### Maestría de Sistemas Embebidos





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## Introducción

- Se completa la guía del profesor (grabar flash).
- Generando un File System con Buildroot
  - Imagen cpio para U-Boot
- Particionamiento de la SD
- Boot completo desde la SD





### Grabar la Flash

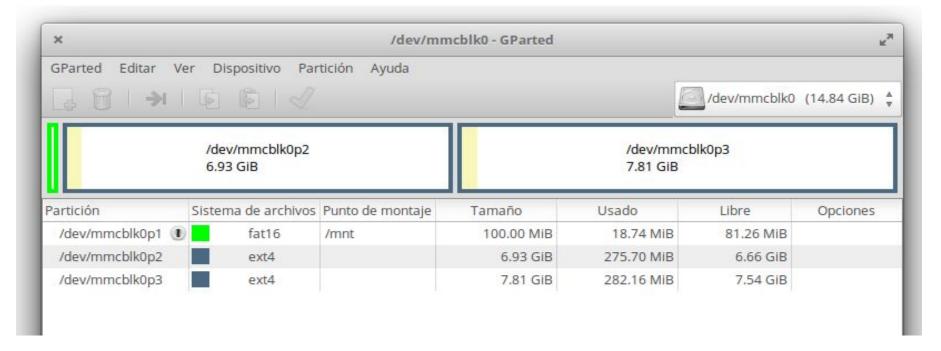
- Se completo el último paso de la guía del profesor Gonzalo, grabando U-Boot en la flash. realizando esta configuración:
- Enable SPL
  - Support SPI flash drivers
  - o (no tildar Support loading from SPI flash)
- Boot media
  - Support from booting from SD/EMMC
  - Support from booting from SPI flash
- ARM architecture
  - Suppor for SPI Flash on Allwinner SoCs in SPL (por defecto)



### Generando un FS RAMDisk con Buildroot

```
Filesystem images
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenus ----).
Highlighted letters are hotkeys. Pressing <Y> selects a feature, while <N> excludes a
feature. Press <Esc> Esc> Esc> to exit. <?> for Help. </> for Search. Legend: [*] feature is
selected [ ] feature is excluded
               exfs root filesystem
               btrfs root filesystem
               cloop root filesystem for the target device
            [*] cpio the root filesystem (for use as an initial RAM filesystem)
                 Compression method (no compression) --->
                 Create U-Boot image of the root filesystem
               cramfs root filesystem
               ext2/3/4 root filesystem
                                                /home/tito/linux-kernel-labs_ISO2/buildroot/buildroot/output/hos
               f2fs root filesystem
                *** initramfs needs a Linux ke-d /home/tito/linux-kernel-labs_ISO2/buildroot/buildroot/output/
                                                el-labs_ISO2/buildroot/buildroot/output/images/rootfs.cpio.uboot
               iffs2 root filesystem
                                                Image Name:
               romfs root filesystem
                                                Created:
                                                            Fri Aug 23 01:52:49 2019
               squashfs root filesystem
                                               Image Type: ARM Linux RAMDisk Image (uncompressed)
              tar the root filesystem
               ubi image containing an ubifs Data Size:
                                                            11116544 Bytes = 10856.00 KiB = 10.60 MiB
               ubifs root filesystem
                                                Load Address: 00000000
               vaffs2 root filesystem
                                               Entry Point: 00000000
                                                tito@TitOMovilSW:~/linux-kernel-labs_ISO2/buildroot/buildroot$
```

# Particionamiento de la SD





# Boot completo desde la SD

- Particionar la SD y copiar todos los archivos y FS que correspondan.
- Configurar las variables 'bootargs' y 'bootcmd' para indicar el kernel y FS a utilizar.

- Verificar desde el shell del U-Boot que se pueden acceder a los archivos y particiones.
- Reiniciar U-Boot y verificar el funcionamiento del SO.

### printenv

```
\equiv
```

```
GtkTerm - /dev/ttyUSB0 115200-8-N-1
File Edit Log Configuration Control signals View
console=ttyS0,115200
cpu=armv7
devnum=0
devplist=1
devtype=usb
dfu alt info ram=kernel ram 0x42000000 0x10000000;fdt ram 0x43000000 0x100000;ramdisk ram 0x43300000 0x4000000
distro_bootcmd=for target in ${boot_targets}; do run bootcmd_${target}; done
eth1addr=12:42:45:8e:31:e4
ethact=ethernet@1c30000
ethaddr=02:42:45:8e:31:e4
fdt addr r=0x43000000
fdt.cont.roladdr=5bf51e60
fdtfile=sun8i-h2-plus-orangepi-zero.dtb
fileaddr=43000000
filesize=4cf1
kernel addr r=0x42000000
mmc boot=if mmc dev ${devnum}; then setenv devtype mmc; run scan dev for boot part; fi
mmc bootdev=0
partitions=name=loader1,start=8k,size=32k,uuid=${uuid_gpt_loader1};name=loader2,size=984k,uuid=${uuid_gpt_loade
esp,size=128M,bootable,uuid=${uuid_gpt_esp};name=system,size=-,uuid=${uuid_gpt_system};
preboot=usb start
pxefile addr r=0x43200000
ramdisk addr r=0x43300000
gaan day for boot-agha Caanning &(daytypa) &(daynym). &(distra bootpart) . for profix in &(boot profixed) da
```

# ¿Preguntas?