STM32H735G-DK

MB1520

Table of contents

Sheet 1: Project overview (this page)

Sheet 2: TOP

Sheet 3: STM32 microcontroller IOs

Sheet 4: STM32 microcontroller Power

Sheet 5: Ethernet

Sheet 6: PoE

Sheet 7: USB OTG FS

Sheet 8: FDCAN

Sheet 9: OCSPI

Sheet 10: HyperRAM

Sheet 11: microSD CARD

Sheet 12: LCD

Sheet 13: Audio

Sheet 14: STMod+

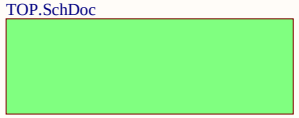
Sheet 15: TAG

Sheet 16: Arduino Connector

Sheet 17: STLINK-V3E SWD Module

Sheet 18: STLINK-V3E Power

Top
TOP.SchDoc



Legend

General comment such as function title, configuration, ...

Text to be added to silkscreen.

Warning text.

Notes to generate the board layout.

OPEN PLATFORM LICENSE AGREEMENT

The Open Platform License Agreement (“Agreement”) is a binding legal contract between you ("You") and STMicroelectronics International N.V. (“ST”), a company incorporated under the laws of the Netherlands acting for the purpose of this Agreement through its Swiss branch 39, Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva, Switzerland.

By using the enclosed reference designs, schematics, PC board layouts, and documentation, in hardcopy or CAD tool file format (collectively, the “Reference Material”), You are agreeing to be bound by the terms and conditions of this Agreement. Do not use the Reference Material until You have read and agreed to this Agreement terms and conditions. The use of the Reference Material automatically implies the acceptance of the Agreement terms and conditions.

The complete Open Platform License Agreement can be found on www.st.com/opla.

Title: **Project overview**			
Project: **STM32H735G-DK**			
Variant: H735I			
Revision: B-02		Reference: MB1520	
Size: A4	Date: 02-APR-20	Sheet: 1 of 19	

life.augmented

STlink_V3E_PWR
STlink_V3E_PWR.SchDoc
T_PWR_EN

STlink_V3E_Module
STlink_V3E_Module.SchDoc
T_PWR_EN
JTMS
JTCK
JTDO/TRACESWO
JTDI
T_VCP_TX
T_VCP_RX
NRST

TAG
TAG.SchDoc
JTDI
NJTRST
NRST
JTMS
JTCK
JTDO/TRACESWO

U_HyperRAM
HyperRAM.SchDoc
NRST
OCSPI2_CLK
OCSPI2_NCS
OCSPI2_DQS
OCSPI2_IO0
OCSPI2_IO1
OCSPI2_IO2
OCSPI2_IO3
OCSPI2_IO4
OCSPI2_IO5
OCSPI2_IO6
OCSPI2_IO7

U_OCSPI
OCSPI.SchDoc
NRST
OCSPI1_NCS
OCSPI1_CLK
OCSPI1_DQS
OCSPI1_IO0
OCSPI1_IO1
OCSPI1_IO2
OCSPI1_IO3
OCSPI1_IO4
OCSPI1_IO5
OCSPI1_IO6
OCSPI1_IO7

U_SD CARD
SD CARD.SchDoc
SDIO1_D0
SDIO1_D1
SDIO1_D2
SDIO1_D3
SDIO1_CMD
SDIO1_CK
uSD_Detect

FDCANs
FDCAN.SchDoc
FDCAN1_TX
FDCAN1_RX
FDCAN2_TX
FDCAN2_RX
FDCAN3_TX
FDCAN3_RX

U_Ethernet
Ethernet.SchDoc
NRST
RMII_MDIO
RMII_MDC
RMII_RXD0
RMII_RXD1
RMII_RX_ER
RMII_CRS_DV
RMII_TX_EN
RMII_TXD0
RMII_TXD1
RMII_REF_CLK
OSC_25M

U_MCU
STM32 microcontroller IOs.SchDoc
T_VCP_TX
T_VCP_RX
NRST
JTDI
NJTRST
JTMS
JTCK
JTDO/TRACESWO
OCSPI2_CLK
OCSPI2_NCS
OCSPI2_DQS
OCSPI2_IO0
OCSPI2_IO1
OCSPI2_IO2
OCSPI2_IO3
OCSPI2_IO4
OCSPI2_IO5
OCSPI2_IO6
OCSPI2_IO7
OCSPI1_NCS
OCSPI1_CLK
OCSPI1_DQS
OCSPI1_IO0
OCSPI1_IO1
OCSPI1_IO2
OCSPI1_IO3
OCSPI1_IO4
OCSPI1_IO5
OCSPI1_IO6
OCSPI1_IO7
SDIO1_D0
SDIO1_D1
SDIO1_D2
SDIO1_D3
SDIO1_CMD
SDIO1_CK
uSD_Detect
FDCAN1_TX
FDCAN1_RX
FDCAN2_TX
FDCAN2_RX
FDCAN3_TX
FDCAN3_RX
RMII_MDIO
RMII_MDC
RMII_RXD0
RMII_RXD1
RMII_RX_ER
RMII_CRS_DV
RMII_TX_EN
RMII_TXD0
RMII_TXD1
RMII_REF_CLK
OSC_25M
LCD_R[0..7]
LCD_G[0..7]
LCD_B[0..7]
LCD_HSYNC
LCD_VSYNC
LCD_CLK
LCD_DE
CTP_INT
LCD_BL_CTRL
LCD_DISP
LCD_RST
SAI1_SD_A
Audio_Int
SAI4_CK2
SAI4_D2
USB_FS_PWR_EN
USB_FS_OVCR
USB_FS_DM
USB_FS_DP
USB_FS_ID
ARD_A[0..5]
ARD_D[0..9]
WAKEUP
USER_LED1
USER_LED2
STMOD#1
STMOD#2
STMOD#3
STMOD#4
STMOD#7-SCL
STMOD#10-SDA
STMOD#8-MOSIs
STMOD#9-MISOs
STMOD#11-INT
STMOD#12-RST
STMOD#13-ADC
STMOD#14-PWM
STMOD#17
STMOD#18
STMOD#19
STMOD#20
DETECTn
MEMS_LED

U_LCD
LCD.SchDoc
LCD_R[0..7]
LCD_G[0..7]
LCD_B[0..7]
I2C4_SDA
I2C4_SCL
LCD_HSYNC
LCD_VSYNC
LCD_CLK
LCD_DE
CTP_INT
LCD_BL_CTRL
LCD_DISP
LCD_RST
NRST

Audio
Audio.SchDoc
SAI1_FS_B
SAI1_SCK_B
SAI1_MCLK_B
SAI1_SD_B
SAI1_SD_A
Audio_Int
SAI4_CK2
SAI4_D2
I2C4_SCL
I2C4_SDA

USB_OTG_FS
USB OTG FS.SchDoc
USB_FS_PWR_EN
USB_FS_OVCR
USB_FS_DM
USB_FS_DP
USB_FS_ID

Arduino
Arduino Connector.SchDoc
NRST
ARD_A[0..5]
ARD_D[0..9]
ARD_D10
ARD_D11
ARD_D12
ARD_D13
ARD_D15
ARD_D14

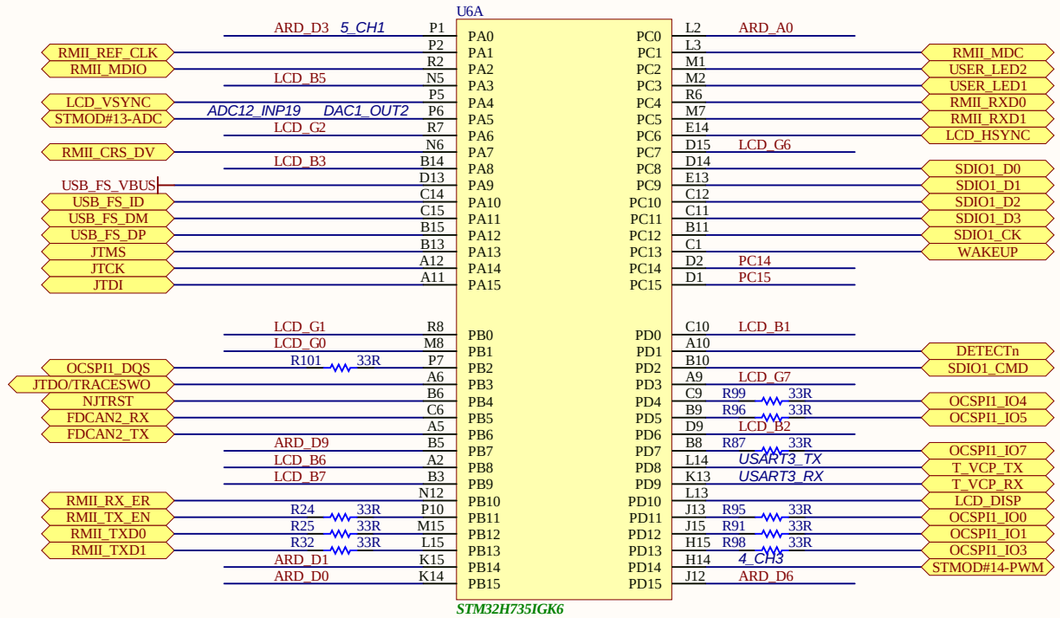
STMod+
STMod+.SchDoc
WAKEUP
USER_LED1
USER_LED2
STMOD#1
STMOD#2
STMOD#3
STMOD#4
STMOD#7-SCL
STMOD#10-SDA
STMOD#8-MOSIs
STMOD#9-MISOs
STMOD#11-INT
STMOD#12-RST
STMOD#13-ADC
STMOD#14-PWM
STMOD#17
STMOD#18
STMOD#19
STMOD#20
DETECTn
MEMS_LED

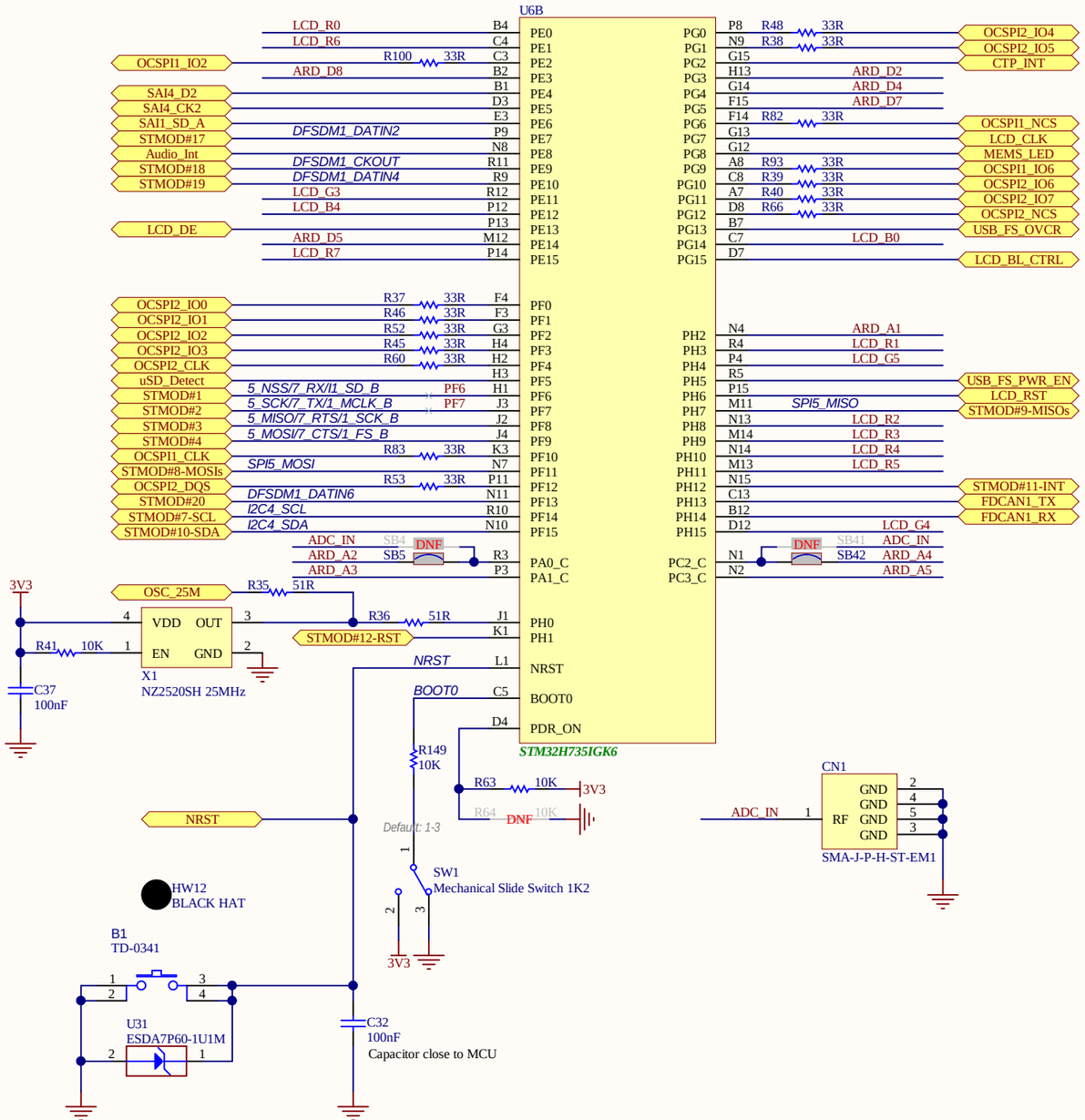
Power
STM32 microcontroller Power.SchDoc

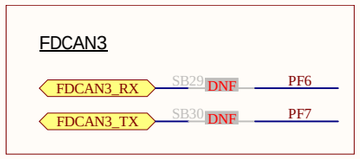
Title: **TOP**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B -02		Reference: MB1520
Size: A3	Date: 02-APR-20	Sheet: 2 of 19

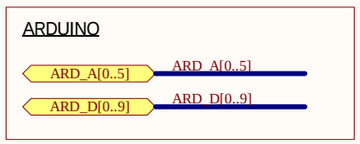
life.augmented

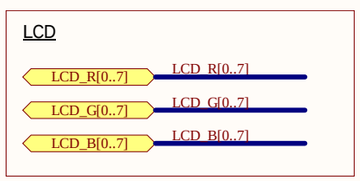
MCU IOs

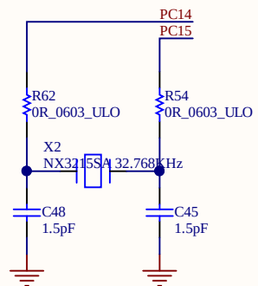












Title: **STM32 microcontroller IOs**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A3	Date: 02-APR-20	Sheet: 3 of 19

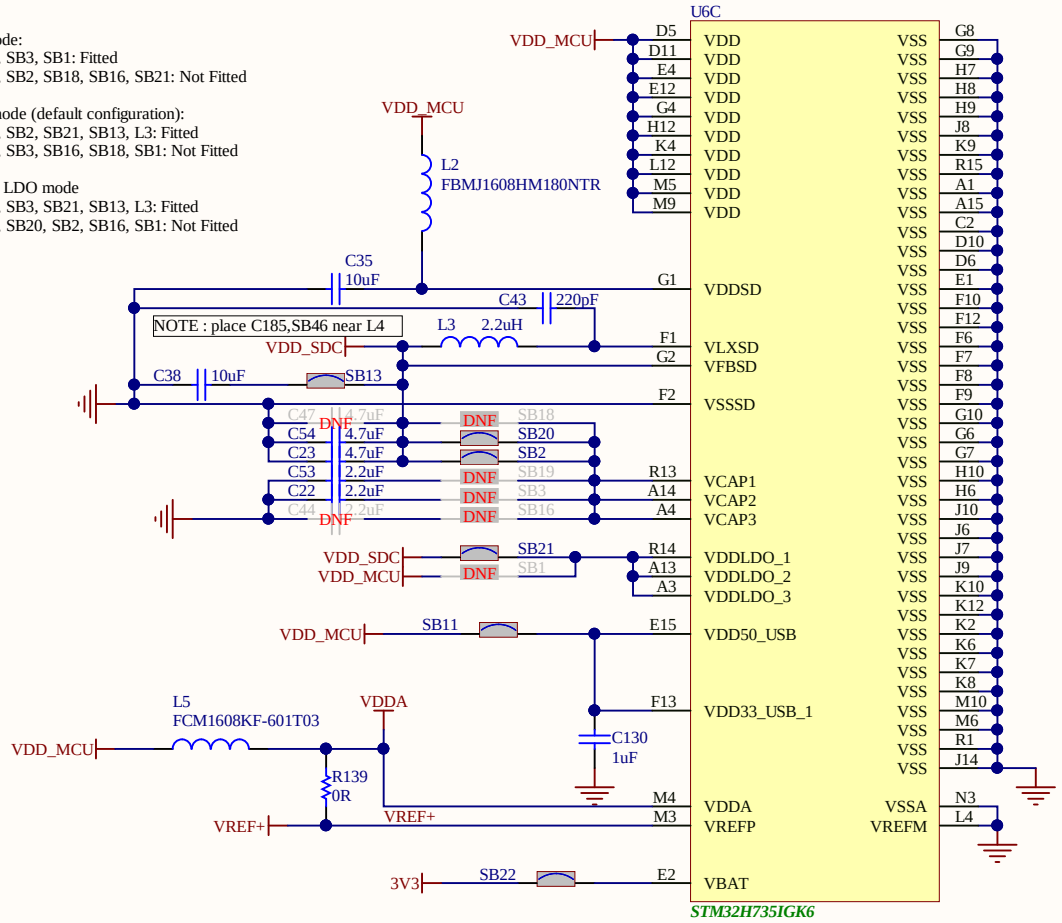
life.augmented

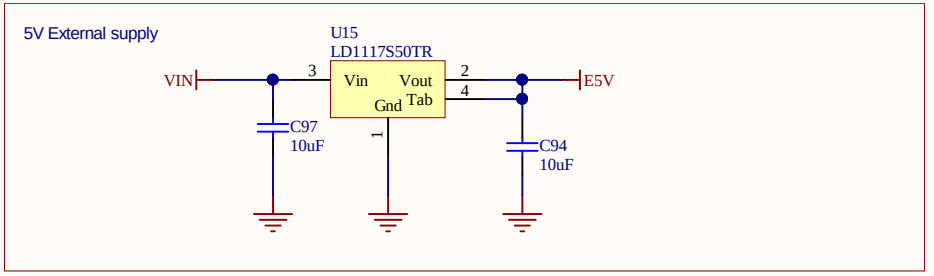
MCU POWER

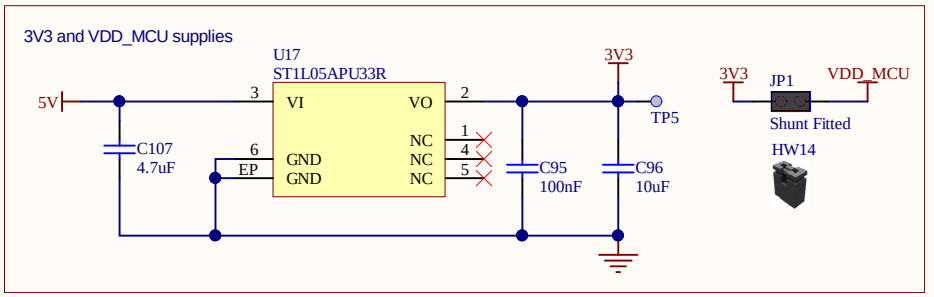
NOTE :
LDO mode:
. SB19, SB3, SB1: Fitted
. SB20, SB2, SB18, SB16, SB21: Not Fitted

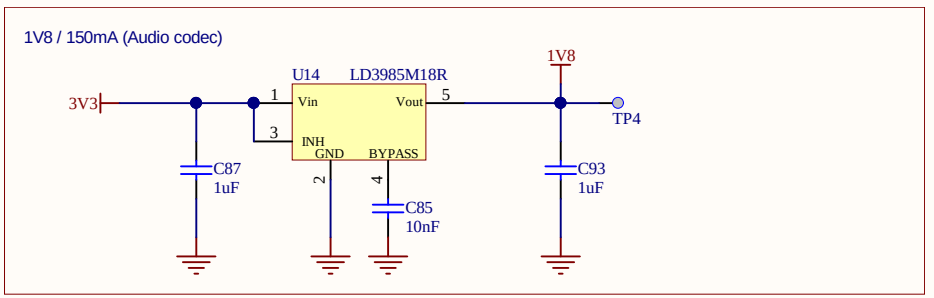
SMPS mode (default configuration):
. SB20, SB2, SB21, SB13, L3: Fitted
. SB19, SB3, SB16, SB18, SB1: Not Fitted

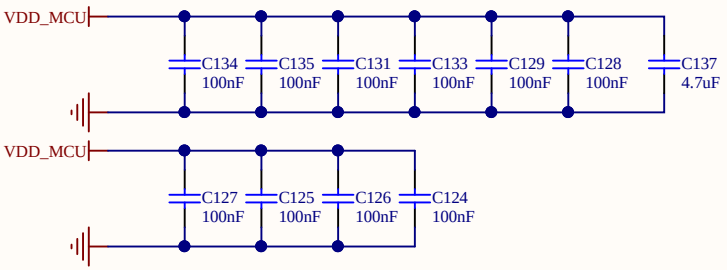
SMPS + LDO mode
. SB19, SB3, SB21, SB13, L3: Fitted
. SB18, SB20, SB2, SB16, SB1: Not Fitted

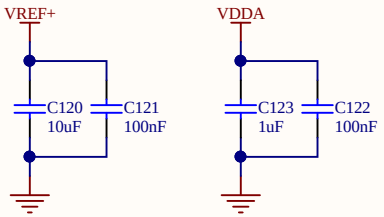


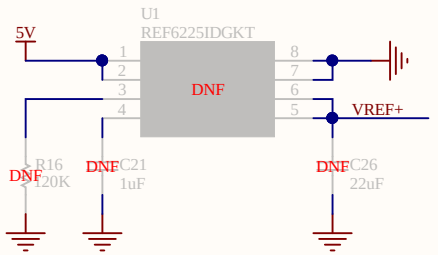


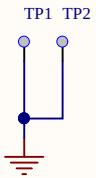








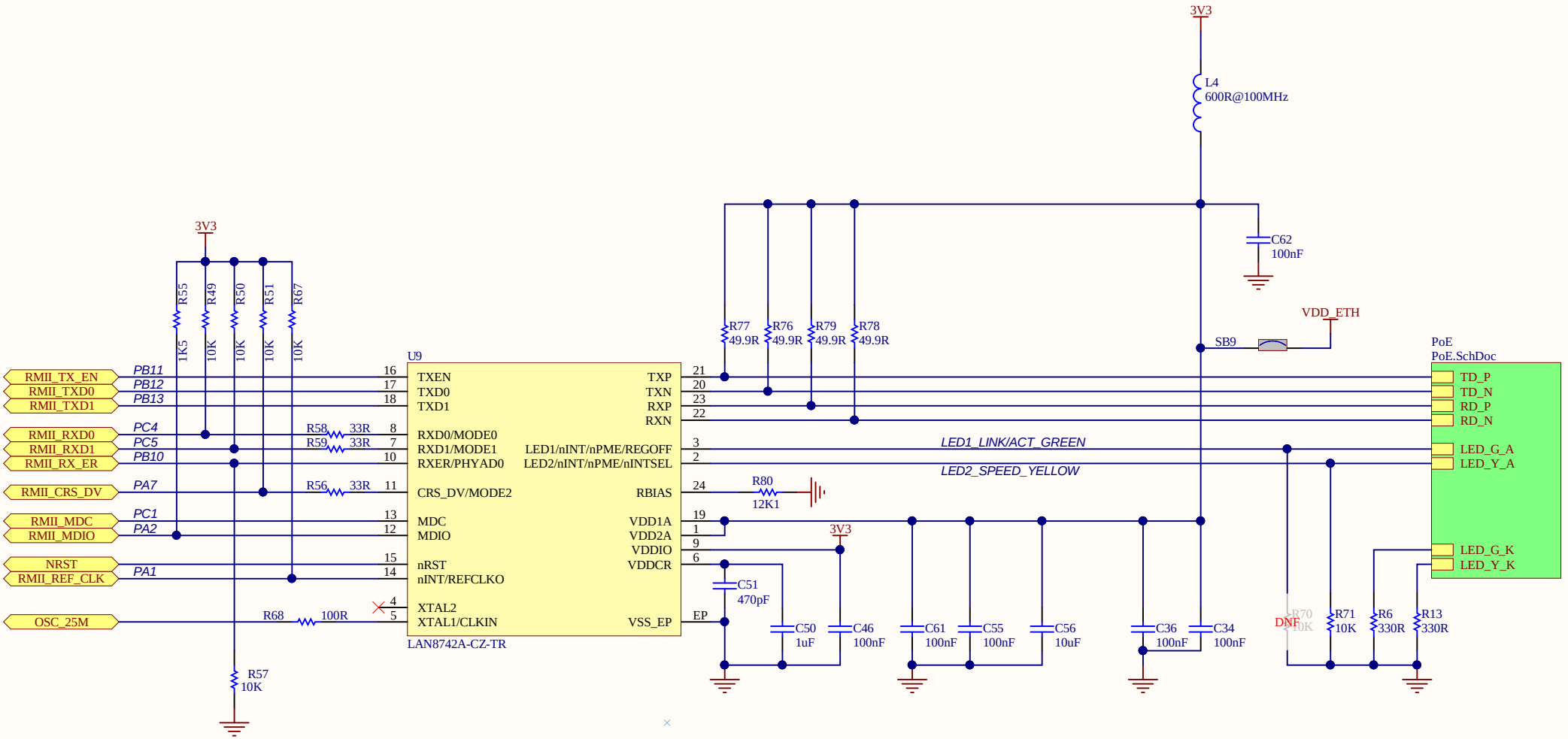




Title: **STM32 microcontroller Power**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 4 of 19

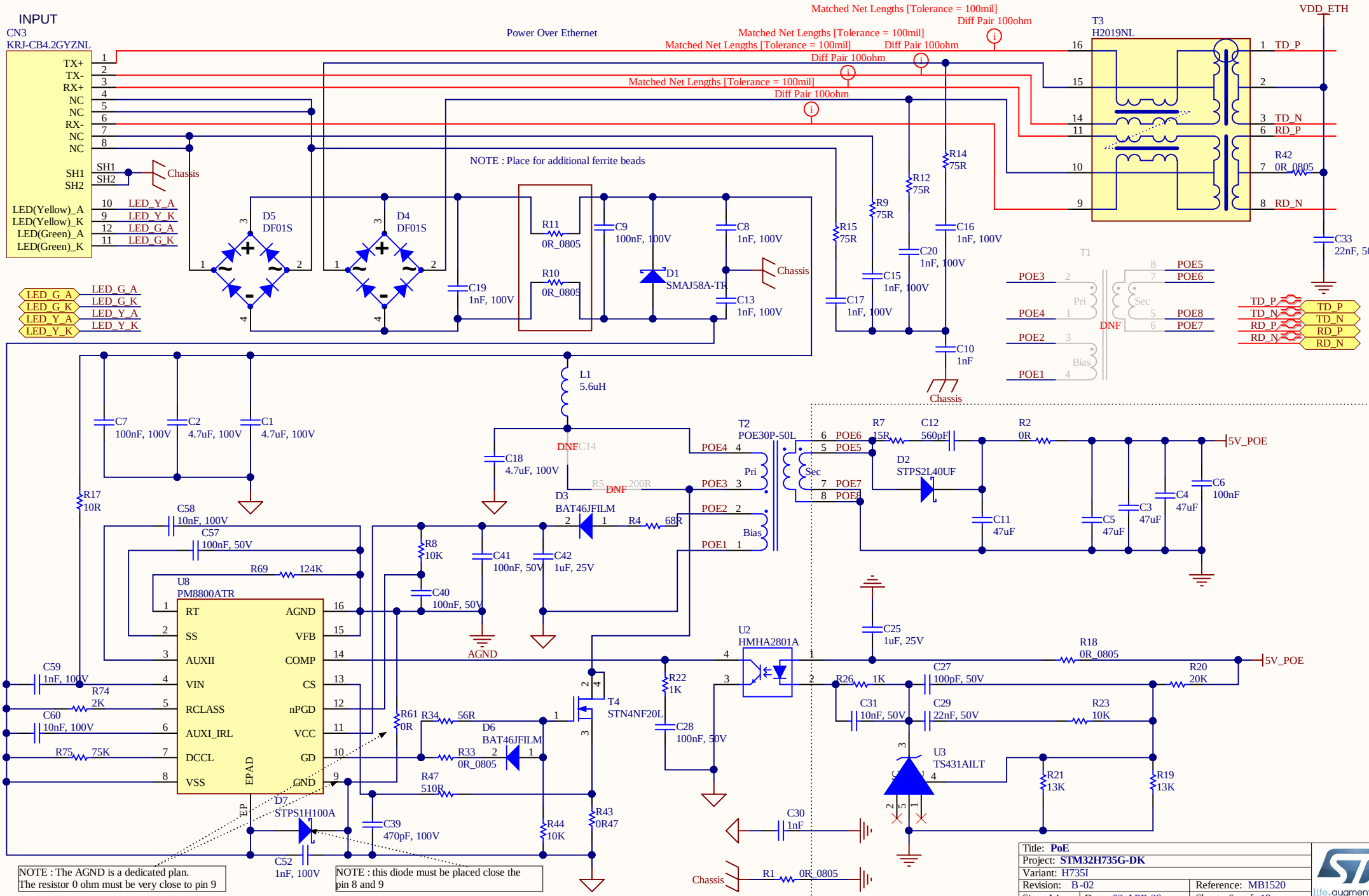
life.augmented

ETHERNET

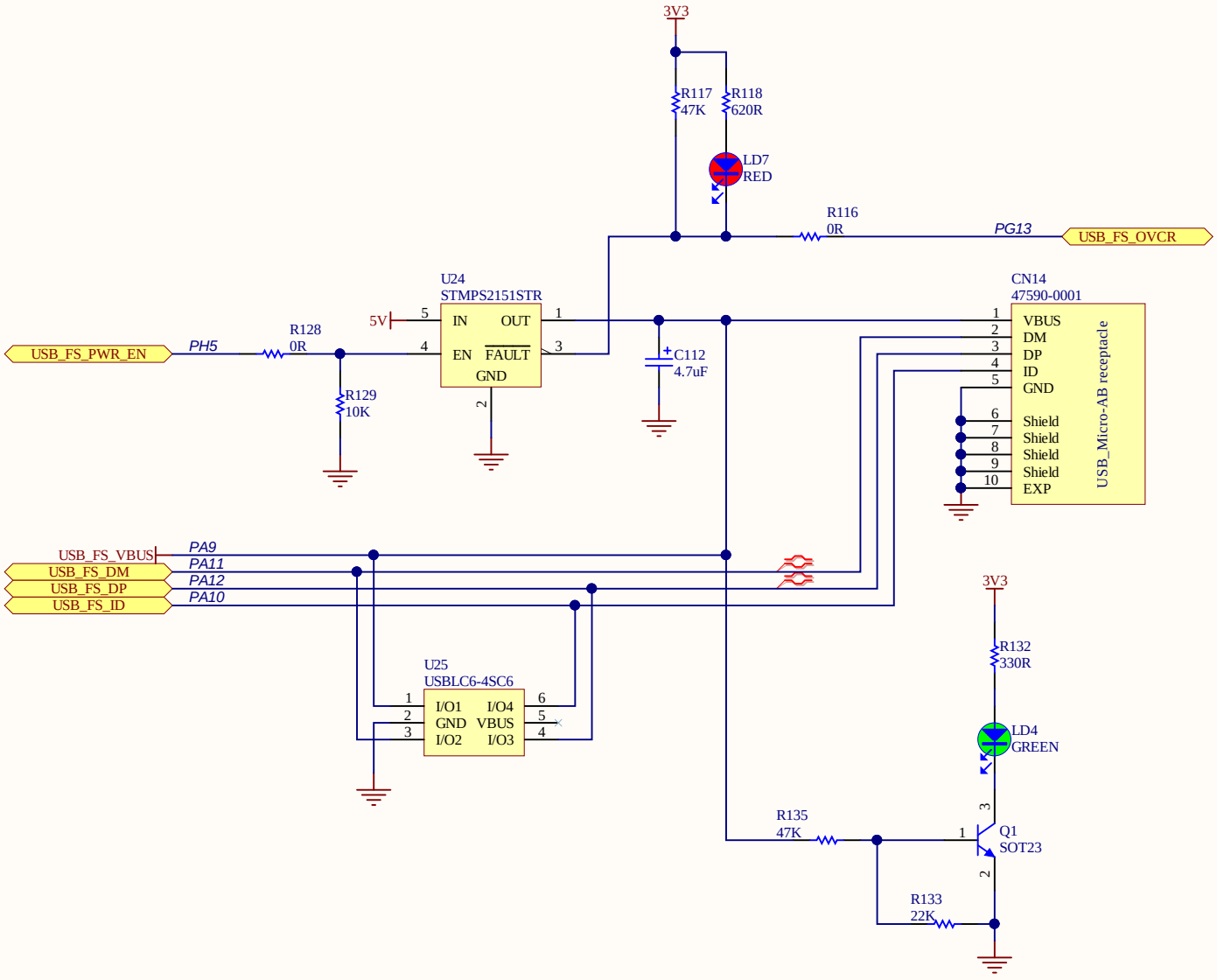


Title: **Ethernet**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 5 of 19

life.augmented


INPUT
CN3
KRJ-CB4.2GYZNL
Power Over Ethernet
Matched Net Lengths [Tolerance = 100mil]
Diff Pair 100ohm
T3
H2019NL
VDD_ETH
TX+
TX-
RX+
RX-
NC
SH1
SH2
Chassis
LED(Yellow)_A
LED(Yellow)_K
LED(Green)_A
LED(Green)_K
LED_Y_A
LED_Y_K
LED_G_A
LED_G_K
NOTE : Place for additional ferrite beads
D5
DF01S
D4
DF01S
D1
SMAJ58A-TR
T1
POE1
POE2
POE3
POE4
POE5
POE6
POE7
POE8
Pri
Sec
Bias
DNF
TD_P
TD_N
RD_P
RD_N
L1
5.6uH
T2
POE30P-50L
D2
STPS2L40UF
D3
BAT46JFILM
D6
BAT46JFILM
D7
STPS1H100A
5V_POE
U8
PM8800ATR
RT
SS
AUXII
VIN
RCLASS
AUXI_IRL
DCCL
VSS
AGND
VFB
COMP
CS
nPGD
VCC
GD
GND
EPAD
EP
U2
HMHA2801A
T4
STN4NF20L
U3
TS431AILT
NOTE : The AGND is a dedicated plan.
The resistor 0 ohm must be very close to pin 9
NOTE : this diode must be placed close the pin 8 and 9
Title: PoE
Project: STM32H735G-DK
Variant: H735I
Revision: B-02
Reference: MB1520
Size: A4
Date: 02-APR-20
Sheet: 6 of 19
life.augmented

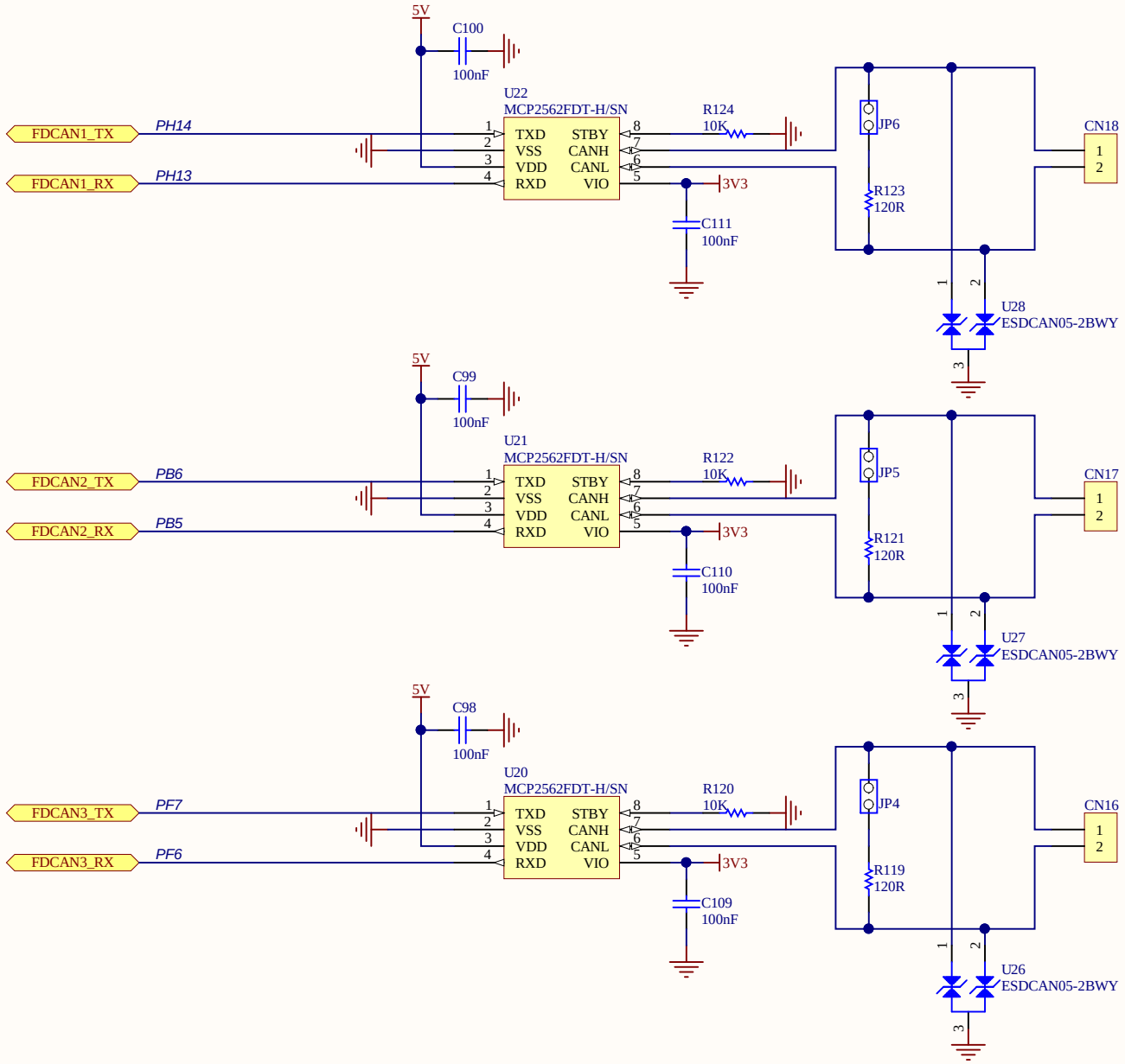
USB OTG FS



Title: **USB OTG FS**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 7 of 19

life.augmented

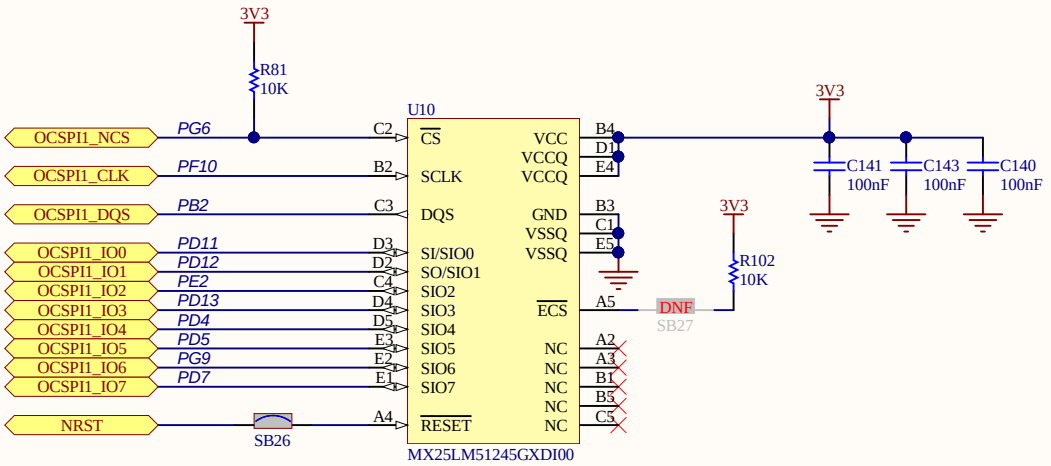
CAN FD



Title: **CAN FD**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 8 of 19

life.augmented

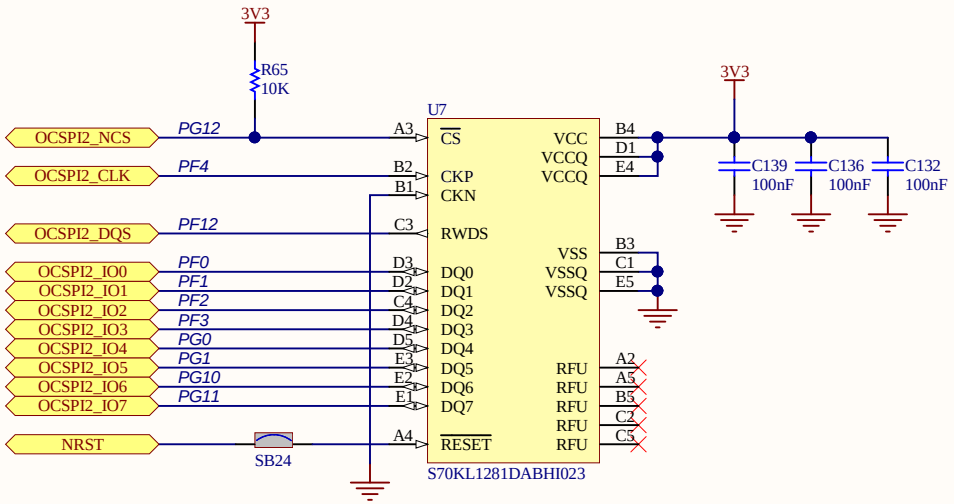
OCTO-SPI Flash Memory



Title: **OCSPI**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 9 of 19

life.augmented

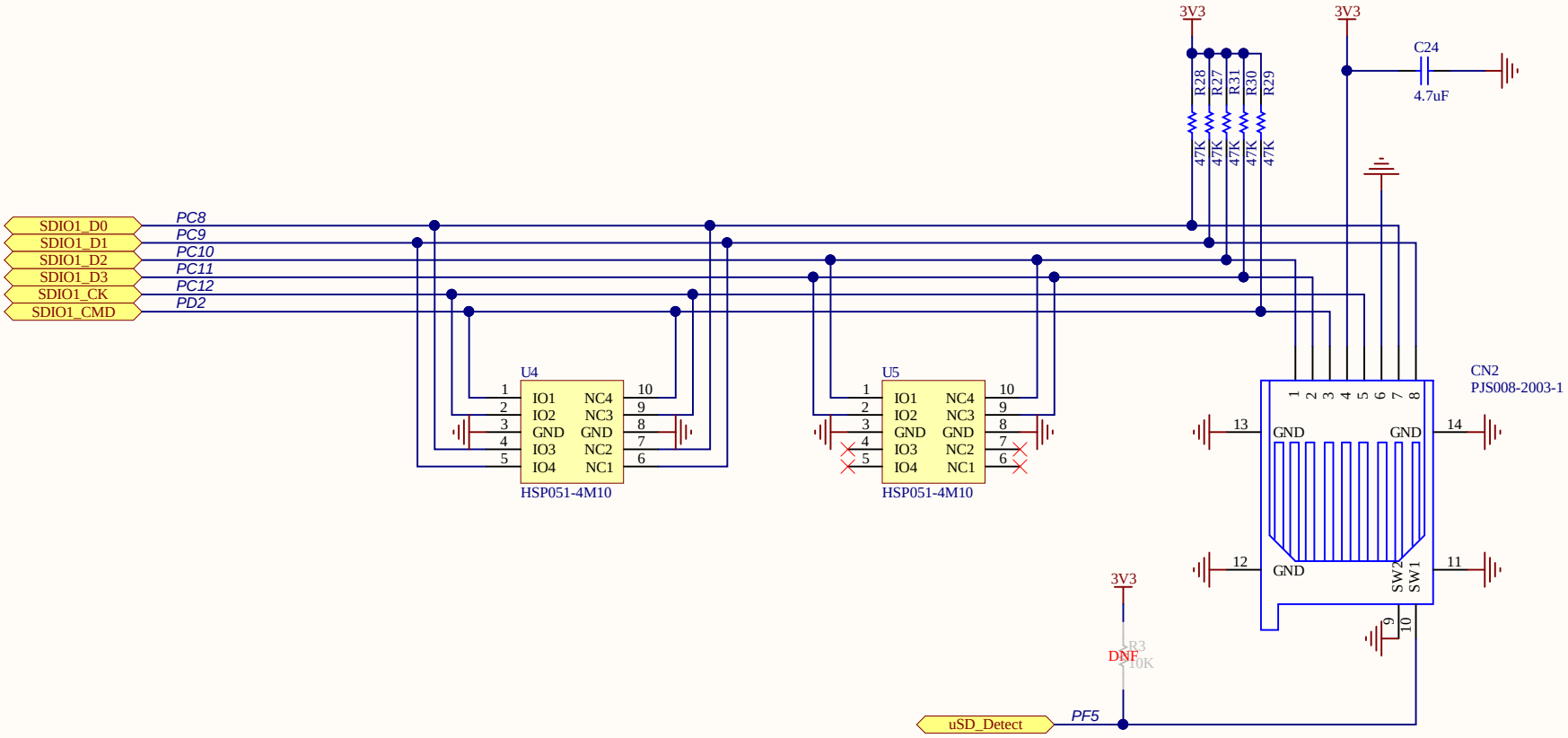
HyperRAM Memory



Title: **HyperRAM**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 10 of 19

life.augmented

uSD CARD

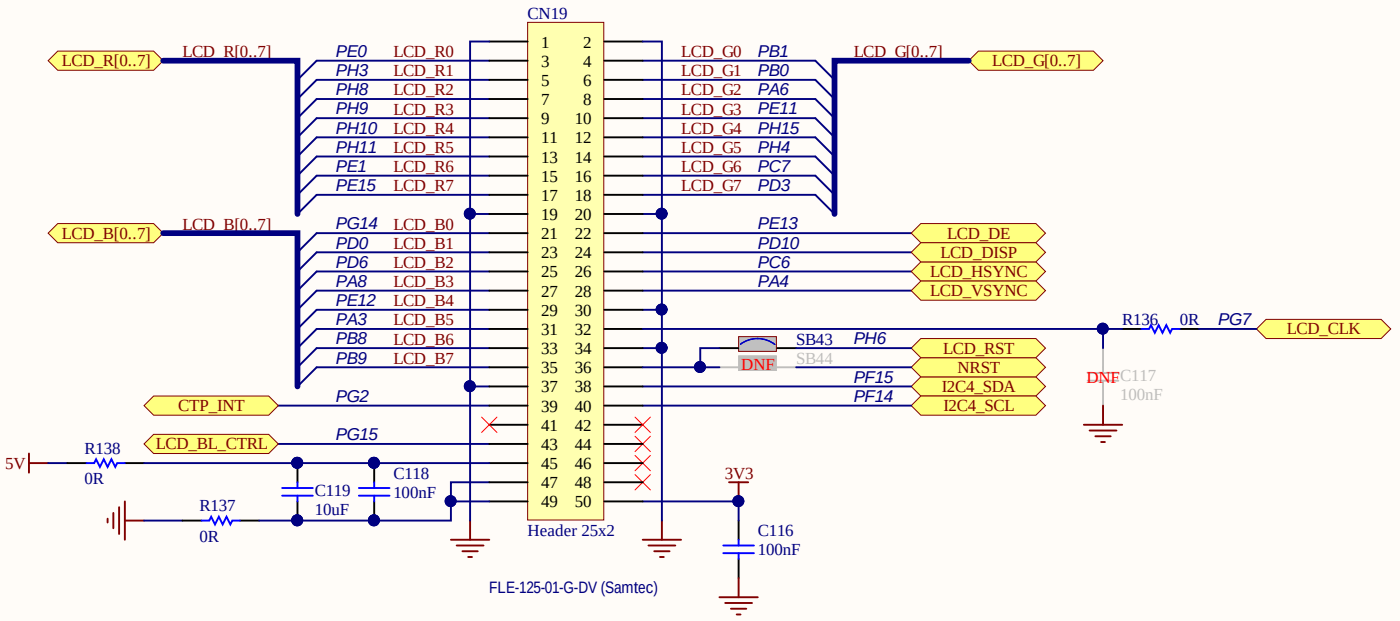


Title: **uSD CARD**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 11 of 19

life.augmented

LCD

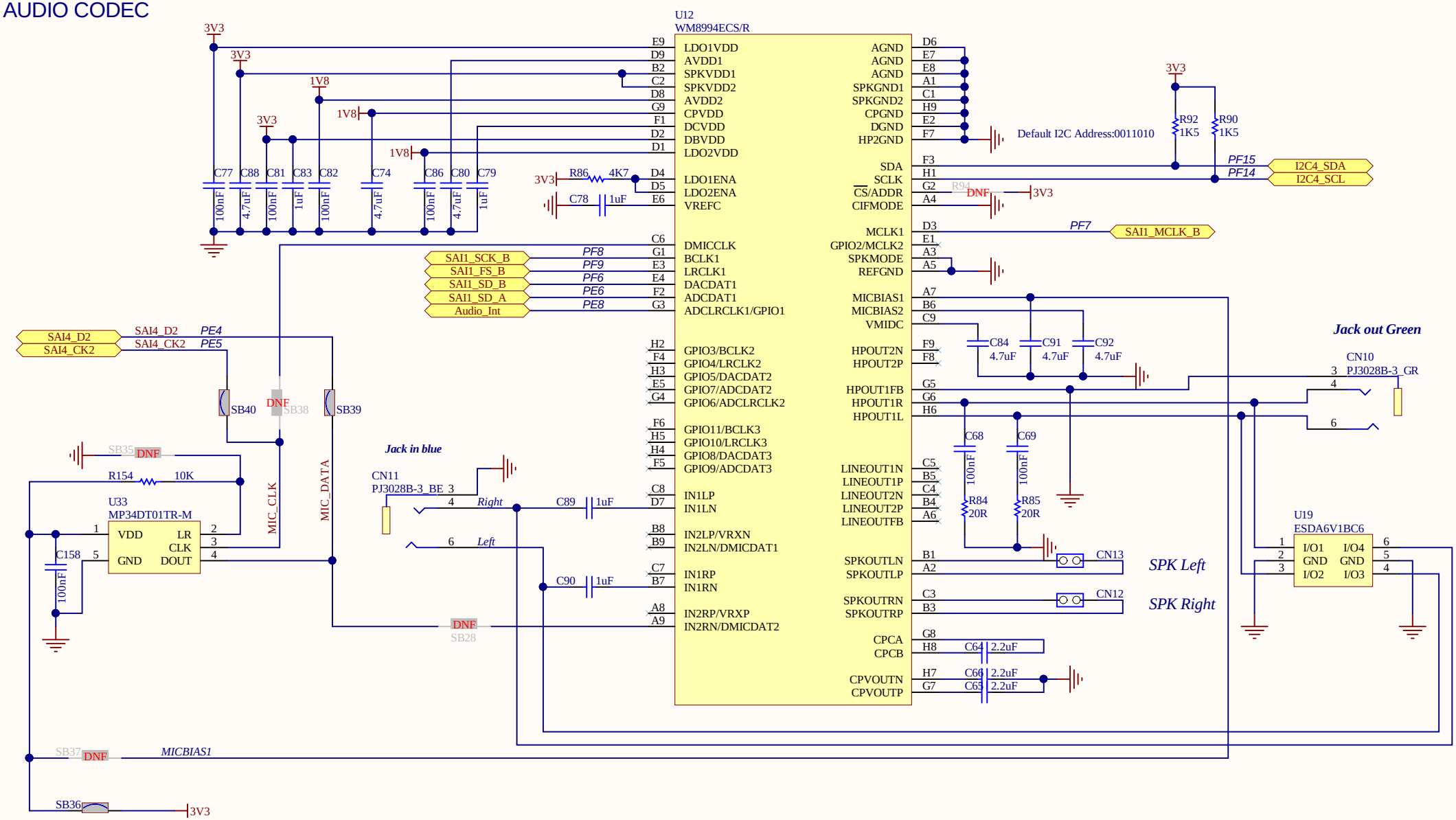
Compatible with MB1315 (4.3 inch LCD board)



Title: **LCD**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 12 of 19

life.augmented

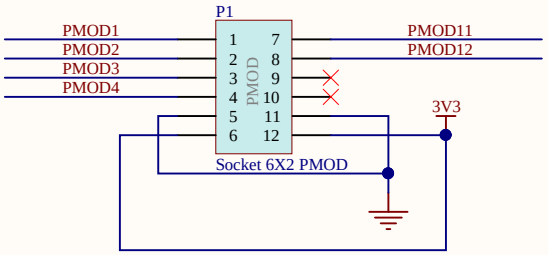
AUDIO CODEC



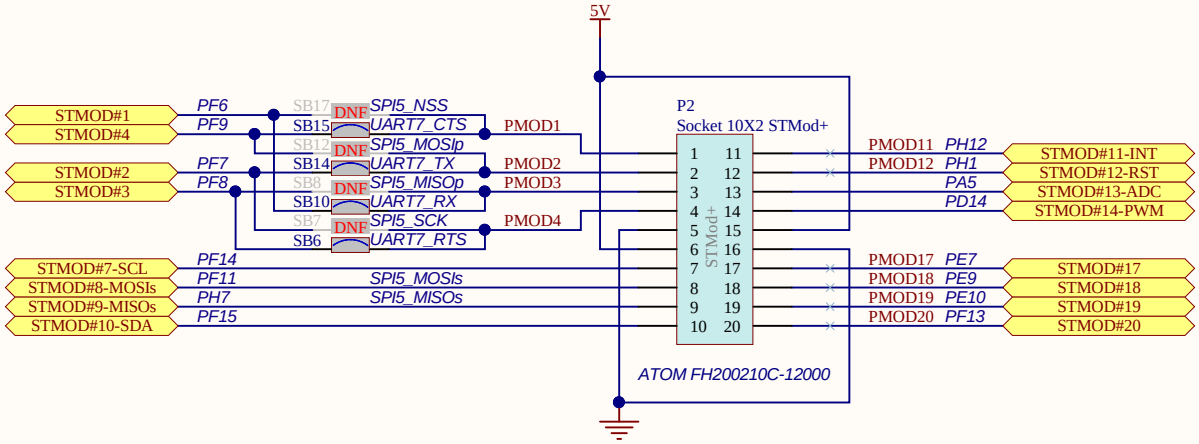
Title: **Audio**			
Project: **STM32H735G-DK**			
Variant: H735I			
Revision: B-02		Reference: MB1520	
Size: A4	Date: 02-APR-20	Sheet: 13 of 19	

life.augmented

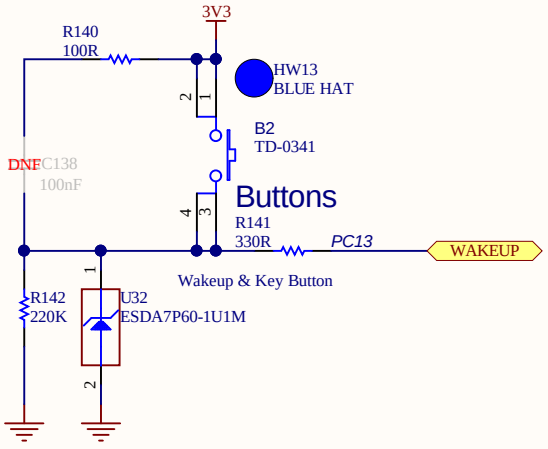
PMOD



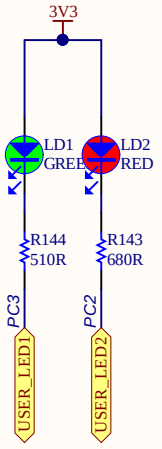
STMOD+



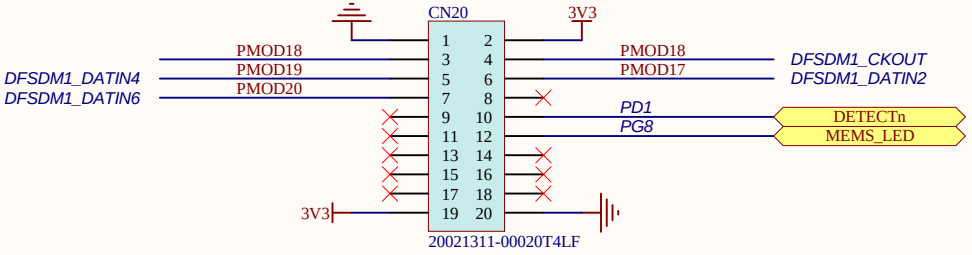
USER BUTTON



USER LEDs



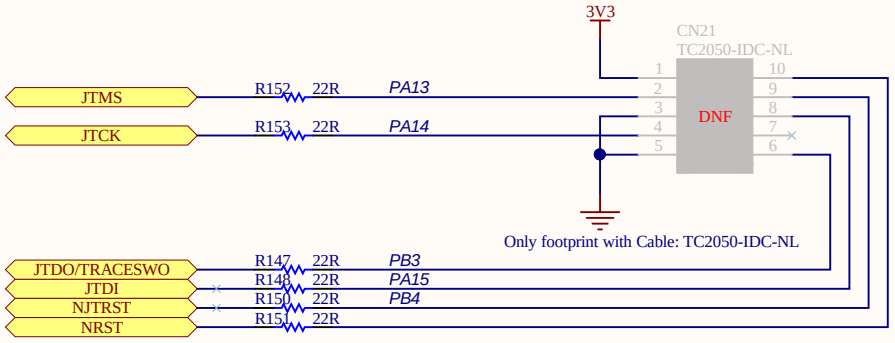
EXTENSION MODULE MB1299



Title: **STMod+**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 14 of 19

life.augmented

TAG

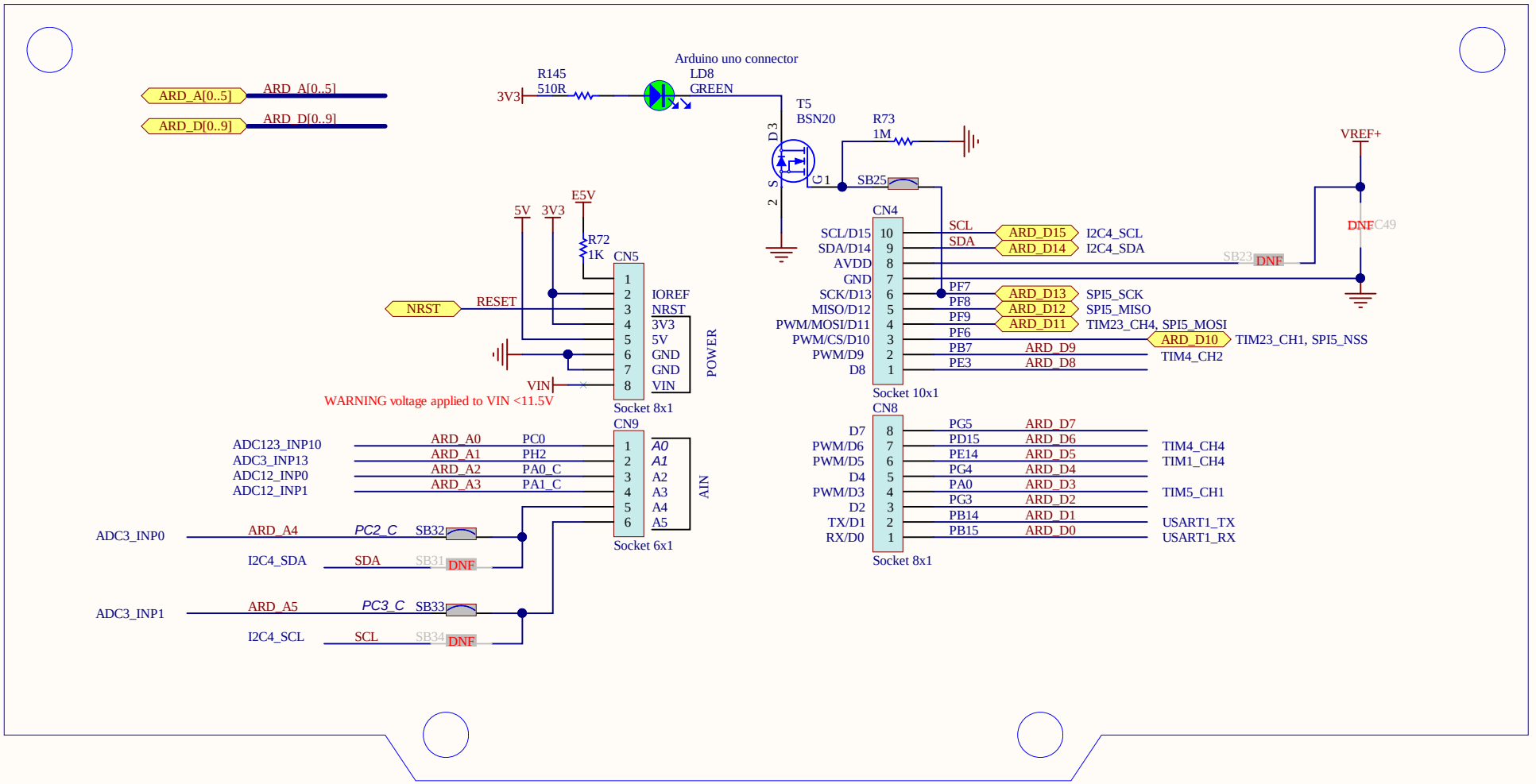


Place this connector close to STDC, they will share the same ESD components

Title: **TAG**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 15 of 19

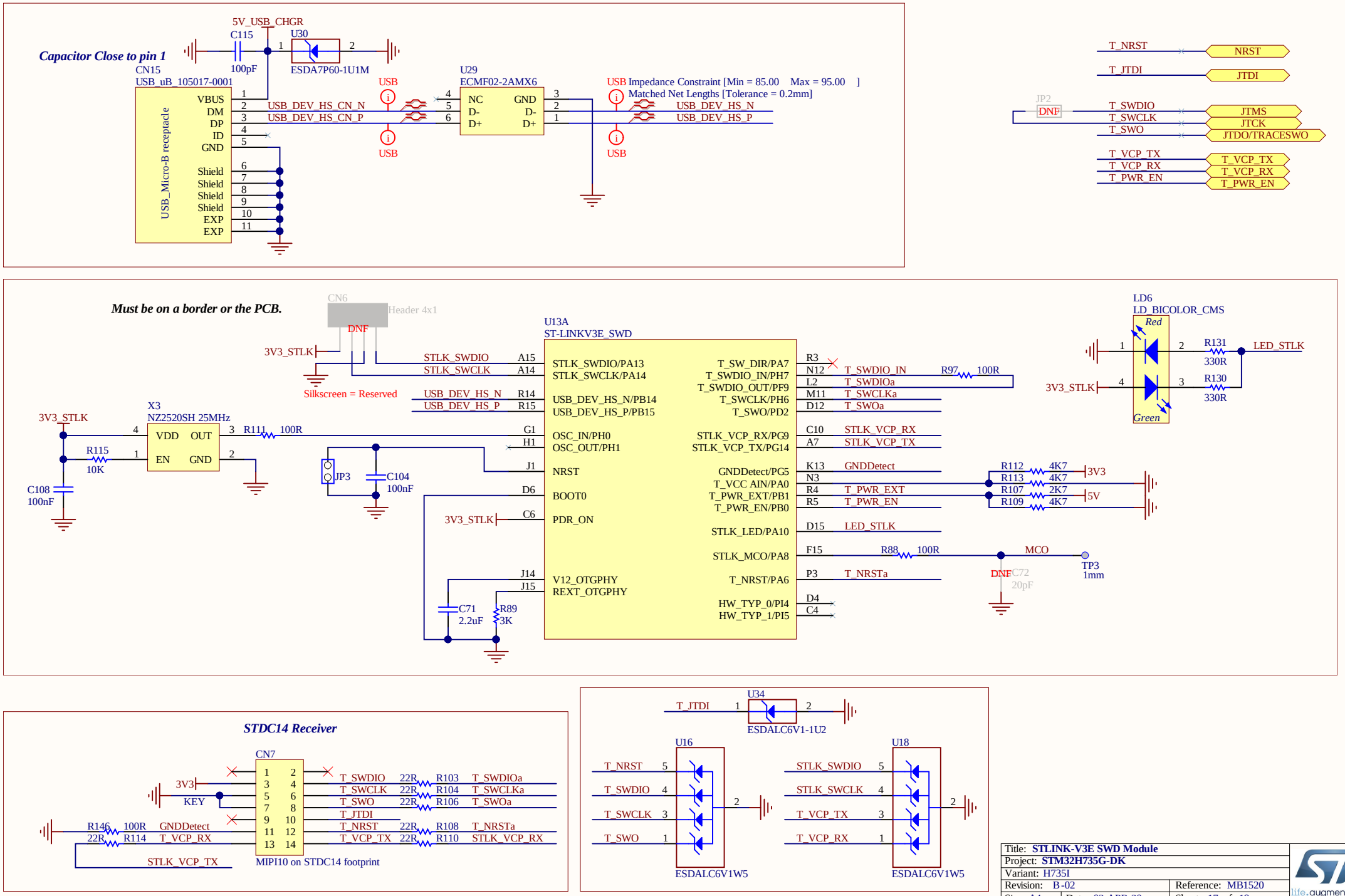
life.augmented

ARDUINO



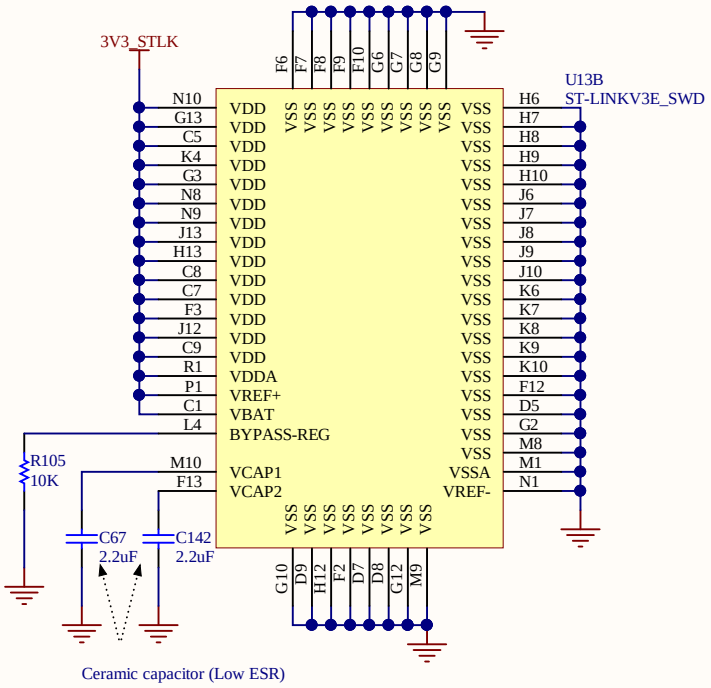
Title: **Arduino Connector**			
Project: **STM32H735G-DK**			
Variant: H735I			
Revision: B-02		Reference: MB1520	
Size: A4	Date: 02-APR-20	Sheet: 16 of 19	

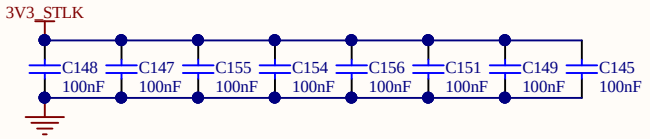
life.augmented

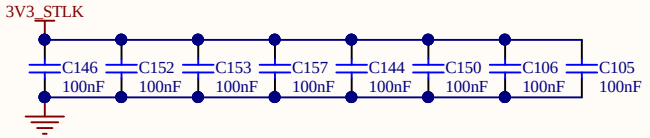


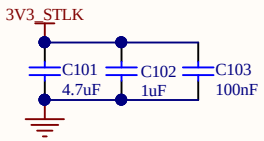
Title: **STLINK-V3E SWD Module**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 17 of 19

life.augmented

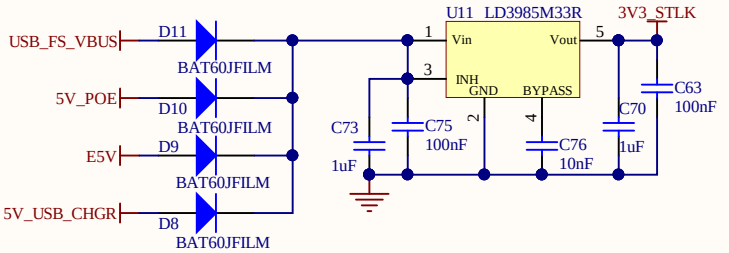




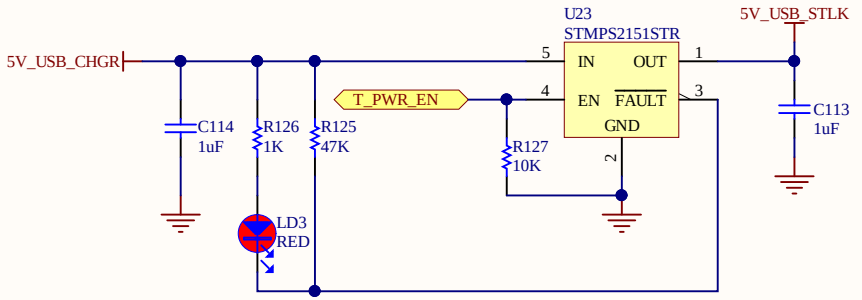




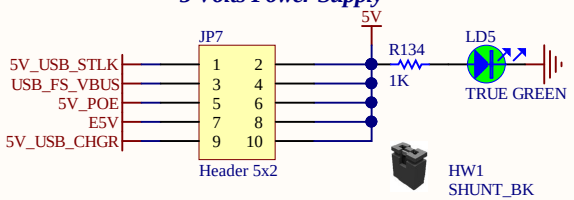
3.3 Volts ST-LINK



5V ST-LINK PROTECTION



5 Volts Power Supply



Title: **STLINK-V3E SWD Power Module**		
Project: **STM32H735G-DK**		
Variant: H735I		
Revision: B-02		Reference: MB1520
Size: A4	Date: 02-APR-20	Sheet: 18 of 19

life.augmented