ELITEGROUP COMPUTER SYSTEMS

Project Name : I38IIX

Platform : Calpella

PAGE CONTENT

Schematic Version Change History

M/B Schematic Version Change List

Release Date	Version	PCB P/N	PCBA P/N	Note
0903'09	A	37GI38000-A0	82GI38000-A0	
1106'09	B	37GI38000-B0	82GI38000-B0	
1204'10	C	37GI38000-C0	82GI38000-C0	

D/B Schematic Version Change List

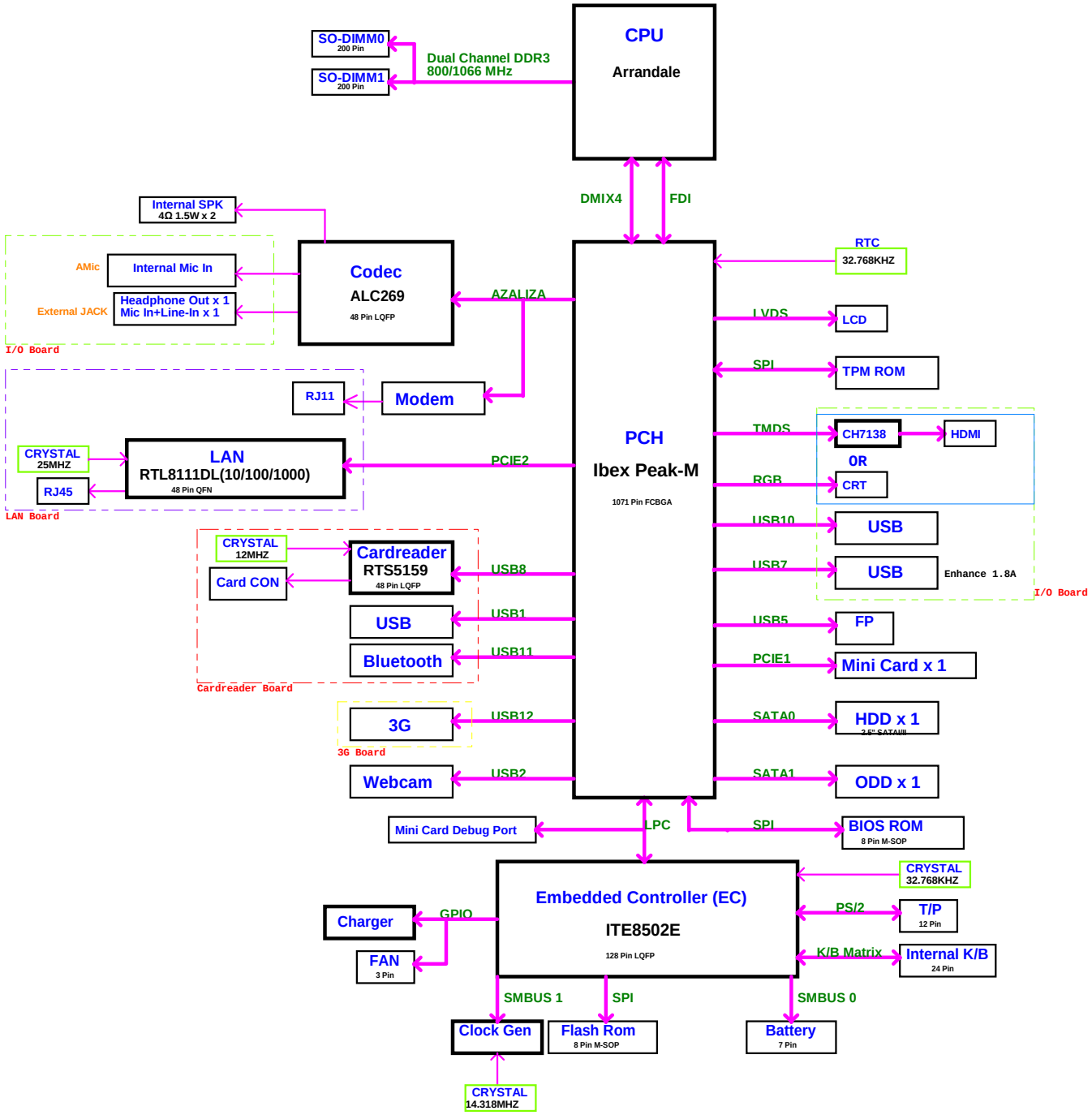
Release Date	Version	PCB P/N	PCBA P/N	Note
1201'09	C	35GJI3500-C0	80GJI3500-C0	3G
1201'09	C	35GWI3510-C0	80GWI3510-C0 80GWI35A0-C0	10/100 LAN GLAN
1201'09	C	35GMI3500-C0	80GMI3500-C0	Card
1201'09	C	35G3I3500-C0	80G3I3500-C0	CRT
1201'09	C	35GWI3500-C0	80GWI3500-C0	HDMI
1201'09	C	35G8I3500-C0	80G8I3500-C0	TP

SMT Process Identify Mark

* DIP component

PC16

ECS COMPUTER CORP.		
Title: INDEX		
Size: Custom	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 1 of 37	



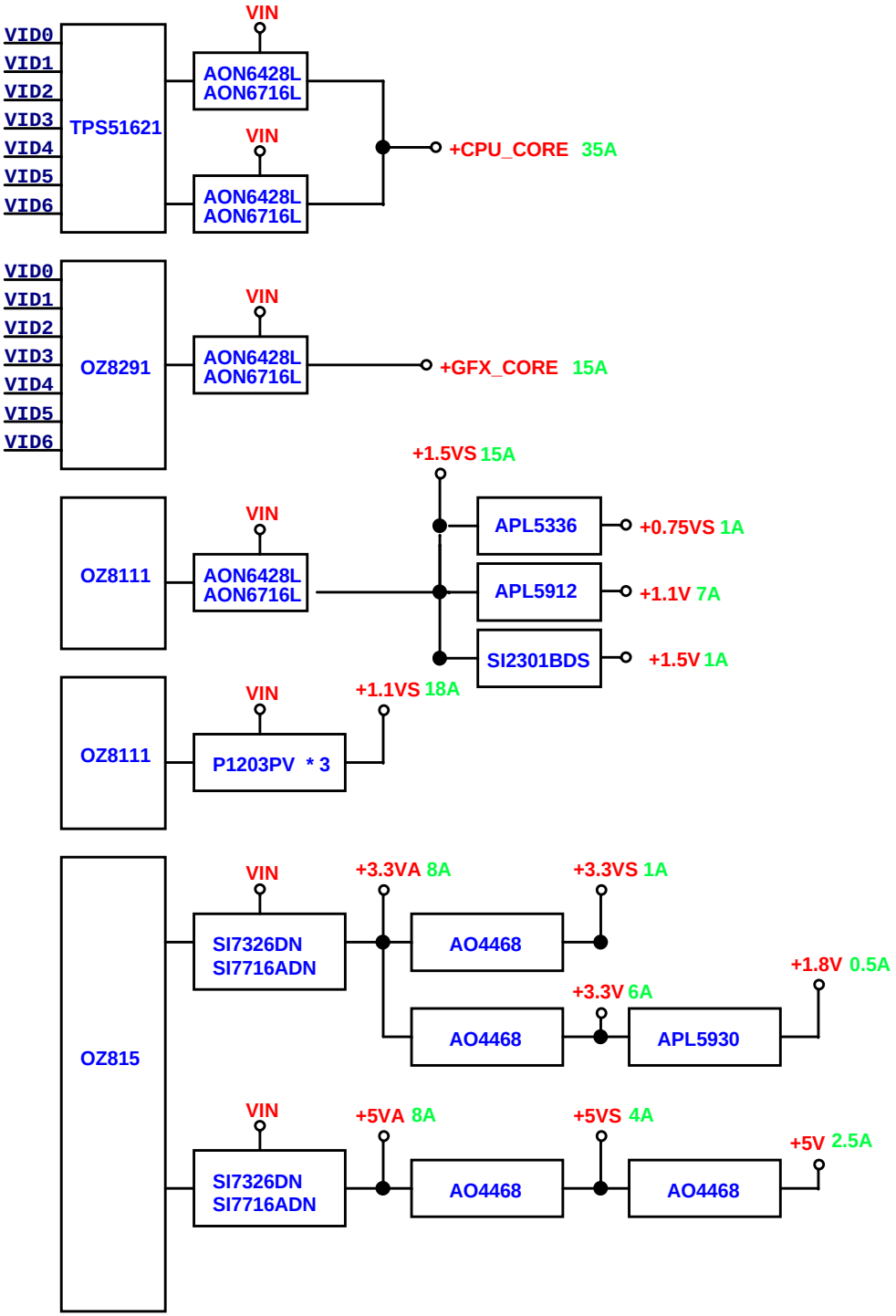
ECS COMPUTER CORP.

Title: System Block Diagram

Size	Document Number	Rev
Custom	Calpella I38IIX	C

Date: Monday, December 07, 2009 Sheet 2 of 37

POWER BLOCK DIAGRAM



POWER STATES

	+5V_ON	+1.5V_ON	+5VS_ON	+1.1VS_ON	+1.1VS_VTT_ON	VS_ON	+*VA	+*VS	+*V	
S0	ON	ON	ON	ON	ON	ON	ON	ON	ON	
S3	ON	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	
S4	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	
S5	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	

ECS COMPUTER CORP.

Title: Power Diagram & Sequence

Size	Document Number	Rev
C	Calpella I38IIX	C

Date: Monday, December 07, 2009 Sheet 3 of 37

IBEXPEAK GPIO	
GPIO0	S_GPIO
GPIO1	EC_EXTSMI#
GPIO2	INT_PIRQE#
GPIO3	INT_PIRQF#
GPIO4	INT_PIRQG#
GPIO5	INT_PIRQH#
GPIO6	DGPU_HPD_INTR#
GPIO7	EC_EXTSCI#
GPIO8	HOST_ALERT#2
GPIO9	PULL UP
GPIO10	PULL UP
GPIO11	PCH_GPIO11
GPIO12	GPIO12
GPIO13	***N.C***
GPIO14	PULL UP
GPIO15	HOST_ALERT#1
GPIO16	DGPU_HOLD_RST#
GPIO17	DGPU_PWROK
GPIO18	GLAN_CLKREQ1#
GPIO19	ODD_DET
GPIO20	PCIECLKRQ2#
GPIO21	SATA_DET#
GPIO22	PULL UP
GPIO23	***N.C***
GPIO24	BT_APM#
GPIO25	PCIECLKRQ3#
GPIO26	PCIECLKRQ4#
GPIO27	PULL DOWN
GPIO28	GPIO28
GPIO29	PM_SLP_LAN#
GPIO30	SUS_PWR_ACK
GPIO31	AC_PRESENT
GPIO32	PM_CLKRUN#
GPIO33	PULL DOWN
GPIO34	STP_PCI#
GPIO35	GPIO35
GPIO36	DGPU_PWR_EN#
GPIO37	DGPU_PRSNT#
GPIO38	MFG_MODE
GPIO39	CRB_SV_DET
GPIO40	PULL UP
GPIO41	PULL UP
GPIO42	PULL UP
GPIO43	PULL UP
GPIO44	PCIECLKRQ5#
GPIO45	PCIECLKRQ6#
GPIO46	PCIECLKRQ7#
GPIO47	PEG_CLKREQ#
GPIO48	SV_SET_UP
GPIO49	PM_THROTTING#
GPIO50	PCI_REQ#1
GPIO51	PCI_GNT#1
GPIO52	DGPU_SELECT#
GPIO53	DGPU_PWM_SELECT#
GPIO54	PCI_REQ#3
GPIO55	PCI_GNT#3
GPIO56	PEG_B_CLKRQ#
GPIO57	PCH_GPIO57
GPIO58	SML1_CLK
GPIO59	PULL UP
GPIO60	FP_INIT#

IBEXPEAK GPIO	
GPIO61	PM_SUS_STAT#
GPIO62	SUS_CLK
GPIO63	PM_SLP_S5#
GPIO64	***N.C***
GPIO65	***N.C***
GPIO66	***N.C***
GPIO67	EDID_SELECT#
GPIO72	PM_BATLOW#
GPIO73	MINI_CLKREQ1#
GPIO74	LPD_SPI_INTR#
GPIO75	SML1_DATA

IT8502E GPIO		Default Pull/Mode
GPA0	PM_RSMRST#	UP / GPI
GPA1	***N.C***	UP / GPI
GPA2	BTL_BEEP	UP / GPI
GPA3	WLAN/BT_LED	UP / GPI
GPA4	Battery_Audio#	UP / GPI
GPA5	SAFTY_PROTECT	UP / GPI
GPA6	PWR_LED	UP / GPI
GPA7	EC_BL_PWM	UP / GPI
GPB0	PM_SLP_S4#	UP / GPI
GPB1	PM_SLP_S3#	UP / GPI
GPB2	WEBCAM_ON	Dn / GPI
GPB3	BAT_SMBCLK	/ GPI
GPB4	BAT_SMBDAT	/ GPI
GPB5	H_A20GATE	/ GPO
GPB6	H_RCIN#	UP / Func1
GPB7	RF_ON	Dn / GPI
GPC0	BT_EN	Dn / GPI
GPC1	SMBCLK_EC	/ GPI
GPC2	SMBDAT_EC	/ GPI
GPC3	***N.C***	Dn / GPI
GPC4	Battery_PWM	Dn / GPI
GPC5	***N.C***	Dn / GPI
GPC6	Fast-charge-EN#	Dn / GPI
GPC7	Battery_Saving	UP / GPI
GPD0	AC_IN	UP / GPI
GPD1	PWRBTN#	UP / GPI
GPD2	EC_LPCRST#	UP / Func1
GPD3	EC_SCI#_A	UP / GPI
GPD4	EC_EXTSMI#_A	UP / GPI
GPD5	EC_PROCHOT#	UP / GPI
GPD6	CHG_ON#	Dn / GPI
GPD7	EC_BL_EN	Dn / GPI
GPE0	VCORE_ON	Dn / GPI
GPE1	SET_V	Dn / GPI
GPE2	ALL_SYS_PWRGD	Dn / GPI
GPE3	***N.C***	Dn / GPI
GPE4	PWRSW	UP / GPI
GPE5	CL_PWROK_EC	Dn / GPI
GPE6	LID#	Dn / GPI
GPE7	PWR_KEEP	UP / GPI
GPF0	***N.C***	UP / GPI
GPF1	***N.C***	UP / GPI
GPF2	CHR_G#	UP / GPI
GPF3	CHR_R#	UP / GPI
GPF4	TP_CLK	UP / GPI
GPF5	TP_DATA	UP / GPI
GPF6	SMB_CLK_VGA	UP / GPI
GPF7	SMB_DAT_VGA	UP / GPI
GPG0	AMP_MUTE#	Dn/GPO/TM
GPG1	EC_SKIP	Dn/GPO/ID7
GPG2	FLFRAME#	
GPG6	SUS_PWR_ACK	
GPH0	VS_ON	Dn/GPI/ID0
GPH1	+1.5V_ON	Dn/GPI/ID1
GPH2	SENBAT_V	Dn/GPI/ID2
GPH3	+5V_ON	Dn/GPI/ID3
GPH4	+5VS_ON	Dn/GPI/ID4
GPH5	+1.1VS_ON	Dn/GPI/ID5
GPH6	+1.1VS_VTT_ON	Dn/GPI/ID6

IT8502E GPIO		Default Pull/Mode
GPI0	BATT_TEMP	/GPI/ADC
GPI1	ADAPTOR_I	/GPI/ADC
GPI2	***N.C***	/GPI/ADC
GPI3	***N.C***	/GPI/ADC
GPI4	BAT_I	/GPI/ADC
GPI5	VGA_TEMP	/GPI/ADC
GPI6	DDR3_TEMP	/GPI/ADC
GPI7	BAT_V	/GPI/ADC
GPJ0	EC_BRGHT	/GPI/DAC
GPJ1	CHG_I	/GPI/DAC
GPJ2	FAN_CTRL0	/GPI/DAC
GPJ3	***N.C***	/GPI/DAC
GPJ4	***N.C***	/GPI/DAC
GPJ5	PM_THROTTING#	/GPI/DAC

Auburndale CPU

	CPU CORE(V)	ICC(A)	W	TEMP(℃)
CPU	Vcore	48		70
GPU	VAXG	22		
	+1.8VS	0.6	1.08	
	+1.5V	3	4.5	
	+1.1VS	18	19.8	

IBEXPEAK

VCC	ICC(mA)	mW	TEMP(℃)
+5V	1	5	70
+5VS	1	5	
+3.3V	254	838.2	
+3.3VS	447	1475.1	
+1.8VS	411	739.8	
+1.1VS	6862	7548.2	

IT8502E

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V	100	330	70

CLOCK GENERATOR ICS9LRS3197

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V	250	825	70

RTS5159

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V	250	825	70

RTL8111DL

VCC	ICC(mA)	mW	TEMP(℃)
+3.3VS	66	217.8	70

ALC269

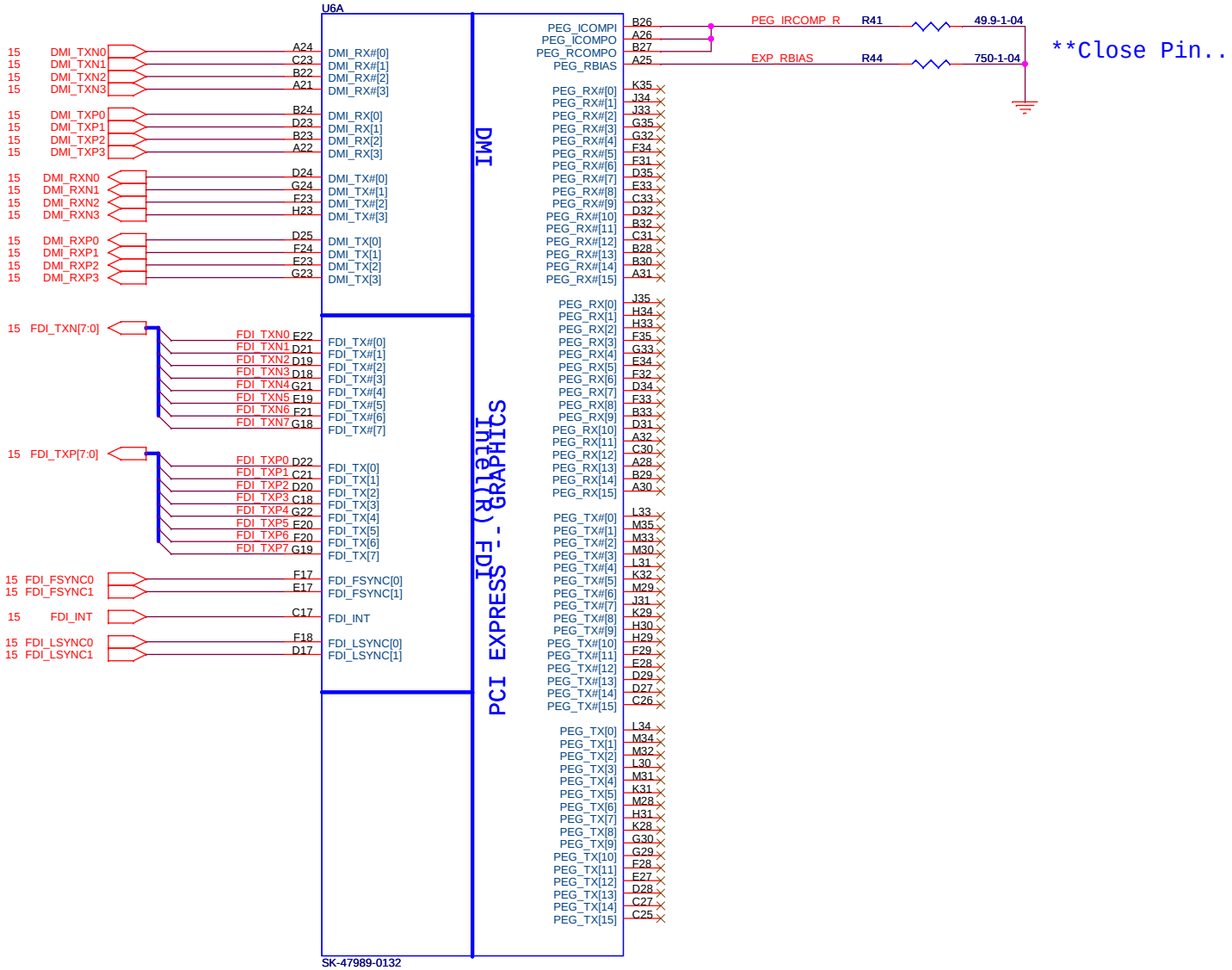
VCC	ICC(mA)	mW	TEMP(℃)
+3.3V(DVDD)	35	115.5	70
+5V(AVDD)	68	340	

ECS COMPUTER CORP.

Title: GPIO & Power Consumption

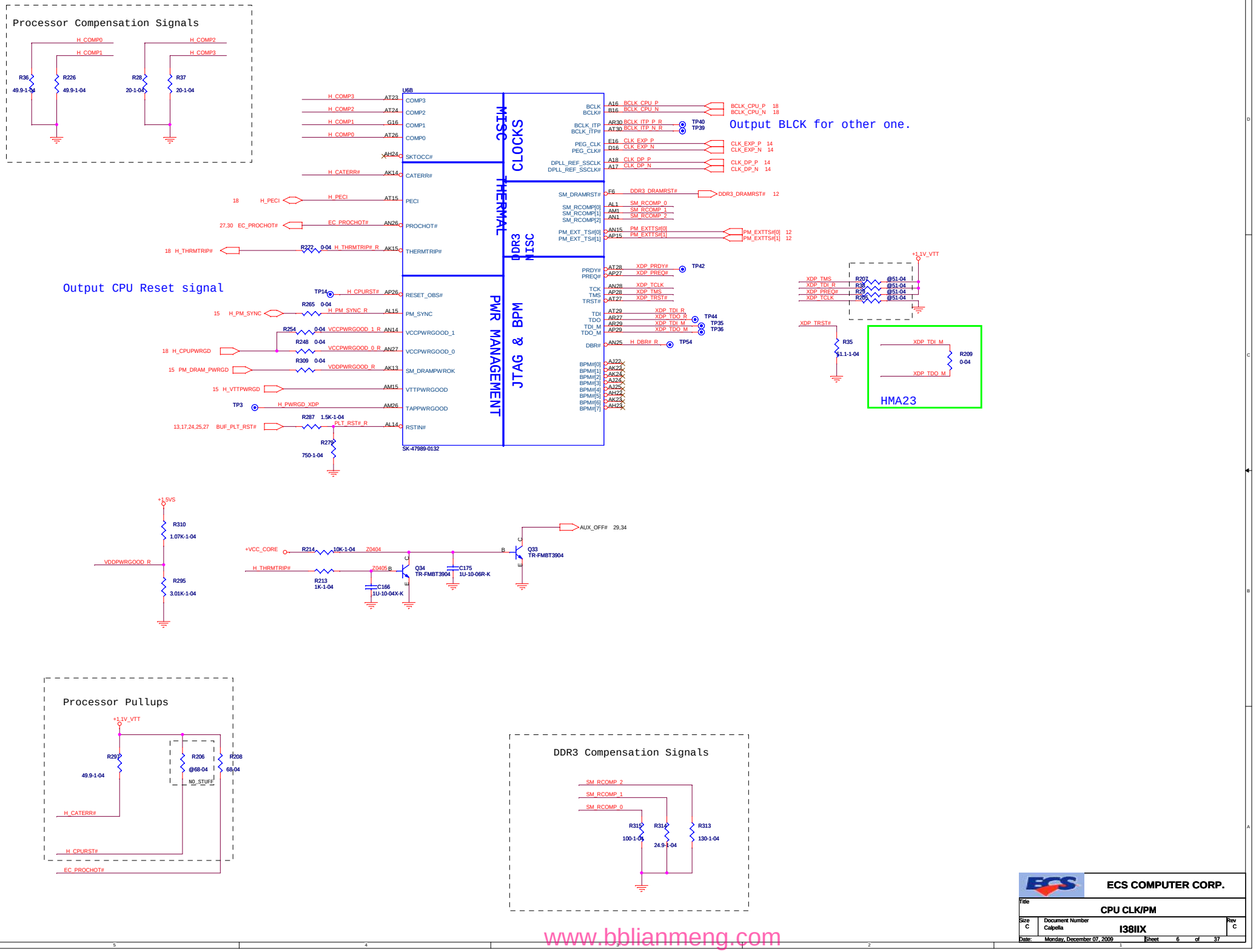
Size: Custom | Document Number: Calpella I38IIX | Rev: C

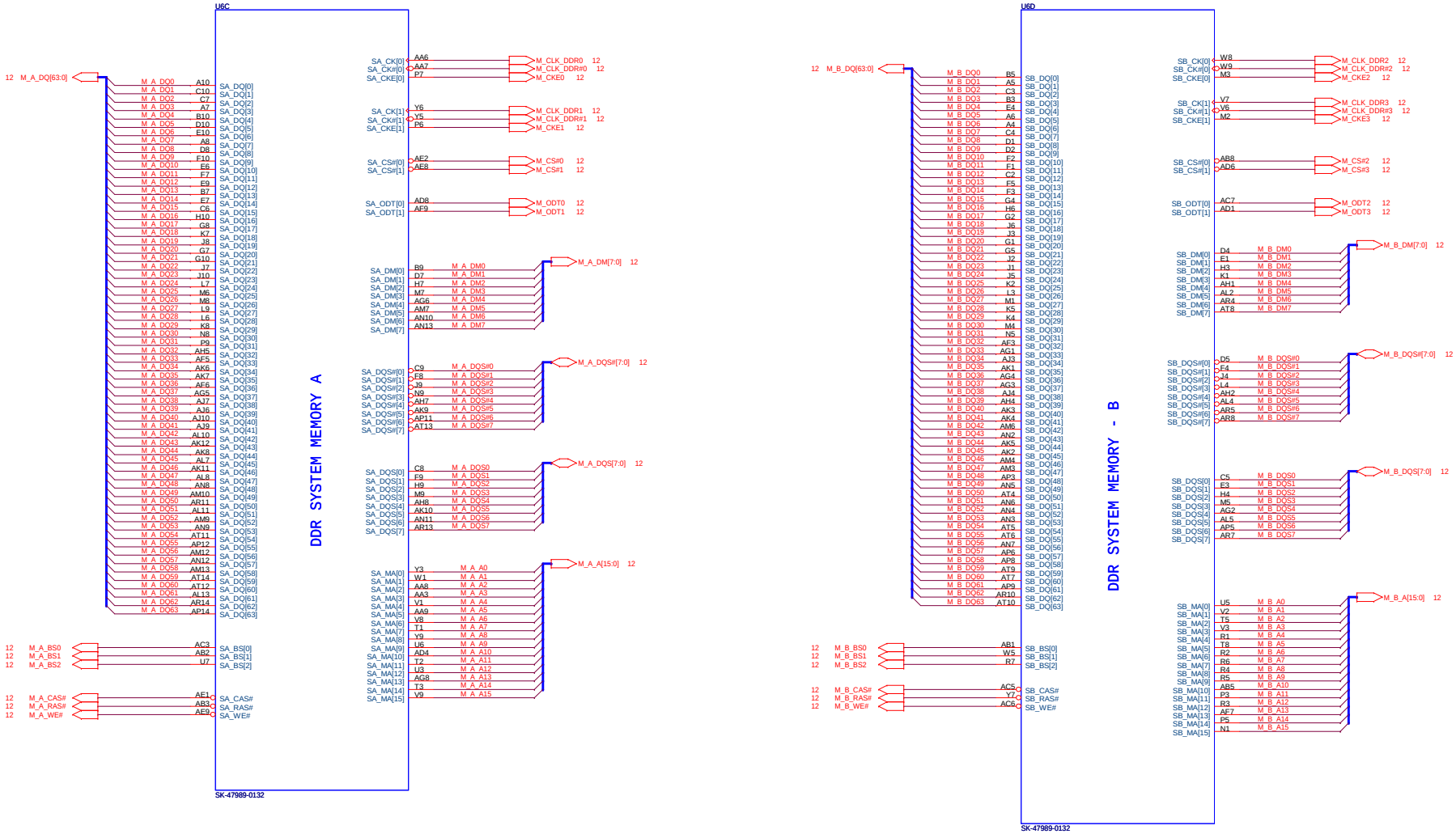
Date: Monday, December 07, 2009 | Sheet 4 of 37



ECS COMPUTER CORP.

Title	CPU DMI/FDI/PEG	
Size B	Document Number Calpella I38IIX	Rev C
Date: Monday, December 07, 2009	Sheet 5 of 37	



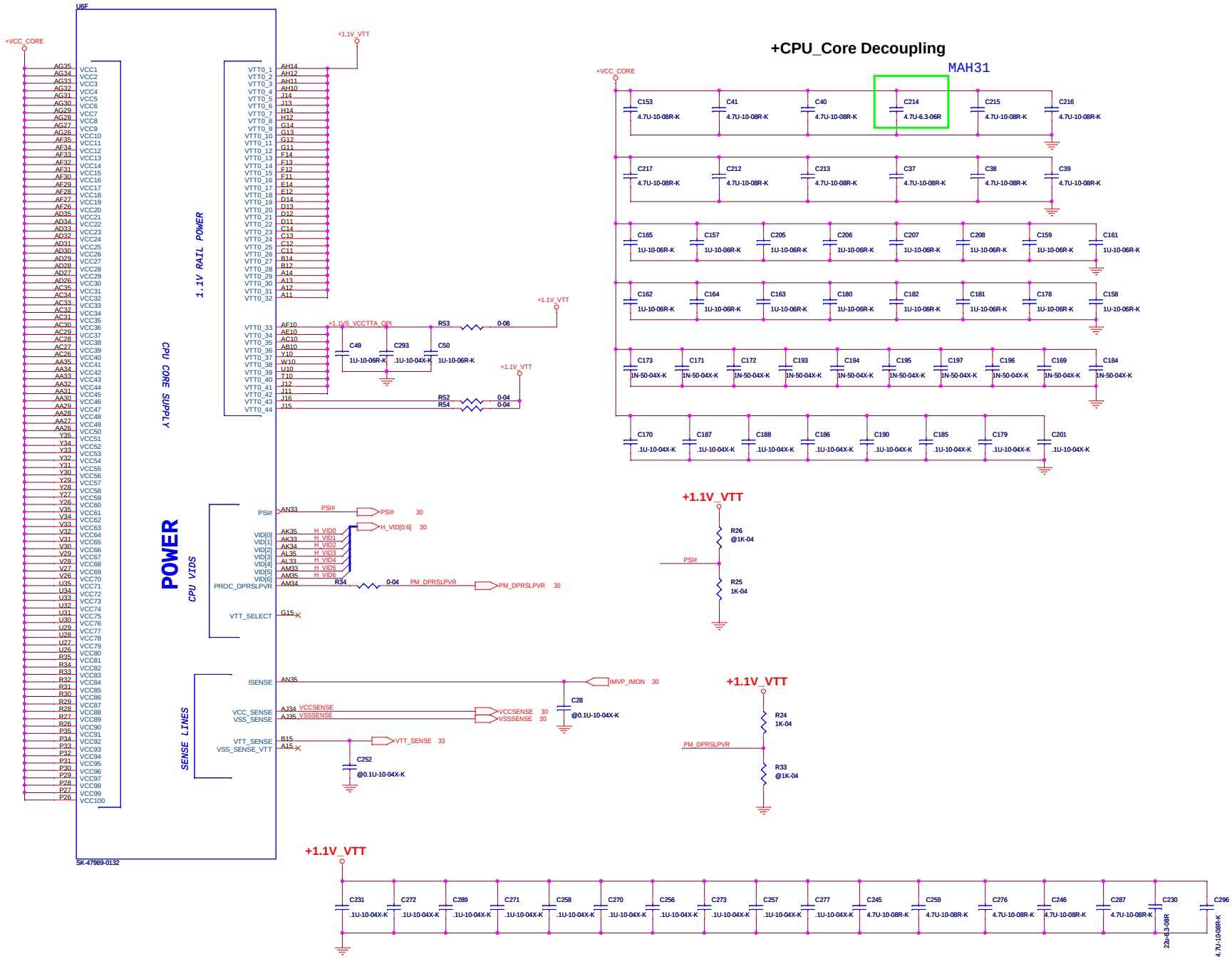


ECS COMPUTER CORP.

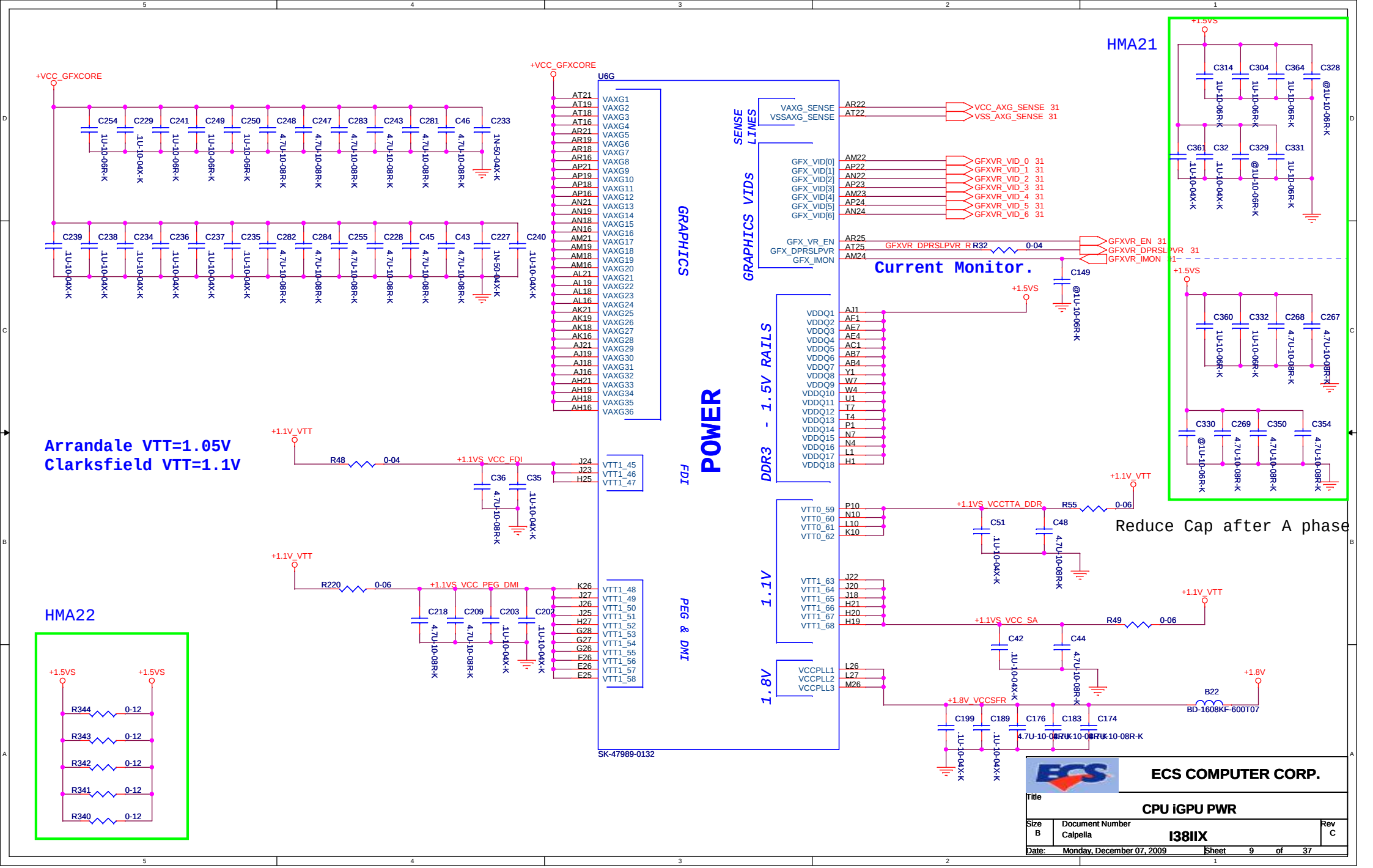
Title: CPU DDR interface

Size	Document Number	Rev
C	Calpella I38IIX	C

Date: Monday, December 07, 2009 Sheet 7 of 37

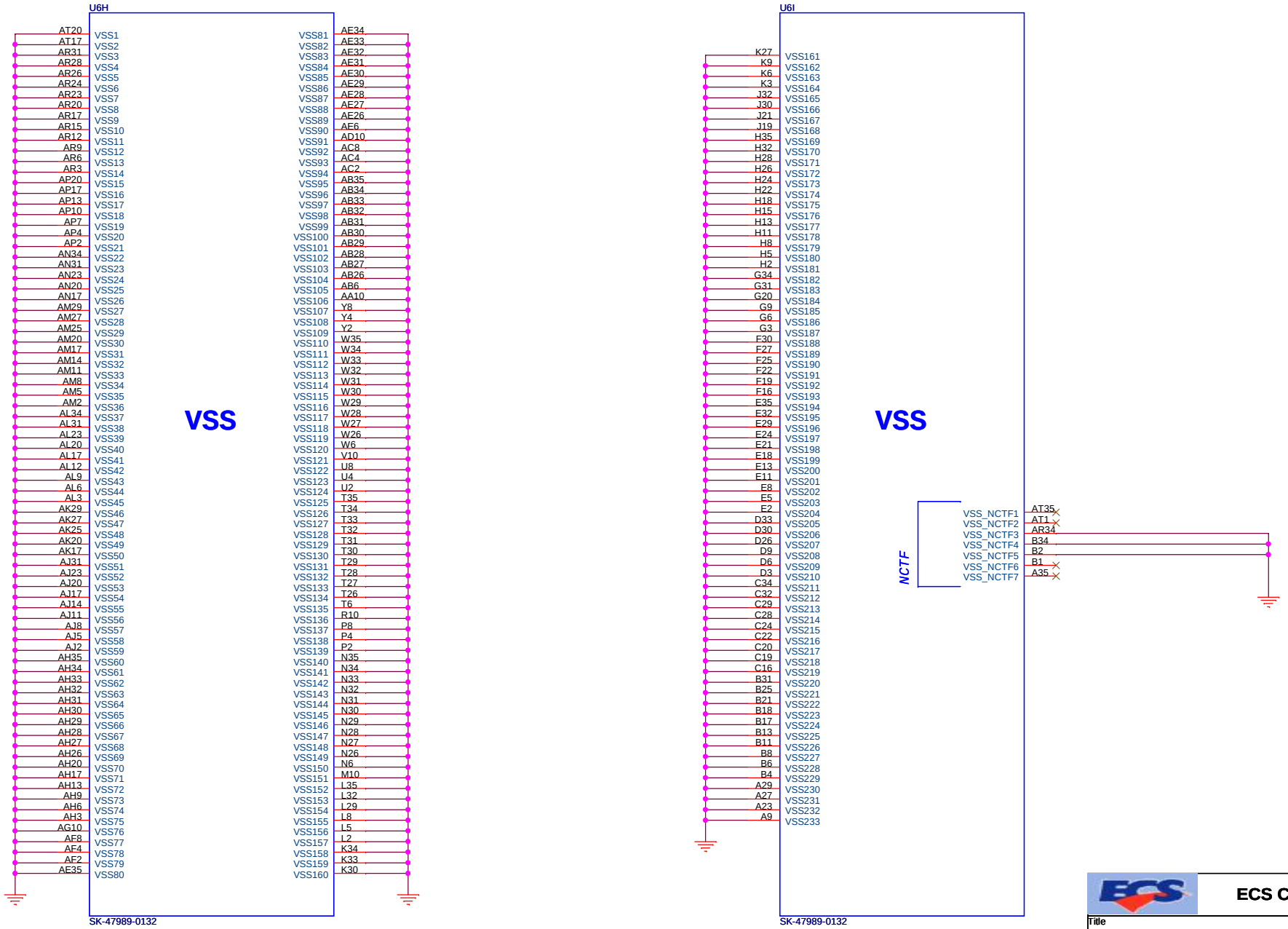


Company	ECS COMPUTER CORP.
Title	CPU Core PWR
Size	C
Document Number	I38IIX
Rev	C
Date	Monday, December 07, 2009
Sheet	8 of 37

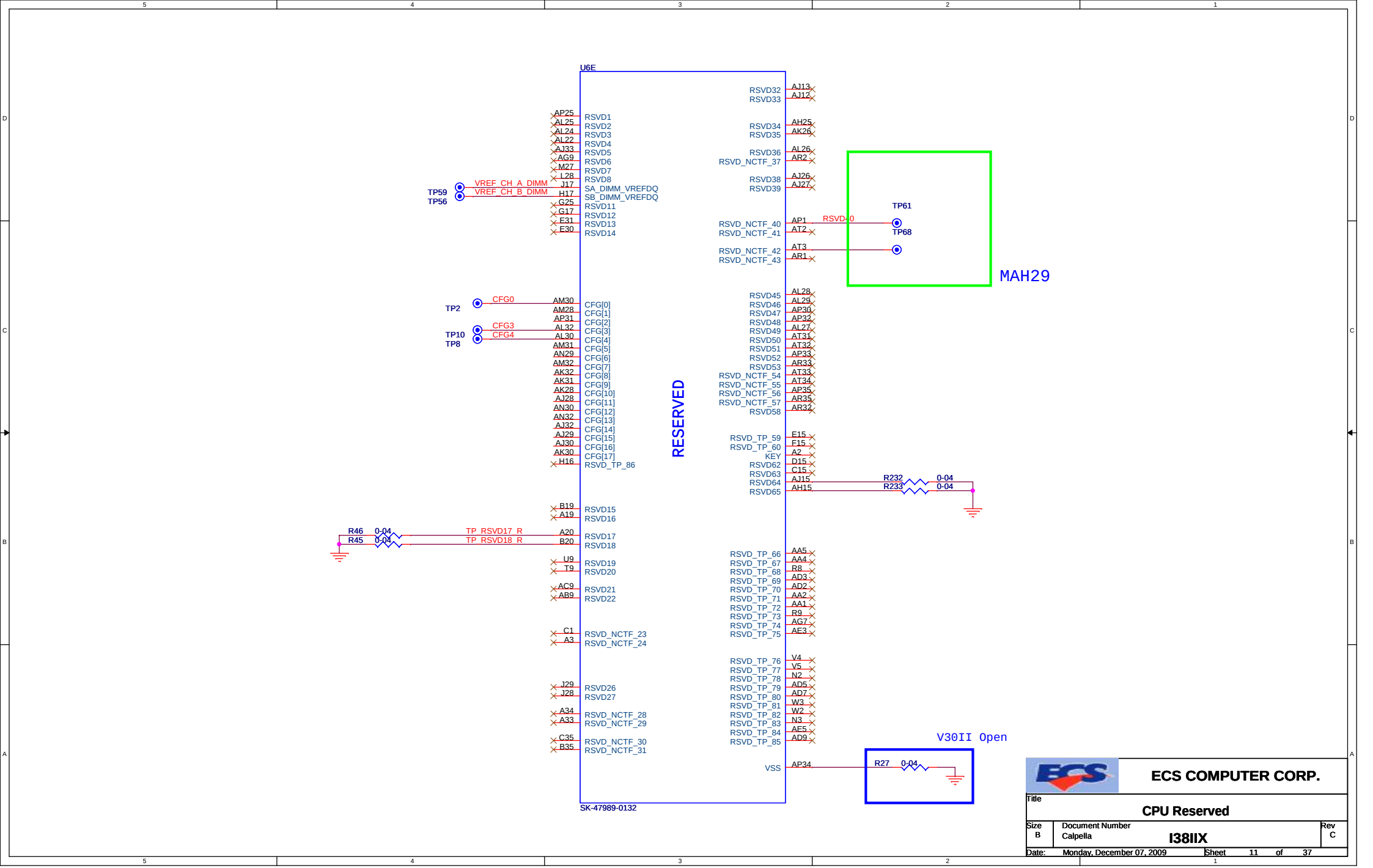


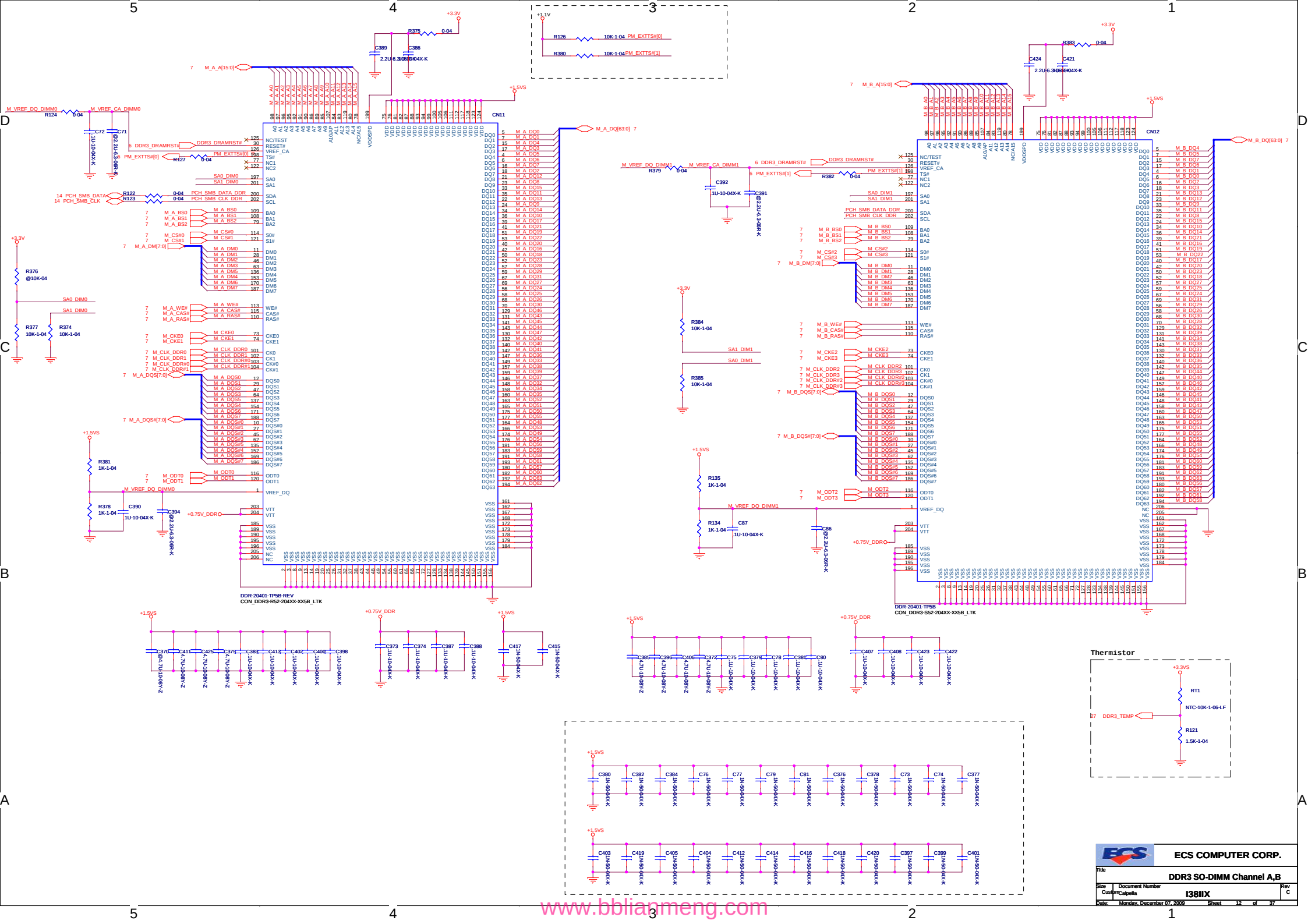
ECS COMPUTER CORP.

Title	CPU iGPU PWR		
Size B	Document Number Calpella I38IIX		Rev C
Date: Monday, December 07, 2009	Sheet 9 of 37		



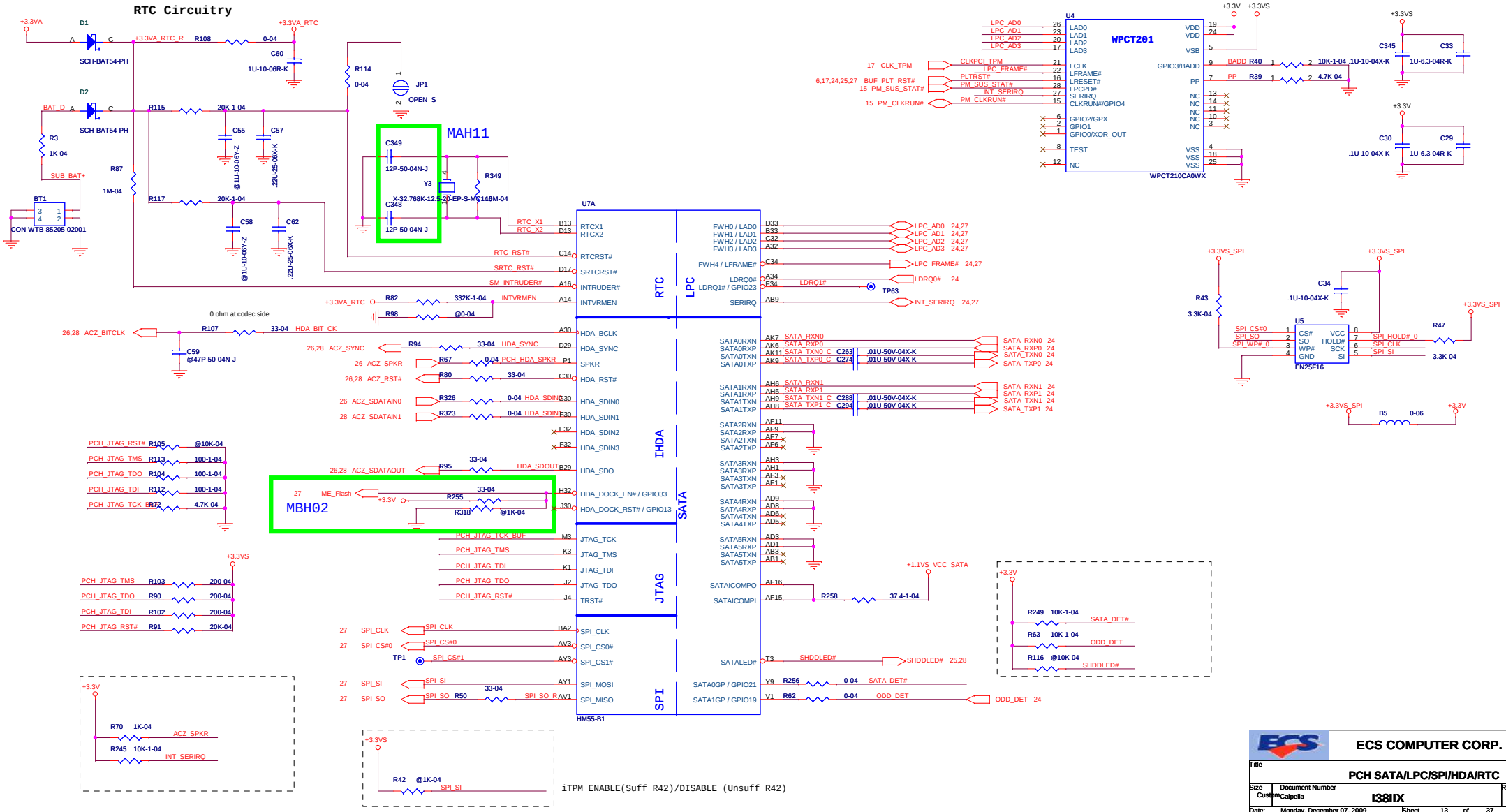
ECS COMPUTER CORP.		
Title: CPU GND		
Size: B	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 10 of 37	




DDR-20401-TP5B-REV
CON_DDR3-RS2-204XX-XX5B_LTK
DDR-20401-TP5B
CON_DDR3-SS2-204XX-XX5B_LTK
Thermistor
ECS COMPUTER CORP.
DDR3 SO-DIMM Channel A,B
I38IIX
Monday, December 07, 2009
www.bbianmeng.com

TPM

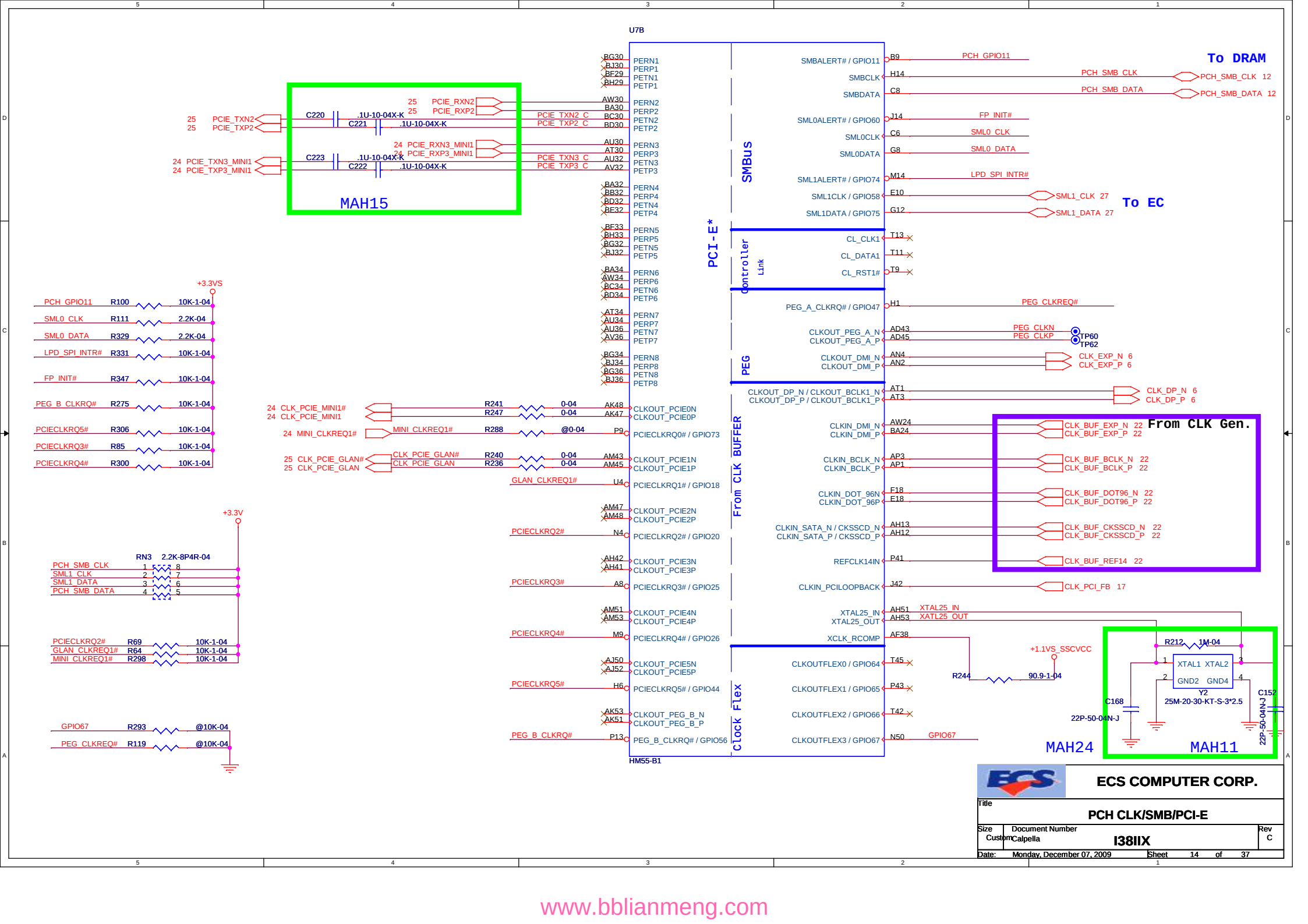
RTC Circuitry



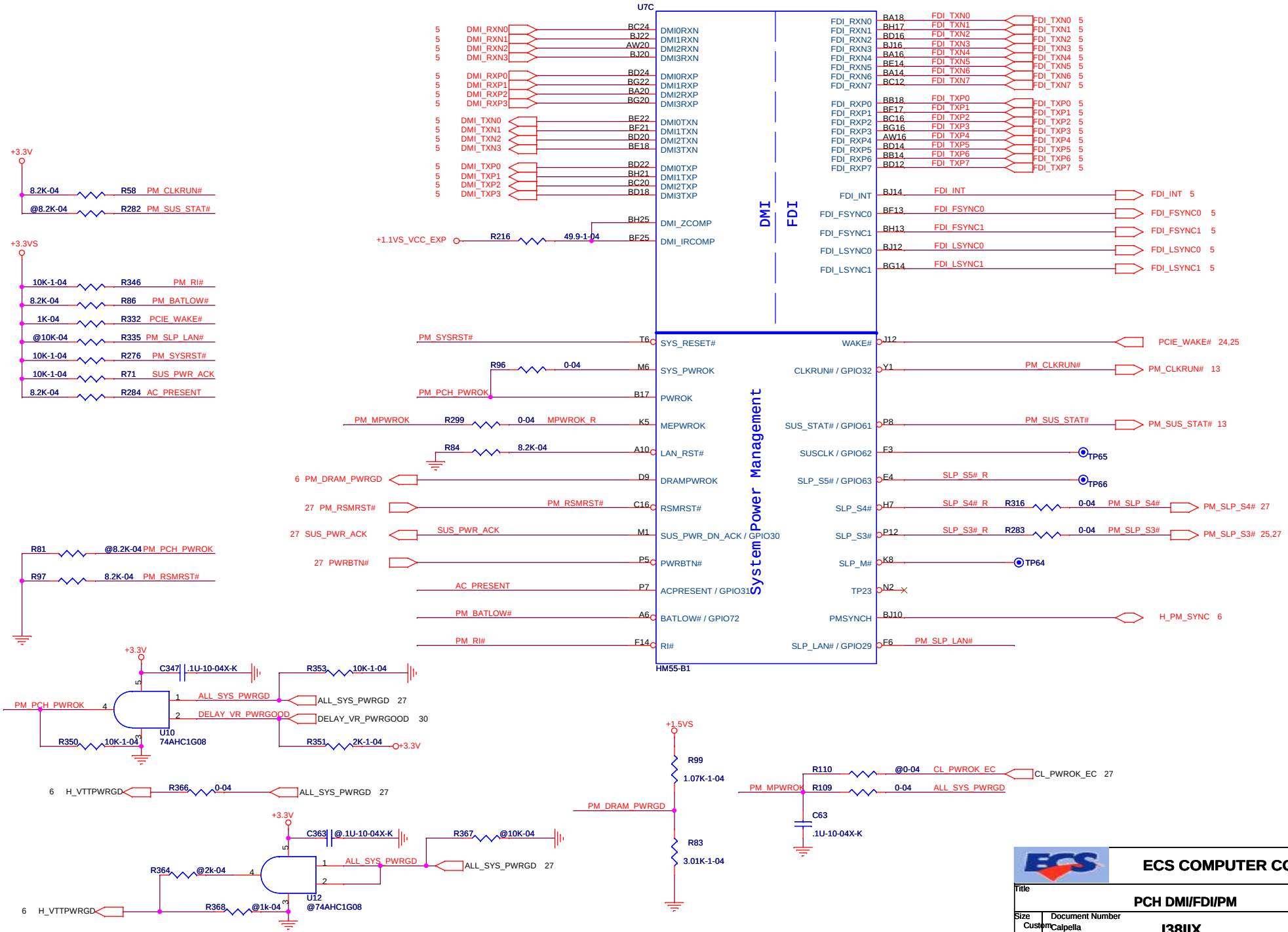
iTPM ENABLE(Suff R42)/DISABLE (Unsuff R42)

ECS COMPUTER CORP.

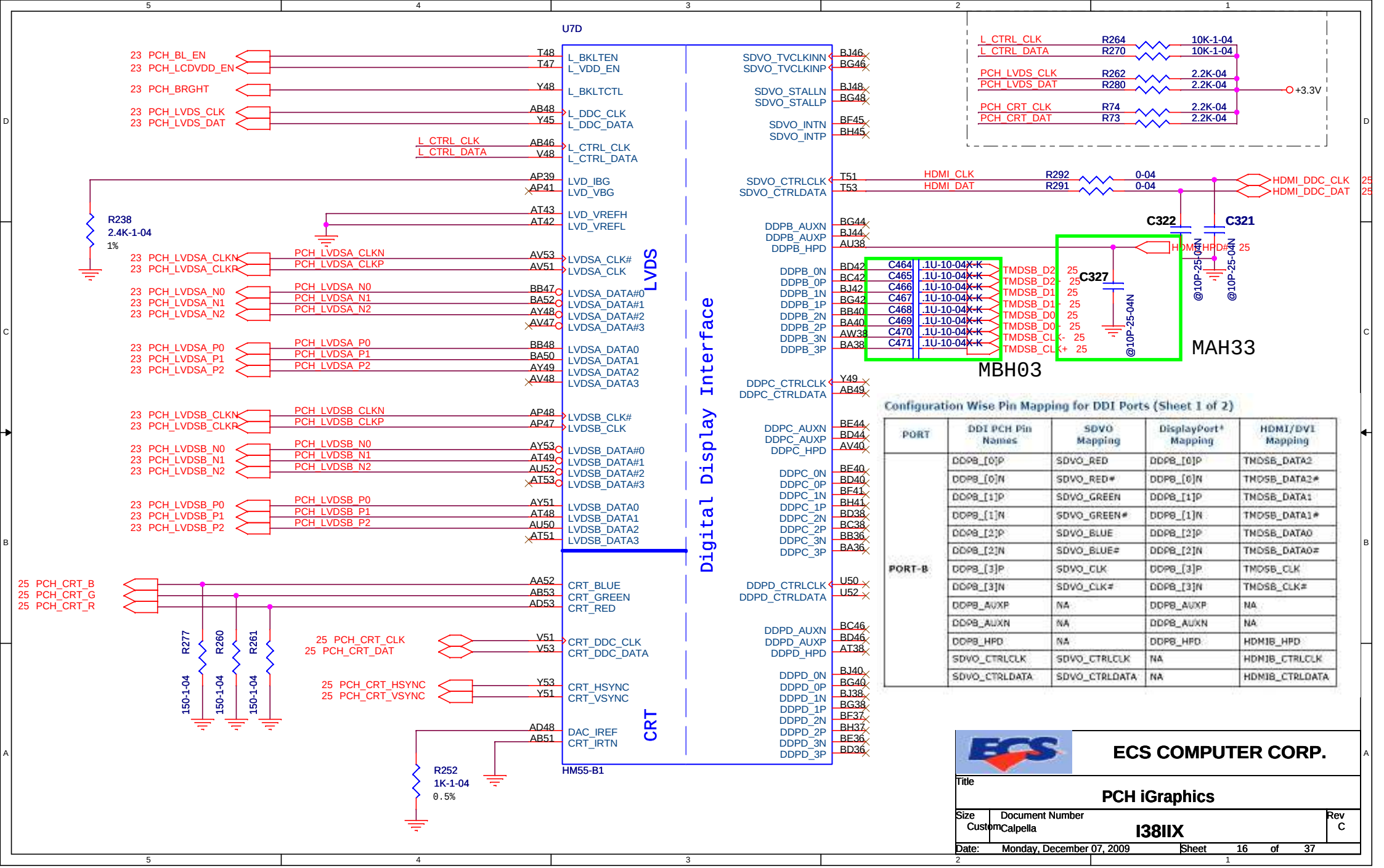
Title	PCH SATA/LPC/SPI/HDA/RTC	
Size: Custom	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 13 of 37	



IBEXPEAK - M (DMI,FDI,GPIO)



ECS COMPUTER CORP.		
Title: PCH DMI/FDI/PM		
Size: Custom	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 15 of 37	



Configuration Wise Pin Mapping for DDI Ports (Sheet 1 of 2)

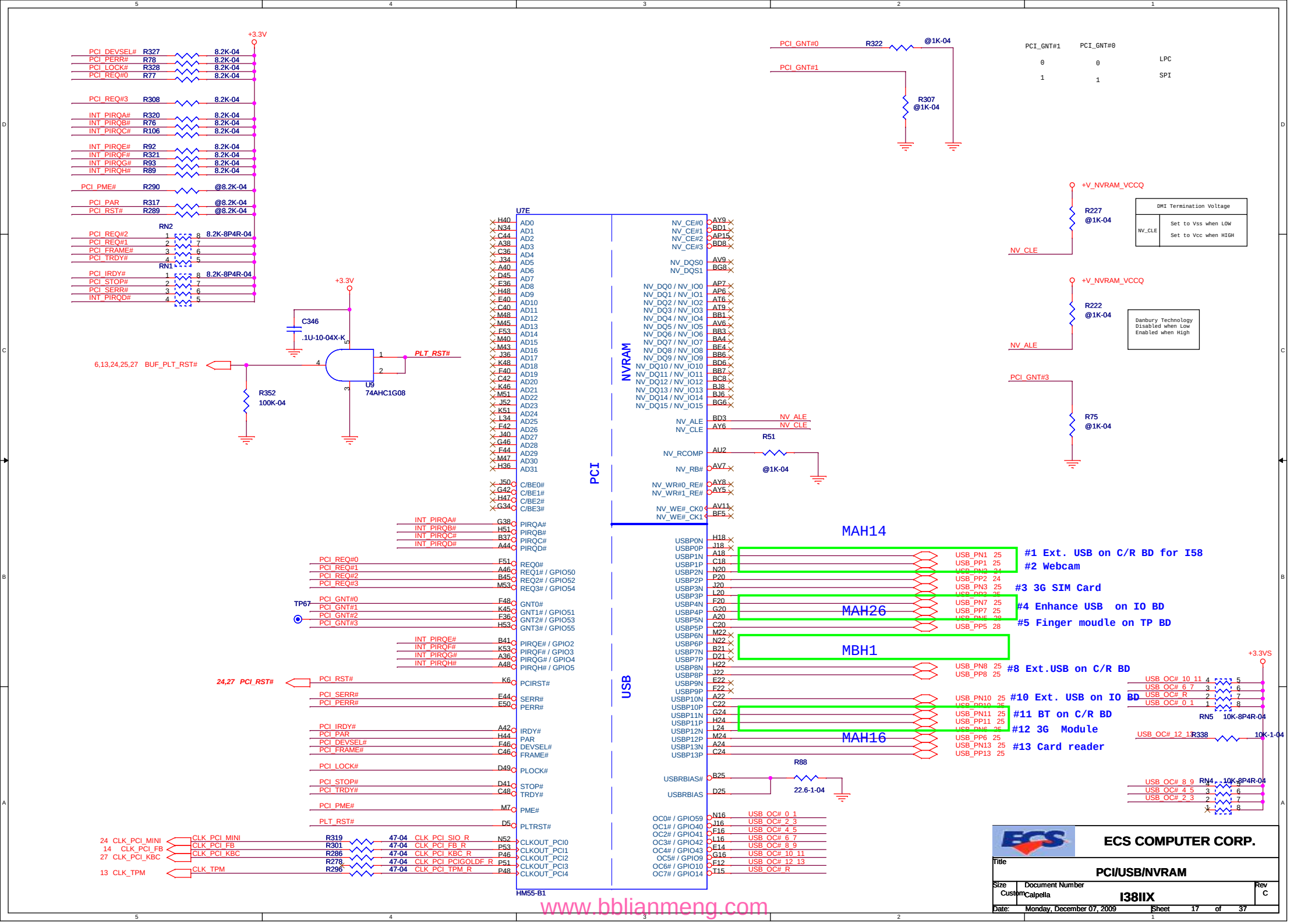
PORT	DDI PCH Pin Names	SDVO Mapping	DisplayPort* Mapping	HDMI/DVI Mapping
PORT-B	DDPB_[0]P	SDVO_RED	DDPB_[0]P	TMDSB_DATA2
	DDPB_[0]N	SDVO_RED#	DDPB_[0]N	TMDSB_DATA2#
	DDPB_[1]P	SDVO_GREEN	DDPB_[1]P	TMDSB_DATA1
	DDPB_[1]N	SDVO_GREEN#	DDPB_[1]N	TMDSB_DATA1#
	DDPB_[2]P	SDVO_BLUE	DDPB_[2]P	TMDSB_DATA0
	DDPB_[2]N	SDVO_BLUE#	DDPB_[2]N	TMDSB_DATA0#
	DDPB_[3]P	SDVO_CLK	DDPB_[3]P	TMDSB_CLK
	DDPB_[3]N	SDVO_CLK#	DDPB_[3]N	TMDSB_CLK#
	DDPB_AUXP	NA	DDPB_AUXP	NA
	DDPB_AUXN	NA	DDPB_AUXN	NA
	DDPB_HPD	NA	DDPB_HPD	HDMIB_HPD
	SDVO_CTRLCLK	SDVO_CTRLCLK	NA	HDMIB_CTRLCLK
	SDVO_CTRLDATA	SDVO_CTRLDATA	NA	HDMIB_CTRLDATA

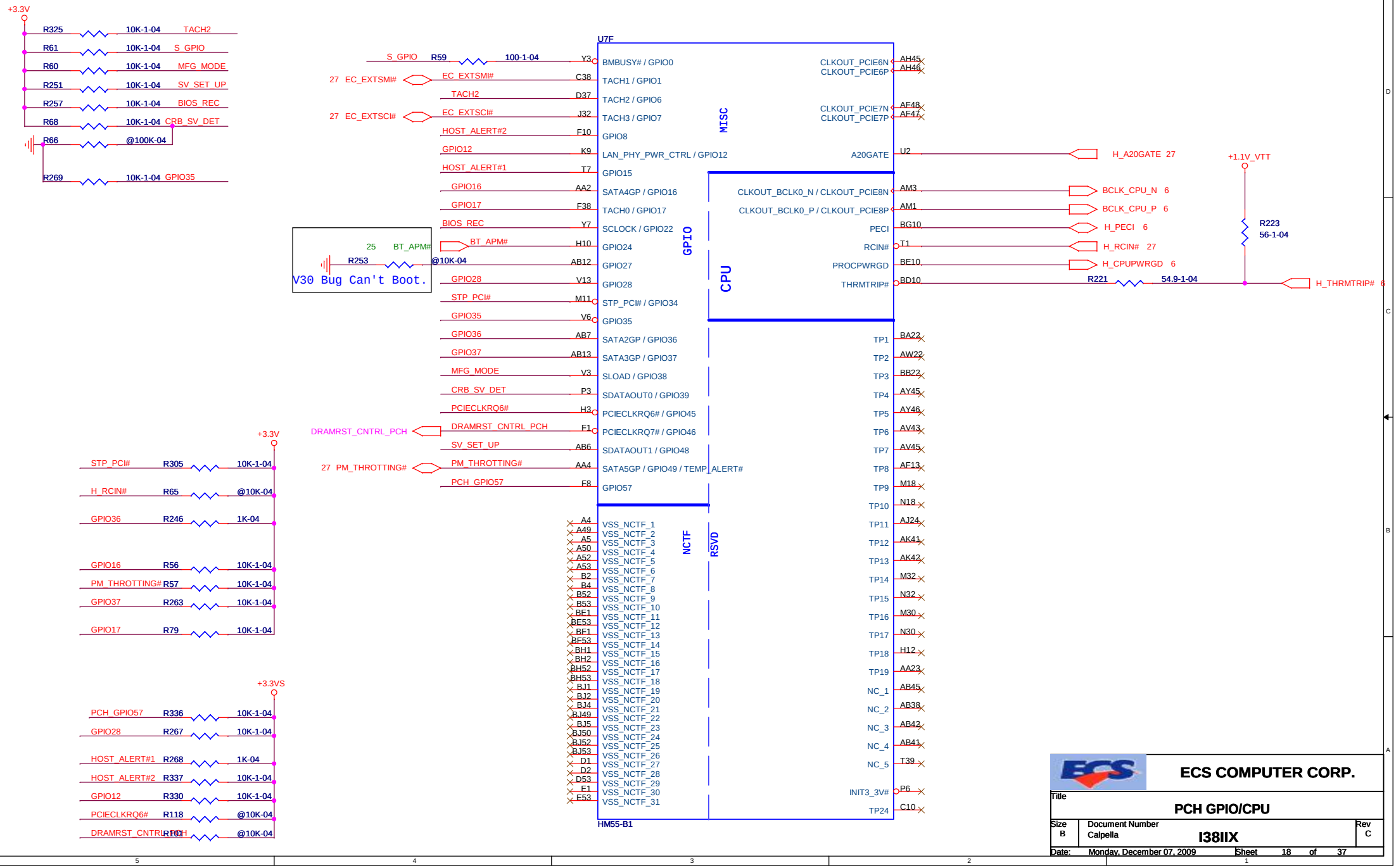
ECS COMPUTER CORP.

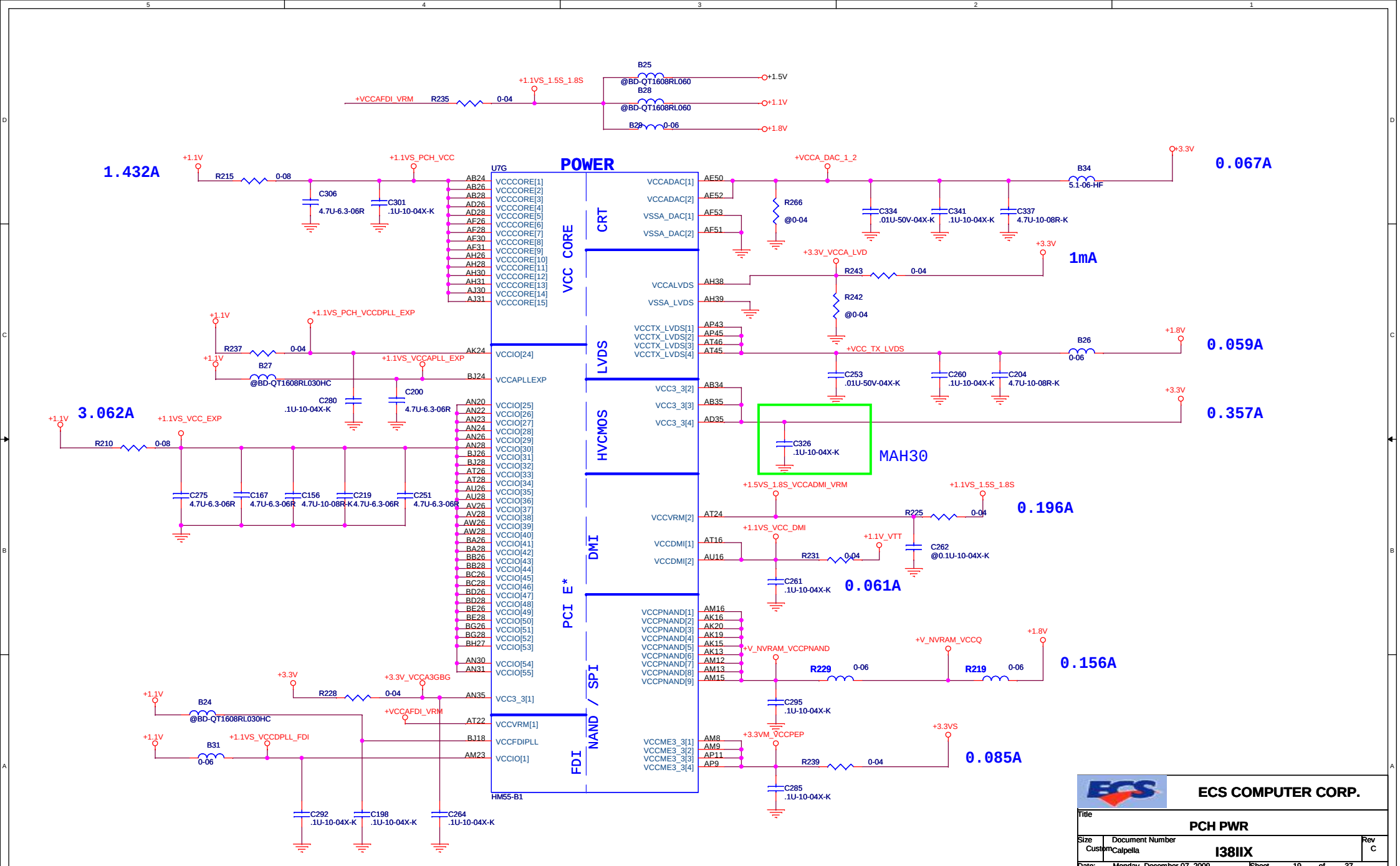
Title: PCH iGraphics

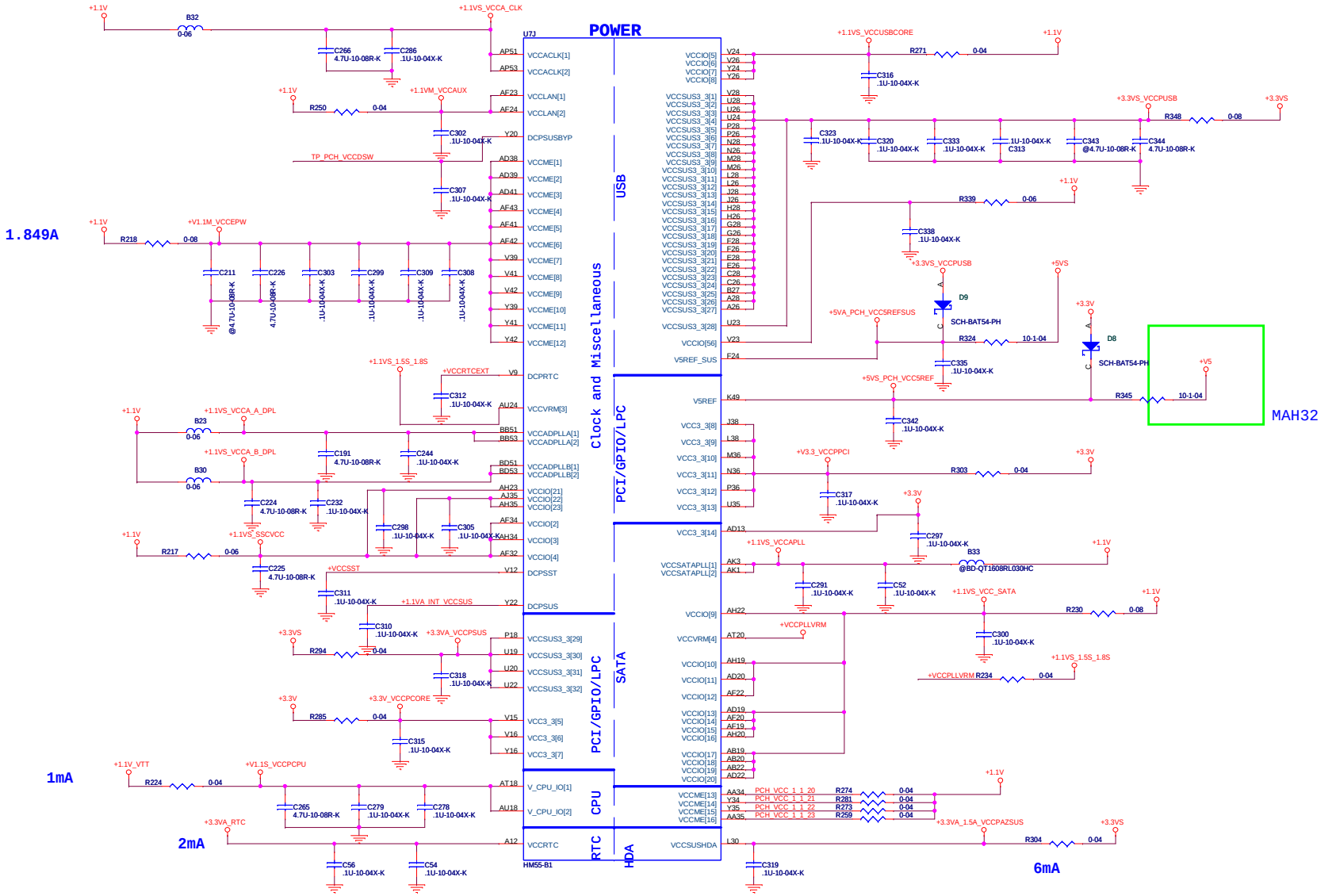
Size: Custom | Document Number: Calpella I38IIX | Rev: C

Date: Monday, December 07, 2009 | Sheet 16 of 37

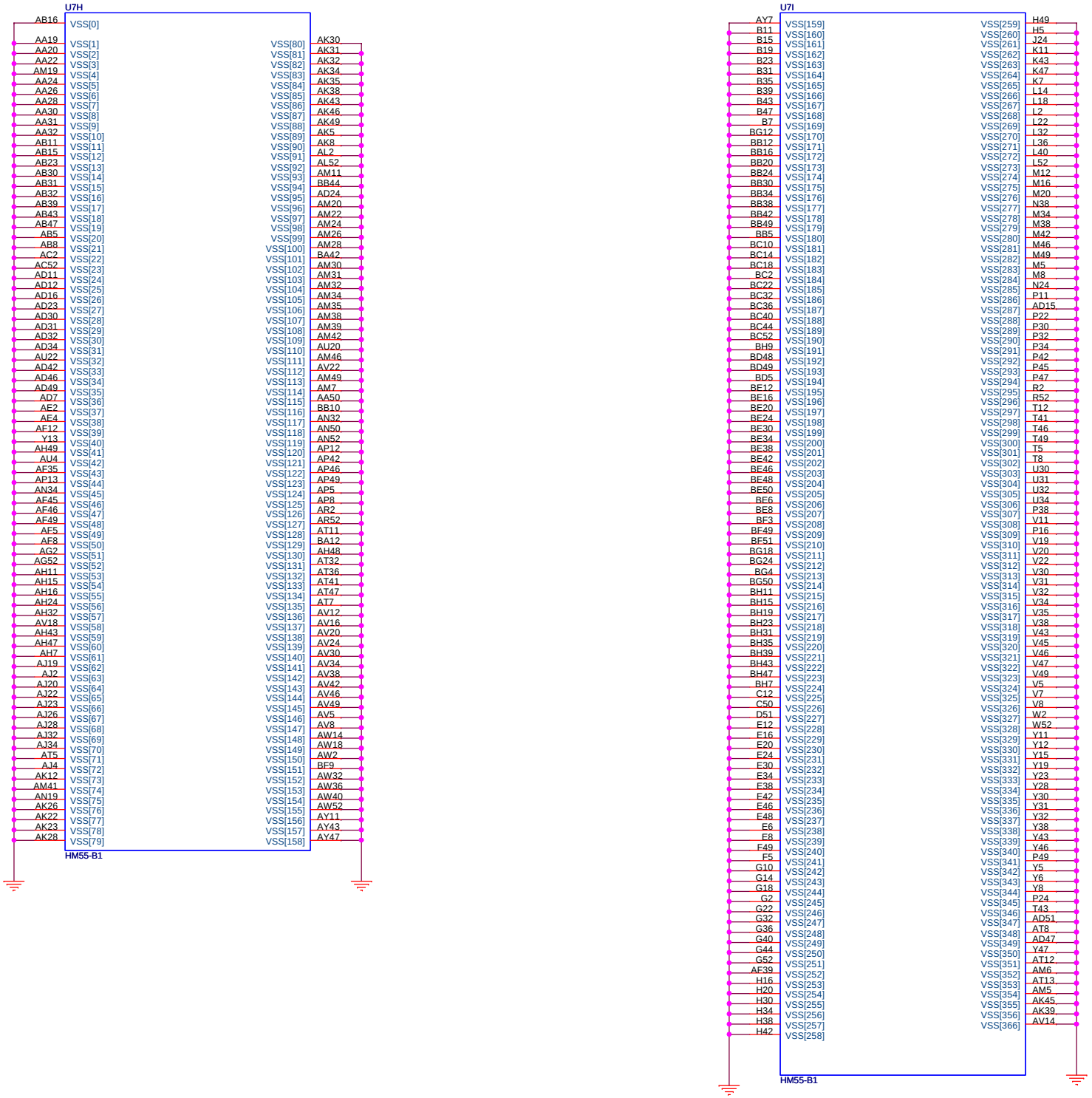








ECS COMPUTER CORP.		
Title: PCH PWR		
Size: C	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 20 of 37	

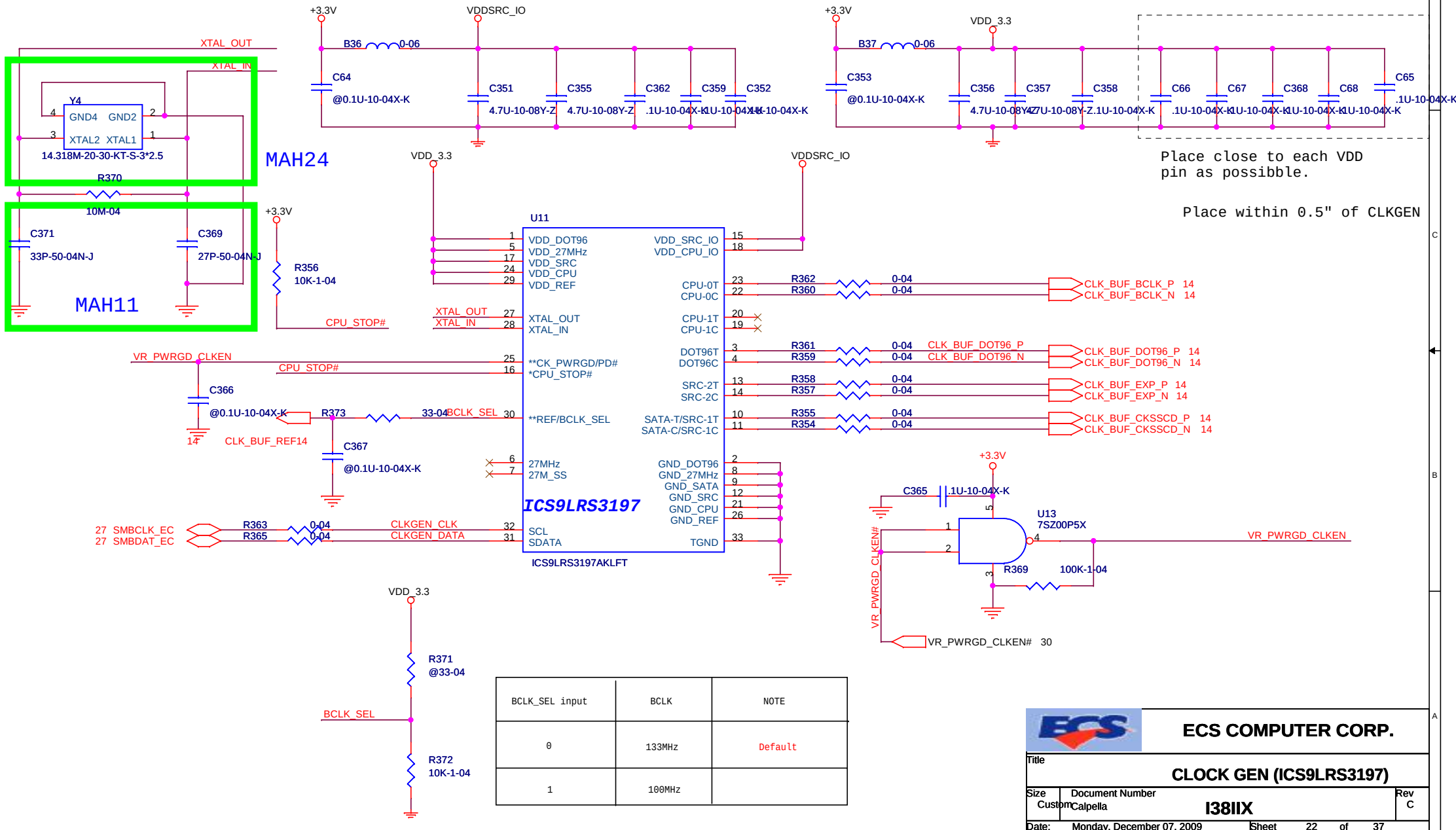


ECS COMPUTER CORP.

Title: PCH GND

Size: Custom | Document Number: Calpella I38IIX | Rev: C

Date: Monday, December 07, 2009 | Sheet 21 of 37



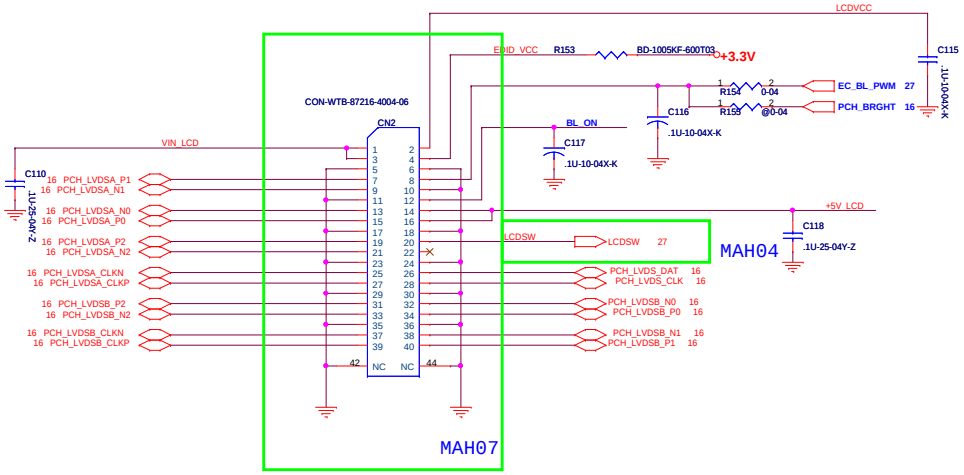
BCLK_SEL input	BCLK	NOTE
0	133MHz	Default
1	100MHz	

ECS COMPUTER CORP.

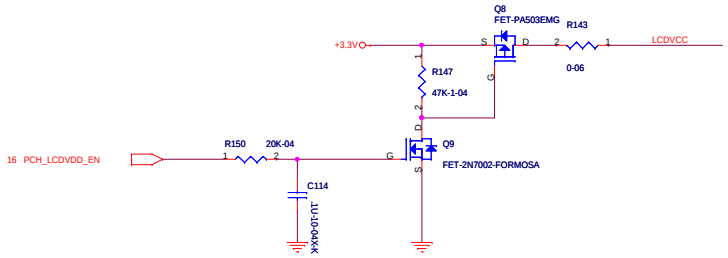
Title: CLOCK GEN (ICS9LRS3197)

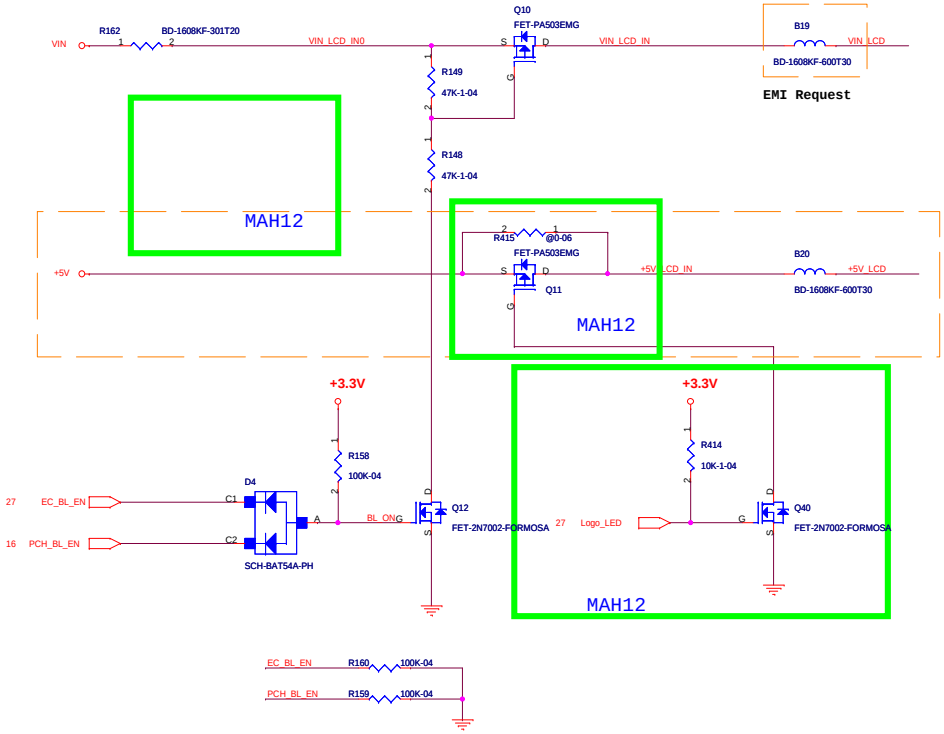
Size: Custom | Document Number: Calpella I38IIX | Rev: C

Date: Monday, December 07, 2009 | Sheet 22 of 37



Panel EDID Flash Power Control

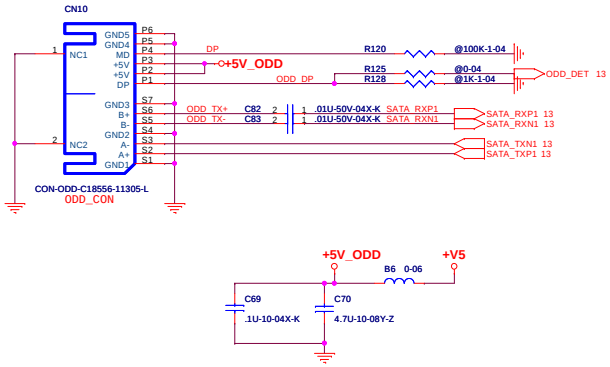




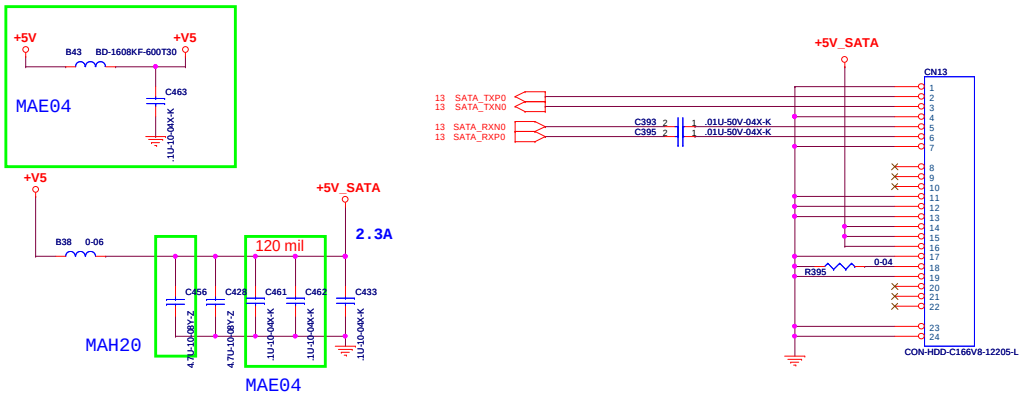
Back Light Control

ECS COMPUTER CORP.		
Title: CRT /LVDS		
Size: C	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 23 of 37	

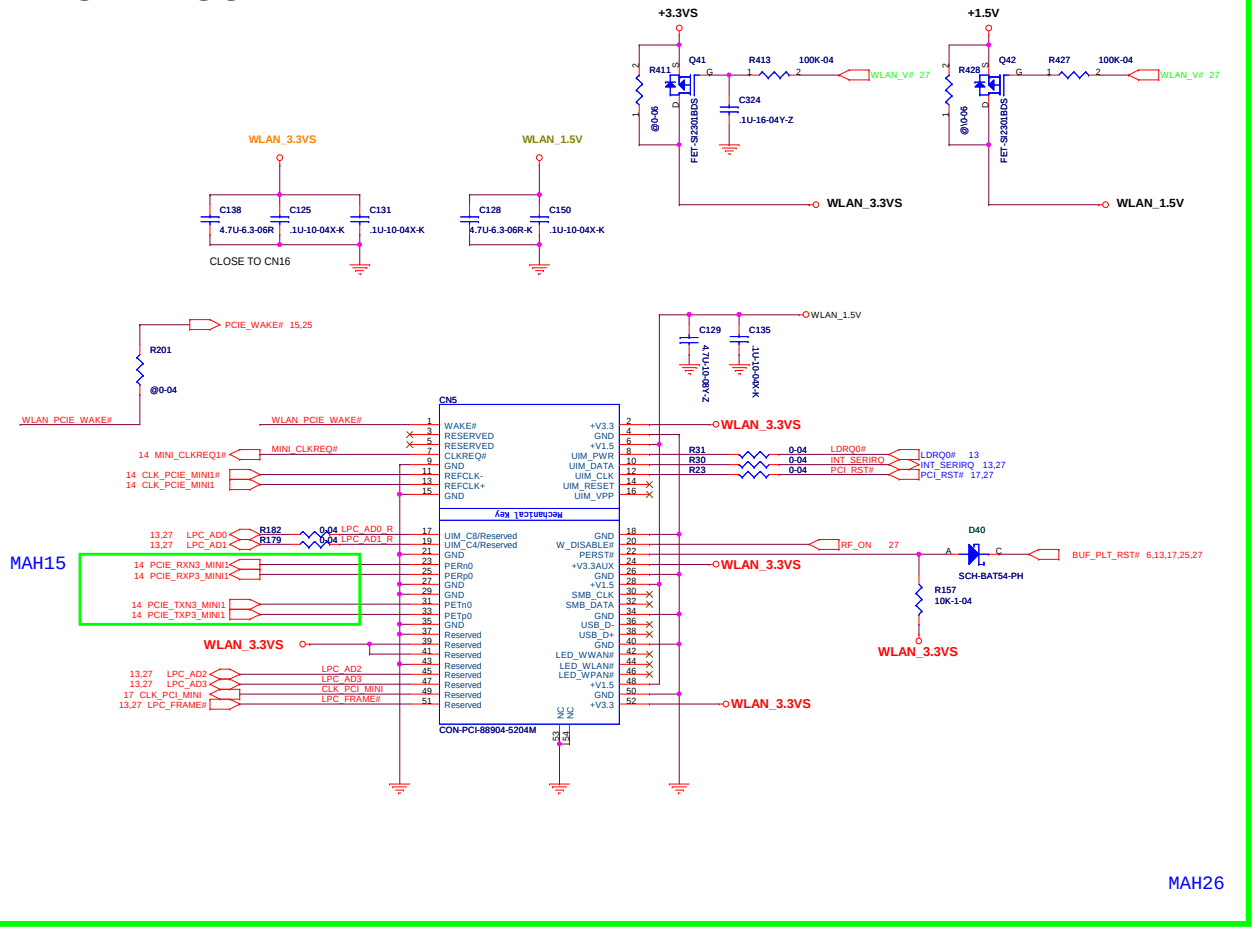
SATA ODD



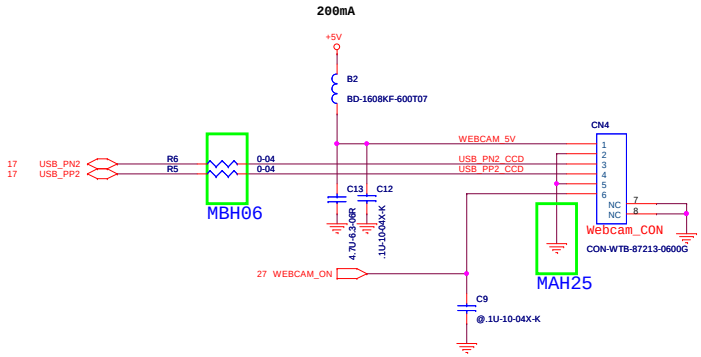
SATA-HDD



MINI CARD CONN



Webcam



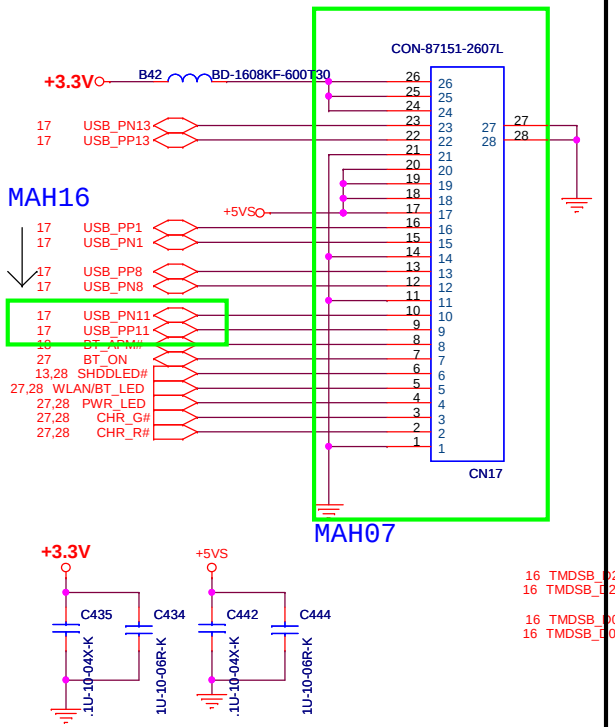
ECS COMPUTER CORP.

Title: HDD&ODD /MINI-card / USB/Cam

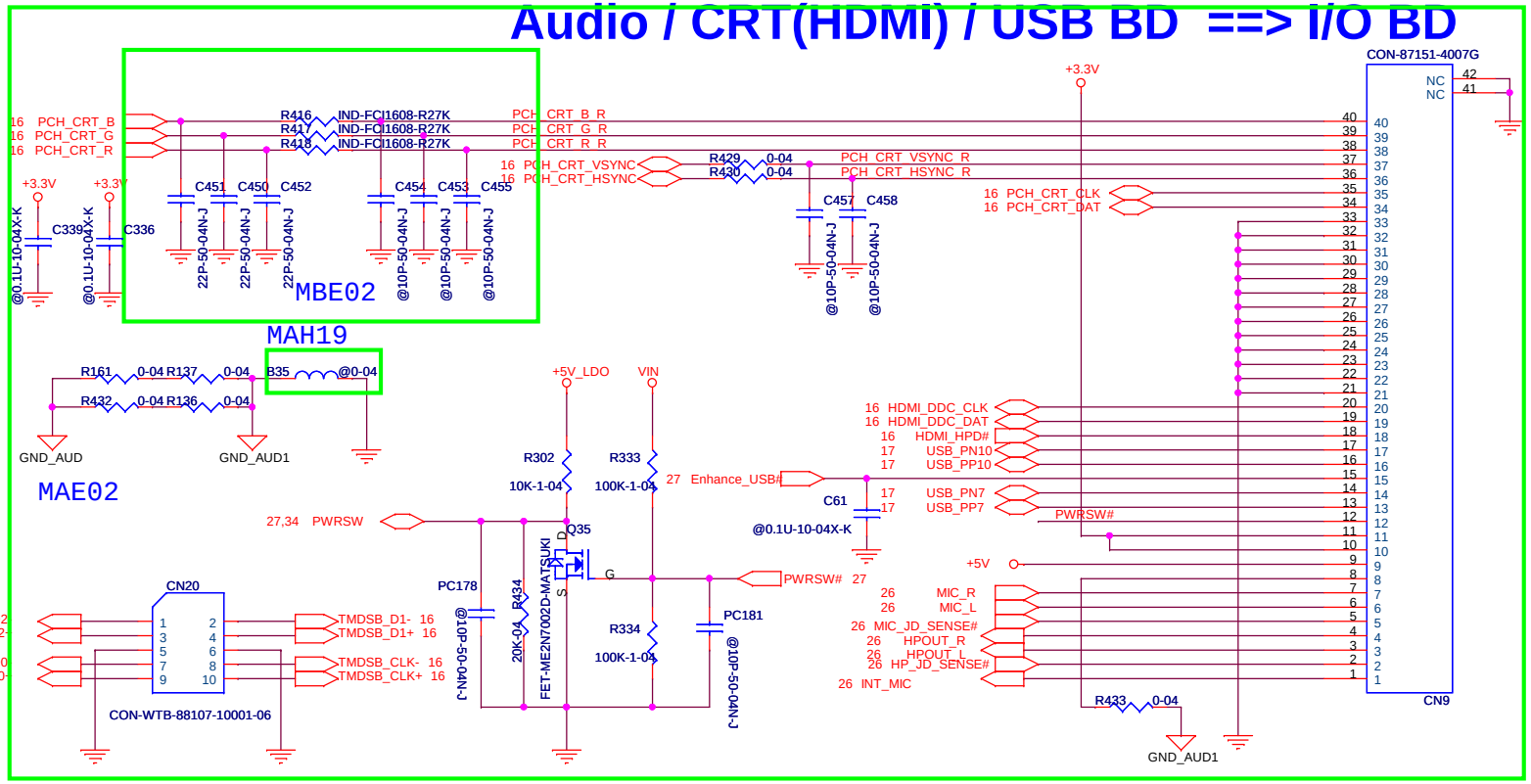
Size	Document Number	Rev
Custom	Calpella I38IIX	C

Date: Monday, December 07, 2009 Sheet 24 of 37

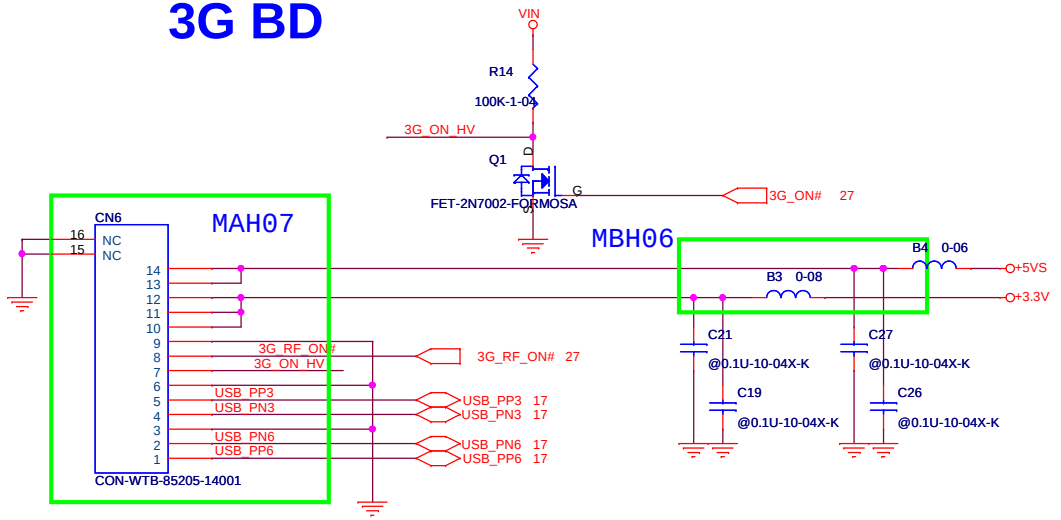
Card Reader & LED BD



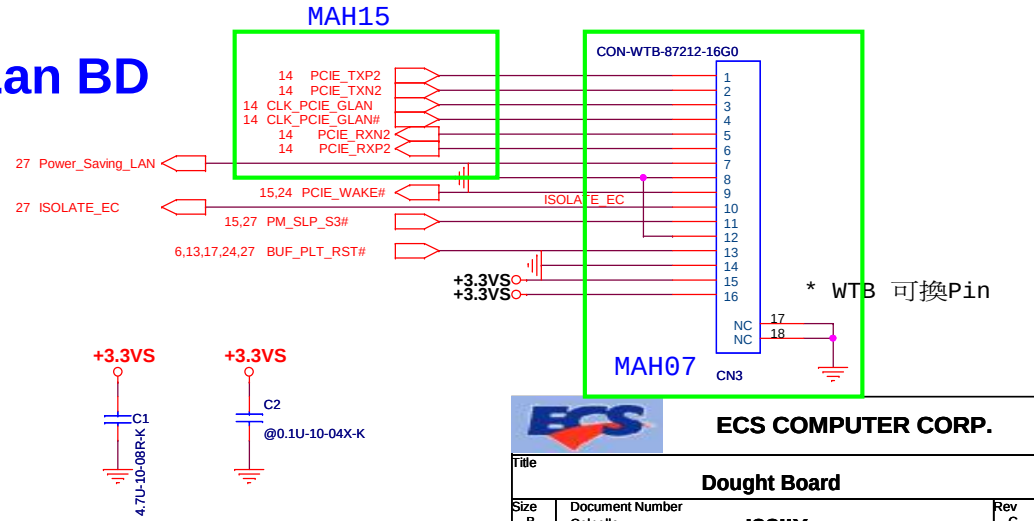
Audio / CRT(HDMI) / USB BD ==> I/O BD



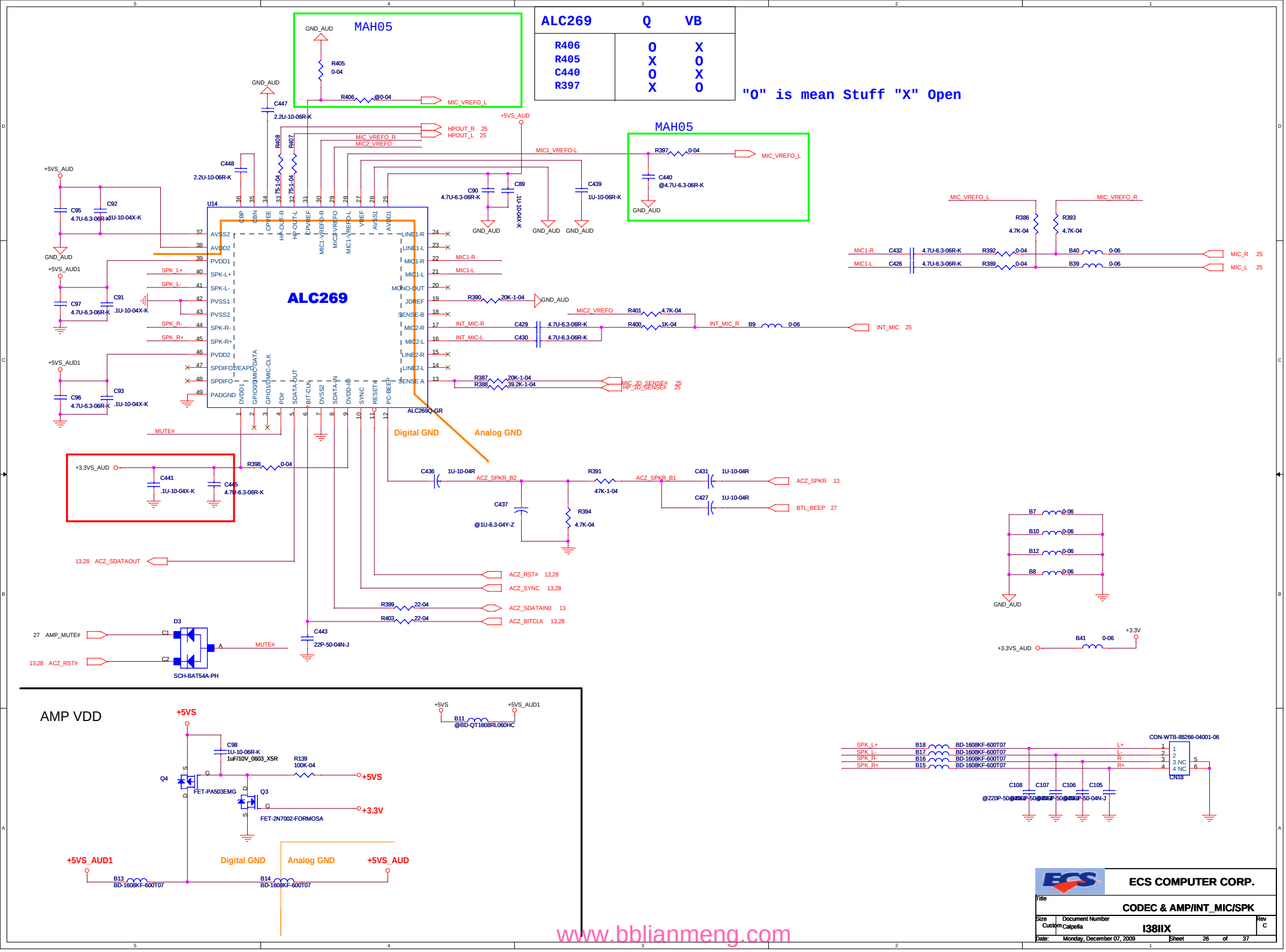
3G BD

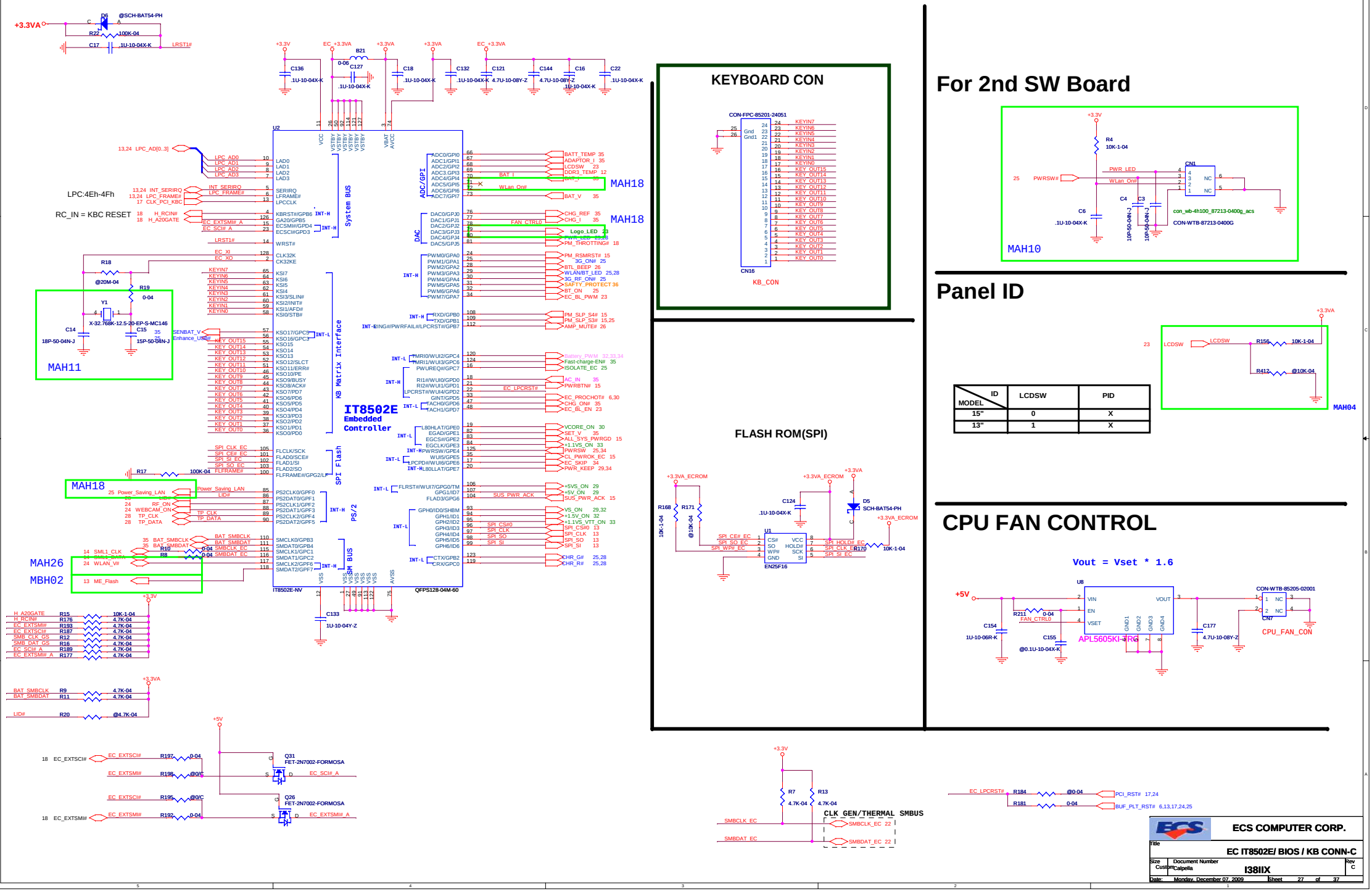


Lan BD

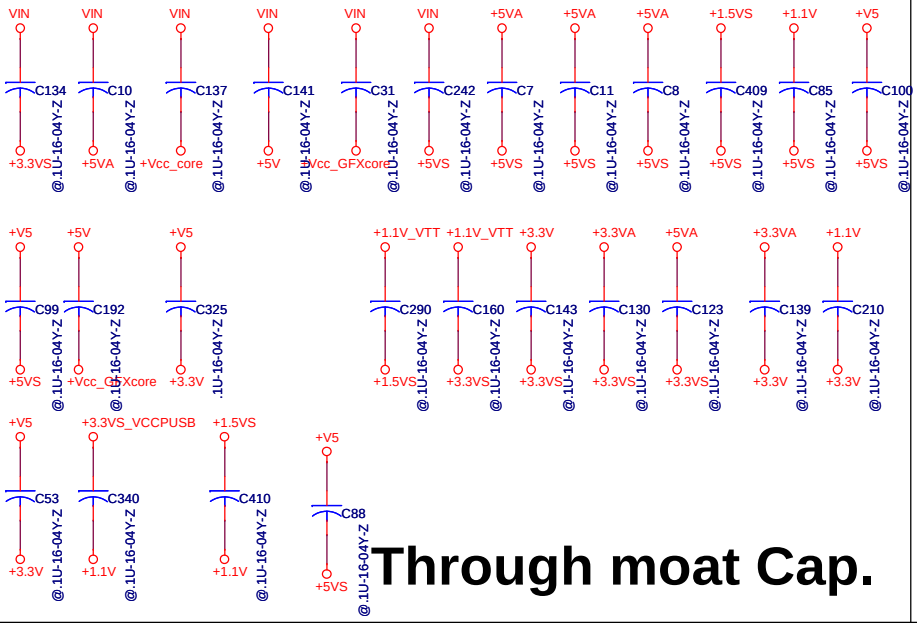


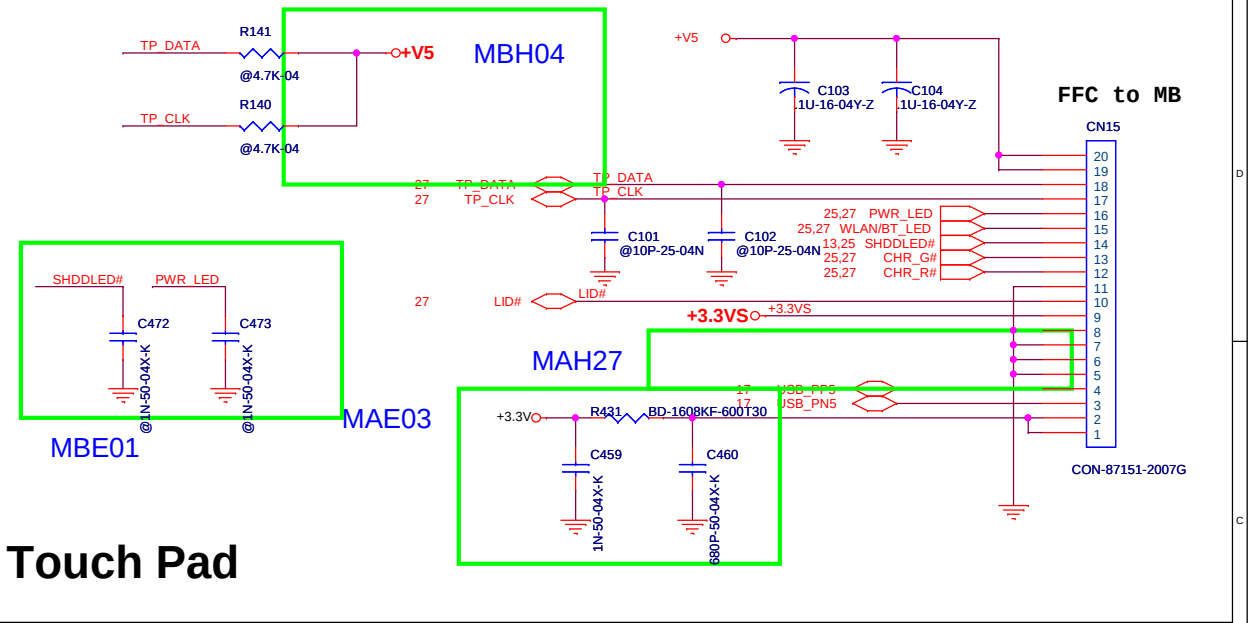
ECS COMPUTER CORP.		
Title: Dought Board		
Size: B	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 25 of 37	


ALC269 Q VB
R406 0 X
R405 X 0
C440 0 X
R397 X 0
"0" is mean Stuff "X" Open
MAH05
ALC269
ALC269Q-GR
Digital GND
Analog GND
AMP VDD
SCH-BAT54A-PH
FET-PA503EMG
FET-2N7002-FORMOSA
ECS COMPUTER CORP.
CODEC & AMP/INT_MIC/SPK
I38IIX
Monday, December 07, 2009
www.bblianmeng.com

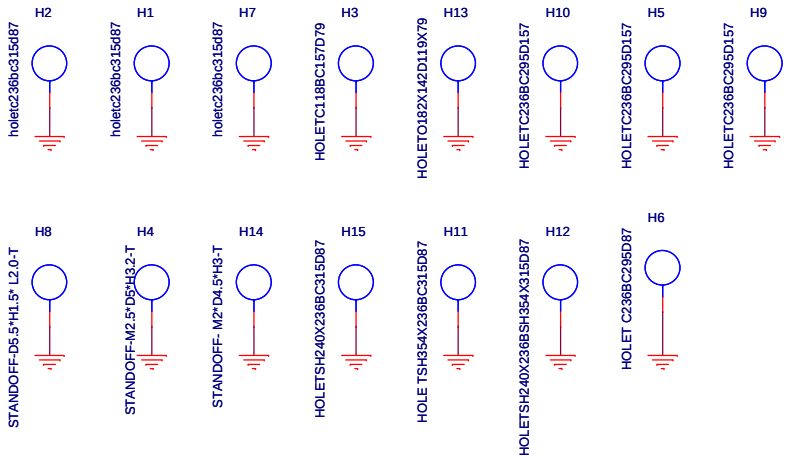


MODEL \ ID	LCDSW	PID
15"	0	X
13"	1	X

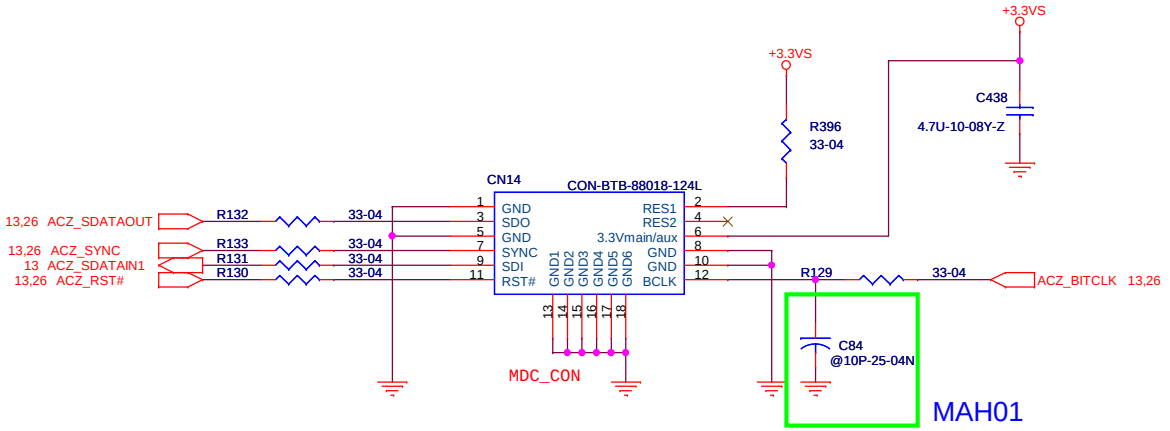




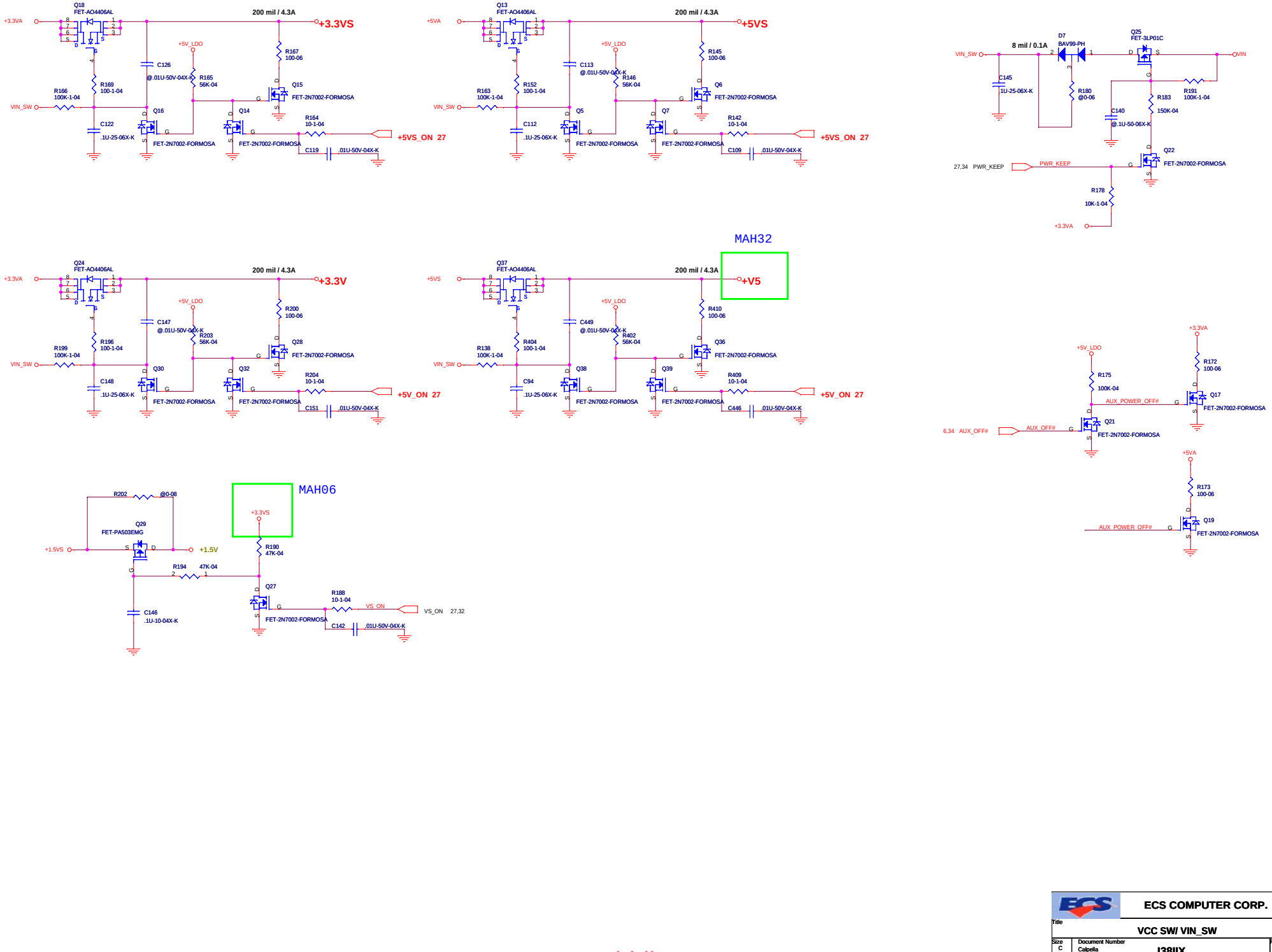
HOLE



MDC



ECS COMPUTER CORP.		
Title: PWR SW/ TP /LED		
Size: B	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 28 of 37	

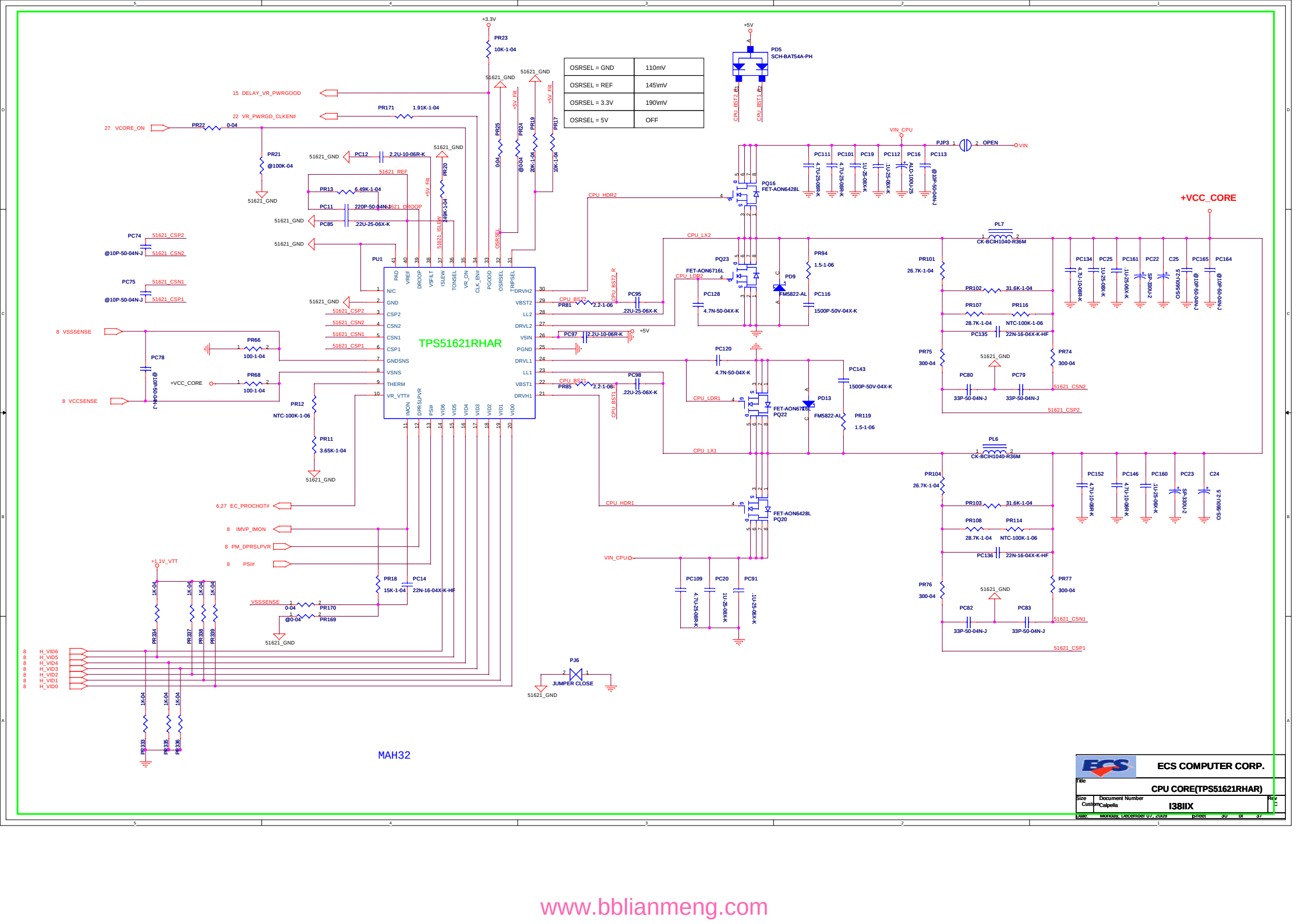


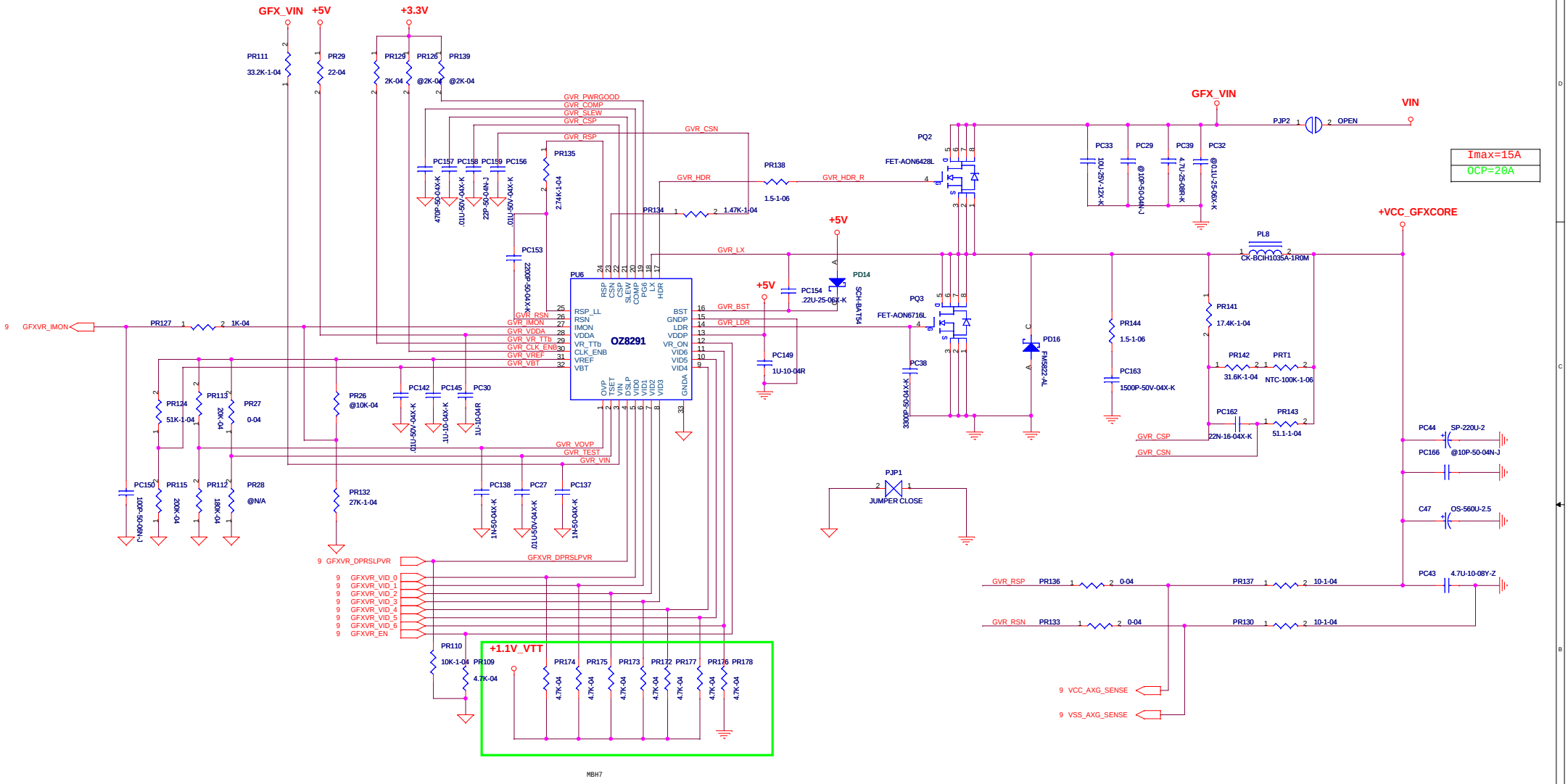
ECS COMPUTER CORP.

Title: VCC SW/ VIN_SW

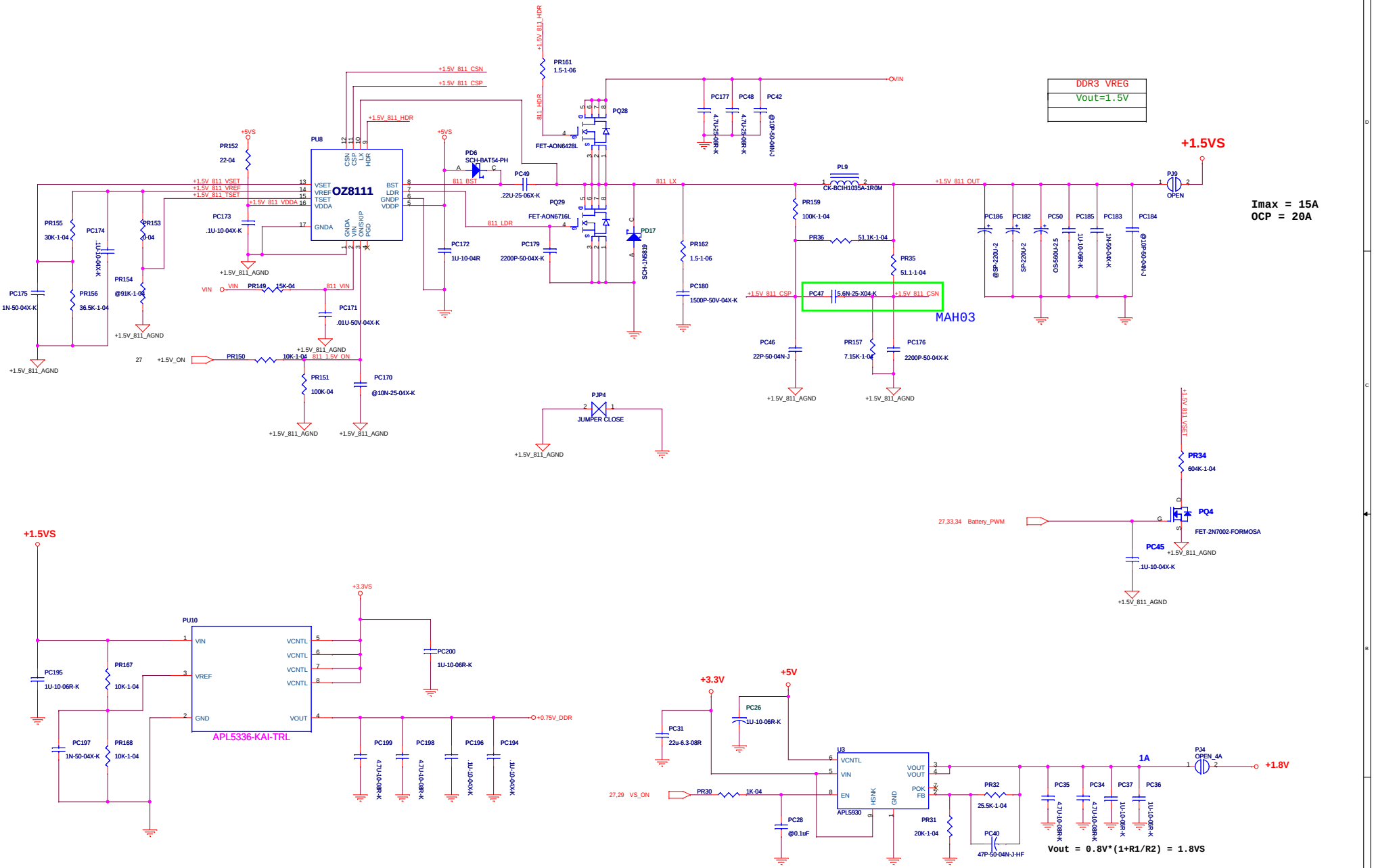
Size	Document Number	Rev
C	Calpella I38IIX	C

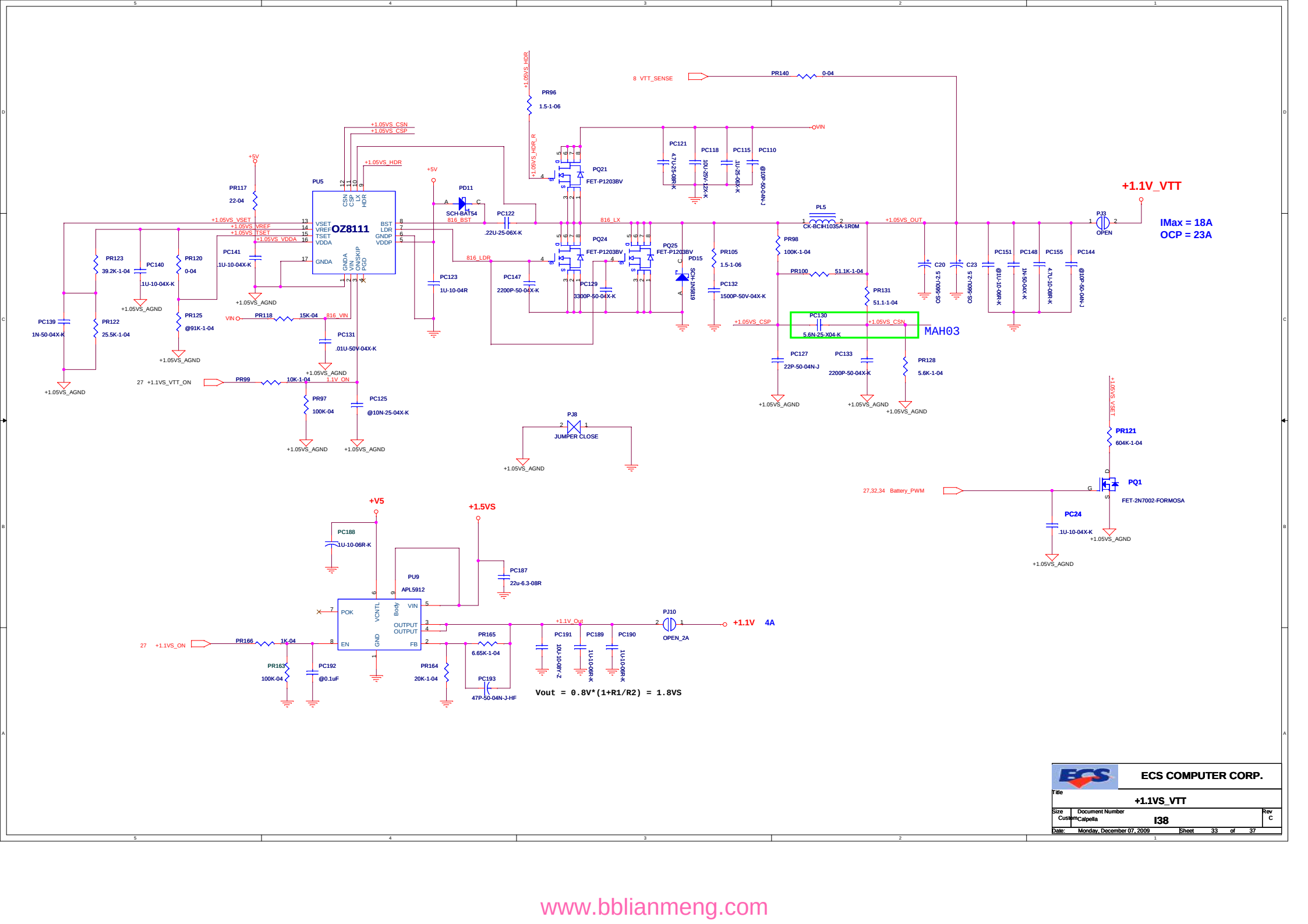
Date: Monday, December 07, 2009 Sheet 29 of 37

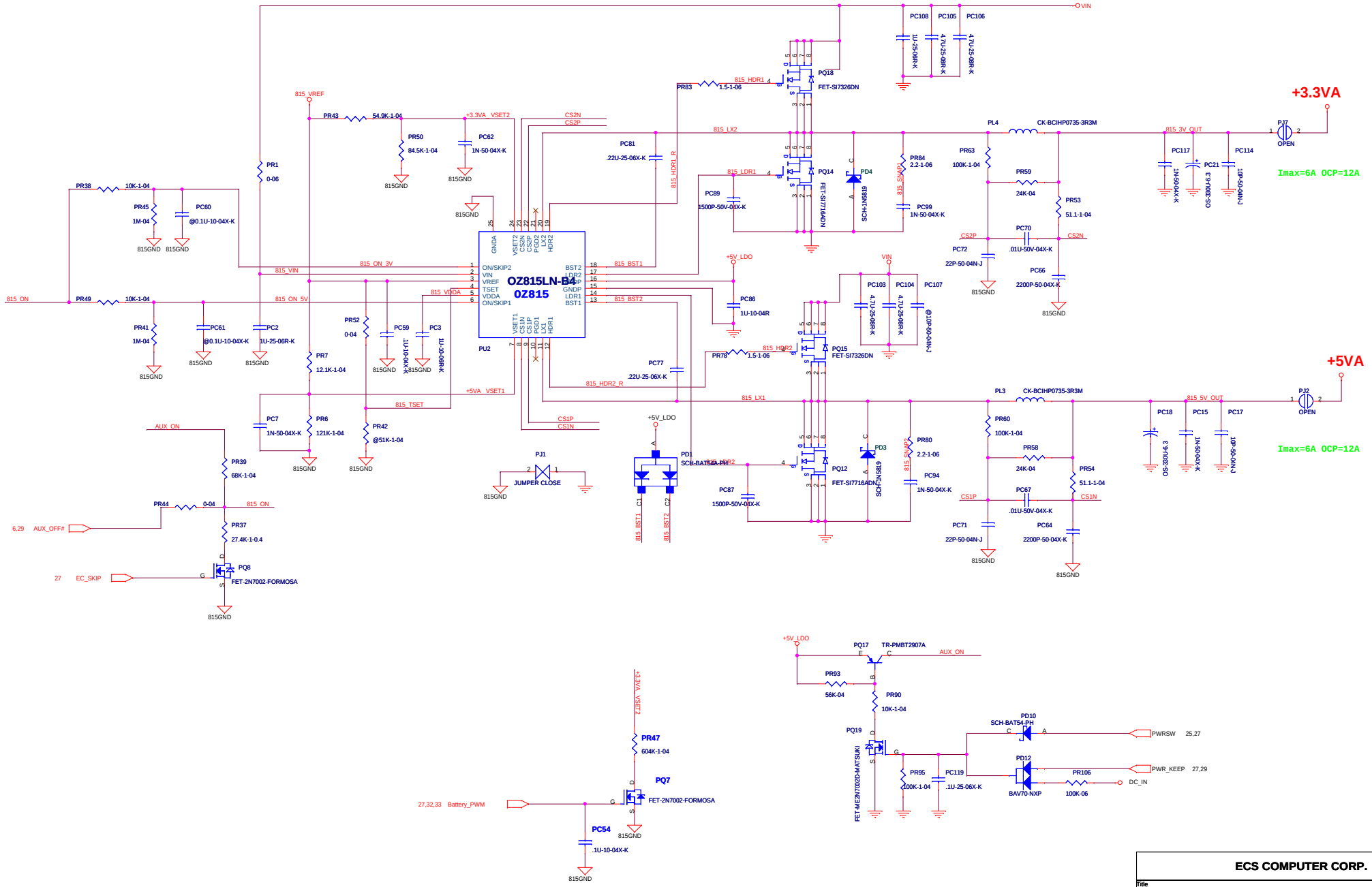




ECS COMPUTER CORP.			
Title: iGPU VR			
Size: Custom	Document Number: Calpella I38IIX		Rev: C
Date: Monday, December 07, 2009	Sheet 31 of 37		

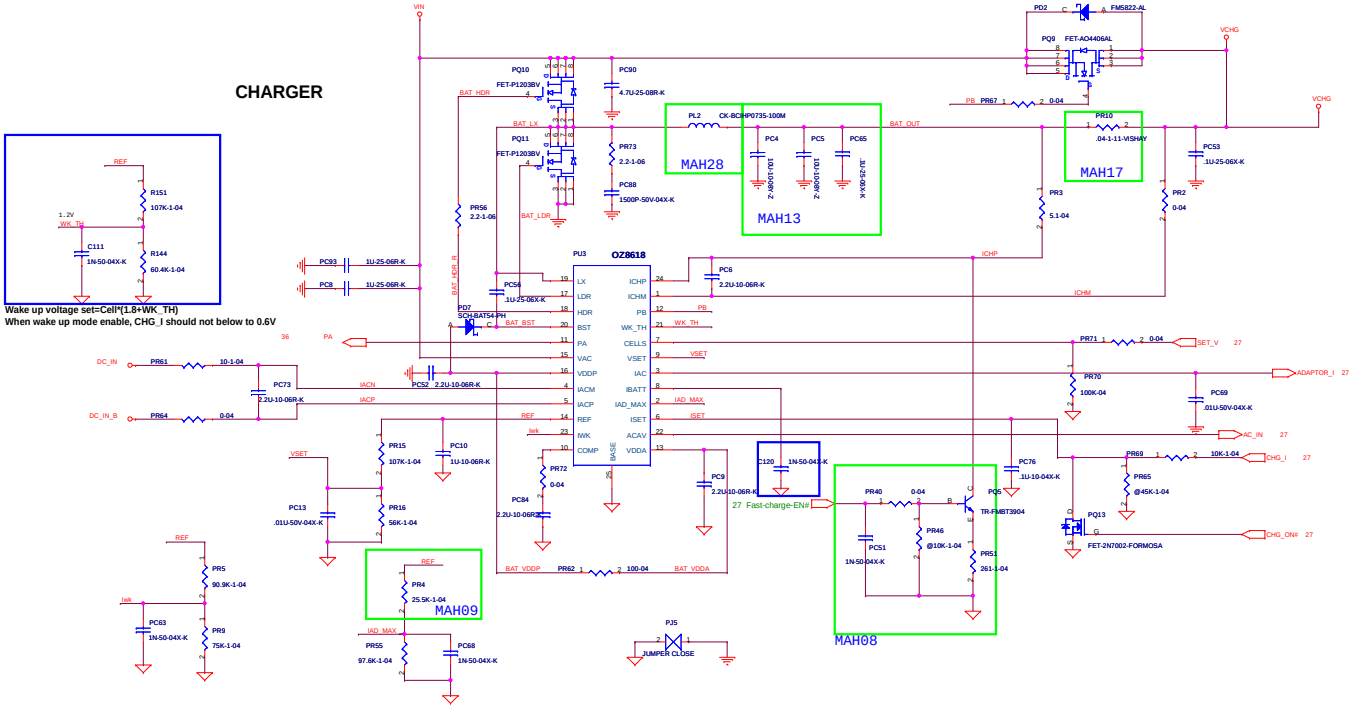






Company	ECS COMPUTER CORP.
Title	+3.3VA & +5VA
Size	C
Document Number	Calpella I38IIX
Rev	C
Date:	Monday, December 07, 2009
Sheet	34 of 37

CHARGER



SET_V	
H	16.84V (4CELL)
L	12.71V (3CELL)

Vch =Nx(4.1 +Vset/10)
N=Cell (pin2 =high -->4, low -->3)

CHARGER CURRENT VISET(F-low)=(Ichg*Rch)*60
CHARGER CURRENT VISET(F-high)=(Ichg*Rch-50mV)*60

Fast-charge-EN#	CHG_I	Charge Current
H	3V	2.5A
H	1.8V	2A
H	0.6V	1.5A
L	2.5V	1A
L	0.7V	0.25A
Wake up charge current		0.125A

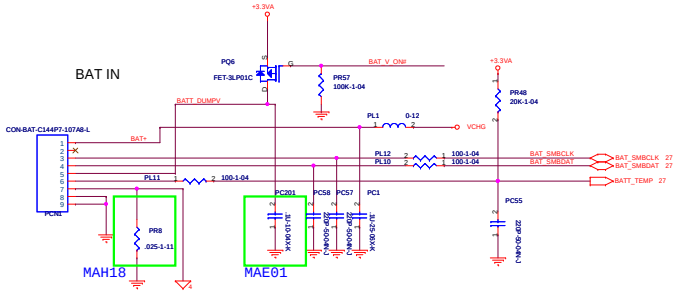
Fast-charge-EN# : L need add 100mV offset
Table blue work already add offset

CHG_ON	
L	CHARGER ON
H	CHARGER OFF

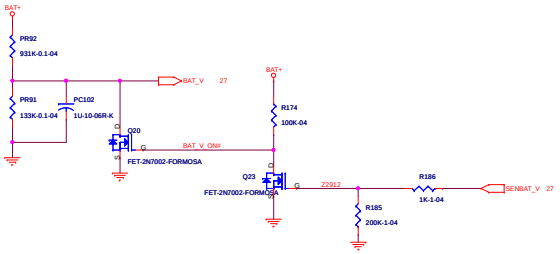
ADAPTOR_I	
I38II1	
Voltage	W
900mV	20W
1.8V	40W
2.7V	60W
3.3V	80W
X	X
X	X

Vichg =RAD1*Irsense*60

BATTERY CON

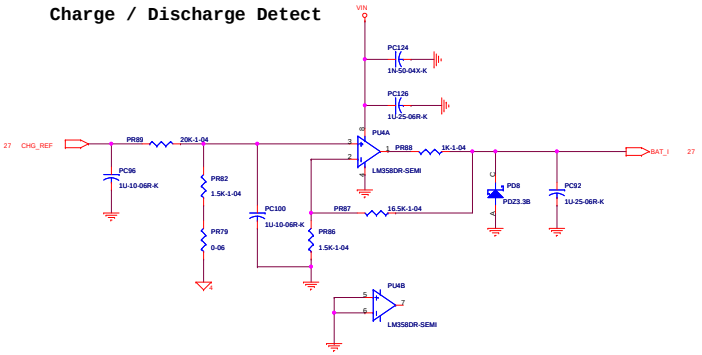


Battery Voltage Detect

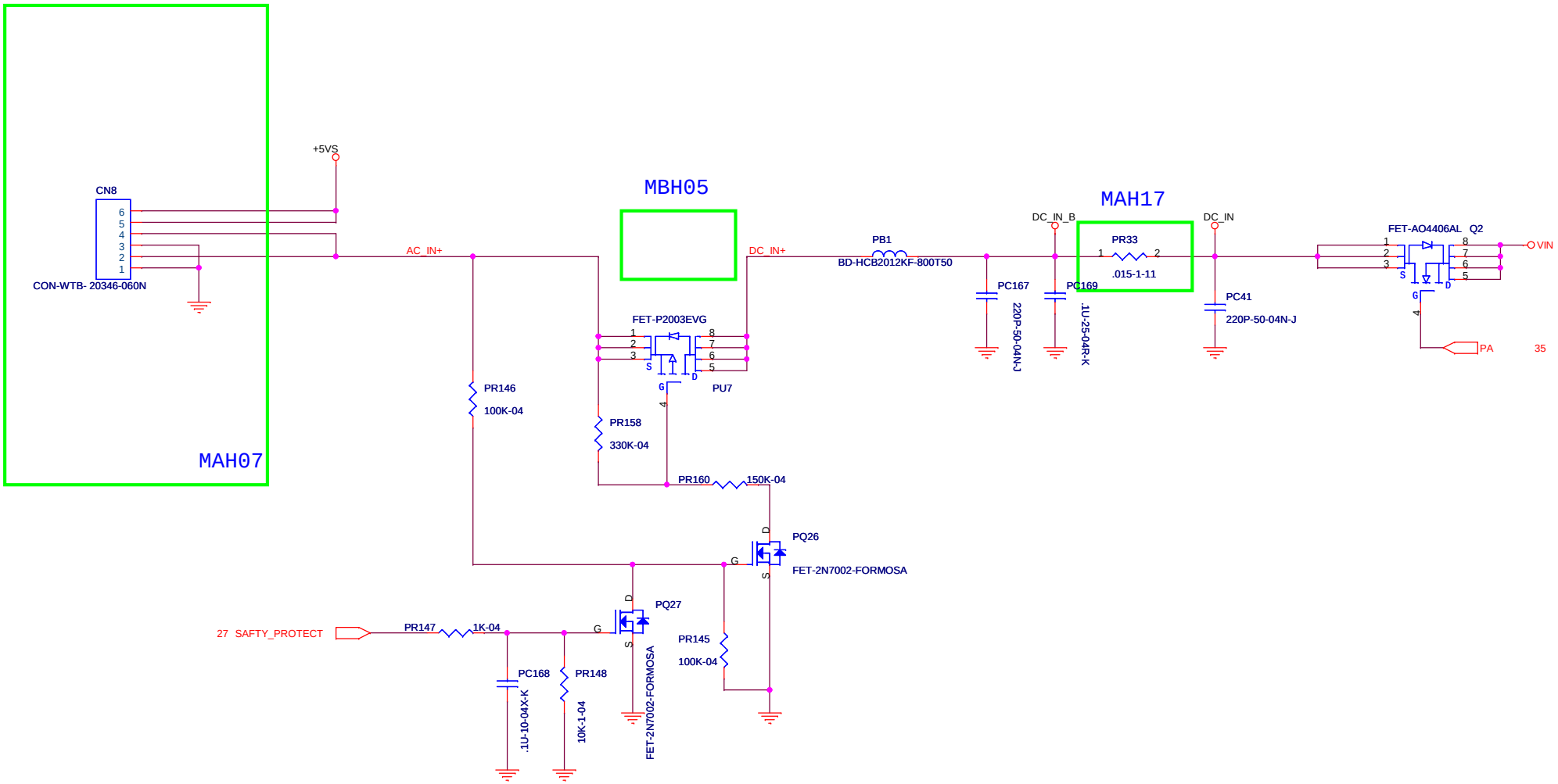


17.6V->BAT_V=2.2V
16.8V->BAT_V=2.1V
13.2V->BAT_V=1.65V
12.6V->BAT_V=1.575V
9V->BAT_V=1.125V

Charge / Discharge Detect



ECS COMPUTER CORP.
Title: BATT IN / CHARGER (OZ8618)
Size: C | Document Number: Custom Cabela | I38IIX | Rev: C
Date: Monday, December 07, 2009 | Sheet 35 of 37



ECS COMPUTER CORP.		
Title: DC-IN		
Size: B	Document Number: Calpella I38IIX	Rev: C
Date: Monday, December 07, 2009	Sheet 36 of 37	

RA to RB Modify list:

D Delete ; C Change ; A ADD

TEST

Symbol	Description	Reason	Page	Note
MAT01				

EMI

Symbol	Description	Reason	Page	Note
MAE01	A PC201 0.1uF	EMI Request.	35	
MAE02	A CN20, C CN9 Pin define.	From EMI Request.	25	
MAE03	A C459,C460,R431	From EMI Request.	28	
MAE04	A C461,462	From EMI Request.	24	
MAE05	A Power Plan +V5	From EMI Request.		

EE

Symbol	Description	Reason	Page	Note
MAH01				
MAH01	D C84	To slove MDC can't recoginze.	28	
MAH02	C PC1,PC53, PC56,PC65,PC91,C94,PC112,C112, PC115,PC119,C122,C145,C148,PC160,PC161	Package Size error. Change BOM to .1U-25-06X-K.		
MAH03	C PC47,PC130	Package Size error. Change BOM to 5.6N-25-X04-K.	32.33	
MAH04	A R156,R412	Add LCD ID for choose 13" or 15"	23.27	
MAH05	A R405,R397 D R406,C440	Change Codec from 269Q to 269VB.	26	
MAH06	Change net from +3.3V to +3.3VS	Seqence is mistake.	29	
MAH07	C CN2,CN3,CN6,CN17	ME Change Conn type.	25 36	
MAH08	A PR40 0-04 ,C PR51 to 261-1-04 D PR46	Fine tune Fast Charger Func.	23.25	
MAH09	C PR4 25.5K-1-04	Modify Charger OCP Value from 40W to 65W.	35	
MAH10	D R1,	Schematic design logic error. Change connect net to PWRSW#	35	
MAH11	C C14,C15,C348,C349,C152,C168,C369	Fine tune Crystal cap.	14,22	
MAH12	A R414,R415,Q40 D R161.	Add Light Guide LED function.	23	
MAH13	C PC4,PC5 to 10uF	To solve wake-up charger ripple.	35	
MAH14	C Net. Extend USB poart change from USB0 to USB1	SW Request USB port1 to debug.	17	
~~MAH15~~	~~C Net. PCIE from port1,2 to Port 5,6~~	~~For combine BIOS. From SW Request~~. Cancel....	14,24 25	
MAH16	A USB port11 to Card reader Board	For I58IIX.	17,25	
MAH17	C PR18,PR10 package from 2512 to 1206	For Sourcer request.	35 36	
MAH18	D G_Sensor Pin. C Swap Logo enable pin	1.G-sensor remove. 2. LOGO_LED pin choose error	27	
MAH19	D B35	To solve Audio noise.	25	
MAH20	A C456	To WD HDD Power drop.	24	
MAH21	D C324-C327	Reduce Cap. Cost Down.	9	
MAH22	A R340-R344	Imporve 1.5VS power drop.	9	
MAH23	A R209	Reserve for XDP(JTAG)	6	
MAH24	C Y2,Y4 Package 0325	For Sourcer suggest.	14,22	
MAH25	D B1	For layout improve.	24	
MAH26	D Net USB4. A WLAN Power Switch	Remove WLAN USB support and Add Wlan power switch to control power.	17,24 27	
MAH27	D G-sensor Function.	Remover G-Sensor Function.	27	
MAH28	C PL2 Package from 1005 to 0735	For SMT Request.	35	
MAH29	Del R312,R311	Remove Reserver change to TP.	11	
MAH30	Del R255, Add C326	For power improve.	19	
MAH31	Change Package from 0805 to 0603	For SMT Request.	7	
MAH32	A PR333 - PR339	For improve CPU power and fix turbo boost.	30	
MAH33	A C327	Reserve for ESD.	16	

RB to RC Modify list:

D Delete ; C Change ; A ADD

EMI

Symbol	Description	Reason	Page	Note
MBE01	A C472,C473	For ESD Request.	28	
MBE02	C R416,R417,R418,C450-C455 Value.	For ESD Request.	25	

D Delete ; C Change ; A ADD

EE

Symbol	Description	Reason	Page	Note
MBH01	C USB port 6,7 to 4,12	HM55 disable USB port 6,7.	17	
MBH02	A Net ME_Flash for flash ME. Control By EC.	Intel recommand.	13 27	
MBH03	A C464-C471 0.1uF	For HDMI Level Shift 2nd source.	16	
MBH04	Change TP Pull high voltage.	A phase mistake.	28	
MBH05	Change B3 Footprint from 0603 to 0805.	For ratting current.	25	
MBH06	Remove co-lay compment.	For SMT Request.	24	
MBH07	ADD VID PR172-PR178 Res.	For GFX VID default setting.	31	

Title	I38II1	
Size Custom	Document Number Appendix Ver. History Calpella	Rev C
Date: Monday, December 07, 2009	Sheet 37 of 37	