

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: serdes

File: serdes.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

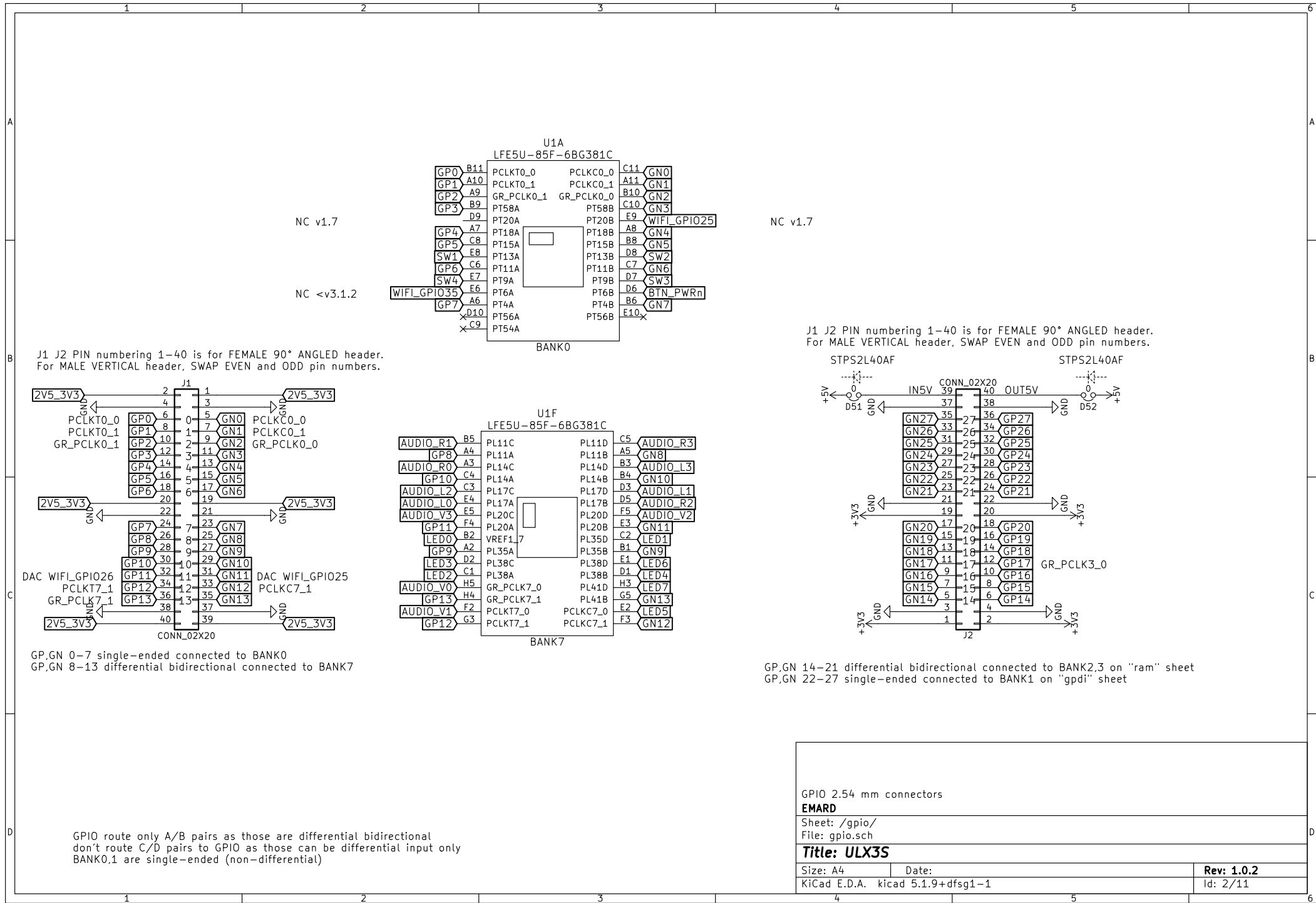
Size: A4

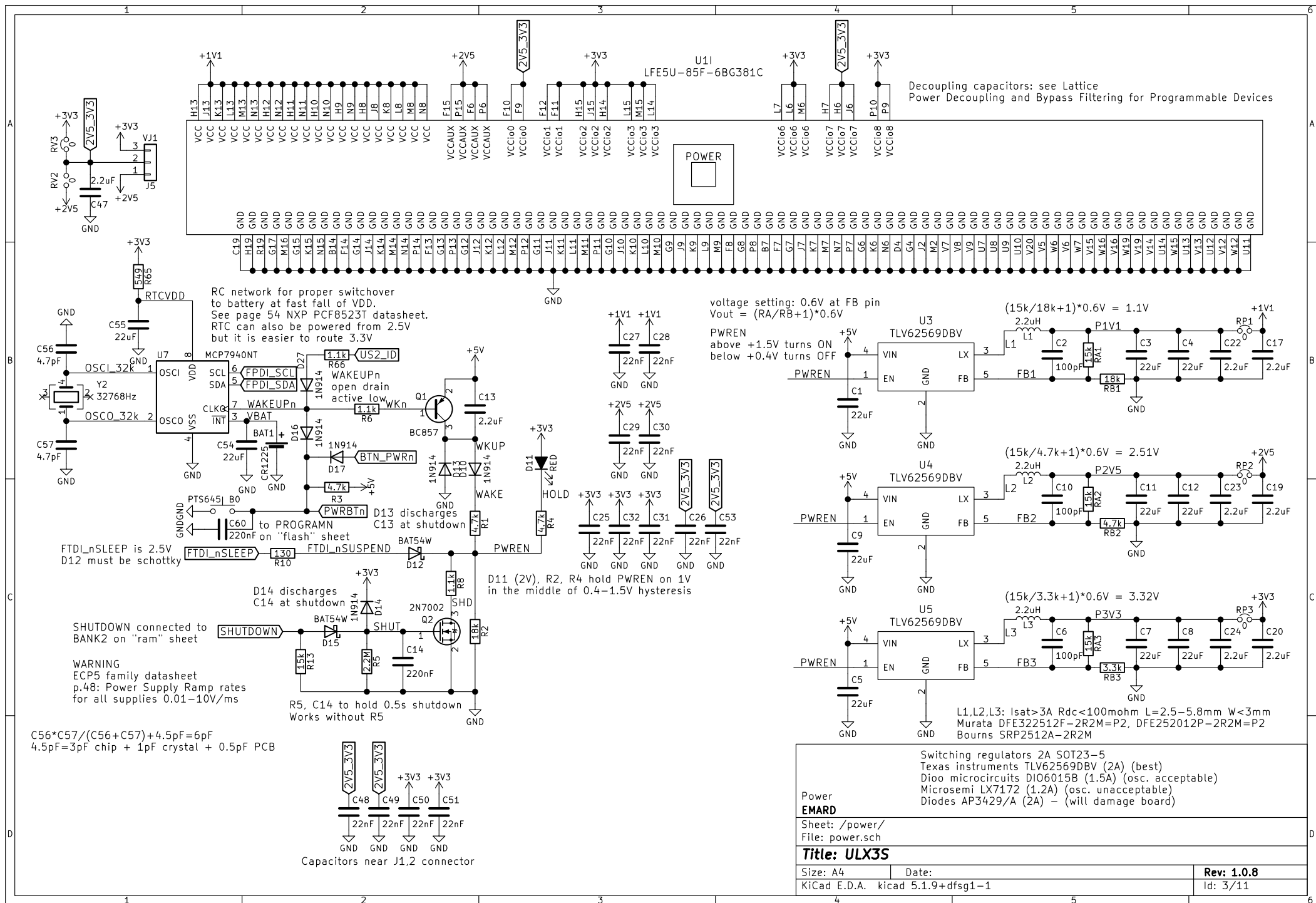
Date:

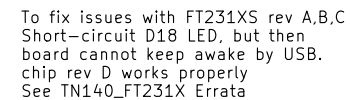
KiCad E.D.A. kicad 5.1.9+dfsg1-1

Rev: 3.1.7

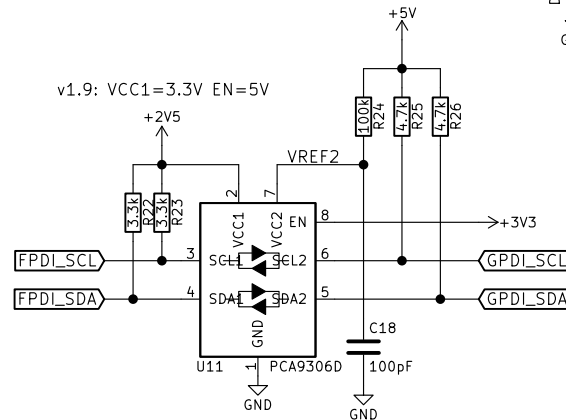
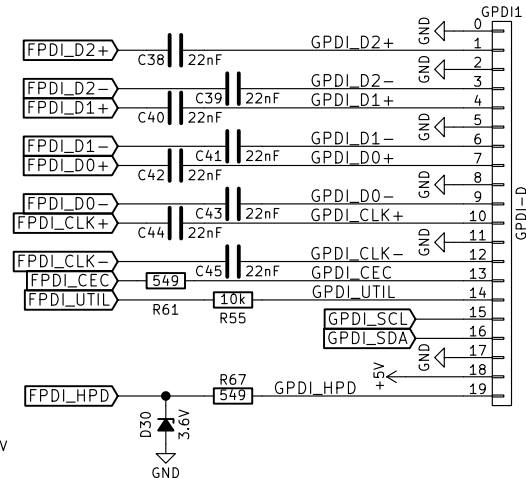
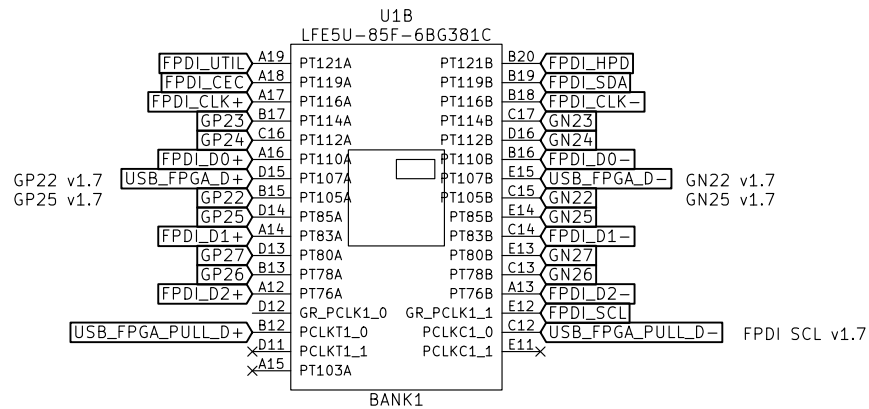
Id: 1/11







Id: 4/11



i2c shared with RTC
on "power" sheet

PCB v1.8.1 and higher accept FCI 10029449-111RLF
www.amphenol-icc.com
mouser PN: 649-10029449-111RLF
http://portal.fciconnect.com/Comergent/fci/drawing/10029449.pdf

PCB v1.7 and v1.8 accept
mouser PN: 538-47151-1001 (Molex)
https://www.molex.com/pdm_docs/sd/471511001_sd.pdf
mouser PN: 710-685119134923 (Würth)
https://catalog.we-online.com/em/datasheet/685119134923.pdf

Digital Video and Ethernet
General Purpose Differential Interface

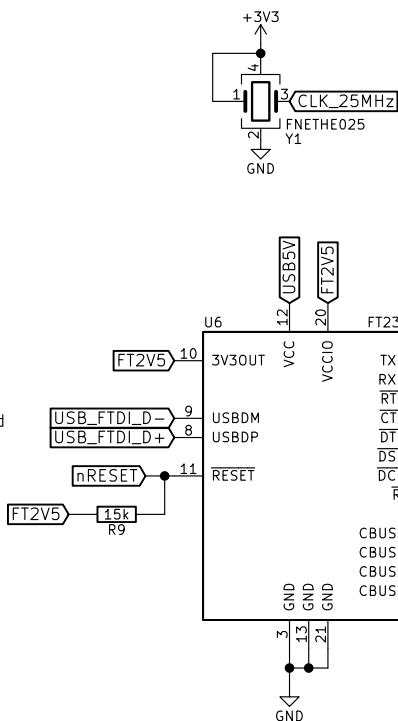
EMARD

Sheet: /gpd1/
File: gpd1.sch

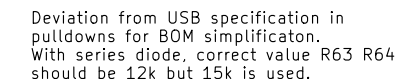
Title: ULX3S

Size: A4 Date:
KiCad E.D.A. kicad 5.1.9+dfsg1-1

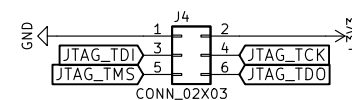
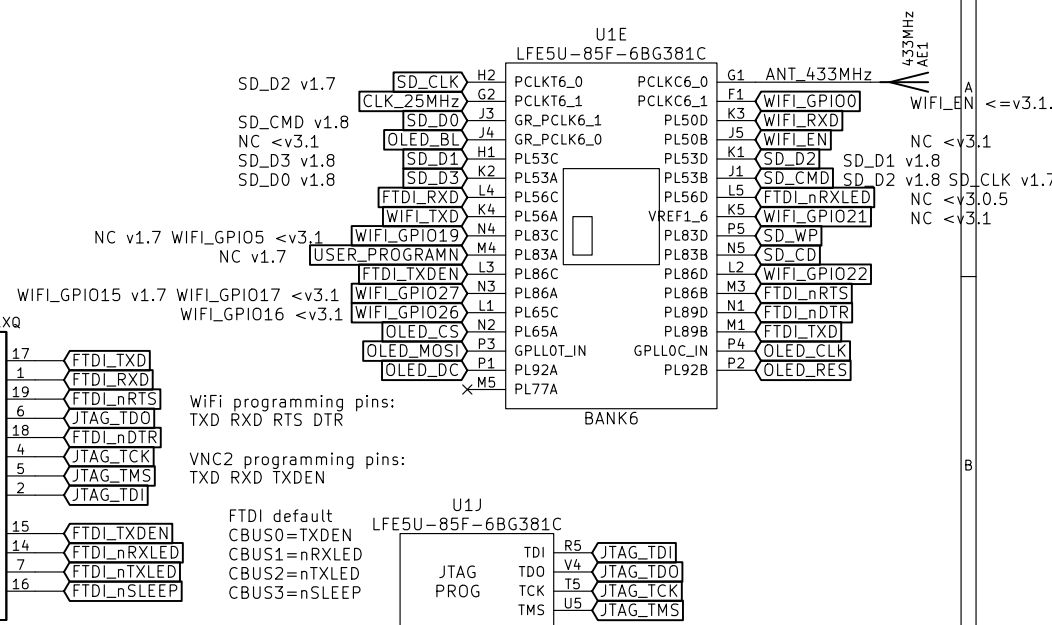
Rev: 1.0.5
Id: 5/11



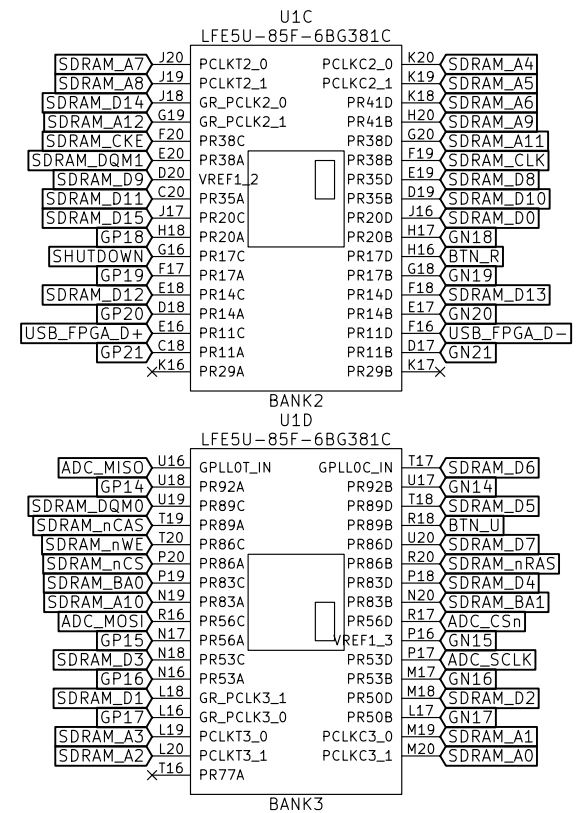
USB pull lines connected to
BANK1 on "qpdi" sheet



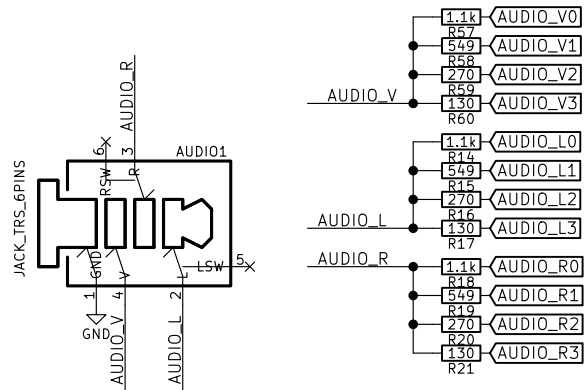
warning:
ULX3S has different pinout
for simpler PCB routing and
because FT230X has weak CTS
drive capability. (Undocumented,
FLEAfpga mail from 13–Nov–2015)
ULX2S pinout was:
TCK = DSR
TMS = RI
TDI = CTS
TDO = DCD



Id: 6/11



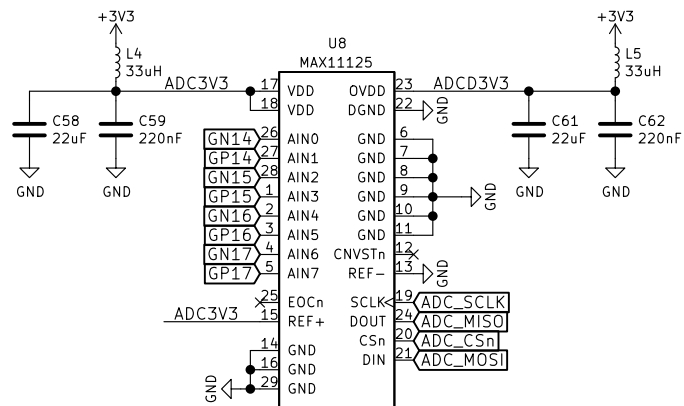
Id: 8/11



JACK pinout for SJ-43516-SMT-TR
<http://www.cui.com/product/resource/sj-4351x-smt-series.pdf>
 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

Audio connected to
 BANK7 on "gpio" sheet

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



ADC SPI connected to
 BANK3 of "ram" sheet

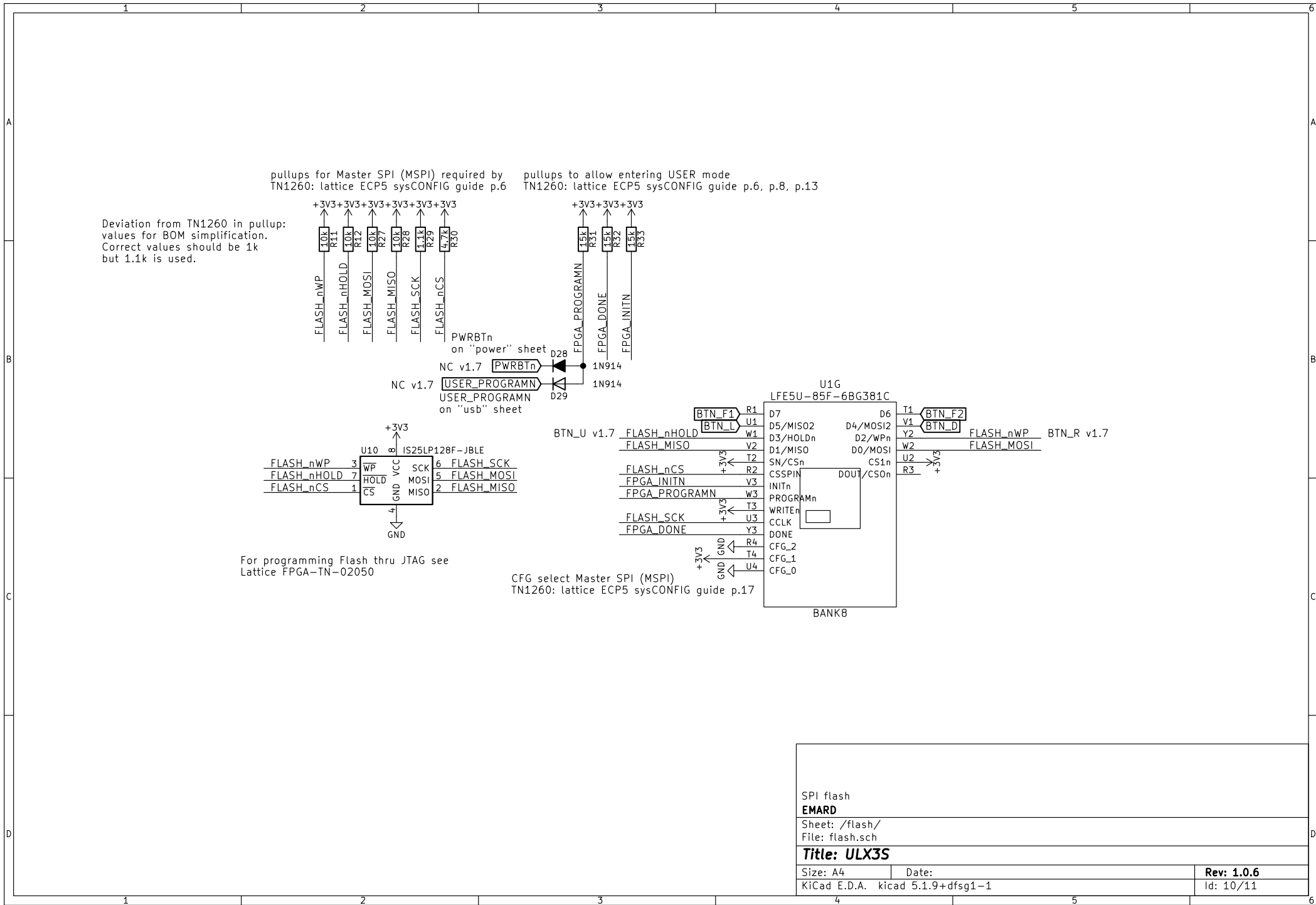
Analog audio and video
EMARD

Sheet: /analog/
 File: analog.sch

Title: ULX3S

Size: A4 Date:
 KiCad E.D.A. kicad 5.1.9+dfsg1-1

Rev: 1.0.4
 Id: 9/11



Id: 11/11