ICEZUM ALHAMBRA BOARD

OpenFPGAs made easy

Peripherals

USER PERIPHERALS

peripherals.sch

FPGA

FPGA

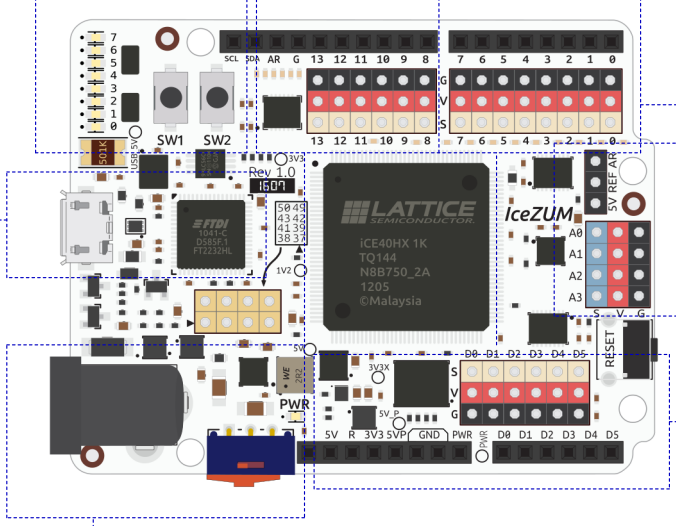
LATTICE iCE40HX1K

fpga.sch

USB communications

USB COMMUNICATIONS

usb-communications.sch



Arduino sockets

SOCKETS AND HEADERS

arduino-sockets.sch

Power Supply

POWER SUPPLY

Power-supply.sch

Block-diagram

BLOCK DIAGRAM

block-diagram.sch

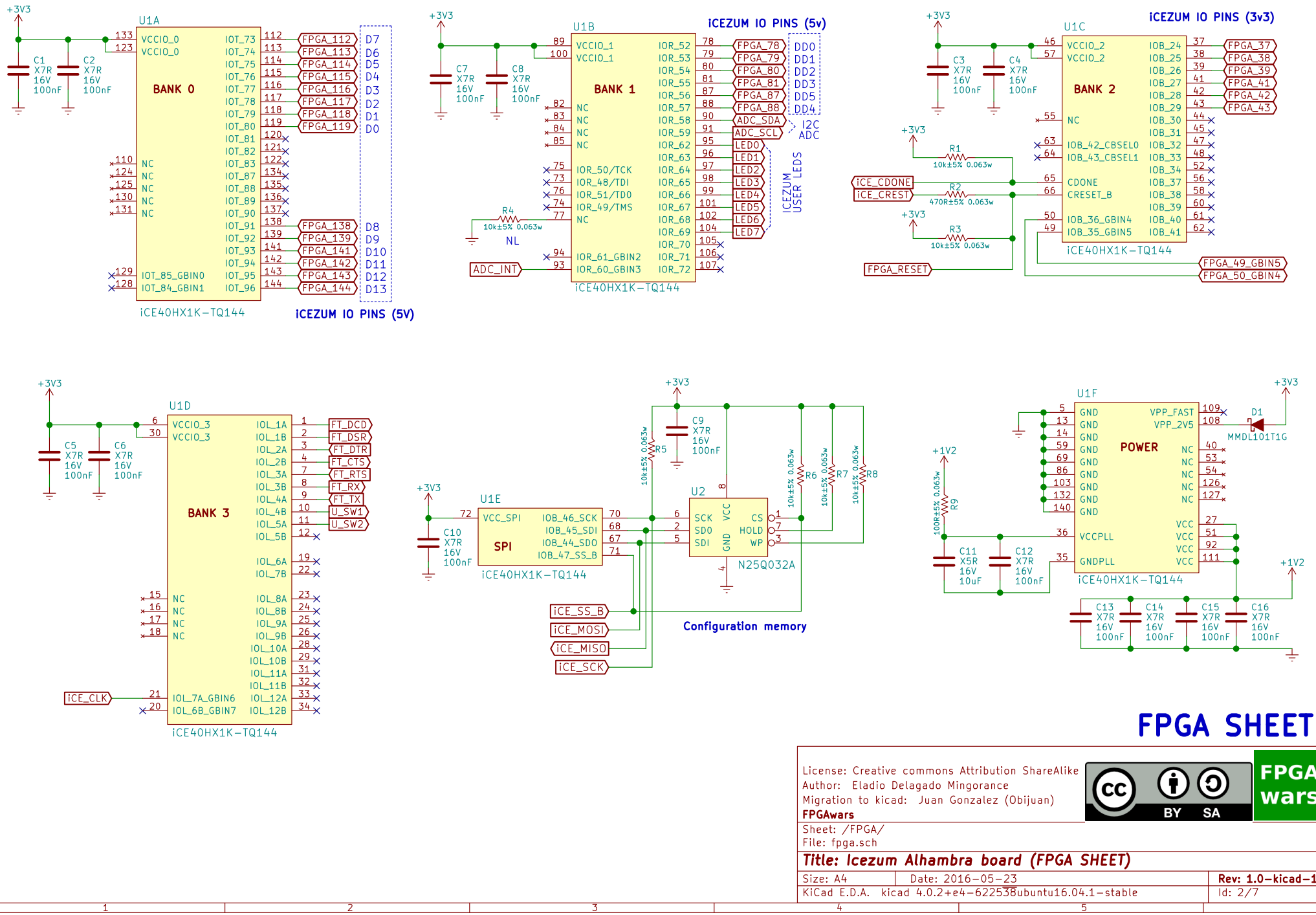
TOP SHEET

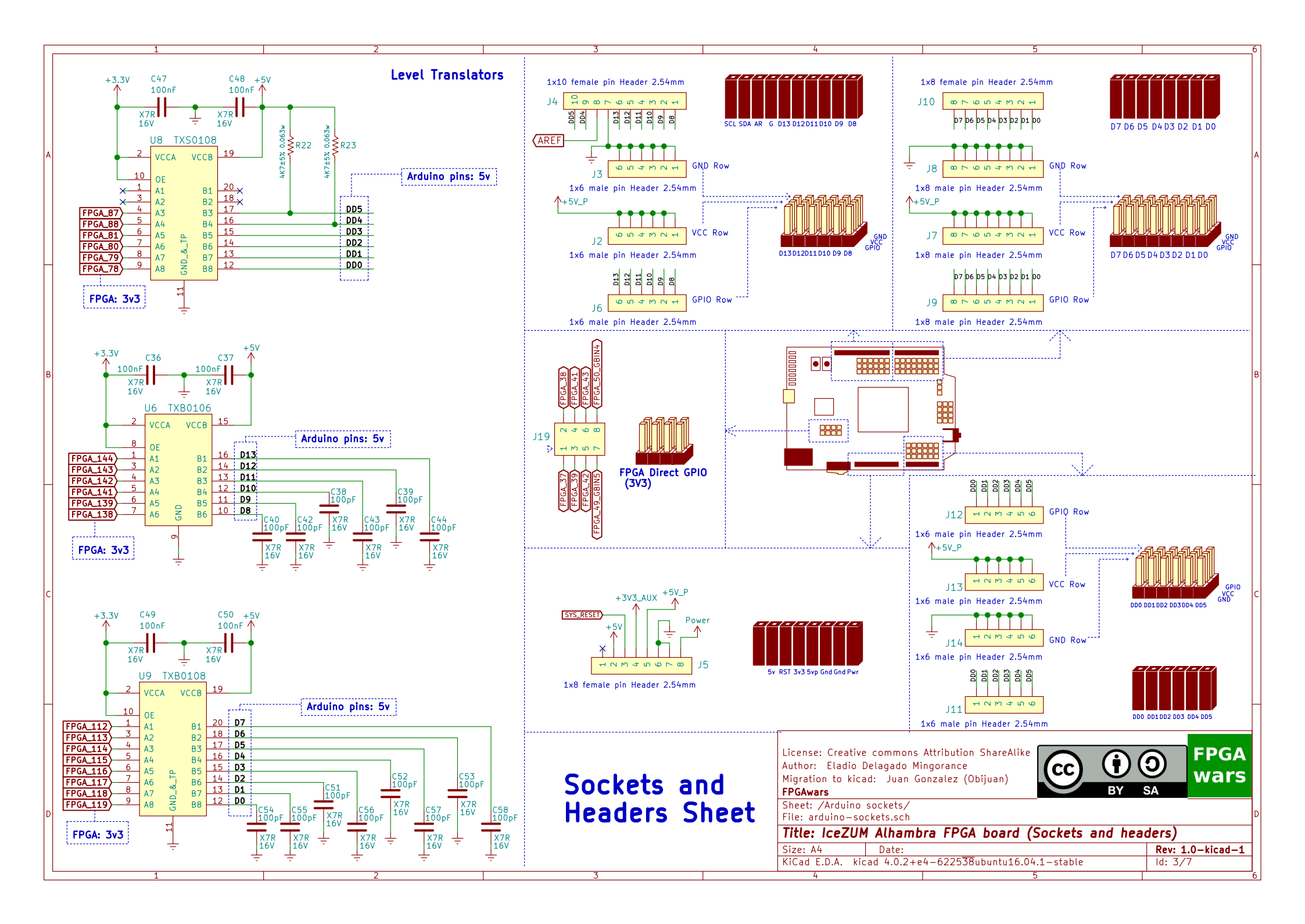
Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars

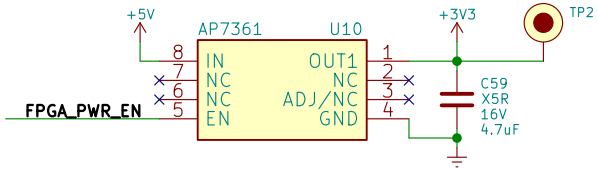
Sheet: /
File: icezum.sch

Title: IceZUM Alhambra FPGA board (TOP SHEET)

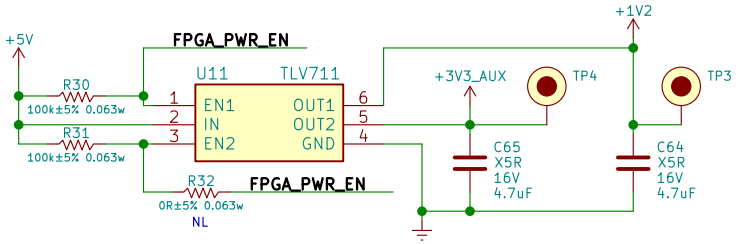
Size: A4	Date: 2016-05-23	**Rev: 1.0-kicad-1**
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable		Id: 1/7


U1A
BANK 0
iCE40HX1K-TQ144
ICEZUM IO PINS (5V)
U1B
BANK 1
iCE40HX1K-TQ144
ICEZUM IO PINS (5v)
U1C
BANK 2
iCE40HX1K-TQ144
ICEZUM IO PINS (3v3)
U1D
BANK 3
iCE40HX1K-TQ144
U1E
SPI
iCE40HX1K-TQ144
U2
N25Q032A
Configuration memory
U1F
POWER
iCE40HX1K-TQ144
FPGA SHEET
License: Creative commons Attribution ShareAlike
Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars
Sheet: /FPGA/
File: fpga.sch
Title: Icezum Alhambra board (FPGA SHEET)
Size: A4
Date: 2016-05-23
Rev: 1.0-kicad-1
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable
Id: 2/7

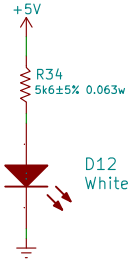

Level Translators
U8 TXS0108
U6 TXB0106
U9 TXB0108
Arduino pins: 5v
FPGA: 3v3
1x10 female pin Header 2.54mm
1x8 female pin Header 2.54mm
GND Row
VCC Row
GPIO Row
1x6 male pin Header 2.54mm
1x8 male pin Header 2.54mm
FPGA Direct GPIO (3V3)
Power
Sockets and Headers Sheet
License: Creative commons Attribution ShareAlike
Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars
Sheet: /Arduino sockets/
File: arduino-sockets.sch
Title: IceZUM Alhambra FPGA board (Sockets and headers)
Size: A4
Date:
Rev: 1.0-kicad-1
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable
Id: 3/7



3.3V Rail, 700 mA Max.



1.2V Rail (200 mA) and External 3.3V Rail (200 mA)



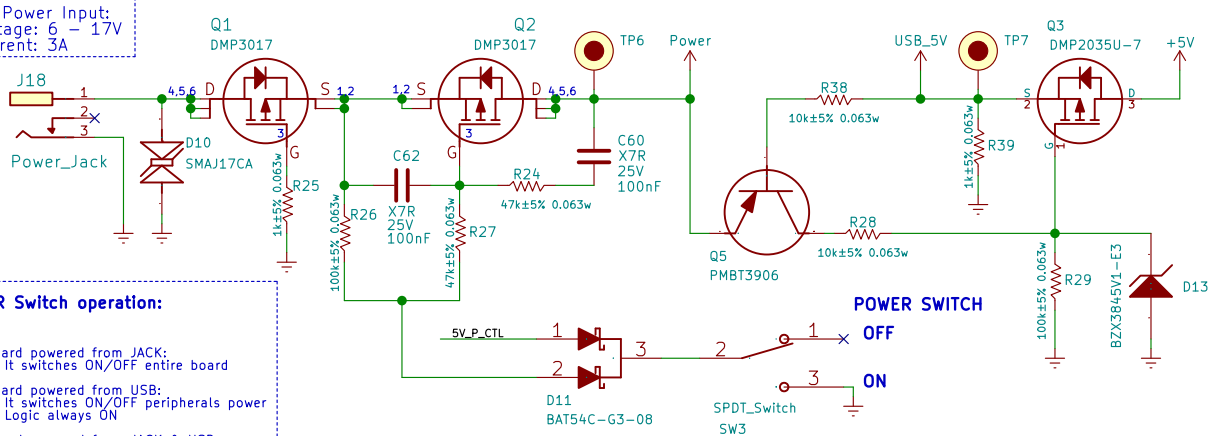
Current measured for max desired luminosity: 0.48 mA.
Vf @ 0.48 mA = 2.6V

Current measured for min desired luminosity: 0.25 mA.
Vf @ 0.25 mA = 2.56V

R=5 to 9K6

POWER LED

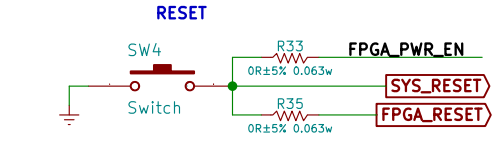
DC Power Input:
Voltage: 6 – 17V
Current: 3A

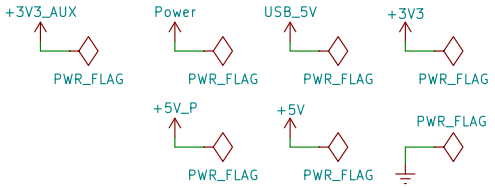


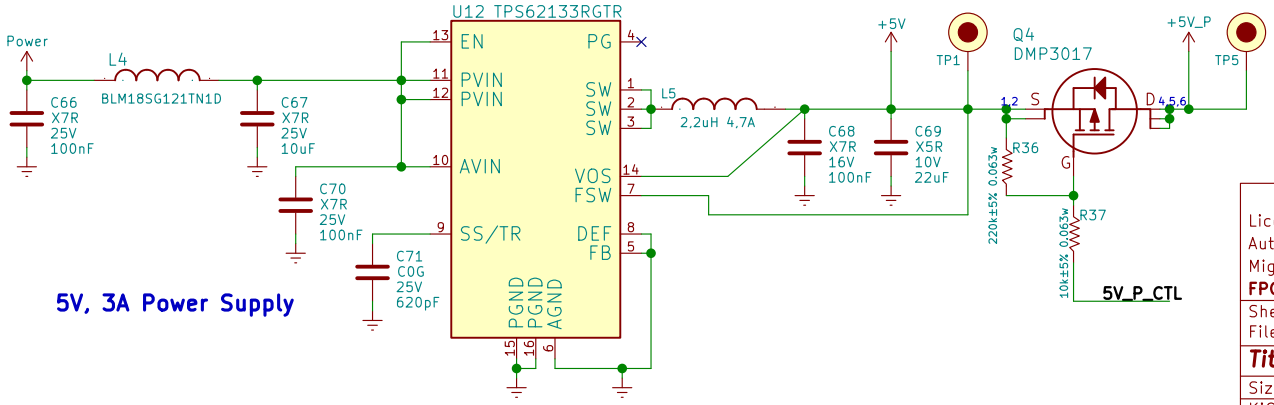
PWR Switch operation:

* Board powered from JACK:
  It switches ON/OFF entire board
* Board powered from USB:
  It switches ON/OFF peripherals power
  Logic always ON
* Board powered from JACK & USB:
  Switch OFF:
  Logic ON / Peripherals OFF,
  logic powered from USB
  Switch ON:
  Logic ON / Peripherals ON,
  entire board powered from JACK

Power Inputs Control and Protections







5V, 3A Power Supply

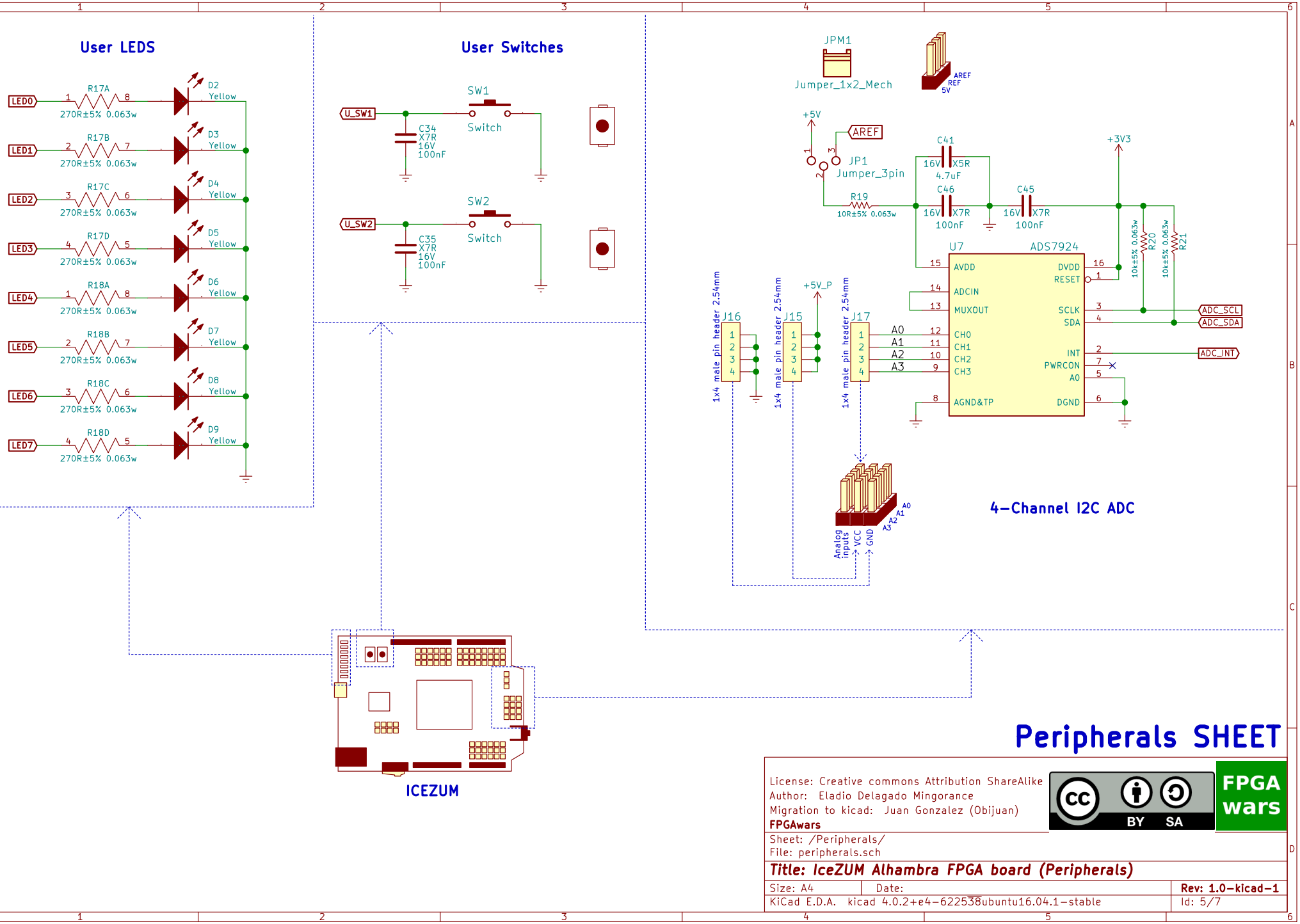
Power Supply Sheet

Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars

Sheet: /Power Supply/
File: Power-supply.sch

Title: IceZUM Alhambra FPGA board (Power Supply)

Size: A4	Date: 2016-05-25	Rev: 1.0-kicad-1
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable		Id: 4/7



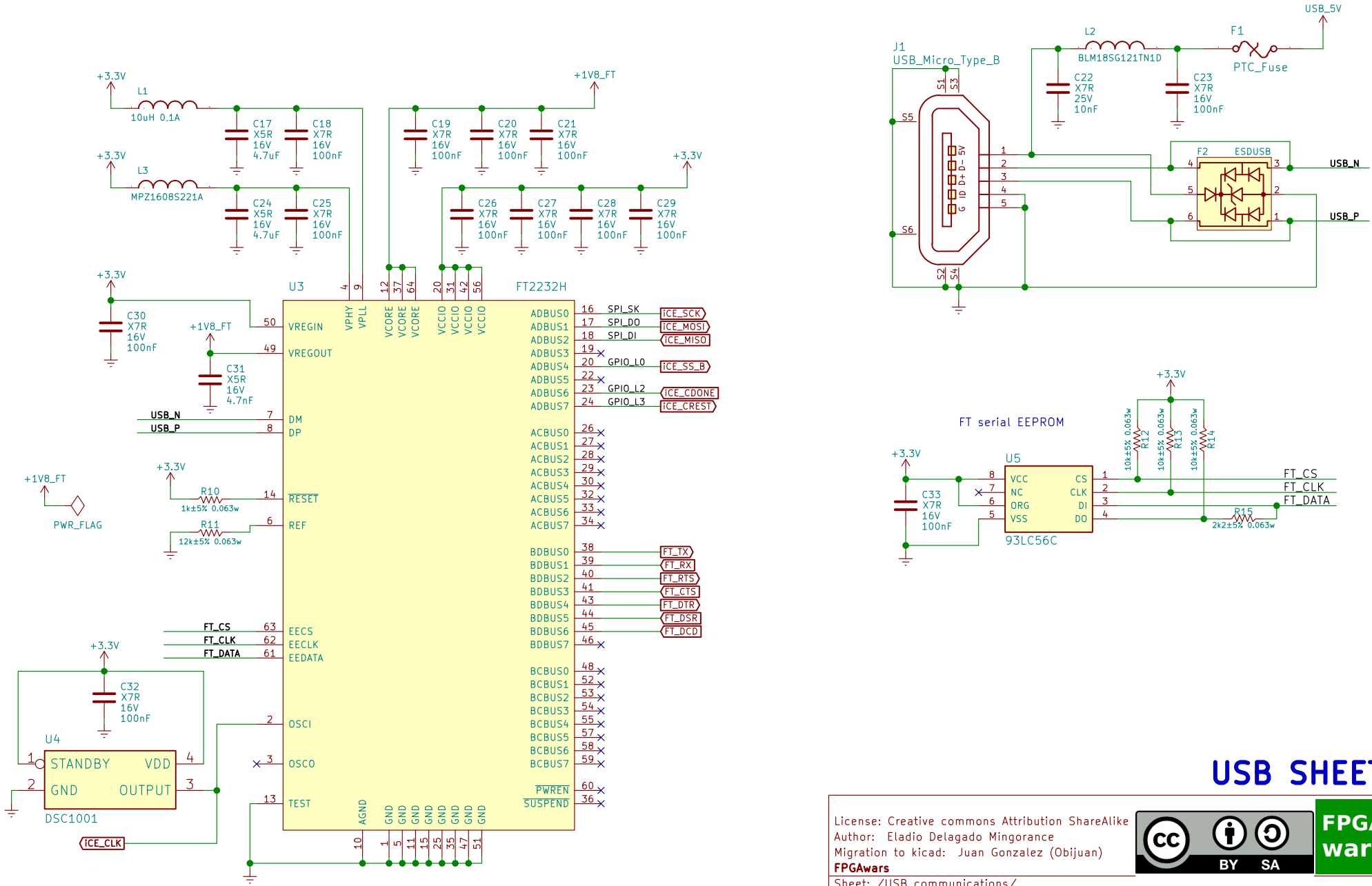
Peripherals SHEET

Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars

Sheet: /Peripherals/
File: peripherals.sch

Title: IceZUM Alhambra FPGA board (Peripherals)

Size: A4	Date:	**Rev: 1.0-kicad-1**
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable		Id: 5/7

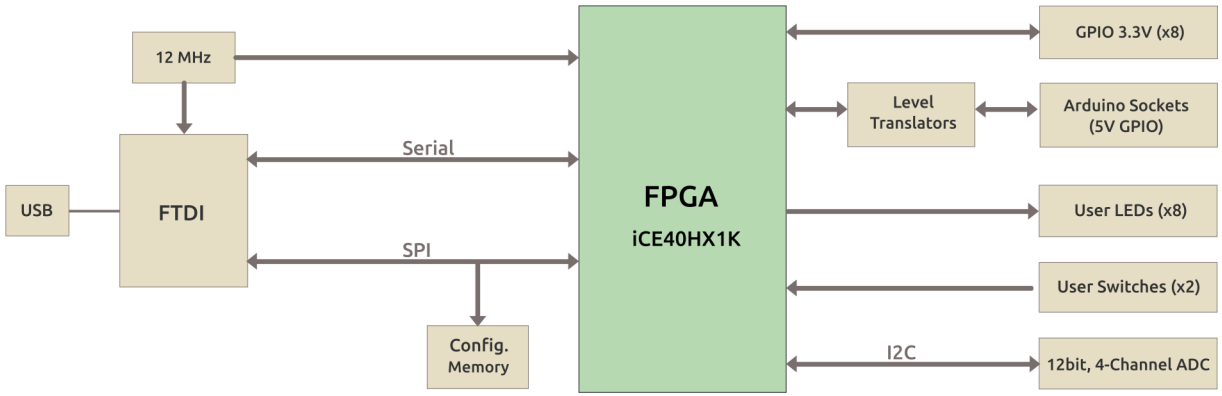


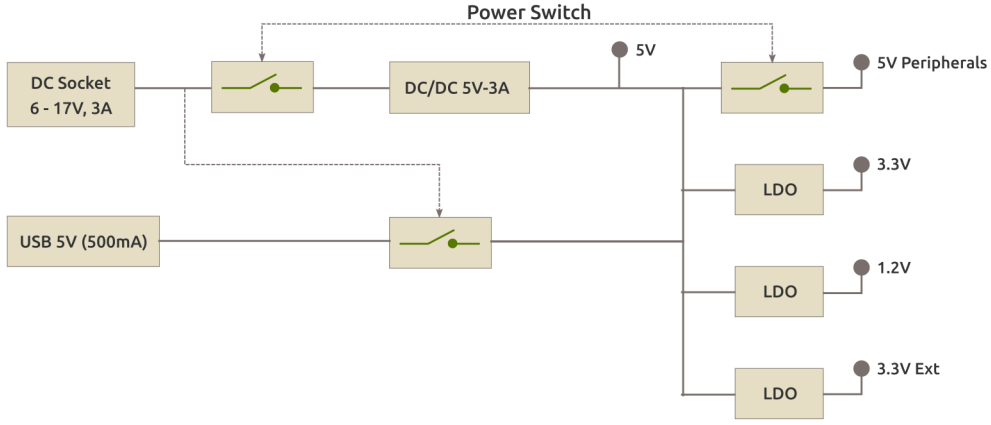
USB SHEET

Sheet: /USB communications/
File: usb-communications.sch

Title: IceZUM Alhambra FPGA board (USB communications)

Size: A4	Date:	Rev: 1.0-kicad-1
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable		Id: 6/7





Block Diagram sheet

Author: Eladio Delagado Mingorance
Migration to kicad: Juan Gonzalez (Obijuan)
FPGAwars

Sheet: /Block-diagram/
File: block-diagram.sch

Title: IceZUM Alhambra FPGA board (Block diagram)

Size: A4	Date:	**Rev: 1.0-kicad-1**
KiCad E.D.A. kicad 4.0.2+e4-622538ubuntu16.04.1-stable		Id: 7/7