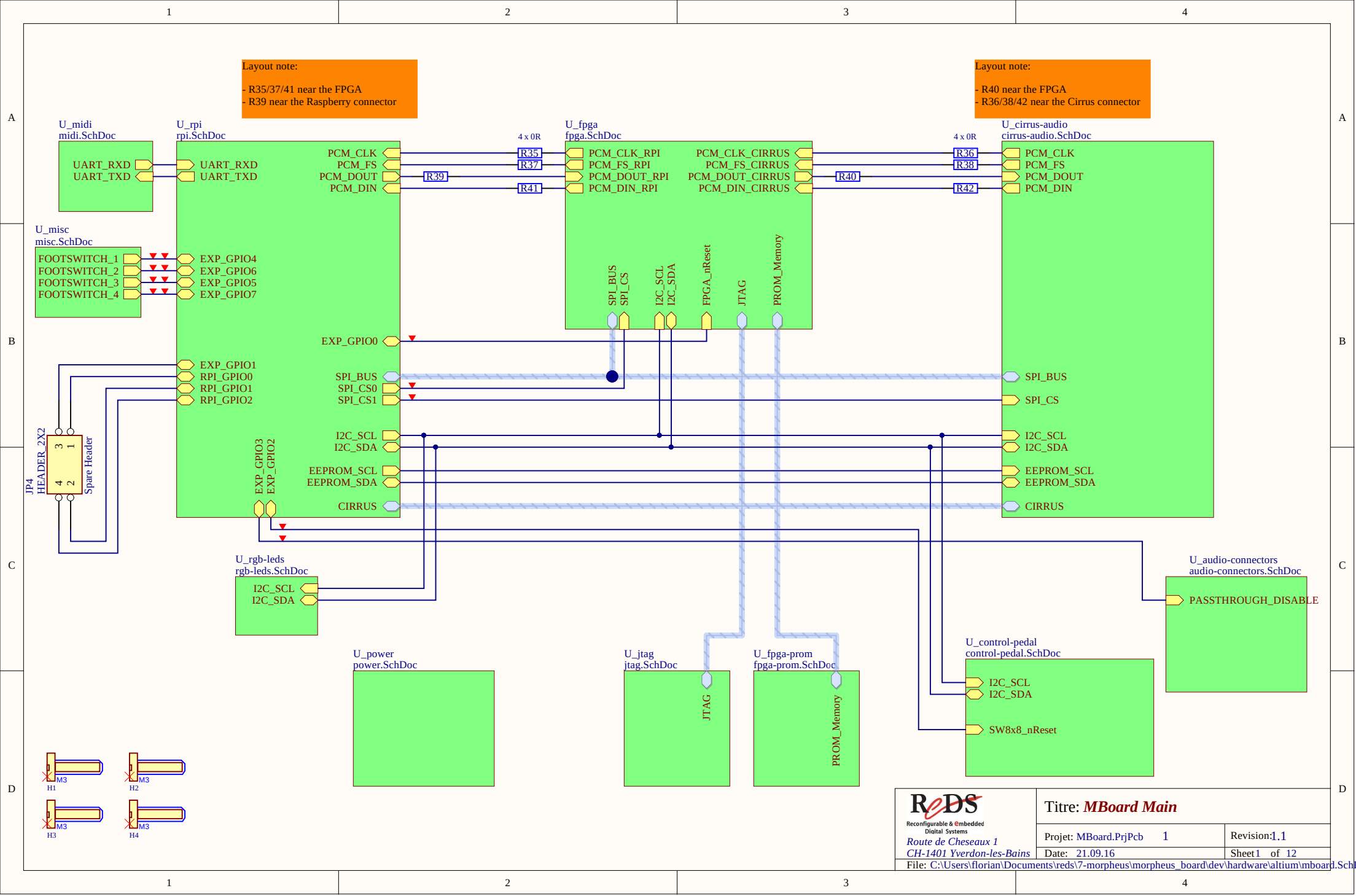
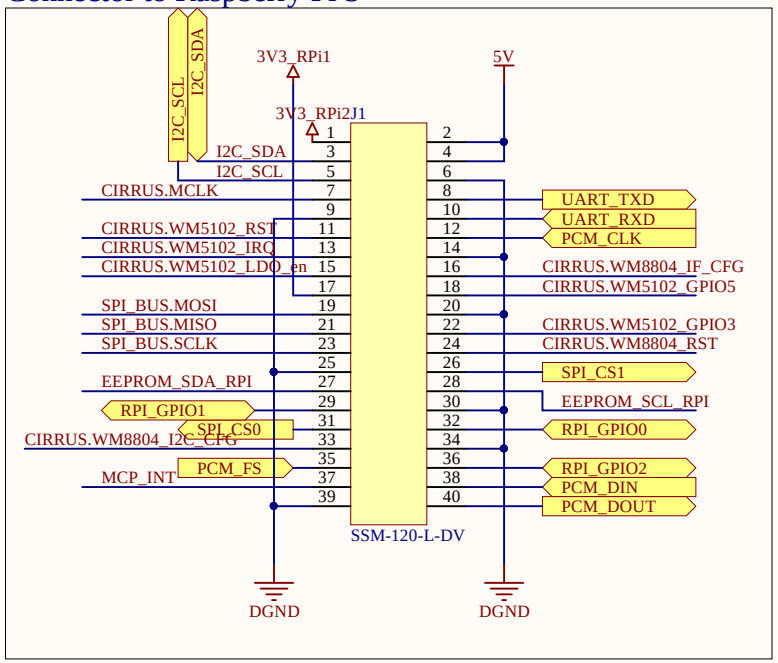
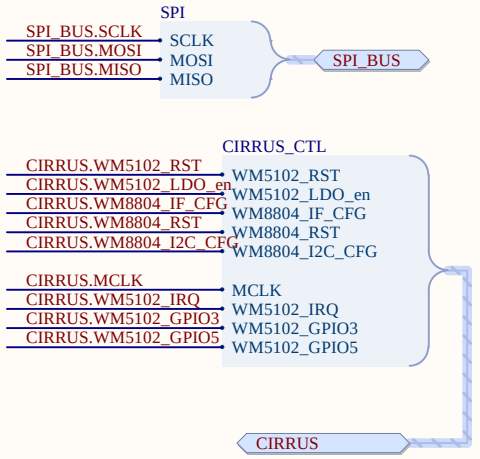

Layout note:
- R35/37/41 near the FPGA
- R39 near the Raspberry connector
Layout note:
- R40 near the FPGA
- R36/38/42 near the Cirrus connector
U_midi
midi.SchDoc
UART_RXD
UART_TXD
U_rpi
rpi.SchDoc
UART_RXD
UART_TXD
PCM_CLK
PCM_FS
PCM_DOUT
PCM_DIN
4 x 0R
R35
R37
R39
R41
U_fpga
fpga.SchDoc
PCM_CLK_RPI
PCM_FS_RPI
PCM_DOUT_RPI
PCM_DIN_RPI
PCM_CLK_CIRRUS
PCM_FS_CIRRUS
PCM_DOUT_CIRRUS
PCM_DIN_CIRRUS
4 x 0R
R36
R38
R40
R42
U_cirrus-audio
cirrus-audio.SchDoc
PCM_CLK
PCM_FS
PCM_DOUT
PCM_DIN
U_misc
misc.SchDoc
FOOTSWITCH_1
FOOTSWITCH_2
FOOTSWITCH_3
FOOTSWITCH_4
EXP_GPIO4
EXP_GPIO6
EXP_GPIO5
EXP_GPIO7
SPI_BUS
SPI_CS
I2C_SCL
I2C_SDA
FPGA_nReset
JTAG
PROM_Memory
EXP_GPIO0
EXP_GPIO1
RPI_GPIO0
RPI_GPIO1
RPI_GPIO2
SPI_BUS
SPI_CS0
SPI_CS1
I2C_SCL
I2C_SDA
EEPROM_SCL
EEPROM_SDA
CIRRUS
JP4
HEADER_2X2
Spare Header
EXP_GPIO3
EXP_GPIO2
U_rgb-leds
rgb-leds.SchDoc
I2C_SCL
I2C_SDA
U_audio-connectors
audio-connectors.SchDoc
PASSTHROUGH_DISABLE
U_power
power.SchDoc
U_jtag
jtag.SchDoc
JTAG
U_fpga-prom
fpga-prom.SchDoc
PROM_Memory
U_control-pedal
control-pedal.SchDoc
I2C_SCL
I2C_SDA
SW8x8_nReset
M3
H1
M3
H2
M3
H3
M3
H4
Titre: MBoard Main
Projet: MBoard.PrjPcb 1
Revision:1.1
Date: 21.09.16
Sheet 1 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\mboard.SchI

Connector to Raspberry Pi 3

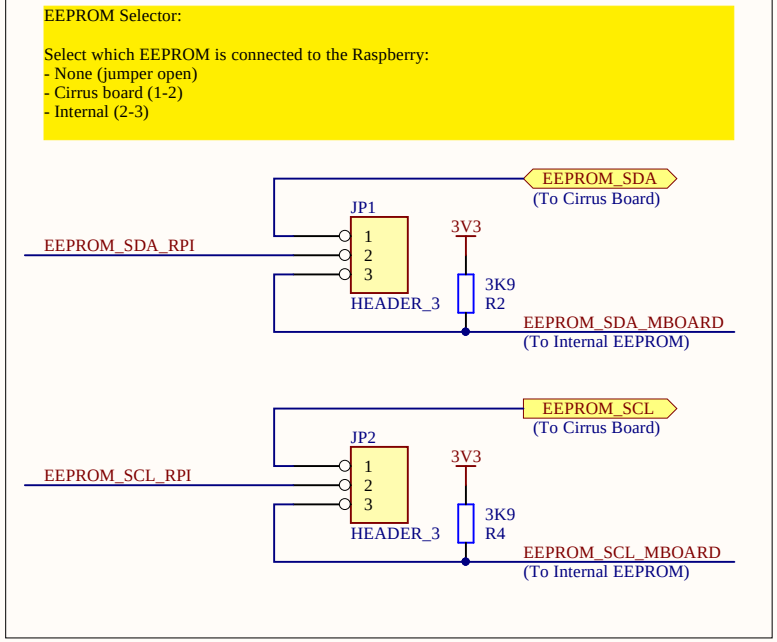




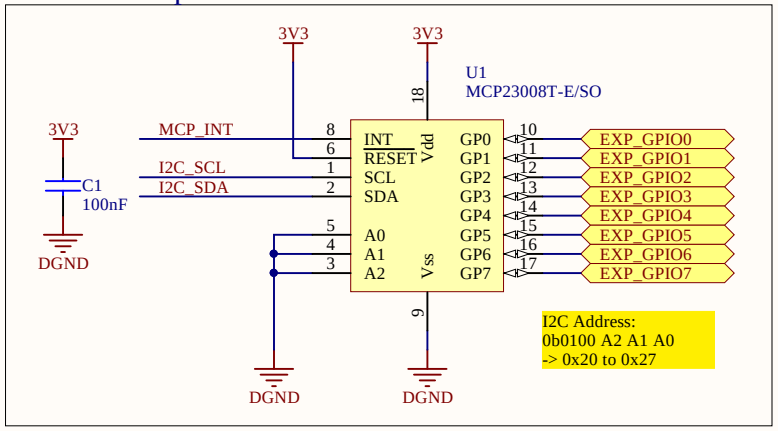
Linux Device Tree:

- SPI_CS0 changed from GPIO08 to GPIO06
- MCP_INT on GPIO26

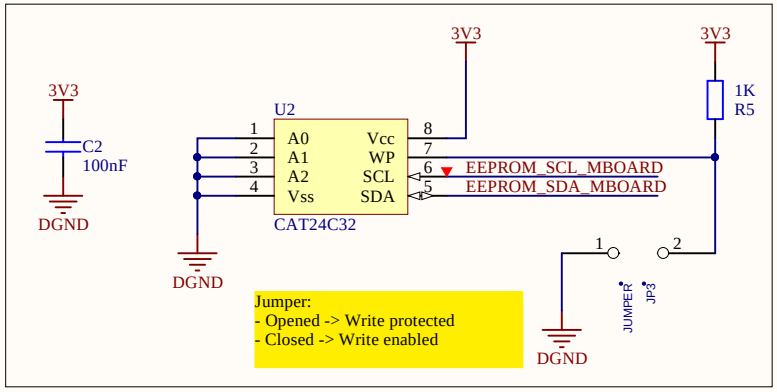
EEPROM Selector



I2C GPIO Expander



Internal EEPROM

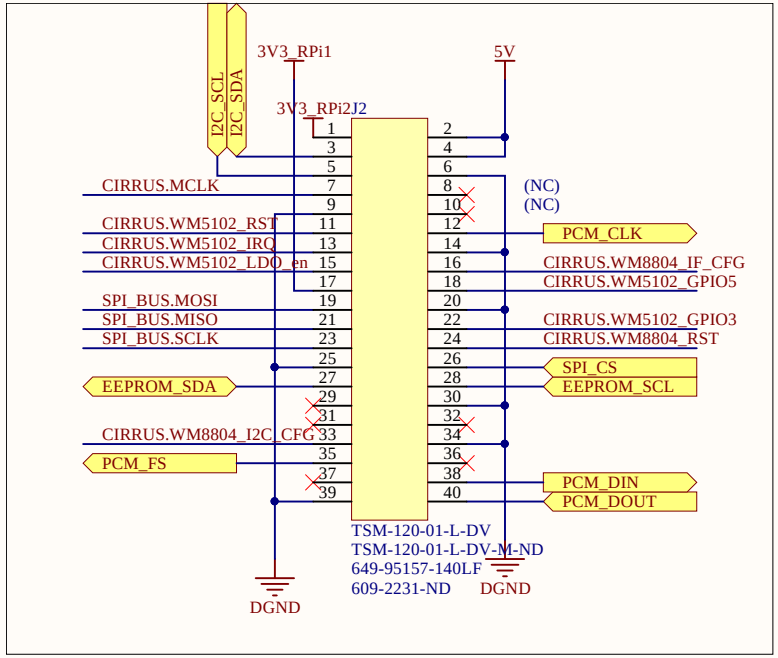


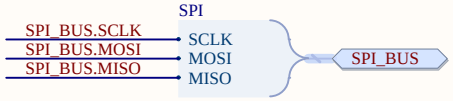
RDS Reconfigurable & embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

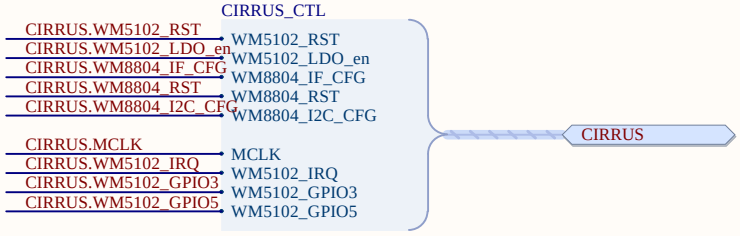
Titre: ***Raspberry PI Interface***

Projet: MBoard.PrjPcb 2 | Revision: 1.1
Date: 21.09.16 | Sheet 2 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\rpi.SchDoc

Connector to Cirrus Audio







Free pins
=======

- #29 -> only routed to Cirrus J2.14 connector
- #31 -> only routed to Cirrus J2.17 connector
- #32 -> only routed to Cirrus J2.18 connector
- #36 -> only routed to Cirrus J2.19 connector
- #37 -> only routed to Cirrus J2.20 connector

Reconfigurable & Embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

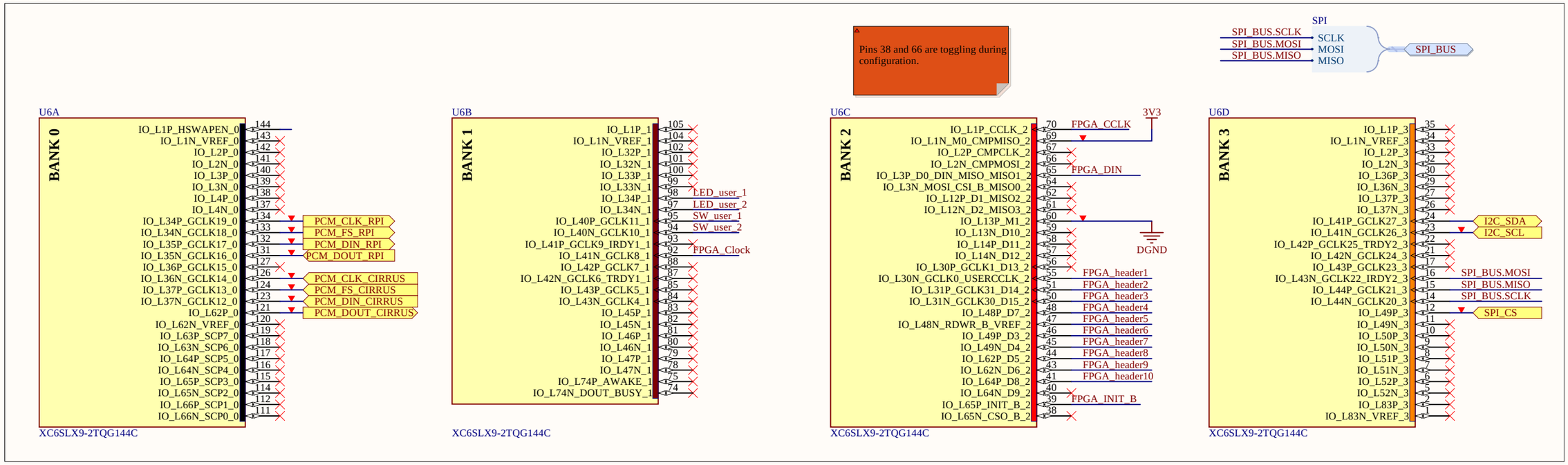
Titre: ***Cirrus Audio Board***

Projet: MBoard.PrjPcb 3 | Revision: 1.1

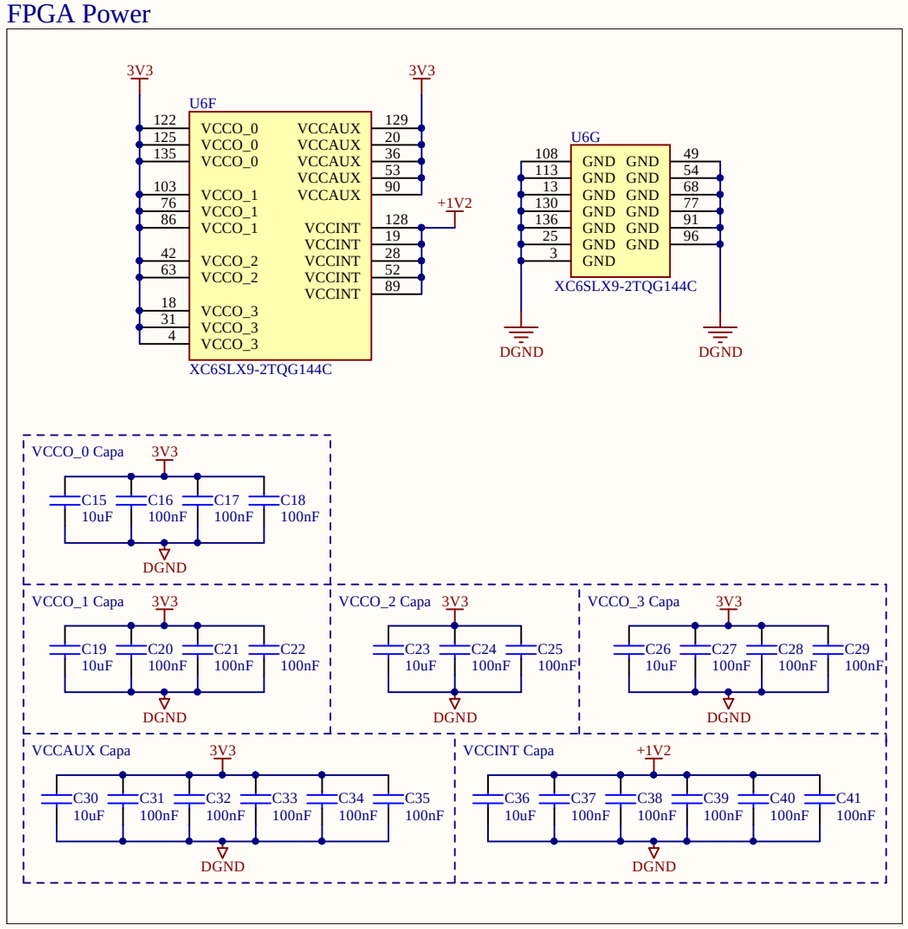
Date: 21.09.16 | Sheet 3 of 12

File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\cirrus-audio.

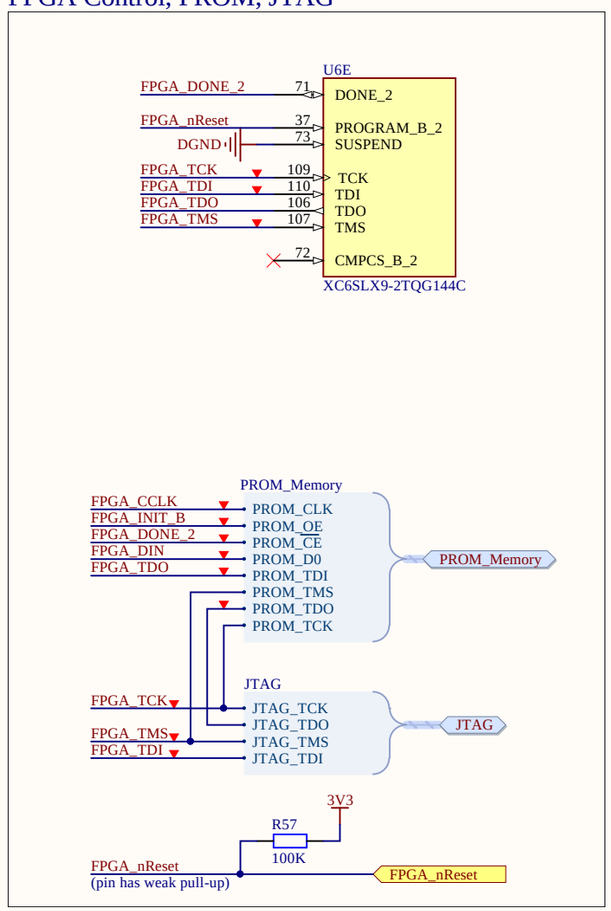
FPGA IO Banks



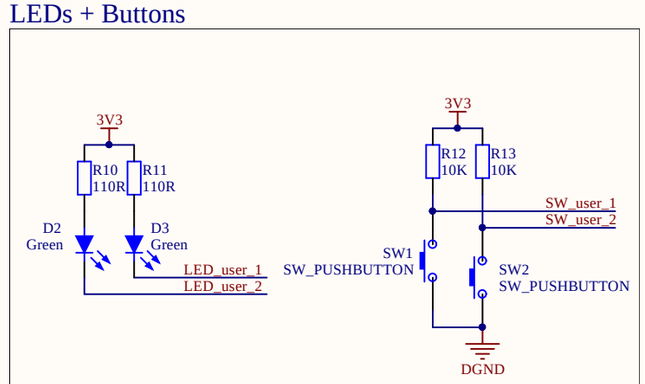
FPGA Power



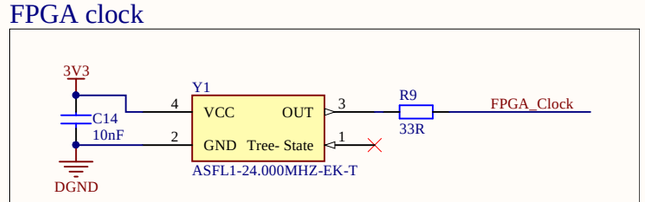
FPGA Control, PROM, JTAG



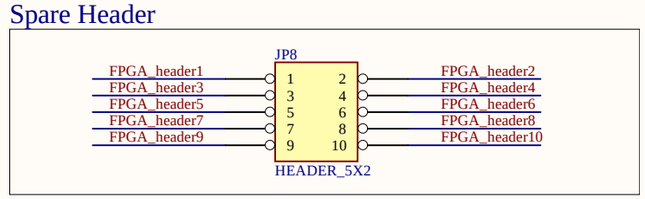
LEDs + Buttons



FPGA clock

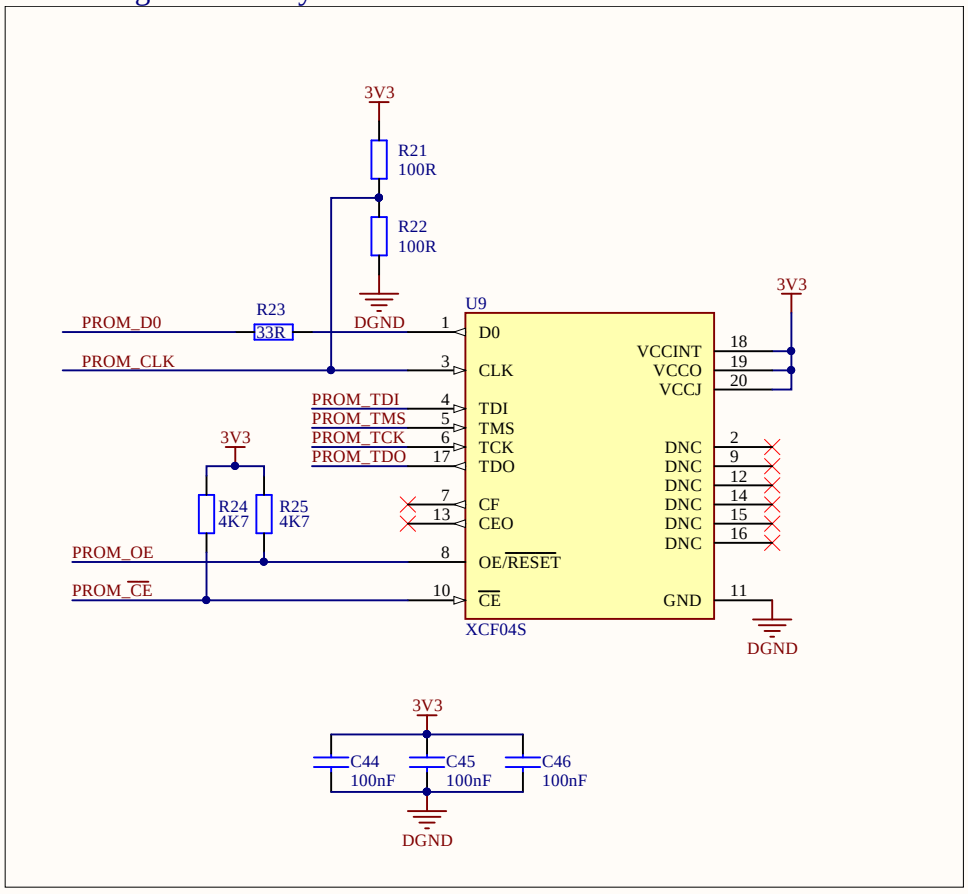


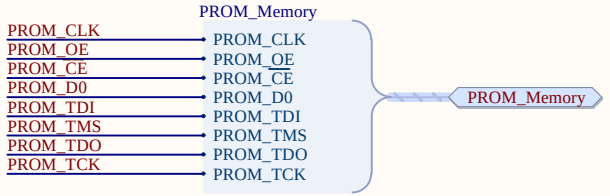
Spare Header



RDS Reconfigurable & Embedded Digital Systems *Route de Cheseaux 1* *CH-1401 Yverdon-les-Bains*	Titre: ***FPGA (Spartan 6)***	
	Projet: MBoard.PrjPcb 4	Revision:1.1
	Date: 21.09.16	Sheet4 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\fpga.SchDoc		

FPGA Program Memory



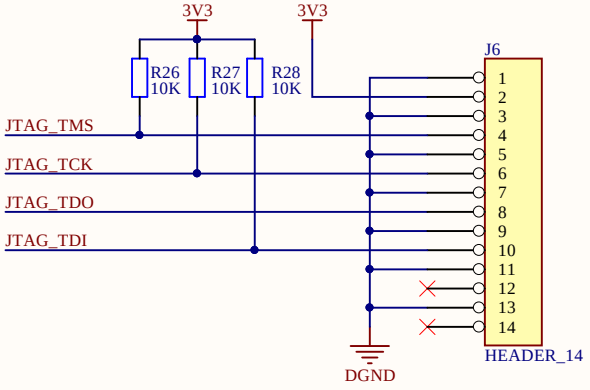


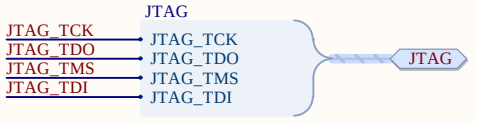
Titre: *FPGA Program Memory*		
Projet: MBoard.PrjPcb 5		Revision: 1.1
Date: 21.09.16		Sheet 5 of 12

Reconfigurable & Embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\fpga-prom.S

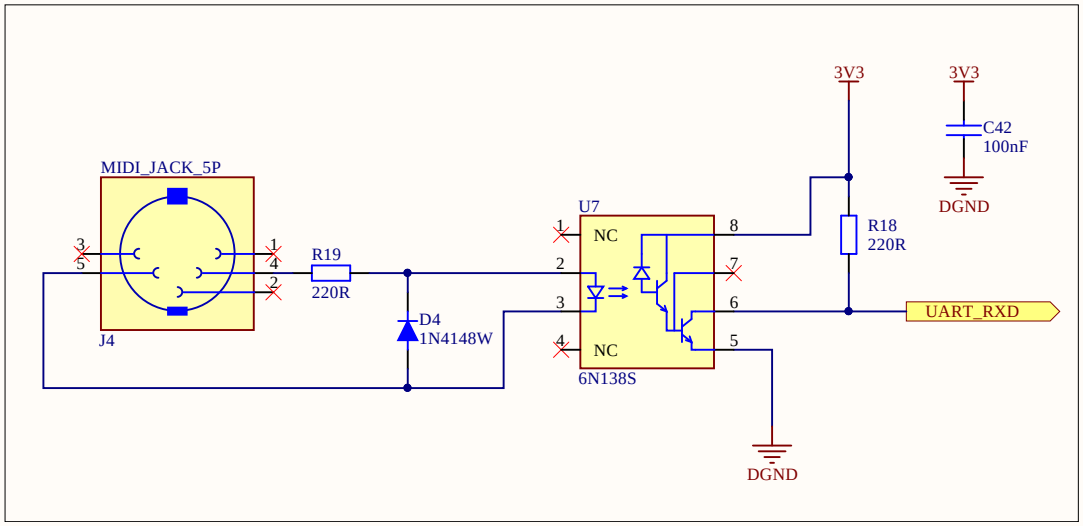
FPGA 14p JTAG Header



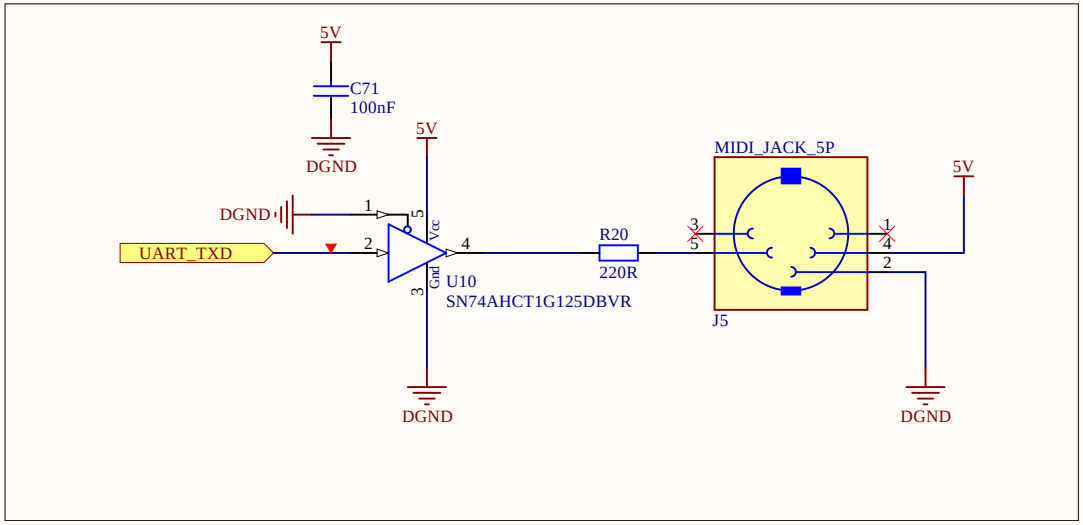


Reconfigurable & embedded Digital Systems *Route de Cheseaux 1* *CH-1401 Yverdon-les-Bains*	Titre: ***JTAG***	
	Projet: MBoard.PrjPcb 6	Revision:1.1
	Date: 21.09.16	Sheet6 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\jtag.SchDoc		

MIDI in



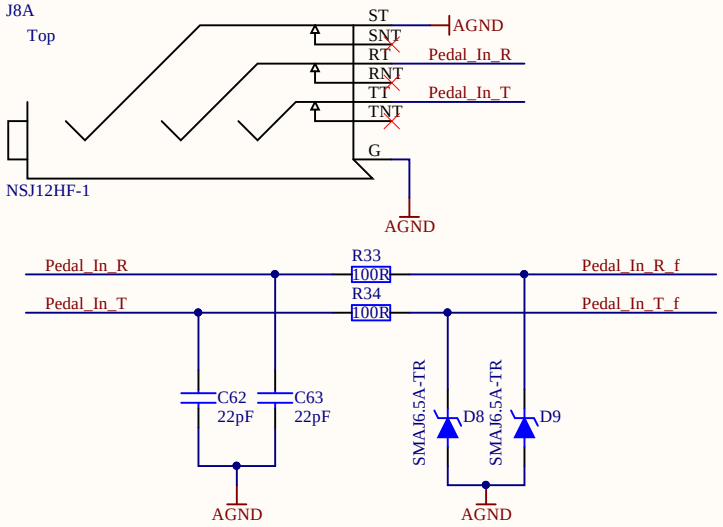
MIDI out



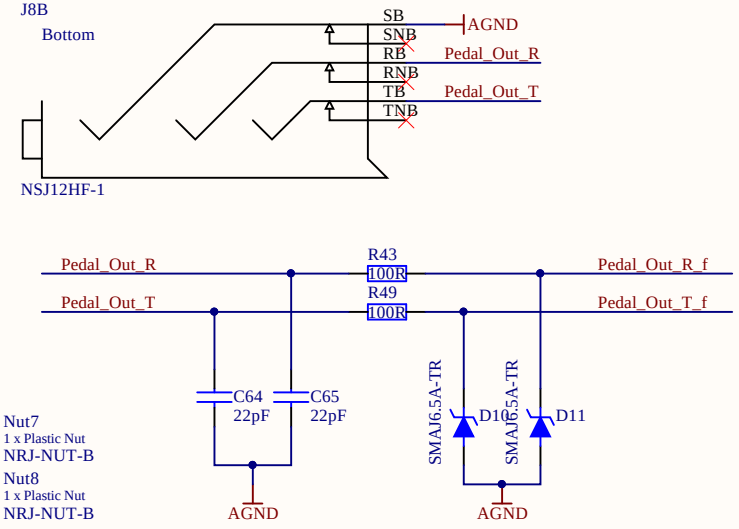
RDS Reconfigurable & embedded Digital Systems *Route de Cheseaux 1* *CH-1401 Yverdon-les-Bains*	Titre: ***MIDI Interface***	
	Projet: MBoard.PrjPcb 7	Revision:1.1
	Date: 21.09.16	Sheet 7 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\midi.SchDoc		

I2C_SCL
I2C_SDA
SW8x8_nReset

Control Pedal In



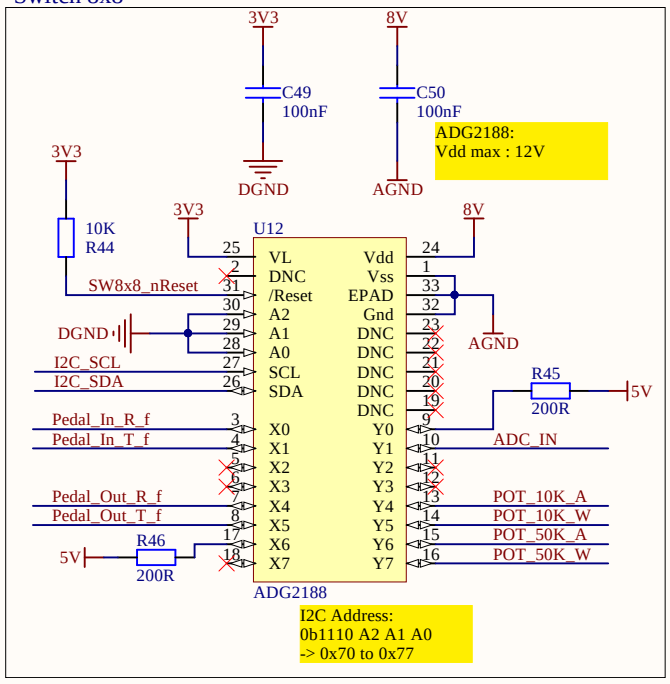
Control Pedal Out



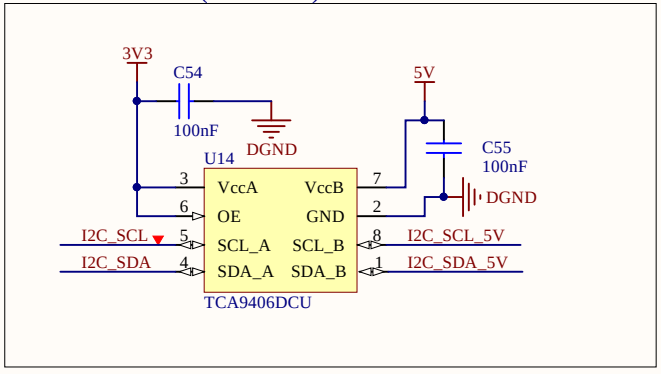
Nut7
1 x Plastic Nut
NRJ-NUT-B

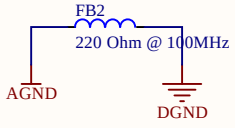
Nut8
1 x Plastic Nut
NRJ-NUT-B

Switch 8x8

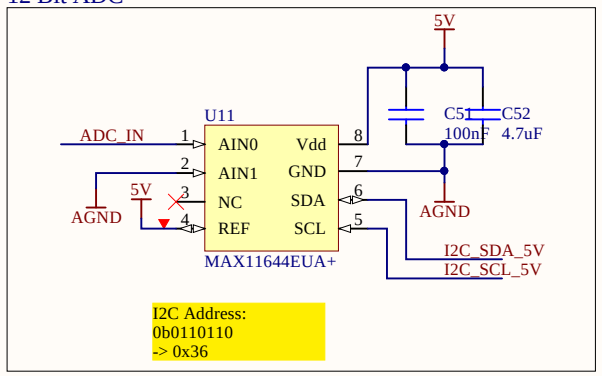


I2C level translator (3V3 -> 5V)

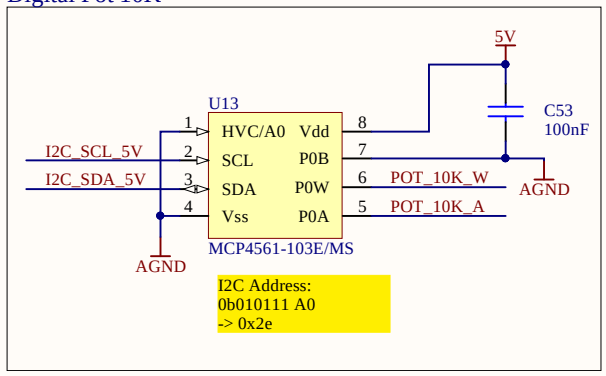




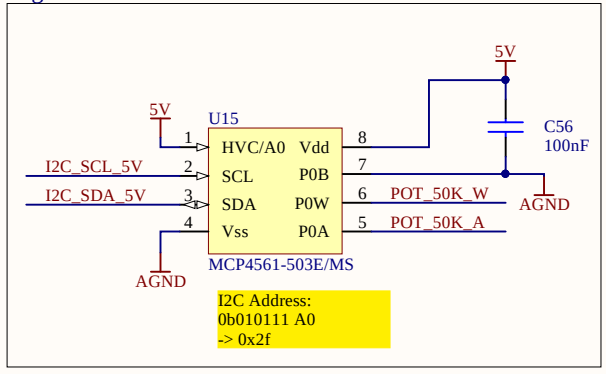
12 Bit ADC



Digital Pot 10K



Digital Pot 50K



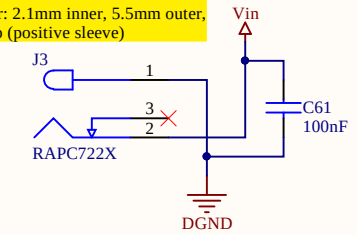
RDS
Reconfigurable & Embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

Titre: ***Control Pedal Interface***

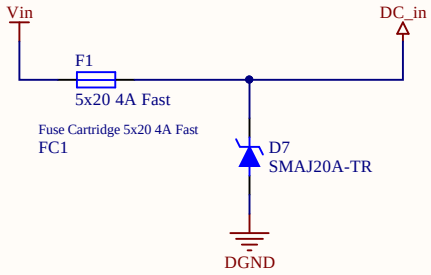
Projet: MBoard.PrjPcb 8 | Revision: 1.1
Date: 21.09.16 | Sheet 8 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\control-peda

DC connector (2.1mm pin)

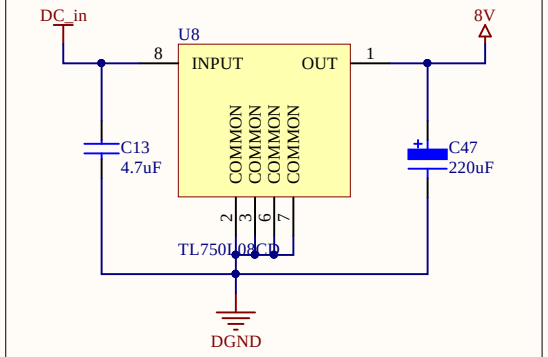
Power supply requirements:
- 9V to 20V
- 15W
- Connector: 2.1mm inner, 5.5mm outer, negative tip (positive sleeve)



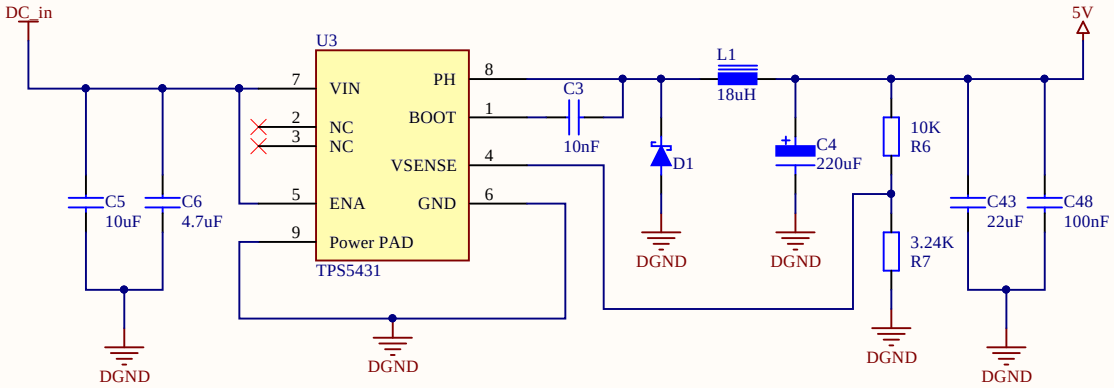
Fuse (4A) and overvoltage protection (20V)



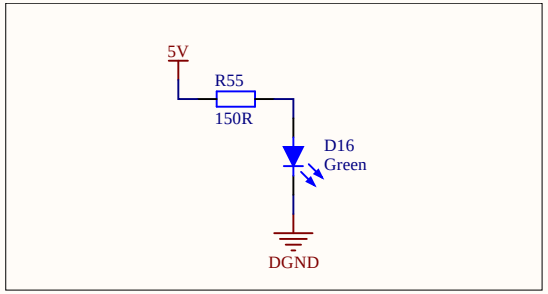
9-26V to 8V LDO (max 150mA)



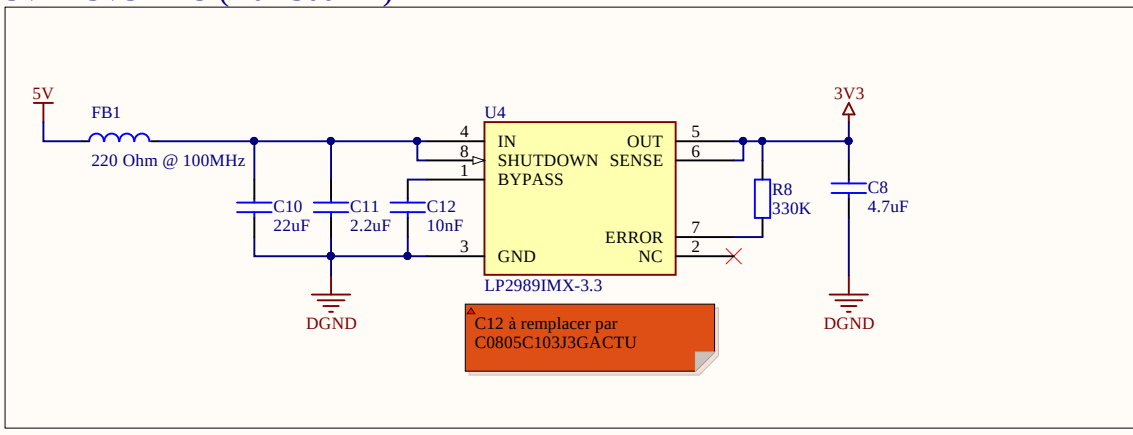
9V-21V to 5V DC/DC (max 3A)



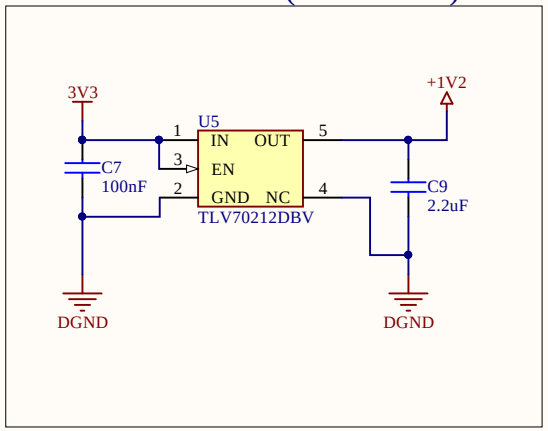
5V LED indicator



5V -> 3V3 LDO (max 500mA)

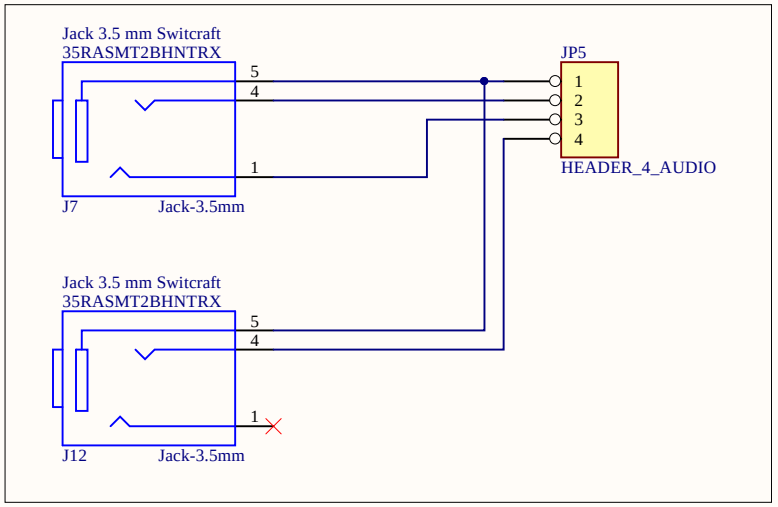


FPGA VCCINT 1.2V (max 300mA)

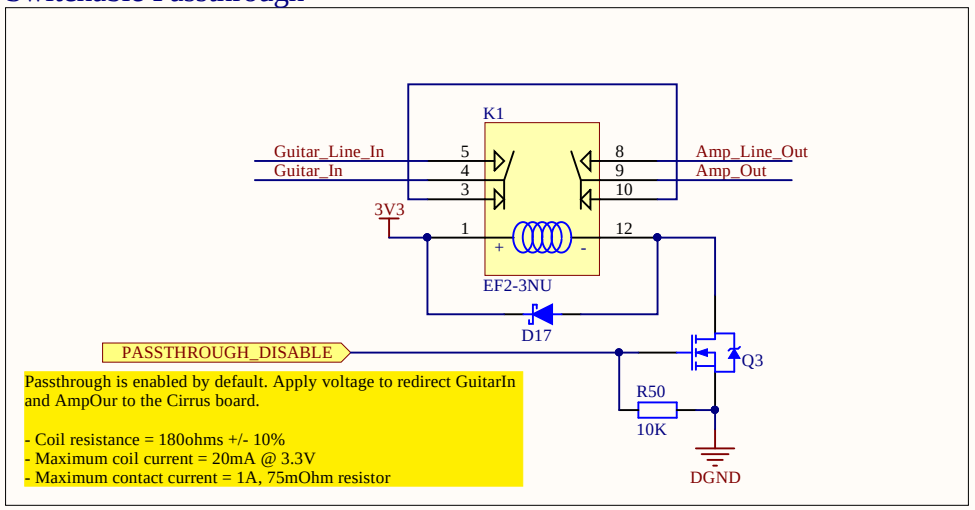


RDS Reconfigurable & Embedded Digital Systems Route de Cheseaux 1 CH-1401 Yverdon-les-Bains	Titre: **Power Management**	
	Projet: MBoard.PrjPcb 9	Revision:1.1
	Date: 21.09.16	Sheet9 of 12
File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\power.SchD		

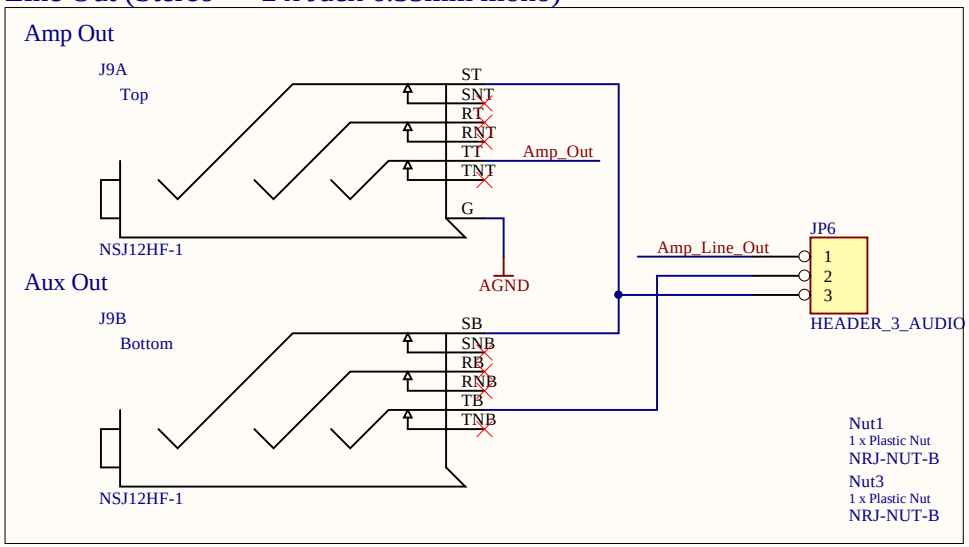
Headset + Mic In



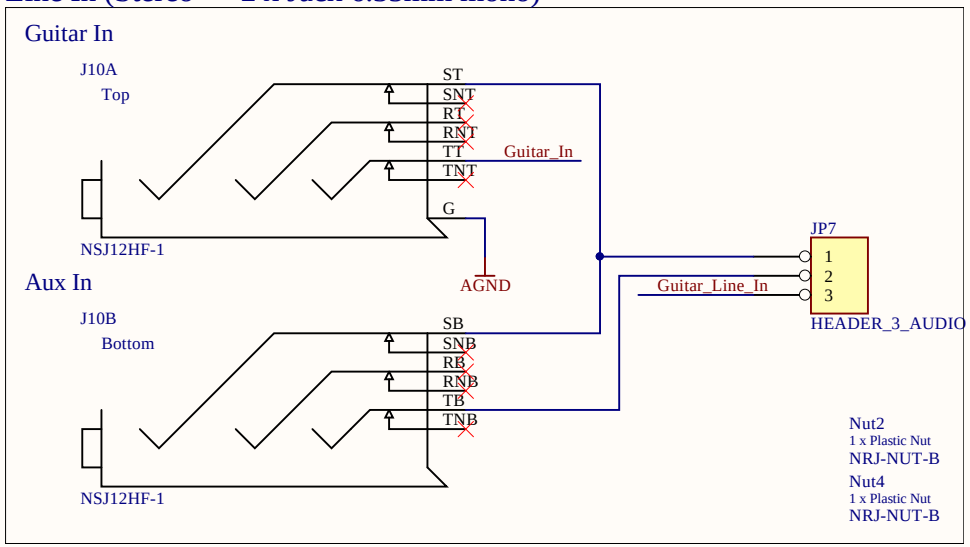
Switchable Passthrough



Line Out (Stereo → 2 x Jack 6.35mm mono)



Line In (Stereo → 2 x Jack 6.35mm mono)



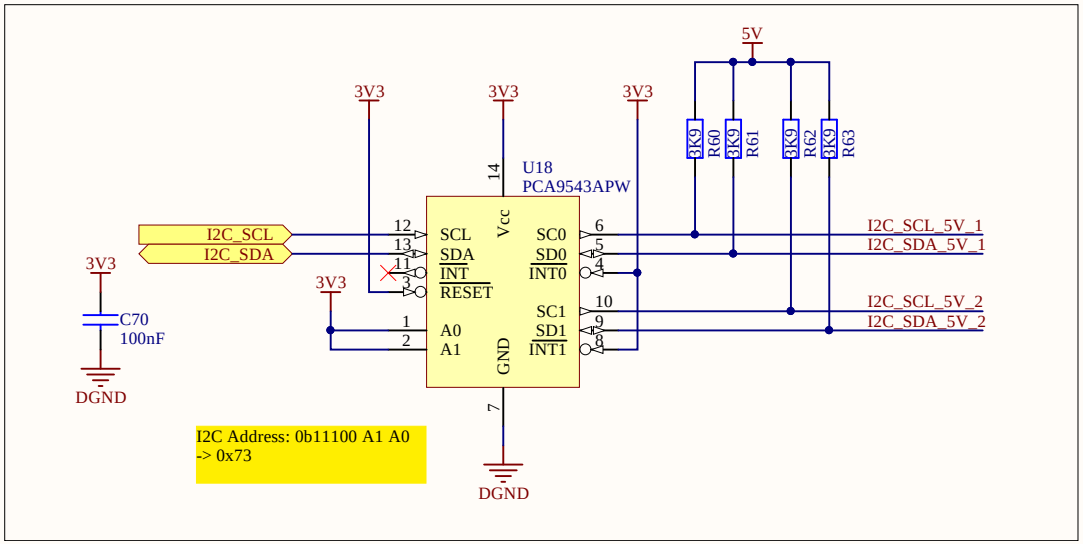
Reconfigurable & Embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

Titre: ***Audio Connectors***

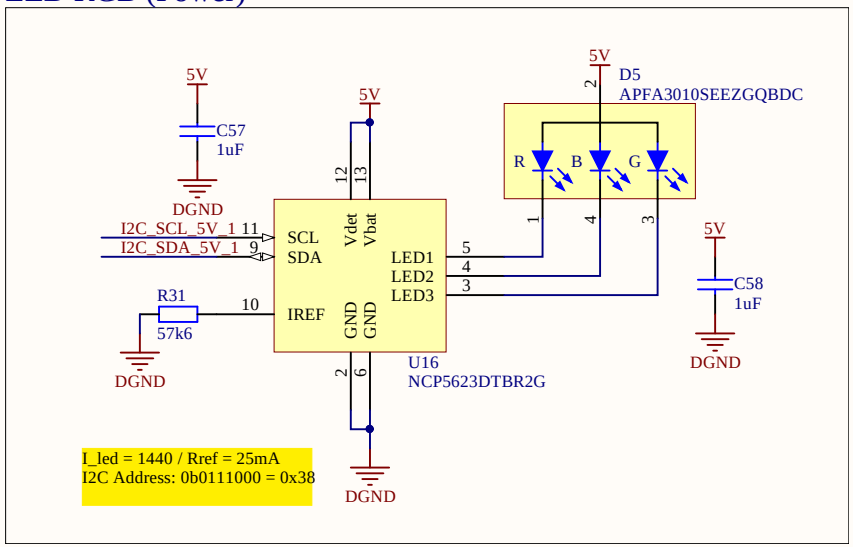
Projet: MBoard.PrjPcb 10	Revision:1.1
Date: 21.09.16	Sheet 10 of 12

File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\audio-conne

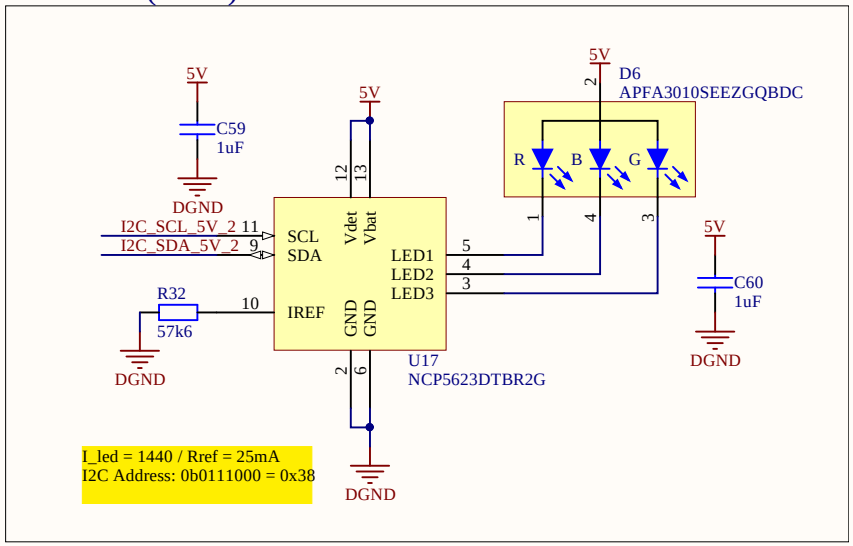
I2C Bus Switch with 5V Level Translation



LED RGB (Power)



LED RGB (Level)



Reconfigurable & Embedded Digital Systems
Route de Cheseaux 1
CH-1401 Yverdon-les-Bains

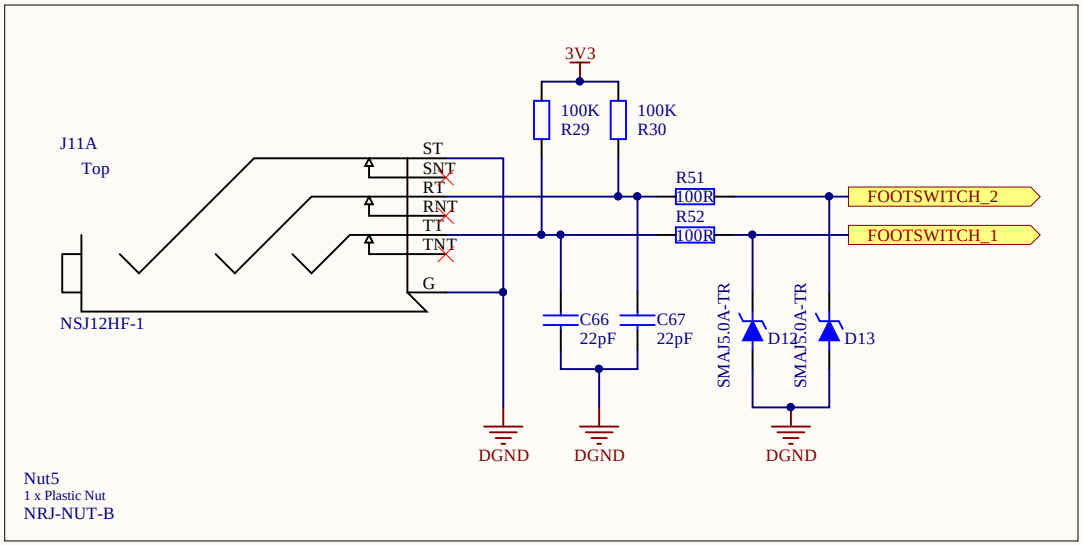
Titre: ***RGB LEDs***

Projet: MBoard.PrjPcb 11 | Revision: 1.1

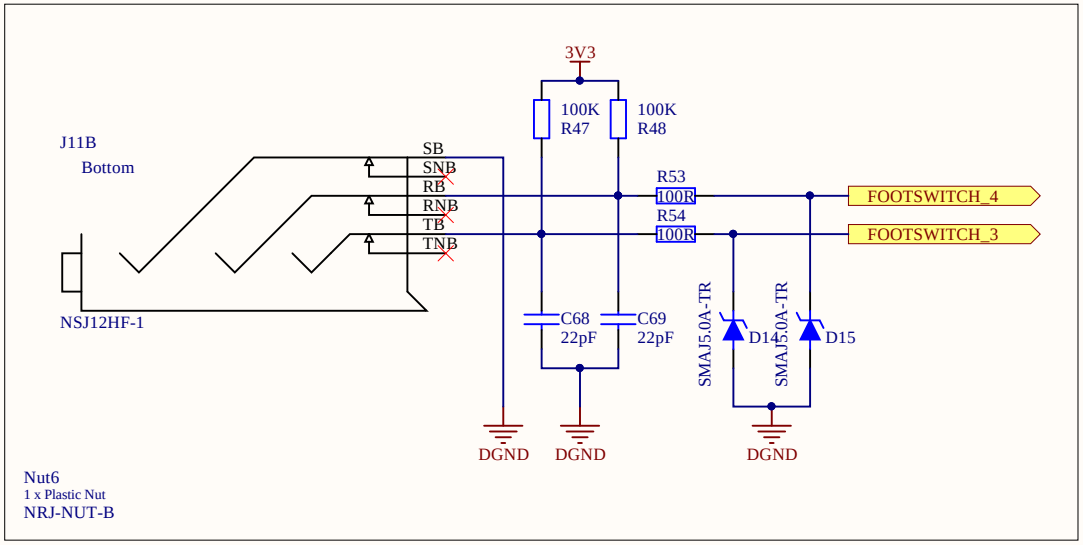
Date: 21.09.16 | Sheet 11 of 12

File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\rgb-leds.Sch

Dual Footswitch 1



Dual Footswitch 2



Reconfigurable & embedded Digital Systems *Route de Cheseaux 1* *CH-1401 Yverdon-les-Bains*	Titre: ***Misc Components***	
	Projet: MBoard.PrjPcb 12	Revision:1.1
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File: C:\Users\florian\Documents\reds\7-morpheus\morpheus_board\dev\hardware\altium\misc.SchDoc		