EBOX-336x Series & EBOX-335xDX3-RCA HDMI 1080p video playback Linux Driver & GStreamer Installation Guide

Required resources

1 Download DMP''s Lubuntu 16.04 i386 demo image and installed into EBOX.
http://download.compactpc.com.tw/2014%20DMP%20Webiste/336x%20Series%20Drivers/lubuntu_16.04_demo_Image_installation_guide.pdf

2 Download HDMI Linux driver package:
http://download.compactpc.com.tw/2014%20DMP%20Webiste/Linux%20Support%20List/dmp_linux_video_v92_20190920.zip

3 MPEG4 video in MPEG-4 AVC (H.264).

For users testing DMP's Lubuntu 16.04 demo image:

Prepare required resources 1~3 and follow Installation Step 1 and 2.

For user customize own Linux image suggestion conditions:

1. Prepare required resources 2 and 3.
2. This installation guide is based on Lubuntu 16.04 demo Image (Linux kernel 4.4.x)
3. GStreamer libraries (gstreamer-0.10) for GStreamer-0.10.x only.
4. Suggest to use kernel version after 3.0.xx, not before.
5. Different kernel may get Linux kernel API caused the driver abnormal possibility, when the framebuffer driver compile, system will works fine.
6. Specified player required: Player library Totem 2.30.2 + Gstreamer 0.10.xx + new release framebuffer driver.
7. Frame buffer source code located at HDMI Linux driver package folder "rdcfb"

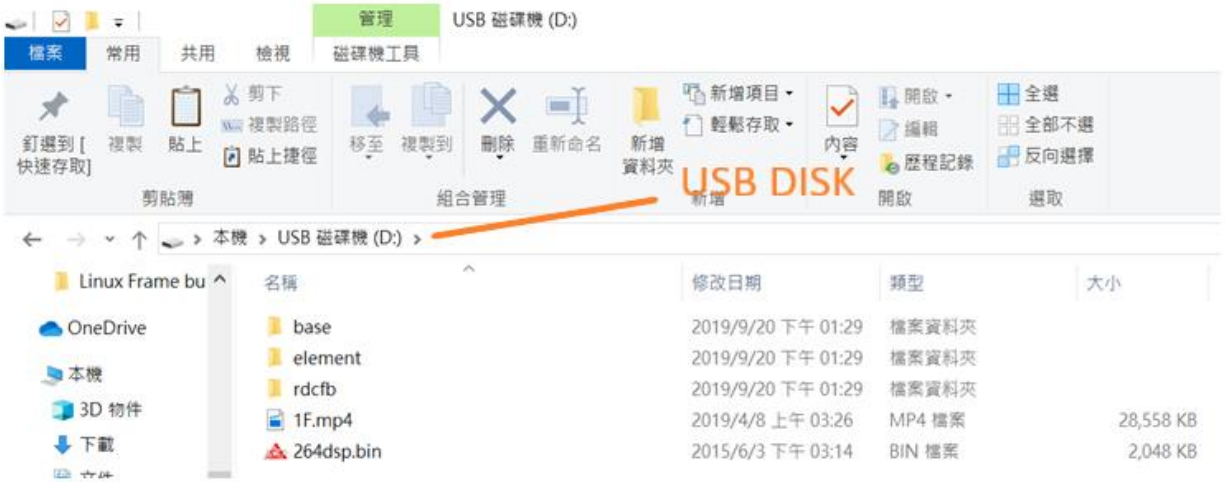
Installation Steps 1 and 2 for Driver and gstreamer it's for reference only.

Installation steps:

Step 1: Install Linux VGA Frame Buffer Driver.

1. Plug an Ethernet cable on EBOX unit and run Lubuntu 16.04.

2. Have a normal PC to unzip HDMI Linux driver package files into a USB disk, and remove this USB disk to plug on EBOX to below 3.



3. Plug on the USB disk to EBOX unit and copy all files to the Desktop. (/home/user/Desktop)

4. Open a LXTerminal. (System Tools => LXTerminal)

5. Execute "**sudo su**" as administer.

6. Execute "**apt update**" for updating.

7. Execute "**apt install gedit**" for installing gedit.

8. Execute "**apt install build-essential libncurses5-dev**" for installing gcc compiler and other support.

9. Compile rdcfb and replace original binary.
   (1) Execute "**cd /home/user/Desktop/rdcfb**". (Go to the folder, rdcfb.)
   (2) Execute "**make clean**".
   (3) Execute "**make**".

10. Copy rdcfb.ko to /lib/modules/4.4.177/extra.
    (1) Execute "**cd /lib/modules/**". (Go to the folder, modules.)
    (2) Execute "**ls**" and check the kernel version.
    (3) Execute "**cd 4.4.6/**". (example here was based on kernel version 4.4.6)
    (4) Execute "**mkdir extra**" to create a new folder, extra.
    (5) Execute "**cd /home/user/Desktop/RDC/rdcfb**" to go back the original folder.
    (6) Execute "**cp rdcfb.ko /lib/modules/4.4.6/extra**" to copy the driver, rdcfb.ko upon the /lib/modules/4.4.177/extra/
    (7) Execute "**depmod**"

11. Create and set rdcfb.conf for display resolution and timing.
    (1) Execute "**cd /etc/modprobe.d**". (Go to the folder, modprobe.)
    (2) Execute "**cat > rdcfb.con**f" to create a file, rdcfb.conf.
    (3) Type "**options rdcfb mode=1920x1080-32**", and then press "Ctrl+D" keys to exit.
    (4) Execute "**cat rdcfb.conf**" to confirm whether the parameter is correct like step (3).

12. Update grub setting.
    (1) Execute "**edit /etc/default/grub**".
    (2) Find the line, GRUB_CMDLINE_LINUX_DEFAULT="...", and then press "I" key to insert the words, "GRUB_CMDLINE_LINUX_DEFAULT="...**vga=normal vmalloc=512M**...".
    (3) Press "Esc" back to normal mode".
    (4) Execute "**:wq**" to write the file and quit.
    (5) Execute "**sudo update-grub**".

13. Execute "**reboot**".

14. After system reboot, display 1920x1080 resolutions is workable.

Step 2: Install gstreamer element filter and play a FHD 1920x1080 MP4 video by command lines.

1. Install gstreamer tools:
   Execute "**apt install gstreamer-tools gstreamer0.10-plugins-base gstreamer0.10-plugins-good**".

2. Copy 264dsp.bin to correct path. (default path is "/home/test/264dsp.bin").
   (1) Execute "**cd /home**".
   (2) Execute "**mkdir test**" to create a new folder, test.
   (3) Execute "**cd /home/user/Desktop**".
   (4) Execute "**cp 264dsp.bin /home/tset**".

3. Install /element filter binary into /usr/lib/i386-linux-gnu/gstreamer-0.10.
   (1) Execute "**cd /home/user/Desktop/element**".
   (2) Execute "**sudo install * /usr/lib/i386-linux-gnu/gstreamer-0.10**".

4. Install /base filter binary into /usr/lib.
   (1) Execute "**cd /home/user/Desktop/base**".
   (2) Execute "**sudo install * /usr/lib**".

5. Check element install by executed gst-inspect.
   (1) Execute "**sudo gst-inspect | grep "fbdevsink**" and confirm whether shows the words, **fbdevsink**: **fbdevsink**: fbdev video sink.
   (2) Execute "sudo gst-inspect | grep "DSP" and confirm whether shows the words, videodec: videodec: **DSP** Video Decoder.

6. Execute command line to play a FHD 1920x1080 MP4 video.
   Command: sudo gst-launch playbin uri=file:///home/user/(**h264 mp4 file**) video-sink=fbdevsink
   For example, execute "**sudo gst-launch playbin uri=file:///home/user/Desktop/RDC/1F.mp4 video-sink=fbdevsink**".