Compile FFmpeg with Hardware Acceleration

Download FFmpeg source code and its dependent packages, then compile it on a Raspberry Pi to get a latest version of FFmpeg with new features or new libraries. A simple method thanks to an awesome script.

#pi #ffmpeg #hardware accelerator #omx

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Pre-built FFmpeg in Raspbian OS

The FFmpeg package in Raspbian OS is built with H264 Hardware Acceleration already, just need to download it from the package manager:

```
sudo apt install ffmpeg -y
```

1. *pi_streaming_setup* script

Thank cdgriffith for this awesome script"

There are many guides published on the internet but pi_streaming_setup is a very easy script to follow.

This script is designed to help automate turning a raspberry pi with a compatible camera into a MPEG-DASH / HLS streaming server.

The steps it will attempt to take:

1. Install FFmpeg OR (optional) Compile and Install FFmpeg (with h264 hardware acceleration and free libraries)
2. Install NGINX for DASH / HLS OR install RTSP server if desired
3. (DASH/HLS) Update *rc.local* to run required setup script on reboot
4. (DASH/HLS) Create *index.html* file to view video stream
5. Create *systemd* service and enable it to start streaming

This script requires Python 3.6+

The usage of this script is simple and clear, but to compile ffmpeg, just need 2 options:

```
--compile-ffmpeg
--compile-only
```

2. Compile FFmpeg

Install `git` if not installed:

```
sudo apt-get install git
```

Clone the `pi_streaming_setup` repo from github:

```
git clone https://github.com/cdgriffith/pi_streaming_setup.git
```

Go into the script's folder:

```
cd pi_streaming_setup
```

and finally, run the script with `sudo` and `python3` as user `pi`:

```
sudo python3 streaming_setup.py --compile-ffmpeg --compile-only --run-as pi
```

This will take about 4~5 hours on an old and slow RPi, such as Pi Zero.

3. Test compiled FFmpeg

After the compilation finishes, reboot the Pi, and when it's booted up, run below command to check the compiled tool:

```
ffmpeg -hide_banner -encoders | grep -E "h264|mjpeg"
```

and check the supported codecs:

```
V..... libx264              libx264 H.264 / AVC / MPEG-4 AVC / MPEG-4 part 10
(codec h264)
V..... libx264rgb           libx264 H.264 / AVC / MPEG-4 AVC / MPEG-4 part 10 RGB
(codec h264)
V..... h264_omx             OpenMAX IL H.264 video encoder (codec h264)
V..... h264_v4l2m2m         V4L2 mem2mem H.264 encoder wrapper (codec h264)
VFS... mjpeg                MJPEG (Motion JPEG)
```