Bitland Confidential

BM5958 M/B Schematics Document

Intel Arrandale Processor with Ibexpeak(HM55) + DDRIII

2010-5-26

REV:1.3

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Title	Cover Page	
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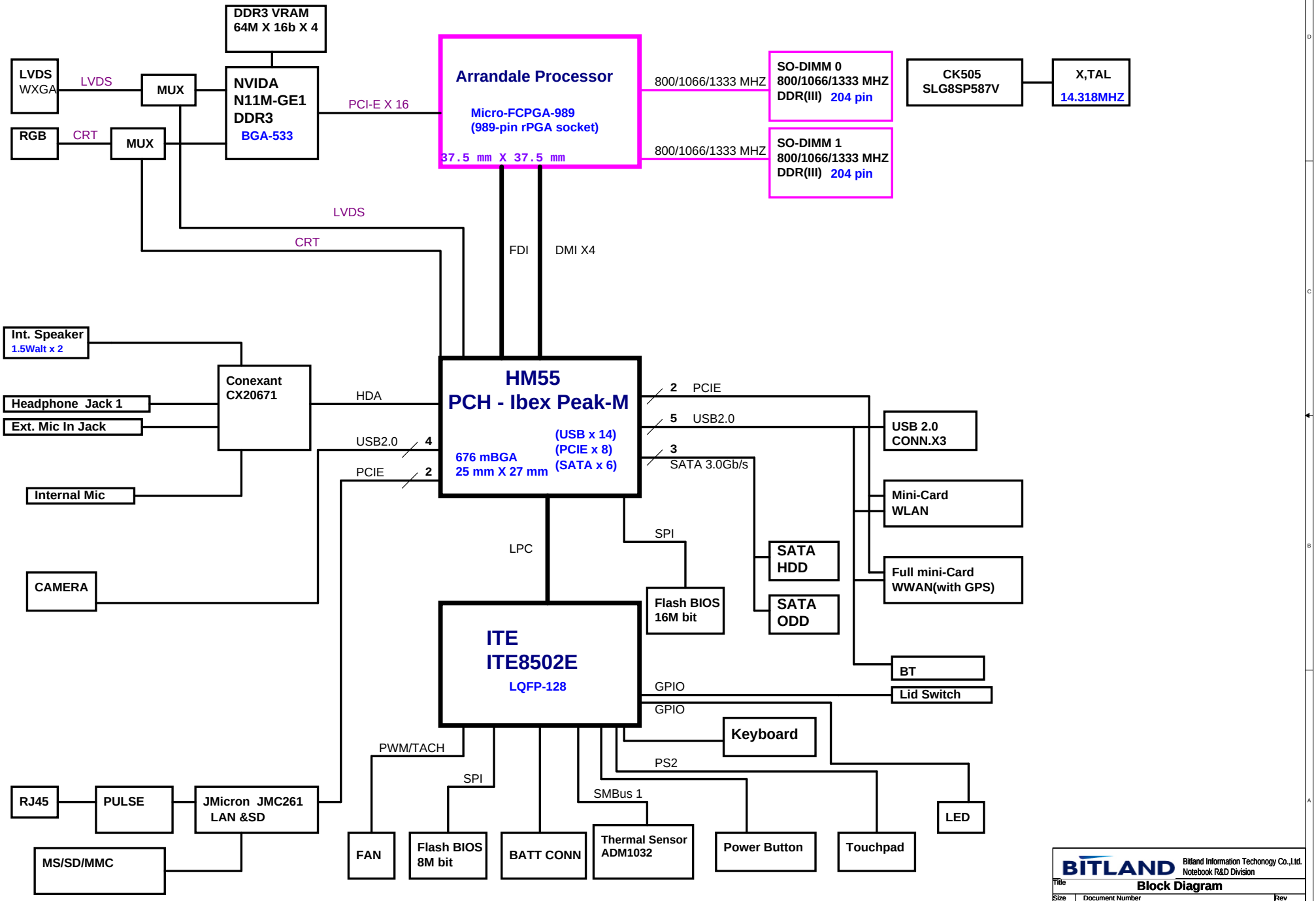

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Title	Block Diagram	
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Voltage Rails

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

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b
MEDIA CONSOLE	1010 000X b

EC SM Bus2 address

Device	Address
ADI ADT7421	1001 100X 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	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_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	

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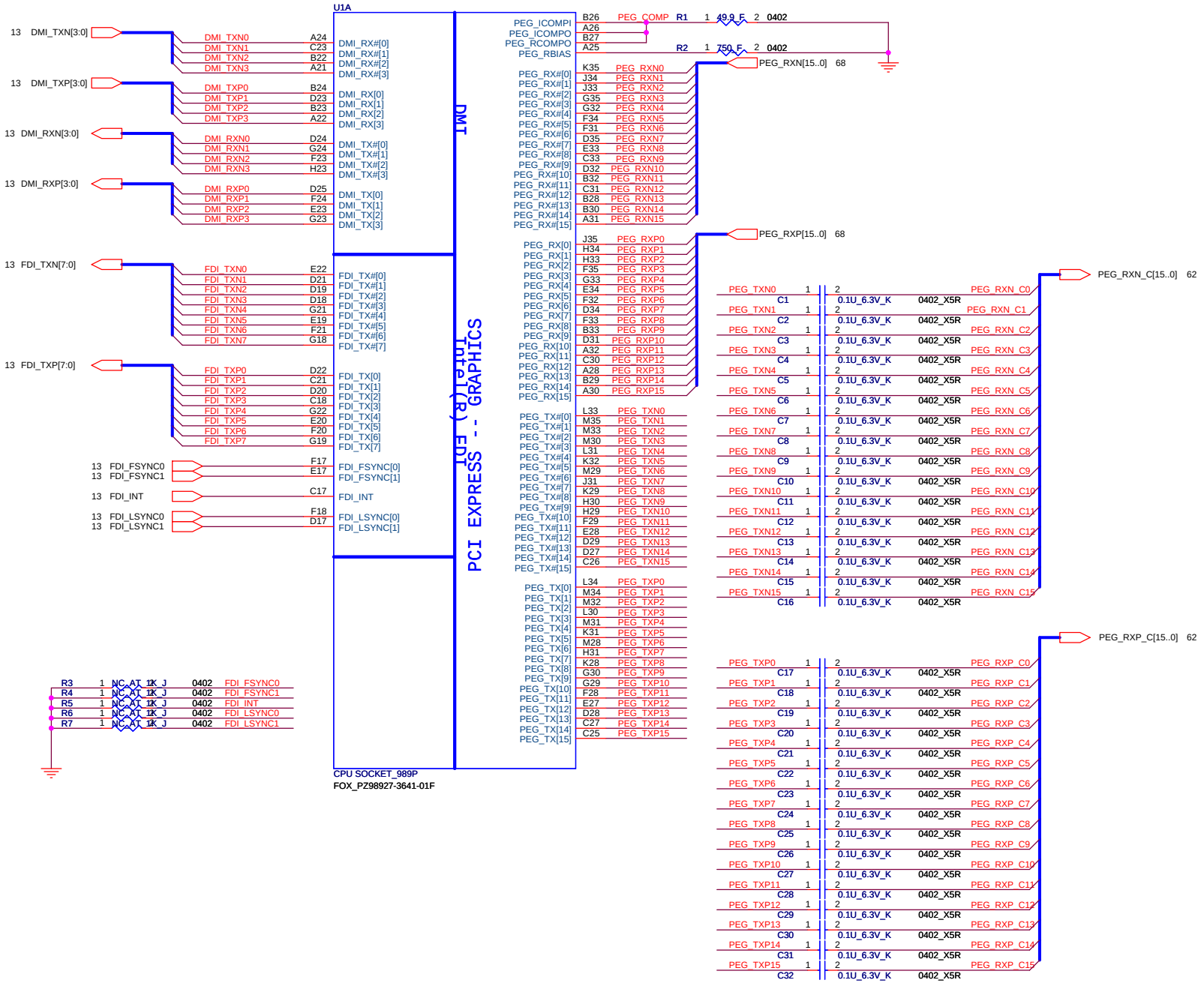

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	CPU (DMI,PEG,FDI)	
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Layout Note:
Comp0,2 connect with Zo=27.4 ohm, make trace length shorter then 0.5". Width=20mil(MS)
Comp1,3 connect with Zo=55 ohm, make trace length shorter then 0.5". Width=5mil(MS)

Place close to chip

U1B

MISC THERMAL
CLOCKS
DDR3 MISC
JTAG & BPM
PWR MANAGEMENT

CPU SOCKET_989P
FOX_PZ98927-3641-01F

TCK 50 PD
TMS 2k~5k PU
TRST 2k~5k PU
TDI 50 PU
TDO unconnect
TDI_M 50 PU
TDO_M unconnect

BITLAND Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division

Title: CPU(CLK,MISC,JTAG)

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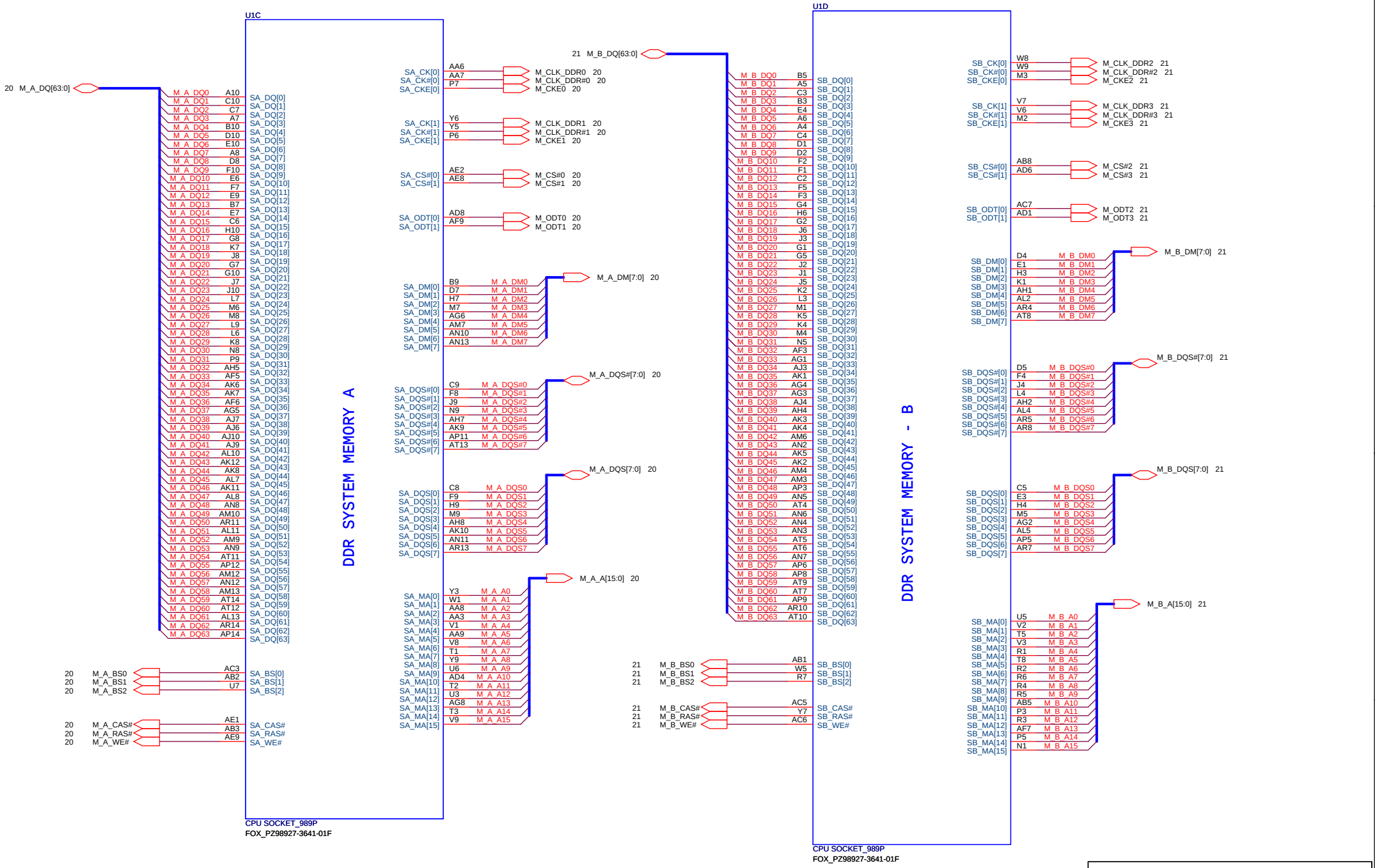

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	CPU (DDR3)	
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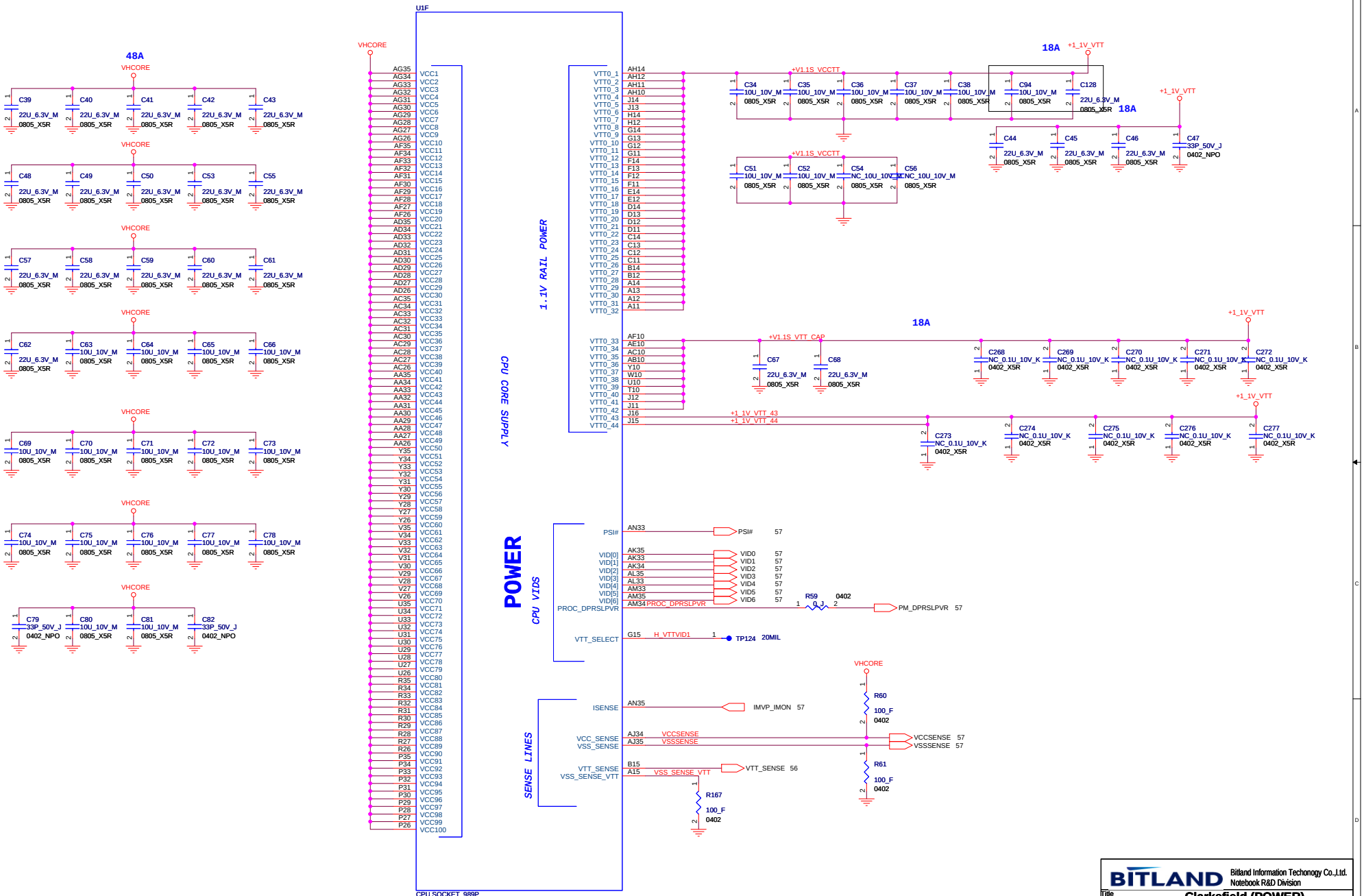

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Title: Clarksfield (POWER)

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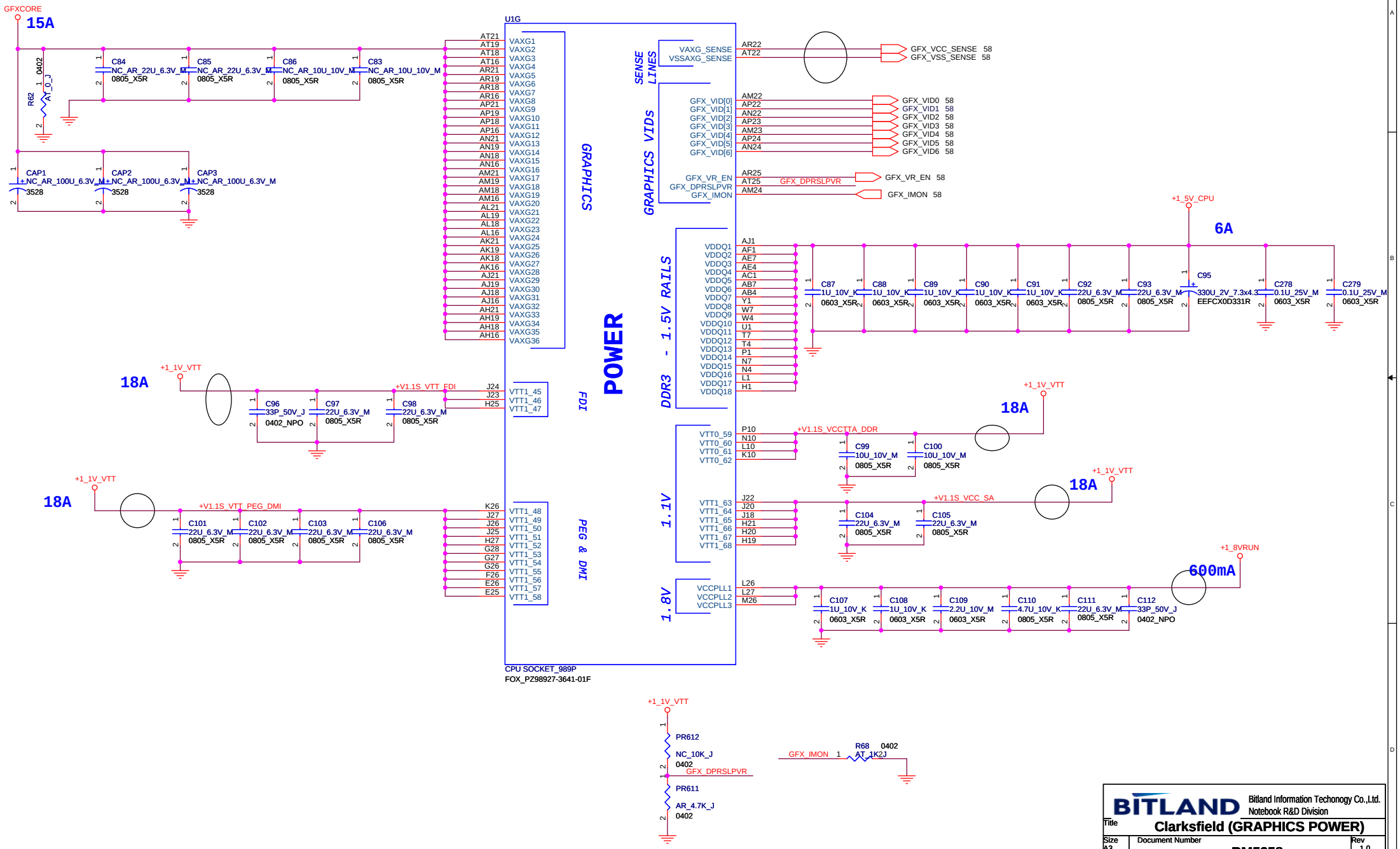
GFXCORE
15A
U1G
GRAPHICS
POWER
FDI
PEG & DMI
SENSE LINES
GRAPHICS VIDS
DDR3 - 1.5V RAILS
1.1V
1.8V
CPU SOCKET_989P
FOX_PZ98927-3641-01F
+1_5V_CPU
6A
+1_1V_VTT
18A
+1V1S_VTT_FDI
+1V1S_VTT_PEG_DMI
+1V1S_VCCTTA_DDR
+1V1S_VCC_SA
+1_8VRUN
600mA
GFX_VCC_SENSE 58
GFX_VSS_SENSE 58
GFX_VID0 58
GFX_VID1 58
GFX_VID2 58
GFX_VID3 58
GFX_VID4 58
GFX_VID5 58
GFX_VID6 58
GFX_VR_EN 58
GFX_IMON 58
GFX_DPRSLPVR
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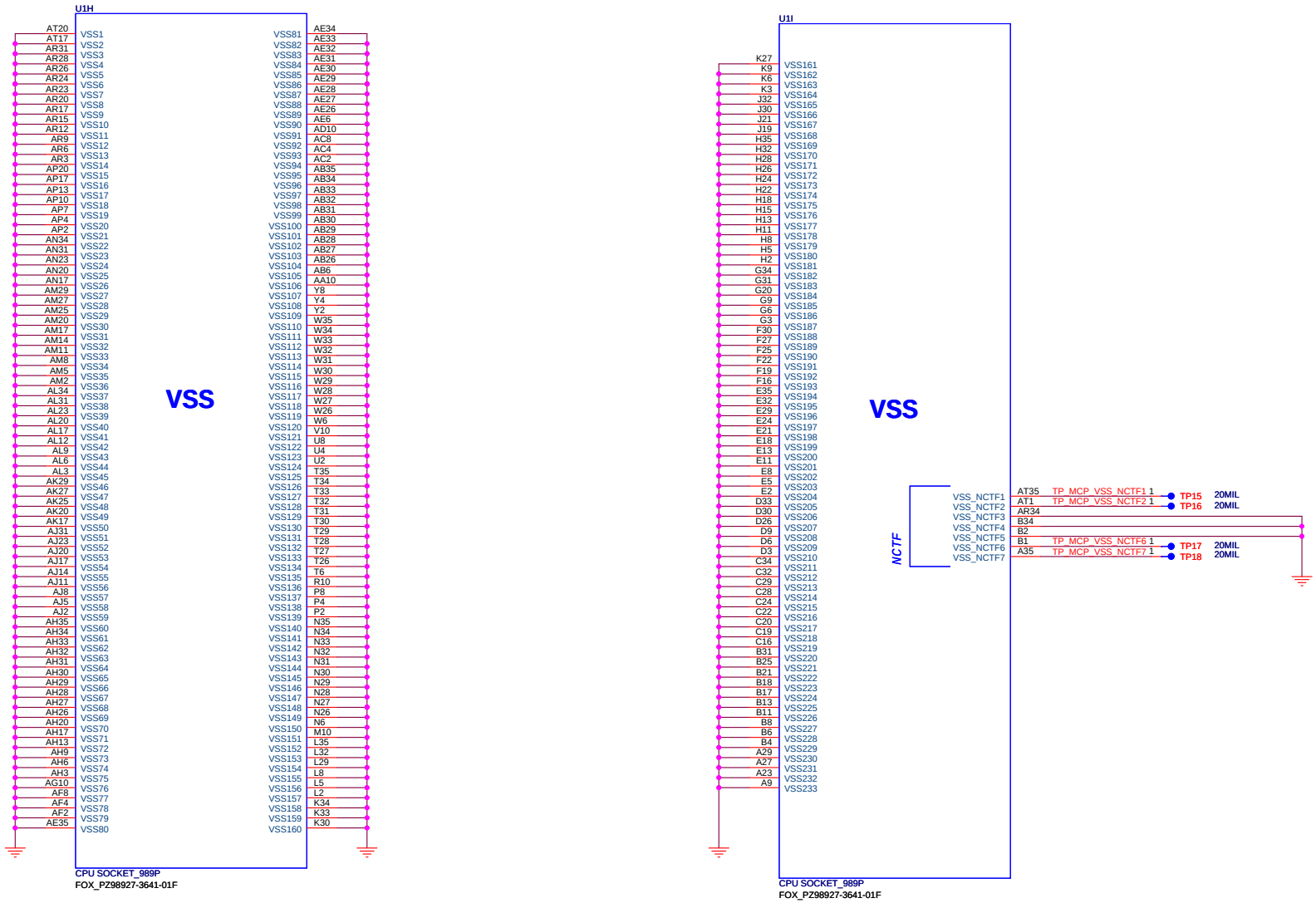

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	CPU (GND)	
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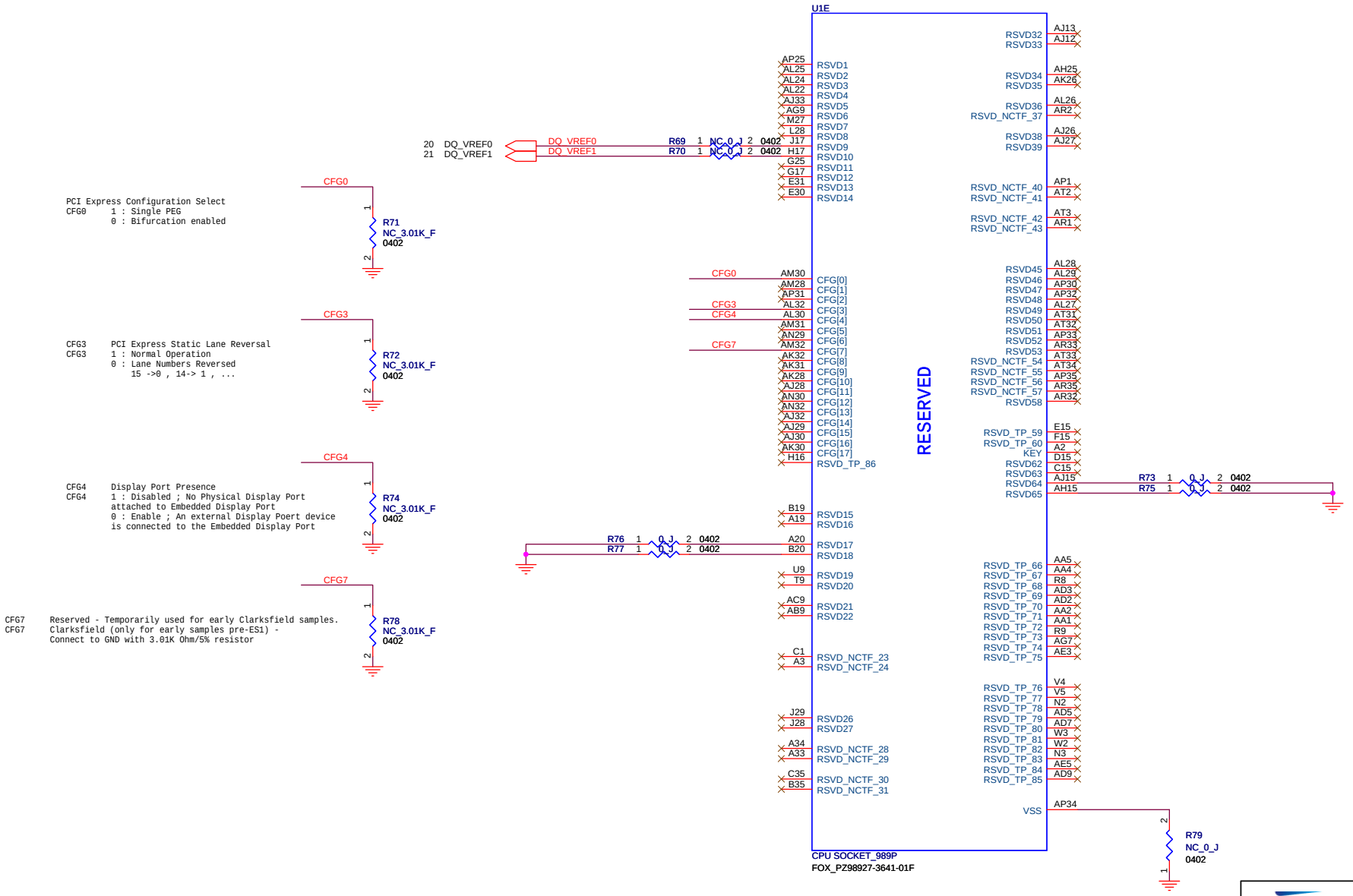

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Title: CPU (RESERVED)

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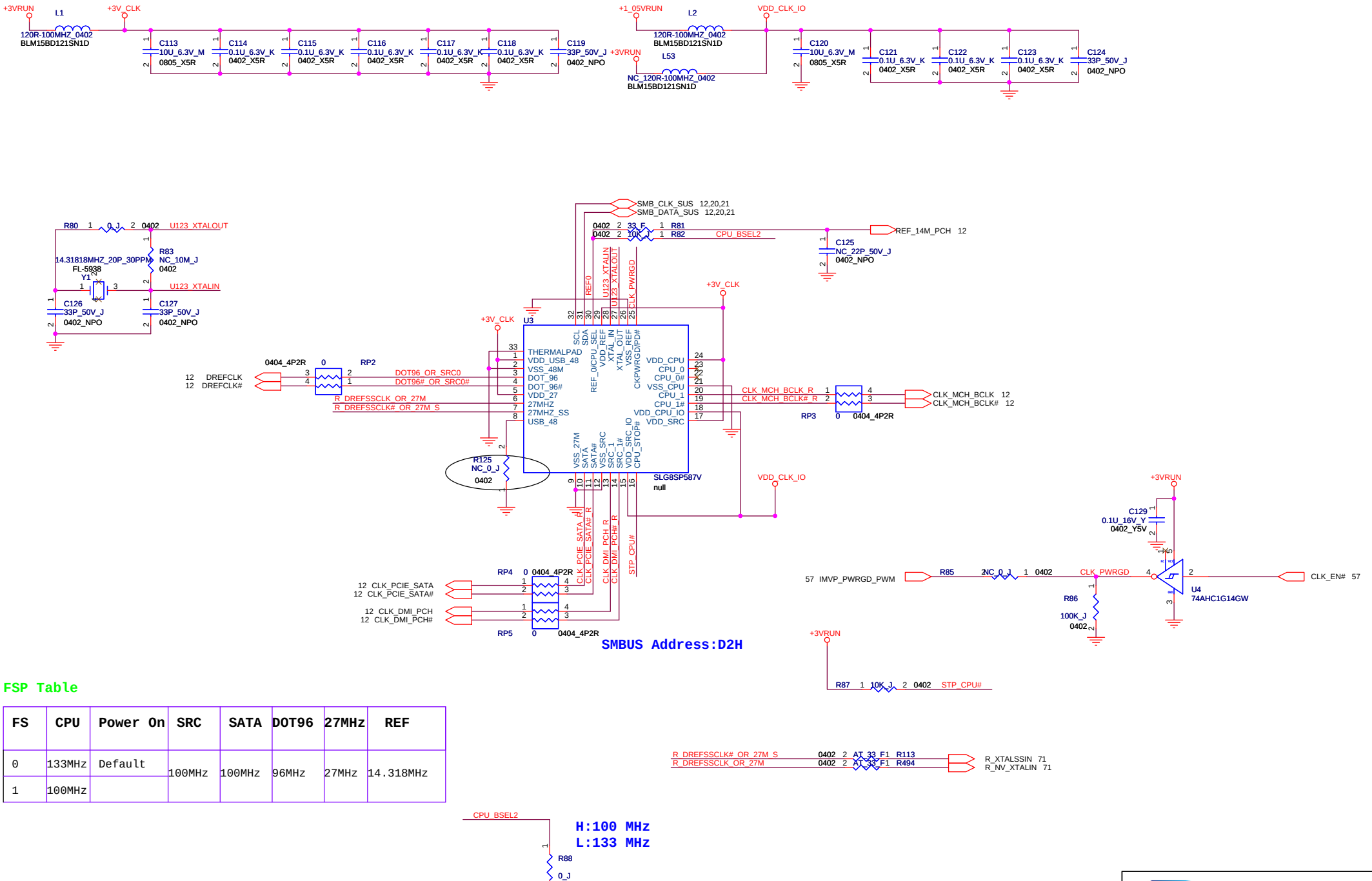

FSP Table

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

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Title: CLOCK GEN

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The traces inside this block should be wider.

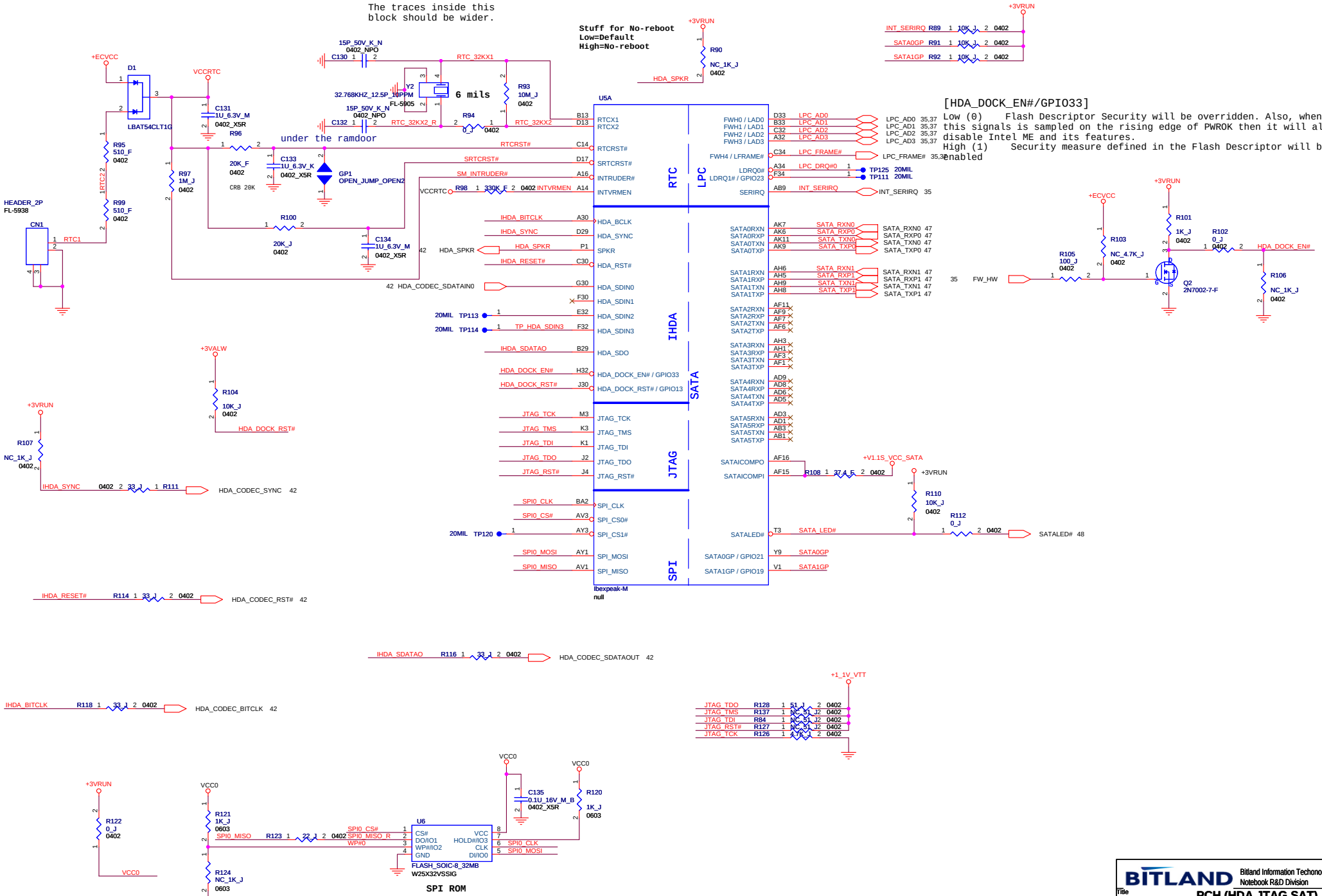
Stuff for No-reboot
Low=Default
High=No-reboot

[HDA_DOCK_EN#/GPIO33]
Low (0) Flash Descriptor Security will be overridden. Also, when this signals is sampled on the rising edge of PWROK then it will also disable Intel ME and its features.
High (1) Security measure defined in the Flash Descriptor will be enabled

under the ramdoor

6 mils

SPI ROM



Title	PCH (HDA,JTAG,SAT)
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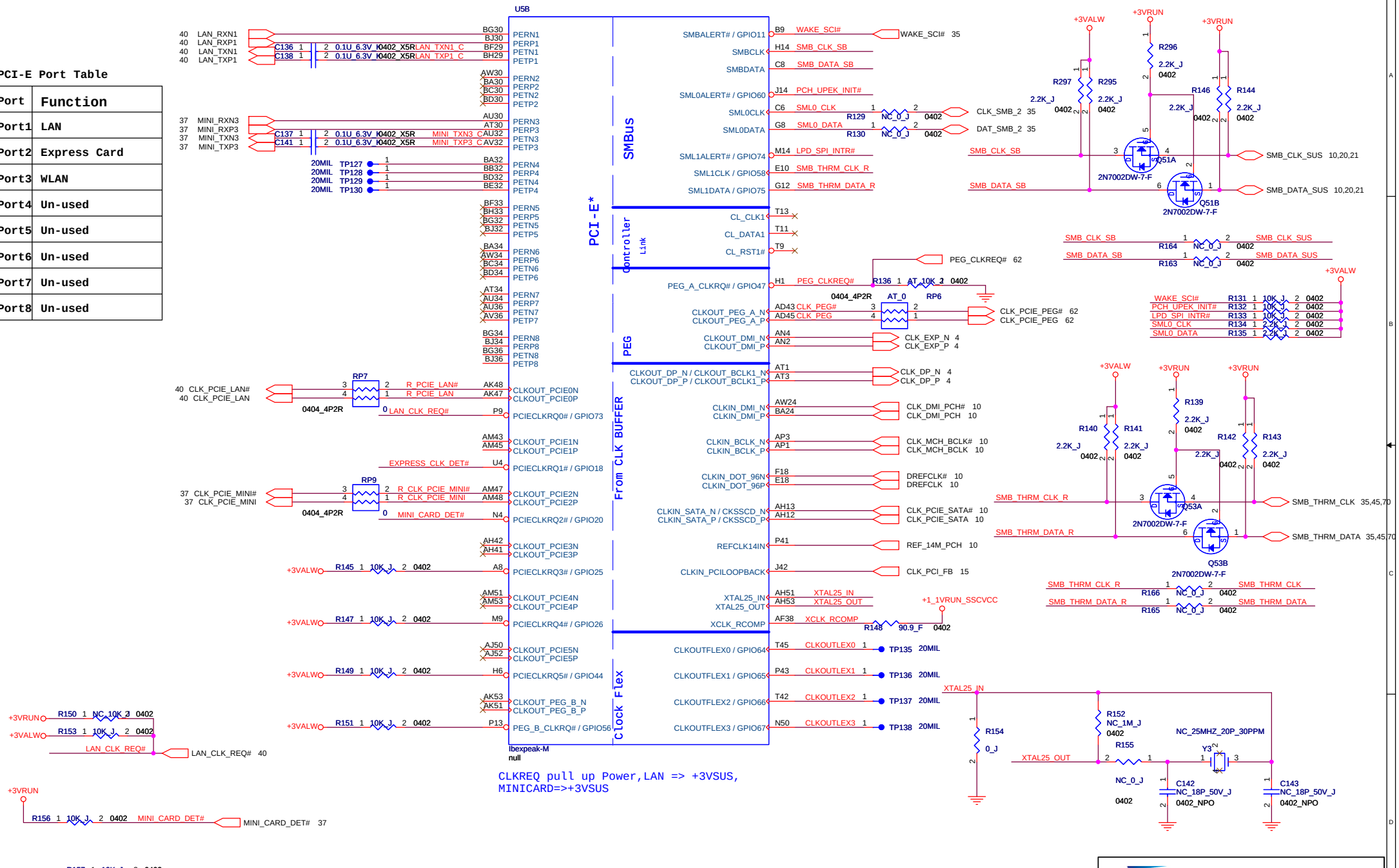
PCI-E Port Table

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



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Title	PCH (PCI-E,SMBUS,CLK)	
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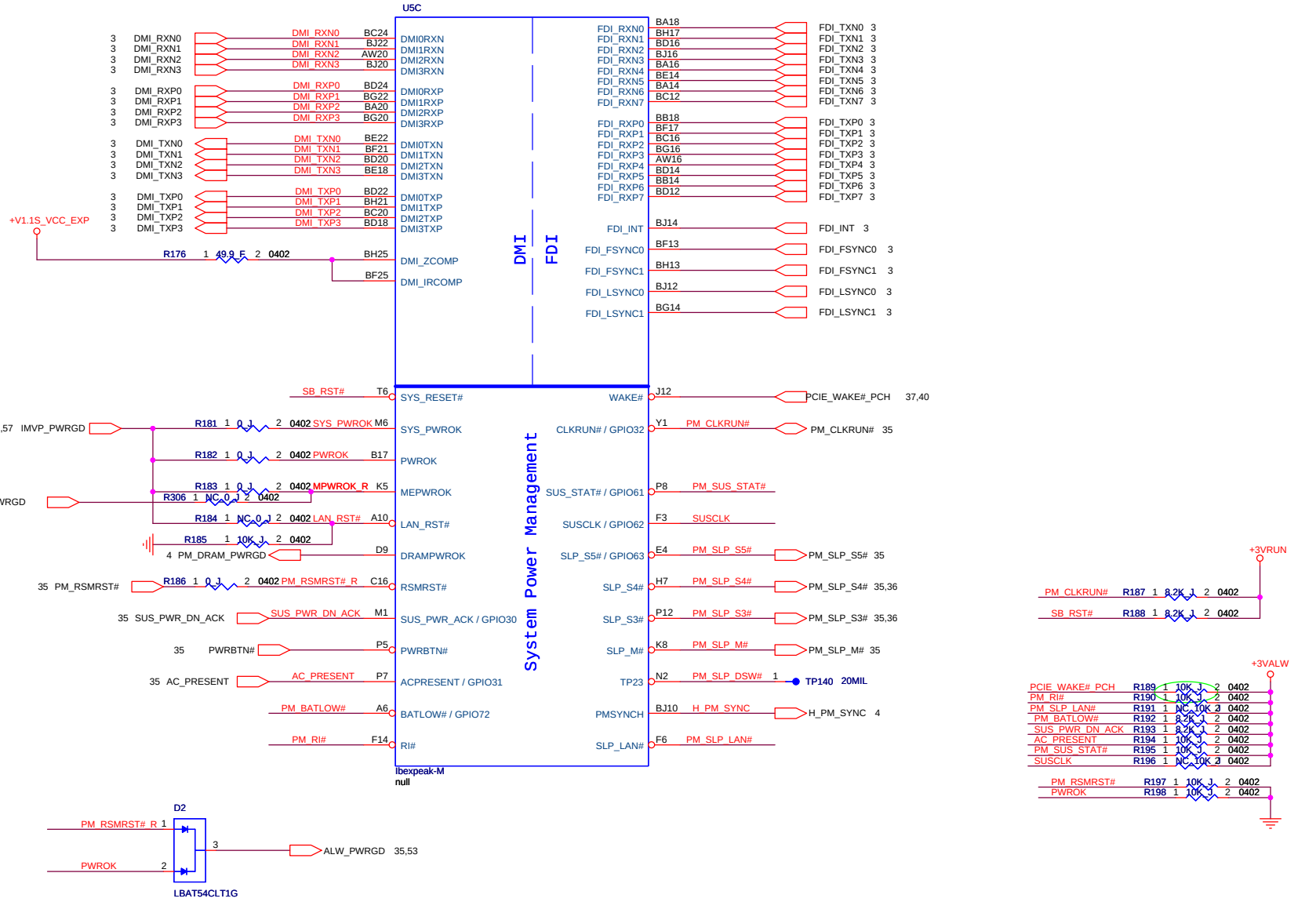

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Title: PCH (DMI,FDI,GPIO)

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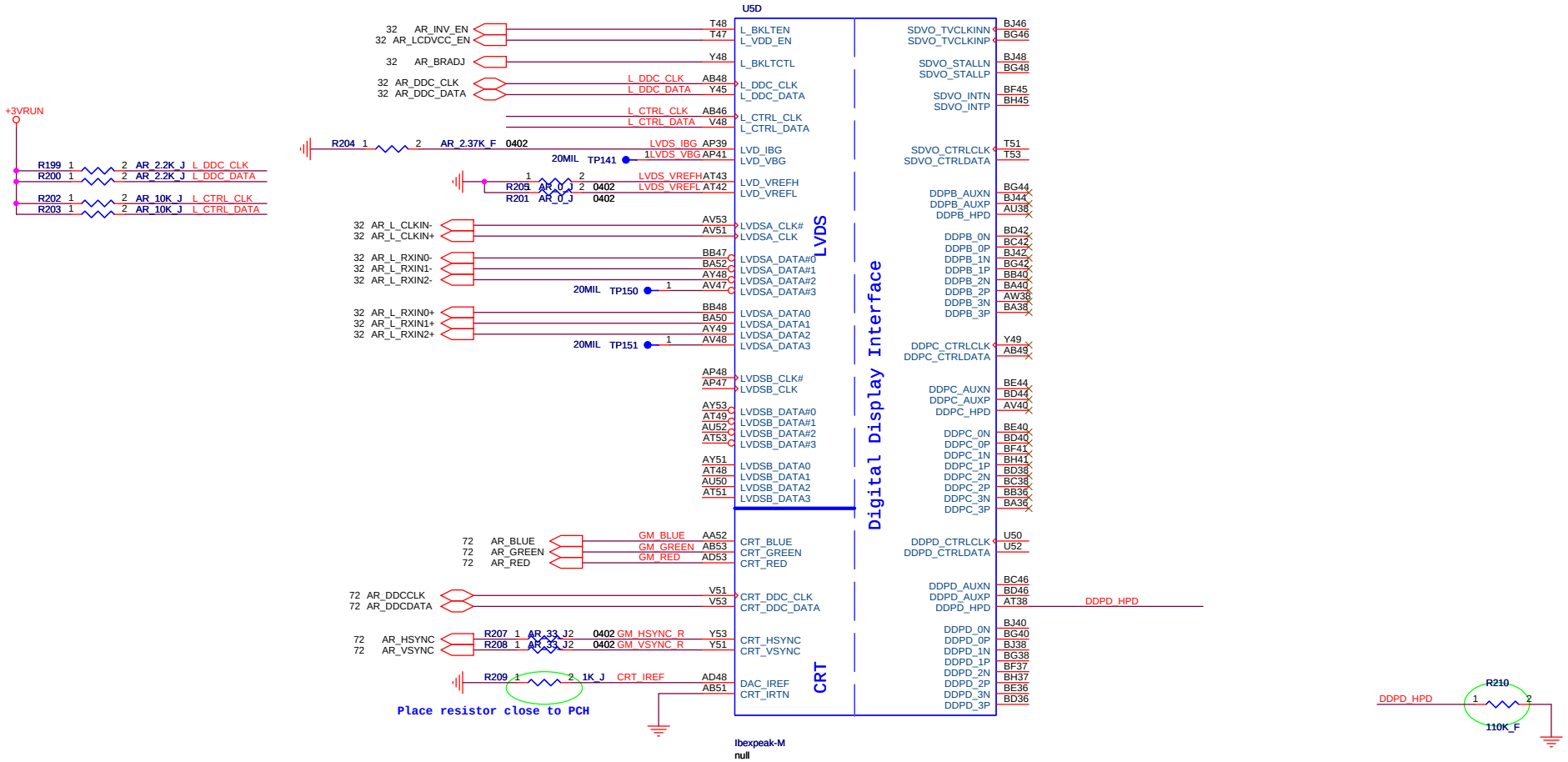

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Title	PCH (LVDS,DDI)		
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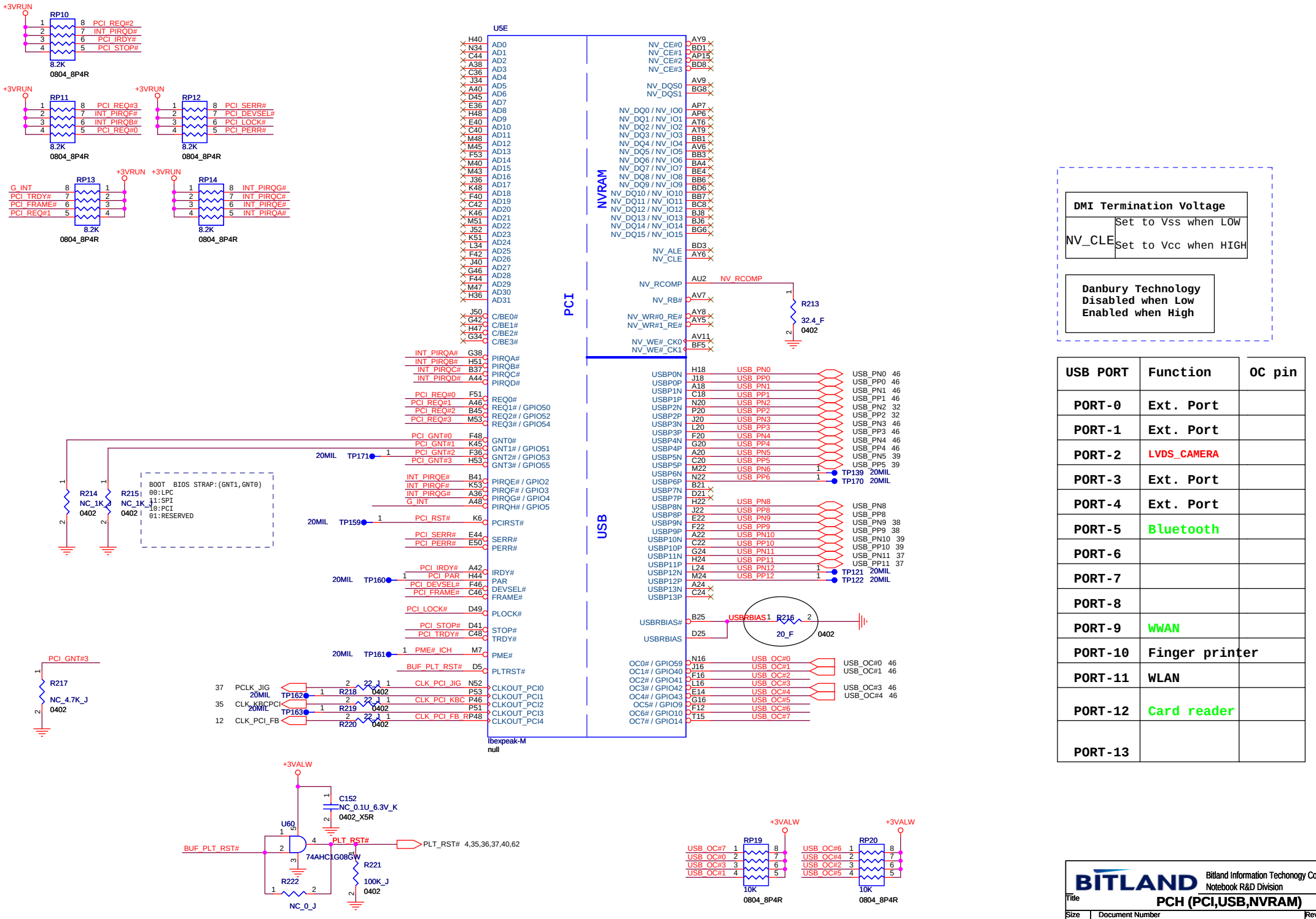

USB PORT	Function	OC pin
PORT-0	Ext. Port	
PORT-1	Ext. Port	
PORT-2	LVDS_CAMERA	
PORT-3	Ext. Port	
PORT-4	Ext. Port	
PORT-5	Bluetooth	
PORT-6		
PORT-7		
PORT-8		
PORT-9	WWAN	
PORT-10	Finger printer	
PORT-11	WLAN	
PORT-12	Card reader	
PORT-13		

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Title: PCH (PCI,USB,NVRAM)

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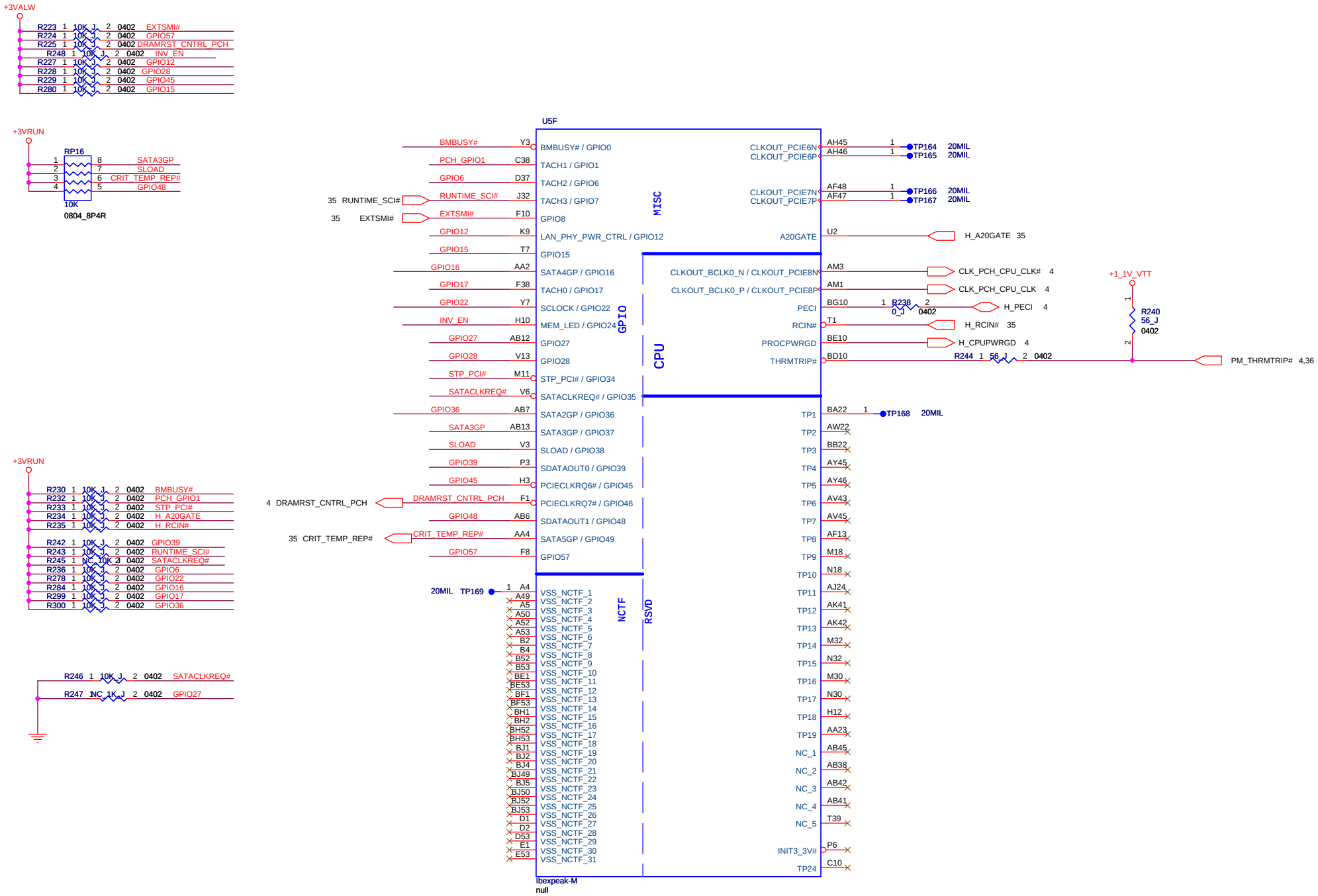

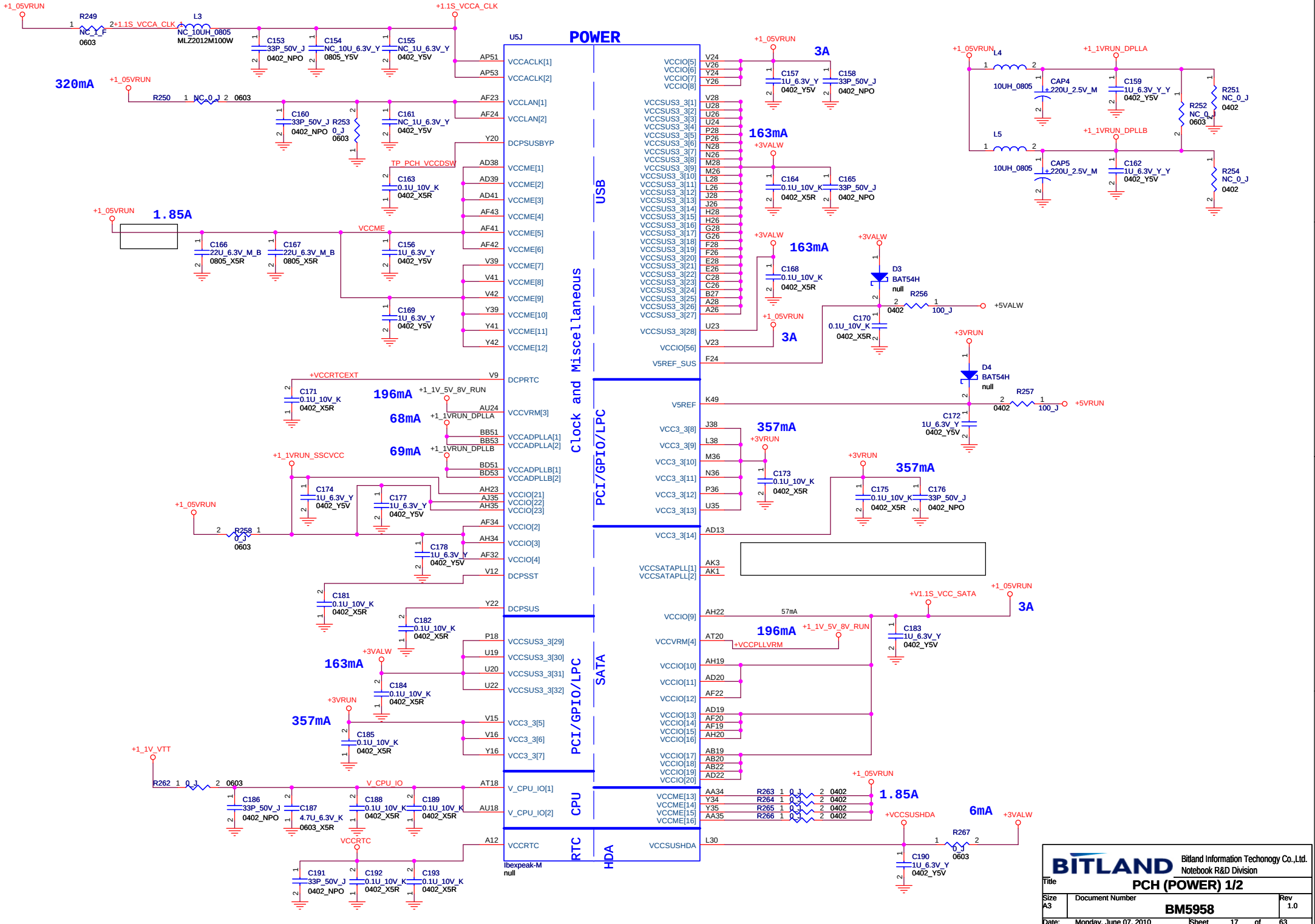
POWER
U5J
Clock and Miscellaneous
USB
PCI/GPIO/LPC
SATA
CPU
RTC
HDA
Ibexpeak-M
null
320mA
1.85A
196mA
68mA
69mA
163mA
357mA
6mA
+1_05VRUN
+1.1S_VCCA_CLK
+1_1V_5V_8V_RUN
+1_1VRUN_DPLLA
+1_1VRUN_DPLLB
+1_1VRUN_SSCVCC
+VCCRTCEXT
+3VALW
+3VRUN
+1_1V_VTT
+V1.1S_VCC_SATA
+VCCPLLVRM
+VCCSUSHDA
+5VALW
V_CPU_IO
VCCRTC
TP_PCH_VCCDSW
VCCME
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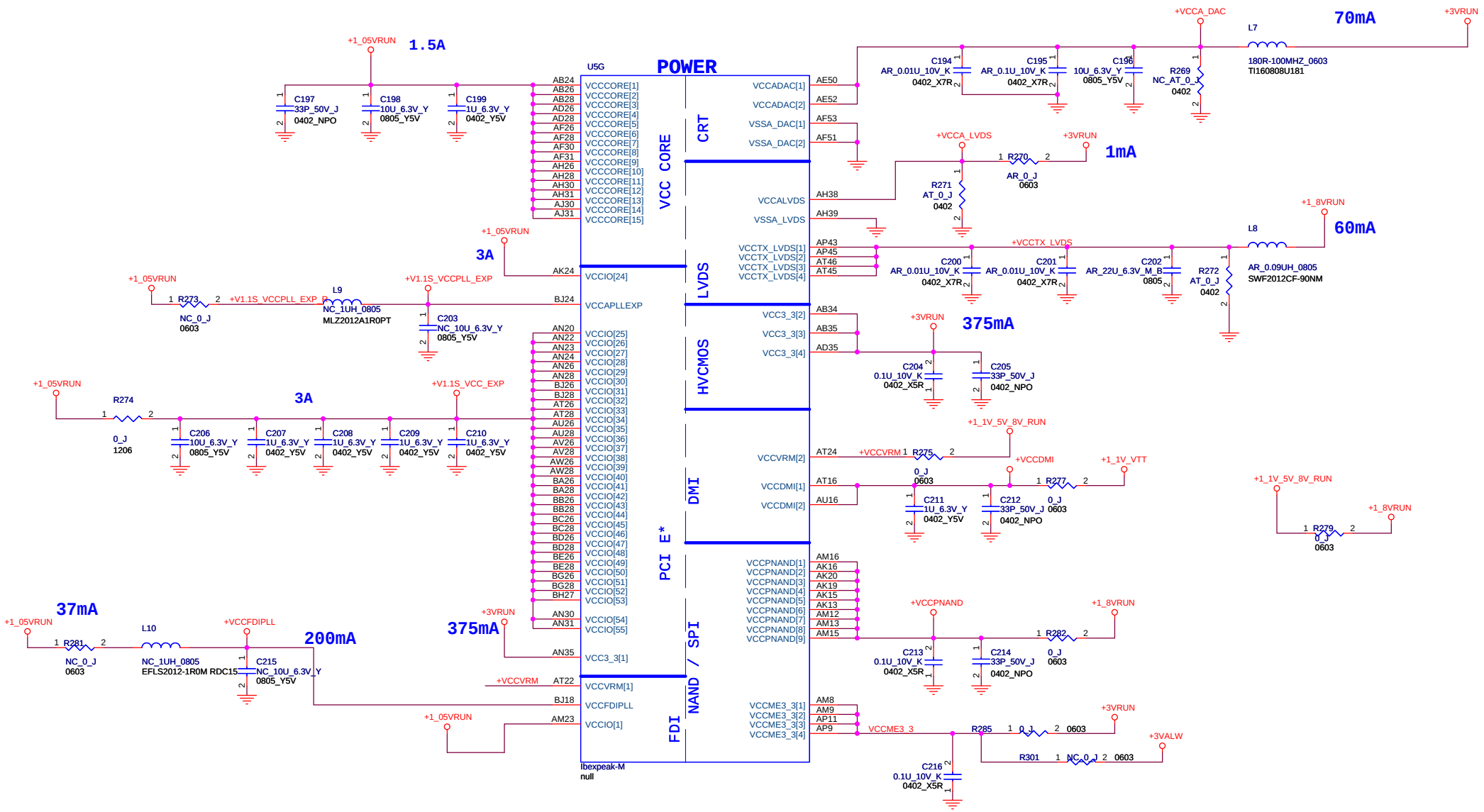

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Title: PCH (POWER) 2/2

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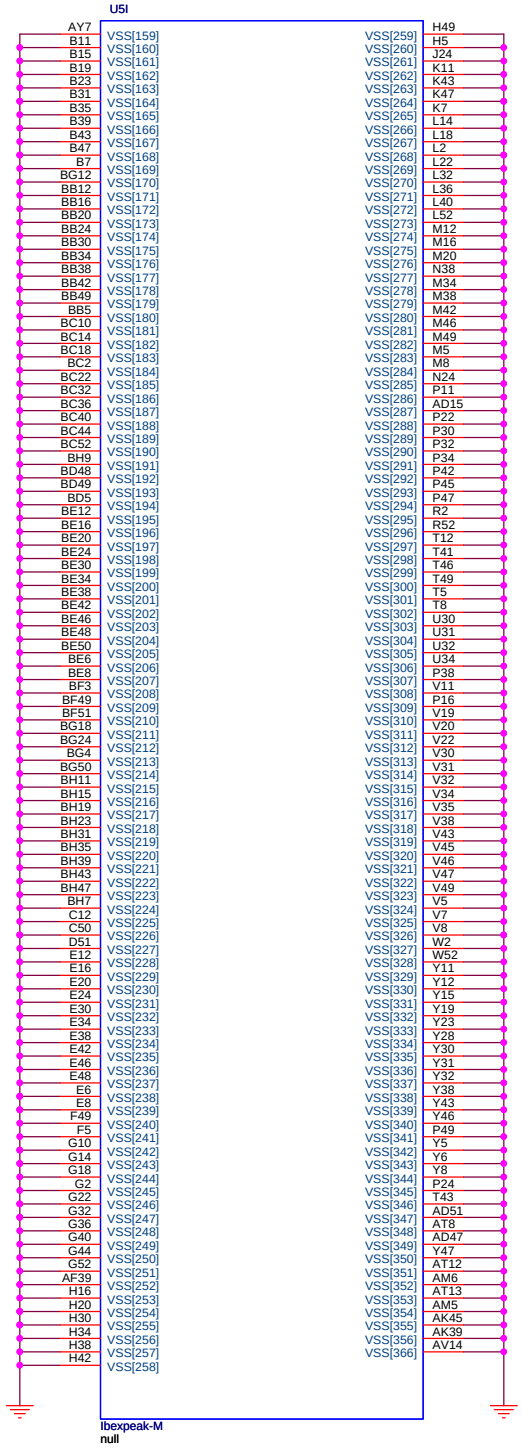

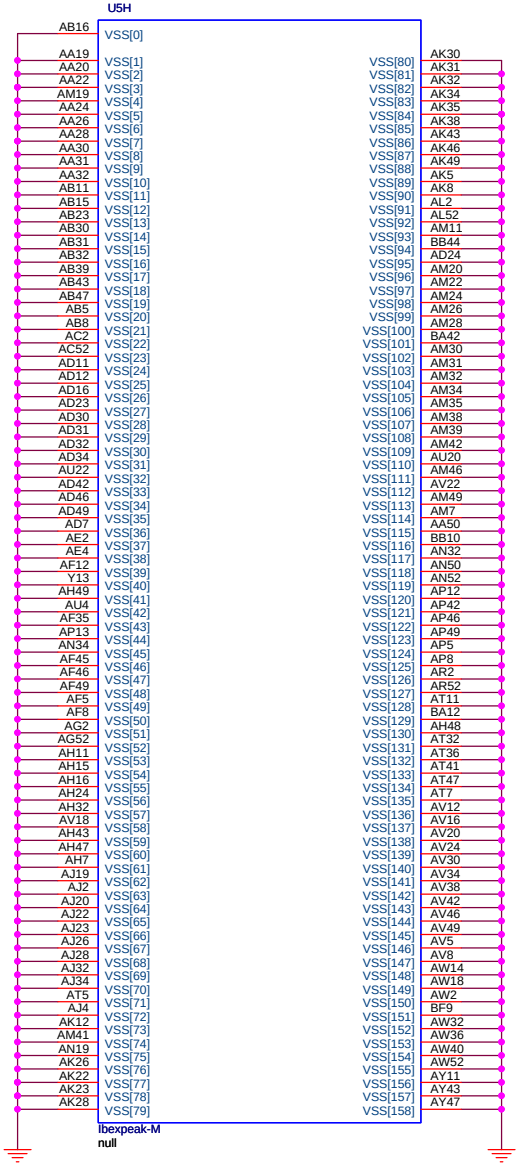

BITLAND Bitland Information Techonogy Co.,Ltd.
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Title: PCH (VSS)

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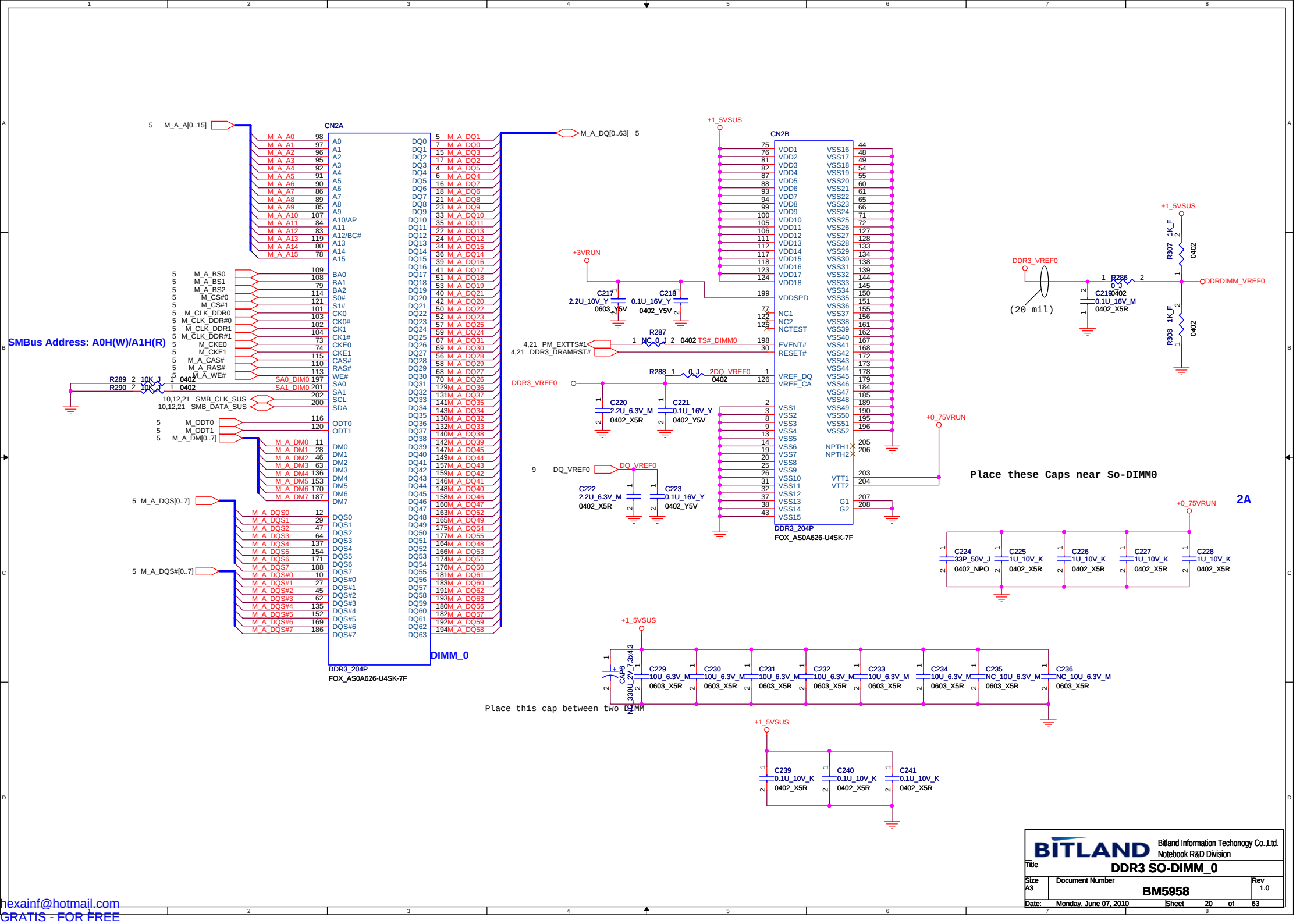

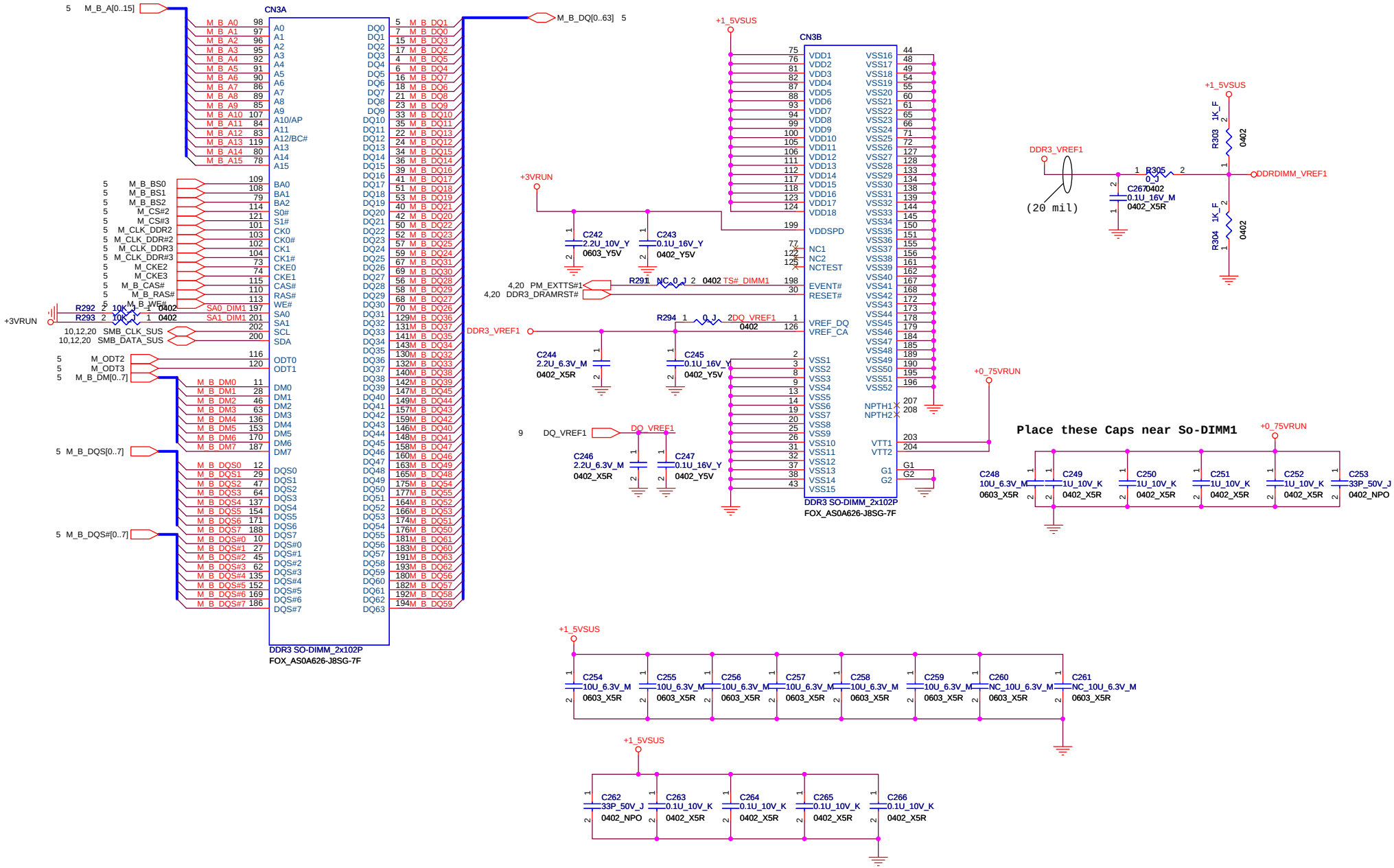

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Title	DDR3 SO-DIMM_1
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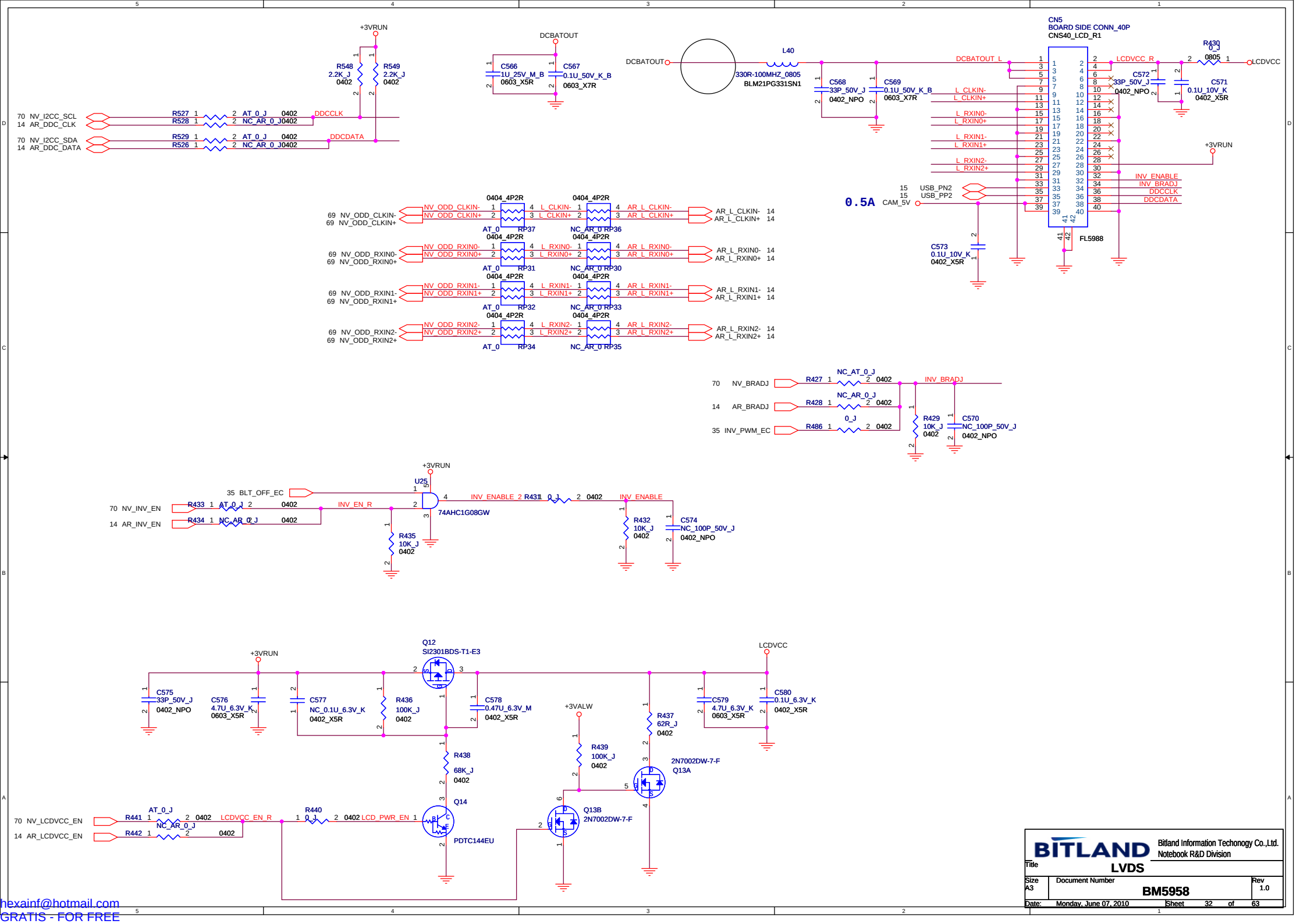

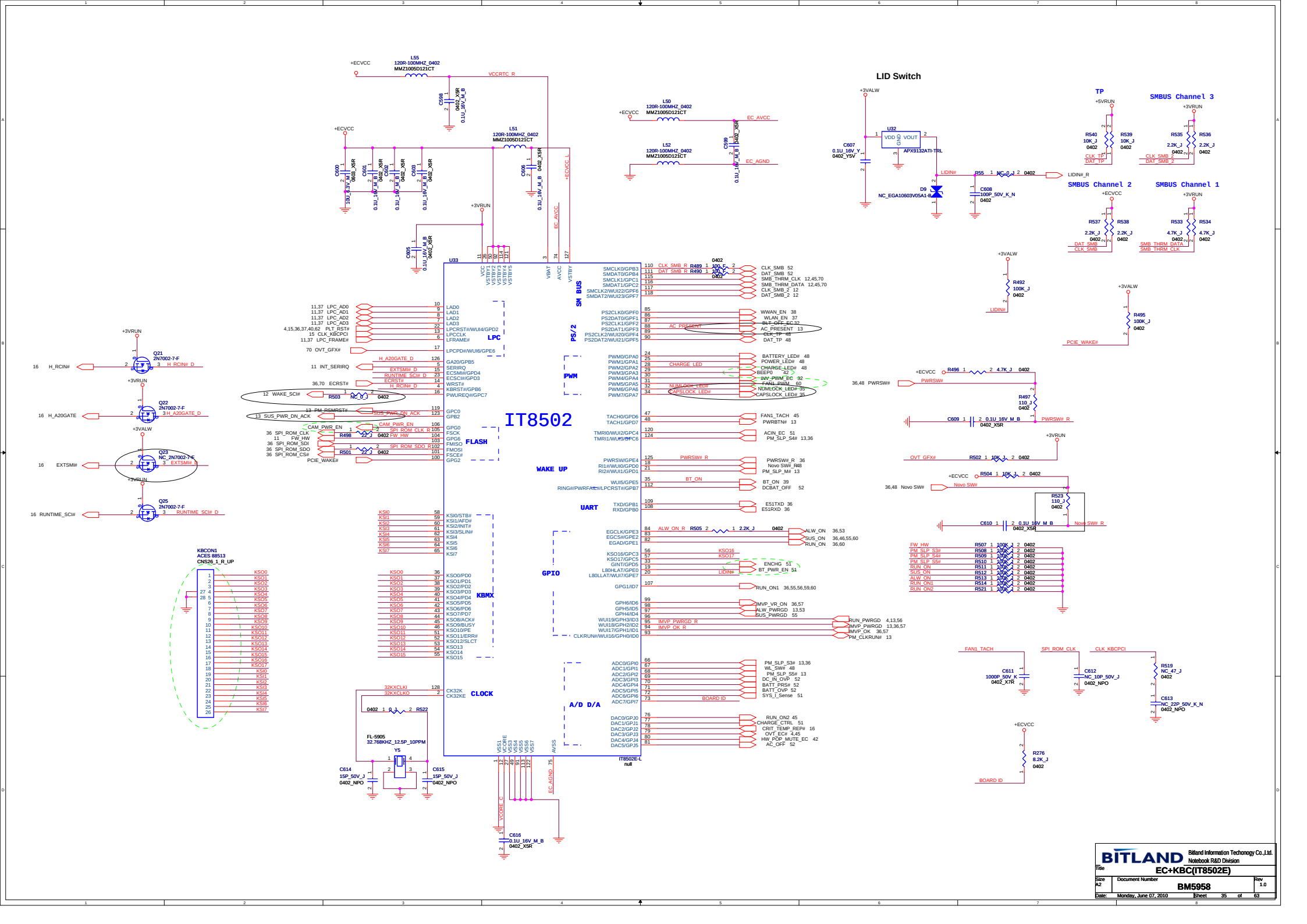
IT8502
LID Switch
TP
SMBUS Channel 3
SMBUS Channel 2
SMBUS Channel 1
LPC
FLASH
KBMX
CLOCK
PS/2
SM BUS
PWM
WAKE UP
UART
GPIO
A/D D/A
KBCON1
ACES 88513
CNS26_1_R_UP
Q21 2N7002-7-F
Q22 2N7002-7-F
Q23 NC_2N7002-7-F
Q25 2N7002-7-F
U33
IT8502E-L
null
FL-5905
32.768KHZ_12.5P_10PPM
Y5
U32
APX9132ATI-TRL
D9
NC_EGA10603V05A1-G
L55
120R-100MHZ_0402
MMZ1005D121CT
L50
L51
L52
VCCRTC_R
+ECVCC
+3VRUN
+3VALW
+5VRUN
EC_AVCC
EC_AGND
+ECVCC_L
LIDIN#
LIDIN#_R
CLK_SMB
DAT_SMB
SMB_THRM_CLK
SMB_THRM_DATA
CLK_SMB_2
DAT_SMB_2
CLK_TP
DAT_TP
WWAN_EN
WLAN_EN
BLT_OFF_EC
AC_PRESENT
CLK_TP
DAT_TP
BATTERY_LED#
POWER_LED#
CHARGE_LED#
BEEP0
INV_PWM_EC
FAN_PWM
NUMLOCK_LED#
CAPSLOCK_LED#
FAN1_TACH
PWRBTN#
ACIN_EC
PM_SLP_S4#
PWRSW#_R
Novo SW#_R
PM_SLP_M#
BT_ON
BT_ON
DCBAT_OFF
E51TXD
E51RXD
ALW_ON
SUS_ON
RUN_ON
ENCHG
BT_PWR_EN
RUN_ON1
MVP_VR_ON
ALW_PWRGD
SUS_PWRGD
RUN_PWRGD
MVP_PWRGD
MVP_OK
PM_CLKRUN#
PM_SLP_S3#
WL_SW#
PM_SLP_S5#
DC_IN_OVP
BATT_PRS#
BATT_OVP
SYS_I_Sense
BOARD ID
RUN_ON2
CHARGE_CTRL
CRIT_TEMP_REP#
OVT_EC#
HW_POP_MUTE_EC
AC_OFF
PWRSW#
Novo SW#
OVT_GFX#
PCIE_WAKE#
FW_HW
PM_SLP_S3#
PM_SLP_S4#
PM_SLP_S5#
RUN_ON
SUS_ON
ALW_ON
RUN_ON1
RUN_ON2
FAN1_TACH
SPI_ROM_CLK
CLK_KBCPCI
BOARD ID
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Notebook R&D Division
Title
EC+KBC(IT8502E)
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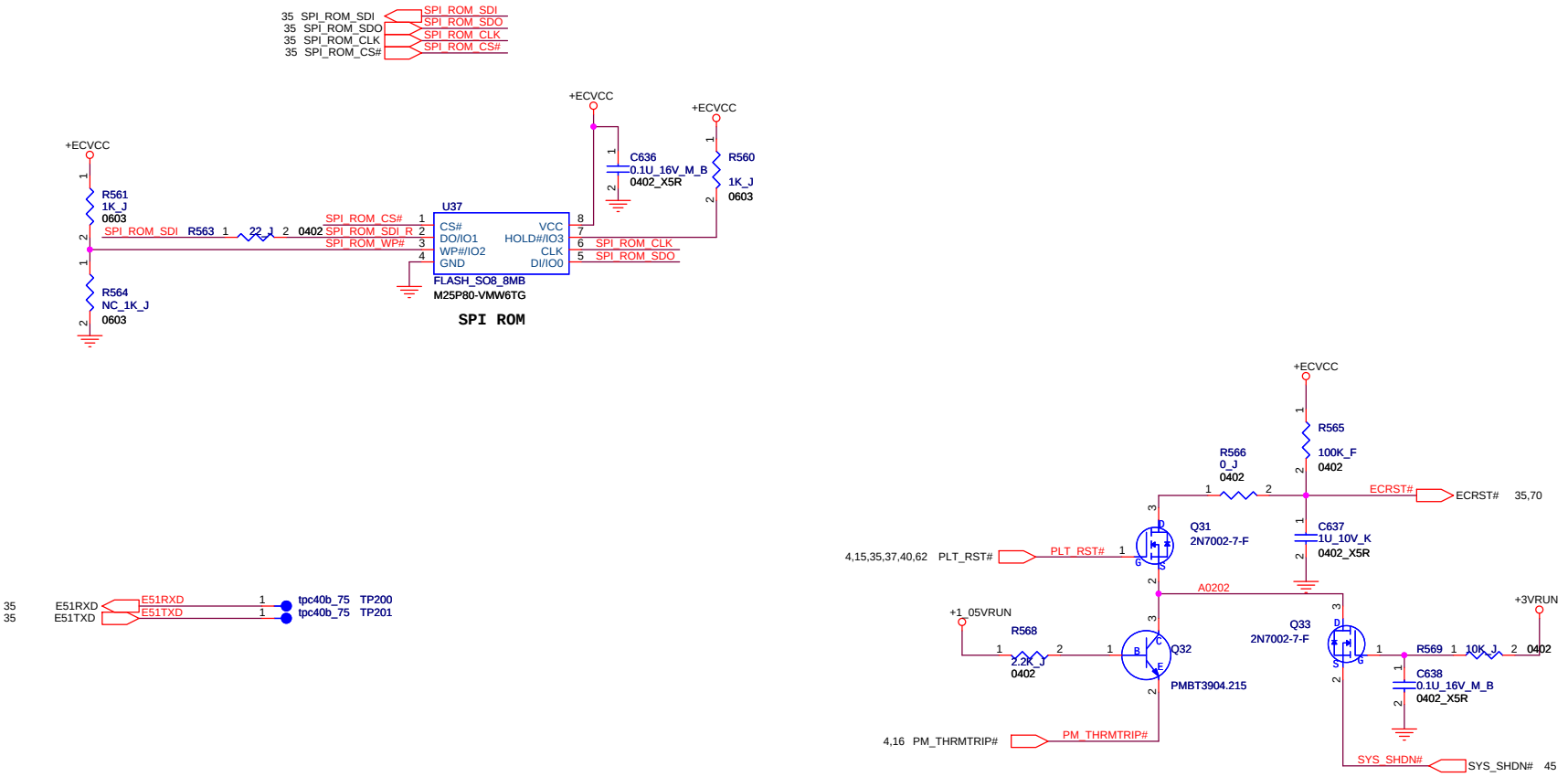

these TP could near the MB outline.

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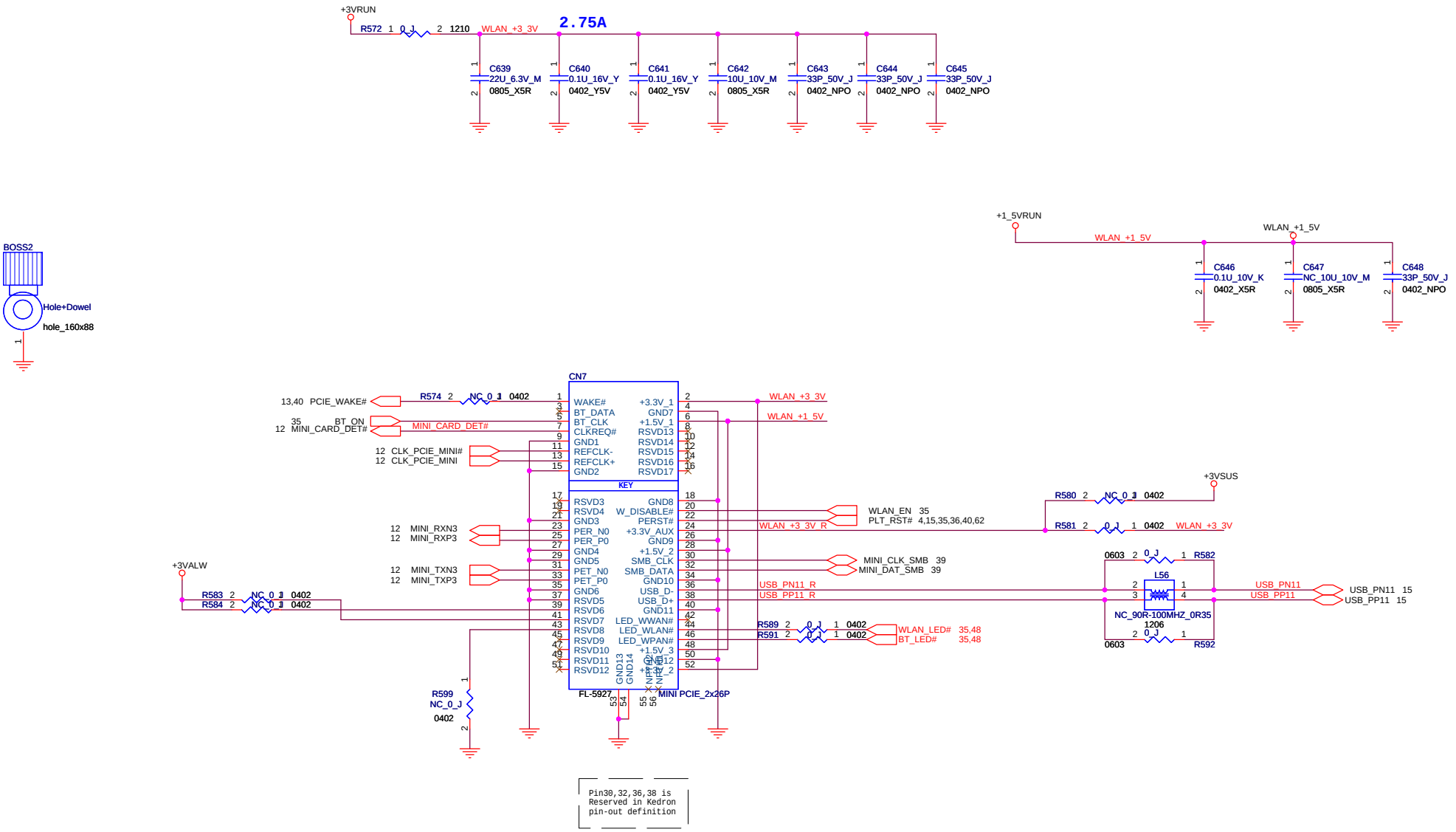

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
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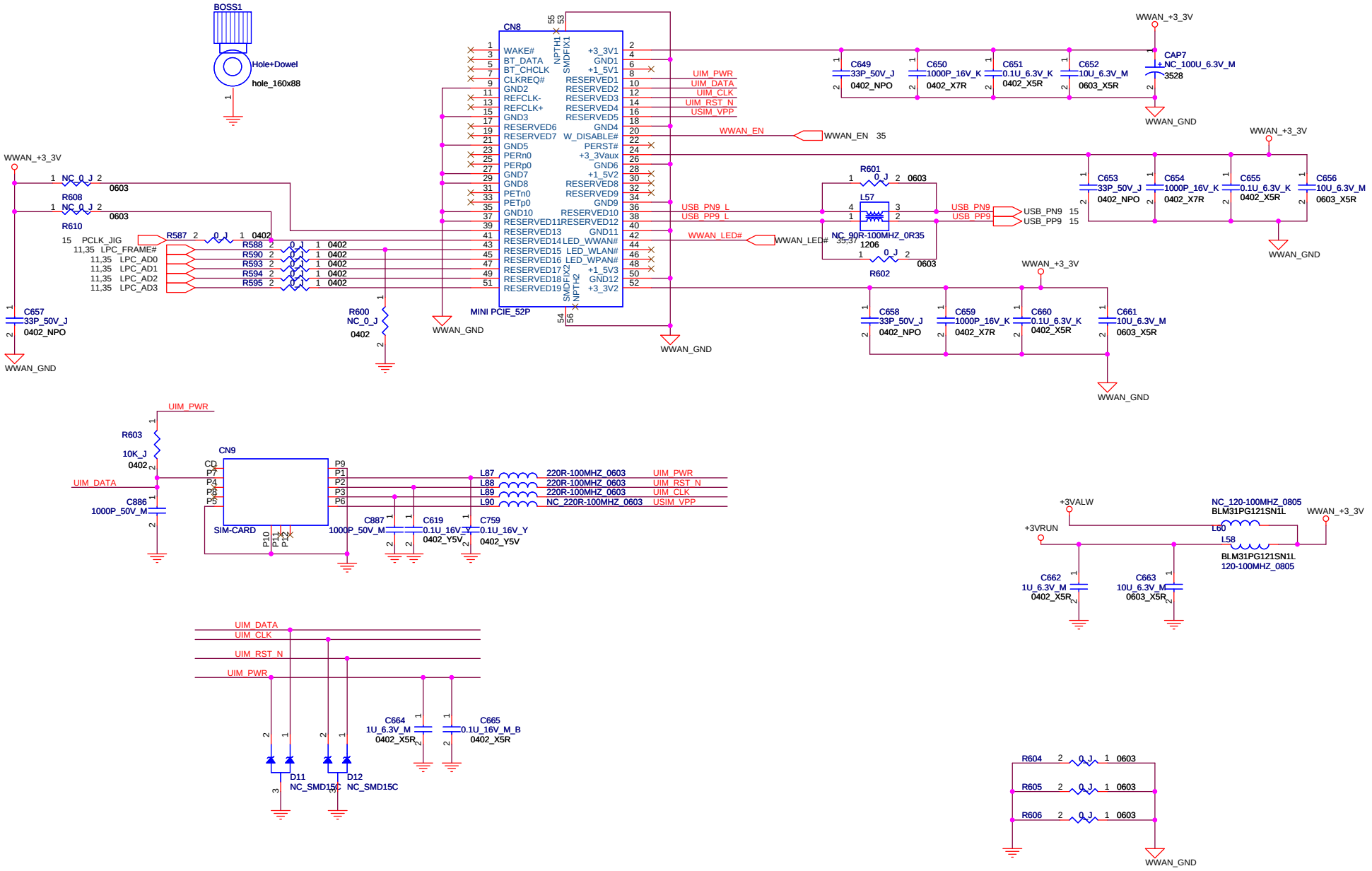
WWAN



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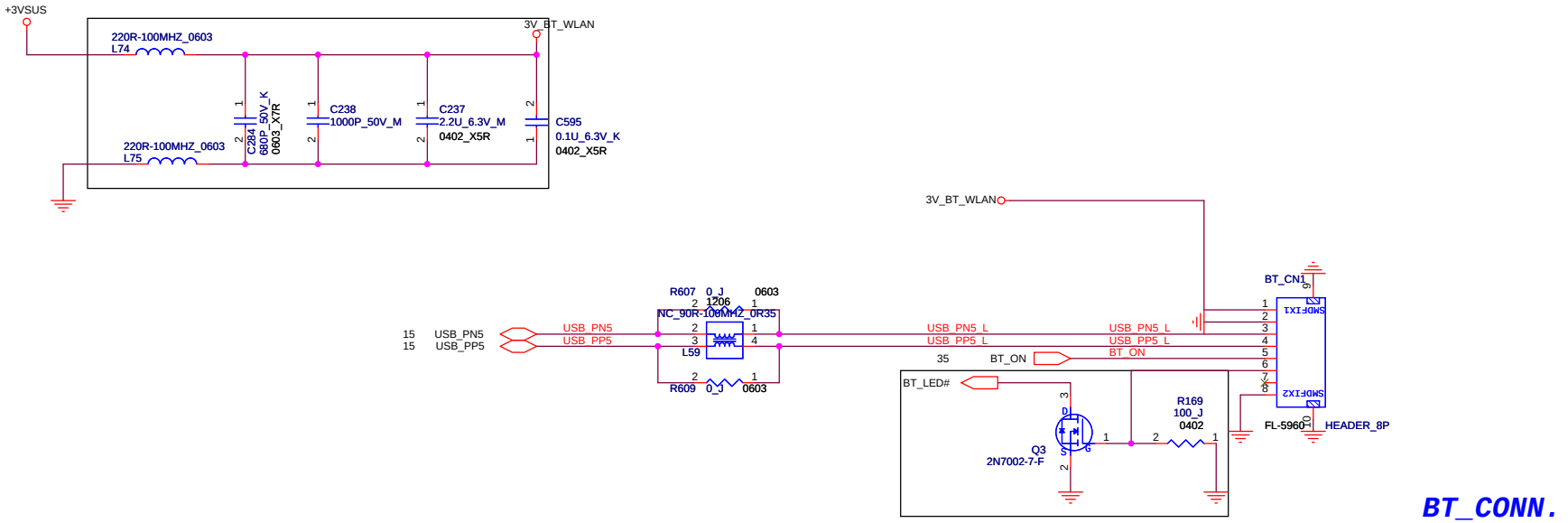

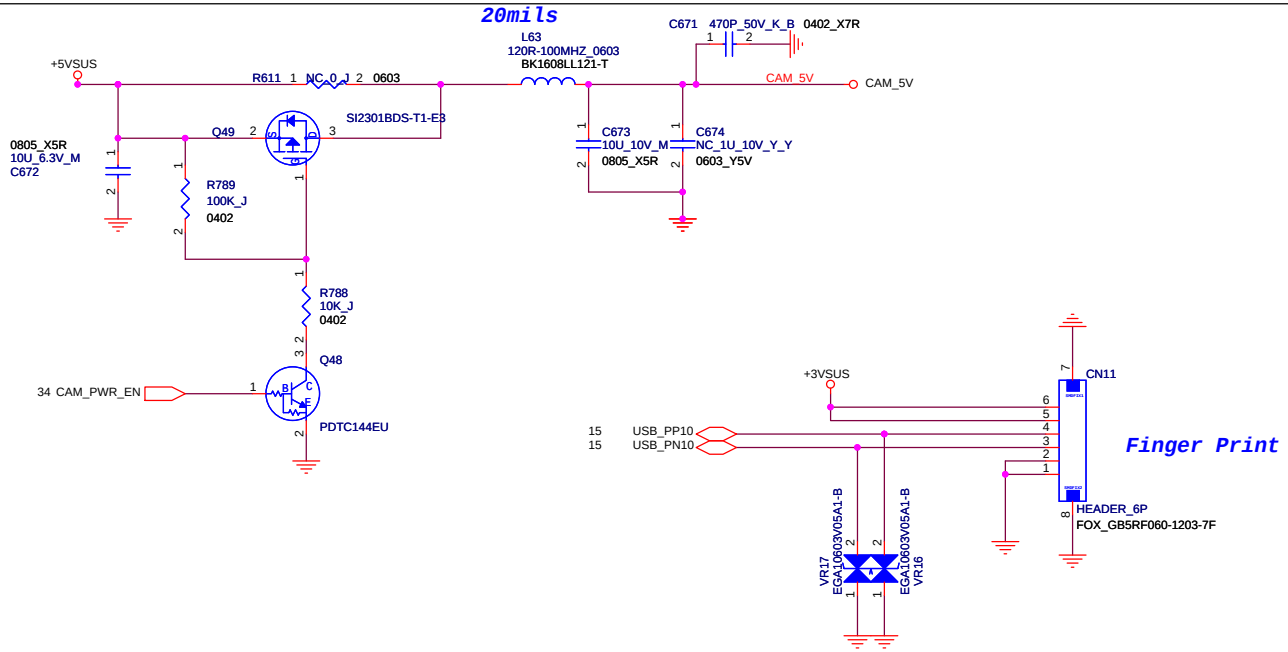

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	BT & CAMERA	
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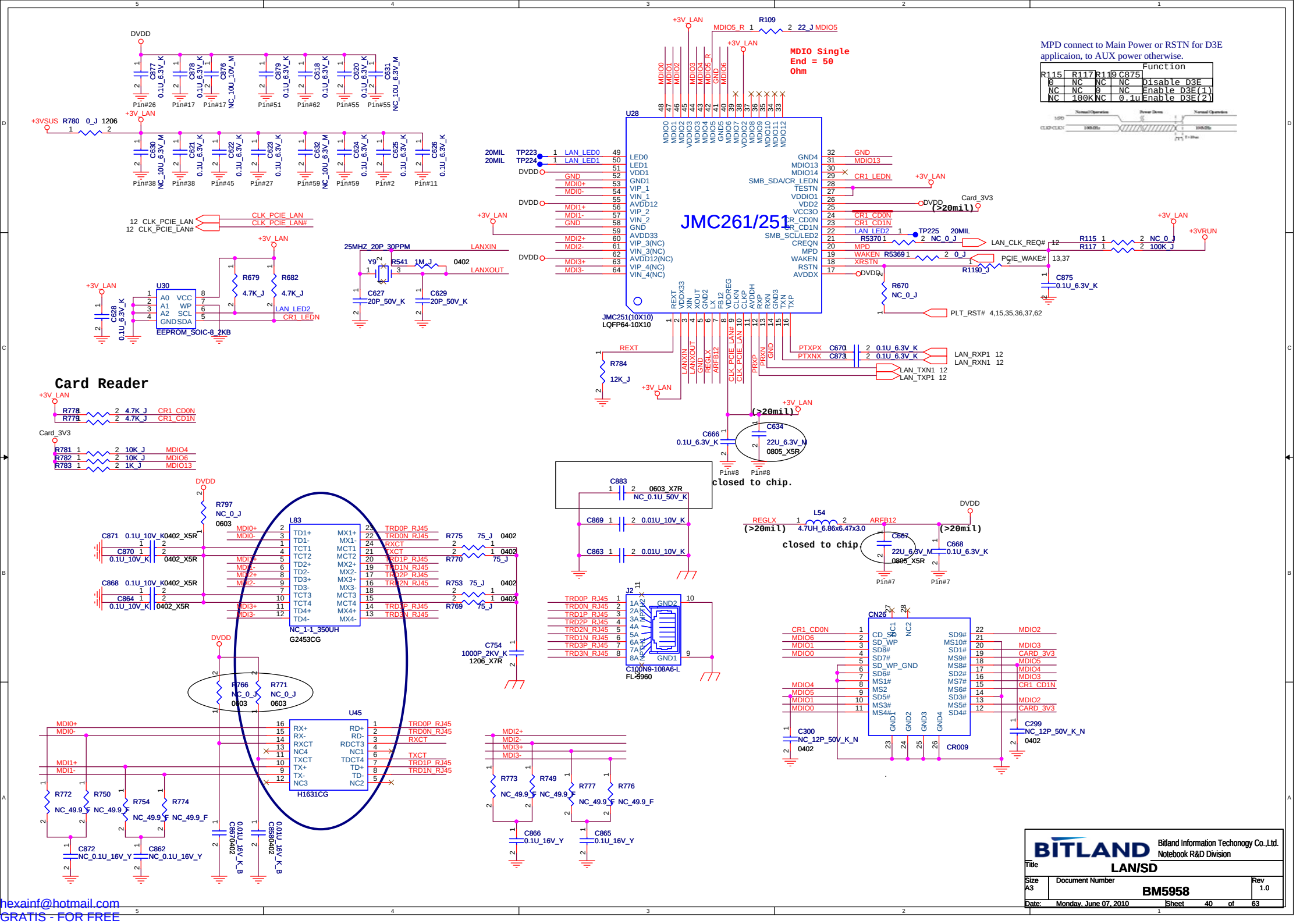

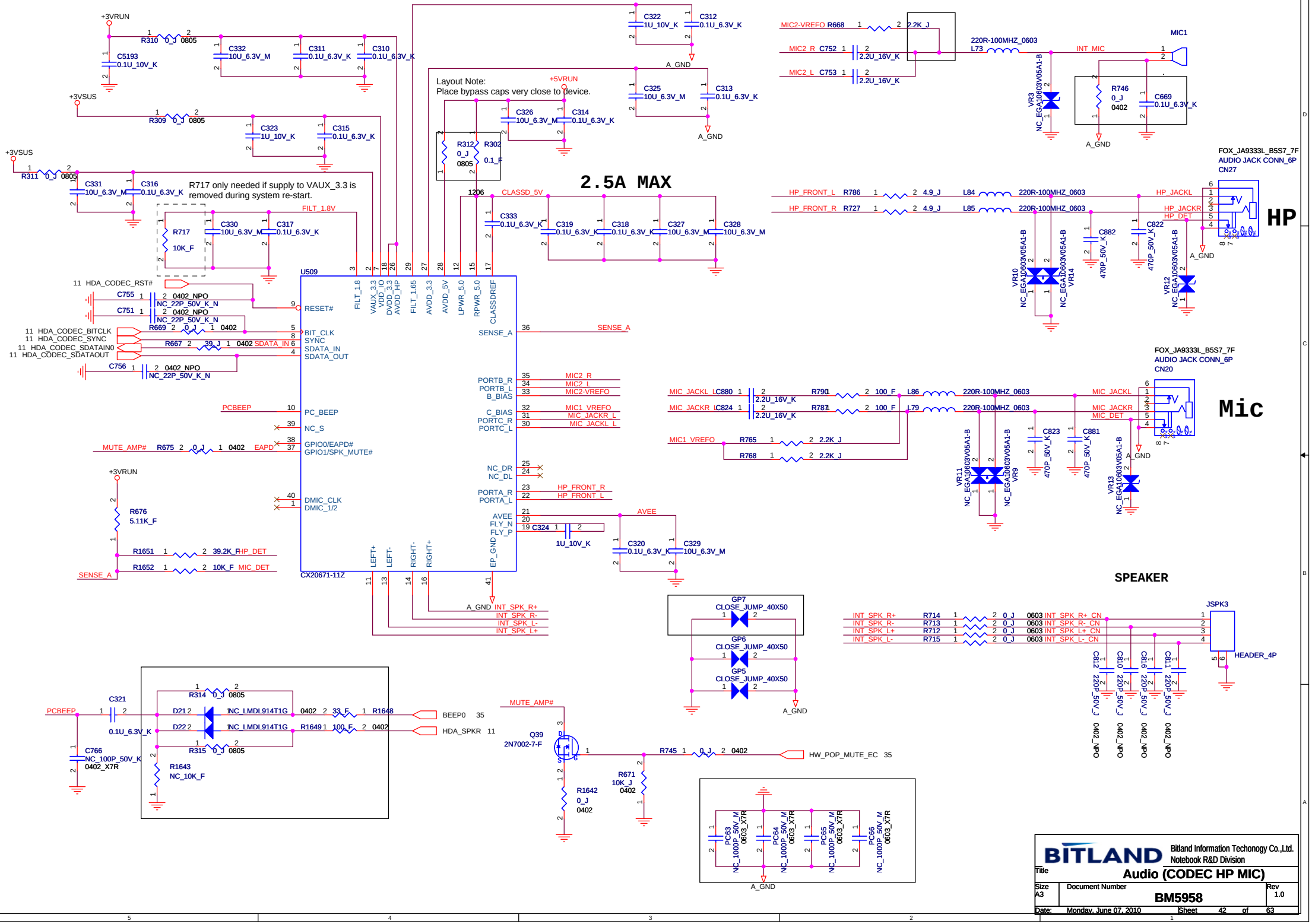
+3VRUN
+3VSUS
Layout Note:
Place bypass caps very close to device.
+5VRUN
A_GND
2.5A MAX
R717 only needed if supply to VAUX_3.3 is removed during system re-start.
FILT_1.8V
CLASSD_5V
U509
CX20671-11Z
RESET#
BIT_CLK
SYNC
SDATA_IN
SDATA_OUT
SENSE_A
PC_BEEP
NC_S
GPIO0/EAPD#
GPIO1/SPK_MUTE#
DMIC_CLK
DMIC_1/2
MIC2_R
MIC2_L
MIC2-VREFO
MIC1_VREFO
MIC_JACKR_L
MIC_JACKL_L
HP_FRONT_R
HP_FRONT_L
AVEE
LEFT+
LEFT-
RIGHT-
RIGHT+
INT_SPK_R+
INT_SPK_R-
INT_SPK_L-
INT_SPK_L+
MIC1
INT_MIC
HP
FOX_JA9333L_B5S7_7F
AUDIO JACK CONN_6P
CN27
HP_JACKL
HP_JACKR
HP_DET
Mic
CN20
MIC_JACKL
MIC_JACKR
MIC_DET
SPEAKER
JSPK3
HEADER_4P
PCBEEP
MUTE_AMP#
BEEP0
HDA_SPKR
HW_POP_MUTE_EC
Q39
2N7002-7-F
BITLAND
Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division
Title
Audio (CODEC HP MIC)
Size
A3
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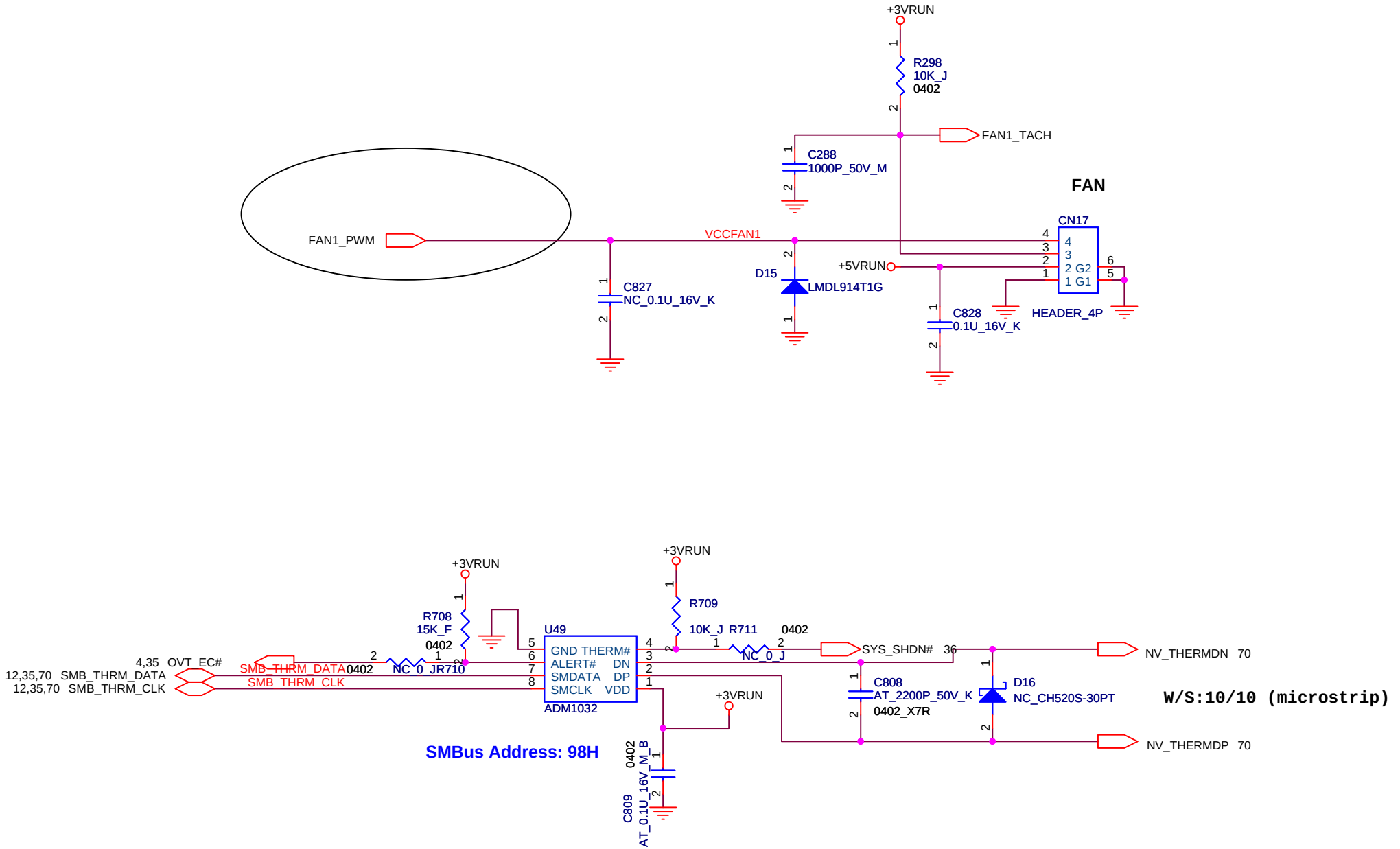
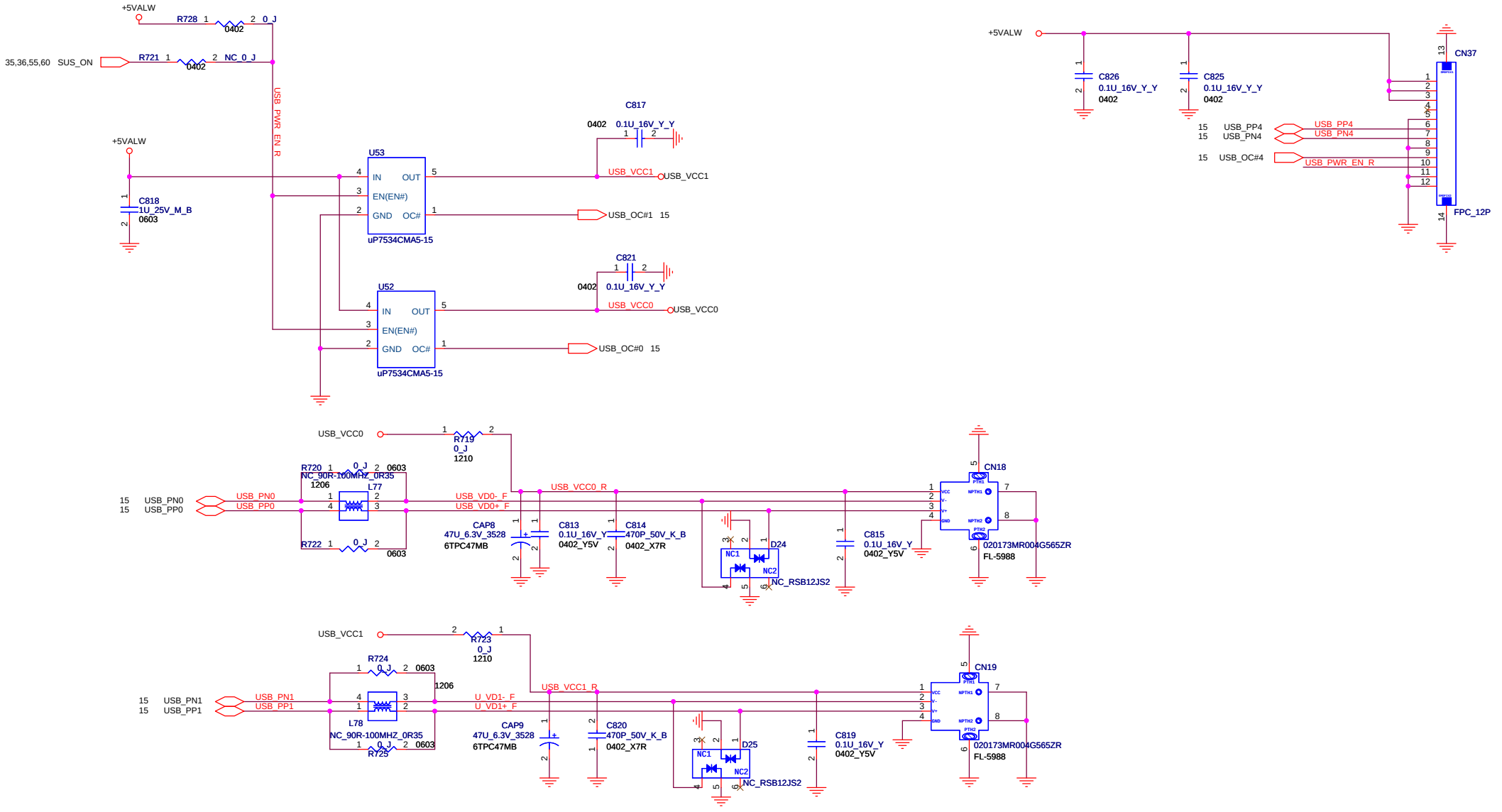


Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	FAN/Thermal Sensor
Size A4	Document Number BM5958 Rev 1.0
Date: Monday, June 07, 2010	Sheet 45 of 63



BITLAND Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division

Title	USB2.0	
Size A3	Document Number BM5958	Rev 1.0
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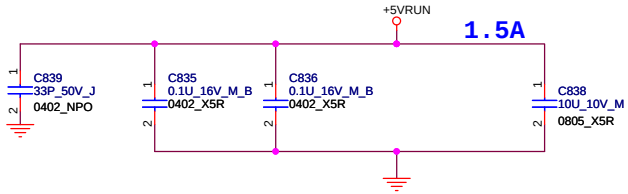
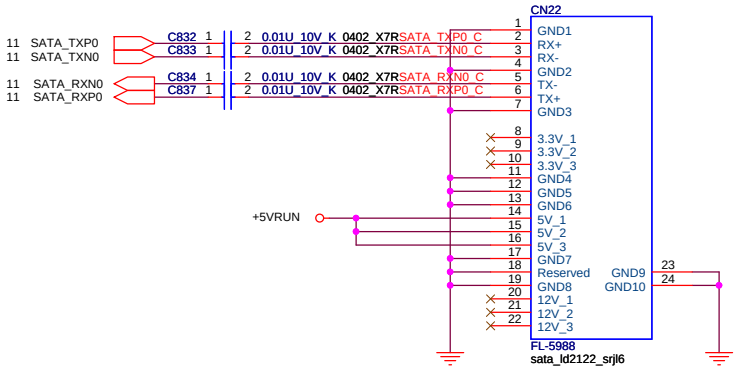
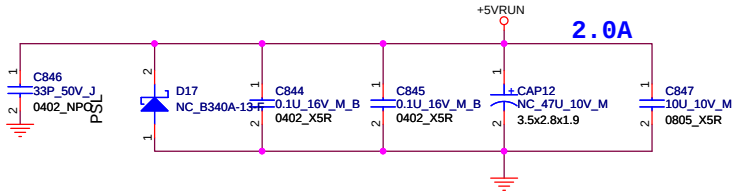
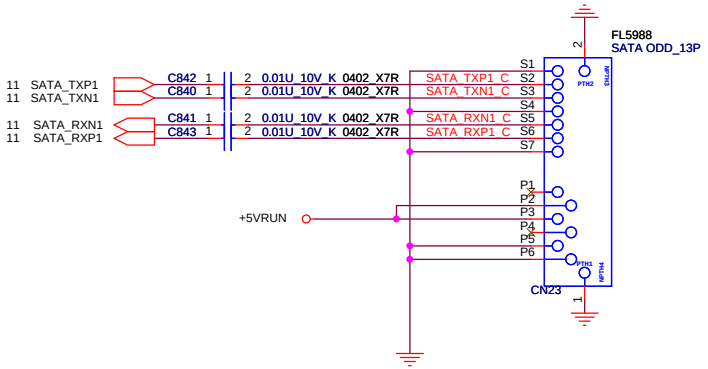
SATA HDD CONN





SATA ODD CONN





BITLAND Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division

Title	SATA HDD/ODD	
Size A3	Document Number BM5958	Rev 1.0
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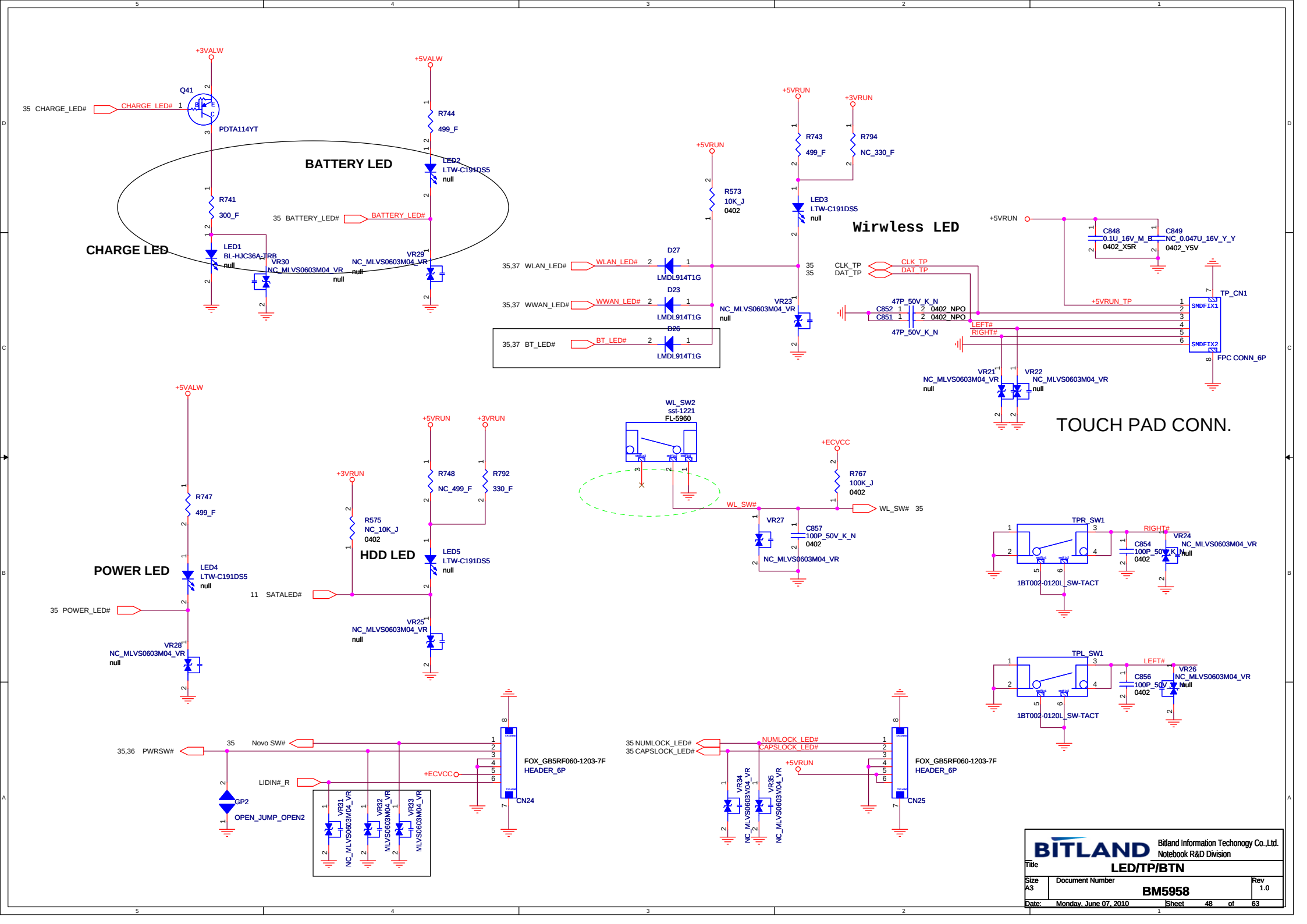
BATTERY LED
CHARGE LED
Wirwless LED
TOUCH PAD CONN.
POWER LED
HDD LED
+3VALW
+5VALW
+5VRUN
+3VRUN
+ECVCC
Q41
PDTA114YT
CHARGE_LED#
BATTERY_LED#
R741
300_F
R744
499_F
LED1
BL-HJC36A-TRB
LED2
LTW-C191DS5
VR29
VR30
NC_MLVS0603M04_VR
null
R573
10K_J
0402
R743
R794
NC_330_F
LED3
D27
D23
D26
LMDL914T1G
WLAN_LED#
WWAN_LED#
BT_LED#
VR23
C848
0.1U_16V_M_B
0402_X5R
C849
NC_0.047U_16V_Y_Y
0402_Y5V
CLK_TP
DAT_TP
C852
C851
47P_50V_K_N
0402_NPO
LEFT#
RIGHT#
TP_CN1
SMDFIX1
SMDFIX2
FPC CONN_6P
VR21
VR22
R747
499_F
LED4
LTW-C191DS5
VR28
R748
NC_499_F
R792
330_F
R575
NC_10K_J
0402
LED5
LTW-C191DS5
VR25
SATALED#
POWER_LED#
WL_SW2
sst-1221
FL-5960
WL_SW#
R767
100K_J
0402
VR27
C857
100P_50V_K_N
0402
TPR_SW1
TPL_SW1
1BT002-0120L_SW-TACT
VR24
VR26
C854
C856
PWRSW#
Novo SW#
LIDIN#_R
GP2
OPEN_JUMP_OPEN2
VR31
VR32
VR33
FOX_GB5RF060-1203-7F
HEADER_6P
CN24
NUMLOCK_LED#
CAPSLOCK_LED#
VR34
VR35
CN25
BITLAND
Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division
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LED/TP/BTN
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A3
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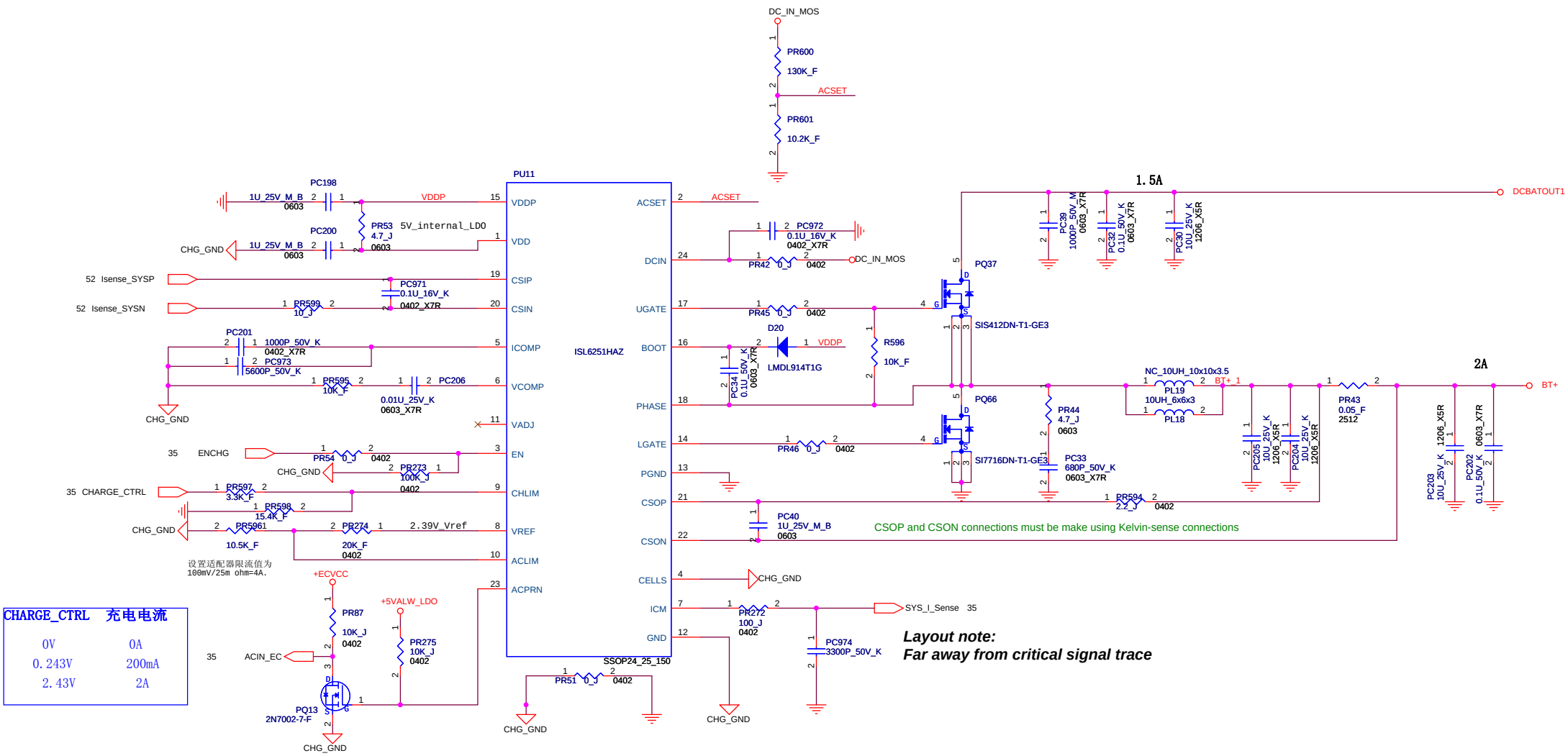

CHARGE_CTRL	充电电流
0V	0A
0.243V	200mA
2.43V	2A

SYS_I_Sense	SYS_CURRENT
400mV	1A
1.67V	4.2A
1.87V	4.7A

SYS_CURRENT	SYS_I_Sense	SYS_I_Trip
>3.6A	>1.8V	High
<3A	<1.5V	Low

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Title	PWR_Charger	
Size A3	Document Number BM5958	Rev 1.0
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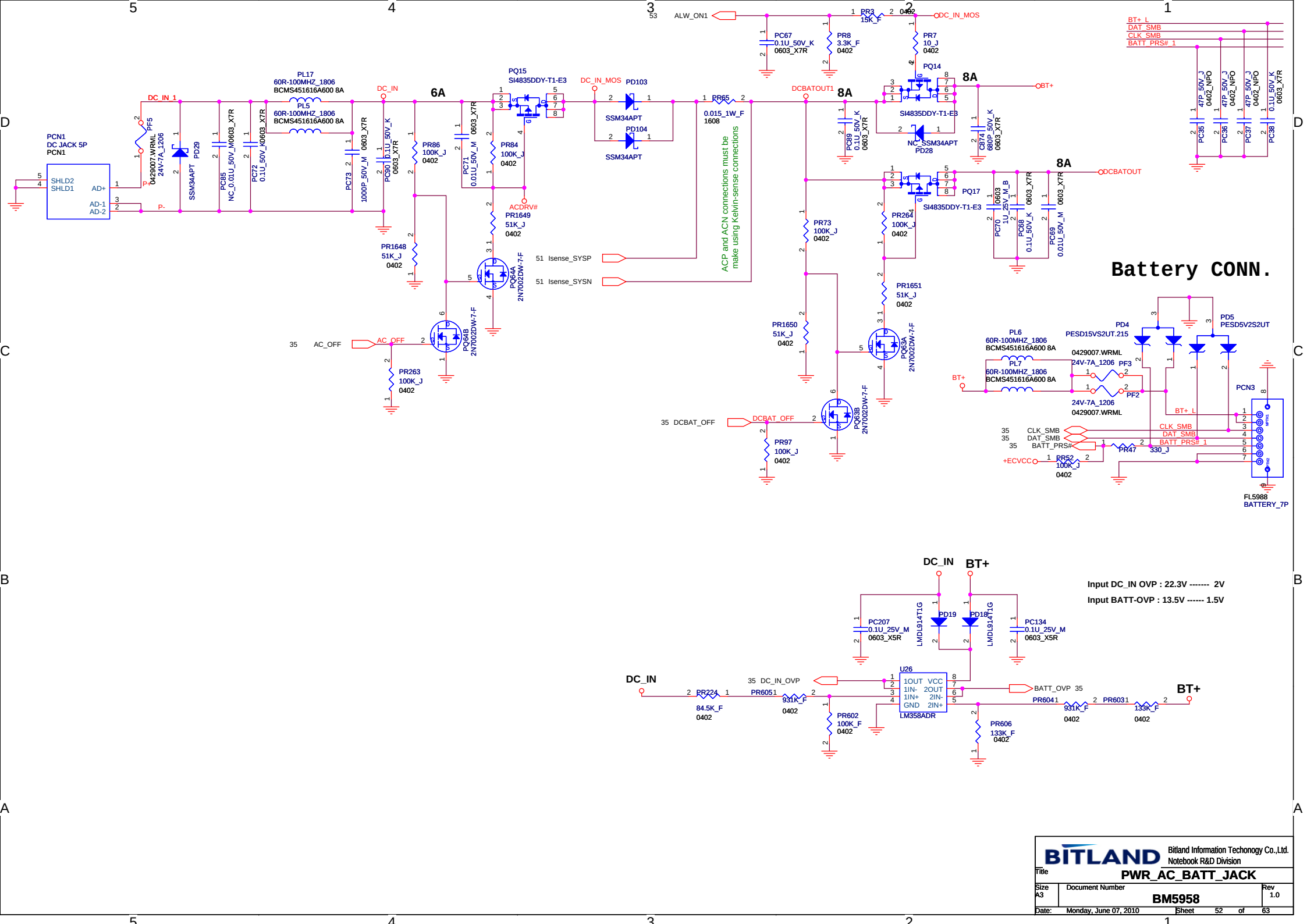
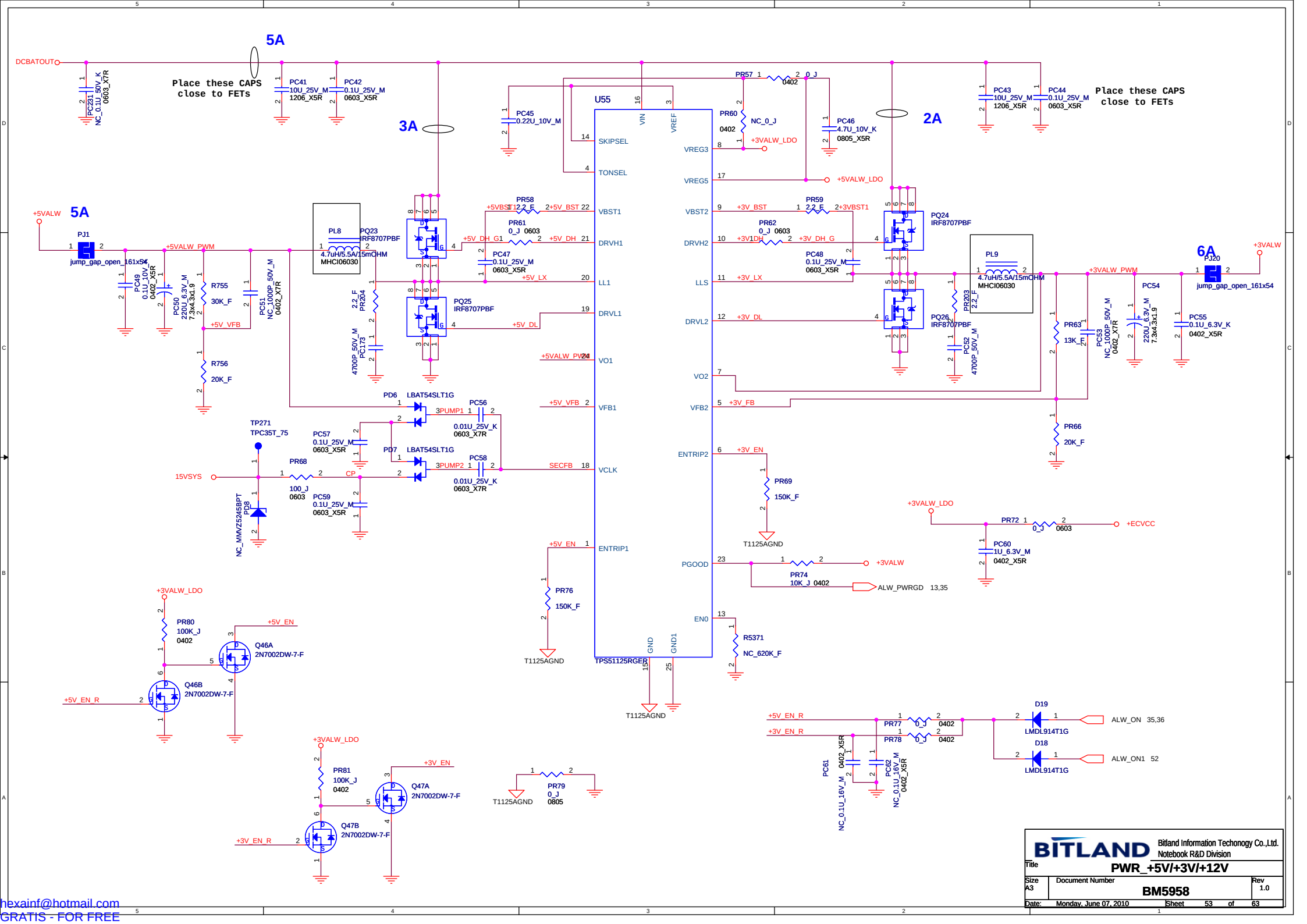
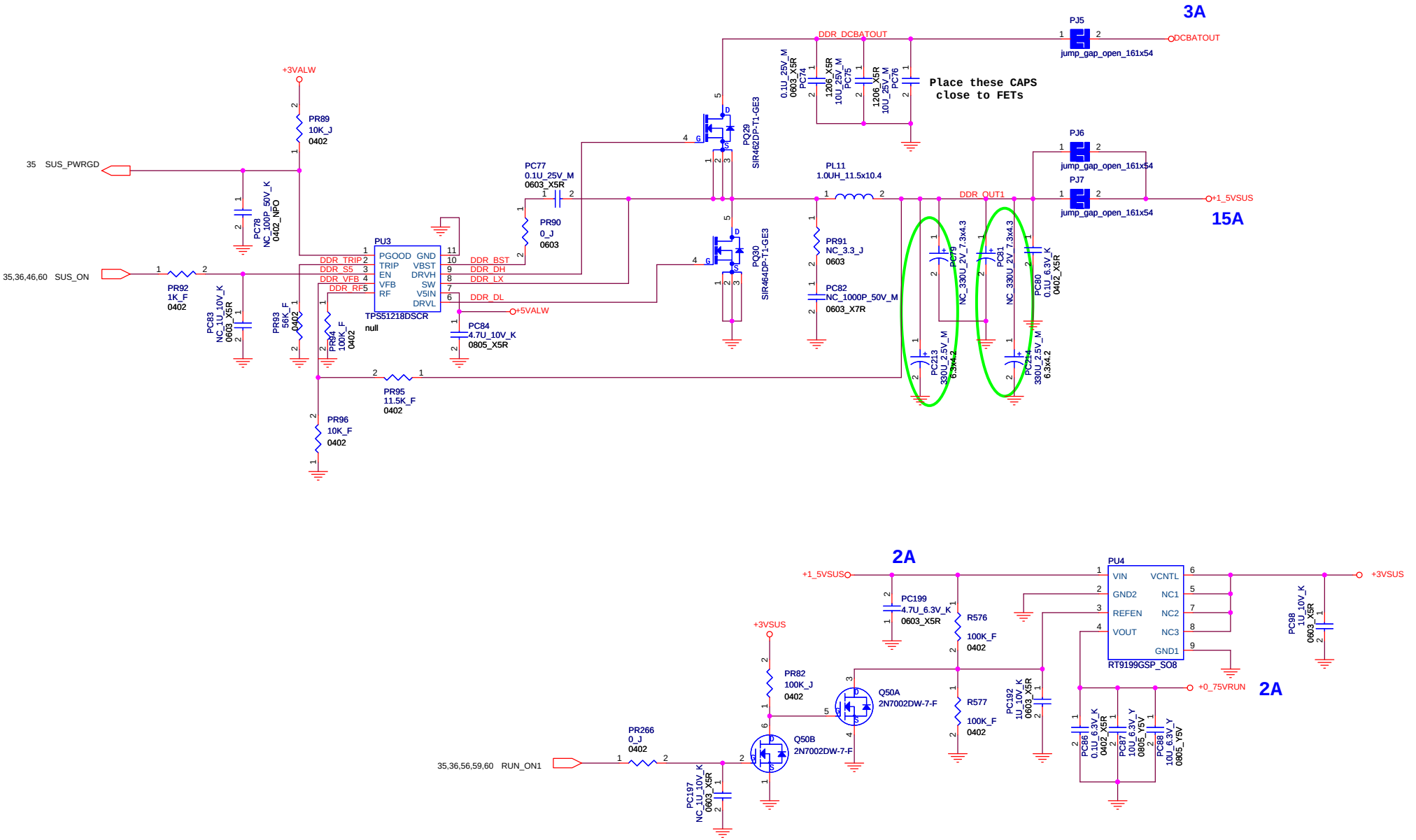
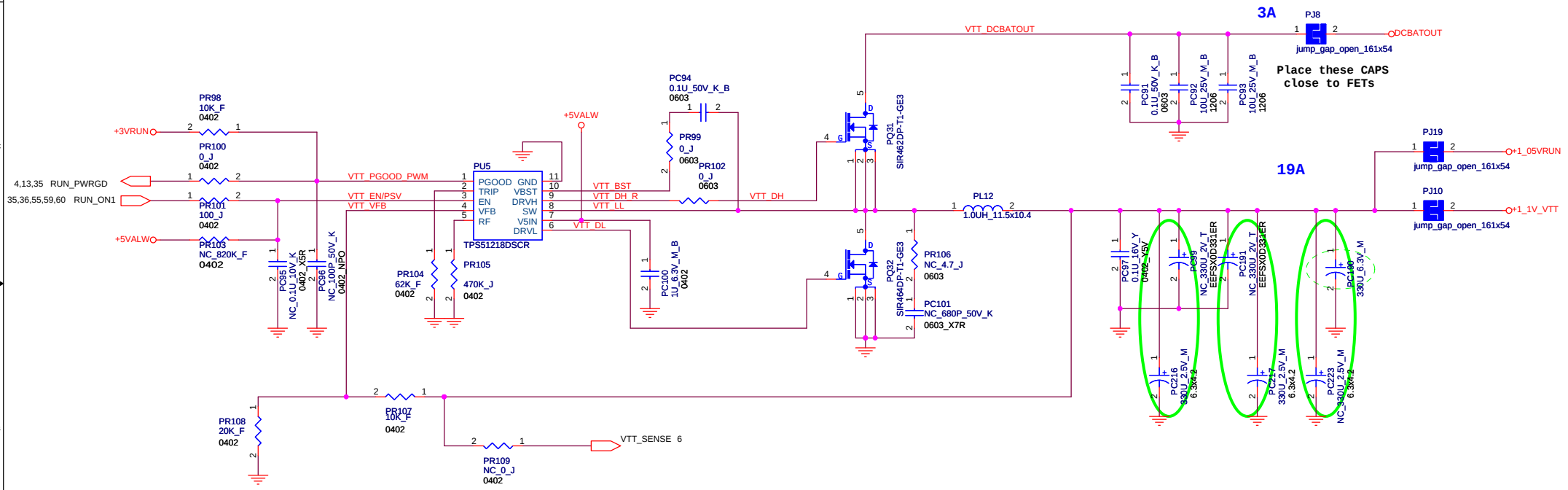


BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	PWR_AC_BATT_JACK	
Size A3	Document Number BM5958	Rev 1.0
Date: Monday, June 07, 2010	Sheet 52 of 63	

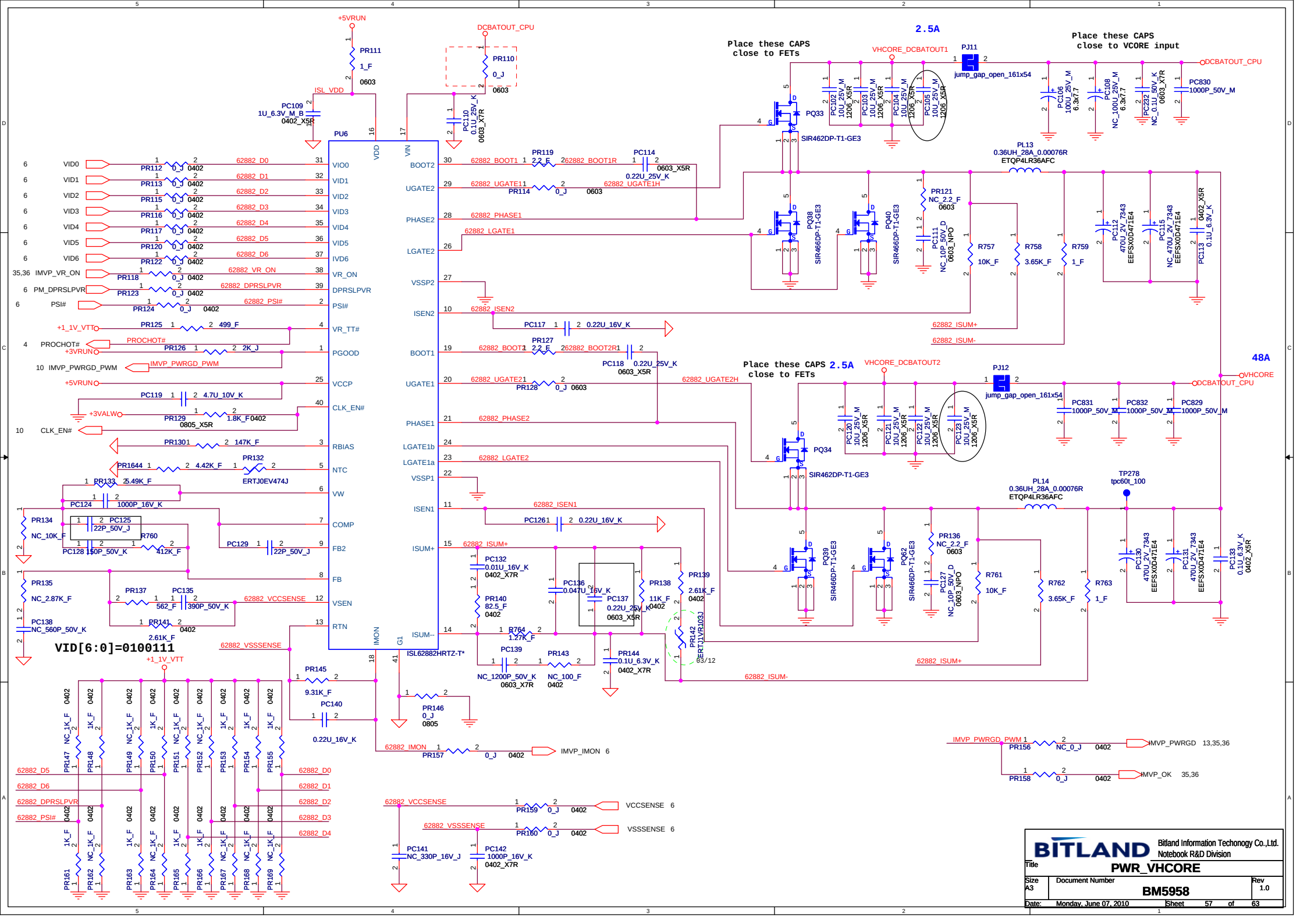




BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	PWR_+1_5V/+0_75V	
Size A3	Document Number BM5958	Rev 1.0
Date: Monday, June 07, 2010	Sheet 55 of 63	



BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	PWR_+1_05V&VTT	
Size A3	Document Number BM5958	Rev 1.0
Date: Monday, June 07, 2010	Sheet 56 of 63	


+5VRUN
DCBATOUT_CPU
PR111 1_F 0603
PR110 0_J 0603
ISL_VDD
PC109 1U_6.3V_M_B 0402_X5R
PC110 0.1U_25V_K 0603_X7R
PU6
VDD
VIN
VID0 PR112 0_J 0402 62882_D0
VID1 PR113 0_J 0402 62882_D1
VID2 PR115 0_J 0402 62882_D2
VID3 PR116 0_J 0402 62882_D3
VID4 PR117 0_J 0402 62882_D4
VID5 PR120 0_J 0402 62882_D5
VID6 PR122 0_J 0402 62882_D6
IMVP_VR_ON PR118 0_J 0402 62882_VR_ON
PM_DPRSLPVR PR123 0_J 0402 62882_DPRSLPVR
PSI# PR124 0_J 0402 62882_PSI#
+1_1V_VTT PR125 499_F
PROCHOT# PR126 2K_J
+3VRUN
IMVP_PWRGD_PWM
PC119 4.7U_10V_K
+3VALW PR129 1.8K_F 0805_X5R
CLK_EN#
PR1301 147K_F
PR1644 4.42K_F
PR132 ERTJ0EV474J
PR133 5.49K_F
PC124 1000P_16V_K
PR134 NC_10K_F
PC125 22P_50V_J
R760
PC128 150P_50V_K
412K_F
PC129 22P_50V_J
PR135 NC_2.87K_F
PR137 562_F
PC135 390P_50V_K
PC138 NC_560P_50V_K
2.61K_F
PR141 0402
VID[6:0]=0100111
+1_1V_VTT
PR145 9.31K_F
PC140 0.22U_16V_K
PR146 0_J 0805
62882_IMON PR157 0_J 0402 IMVP_IMON 6
62882_VCCSENSE PR159 0_J 0402 VCCSENSE 6
62882_VSSSENSE PR160 0_J 0402 VSSSENSE 6
PC141 NC_330P_16V_J
PC142 1000P_16V_K 0402_X7R
PR147 PR148 PR149 PR150 PR151 PR152 PR153 PR154 PR155
PR161 PR162 PR163 PR164 PR165 PR166 PR167 PR168 PR169
BOOT2 PR119 2.2_F 62882_BOOT1R PC114 0.22U_25V_K 0603_X5R
UGATE2 62882_UGATE1 PR114 0_J 0603 62882_UGATE1H
PHASE2 62882_PHASE1
LGATE2 62882_LGATE1
VSSP2
ISEN2 62882_ISEN2 PC117 0.22U_16V_K
BOOT1 PR127 2.2_F 62882_BOOT2R1 PC118 0.22U_25V_K 0603_X5R
UGATE1 62882_UGATE21 PR128 0_J 0603 62882_UGATE2H
PHASE1 62882_PHASE2
LGATE1b
LGATE1a 62882_LGATE2
VSSP1
ISEN1 62882_ISEN1 PC1261 0.22U_16V_K
ISUM+ 62882_ISUM+
PC132 0.01U_16V_K 0402_X7R
PR140 82.5_F 0402
PC136 0.047U_16V_K
PC137 0.22U_25V_K 0603_X5R
PR138 11K_F 0402
PR139 2.61K_F 0402
ISUM- PR142 ERT1VR103J 03/12
R764 1.27K_F
PC139 NC_1200P_50V_K 0603_X7R
PR143 NC_100_F 0402
PR144 0.1U_6.3V_K 0402_X7R
62882_VSSSENSE
62882_ISUM+
62882_ISUM-
ISL62882HRTZ-T*
IMON
G1
Place these CAPS close to FETs
2.5A
VHCORE_DCBATOUT1
PJ11 jump_gap_open_161x54
Place these CAPS close to VCORE input
PC102 PC103 PC104 PC105 10U_25V_M 1206_X5R
PC106 100U_25V_M 6.3X7.7
PC108 NC_100U_25V_M 6.3X7.7
PC232 NC_0.1U_50V_K 0603_X7R
PC830 1000P_50V_M
PQ33 SIR462DP-T1-GE3
PL13 0.36UH_28A_0.00076R ETQP4LR36AFC
PQ38 PQ40 SIR466DP-T1-GE3
PR121 NC_2.2_F 0603
PC111 NC_10P_50V_D 0603_NPO
R757 10K_F
R758 3.65K_F
R759 1_F
PC112 470U_2V_7343 EEFSX0D471E4
PC115 NC_470U_2V_7343 EEFSX0D471E4
PC113 0.1U_6.3V_K 0402_X5R
48A
VHCORE
Place these CAPS close to FETs 2.5A
VHCORE_DCBATOUT2
PJ12 jump_gap_open_161x54
PC120 PC121 PC122 PC123 10U_25V_M 1206_X5R
PC831 PC832 PC829 1000P_50V_M
PQ34 SIR462DP-T1-GE3
PL14 0.36UH_28A_0.00076R ETQP4LR36AFC
TP278 tpc60t_100
PQ39 PQ62 SIR466DP-T1-GE3
PR136 NC_2.2_F 0603
PC127 NC_10P_50V_D 0603_NPO
R761 10K_F
R762 3.65K_F
R763 1_F
PC130 PC131 470U_2V_7343 EEFSX0D471E4
PC133 0.1U_6.3V_K 0402_X5R
IMVP_PWRGD_PWM 1 PR156 NC_0_J 0402 IMVP_PWRGD 13,35,36
PR158 0_J 0402 IMVP_OK 35,36
BITLAND
Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division
Title
PWR_VHCORE
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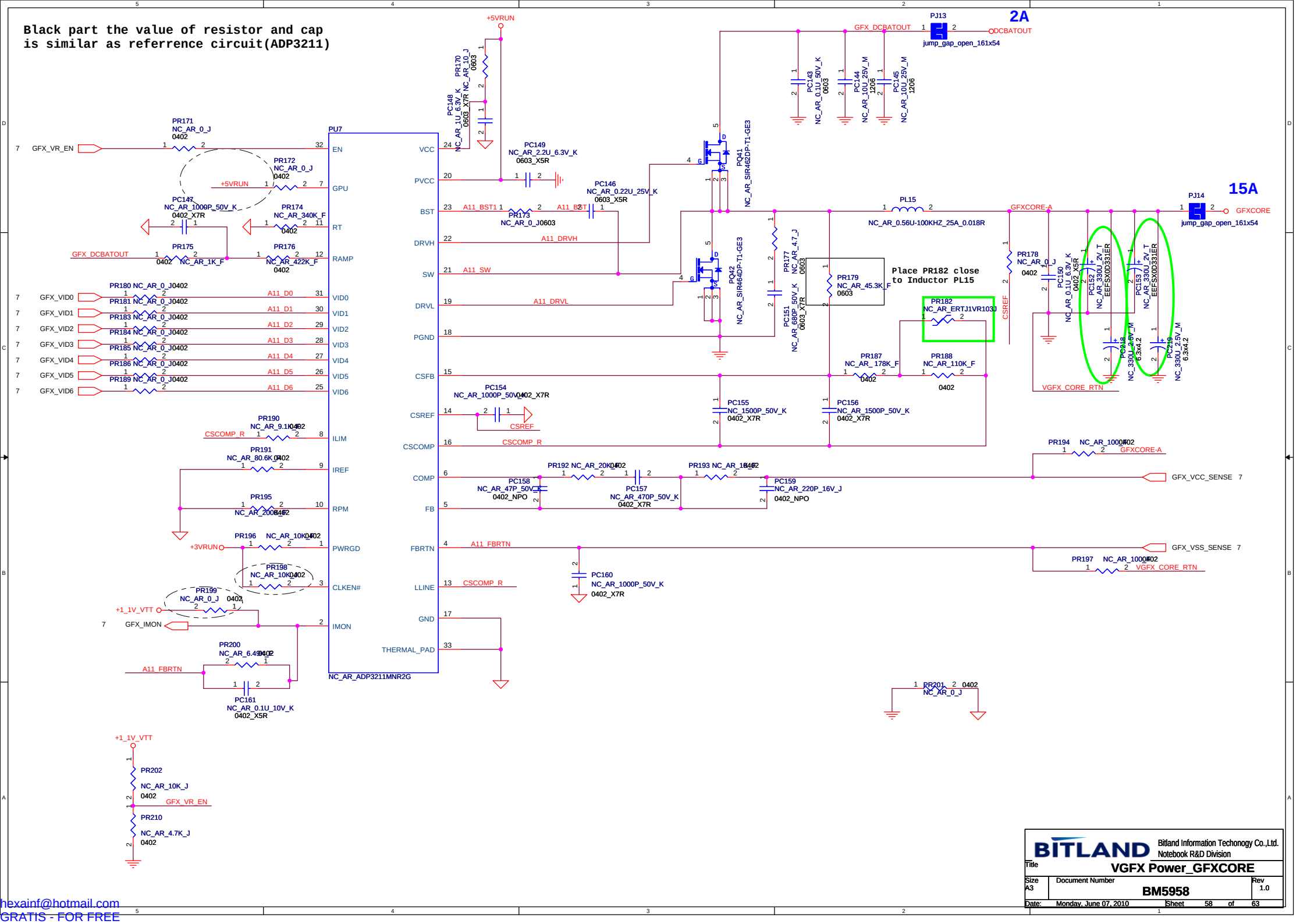
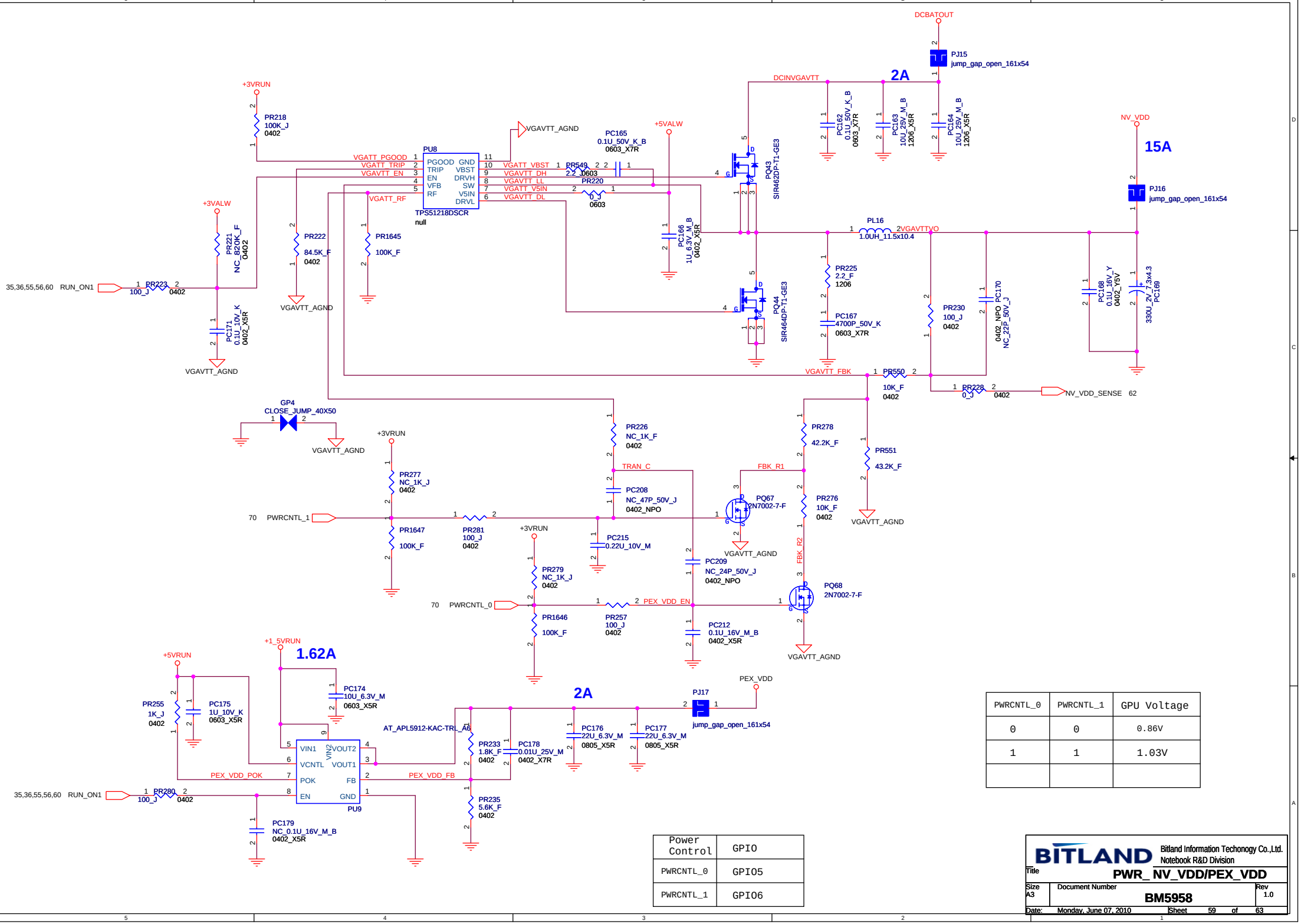
Black part the value of resistor and cap is similar as referrence circuit(ADP3211)



BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division		
Title	VGFX Power_GFXCORE		
Size A3	Document Number BM5958		Rev 1.0
Date: Monday, June 07, 2010	Sheet 58 of 63		



PWRCNTL_0	PWRCNTL_1	GPU Voltage
0	0	0.86V
1	1	1.03V

Power Control	GPIO
PWRCNTL_0	GPIO5
PWRCNTL_1	GPIO6

BITLAND Bitland Information Techonogy Co.,Ltd.
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Title: PWR_ NV_VDD/PEX_VDD

Size	Document Number	Rev
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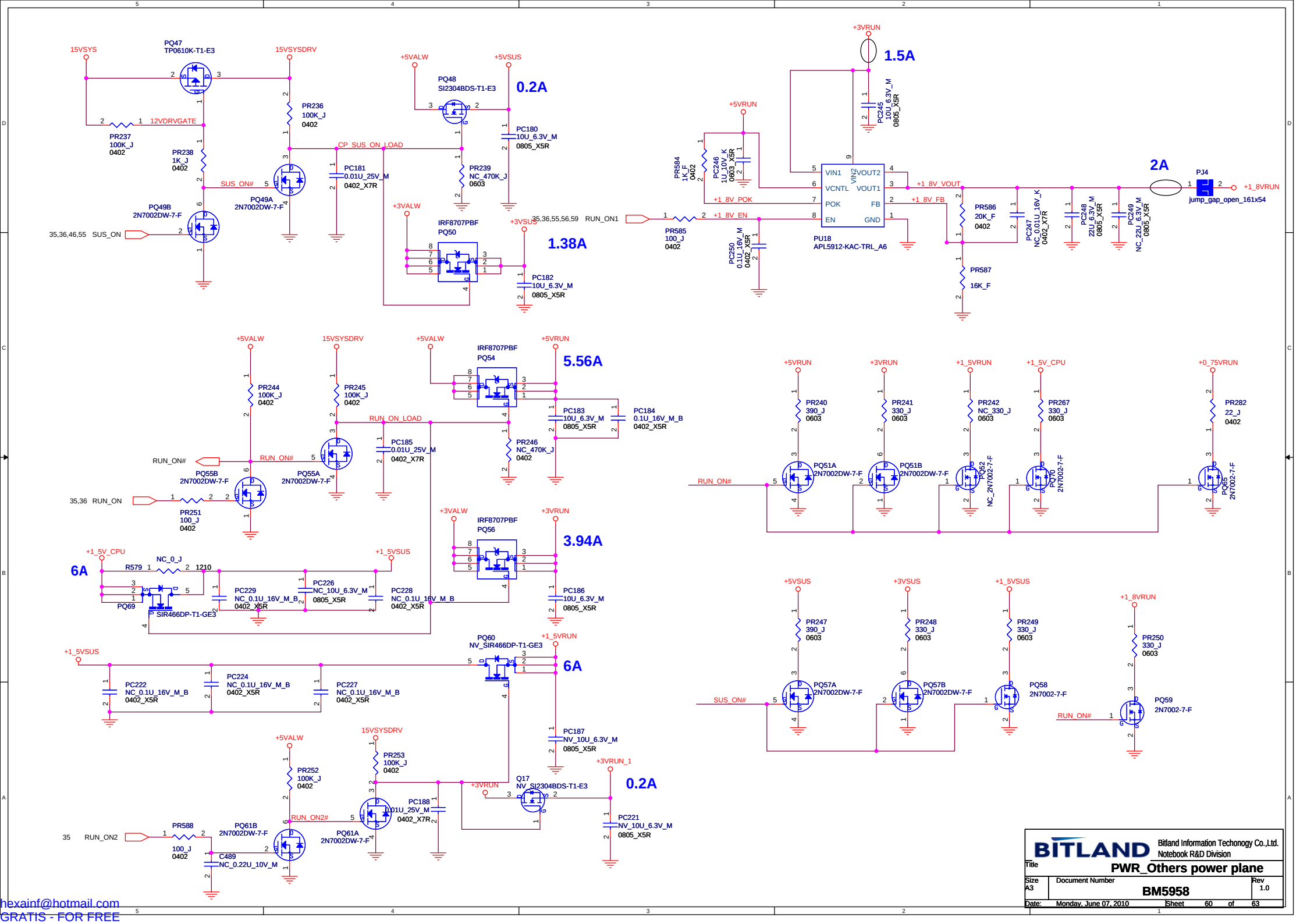
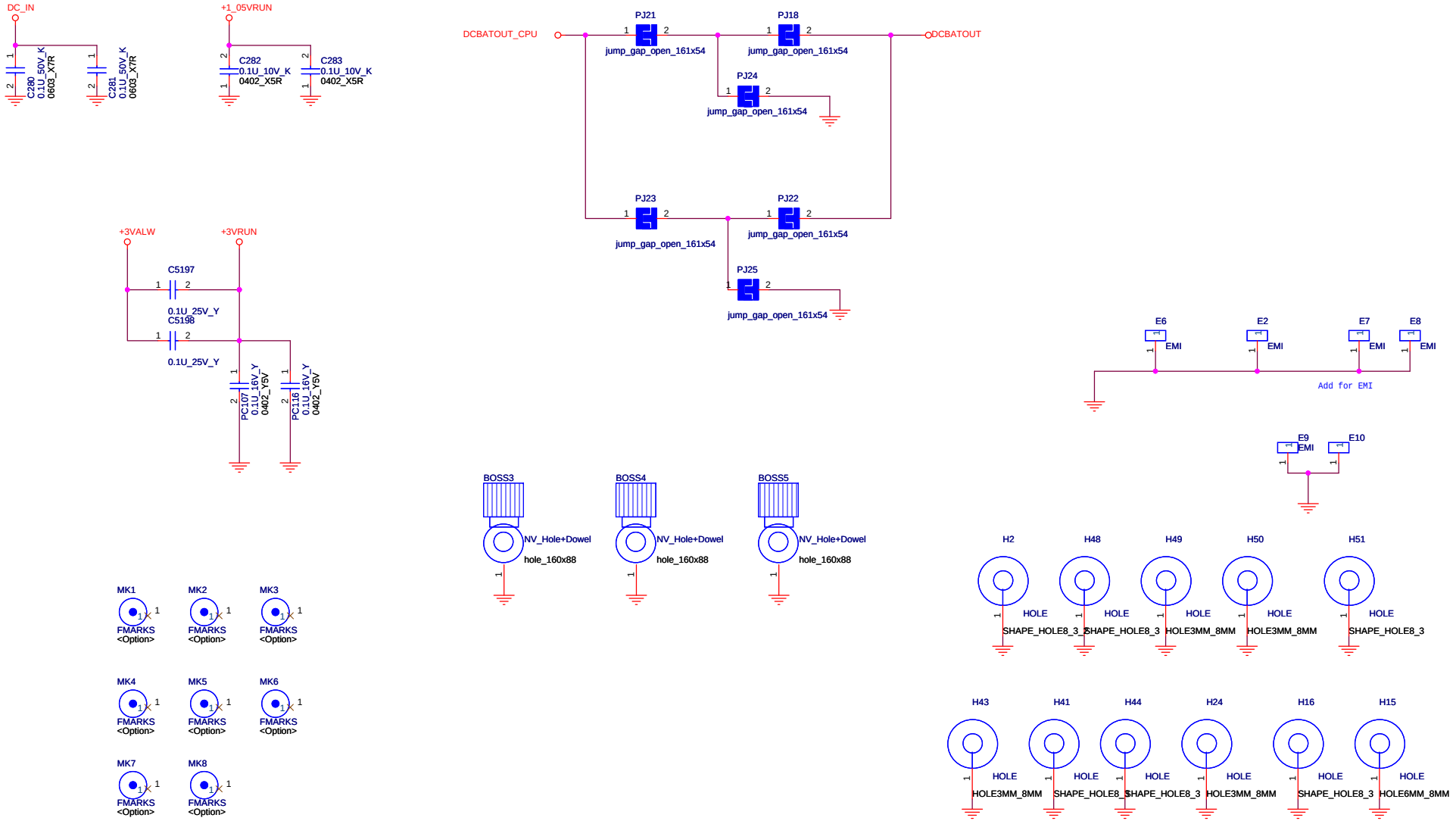


BITLAND Bitland Information Techonogy Co.,Ltd.
Notebook R&D Division

Title	PWR_Others power plane	
Size A3	Document Number BM5958	Rev 1.0
Date: Monday, June 07, 2010	Sheet 60 of 63	



BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title: HOLE		
Size: A3	Document Number: BM5958	Rev: 1.0
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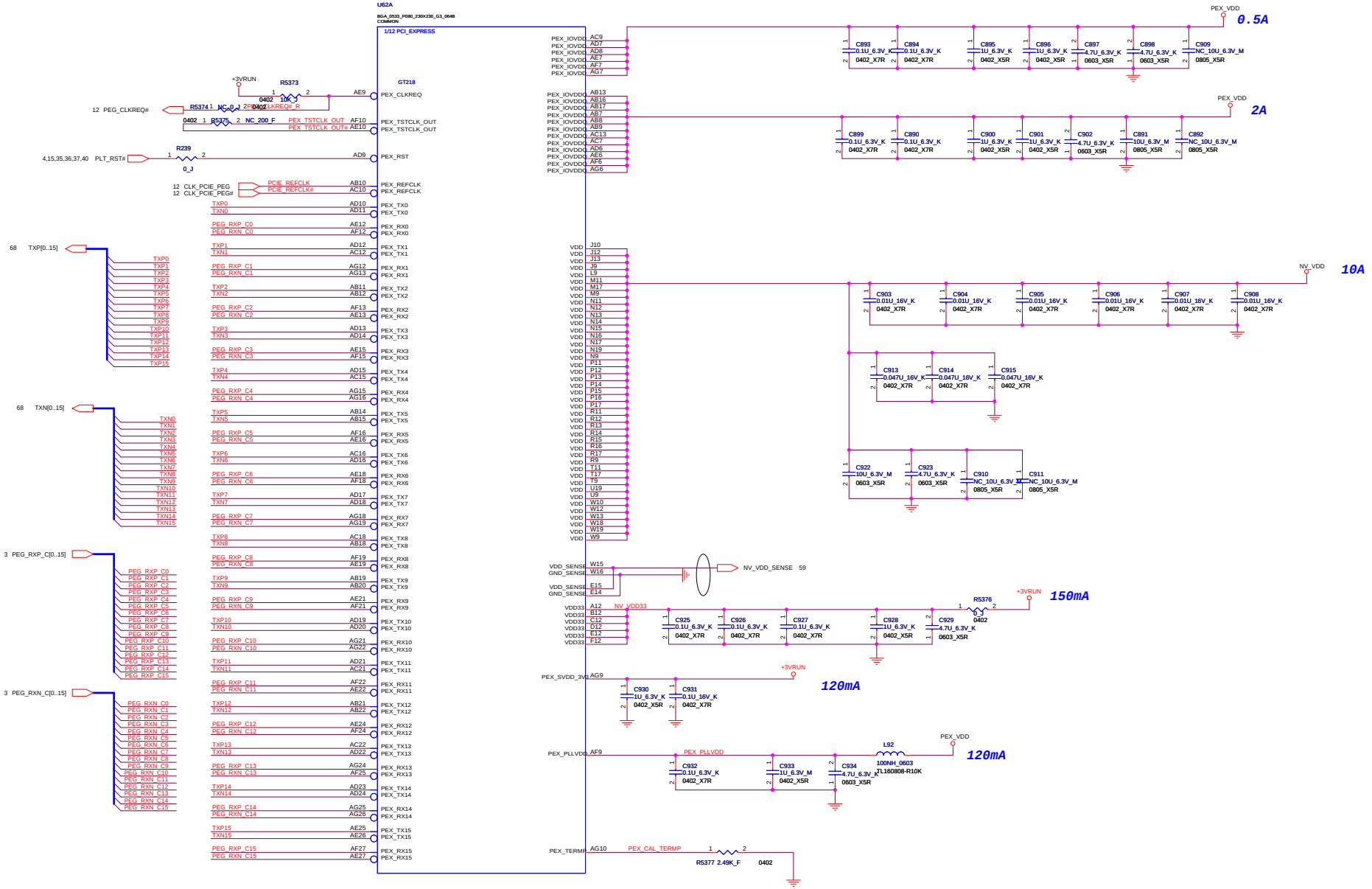

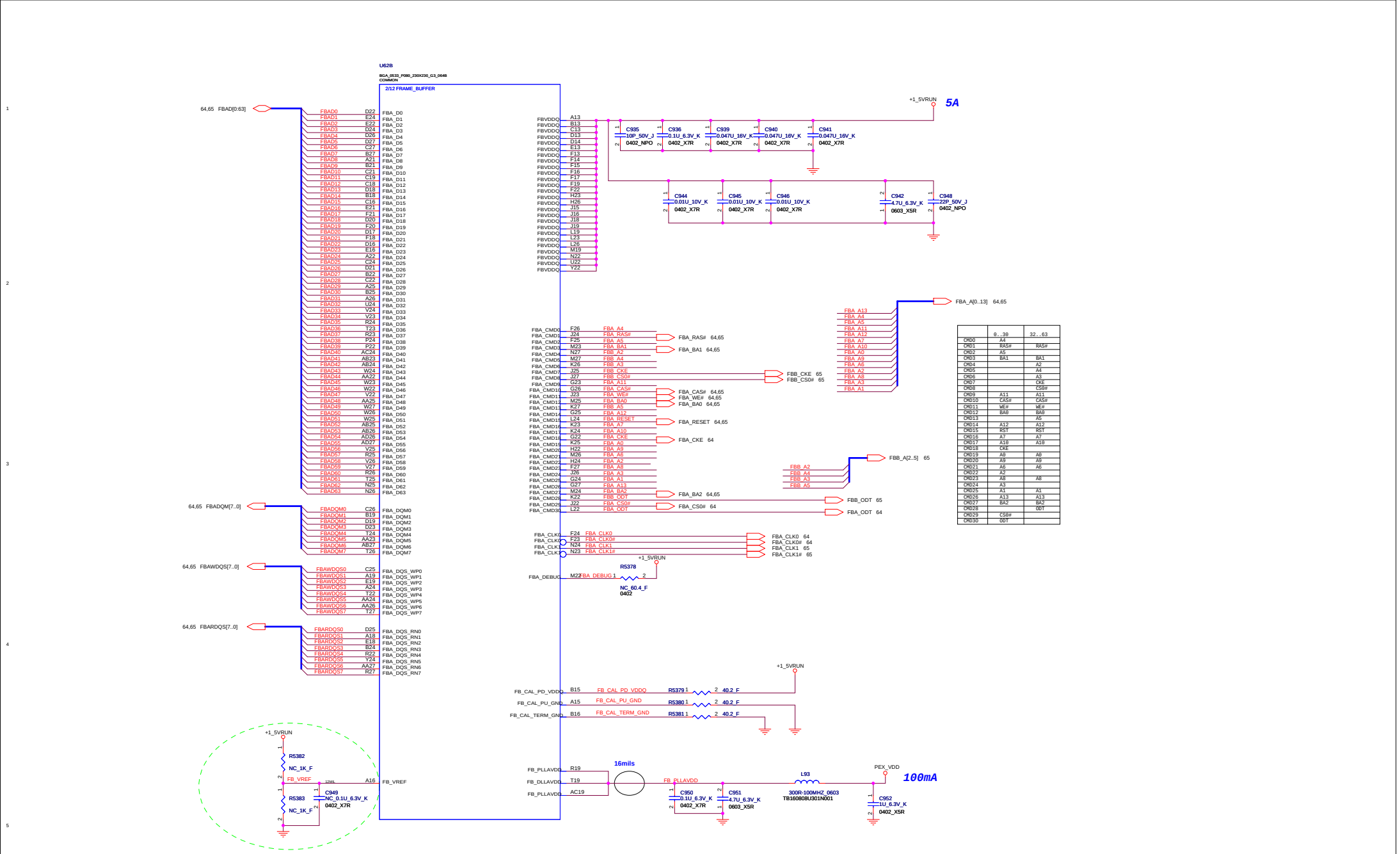

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A9	A9
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24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

BITLAND	Bitland Information Technology Co.,Ltd. Notebook R&D Division	
Title	VGA (DDR) 2/7	
Size A2	Document Number BM5958	Rev 1.0
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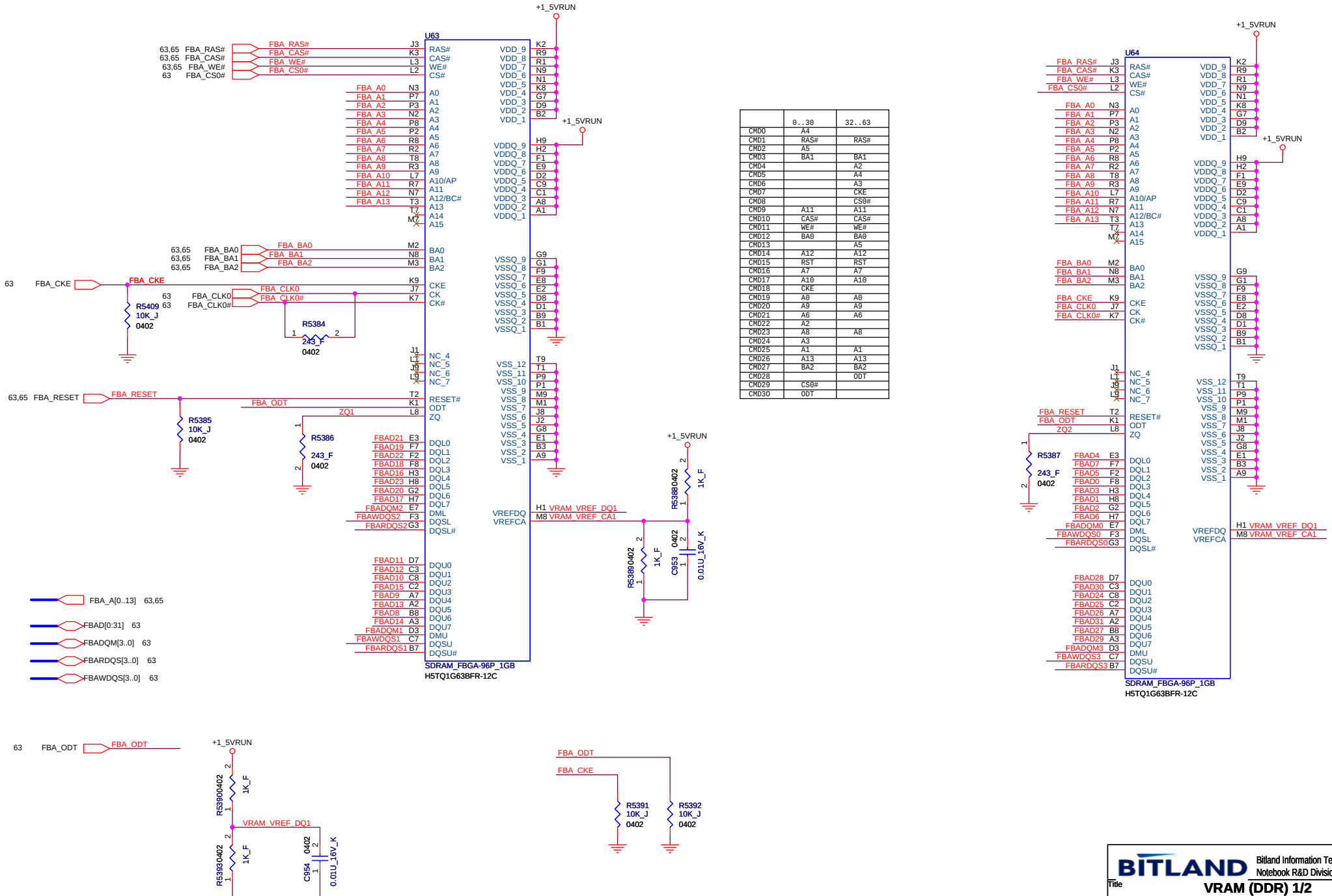

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24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

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Notebook R&D Division

Title: VRAM (DDR) 1/2

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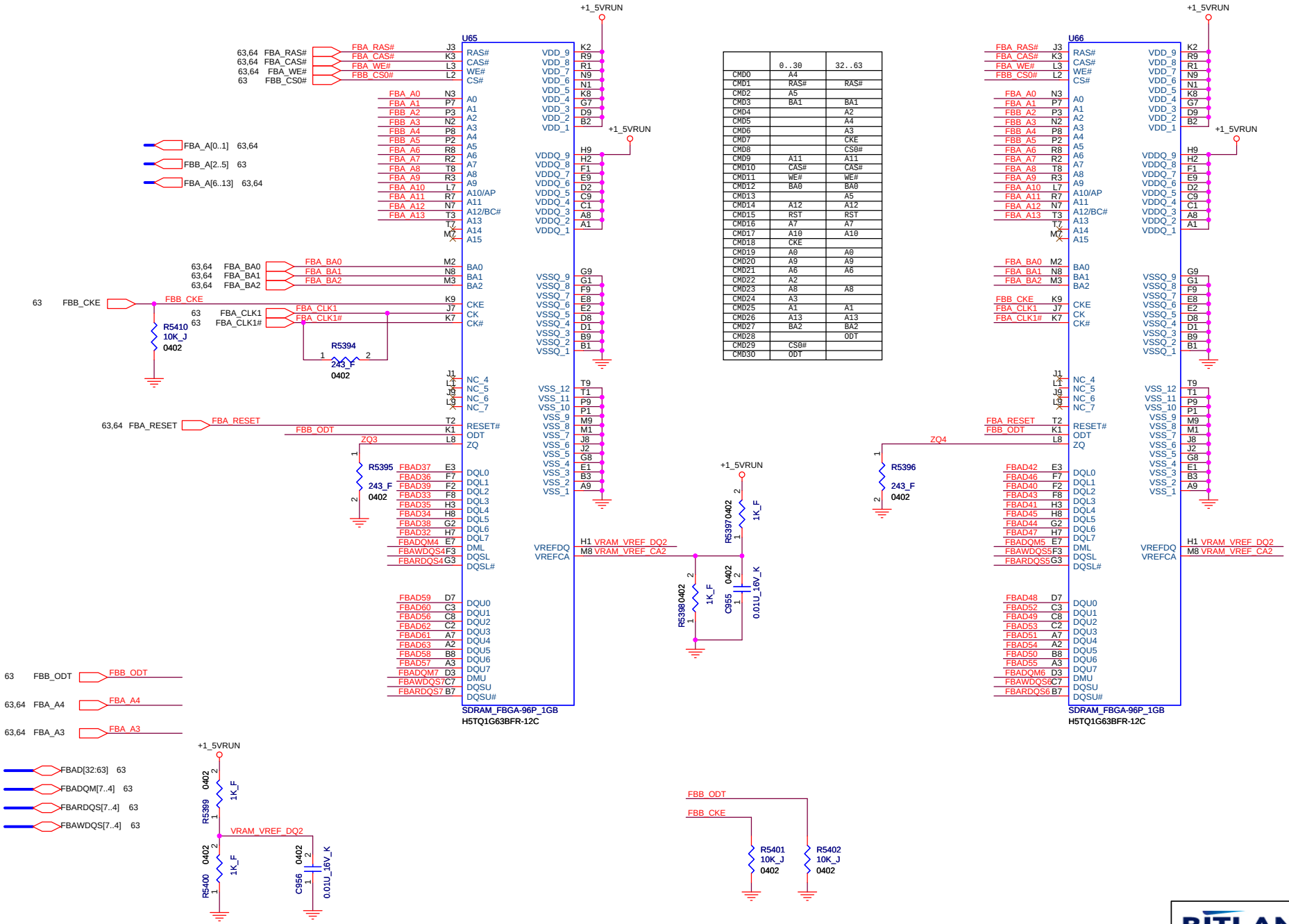

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24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

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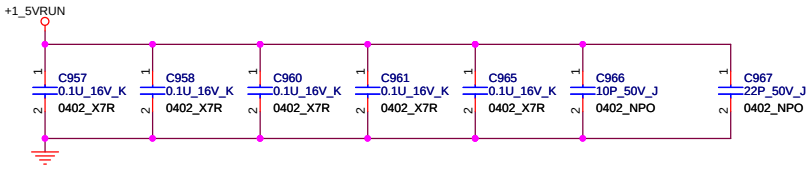
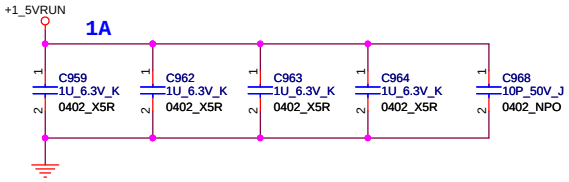
Place around the VRAM U63





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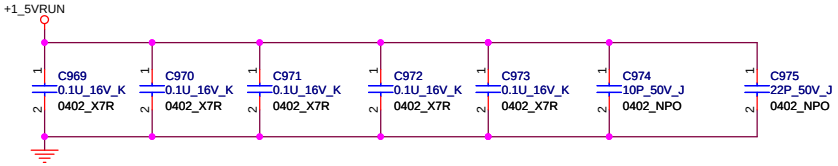
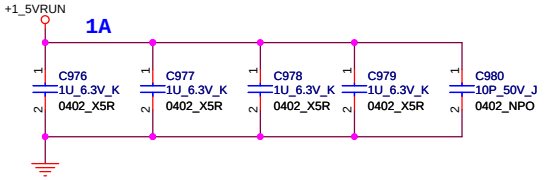
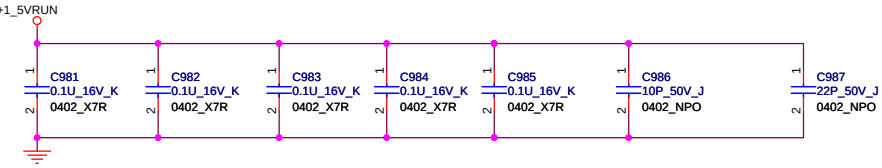
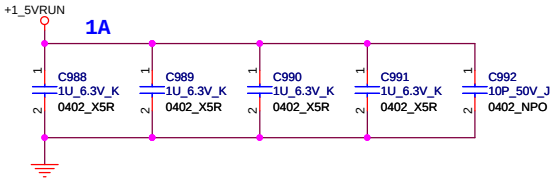




Place around the VRAM U65





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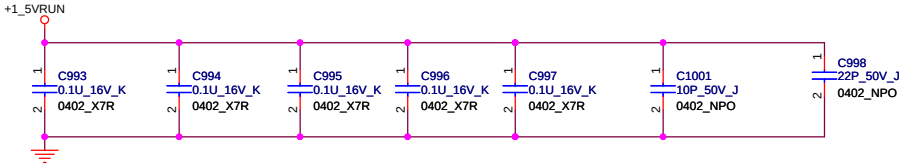
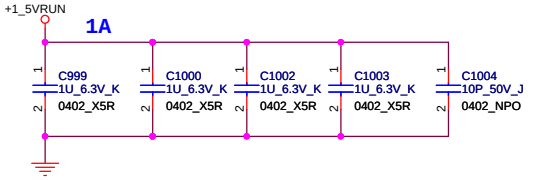


PLACE 0.1UF CAPSUNDER THE MEMORY DEVICE.



PLACE 1UF CAPACITORS CLOSE TO THE MEMORY DEVICE.

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Title	VRAM (BYPASS)	
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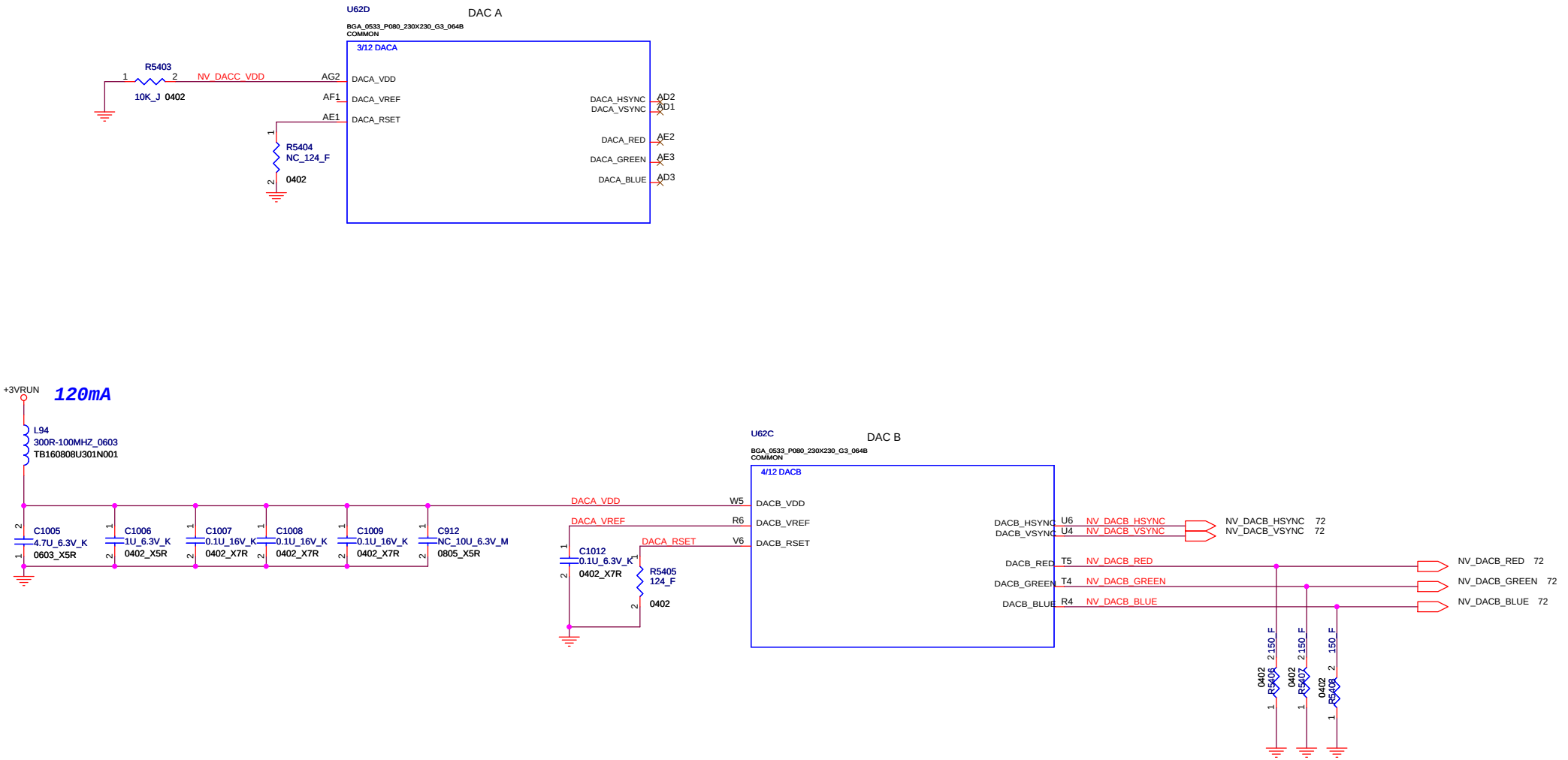

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Title	VGA (CRT) 3/7	
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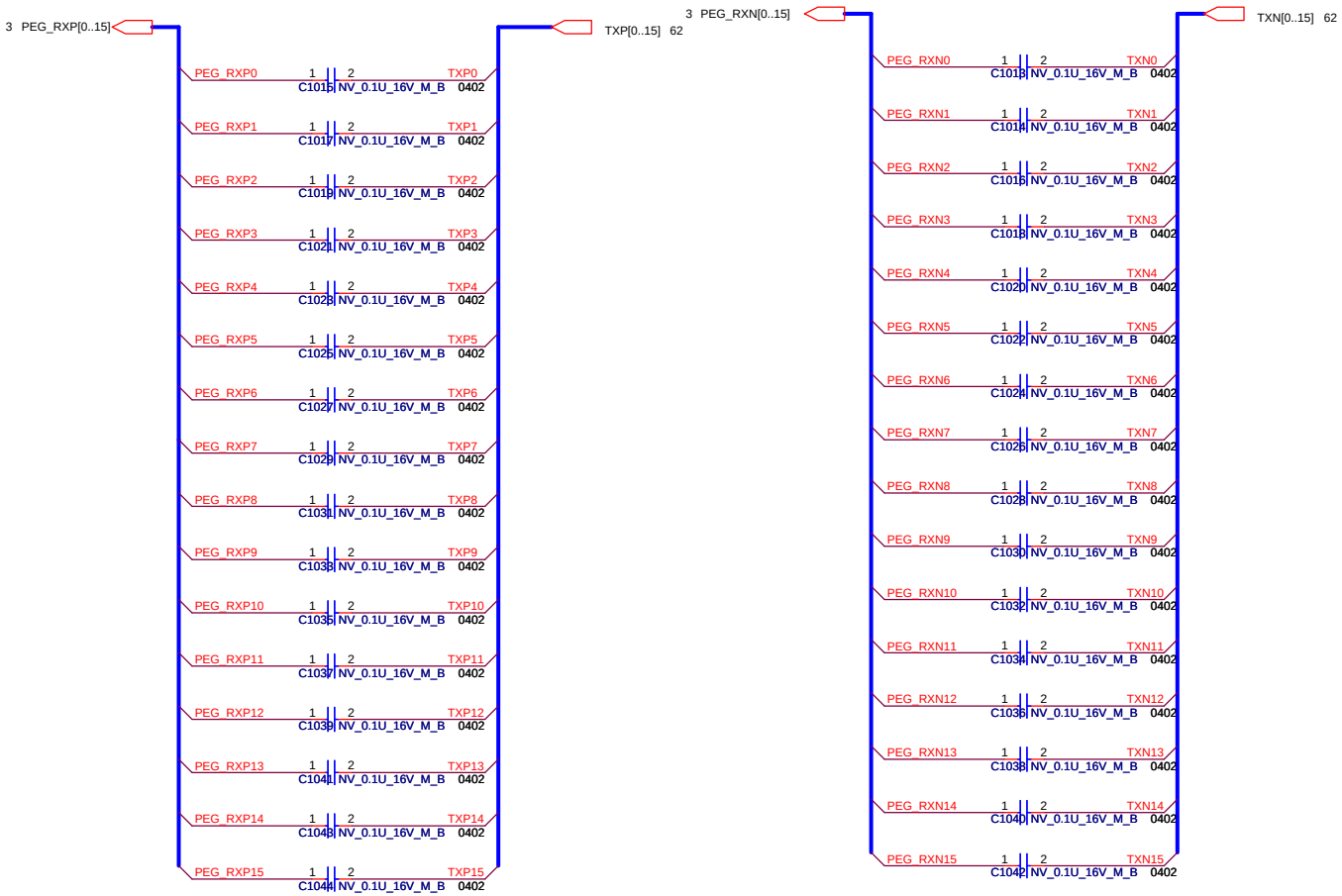
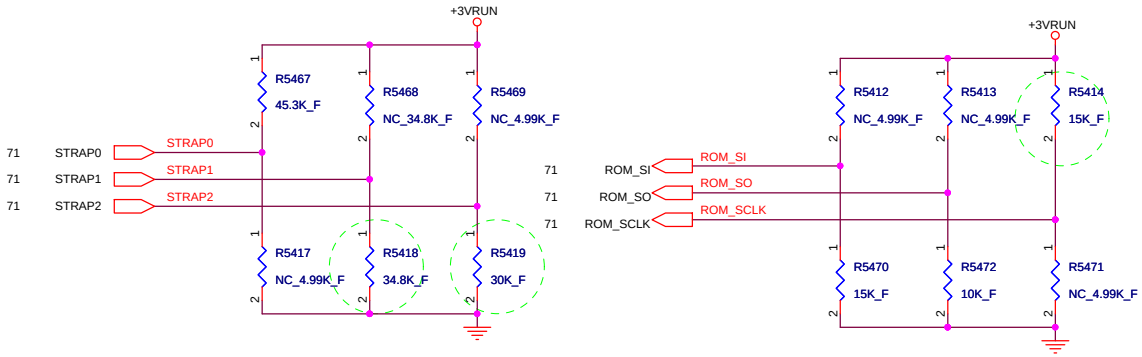


STRAP0: USER[3:0]
STRAP1: 3GIO_PADCFG_LUT_ADR[3:0]
STRAP2: PCI_DEVID[3:0]

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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Title	VGA (STRAP) 4/7	
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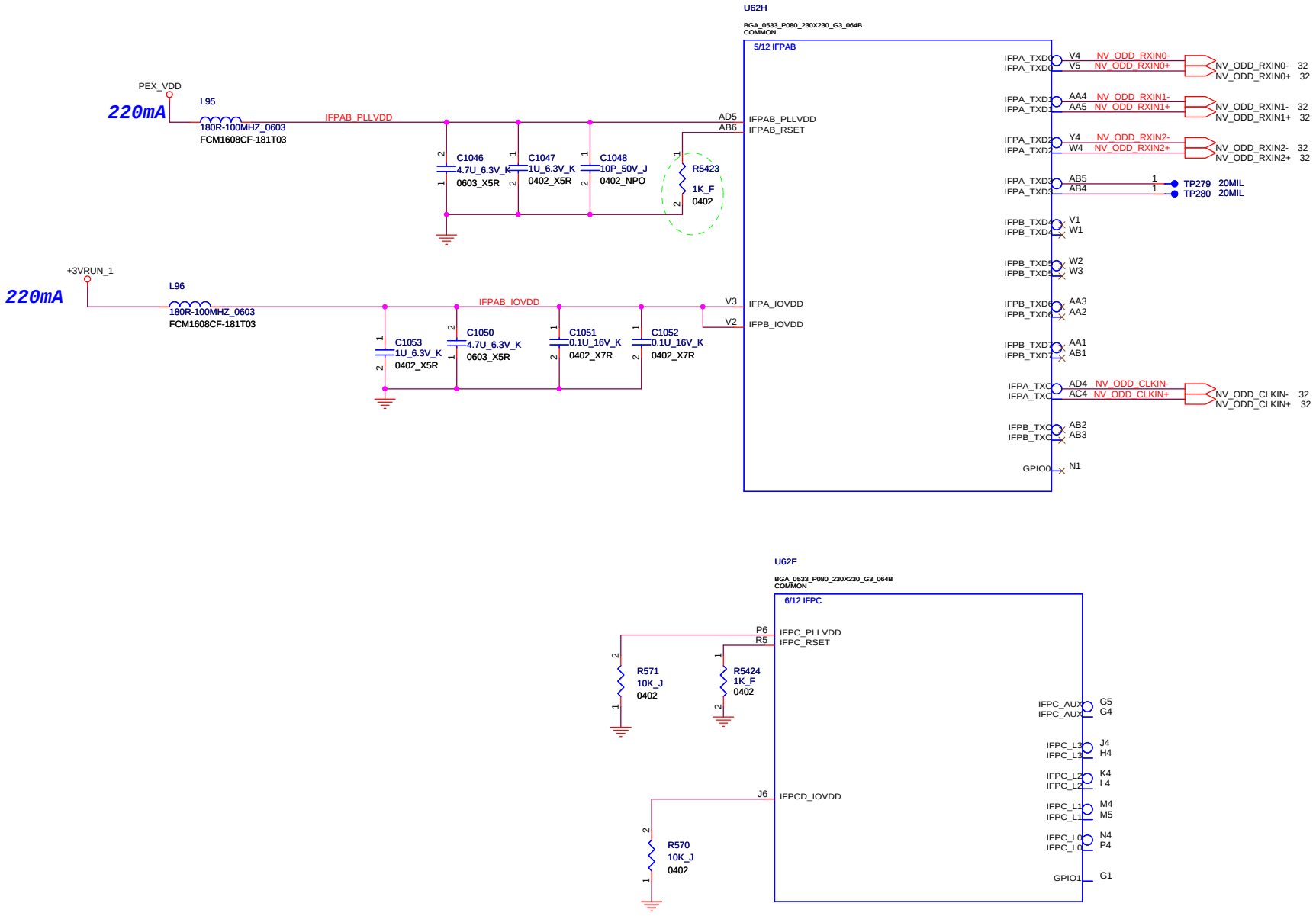

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	VGA (LVDS/HDMI) 5/7	
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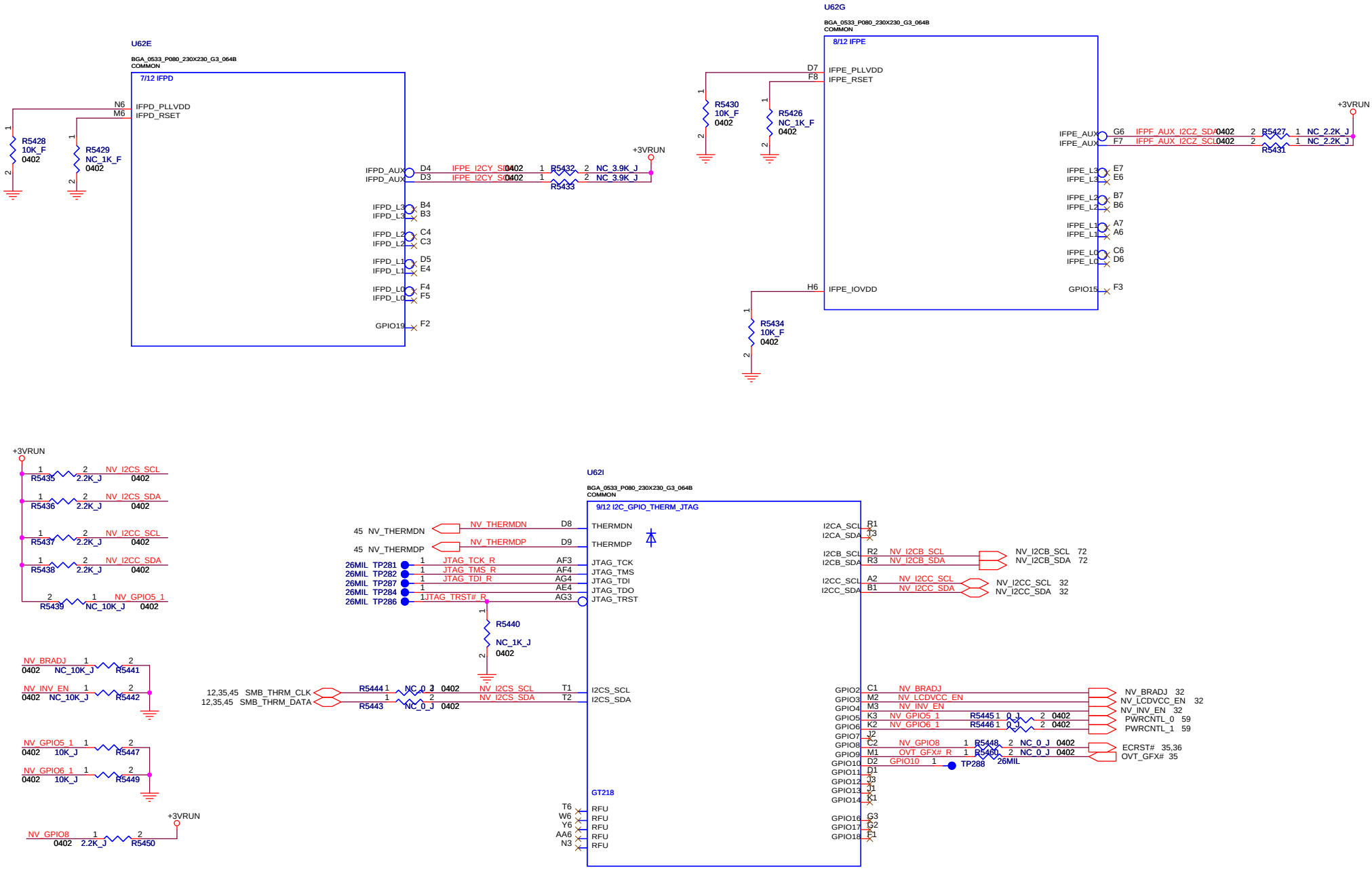

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title	VGA (GPIO) 6/7	
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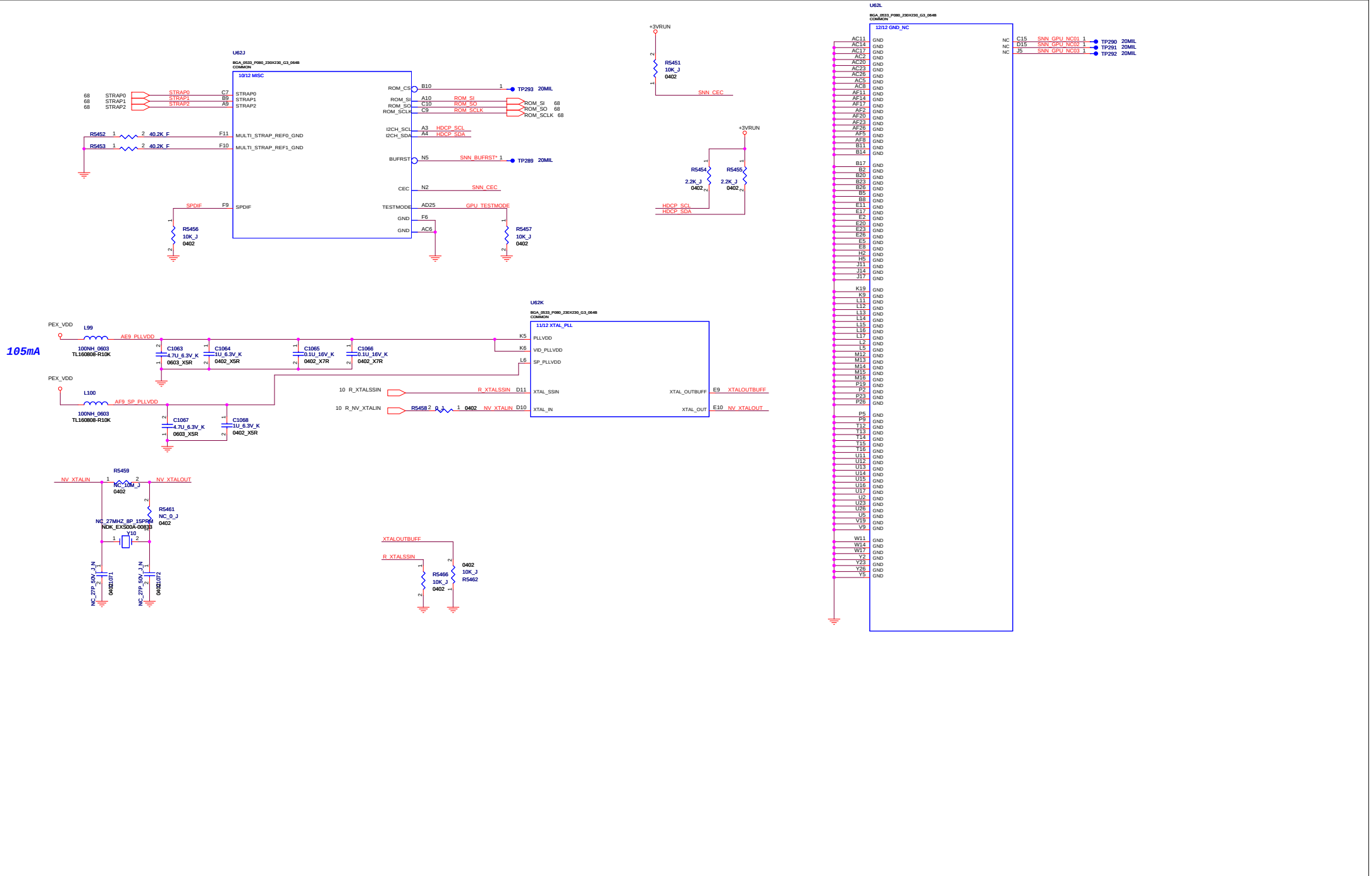

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division		
Title	VGA (XTL) 7/7		
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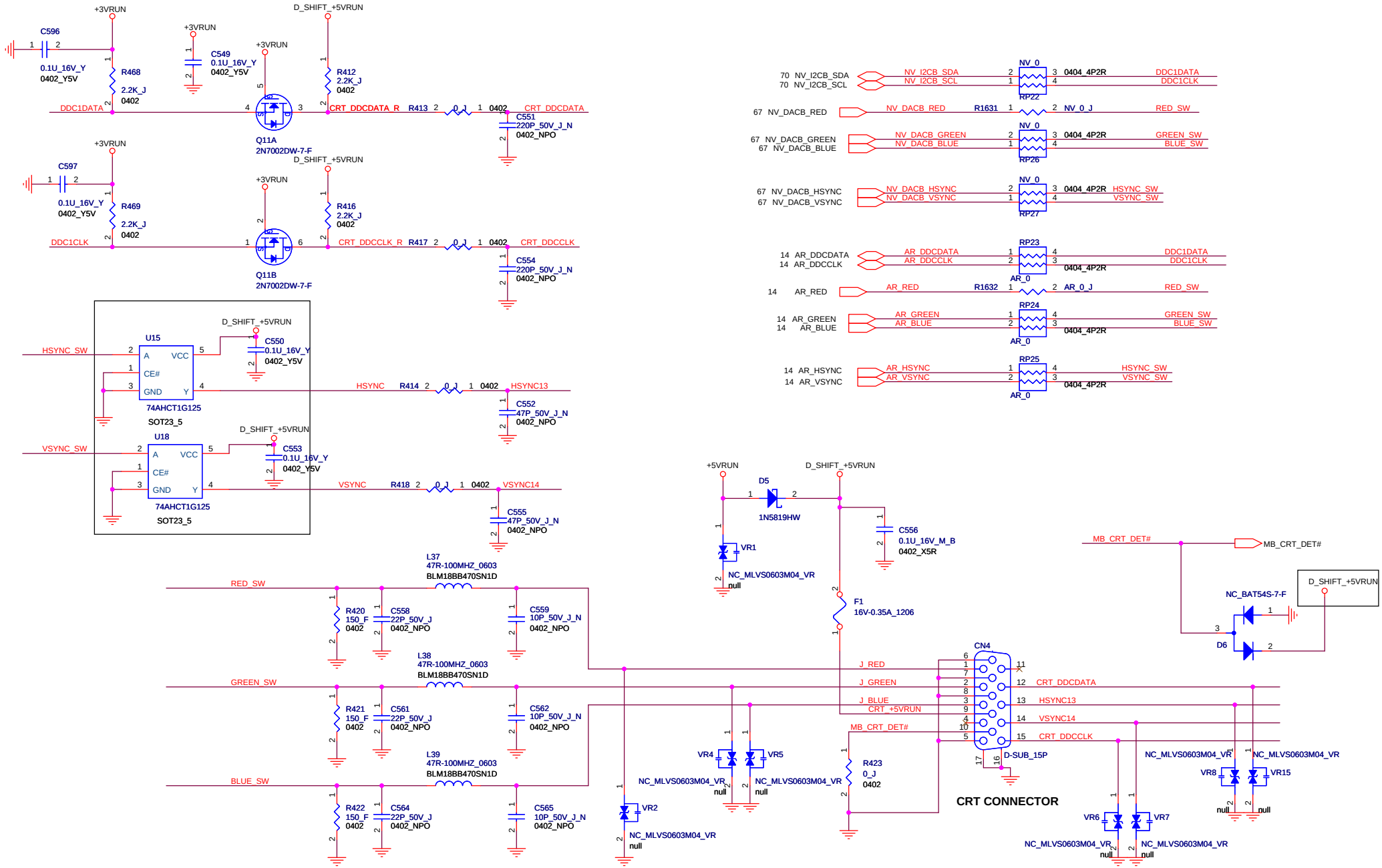

BITLAND	Bitland Information Techonogy Co.,Ltd. Notebook R&D Division	
Title: CRT		
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