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NOTES:

1. INTERPRET DRAWING PER ASME Y14.100

2. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS VALUES ARE IN OHMS, CAPACITORS ARE MICROFARADS, INDUCTORS ARE MICROHENRIES.

3. ON & OFF SHEET CONNECTOR REPRESENT ORIGIN AND DESTINATION, NOT NECESSARILY THE DATA FLOW

4. CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

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CUI

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
	—			

RED INTERFACE SCHEMATICS

INTERFACE	PAGE
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POC: PMA-265 PROGRAM SECURITY

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CONTRACTOR ADDRESS: 2601 MISSION POINT BLVD,
BEAVERCREEK, OHIO 45431
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CONTRACT NO.
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MATERIAL

FINISH

DESIGN

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DESIGN

ENGINEERING

PROJECT

QUALITY ASSURANCE

MANUFACTURING

DATE

ELECTRONIC
SIGNATURES
ON FILE

DRS Advanced ISR, LLC

2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE

SCHEMATIC DIAGRAM
SCHEMATIC,
RED INTERFACE

SIZE
D

CAGE CODE
OCDN3

DWG NO
112302-01003

REV
0.7

FILE NAME
112302-01003

PADs VX2.13

31/03/2025:15:23

SHEET
1 OF 11

TTTTTTTTT

JTB

APPLICATION

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1

Interface to the Front IO Panel

Interface to the Crypto Backplane

Battery Inputs

Crypto Lid Switch Inputs

IO Connectors

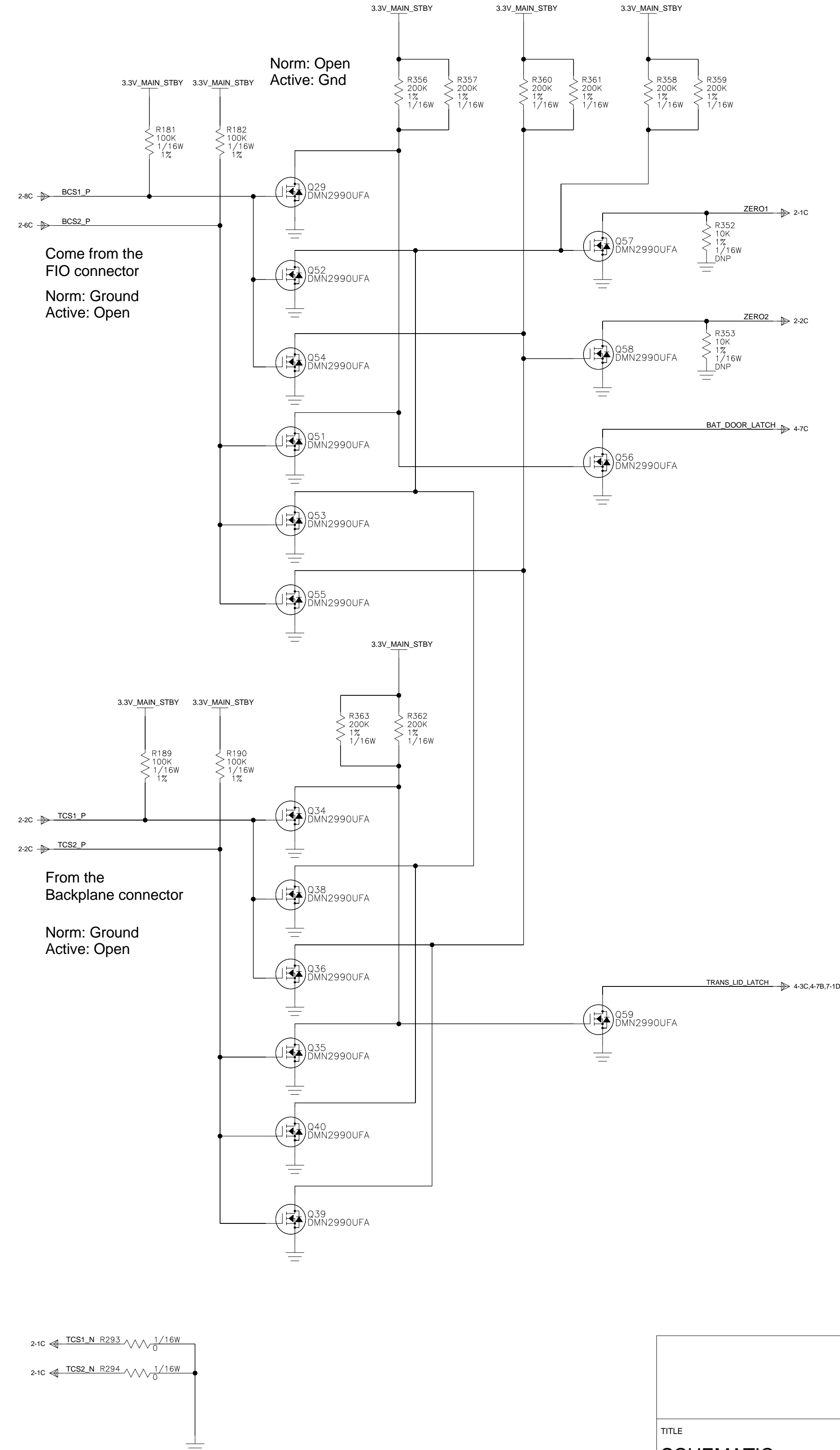
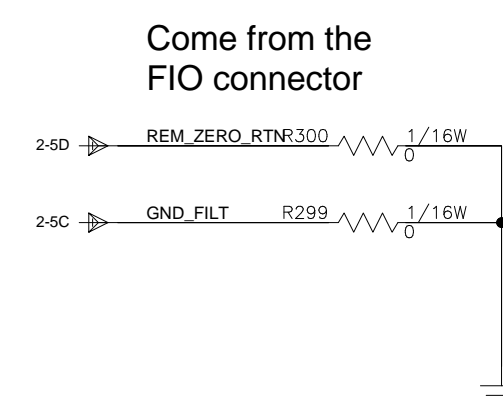
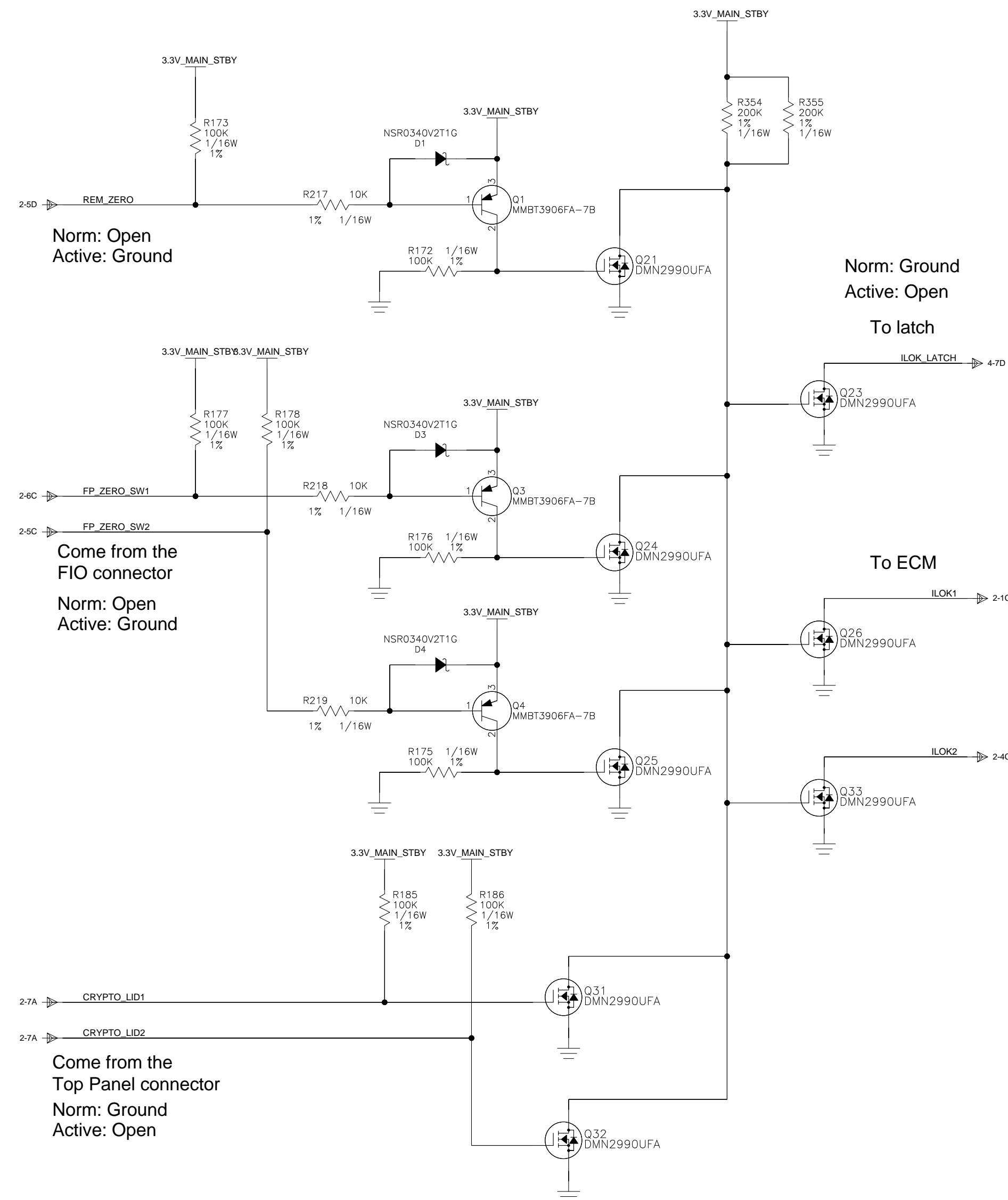
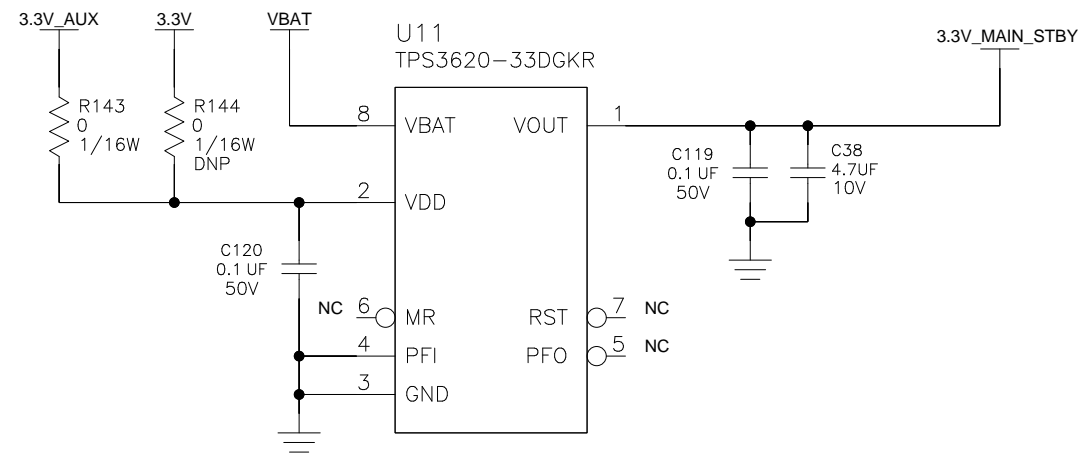
DRS Advanced ISR, LLC

2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE
SCHEMATIC
RED INTERFACE

SIZE D	CAGE CODE OCDN3	DWG NO 112302-01003	REV 0.7
FILE NAME 112302-01003			SHEET 2 OF 11

PLATFORM POWER SWITCHING



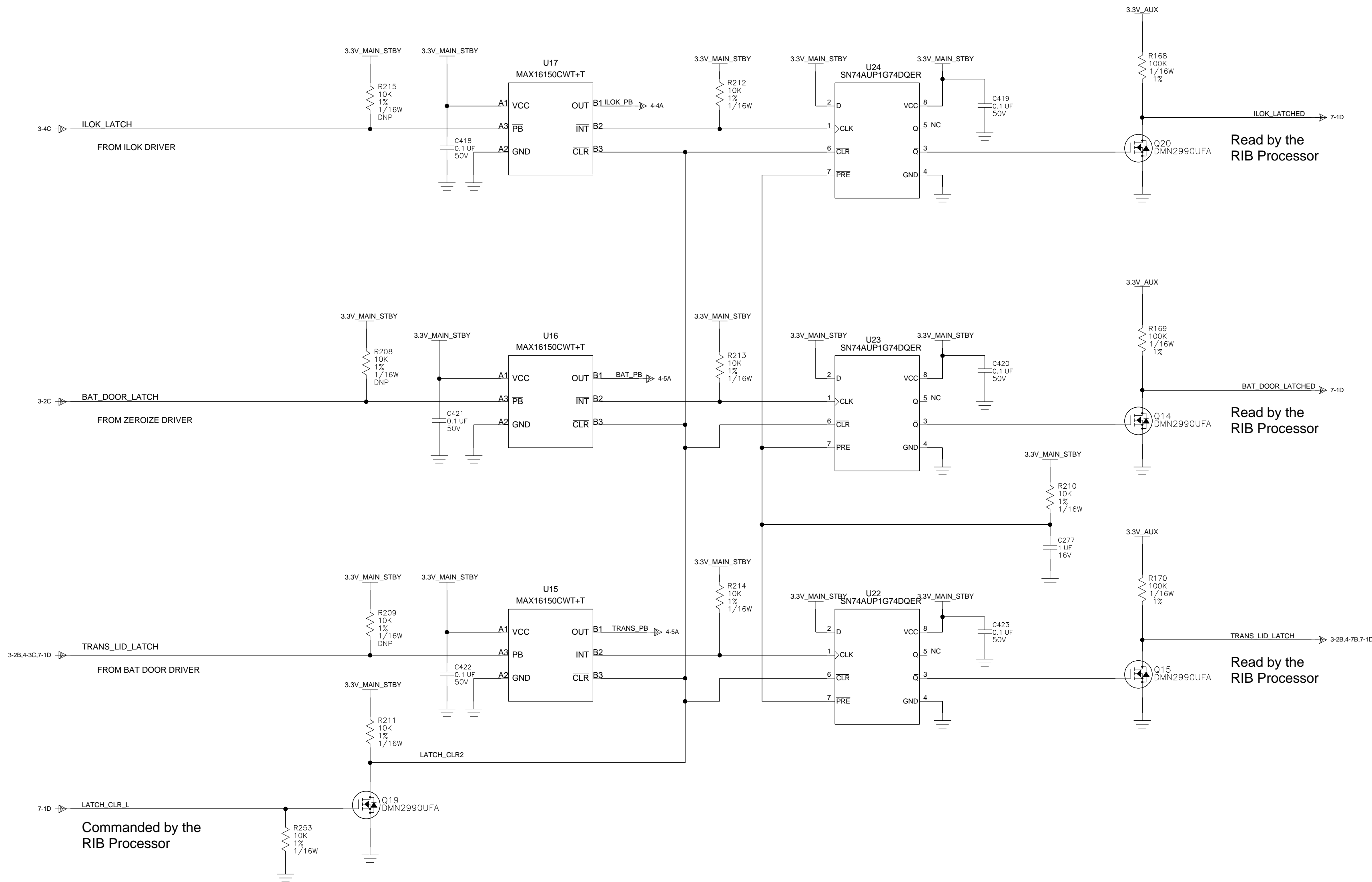
Security Circuits

DRS Advanced ISR, LLC
2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

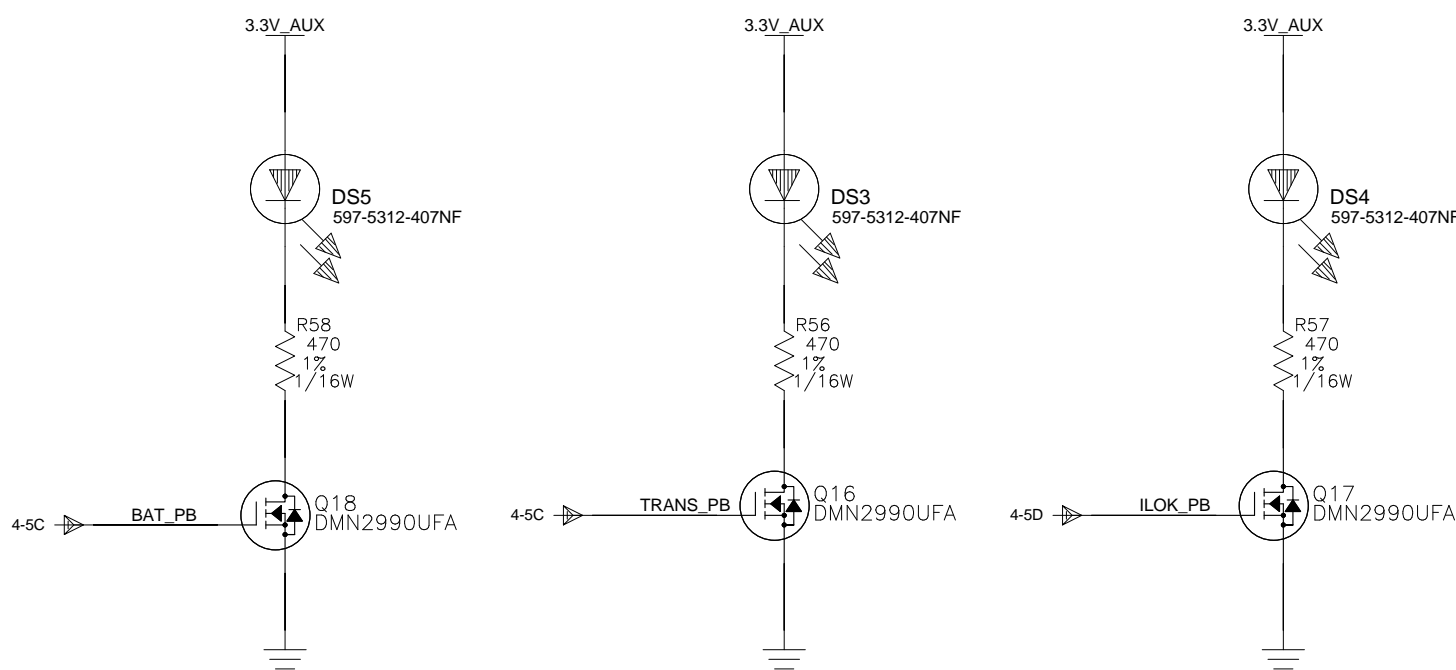
TITLE			
SCHEMATIC RED INTERFACE			
SIZE		CAGE CODE	REV
D		0CDN3	0.7
DWG NO		112302-01003	
FILE NAME			SHEET
112302-01003			3 OF 11

CUI

Status Latches



LED Status Indicators



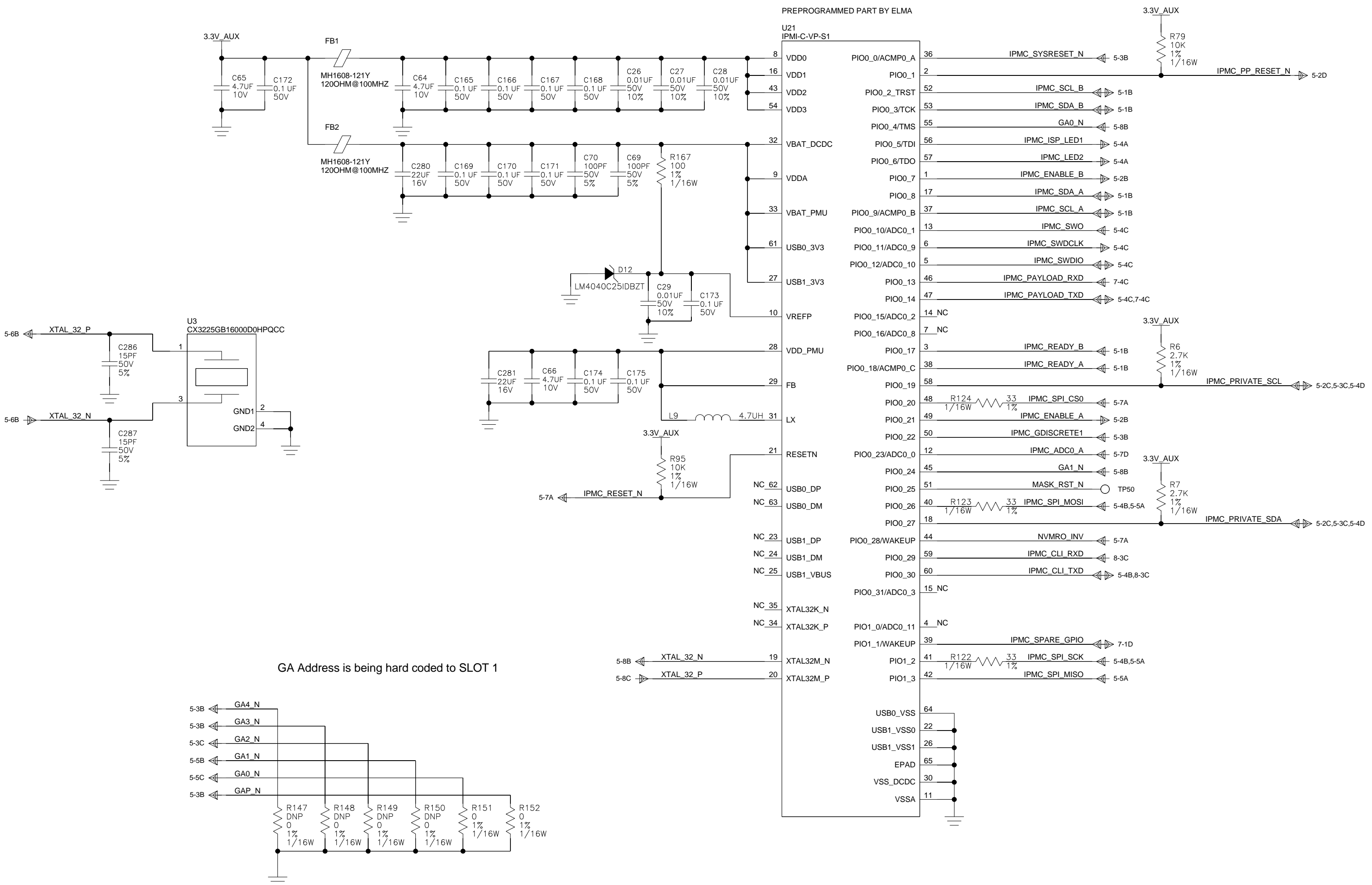
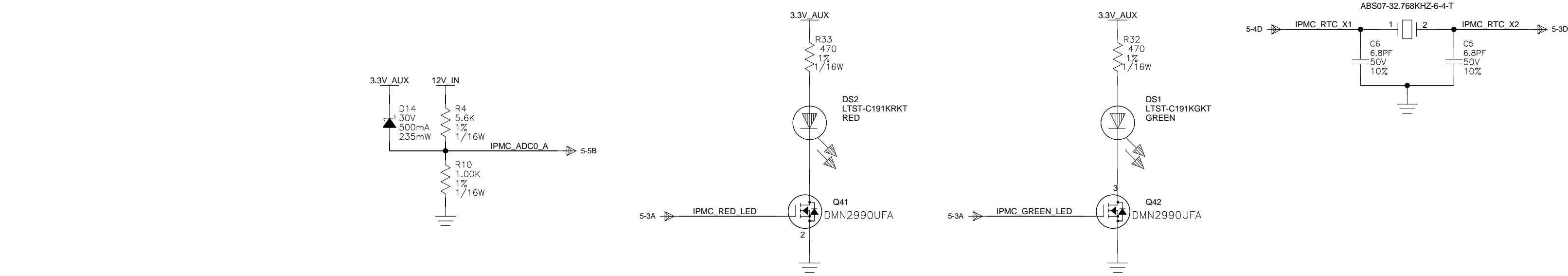
Security Latches

DRS Advanced ISR, LLC

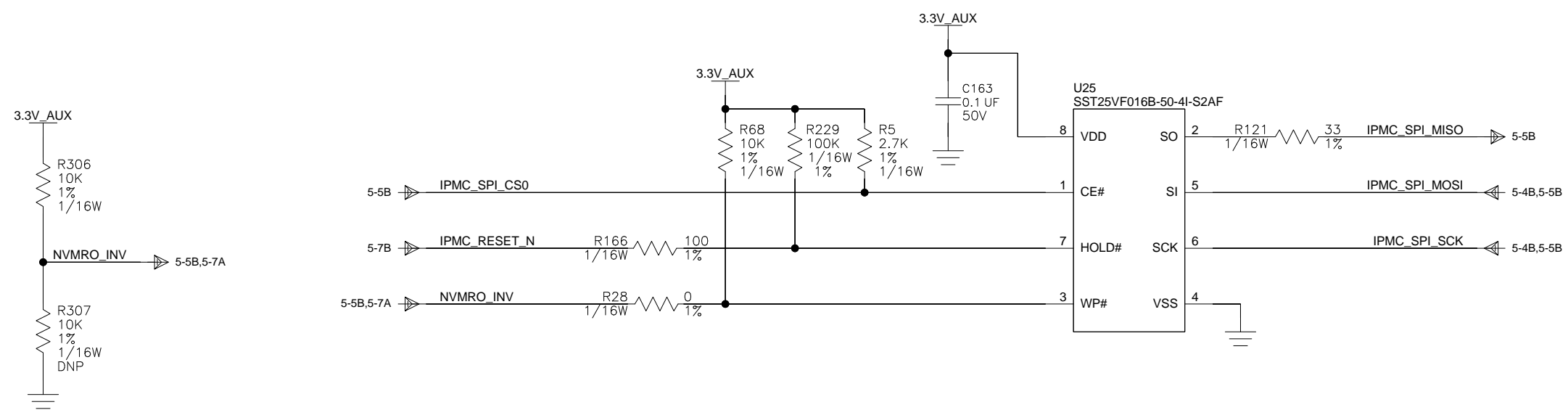
2601 MISSION POINT BLVD, SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE SCHEMATIC RED INTERFACE				
SIZE D	CAGE CODE OCDN3	DWG NO 112302-01003	REV 0.7	
FILE NAME 112302-01003			SHEET 4 OF 11	

IPMI-C-VP-S1

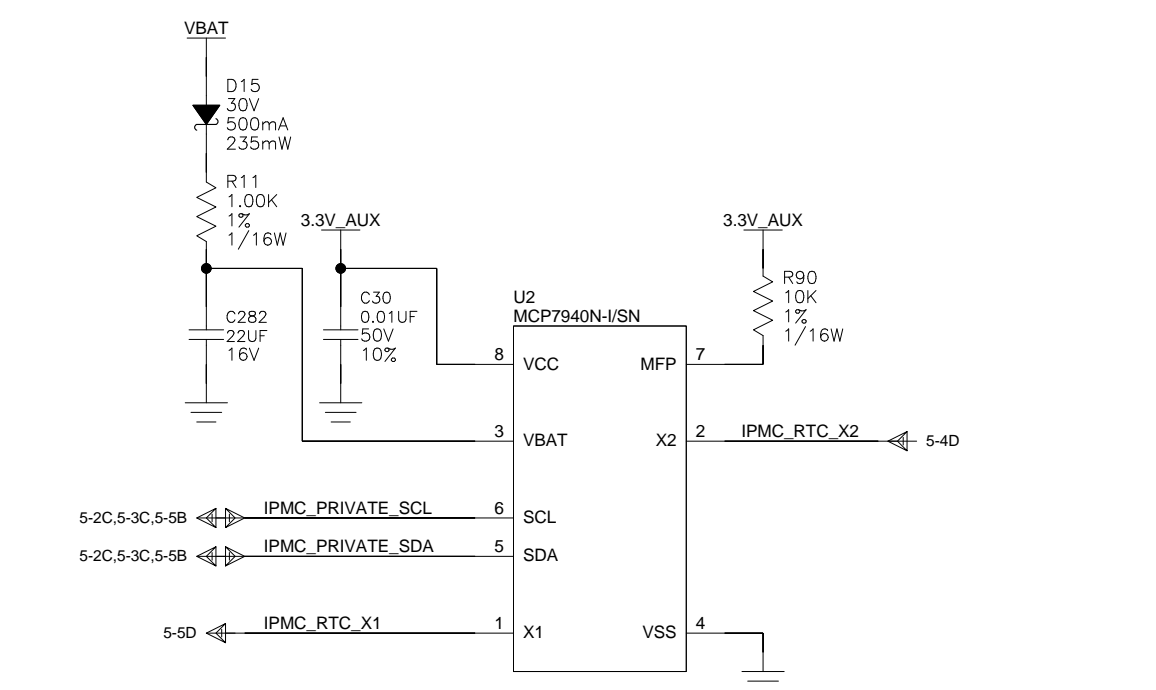


GA Address is being hard coded to SLOT 1

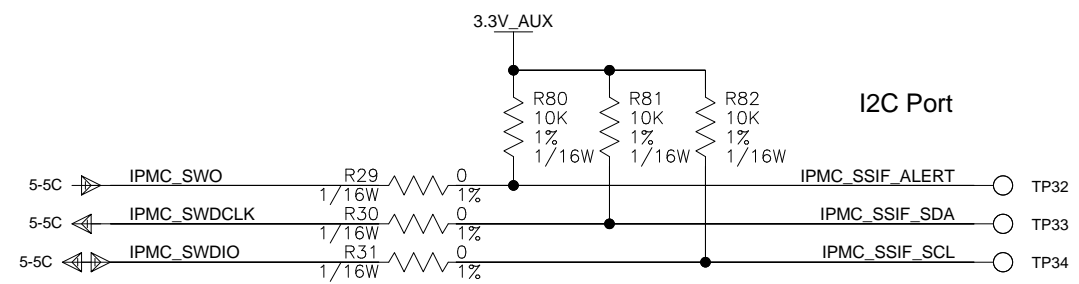


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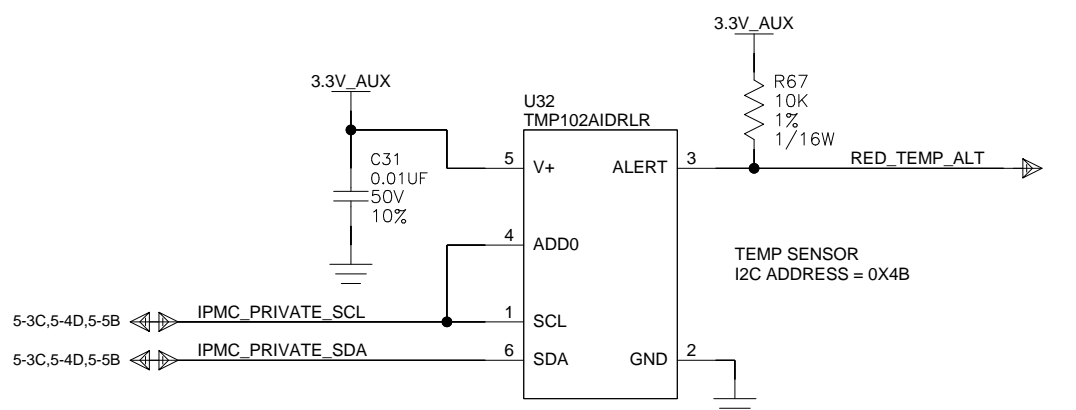
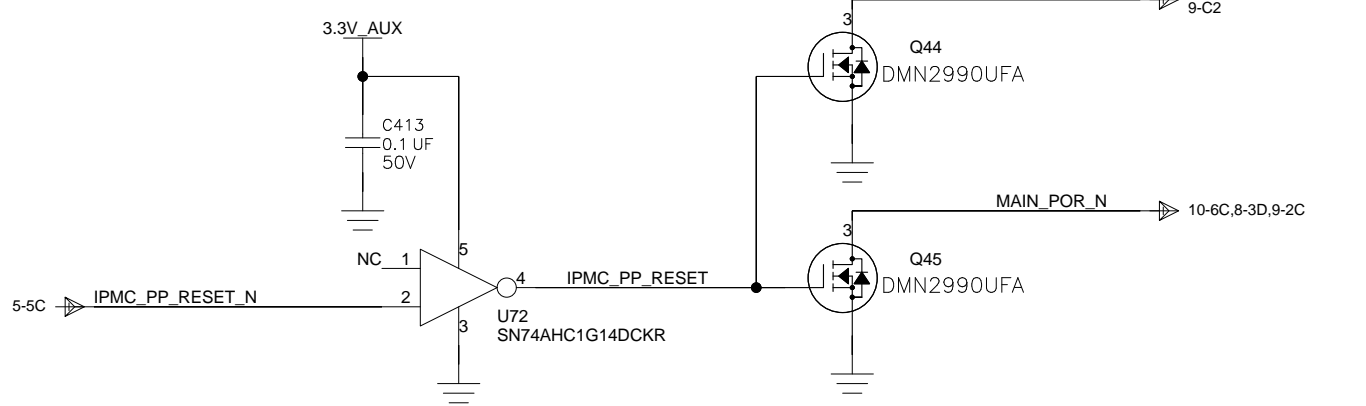
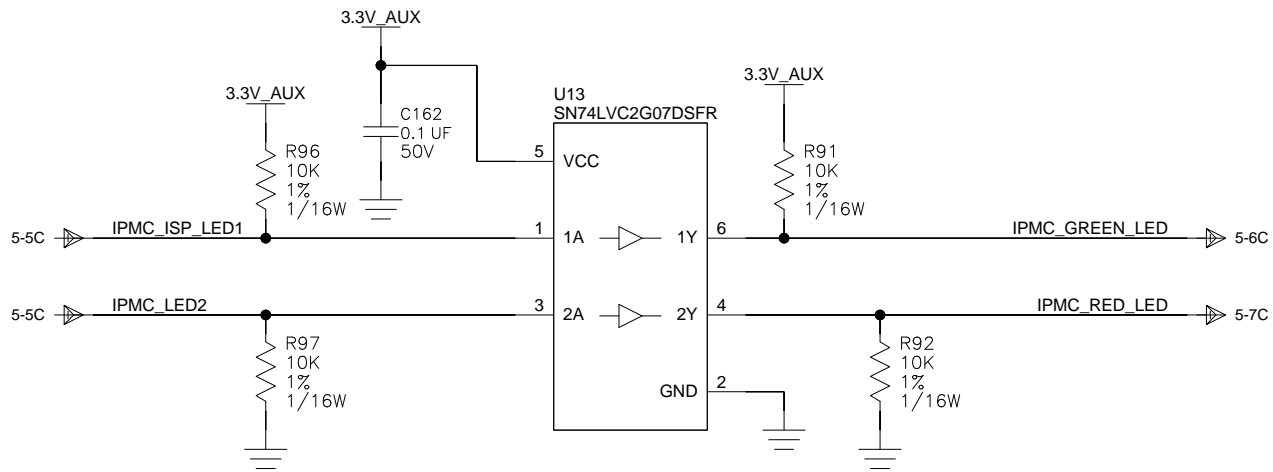
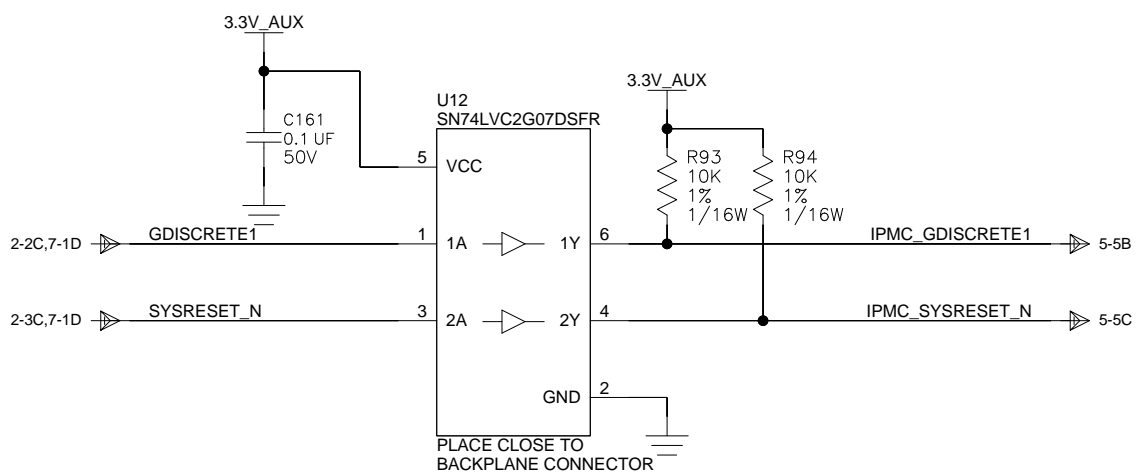
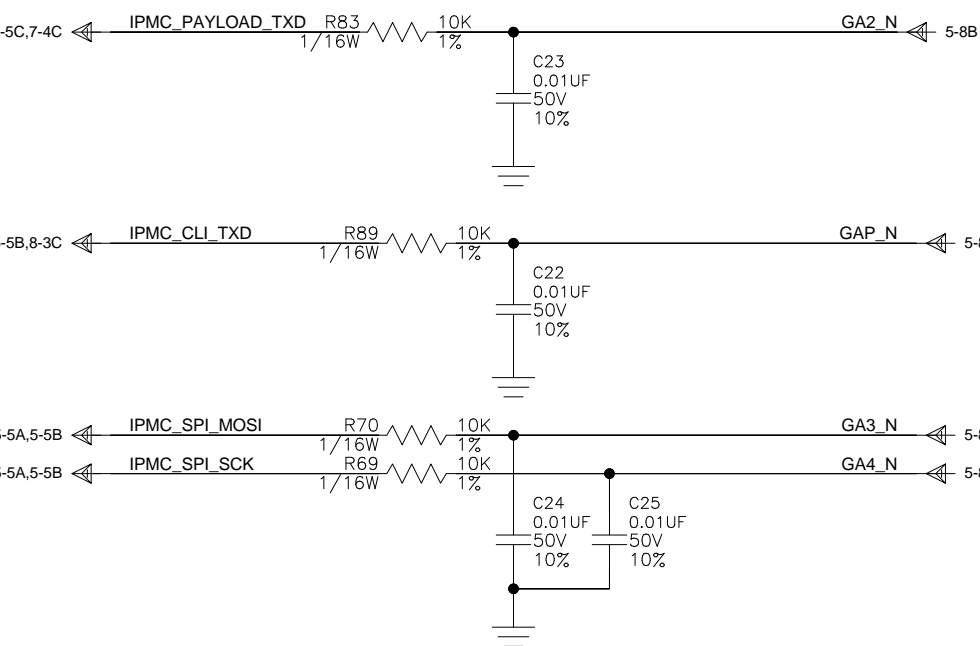
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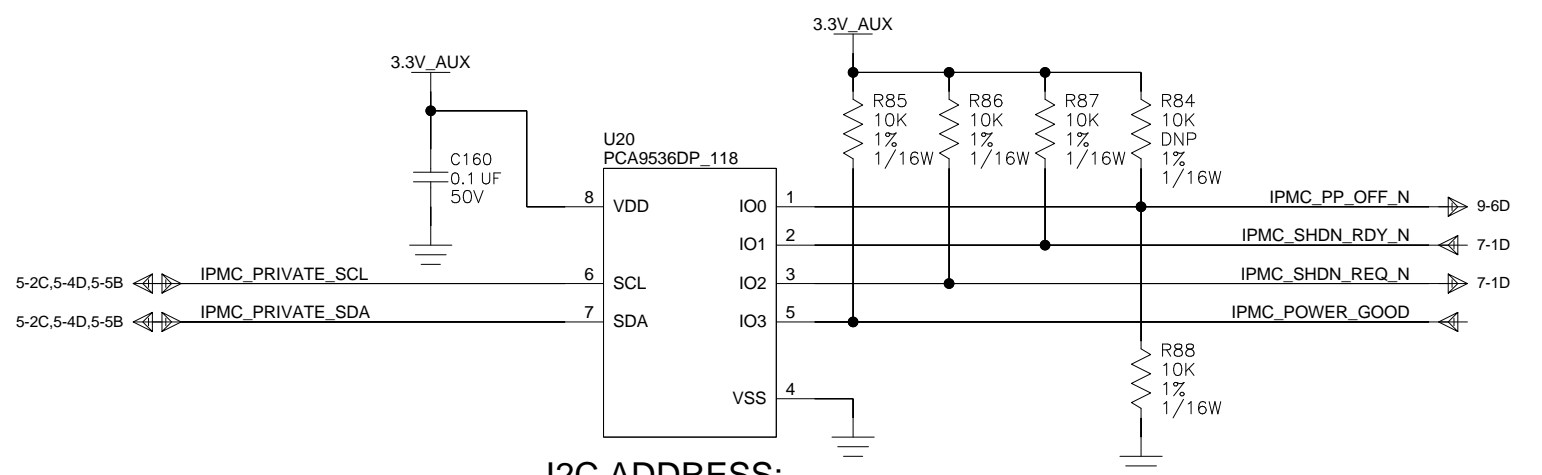
I2C ADDRESS: 0xDE



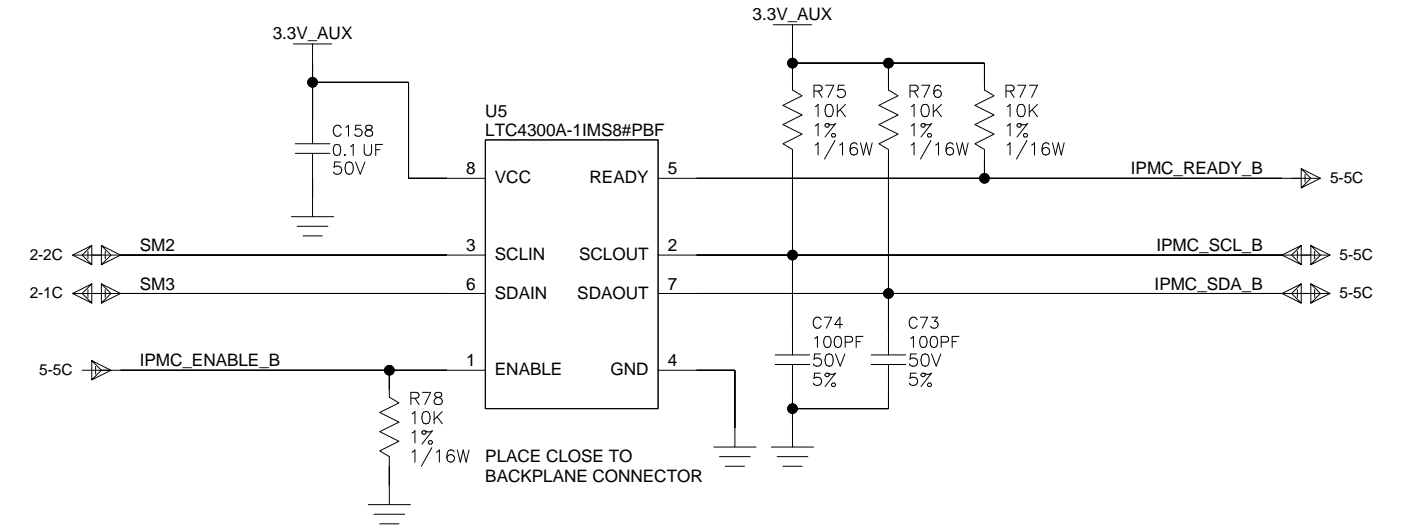
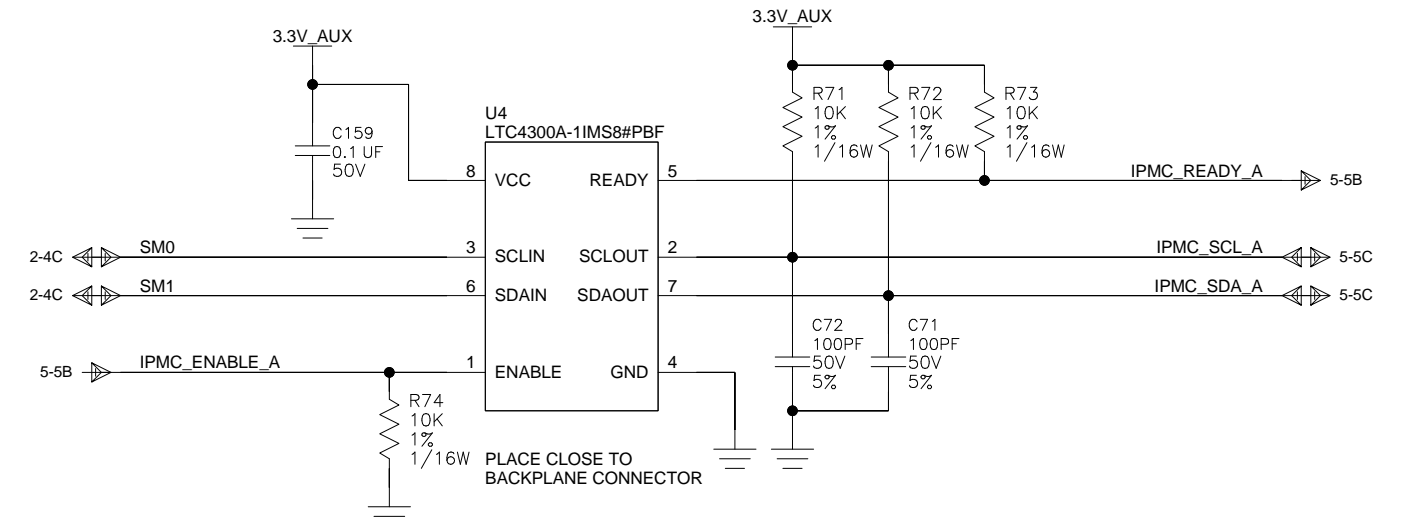
I2C Port



I2C ADDRESS: 0x4B



I2C ADDRESS: 0x41



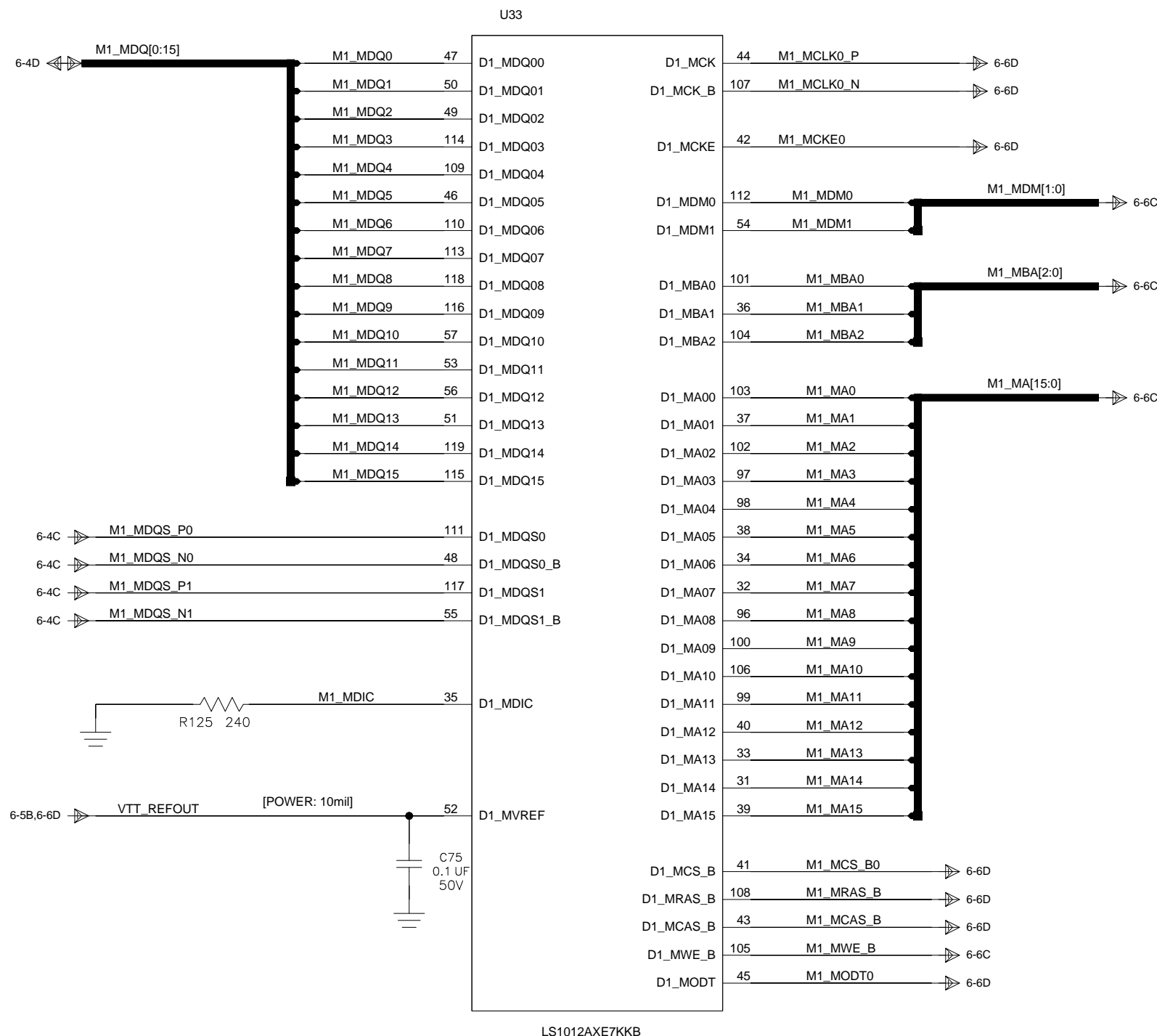
IPMC and Support Circuits

DRS Advanced ISR, LLC

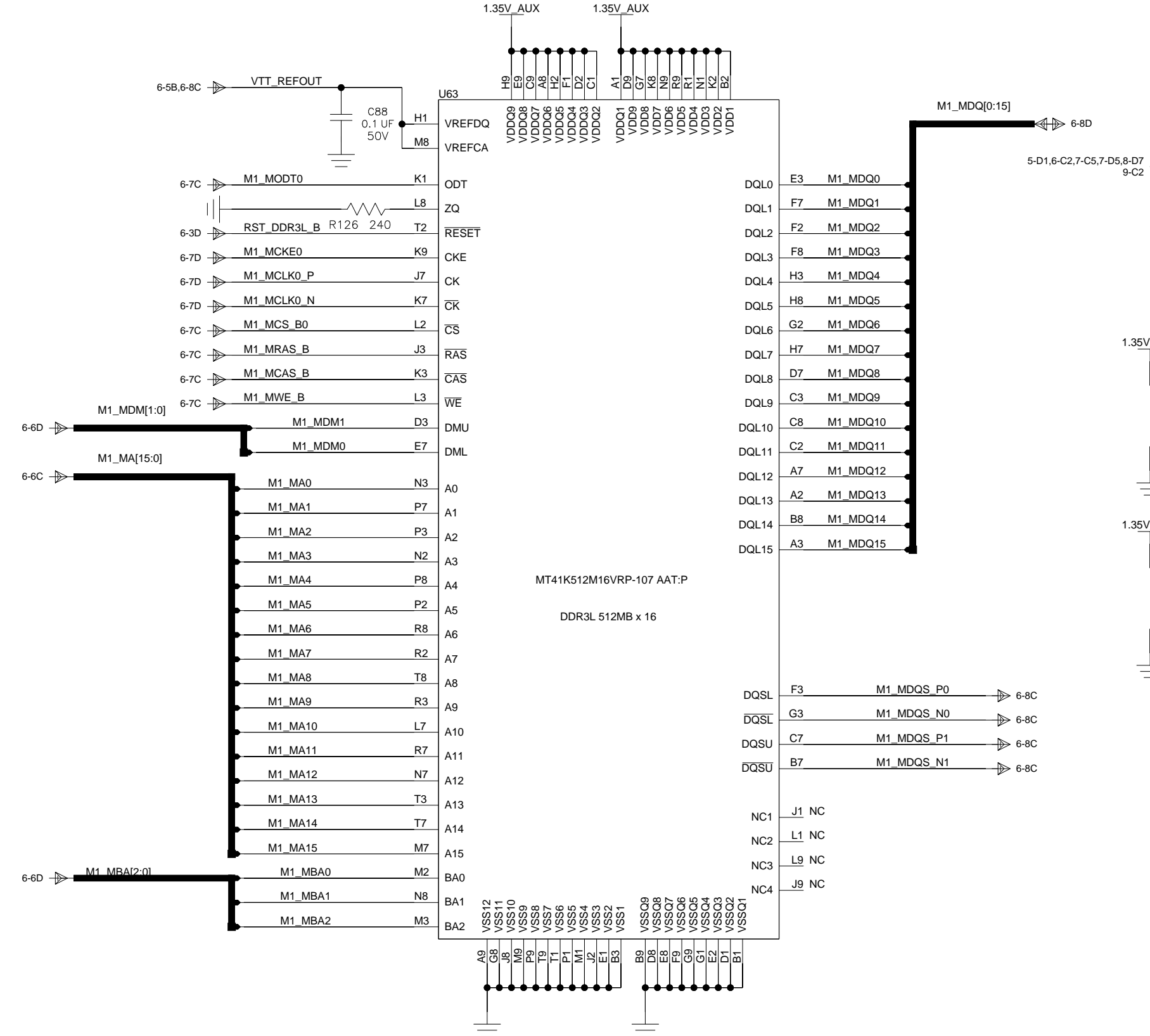
2601 MISSION POINT BLVD SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE SCHEMATIC RED INTERFACE			
SIZE D	CAGE CODE 0CDN3	DWG NO 112302-01003	REV 0.7
FILE NAME 112302-01003			SHEET 5 OF 11

LS1012 DDR3L CONTROLLER BLOCK



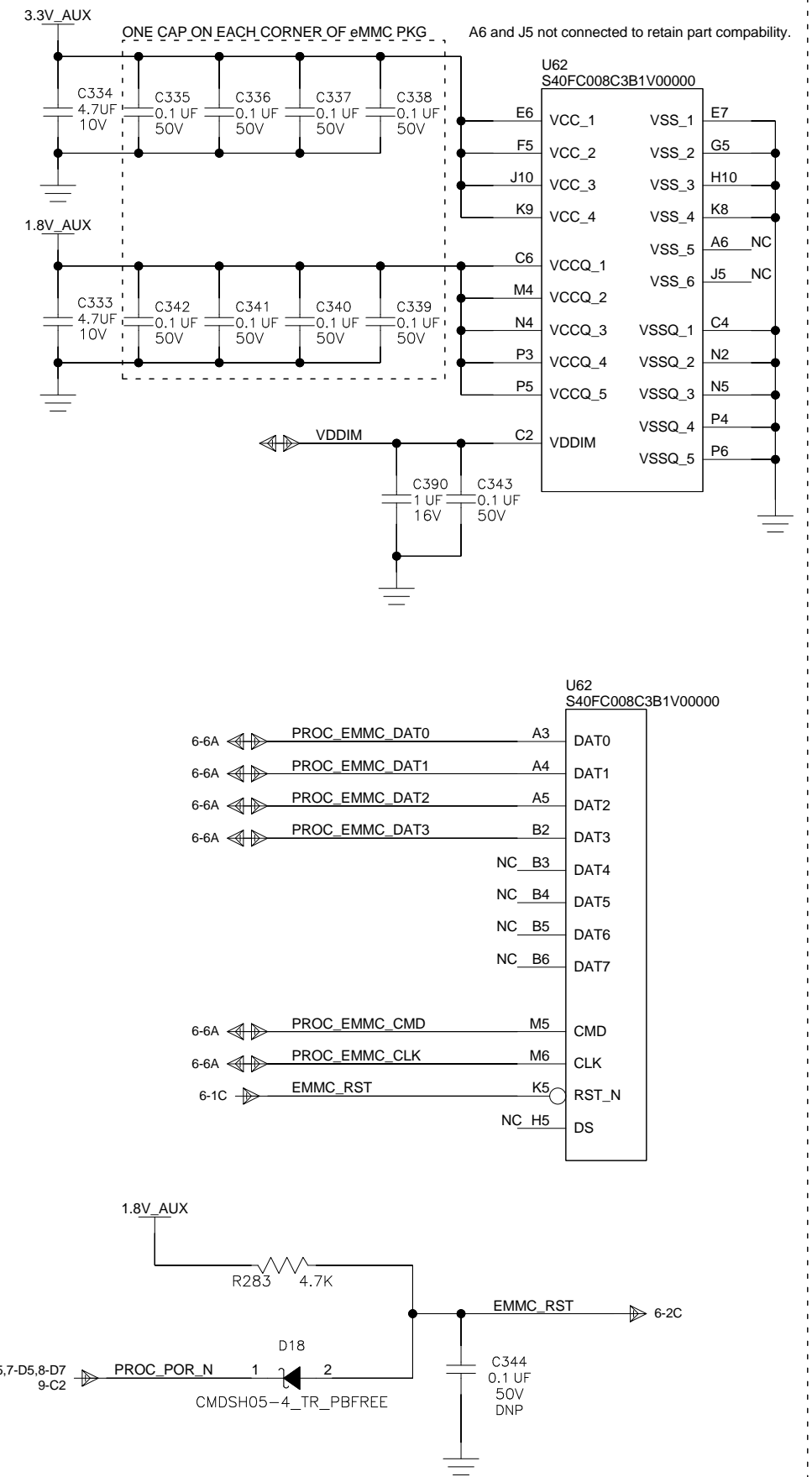
1G of DDR3L



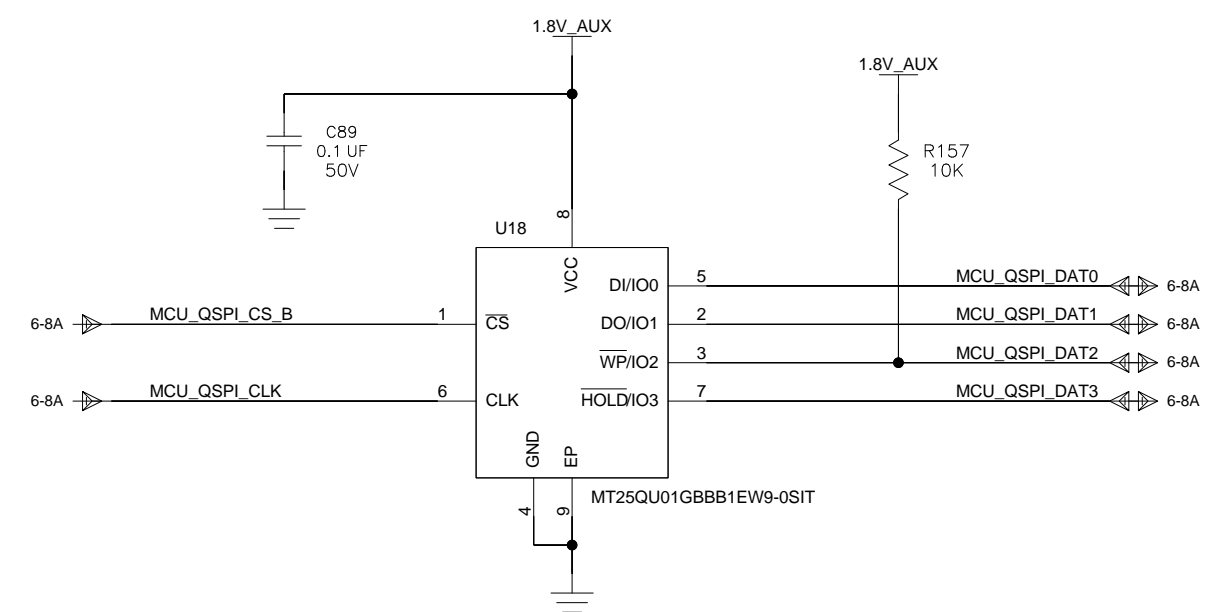
CUI

Micron MT41K512M16VBP-107 AAT:P 512Mx16 = 1G

4G eMMC SLC Flash



Program NOR Flash
Boot Block 128MB



RIB Processor and Memories

DRS Advanced ISR, LLC

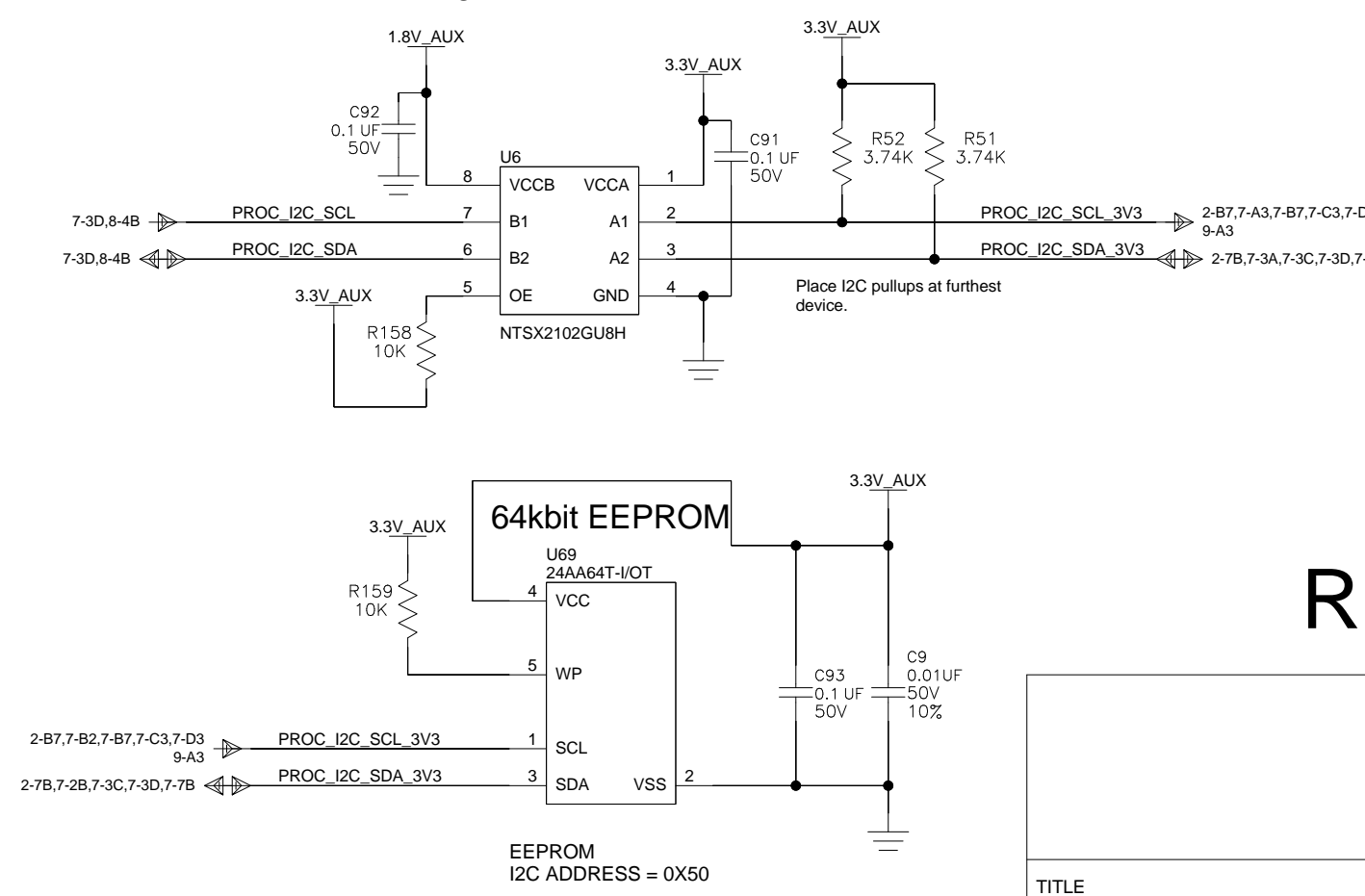
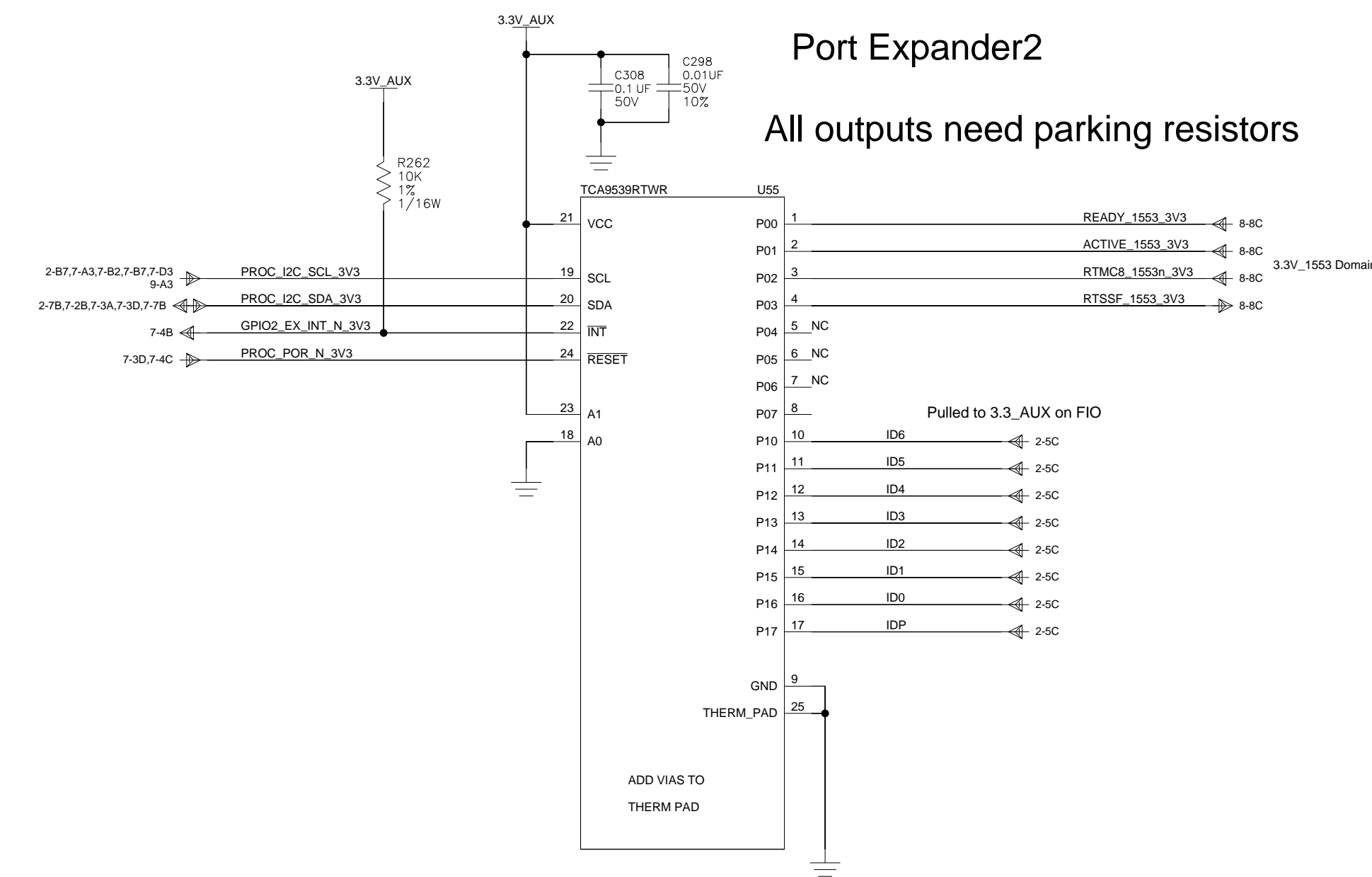
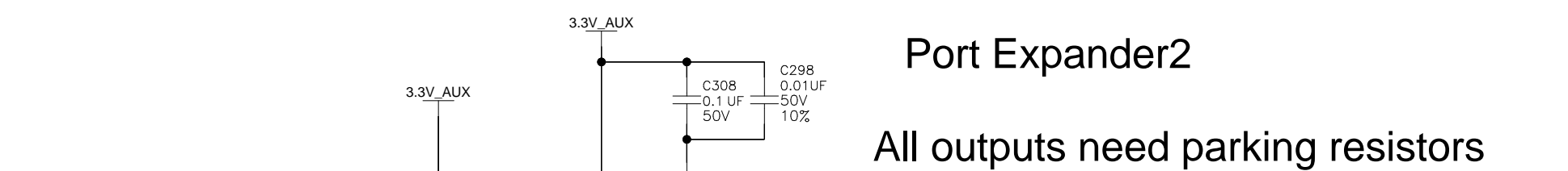
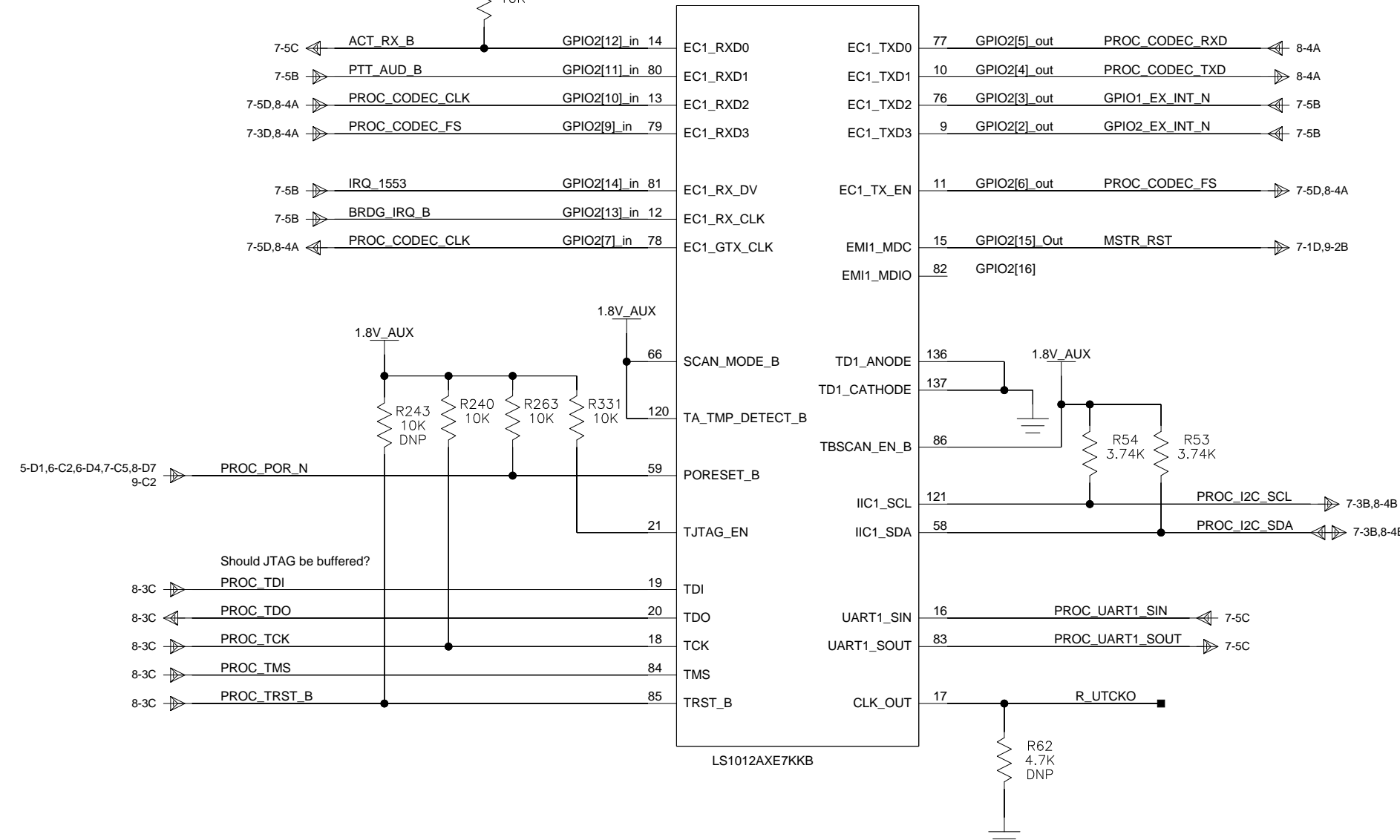
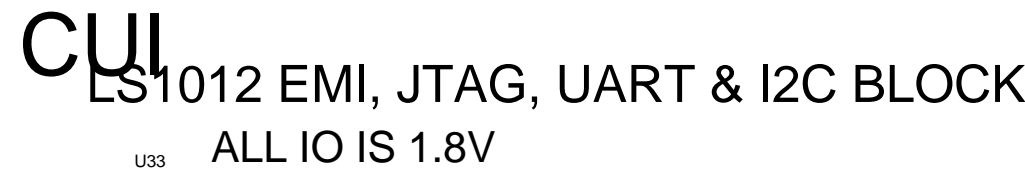
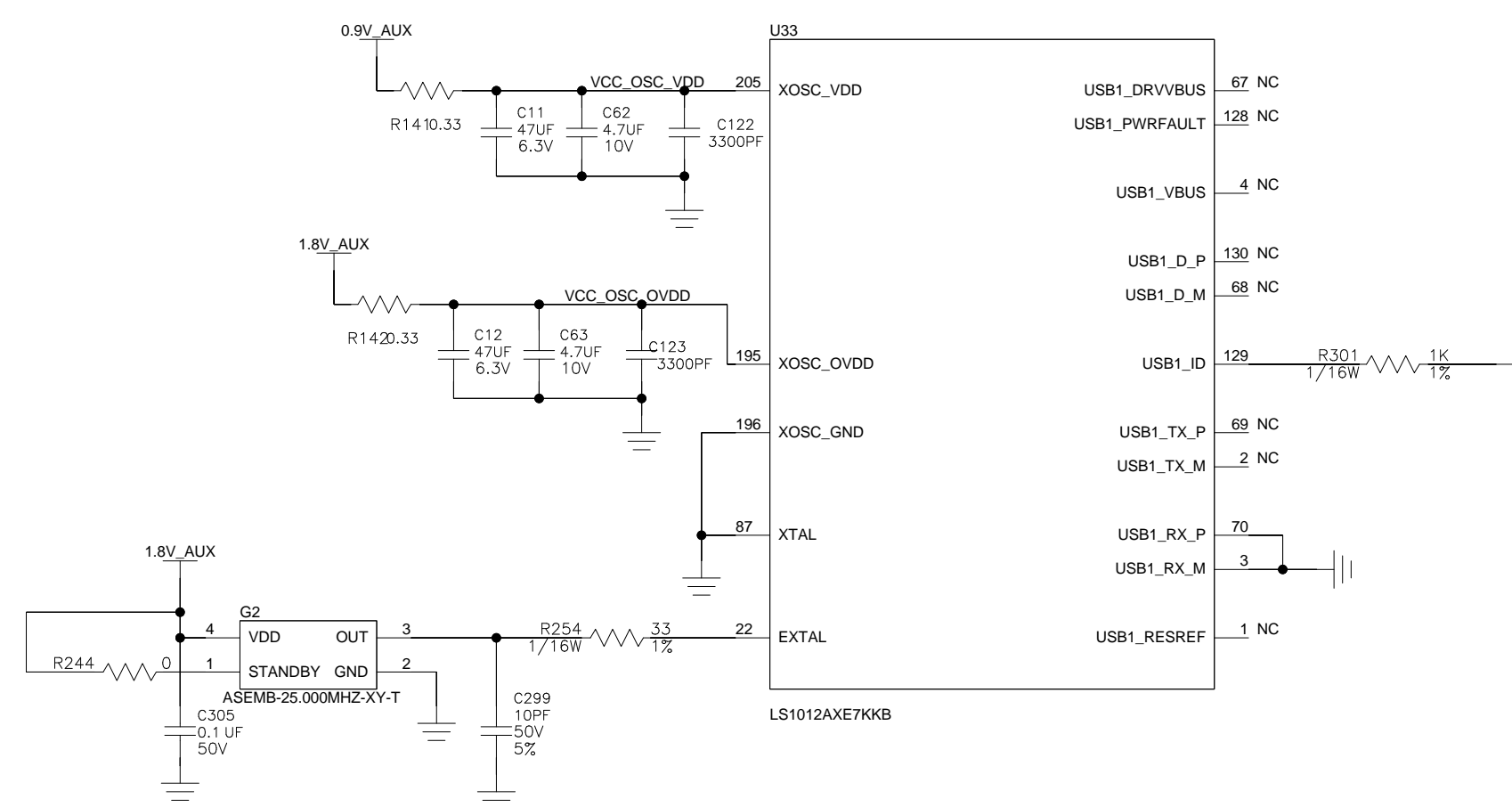
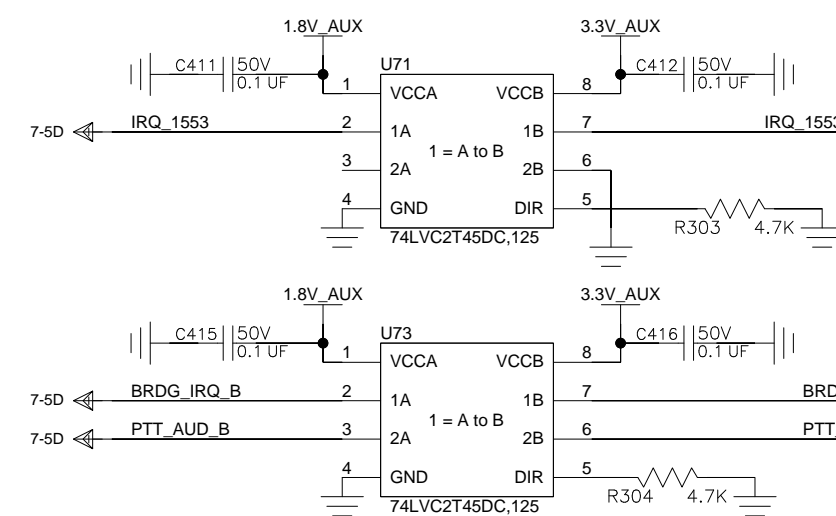
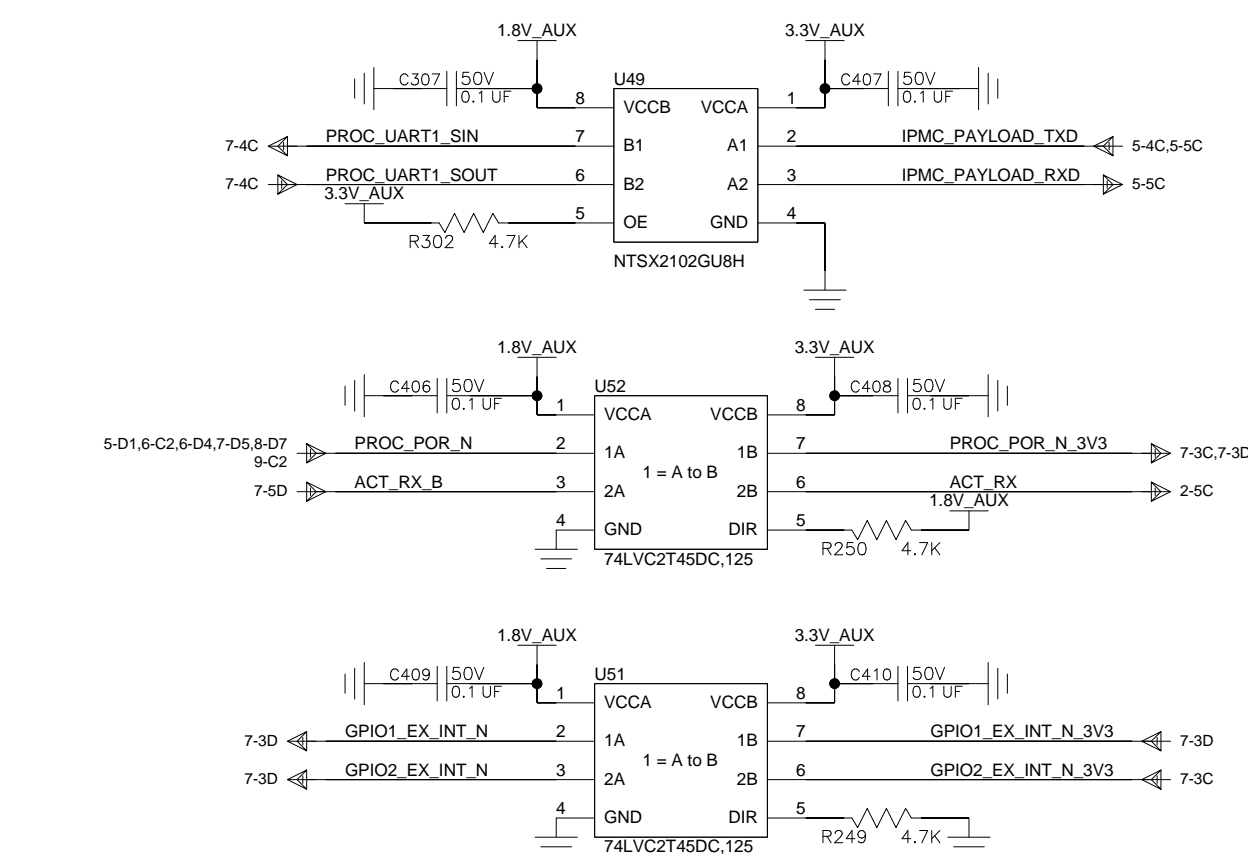
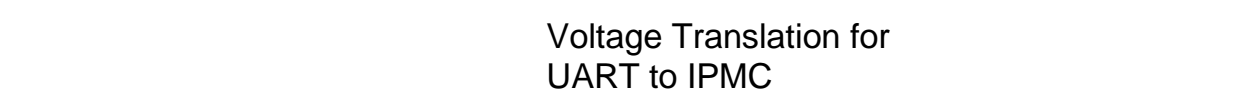
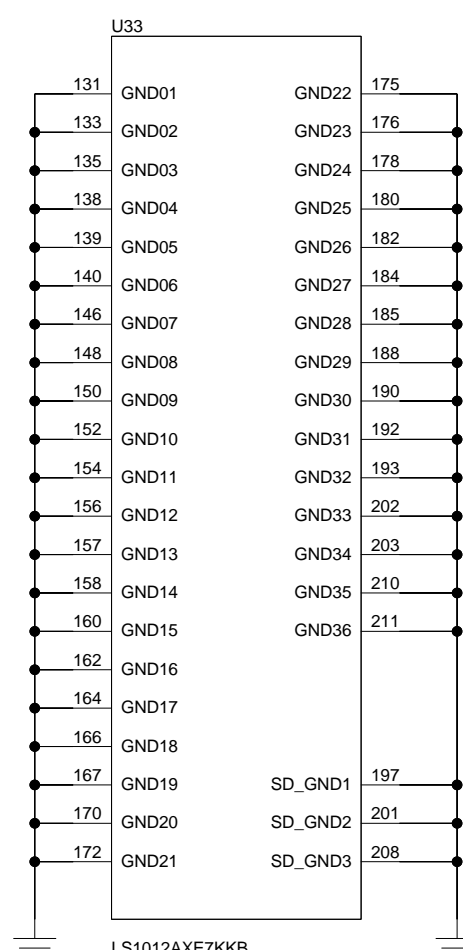
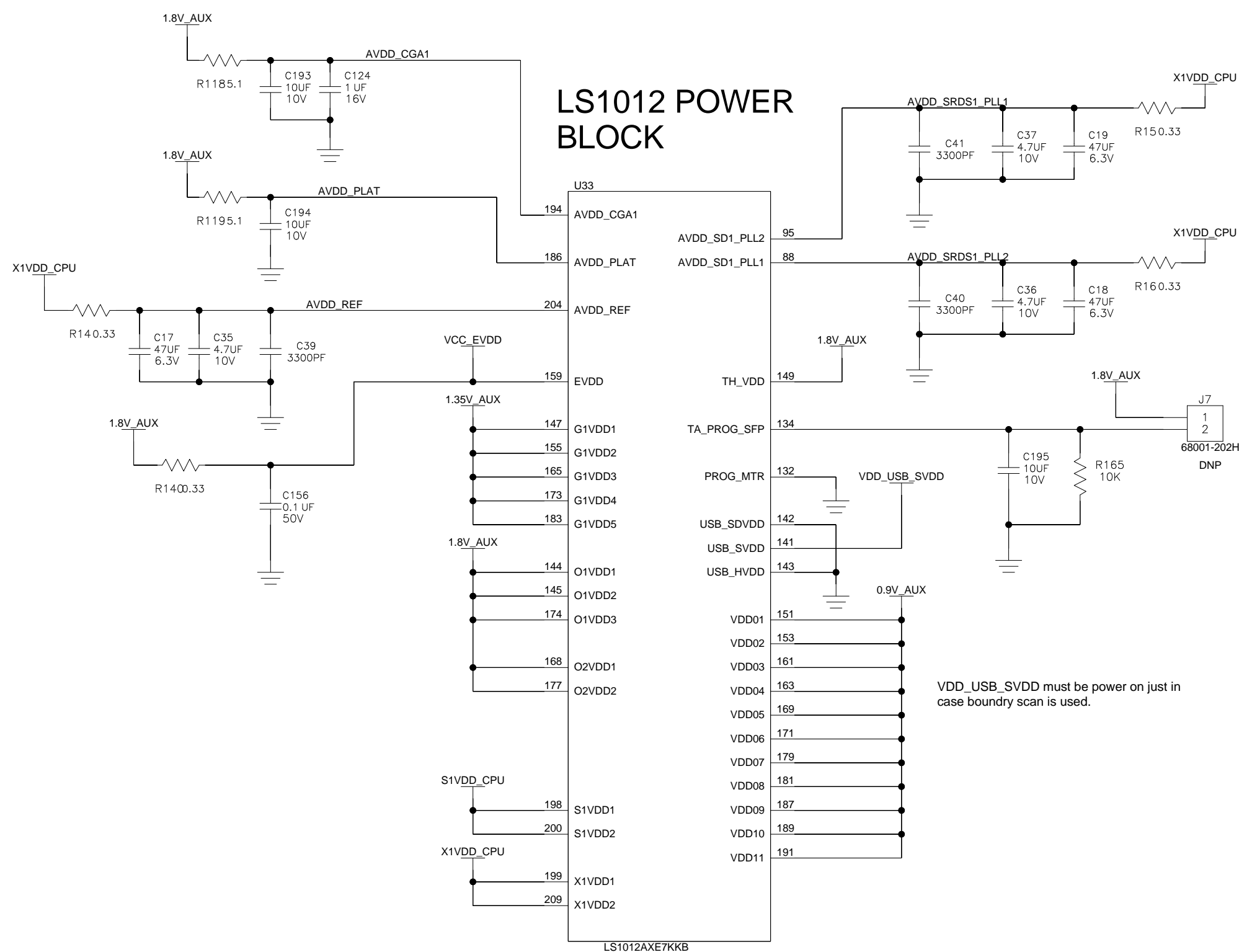
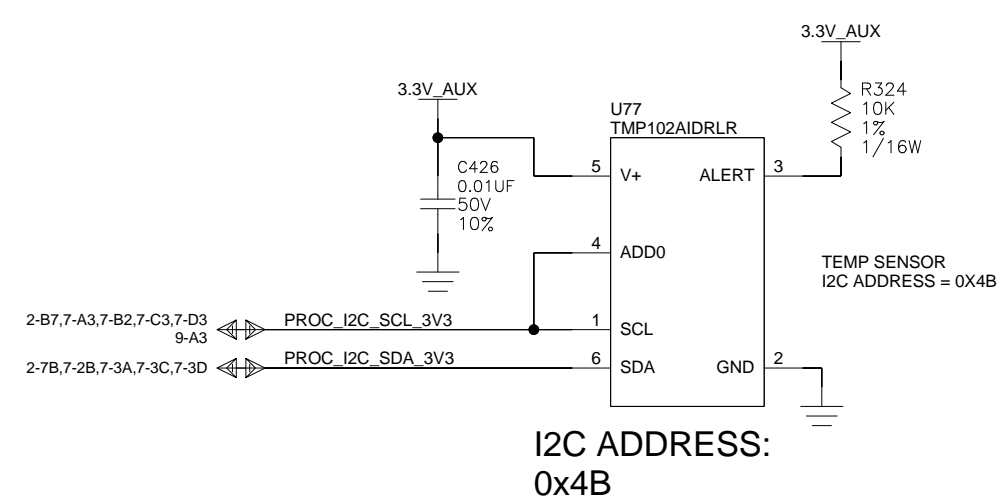
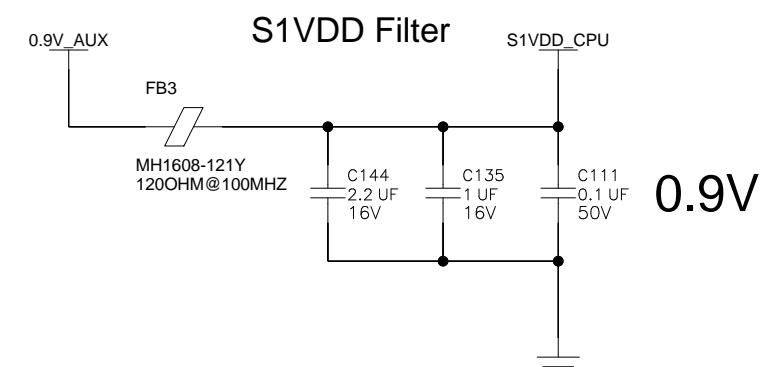
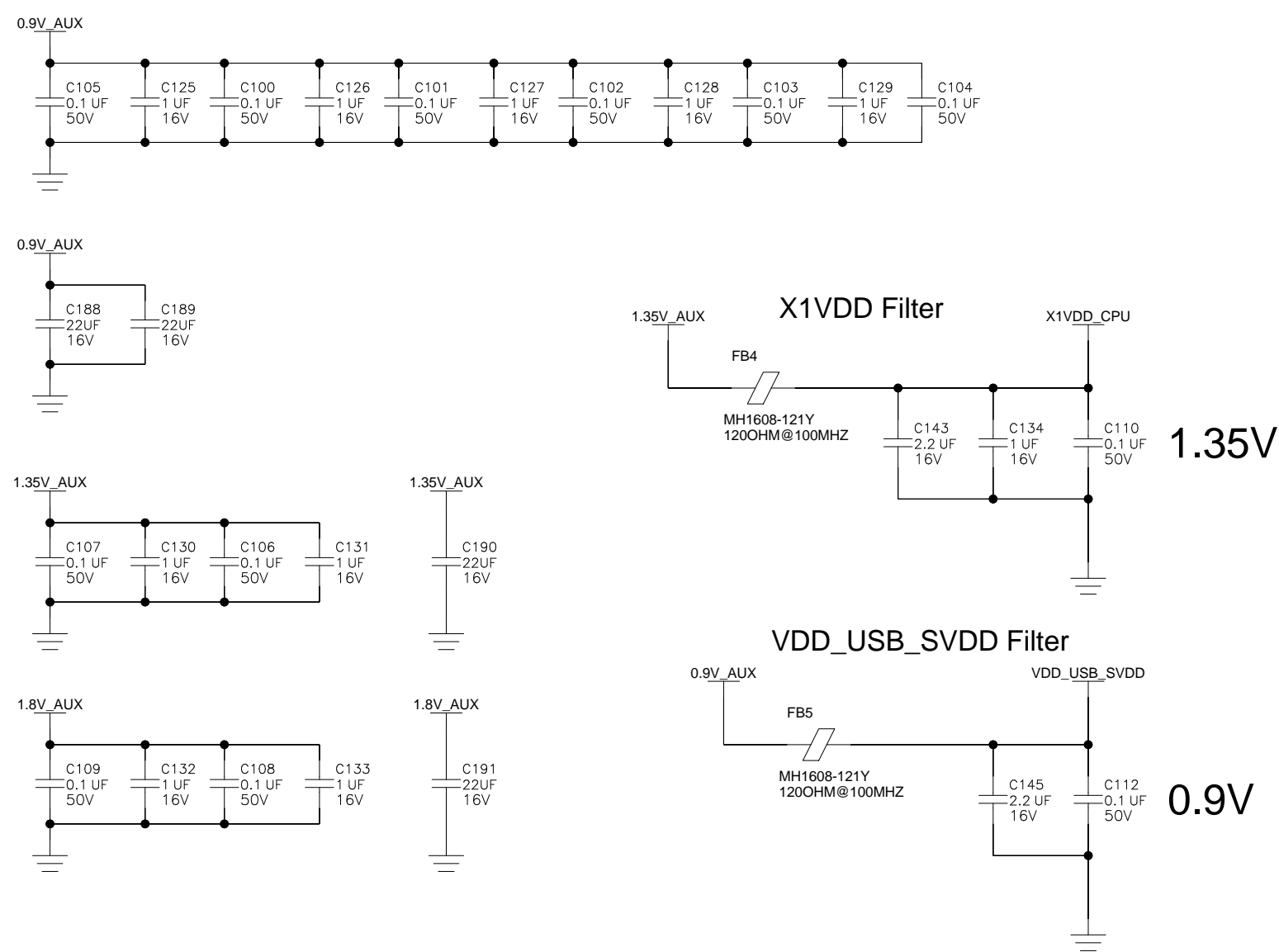
2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE

SCHEMATIC

RED INTERFACE

SIZE D	CAGE CODE 0CDN3	DWG NO 112302-01003	REV 0.7
FILE NAME 112302-01003			SHEET 6 OF 11



PROC I2C ADDRESSES:

- 0x70 - I2C Bux Mux for Columb Counters
- 0x64 - Coulomb Counter(s)
- 0x77 - Port Expander 1
- 0x76 - Port Expander 2
- 0x50 - BIT EEPROM
- 0x7E - Power Manager
- 0x4B - Temp Sensor

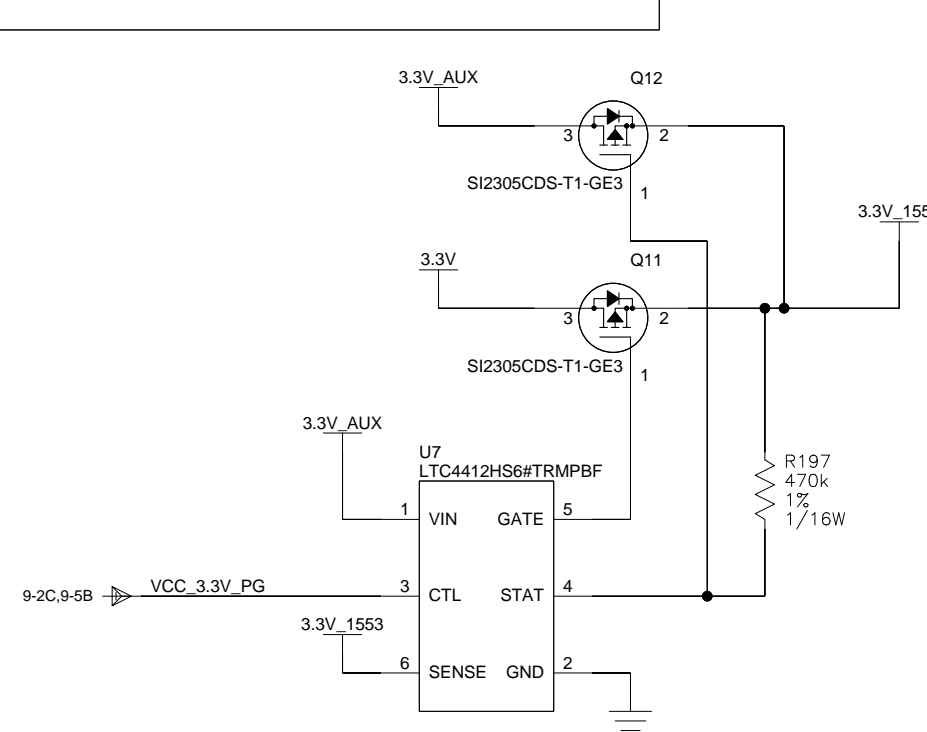
RIB Processor Interface

DRS Advanced ISR, LLC

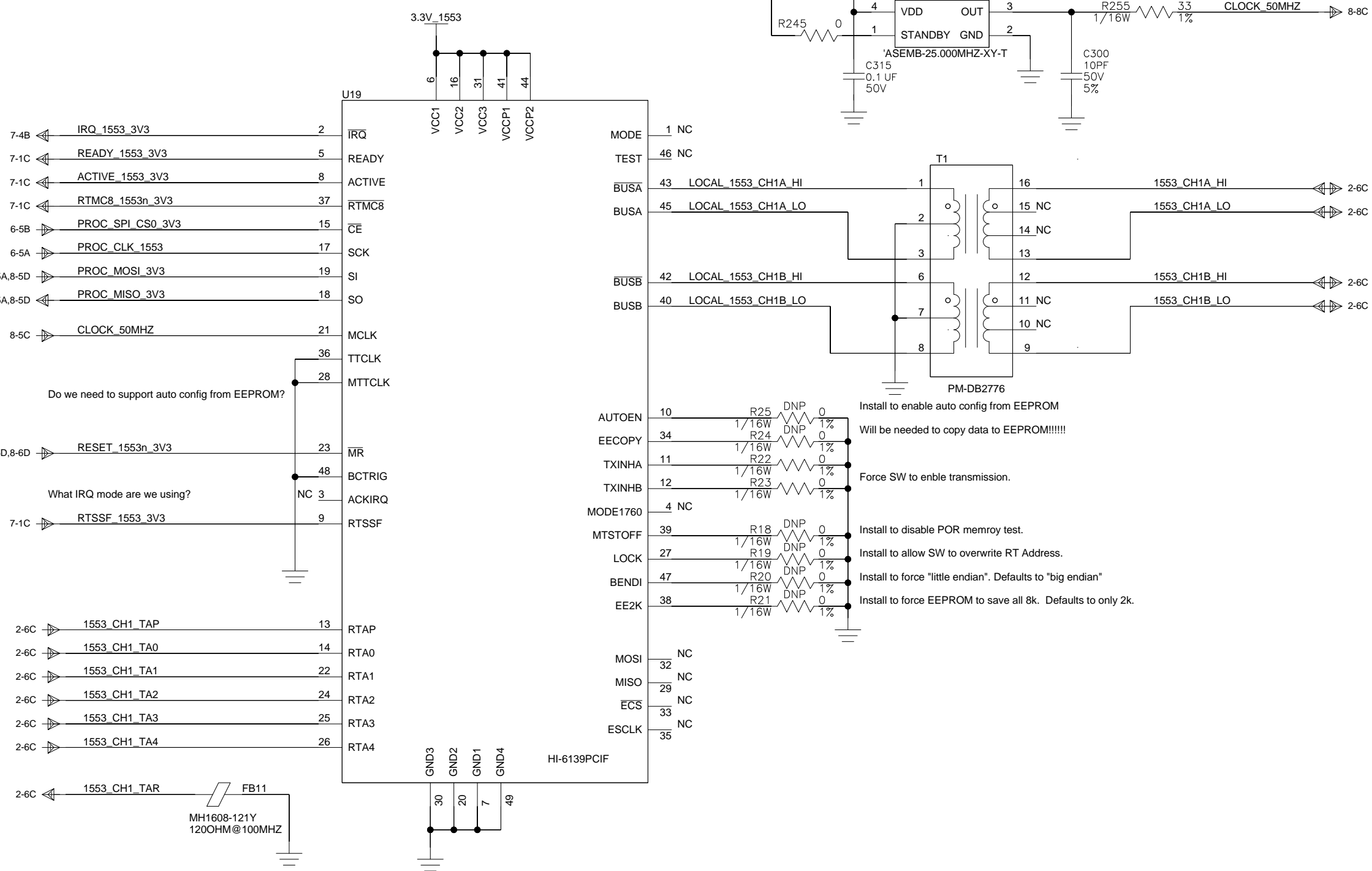
2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7400

TITLE			
SCHEMATIC			
RED INTERFACE			
SIZE	CAGE CODE	DWG NO	REV
D	0CDN3	112302-01003	0.7
FILE NAME			SHEET
112302-01003			7 OF 11

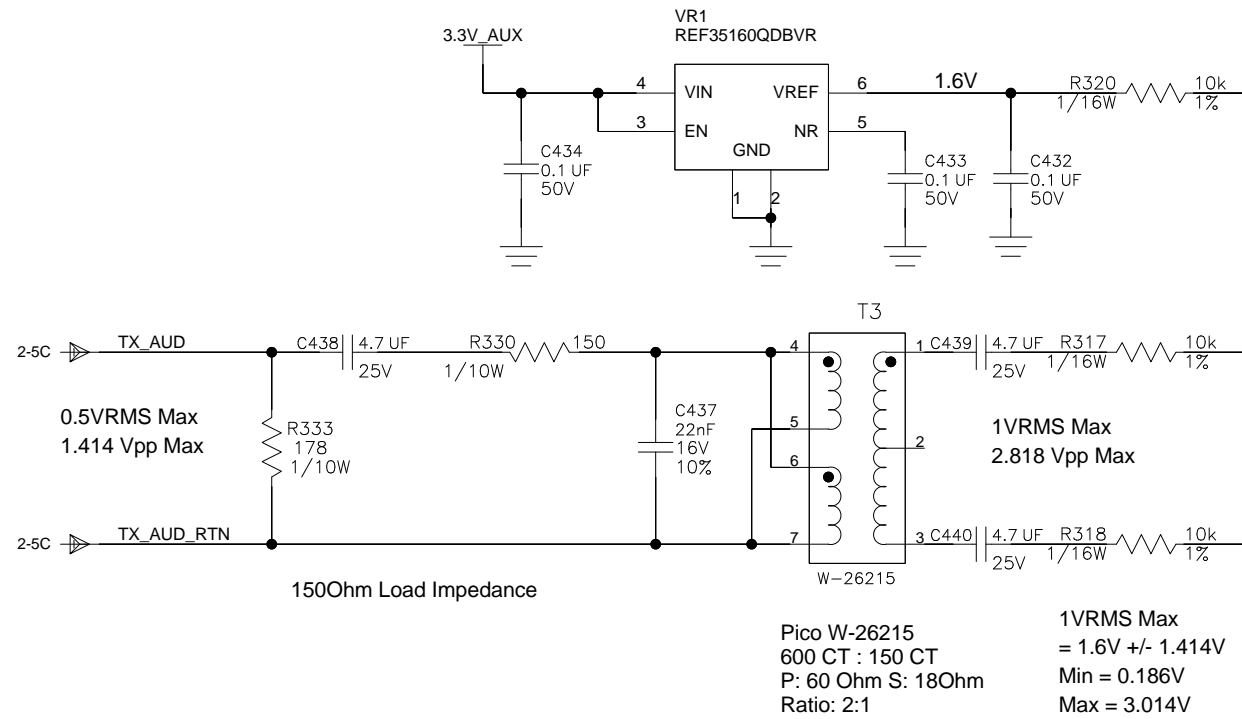
EXPORT CONTROLLED- SEE PAGE 1



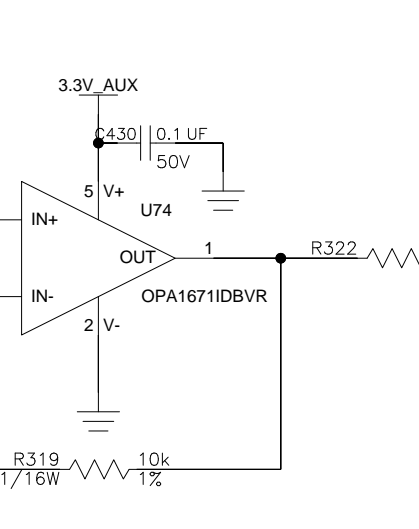
1553 Terminal



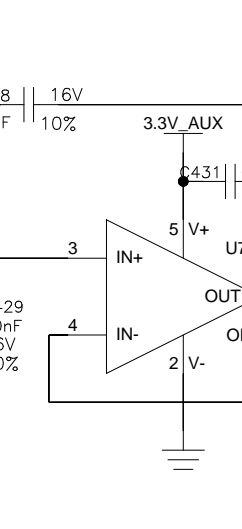
1.6V Reference for Amp Bias



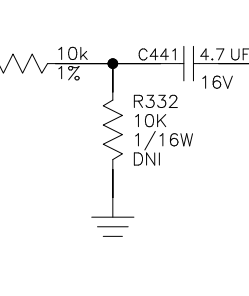
Unity Differential Amplifier



Lowpass Filter

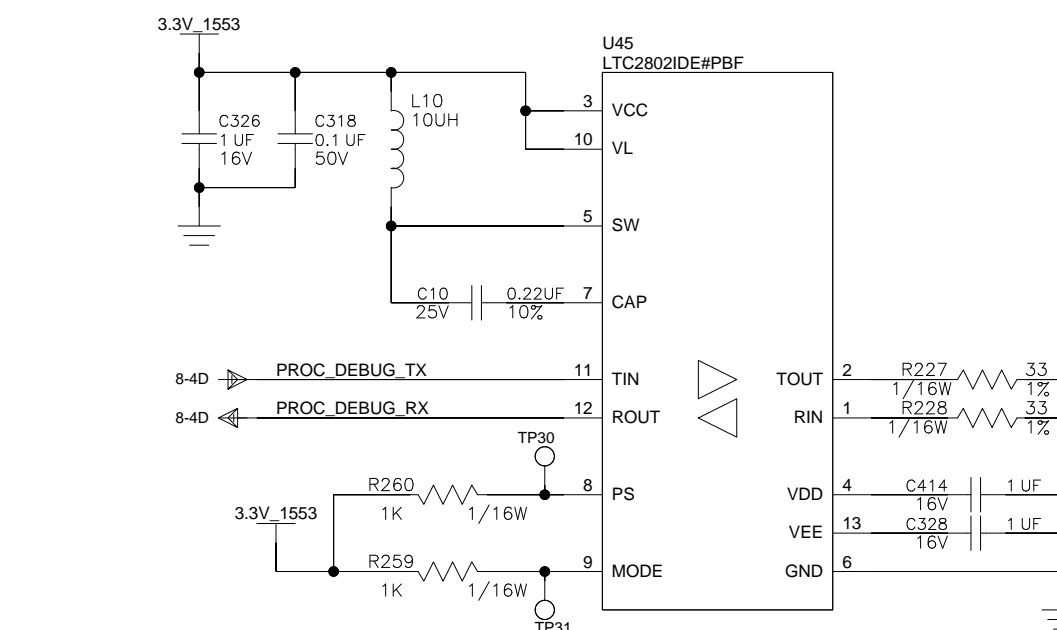
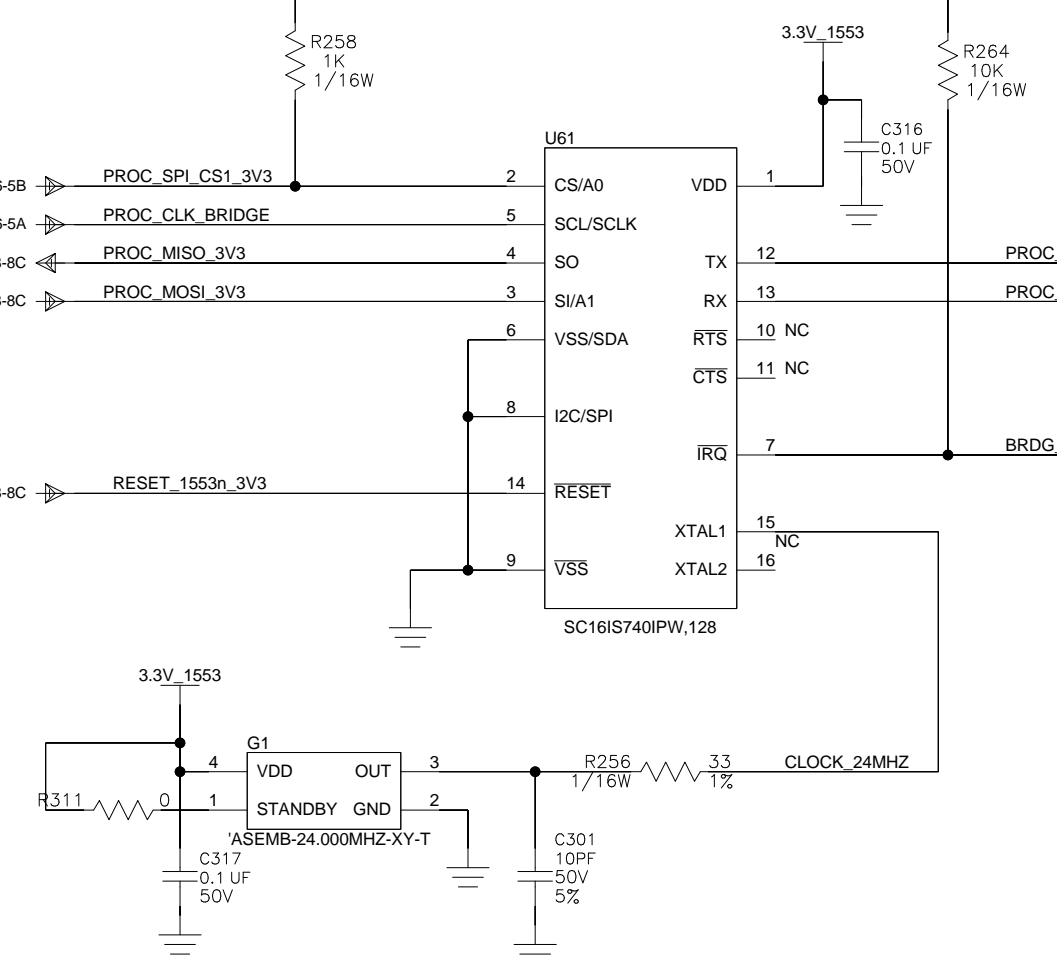


Voltage Divider

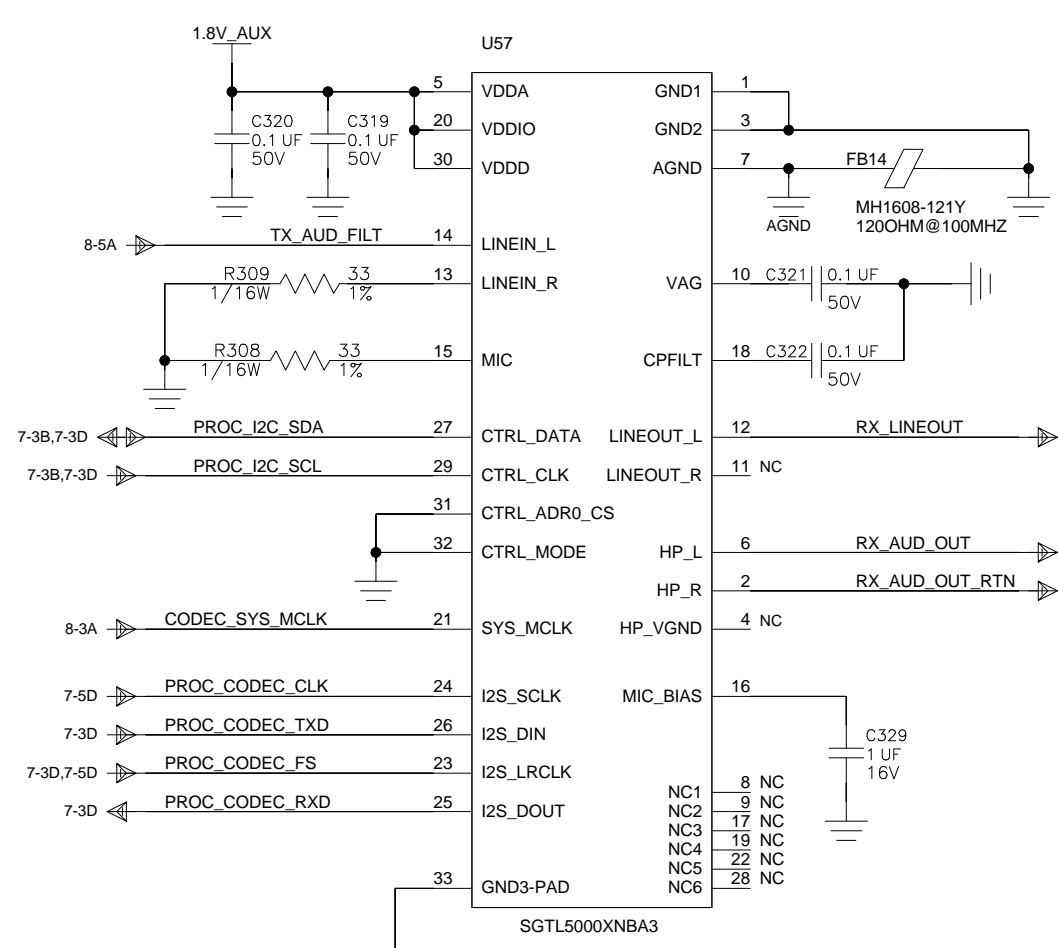


CUI

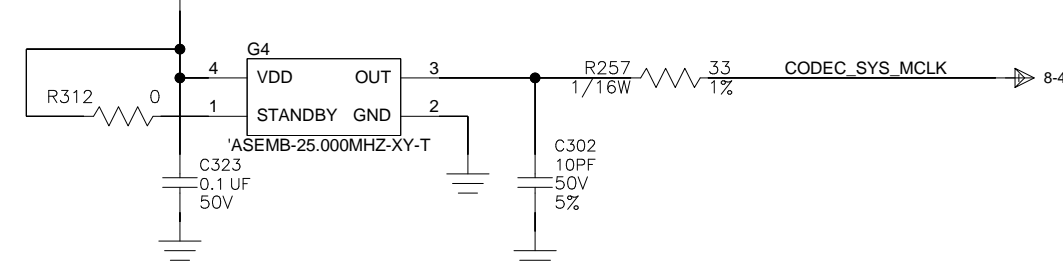
SPI to UART Bridge



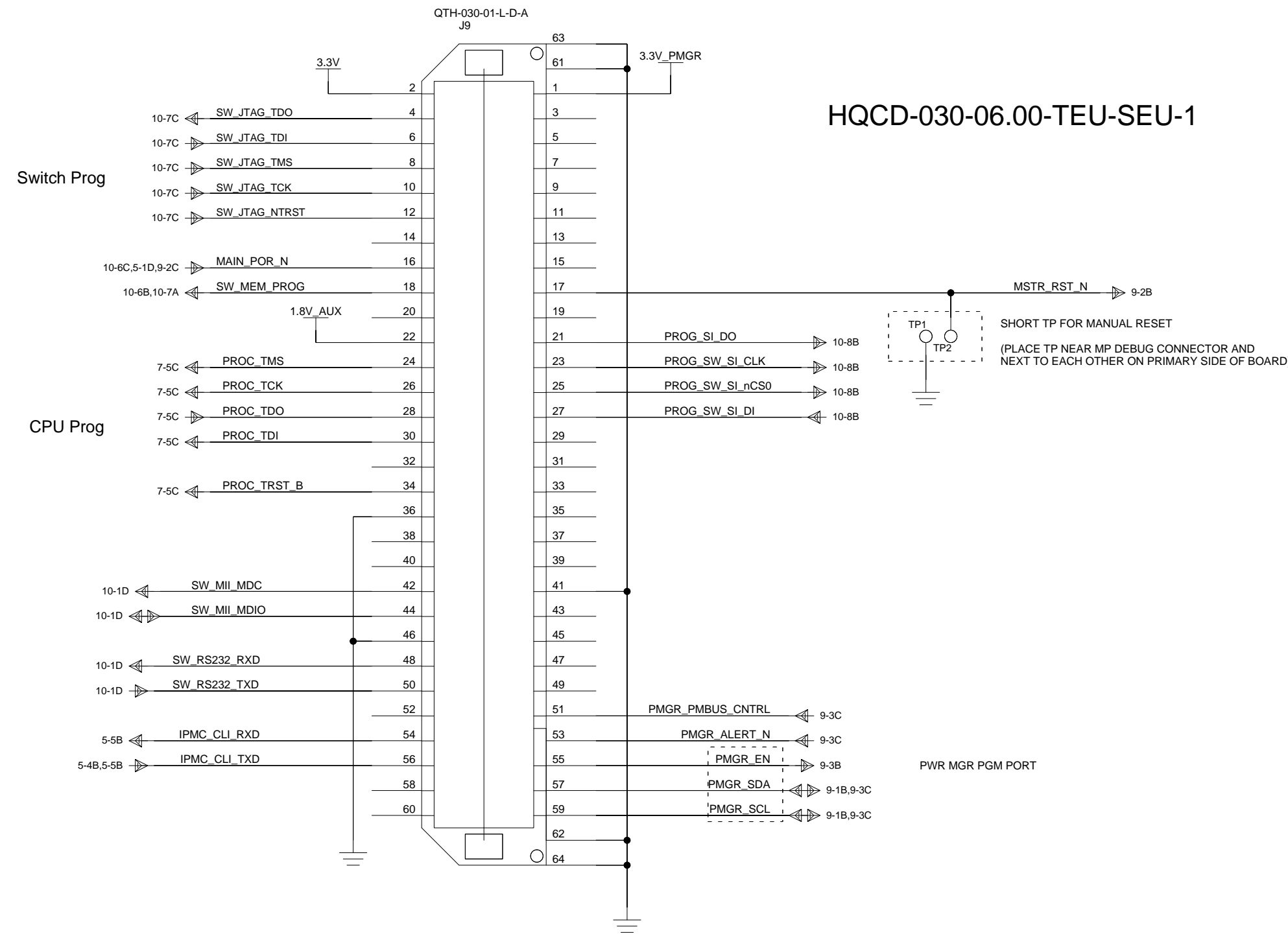
AUDIO CODEC



Audio CODEC Clock



MULTIPURPOSE DEBUG PORT



1553, Serial Bridge and Debug

DRS Advanced ISR, LLC

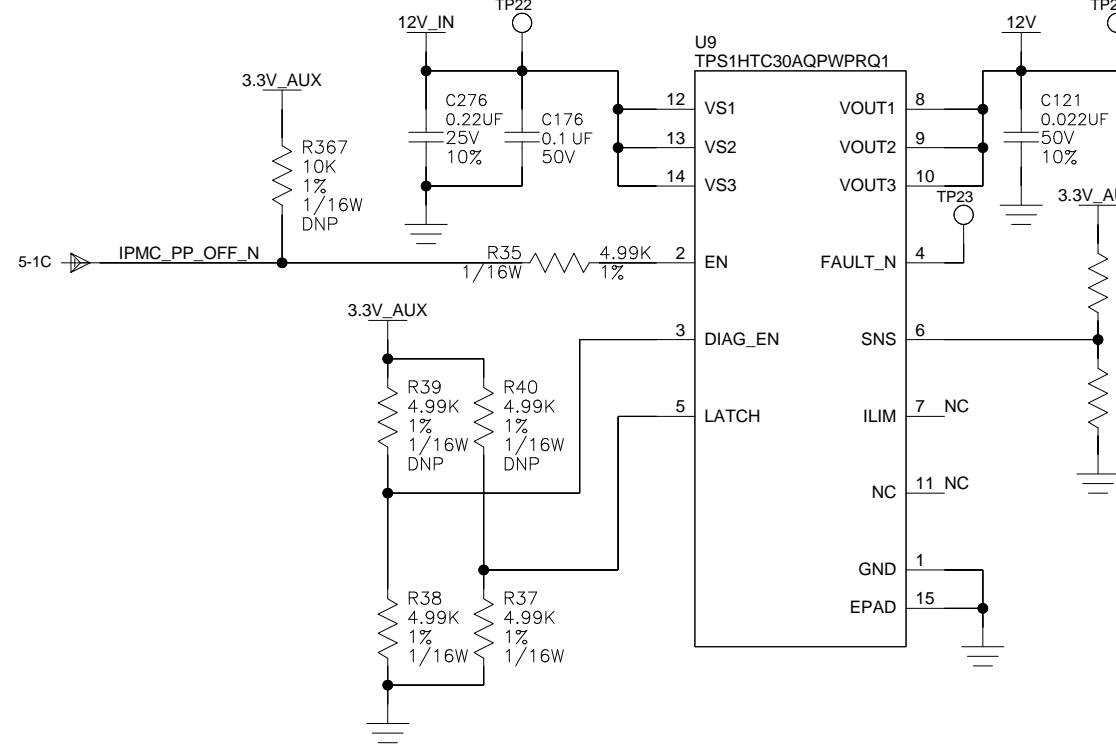
2601 MISSION POINT BLVD SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

SCHEMATIC RED INTERFACE

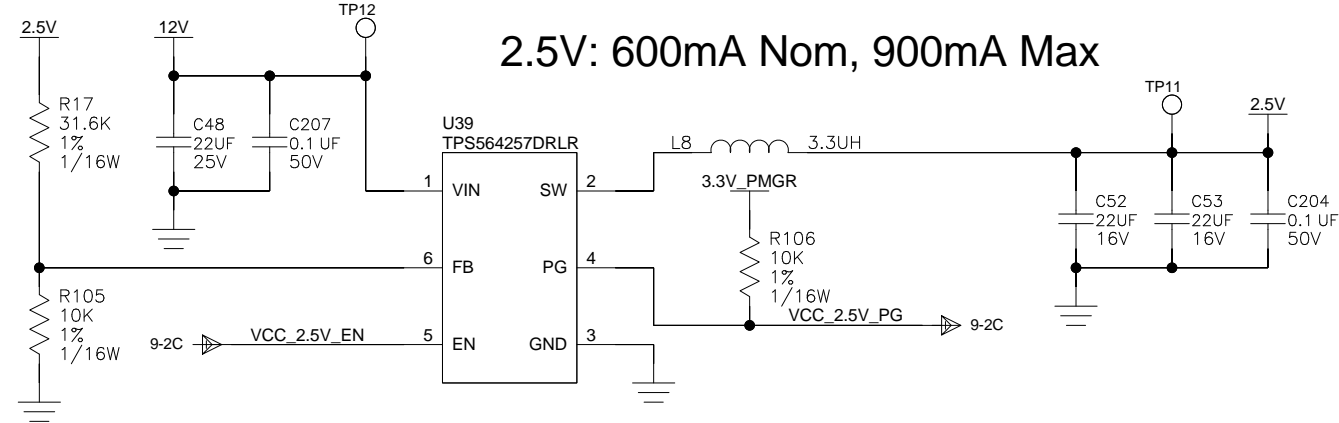
SIZE	CAGE CODE	DWG NO	REV
D	0CDN3	112302-01003	0.7
FILE NAME	112302-01003	SHEET	8 OF 11

CUI

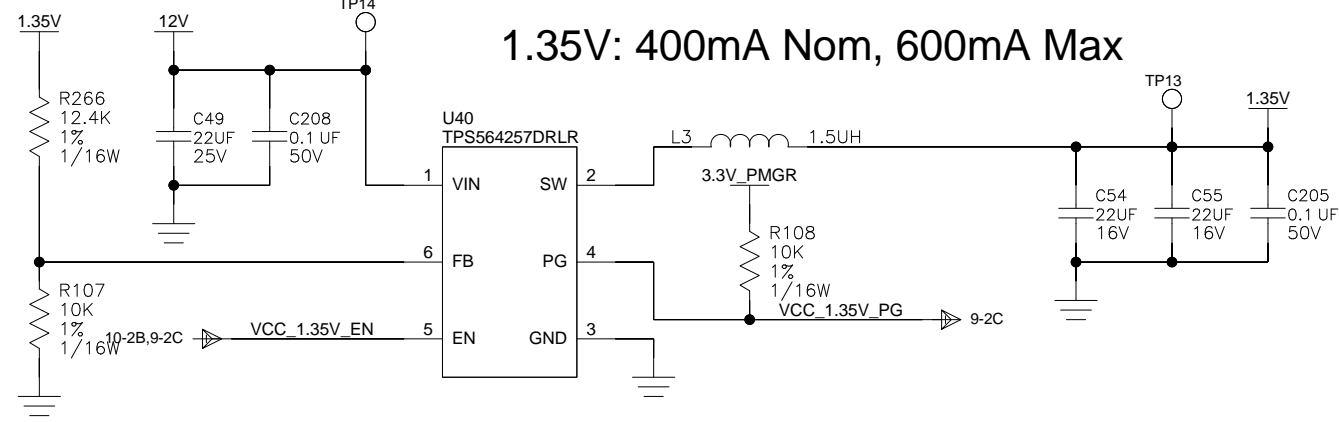
IPMC CONTROLLED 12V ON/OFF SWITCH



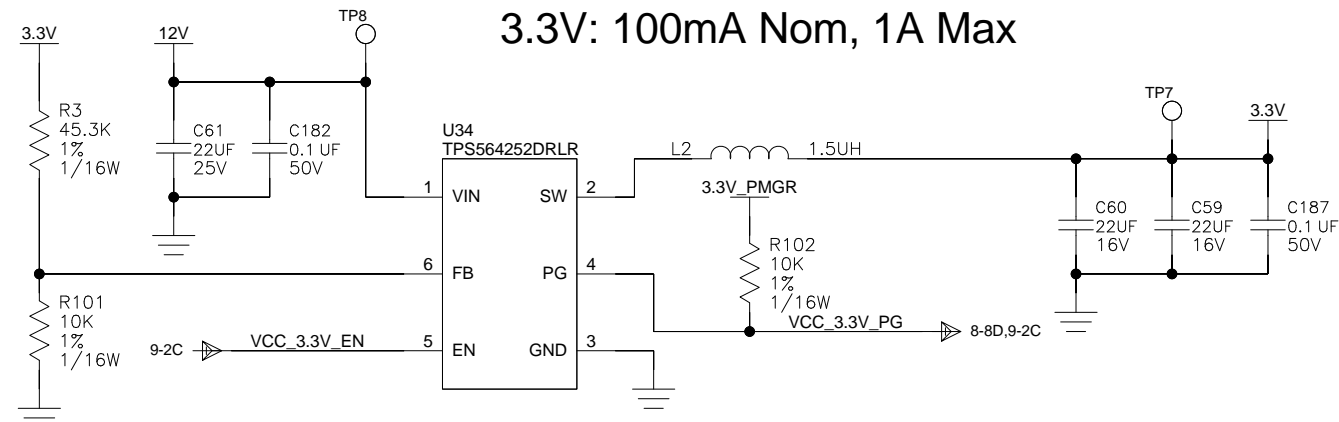
12V Input Regulators



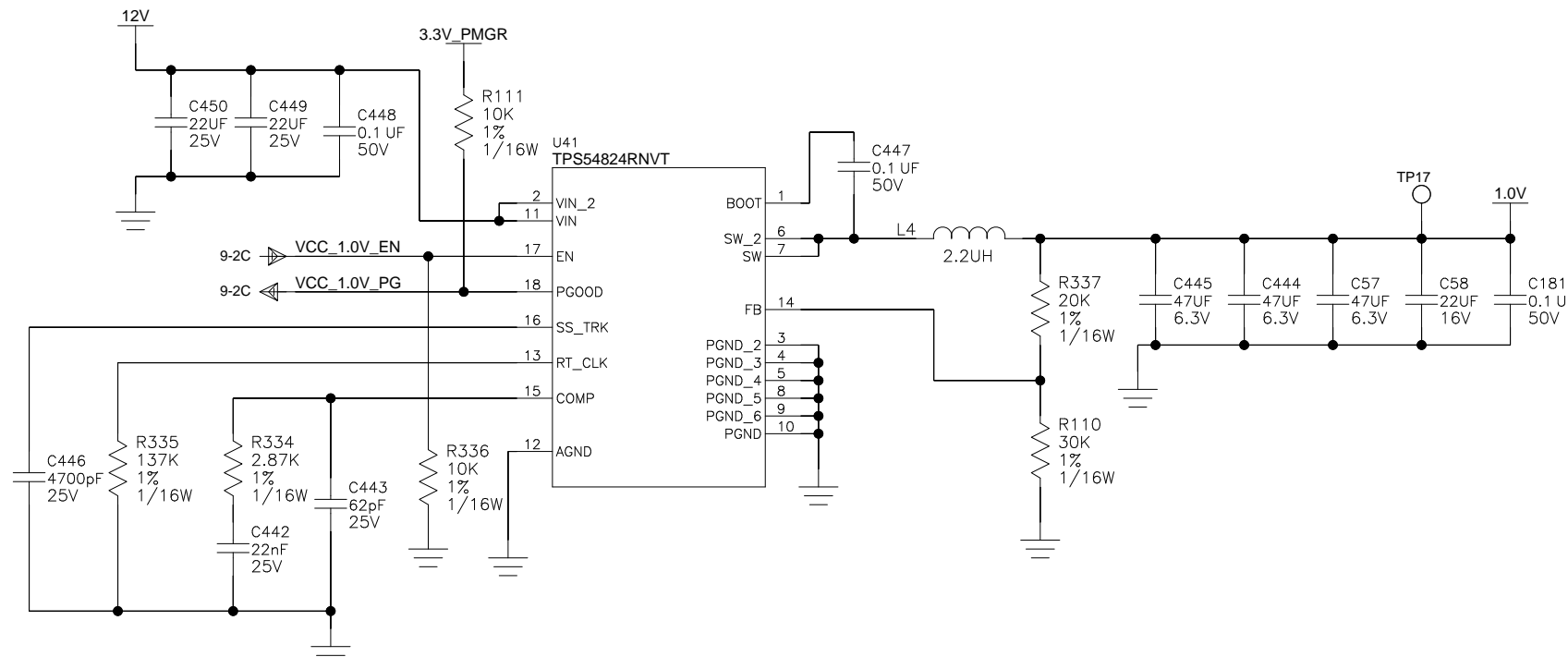
1.35V: 400mA Nom, 600mA Max



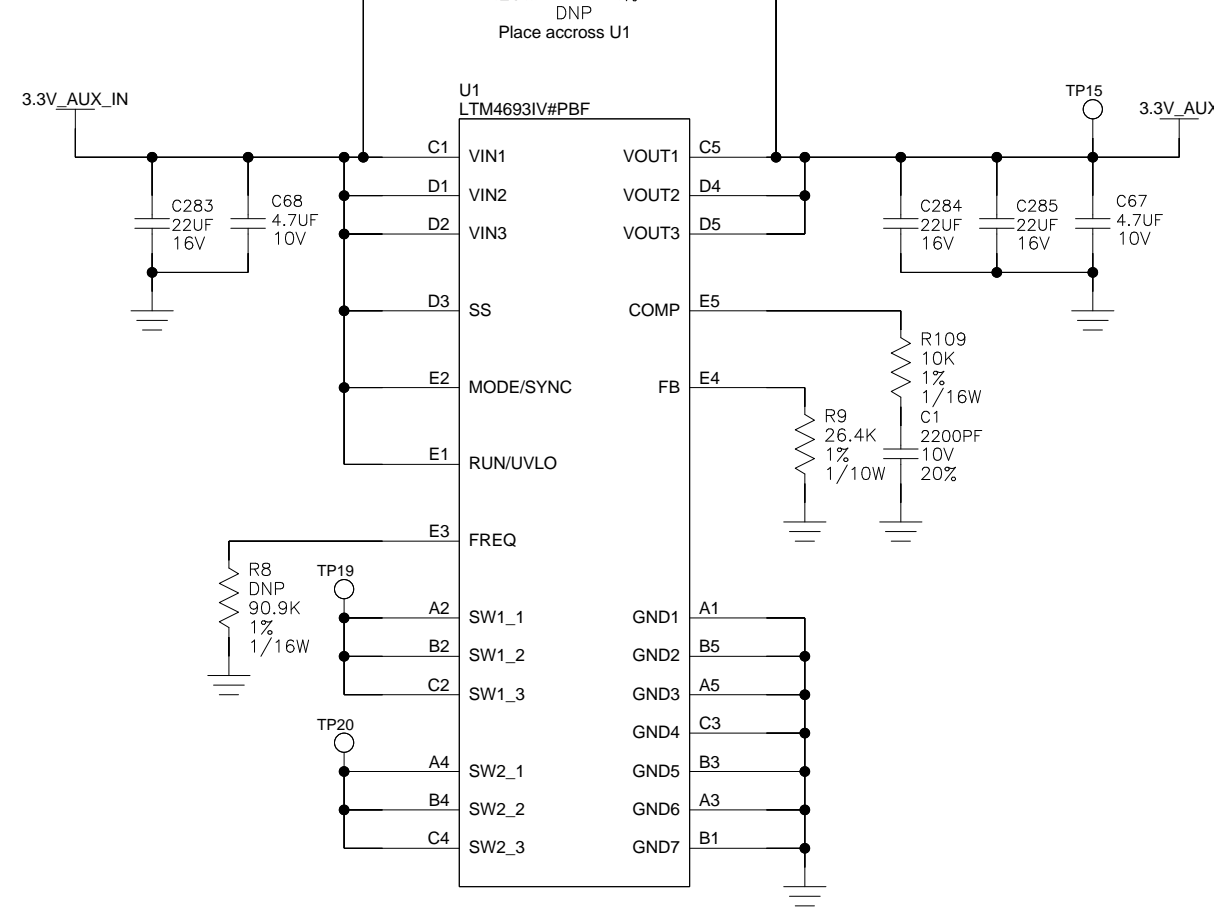
3.3V: 100mA Nom, 1A Max



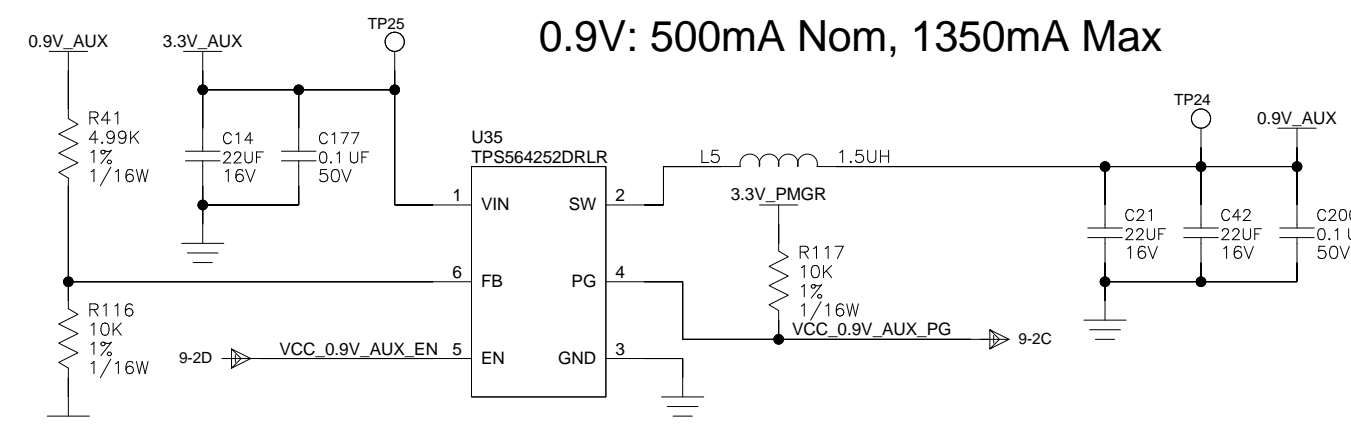
1.0V: 1.8A Nom, 3.0A Max



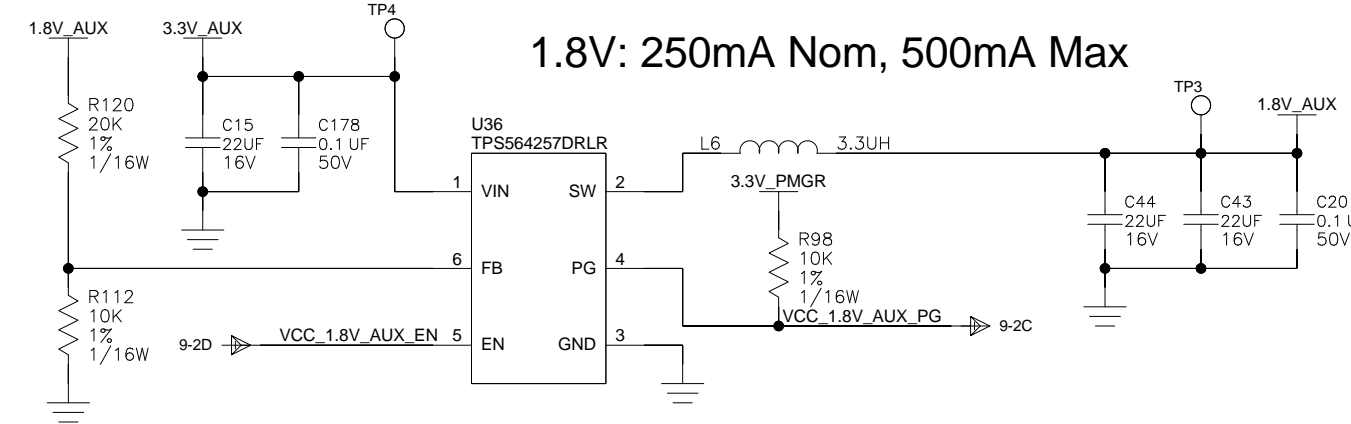
3.3V AUX BOOST



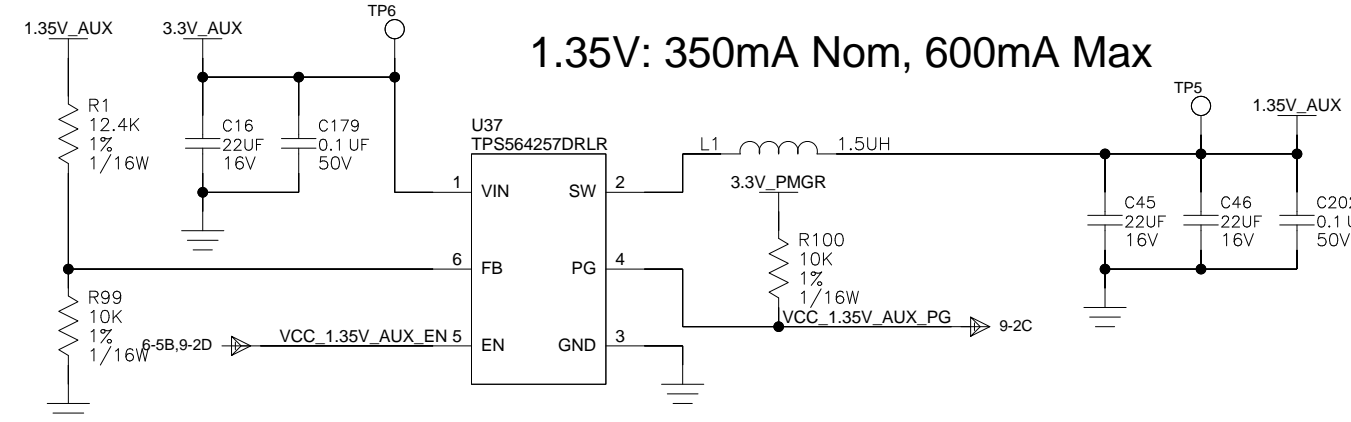
3.3V_AUX Input Regulators



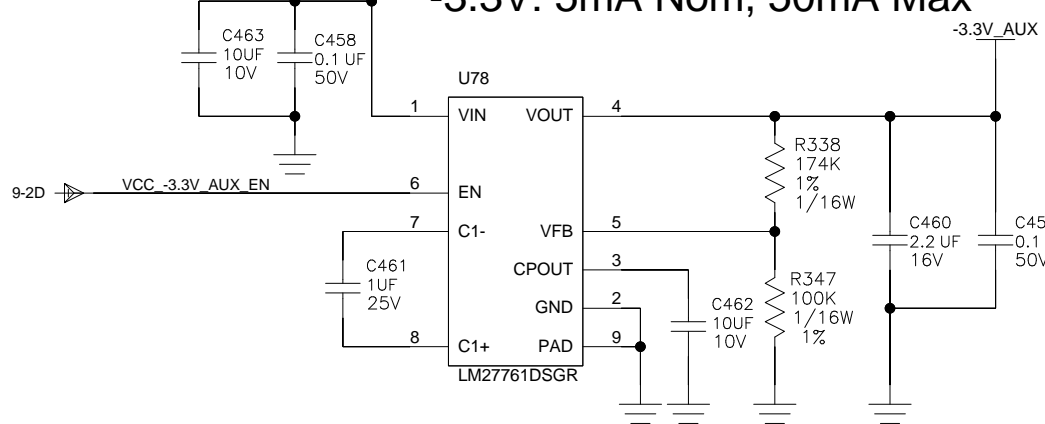
1.8V: 250mA Nom, 500mA Max



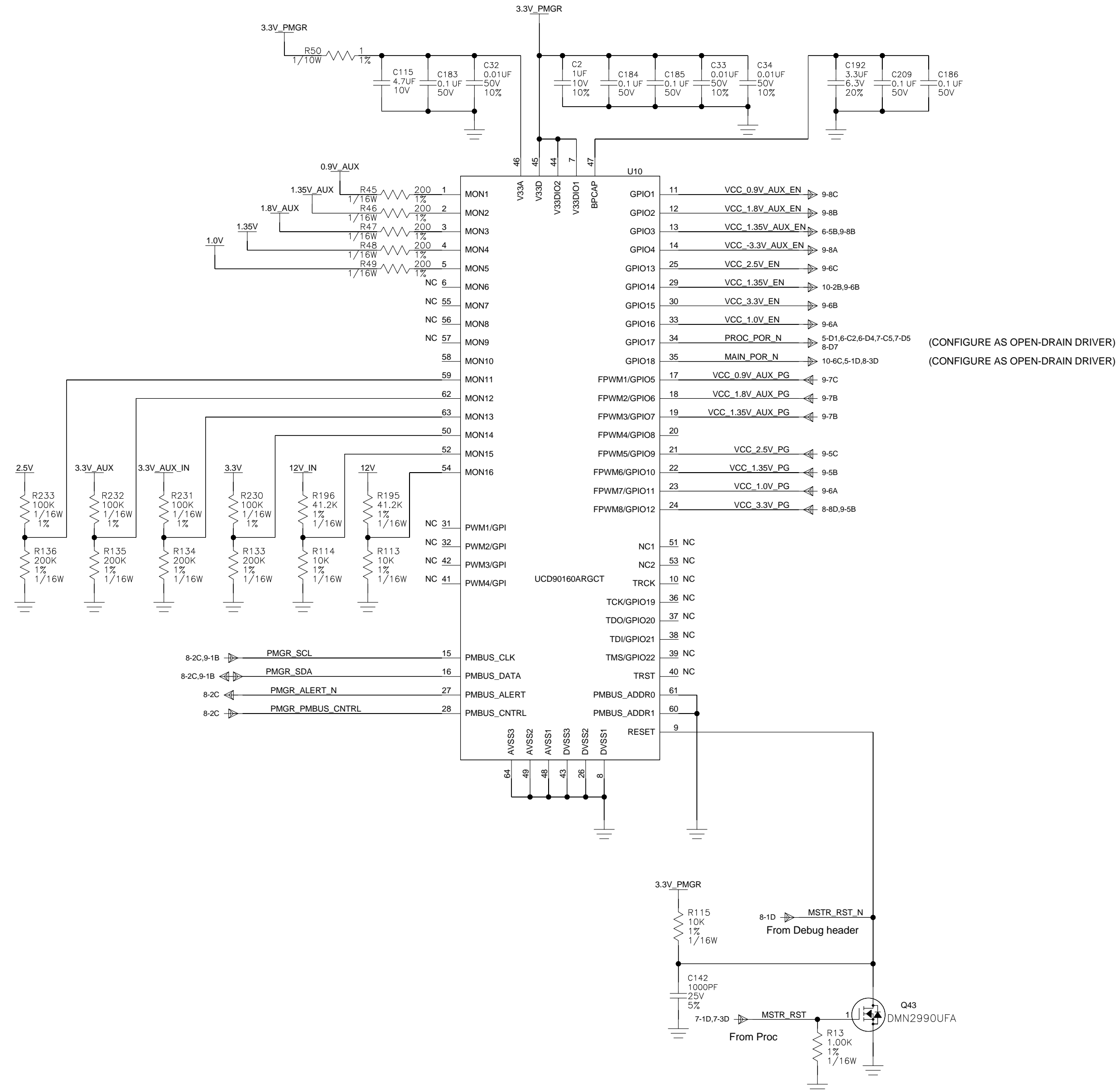
1.35V: 350mA Nom, 600mA Max



-3.3V: 5mA Nom, 50mA Max



We have two power on sequences:
1) 3.3V_AUX is applied and it's rails come alive
2) IPMC releases 12V rail and remaining rails start



Board Power

DRS Advanced ISR, LLC
2601 MISSION POINT BLVD SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

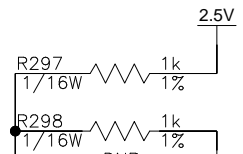
TITLE				REV	
SCHEMATIC				0.7	
RED INTERFACE					
SIZE	CAGE CODE	DWG NO	112302-01003		
D	0CDN3				
FILE NAME	112302-01003			SHEET	9 OF 11

CUI

VSC7514 GPIO

VSC7514 GPIO alternate functions
GPIO # | ALT "10" | ALT "11"

VSC7514XKS GPIO signals			
ALT01	STRAP		
SG0_Clk	REFCLK_SEL0	GPIO_0	A3
SG0_DO	REFCLK_SEL1	GPIO_1	A2
SG0_DI		GPIO_2	A1
SG0_LD	REFCLK_SEL2	GPIO_3	B3
IRQ0_IN		GPIO_4	B2
IRQ0_OUT		GPIO_5	B1
UART_RxD		GPIO_6	C3
UART_TxD		GPIO_7	C2
SPI_nCS1		GPIO_8	C1
SPI_nCS2		GPIO_9	D3
PTP_2		GPIO_10	D2
PTP_3		GPIO_11	D1
UART2_RxD		GPIO_12	E3
UART2_TxD		GPIO_13	E2
MIM1_MDC		GPIO_14	F1
MIM1_MDI0		GPIO_15	F3
TWI_SDA		GPIO_16	F2
TWI_SCL		GPIO_17	F1
PTP_0	VCORE_CFG0	GPIO_18	G3
PTP_1	VCORE_CFG1	GPIO_19	G2
RCVRD_CLK0	VCORE_CFG2	GPIO_20	G1
RCVRD_CLK1	VCORE_CFG3	GPIO_21	H3



From Same switch used for reset?

Debug Connector?

SPI NAND CS

Pulled to 3.3V on devboard...

For 1PPS interface

Needed?

Debug Connector?

Needed? Only used for SFP control

NOR Memory 256Mbit SPI
SPI boot Flash 32MBytes

NAND (SLC) Memory IC 1Gbit SPI
SPI NAND 256MBytes

VSC7514 boot mode strapping
VCore_Cfg[3:0] | VCore-III CPU Behavior

0 0 0 0 | MPS (or 8051 boots) from SI interface. The MIPS is Little Endian.
0 0 0 1 | 8051 IROM boot. Reserved for port-bringup.
0 0 1 0 | 8051 IROM boot. Reserved for port-bringup.
0 0 1 1 | 8051 IROM boot. Reserved for port-bringup.
0 1 0 0 | 8051 IROM boot. Reserved for port-bringup.
0 1 0 1 | 8051 IROM boot. Reserved for port-bringup.
0 1 1 0 | 8051 IROM boot. Reserved for port-bringup.
0 1 1 1 | 8051 IROM boot. Reserved for port-bringup.
1 0 0 0 | 8051 IROM boot. NP110 FDX NoFC, VAP.
1 0 0 1 | 8051 IROM boot. PCIe.
1 0 1 0 | No boot. SI slave and MIM slave @ address 0 (GPIO alternative).
1 0 1 1 | No boot. SI slave and MIM slave @ address 31 (GPIO alternative).
1 1 0 0 | MPS or 8051 boots from SI interface. The MIPS is Big Endian.
1 1 0 1 | Reserved.
1 1 1 0 | 8051 boots from SI interface (the MIPS is disabled).
1 1 1 1 | No boot. SI slave is enabled.

VSC7514 PLL strapping
REFCLK_SEL[2:0] | Frequency | Comment

SynC = 0 0 0 | 125MHz | The default mode. Normal operation mode with 125MHz
0 0 1 | 156.25MHz | Normal operation mode with 156.25MHz ref clock
0 1 0 | 250MHz | Normal operation mode with 250MHz ref clock
0 1 1 | N/A | Reserved
1 0 0 | 25MHz | Normal operation mode with 25MHz ref clock
1 0 1 | N/A | Reserved
1 1 0 | N/A | Reserved
1 1 1 | N/A | Reserved

Question: What is OCXO in reference to the REFCLK_SEL?

DDR Reference

Ethernet Switch Power and Memory

DRS Advanced ISR, LLC

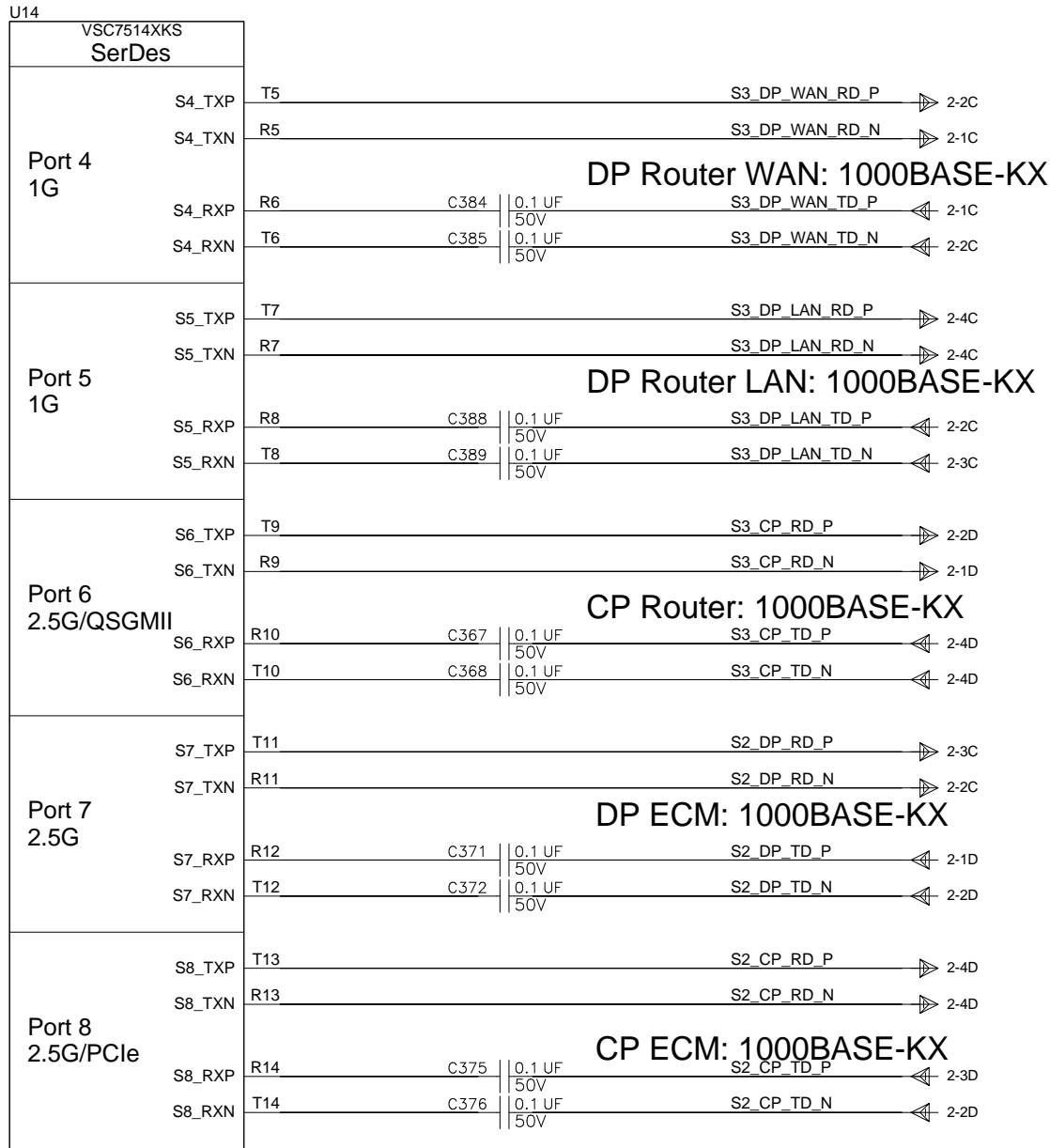
2601 MISSION POINT BLVD SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

SCHEMATIC
RED INTERFACE

SIZE D	CAGE CODE OCDN3	DWG NO 112302-01003	REV 0.7
FILE NAME 112302-01003			SHEET 10 OF 11

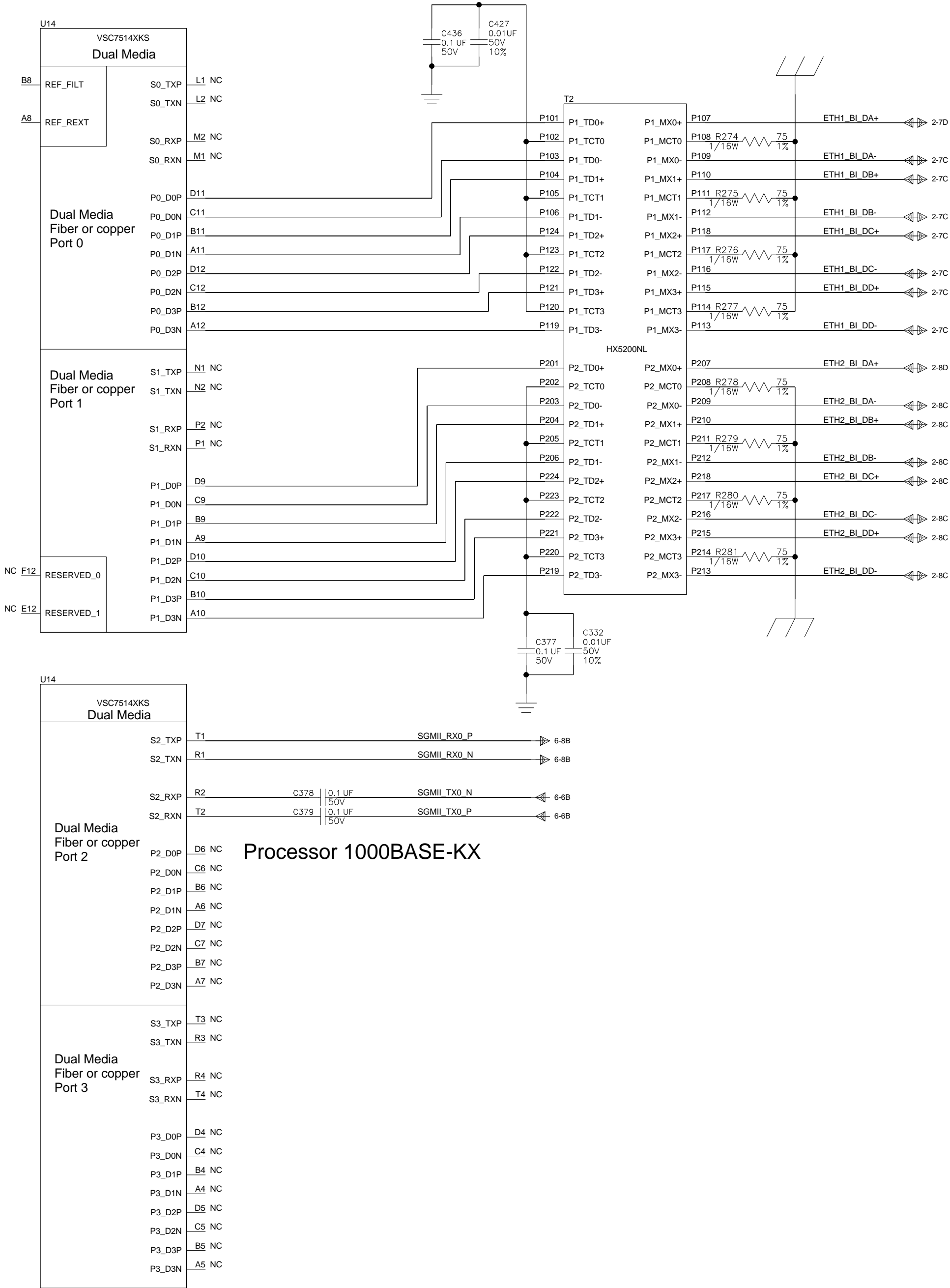
EXPORT CONTROLLED- SEE PAGE 1

CUI



DTP-N 1000BASE-T

SPARE 1000BASE-T



Ethernet Switch Ports

DRS Advanced ISR, LLC

2601 MISSION POINT BLVD.SUITE 100
BEAVERCREEK, OH 45431 (937)429-7408

TITLE
SCHEMATIC
RED INTERFACE

SIZE D	CAGE CODE 0CDN3	DWG NO 112302-01003	REV 0.7
FILE NAME 112302-01003			SHEET 11 OF 11

CUI