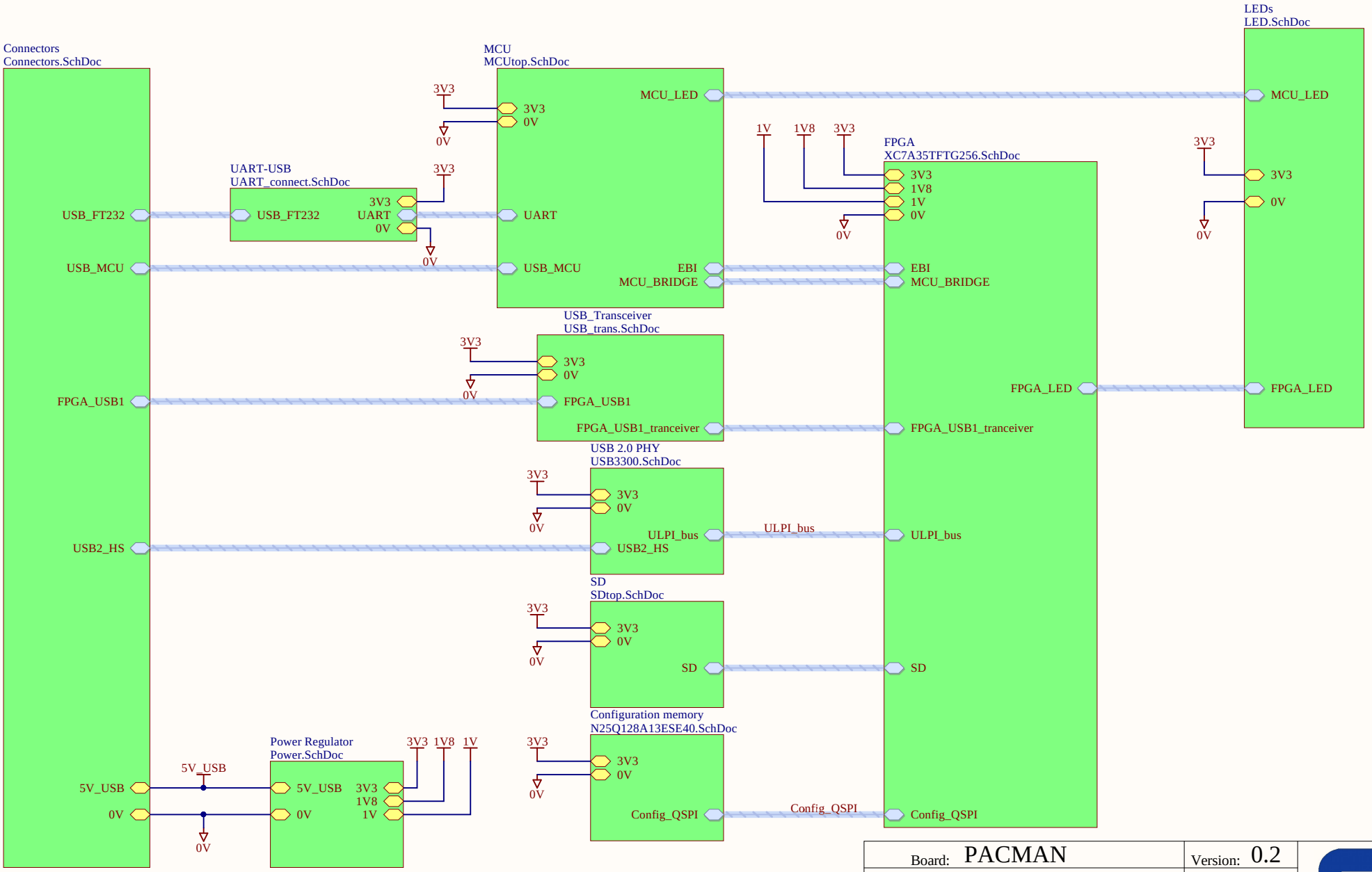
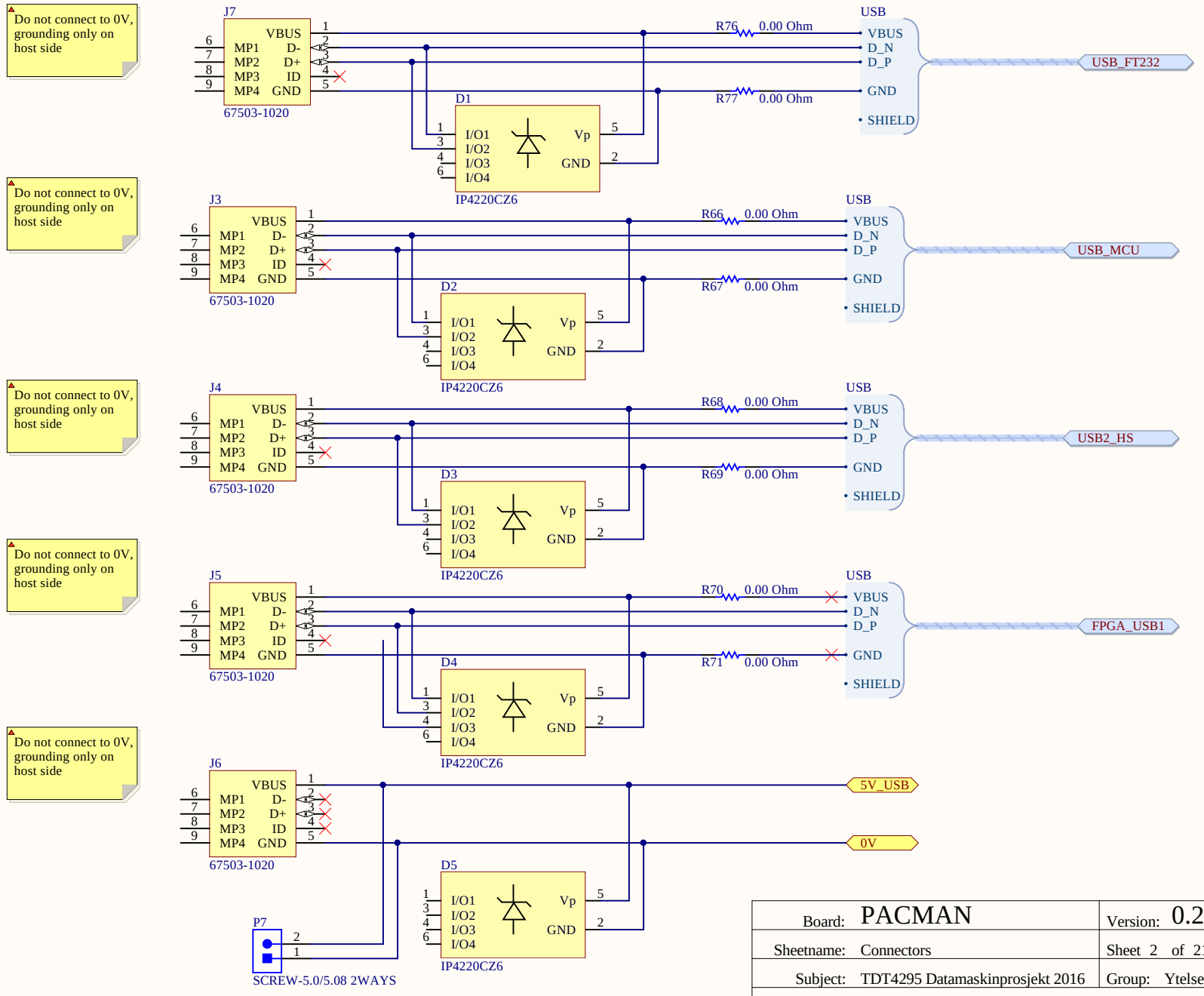
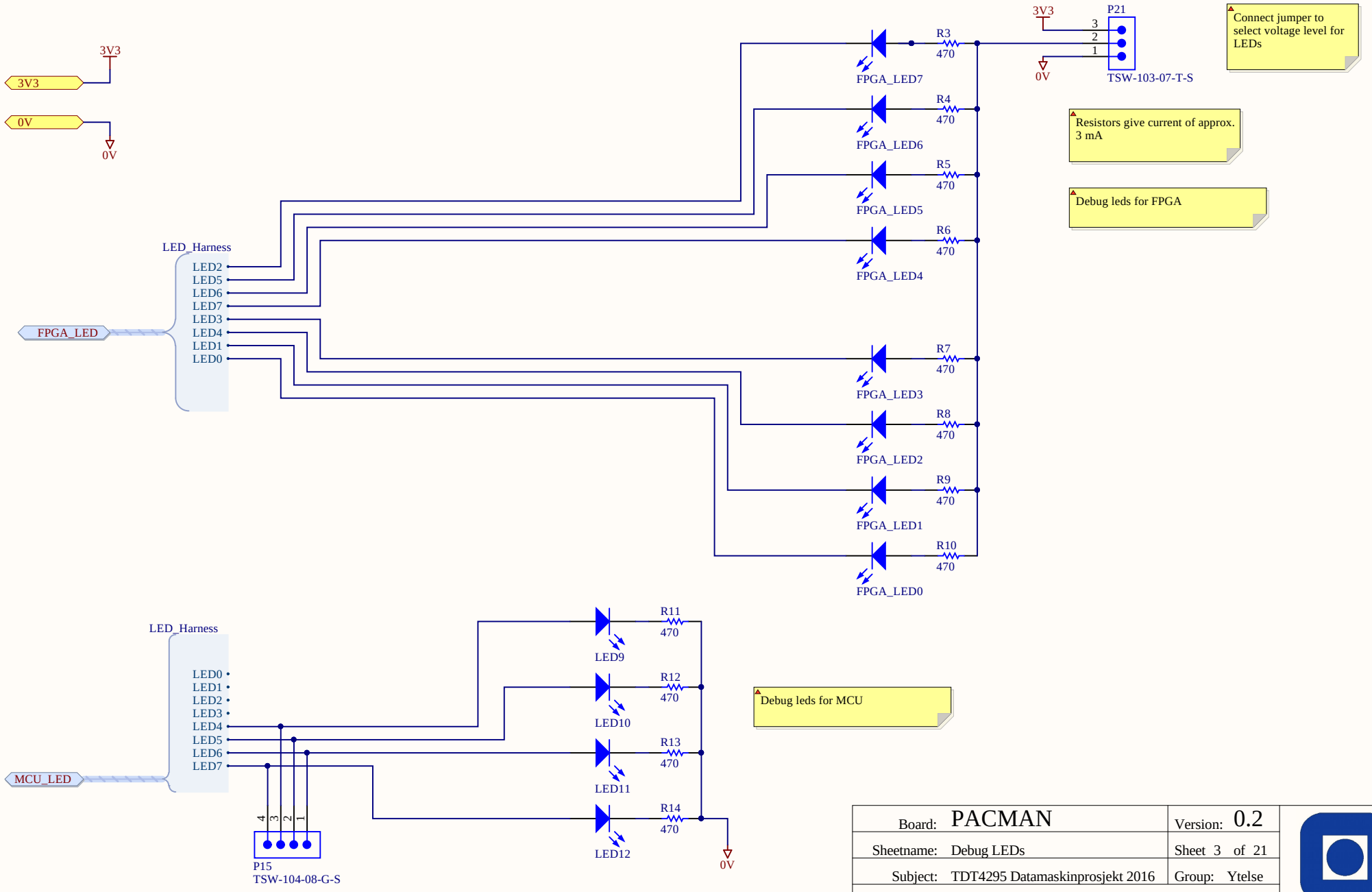
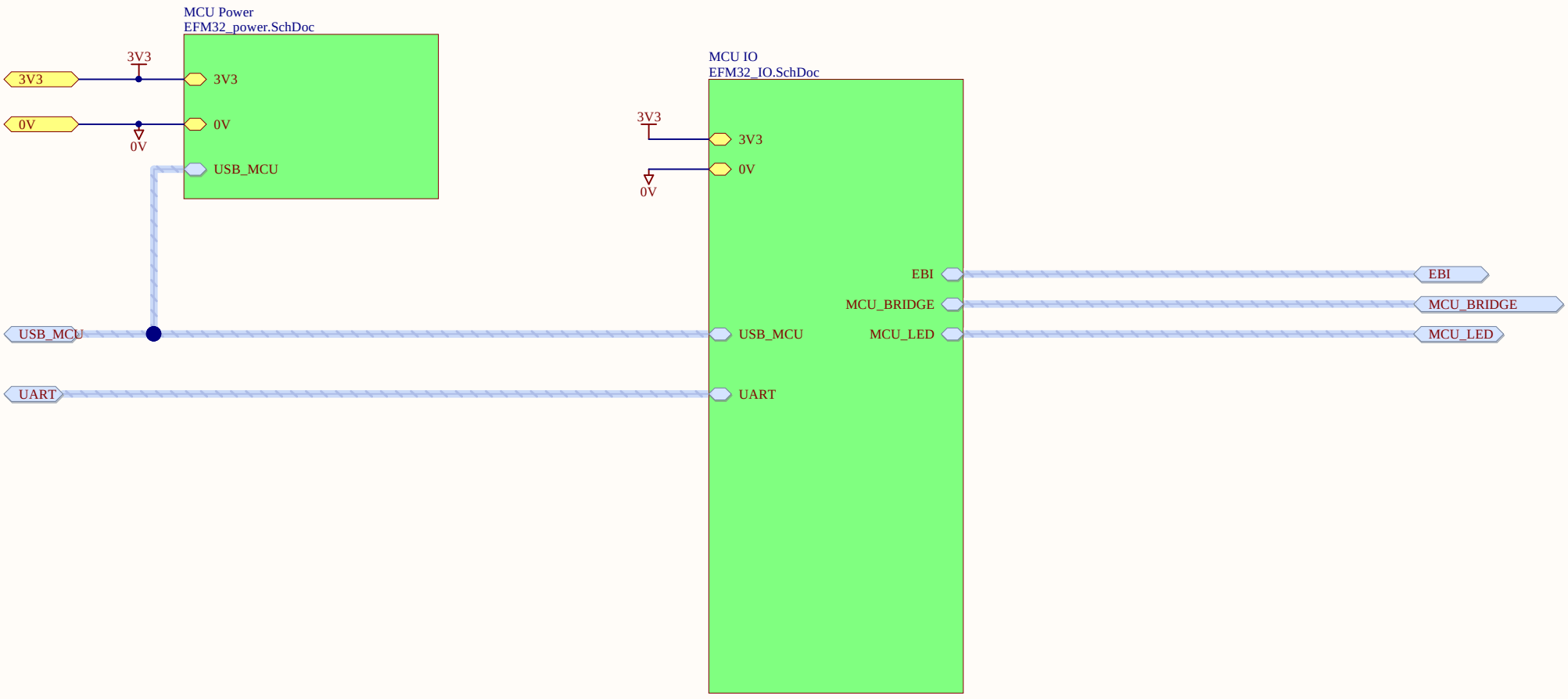

Connectors
Connectors.SchDoc
MCU
MCUtop.SchDoc
LEDs
LED.SchDoc
UART-USB
UART_connect.SchDoc
FPGA
XC7A35TFTG256.SchDoc
USB_Transceiver
USB_trans.SchDoc
USB 2.0 PHY
USB3300.SchDoc
SD
SDtop.SchDoc
Configuration memory
N25Q128A13ESE40.SchDoc
Power Regulator
Power.SchDoc
USB_FT232
USB_MCU
FPGA_USB1
USB2_HS
5V_USB
0V
3V3
1V8
1V
UART
EBI
MCU_BRIDGE
FPGA_USB1_tranceiver
ULPI_bus
SD
Config_QSPI
FPGA_LED
MCU_LED
Board: PACMAN
Version: 0.2
Sheetname: Top level
Sheet 1 of 21
Subject: TDT4295 Datamaskinprosjekt 2016
Group: Ytelse
Shematic file: main.SchDoc

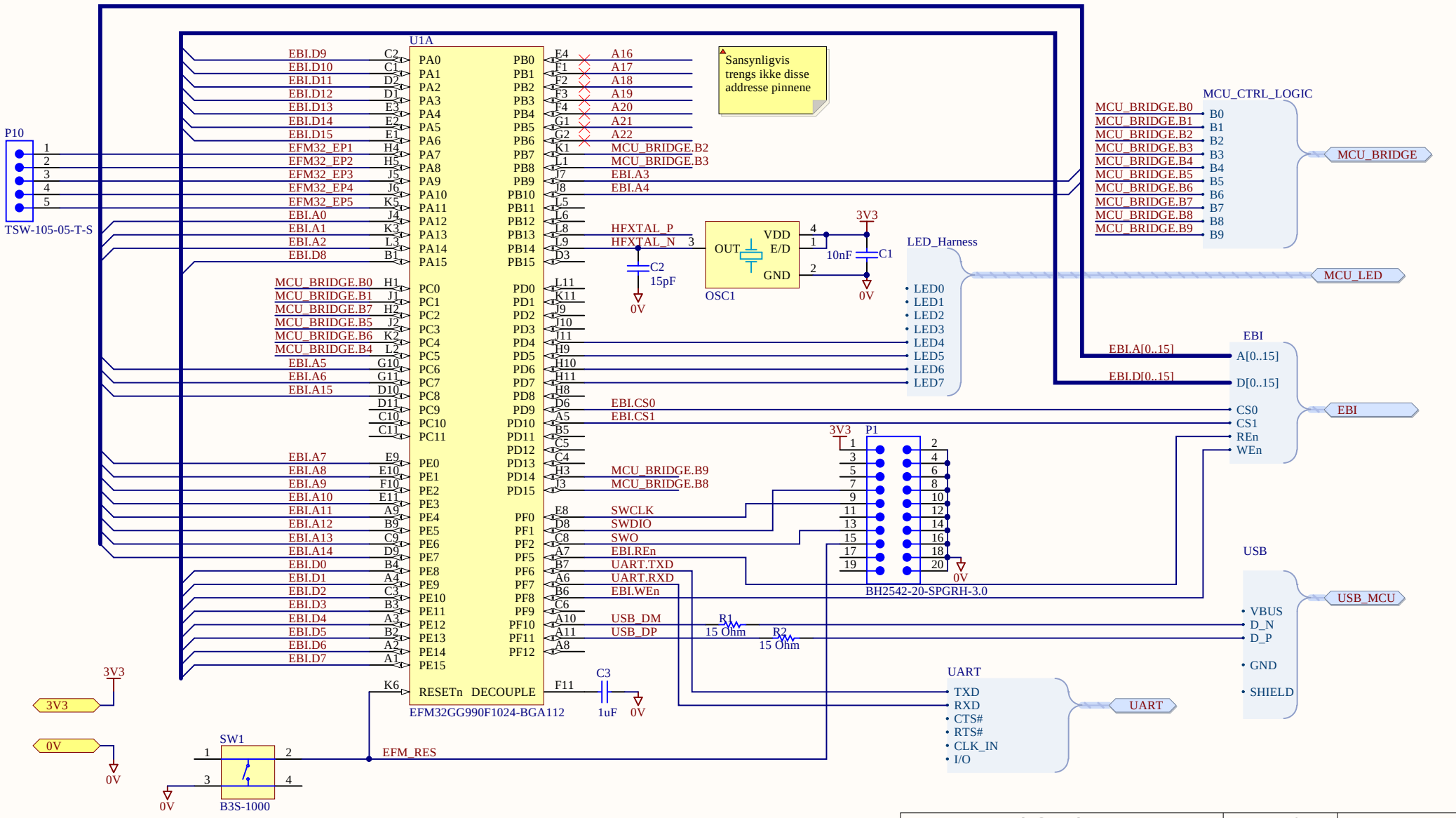


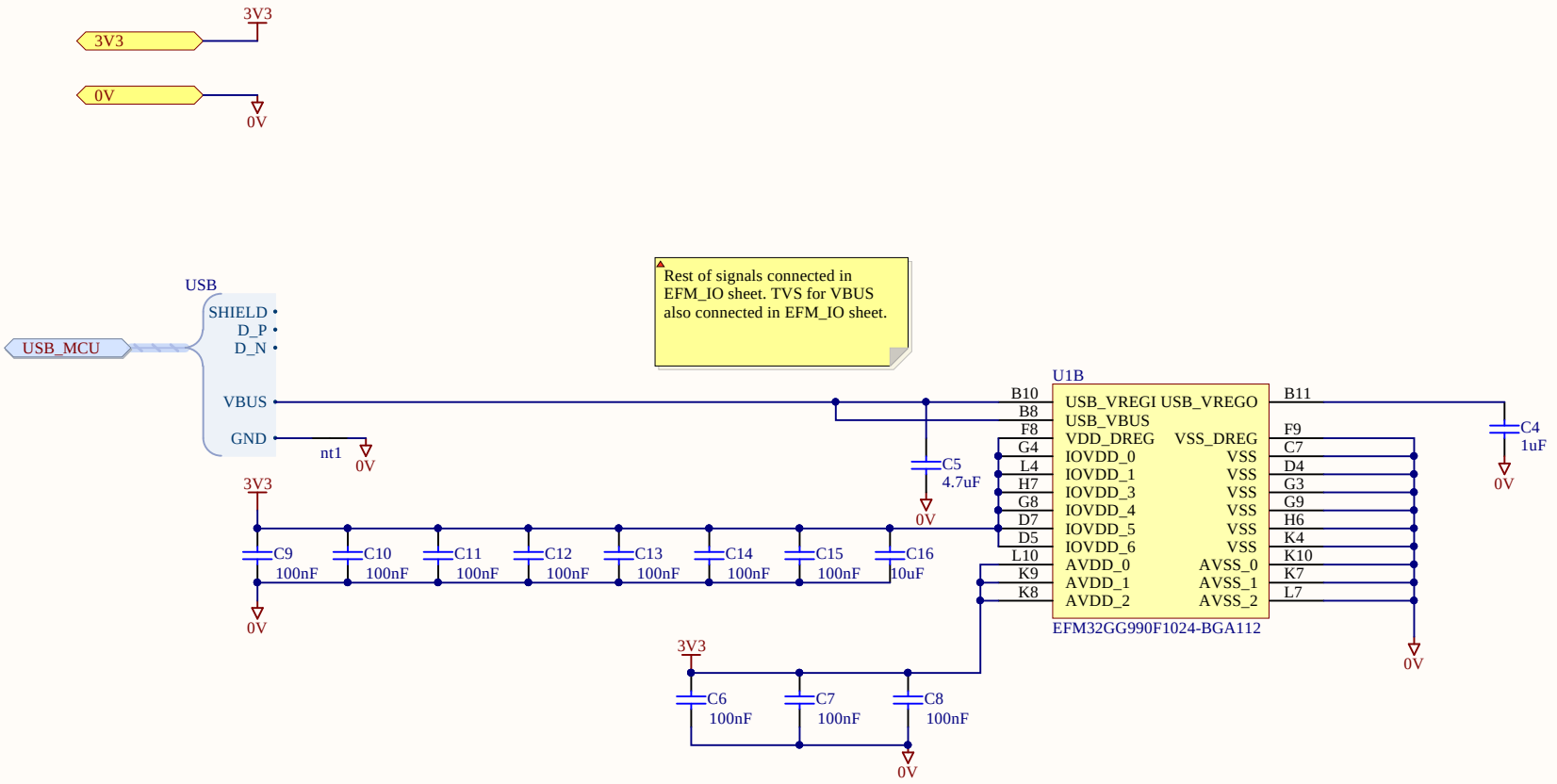
Board:	PACMAN	Version:	0.2
Sheetname:	Connectors	Sheet	2 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	Connectors.SchDoc		


3V3
0V
LED_Harness
FPGA_LED
LED2
LED5
LED6
LED7
LED3
LED4
LED1
LED0
R3
470
FPGA_LED7
R4
470
FPGA_LED6
R5
470
FPGA_LED5
R6
470
FPGA_LED4
R7
470
FPGA_LED3
R8
470
FPGA_LED2
R9
470
FPGA_LED1
R10
470
FPGA_LED0
P21
TSW-103-07-T-S
Connect jumper to select voltage level for LEDs
Resistors give current of approx. 3 mA
Debug leds for FPGA
LED_Harness
MCU_LED
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
R11
470
LED9
R12
470
LED10
R13
470
LED11
R14
470
LED12
P15
TSW-104-08-G-S
Debug leds for MCU
Board: PACMAN
Version: 0.2
Sheetname: Debug LEDs
Sheet 3 of 21
Subject: TDT4295 Datamaskinprosjekt 2016
Group: Ytelse
Shematic file: LED.SchDoc

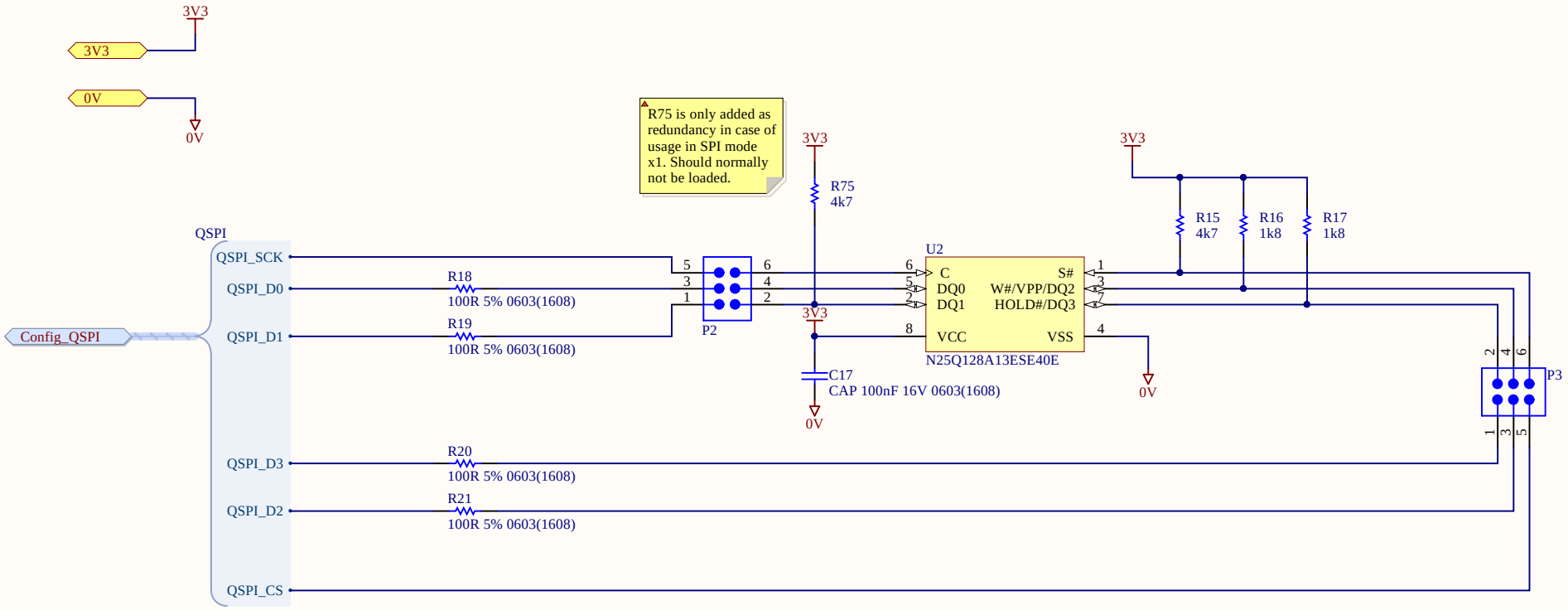


Board:	PACMAN	Version:	0.2
Sheetname:	Microcontroller Top Level	Sheet	4 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	MCUtop.SchDoc		

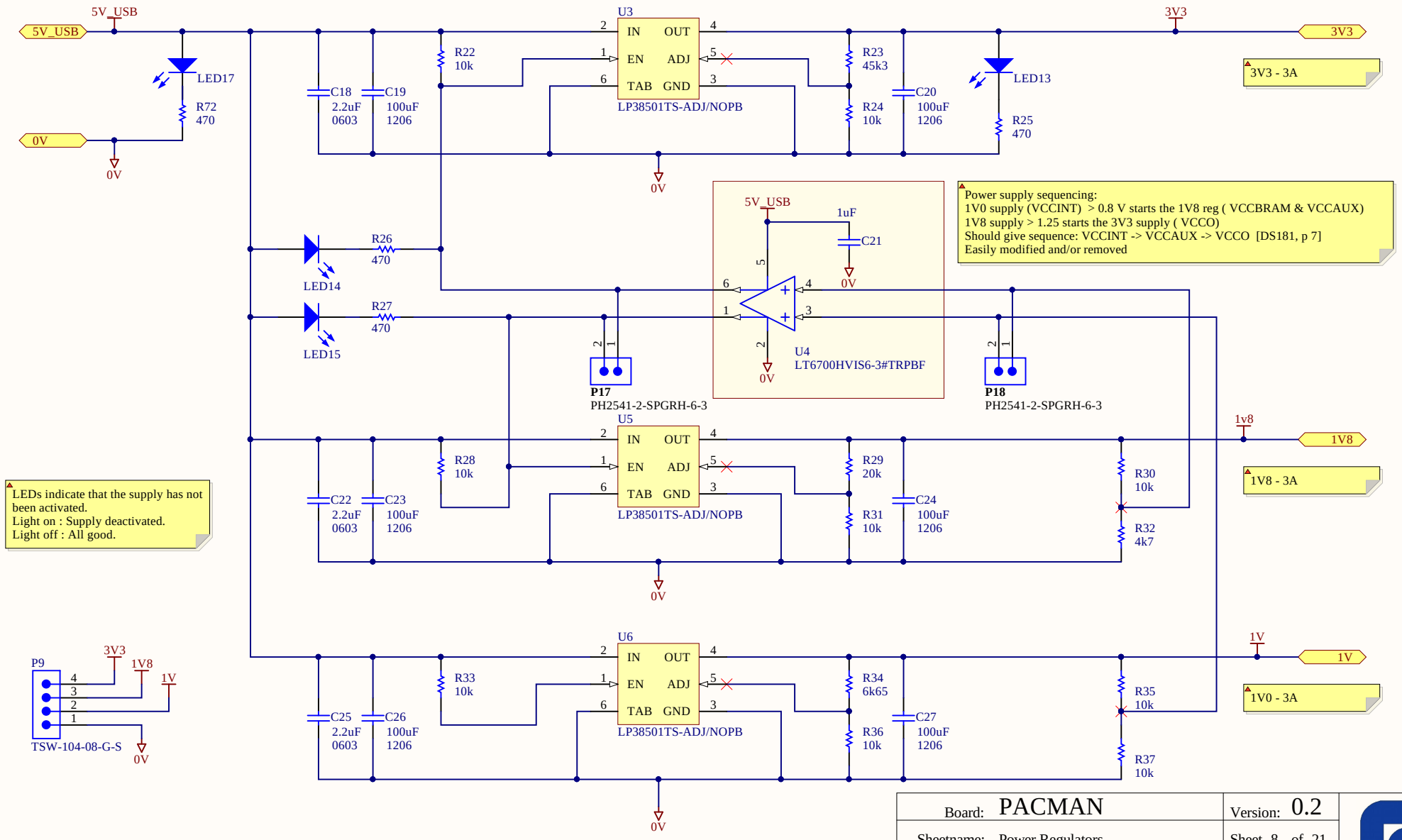

U1A
EFM32GG990F1024-BGA112
P10
TSW-105-05-T-S
Sansynligvis trengs ikke disse addresse pinnene
MCU_CTRL_LOGIC
MCU_BRIDGE
MCU_LED
LED_Harness
EBI
USB
USB_MCU
UART
OSC1
HFXTAL_P
HFXTAL_N
C1
C2
C3
10nF
15pF
1uF
3V3
0V
P1
BH2542-20-SPGRH-3.0
SW1
B3S-1000
R1
R2
15 Ohm
EFM_RES
SWCLK
SWDIO
SWO
EBI.REn
UART.TXD
UART.RXD
EBI.WEn
USB_DM
USB_DP
EBI.A[0..15]
EBI.D[0..15]
EBI.CS0
EBI.CS1
Board: PACMAN
Version: 0.2
Sheetname: Microcontroller IO
Sheet 5 of 21
Subject: TDT4295 Datamaskinprosjekt 2016
Group: Ytelse
Shematic file: EFM32_IO.SchDoc

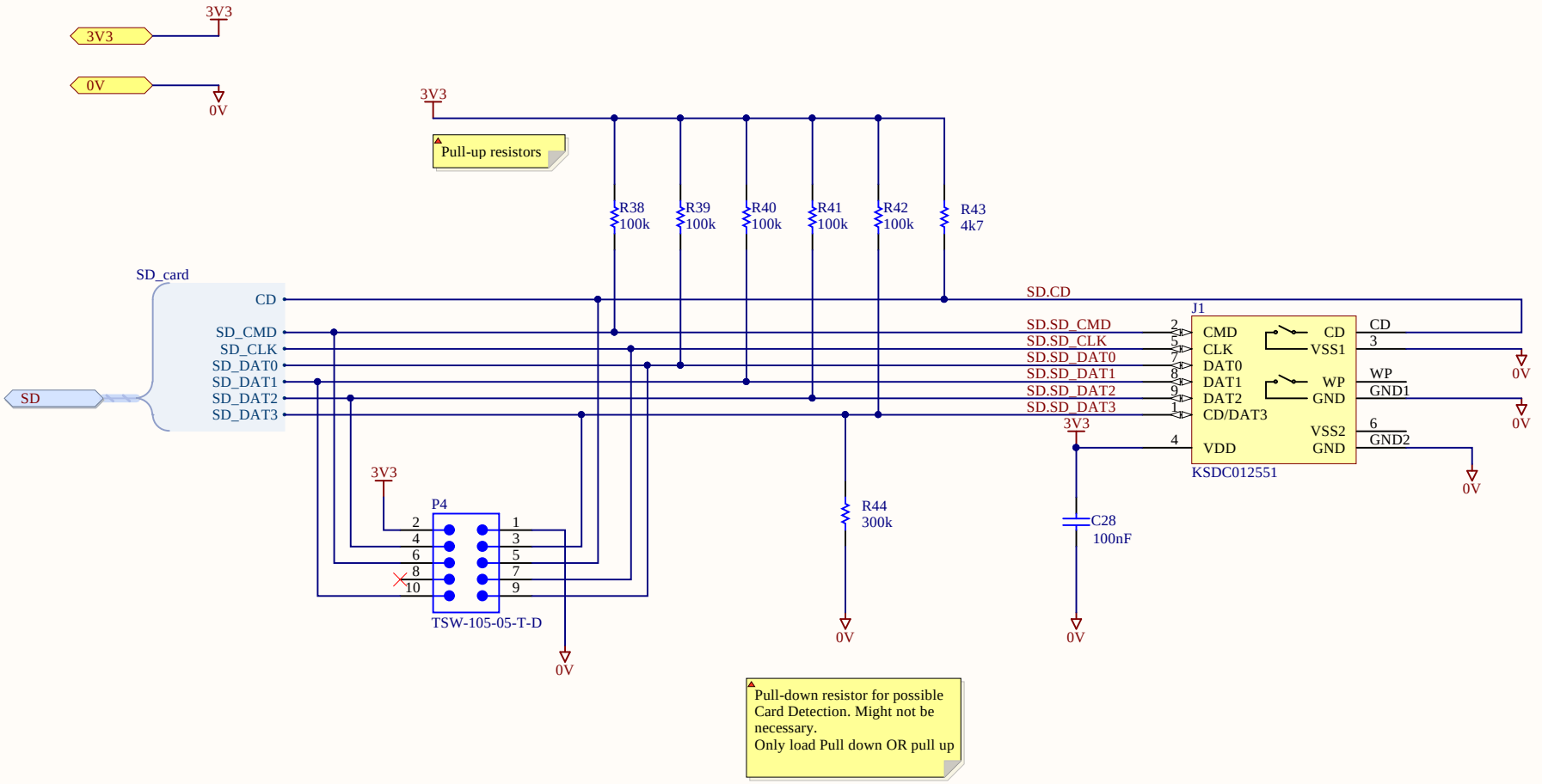


Board:	PACMAN	Version:	0.2
Sheetname:	Microcontroller Power Distribution	Sheet	6 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	EFM32_power.SchDoc		

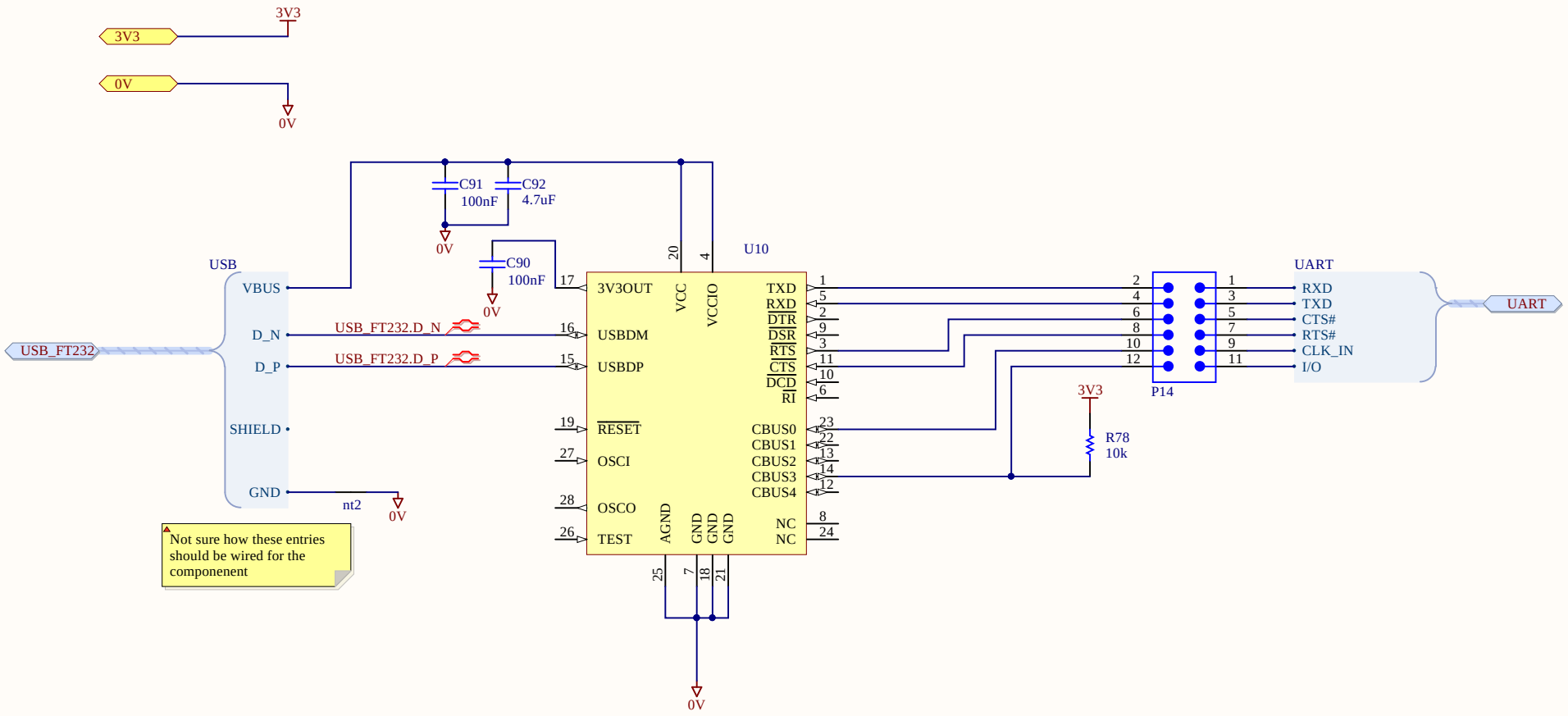


Board:	PACMAN	Version:	0.2
Sheetname:	Configuration Memory	Sheet	7 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	N25Q128A13ESE40.SchDoc		

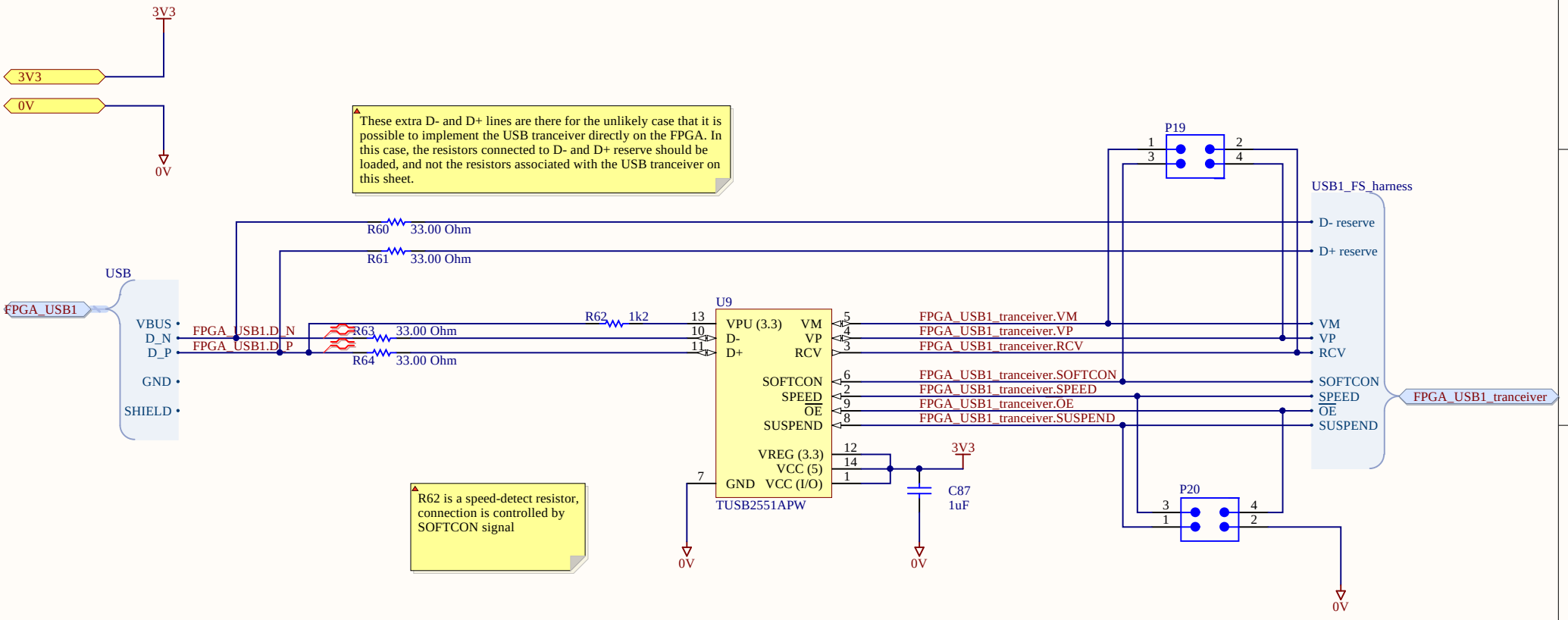

5V_USB
5V_USB
LED17
R72
470
0V
0V
C18
2.2uF
0603
C19
100uF
1206
U3
IN
OUT
EN
ADJ
TAB
GND
LP38501TS-ADJ/NOPB
R22
10k
R23
45k3
R24
10k
C20
100uF
1206
LED13
R25
470
3V3
3V3
3V3 - 3A
0V
R26
470
LED14
R27
470
LED15
5V_USB
1uF
C21
0V
U4
LT6700HVIS6-3#TRPBF
0V
P17
PH2541-2-SPGRH-6-3
P18
PH2541-2-SPGRH-6-3
Power supply sequencing:
1V0 supply (VCCINT) > 0.8 V starts the 1V8 reg (VCCBRAM & VCCAUX)
1V8 supply > 1.25 starts the 3V3 supply (VCCO)
Should give sequence: VCCINT -> VCCAUX -> VCCO [DS181, p 7]
Easily modified and/or removed
LEDs indicate that the supply has not been activated.
Light on : Supply deactivated.
Light off : All good.
U5
LP38501TS-ADJ/NOPB
R28
10k
R29
20k
R31
10k
C22
2.2uF
0603
C23
100uF
1206
C24
100uF
1206
R30
10k
R32
4k7
1v8
1V8
1V8 - 3A
0V
P9
TSW-104-08-G-S
3V3
1V8
1V
0V
U6
LP38501TS-ADJ/NOPB
R33
10k
R34
6k65
R36
10k
C25
2.2uF
0603
C26
100uF
1206
C27
100uF
1206
R35
10k
R37
10k
1V
1V
1V0 - 3A
0V
Board: PACMAN
Version: 0.2
Sheetname: Power Regulators
Sheet 8 of 21
Subject: TDT4295 Datamaskinprosjekt 2016
Group: Ytelse
Shematic file: Power.SchDoc



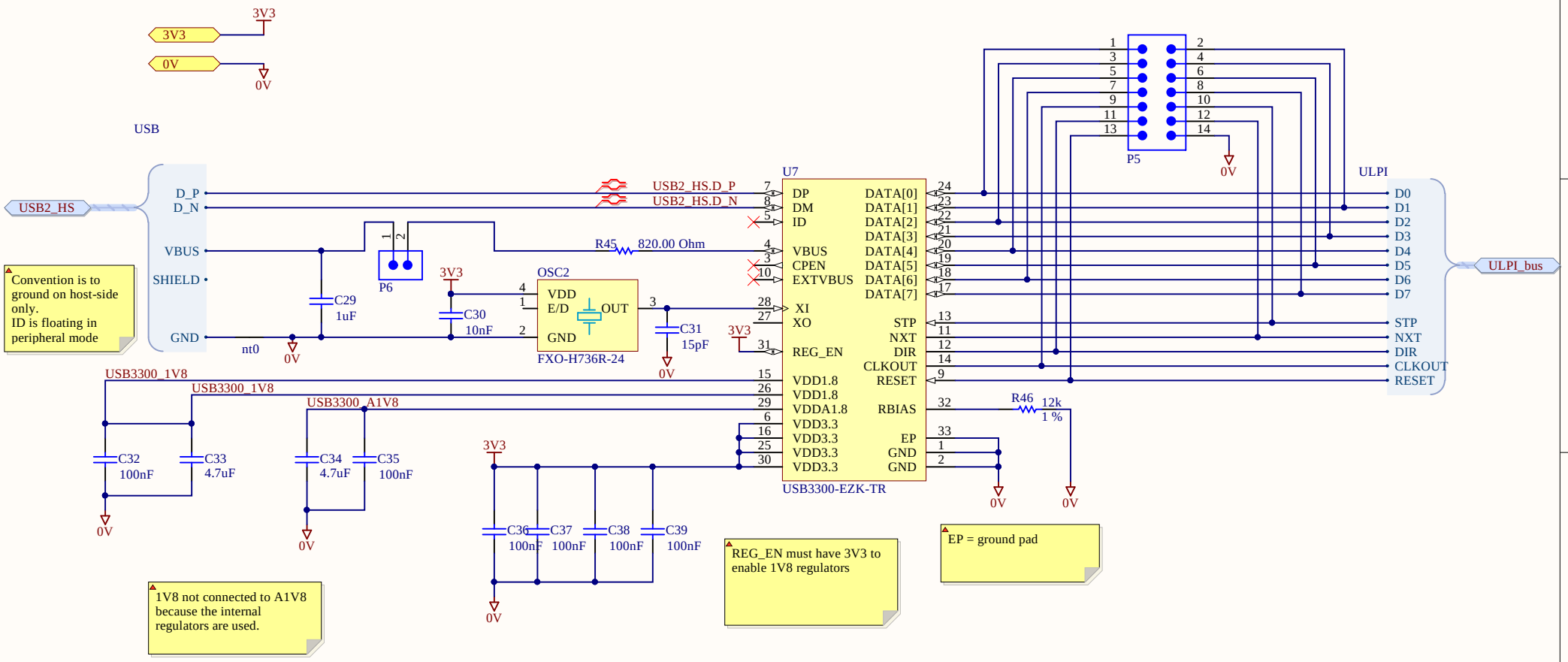
Board:	PACMAN	Version:	0.2
Sheetname:	SD Card	Sheet	9 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	SDtop.SchDoc		



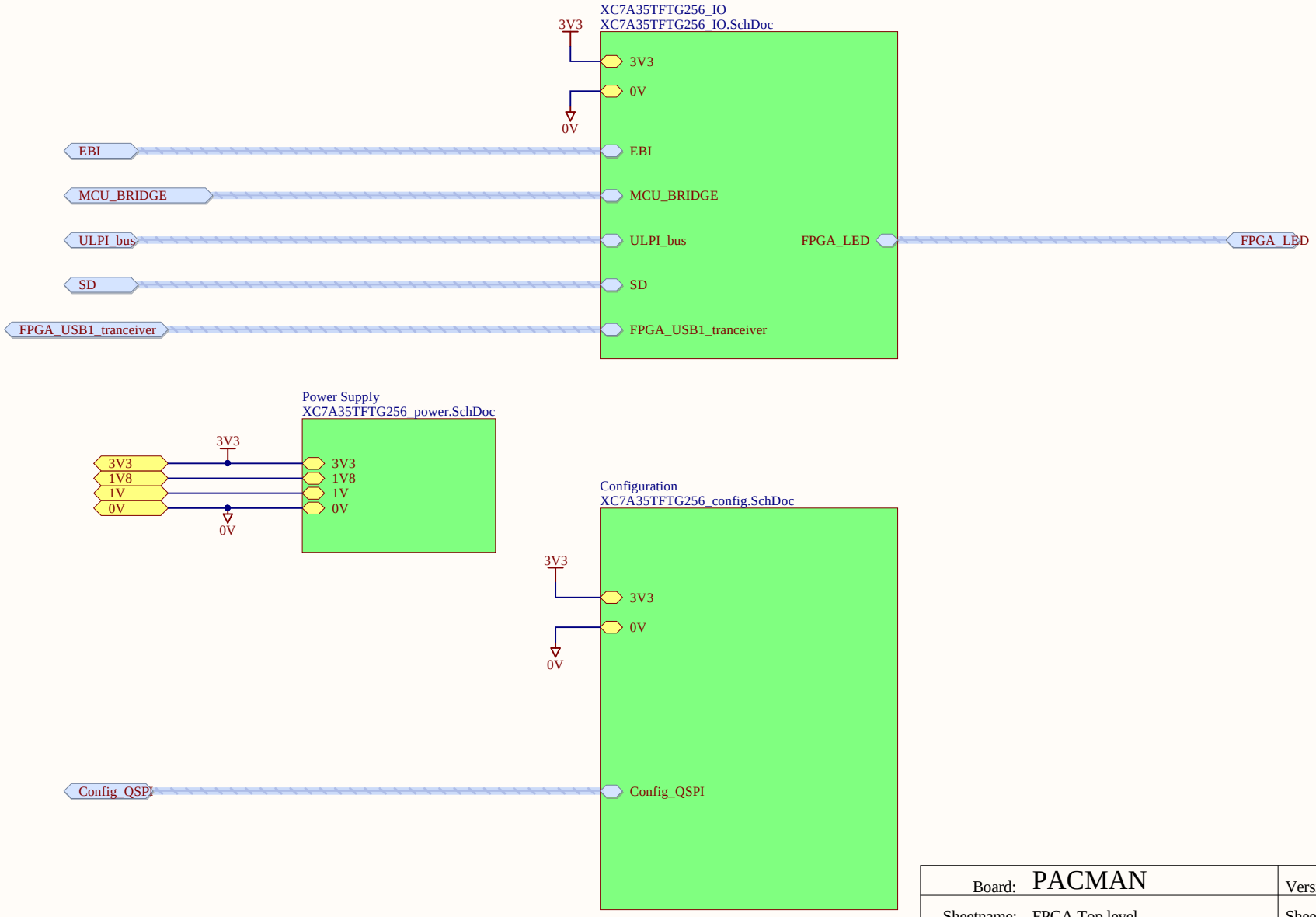
Board:	PACMAN	Version:	0.2
Sheetname:	UART to USB Bridge	Sheet	10 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	UART_connect.SchDoc		



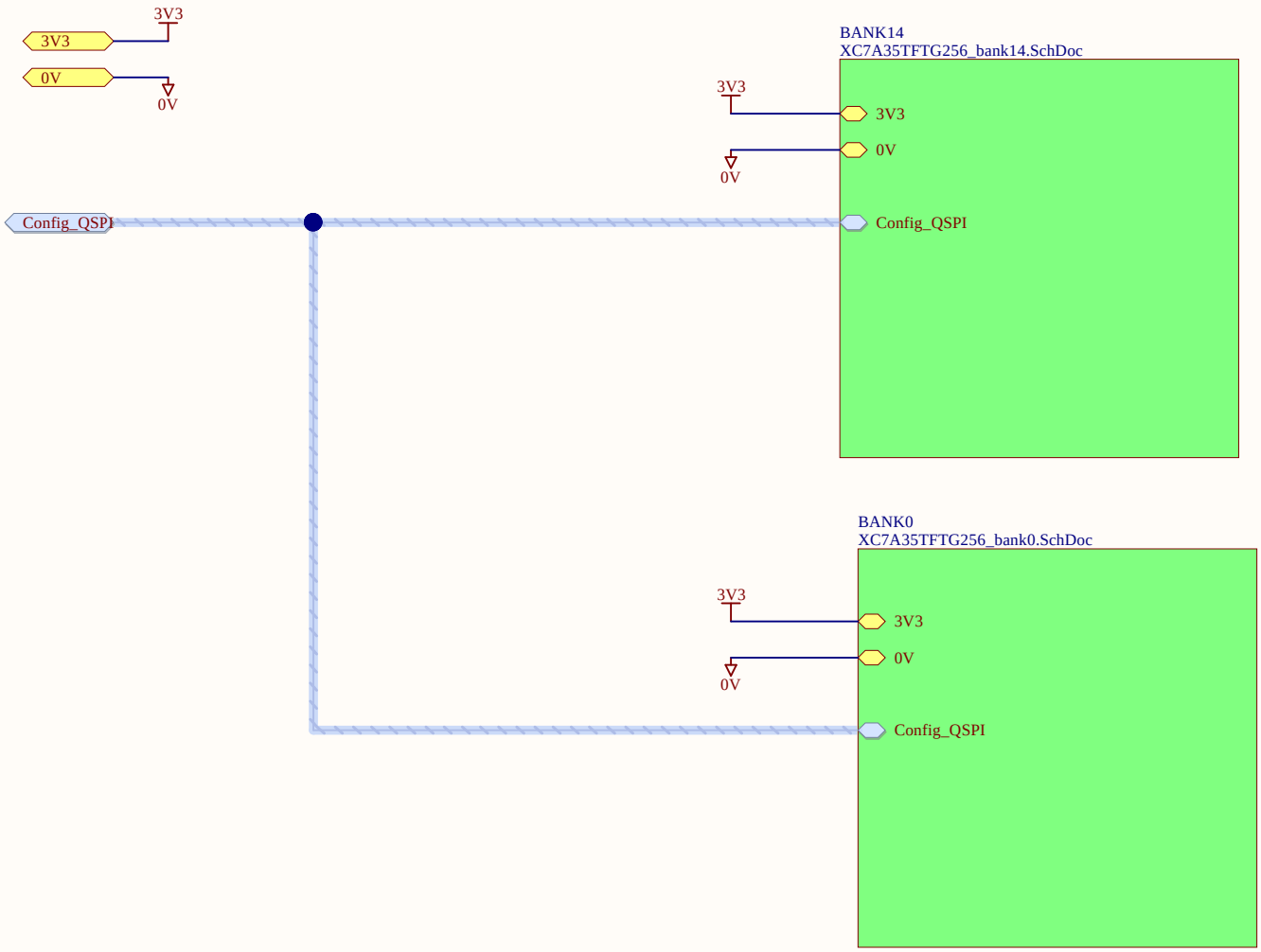
Board:	PACMAN	Version:	0.2
Sheetname:	USB Full Speed tranceiver	Sheet	11 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	USB_trans.SchDoc		



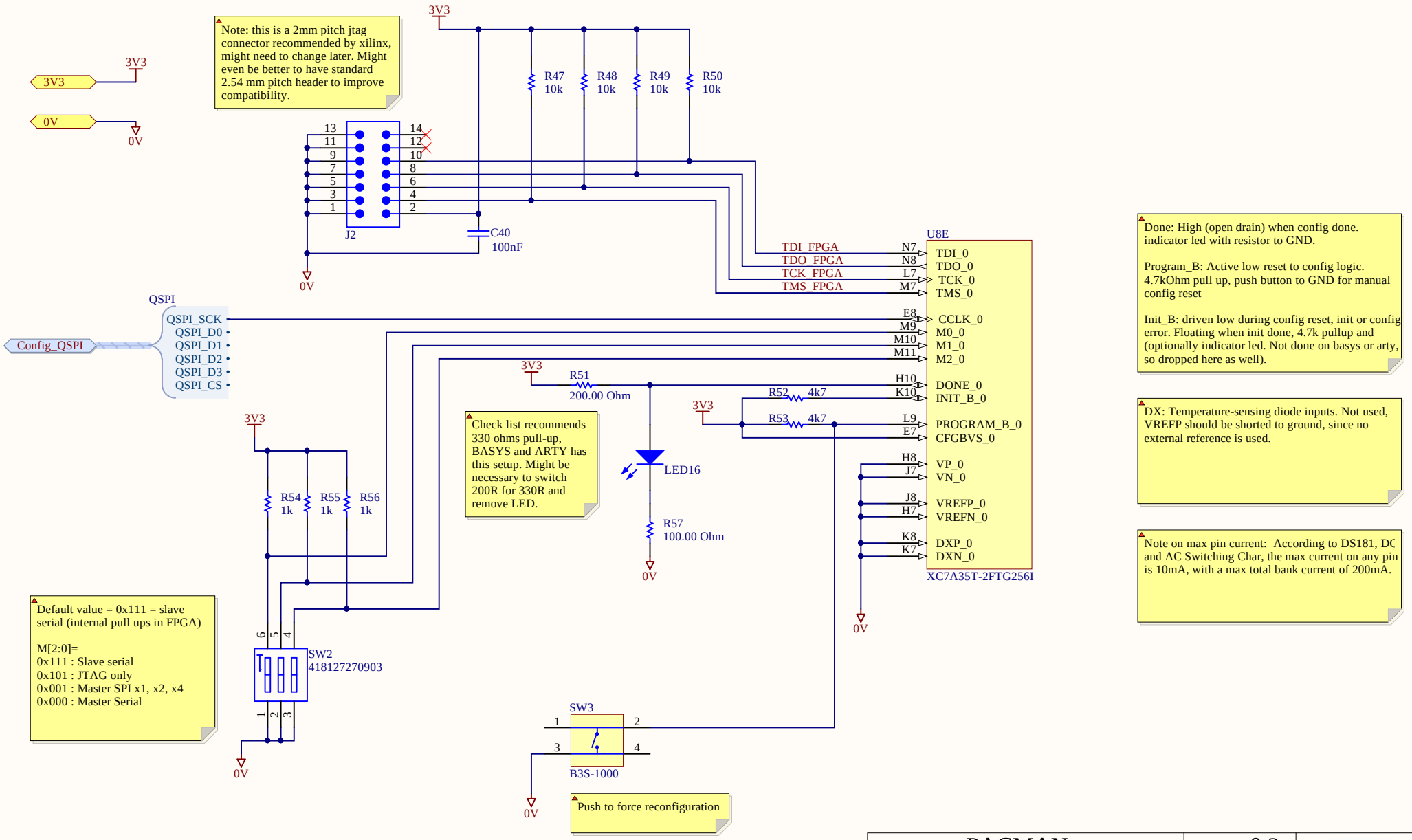
Board:	PACMAN	Version:	0.2
Sheetname:	USB 2.0 HS PHY	Sheet	12 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	USB3300.SchDoc		



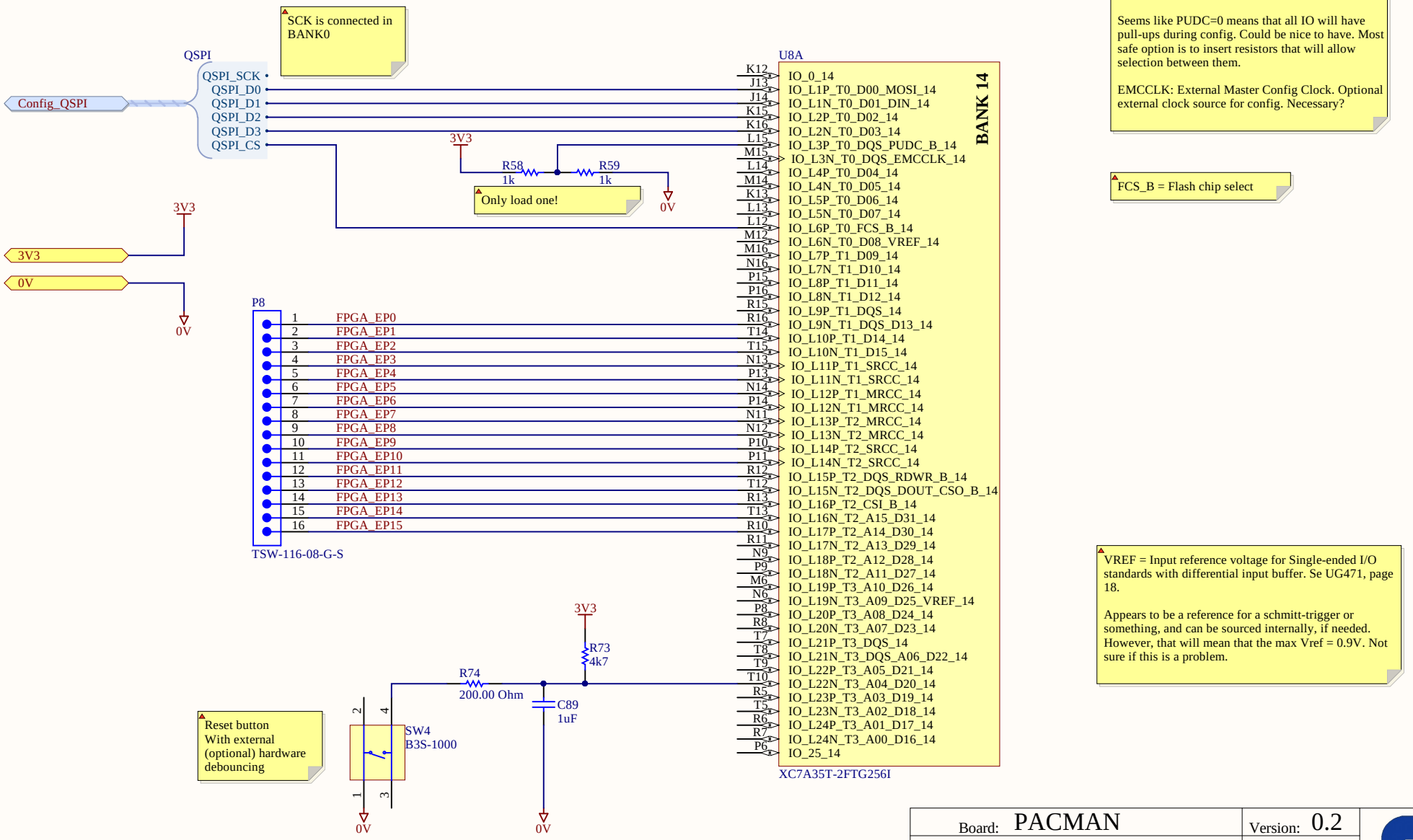
Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Top level	Sheet	13 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256.SchDoc		



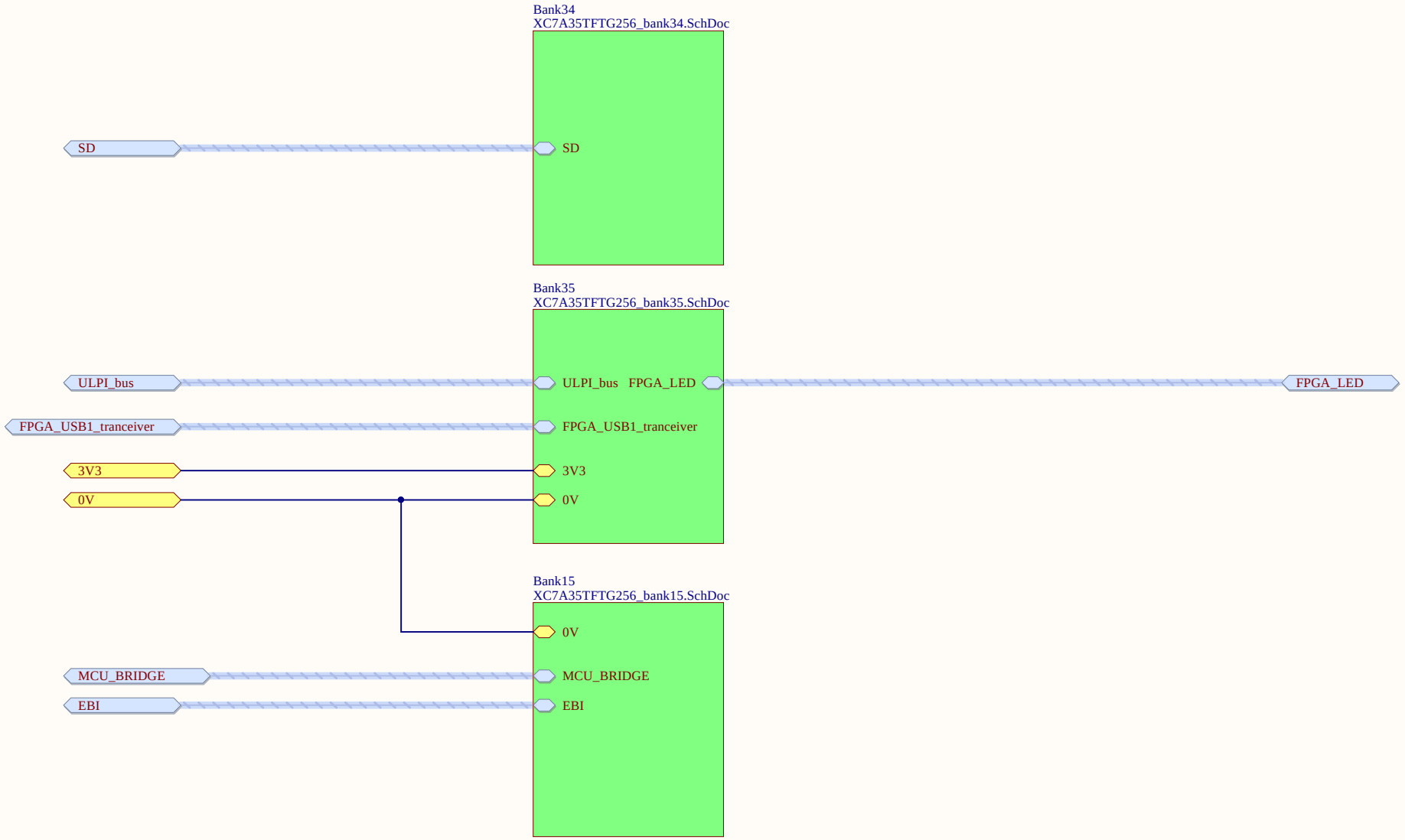
Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Configuration Top Level	Sheet	14 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_config.SchDoc		



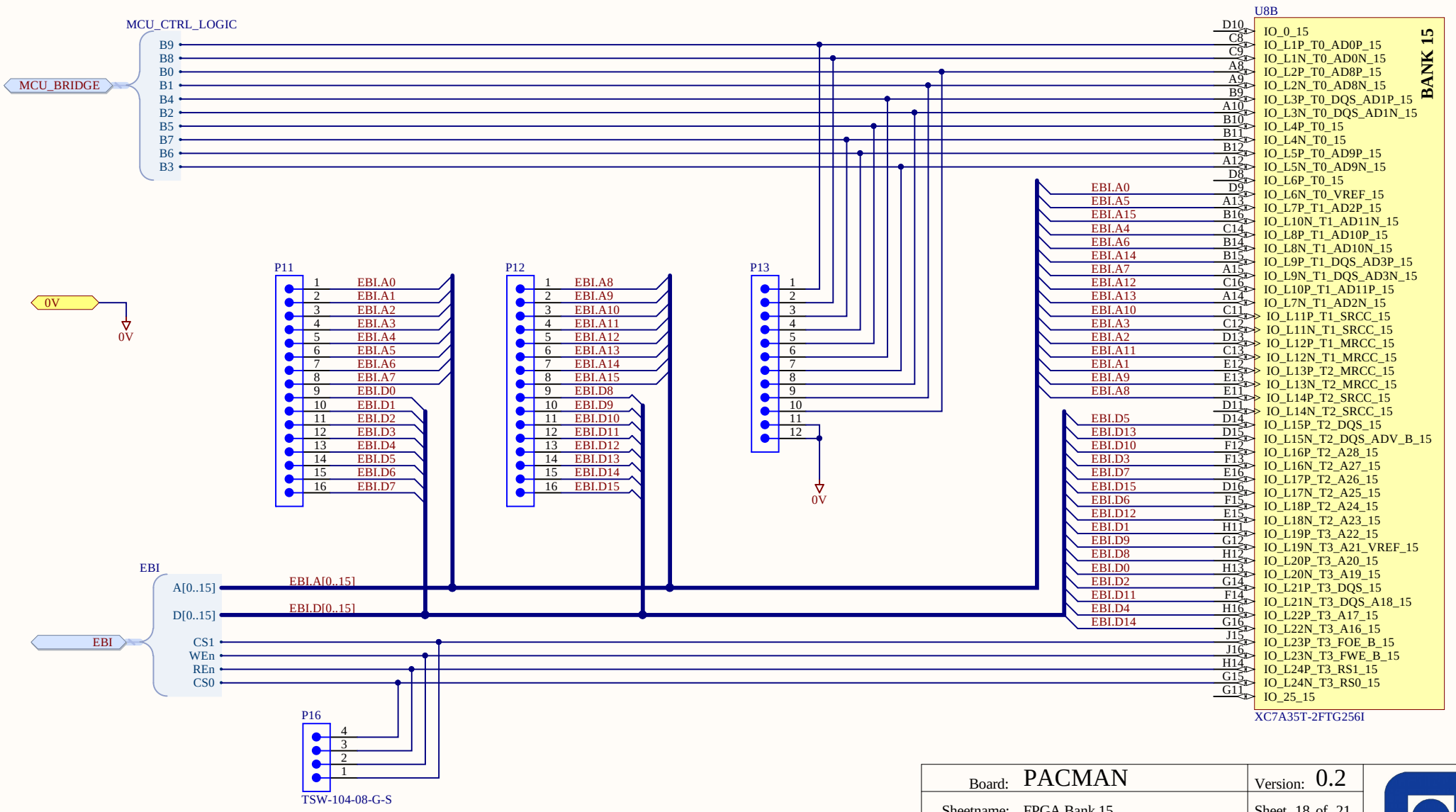
Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Bank 0	Sheet	15 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_bank0.SchDoc		



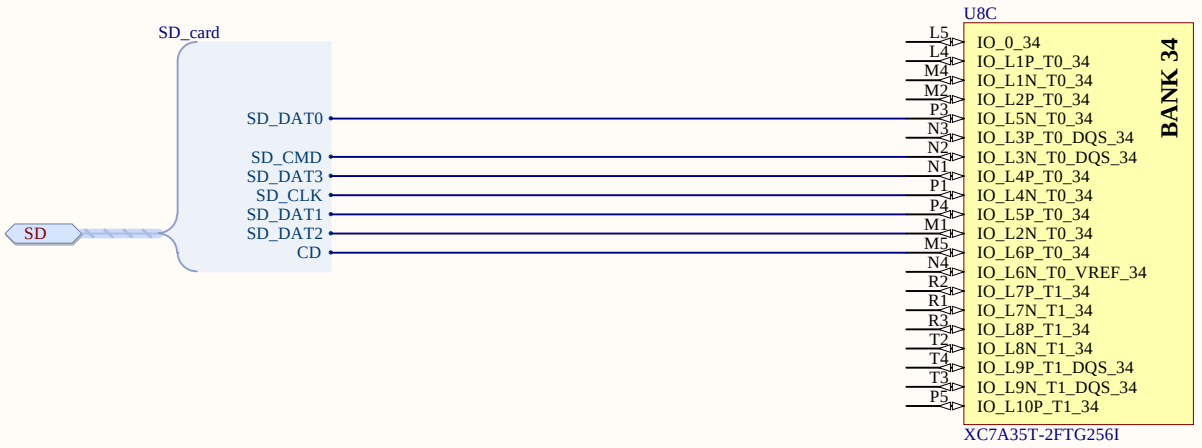
Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Bank 14	Sheet	16 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_bank14.SchDoc		



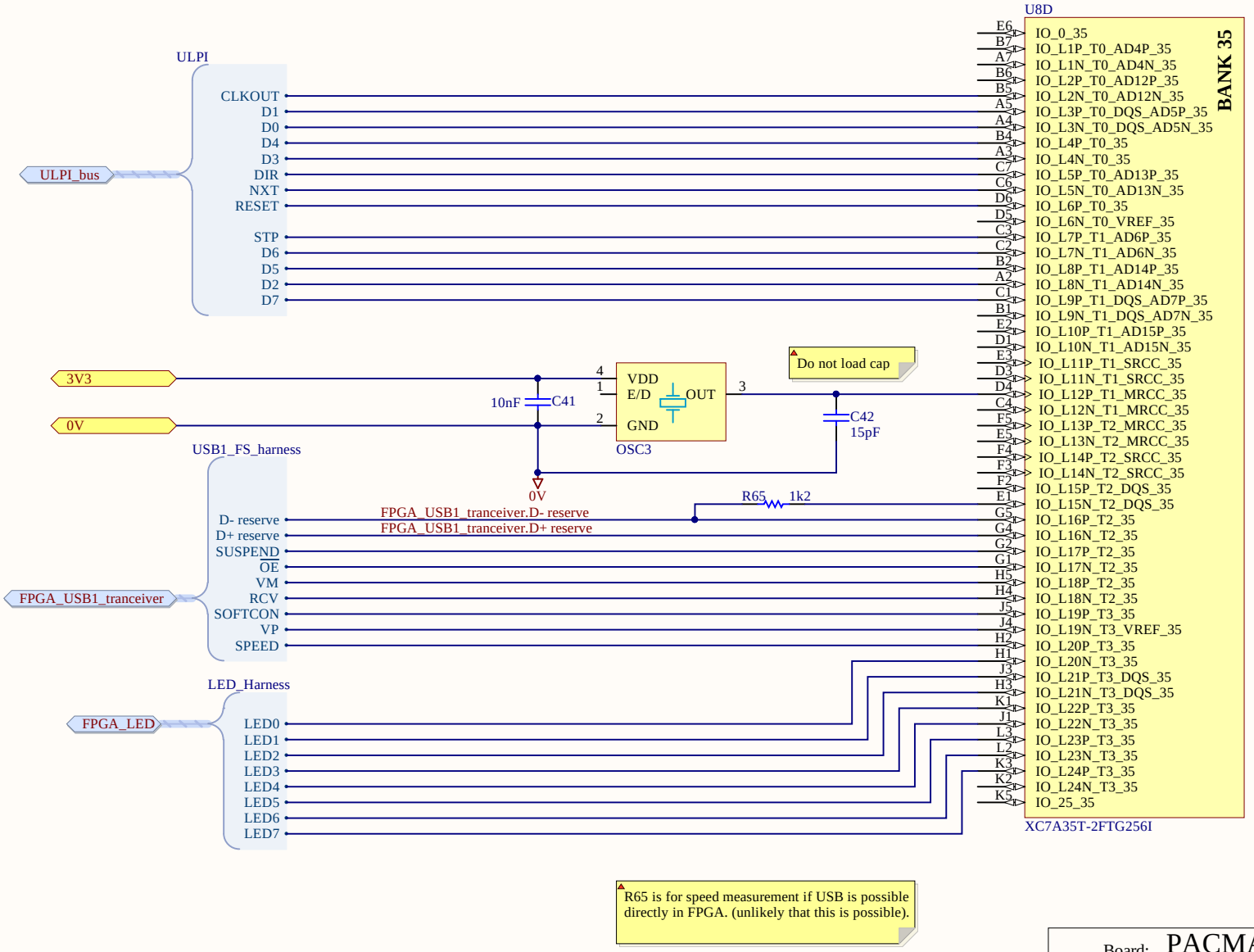
Board:	PACMAN	Version:	0.2
Sheetname:	FPGA IO Top level	Sheet	17 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_IO.SchDoc		



Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Bank 15	Sheet	18 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_bank15.SchDoc		

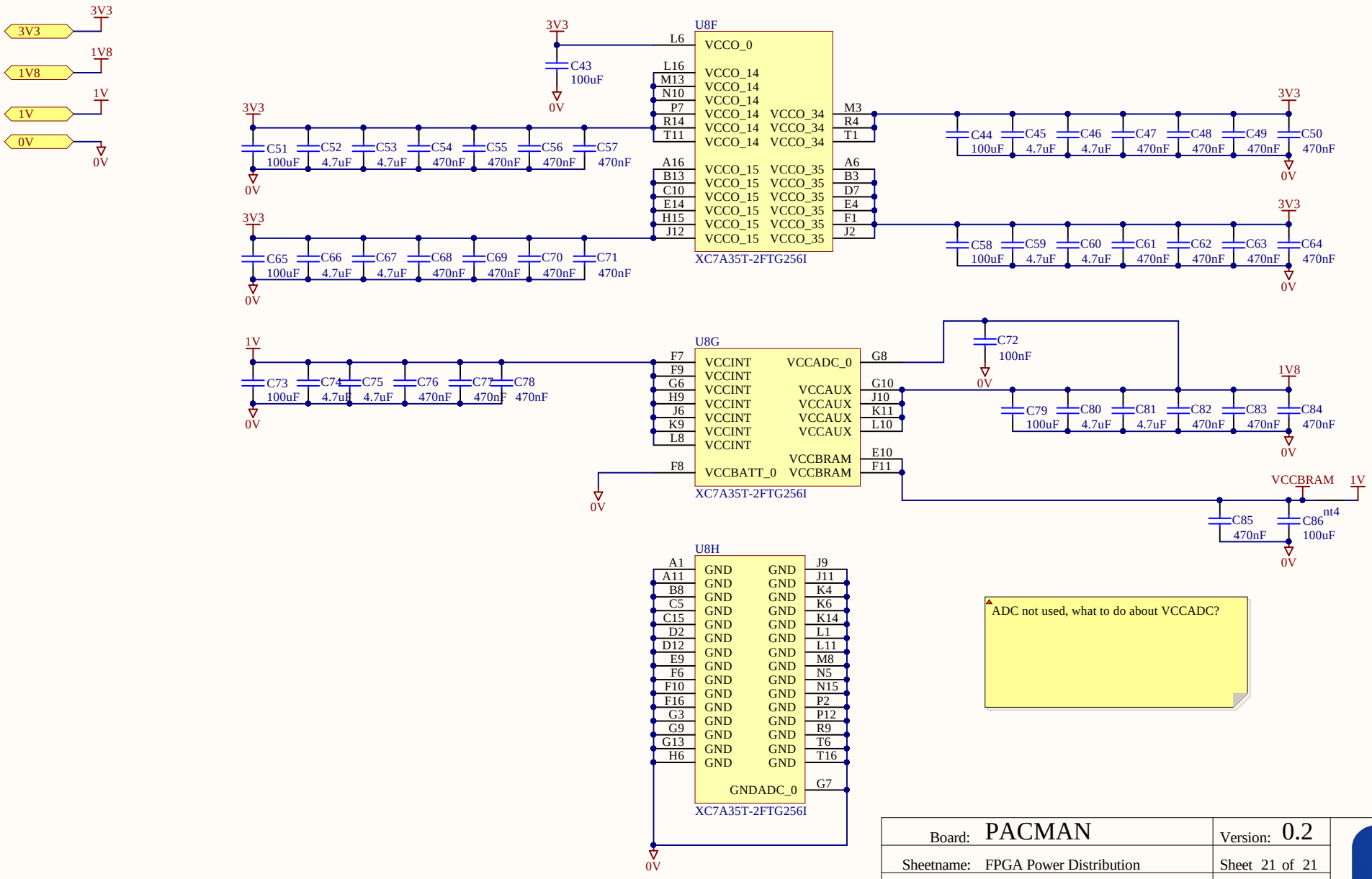


Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Bank 34	Sheet	19 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_bank34.SchDoc		



R65 is for speed measurement if USB is possible directly in FPGA. (unlikely that this is possible).

Board:	PACMAN	Version:	0.2
Sheetname:	FPGA Bank 35	Sheet	20 of 21
Subject:	TDT4295 Datamaskinprosjekt 2016	Group:	Ytelse
Shematic file:	XC7A35TFTG256_bank35.SchDoc		


3V3
1V8
1V
0V
U8F
XC7A35T-2FTG256I
C43 100uF
C51 100uF
C52 4.7uF
C53 4.7uF
C54 470nF
C55 470nF
C56 470nF
C57 470nF
C65 100uF
C66 4.7uF
C67 4.7uF
C68 470nF
C69 470nF
C70 470nF
C71 470nF
C44 100uF
C45 4.7uF
C46 4.7uF
C47 470nF
C48 470nF
C49 470nF
C50 470nF
C58 100uF
C59 4.7uF
C60 4.7uF
C61 470nF
C62 470nF
C63 470nF
C64 470nF
U8G
XC7A35T-2FTG256I
C73 100uF
C74 4.7uF
C75 4.7uF
C76 470nF
C77 470nF
C78 470nF
C72 100nF
C79 100uF
C80 4.7uF
C81 4.7uF
C82 470nF
C83 470nF
C84 470nF
VCCBRAM
C85 470nF
C86 100uF
U8H
XC7A35T-2FTG256I
ADC not used, what to do about VCCADC?
Board: PACMAN
Version: 0.2
Sheetname: FPGA Power Distribution
Sheet 21 of 21
Subject: TDT4295 Datamaskinprosjekt 2016
Group: Ytelse
Shematic file: XC7A35TFTG256_power.SchDoc