Use busybox to make a root file system and load it with qemu

Article Directory

premise

> There is already a compiled linux kernel image,
> Need to check the previous article, except for those familiar with:Cross compile linux kernel 5.3.7, make initramfs, use qemu to test

Host	ubuntu16.04

aims	aarch64
Cross compiler	gcc-linaro-7.4.1-2019.02-x86_64_aarch64-linux-gnu.tar.xz

Download busybox:

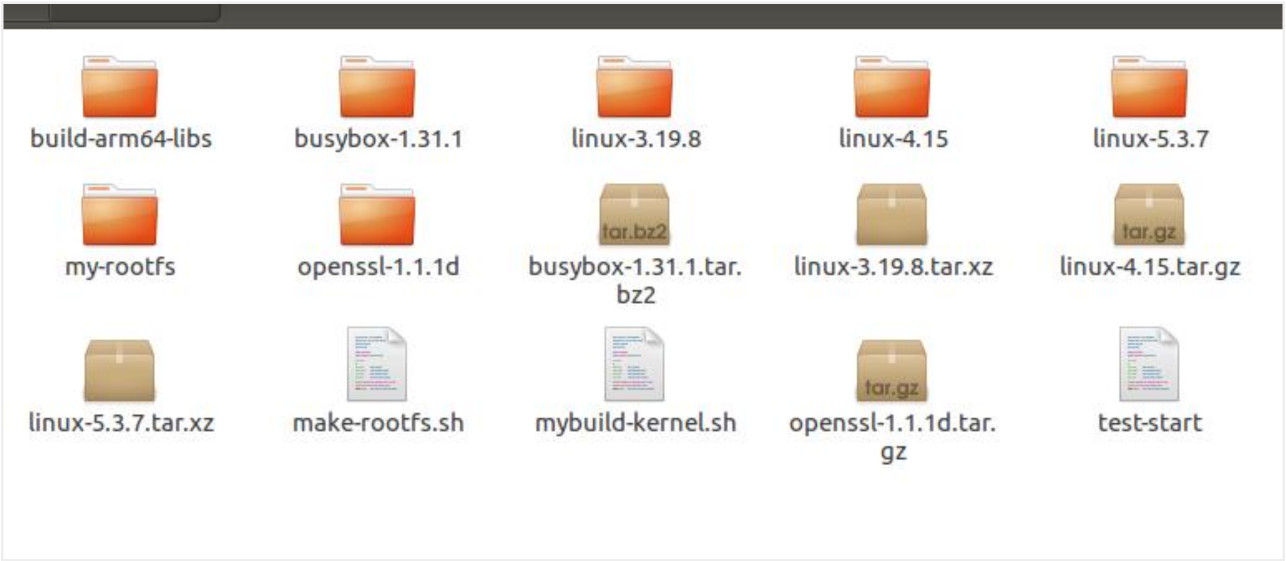
https://busybox.net/downloads/

I am: busybox-1.31.1.tar.bz2

put it in the same level directory in linux, and unzip it

```
tar xvf busybox-1.31.1.tar.bz2
```

Directory structure diagram:



Compile and install busybox:

Use the script mybuild.sh and place it in the busybox source directory:

```
#!/bin/bash


export CROSS_COMPILE=aarch64-linux-gnu-
export ARCH=arm64

echo "CROSS_COMPILE = "$CROSS_COMPILE
echo "ARCH = "$ARCH

make menuconfig
make -j4
make install
```

Execute the script, compile and install

```
sudo chmod +x mybuild.sh
./mybuild.sh
```

menuconfig: Need to configure static compilation

```
Settings  --->
[*] Build static binary (no shared libs)
```

Then exit to exit

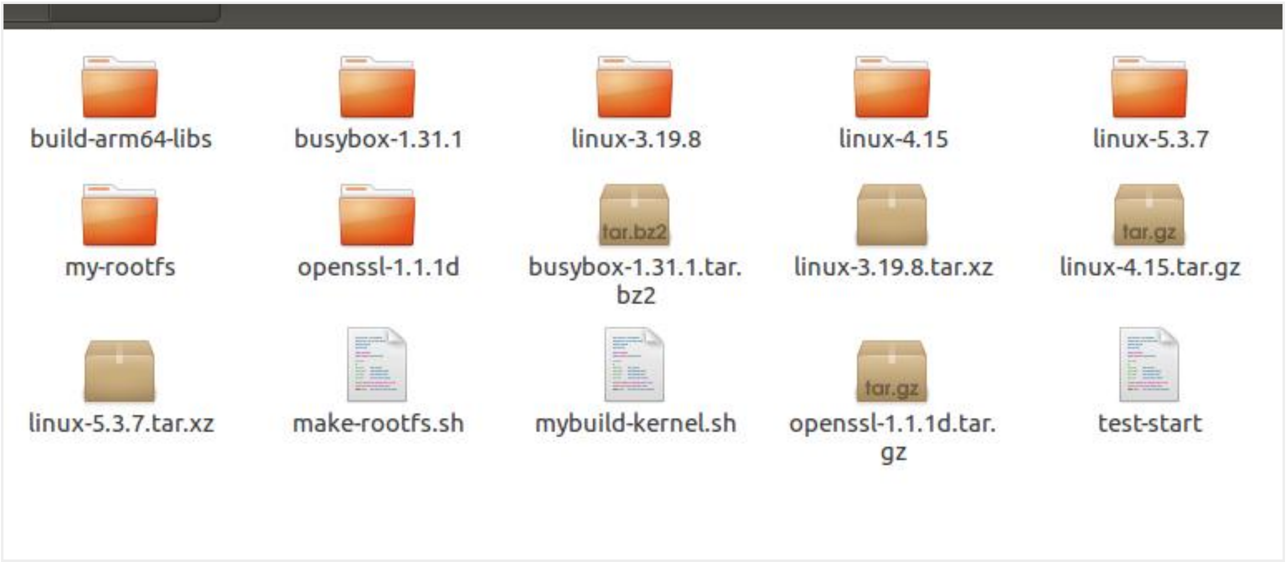
The successful output is as follows:

```
--------------------------------------------------
You will probably need to make your busybox binary
setuid root to ensure all configured applets will
work properly.
--------------------------------------------------

```

busybox is installed in the source directory `_install` table of Contents

Make rootfs

Return to the previous directory:



Write and make rootfs script make-rootfs.sh :

```
#!/bin/sh
busybox_folder="./busybox-1.31.1"
rootfs="my-rootfs"

echo $base_path
if [ ! -d $rootfs ]; then
mkdir $rootfs
fi
cp $busybox_folder/_install/*  $rootfs/ -rf
cd $rootfs
if [ ! -d proc ] && [ ! -d sys ] && [ ! -d dev ] && [ ! -d etc/init.
mkdir proc sys dev etc etc/init.d
fi

if [ -f etc/init.d/rcS ]; then
rm etc/init.d/rcS
fi
echo "#!/bin/sh" > etc/init.d/rcS
echo "mount -t proc none /proc" >> etc/init.d/rcS
echo "mount -t sysfs none /sys" >> etc/init.d/rcS
echo "/sbin/mdev -s" >> etc/init.d/rcS
chmod +x etc/init.d/rcS
```

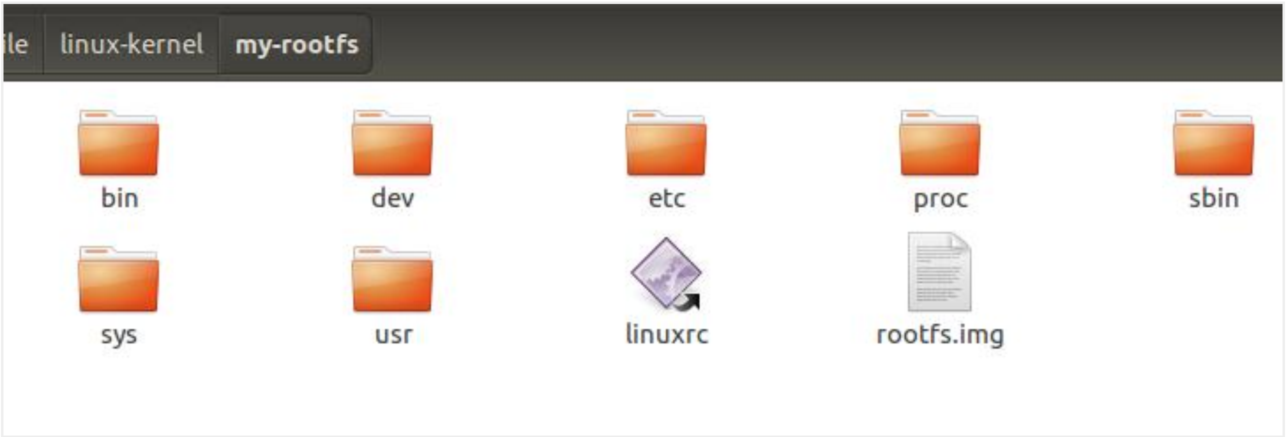
```
        if [ -f ../my-rootfs/rootfs.img ]; then
                rm ../my-rootfs/rootfs.img
        fi
find . | cpio -o --format=newc > ../my-rootfs/rootfs.img

```

Execute the script to make rootfs:

```
sudo chmod +x make-rootfs.sh
./make-rootfs.sh
```

Then, generate in the current directory `my-rootfs` table of Contents

Then in the my-rootfs directory:



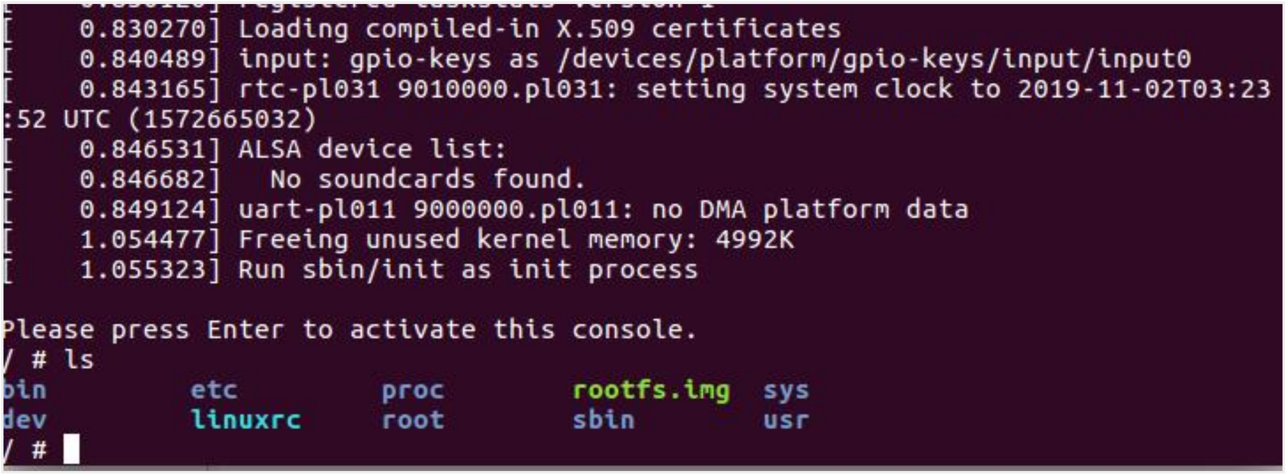
rootfs.img is the successfully made root file system image

Use qemu test

linux kernel mirror path	`./linux-5.3.7/out_aarch64/arch/arm64/boot/Image`
Root file system path	`./my-rootfs/rootfs.img`

```
qemu-system-aarch64 \
    -M  virt \
    -cpu cortex-a53 \
-smp 2 \
-m 1024M \
-kernel ./linux-5.3.7/out_aarch64/arch/arm64/boot/Image \
-append "root=/dev/ram rdinit=sbin/init  console=ttyAMA0 ignore_
-initrd ./my-rootfs/rootfs.img \
-nographic
```

success:



```
[    0.830120] registered taskstats version 1
[    0.830270] Loading compiled-in X.509 certificates
[    0.840489] input: gpio-keys as /devices/platform/gpio-keys/input/input0
[    0.843165] rtc-pl031 9010000.pl031: setting system clock to 2019-11-02T03:23
:52 UTC (1572665032)
[    0.846531] ALSA device list:
[    0.846682]   No soundcards found.
[    0.849124] uart-pl011 9000000.pl011: no DMA platform data
[    1.054477] Freeing unused kernel memory: 4992K
[    1.055323] Run sbin/init as init process

Please press Enter to activate this console.
/ # ls
bin         etc         proc        rootfs.img  sys
dev         linuxrc     root        sbin        usr
/ # 
```

Intelligent Recommendation

NUC972 --- make use busybox file syst em

For more information, please add QQ group request Welcome to the qq exchange group: 669 495 872 Overview: Compile requirements: Source:. / Home / qlqcetc / nuc970bsp / 01 third-party tools /busybox-1....

```
buntu:~$ cd busybox
buntu:~/busybox$ ls
s                    examples                modutils
s_sh                 findutils               networking
                     include                 NOFORK_NOEXEC.lst
al                   init                    NOFORK_NOEXEC.sh
S                    _install                printutils
x                    INSTALL                 procps
x.links              klibc-utils             qemu_multiarch_testi
x_unstripped         libbb                   README
x_unstripped.map     libpwdgrp               runit
x_unstripped.out     LICENSE                 scripts
.in                  loginutils              selinux
s                    mailutils               shell
e-tools              Makefile                size_single_applets.
tils                 Makefile.custom         sysklogd
utils                Makefile.flags          testsuite
                     Makefile.help           TODO
ogs                  make_single_applets.sh  TODO_unicode
s                    miscutils               util-linux
buntu:~/busybox$
```

Record --- use busybox to make file root system (no development board steps) (Ubuntu)

Records-Using busybox to make file root system (Ubuntu) I did this thing for two days. The configuration file I made before was too messy for me to change. I did it again. I wrote a lot of problems in...

Linux Kernel Porting Notes | 03-Porting Linux 3.4.2 Kernel to JZ2440 (Use busy box to make root file system)

Open source address of the prepared file system project:https://github.com/Mculover666/rootfs-jz2440。 1. Compile and install busybox System environment: ubuntu 18.04 64bit arm-linux-gcc 4.4.3 1.1. Dow...

Compile busybox to make root file system under uclinux

The root file system configuration of uclinux compiled under busybox In the process of using busybox to create the root file system of the uClinux system, I found that only the source files of the fil...

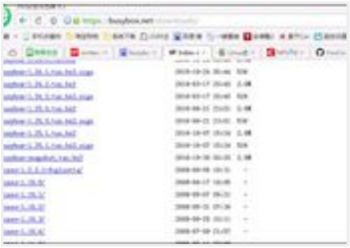
001-Linux root file system learning using busybox to make rootfs

rootfs production 1. Create a directory 2. Unzip busybox-1.29.0.tar.bz2 3. Modify the source code busybox-1.29.0/libbb/printable_string.c 4 Modify the source code busybox-1.29.0/libbb/unicode.c to sup...

More Recommendation

busybox root file system production

...



busybox build root file system

There are two formats for rootfs: rootfs in the form of a folder started by nfs and rootfs in the form of a mirror for burning. 1. Busybox transplantation 1. Busybox download busybox is an open source...

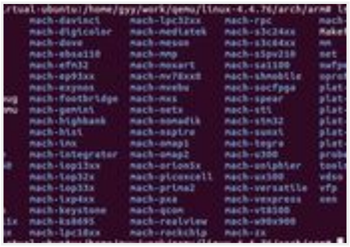
```
0:0a:35:66:01:33, ipaddr=192.168.1.10
main=, nis-domain=(none)
12, rootserver=192.168.1.12, rootpath
esystem) on device 0:12.

ry: 1024K

 Done

 mnt     root    sys     usr
 proc    sbin    tmp
```

busyBox making root file system

busyBox making root file system busybox download Official website addresshttps://busybox.net/ Production steps downloadbusybox-1.29.1.tar.bz2. Unzip the busybox source package.tar -jxvf busybox-1.29.1...

Busybox makes root file system

1. Compile make make CONFIG_PREFIX=../../../rootfs install After writing a script busyboxcfg: make -C ${ROOT_DIR}/linux/${BUSYBOX_VER} menuconfig busybox: make -C ${ROOT_DIR}/linux/${BUSYBOX_VE...



```
rtual-ubuntu:/home/gyy/work/qemu/linux-4.4.76/arch/arm# l
    mach-davinci       mach-lpc32xx      mach-rpc          mach-
    mach-digicolor     mach-mediatek     mach-s3c24xx      Makef
    mach-dove          mach-meson        mach-s3c64xx      mm
    mach-ebsa110       mach-mmp          mach-s5pv210      net
    mach-efm32         mach-moxart       mach-sa1100       nwfp
    mach-ep93xx        mach-mv78xx0      mach-shmobile     oprof
    mach-exynos        mach-mvebu        mach-socfpga      plat-
    mach-footbridge    mach-mxs          mach-spear        plat-
    mach-gemini        mach-netx         mach-sti          plat-
    mach-highbank      mach-nomadik      mach-stm32        plat-
    mach-hisi          mach-nspire       mach-sunxi        plat-
    mach-imx           mach-omap1        mach-tegra        plat-
    mach-integrator    mach-omap2        mach-u300         probe
    mach-iop13xx       mach-orion5x      mach-uniphier     tools
    mach-iop32x        mach-picoxcell    mach-ux500        vdso
    mach-iop33x        mach-prima2       mach-versatile    vfp
    mach-ixp4xx        mach-pxa          mach-vexpress     xen
    mach-keystone      mach-qcom         mach-vt8500
    mach-ks8695        mach-realview     mach-w90x900
    mach-lpc18xx       mach-rockchip     mach-zx
```

Use QEMU to build arm development environment under Ubuntu (two) compile Linux kernel and make root file system

One, compile the Linux kernel Download the Linux kernel It is recommended to use the domestic mirror website to download Unzip after downloading Modify Makefile Search for CROSS_COMPILE cross compilat...

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