



# Schematics Page Index (Title / Revision / Change Date)

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34	Audio (SPKR)	A00					
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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

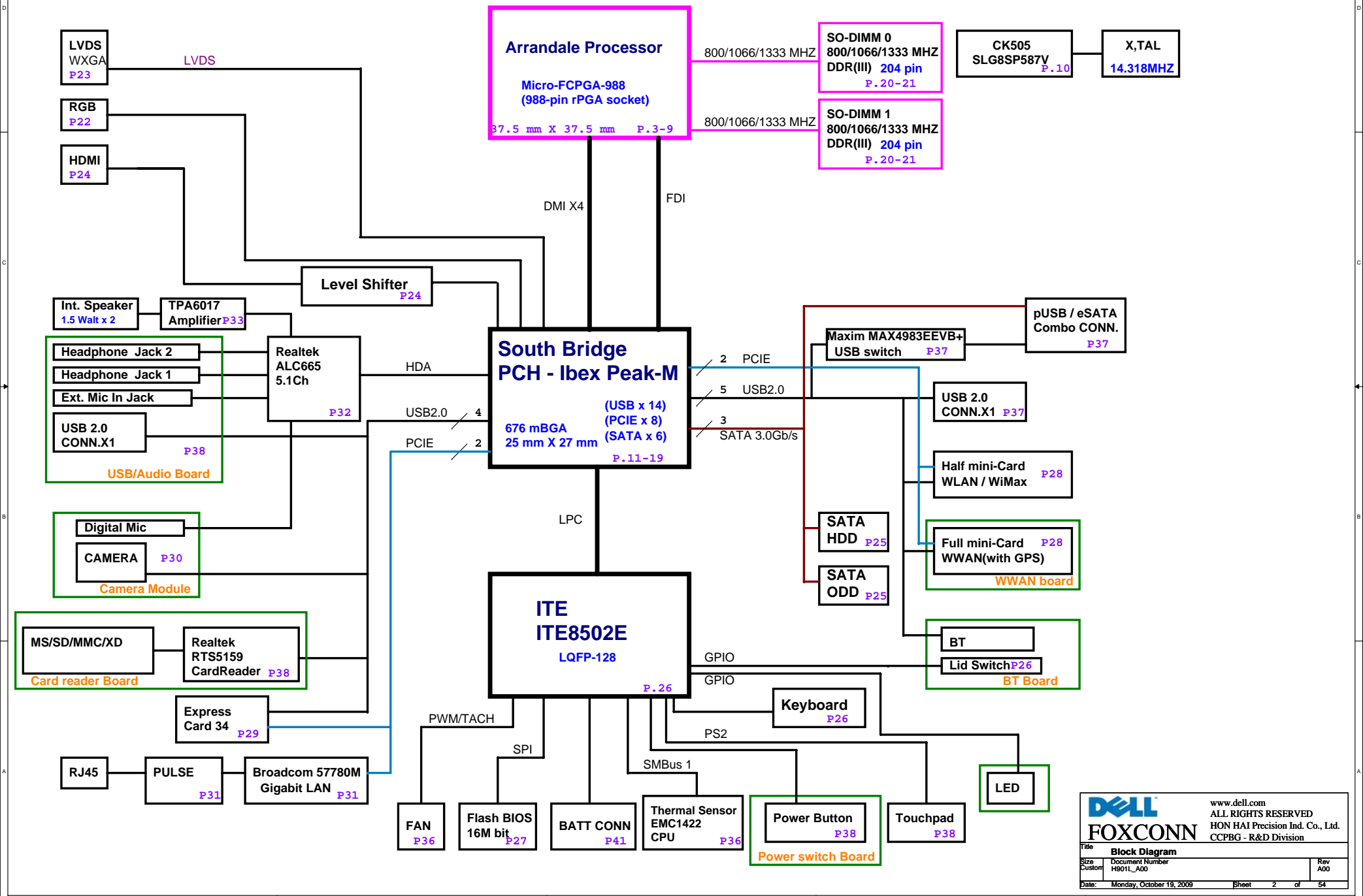



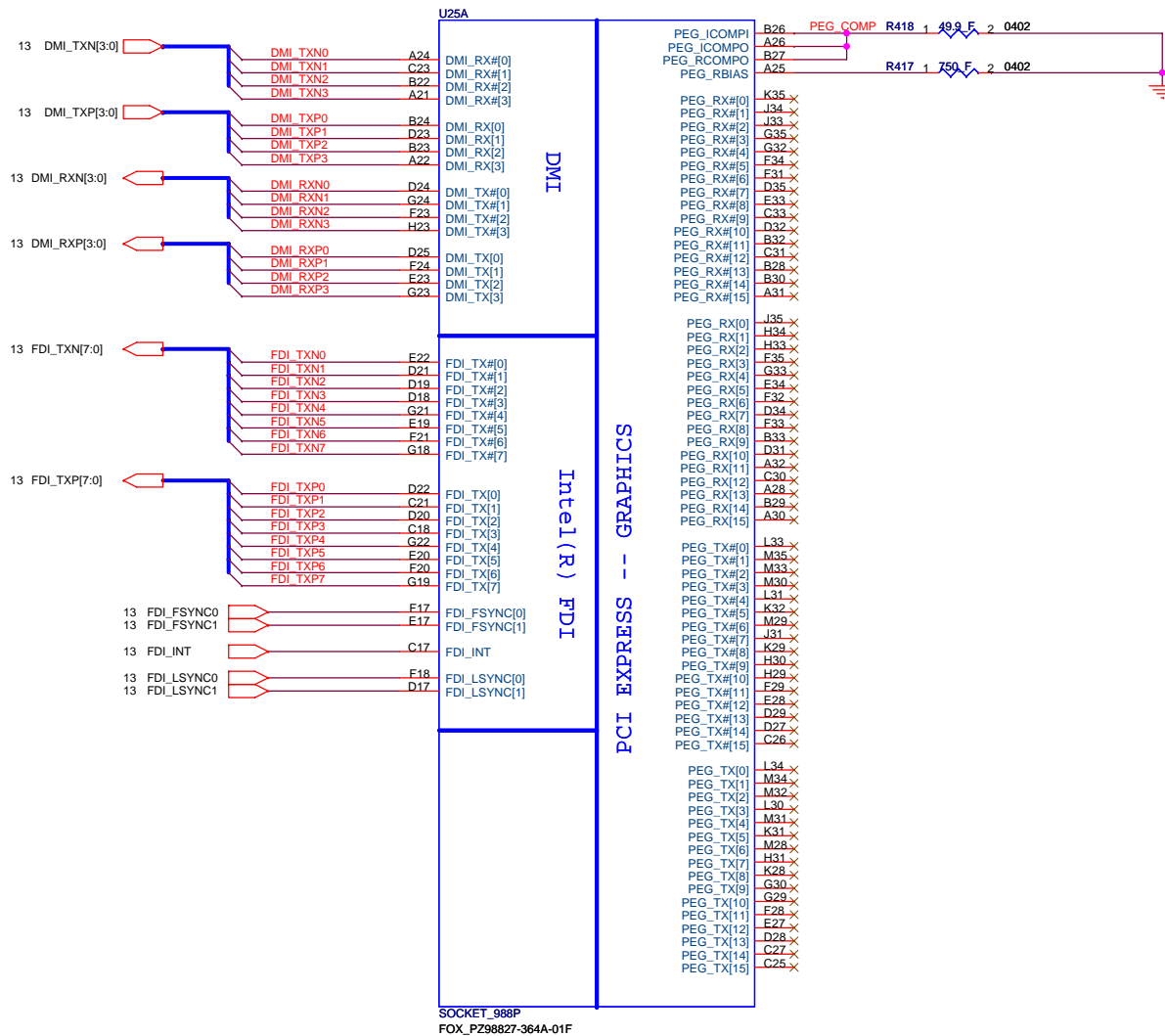
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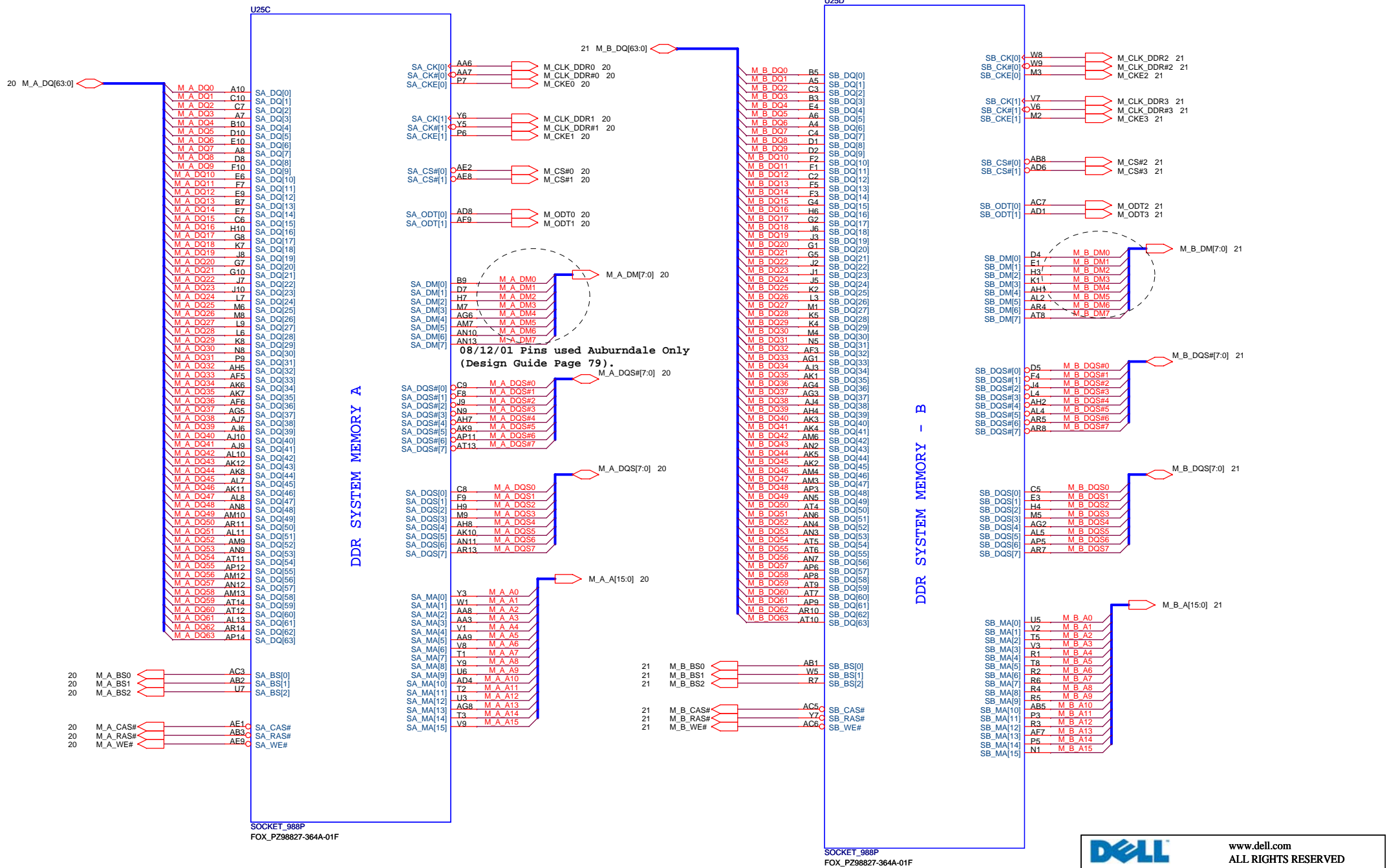
# http://laptopblue.vn


## H901L Arrandale











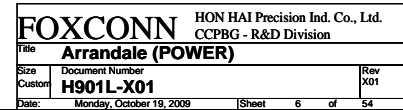
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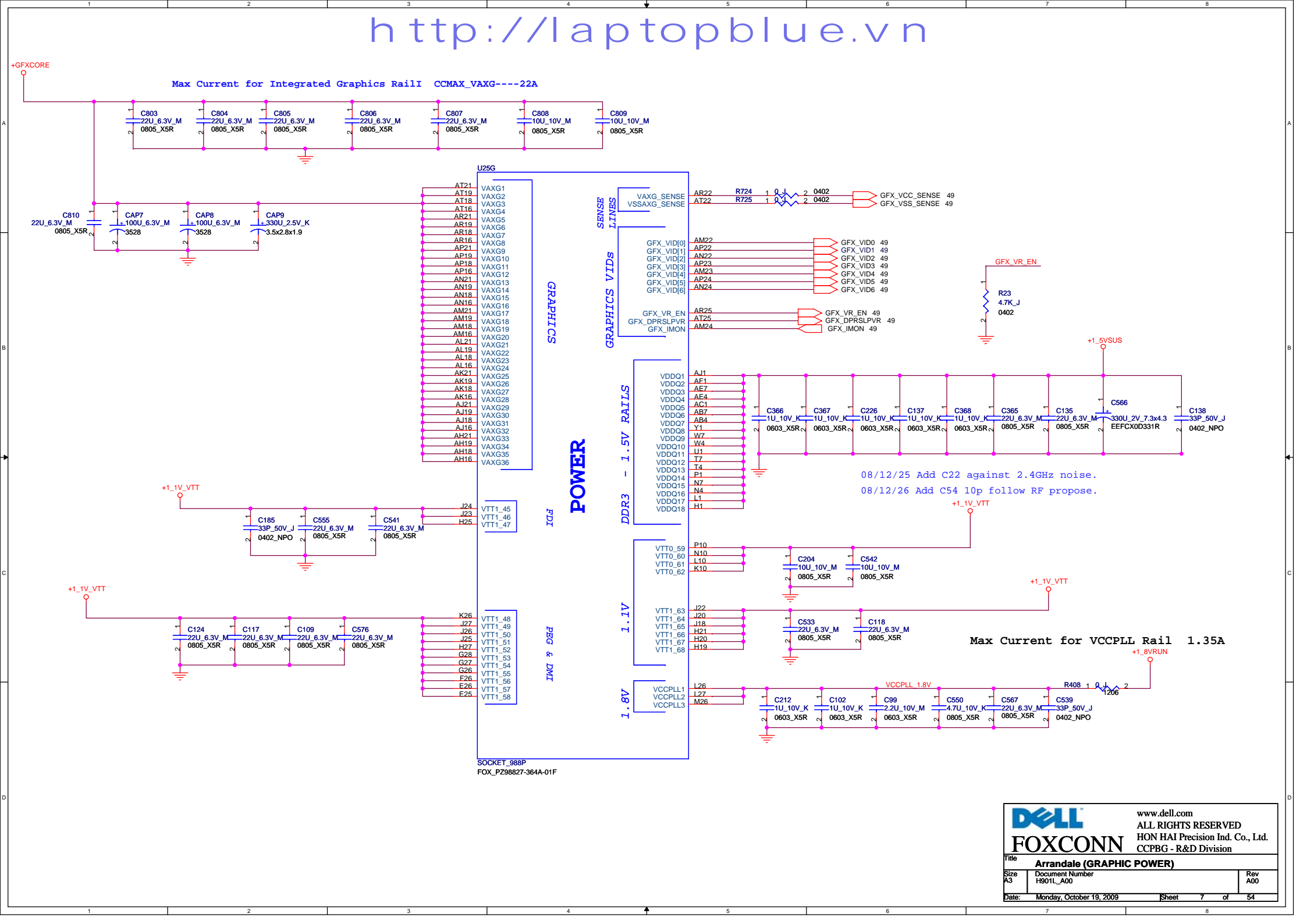
FOXCONN

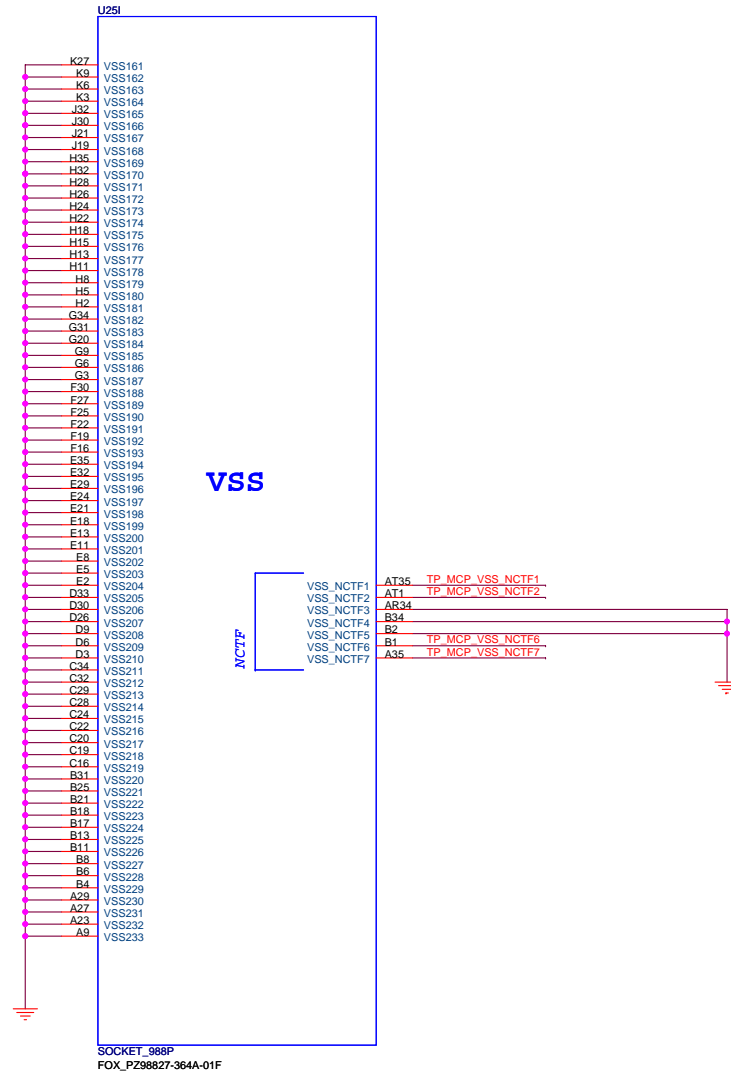
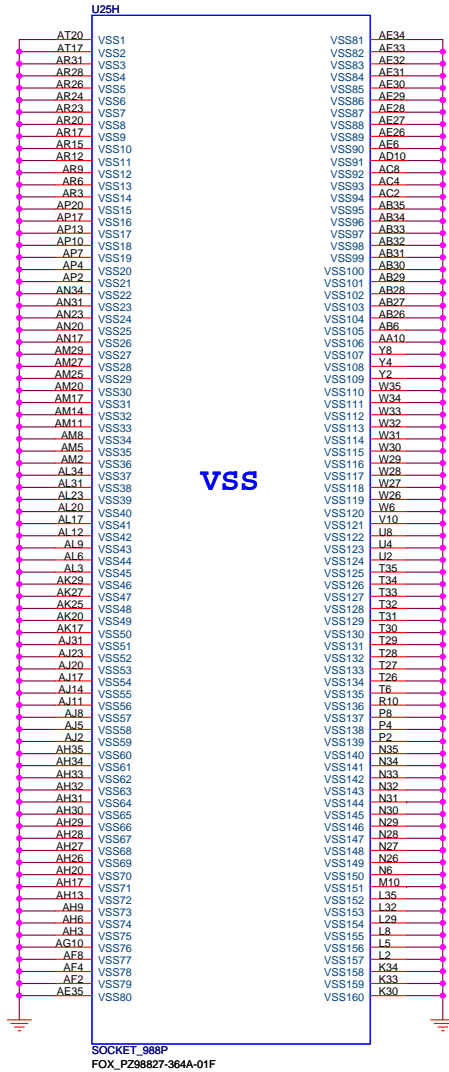
Title  
**Arrandale (DDR3)**

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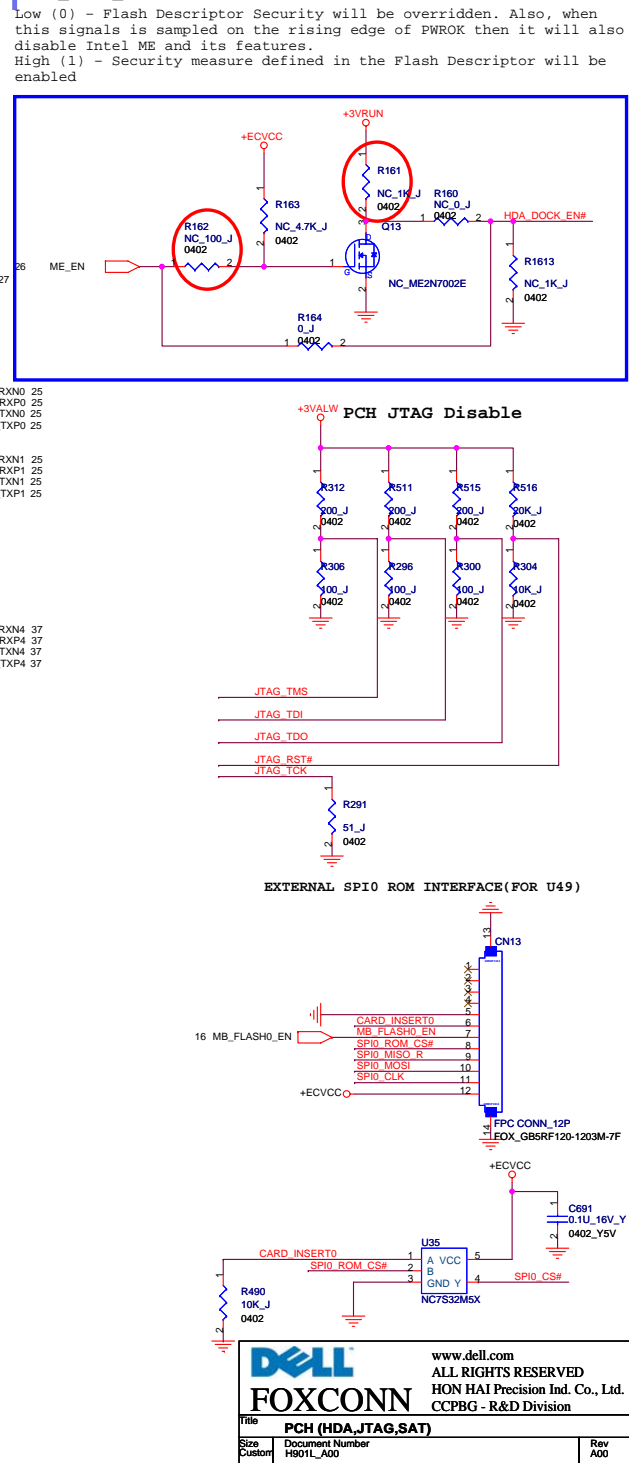
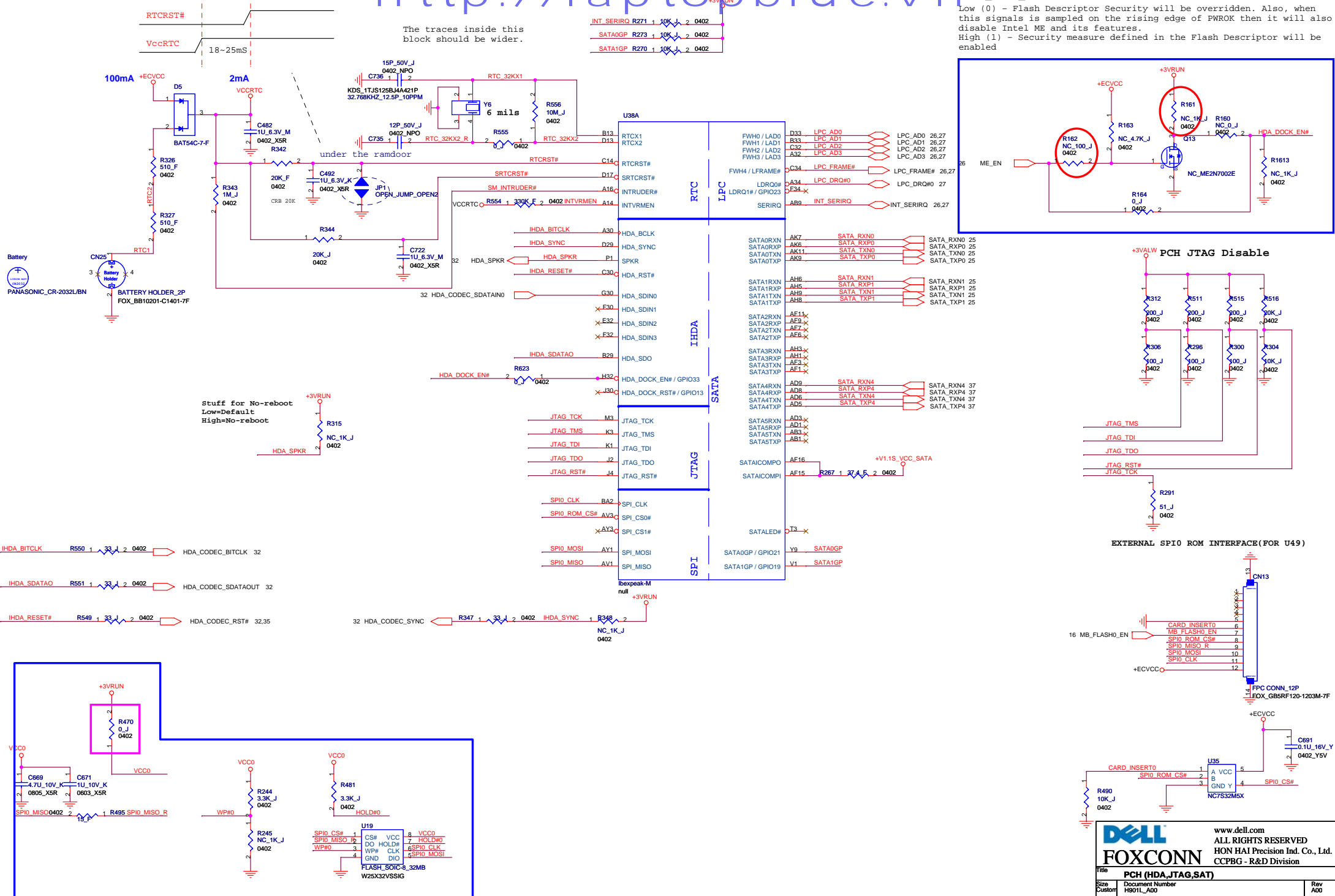
[illegible]

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

CPU\_BSEL2

H:100 MHz  
L:133 MHz

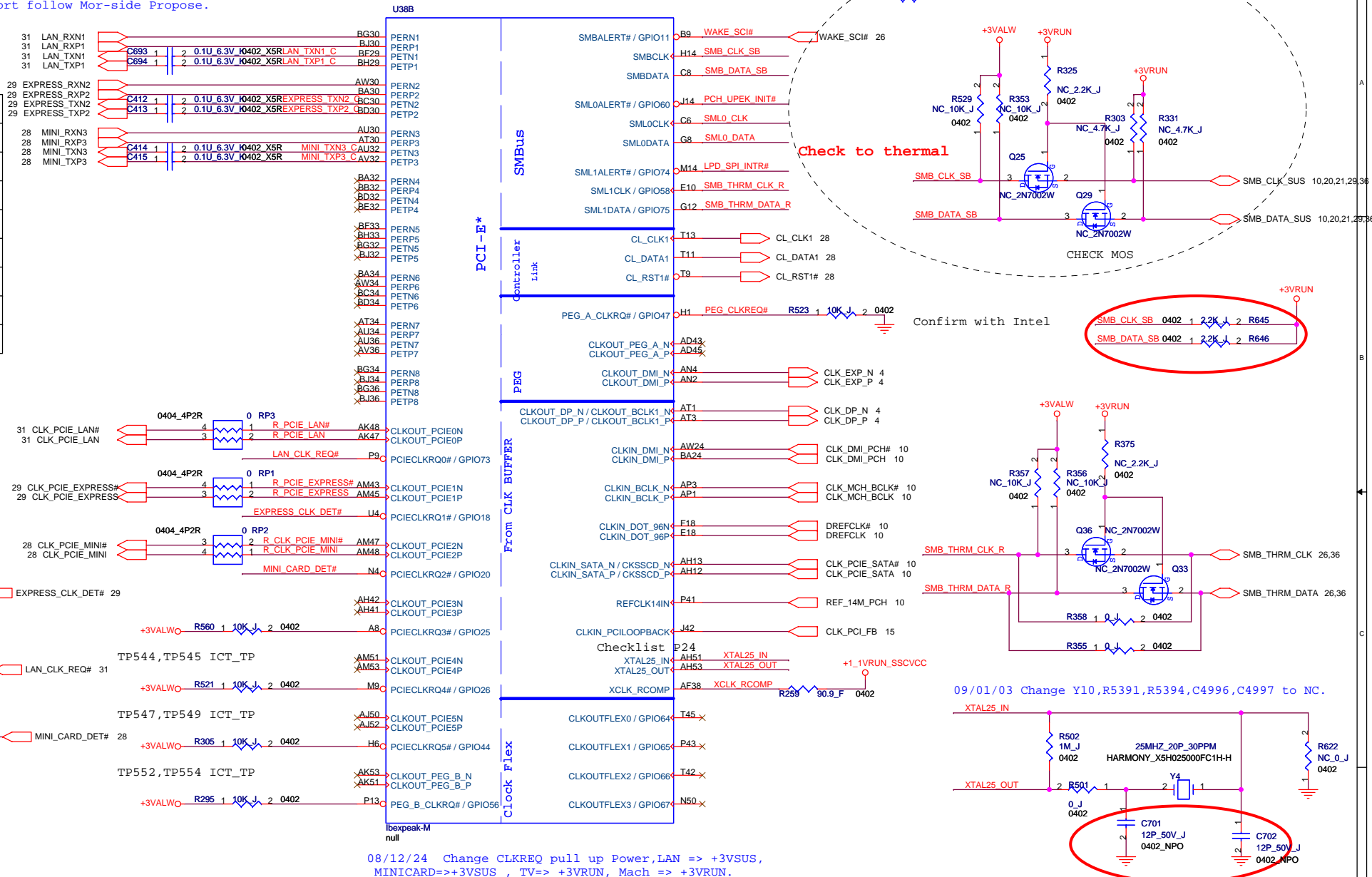
R484  
0 J  
0402



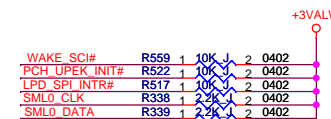
08/12/24 Update PCIE Port follow Mor-side Propose.

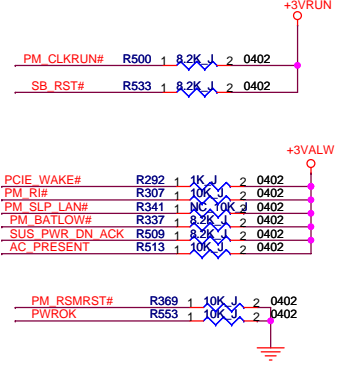
### PCI-E Port Table

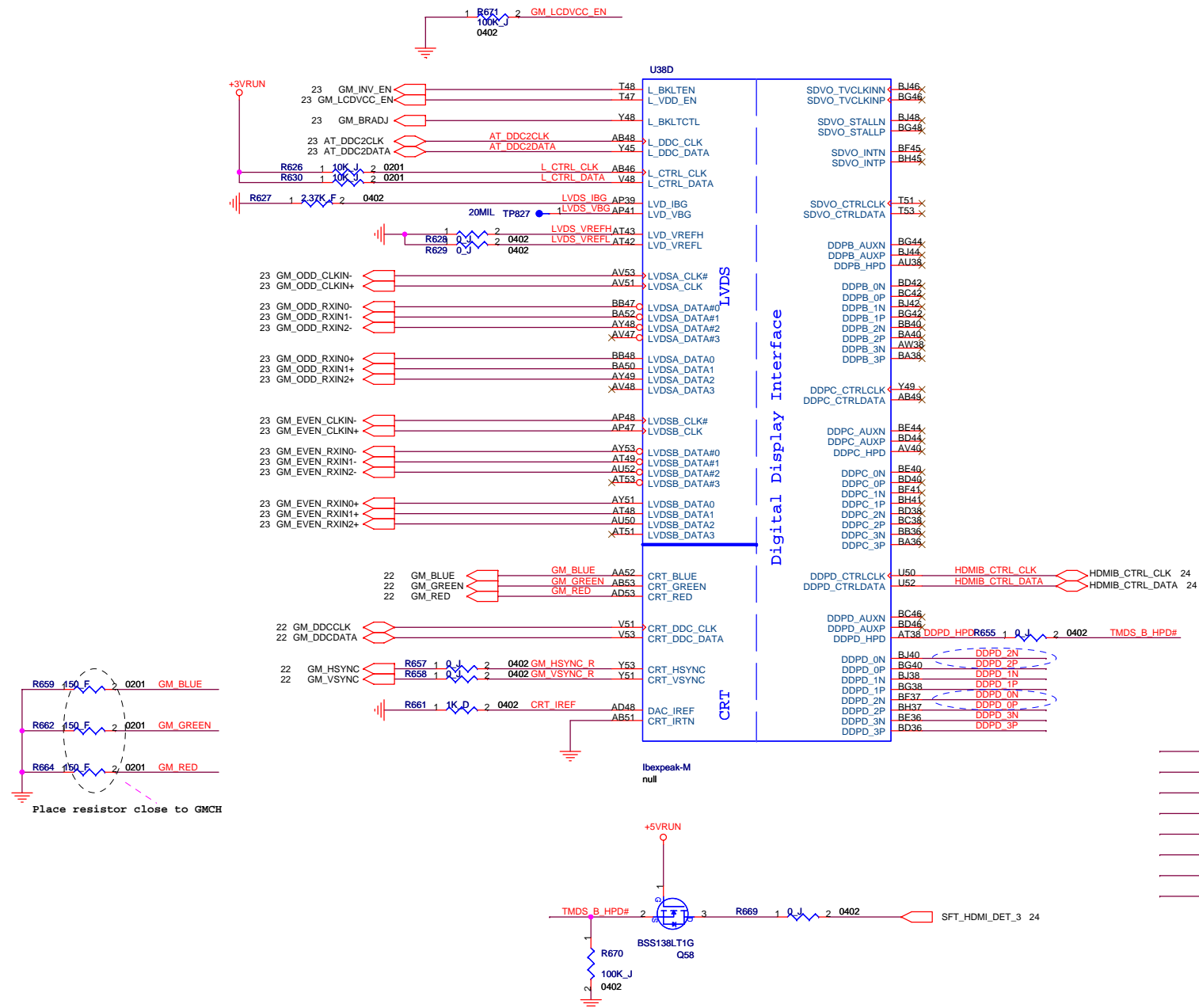
Port	Function
Port1	LAN
Port2	Express Card
Port3	WLAN
Port4	Un-used
Port5	Un-used
Port6	Un-used
Port7	Un-used
Port8	Un-used

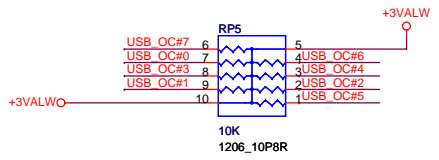


08/12/24 Change CLKREQ pull up Power, LAN => +3VSUS,  
MINICARD=>+3VSUS , TV=> +3VRUN, Mach => +3VRUN.





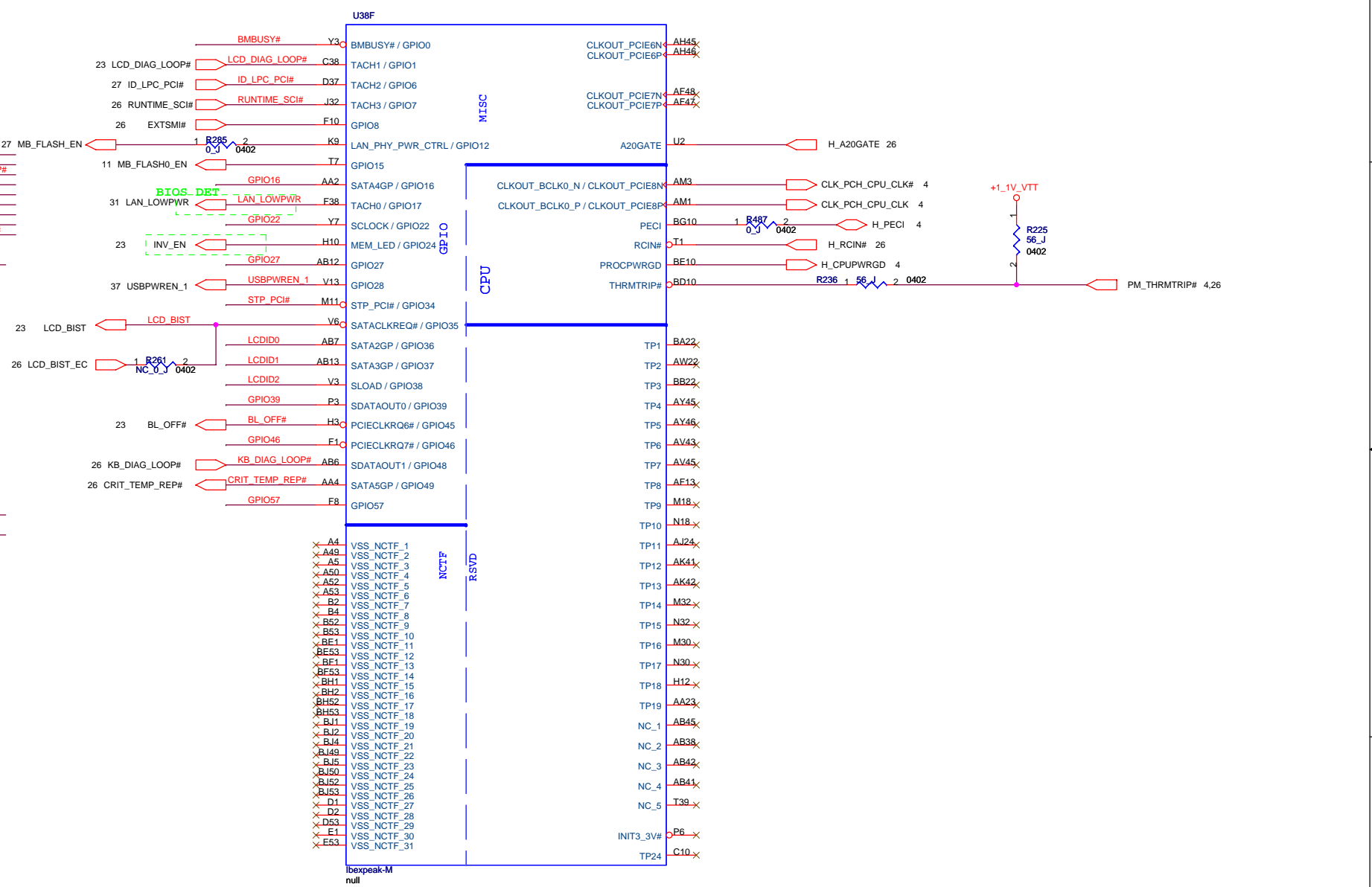




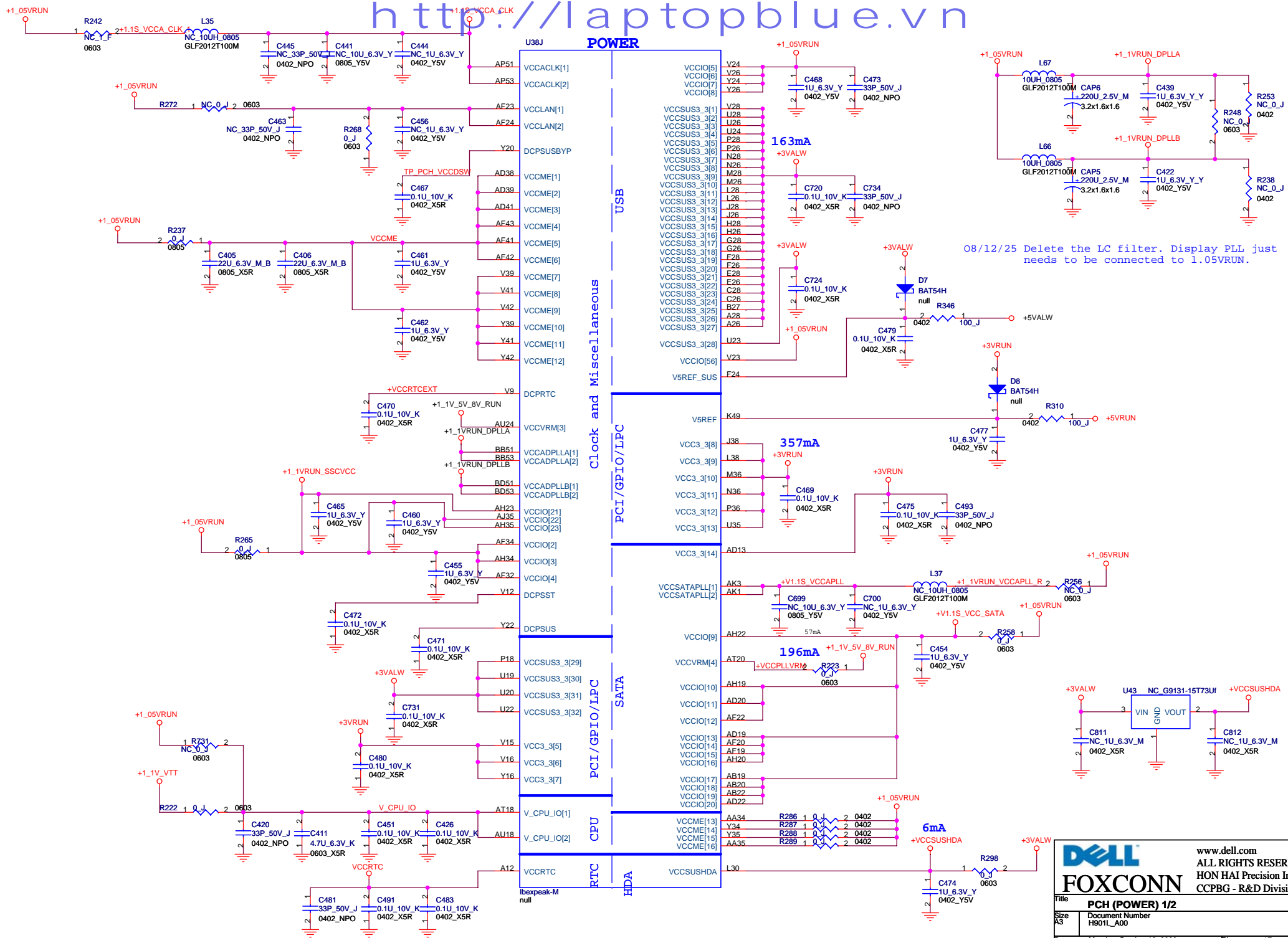
Check list P39 need to pull up to 3.3VA with 8.3K~10K

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		

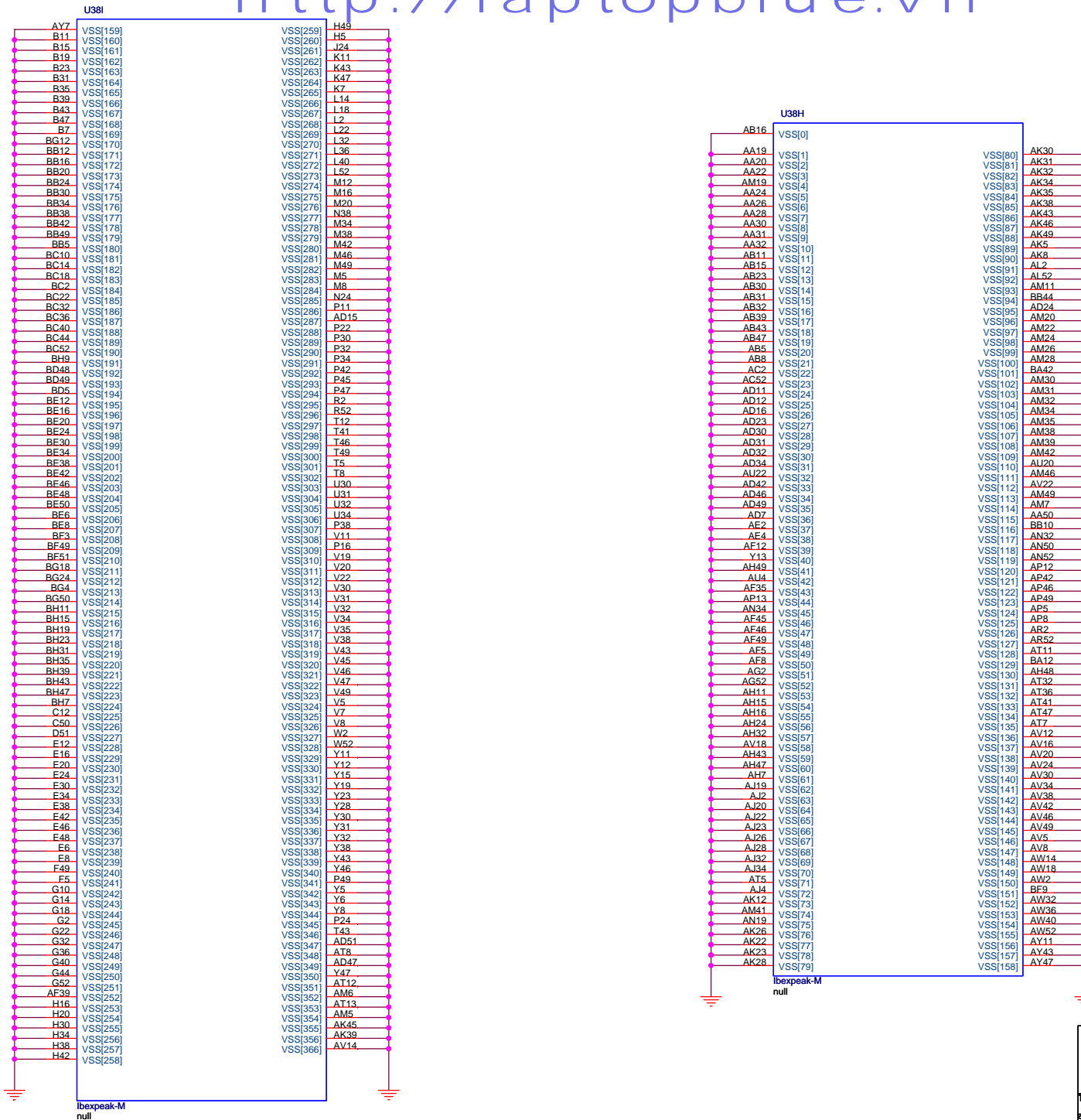


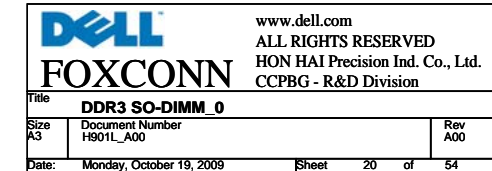


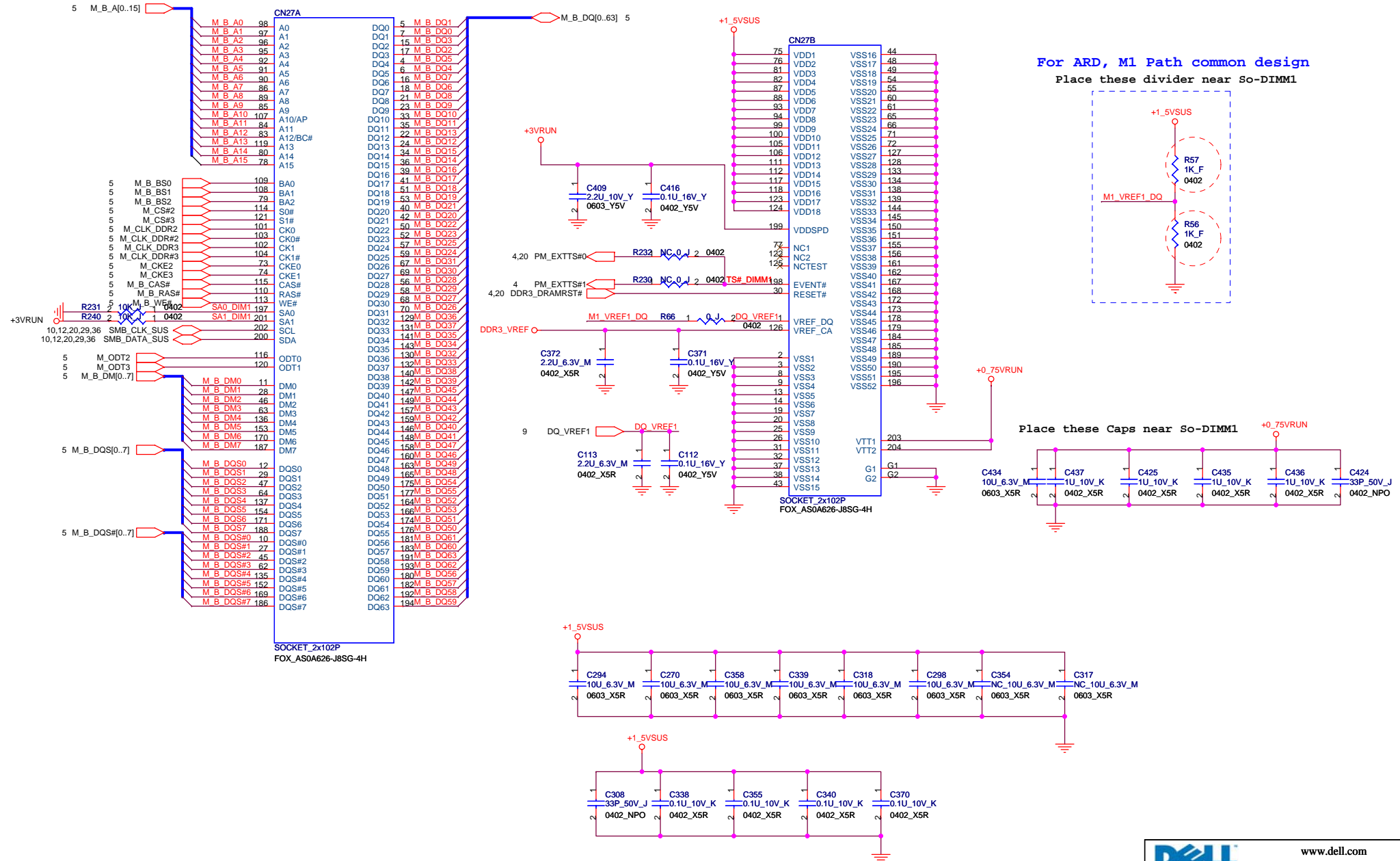


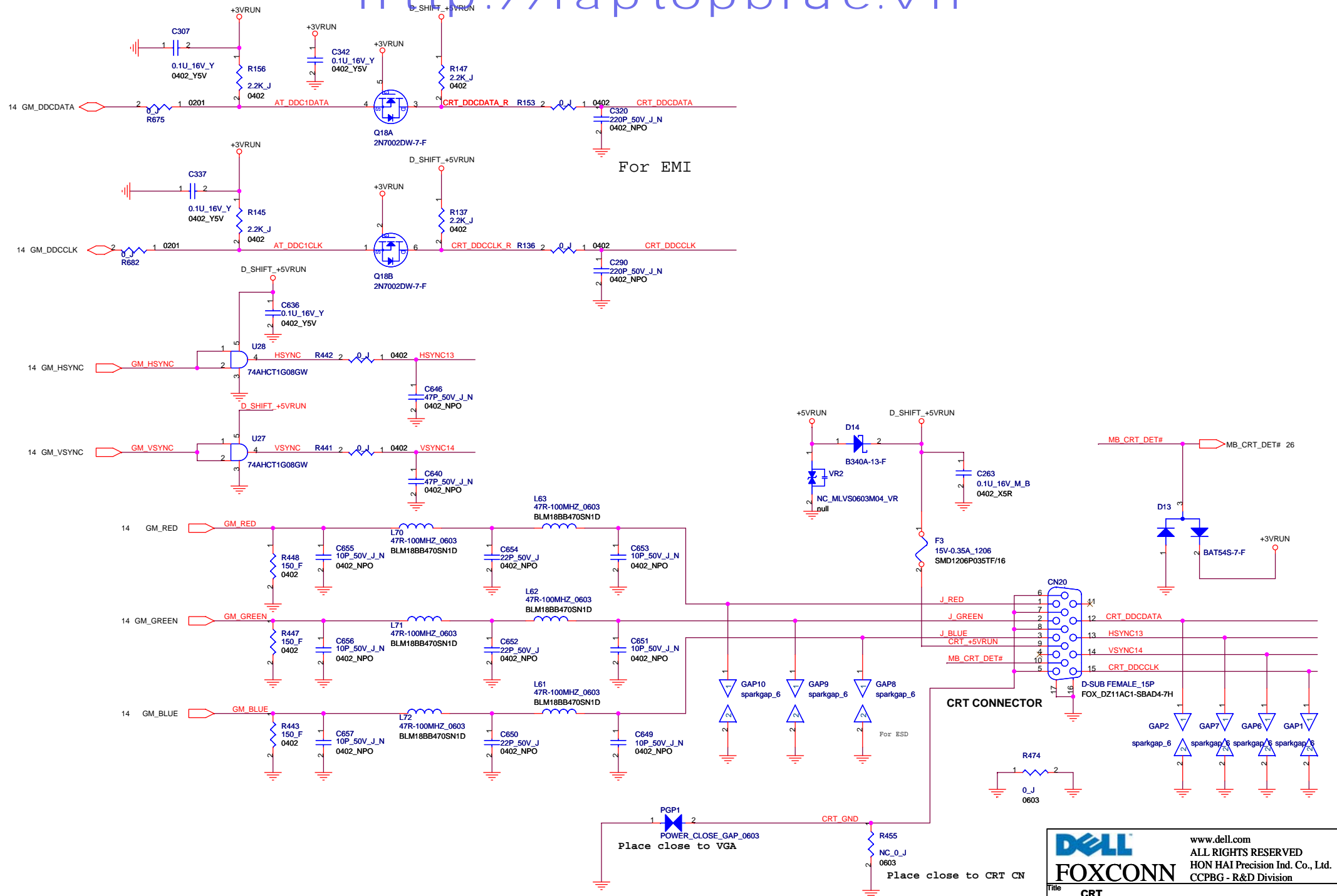



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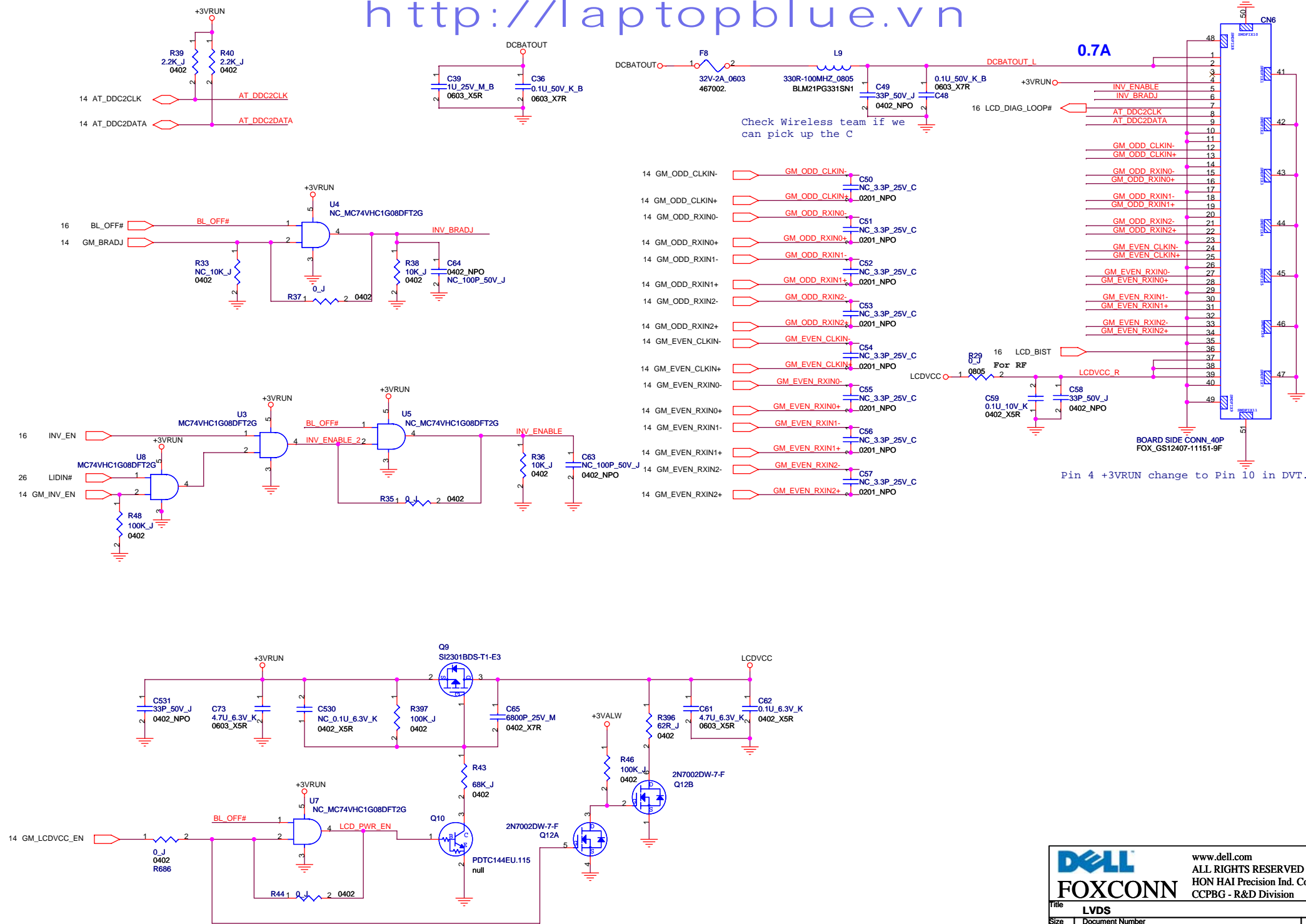




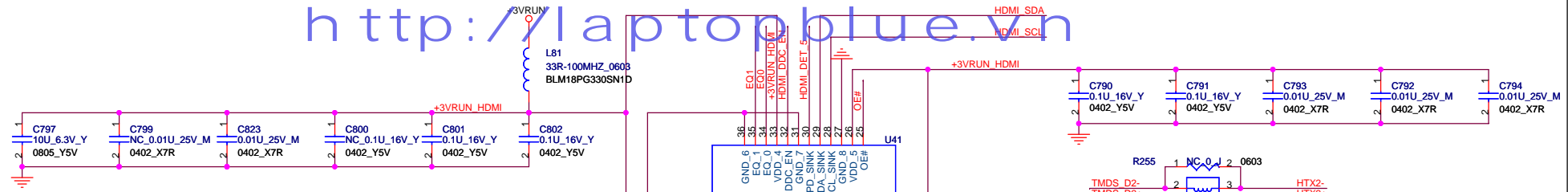




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Title <b>LVDS</b>	Size A3 Document Number Rev A00
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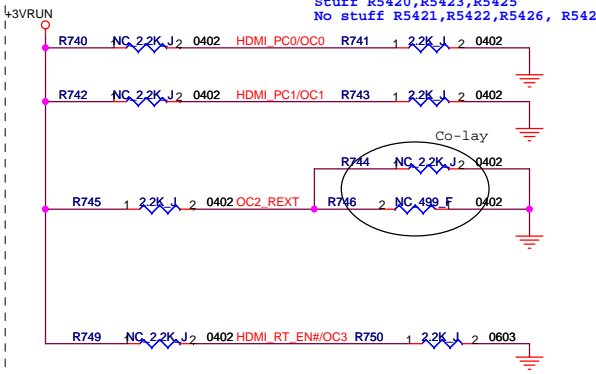






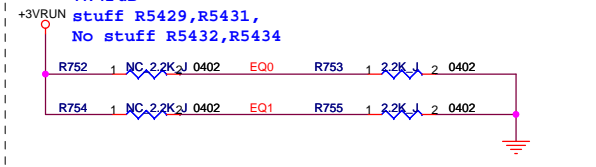
For PI3VDP411LST  
(TMD5 output pre-emphasis)  
OC3,OC2,OC1,OC0 Configuration  
0100: 0 dB, (Default Setting)  
stuff R5421,R5423,R5426,R5427,  
No stuff R5420,R5422,R5428,  
R5425,R5428.

For PS8101  
(TMD5 inputs equalization control)  
OC1,OC0 Configuration  
00: 8 dB,  
01: 4 dB, (Default Setting)  
10: 12 dB,  
11: 0 dB  
stuff R5420,R5423,R5425  
No stuff R5421,R5422,R5426, R5427, R5428, R5459



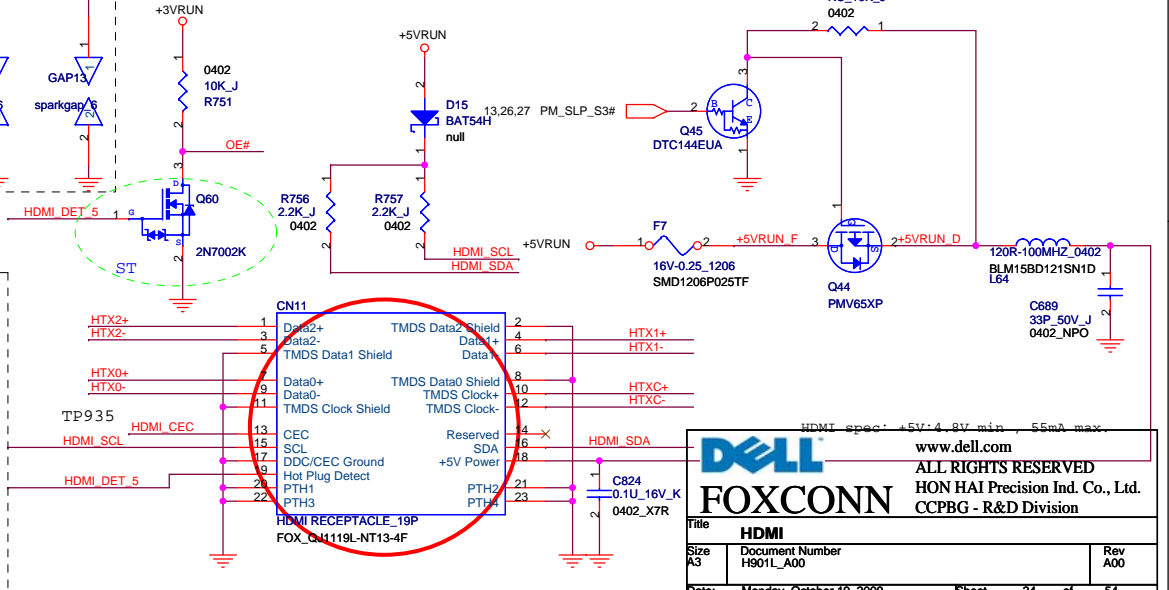
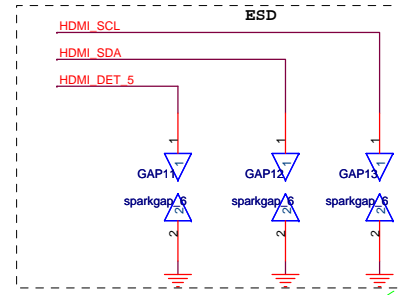
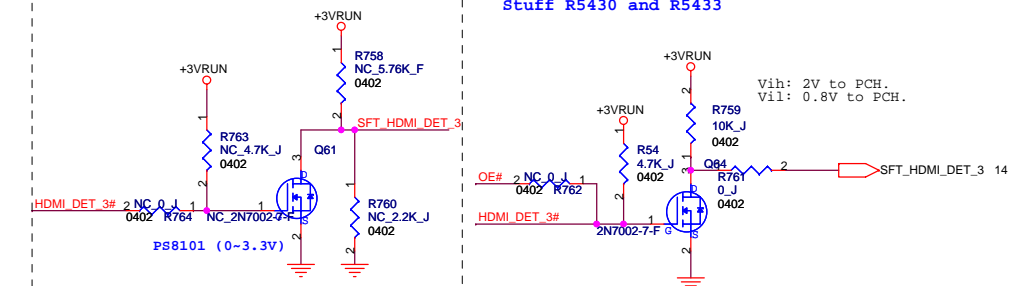
For PI3VDP411LST  
(TMD5 inputs equalization control)  
EQ1,EQ0 Configuration  
00: 3 dB, (Default Setting)  
01: 6 dB,  
10: 9 dB,  
11: 12 dB  
stuff R5429,R5431,  
No stuff R5432,R5434

For PS8101  
stuff R5432 (For active DDC buffer)  
No stuff R5429,R5431,R5434

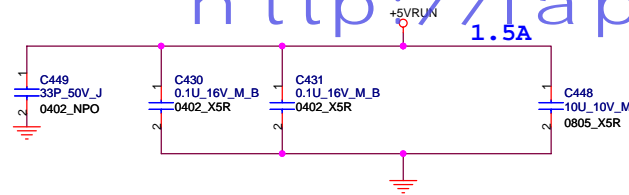


For PS8101  
Stuff Q59,R5433 and R5448

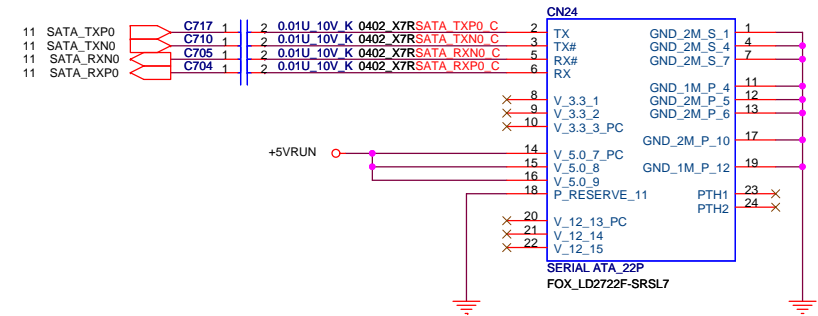
For PI3VDP411LST  
Stuff R5430 and R5433



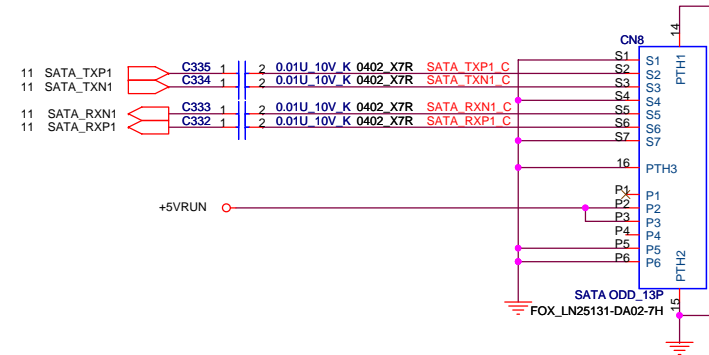




## SATA HDD CONN

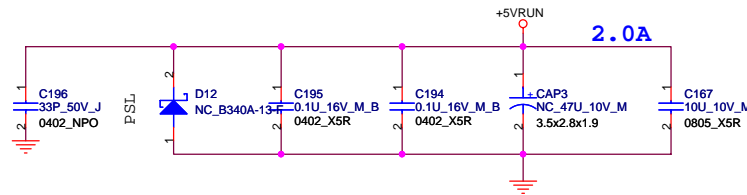


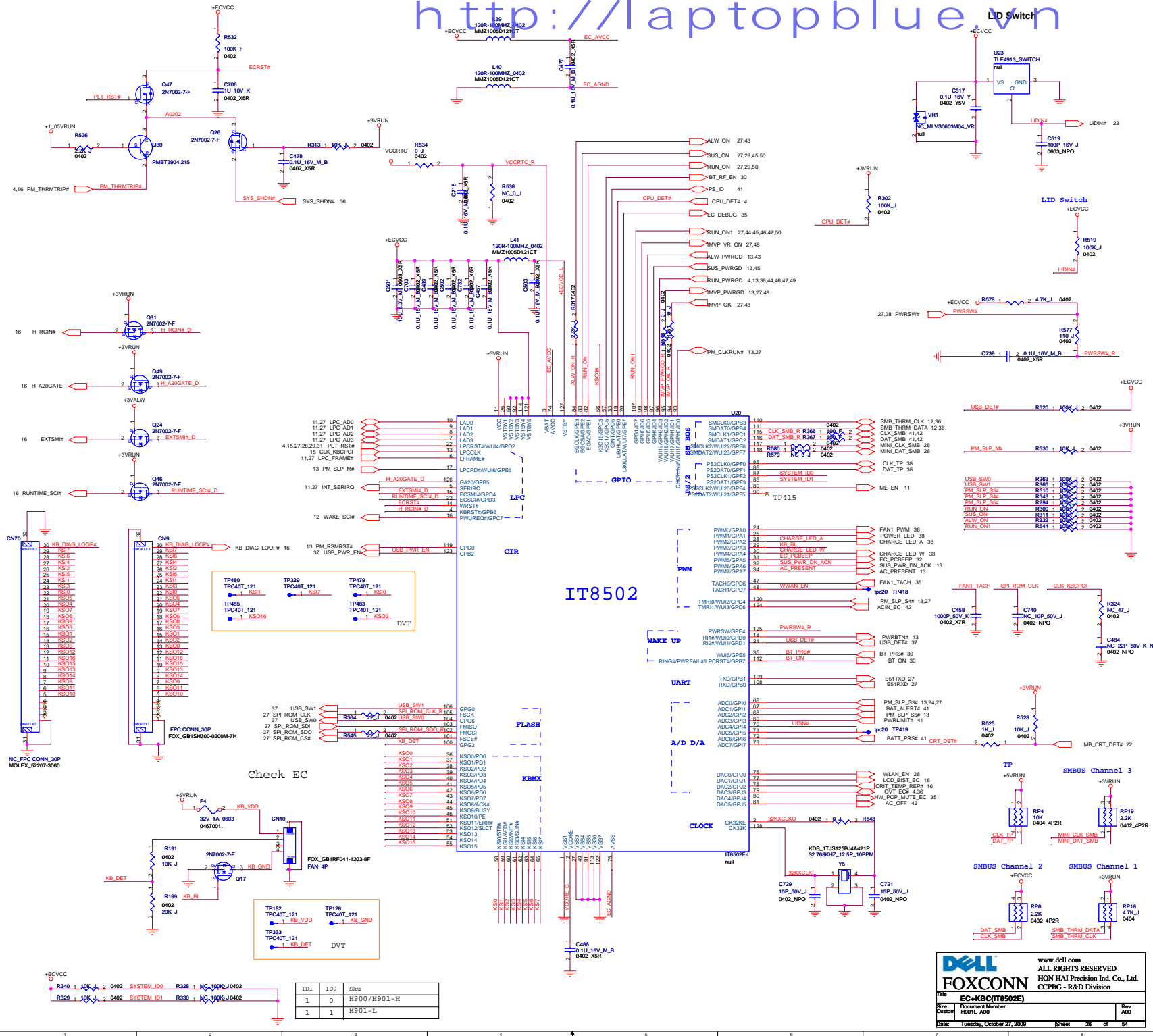
## SATA ODD CONN

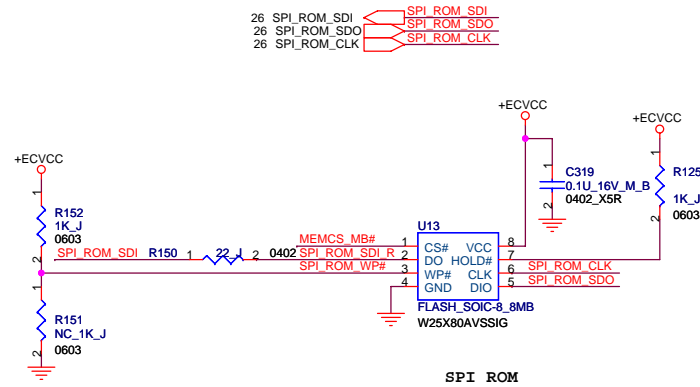


## ODD CON ADAPTER

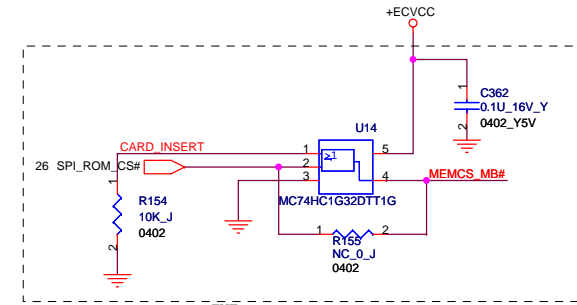
Add CN68 need 2N-0013009-FKG0 in BOM



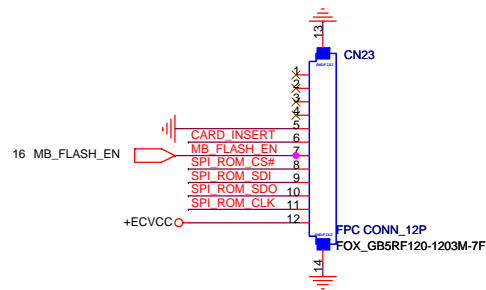




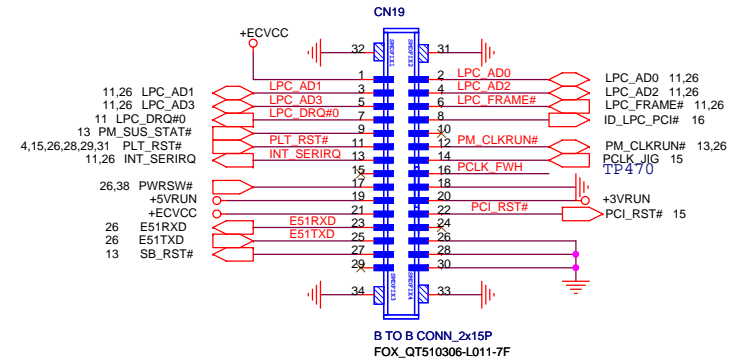
SPI ROM



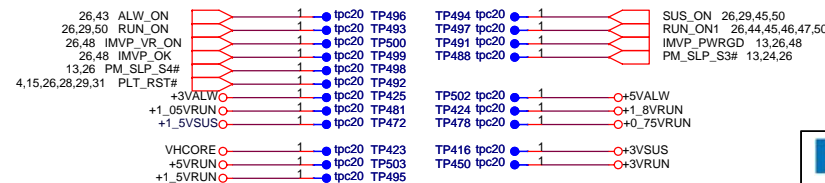
EVT  
When MP, change U11 no stuff, R233 stuff



EXTERNAL SPI ROM INTERFACE



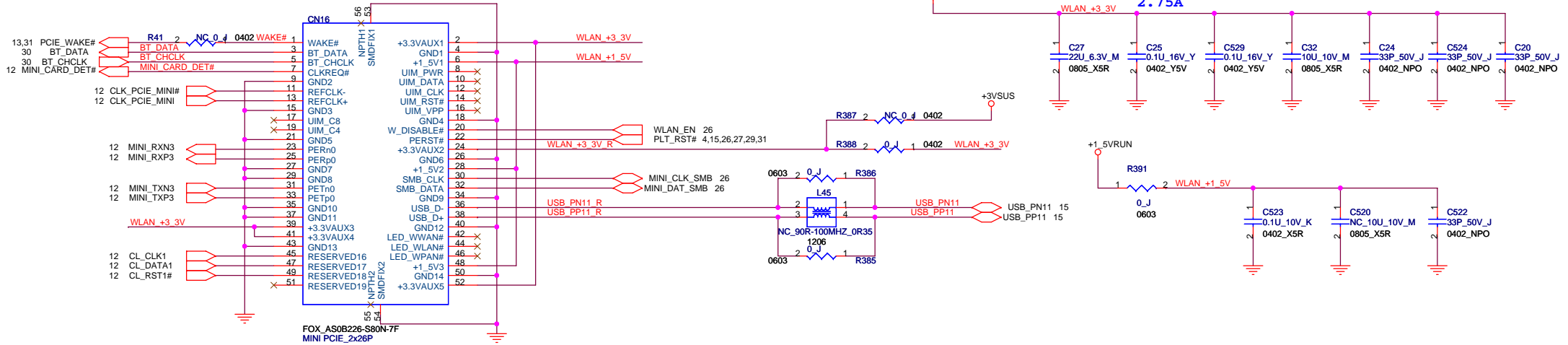
JIG-120



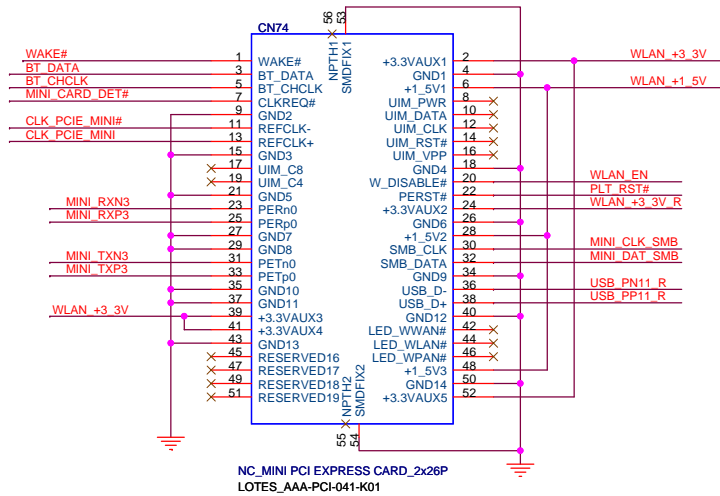
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<b>Title</b> Flash ROM/SPI		
<b>Size</b> A3	<b>Document Number</b> H901L_A00	<b>Rev</b> A00
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+1.5V=>0.5A Peak/0.375A Normal  
+3.3VAux=>2.75A Peak/1.1A Normal

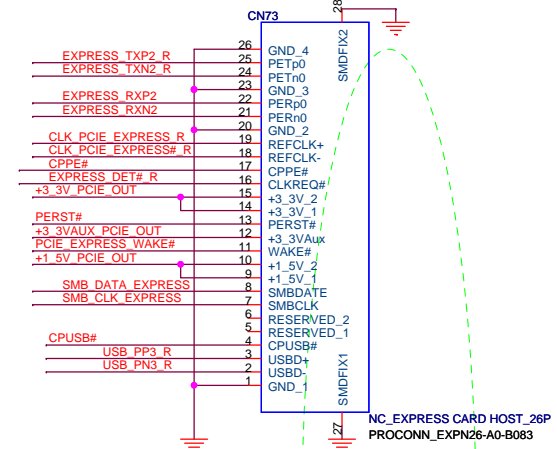
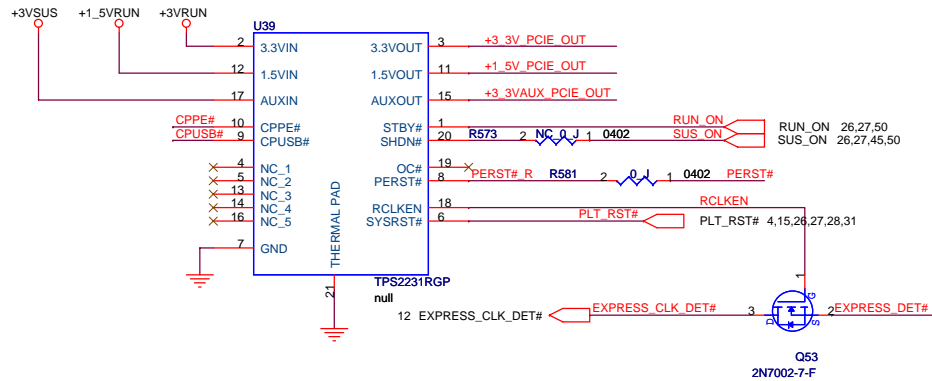


Half Mini Card for WLAN or WiMAX

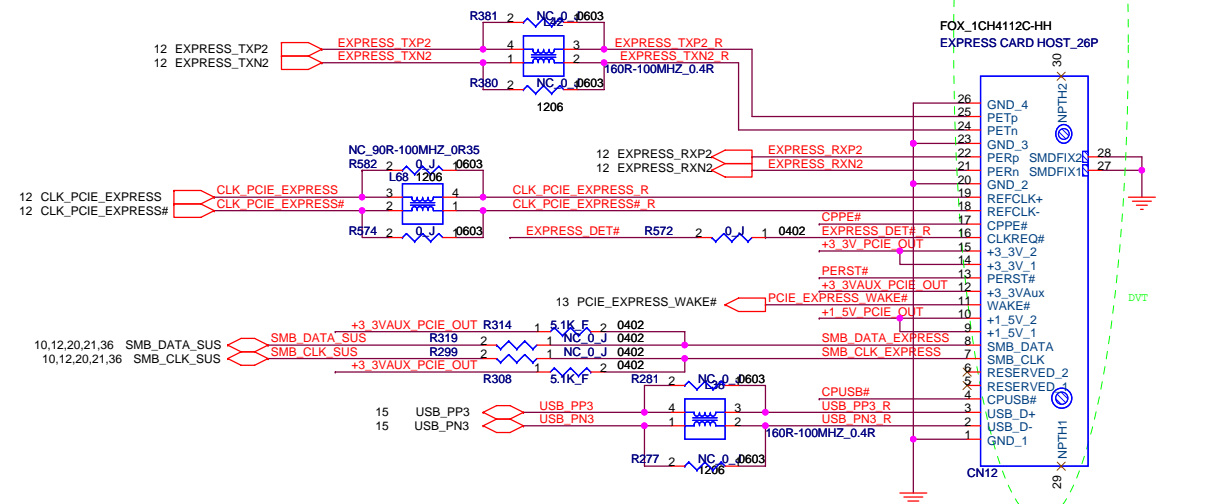


Colay: Half Mini Card CN second source

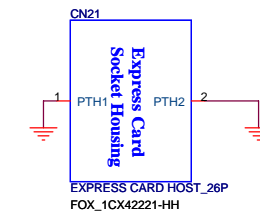
+1\_5V=>650mA  
+3\_3VAux=>275mA  
+3\_3V=>1.3A  
**Express Card Power Switch**



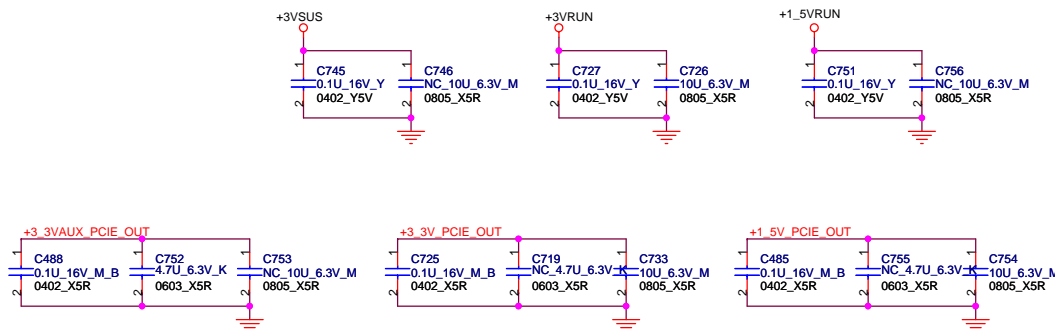
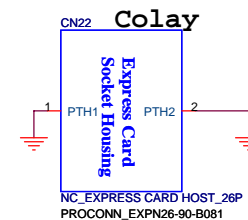
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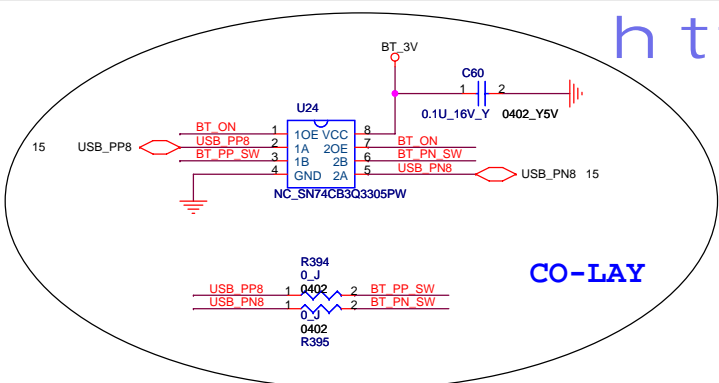


Express Card Slot.



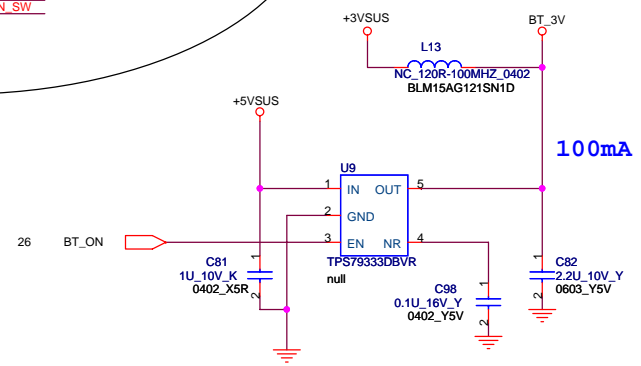
Colay





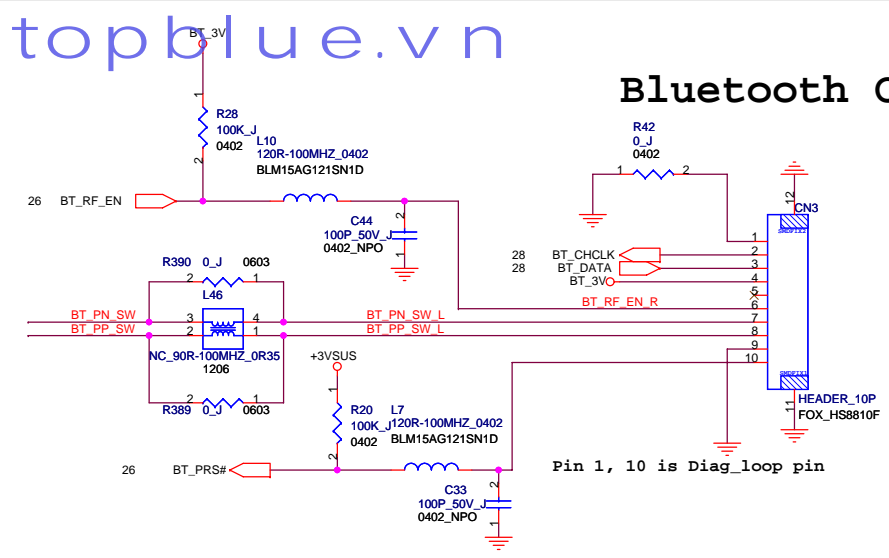
CO-LAY

## Bluetooth

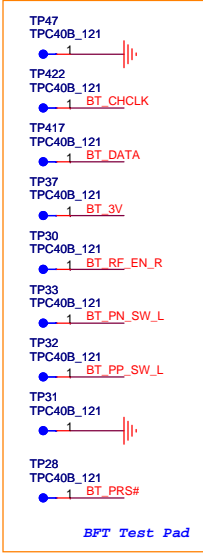


100mA

## Bluetooth CONN.

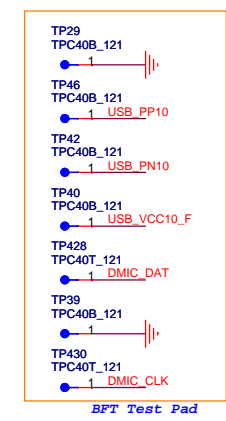
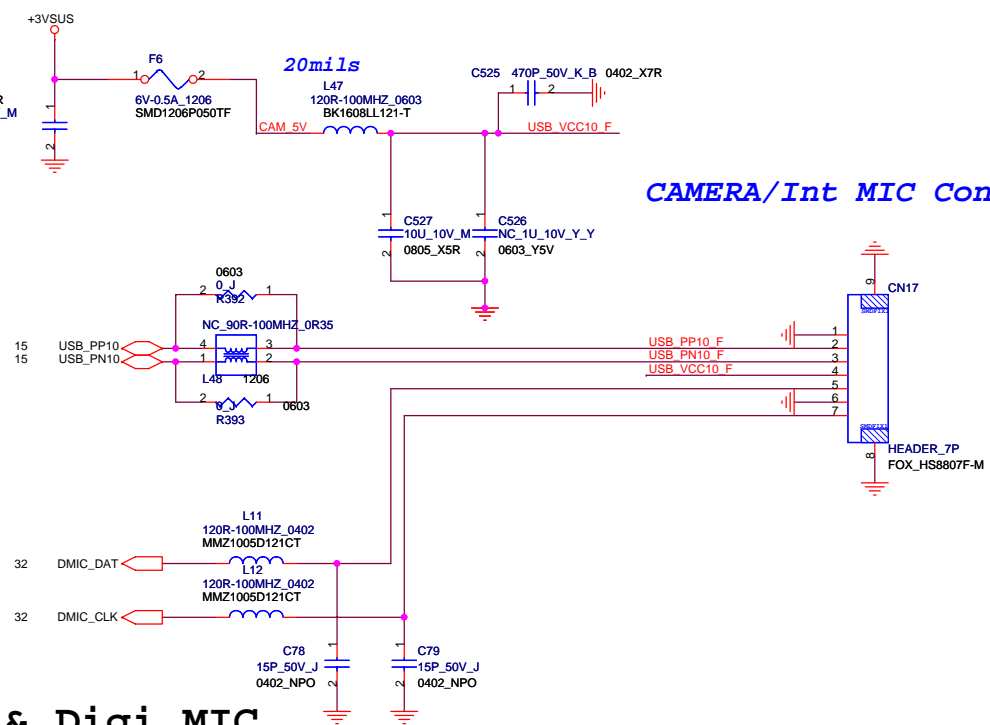


Pin 1, 10 is Diag\_loop pin



BFT Test Pad

## CAMERA/Int MIC Connector



BFT Test Pad

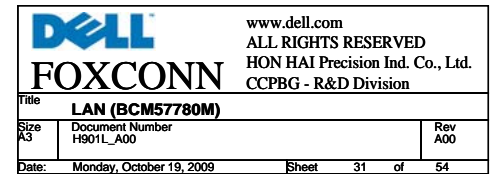
DVT

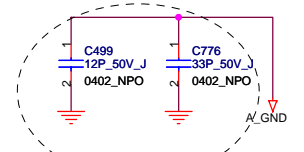
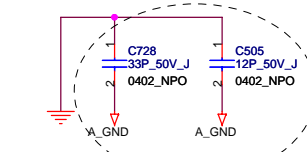
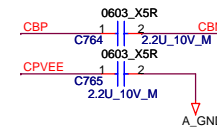
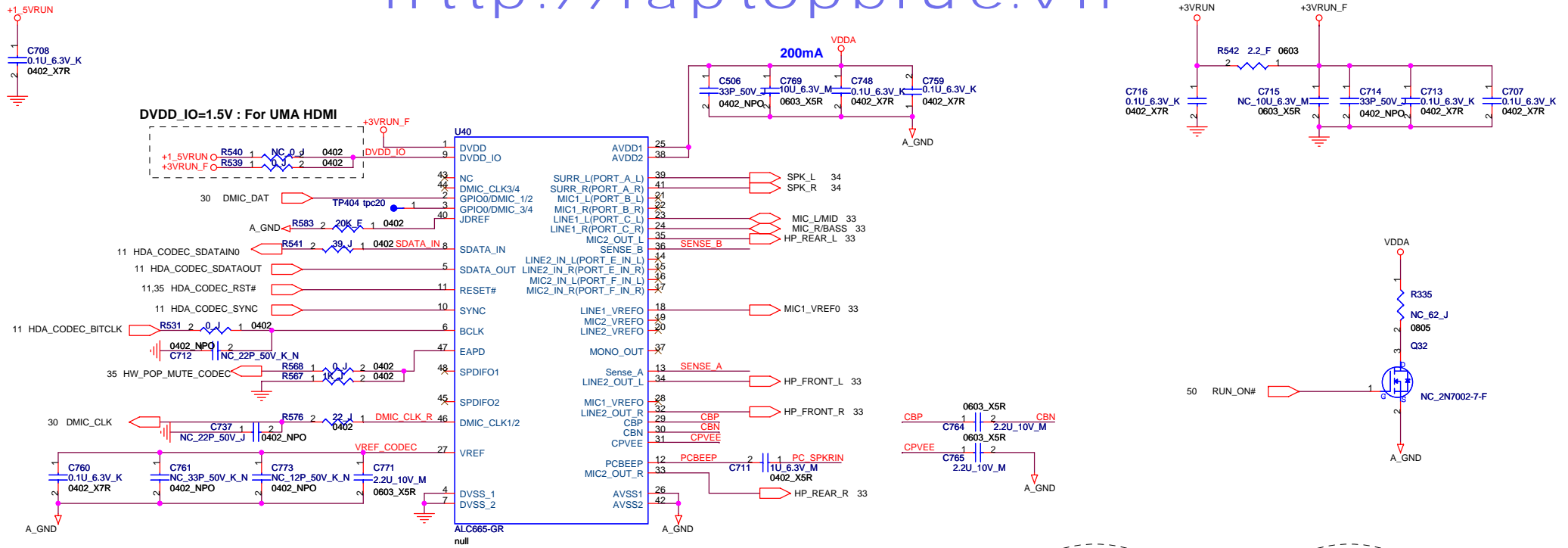
## Camera & Digi MIC

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Title <b>BT &amp; CAMERA/Dig MIC CON</b>		
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**BCM57780**  
7mm x 7mm  
48-Pin QFN

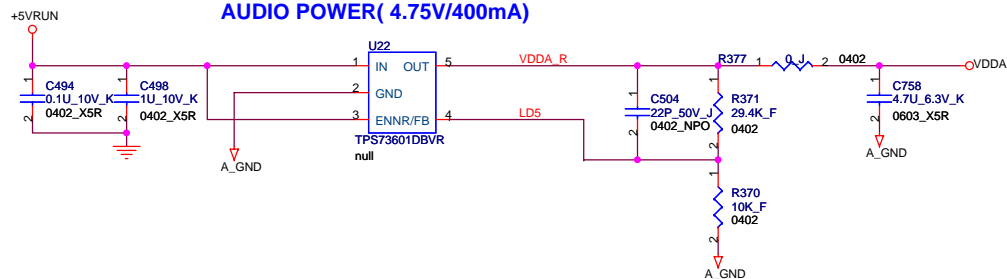




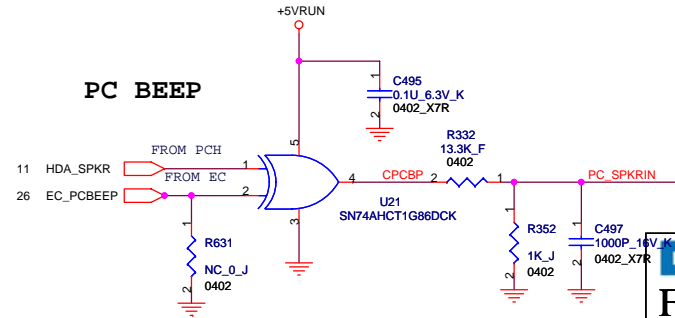
Place these two capacitor together.

Place these two capacitor together.

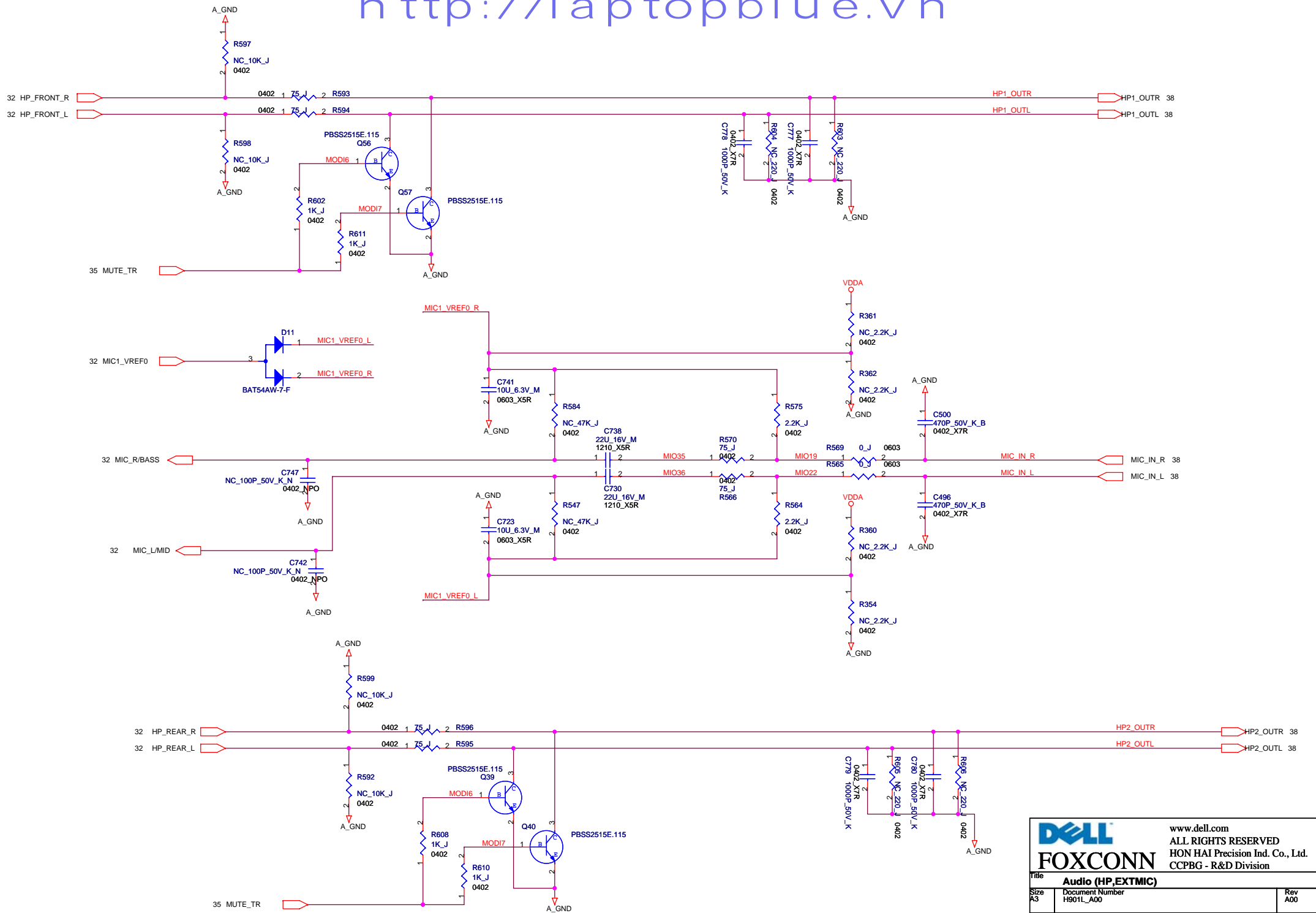
### AUDIO POWER( 4.75V/400mA)

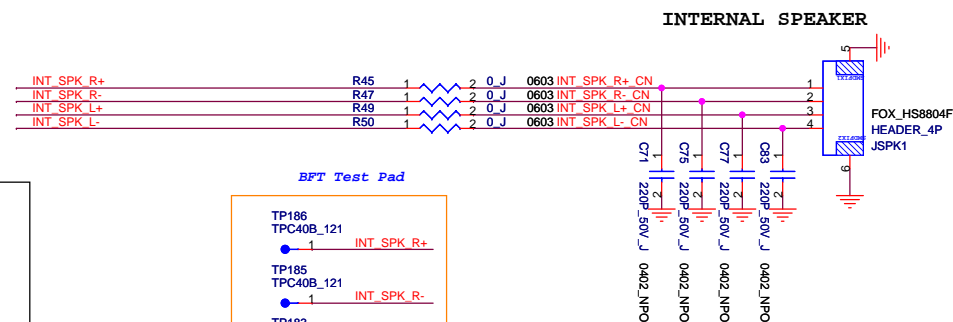
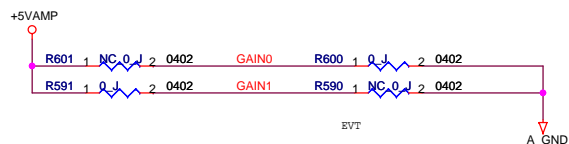
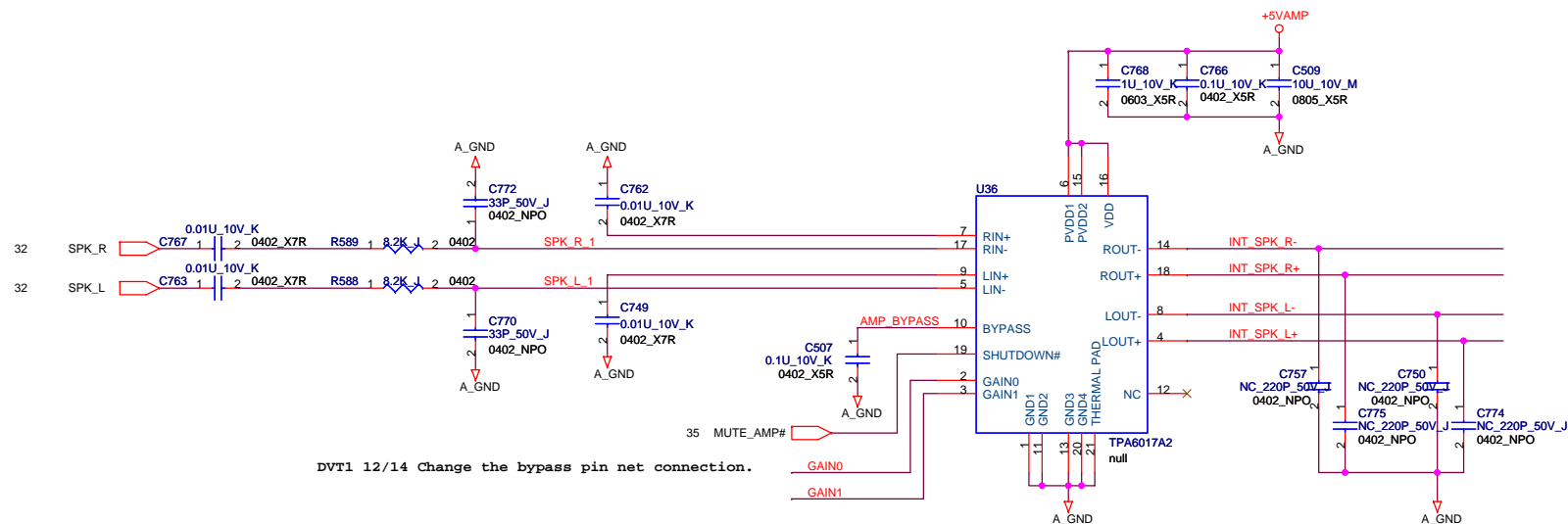
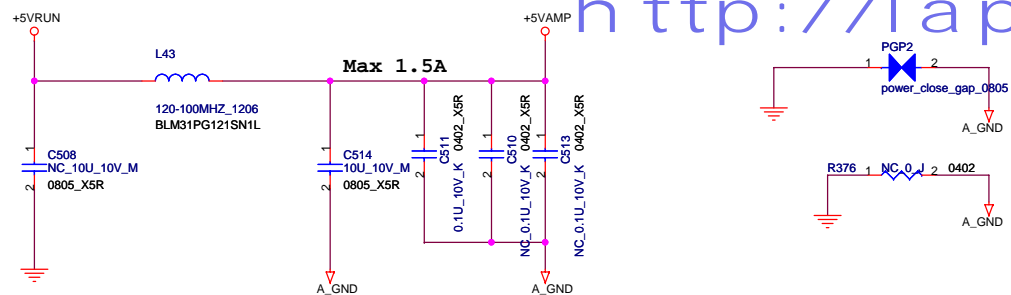


### PC BEEP



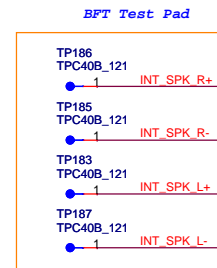


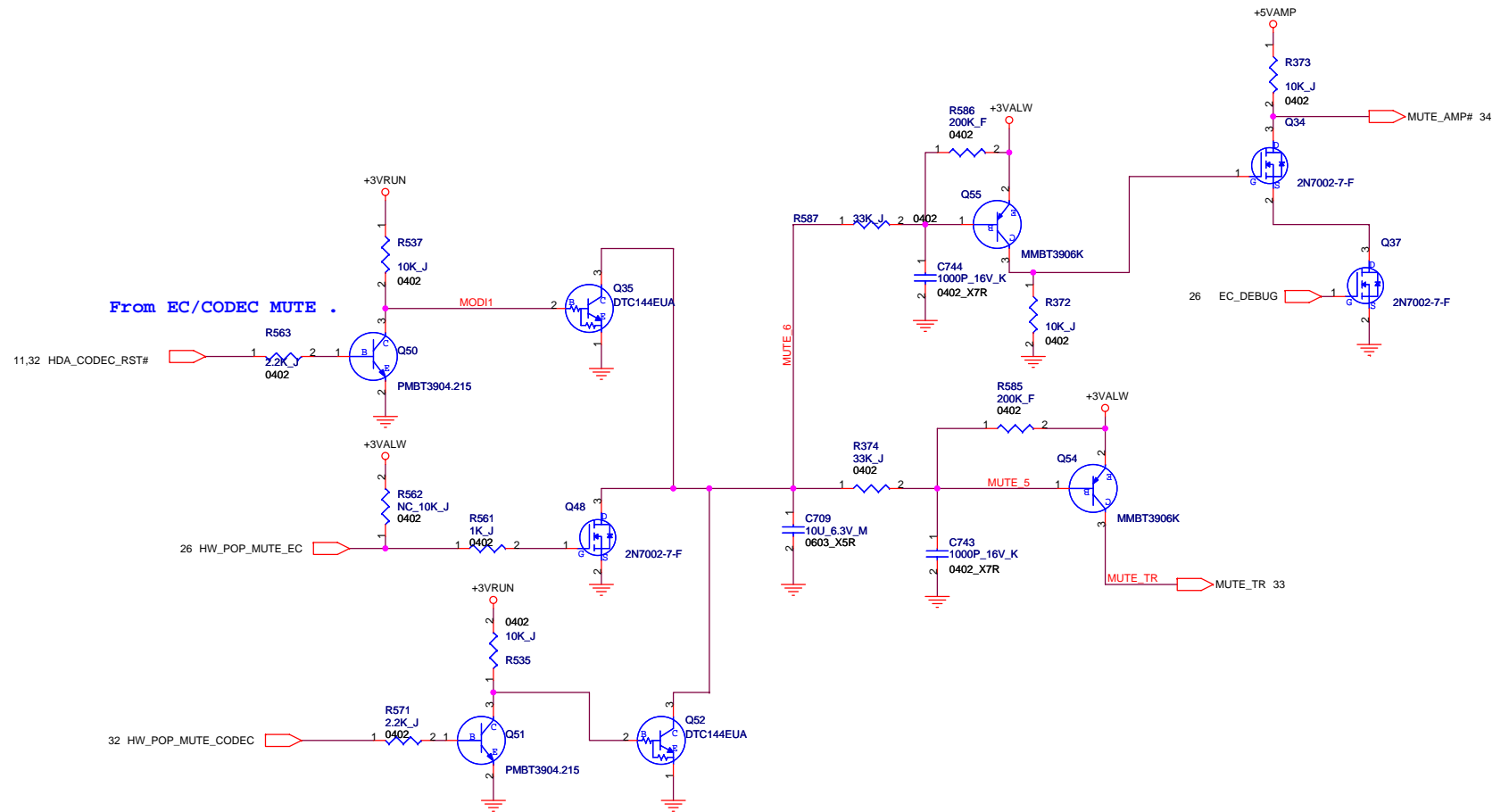




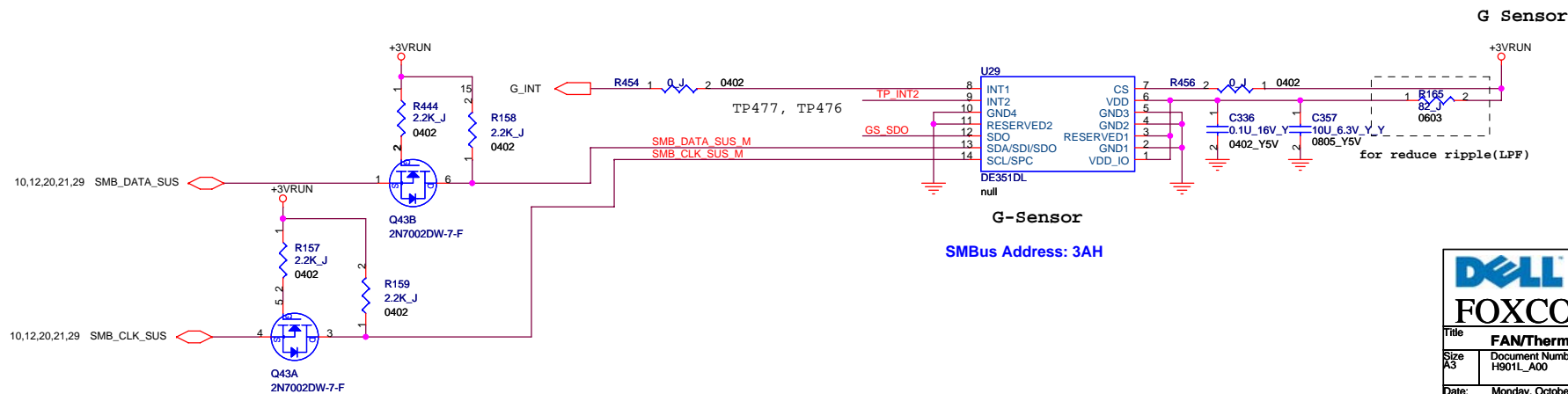
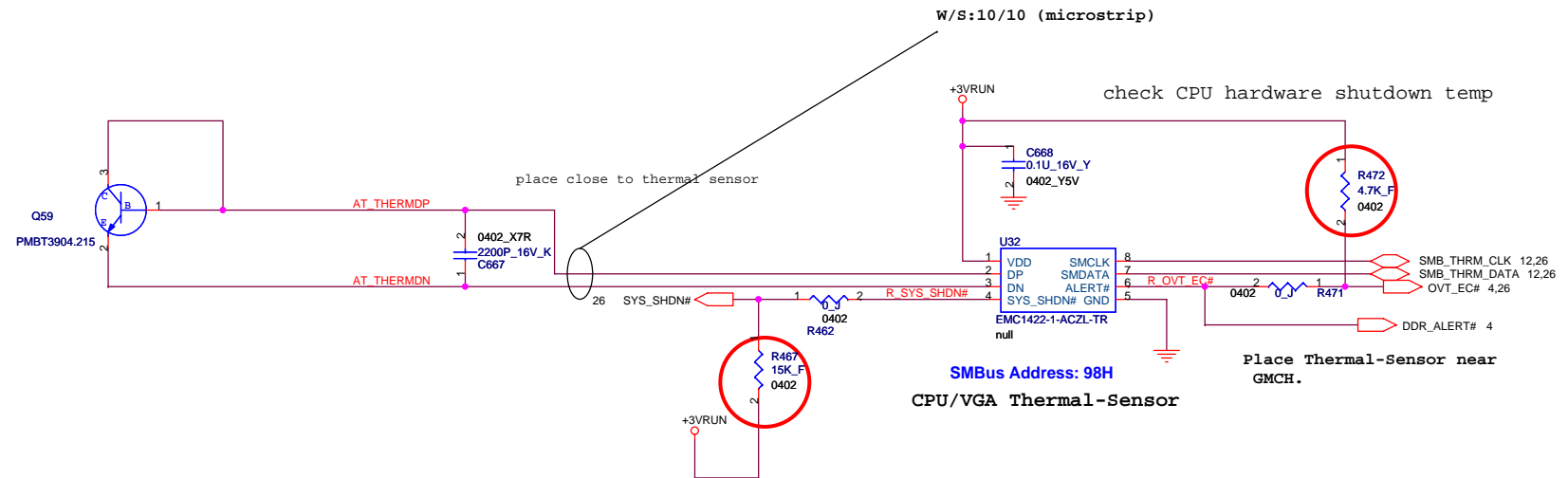
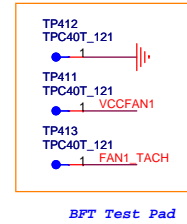
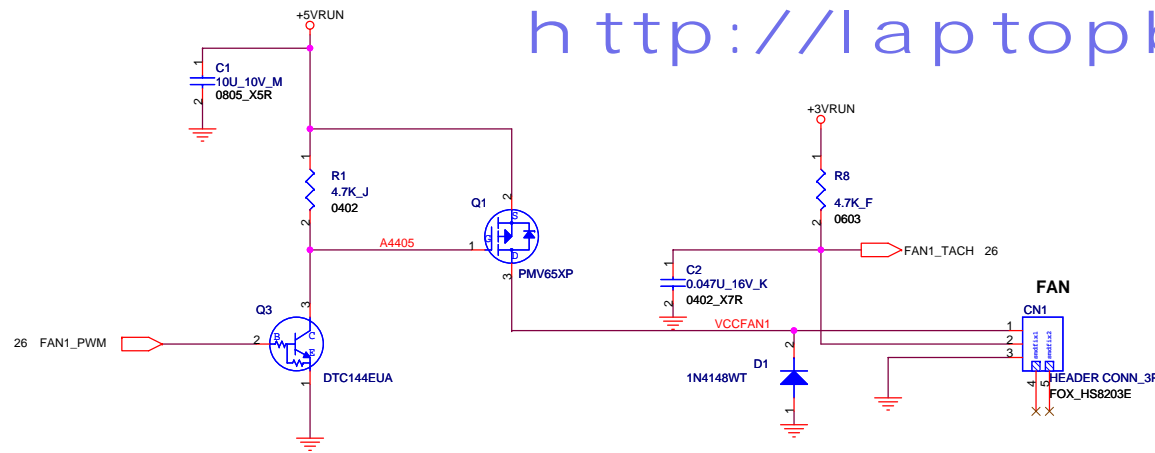
SPEAKER AMP		
	GAIN0	GAIN1
6 dB	0	0
10 dB	0	1
15.6 dB	1	0
21.6 dB	1	1

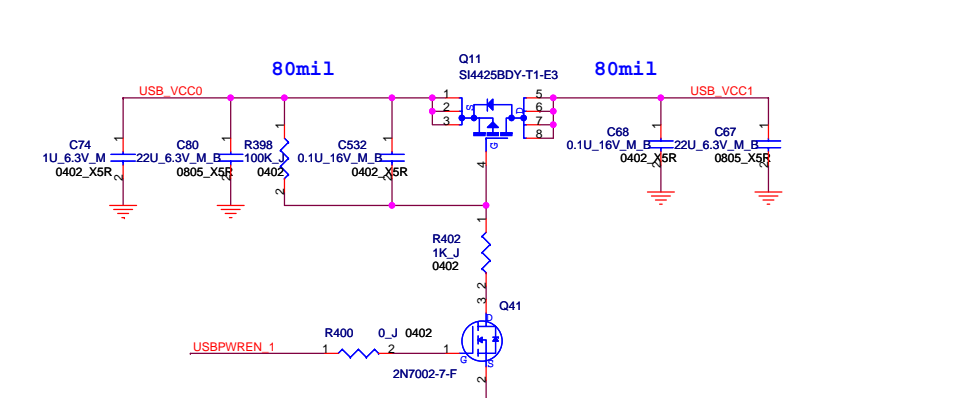
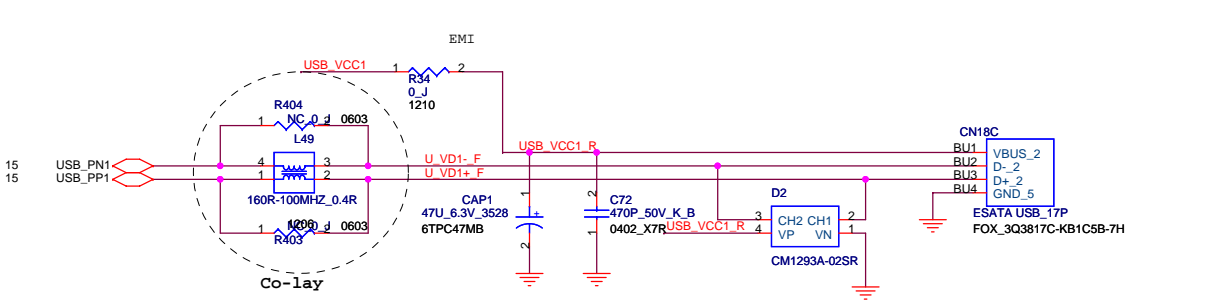
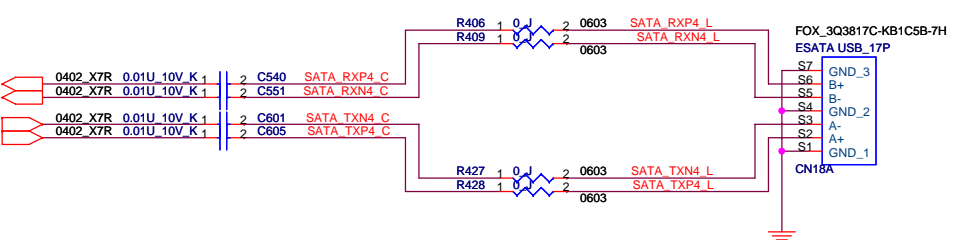
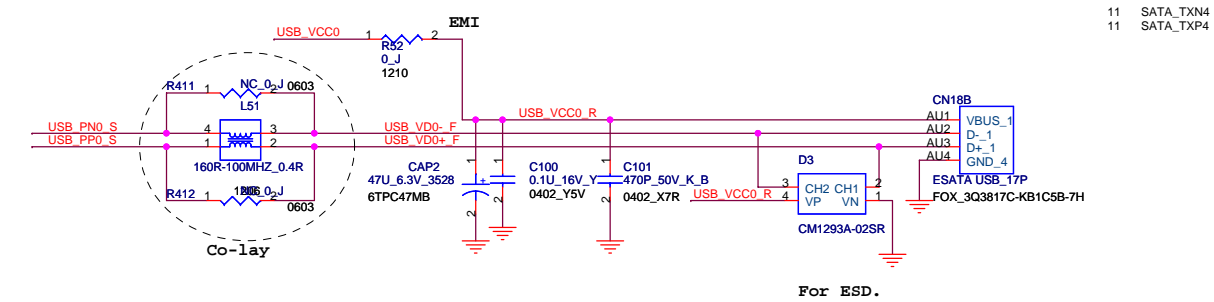
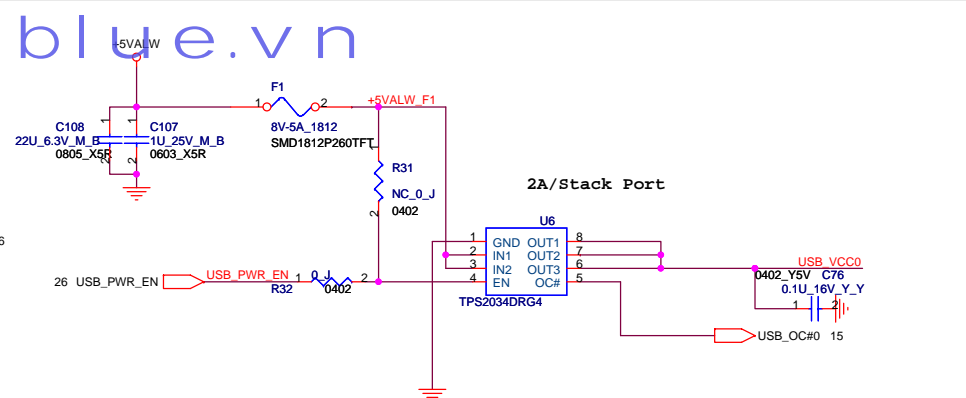
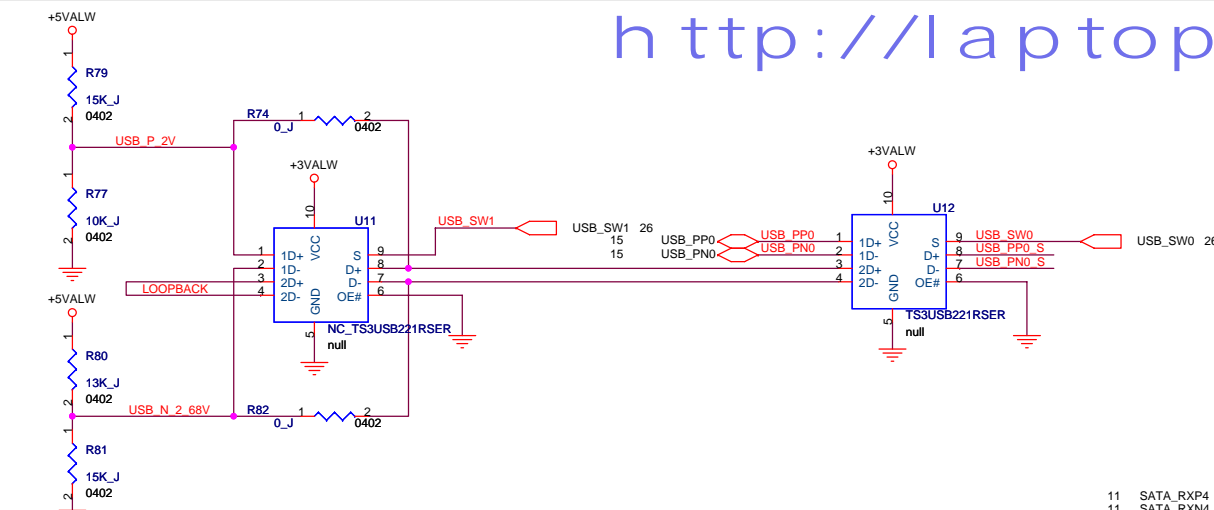
$\text{dB} = 20 \log \text{Gain}$   
 If set 10dB , gain is 3.162.  
 $P_o = \{ (1.2 V_{\text{rms}} * 3.162)^2 \} / 4 = 3.599 \text{ W}$



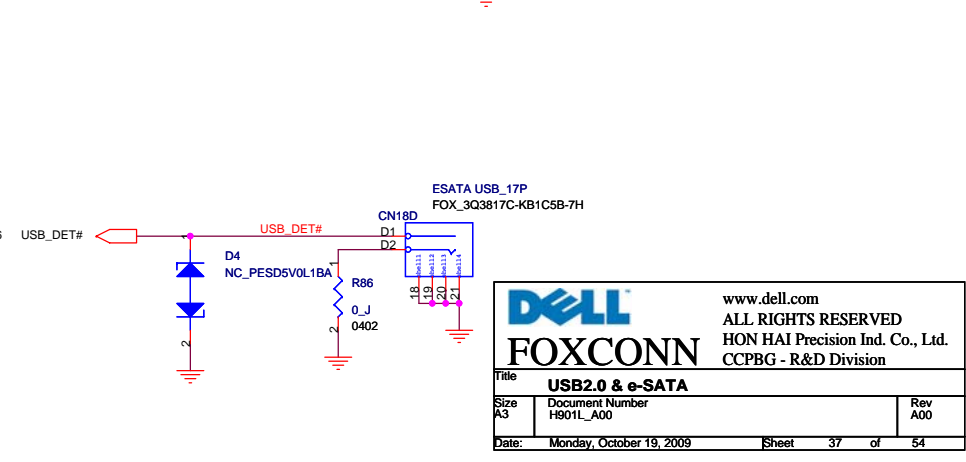
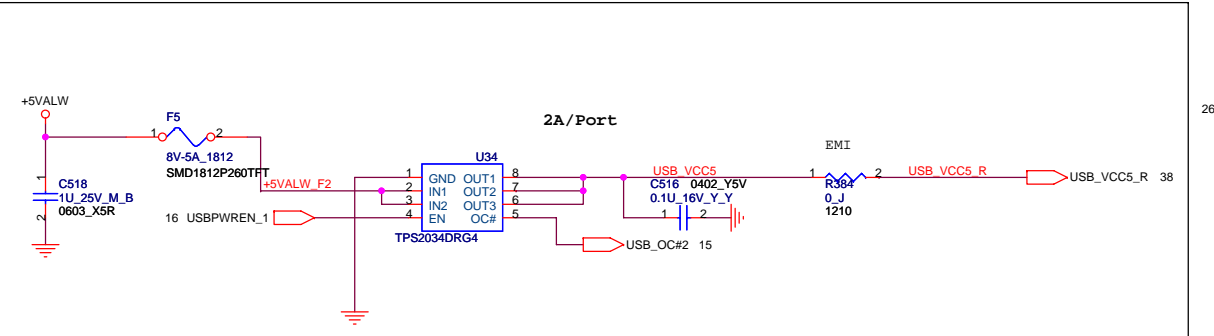


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# USB + e-SATA on MB



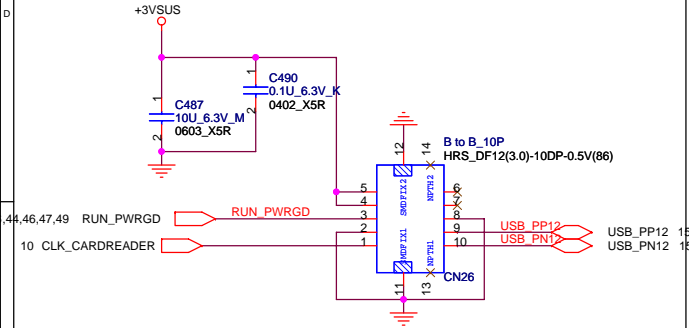
www.dell.com

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HON HAI Precision Ind. Co., Ltd.

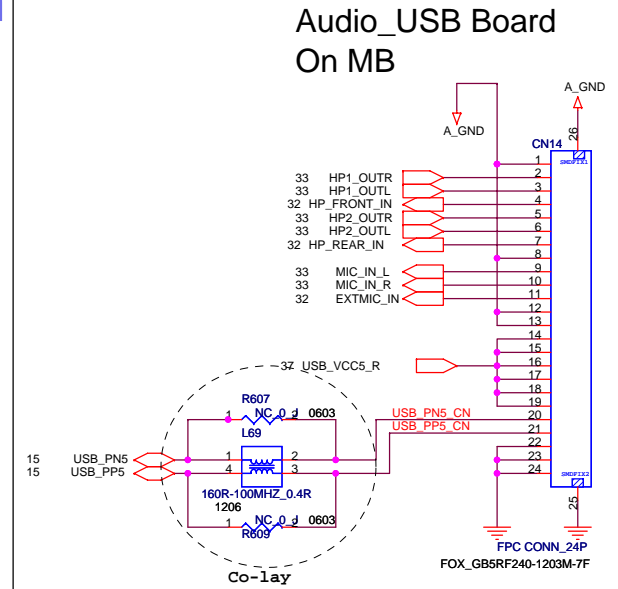
CCPBG - R&D Division

Title <b>USB2.0 &amp; e-SATA</b>		
Size A3	Document Number H901L_A00	Rev A00
Date: Monday, October 19, 2009	Sheet 37	of 54



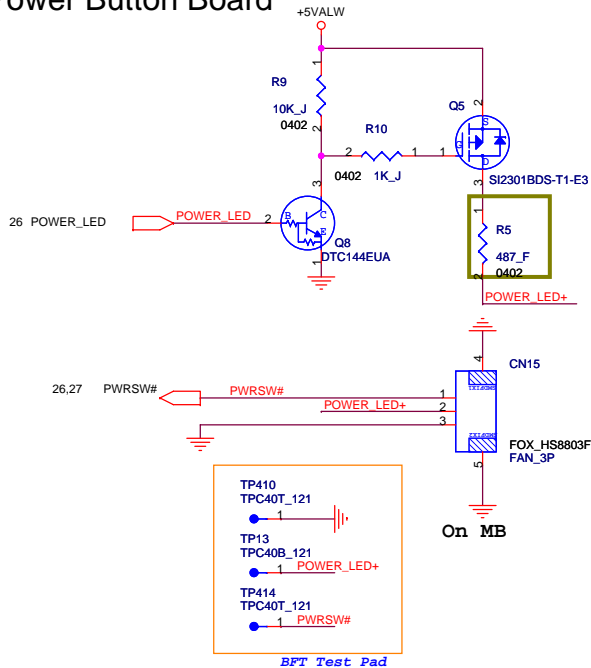
Cardreader Board

WWAN Board

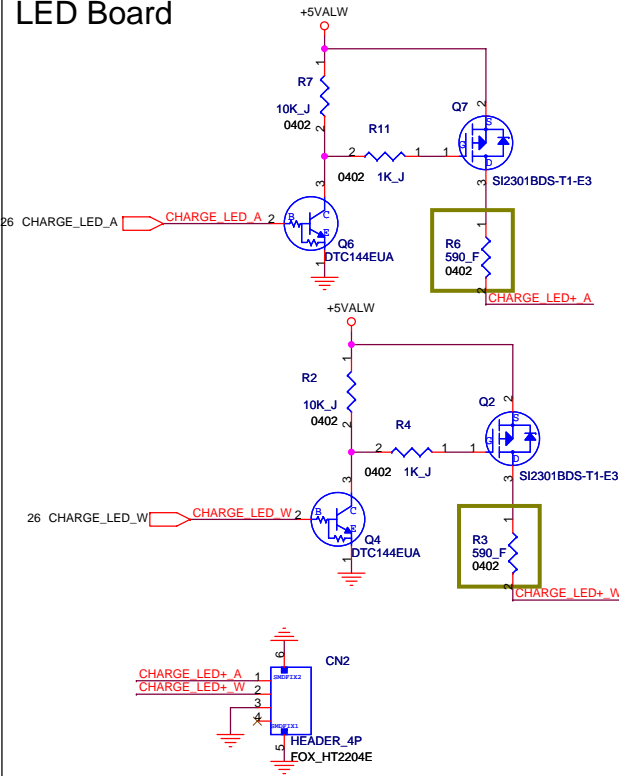


Audio\_USB Board On MB

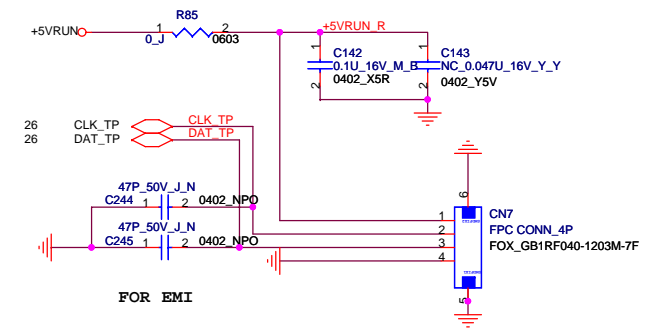
Power Button Board



LED Board

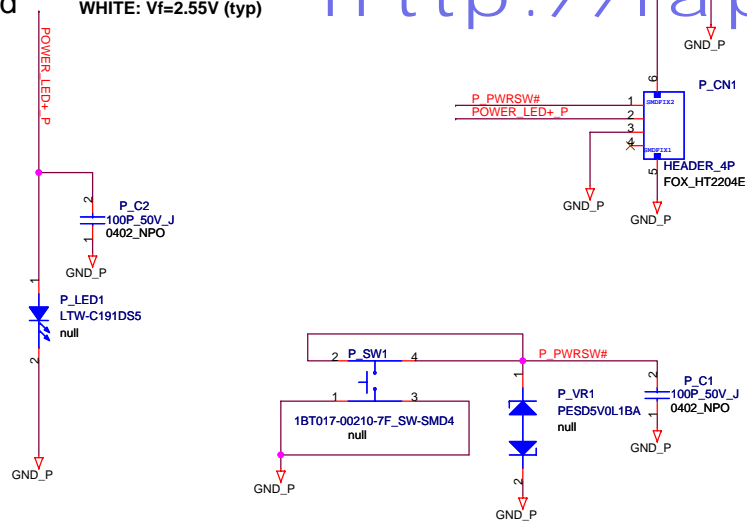


TP Board

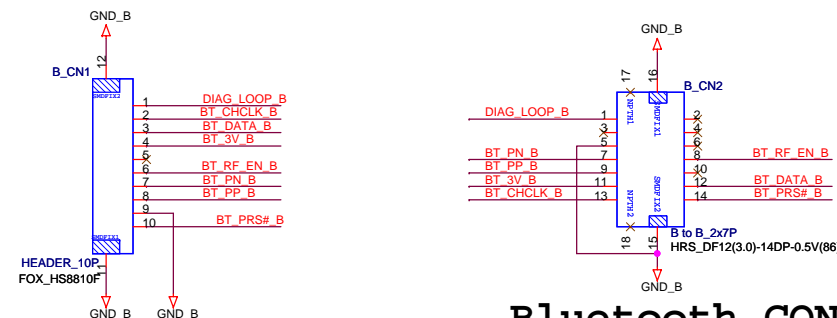


		www.dell.com ALL RIGHTS RESERVED HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
<b>Title</b> DB board connector (MB)		
<b>Size</b> A3	<b>Document Number</b> H901L_A00	<b>Rev</b> A00
<b>Date:</b> Monday, October 19, 2009		
<b>Sheet</b> 38 of 54		

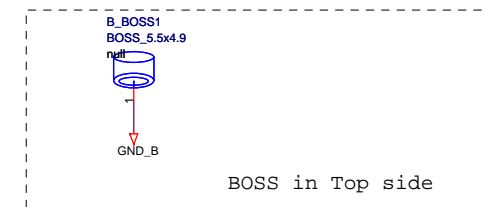
**WHITE:  $V_f=2.55V$  (typ)**



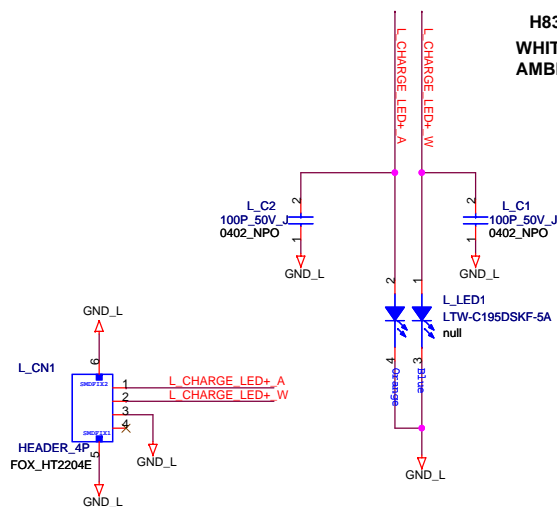
## Bluetooth Board

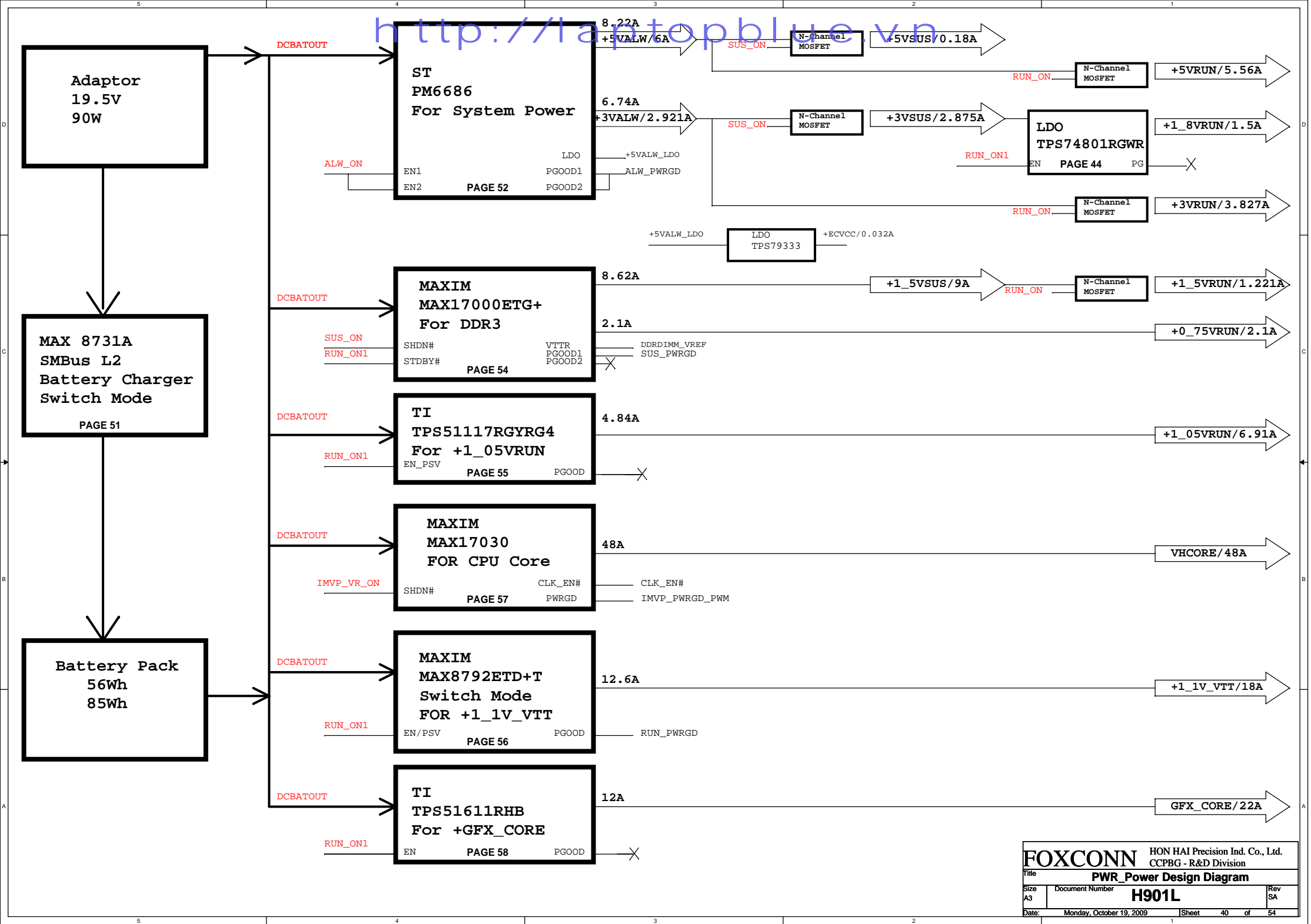


Bluetooth CONN.

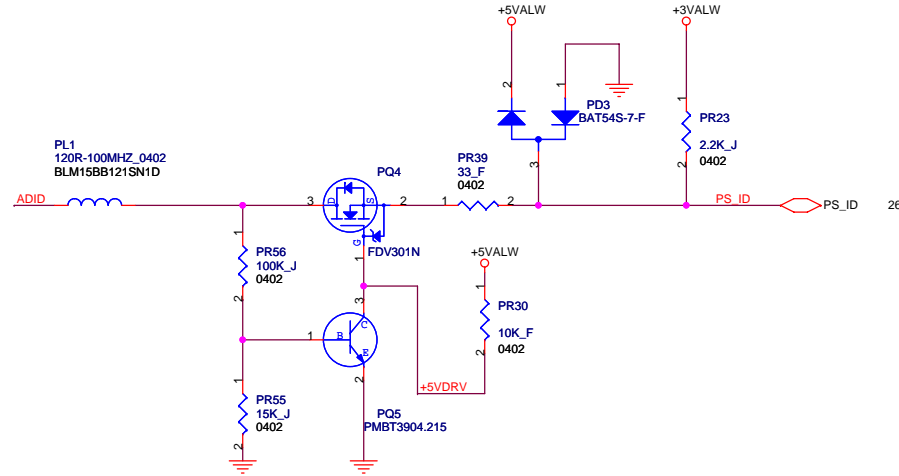
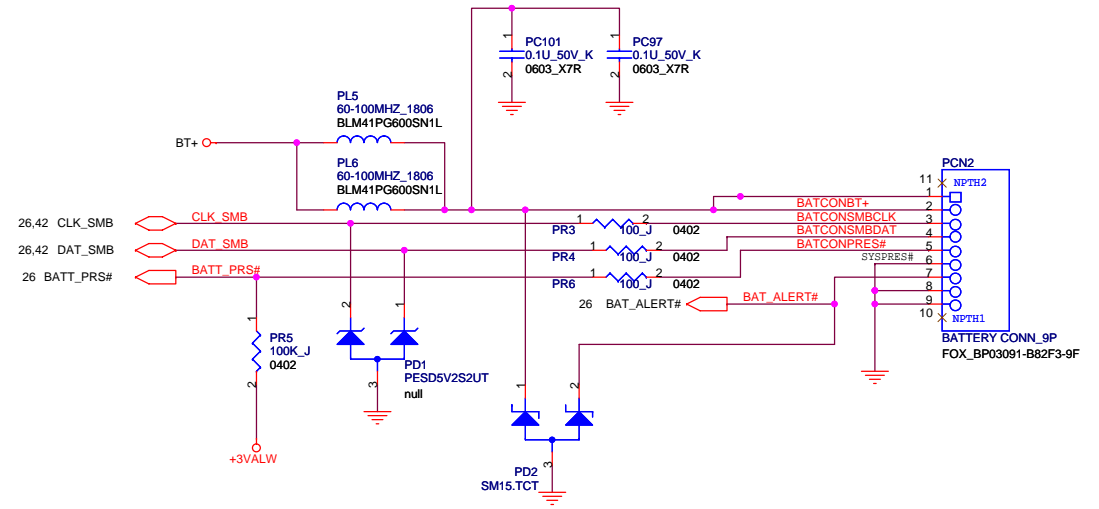
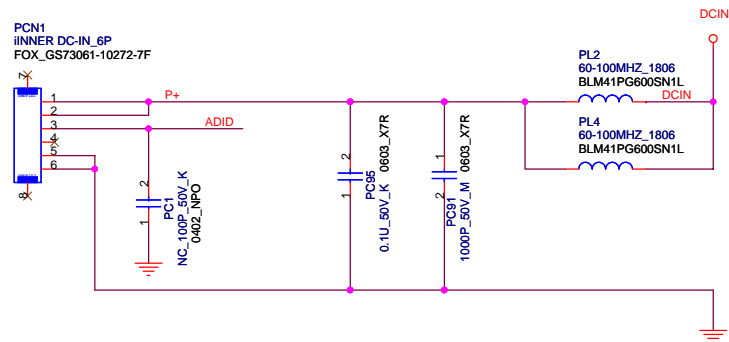
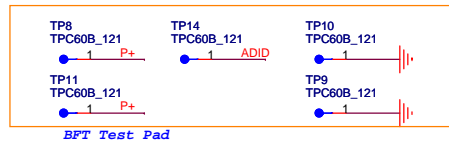


**H830**  
**WHITE: Vf=2.55V (typ)**  
**AMBER: Vf=2.0V (typ)**

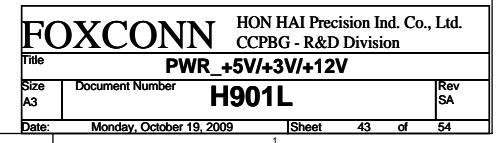


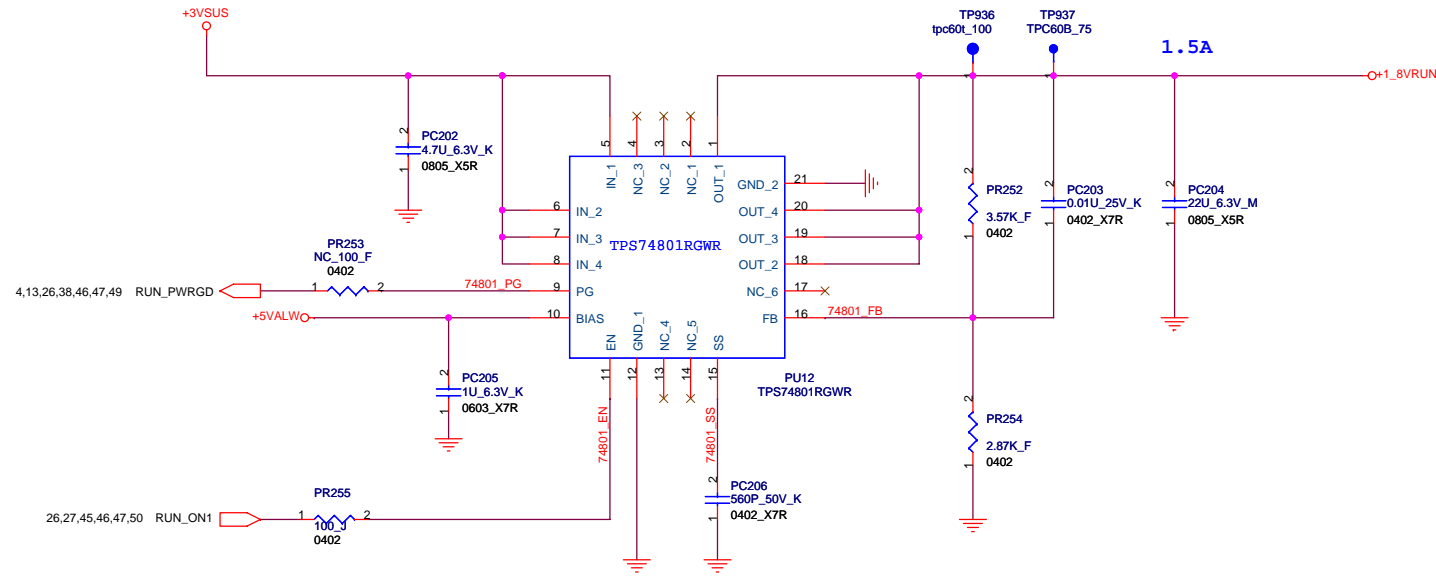










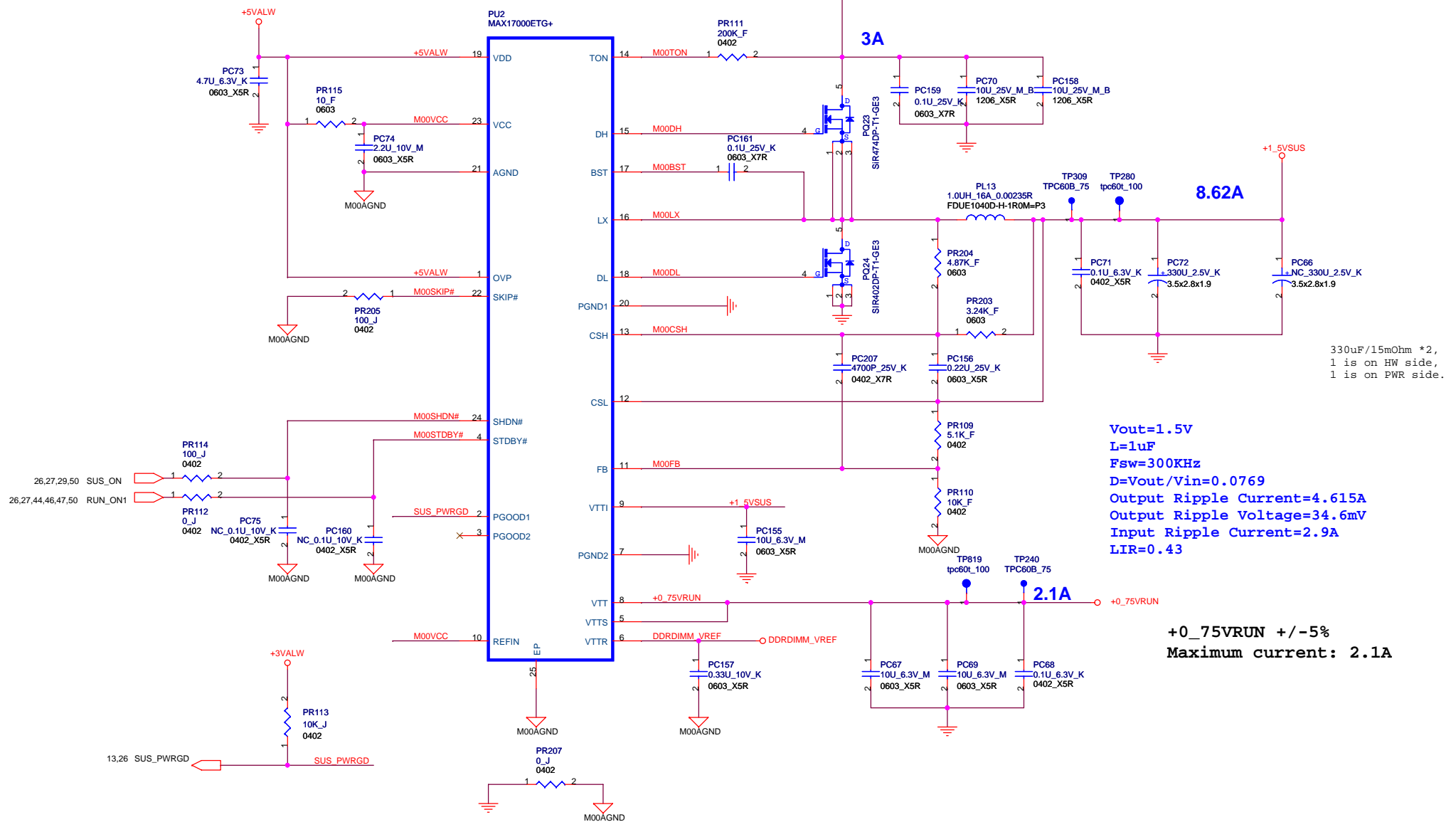


<http://laptopblue.vn>

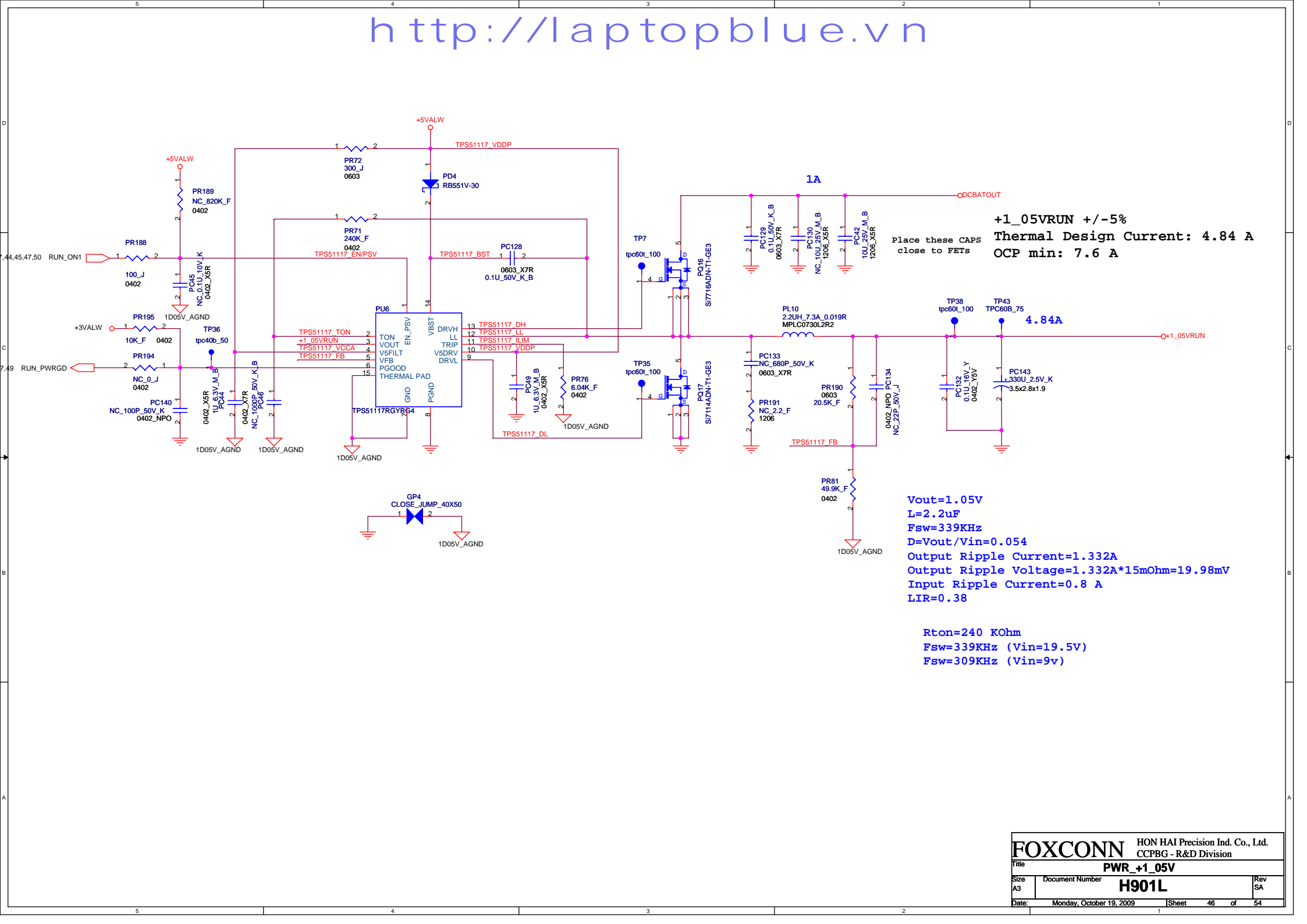
+1\_5VSUS +/-5%

Thermal Design Current: 8.62A

OCP min: 13.55 A



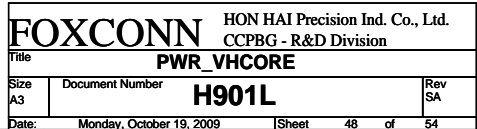
<b>FOXCONN</b>		<b>HON HAI Precision Ind. Co., Ltd.</b>	
		<b>CCPBG - R&amp;D Division</b>	
<b>Title</b>		<b>PWR +1_5V/+0_75V</b>	
<b>Size</b> A3	<b>Document Number</b>	<b>H901L</b>	<b>Rev</b> SA
<b>Date:</b> Monday, October 19, 2009		<b>Sheet</b> 45	<b>of</b> 54

[illegible]

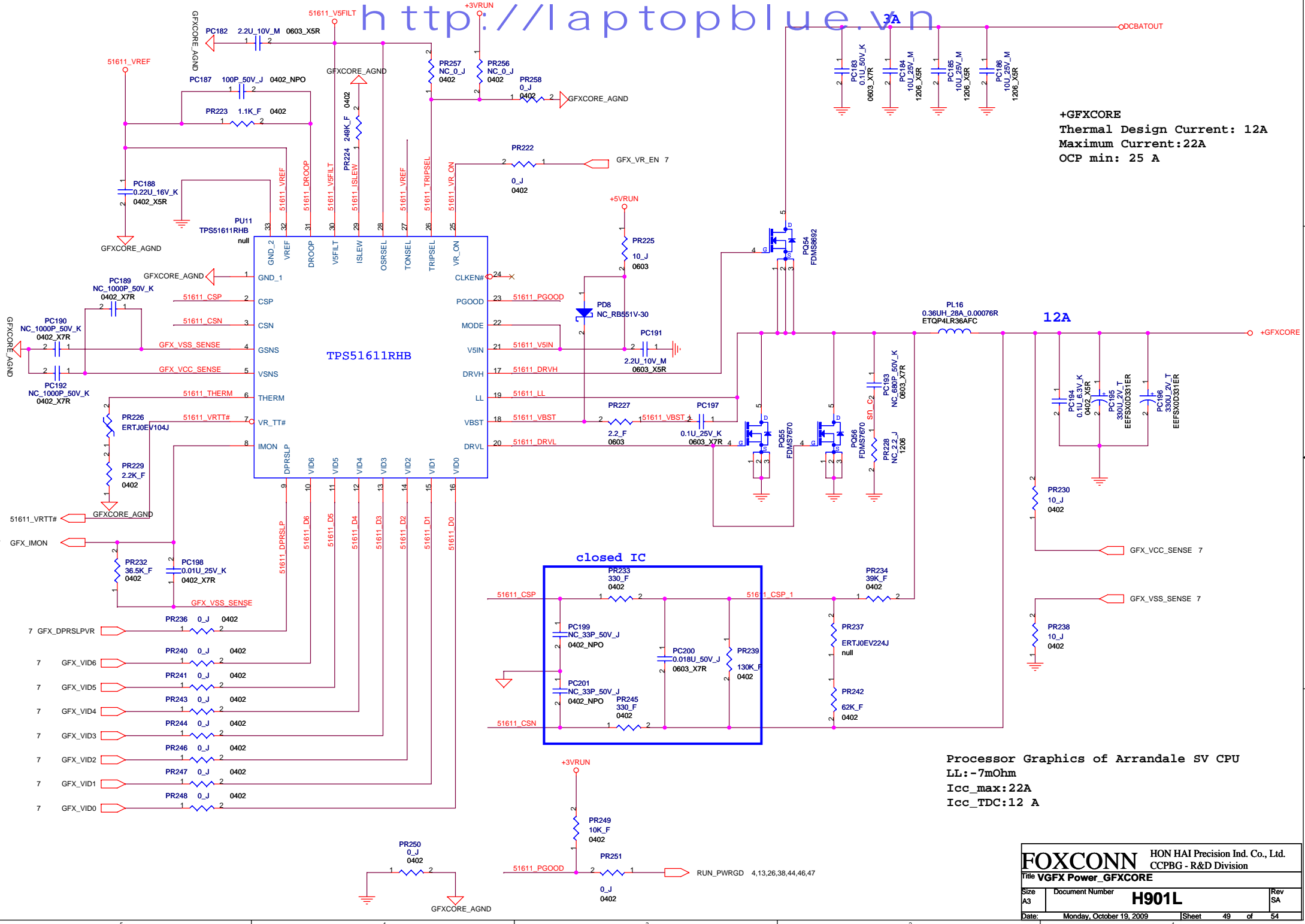




```
VID[5:3] for CSC, CRB default '100' = 50A (Iccmax)
VID[2:0] for MSID (To differentiate XE CPU from SV CPU)
DPRSLPVR='1' for IMVP6.5
Others are RSDV
Both PH and PD resistors are required to reserve for all 9 signals
```

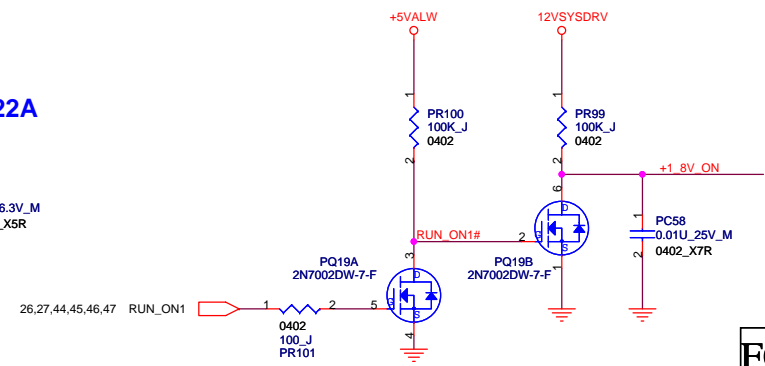
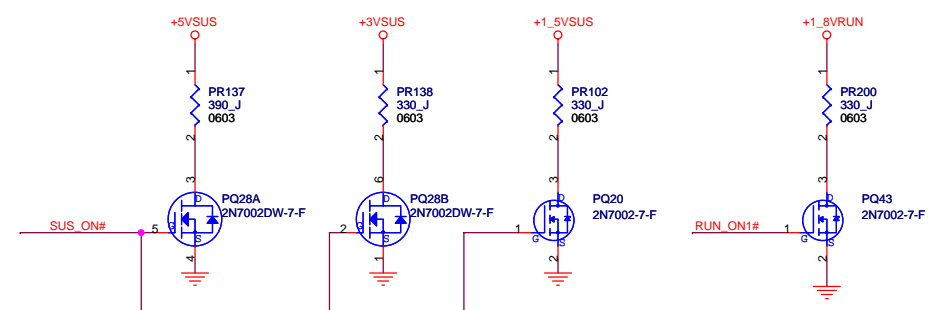
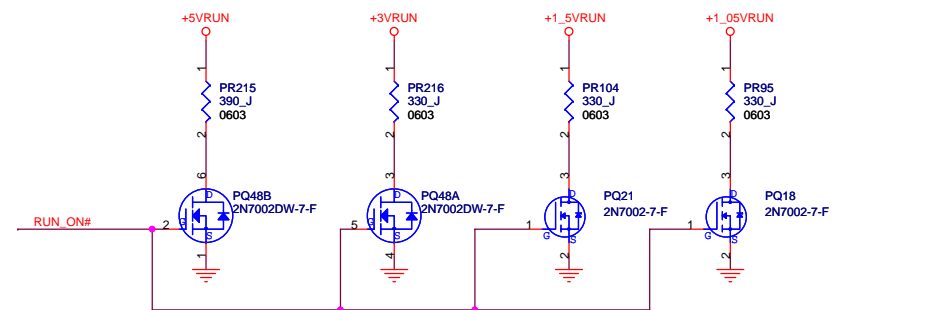
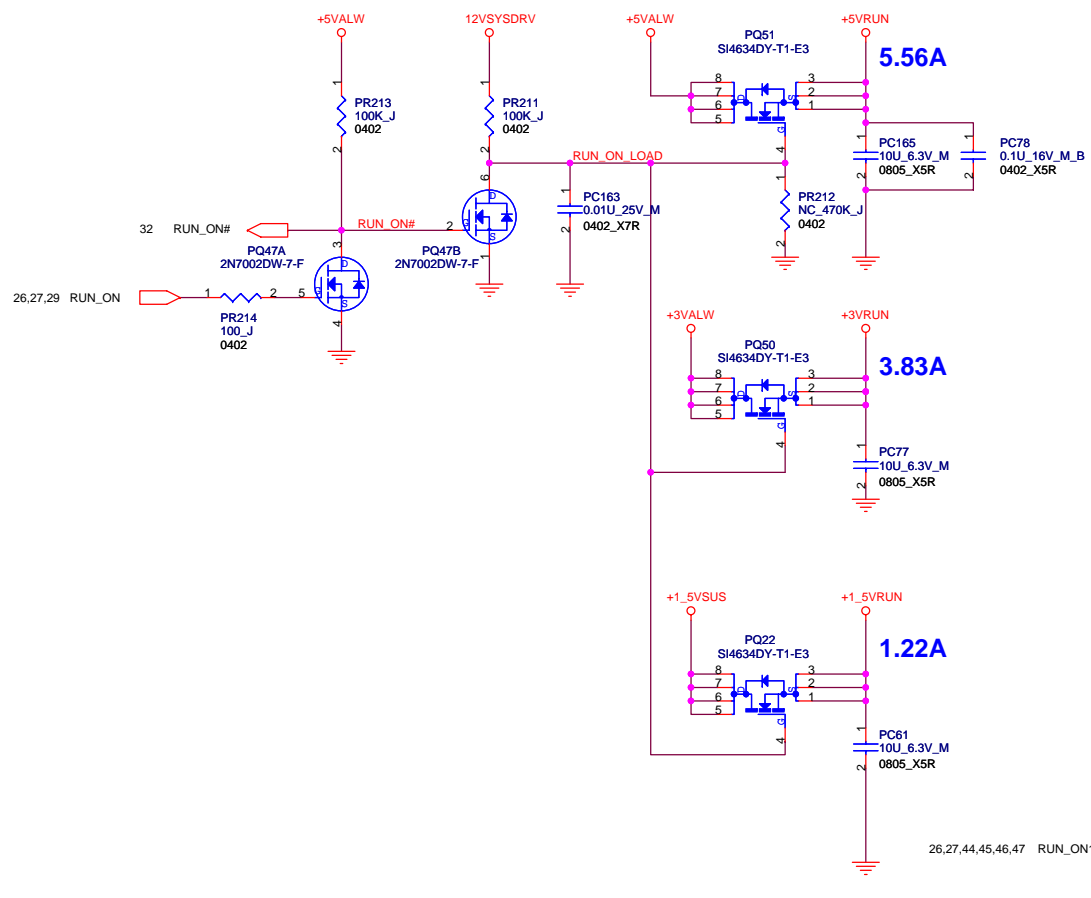


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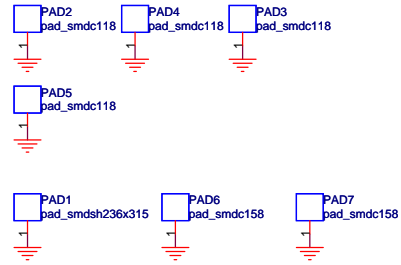


```
+GFXCORE
Thermal Design Current: 12A
Maximum Current:22A
OCP min: 25 A
```

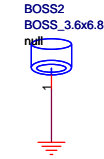
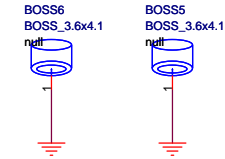
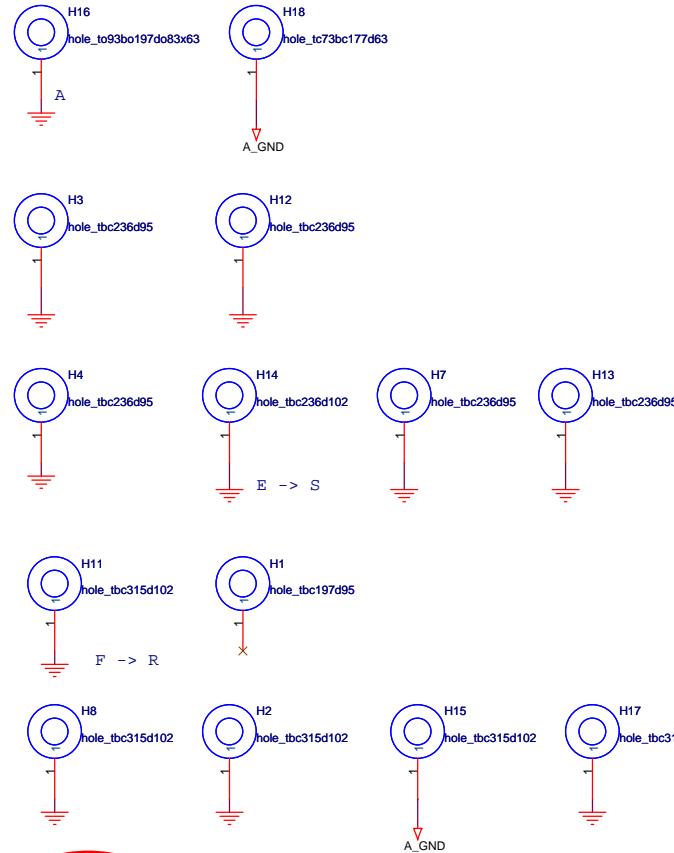
```
Processor Graphics of Arrandale SV CPU
LL:-7mOhm
Icc_max:22A
Icc_TDC:12 A
```

[illegible]

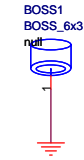
**ME**



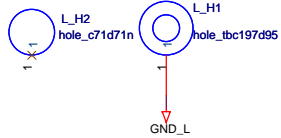
**CPU**



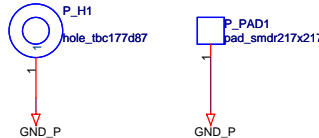
BOSS in Bottom side



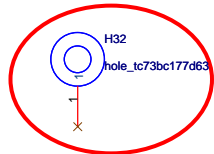
BOSS in Top side



**LED**



**Power Button**



For ME request.

**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

<http://laptopblue.vn>

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 discharge 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

<b>FOXCONN</b>		HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title <b>History (1)</b>			
Size A3	Document Number <b>H901L</b>		Rev SB
Date:	Monday, October 19, 2009		Sheet 53 of 54

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