

MERGING TECHNOLOGIES

GIGABYTE Z790 UD Install guide

First assemble the computer parts.

For ease of use during Windows installation, Merging recommends that you install security dongles, additional cards, Pyramix-Ovation keyboard, after the Windows Installation and activation..

MassCore users : Pyramix 14.1 / Ovation 10.1 (RTX64 4.4) or higher required. Previous versions are not compatible with Intel 12th/13th Gen CPU.

14th Gen CPU - MassCore users : Pyramix 15.0 or higher required.

Important note for MassCore Users

Due to Windows 10 & 11 Cores enumeration limitation, it is not possible to configure MassCore to only run on the Performance P-Cores only.

Therefore, the Efficiency E-Cores should be disabled in BIOS, before installing MassCore Runtime - RTX64.

Merging highly recommends you "defer feature updates" in Windows.

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1.BIOS

Validated BIOS version : **F12e** (previously **F6 & F9**)

First update BIOS if required.

Download BIOS from <https://www.gigabyte.com/Motherboard/Z790-UD-rev-10/support#support-dl-bios>, unzip on a USB Flash Drive and use the Q-Flash utility.

 When updating the BIOS, all settings are lost or not set correctly, you have to enter all the parameters again manually.

Merging recommends you unplug all drives before updating BIOS.

Merging Technologies will not be hold responsible for any trouble or error during a BIOS update.

!Merging Technologies does not guarantee any issue or instability if any overclocking is enabled!

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BIOS first opens in the Easy mode page, a summary of the system information.

You may adjust date and time.

Please switch to Advance Mode (F2)

Note: Depending on the CPU installed, some options might not be displayed.

1.1. Tweaker.

Gigabyte PerfDrive : Optimization

CPU Upgrade : *Default*

CPU Base Clock : *100.00MHz*

Enhanced Multi-Core Performance : *Disabled*

Performance CPU Clock Ratio : *Auto*

Efficiency CPU Clock Ratio : *Auto*

Max Ring Ratio : *Auto*

Min Ring Ratio : *Auto*

Advanced CPU Settings

PVD Ratio Threshold Override : *Auto*

CPU Over Temperature Protection : *Auto*

Hyper-Threading Technology : *Enabled*

Intel(R) Speed Shift Technology : *Disabled*

CPU Thermal Monitor : *Disabled*

Ring to Core offset (Down Bin) : *Auto*

CPU EIST Function : *Disabled*

Race To Halt (RTH) : *Disabled*

Energy Efficient Turbo : *Disabled*

Intel(R) Turbo Boost Technology : *Disabled*

CPU Flex Ratio Override : *Disabled*

CPU Flex Ratio Settings : *Not accessible as the previous setting is disabled*

Frequency TVB - Frequency Clipping TVB : *Disabled*

Enhanced TVB : *Auto*

Voltage Reduction Initiated TVB : *Auto*

IA CEP : *Auto*

GT CEP : *Auto*

FII OC Mode : *Auto*

Legacy Game Compatibility Mode : *Disabled*

Intel (VMX) Virtualization Technology : *Disabled*

Core VR Fast Vmode : *Auto*

Under Voltage Protection : *Auto*

Intel Dynamic Tuning Technology: *Disabled*

AVX Settings : *Auto*

Active Turbo Ratios : *Auto*

CPU Cores Enabling Mode : *Random Mode*

No. of CPU P-Cores Enabled : *Auto*

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No. of CPU E-Cores Enabled : *Native Users : Auto. MassCore Users : 0. This setting must be disabled before installing MassCore RTX64.*

C-States Control : *Disabled*

Turbo Power Limits : *Auto*

Turbo Per Core Limit Control : *Auto*

DDR5 Auto Booster : *Disabled*

High Bandwidth : *Auto*

Low Latency : *Auto*

DDR5 XMP Booster : *Disabled*

Extreme Memory Profile (X.M.P.) : *Disabled. Unfortunately using XMP Profile may cause instabilities to the system. Merging recommends to not use XMP Profiles.*

System Memory Multiplier : *Auto*

Advanced Memory Settings

Memory Ref Clock : *Auto*

Gear Mode : *Auto*

Memory Boot Mode : *Normal*

SA GV: *Auto*

Dynamic Memory Boost : *Auto*

Realtime Memory Frequency : *Disabled*

Realtime Memory Timing : *Disabled*

Fine Granularity: *Disabled*

Memory Enhancement Settings : *Auto*

Memory Timing Mode : *Fixed*

Memory Channel Detection Message : *Disabled*

Retry Loop Count : *Auto*

SPD Info : *Information only*

SPD Setup : *No setting to modify*

Memory Channels Timing : *No setting to modify*

Memory Training Settings : *No setting to modify*

All Voltages settings : *Auto - No setting to modify*

1.2. Settings.

Platform Power

Platform Power Management : *Disabled*

Keyboard Wake Up From S3 : *Disabled*

Mouse Wake Up From S3 : *Disabled*

Power On By Keyboard : *Disabled*

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Power On By Mouse : *Disabled*

ErP : *Disabled*

Soft-Off by PWR-BTTN : *Instant-Off*

Resume by Alarm : *Disabled*

Native ASPM : *Disabled*

Power Loading : *Auto*

RC6(Render Standby) : *Disabled*

AC Back : *Allows to set the computer behavior after a power shortage. Always Off : computer will remain off.*

Always On : computer will restart as soon as the AC power is back.

IO Ports

Initial Display Output : *PCIe 1 Slot (as Merging recommends a dedicated graphic card)*

Internal Graphics : *Disabled (as Merging recommends a dedicated graphic card)*

PCIe Bifurcation Support : *Auto*

OnBoard LAN Controller : *Enabled*

Audio Controller : *Enabled*

Above 4G Decoding : *Disabled*

Above 4GB MMIO BIOS assignment : *Disabled*

Re-Size BAR Support: *Disabled*

IOAPIC 24-199 Entries : *Enabled*

GNA (Gaussian & Neural Accelerator) : *Disabled*

Gigabyte Utilities Downloader Configuration

Gigabyte Utilities Downloader: *Disabled - Some utilities may interfere with the system, do not install. Until you disable this setting, you will be prompted to install the utilities each you start Windows.*

Super IO Configuration

Serial Port : *Enabled*

USB Configuration

Legacy USB Support : *Enabled*

XHCI Hand-off : *Enabled*

USB Mass Storage Driver Support : *Enabled*

Port 60/64 Emulation : *Enabled*

Network Stack Configuration

Network Stack : *Disabled*

NVMe Configuration : *Information only*

SATA Configuration

SATA Controller(s) : *Enabled*

Aggressive LPM Support : *Disabled*

Individual SATA ports settings : *Please the Gigabyte Z790 UD4 BIOS guide for details. SATA Port DevSlp must be Disabled.*

VMD Setup Menu

Enable VMD controller (= RAID) : *Enabled only if you want to use the motherboard RAID capability.*

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Enable VMD Global Mapping : *Disabled.*

Intel(R) Optane(TM) Memory : *Disabled.*

For the other settings and further details to configure a RAID array, [please follow Gigabyte RAID Setup Guide.](#)

Realtek PCIe 2.5GBE Family Controller : *Information only*

Miscellaneous

LEDs in System Power On State : *On*

LEDs in Sleep, Hibernation and Soft Off States : *Off*

RST-SW (Multikey) : *Set this button to HW Reset*

Intel Platform Trust Technology : *Enabled for Windows 11*

3DMark01 Enhancement : *Disabled*

CPU PCIe Link Speed : *Auto*

PCH PCIe Link Speed : *Auto*

PCH PCIe X4 Link Speed : *Auto*

VT-D: *Disabled*

Trusted Computing

Security Device Support : *Enabled for Windows 11*

Acoustic Noise Settings

Acoustic Noise Mitigation : *Disabled* - this setting is only used when the CPU goes in deep sleep mode, which cannot happen with the other BIOS Settings.

PC Health Status : Please the [Gigabyte Z790 UD BIOS guide for details.](#)

1.3. System Info.

You may set the System Language, Date and Time on this page.

The Plug in Devices Info shows the PCIe and M.2. devices detected by the system.

Q-Flash allows you to update the motherboard BIOS.

1.4. Boot.

Boot Configuration

Bootup NumLock State : *On*

CFG Lock : *Disabled*

Security Option : *Adjust according to your needs. Please the Gigabyte Z790 UD BIOS guide for details.*

Full Screen LOGO Show : *Adjust according to your needs. Please the Gigabyte Z790 UD BIOS guide for details.*

Boot Options Priorities

Boot Options #1 : *Windows Boot Manager (will only show up after Windows has been installed)*

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Fast Boot : *Disable Link*

Mouse Speed : 1x

Windows 10 Features : *Windows 10*

CSM Support : *Disabled*

Administrator / User Password : *Adjust according to your needs. Please the Gigabyte Z790 UD BIOS guide for details.*

Secure Boot

Secure Boot : Windows 10 Users : *Disabled (may prevent some devices or services to start properly)* - Windows 11 Users : *Enabled, with Secure Boot Mode to Standard.*

Preferred Operating Mode : *Adjust according to your needs. Please the Gigabyte Z790 UD BIOS guide for details.*

1.5 Saving your BIOS/UEFI settings

You can save your BIOS settings in the Save & Exit page, into the motherboard ROM or on a USB drive (must be formatted as FAT32)

After a BIOS update, those settings might be lost or incompatible with the updated BIOS version.

2.WINDOWS INSTALLATION

Windows 10 or 11 users may install from Windows 10 / 11 CD or USB bootable drive.

3.WINDOWS CONFIGURATION

Merging recommends to download the latest drivers from

<https://www.gigabyte.com/Motherboard/Z790-UD-rev-10/support#support-dl-driver>

Merging recommends to install WHQL (Driver certified by Microsoft) .

Install the drivers ONLY, do not install the utilities it can cause much trouble.

If you have installed a PCIe graphic card, you should now install its driver.

See the [Graphic cards recommendations](#)

Now you can follow our Windows configuration guide

IMPORTANT NOTE FOR RAVENNA/AES67 ASIO - Realtek onboard Network card configuration

If you plan to use the onboard network card for RAVENNA/AES67 - ASIO, it has to be configured.

Please access the *Windows Device Manager > Network Adapters > Realtek Gaming 2.5GbE Family Controller : Properties.*

Power Management tab : disable all options

Advanced tab : Energy-Efficient Ethernet, Gigabit Lite, Green Ethernet, Power Saving Mode, Shutdown Wake-On-Lan, Wake on Magic Packet, Wake on pattern match should all be set to Disabled.

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WOL & Shutdown Link Speed should be set to *Not Speed Down*.

Receive Buffers must be set to 256

.SOFTWARE INSTALLATION

4.1 INSTALL PYRAMIX / OVATION / MERGING AUDIO DEVICE

After the installation plug Security dongles, additional cards and other Merging hardware.

See dedicated install guide / user manual for further details.

4.2 THIRD PARTY SOFTWARE

Install *Google Chrome*

 [Google Chrome - The Fast & Secure Web Browser Built to be Yours](#)

If there are several users on the computer, you need to use the alternate Chrome installer for all users :  [Google C](#)

[hrome - The Fast & Secure Web Browser Built to be Yours](#)

You may also install additional VST Plugins now.