

Intel Calpella CPU + +Ibex Peak-M Chipset

R42IIX	
01	COVER PAGE
02	BLOCK DIAGRAM
03	MISCELLANEOUS
04	GPIO
05	CPU Penryn 1 of 2
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07	NB Cantiga 1 of 6
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09	NB Cantiga 3 of 6
10	NB Cantiga 4 of 6
11	NB Cantiga 5 of 6
12	NB Cantiga 6 of 6
13	CLOCK GENERATOR ICS9LPRS365BG
14	DDR2 A SODIMM
15	DDR2 B SODIMM
16	SB ICH9M 1 of 4
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18	SB ICH9M 3 of 4
19	SB ICH9M 4 of 4
20	DVI SHIFTER CH-7318B-HDMI
21	SATA HDD-SATA ODD-INT USB-CAM-BTH
22	AUDIO CDOEC ALC-662 & AMP TPA6017
23	LAN - RTL8111DL-GR
24	CARD READER RTS-5158E
25	MINI CARD 3G-MINI WLAN
26	26. NEW CARD-FAN-MDC
27	LVDS/INV-SMART POWER
28	EC-IT8512E-BIOS-LID-SW CON
29	POWER SWITCH-TP-CRT-DEBUG CON
30	+V3.3/+V5 (OZ815)
31	+CPU_CORE (OZ8291)
32	+V1.05/+V1.8 (OZ8138)
33	AC IN & CHARGER (OZ8602)
34	Daughter BD-CRT
35	Daughter BD-RJ11-USB
36	Daughter BD-SW
37	Daughter BD-TP-LED-FP

DESIGN IN TAIWAN
BU2-BK210

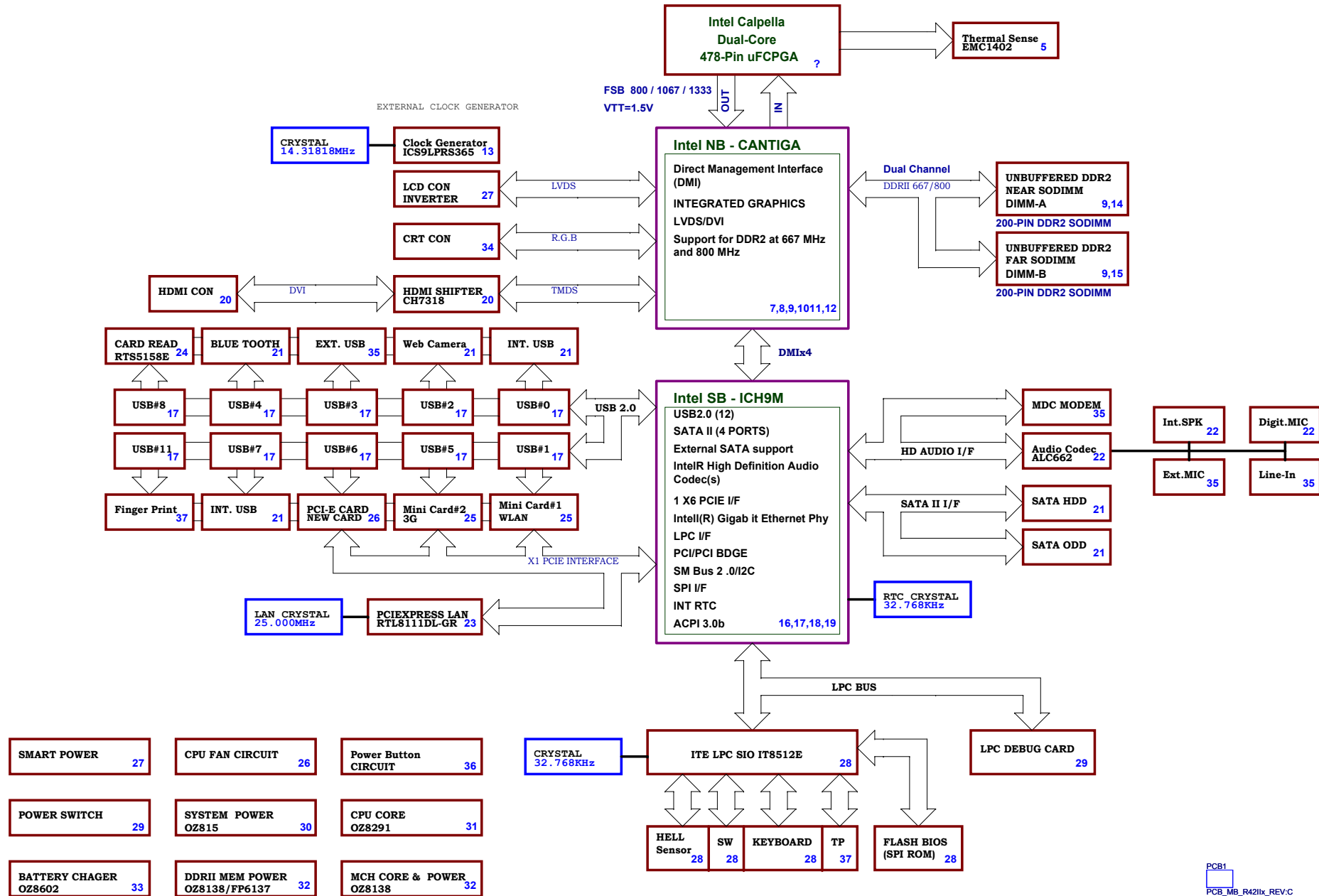
R42IIX M/B and Daughter P/N BD List :

82GR42000-C0	M/B ASSY FOR R42I11 REV:C
37GR42000-C0	PCB MB BD R42I11 R:C 198.5*77.85*1.2 6L
80G2R4200-C0	AUDIO BD ASSY R42I11 R:C
35G2R4200-C0	PCB AUDIO BD R42I11 R:C 67.85*30*1.2 6L

R42IIX M/B Power Rail State :

State \ Signal	SLP_S3#	SLP_S4#	SLP_S5#	SLP_M#	SLP_LAN#	+V*A	+V3.3M	+V1.1M	+V5/+V3.3 +V1.5	+V*S	CLK
AC/DC S0/Moff (Full On) /M0	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
AC/DC S3 (Suspend to RAM) /M3	OFF	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
AC/DC S3 (Suspend to RAM) /Moff	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
AC/DC S3 (Suspend to RAM) /Moff w/WOL_EN	OFF	ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF
AC/DC S4 (Suspend to Disk) /M3	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF
AC/DC S5 (Moff Off) /M3	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF
AC/DC S4 (Soft Off) /Moff	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
AC/DC S5 (Soft Off) /Moff	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
AC/DC S4 (Suspend to Disk) /Moff w/WOL_EN	OFF	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
AC/DC S5/Moff (Soft Off) W/ WOL_EN	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF

SYSTEM BLOCK DIAGRAM




PCB1
PCB_MB_R42Iix_REV.C

ICH9-M General Purpose I/O				
Name	Type	Power Well	Description	EDS v2.0
GPIO0	I/O-I	Core	PM_SYNC#	
GPIO1	I/O-I	Core	EC_EXTSC#	
GPIO2	I/OD-I	Core	INT_PIRQ#	
GPIO3	I/OD-I	Core	INT_PIRQ#	
GPIO4	I/OD-I	Core	INT_PIRQ#	
GPIO5	I/OD-I	Core	INT_PIRQ#	
GPIO6	I/O-I	Core	EC_EXTSMI#	
GPIO7	I/O-I	Core	SMC_RUNTIME_SCI#	
GPIO8	I/O-I	Sus	SMC_WAKE_SCI#	
GPIO9	I/O-N	Sus	LAN_WOL_EN	
GPIO10	I/O-I	Sus	SUS_PWR_ACK	
GPIO11	I/O-N	Sus	SMB_ALERT#	
GPIO12	I/O-O	Sus	ICH_GPIO12	
GPIO13	I/O-I	Sus	ICH_GPIO13	
GPIO14	I/O-I	Sus	AC_PRESENT	
GPIO16	I/O-N	Core	PM DPRSLPVR	
GPIO17	I/O-I	Core	N.C	
GPIO18	I/O-O	Core	N.C	
GPIO19	I/O-I	Core	SATA_DET#1	
GPIO20	I/O-O	Core	N.C	
GPIO21	I/O-I	Core	SATA_DET#0	
GPIO22	I/O-I	Core	ICH_GPIO22	
GPIO23	I/O-N	Core	LPC_DRQ#1	
GPIO24	I/O-O	Sus	N.C	
GPIO26	I/O-N	Sus	SLP_S4_STATE#	
GPIO27	I/O-O	Sus	N.C	
GPIO28	I/O-O	Sus	ICH_GPIO28	
GPIO29	I/O-N	Sus	USB_OC#5	
GPIO30	I/O-N	Sus	NC_OC#3	
GPIO31	I/O-N	Sus	USB_OC#7	
GPIO33	I/O-O	Core	N.C	
GPIO34	I/O-O	Core	N.C	
GPIO35	I/O-O	Core	CLK_SATA_OE#	
GPIO36	I/O-I	Core	SATA_DET#4	
GPIO37	I/O-I	Core	SATA_DET#5	
GPIO38	I/O-I	Core	N.C	
GPIO39	I/O-I	Core	N.C	
GPIO40	I/O-N	Sus	USB_OC#1	
GPIO41	I/O-N	Sus	USB_OC#2	
GPIO42	I/O-N	Sus	USB_OC#3	
GPIO43	I/O-N	Sus	USB_OC#4	
GPIO44	I/O-N	Sus	USB_OC#8	
GPIO45	I/O-N	Sus	USB_OC#9	
GPIO46	I/O-N	Sus	USB_OC#10	
GPIO47	I/O-N	Sus	CPEE#	
GPIO48	I/O-I	Core	N.C	
GPIO49	I/O-O	Core	N.C	
GPIO50	I/O-N	Core	PCI_REQ#1	
GPIO51	I/O-N	Core	N.C	
GPIO52	I/O-N	Core	ICH_GPIO52	
GPIO53	I/O-N	Core	N.C	
GPIO54	I/O-N	Core	PCI_REQ#3	
GPIO55	I/O-N	Core	PCI_GNT#3	
GPIO56	I/O-I	Sus	ICH_GPIO56	

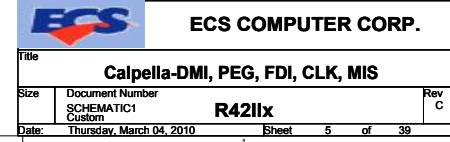
ICH9-M General Purpose I/O				
Name	Type	Power Well	Description	EDS v2.0
GPIO57	I/O-I	Sus	ICH_GPIO57	
GPIO58	I/O-I	Sus	SPI_CS#1	
GPIO59	I/O-N	Sus	USB_OC#0	
GPIO60	I/O-N	Sus	ICH_GPIO60	

ITE8512E General Purpose I/O				
Name	Type	Default Pull	Description	Spec v0.7.2
GPIOA0	I/O-I	Up	BTL_BEEP	
GPIOA1	I/O-I	Up	EC_BRIGHTNESS	
GPIOA2	I/O-I	Up	MB_CHR_G_LED#	
GPIOA3	I/O-I	Up	MB_RF_B_LED#	
GPIOA4	I/O-I	Up	MB_PWR_B_LED#	
GPIOA5	I/O-I	Up	MB_CHR_R_LED#	
GPIOA6	I/O-I	Up	AC_PRESENT	
GPIOA7	I/O-I	Up	SMP_EN#	
GPIOB0	I/O-I	Up	EC_VID3	
GPIOB1	I/O-I	Up	EC_VID4	
GPIOB2	I/O-I	Dn	EC_VID5	
GPIOB3	I/O-I		SMB_CLK_BAT	
GPIOB4	I/O-I		SMB_DATA_BAT	
GPIOB5	I/O-O		H_A20GATE	
GPIOB6	I/O-Fn	Up	H_RCIN#	
GPIOB7	I/O-I	Dn	EC_VID6	
GPIOC0	I/O-I	Dn	INT1	
GPIOC1	I/O-I		SMB_CLK_GEN	
GPIOC2	I/O-I		SMB_DATA_GEN	
GPIOC3	I/O-I	Dn	MUTE_AMP#	
GPIOC4	I/O-I	Dn	PWR_KEEP	
GPIOC5	I/O-I	Dn	BKL_EC	
GPIOC6	I/O-I	Dn	PM_PWRBTN#	
GPIOC7	I/O-I	Up	SUS_PWR_ACK	
GIOD0	I/O-I	Up	AC_IN	
GIOD1	I/O-I	Up	3G_EN	
GIOD2	I/O-Fn	Up	BUF_PLT_RST#	
GIOD3	I/O-I	Up	EXTSC#	
GIOD4	I/O-I	Up	EXTSMI#	
GIOD5	I/O-I	Up	ALL_SYS_PWRGD	
GIOD6	I/O-I	Dn	FAN_SPEED#	
GIOD7	I/O-I	Dn	FAST_CH_EN	
GPIOE0	I/O-I	Dn	PM_RSMRST#	
GPIOE1	I/O-I	Dn	EC_MPWROK	
GPIOE2	I/O-I	Dn	PM_SLP_S3#	
GPIOE3	I/O-I	Dn	PM_SLP_S4#	
GPIOE4	I/O-I	Up	PWR_SW	
GPIOE5	I/O-I	Dn	INTERNET	
GPIOE6	I/O-I	Dn	SILENT_ON	
GPIOE7	I/O-I	Up	BT_EN#	
GPIOF0	I/O-I	Up	H_PROCHOT#	
GPIOF1	I/O-I	Up	WEBCAM_EN	
GPIOF2	I/O-I	Up	FP_PWR_ON	
GPIOF3	I/O-I	Up	RF_OFF#	
GPIOF4	I/O-I	Up	EC_PS2CLK2	
GPIOF5	I/O-I	Up	EC_PS2DAT2	
GPIOF6	I/O-I	Up	EC_SCLK_THM	
GPIOF7	I/O-I	Up	EC_SDATA_THM	
GPIOG0	I/O-O		+V1.05S_ON	
GPIOG1	I/O-O	Dn	+V5S_ON	
GPIOG2	I/O		FLFRAME#	
GPIOG6	I/O-I		LID#	

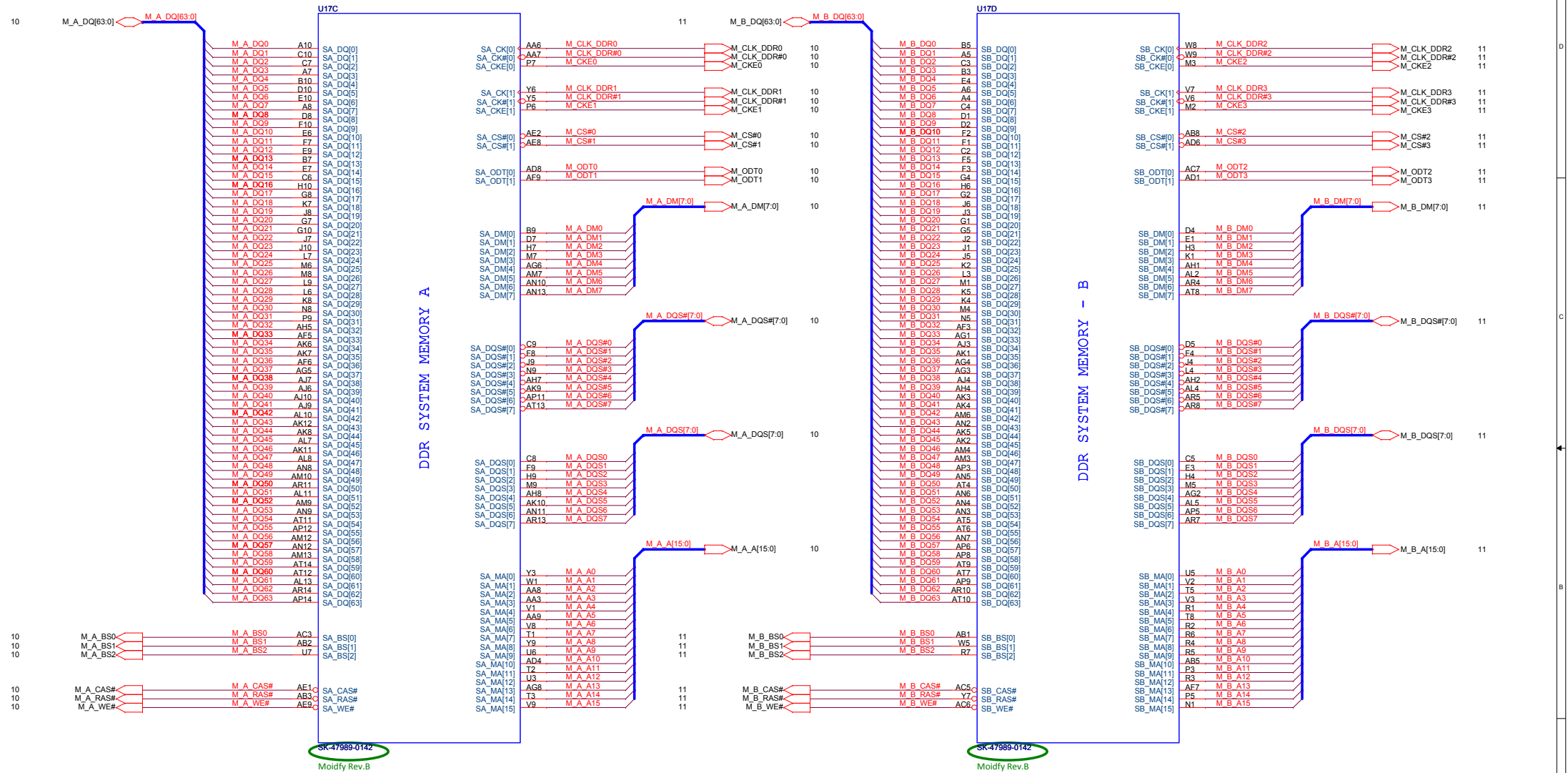
ITE8512E General Purpose I/O				
Name	Type	Default Pull	Description	Spec v0.7.2
GPIOH0	I/O-I	Dn	3G_ON	
GPIOH1	I/O-I	Dn	+V3.3_ON	
GPIOH2	I/O-I	Dn	+VCC_CORE_ON	
GPIOH3	I/O-I	Dn	+V3.3S_ON	
GPIOH4	I/O-I	Dn	+V5_ON	
GPIOH5	I/O-I	Dn	+V1.8_ON	
GPIOH6	I/O-I	Dn	+V1.5S_ON	
GPIOI0	I-ADC		BATT_TEMP	
GPIOI1	I-ADC		ADAPTOR_I	
GPIOI2	I-ADC		BAT_I	
GPIOI3	I-ADC		BAT_V	
GPIOI4	I-ADC		CPU_PWR	
GPIOI5	I-ADC		MB_ID	
GPIOI6	I-ADC		N/A	
GPIOI7	I-ADC		TEMP_DDR	
GPIOJ0	I/O-DA		FAN_CTRL0	
GPIOJ1	I/O-DA		CHG_I	
GPIOJ2	I/O-DA		EC_LINEAR	
GPIOJ3	I/O-DA		SENBAT_V	
GPIOJ4	I/O-DA		CHG_V	
GPIOJ5	I/O-DA		CHG_ON	

		ECS COMPUTER CORP.	
Title GPIO			
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	SCHMATIC1	C	
	Custom	R42Iix	
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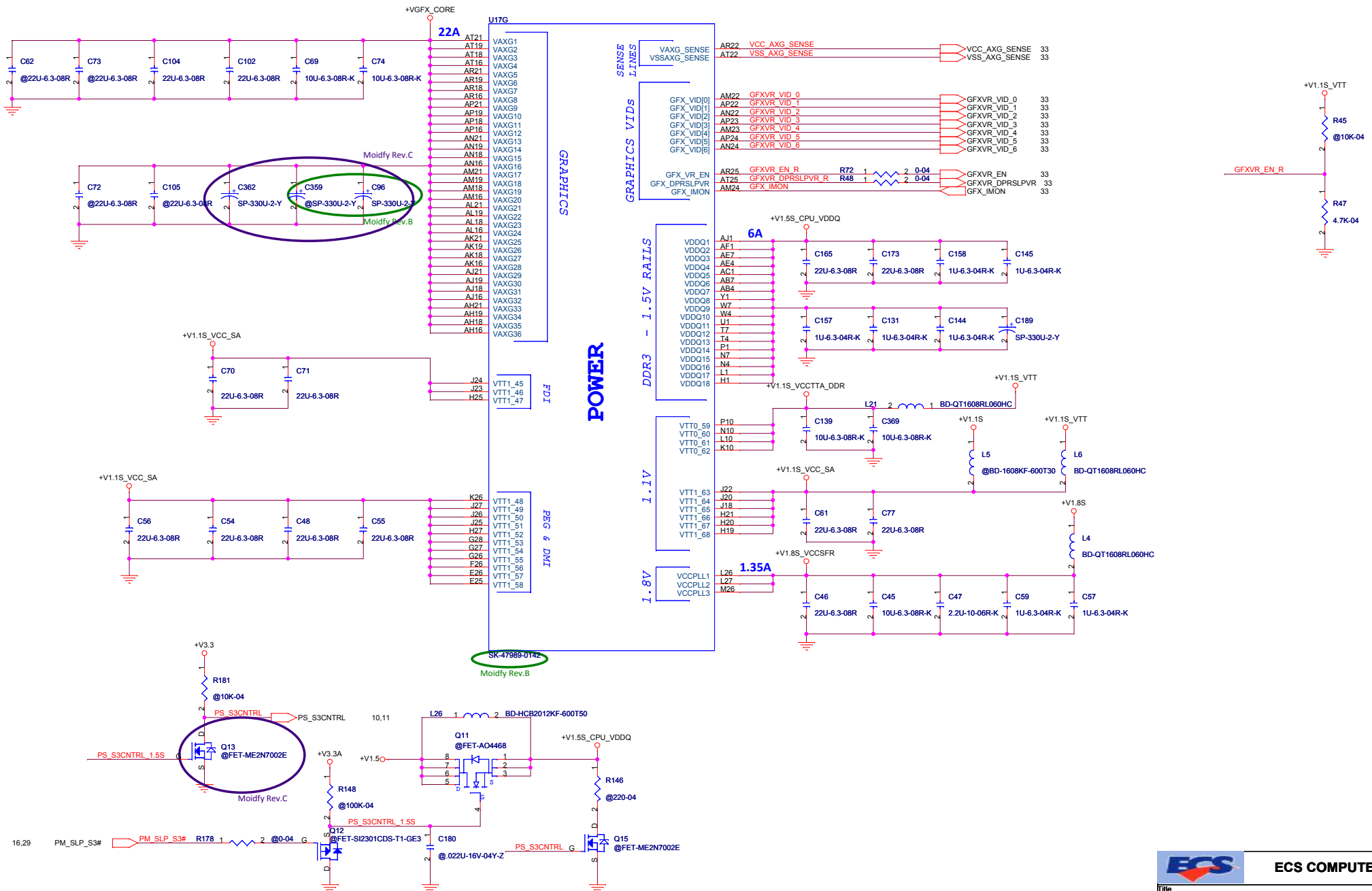
ARRANDALE/CLARKSFIELD PROCESSOR (CLK,MISC,JTAG)



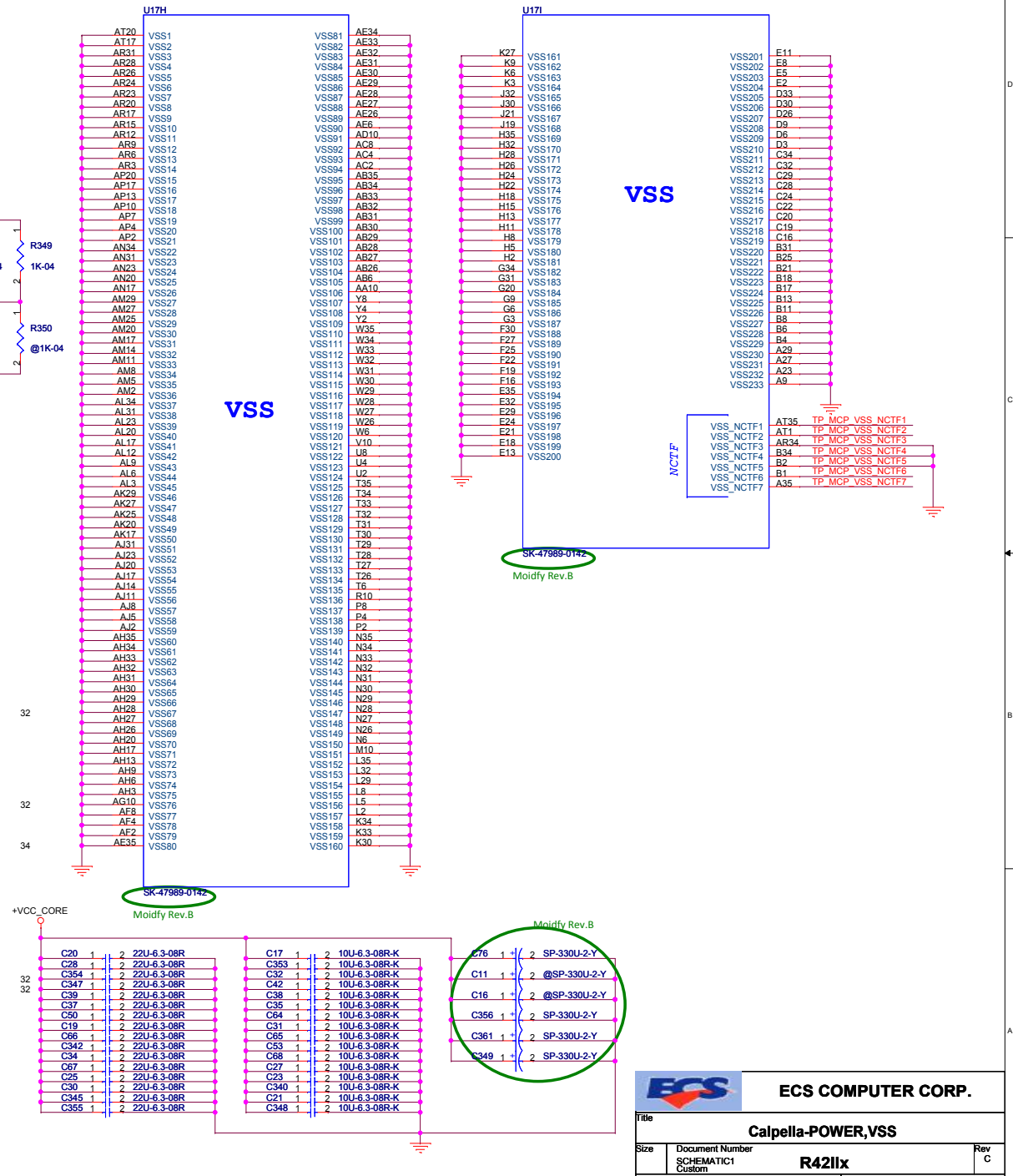
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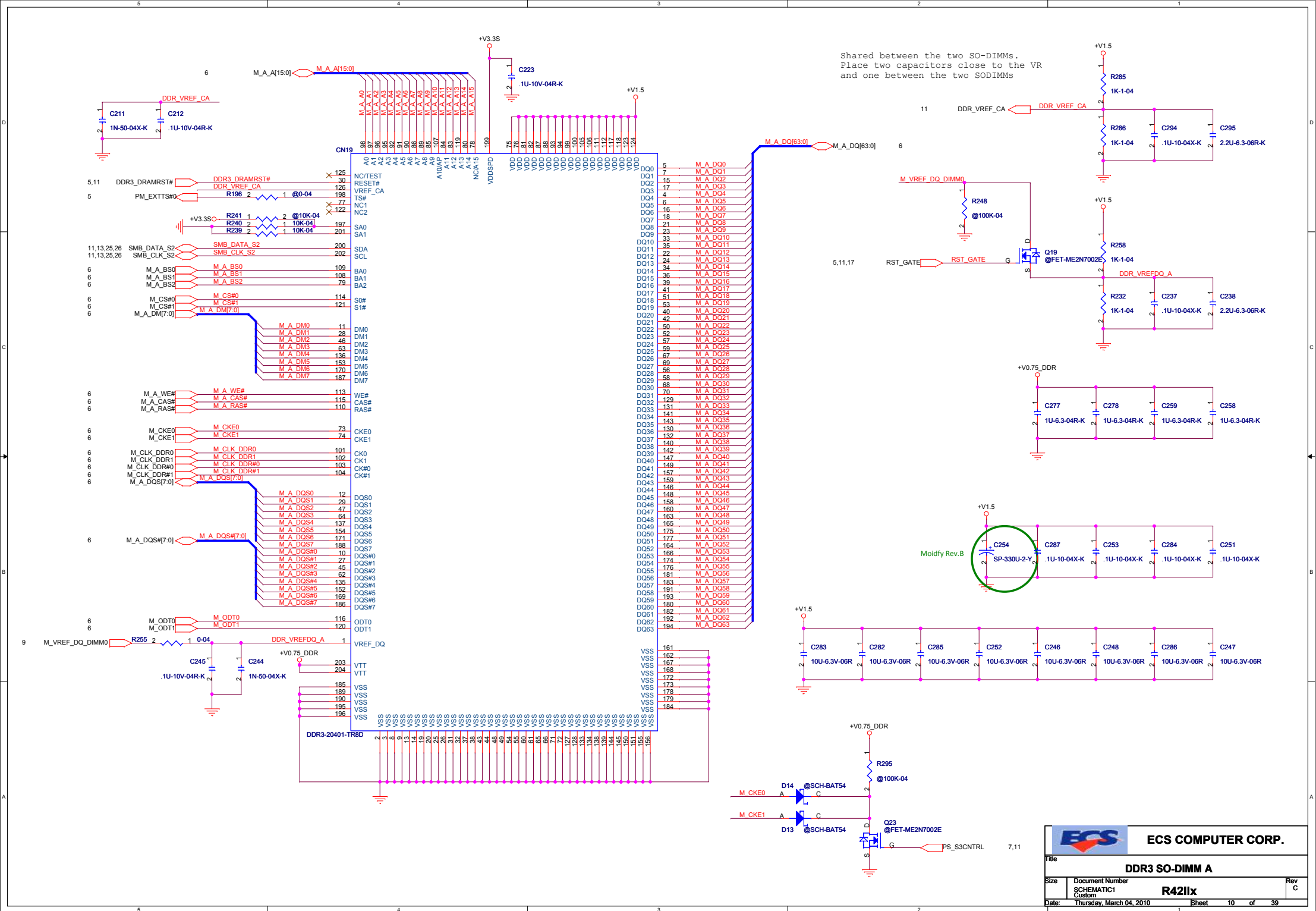
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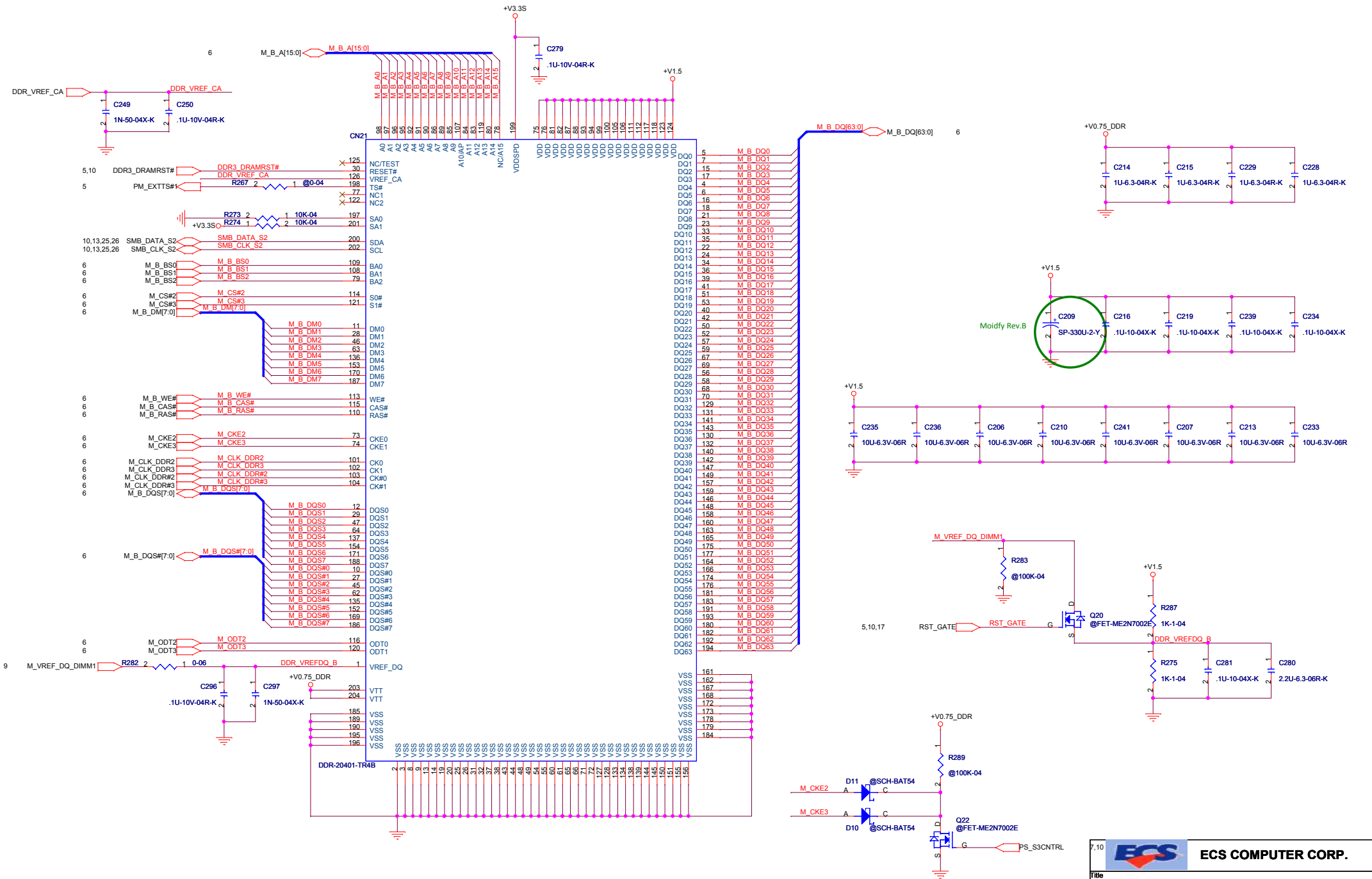


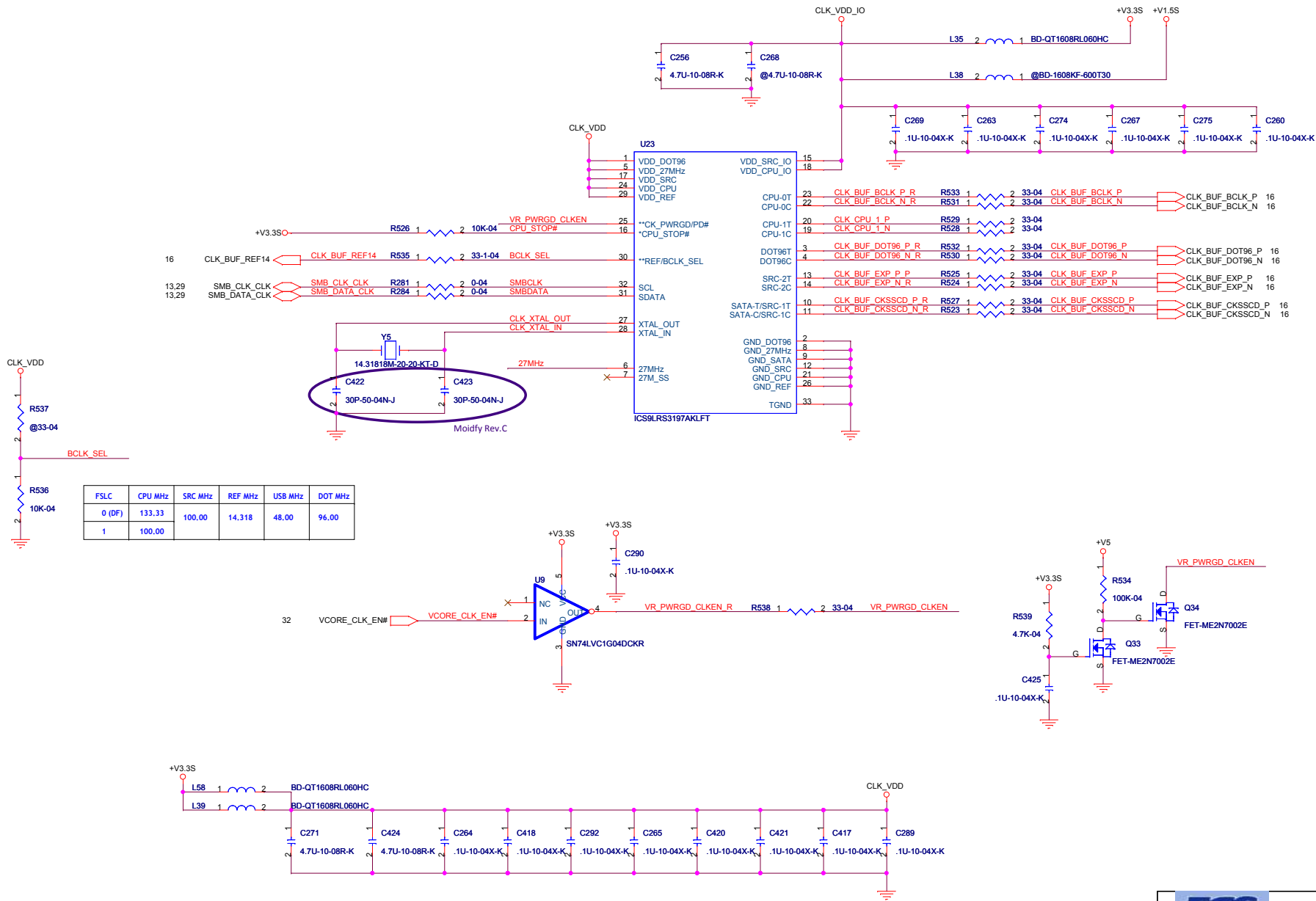
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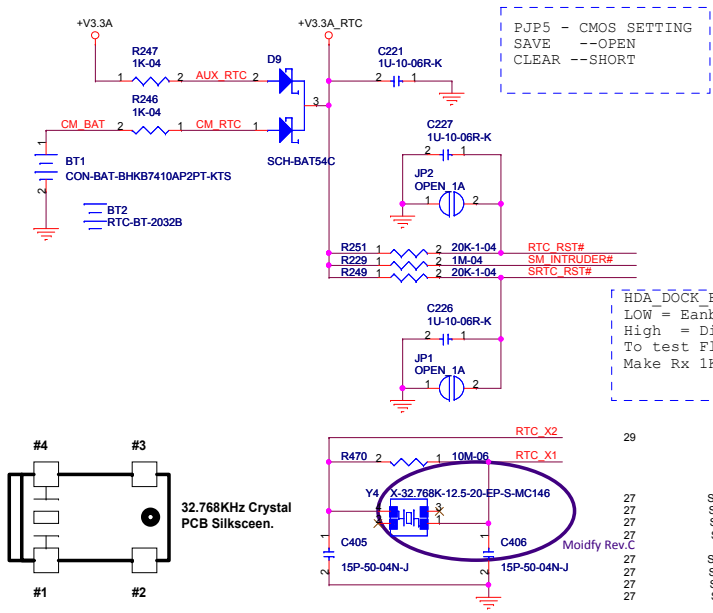


Title				
Calpella-POWER,VSS				
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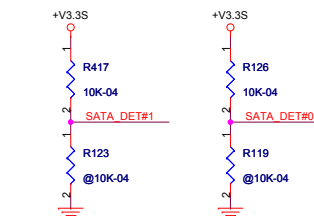




PJP7 - TPM SETTING

SAVE ME RTC REGISTER --OPEN

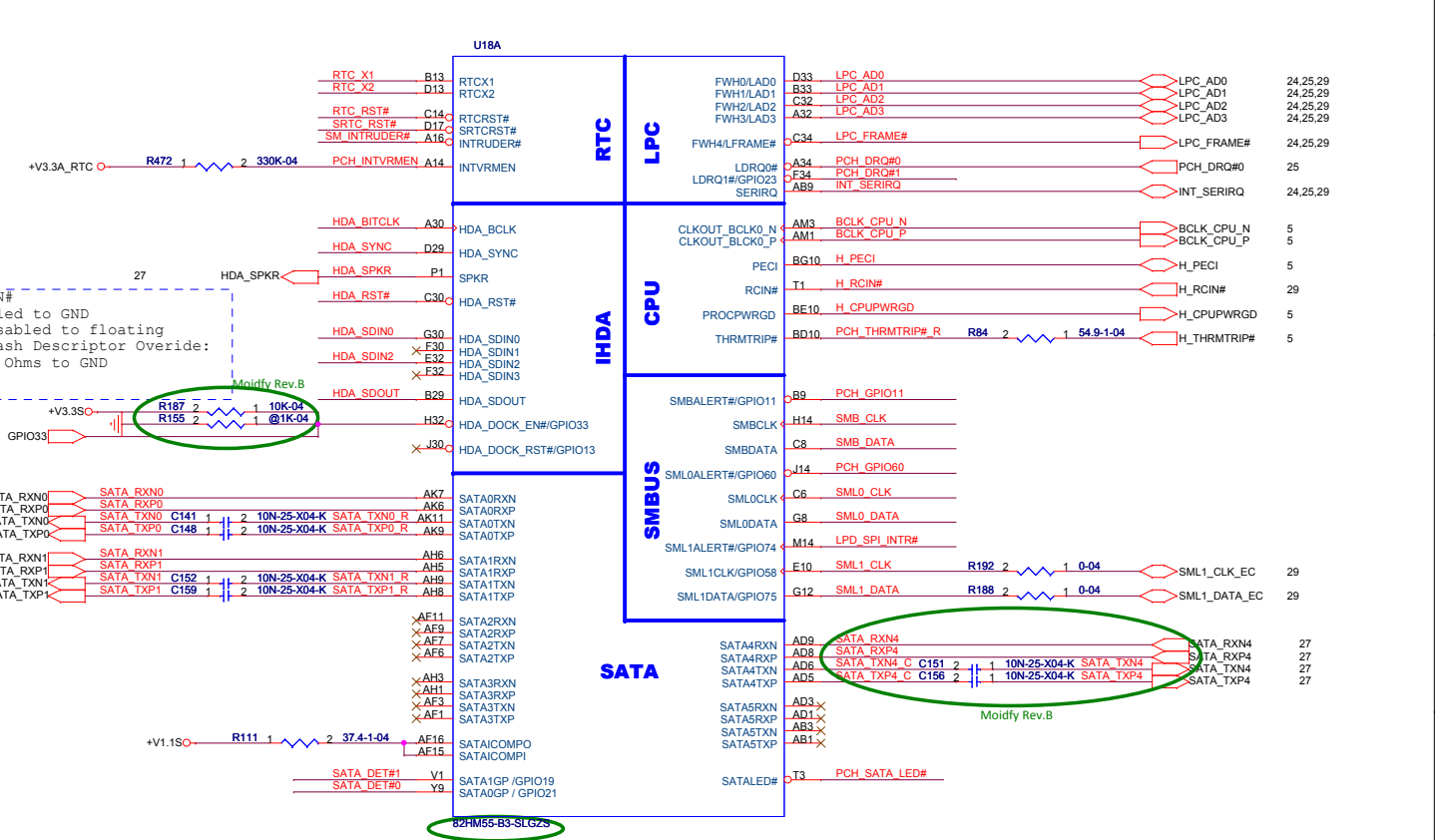
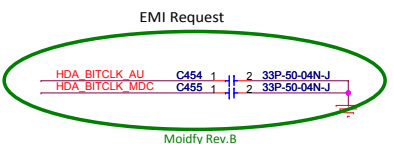
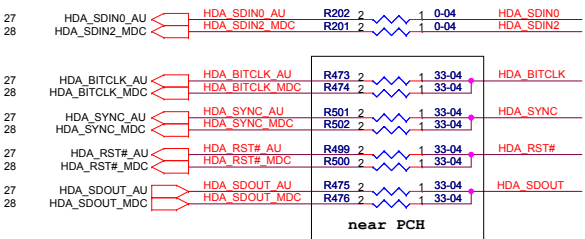
CLEAR ME RTC REGISTER --SHORT

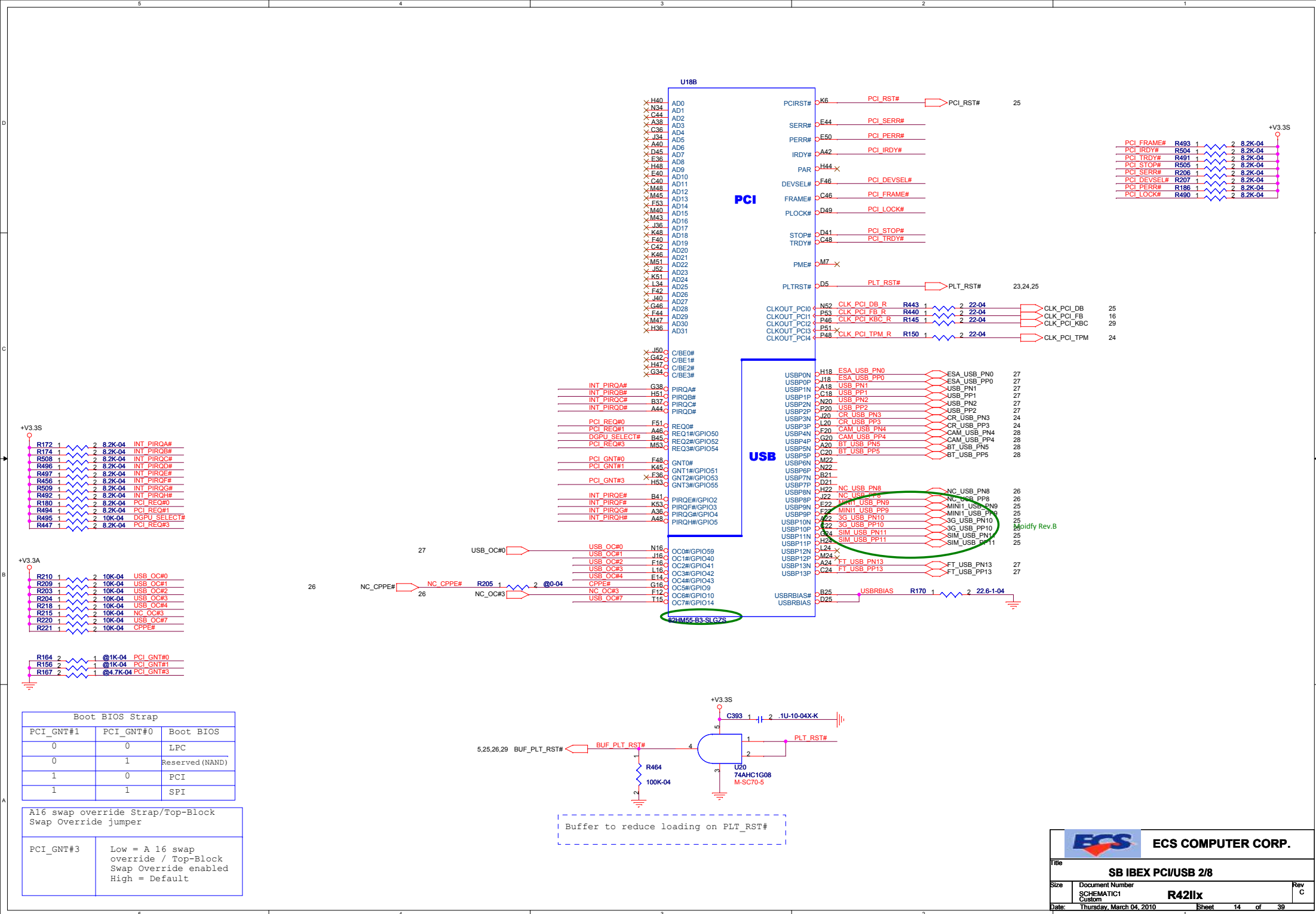


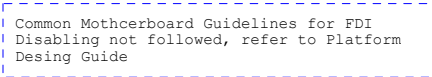
if unused require 8.2K to 10K

pull-up to +Vcc 3.3 or 8.2K to

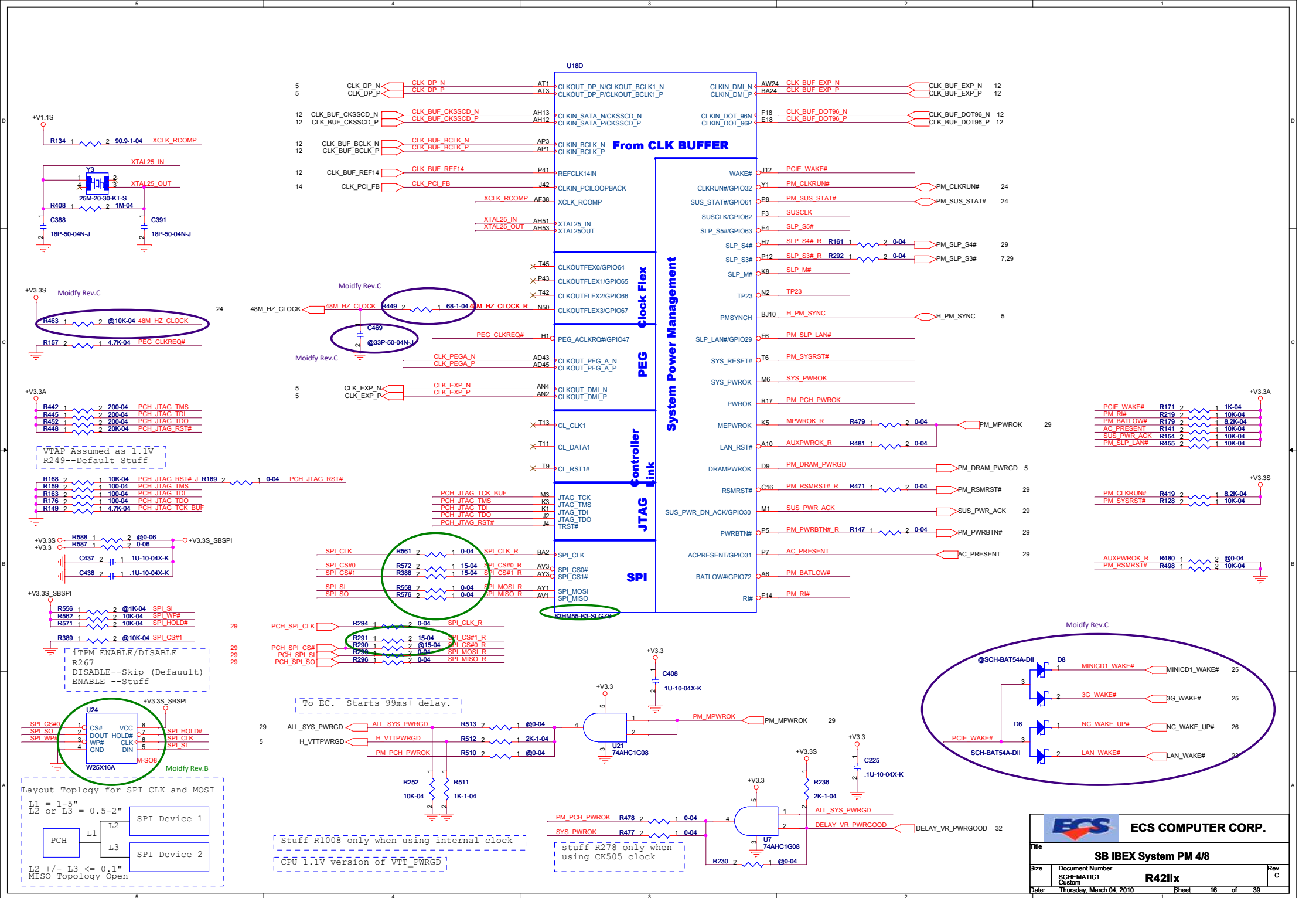
10K pull-down to ground



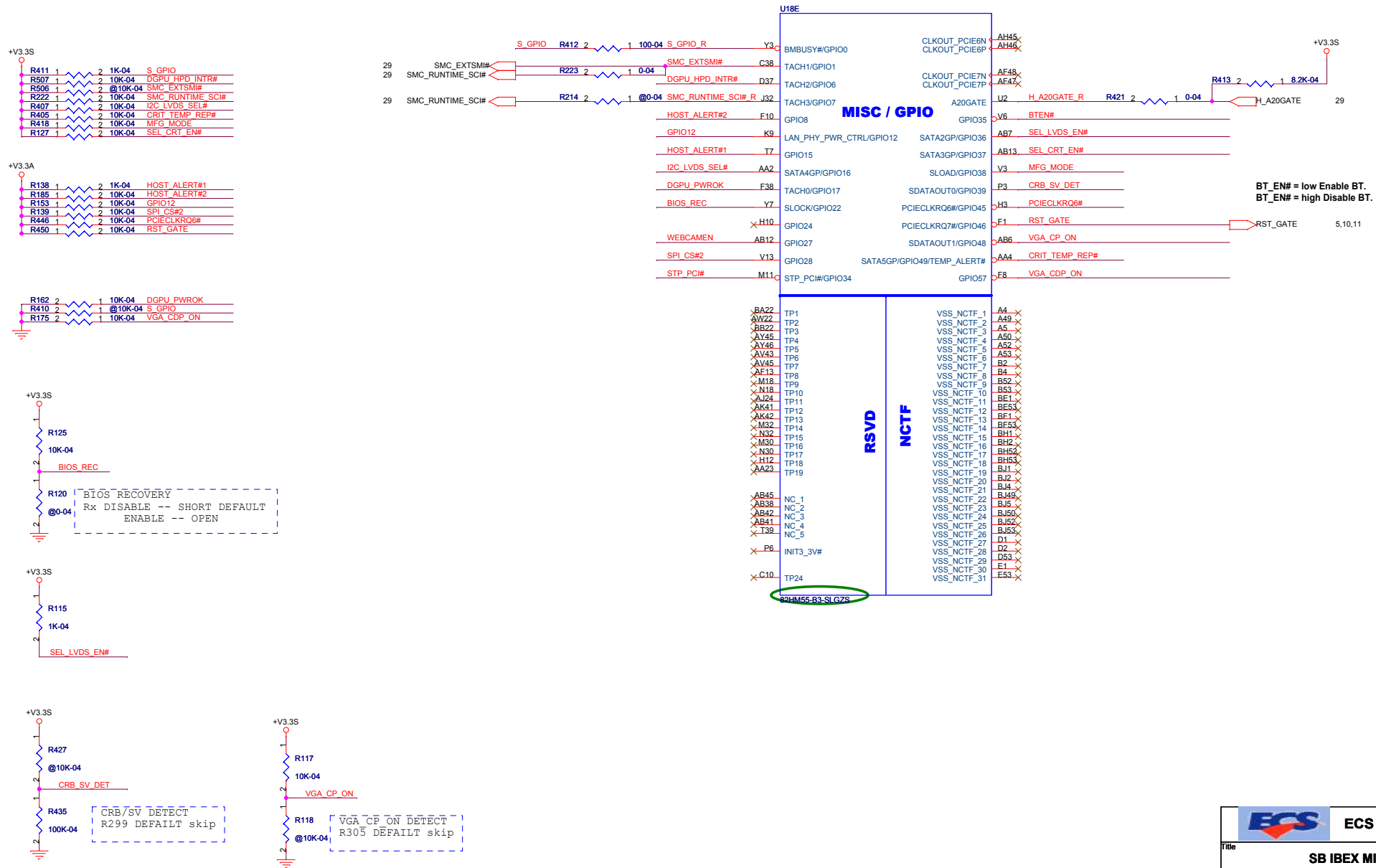


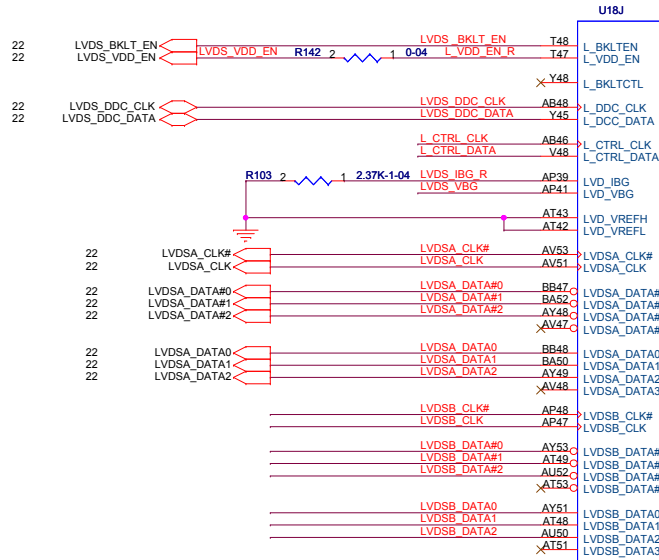
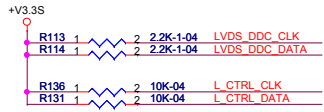


PCI-E* X1	Usage
Lane 1	Slot 1
Lane 2	Slot 2 (in-line with Slot 1)
Lane 3	Slot 3
Lane 4	Slot 4 (in-line with Slot 3)
Lane 5	Slot 5
Lane 6	LAN/ Slot 5
Lane 7	Docking/Slot 6
Lane 8	Docking



IBEXPEAK - M (MISC/GPIO,VSS_NCTF,RSVD)



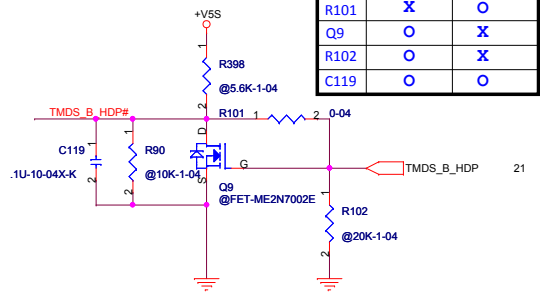


LVDS Digital Display Interface

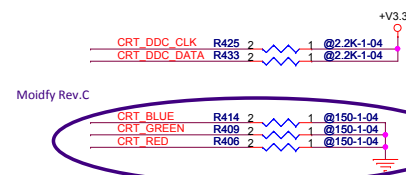
NVRAM

CRT

DDI Port B Detect		
SDVO_CTRL_CLK/DATA	0	Port B detected
	1	Port B not detected

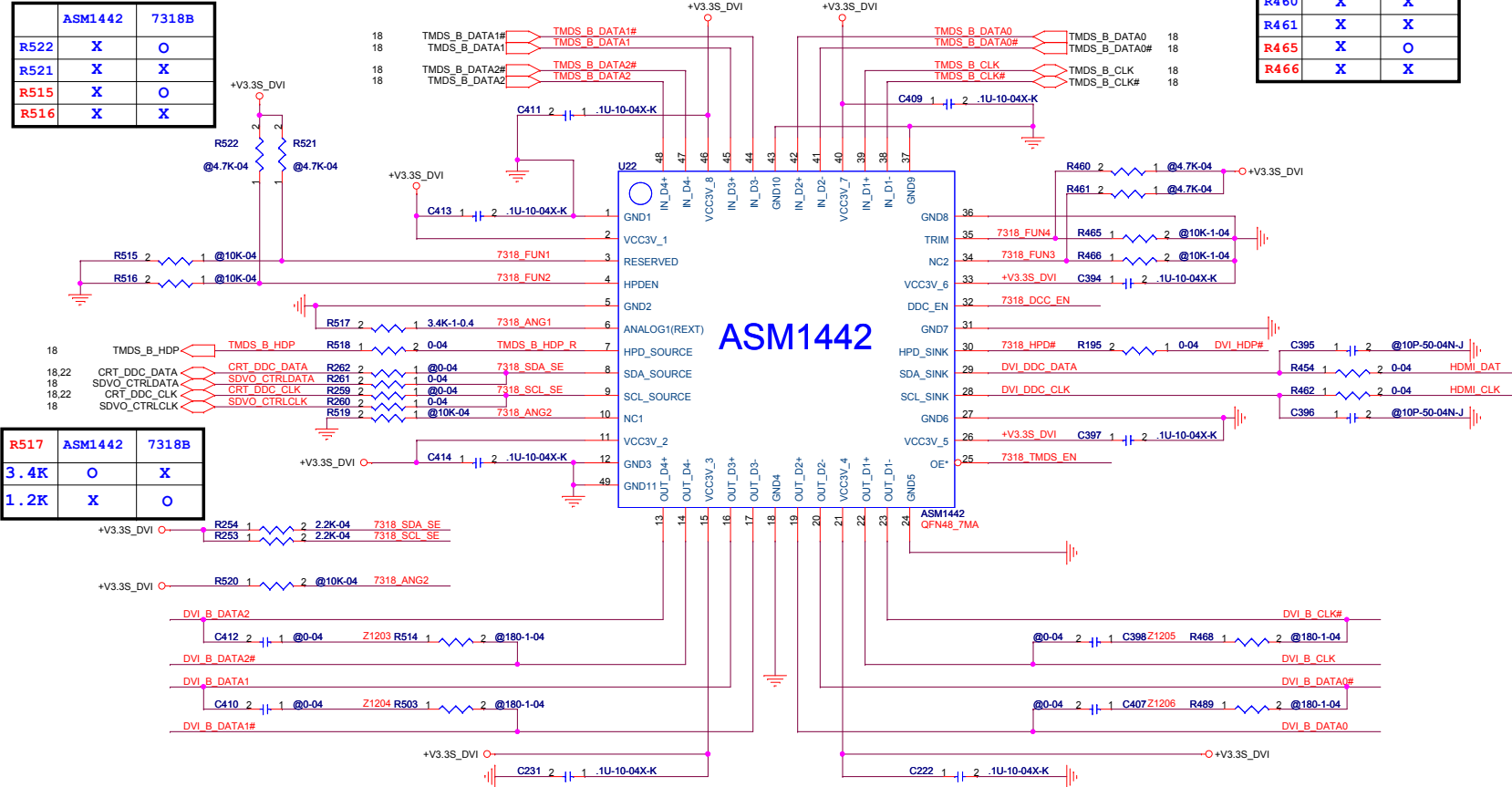


	ASM1442	7318B
R398	O	O
R90	O	O
R101	X	O
Q9	O	X
R102	O	X
C119	O	O



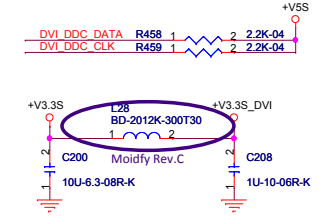
DVI SHIFTER

	ASM1442	7318B
R522	X	O
R521	X	X
R515	X	O
R516	X	X



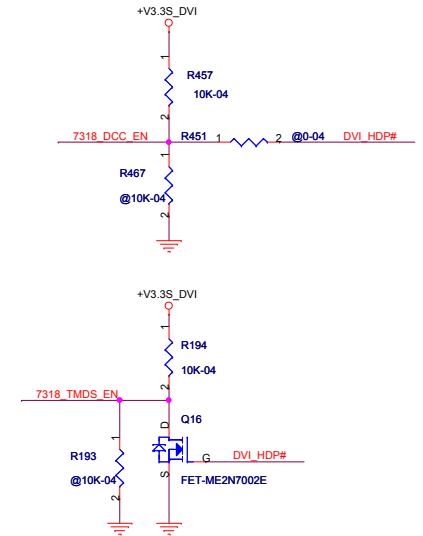
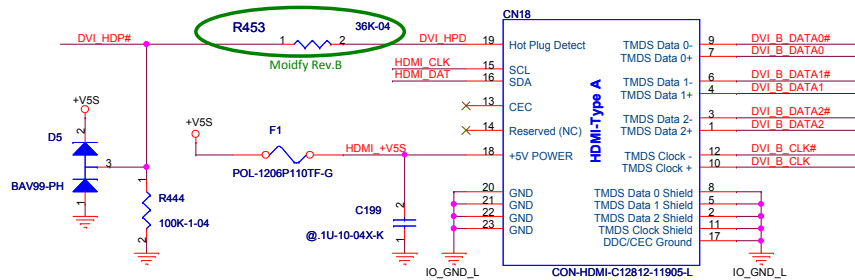
R517	ASM1442	7318B
3.4K	O	X
1.2K	X	O

	ASM1442	7318B
R460	X	X
R461	X	X
R465	X	O
R466	X	X

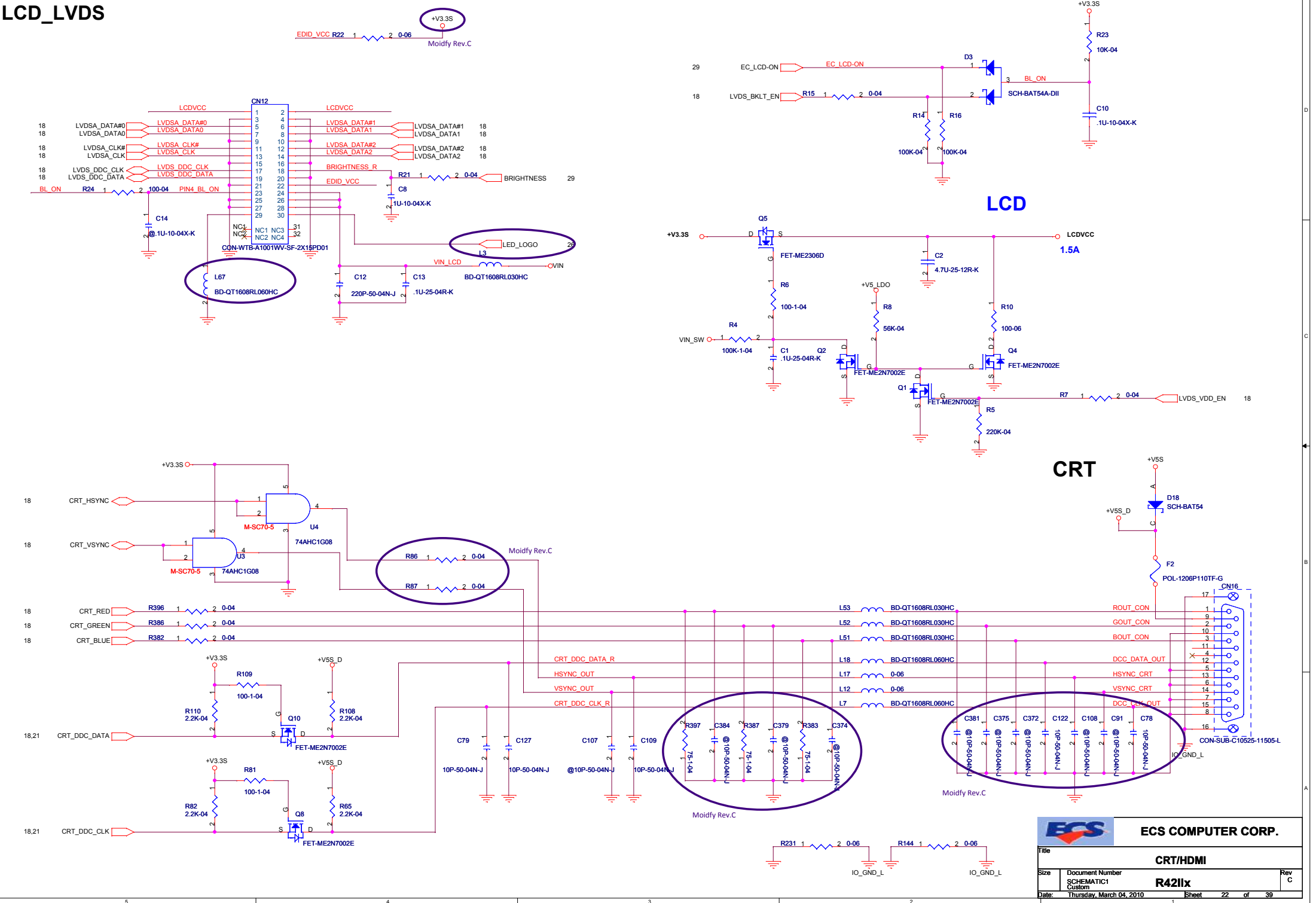


HDMI Conn.

	ASM1442	7318B
R468	X	O
C398	X	O
R489	X	O
C407	X	O
R503	X	O
C410	X	O
R514	X	O
C412	X	O




LCD_LVDS



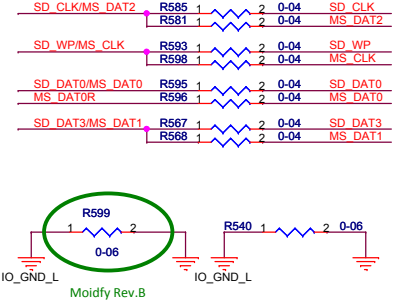
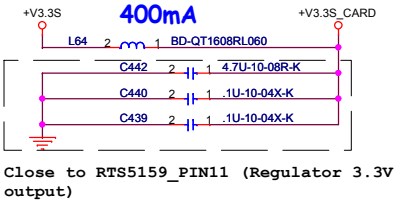
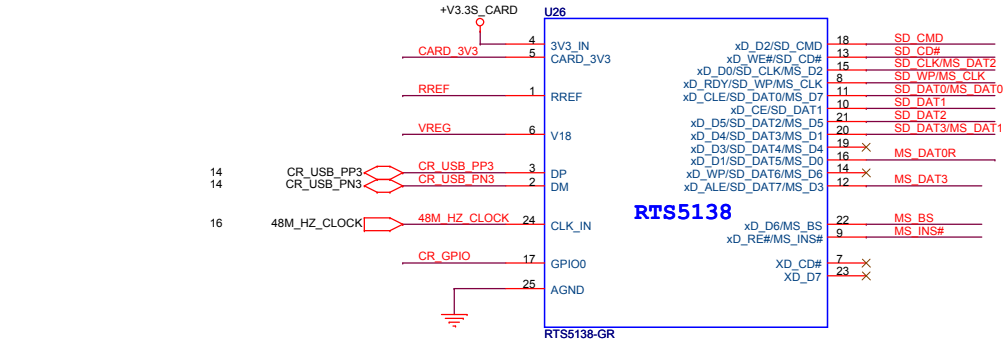
LCD

CRT

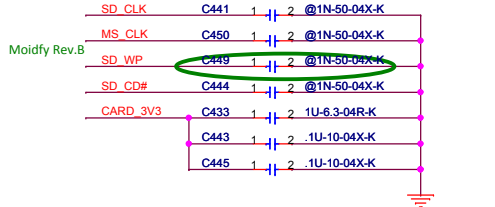
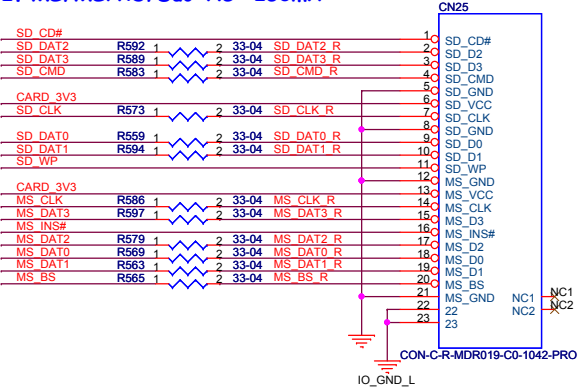
**ECS COMPUTER CORP.**

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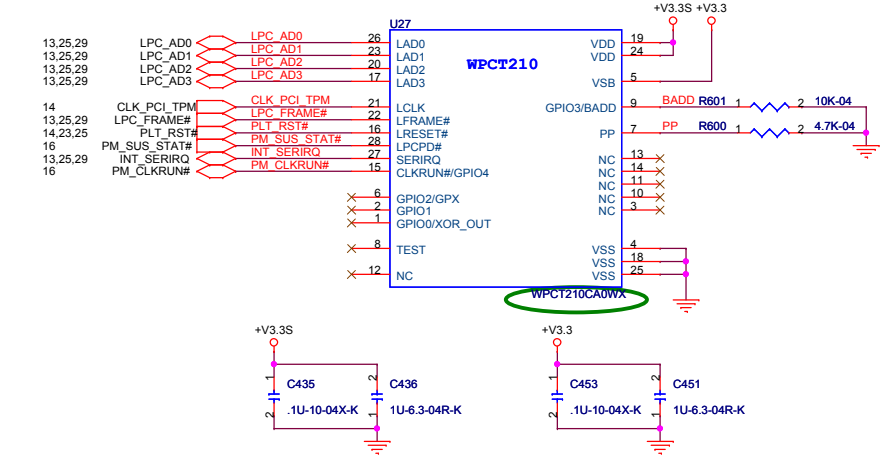
CARD READ



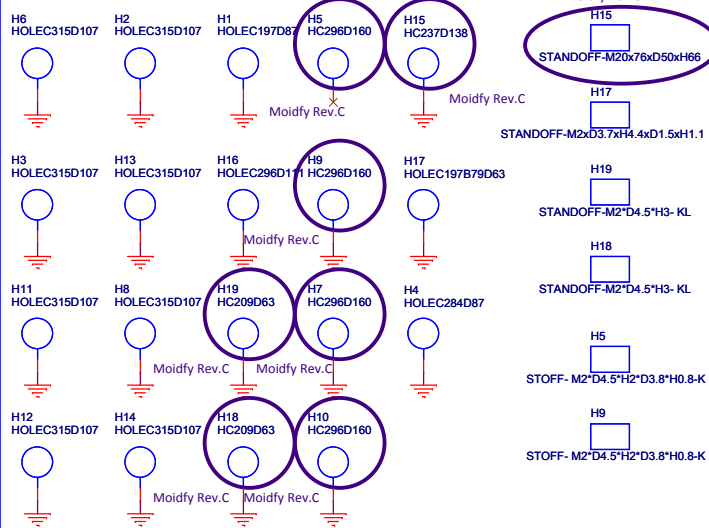
- 1. SD/MMC Card: 250mA
- 2. MS/MSPRO/Duo-HG: 250mA



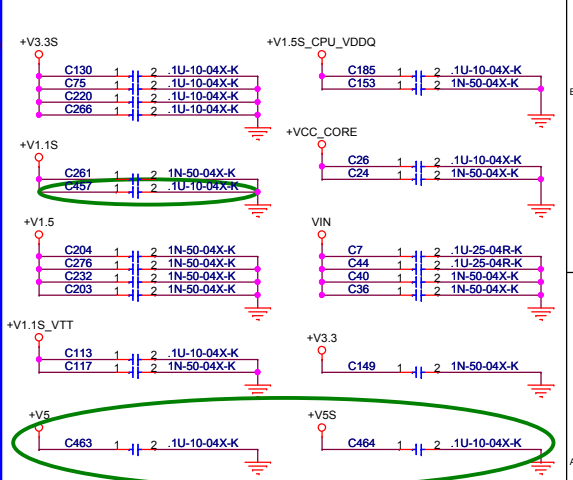
TPM



SCREW HOLE



EMI Request



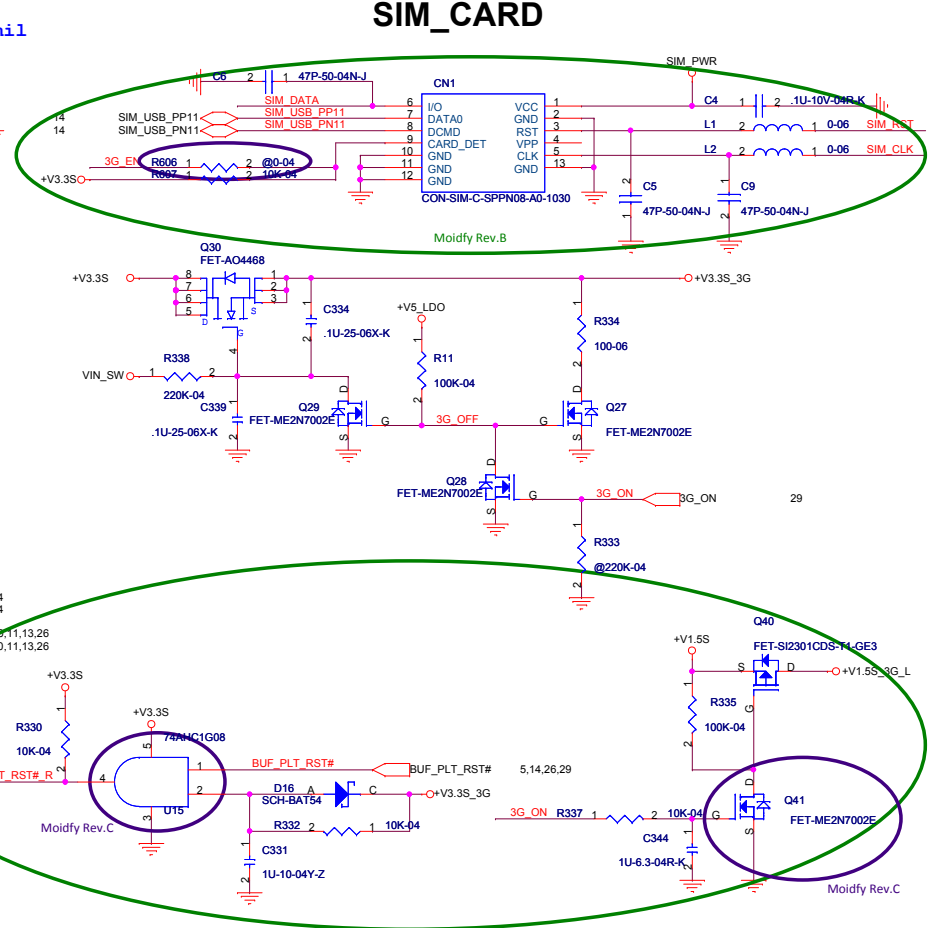
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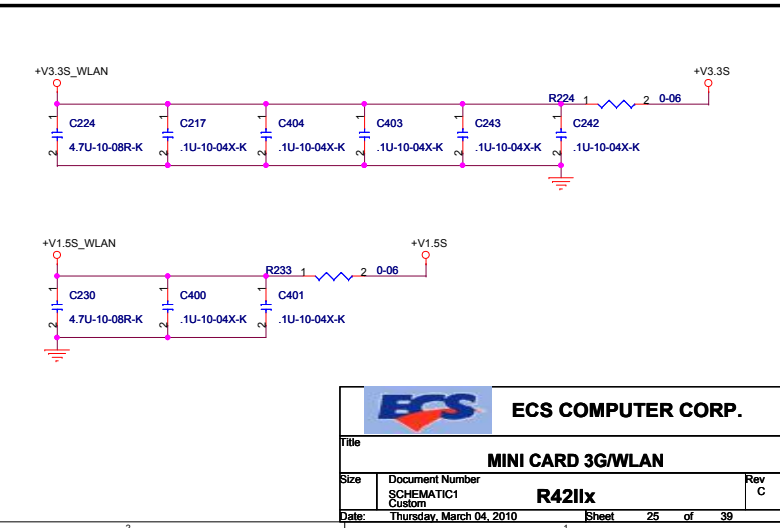
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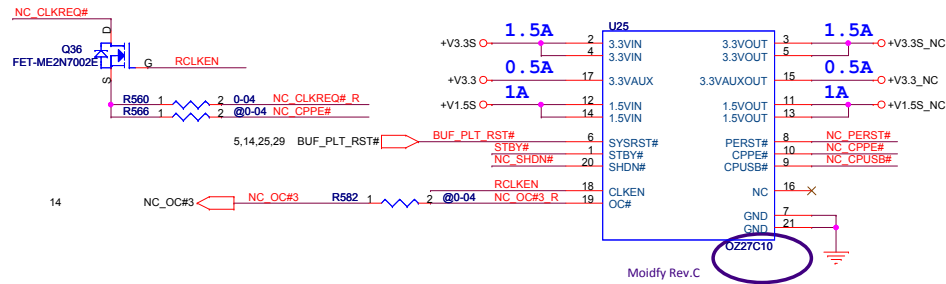
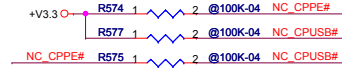
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SIM CARD

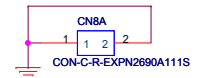
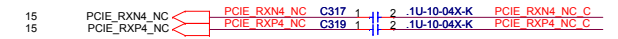
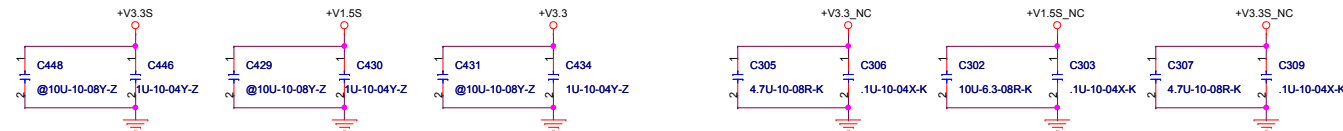
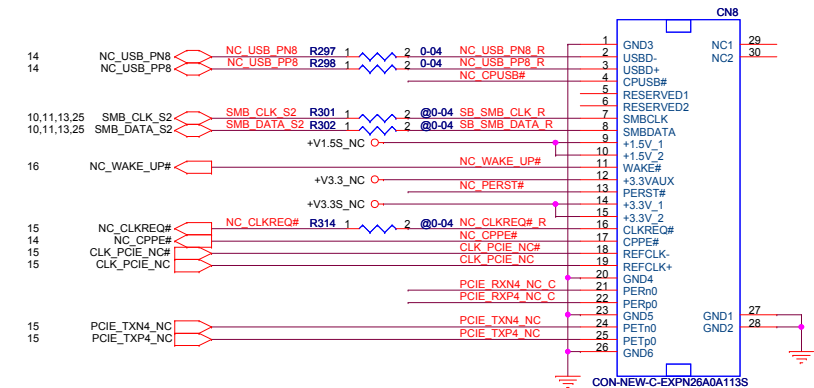
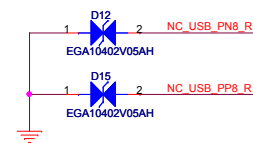




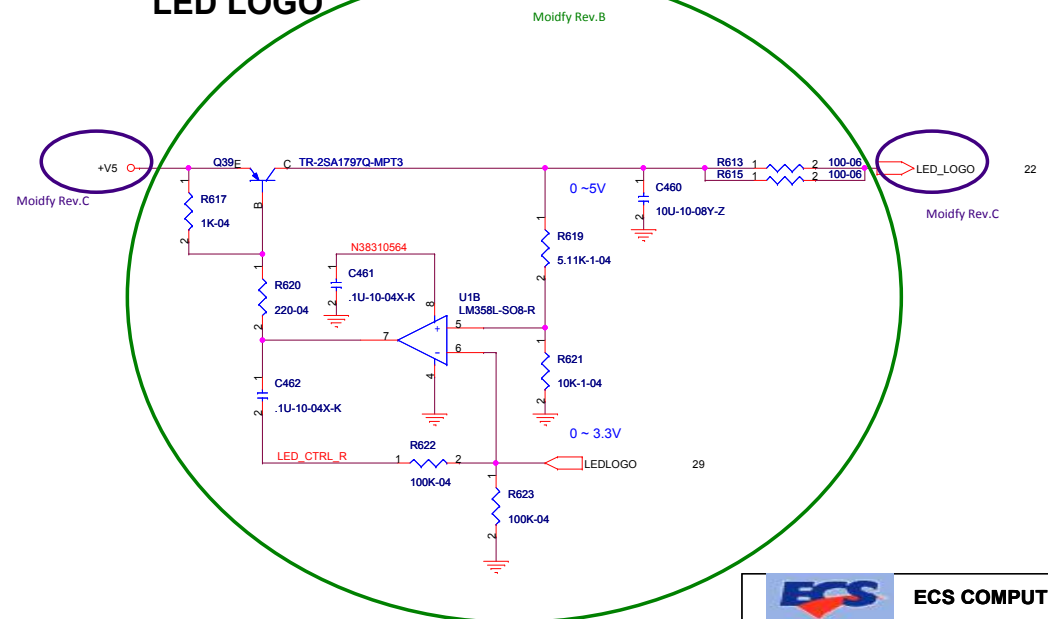
NEW CARD



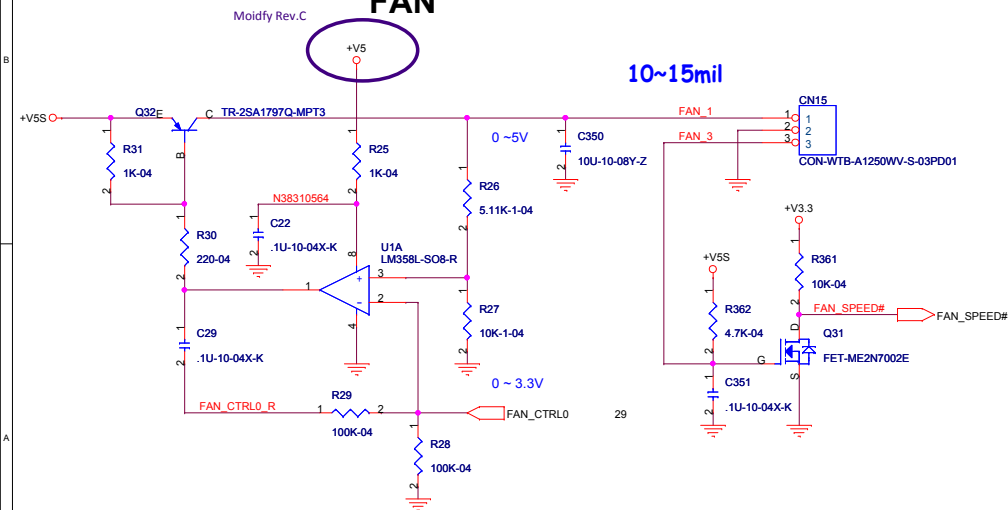
ESD protect

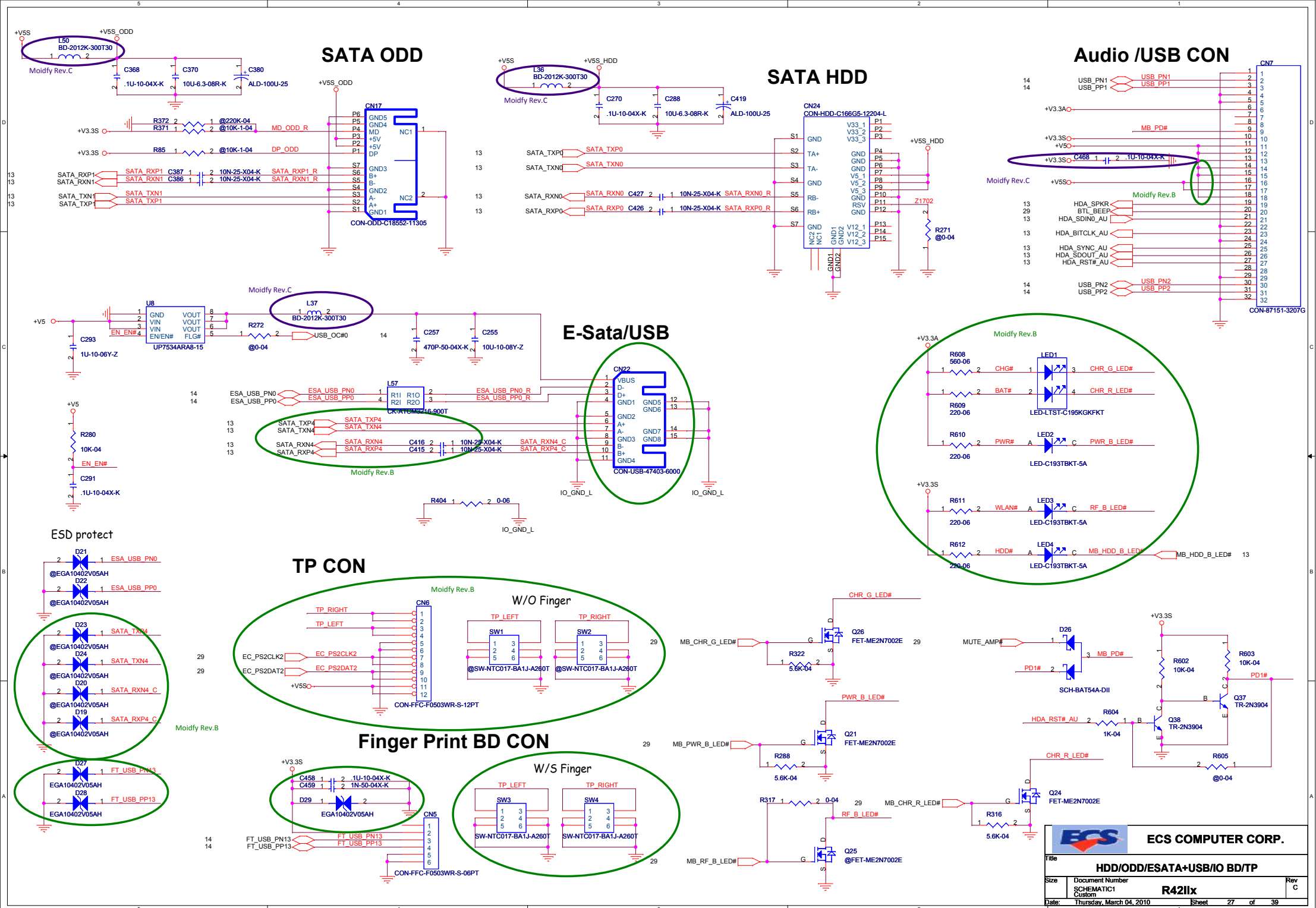


LED LOGO



FAN





11



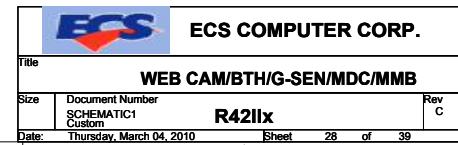
11

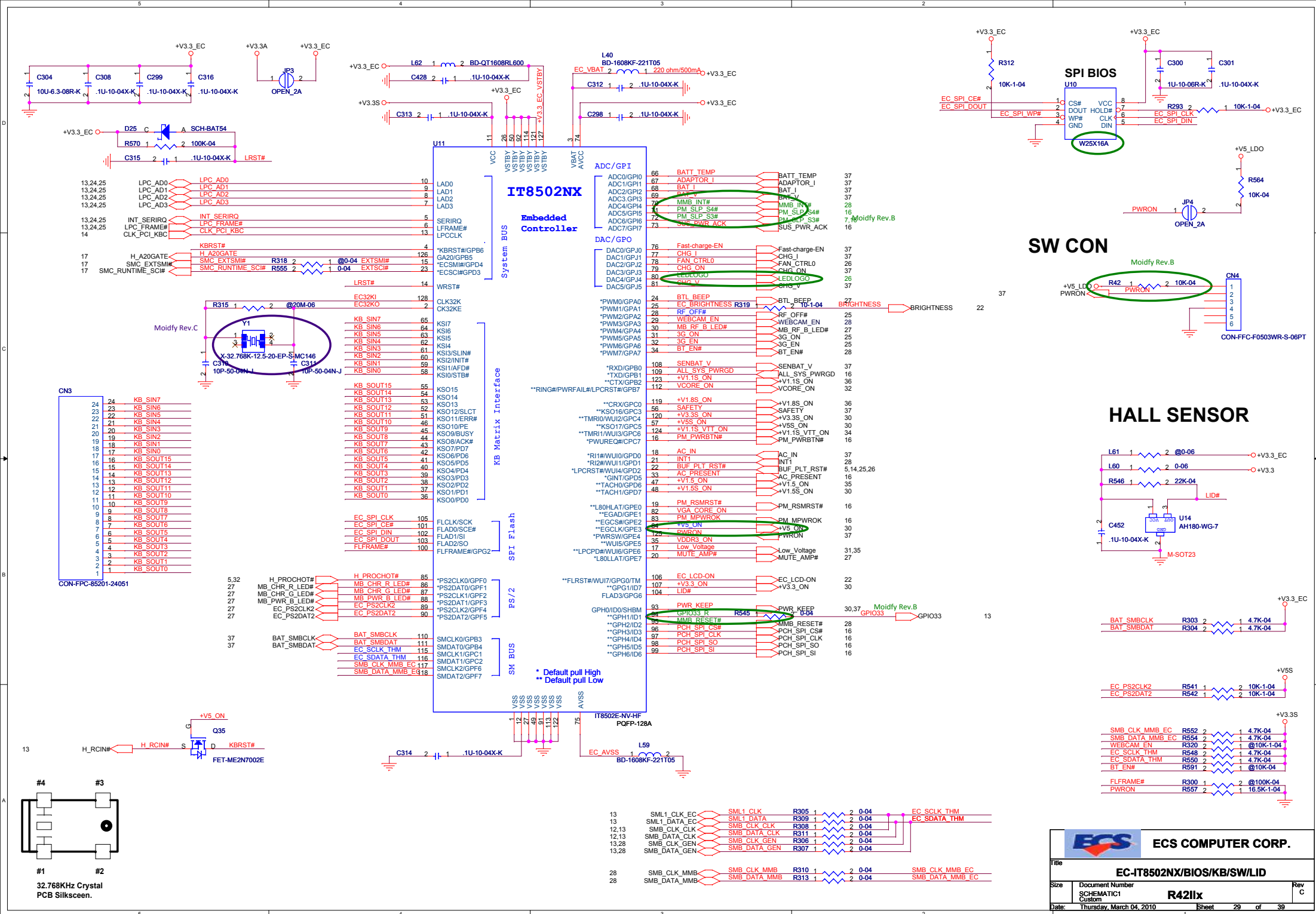


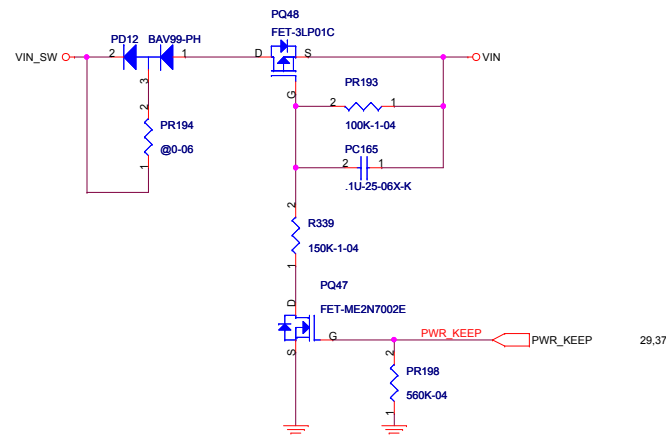
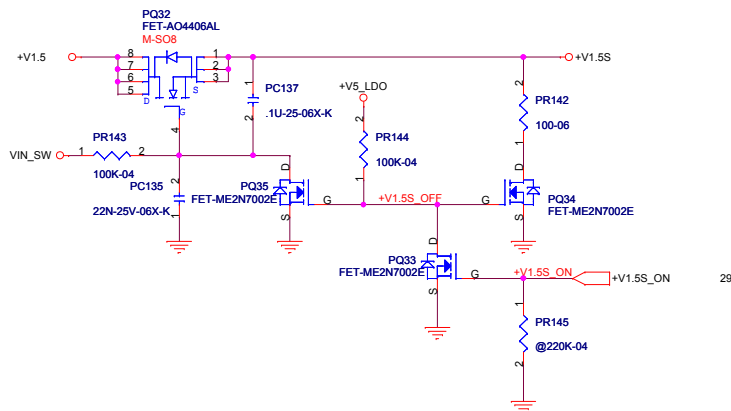
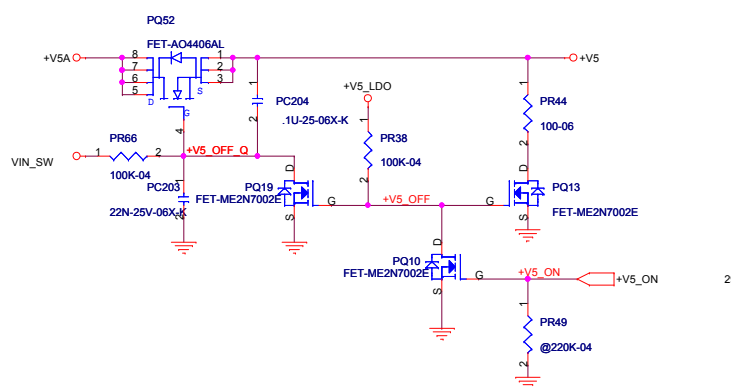
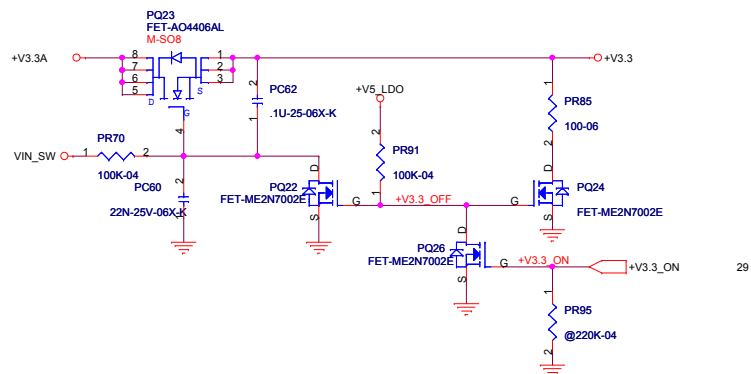
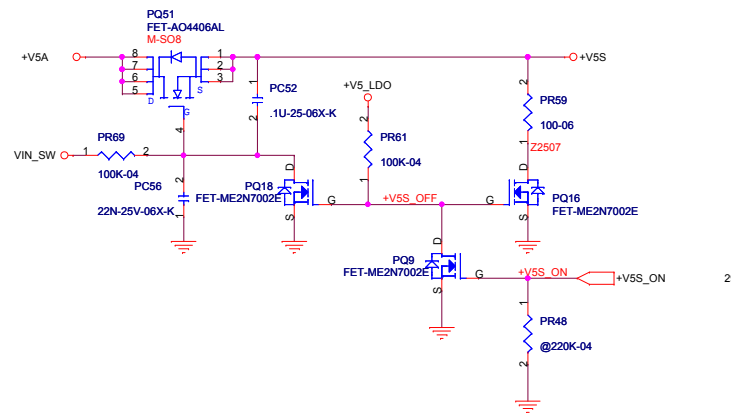
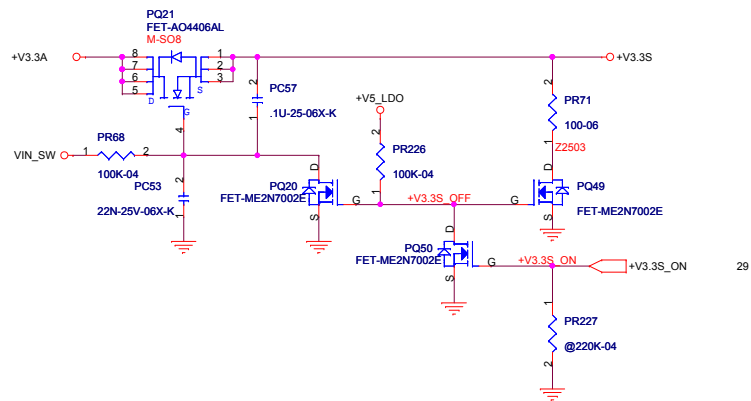
D



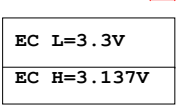
A








EC L=5.021V
EC H=4.753V

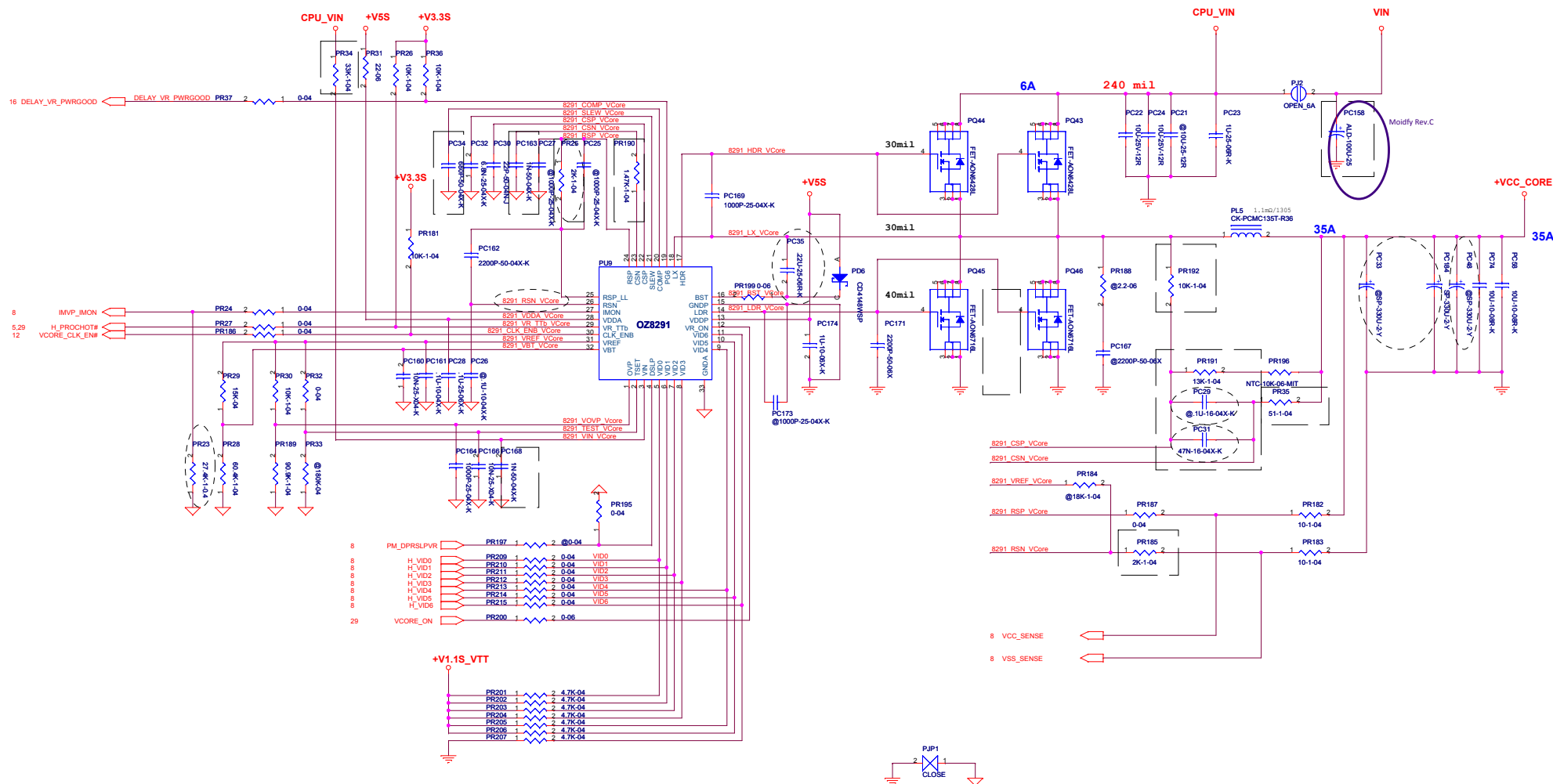




ECS COMPUTER CORP.

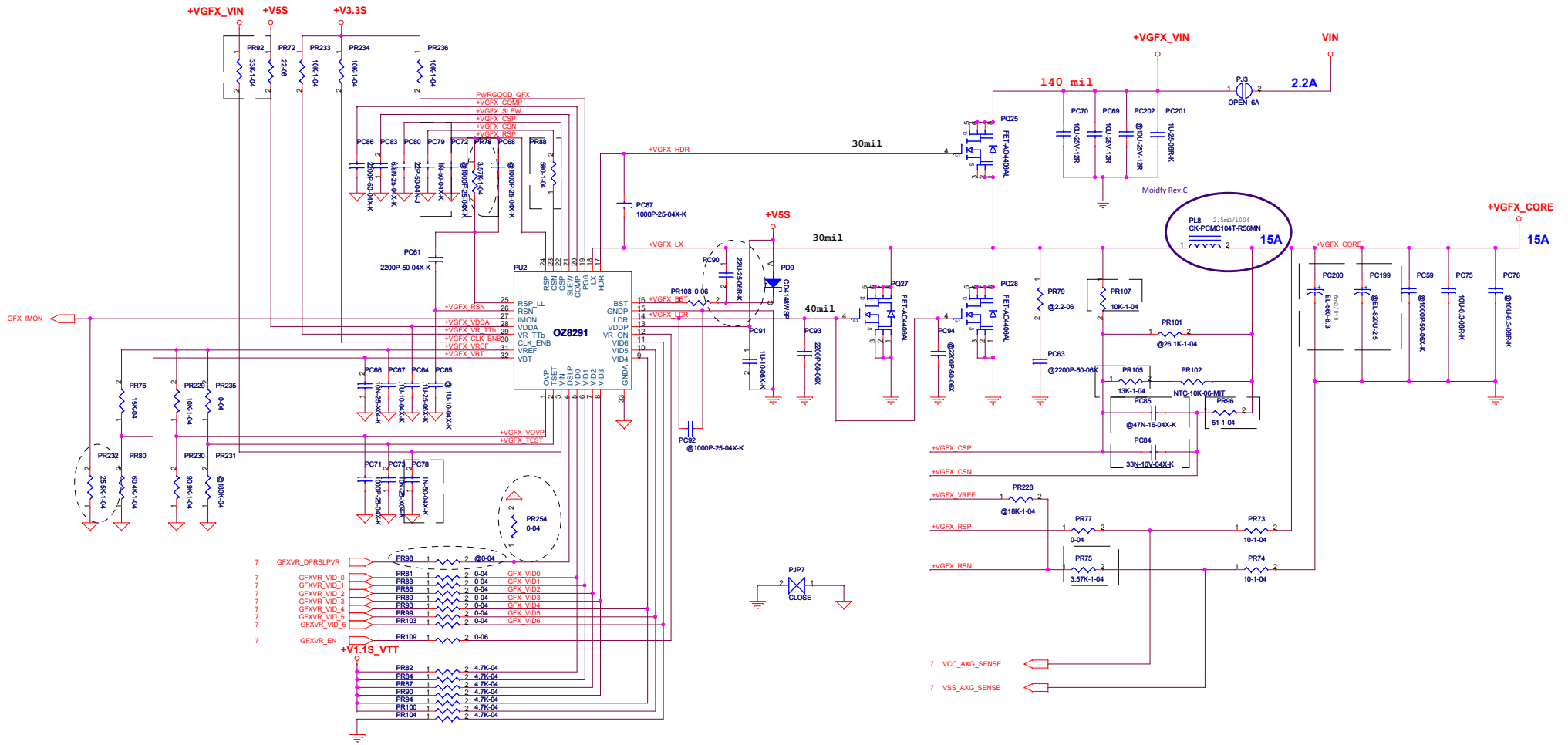
+V3.3A/+ V5A(OZ815)

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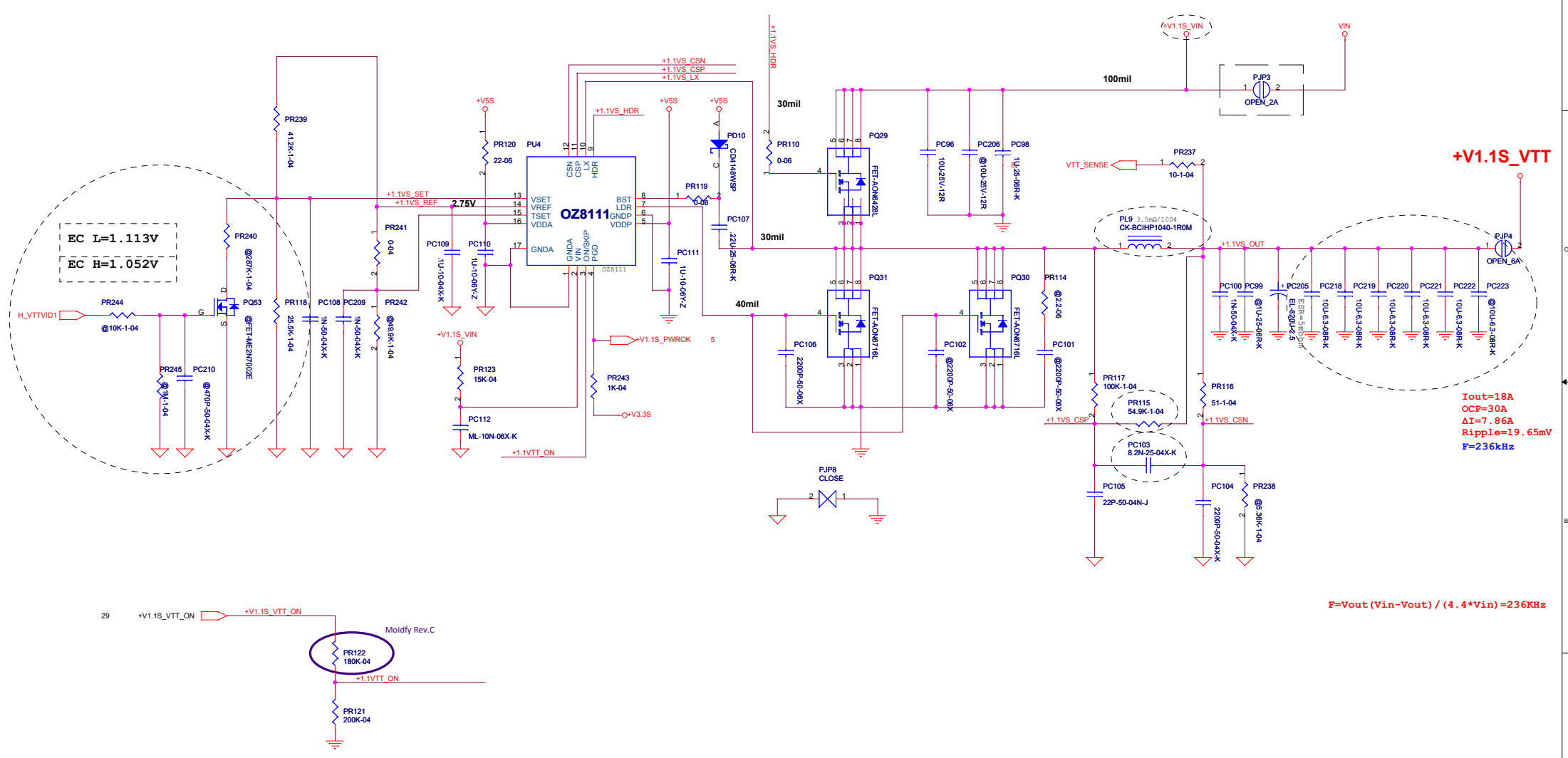
(modify value for Rev.B

modify value for Rev.C



modify value for Rev.B

modify value for Rev.C

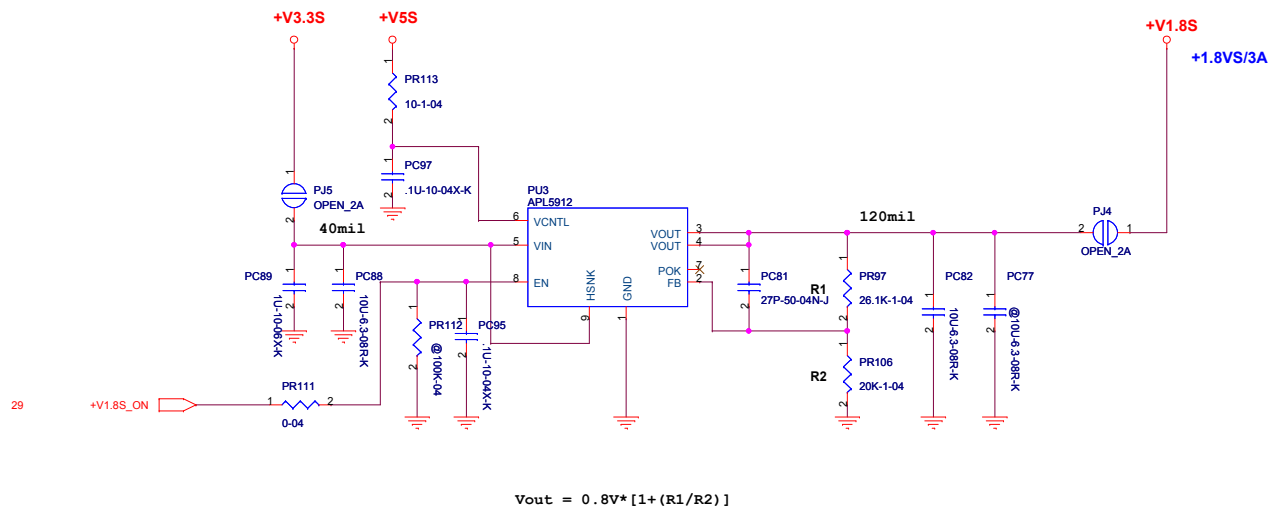
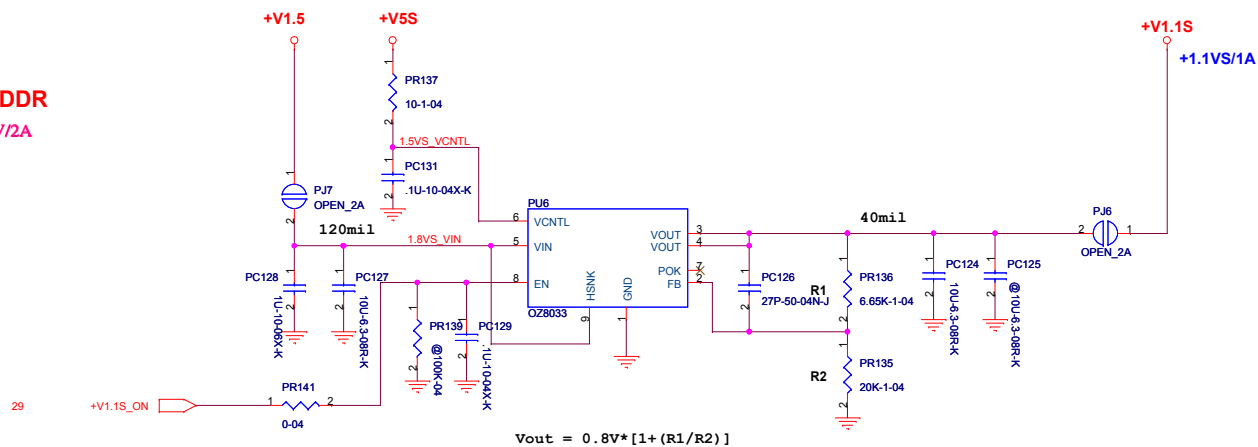
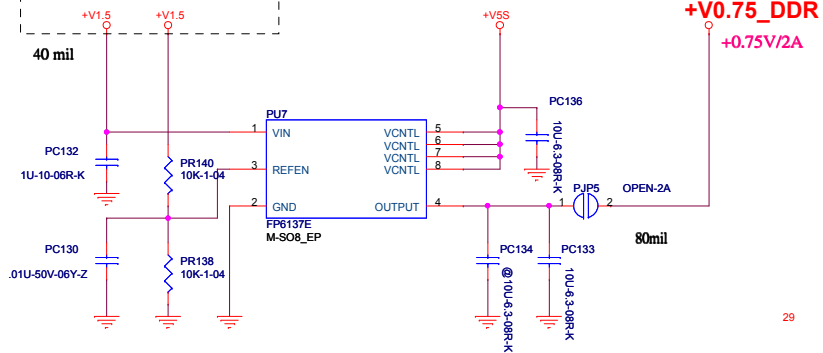


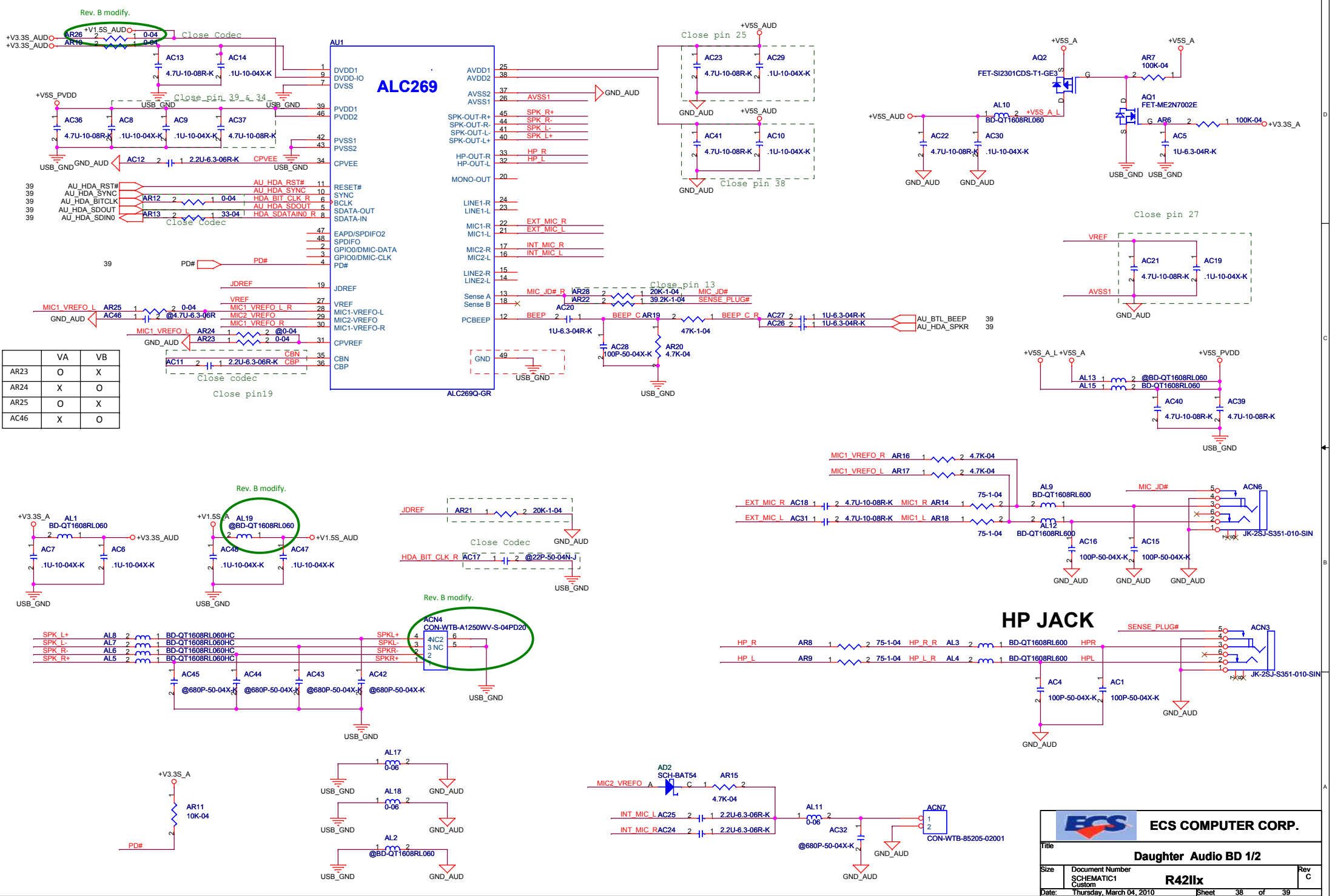
+V1.1S_VTT

Iout=18A
OCP=30A
ΔI=7.86A
Ripple=19.65mV
F=236kHz

$$F = \frac{V_{out}(V_{in} - V_{out})}{(4.4 * V_{in})} = 236KHz$$

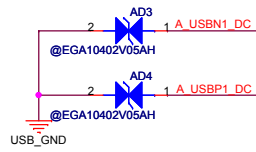
layout to DIMM



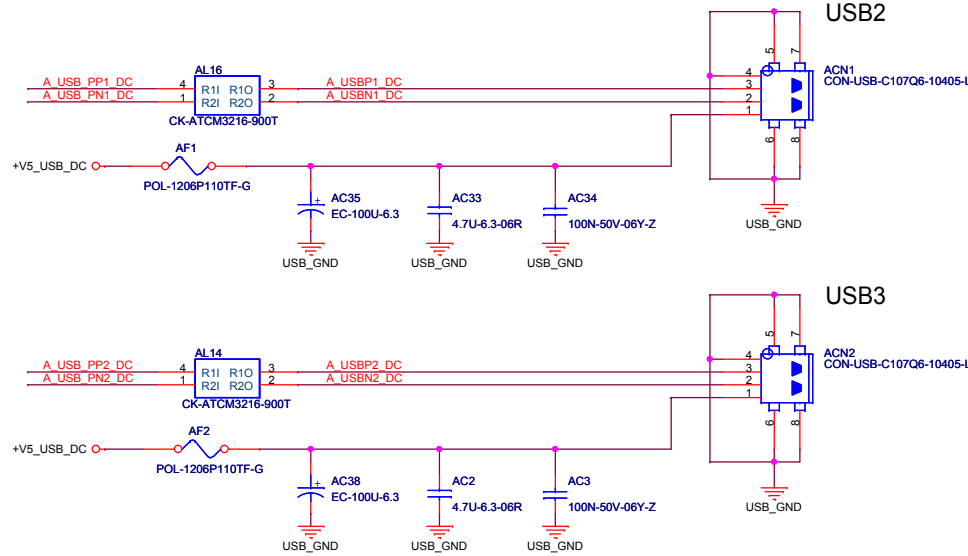
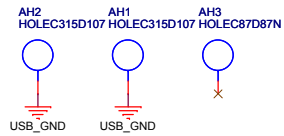
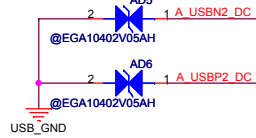


	VA	VB
AR23	O	X
AR24	X	O
AR25	O	X
AC46	X	O

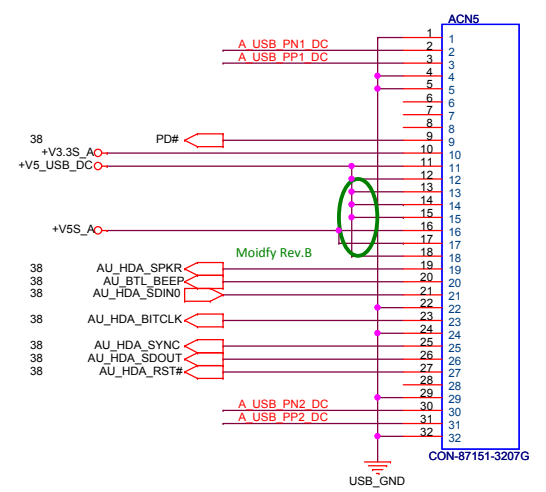
USB PORT




ESD protect



BTB



PCB2
PCB_Audio_BD_R42Iix_REV:C

 ECS COMPUTER CORP.			
Daughter AudioBD 2/2 & USB			
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