

How to run CPU overclock on OGA/OGS

Officially, we recommend to use 1.296GHz of max CPU frequency to operate OGA/OGS system stably. For users who want to boost system performance by setting CPU clock higher even at the risk, we provide an interface to set max CPU frequency flexibly.

The base logic of cpu overclock comes from the following github of RRVL kernel.

<https://github.com/valadaa48/linux/commits/rrvl>

This overclock scheme became possible thanks to the forum user, valadaa48 and RRVL members.

Please refer to related history and further discussions here in this forum thread.

<https://forum.odroid.com/viewtopic.php?f=187&t=37452>

Kernel Update

To use this scheme, the kernel version must be **4.4.189-42** or higher.

Please update the kernel package from your Ubuntu ES image as following, then reboot the system.

```
$ sudo apt update
$ sudo apt upgrade -y
$ sudo reboot
```

Then, please confirm the kernel version.

```
$ uname -a
Linux goadvance 4.4.189-42 #1 SMP Thu Mar 25 15:00:07 UTC 2021 aarch64
aarch64 aarch64 GNU/Linux
```

The Available List of CPU Frequency

frequency	notation on boot.ini
1.512 GHz	"1512"
1.488 GHz	"1488"
1.464 GHz	"1464"
1.440 GHz	"1440"
1.416 GHz	"1416"
1.368 GHz	"1368"
1.296 GHz	"1296"
1.200 GHz	"1200"
1.008 GHz	"1008"
600 MHz	"600"
408 MHz	"408"

Adjust CPU Max Frequency by modifying boot.ini

You can assign max cpu frequency using **max_cpufreq** in boot.ini.

Default max cpu frequency is set as 1.296GHz if there is no option with **max_cpufreq** in boot.ini.

example 1 - 1.416 GHz

```
# Boot Arguments
setenv bootargs "root=UUID='e139ce78-9841-40fe-8823-96a304a09859' rootwait
rw fsck.repair=yes net.ifnames=0 fbcon=rotate:3 console=/dev/ttyFIQ0 quiet
splash plymouth.ignore-serial- consoles consoleblank=0"

setenv bootargs ${bootargs} max_cpufreq=1416
```

```
root@goadvance:~# cat
/sys/devices/system/cpu/cpufreq/policy0/scaling_available_frequencies
408000 600000 1008000 1200000 1296000 1368000 1416000
```

example 2 - 1.296 GHz

```
# Boot Arguments
setenv bootargs "root=UUID='e139ce78-9841-40fe-8823-96a304a09859' rootwait
rw fsck.repair=yes net.ifnames=0 fbcon=rotate:3 console=/dev/ttyFIQ0 quiet
splash plymouth.ignore-serial- consoles consoleblank=0"

setenv bootargs ${bootargs} max_cpufreq=1296
```

Or without max_cpufreq that is defined in boot.ini, max cpu frequency set as 1.296GHz by default.

```
root@goadvance:~# cat
/sys/devices/system/cpu/cpufreq/policy0/scaling_available_frequencies
408000 600000 1008000 1200000 1296000
```

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