

KL3A Intel Calpella Platform with Discrete GFX(4 core)

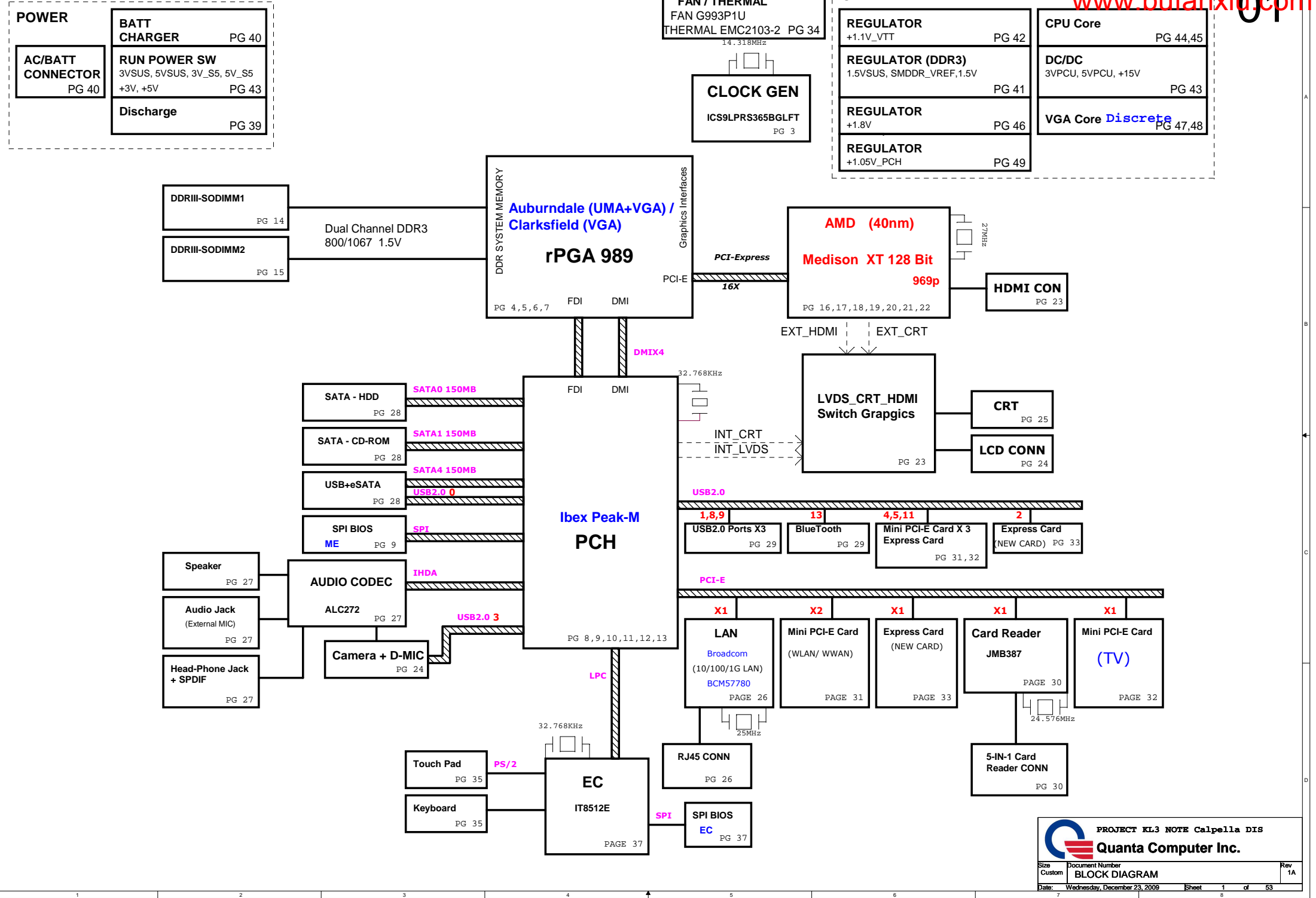
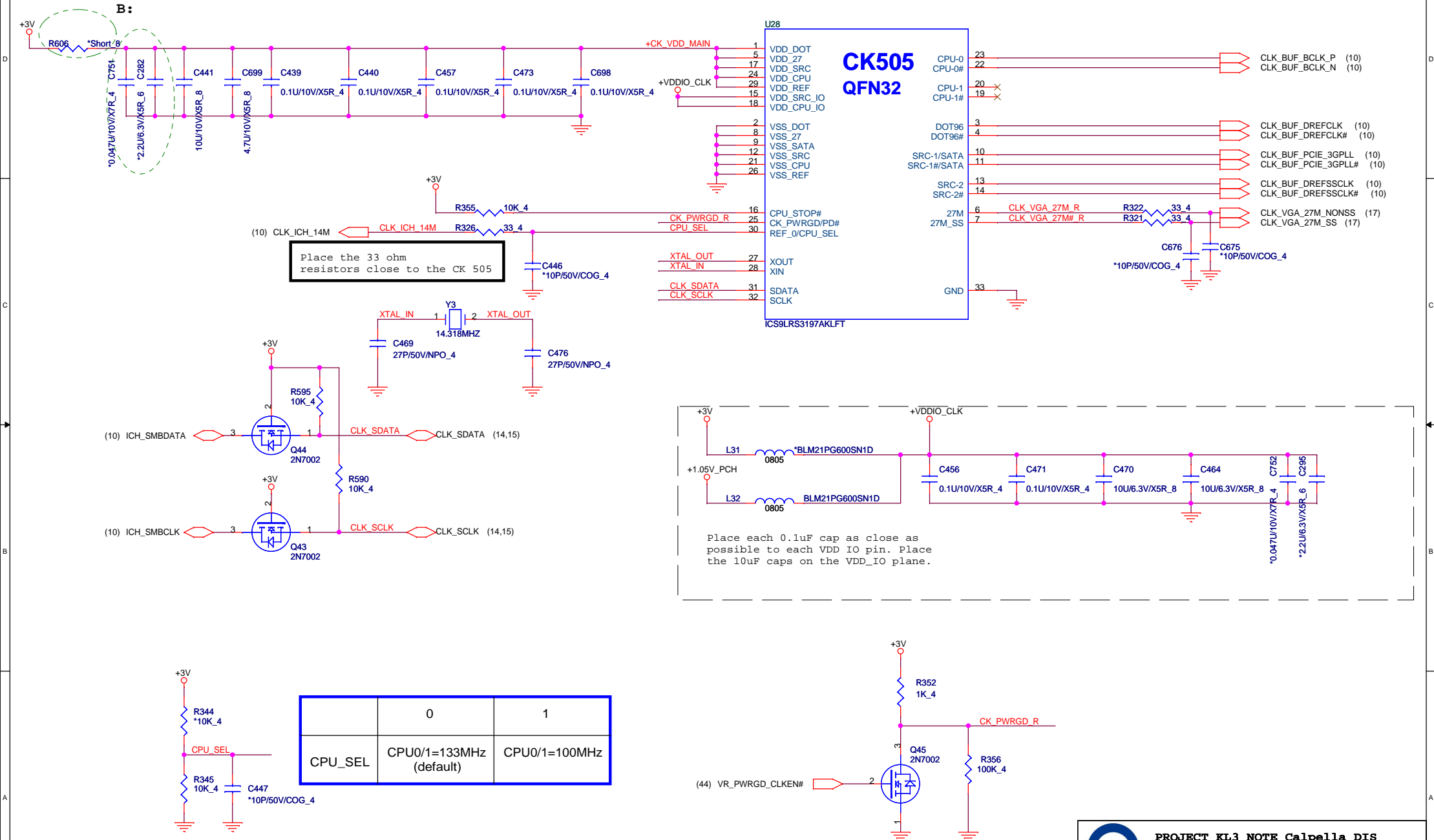


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Power States

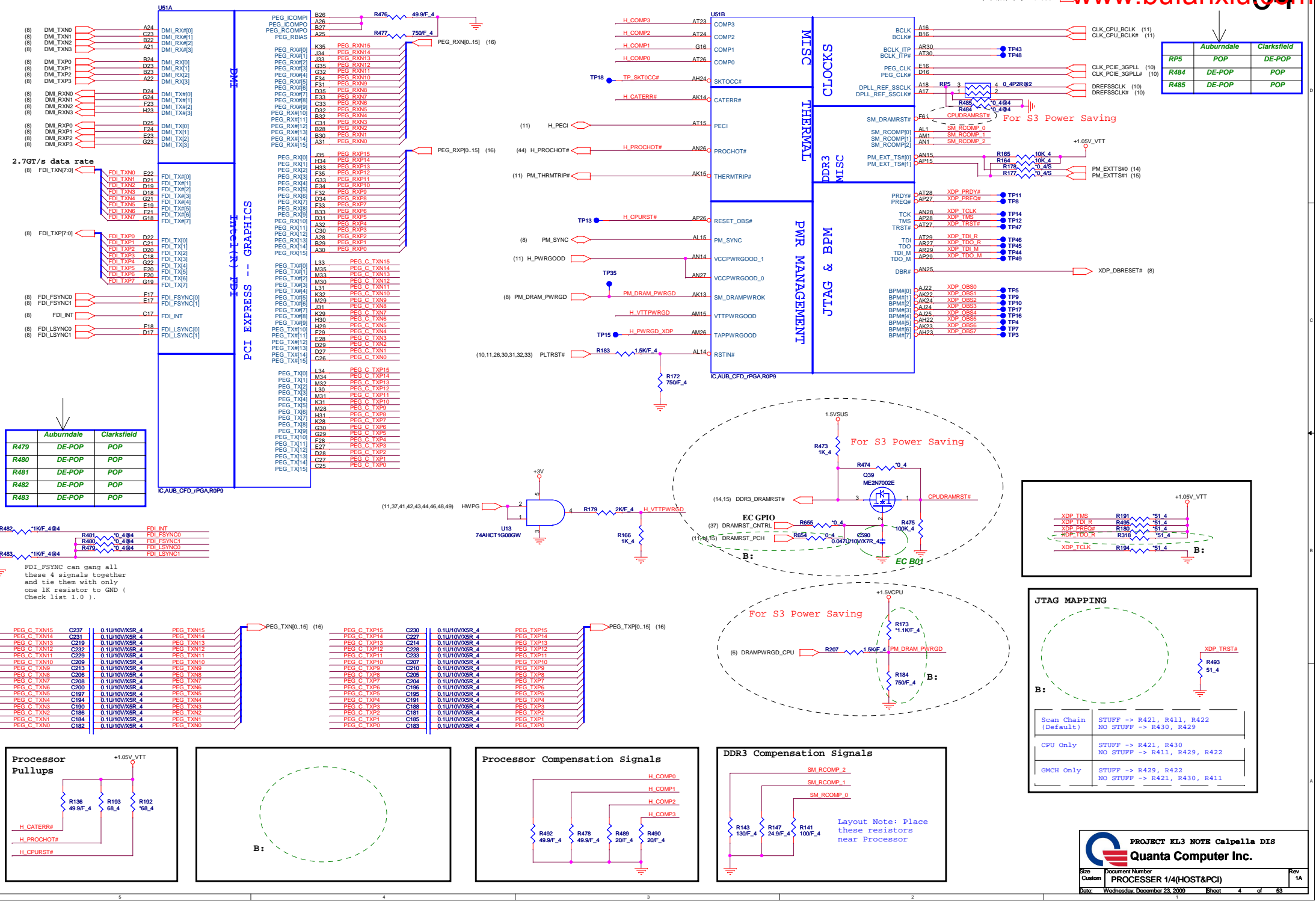
POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
VIN	10V~+20V	23,32,43,44,45,46,47,48,49,50	MAIN POWER		S0~S5
+3VRTC	+3.0V~+3.3V	9,12,41	RTC		S0~S5
3VPCU	+3.3V	9,23,27,30,32,35,39,41,43,44,47	ITE8052 POWER	3V5V_EN	S0~S5
5VPCU	+5V	14,43,44,45,46,47,49,50	DC/DC POWER IC SOURCE	3V5V_EN	S0~S5
+15V	+15V	23,38,43,45,46,47	LARGE POWER	3V5V_EN	S0~S5
LANVCC	+3.3V	27,43	LAN POWER	LAN_ON	
5V_S5	+5V	12,29,30,43	PCH SUS POWER	S5_ON	S0~S3
3V_S5	+3.3V	8,9,10,11,12,43,52	Sys Management,PCH Resume Well, Intel HD Audio,USB,WLAN WiMAX POWER	S5_ON	S0~S3
5VSUS	+5V	23,39,43,48	SLP_S4# CTRLD POWER	SUSON	S0~S3
3VSUS	+3.3V	14,15,30,34,41,43,49	SLP_S4# CTRLD POWER	SUSON	S0~S3
1.5VSUS	+1.5V	4,6,14,15,43,45,46,49,50	SODIMM POWER	SUSON	S0~S3
0.75VSMDDR_VTERM	+0.75V	14,15,43,45	DDR3 SODIMM REFERENCE POWER	MAIN_ON	S0
+5V	+5V	12,18,23,24,25,26,28,35,37,41,43,44	SLP_S3# CTRLD POWER	MAIN_ON	S0
+3V	+3.3V	3,4,8,9,10,11,12,14,15,17,23,25,26,27,28,29,30,31,32,33,34,36,37,38,39,40,41,43,44,45,46,47,48,50,52	SLP_S3# CTRLD POWER	MAIN_ON	S0
+1.8V	+1.8V	6,12,17,18,21,22,33,43,50	LVDS,NVM POWER	MAIN_ON	S0
+1.5V	+1.5V	12,18,19,20,31,32,34,45,46	Mini PCIe,Express Card POWER	MAIN_ON	S0
+1.05V_VTT	+1.05V	4,6,11,12,43,46,48,52	AuBurndale VTT POWER	MAIN_ON	S0
+1.05V_PCH	+1.05V	3,10,12,43,46,52	PCH CORE POWER	1.05V_RUN_ON	S0
+VCC_GFX_CORE	+0.9V~+1.2V	18,21,43,49	VGA CORE POWER	GFXVR_EN	S0
VCC_CORE		6,43,48	CPU CORE POWER	VRON	S0
LCDVCC	+3.3V	23	LCD Power	ENVDD	S0
+5V_ODD	+5V	28	ODD Power	MAIN_ON	S0
+5V_HDD	+5V	28	HDD Power	MAIN_ON	S0
BAT-V	+10V~+17V	44	MAIN BATTERY	CHG_PBATT	S0~S5

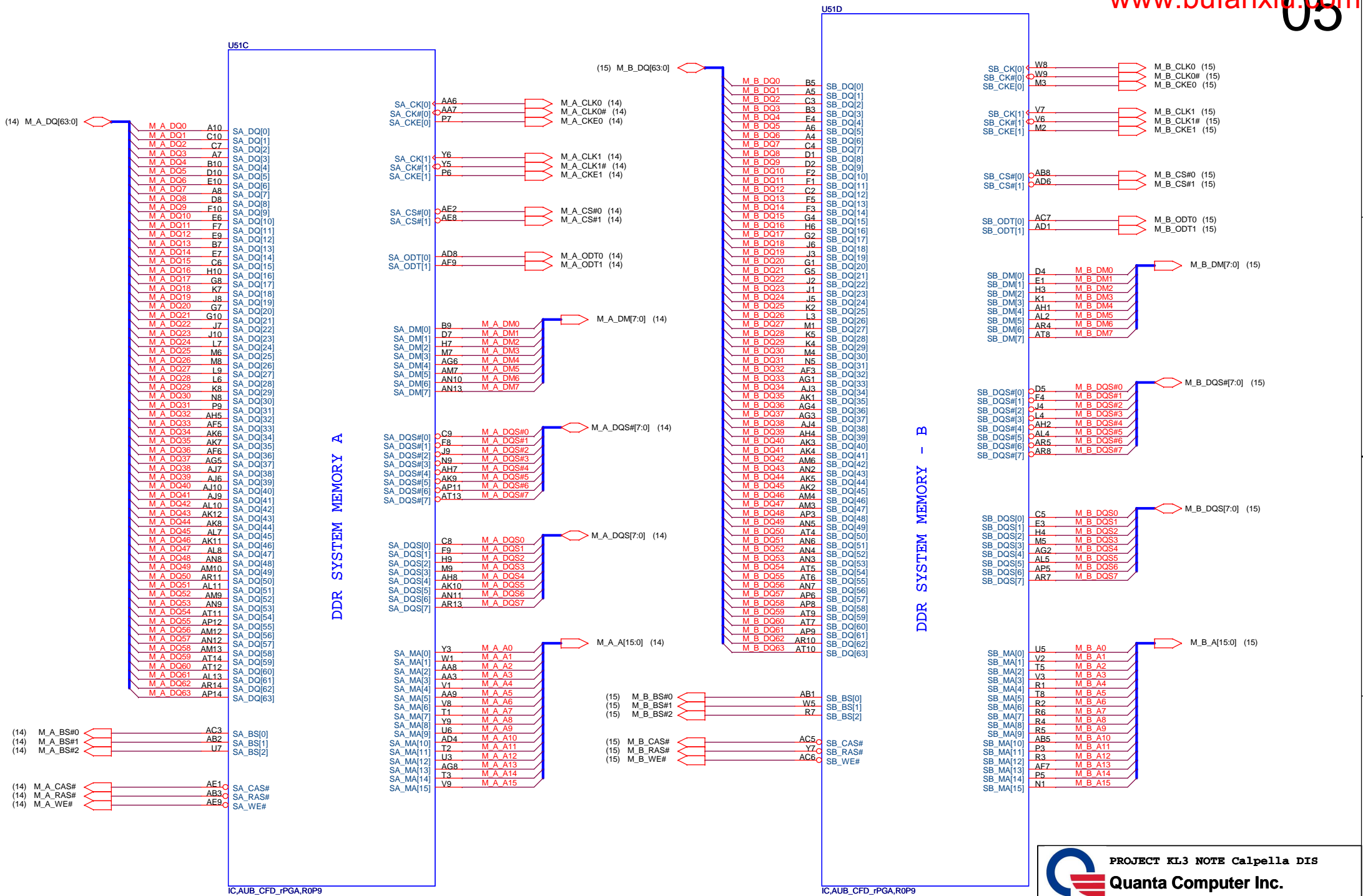


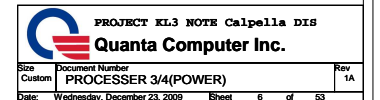
AUBURNDALE PROCESSOR (DMI, PEG, FDI)

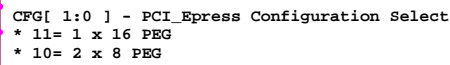
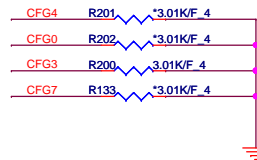
(3,8,9,10,11,12,14,15,18,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,39,40,44,47)
(6,11,12,39,42,44,48) +1.05V_VTT
(14,15,39,41,47) 1.5VSUS


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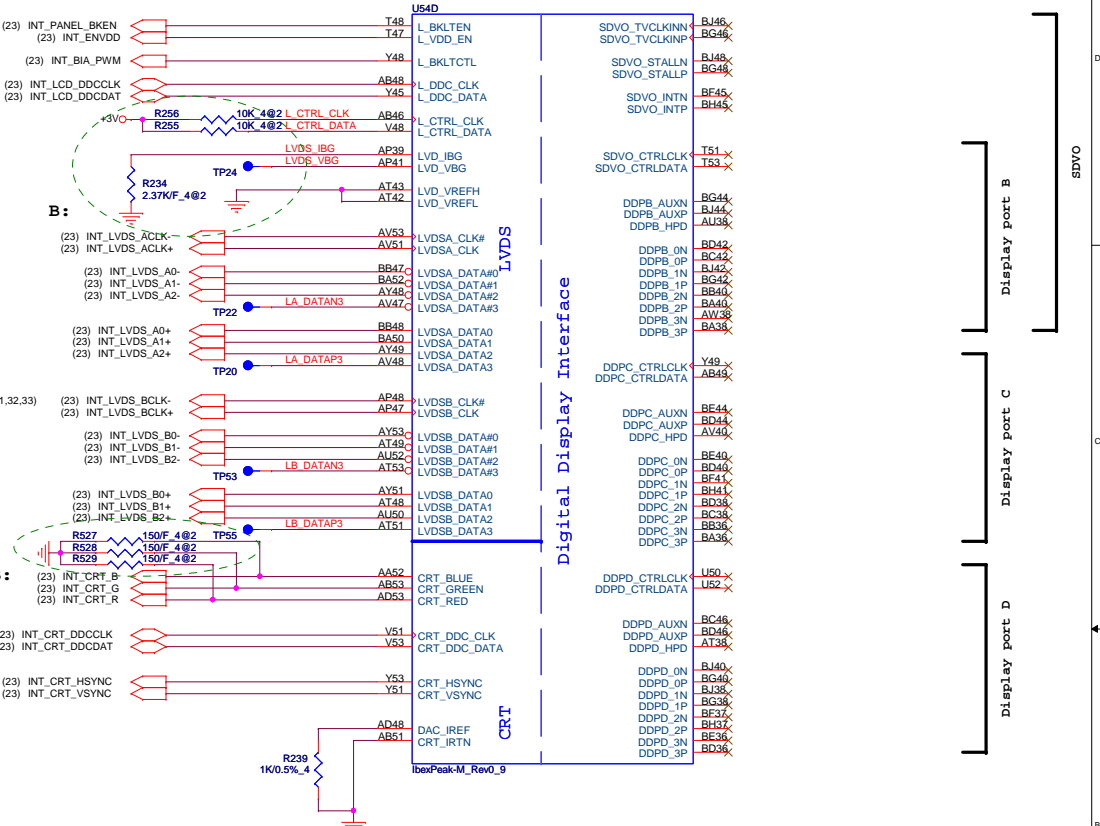
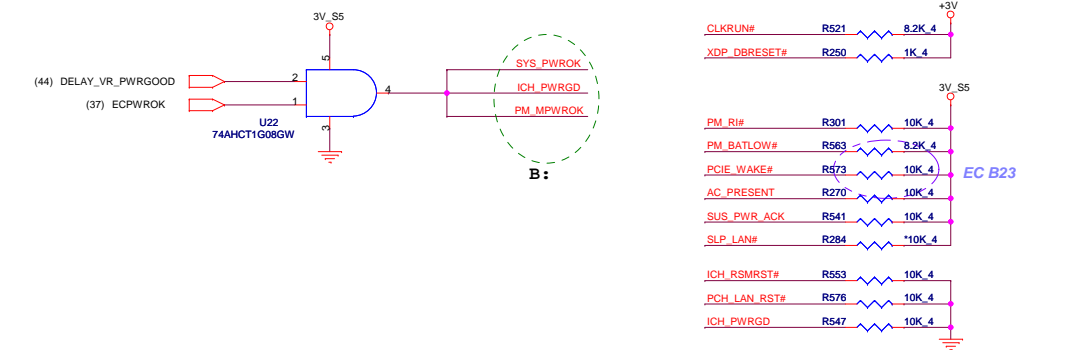
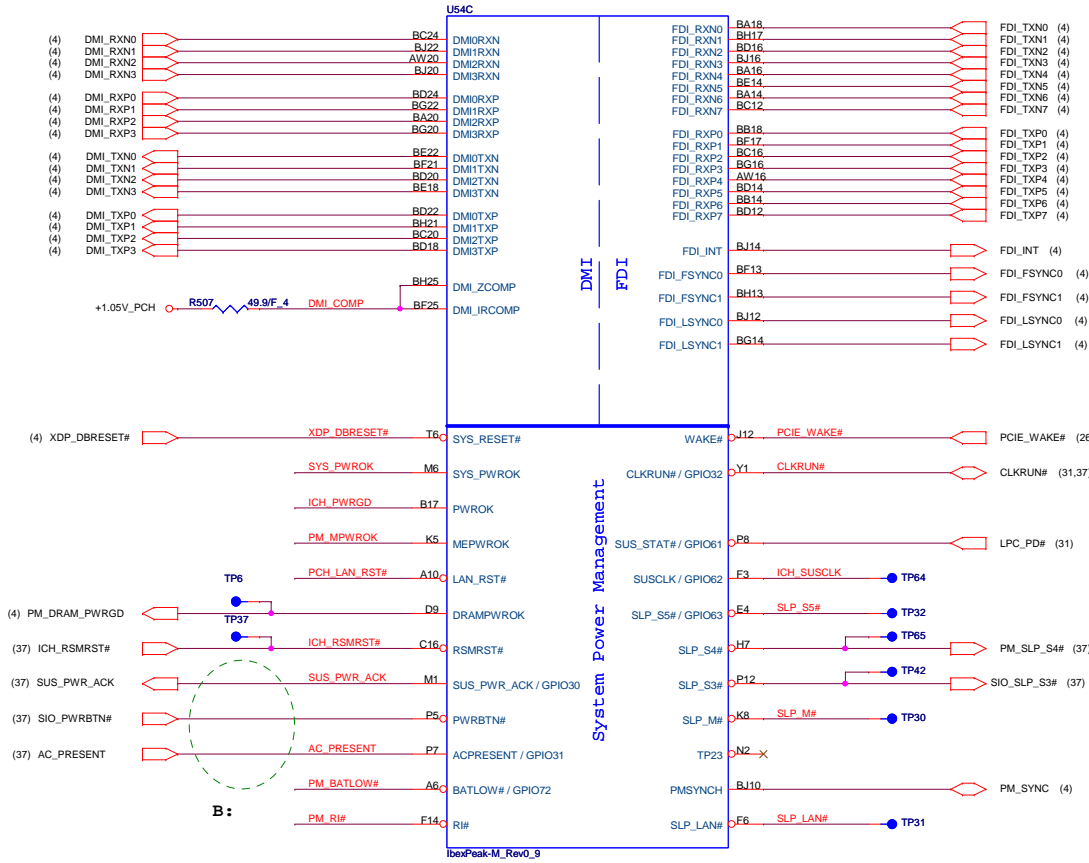


	PROJECT KL3 NOTE Calpella DIS		
	Quanta Computer Inc.		
Size Custom	Document Number PROCESSOR 4/4(GND)	Rev 1A	
Date: Wednesday, December 23, 2009	Sheet	7	of 53

The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K \pm 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

IBEX PEAK-M (DMI,FDI,GPIO)

IBEX PEAK-M (LVDS,DDI)



	Auburndale	Clarksfield
R256	POP	DE-POP
R255	POP	DE-POP
R234	POP	DE-POP
R527	POP	DE-POP
R528	POP	DE-POP
R529	POP	DE-POP

RTC Circuitry

CMOS Settings	J3
Clear CMOS	1-2
Save CMOS	1-X (Default)

TPM Settings	J2
Clear ME RTC registers	1-2
Save ME RTC registers	1-X (Default)

IBEX PEAK-M (HDA,JTAG,SATA)

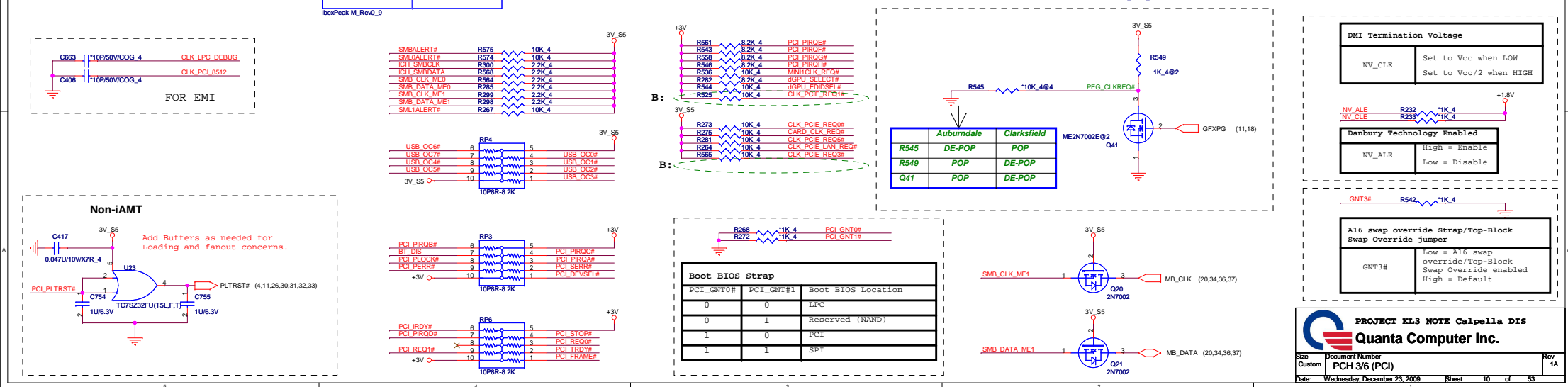
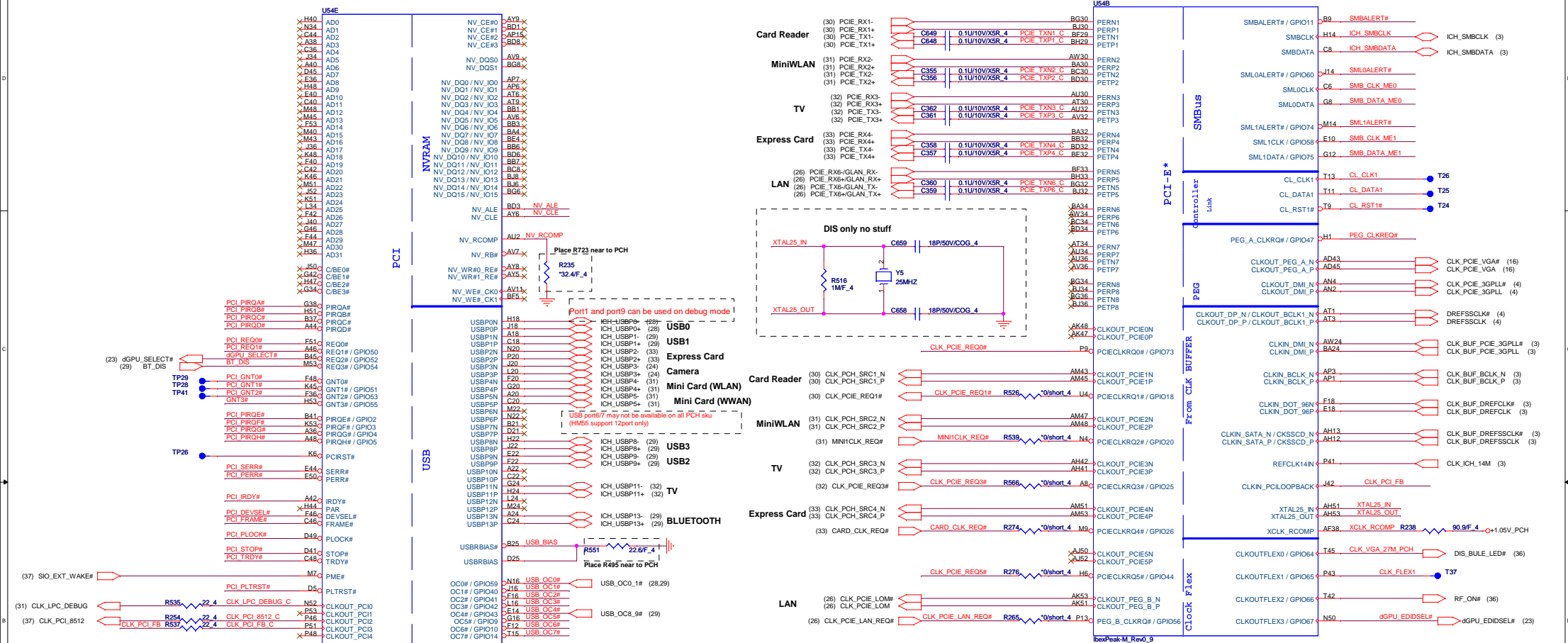
INVRMEN - Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

Place all series terms close to PCH except for SDIN input lines, which should be close to source. Placement of R773, R775, R776 & R777 should equal distance to the T split trace point. Basically, keep the same distance from T for all series termination resistors.

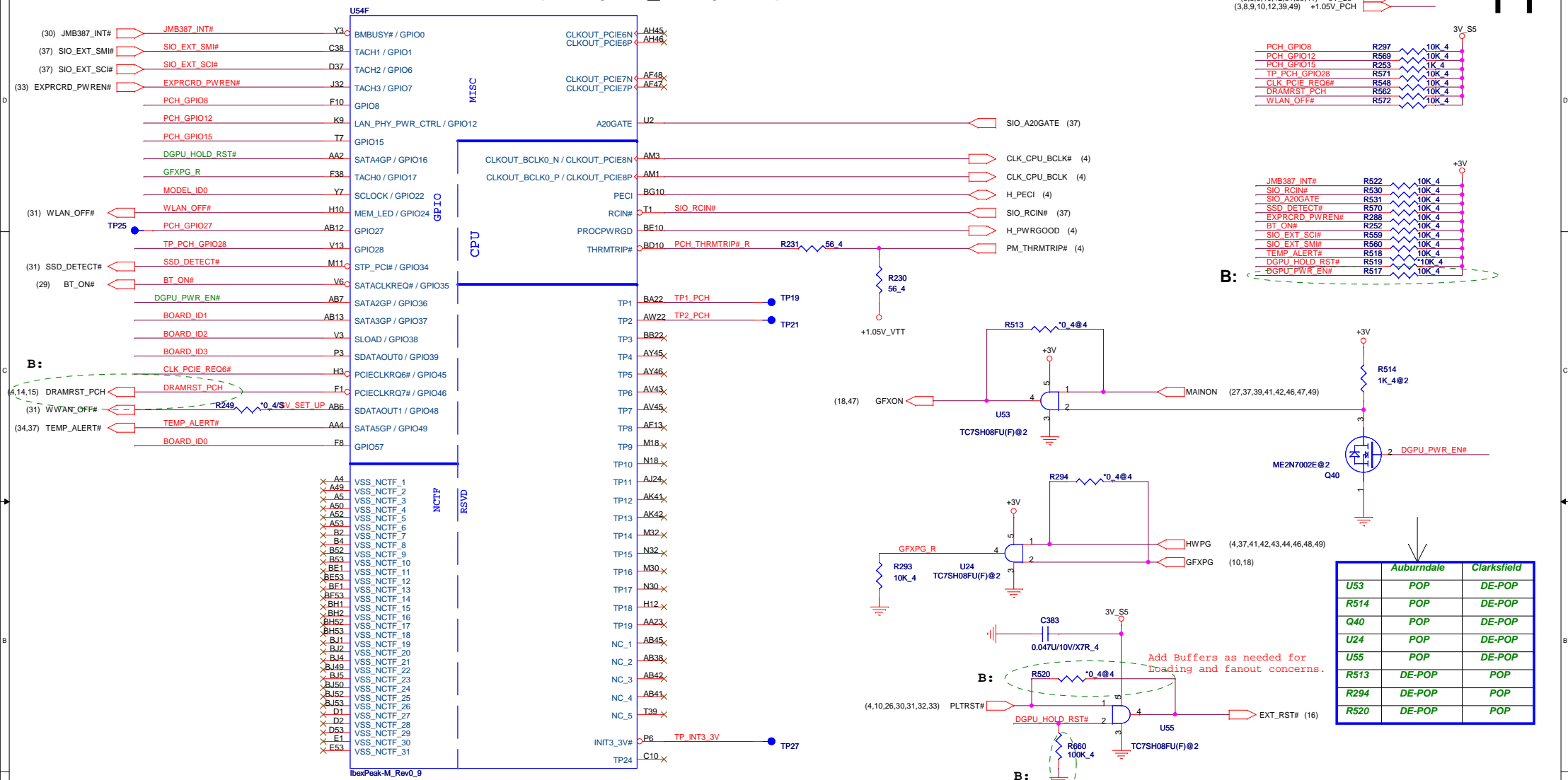
No Reboot Strap

For PCH

16Mbit (2M Byte), SPI



IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)



Board ID

Board ID For Function	ID3 GPIO39	ID2 GPIO38	ID1 GPIO37	ID0 GPIO357
SDV	0	0	0	0
SIV	0	0	0	1
SIT	0	0	1	0
SVT	0	1	0	0
SOVP	1	0	0	0

Model ID

Model ID	MODEL_ID0	MODEL_ID1
14"	0	1
15"	1	0
Default	1	1

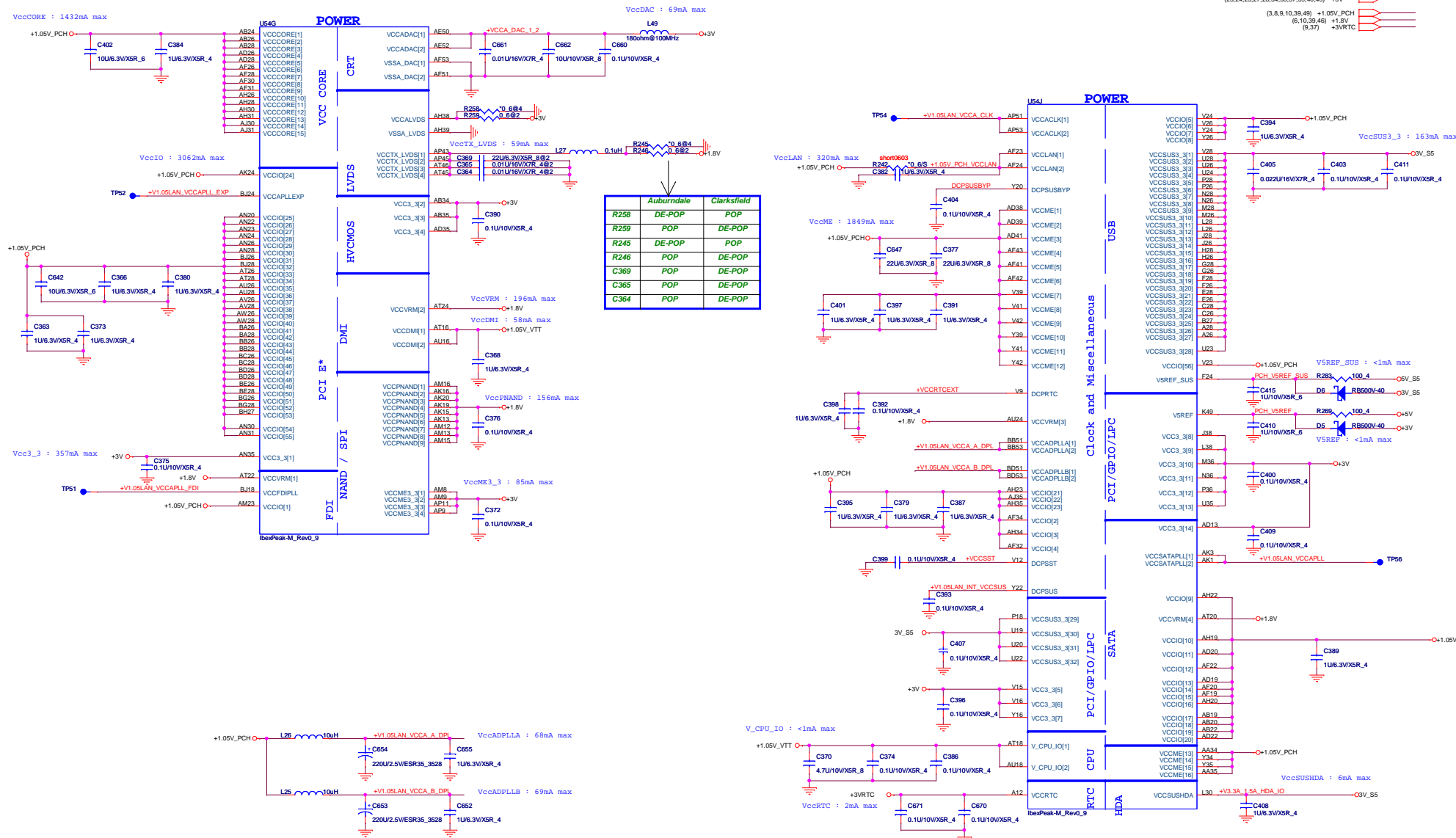
PROJECT KL3 NOTE Calpella DIS

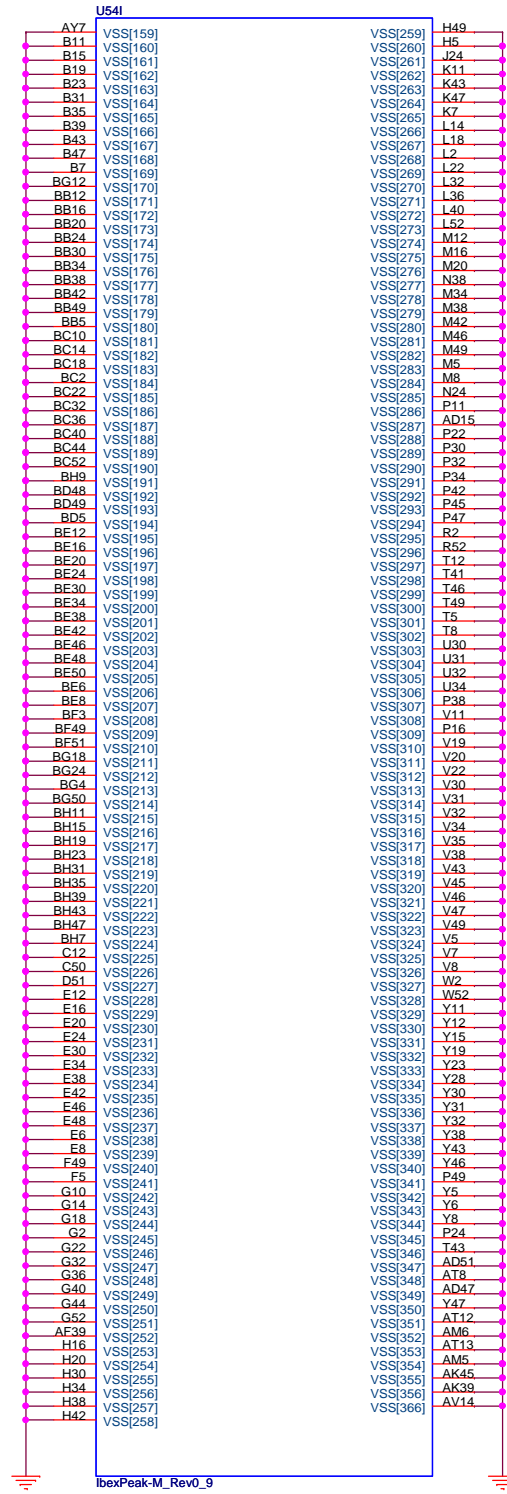
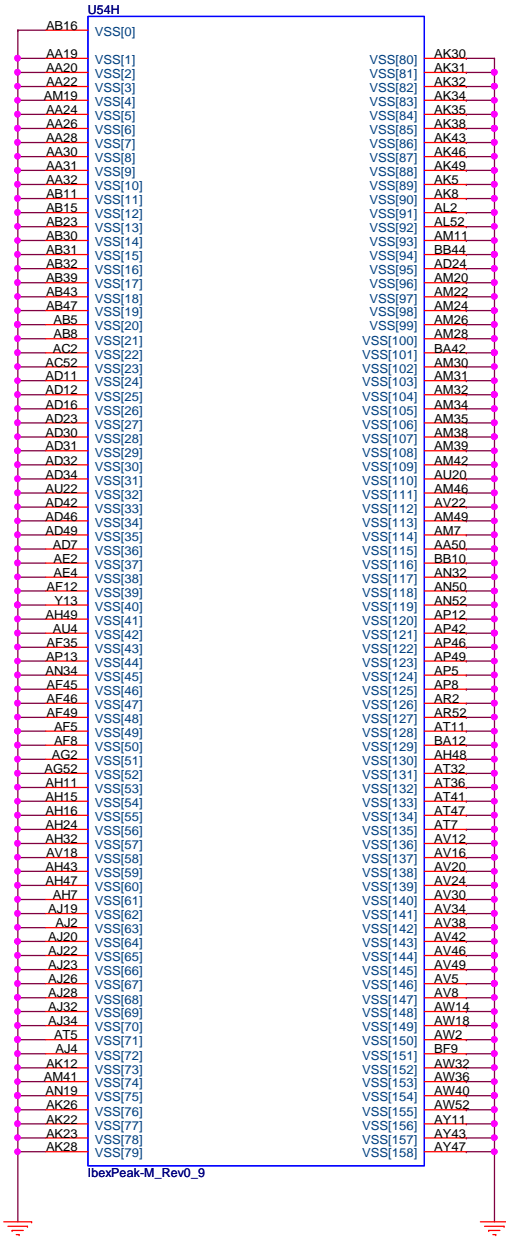
Quanta Computer Inc.

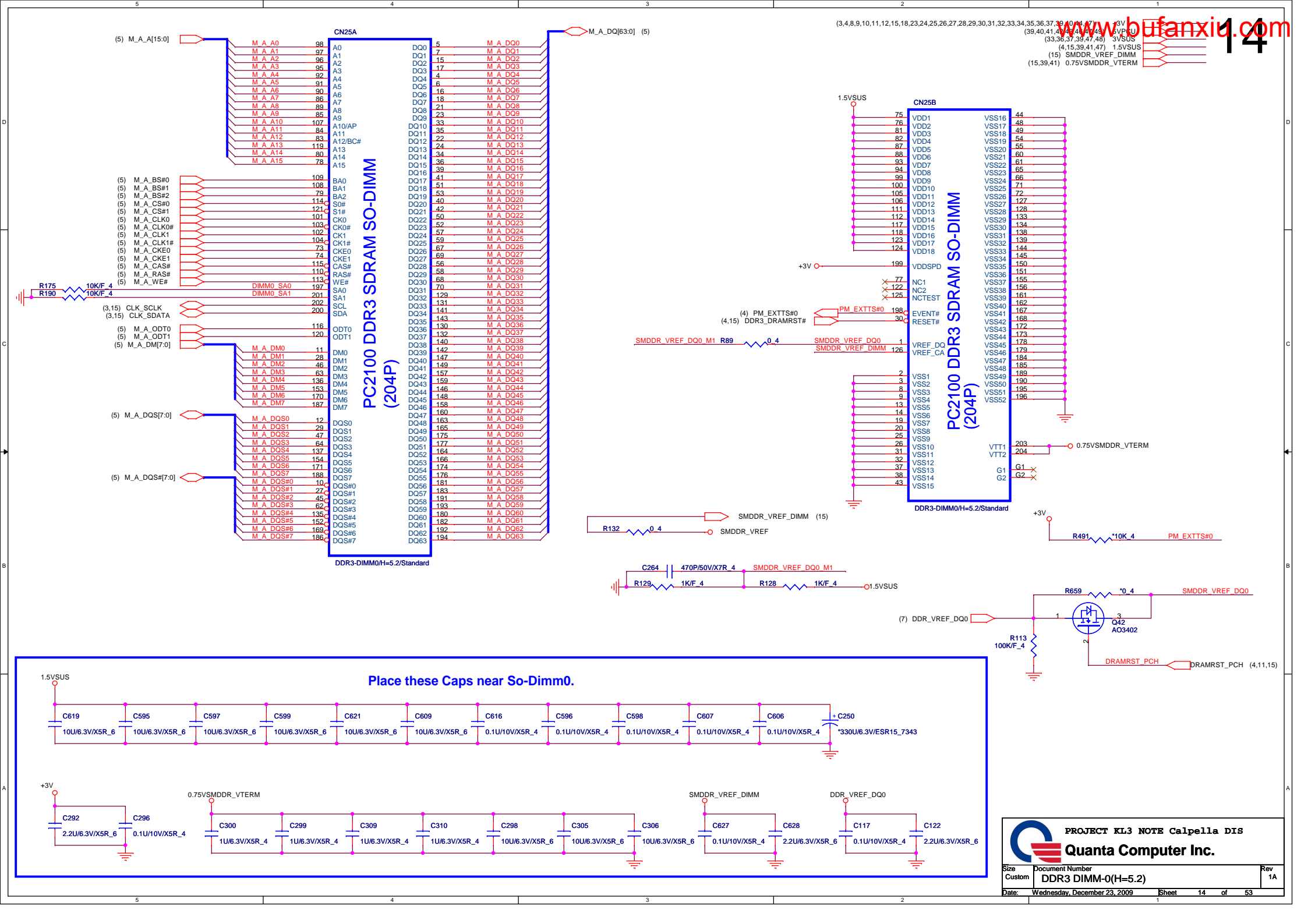
Size Custom Document Number PCH 4/6 (GPIO)

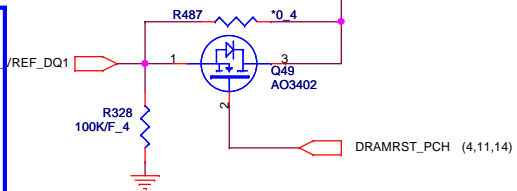
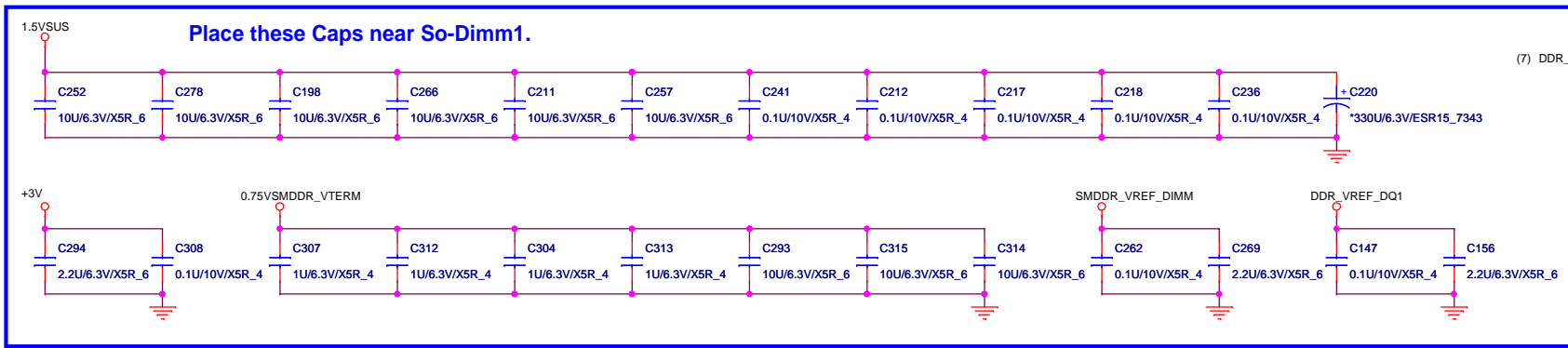
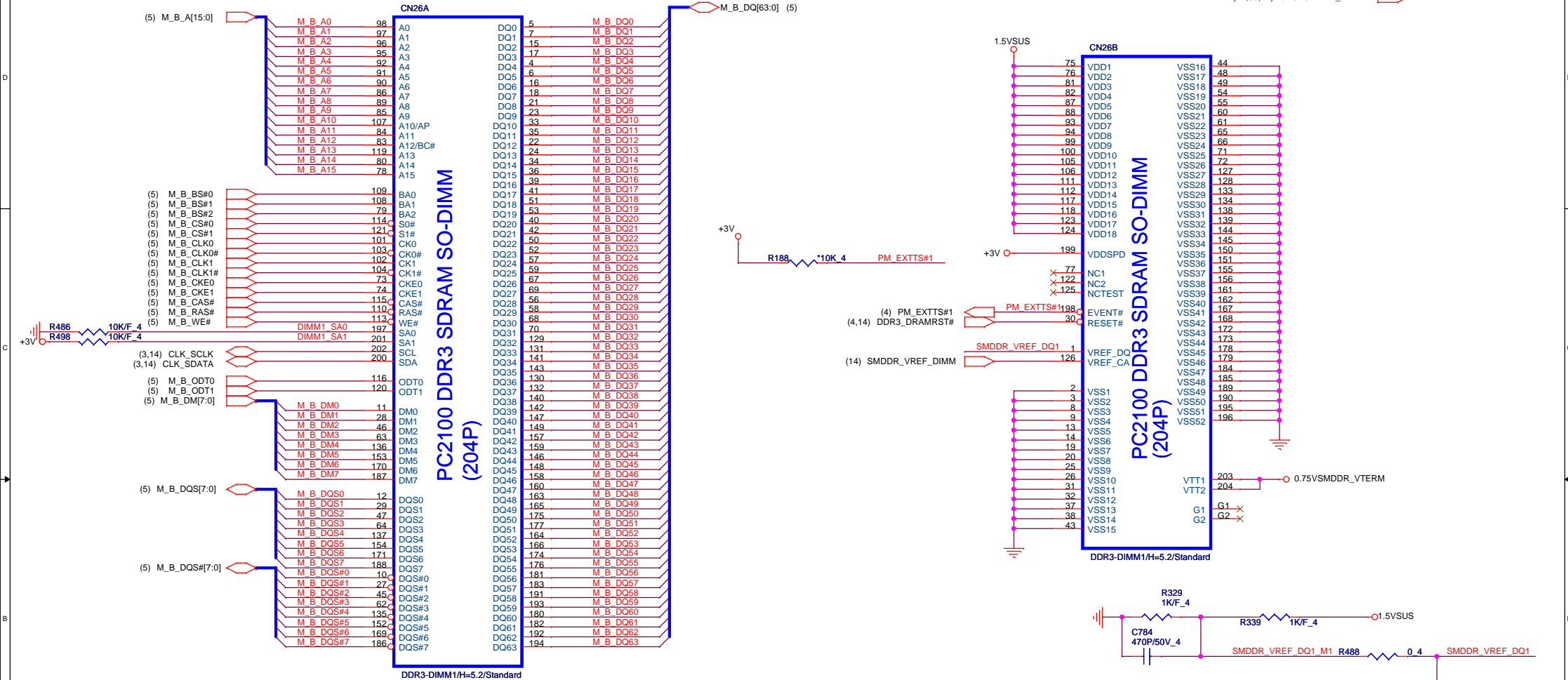
Date: Wednesday, December 23, 2009 Sheet 11 of 53

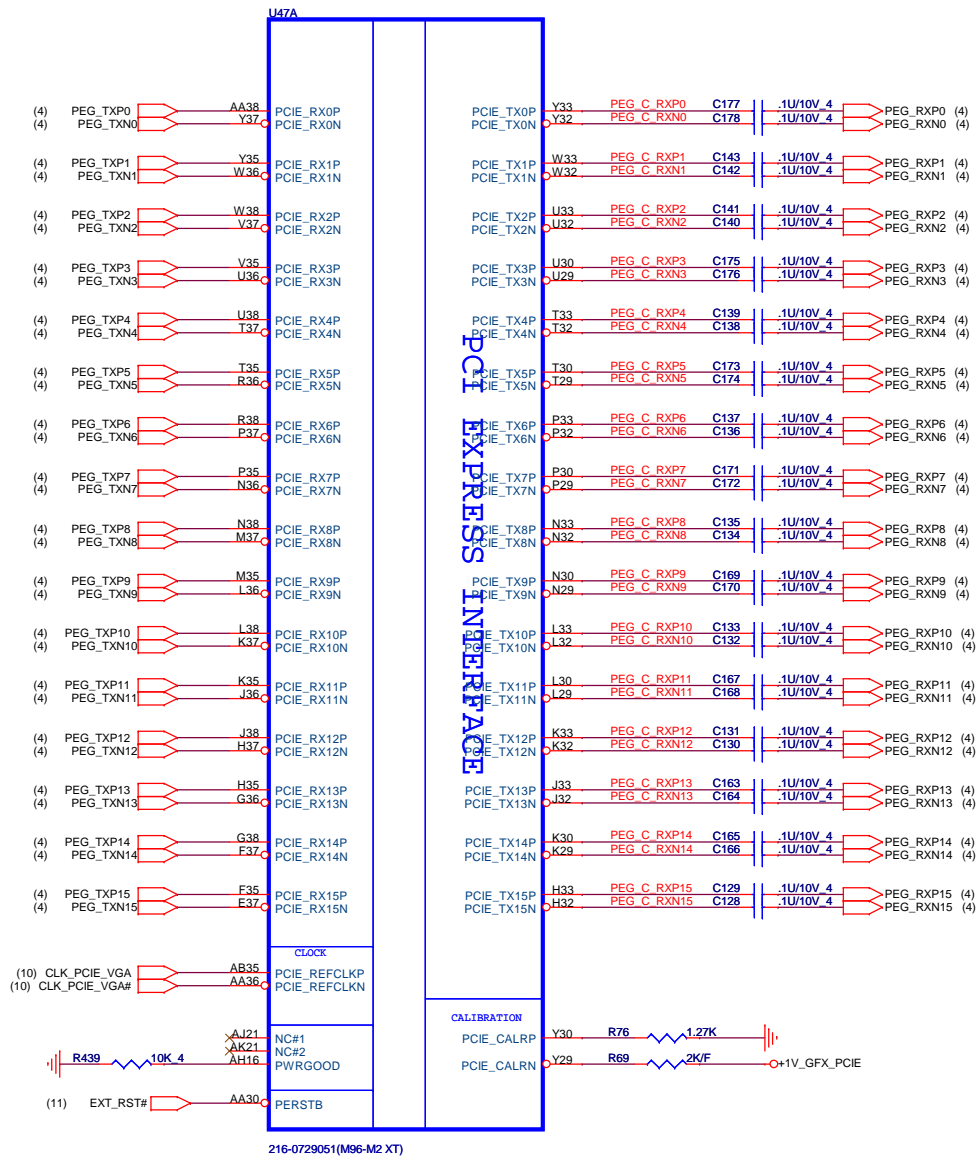
Rev 1A

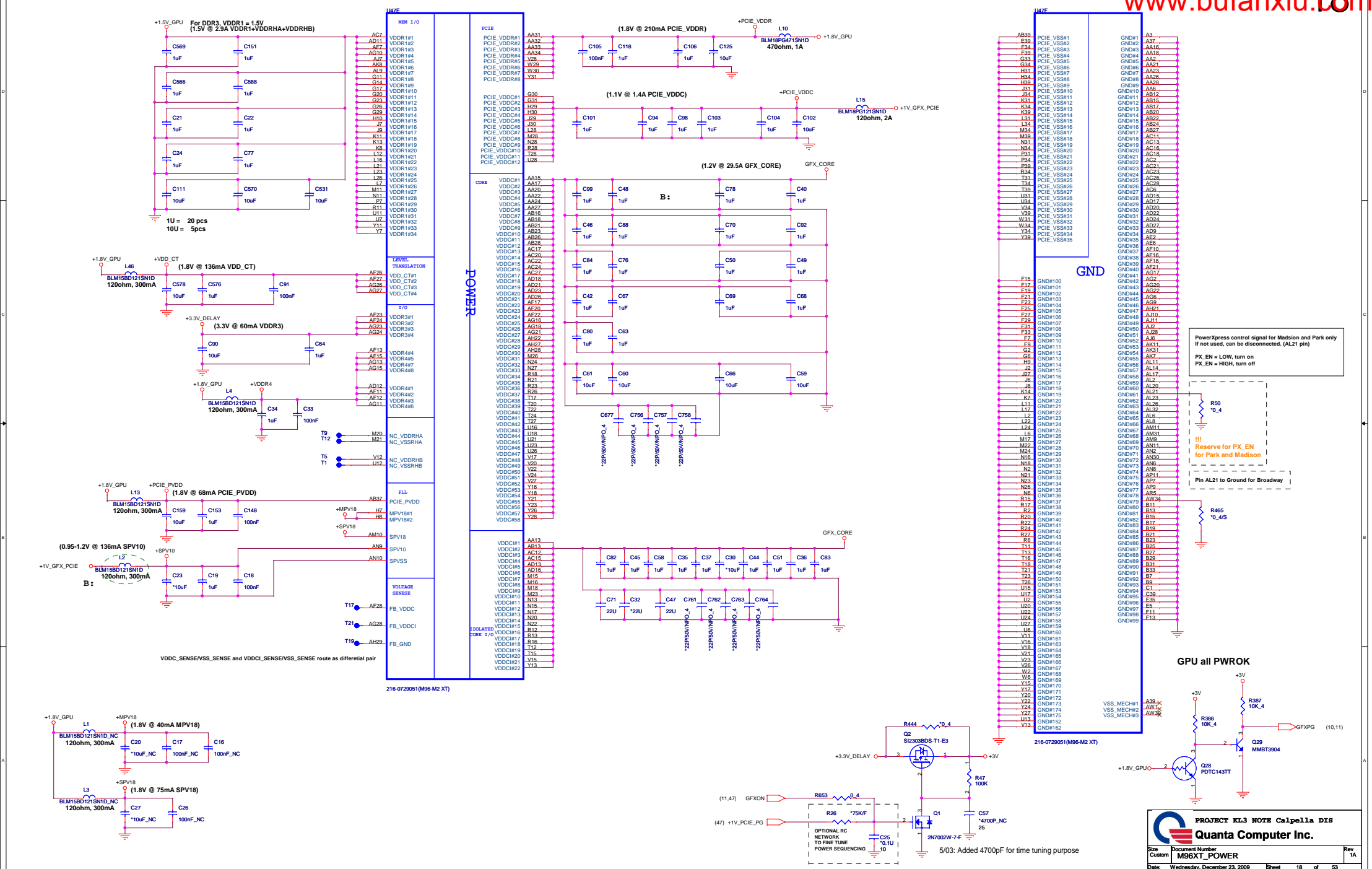




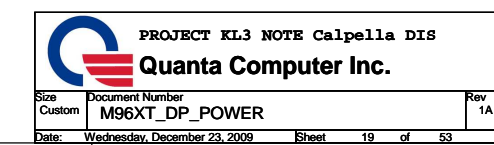


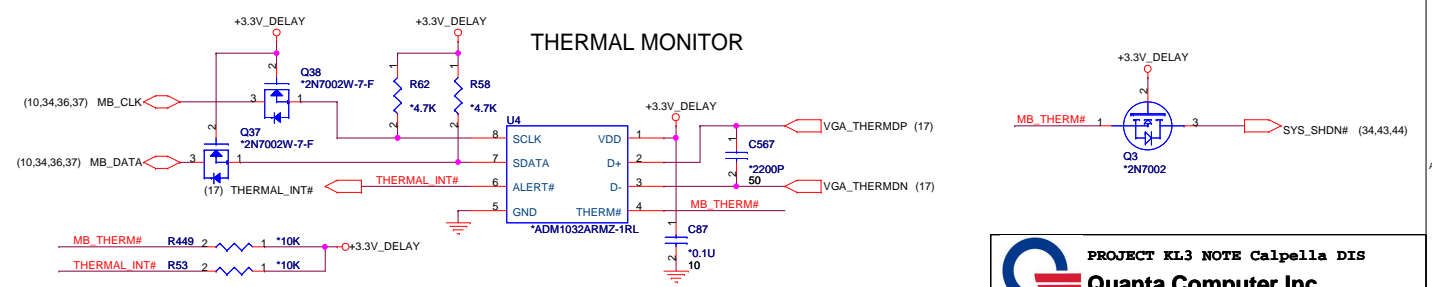
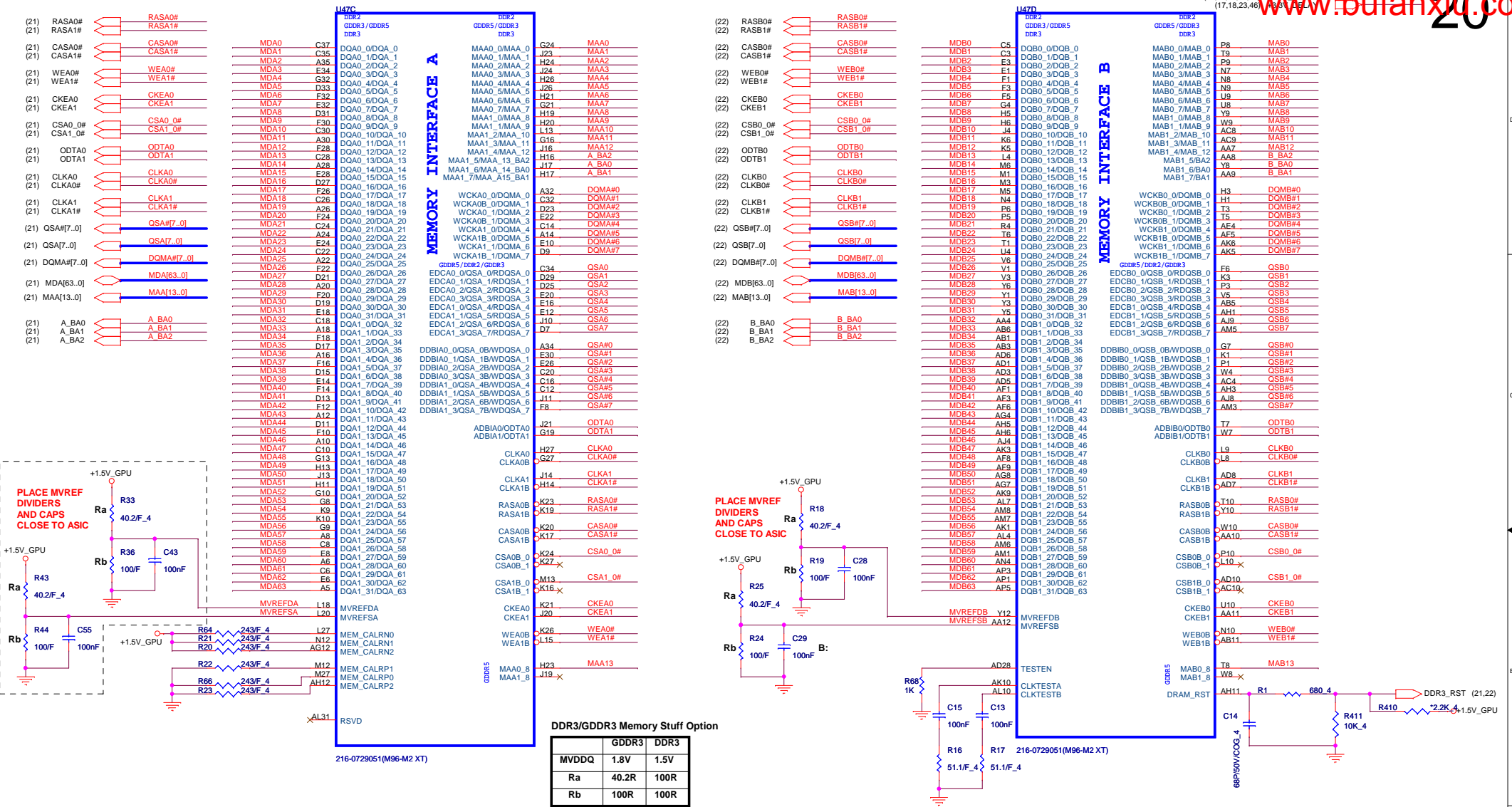


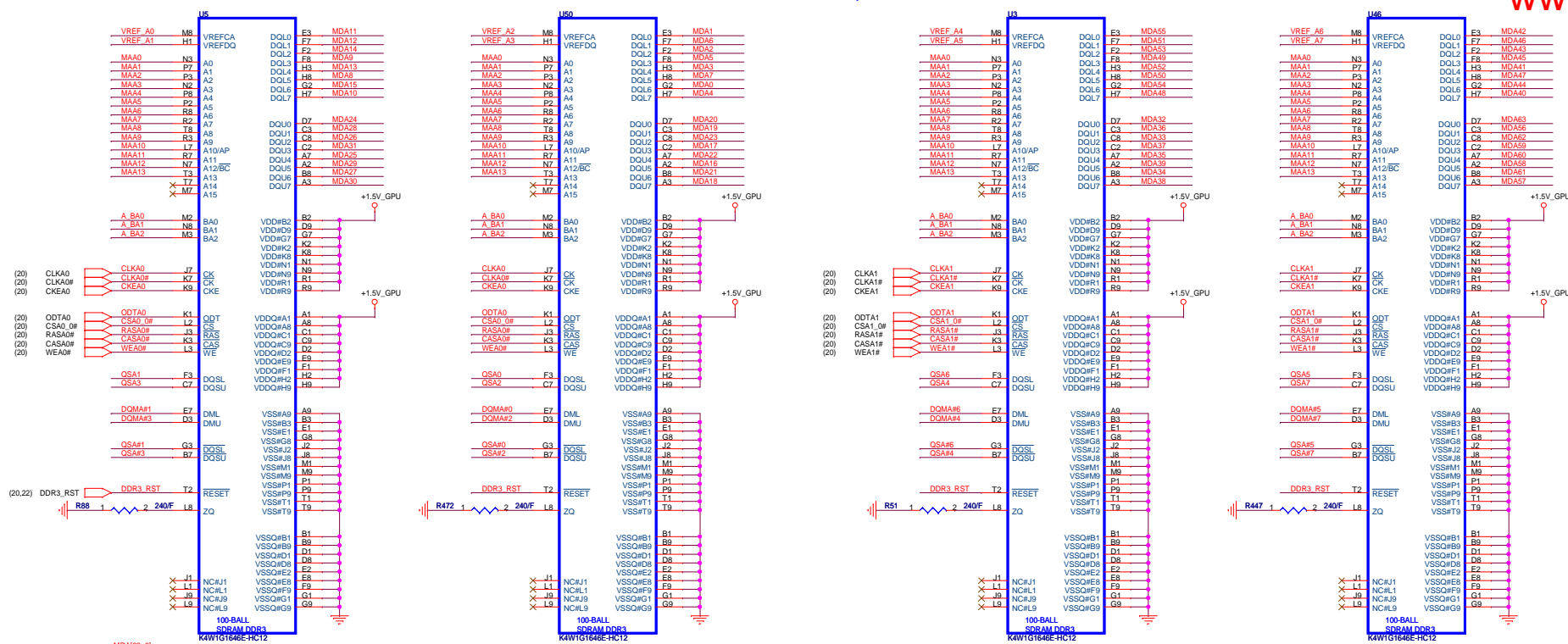


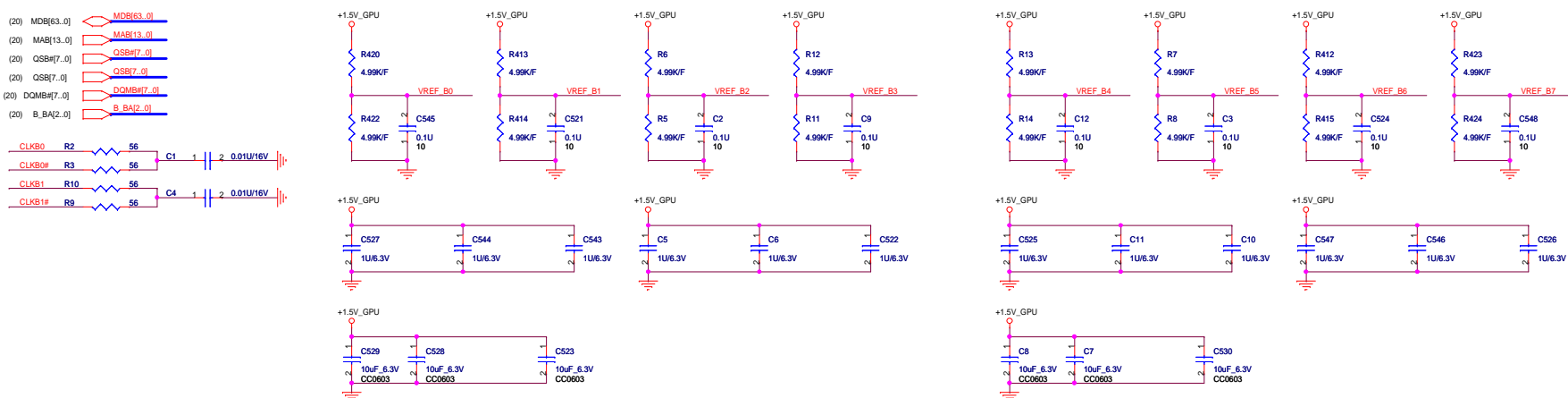


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Clarkfield

SN74CBT325CPWR82

Truth Table:

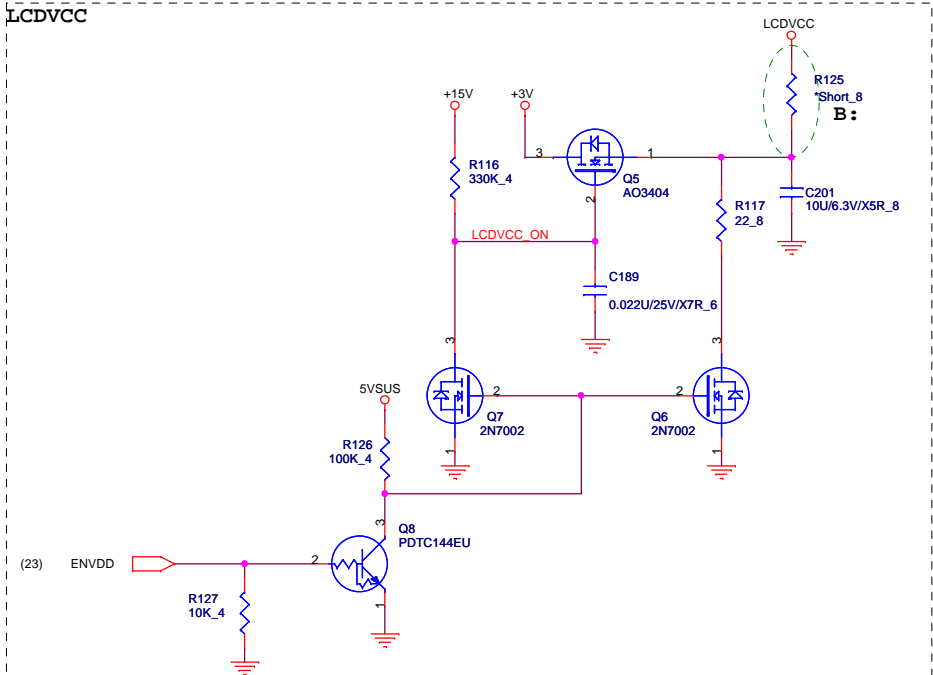
Yn	EV	IV
Yn	EV	IV

Pinout:

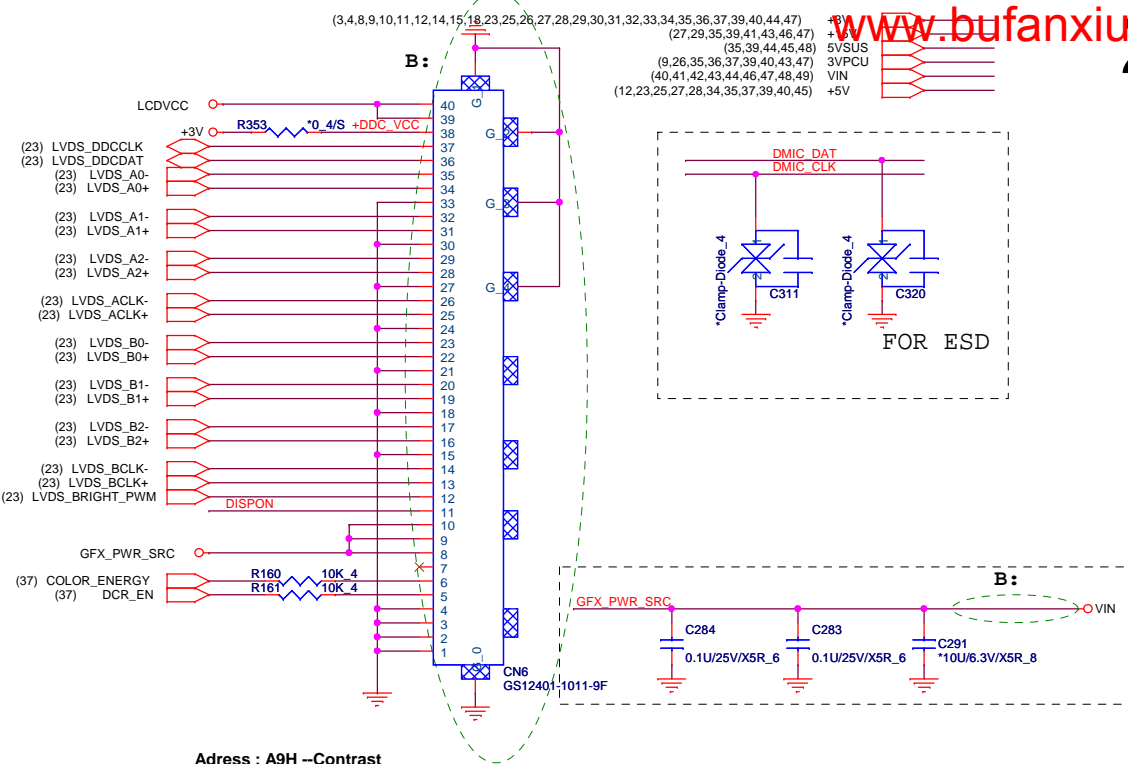
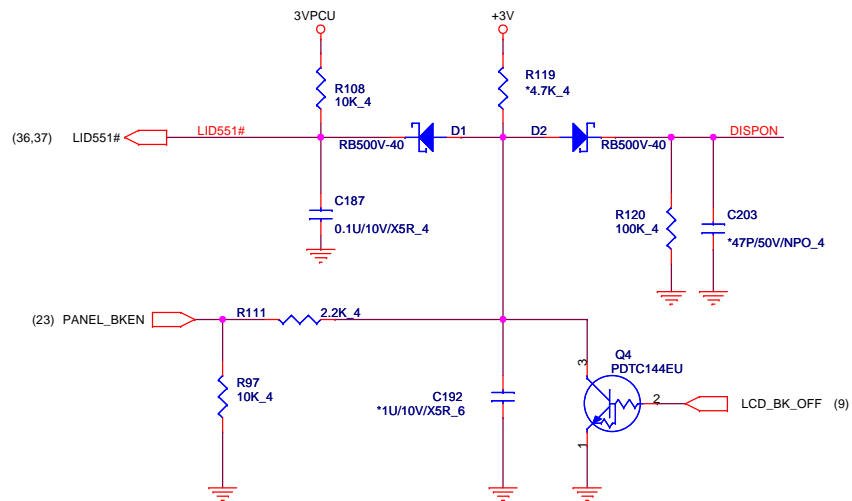
Pin	Signal
1	INT_CRT_R
2	INT_CRT_G
3	INT_CRT_B
4	INT_CRT_R
5	INT_CRT_G
6	INT_CRT_B
7	INT_CRT_R
8	INT_CRT_G
9	INT_CRT_B
10	INT_CRT_R
11	INT_CRT_G
12	INT_CRT_B
13	INT_CRT_R
14	INT_CRT_G
15	INT_CRT_B
16	INT_CRT_R
17	INT_CRT_G
18	INT_CRT_B
19	INT_CRT_R
20	INT_CRT_G
21	INT_CRT_B
22	INT_CRT_R
23	INT_CRT_G
24	INT_CRT_B
25	INT_CRT_R
26	INT_CRT_G
27	INT_CRT_B
28	INT_CRT_R
29	INT_CRT_G
30	INT_CRT_B
31	INT_CRT_R
32	INT_CRT_G
33	INT_CRT_B
34	INT_CRT_R
35	INT_CRT_G
36	INT_CRT_B
37	INT_CRT_R
38	INT_CRT_G
39	INT_CRT_B
40	INT_CRT_R
41	INT_CRT_G
42	INT_CRT_B
43	INT_CRT_R
44	INT_CRT_G
45	INT_CRT_B
46	INT_CRT_R
47	INT_CRT_G
48	INT_CRT_B
49	INT_CRT_R
50	INT_CRT_G
51	INT_CRT_B
52	INT_CRT_R
53	INT_CRT_G
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69	INT_CRT_B
70	INT_CRT_R
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72	INT_CRT_B
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88	INT_CRT_R
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90	INT_CRT_B
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92	INT_CRT_G
93	INT_CRT_B
94	INT_CRT_R
95	INT_CRT_G
96	INT_CRT_B
97	INT_CRT_R
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99	INT_CRT_B
100	INT_CRT_R
101	INT_CRT_G
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103	INT_CRT_R
104	INT_CRT_G
105	INT_CRT_B
106	INT_CRT_R
107	INT_CRT_G
108	INT_CRT_B
109	INT_CRT_R
110	INT_CRT_G
111	INT_CRT_B
112	INT_CRT_R
113	INT_CRT_G
114	INT_CRT_B
115	INT_CRT_R
116	INT_CRT_G
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122	INT_CRT_G
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125	INT_CRT_G
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142	INT_CRT_R
143	INT_CRT_G
144	INT_CRT_B
145	INT_CRT_R
146	INT_CRT_G
147	INT_CRT_B
148	INT_CRT_R
149	INT_CRT_G
150</	

[illegible]

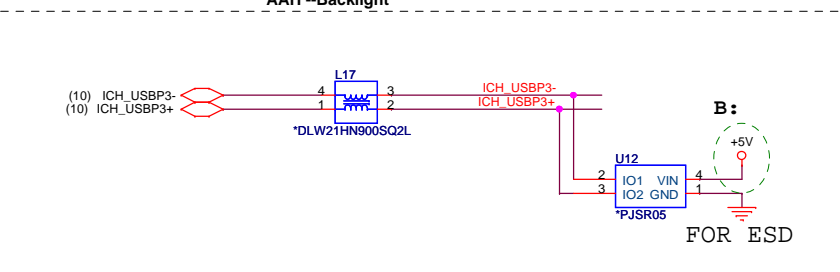
LCDVCC



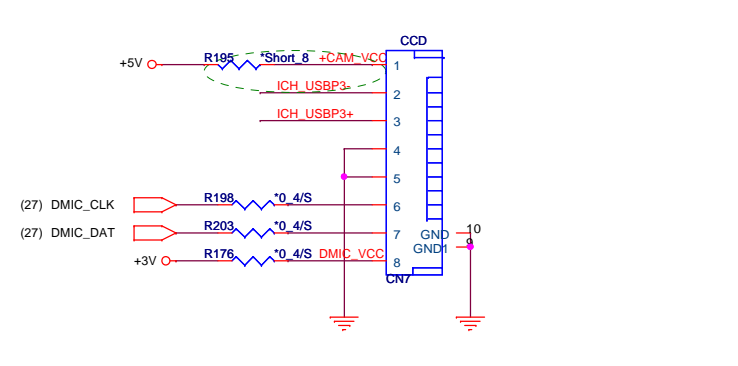
back light

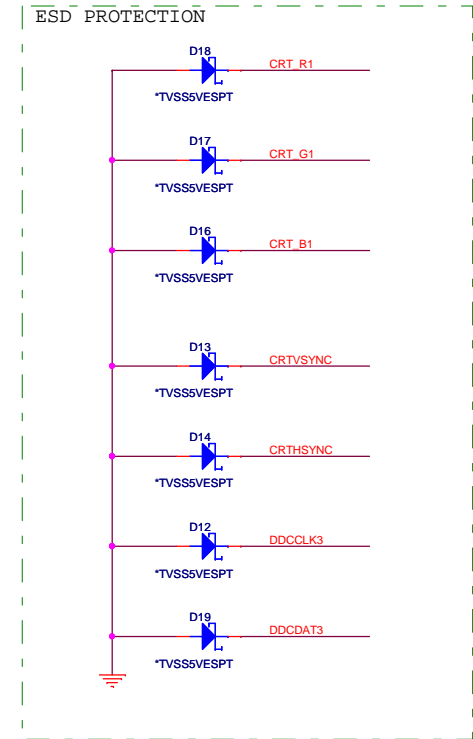
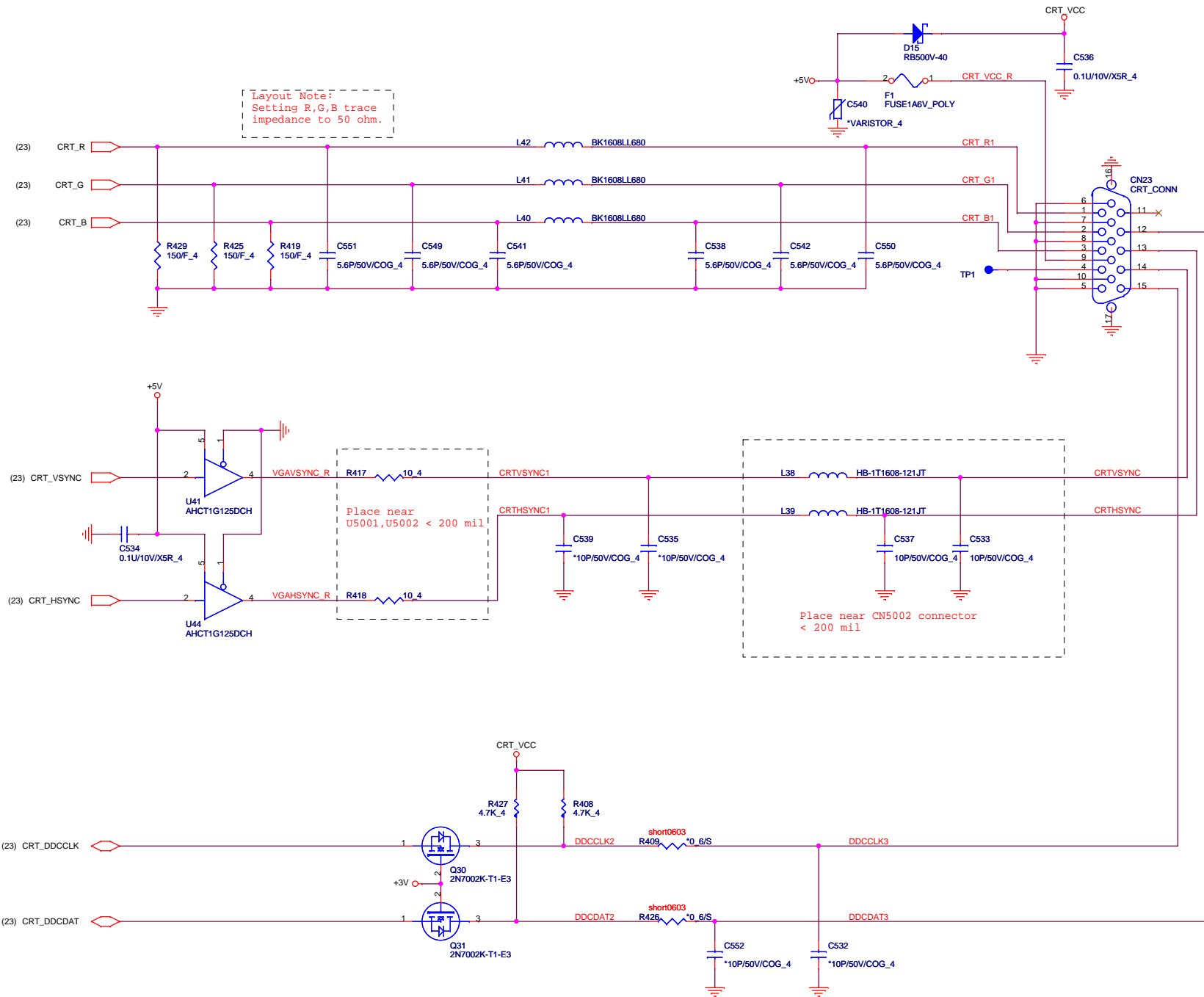


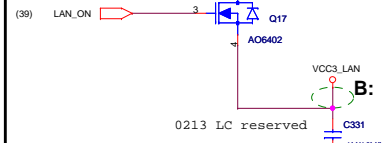
Address : A9H --Contrast AAH --Backlight



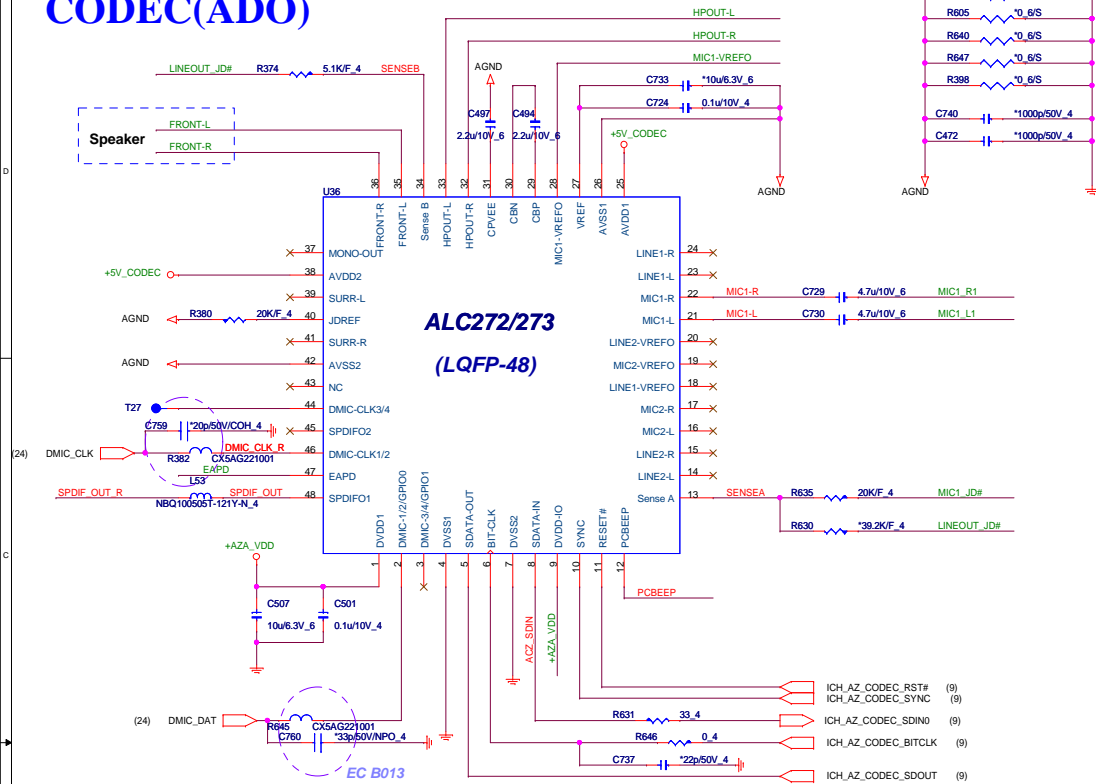
CAMERA VCC Control



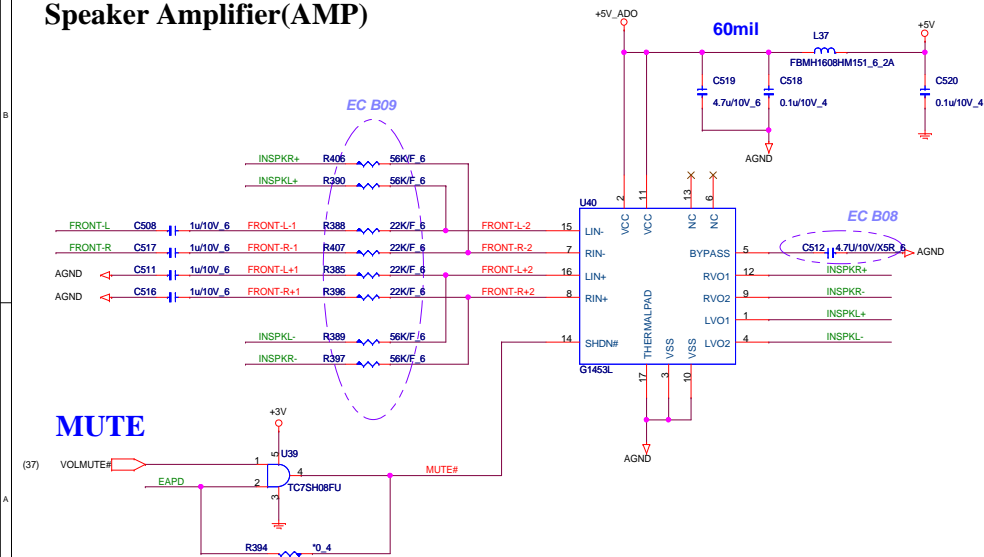




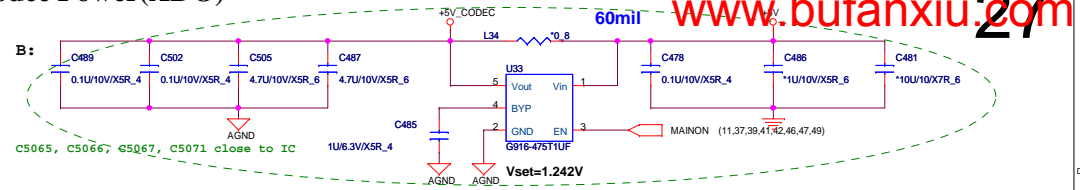
CODEC(ADO)



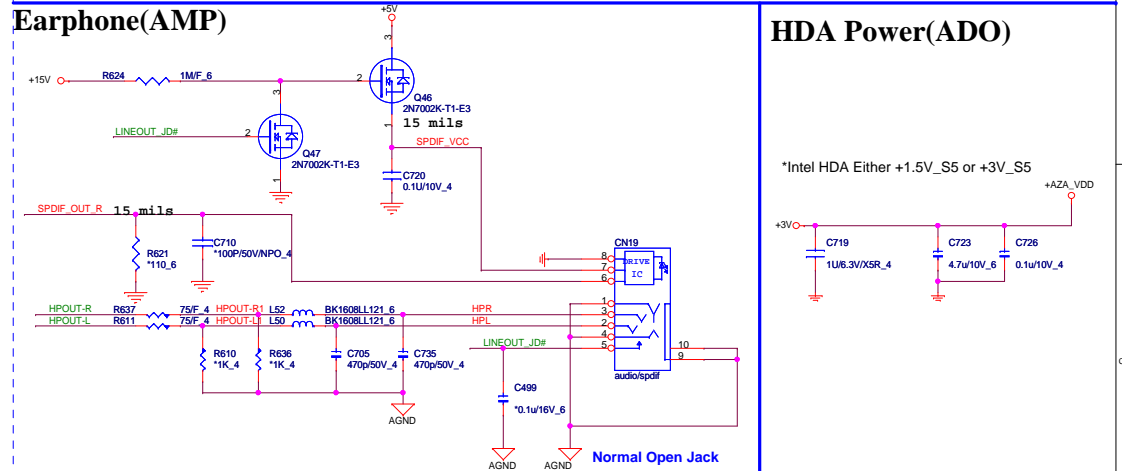
Speaker Amplifier(AMP)



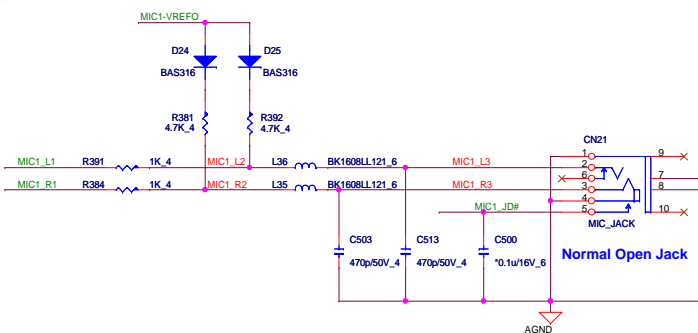
Codec Power(ADO)



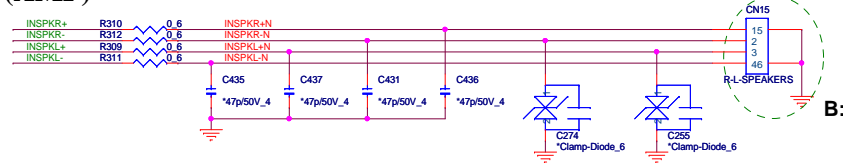
Earphone(AMP)



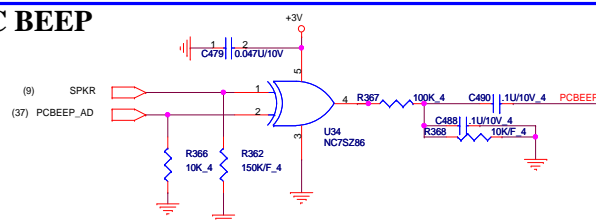
System MIC(AMP)



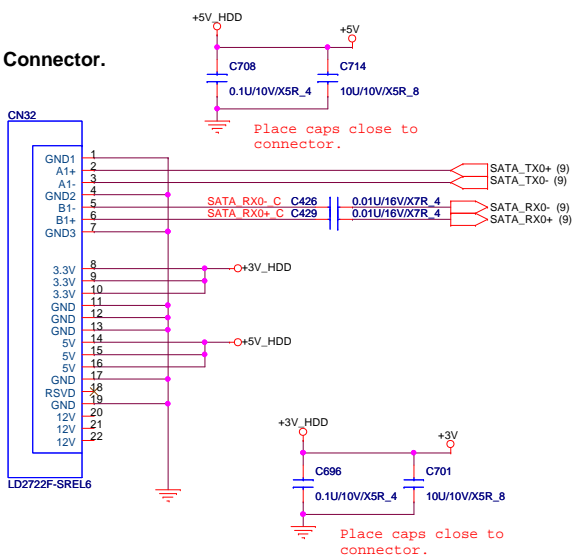
Speaker(AMP)



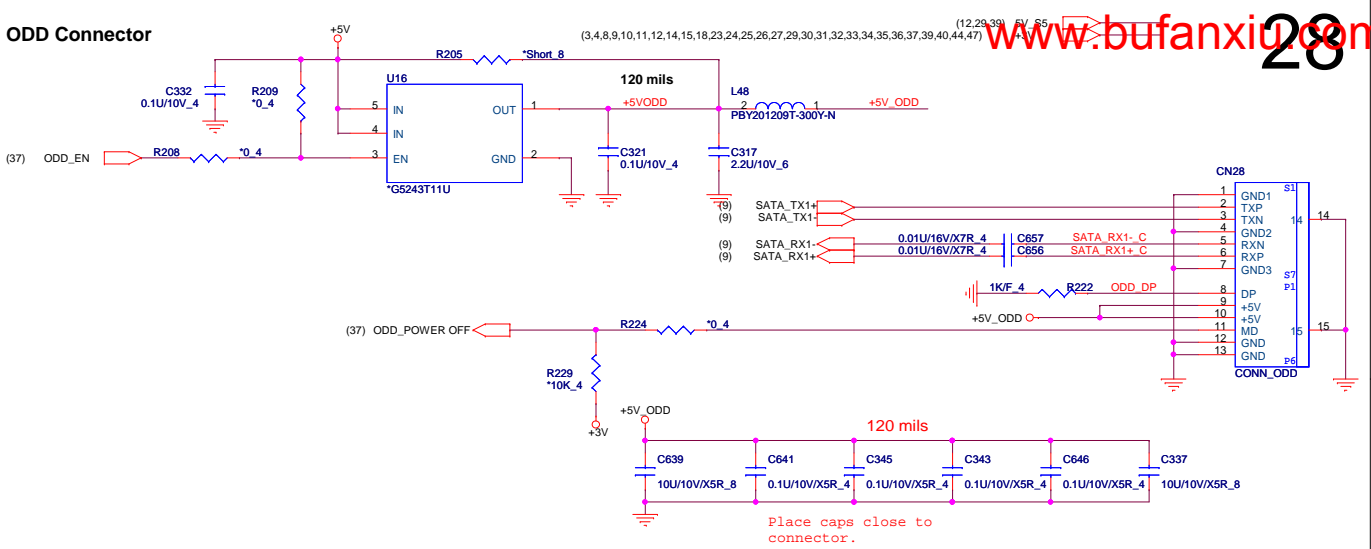
PC BEEP



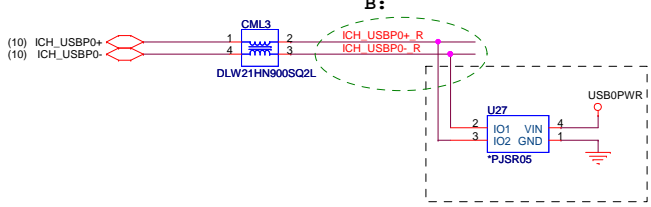
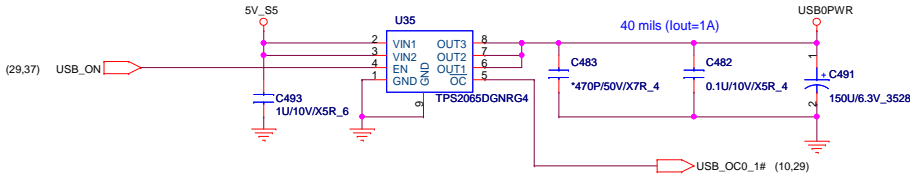
SATA Connector.



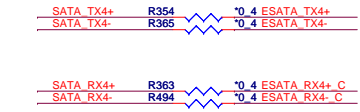
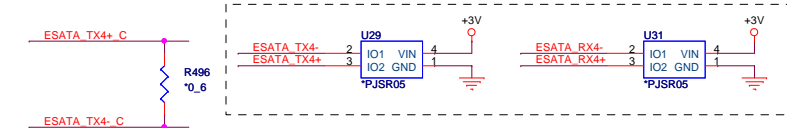
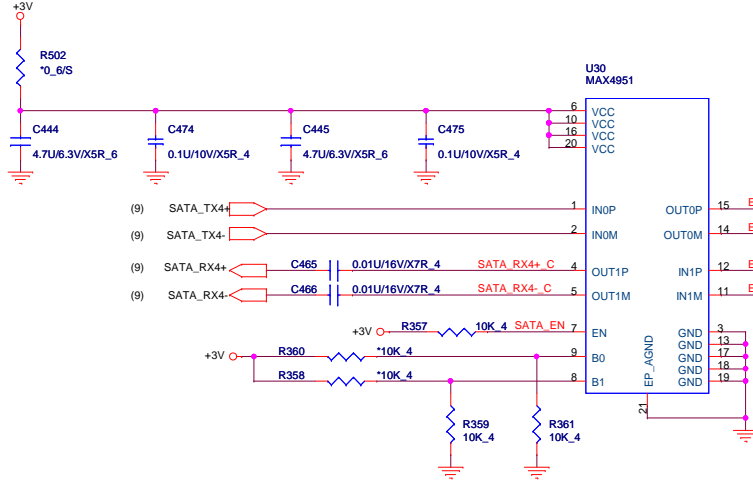
ODD Connector



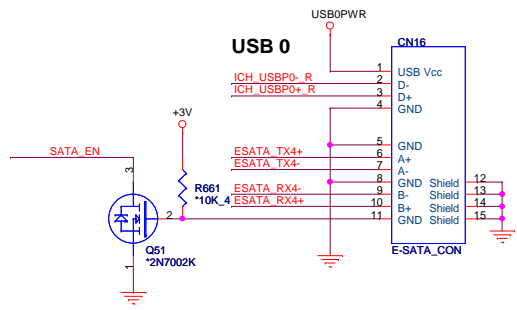
USB + E-SATA



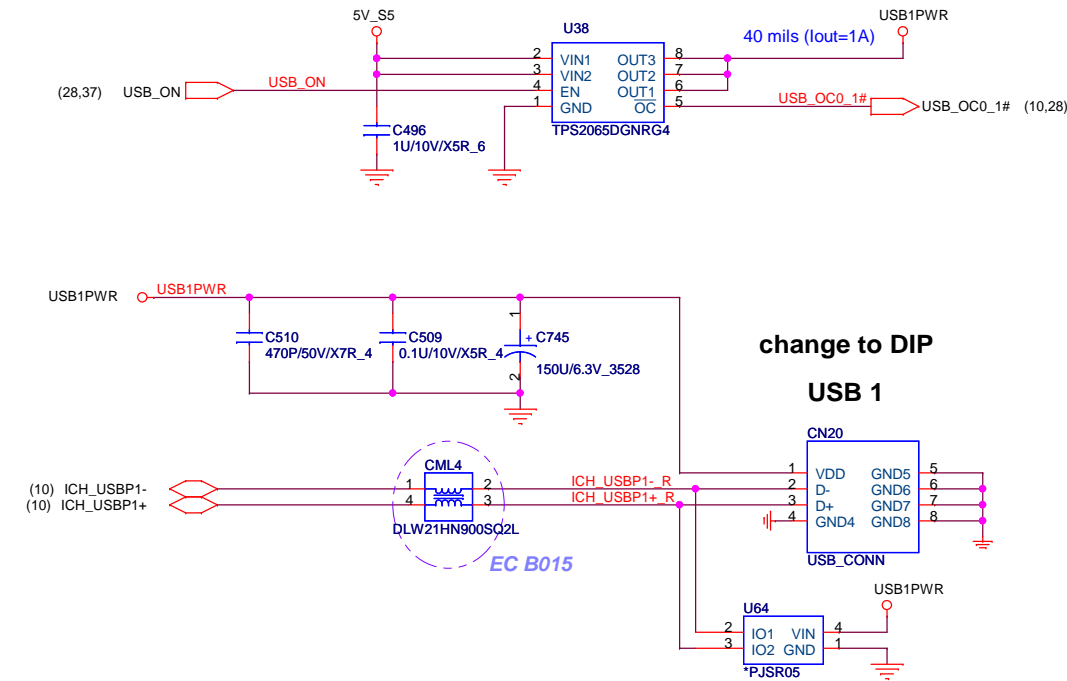
E-SATA RE-DRIVER



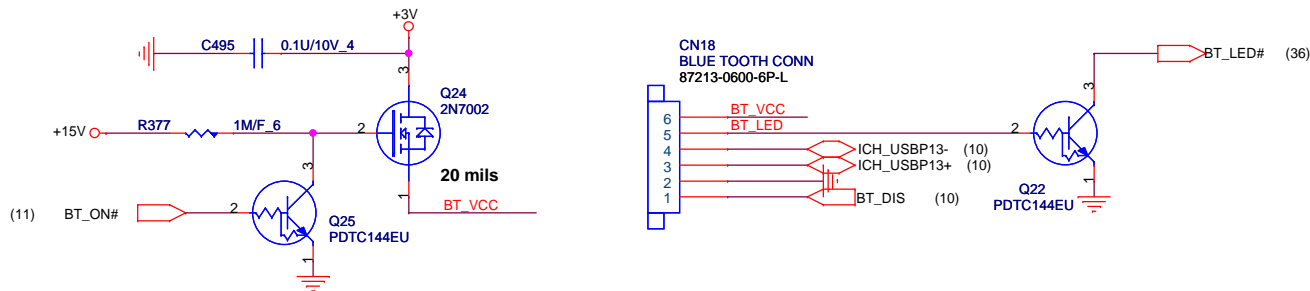
EN	B0	B1	FUNCTION
0	X	X	Standby
1	0	0	Standard SATA Output
1	1	0	Ch 0 Boost Output
1	0	1	Ch 1 Boost Output
1	1	1	Ch 0,1 Boost Output

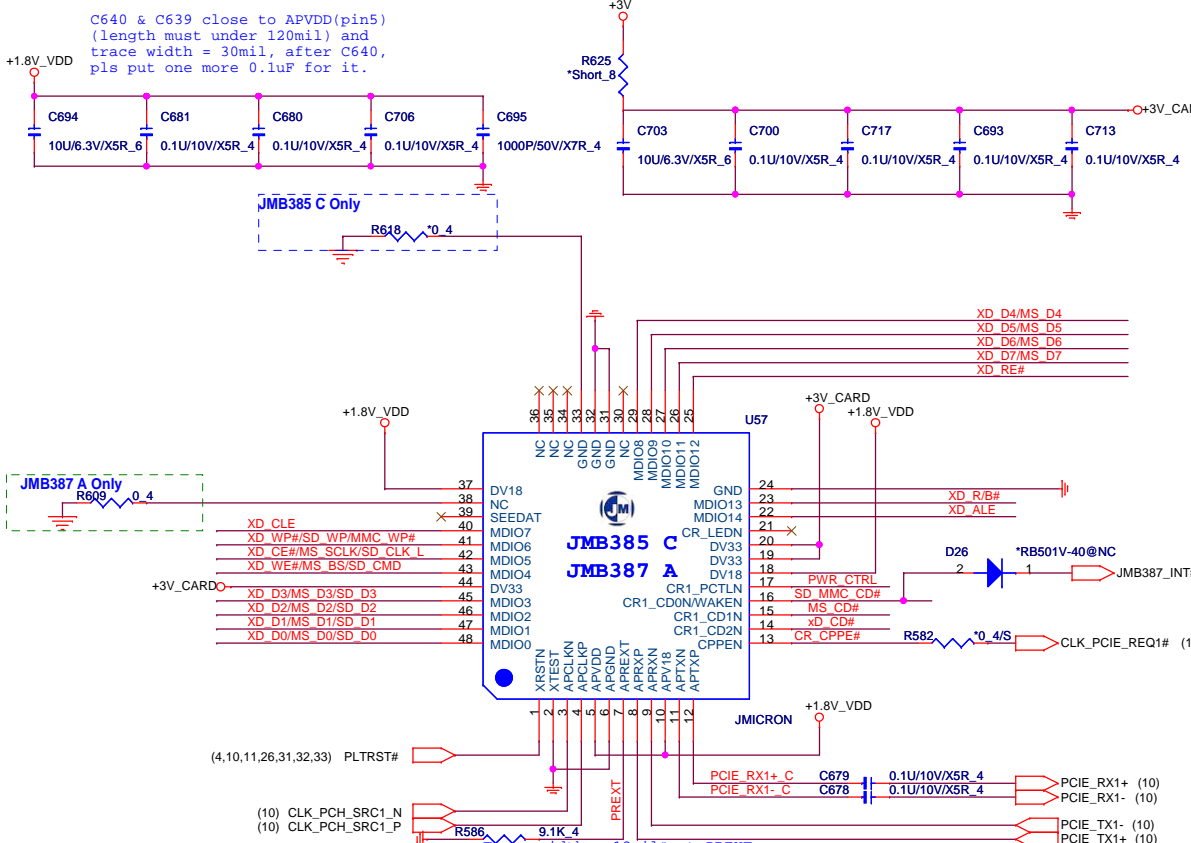


USBX3

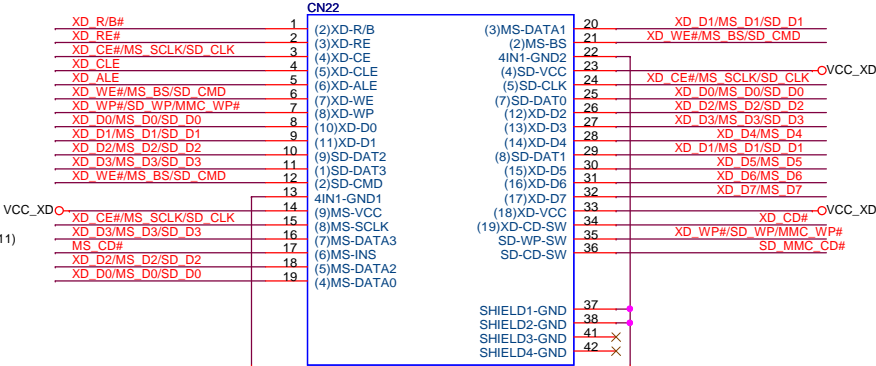


BLUETOOTH

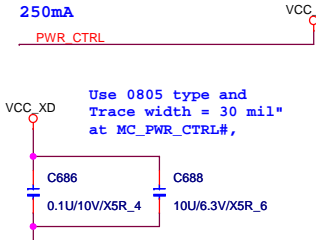
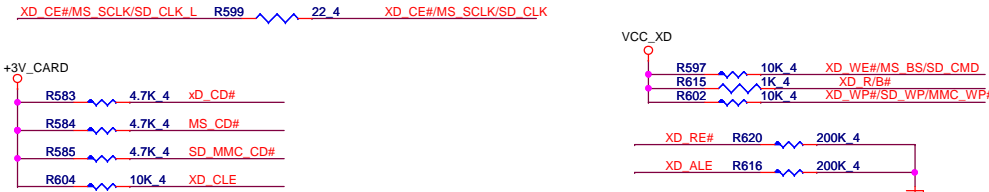




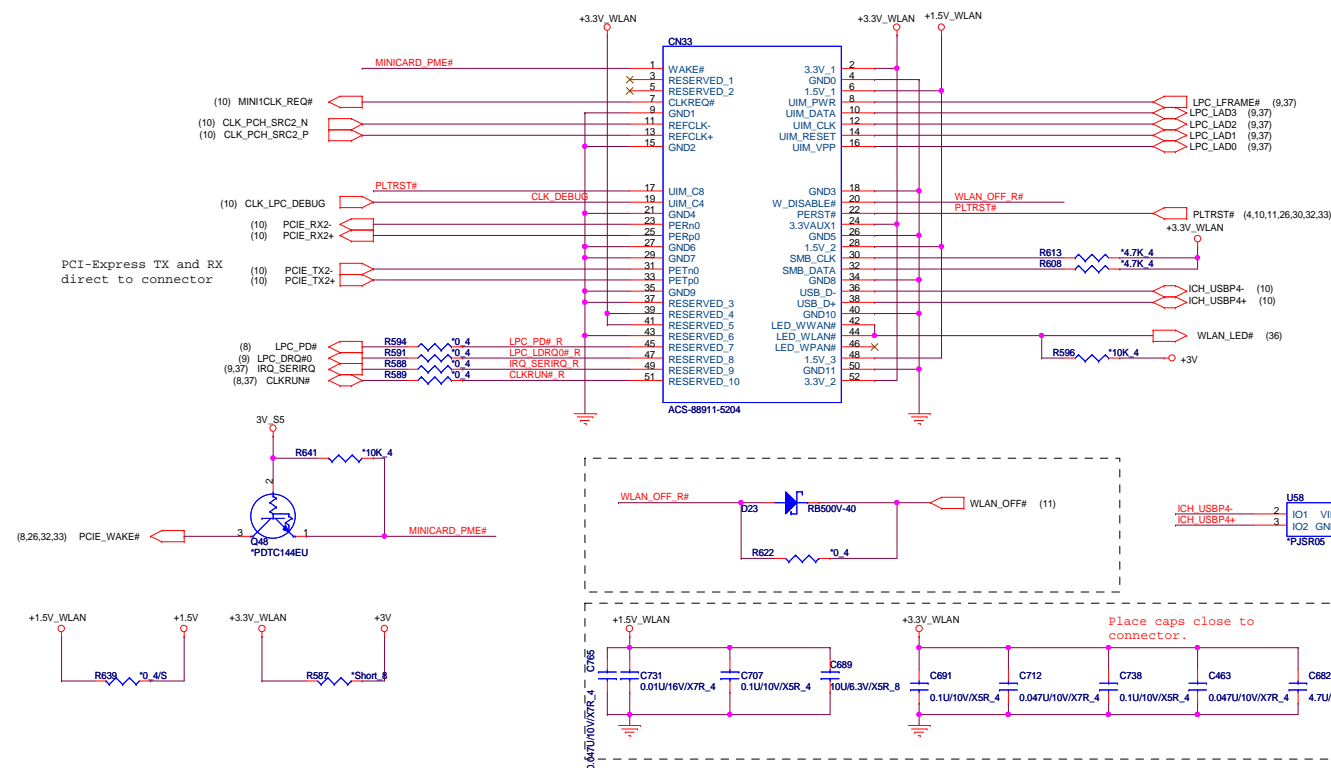
5 IN 1 CARD READER



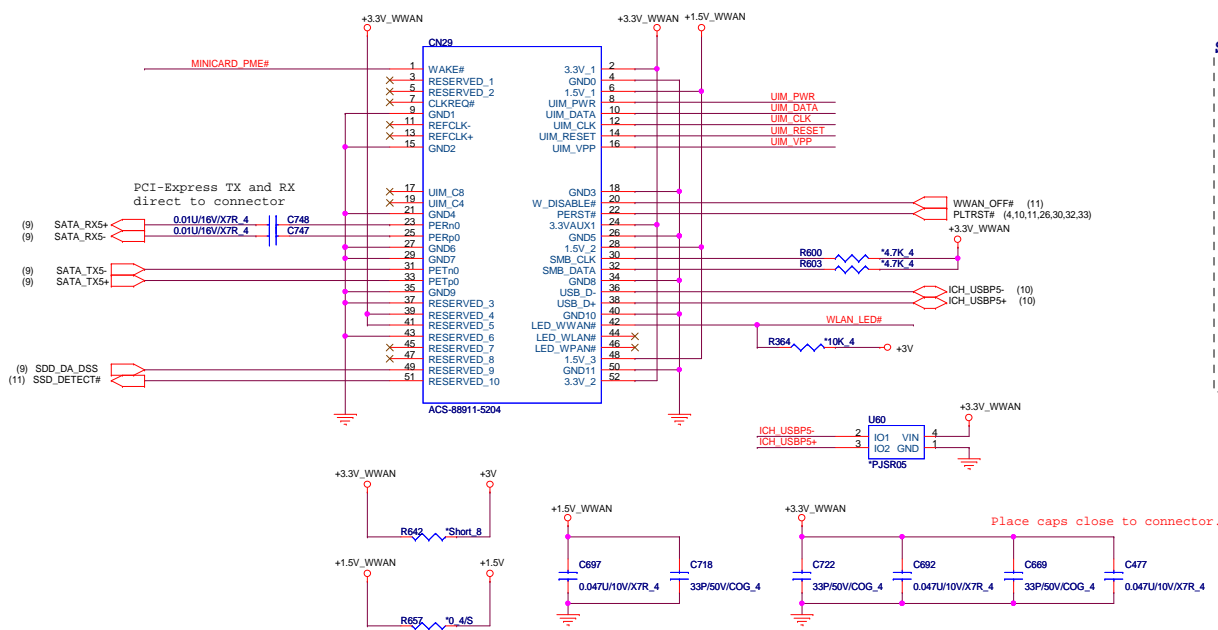
Memory Card Power Supply



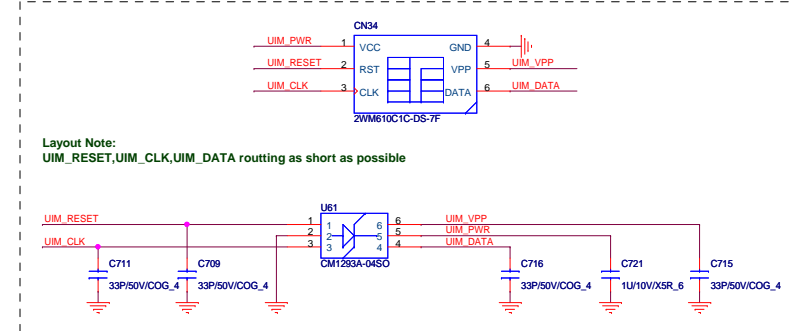
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MiniCard WLA connector	



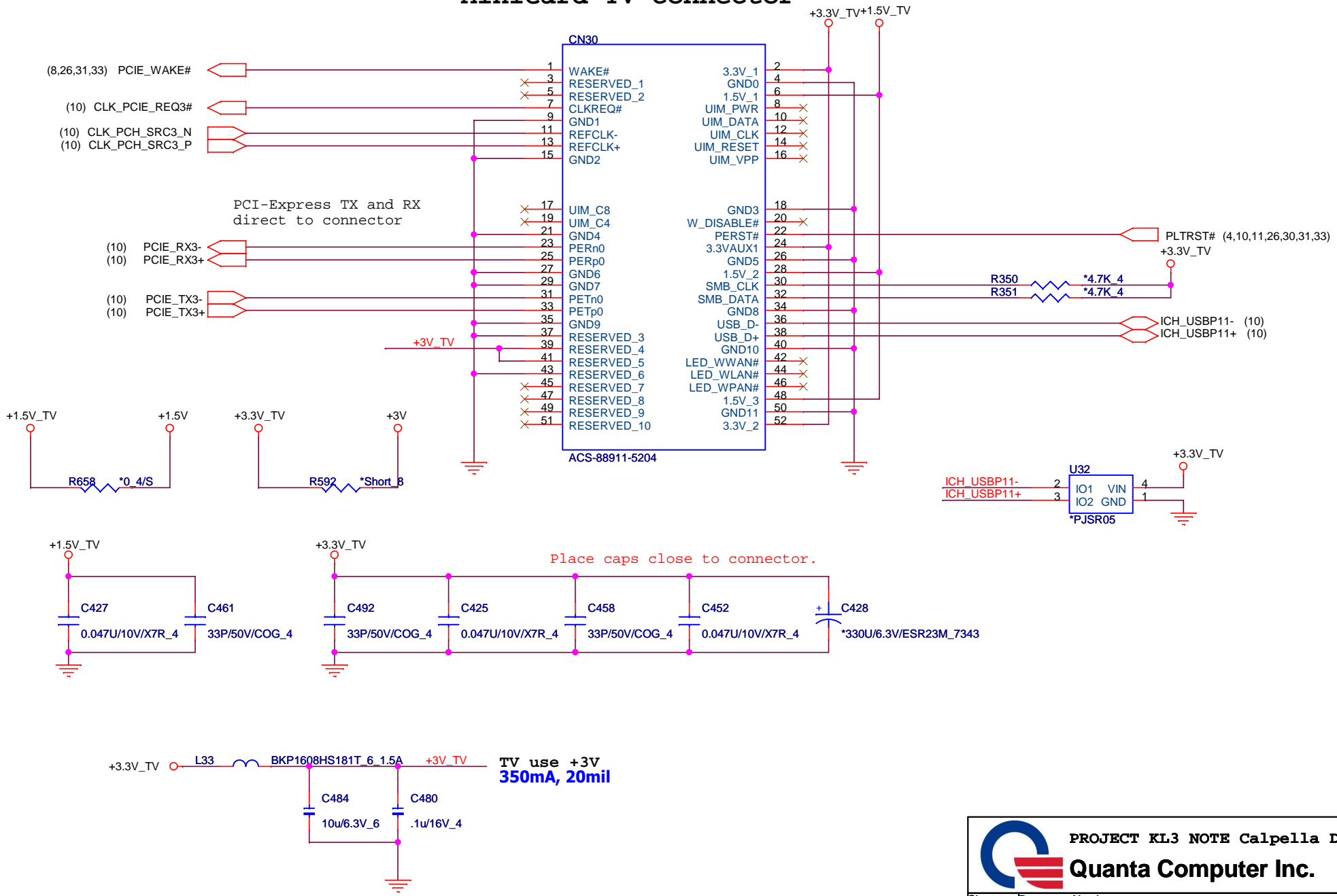
MiniCard WWAN/SATA SSD connector



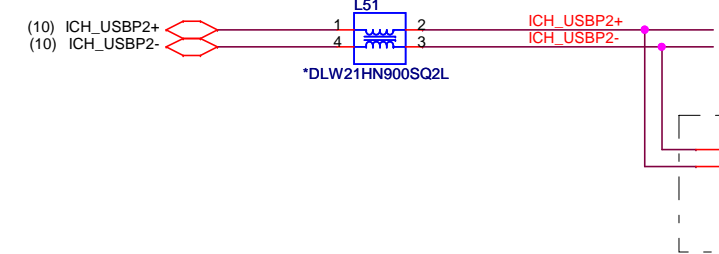
SIM Card CONN



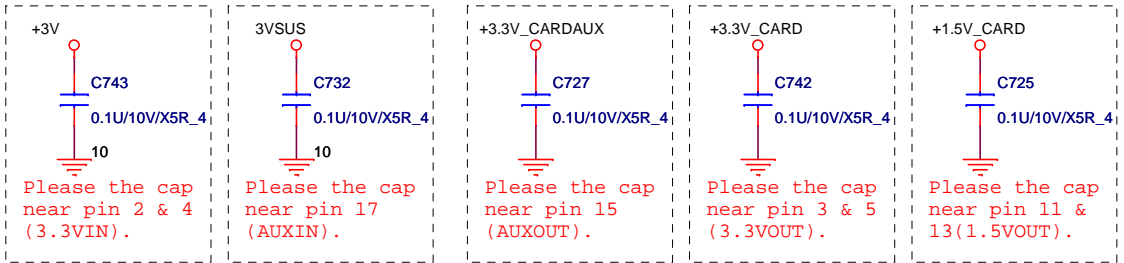
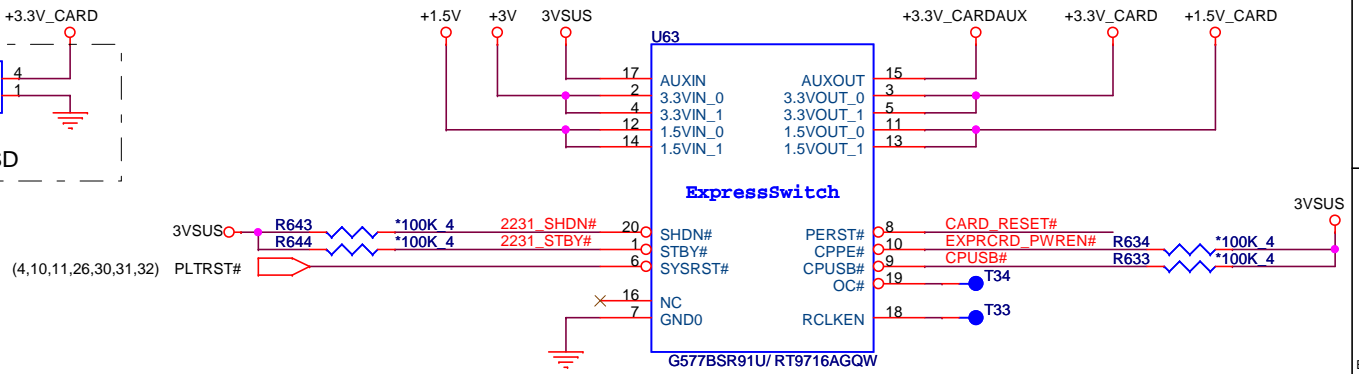
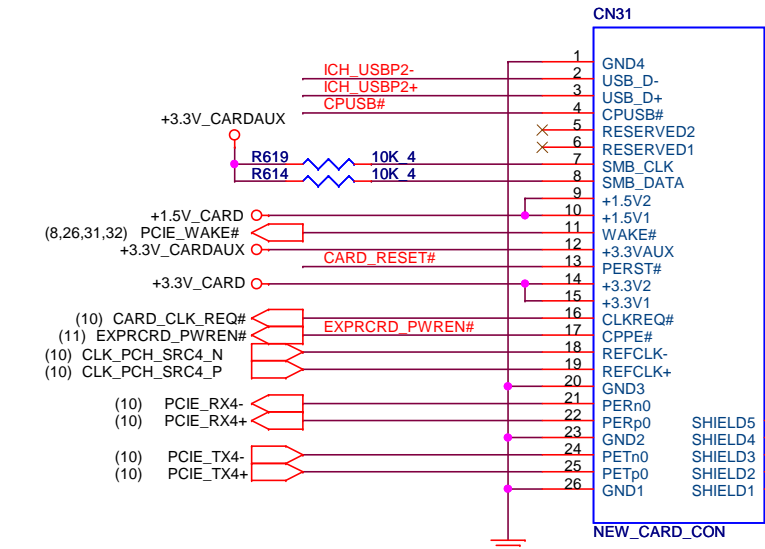
MiniCard TV connector



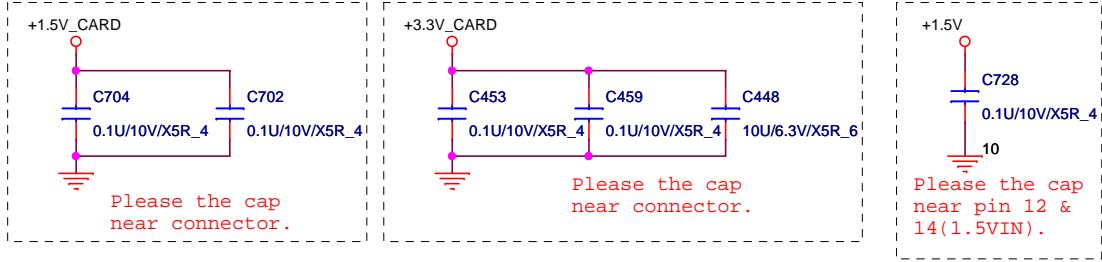
Express Card



+1.5V_CARD Max. 650mA, Average 500mA.
+3.3V_CARD Max. 1300mA, Average 1000mA.

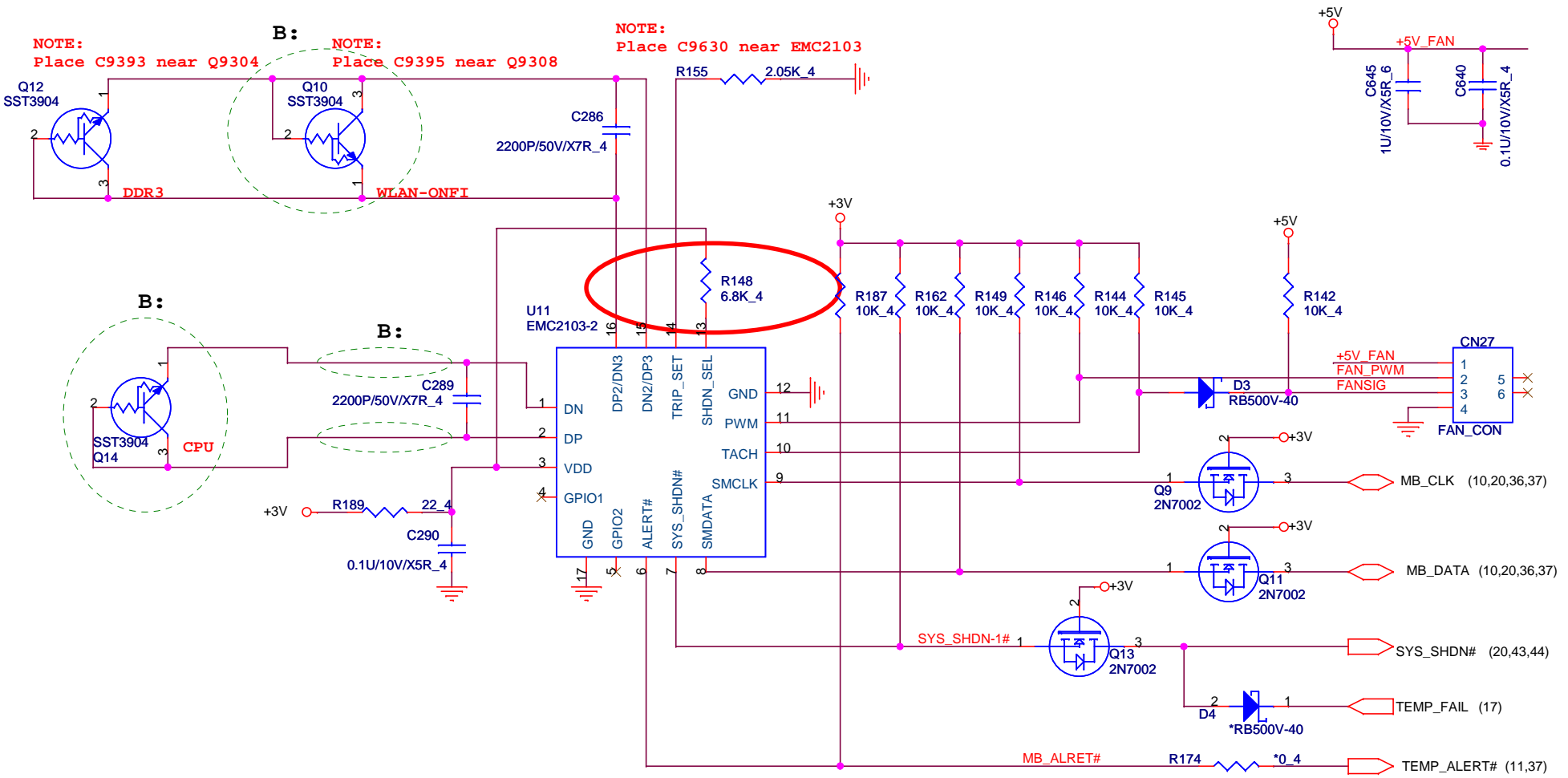


PCI-Express TX and RX direct to connector.
JAE PX10FS16PH-26P

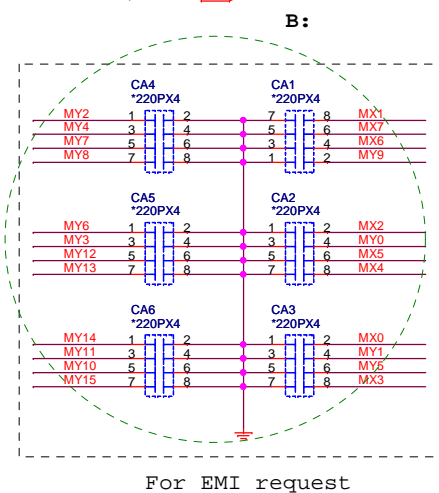
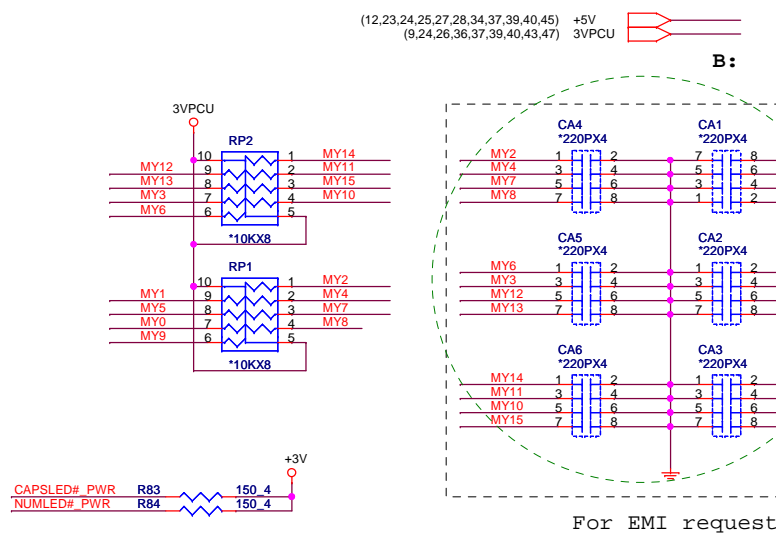
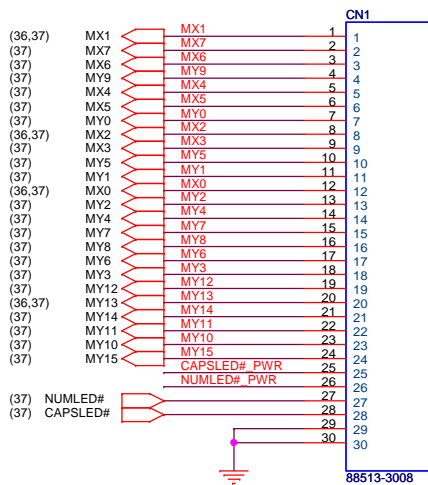


FAN CONTROL

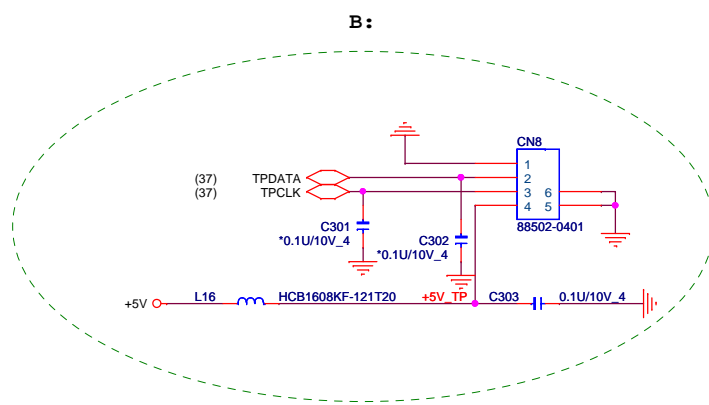
(3,4,8,9,10,11,12,14,15,18,23,24,25,26,27,28,29,30,31,32,33,35,36,37,39,40,44,47)
(12,23,24,25,27,28,35,37,39,40,45)



KEYBOARD

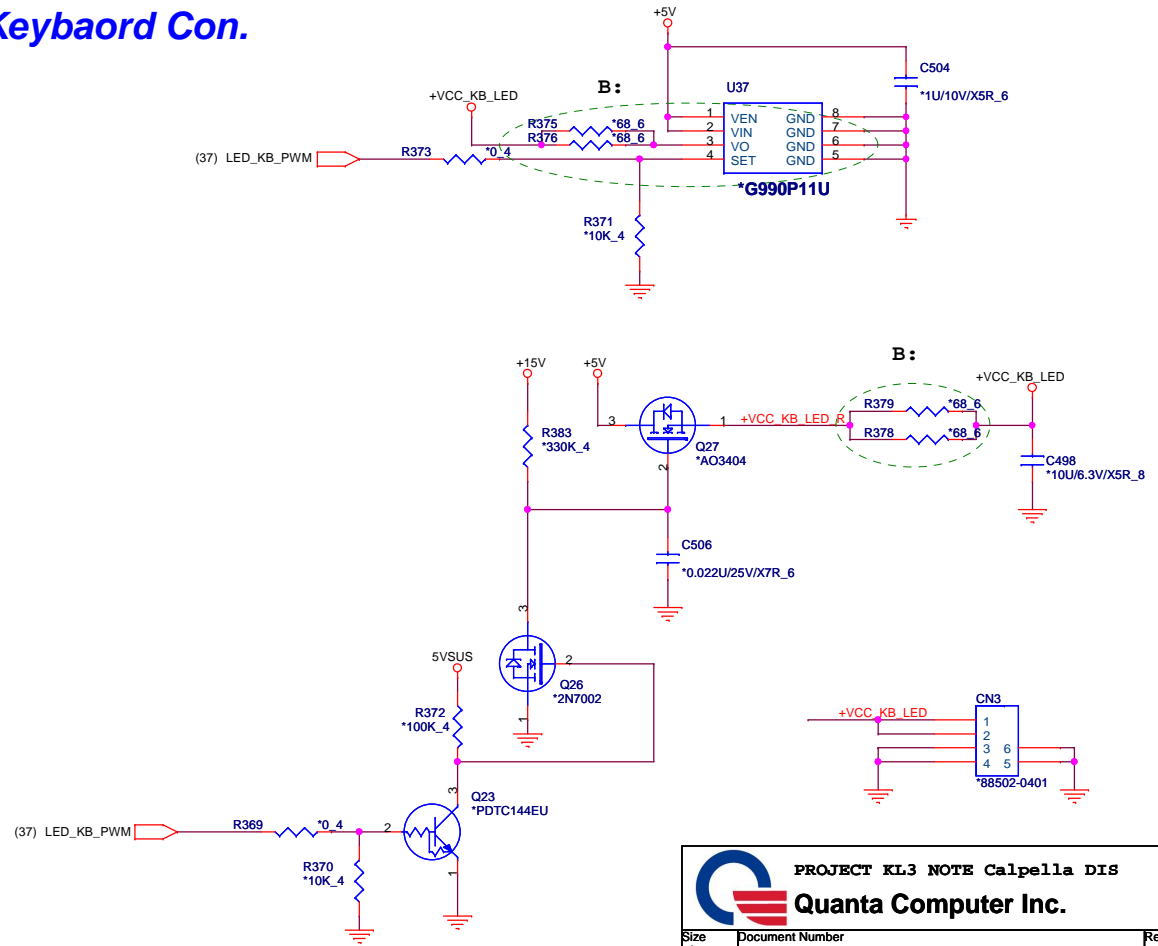


Touch pad

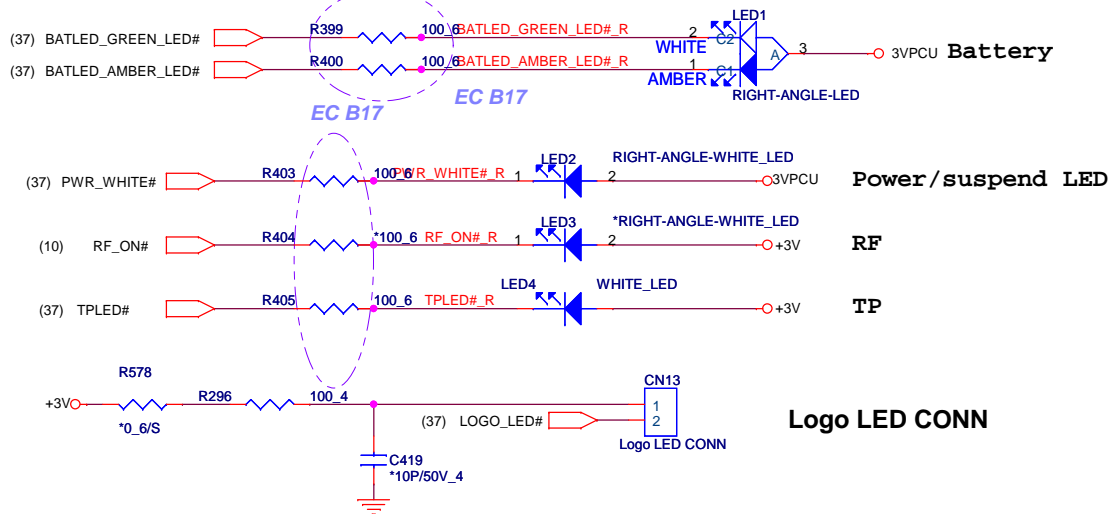
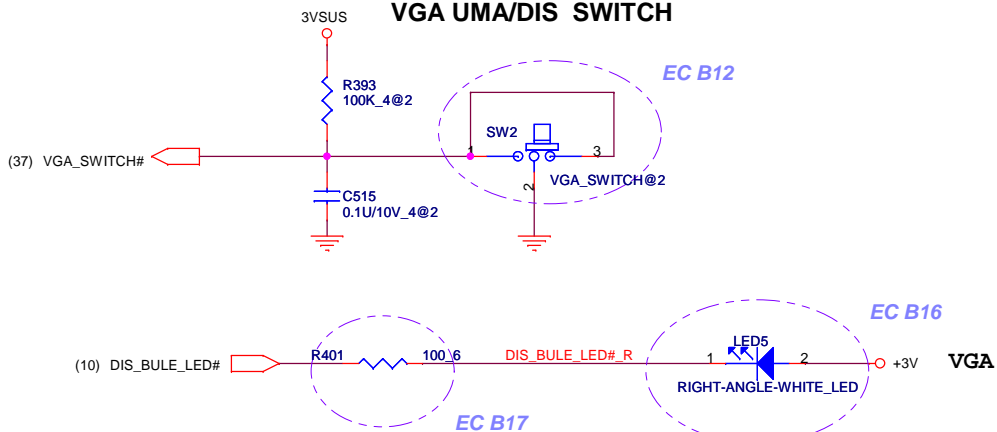


Backlight Keyboard Con.

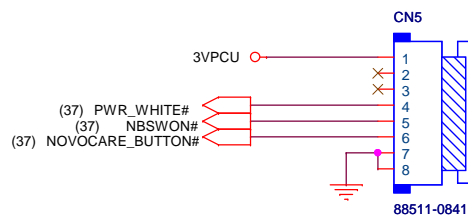
EC PWM Pin



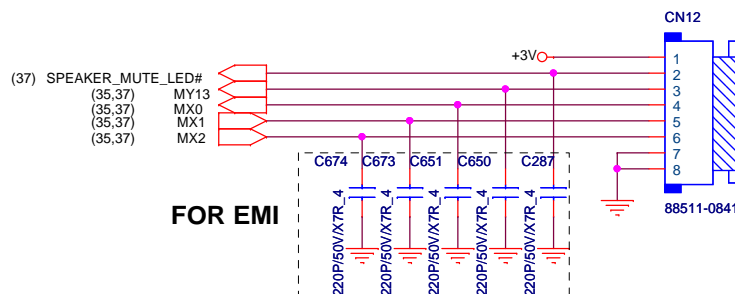
VGA UMA/DIS SWITCH



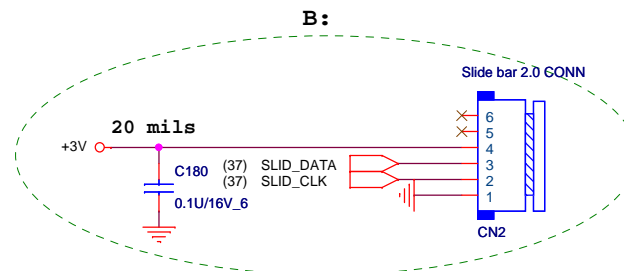
LEFT POWER BOARD



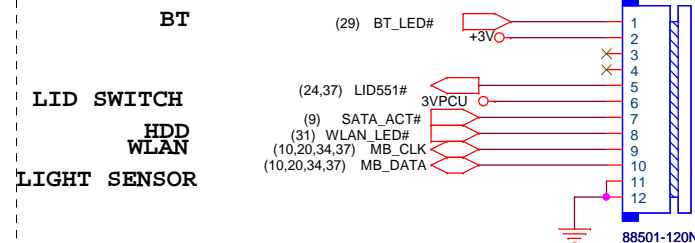
RIGHT VOLUME BOARD

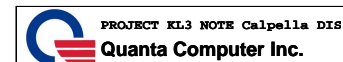


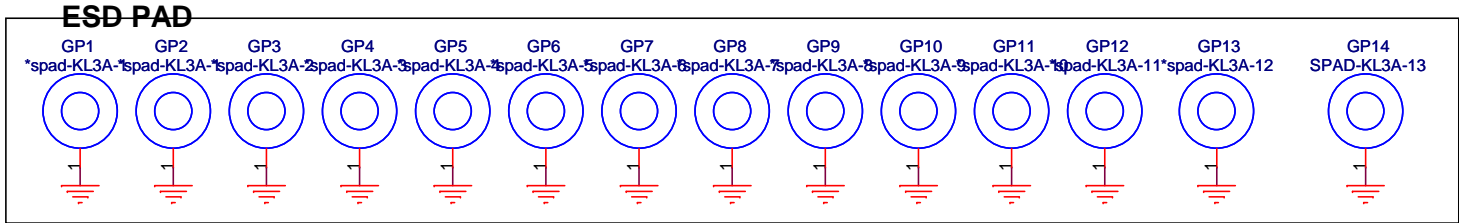
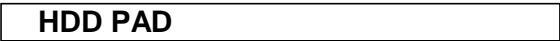
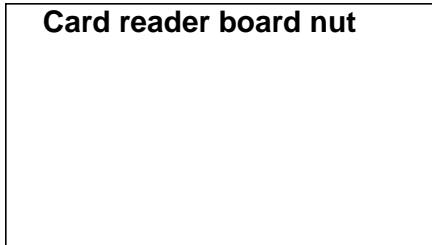
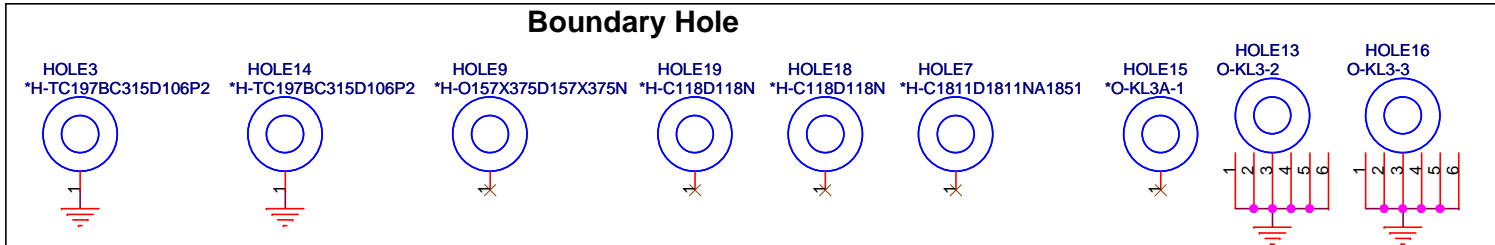
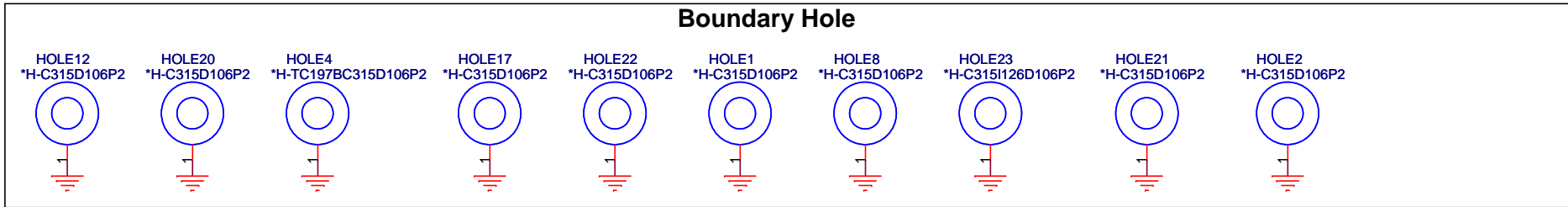
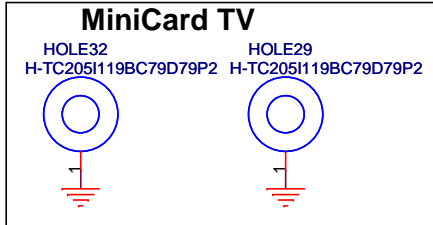
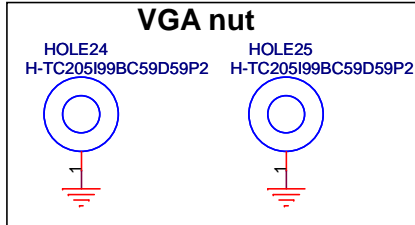
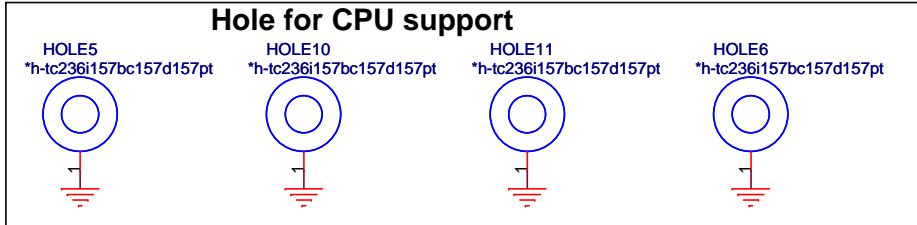
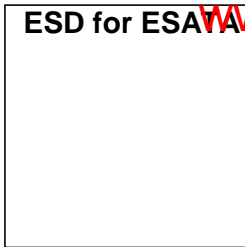
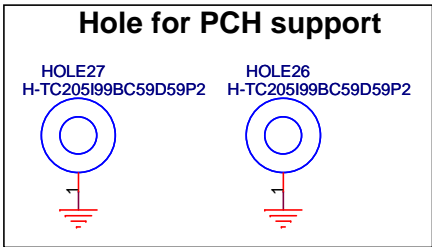
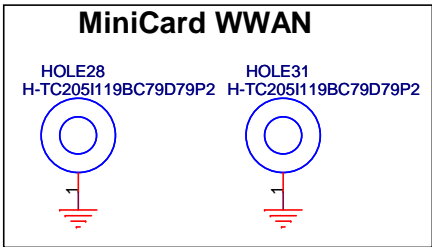
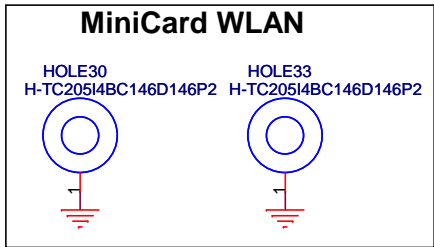
Slide bar 2.0



UP LED BOARD







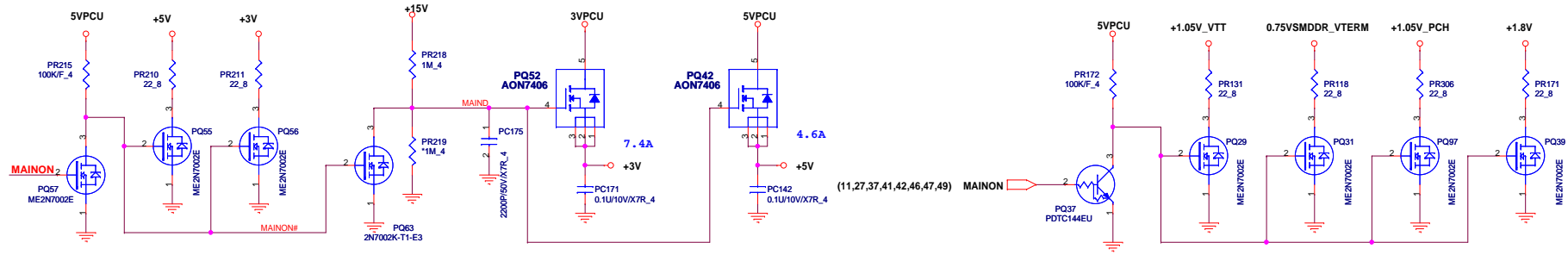
PROJECT KL3 NOTE Calpella DIS

Quanta Computer Inc.

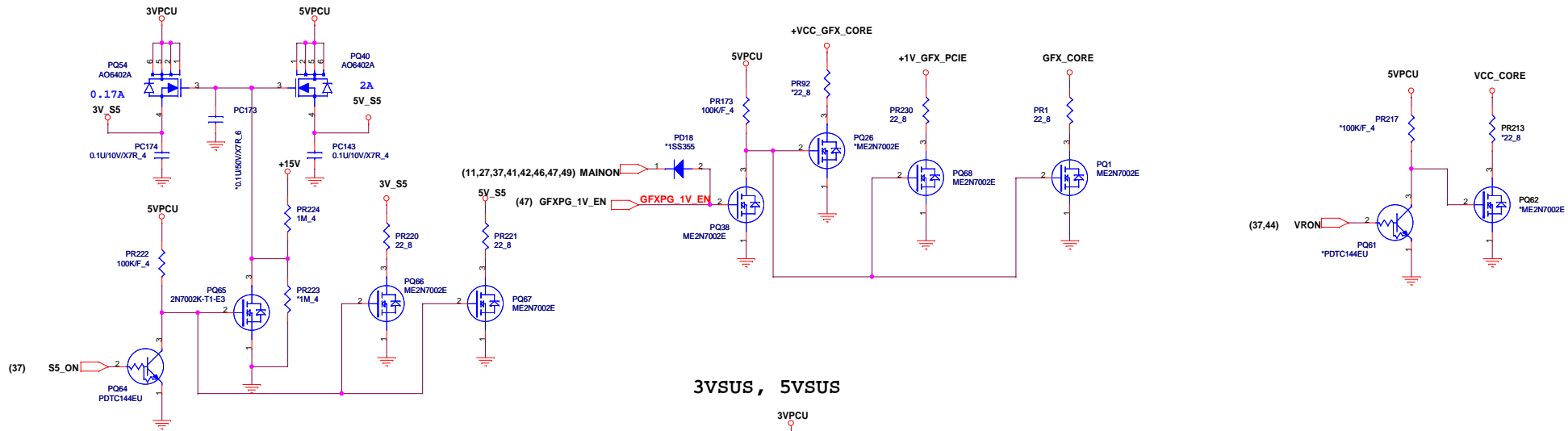
Size: Custom | Document Number: HOLD & SKEW | Rev: 1A

Date: Wednesday, December 23, 2009 | Sheet: 38 of 53

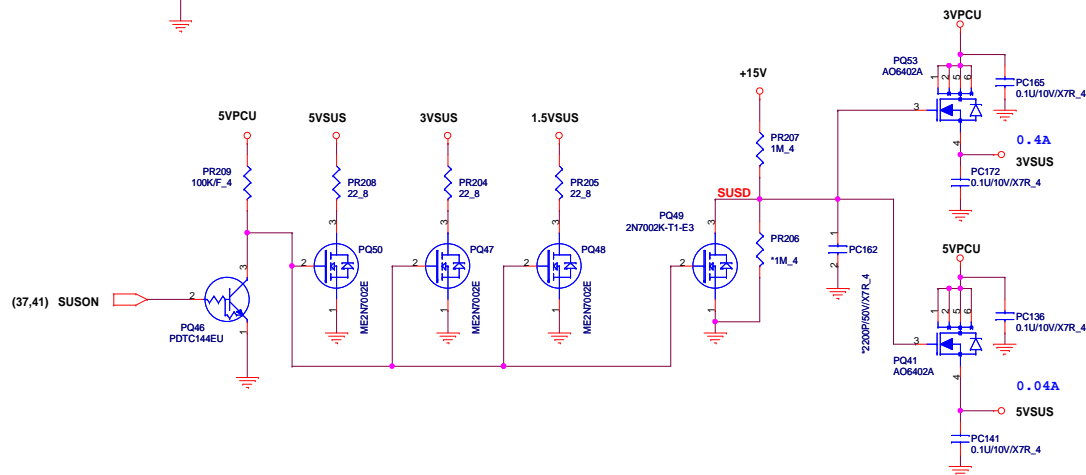
+3V, +5V



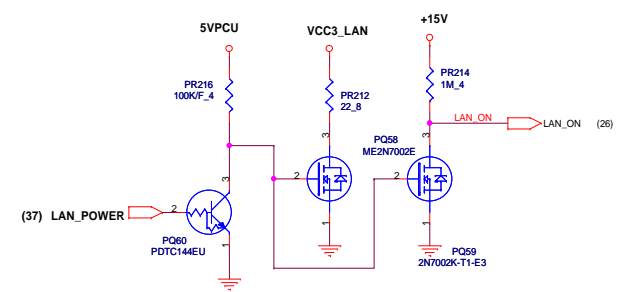
3V_S5, 5V_S5



3VSUS, 5VSUS

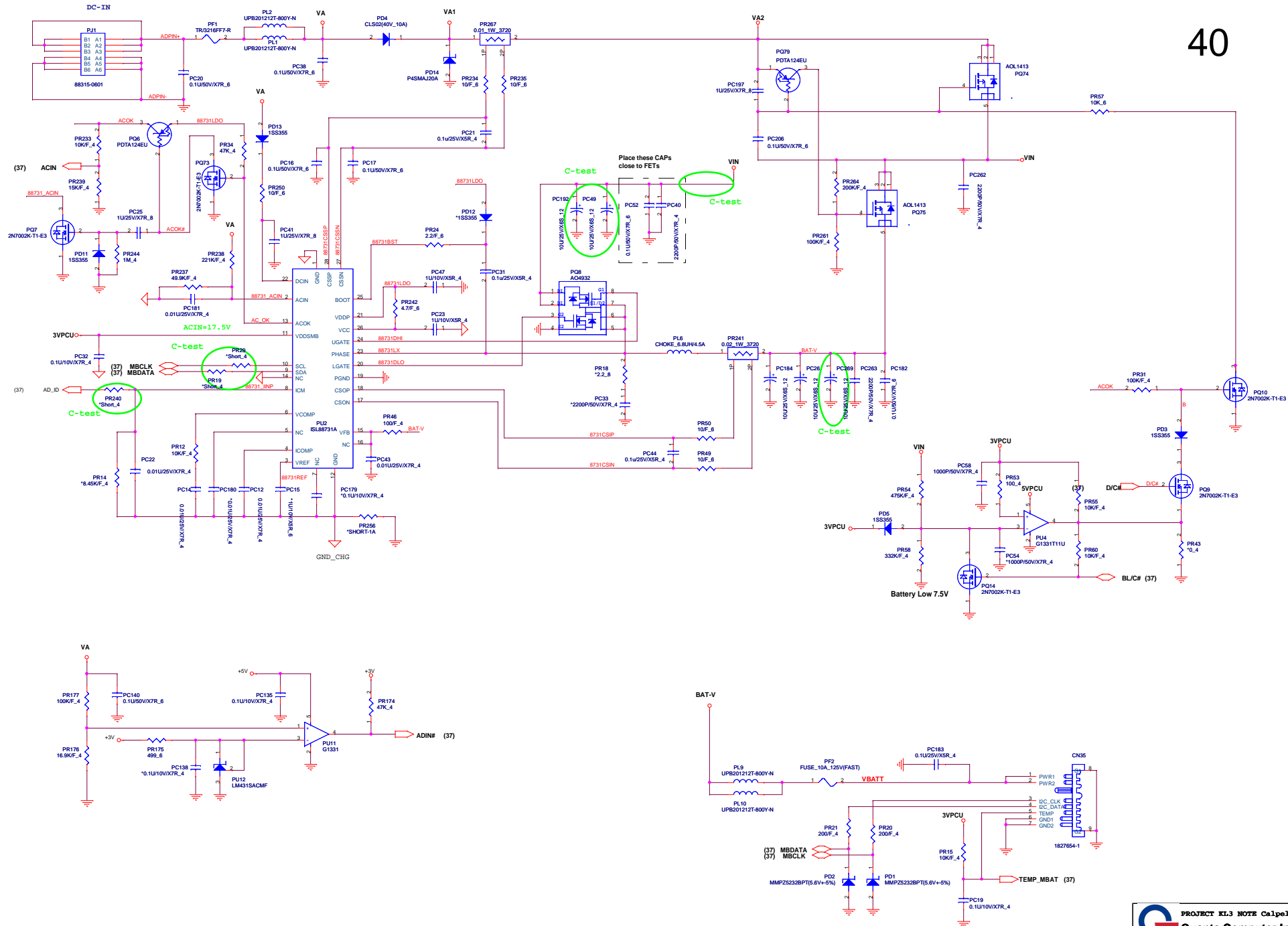


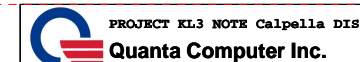
LANVCC

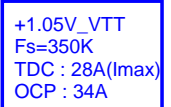


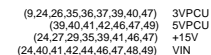
R138=0.02m ohm for 65W adapter-->current limit is 3A;

40

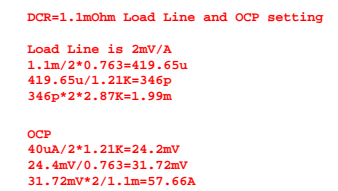


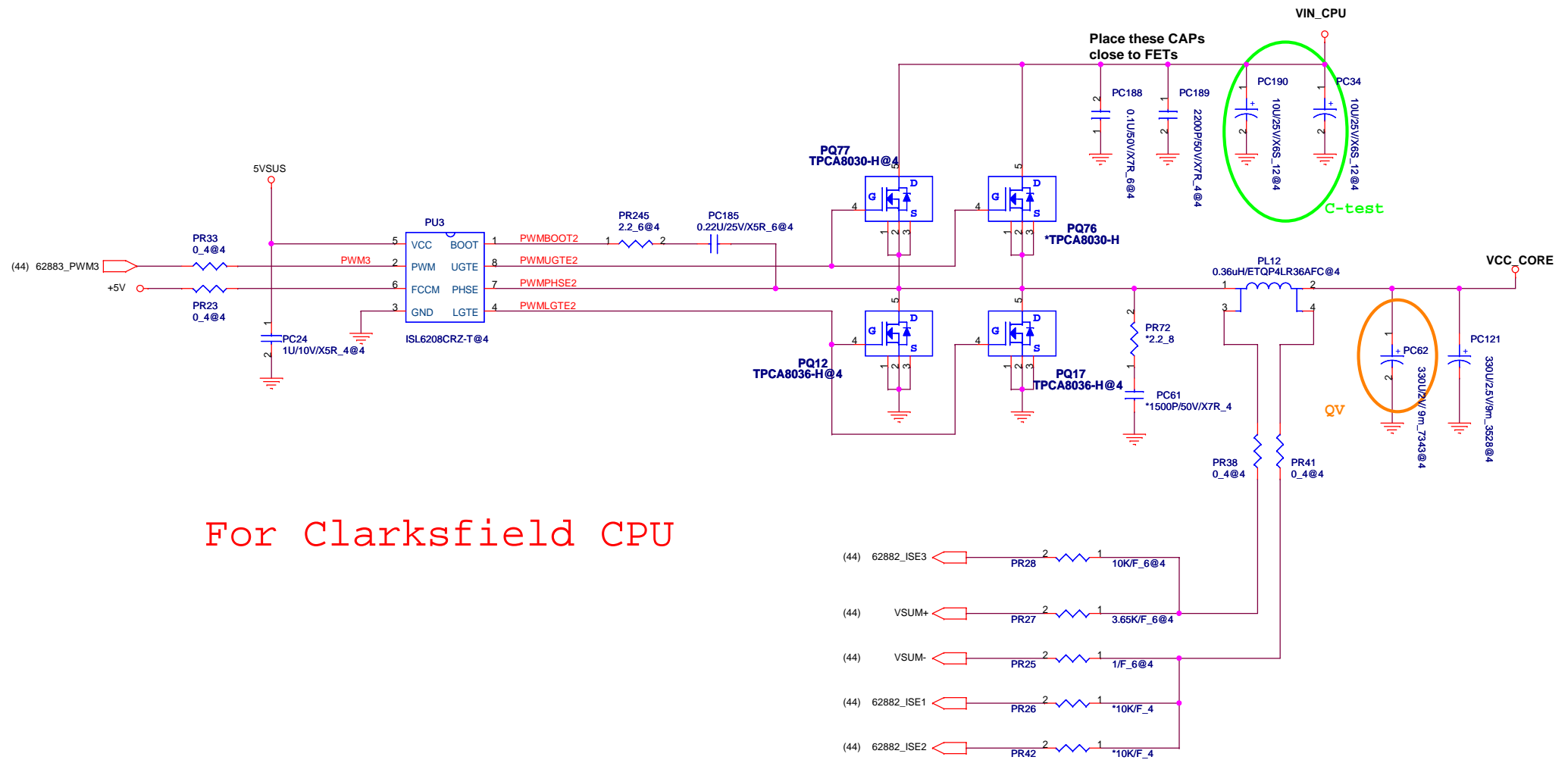


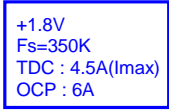




5VPCU
Fs=400K
TDC : 6.8A(I_{max})
OCP : 8.2A





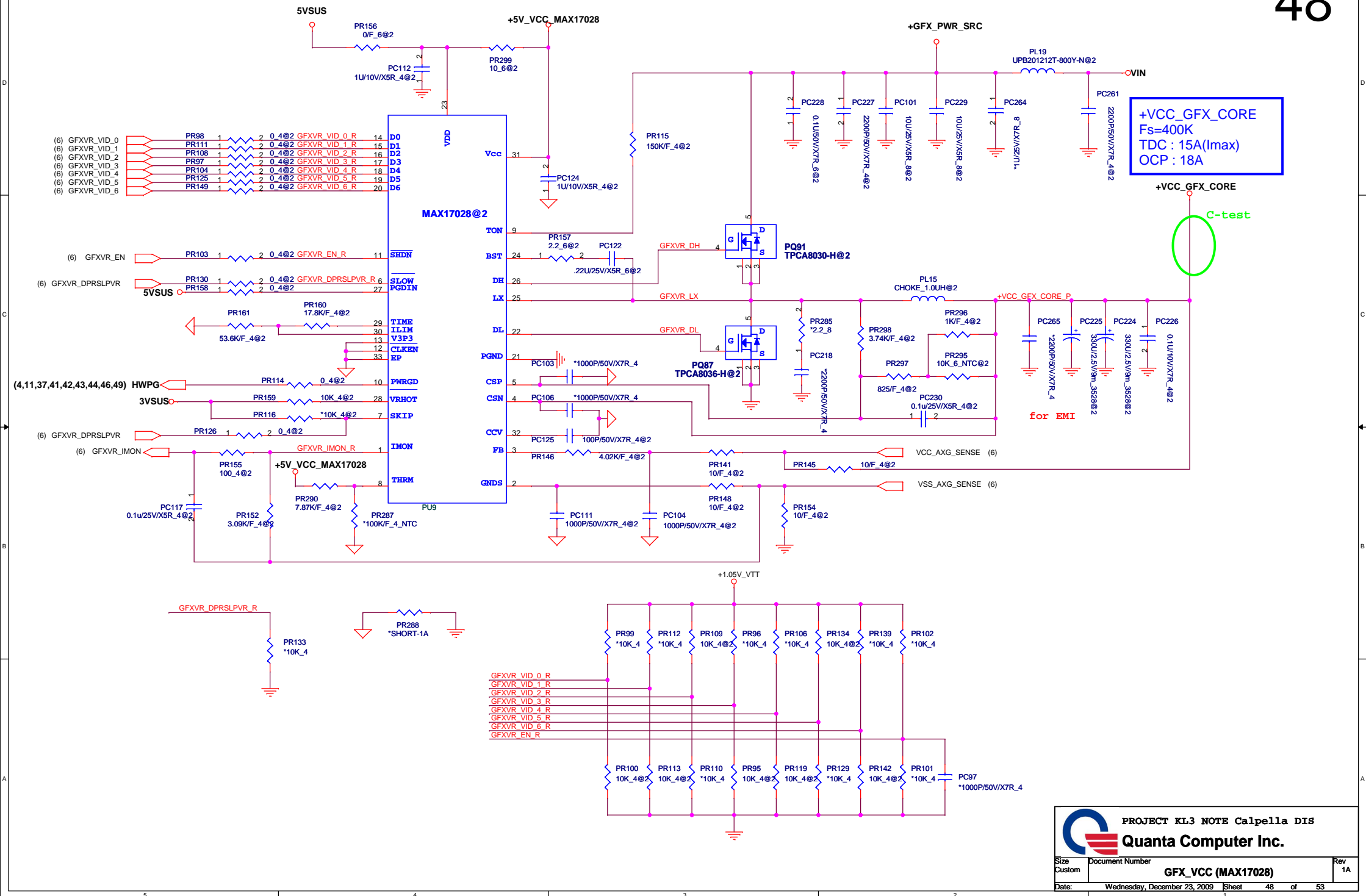


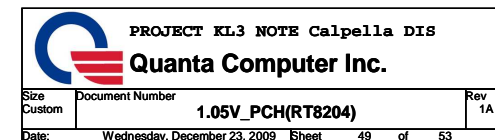
1.5A



MAX : 2A

>+1V_GFX_PCIE (16,17,18,19,39)





Revision History

Revision	Date	Phase	Change List	Release Schematic Date	Release Gerber File Date
1A		DV	Initial release		

Schematic Value Explanation Description :

RESISTOR

Value	F	4	6	8	12	1210	*	Description
*1K/F_4	1%	0402 (1005)					DE POP	1K ohm 1% SMD 0402 package and DE POP
1K_6	5%		0603 (1608)				POP	1K ohm 5% SMD 0603 package and POP
1K_8	5%			0805 (2125)			POP	1K ohm 5% SMD 0805 package and POP
1K_12	5%				1206 (3216)		POP	1K ohm 5% SMD 1206 package and POP
1K_1210	5%					1210 (3225)	POP	1K ohm 5% SMD 1210 package and POP

CAPACITOR

Value	Voltage	Material	6				*	Description
*0.1U/10V/X5R_4	10V	X5R	0402 (1005)				DE POP	0.1UF 10V X5R SMD 0402 package DE POP
1U/25V/X7R_6	25V	X7R	0603 (1608)				POP	0.1UF 25V X7R SMD 0603 package POP

G NOTE SKU TABLE

[illegible]

G NOTE SKU TABLE

[illegible]

EC #	Page	Description	Part Affected
EC-A-01	12	0 ohm change to DEL for reduce 1.05V drop	R261
EC-A-02	35	Change footprint and schematic for design request	CN5
EC-A-03	35	DEL R126 and connect CN5.25 to GND directly	R126
EC-A-04	38	Add 10 ohm for reduce noise	R577
EC-A-05	39	DEL CN2 for combine with GC4/GC5	CN2
EC-A-06	10	25MHz X'tal ICG support removed from POR	Y6,R478,C671,C670
EC-A-07	12	Based on Intel DG V1.5 page320, remove external LC filter for VCCAClk, VccapIEXP, VCCFDIPLL, VCCSATAPLL.	L45,C692,L46,C697,L47,C712, C715,L21,C329,C331
EC-A-08	14	Based on Intel DG V1.5 page100 ,remove DDR3 Vref control circuit M2 option.	U1 etc...
EC-A-09	15	Based on Intel DG V1.5 page100 ,remove DDR3 Vref control circuit M2 option.	U46 etc...
EC-A-10	23	Change from 0 ohm to bead for EMI request	R150
EC-A-11	26	Change from 0 ohm to bead for EMI request	R237,R238,R239,R240
EC-A-12	43	Del +1.05V_PCH discharge	PR219,PQ11
EC-A-13	43	Add charger PTC	PR263
EC-A-14	43	Change Footprint	PQ66
EC-A-15	43	Modify OTP circuit	PD34
EC-A-16	44	Del NO ASM circuit	PU16 etc...
EC-A-17	46	Del +1.05V_PCH circuit	PQ133 etc...
EC-A-18	46	Reduce +1.05V power rail impedance	PJP13,PJP4
EC-A-19	46	Reserve for current derating	PL23
EC-A-20	46	Reduce transient regulation	PL20
EC-A-21	47	Reduce ripple voltage	PC216
EC-A-22	49	Add to separate enable from protect circuit	PR264
EC-A-23	49	Reserve for sequence	PR265
EC-A-24	29	ESD suggestion because ESATA don't CDE test so we DEL U7,U8 and add a GND shielding in board file	U7,U8