

Bitland Confidential

BM5958 M/B Schematics Document

Intel Arrandale Processor with Ibexpeak(HM55) + DDRIII

2010-5-26

REV:1.3

BITLAND Bitland Information Technology Co., Ltd. Notebook R&D Division	
Title Cover Page	
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Voltage Rails

Power Plane	Description	S1	S3	S5
DC_IN	Adapter power supply (19V)	N/A	N/A	N/A
DCBATOUT	AC or battery power rail for power circuit.	N/A	N/A	N/A
+V_CORE	Core voltage for CPU	ON	OFF	OFF
+0_75V	0_75VRUN LDO power rail for DDR terminator	ON	OFF	OFF
+1.05VRUN	1.05V switched power rail	ON	OFF	OFF
+5VRUN	5V switched power rail	ON	OFF	OFF
+1_5VSUS	1.5V power rail for DDR	ON	ON	OFF
+1.5VRUN	1.5V switched power rail	ON	OFF	OFF
+1.8VRUN	1.8V power rail for system	ON	OFF	OFF
+1.5V_CPU	1.5V switched power rail	ON	OFF	OFF
+1.1VTT	VTT switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3VSUS	3.3V power rail for SB	ON	ON	OFF
+3V_LAN	3.3V power rail for LAN	ON	ON	OFF
+3VRUN	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VSUS	5V switched power rail	ON	ON	OFF
PEX_VDD	PEX LDO power rail	ON	OFF	OFF
+RTCVCC	RTC power	ON	ON	ON
NV_VDD	Core voltage for GPU	ON	OFF	OFF

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
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EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADI ADT7421	1001 100X b
MEDIA CONSOLE	1010 000X b	NB9M THERMAL SENSOR	

HM55 SM Bus address

Device	Address
Clock Generator (SLG8SP587V)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

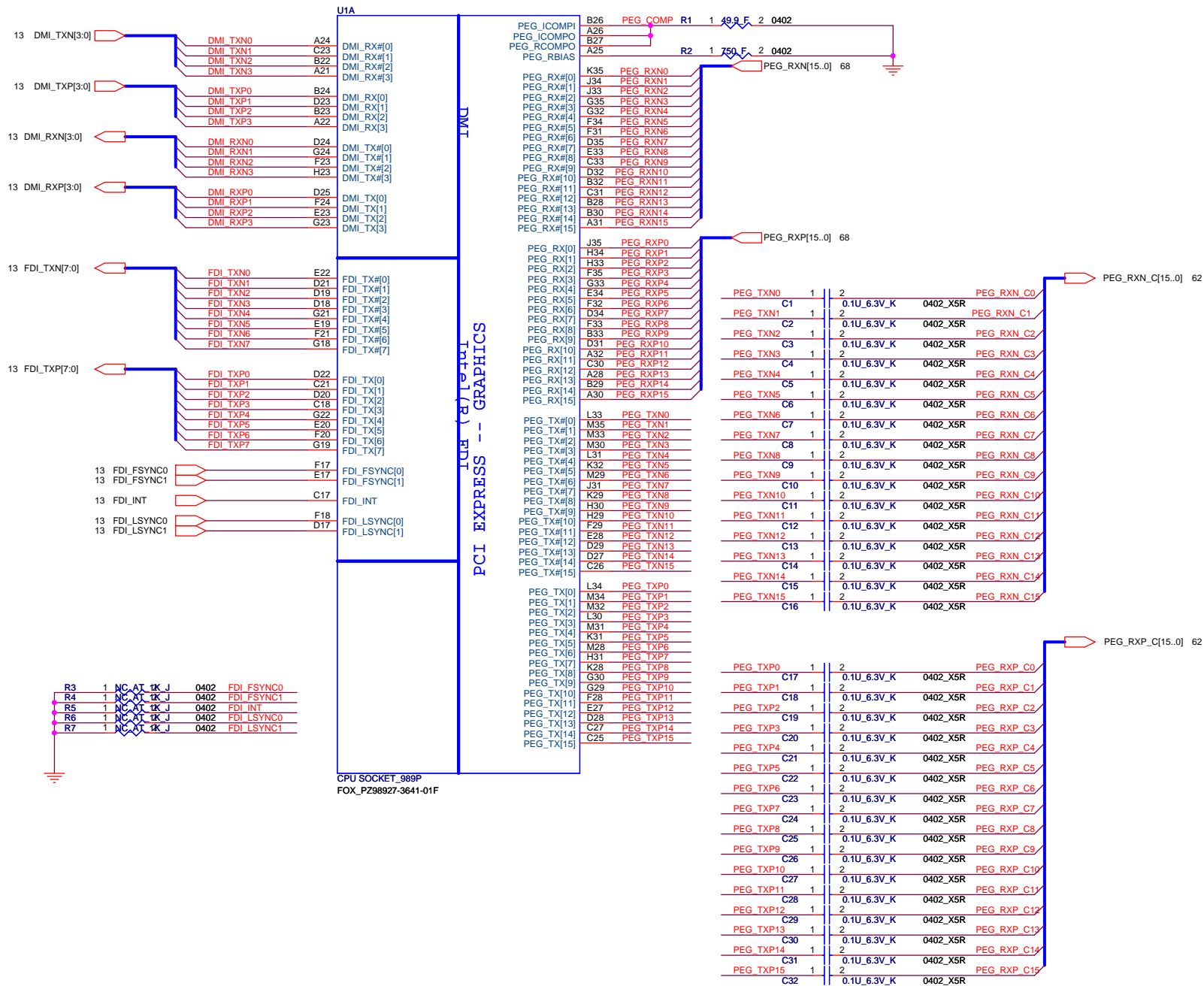
STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+SUS	+RUN	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 5%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

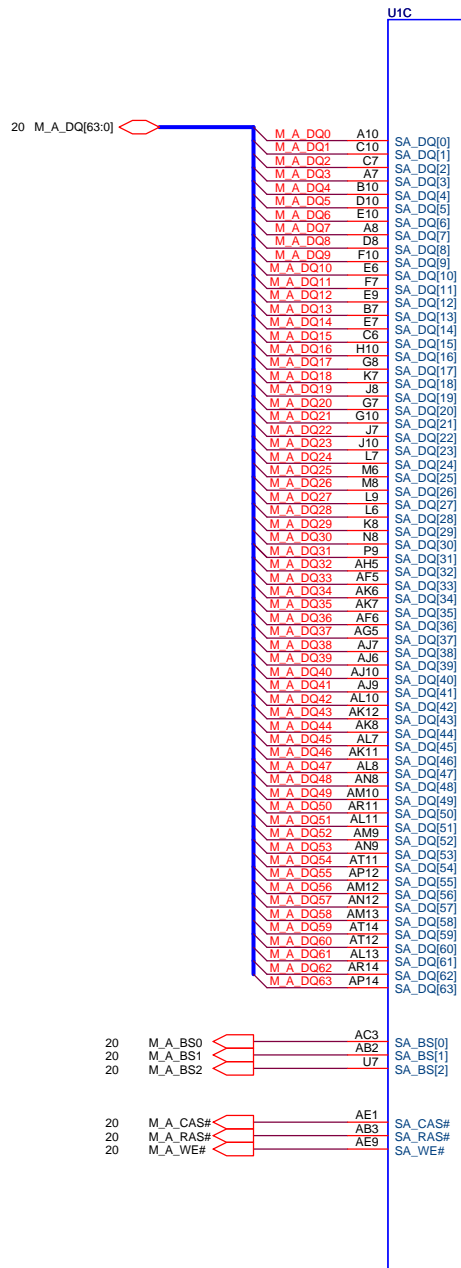
BOARD ID Table

Board ID	PCB Revision
0	0.1
1	1.0
2	1.1
3	1.2
4	1.3
5	
6	
7	



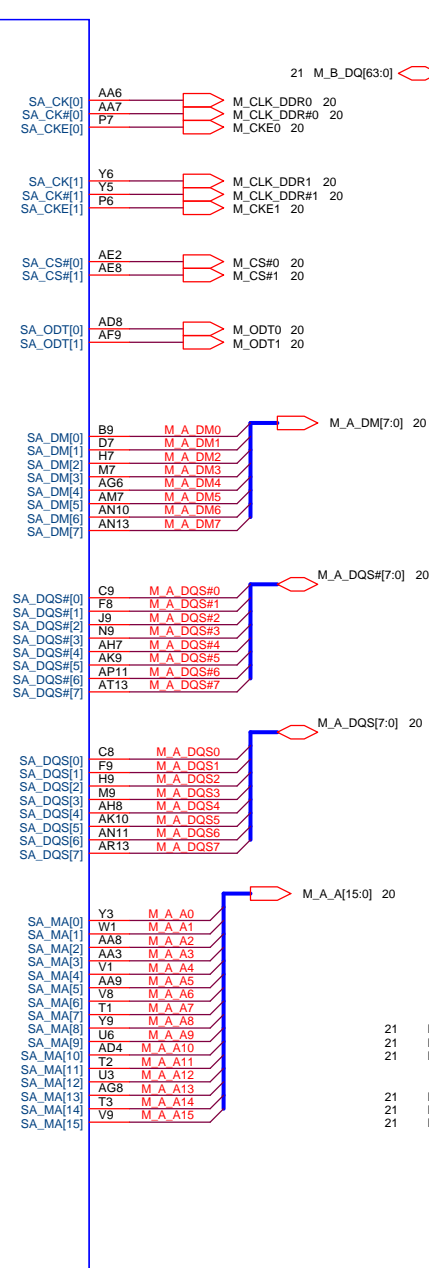
Place close to chip





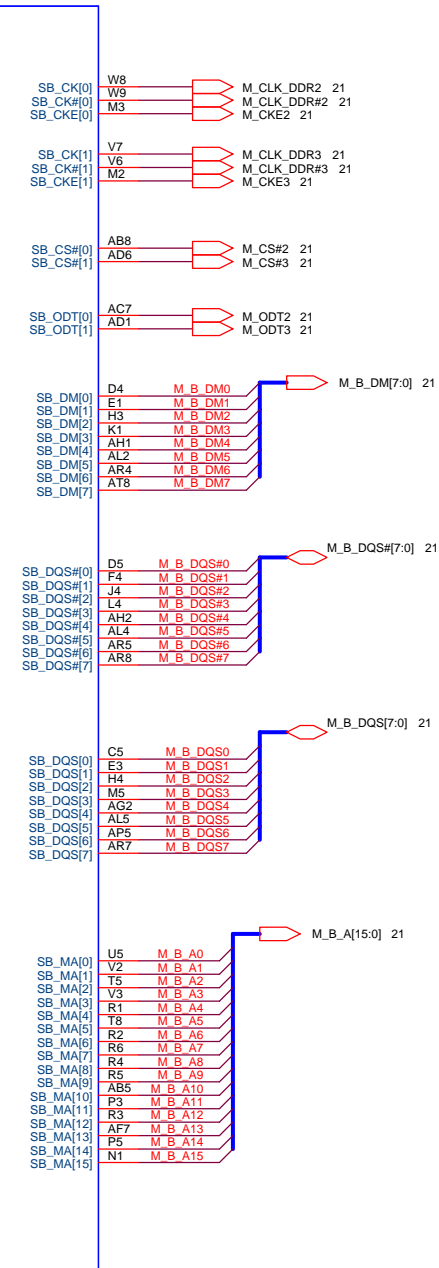
DDR SYSTEM MEMORY A

CPU SOCKET_989P
FOX_PZ98927-3641-01F



CPU SOCKET_989P
FOX_PZ98927-3641-01F

DDR SYSTEM MEMORY - B



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Title

CPU (DDR3)

Size

A3

Document Number

BM5958

Rev

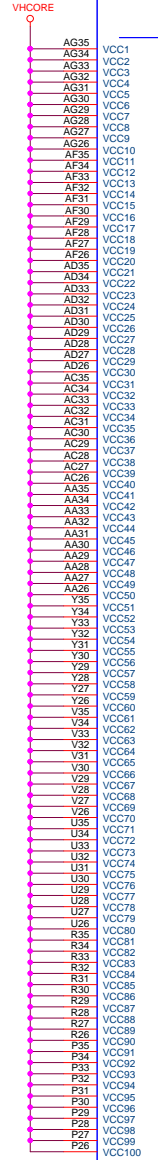
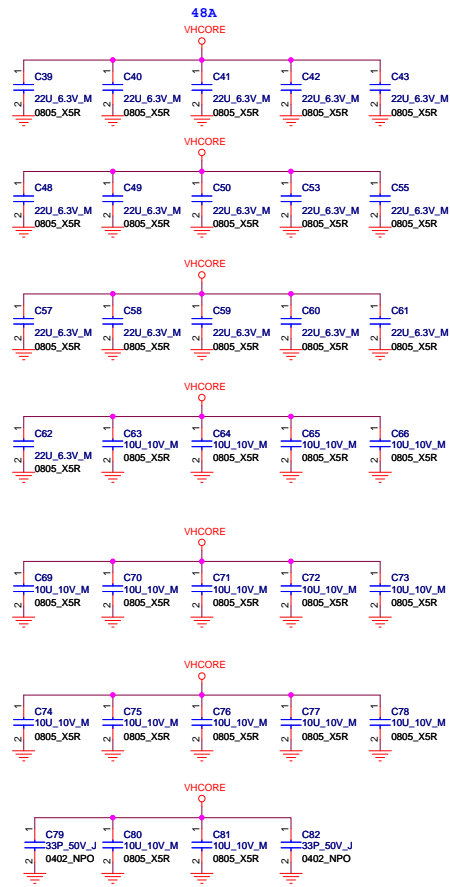
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Date

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CPU SOCKET_989P
FOX_P298927-3641-01F

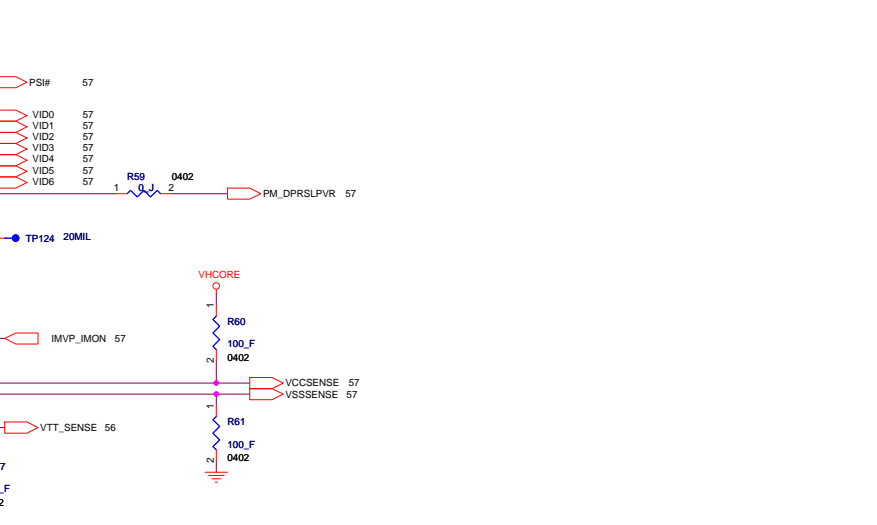
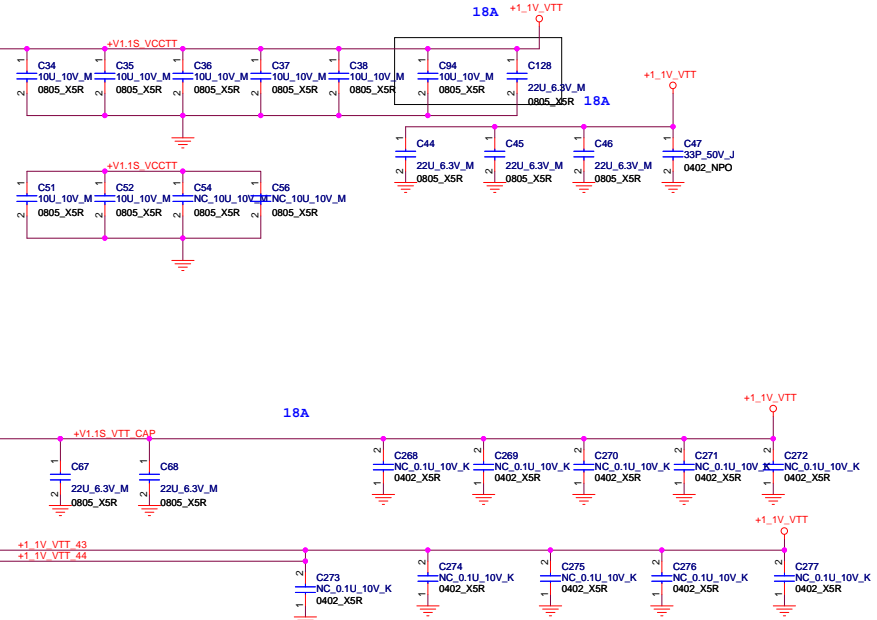
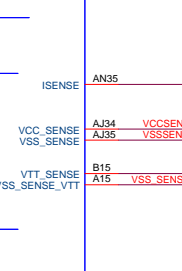
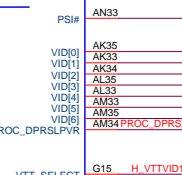
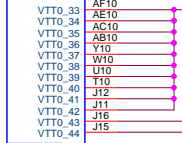
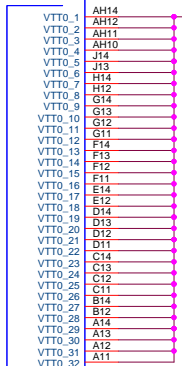
1.1V RAIL POWER

CPU CORE SUPPLY

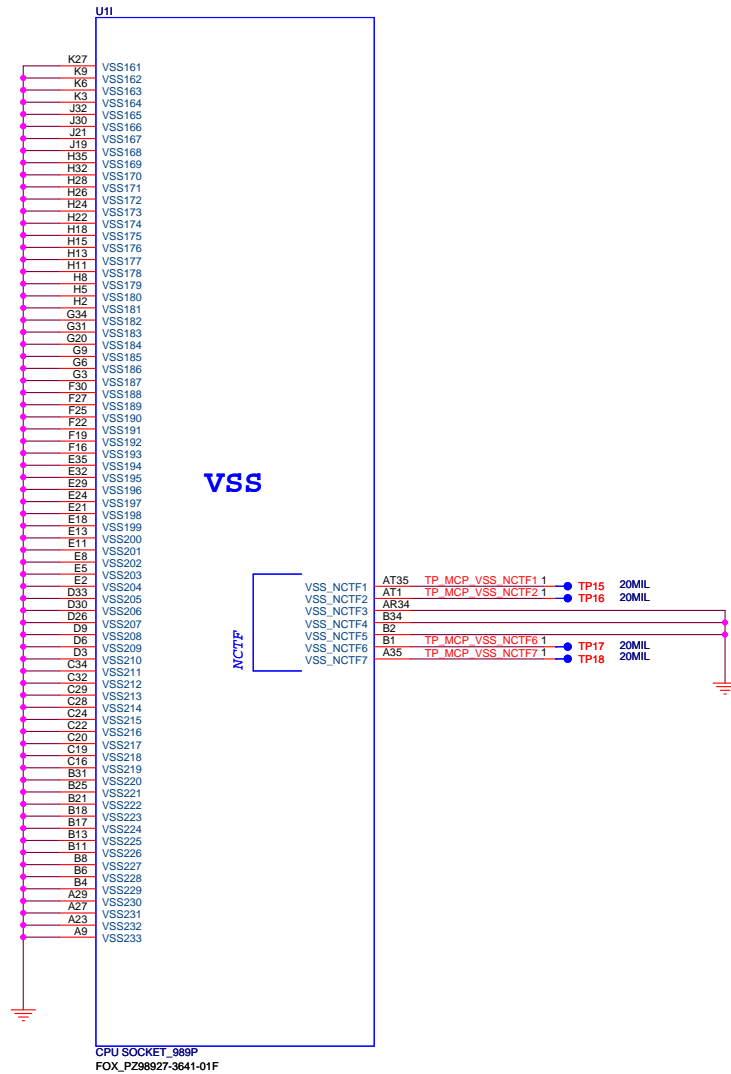
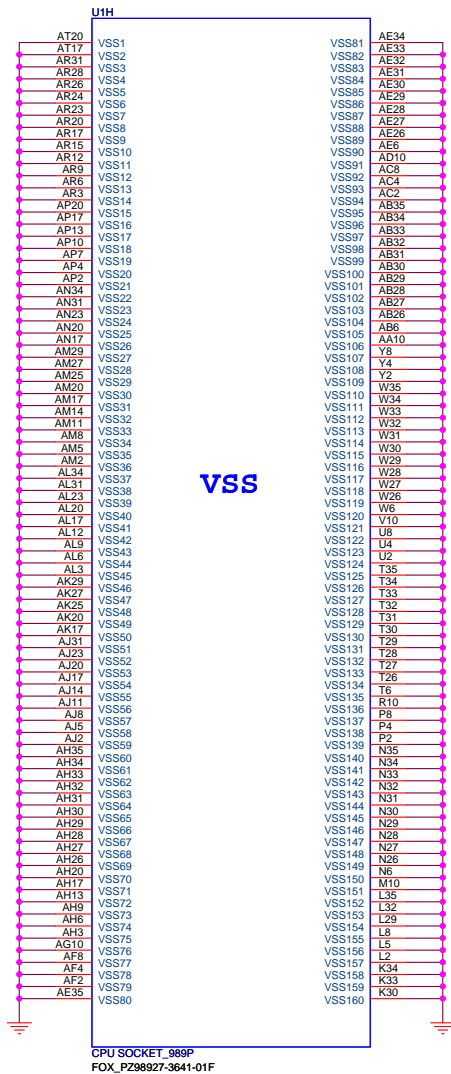
POWER

CFU VIDS

SENSE SENSES

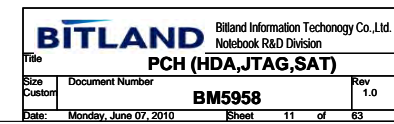


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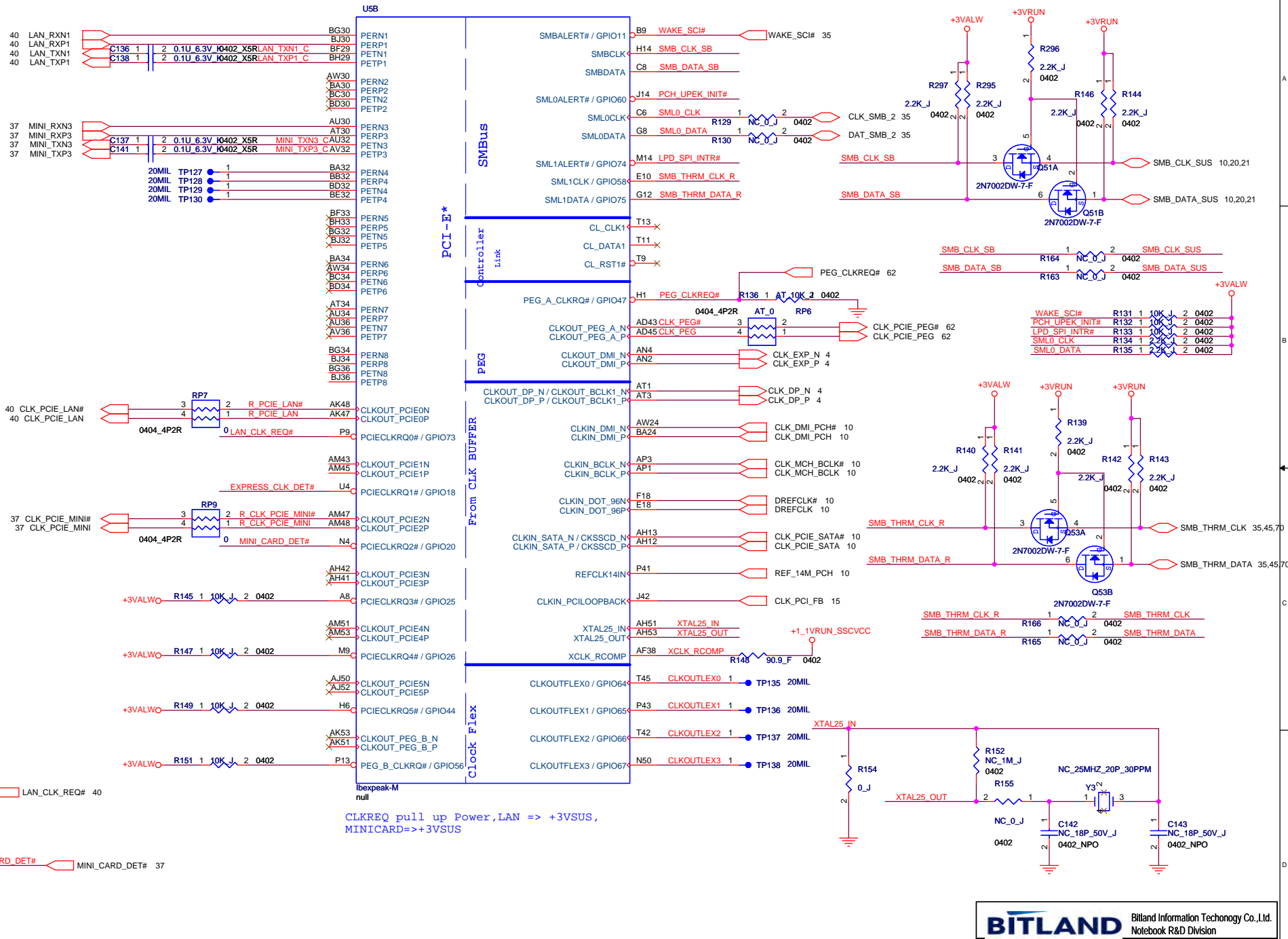


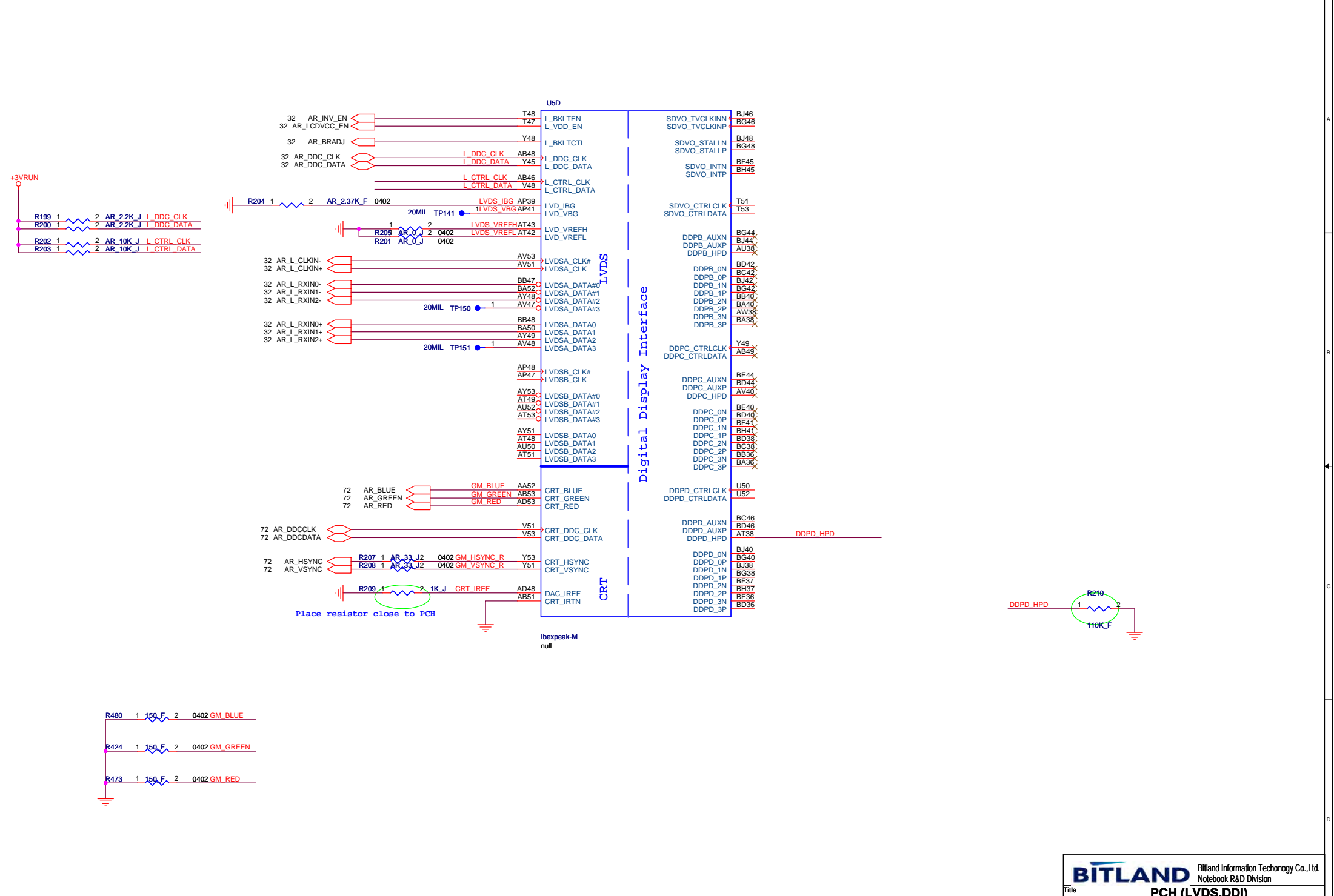
Stuff for No-r
Low=Default
High=No-reboot

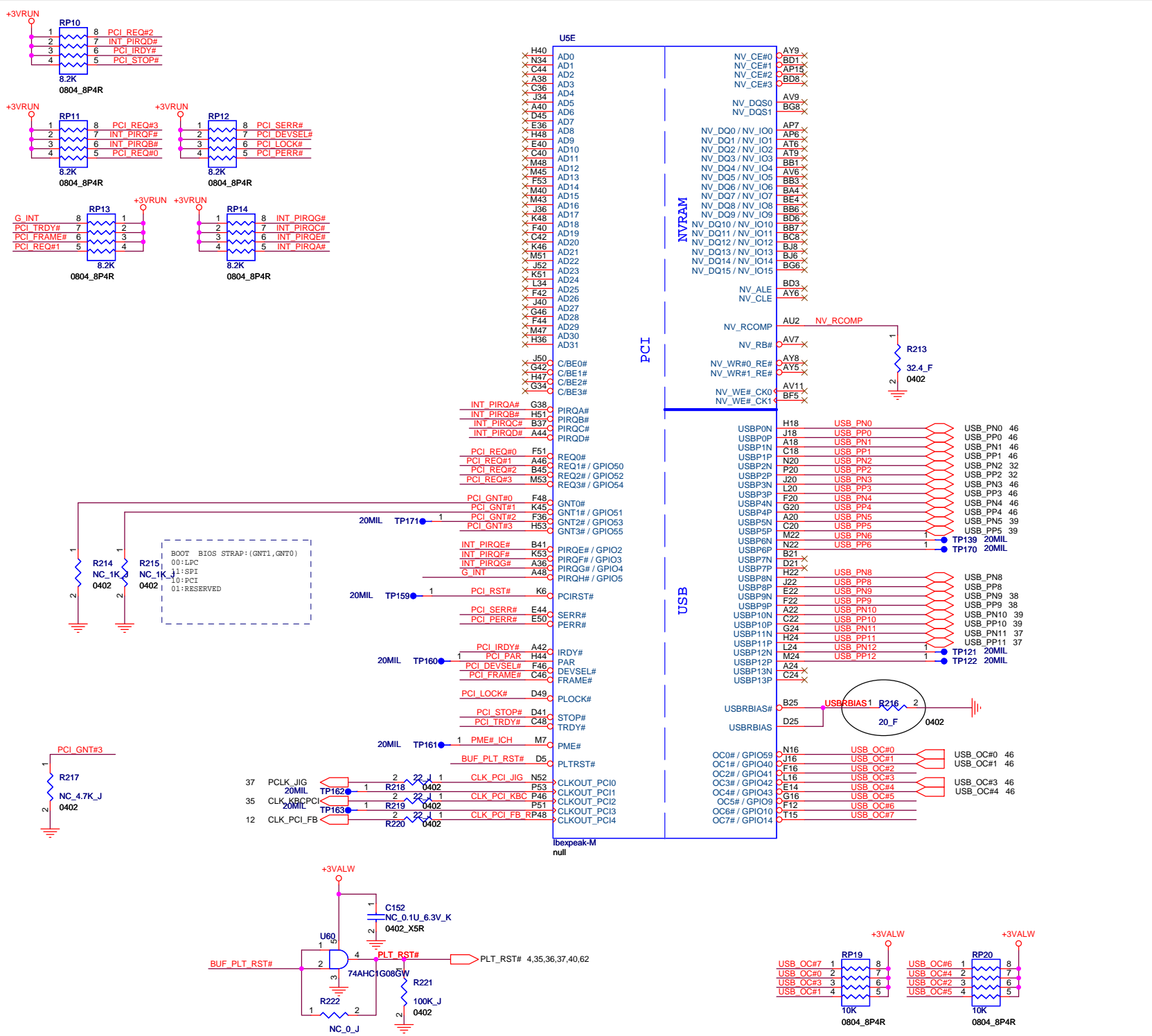


PCI-E Port Table

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



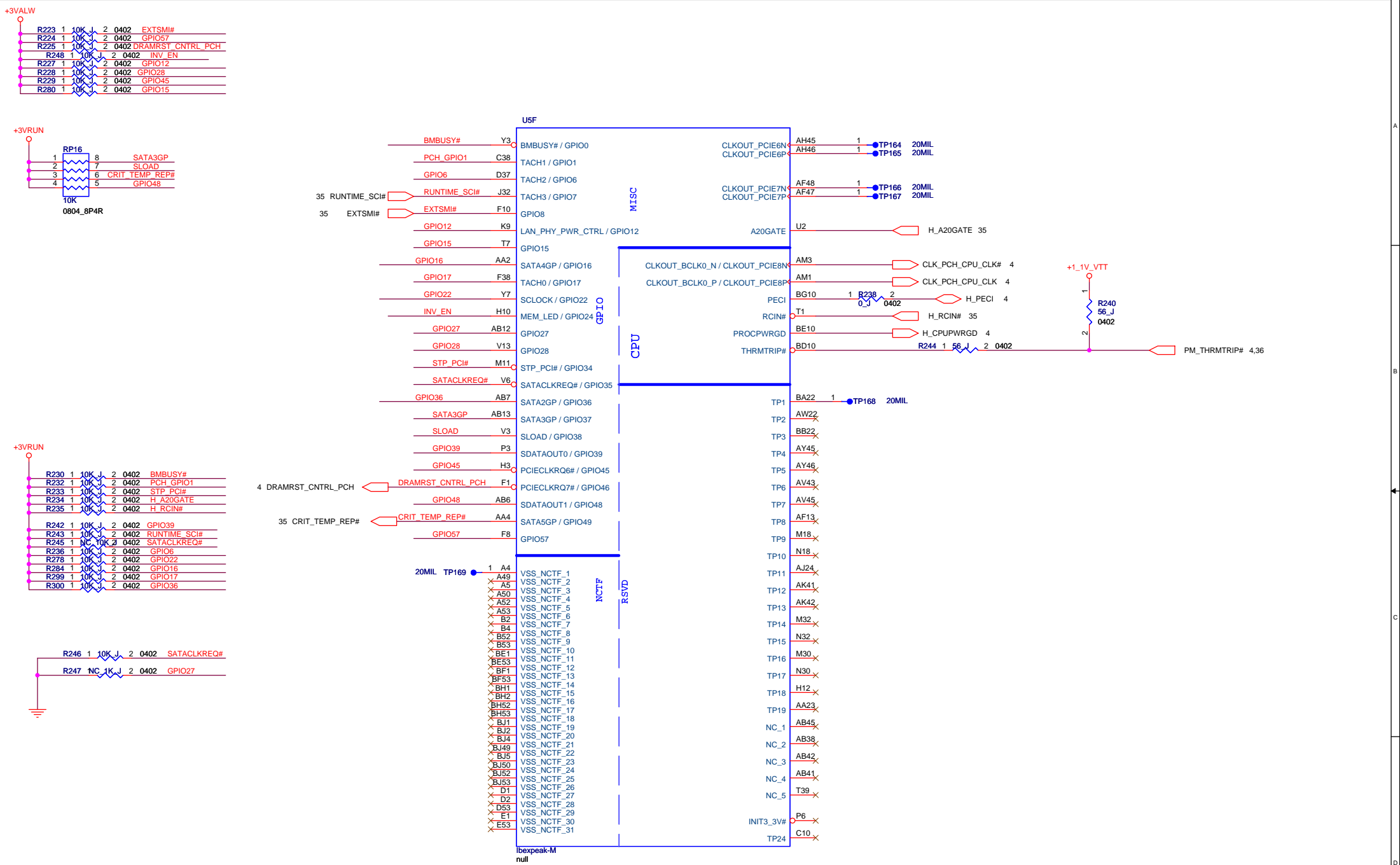


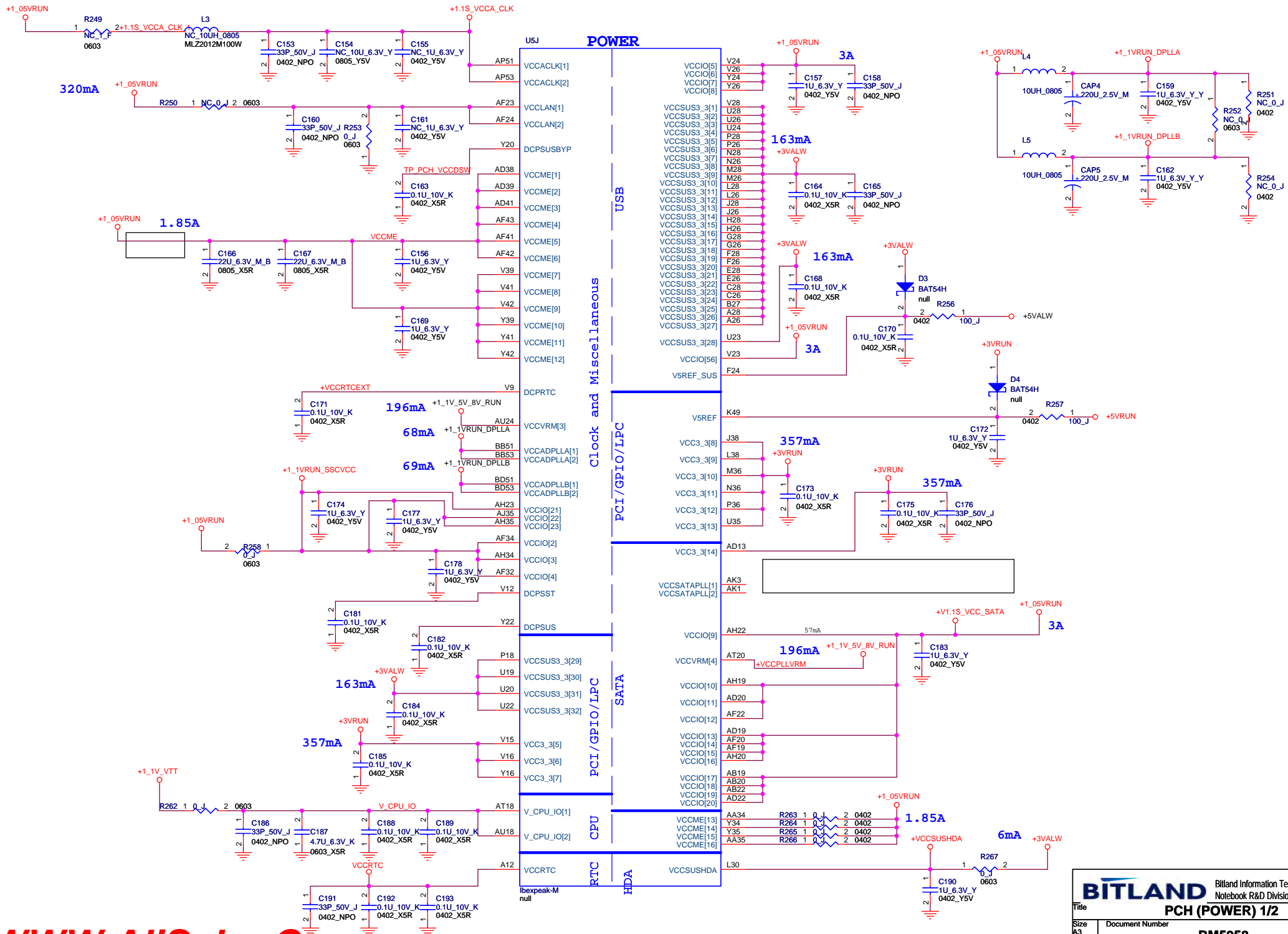


DMI Termination Voltage		
NV_CLE	Set to Vss when LOW	
	Set to Vcc when HIGH	

Danbury Technology
Disabled when Low
Enabled when High

USB PORT	Function	OC pin
PORT-0	Ext. Port	
PORT-1	Ext. Port	
PORT-2	LVDS_CAMERA	
PORT-3	Ext. Port	
PORT-4	Ext. Port	
PORT-5	Bluetooth	
PORT-6		
PORT-7		
PORT-8		
PORT-9	WWAN	
PORT-10	Finger printer	
PORT-11	WLAN	
PORT-12	Card reader	
PORT-13		





USI		
AY7	VSS[159]	H49
B11	VSS[160]	H5
B15	VSS[161]	J24
B19	VSS[162]	K11
B23	VSS[163]	K43
B31	VSS[164]	K47
B35	VSS[165]	K7
B39	VSS[166]	L14
B43	VSS[167]	L18
B47	VSS[168]	L2
B7	VSS[169]	L22
BG12	VSS[170]	L32
BB12	VSS[171]	L36
BB16	VSS[172]	L40
BB20	VSS[173]	L52
BB24	VSS[174]	M12
BB30	VSS[175]	M16
BB34	VSS[176]	M20
BB38	VSS[177]	M34
BB42	VSS[178]	M38
BB49	VSS[179]	M42
BB5	VSS[180]	M46
BC10	VSS[181]	M49
BC14	VSS[182]	M5
BC18	VSS[183]	M8
BC2	VSS[184]	N24
BC22	VSS[185]	P11
BC32	VSS[186]	AD15
BC36	VSS[187]	P22
BC40	VSS[188]	P30
BC44	VSS[189]	P32
BC52	VSS[190]	P34
BH9	VSS[191]	P42
BD48	VSS[192]	P45
BD49	VSS[193]	P47
BD5	VSS[194]	R2
BE12	VSS[195]	R52
BE16	VSS[196]	T12
BE20	VSS[197]	T41
BE24	VSS[198]	T46
BE30	VSS[199]	T49
BE34	VSS[200]	T5
BE38	VSS[201]	T8
BE42	VSS[202]	U30
BE46	VSS[203]	U31
BE48	VSS[204]	U32
BE50	VSS[205]	U34
BE6	VSS[206]	P38
BE8	VSS[207]	V11
BF3	VSS[208]	P16
BF49	VSS[209]	V19
BF51	VSS[210]	V20
BG18	VSS[211]	V22
BG24	VSS[212]	V30
BG4	VSS[213]	V31
BG50	VSS[214]	V32
BH11	VSS[215]	V34
BH15	VSS[216]	V35
BH19	VSS[217]	V38
BH23	VSS[218]	V43
BH31	VSS[219]	V45
BH35	VSS[220]	V46
BH39	VSS[221]	V47
BH43	VSS[222]	V49
BH47	VSS[223]	V5
BH7	VSS[224]	V7
C12	VSS[225]	V8
C50	VSS[226]	W2
D51	VSS[227]	W52
E12	VSS[228]	Y11
E16	VSS[229]	Y12
E20	VSS[230]	Y15
E24	VSS[231]	Y19
E30	VSS[232]	Y28
E34	VSS[233]	Y30
E38	VSS[234]	Y31
E42	VSS[235]	Y32
E46	VSS[236]	Y38
E48	VSS[237]	Y43
E6	VSS[238]	Y46
E8	VSS[239]	P49
F49	VSS[240]	Y5
F5	VSS[241]	Y6
G10	VSS[242]	Y8
G14	VSS[243]	P24
G18	VSS[244]	T43
G2	VSS[245]	AD51
G22	VSS[246]	AT8
G32	VSS[247]	AD47
G36	VSS[248]	Y47
G40	VSS[249]	AT12
G44	VSS[250]	AM6
G52	VSS[251]	AT13
AF39	VSS[252]	AM5
H16	VSS[253]	AK45
H20	VSS[254]	AK39
H30	VSS[255]	AV14
H34	VSS[256]	
H38	VSS[257]	
H42	VSS[258]	

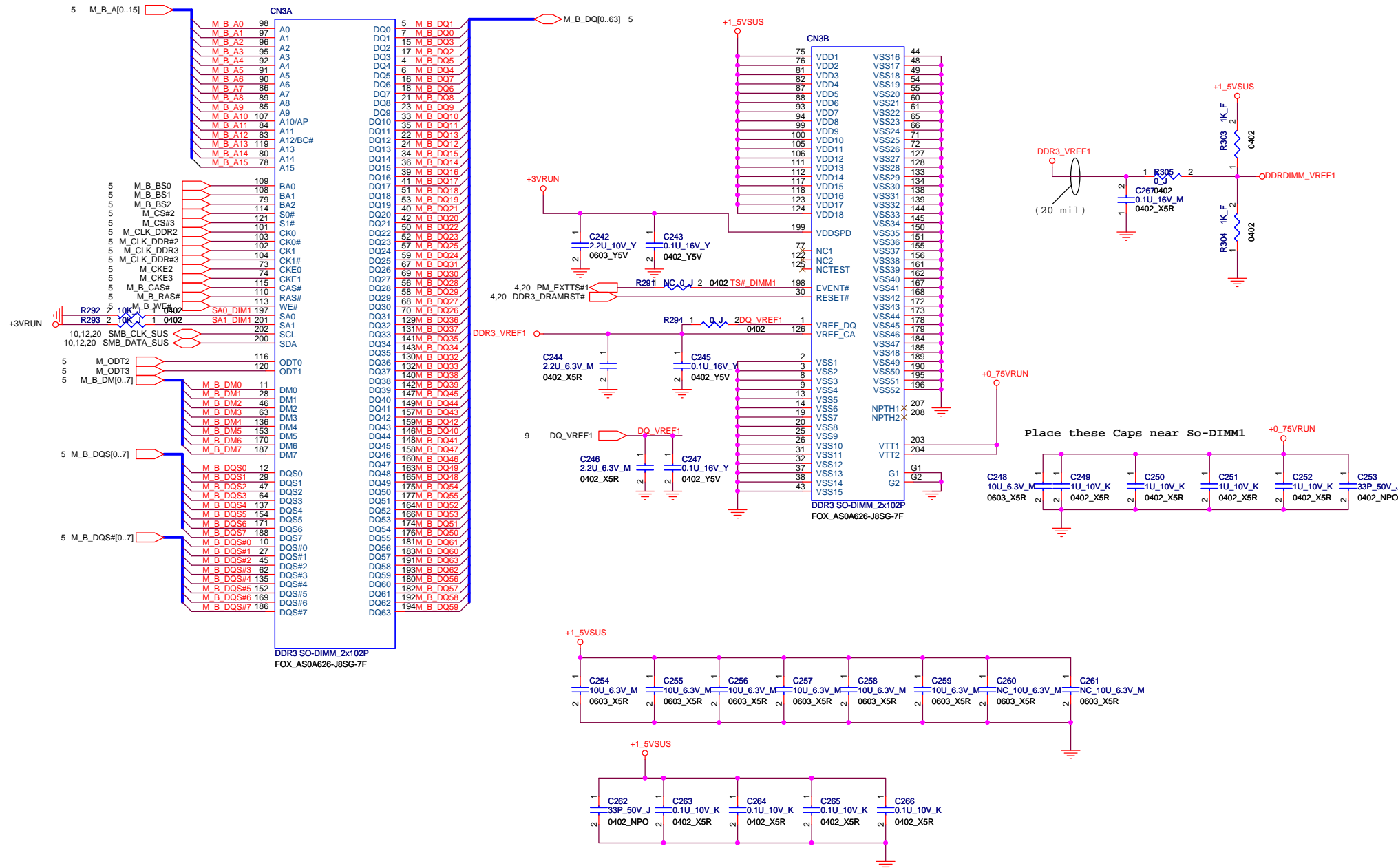
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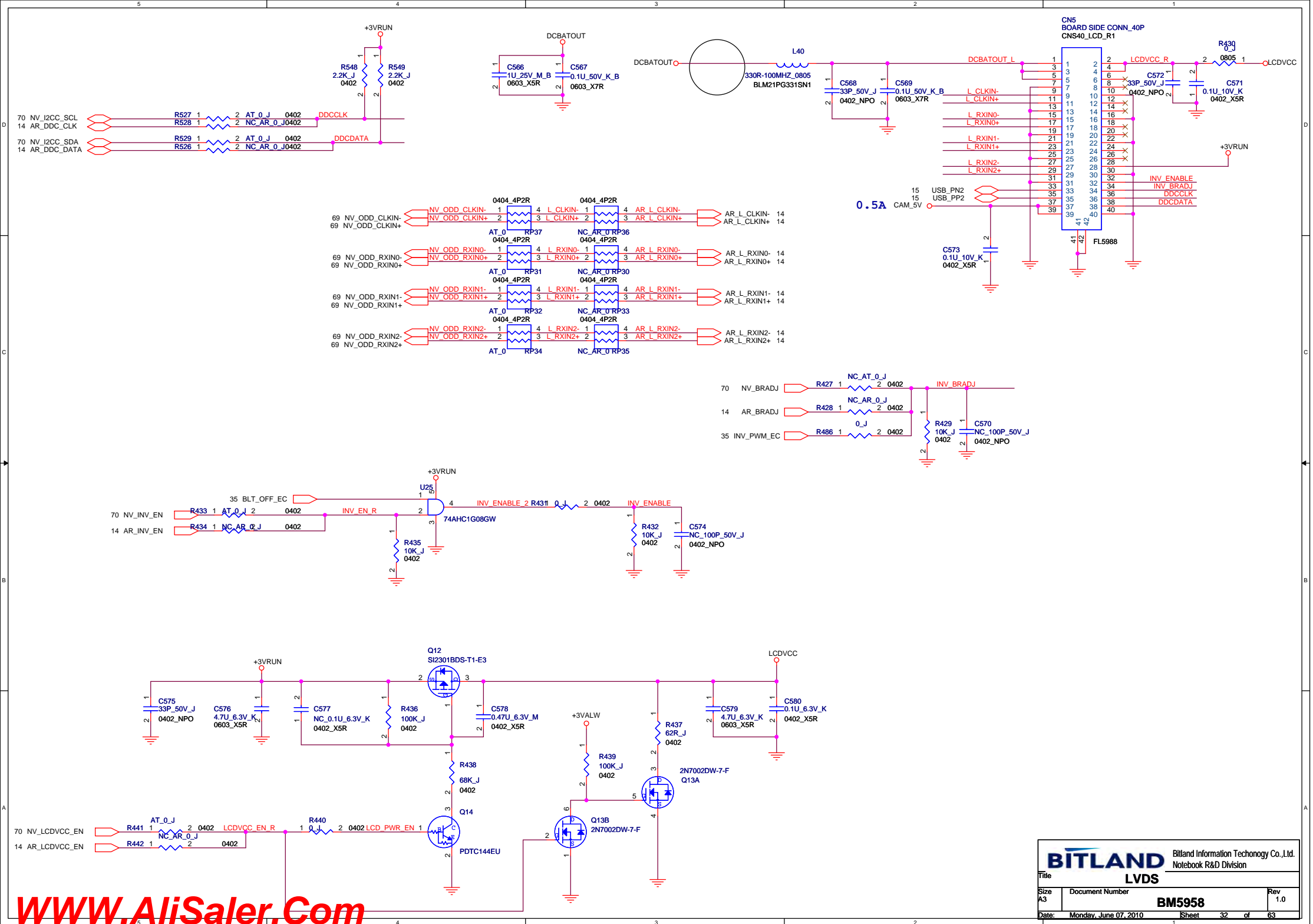
USH		
AB16	VSS[0]	
AA19	VSS[1]	VSS[80] AK30
AA20	VSS[2]	VSS[81] AK31
AA22	VSS[3]	VSS[82] AK32
AM19	VSS[4]	VSS[83] AK34
AB15	VSS[5]	VSS[84] AK35
AA26	VSS[6]	VSS[85] AK38
AA28	VSS[7]	VSS[86] AK43
AA30	VSS[8]	VSS[87] AK46
AA31	VSS[9]	VSS[88] AK49
AA32	VSS[10]	VSS[89] AK5
AB11	VSS[11]	VSS[90] AK6
AB23	VSS[12]	VSS[91] AL2
AB30	VSS[13]	VSS[92] AL52
AB31	VSS[14]	VSS[93] AM11
AB32	VSS[15]	VSS[94] BB44
AB39	VSS[16]	VSS[95] AD24
AB43	VSS[17]	VSS[96] AM20
AB47	VSS[18]	VSS[97] AM22
AB5	VSS[19]	VSS[98] AM24
AB8	VSS[20]	VSS[99] AM26
AC2	VSS[21]	VSS[100] AM28
AC52	VSS[22]	VSS[101] BA42
AD11	VSS[23]	VSS[102] AM30
AD12	VSS[24]	VSS[103] AM31
AD16	VSS[25]	VSS[104] AM32
AD23	VSS[26]	VSS[105] AM34
AD30	VSS[27]	VSS[106] AM35
AD31	VSS[28]	VSS[107] AM38
AD32	VSS[29]	VSS[108] AM39
AD34	VSS[30]	VSS[109] AM42
AU22	VSS[31]	VSS[110] AM46
AD42	VSS[32]	VSS[111] AV22
AD46	VSS[33]	VSS[112] AM49
AD49	VSS[34]	VSS[113] AM7
AD7	VSS[35]	VSS[114] AA50
AE2	VSS[36]	VSS[115] BB10
AE4	VSS[37]	VSS[116] AN32
AF12	VSS[38]	VSS[117] AN50
Y13	VSS[39]	VSS[118] AN52
AH49	VSS[40]	VSS[119] AP12
AU4	VSS[41]	VSS[120] AP42
AF35	VSS[42]	VSS[121] AP46
AP13	VSS[43]	VSS[122] AP49
AN34	VSS[44]	VSS[123] AP5
AF45	VSS[45]	VSS[124] AP8
AF46	VSS[46]	VSS[125] AR2
AF49	VSS[47]	VSS[126] AR52
AF5	VSS[48]	VSS[127] AT11
AG2	VSS[49]	VSS[128] BA12
AG52	VSS[50]	VSS[129] AH48
AH11	VSS[51]	VSS[130] AT32
AH15	VSS[52]	VSS[131] AT36
AH16	VSS[53]	VSS[132] AT41
AH24	VSS[54]	VSS[133] AT47
AH32	VSS[55]	VSS[134] AT7
AV18	VSS[56]	VSS[135] AV12
AH43	VSS[57]	VSS[136] AV16
AH47	VSS[58]	VSS[137] AV20
AH7	VSS[59]	VSS[138] AV24
AJ19	VSS[60]	VSS[139] AV30
AJ2	VSS[61]	VSS[140] AV34
AJ23	VSS[62]	VSS[141] AV38
AJ26	VSS[63]	VSS[142] AV42
AJ28	VSS[64]	VSS[143] AV46
AJ32	VSS[65]	VSS[144] AV49
AJ34	VSS[66]	VSS[145] AV5
AT5	VSS[67]	VSS[146] AV8
AJ4	VSS[68]	VSS[147] AW14
AK12	VSS[69]	VSS[148] AW18
AM41	VSS[70]	VSS[149] AW2
AN19	VSS[71]	VSS[150] BF9
AK26	VSS[72]	VSS[151] AW32
AK28	VSS[73]	VSS[152] AW36
AT5	VSS[74]	VSS[153] AW40
AJ4	VSS[75]	VSS[154] AW52
AK23	VSS[76]	VSS[155] AY11
AK28	VSS[77]	VSS[156] AY43
	VSS[78]	VSS[157] AY47
	VSS[79]	VSS[158]

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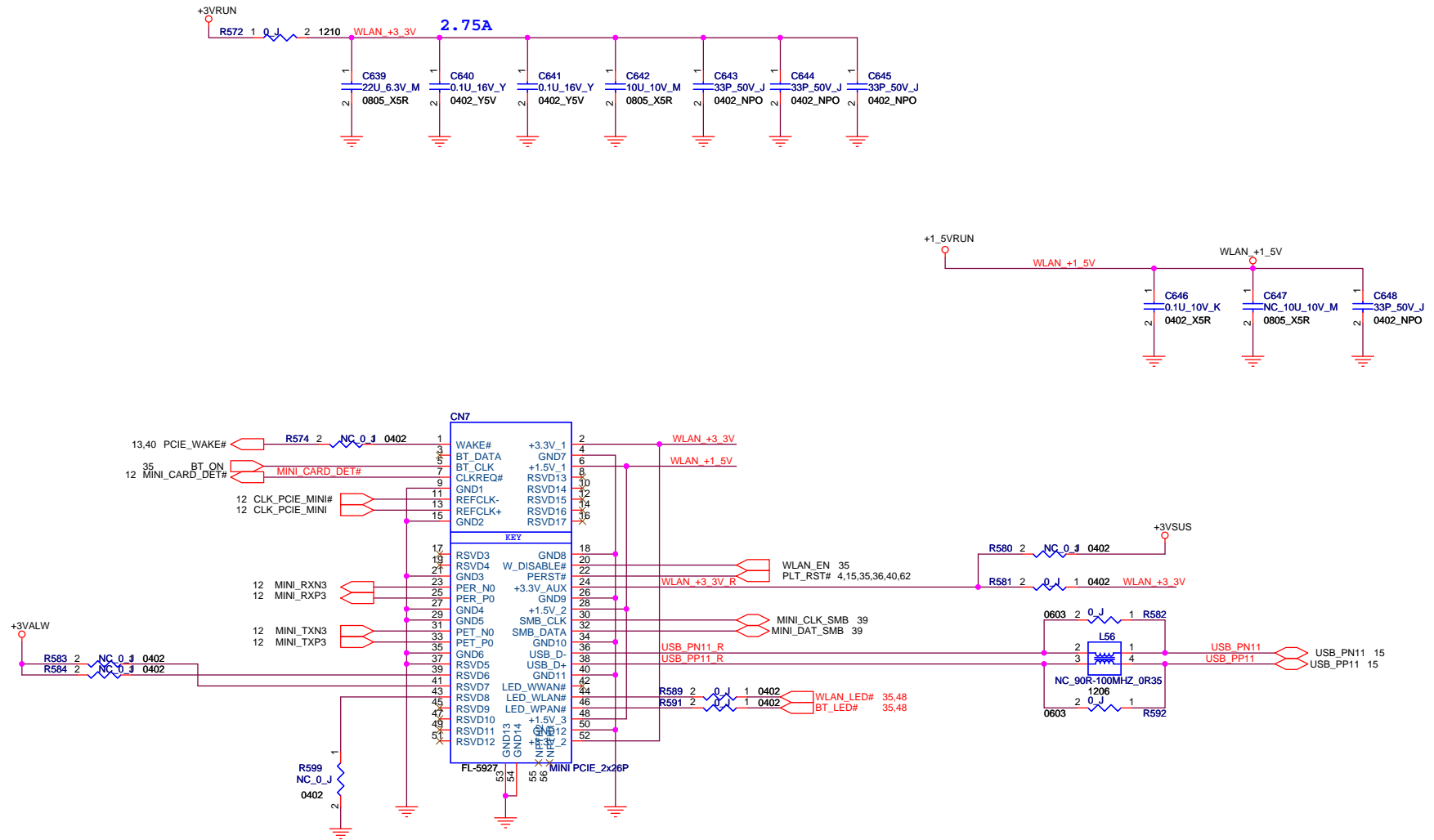
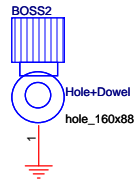
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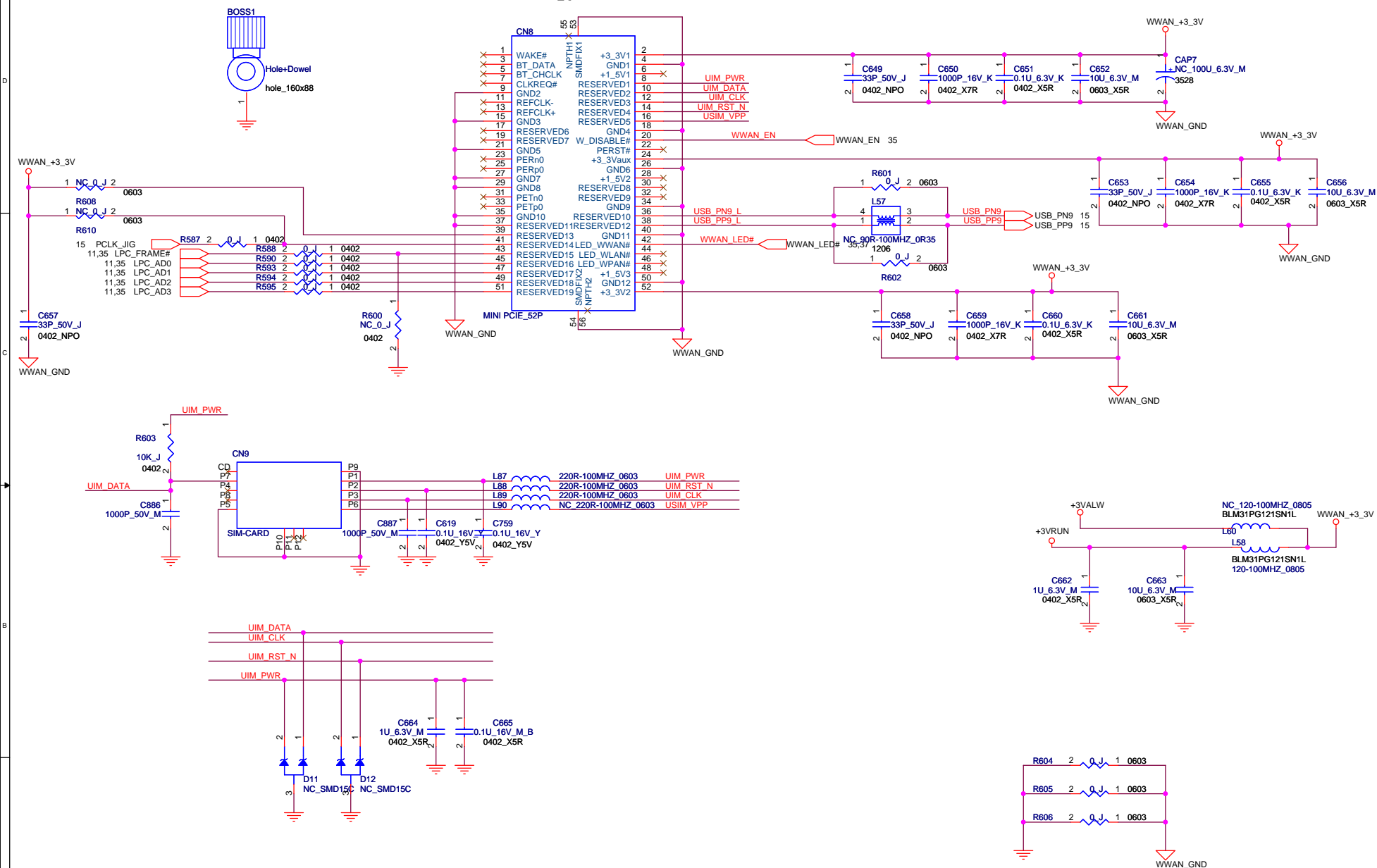


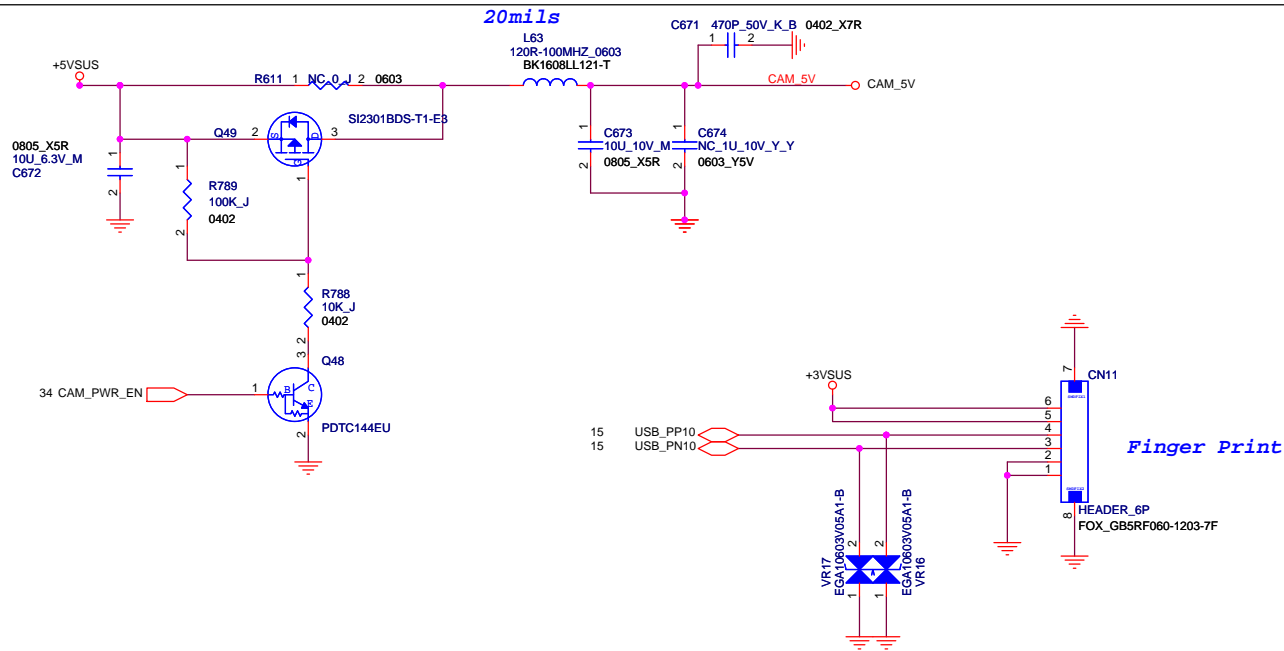
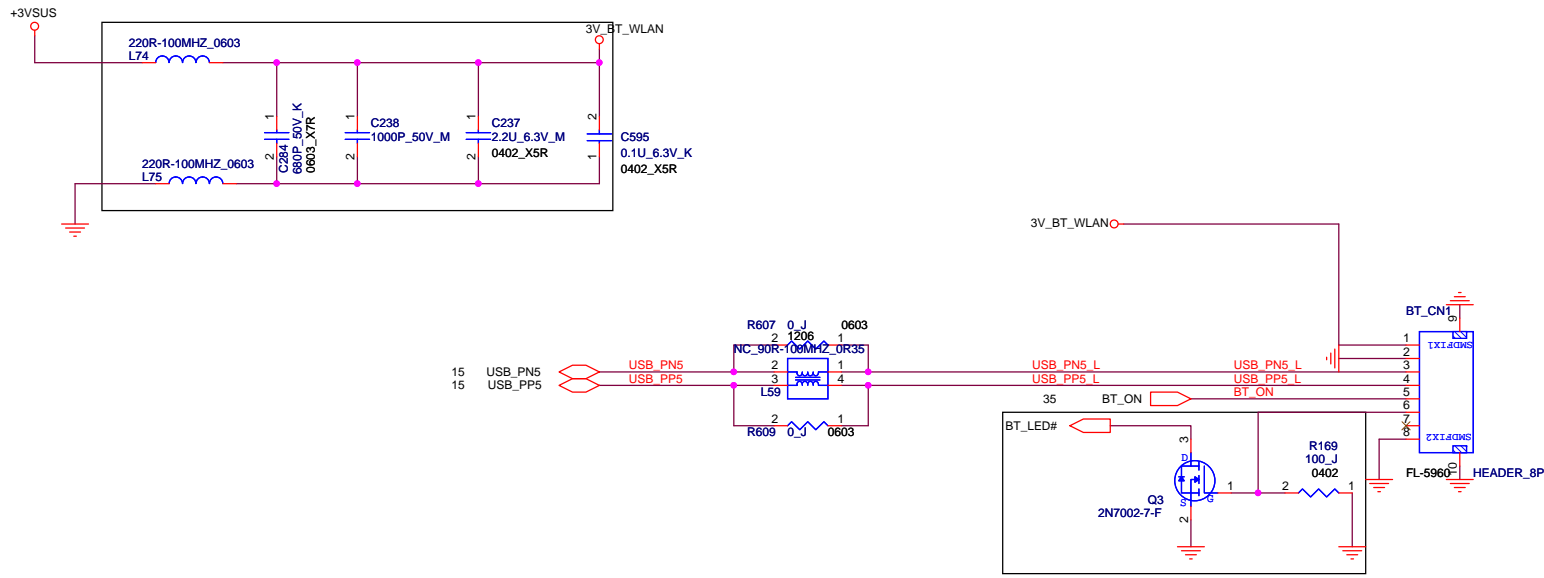
these TP could near the MB outline.

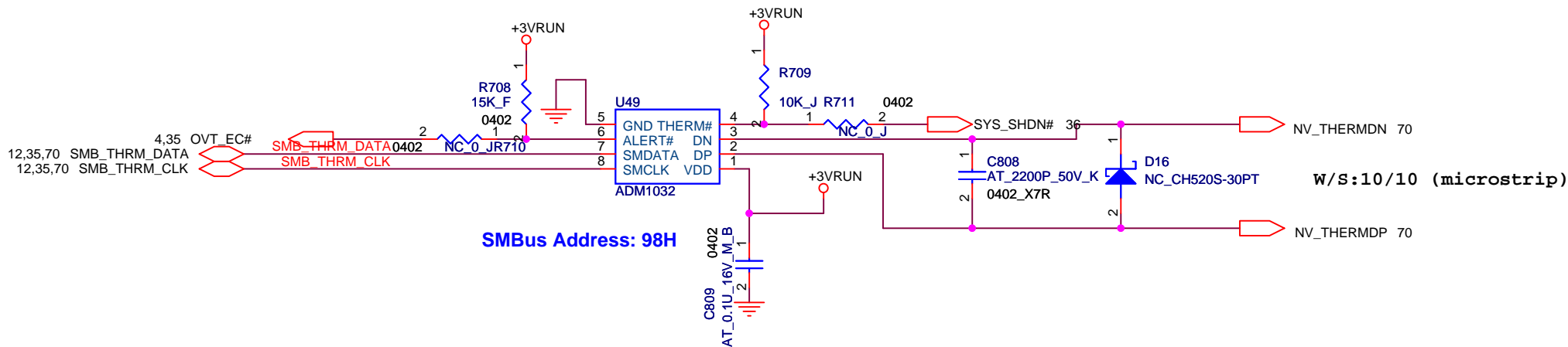
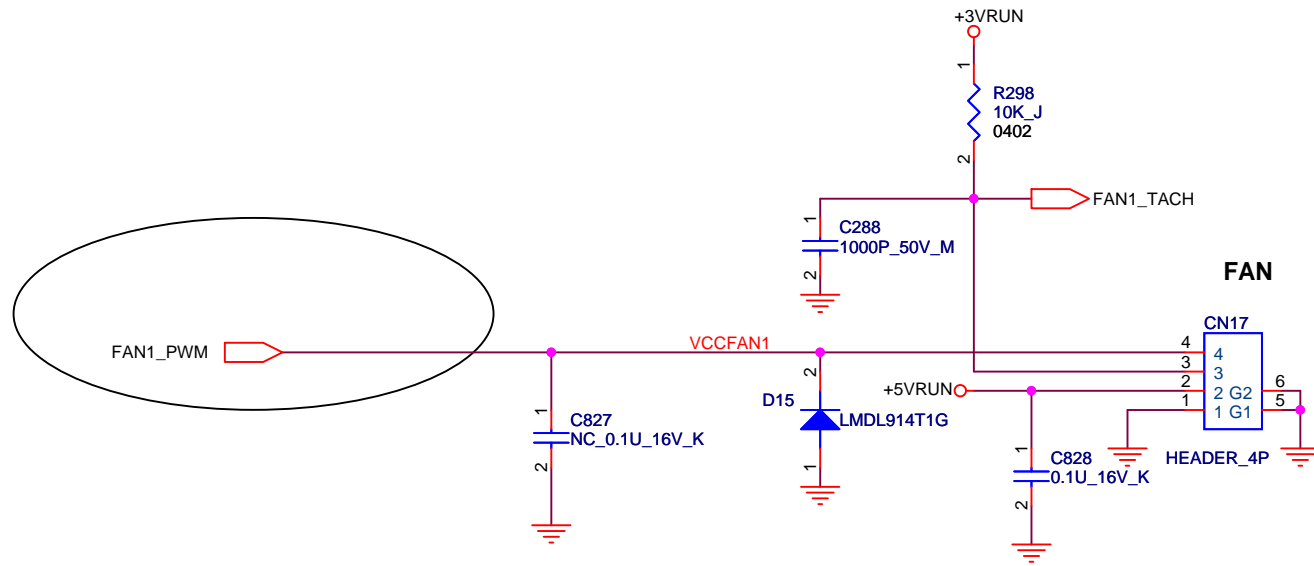


Pin30, 32, 36, 38 is Reserved in Kedron pin-out definition

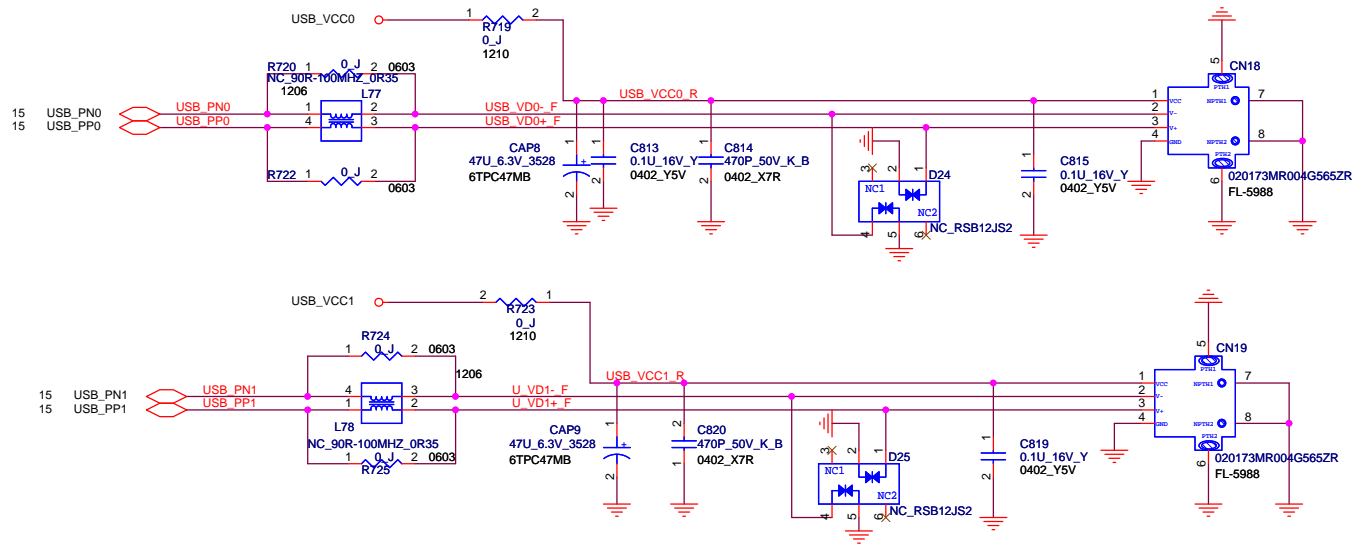
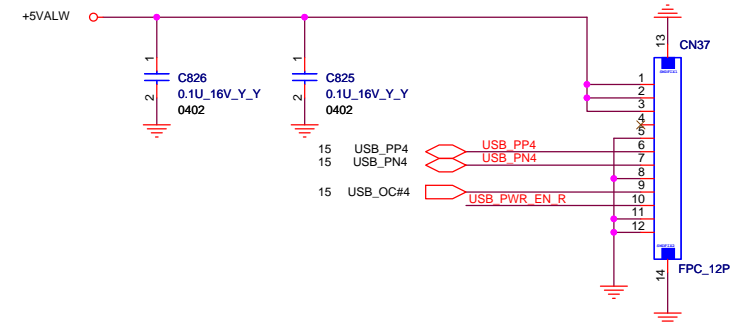
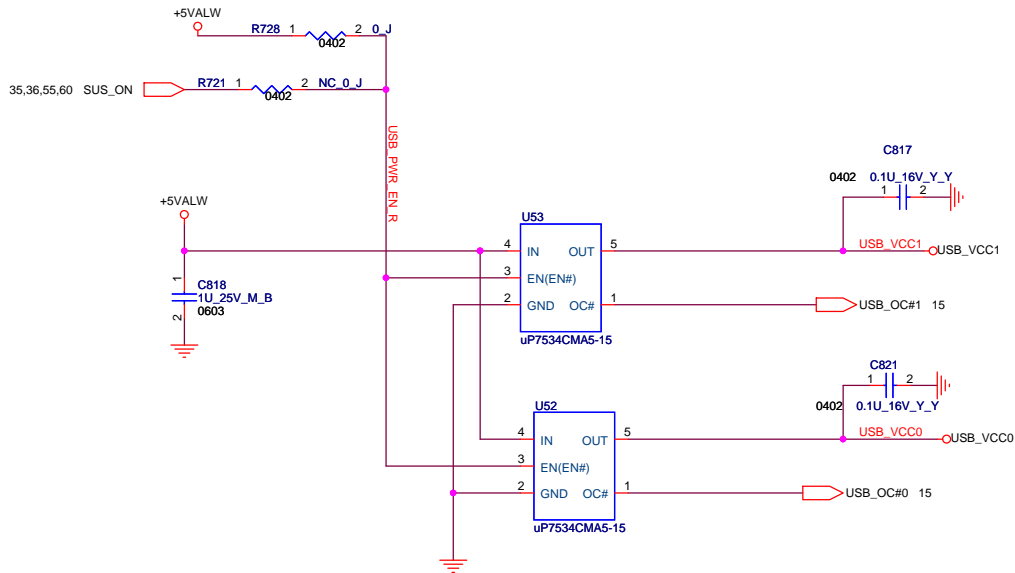
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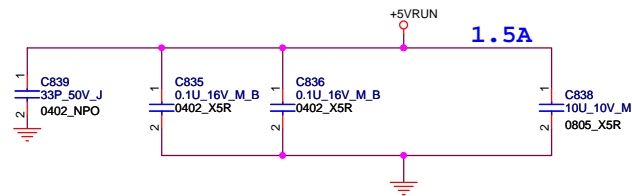




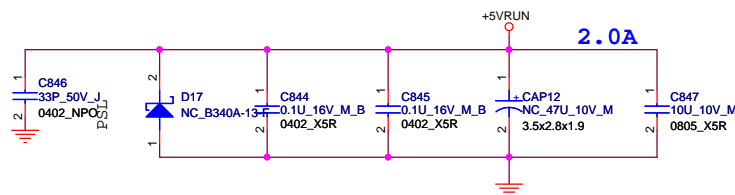
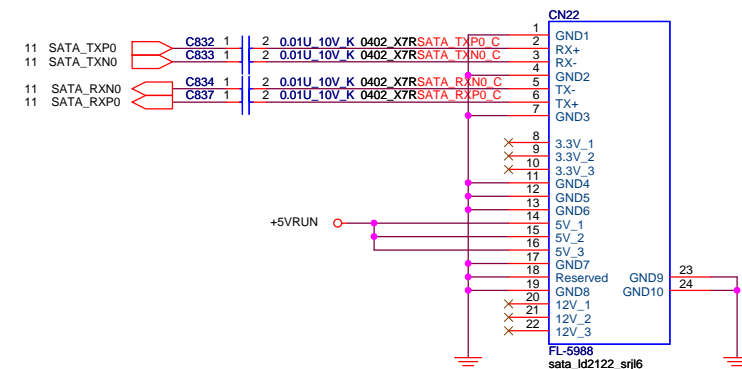


BITLAND		Bitland Information Technogy Co.,Ltd. Notebook R&D Division	
Title		FAN/Thermal Sensor	
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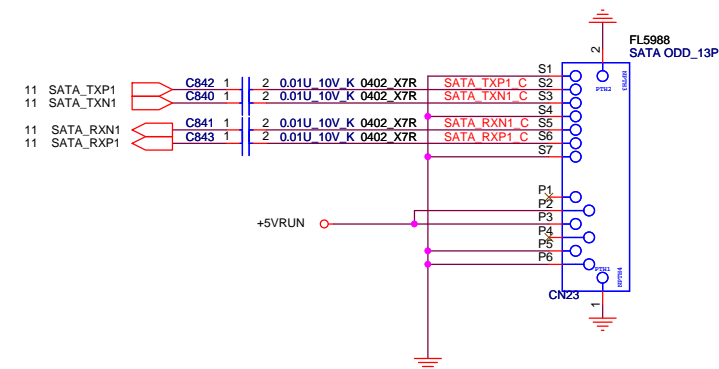


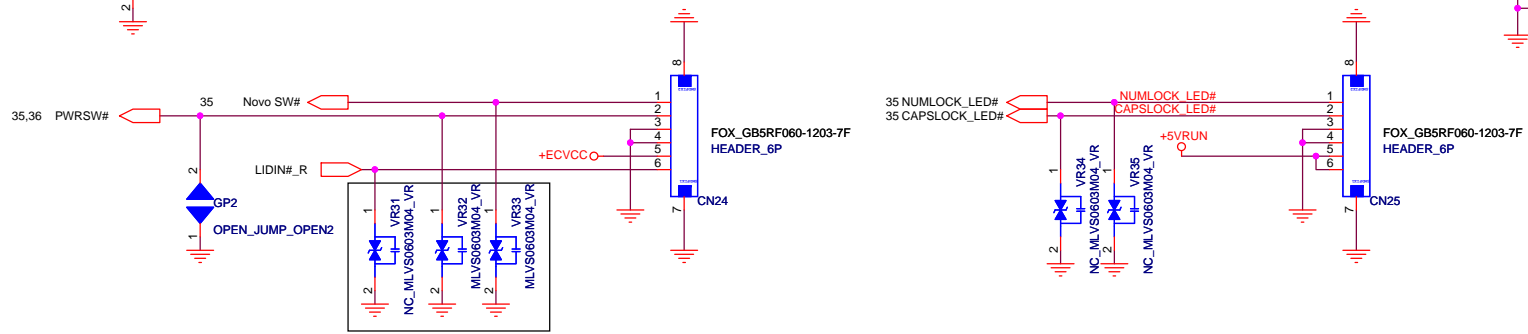
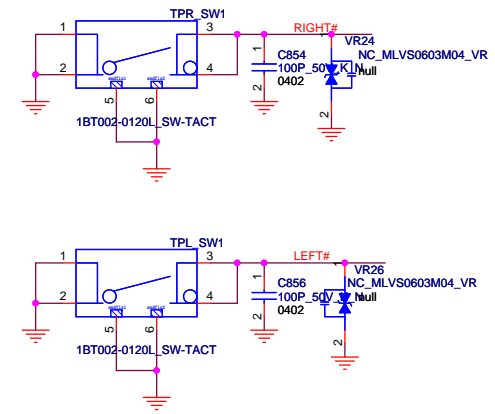
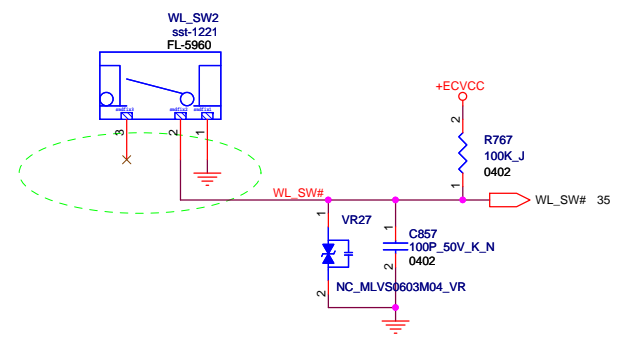
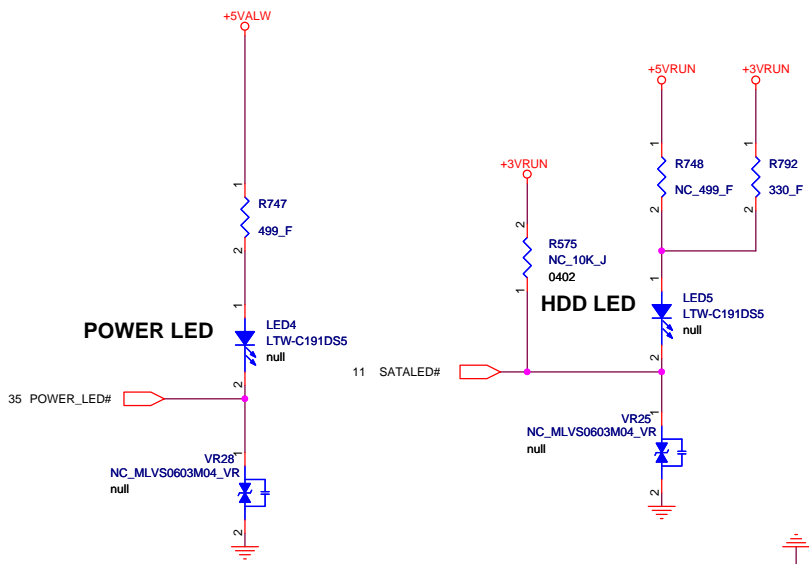
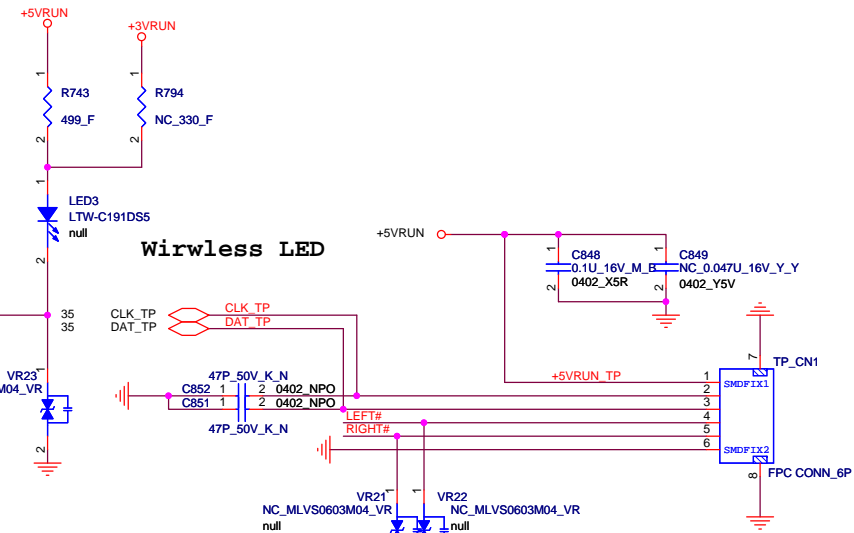
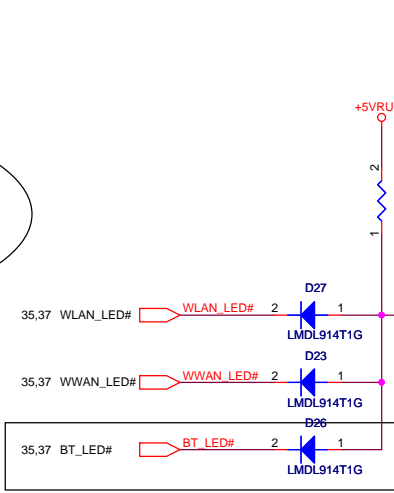
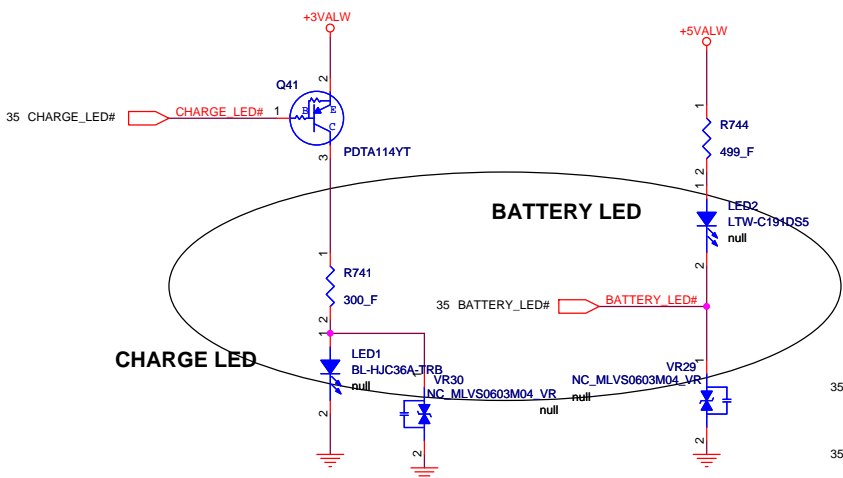


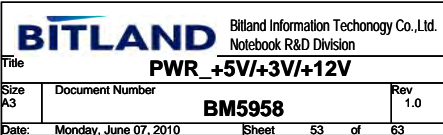
SATA HDD CONN

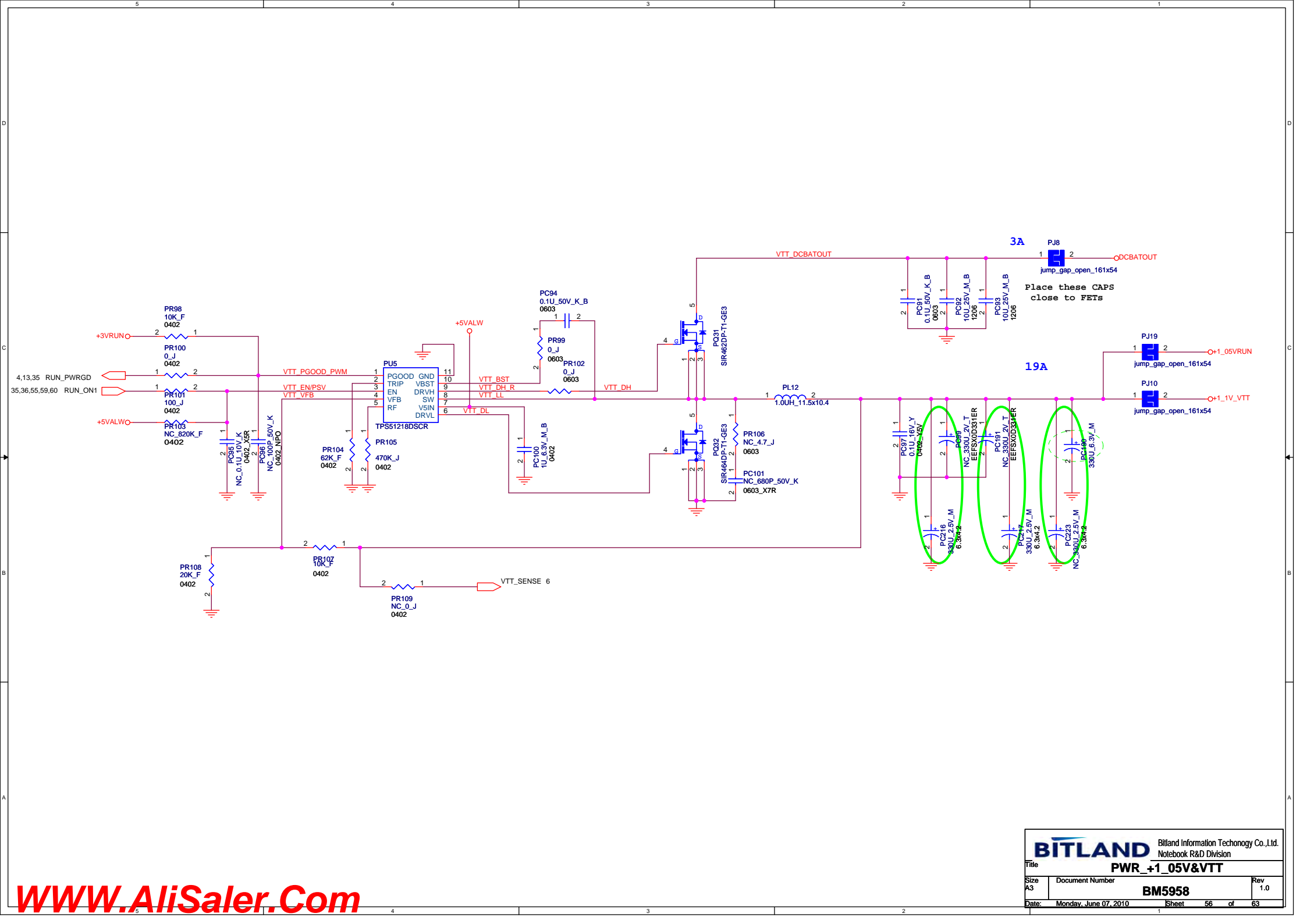


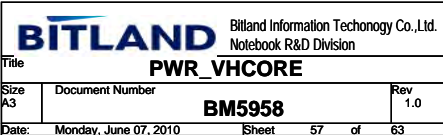
SATA ODD CONN



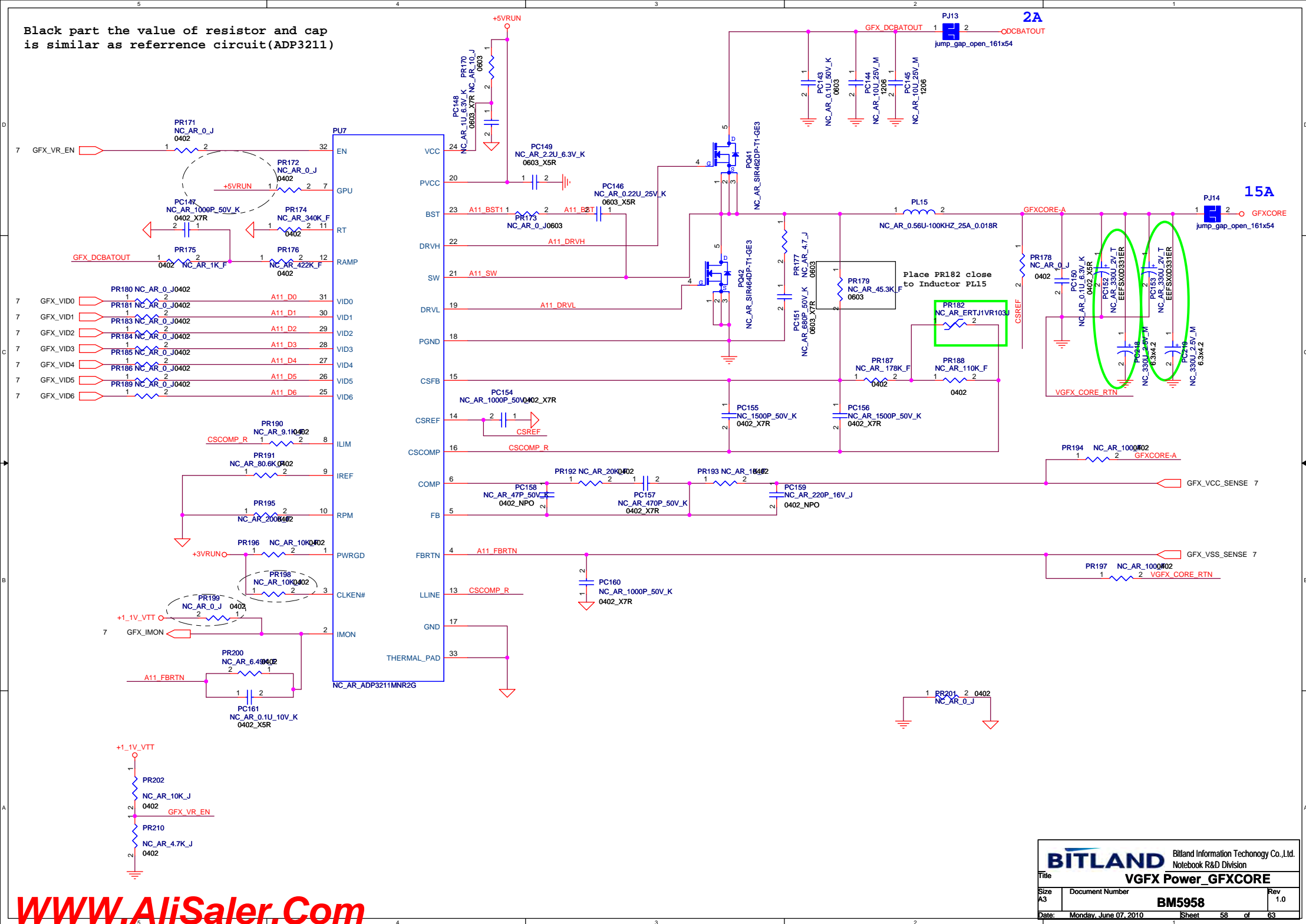


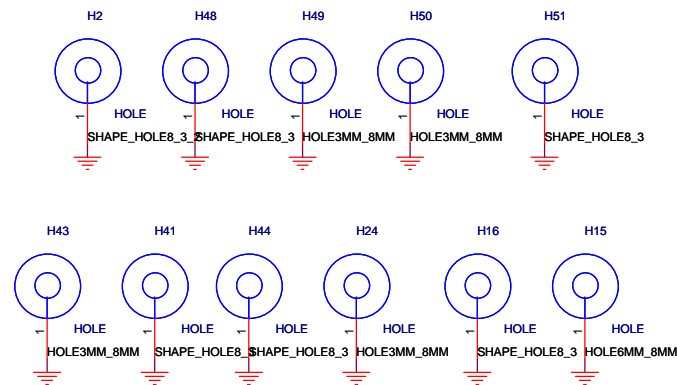
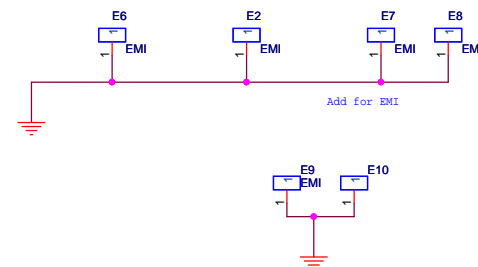
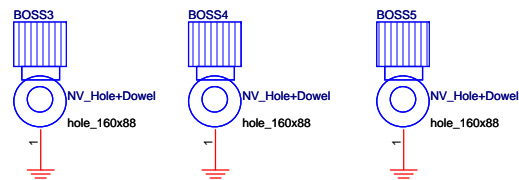
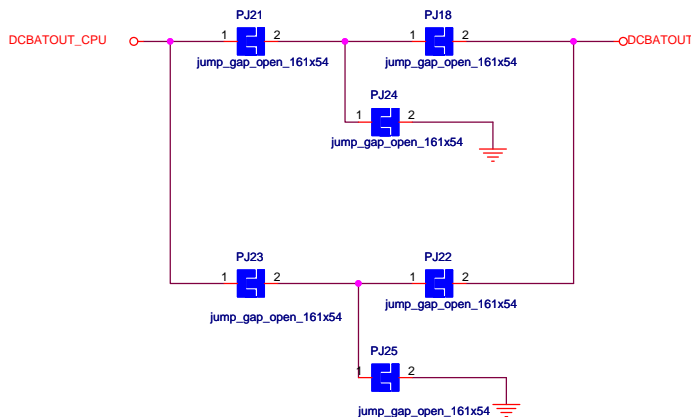
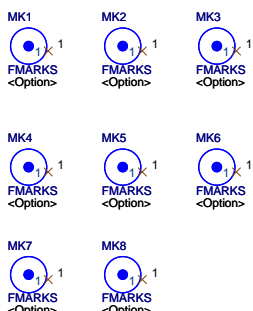
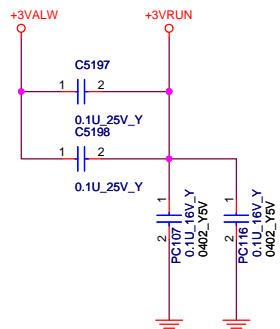
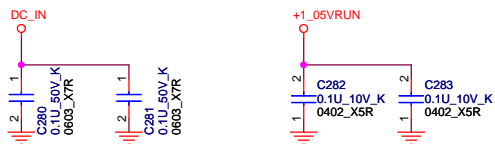


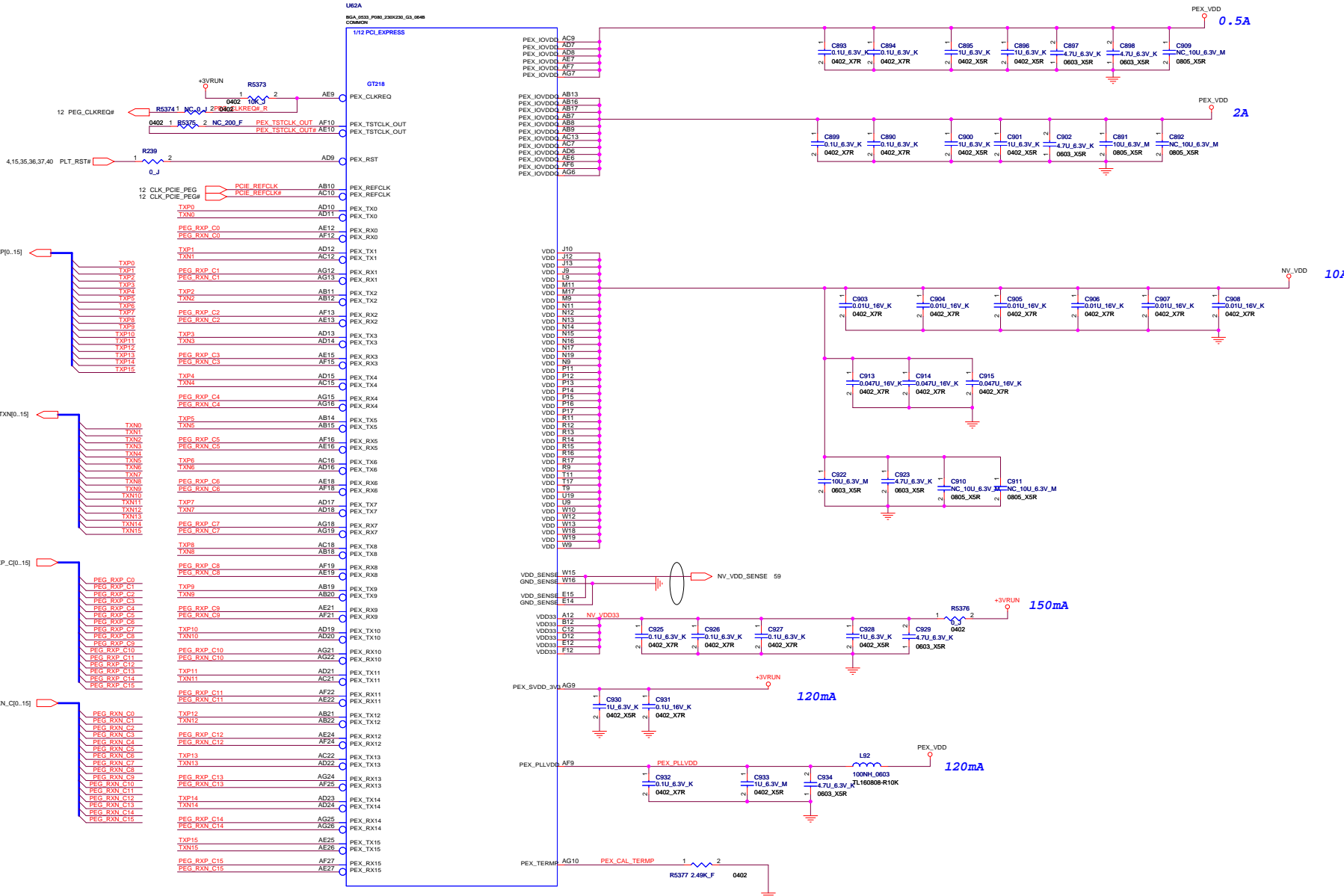


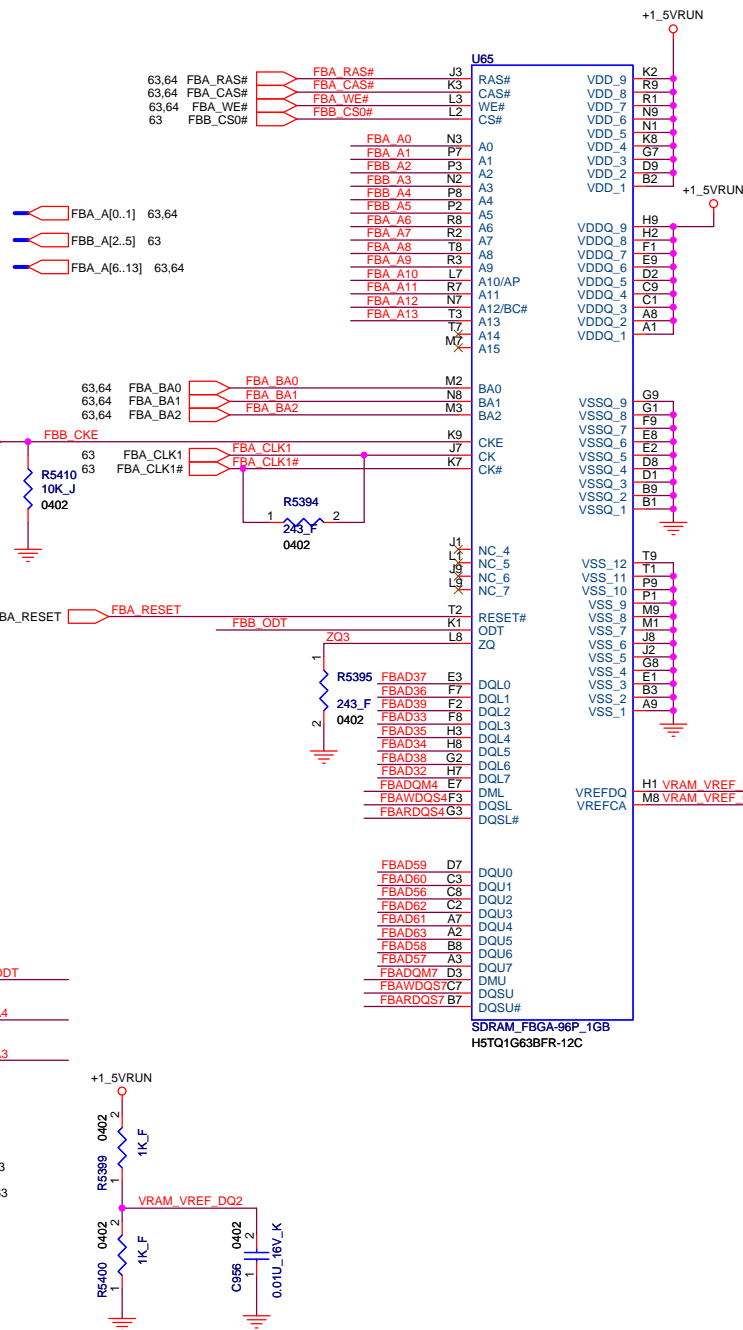


Black part the value of resistor and cap
is similar as reference circuit(ADP3211)

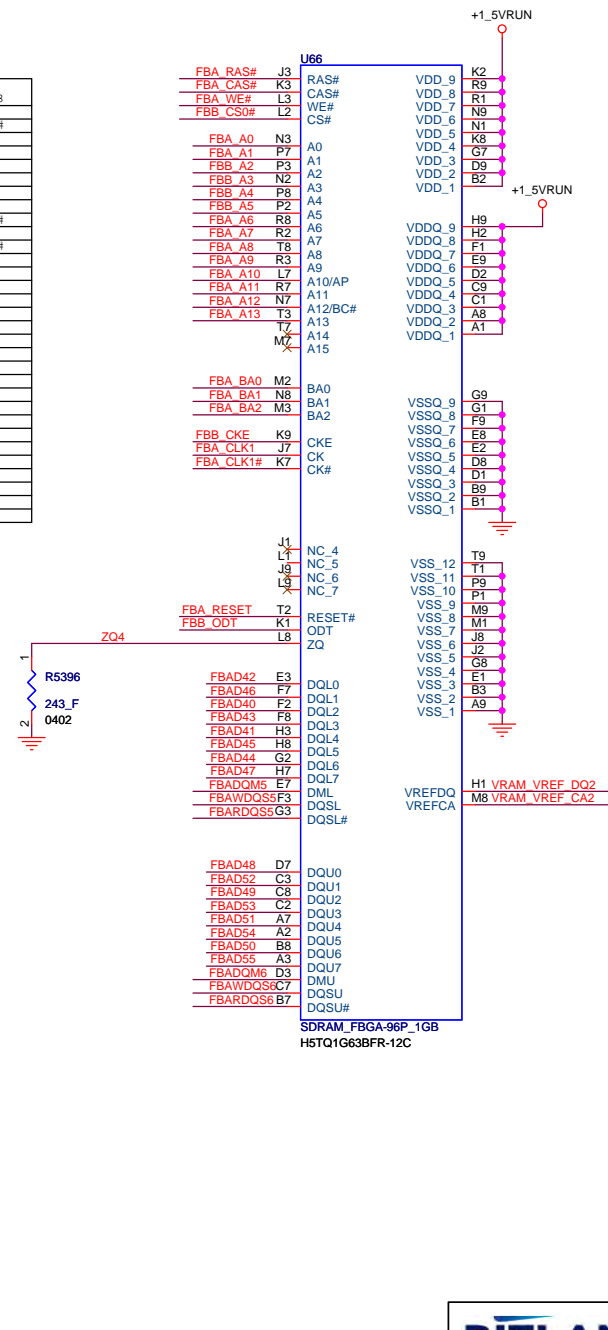




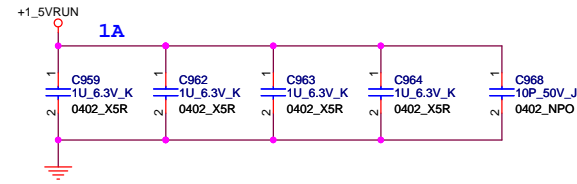
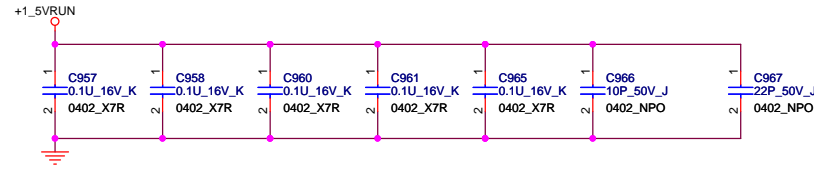




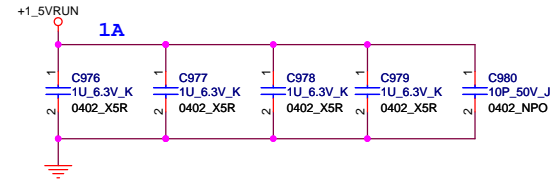
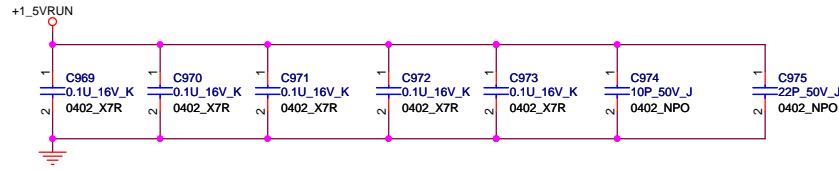
	0...30	32...63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5	N2	A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	



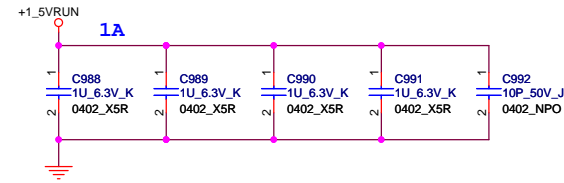
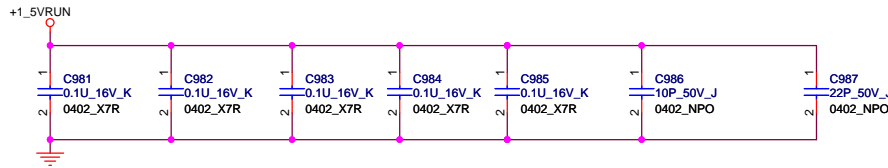
Place around the VRAM U63



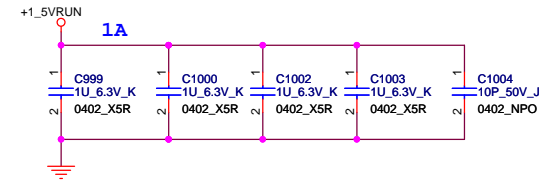
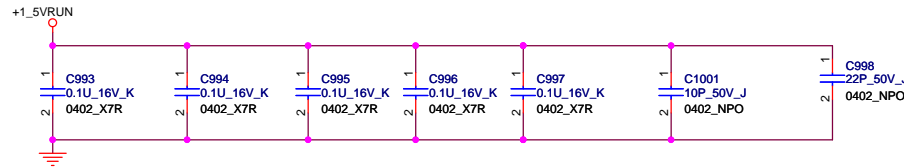
Place around the VRAM U64



Place around the VRAM U65

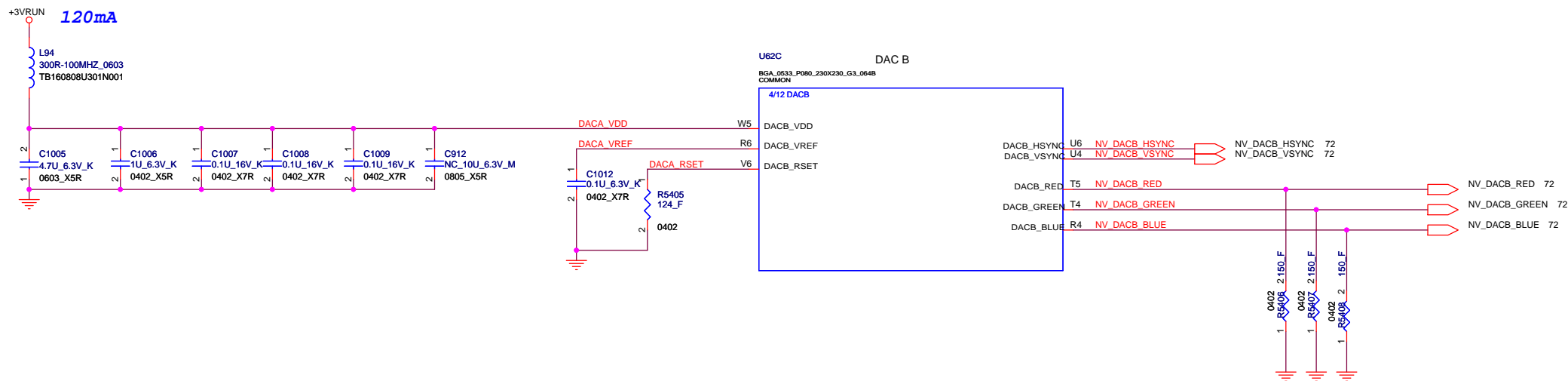
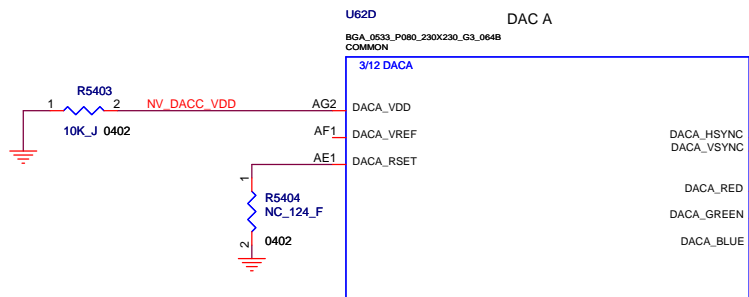


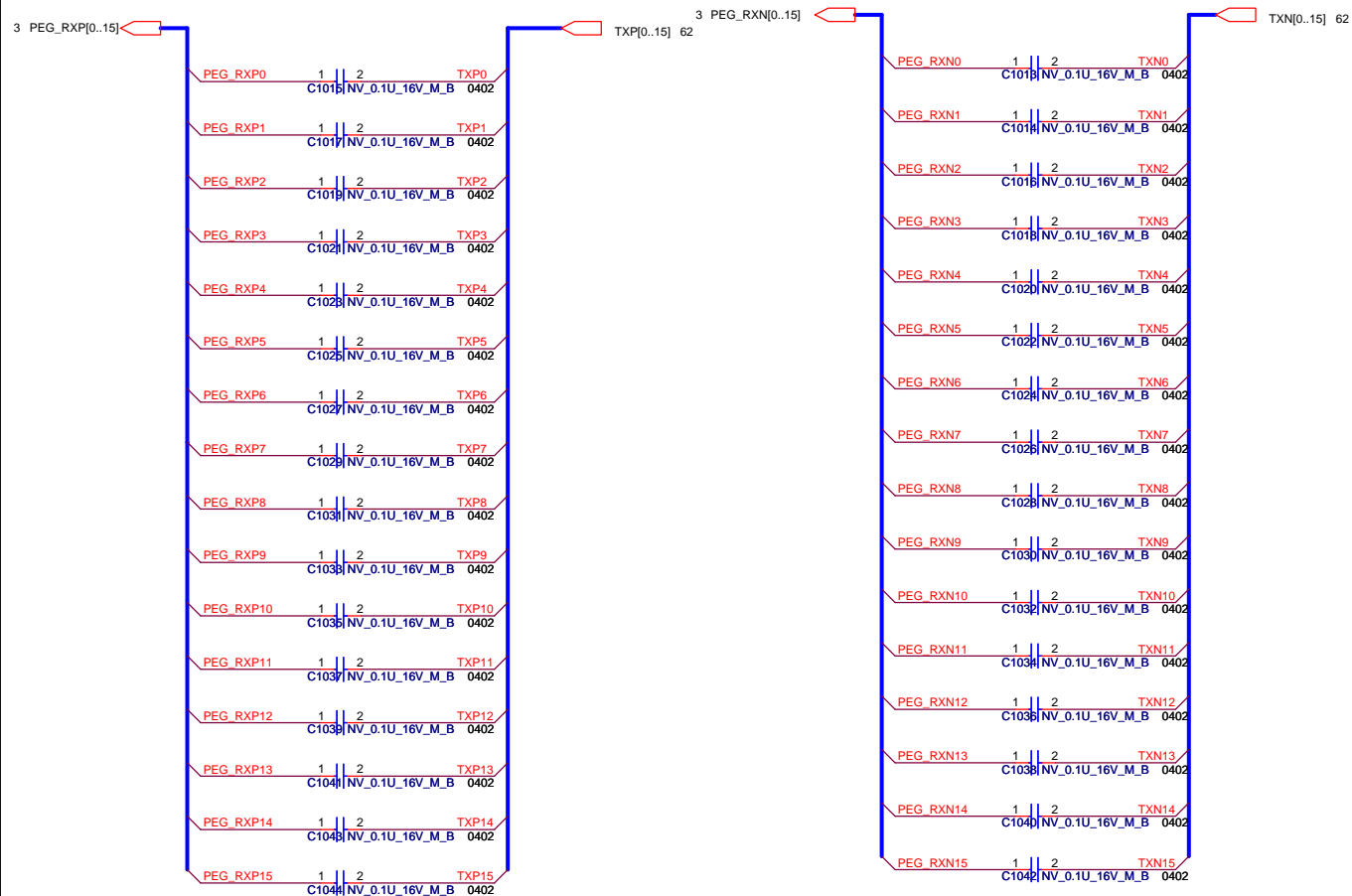
Place around the VRAM U66



PLACE 1UF CAPACITORS CLOSE TO THE MEMORY DEVICE.

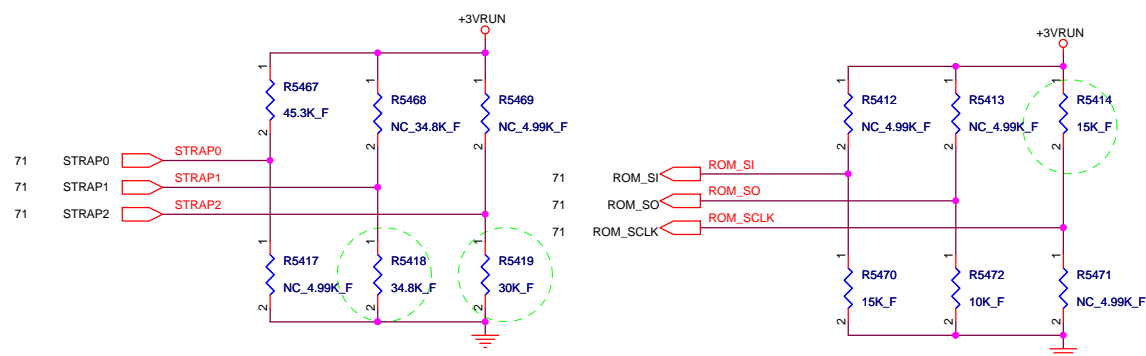
PLACE 0.1UF CAPS UNDER THE MEMORY DEVICE.



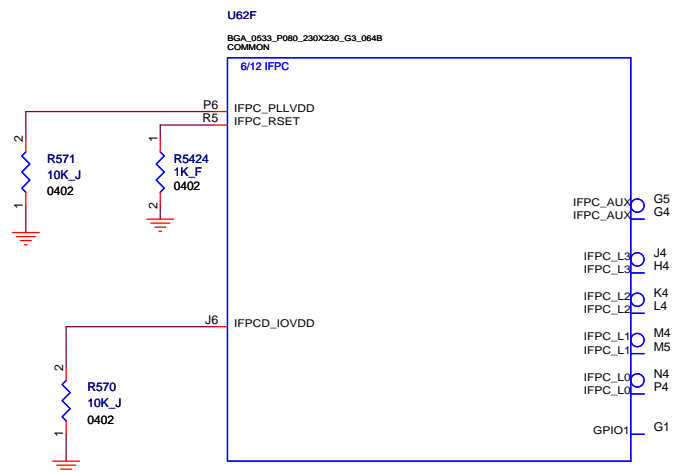
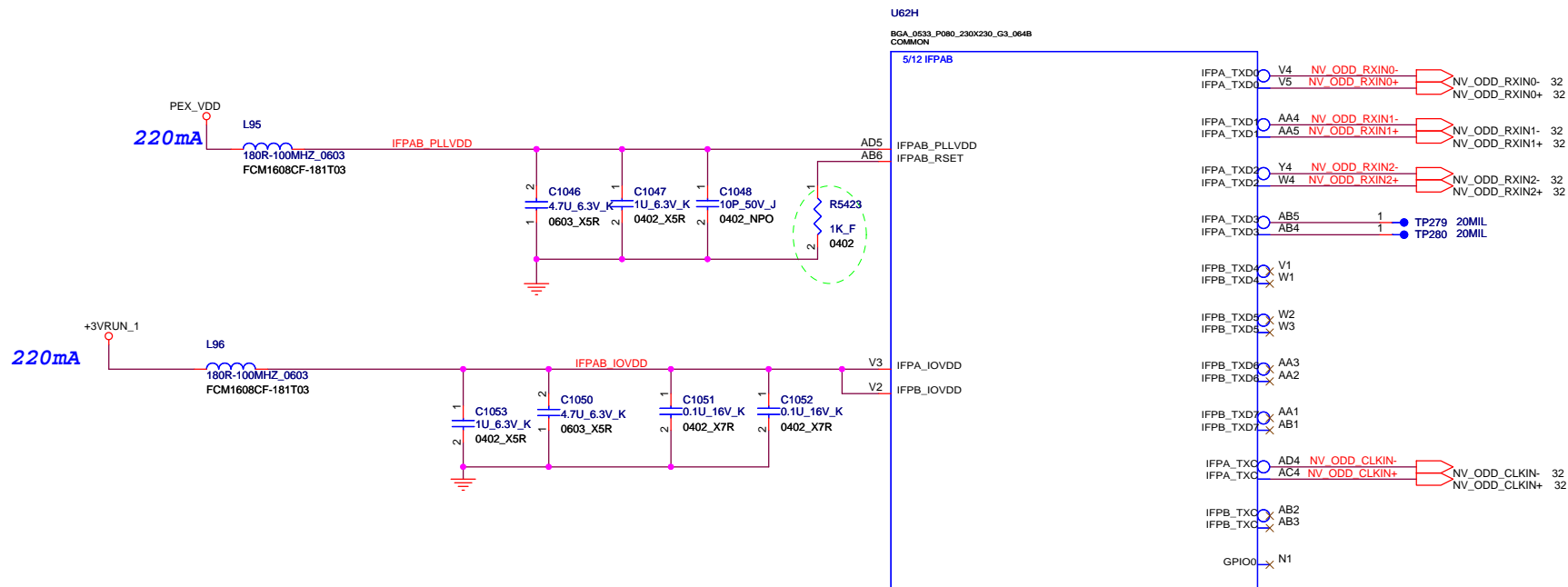


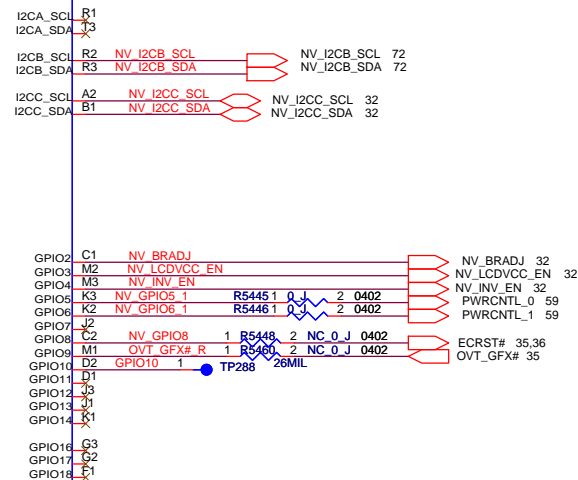
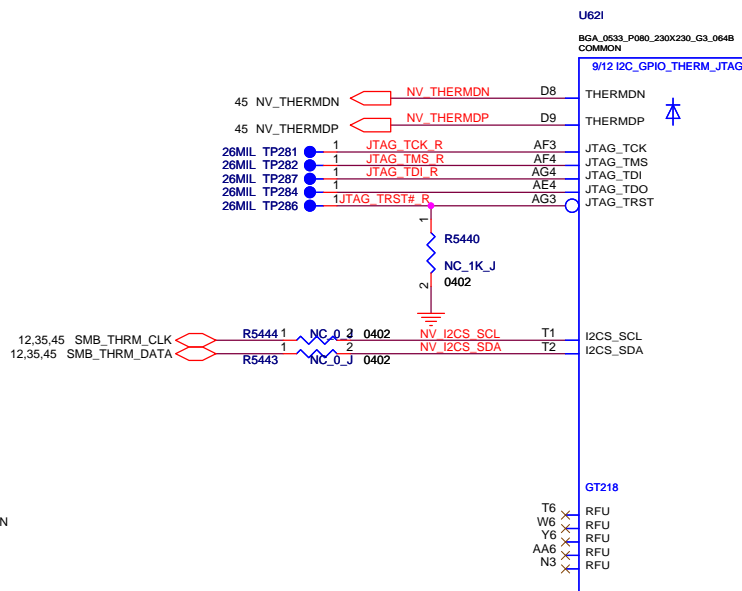
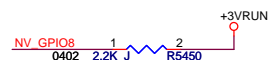
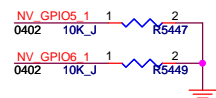
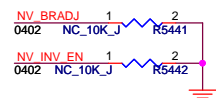
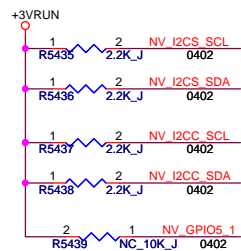
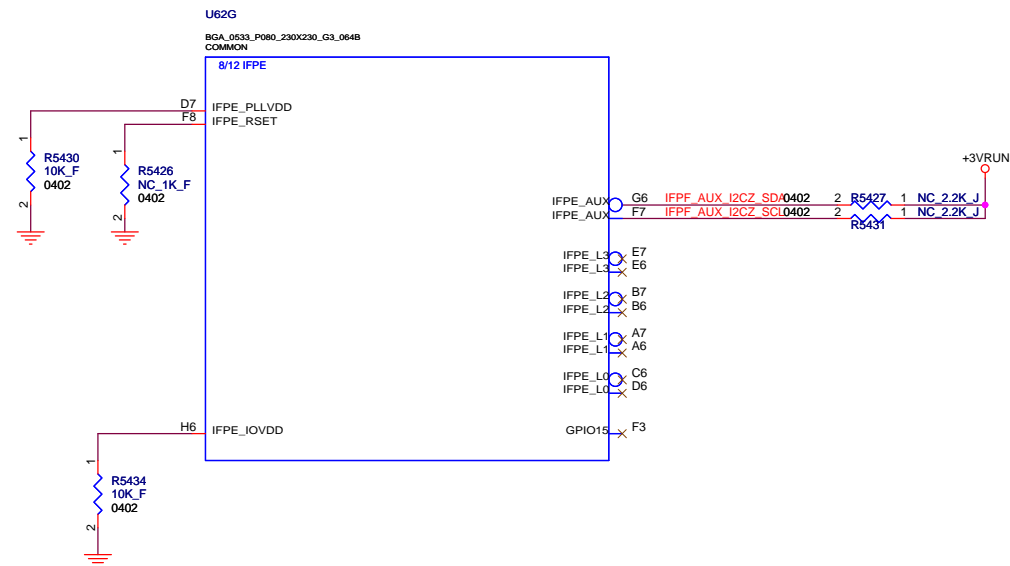
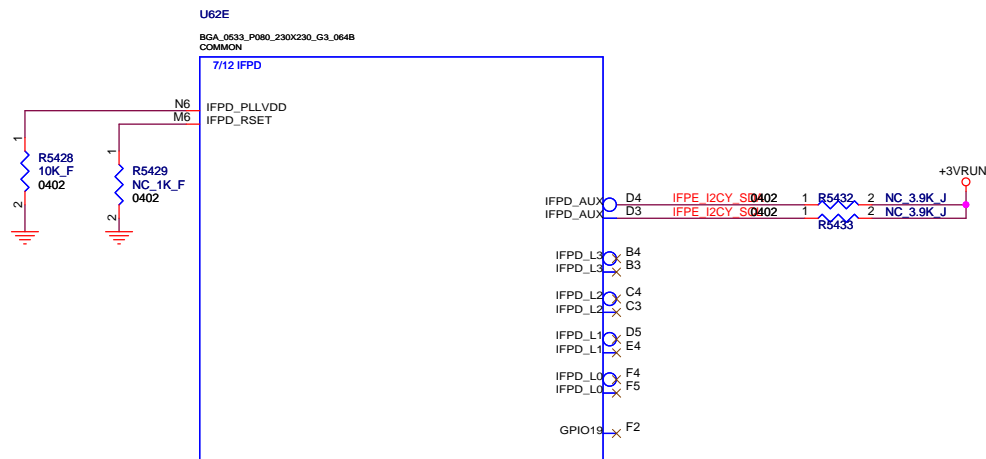
STRAP0: USER[3:0]
 STRAP1: 3GIO_PADCFG_LUT_ADR[3:0]
 STRAP2: PCI_DEVID[3:0]

ROM_SCLK: PCIDEVID_EXT,SUB_VENDOR,SLOT_CLK,PEX_PLL_EN
 ROM_SI: RAMCFG[3:0]
 ROM_SO: XCLK_277,TVMODE[2:0] ** G98
 ROM_SO: XCLK_417,FB_0_BAR_SIZE,SMB_ALT_ADDR,VGA_DEVICE **GT218



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