Project Name : J14iM6

PAGE CONTENT

1. INDEX
2. SYSTEM BLOCK DIAGRAM
3. POWER DIAGRAM & SEQUENCE
4. GPIO & Power Consumption
5. CPU Penryn 1/2
6. CPU Penryn 2/2
7. CLOCK GEN (ICS9LRS3165B)
8. NB HOST/ VSS 1/5
9. NB DDR BUS / GPU / PCIE 2/5
10. NB DDR INTERFACE/ VSS 3/5
11. NB I/O POWER 4/5
12. NB GFX/ VCC/ NCTF POWER 5/5
13. DDR3 SODIMM
14. ICH9M RTC/ SATA/ HDA/ LPC 1/3
15. ICH9M SYS/ GPIO/ PCIE/ USB 2/3
16. ICH9M POWER 3/3
17. EC IT8500BX / BIOS/KB CONN
18. HDD/ ODD / MINI CARD
19. CRT/LVDS/PWR SW
20. LAN/CARD READER/15DB/JMC261
21. TP/LED/WEBCAM/USB CHARGER
22. CODEC/INT MIC/SPEAKER/92HD81
23. EXT_MIC /HEADPHONE/USB/FAN
24. DC IN/MDC/Discharge Resistor
25. CPU CORE (OZ8291)
26. 0.75VS/+1.8VS/1.05V(OZ8116)
27. +1.5VS/+5VA (OZ815)
28. BATT IN/CHARGER(OZ8602)
29. VCC SW/+3.3VA/HIGH-SPEED CAP
30. Appendix Ver.A History

M/B Schematic Version Change List

Release Date	Version	PCB P/N	PCB Description	PCBA P/N	Note

Daughter Board Schematic Version Change List

Release Date	Version	PCB P/N	PCB Description	PCBA P/N	Note

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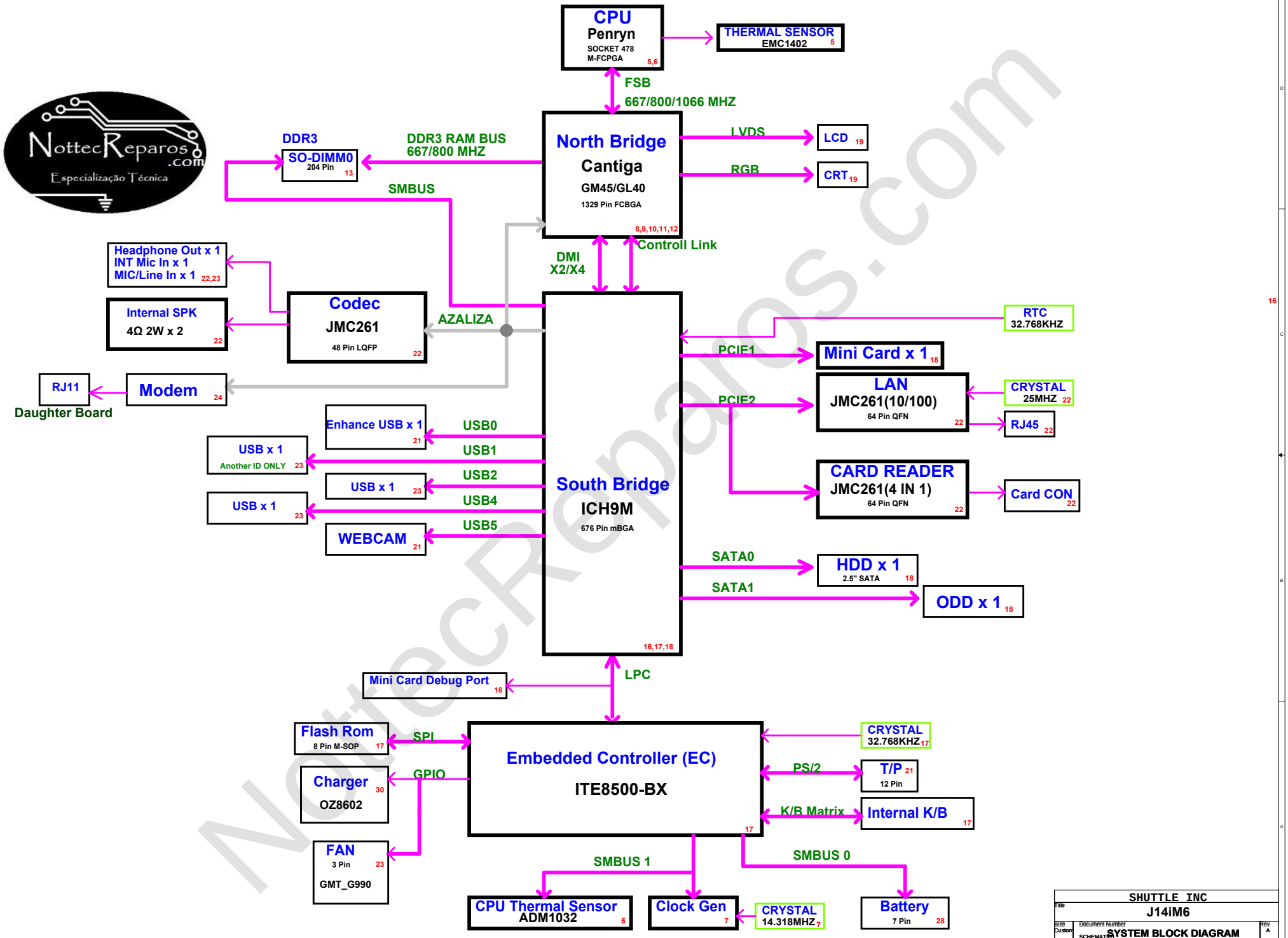
Title: J14iM6

Size: Custom | Document Number: SCHEMATIC1 | INDEX | Rev: A

Date: Tuesday, November 24, 2009 | Sheet 1 of 30

SYSTEM BLOCK DIAGRAM



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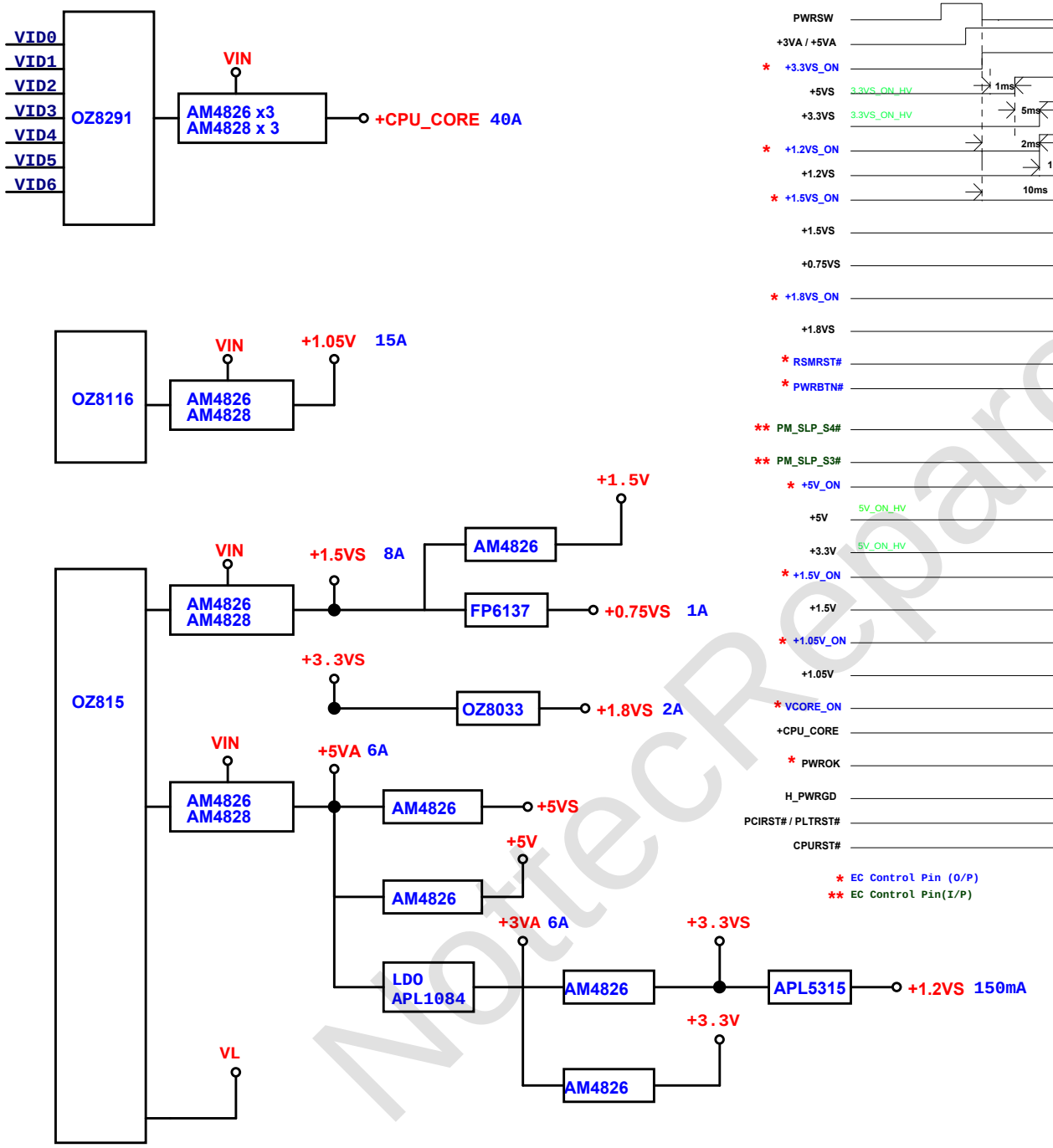
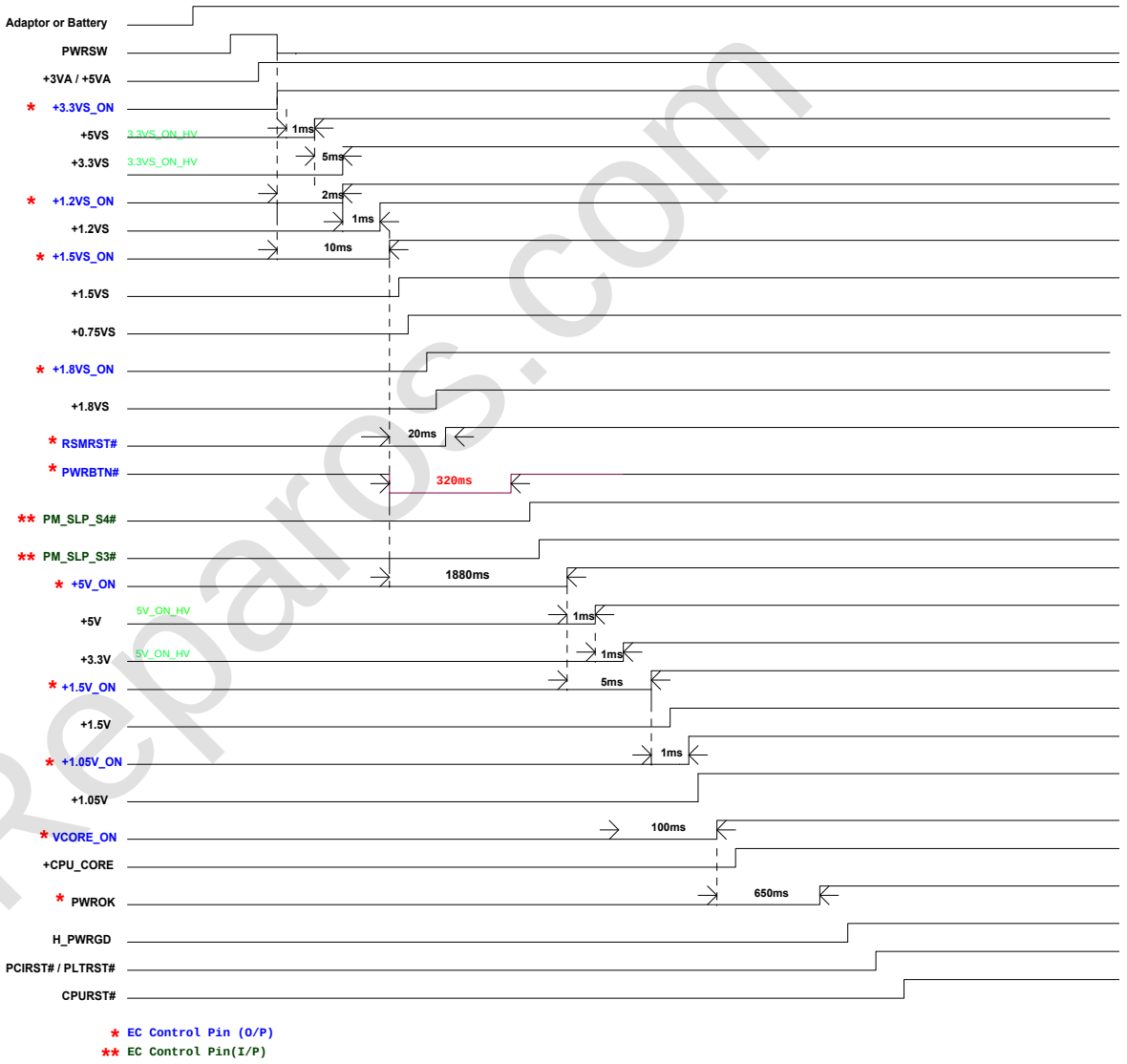
Title	SHUTTLE INC J14iM6
Size: Custom	Document Number: SCHEMATICS SYSTEM BLOCK DIAGRAM
Rev	A
Date: Tuesday, November 24, 2009	Sheet 2 of 30

POWER BLOCK DIAGRAM



System Poewr On Sequence



* EC Control Pin (O/P)
** EC Control Pin(I/P)

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Title: J14iM6		
Size: Custom	Document Number: SCHEMATIC1	Rev: A
	POWER DIAGRAM & SEQUENCE	
Date: Tuesday, November 24, 2009	Sheet 3 of 30	

ICH9M GPIO	
GPIO0	PM_BM_BUSY#
GPIO1	EC_EXTSMI#
GPIO2	INT_PIRQE#
GPIO3	INT_PIRQF#
GPIO4	INT_PIRQG#
GPIO5	INT_PIRQH#
GPIO6	BIOS_REC
GPIO7	***N.C***(TACH3)
GPIO8	***N.C***
GPIO9	***N.C***(WOL_EN)
GPIO10	***N.C***(ALERT#)
GPIO11	SMB_ALERT#
GPIO12	LAN_PHYPC
GPIO13	***N.C***(GLAN_DOCK#)
GPIO14	***N.C***(NETDETECT)
GPIO15	PM_STPPCI#
GPIO17	***N.C***(TACH0)
GPIO18	***N.C***
GPIO19	SATA1GP
GPIO21	SATA0GP
GPIO22	***N.C***(SCLOCK)
GPIO23	LDRQ1#
GPIO24	CRB_SV_DET
GPIO25	PM_STPCPU#
GPIO26	PM_SLP_S4_STATE#
GPIO27	QRT_STATE0
GPIO28	QRT_STATE1
GPIO29	USB_OC#5
GPIO30	USB_OC#6
GPIO31	USB_OC#7
GPIO32	PM_CLKRUN#
GPIO33	HDA_DOCK_EN
GPIO34	***N.C***(HDA_DOCK_RST)
GPIO35	CLK_SATA_OE#
GPIO36	SATA2GP
GPIO37	SATA3GP
GPIO38	ODD_DET
GPIO39	ICH_GPIO39
GPIO40	USB_OC#1
GPIO41	USB_OC#2
GPIO42	USB_OC#3
GPIO43	USB_OC#4
GPIO48	MFG_MODE
GPIO49	H_PWRGD
GPIO50	PCI_REQ#1
GPIO51	PCI_GNT#1
GPIO52	PCI_REQ#2
GPIO53	PCI_GNT#2
GPIO54	PCI_REQ#3
GPIO55	PCI_GNT#3

ITE8510 GPIO		Default Pull/Mode
GPA0	RF_LED#	UP / GPI
GPA1	EC_BSEL1	UP / GPI
GPA2	BTL_BEEP	UP / GPI
GPA3	WLAN_PWR#	UP / GPI
GPA4	P_ID0	UP / GPI
GPA5	P_ID1	UP / GPI
GPA6	PM_RSMRST#	UP / GPI
GPA7	EC_BL_PWM	UP / GPI
GPB0	PM_SLP_S4#	UP / GPI
GPB1	PM_SLP_S3#	UP / GPI
GPB2	+1.05V_ON	Dn / GPI
GPB3	BAT_SMBCLK	/ GPI
GPB4	BAT_SMBDAT	/ GPI
GPB5	H_A20GATE	/ GPO
GPB6	H_RCIN#	UP / Func1
GPB7	ENHANCE_USB#	Dn / GPI
GPC0	+1.5V_ON	Dn / GPI
GPC1	SMB_CLK_EC	/ GPI
GPC2	SMB_DAT_EC	/ GPI
GPC3	***N.C***	Dn / GPI
GPC4	SAVE POWER	Dn / GPI
GPC5	SLP_S4_COY	Dn / GPI
GPC6	+3.3VS_ON	Dn / GPI
GPC7	CRT_DETECT	UP / GPI
GPD0	ADAP_IN	UP / GPI
GPD1	PWRBTN#	UP / GPI
GPD2	PLT_RST#	UP / Func1
GPD3	***N.C***	UP / GPI
GPD4		UP / GPI
GPD5	PWR_USB_LED#	UP / GPI
GPD6	N.C	Dn / GPI
GPD7	SET_V	Dn / GPI
GPE0	LID#	Dn / GPI
GPE1	Fastcharge_EN	Dn / GPI
GPE2	PWROK	Dn / GPI
GPE3	Vcore_ON	Dn / GPI
GPE4	PWRSW	UP / GPI
GPE5	+1.2VS_ON	Dn / GPI
GPE6	WLAN_ON	Dn / GPI
GPE7	AMP_MUTE#	UP / GPI
GPF0	N.C	UP / GPI
GPF1	N.C	UP / GPI
GPF2	N.C	UP / GPI
GPF3	CHG_ON#	UP / GPI
GPF4	TP_CLK	UP / GPI
GPF5	TP_DATA	UP / GPI
GPF6	N.C	UP / GPI
GPF7	N.C	UP / GPI
GPG0	+3.3VA	Dn/GPO/TM
GPG1	+5V_ON	Dn/GPO/ID7
GPG2	N.C	
GPG6	WEBCAN_ON	Dn / GPI
GPH0	SAFTY_PROTECT	Dn/GPI/ID0
GPH1	+1.8VS_ON	Dn/GPI/ID1
GPH2	SENBAT_V	Dn/GPI/ID2
GPH3	CHG_G_LED	Dn/GPI/ID3
GPH4	CHG_R_LED	Dn/GPI/ID4
GPH5	BATOFF	Dn/GPI/ID5
GPH6	PWR_LED	Dn/GPI/ID6

ITE8510 GPIO		Default Pull/Mode
GPI0	N.C	/GPI/ADC
GPI1	LCDSW0	/GPI/ADC
GPI2	LCDSW1	/GPI/ADC
GPI3	N.C	/GPI/ADC
GPI4	BAT_I	/GPI/ADC
GPI5	BATT_TEMP	/GPI/ADC
GPI6	ADAPTOR_1	/GPI/ADC
GPI7	BAT_V	/GPI/ADC
GPJ0	EC_BL_ON	/GPI/DAC
GPJ1	EC_PROCHOT	/GPI/DAC
GPJ2	FAN_CTRL0	/GPI/DAC
GPJ3	CHG_REF	/GPI/DAC
GPJ4	CHG_I	/GPI/DAC
GPJ5	PM_THROTTING#	/GPI/DAC

Penryn CPU

	CPU CORE(V)	ICC(A)	W	TEMP(℃)
IMVP-6+	1.05	44.0	36	

Cantiga

VCC	ICC(mA)	W	TEMP(℃)
+3.3V	262	0.87	105
+1.8VS	3249	5.73	
+1.5V	86	0.129	
+1.05	14688.52	15.43	

ICH9M

VCC	ICC(mA)	mW	TEMP(℃)
+5V	4	20	70
+5VS	2	10	
+3.3V	347	1145.1	
+3.3VS	212	699.6	
+1.5V	1988	2982	
+1.05V	1634	1715.7	

ITE8500

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

CLOCK GENERATOR

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V	1000	3300	70

IDT92HD81

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V(DVDD)	200	660	70
+5V(AVDD)	1000	5000	

ADM1032

VCC	ICC	mW	TEMP(℃)
+3.3V	170uA	0.56	150

JMC261

VCC	ICC(mA)	mW	TEMP(℃)
+3.3VS	300	990	70
+1.2VS	150	180	

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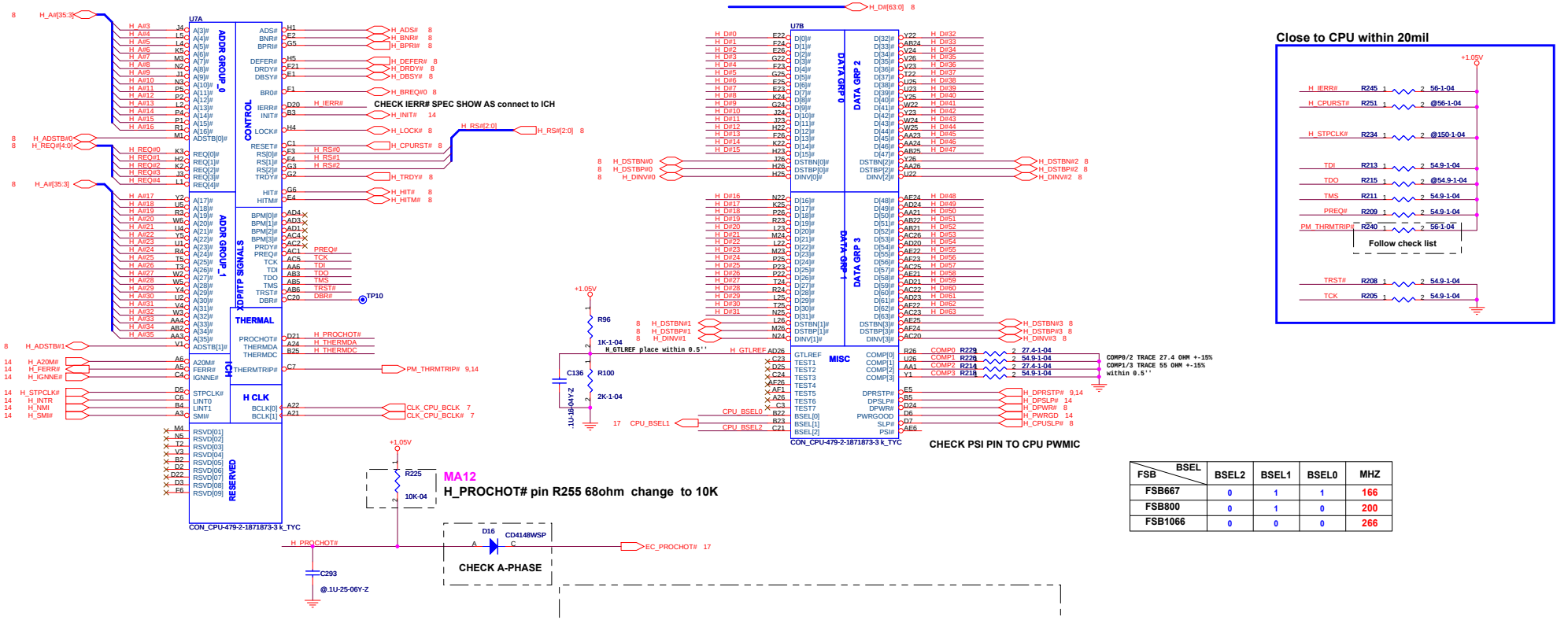
Title: J14iM6

Size: Custom | Document Number: SCHEMATIC1 | Rev: A

GPIO & Power Consumption

Date: Tuesday, November 24, 2009 | Sheet 4 of 30



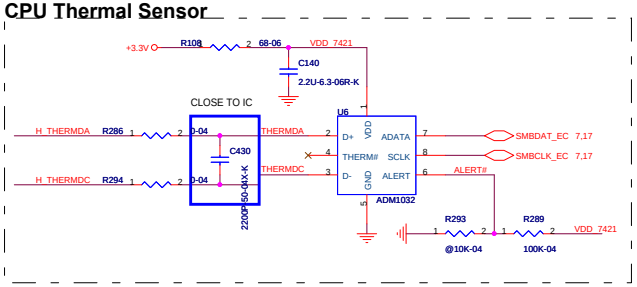
FSB \ BSEL	BSEL2	BSEL1	BSEL0	MHZ
FSB667	0	1	1	166
FSB800	0	1	0	200
FSB1066	0	0	0	266

IC \ SETTING	R286	R294	R289
EMC1402	0R	0R	100K
ADT7421	100R_1	100R_1	@10K
LM95245	0R	0R	10K

R289 can use 100K for 3 vender real application

R286,R294 can use 0-04 for ADT7421 real application

CPU Thermal Sensor



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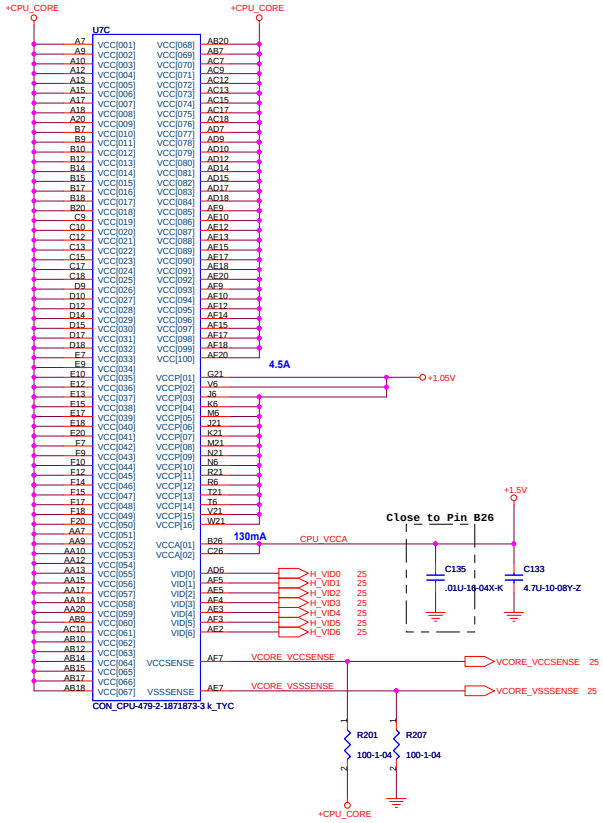
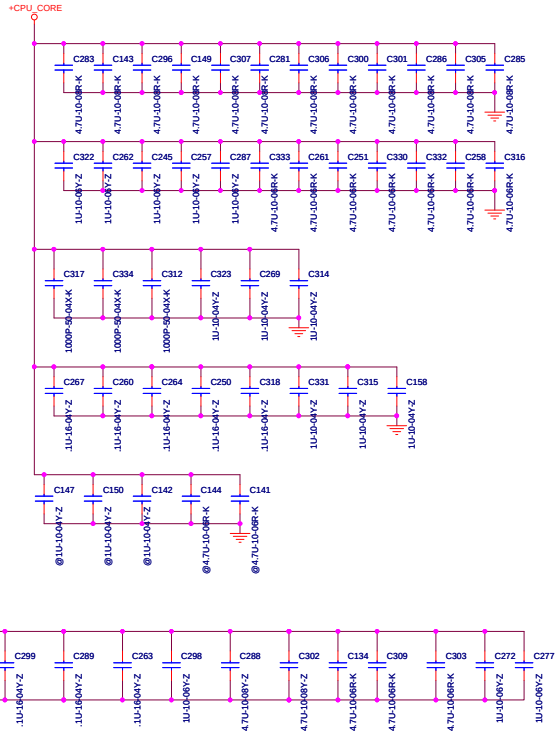
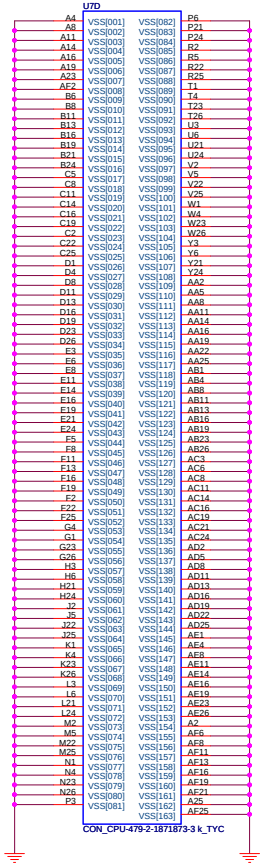
Date: Tuesday, November 24, 2009	Sheet 5 of 30







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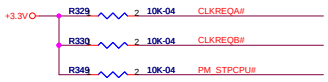
Date: Tuesday, November 24, 2009	Sheet 6 of 30



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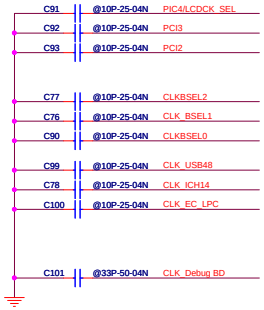
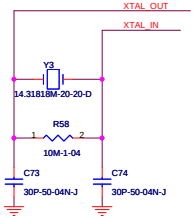
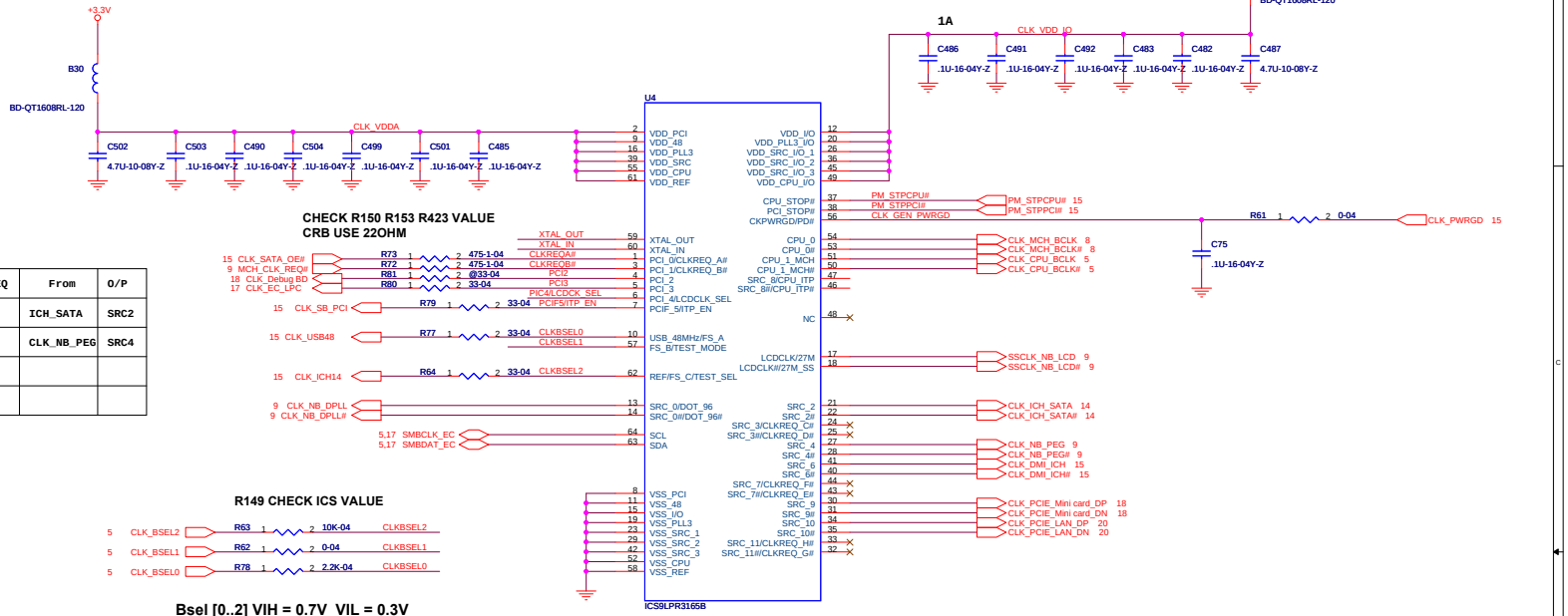





```
Ce =  2*CL - ( Cs + Ci )
CL =  Crystal Load Cap = 20P
Ci =  IC internal Cap = 5P
Cs =  2P
Ce =  Crystal external Cap = 33P
```



CHECK R150 R153 R423 VALUE
CRB USE 22OHM

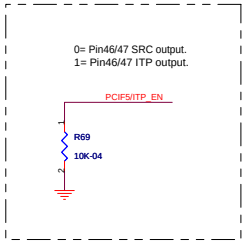
CLK REQ	From	O/P
A	ICH_SATA	SRC2
B	CLK_NB_PEG	SRC4
H		
G		

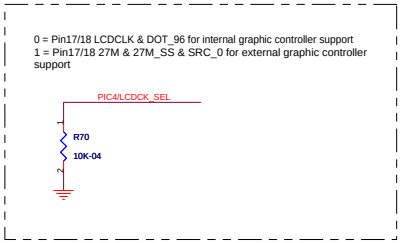
R149 CHECK ICS VALUE

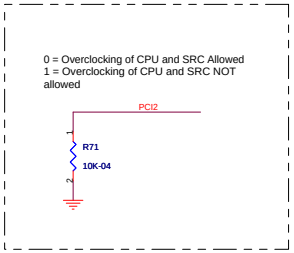
Bsel [0..2] VIH = 0.7V VIL = 0.3V

BSEL / FSB	BSEL2 FSLC	BSEL1 FSLB	BSEL0 FSLA	CPU MHZ	PCI MHZ	PCI-E MHZ
FSB667	0	1	1	166	33	100
FSB800	0	1	0	200		
FSB1066	0	0	0	266		

Need reserved space for 72Pin CLOCK GEN







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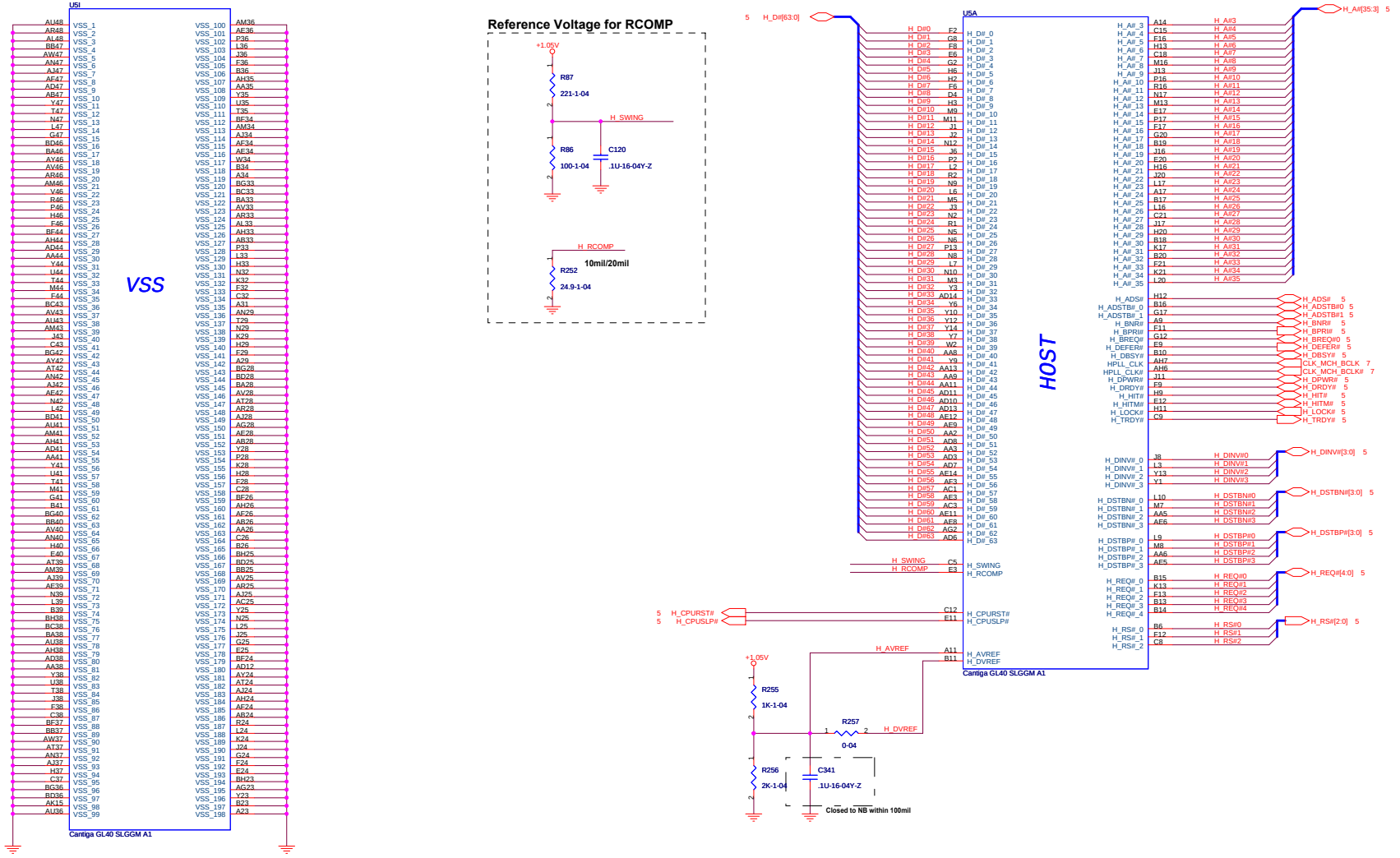
Size / Custom	Document Number SCHEMATIC1
	CLOCK GEN
Rev	A
Date: Tuesday, November 24, 2009	Sheet 7 of 30

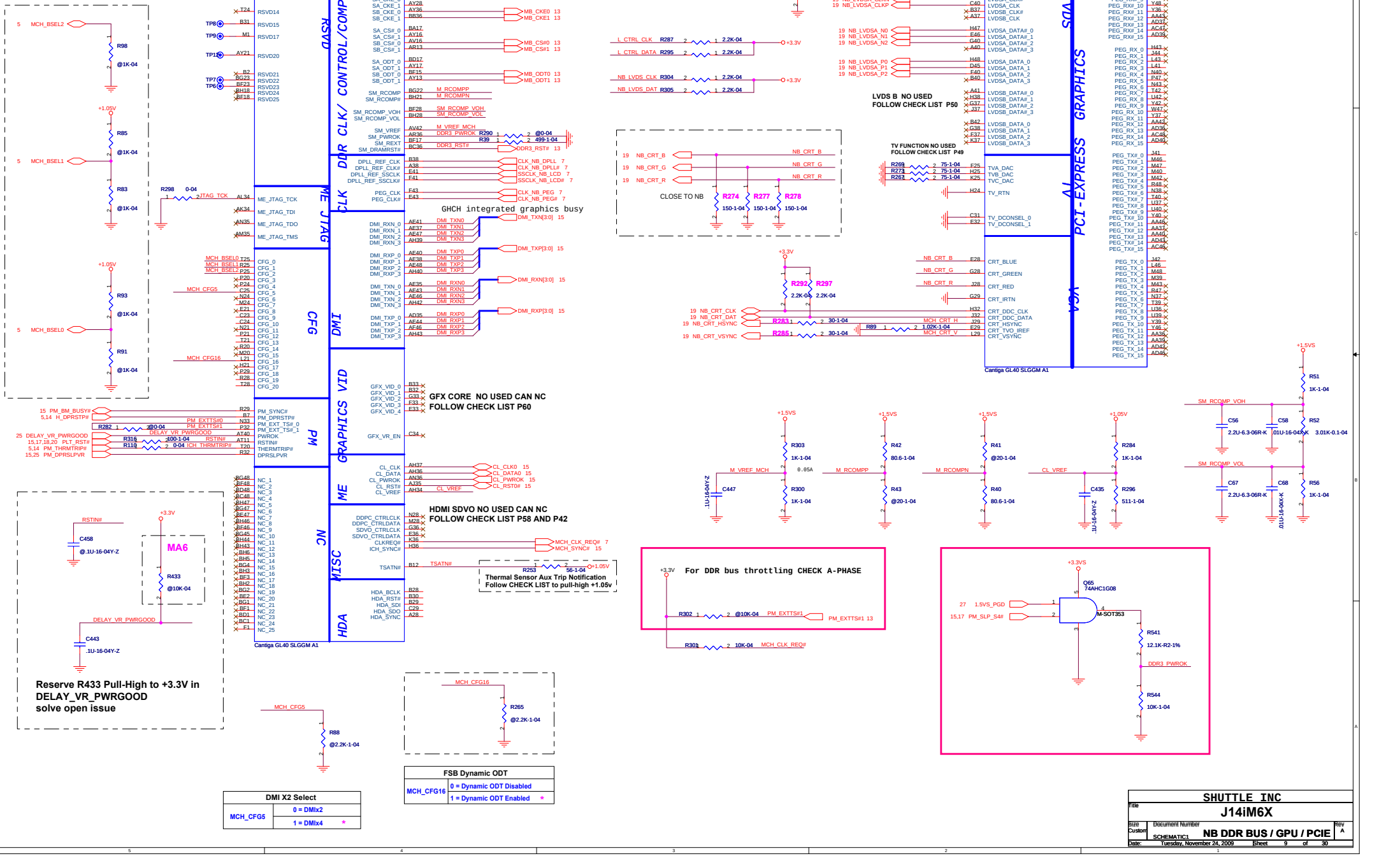


Title	SHUTTLE_INC J14iM6
Size: Custom	Document Number: SCHEMATIC1 NB HOST/VSS
Rev	A
Date: Tuesday, November 24, 2009	Sheet 8 of 30

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

CHECK NB TABLE FOR INTEL

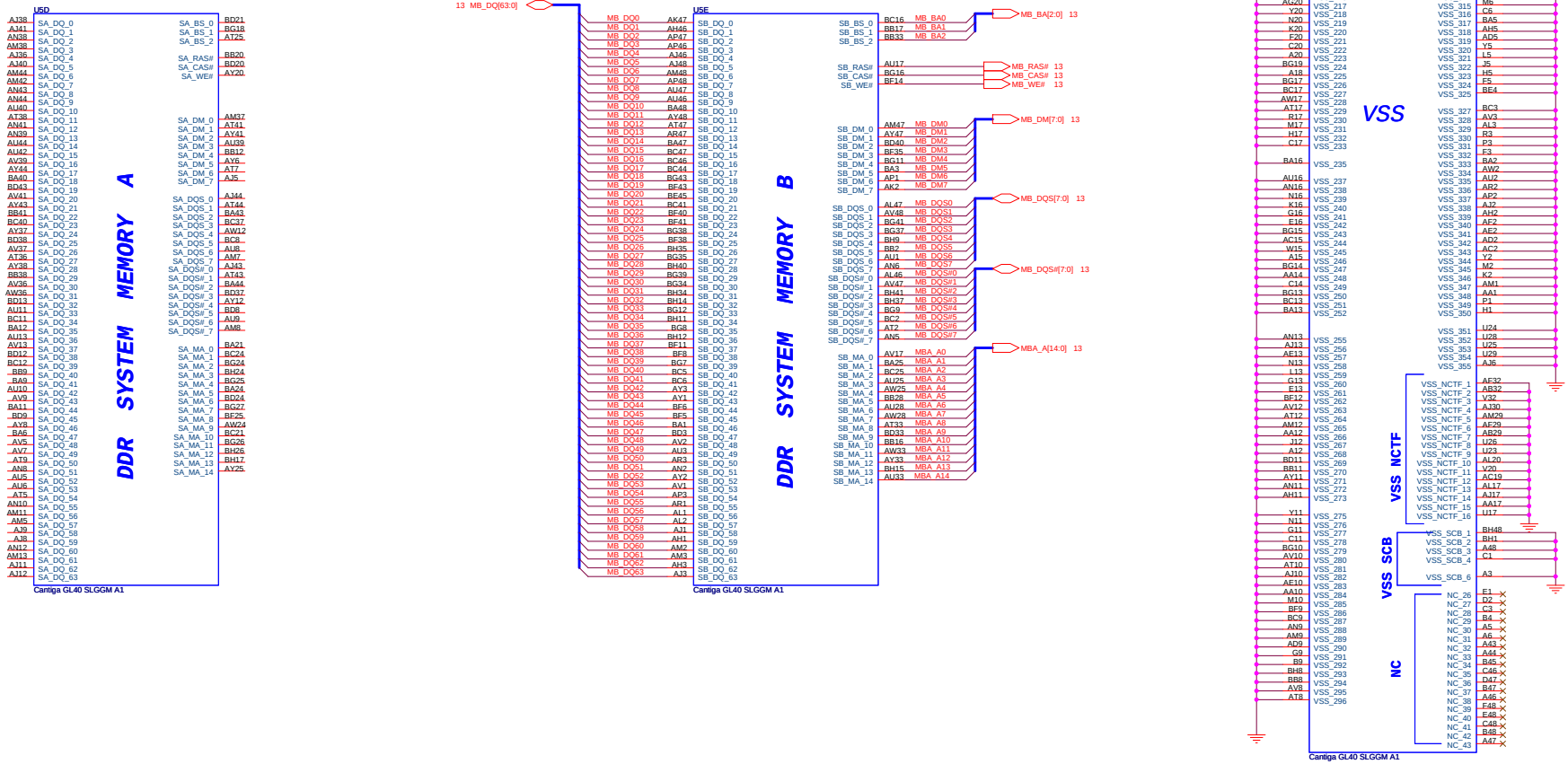
For NB OverClock sch



DMI X2 Select	
MCH_CFG5	0 = DMIx2
	1 = DMIx4 *

FSB Dynamic ODT	
MCH_CFG16	0 = Dynamic ODT Disabled
	1 = Dynamic ODT Enabled *

Title	SHUTTLE_INC J14iM6X
Size / Custom	Document Number: SCHEMATIC1 NB DDR BUS / GPU / PCIE
Rev	A
Date: Tuesday, November 24, 2009	Sheet 9 of 30



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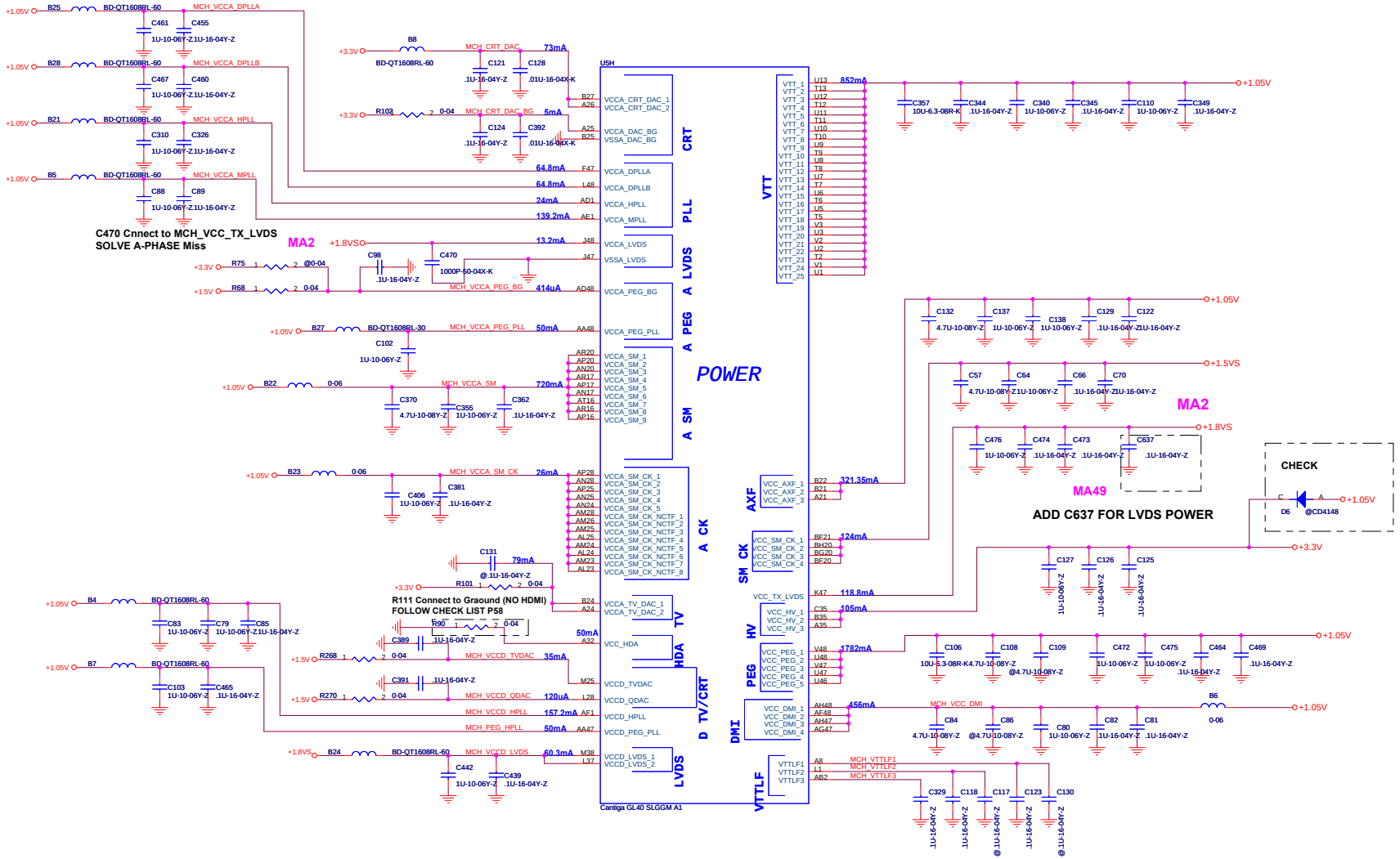
Date: Tuesday, November 24, 2009	Sheet 10 of 30



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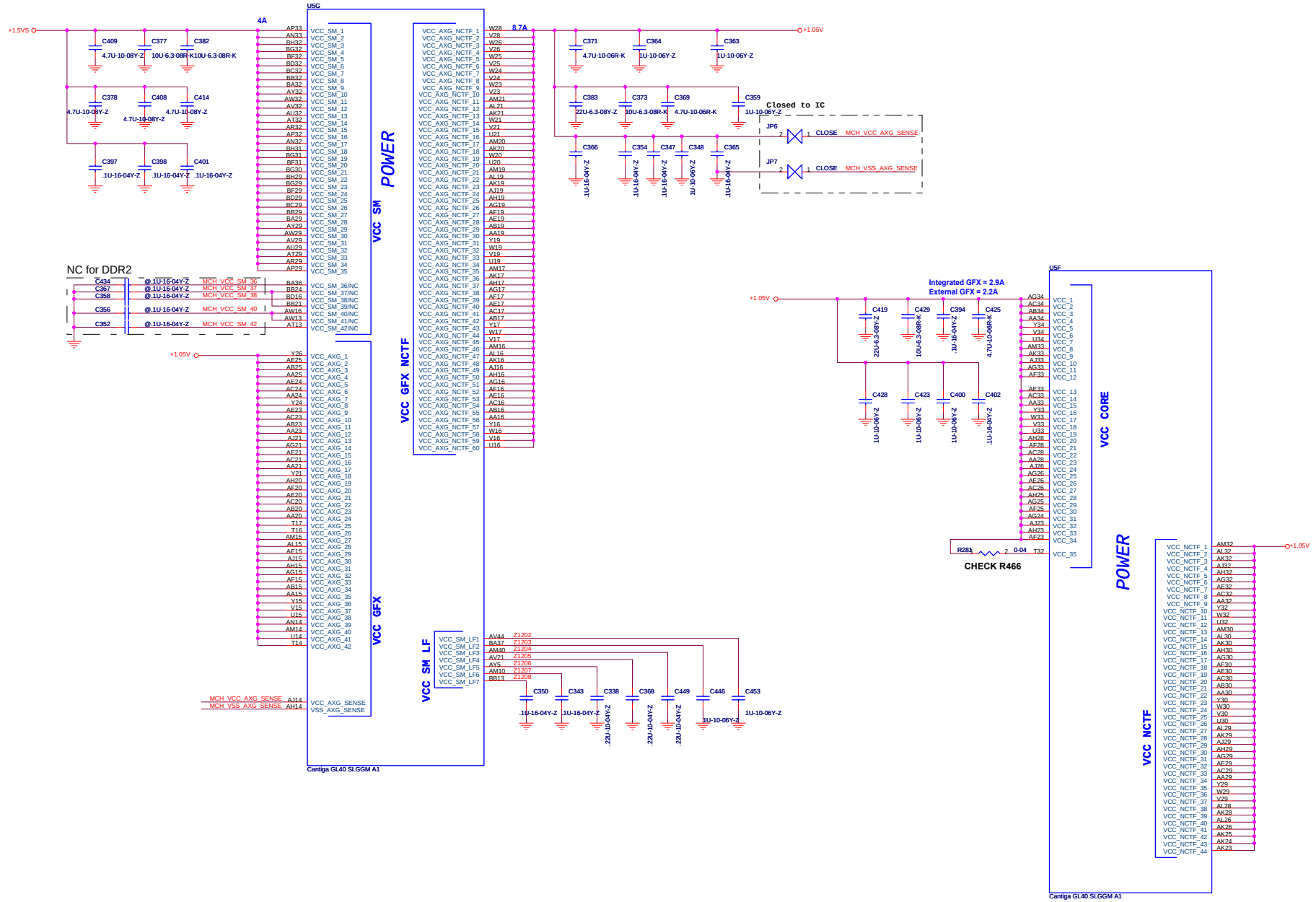
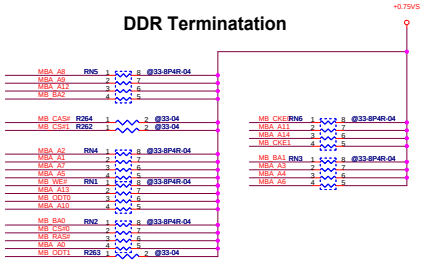
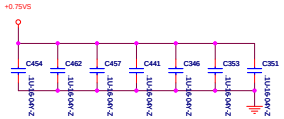
Rev	A
Date: Tuesday, November 24, 2009	Sheet 11 of 30



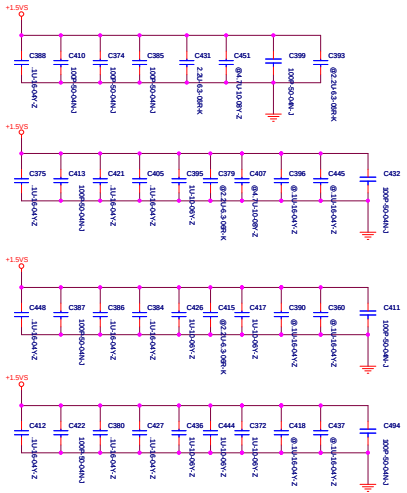
SHUTTLE INC			
Title: J14iM6			
Size: Custom	Document Number: SCHEMATIC1	NB GFX/VCC/NCTF POWER	Rev: A
Date: Tuesday, November 24, 2009	Sheet 12 of 30		

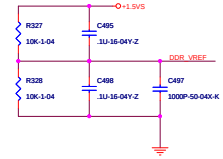
DDR Terminatation

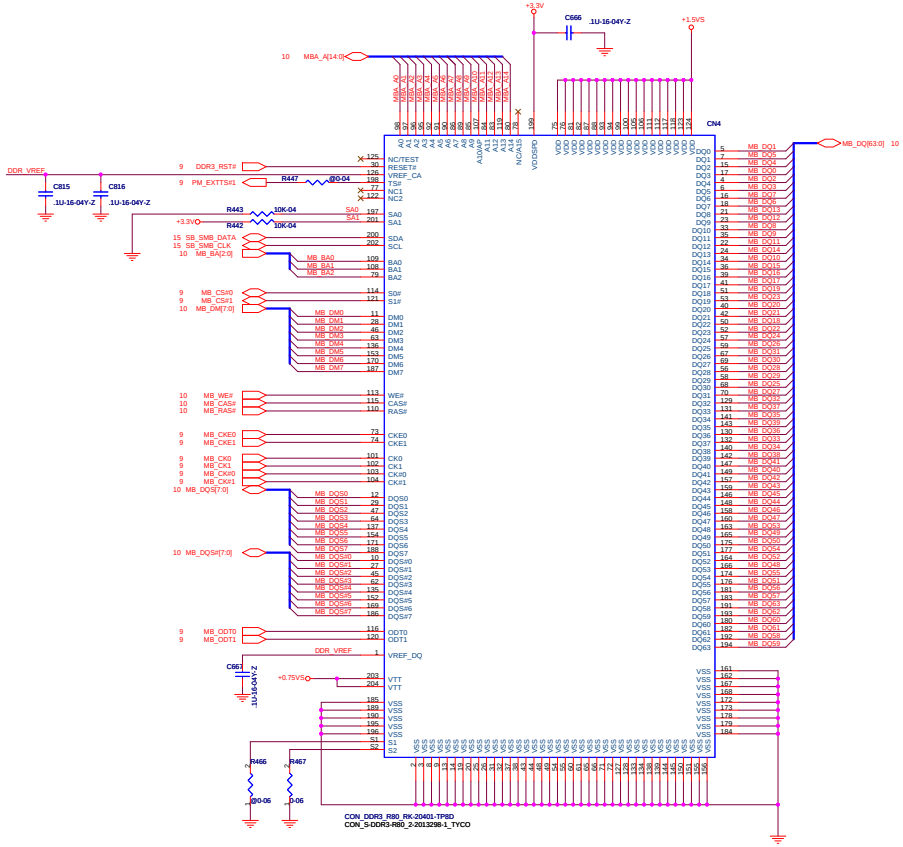




Check bypass cap close pins







SHUTTLE INC		
J14iM6		
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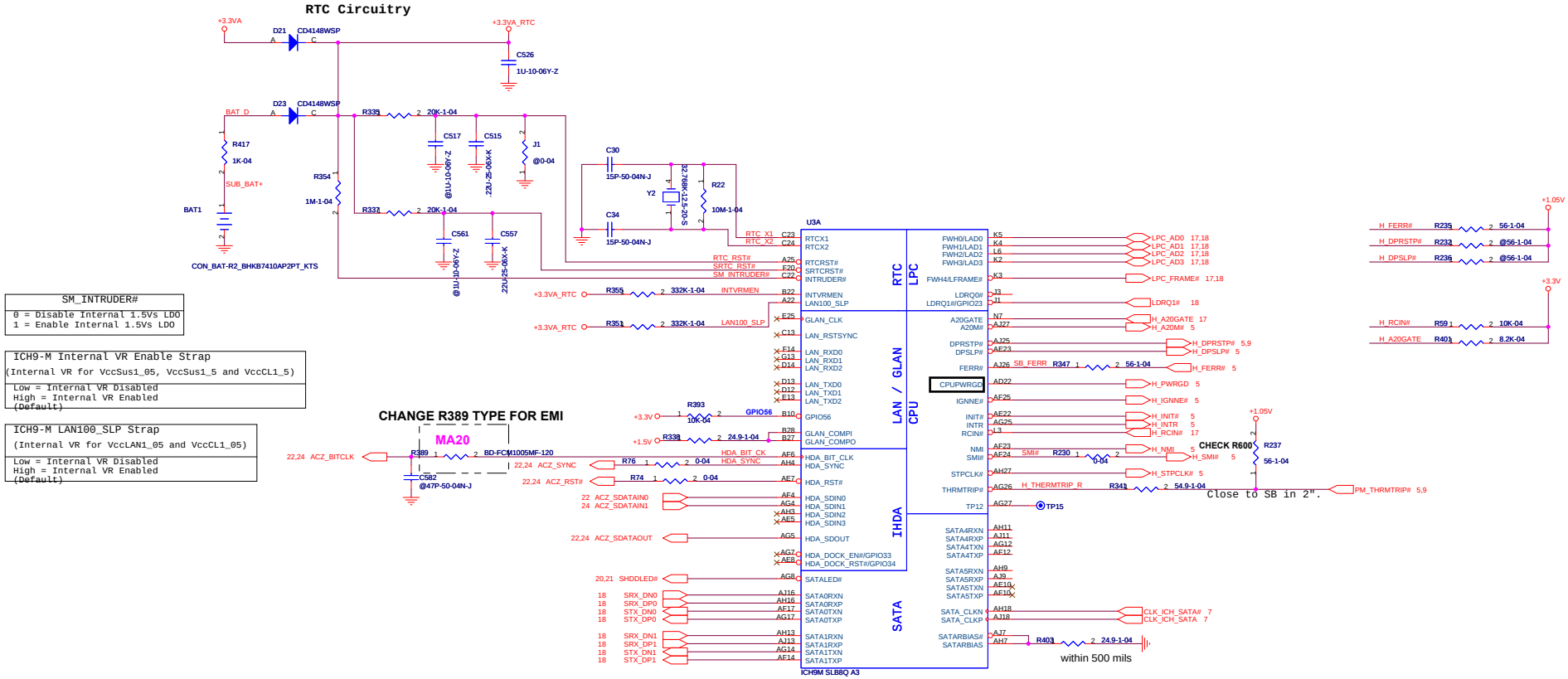
DDR3 SODIMM		
Date: Tuesday, November 24, 2009	Sheet 13 of 30	



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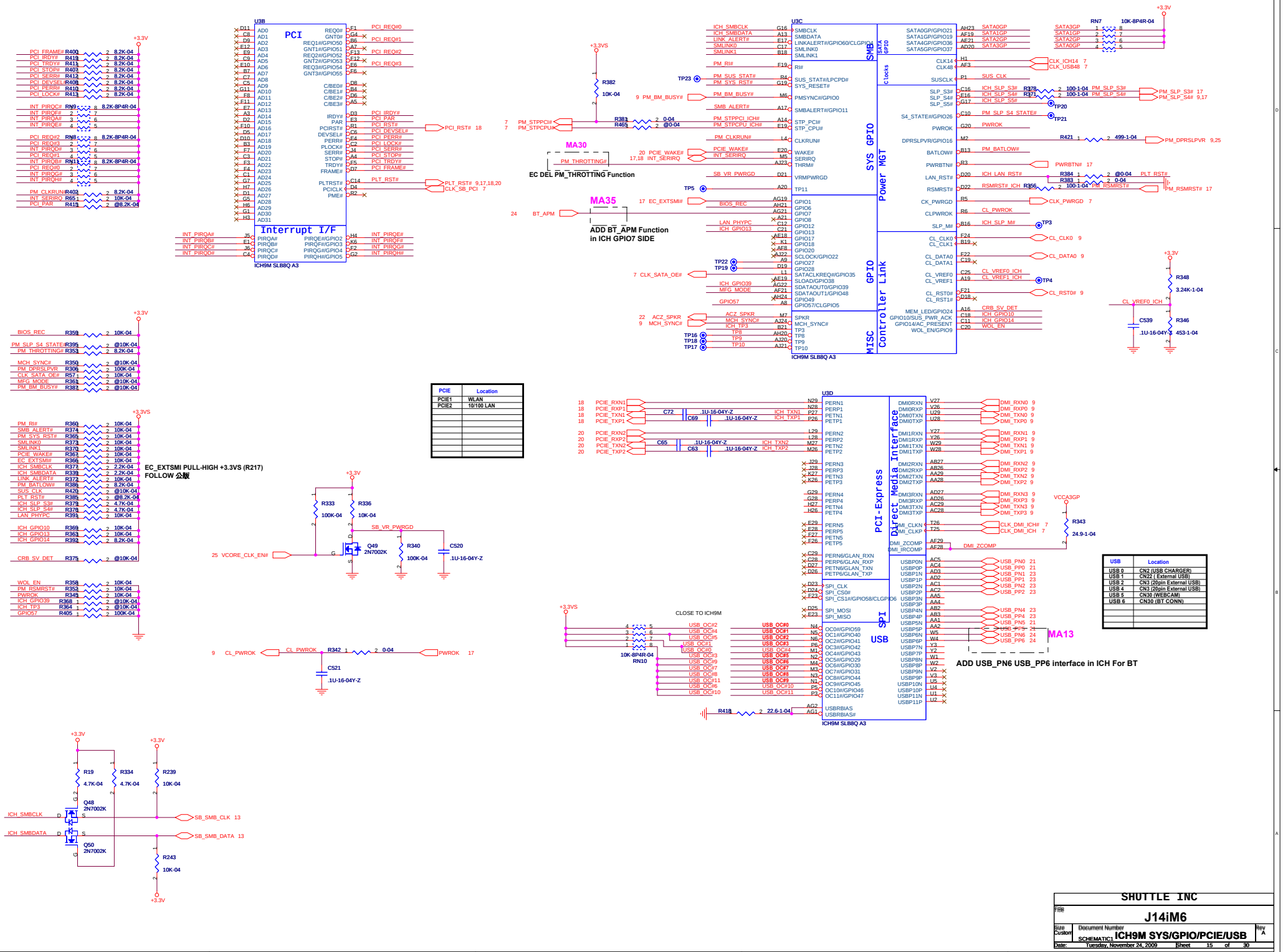
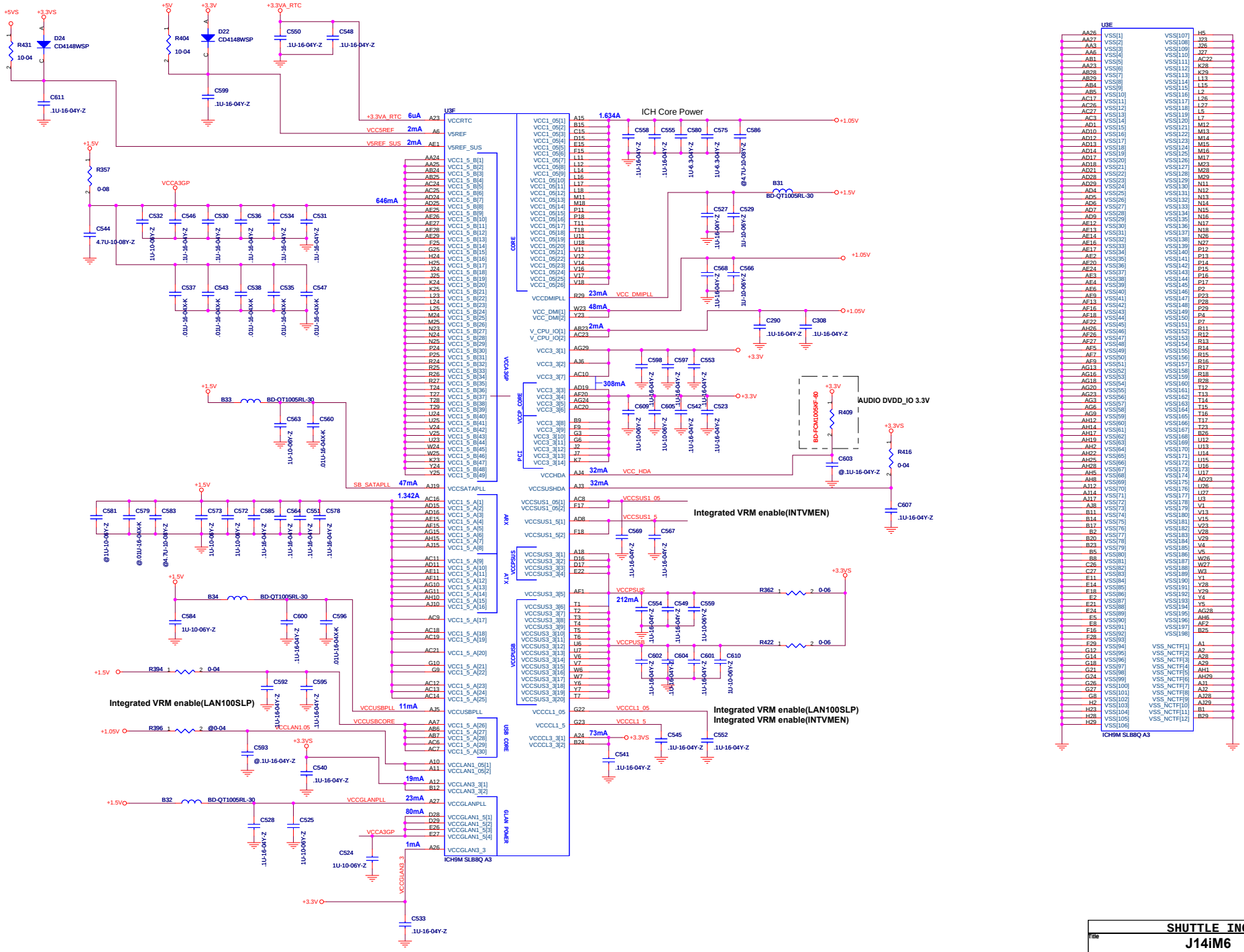
Title: J14iM6		
Size: Custom	Document Number: SCHEMATIC	Rev: A
ICH9M RTC/SATA/HDA/LPC 1/3		
Date: Tuesday, November 24, 2009	Sheet 14 of 30	

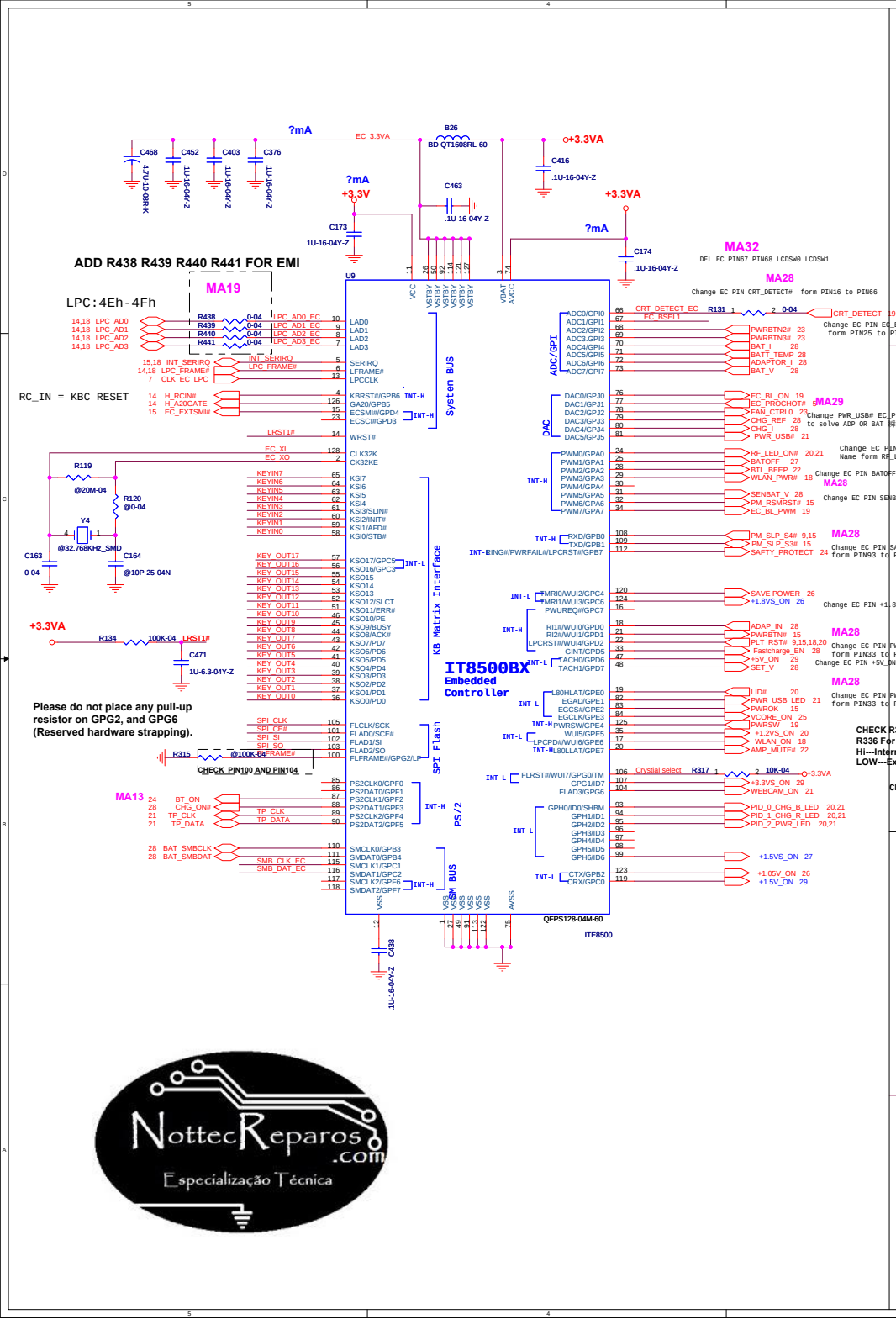


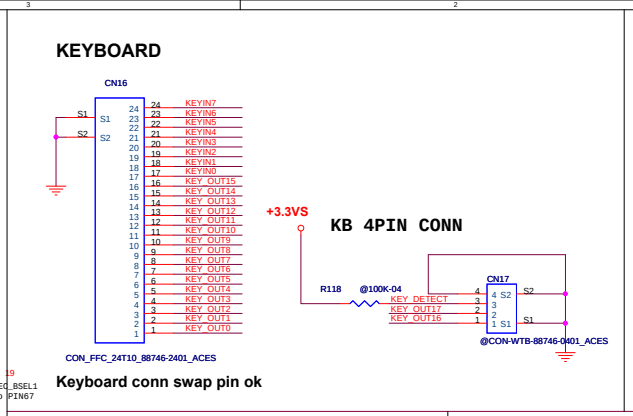
PCIE	Location
PCIE1	WLAN
PCIE2	10/100 LAN

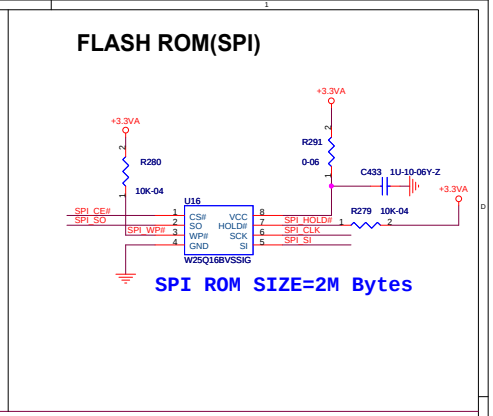
USB	Location
USB 0	CN2 (USB CHARGER)
USB 1	CN22 (External USB)
USB 2	CN3 (20pin External USB)
USB 4	CN3 (20pin External USB)
USB 5	CN30 (WEBCAM)
USB 6	CN30 (BT CONN)

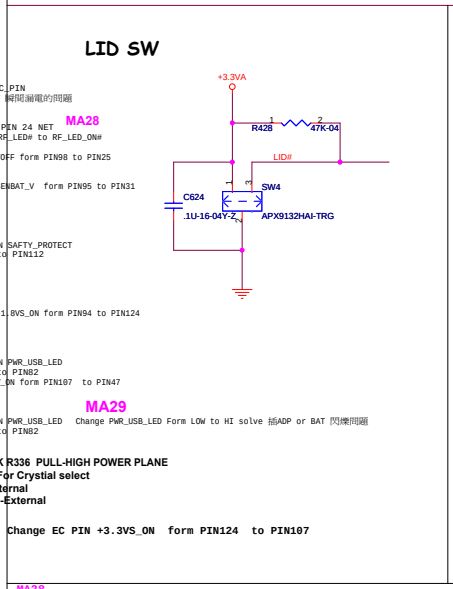


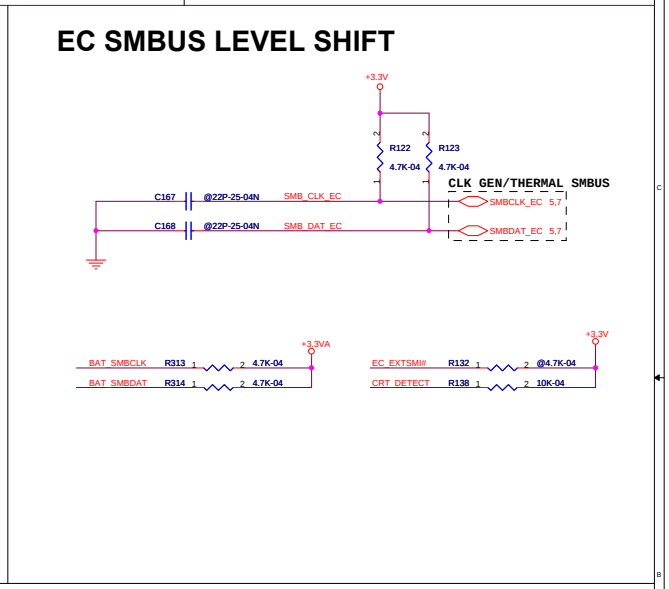
Title	SHUTTLE INC
	J14iM6
Size: Custom	Document Number: SCHEMATIC1
	ICH9M Power
Rev	A
Date: Tuesday, November 24, 2009	Sheet 16 of 30

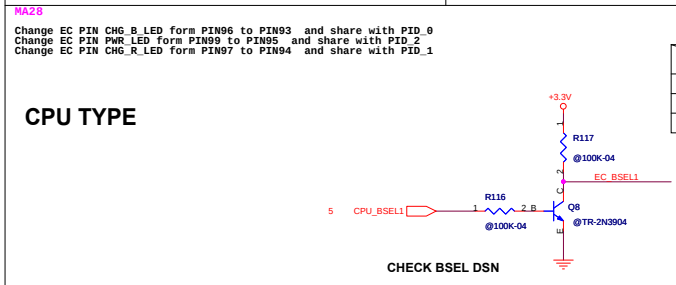




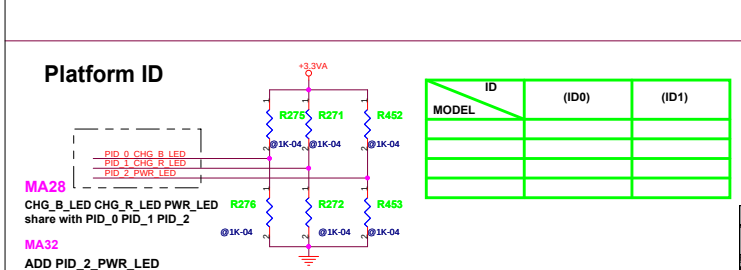








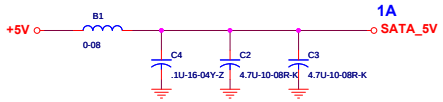
FSB \ BSEL	EC_BSEL2	EC_BSEL1	EC_BSEL0	MHZ
FSB667	X	X	X	166
FSB800	X	0	X	200
FSB1066	X	X	0	266

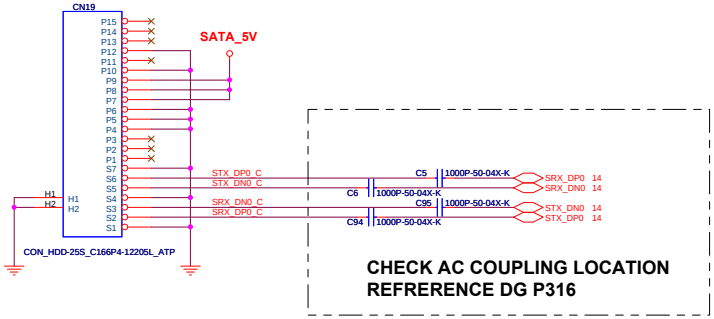


ID \ MODEL	(ID0)	(ID1)

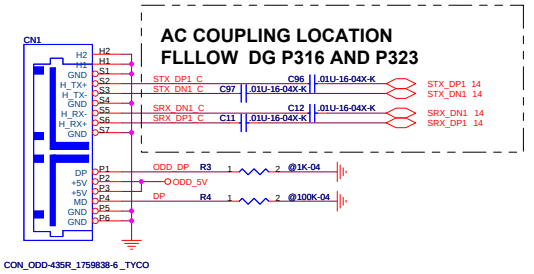
Title	SHUTTLE INC J14iM6
Size / Custom	Document Number: SCHEMATIC1 EC IT8512 / BIOS
Rev	A
Date: Tuesday, November 24, 2009	Sheet 17 of 30

SATA-HDD

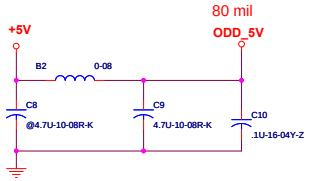




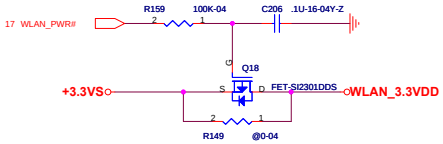
CR-ROM

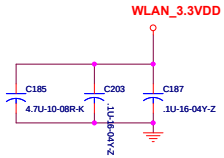


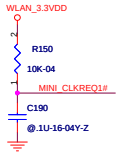
與ALLEN 的CONN 高度不同，
PCB FOOTPRINT 相同

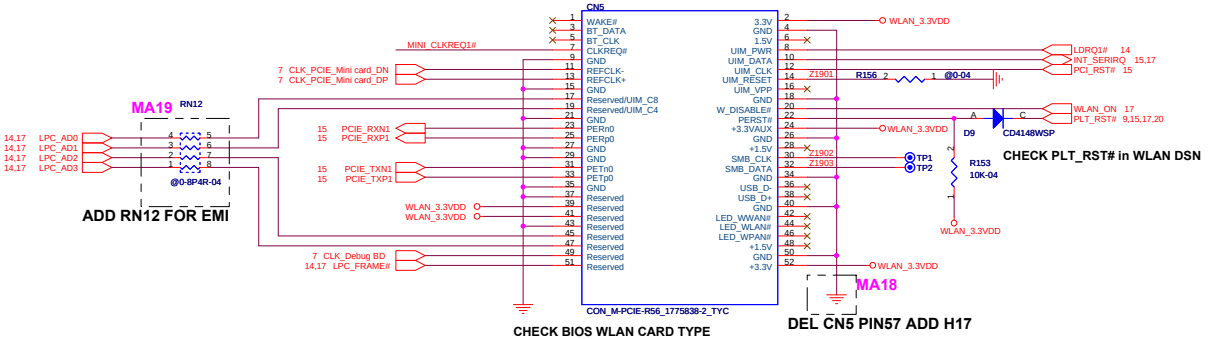


MINI CARD CONN



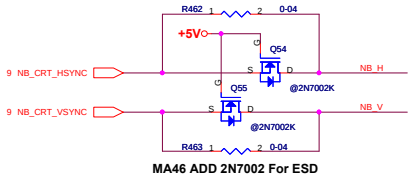




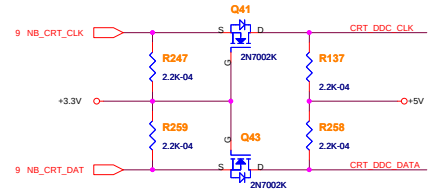


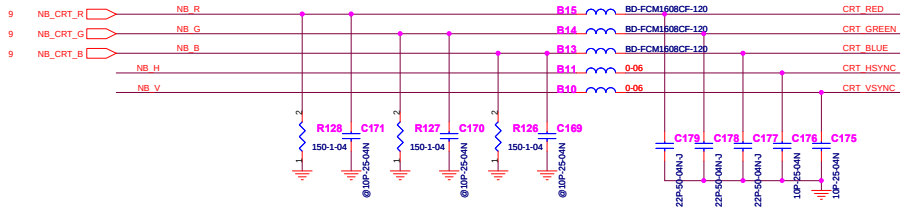
SHUTTLE INC	
Title	J14iM6
Size: Custom	Document Number: SCHEMATIC1 HDD/ODD /MINI CARD — Rev: A
Date: Tuesday, November 24, 2009	Sheet 18 of 30

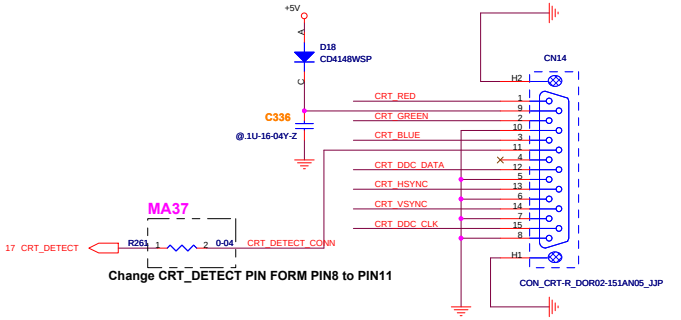
CRT Conn.



MA46 ADD 2N7002 For ESD

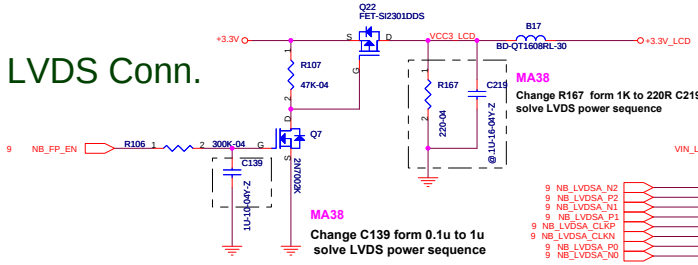






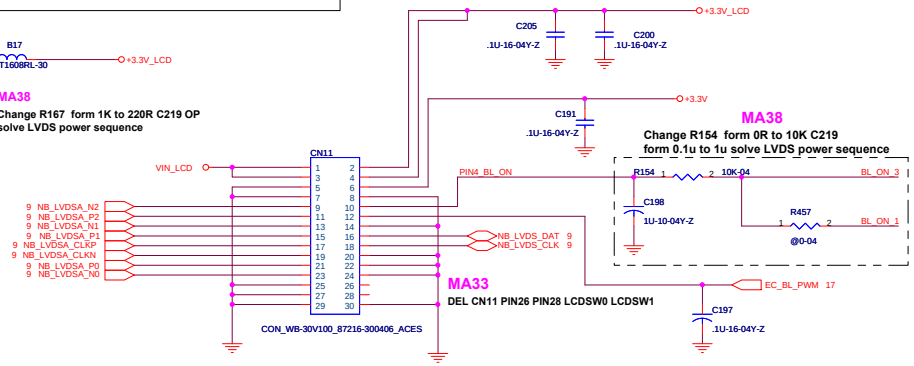
Change CRT_DETECT PIN FORM PIN8 to PIN11

LVDS Conn.



MA38
Change R167 form 1K to 220R C219 OP solve LVDS power sequence

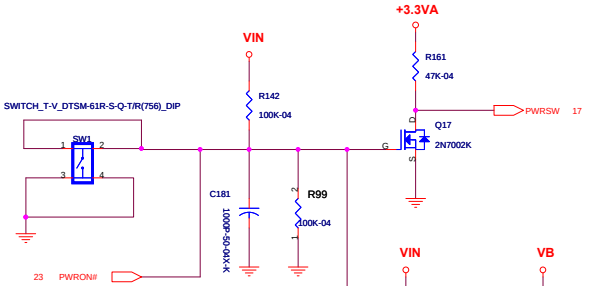
MA38
Change C139 form 0.1u to 1u solve LVDS power sequence

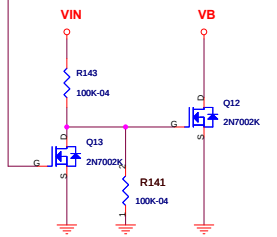


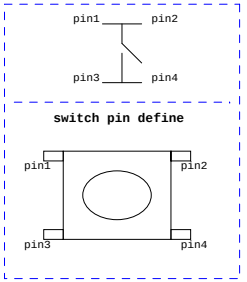
MA38
Change R154 form 0R to 10K C219 form 0.1u to 1u solve LVDS power sequence

MA33
DEL CN11 PIN26 PIN28 LCDSW0 LCDSW1

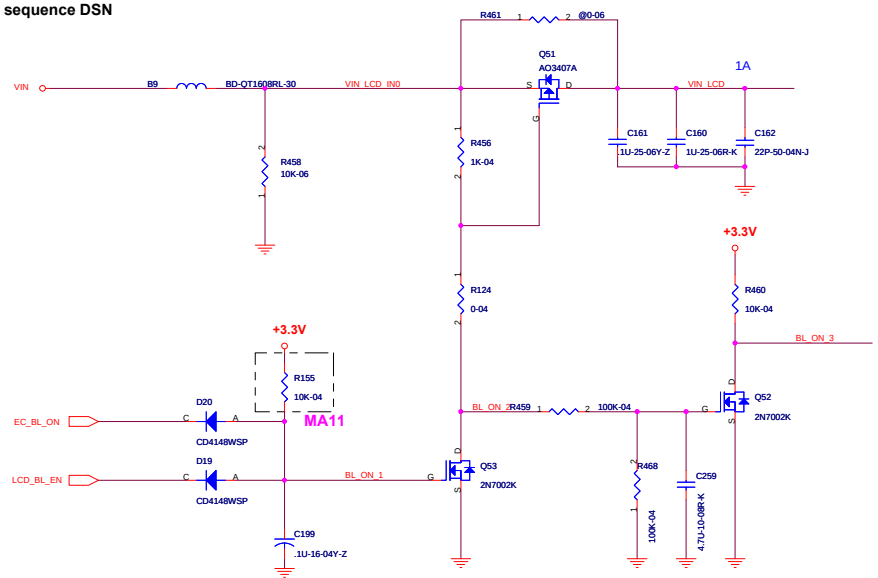
PWR SW



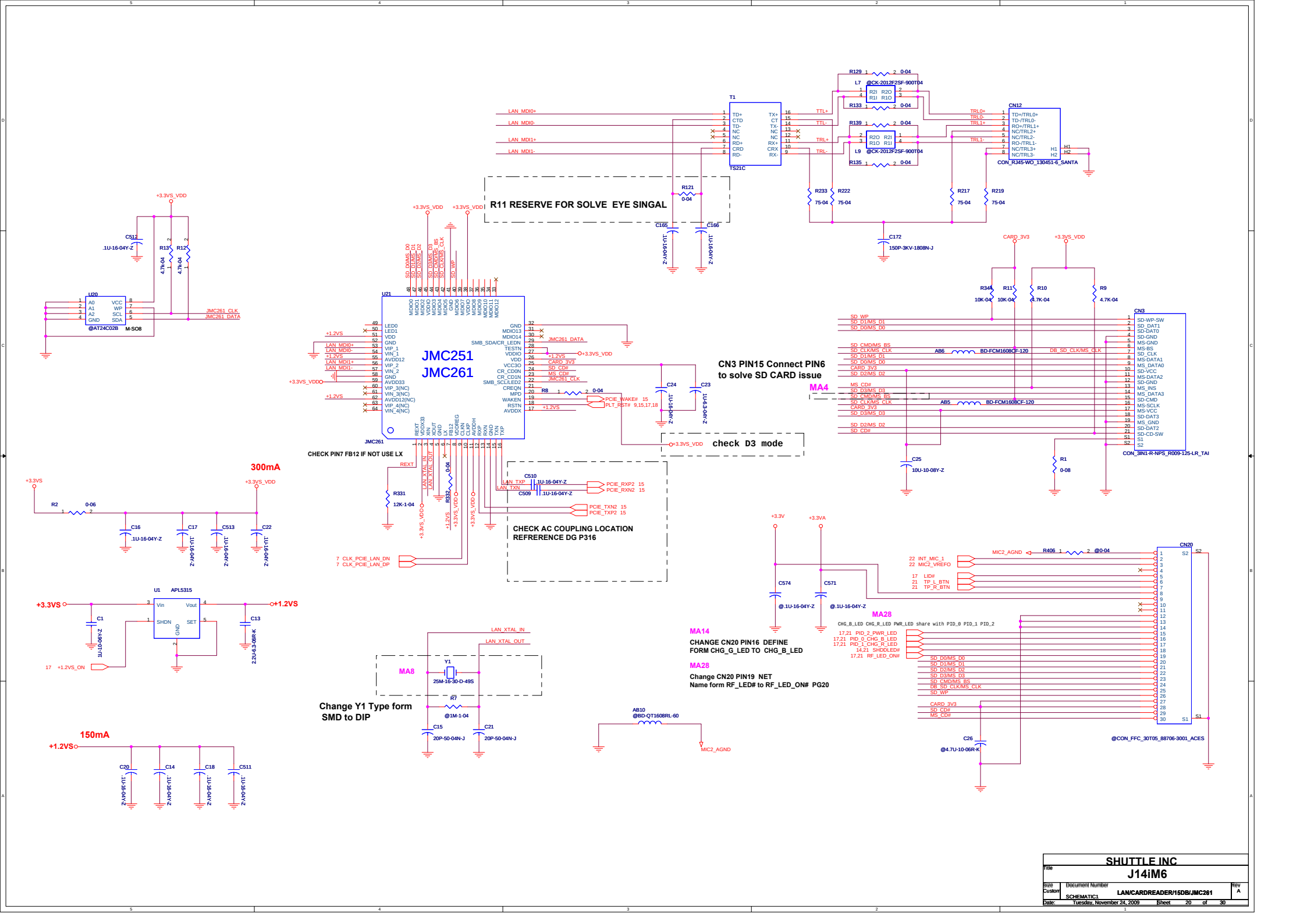




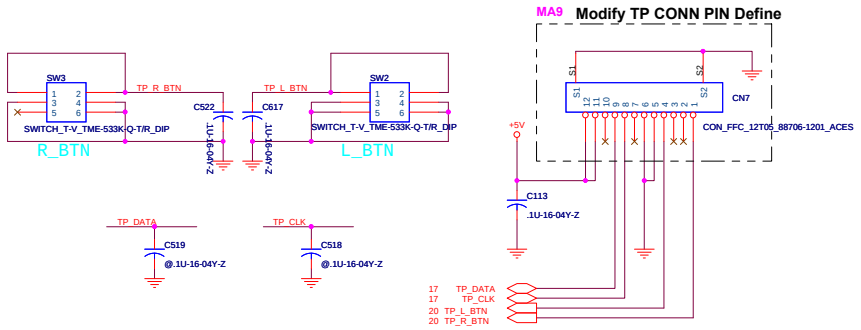
MA38
FOR LVDS Vin sequence DSN



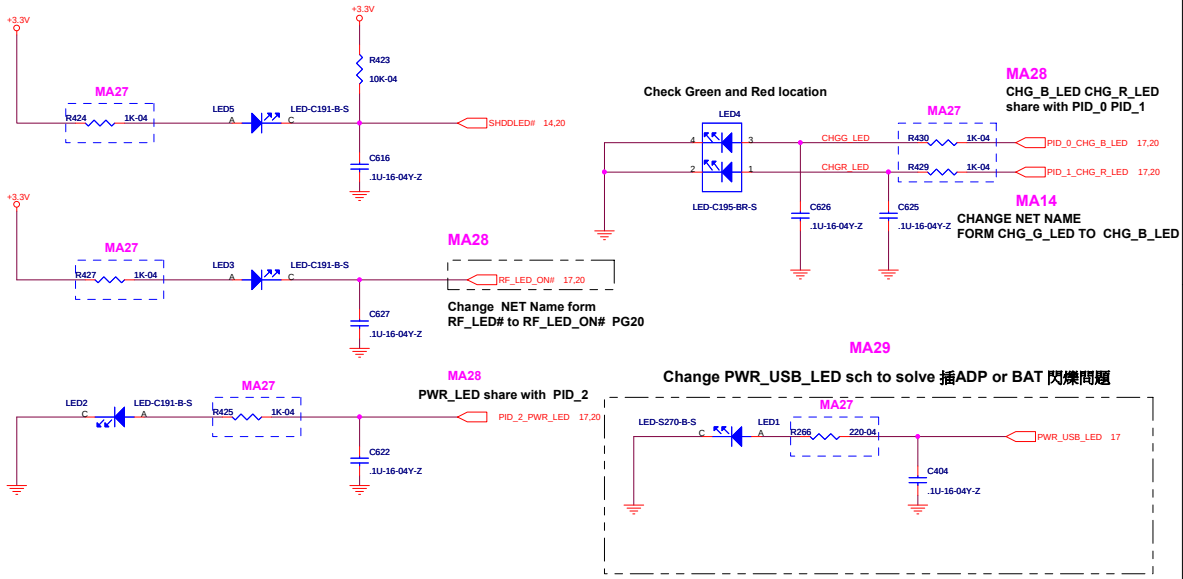
SHUTTLE INC			
Title: J14iM6			
Size: Custom	Document Number: SCHEMATIC1	LCD/CRT CON/PWR SW	Rev: A
Date: Tuesday, November 24, 2009	Sheet 19 of 30		


JMC251
JMC261
R11 RESERVE FOR SOLVE EYE SINGAL
CN3 PIN15 Connect PIN6
to solve SD CARD issue
MA4
check D3 mode
CHECK PIN7 FB12 IF NOT USE LX
CHECK AC COUPLING LOCATION
REFRERENCE DG P316
300mA
150mA
MA14
CHANGE CN20 PIN16 DEFINE
FORM CHG_G_LED TO CHG_B_LED
MA28
Change CN20 PIN19 NET
Name form RF_LED# to RF_LED_ON# PG20
MA8
Change Y1 Type form
SMD to DIP
SHUTTLE INC
J14iM6
LAN/CARDREADER/15DB/JMC261
SCHEMATIC1
Tuesday, November 24, 2009

Touch Pad

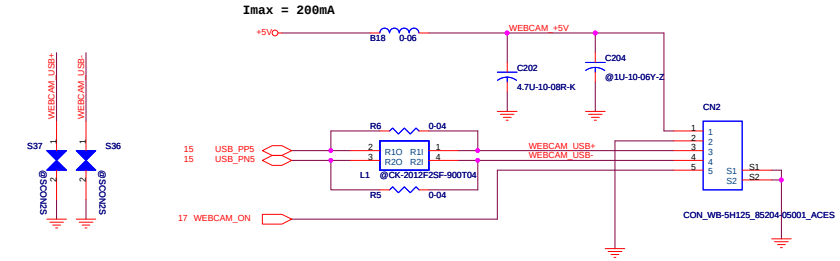


LED MA27 - R424,R427,R425,R430,R429,R266 Change to 220-04

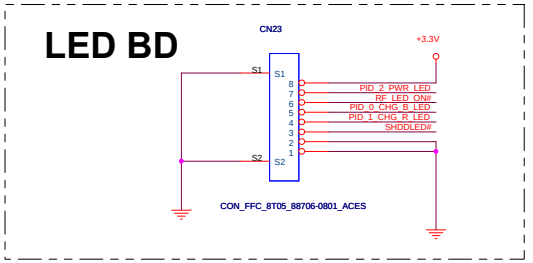


WEBCAM CON

WEBCAM_ON	
1	ON
0	OFF



LED BD



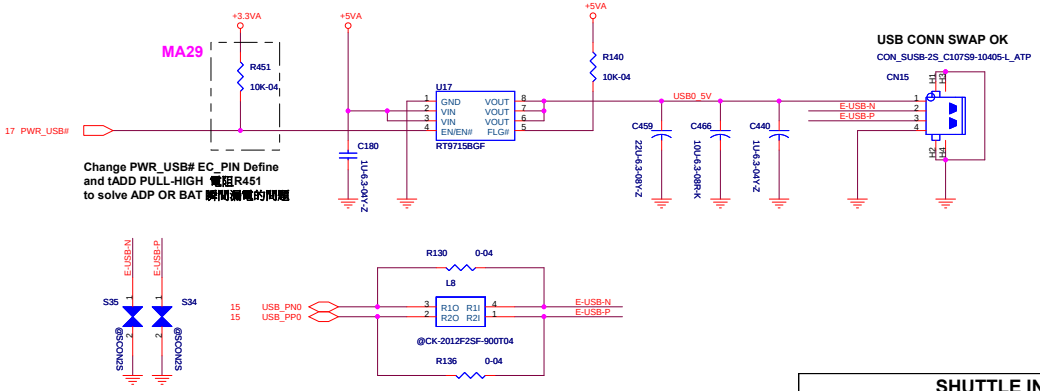
MA14
ADD LED CONN CN23

MA28
Change CN23 PIN7 NET Name form
RF_LED# to RF_LED_ON# PG20

CHG_B_LED CHG_R_LED PWR_LED share with PID_0 PID_1 PID_2

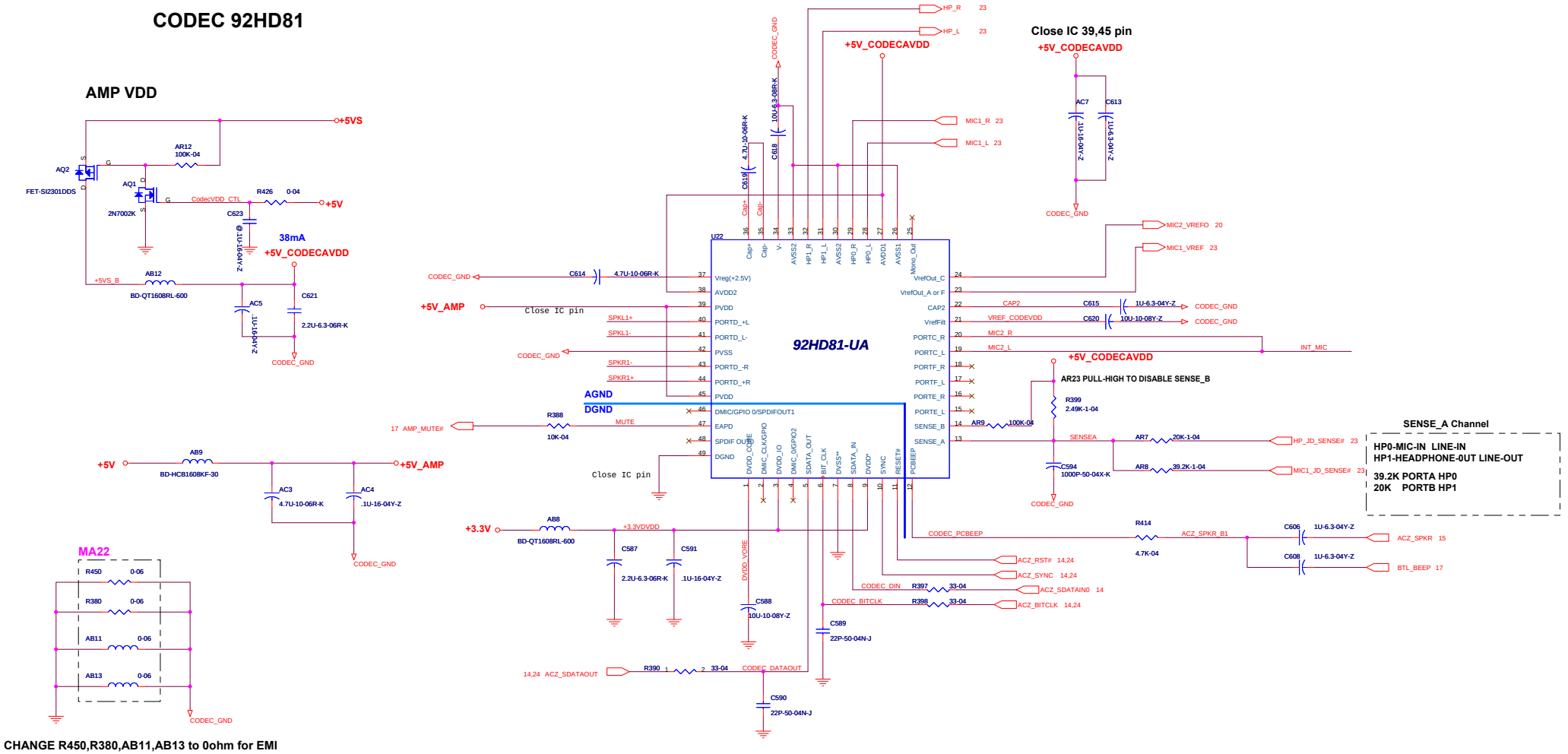
MA14
CHANGE CN23 PIN5 DEFINE
FORM CHG_G_LED TO CHG_B_LED

ENHANCE USB Port



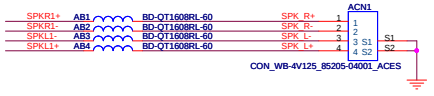
Title	SHUTTLE INC J14iM6		
Size: Custom	Document Number: SCHEMATIC1	TP/LED/WEBCAM/USB CHARGER	Rev: A
Date: Tuesday, November 24, 2009	Sheet 21 of 30		

CODEC 92HD81

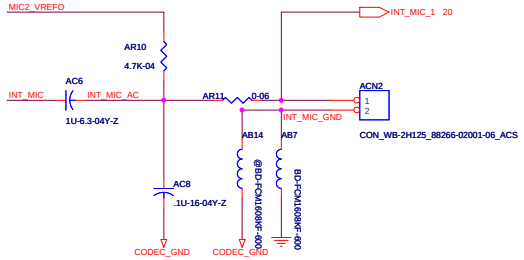


CHANGE R450,R380,AB11,AB13 to 0ohm for EMI

INT_SPEAKER

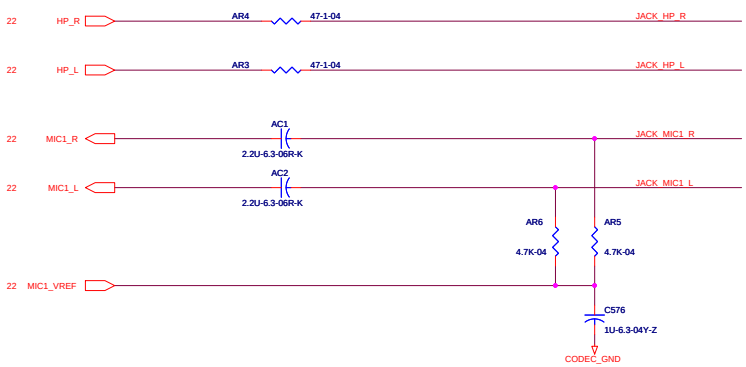


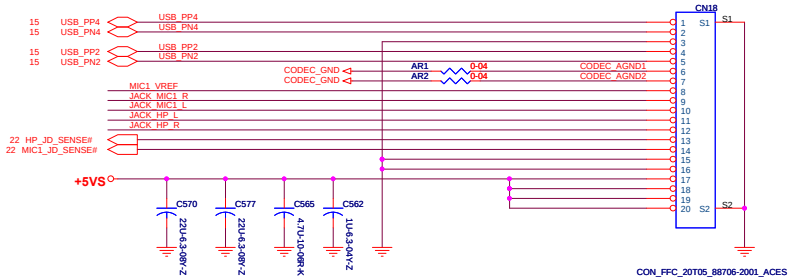
INT_MIC



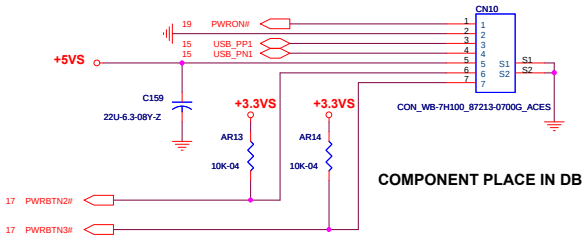
SHUTTLE INC		
Title: J14iM6		
Size: Custom	Document Number: SCHEMATIC1	CODEC/MIC/SPEAKER Rev: A
Date: Tuesday, November 24, 2009	Sheet 22 of 30	

EXT MIC/EXT Line In/ EXT USB JACK



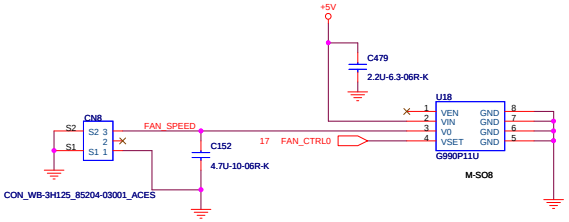


EXT USB P0RT 4



COMPONENT PLACE IN DB

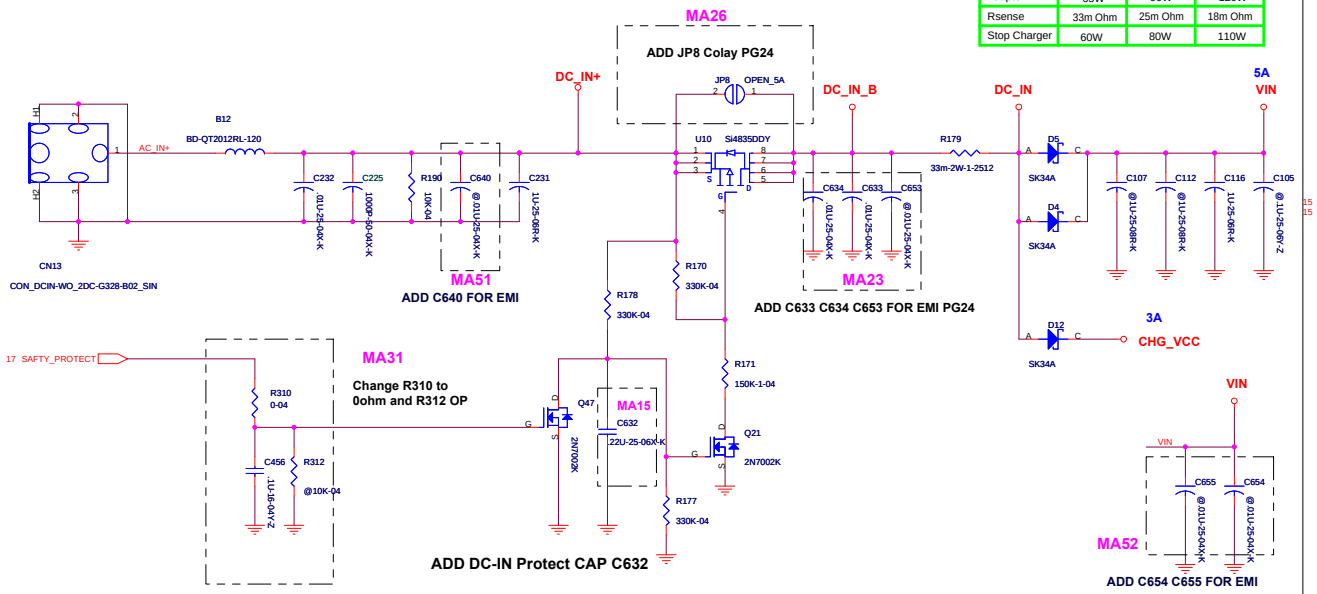
CPU FAN CONTROL



SHUTTLE INC			
Title: J14iM6			
Size: Custom	Document Number: SCHEMATIC1	EXT_MIC /HEADPHONE/USB/FAN	Rev: A
Date: Tuesday, November 24, 2009	Sheet 23 of 30		

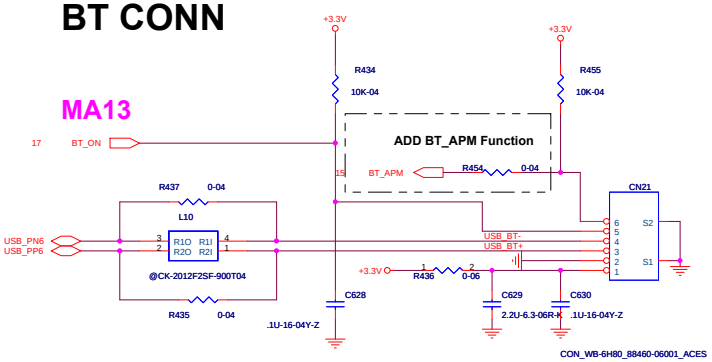
DC IN

PROJECT	F50II0	F50IN0	F50IN5
Adaptor	65W	90W	120W
Rsense	33m Ohm	25m Ohm	18m Ohm
Stop Charger	60W	80W	110W



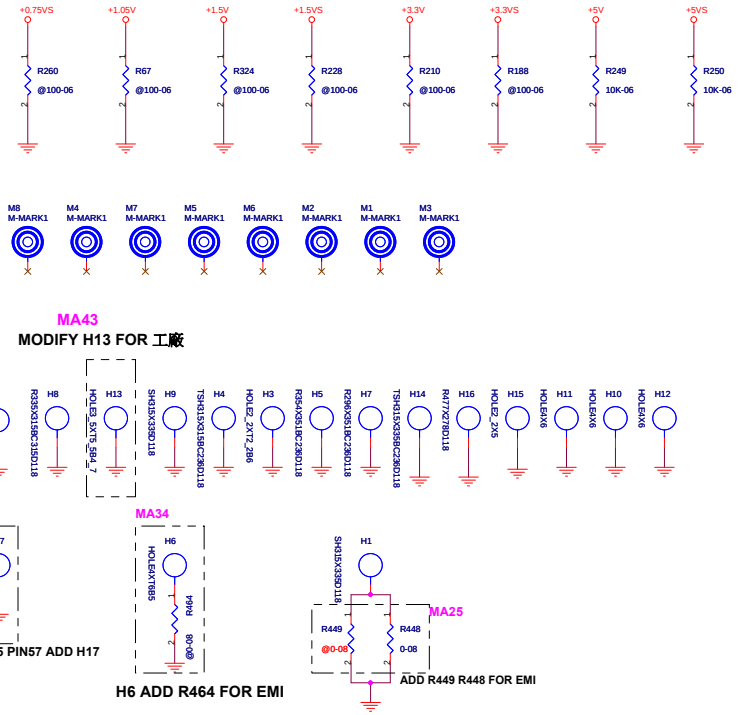
BT CONN

ADD BT CONN CN21

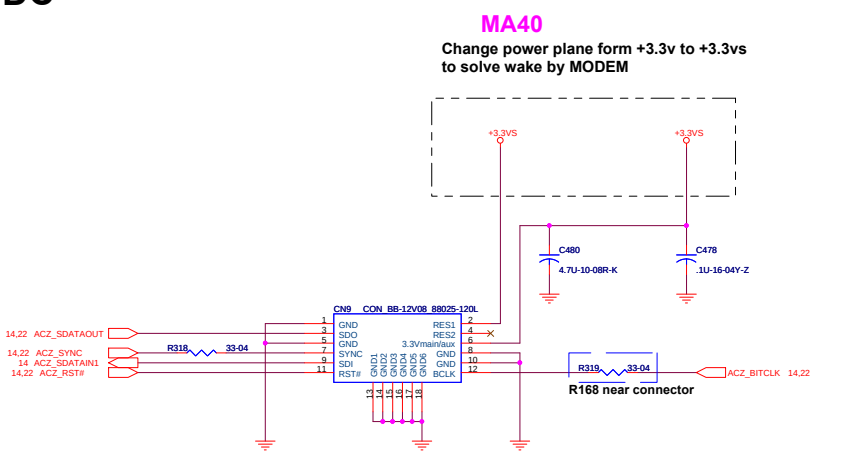


CHECK BT TYPE AND Life power function

Discharge Resistor



MDC



SHUTTLE INC		
Title	J14iM6	
Size: Custom	Document Number: SCHEMATICS	Rev: A
Date: Tuesday, November 24, 2009	Sheet 24 of 30	DC IN/MDC/Discharge Resistor/BT

VID: 0.8~1.175V
Icc max: 40A
LLS: set to 2.1mV/A

ADD R432 Pull-High to +3.3V in DELAY_VR_PWRGOOD solve open issue

MA6

B16 上件，JP2 OPEN FOR EMI

MA21

CHECK BATTERY Leacking current

MA45 ADD C641 C642 FOR EMI

OCP:50A

MA45 Change C201 to 0402 type

MA5

DEL CSN Connect to GND NET

MA10

MA45 ADD JP9 FOR EMI

MA45 Change C215 Location BY O2

Sense trace

to CPU

VID TABLE

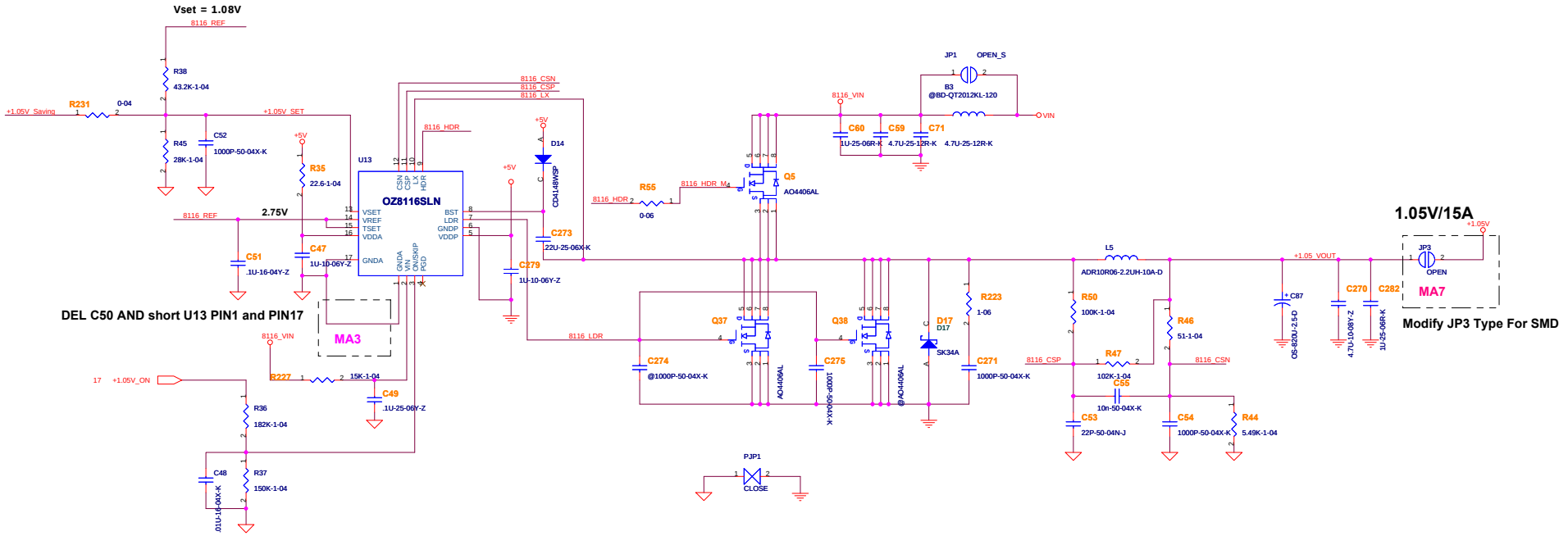
6	5	4	3	2	1	0	Vcore	Status
0	0	1	0	0	0	1	1.2875	(HFM)
0	0	1	1	0	0	0	1.2000	Boot Vout
0	0	1	1	1	0	0	1.1500	Merom(HFM)
0	1	1	0	1	0	1	0.8375	Y&M(LFM)
0	1	1	1	0	1	1	0.7625	Y&M(Deeper Sleep)
1	1	1	1	1	1	1	0.0000	Shut down

SHUTTLE INC

Title: J14iM6

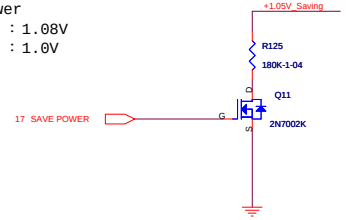
Size: Custom | Document Number: SCHEMATIC1 | CPU CORE | Rev: A

Date: Tuesday, November 24, 2009 | Sheet 25 of 30

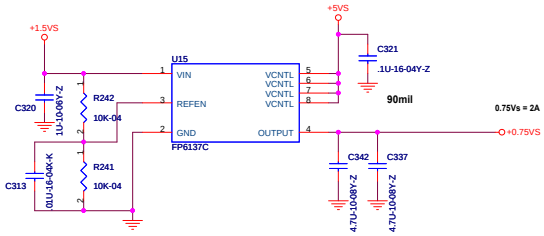


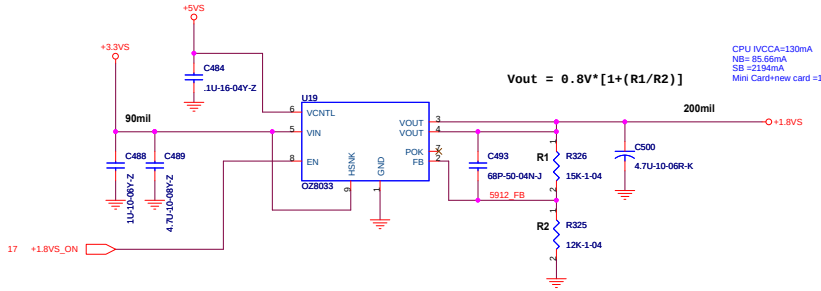
CHECK POWER SAVING 線路

Live Power
H State ：1.08V
L State ：1.0V



DDR3 Termination Power





SHUTTLE INC			
Title: J14iM6			
Size: Custom	Document Number: SCHEMATIC1	1.8VS/1.05VS/0.75VS	Rev: A
Date: Tuesday, November 24, 2009	Sheet 26 of 30		

+1.8V/+5V_ON Voltage	Mode
<0.4V	OFF
>0.6V	PWM
>2.1V	SKIP

Output Voltage =[Vref x R2/(R1+R2)] x 2

300mil

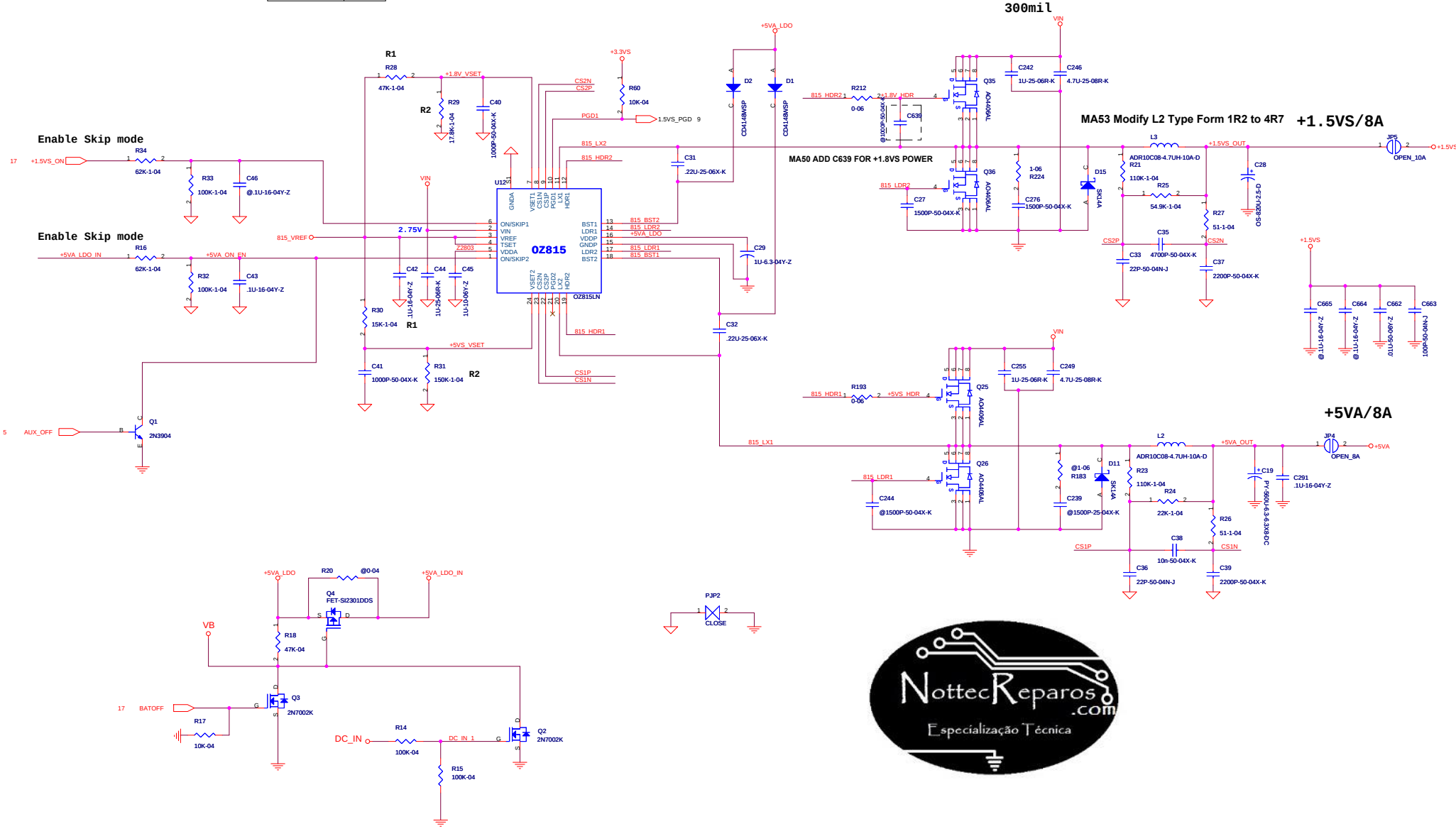
Enable Skip mode

Enable Skip mode

MA53 Modify L2 Type Form 1R2 to 4R7 **+1.5VS/8A**

MA50 ADD C639 FOR +1.8VS POWER

+5VA/8A



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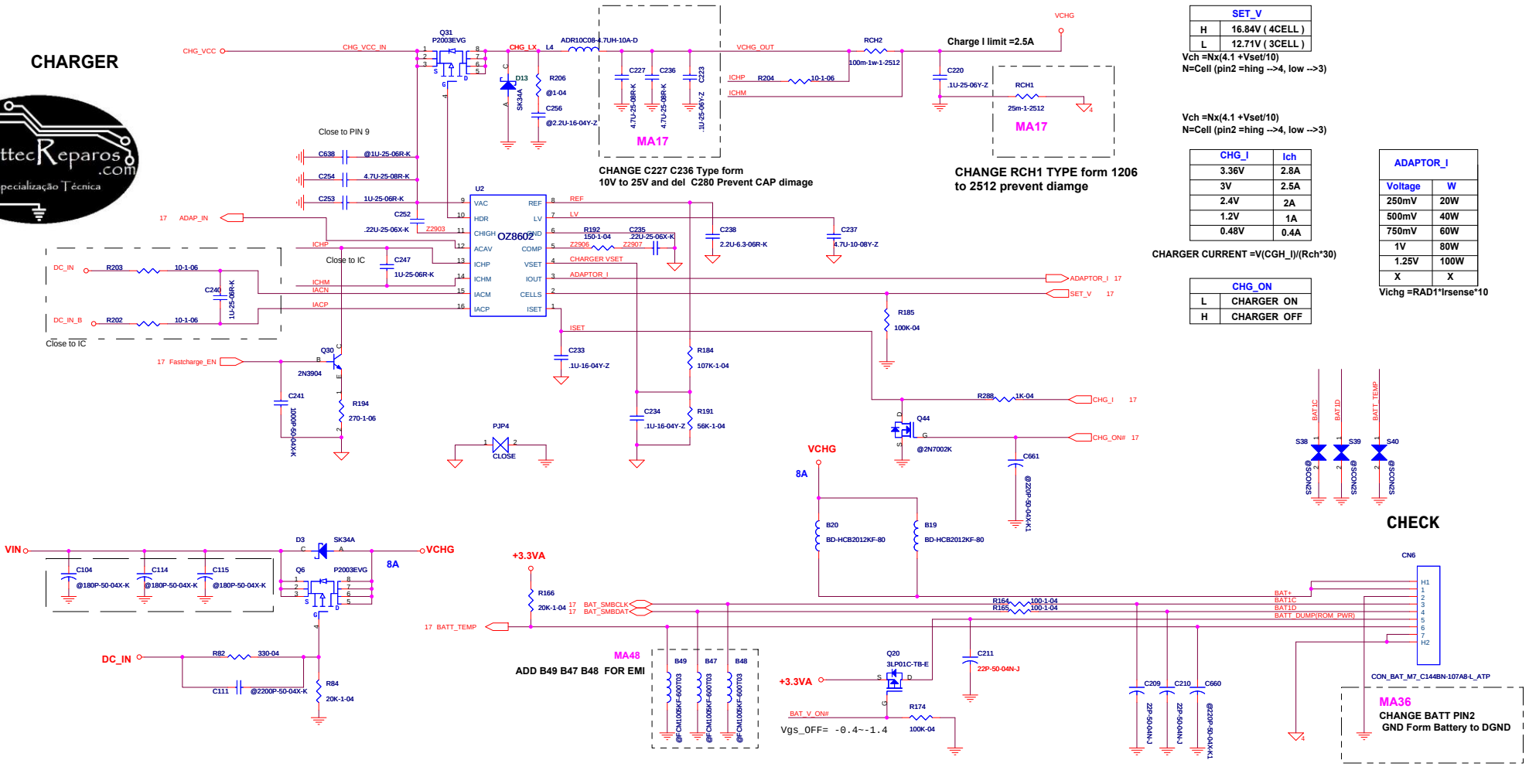
Title	SHUTTLE INC J14iM6
Size: Custom	Document Number: SCHEMATIC1 +3.3VA/+1.5VS/+5VA
Rev	A
Date: Tuesday, November 24, 2009	Sheet 27 of 30

CHARGER



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

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

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

CHG_I	Ich
3.36V	2.8A
3V	2.5A
2.4V	2A
1.2V	1A
0.48V	0.4A

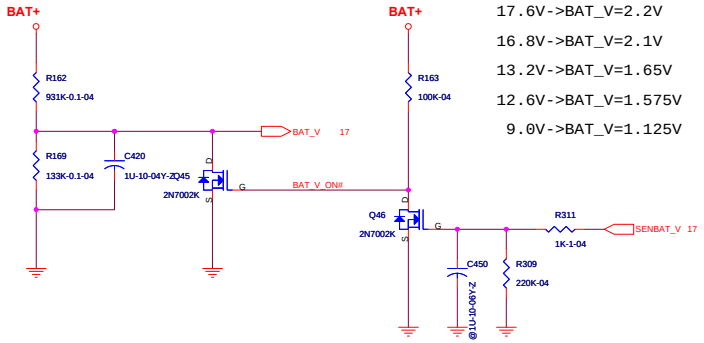
CHARGER CURRENT =V(CGH_I)/(Rch*30)

CHG_ON	
L	CHARGER ON
H	CHARGER OFF

ADAPTOR_I	
Voltage	W
250mV	20W
500mV	40W
750mV	60W
1V	80W
1.25V	100W
X	X

Vichg =RAD1*Irsense*10

Battery Voltage Detect



17.6V->BAT_V=2.2V

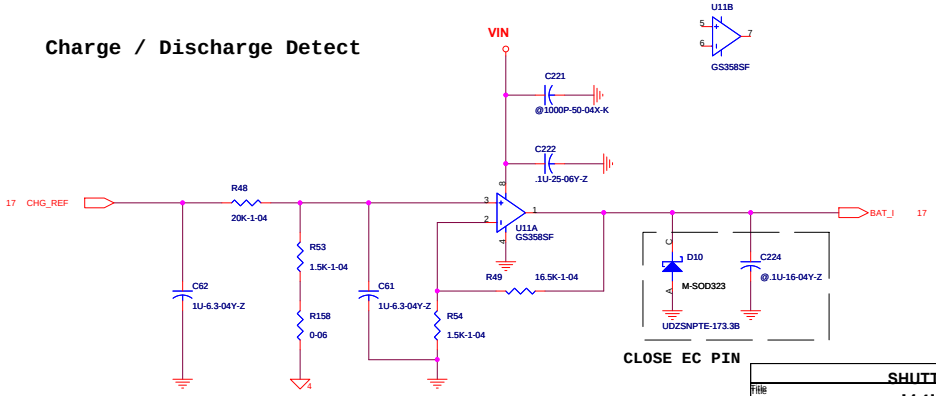
16.8V->BAT_V=2.1V

13.2V->BAT_V=1.65V

12.6V->BAT_V=1.575V

9.0V->BAT_V=1.125V

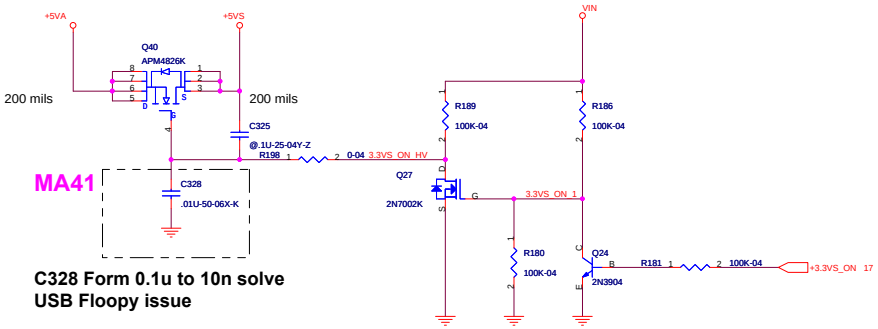
Charge / Discharge Detect



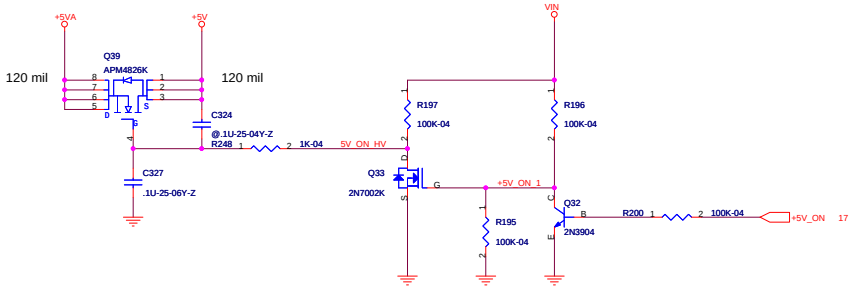
CLOSE EC PIN

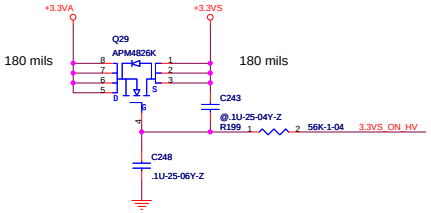
Title	SHUTTLE INC J14iM6		
Size: Custom	Document Number: SCHEMATIC1	BATT IN / CHARGER	Rev: A
Date: Tuesday, November 24, 2009	Sheet 28 of 30		

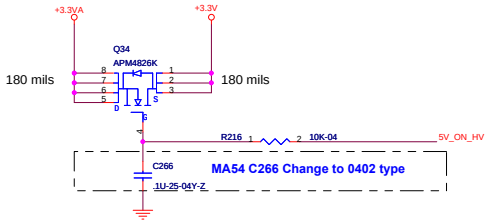
VCCSW

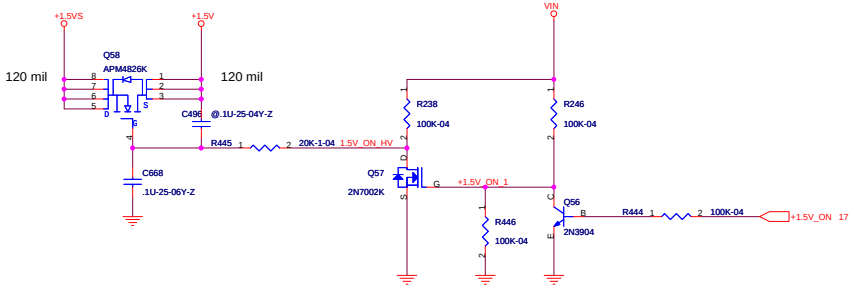


C328 Form 0.1u to 10n solve
USB Floopy issue

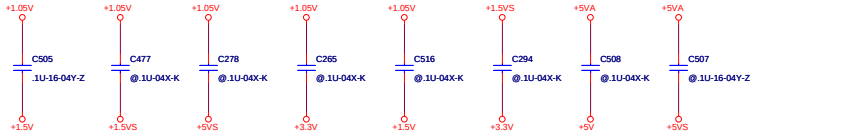


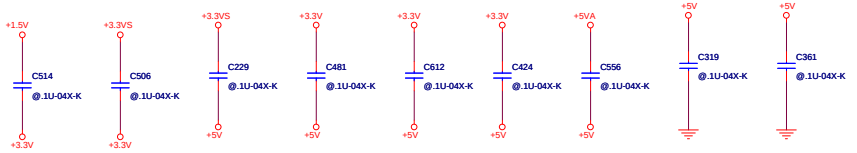


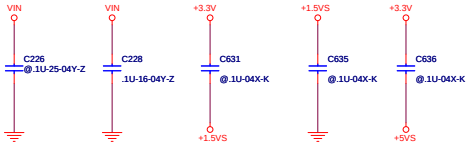


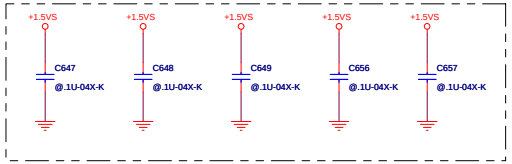


HIGH-SPEED CAP

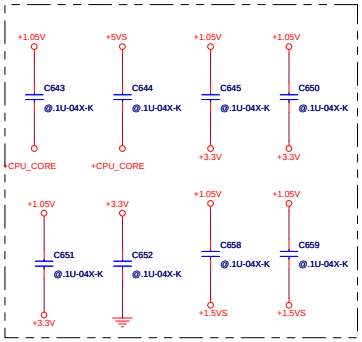






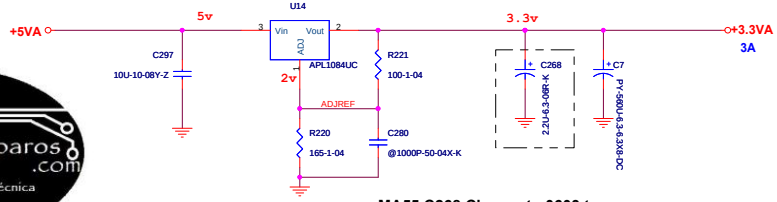


MA44 ADD H-SPEED CAP FOR EMI



LDO

Vout = 1.25V*(1+R1/R2)
= 1.054V



MA55 C268 Change to 0603 type

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Title	SHUTTLE INC J14iM6
Size: Custom	Document Number: SCHEMATIC1 VCC SW/+3.3VA/+1.5VS
Rev	A
Date: Tuesday, November 24, 2009	Sheet 29 of 30