ARM Multimedia Peripheral Examples

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Contents

Overview[edit]

This page contains several examples for different multimedia peripherals that can be connected to and used with the AM335x development platforms.

Audio Examples[edit]

USB Sound Device[edit]

The following example demonstrates how to connect a USB Audio device to the AM335x platform. It was verified to work with a Logitech A-0356A USB Headset.

When attached to an EVM, a USB device should be detected by the system and ready to use without any changes to the kernel. The device will appear as an ALSA Device and will allow for capture and playback depending on the capabilities the device.

The attached audio devices can be listed from the command line using

```
$ cat /proc/asound/cards
```

The names in the brackets can be used to identify a device in the form "default:<DEVNAME>".

A simple gstreamer pipeline can quickly enable either playback or capture from the attached device.

To easily test playback:

```
$ gst-launch audiotestsrc freq=1000 num-buffers=100 ! alsasink
device="default:<DEVNAME>"
```

The command above creates a gstreamer pipeline that will capture audio from the attached USB device and immediately play it back on the same device if the device supports both capture and playback.

```
$ gst-launch alsasrc device="hw:1,0" ! alsasink
device="default:<DEVNAME>"
```

Bluetooth Speakers[edit]

The following example demonstrates how to connect the AM335x to an A2DP Bluetooth device and stream audio. It was verified to work with a Spracht Aura BluNote. For more information on general Bluetooth device configuration visit the Open Source Wireless Connectivity WLAN Bluetooth User Guide page.

GUI[edit]

A Bluetooth application is accessible through the Matrix GUI as part of the SDK package that allows straightforward configuration and use of the attached WL1271 Bluetooth device.

Command Line[edit]

The scripts included with the SDK that are used to simplify configuration of the Bluetooth device are found in `/usr/share/wl1271-demos/bluetooth/scripts` on the device. `BT_Init.sh` will initialize the device and load the necessary modules. Make sure that the Bluetooth device you wish to connect to is discoverable and then run `BT_Inquiry.sh` to list the available devices. Make note of the Id of the device you are connecting to. Run `BT_A2DP_Init.sh` to prepare the device for A2DP playback. The

device can now play a wav file using the `BT_A2DP_Play.sh` script or a gstreamer pipeline with an `alsasink`.

```
gst-launch filesrc location=/usr/share/ti/audio/HistoryOfTI.aac !
faad ! alsasink device="bluetooth"
```

Video Examples[edit]

USB Webcam[edit]

The following example demonstrates how to use a USB Webcam with an AM335x device. This was validated to work for a UVC device at resolutions of 320x240 and 640x480.

USB Webcam support is built into the kernel by default. Upon connection the device will be enumerated and ready to use. Proper operation can be validated using gstreamer

```
gst-launch -e v4l2src ! video/x-raw-
yuv,width=320,height=240,framerate=30/1 ! ffmpegcolorspace ! fbdevsink
device=/dev/fb0
```

It is also possible to use the device at a higher resolution with a reduced framerate:

```
gst-launch -e v4l2src ! video/x-raw-
yuv,width=640,height=480,framerate=15/1 ! ffmpegcolorspace ! fbdevsink
device=/dev/fb0
```

USB to DVI Adapter[edit]

The following example demonstrates how to use a DisplayLink USB-to-DVI to output video to an external source from the EVM. It was verified to work on a Diamond BVU160 USB to DVI Adapter.

Configuration[edit]

In order to use a DisplayLink driver, the kernel must be recompiled. For detailed information on the process or if you are doing building the kernel for the first time, visit AMSDK Linux User's Guide.

The kernel source code can be found as part of the SDK at

```
<sdk install dir>/board-support/linux-x.x.x-pspXX.XX.XX.XX.sdk
```

Inside the kernel source directory, invoke the configuration menu by typing

```
make ARCH=arm CROSS_COMPILE=<sdk install dir>/linux-devkit/bin/arm-
arago-linux-gnueabi- menuconfig
```

Once inside the configuration menu, follow the choices to enable DisplayLink USB Framebuffer support:

```
Device Drivers -> Graphics Support -> Support for frame buffer devices
-> Displaylink USB Framebuffer Support
```

Exit and save the new configuration. Build and install the new kernel to the device and restart it. Upon attaching the USB DisplayLink device, a new framebuffer will appear at /dev/fb1.

Use[edit]

Proper function of the device can be tested with gstreamer using the fbdevsink plugin with the device parameter set to /dev/fb1.

```
gst-launch filesrc location=/usr/share/ti/video/HistoryOfTI-WQVGA.m2v !
mpegvideoparse ! ffmpeg_video ! ffmpegcolorspace ! fbdevsink
device=/dev/fb1
```


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