

Compal Confidential

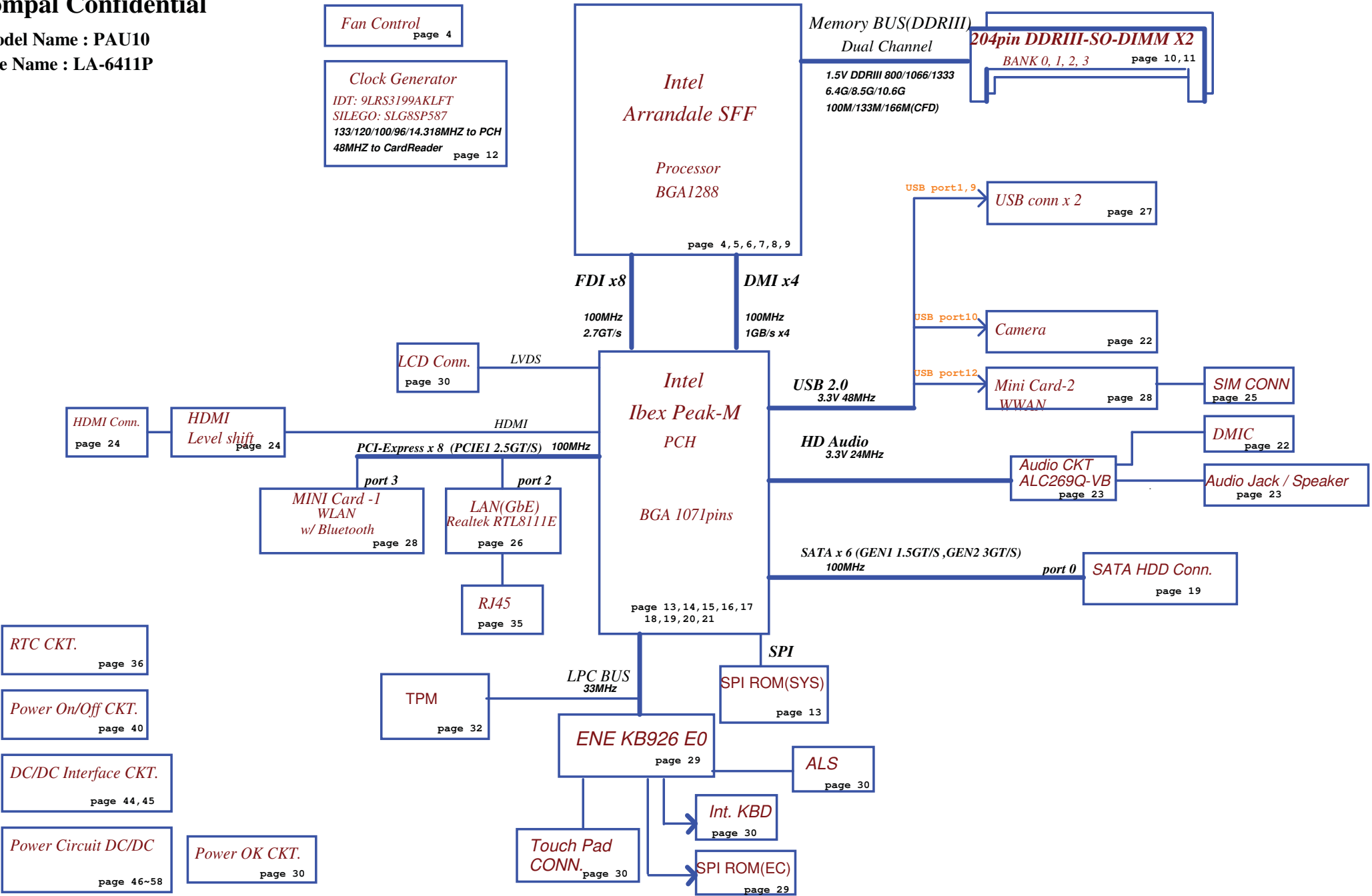
Churchill 13.3" M/B Schematics Document

Intel Arrandale SFF Processor with DDRIII + Ibex Peak-M

2010-03-31

REV : 0 . 1

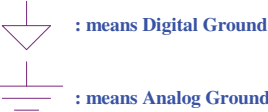
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Issued Date	2010/3/31	Deciphered Date	2011/3/31	Title	
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Voltage Rails (O MEANS ON X MEANS OFF)

power plane State	+RTCVCC	B+	+5VALW +3VALW	+1.5V	+5VS +3VS +1.5VS +VGFX_CORE +VCCP +CPU_CORE +1.05VS +1.8VS +0.75VS +1.5V_CPU
S0	O	O	O	O	O
S3 / DC	O	O	O	O	X
S3 / AC	O	O	O	O	X
S5 S4/AC	O	O	O	X	X
S5 S4/ Battery only	O	O	X	X	X
S5 S4/AC & Battery don't exist	O	X	X	X	X

Symbol Note :



@ : means just reserve , no build
CONN@ : means ME part.

Install below 45 level BOM structure for ver. 0.1

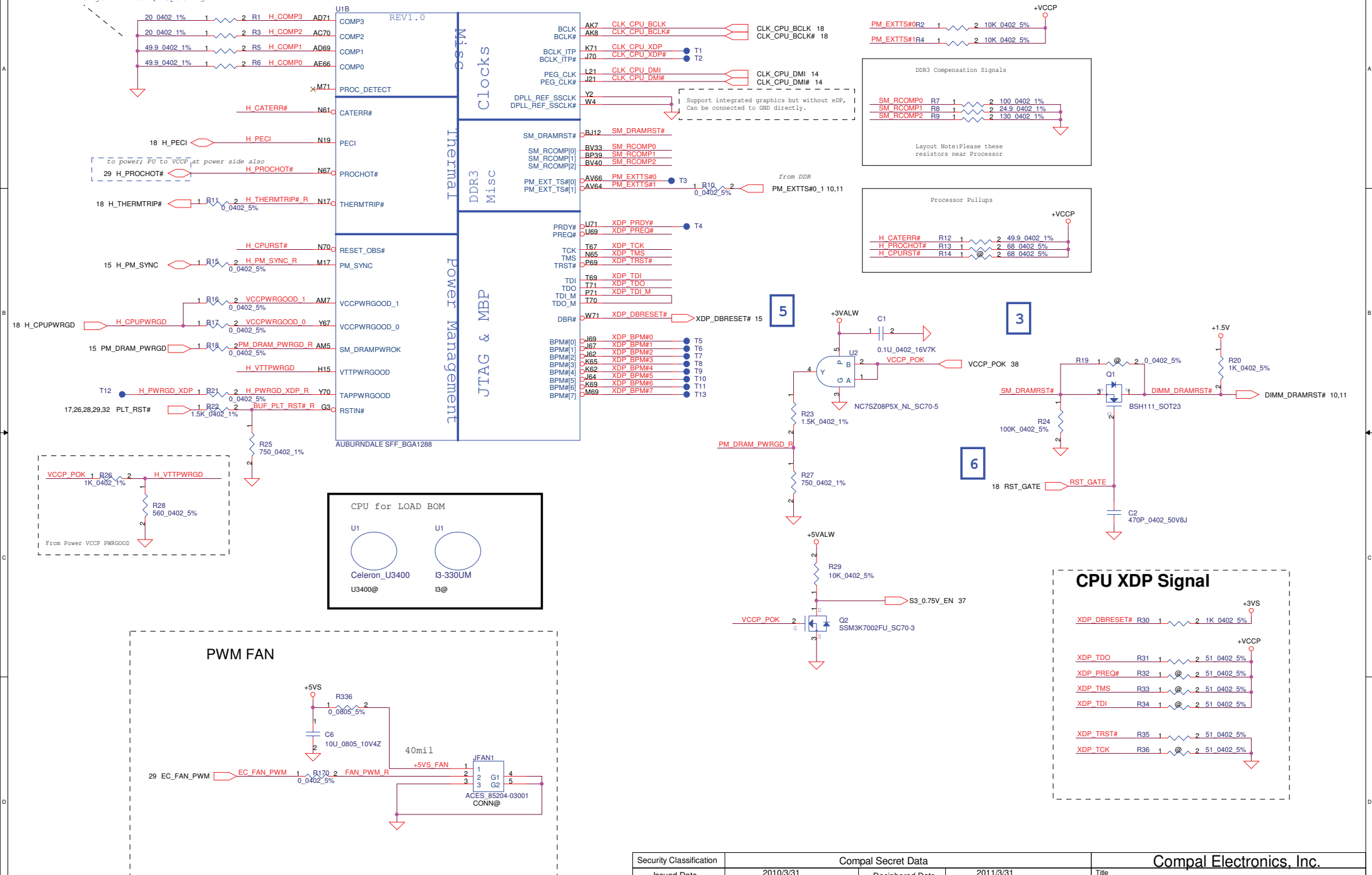
45@ : means just put it in the BOM of 45 level.

Install below 43 level BOM structure for ver. 0.1

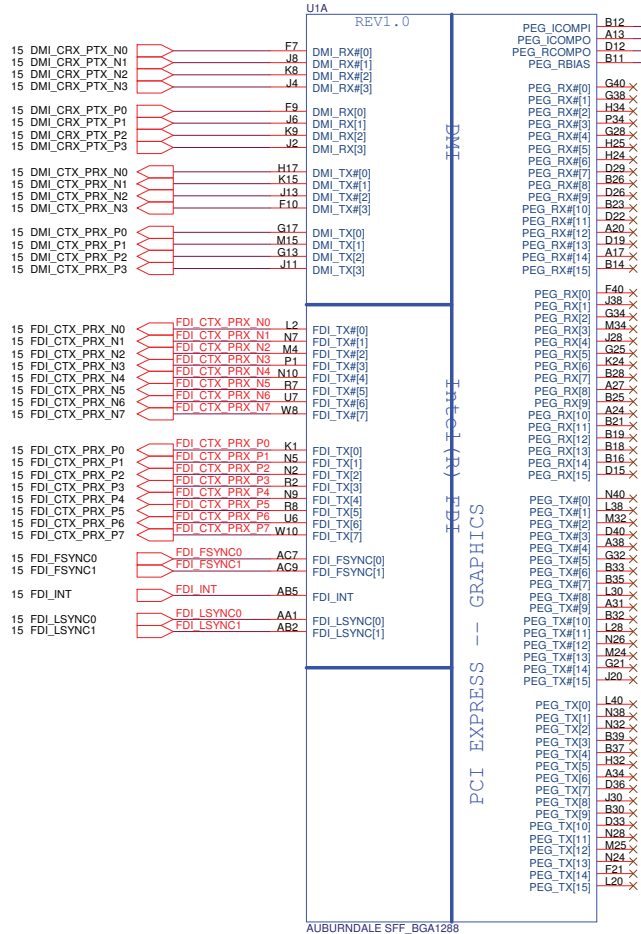
SMBUS Control Table

	SOURCE	BATT	SODIMM	CLKGEN	G-SENSOR
SMB_EC_CK1 SMB_EC_DA1	EC	V	X	X	V
SMBCLK SMBDATA	Calpella	X	V	V	X
SML1CLK SML1DATA	Calpella	X	X	X	X

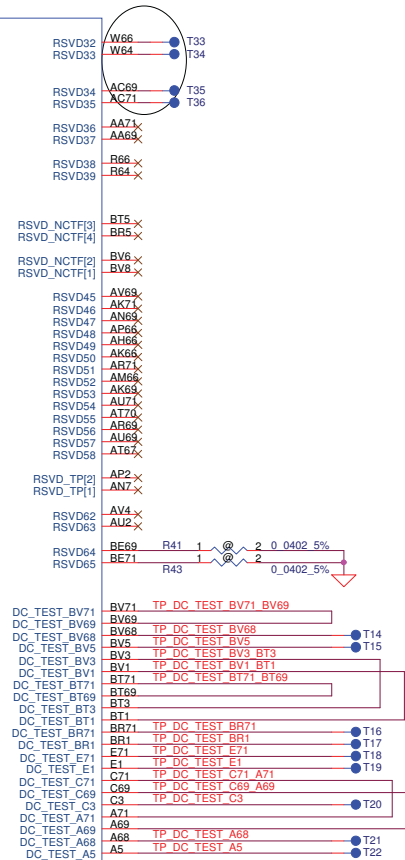
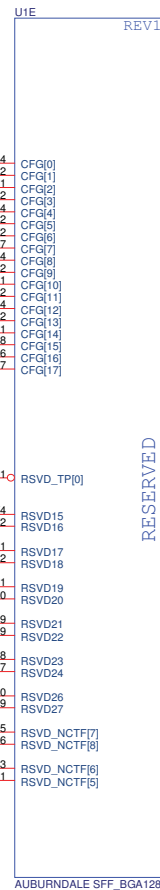
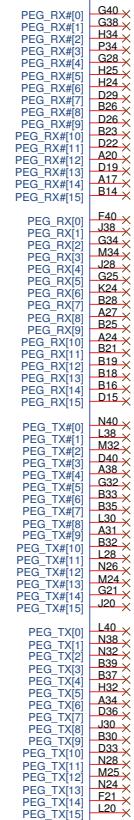
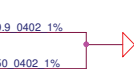
```
Layout rule: 10mil width trace
length < 0.5", spacing 20mil
```



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2010/3/31	Deciphered Date	2011/3/31	Title ARD-SFF(1/6)-Thermal/XDP	
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Layout rule : trace
length < 0.5"



CFG Straps for PROCESSOR

CFG0 R44 1 @ 2 3.01K 0402 1%

PCI-Express Configuration Select	
CFG0	1: Single PEG 0: Bifurcation enabled

Not applicable for Clarksfield Processor

CFG3 R45 1 @ 2 3.01K 0402 1%

CFG3-PCI Express Static Lane Reversal	
CFG3	1: Normal Operation 0: Lane Numbers Reversed 15 -> 0, 14 -> 1,

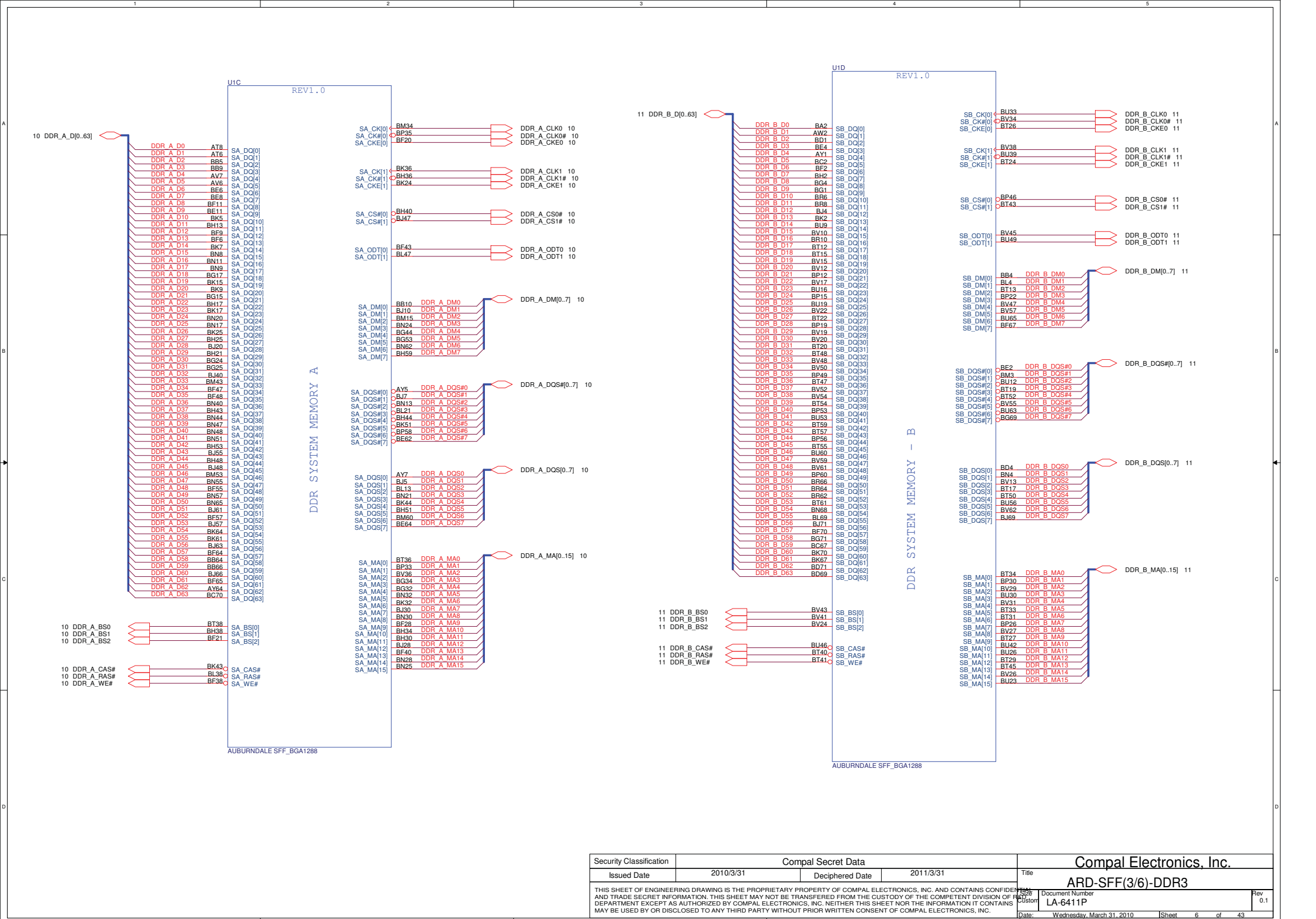
CFG4 R46 1 @ 2 3.01K 0402 1%

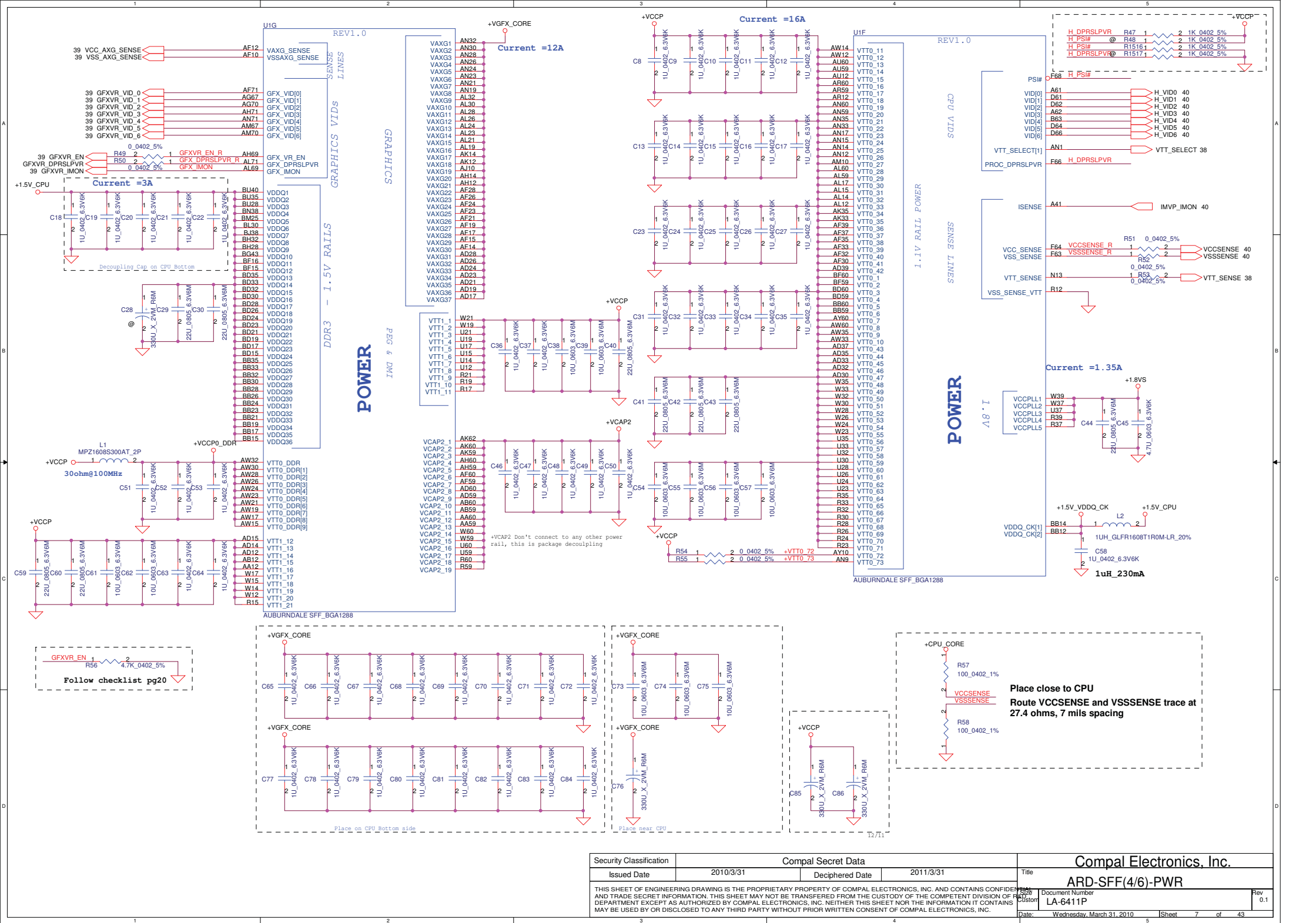
CFG4-Display Port Presence	
CFG4	1: Disabled; No Physical Display Port attached to Embedded Display Port 0: Enabled; An external Display Port device is connected to the Embedded Display Port

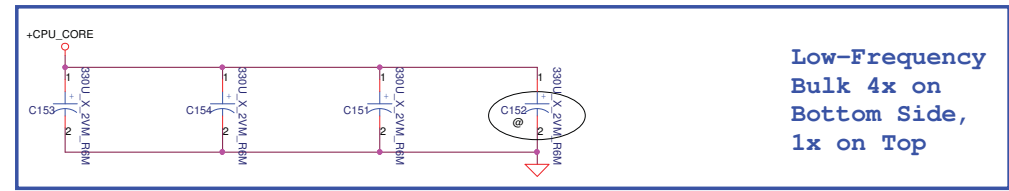
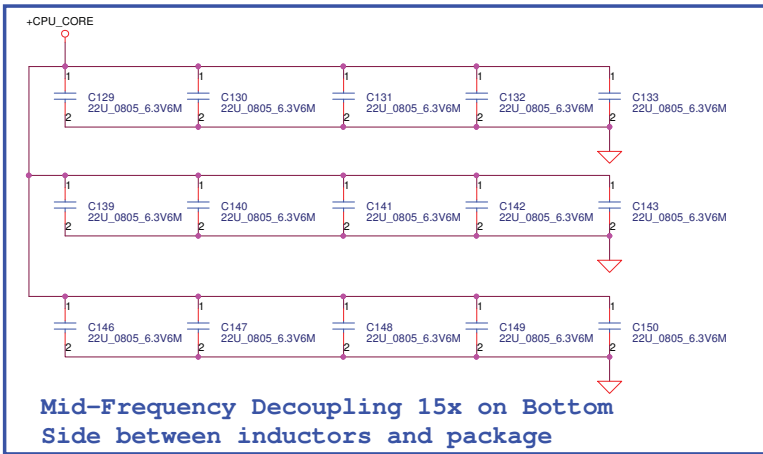
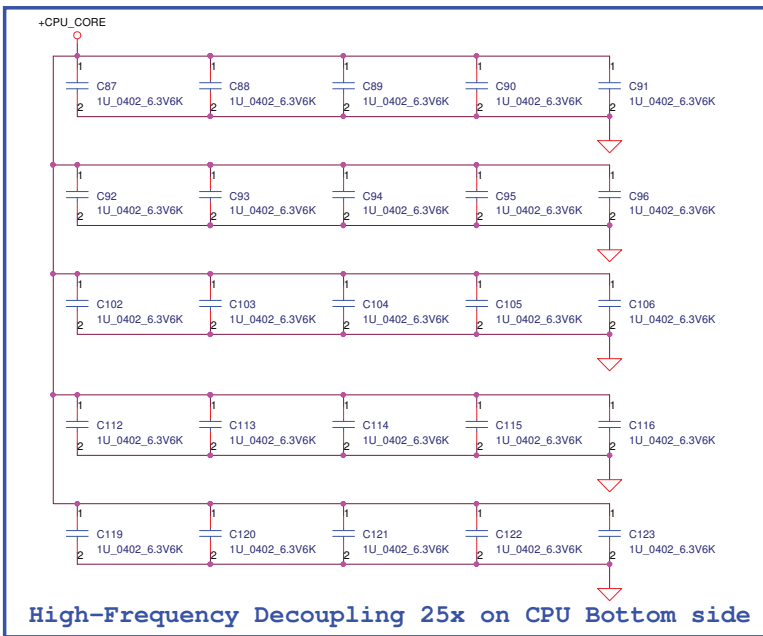
Package Daisy Chain: Daisy Chain Recommendation for SMT Connectivity

- 1: BR71 - pkg - BT71 - board - BT69 - pkg - BV71 - board - BV69 - pkg - BV68
- 2: A68 - pkg - A69 - board - C69 - pkg - A71 - board - C71 - pkg - E71
- 3: A5 - pkg - C3
- 4: BR1 - pkg - BT1 - board - BV1 - pkg - BT3 - board - BV3 - pkg - BV5

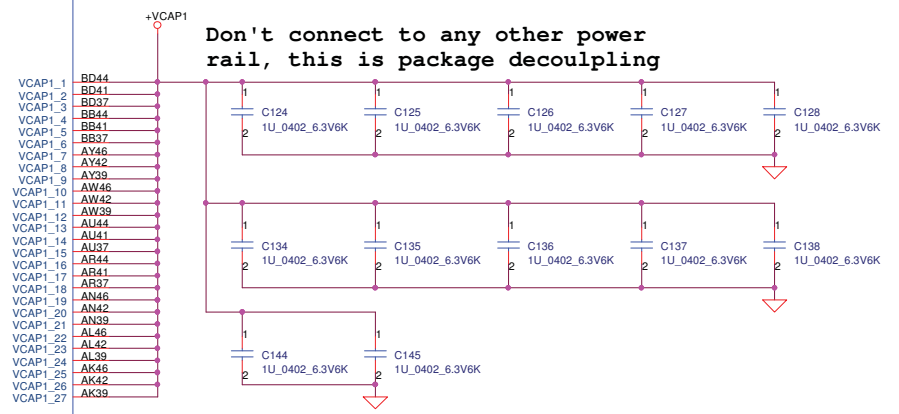
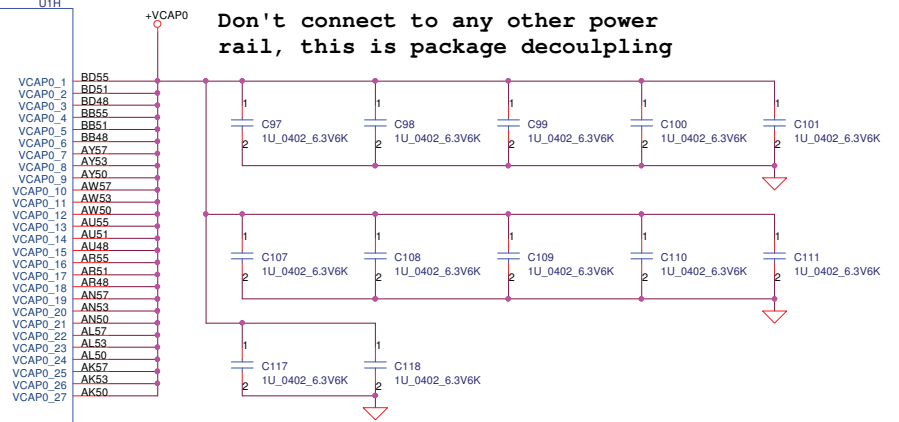
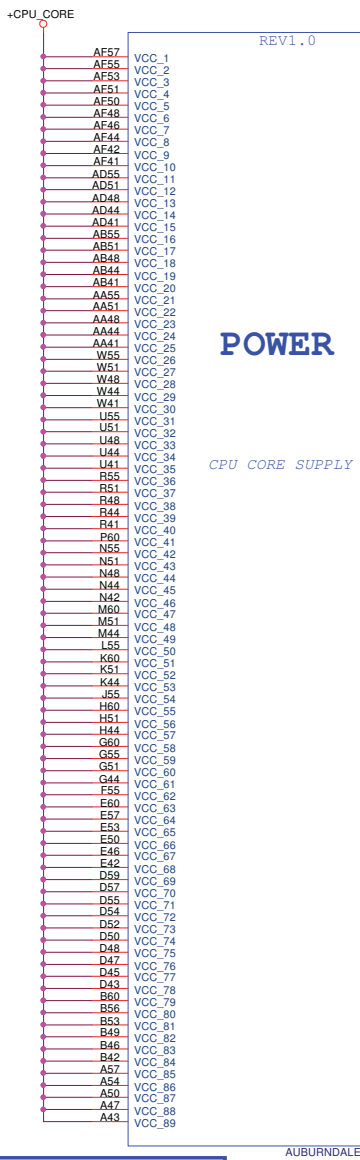
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Current =274A



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U11		REV1.0	AY24
BU62	VSS1	VSS90	AY23
BU58	VSS2	VSS91	AY21
BU55	VSS3	VSS92	AY19
BU51	VSS4	VSS93	AY17
BU48	VSS5	VSS94	AY15
BU44	VSS6	VSS95	AY14
BU37	VSS7	VSS96	AY12
BU32	VSS8	VSS97	AY8
BU25	VSS9	VSS98	AY4
BU21	VSS10	VSS99	AW67
BU18	VSS11	VSS100	AW62
BU14	VSS12	VSS101	AW59
BU11	VSS13	VSS102	AW55
BU7	VSS14	VSS103	AW51
BP42	VSS15	VSS104	AW48
BN64	VSS16	VSS105	AW44
BN6	VSS17	VSS106	AW41
BM70	VSS18	VSS107	AW37
BM51	VSS19	VSS108	AW3
BM44	VSS20	VSS109	AV1
BM32	VSS21	VSS110	AU70
BM24	VSS22	VSS111	AU62
BM17	VSS23	VSS112	AU57
BL57	VSS24	VSS113	AU53
BL55	VSS25	VSS114	AU50
BL48	VSS26	VSS115	AU46
BL40	VSS27	VSS116	AU42
BL28	VSS28	VSS117	AU39
BL20	VSS29	VSS118	AU35
BK63	VSS30	VSS119	AU33
BK60	VSS31	VSS120	AU33
BK53	VSS32	VSS121	AU32
BK34	VSS33	VSS122	AU28
BK10	VSS34	VSS123	AU26
BJ64	VSS35	VSS124	AU26
BJ21	VSS36	VSS125	AU24
BJ9	VSS37	VSS126	AU21
BJ1	VSS38	VSS127	AU19
BH70	VSS39	VSS128	AU17
BH57	VSS40	VSS129	AU15
BH55	VSS41	VSS130	AU14
BH47	VSS42	VSS131	AU4
BH24	VSS43	VSS132	AT64
BH20	VSS44	VSS133	AT10
BH15	VSS45	VSS134	AR62
BG51	VSS46	VSS135	AR57
BG36	VSS47	VSS136	AR53
BF62	VSS48	VSS137	AR50
BF30	VSS49	VSS138	AR46
BF13	VSS50	VSS139	AN51
BF8	VSS51	VSS161	AN48
BE70	VSS52	VSS162	AN44
BE65	VSS53	VSS163	AN41
BE9	VSS54	VSS164	AN37
BE1	VSS55	VSS165	AN5
BD57	VSS56	VSS166	AN4
BD53	VSS57	VSS167	AM64
BD50	VSS58	VSS168	AM8
BD46	VSS59	VSS169	AL62
BD42	VSS60	VSS170	AL55
BD39	VSS61	VSS171	AL5
BD14	VSS62	VSS172	AL48
BB71	VSS63	VSS173	AL44
BB62	VSS64	VSS174	AL41
BB57	VSS65	VSS175	AL37
BB53	VSS66	VSS176	AL35
BB50	VSS67	VSS177	AL33
BB46	VSS68	VSS178	AL1
BB42	VSS69	VSS179	AK70
BB39	VSS70	VSS180	AK48
BB7	VSS71	VSS181	AK55
BB1	VSS72	VSS182	AK51
BA70	VSS73	VSS183	AK48
AY71	VSS74	VSS184	AK44
AY66	VSS75	VSS185	AK41
AY62	VSS76	VSS186	AK37
AY59	VSS77	VSS187	AK32
AY55	VSS78	VSS188	AK30
AY51	VSS79	VSS189	AK28
AY48	VSS80	VSS190	AK26
AR39	VSS140	VSS191	AK24
AR42	VSS141	VSS192	AK23
AR35	VSS142	VSS193	AK21
AR33	VSS143	VSS194	AK19
AR32	VSS144	VSS195	AK17
AR30	VSS145	VSS196	AK15
AR28	VSS146	VSS197	AJ70
AR26	VSS147	VSS198	AH62
AR24	VSS148	VSS199	AH57
AR23	VSS149	VSS200	AH55
AR21	VSS150	VSS201	BV66
AR19	VSS151	VSS202	BV64
AR17	VSS152	VSS203	BT68
AR15	VSS153	VSS204	BR69
AR14	VSS154	VSS205	BR68
AR4	VSS155	VSS206	BR3
AR1	VSS156	VSS207	BN71
AP70	VSS157	VSS208	BN1
AP64	VSS158	VSS209	BL71
AN62	VSS159	VSS210	BL1
AN55	VSS160	VSS211	R14
AY44	VSS81	VSS212	H71
AY41	VSS82	VSS213	F71
AY37	VSS83	VSS214	F69
AY35	VSS84	VSS215	E88
AY33	VSS85	VSS216	E84
AY32	VSS86	VSS217	A66
AY30	VSS87	VSS218	A64
AY28	VSS88	VSS219	E5
AY26	VSS89	VSS220	C68

VSS

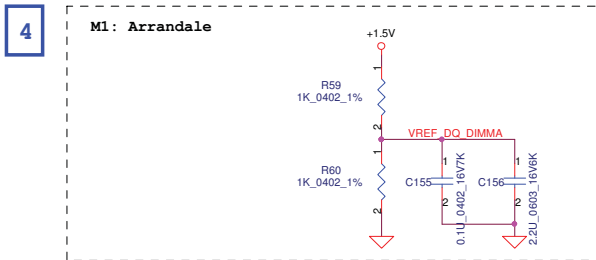
AUBURNDALE SFF_BGA1288

U1J		REV1.0	A40
AH53	VSS202	VSS404	A36
AH51	VSS203	VSS405	A33
AH50	VSS204	VSS406	A29
AH48	VSS205	VSS407	A28
AH46	VSS206	VSS408	A22
AH44	VSS207	VSS409	A19
AH42	VSS208	VSS410	A15
AH41	VSS209	VSS411	A12
AH39	VSS210	VSS412	A8
AH37	VSS211	VSS413	B62
AH35	VSS212	VSS393	B58
AH33	VSS213	VSS394	B55
AH32	VSS214	VSS395	B51
AH30	VSS215	VSS396	B48
AH28	VSS216	VSS397	B44
AH26	VSS217	VSS398	A59
AH24	VSS218	VSS399	A55
AH23	VSS219	VSS400	A52
AH21	VSS220	VSS401	A48
AH19	VSS221	VSS402	A45
AH17	VSS222	VSS403	AA17
AH15	VSS223	VSS288	AA15
AH4	VSS224	VSS289	AA14
AG64	VSS225	VSS290	AA4
AG8	VSS226	VSS291	W69
AG6	VSS227	VSS292	W62
AF69	VSS228	VSS293	W57
AF62	VSS229	VSS294	W53
AF1	VSS230	VSS295	W50
AE70	VSS231	VSS296	W46
AE64	VSS232	VSS297	W42
AD62	VSS233	VSS298	W6
AD57	VSS234	VSS299	W1
AD53	VSS235	VSS300	V70
AD50	VSS236	VSS301	U64
AD46	VSS237	VSS302	U62
AD42	VSS238	VSS303	U57
AD4	VSS239	VSS304	U53
AC67	VSS240	VSS305	U50
AC64	VSS241	VSS306	U46
AC10	VSS242	VSS307	U42
AC5	VSS243	VSS308	U39
AC1	VSS244	VSS309	U9
AB70	VSS245	VSS310	T1
AB62	VSS246	VSS311	R70
AB57	VSS247	VSS312	R62
AB53	VSS248	VSS313	R57
AB50	VSS249	VSS314	R53
AB46	VSS250	VSS315	R50
AB42	VSS251	VSS316	R46
AB39	VSS252	VSS317	R42
AB37	VSS253	VSS318	R5
AB35	VSS254	VSS319	P4
AB33	VSS255	VSS320	N63
AB32	VSS256	VSS321	N57
AB30	VSS257	VSS322	N53
AB28	VSS258	VSS323	N50
AB26	VSS259	VSS324	N46
AB24	VSS260	VSS325	N30
AB23	VSS261	VSS326	N21
AB21	VSS262	VSS327	N15
AB19	VSS263	VSS328	M53
AB17	VSS264	VSS329	M42
AB15	VSS265	VSS330	M36
AB14	VSS266	VSS331	M1
AB9	VSS267	VSS332	L70
AA68	VSS268	VSS333	L48
AA64	VSS269	VSS334	L47
AA62	VSS270	VSS335	L13
AA57	VSS271	VSS336	K64
AA53	VSS272	VSS337	K53
AA50	VSS273	VSS338	K43
AA46	VSS274	VSS339	K36
AA42	VSS275	VSS340	K34
AA39	VSS276	VSS341	K32
AA37	VSS277	VSS342	K25
AA35	VSS278	VSS343	K17
AA33	VSS279	VSS344	K11
AA32	VSS280	VSS345	K6
AA30	VSS281	VSS346	J85
AA26	VSS282	VSS347	J57
AA23	VSS283	VSS348	J48
AA24	VSS284	VSS349	J47
AA23	VSS285	VSS350	J40
AA21	VSS286	VSS351	J9
AA19	VSS287	VSS352	H53
F20	VSS374	VSS353	H43
F4	VSS375	VSS354	H36
E37	VSS376	VSS355	H1
E33	VSS377	VSS356	G70
E30	VSS378	VSS357	G57
E16	VSS379	VSS358	G53
E12	VSS380	VSS359	G47
D41	VSS381	VSS360	G43
D38	VSS382	VSS361	G24
D34	VSS383	VSS362	G20
D31	VSS384	VSS363	G15
D27	VSS385	VSS364	F61
D24	VSS386	VSS365	F48
D20	VSS387	VSS366	F28
D17	VSS388	VSS367	
D13	VSS389	VSS368	
D10	VSS390	VSS369	
D6	VSS391	VSS370	
B65	VSS392	VSS371	
B40	VSS415	VSS372	
		VSS373	

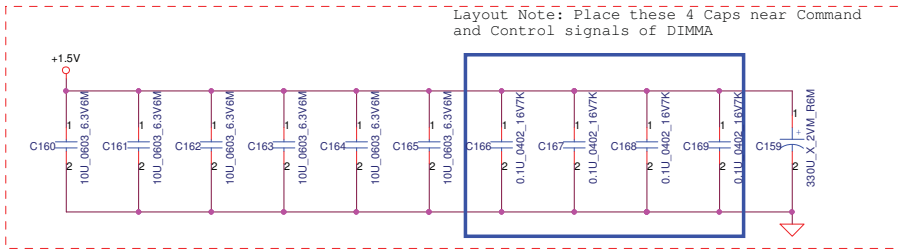
VSS

AUBURNDALE SFF_BGA1288

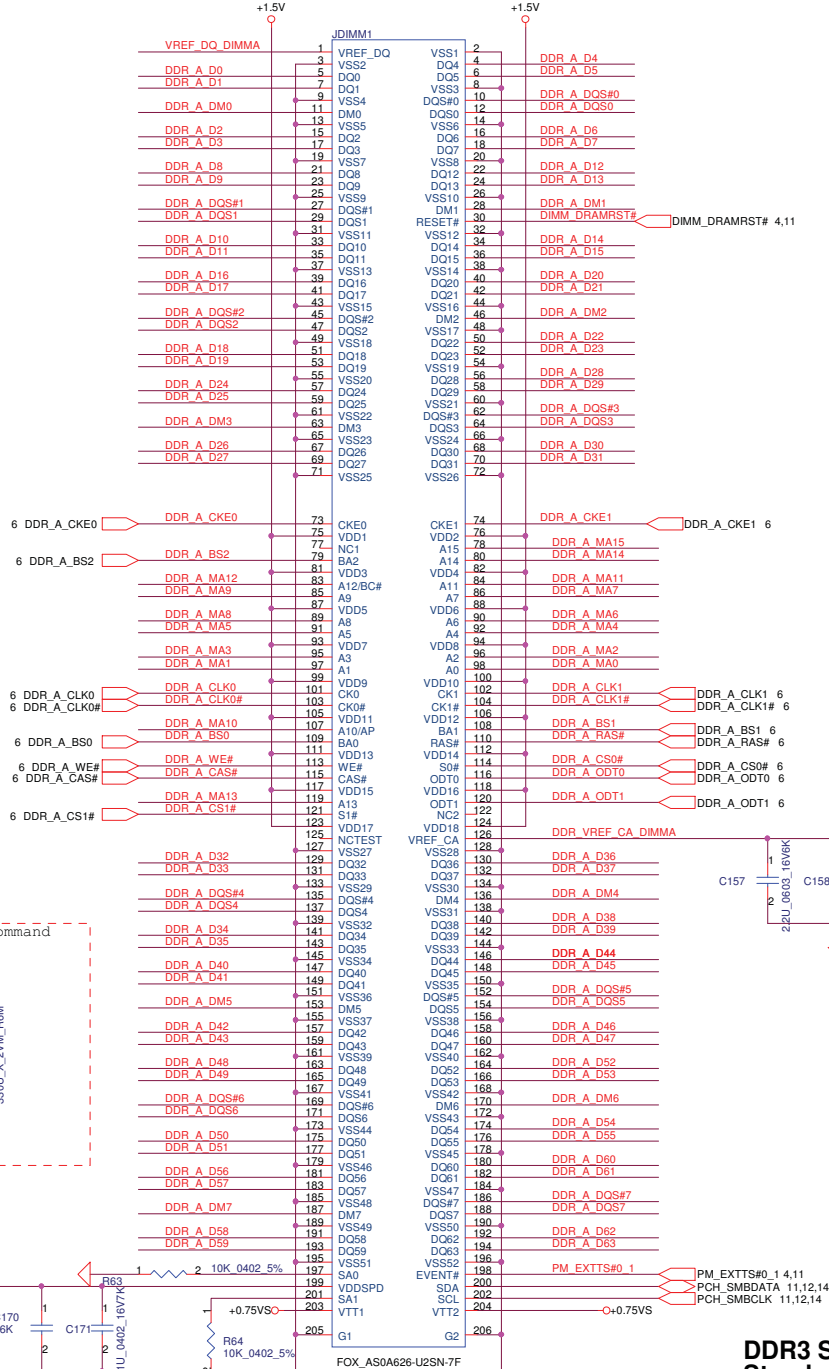
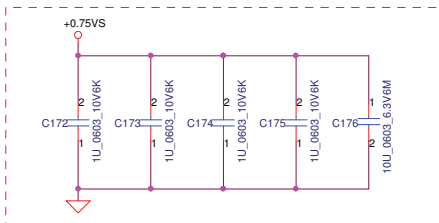
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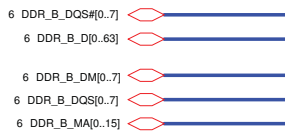


Layout Note:
Place near JDIMM1



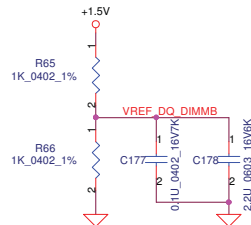
Layout Note:
Place near JDIMM1.203 & JDIMM1.204





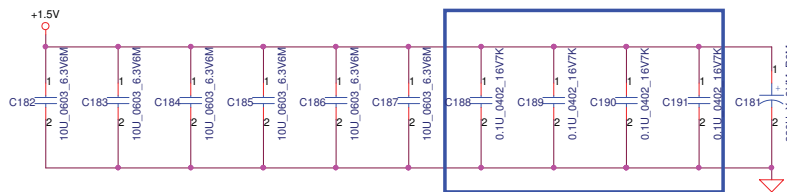
4

M1: Arrandale

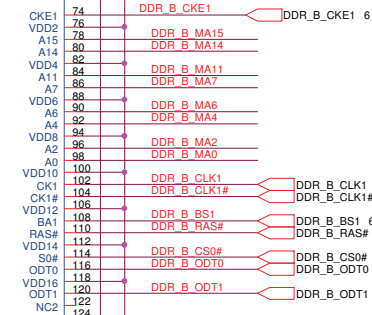
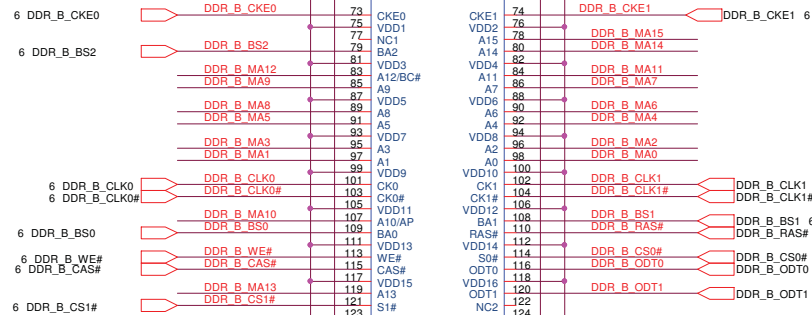
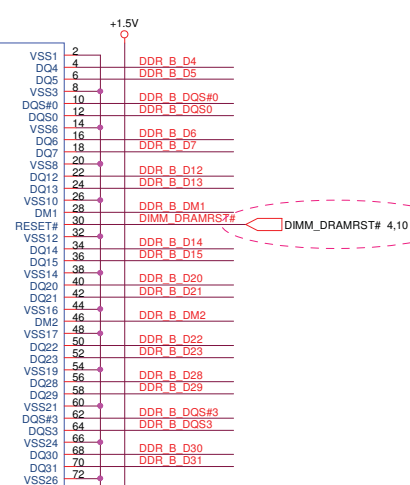
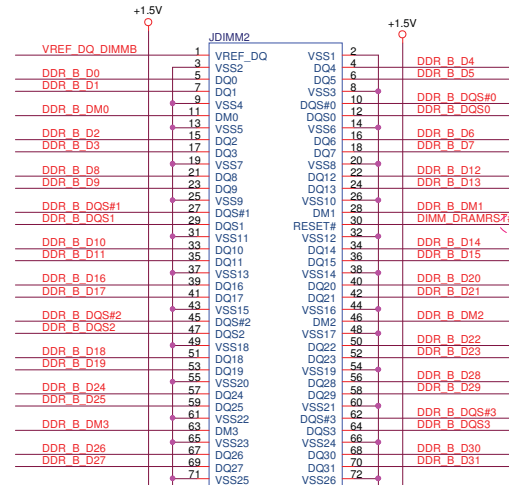
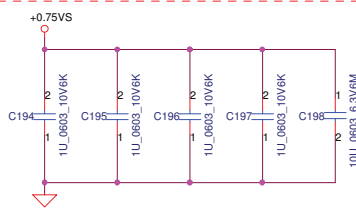


Layout Note:
Place near JDIMM2

Layout Note: Place these 4 Caps near Command
and Control signals of DIMMB

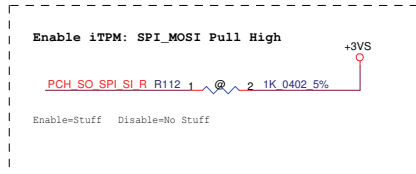
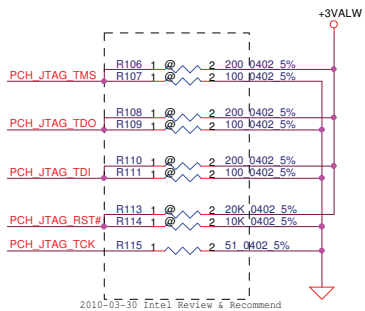
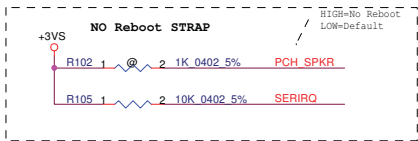
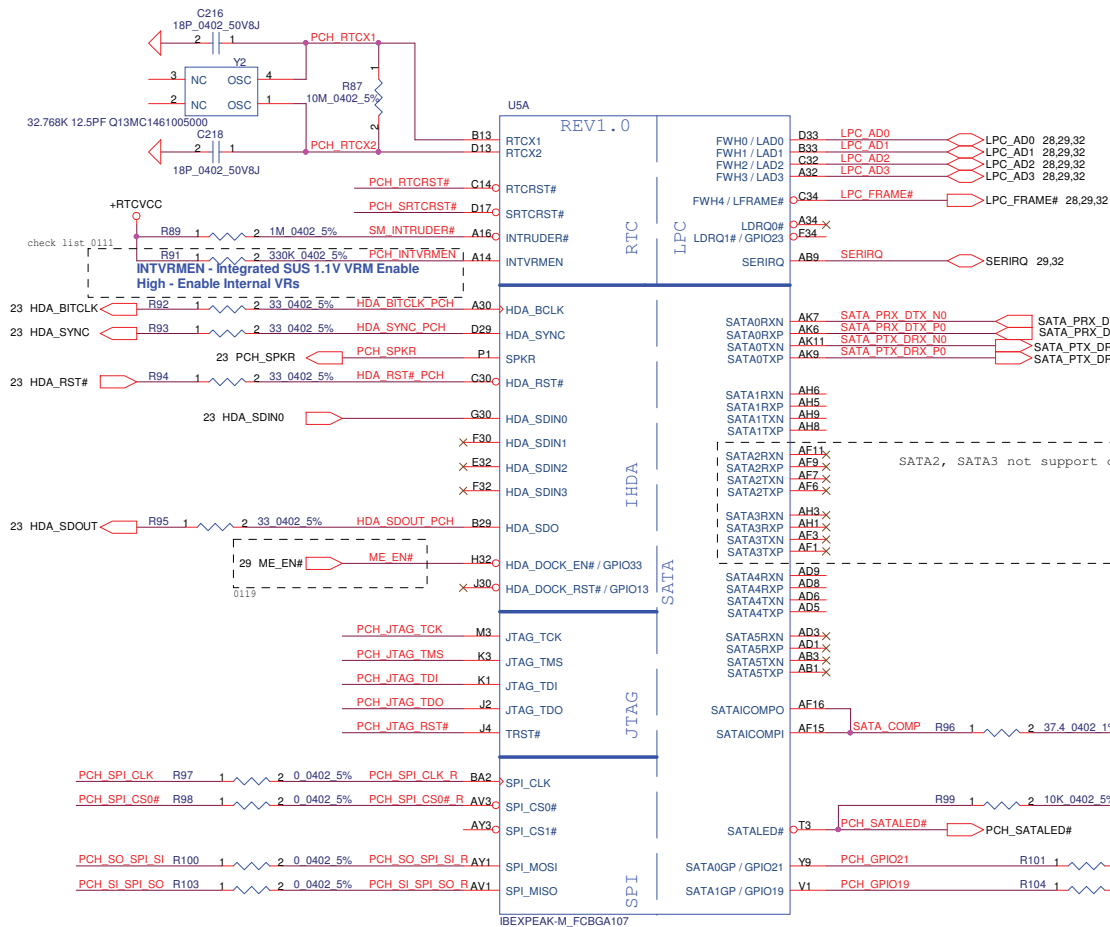
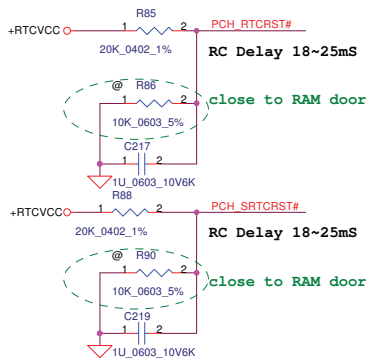


Layout Note:
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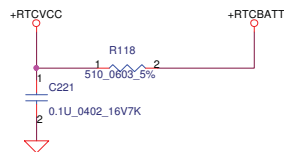
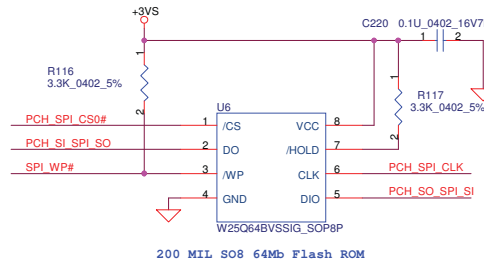


DDR3 SO-DIMM B
Reverse Type

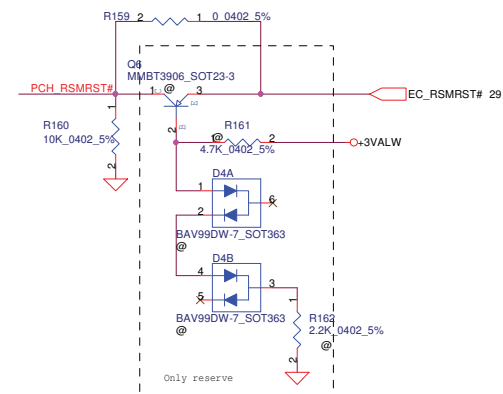
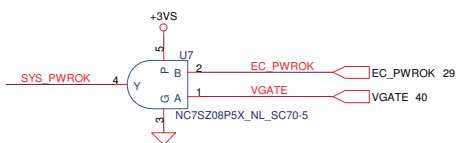
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2010/3/31				Title			
Deciphered Date				2011/3/31				Document Number			
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SYS BIOS ROM



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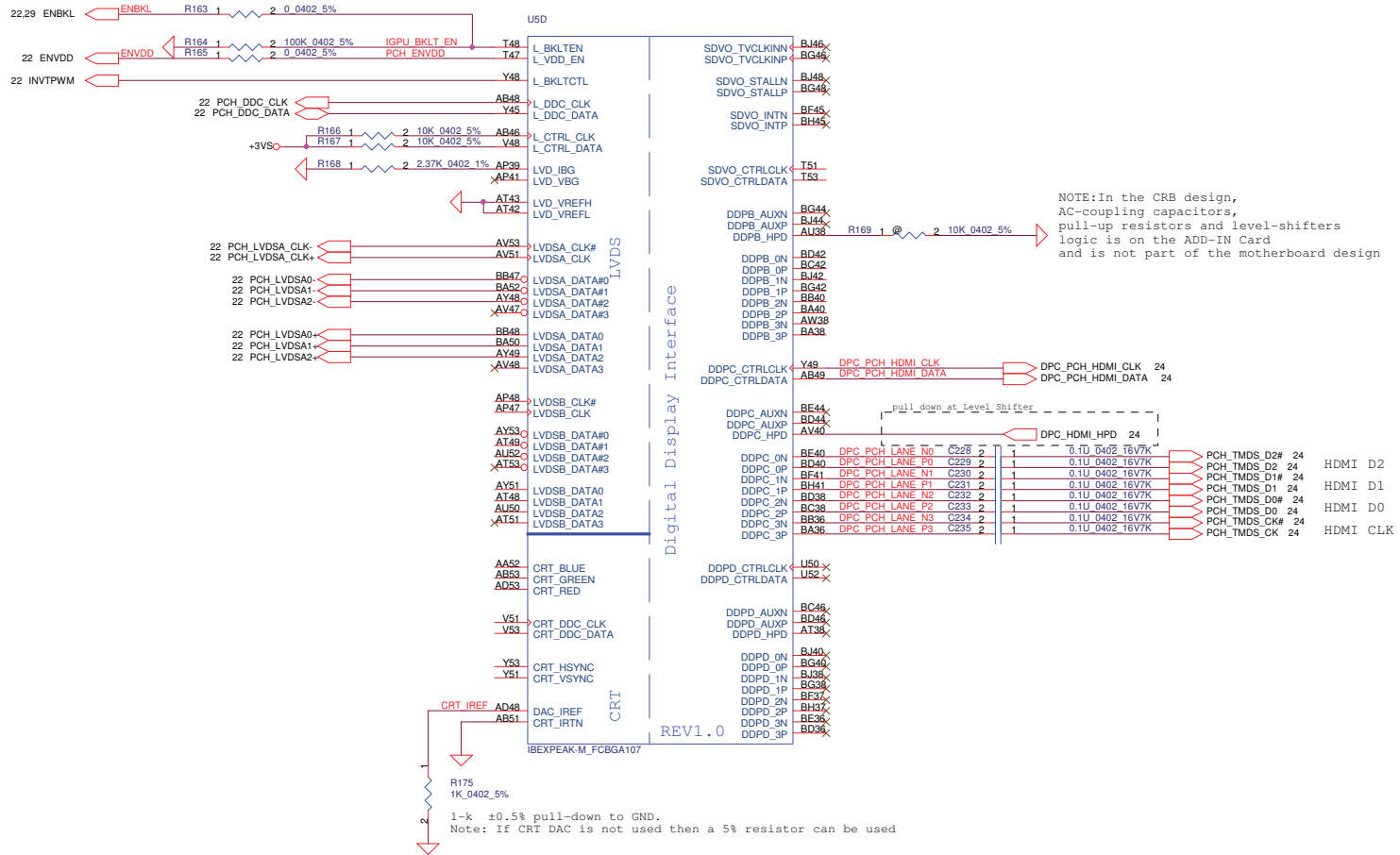


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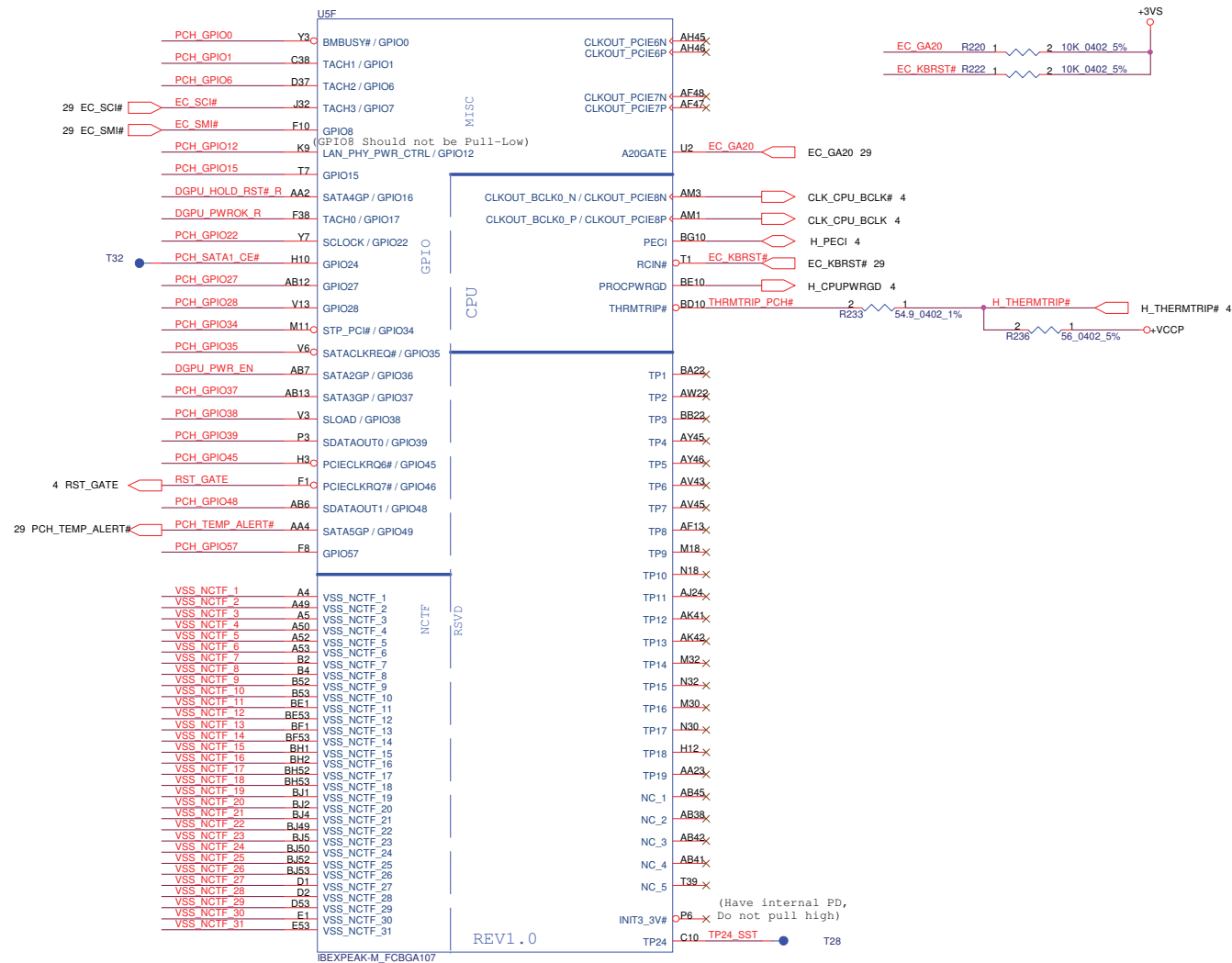
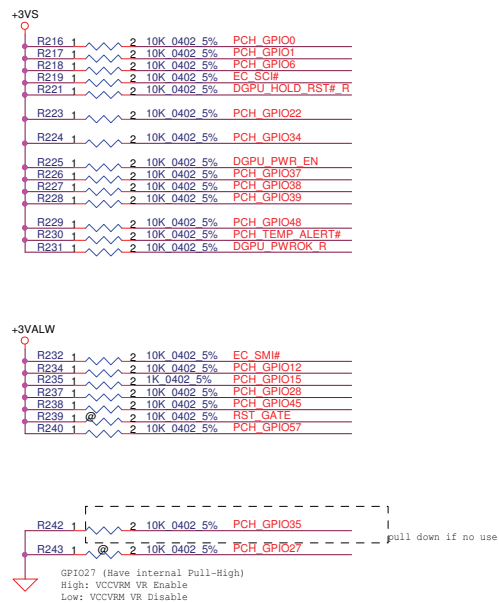
BACKLIGHT

LCDVDD

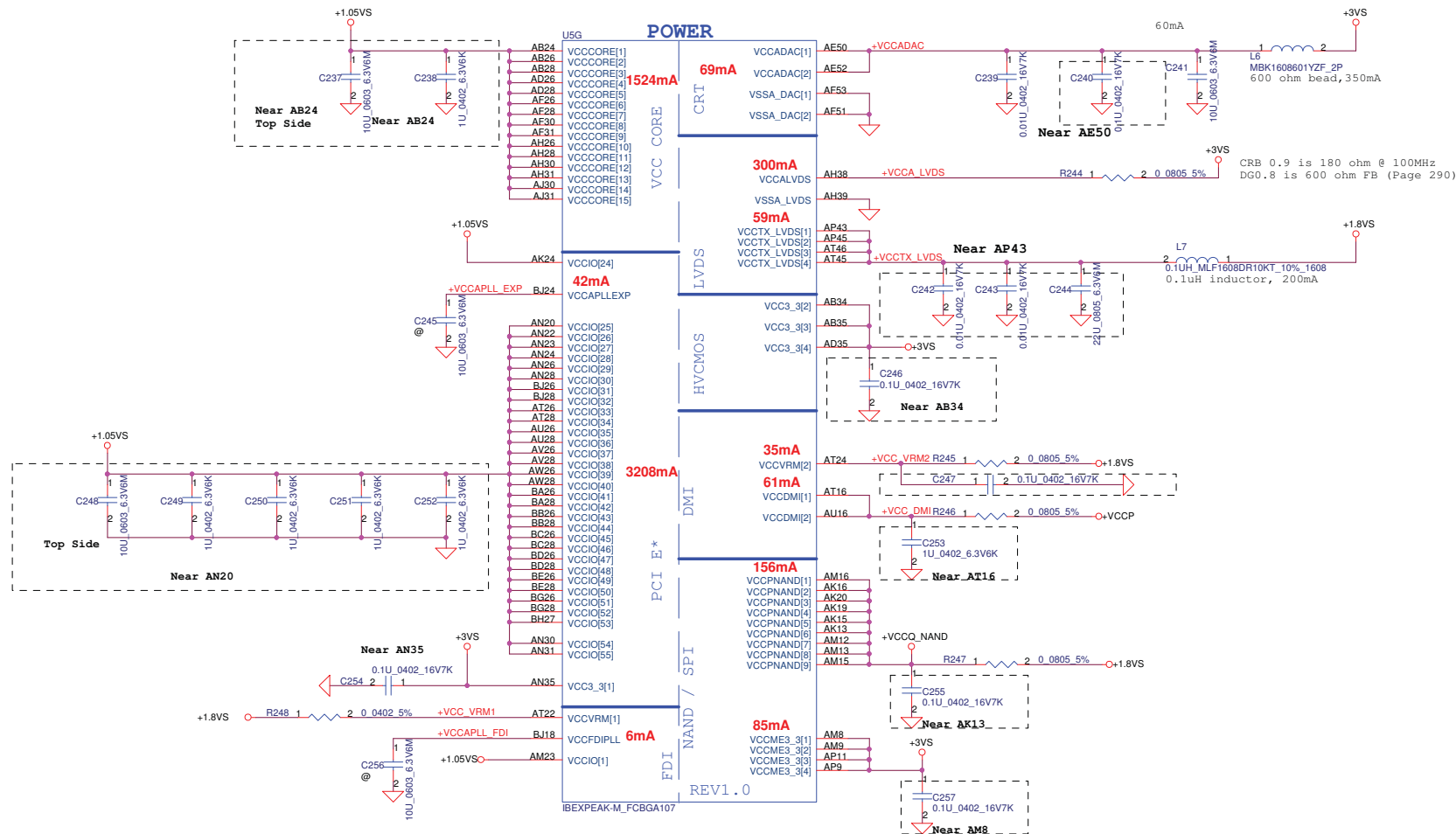
BACKLIGHT_PWM (DPST)

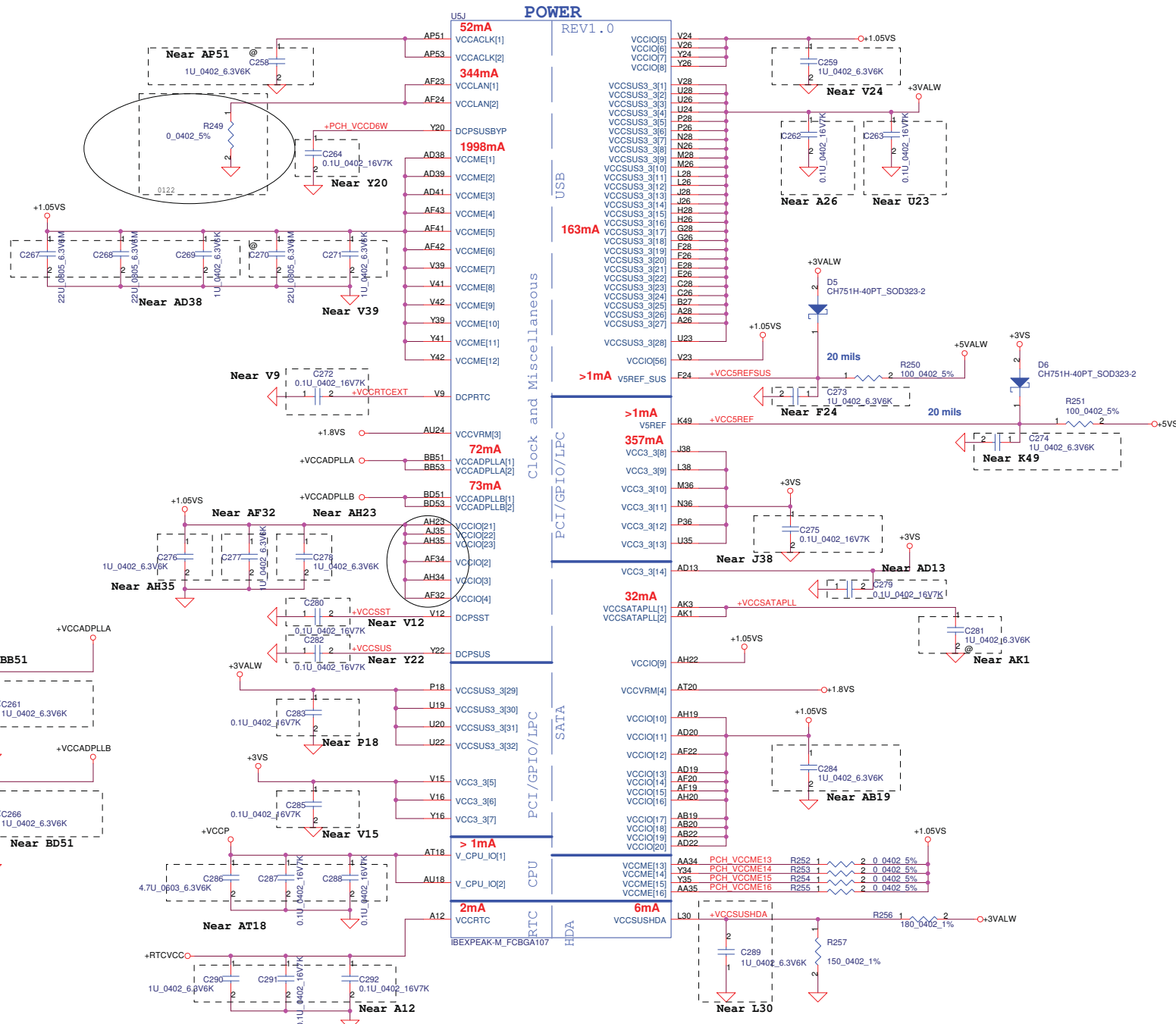


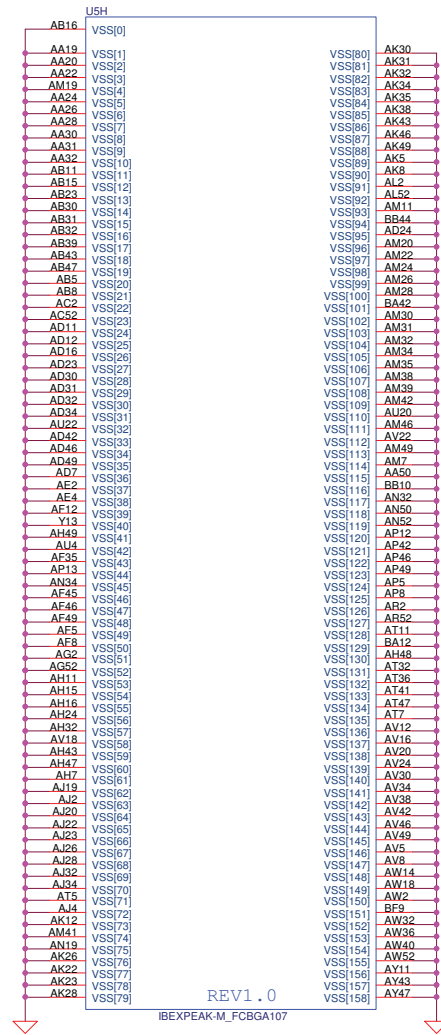
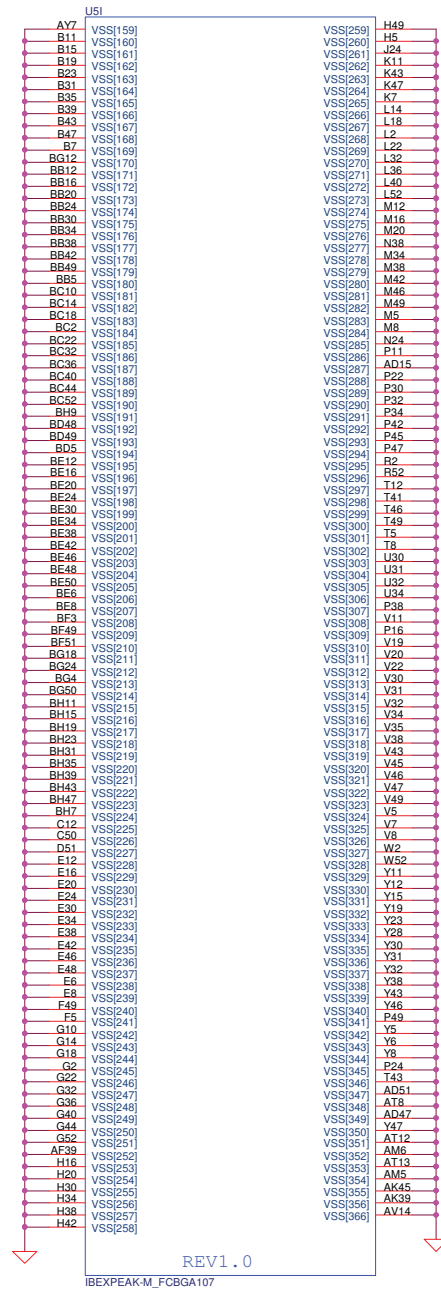
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Issued Date		2010/3/31	Deciphered Date		2011/3/31		
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				Size	Document Number	Rev	0.1
				Customer	LA-6411P		
				Date:	Wednesday, March 31, 2010	Sheet	16
3				2		1	

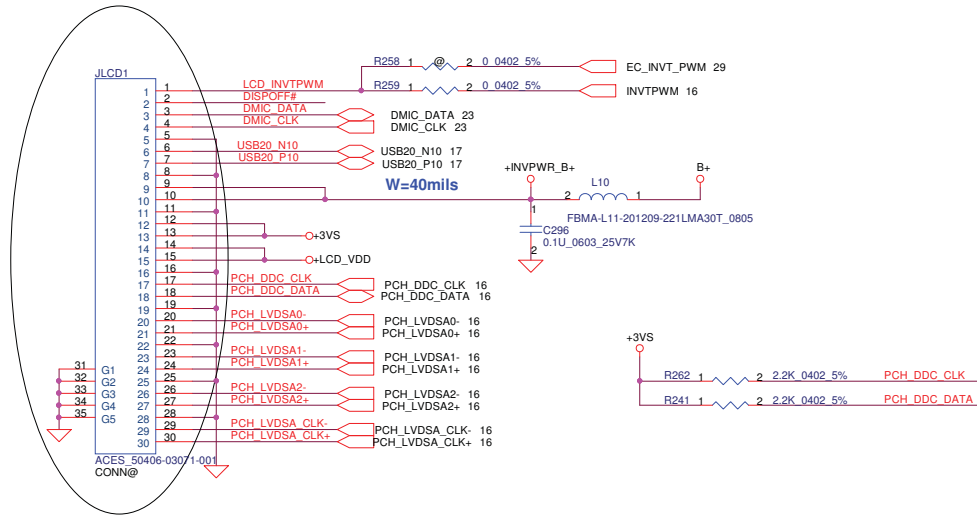
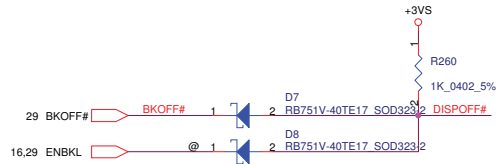
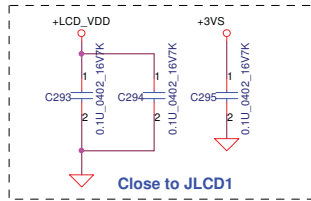


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Issued Date	2010/3/31	Deciphered Date	2011/3/31	Title	PCH (6/9) GPIO, CPU, MISC	
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					LA-6411P	0.1
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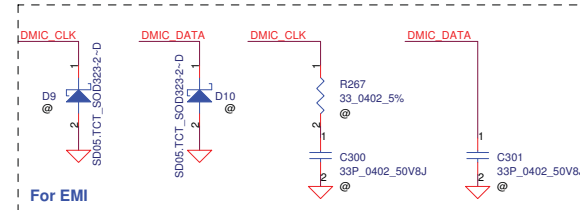
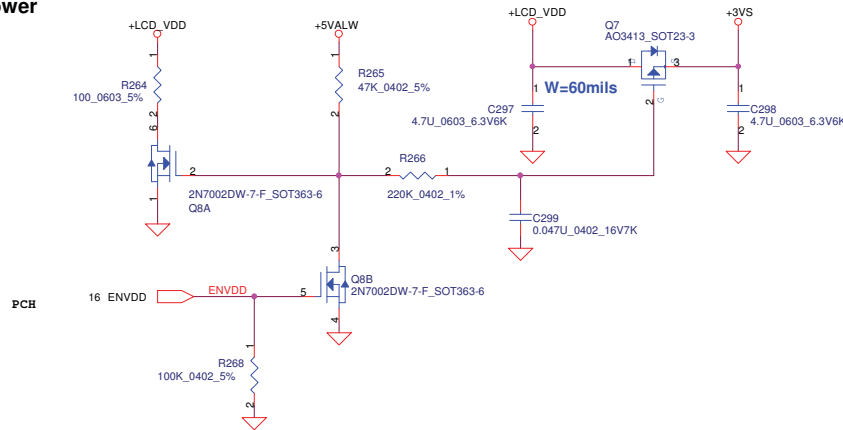








LCD Power

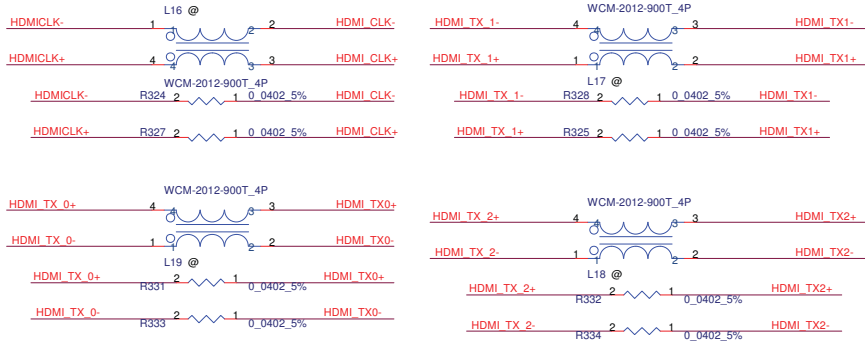
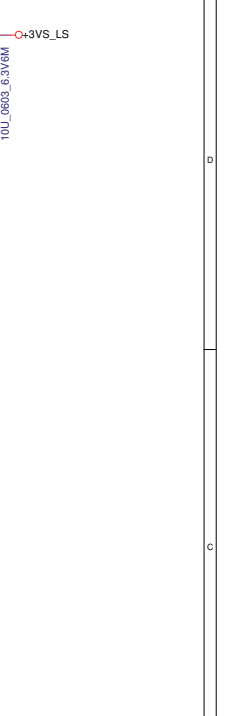
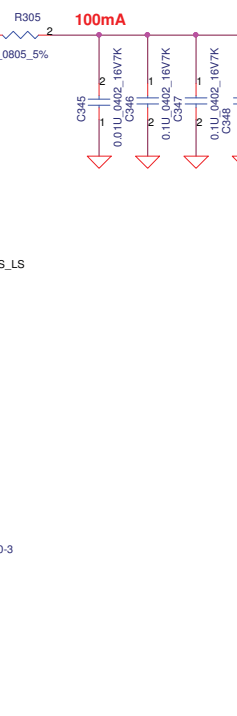
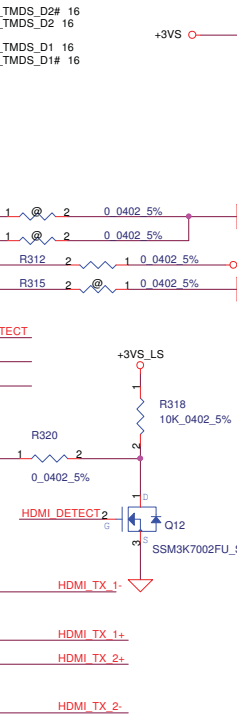
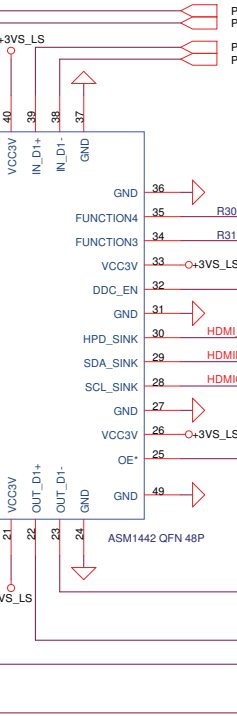
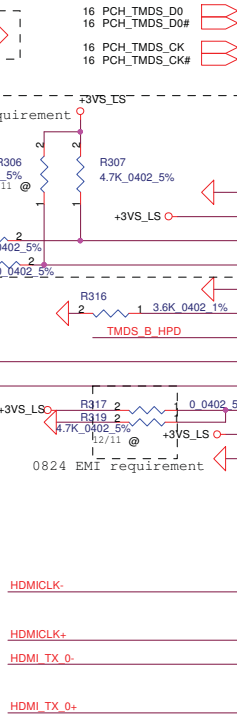
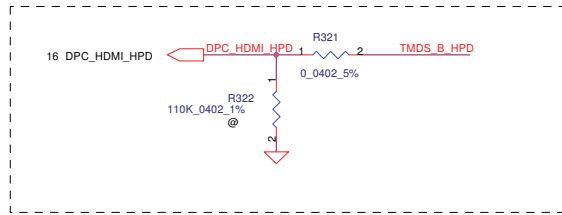


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				LA-6411P	0.1
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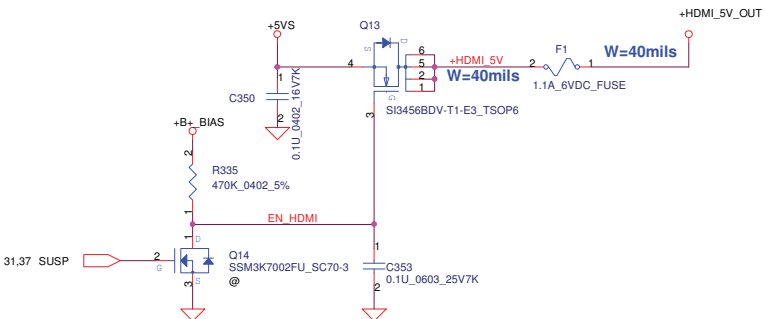
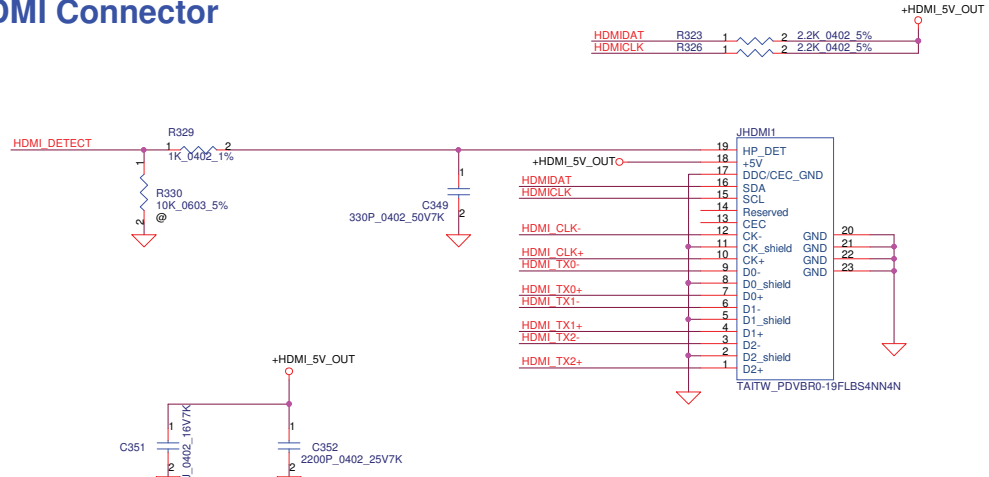
EQUALIZATION SETTING:
 [PC1,PC0]=00,8dB
 [PC1,PC0]=01,4dB (Recommended)
 [PC1,PC0]=10,12dB
 [PC1,PC0]=11,0dB

PCH_TMD5_CK# R304 1 2 2.2K 0402 5%
 pull down 2.2K ohm to fix
 HDMI cannot detect issue.

Follow Intel
 Feedback putting
 2.2K ohm



HDMI Connector

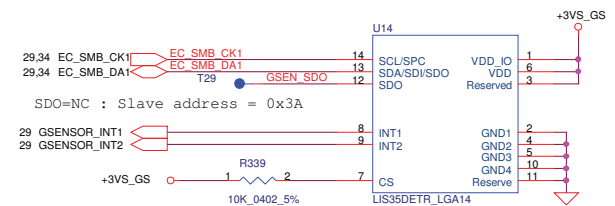
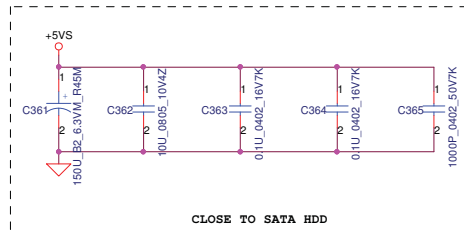


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Title		Compal Electronics, Inc.	
HDMI LS & Conn		Rev 0.1	
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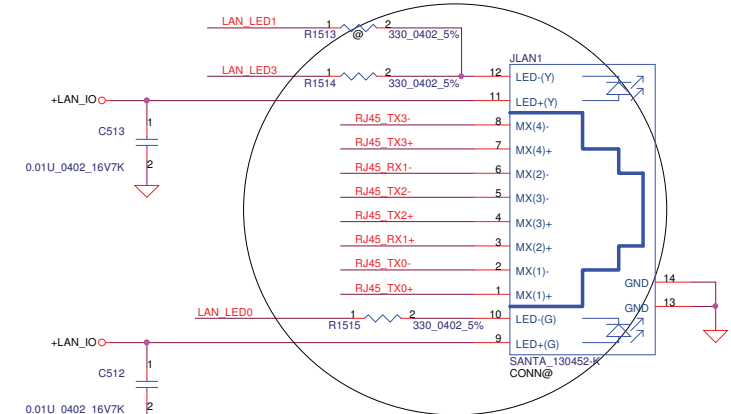
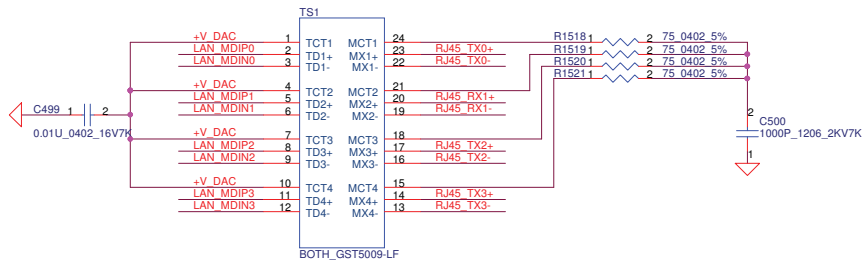
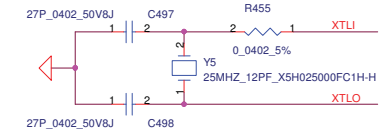
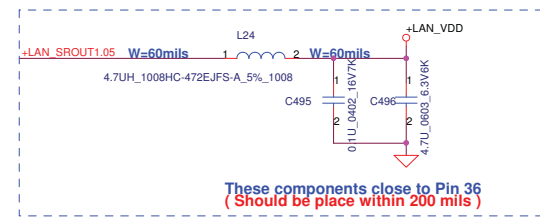
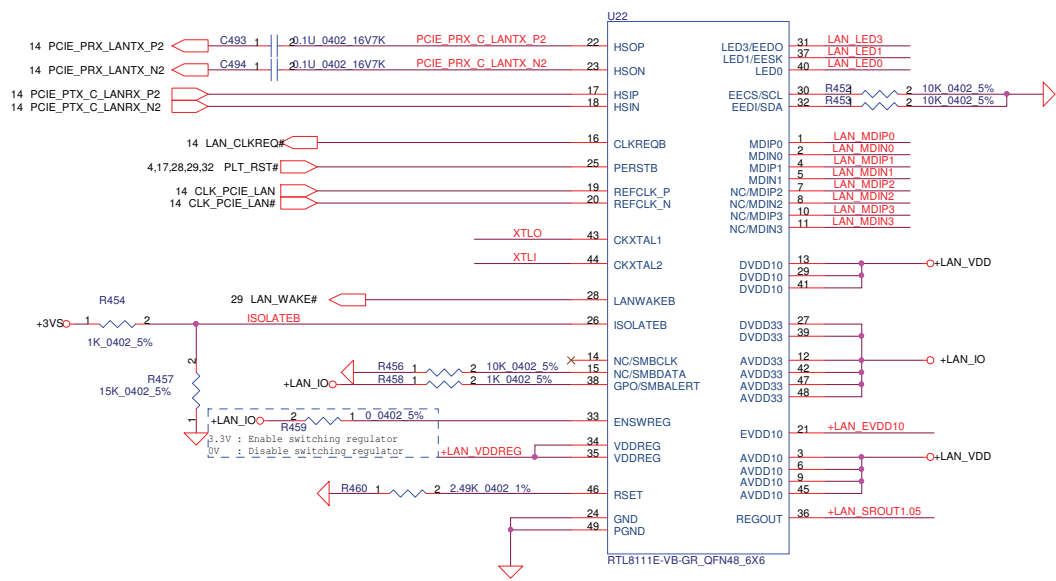
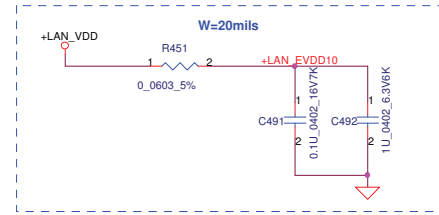
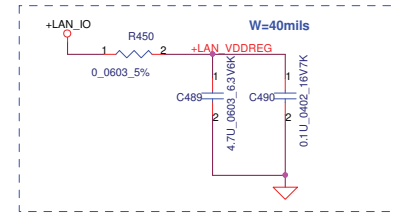
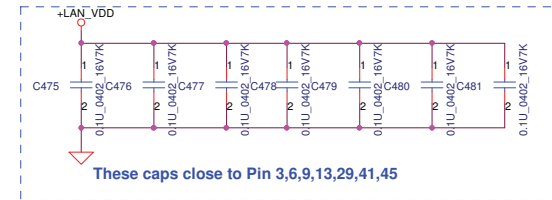
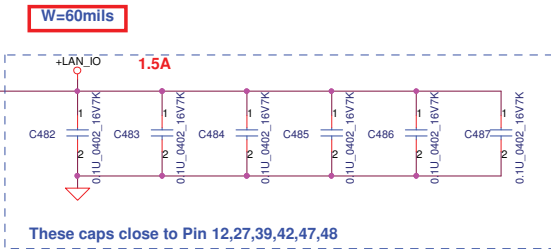
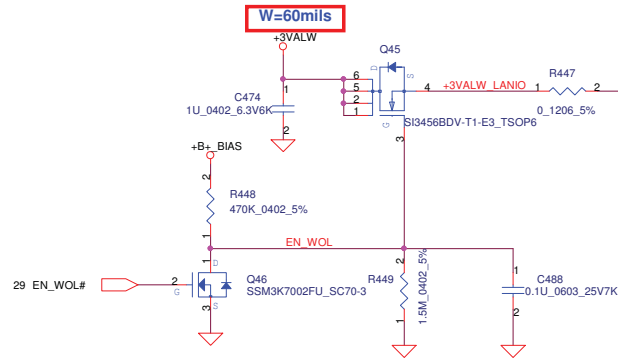
13	SATA_PT_X_DRX_P0	C354	1	2	0.01U	0402J	16V7K	SATA PTX DRX P0 C
13	SATA_PT_X_DRX_N0	C355	1	2	0.01U	0402J	16V7K	SATA PTX DRX N0 C
13	SATA_PRX_DTX_N0	C356	1	2	0.01U	0402J	16V7K	SATA PRX DTX N0 C
13	SATA_PRX_DTX_P0	C357	1	2	0.01U	0402J	16V7K	SATA PRX DTX P0 C

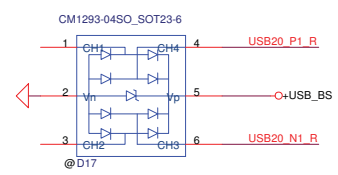
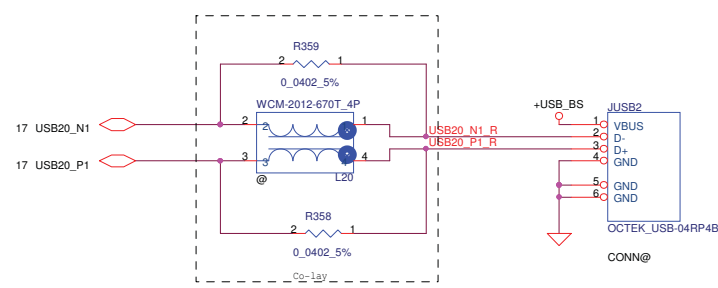
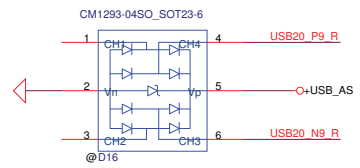
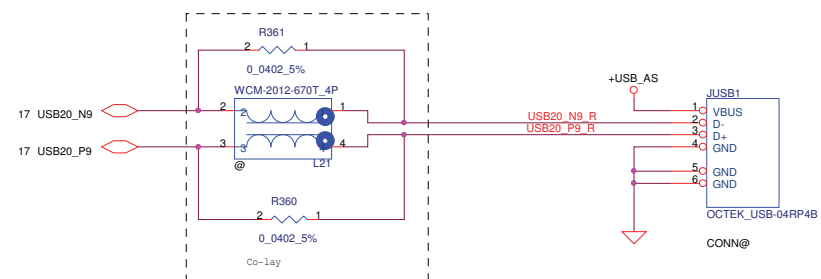
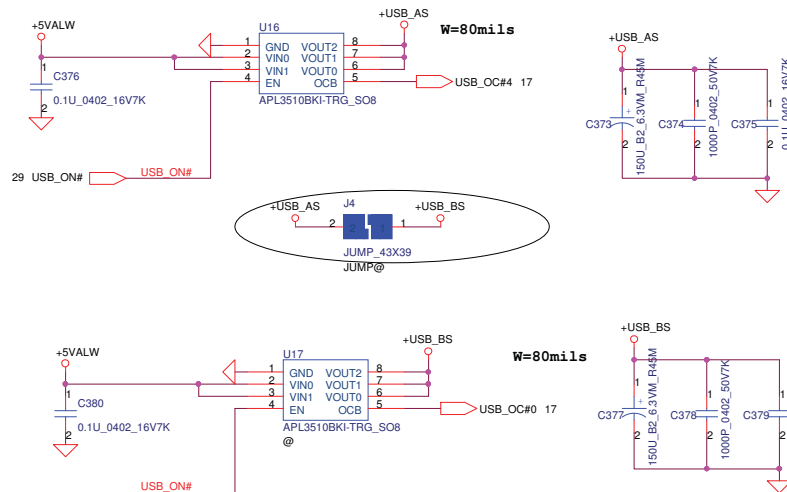
Pinout diagram for the ATTO_C166G7-12204-L_NR connector. The diagram shows a 26-pin connector with pins 1 through 22 on the left and pins 23 through 26 on the right. Pin 1 is labeled 'JSATA1'. Pin 2 is 'GND'. Pin 3 is 'A+'. Pin 4 is 'A-'. Pin 5 is 'GND'. Pin 6 is 'B+'. Pin 7 is 'B+'. Pin 8 is 'GND'. Pin 9 is 'V33'. Pin 10 is 'V33'. Pin 11 is 'V33'. Pin 12 is 'GND'. Pin 13 is 'GND'. Pin 14 is 'V5'. Pin 15 is 'V5'. Pin 16 is 'V5'. Pin 17 is 'GND'. Pin 18 is 'Reserved'. Pin 19 is 'Reserved'. Pin 20 is 'GND'. Pin 21 is 'V12'. Pin 22 is 'V12'. Pin 23 is 'NC'. Pin 24 is 'NC'. Pin 25 is 'GND'. Pin 26 is 'GND'. A +5VS signal is connected to pins 14, 15, and 16. A GND signal is connected to pins 2, 7, 12, 13, 19, and 20. A V33 signal is connected to pins 9, 10, and 11. A V5 signal is connected to pins 14, 15, and 16. A V12 signal is connected to pins 21 and 22. A GND signal is connected to pins 25 and 26. The connector is labeled 'ALLTO_C166G7-12204-L_NR' and 'CONN@'.

ALLTO_C166G7-12204-L_NR
CONN@

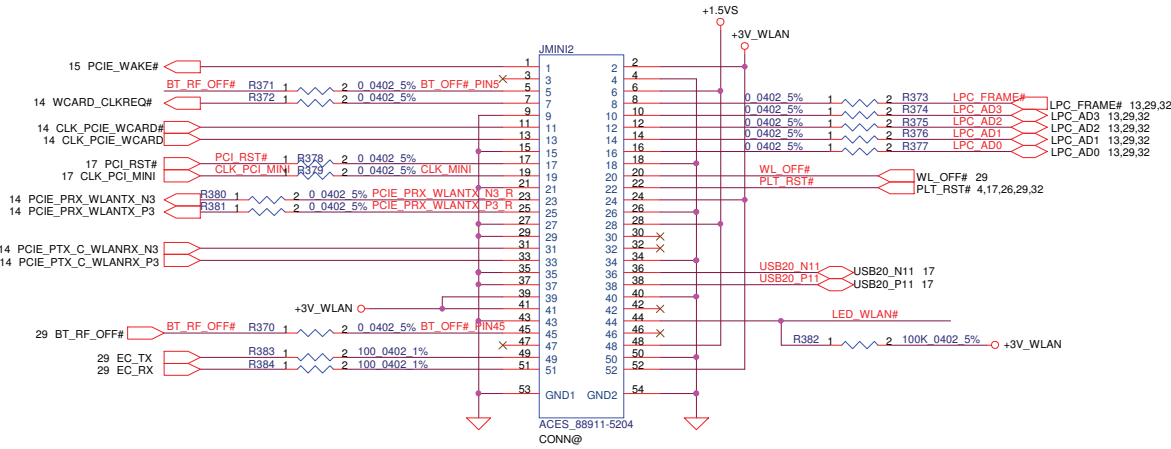
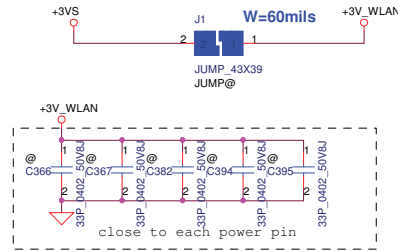
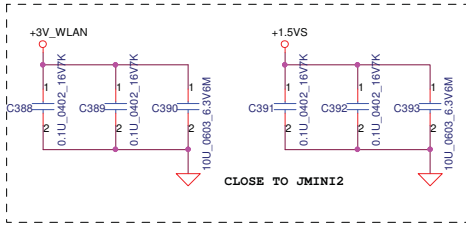


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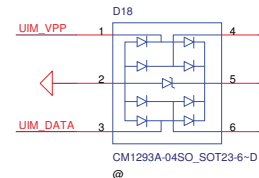
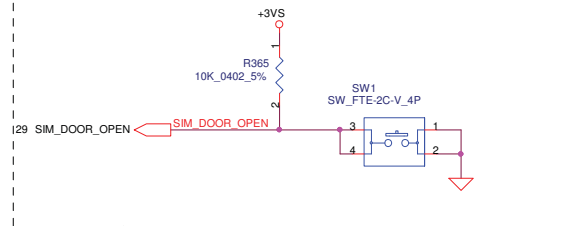


MINI-EXPRESS CARD - WLAN

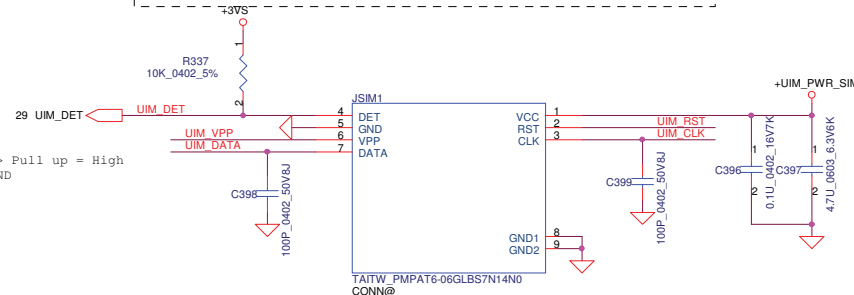


SIM Connector and UIM Power control

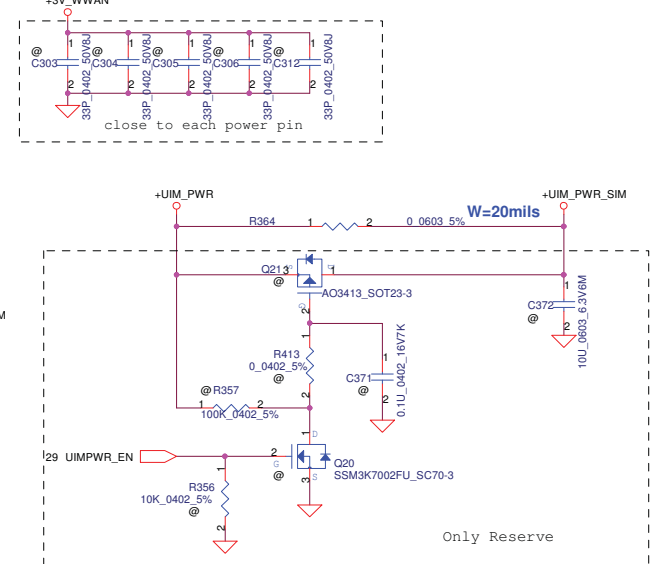
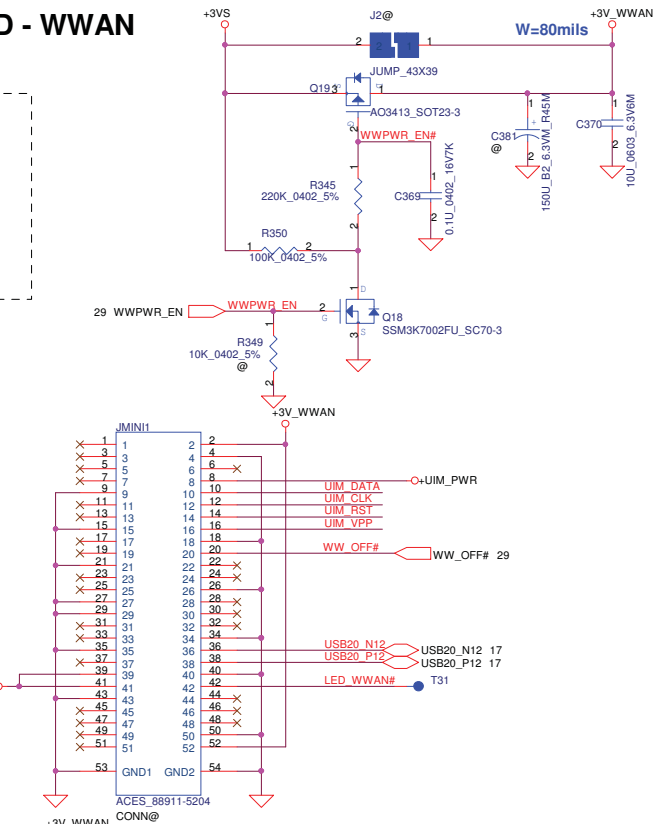
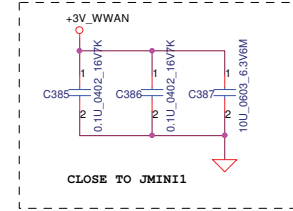
SIM Door Switch



Detect Pin
Insert Card: Open -> Pull up = High
No Card: Short to GND

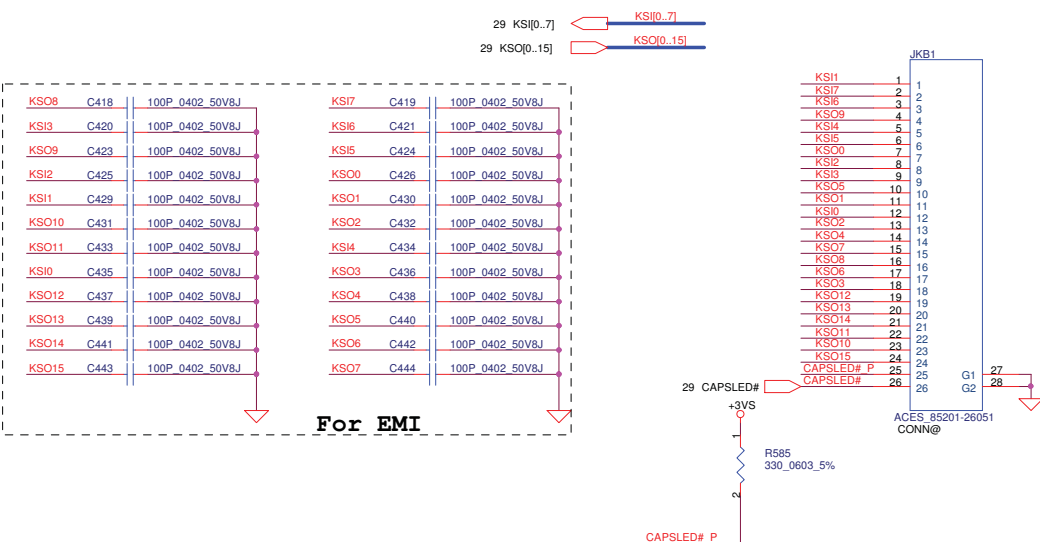


MINI-EXPRESS CARD - WWAN

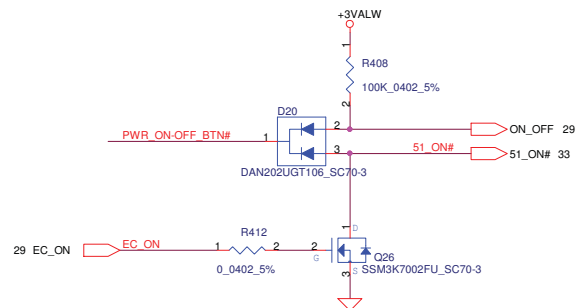
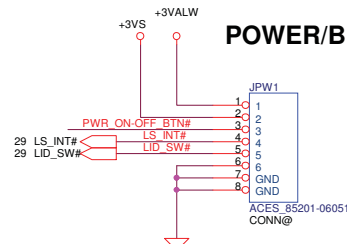


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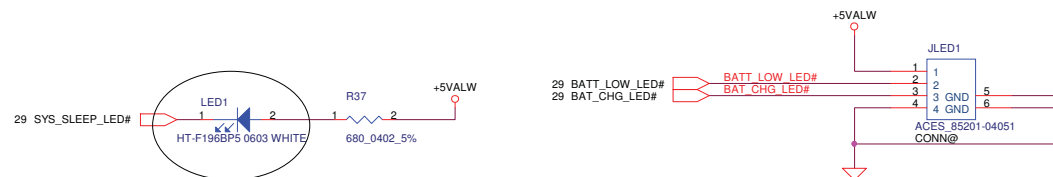
Int. KB CONN.



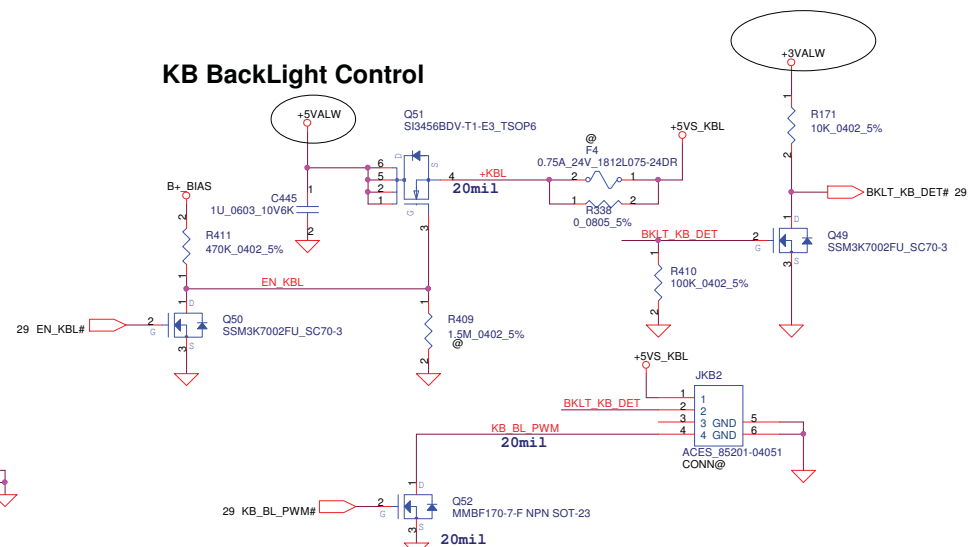
Power Button

**POWER/B CONN**

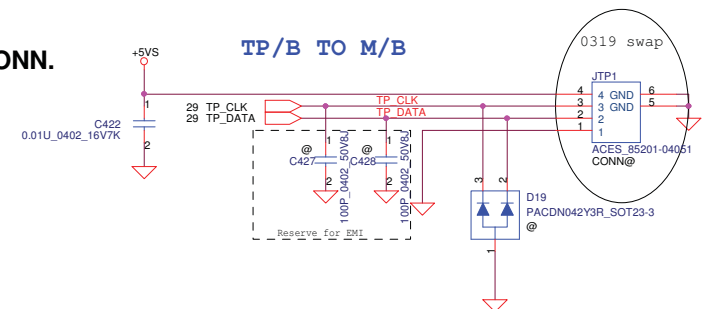
LED/B CONN



KB BackLight Control

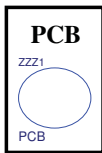
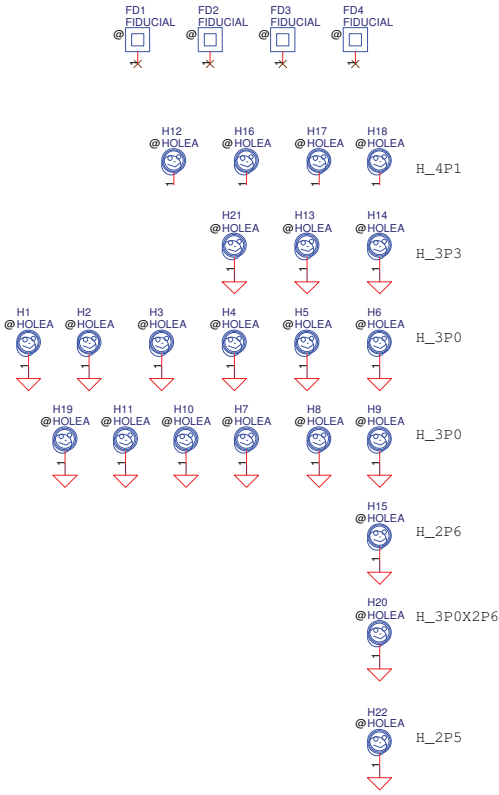
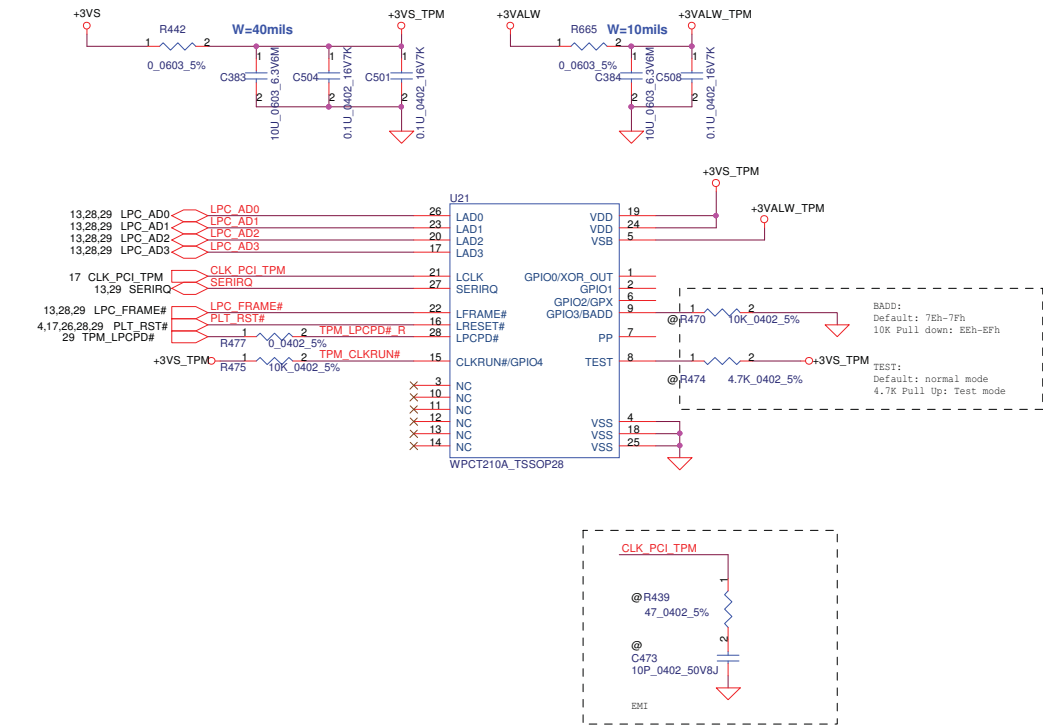


Touch PAD/B CONN.

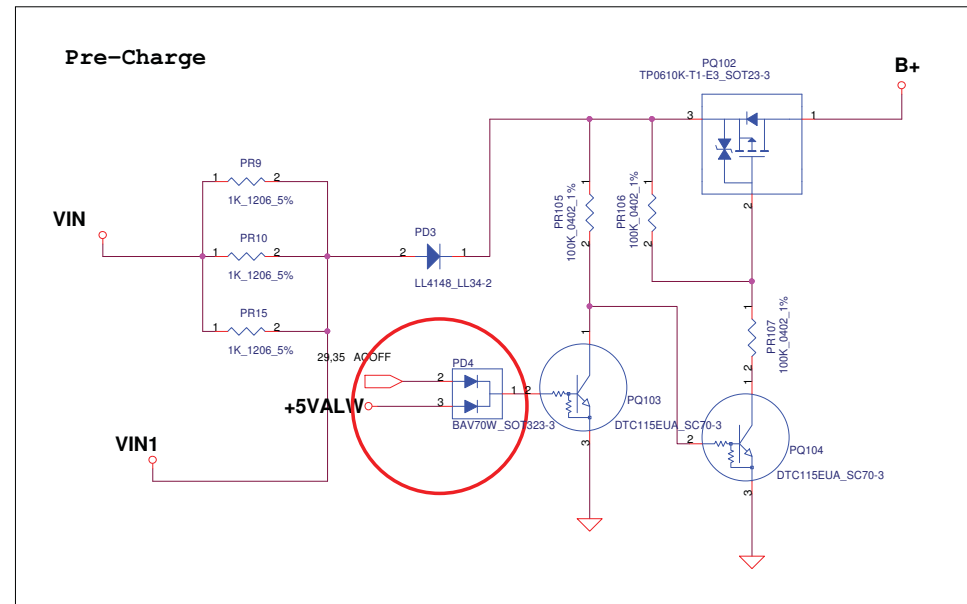
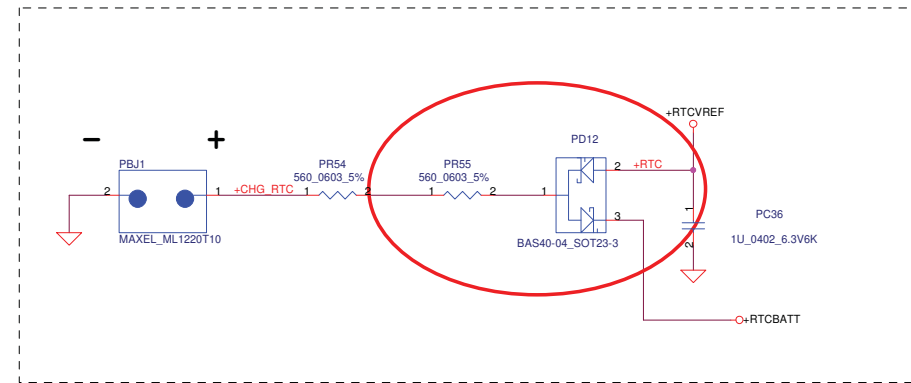
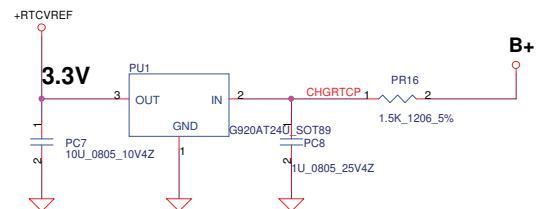
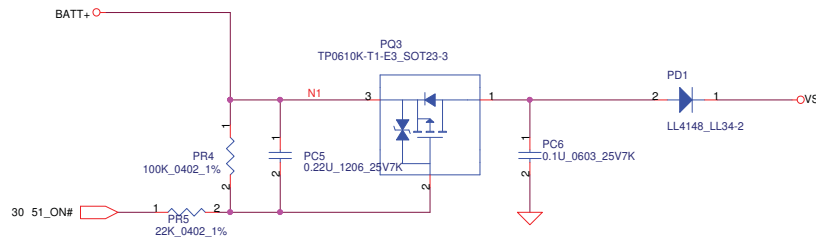
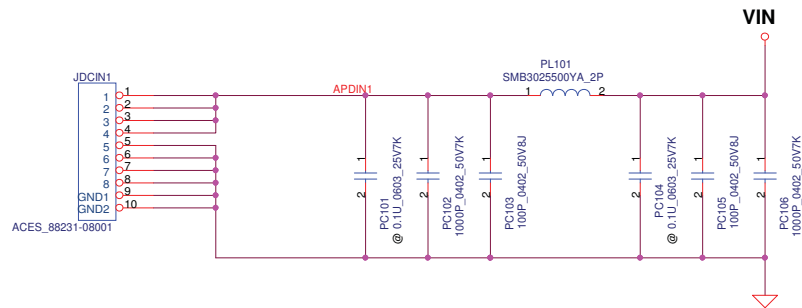


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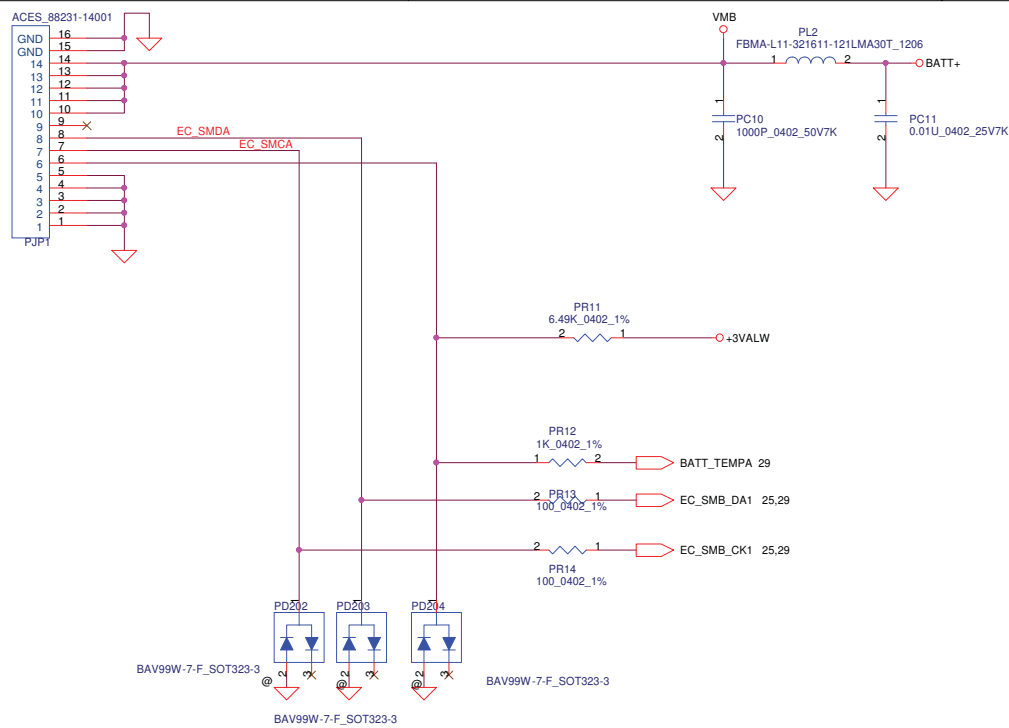
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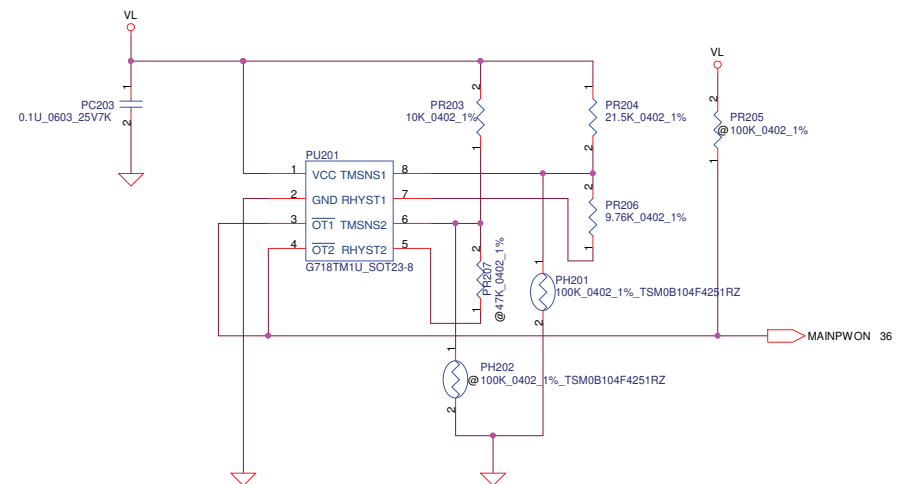
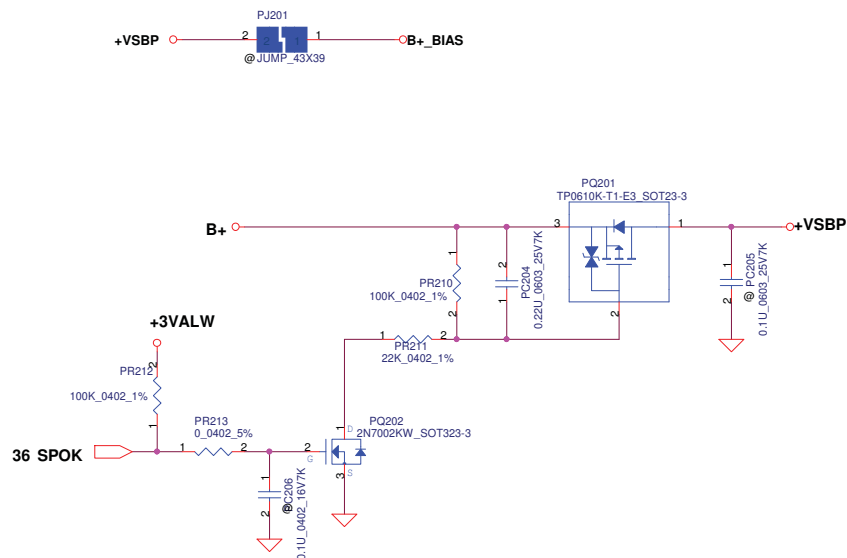
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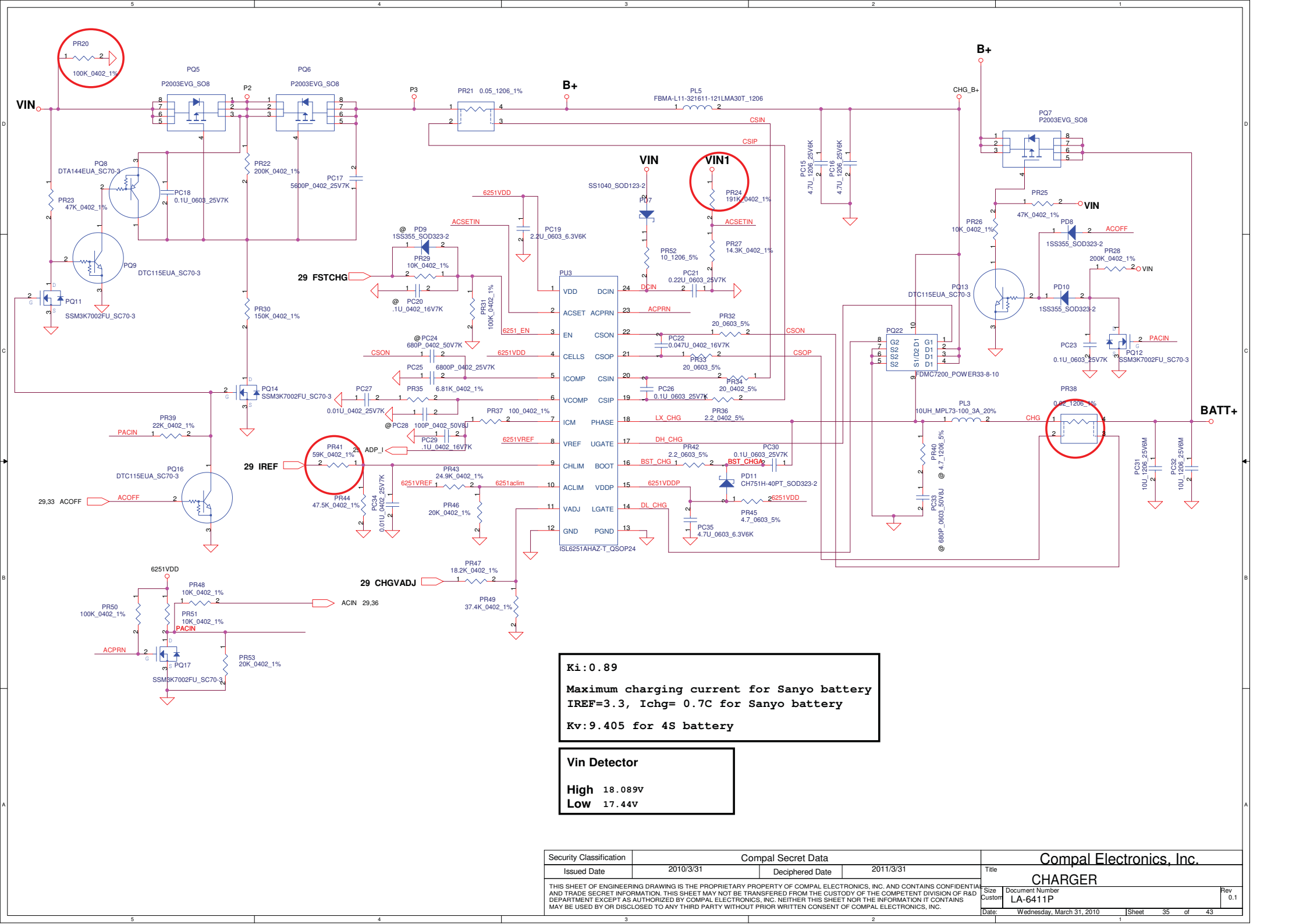
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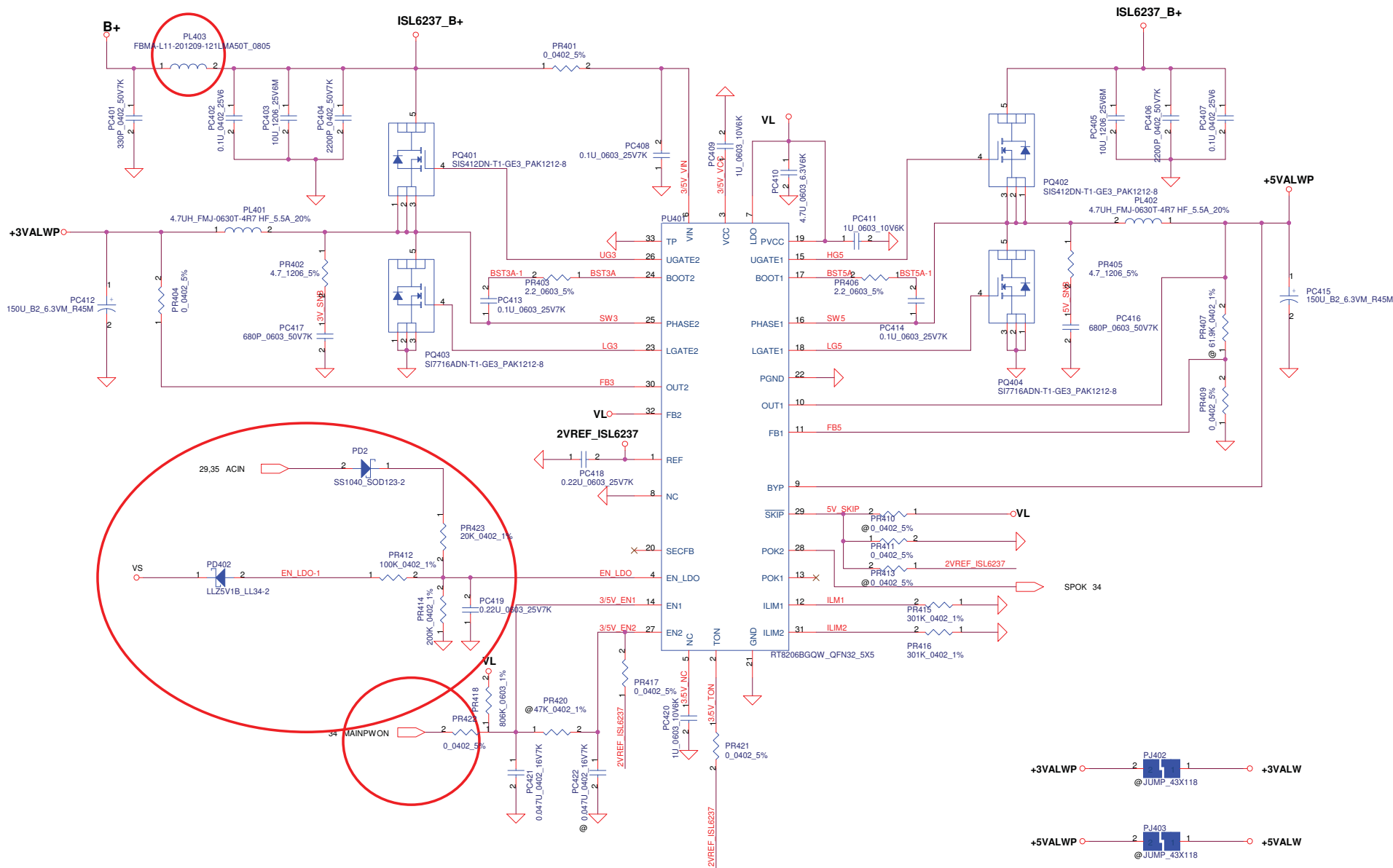
PH1 under CPU bottom side :
CPU thermal protection at 92 degree C
Recovery at 56 degree C



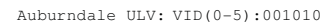
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