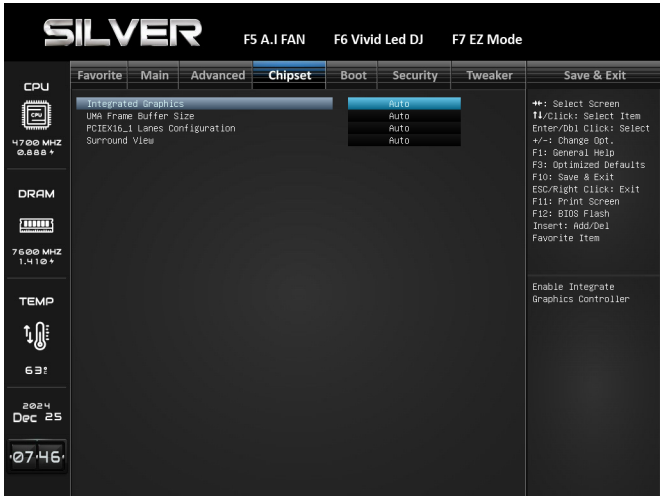
PCIe ASPM Mode Control



4-3 South Bridge

South Bridge Parameters





4-4 North Bridge

Nouth Bridge Parameters

North Bridge Configuration

GFX Configuration

GFX Configuration

Integrated Graphics

Enable Integrate Graphics Controller

UMA Frame Buffer Size

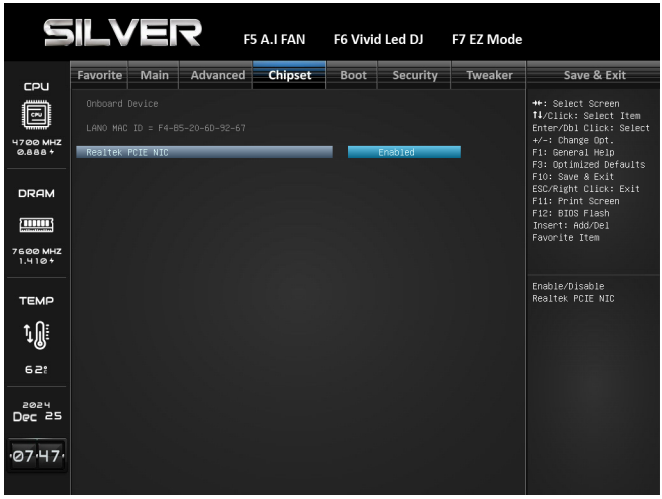
Set UMA FB Size to support 4GB or above, please make sure total memory size and disable CSM first.

Surround View

It support multi-display function.

Above 4GB MMIO Limit

Select Above 4GB MMIO Limit to 38~43 bits limit. This option works only when 'Above 4G decoding' is enabled.



4-5 Onboard Device

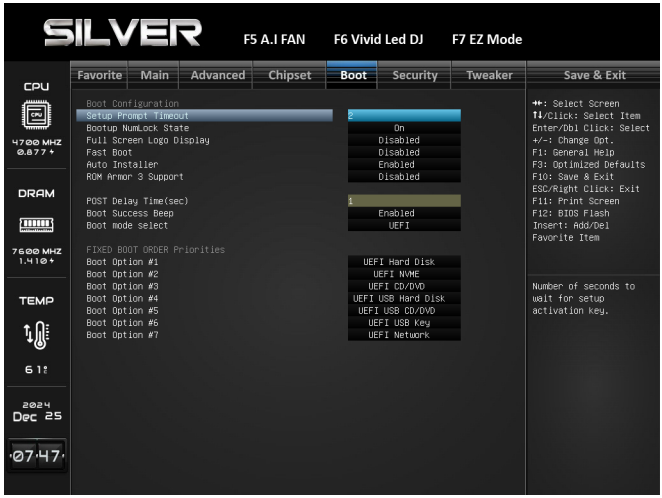
Onboard Device Parameters

Realtek PCIE NIC

Enable/Disable Realtek PCIE NIC

5. Boot Menu

This menu allows you to setup the system boot options.



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 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.

5-5 Auto Installer

Windows Platform Auto Install.

5-6 ROM Armor 3 Support

ROM Armor 3 function.

5-7 POST Delay Time (sec)

POST Delay Time.

5-8 Boot Success Beep

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

5-9 Boot mode select

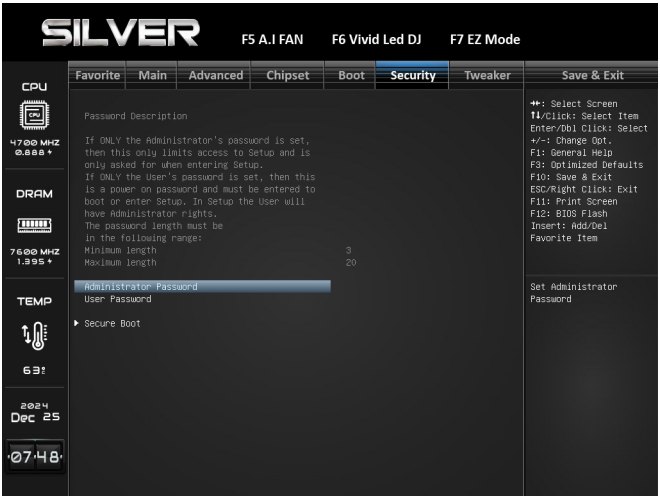
Select boot mode LEGACY/UEFI.

5-10 Fixed Boot order Priorities

Boot Option #1/ #2/ #3/ #4/ #5/ #6/ #7

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)

6. Security Menu

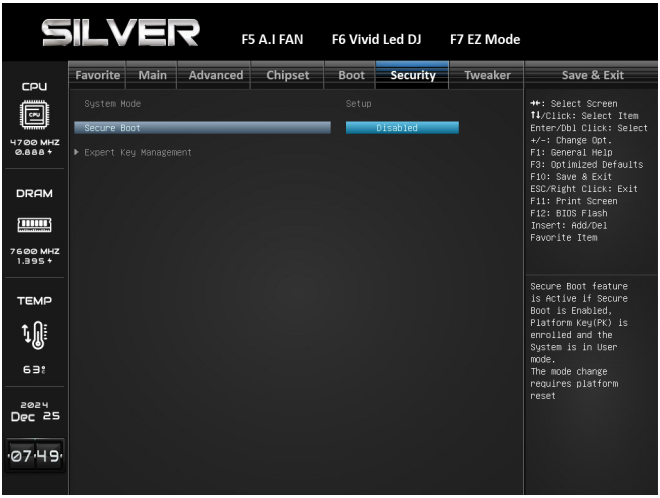


6-1 Administrator Password

This item sets Administrator Password.

6-2 User Password

This item sets User Password.



6-3 Secure Boot

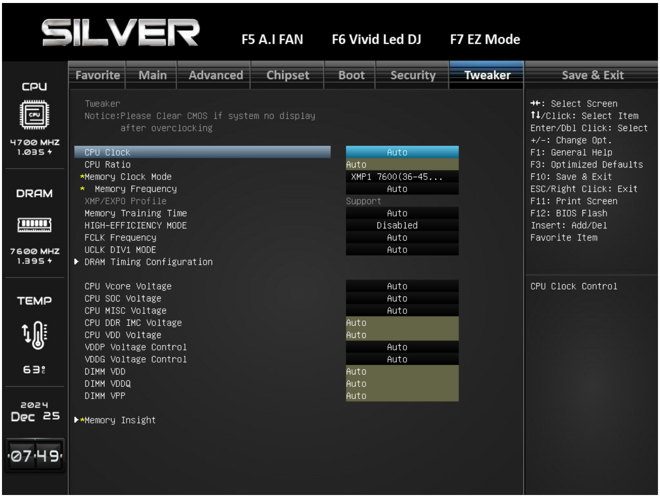
Secure Boot feature is activate if secure boot is enabled. Platform Key (PK) is enrolled and the system is in user mode. The mode change requires platform reset.

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



7-1 CPU Clock

CPU Base Clock

7-2 CPU Ratio

Set the CPU Ratio

7-3 Memory Clock Mode

If XMP/EXPO, use Ryzen XMP/EXPO memory better. If Auto, the DRAM speed will be based on SPDs. If Manual, the DRAM speed specified will be programmed regardless of SPD.

Memory Frequency

Select the memory clock value in MHz

7-4 XMP/EXPO Profile

Increased training time improves memory stability

7-5 Memory Training Time

Support

7-6 HIGH-EFFICIENCY MODE

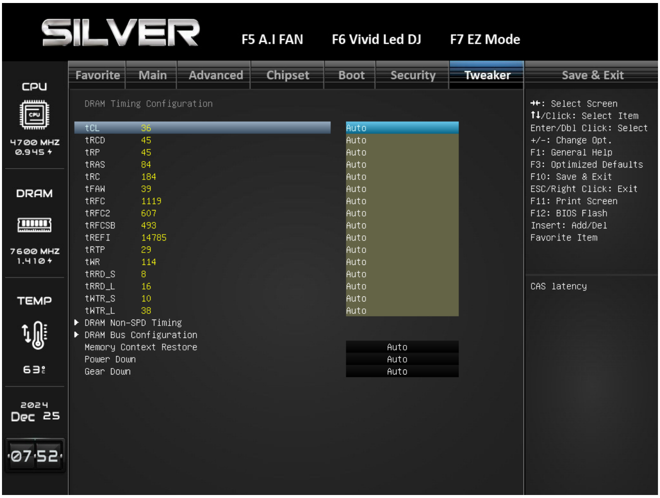
Enable or Disable HIGH-EFFICIENCY MODE

7-7 FCLK Frequency

Specifies the FCLK Frequency.

7-8 UCLK DIV1 MODE

Set UCLK DIV mode



7-9 DRAM Timing Configuration

DRAM Timing Configuration

tCL
CAS latency

tRCDRD
RAS to CAS delay

tRP
Row precharge time

tRAS
Row active strobe

TRC
Row cycle time

TFAW
Specify Tfaw

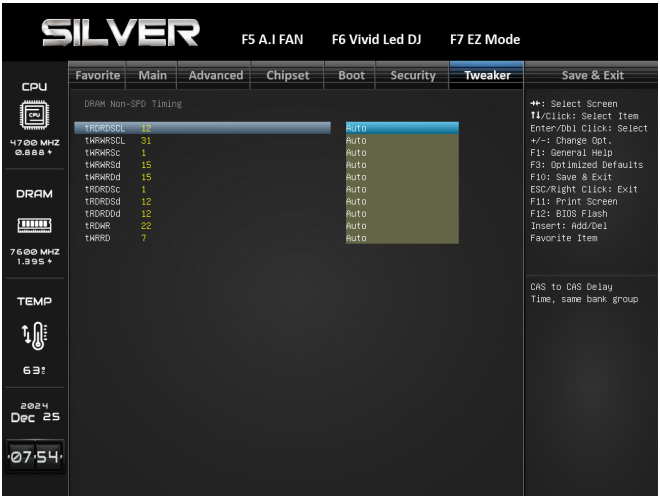
TRFC
Auto refresh row cycle time

TRFC2
Auto refresh row cycle time

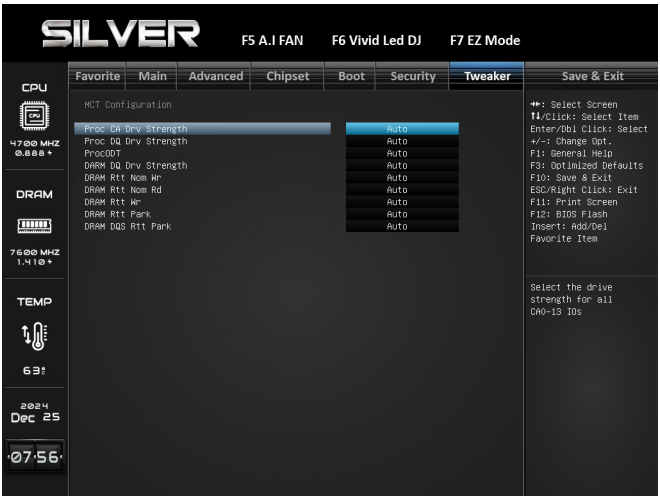
TRFCSB
Refresh Recovery Delay Time

TRTP
Read CAS to precharge time

TWR
Write recovery
TRRD_S
Activate to Activate Delay Time, different bank group
TRRD_L
Activate to Activate Delay Time, same bank group
TWTR_S
Minimum Write to Read Time, different bank group
TWTR_L
Minimum Write to Read Time, same bank group



DRAM Non-SPD Timing
DRAM Non-SPD Timing



DRAM Bus Configuration

DRAM Bus Configuration

Memory Context Restore

Configure the memory context restore mode. When enabled, DRAM re-retraining is avoided when possible and the POST latency is minimized.

Power Down

Enable or Disable DDR power down mode

Gear Down

Specifies DDR5 GearDown Mode.

7-10 CPU SOC Voltage

CPU SOC Voltage Contril
CPU SOC Adjust Voltage
CPU SOC Adjust Voltage Range: 1.000V - 2.000V
CPU SOC Offset Prefix
CPU SOC Offset Prefix
CPU SOC Offset Voltage
CPU SOC Offset Voltage Range: 0.000V - 0.635V

7-11 CPU MISC Voltage

CPU MISC Voltage Control
CPU MISC Adjust Voltage
CPU MISC Adjust Voltage Range: 1.000V - 2.000V
CPU MISC Offset Prefix
CPU MISC Offset Prefix
CPU MISC Offset Voltage
CPU MISC Offset Voltage Range: 0.000V - 0.635V

7-12 CPU DDR IMC Voltage

CPU DDR IMC Voltage Control.

7-13 CPU VDD Voltage

CPU VDD Voltage Control.

7-14 VDDP Voltage Control

Manual = User can set customized VDDP voltage.
VDDP Voltage

7-15 VDDG Voltage Control

Manual = User can set customized VDDG voltage.
VDDP Voltage

7-16 DIMM VDD

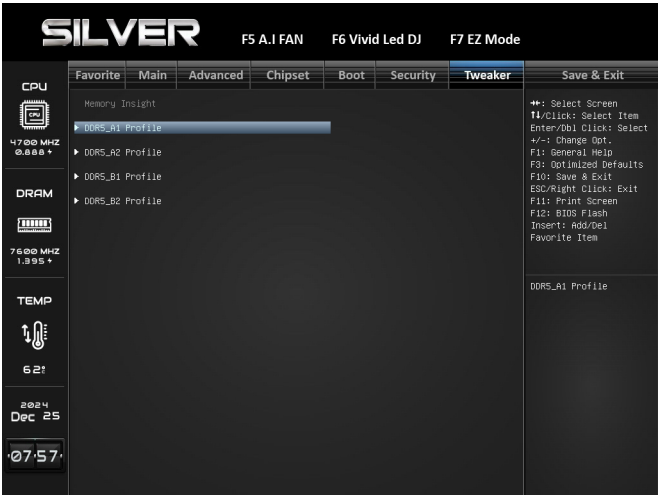
DIMM VDD Voltage

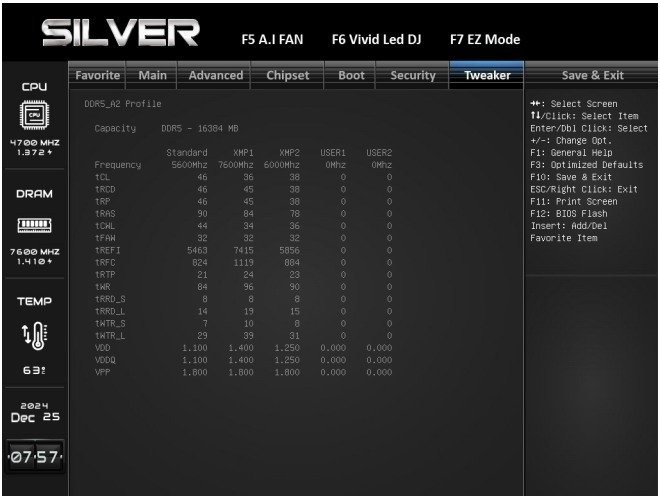
7-17 DIMM VDDQ

DIMM VDDQ Voltage

7-18 DIMM VPP

DIMM VPP Voltage





7-19 Memory Insight

DDR5_A1 Profile

Capacity N/A

Standard XMP1 XMP2

Frequency

tCL

tRCD

tRP

tRAS

tCWL

tFAW

tREFI

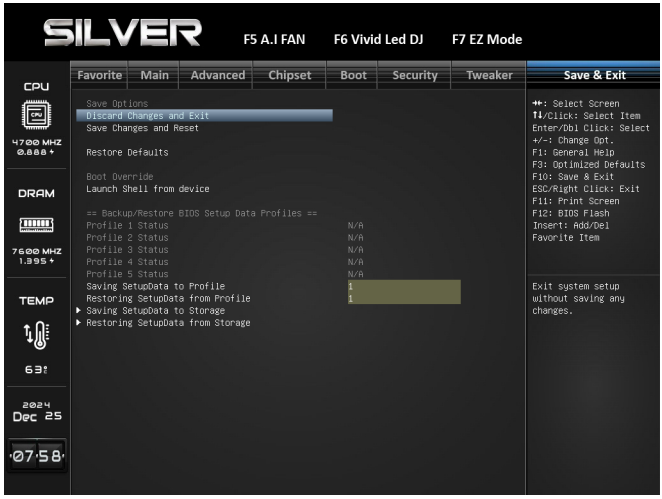
tRFC

tRTP
tWR
tRRD_S
tRRD_L
tWTR_S
tWTR_L
NMode
VDD
VDD
VDDQ
VPP
DDR5_A2 Profile
Capacity N/A
Standard XMP1 XMP2
Frequency
tCL
tRCD
tRP
tRAS
tCWL
tFAW
tREFI
tRFC
tRTP
tWR
tRRD_S
tRRD_L
tWTR_S
tWTR_L
NMode
VDD
VDD
VDDQ
VPP
DDR5_B1 Profile
Capacity N/A
Standard XMP1 XMP2
Frequency
tCL
tRCD
tRP
tRAS
tCWL
tFAW
tREFI
tRFC
tRTP
tWR

tRRD_S
tRRD_L
tWTR_S
tWTR_L
NMode
VDD
VDD
VDDQ
VPP
DDR5_B2 Profile
Capacity N/A
Standard XMP1 XMP2
Frequency
tCL
tRCD
tRP
tRAS
tCWL
tFAW
tREFI
tRFC
tRTP
tWR
tRRD_S
tRRD_L
tWTR_S
tWTR_L
NMode
VDD
VDD
VDDQ
VPP

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 Launch Shell from device

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

8-5 Saving SetupData to Profile

Saving SetupData to Profile.

8-6 Restoring SetupData from Profile

Restoring SetupData from Profile.

8-7 Saving SetupData to Storage

Saving SetupData to Storage.

8-8 Restoring SetupData from Storage

Saving SetupData to Storage.