

Intel Penryn CPU + Cantiga + ICH9M Chipset

R40IIX M/B /

01	COVER PAGE
02	BLOCK DIAGRAM
03	MISCELLANEOUS
04	GPIO
05	CPU Penryn 1 of 2
06	CPU Penryn 2 of 2
07	NB Cantiga 1 of 6
08	NB Cantiga 2 of 6
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
17	SB ICH9M 2 of 4
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

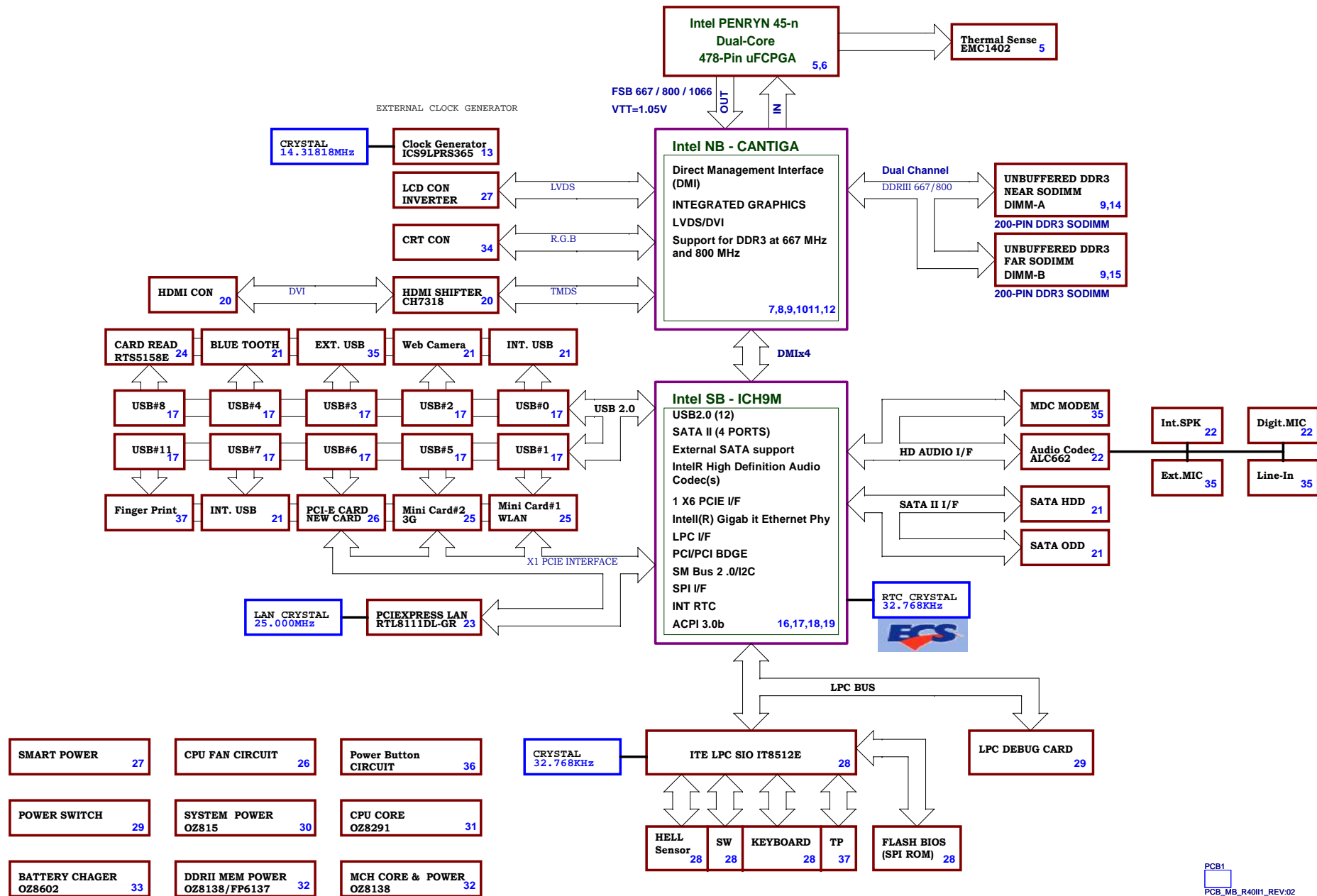
R40IIX M/B and Daughter P/N BD List :

82GR40000-02 37GR40000-02	MAIN BD ASSY R40IL5 REV:C PCB M/B R40IIX REV.C 255*198*1.2 6L
80GHR4000-02 35GHR4000-02	CRT+RJ11+USB BD ASSY R40II1 REV:02 PCB CRT BD R40IIX REV.02 100.30*28.50*1.2 6L
80G8R4000-02 35G8R4000-02	LED+TP+FP BD ASSY FOR R40II1 REV:02 PCB T/P BD R40IIX REV.02 75.50*19.30*1.2 6L
80G5R4000-02 35G5R4000-02	SWITCH BD ASSY R40II1 REV:02 PCB SW BD R40IIX REV.02 78.00*11.50*1.2 6L

R40IIX M/B Power Rail State :

State \ Signal	+*V_LDO	+*V_AUX	+*V_DDR	+*V	+*V*S	CLK
AC/DC S0/Moff (Full On)	ON	ON	ON	ON	ON	ON
AC/DC S3/Moff (Suspend to RAM)	ON	ON	ON	ON	OFF	LOW
AC/DC S4/Moff (Suspend to Disk)	ON	ON	OFF	OFF	OFF	OFF
AC S5/Moff (Soft Off)	ON	ON	OFF	OFF	OFF	OFF
DC S5/Moff (Soft Off)	ON	OFF	OFF	OFF	OFF	OFF

SYSTEM BLOCK DIAGRAM




PCB1
PCB_MB_R40II1_REV:02

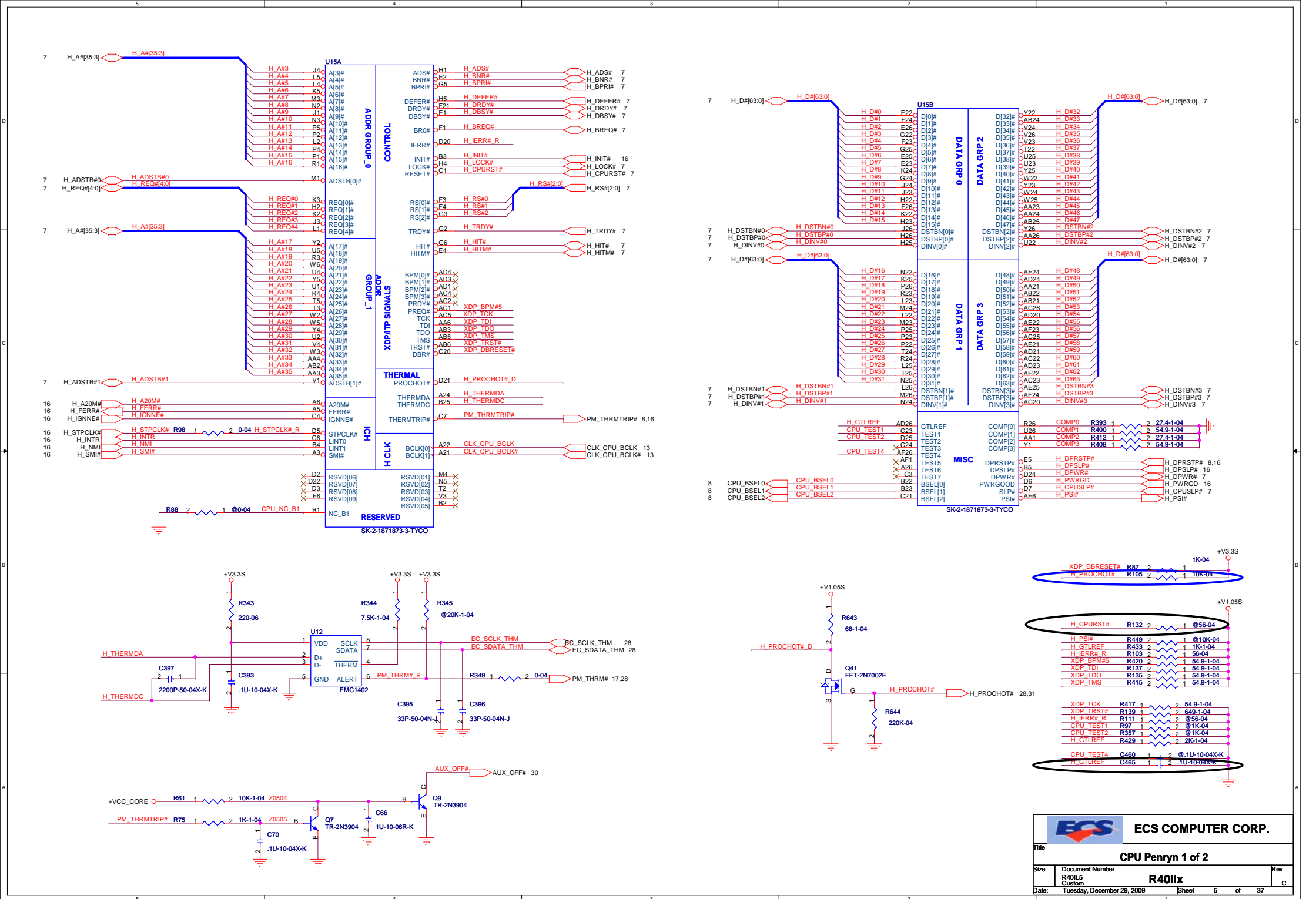
ICH9-M General Purpose I/O				
Name	Type	Power Well	Description	EDS v2.0
GPIO0	I/O-I	Core	PM_SYNC#	
GPIO1	I/O-I	Core	EC_EXTSC#	
GPIO2	I/OD-I	Core	INT_PIRQ#	
GPIO3	I/OD-I	Core	INT_PIRQ#	
GPIO4	I/OD-I	Core	INT_PIRQ#	
GPIO5	I/OD-I	Core	INT_PIRQ#	
GPIO6	I/O-I	Core	EC_EXTSMI#	
GPIO7	I/O-I	Core	SMC_RUNTIME_SC#	
GPIO8	I/O-I	Sus	SMC_WAKE_SC#	
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	

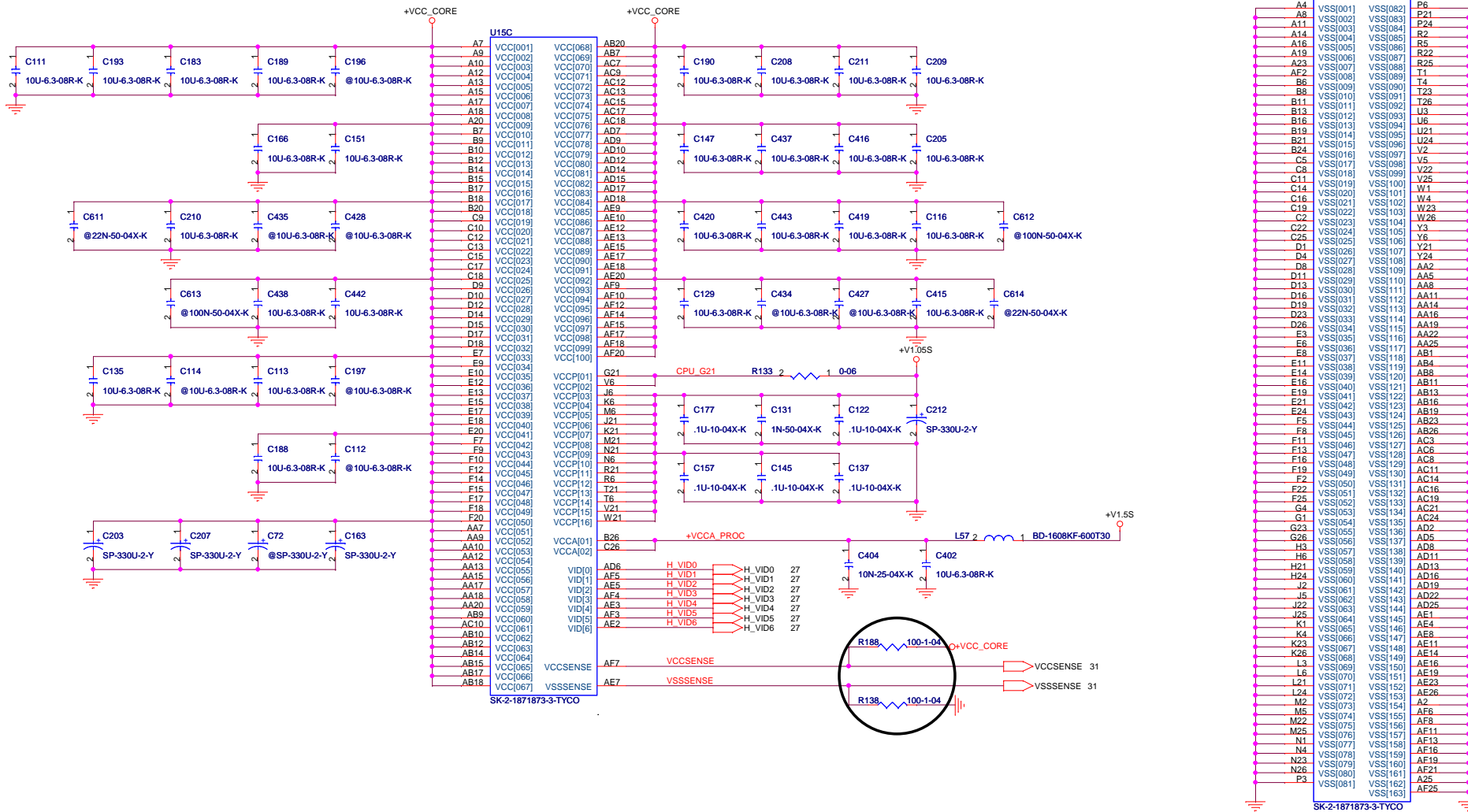
ICH9-M General Purpose I/O				
Name	Type	Power Well	Description	EDS v2.0
GPIO57	I/O-I	Sus	ICH_GPIO57	
GPIO58	I/O-I	Sus	SPI_CS#1	
GPIO59	I/O-N	Sus	USB_OC#0	
GPIO60	I/O-N	Sus	ICH_GPIO60	

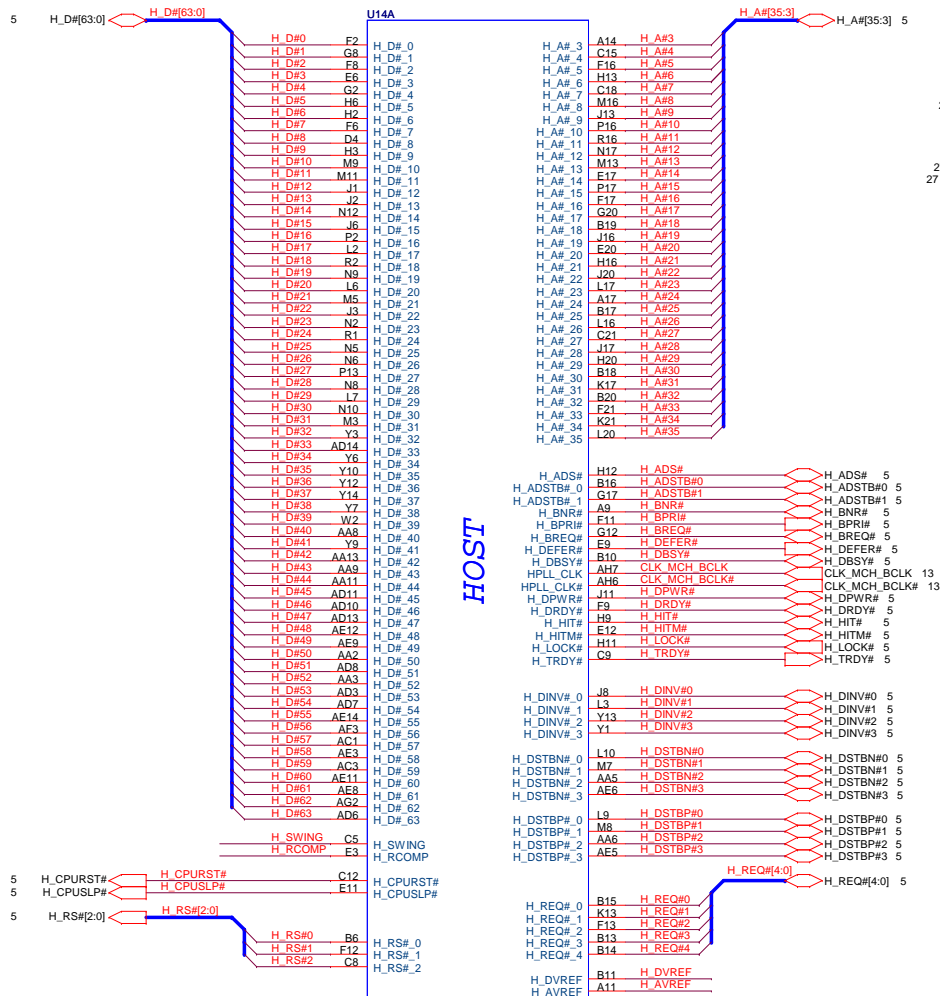
ITE8512E General Purpose I/O				
Name	Type	Default Pull	Description	Spec v0.7.2
GPIOA0	I/O-I	Up	BTL_BEEP	
GPIOA1	I/O-I	Up	EC_BRIGHTNESS	
GPIOA2	I/O-I	Up	MB_CHR_G_LED#	
GPIOA3	I/O-I	Up	MB_RF_B_LED#	
GPIOA4	I/O-I	Up	MB_PWR_B_LED#	
GPIOA5	I/O-I	Up	MB_CHR_R_LED#	
GPIOA6	I/O-I	Up	AC_PRESENT	
GPIOA7	I/O-I	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			
Size	Document Number	Rev	
	R40L5 Custom	R40Llx	
Date:	Friday, December 18, 2009	Sheet	4 of 37

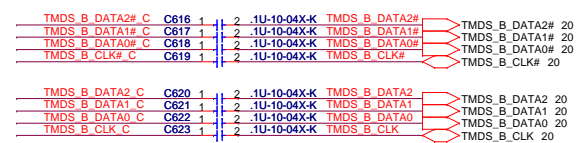
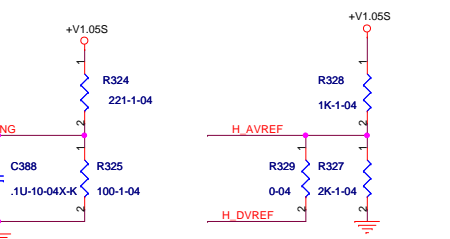




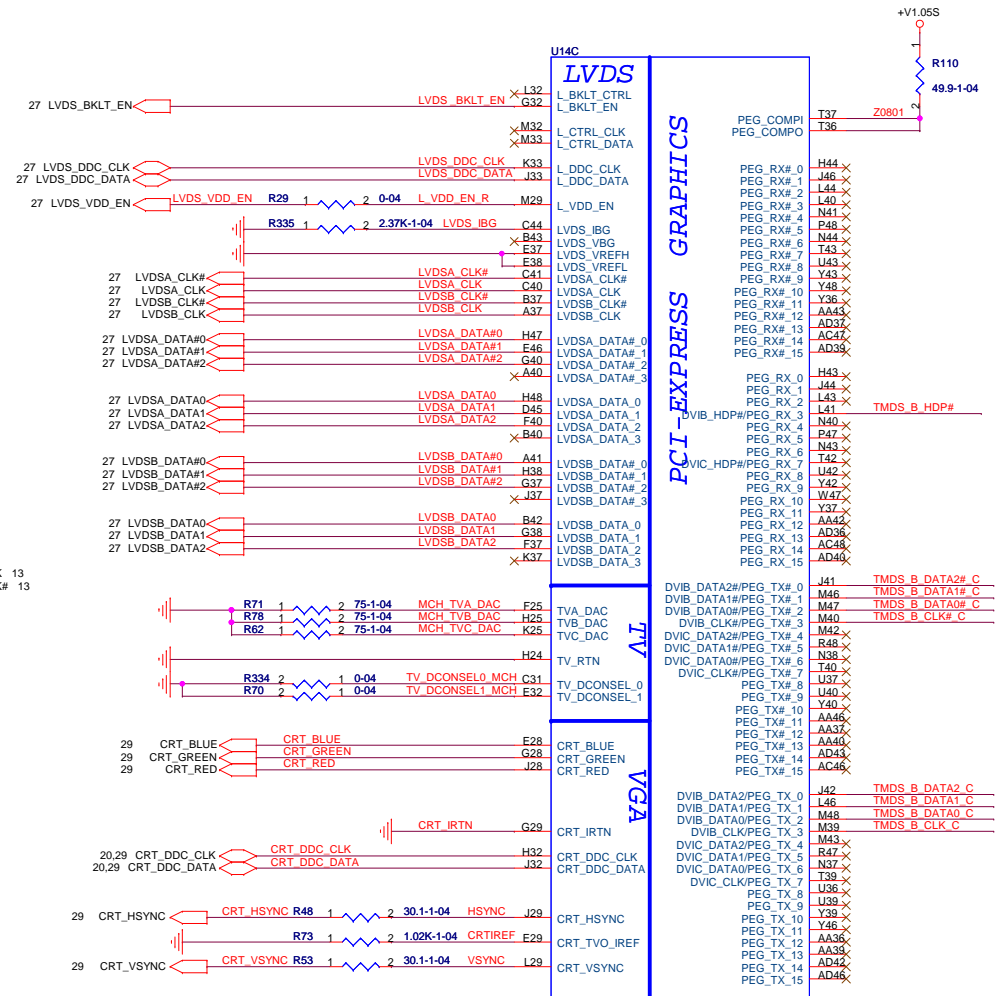


HOST

AC82GM45-SLB94
PBGA1329-CANTIGA



	ASM1442	7318B
R57	O	O
R80	O	O
R636	X	O
Q6	O	X
R56	O	X
C628	O	O



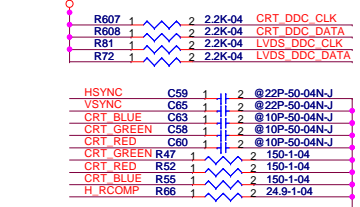
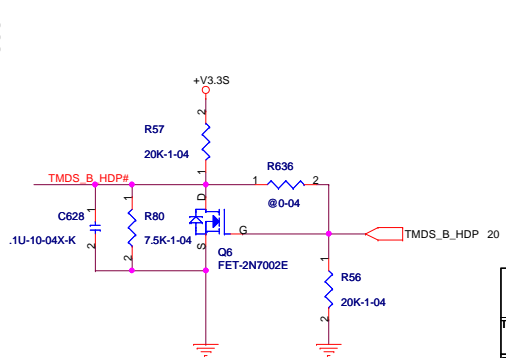
LVDS

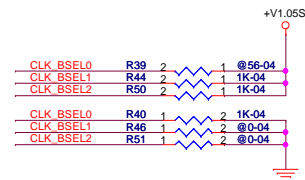
PCI EXPRESS

TV

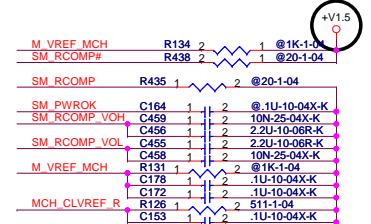
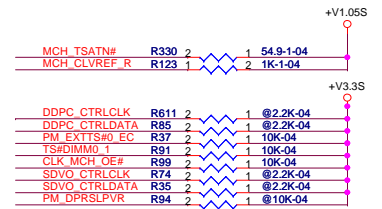
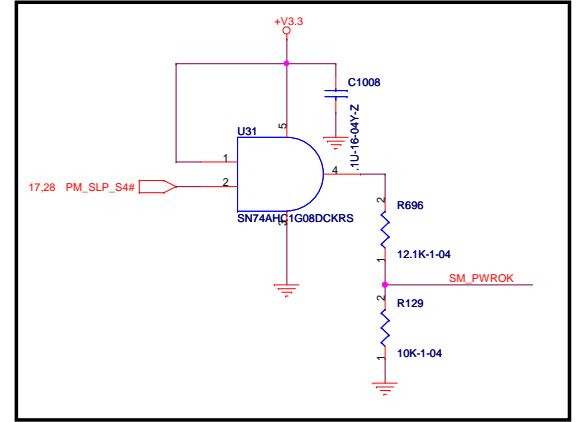
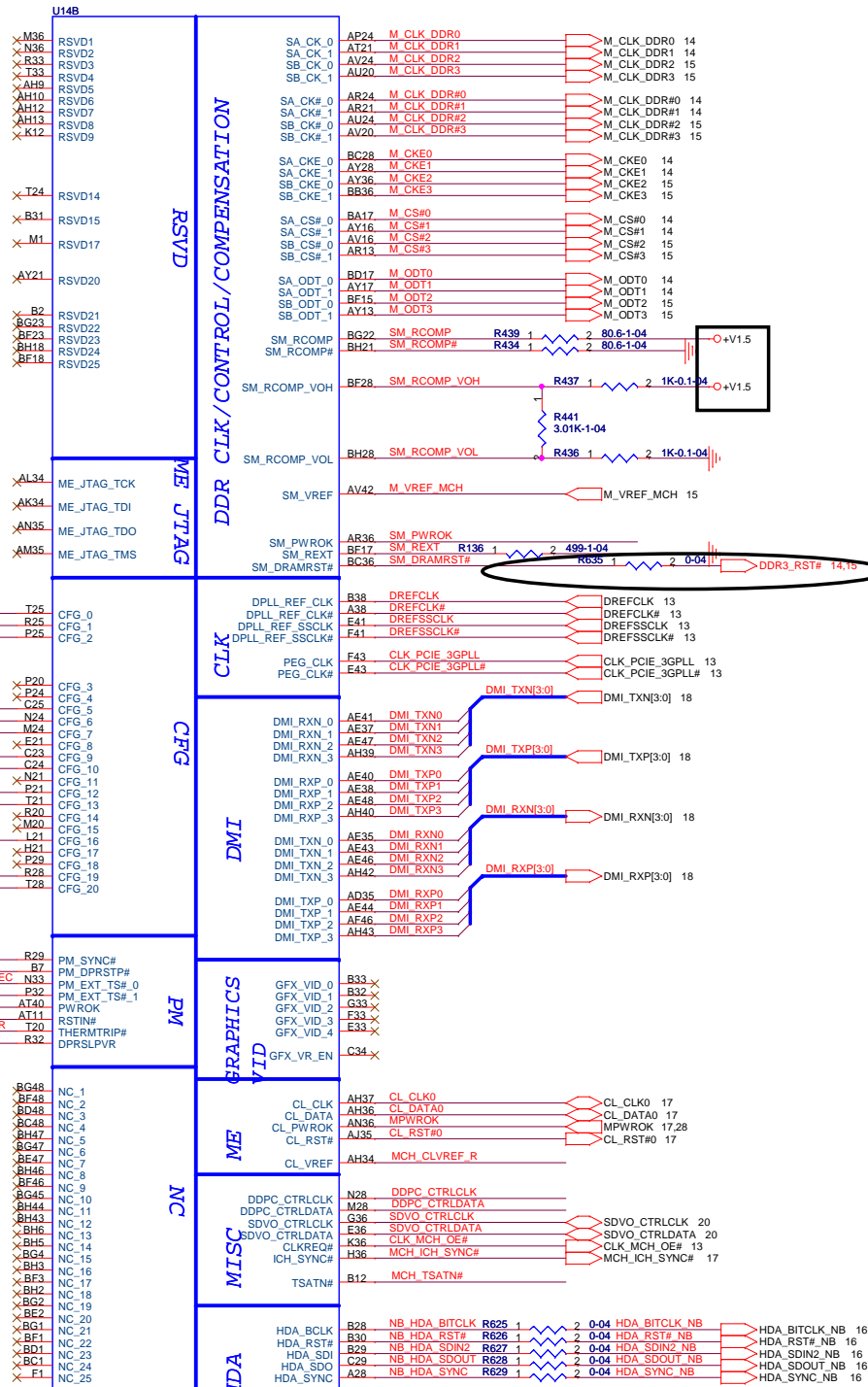
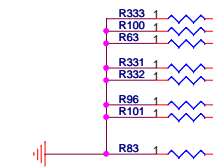
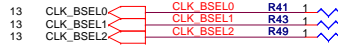
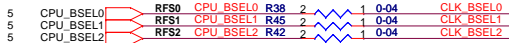
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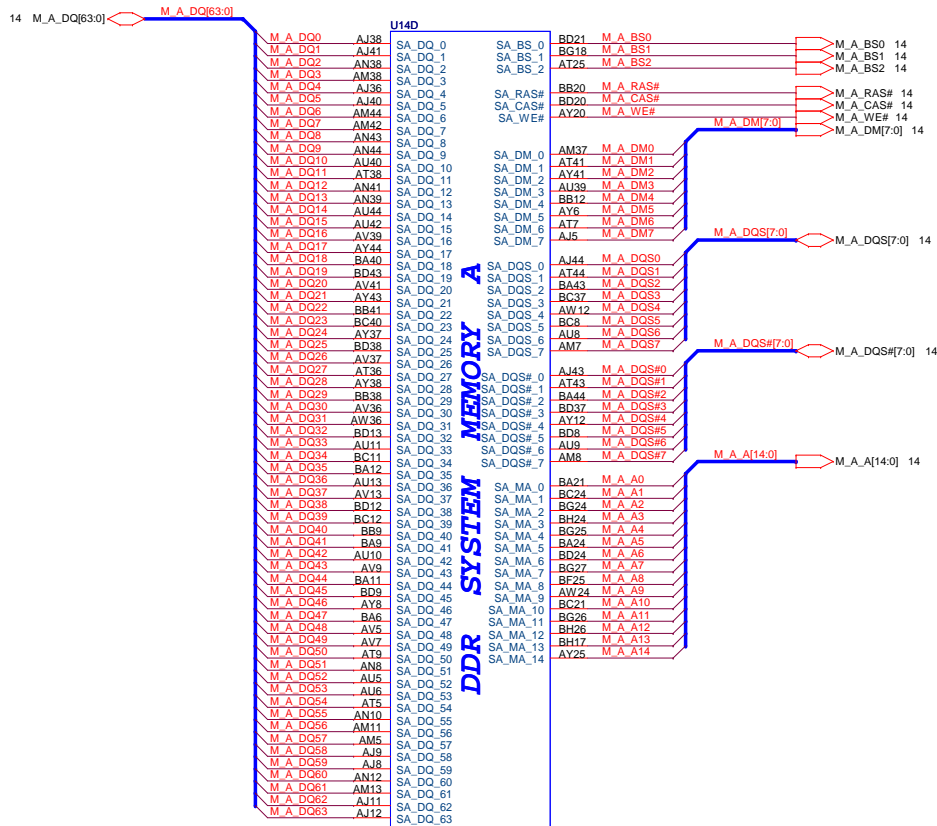
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PBGA1329-CANTIGA



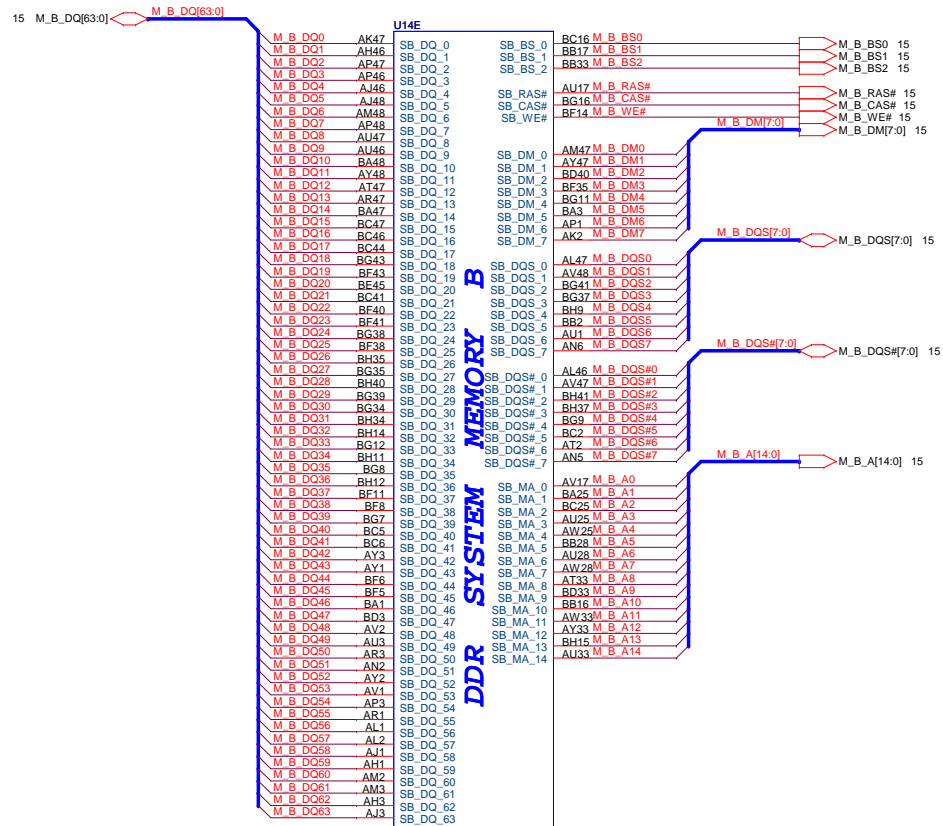


F58	MCH_BSEL2	MCH_BSEL1	MCH_BSEL0
1066	0	0	0
800	0	1	0
667	0	1	1

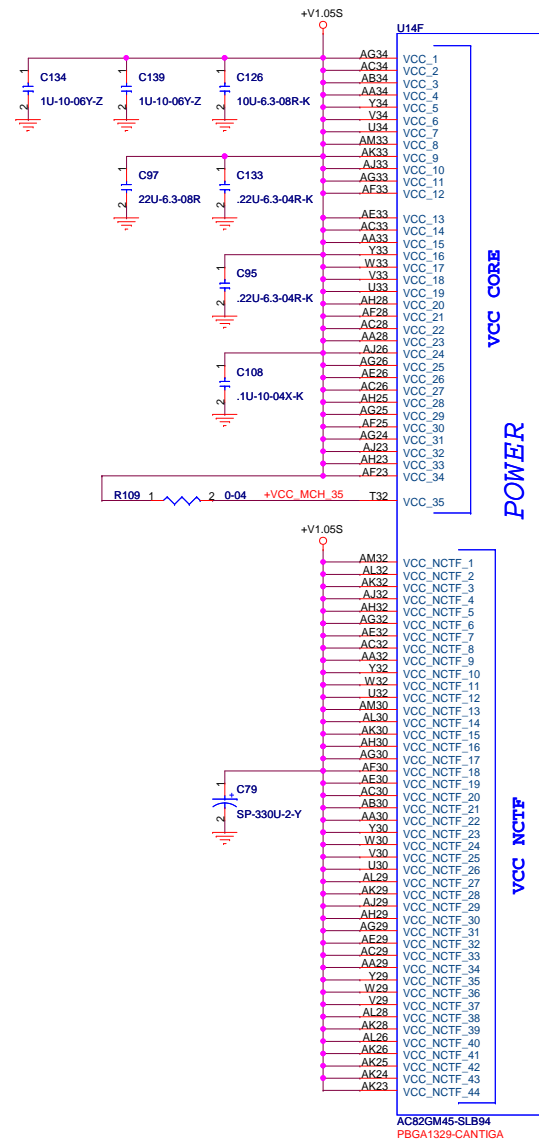
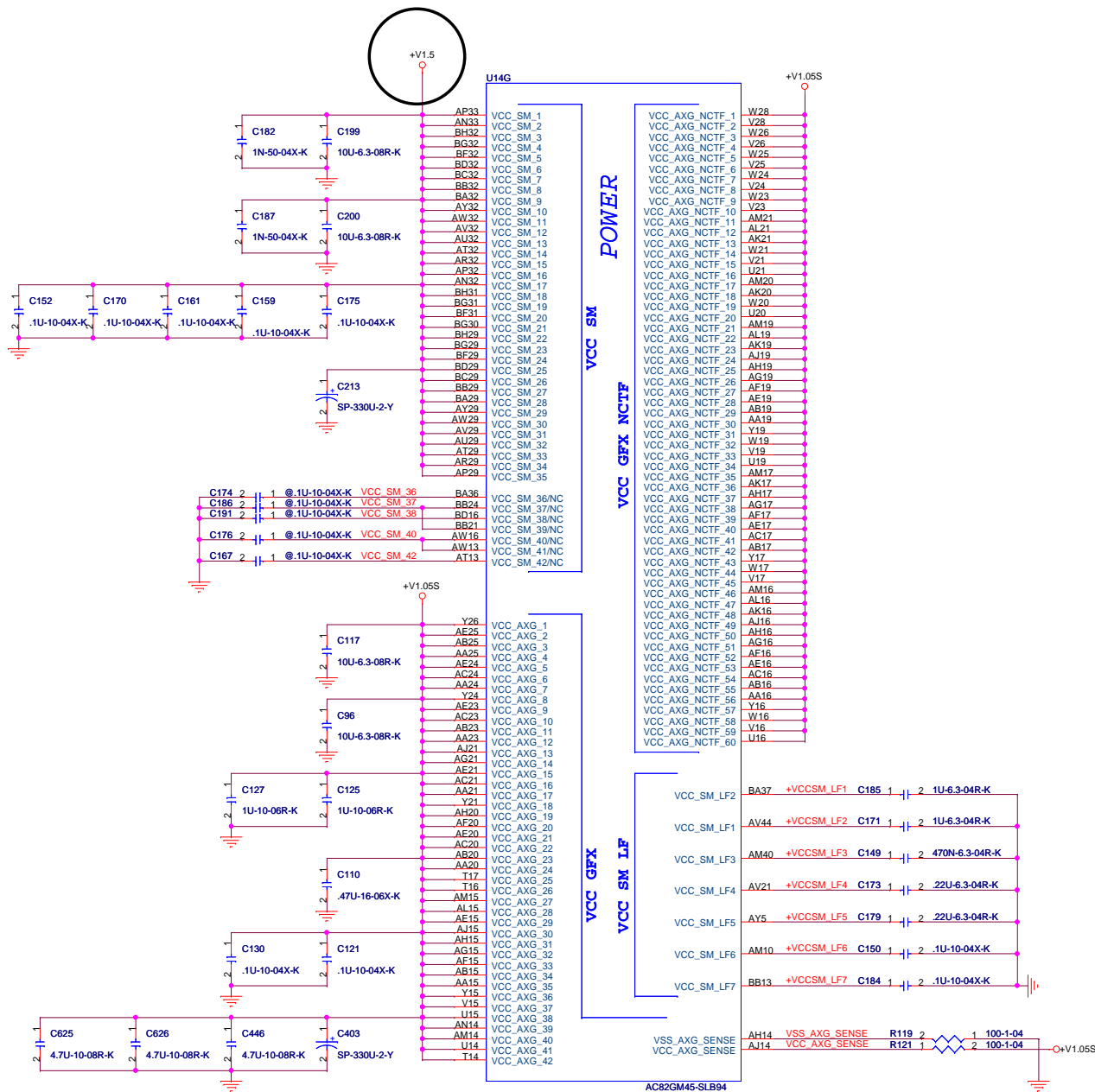


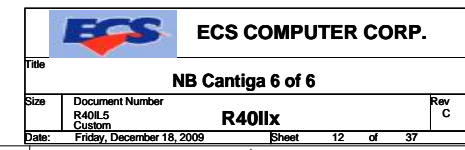


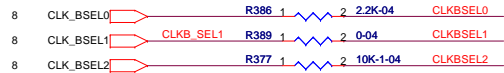
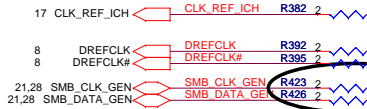
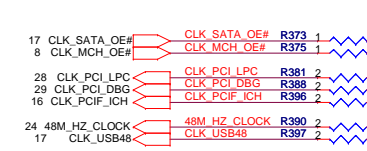
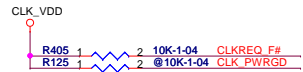
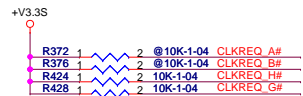
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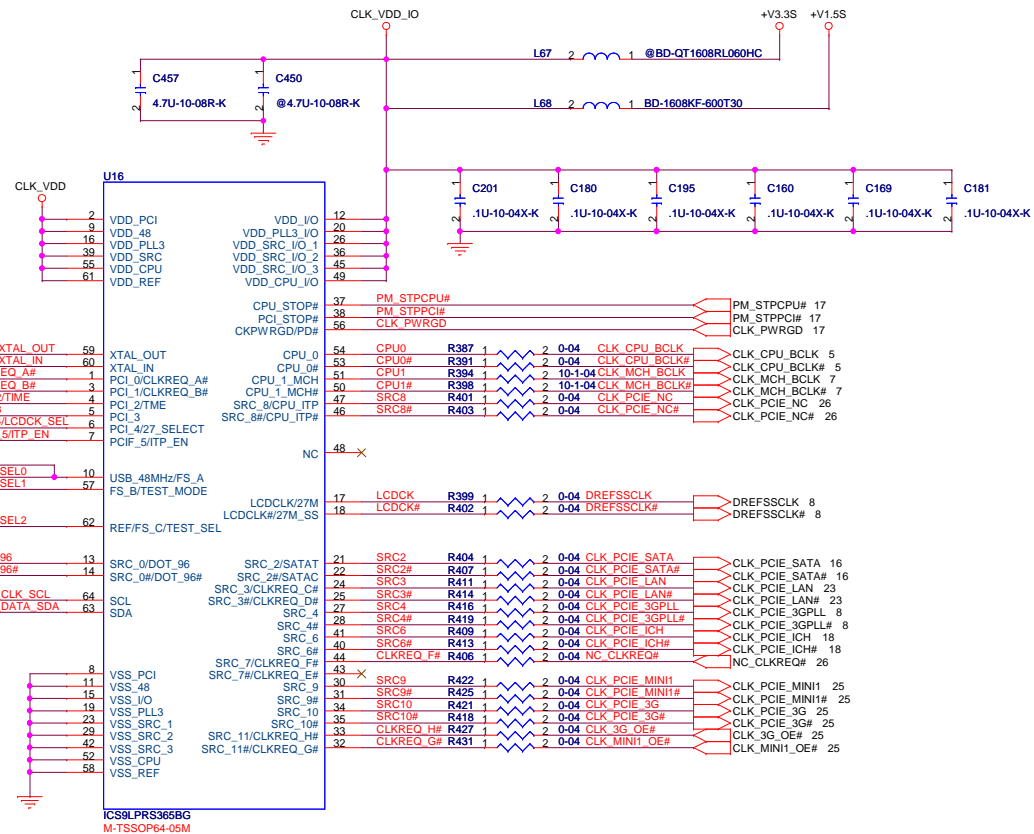
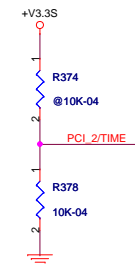
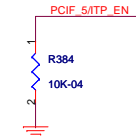
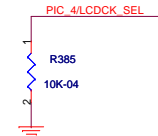
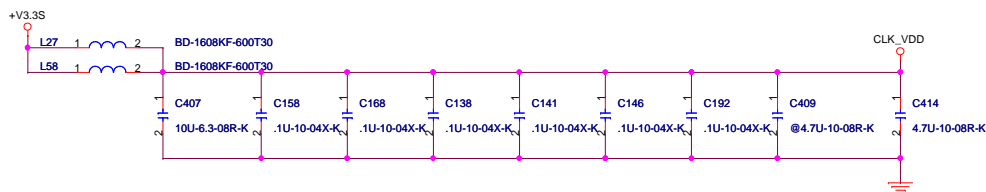
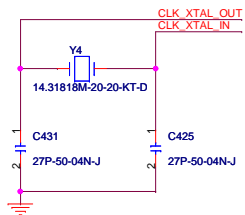
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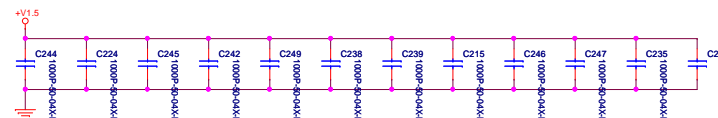
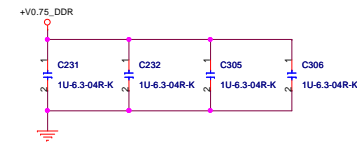


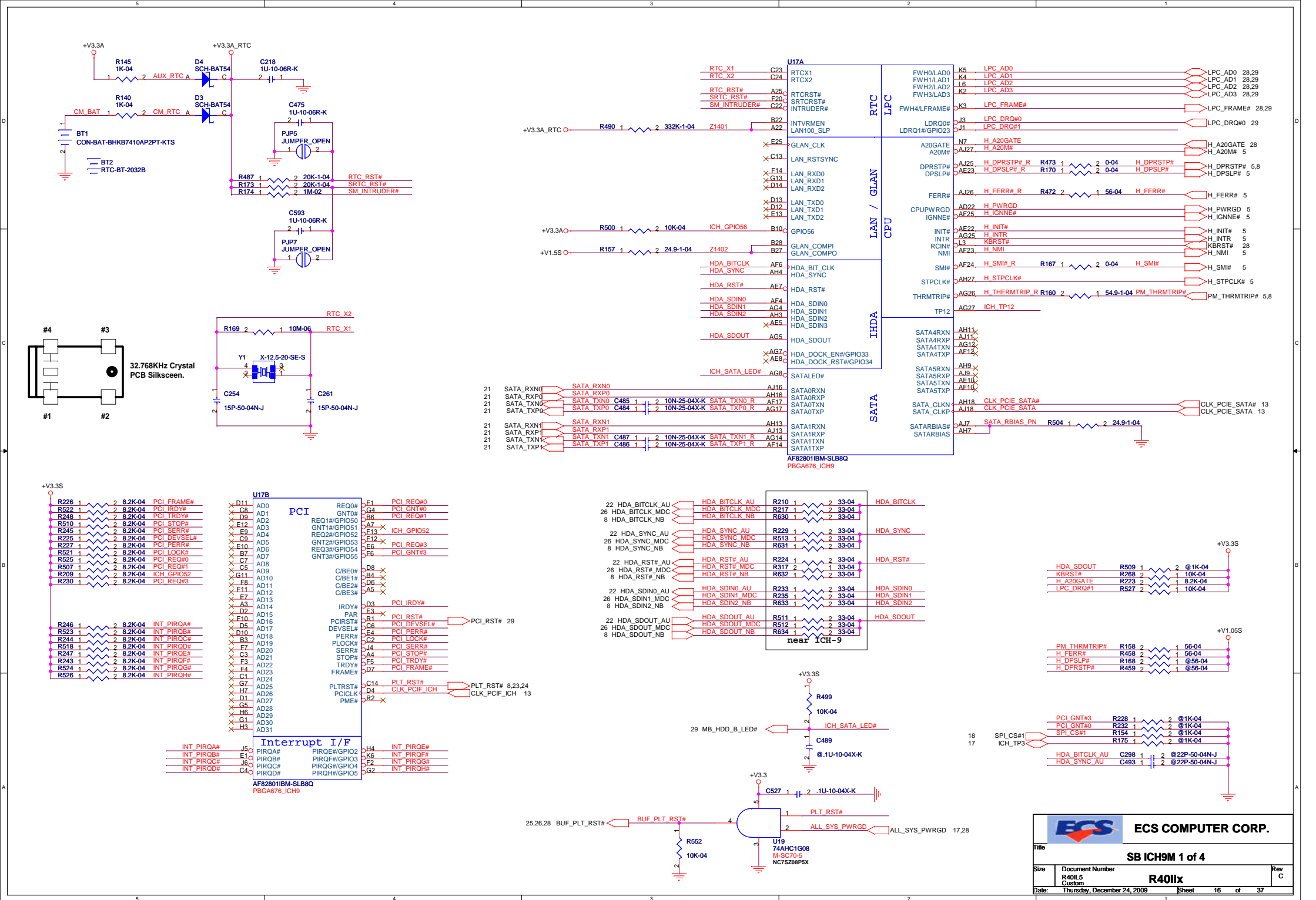


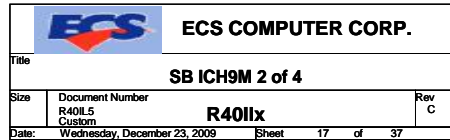


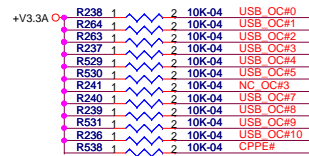
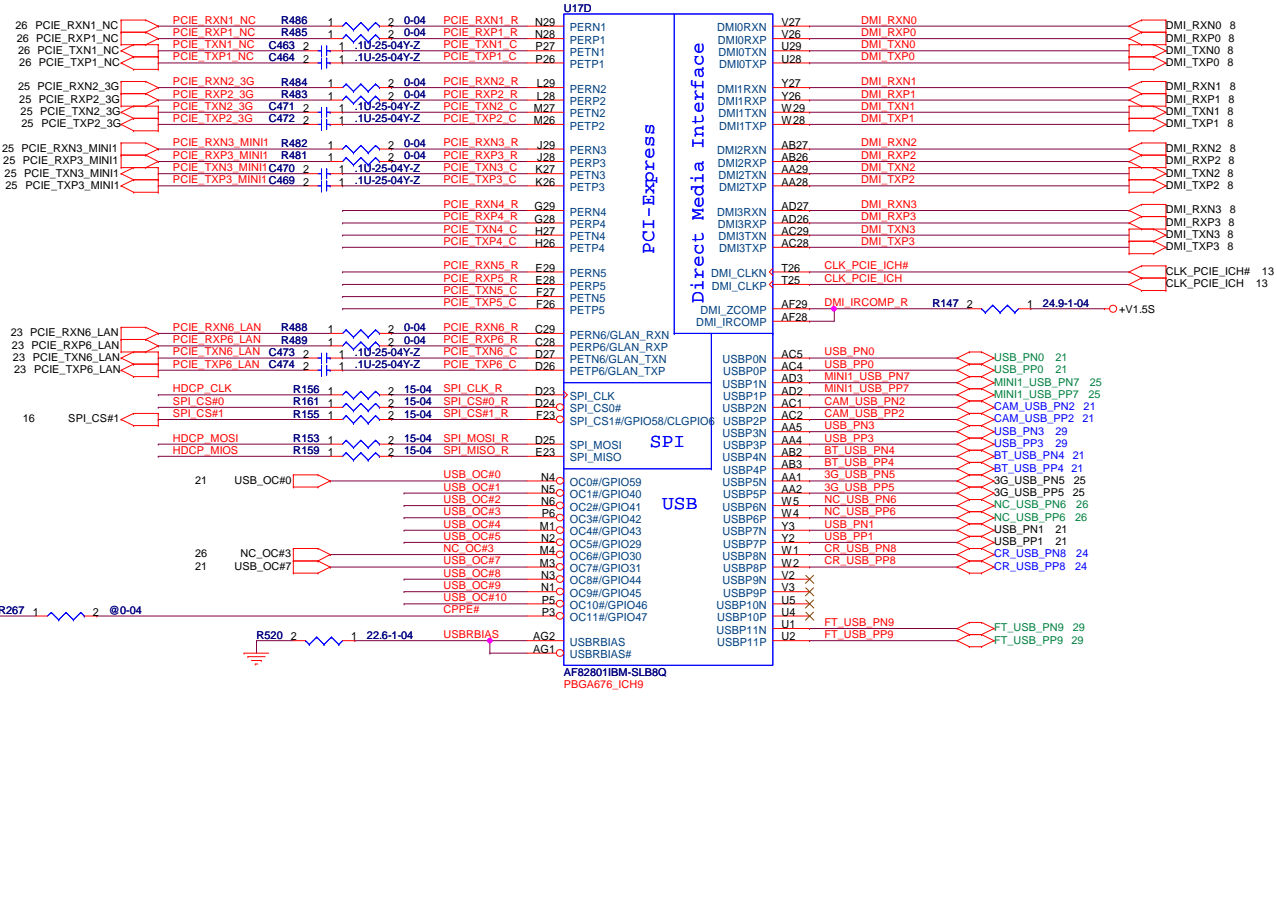
FSB	MCH_BSEL2	MCH_BSEL1	MCH_BSEL0	CPU MHz	SRC MHz	PCI MHz	USB MHz	DOT MHz
1066	0	0	0	266.66				
800	0	1	0	200.00	100.00	33.33	48.00	96.00
667	0	1	1	166.66				

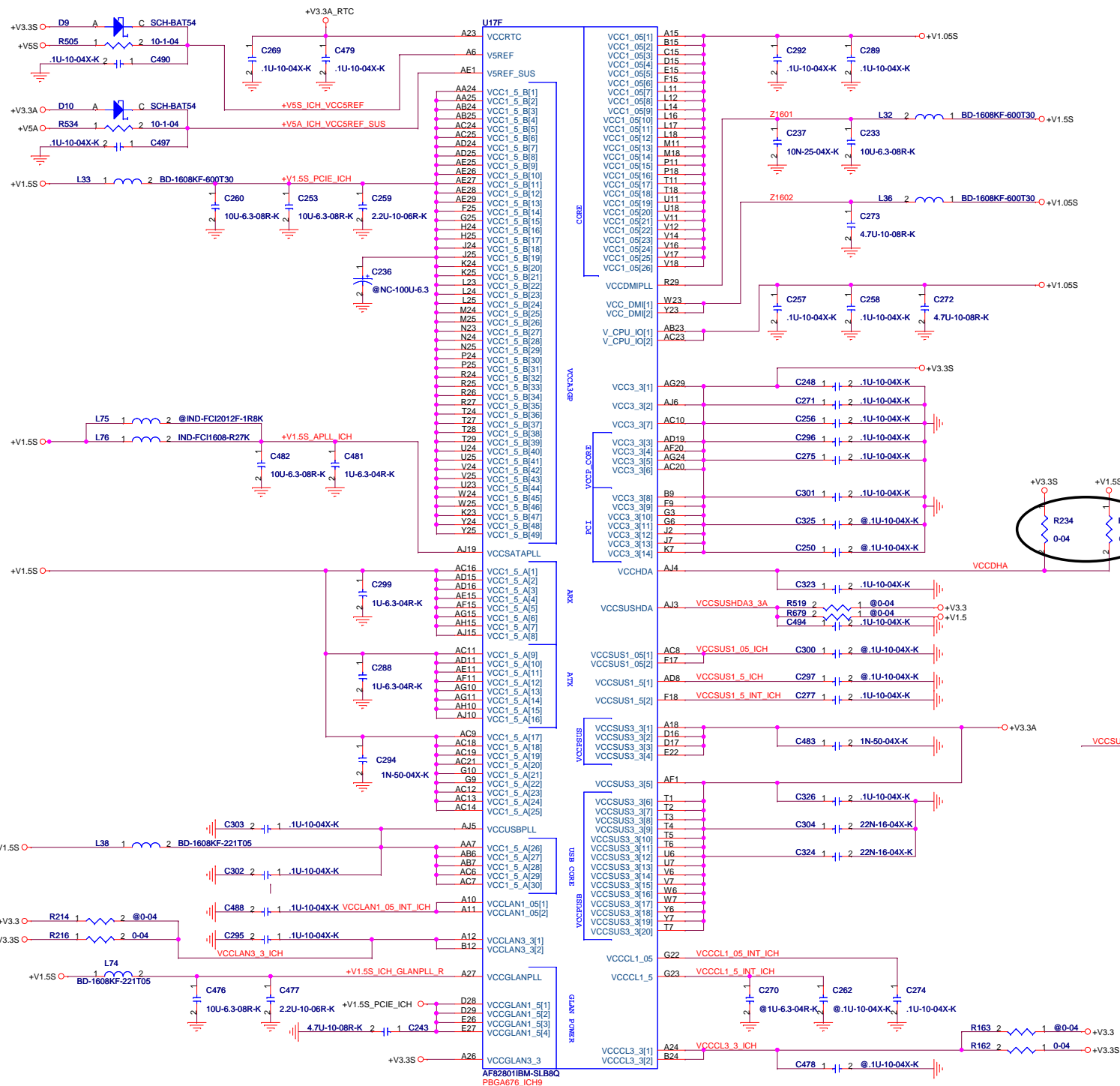










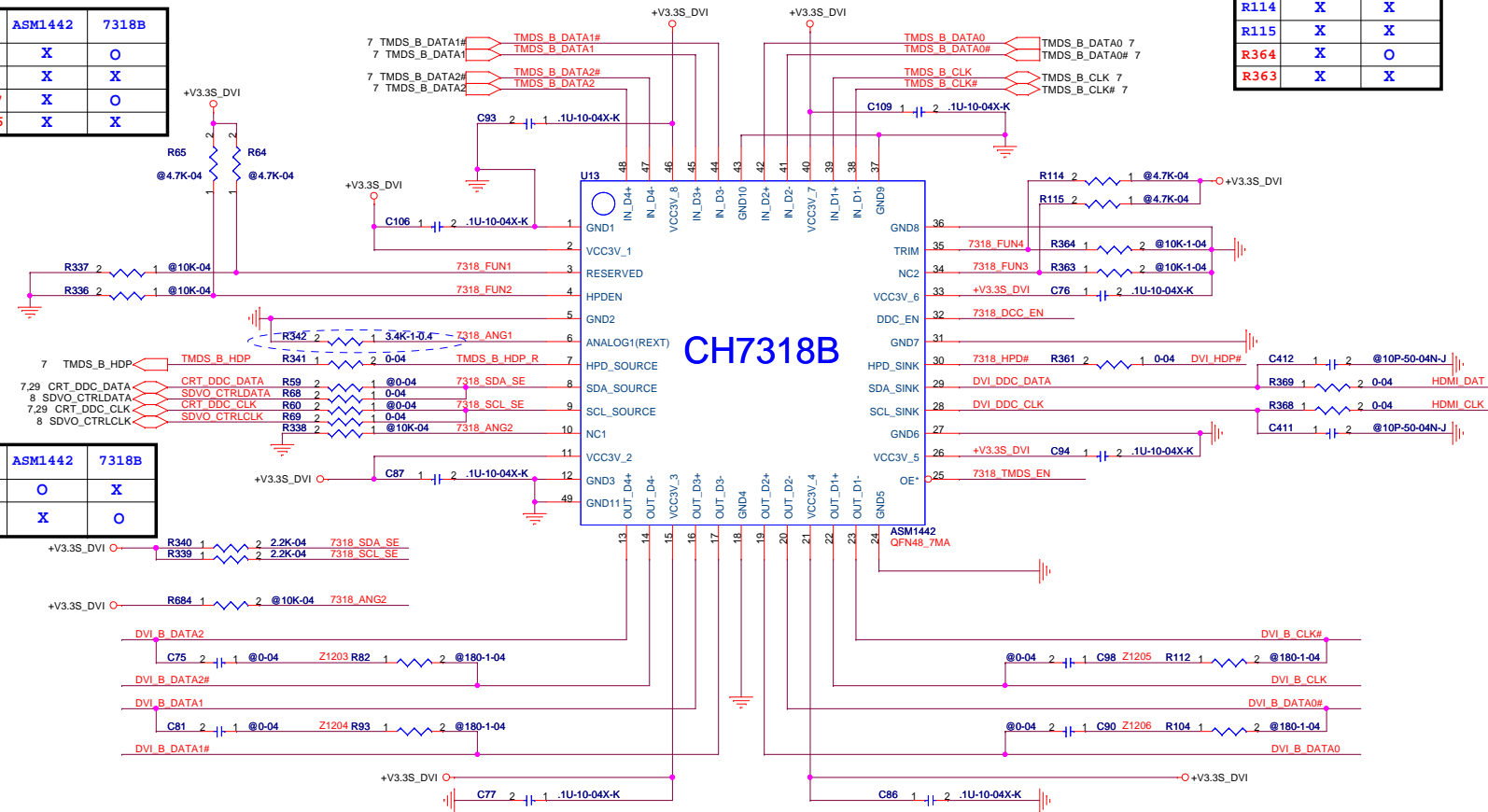


ECS COMPUTER CORP.

DVI SHIFTER

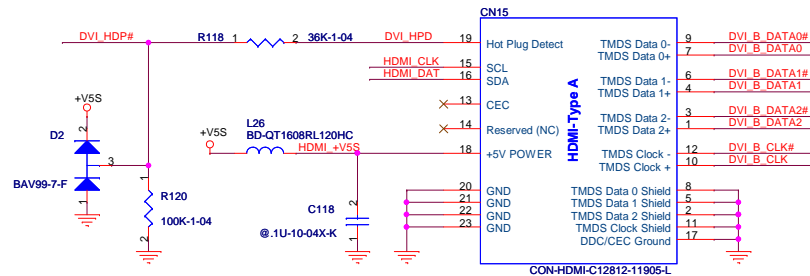
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R65	X	O
R64	X	X
R337	X	O
R336	X	X

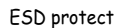
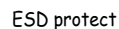
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3.4K	O	X
1.2K	X	O

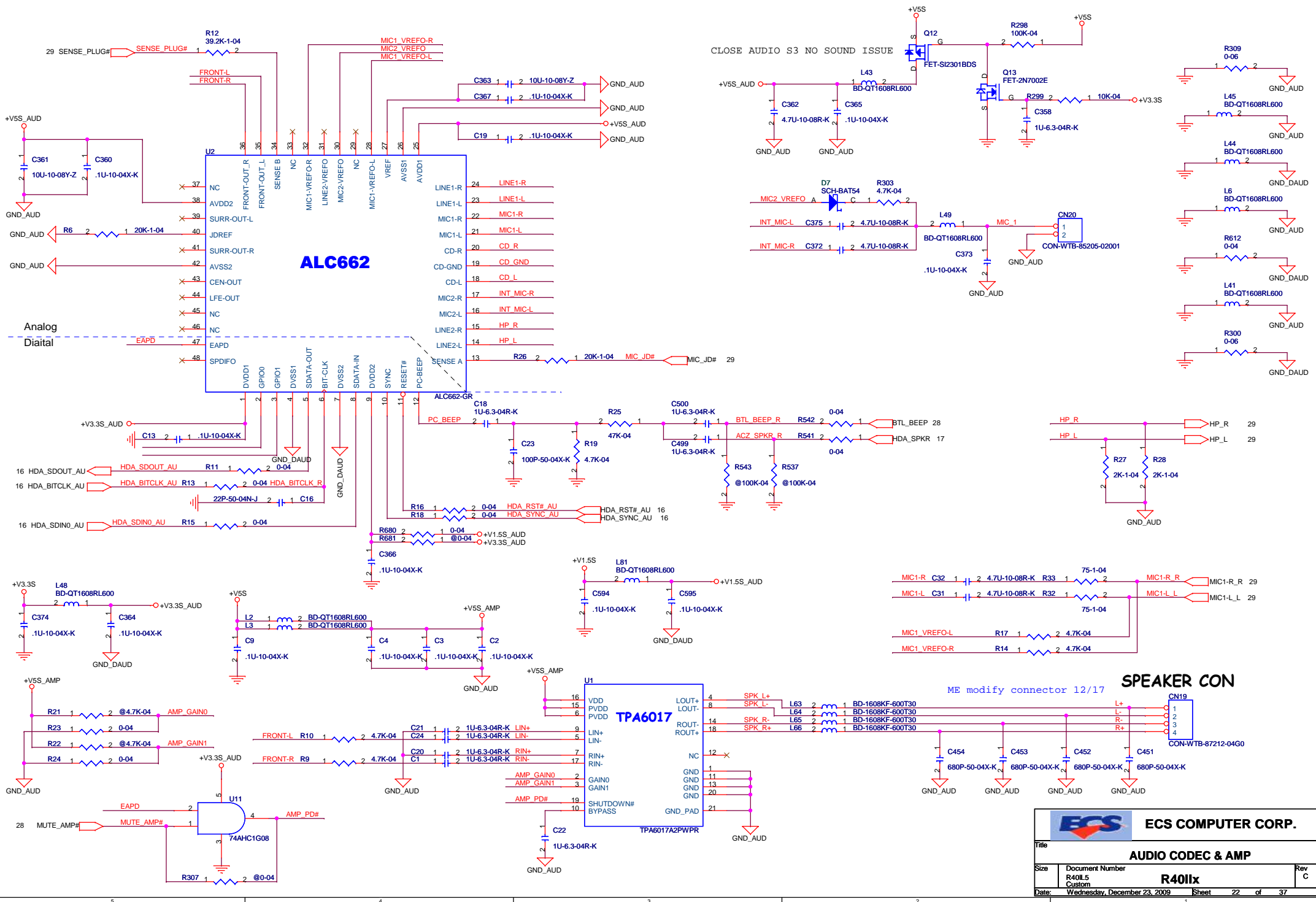


CH7318B

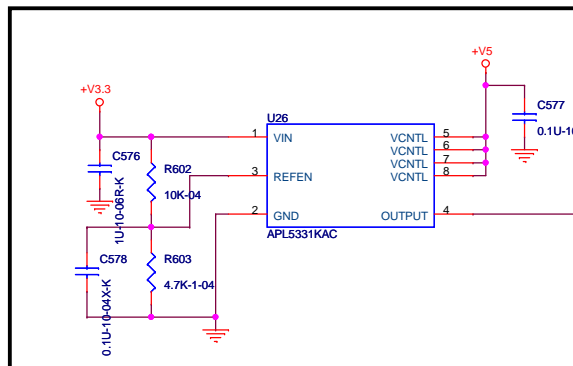
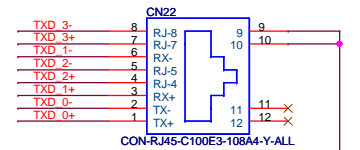
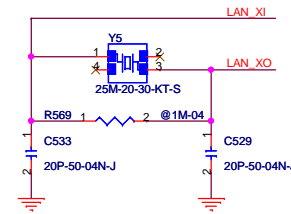
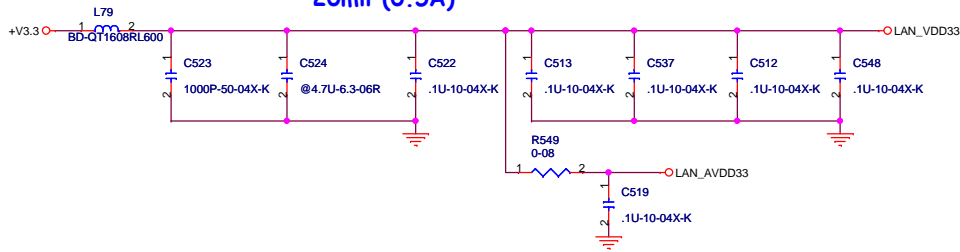
HDMI Conn.





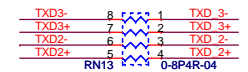
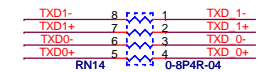
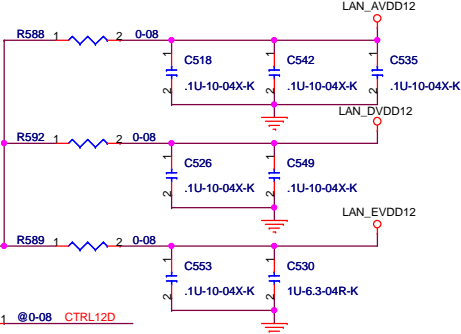


20mil (0.5A)



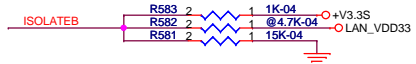
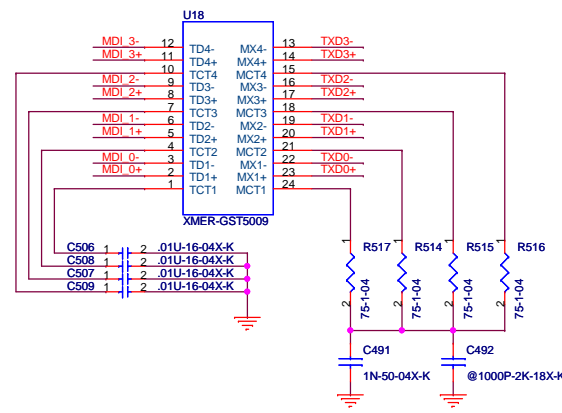
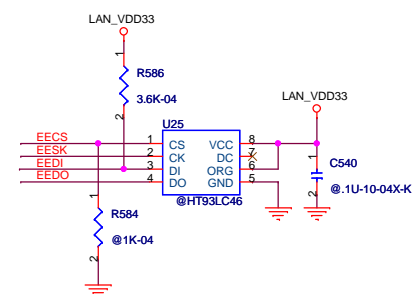
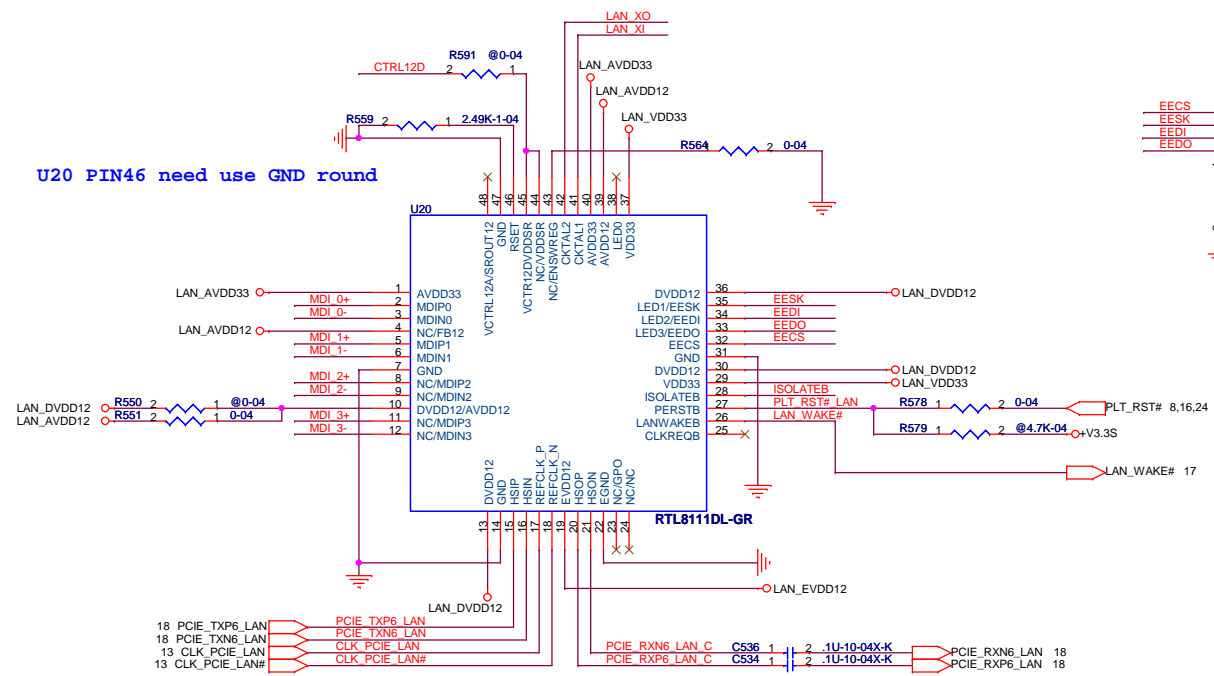
1A


60 mil

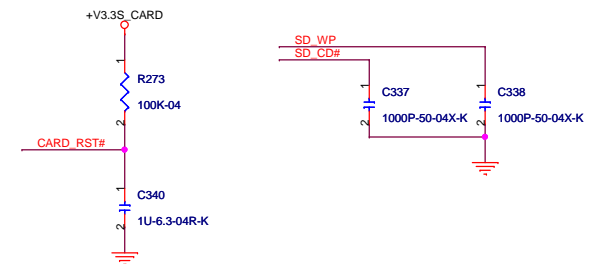
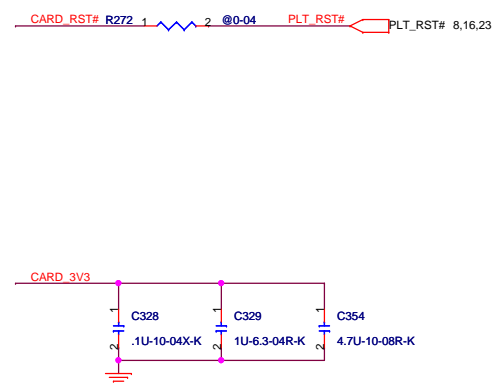
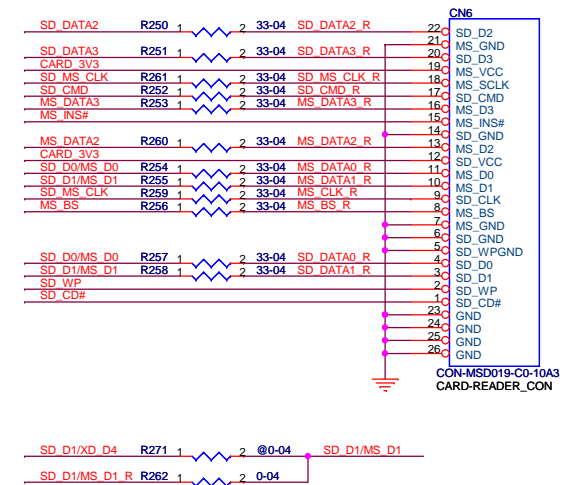



RTL8111DL		RTL8103EL RTL8102EL	
ADD	REMOVE	ADD	REMOVE
R515 C576	R550	R550	R515 C576
R516 C577	R591	R516 C577	
R551 C578	R584	R591	R551 C578
R564 C579	R590	R584	R564 C579
R588 C507	U25		R588 C507
R589 C509	C540		R589 C509
R602 C580			R602 C580
R603 U26			R603 C540
RN13			RN13 U25
			U26

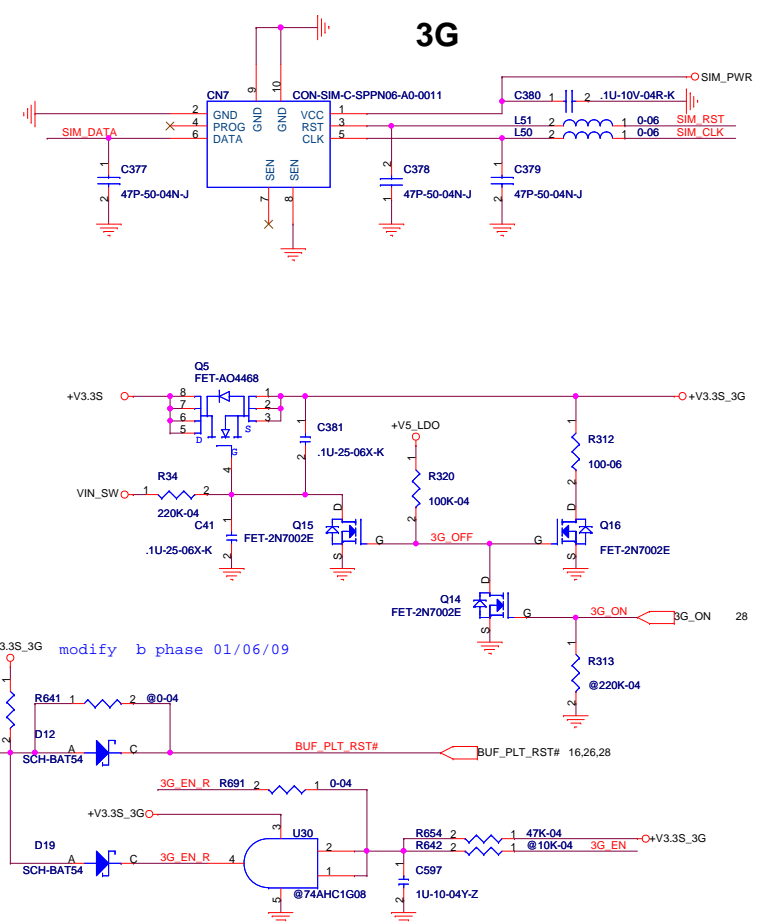
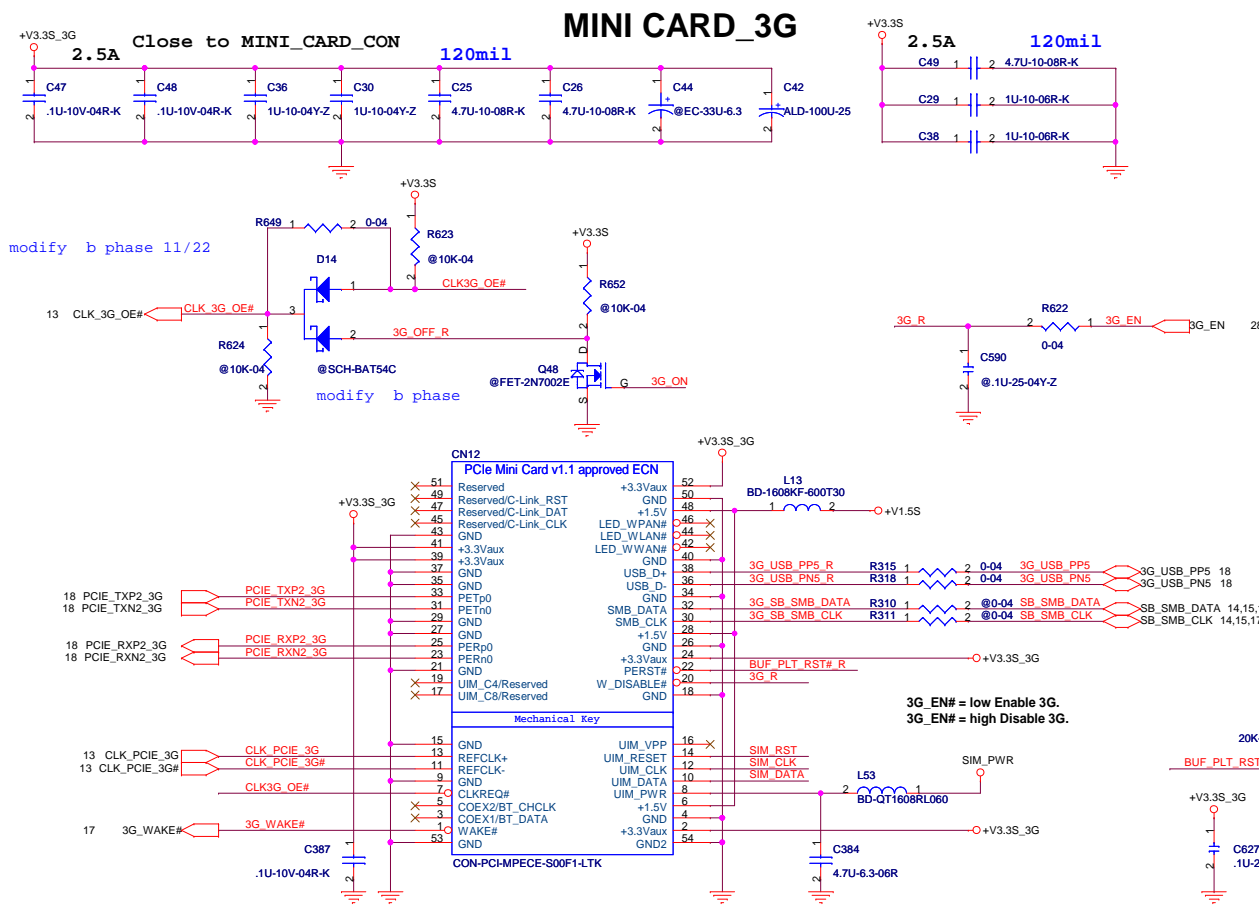
U20 PIN46 need use GND round



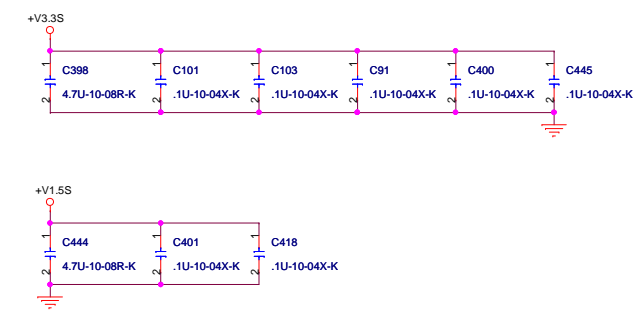
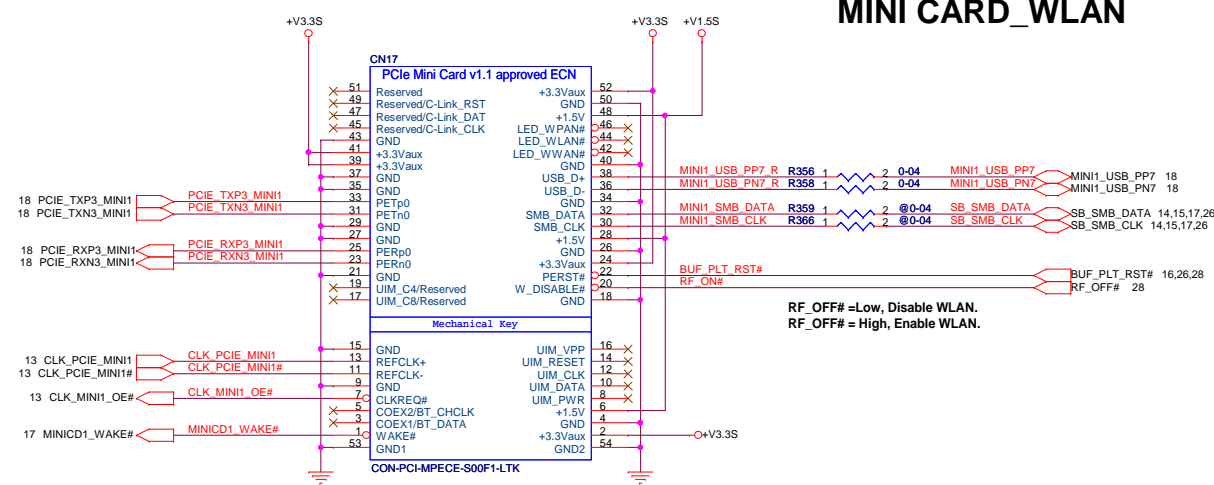
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Title: LAN-RTL8111DL	
Size: R40IL5	Document Number: R40ILx
Date: Thursday, December 24, 2009	Rev: C
Sheet: 23	of 37



		ECS COMPUTER CORP.	
Card Reader			
Size	Document Number R40IL5 Custom	R40ILx	Rev C
Date:	Wednesday, December 23, 2009	Sheet	24 of 37

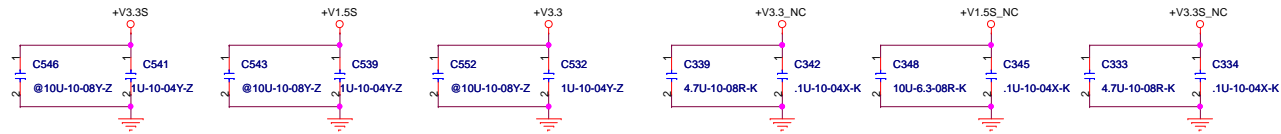
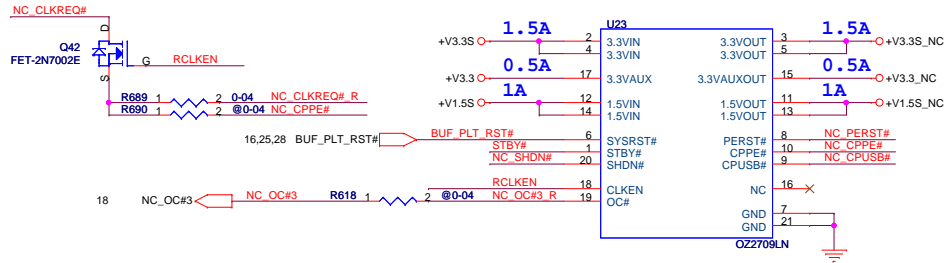
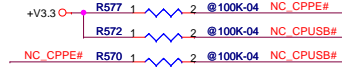


MINI CARD_WLAN

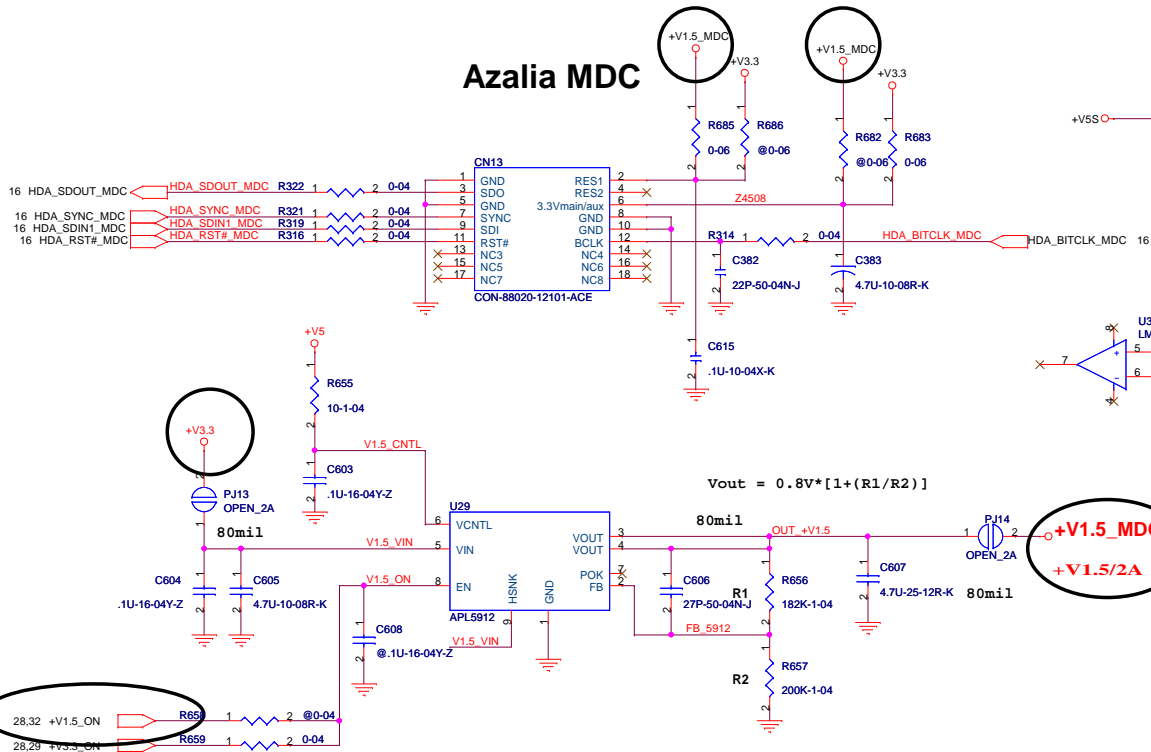


ECS COMPUTER CORP.		
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Size: R40L5	Document Number: R40IIX	Rev: C
Date: Wednesday, December 23, 2009	Sheet: 25	of 37

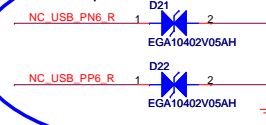
NEW CARD POWER



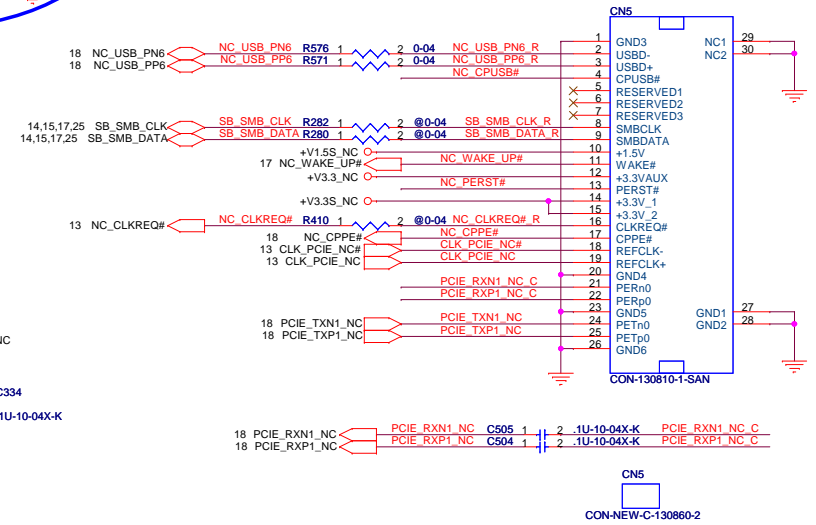
Azalia MDC



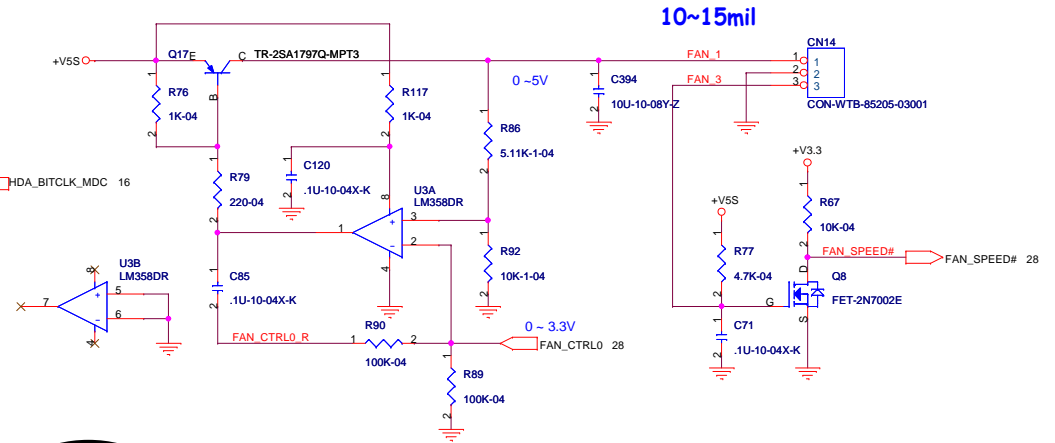
ESD protect



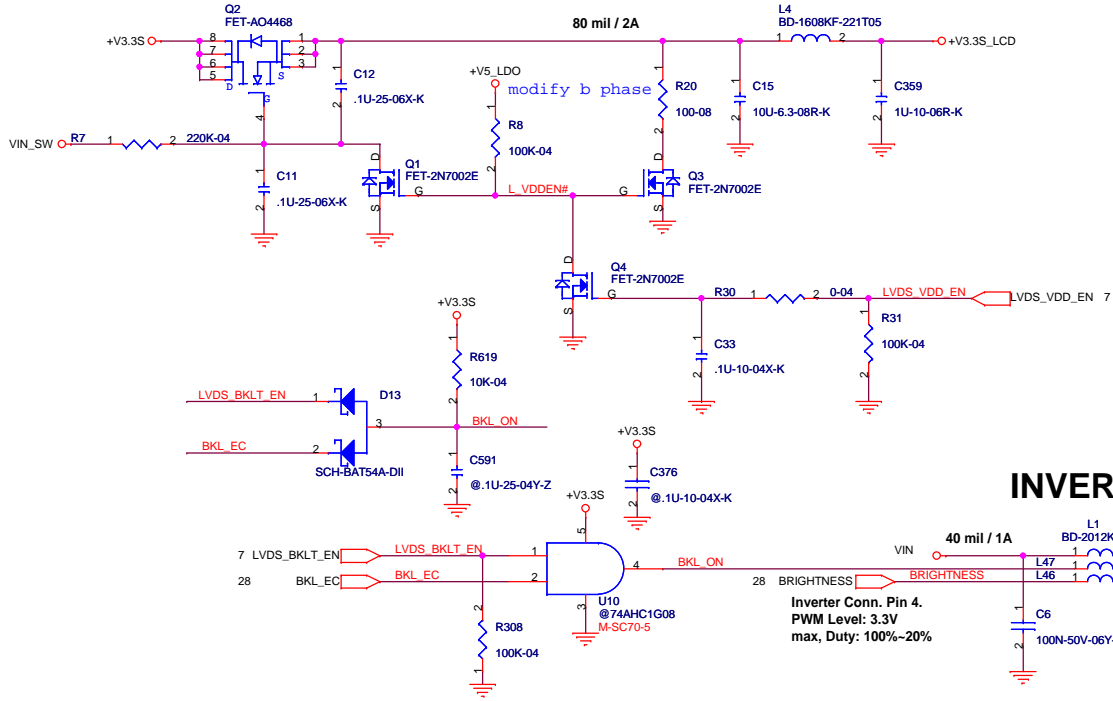
NEW CARD



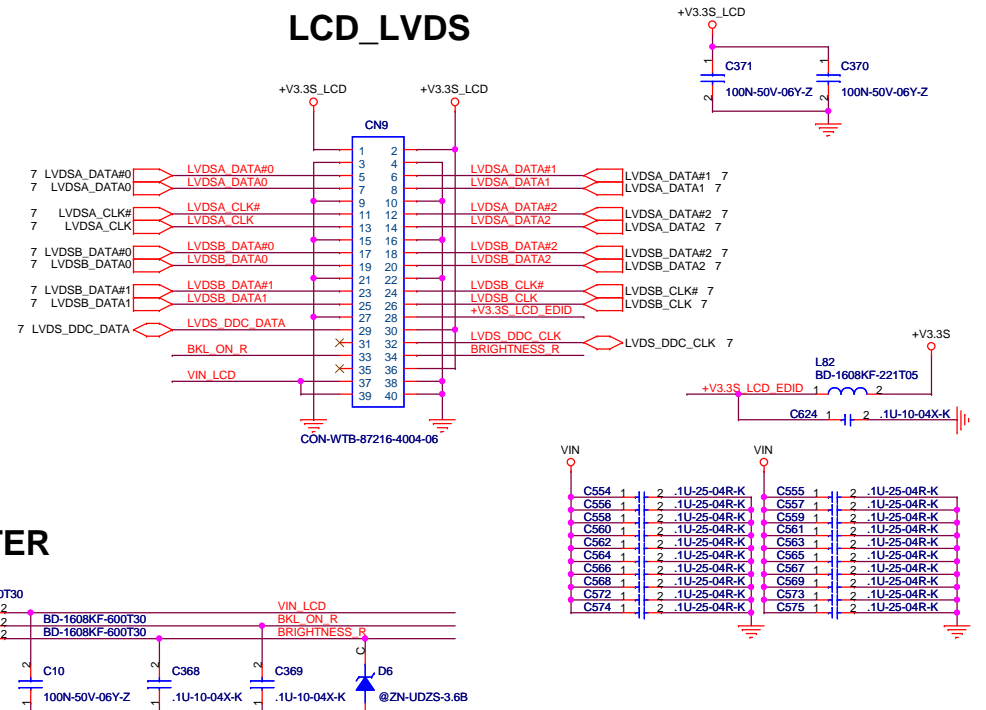
FAN



LCD_VCC

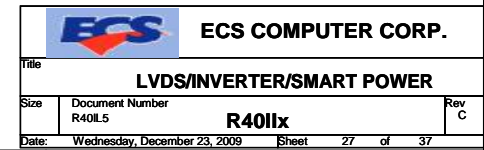
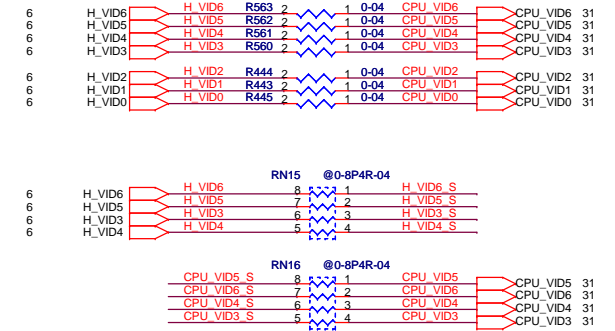
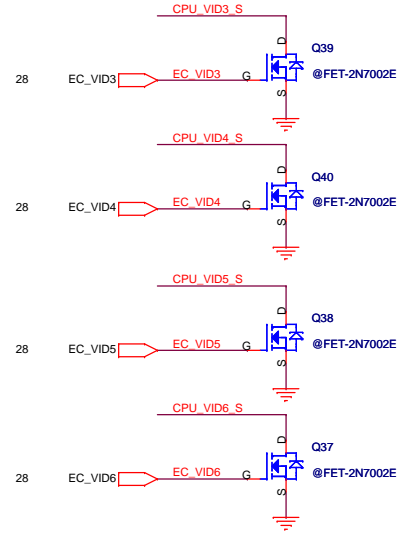
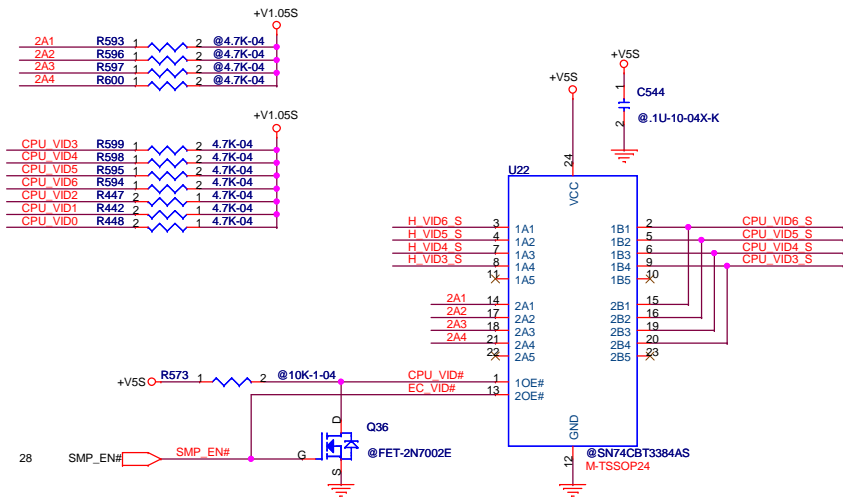


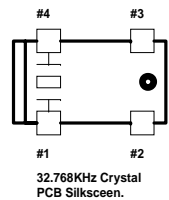
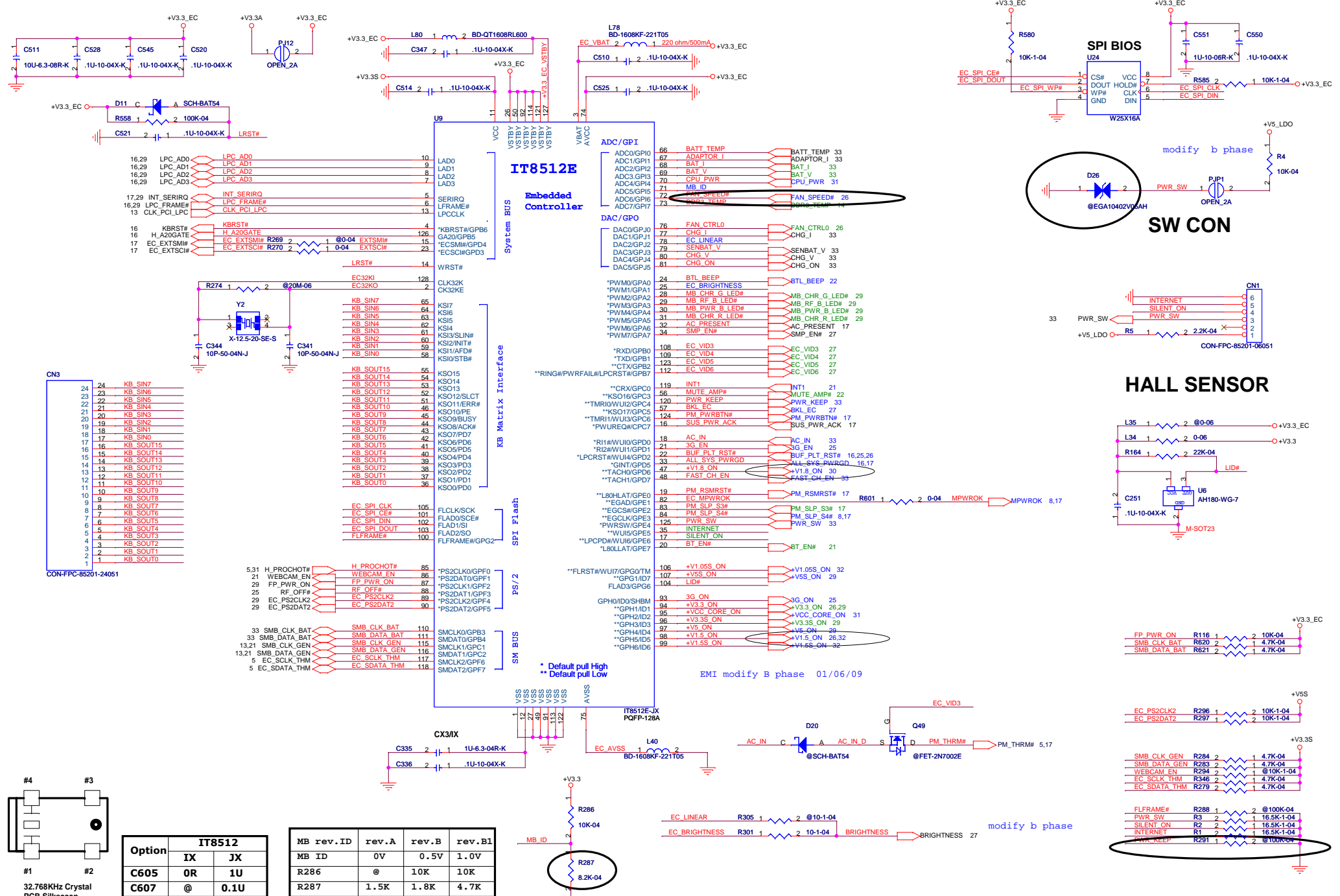
LCD_LVDS



SMART POWER

B phase modify smart power layout 11/24

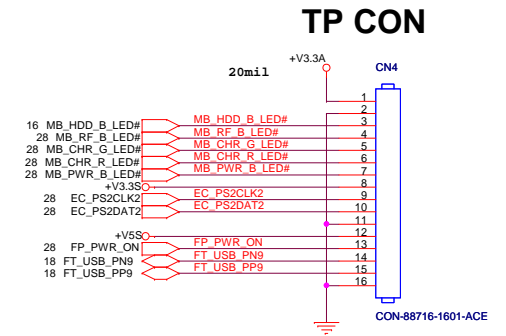
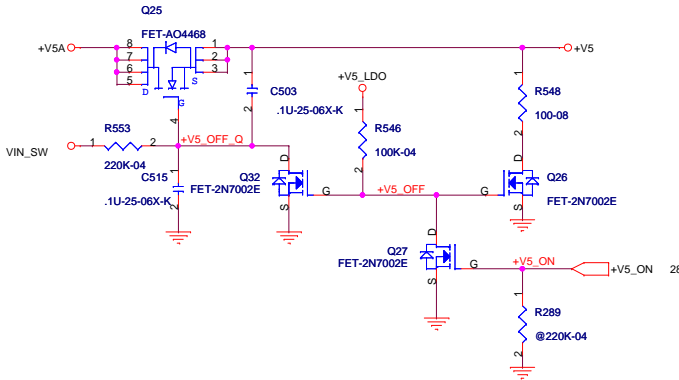
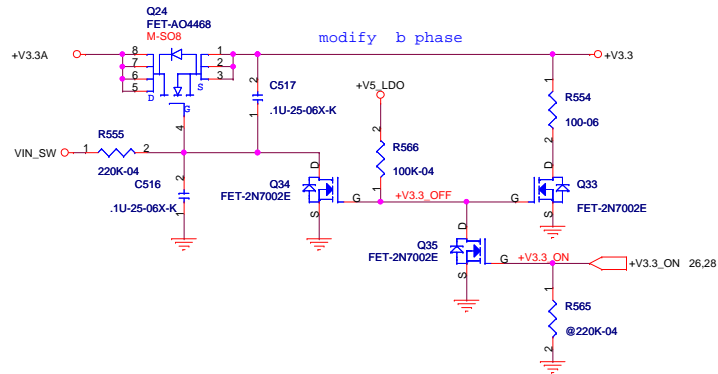
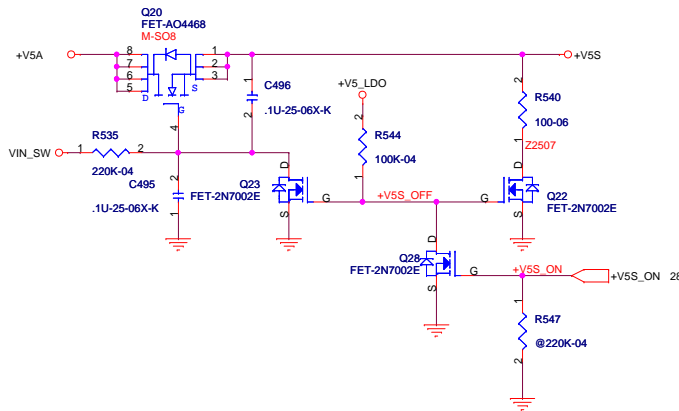
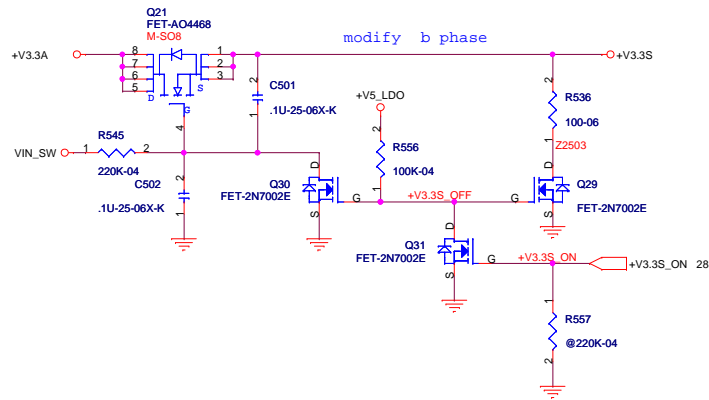




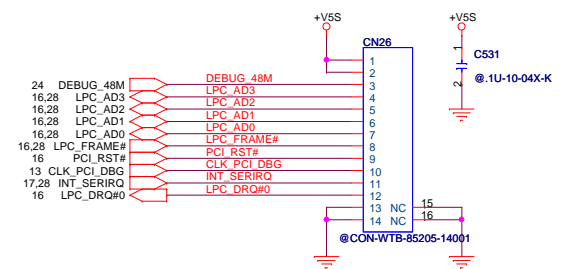
Option		IT8512	
		IX	JX
C605	0R	1U	
C607	@	0.1U	

MB rev.ID	rev.A	rev.B	rev.B1
MB ID	0V	0.5V	1.0V
R286	@	10K	10K
R287	1.5K	1.8K	4.7K

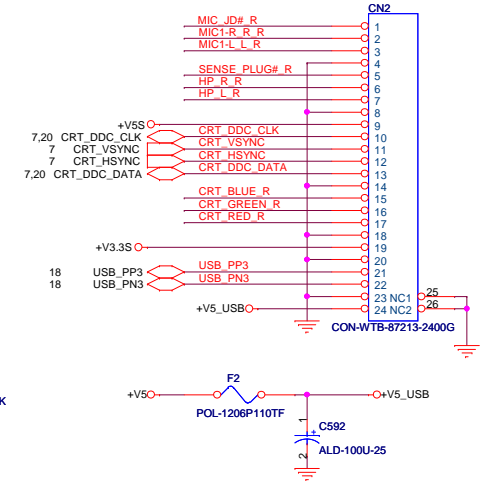
MB rev.ID	rev.C	rev.01
MB ID	1.5V	
R286	10K	
R287	8.2K	



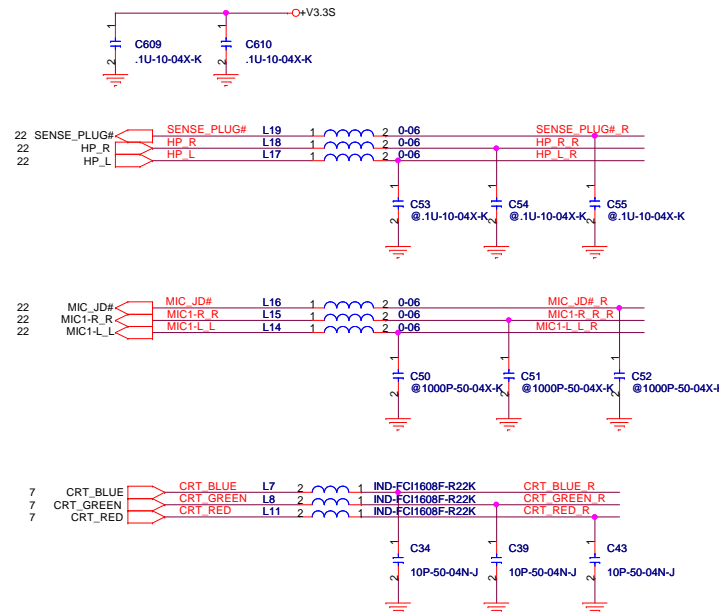
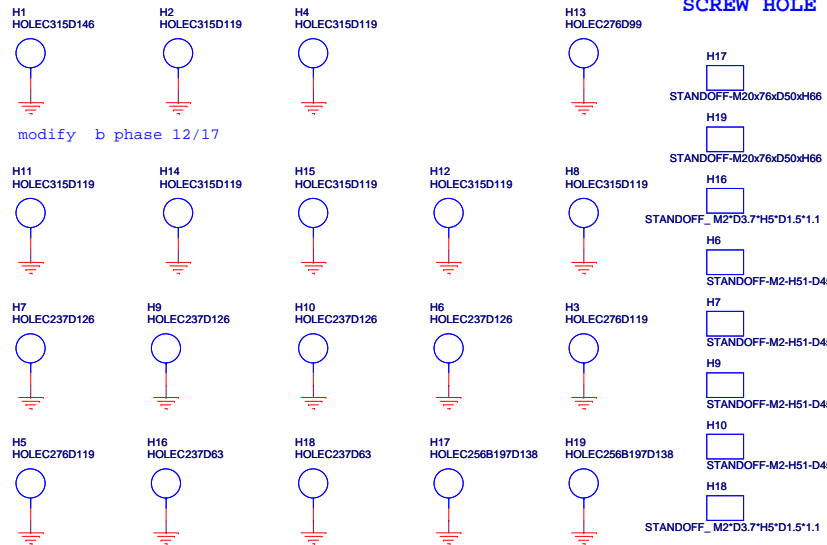
DEBUG TEST POINT

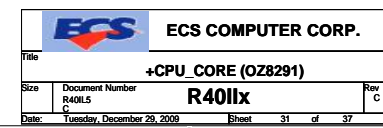


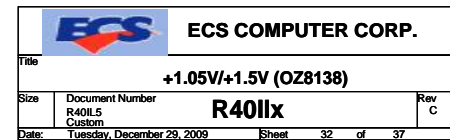
CRT/USB CON

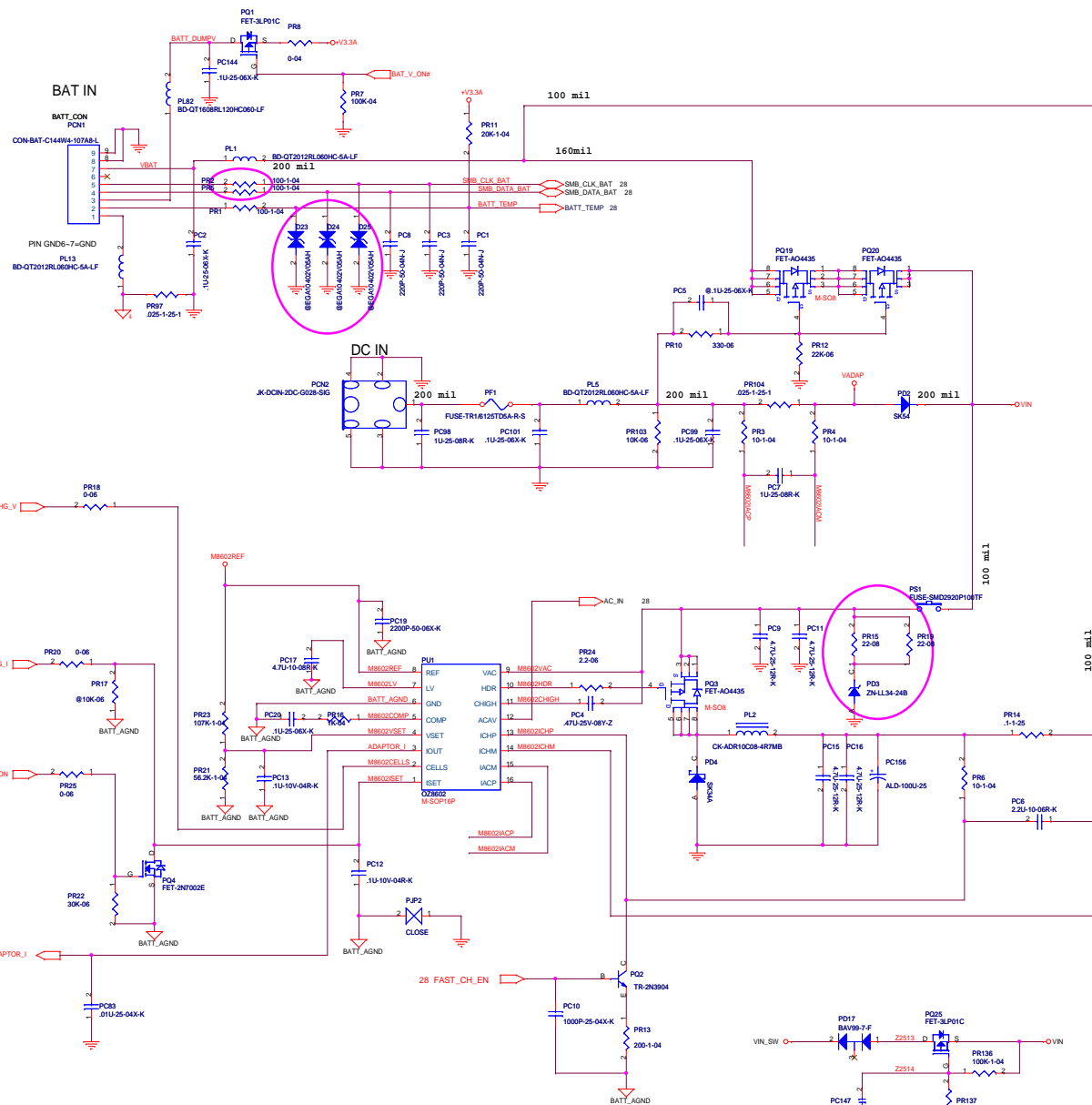


SCREW HOLE







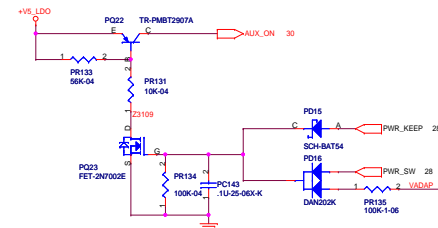


CHG_V		
H	16.8V (4CELL)	
L	12.6V (3CELL)	

FAST_CH_EN	CHG_I	Ich
H	3V	2.8A
H	2.28V	2.5A
H	1.08V	2A
L	3V	1.25A
L	2.4V	1A
L	0.48V	0.200A
L	0.3V	0.125A

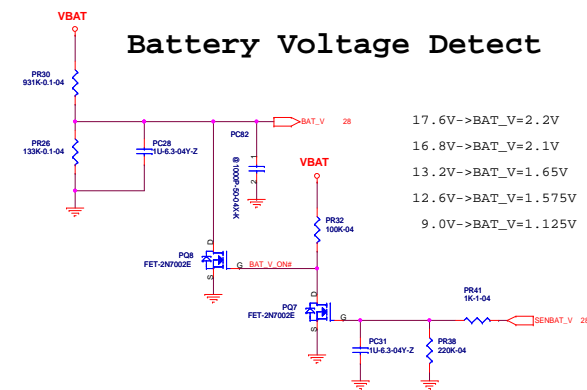
CHG_ON	
L	CHARGER ON
H	CHARGER OFF

ADAPTOR_I	
1A	0.25V
1.5A	0.375V
2A	0.5V
2.5A	0.625V
3A	0.75V
3.5A	0.875V

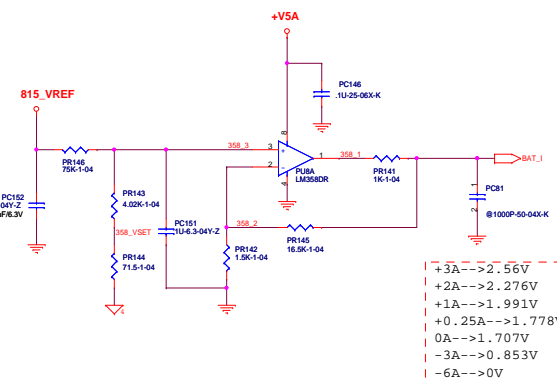


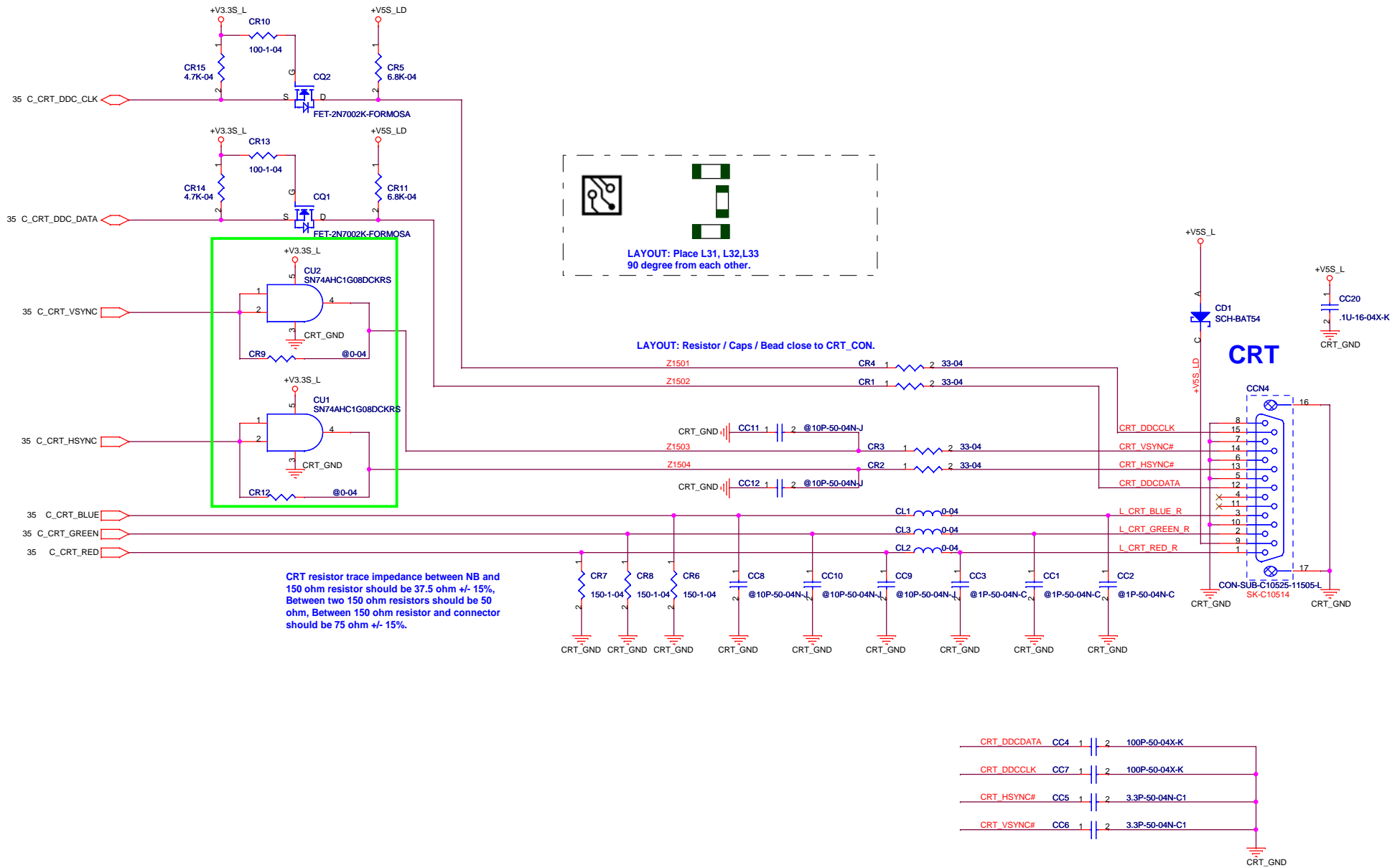
	BAT_AUX_ON	BAT_AUX_OFF
PQ23 2N7002	Remove	Add
PQ22 2N2907	Remove	Add

Battery Voltage Detect



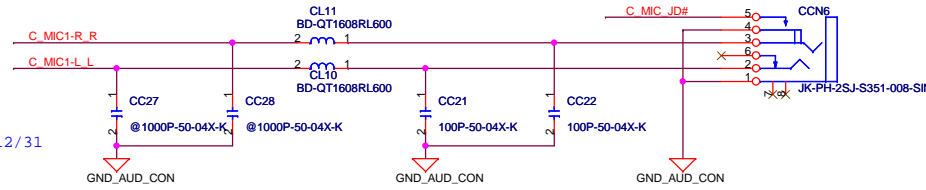
Charge / Discharge Detect



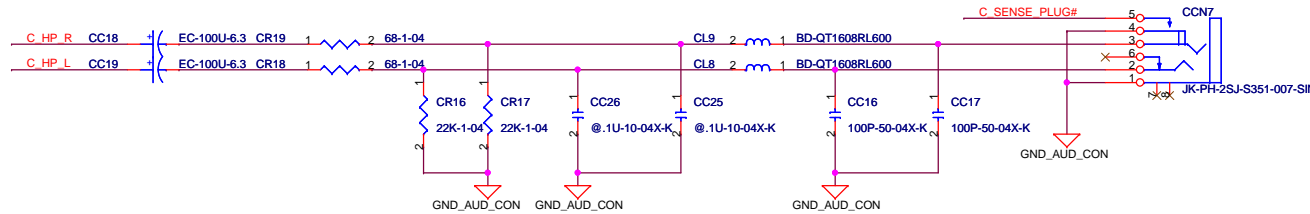


EXT MIC JACK

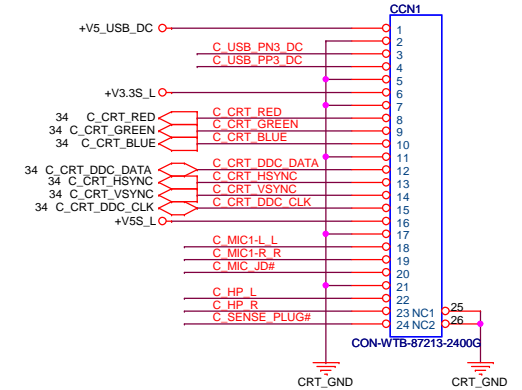
EMI modify B phase 12/31



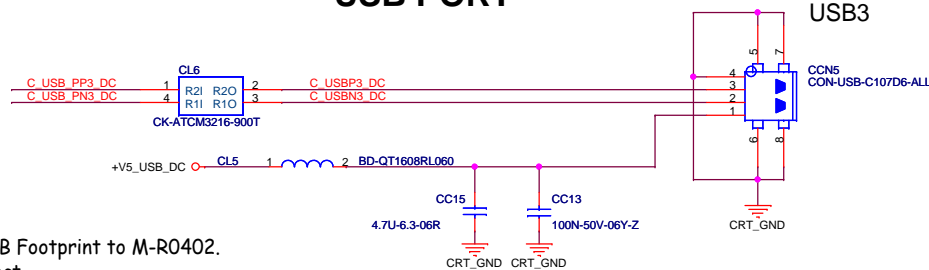
HP JACK



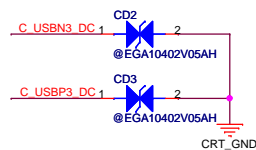
BTB



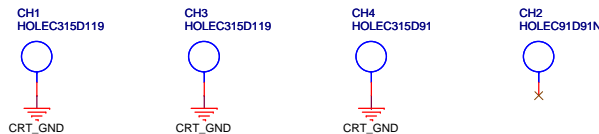
USB PORT



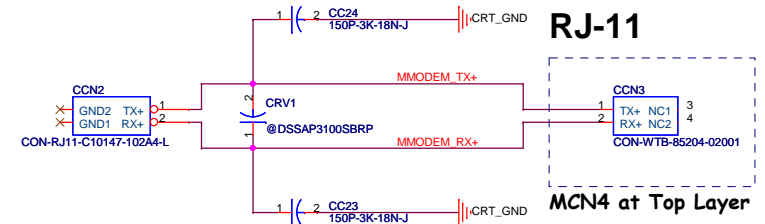
Change PCB Footprint to M-R0402.
ESD protect



USB3

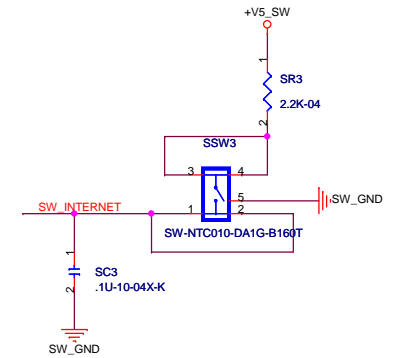
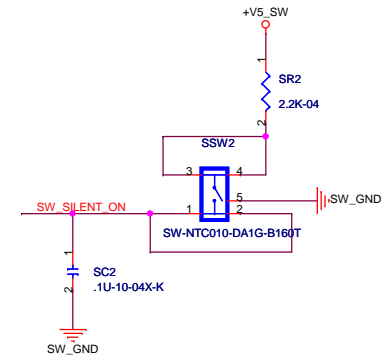
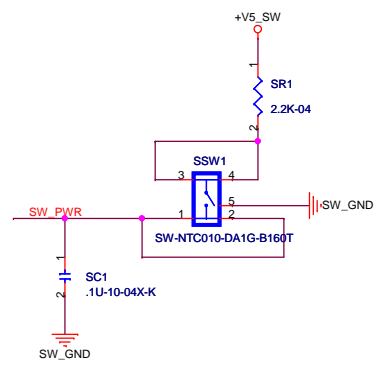


RJ-11

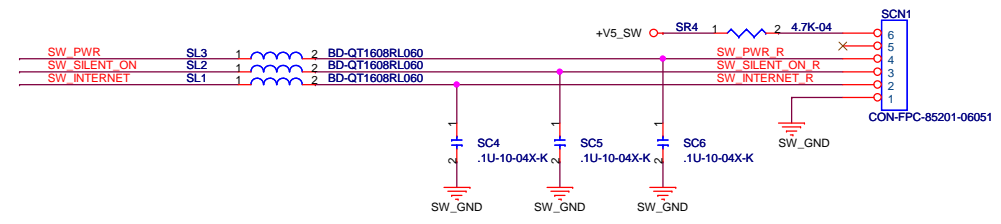
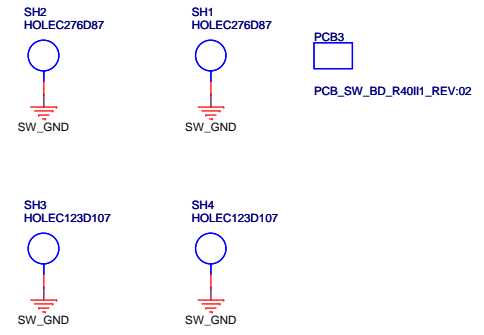


MCN4 at Top Layer

PCB2		PCB_CRT_BD_R40II_REV:02	
ECS COMPUTER CORP.			
Title			
Daughter CRT BD AU JACK/RJ11/USB			
Size	Document Number	Rev	
Customer	R40IIx	C	
Date:	Wednesday, December 23, 2009	Sheet	35 of 37

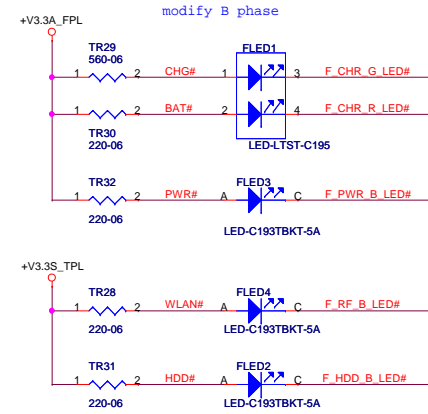


modify b phase 11/27



The schematic diagram illustrates the power and ground connections for the FT232RL module. The module's internal components and their connections are as follows:

- Power Connections:**
 - V3.3_FPL:** Connected to the module's power input.
 - V3.3_TPL:** Connected to the module's power input.
 - V5S_TPL:** Connected to the module's power input.
 - FP_PWRON:** Connected to the module's power input.
 - FP_GND:** Connected to the module's ground.
- Ground Connections:**
 - FP_GND:** Connected to the module's ground.
 - CON-88716-1601-ACE:** Connected to the module's ground.
- Data Connections:**
 - F_HDD_B_LED#:** Connected to the module's data input.
 - F_RF_B_LED#:** Connected to the module's data input.
 - F_CHR_G_LED#:** Connected to the module's data input.
 - F_CHR_R_LED#:** Connected to the module's data input.
 - F_PWR_B_LED#:** Connected to the module's data input.
 - F_USB_DP:** Connected to the module's data input.
 - F_USB_CON:** Connected to the module's data input.
 - F_USB_DN:** Connected to the module's data input.
- Module Components:**
 - TQ3:** Transistor, connected to V3.3_FPL and FP_GND.
 - TR25:** Transistor, connected to V3.3_FPL and FP_GND.
 - TR33:** Transistor, connected to V3.3_TPL and FP_GND.
 - TR35:** Transistor, connected to V3.3_TPL and FP_GND.
 - TR21:** Transistor, connected to V5S_TPL and FP_GND.
 - TR22:** Transistor, connected to V5S_TPL and FP_GND.
 - TR23:** Transistor, connected to V5S_TPL and FP_GND.



PD-REG-TR27	
4EA	OPEN
4BA	0-04

F_EXT_RING0-TC5	
4EA	33P-50-04N-J
4BA	OPEN

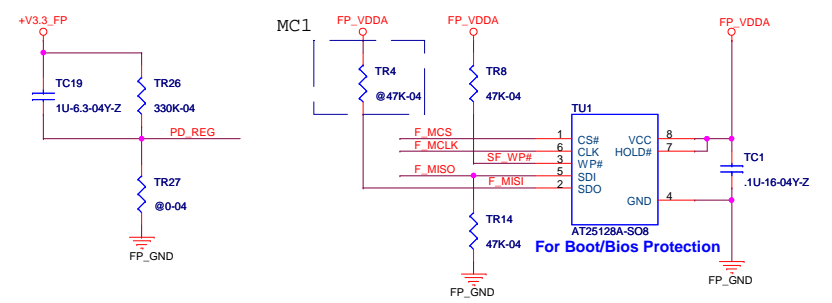


Diagram illustrating the pin connections for the CON-87151-1207G TOUCH_PAD_CON connector. The connections are as follows:

- TP_RIGHT to Pin 1
- TP_LEFT to Pin 2
- TP_PS2CLK2 to Pin 6
- TP_PS2DAT2 to Pin 7
- +V5S_TPO to Pin 10
- FP_GND to Pin 12

Additional information from the diagram:

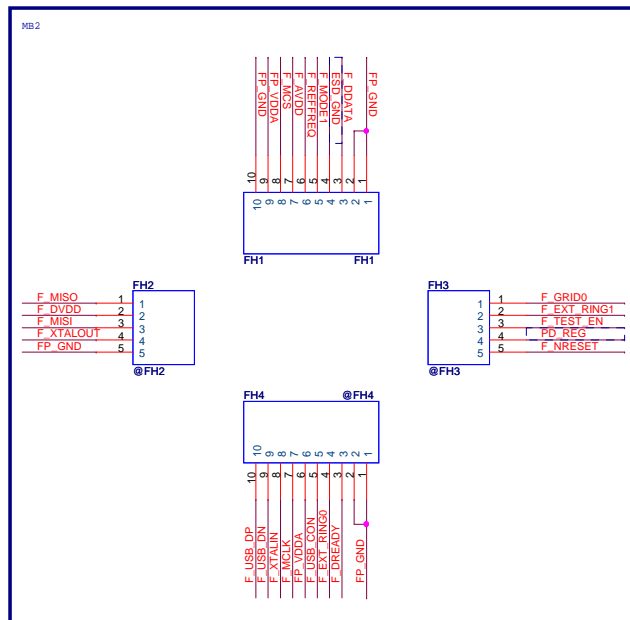
- Connector: CON-87151-1207G TOUCH_PAD_CON
- Pin Configuration Table:

F_USB_DN-TR23	
4EA	OPEN
4BA	100K-04

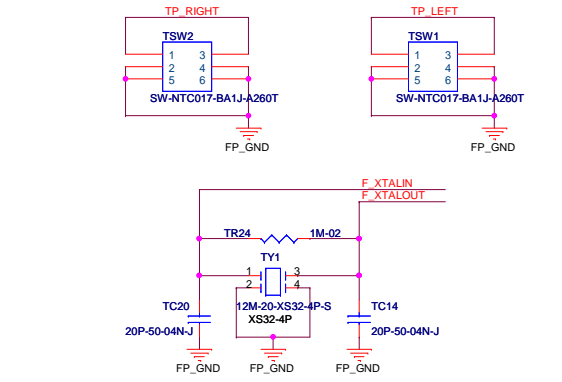
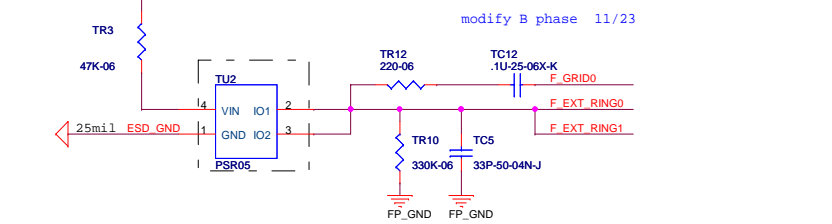
modify B phase

modify B phase

F_USB_DN-TR23	
4EA	OPEN
4BA	100K-04



F_GRIDO-TR12	
4EA	220-06
4BA	100-06



F_TEST_EN-TR17	
4EA	0-04
4BA	330K-04

F_REFFREQ-TC13	
4EA	22P-50-04N-J
4BA	33P-50-04N-J

F_DVDD- TC3/TR16	
4EA	2.2U-10-06R-K
4BA	.1U-10V-04R-K/OPEN

