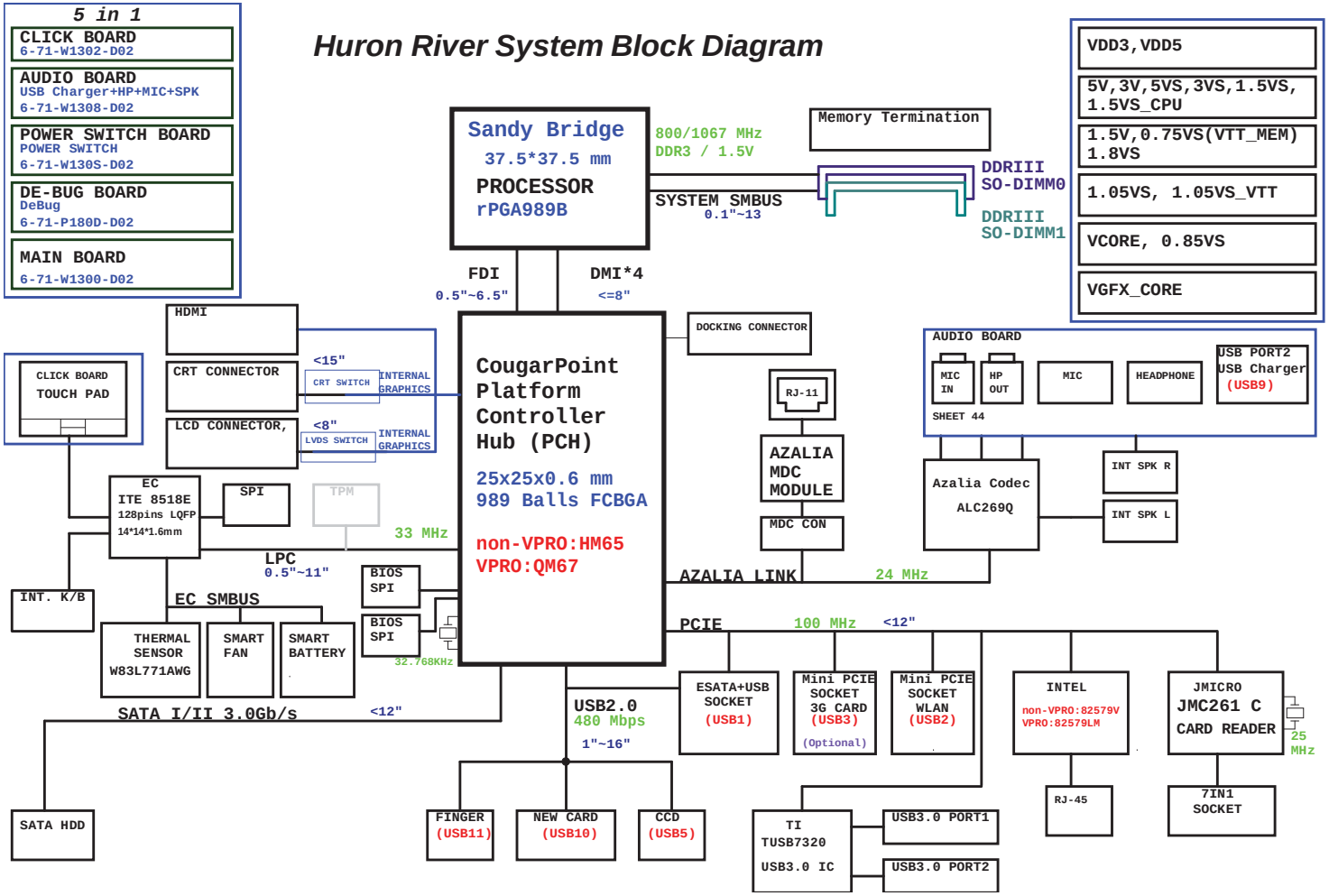
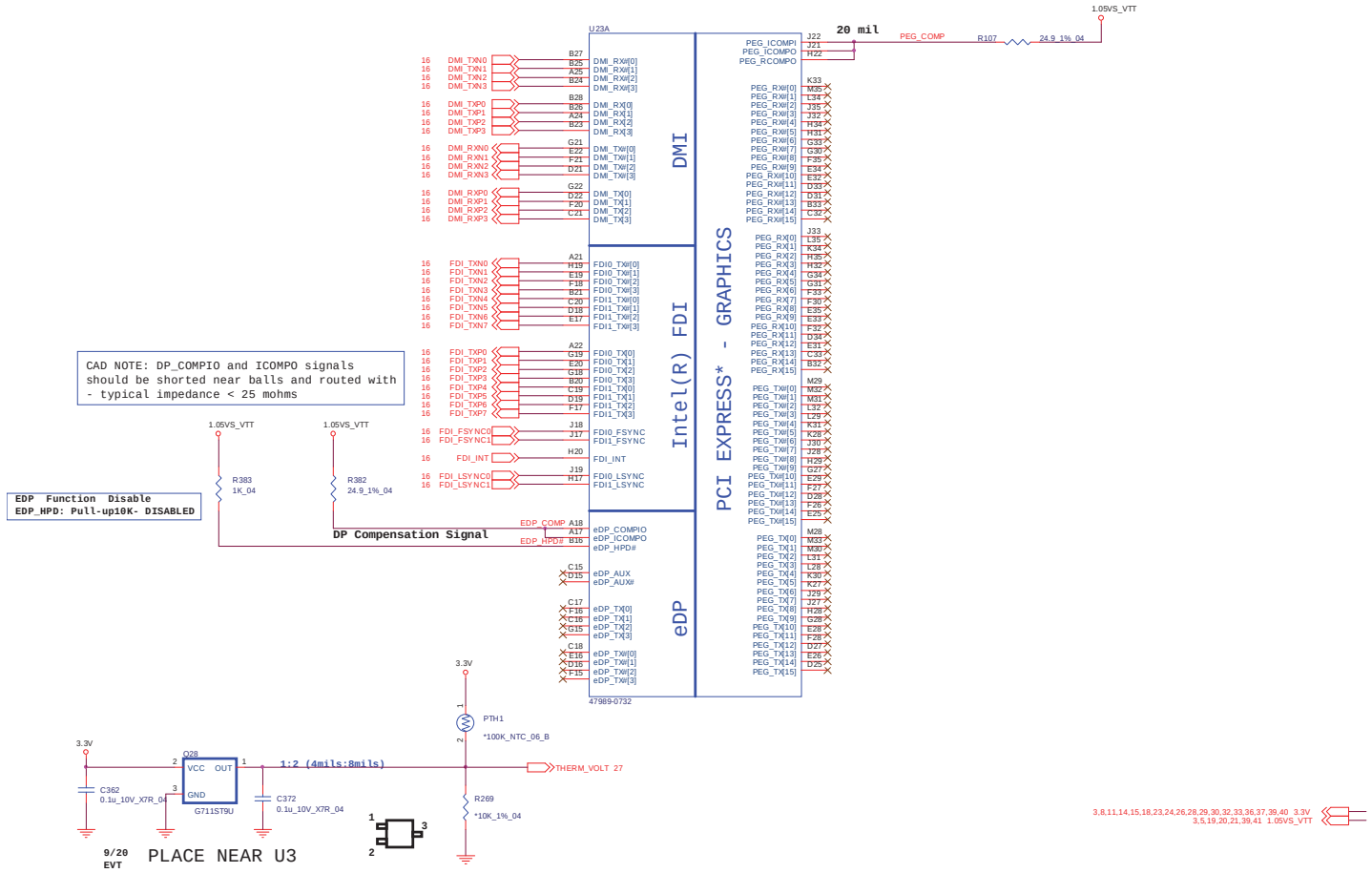
System Block Diagram

Sheet 1 of 48
System Block Diagram



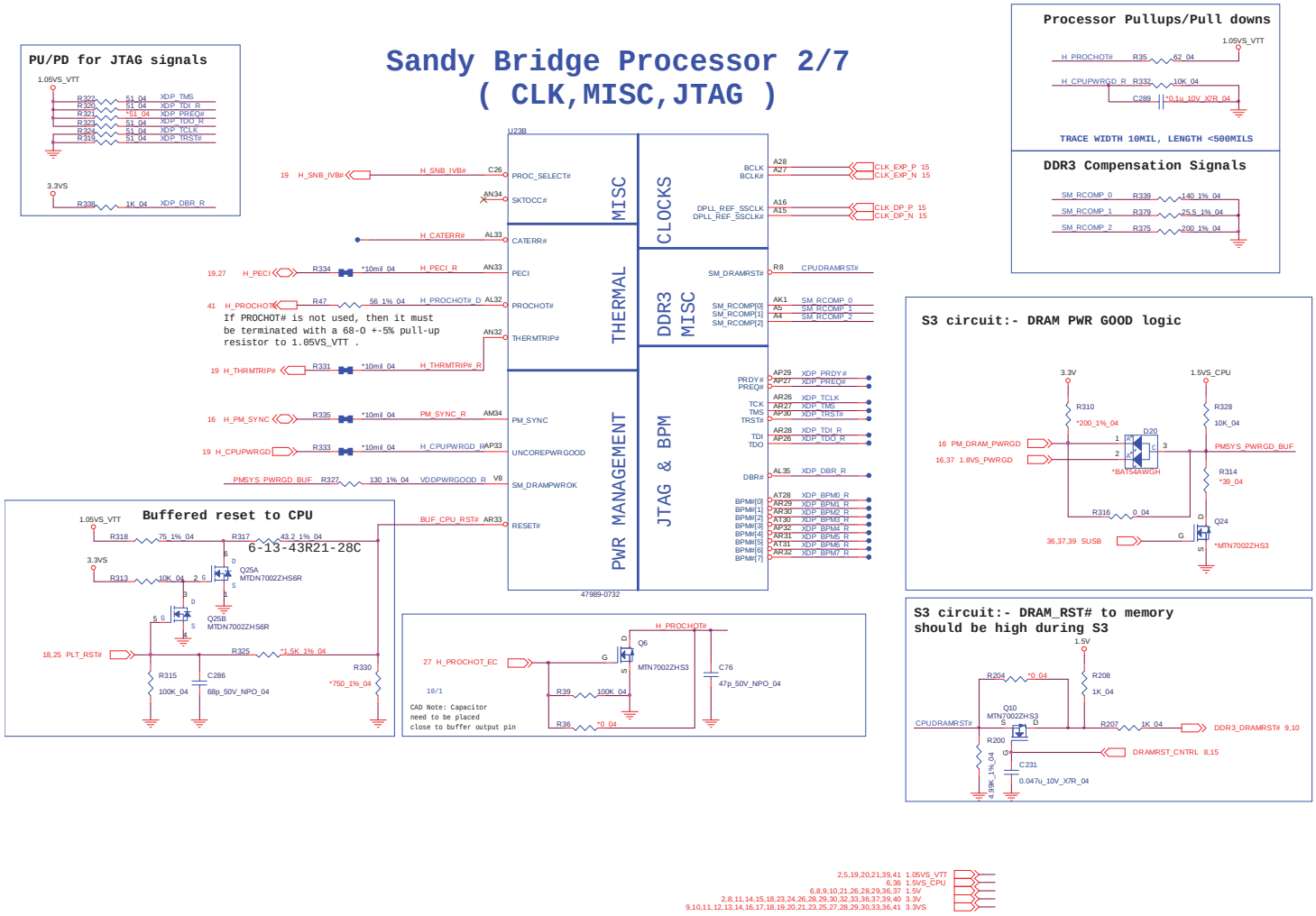
Processor 1/7



Sheet 2 of 48
Processor 1/7

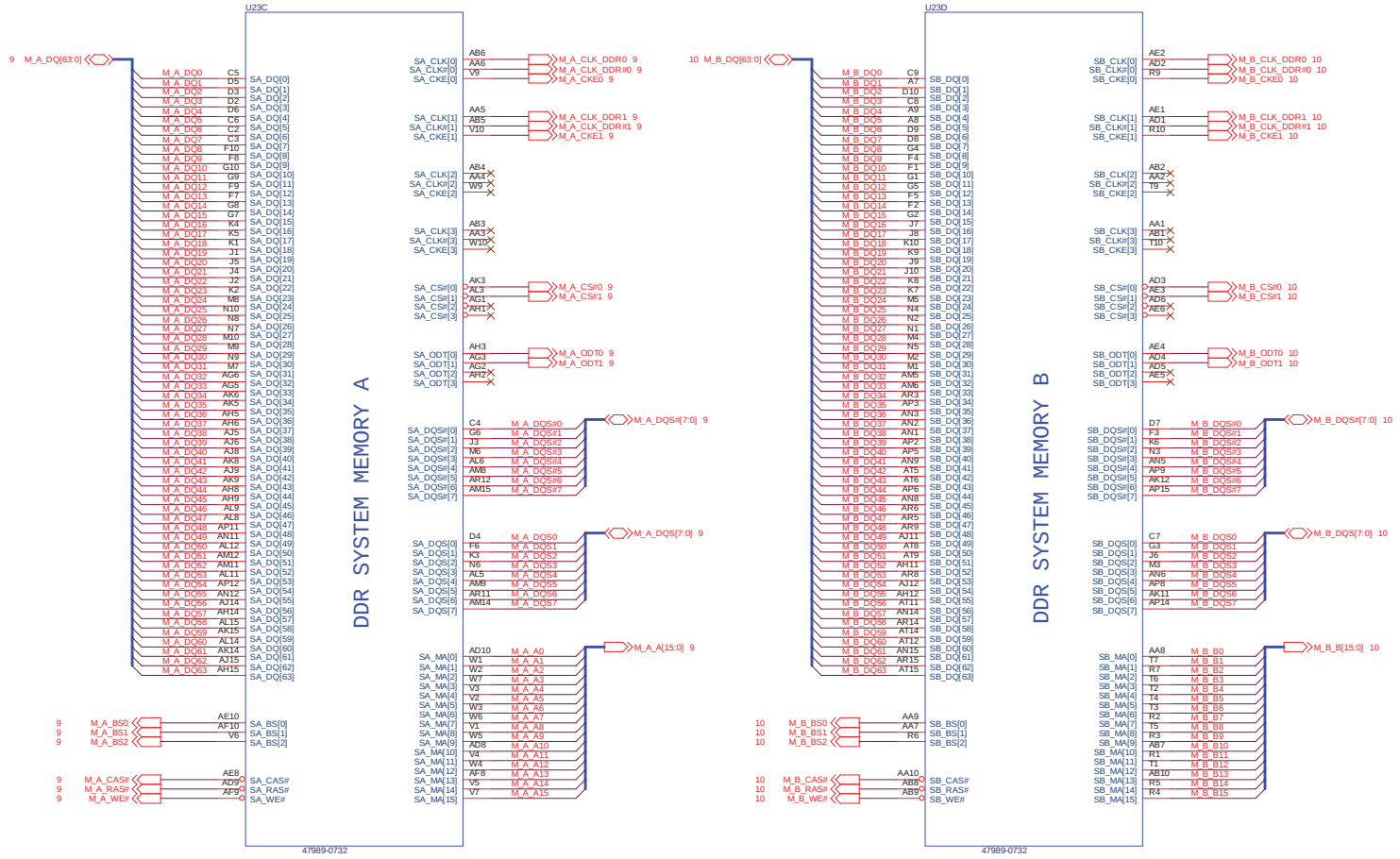
Processor 2/7

Sheet 3 of 48
Processor 2/7



Processor 3/7

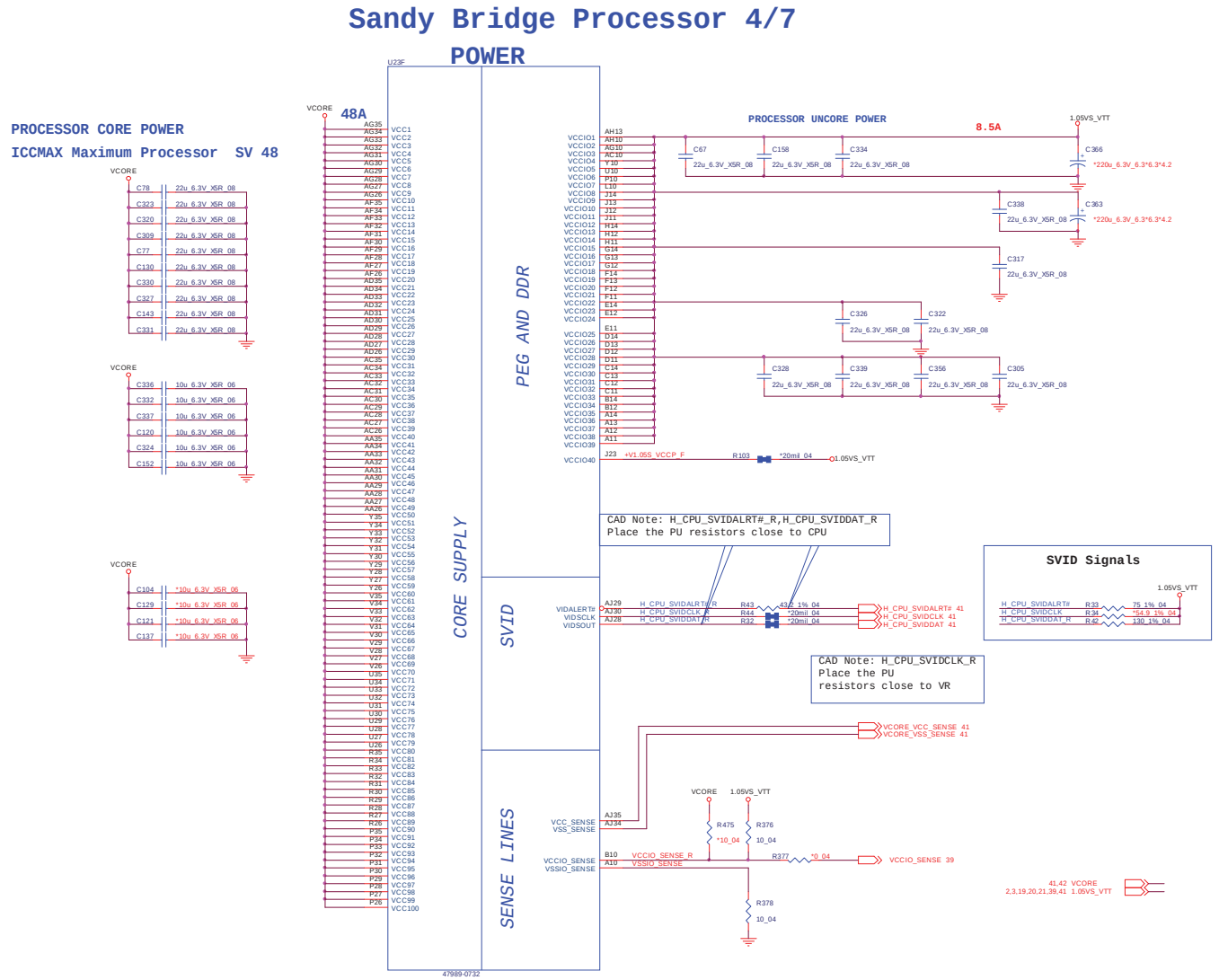
Sandy Bridge Processor 3/7 (DDR3)



Sheet 4 of 48
Processor 3/7

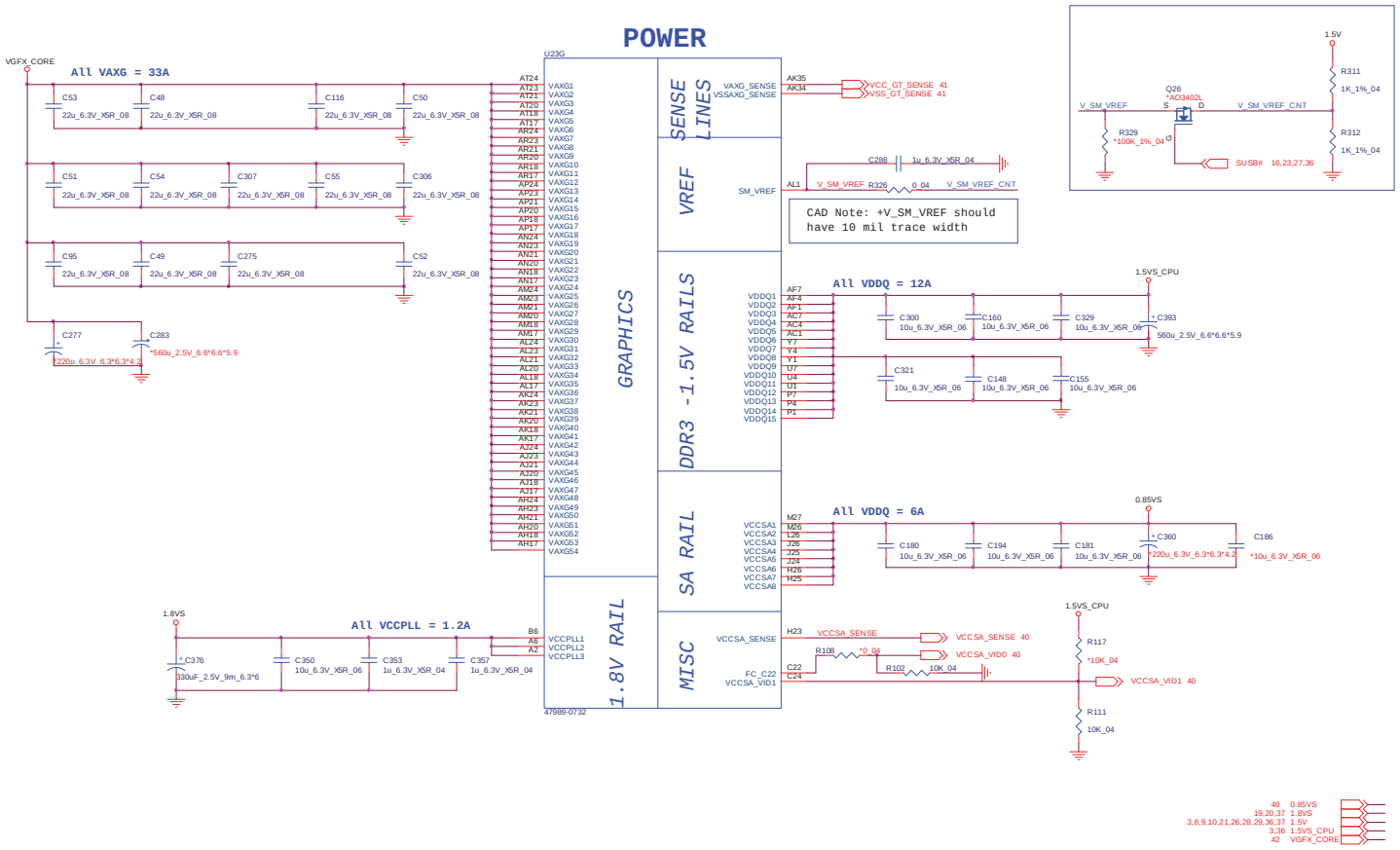
Processor 4/7

Sheet 5 of 48
Processor 4/7



Processor 5/7

Sandy Bridge Processor 5/7 (GRAPHICS POWER)



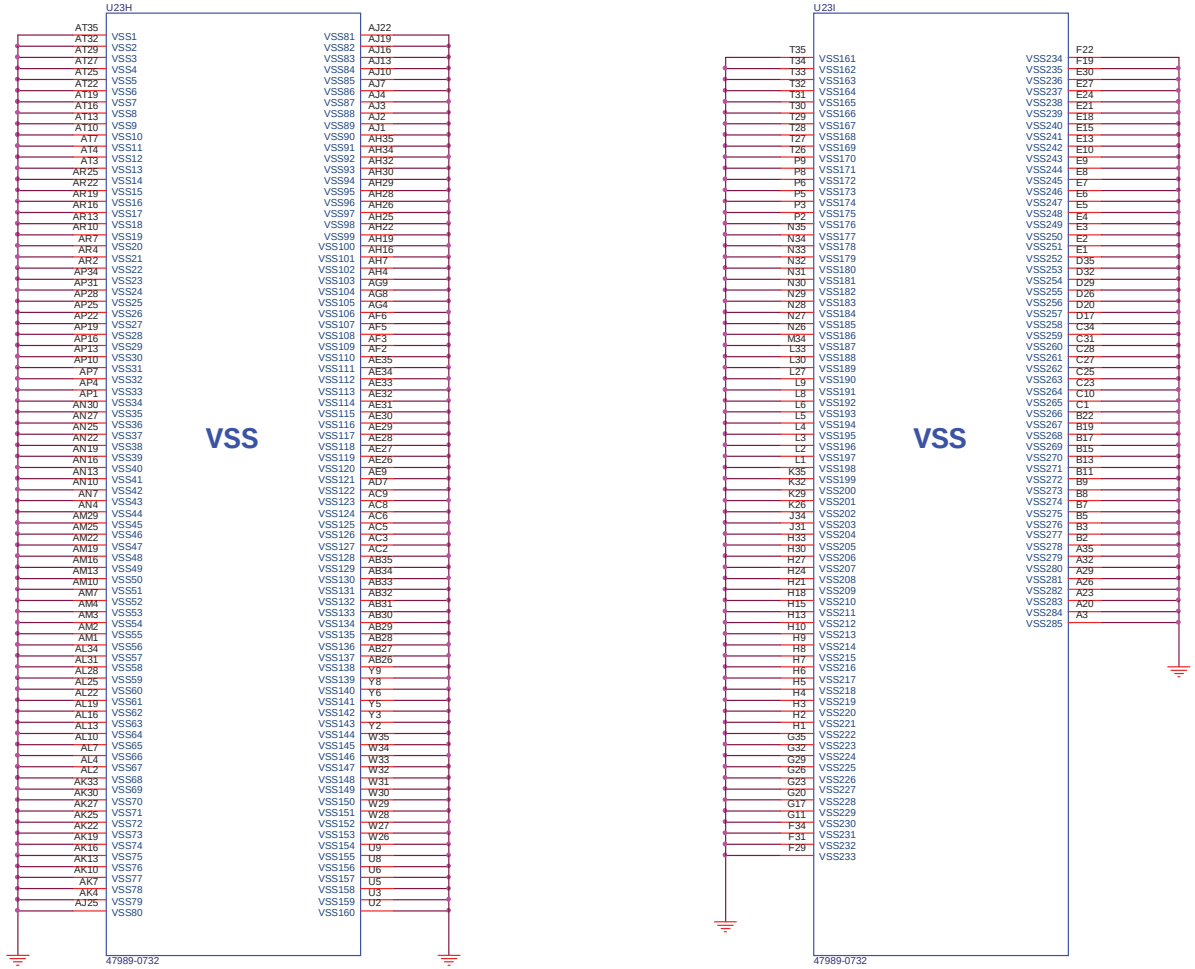
Sheet 6 of 48
Processor 5/7

Processor 6/7

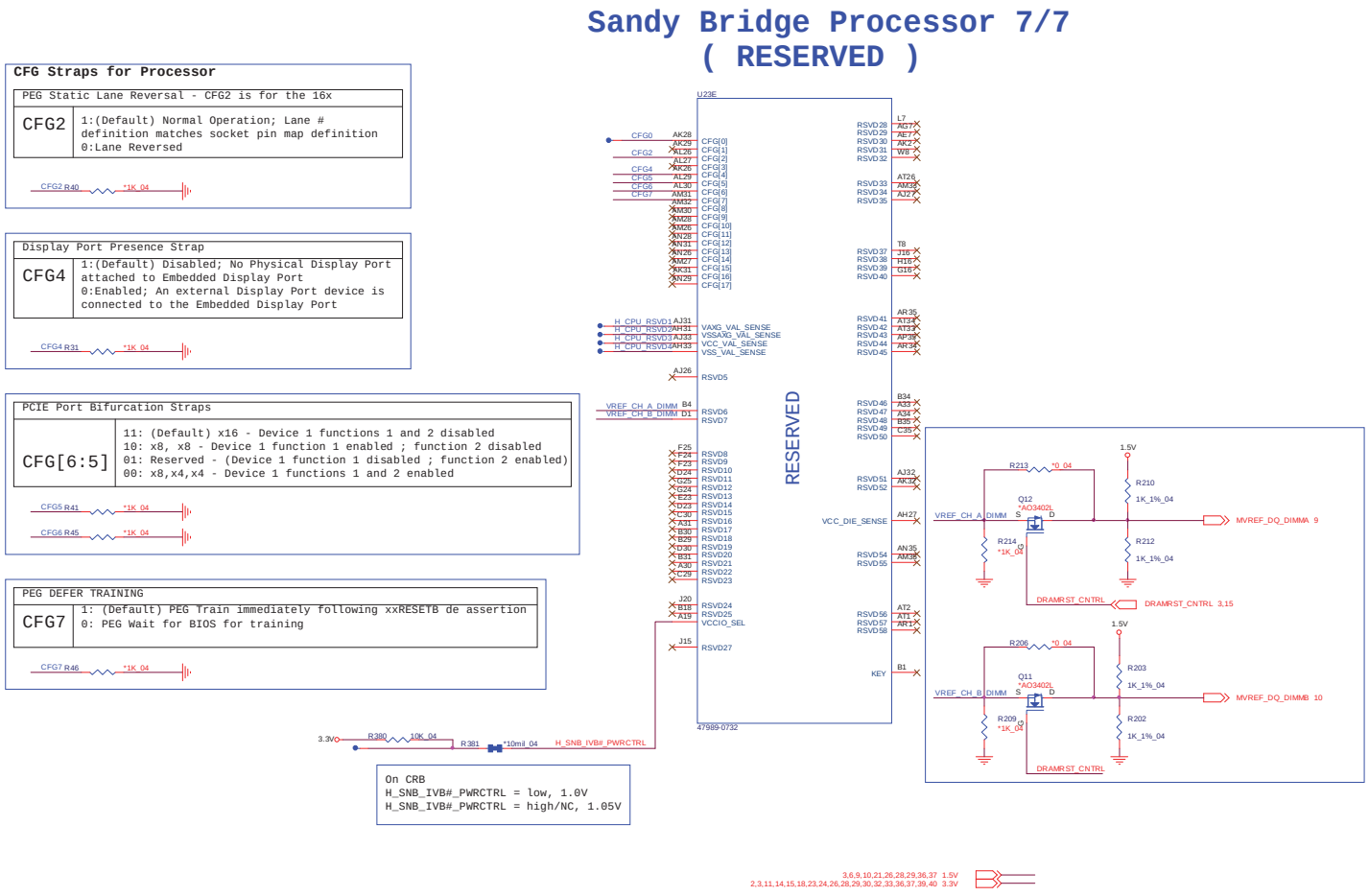
Sandy Bridge Processor 6/7 (GND)

CAD Note: 0 ohm resistor should be placed close to CPU

Sheet 7 of 48
Processor 6/7



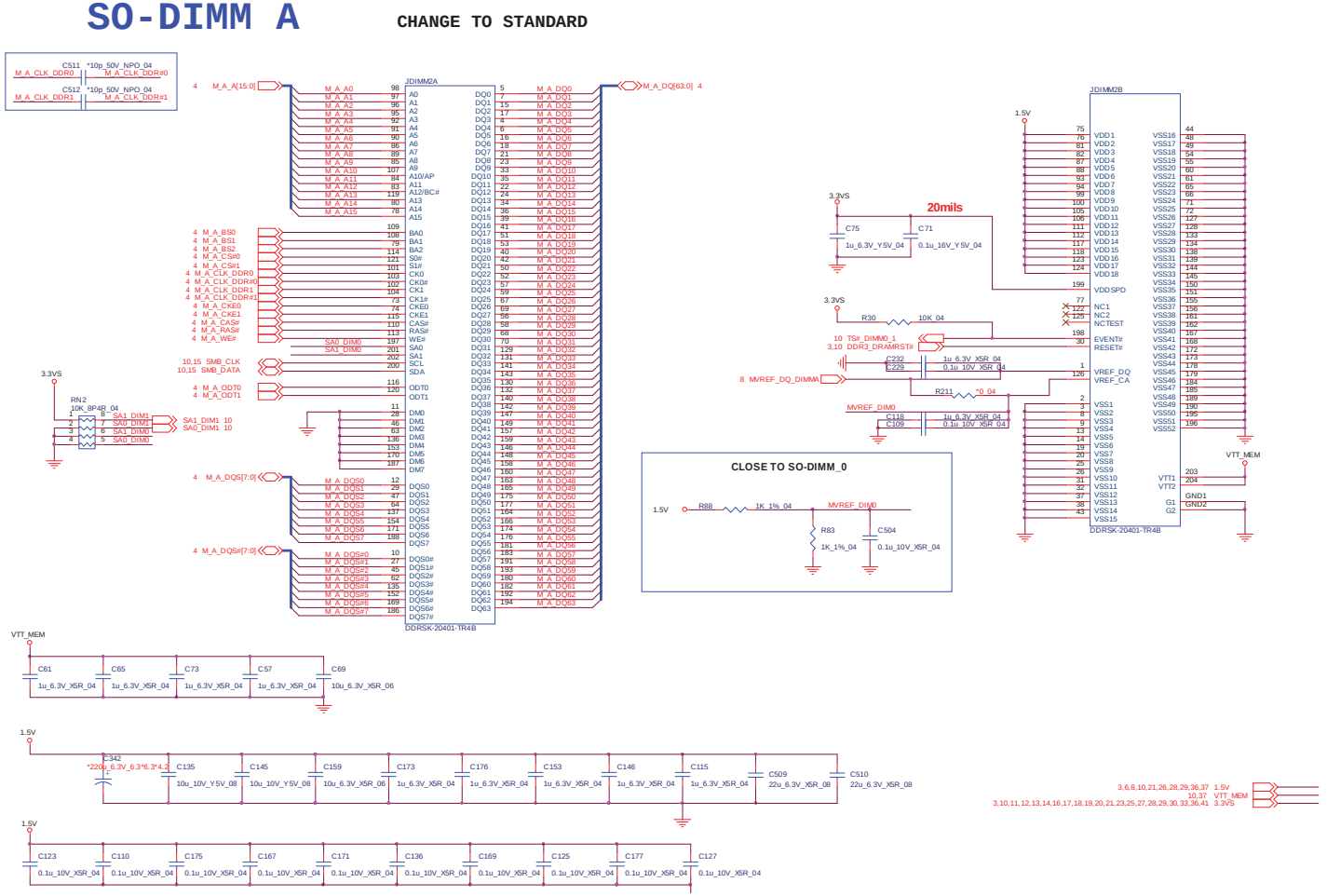
Processor 7/7



Sheet 8 of 48
Processor 7/7

DDR3 SO-DIMM_0

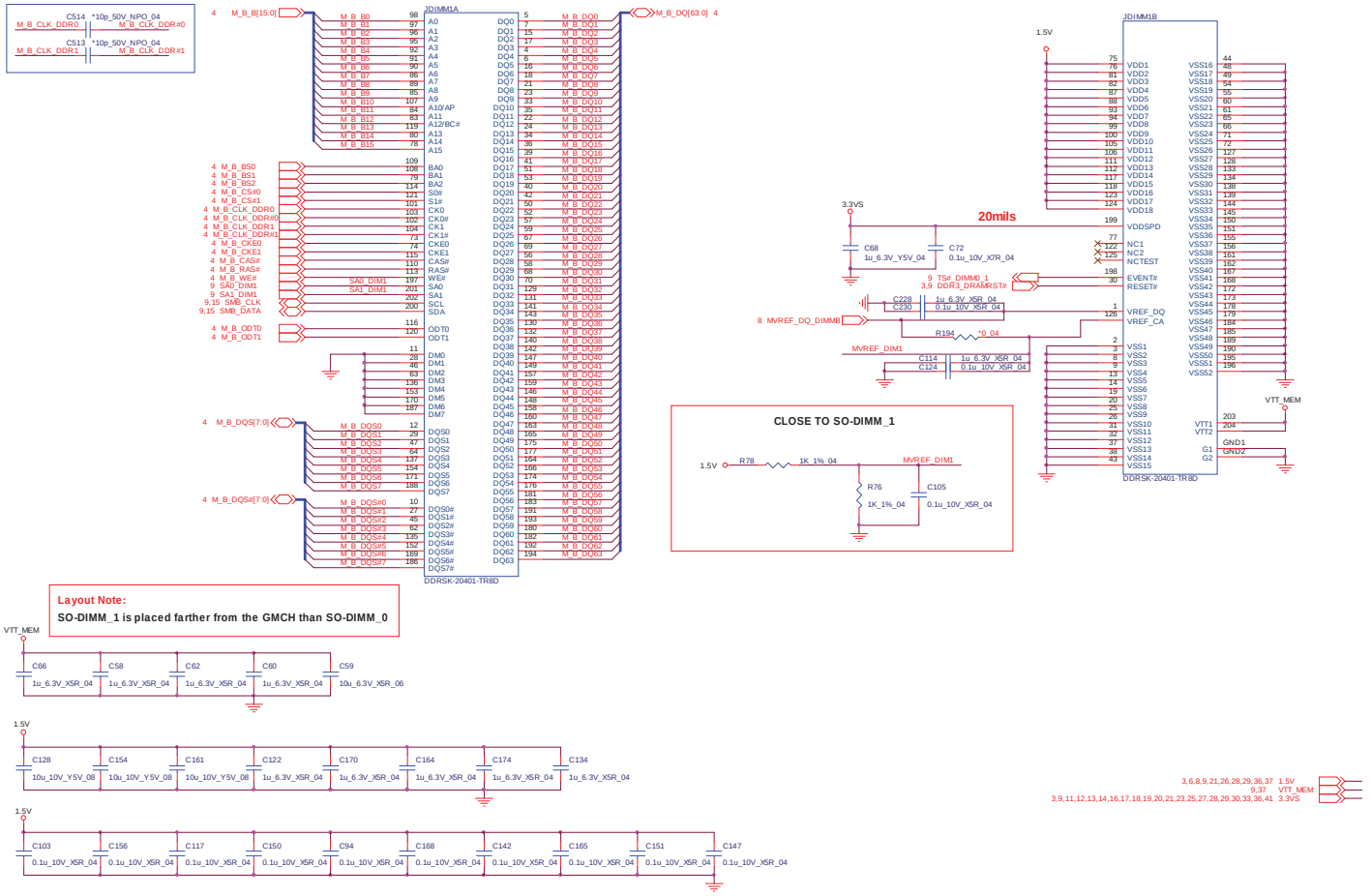
Sheet 9 of 48
DDR3 SO-DIMM_0



DDR3 SO-DIMM_1

SO-DIMM B

CHANGE TO STANDARD

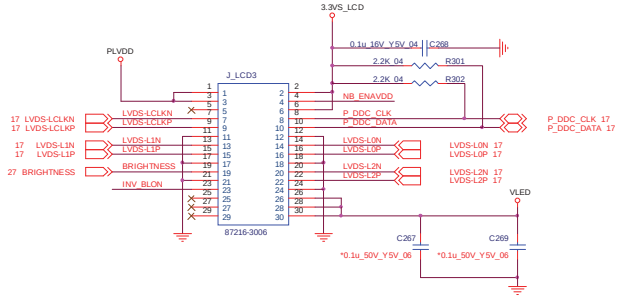


Sheet 10 of 48
DDR3 SO-DIMM_1

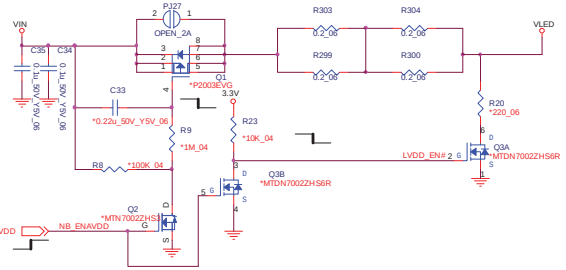
LVDS, INVERTER

Sheet 11 of 48
LVDS, INVERTER

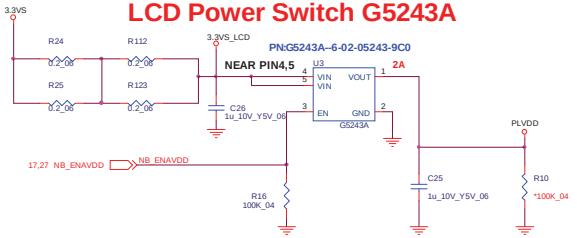
PANEL CONNECTOR



LED PANEL (LVDS Dual Channel).

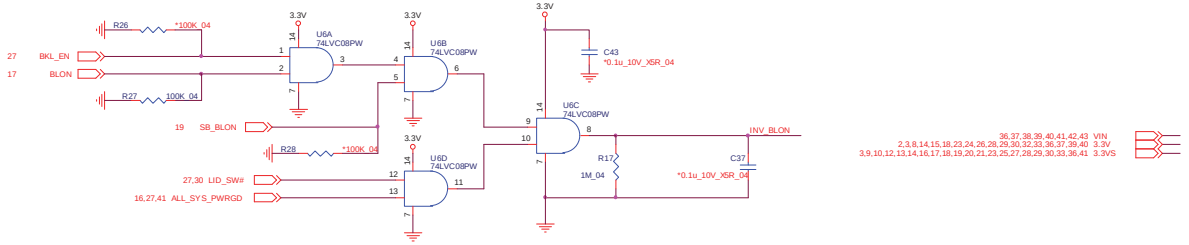


LCD Power Switch G5243A



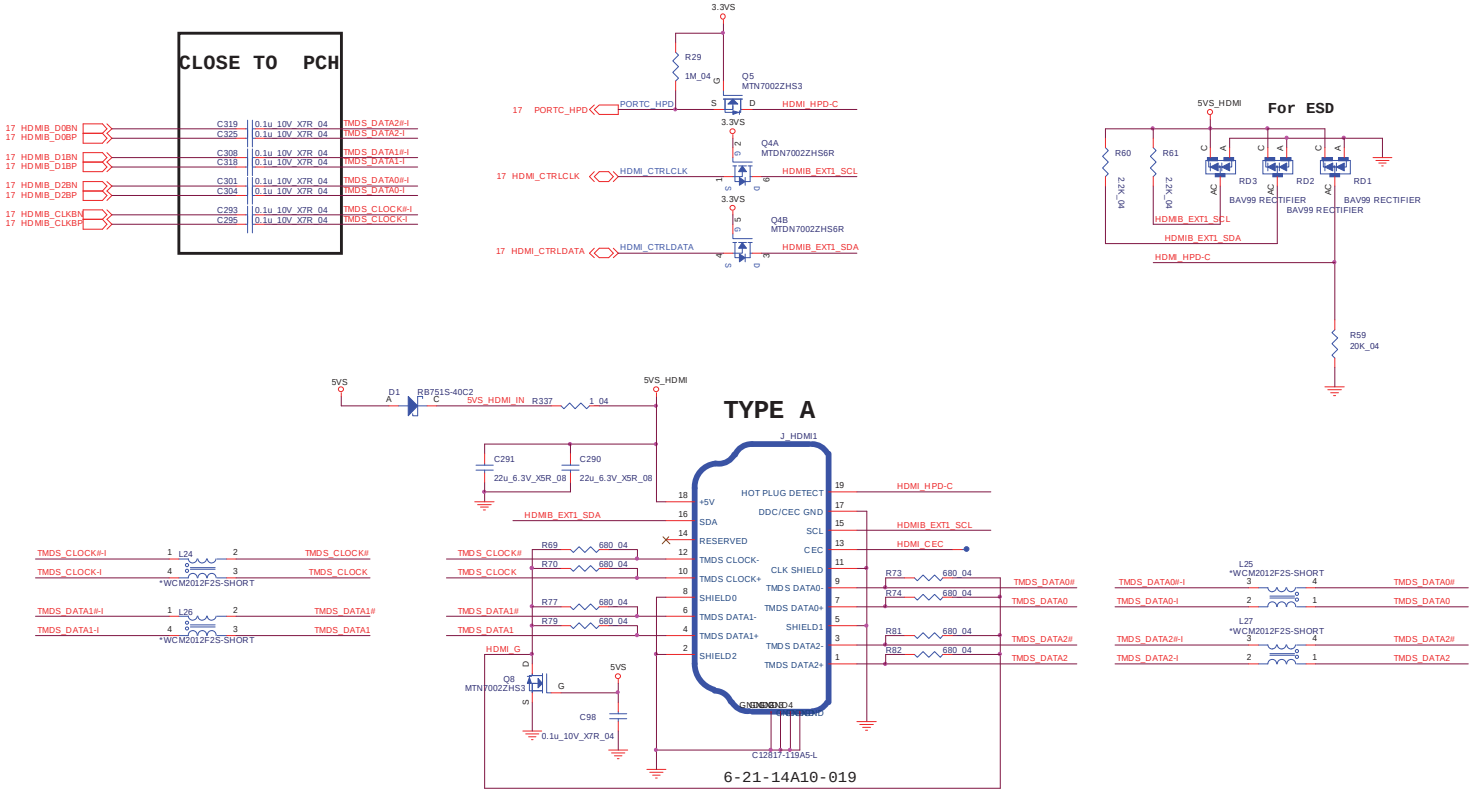
? 40pin connector? , ? ? 30pin connector? ? ? ? pin pad? ? ? ?

INVERTER CONNECTOR



HDMI

HDMI PORT

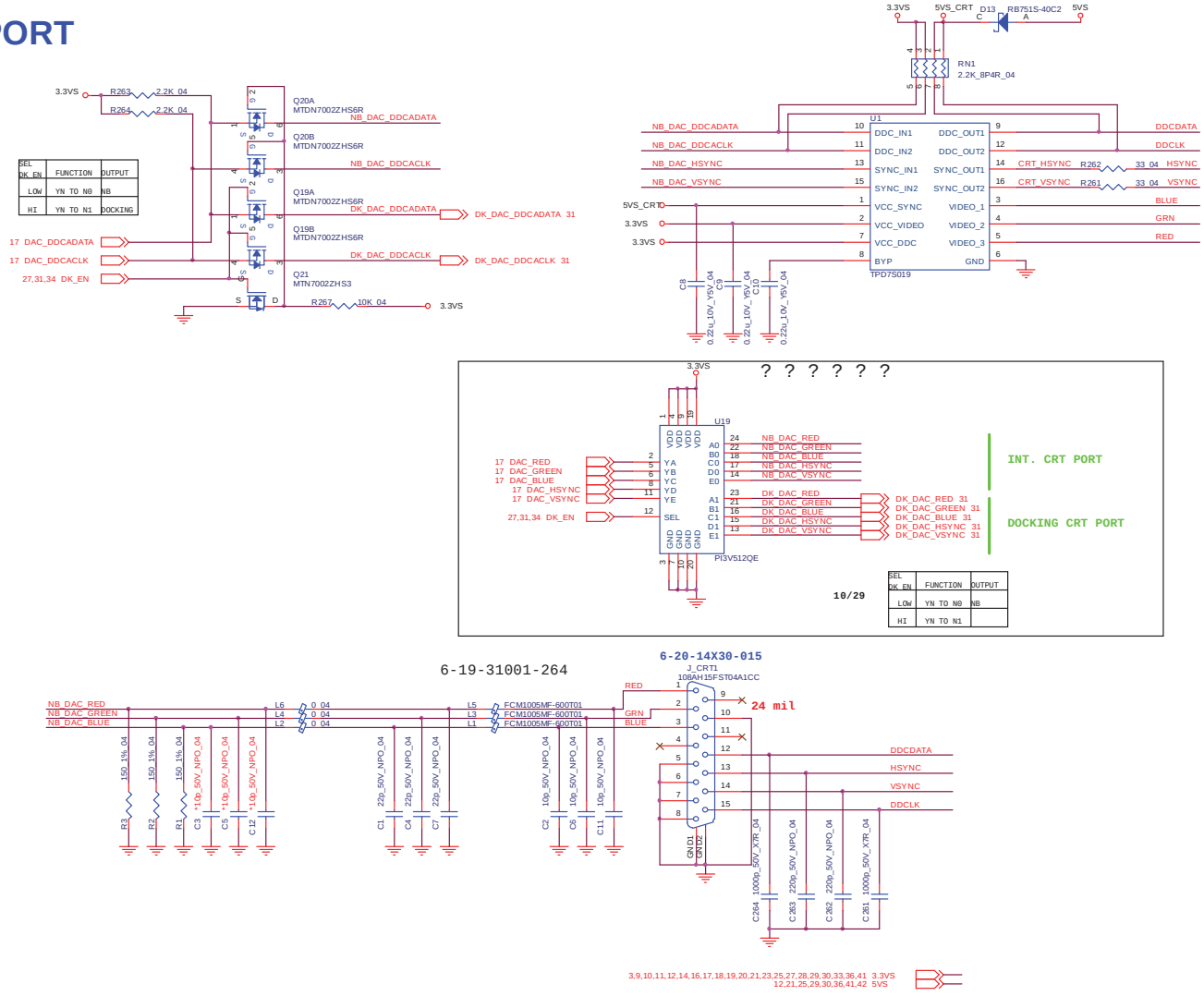


Sheet 12 of 48
HDMI

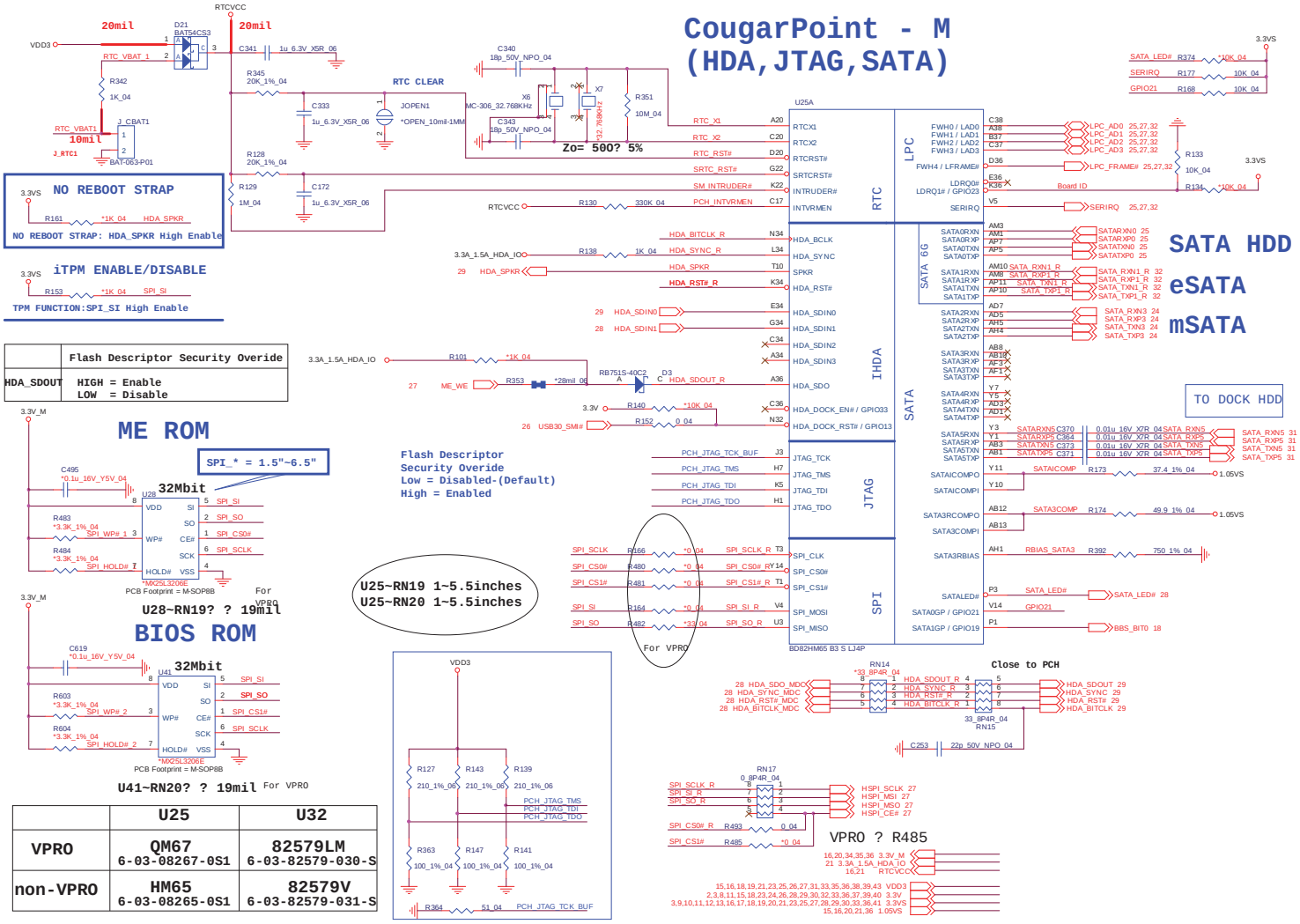
CRT

CRT PORT

Sheet 13 of 48
CRT



Cougar Point M 1/9



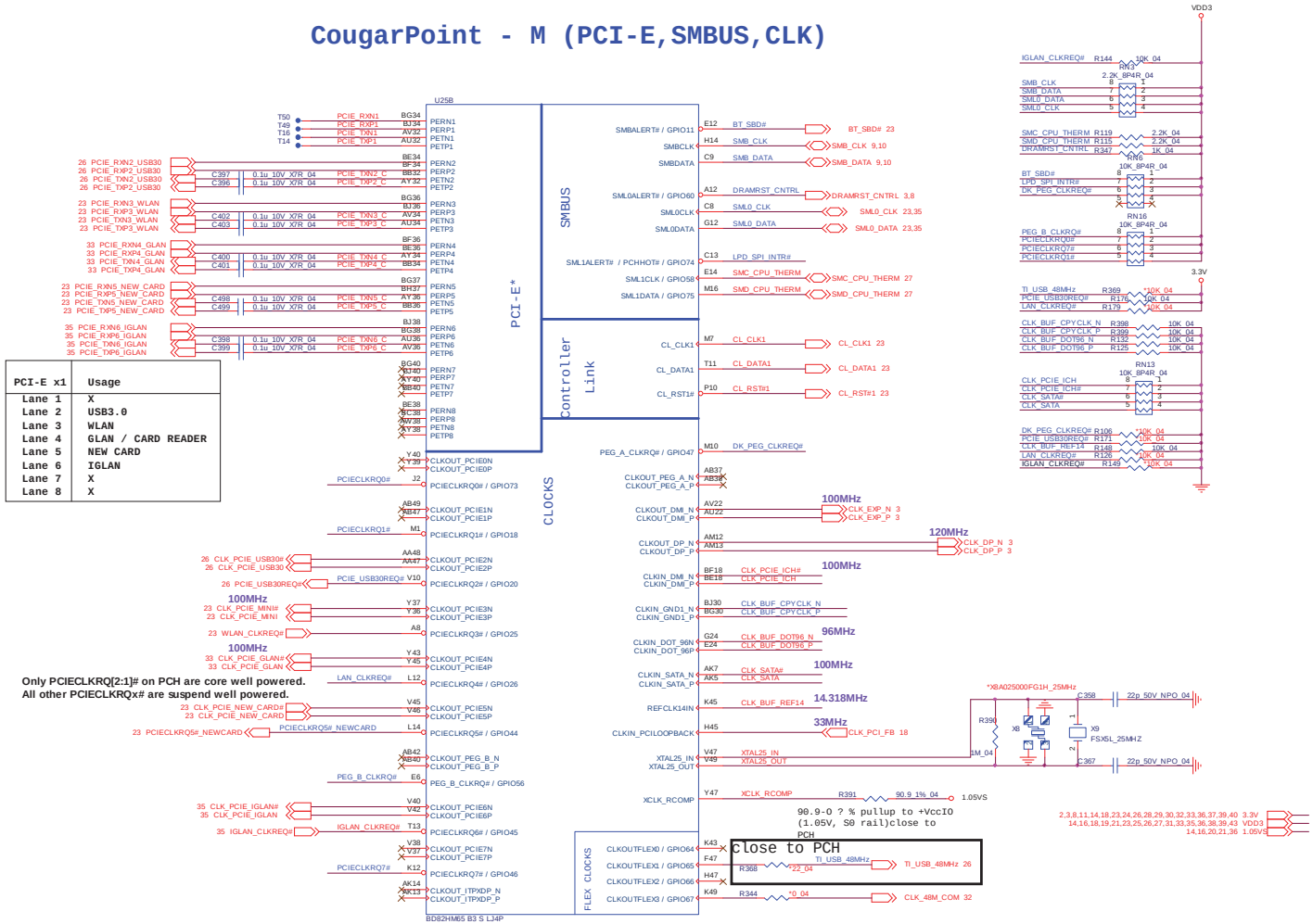
	Flash Descriptor Security Overide
HDA_SDOUT	HIGH = Enable LOW = Disable

	U25	U32
VPRO	QM67 6-03-08267-0S1	82579LM 6-03-82579-030-S
non-VPRO	HM65 6-03-08265-0S1	82579V 6-03-82579-031-S

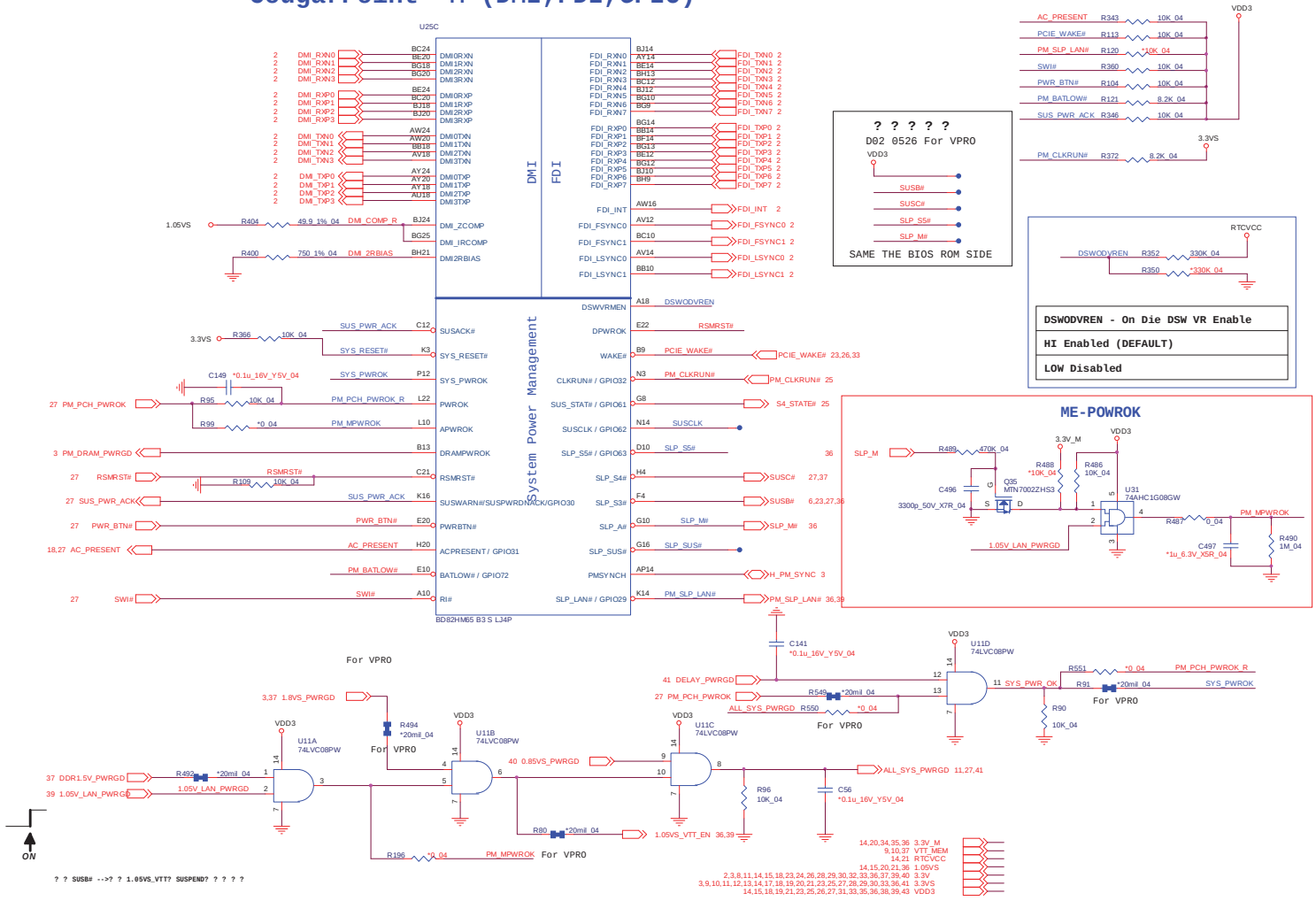
Sheet 14 of 48
Cougar Point M 1/9

Cougar Point M 2/9

Sheet 15 of 48
Cougar Point M 2/9



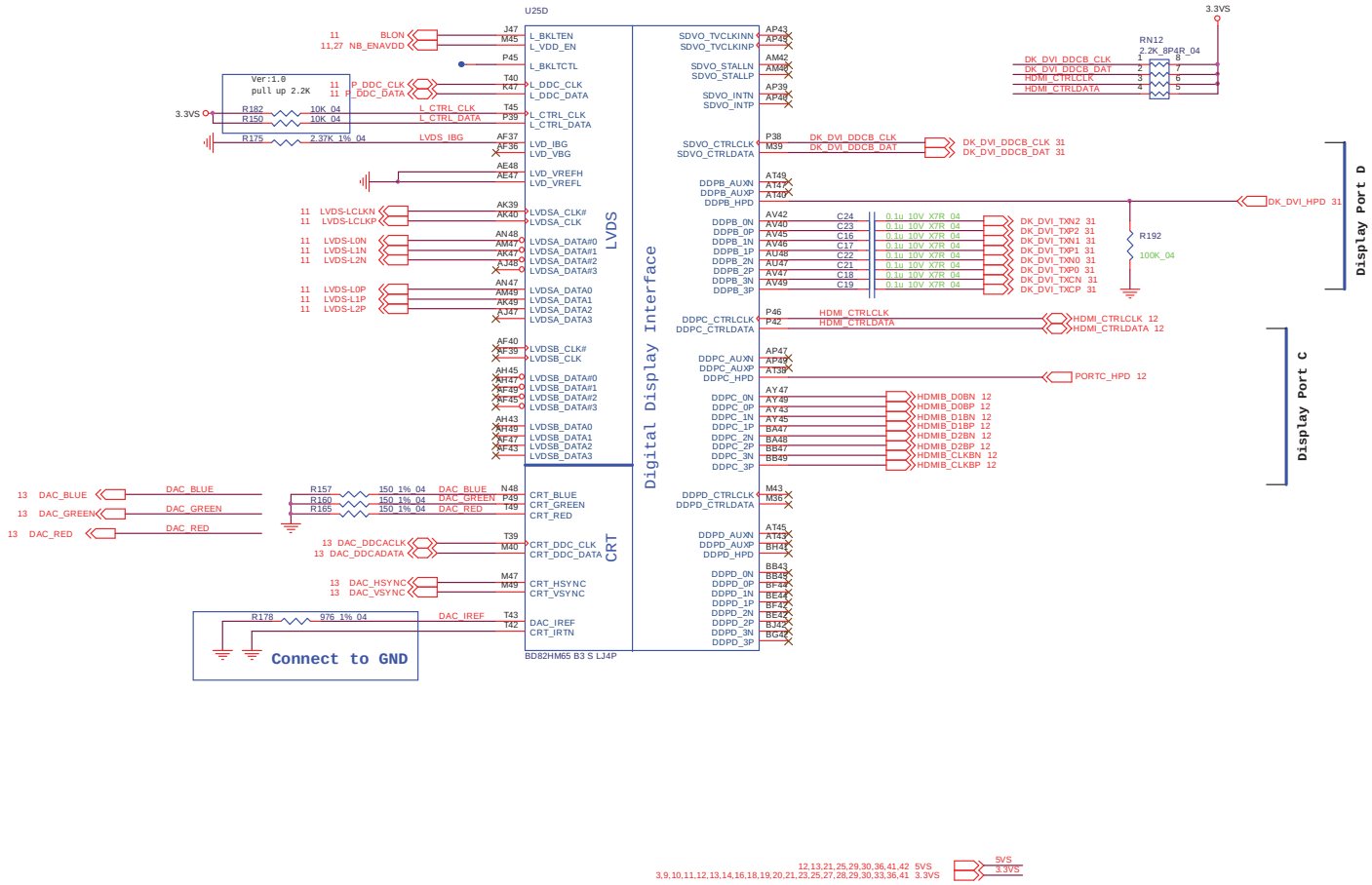
Cougar Point M 3/9



Sheet 16 of 48
Cougar Point M 3/9

Cougar Point M 4/9

Sheet 17 of 48
Cougar Point M 4/9



Cougar Point M 5/9

Boot BIOS Strap		
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

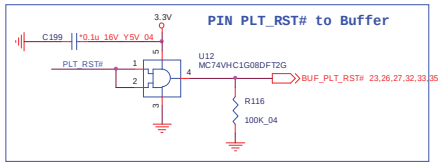
R136 *1K_04 BBS_BIT1
R373 *1K_04 BBS_BIT0 14

Flash Descriptor security override strap	
PCI_GNT#3	LOW = PCI_GNT#3 swap override HIGH = Default

R137 *1K_04 PCI_GNT#3

R122 *1K_04 INT_PIRQE#

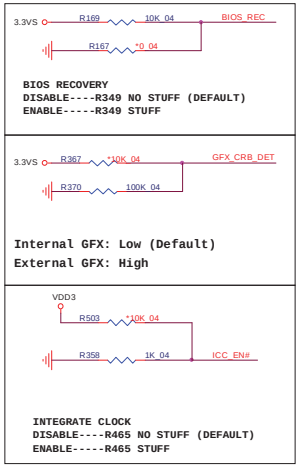
MPC Switch Control
MPC ON -- 0
MPC OFF -- 1 DEFAULT

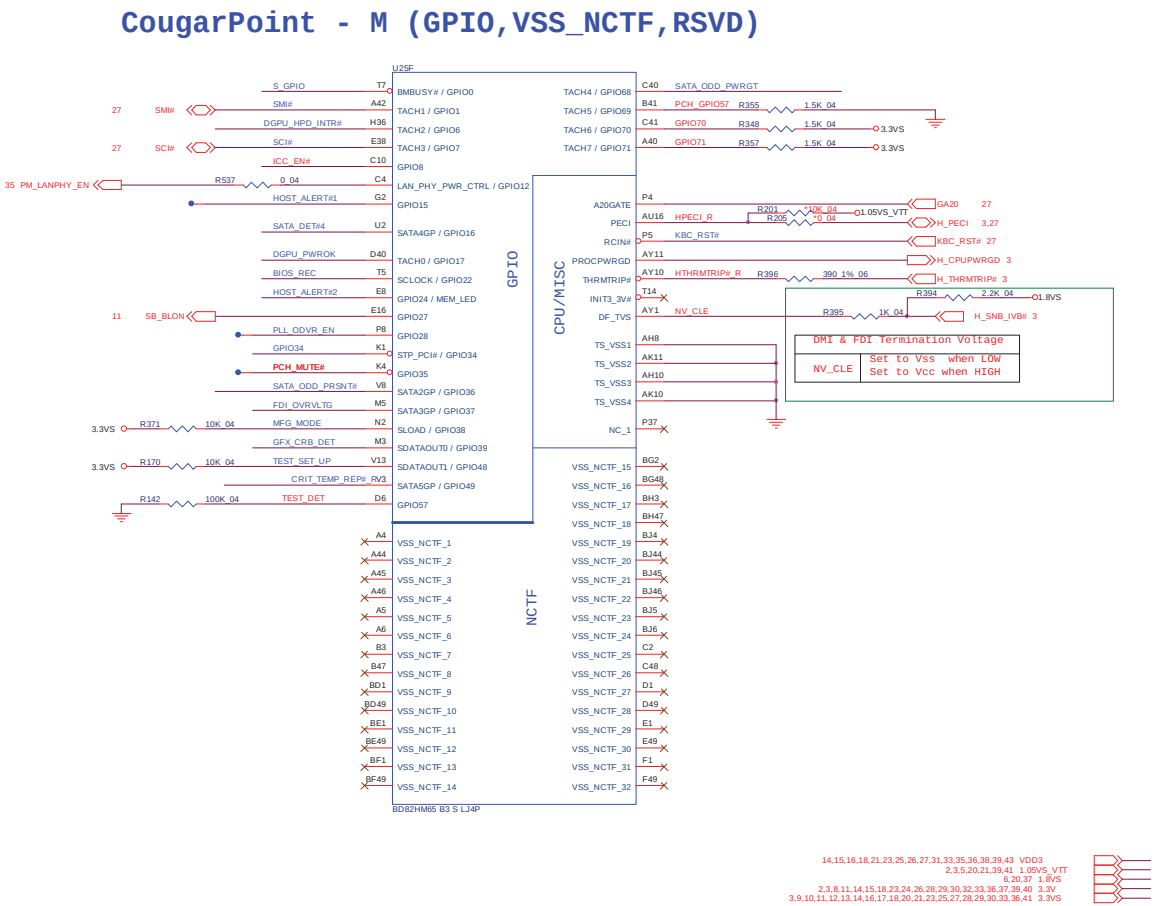


Sheet 18 of 48
Cougar Point M 5/9

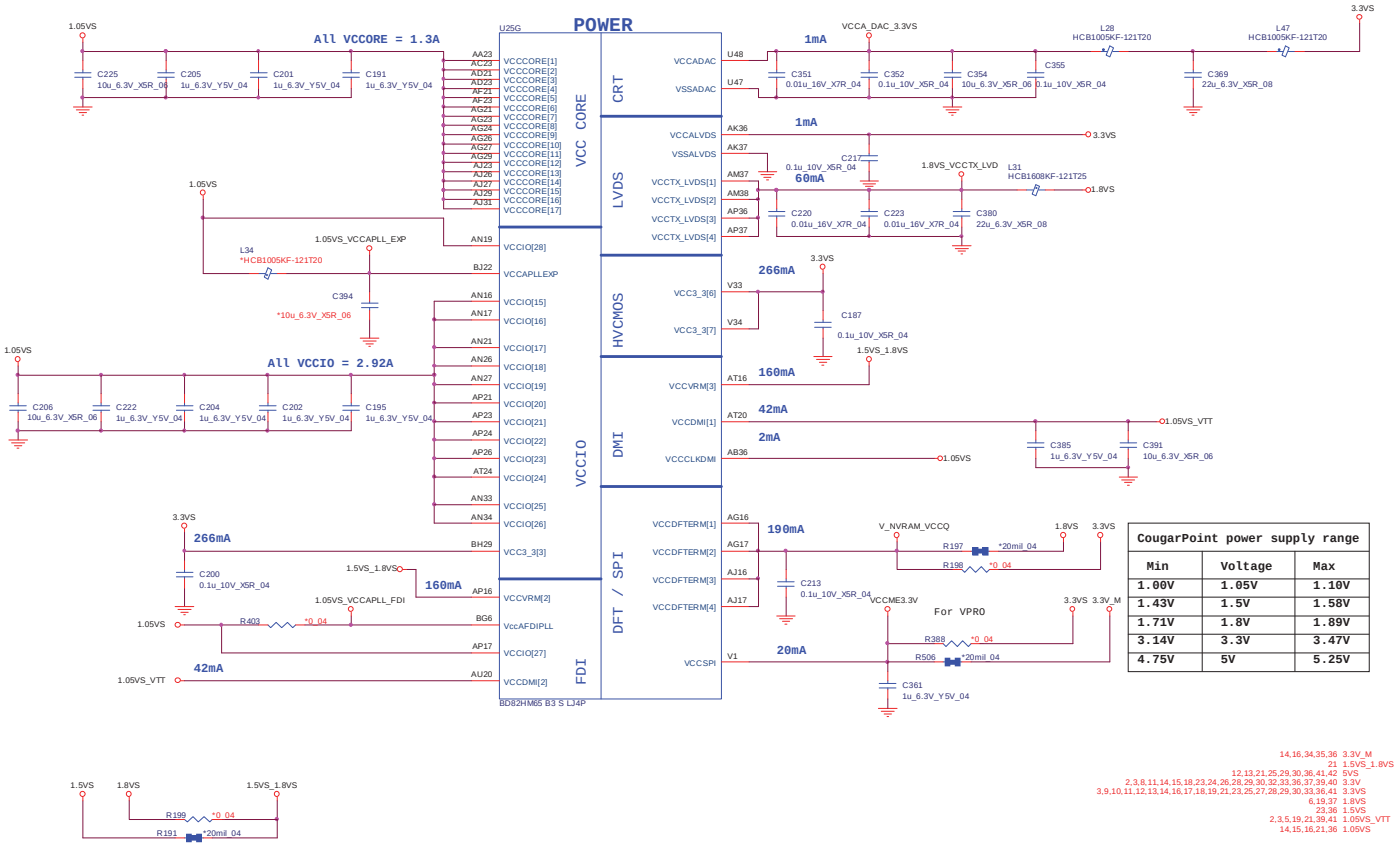
Cougar Point M 6/9

Sheet 19 of 48
Cougar Point M 6/9





Cougar Point M 7/9



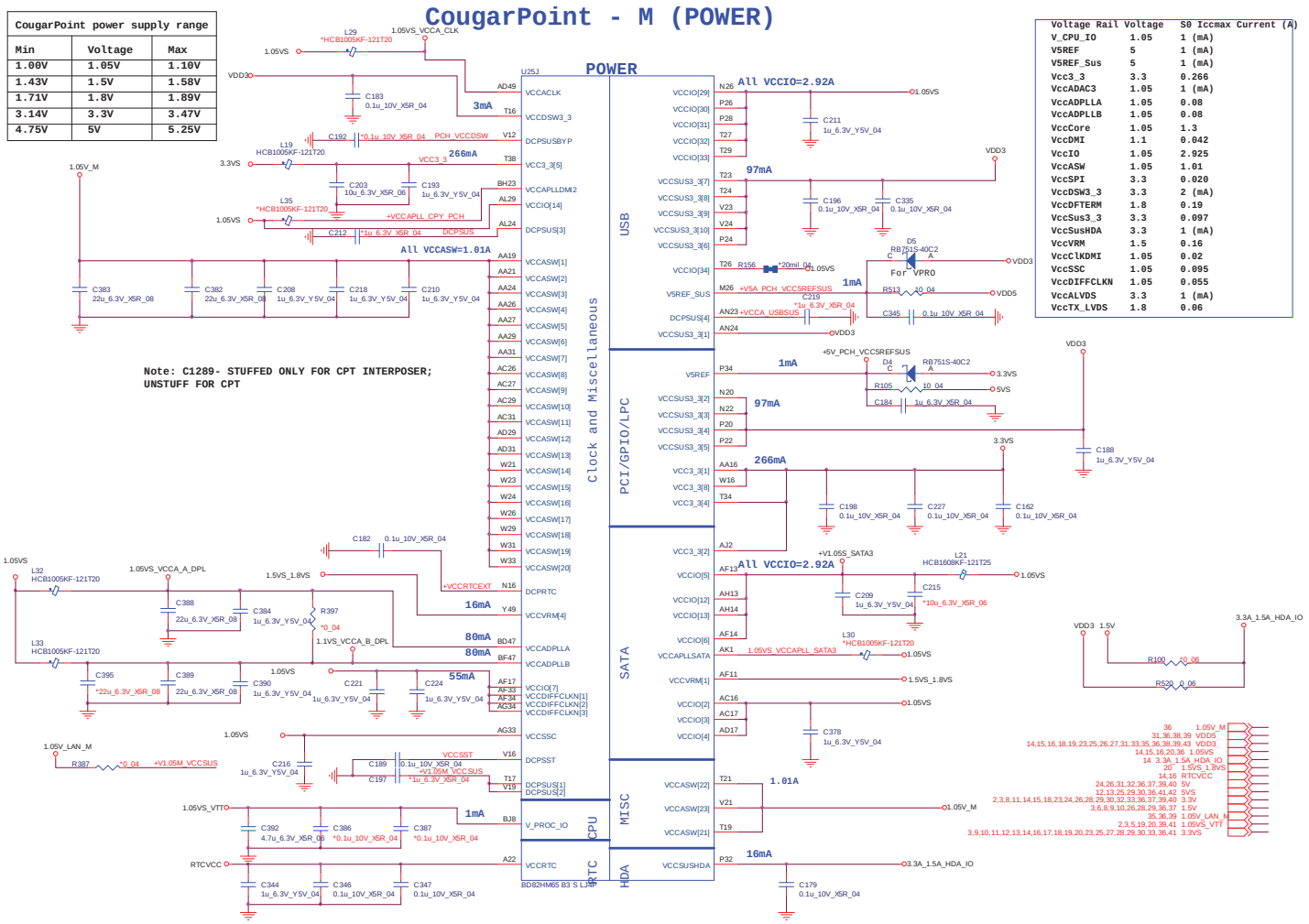
Sheet 20 of 48
Cougar Point M 7/9

B.Schematic Diagrams

Cougar Point M 8/9

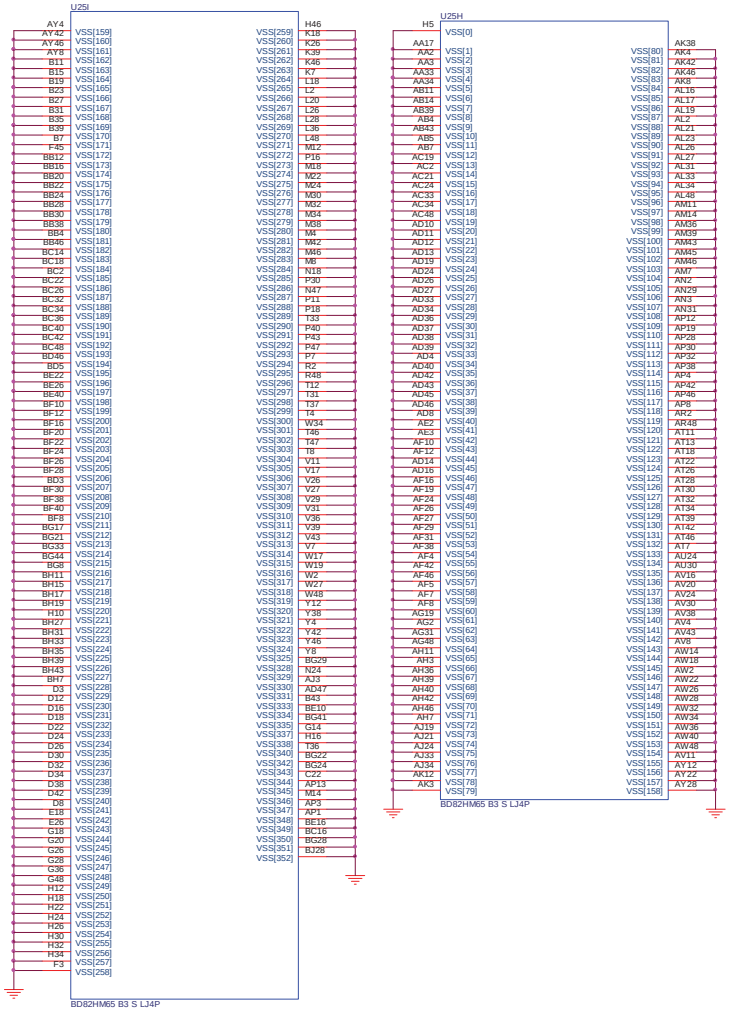
Sheet 21 of 48
Cougar Point M 8/9

CougarPoint power supply range		
Min	Voltage	Max
1.00V	1.05V	1.10V
1.43V	1.5V	1.58V
1.71V	1.8V	1.89V
3.14V	3.3V	3.47V
4.75V	5V	5.25V



Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.05	1 (mA)
V5REF	5	1 (mA)
V5REF_Sus	5	1 (mA)
Vcc3_3	3.3	0.266
VccADAC3	1.05	1 (mA)
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.1	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.020
VccDSW3_3	3.3	2 (mA)
VccDFTERM	1.8	0.19
VccSus3_3	3.3	0.097
VccSusHDA	3.3	1 (mA)
VccVRM	1.5	0.16
VccClkDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	1 (mA)
VccTX_LVDS	1.8	0.06

Cougar Point M 9/9

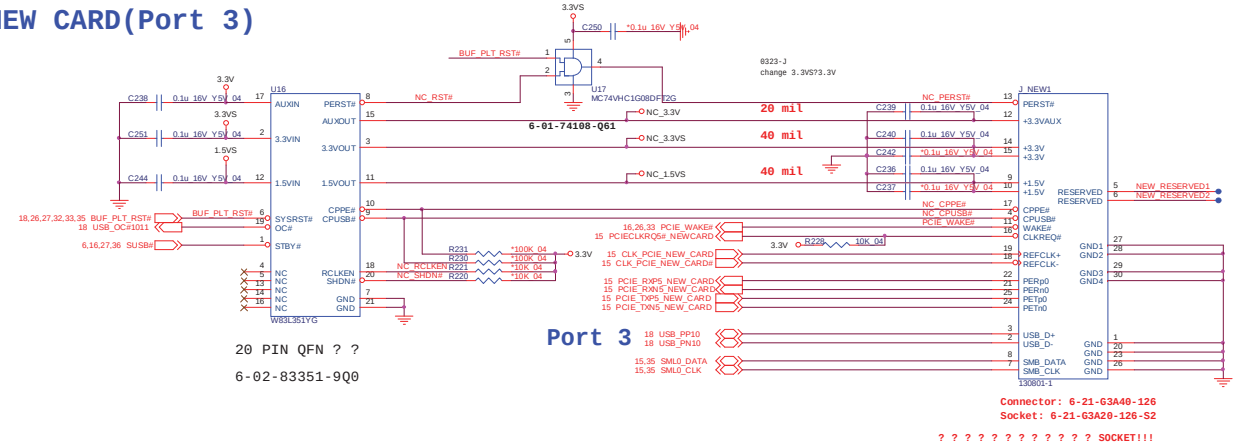


Sheet 22 of 48
Cougar Point M 9/9

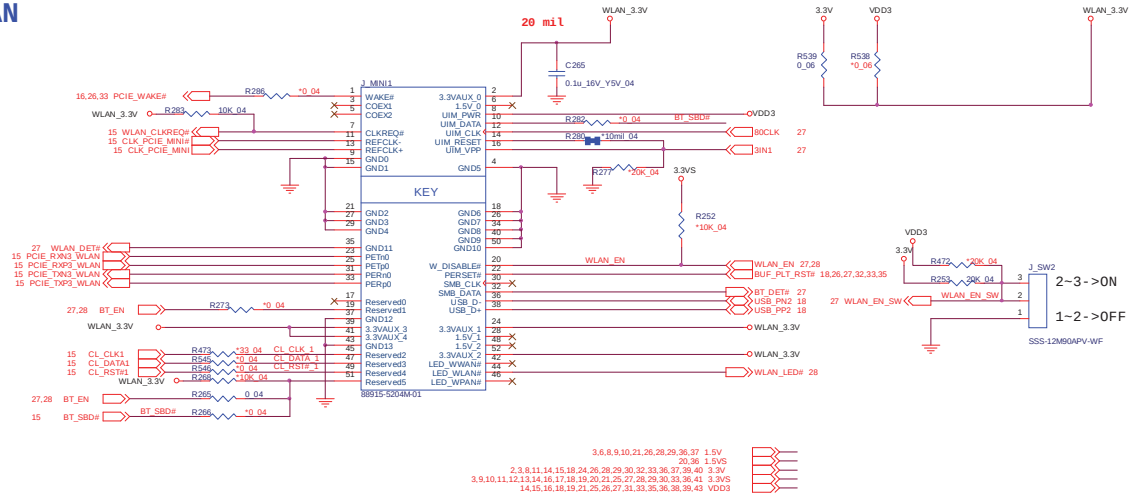
NEW CARD, MINI PCIE

Sheet 23 of 48
NEW CARD, MINI PCIE

NEW CARD(Port 3)

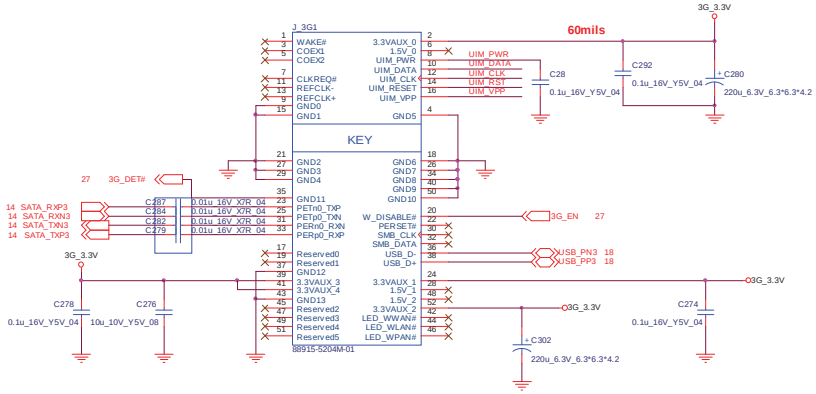


MINI CARD WLAN

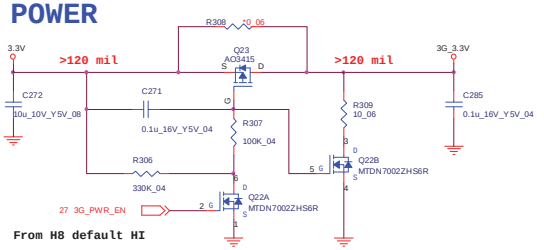


CCD, 3G

MINI CARD 3G(Port 6)

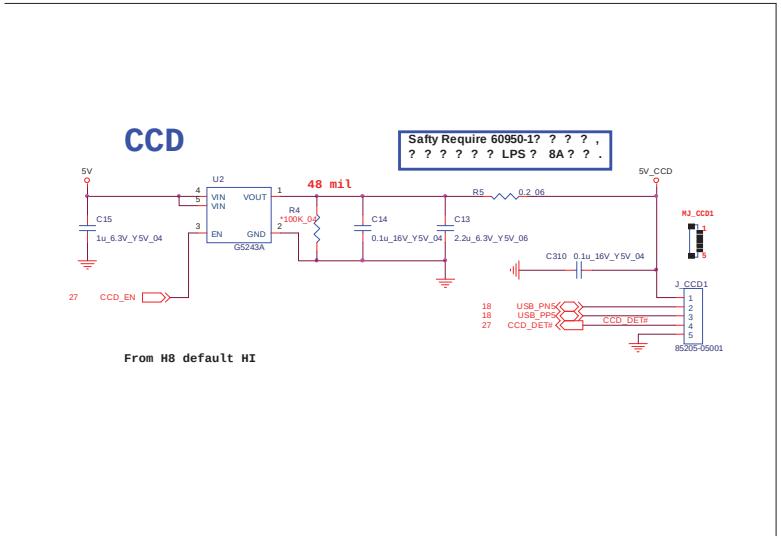


3G POWER

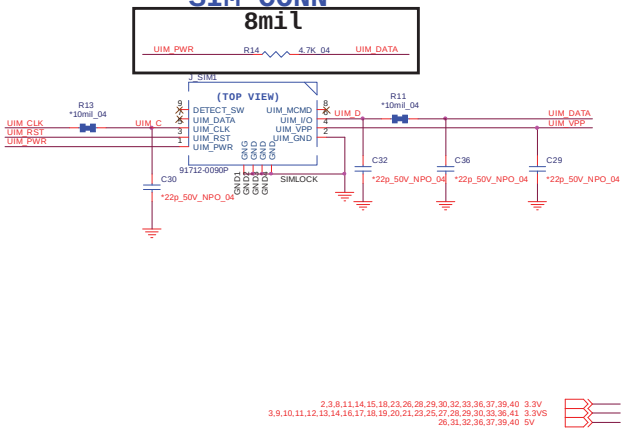


Sheet 24 of 48
CCD, 3G

CCD

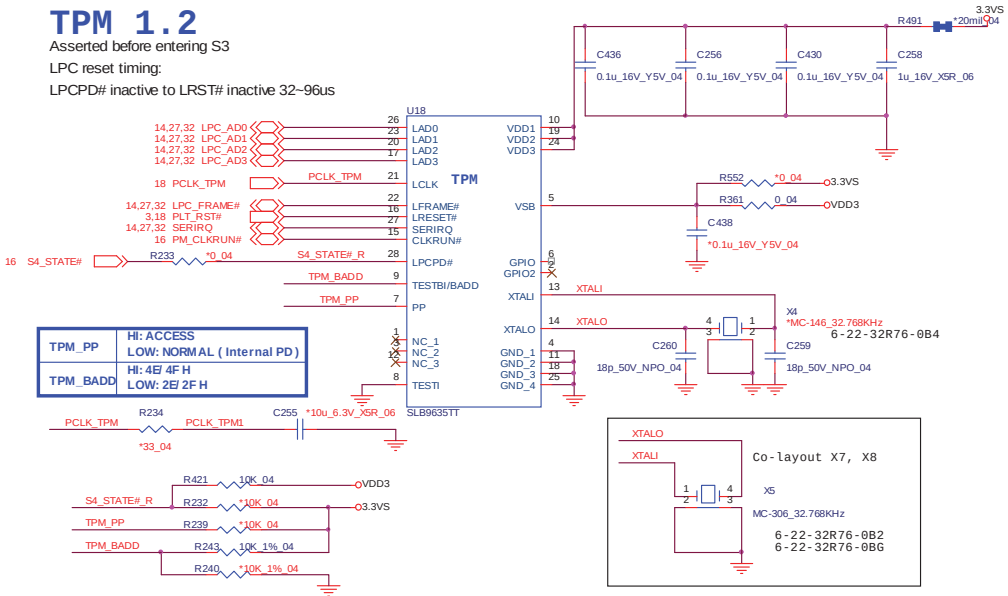


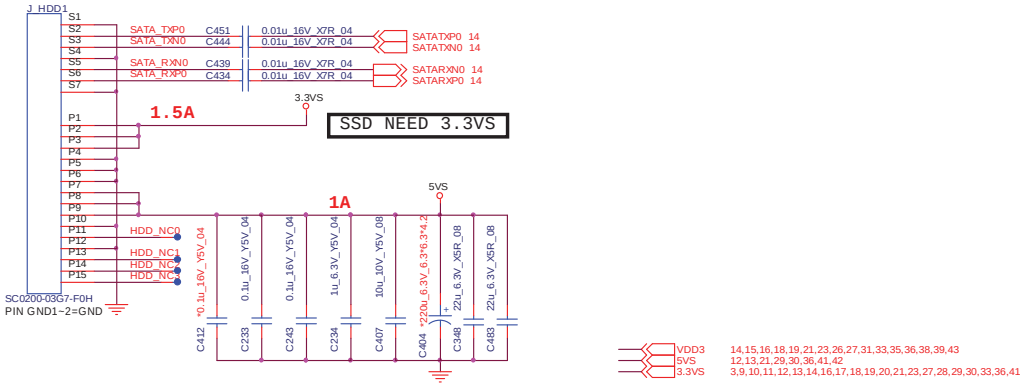
SIM CONN



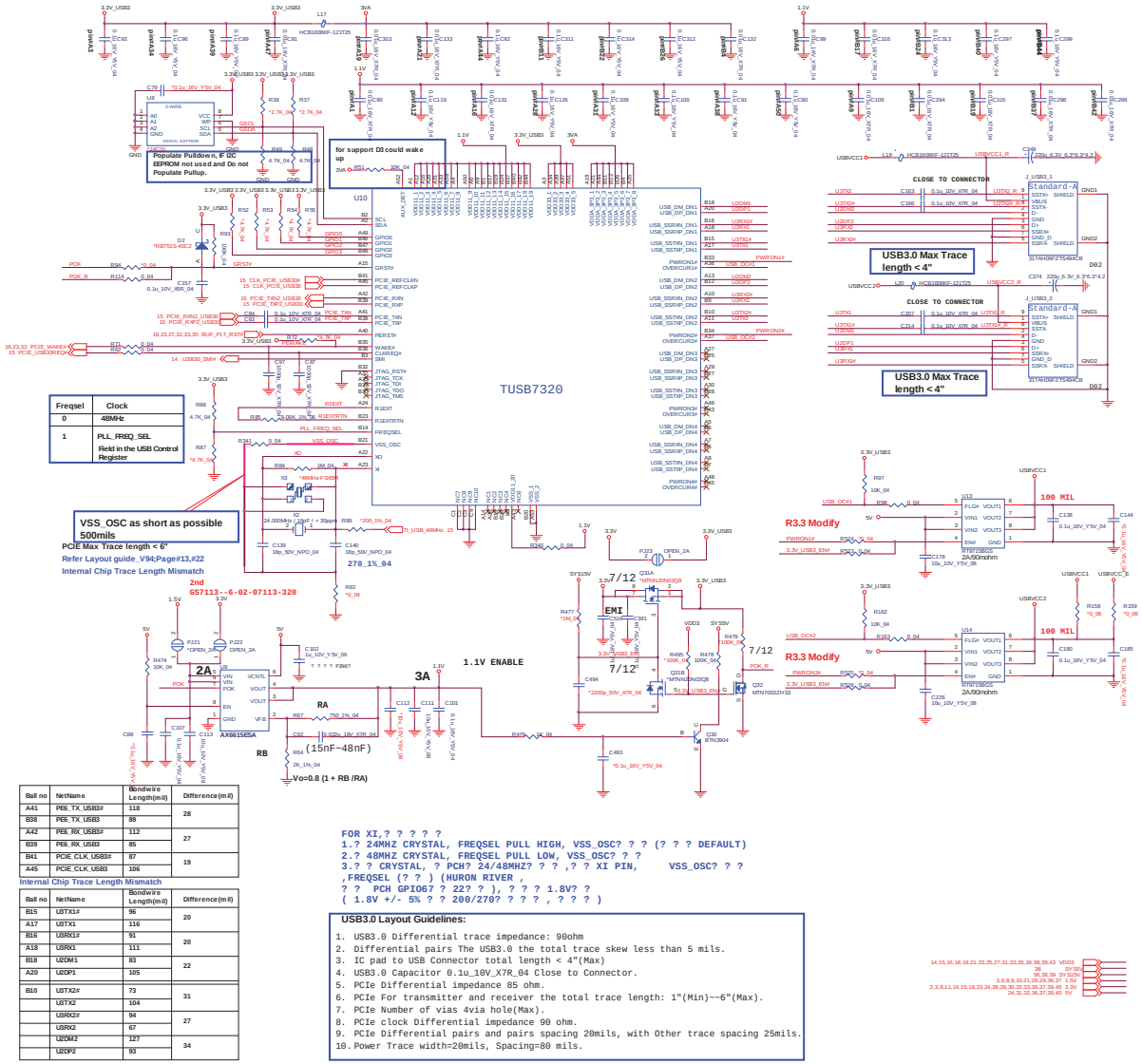
TPM, SATA HDD

Sheet 25 of 48
TPM, SATA HDD





TI TUSB7320 USB3.0



Freqsel	Clock
0	48MHz
1	PLL_FREQ_SEL Field in the USB Control Register

Ball no	NetName	Bondwire Length(mil)	Difference(mil)
A41	PE8_TX_USB3#	118	28
B38	PE8_TX_USB3	89	
A42	PE8_RX_USB3#	112	27
B39	PE8_RX_USB3	85	
B41	PCIE_CLK_USB3#	87	19
A45	PCIE_CLK_USB3	106	

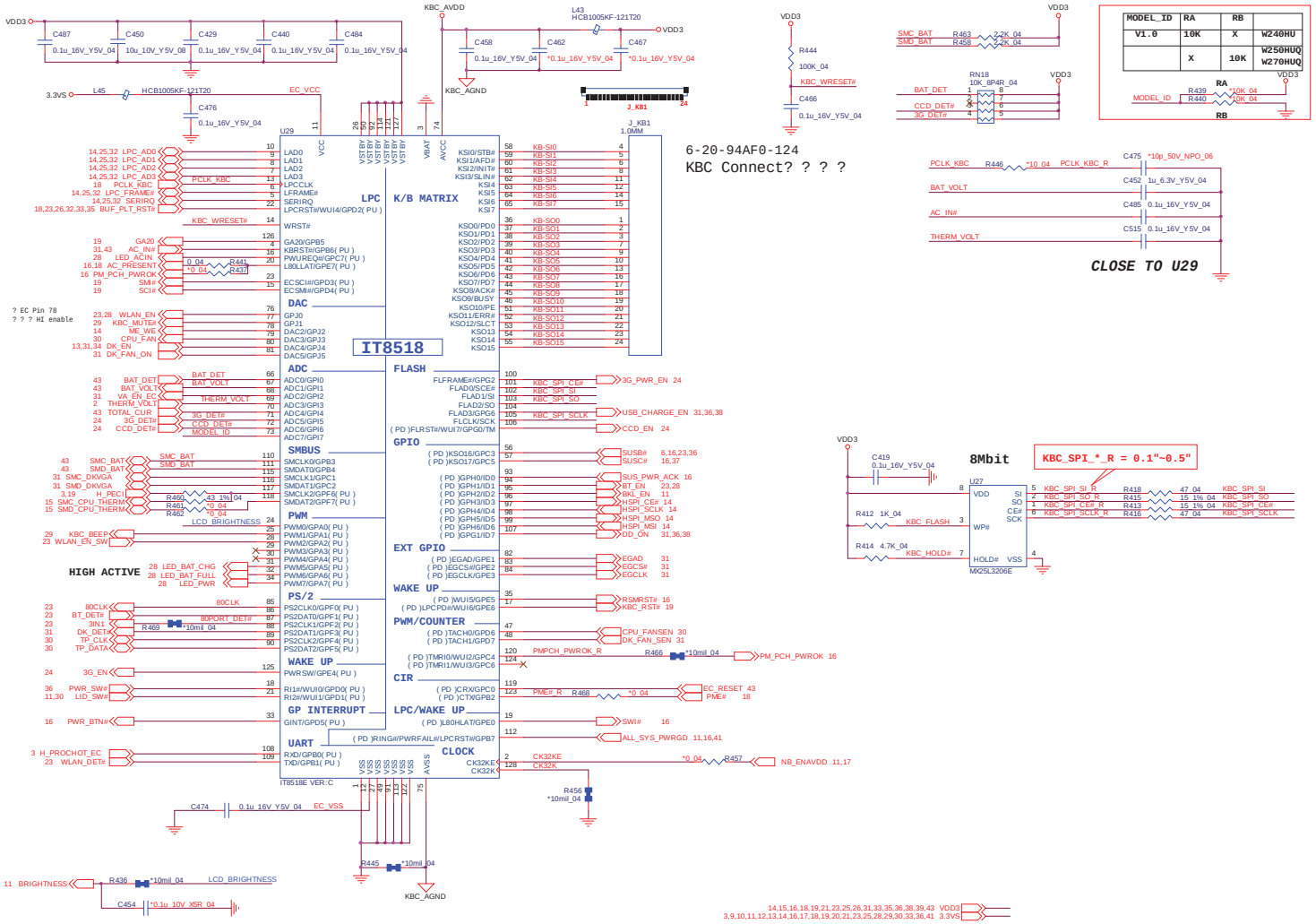
Internal Chip Trace Length Mismatch

Ball no	NetName	Bondwire Length(mil)	Difference(mil)
B15	U3TX1#	96	20
A17	U3TX1	116	
B16	U3RX1#	91	20
A18	U3RX1	111	
B18	U2DM1	83	22
A20	U2DP1	105	
B10	U3TX2#	73	31
	U3TX2	104	
	U3RX2#	94	27
	U3RX2	67	
	U2DM2	127	34
	U2DP2	93	

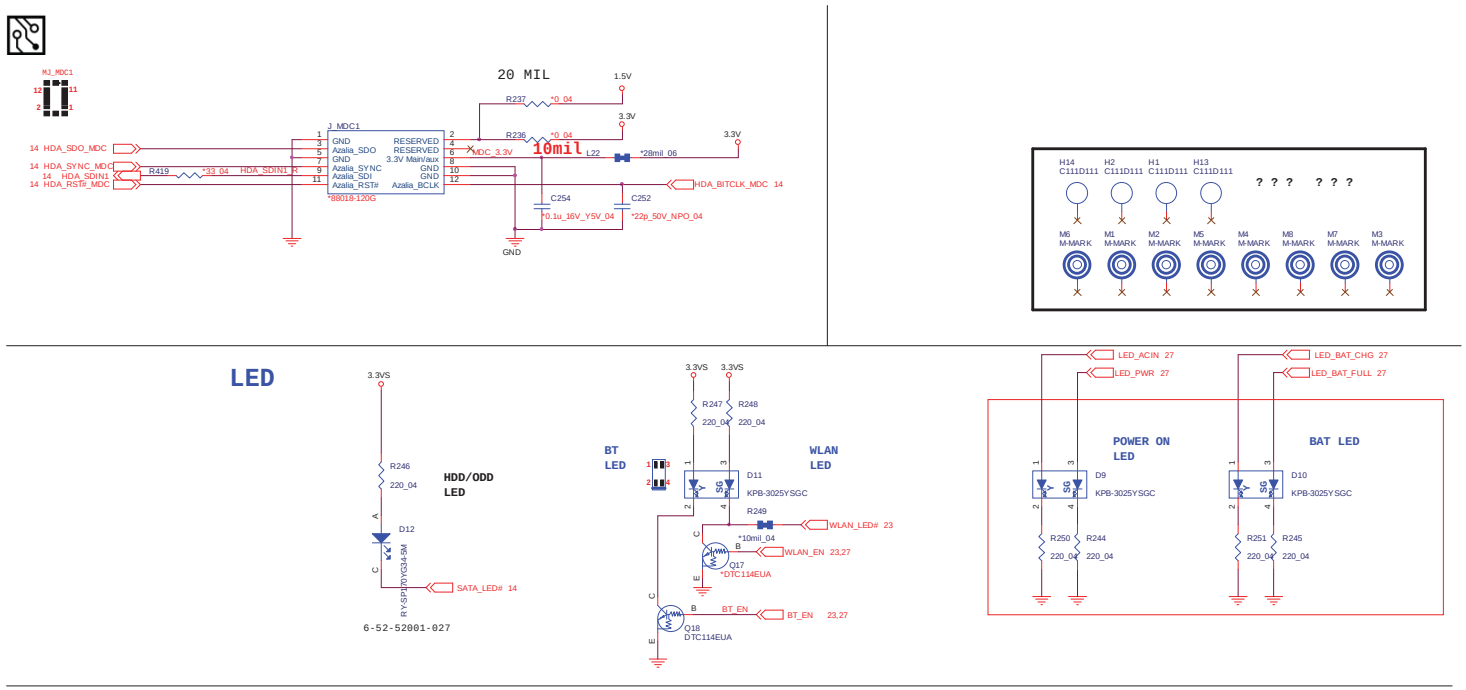
Sheet 26 of 48
TI TUSB7320
USB3.0

KBC-ITE IT8518

Sheet 27 of 48
KBC-ITE IT8518



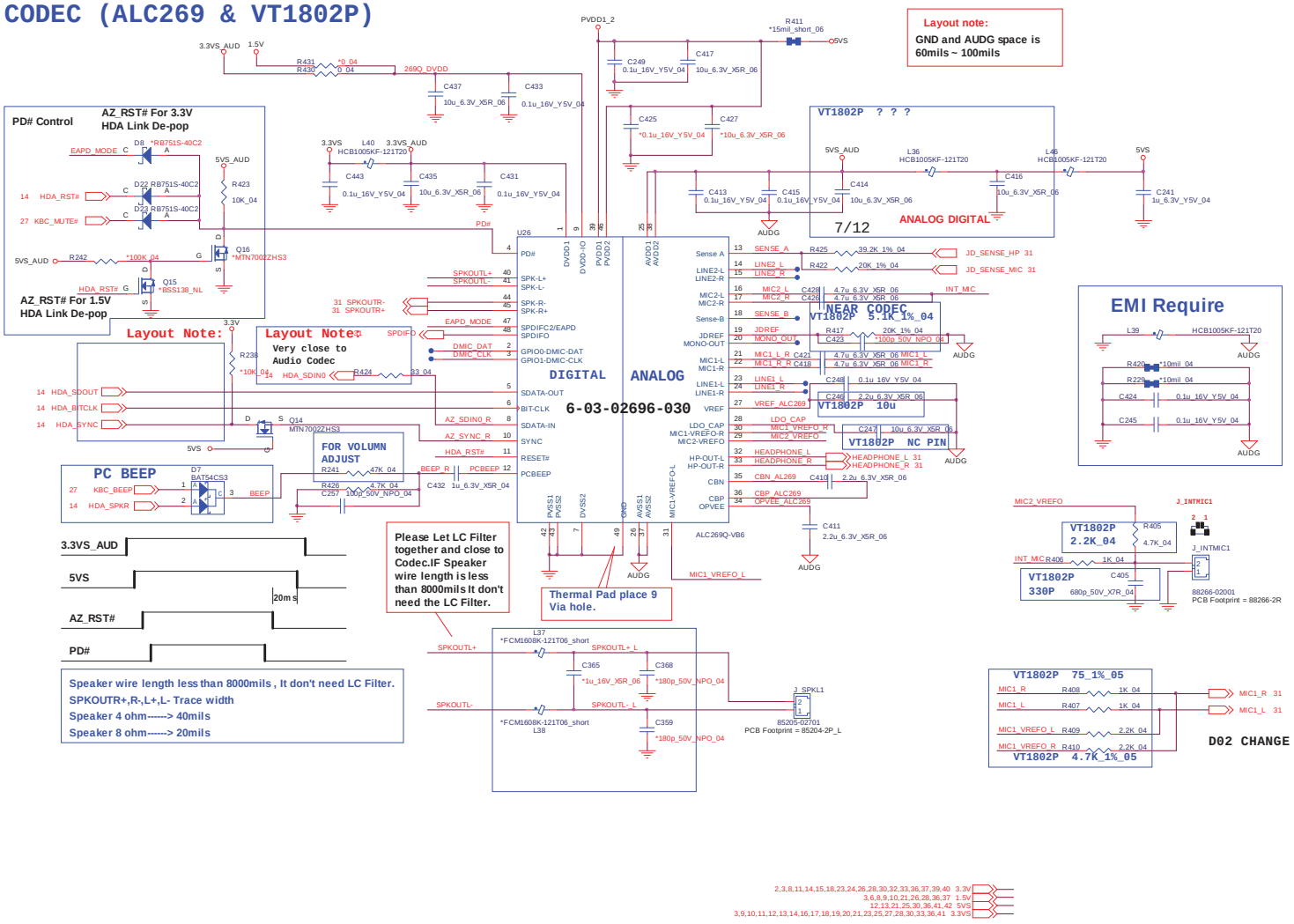
LED, MDC



Sheet 28 of 48
LED, MDC

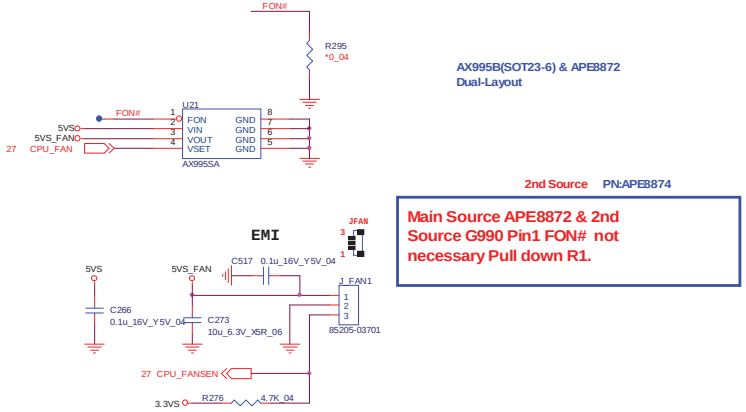
AUDIO CODEC ALC269Q

Sheet 29 of 48
AUDIO CODEC
ALC269Q



POWER CON, FAN, TP, CLICK CON

FAN CONTROL

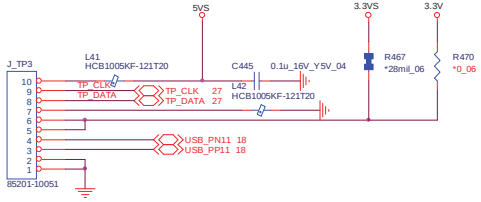


AX995B(SOT23-6) & APE8872
Dual-Layout

2nd Source PN:APE8874

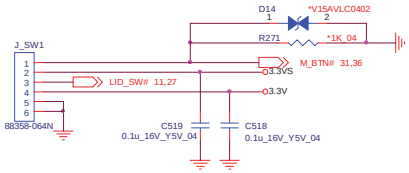
Main Source APE8872 & 2nd Source G990 Pin1 FON# not necessary Pull down R1.

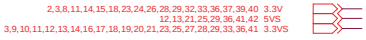
CLICK B'd CONN



Sheet 30 of 48
POWER CON, FAN, TP, CLICK CON

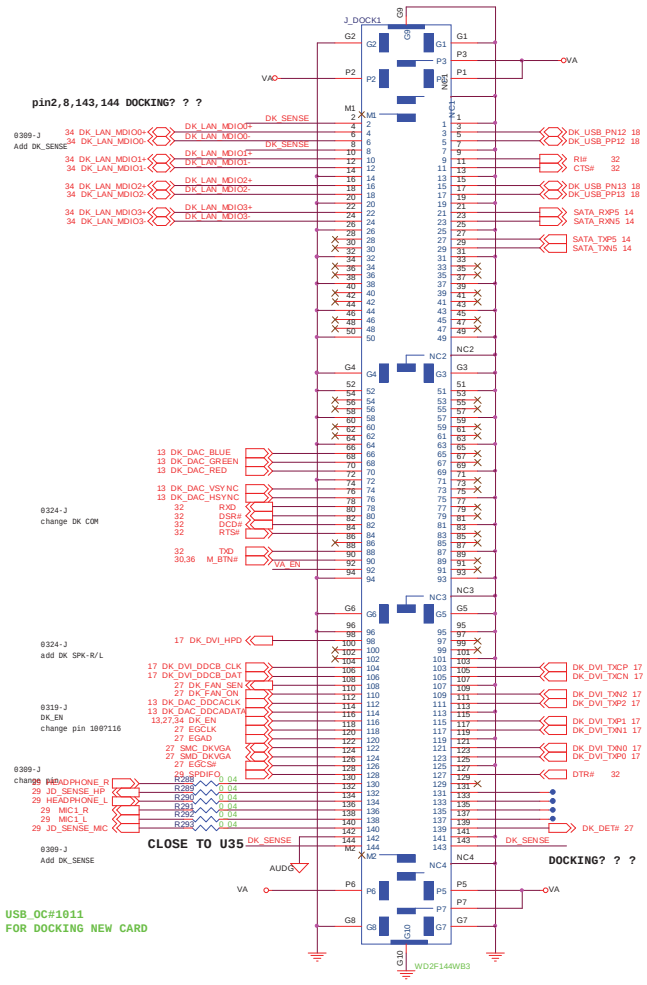
FOR POWER SWITCH BOARD

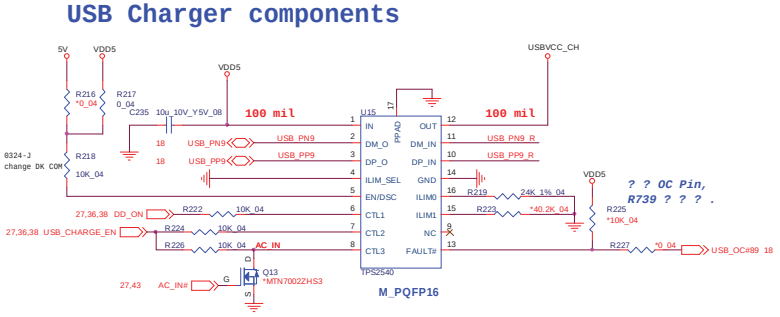


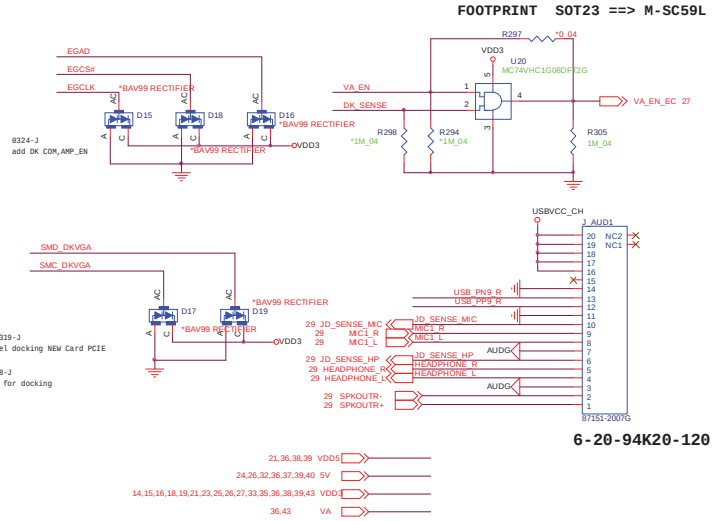


DOCKING CONNECTOR, USB Charger

Sheet 31 of 48
DOCKING CONNECTOR, USB Charger

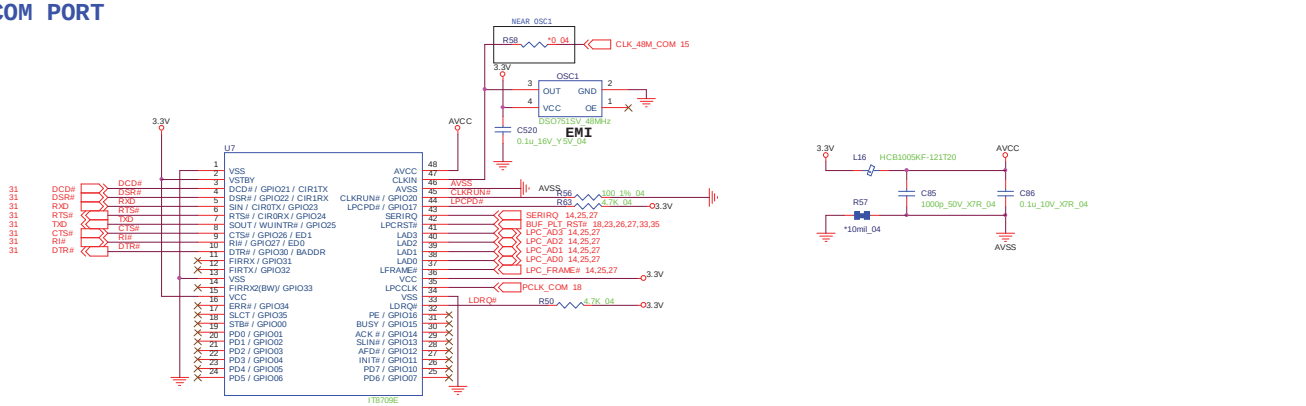






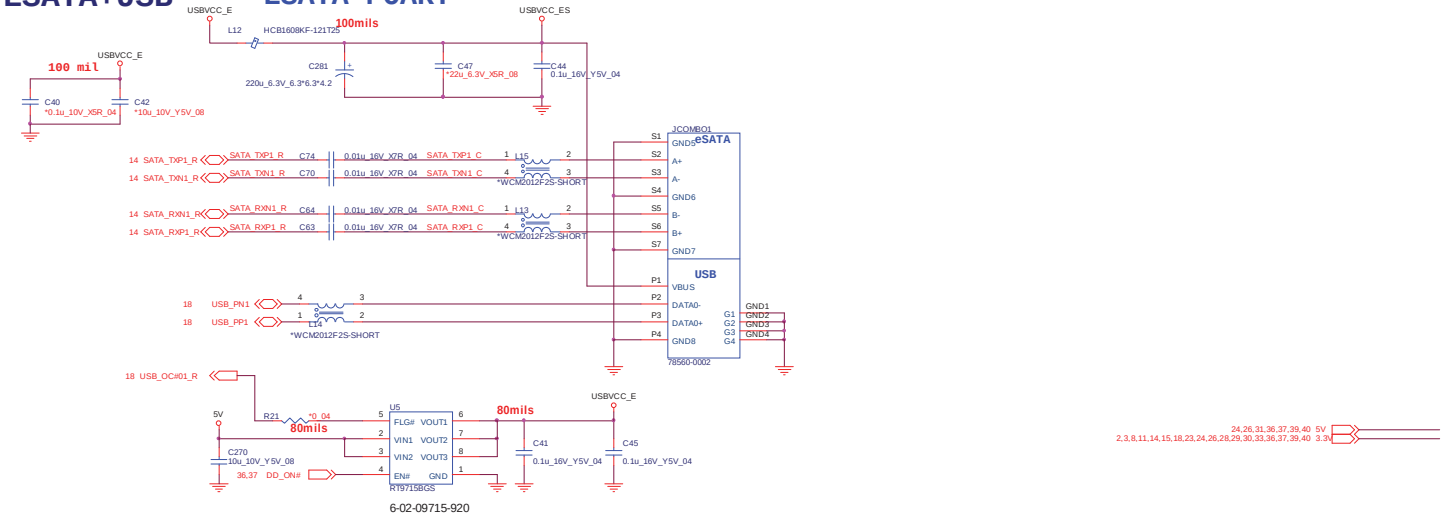
COM PORT, ESATA+USB

Docking COM PORT



ESATA+USB

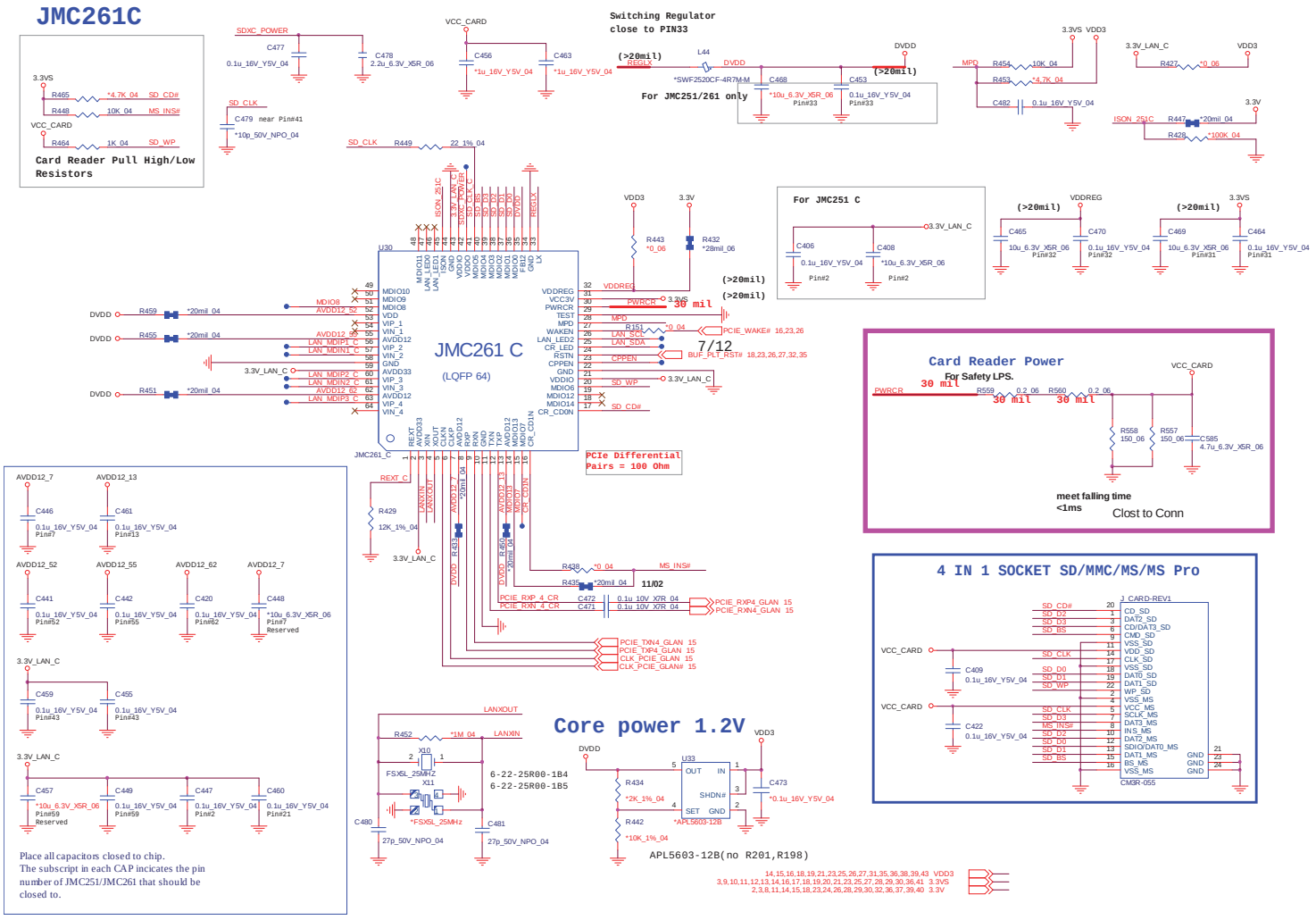
ESATA POART



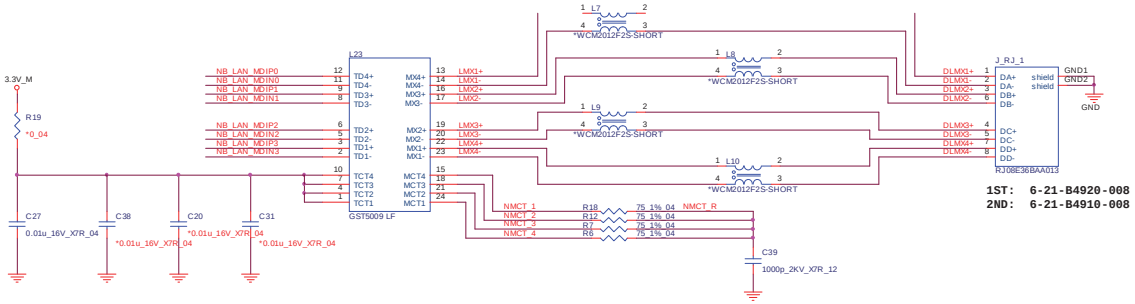
Sheet 32 of 48
COM PORT,
ESATA+USB

CARD READER JMC261C

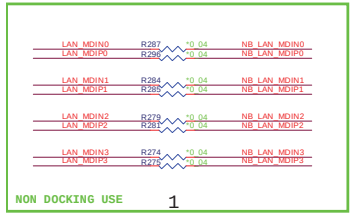
Sheet 33 of 48
CARD READER
JMC261C



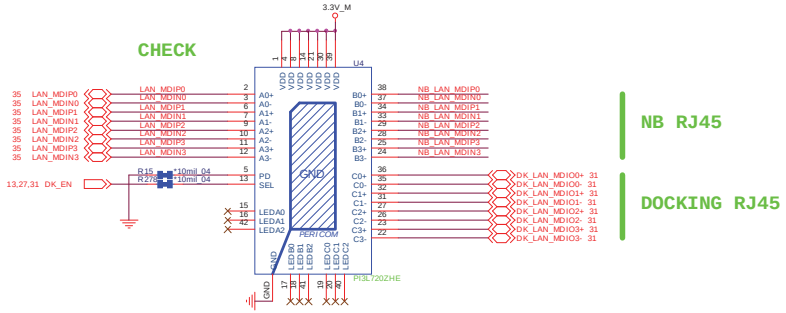
LAN (INTEL LAN82579)



Sheet 34 of 48
LAN (INTEL LAN82579)



CHECK



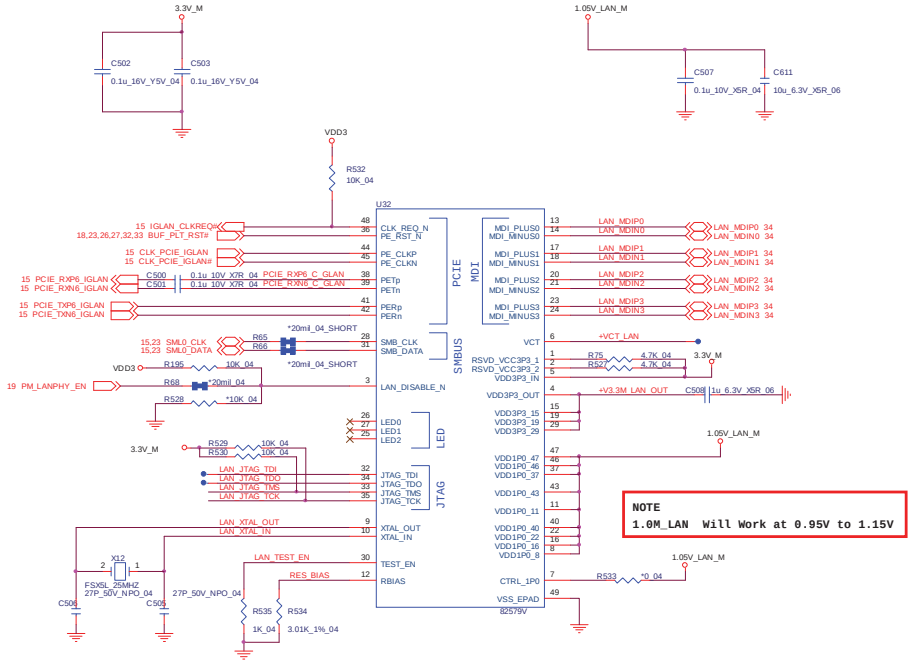
? ? ?

PD	SEL	FUNCTION
L	L	Ax to Bx , LEDAx to LEDBx
L	H	Ax to Cx , LEDAx to LEDCx
H	X	Hi-Z

14,16,20,35,36 3.3V_M

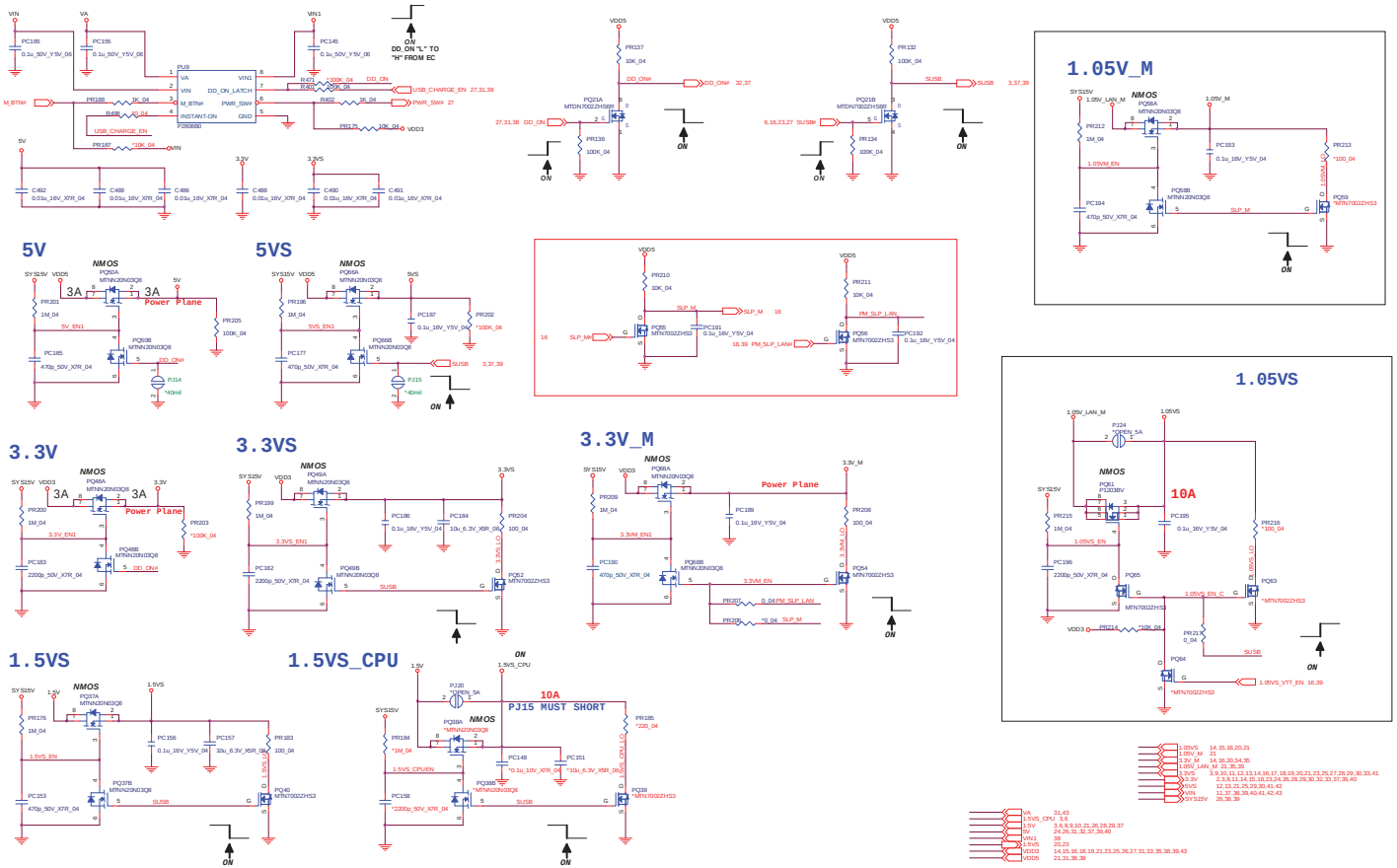
INTEL LAN82579LM

Sheet 35 of 48
INTEL
LAN82579LM



	U25	U32	U28	U41	U27
VPRO	QM67 6-03-08267-0S1	82579LM 6-03-82579-030-S	MX25L3206E 6-04-25320-490	MX25L3206E 6-04-25320-490	PM25LD010C-SCE 6-04-25010-A91
non-VPRO	HM65 6-03-08265-0S1	82579V 6-03-82579-031-S	NI	NI	MX25L3206E 6-04-25320-490

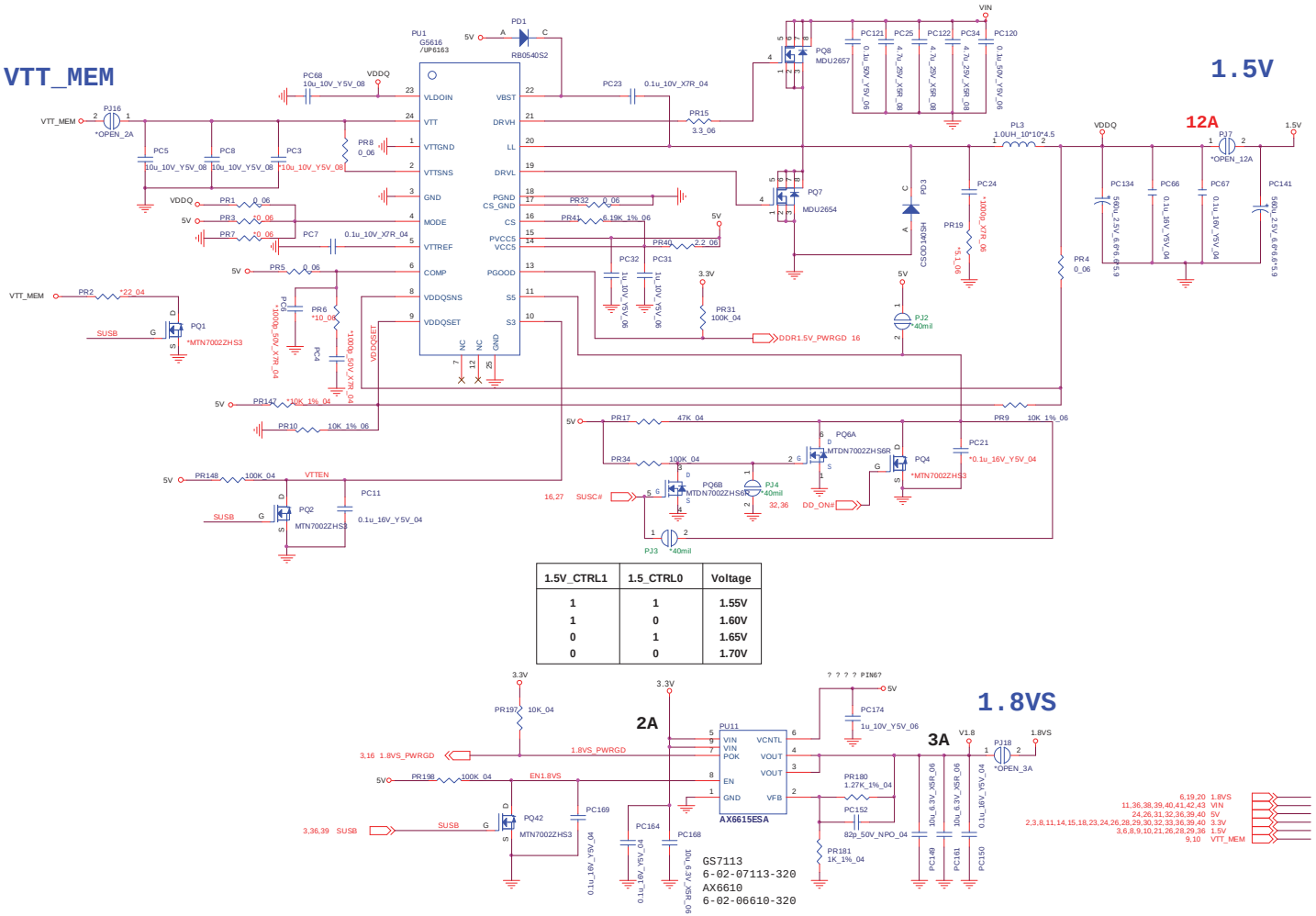
5VS, 3VS, 1.5VS CPU



Sheet 36 of 48
5VS, 3VS, 1.5VS CPU

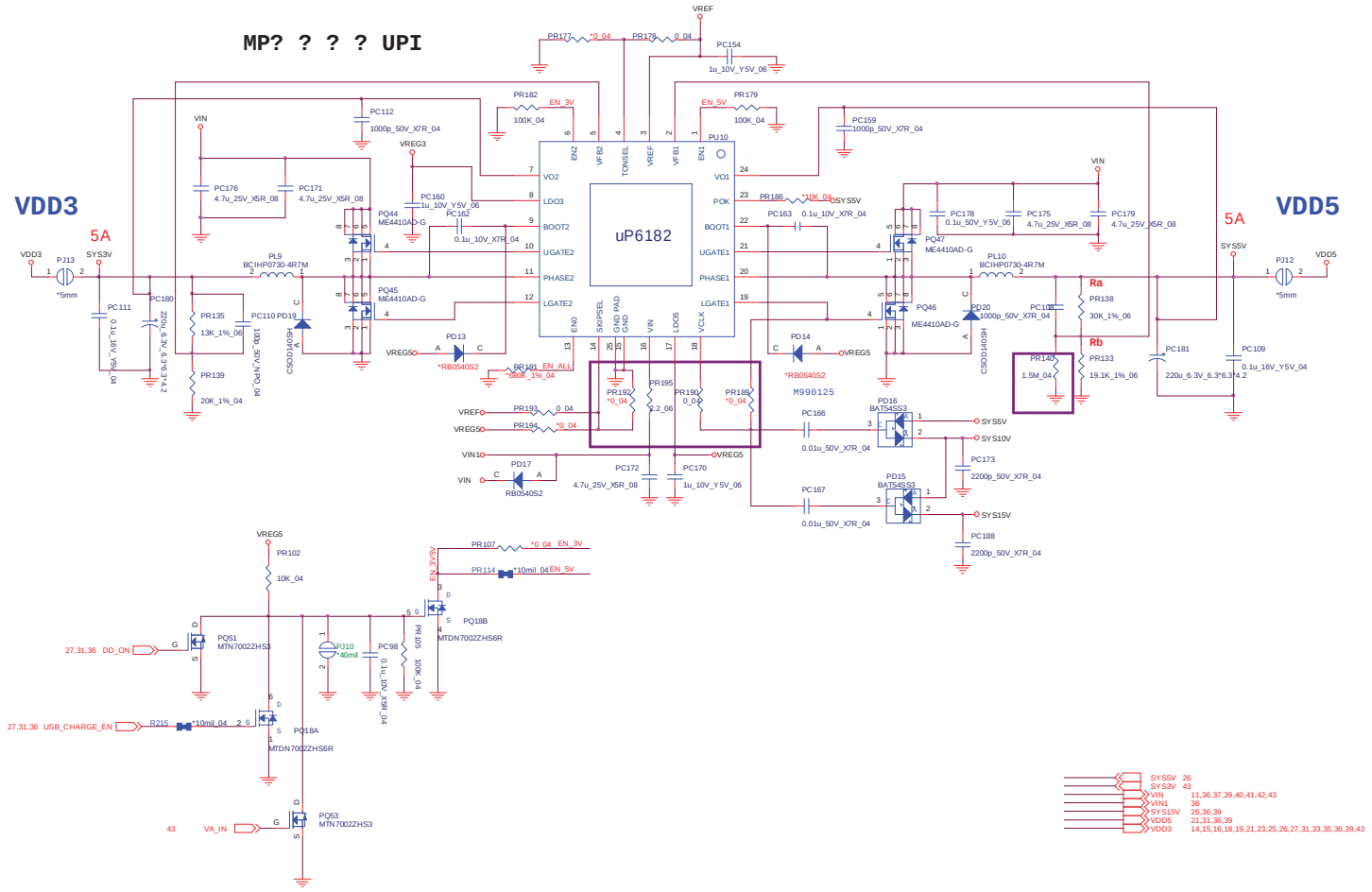
Power 1.5V/0.75V,1.8VS

Sheet 37 of 48
Power 1.5V/
0.75V,1.8VS



1.5V_CTRL1	1.5_CTRL0	Voltage
1	1	1.55V
1	0	1.60V
0	1	1.65V
0	0	1.70V

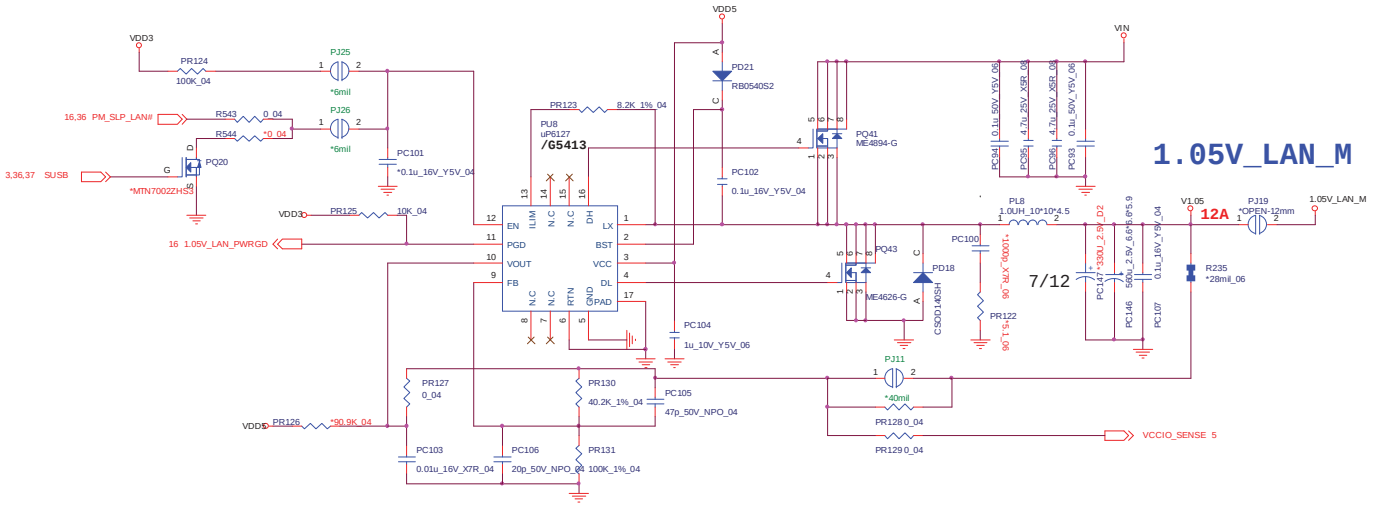
VDD3, VDD5



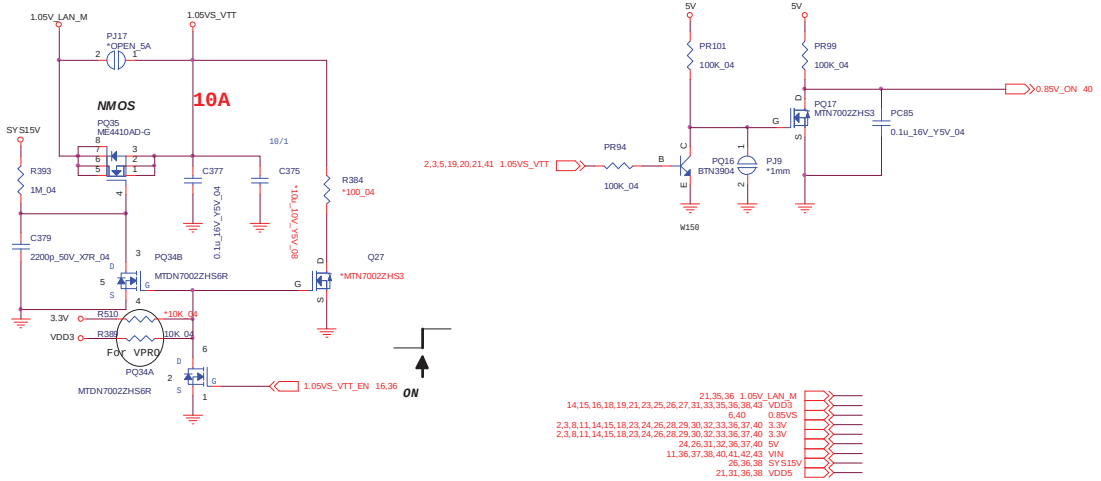
Sheet 38 of 48
VDD3, VDD5

POWER 1.05V LAN M

Sheet 39 of 48
POWER 1.05V LAN M

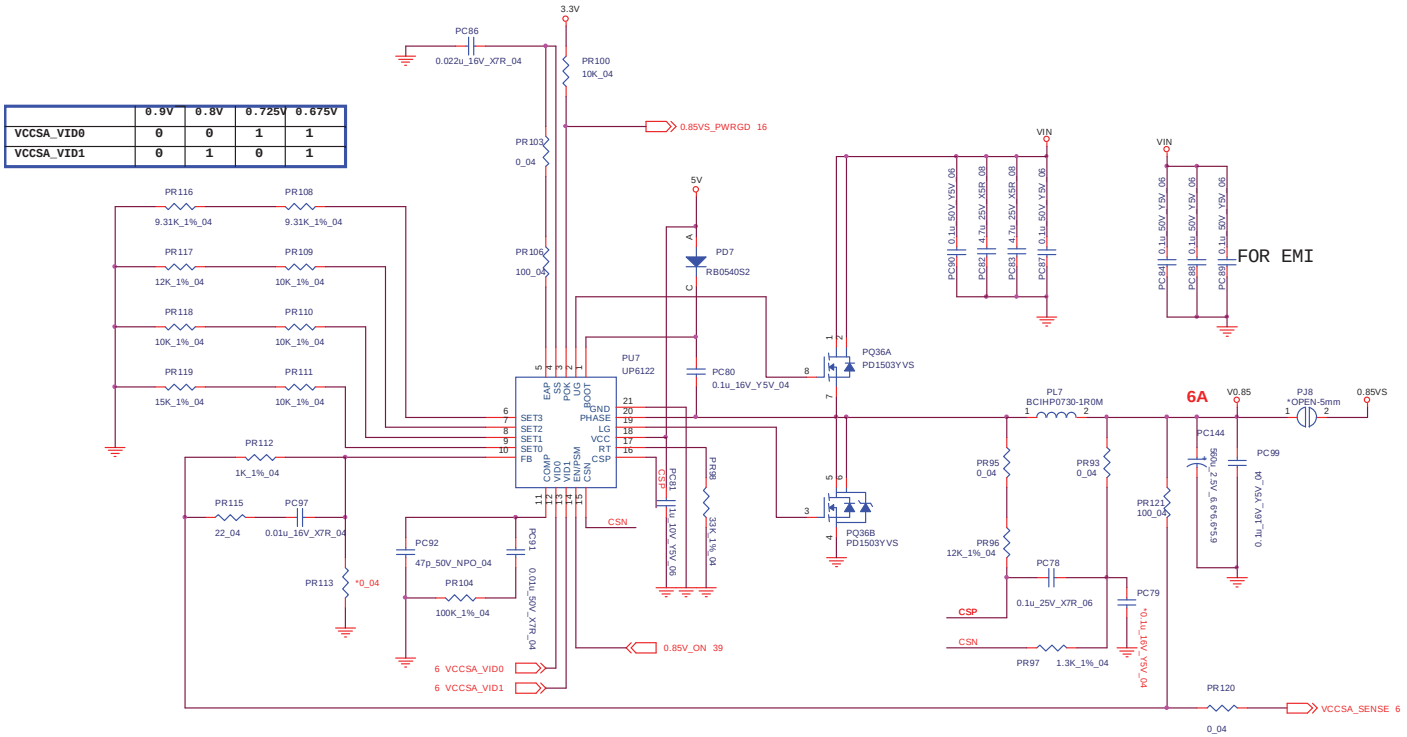


1.05VS_VTT



POWER 0.85VS

	0.9V	0.8V	0.725V	0.675V
VCCSA_VID0	0	0	1	1
VCCSA_VID1	0	1	0	1

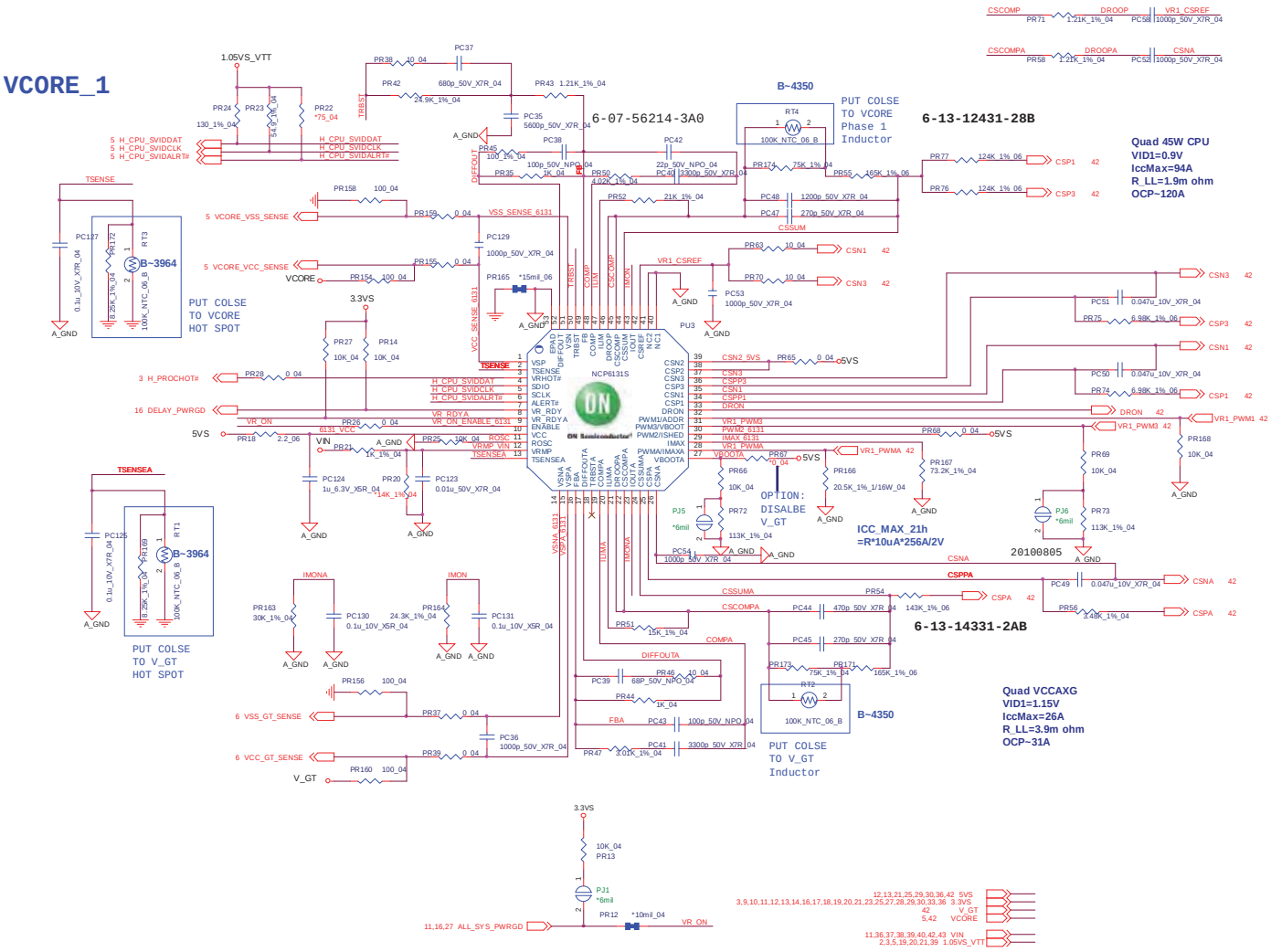


5V 24,26,31,32,36,37,39
0.85VS 6
VIN 11,36,37,38,39,41,42,43
3.3V 2,3,8,11,14,15,18,23,24,26,28,29,30,32,33,36,37,39

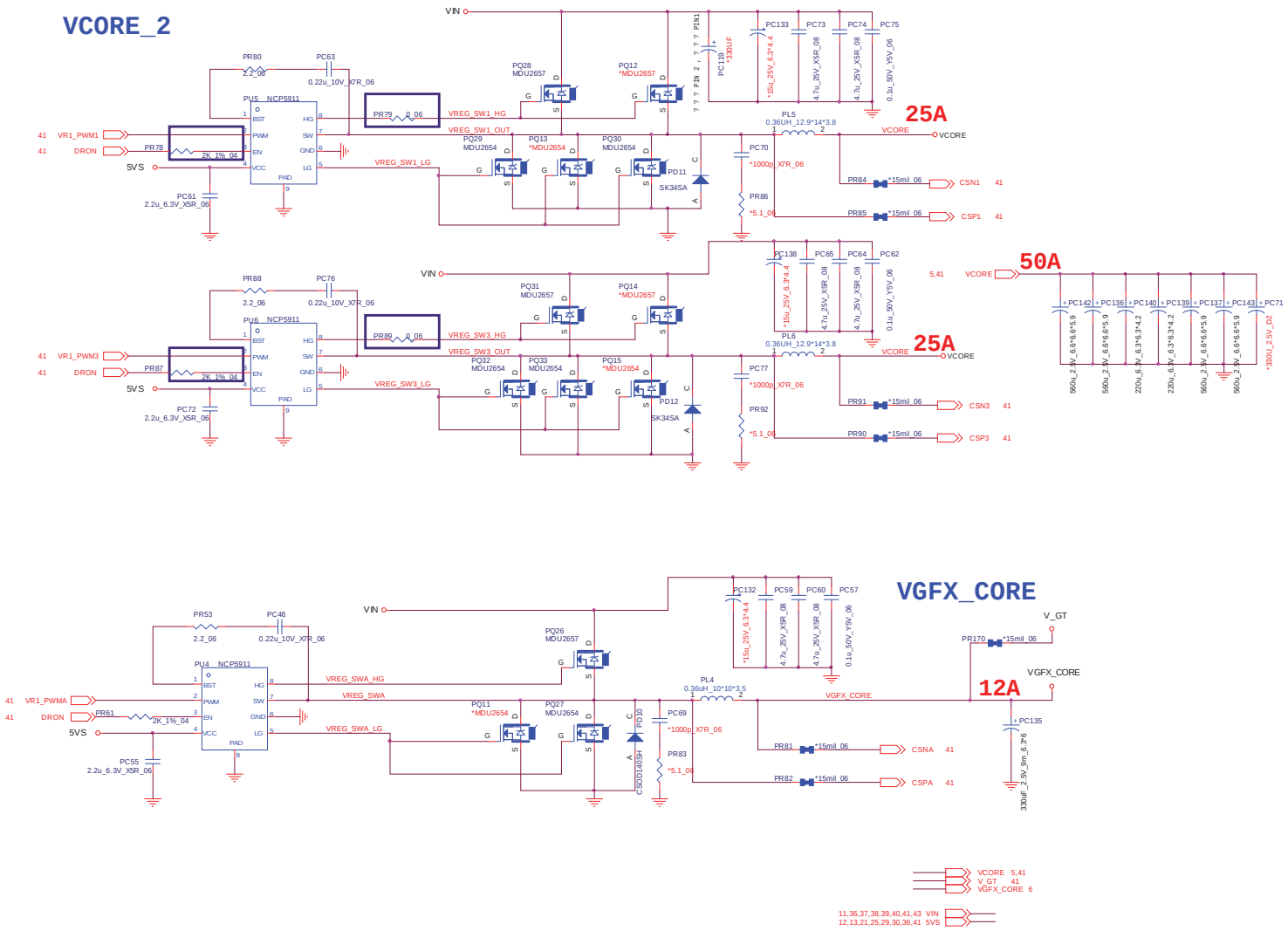
Sheet 40 of 48
POWER 0.85VS

Power V-CORE 1

Sheet 41 of 48
Power V-CORE 1



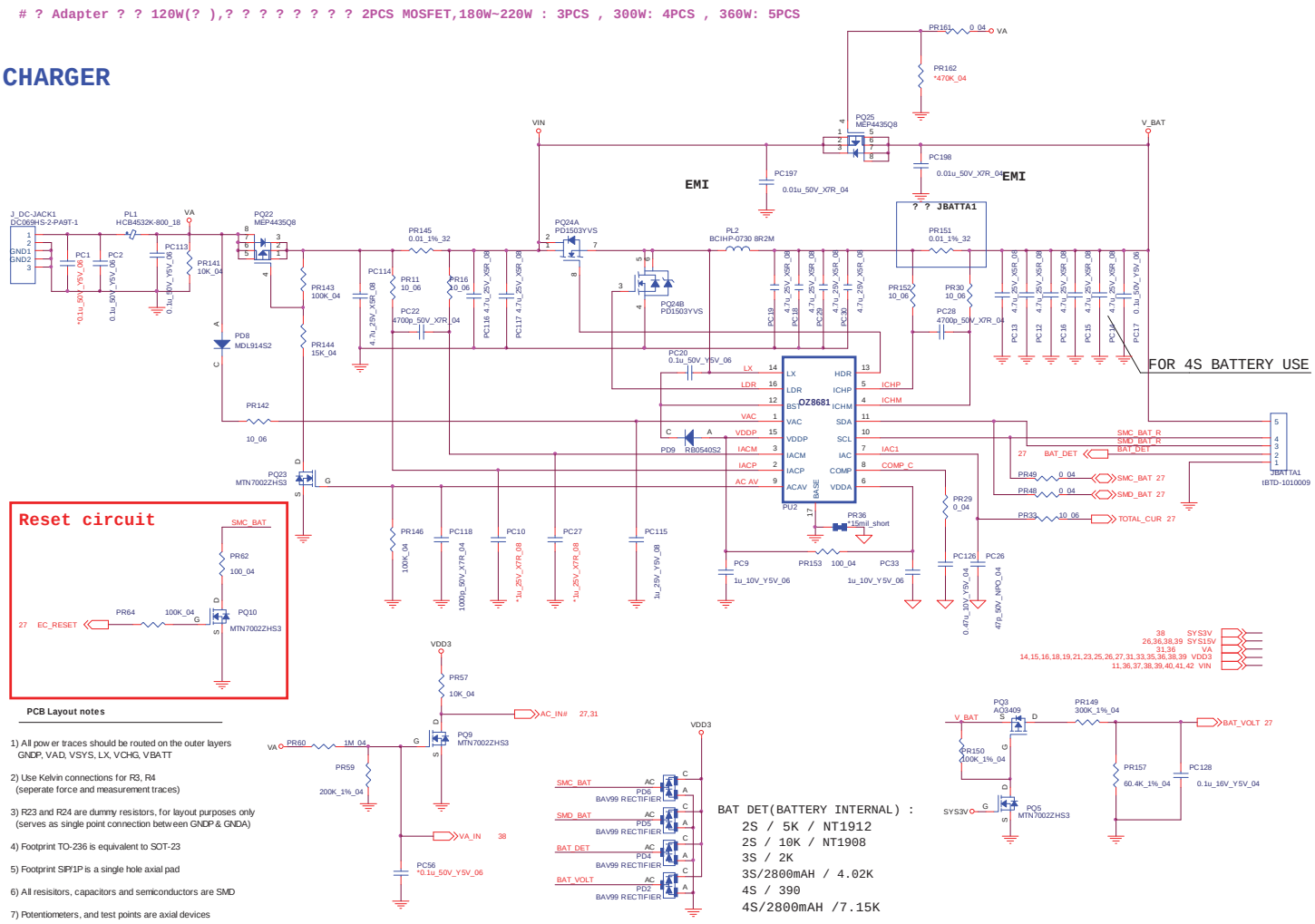
Power V-CORE 2



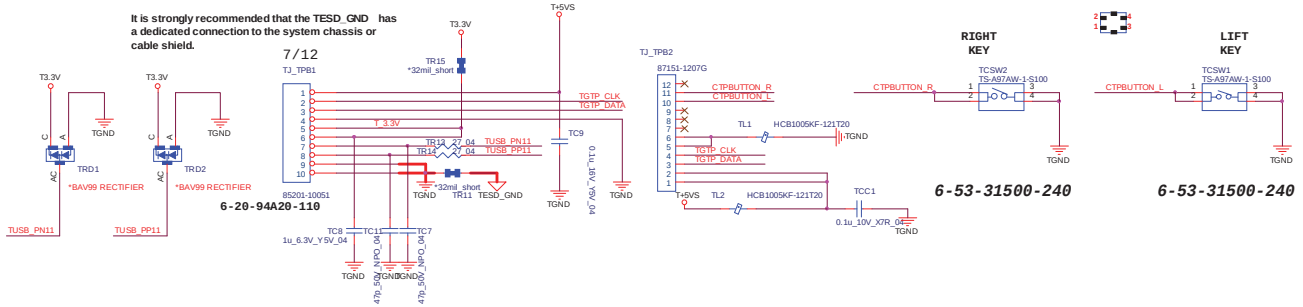
Sheet 42 of 48
Power V-CORE 2

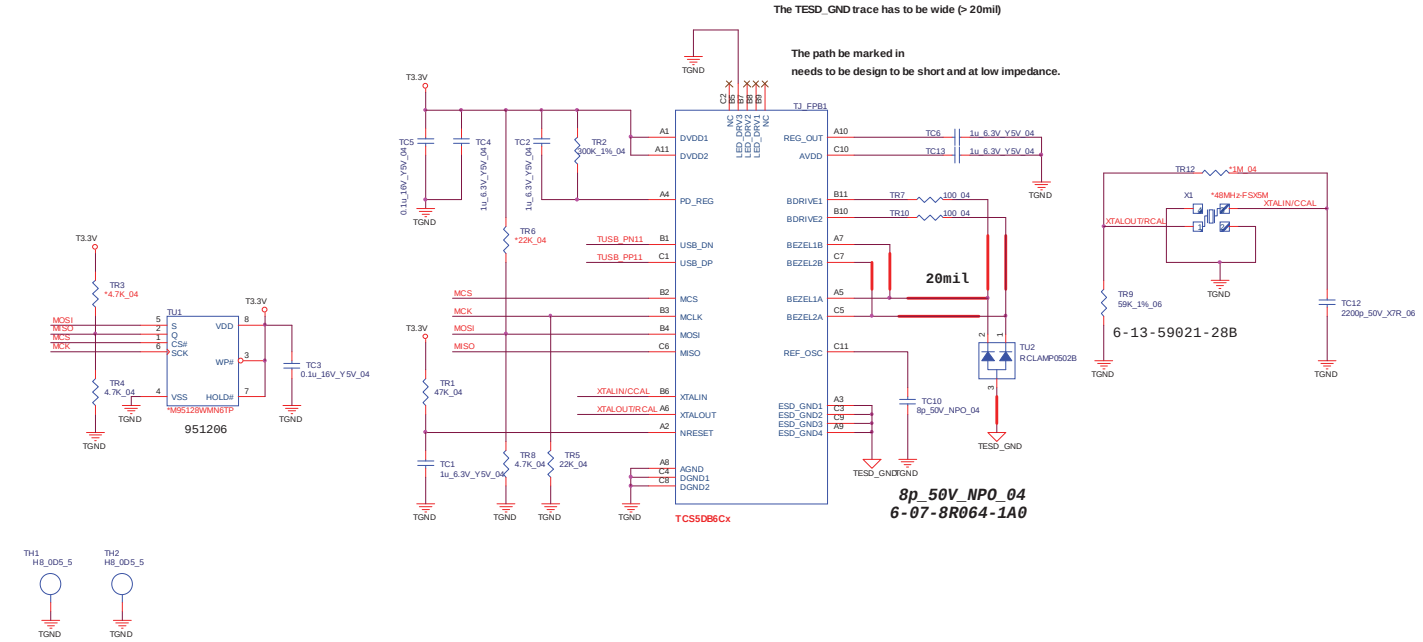
CHARGE, DC IN

Sheet 43 of 48
CHARGE, DC IN



CLICK BOARD/ FG





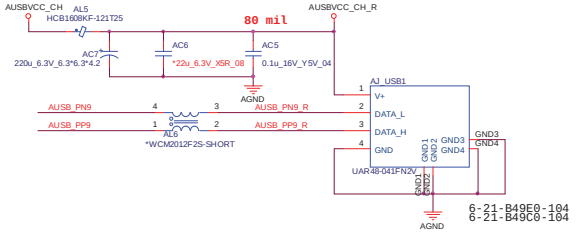
Sheet 44 of 48
CLICK BOARD/ FG

B.Schematic Diagrams

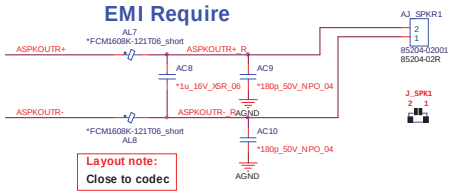
AUDIO BOARD/ USB, HP, MIC

Sheet 45 of 48
AUDIO BOARD/
USB, HP, MIC

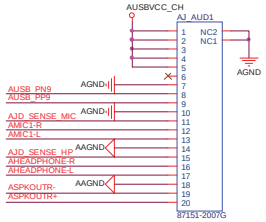
USB PORT



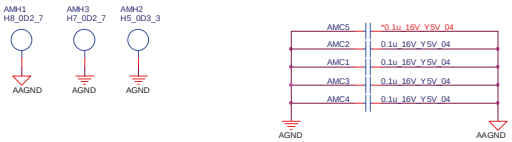
EMI Require



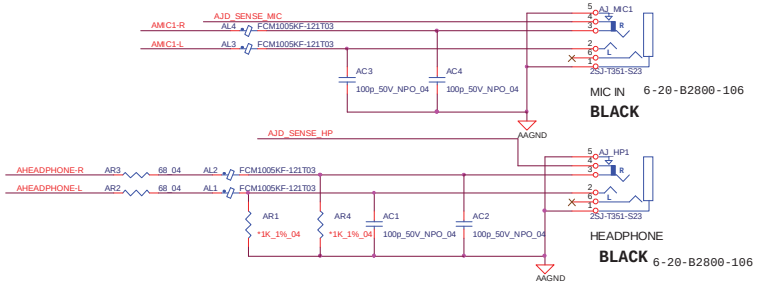
TO M/B



6-20-94K20-120

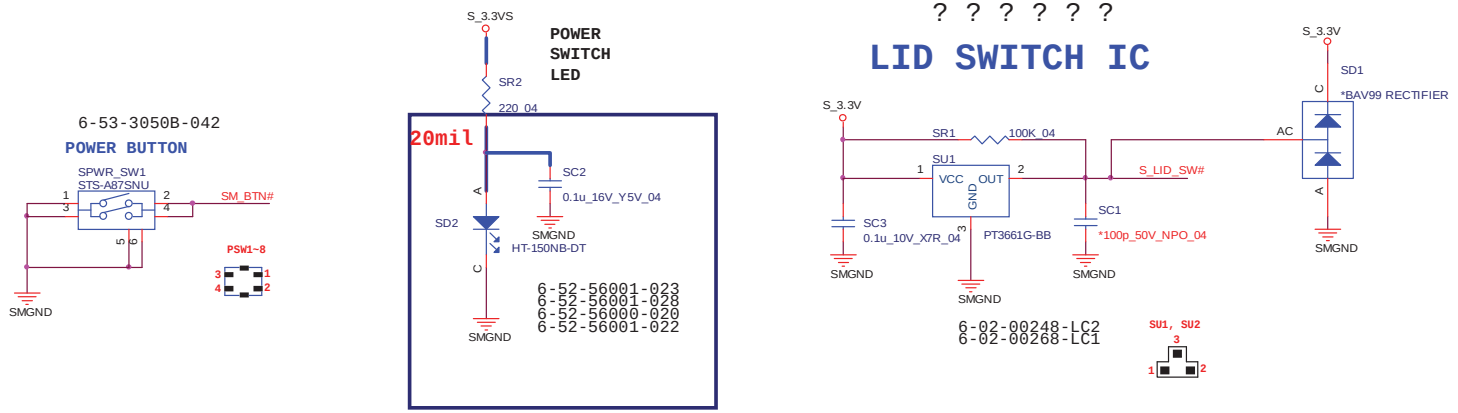


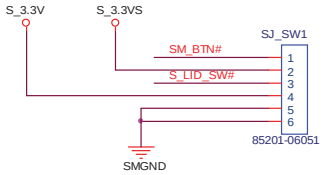
AUDIO JACK

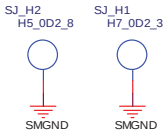


POWER SWITCH

POWER SW & LED & HOT KEY







Sheet 46 of 48
POWER SWITCH

DEBUG BOARD

Sheet 47 of 48
DEBUG BOARD