

## Popcorn Linux Clustering Configuration Guide

Popcorn Linux has the ability to run in a clustered configuration, where each kernel instance owns multiple cores in an SMP system. The partitioning of cores between kernels is done statically at each kernels' boot time.

It is advised to use the `generate_all.sh` script in `mklinux-utils` to generate a partitioning automatically (as well as the values for other kernel boot parameters), then edit the partitioning manually if needed using the following parameters:

### 1. `present_mask`

*Define the CPUs to be used by the corresponding kernel.* For example to use only CPU of id 0: `present_mask=0`

To use CPUs 0 to 15: `present_mask=0-15`

It is also possible to specify more complicated masks: `present_mask=0-15, 32-47`

### 2. `memmap` and `mem`

*memmap* is used to defines areas of accessible memory for the corresponding kernel. The usage is as follows:

`memmap=x@y`: give access to x bytes starting from physical offset y

`memmap=x$y`: forbid access to x bytes starting from physical offset y

You can append K/M/G postfixes after x and Y.

*mem* is used to define the maximum physical offset accessible for the corresponding kernel. It is subtly different from *memmap* and is mainly needed when booting secondary kernels.

As an example, consider a machine with 2 CPUs, 2 kernels and 2GB RAM. To split the RAM in two (giving half of it to each kernel), as well as 1 CPU each:

Primary kernel: `present_mask=0 mem=1G`

Secondary kernel: `present_mask=1 memmap=1G@1G memmap=1023M$1M  
memmap=516$64k mem=2G`

**NOTE:** the primary kernel **must always** have access to CPU0.