Update on GStreamer for Embedded Devices

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What did I do?

- GStreamer at Collabora since 2007
- Started with VVoIP: Telepathy & Farstream
- Helps our customers use GStreamer
  - Many embedded projects
What kind of embedded devices use GStreamer?
Smart TVs & Set Top Boxes
In-Flight entertainment
Space Station
The features
Improved DMAbuf support

- Better Zero-Copy support between subsystems
- “tee” now operates in zero-copy whenever possible
Video4Linux

- Not only Webcams
  - Also hardware codecs

- Video encoders
- Stable Element Names (v4l2h264dec, v4l2vp9enc, etc)
- Defaults to DMABuf Export
- Changing decoder resolutions at runtime
  - DASH / HLS
KMS Display output improvements (kmssink)

- Proposes DMAbuf pool
- Add Video-Overlay
- More
  - Formats
  - Devices
- Less
  - Bugs!
GStreamer OpenMAX IL integration

- Support for the Xilinx Zynq Ultrascale+ SoC + FPGA
- Tizonia
  - Some features from abandoned OpenMAX IL 1.2 draft
- Added more standard properties to the encoder

- OpenMAX is dead
  - Only for legacy (and Android)
OpenGL on Embedded

- Vivante EGL FB window system
  - Better performance with the i.MX6 Vivante proprietary drivers
- Moved into base and frozen API
- Added Mesa DMABuf Export Support
IPC Pipeline

- Allows splitting pipeline sinks into separate processes
- Master / Slave model
- Useful for terrible embedded APIs that only work with high privileges (root)
Little things

• RTP H.264/H.265 depayloader can copy directly into device memory

• rtspsrc uses the regular debug system!
Near future

• DRM modifiers
• GStreamer CI on embedded systems
• V4L2 stateless codecs?
Any questions?

At Collabora, we're hiring!
http://col.la/careers