

Key Features

- <Power>
 - Wide range voltage power supply (18~30VDC)
 - ST-eFuse protected against under-voltage and short circuit conditions
 - Isolation between system power and load power
- <Communication Interface>
 - Three Ethernet ports (EtherCAT)
 - RS485, RS232, FDCAN Interface
 - SPI interface reserved for extensional modules
 - JTAG, SWD, USB(UART) for debugging
- <Digital I/O>
 - 12 parallel isolated digital input channels
 - 8 parallel isolated high-side digital output channels
 - 4 parallel isolated low-side digital output channels
- <Additional Function>
 - Data secure provided by STSAFE
 - RTC module used for calendar function

BoM List

STM32MP257F	1
STPS2H100U	2
ESDALC6V1W5	7
ESDA14V2BP6	2
ESDCAN24-2BLY	1
SMBJ30CA-TR	2
HSP051-4M10	6
ECMF2-40A100N6	3
STEF01FTR	1
L6984TR	1
L6981NDR	1
TL431BL3T	1
LDL1117S33R	1
LMV331ICT	1
M41T83RQA6F	1
STSAFE-A110	1
LDK130M33R	1
STISO621TR	2
ST4E1240	1
ST3232EBTR	1
STISO620	10
L9616	1
STMPS2151STR	1
CLT03-2Q3	6
ISO808	1
IPS4260LM	1

Legend



- Logic Unit
- Power Discrete & Driver
- Safety & Isolation
- RTC
- Interface & Connectors
- Non-ST device

Schematic	PLC_MP257F_DIGI_V1.3		Update	2025-07-21
Page Name	Block Diagram		Create	2025-07-21
Draw	Steve LIANG	ProDoc_PLC_MP257F_DIGI_TriPhy_V1.3_2025-06-10	Part Number	
Draw	Peter Zhou			
Review	Pony Wang			
Review		Version	Page Size	Page 1 of 13
		V1.3	A3	STMicroelectronics

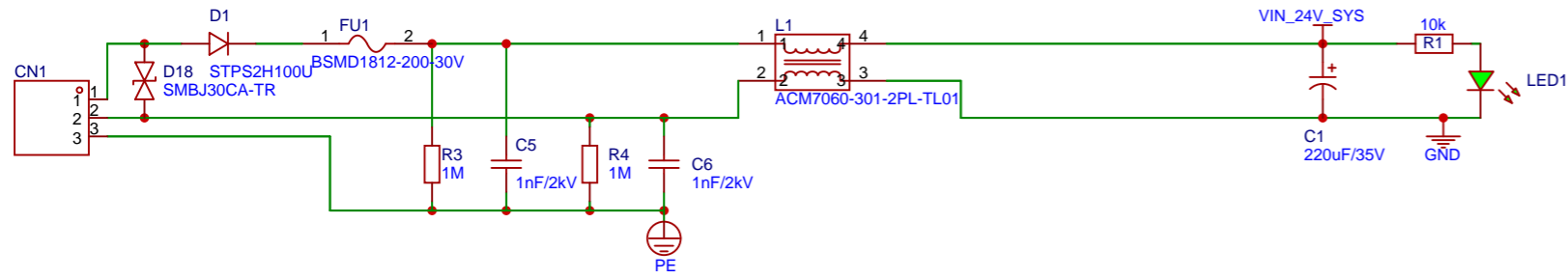
Revision

V1.0 First release
V1.1 Fix the issue of e-Fuse (Vclamp Pull-up Fault, PG Pull-up Fault)
Fix the issue of DCDC boot capacitor
Add Pull-up/pull-down resistor for setting the ETH IP address
V1.3 Update TVS on VCC_24V_SYS
Update TVS on VCC_24V_LOAD
use ESDA14V2BP6 on RS485
use ESDA25-4BP6 on RS232
use HSP051-4M10 on Ethernet
use ECMF2-40A100N6 on USB
Update protection on digital input

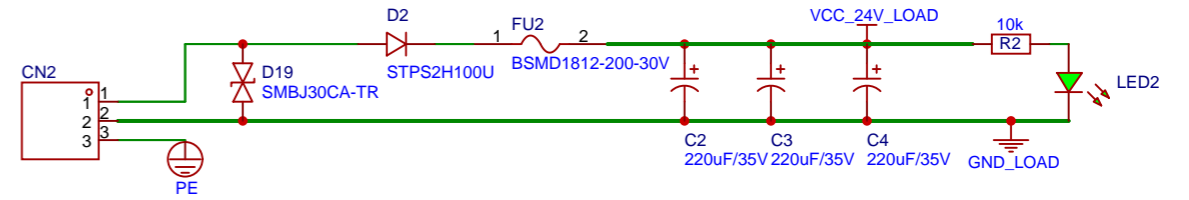
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 Automation Competence Center			V1.3	A3	STMicroelectronics		

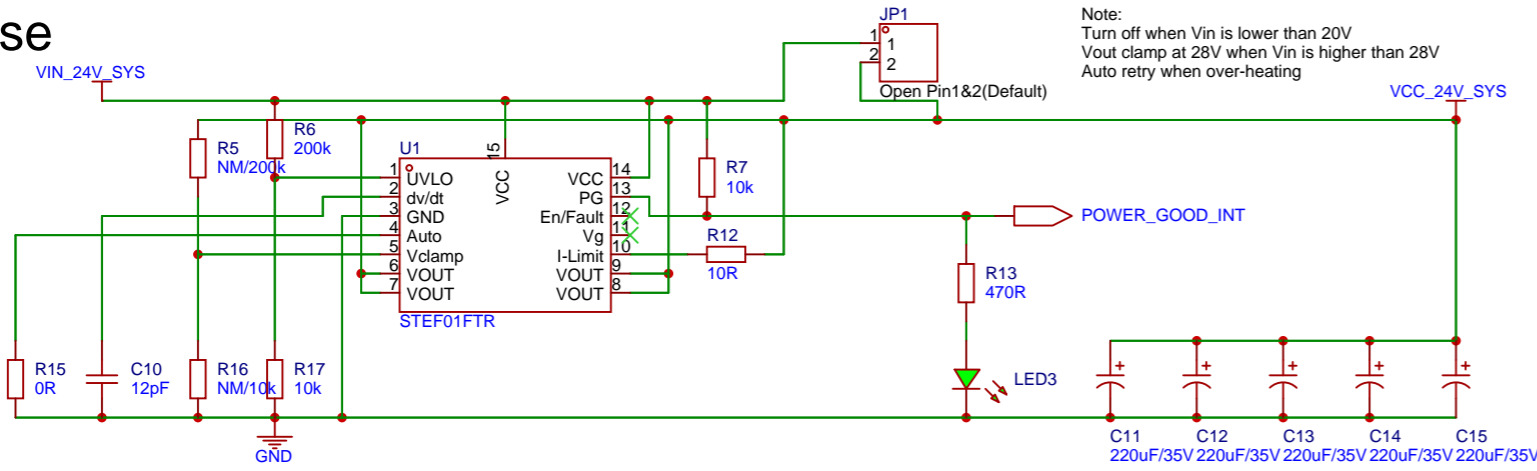
System Power Supply Connector



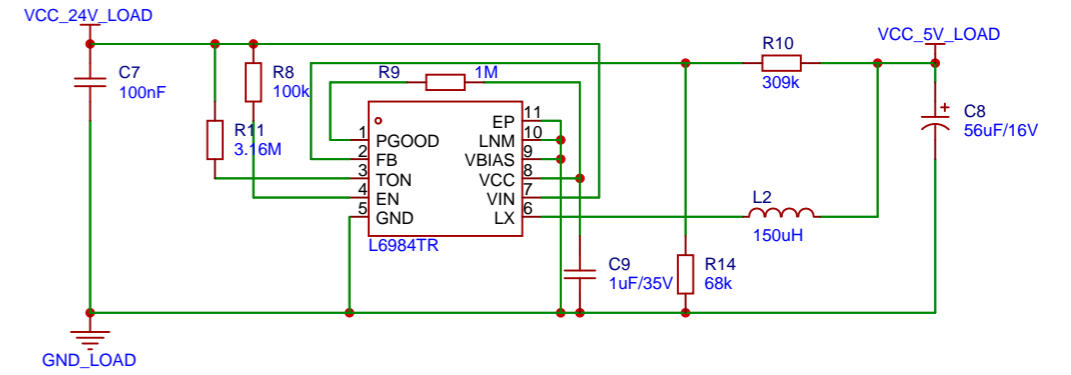
Load Power Supply Connector



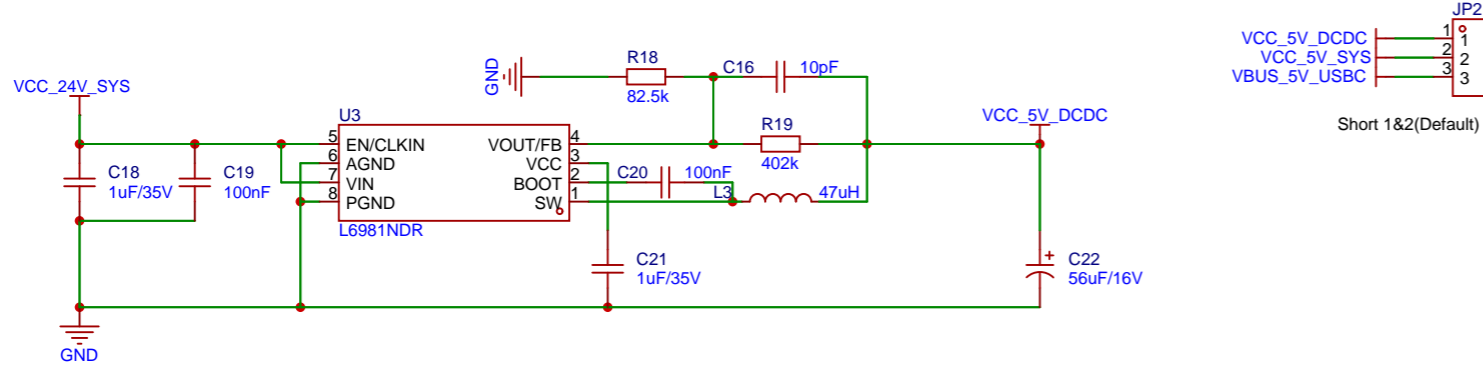
eFuse



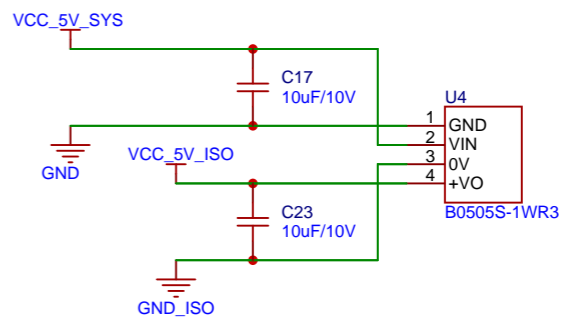
DCDC 24V->5V@400mA (LOAD)



DCDC 24V->5V@1A (SYS)

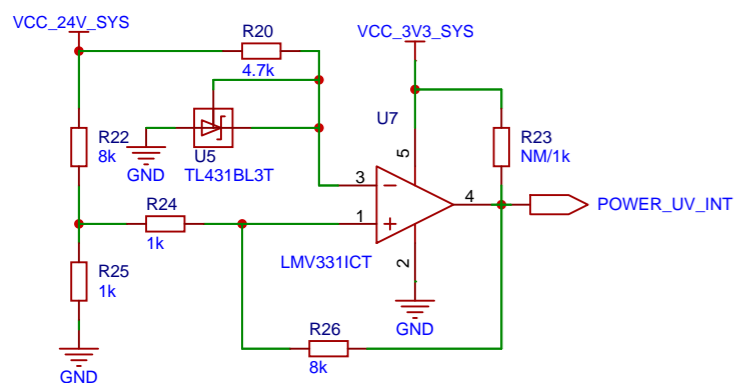


DCDC 5V->5V@200mA

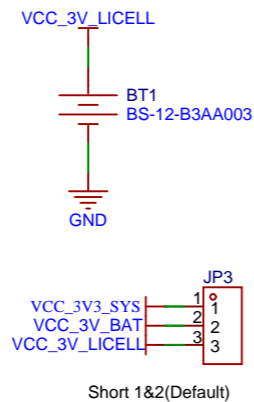


Under Voltage Detection

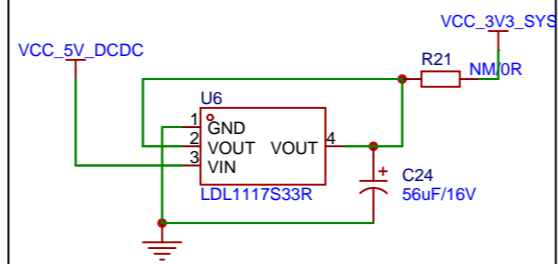
Vth=-18V, Vth+=21V
Voh=3.3V
Vref=2.5V



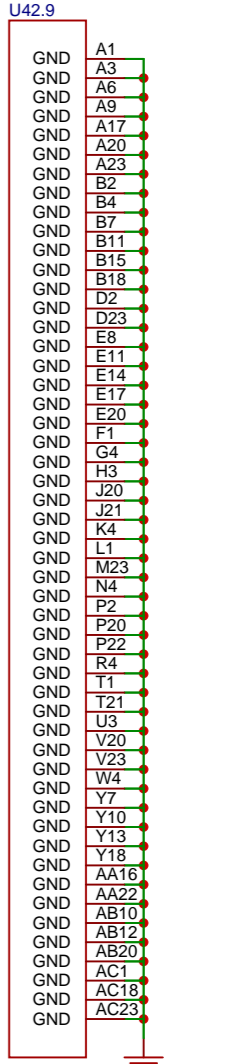
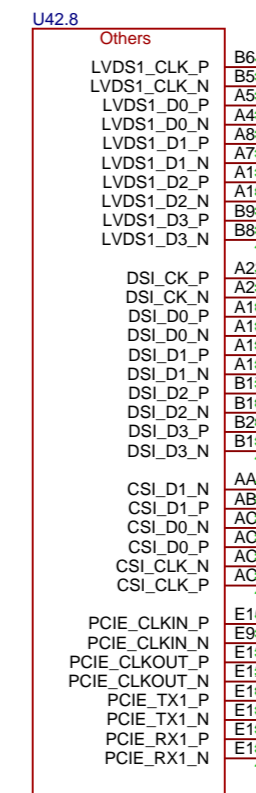
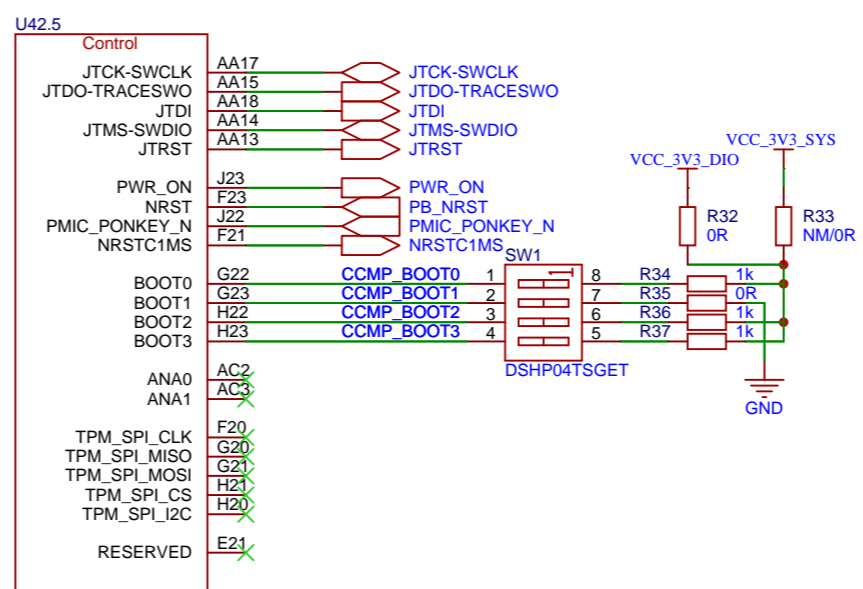
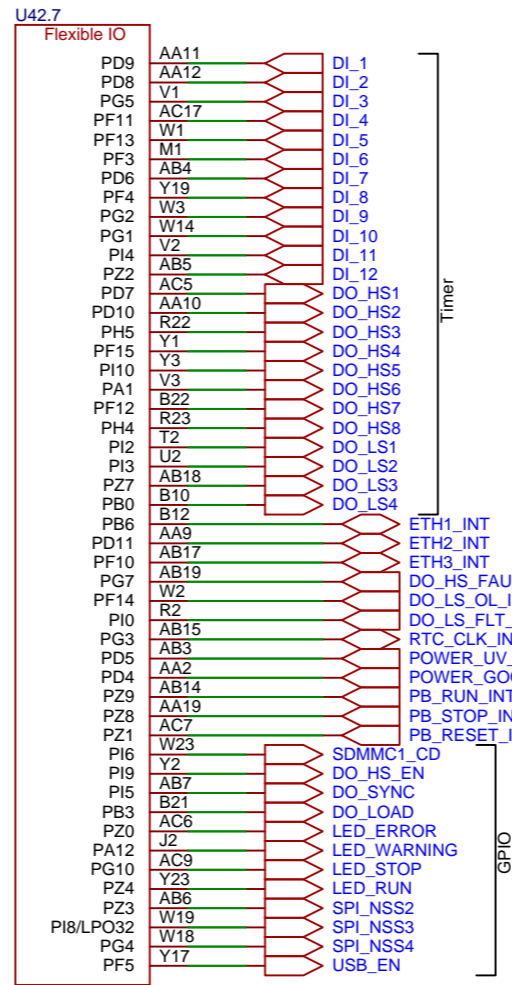
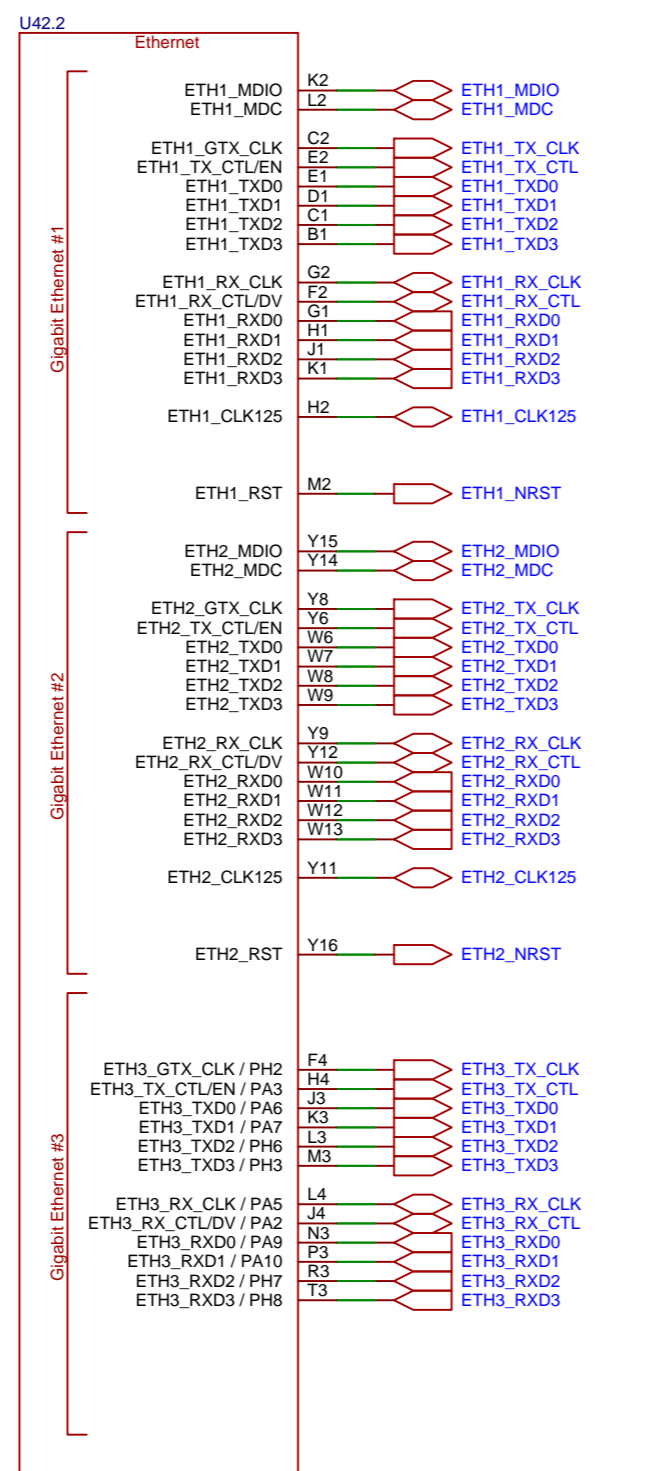
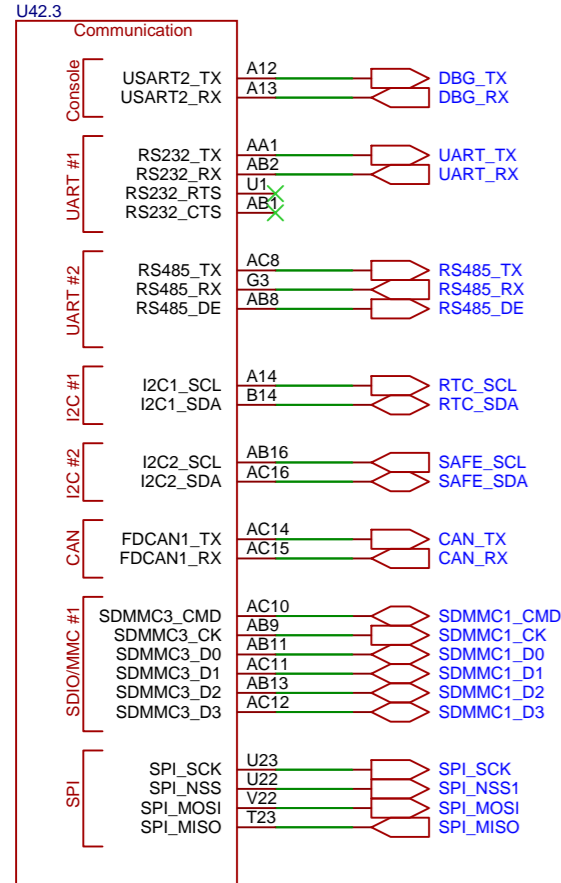
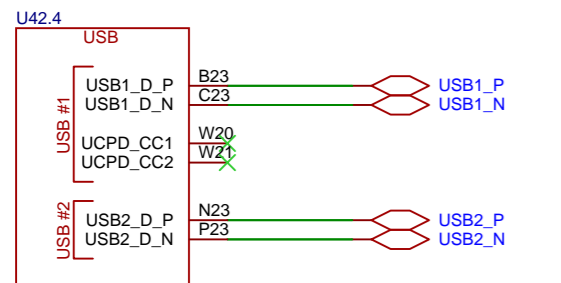
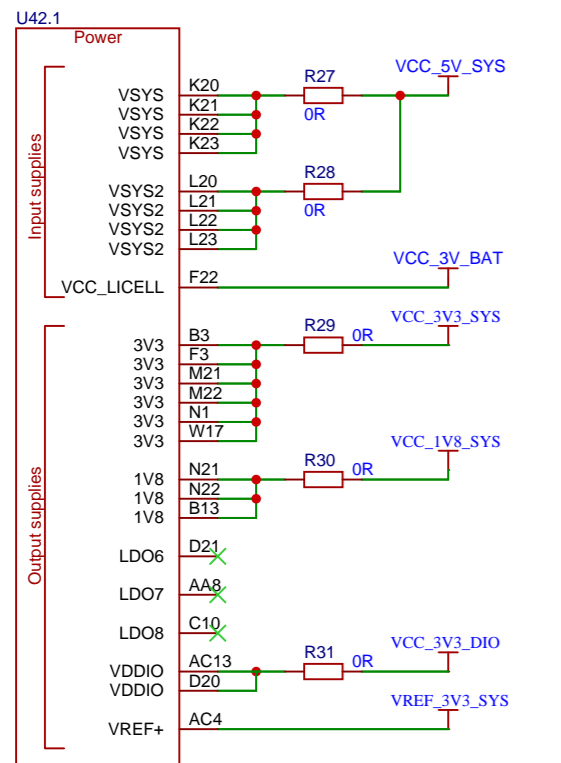
LICELL



LDO 5V->3V3@1.5A (SYS)



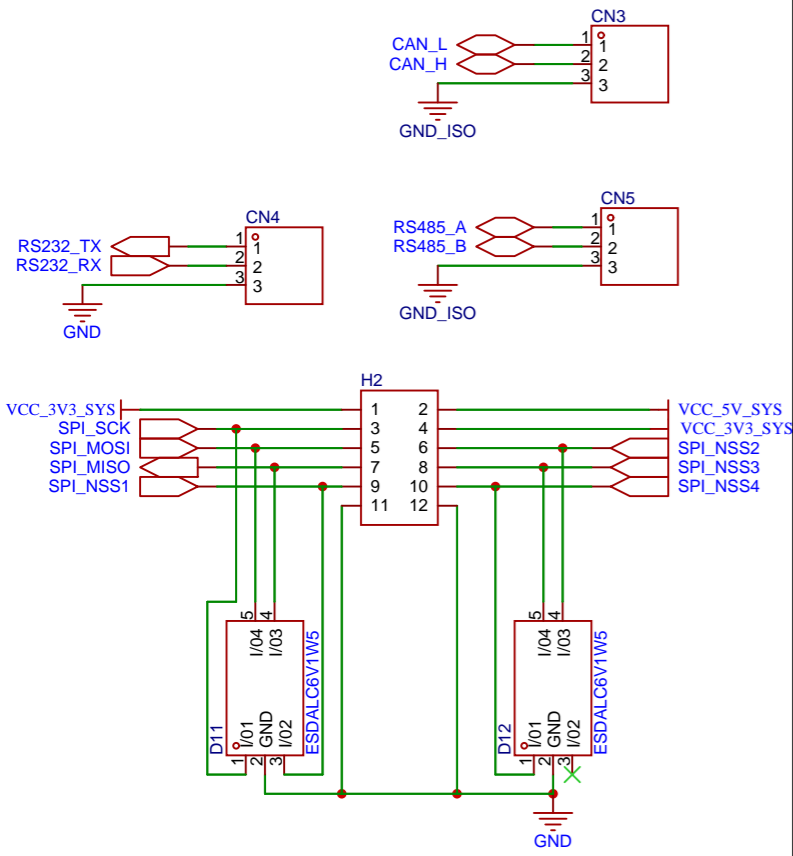
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Review	Pony WANG			
Review		Version	Page Size	Page 3 of 13
		V1.3	A3	STMicroelectronics



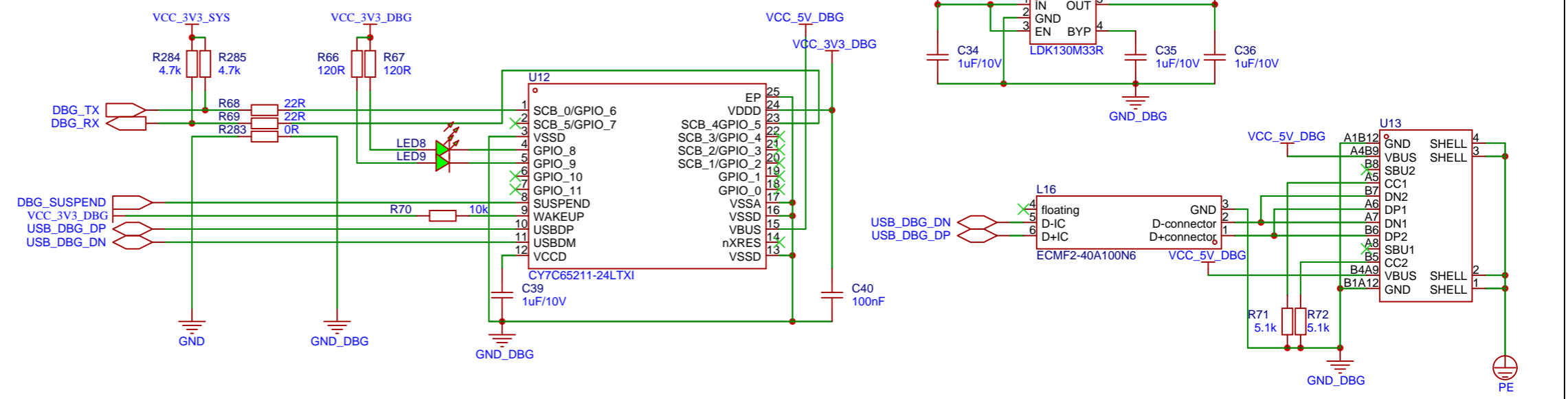
BOOT0	BOOT1	BOOT2	BOOT3	A35 Master	A33 Master
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OPEN	OPEN	OPEN	OPEN	eMMC	-
OPEN	CLOSE	CLOSE	OPEN	S-NOR	-
CLOSE	OPEN	CLOSE	OPEN	-	SD-Card
OPEN	CLOSE	OPEN	CLOSE	-	eMMC
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OPEN	CLOSE	CLOSE	CLOSE	Development	Development
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Automation Competence Center		V1.3	A3	STMicroelectronics

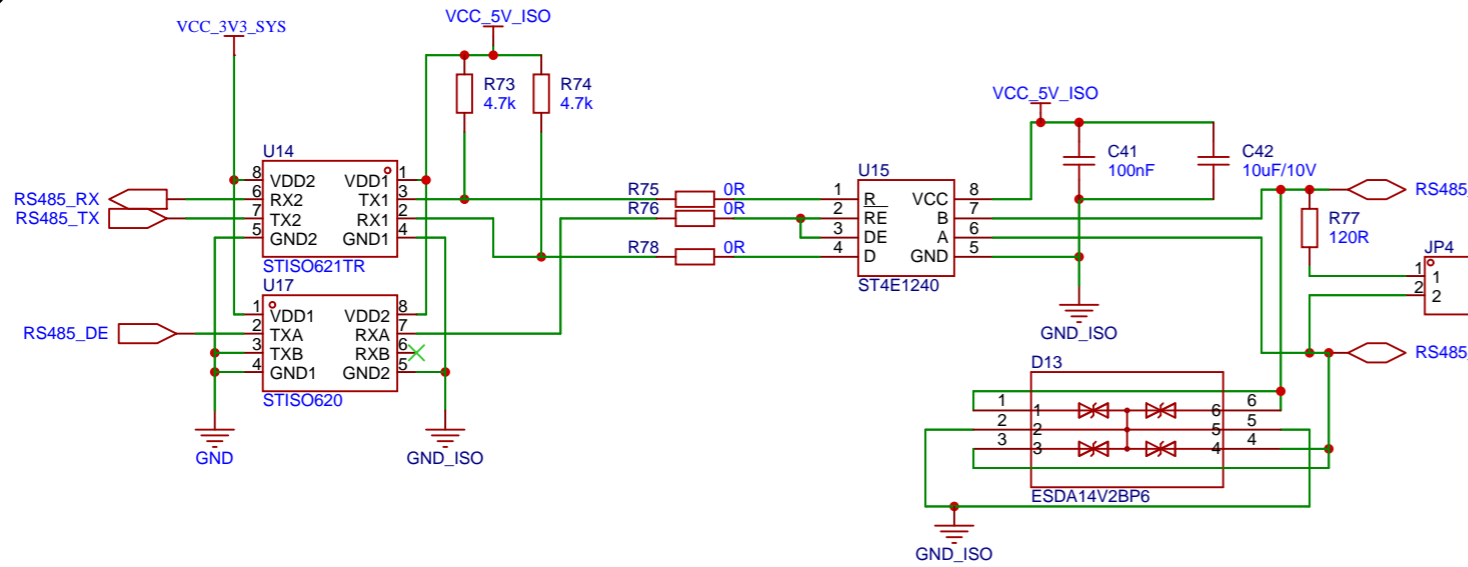
Connectors (Low Voltage)



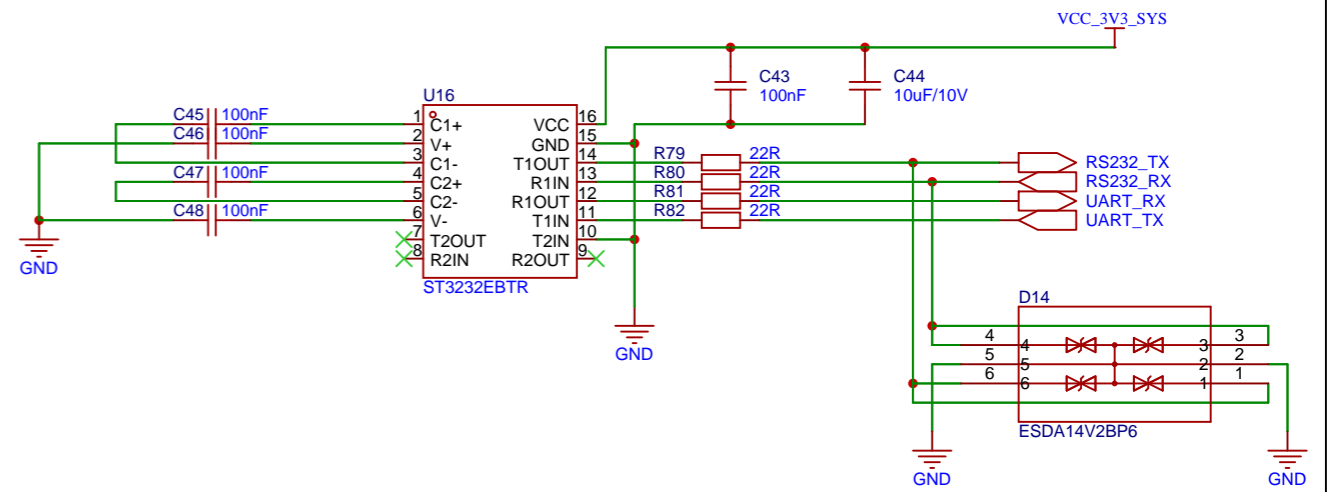
Debug



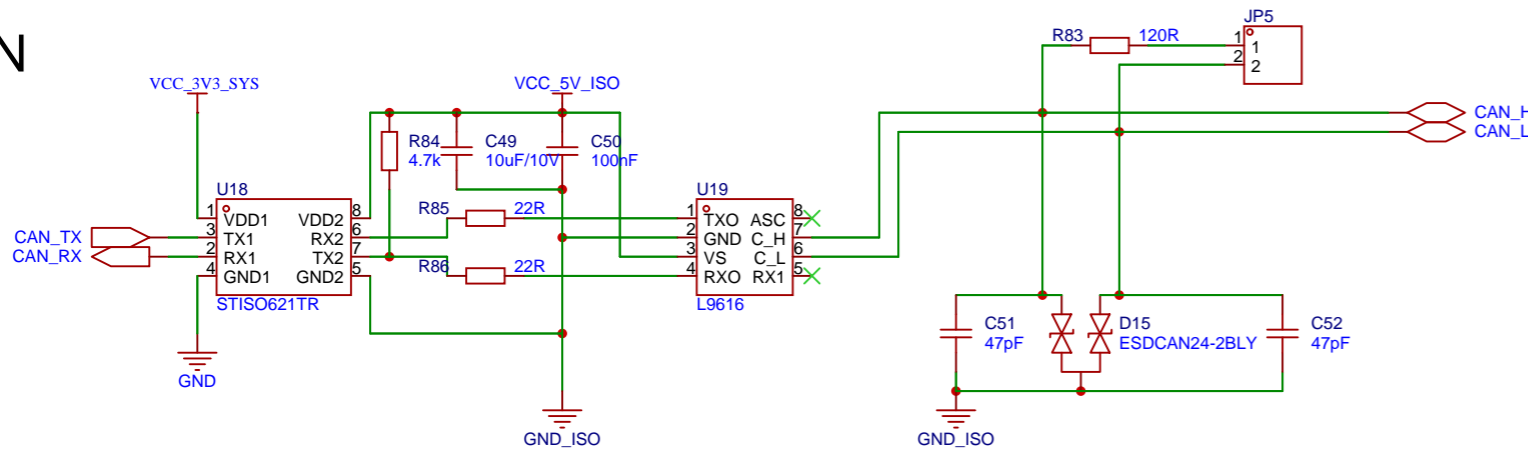
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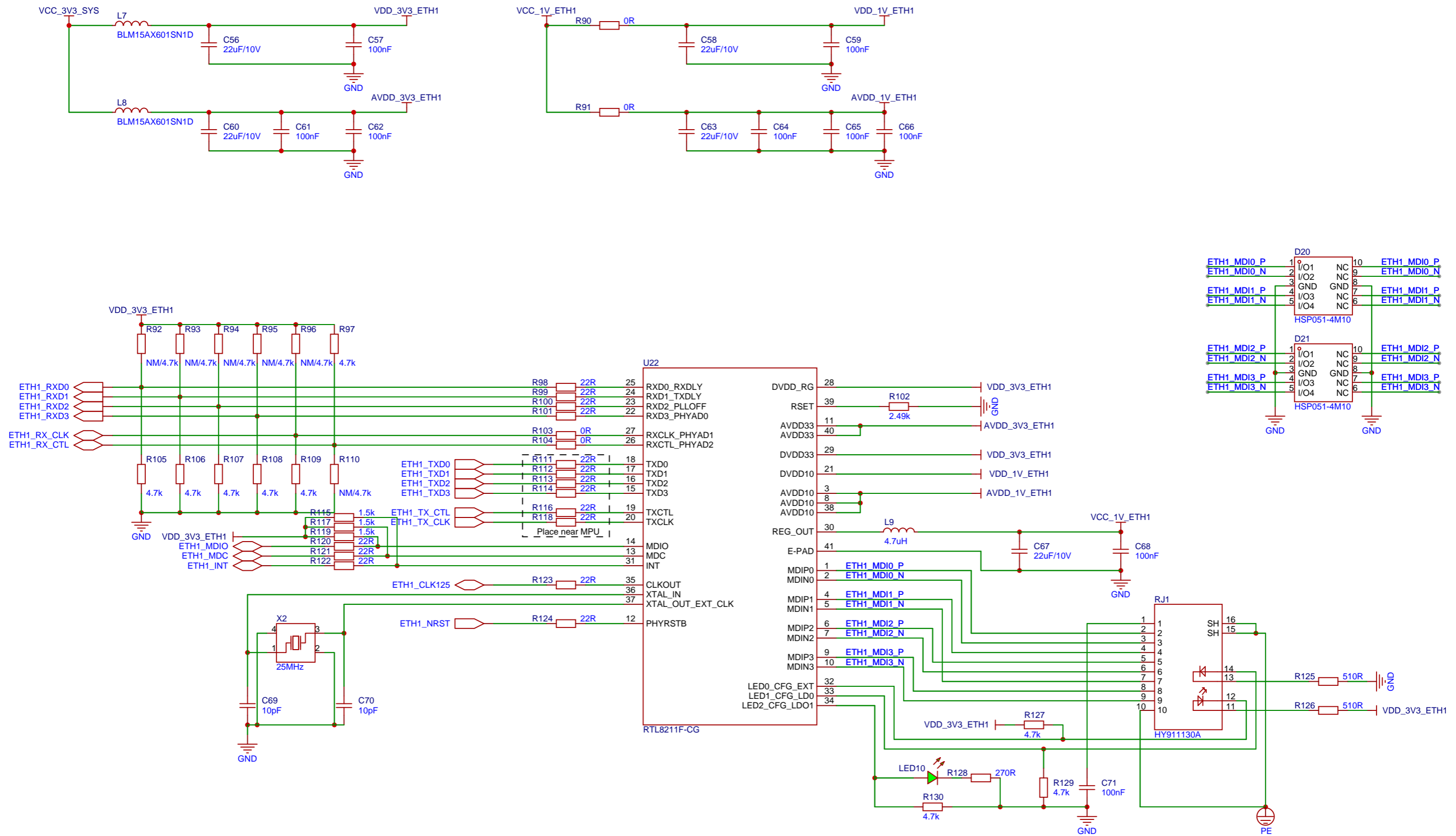
RS232



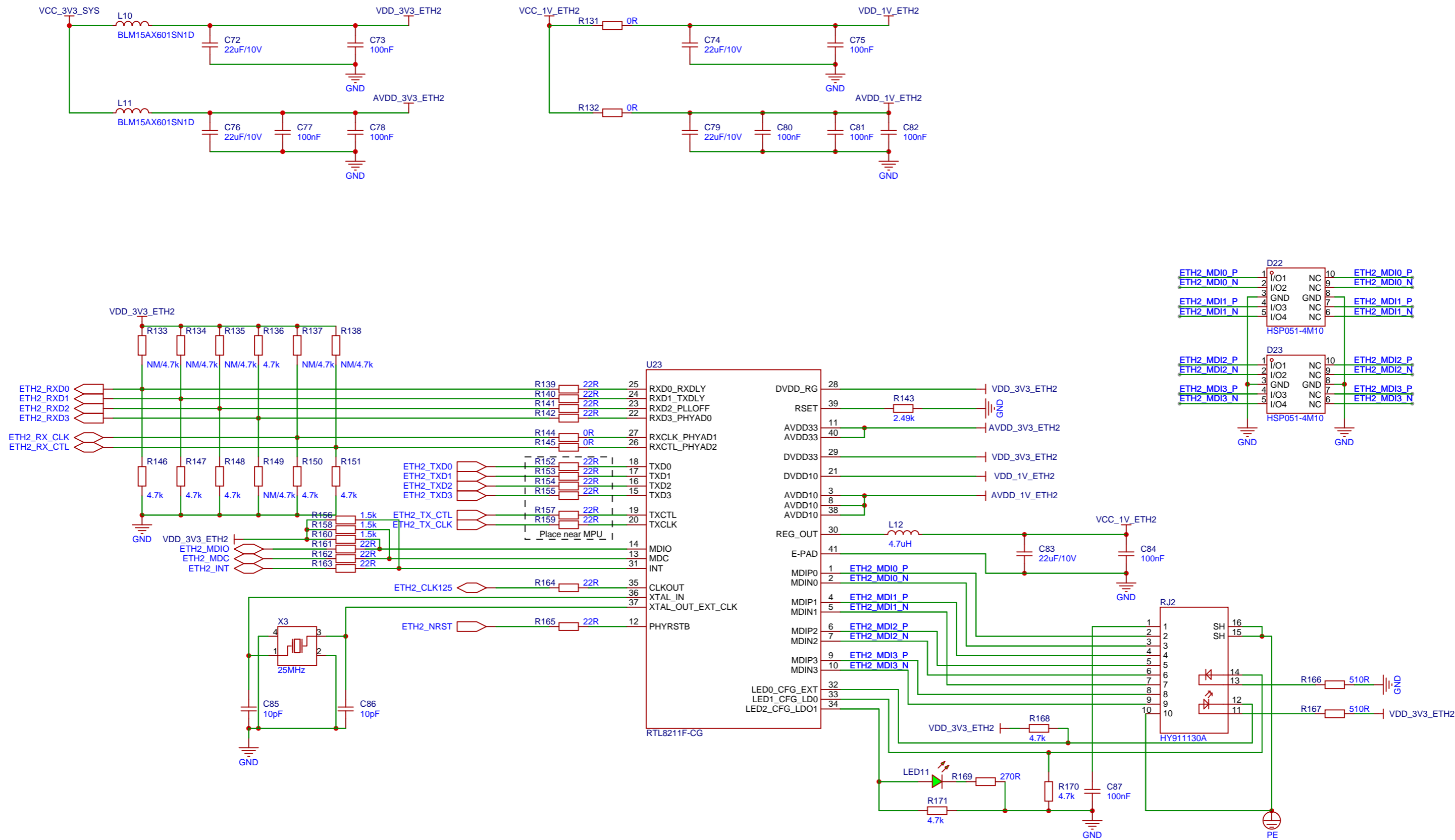
CAN





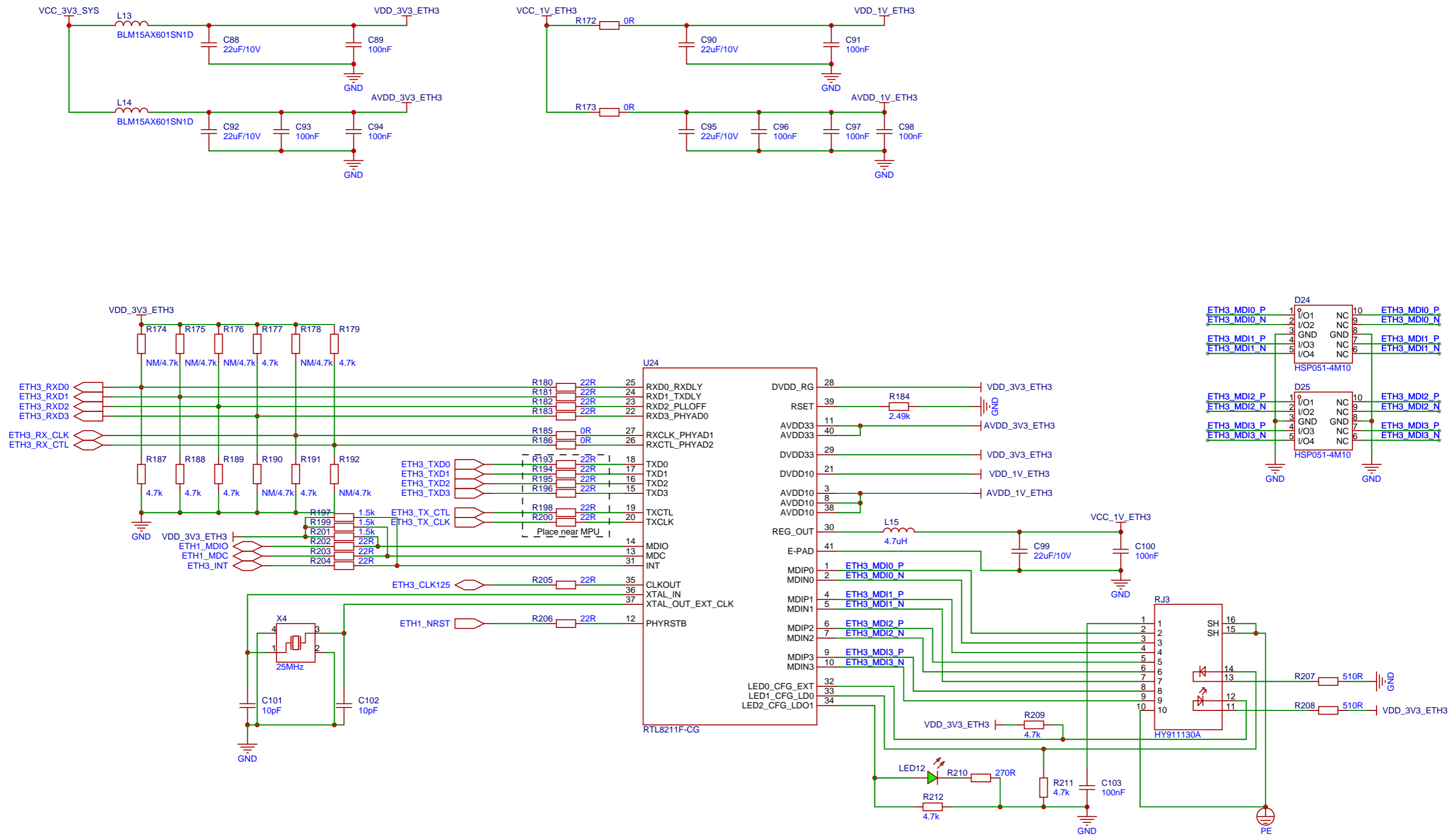
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Automation Competence Center		V1.3	A3	STMicroelectronics			




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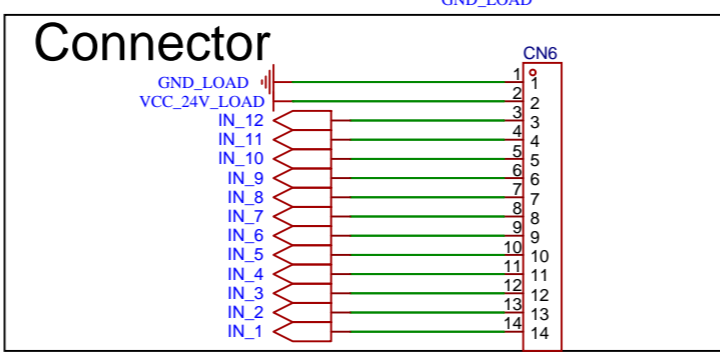
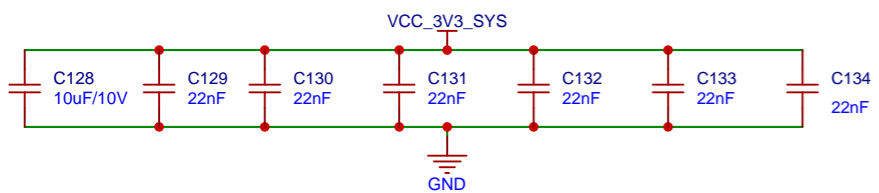
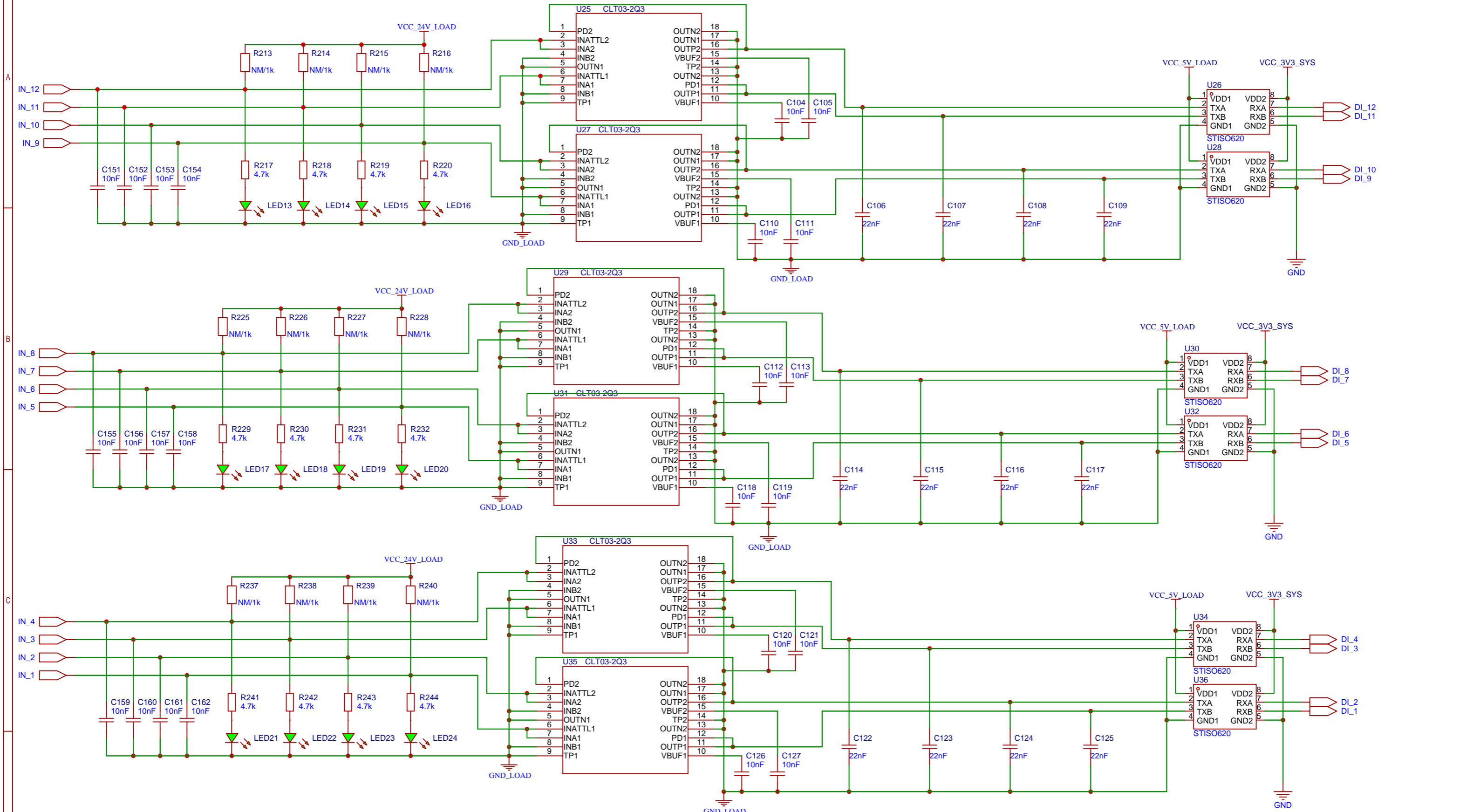


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 		V1.3	A3	STMicroelectronics			



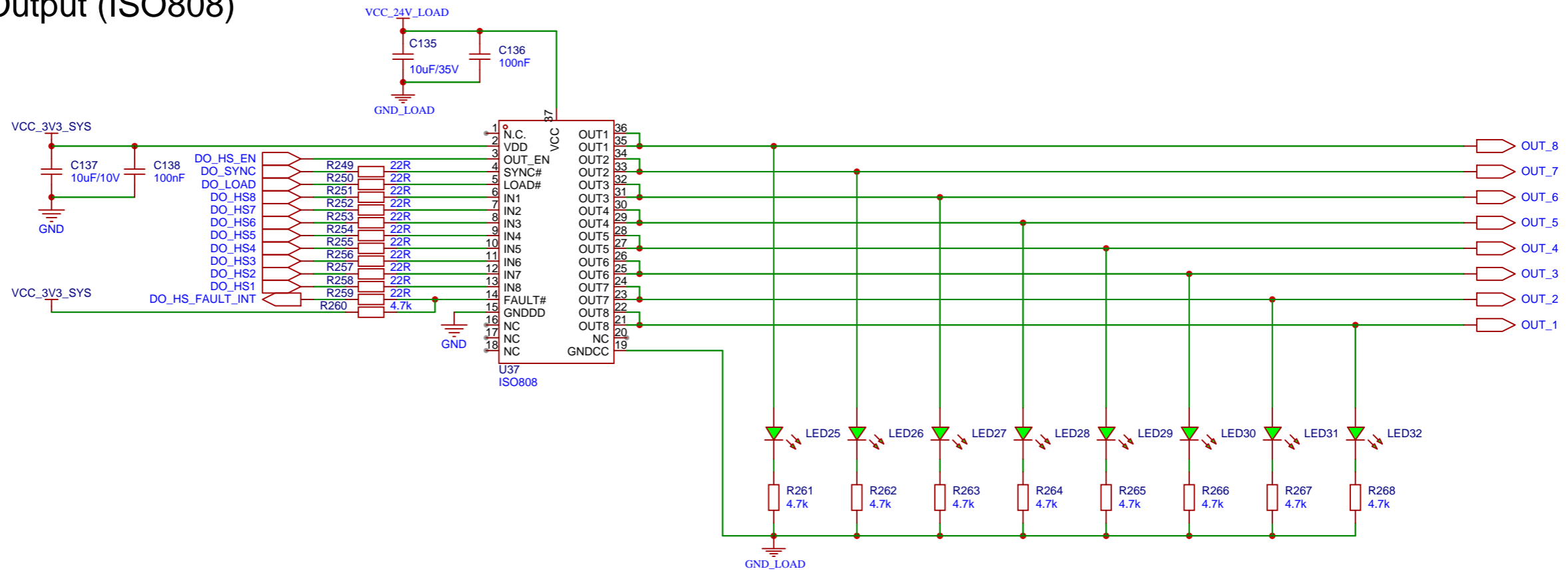
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 Automation Competence Center		V1.3	A3	STMicroelectronics			

Digital Input(CL T03-2Q3)

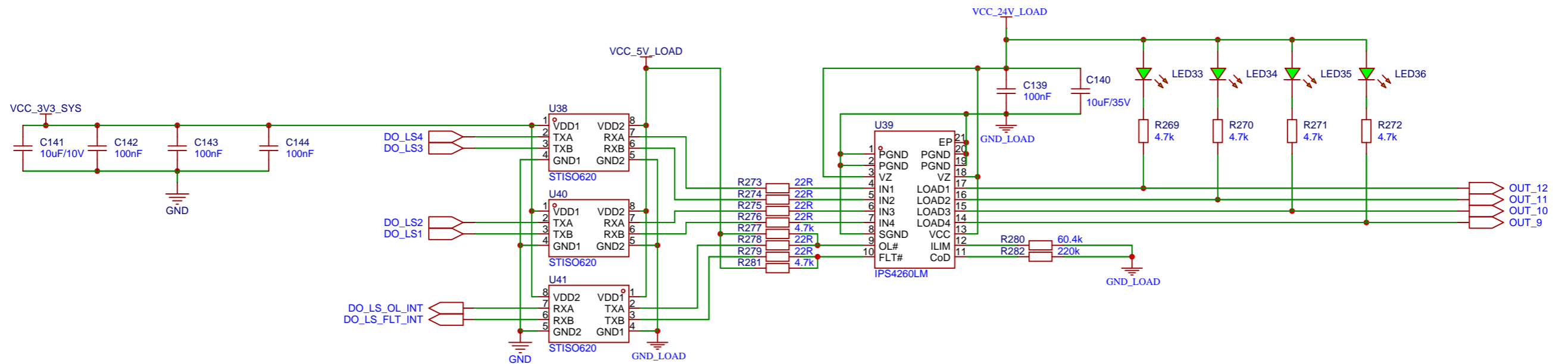


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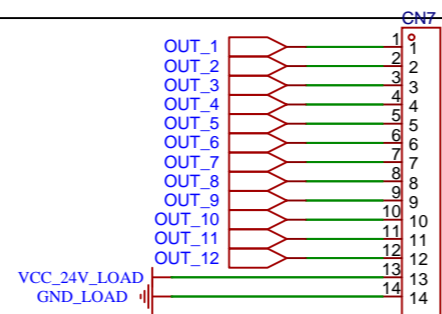
High-side Digital Output (ISO808)



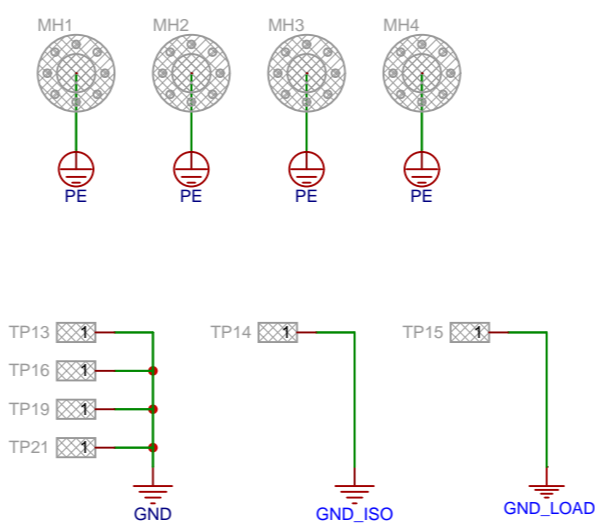
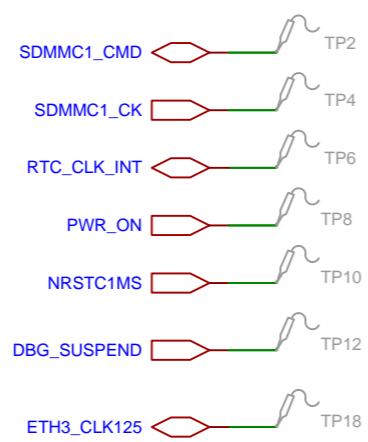
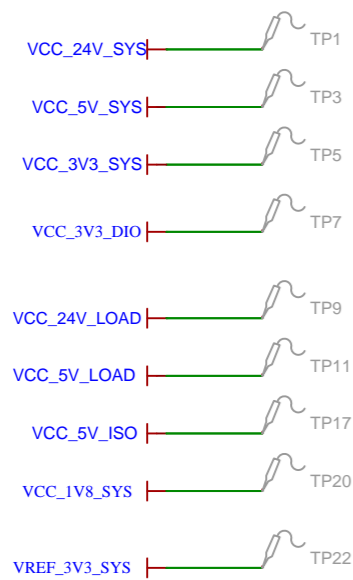
Low-side Digital Output (IPS4260LM)



Connector



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		V1.3	A3	STMicroelectronics



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Automation Competence Center		V1.3	A3	STMicroelectronics