

Build Linux System

Based on Ubuntu 18.04 & linux-5.0.1

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关注孟宁

下载Linux内核源代码

- <https://cdn.kernel.org/pub/linux/kernel/v5.x/linux-5.0.1.tar.xz>
- `xz -d linux-5.0.1.tar.xz`
- `tar -xvf linux-5.0.1.tar`
- `cd linux-5.0.1`



linux-5.0.1.tar.xz下载地址

安装内核编译工具

- `sudo apt install build-essential flex bison libssl-dev libelf-dev libncurses-dev`

配置编译内核

- make defconfig #按照默认值生成.config
- make i386_defconfig #生成32位x86的配置文件
- make config #遍历选择编译内核功能
- make allyesconfig #启用内核全部功能
- make allnoconfig #内核功能选项全部为否
- make menuconfig #开启文本菜单选项，对窗口有限制，尽量调大窗口
- make 或 make -j* # *为cpu核心数

升级当前系统内核

- `sudo make modules_install` # ⚠️安装前通过系统快照备份系统，以防出现故障前功尽弃
- `sudo make install`
- `sudo update-grub`
- `reboot`
- `uname -a`
 - Linux ubuntu 5.0.1 #1 SMP Wed Mar 13 14:19:31 CST 2019 x86_64 x86_64 x86_64 GNU/Linux

通过QEMU虚拟机加载内核

- `sudo apt install qemu`
- `qemu-system-i386 -kernel linux-5.0.1/arch/x86/boot/bzImage`
- `qemu-system-x86_64 -kernel linux-5.0.1/arch/x86/boot/bzImage`

构造MenuOS

- `git clone https://github.com/mengning/menu.git`
- `cd menu`
- `sudo apt-get install libc6-dev-i386` # 在64位环境下编译32位需安装
- `make rootfs`
- `cd ..`
- `qemu-system-i386 -kernel linux-3.18.6/arch/x86/boot/bzImage -initrd rootfs.img`

QEMU

```

[ 2.386957] No soundcards found.
[ 2.450981] Freeing unused kernel image memory: 740K
[ 2.452413] Write protecting kernel text and read-only data: 12544k
[ 2.452576] Run /init as init process

      *      *
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MenuOS>>[ 2.911208] input: ImExPS/2 Generic Explorer Mouse as /devices/platform/i8042/serio1/input/input3

MenuOS>>help
help - Menu List
  * help - Menu List
  * version - MenuOS V1.0(Based on Linux 3.18.6)
  * quit - Quit from MenuOS
  * time - Show System Time
  * time-asm - Show System Time(asm)
MenuOS>>

```

```

ubuntu@ubuntu-VirtualBox:~$ qemu-system-i386 -kernel arch/x86/boot/bzImage -initrd rootfs.img
qemu: could not load kernel 'arch/x86/boot/bzImage': No such file or directory
ubuntu@ubuntu-VirtualBox:~$ qemu-system-i386 -kernel linux-5.0.1/arch/x86/boot/bzImage -initrd rootfs.img

```