

click on mouse pointer arrow on top of right toolbar
and double-click on sheet to open

Sheet: power

File: power.sch

Sheet: usb

File: usb.sch

Sheet: blinky

File: blinky.sch

Sheet: ram

File: ram.sch

Sheet: sdcard

File: sdcard.sch

Sheet: gpio

File: gpio.sch

Sheet: gpdi

File: gpdi.sch

Sheet: analog

File: analog.sch

Sheet: wifi

File: wifi.sch

Sheet: flash

File: flash.sch

Root sheet

EMARD

Sheet: /

File: ulx3s.sch

Title: ULX3S

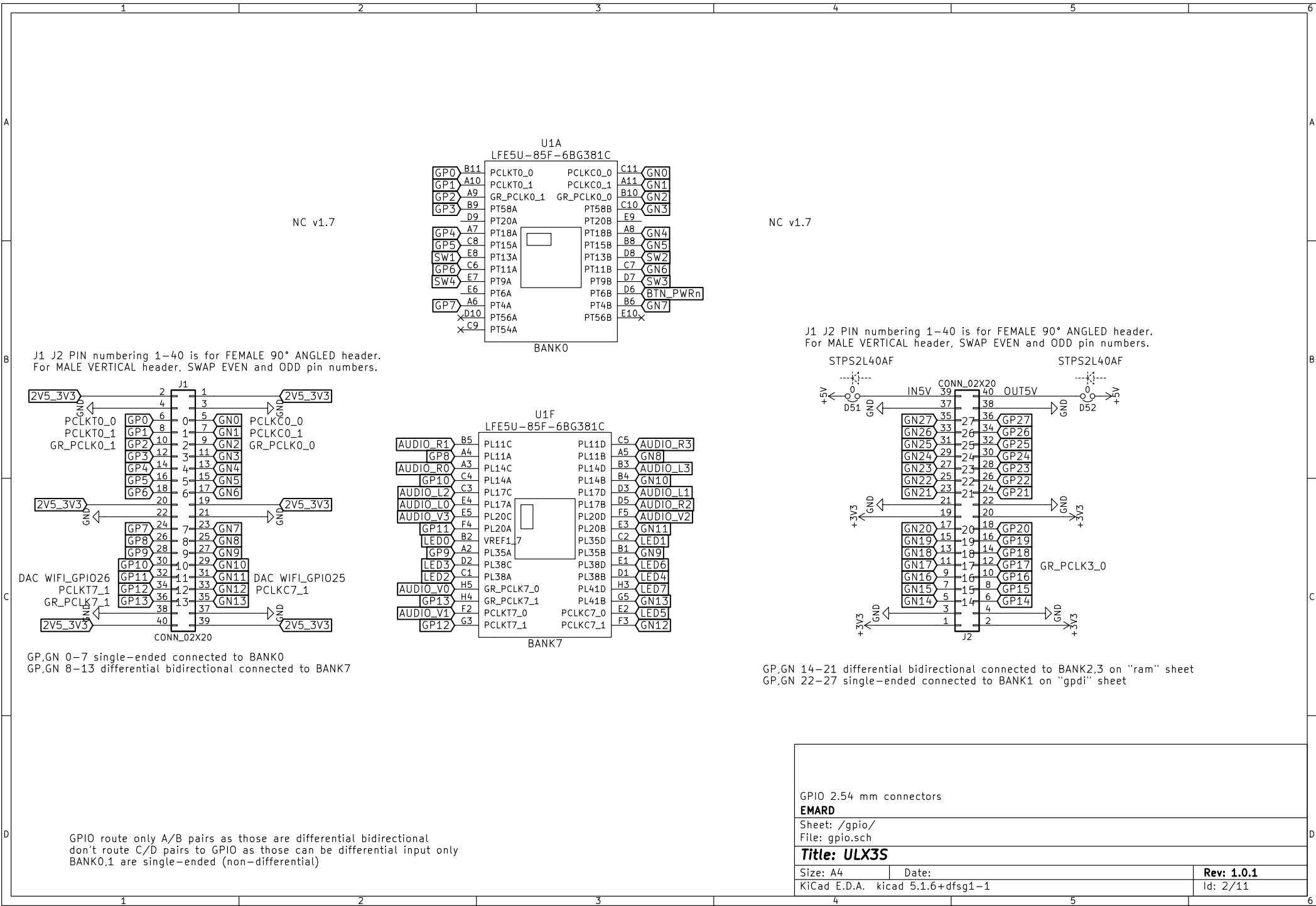
Size: A4

Date:

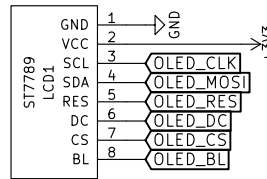
KiCad E.D.A. kicad 5.1.6+dfsg1-1

Rev: 3.1.2

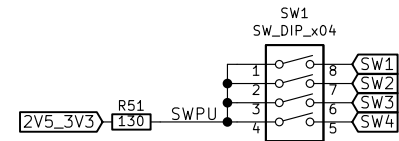
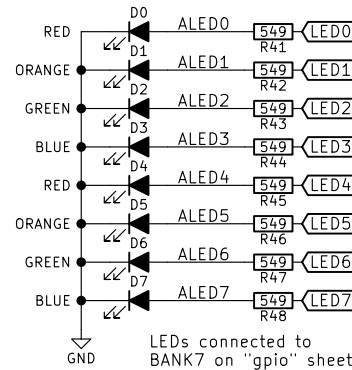
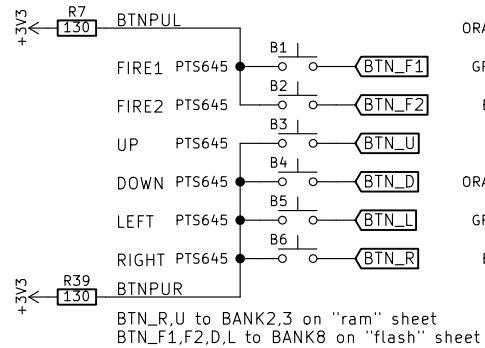
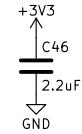
Id: 1/11



ST7789/SSD1331/SSD1351/SSD1306
compatible LCD/OLED 0.96/1.3/1.54" PCB
14x14 units
1 unit = 2.54 mm

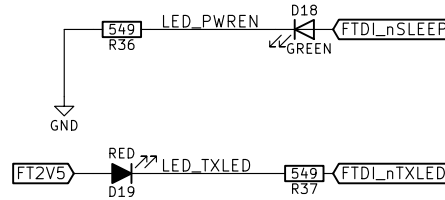


OLED connected to
BANK6 on "usb" sheet



DIP switch connected to
BANK0 on 'gpio' sheet

To fix issues with FT231XS rev A,B,C
Short-circuit D18 LED, but then
board cannot keep awake by USB.
chip rev D works properly
See TN140_FT231X Errata



Buttons, LEDs, OLED display

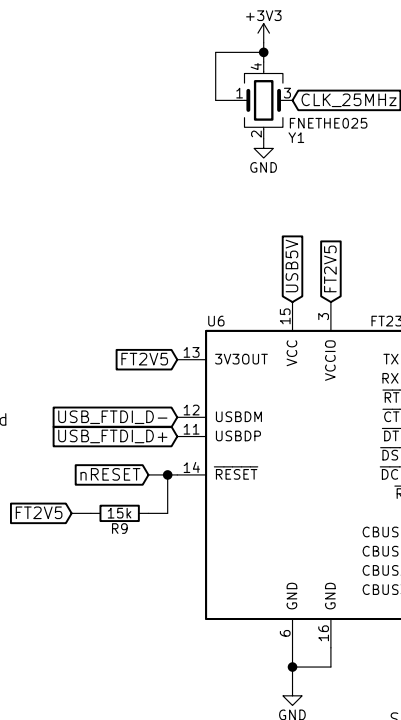
EMARD

Sheet: /blinky/
File: blinky.sch

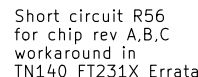
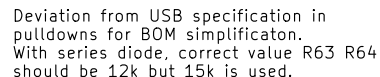
Title: ULX3S

Size: A4 Date:
KiCad E.D.A. kicad 5.1.6+dfsg1-1

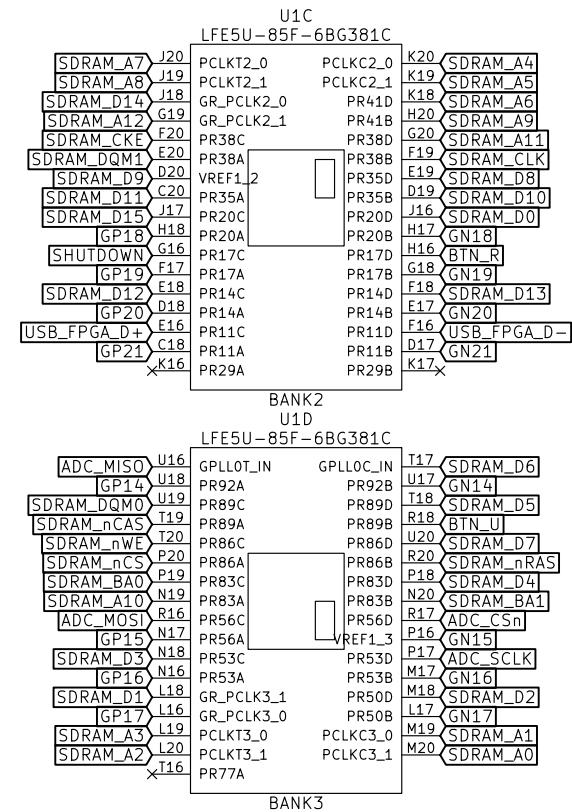
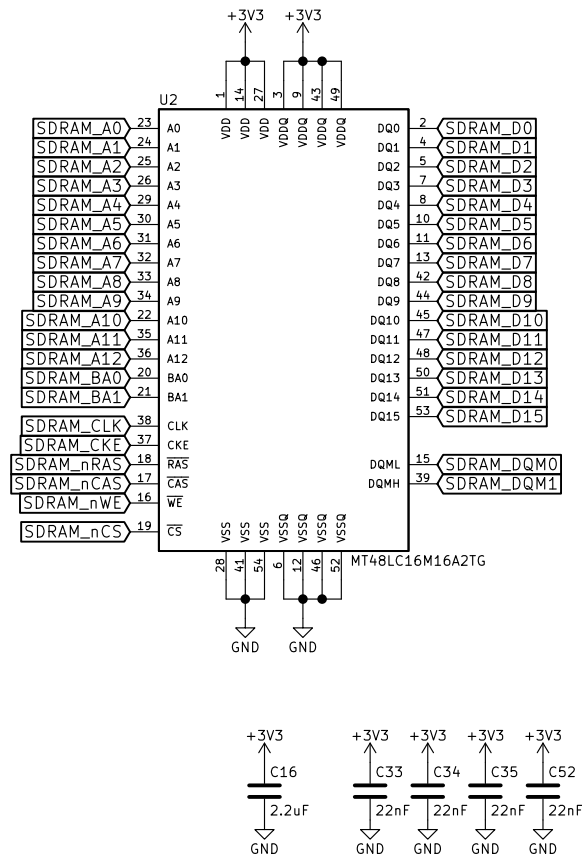
Rev: 1.0.3
Id: 4/11



USB pull lines connected to
BANK1 on "qpdi" sheet



warning:
ULX3S has different pinout
for simpler PCB routing and
because FT230X has weak CTS
drive capability. (Undocumented,
FLEAfpga mail from 13–Nov–2015)
ULX2S pinout was:
TCK = DSR
TMS = RI
TDI = CTS
TDO = DCD



SDRAM memory

EMARD

Sheet: /ram/

File: ram.sch

Title: ULX3S

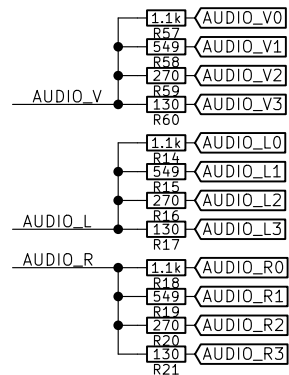
Size: A4

Date:

KiCad E.D.A. kicad 5.1.6+dfsg1-1

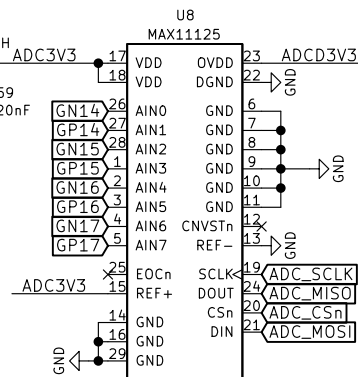
Rev: 1.0.0

Id: 8/11

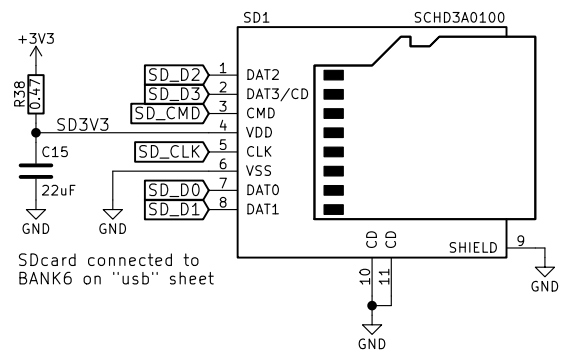


pin 1 – sleeve (GND)
pin 2 – tip (left channel)
pin 3 – ring1 (right channel)
pin 4 – ring2 (video)
pin 5 – tip switch
pin 6 – ring1 switch

Output resistance: 75 ohm
Internal resistance of FPGA pin: 10 ohm
 $1/(1/(130+10)+1/(270+10)+1/(549+10)+1/(1100+10))=74.6$



Rev: 1.0.4
Id: 9/11



minimum pins for compatible mode
SD_CLK, SD_CMD, SD_D0, SD_D3

SD card
EMARD

Sheet: /sdcard/
File: sdcard.sch

Title: ULX3S

Size: A4	Date:	Rev: 1.0.0
KiCad E.D.A. kicad 5.1.6+dfsg1-1		Id: 10/11

