ODROID-VU7 : 7inch HDMI display with Multi-touch

7-inch multi-touch screen for ODROIDs gives users the ability to create all-in-one, integrated projects such as tablets, game consoles, infotainment systems and embedded systems. The 800x480 display connects to ODROID-C1+ via an HDMI link board and a micro-USB link board which handles power and signal. **Just connect a DC plug in to the DC-jack on C1+**, and you are ready to play, once you install the latest OS up- date. This high-quality touchscreen is specifically designed to work with both Android and Linux on the ODROID-C1+ and ODROID-XU4.

Specifications

- 7-inch TFT-LCD
- Screen Resolution: 800x480 pixels
- 5 finger capacitive touch input
- Power consumption : 600mA/5Volt
- Backlight on/off slide switch
- Viewing angle (in degree) : Left 70, Right 70, Up 70, Down 50
- Screen Dimensions : 172.9 x 124.3 x 15 mm Including switch and connectors)
- Viewable screen size : 153.6 x 86.64 mm (active area)

Package include

A. Fully assembled 7inch TFT LCD + 5 point multi touch screen
B. 6 x 3.5mm screws
C. 3 x Hex nuts
D. Micro USB link board
E. HDMI link board
F. Micro-to-TypeA USB Cable (approx. 35cm)
G. Micro-to-Micro USB Cable (approx. 35cm)
H. TypeA-to-TypeA HDMI cable (approx. 35cm)

Assembly Guide

You can easily attach the C1+ board onto the backside of the LCD screen in order to create a fully integrated system. It also works with the original C1 board if you use a micro-HDMI cable and a micro-USB cable.

Option 1 : Mount the C1+ board on the LCD unit with 3pcs of 8mm PCB supporters. The HDMI link board and micro-USB link board are used for interface and power supply.

Option 2 : A Micro-to-micro USB cable and flexible flat HDMI cable can be used as well. The 35cm cable kit is included.

with ODROID-XU4

with ODROID-C1+

with ODROID-C1

ODROID-C1 / C1+

Touchscreen drivers are available with support for 5 touch points, and proper drivers are integrated in the latest Ubuntu and Android OS images. Screen resolution must be configured to WVGA (800x400) and the DVI option should be enabled on the "vout" parameter by editing the boot.ini file, as shown in the below.

To use the VU7 on C1/+ Linux system, the Kernel version must be 3.10.80-128 or higher (sudo apt-get update & sudo apt-get dist-upgrade).

Also, don't forget to configure the boot.ini file like this for 800x480 resolution and DVI output mode:

Configuration for C1/C1+ (Edit boot.ini file)

```
# Possible screen resolutions
# Uncomment only a single Line! The line with setenv written.
# At least one mode must be selected.

# setenv m "vga"              # 640x480
# setenv m "480p"             # 720x480
# setenv m "576p"             # 720x576
setenv m "800x480p60hz"       # 800x480
# setenv m "800x600p60hz"     # 800x600
# setenv m "1024x600p60hz"    # 1024x600
# setenv m "1024x768p60hz"    # 1024x768
# setenv m "1360x768p60hz"    # 1360x768
# setenv m "1440x900p60hz"    # 1440x900
# setenv m "1600x900p60hz"    # 1600x900
# setenv m "1680x1050p60hz"   # 1680x1050
# setenv m "720p"             # 720p 1280x720
# setenv m "800p"             # 1280x800
# setenv m "sxga"             # 1280x1024
# setenv m "1080i50hz"        # 1080I@50Hz
# setenv m "1080p24hz"        # 1080P@24Hz
# setenv m "1080p50hz"        # 1080P@50Hz
# setenv m "1080p"            # 1080P@60Hz
# setenv m "1920x1200"        # 1920x1200

# HDMI DVI Mode Configuration
# setenv vout_mode "hdmi"
setenv vout_mode "dvi"
# setenv vout_mode "vga"
```

ODROID-XU4/3

HDMI timing generator in the Exynos platform is not flexible. So we can't make 800x480 60Hz standard display frequency. So we tweaked the HDMI driver code to support the 800x480 resolution with slightly reduced frequency at 54Hz.

To use the VU7 on XU4 Linux system, you must update the kernel 3.10.92-63 or higher (sudo apt-get update && sudo apt-get dist-upgrade).

Also, don't forget to configure the boot.ini file like this for 800x480 resolution and DVI output mode:

Configuration for XU4/3 (Edit boot.ini file)

```
# --- Screen Configuration for HDMI --- #
# ---------------------------------------
# Uncomment only ONE line! Leave all commented for automatic selection.
# Uncomment only the setenv line!
# ---------------------------------------
# ODROID-VU forced resolution
# setenv videoconfig "video=HDMI-A-1:1280x800@60"
# ---------------------------------------
# ODROID-VU forced EDID
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1280x800.bin"
# ---------------------------------------
# 1920x1080 (1080P) with monitor provided EDID information.
# setenv videoconfig "video=HDMI-A-1:1920x1080@60"
# ---------------------------------------
# 1920x1080 (1080P) without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1920x1080.bin"
# ---------------------------------------
# 1920x1080 50hz (1080P) with monitor provided EDID information.
# setenv videoconfig "video=HDMI-A-1:1920x1080@50"
# ---------------------------------------
# 1920x1080 50hz (1080P) without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1920x1080_50hz.bin"
# ---------------------------------------
# 1440x900 with monitor provided EDID information.
# setenv videoconfig "video=HDMI-A-1:1440x900@60"
# ---------------------------------------
# 1440x900 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1440x900.bin"
# ---------------------------------------
# 1280x720 (720P) with monitor provided EDID information. (720p-edid)
# setenv videoconfig "video=HDMI-A-1:1280x720@60"
# ---------------------------------------
# 1280x720 (720P) without monitor data using generic information (720p-noedid)
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1280x720.bin"
# ---------------------------------------
# 1024x768 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/1024x768.bin"
# ---------------------------------------
# 800x600 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/800x600.bin"
# ---------------------------------------
# 800x480 without monitor data using generic information (ODROID 7")
setenv videoconfig "drm_kms_helper.edid_firmware=edid/800x480.bin"
# ---------------------------------------
# 720x576 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/720x576.bin"
# ---------------------------------------
# 720x480 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/720x480.bin"
# ---------------------------------------
# 640x480 without monitor data using generic information
# setenv videoconfig "drm_kms_helper.edid_firmware=edid/640x480.bin"


# --- HDMI / DVI Mode Selection ---
# -----------------------------------------
# - HDMI Mode
# setenv vout "hdmi"
# - DVI Mode (disables sound over HDMI as per DVI compat)
setenv vout "dvi"
```
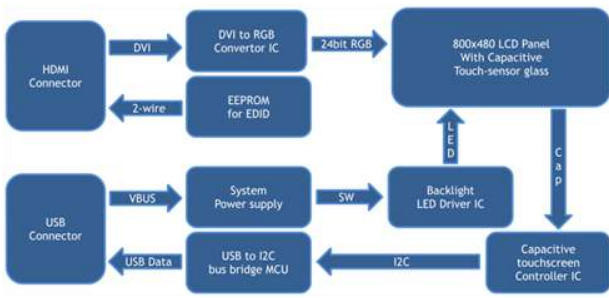
Block Diagram
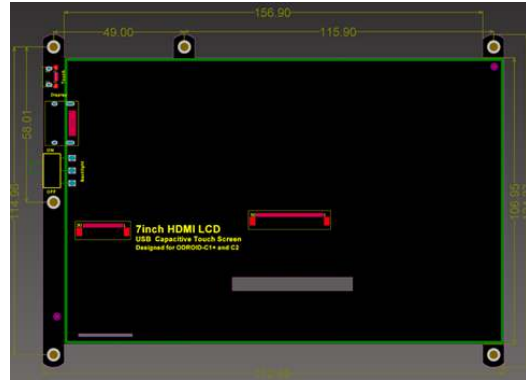
Physical Dimensions

The Chromium browser supports the multi-touch pinch- zoom gesture, so you can enjoy the zoom in and out like a smartphone. The touchscreen also works with Android OS for the C1+. However, you need to use release version 2.0 or higher in order to use the touchscreen features.

Touch the sound!!

Known issues.
1. The display shows noise on the screen in the boot process and power-down process because there is no off-sync filter circuit.
2. On the C1+, there will be after-image or noise when the system turns off if you use the OTG port.
   To fix this issue, you must remove (de-solder) the R94 from the C1+ PCB.
   If you have the C1+ PCB Rev 0.4 2015/09/30, just remove a JUMPER on J8.
3. There is no backlight control except for the slide switch. So software can't adjust the brightness neither turn on-off the backlight.

For Android users!
C1 Android V2.0 or higher version supports the VU7. XU4 Android V3.2 has been released for the VU7 recently. Check our WiKi pages.
Set proper resolution settings in to boot.ini file and tweak the build.prop to display the navigation bar.
http://odroid.com/dokuwiki/doku.php?id=en:xu3_android_release_note_v3.2#notes_for_the_odroid-vu7