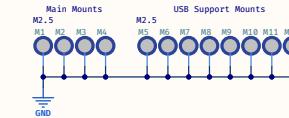
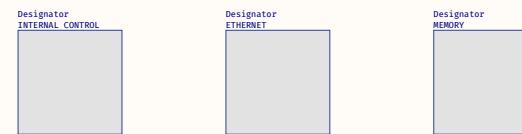
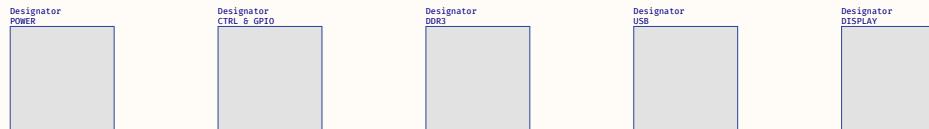


# Benchy Reloaded

## STM32 Motherboard

This version uses the STM32MP157 MPU.

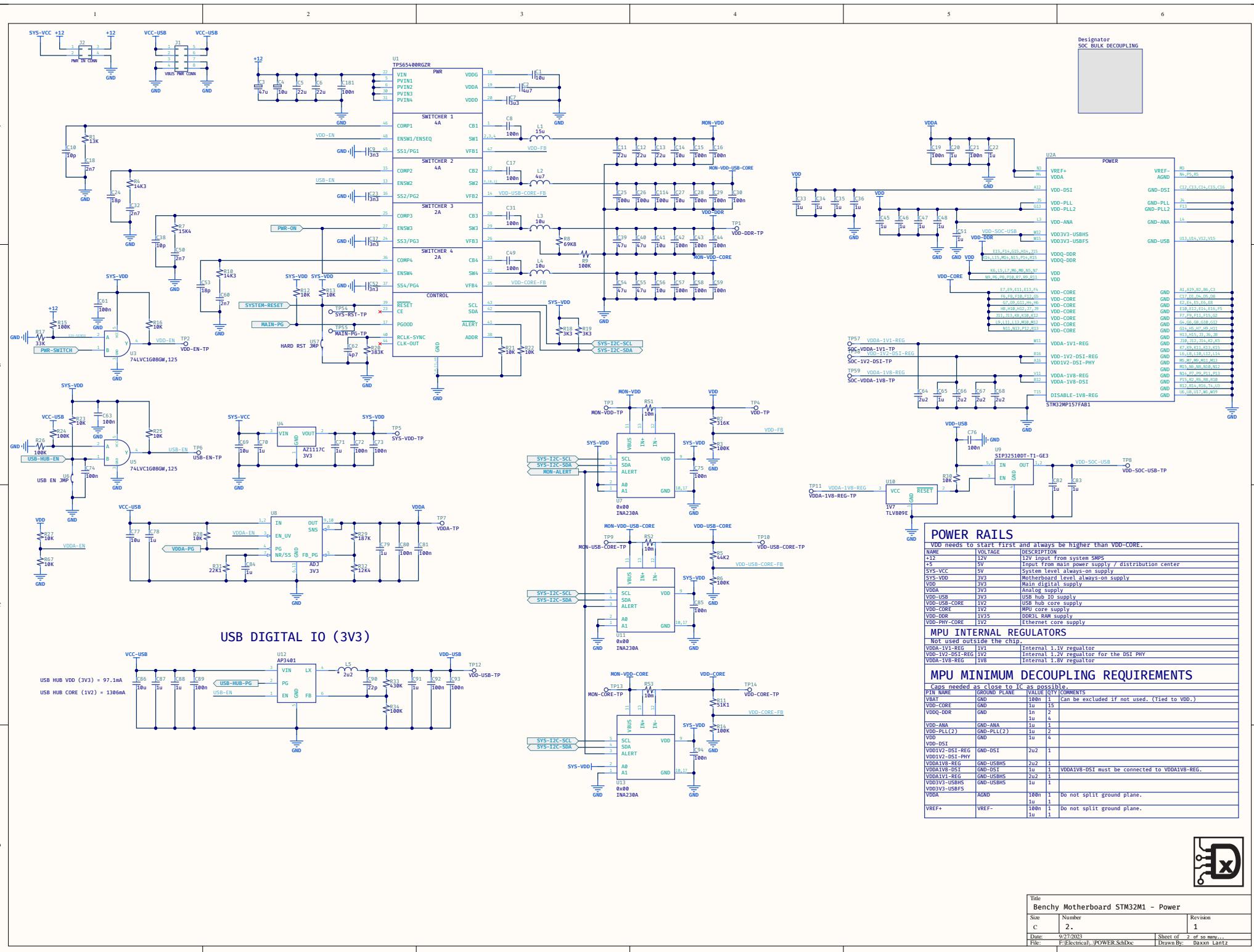


### System Power Rails

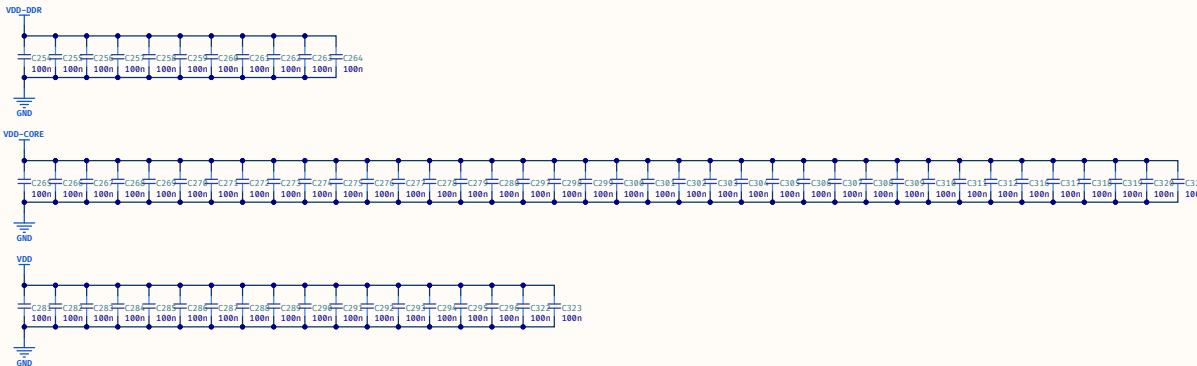
VDD needs to start up first and always be higher than VDD-CORE!		
NAME	VOLTAGE	DESCRIPTION
+12	12V	12V input from ATX Smps
VCC-USB	5V	Input from main power supply / distribution center. Used mostly for USB VBUS
SYS-VDD	3V	System standby power supply
SYS-VDD	3V3	Motherboard level standby power supply
VDD	3V3	Main digital supply
VDDI	1.2V	SDI And SPI supply
VDD-USB	3V3	USB hub IO supply
VDD-USB-CORE	1V2	USB hub core supply
VDD-CORE	1V2	SOC core supply
VDD-DSI	1.25	DSI core supply
VDD-PHY-CORE	1V2	Ethernet core supply
<b>MPU INTERNAL REGULATORS</b>		
Not used outside the chip		
VDDA-1V1-REG	1V1	Internal 1.1V regulator
VDDA-1V2-DSI-REG	1V2	Internal 1.2V regulator for the DSI PHY
VDDA-1V8-REG	1V8	Internal 1.8V regulator



Title	Benchy Motherboard STM32M1	
Size	Number	Revision
C	1,	1
Date:	9/27/2023	Sheet of 1 of so many...
File:	F:\Electrical\MAIN-MB-STM32MP1	Shown By: Daxx Lantz



## SOC DECOUPLING CAPS



A

A

B

B

C

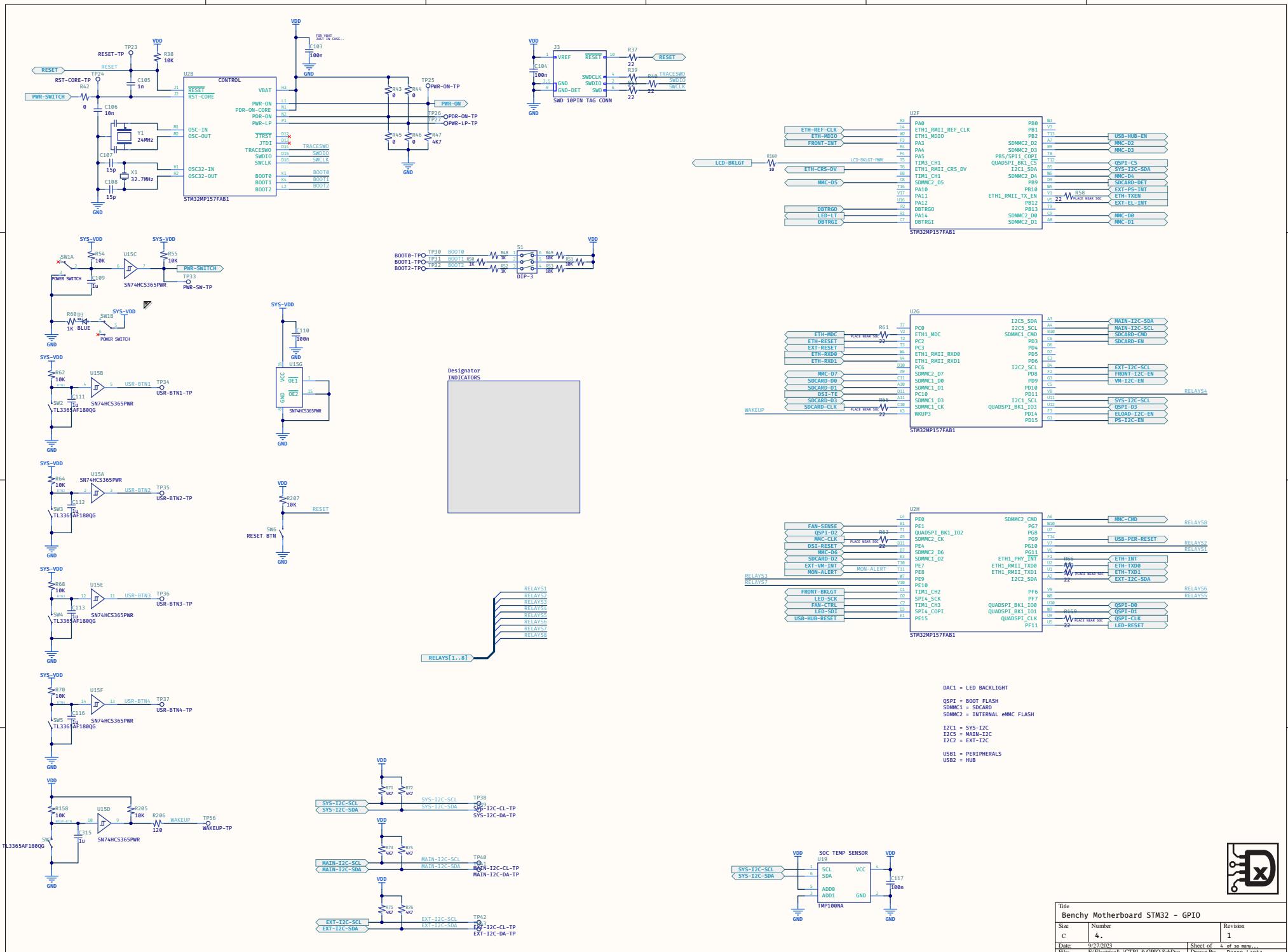
C

D

D



Title		
Benchy Motherboard STM32 - SOC Decoupling		
Size	Number	Revision
C	3,	1
Date:	9/27/2023	Sheet of 3 of 30 many...
File:	F:\Electrical\SOC BULK DECOUPLING\	Daxx Lantz



DAC1 = LED BACKLIGHT

QSPI = BOOT FLASH  
 SDRAM = SDRAM  
 SDMMC = INTERNAL eMMC FLASH

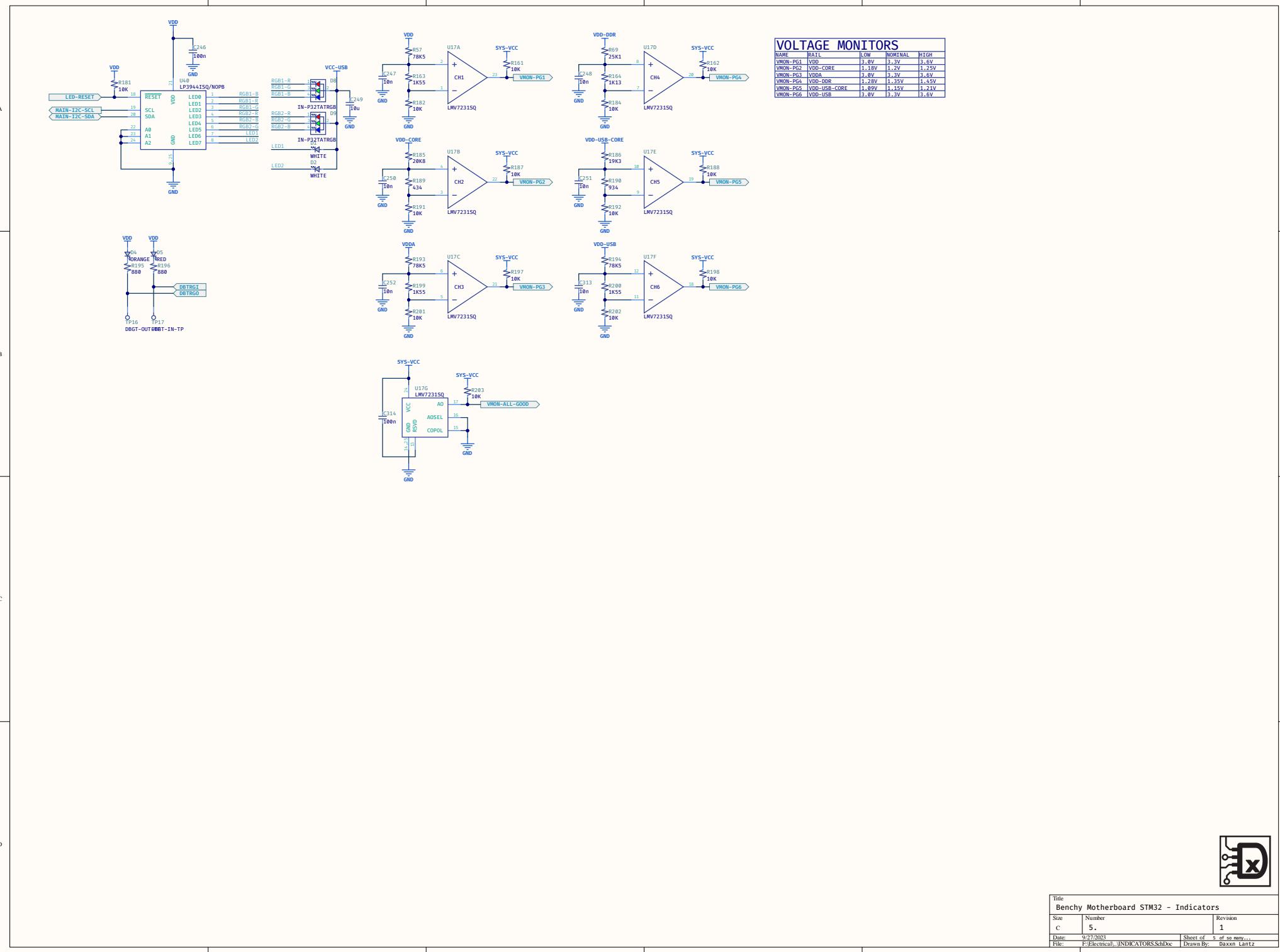
I2C1 = SYS-I2C  
 I2C2 = MAIN-I2C  
 I2C3 = EXT-I2C

USB1 = PERIPHERALS  
 USB2 = HUB

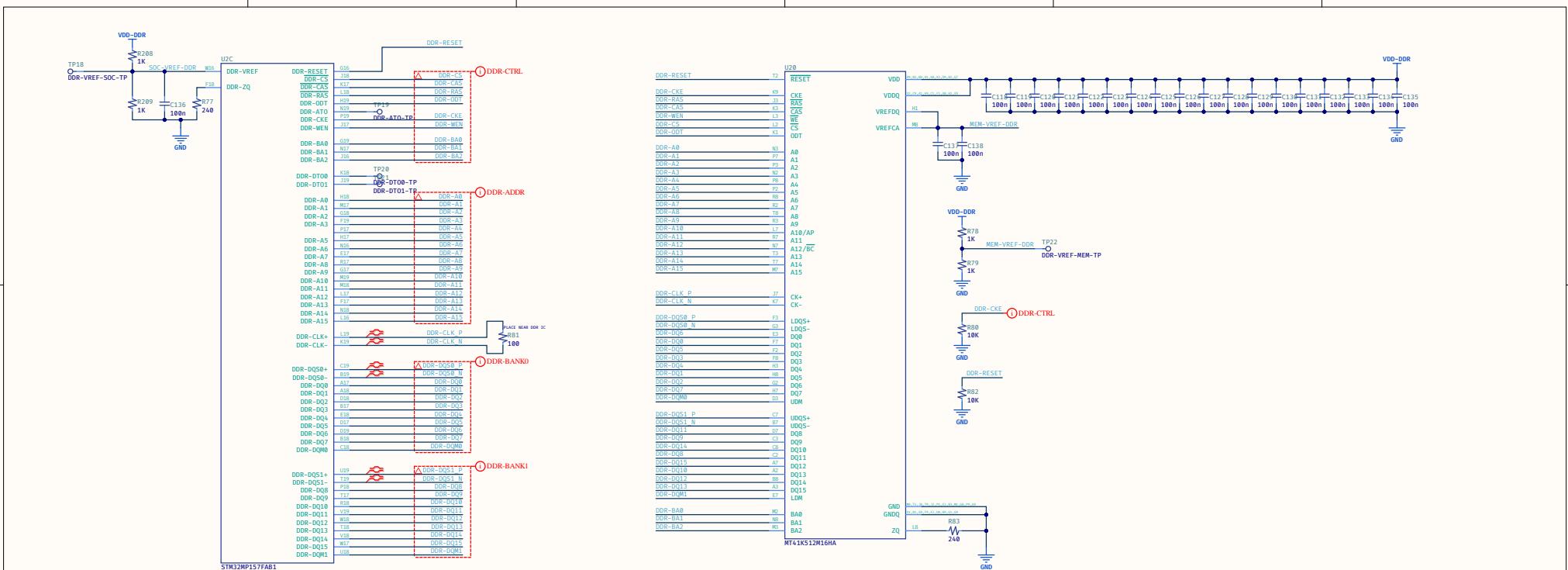


Title: Benchy Motherboard STM32 - GPIO

Size	Number	Revision
C	4	1
Date:	9/27/2023	Sheet of 4 of 40 pages
File:	F:\Electrical\CTRL&GPIO.SchDoc	Drawn By: Daxx Lantz



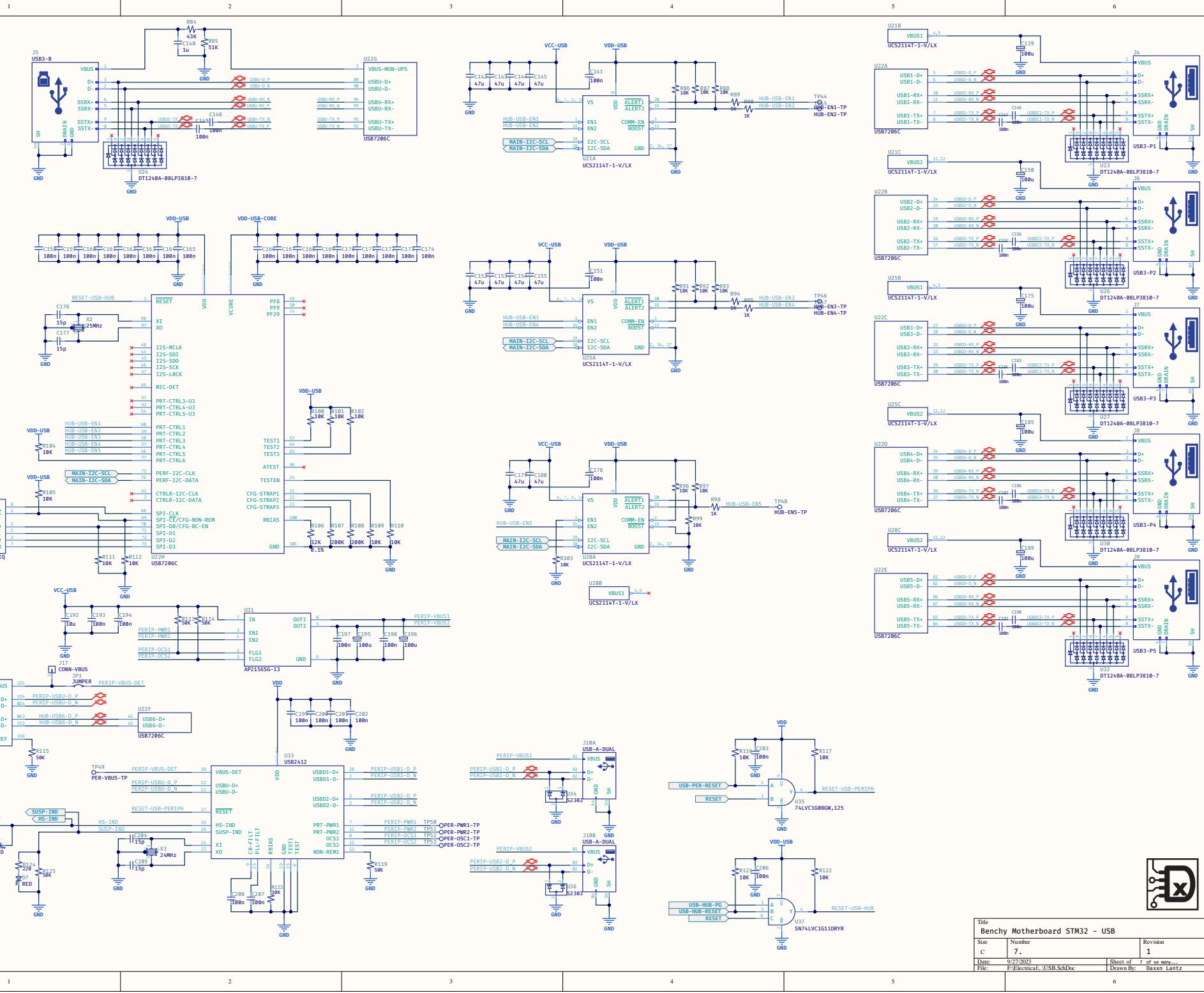
Title		
Benchy Motherboard STM32 - Indicators		
Size	Number	Revision
C	5	1
Date:	9/27/2023	Sheet of 5 of 50 pages
File:	F:\Electrical\INDICATORS.SchDoc	Drawn By: Daxx Lantz



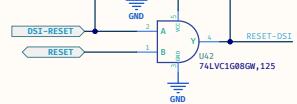
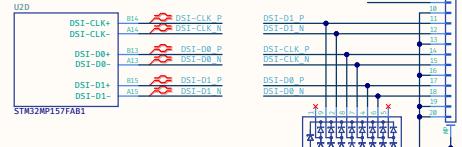
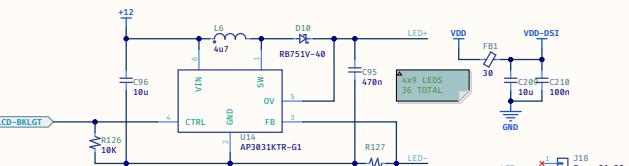
STM32MP157FAB1

Title: Benchy Motherboard STM32 - DDR3		
Size	Number	Revision
C	6	1
Date:	9/27/2023	Sheet of 6 of 60 pages
File:	F:\Electrical\DDR3\SchDxe	Drawn By: Daxx Lantz

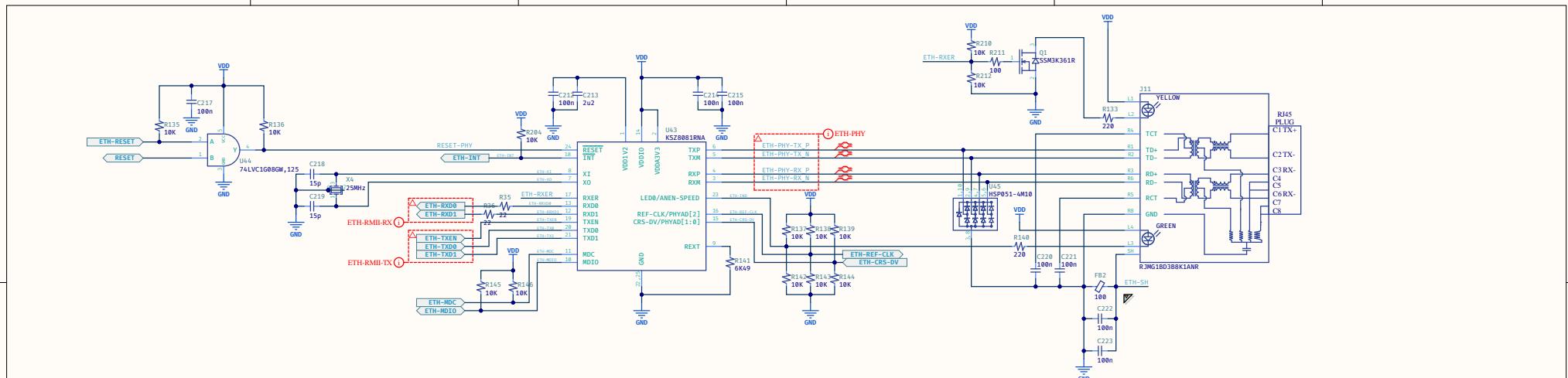




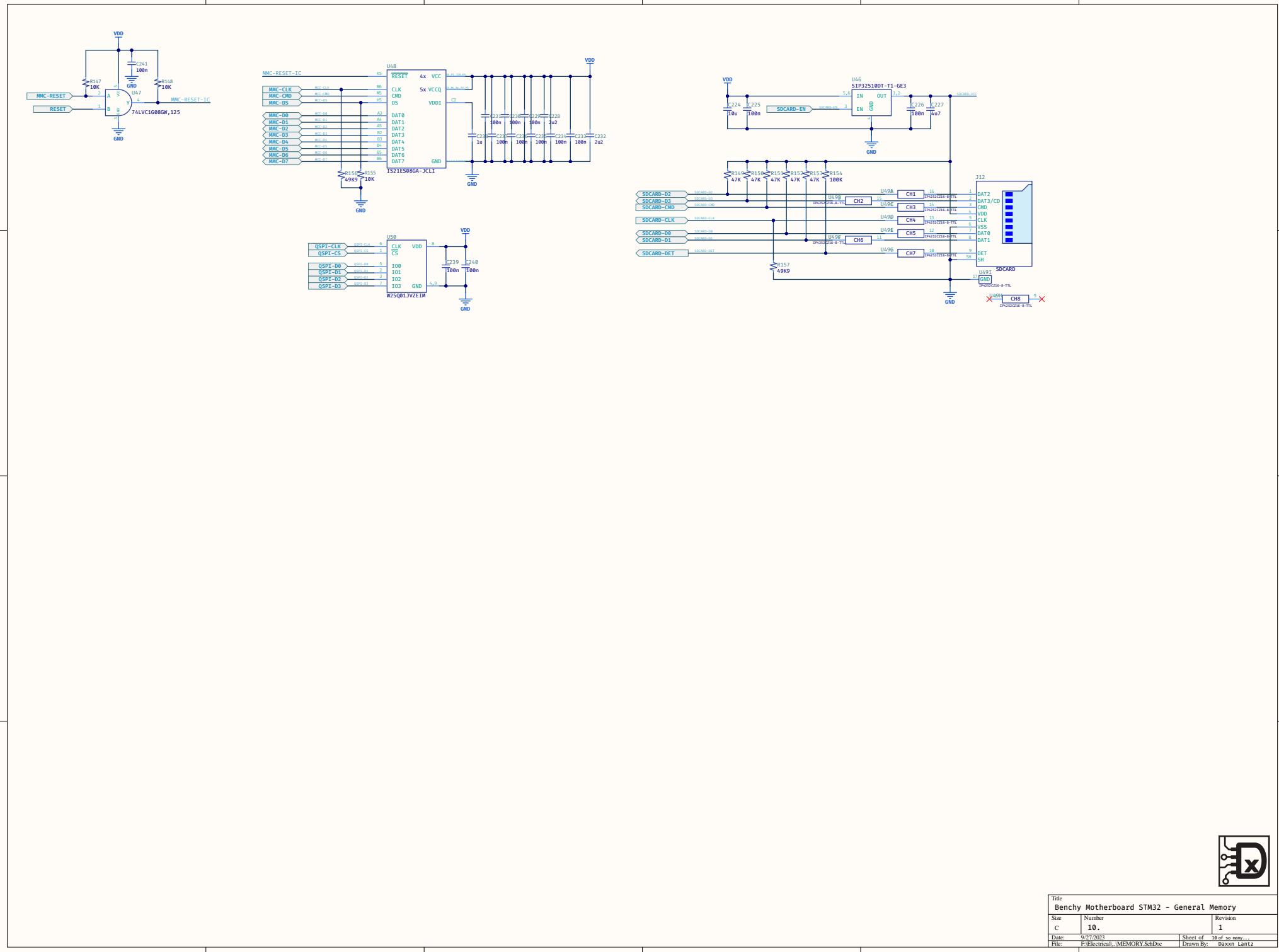
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Size: C Number: 7 Revision: 1  
Date: 9/27/2023 Sheet of: 7 of 40 pages...  
File: F:\Electrical\USB\SchDocx Drawn By: Daxnn Lantz



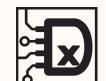
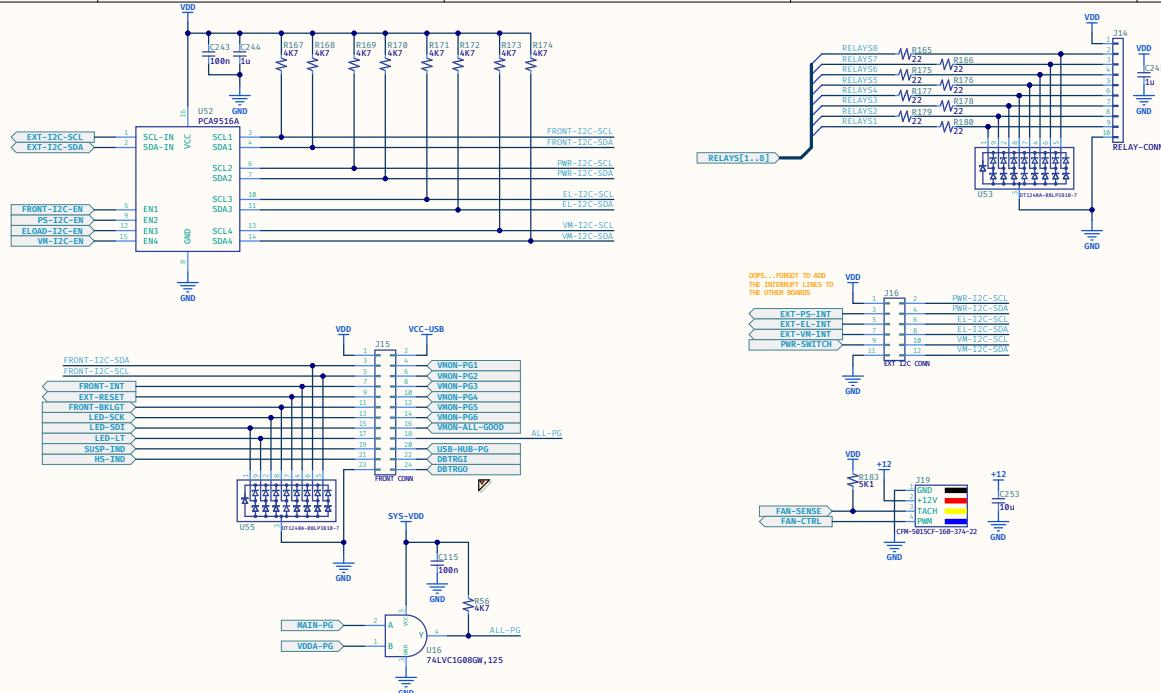
Title Benchy Motherboard STM32 - Display		
Size C	Number 8	Revision 1
Date: 9/27/2023	Sheet of 8 of 80 pages	Drawn By: Daxx Lantz
File: F:\Electrical\DISPLAY\SchDoc		



Title: Benchy Motherboard STM32 - Ethernet			
Size	Number	Revision	
C	9.	1	
Date:	9/27/2023	Sheet of	9 of 20 pages...
File:	F:\Electrical\ETHERNET\SchDoc	Drawn By:	Daxx Lantz



Title Benchy Motherboard STM32 - General Memory		
Size C	Number 10.	Revision 1
Date: 9/27/2023	Sheet of 10 of 40 mem...	
File: F:\Electrical\MEMORY\SchDoc	Drawn By: Daxx Lantz	



Title: Benchy Motherboard STM32 - System Control		
Size: C	Number: 11.	Revision: 1
Date: 9/27/2023	Sheet of 11 of so many...	
File: F:\Electrical\INTERNALCONTROL	Drawn By: Daxx Lantz	

