

License: CERN-OHL-S v2  
GPIO 2.54 mm connectors

EMARD

Sheet: /gpio/  
File: gpio.sch

Title: ULX3S

Size: A4 Date: 2022-09-21

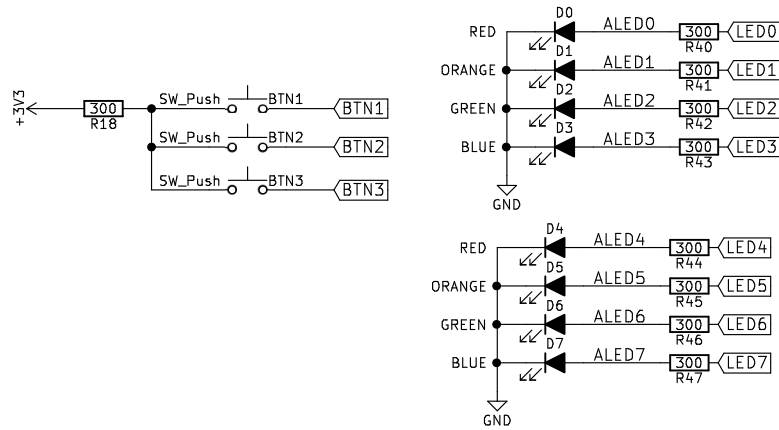
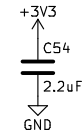
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Rev: 0.0.3

Id: 2/11



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



License: CERN-OHL-S v2  
Buttons, LEDs, OLED display

**EMARD**

Sheet: /blinky/  
File: blinky.sch

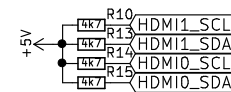
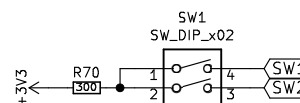
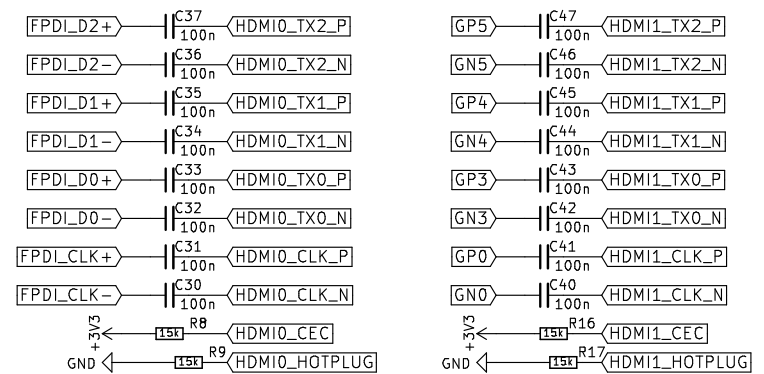
**Title: ULX3S**

Size: A4  
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Date: 2022-09-21

Rev: 0.0.3

Id: 4/11

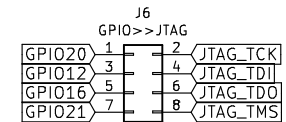
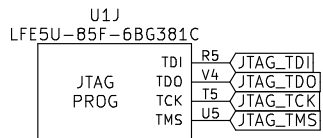
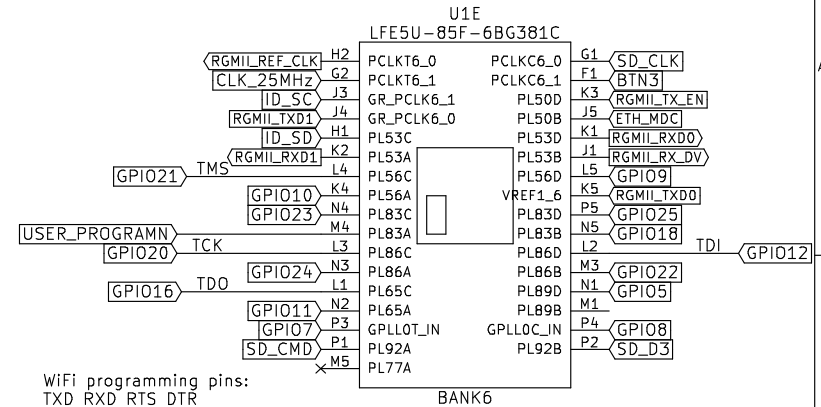
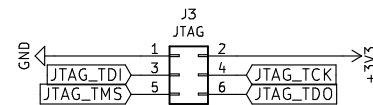
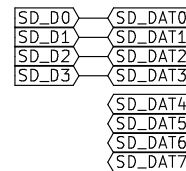
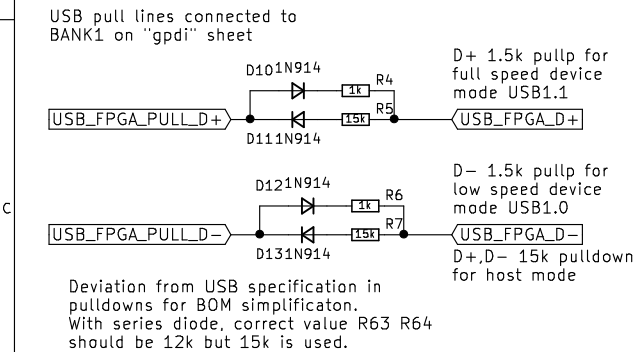
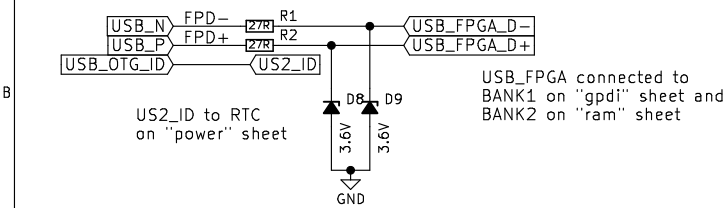
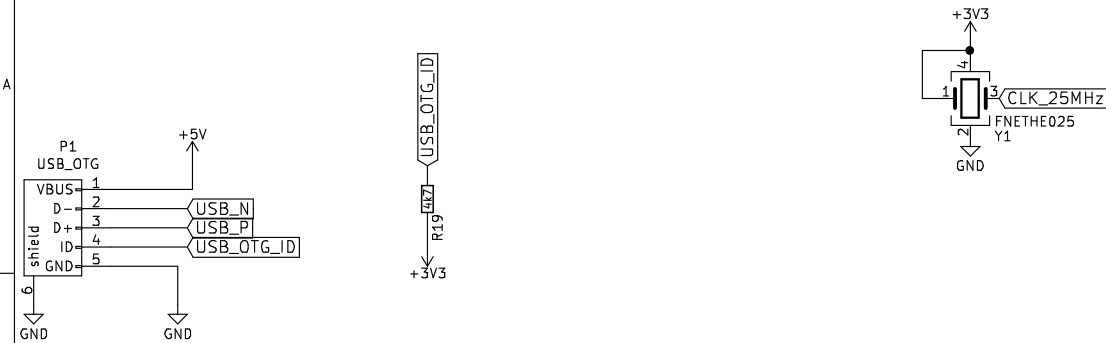


License: CERN-OHL-S v2  
General Purpose Differential Interface

Sheet: /gpdi/  
File: gpdi.sch

Size: A4	Date: 2022-09-21
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1	

**Rev: 0.0.3**  
Id: 5/11



License: CERN-OHL-S v2  
USB serial and JTAG

**EMARD**

Sheet: /usb/  
File: usb.sch

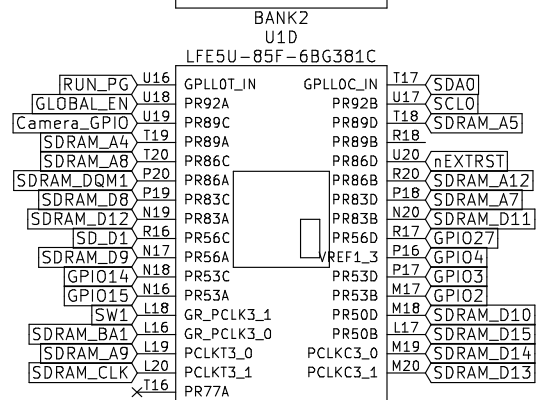
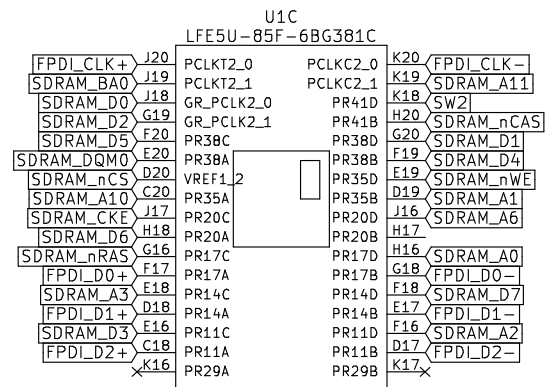
**Title: ULX3S**

Size: A4 Date: 2022-09-21

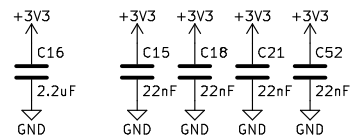
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

**Rev: 0.0.3**

Id: 6/11



BANK3



License: CERN-OHL-S v2  
SDRAM memory  
**Intergalaktik d.o.o.**

Sheet: /ram/  
File: ram.sch

**Title: ULX4M**

Size: A4 Date: 2022-09-21

KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

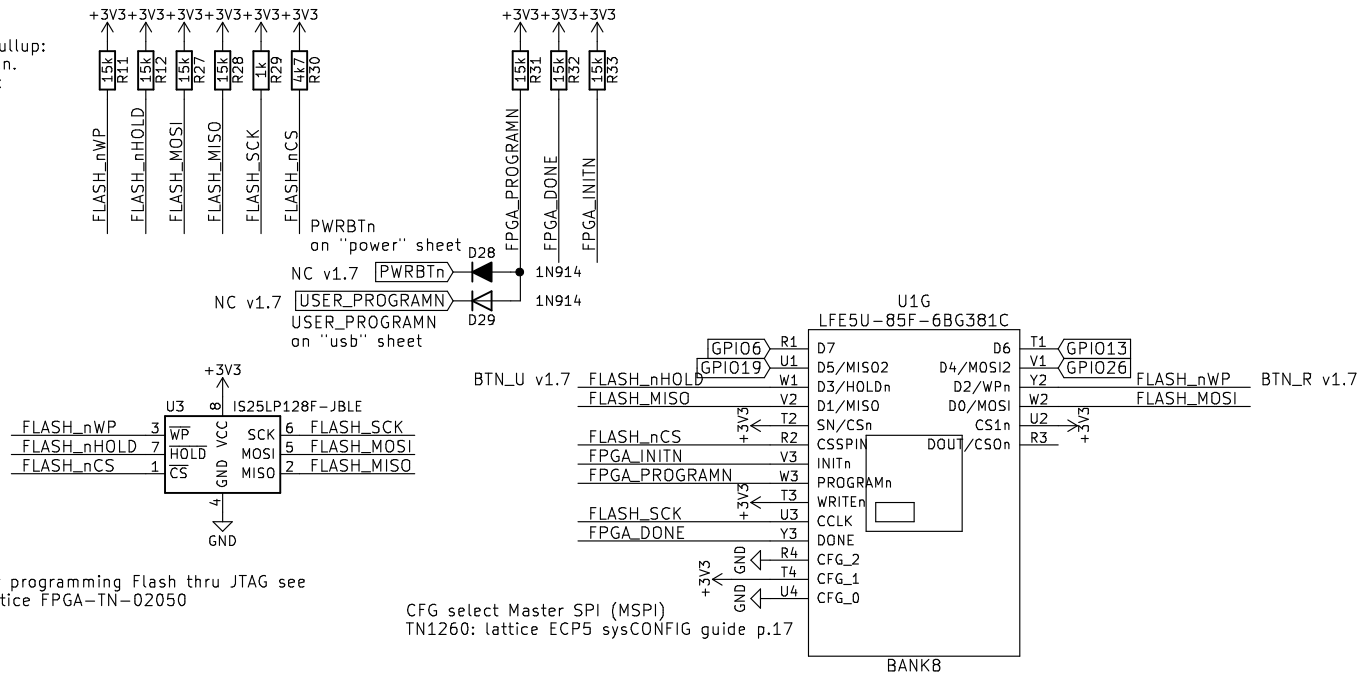
**Rev: 0.0.3**

Id: 7/11

Deviation from TN1260 in pullup:  
values for BOM simplification.  
Correct values should be 1k  
but 1.1k is used.

pullups for Master SPI (MSPI) required by  
TN1260: lattice ECP5 sysCONFIG guide p.6

pullups to allow entering USER mode  
TN1260: lattice ECP5 sysCONFIG guide p.6, p.8, p.13



For programming Flash thru JTAG see  
Lattice FPGA-TN-02050

License: CERN-OHL-S v2

SPI flash

EMARD

Sheet: /flash/

File: flash.sch

Title: ULX3S

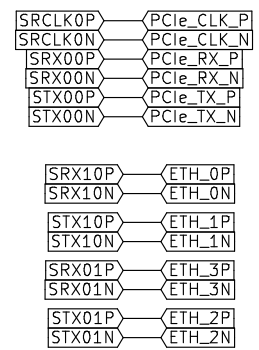
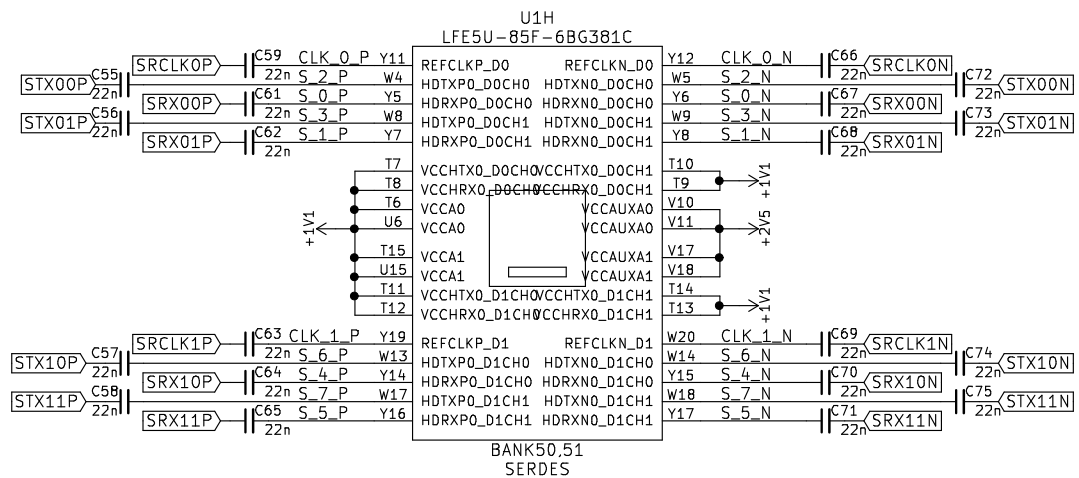
Size: A4 Date: 2022-09-21

KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Rev: 0.0.3

Id: 8/11





J4  
Antenna 1N  
1 2 3 4  
1P 2N 2P  
C91 S\_7\_N  
C92 S\_7\_P  
C93 S\_5\_N  
C94 S\_5\_P

Place shorts or caps for external antenna experiments

