


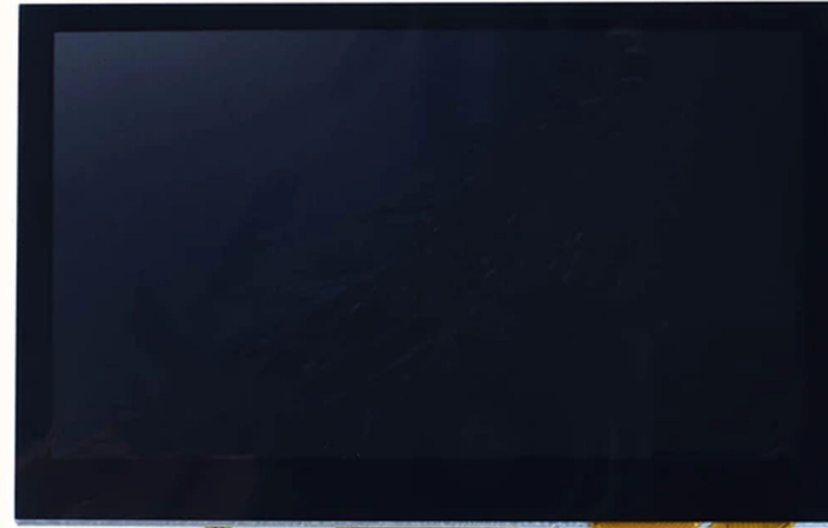
COVER PAGE

DS18_SYSG_DISP_1116 DISPLAY CONTROL BOARD 4.3 INCH

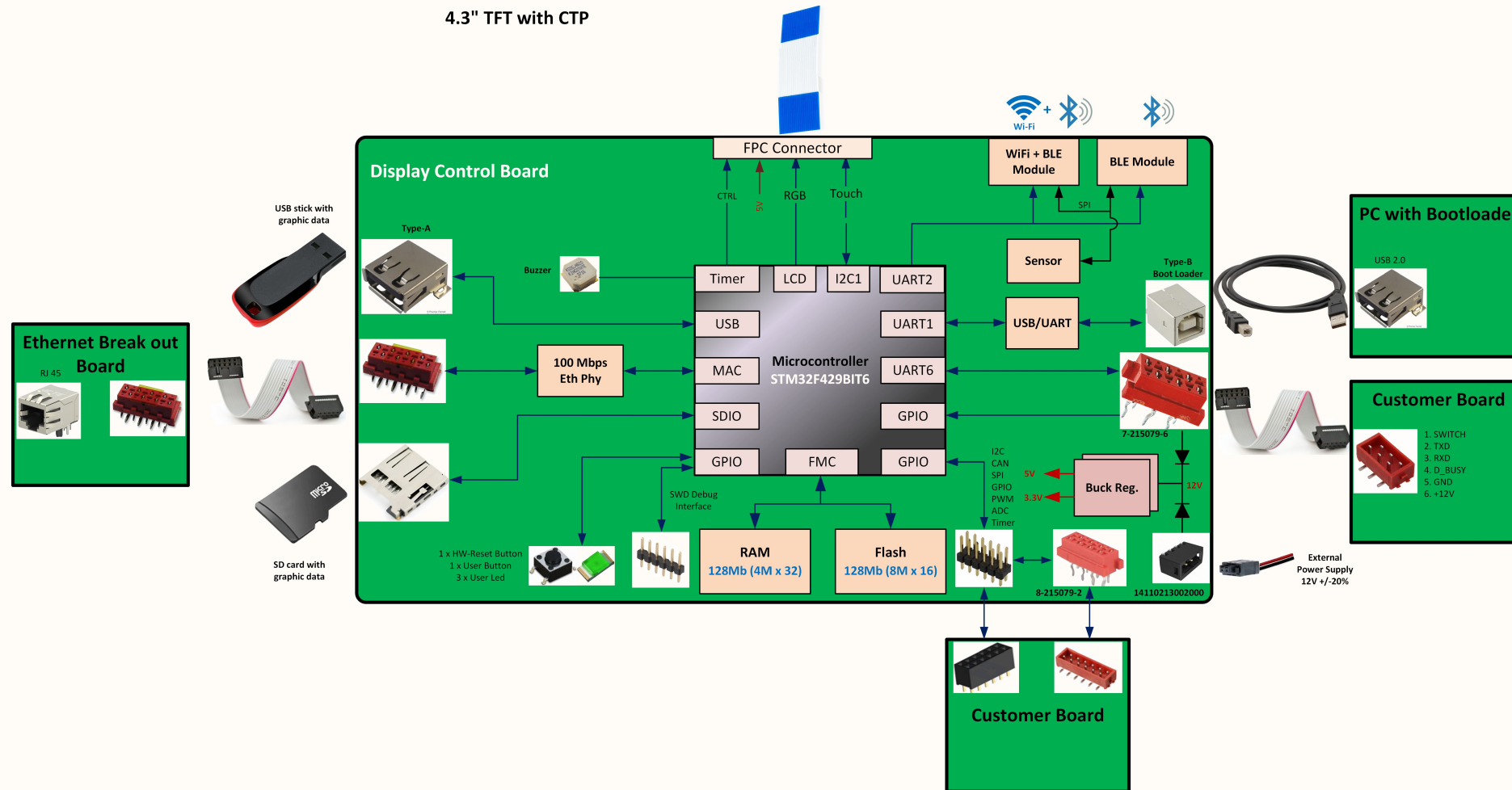
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02	BLOCK DIAGRAM
03	TOP LEVEL PAGE
04	MICROCONTROLLER_A-B
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13	ETHERNET INTERFACE
14	ESP32 MODULE
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16	POWER
17	MISCELLANEOUS
18	REVISION HISTORY

Schematics			
Project:	Display_Control_Board_4.3inch_V100.PrjPcb	ENTWICKLUNG UND PRODUKTION	
Document:	P01_COVER_PAGE.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	1

BLOCK DIAGRAM

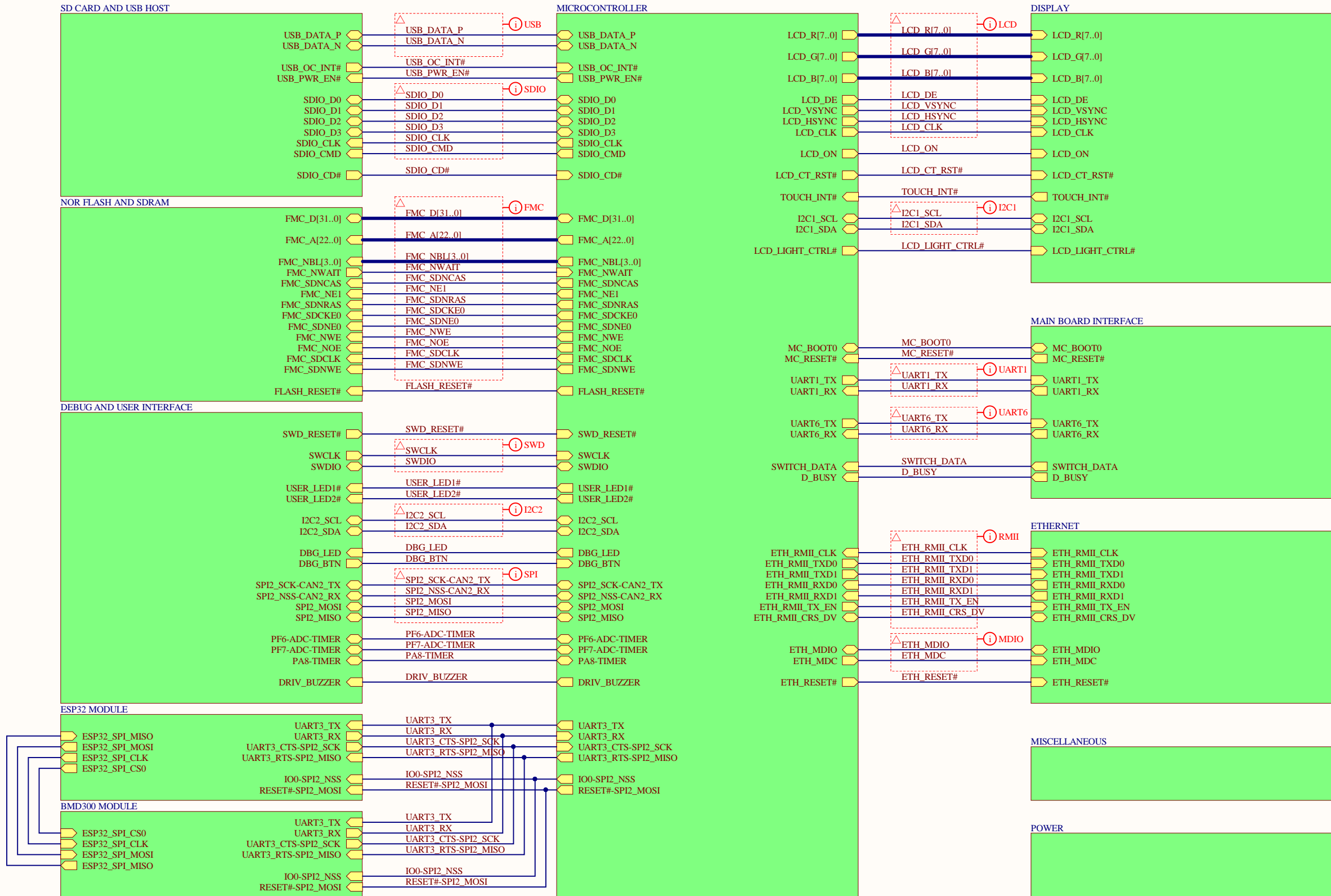


4.3" TFT with CTP



Schematics		 ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb			
Document:	P02_Block_Diagram.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	2

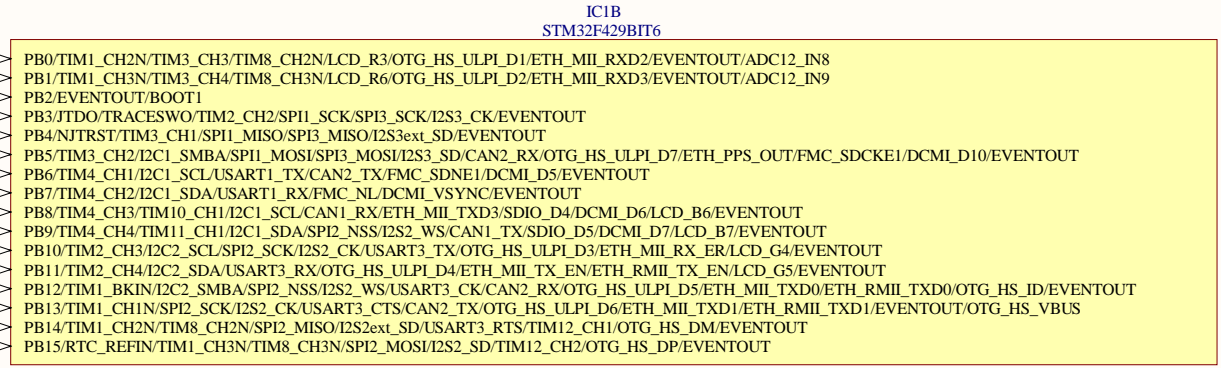
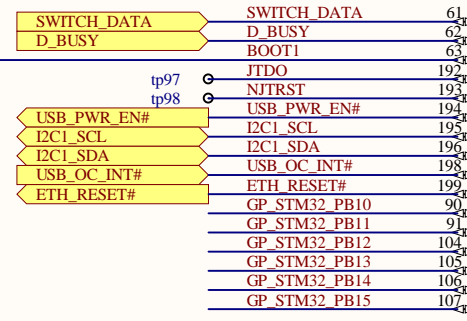
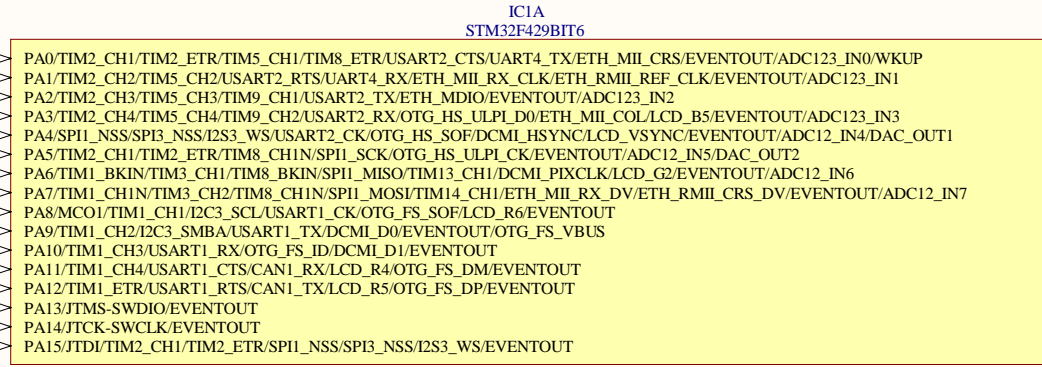
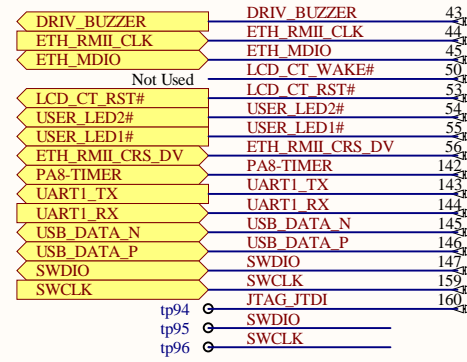
TOP LEVEL PAGE



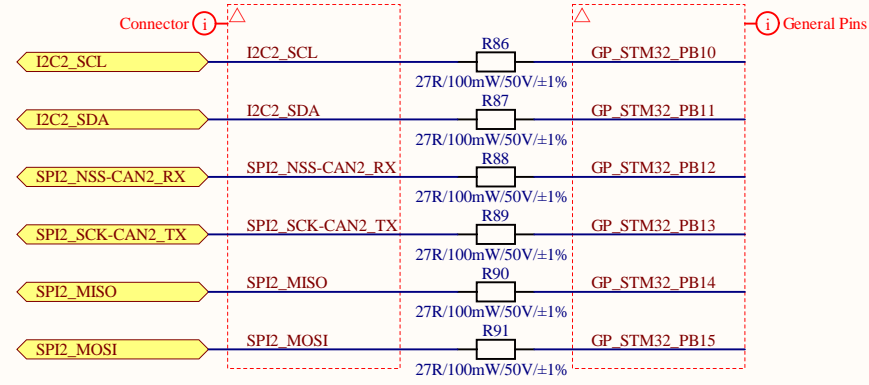
Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrfPcb		www.ebs-systart.com	
Document:	P03_TOP_LEVEL_PAGE.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	3

MICROCONTROLLER A-B

Boot mode selection pins		Boot mode
BOOT1	BOOT0	
X	0	Main Flash memory
0	1	System memory
1	1	Embedded SRAM

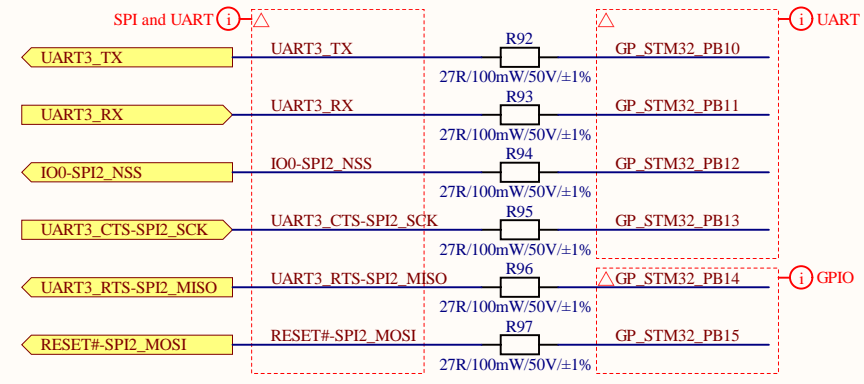


External Connector Connection



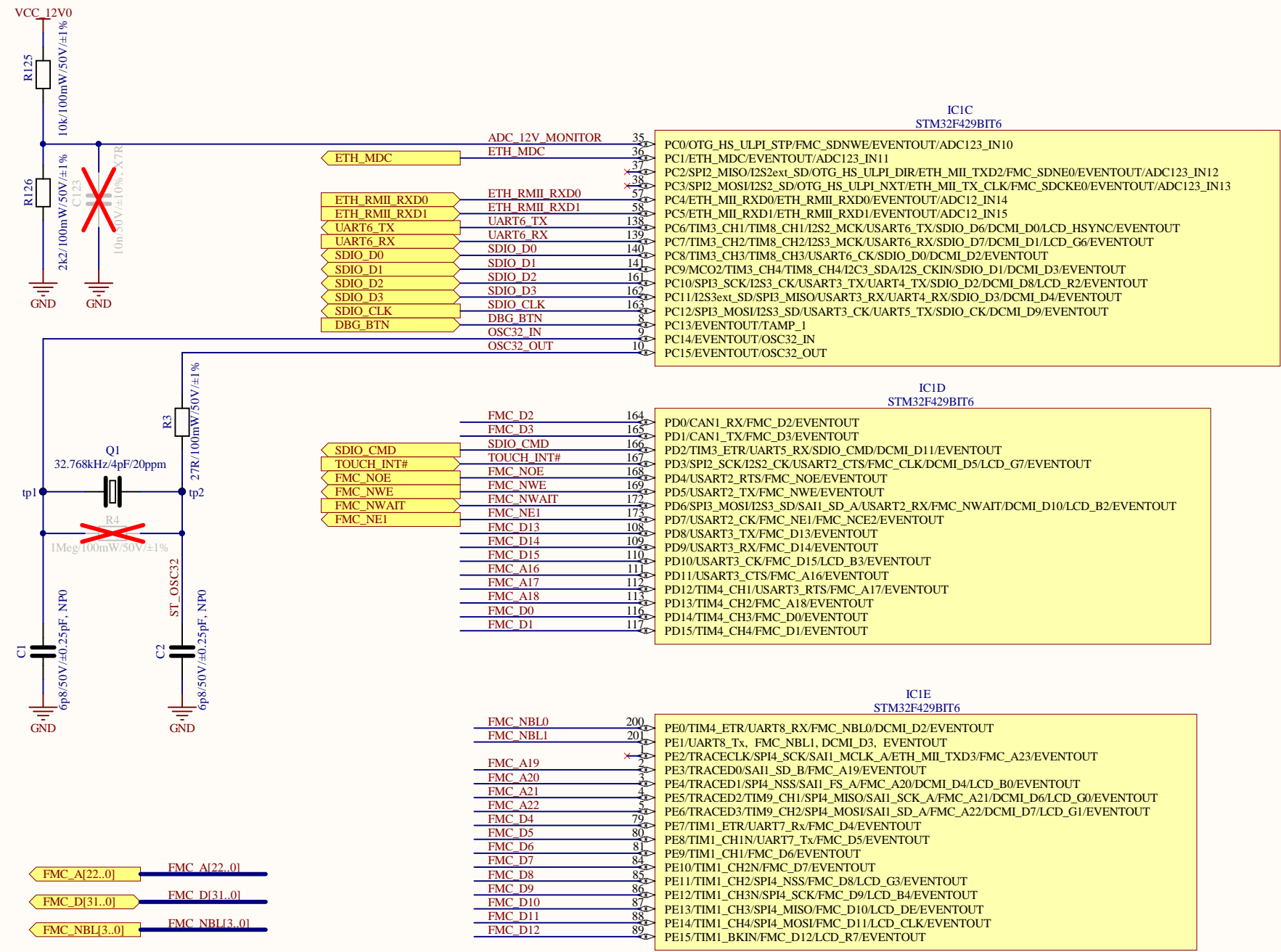
Mount R86 to R91 : STM32 Interfaces available on X10 and X11
 Mount R92 to R97 : UART/SPI Interface for Module/Sensor
 Don't populate both group at the same time.

Sensor / wireless module Connection



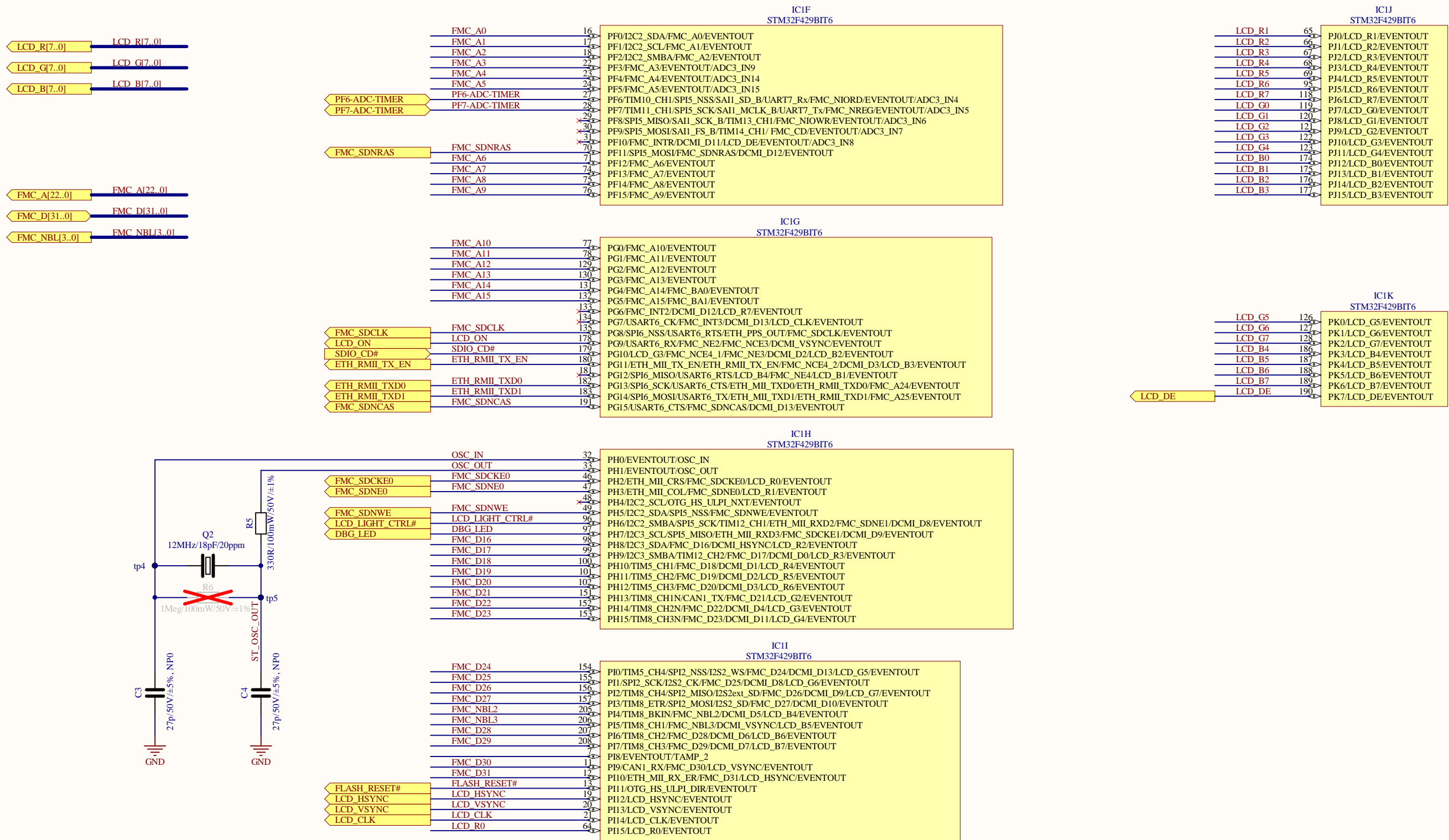
Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrjPcb	www.ebs-systart.com	
Document:	P04_Microcontroller_A-B.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Status:	Approved
Status:	Approved	Page:	4

MICROCONTROLLER C-E



Schematics		 ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrjPcb		
Document:	P05_Microcontroller_C-E.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Status:	Approved
Status:	Approved	Page:	5

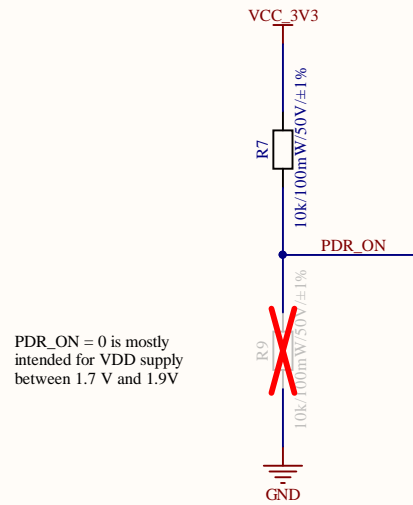
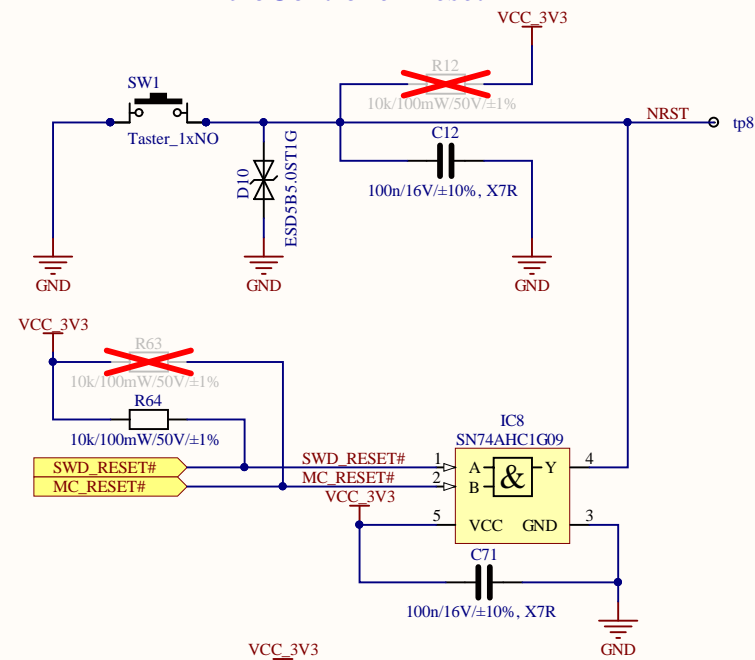
MICROCONTROLLER F-K



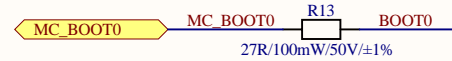
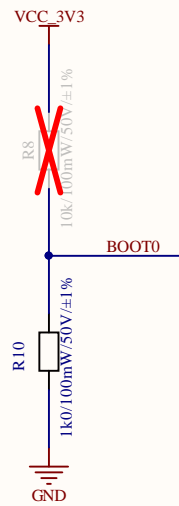
Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrfPcb		
Document:	P06_Microcontroller_F-K.SchDoc		www.ebs-systart.com
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	6

MICROCONTROLLER POWER

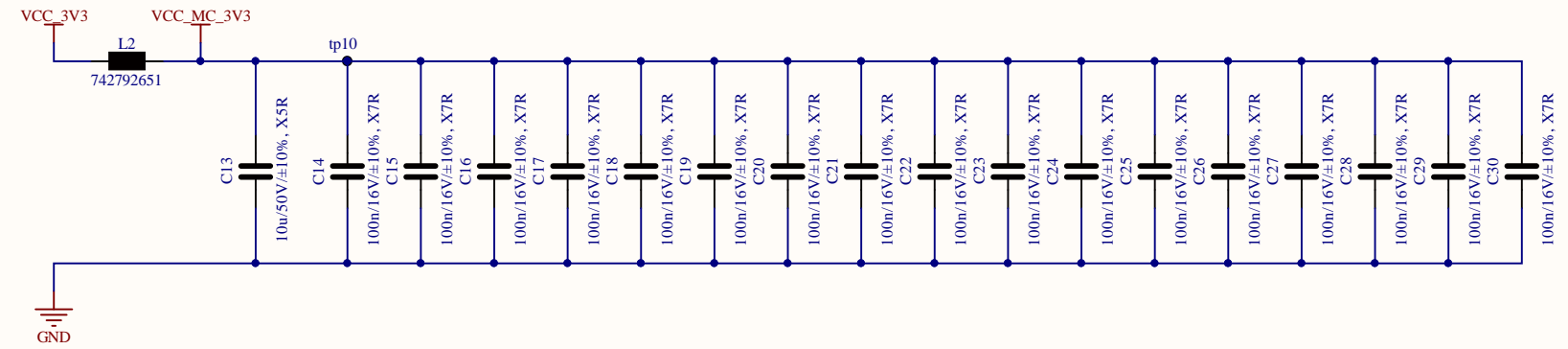
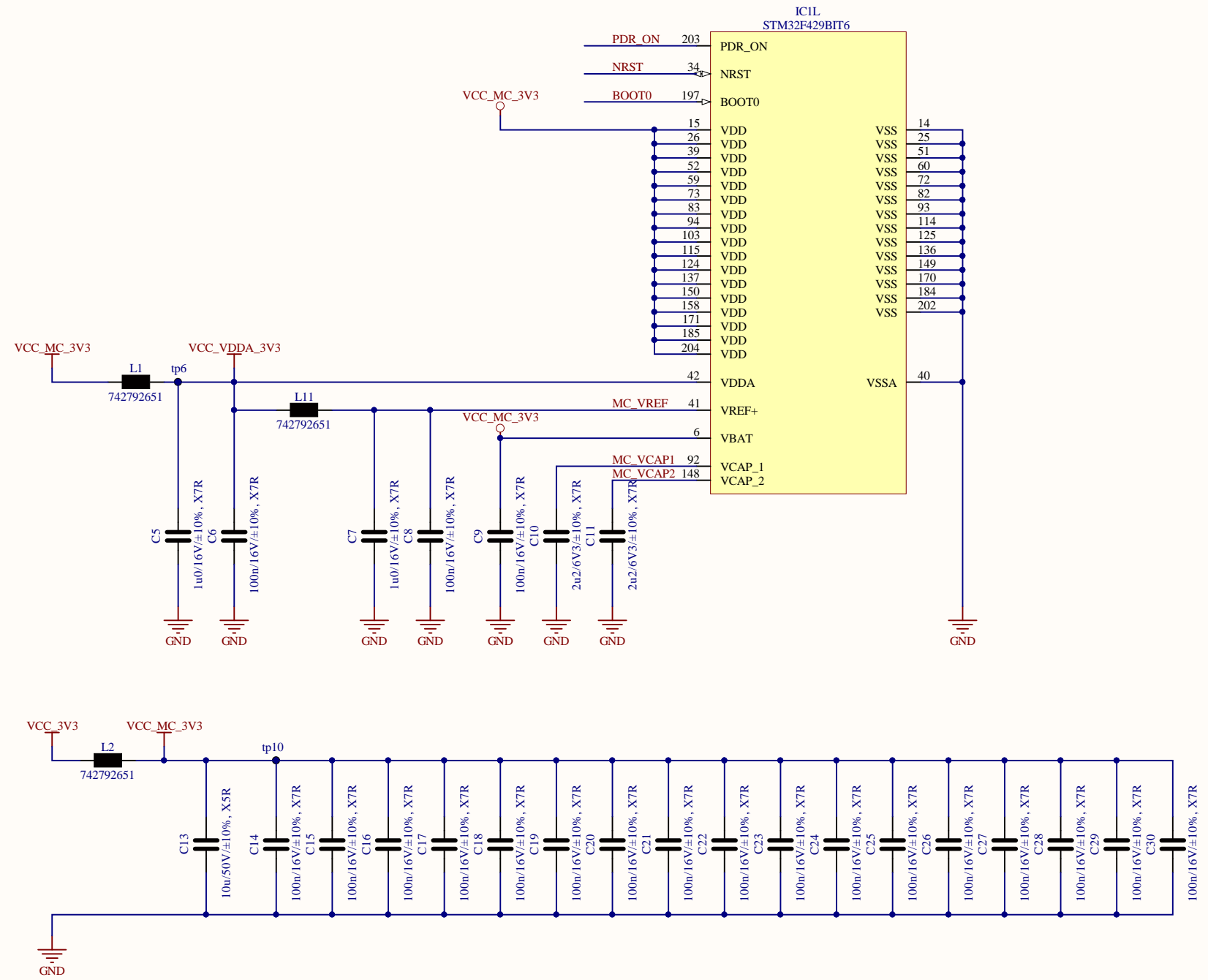
MicroController Reset



PDR_ON = 0 is mostly intended for VDD supply between 1.7 V and 1.9V



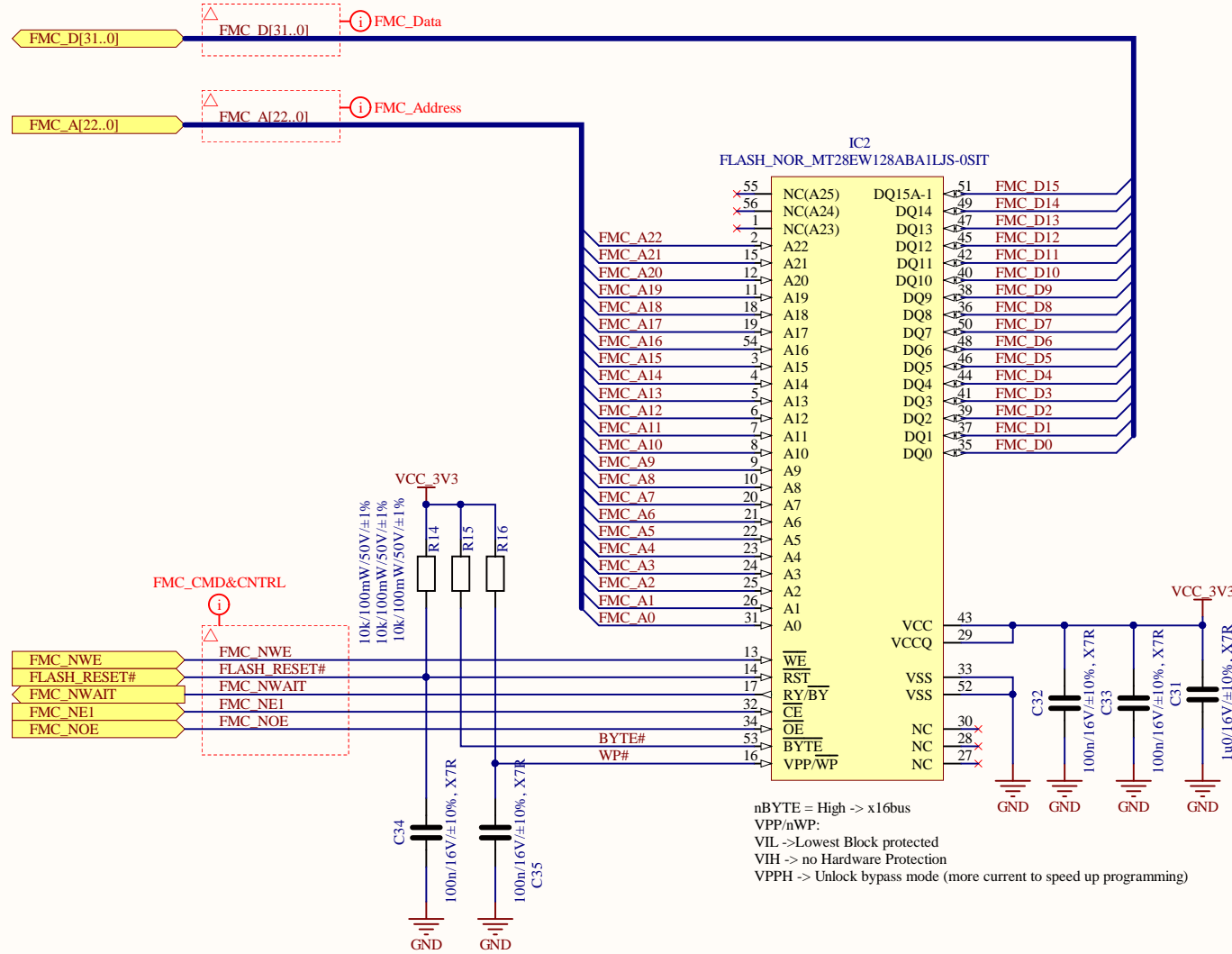
Boot mode selection pins		Boot mode
BOOT1	BOOT0	
X	0	Main Flash memory
0	1	System memory
1	1	Embedded SRAM



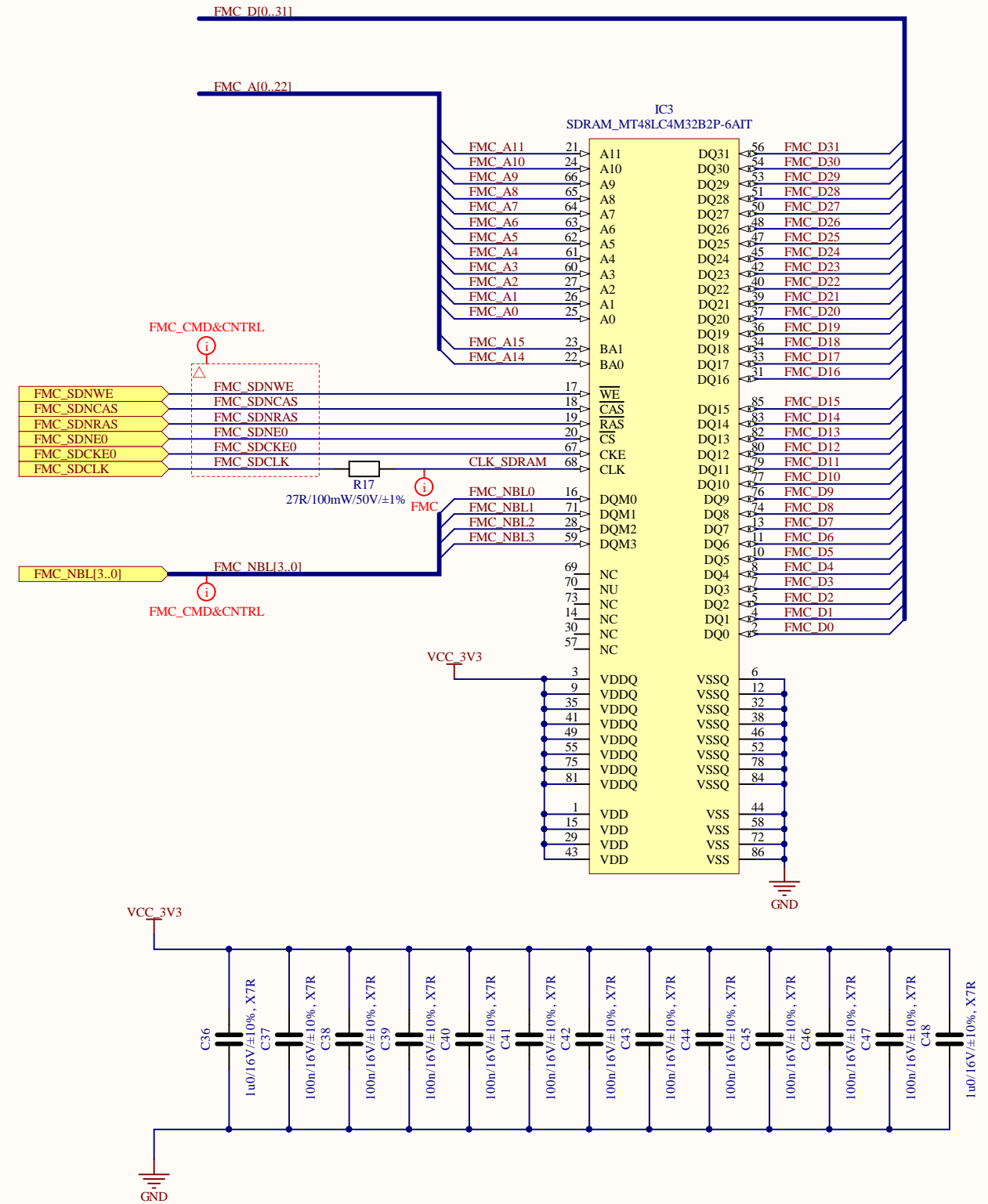
Schematics		 ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb			
Document:	P07_Microcontroller_Power.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	7

NOR FLASH AND SDRAM

NOR FLASH



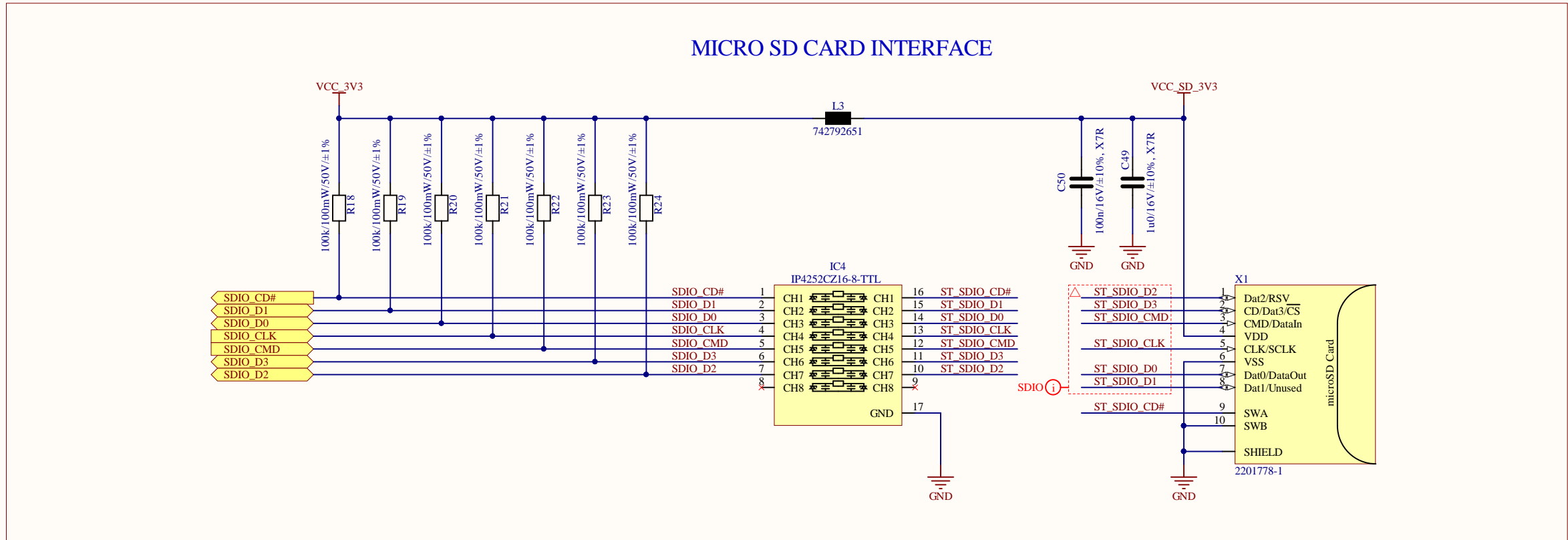
SDRAM



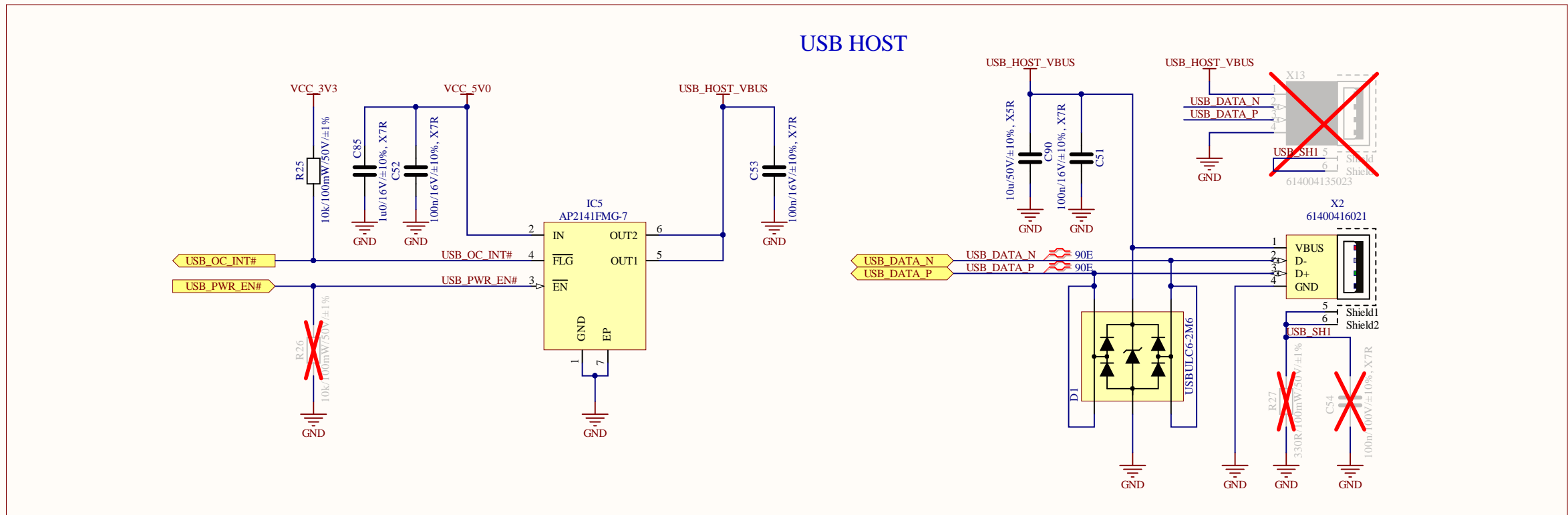
Schematics		 ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrfPcb		
Document:	P08_NOR_Flash_and_SDRAM.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	8

SD CARD AND USB HOST

MICRO SD CARD INTERFACE

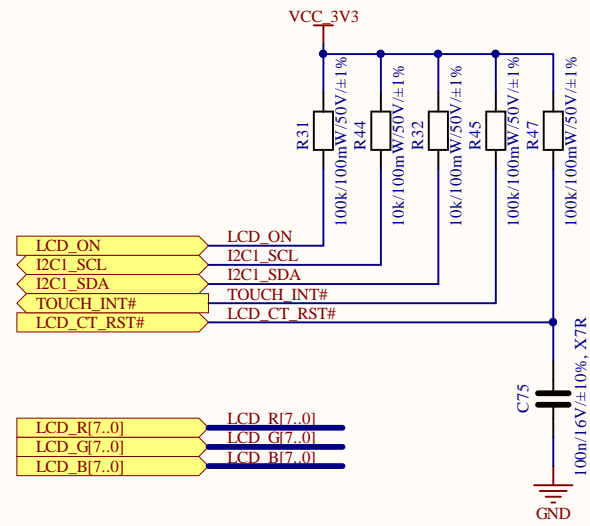


USB HOST

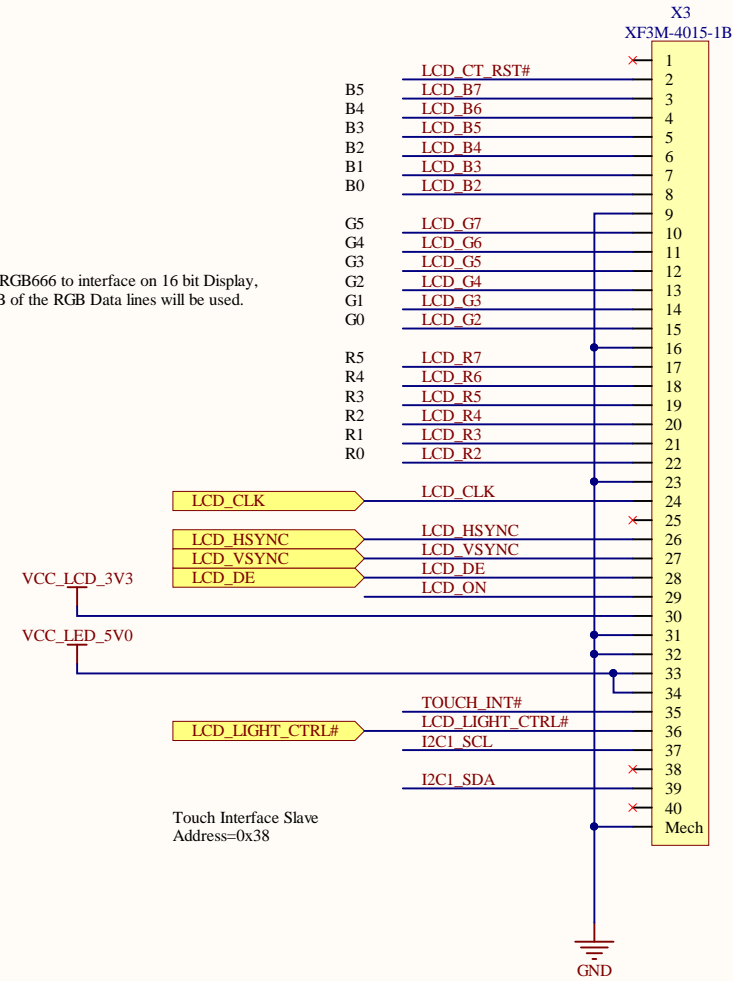


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Project: Display_Control_Board_4.3inch_V100.PrjPcb		www.ebs-systart.com	
Document:	P09_SD_Card_And_USB_Host.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	9

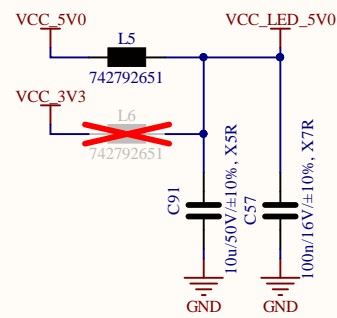
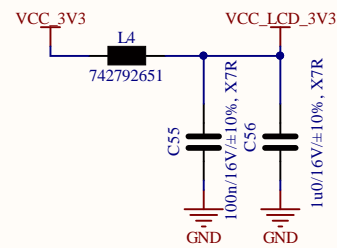
DISPLAY CONNECTOR



For RGB666 to interface on 16 bit Display, MSB of the RGB Data lines will be used.



Touch Interface Slave Address=0x38

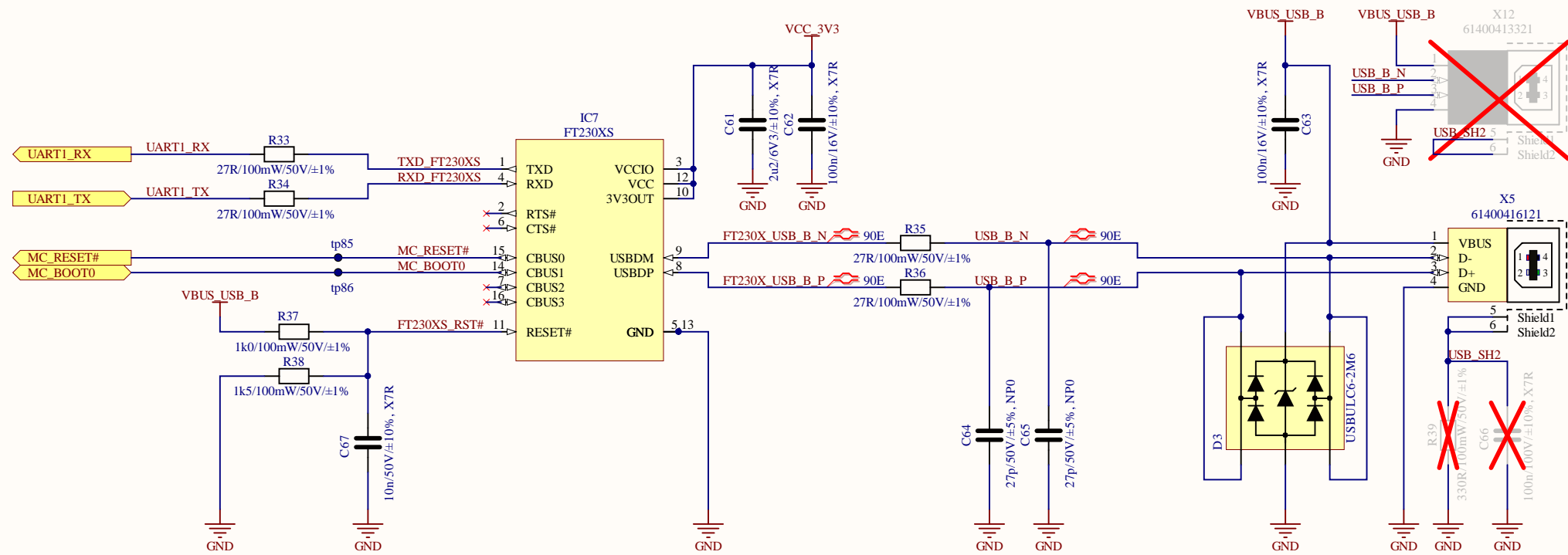


L6 provided only for Testing. Don't mount L5 and L6 together.

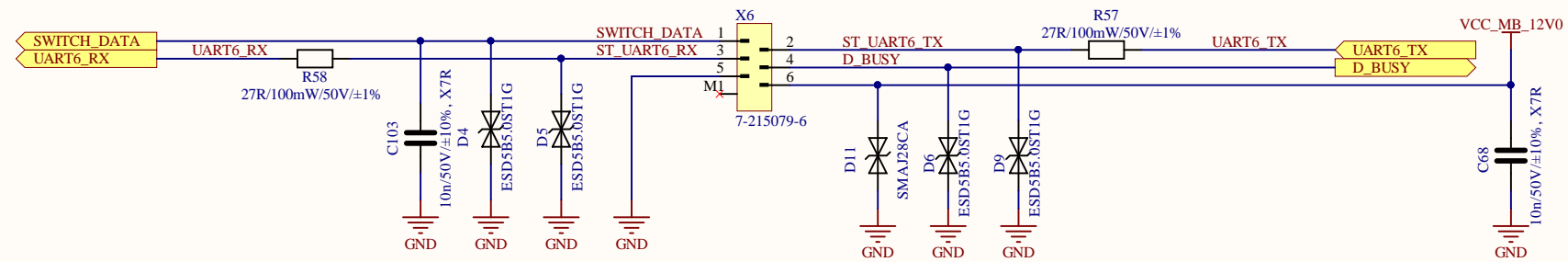
Schematics		 ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb			
Document:	P10_TFT_Display.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	10

MAIN BOARD INTERFACE

USB Type B Interface



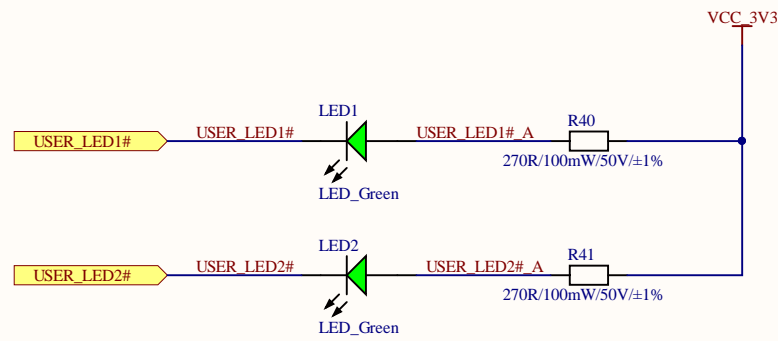
6 pin B2C Connector



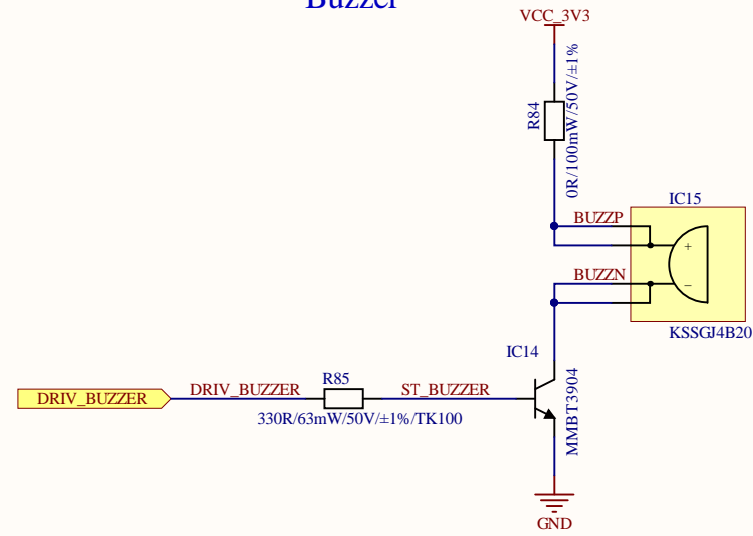
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Project:	Display_Control_Board_4.3inch_V100.PrjPcb	www.ebs-systart.com	
Document:	P11_Main_Board_Interface.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Page:	11
Status:	Approved		

DEBUG AND USER INTERFACE

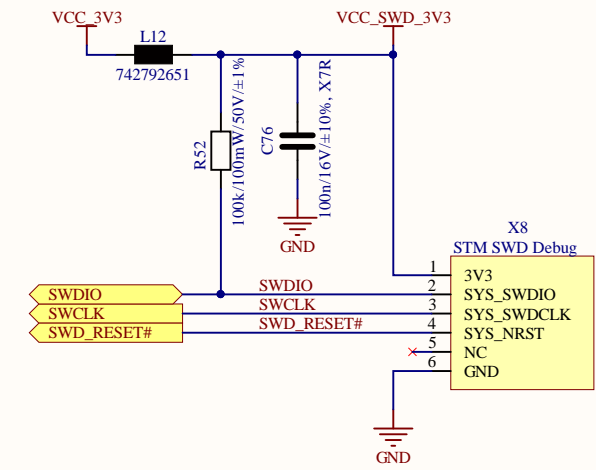
User Interface LED



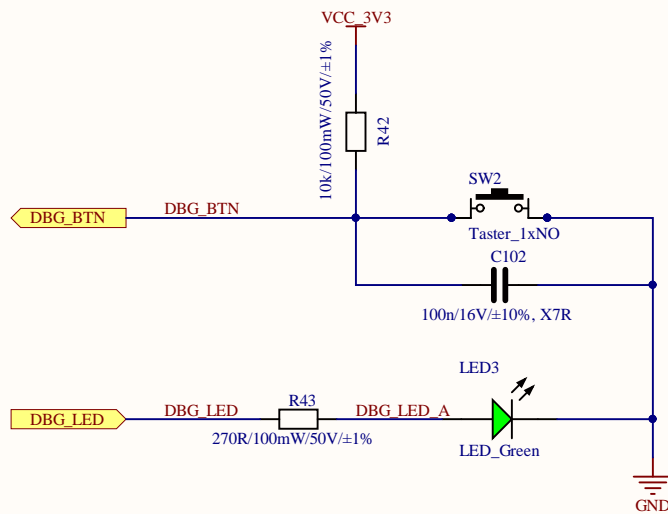
Buzzer



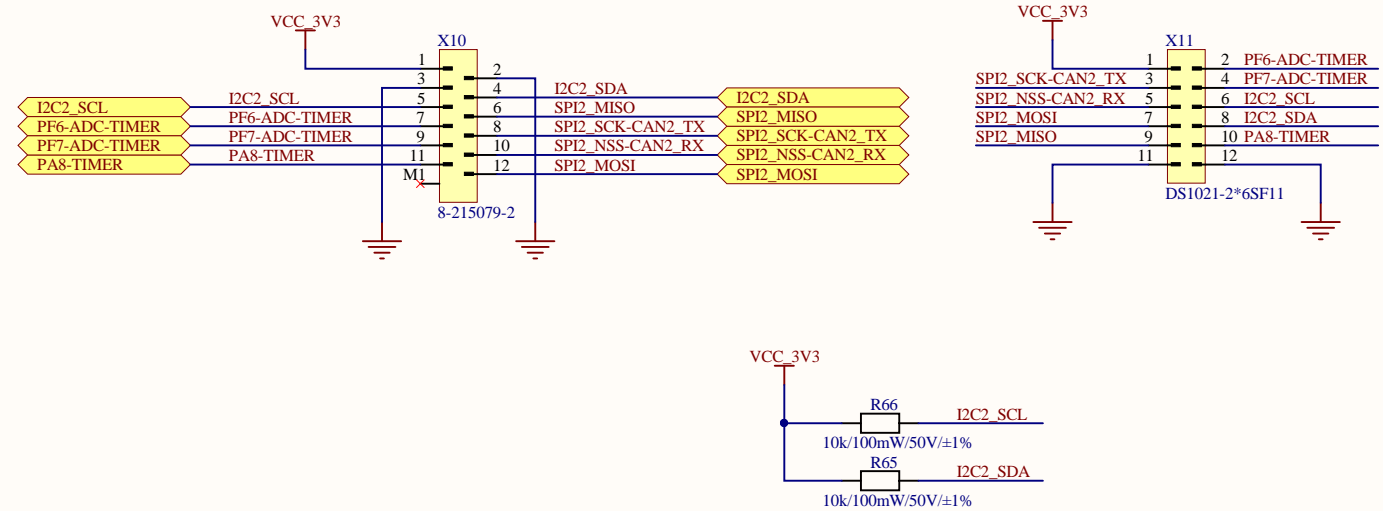
Serial wire Debug Port



Debug Interface

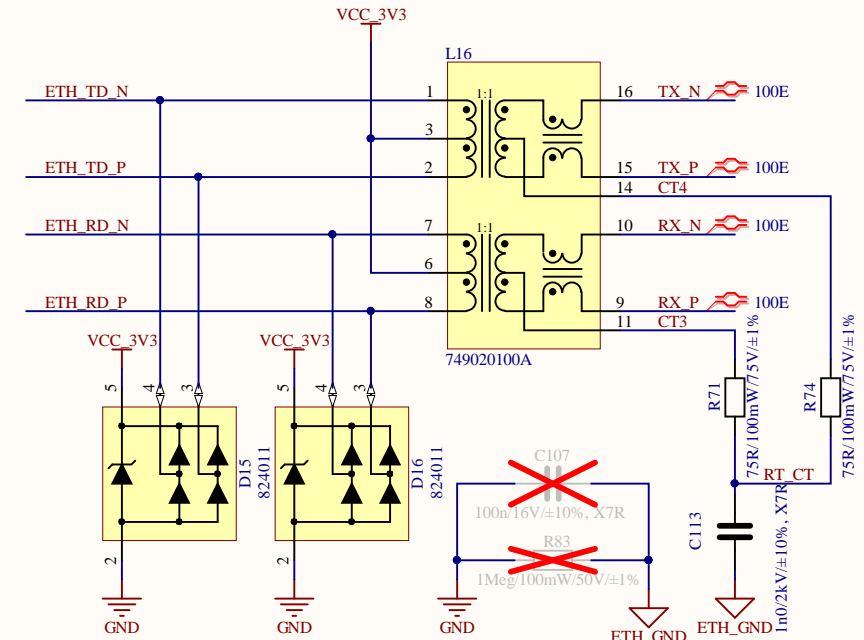
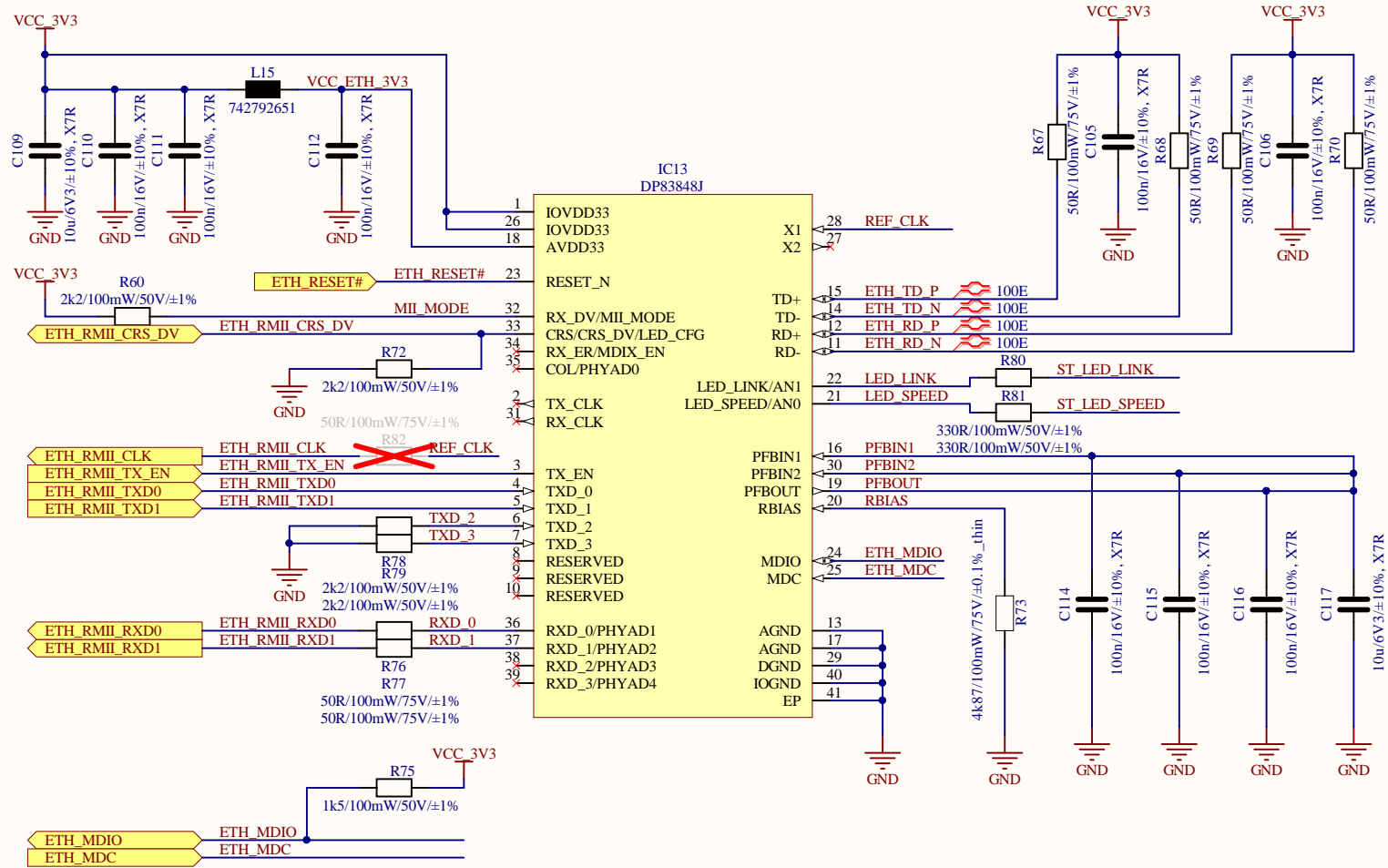


External Interface

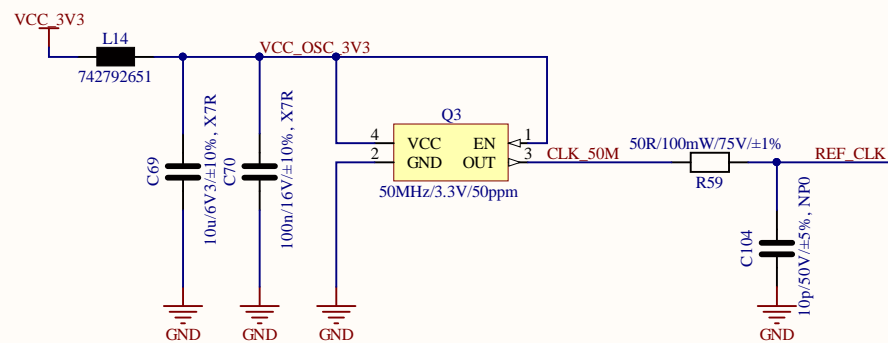


Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrjPcb	www.ebs-systart.com	
Document:	P12_Debug_And_User_Interface.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Page:	12
Status:	Approved		

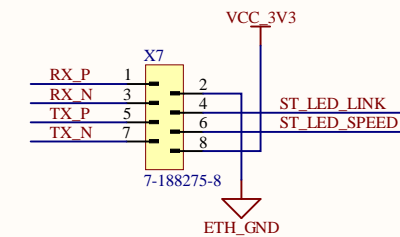
ETHERNET INTERFACE



OSCILLATOR



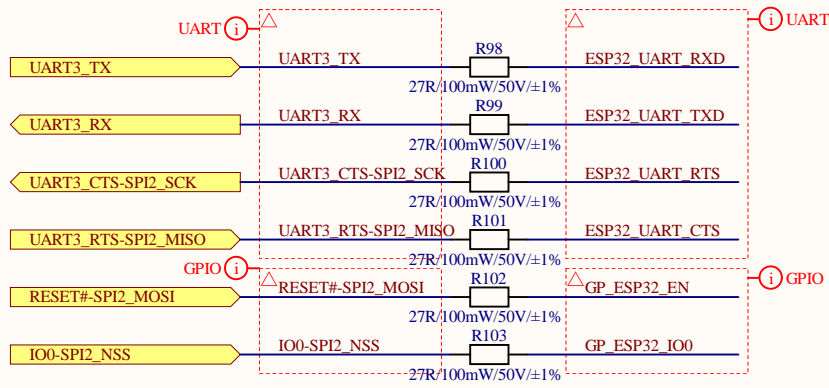
ETHERNET CONNECTOR



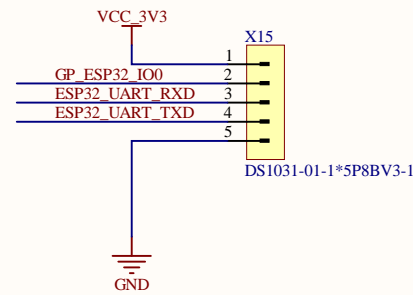
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Project:	Display_Control_Board_4.3inch_V100.PrfPcb	www.ebs-systart.com	
Document:	P13_Ethernet_Interface.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Page:	13
Status:	Approved		

ESP32 Module

Mount R98 to R103 : STM32 to ESP32 UART Interface available
 Mount R107 to R112 : STM32 to BMD300 UART Interface available
 STM32 UART Interface will not available to both module at the same

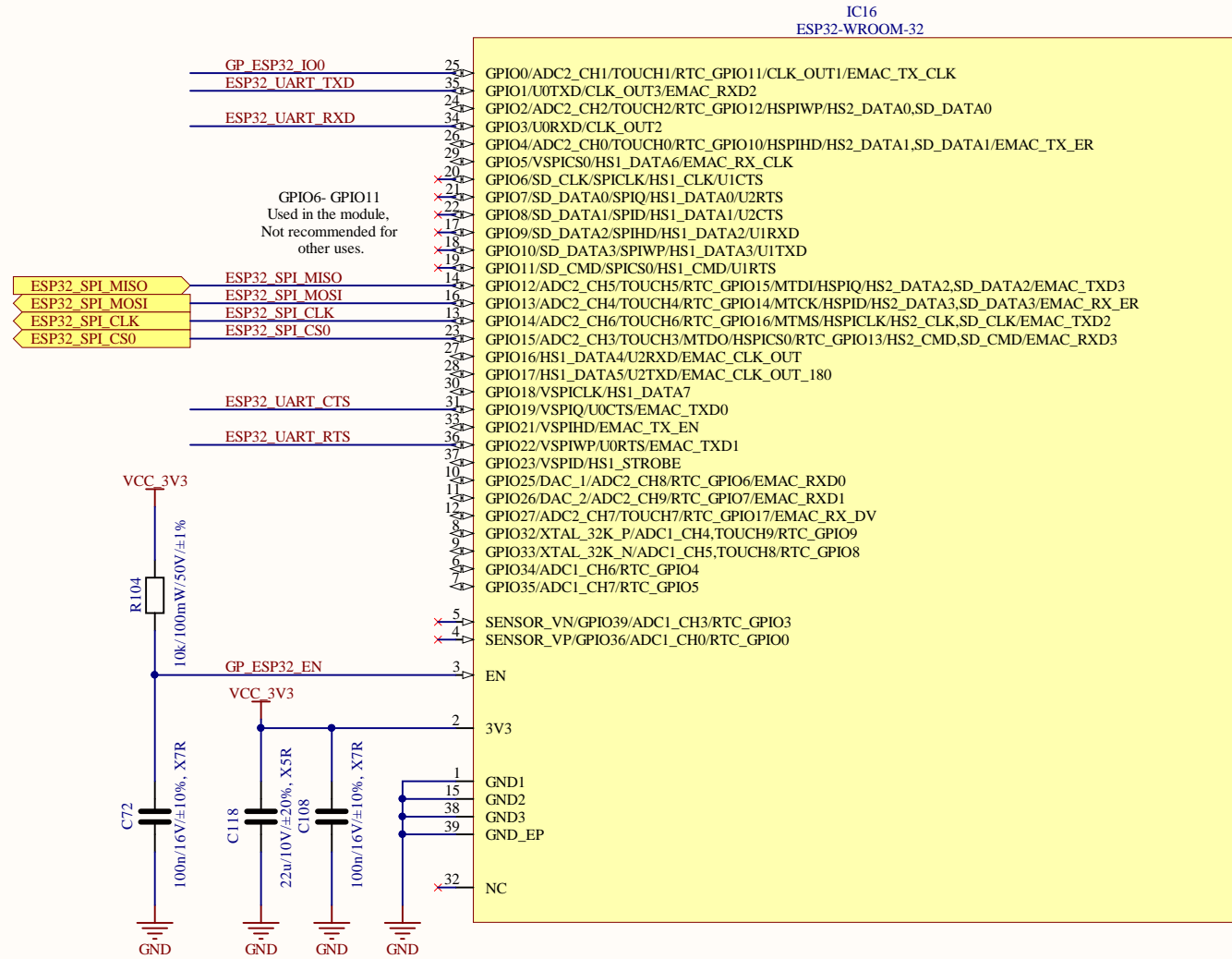


UART DOWNLOAD



GPIO0	GPIO2	Booting Mode
1 (Default)	x	SPI Boot (Default)
0	0 (Default)	Download Boot

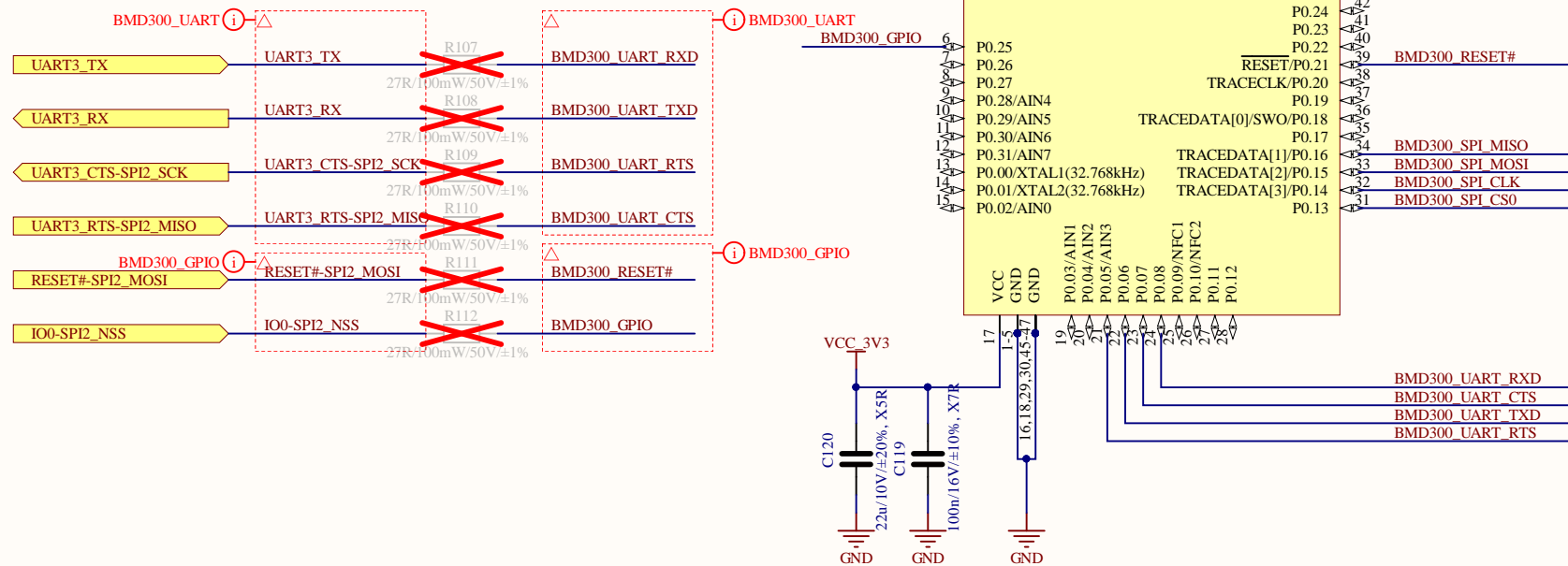
Pin	Value	Configuration
MTDI (GPIO12)	0 (Default)	Voltage of Internal LDO = 3.3
	1	Voltage of Internal LDO = 1.8
MTDO (GPIO15)	0	U0TXD Silent
	1 (Default)	U0TXD Active



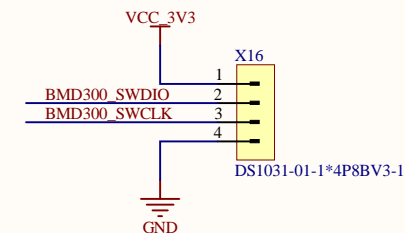
Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project:	Display_Control_Board_4.3inch_V100.PrjPcb	www.ebs-systart.com	
Document:	P14_ESP32_Module.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Status:	Approved
Status:	Approved	Page:	14

BMD 300 MODULE

Mount R98 to R103 : STM32 to ESP32 UART Interface available
 Mount R107 to R112 : STM32 to BMD300 UART Interface available
 STM32 UART Interface will not available to both module at the same

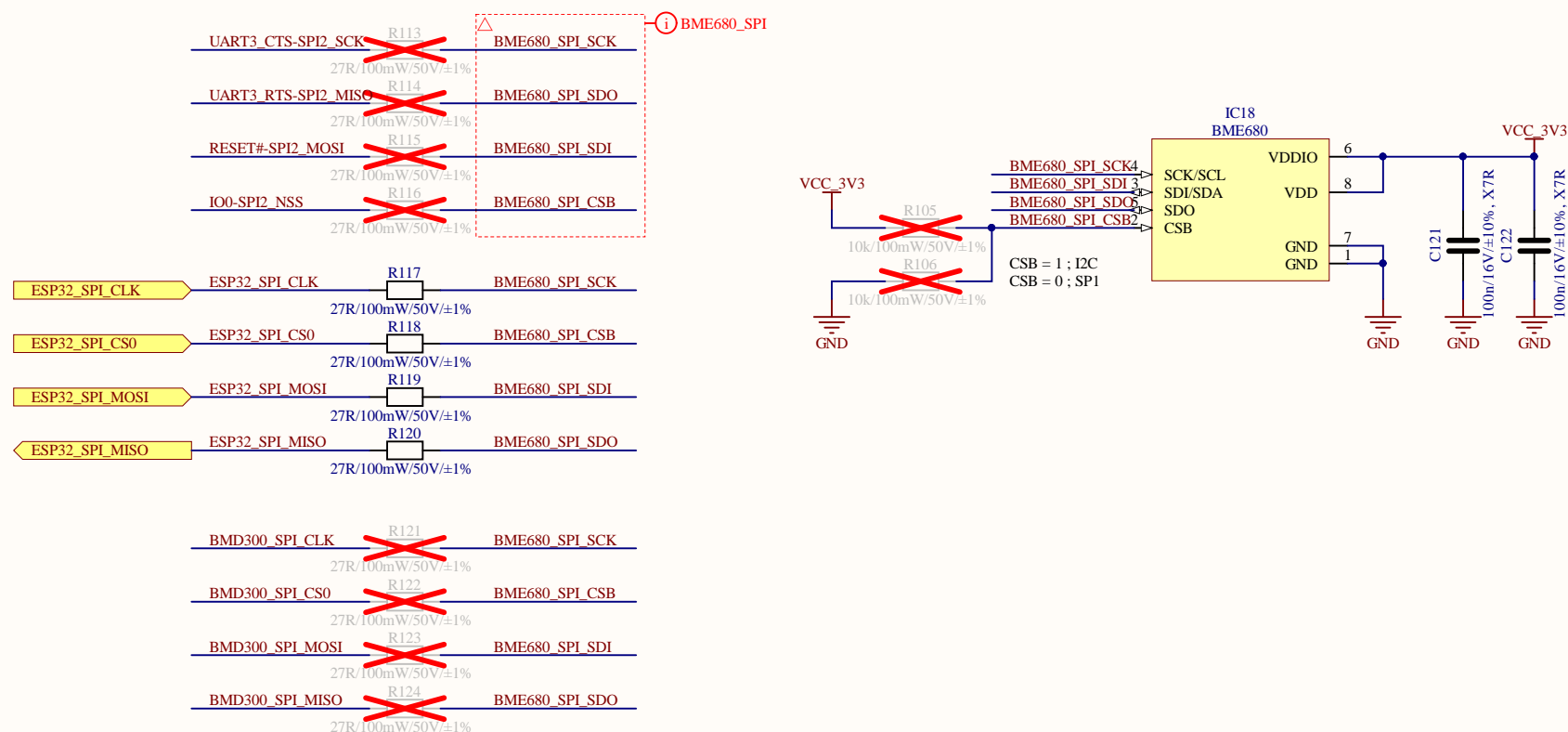


BMD300 SWD HEADER



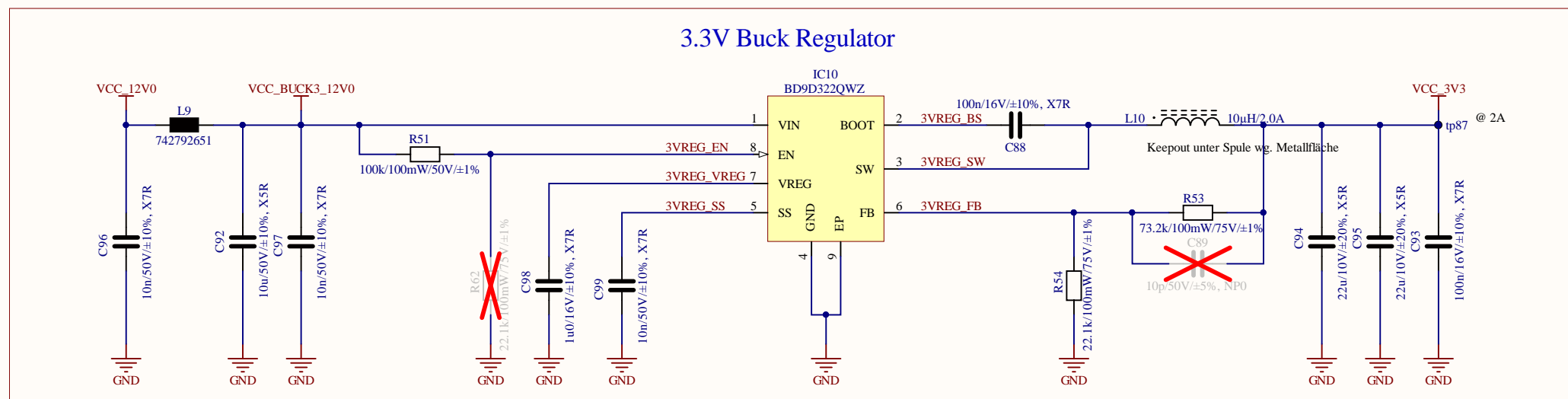
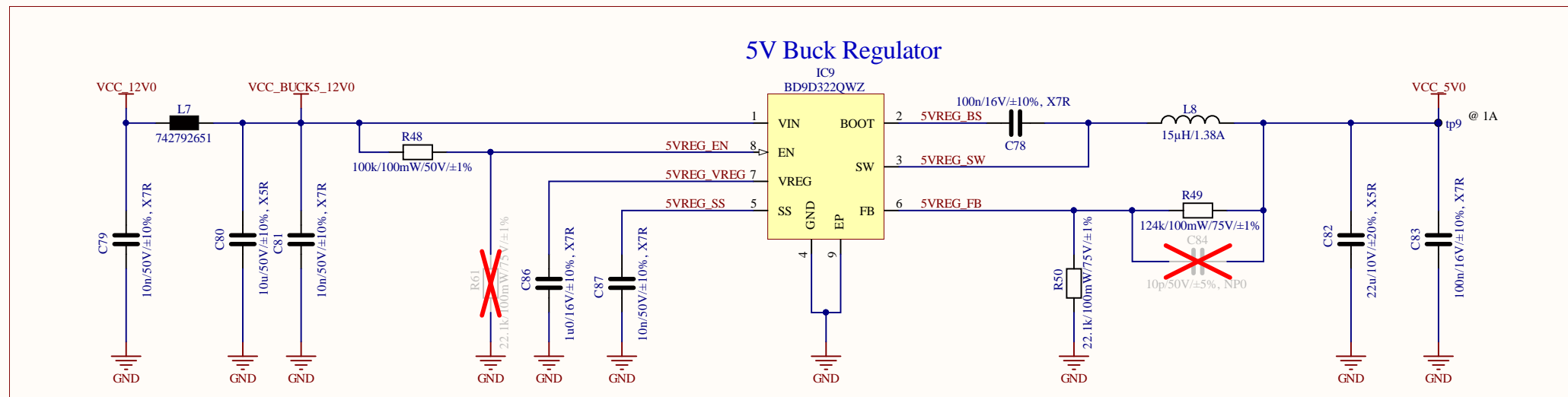
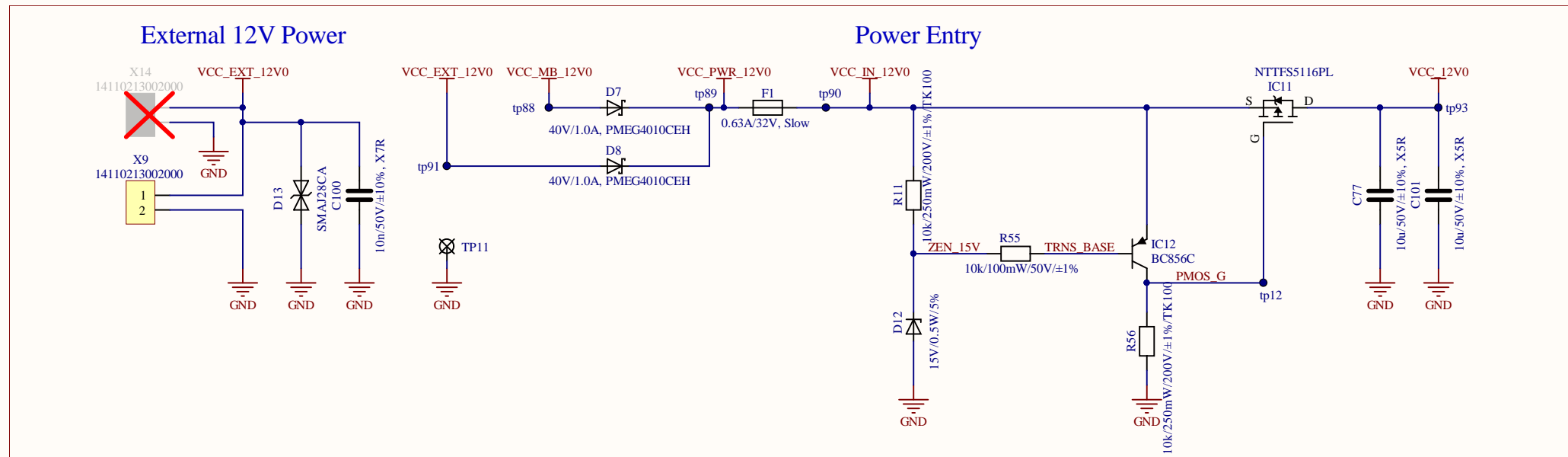
BME680 SENSOR

Mount R113 to R116 : STM32 to BME680 Interface
 Mount R117 to R120 : ESP32 to BME680 Interface
 Mount R121 to R124 : BMD300 to BME680 Interface



Schematics		 ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb			
Document:	P15_BMD300_Module.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Page:	15
Status:	Approved		

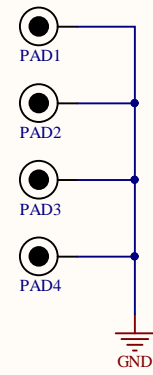
POWER



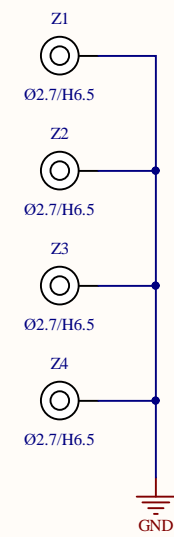
Schematics		EBS SYSTART ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb		www.ebs-systart.com	
Document: P16_Power.SchDoc	Author: DCT/VKN	Date: 02-Dec-2020	Date: 02-Dec-2020
Auditor: DCT/AVR	Status: Approved	Page: 16	

MISCELLANEOUS

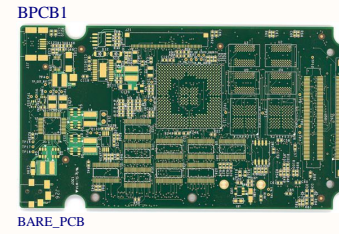
MOUNTING HOLES



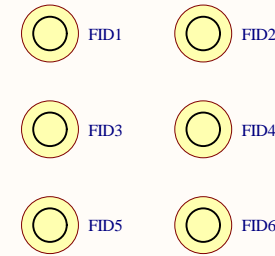
STEEL SPACER




BARE PCB




FIDUCIALS



Schematics		 ENTWICKLUNG UND PRODUKTION	
Project: Display_Control_Board_4.3inch_V100.PrjPcb			
Document:	P17_Miscellaneous.SchDoc	Date:	02-Dec-2020
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	17

REVISION HISTORY

Version	Change Description	Change Done By	Approved By	Date
V100	First Release of 4.3 inch Display Board	DCT/VKN	DCT/AVR	01-Dec-2020

Schematics		 <small>ENTWICKLUNG UND PRODUKTION</small>	
Project:	Display_Control_Board_4.3inch_V100.PrjPcb		
Document:	P18_Revision_History.SchDoc	www.ebs-systart.com	
Author:	DCT/VKN	Date:	02-Dec-2020
Auditor:	DCT/AVR	Date:	02-Dec-2020
Status:	Approved	Page:	18