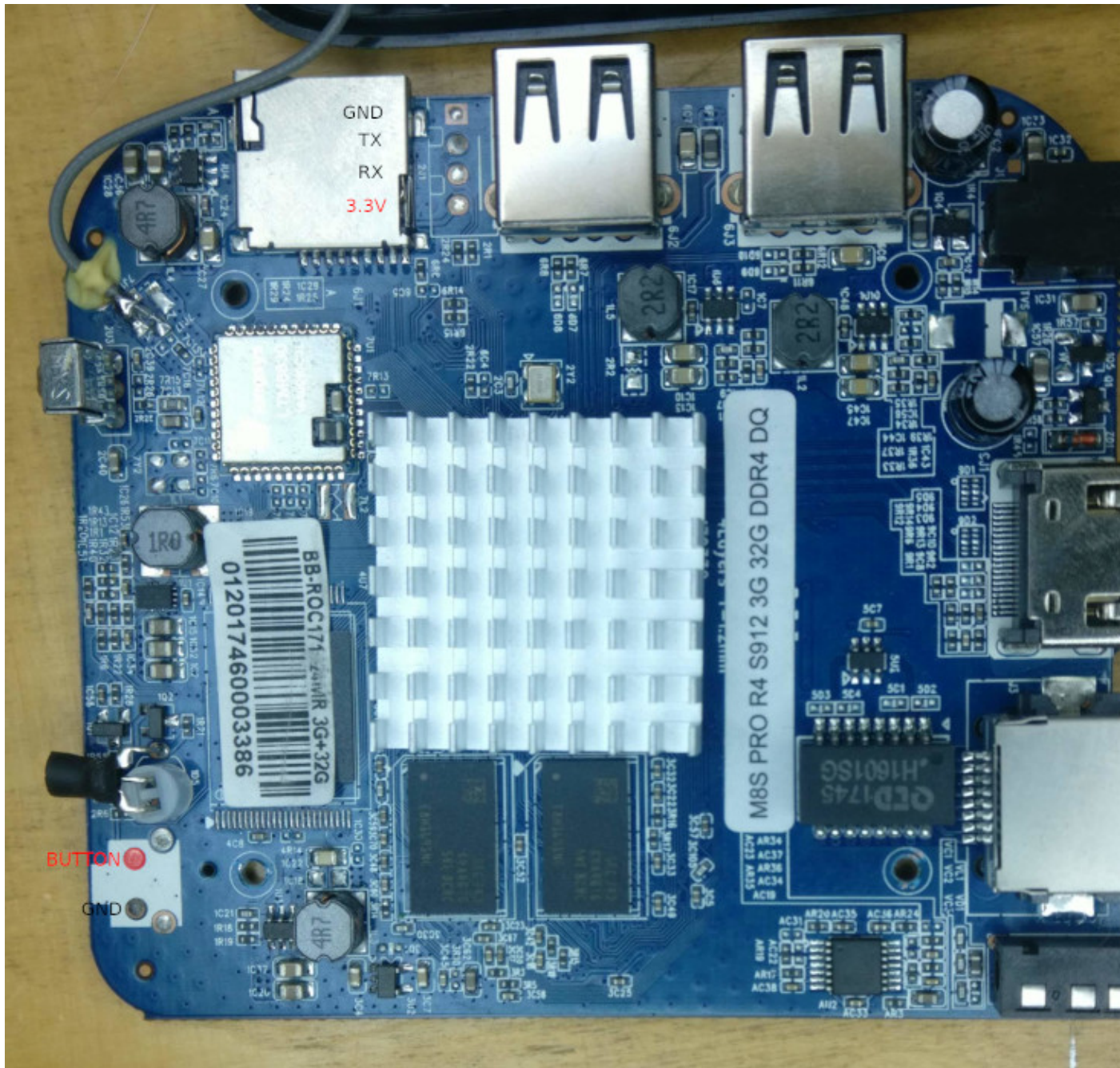


Board sticker: M8S PRO R4 S912 3G 32G DDR4 DQ

te=0x04cdf28 [0,0]

Contents: [Dobrica PavlinuÅ;jiÄ 's random unstructured stuff]

- Dobrica PavlinuÅ;jiÄ 's random unstructured stuff (Android info)
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- Dobrica PavlinuÅ;jiÄ 's random unstructured stuff (2020-10 status for amlogic)



It doesn't have button soldered, it works like power button in android

Serial port is marked on bottom of board (tx/rx are from cpu perspective)

probably:

<https://www.geekbuying.com/item/MECOOL-M8S-PRO-S912-KODI-17-0-4K-HDR10-3GB-DDR4-32GB-eM>

Android info

Android 7.1 bootlog from serial: [m8s-android-bootlog.txt.gz](#)

U-Boot 2015.01-g9331ff1-dirty (Mar 15 2018 - 16:16:24)

DRAM: 3 GiB

...

aml_dt soc: gxm platform: q20xrmii variant: 3g
dtb 0 soc: gxm plat: q20xrmii vari: 2g
dtb 1 soc: gxm plat: q20xrmii vari: 3g
Find match dtb: 1

...

parts: 10

00:	logo	0000000002000000	1
01:	recovery	0000000002000000	1
02:	rsv	0000000000800000	1
03:	tee	0000000000800000	1
04:	crypt	0000000002000000	1
05:	misc	0000000002000000	1
06:	boot	0000000002000000	1
07:	system	0000000080000000	1
08:	cache	0000000020000000	2
09:	data	ffffffffffffffffffff	4

M8SPRO:/ # uname -a

Linux localhost 3.14.29 #46 SMP PREEMPT Thu Apr 12 19:43:12 CST 2018 armv81

M8SPRO:/ # cat /proc/cmdline

rootfstype=ramfs init=/init console=ttyS0,115200 no_console_suspend earlyprintk=aml-uart,0xc81004

M8SPRO:/ # cat /proc/cpuinfo

Processor : AArch64 Processor rev 4 (aarch64)
processor : 0
processor : 1
processor : 2
processor : 3
processor : 4
processor : 5
processor : 6
processor : 7
Features : fp asimd evtstrm aes pmull sha1 sha2 crc32 wp half thumb fastmult vfp edsp neon
CPU implementer : 0x41
CPU architecture: 8
CPU variant : 0x0
CPU part : 0xd03
CPU revision : 4

Hardware : Amlogic

Serial : 220a82006da41365fedf301742726826

M8SPRO:/ # free

	total	used	free	shared	buffers
Mem:	2876604416	2210639872	665964544	0	31326208
-/+ buffers/cache:		2179313664	697290752		
Swap:	524283904	0	524283904		

M8SPRO:/ # df

filesystem	1K-blocks	Used	Available	Use%	Mounted on
mpfs	1404592	504	1404088	1%	/dev
tmpfs	1404592	0	1404592	0%	/mnt
/dev/block/system	2031440	973788	1057652	48%	/system
/dev/block/data	26969964	3050864	23919100	12%	/data
/dev/block/cache	507848	2860	504988	1%	/cache
/dev/block/tee	5115	45	5070	1%	/tee
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/default/emulated
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/read/emulated
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/write/emulated

recovery sd

<https://www.cnx-software.com/2016/11/19/how-to-create-a-bootable-recovery-sd-card-for-amlogic-tv-boxes/>

amlogic info

<http://www.linux-meson.com/doku.php>

armbian

<https://forum.armbian.com/topic/12162-single-armbian-image-for-rk-aml-aw-aarch64-armv8/>

```
dpavlin@nuc:~/Downloads$ xzcat Armbian_20.09_Arm-64_bullseye_current_5.8.5.img.xz | dd iflag=full
dpavlin@nuc:~/Downloads$ sudo mount /dev/sdb1 /mnt/sdb1/
dpavlin@nuc:~/Downloads$ cd /mnt/sdb1/
```

```
root@nuc:/mnt/sdb1# cp u-boot-s905x-s912 u-boot.ext
```

```
root@nuc:/mnt/sdb1# vi extlinux/extlinux.conf
```

```
root@nuc:/mnt/sdb1# grep -v '^#' extlinux/extlinux.conf
LABEL Armbian
LINUX /zImage
INITRD /uInitrd
```

```
FDT /dtb/amlogic/meson-gxm-q201.dtb
APPEND root=LABEL=ROOTFS rootflags=data=writeback rw console=ttyAML0,115200n8 console=tty0 no_con
```

Note that this board uses **meson-gxm-q201.dtb** which is internal rmi to make ethernet work!

issue `reboot` `update` from android shell to boot from sdcard

ath10k wifi sdio firmware

After booting, you will get error message about missing firmware:

```
[ 7.861827] ath10k_sdio mmc2:0001:1: Failed to find firmware-N.bin (N between 2 and 6) from at
[ 7.861838] ath10k_sdio mmc2:0001:1: could not fetch firmware files (-2)
```

Package `firmware-atheros` is installed, so it's a bit puzzeling what file is missing, however, if we go to

<https://github.com/kvalo/ath10k-firmware.git>

we can find sdio firmware at

<https://github.com/kvalo/ath10k-firmware/tree/master/QCA9377/hw1.0/untested>

```
dpavlin@m8s:~/ath10k-firmware$ git remote -v
origin https://github.com/kvalo/ath10k-firmware.git (fetch)
origin https://github.com/kvalo/ath10k-firmware.git (push)
```

```
dpavlin@m8s:~/ath10k-firmware$ sudo cp QCA9377/hw1.0/untested/firmware-sdio-5.bin_WLAN.TF.1.1.1-0
```

After running `nmtui` and configuring wifi it's available but dies after a while under load.

kernel source

https://github.com/150balbes/Amlogic_s905-kernel

currently, I'm using

```
dpavlin@m8s:~/linux$ git remote -v
origin https://github.com/xdarklight/linux (fetch)
origin https://github.com/xdarklight/linux (push)
dpavlin@m8s:~/linux$ git branch
  master
  meson-mx-integration-5.11-20210124
  meson-mx-integration-5.13-20210503
* meson-mx-integration-5.13-20210523
dpavlin@m8s:~/linux$ cat mason-build.sh
# https://github.com/SLAzurin/armbian-aml-s8xx-kernel-build-steps

# https://github.com/xdarklight/linux

make -j 8 Image dtbs modules && sudo make modules_install dtbs_install install
```

Installing armbian kernel package doesn't work because `/boot` partition is `vfat` and not `ext2/4`

u-boot source

https://github.com/150balbes/Amlogic_S905-u-boot

balbes150 updates

installing linux image and headers does return error, but works

<https://users.armbian.com/balbes150/>

gpiod

```
sudo apt install gpiod
```

button - gpio 2

```
root@arm-64:~# gpioget gpiochip0 2 # not pressed
1
root@arm-64:~# gpioget gpiochip0 2 # pressed
0
```

led - gpio 9

```
root@arm-64:~# gpioset gpiochip0 9=0 # red
root@arm-64:~# gpioset gpiochip0 9=1 # blue (default)
```

u-boot

old <https://github.com/endlessm/u-boot-meson>

I wanted serial console which seems to be missing from armbian build above

wiki seems to suggest repository

<https://gitlab.denx.de/u-boot/custodians/u-boot-amlogic>

but we are going to use upstream u-boot

```
dpavlin@m8s:~/u-boot-amlogic$ git remote -v
github https://github.com/u-boot/u-boot (fetch)

dpavlin@m8s:~/u-boot-amlogic$ librettech-cc_defconfig
dpavlin@m8s:~/u-boot-amlogic$ make -j 8
dpavlin@m8s:~/u-boot-amlogic$ cp u-boot.bin /boot/
```

abort u-boot with key press and boot new one with

```
fatload mmc 1 0x1000000 u-boot.bin
go 0x1000000
```

2020-10 status for amlogic

U-Boot: Porting and Maintaining a Bootloader for a Multimedia SoC Family - Neil Armstrong, BayLibre SAS

<https://youtu.be/u0-swEMDFp0>