

<http://skema-laptop-motherboard.blogspot.com/>



PCH IBEX GPIO	Use As	Signal Name	Internal & External Pull-up/down	Power
GPIO 00	GPO	NC_TP	-	+3VS
GPIO 01	GPO	NC_TP	INT TBD	+3VS
GPIO [2:5]	GPI	PCI_INT[E:H] #	EXT PU	+5VS
GPIO 06	GPO	NC_TP	INT TBD	+3VS
GPIO 07	GPO	NC_TP	INT TBD	+3VS
GPIO 08	GPI	EXT_SMI#	EXT PU & INT PU	+3VSUS
GPIO 09	Native	NC_PU	EXT PU	+3VSUS
GPIO 10	Native	NC_PU	EXT PU	+3VSUS
GPIO 11	GPI	EXT_SCI#	EXT PU	+3VSUS
GPIO 12	Native	NC_TP	-	+3VSUS
GPIO 13	GPO	NC_TP	-	+3VSUS
GPIO 14	GPO	NC_PU	EXT PU	+3VSUS
GPIO 15	GPO	BT_LED	INT PD	+3VSUS
GPIO 16	GPI	DGPU_HOLD_RST#	EXT PU	+3VS
GPIO 17	GPI	DGPU_PWROK	EXT PD & INT TBD	+3VS
GPIO 18	GPI	CLKREQ1#_TV	EXT PD	+3VS
GPIO 19	GPI	SATA1GP	EXT PU	+3VS
GPIO 20	Native	CLKREQ2#_WLAN	EXT PD	+3VS
GPIO 21	GPI	SATA0GP	EXT PU	+3VS
GPIO 22	GPO	WLAN_LED	EXT PD	+3VS
GPIO 23	Native	NC_TP	INT PU	+3VS
GPIO 24	GPO	NC_TP	-	+3VSUS
GPIO 25	GPI	CLKREQ3#_NEWCARD	EXT PD	+3VSUS
GPIO 26	GPI	CLK_REQ4#_CB	EXT PD	+3VSUS
GPIO 27	GPO	NC_TP	INT WEAK PU	+3VSUS
GPIO 28	GPO	WLAN_ON#	EXT PD	+3VSUS
GPIO 29	Native	NC_TP	EXT PU (DNI) / PD (DNI)	+3VSUS
GPIO 30	GPO	ME_SusPwrDnAck	EXT PU	+3VSUS
GPIO 31	Native	ME_AC_PRESENT	EXT PU	+3VSUS
GPIO 32	GPIO	PM_CLKRUN#	EXT PU	+3VS
GPIO 33	GPI	HDA_DOCK_EN#	-	+3VS
GPIO 34	Native	NC_TP	-	+3VS
GPIO 35	GPO	SATA_CLK_REQ#	EXT PD	+3VS
GPIO 36	GPI	DGPU_PWR_EN#	EXT PU	+3VS
GPIO 37	GPI	DGPU_PRSENT#	EXT PU	+3VS
GPIO 38	GPI	PCB_ID0	EXT PD	+3VS
GPIO 39	GPI	PCB_ID1	EXT PD	+3VS
GPIO 40	Native	NC_PU	EXT PU	+3VSUS
GPIO 41	Native	NC_PU	EXT PU	+3VSUS
GPIO 42	Native	NC_PU	EXT PU	+3VSUS
GPIO 43	Native	NC_PU	EXT PU	+3VSUS
GPIO 44	Native	CLK_REQ5#	EXT PU	+3VSUS
GPIO 45	Native	NC_TP	EXT PU	+3VSUS
GPIO 46	Native	NC_TP	EXT PU	+3VSUS
GPIO 47	GPI	CLKREQ_PEG#	EXT PU	+3VSUS
GPIO 48	GPO	NC_TP	-	+3VS
GPIO 49	GPIO	PCH_TEMP_ALERT#	EXT PU	+3VS
GPIO 50	Native	PCI_REQ1#	EXT PU	+5VS
GPIO 51	Native	PCI_GNT1#	INT PU	+3VS
GPIO 52	Native	DGPU_SELECT#_R	EXT PU	+5VS
GPIO 53	GPO	NC_TP	INT PU	+3VS
GPIO 54	Native	PCI_REQ3#	EXT PU	+5VS
GPIO 55	Native	PCI_GNT3#	INT PU	+3VS
GPIO 56	GPI	CLKREQ_GLAN#	EXT PD	+3VSUS
GPIO 57	GPO	BT_ON	EXT PU (DIODE)	+3VSUS
GPIO 58	GPIO	SML1_CLK	EXT PU	+3VSUS
GPIO 59	Native	NC_PU	EXT PU	+3VSUS
GPIO 60	Native	SML0ALERT#	EXT PU	+3VSUS
GPIO 61	Native	NC_TP	-	+3VSUS
GPIO 62	Native	NC_TP	-	+3VSUS
GPIO 63	Native	NC_TP	-	+3VSUS
GPIO 64	Native	NC_TP	INT TBD	+3VS
GPIO 65	Native	NC_TP	INT TBD	+3VS
GPIO 66	Native	NC_TP	INT TBD	+3VS
GPIO 67	Native	NC_TP	INT TBD	+3VS
GPIO 72	Native	PM_BATLOW#	EXT PU	+3VSUS
GPIO 73	Native	CLK_REQ0#	EXT PU	+3VSUS
GPIO 74	Native	SML1ALERT#	EXT PU	+3VSUS
GPIO 75	GPIO	SML1_DATA	EXT PU	+3VSUS

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EC GPIO	Use As	Signal Name
GPA0	O	PWR_LED#
GPA1	O	CHG_LED#
GPA2	-	-
GPA3	-	-
GPA4	O	LCD_BL_PWM
GPA5	O	FAN0_PWM
GPA6	-	-
GPA7	-	-
GPB0	O	BATSEL_0
GPB1	O	BATSEL_1
GPB2	O	ME_AC_PRESENT_EC
GPB3	IO	SMB0_CLK
GPB4	IO	SMB0_DAT
GPB5	O	A20GATE
GPB6	O	RCIN#
GPB7	O	PM_RSMRST#
GPC0	-	-
GPC1	IO	SMB1_CLK
GPC2	IO	SMB1_DAT
GPC3	O	PM_PWRBTN#
GPC4	I	AC_IN_OC#
GPC5	O	OP_SD#
GPC6	I	BAT1_IN_OC#
GPC7	I	RFON_SW#
GPD0	I	PWRLIMIT#
GPD1	I	PM_SUSC#
GPD2	I	BUF_PLT_RST#
GPD3	O	EXT_SCI#
GPD4	O	EXT_SMI#
GPD5	O	LCD_BACKOFF#
GPD6	I	FAN0_TACH
GPD7	-	-
GPE0	O	VSUS_ON
GPE1	O	EGAD (IT8301 Address/Data connect)
GPE2	O	EGCS (IT8301 Cycle Start connect)
GPE3	O	EGCLK (IT8301 Clock connect)
GPE4	I	PWR_SW#
GPE5	-	-
GPE6	I	LID_SW#
GPE7	-	-
GPF0	O	-
GPF1	-	-
GPF2	I	EXP_GATE#
GPF3	-	-
GPF4	I	TP_CLK
GPF5	IO	TP_DAT
GPF6	O	THRO_CPU
GPF7	O	PCH_SPI_OV
GPG0	I	ME_SusPwrDnAck_EC
GPG1	I	PM_SUBS#
GPG2	-	-
GPG6	-	-
GPH0	IO	PM_CLKRUN#
GPH1	O	GFX_VR_ON
GPH2	O	CHG_EN
GPH3	O	SUSC_EC#
GPH4	O	SUSB_EC#
GPH5	O	NUM_LED#
GPH6	O	CAP_LED#
GPI0	-	-
GPI1	I	SUS_PWRGD
GPI2	I	ALL_SYSTEM_PWRGD
GPI3	I	VRM_PWRGD
GPI4	I	PCH_TEMP_ALERT#
GPI5	I	ALS_AD
GPI6	I	CAP_ACK_A#
GPI7	I	CAP_ACK_B#
GPJ0	O	CPU_VRON
GPJ1	O	PM_PWROK
GPJ2	O	VSET_EC
GPJ3	O	ISSET_EC
GPJ4	O	TP_LED
GPJ5	-	-

EC GPIO	Use As	Signal Name
GPIO0	I	ME_PM_SLP_M#
GPIO1	I	ME_SusPwrDnAck
GPIO2	-	-
GPIO3	-	-
GPIO4	I	ME_+VM_PWRGD
GPIO5	I	ME_PM_SLP_LAN#
GPIO6	O	ME_AC_PRESENT
GPIO7	-	-
GPIO8	-	-
GPIO9	-	-
GPIO10	-	-
GPIO11	-	-
GPIO12	O	ME_PWROK
GPIO13	-	-
GPIO14	O	ME_SLP_M_EC#
GPIO15	-	-
GPIO16	-	-
GPIO17	-	-
GPIO18	-	-
GPIO19	-	-
GPIO20	-	-
GPIO21	-	-
GPIO22	-	-
GPIO23	-	-
GPIO24	-	-
GPIO25	-	-
GPIO26	-	-
GPIO27	-	-
GPIO28	-	-
GPIO29	-	-
GPIO30	-	-
GPIO31	-	-
GPIO32	-	-
GPIO33	-	-
GPIO34	-	-
GPIO35	-	-
GPIO36	-	-
GPIO37	-	-

SM_BUS ADDRESS :

PCH Master	
SM-Bus Device	SM-Bus Address
Clock Generator(ICS9LR53197)	1101001x (D2)
SO-DIMM 0	1010000x (A0)
SO-DIMM 1	1010001x (A2)
VID Controller(ASM8272)	0011011x (36)
WiFi/WiMax	N/A
EC Master (SMB1)	
SM-Bus Device	SM-Bus Address
CPU Thermal Sensor	-
VGA Thermal IC(G781-1)	1001101x (9A)

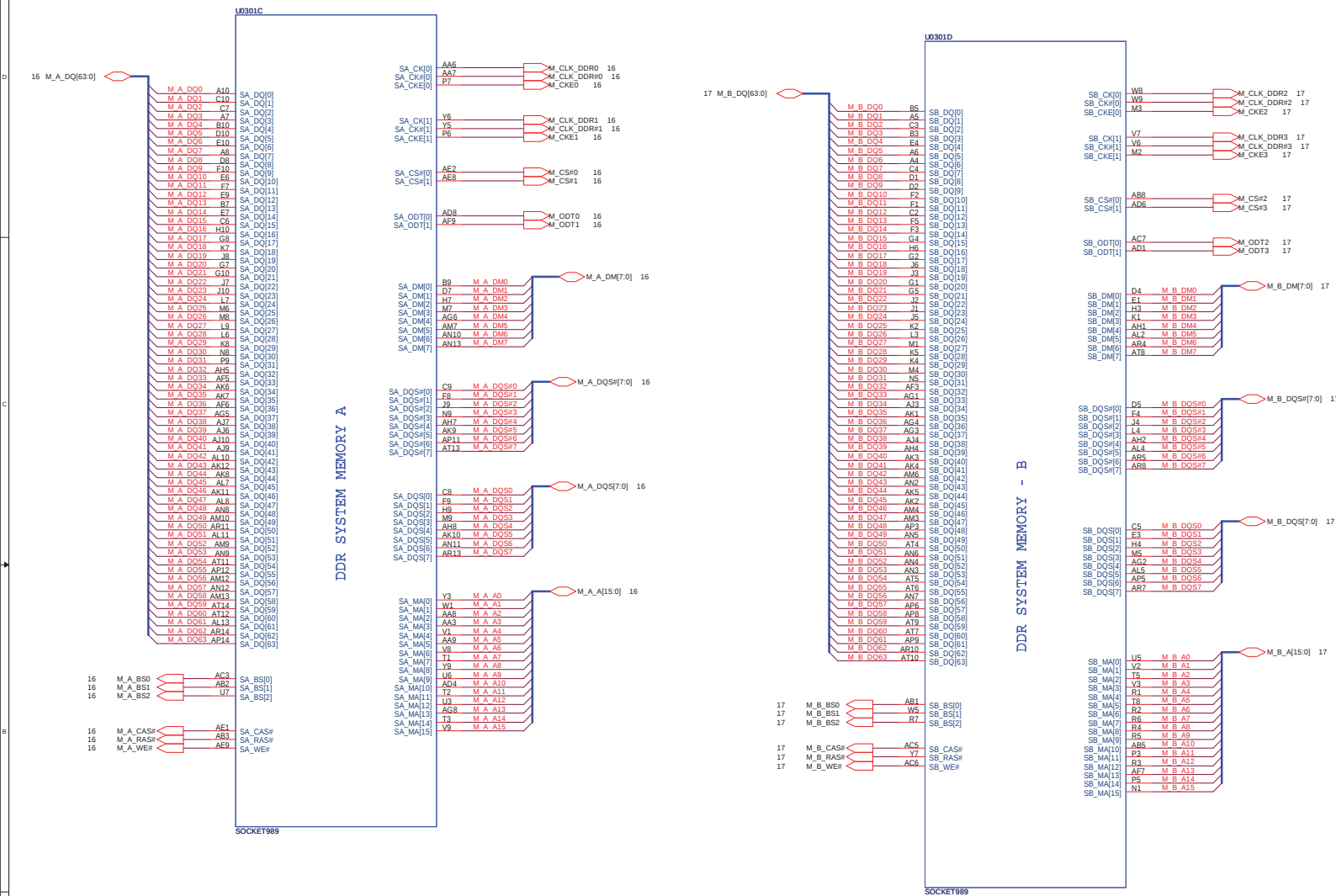
Device Identification

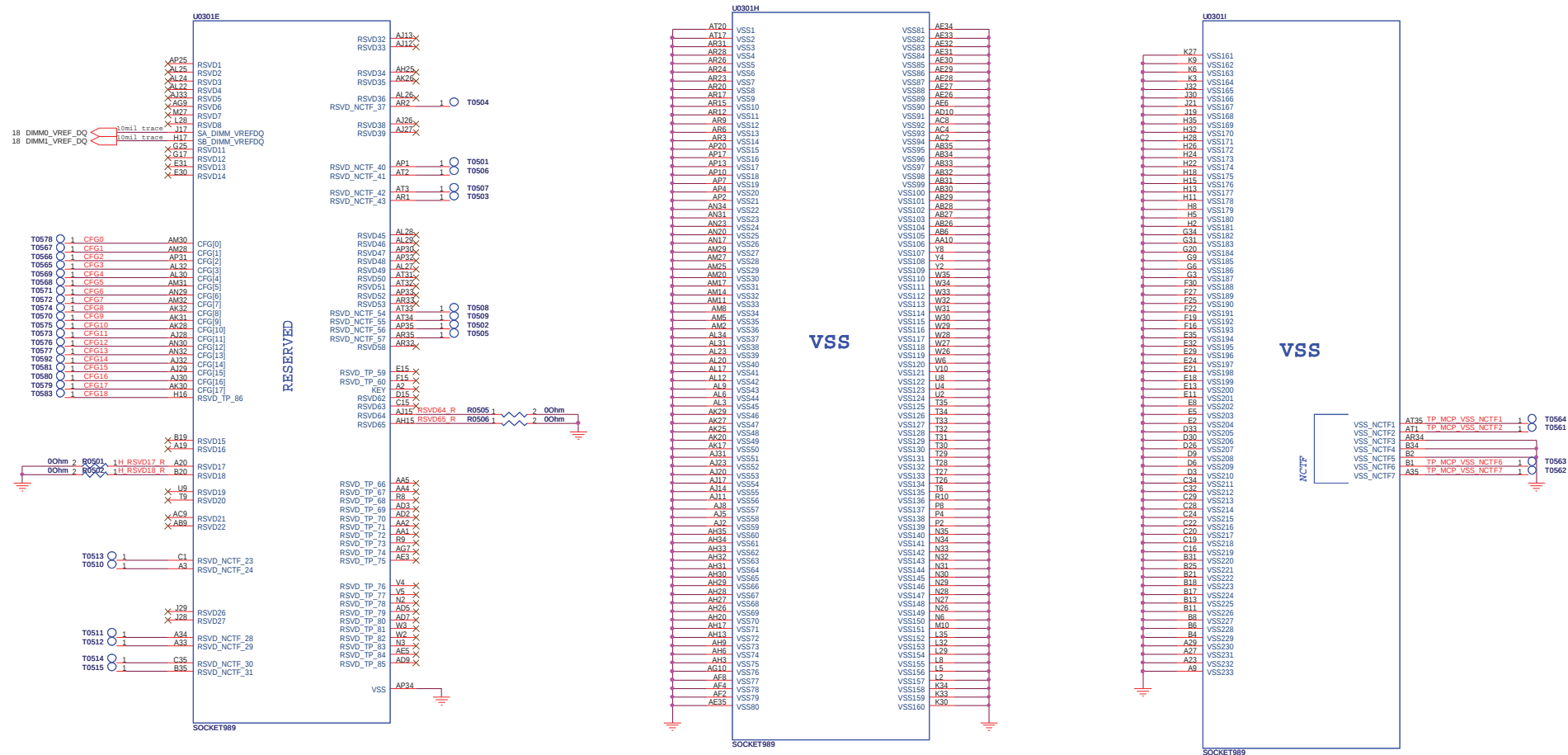
	CPU Thermal Sensor P/N:	component name
1st		
S		
S		
S		
	Clock Gen P/N:	component name
1st	06G011604010	ICS9LR53197
S		
S		
	VGA Thermal Sensor	component name
1st	06G023048020	G781-1
S		
S		

PCIE 1	Minicard TV Tuner
PCIE 2	Minicard WLAN
PCIE 3	Newcard
PCIE 4	
PCIE 5	Card reader
PCIE 6	GLAN
PCIE 7	
PCIE 8	

SATA 0	SATA HDD (1)
SATA1	SATA ODD
SATA4	SATA HDD (2)
SATA5	ESATA

USB 0	USB Port (1)
USB 1	USB Port (2)
USB 2	USB Port (3)
USB 3	USB Port (4)
USB 4	Minicard TV Tuner
USB 5	NewCard
USB 6	
USB 7	
USB 8	WLAN
USB 9	CMOS Camera
USB 10	
USB 11	
USB 12	Bluetooth
USB 13	Finger Printer





CFG strapping information:

CFG[1:0]: PCI Express Port Bifurcation:(Clarksfield Only)

- 11 = 1 x 16 PEG (Default)

- 10 = 2 x 8 PEG

CFG[3]: PCIe Static Numbering Lane Reversal.(Auburndale Only)

- 1: Normal Operation (Default)

- 0: Lane Numbers Reversed 15 -> 0, 14 -> 1, ...

CFG[4]: Embedded DisplayPort Detection.(Auburndale Only)

- 1: Disabled - No Physical Display Port attached to Embedded DisplayPort

- 0: Enabled - An external Display Port device is connected to the Embedded Display Port

CFG[7]: Fixed for PCI Express 2.0 jitter specifications.(Clarksfield)

Clarksfield (only for early samples pre-E311 - Connect to GND with 3.01K Ohm/5% resistor

for a common motherboard design (for AUB and CFD).

the pull-down resistor should be used. Does not impact AUB functionality.

Unmount if Intel has fixed this issue.

Note: (Auburndale)Hardware Straps are sampled on the asserting edge of VCCPWRGOOD_0 and VCCPWRGOOD_1 and latched inside the processor.

Note: (Clarksfield)Hardware Straps are sampled after RSTIN# de-assertion.

Intel sighting #: 402607(3393727)

To drive a value of zero on CFG[0] pin

use a 250 Ohm pull down resistor to Vss.

CFG0 R0535 2 3.01KOHM

CFG3 R0536 2 3.01KOHM

CFG4 R0537 2 3.01KOHM

CFG7 R0538 2 3.01KOHM

CFG7 R0538 2 3.01KOHM

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CFG7 R0538 2 3.01KOHM

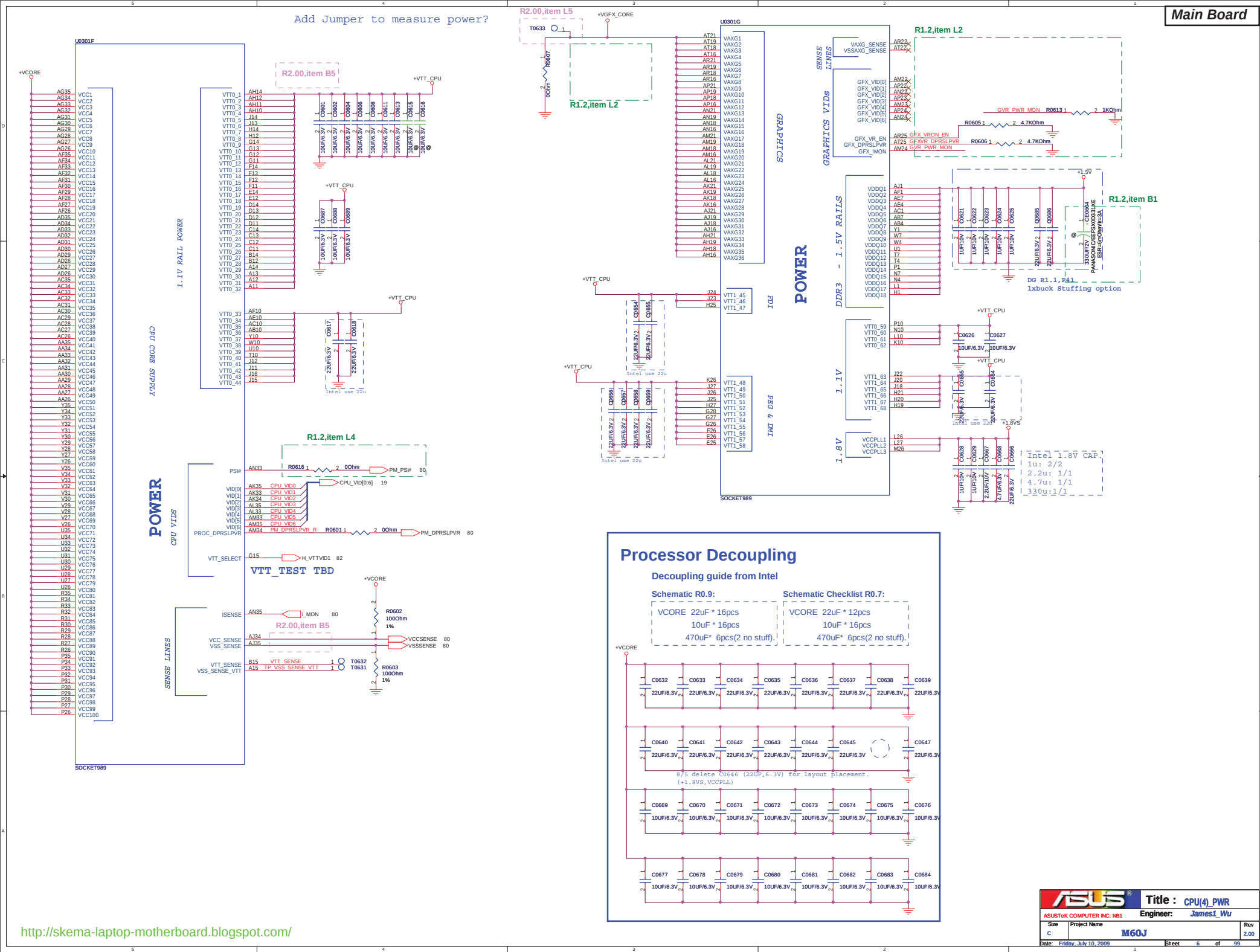
CFG7 R0538 2 3.01KOHM

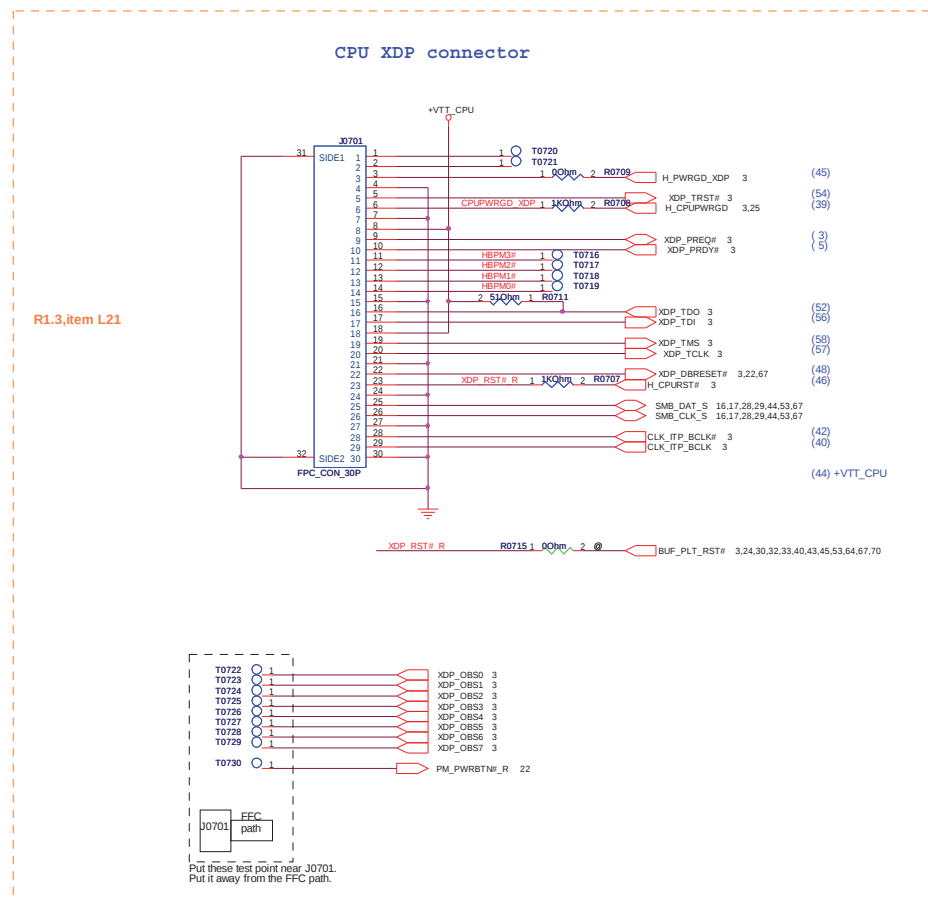
CFG7 R0538 2 3.01KOHM

CFG7 R0538 2 3.01KOHM

R1.1,item B1

Add Jumper to measure power?





5

4

3

2

1

D

D

C

C

B

B

A

A

		Title : NB ****	
ASUSTek COMPUTER INC. NB1		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009		Sheet	8 of 99

D

C

B

A



		Title : NB ****	
ASUSTek COMPUTER INC. NB1		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009		Sheet	9 of 99

D

C

B

A



D

C

B

A



D

C

B

A



D

C

B

A



		Title : NB ****	
ASUSTek COMPUTER INC. NB1		Engineer: James1_Wu	
Size	Project Name		Rev
Custom	M60J		2.00
Date: Thursday, July 02, 2009	Sheet	11	of 99

D

C

B

A



D

C

B

A



		Title : NB ****	
ASUSTek COMPUTER INC. NB1		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009	Sheet	12	of 99

Main Board

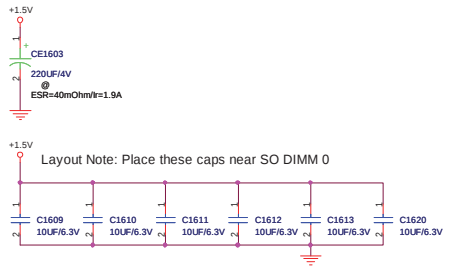
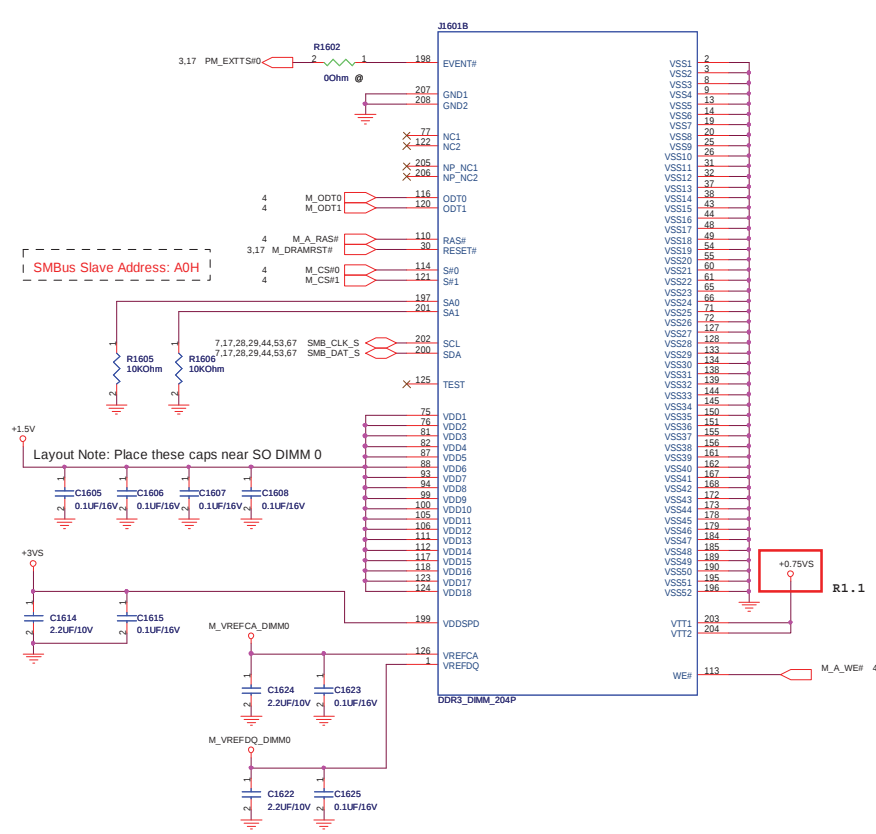
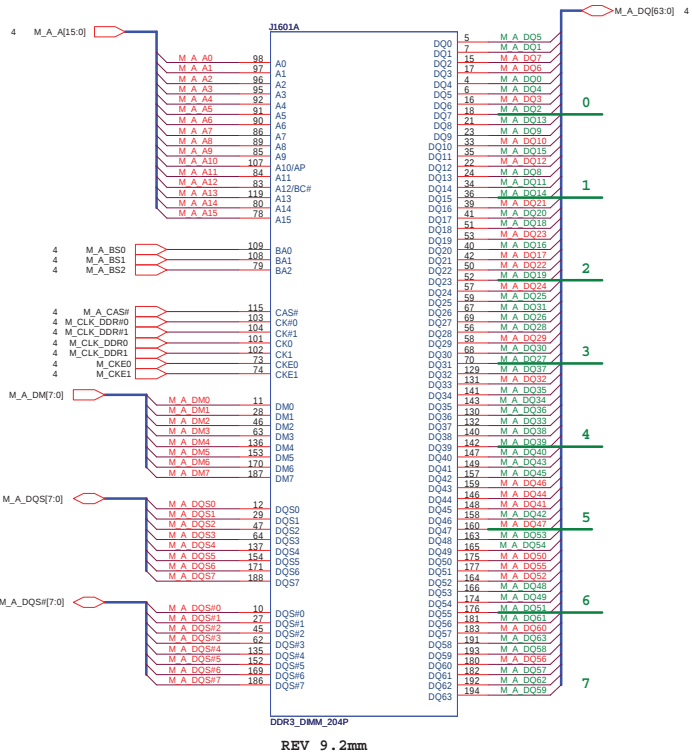
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ASUSTek COMPUTER INC. NB1		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009		Sheet	13 of 99



		Title :	
ASUSTeK COMPUTER INC. NB6		Engineer: <i>James1_Wu</i>	
Size <i>A</i>	Project Name M60J		Rev <i>2.00</i>
Date: <i>Thursday, July 02, 2009</i>		Sheet <i>14</i> of <i>99</i>	

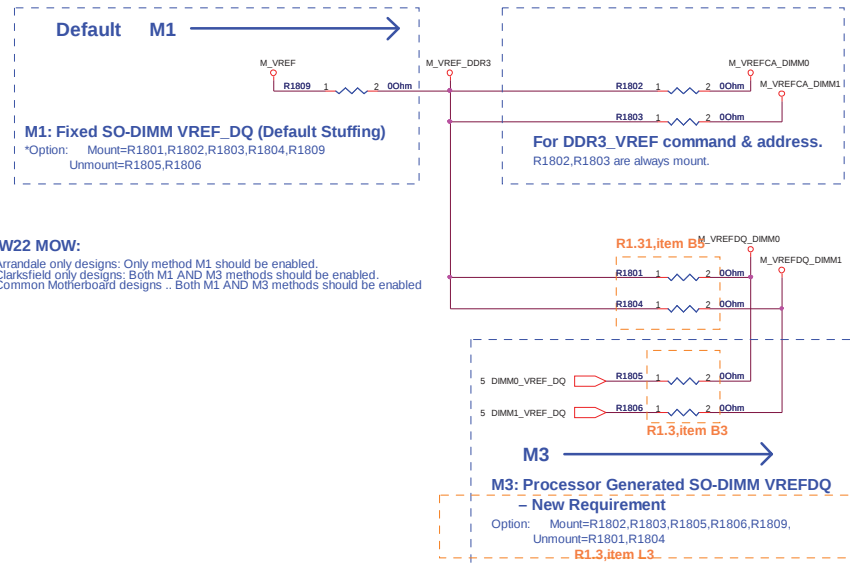


		Title :	
ASUSTeK COMPUTER INC. NB6		Engineer: <i>James1_Wu</i>	
Size <i>A</i>	Project Name M60J		Rev <i>2.00</i>
Date: <i>Thursday, July 02, 2009</i>		Sheet <i>15</i> of <i>99</i>	

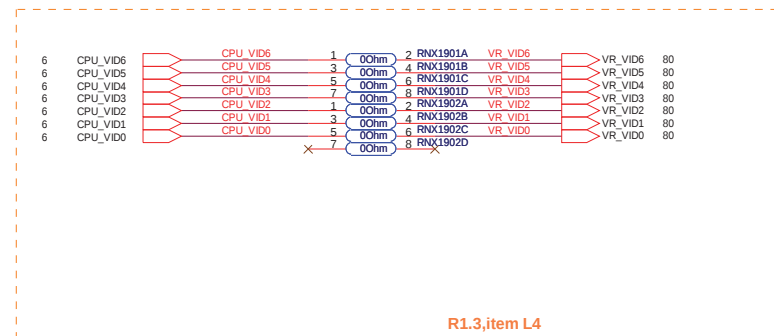


DDR3 Vref

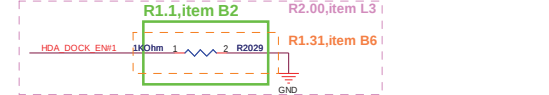
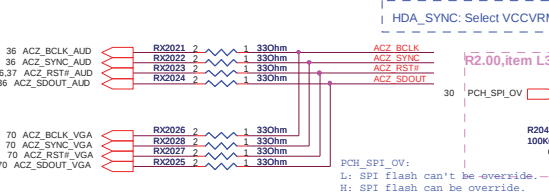
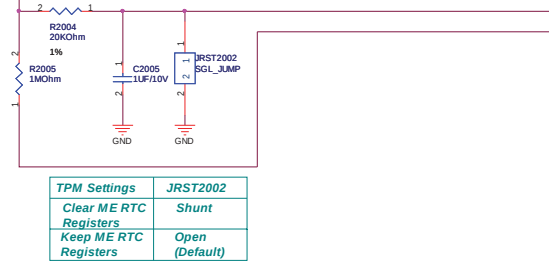
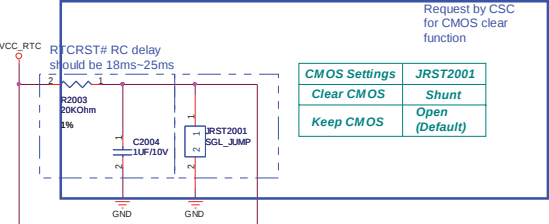
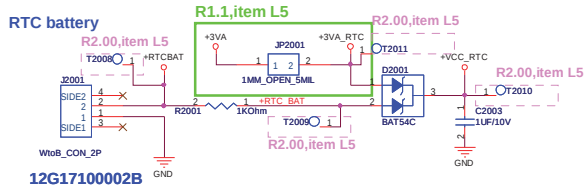
Intel Document Number: 400755
Calpella Clarksfield DDR3 SO-DIMM VREFDQ
Platform Design Guide Change Details



R1.3,item L3



RTC battery



WW22 MOW:
HDA_DOCK_EN# pull-down resistor changed to 1K Ohm.

414044 Design Guide R1.11 Update: page9

GPI033:
This signal should be only asserted low through an external pull-down in manufacturing or debug environments ONLY.
Without connecting GPI033, customers may not be able to override SPI flash contents.

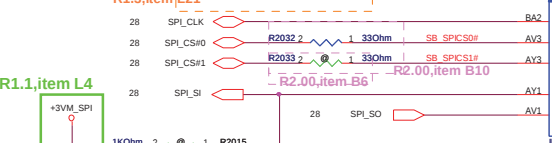
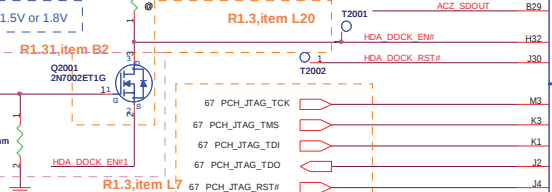
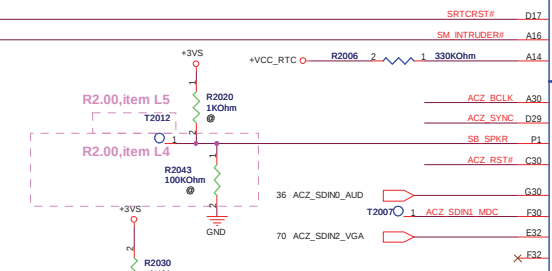
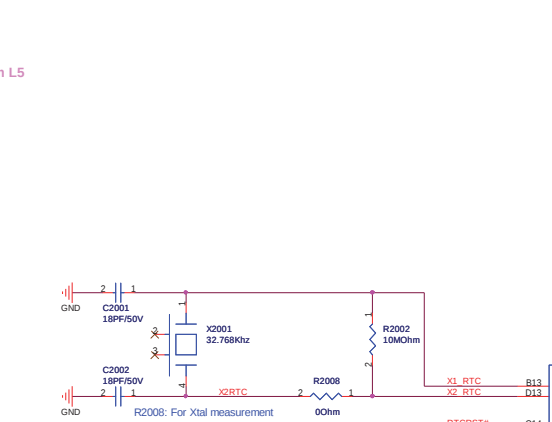
Strap information:

HDA_SPKR: No reboot strap
Low: Disable.
High: Enable

HDA_DOCK_EN#:
1. Flash descriptor security:
Sampled low: override
Sampled high: in effect.
2. GPI033 low on the rising edge of PWROX, Will also disable Intel ME.

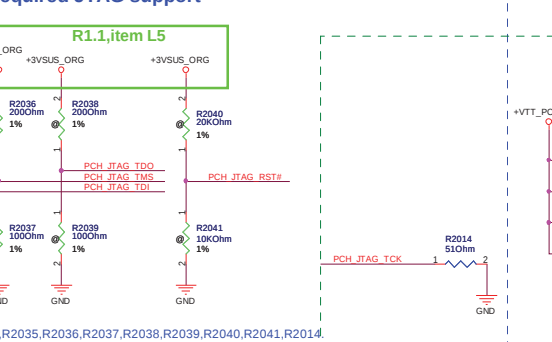
SPI MOSI: iTPM strap.
Mount R2015: Enable

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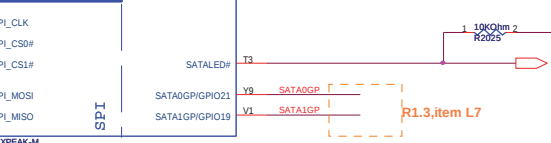
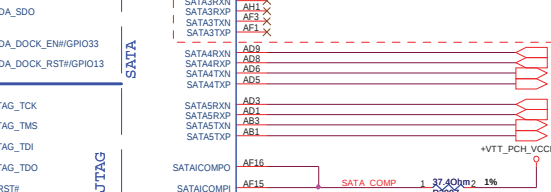
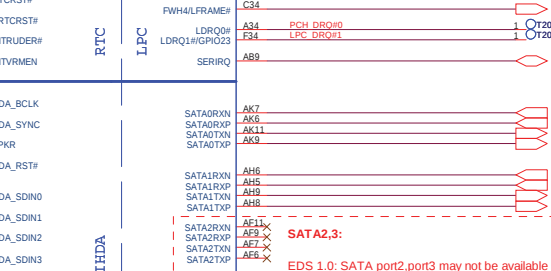
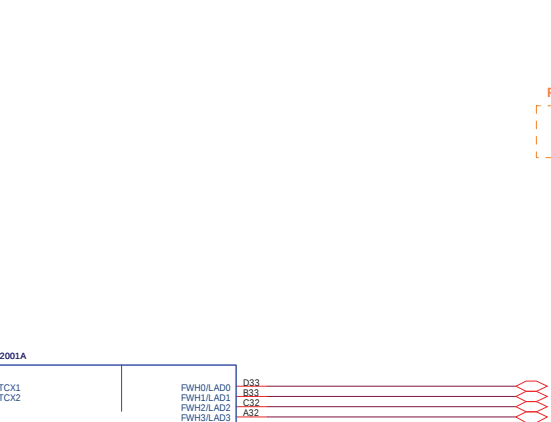


R1.2, item L5

MoW50 IhexPeak JTAG requirements:

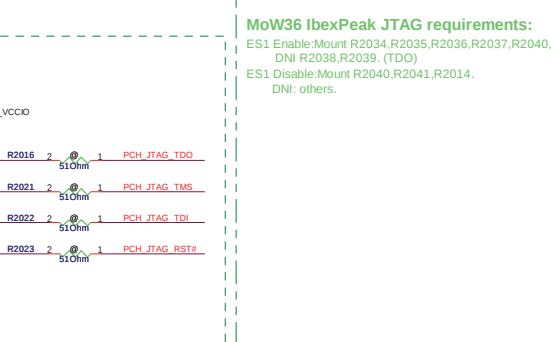


ES2 Mount: R2034, R2035, R2036, R2037, R2038, R2039, R2040, R2041, R2014

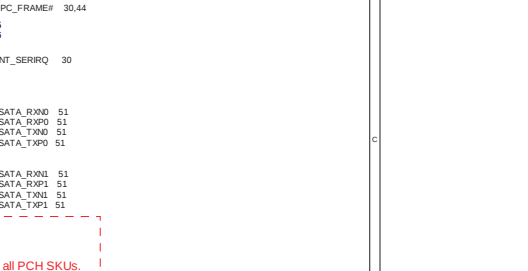


R1.2, item L5

MoW50 IhexPeak JTAG requirements:

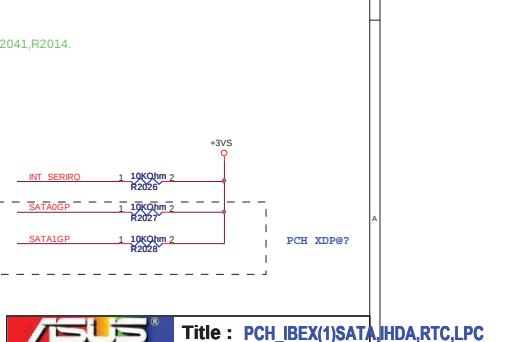


ES2 Mount: R2034, R2035, R2036, R2037, R2038, R2039, R2040, R2041, R2014

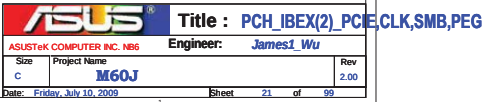


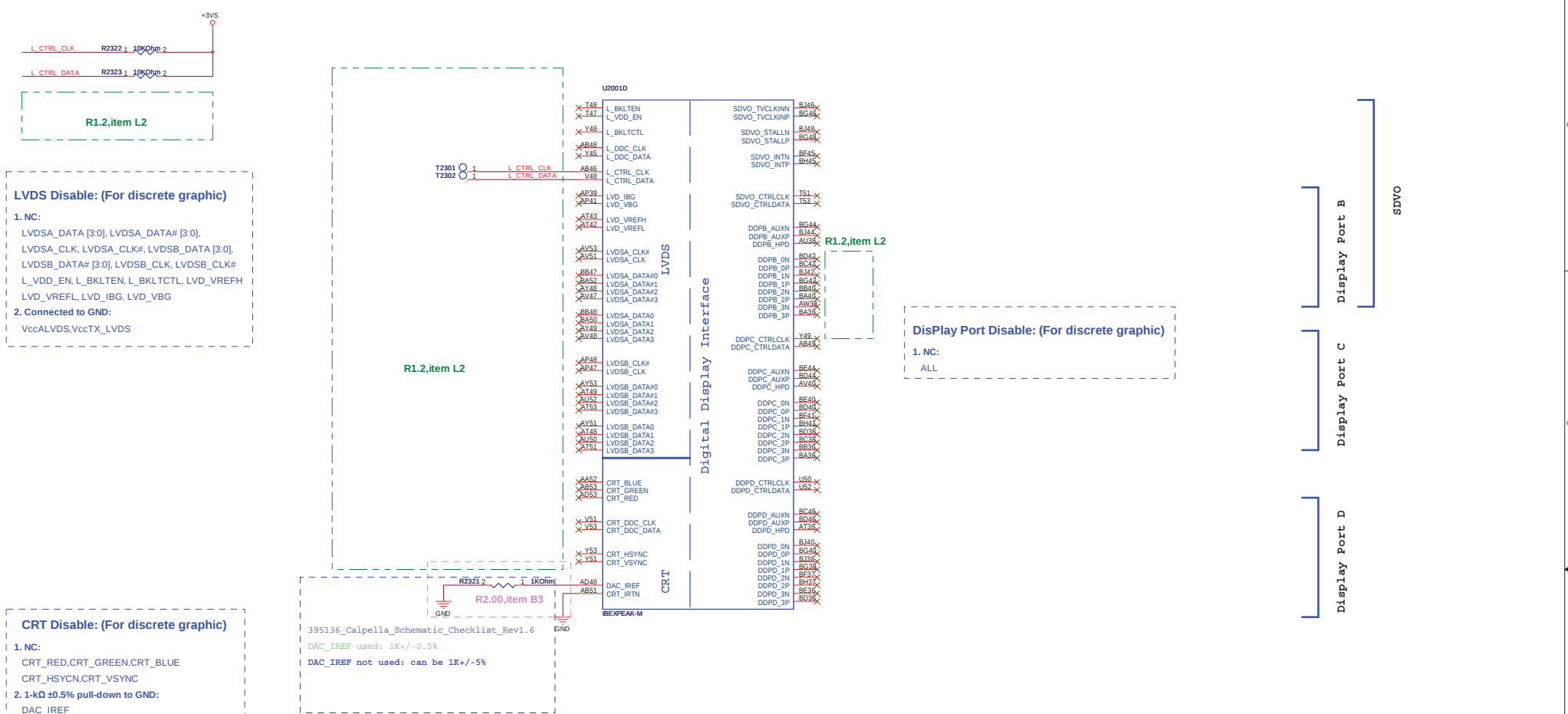
R1.2, item L5

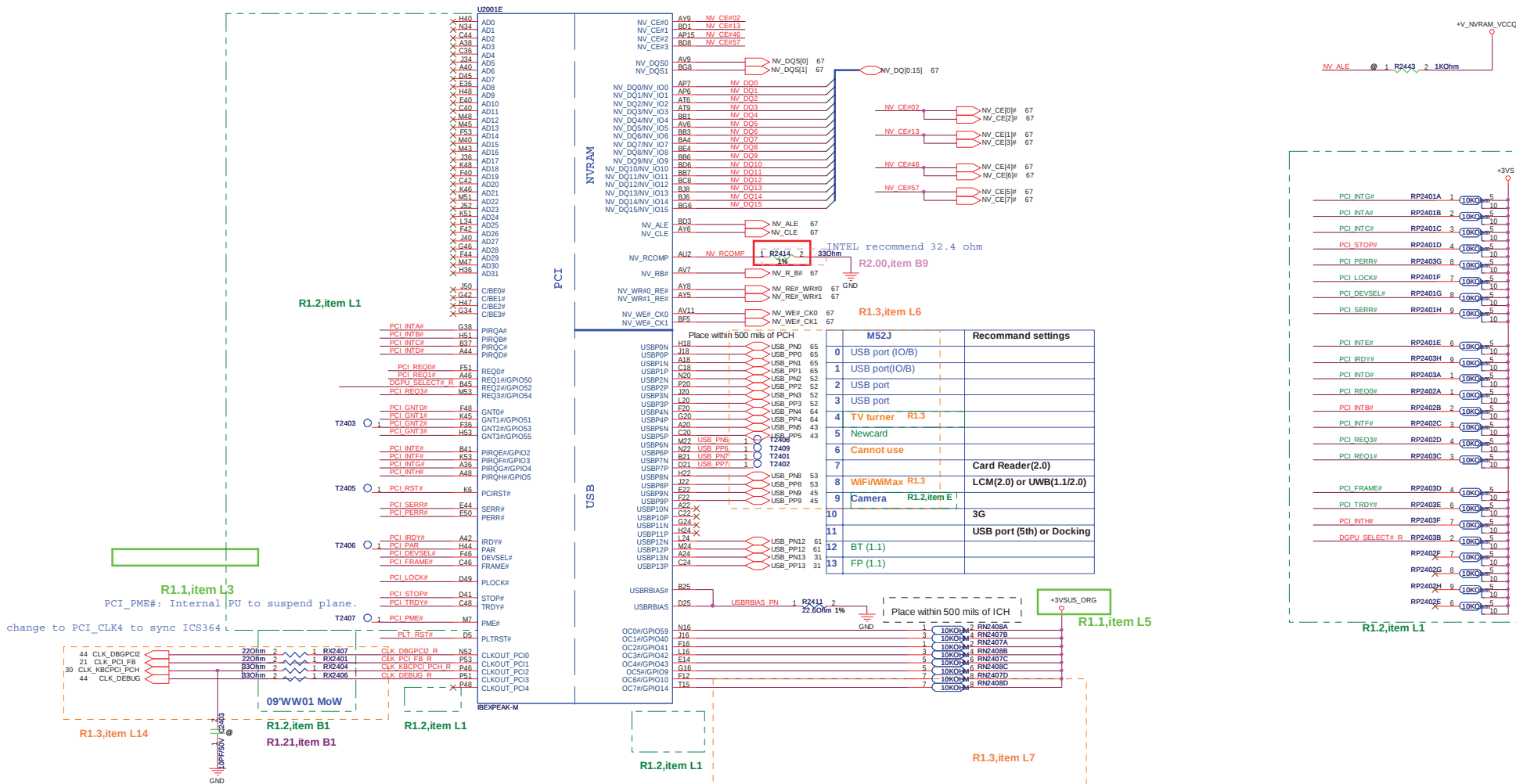
MoW50 IhexPeak JTAG requirements:



ES2 Mount: R2034, R2035, R2036, R2037, R2038, R2039, R2040, R2041, R2014







GNT0#, GNT1#: Boot BIOS Strap.

Boot BIOS Strap		
PCI_GNT0#	PCI_GNT1#	Boot BIOS Location
0	0	LPC
0	1	PCI
1	0	Reserved
1	1	SPI (PCH)

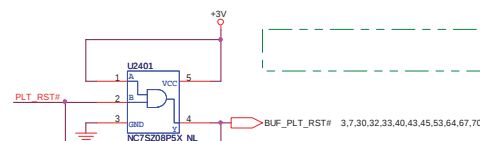
Sampled on rising edge of PWROK.



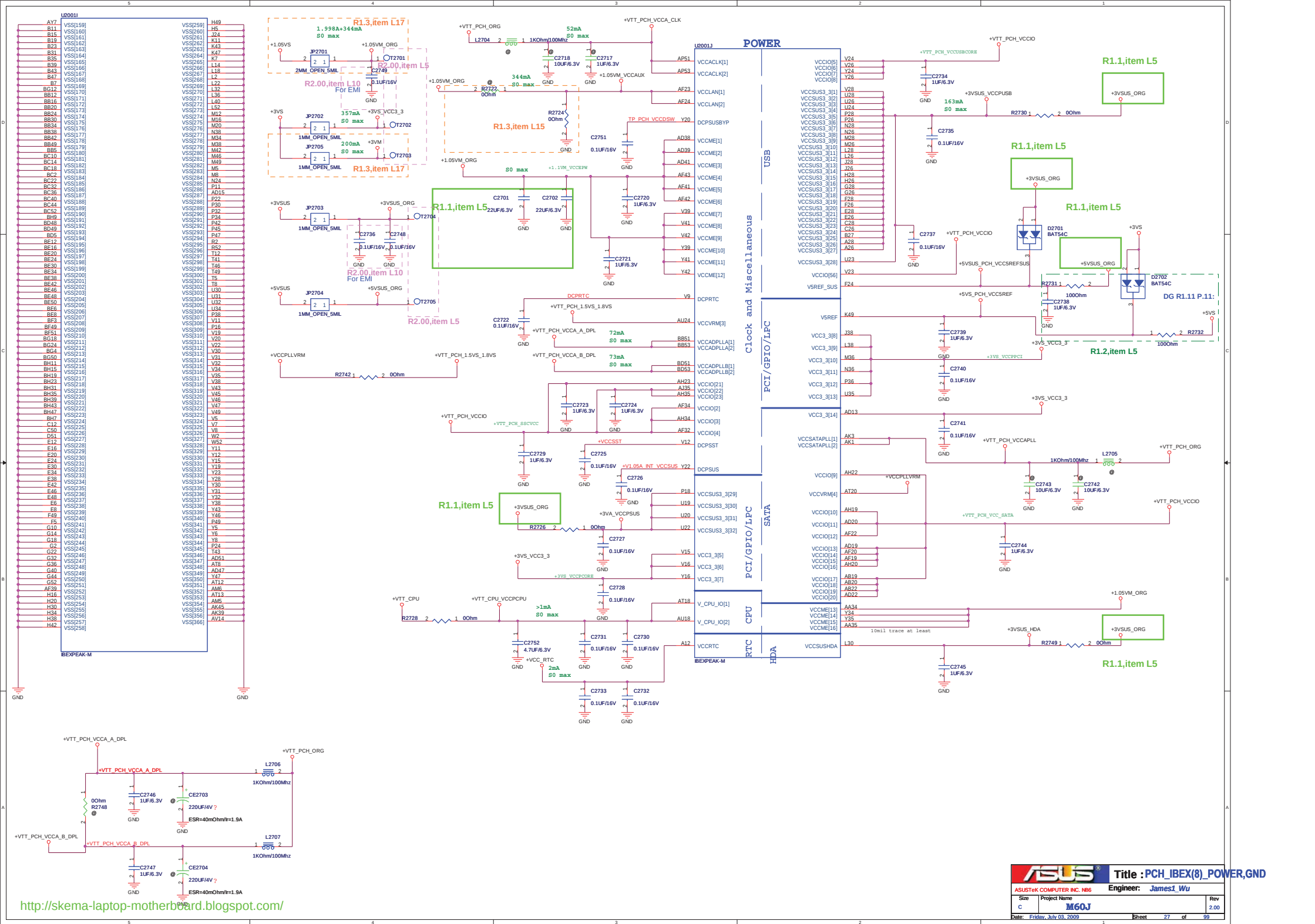
GNT3#: A16 swap override Strap/ Top-Block swap override jumper

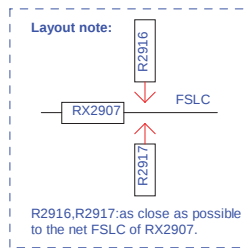
Low=Enabled A16 swap override/
Top-Block swap override

High=Default

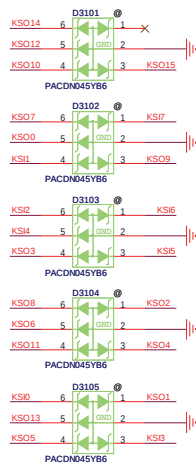




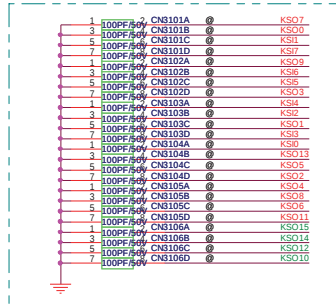




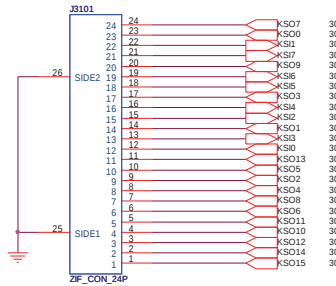
R2.00,item L14



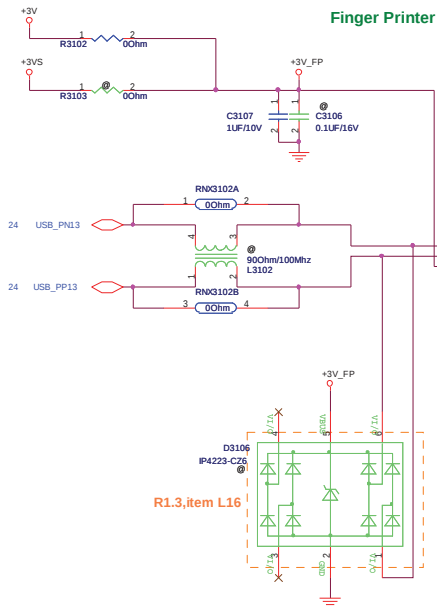
EMI



Keyboard



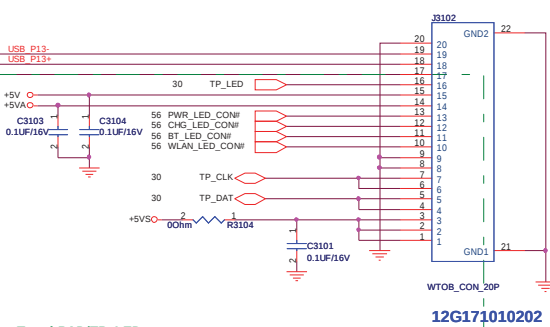
Finger Printer



R1.1,item L14



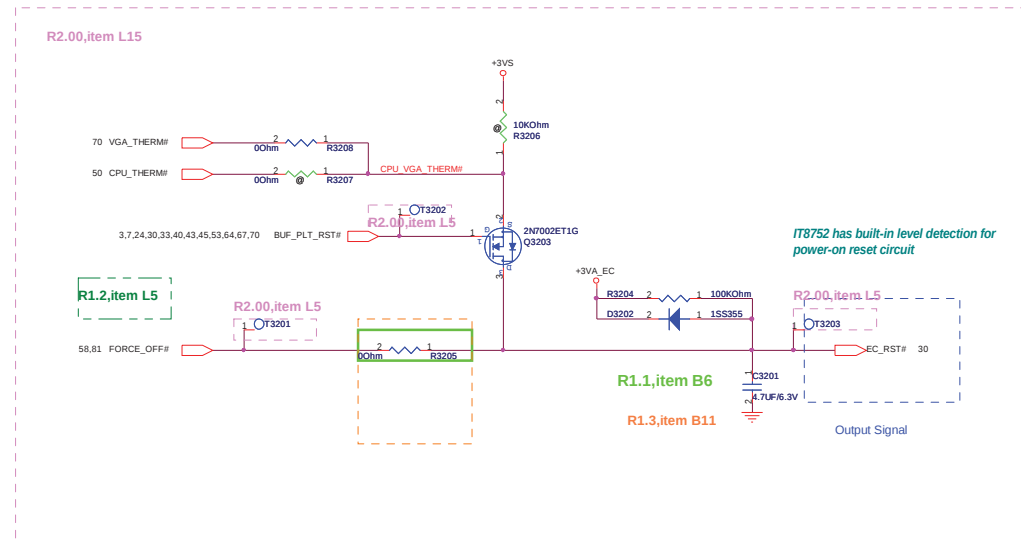
Touchpad/ Finger Printer / TP_LED

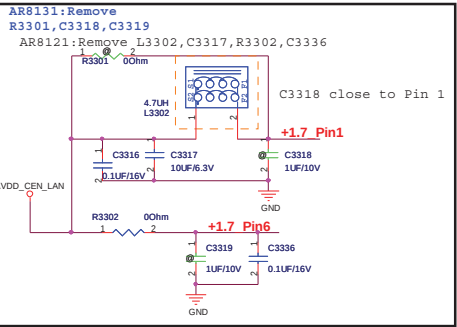


TouchPAD/TP_LED

R1.3,item L17

Thermal Policy

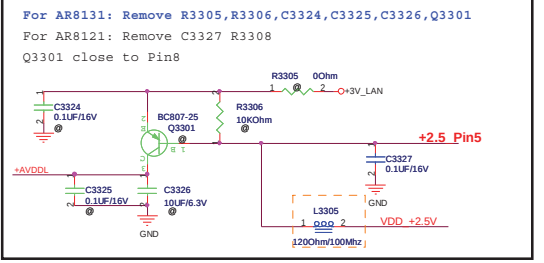
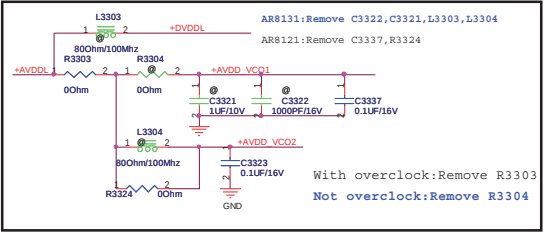




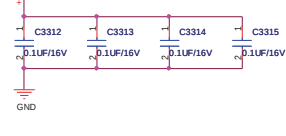
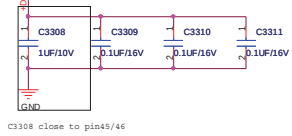
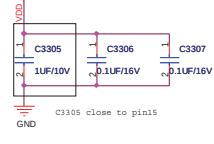
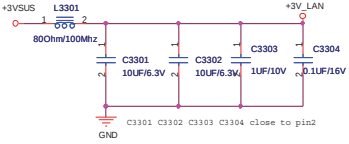
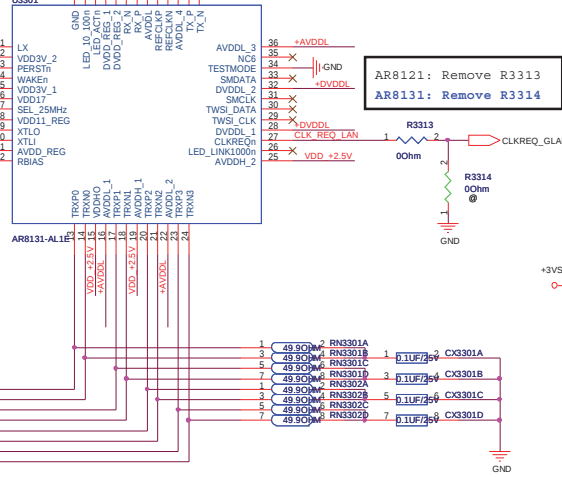
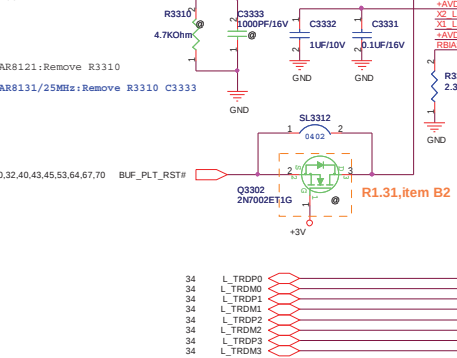
AR8131 with overclock: Remove R3315
AR8121: Remove R3315

ground pad要打散熱孔

PCIE Tx, Rx方向是以南橋為觀點
Chip pin Tx, Rx是以chip為觀點



pin#5的pin name應為

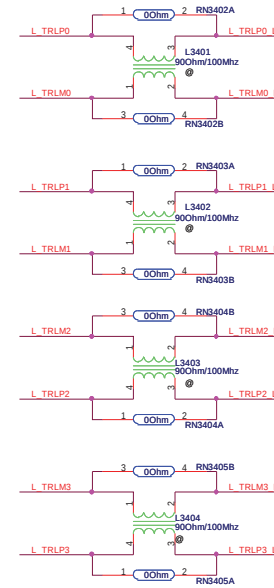
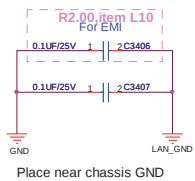
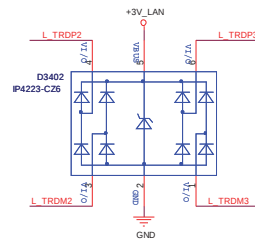
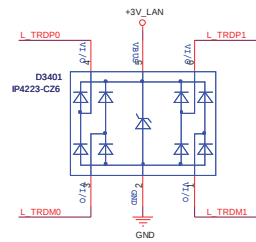
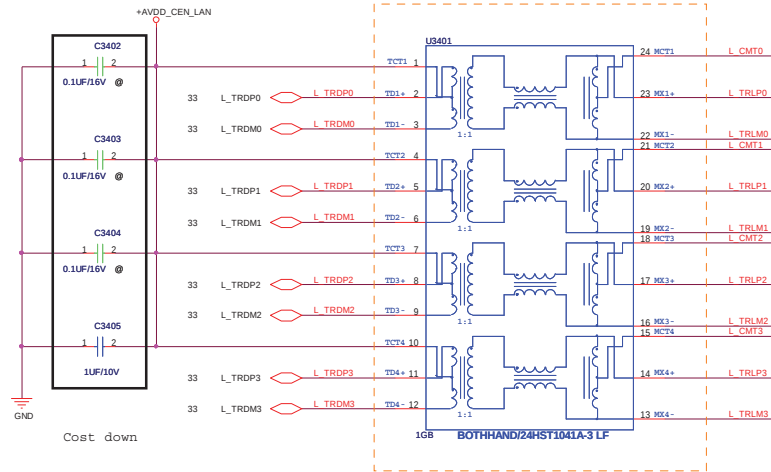


R1.3, item L2

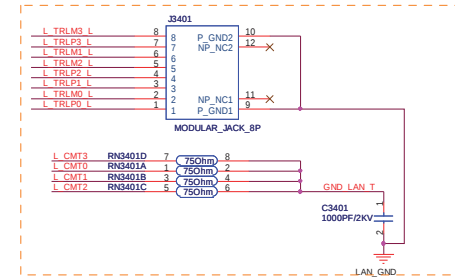
For AR8131 : Remove R3309
+1.7V Pin6

AR8121: Remove C3328
AR8131/25MHz: Remove C3328

R1.3,item L2



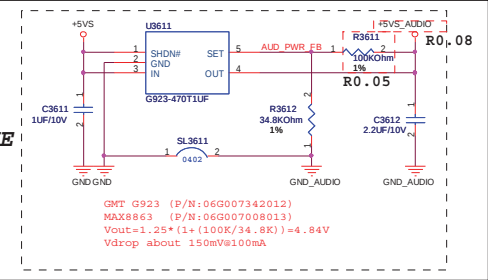
connector without modem



R1.2,item L3

AUDIO POWER

CHOOSE ONE

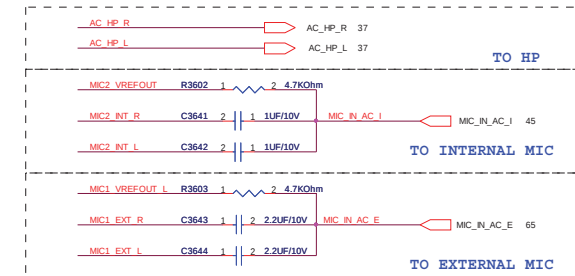


DIGITAL MOAT

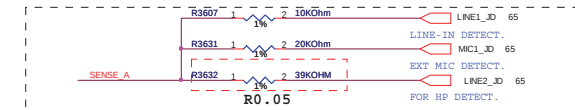
TO SPK AMP

ANALOG MOAT

FOR NORMAL FUNCTION .



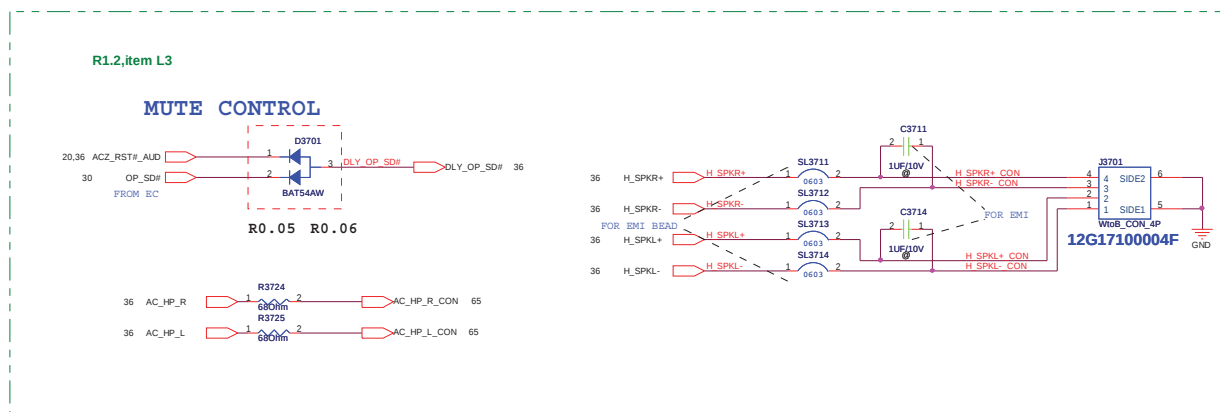
DETECTION

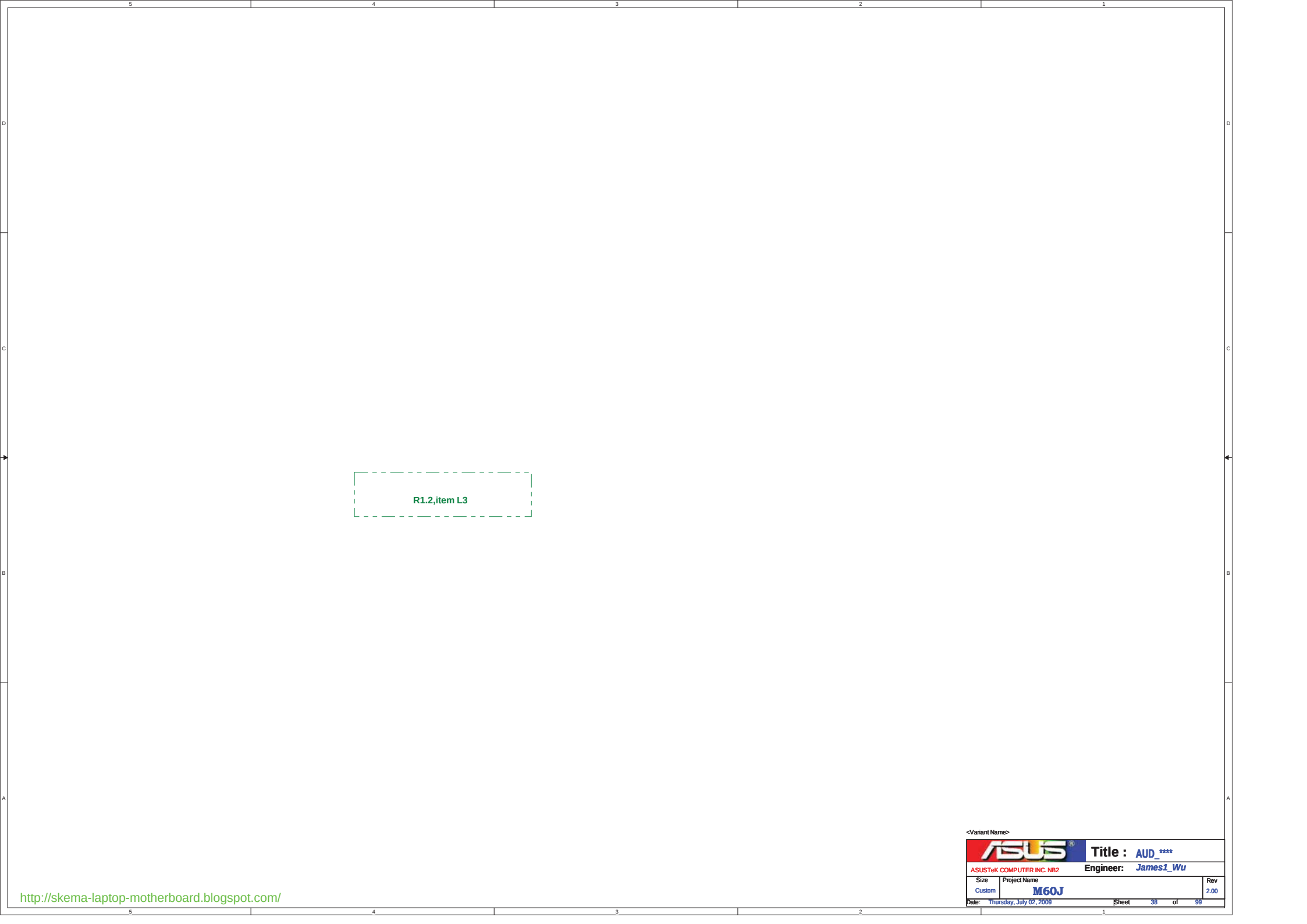


PC BEEP

Remove PC_BEEP Circuit
Please remove the PC Beep function from Verb table.

For EMI





R1.2,item L3

D

C

B

A



D

C

B

A



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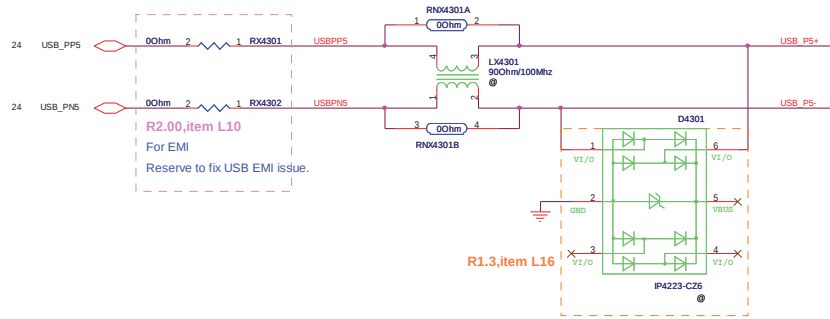


R1.2,item L1

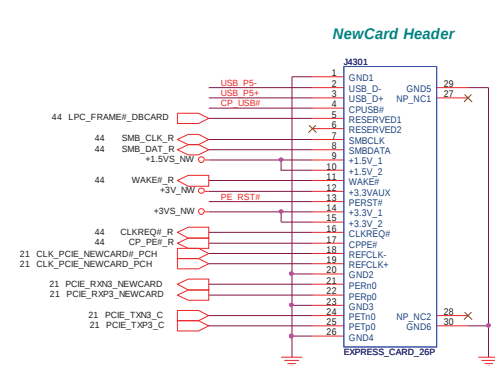
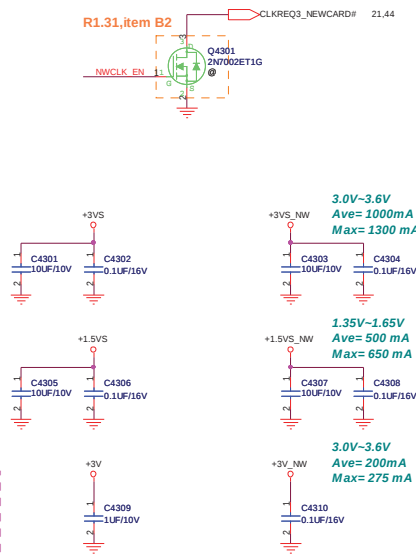


R1.2,item L1

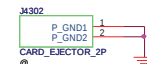
Main Board



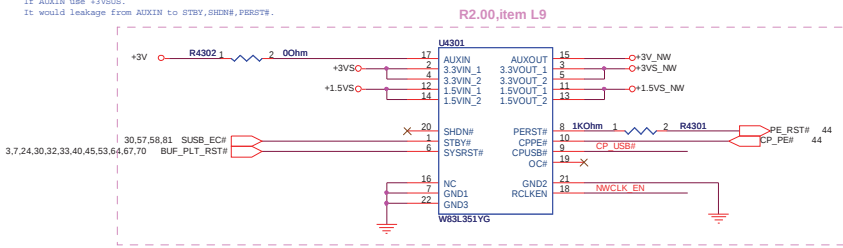
R1.3,item L16



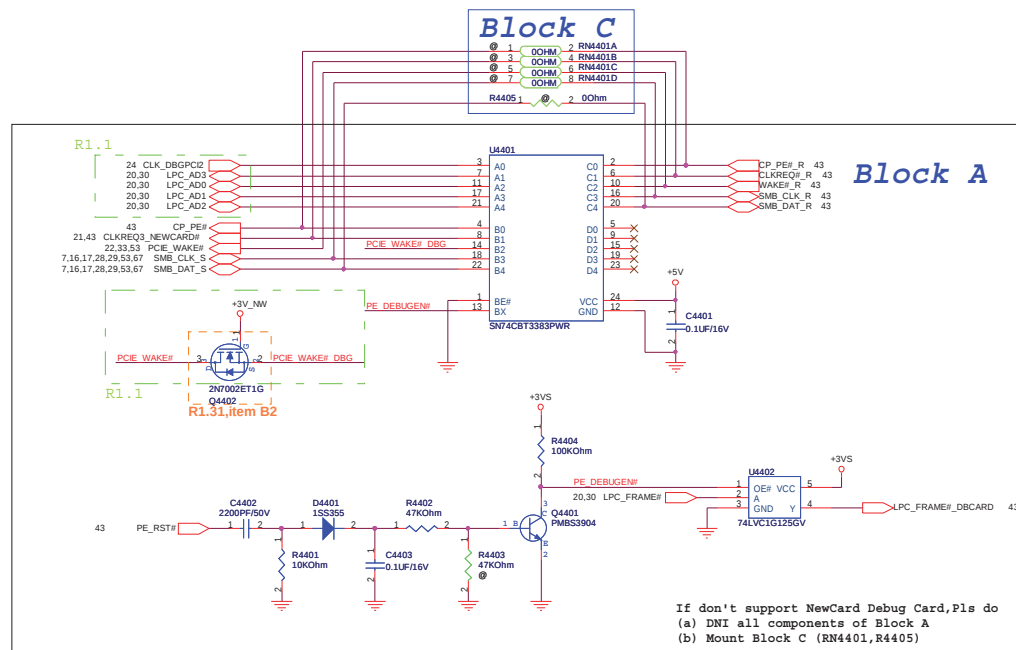
NewCard Ejector



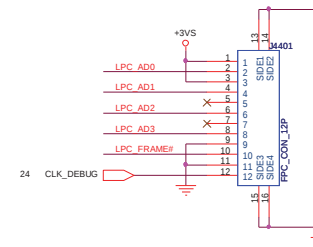
If AUXIN use +3VSUS.
It would leakage from AUXIN to STBY,SHDN#,PERST#.



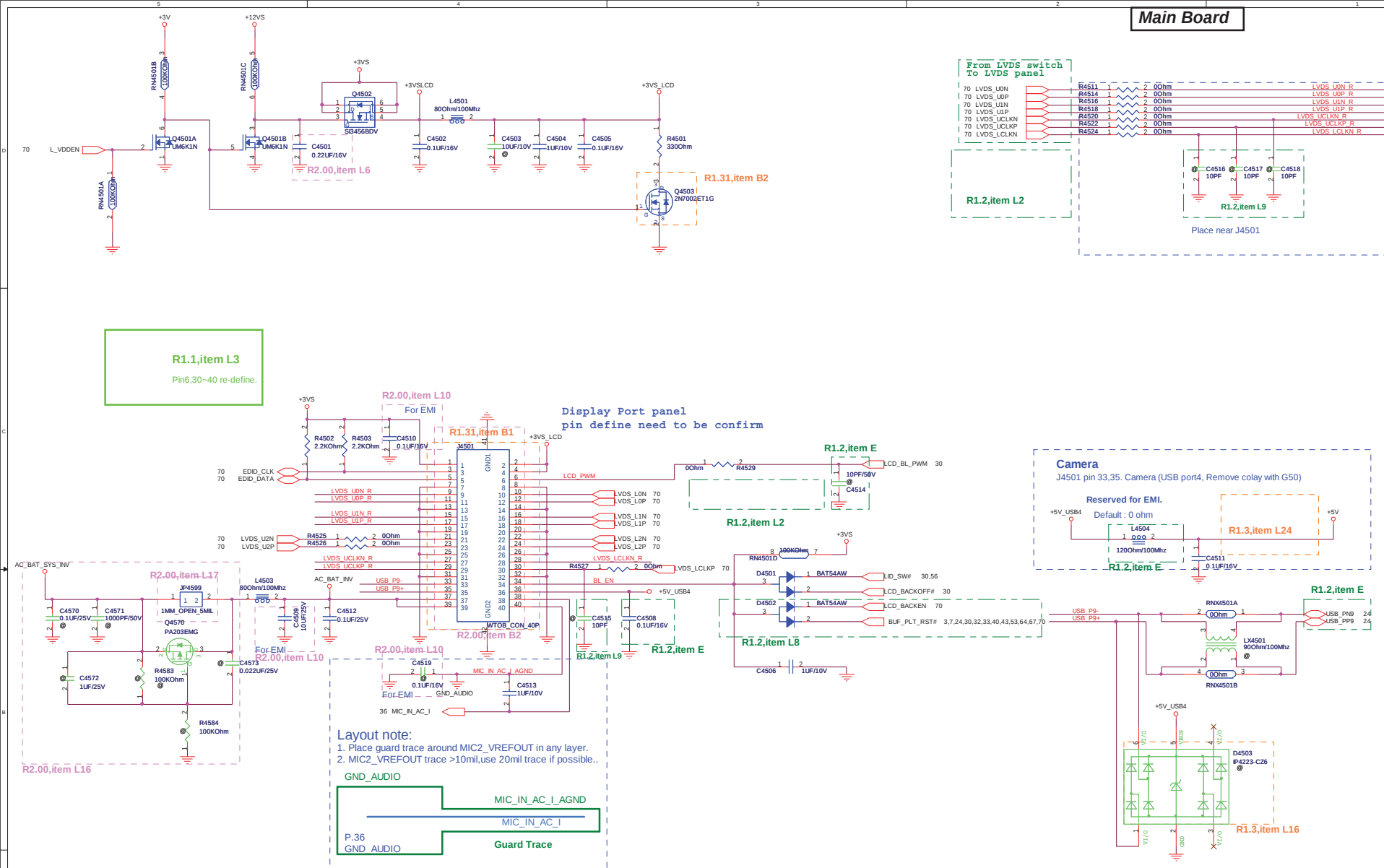
For NewCard Debug Card



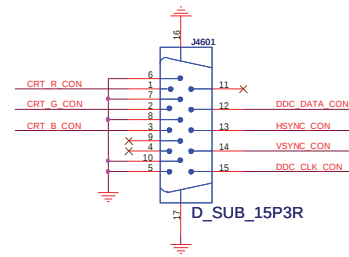
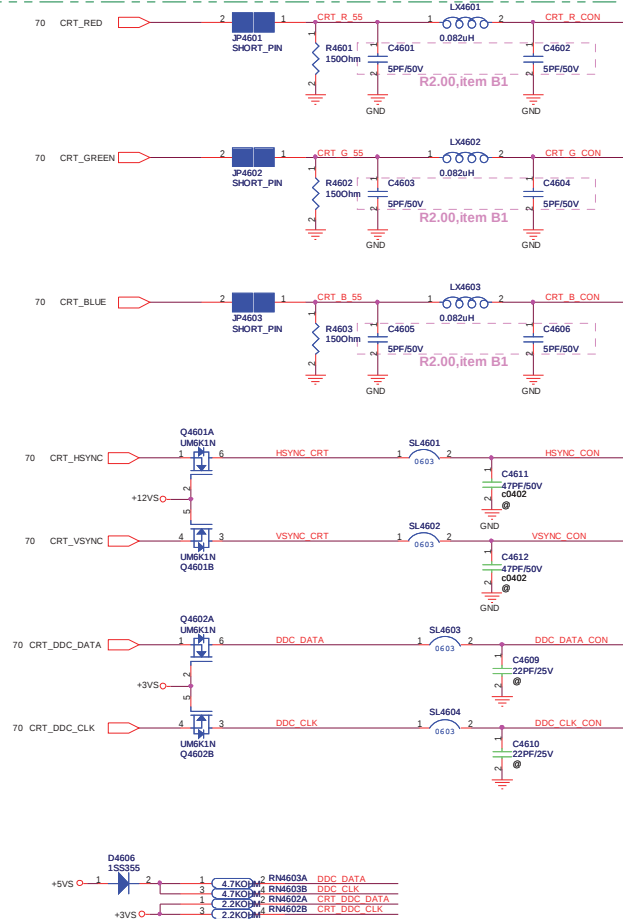
LPC Debug Port



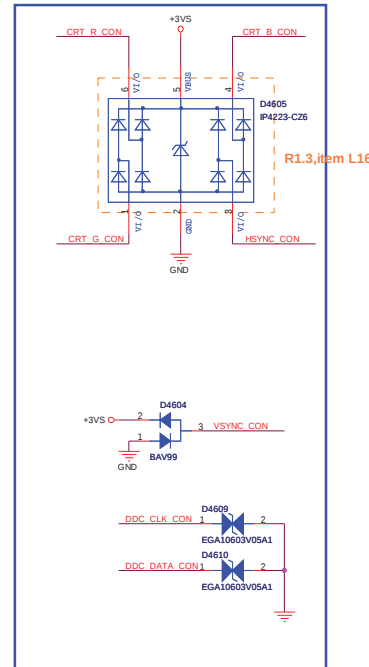
Main Board

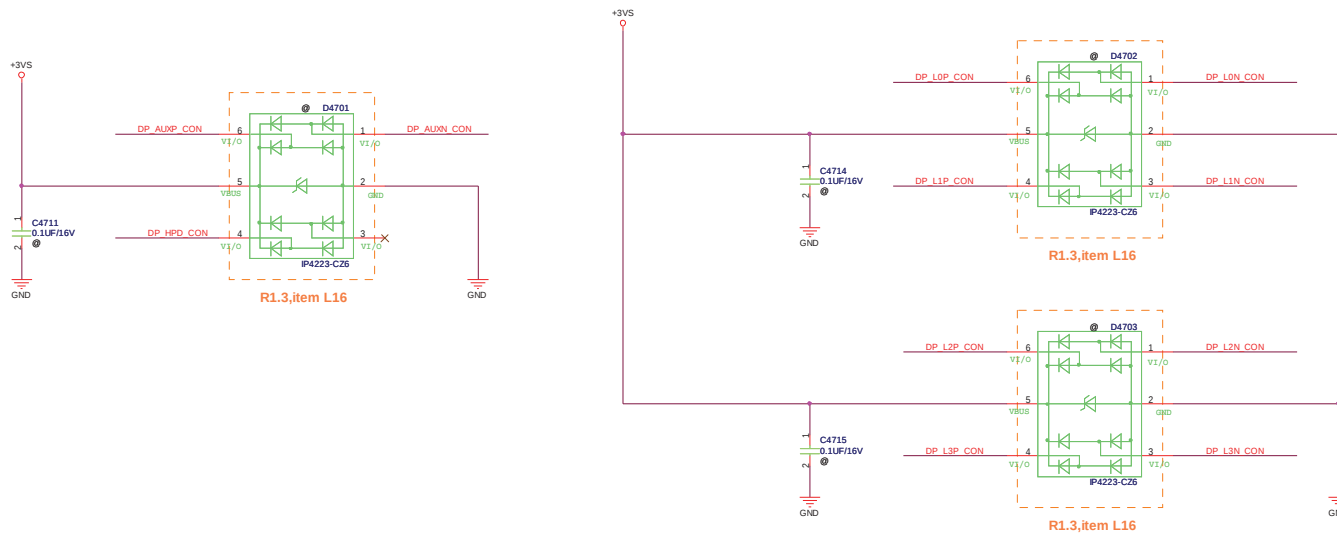
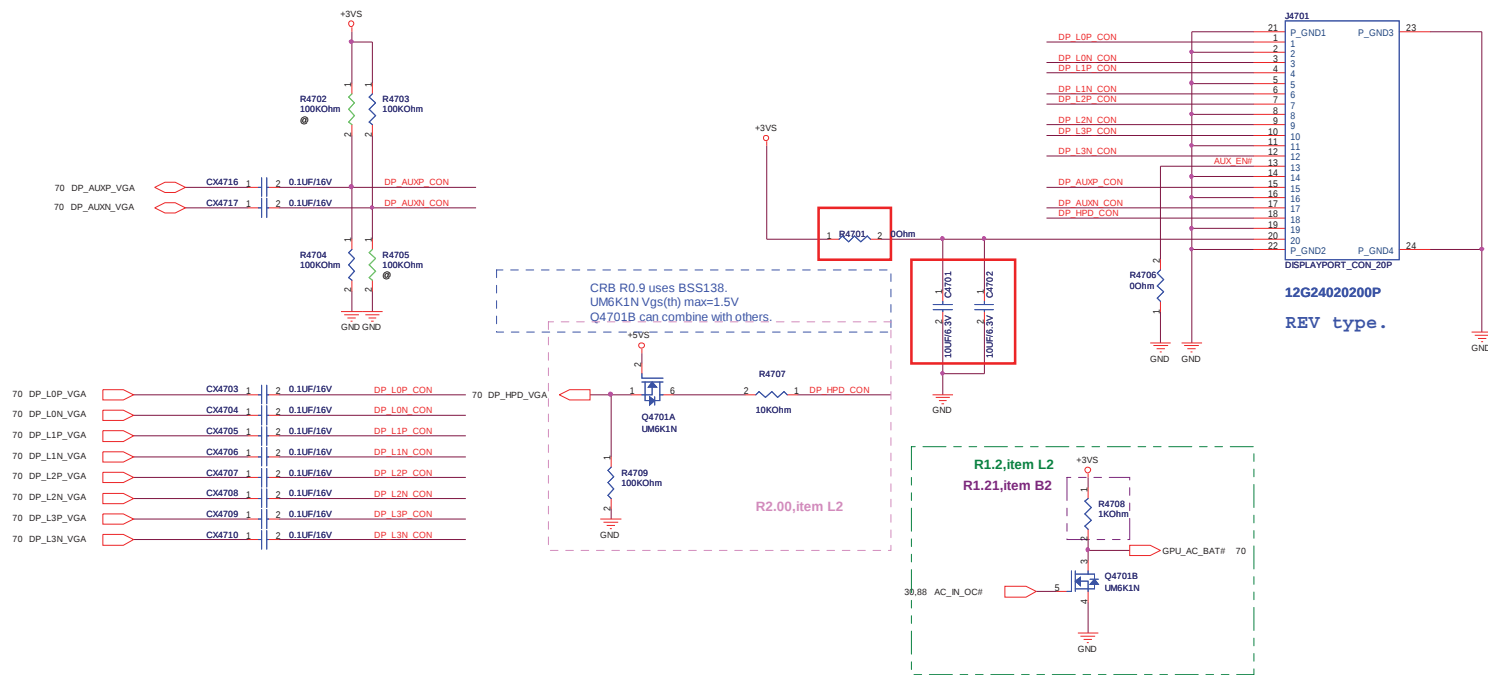


R1.2,item L2

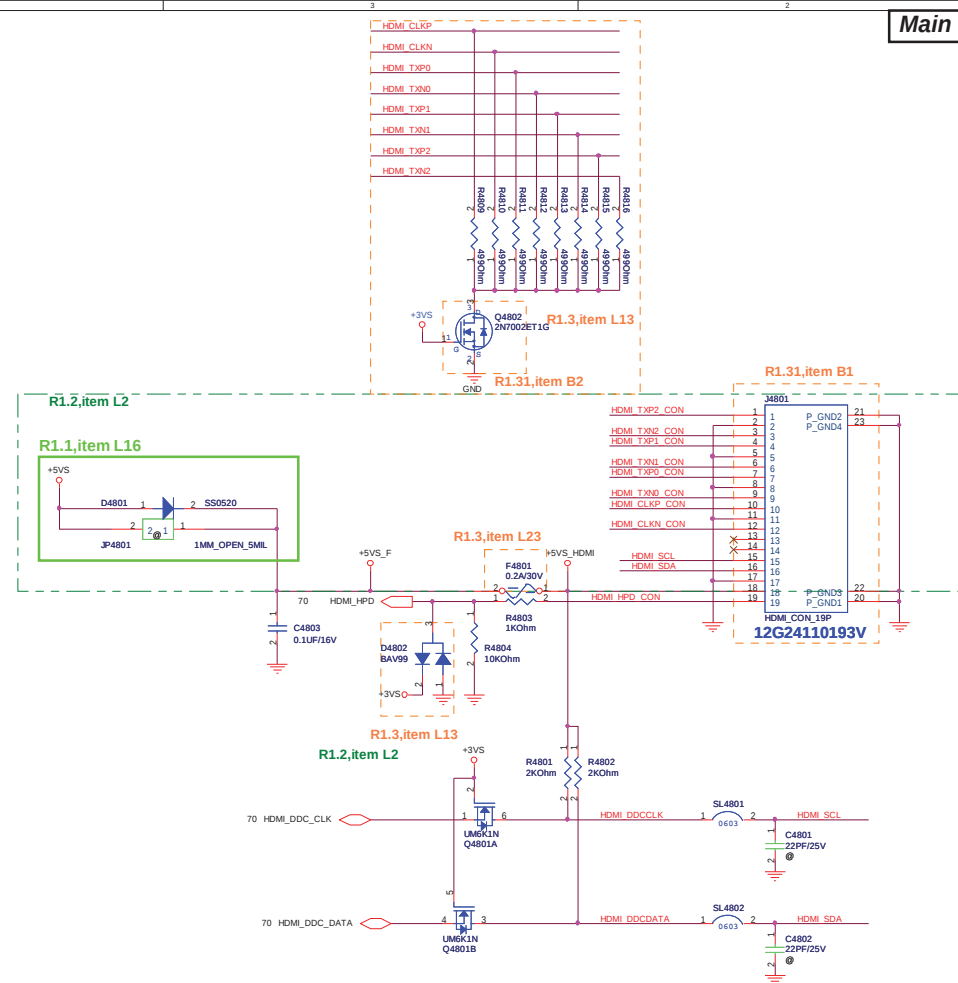
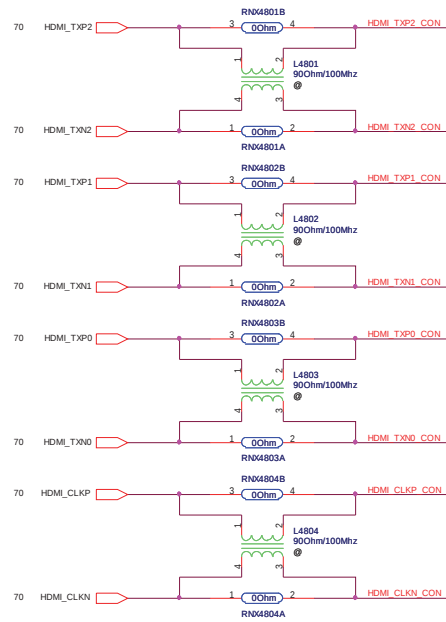


PLACE ESD Diodes near connector

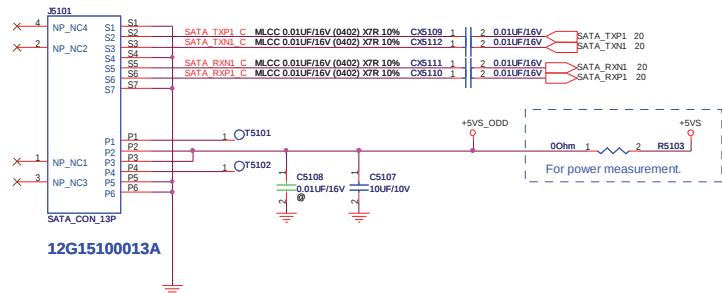




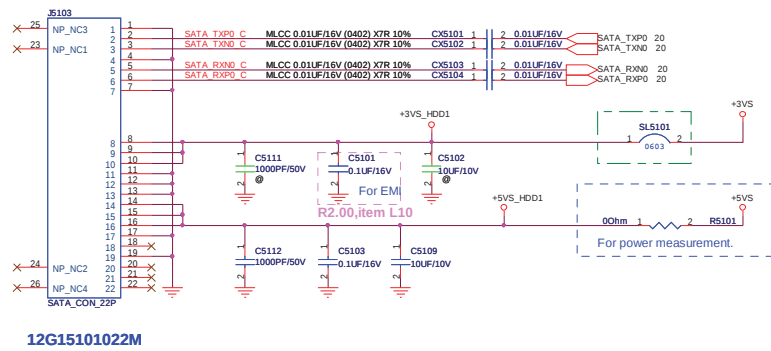
Main Board



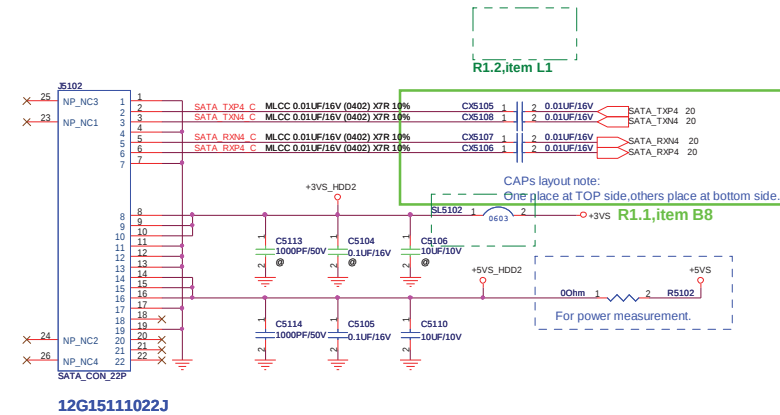
ODD



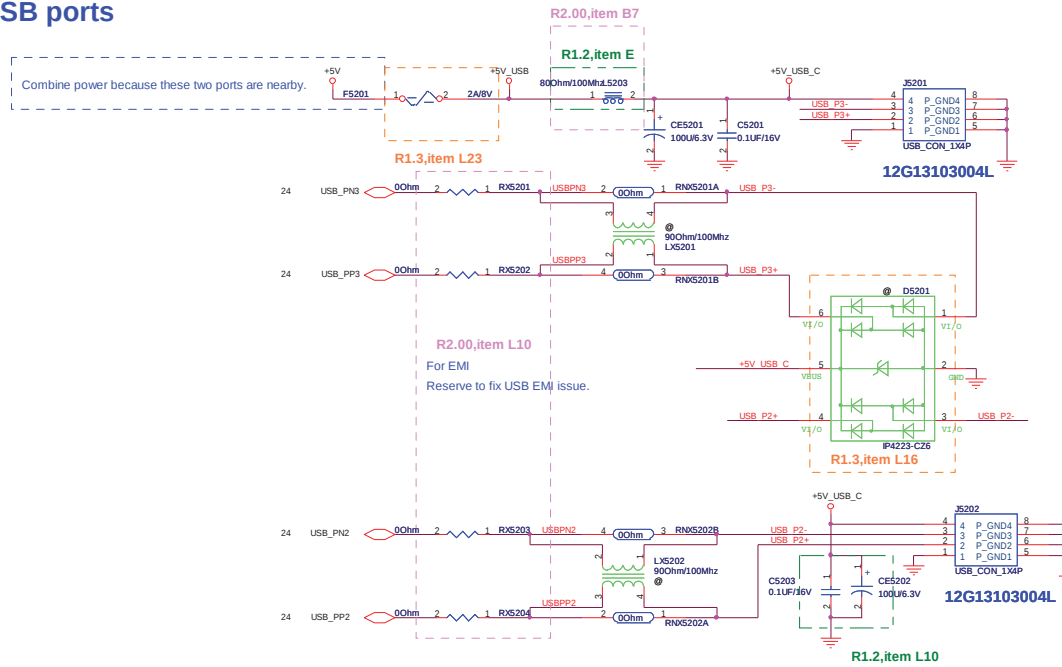
HDD (1st)



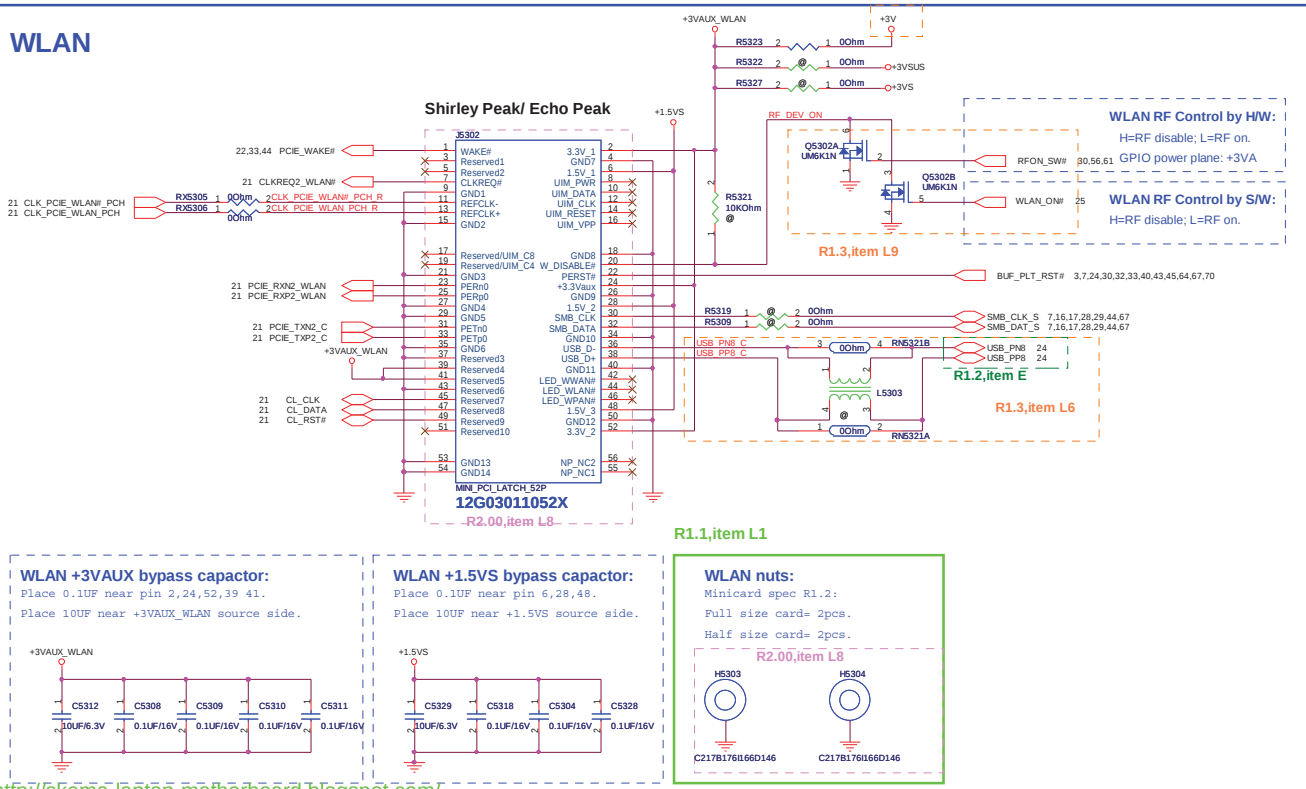
HDD (2nd)

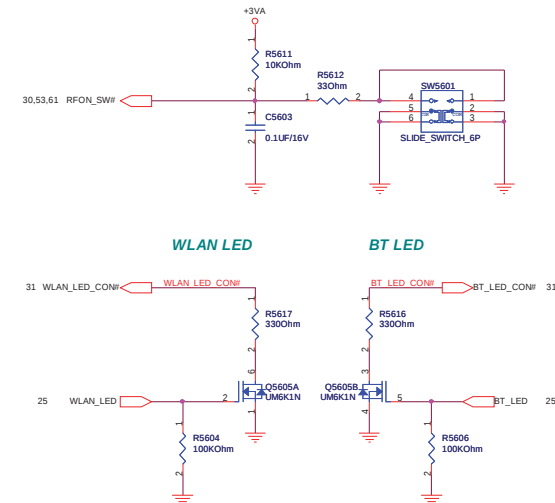


USB ports



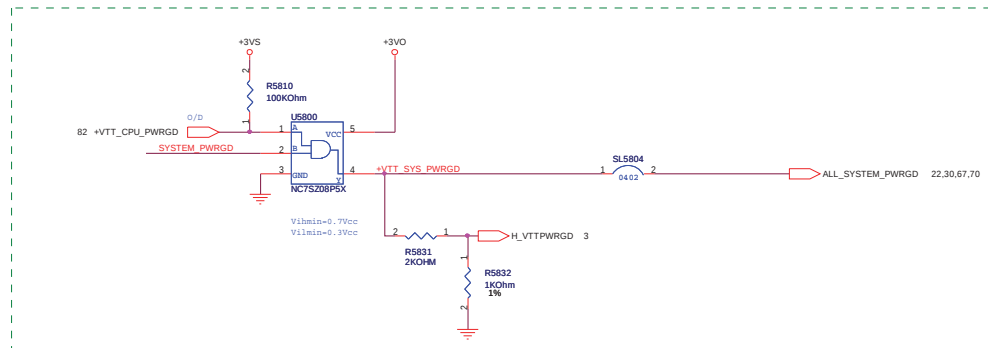
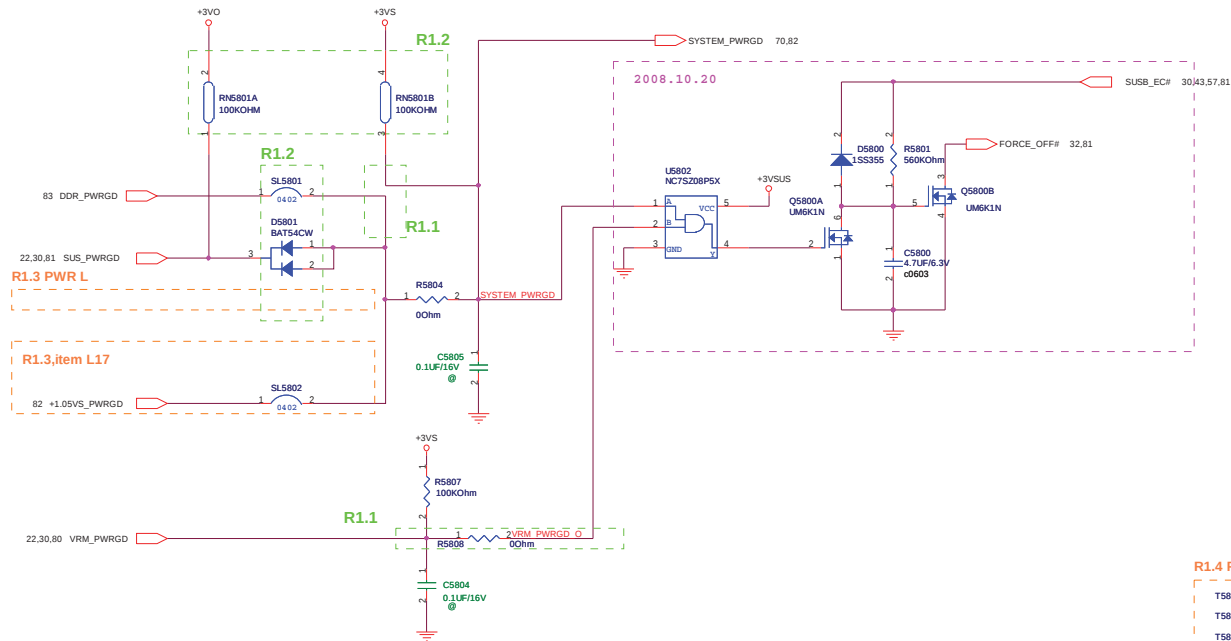
WLAN



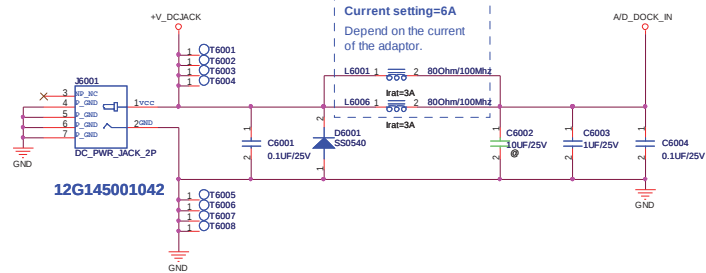




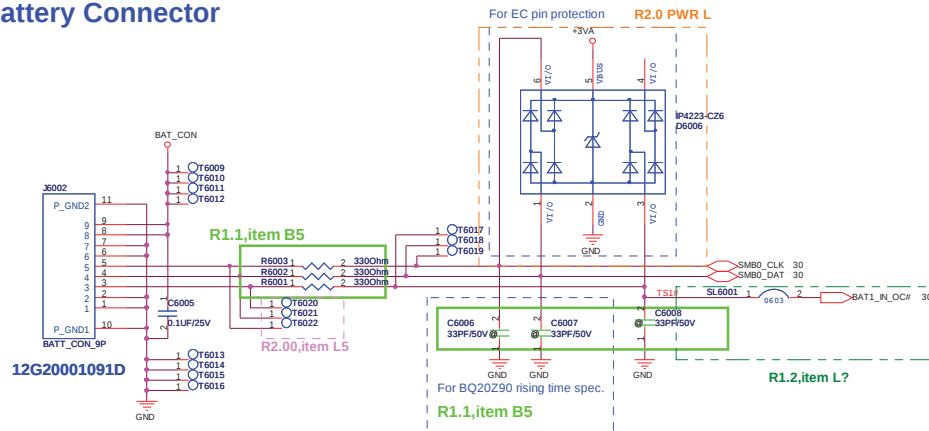
POWER GOOD DETECTOR



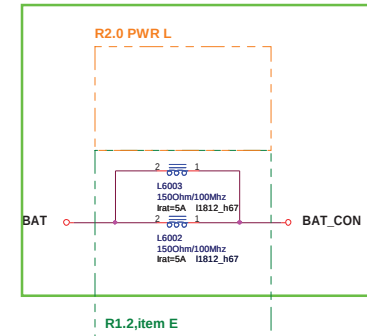
DC Jack



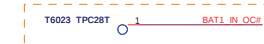
Battery Connector



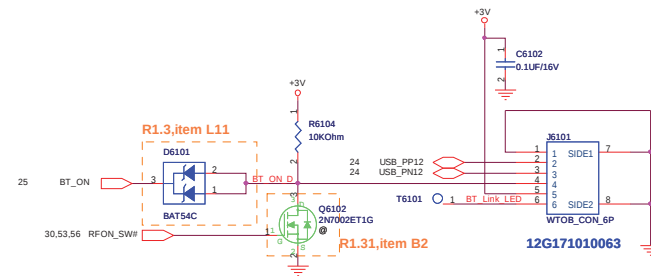
R1.2

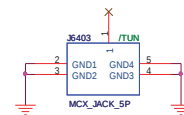
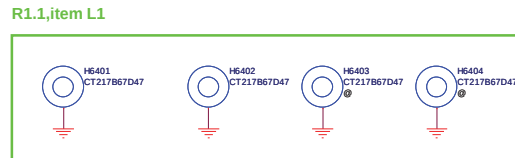
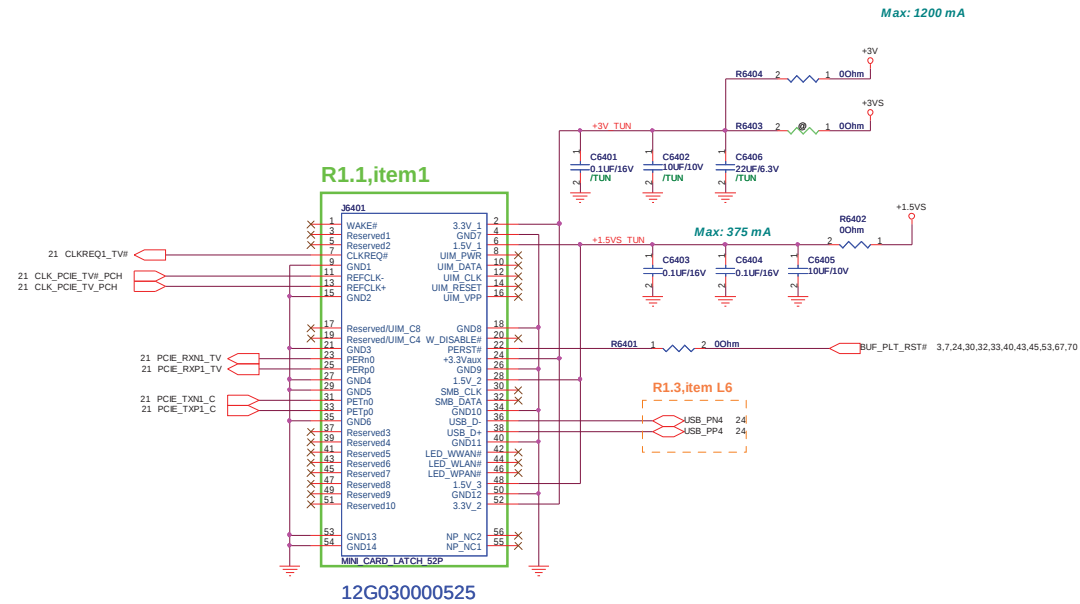


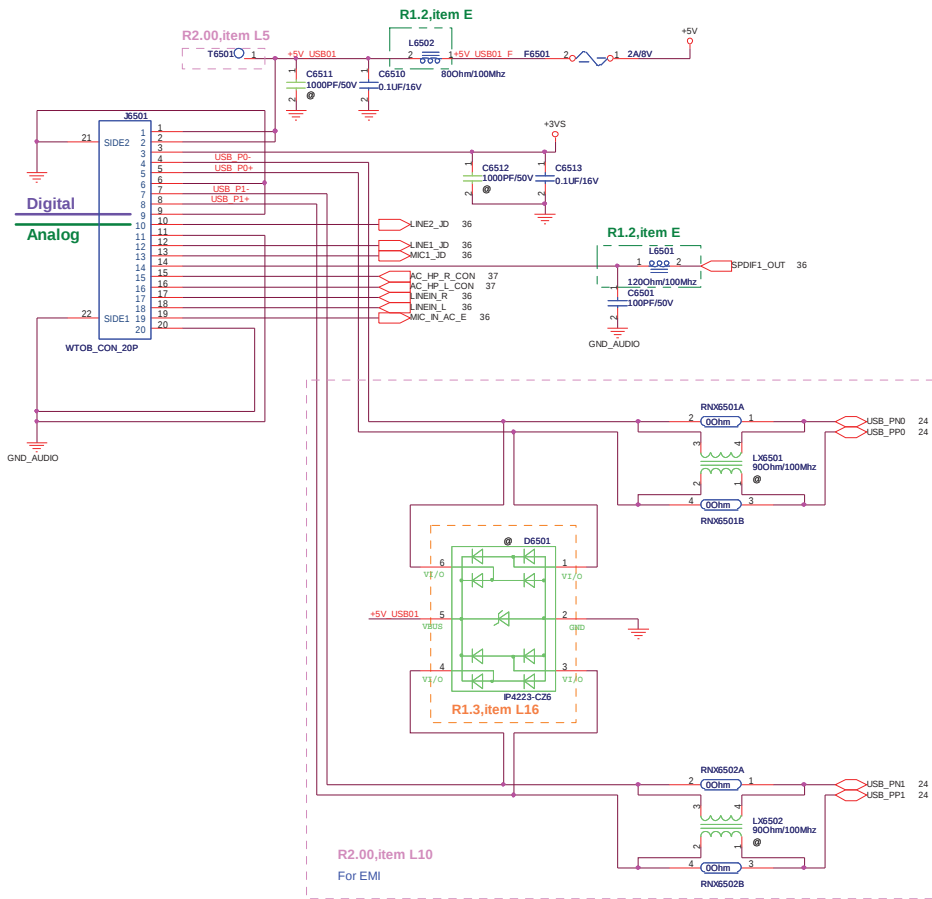
R1.4 PWR L



BLUETOOTH





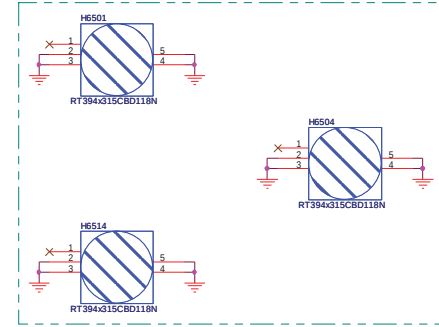


LINE2_ID	C6502	1	2	100PF/50V
LINE1_ID	C6503	1	2	100PF/50V
LINEIN_R	C6504	1	2	100PF/50V
LINEIN_L	C6505	1	2	100PF/50V
MIC_IN_AC_E	C6506	1	2	100PF/50V
MIC1_ID	C6507	1	2	100PF/50V
AC_HP_L_CON	C6508	1	2	100PF/50V
AC_HP_R_CON	C6509	1	2	100PF/50V

R2.00, item B8

Main Board

Screw Hole A



Screw Hole B



Screw Hole C



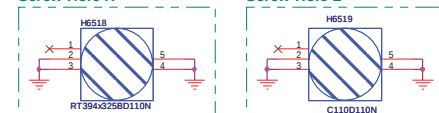
Screw Hole F



Screw Hole I



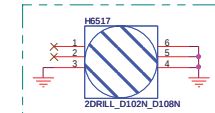
Screw Hole K



Screw Hole H



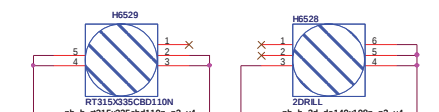
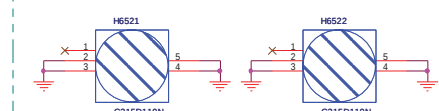
Screw Hole J



Screw Hole L

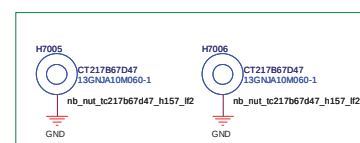
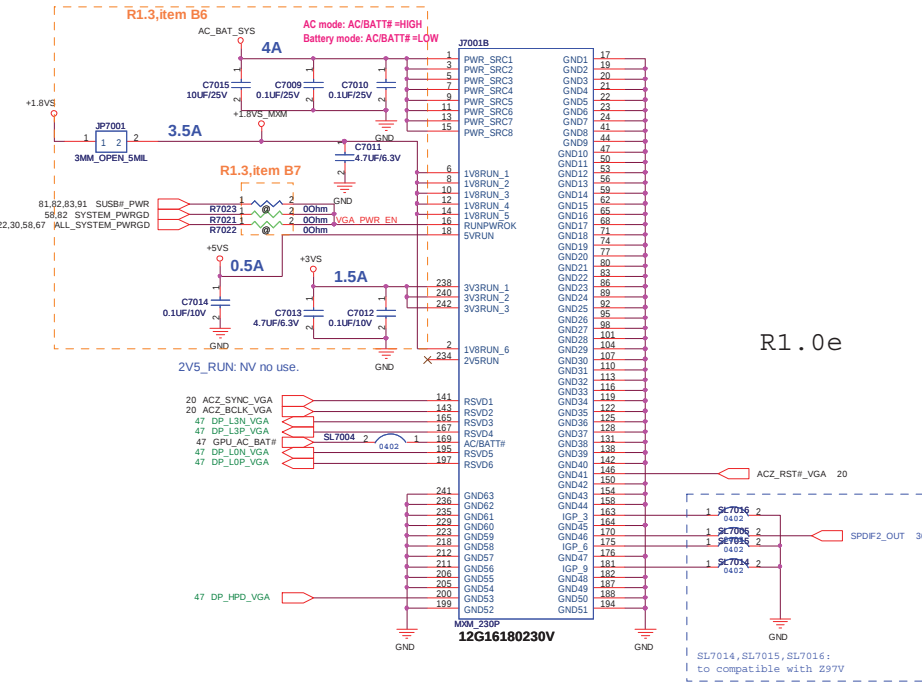
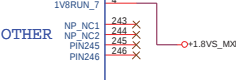
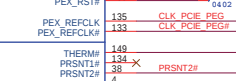
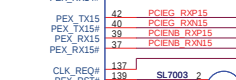
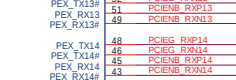
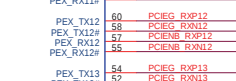
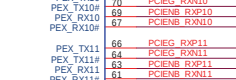
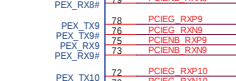
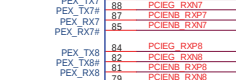
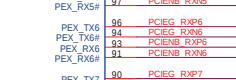
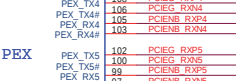
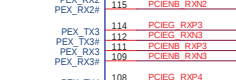
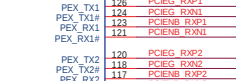
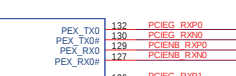
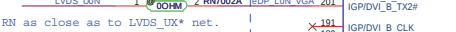
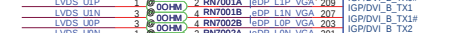
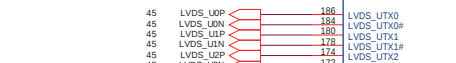
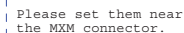
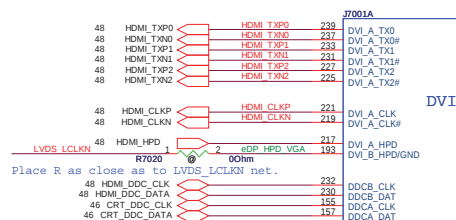


Screw Hole M



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R1.2,item L2



D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size	Project Name		Rev
Custom	M60J		2.00
Date: Thursday, July 02, 2009	Sheet	72	of 99

D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size Custom	Project Name M60J	Rev 2.00	
Date: Thursday, July 02, 2009		Sheet	73 of 99

D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size	Project Name		Rev
Custom	M60J		2.00
Date: Thursday, July 02, 2009	Sheet	74	of 99

D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009		Sheet	75 of 99

D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size Custom	Project Name M60J	Rev 2.00	
Date: Thursday, July 02, 2009		Sheet	76 of 99

D

C

B

A



		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009		Sheet	78 of 99

D

C

B

A



D

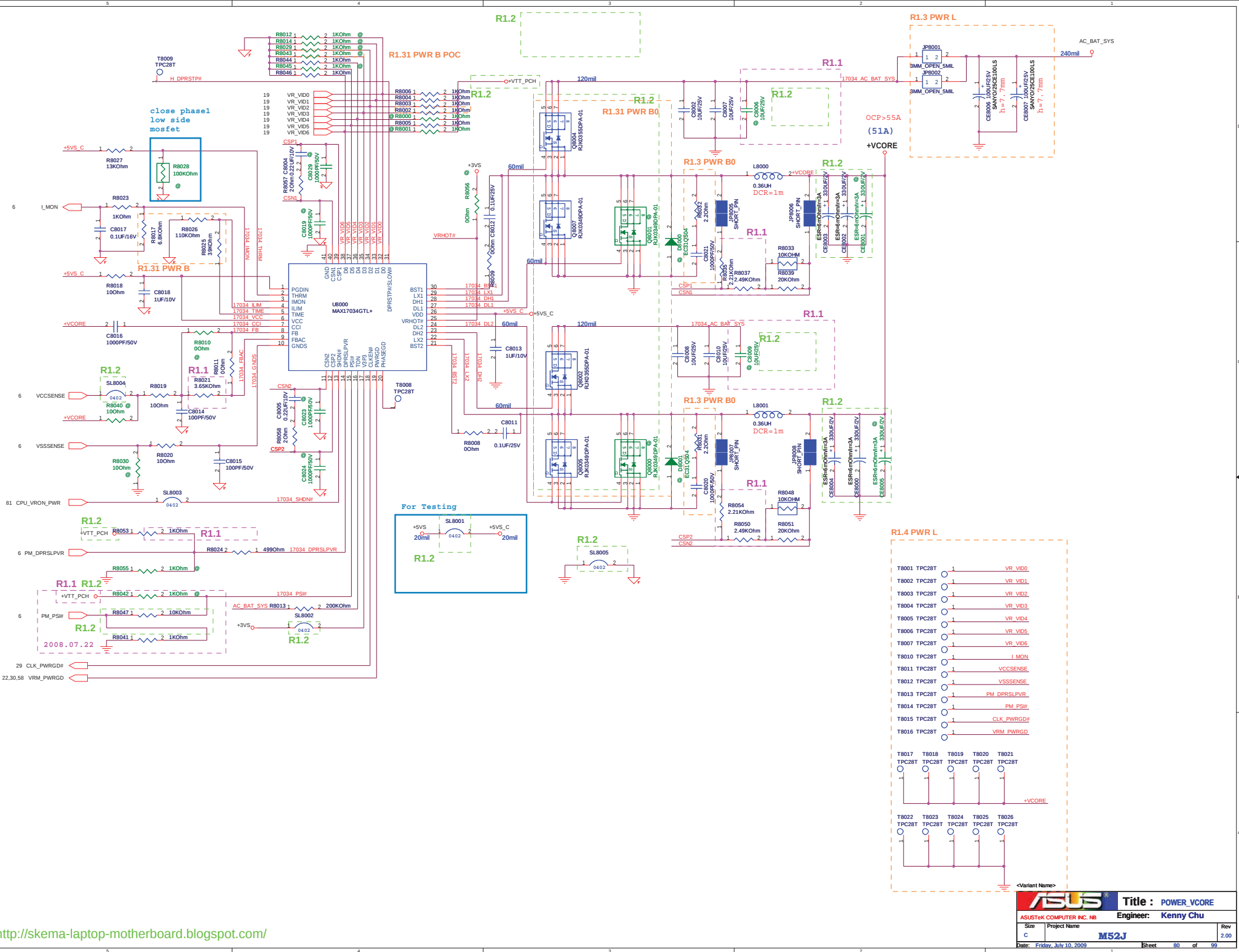
C

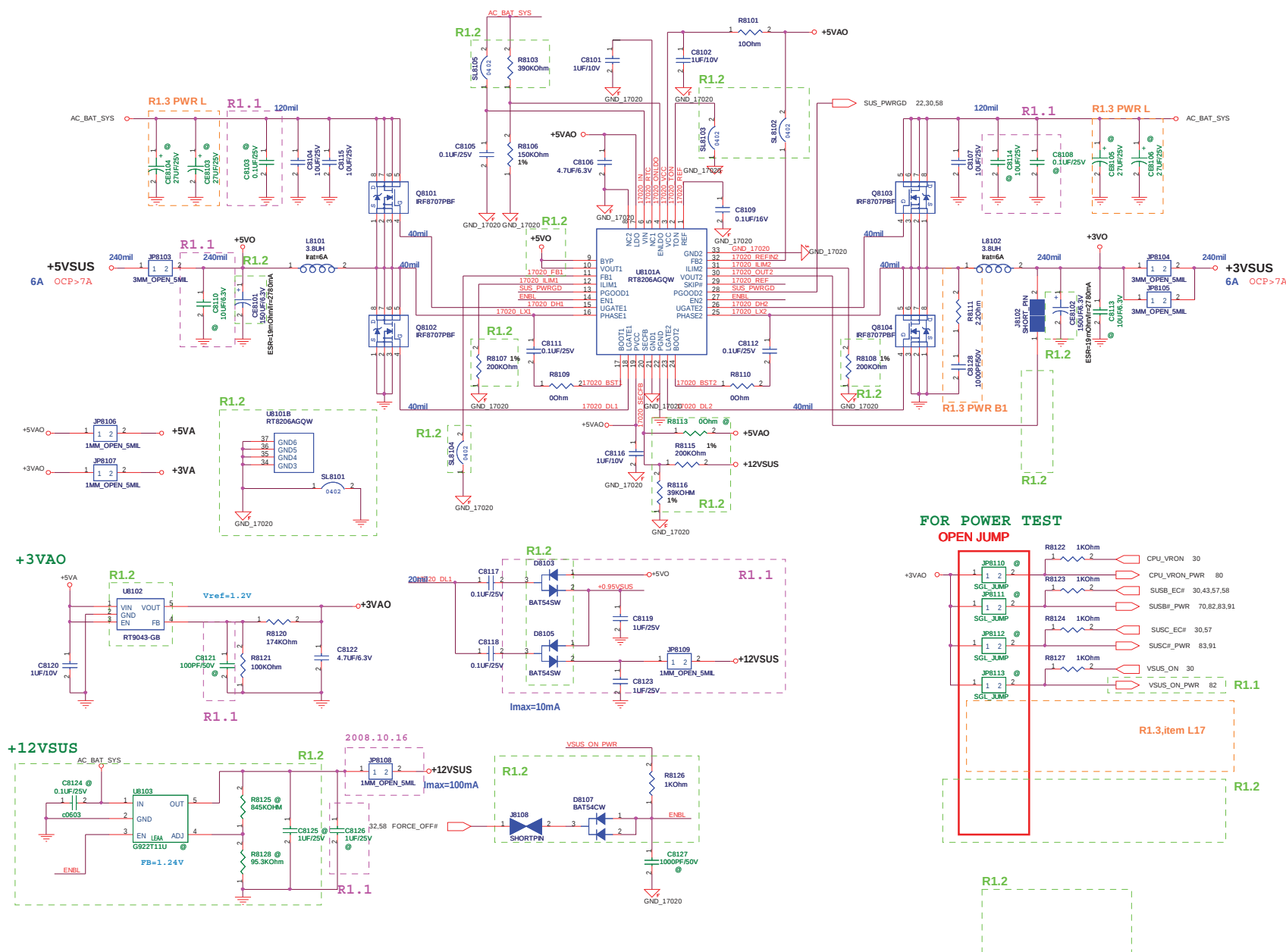
B

A

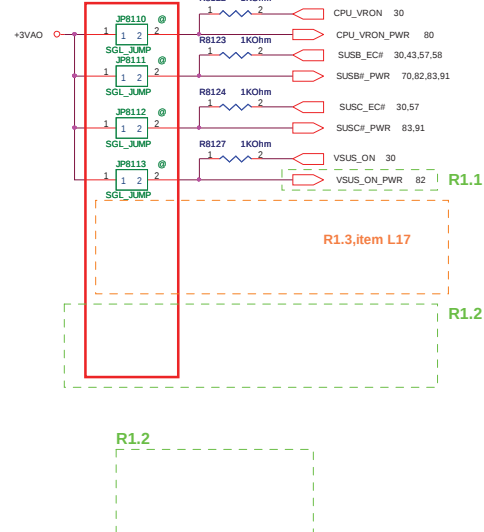


		Title : VGA ****	
ASUSTek COMPUTER INC. NB4		Engineer: James1_Wu	
Size Custom	Project Name M60J		Rev 2.00
Date: Thursday, July 02, 2009	Sheet	79	of 99





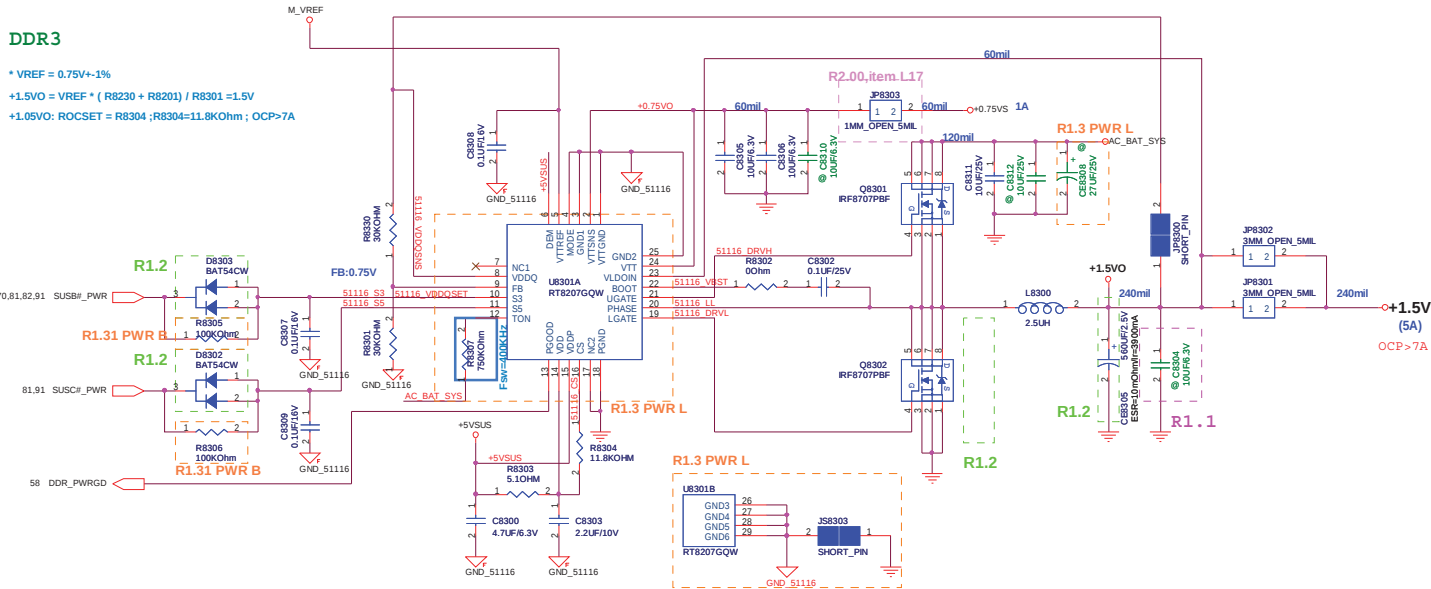
**FOR POWER TEST
OPEN JUMP**



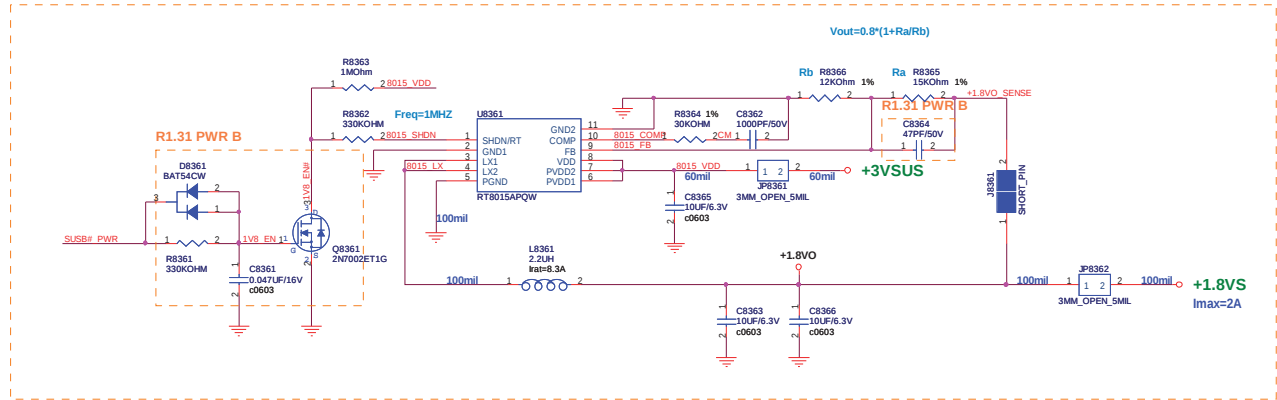
T8101	TPC28T	1	+3VSUS
T8102	TPC28T	1	+5VSUS
T8103	TPC28T	1	+5VAO
T8104	TPC28T	1	+3VA
T8105	TPC28T	1	+5VA
T8106	TPC28T	1	+3VAO
T8107	TPC28T	1	+12VSUS
T8108	TPC28T	1	ENBL
T8109	TPC28T	1	VUSUS_ON_PWR
T8110	TPC28T	1	SUSB_EC#
T8111	TPC28T	1	SUSB_EC#
T8112	TPC28T	1	CPU_VRON
T8113	TPC28T	1	SUS_PWRGD

DDR3

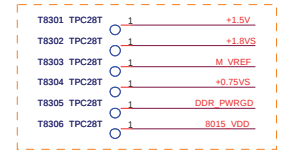
* VREF = 0.75V±1%
 +1.5VO = VREF * (R8230 + R8201) / R8301 = 1.5V
 +1.05VO: ROCSET = R8304 ; R8304=11.8KOhm ; OCP>7A



R1.3 PWR L



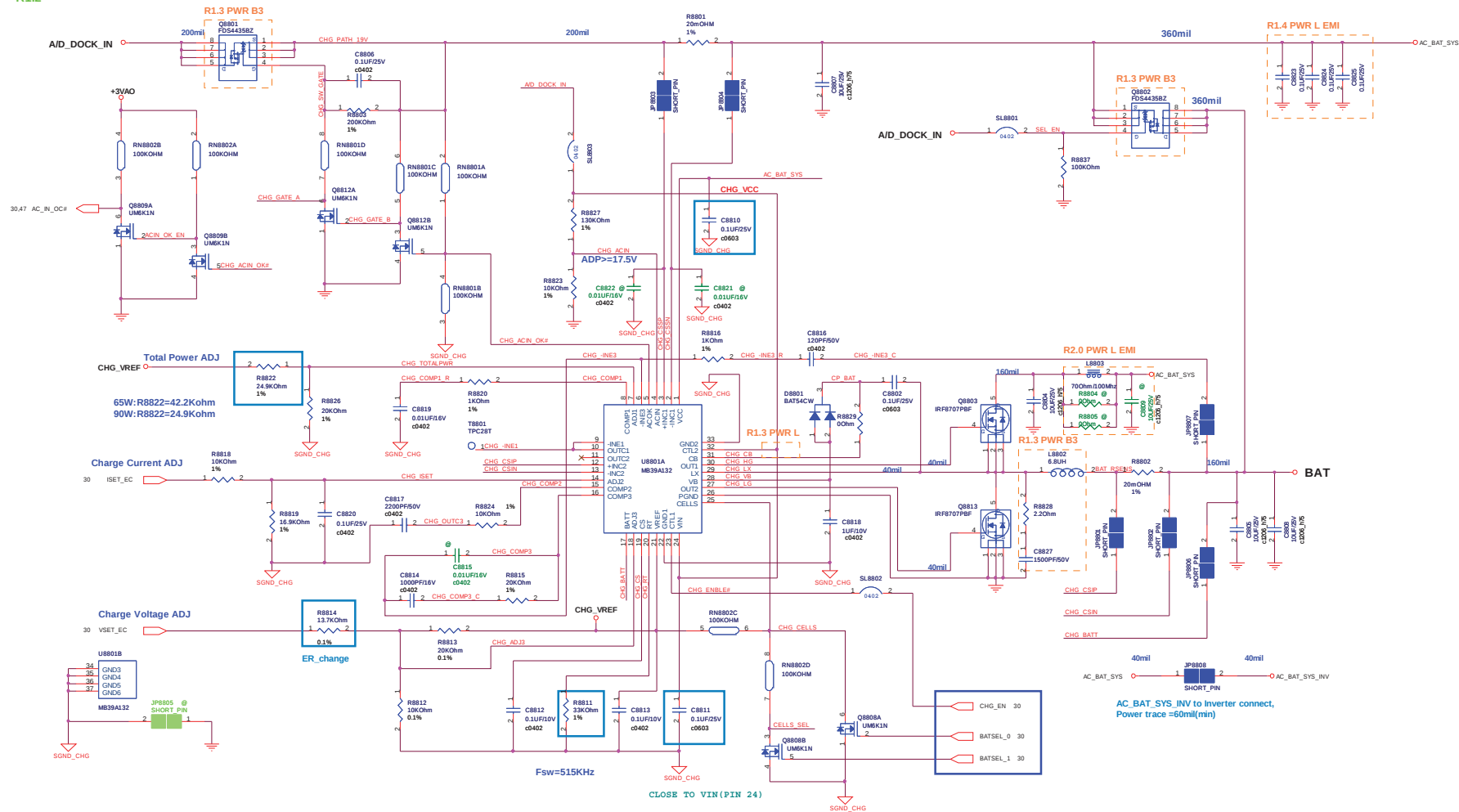
R1.4 PWR L



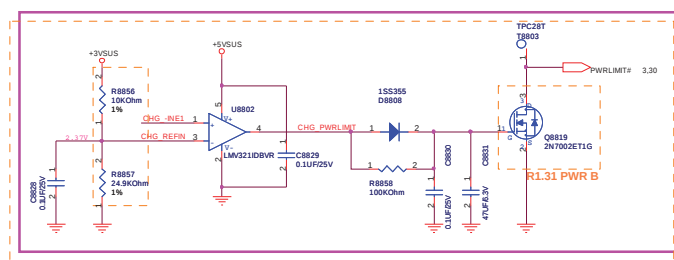
+3VM

R1.3,item L17

R1.3,item L17



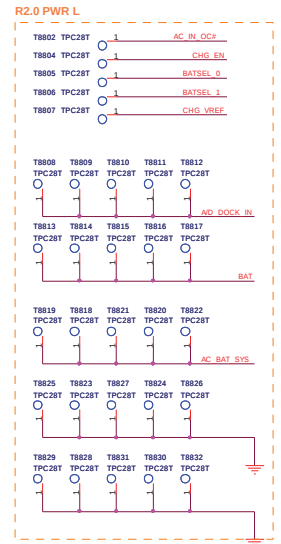
Power Limit



TOTAL COUNT:66 PCS

Battery Cells

BATSEL_1	BATSEL_0	CELLS
H	H	2 CELLS
L	H	2 CELLS
H	L	3 CELLS
L	L	4 CELLS

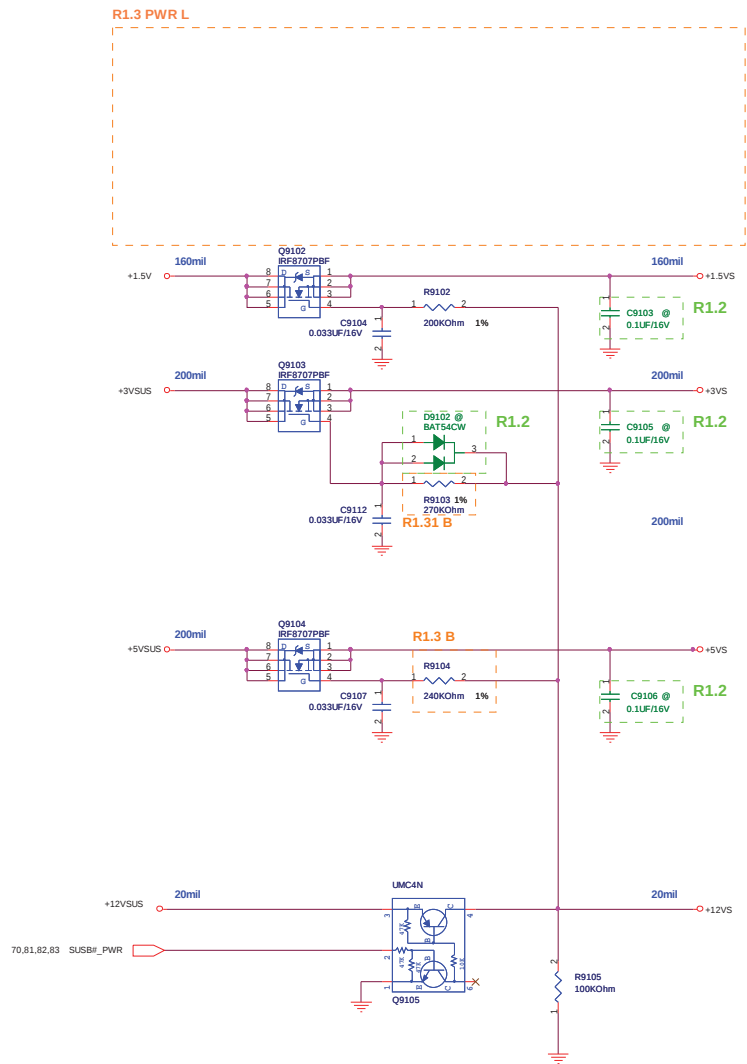


Charger IC and EC Code correlation sheet :
 Charger MAX8725 => EC CODE : 200
 Charger MAX17015 => EC CODE : 201
 Charger MB39A132 => EC CODE : 202

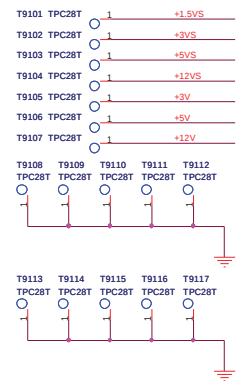
R1.2



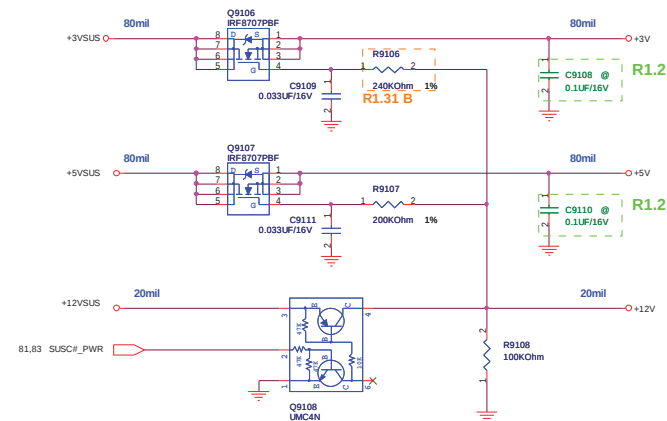
SUSB#_PWR POWER



R1.3 PWR L



SUSC#_PWR POWER



R1.3 PWR L



POWER_SIGNAL



[M52J] R1.0
(Release on 2008/09/23)
SR1 Gerber out revision.

[M52J] R1.0 => R1.1
(Release on 2008/10/16)
[Layout Changed - EE]

L1. For ME request:
1-1. Change J6401 from 12G030000522 to 12G030000525.
1-2. Change J4201 from 12G340003601 to 12G340003605.
1-3. Change H6401, H6402, H6403, H6404 from 13GNHC10M020-1 to 13G021043011.
1-4. Change H5103, H5304, H7003, H7004 from 13GNHC10M020-1 to 13G021036001.

L2. P18: Change M2 circuit for Intel requet.

L3. Re-define J4501 circuit for cost down.
3-1. P45: Re-define J4501 pin6, pin30-40, delete J4502.
3-2. P36: Delete C3633. (MONO OUT)
3-3. P38: Delete all items in this page for spec change.

L4. For SPI flash circuit:
4-1. P28: Change circuit for PCH SPI flash.
P20: Change R2015 pull-up from +3VM to +3VM_SPI
4-2. P30: Change circuit for EC SPI flash.

L5. To prevent device damage if power not ready:
5-1. P20, P30: Add J2001, J3001 to isolate +3VA.
5-2. P20, P21, P22, P24, P25, P27: Modify +3VSUS to +3VSUS_ORG.
P27: Add J2703, J3001 to isolate +3VSUS.
5-3. P27: Modify +5VSUS to +5VSUS_ORG, add J2704 to isolate.

L6. For decoupling:
6-1: Change C2503 from net +3VS_VDDPCIE_X to +VDDIO_42.
6-2: Change C2904 from net +3VS_VDDPCIE_X to +VDDIO_28.
6-3: Add C2927 to +VTT_CPU.

L7. P29: Reserve net +VTT_CPU and add +3VS for frequency 133MHz.

L8. P03, P23: Delete colay net for PCH buffer mode clock is workable.
Net: CLK_CPU_BCLK_FCS, CLK_CPU_BCLK_ICSH

L9. For test:
9-1. P22: Add R2265, R2266@, R2267 for test.
9-1. P22: Add R2265, R2266@, R2267 for test.

L10. P03, P30: Add power limit circuit for power request.

L11. P91: Add D9101, D9102 for MOS close quickly.

L12. P03: Add R0366, R0367 to disable FDI for discrete GFX.

L13. P30, P31: Reserved circuit for testing U3101 removed.

L14. P31: Exchange D3105 pin 4,5 net for EMI request.

L15. P22: For S0-to-G3, S5-to-G3 solution.

L16. P48: Modify circuit for design IP change.

L17. P30: Delete BAT_LEARN function for power request cost down.

[Layout Changed - PWR]

L1. For reduce noise add inmut CAP CE8006, CE8007, CE8800.

L2. P80 change pull high power
Follow intel common schematic from +VTT_CPU_VO to +VTT_PCH

L3. For +12VSUS test
3-1. P80: bump power from +5VSUS to +5VO
3-2. P80: Add JP8108 JP8109

L4. To enhance charger bump energy add C8129, D8108, D8109

L5. Change +1.05VM LAN enable
from SLP_LAN#_PWR to VSUS_ON_PWR for EE request

L6. For enable frequency test
Add R8210, R8211, R8212, R8259, R8260, R8264, R8262, R8263, Q8253A, Q8253B, R8405

L7. For test add JP860, JP8606

L8. P88 Change D8807 PIN2 connect D8805 PIN2 to D8805 PIN1
for solve MAX17015 IC bug

L9. P88: Add power limit circuit

L10. P91: Add D9101, D9102, R9117 for EE request

L11. P92 Change protect circuit to original un-cost down version

[BOM modify - EE]

B1: P05: DNI R0538 for MoW41 Intel's recommend.

B2: P20: DNI R2029 to disable Flash descriptor override.

B3: P31: Change R3101 from 10K ohm to 0 ohm,
DNI C3105 for EGCLK signal quality.

B4: P42: Change R3101 from 10K ohm to 100L ohm for +12VSUS low rating.

B5: P60: According to "EOS of Battery SMBus" report:
P60: Change R6001, R6002, R6003 from 0 ohm to 330 ohm.
P60: Change C6006, C6007, C6008 from 47PF to 33PF.

B6: P32: DNI R3205 for test purpose.

B7: P32: DNI SW3201, R3202 for not support.

B8: P66, 51, 21: DNI JMB360 circuit for ES1 sample SATA OK.

B9: P33: Mount D3301, D3302 for ESD protect as default setting.

[BOM modify - PWR]

PB1: P80: Adjust loadline change R8021 from 3.92KOhm to 3.65KOhm.

PB2: P80: Reduce transient undershoot
change R8037, R8060 from 2KOhm to 2.49KOhm.
change R8035, R8054 from 1.5KOhm to 2.21KOhm.

PB3: P81: +3VO from FB mode to fix mode
Mount R8133 , un-mount R8134, change R8111 from 20K Ohm to 0 Ohm

PB4: P82: Change L8201 from 2.2UF to 1.5UF , un-mount CE8204 for add FB voltage
Change L8251 from 2.5UF to 1.5UF , change CE8252 from 100UF to 220UF for reduce transient pulse
for reduce transient pulse

PB5: P91: Change C9102 from 0.033UF to 0.1UF.

PB6: P91: Change R9109 from 200K to 100K, adjust +1.05VM rising.

PB7: P92: Change R9205 from 100K to 10K, adjust SYSTEM_PWRGD rising.

PB8: P80, P81, P82, P83, P86: Change C8001, C8003, C8006, C8009, C8110, C8113, C from 100K to 10K, adjust SYSTEM_PWRGD rising.

[M52J] R1.1=> R1.2
(Release on 2009/01/12)
[Layout Changed -EE]
L1. P66,51,21: Del JMB360 circuit for PCH SATA workable.
P21,24,40,41,42: Change CB_ from R5C833 to RSU230.
L2. For no support AUB,delete or modify related circuit:
P03,P06,P21,P22,P23,P26,P45,P46,P47,P48,,P57,P70,P71,
L3. Change audio circuit from ALC663 to ALC269.
L4. For one phase bug fix:R8047: 0-->10K, R8041.2-->R8047.1, R0616: 10K-->0ohm
L5. Layout modify for DG,Mow,EDS:
P20,P21,P25,P27,P32
L6. Layout modify for new EC 8541 colay: P28,P30
L7. Modify EC pin assignment for charger change:P30
L8. P45: Add BUF_PLT_RST# to BL_EN circuit.
L9. P45: reservverd for RF request .
L10. P52: Add CES202 to avoid voltage droop .
L11. P32: Delete SW3201,R3202 for no support force-off switch.

[Layout Changed -PWR]
PL1. P81: SYSTEM PWM change from MAX17020 to pin to pin RT9206A (for IC bug)
PL2. P88: Charger IC change from MAX17015 to MB39A132 (for IC bug & EMI)
PL3. P88,P60: Change BAT in jump & bead from P88 to P60
PL4. P.86: Delete P86 +VGA CORE
PL5. P.80: PM_PSI# pull low follow intel schematic
PL6. P90 Delete battery detect circuit
PL7. P80 VID0-6, PM DPRSLPVR, PM_PSI# pull high power from +VTT_PWR
Change to +VTT_PCH
PL8. P81 System +3VS,+5V voltage change from resister adjust to fix mode
PL9. P90 Delete battery detect circuit

[EMI request]
ITEM E:
1.P88. BAT : L8801, L8803 要上 for EMI
-->L6001,L6002
2.P29. CLK Gen. : R2935 , R2936 改 Bead 120 ohm for EMI
-->L2901,L2902
3.P36. SPDIF1,2_OUT : R6502 , SL3652 改 Bead 120 ohm for EMI
-->L6501,L3622
4.USB power : R6501 , R4505 , R5201 改 Bead 120 ohm for EMI
-->L6502,L4504,L5203
5.C4508 要上 for EMI
-->Mount C4508
6.USB I/O port & CMOS 同時 Run 會有 EMI issue,建議在 USB EHCI define
時能將這兩者分開放
-->已交換,port4=Wi-Fi/WiMax,port9=Camera.
7.LAN : R3306 , R3338 , R3332 , R3337 改成 Bead ; +1.05VM_LAN 上 0.1uF 靠近 R3341
-->L3301, L3303, L3302, L3304, C3314.
Note: 1.請協助確認bead是否可只上R3341就好.
2. C3313,C3314是否可以只上一個,上哪一個?
8.LVDS : C4506 要上 0.1uF ; LCD_PWM要上 0.1uF
-->Mount C4506, LCD_PWM預留10PF不上C4514.
9. P36. GND 到 GND_Audio of the short line 增加三個 (或是電阻直接改 short line)
-->SL3651,SL3652,SL3653

[BOM modify -EE]
B1. BOM modify for DG,Mow,EDS:
P03,P21,P24,P25

[BOM modify -PWR]
B1 P80 Change CE8806,CE8807 from mount to un-mount
B2 P80 +Vcore output CAP from Panasonic 470UF/2V 4.5m Ohm change to Panasonic 330/2V 6m Ohm
B3 P80 Change Q8007,Q8001,Q8005,Q8000 from SI4686BDY to SI7170DP
Change Q8002,Q8004 from SI4634BDY to SI7686DP
B4 P81 Change CB8101,CB8102 from CHEMICON 220UF/6.3V 10m Ohm to CHEMICON 150UF/6.3V 19m Ohm
B5 P82 Change CB8204,CB8207 from Panasonic 330/2V 6m Ohm to Panasonic 220/2V 15m Ohm
B6 P82 Change CB8252 from CHEMICON 330UF/4V 10m Ohm to CHEMICON 560UF/2.5V 10m Ohm
B7 P83 Change CB8305 from CHEMICON 330UF/4V 10m Ohm to CHEMICON 560UF/2.5V 10m Ohm
B8 P91 Change Q9101 from SI4634DY Rds(on)=6.7mOhm to IRF8707PBF Rds(on)=17.5mOhm
B9 P91 Change C9101, C9103, C9105, C9106, C9108, C9110, C9122 from mount to un-mount

[M52J] R1.2=> R1.21
(Release on 2009/03/12)
B1. For SA team signal quality test:
P21 Change RX2103,RX2104 from 0ohm to 22ohm
P24 Change R2404,R2406 from 22ohm to 33ohm
B2. P47 R4708*100K-->1K for bug fix(0.3V-->3V).

[M52J] R1.1=> R1.3
(Release on 2009/04/20)
L1. P29,25: Change clock GEN: ICS9LPR362-->ICS9LRS3197 for corechip.
L2. P33,34,21,25: Change LAN:HANKSVILLE-->AR8131 for corechip.
L3. P18: Delete M2 solution and modify description.
L4. P19: Delete VID controller.
L5. P30: Fix error: TP_DAT,TP_CLK pull up +3VA_EC-->+5VS.
L6. P24,53,P64: For PCH SKU compatible:
TV Turner: port 6-->port4.
WLAN: port 4 -->port8.
L7. P20,21,24,25,67 delete PCH XDP.
L8. P25 for PCH GPIO define change:
P25. GPIO15,GPIO28 exchange.

L9. P53: Fix error for WLAN_ON#.
L10. R6741,R6742 move to R2621,R2622 for some project without BRAIDWOOD.
L11. P61: D6101 change from RB751V to BAT54C.
L12. P30,P56: for touch sensor board rev 1.2.
Move CAP ACK# (GP67)-->CAP ACK_A#(GP16),add CAP ACK_B#,
delete R5624,delete Q5602Q,Q5604Q,R5626Q,add SL3005,SL3006.
L13. For N10P-GS VGA card: (Layout impedance change).
P48:Move D4802 from net HDMI_HPD_CON to HDMI_HPD.
P48:Add R4809-R4816,Q4802 for HDMI termination.
L14. P24,P30: For PCI CLK layout guide update.
L15. P21,P27:Disable Intel LAN.
P27. Delete R2723,net +1.05VM_LAN.
L16. Change ESD diode to IP4223 for cost down.
D3106,D4301,D4503,D4605,D4701,D4702,D4703,D5201,D6501,D6601
L17. For iAMT disable.
P30,P31,P92. Delete net ME +VM PWRGD,D9202,R3070Q,R3105,R3108#
P31.Delete U3101(IT8301E) Block.
P30.Delete R3066,R3067,R3068,R3072,net BGAD,BGCS,BGCLK,BGCLK_EC.
P57 Delete Q5708,R5709,R5716,R5717,Q5710,R5718,R5719,no connect Q5707B.
P81.Delete net ME PM_SLP_LAN#,SLP_LAN# PWR,R8131,JP8117
P81.Delete net ME_SLP_M_EC#,SLP_M# PWR,R8129,JP8116
P84.Delete +3VM load switch block,ME +VM PWRGD block.
P22.Delete ME PM_SLP_M# to PM_SUSB#,delete R2254,R2238,Add T2208.
P22.Delete net ME PM_SLP_LAN#,R2254,R2257,add T2207.
Connect ME_PWROK_PCH to PM_PWROK_PCH.
Delete R2272#,R2268,D2204#,R2271.
P27. Delete net +1.05VM_ORG_R[1..4],delete R2736,R2727,R2738,R2739.
Connect +1.05VS to +1.05VM_ORG.
Connect +3VS to +3VM via JP2705.

L18. For EC8541:
P28: Delete R2848,R2856,net PM_RSMRST#.
Add Q2804,Q2805,R2830,R2835,R2836,R2838.
P28: Others: please see the description.
L19. net connection change.(for possible costdown)
PM_PWROK_PCH:D2202.2 -->D2202.1
PM_RSMRST#_PCH:D2203.1 -->D2202.2
R2275:0ohm -->10Kohm
L20. P20,30.connect HDA_DOCK_EN# to EC for BIOS request
L21. P7,P37 change XDP from 60pin to 24pin SFF.
L22. P56: prevent touch sensor board leakage.
Change J5601 net SMB1_CLK-->SMB1_CLK_S,SMB1_DAT-->SMB1_DAT_S
L23. For component kinds down:P5201<--P6501,P4801<--P4502
L24. P45. Delete P4502 for costdown.
L25. P28. Fix SPI circuit for EC8541.

B1. P36. Change ALC269 From A5 to VA6 (P/N: 02G611005006) .
B2. P30. Change U3001 from IT8512E to IT8541E.
B3. P18. Change Vref solution from M1 to M3.
DNI R1801,R1804,Mount R1805,R1806.
B4. P67. For no support Braidwood:
DNI J6704,R6740,
B5. Intel DG update:
P03. change R0320 & R0321.
B6.P70. correct name to match page rule:
C7709-->C7709... ,C7010,C7011,C7012,C7013,C7014,C7705.
T7006,T7007,T7008
B7.P70. DNI R7022, mount R7023 for VGA timing.
B8.P50. Change U5002 from G781-1 to G781 for SMBUS add.
B9.P21. DNI X2101,C2101,C2102,R2151 for PCH only support BTM mode currently.
B10. Improve clock ppm:
P29: C2907,C2908: 24pF-->27pF.
P40: C4040,C4066: 22pF-->27pF.
B11. Add R3205 support thermal protection.

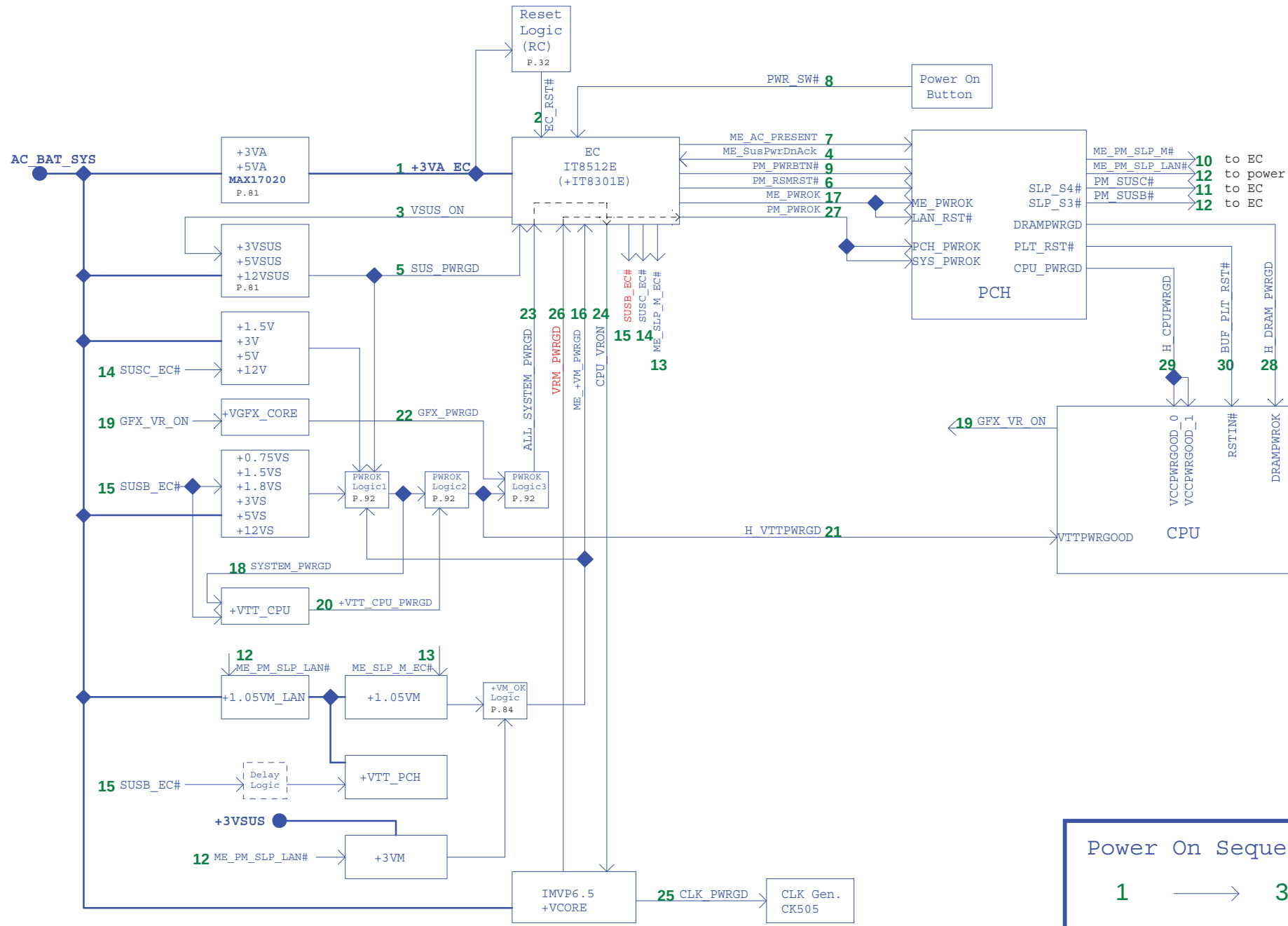
[M52J] R1.3=> R1.32
(Release on 2009/06/03)
B1. change connector for ME request.
J4501:12G170010409-->12G170010408
J4801:12G241101928-->12G24110193V
B2. Change MOS 2N7002 P/N to 07G0005000313 for RD pool
Q0301,Q2001,Q2901,Q3302#,Q4301#,Q4402,Q4503,Q4802,Q6102#.
B3. Change U2801,U2802 for vendor BOL.
05G00160F010-->05G00160G010
B4. Change EC from 8541 to 8512.
DNI C2804,R2848,R2855,R2856,U2803,R2857,R2858,R2859,R2860,R2861,R3002,R3003,R3004,R3005
Mount R2846,R2853,R2854,R2827,R2828,U3003,R3053,R3043,C3019
Change U3003: 05G001405010-->05G00120A010.
Change U3001: 06G04205010-->06G04205012.
B5. WW22 MOW,Implement M1 & M3 method:Mount R1801,R1804.
B6. WW20 MOW,change R2029 from 100K# to 1K#.

[M52J] R1.31=> R1.32
(Release on 2009/06/05)
B1. P28. DNI U2802 for costdown.
B2. P30. Change EC from 8512 to 8502 for costdown.

[M52J] R1.32=> R2.00
(Release on 2009/07/02)
L1. P28. ChangeJ2801.1 power for dediprog flash.
L2. P47. ChangeR4701 10K-->100K,add R4709 to fix DP hot-plug issue.
L3. P20. Fix error that HDA_DOCK_EN# can't pull to GND directly.
L4. P36,P20. Remove PC beep circuit for design IP change.
L5. P03,06,20,27,30,32,56,60,65:Add test point for factory request.
L6. P45: Change C4501 0.1uF(0402)-->0.22uF(0603) for LCD power timing.
L7. P37: Change J3701 12G171000049-->12G17100004F to fix ME bug.
L8. P53: Change J5302 12G0300000524-->12G03011052X for BOL.
Change H5303 + H5304 13G021036001-->13G02360M110 to match 12G03011052X.
L9. P43: Change U4301 06G0300053010-->06G030091110 for design IP.
L10. For EMI request:
Add C5617,C5618,C2736,C2748,C2749,C4509,C4510,C4519#,C5101,mount C3406.
USB_PNO, USB_PNI 7U6501 預留 choke
USB_PN2,3,5 預留 0 ohm
L11. For EC request pin assignment:
GPB.2 (ME AC_PRESENT);GPB.0 (ME SusPwrDnAck);GPI.4 (PCH_TEMP_ALERT#)
Change GPF.0(PCH_SPI_OV) to GPF.7
L12. For Touch sensor default state:
Del RN3007,change CAP_ACK_A#,CAP_ACK_B# pull up to +3VS(RN3008) .
L13. Change C2101#(27pF) to 0ohm to meet Calpella DG R1.6,Page 369.
L14. P29: Colay clock GEN. 9LRS3197/9LVS3162.
L15. Fix thermal policy:
P25. Move & mount R2501,add R2505
P32. Follow designip.
P50. Use GMT G709 as thermal protection.
L16. P45. Reserve soft-start circuit to prevent LCD inrush current.
L17. P65. Add C6514,C6515 for EMI request(prevent TV noise).
L17. P45,P83: change JP4599 for lead part.

B1. P46. Change C4601-C4601 10PF-->5PF for CRT signal quality.
B2. P45. Change J4501:12G170010409-->12G170010408 for footprint not compatible.
B3. P23. ChangeR2321 from 1Kohm,0.5#-->1Kohm,5# for DAC_IREF not used.
B4. P58. Move page 22 to page 58, rename components.
B5. P06. Delete unused nets.
B6. P20,28: Change R2032,R2033,R2837,R2840,R2841 to 33ohm to fix dediprog checksum error issue.
B7. P52: Change R5203 08G012080023--> for common part.
B8. P52: Change C6508,C6509 100pF-->1000pF for EMI request(prevent TV noise) .
B9. P24: DNI R2414 for no braidwood.

[M52J] R2.00=> R2.01
(Release on 2009/07/02)
B10. P20,P28: For only one SPI ROM:
DNI R2834,R2832,C2803,R2828,R2827,R2852,R2850,R2846,R2851,R2823,R2854,R2849,R2853,R2033
B11. P20,P67:remove support of PCH JTAG
P20: R2034,R2035,R2036,R2037,R2038,R2039,R2040,R2041
P67: R6702,J6701,R6721,R6722,R6723,R6724

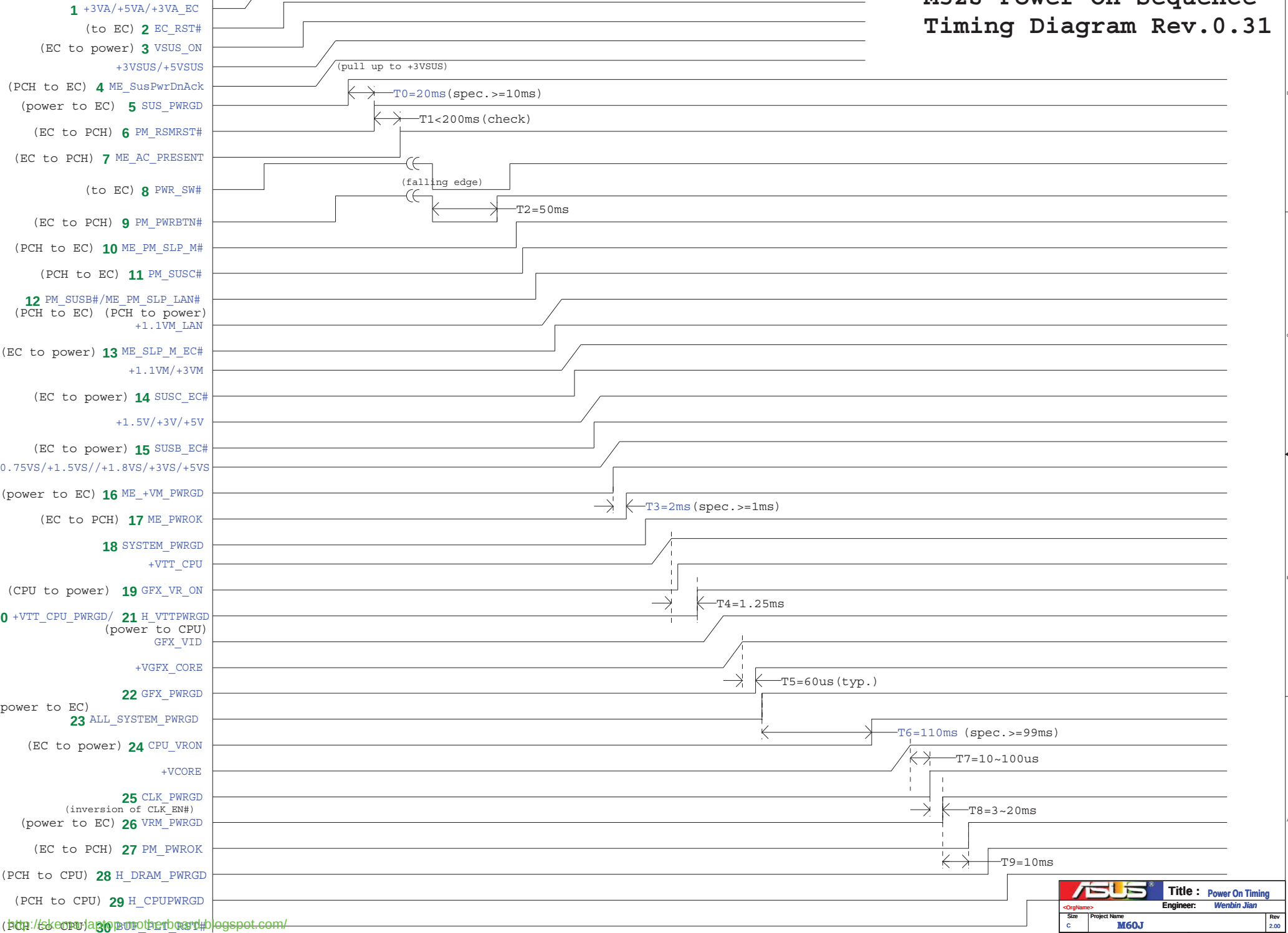


Power On Sequence

1 → 30

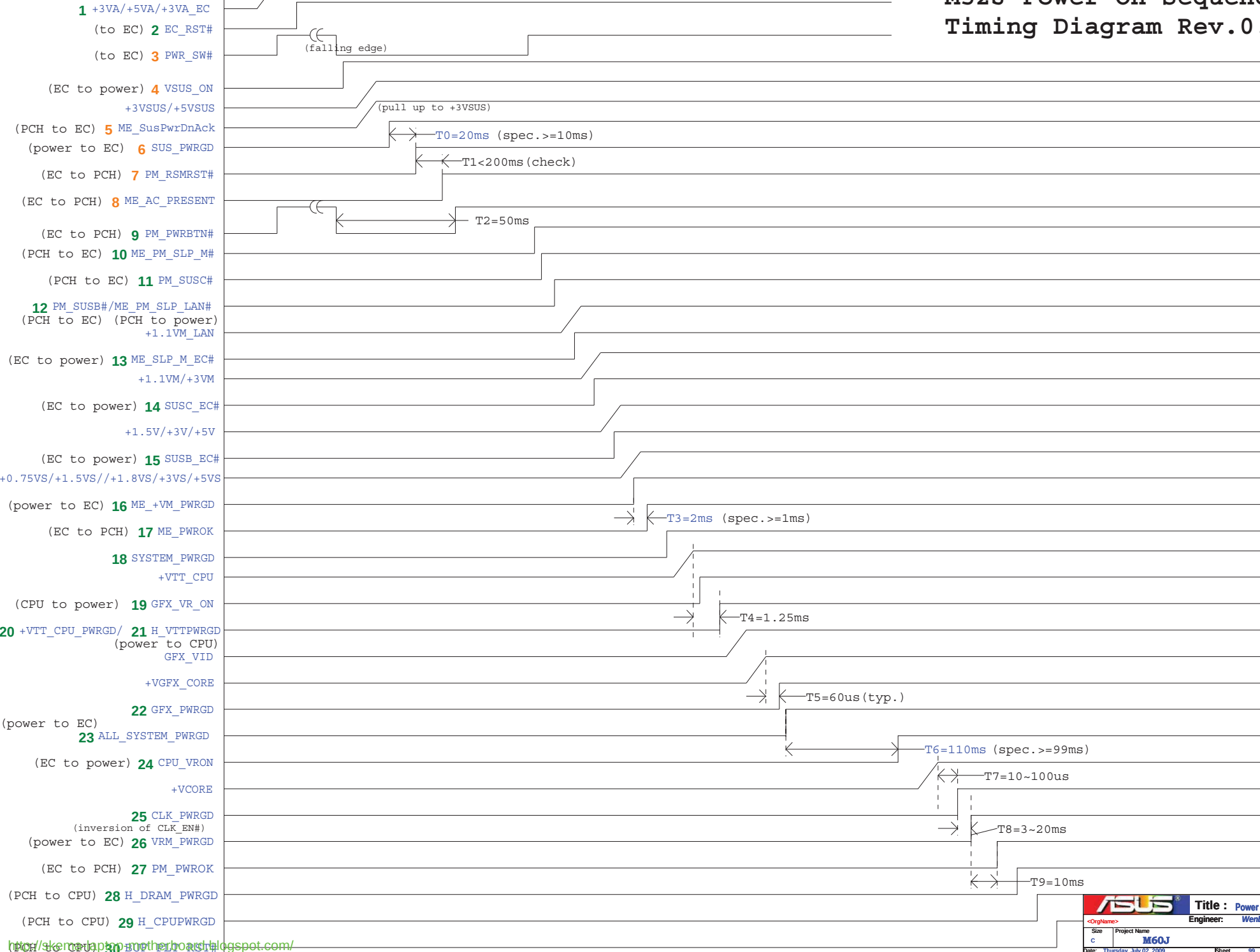
AC-IN Mode

M52J Power-On Sequence
Timing Diagram Rev.0.31



DC-IN Mode

M52J Power-On Sequence
Timing Diagram Rev.0.31



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