

Compal Confidential

Churchill 13.3" M/B Schematics Document

Intel Arrandale SFF Processor with DDRIII + Ibex Peak-M

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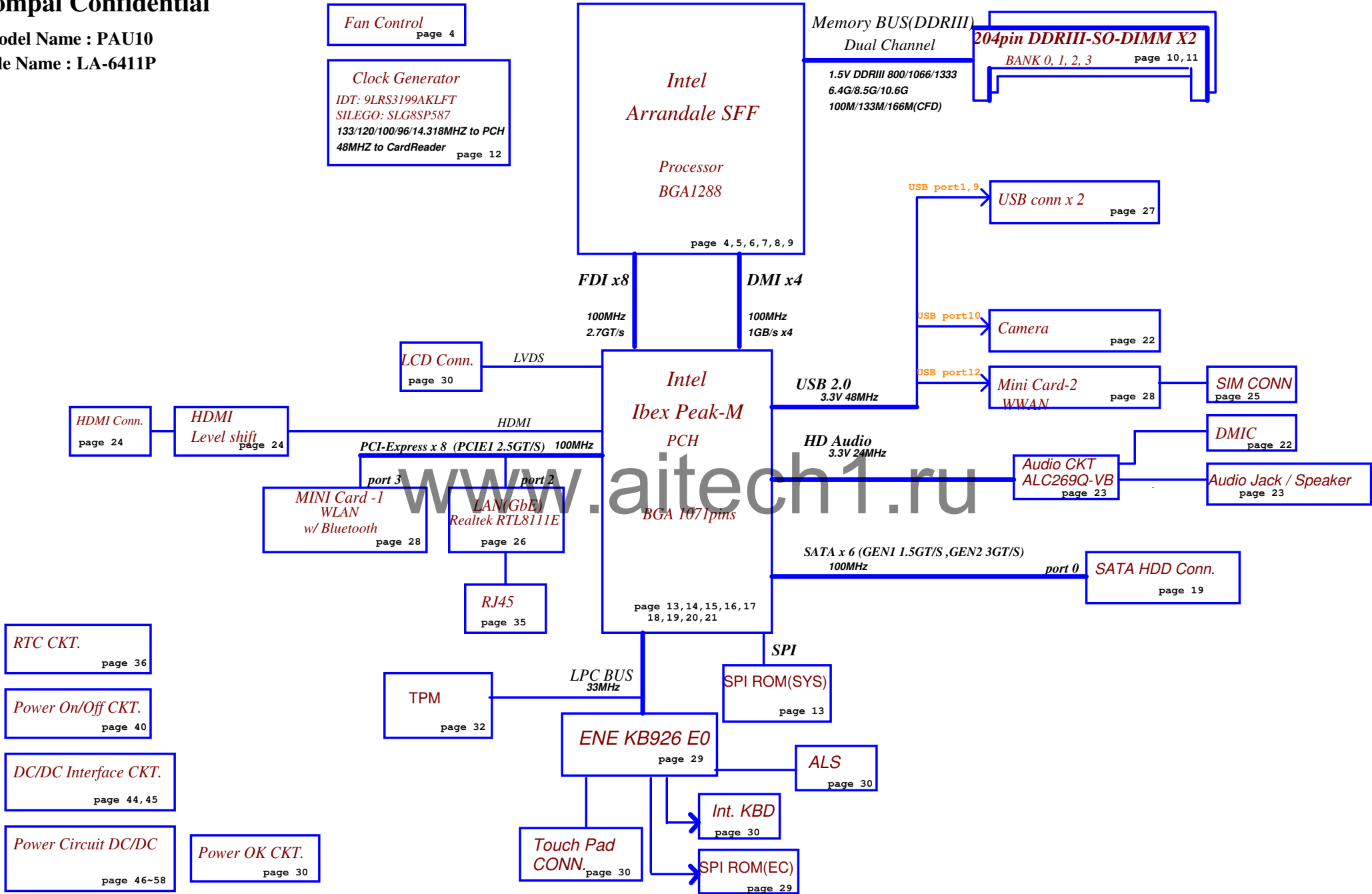
2010-03-31

REV : 0 . 1

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				Document Number	
				LA-6411P	Rev 0.1
Date: Wednesday, March 31, 2010				Sheet	1 of 43

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Model Name : PAU10
File Name : LA-6411P

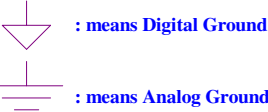


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Voltage Rails (O MEANS ON X MEANS OFF)

<div>power plane</div> <div>State</div>	+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

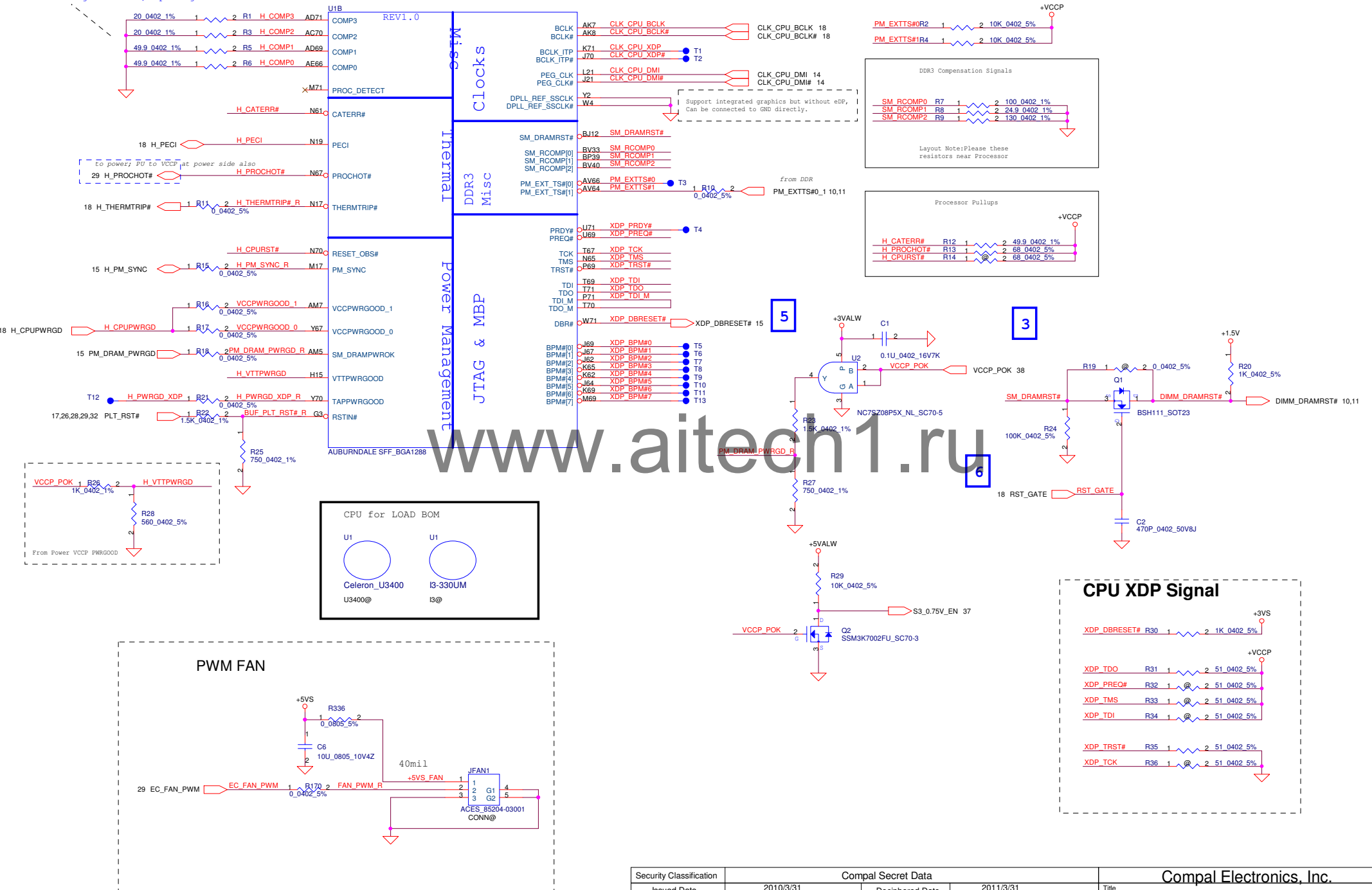
45@ : means just put it in the BOM of 45 level.

www.aitech1.ru Install below 43 level BOM structure for ver. 0.1

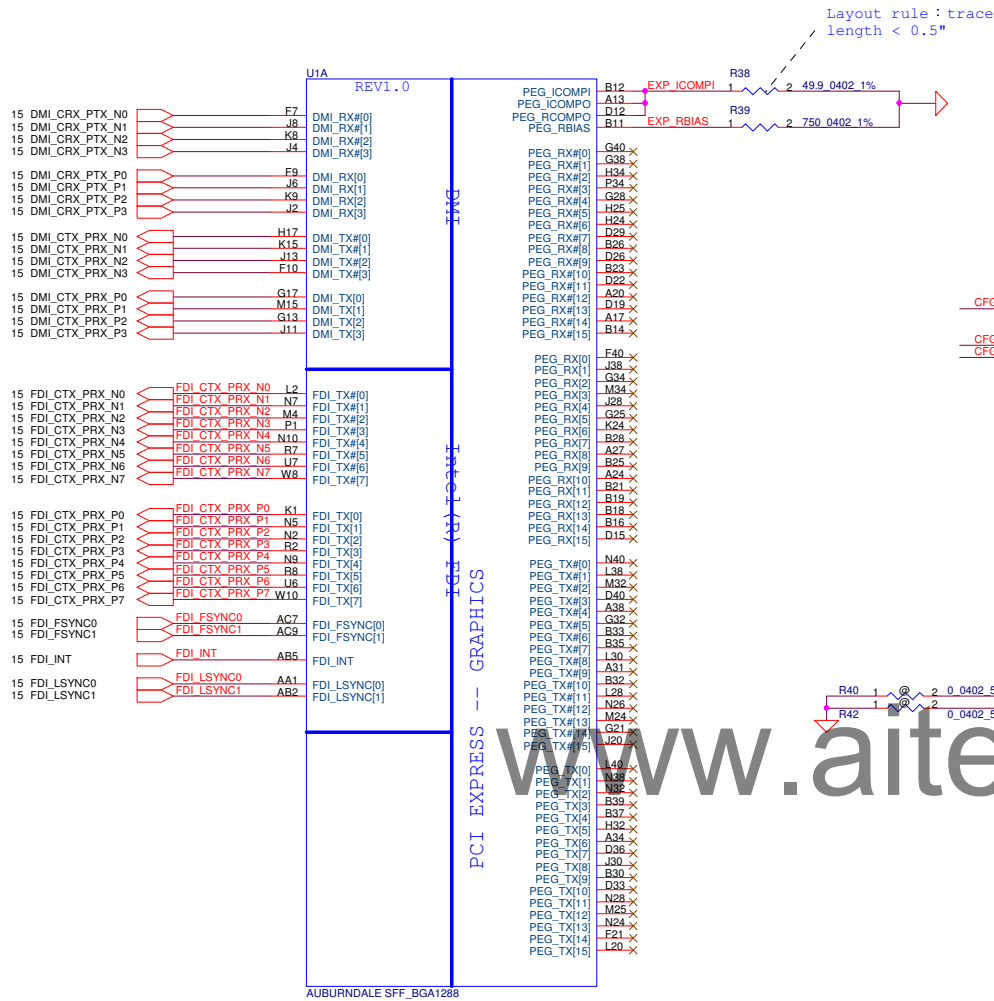
SMBUS Control Table

	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

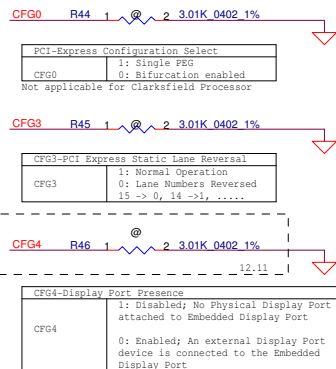
Layout rule: 10mil width trace
length < 0.5", spacing 20mil



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CFG Straps for PROCESSOR



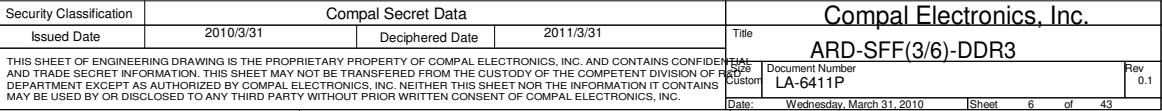
Package Daisy Chain: Daisy Chain Recommendation for SMT Connectivity

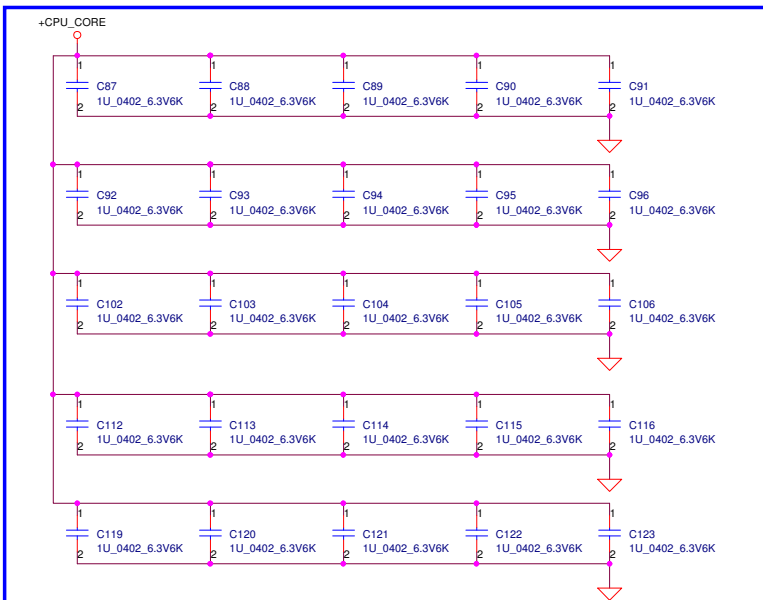
- 1: BR71 - pkg - BT71- board - BT69 - pkg - BV71 - board - BV69 - pkg - BV68
- 2: A68 - pkg - A69 - board - C69 - pkg - A71 - board - C71 - pkg - E71
- 3: A5 - pkg - C3
- 4: BR1 - pkg - BT1 - board - BV1 - pkg - BT3 - board - BV3 - pkg - BV5

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								ARD-SFF(2/6)-DMI/PEG/CFG					
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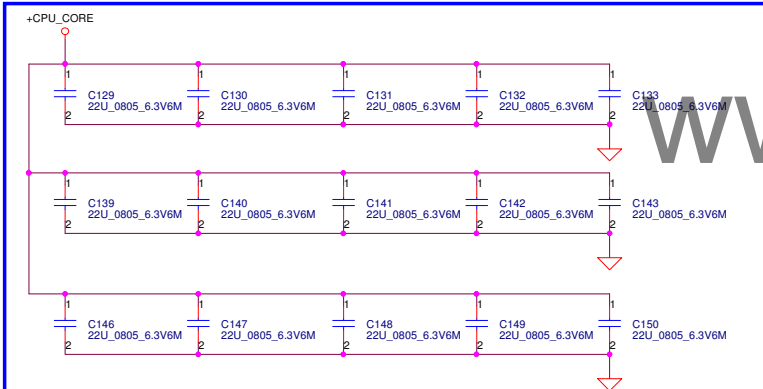
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ARD-SFF(2/6)-DMI/PEG/CFG

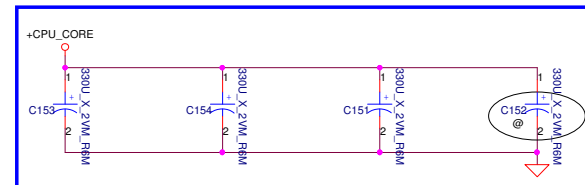




High-Frequency Decoupling 25x on CPU Bottom side

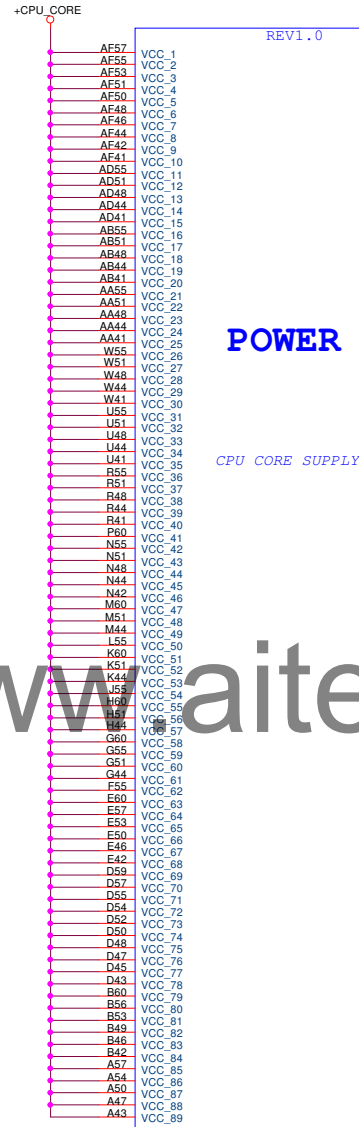


Mid-Frequency Decoupling 15x on Bottom Side between inductors and package



Low-Frequency Bulk 4x on Bottom Side, 1x on Top

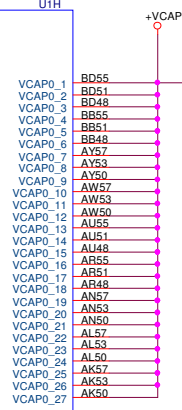
Current =274A



POWER

CPU CORE SUPPLY

AUBURNDAL SFF_BGA1288



Don't connect to any other power rail, this is package decoupling

Don't connect to any other power rail, this is package decoupling

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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
BM41	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	AU32
BK53	VSS32	VSS121	AU30
BK34	VSS33	VSS122	AU28
BK10	VSS34	VSS123	AU26
BJ64	VSS35	VSS124	AU24
BJ21	VSS36	VSS125	AU23
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	VSS140	AN48
BE70	VSS52	VSS141	AN44
BE65	VSS53	VSS142	AN41
BE9	VSS54	VSS143	AN37
BE1	VSS55	VSS144	AN5
BD57	VSS56	VSS145	AN4
BD53	VSS57	VSS146	AM64
BD50	VSS58	VSS147	AM8
BD46	VSS59	VSS148	AL62
BD39	VSS60	VSS149	AL51
BD14	VSS61	VSS150	AL48
BB71	VSS62	VSS151	AL44
BB63	VSS63	VSS152	AL41
BB62	VSS64	VSS153	AL37
BB57	VSS65	VSS154	AL35
BB53	VSS66	VSS155	AL33
BB50	VSS67	VSS156	AL1
BB46	VSS68	VSS157	AK70
BB42	VSS69	VSS158	AK64
BB39	VSS70	VSS159	AK55
BB7	VSS71	VSS160	AK51
BB1	VSS72	VSS161	AK48
BA70	VSS73	VSS162	AK44
AY71	VSS74	VSS163	AK41
AY66	VSS75	VSS164	AK37
AY62	VSS76	VSS165	AK32
AY59	VSS77	VSS166	AK30
AY55	VSS78	VSS167	AK28
AY51	VSS79	VSS168	AK26
AY48	VSS80	VSS169	AK24
AR42	VSS81	VSS170	AK23
AR39	VSS82	VSS171	AK21
AR35	VSS83	VSS172	AK19
AR33	VSS84	VSS173	AK17
AR32	VSS85	VSS174	AK15
AR30	VSS86	VSS175	AK10
AR28	VSS87	VSS176	AH62
AR26	VSS88	VSS177	AH57
AR24	VSS89	VSS178	AH55
AR23	VSS90	VSS179	BV64
AR21	VSS91	VSS180	BT68
AR19	VSS92	VSS181	BR69
AR17	VSS93	VSS182	BR68
AR15	VSS94	VSS183	BR3
AR14	VSS95	VSS184	BN71
AR4	VSS96	VSS185	BN1
AR1	VSS97	VSS186	BL71
AP70	VSS98	VSS187	BL1
AP64	VSS99	VSS188	R14
AN62	VSS100	VSS189	H71
AN55	VSS101	VSS190	F71
AY44	VSS102	VSS191	E68
AY41	VSS103	VSS192	E66
AY37	VSS104	VSS193	E66
AY35	VSS105	VSS194	E66
AY33	VSS106	VSS195	E66
AY32	VSS107	VSS196	E66
AY30	VSS108	VSS197	E66
AY28	VSS109	VSS198	E66
AY26	VSS110	VSS199	E66

VSS

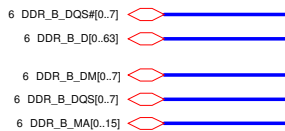
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U1J		REV1.0	A40
AH53	VSS202	VSS404	A40
AH51	VSS203	VSS405	A36
AH50	VSS204	VSS406	A33
AH48	VSS205	VSS407	A29
AH46	VSS206	VSS408	A28
AH44	VSS207	VSS409	A22
AH42	VSS208	VSS410	A19
AH41	VSS209	VSS411	A15
AH39	VSS210	VSS412	A12
AH37	VSS211	VSS413	A8
AH35	VSS212	VSS414	B62
AH33	VSS213	VSS415	B58
AH32	VSS214	VSS416	B55
AH30	VSS215	VSS417	B51
AH28	VSS216	VSS418	B48
AH26	VSS217	VSS419	B44
AH24	VSS218	VSS420	B42
AH23	VSS219	VSS421	B39
AH21	VSS220	VSS422	B35
AH19	VSS221	VSS423	B31
AH17	VSS222	VSS424	B28
AH15	VSS223	VSS425	B25
AH4	VSS224	VSS426	B22
AG64	VSS225	VSS427	B19
AG9	VSS226	VSS428	B16
AG6	VSS227	VSS429	B13
AF69	VSS228	VSS430	B10
AF62	VSS229	VSS431	B7
AF1	VSS230	VSS432	B4
AE70	VSS231	VSS433	B1
AE64	VSS232	VSS434	A36
AD62	VSS233	VSS435	A33
AD57	VSS234	VSS436	A29
AD53	VSS235	VSS437	A28
AD50	VSS236	VSS438	A22
AD46	VSS237	VSS439	A19
AD42	VSS238	VSS440	A15
AD4	VSS239	VSS441	A12
AC67	VSS240	VSS442	A8
AC64	VSS241	VSS443	B62
AC10	VSS242	VSS444	B58
AC5	VSS243	VSS445	B55
AC1	VSS244	VSS446	B51
AB70	VSS245	VSS447	B48
AB62	VSS246	VSS448	B44
AB57	VSS247	VSS449	B42
AB53	VSS248	VSS450	B39
AB50	VSS249	VSS451	B35
AB46	VSS250	VSS452	B31
AB42	VSS251	VSS453	B28
AB39	VSS252	VSS454	B25
AB37	VSS253	VSS455	B22
AB35	VSS254	VSS456	B19
AB33	VSS255	VSS457	B16
AB32	VSS256	VSS458	B13
AB30	VSS257	VSS459	B10
AB28	VSS258	VSS460	B7
AB26	VSS259	VSS461	B4
AB24	VSS260	VSS462	B1
AB23	VSS261	VSS463	A36
AB21	VSS262	VSS464	A33
AB19	VSS263	VSS465	A29
AB17	VSS264	VSS466	A28
AB15	VSS265	VSS467	A22
AB14	VSS266	VSS468	A19
AB9	VSS267	VSS469	A15
AA68	VSS268	VSS470	A12
AA64	VSS269	VSS471	A8
AA62	VSS270	VSS472	B62
AA57	VSS271	VSS473	B58
AA53	VSS272	VSS474	B55
AA50	VSS273	VSS475	B51
AA46	VSS274	VSS476	B48
AA42	VSS275	VSS477	B44
AA39	VSS276	VSS478	B42
AA37	VSS277	VSS479	B39
AA35	VSS278	VSS480	B35
AA33	VSS279	VSS481	B31
AA32	VSS280	VSS482	B28
AA30	VSS281	VSS483	B25
AA28	VSS282	VSS484	B22
AA26	VSS283	VSS485	B19
AA24	VSS284	VSS486	B16
AA23	VSS285	VSS487	B13
AA21	VSS286	VSS488	B10
AA19	VSS287	VSS489	B7
F20	VSS374	VSS533	M1
F4	VSS375	VSS534	M2
E37	VSS376	VSS535	M3
E33	VSS377	VSS536	M4
E30	VSS378	VSS537	M5
E18	VSS379	VSS538	M6
E12	VSS380	VSS539	M7
D41	VSS381	VSS540	M8
D38	VSS382	VSS541	M9
D34	VSS383	VSS542	M10
D31	VSS384	VSS543	M11
D27	VSS385	VSS544	M12
D24	VSS386	VSS545	M13
D20	VSS387	VSS546	M14
D17	VSS388	VSS547	M15
D13	VSS389	VSS548	M16
D10	VSS390	VSS549	M17
D6	VSS391	VSS550	M18
B65	VSS392	VSS551	M19
B40	VSS415	VSS552	M20

VSS

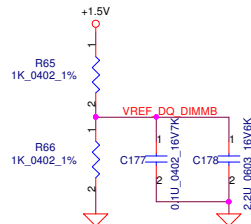
AUBURNDALE SFF_BGA1288

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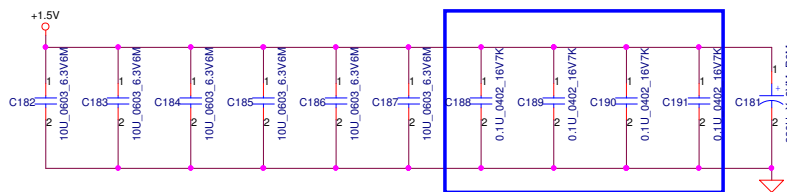
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M1: Arrandale

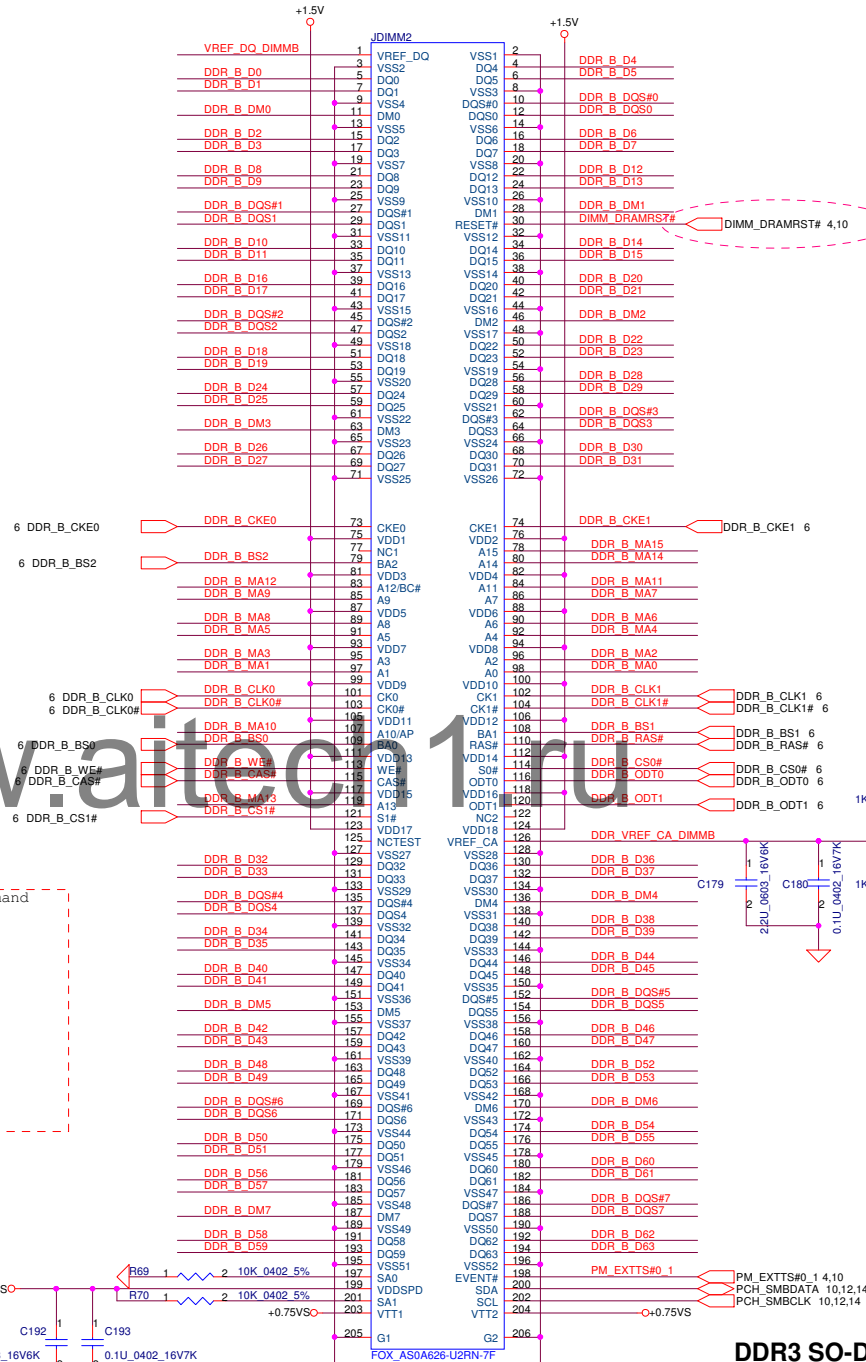
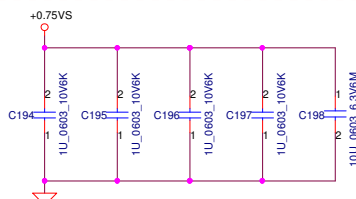


Layout Note:
Place near JDIMM2

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

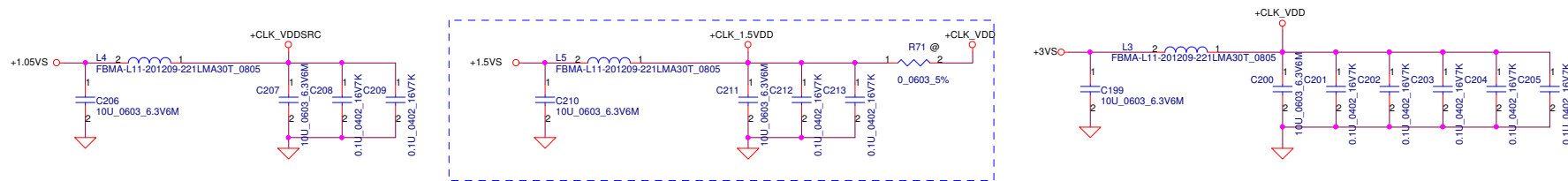


Layout Note:
Place near JDIMM2.203 & JDIMM2.204

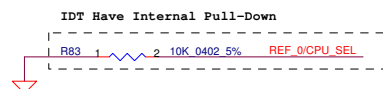
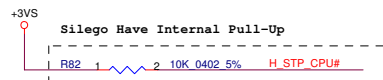
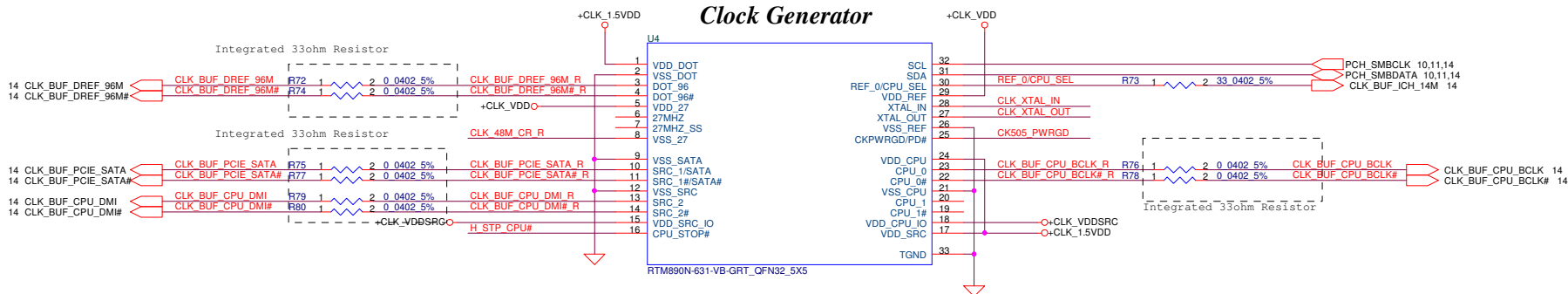


DDR3 SO-DIMM B
Reverse Type

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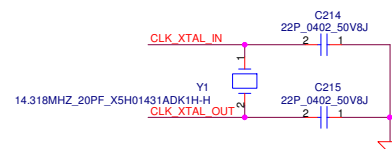
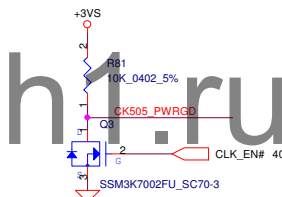


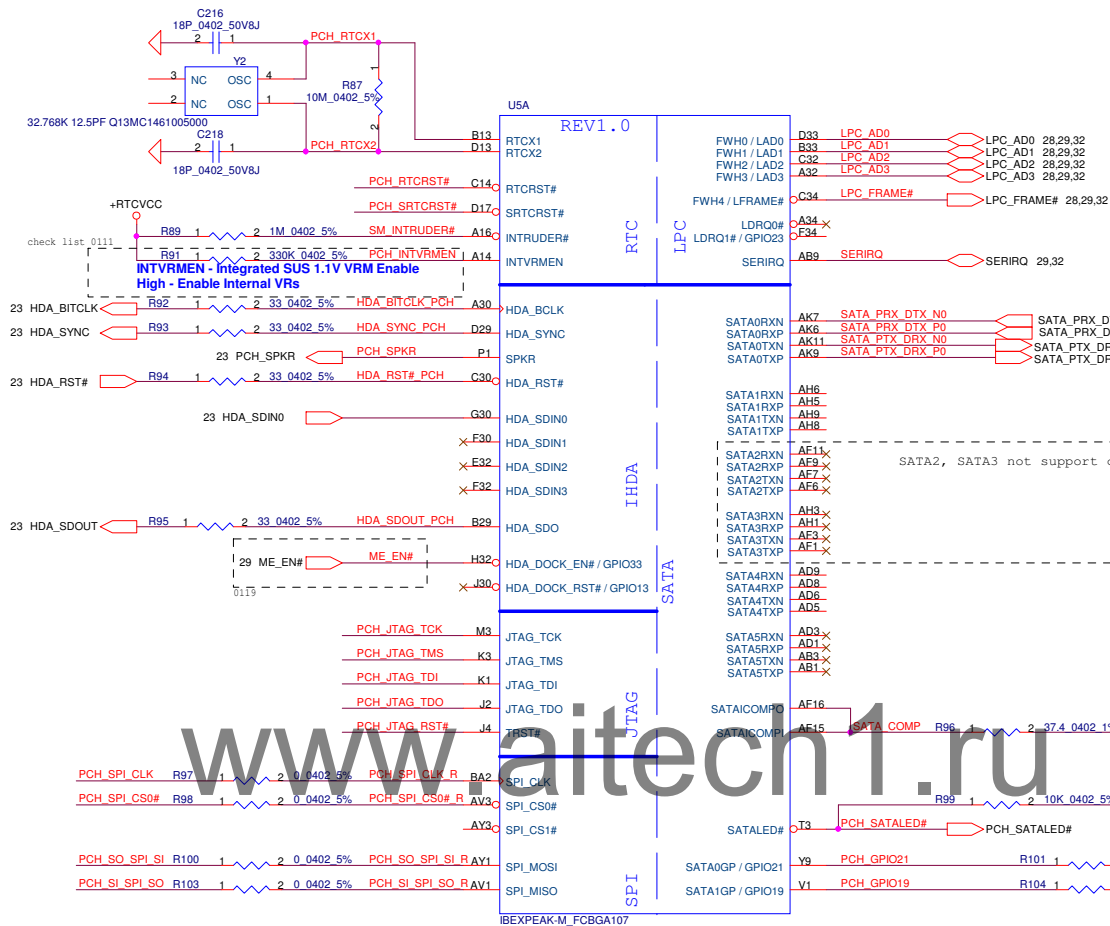
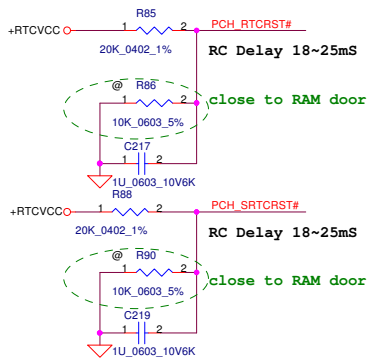
Clock Generator



PIN 30	CPU_0	CPU_1
0 (Default)	133MHz	133MHz
1	100MHz	100MHz

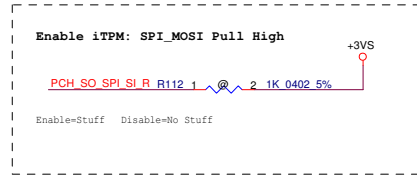
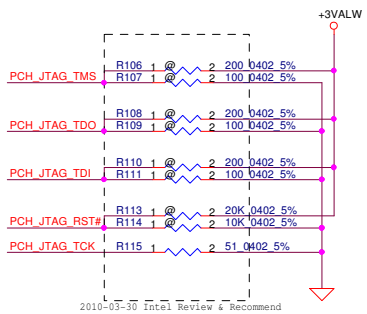
PIN8 IS GND FOR ICS3197
PIN8 IS 48MHz FOR ICS3199



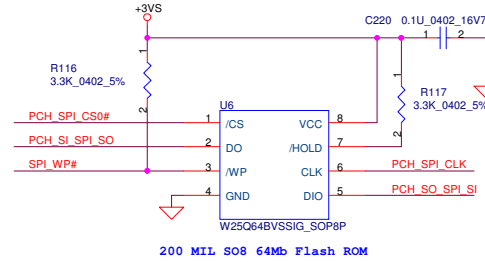


SATA for HDD

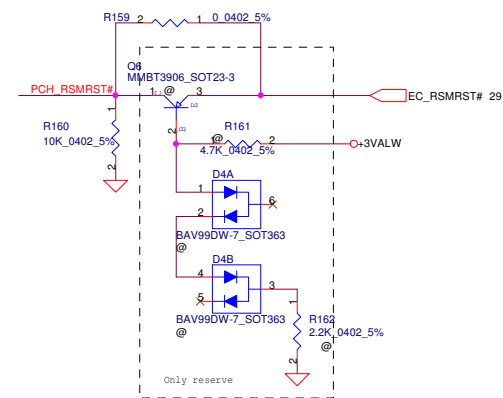
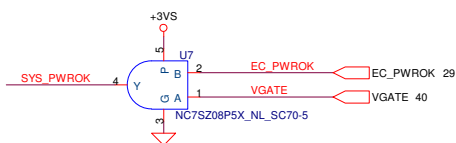
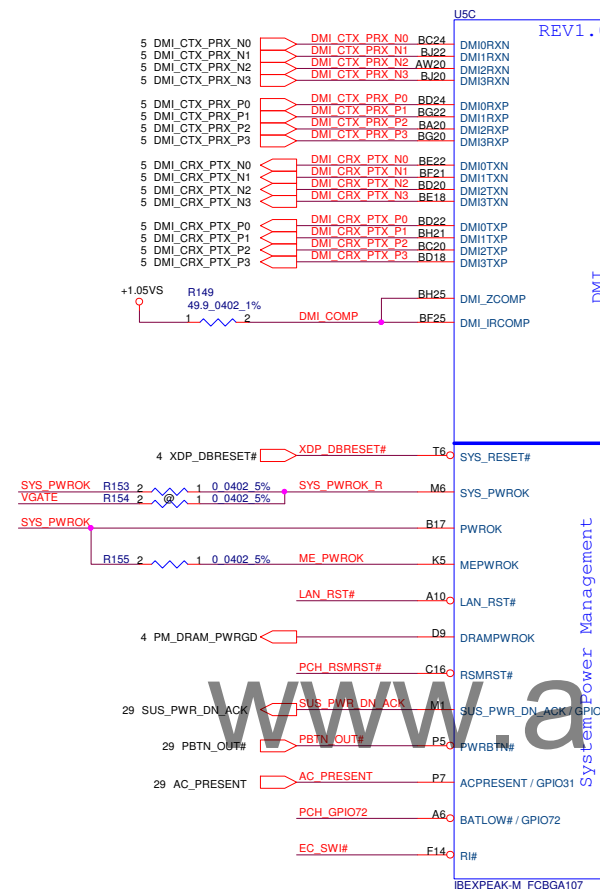
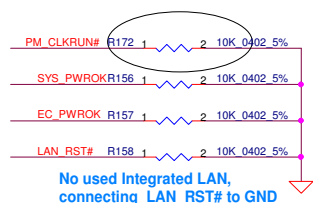
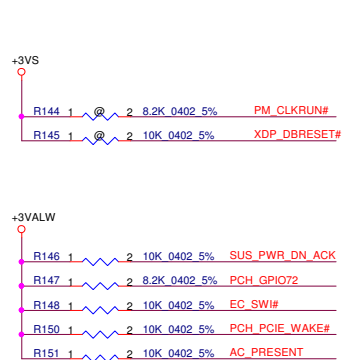
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SYS BIOS ROM



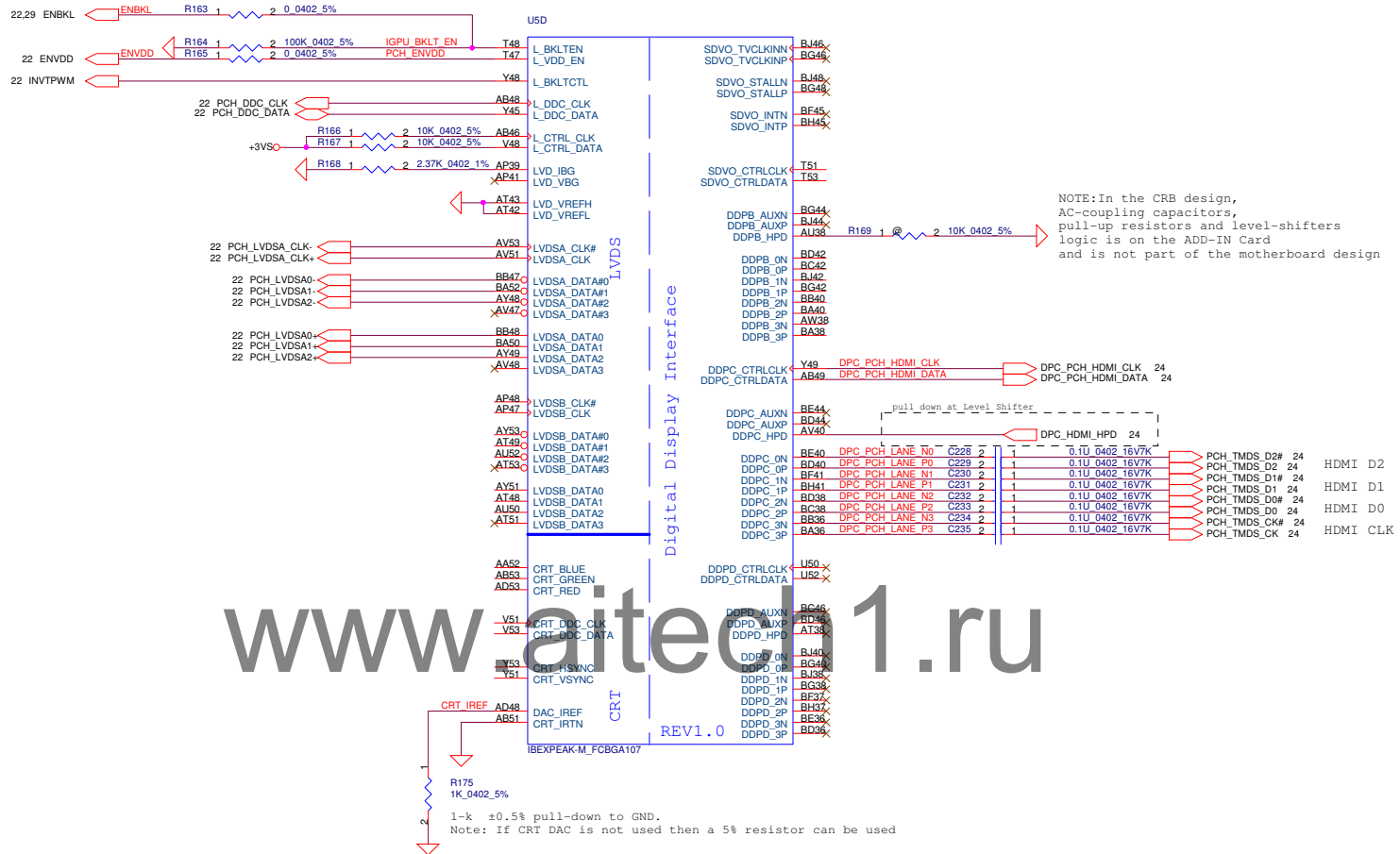
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Issued Date	2010/3/31	Deciphered Date	2011/3/31	SATA, HDA, SPI, LPC	
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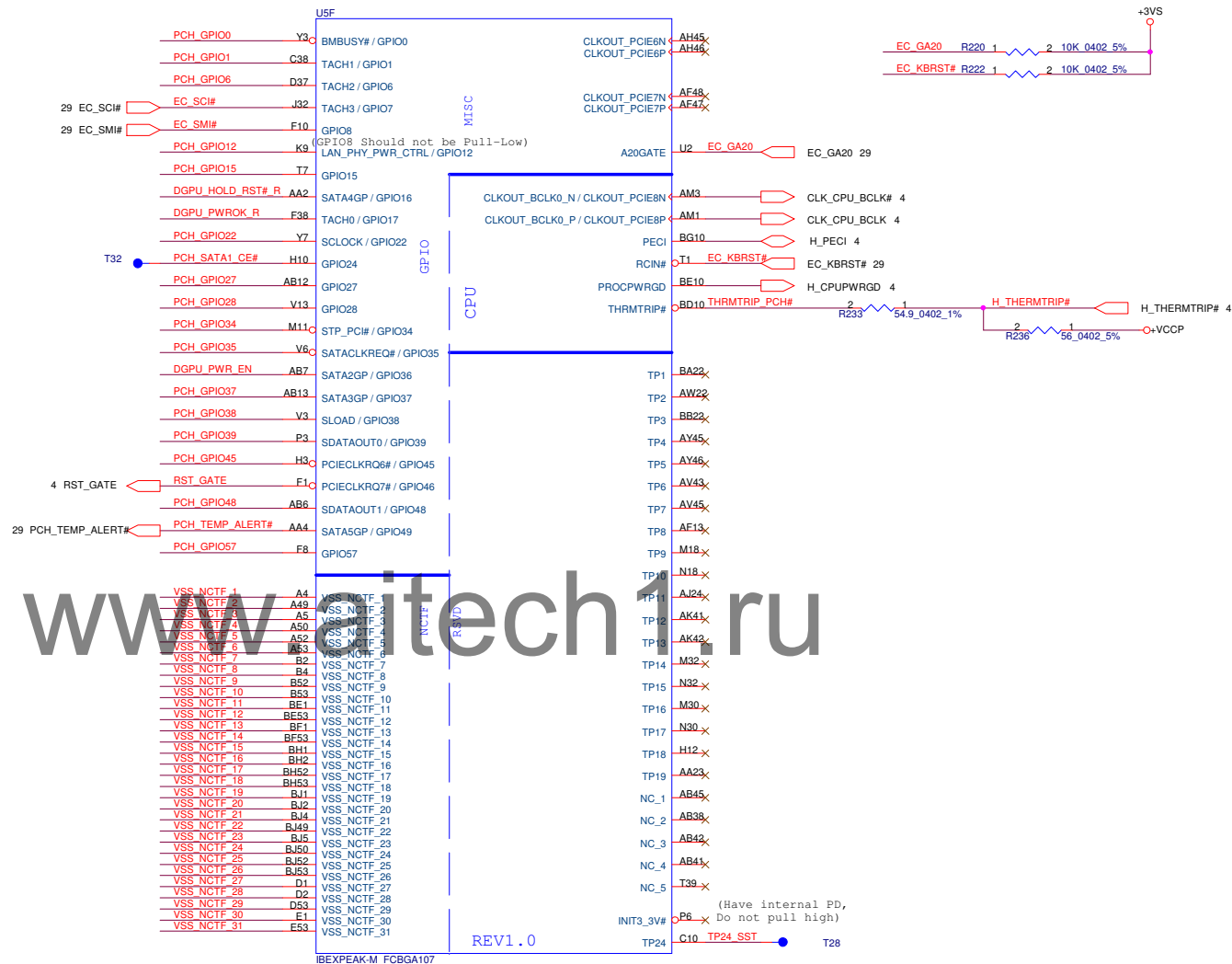
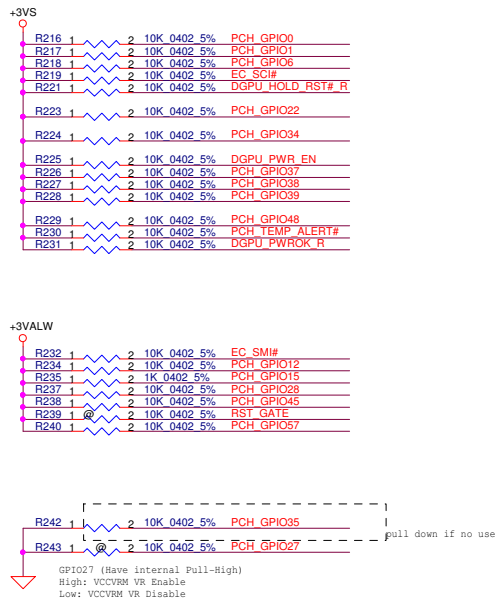
BACKLIGHT

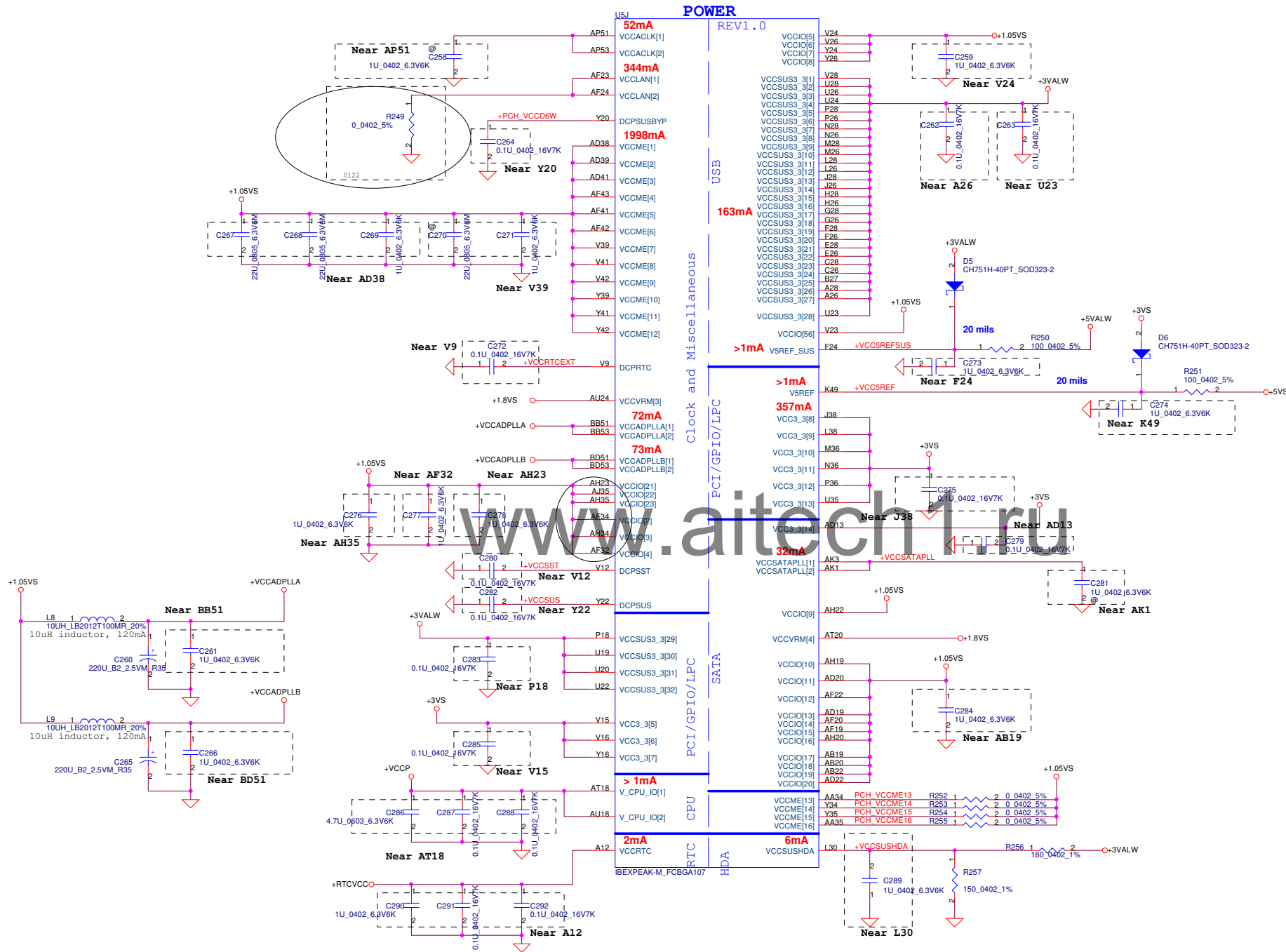
LCDVDD

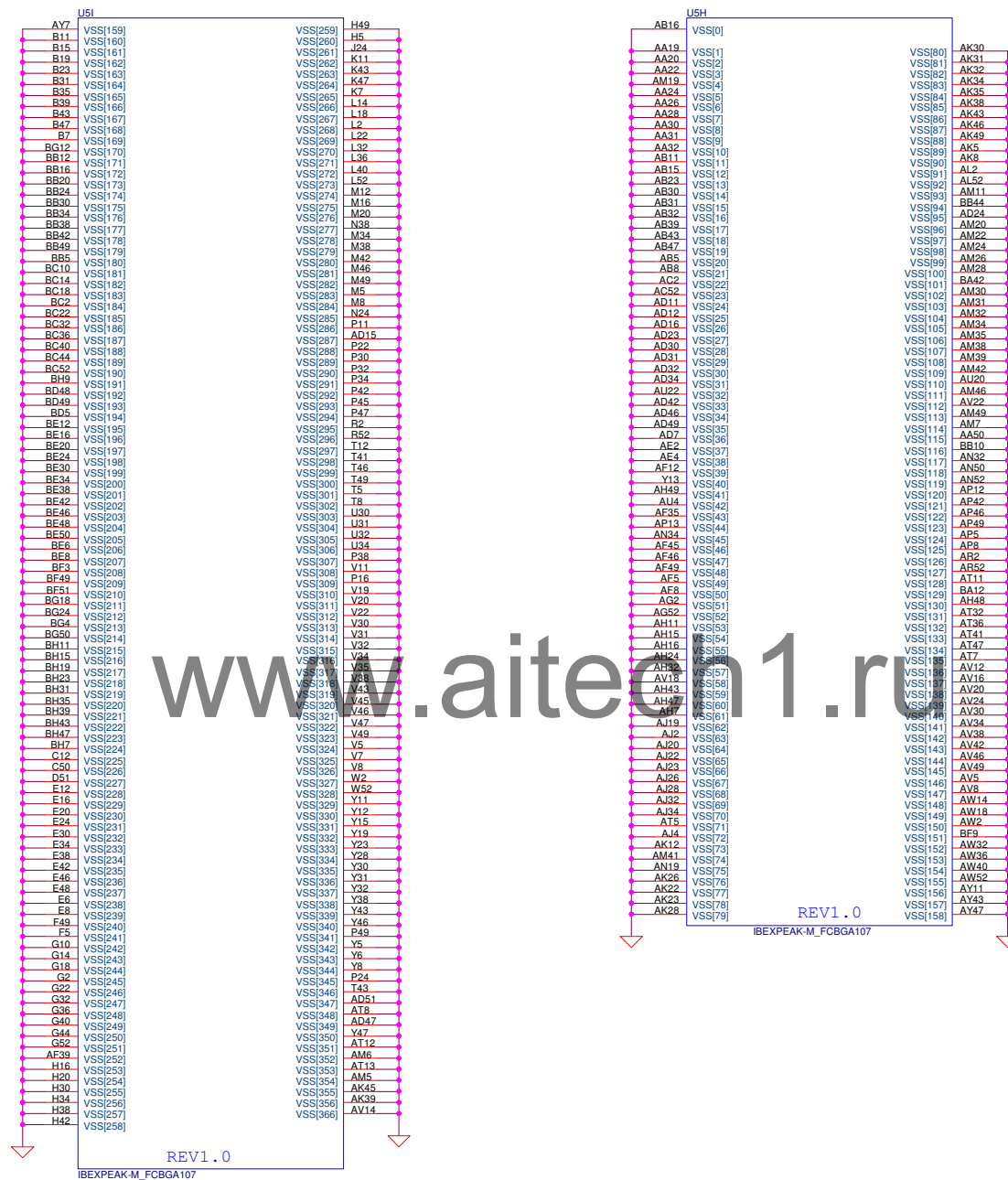
BACKLIGHT_PWM (DPST)



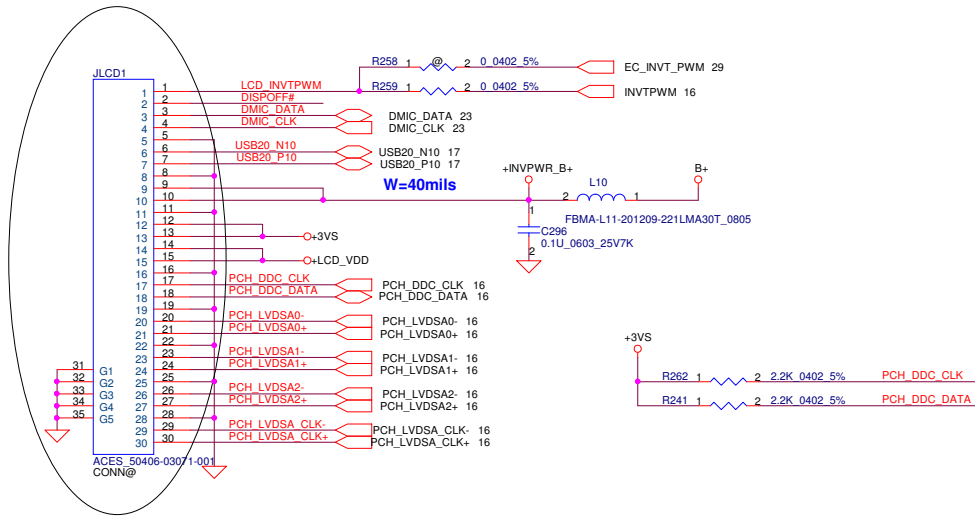
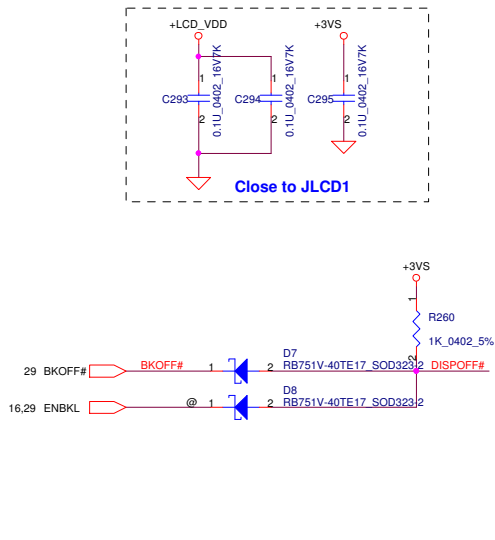
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Issued Date	2010/3/31	Deciphered Date	2011/3/31	Title	
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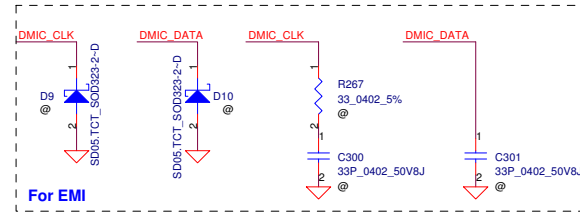
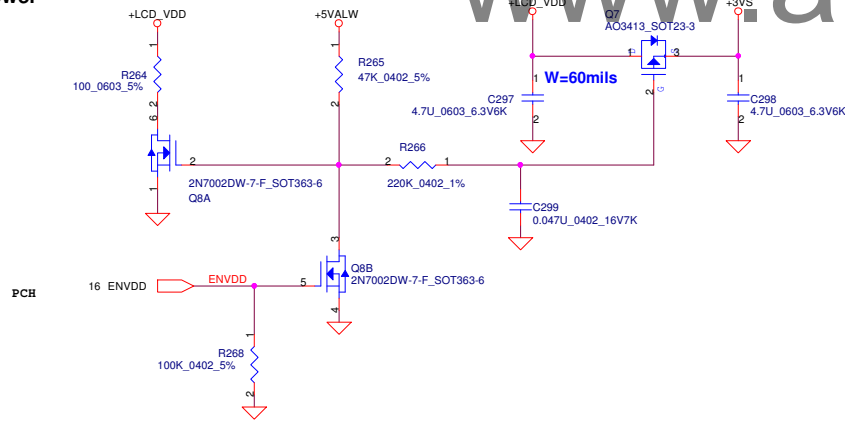




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				ment Number	0.1
Date: Wednesday, March 31, 2010				Sheet	21 of 43

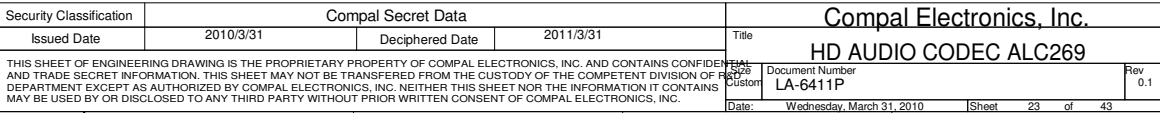


LCD Power



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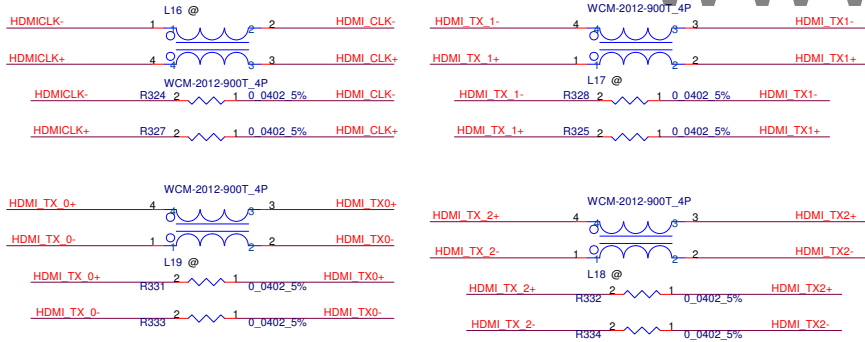
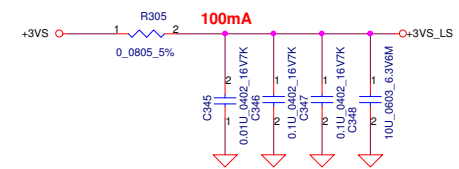
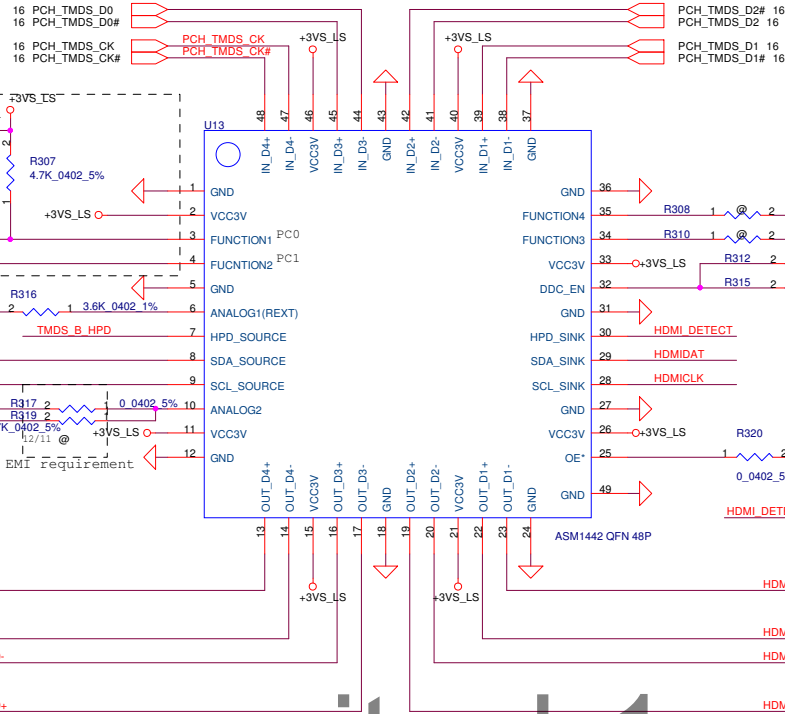
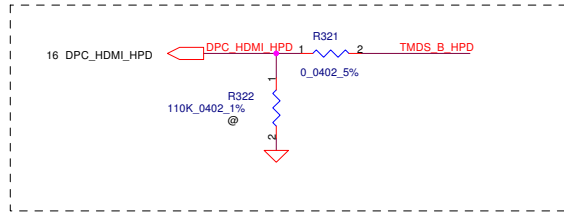
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Issued Date	2010/3/31	Deciphered Date	2011/3/31	Title	
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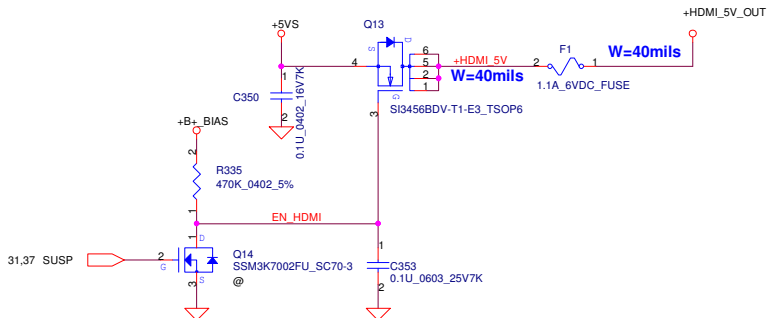
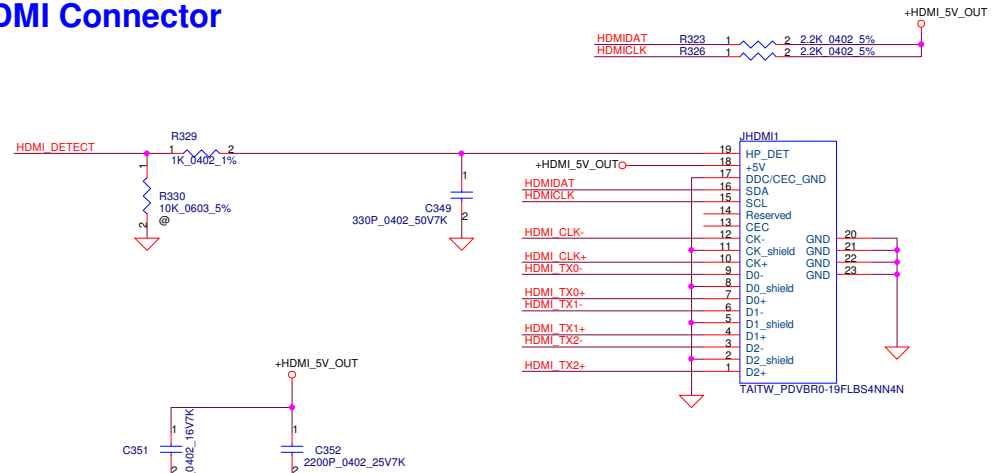
EQUALIZATION SETTING:
 [PC1,PC0]=00,8dB
 [PC1,PC0]=01,4dB (Recommended)
 [PC1,PC0]=10,12dB
 [PC1,PC0]=11,0dB

PCH_TMDS_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

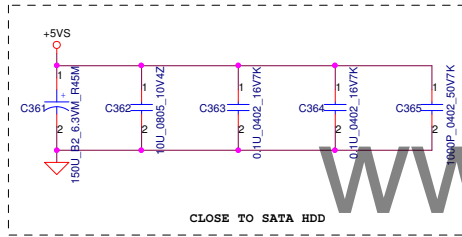
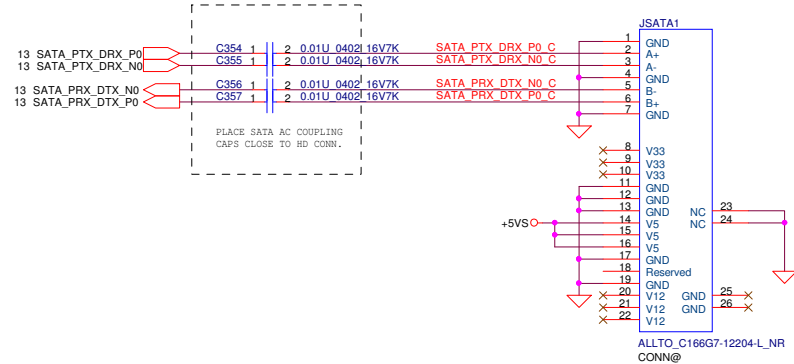


HDMI Connector

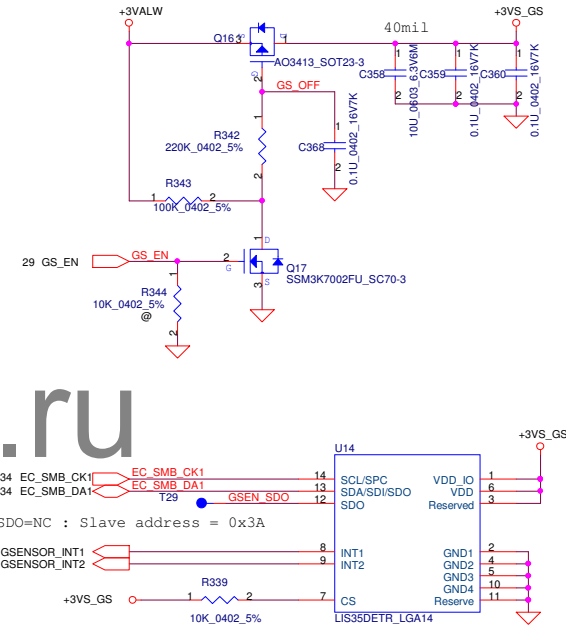


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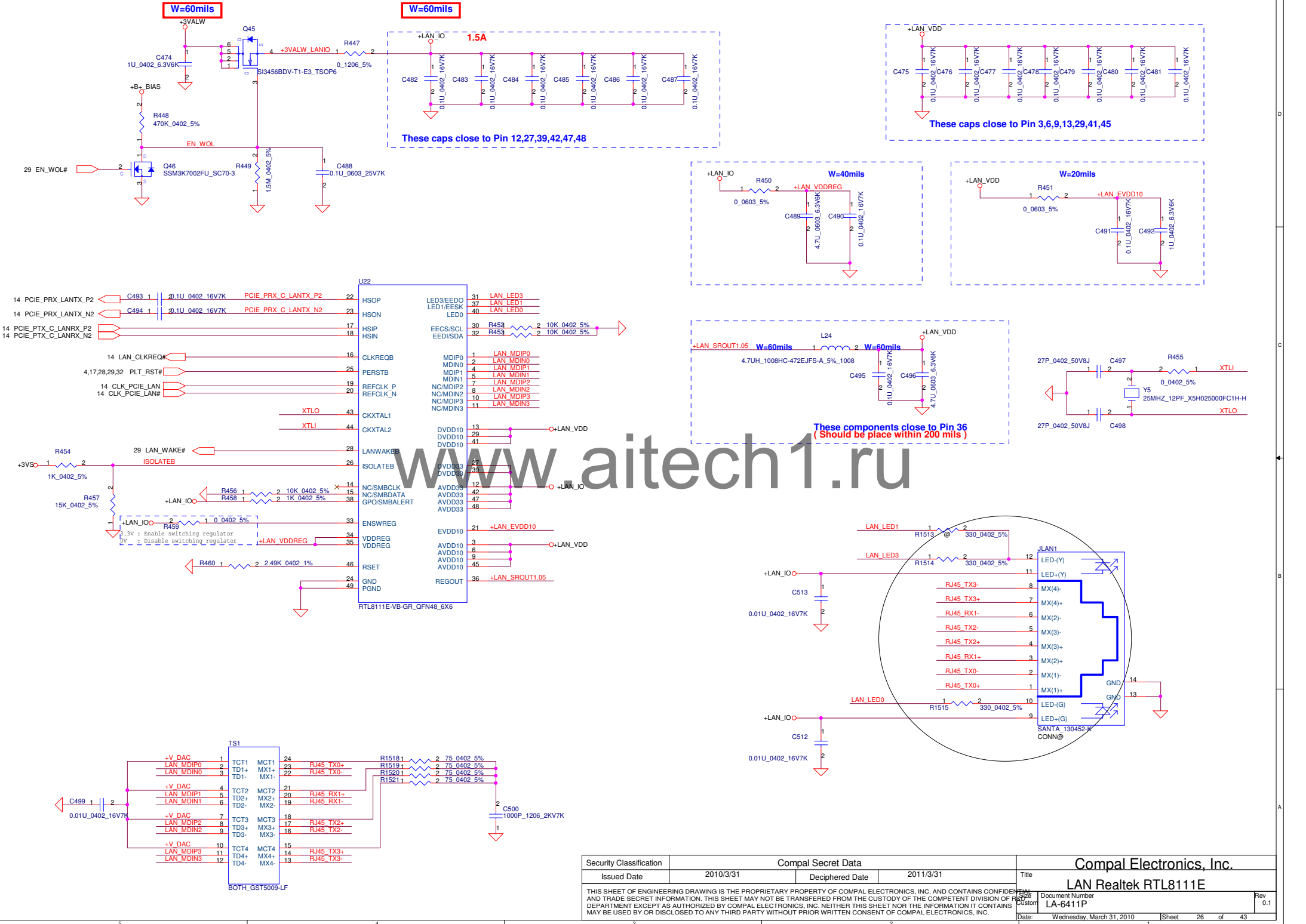
SATA HDD CONN



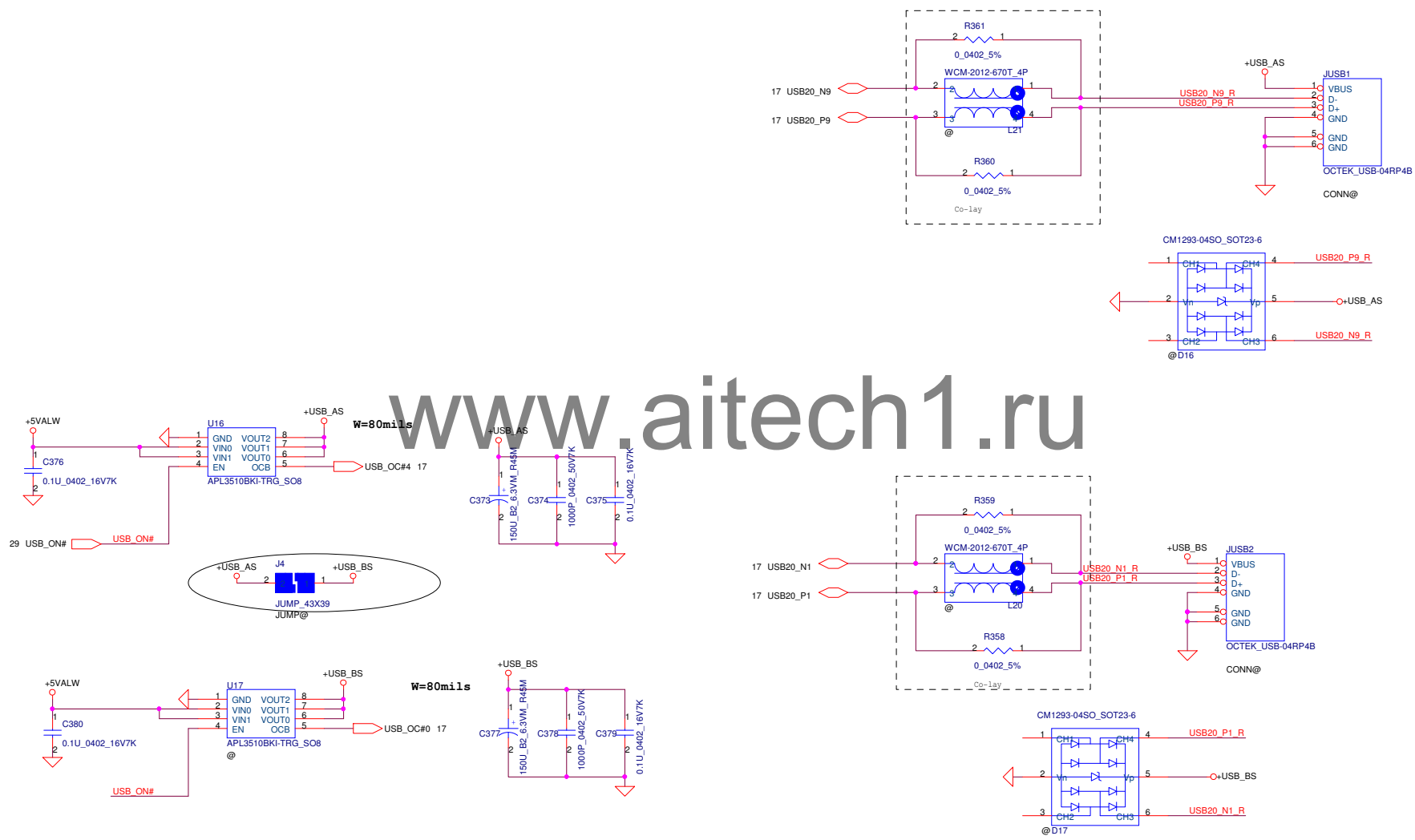
APS G-Sensor



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Issued Date		2010/3/31		Deciphered Date		2011/3/31		Title	
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						Document Number		Rev	
						LA-6411P		0.1	
Date: Wednesday, March 31, 2010						Sheet		25 of 43	

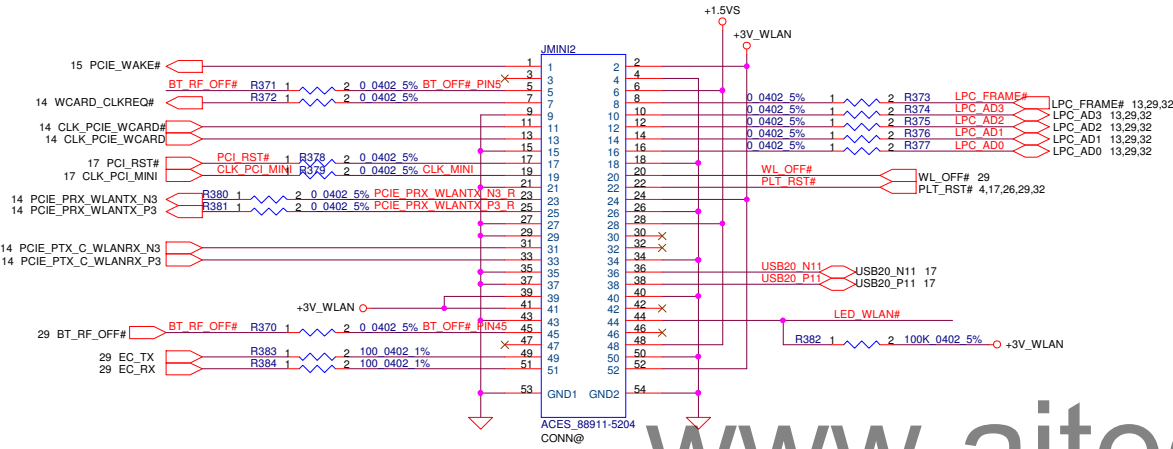
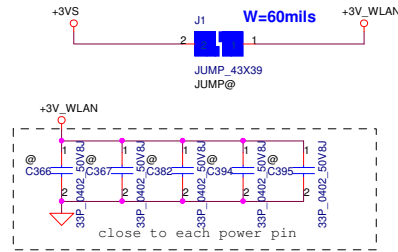
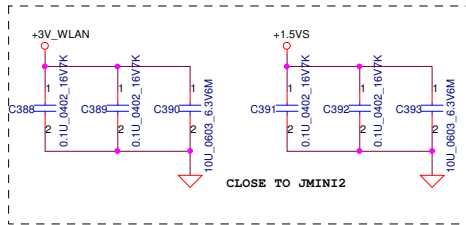


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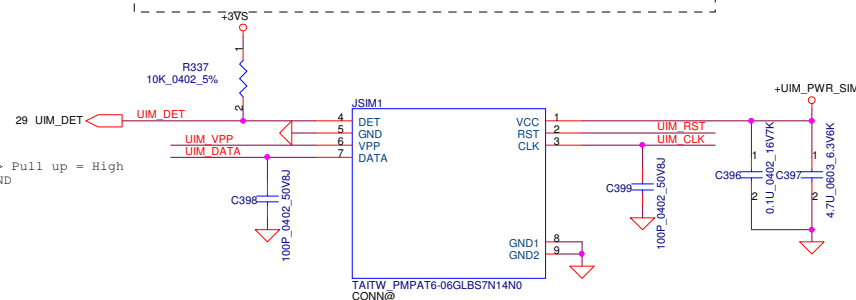
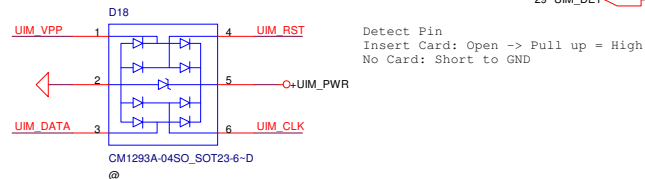
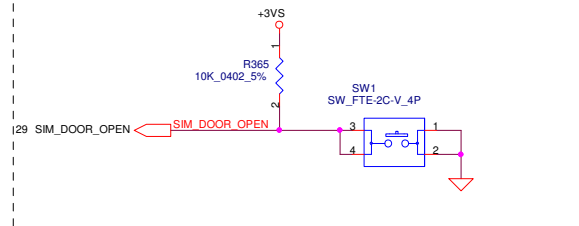


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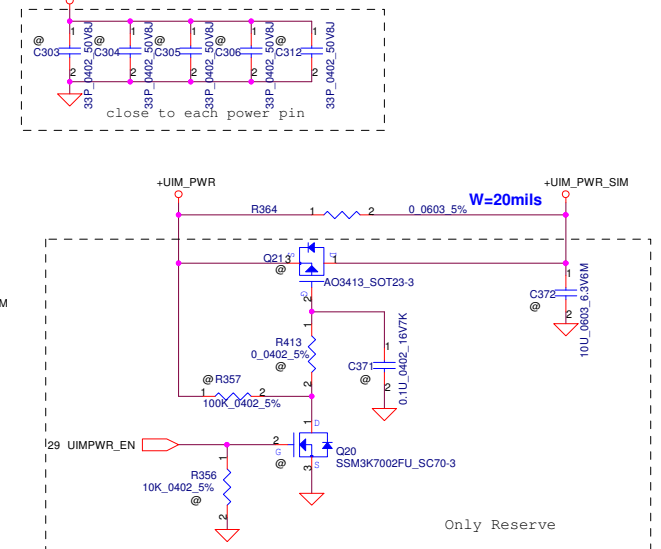
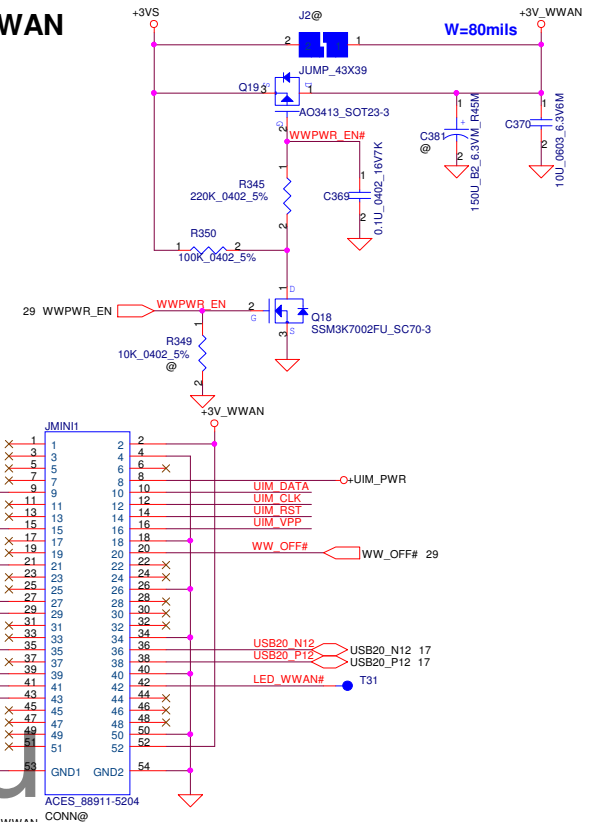
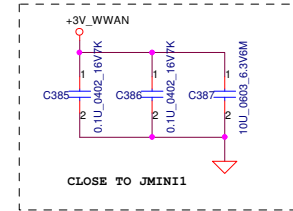
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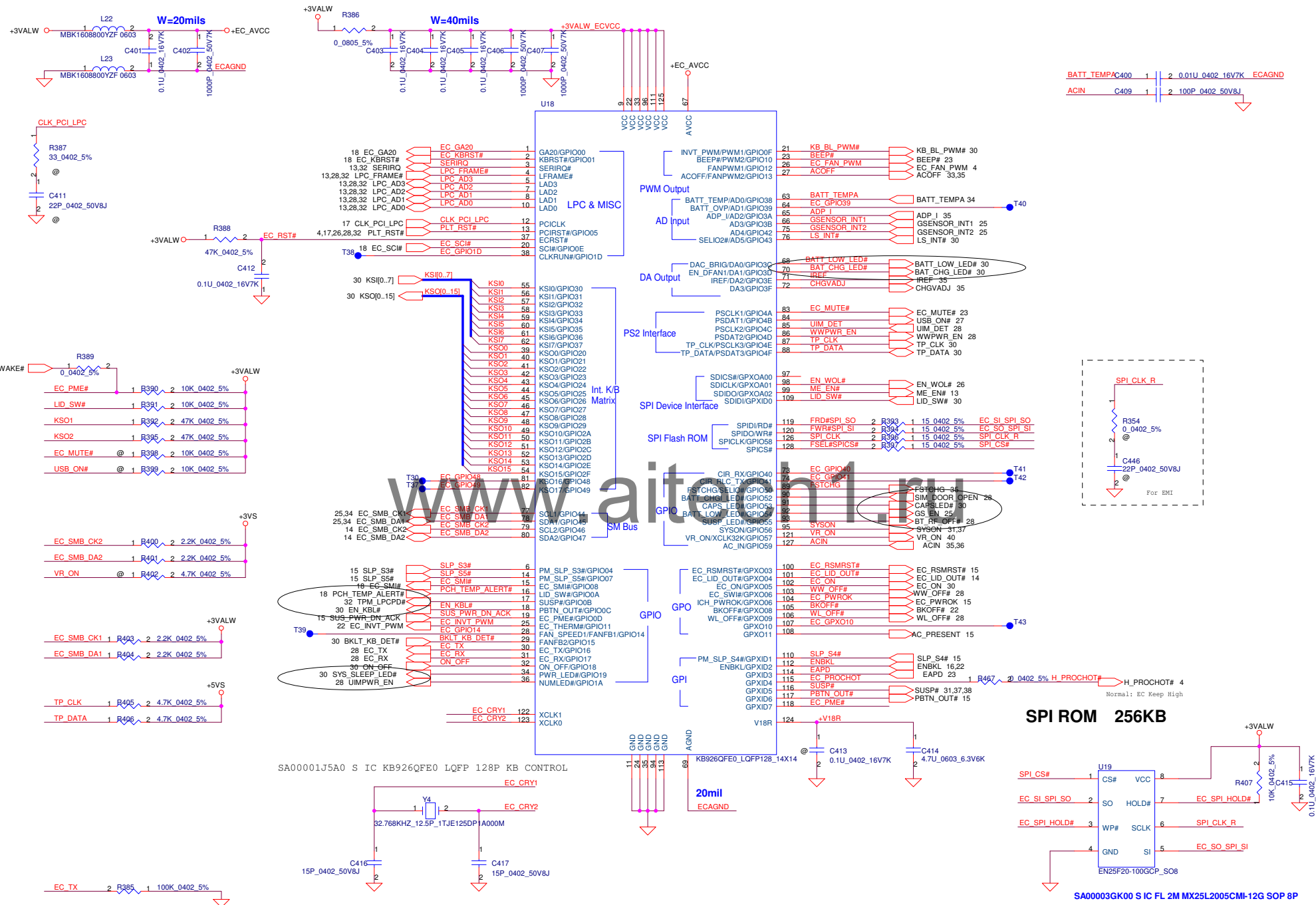
SIM Connector and UIM Power control



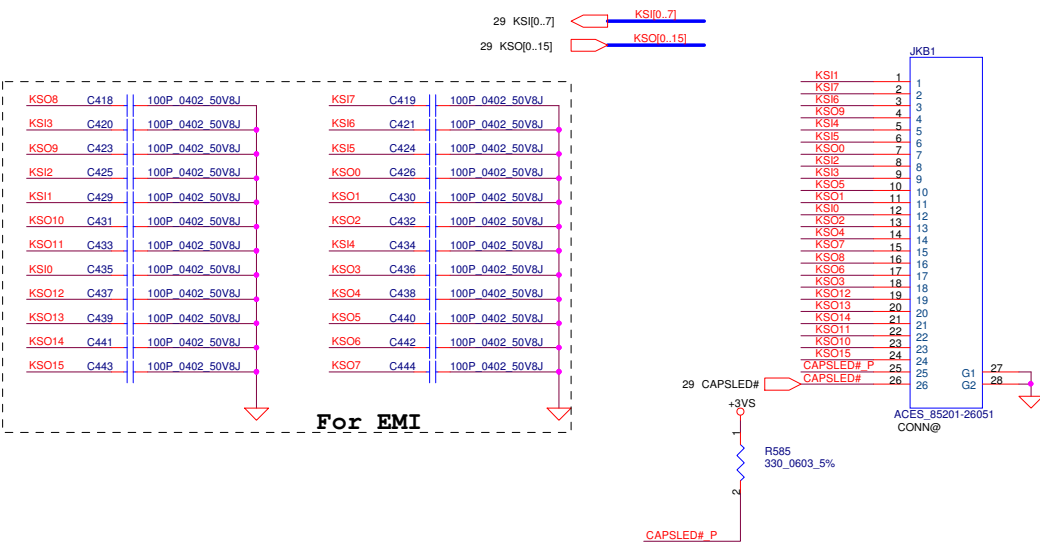
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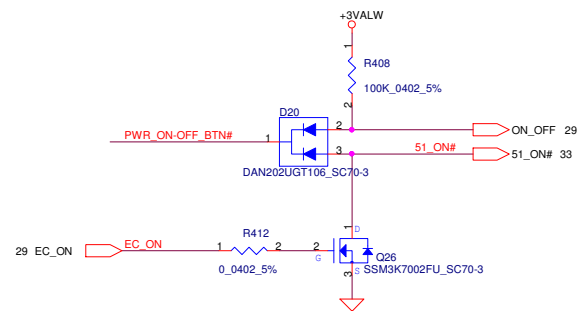
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Issued Date	2010/3/31	Deciphered Date	2011/3/31	Mini Card WLAN/ WWAN	
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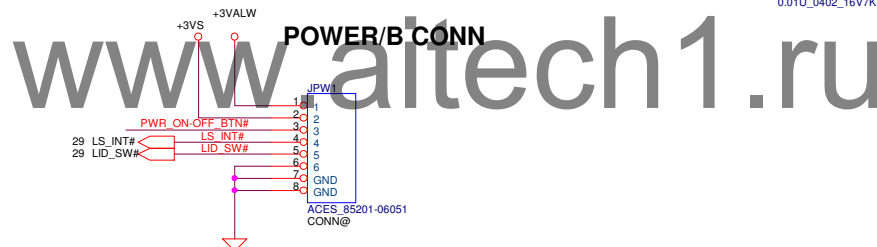
Int. KB CONN.



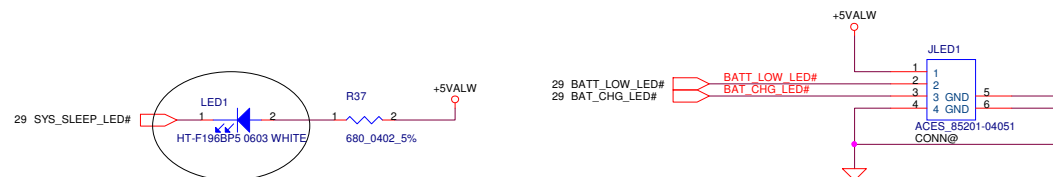
Power Button



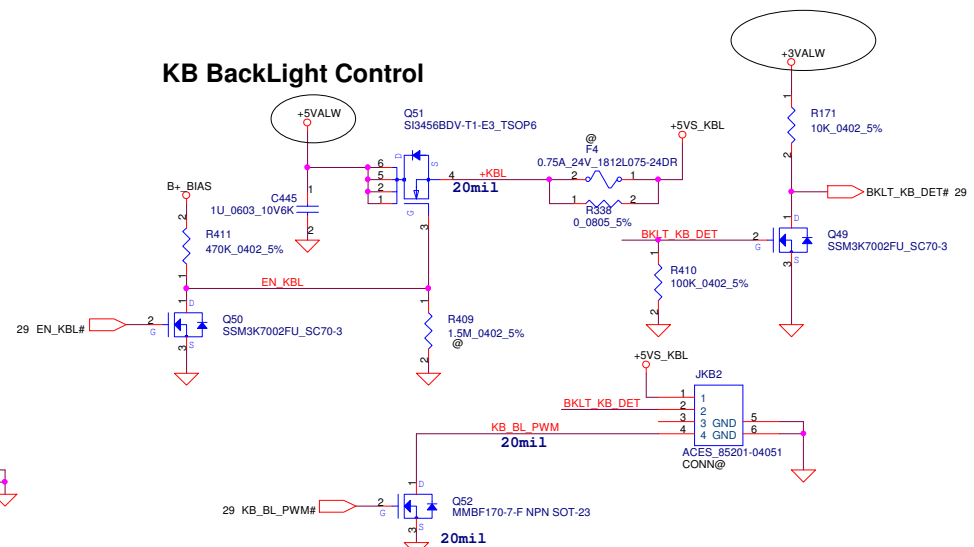
POWER/B CONN



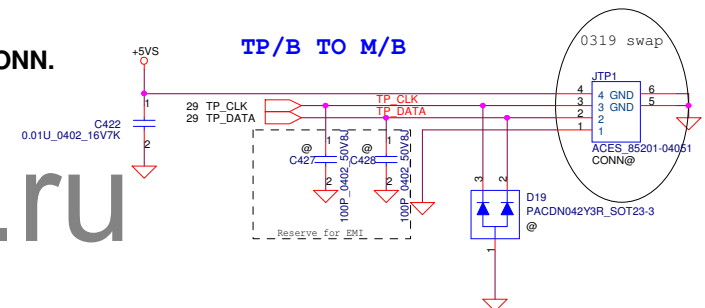
LED/B CONN



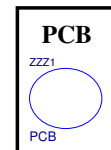
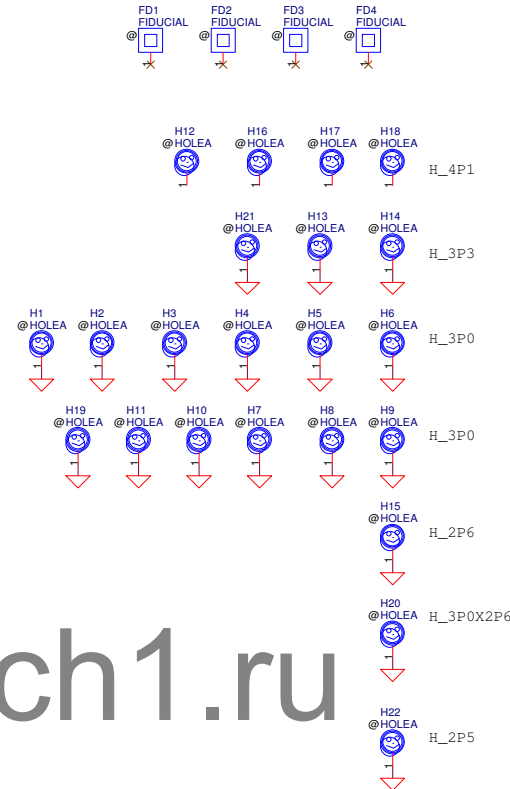
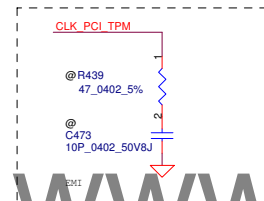
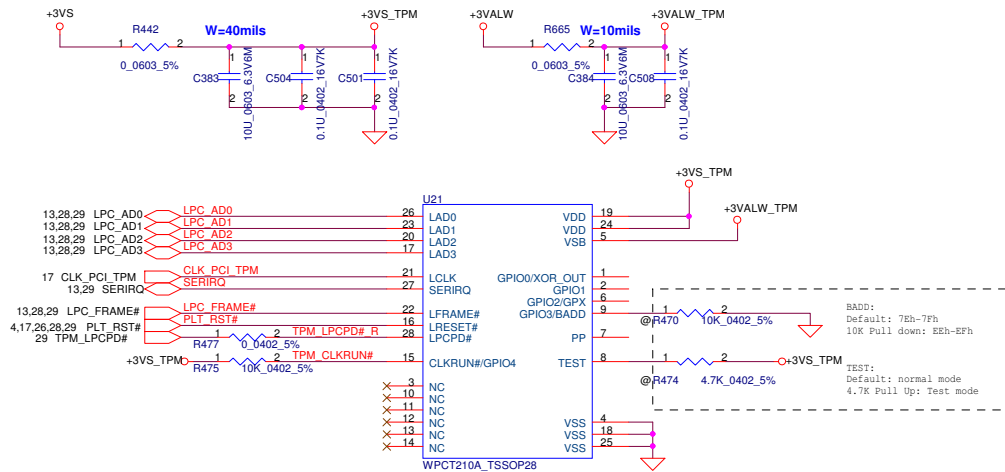
KB BackLight Control



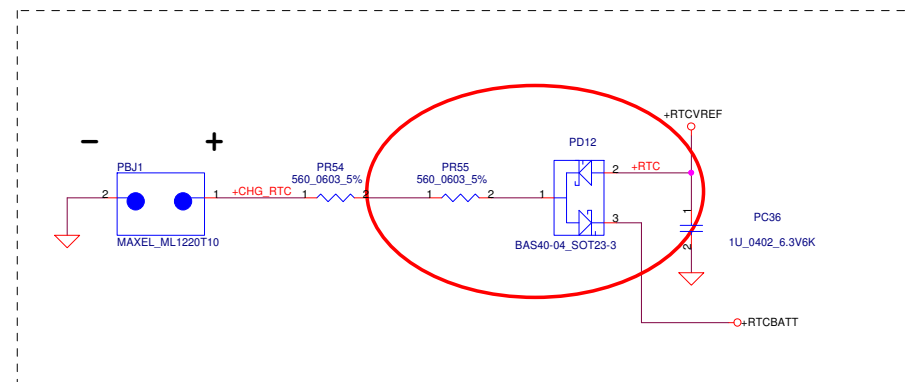
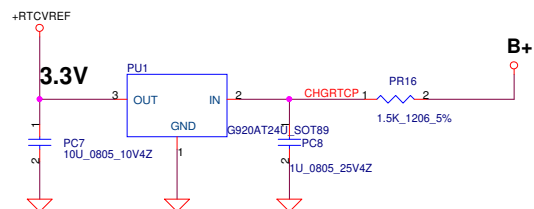
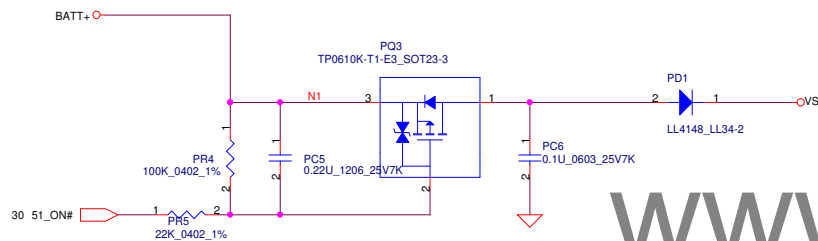
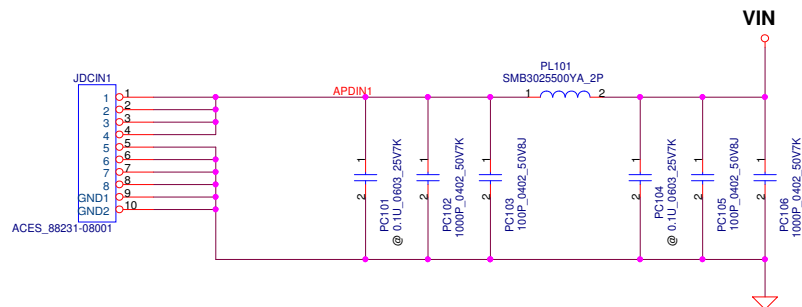
Touch PAD/B CONN.



TPM

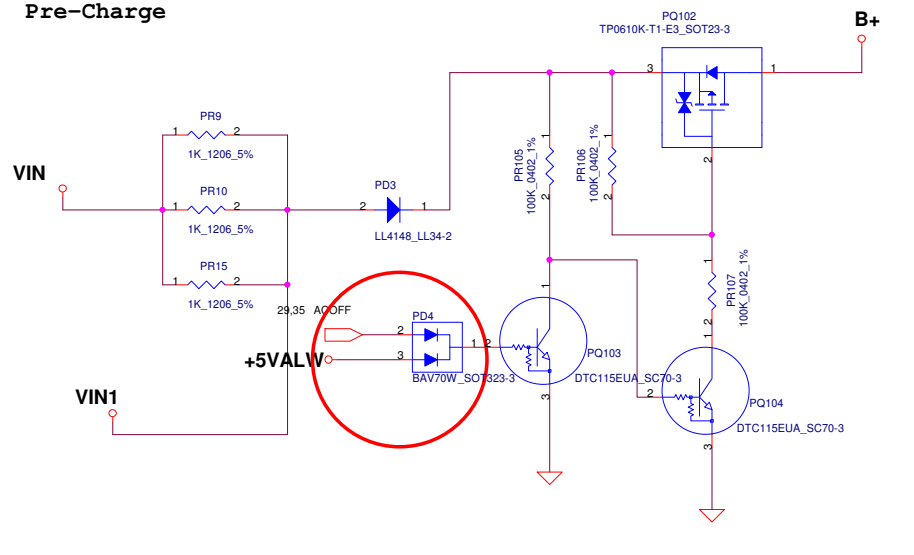


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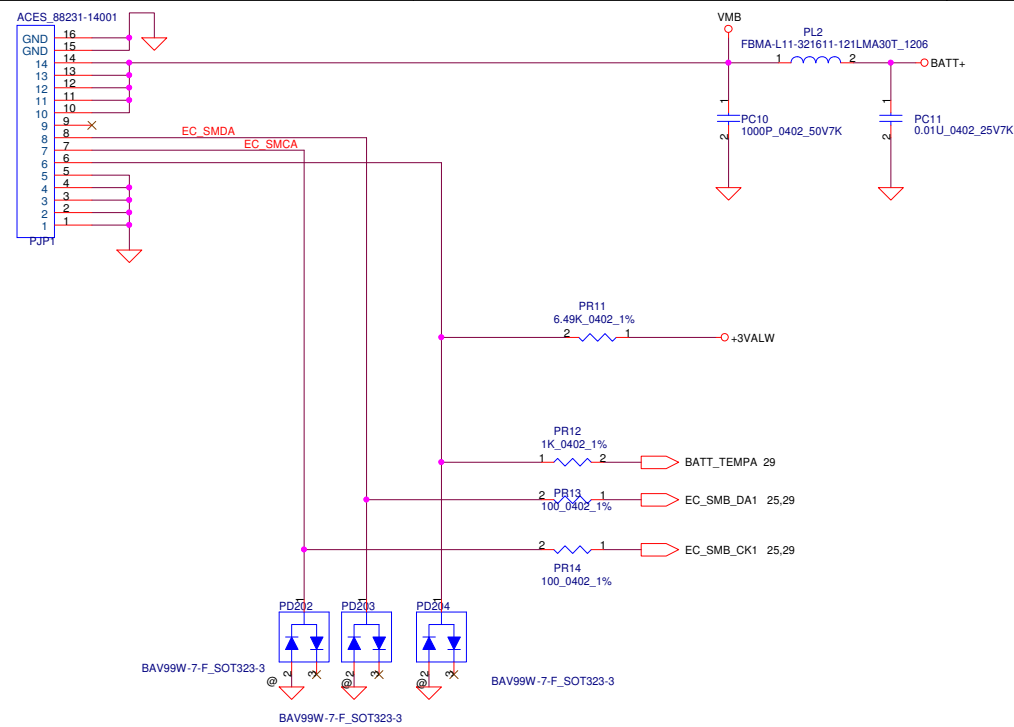


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Pre-Charge

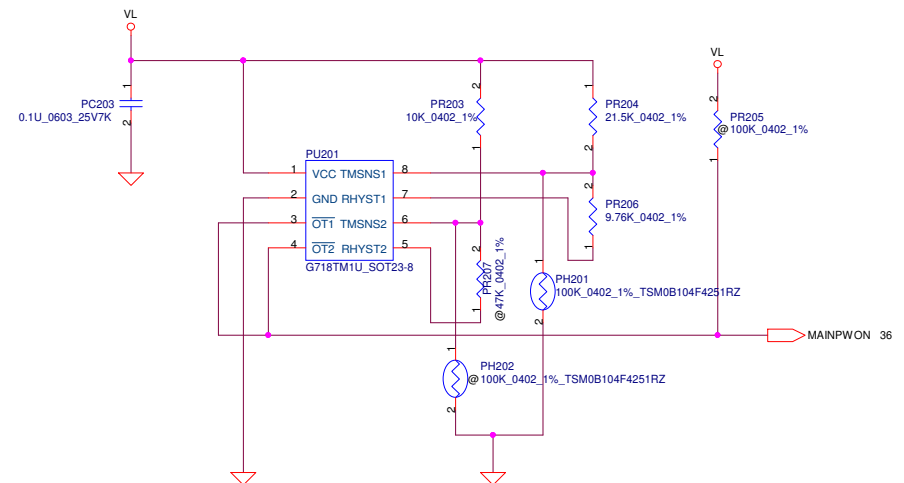
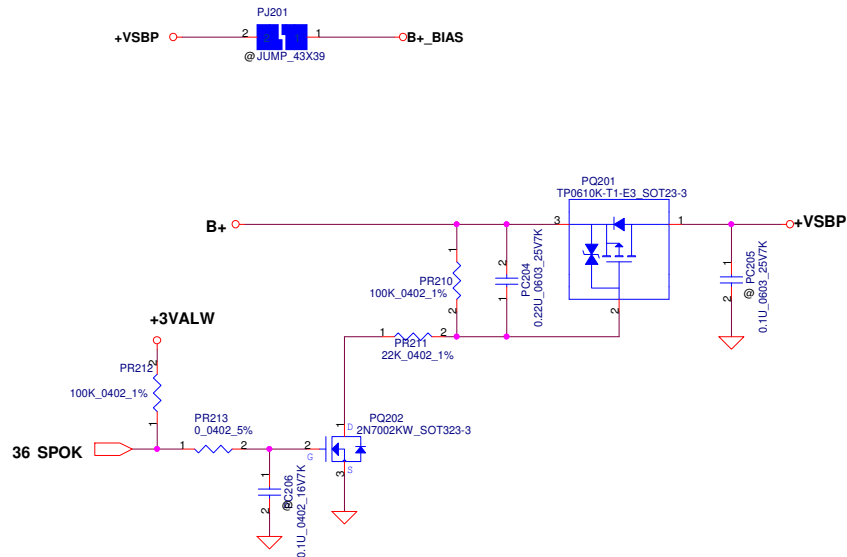


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								Wednesday, March 31, 2010			
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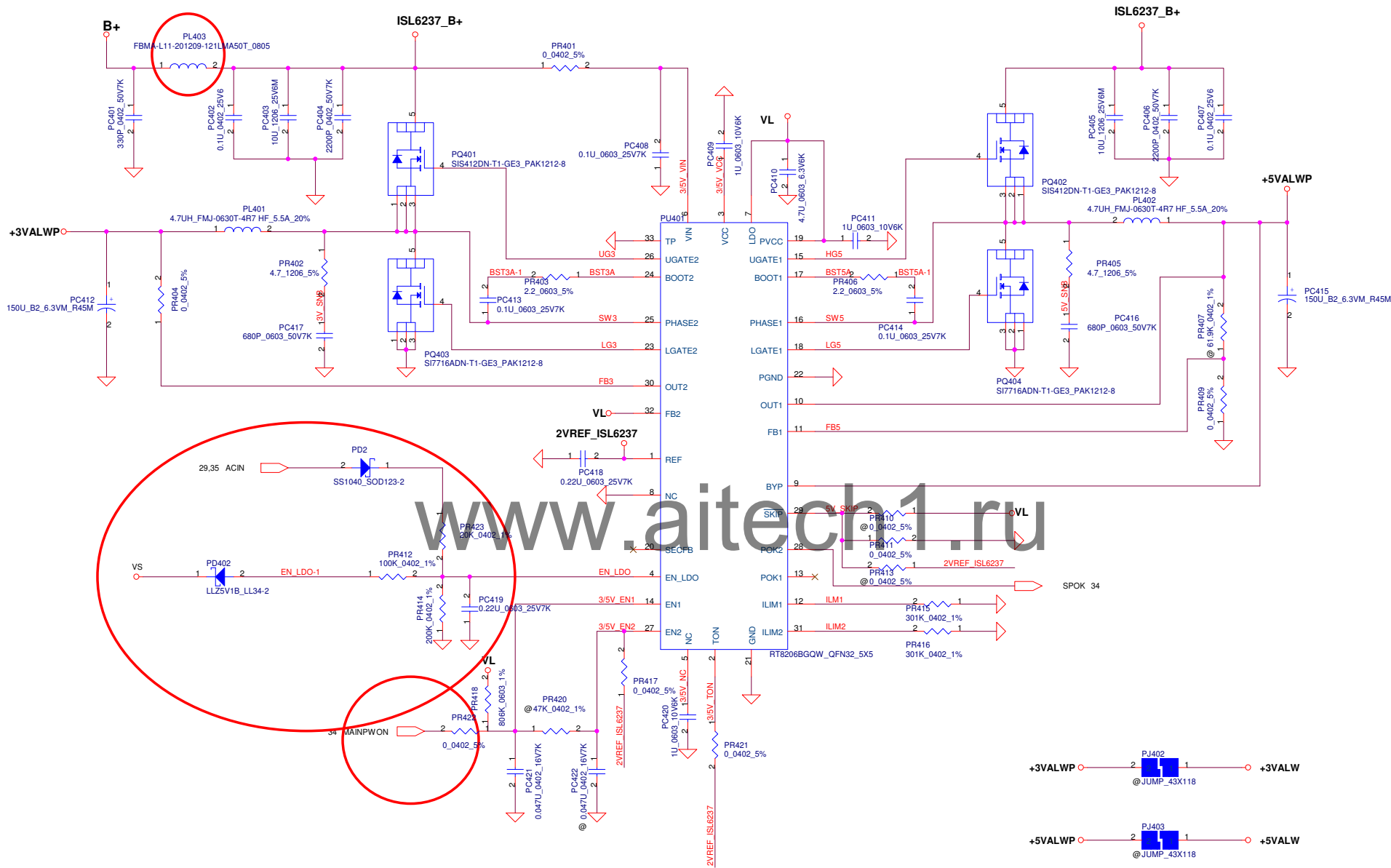


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PH1 under CPU bottom side :
CPU thermal protection at 92 degree C
Recovery at 56 degree C

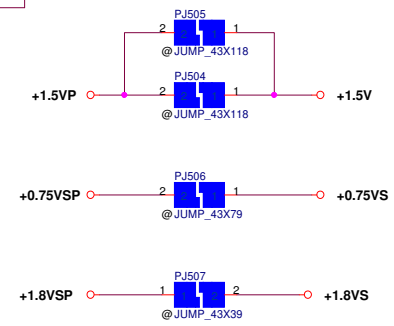
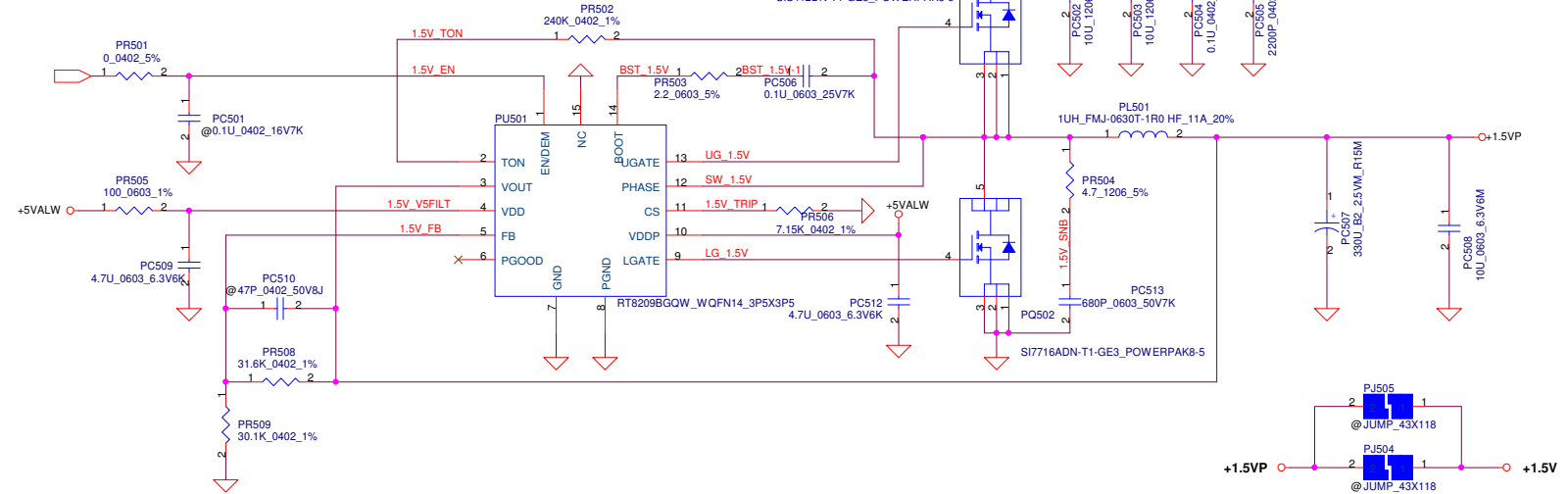


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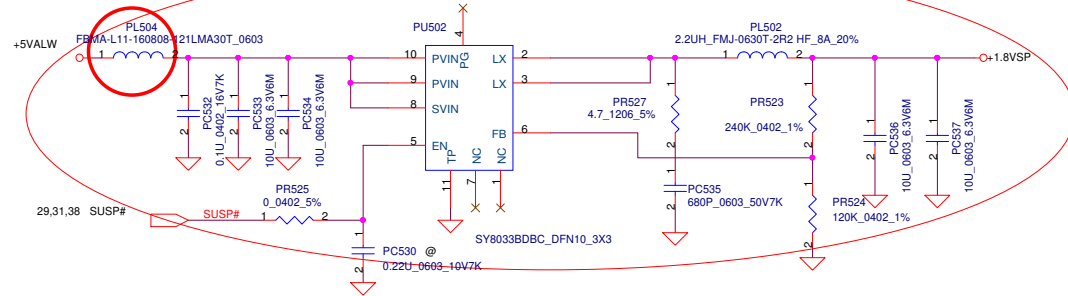
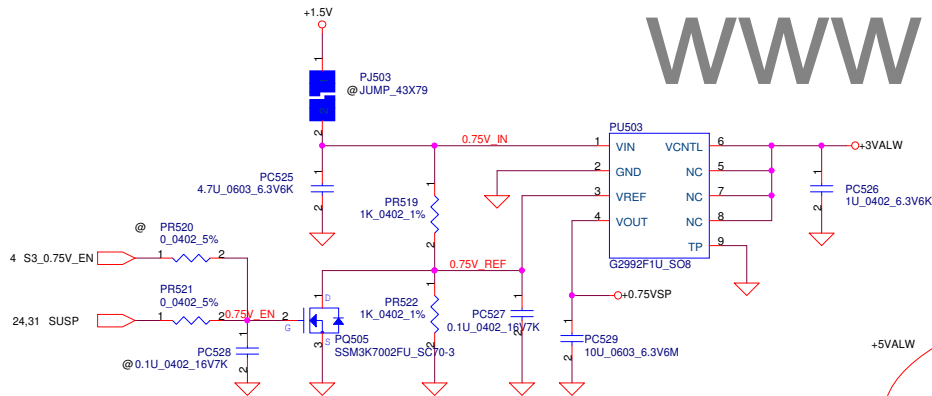


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					Document Number LA-6411P
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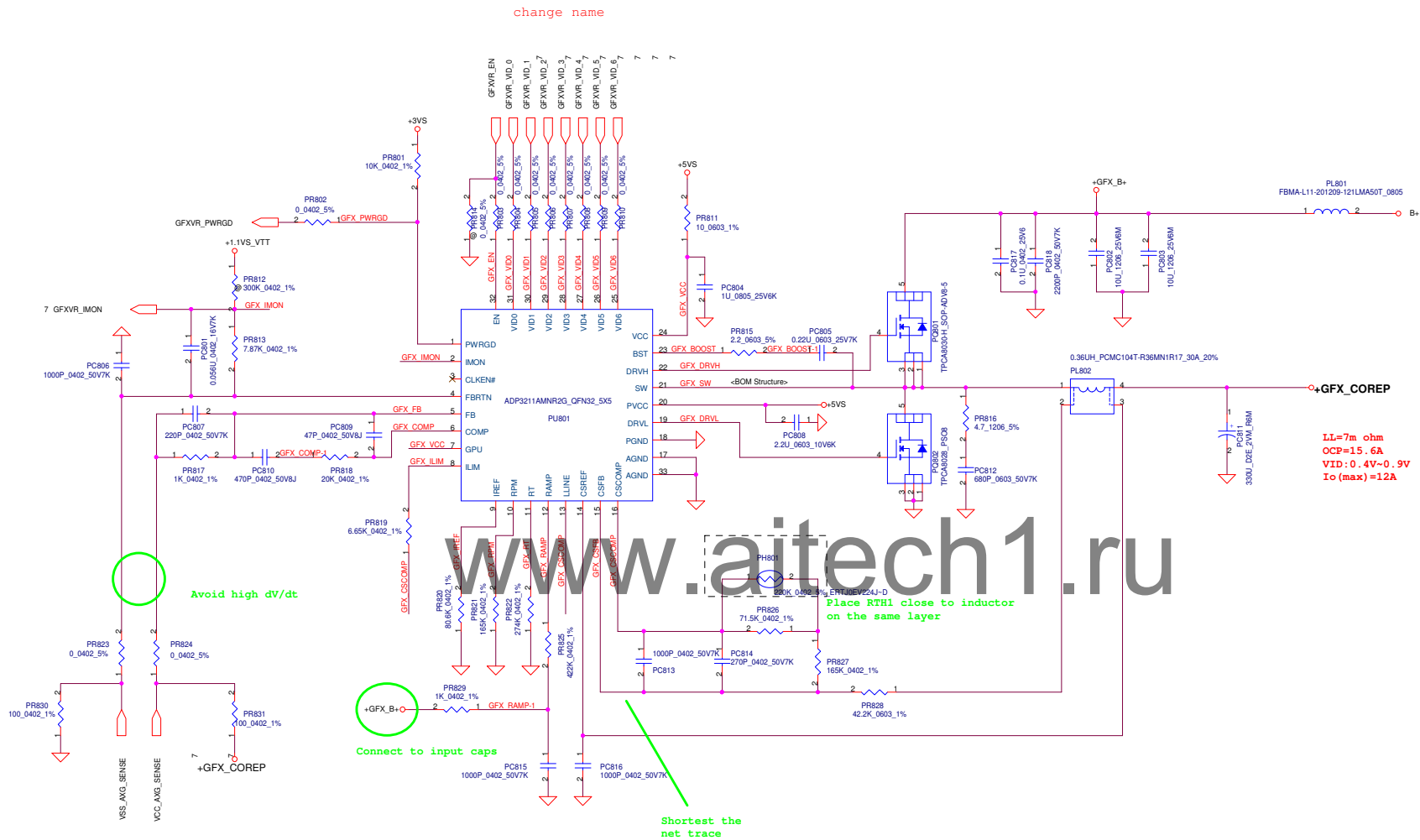
29,31 SYSON

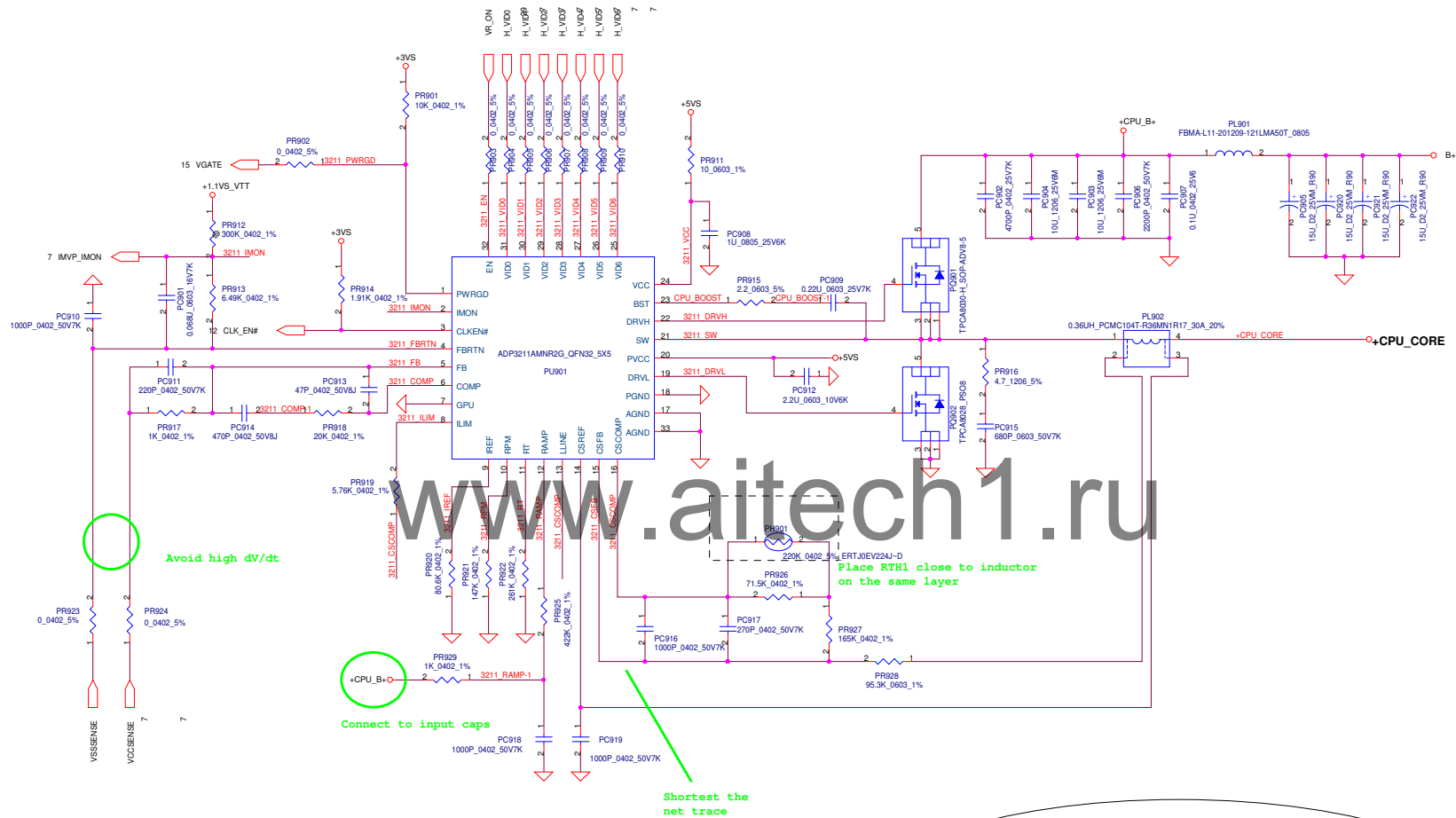


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