API discussions

- Discussions started with some V4L2 API ambiguities

- Most of the items there were non-controversial and got solved.

- The V4L2 API currently dictates the usage of gettimeofday() for per-frame timestamps. It was decided to replace it by a monotonic timestamp, adding a flag to help userspace to know if the driver is using monotonic timestamps
  - No regressions are expected, as some drivers are already using ktime_get_ts()
  - Device-provided timestamps will be added to the API, reusing an unused field there.

- Tuner ownership: wat happens if the same driver is opened at the same time for more than one active mode, like radio and analog TV (and digital TV)?
  - Due to the lack of time, we didn't discuss it;
  - Proposals will be submitted/discussed via ML.

V4L2 compliance tool

- Checks the driver against the V4L2 specs
  - Based on V4L2 API and V4L2 device profiles (that will also be part of the API DocBook)
- Providing/discussing its results will be mandatory for new drivers
  - Lots of work is required to make existing drivers compliant; as almost all fails
  - At long term, we expect that all drivers will have the same behavior and will match the V4L2 device type profiles.

ALSA and V4L2

- Compressed pure audio streams
    - Drivers that use either video or radio node to provide compressed radio audio output should be converted to use the new compressed ALSA API (ivtv, pvrusb2)
    - Patches at ALSA for the API are for 3.7;
    - The userspace library should be merged on alsalib.
- Timestamps
    - In order to sync Audio and Video, ALSA needs to be able to receive timestamps from the drivers;
    - The initial time shift between audio and video depends on the way drivers receive audio streams, as audio is sometimes received in bulk transfers or on sync per-sample transfers, depending on the driver;
    - Time shifts may increase over time, as drivers may pause audio, for example, on channel changes
    - ALSA needs a way to allow periodic time drift adjustments
    - Further work is needed to address those issues.

Other discussions

- SoC and Userspace feedback
    - Several suggestions were proposed for both Kernelspace and V4L2 library
- HDMI CEC
    - HDMI CEC is used to send/receive messages between the several systems interconnected via HDMI
        - Used not only for Remote Control, but also for audio channel control, ethernet control, etc.
    - Will require an I2C like approach, providing both kernelspace and userspace interfaces
    - Patches should be sent through the ML
- Media Library
    - Will provide an unified view for all types of media devices
        - Addresses one of the issues rased on KS/2011
        - WIP; initial results seem that it will successfully address the needs.