V4L2 & CEC Status Report

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V4L2 Status

New V4L2 Drivers

- Renesas R-Car (Gen2, Gen3 is upcoming)

- TI DRA7XX video input

- TI AM437x video input

- Atmel Image Sensor Controller

- Samsung Exynos5 codec support

- MediaTek MT8173 codec support

- STMicroelectronics HVA and Delta codecs

Upcoming V4L2 Drivers

- Freescale i.MX6/7

- Qualcomm Venus Codec (msm8916, msm8996)

- Qualcomm Camera (msm8x16)

- Synopsis Designware CSI-2

- Broadcom bcm2835 (Raspberry Pi 3, in staging for 4.11)

Core Activities

- Removing the soc-camera framework

- Refcounting & lifetime management of core objects:
  deal with hotplugging and devm_kmalloc behavior.

- Request API and Stateless Codec support

- Extend the use of the Media Controller to DVB and in the future alsa and CEC

- Media Controller needs better documentation, proper compliance tests and better utilities. It should be used by existing drivers as well.

MC: Interface Links
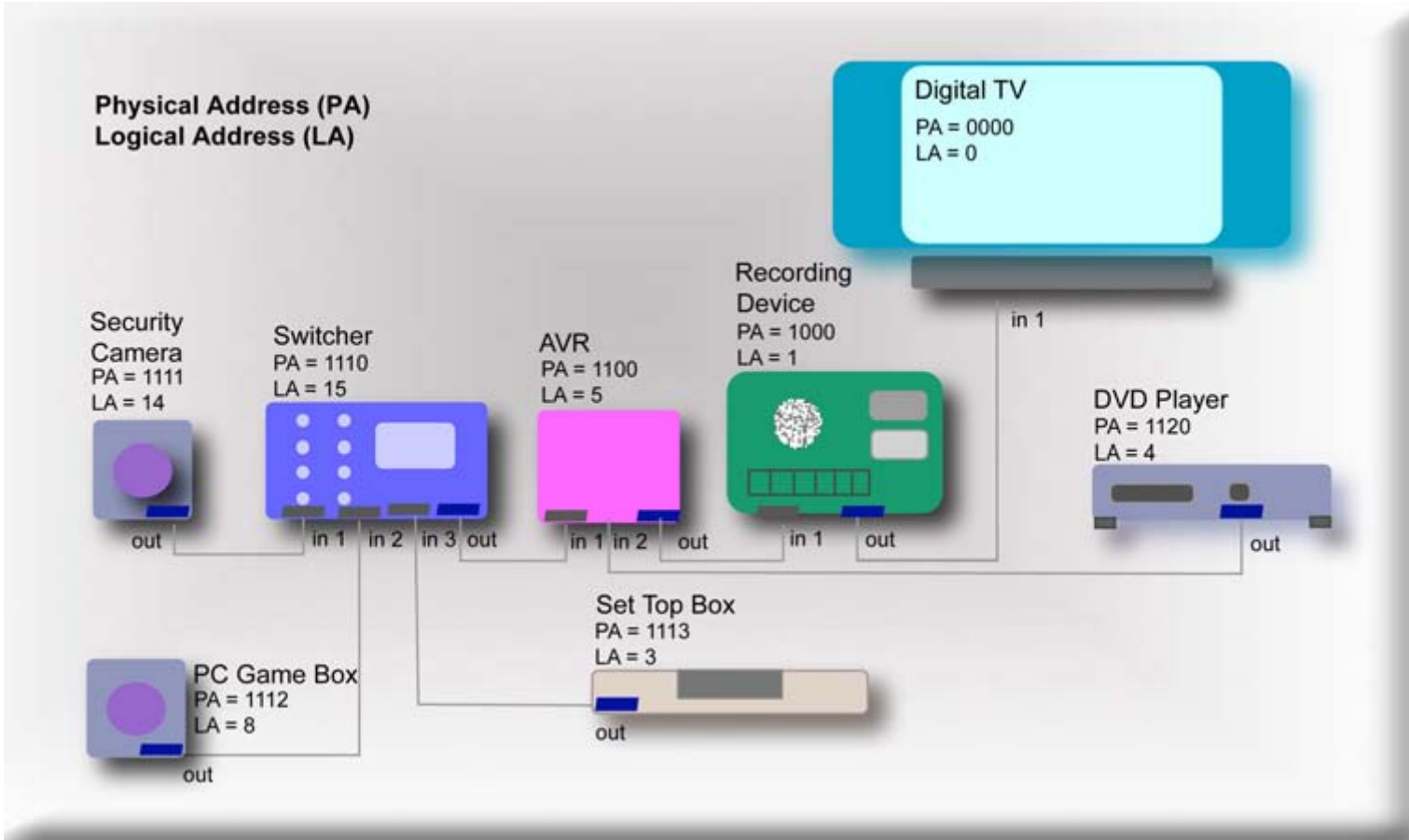
Core Activities

- Virtual Codec driver: use this to improve v4l2-compliance

- edid-decode utility

- qvidcap utility

Help!

- Too much to do, too many patches to review!

- Needed: more code reviewers, more developers willing to work in the media core code.

- Interested? Contact Mauro or me or the linux-media mailinglist directly.

CEC Status

CEC @ 1 meter: 400 bits/s

Consumer Electronics Control

- An optional supplement to HDMI using pin 13 of the HDMI connector.

- Provides high-level control functions between the various audiovisual products in a user's environment.

- Based on the old AV.link scart standard (EN 50157-2-[123]).

- Implemented in HDMI receivers/transmitters and USB HDMI-passthrough devices.

- Data packets: 1 header byte + 0 to 15 data bytes.

- Very, very slow data rate ~400 bits/s.

Status Update (Kernel)

- After two years of on-and-off development the CEC framework was merged in kernel 4.8 in drivers/staging.

- This included the very useful PulseEight USB CEC driver.

- It was moved out of staging and into drivers/media in the 4.10 kernel.

- To let DRM drivers inform CEC drivers when a connect/disconnect event occurs or when an EDID is read, a new Hotplug Detect Notifier framework was created based on early code from Russell King. This will hopefully be merged for 4.12.

- Two new CEC drivers are pending: support for the USB CEC Rainshadow device and an STMicroelectronics STiH4xx HDMI CEC driver.

- Continue improving the framework: implement as many CEC corner-cases as is reasonable.

- Example: even without a hotplug signal present it should still be possible to send poll and Image View On or Text View On messages.

Status Update (Utilities)

- Continuous improvements to the CEC utilities: cec-ctl, cec-compliance and cec-follower.

- Working on support for the 'Hospitality Profile' used by hotels.

Resources

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- Git repository for the media subsystem:
  https://git.linuxtv.org/media_tree.git/

- Git repository for the media utilities:
  https://git.linuxtv.org/v4l-utils.git/

- Media documentation:
  https://linuxtv.org/downloads/v4l-dvb-apis-new/media_uapi.html

- My email: hverkuil@xs4all.nl

Questions?