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33	Audio (HP,EXT MIC)	A00					
34	Audio (SPKR)	A00					
35	Audio (MUTE)	A00					

Project Code & Schematics Subject: H901 Main Board_6L

PCB P/N:	1P-0099J00-6000 (IRIS)
	1P-0099500-6000 (HANNSTAR)
	1P-0099200-6000 (NANYA)
BT DB P/N:	1P-1099J01-6000 (IRIS)
	1P-1099502-6000 (HANNSTAR)
	1P-1099201-6000 (NANYA)
LED DB P/N:	1P-1099J02-6000 (IRIS)
	1P-1099501-6000 (HANNSTAR)
	1P-1099200-6000 (NANYA)
P/B DB P/N:	1P-1099J00-6000 (IRIS)
	1P-1099500-6000 (HANNSTAR)
	1P-1099202-6000 (NANYA)

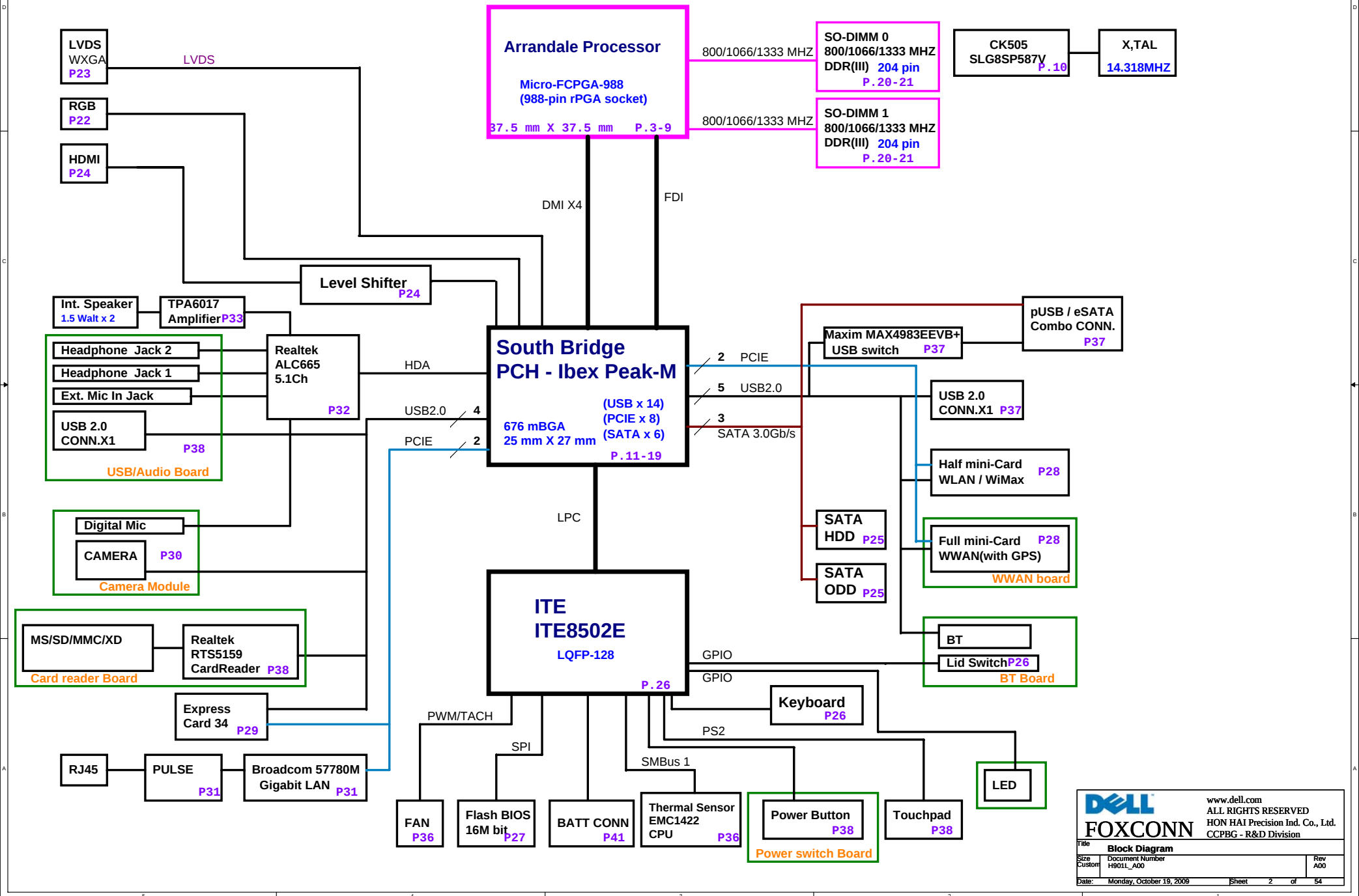
P. Leader	Check by	Design by

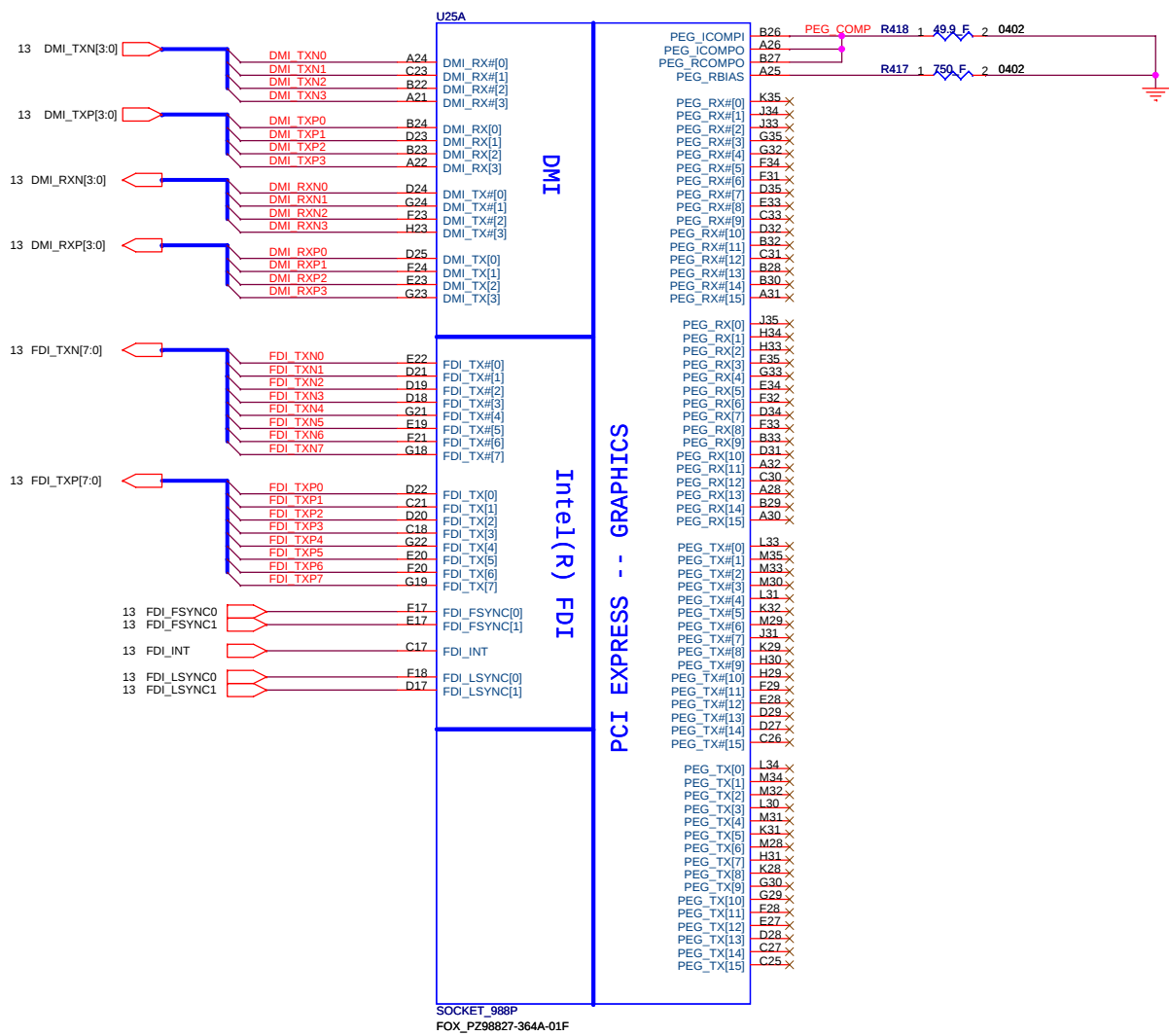

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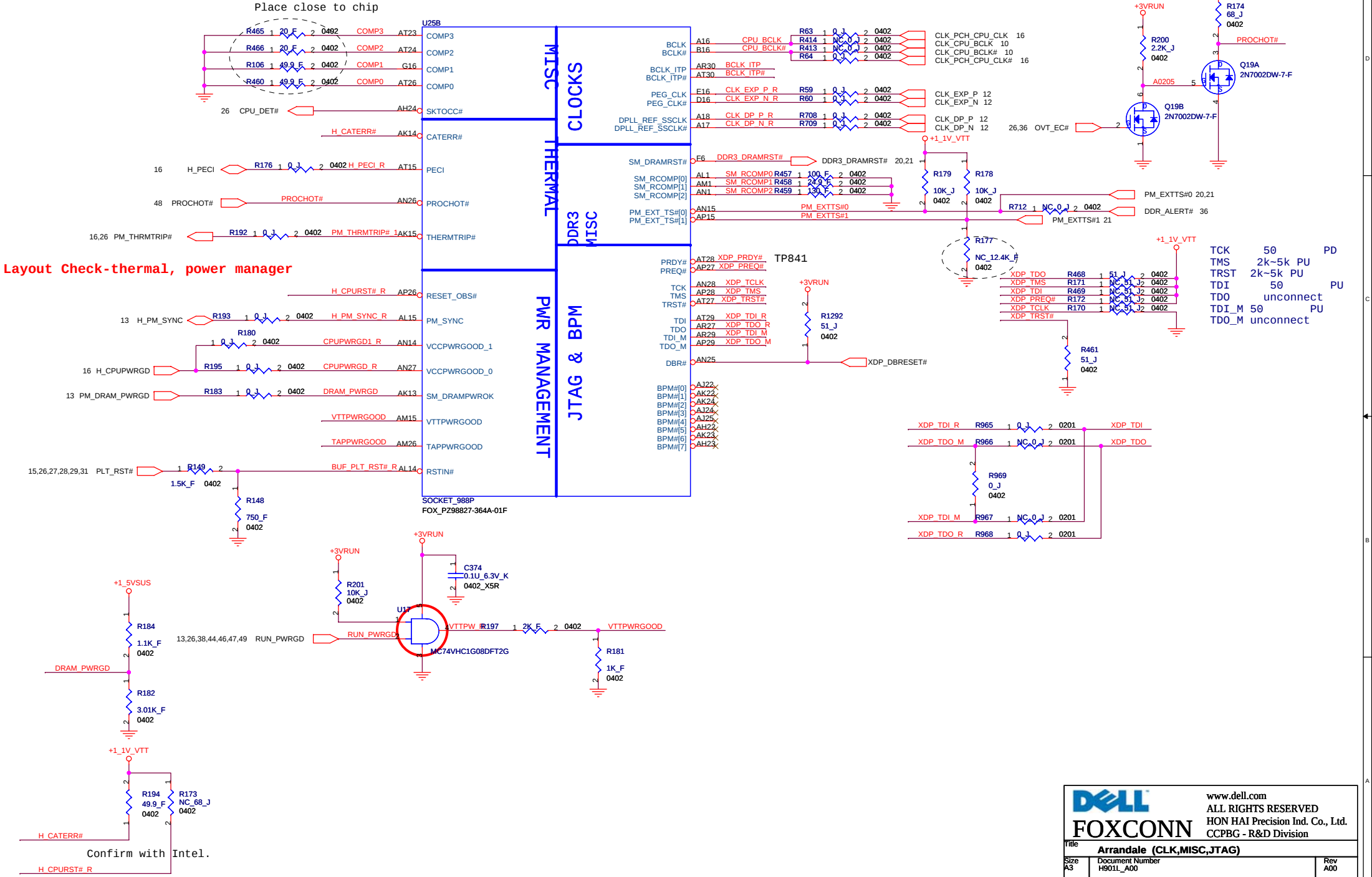
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H901L Arrandale





Layout Note:
Comp0,2 connect with Zo=27.4 ohm, make trace length shorter then 0.5". Width=20mil(MS)
Comp1,3 connect with Zo=55 ohm, make trace length shorter then 0.5". Width=5mil(MS)



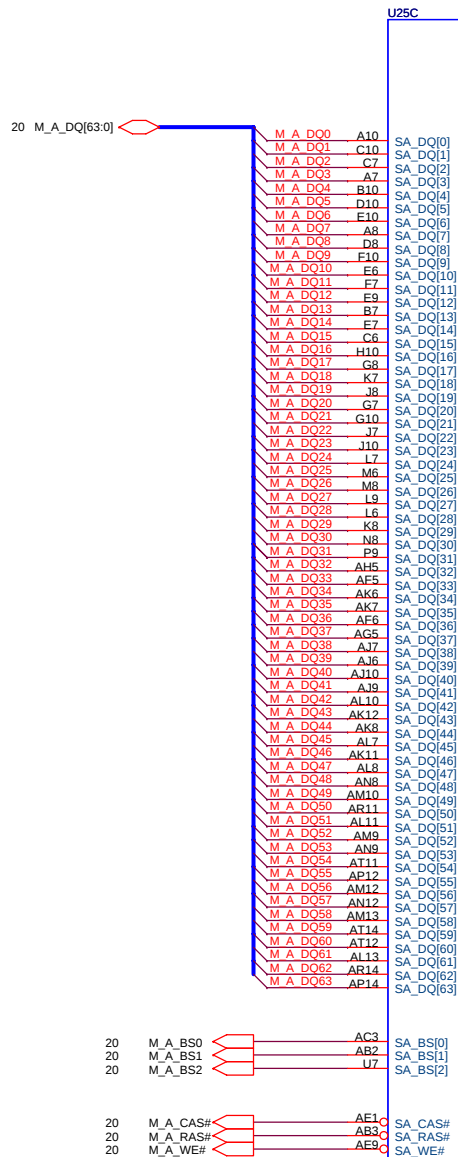


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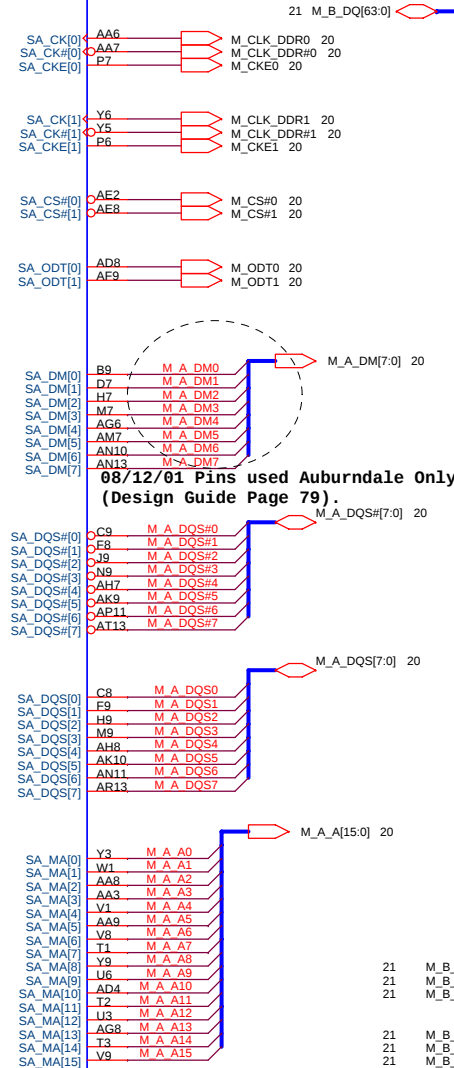
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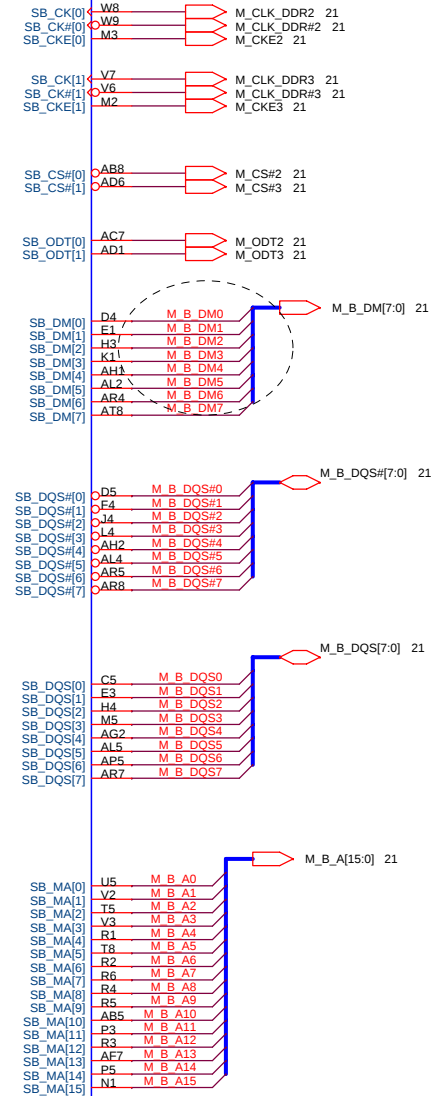
DDR SYSTEM MEMORY A

SOCKET_988P
FOX_PZ98827-364A-01F



08/12/01 Pins used Auburndale Only
(Design Guide Page 79).

DDR SYSTEM MEMORY - B

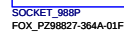


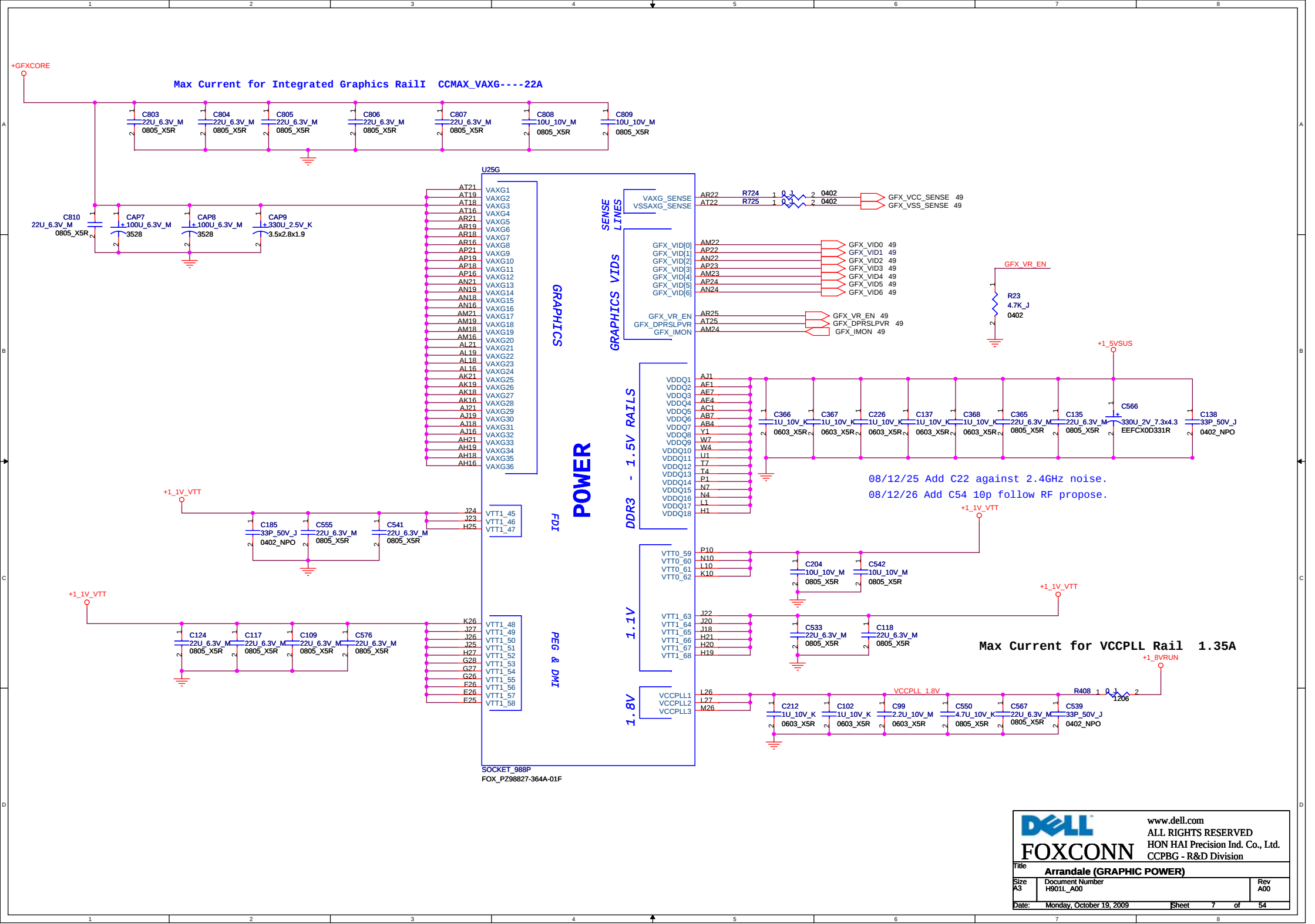
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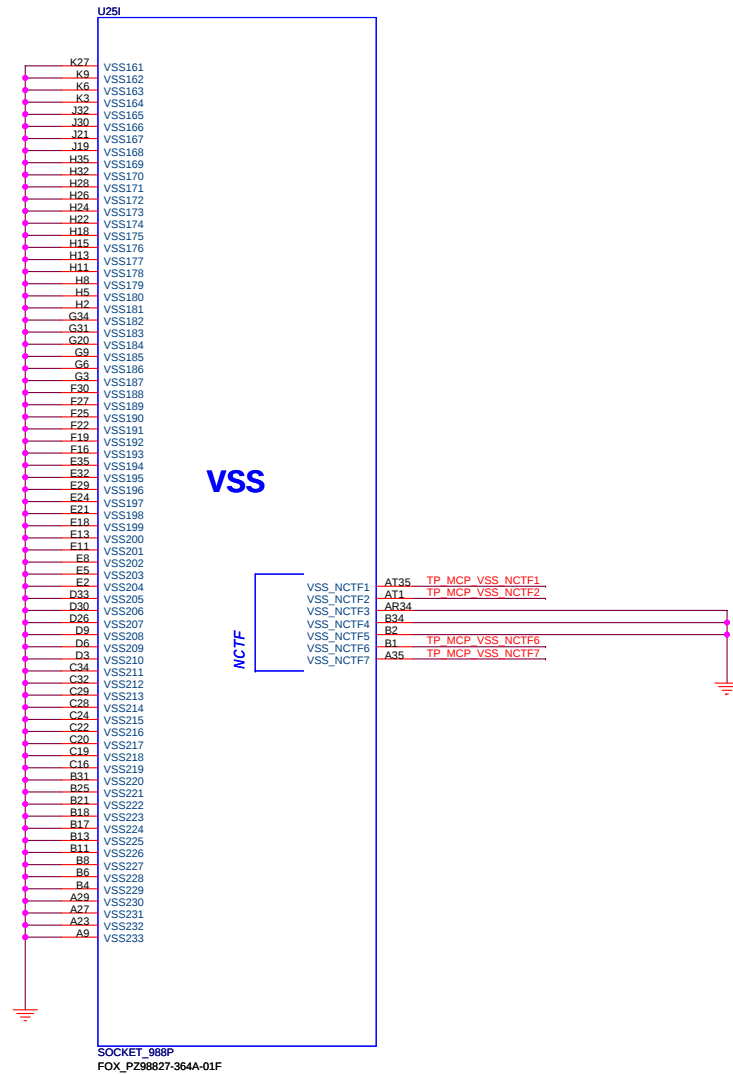
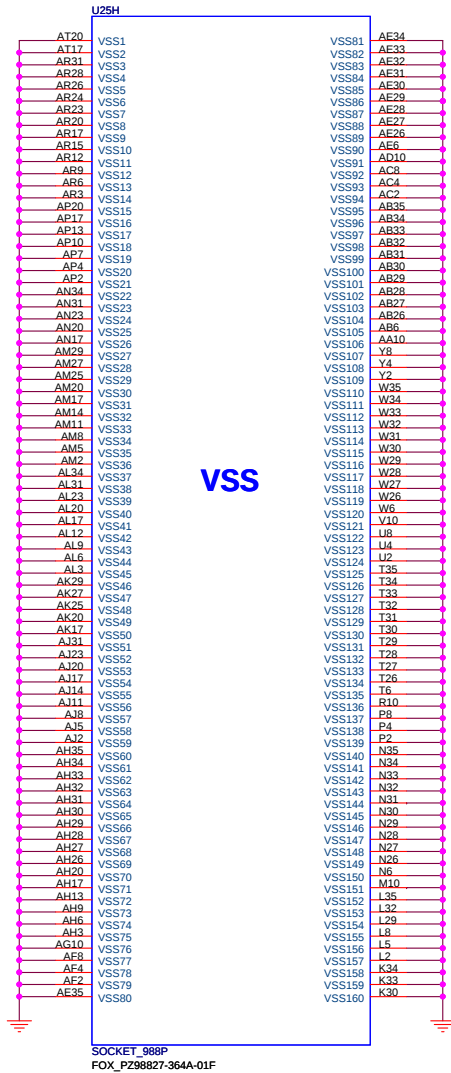
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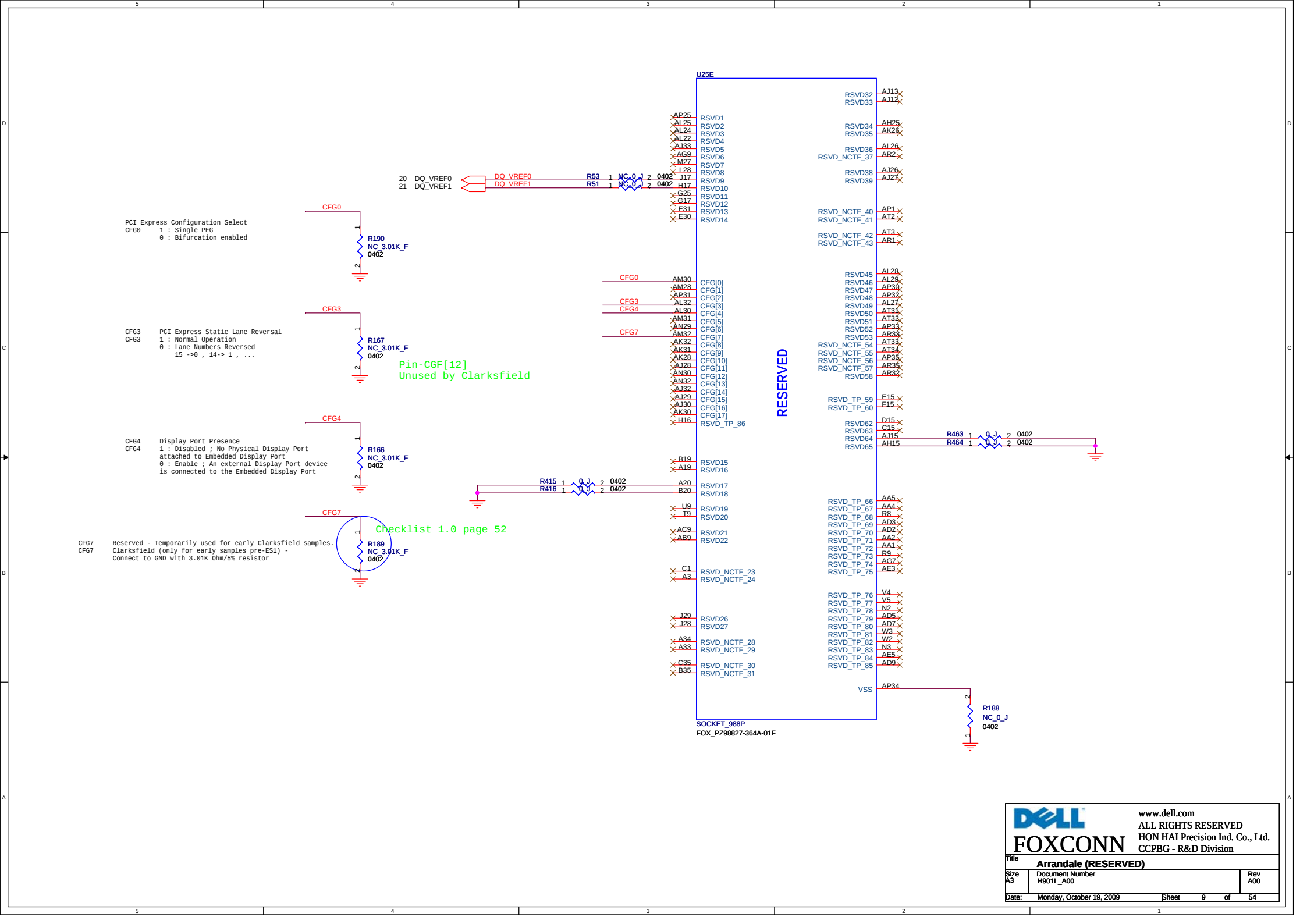
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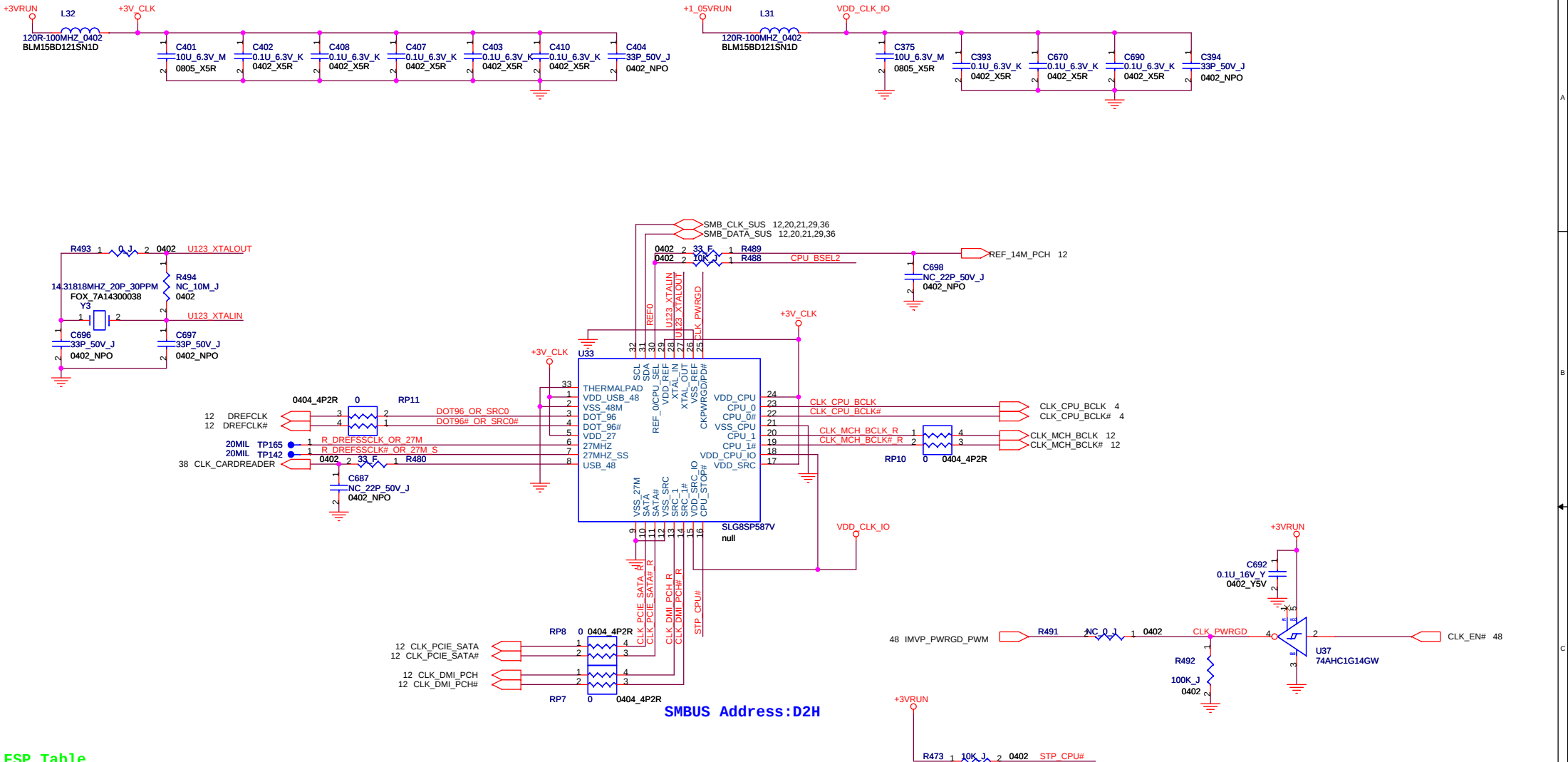




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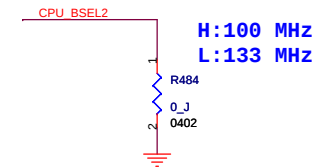
Title Arrandale (RESERVED)		
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FSP Table

FS	CPU	Power On	SRC	SATA	DOT96	27MHz	REF
0	133MHz	Default	100MHz	100MHz	96MHz	27MHz	14.318MHz
1	100MHz						

08/12/31 Delete R5497.



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Title **CLOCK GEN**

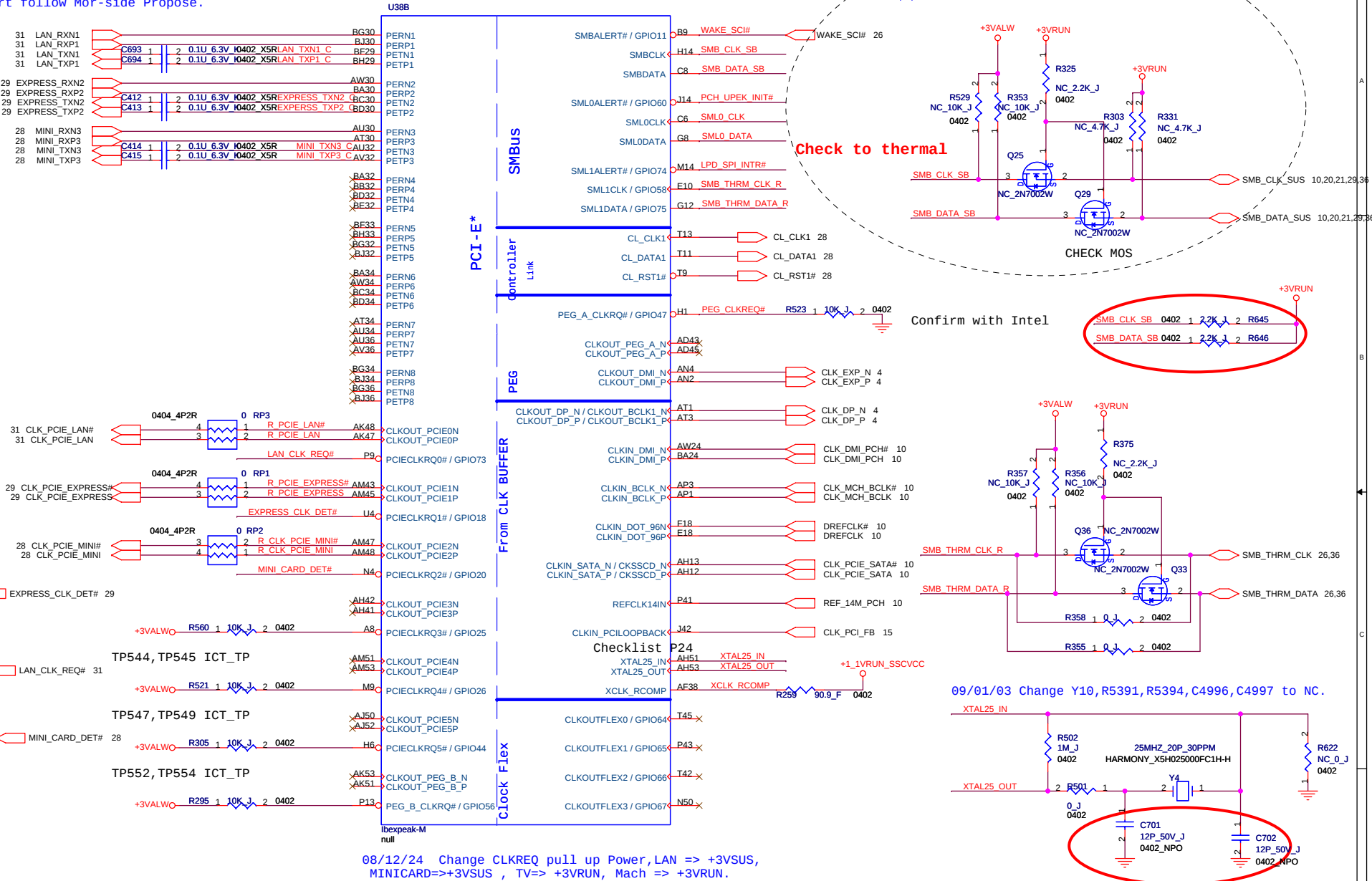
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08/12/24 Update PCIe Port follow Mor-side Propose.

PCI-E Port Table

Port	Function
Port1	LAN
Port2	Express Card
Port3	WLAN
Port4	Un-used
Port5	Un-used
Port6	Un-used
Port7	Un-used
Port8	Un-used



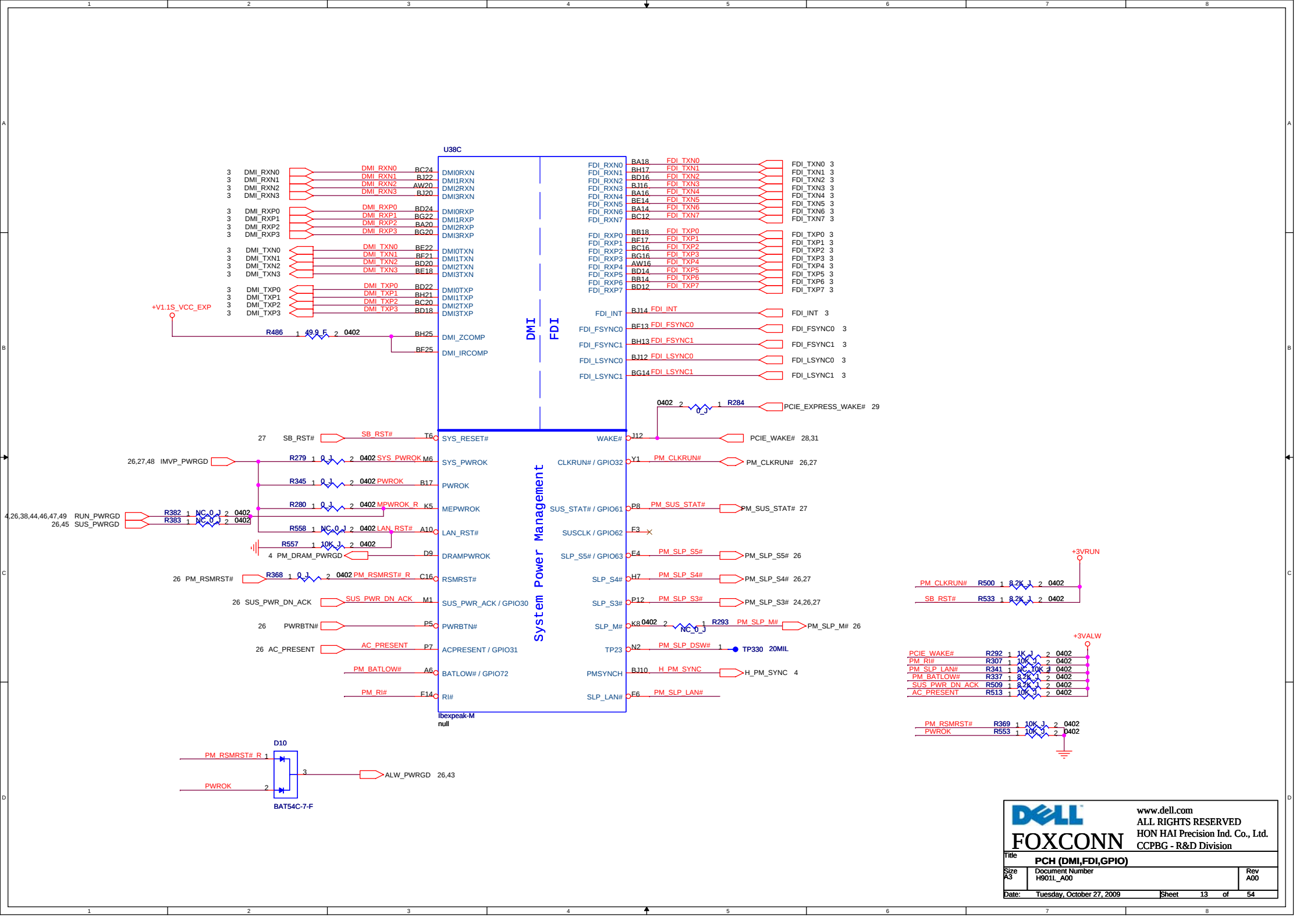
08/12/24 Change CLKREQ pull up Power, LAN => +3VSUS, MINICARD=>+3VSUS , TV=> +3VRUN, Mach => +3VRUN.

WAKE_SCI# R559 1 10K J 2 0402
PCH_UPEK_INIT# R522 1 10K J 2 0402
LPD_SPI_INTR# R517 1 10K J 2 0402
SML0_CLK R338 1 2K J 2 0402
SML0_DATA R339 1 2K J 2 0402



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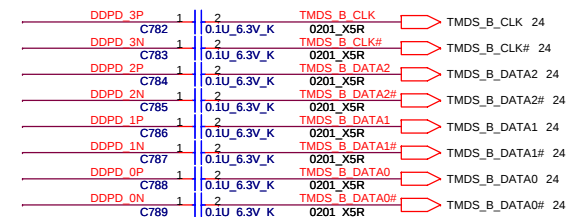
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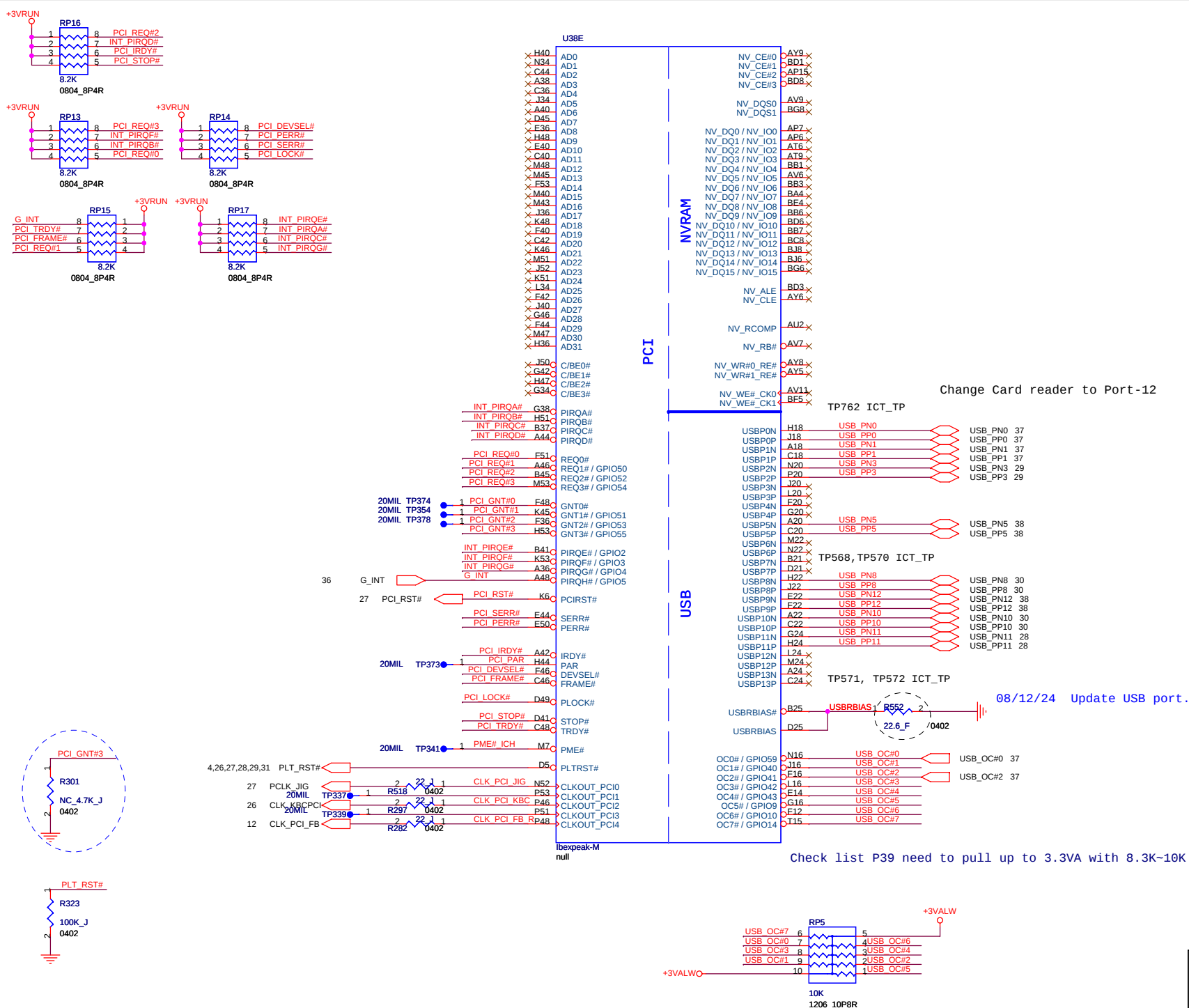


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Title PCH (DMI, FDI, GPIO)		
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DMI Termination Voltage

NV_CLE	Set to Vss when LOW
	Set to Vcc when HIGH

Danbury Technology
Disabled when Low
Enabled when High

USB PORT	Function	OC pin
PORT-0	Ext. Port	
PORT-1	Ext. Port	
PORT-2	EXPRESS CARD	
PORT-3		
PORT-4		
PORT-5	Ext. Port	
PORT-6		
PORT-7		
PORT-8	Bluetooth	
PORT-9	Card reader	
PORT-10	Camera	
PORT-11	WLAN/WiMAX	
PORT-12		
PORT-13		

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Title

PCH (PCI,USB,NVRAM)

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A3

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Date:

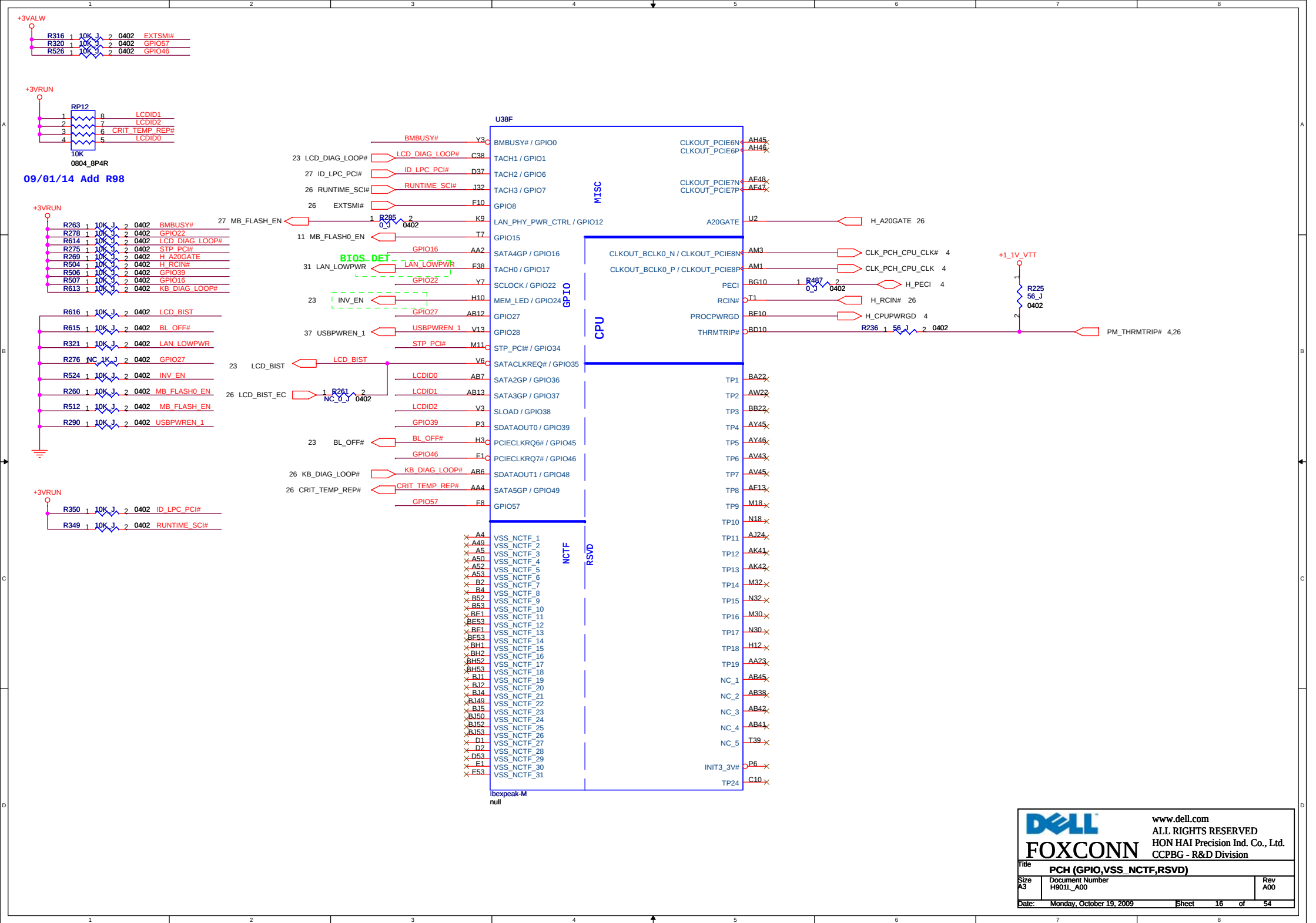
Monday, October 19, 2009

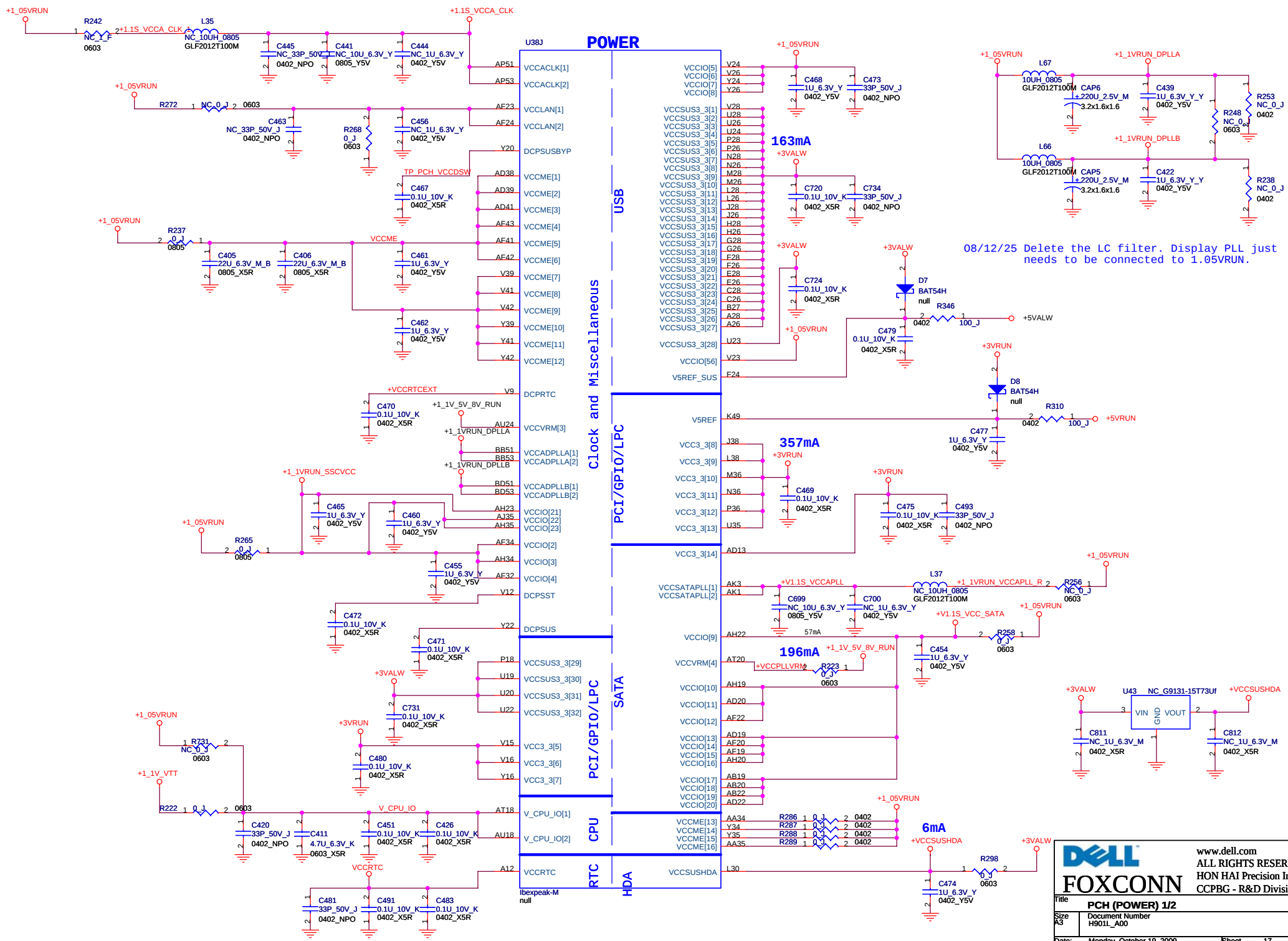
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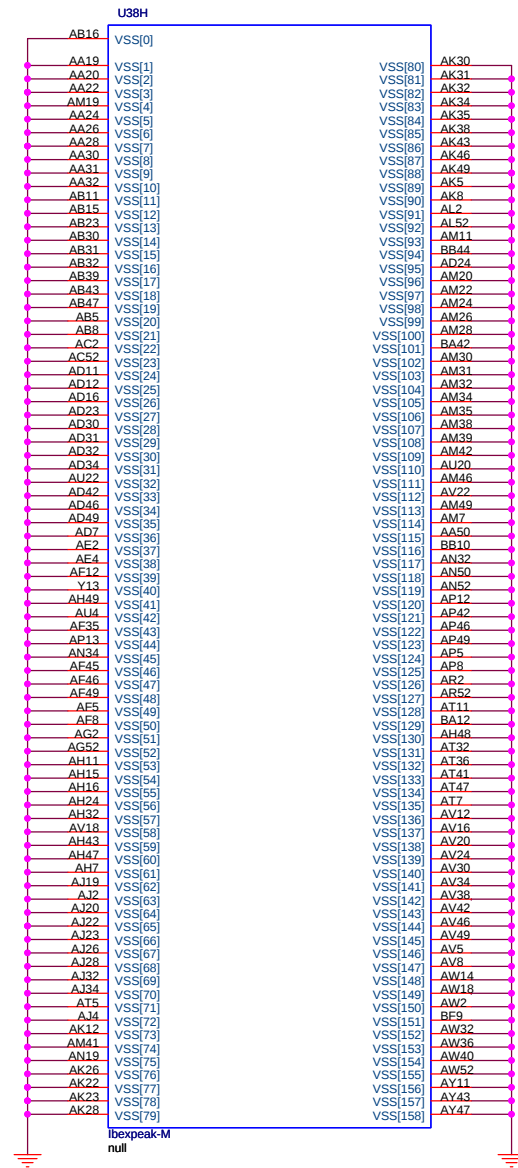
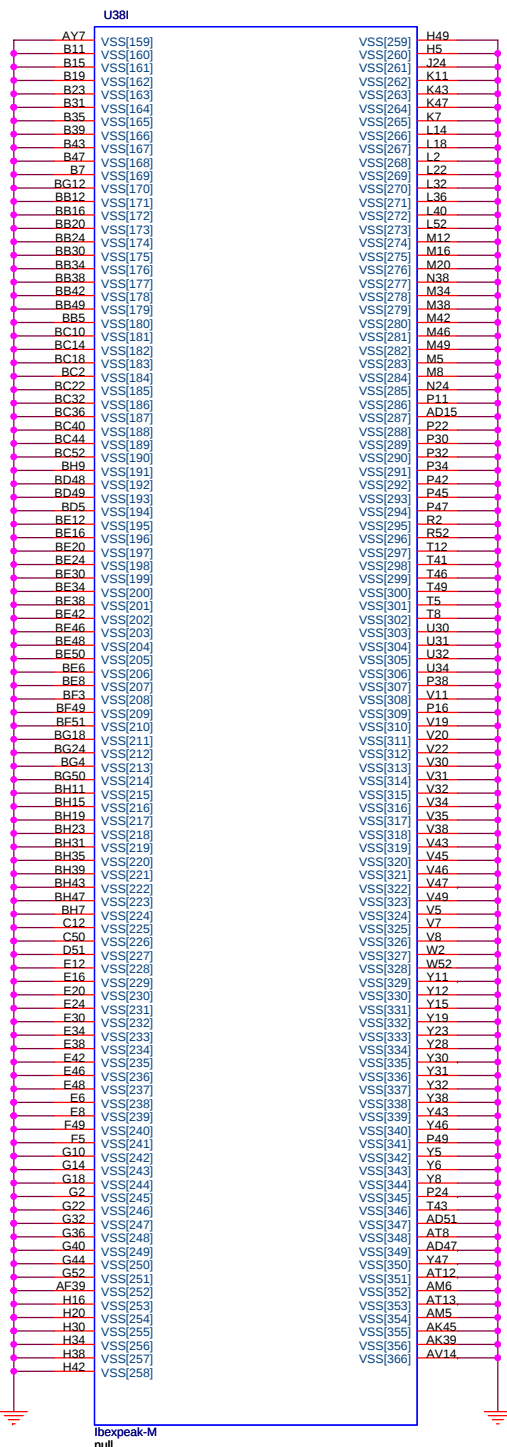
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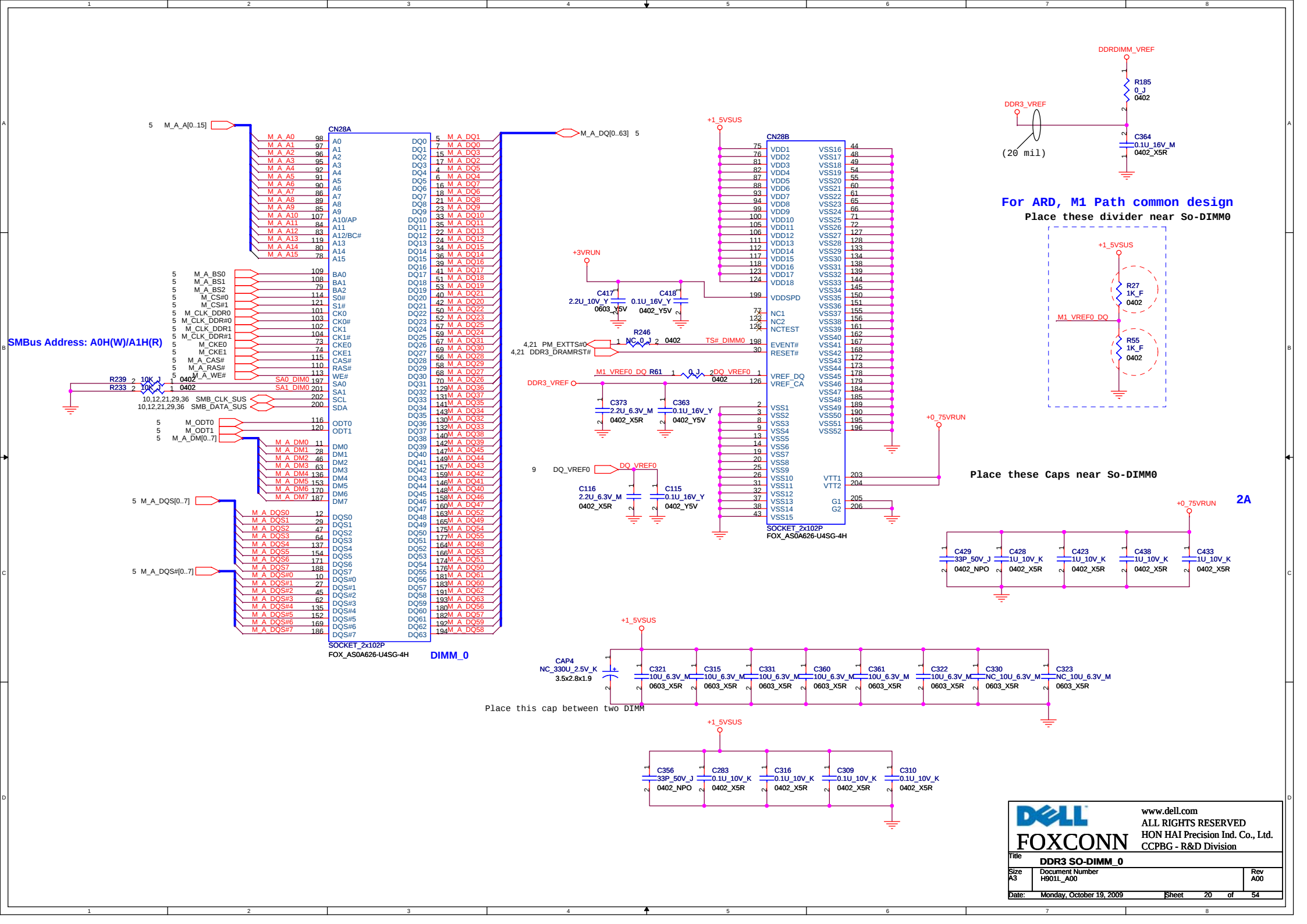


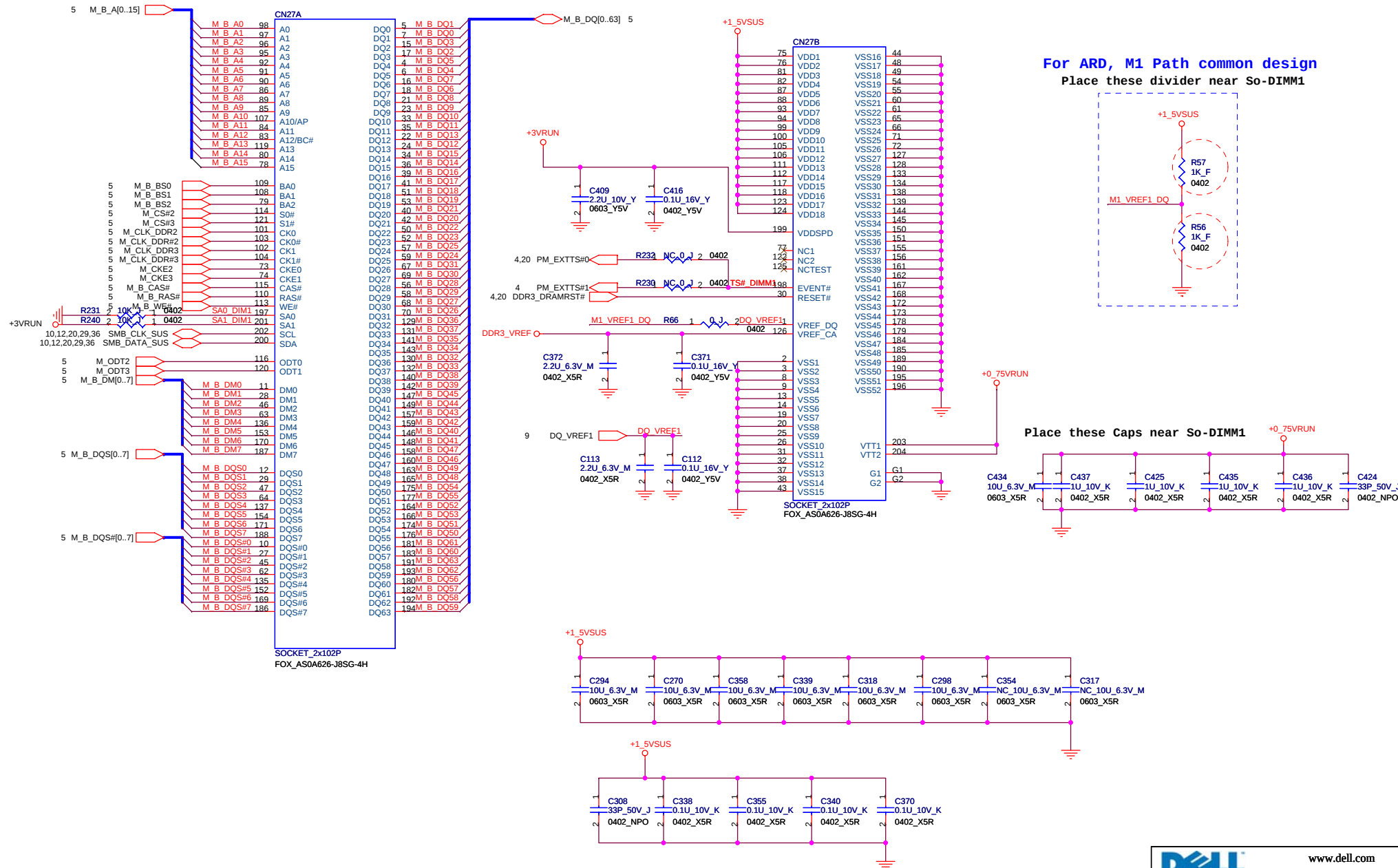


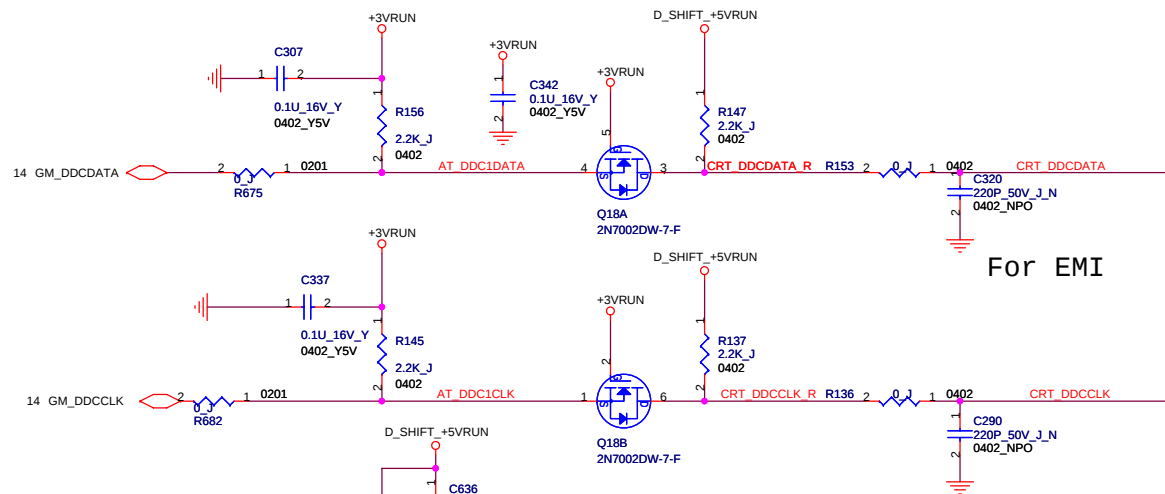
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File: **PCH (VSS)**

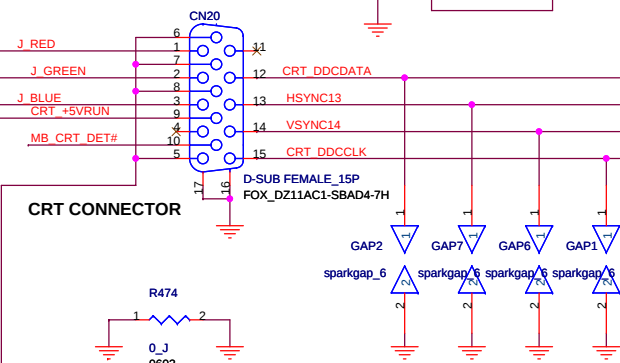
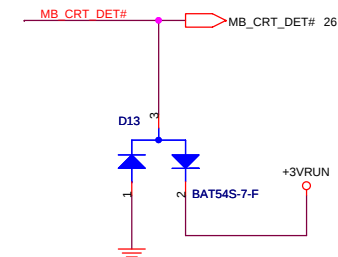
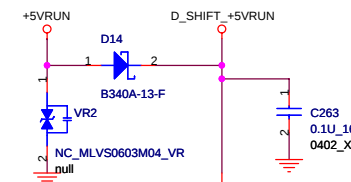
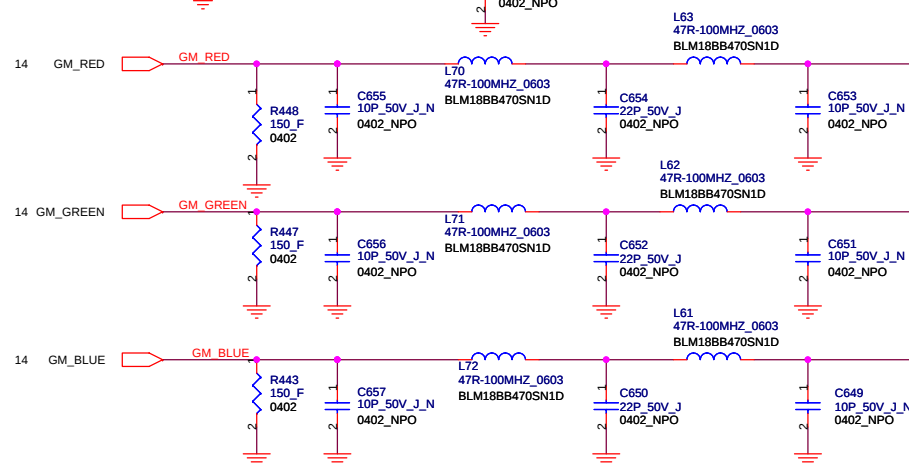
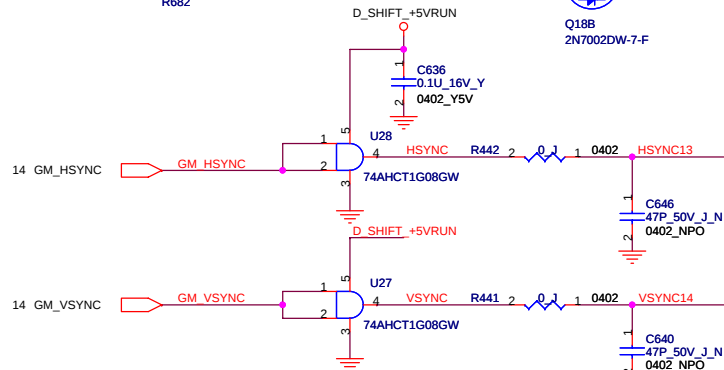
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For EMI

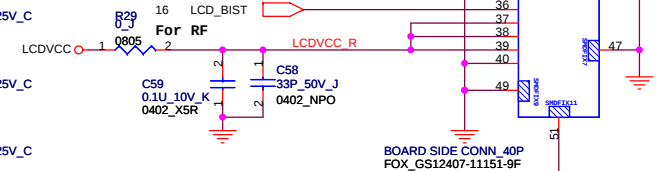
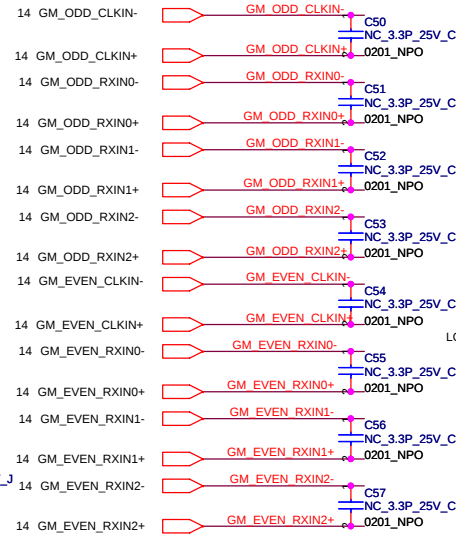
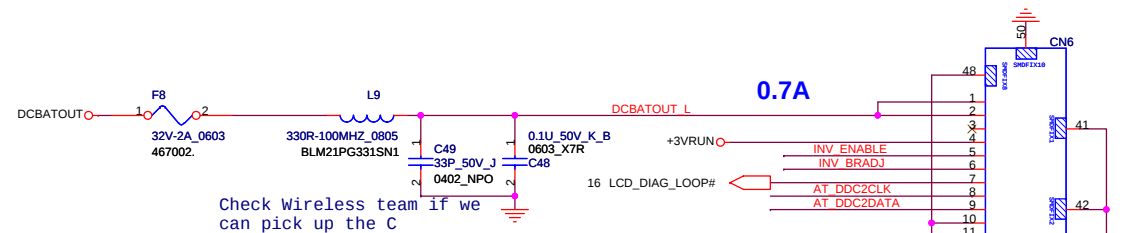


PGP1
POWER_CLOSE_GAP_0603
Place close to VGA

R455
NC_0_J
0603
Place close to CRT CN

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14 GM_LCDVCC_EN

0 J
0402
R686

BL_OFF#

U7
NC_MC74VHC1G08DFT2G

3V_RUN

C531
33P_50V_J
0402_NPO

C73
4.7U_6.3V_K
0603_X5R

C530
NC_0.1U_6.3V_K
0402_X5R

R397
100K_J
0402

Q9
SI2301BDS-T1-E3

C65
6800P_25V_M
0402_X7R

R43
68K_J
0402

Q10

2N7002DW-7-F
Q12A

PDTC144EU.115
null

3V_ALW

R46
100K_J
0402

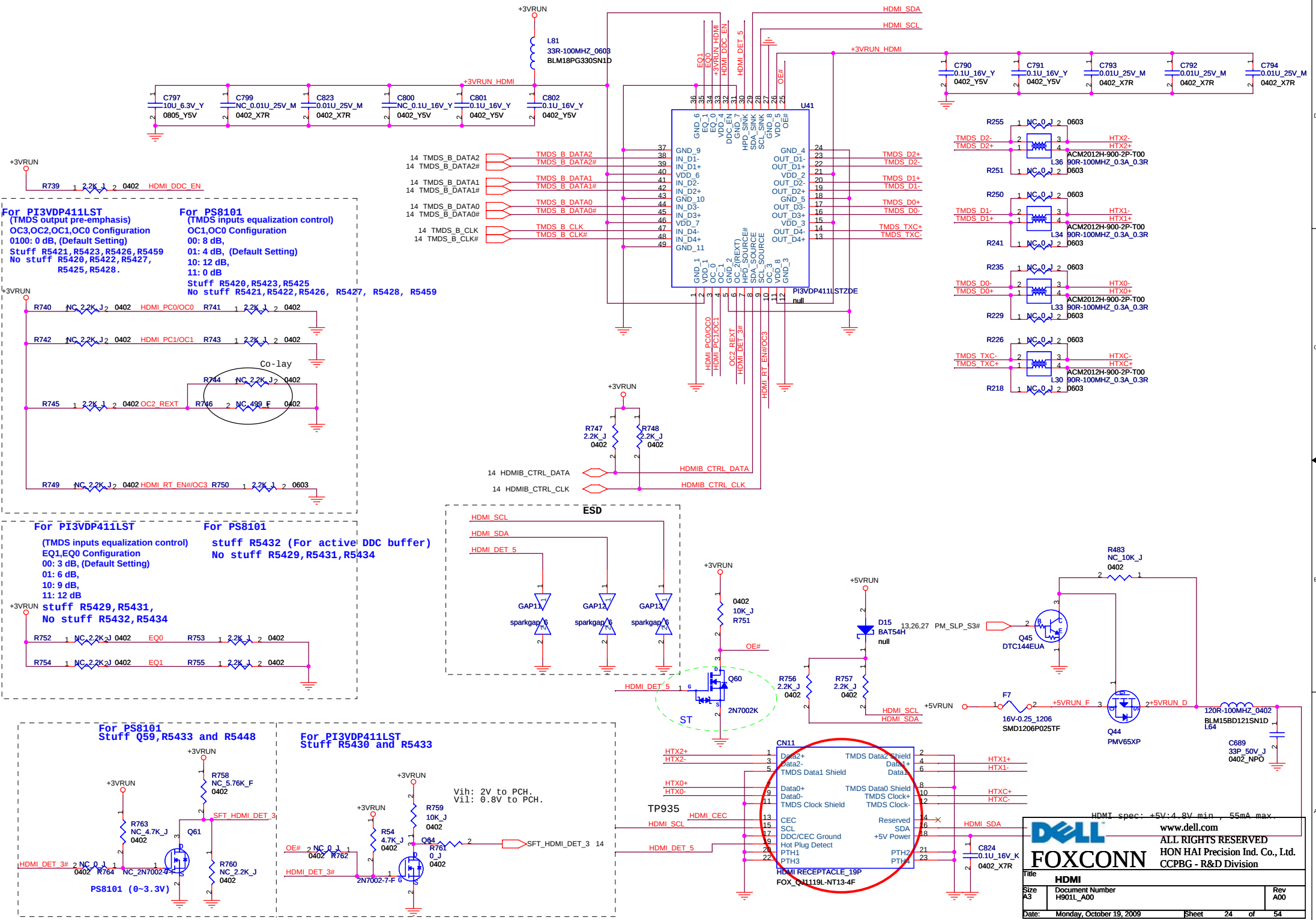
R396
62R_J
0402

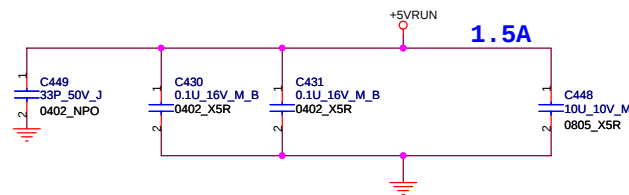
C61
4.7U_6.3V_K
0603_X5R

C62
0.1U_6.3V_K
0402_X5R

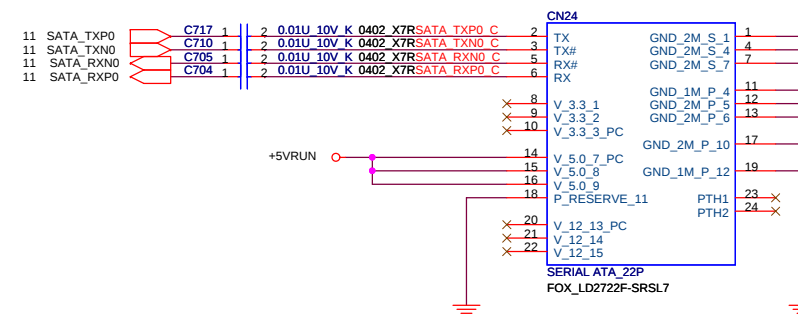
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Q12B

LCDVCC

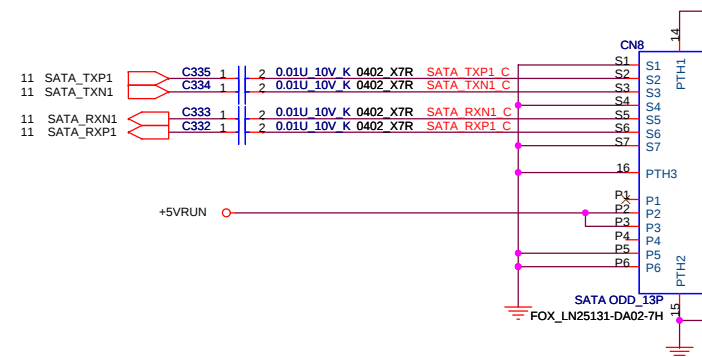




SATA HDD CONN

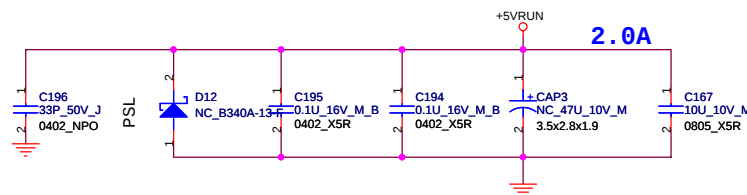


SATA ODD CONN



ODD CON ADAPTER

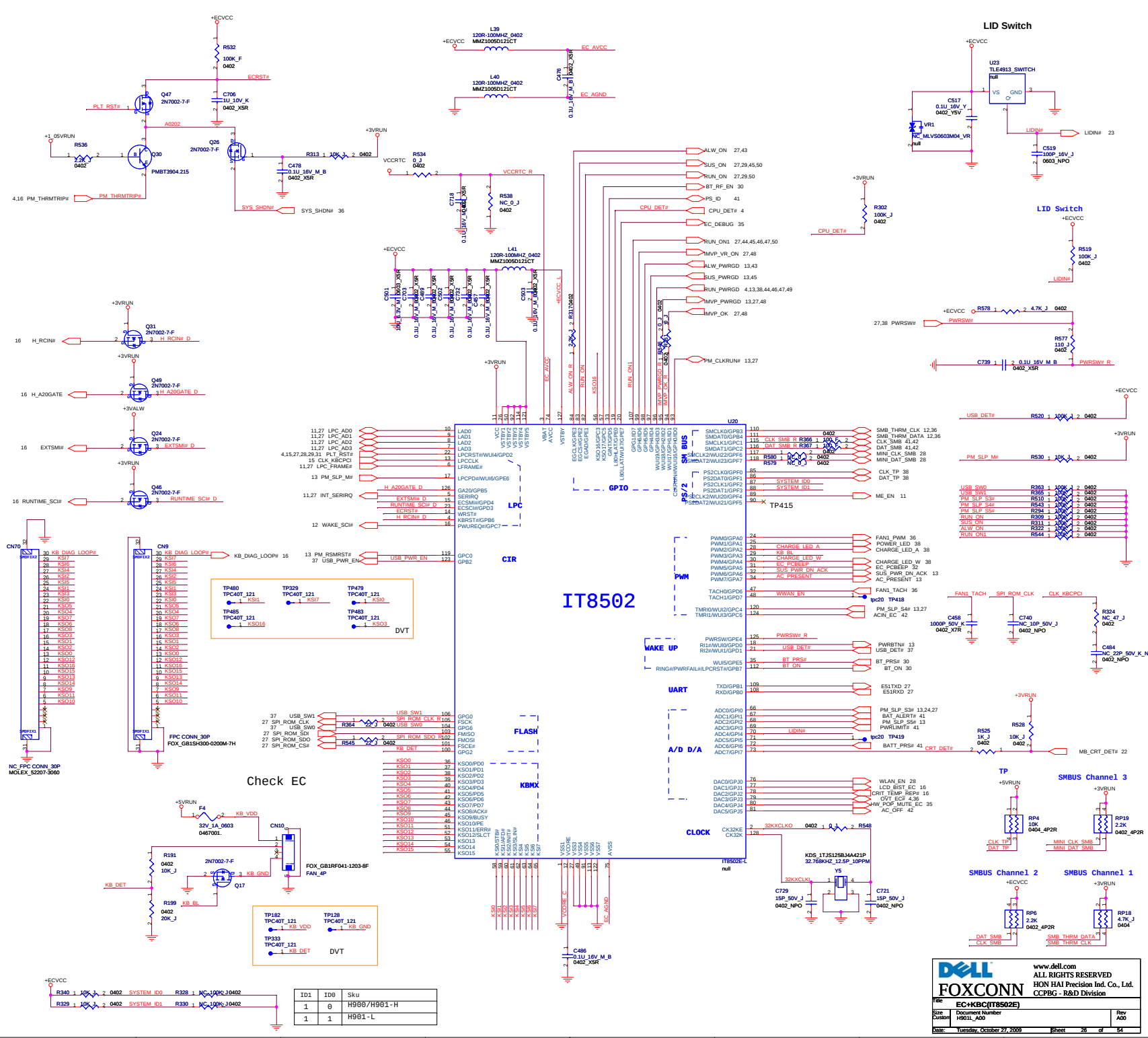
Add CN68 need 2N-0013009-FKG0 in BOM

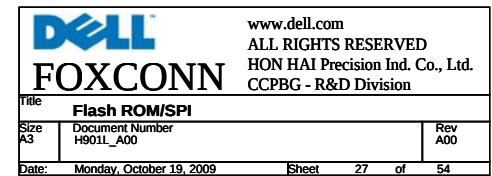
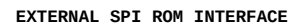
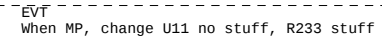


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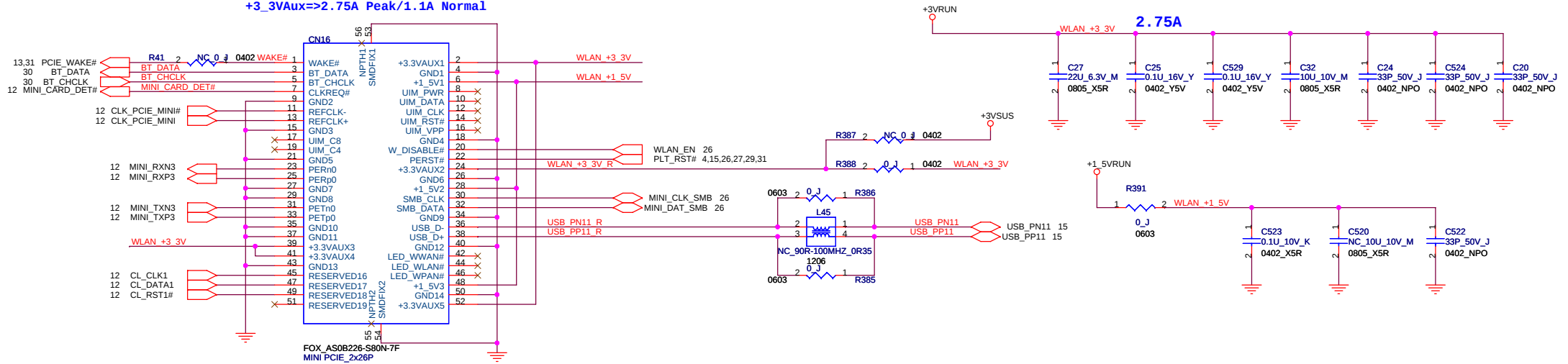
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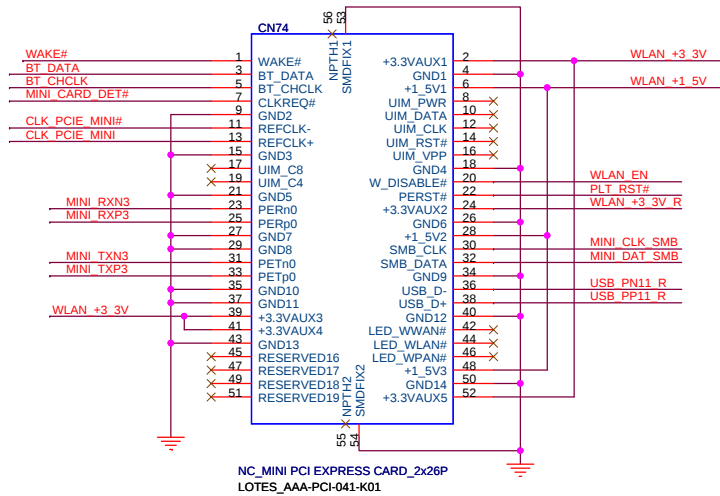




+1.5V=>0.5A Peak/0.375A Normal
+3.3VAux=>2.75A Peak/1.1A Normal

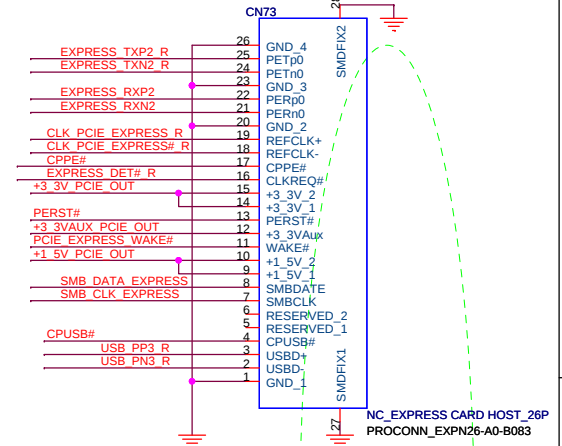
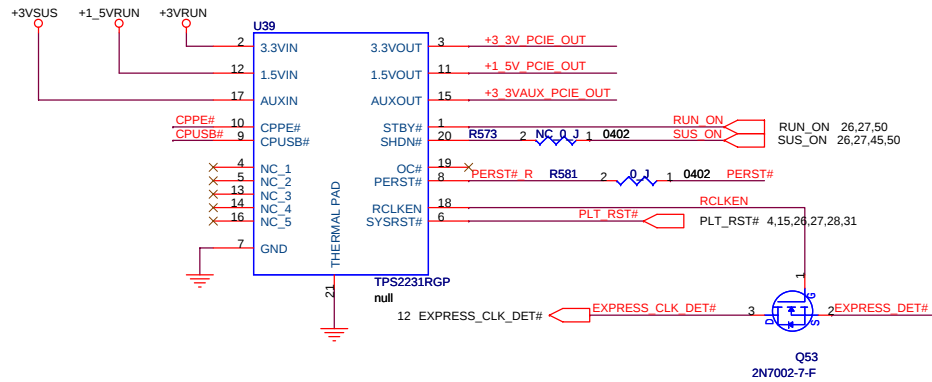


Half Mini Card for WLAN or WiMAX

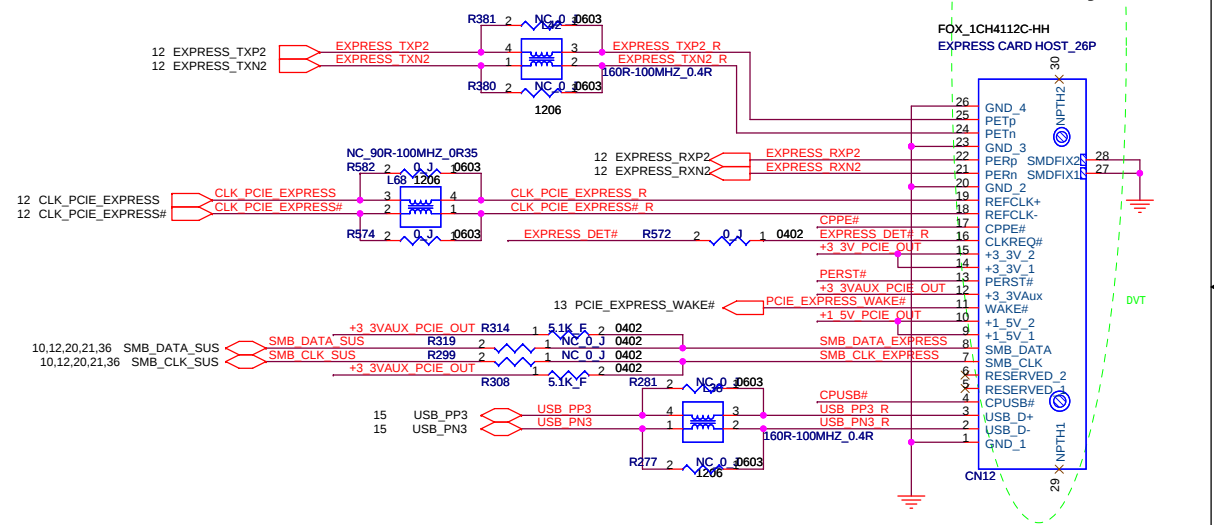


Colay: Half Mini Card CN second source

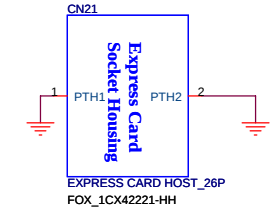
+1_5V=>650mA
 +3_3VAux=>275mA
 +3_3V=>1.3A
Express Card Power Switch



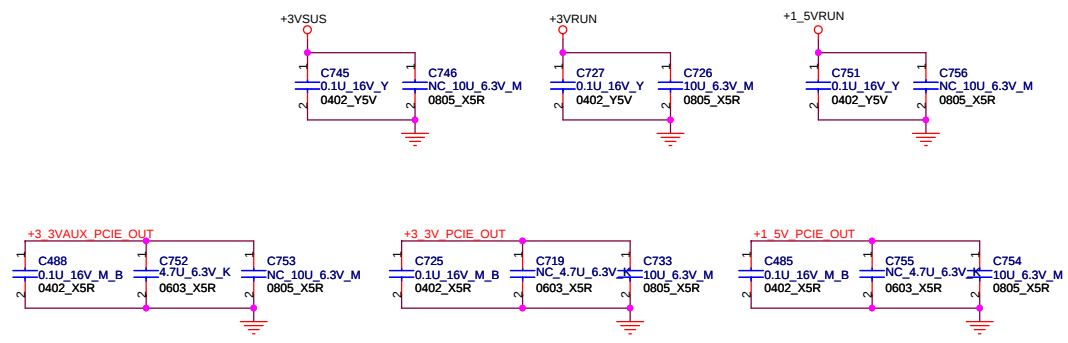
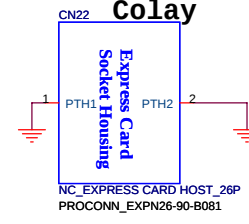
Colay



Express Card Slot.

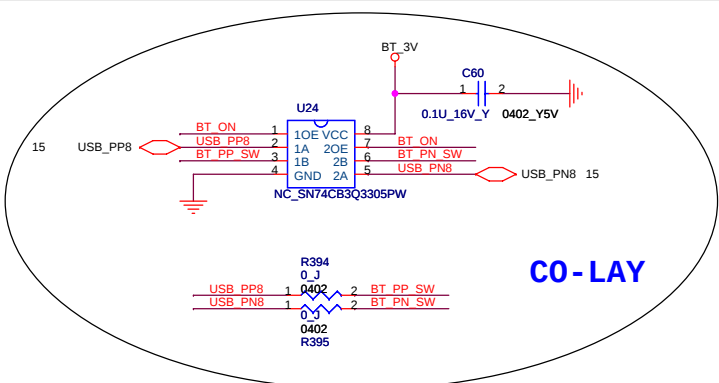


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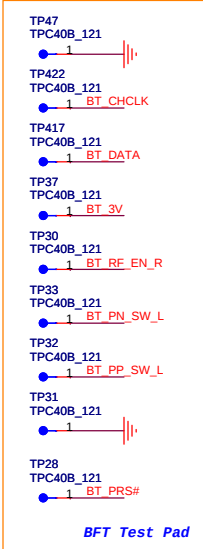
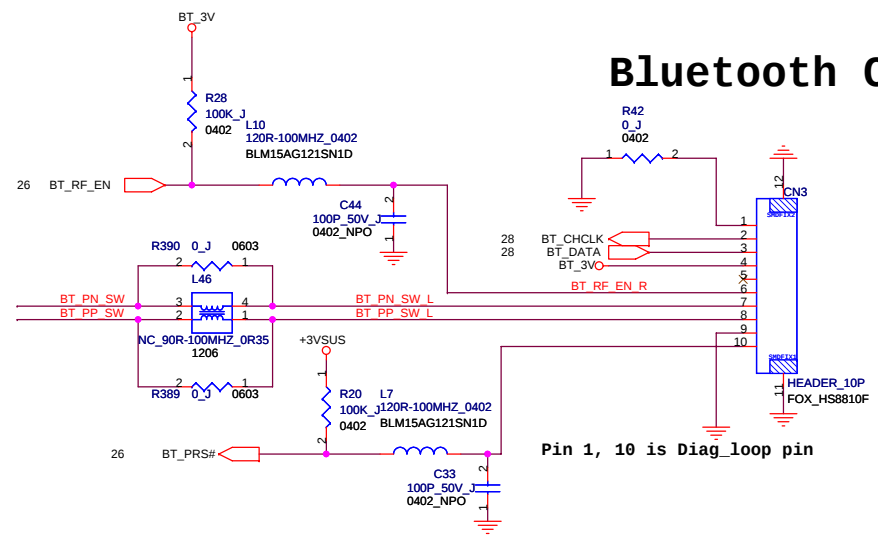
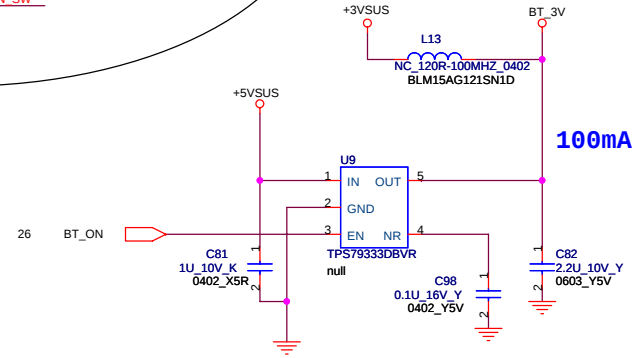


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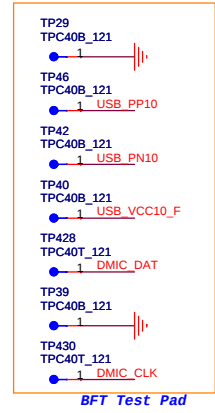
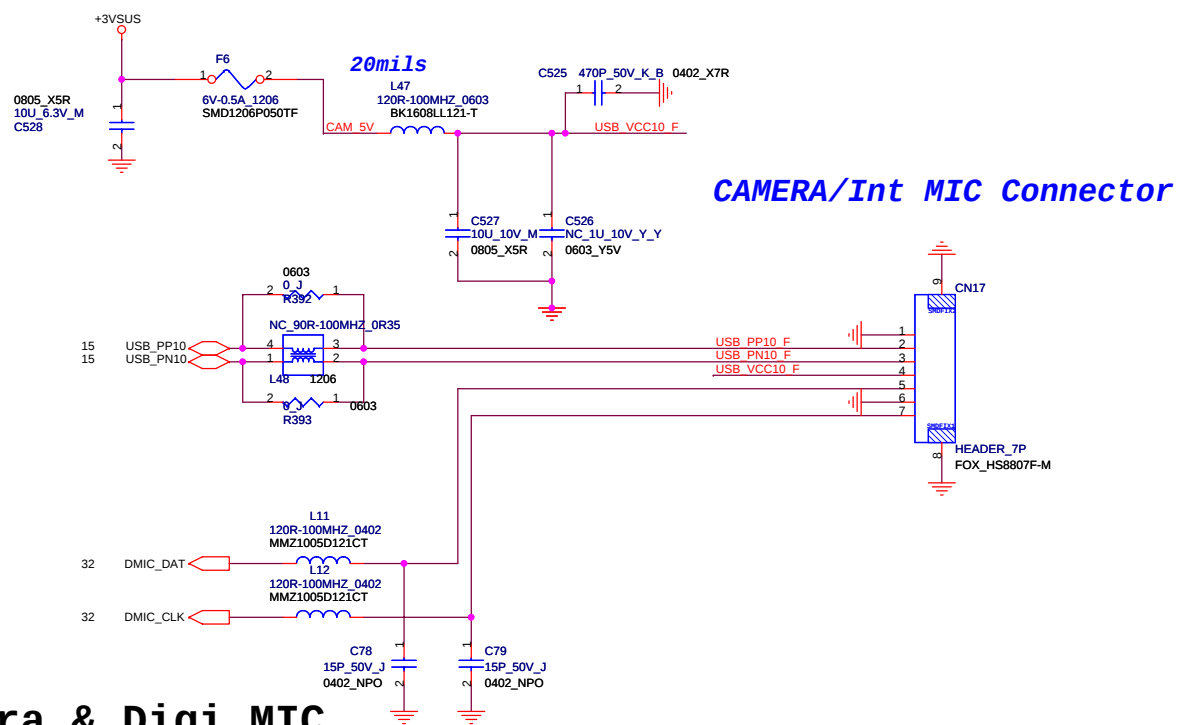
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Bluetooth



Camera & Digi MIC



www.dell.com

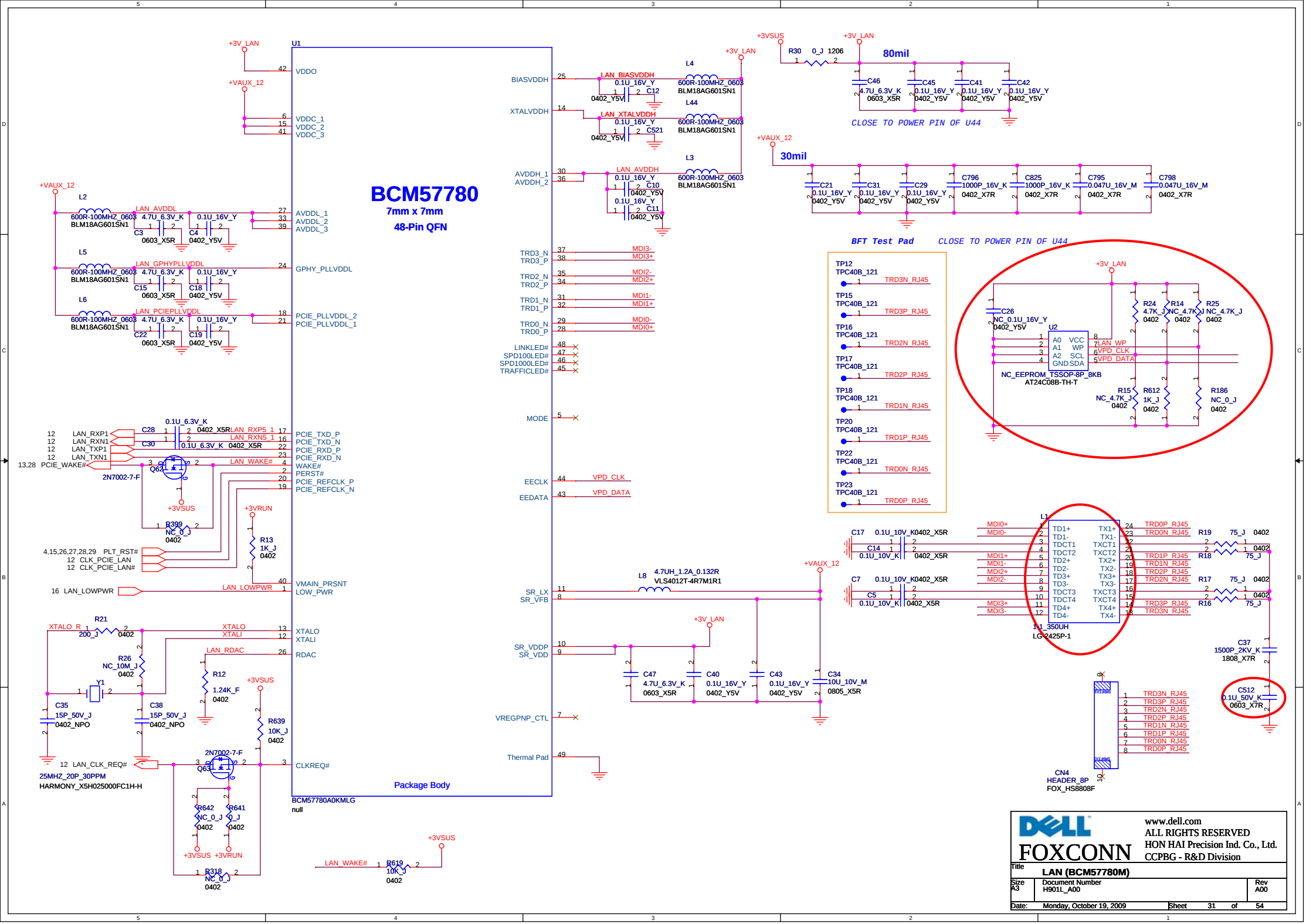
FOXCONN

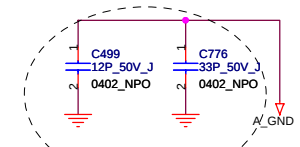
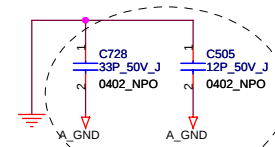
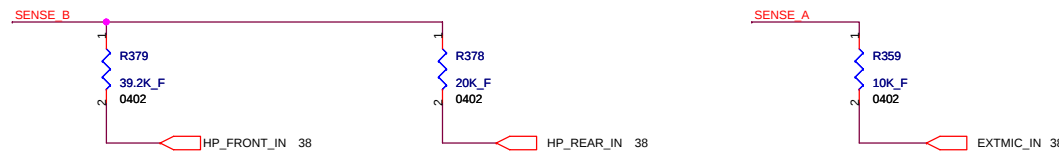
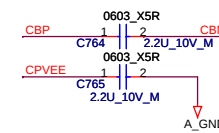
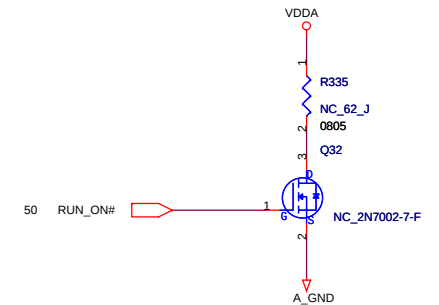
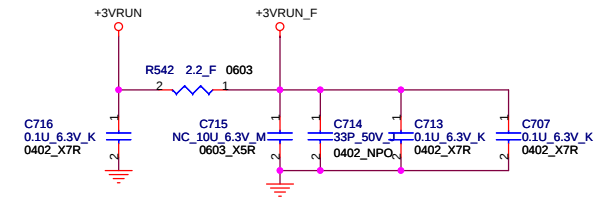
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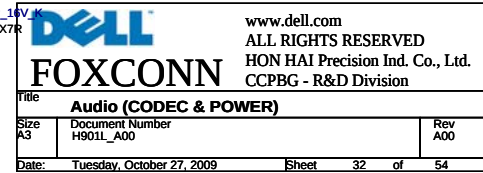
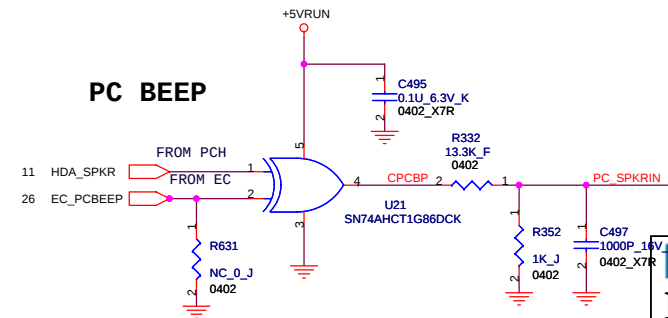
CCPBG - R&D Division

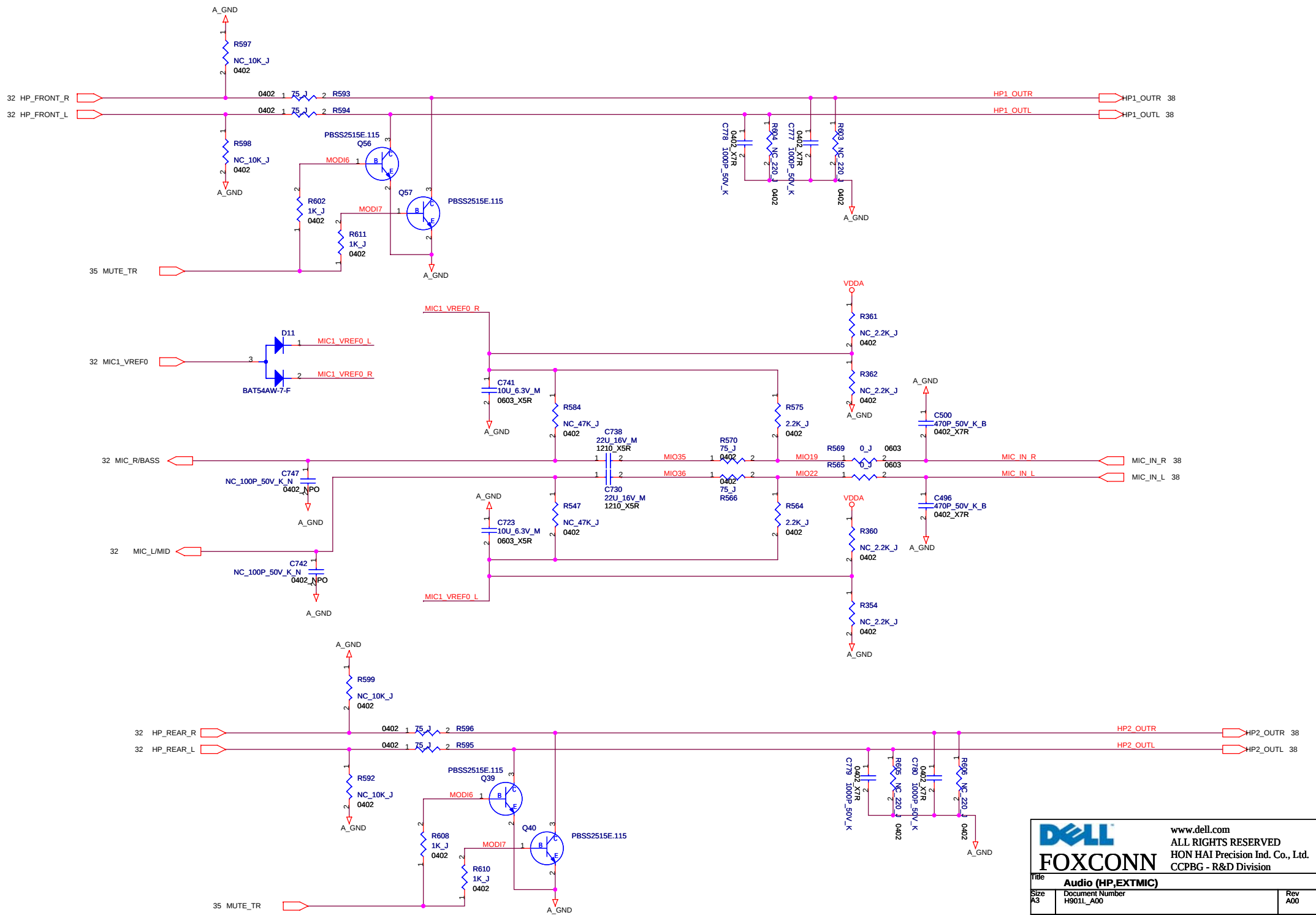
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Size: A3	Document Number: H901L_A00	Rev: A00
Date: Monday, October 19, 2009	Sheet: 30	of 54

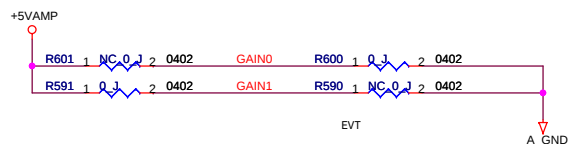
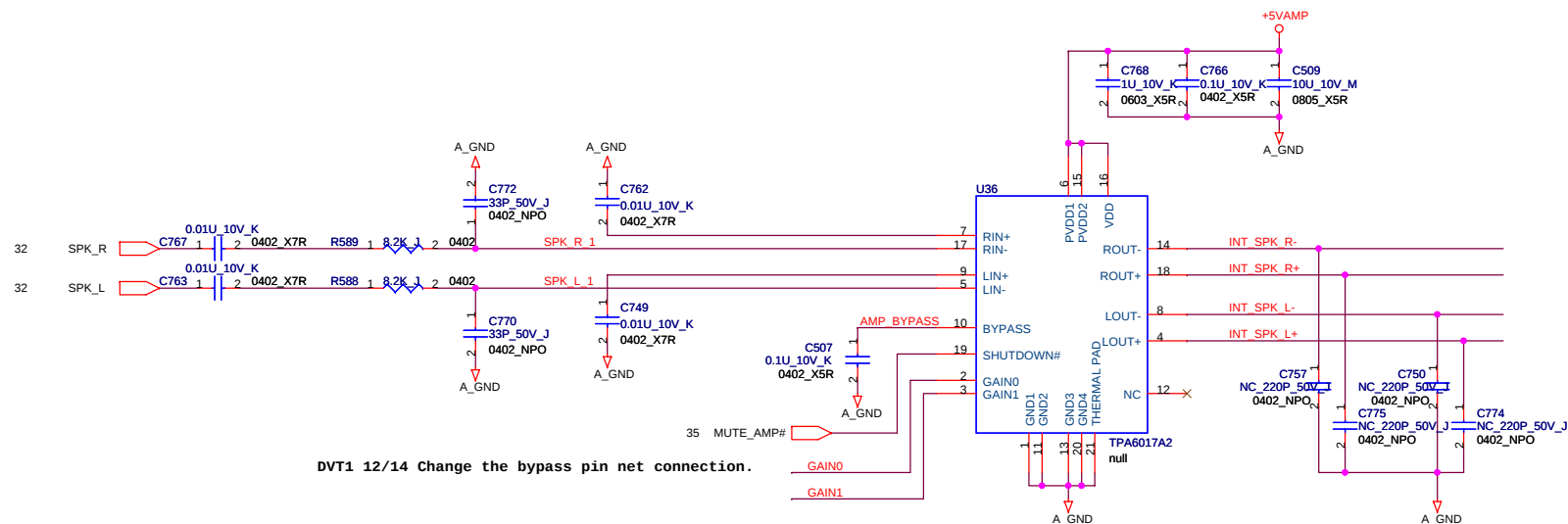
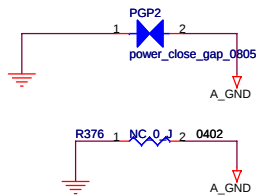
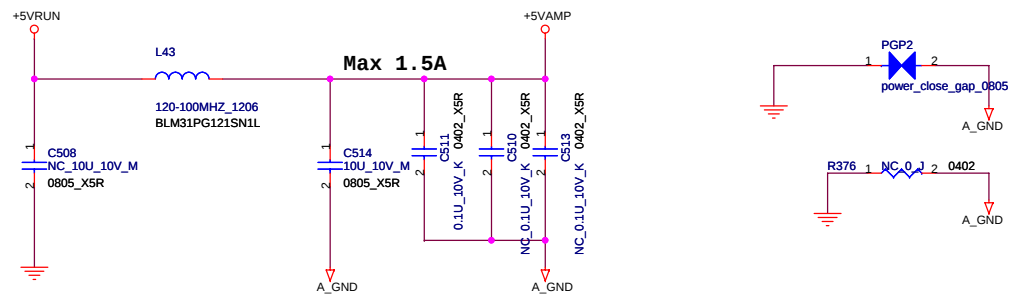




Place these two capacitor together.





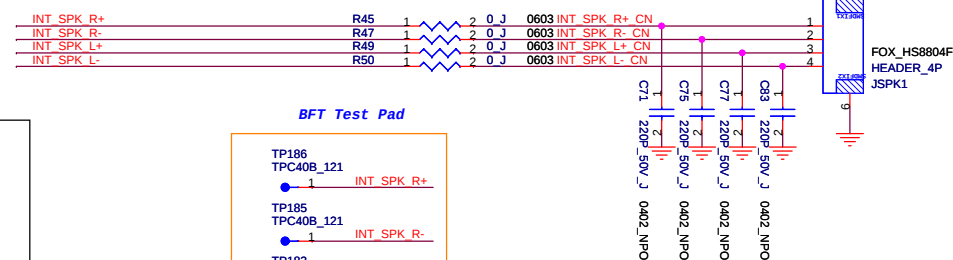


SPEAKER AMP

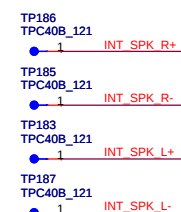
	GAIN0	GAIN1
6 dB	0	0
10 dB	0	1
15.6 dB	1	0
21.6 dB	1	1

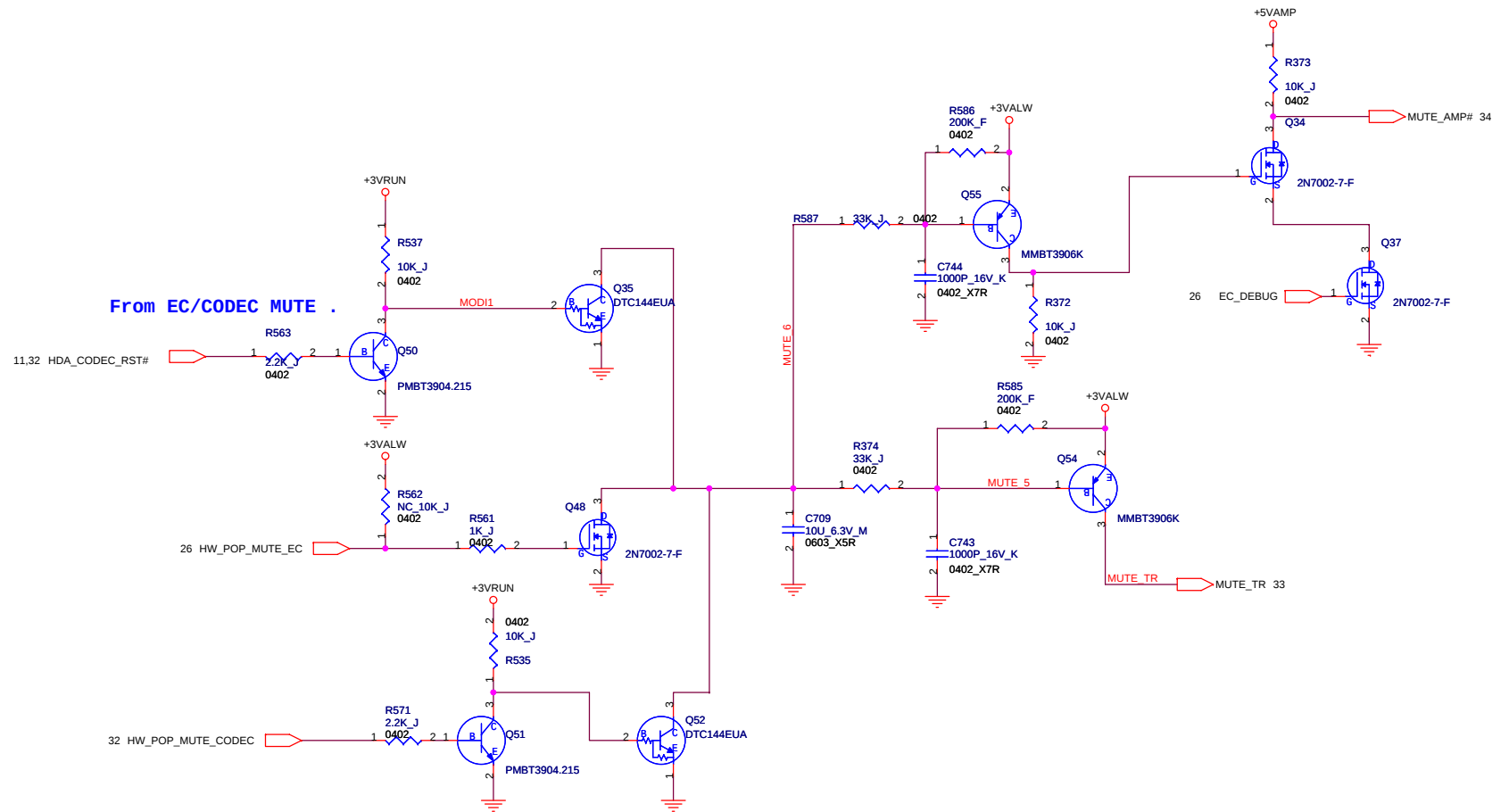
$dB=20\log\text{Gain}$
 If set 10dB , gain is 3.162.
 $P_o = \{(1.2V_{rms} * 3.162)^2\} / 4 = 3.599 \text{ W}$

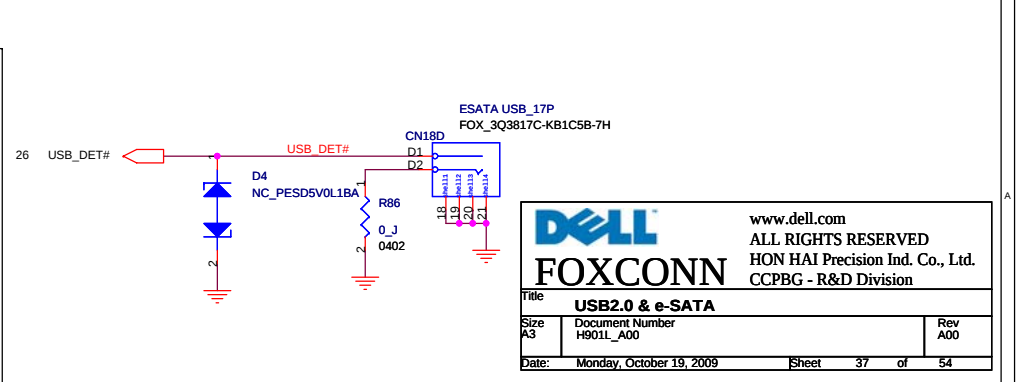
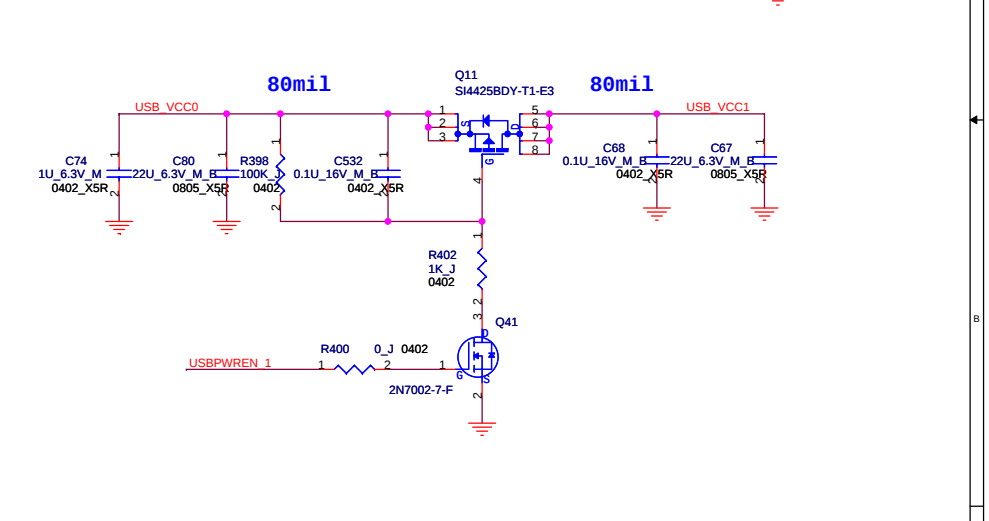
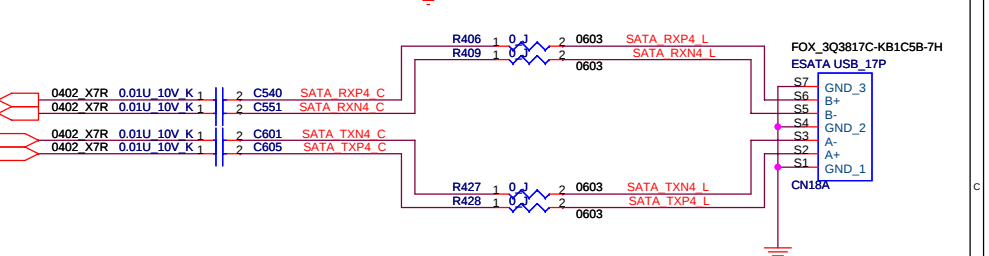
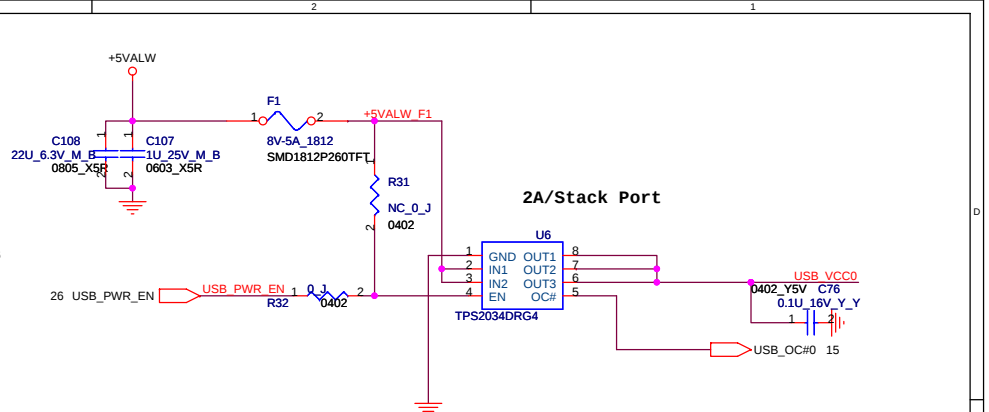
INTERNAL SPEAKER

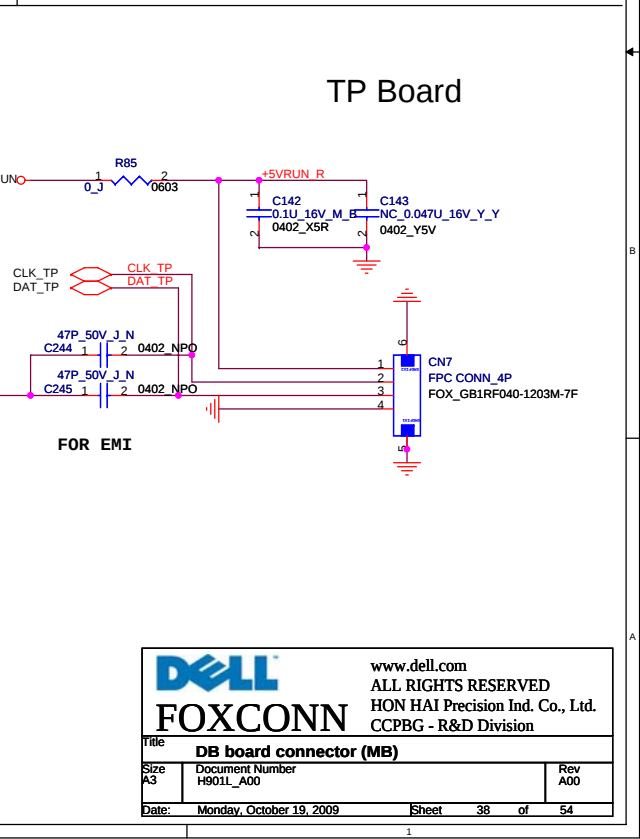
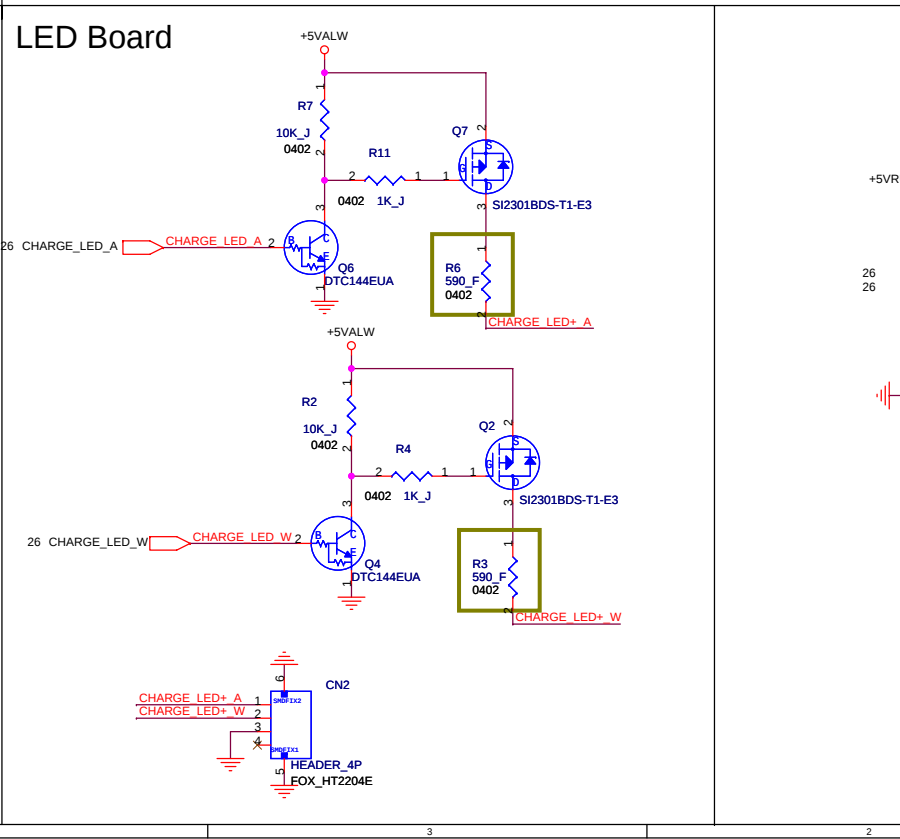
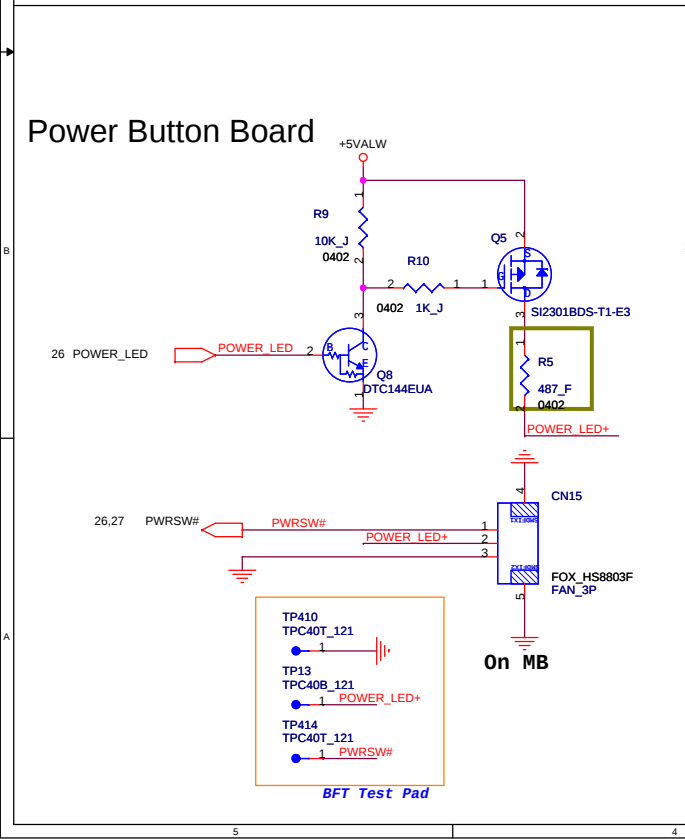
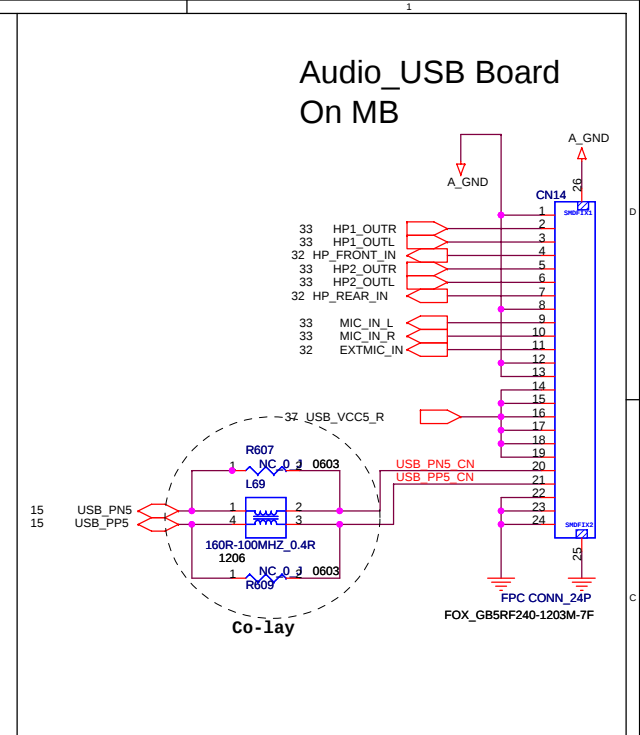
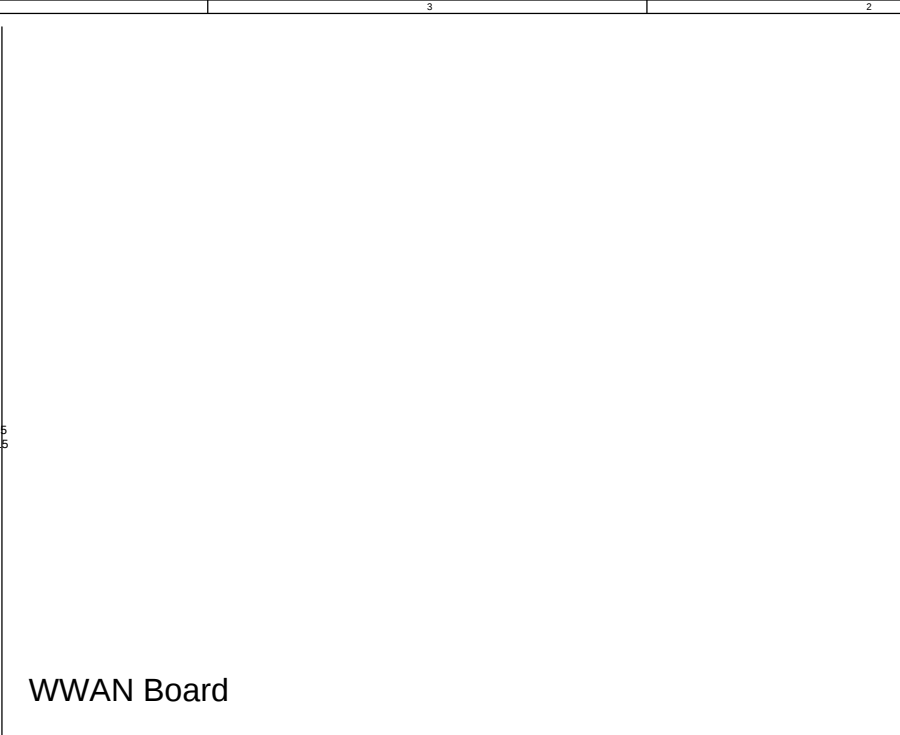
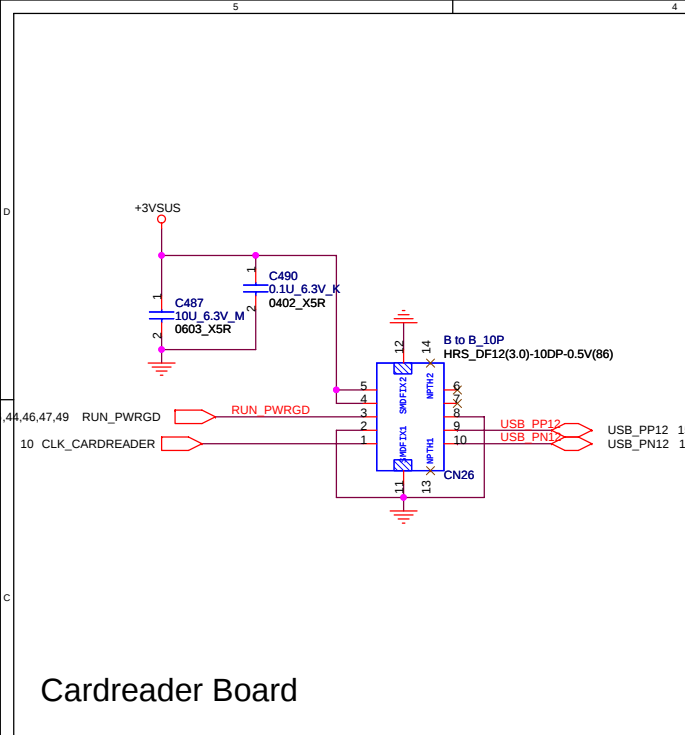


BFT Test Pad



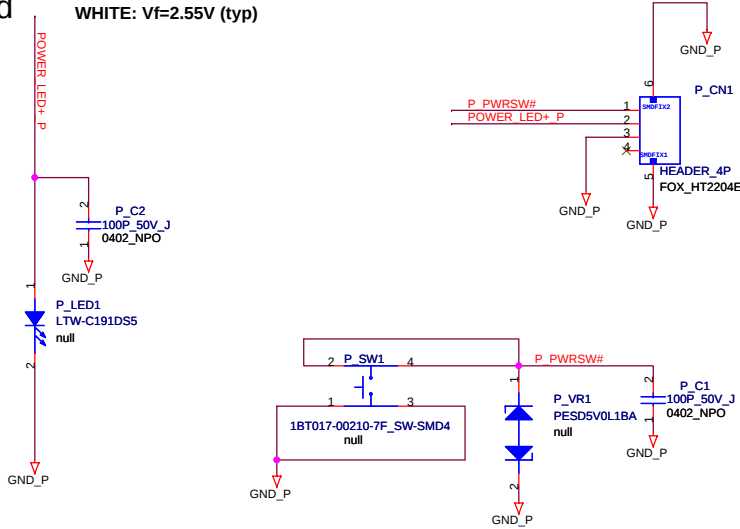




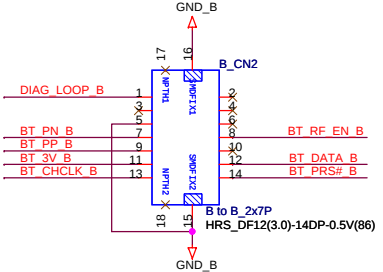
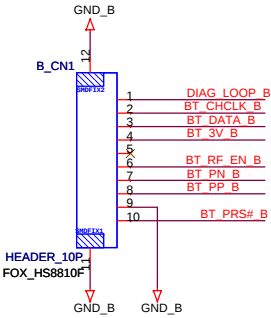


Power Button Board

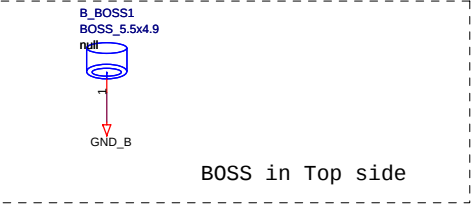
WHITE: Vf=2.55V (typ)



POWER BUTTON



Bluetooth CONN.

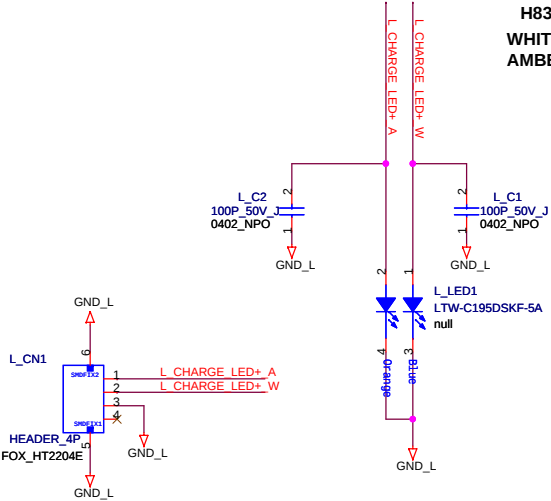


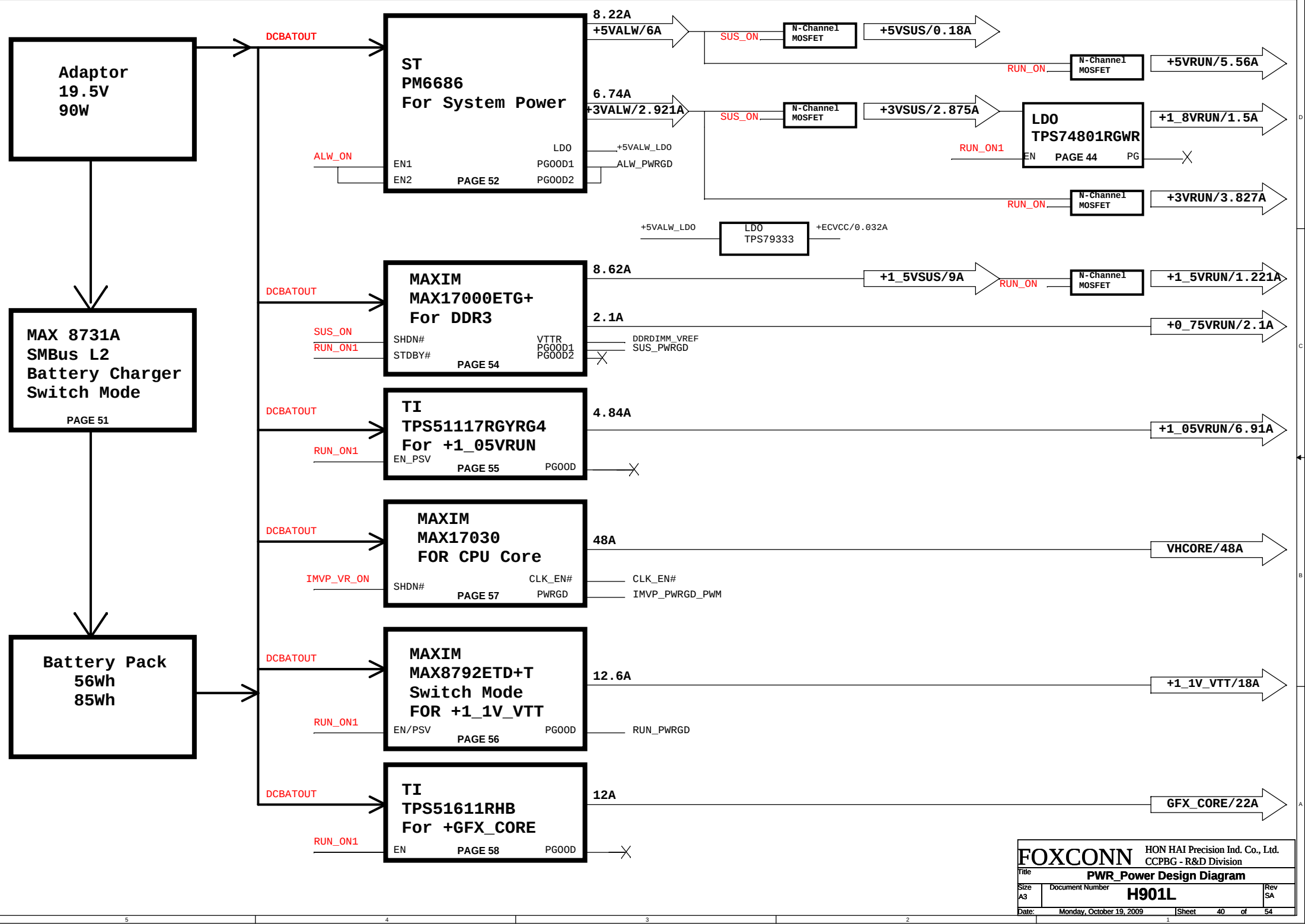
BOSS in Top side

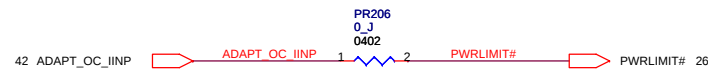
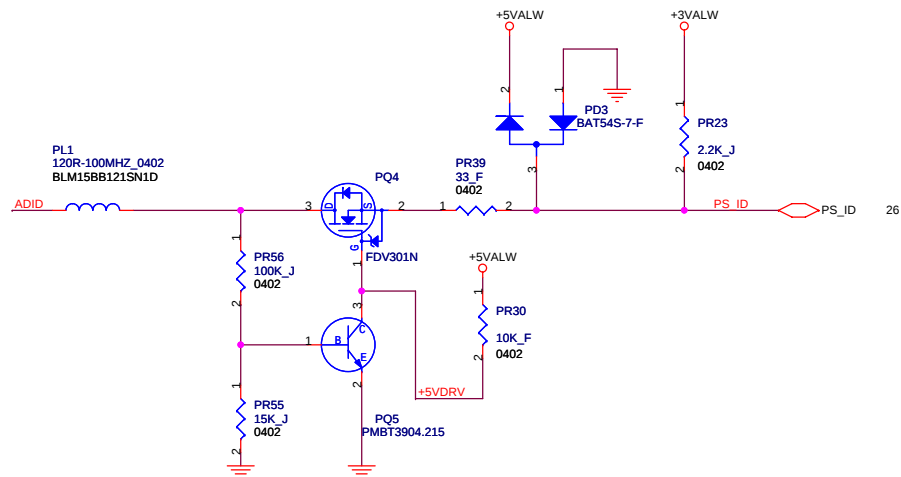
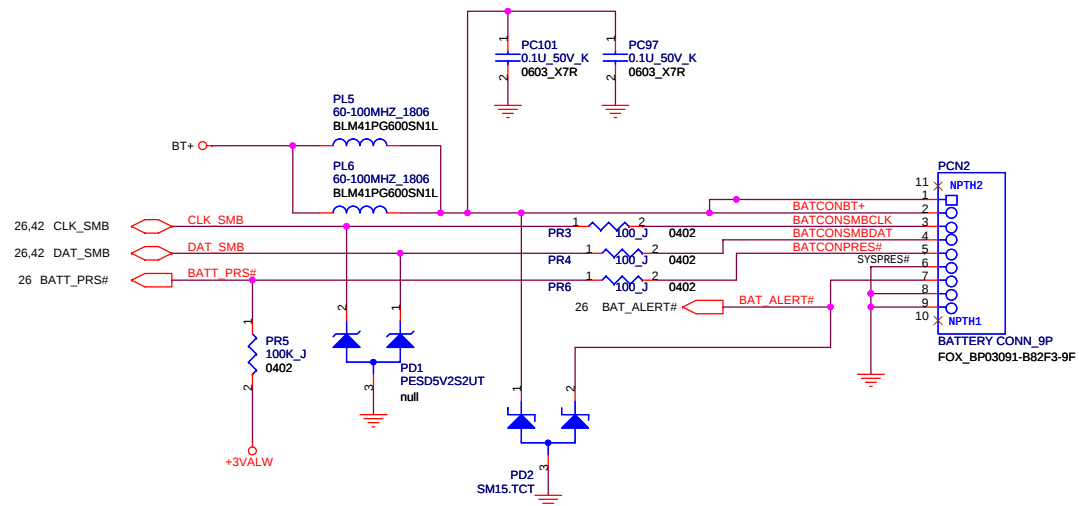
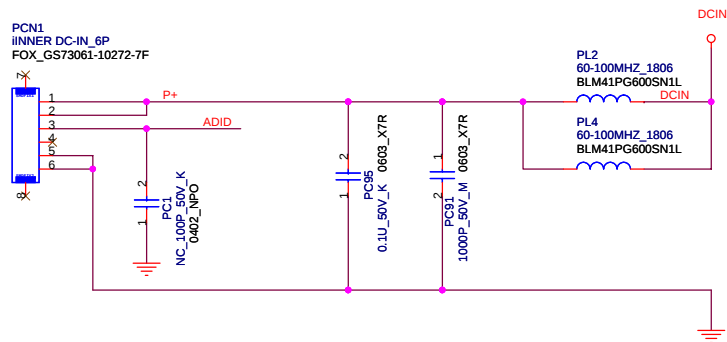
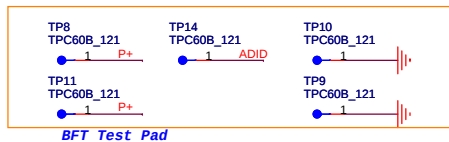
Bluetooth Board

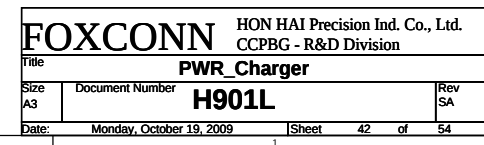
LED Board

H830
WHITE: Vf=2.55V (typ)
AMBER: Vf=2.0V (typ)









+5VALW +/-5%
Thermal Design Current: 8.22A
OCP min: 12.92 A

+3VALW +/-5%
Thermal Design Current:6.74A
OCP min: 10.59 A

3A

5.69A

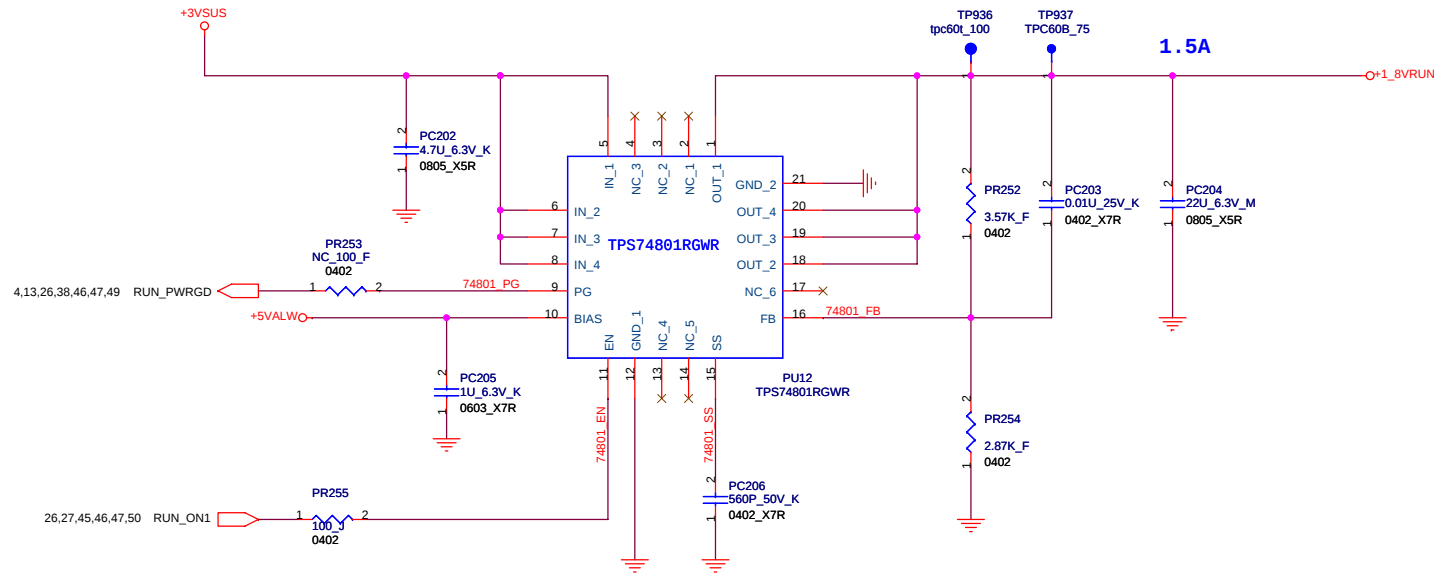
Place these CAPS close to FETs

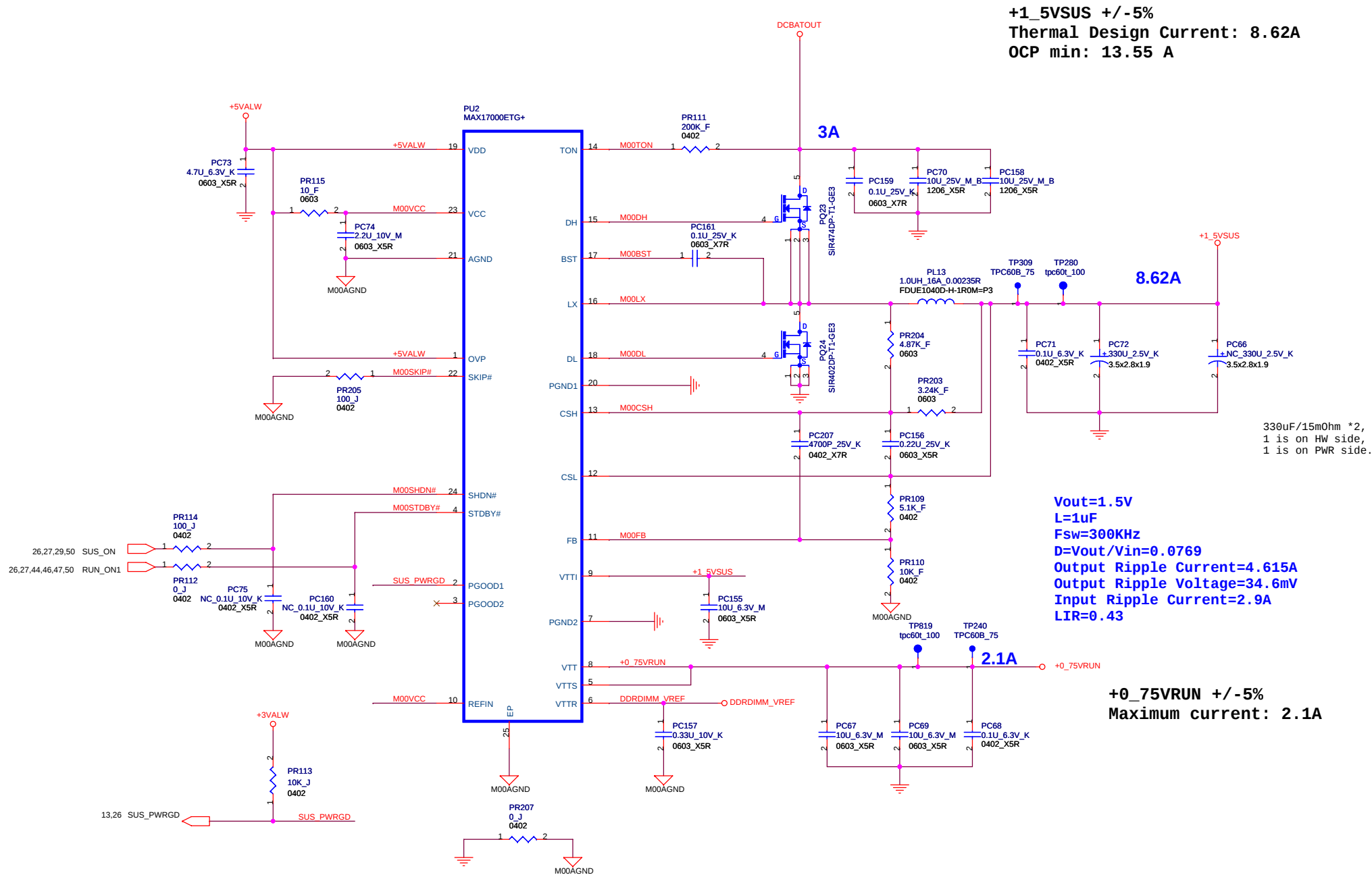
Vout2=3.3V
L=2.2uF
Fsw=500KHz
D=0.169
Output Ripple Current=2.492A
Output Ripple Voltage=37.4mV
Input Ripple Current=2.2 A
LIR=0.43

LDOREFIN:GND => VLDO=5V
SKIP:5V => Forced-PWM mode
SKIP:GND => Automatic Pulse-Skipping mode
SKIP:open or REF => Ultrasonic mode

Vout1=5V
L=2.2uF
Fsw=400KHz
D=0.256
Output Ripple Current=4.225A
Output Ripple Voltage=63.4mV
Input Ripple Current=3.6A
LIR=0.45

+1_8VRUN +/-5%
Thermal Design Current: 1.05A
Maximum Current:1.5A
OCP : 2~5 A





Arrandale SV CPU
V(HFM):0.95V
V(LFM):0.875V
LL:-1.9mOhm
Icc_max:48A
Icc_TDC:32 A
I(DYNAMIC):TBD

VID[5:3] for CSC, CRB default '100' = 50A (Iccmax)
VID[2:0] for MSID (To differentiate XE CPU from SV CPU)
DPRSLPVR='1' for IMVP6.5
Others are RSVD
Both PH and PD resistors are required to reserve for all 9 signals

OCP setting:60A(30A per phase).
PR149=13.7K Ohm

Place these CAPS
close to FETs

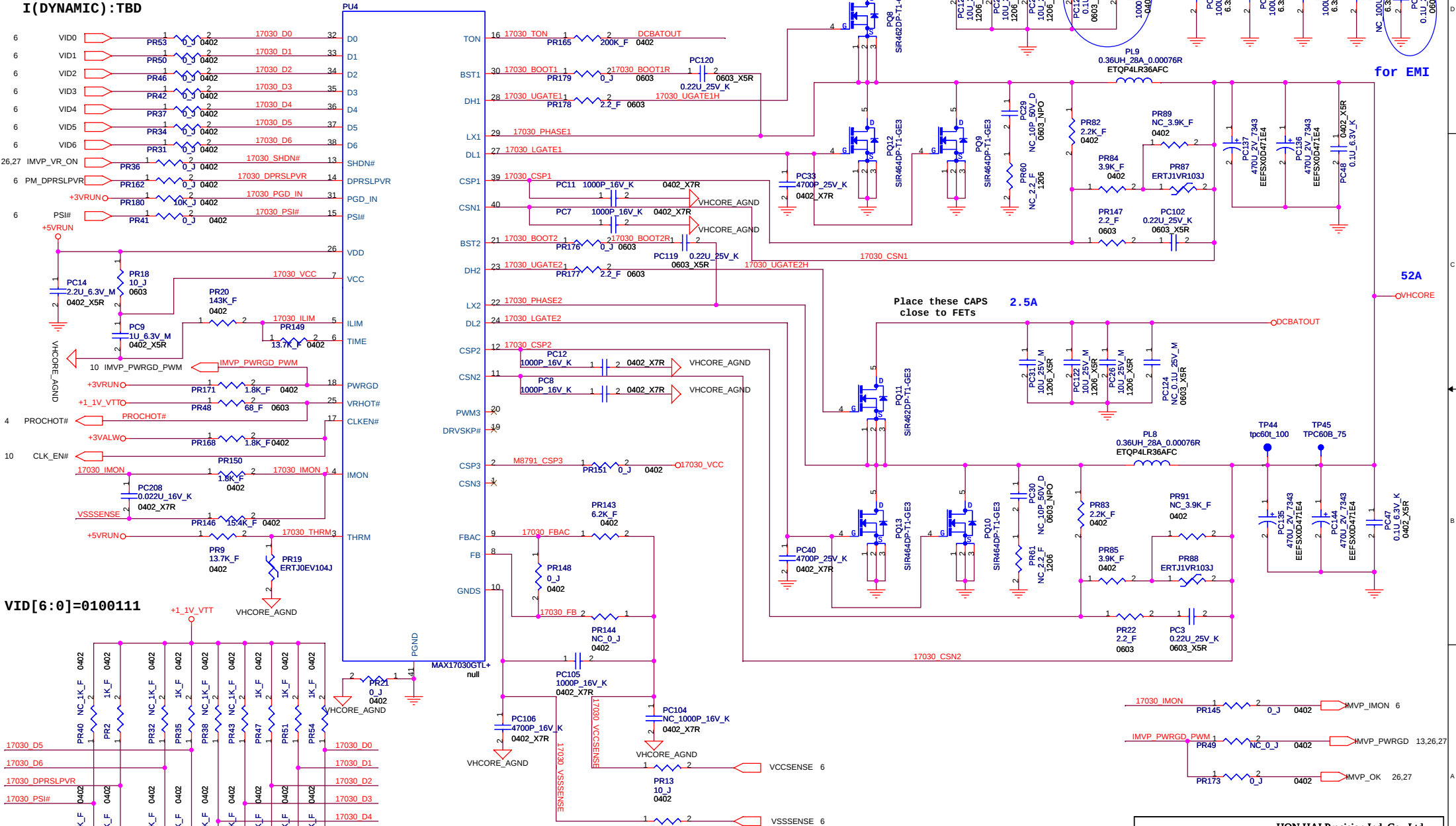
2.5A
for EMI

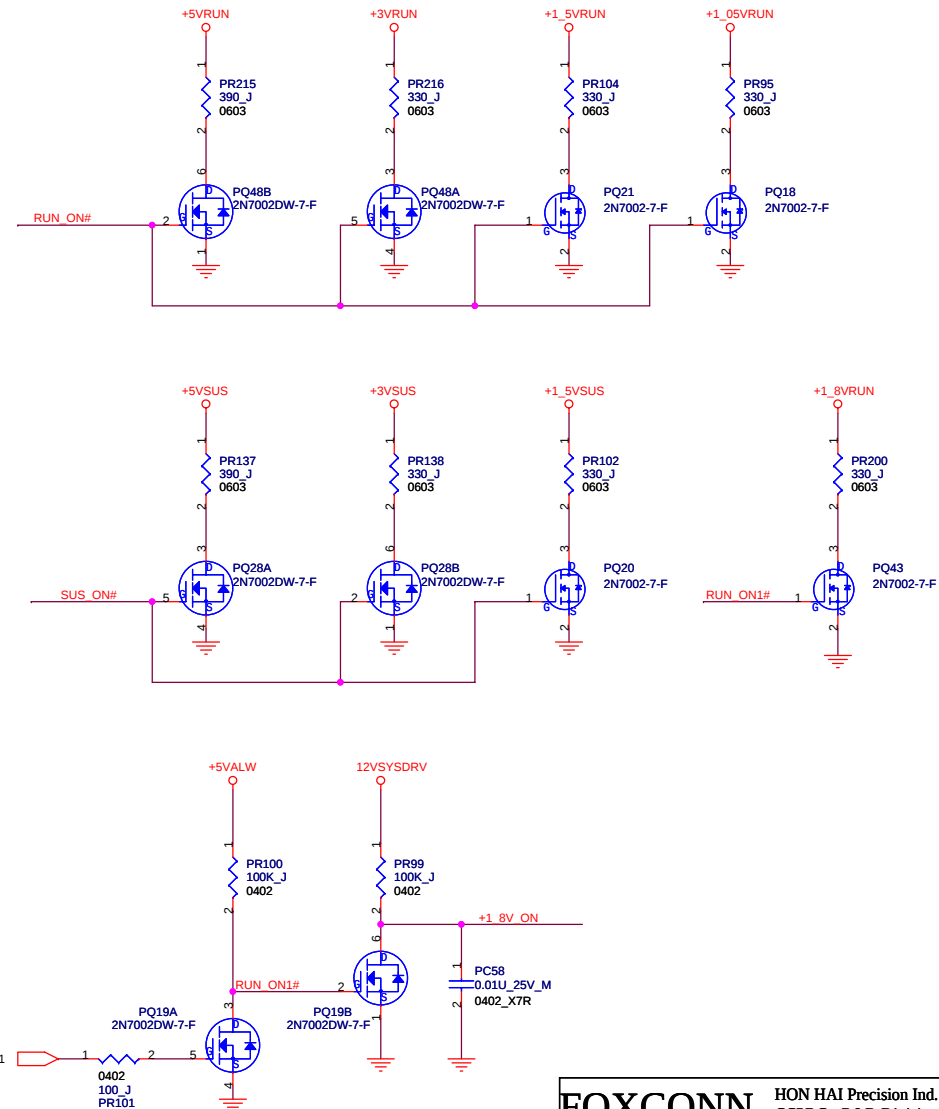
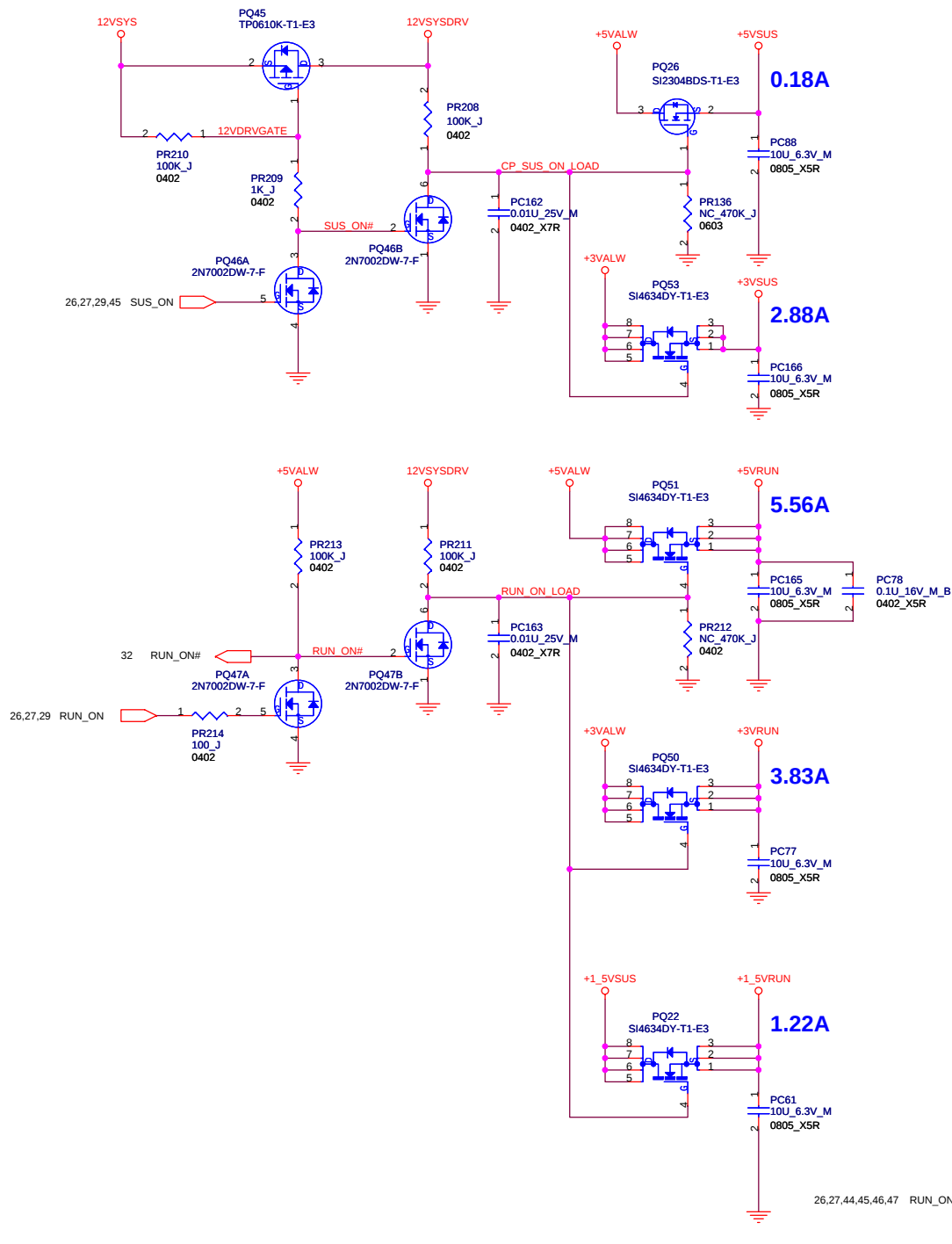
Place these CAPS
close to VCORE input

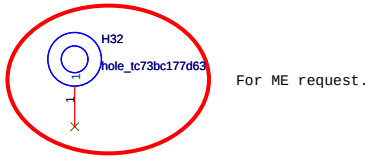
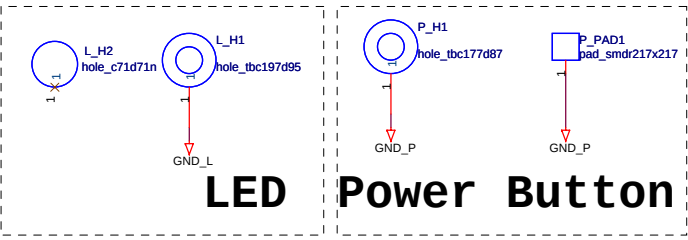
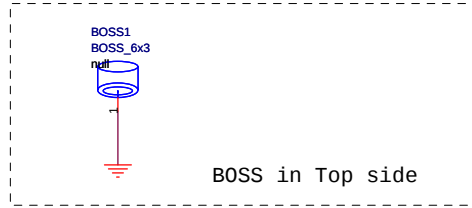
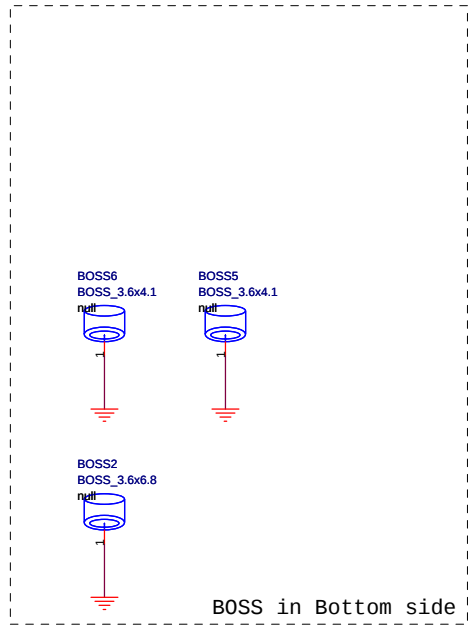
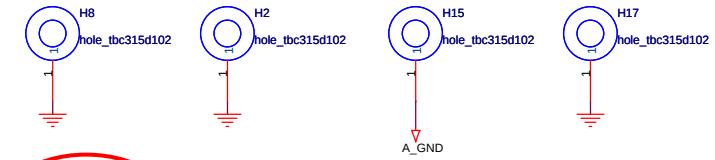
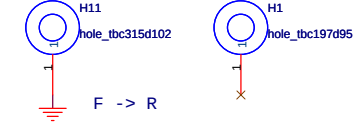
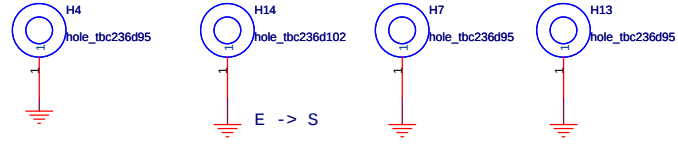
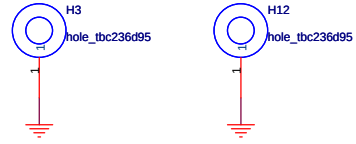
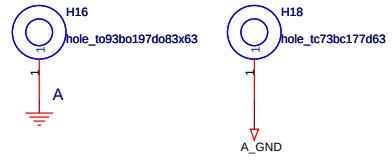
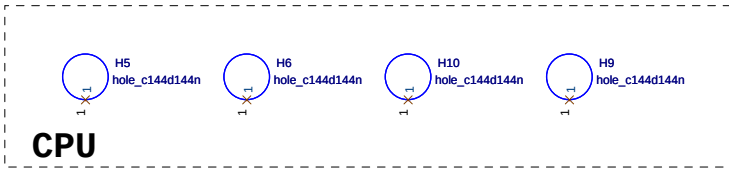
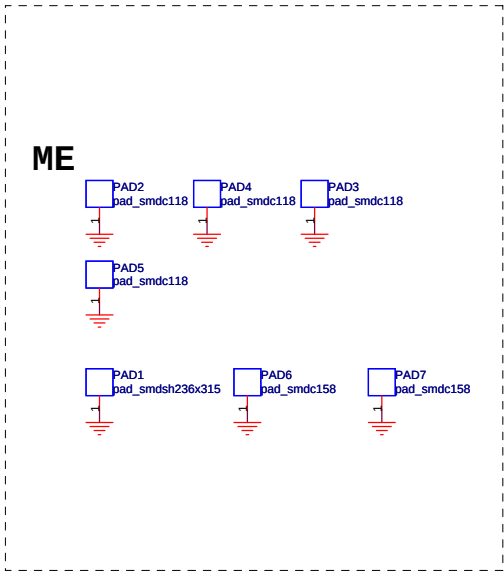
for EMI

52A

OVHVCORE







H901L EVT

(2009/06/08)

P.39 Add Q62, Q63, R619, and R639 10K ohm and del D16 & D17 for leakage issue.

(2009/06/23)

P. 4 NC R712 0 ohm for DDR_alert# noise.

(2009/06/25)

P.11 Change RTC battery P/N from 1M-BCR2032-LB00 to 1M-BCR2032-LB01.

(2009/07/01)

P.51 Add H32 for ME request.

(2009/07/14)

P.12 Add R645 & R646 2.2K ohm for SMBUS PH.
P.31 Change C35 & C38 from 18pF to 15pF for Crystal vendor recommend.

(2009/07/15)

P.22 Add C655, C656, C657 10pF, and L70, L71, L72 47R,
change L61, L62, L63 from 33R to 47R for CRT.

(2009/07/16)

P.13 Add R293 0 ohm NC for SLP_M#.
P.30 Change C33 and C44 from NPO 10% to 5% for PUR recommend.
P.39 Change P_C1, P_C2, L_C1, L_C2 from 10pF NPO 10% to 5% for PUR recommend.
P.32 Change C499 and C505 from 12pF NPO 10% to 5% for PUR recommend.
P.11 Change C735 from 12pF NPO 10% to 5% for PUR recommend.
P.30 Change C78 and C79 from 15pF NPO 10% to 5% for PUR recommend.
P.11 Change C736 from 15pF NPO 10% to 5% for PUR recommend.
P.38 Change C244 and C245 from 47pF NPO 10% to 5% for PUR recommend.

(2009/07/17)

P.13 Add R763 10K ohm PH for HDMI.
P.31 Add C512 0.1uF for Hipot test.

H901L DVT

(2009/07/23)

P.36 Change R467 from 33K to 15K ohm and R472 from 15K to 4.7K ohm
for Thermal recommend.

(2009/07/28)

P.24 Change HDMI conncector from 2N-0019003-FKG0 to 2N-0019002-MKG0

(2009/08/20)

P.28 Delete R27
P.31 Change L1 to LANKOM.
P.18 Delete R257

H901L PVT

(2009/09/3)

P. 20 & 21 Change CN27 & CN28 to tray for L6 recommend.
P. 25 Change CN25 & CN8 to tray for L6 recommend.
P. 29 Change CN73 Part number for CIS recommend.
P. 20 Add R27 & R55 1K ohm for Intel M1 DDR solution.
P. 21 Add R56 & R57 1K ohm for Intel M1 DDR solution.

H901L X-Build

(2009/09/16)

P.12 Change C701 & C702 from 18pF to 12pF for Crystal vendor recommend.
P.22 Add R474 0 ohm for EMI solution.

H901L X-Build

(2009/09/18)

P.31 Add R612 1K ohm .
P.31 Delete C26
P.31 Delete U2
P.31 Delete R14
P.31 Delete R186

(2009/10/14)

P.29 Add L38 , L42 & L69
P.29 Delete R277, R281, R380, R381, R607, R609 for EMI

H900 Power Change History

Number	Date	Page	Title	Issue	Description	Version
1	2009/07/02	P.48	V_CORE	Chage exposed GND and VDD capacitor of VCORE to PGND.	Change PC14.2 from AGND to PGND. Change PU4.41 from AGND to PGND. Change PR21.2 from PGND to AGND.	X01
2	2009/07/02	P.48	V_CORE	Add feedback capacitor to improve GND noise for system with battery only can't power ON issue.	Add PC7: 1000pF 16V X7R(1C-2B20102-K001) . Add PC8: 1000pF 16V X7R(1C-2B20102-K001) . Add PC11: 1000pF 16V X7R(1C-2B20102-K001) . Add PC12: 1000pF 16V X7R(1C-2B20102-K001) .	X01
3	2009/07/02	P.48	V_CORE	Change boost resistor to reduce ring of Mosfet.	Change PR178 from 0 Ohm 0603 5%(1R-0000000-J300) to 2.2 Ohm 0603 1%(1R-000022X-F300) Change PR177 from 0 Ohm 0603 5%(1R-0000000-J300) to 2.2 Ohm 0603 1%(1R-000022X-F300)	X01
4	2009/07/08	P.49	+GFX_CORE	Delete some capacitors from TI suggestion. Fine tune load line and IMON setting.	Del PC190,PC192,PC189,PC199,PC201. Change PR223 from 3K 0402 1%(1R-0000302-F200) to 1.2K 0402 1%(1R-0000122-F200) Change PR232 from 10K 0402 1%(1R-0000103-F200) to 45.3K 0402 1%(1R-0004532-F200) Change PC198 from 3300P 50V 0402 10%(1C-2B20332-K000) to 0.47uF 6.3V 0402 10%(1C-2B20474-K000)	X01
5	2009/07/08	P.48	V_CORE	Modify DCR feedback and IMON setting. Change L-S Mosfet to SIR464 to improve efficiency.	Change PR84 and PR85 from 1.69K 0402 1%(1R-0001691-F200) to 3.9K 0402 1%(1R-0003901-F200) Change PR150 from 10K 0402 1%(1R-0000103-F200) to 1.8K 0402 1%(1R-0000182-F200) Change PC208 from 0.1uF 6.3V 0402(1C-2B20104-K101) to 0.022uF 16V 0402 X7R (1C-2B20223-K000) Change PR146 from 12K 0402 1%(1R-0000123-F200) to 15.4K 0402 1%(1R-0001542-F200) Change PQ9,PQ10,PQ12,PQ13 from SIR466(17-S1R466D-PT00) to SIR464(17-S1R464D-PT00)	X01
6	2009/07/10	P.42	Charger	Slow down P-Mos turn on to reduce inrush current of AC adapter.	Change PR28 from 100K 0402 5%(1R-0000104-J200) to 120K 0402 1%(1R-0000124-F200)	X01
7	2009/07/16	P.49	+GFX_CORE	Add a L-S Mosfet for GFX_CORE	Add PQ56:FDMS7670 (17-FDMS767-0000)	X01
8	2009/07/16	P.49	+GFX_CORE	Change GFX_CORE setting from vender's suggestion	Change PR224 from 124K 0402 1%(1R-0001243-F200) to 249K 0402 1%(1R-0002493-F200) Change PU11.33 to PGND. Change PU11.1 to AGND. Add a reserve PR258 between PU11.26 to AGND. Change PR234 from 82.5K 0402 1%(1R-0008252-F200) to 52.3K 0402 1%(1R-0005232-F200) Change PR242 from 63.4K 0402 1%(1R-0006342-F200) to 62K 0402 1%(1R-0000623-F200) Change PR239 from 51K 0402 1%(1R-0000513-F200) to 68K 0402 1%(1R-0000683-F200) Change PR223 from 1.2K 0402 1% (1R-0000122-F200) to 910 0402 1%(1R-0000911-F200)	X01
9	2009/07/20	P.50	Other power plane	Add dicharge path for 1_5VRUN and 1_05VRUN	Add PR104:330 Ohm 0603 5%(1R-0000331-J300) Add PR95:330 Ohm 0603 5%(1R-0000331-J300) Add PQ21:2N7002-7-F SOT-23(17-2N70027-F000) Add PQ18:2N7002-7-F SOT-23(17-2N70027-F000)	X01

A	B	C	D	E
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FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title	History (1)		
Size A3	Document Number H901L	Rev SB	
Date:	Monday, October 19, 2009	Sheet	54 of 54