Studio3 Report

STUDIO3

Step1:

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Step2:

```
[bingxin.liu@linuxlab006 modules]$ make -C $LINUX_SOURCE ARCH=arm CROSS_COMPILE=arm-linux-gnueabihf- M=$F
make: Entering directory `/project/scratch01/compiling/bingxin.liu/linux_source/linux'
   CC [M] /project/scratch01/compile/bingxin.liu/modules/simple_module.o Building modules, stage 2.
   MODPOST 1 modules
   CC [M] /project/scratch01/compile/bingxin.liu/modules/simple_module.mod.o
   LD [M] /project/scratch01/compile/bingxin.liu/modules/simple_module.ko
make: Leaving directory `/project/scratch01/compiling/bingxin.liu/linux_source/linux'
```

Step3:

```
pi@lbxpi:~/modules $ sudo dmesg --clear
pi@lbxpi:~/modules $ sudo insmod simple_module.ko
pi@lbxpi:~/modules $ dmesg
[13764.108293] simple module initialized
pi@lbxpi:~/modules $
```

Step4:

```
pi@lbxpi:~/modules $ lsmod
Module               Size  Used by
simple_module          16384  0
cmac              16384  1
rfcomm              45056  4
bnep             20480  2
hci_uart            36864  1
btbcm              16384  1 hci_uart
serdev             20480  1 hci_uart
bluetooth            372736  29 hci_uart,bnep,btbcm,rfcomm
ecdh_generic          16384  2 bluetooth
ecc             32768  1 ecdh_generic
fuse            110592  3
8021q              32768  0
garp              16384  1 8021q
stp              16384  1 garp
llc             16384  2 garp,stp
brcmfmac             278528  0
brcmutil           20480  1 brcmfmac
sha256_generic         16384  0
libsha256            20480  1 sha256_generic
cfg80211            684032  1 brcmfmac
rfkill            28672  6 bluetooth,cfg80211
raspberrypi_hwmon      16384  0
bcm2835_v4l2          45056  0
hwmon             28672  1 raspberrypi_hwmon
bcm2835_codec        36864  0
bcm2835_isp         28672  0
v4l2_mem2mem         32768  1 bcm2835_codec
bcm2835_mmal_vchiq   28672  3 bcm2835_isp,bcm2835_codec,bcm2835_v4l2
videobuf2_vmalloc     16384  1 bcm2835_v4l2
videobuf2_dma_contig   20480  2 bcm2835_isp,bcm2835_codec
videobuf2_memops     16384  2 videobuf2_dma_contig,videobuf2_vmalloc
videobuf2_v4l2       28672  4 bcm2835_isp,bcm2835_codec,bcm2835_v4l2,v4l2_mem2mem
snd_bcm2835         24576  3
videobuf2_common      53248  5 bcm2835_isp,bcm2835_codec,bcm2835_v4l2,v4l2_mem2mem,videobuf2_v4l2
snd_pcm           94208  1 snd_bcm2835
videodev           217088  6 bcm2835_isp,bcm2835_codec,videobuf2_common,bcm2835_v4l2,v4l2_mem2mem,videobuf
snd_timer          32768  1 snd_pcm
mc              40960  6 bcm2835_isp,bcm2835_codec,videobuf2_common,videodev,v4l2_mem2mem,videobuf2_v4l2
snd             65536  9 snd_timer,snd_bcm2835,snd_pcm
vc_sm_cma          32768  1 bcm2835_mmal_vchiq
uio_pdrv_genirq       16384  0
uio             20480  1 uio_pdrv_genirq
fixed            16384  0
i2c_dev            20480  0
ip_tables          28672  0
```

```
                                           x_tables          32768  1 ip_tables
ipv6            454656  30
nf_defrag_ipv6      20480  1 ipv6
pi@lbxpi:~/modules $
```

Step5:

```
pi@lbxpi:~/modules $ sudo rmmod simple_module.ko
pi@lbxpi:~/modules $ dmesg
[13764.108293] simple module initialized
[13863.139098] simple module is being unloaded
pi@lbxpi:~/modules $ lsmod
Module            Size  Used by
cmac             16384  1
rfcomm           45056  4
bnep             20480  2
hci_uart         36864  1
btbcm            16384  1 hci_uart
serdev           20480  1 hci_uart
bluetooth        372736  29 hci_uart,bnep,btbcm,rfcomm
ecdh_generic      16384  2 bluetooth
ecc              32768  1 ecdh_generic
fuse             110592  3
8021q            32768  0
garp             16384  1 8021q
stp              16384  1 garp
llc              16384  2 garp,stp
brcmfmac         278528  0
brcmutil         20480  1 brcmfmac
sha256_generic     16384  0
libsha256        20480  1 sha256_generic
cfg80211         684032  1 brcmfmac
rfkill           28672  6 bluetooth,cfg80211
raspberrypi_hwmon    16384  0
bcm2835_v4l2     45056  0
hwmon            28672  1 raspberrypi_hwmon
bcm2835_codec     36864  0
bcm2835_isp       28672  0
v4l2_mem2mem       32768  1 bcm2835_codec
bcm2835_mmal_vchiq   28672  3 bcm2835_isp,bcm2835_codec,bcm2835_v4l2
videobuf2_vmalloc    16384  1 bcm2835_v4l2
videobuf2_dma_contig  20480  2 bcm2835_isp,bcm2835_codec
videobuf2_memops     16384  2 videobuf2_dma_contig,videobuf2_vmalloc
videobuf2_v4l2      28672  4 bcm2835_isp,bcm2835_codec,bcm2835_v4l2,v4l2_mem2mem
snd_bcm2835      24576  3
videobuf2_common     53248  5 bcm2835_isp,bcm2835_codec,bcm2835_v4l2,v4l2_mem2mem,videobuf2_v4l2
snd_pcm          94208  1 snd_bcm2835
videodev         217088  6 bcm2835_isp,bcm2835_codec,videobuf2_common,bcm2835_v4l2,v4l2_mem2mem,videobuf
snd_timer        32768  1 snd_pcm
mc               40960  6 bcm2835_isp,bcm2835_codec,videobuf2_common,videodev,v4l2_mem2mem,videobuf2_v4l2
snd              65536  9 snd_timer,snd_bcm2835,snd_pcm
vc_sm_cma        32768  1 bcm2835_mmal_vchiq
uio_pdrv_genirq     16384  0
uio              20480  1 uio_pdrv_genirq
fixed            16384  0
i2c_dev          20480  0
ip_tables        28672  0
x_tables         32768  1 ip_tables
ipv6            454656  30
nf_defrag_ipv6      20480  1 ipv6
pi@lbxpi:~/modules $
```

Step6:

```
pi@lbxpi:~/modules $ sudo dmesg --clear
pi@lbxpi:~/modules $ sudo insmod jiffies_module.ko
pi@lbxpi:~/modules $ sudo rmmod jiffies_module.ko
pi@lbxpi:~/modules $ dmesg
[172460.677240] simple module initialized, and the current jiffies number is 17215906
[172466.296917] simple module is being unloaded, and the current jiffies number is 17216468
pi@lbxpi:~/modules $
```

There is 562 ticks occurred between those messages.