ASROCK Z890 PRO-A Install guide

For ease of use during Windows installation, it is recommended to install security dongles, additional cards, Pyramix-Ovation keyboard, ... after the Windows Installation and activation.

MassCore users: MassCore (IntervalZero RTX) compatible with Pyramix 16.0.7/Ovation 12.0.7 (RTX64 4.5.5) or above.
Previous Pyramix/Ovation versions are not compatible for MassCore, only Native.

It is highly recommended to "defer feature updates" in Windows.

Table of Contents

1.BIOS 2
1.1. OC Tweaker 2
1.2. Advanced 4
1.3. Tool 6
1.4. HW Monitor 7
1.5. Security 7
1.6. Boot 7
1.7 Saving your BIOS/UEFI settings 7
2.WINDOWS INSTALLATION 7
3.WINDOWS CONFIGURATION 8
4.SOFTWARE INSTALLATION 8
4.2 THIRD PARY SOFTWARE 8

1.BIOS

Validated BIOS version : **3.04**
First update BIOS if required.
Download BIOS from https://www.asrock.com/mb/Intel/Z890%20Pro-A/index.asp#BIOS unzip on a USB Flash Drive and use the Instant Flash utility.

When updating the BIOS, all settings are reset, you have to enter all the parameters again manually.
It is recommended to unplug all drives before updating BIOS.
Neumann and Merging Technologies will not be hold responsible for any trouble or error during a BIOS update.
! Overclocking is not recommended or supported.

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 (F6)
Note: Depending on the CPU installed, some options might not be displayed.

1.1. OC Tweaker

Base Frequency Boost: Auto
Intel 200S Boost: Disabled
Power Delivery Profile: Intel Default Mode
Gaming OC Preset: Disabled
CPU Indicator: Information only

CPU Configuration

CPU Turbo Ratio Information: Information only

CPU P-Core Ratio: Auto
AVX2 Ratio Offset: Auto
CPU E-Core Ratio: Auto
Granular Ratio: Disabled

CPU Cache Ratio: Auto
Min Cache Ratio: Auto
MemSS Max OC Ratio: Auto
NGU Max OC Ratio: Auto
GT Frequency: Auto
CPU D2D Ratio: Auto
D2D Ratio Cold Boot Workaround: Auto
PVD Ratio Threshold for CPU: Auto
PVD Mode Select for CPU: DIV-1
PVD Ratio Threshold for SOC: Auto
PVD Mode Select for SOC: DIV-1

Internal SOC BCLK Frequency: Auto
Internal SOC-Die SSC: Enabled
SOC BCLK Source: Auto
Compute BCLK Frequency: Auto
Compute BCLK SSC: Disabled
Compute BCLK Source: Auto
BCLK Aware Adaptive Voltage: Disabled

Boot Max Frequency: Enabled
Boot Performance Mode: Max Non-Turbo Performance
CPU BGREF Mode: Normal
VCCIA Boot Voltage: Nominal
VCCSA Boot Voltage: Nominal
Ring to Core Ratio Offset: Enabled
FLL Overclock Mode: 0
SA PLL Frequency: Auto
BCLK TSC HW Fixup: Enabled
UnderVolt Protection: Enabled
Overclocking Lock: Disabled

Intel SpeedStep Technology: Disabled
Intel Turbo Boost Technology: Disabled
Intel Speed Shift Technology: Disabled
Intel Turbo Boost Max Technology 3.0: Not accessible as the previous setting is disabled
Intel Dynamic Tuning Technology: Disabled

Intel Thermal Velocity Boost Ratio Clipping: Auto
OC TVB: Disabled
Intel Thermal Velocity Boost Voltage Optimizations: Auto
Enhanced Thermal Velocity Boost: Auto

CPU Tj Max: Auto
Long Duration Power Limit: Auto
Long Duration Maintained: Auto
Short Duration Power Limit: Auto
CPU Core Unlimited Current Limit: Auto
CPU Core Current Limit: Auto
CCF AutoGV: Disabled
Power Floor Management: Enabled
IA CEP Enable: Auto
GT CEP Enable: Auto
SA CEP Enable: Auto
Force Pcore Residency: Disabled
VR Limit Bypass: Disabled
Process Vmax Limit: Enabled
P-core Power Density Throttle: Enabled

DRAM Configuration

Memory Information: Information only
DRAM Preset: Default

DRAM Timing Information
Unfortunately using XMP Profile may cause instabilities to the system. It is not recommended to use XMP Profiles unless fully tested.
Load XMP Settings: Auto
Dynamic Memory Boost: Disabled
Realtime Memory Frequency: Disabled
DRAM Frequency: Auto
DRAM Gear Ratio: Auto
SAGV: Disabled
Timing turbo Mode: Auto

Timings: No setting to modify
Realtime Memory Timing: Disabled

Voltage Configuration

No setting to modify

CPU DLVR Configuration

No setting to modify

1.2. Advanced

CPU Configuration

Processor P-Core / E-Core Information: Information only
Per Core Disable Configuration: Disabled
Active P-Cores: All
Active Processor E-Cores: *Native*: All ; *MassCore*: 0 (to ensure that MassCore is running on the Performance CPUs)
CPU C States Support: Disabled
CPU Thermal Throttling: Disabled
Intel AVX/AVX2: Enabled
Intel Virtualization Technology: Disabled
X2APIC Enable: Disabled
Legacy Game Compatibility Mode: Disabled

Chipset Configuration

Primary Graphics Adapter: PCI Express*(as a dedicated graphic card is recommended)*
Re-Size BAR Support: Disabled

VT-d: Disabled
SR-IOV Support: Disabled
DMI Link Speed: Auto
PCIE1-4 Link Speed: All Auto

PCI Express Native Control: Disabled
PCIE ASPM Support: Disabled
PCH PCIE ASPM Support: Disabled
PCH DMI ASPM Support: Disabled
DMI ASPM Support: Disabled

PCIE Bifurcation: X16
IGPU Multi-Monitor: Disabled

Onboard HD Audio: Enabled
Front Panel: Adjust according to your needs - See ASROCK Z890 BIOS Setup Guide for details.

Realtek 2.5G Ethernet Controller: Enabled
Onboard WAN Device: Poor quality WAN network may trigger DPC issues (drops), use with caution.

Deep Sleep: Disabled
Restore on AC/Power Loss: Adjust according to your needs.
See ASROCK Z890 BIOS Setup Guide for details.
Turn On Onboard LED in S5: Adjust according to your needs.
See ASROCK Z890 BIOS Setup Guide for details.
Restore Onboard LED Default: Adjust according to your needs.
See ASROCK Z890 BIOS Setup Guide for details.
RGB LED: Adjust according to your needs - See ASROCK Z890 BIOS Setup Guide for details.
NPU Device: Enabled

Storage Configuration

SATA Controller(s): Enabled
SATA Aggressive Link Power Management: Disabled

VMD Configuration

Enable VMD Controller: Enabled
Enable VMD Global Mapping: Disabled
Map RP BDF 0/1/0 under VMD: Disabled
Map PCH SATA Controller Under VMD: Disabled
RAID0-10: Adjust according to your needs.
For the other settings and further details to configure a RAID array, please follow ASROCK RAID Setup Guide.
ZPODD: Disabled

NVMe Configuration

Information only

Intel(R) Thunderbolt

PCIE Tunneling over USB4: Enabled
Integrated Thunderbolt(TM) Enable: Enabled
Discrete Thunderbolt(TM) Enable: Disabled

ACPI Configuration

Suspend to RAM: Disabled
PCIE Devices Power On: Disabled
RTC Alarm Power On: Disabled
USB Keyboard/Remote Power On: Disabled
USB Mouse Power On: Disabled

USB Configuration

XHCI Hand-off: Disabled

Trusted Computing

Security Device Support: Enabled
Other settings can be left to default - See ASROCK Z890 BIOS Setup Guide for details.

Network Stack Configuration

Network Stack: Disabled

Intel(R) Rapid Storage Technology

Follow the instructions in the ASROCK Z890 RAID Installation Guide / Intel Rapid Storage Guide.

UEFI Configuration

Configure according to your needs. See ASROCK Z890 BIOS Setup Guide for details.

1.3. Tool

LED Firmware Recovery - ASRock Polychrome RGB: See ASROCK Z890 BIOS Setup Guide for details.
Media Sanitization: Tool to securely erase SSD - See ASROCK Z890 BIOS Setup Guide for details.

Auto Driver Installer: 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 time you start Windows.

UEFI Update Utility
Instant Flash / Intel MEI Flash: Flash Update Utility - See ASROCK Z890 BIOS Setup Guide for details.

1.4. HW Monitor

Monitor the status of your system, including the parameters of the CPU temperature, motherboard temperature, fan speed and voltage.
CPU and Chassis fans can also be configured in this page.

1.5. Security

Supervisor / User Password: Set according to your needs. See ASROCK Z890 BIOS Setup Guide for details.

Secure Boot

> **Secure Boot**: *Native*: Enable ; *MassCore*: must be set to Disabled after Windows installation, and before installing the MassCore Runtime.
> **Secure Boot Mode:** Standard

Intel(R) Platform Trust Technology: Enabled (mandatory for Windows 11)

1.6. Boot

Boot Options: Windows Boot Manager (available once Windows is installed)
Fast Boot : Disabled
Boot From Onboard LAN: Disabled
Setup Prompt Timeout: 1
Bootup NumLock: On
Boot Beep / Full Screen LOGO Show: Adjust according to your needs.
Boot Failure Guard Message: Enabled
Boot Failure Guard Count: 4

1.7 Saving your BIOS/UEFI settings

You can save your BIOS settings in the OC Tweaker 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 11 users may install from Windows 11 USB bootable drive.

3.WINDOWS CONFIGURATION

It is recommended to download the latest drivers from
https://www.asrock.com/mb/Intel/Z890%20Pro-A/index.asp#Download

The installation of WHQL drivers (Driver certified by Microsoft) is highly recommended.
Install the drivers ONLY, do not install the utilities it can cause much trouble.
ASRock Motherboard Utility, APP Shop, Norton 360 for Gamers, Dragon 2.5G LAN Utility should not be installed.

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

4.SOFTWARE INSTALLATION

Install Pyramix, Ovation, Merging Audio Device, MT 48 Toolkit,....

4.2 THIRD PARY SOFTWARE

Install Google Chrome (recommended web browser on Windows)
https://www.google.com/chrome

You may also install additional VST Plugins now.