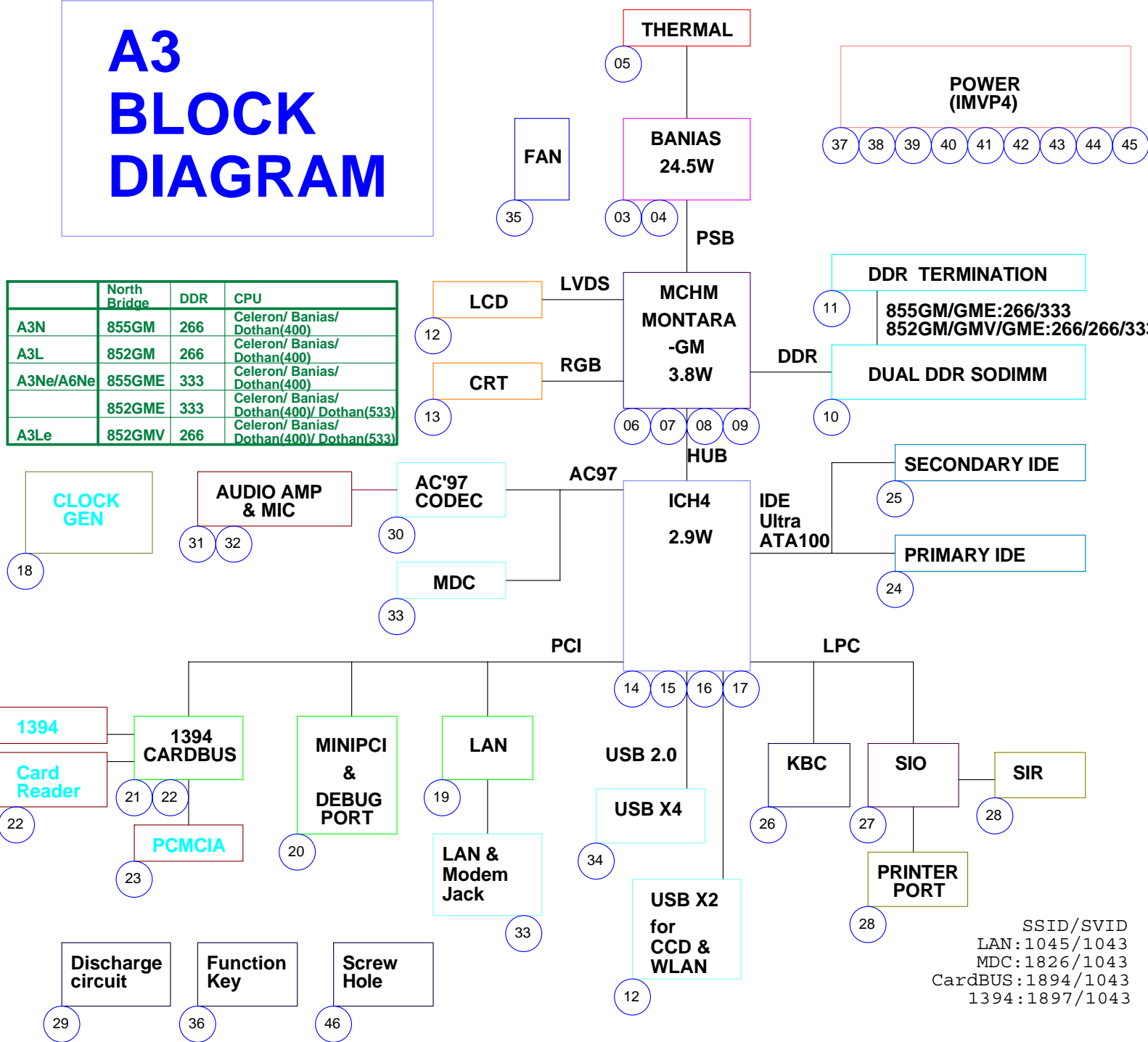


A3 BLOCK DIAGRAM



	North Bridge	DDR	CPU
A3N	855GM	266	Celeron/ Banias/ Dothan(400)
A3L	852GM	266	Celeron/ Banias/ Dothan(400)
A3Ne/A6Ne	855GME	333	Celeron/ Banias/ Dothan(400)
	852GME	333	Celeron/ Banias/ Dothan(400)/ Dothan(533)
A3Le	852GMV	266	Celeron/ Banias/ Dothan(400)/ Dothan(533)

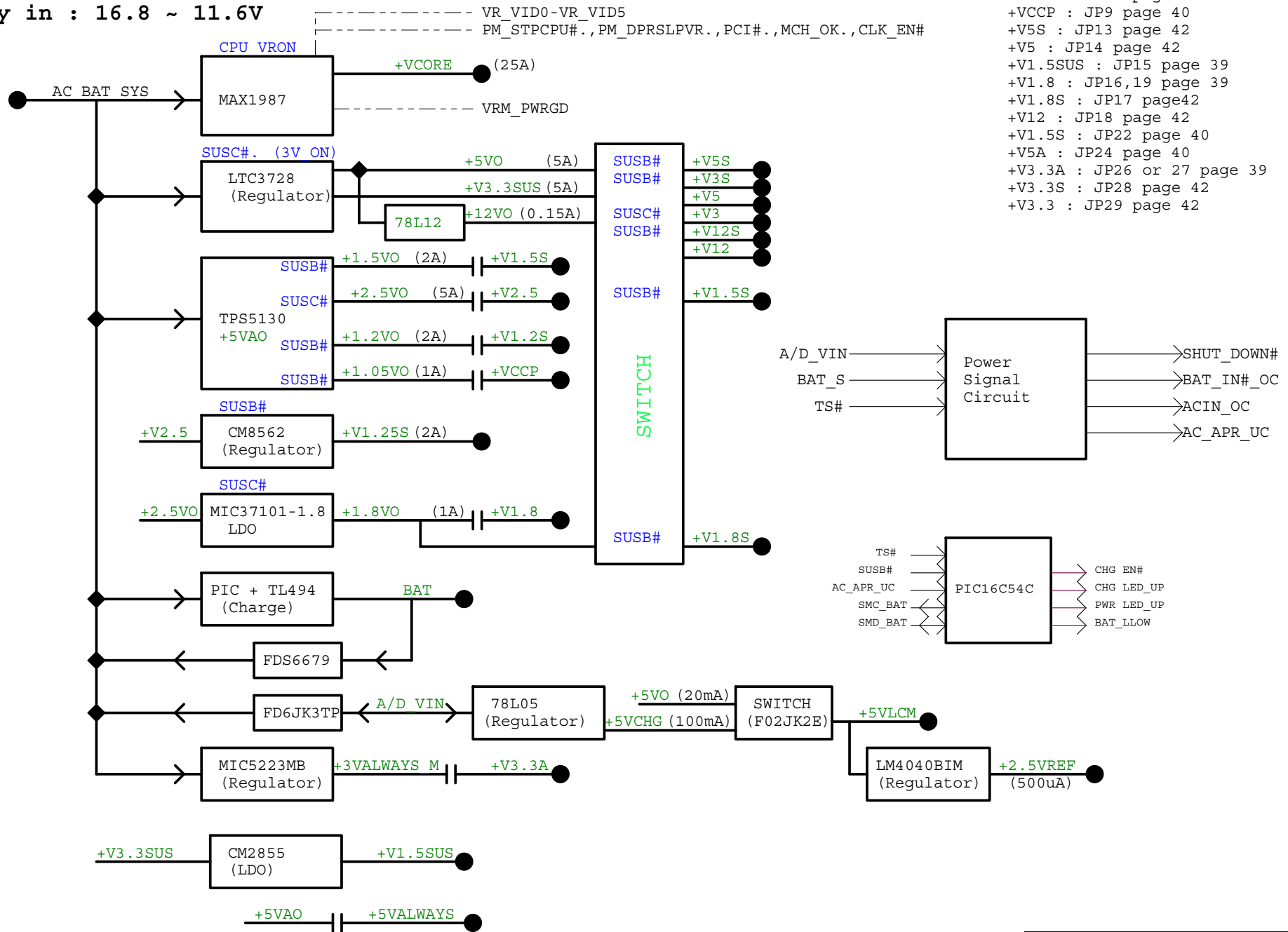
FILE LIST

01

- 01_BLOCK DIAGRAM
- 02_POWER DIAGRAM
- 03_CPU-BANIAS(HOST)
- 04_CPU-BANIAS(PWR)
- 05_THERMAL
- 06_NB-MCHM(DDR)
- 07_NB-MCHM(HOST)
- 08_NB-MCHM(VGA)
- 09_NB-MCHM(PWR)
- 10_DUAL DDR SODIMM
- 11_DDR TERMINATION
- 12_LVDS & BACKLIGHT
- 13_CRT CONNECTOR
- 14_ICH4-M(HUB_PCI)
- 15_ICH4-M(H_U_IDE_PM)
- 16_ICH4-M(PWR)
- 17_ICH4-M_PULLUP
- 18_CLOCK-ICS950815
- 19_LAN-RTL8100CL
- 20_MINIPCI
- 21_CB1394-R5C593(1)
- 22_CB1394-R5C593(2)
- 23_PCPCIA SOCKET
- 24_IDE-HD
- 25_IDE-ODD
- 26_KBC-M38857
- 27_SIO-ITE7805
- 28_IR&LPT_PORT
- 29_DISCHARGE CIRCUIT
- 30_CODEC-ALC650
- 31_AUDIO AMP
- 32_MIC
- 33_MDC&RJ45&RJ11
- 34_USB
- 35_FAN&Audio DJ
- 36_FUNCTION KEY
- 37_PWR & RESET SEQ
- 38_VCORE
- 39_1.25V&1.8V
- 40_2.5V&1.5V&1.35V&1.05V
- 41_SYSTEM
- 42_LOAD SWITCH
- 43_CHARGER
- 44_PIC16C54
- 45_BATLOW/SD#
- 46_SCREW HOLE & M/B SETTING
- 47_REVISION(1)
- 48_REVISION(2)
- 49_REVISION(3)
- 50_REVISION(4)
- 51_BLOCK DIAGRAM 5E
- 52_BLOCK DIAGRAM 7H
- 53_Part Reference 1
- 54_Part Reference 2
- 55_Power Net Reference

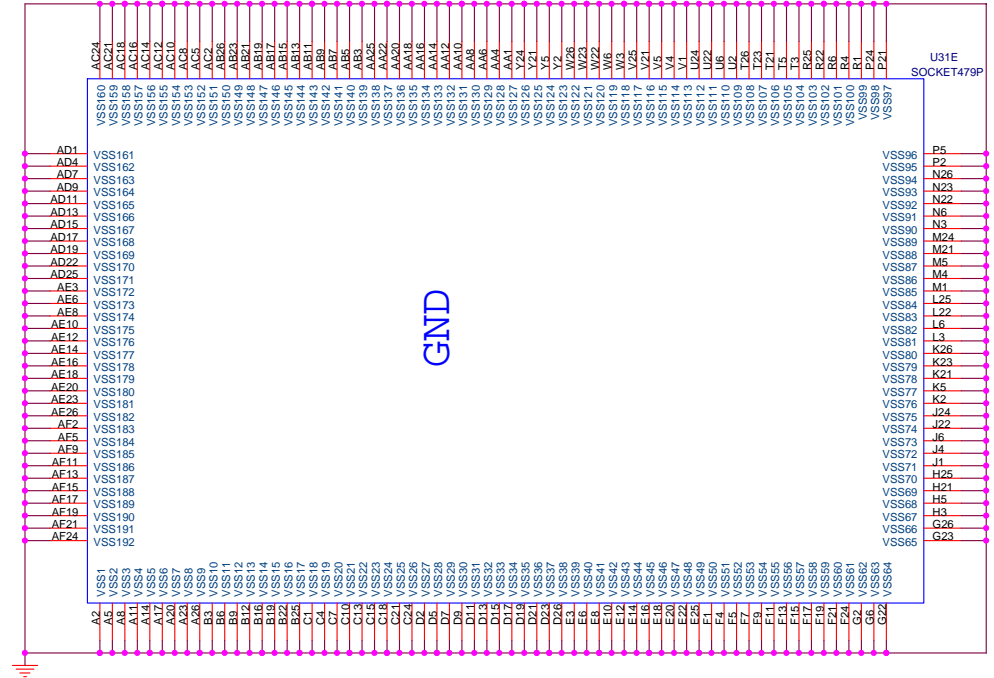
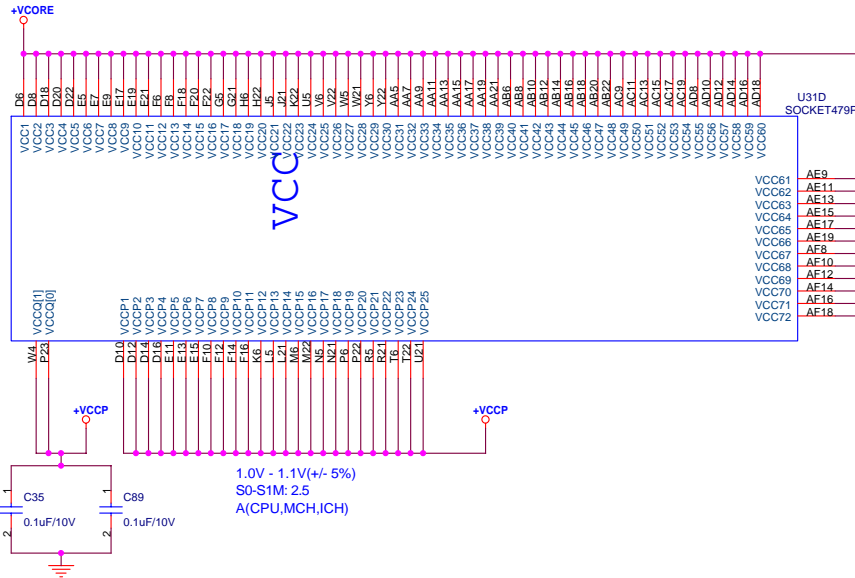
SSID/SVID
LAN: 1045/1043
MDC: 1826/1043
CardBUS: 1894/1043
1394: 1897/1043

System work voltage
 Adapter in : 19.5 ~18.5 V
 Battery in : 16.8 ~ 11.6V



- +V1.25S : JP4,5 page 39
- +V2.5 : JP6 page 40
- +V1.2S : JP7 page 40
- +VCCP : JP9 page 40
- +V5S : JP13 page 42
- +V5 : JP14 page 42
- +V1.5SUS : JP15 page 39
- +V1.8 : JP16,19 page 39
- +V1.8S : JP17 page42
- +V12 : JP18 page 42
- +V1.5S : JP22 page 40
- +V5A : JP24 page 40
- +V3.3A : JP26 or 27 page 39
- +V3.3S : JP28 page 42
- +V3.3 : JP29 page 42

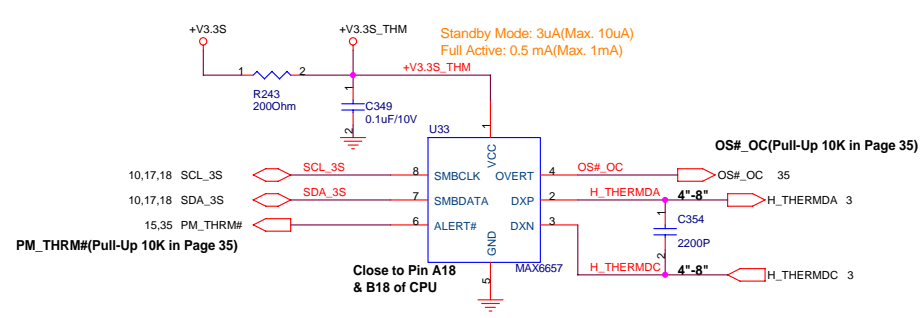
HFM(1.3GHz-1.7GHz): 1.468V
 LFM(600MHz): 0.956V
 0.745V - 1.356V(+/- 1.5%)
 C0: 25 A
 C3: 7.59A
 C4: 0.9A



Route H_THERMDA and H_THERMDC on the same layer

-----OTHER SIGNALS
 12 mils
 =====GND
 10 mils
 =====H_THERMDA(10 mils)
 10 mils
 =====H_THERMDC(10 mils)
 10 mils
 =====GND
 12 mils
 -----OTHER SIGNALS

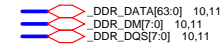
Avoid BPSB,Power



3.8W

Thermal Power: ~ 3.8W

LxWxH=37.5x37.5x2.58



1107

DDR_DATA0	4	100hm	13	RN48D	DDR_DATA0	DDR_DATA32	3	100hm	14	RN43C	DDR_DATA32
DDR_DATA1	1	100hm	16	RN48A	DDR_DATA1	DDR_DATA33	1	100hm	16	RN43A	DDR_DATA33
DDR_DATA2	3	100hm	14	RN48C	DDR_DATA2	DDR_DATA34	4	100hm	13	RN43B	DDR_DATA34
DDR_DATA5	2	100hm	15	RN48B	DDR_DATA5	DDR_DATA37	2	100hm	15	RN43B	DDR_DATA37
DDR_DQS0	5	100hm	12	RN48E	DDR_DQS0	DDR_DQS4	5	100hm	12	RN43E	DDR_DQS4
DDR_DM0	6	100hm	11	RN48F	DDR_DM0	DDR_DM4	6	100hm	11	RN43F	DDR_DM4
DDR_DATA6	1	100hm	16	RN47A	DDR_DATA6	DDR_DATA34	7	100hm	10	RN43S	DDR_DATA34
DDR_DATA2	7	100hm	10	RN48G	DDR_DATA2	DDR_DATA38	8	100hm	9	RN43H	DDR_DATA38

DDR_DATA3	8	100hm	9	RN48H	DDR_DATA3	DDR_DATA35	2	100hm	15	RN42B	DDR_DATA35
DDR_DATA7	2	100hm	15	RN47B	DDR_DATA7	DDR_DATA39	1	100hm	16	RN42A	DDR_DATA39
DDR_DATA8	3	100hm	14	RN47C	DDR_DATA8	DDR_DATA40	6	100hm	11	RN42F	DDR_DATA40
DDR_DATA12	4	100hm	13	RN47D	DDR_DATA12	DDR_DATA44	4	100hm	13	RN42D	DDR_DATA44
DDR_DATA9	6	100hm	11	RN47F	DDR_DATA9	DDR_DATA41	4	100hm	12	RN42E	DDR_DATA41
DDR_DATA13	5	100hm	12	RN47E	DDR_DATA13	DDR_DATA45	5	100hm	14	RN42G	DDR_DATA45
DDR_DQS1	7	100hm	10	RN47G	DDR_DQS1	DDR_DQS5	7	100hm	10	RN42G	DDR_DQS5
DDR_DM1	8	100hm	9	RN47H	DDR_DM1	DDR_DM5	8	100hm	9	RN42H	DDR_DM5

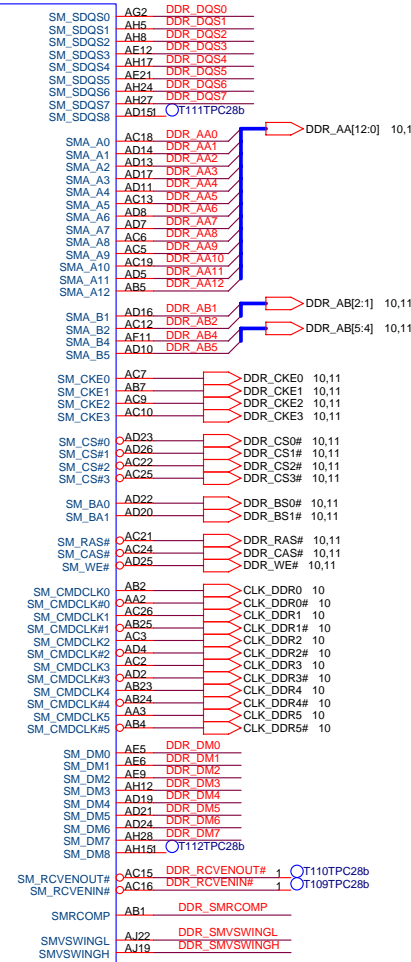
DDR_DATA10	4	100hm	13	RN46D	DDR_DATA10	DDR_DATA42	3	100hm	14	RN41C	DDR_DATA42
DDR_DATA14	1	100hm	16	RN46A	DDR_DATA14	DDR_DATA46	1	100hm	16	RN41A	DDR_DATA46
DDR_DATA11	3	100hm	14	RN46C	DDR_DATA11	DDR_DATA43	2	100hm	15	RN41B	DDR_DATA43
DDR_DATA15	2	100hm	15	RN46B	DDR_DATA15	DDR_DATA47	4	100hm	13	RN41D	DDR_DATA47
DDR_DATA16	5	100hm	12	RN46E	DDR_DATA16	DDR_DATA48	4	100hm	12	RN41E	DDR_DATA48
DDR_DATA20	6	100hm	11	RN46F	DDR_DATA20	DDR_DATA52	7	100hm	10	RN41G	DDR_DATA52
DDR_DATA17	7	100hm	10	RN46G	DDR_DATA17	DDR_DATA49	6	100hm	11	RN41F	DDR_DATA49
DDR_DATA21	8	100hm	9	RN46H	DDR_DATA21	DDR_DATA53	8	100hm	9	RN41H	DDR_DATA53

DDR_DQS2	1	100hm	16	RN45A	DDR_DQS2	DDR_DQS6	1	100hm	16	RN40A	DDR_DQS6
DDR_DM2	2	100hm	15	RN45B	DDR_DM2	DDR_DM6	2	100hm	15	RN40B	DDR_DM6
DDR_DATA18	4	100hm	13	RN45D	DDR_DATA18	DDR_DATA50	2	100hm	14	RN40C	DDR_DATA50
DDR_DATA22	3	100hm	14	RN45C	DDR_DATA22	DDR_DATA54	5	100hm	12	RN40E	DDR_DATA54
DDR_DATA19	5	100hm	12	RN45E	DDR_DATA19	DDR_DATA51	4	100hm	13	RN40D	DDR_DATA51
DDR_DATA23	6	100hm	11	RN45F	DDR_DATA23	DDR_DATA55	6	100hm	11	RN40F	DDR_DATA55
DDR_DATA24	7	100hm	10	RN45G	DDR_DATA24	DDR_DATA56	7	100hm	10	RN40G	DDR_DATA56
DDR_DATA28	1	100hm	16	RN44A	DDR_DATA28	DDR_DATA60	8	100hm	9	RN40H	DDR_DATA60

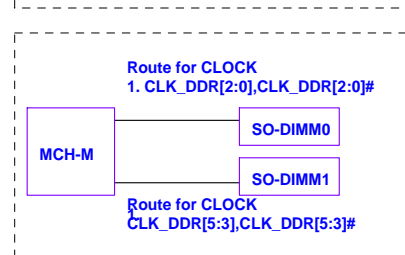
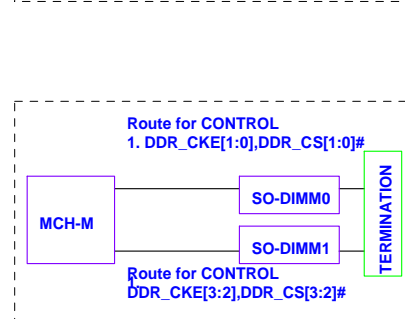
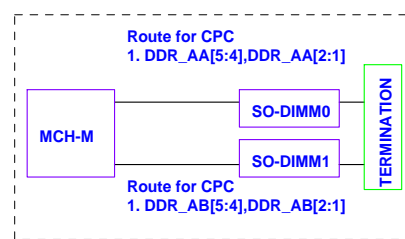
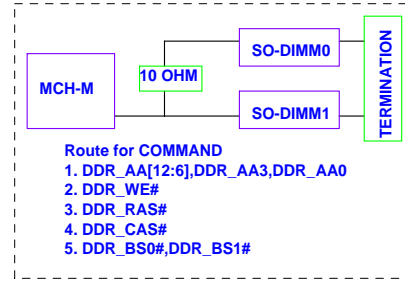
DDR_DATA25	8	100hm	9	RN45H	DDR_DATA25	DDR_DATA57	1	100hm	16	RN39A	DDR_DATA57
DDR_DATA29	2	100hm	15	RN44B	DDR_DATA29	DDR_DATA61	2	100hm	15	RN39B	DDR_DATA61
DDR_DQS3	3	100hm	14	RN44C	DDR_DQS3	DDR_DQS7	3	100hm	14	RN39C	DDR_DQS7
DDR_DM3	4	100hm	13	RN44D	DDR_DM3	DDR_DM7	4	100hm	13	RN39D	DDR_DM7
DDR_DATA26	5	100hm	11	RN44F	DDR_DATA26	DDR_DATA58	7	100hm	10	RN39G	DDR_DATA58
DDR_DATA30	6	100hm	11	RN44G	DDR_DATA30	DDR_DATA62	7	100hm	12	RN39E	DDR_DATA62
DDR_DATA27	7	100hm	9	RN44H	DDR_DATA27	DDR_DATA59	8	100hm	9	RN39H	DDR_DATA59
DDR_DATA31	5	100hm	12	RN44E	DDR_DATA31	DDR_DATA63	6	100hm	11	RN39F	DDR_DATA63

DDR_DATA0	AF2	SM_SDQ0	AG2	DDR_DQS0
DDR_DATA1	AE1	SM_SDQ1	AH5	DDR_DQS1
DDR_DATA2	AE3	SM_SDQ2	AH8	DDR_DQS2
DDR_DATA3	AH2	SM_SDQ3	AE12	DDR_DQS3
DDR_DATA4	AD3	SM_SDQ4	AH17	DDR_DQS4
DDR_DATA5	AE2	SM_SDQ5	AE12	DDR_DQS5
DDR_DATA6	AG4	SM_SDQ6	AH24	DDR_DQS6
DDR_DATA7	AH3	SM_SDQ7	AH27	DDR_DQS7
DDR_DATA8	AD6	SM_SDQ8	AD15I	T111TPC28b
DDR_DATA9	AG5	SM_SDQ9		
DDR_DATA10	AG7	SM_SDQ10		
DDR_DATA11	AE4	SM_SDQ11		
DDR_DATA12	AE5	SM_SDQ12		
DDR_DATA13	AH4	SM_SDQ13		
DDR_DATA14	AF7	SM_SDQ14		
DDR_DATA15	AH6	SM_SDQ15		
DDR_DATA16	AE8	SM_SDQ16		
DDR_DATA17	AG8	SM_SDQ17		
DDR_DATA18	AH9	SM_SDQ18		
DDR_DATA19	AG10	SM_SDQ19		
DDR_DATA20	AH7	SM_SDQ20		
DDR_DATA21	AD9	SM_SDQ21		
DDR_DATA22	AF10	SM_SDQ22		
DDR_DATA23	AE11	SM_SDQ23		
DDR_DATA24	AE13	SM_SDQ24		
DDR_DATA25	AH10	SM_SDQ25		
DDR_DATA26	AG13	SM_SDQ26		
DDR_DATA27	AF14	SM_SDQ27		
DDR_DATA28	AG11	SM_SDQ28		
DDR_DATA29	AE12	SM_SDQ29		
DDR_DATA30	AD12	SM_SDQ30		
DDR_DATA31	AH13	SM_SDQ31		
DDR_DATA32	AH16	SM_SDQ32		
DDR_DATA33	AG17	SM_SDQ33		
DDR_DATA34	AE13	SM_SDQ34		
DDR_DATA35	AF15	SM_SDQ35		
DDR_DATA36	AD18	SM_SDQ36		
DDR_DATA37	AE18	SM_SDQ37		
DDR_DATA38	AH18	SM_SDQ38		
DDR_DATA39	AG19	SM_SDQ39		
DDR_DATA40	AH20	SM_SDQ40		
DDR_DATA41	AG20	SM_SDQ41		
DDR_DATA42	AF22	SM_SDQ42		
DDR_DATA43	AH22	SM_SDQ43		
DDR_DATA44	AE22	SM_SDQ44		
DDR_DATA45	AH19	SM_SDQ45		
DDR_DATA46	AH21	SM_SDQ46		
DDR_DATA47	AG22	SM_SDQ47		
DDR_DATA48	AE23	SM_SDQ48		
DDR_DATA49	AH18	SM_SDQ49		
DDR_DATA50	AE24	SM_SDQ50		
DDR_DATA51	AH25	SM_SDQ51		
DDR_DATA52	AG23	SM_SDQ52		
DDR_DATA53	AE23	SM_SDQ53		
DDR_DATA54	AF23	SM_SDQ54		
DDR_DATA55	AG25	SM_SDQ55		
DDR_DATA56	AG25	SM_SDQ56		
DDR_DATA57	AE25	SM_SDQ57		
DDR_DATA58	AE28	SM_SDQ58		
DDR_DATA59	AF28	SM_SDQ59		
DDR_DATA60	AG26	SM_SDQ60		
DDR_DATA61	AE26	SM_SDQ61		
DDR_DATA62	AE27	SM_SDQ62		
DDR_DATA63	AG27	SM_SDQ63		
	AG14	SM_SDQ64		
	AE14	SM_SDQ65		
	AE17	SM_SDQ66		
	AG16	SM_SDQ67		
	AH14	SM_SDQ68		
	AE15	SM_SDQ69		
	AF16	SM_SDQ70		
	AE17	SM_SDQ71		

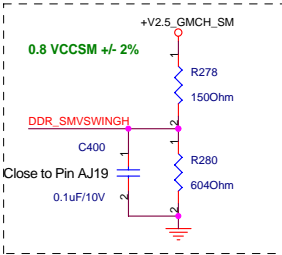
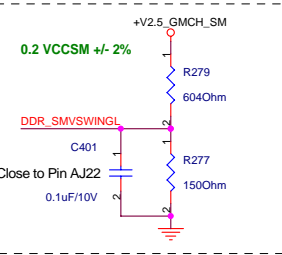
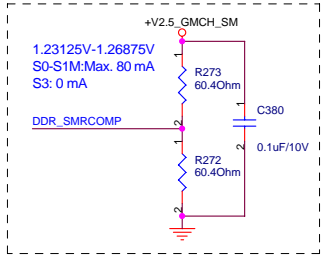
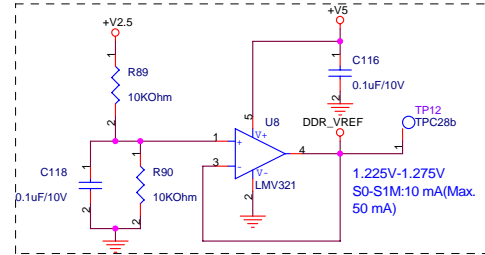
DDR SYSTEM MEMORY

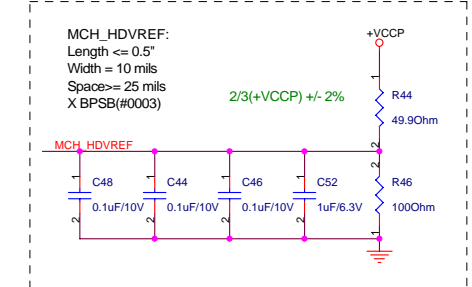
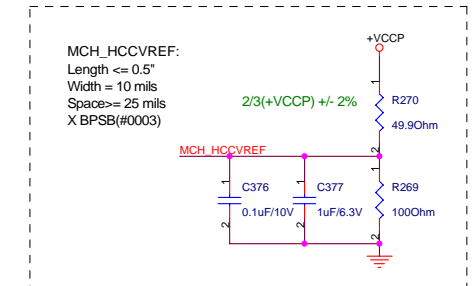
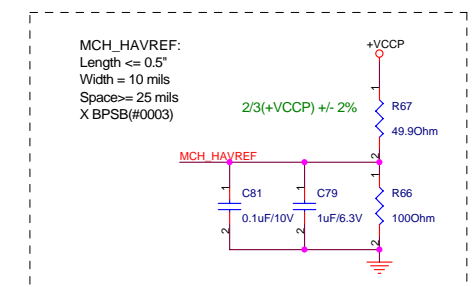
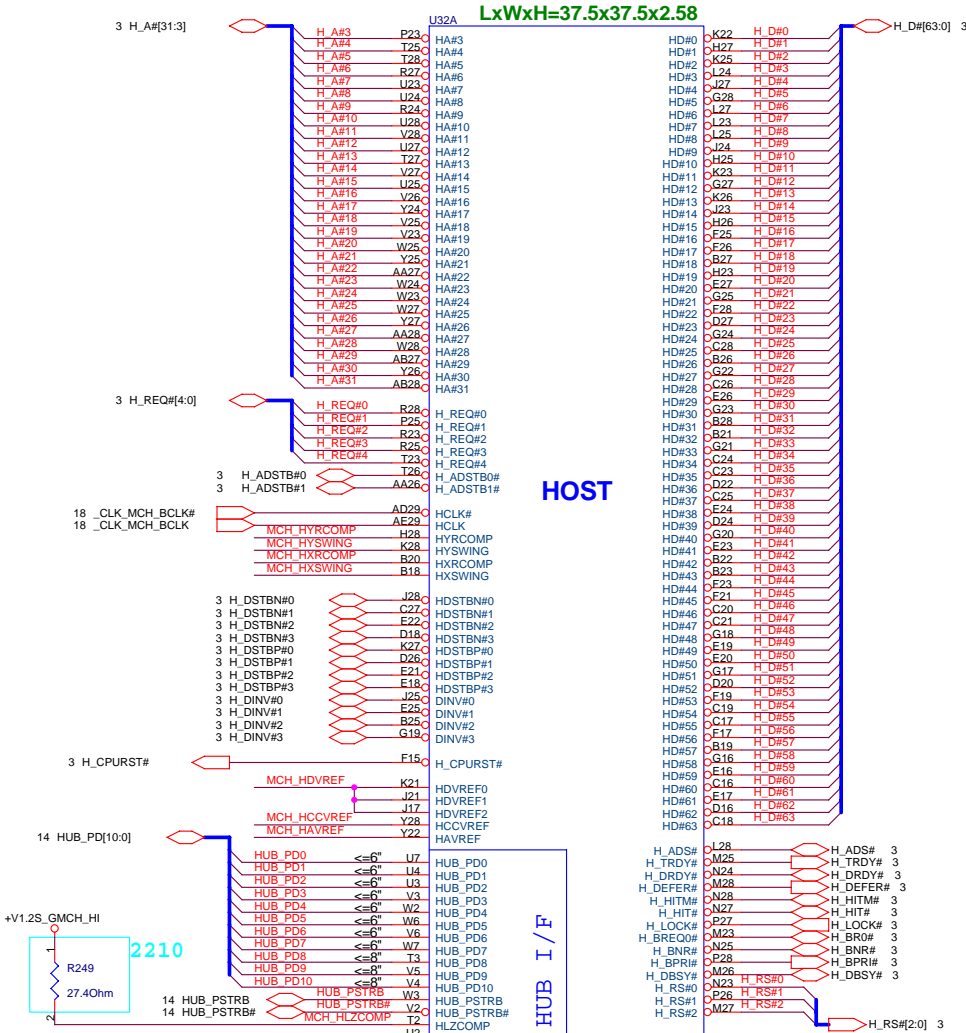
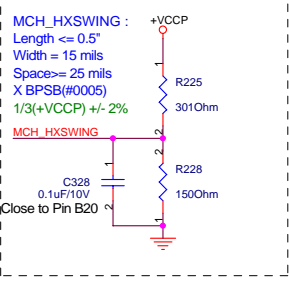
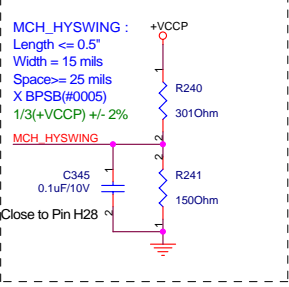
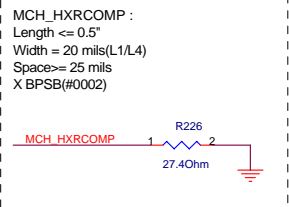
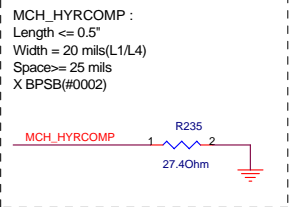
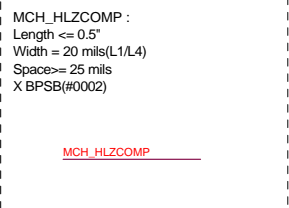


(MCH-Sighting041)
M-GM system memory interface generates single pulse CKE events which may cause Intermittent hangs and display corruptions when using Micron and Infineon SO-DIMMs.



Intel suggested that DDR_VREF should be turned on in S3-S5. But measure the leakage because there is no +V2.5S.





2210
R249 :
27.4ohm (10-003412704) for 855GM/852GM
37.4ohm (10-003413704) for 855GME
48.7ohm (10-003414807) for 852GME/852GMV

2210
R251 :
49.9ohm (10-003414909) for 855GM/852GM
68.1ohm (10-003416801) for 855GME
86.6ohm (10-003418606) for 852GME/852GMV

2210
R252 :
240ohm (10-003412410) for 855GM/852GM
287ohm (10-003412817) for 855GME
324ohm (10-003413214) for 852GME/852GMV

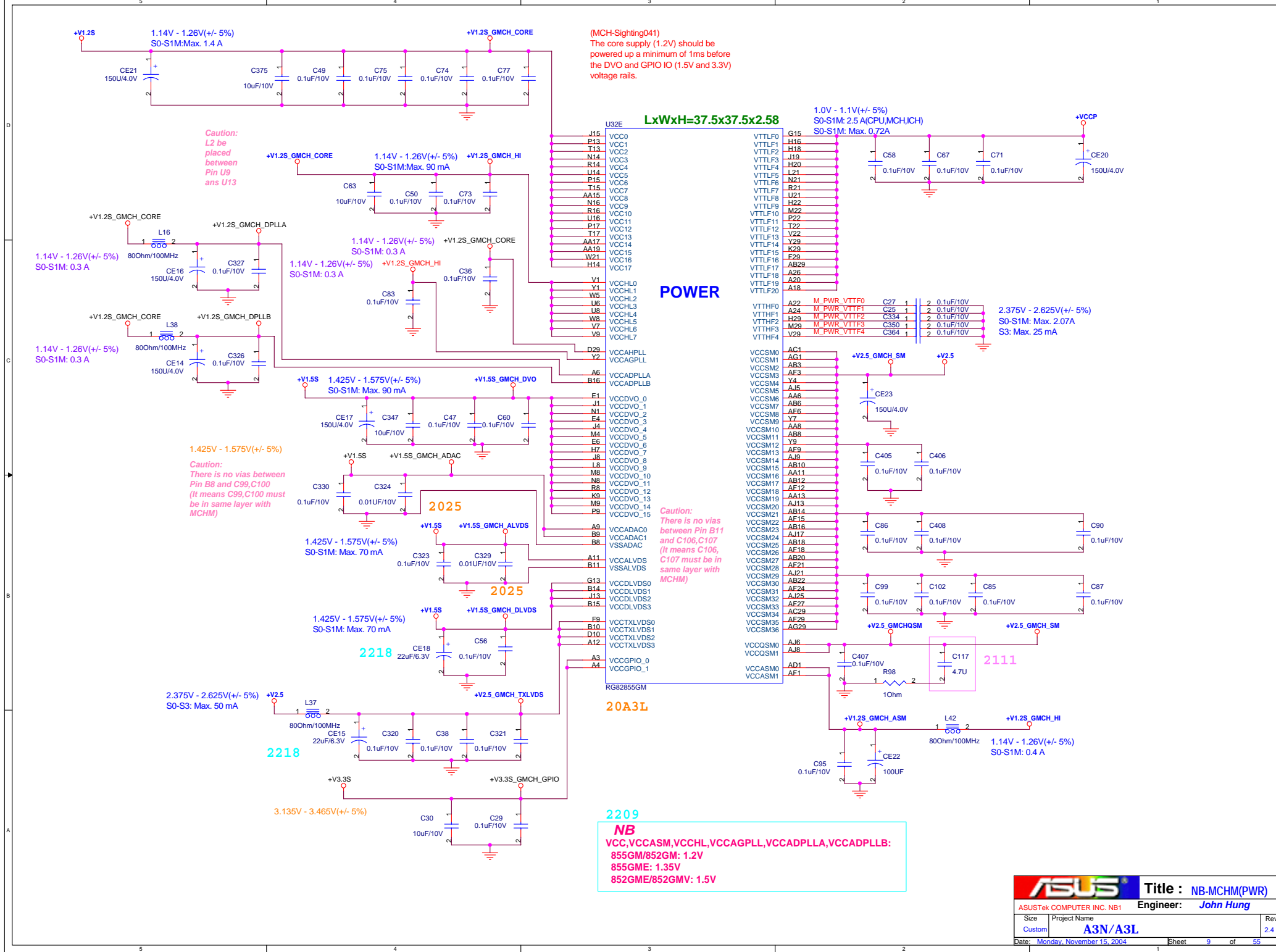
(MCH-Sighting041)
The core supply (1.2V) should be powered up a minimum of 1ms before the DVO and GPIO IO (1.5V and 3.3V) voltage rails.

LxWxH=37.5x37.5x2.58

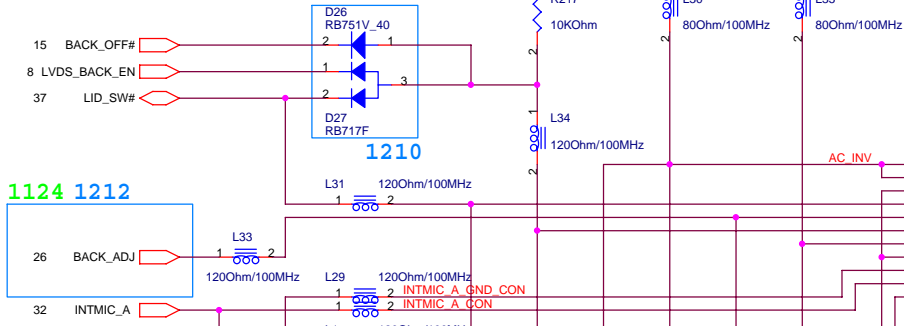
POWER

Caution:
There is no vias between Pin B11 and C106, C107 (It means C106, C107 must be in same layer with MCHM)

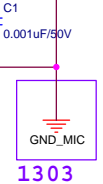
NB
VCC, VCCASM, VCCHL, VCCAGPLL, VCCADPLL, VCCADPLLB:
855GM/852GM: 1.2V
855GME: 1.35V
852GME/852GMV: 1.5V



BIOS
BACK_OFF#: When user push "Fn+F7"
 button, BIOS active this pin to
 turn off back light.

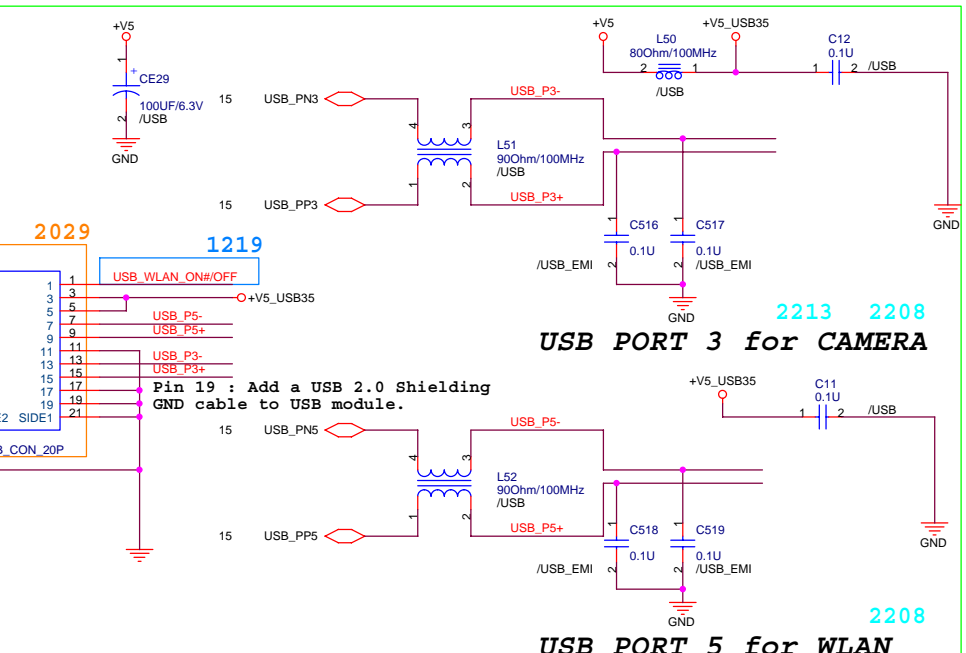


BIOS
BACK_ADJ: KBC
 output D/A
 signal (adjust
 voltage level)
 to adjust Back
 light.



A3N use D1 R:1.0 Inverter Board

1128

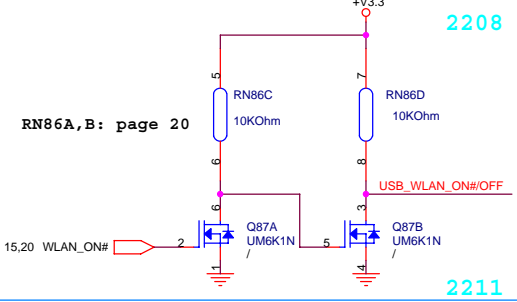
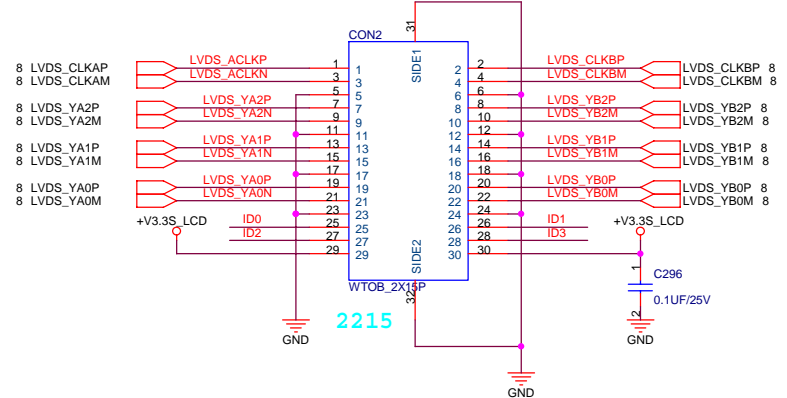


USB PORT 3 for CAMERA

USB PORT 5 for WLAN

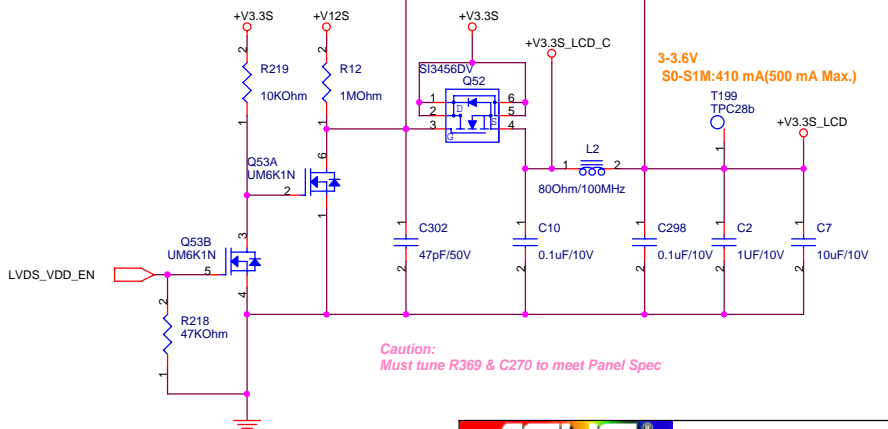
Pin 19 : Add a USB 2.0 Shielding
 GND cable to USB module.

LCD CABLE ID:	PID3	PID2	PID1	PID0
14.1 XGA	1	1	1	1
15.1 XGA	1	1	0	1
15.1 SXGA+	1	0	1	1

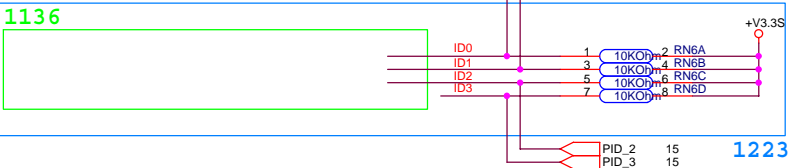


LCD Power

SI3865: US\$0.22

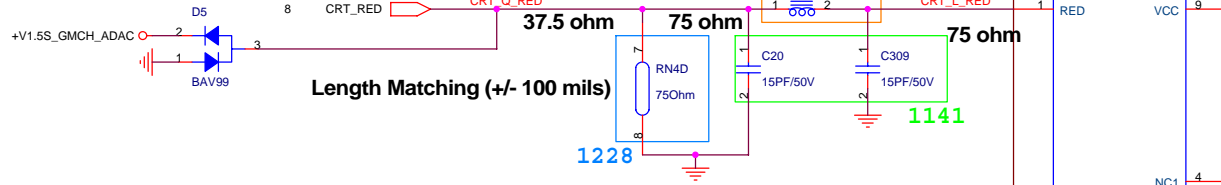


Caution:
 Must tune R369 & C270 to meet Panel Spec

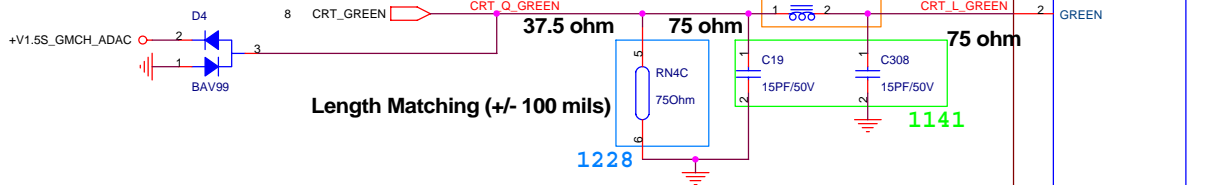


Place Pi-Filter close to CRT
(<= 200 mils)

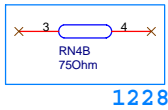
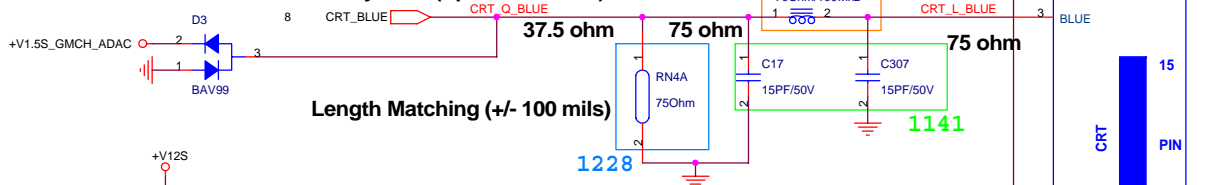
Guarded by GND (Space >= 20mils)



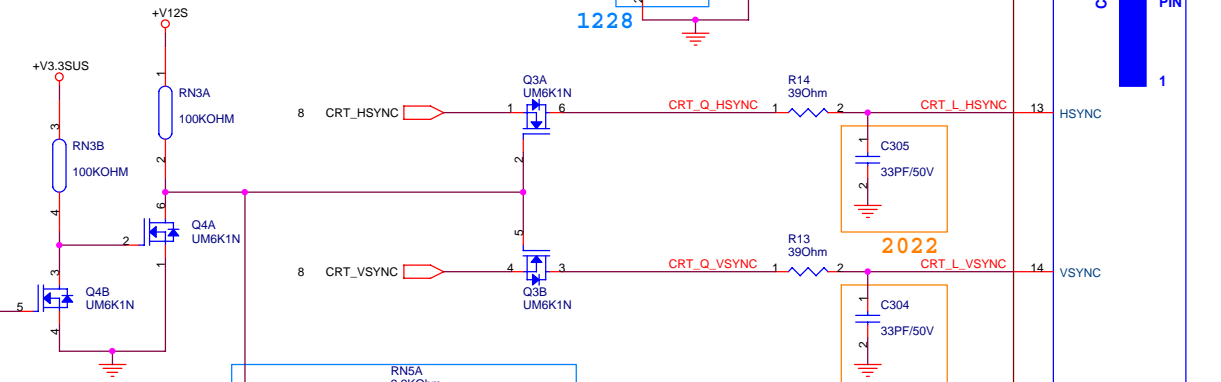
Guarded by GND (Space >= 20mils)



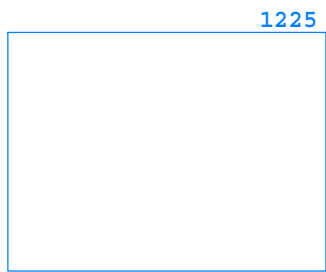
Guarded by GND (Space >= 20mils)



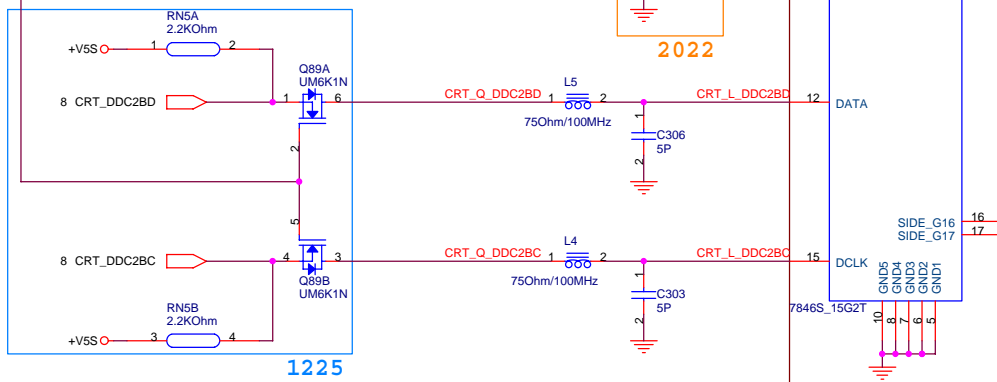
1228



14,19,20,21,26,27 BUF_PCI_RST#



1225



1115 2309
2222 2408

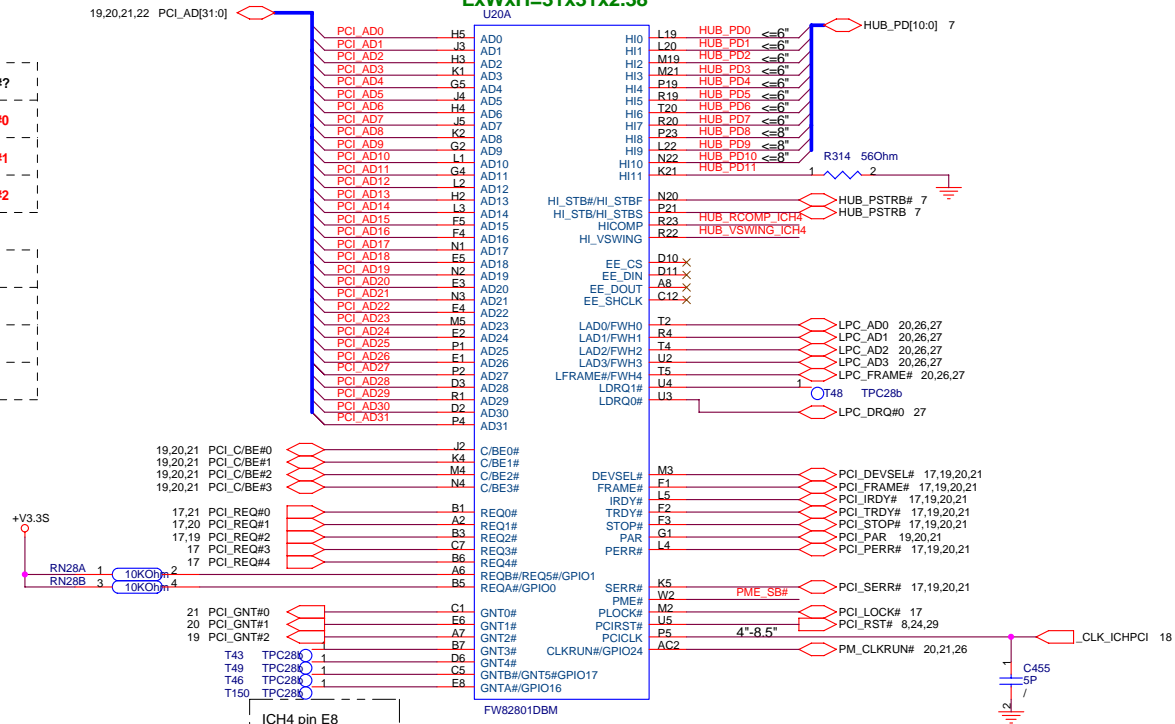
ASUS		Title : CRT CONNECTOR	
ASUSTek COMPUTER INC. NB1		Engineer: John Hung	
Size	Project Name	Rev	
Custom	A3N/A3L	2.4	
Date: Monday, November 15, 2004	Sheet 13 of 55		

Use Daisy-Chain Topology

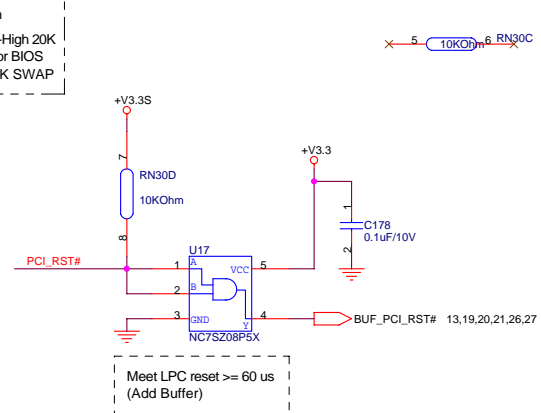
LxWxH=31x31x2.38
U20A

PCI_REQ#	PCI_REQ#?
CB&1394	PCI_REQ#0
MINIPCI	PCI_REQ#1
LAN	PCI_REQ#2

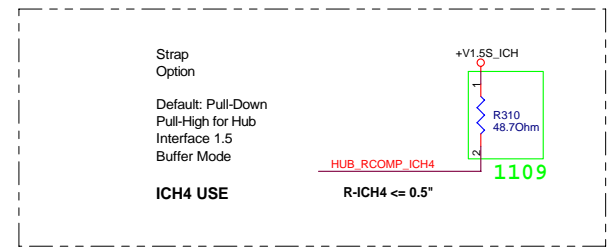
IDSEL	PCI_AD?
CB&1394	PCI_AD21
MINIPCI	PCI_AD20
LAN	PCI_AD16



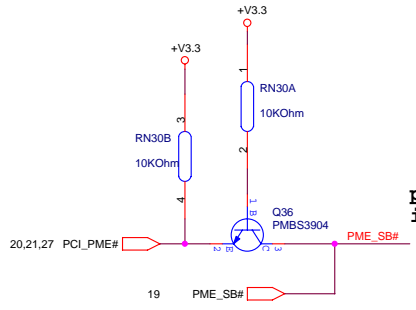
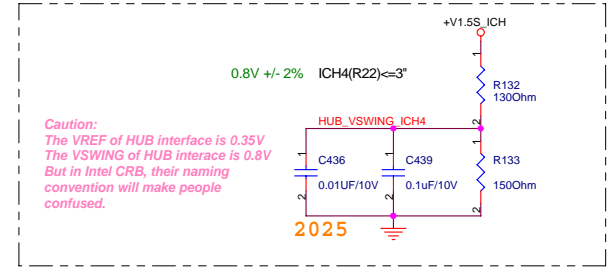
ICH4 pin E8
Strap Option
Default: Pull-High 20K
Pull-Down for BIOS
TOP-BLOCK SWAP



Meet LPC reset >= 60 us
(Add Buffer)



Strap Option
Default: Pull-Down
Pull-High for Hub Interface 1.5
Buffer Mode
ICH4 USE
R-ICH4 <= 0.5"



pull up to VccSus3_3 by internal pull-up resistor

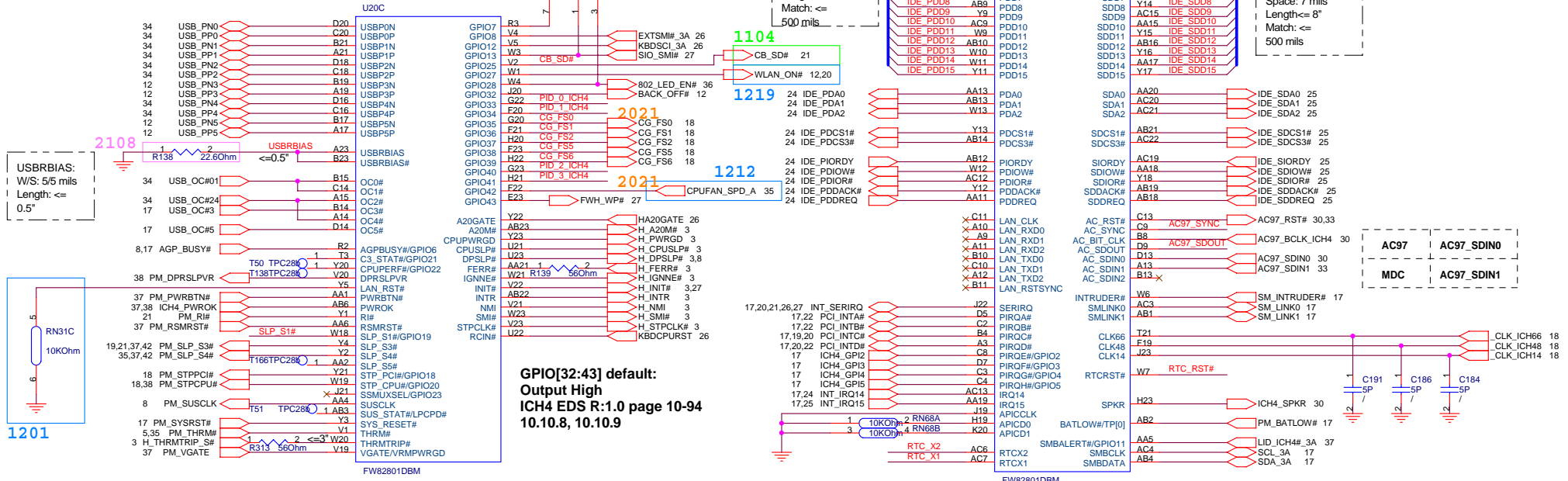
USB SIGNALS
 X Clock Signals
 | USB+ - USB| <= 150 mils
 Pair Width/Space: 7/10 mils
 Impedance: 90 ohm(differential)
 Other Signals Space: >= 20 mils
 Clock Signals Spacoe: >= 50 mils

LxWxH=31x31x2.38

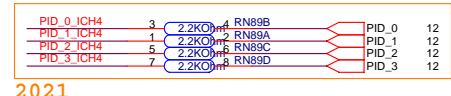
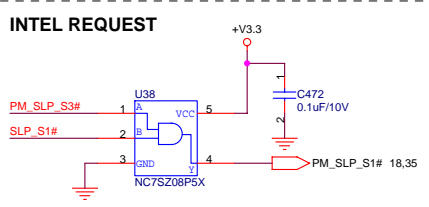
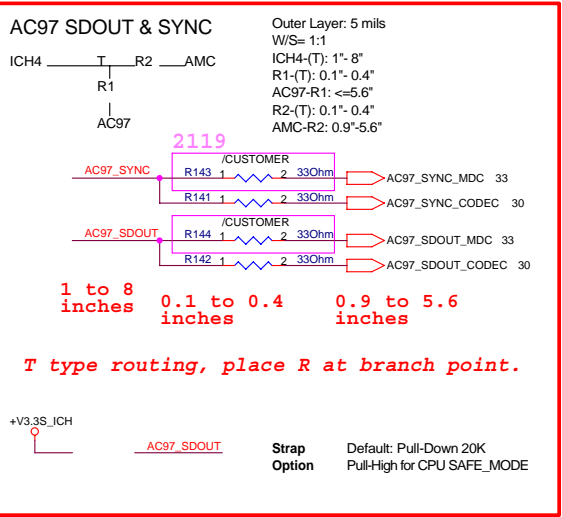
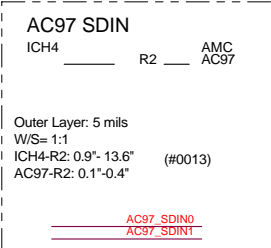
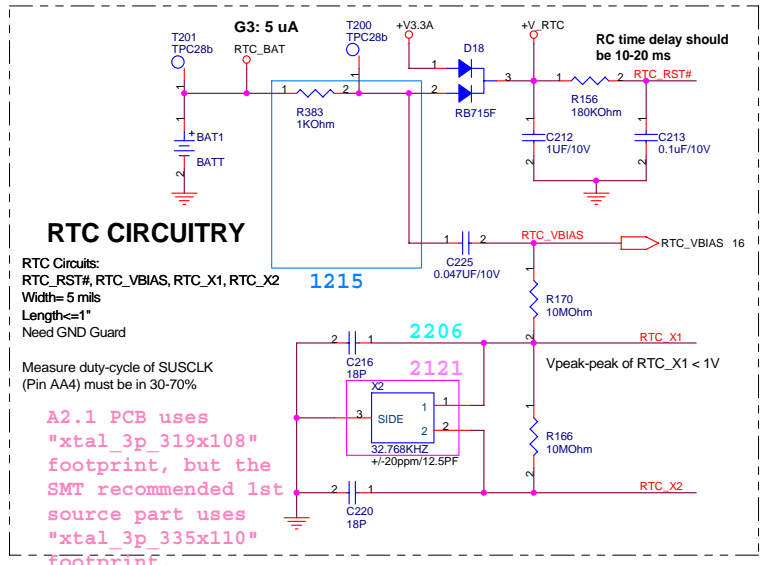
LxWxH=31x31x2.38

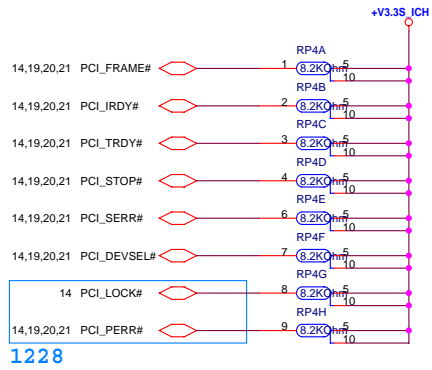
IDE I/F:
 Width: 5 mils
 Space: 7 mils
 Length <= 8"
 Match: <= 500 mils

IDE I/F:
 Width: 5 mils
 Space: 7 mils
 Length <= 8"
 Match: <= 500 mils

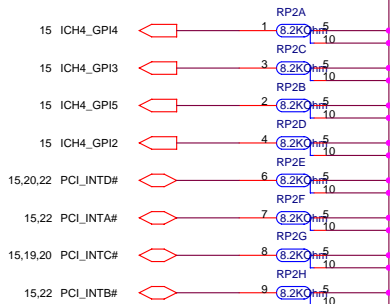
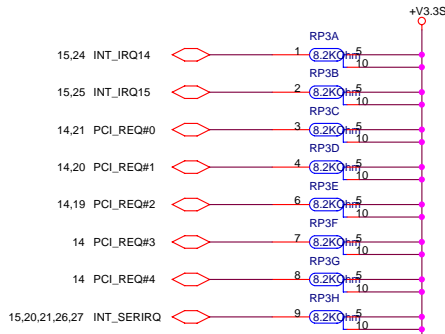


GPIO[32:43] default:
 Output High
 ICH4 EDS R:1.0 page 10-94
 10.10.8, 10.10.9

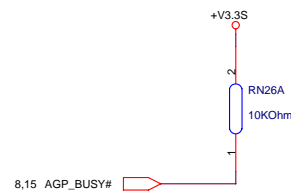
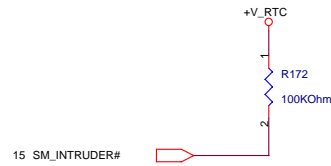
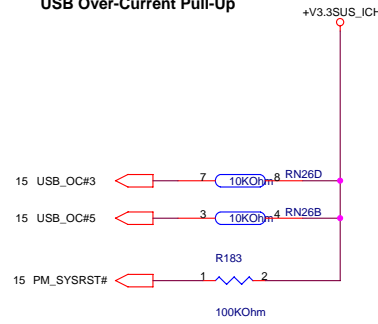




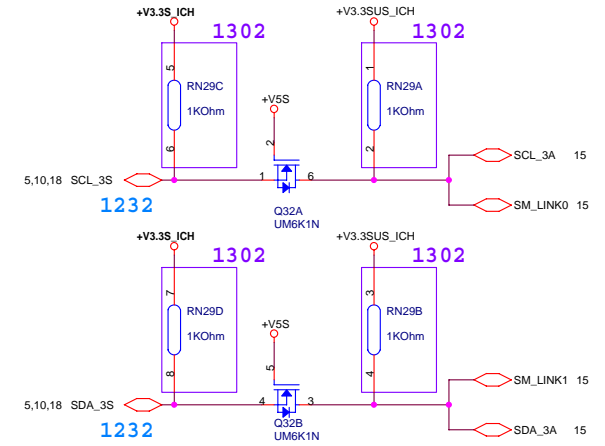
Can Swap



USB Over-Current Pull-Up

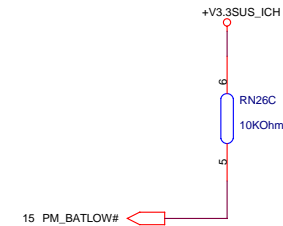


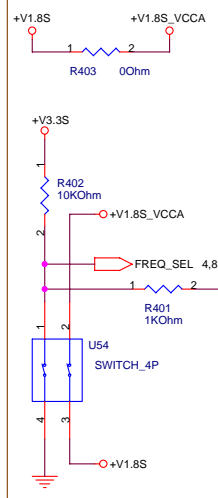
ICH4 SMLink & SMBus must be tied together



BATTERY LOW

ICH4





CLK_EN# is OD for MAX1987



FS4	FS3	FUNCTION
0	0	100MHz
0	1	133MHz (D)
1	0	200MHz
1	1	166MHz

For A3LE:
Load R401, R402, U54

For A3N/A3NE/A3L:
Load R403, R368

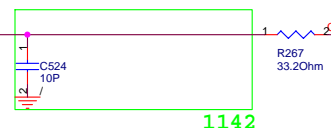
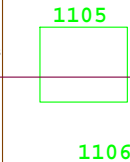
1(H): FSB Freq=133MHz & VCCA[0]=1.5V
4(L): FSB Freq=100MHz & VCCA[0]=1.8V

2: Dothan(533) CPU
3: Celeron/Banias /Dothan(400) CPU

U54 switch to 1, pin1 & 4 open
U54 switch to 4, pin1 & 4 short

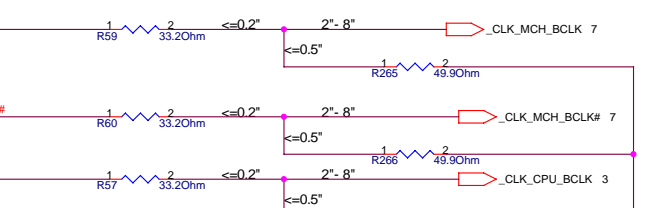
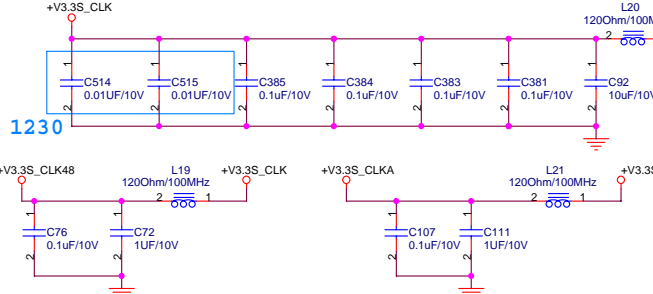
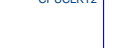
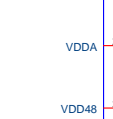
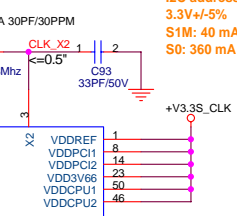
CLK33 GROUP:
In L3 or L6
Breakout:
W/S: 4/4 mils(<=0.3")
Group Space >= 25 mils
Length Match: same as CLK66

CLK66 GROUP:
In L3 or L6
Breakout:
W/S: 4/4 mils(<=0.3")
Group Space >= 25 mils
Length Match: +/- 100 mils



I2C address: D2H
3.3V +/- 5%
S1M: 40 mA
S0: 360 mA

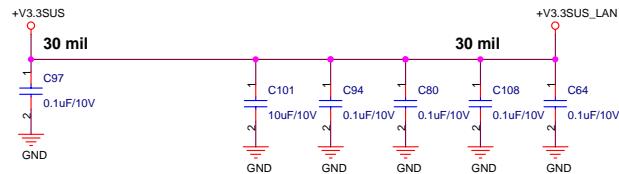
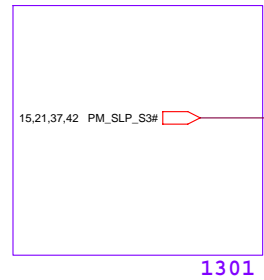
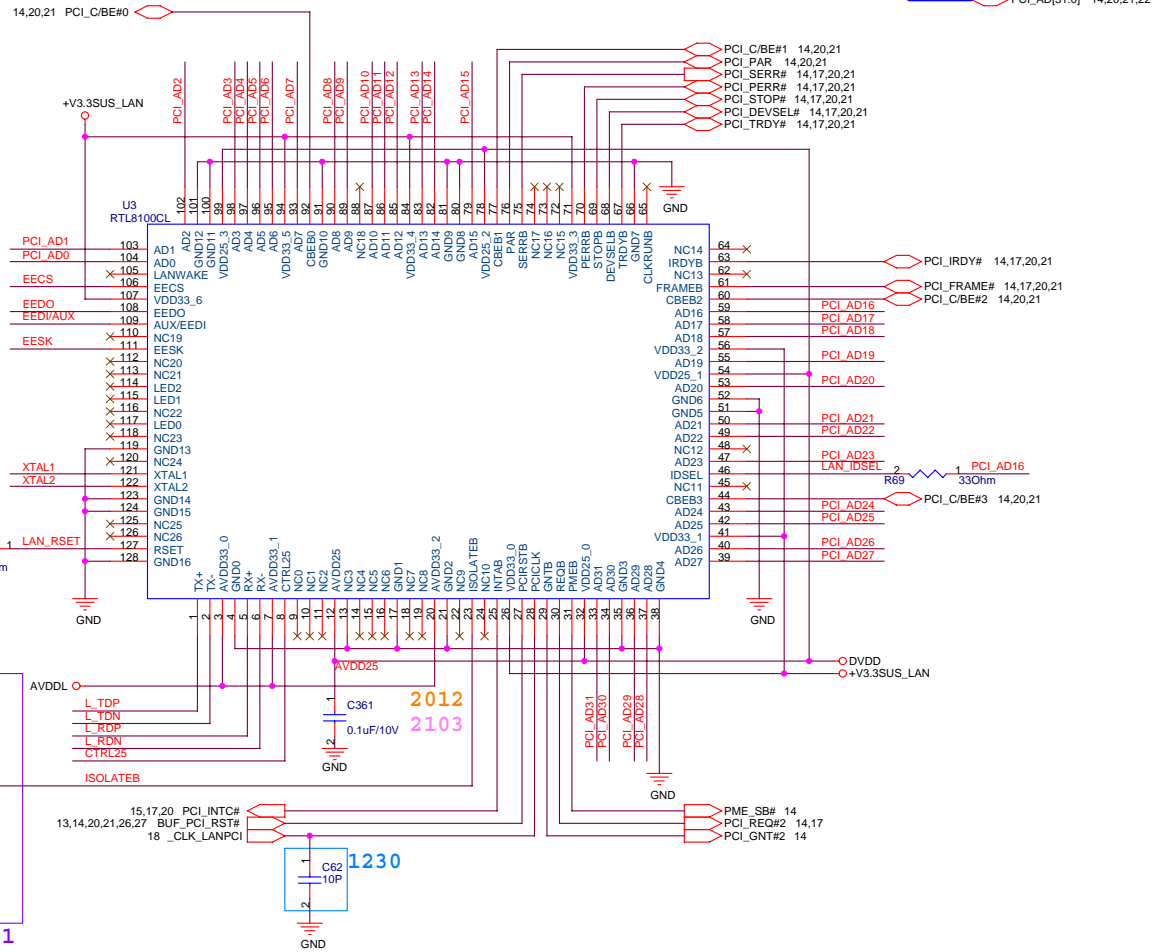
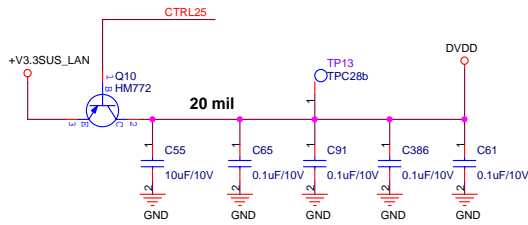
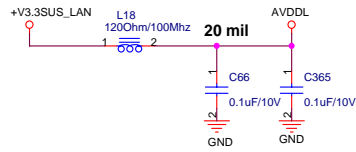
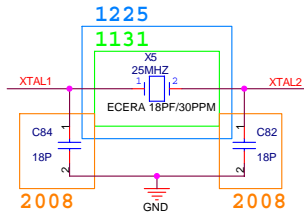
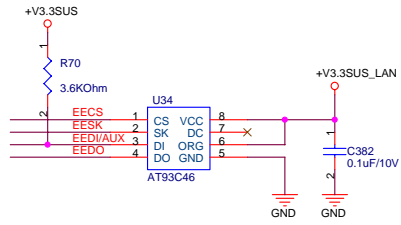
FS1	FS0	FUNCTION
0	0	66 MHz
0	1	100MHz
1	0	200MHz
1	1	133MHz

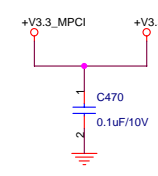
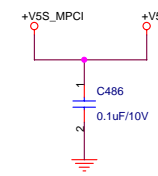
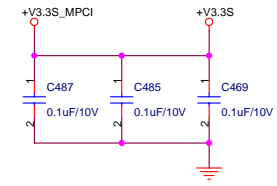
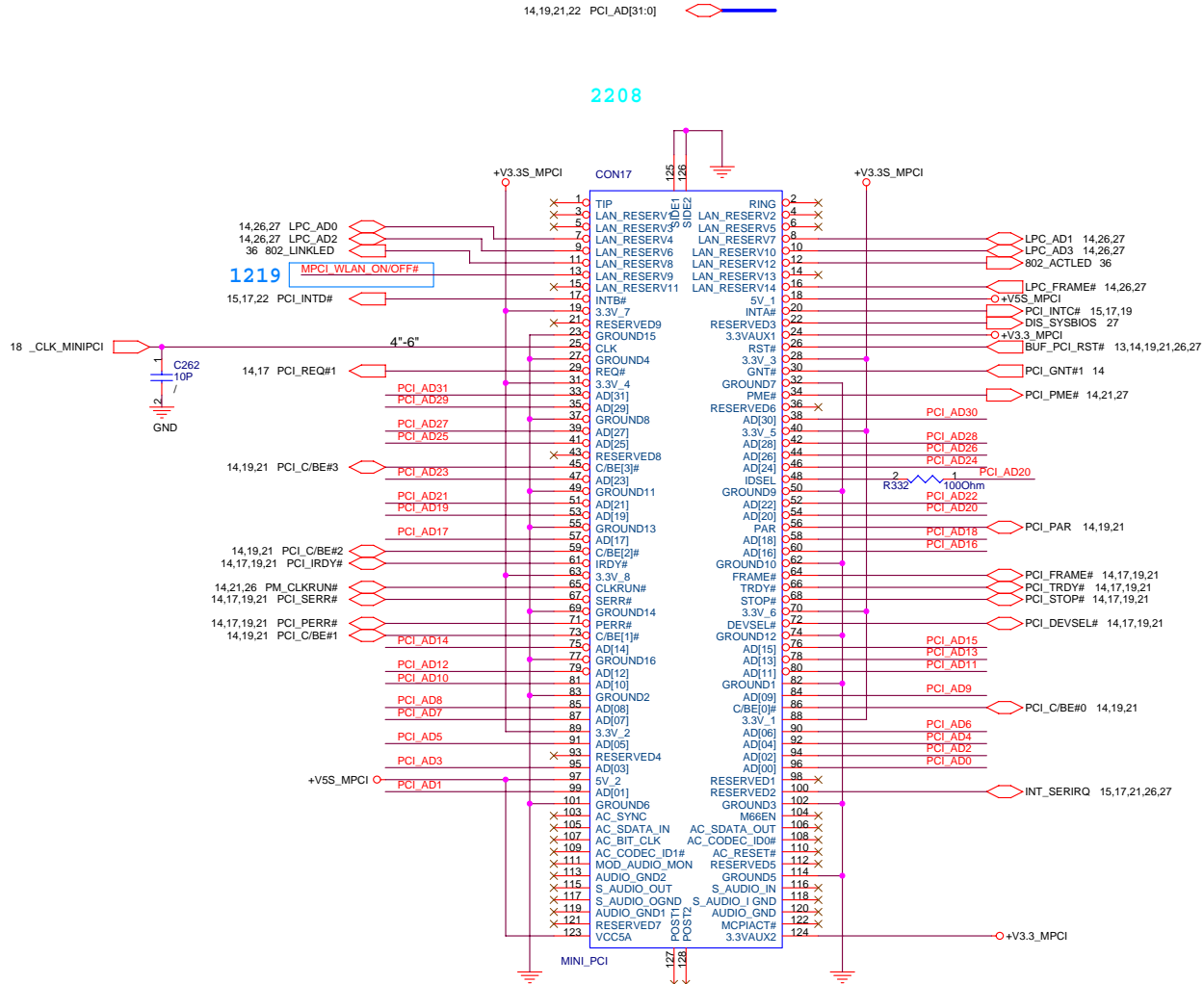


CLK_CPU_BCLK# must be low in C3

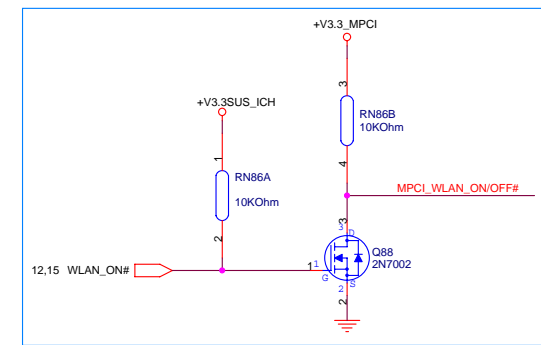
HOST_CLK GROUP
In L3 or L6
Pair Width/Space: 4/4 mils
Group Space: >= 25 mils
Length Match: +/- 10 mils



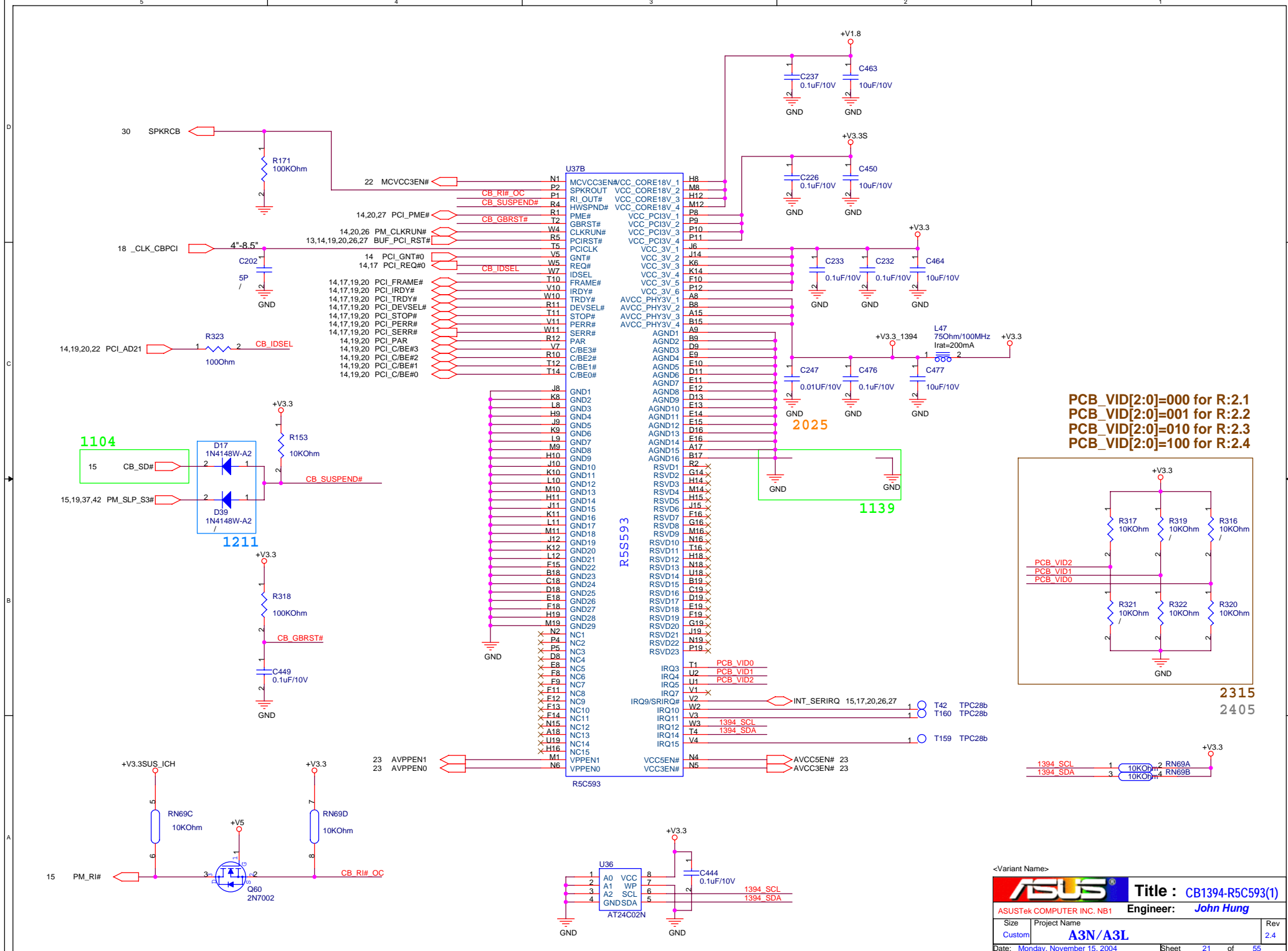




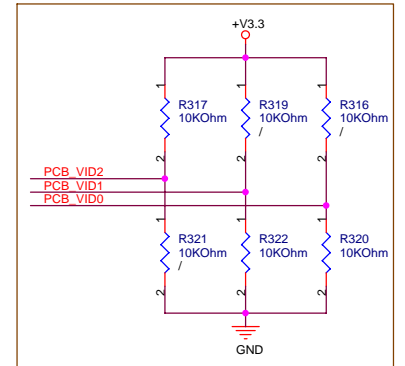
Intel Calexico(802.11a+802.11b)
 802.11b Tx: 500-526 mA Rx: 280-299 mA Sleep: 30 mA
 802.11a Tx: 435-475 mA Rx:310-327 mA Sleep: 30 mA



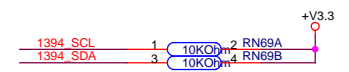
1219

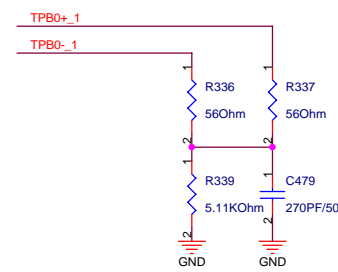
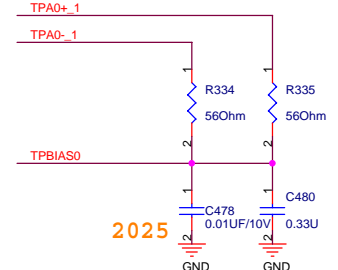
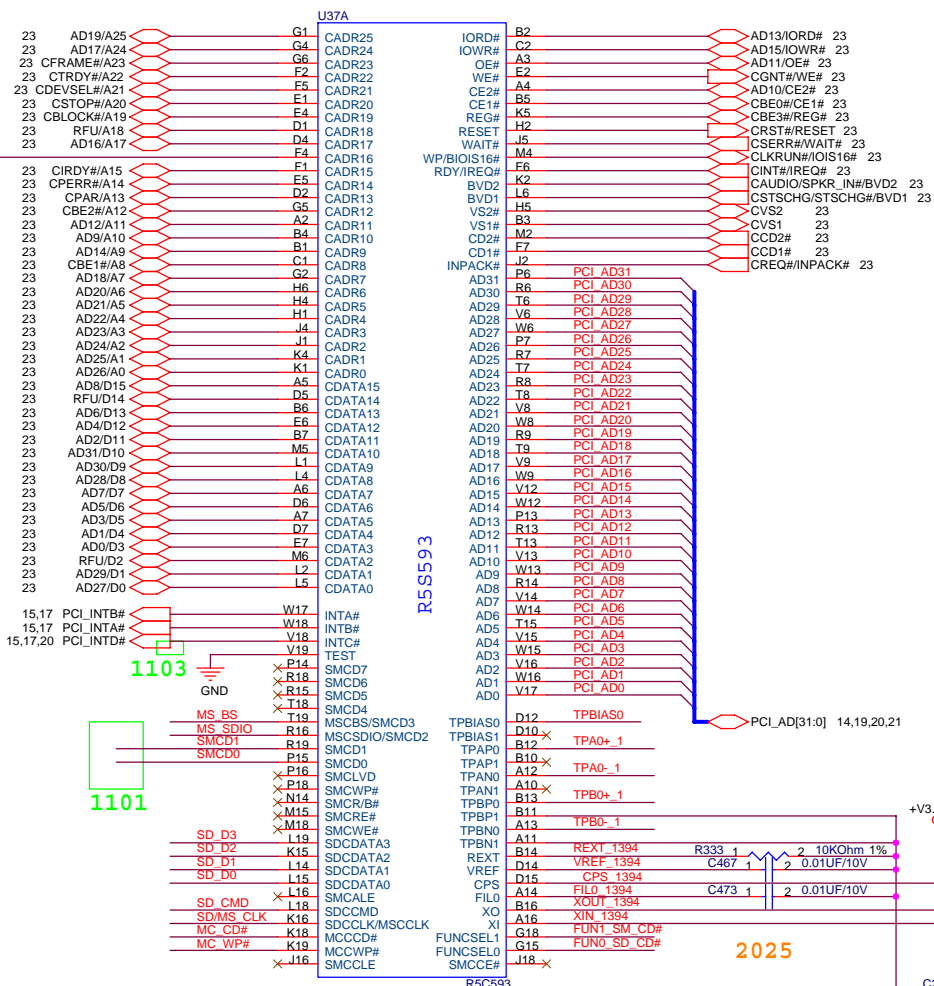
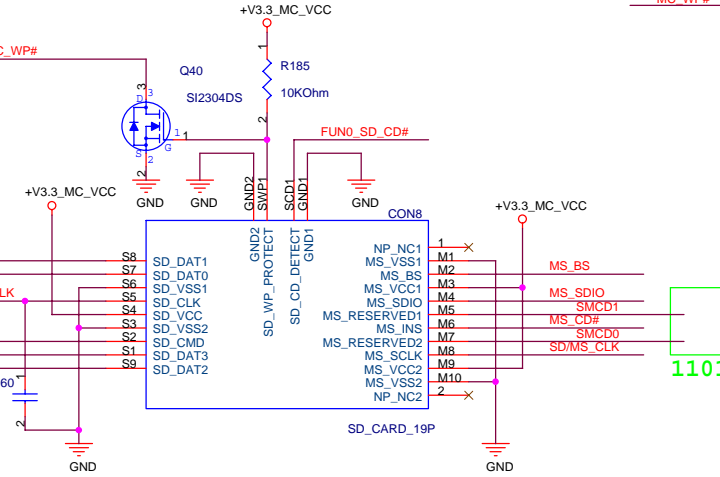
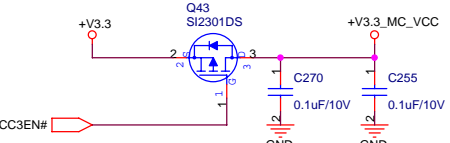
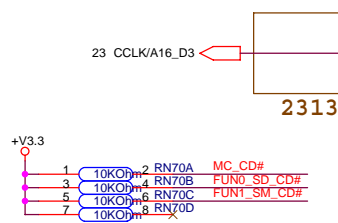


PCB_VID[2:0]=000 for R:2.1
 PCB_VID[2:0]=001 for R:2.2
 PCB_VID[2:0]=010 for R:2.3
 PCB_VID[2:0]=100 for R:2.4

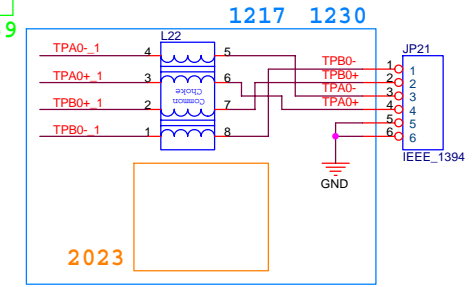
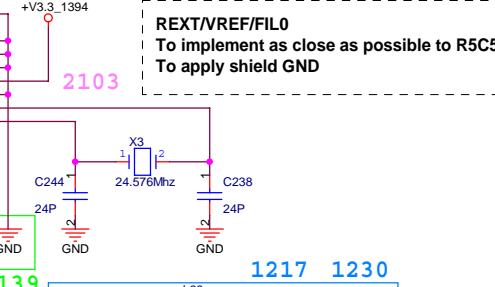


2315
 2405





REXT/VREF/FILO
To implement as close as possible to R5C593
To apply shield GND

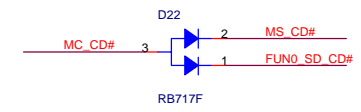


Memory Card Detect

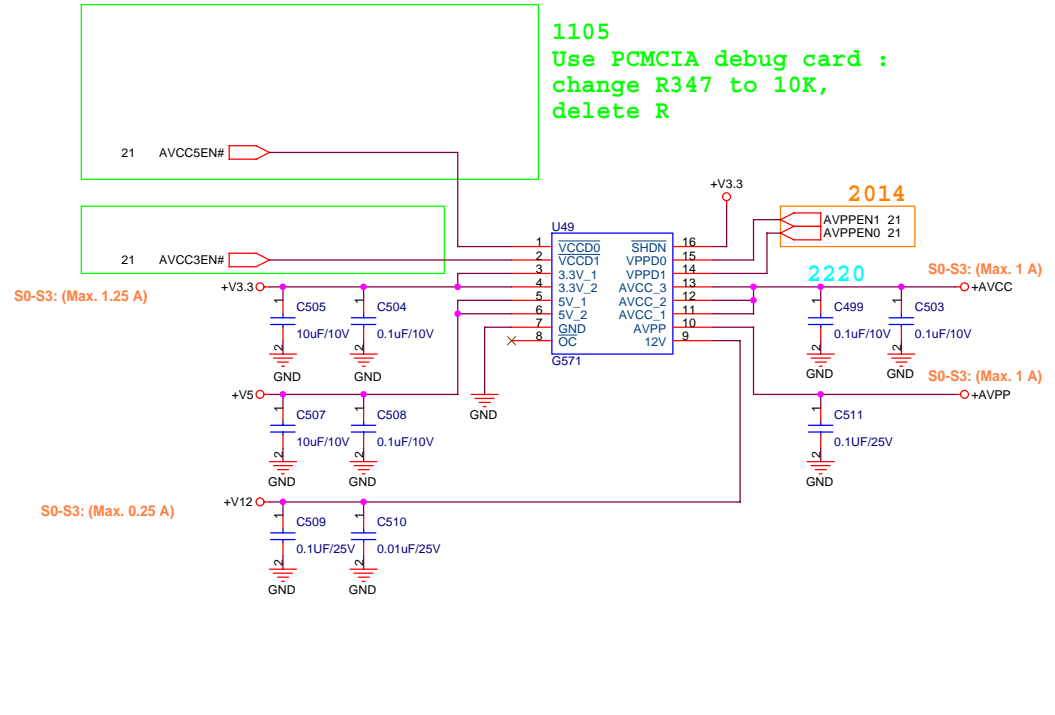
FUNSEL1	FUNSEL0	Function
0	0	Not Support
0	1	SmartMedia
1	0	MCC/SD
1	1	Memory Stick

MC_CD# : Memory Card Detect

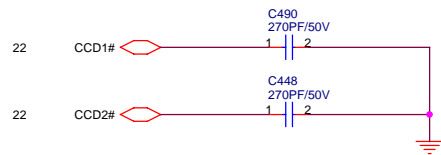
Turn-on voltage 0.37 V



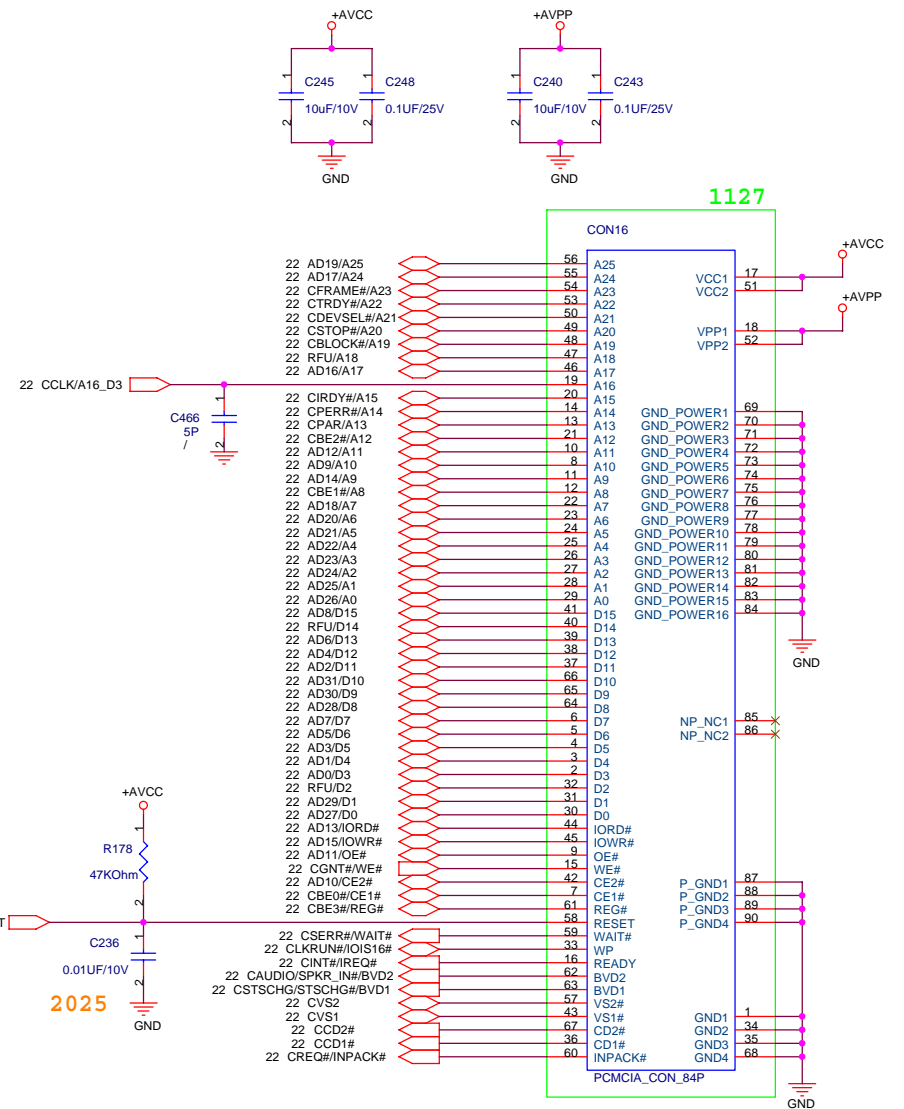
CB POWER SWITCH



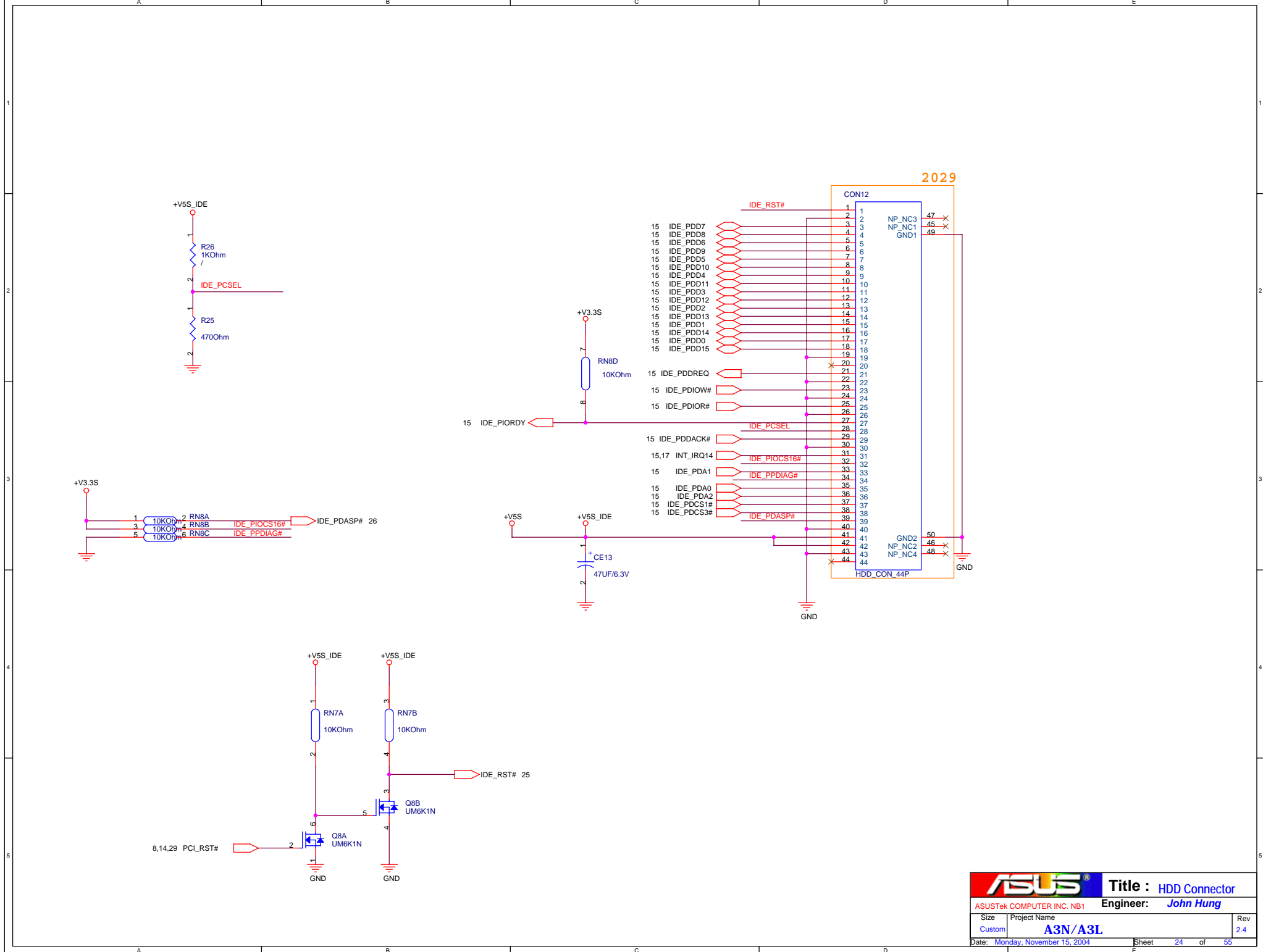
CB DE-BOUNCE

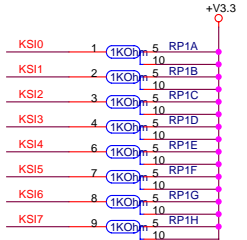
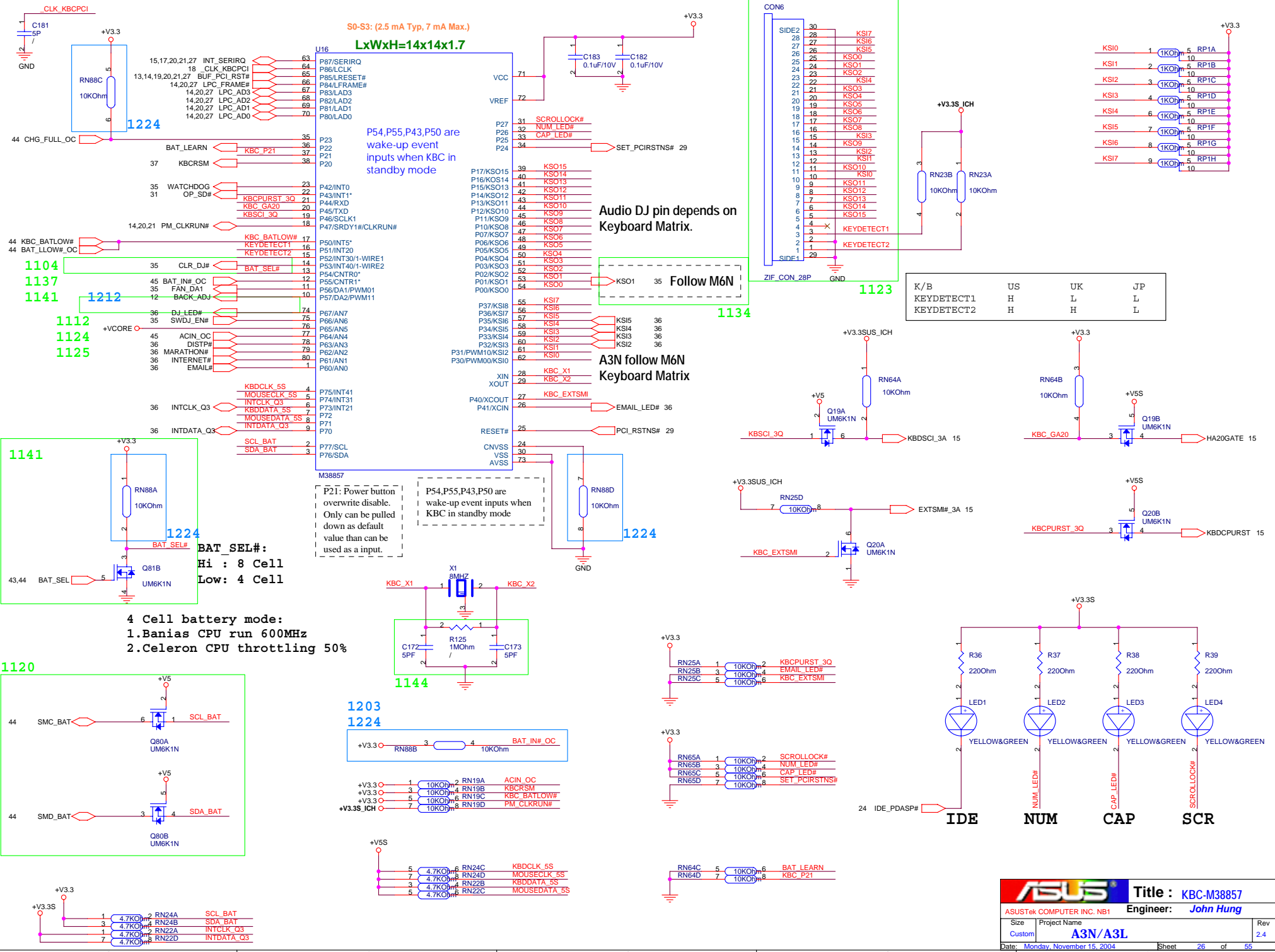


CB SOCKET

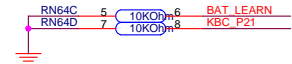
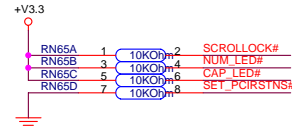
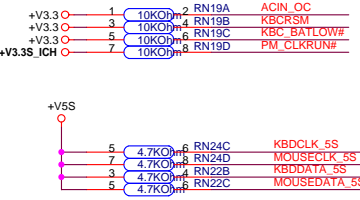
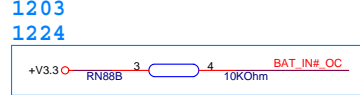
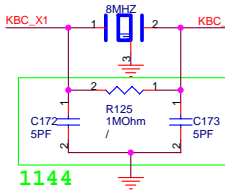
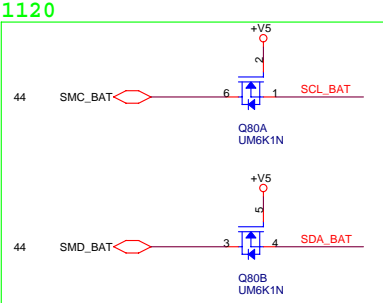
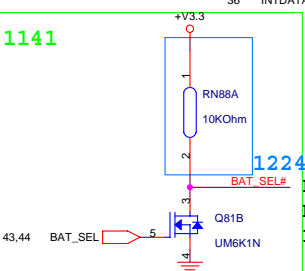


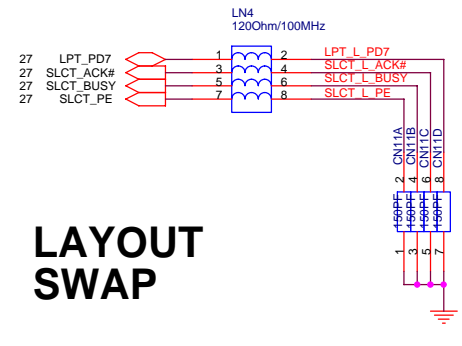
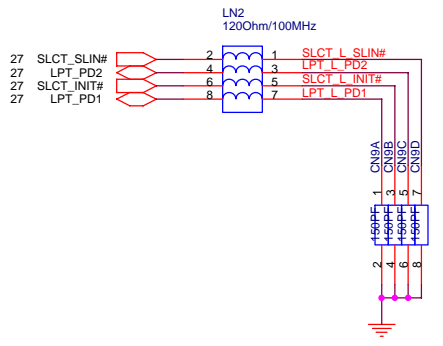
<Variant Name>



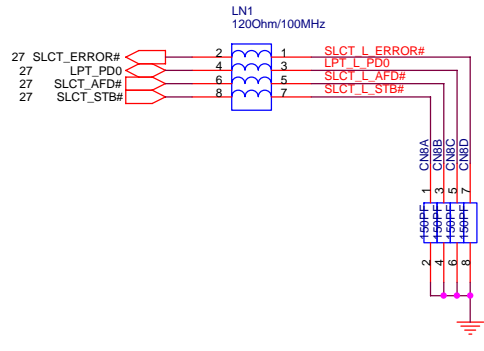
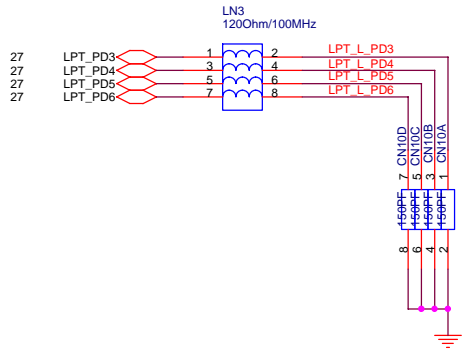


K/B	US	UK	JP
KEYDETECT1	H	L	L
KEYDETECT2	H	H	L

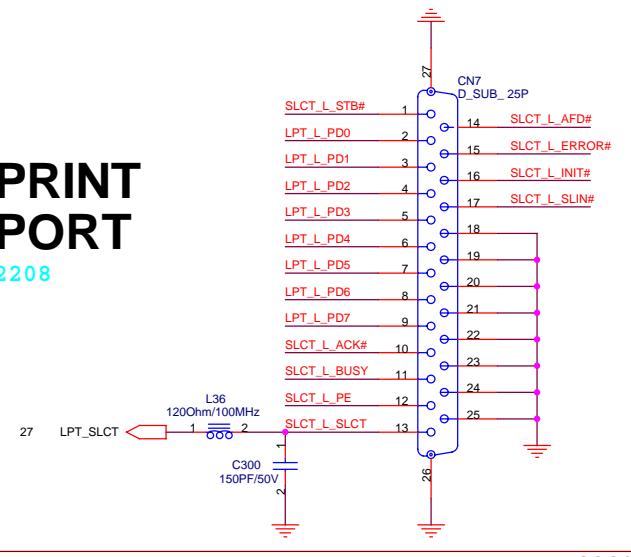




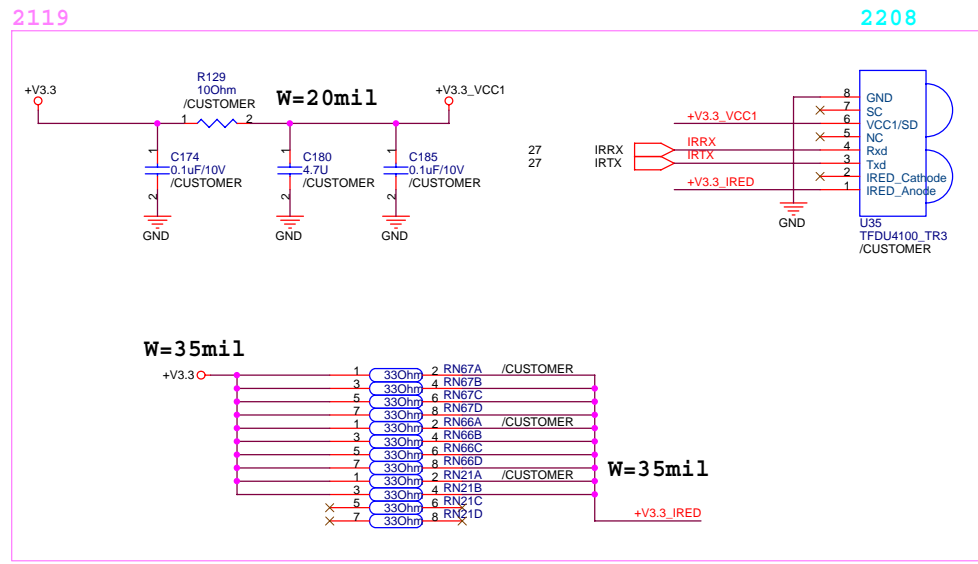
LAYOUT SWAP



PRINT PORT
2208



2309
2222 2408



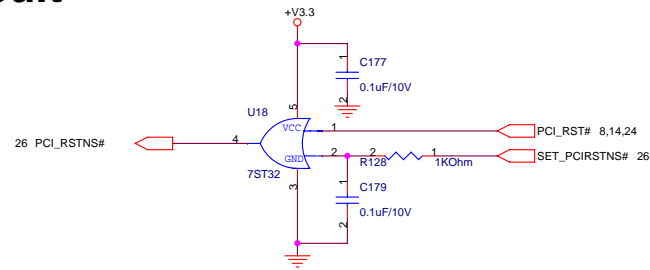
ASUS		Title :	
ASUSTek COMPUTER INC. NB1		Engineer: John Hung	
Size	Project Name	Rev	
Custom	A3N/A3L	2.4	
Date: Monday, November 15, 2004	Sheet 28 of 55		

PCMCIA DEBUG Card

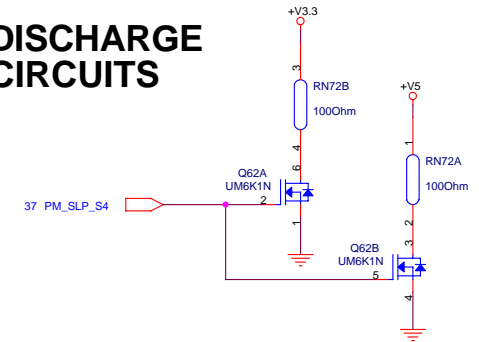


1105

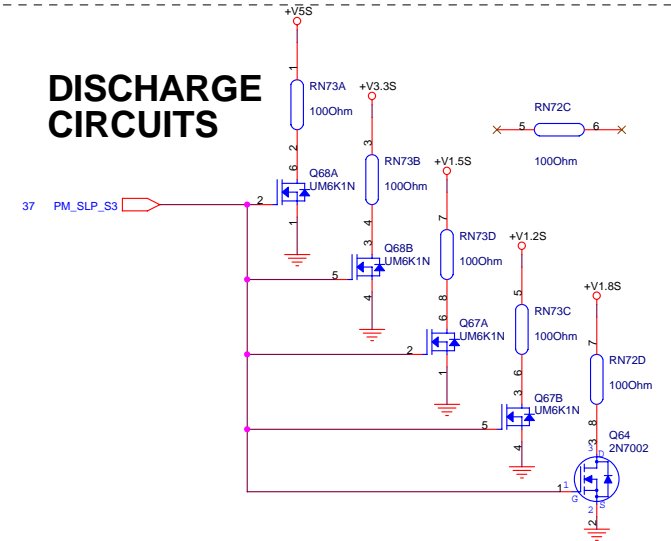
PCI_RSTNS# Gen Circuit

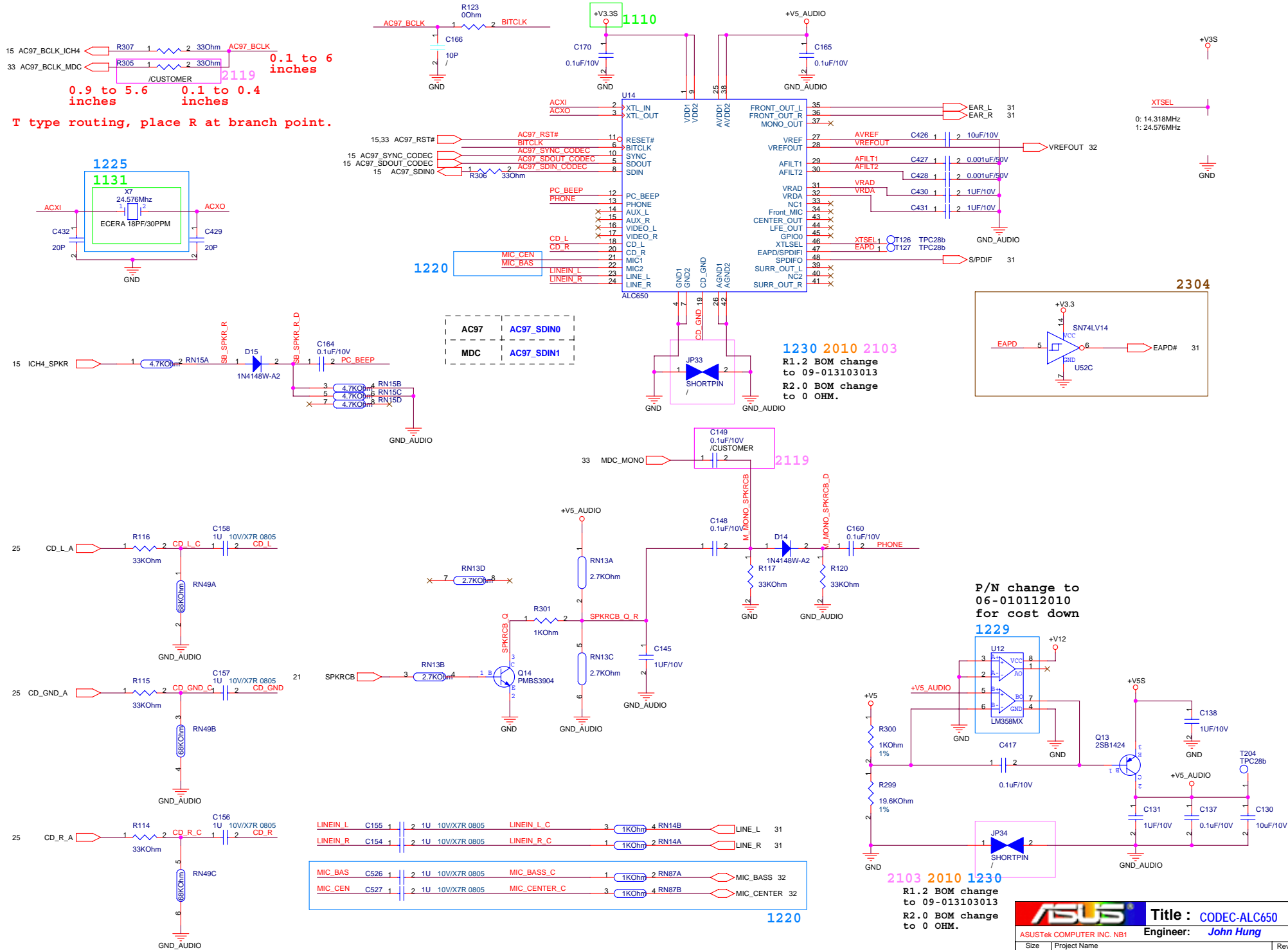


DISCHARGE CIRCUITS



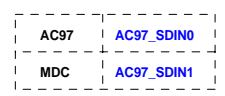
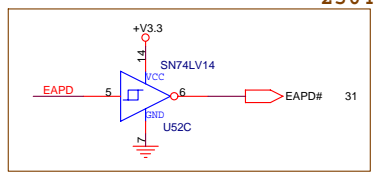
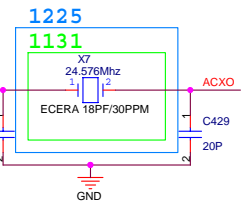
DISCHARGE CIRCUITS





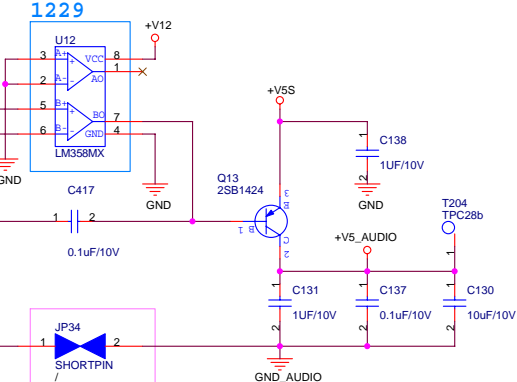
0.1 to 6 inches
0.9 to 5.6 inches
0.1 to 0.4 inches

T type routing, place R at branch point.

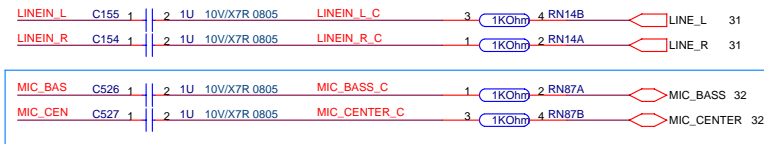


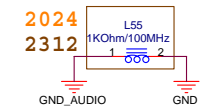
1230 2010 2103
R1.2 BOM change to 09-013103013
R2.0 BOM change to 0 OHM.

P/N change to 06-010112010 for cost down

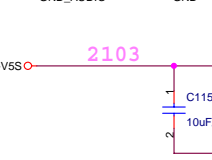
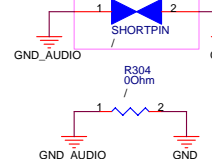


2103 2010 1230
R1.2 BOM change to 09-013103013
R2.0 BOM change to 0 OHM.

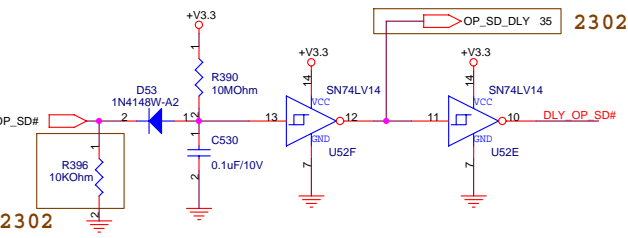




2024
2312

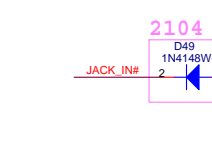


2103



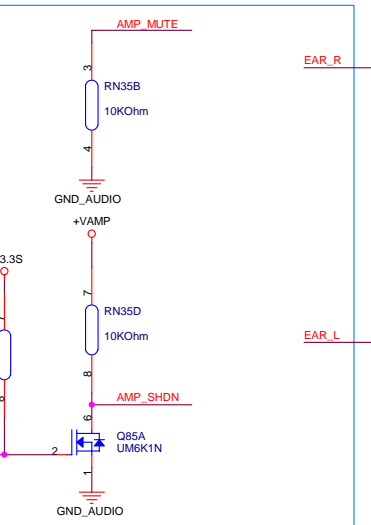
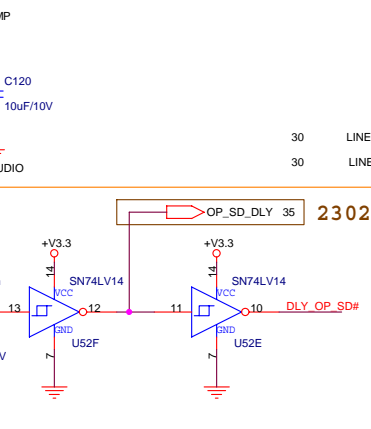
R:1.2. For reduce "POP" noise when system enter S3(suspend to RAM) or resume from S3. Net "OP_SD#" should be pull low by KBC controller when system at S3 mode.

2302



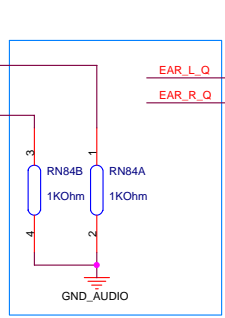
2104

$f(\text{highpass}) = \frac{1}{2\pi \cdot 3.14 \cdot R \cdot C} = 73$
 R=32 Ohm for Headphone, so C=68uF
 But in order to reduce component type, use 100uF/6.3V (11-041210721), but 100uF is too big for A3N, so change to 47uF.

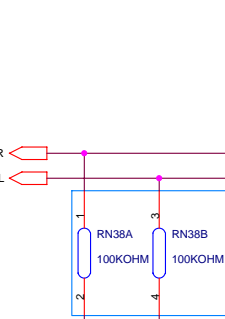


R:2.1 Use "OP_SD#", speaker will have "POP" noise after logo display when turn on system. Don't use "OP_SD#".

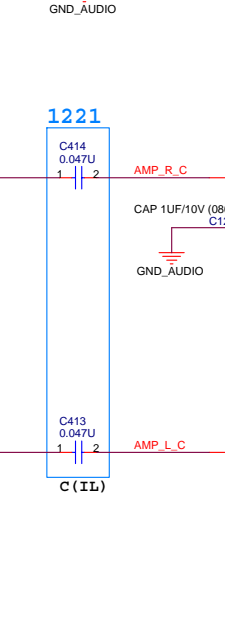
1207



1202

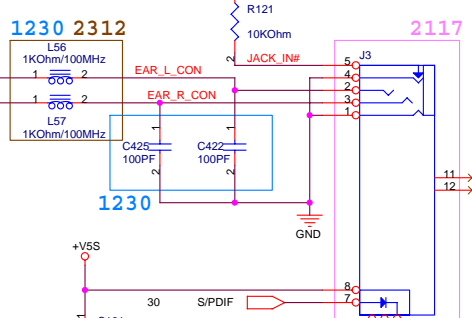


1207

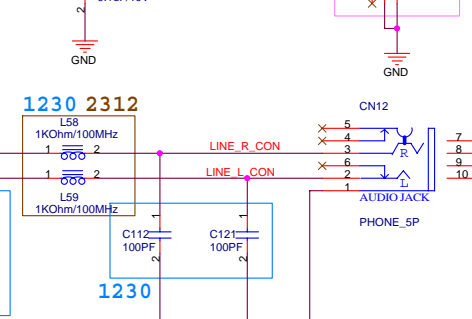


1221

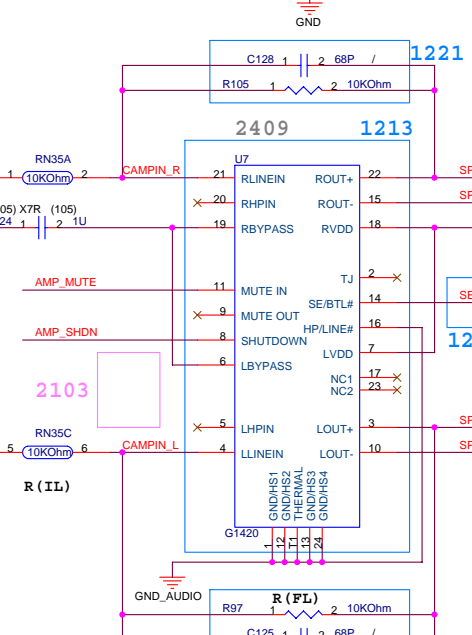
$f(\text{highpass}) = \frac{1}{2\pi \cdot 3.14 \cdot C(\text{IL}) \cdot R(\text{IL})} = 500$



1230



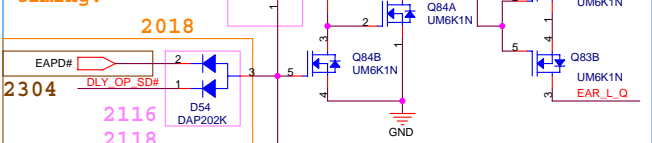
1230



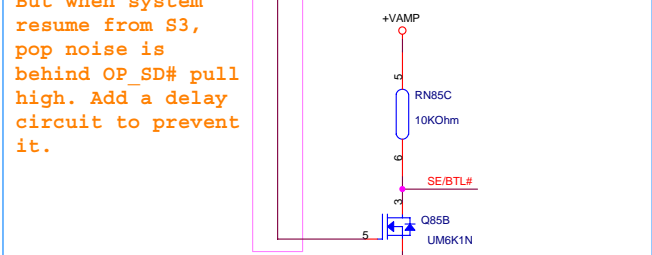
1213

$f(\text{lowpass}) = \frac{1}{2\pi \cdot 3.14 \cdot C(150P) \cdot R(10K)} = 106K$

Pop noise can be heard via headphone when system boot, restart and resume from S3. Add OP_SD# to control the turn-on timing.



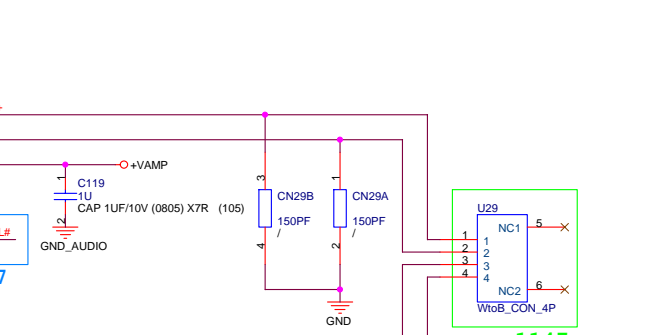
2102



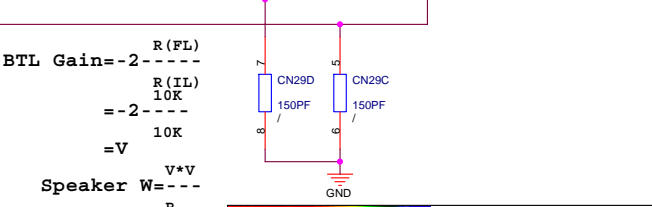
2104

Prevent "POP" noise at speaker.

1207



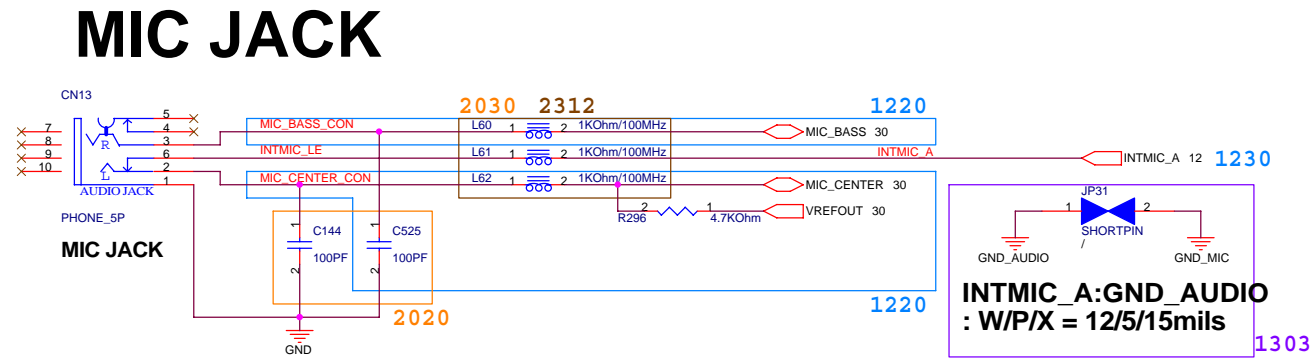
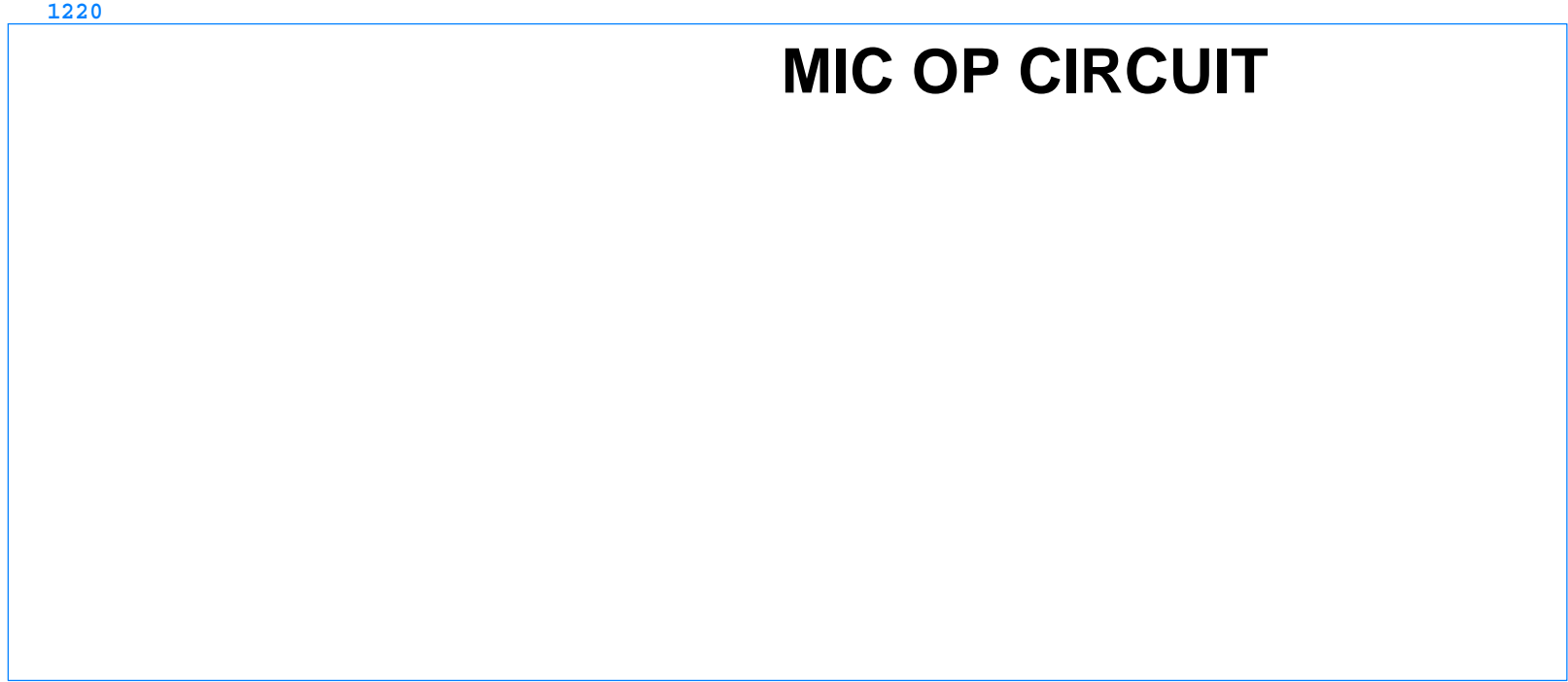
2409



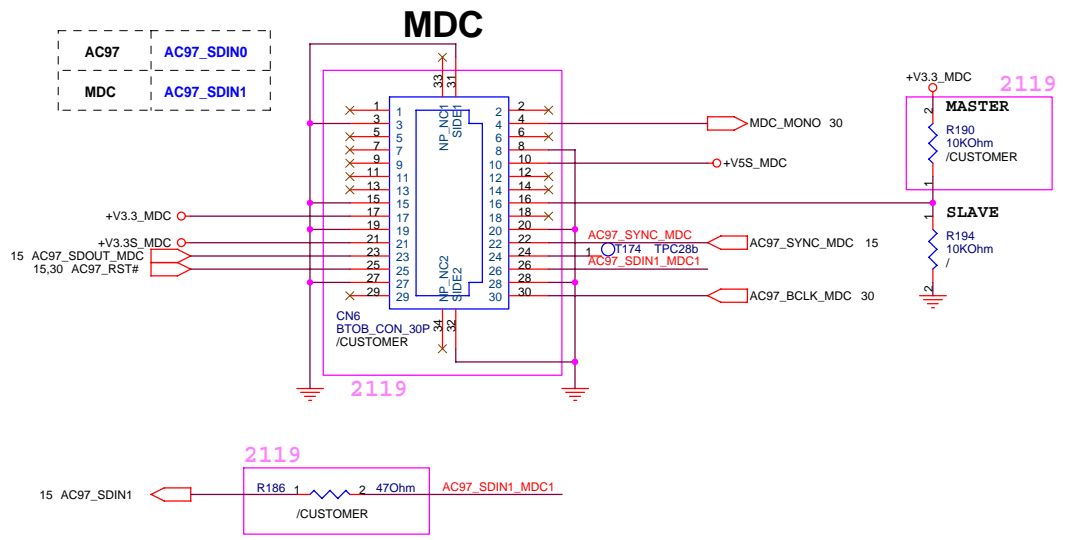
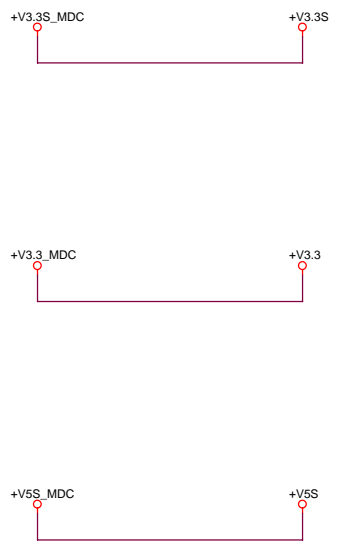
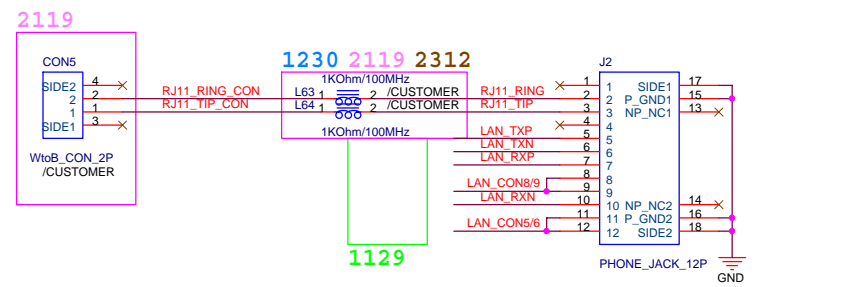
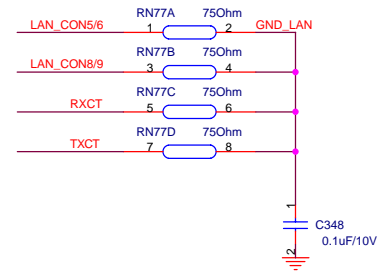
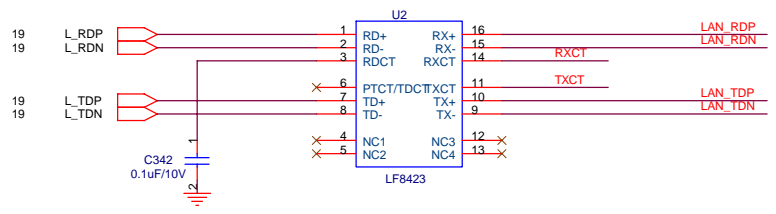
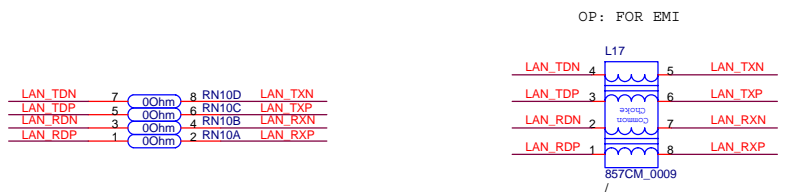
1147

BTL Gain=-2
 R(FL) 10K
 R(IL) 10K
 =V
 Speaker W=---
 R 4ohm
 = 1W

Can use 1W(4ohm) speaker

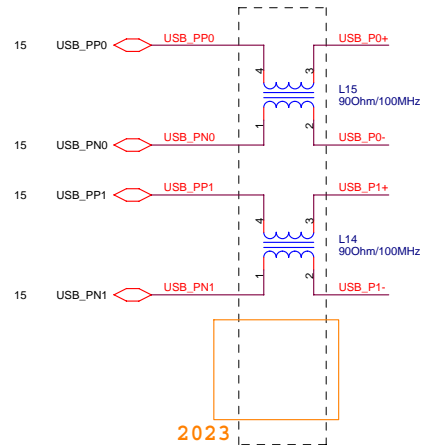
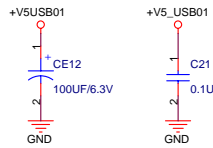
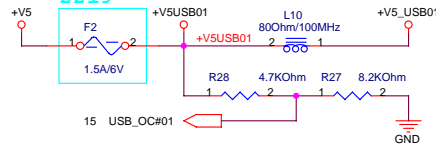


ASUS		Title :	
ASUSTek COMPUTER INC. NB1		Engineer: <i>John Hung</i>	
Size	Project Name		Rev
Custom	A3N/A3L		2.4
Date: Monday, November 15, 2004	Sheet 32 of 55		



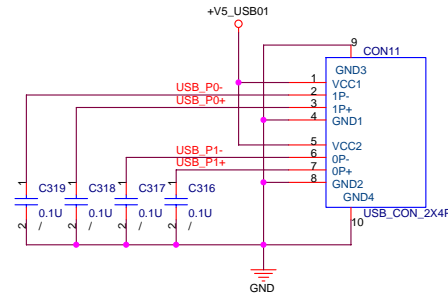
VPLP R:2.2 use 07-014110900 (2nd source is 07-014110201)

2219



2023

R & L Co-Lay



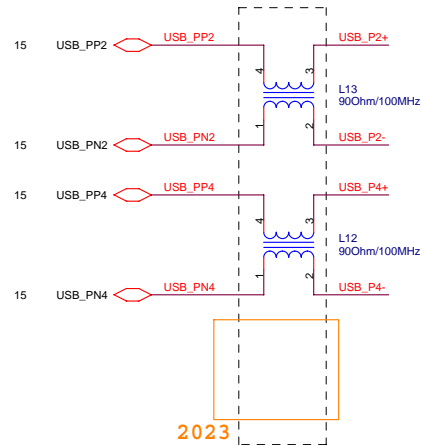
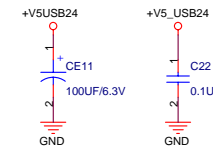
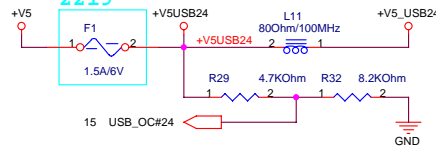
USB PORT 0 & PORT 1

1128

USB PORT 3 for CAMERA
Change to page 12

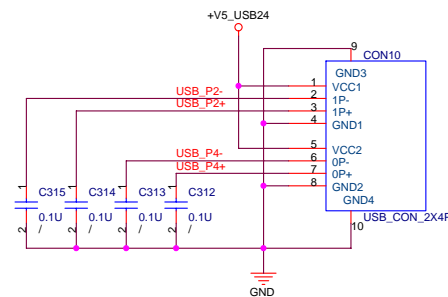
VPLP R:2.2 use 07-014110900 (2nd source is 07-014110201)

2219



2023

R & L Co-Lay

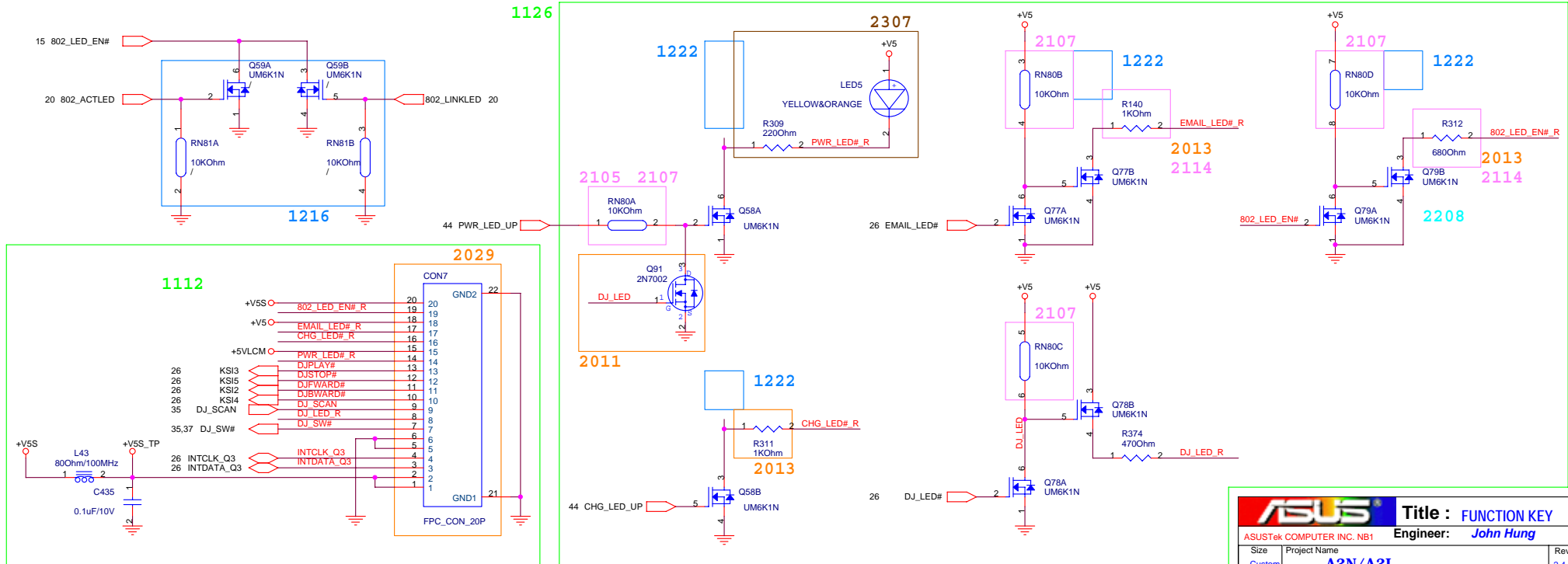
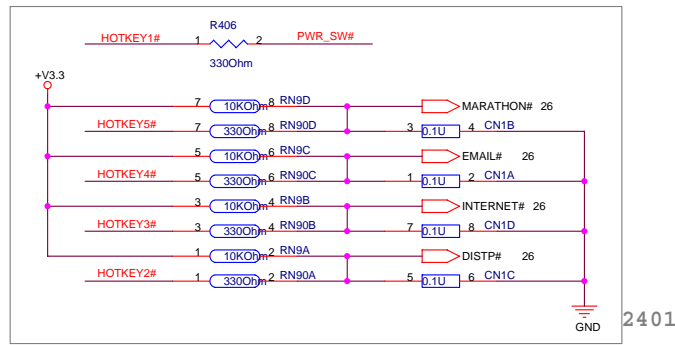
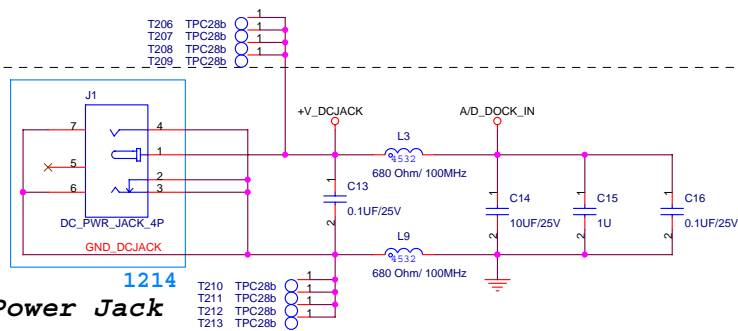
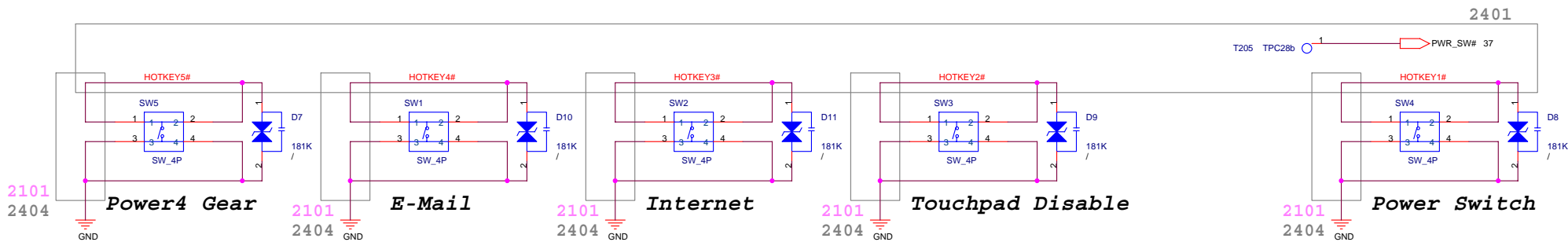


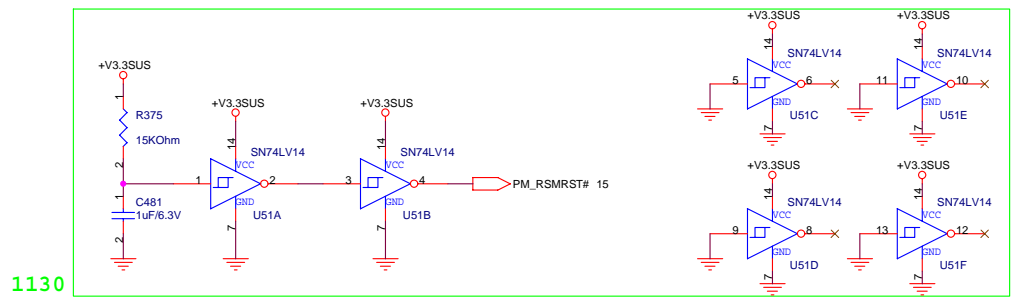
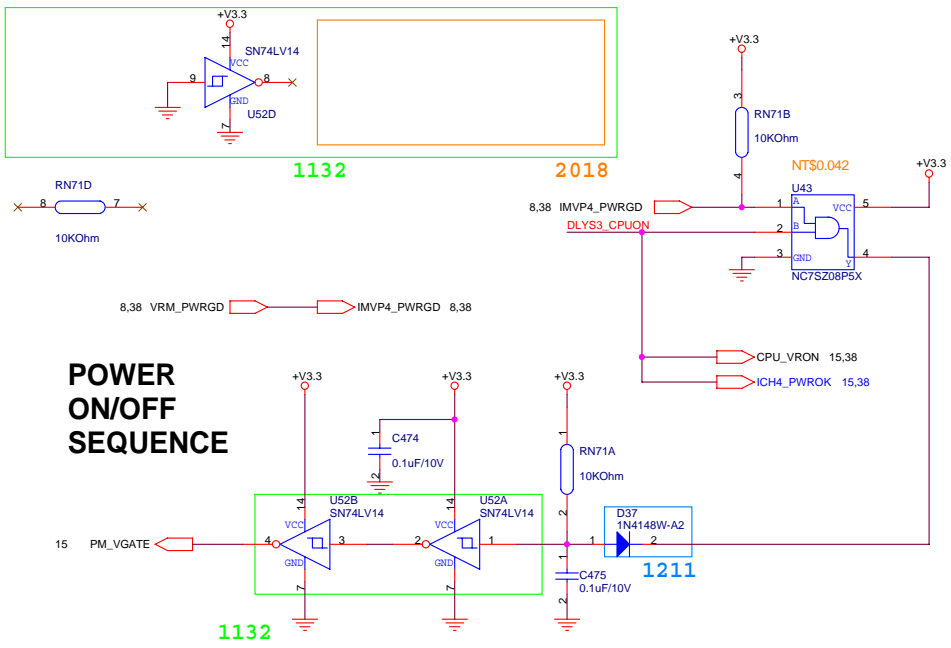
USB PORT 2 & PORT 4

1128

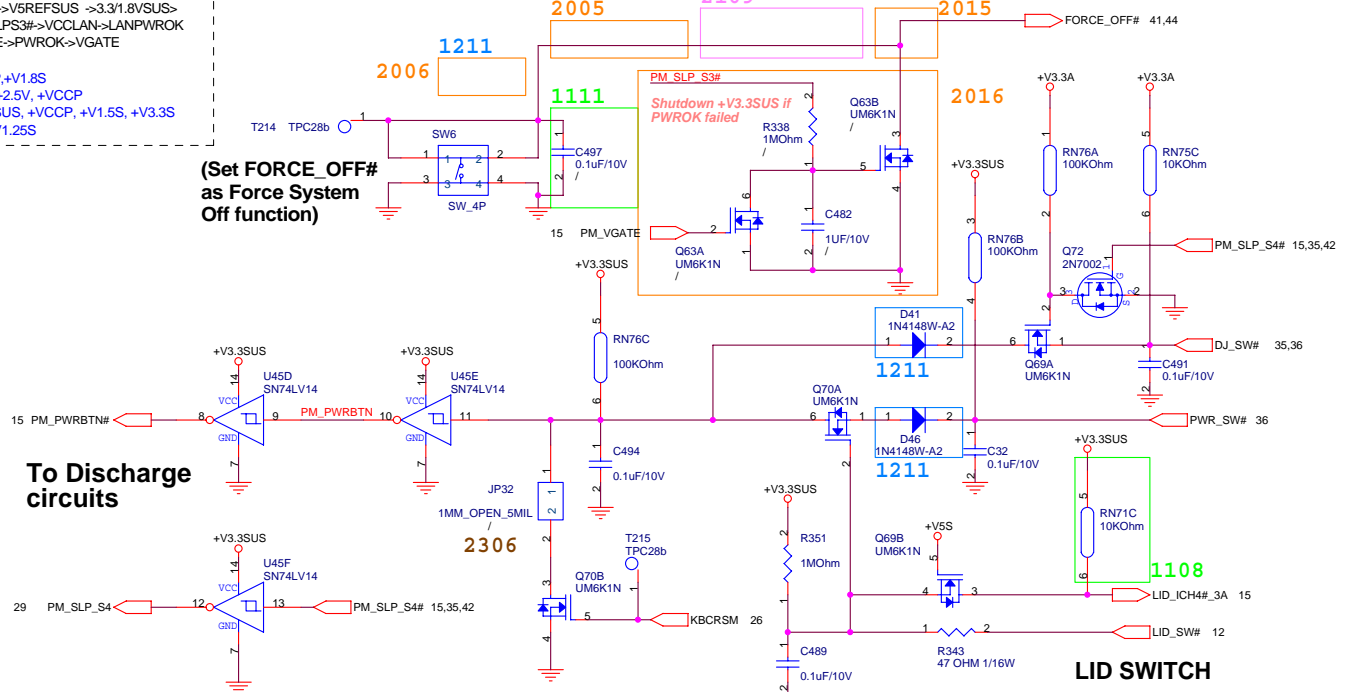
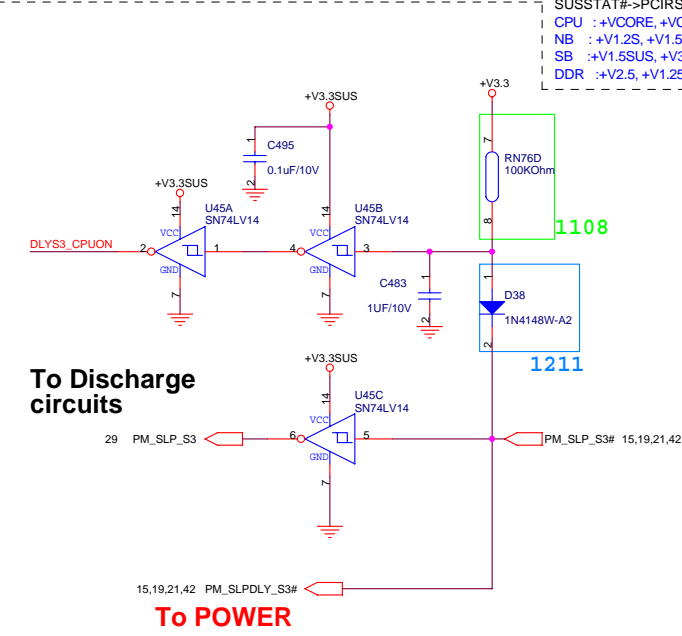
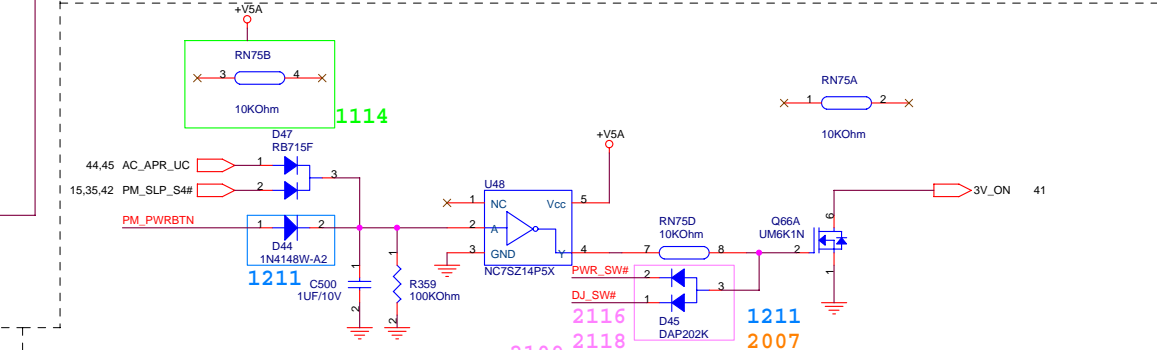
USB PORT 5 for WLAN
Change to page 12

		Title : USB	
ASUSTek COMPUTER INC. NB1		Engineer: John Hung	
Size	Project Name		Rev
Custom	A3N/A3L		2.4
Date: Monday, November 15, 2004		Sheet	34 of 55





System Power Sequence
 +VCCRTC -> RTCRST# -> V5REFSUS -> 3.3/1.8VSUS ->
 RSMRST# -> SLPS4# -> SLPS3# -> VCCLAN -> LANPWROK
 -> V5REF -> VCC -> VCORE -> PWROK -> VGATE
 SUSSTAT# -> PCIRST#
 CPU : +VCORE, +VCCP, +V1.8S
 NB : +V1.2S, +V1.5S, +2.5V, +VCCP
 SB : +V1.5SUS, +V3.3SUS, +VCCP, +V1.5S, +V3.3S
 DDR : +V2.5, +V1.25, +V1.25S



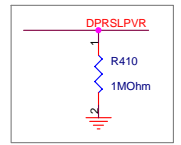
KBCRSM will issue low when system on & BIOS work normally. Issue high when system on & BIOS don't work, than system will off after 4 seconds to protect system. Issue a high pulse to wake up system from S3 state by push any key.

VID 0 1 2 3 4 5
 1.468V 1 1 1 1 0 0
 0.956V 1 1 1 1 0 1

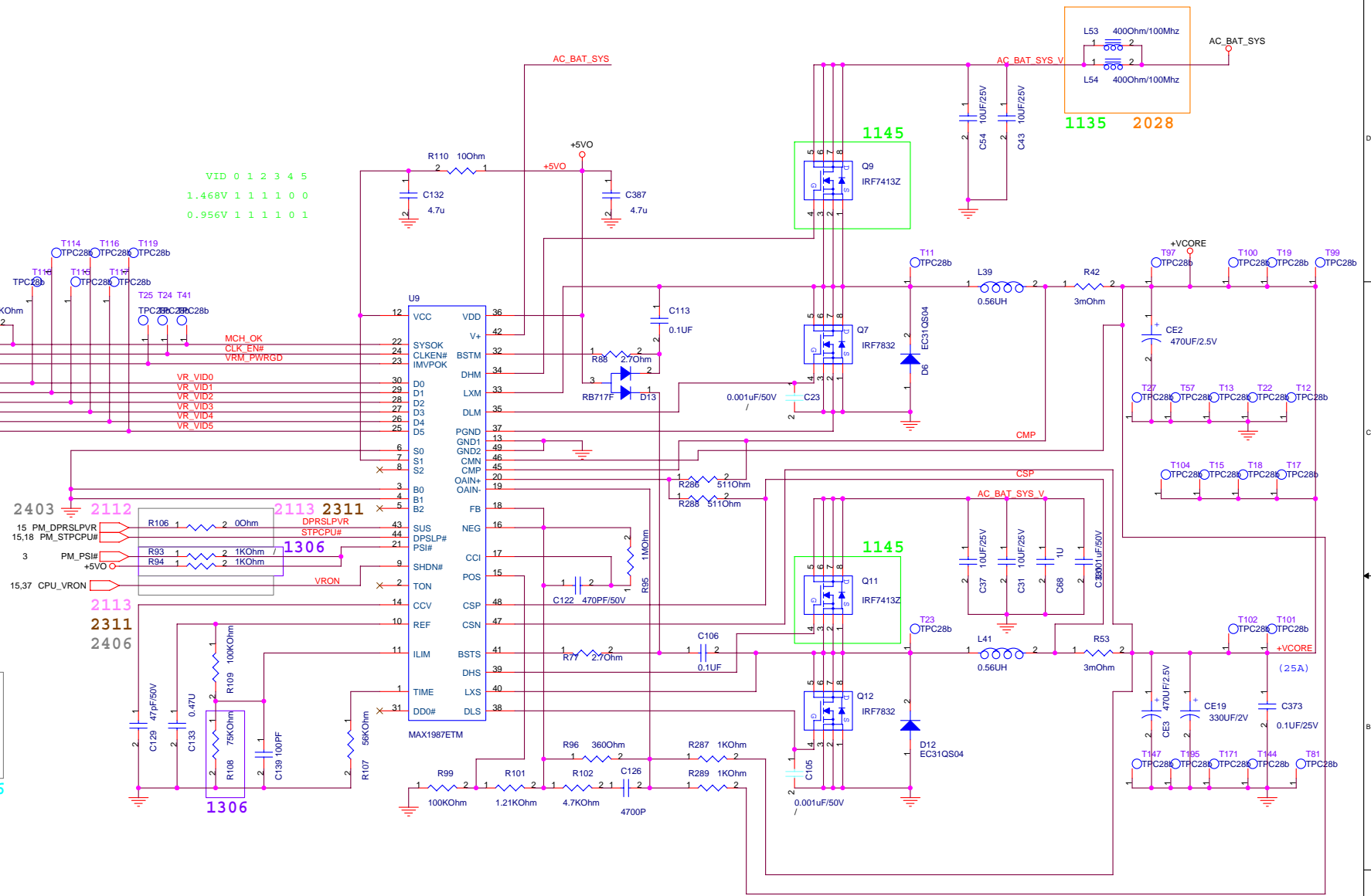
2001

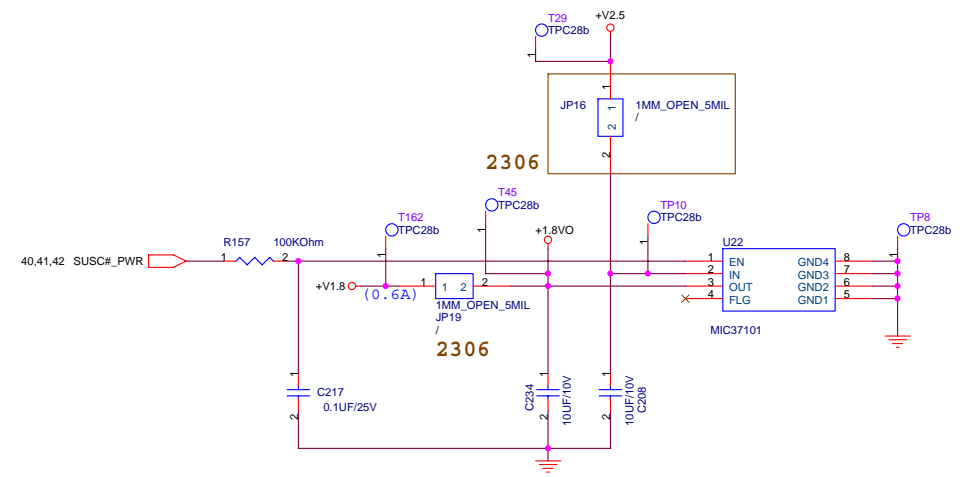
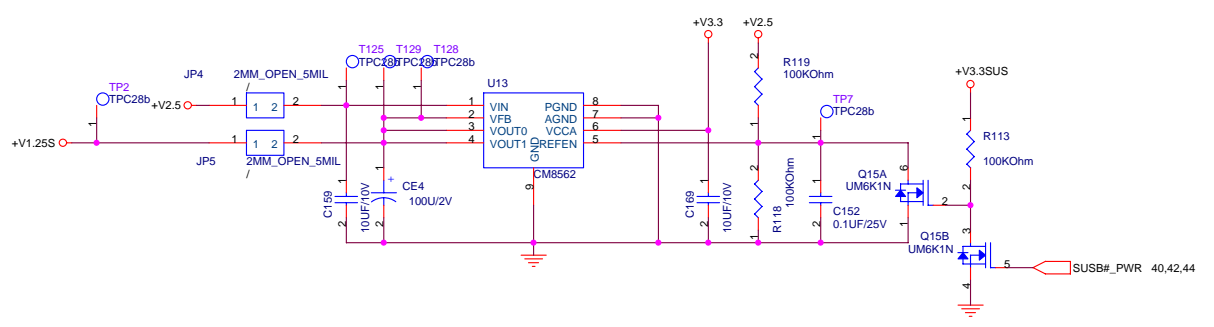
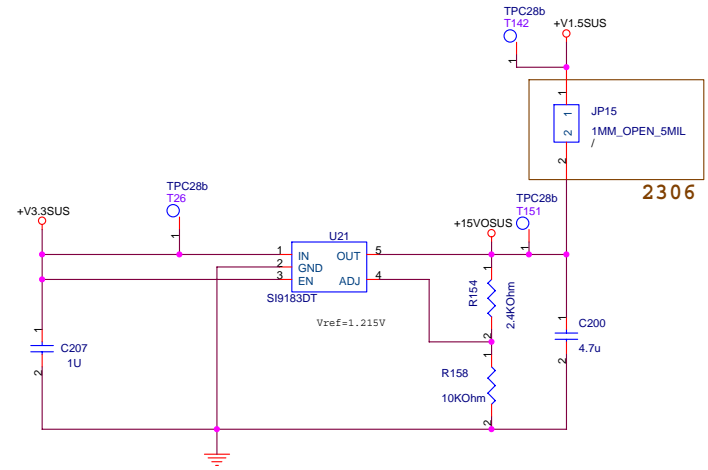
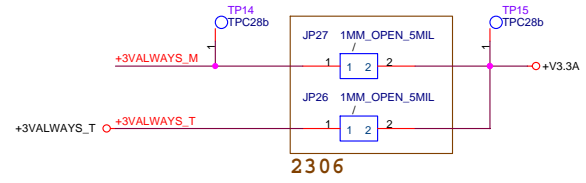
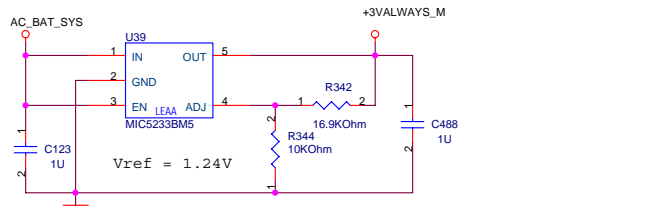
40	MCH_OK
18	CLK_EN#
8,37	VRM_PWRGD
3	VR_VID0
3	VR_VID1
3	VR_VID2
3	VR_VID3
3	VR_VID4
3	VR_VID5

T121	TPC28b	STPCPU#
T123	TPC28b	DPRSLPVR
T122	TPC28b	VRON
T217	TPC28b	PM_PSI#

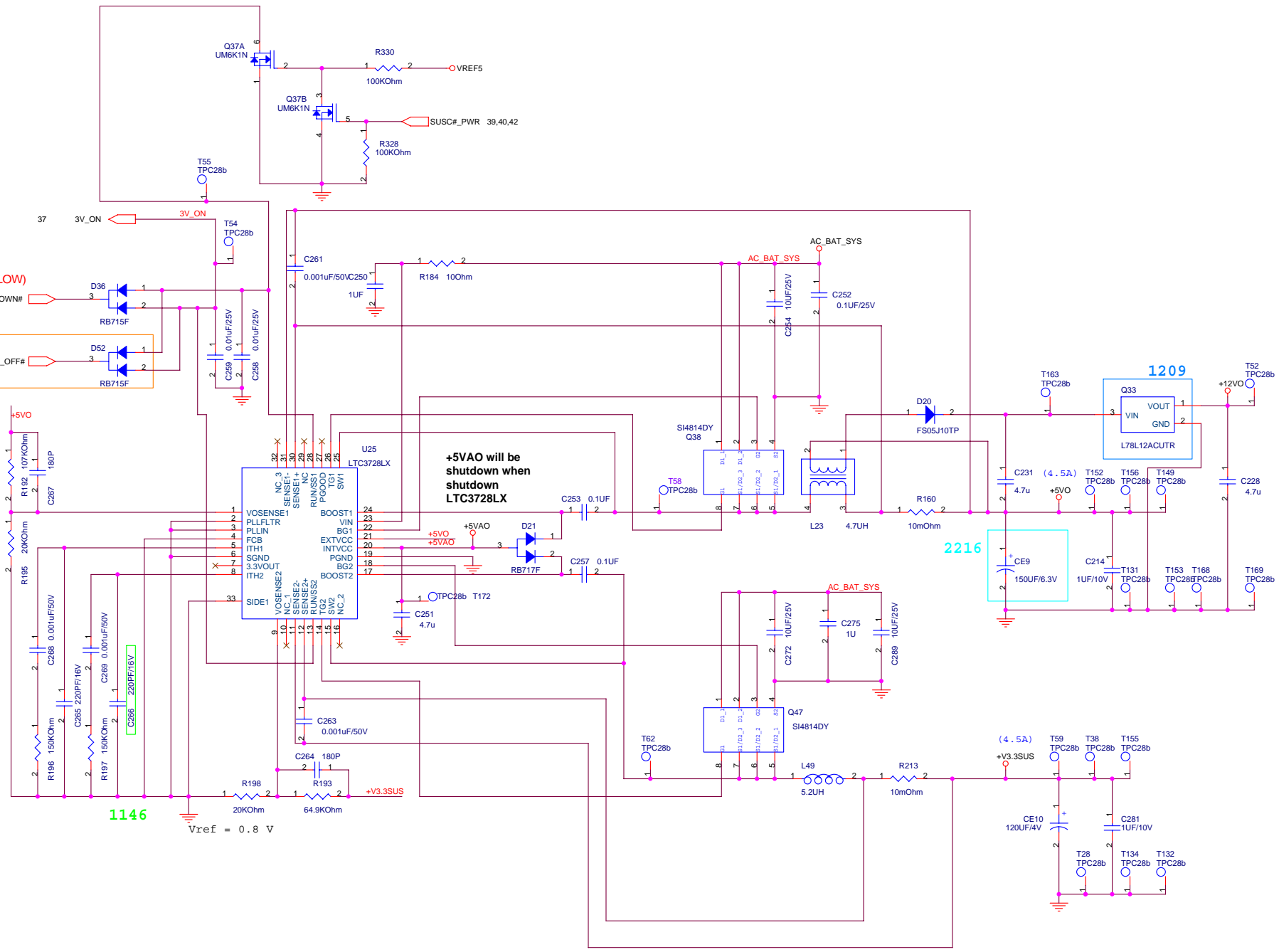


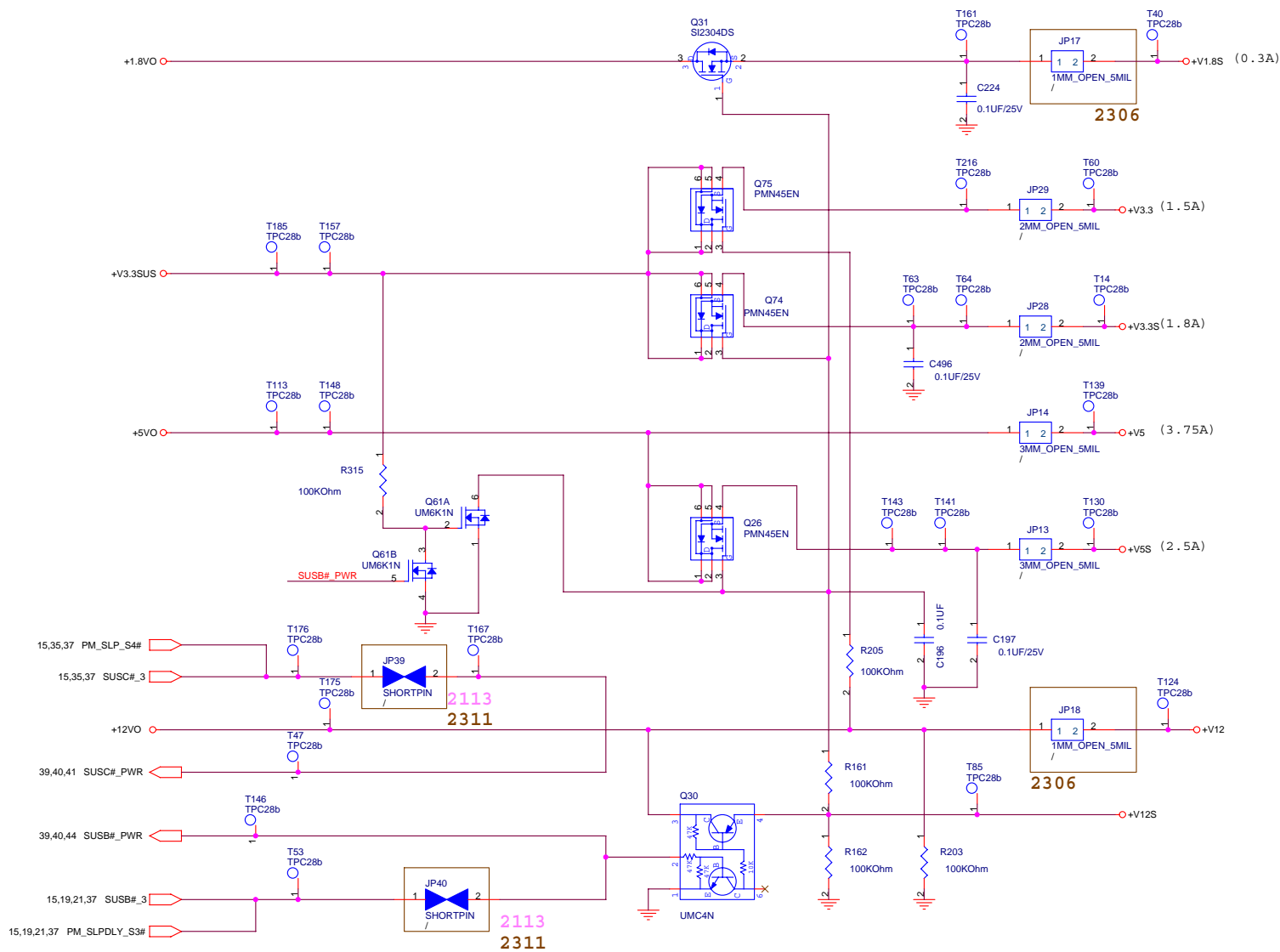
2203 is C536
 2407

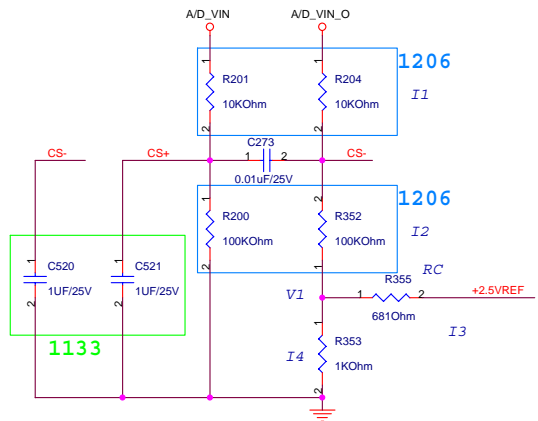
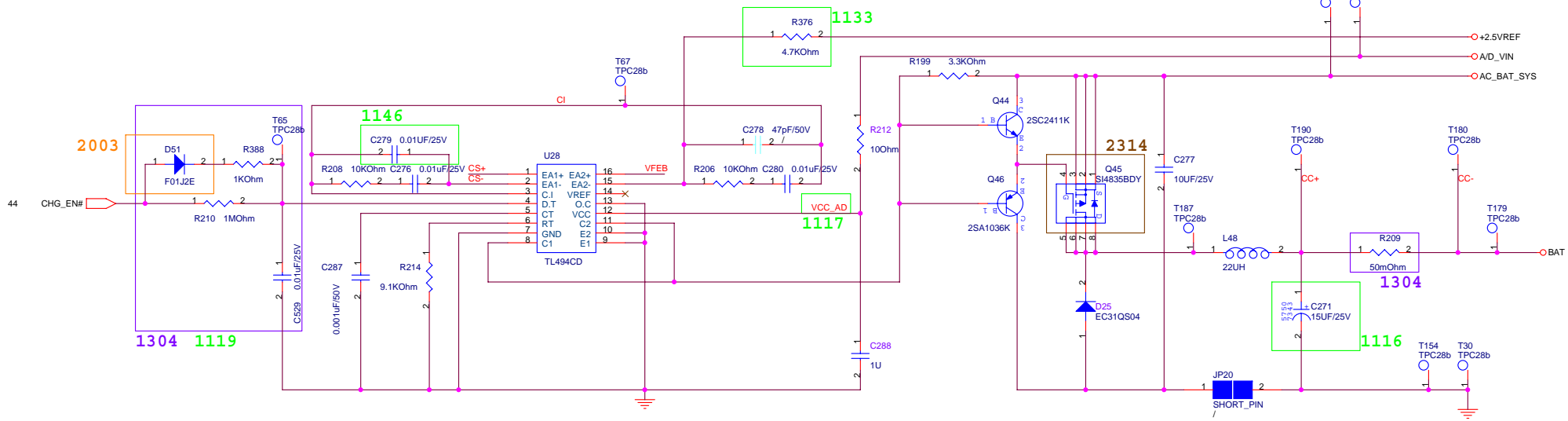




(BAT LOW)
45 SHUT_DOWN#
2005
37,44 FORCE_OFF#

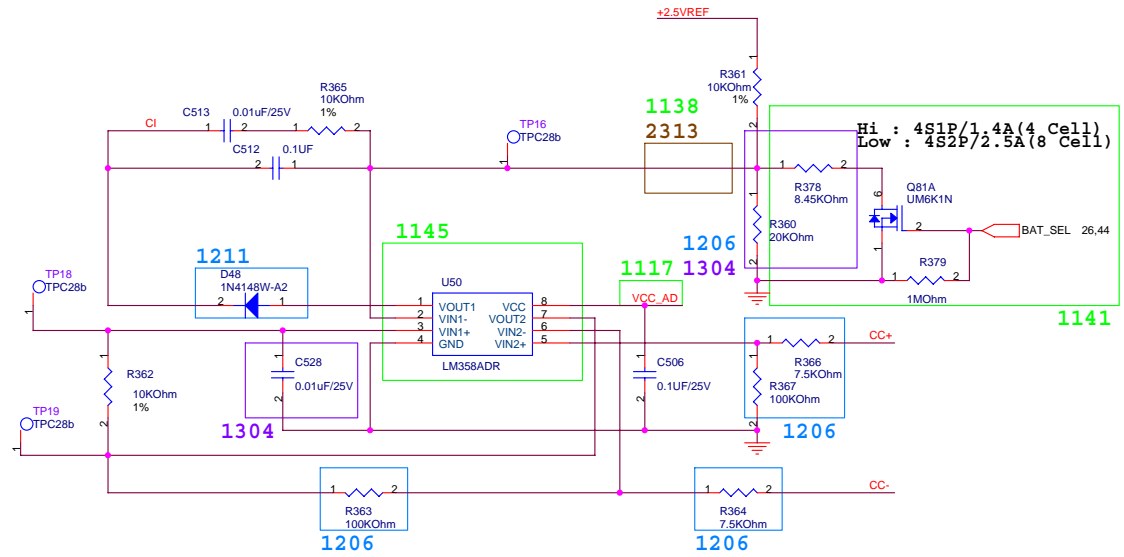
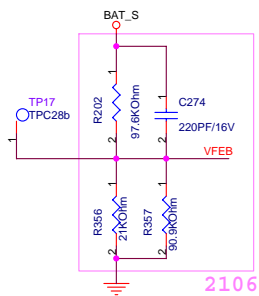


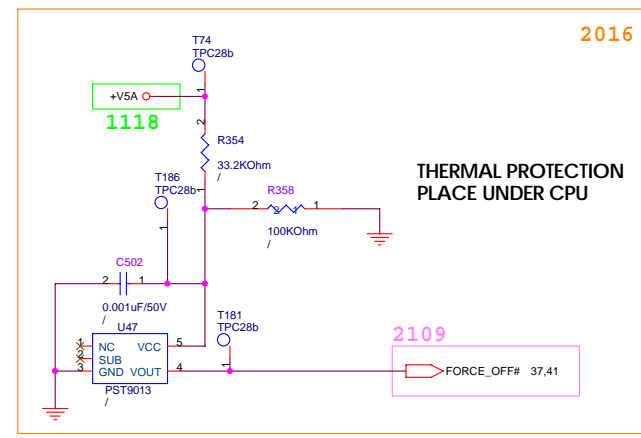
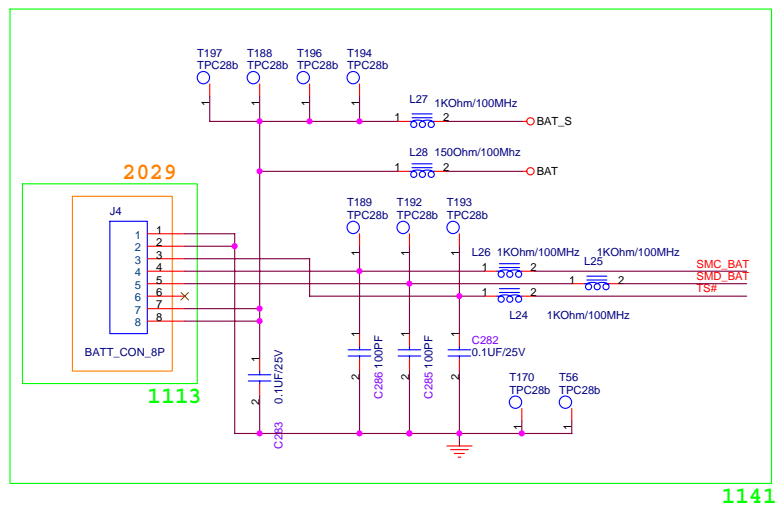
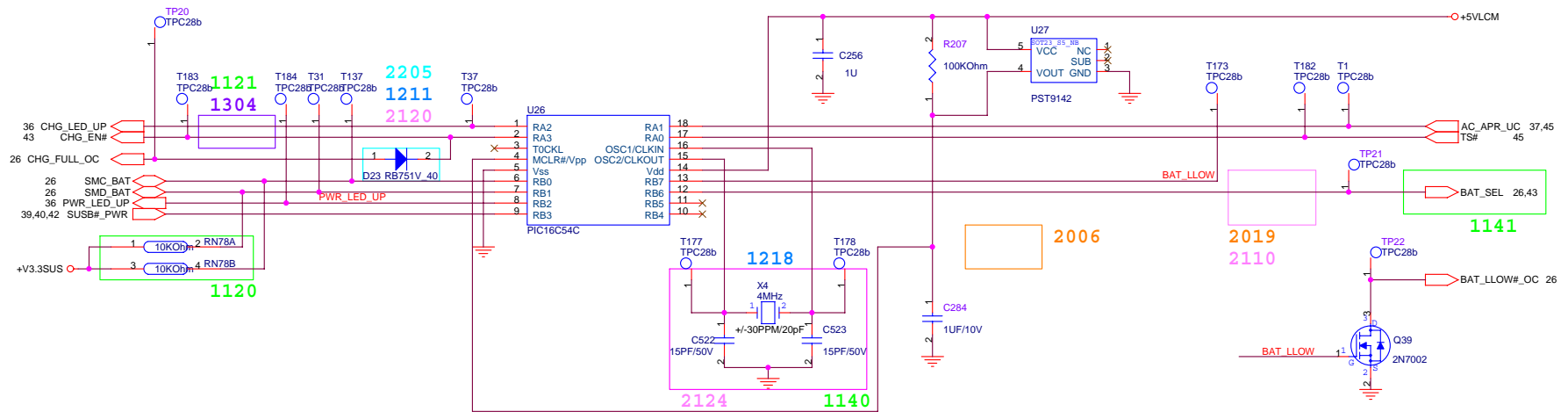




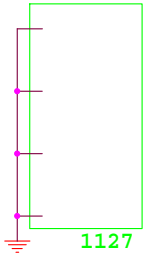
Current sharing = 3.1A

$A/D_VIN=19V$ $A/D_VIN_O=19V-3.1A*50\text{ohm}=18.845V$
 $CS+=CS-=19*(100/110)=17.272727V$
 $I1=(18.845V-17.272727V)/10K=0.15723mA$
 $V1=17.272727V-(0.15723mA*100K)=1.5497V$
 $I4=1.5497V/1K=1.5497mA$
 $I3=1.5497mA-0.15723mA=1.39247mA$
 $RC=(2.5V-1.5497V)/1.39247mA=681\text{ ohm}$

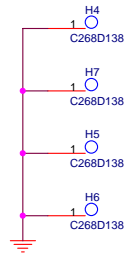
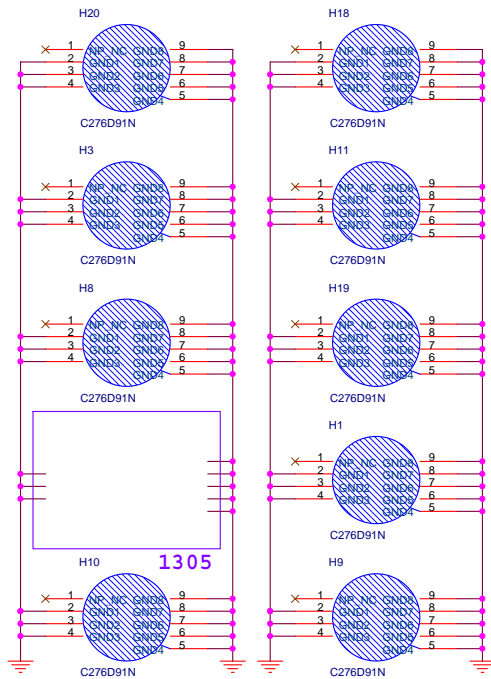
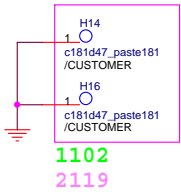




SCREW HOLE



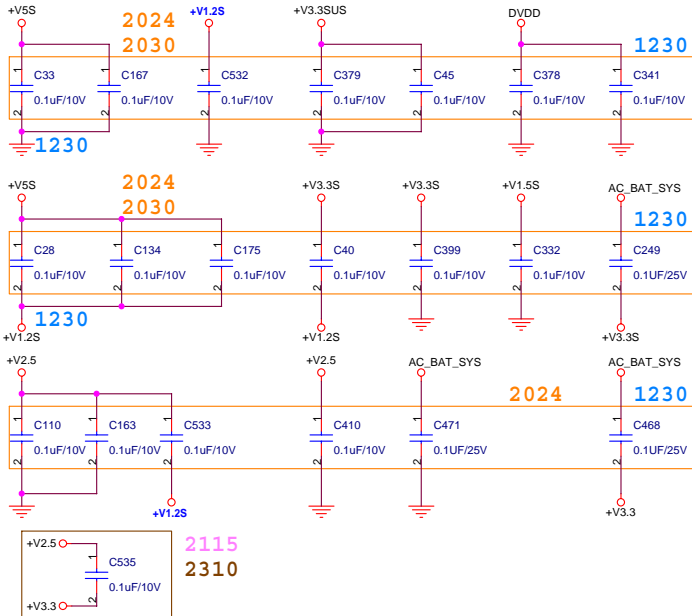
For MDC module



CPU Throttling(BIOS setting) : 100 degree C.
 System shutdown(BIOS setting) : 110 degree C.
 H/W shutdown(page 44, U47 , no load) : 105 degree C
 (Need fine turn R354).

Short Pad location:
 Page37: JP32
 Page39: JP4,5,15,16,19,26,27
 Page40: JP6,7,9,22,24
 Page42: JP13,14,17,18,28,29

EMI



Don't Short Pad: JP26
 JP4: +V2.5 --Power In
 JP5: +V1.25S
 JP6: +V2.5
 JP7: +V1.2S
 JP9: +VCCP
 JP13: +V5S
 JP14: +V5
 JP15: +V1.5SUS
 JP16: +V2.5 --Power IN
 JP17: +V1.8S
 JP18: +V12
 JP19: +V1.8
 JP22: +V1.5S
 JP24: VREF5 --> +V5A
 JP26: +3VALWAYS T --> +V3.3A (open)
 JP27: +3VALWAYS M --> +V3.3A (short)
 JP28: +V3.3S
 JP29: +V3.3
 JP32: KBCRSM

PCB STACK-UP

PCB THICKNESS: 1.6 mm

- L1 TOP
- L2 VCC
- L3 GND
- L4 BOT

IMPEDENCE

Single-Ended

Value	Width
27.4 OHM	WIDTH
TOP/BOT 20 mils	
37.5 OHM	WIDTH
TOP/BOT 12 mils	
42 OHM	WIDTH
TOP/BOT 10 mils	
55 OHM	WIDTH
TOP/BOT 5 mils	
Differential	
70 OHM	WIDTH/SPACE
TOP/BOT 9 mils/ 5 mils	
90 OHM	WIDTH/SPACE
TOP/BOT 7 mils/ 10 mils	
100 OHM	WIDTH/SPACE
TOP/BOT 5 mils/ 7 mils	

PCI INTERFACE

Signal	Type	Power
PCI_REQ#		
CB&1394	PCI_REQ#0	
MINIPCI	PCI_REQ#1	
LAN	PCI_REQ#2	
PCI_GNT#		
CB&1394	PCI_REQ#0	
MINIPCI	PCI_REQ#1	
LAN	PCI_REQ#2	
IDSEL		
CB&1394	PCI_AD21	
MINIPCI	PCI_AD20	
LAN	PCI_AD16	
PCI_INT#		
CB&1394	PCI_INTB/A/D#	
MINIPCI	PCI_INTC/D#	
LAN	PCI_INTC#	

POWER INTERFACE

Signal	Type	Power
CLK_EN#	I	+V3.3S_CLK
PM_PSI#	O	+VCCP
VR_VID[5:0]	O	+VCCP
CPU_VRON	O	+V3.3SUS
VRM_PWRGD	I	+V3.3S
PM_STPCPU#	O	+V3.3S
CHG_LED	I	+5VLCM
RST_BTN#	O	OD
OTP_RESET#	I	+V5
SHUT_DOWN#	I	AC_BAT_SYS
+5VLCM	PWR	+V5
PM_SLPDLY_S3#	O	+V3.3
PM_SLP_S4#	O	+V3.3SUS
BAT_LEARN	I	+V3.3
BAT_LLOW#_OC	I	+V3.3
BAT_IN#_OC	I	+V3.3
ACIN_OC	I	+V3.3
CHG_FULL_OC	I	+V3.3
PM_DPRSLPVR	O	+V3.3S
AC_APR_UC	I	+V5A
+V5A	PWR	VREF5
3V_ON	O	OD
AC_BAT_SYS	PWR	DC
A/D_DOCK_IN	PWR	DC
SMC_BAT	IO	+V3.3
SMD_BAT	IO	+V3.3

POWER PLANE

Power	Voltage	Current
+VCORE	1.46V	25A
+VCCP	1.05V	2.4A(Max),1A(Real)
+V1.2S	1.2V	2.5A
+V1.25S	1.25V	0.5A
+V1.5S	1.5V	1.32A
+V1.5SUS	1.5V	64 mA
+V1.8	1.8V	0.14A
+V1.8S	1.8V	0.3 A
+V2.5	2.5V	6.68A
+V3.3S	3.3V	1.732A
+V3.3	3.3V	1.515A
+V3.3SUS	3.3V	14 mA
+V5S	5V	2.5A
+V5	5V	3.75A
+V5SUS	5V	0.5A
+V12	12V	0.25A
+V12S	12V	0.25A

FIRST SOURCE	SECOND SOURCE	NOTE
05-001005111	05-001017122	L5 NA10643
	05-001005310	
06-006002411	06-006002001	
06-010008000	06-010008100	L5 NA10601
06-017001000	06-017001200	
07-005000010	07-005000210	L5 NA10473
	07-005000410	
07-005261010	07-005357010	Power RD Request
07-010303271	07-010303273	L5 NA10603
07-010Q02501	07-010812500	
07-014150220	07-014150120	
07-016202032	07-016402032	
	07-016102032	
09-013103013	09-013103010	L5 NA10512
09-091090000	09-091090001	L5 NA10512
	09-091090005	
10-093111041	10-093111040	L5 NA10334
10-124901000	10-12490100A	L5 NA10298
10-12490560A	10-124905600	
11-032310661	11-032310662	For MC request
	11-032310663	
11-033410400	11-033410401	Follow L5G R2.0 2nd source
	11-033410405	
	11-033410406	
11-033410500	11-033410502	
11-03B210620	11-031110621	L5 NA10407
	11-031210621	*11-03B110623 for Power RD Request
	11-03B110621	
	11-03B110622	
	11-03B210621	
	11-03B110623	

Rev	Date	Description
R1.0	03/12/19	1. Initial release.
R1.1 Green Block	04/02/03	<p>1. Connect SDD0,SDD1 for RICOH request. Page 22.</p> <p>2. Add MDC screw hole P/N & footprint. Page 46.</p> <p>3. Connect CardBus chip INTC to PCI_INTD#. page 22.</p> <p>4. Change CB_SD# location from KBC to ICH4 GPIO25. page 15,21,26.</p> <p>5. Delete PCMCIA debug card function. page 18,23,29.</p> <p>6. Host clock frequency select failed.Add a pull-down R to FS3 so that FS[4:3]=00 and Host clock frequency=100MHz. page18.</p> <p>7. Load wrong value. Change RN39-RN48 from 560hm to 100hm. page 6.</p> <p>8. Load wrong value. Change pull-up RN . page 37.</p> <p>9. The value in M3N schematic is wrong. Change HUB_RCOMP_ICH4 pull-up R from 48.7KOhm to 48.70hm. page 14.</p> <p>10. Modify +V3S to +V3.3S. page 30.</p> <p>11. Can not boot in battery mode.Remove C497. page 37.</p> <p>12. Modify 20-pin connector pin define and add DJ_LED function for new touchpad. page 26,36.</p> <p>13. Due to height limitation, change BATT CONN. page 44.</p> <p>14. Remove the pull-up RN75B because AC_APR_UC has been pulled-up in page 45. page 37.</p> <p>15. Change CRT CONN because the original one was reversed. page 12.</p> <p>16. C271 change form 10UF/25V/X5R to 15UF/25V/POSCAP. page 43.</p> <p>17. U50 VCC change from +5VLCM to VCC_AD(19V). page 43.</p> <p>18. For wrong connection, change R354 pull-up power plane from +5VO to +5VA. page 44.</p> <p>19. Change R210 from 47K to 470K/0402. page 43.</p> <p>20. Add RN78 to pull high SMC BAT and SMD BAT, and add UM6K1N to prevent leakage current into KBC. page 26,44.</p> <p>21. For Power RD request, add R370 to CHG_EN#. page 44.</p> <p>22. Replace RN32 with 3 single 100K resistor. page 45.</p> <p>23. Change KB CONN pin definition because R1.0 was reversed. page 26.</p> <p>24. Remove INVTER_A from KBC and load L33 because BIOS RD decide to use NB to control the pannel backlight. page 12,26.</p> <p>25. Because P67/AN8 of KBC38857 cannot receive PWM signal, move CPUFAN_SPD_A to P57/DA2/PWM11 of KBC38857. page 26.</p> <p>26. Change LEDs' power to 5V level. page 36.</p> <p>27. Modify PCMCIA socket footprint. page 23,46.</p> <p>28. Combine connector : Change CON1,delete CON3,CON4. page 12, 34.</p> <p>29. Swap LAN connection(J2 pin5-12) for wrong connecting. page 33.</p> <p>30. Modify PM_RSMRST# circuit. page 37.</p> <p>31. For cost down, change X5,X7. page 19,30.</p> <p>32. Combine two NC7SZ14P5 into one SN74LV14APWR for cost down.page 37.</p> <p>33. To reduce jitter when charging, add R376,C520&C521. page 43.</p> <p>34. For M6N R1.1 wrong connection, change Audio DJ DJ_SCAN pin from KSO4 to KS01. page 26,35.</p> <p>35. For Power RD request, add two beads L53&L54 at Vin Side. page 38.</p> <p>36. Modify EDID and panel ID optional circuit. page 12.</p> <p>37. Change CLR_DJ# to P53 because P54 of M38857 cannot be configured as output. page 26.</p> <p>38. Add R377 for Power RD request. page 43.</p> <p>39. Based on Ricoh's suggestion, remove CB_AGND and connect all AGND to generic GND. page 21,22.</p> <p>40. For cost down, change X4. page 44.</p> <p>41. Modify for battery 4S2P and 4S1P application. page 26,43,44.</p> <p>42. For EMI RD request, change Cap of CRT Pi-filter from 3.3pF to 15pF. page 13.</p> <p>43. Delete spread spectrum IC ICS91718 circuit because few model use it and not easy to buy. page 18.</p>

Rev	Date	Description
R1.1 Green Block	04/02/03	<p>44. Change C172 & C173 from 22pF to 5pF and unload R125 to obtain more accurate 8MHz frequency. page 26.</p> <p>45. For cost down, Power RD request to change Q9&Q11 to 07-005198012, U30 to 06-006002411, and U50 to 06-010112010. page 38,43,45.</p> <p>46. For Power RD request, change , C266 from 33pF to 220pF, C279 from 0.1uF to 0.01uF. page 41,43.</p> <p>47. Change U29 P/N for ME. page 31.</p>
R1.2 Blue Block	04/02/19	<p>1. LAN_RST# changes to 10K Ohm pull-down to GND. Page 15.</p> <p>2. To be able to hear low frequency in headphone mode, change C423 & C424 from 10uF/10V to CE30,CE31 47uF/6.3V. Page 31.</p> <p>3. Pull high BAT_IN#_OC, whose OC means Open Collector, to +V3.3 at KBC. Page 26.</p> <p>4. There is only one SS0540 in A3N, change to 1SS355. page 35.</p> <p>5. The power of LCD EEPROM connect to +V3.3S_LCD. When BIOS want to read EEPROM data, the EEPROM is still OFF,because +V3.3S_LCD is not enabled at this moment. Change EEPROM power to +V3.3S. page 12.</p> <p>6. Change R360,R363,R364,R366,R367,R378 value for charger at C.C. mode and change R200,R201,R204,R352 at C.S. mode to get more accurate current limit value. page 43.</p> <p>7. Add de-POP(reduce pop noise) circuit. page 31.</p> <p>8. Change Fan control function from PWM mode to DC mode. page 35.</p> <p>9. Based on Power RD's request, change Q33,R169,R148,R324. page 40,41.</p> <p>10. SSN can not turn on some panels since its diodes in inverter circuit have higher forward voltage. Follow S5N, change DAP202K and 1SS35 in inverter circuit to Schottky diode RB717F and RB751V-40 respectively. page 12.</p> <p>11. Electrical characteristics of diode 1SS35 and 1N4148-A2 can be compatible, but 1N4148-A2 has lower price. For cost down, change 1SS355 to 1N4148-A2. page 12,16,21,35,37,40,43,44,45.</p> <p>12. Change "Back light adjust" function from North Bridge to KBC. Change "CUPFAN_SPD_A" from KBC to ICH4 for BIOS request. page 8,12,26,35.</p> <p>13. For cost down, change audio AMP from APA2020A to G1420. page 31.</p> <p>14. A3N R1.1 uses the same AC_IN jack as L3F, which was found easy to be damaged. Change it to solder one used on A2. page 36.</p> <p>15. Follow M6N and WIN to modify RTC circuit. page 15.</p> <p>16. Un-mount Q59 and RN81 to control WLAN led directly from SB's GPIO pin: 802_LED_EN#. page 36.</p> <p>17. Swap 1394 TPB0+/-,TPA0+/- for smoother layout. page 22.</p> <p>18. X4 is dip type and at top side which may be lost in SMT IR re-flow for bottom side. Change X4 to SMD type. page 44.</p> <p>19. Add mini-PCI and USB WLAN hardware disable circuit page 12,15,20.</p> <p>20. QT report a bug: The "Center/Subwoofer Speaker Out" is invalid after setting "Number of Speakers" to 6-channel mode for 5.1 speaker output and then executed "Speaker Test". Modify relative circuit. page 30,32.</p> <p>21. Fine tune audio amp low-pass frequency. page 31.</p> <p>22. Delete RN79 because after experiment we find it can be un-mounted. page 36.</p> <p>23. Remove LCD EDID relative circuit. page 8,12.</p> <p>24. Combin R191,R308,R380 and R381 into 4R8P RN88. page 26.</p> <p>25. Follow SSN to modify CRT_DDC circuit to prevent current leakage. page 13.</p> <p>26. Although crystal DIP type is cheaper than SMD type, but costs more manpower. Change X5 and X7 back to SMD type. page 19,30.</p> <p>27. Improve accuracy of reading fan speed. page 35.</p> <p>28. Swap RN4 and pin8,9 of RP4 for smoother layout. page 13,17.</p> <p>29. For cost down, change U6 and U12 NS LM358MX (06-010008000) to TI LM358ADR (06-010112010). page 30,35.</p> <p>30. For EMI RD's request to modify BOM. page 18,19,22,30,31,32,33,46.</p> <p>31. Add description of choosing 855GM or 852GM/GME/GMV platform by changing R148. page 40.</p> <p>32. Debug code will stop at "A0" or "06". Modify SMBus layout: 1. Daisy chain routing. 2.Don't cross power plane when the trace refer to power plane. Page 17.</p>

Rev	Date	Description
R1.3 Purple Block	04/03/11	<p>1. Pin23, ISOLATEB, of LAN 8100CL need to be low in S3. Follow MB P4PE-X to connect it with PM_SLP_S3#. page 19.</p> <p>2. Debug Code will stop at "13". Change SMBus Pull-High RN29 from 4.7KOhm(0402) to 1KOhm(0603). page 17.</p> <p>3. Improve MIC layout. page 12,32.</p> <p>4. For Power RD's request to modify charger circuit. page 43,44.</p> <p>5. Delete screw hole H2, to prevent CN7 short with H2. Layout engineer create a new screw hole. page 46.</p> <p>6. For Power RD's request to modify BOM. Change R108 from 100K to 75K for OCP, un-mount R93 and mount R94 to meet Intel CPU spec. page 38.</p>
R2.0 Orange Block	04/04/15	<p>1. Sometimes Debug Code will stop at "00" in ON/OFF test. Modify power sequence circuit , delete R163. page 38,40.</p> <p>2. Based on request came from factory to update all testpoints' symbol because all testpins are changed from 75mil to 68mil. All pages that include test points.</p> <p>3. Power team request, cost down D51 part. page43.</p> <p>4. Fine-tune R385,R386 and R387 to get more accurate level of fan ON/OFF detection. page35.</p> <p>5. When system with battery only. System can't be power on after push Force OFF button SW6. Because SW6 connect to SHUT_DOWN#, but this signal will be latch low(power design: when battery low, page 46 : battery low detect circuit will issue low than latch it.) when it is at low state. Don't connect SHUT_DOWN# to SW6 at page 37. (SHUT_DOWN# already connected to 3V_ON at page 41. Connect SW6 to U25, and change D40 to 1N4148(delete at item 2015). Page 37.</p> <p>6. Because A3N use SW6 as "Force OFF" button ,not "Reset" button. We don't need connect SW6 to PIC16C54C. Delete D24.page37,44.</p> <p>7. Can't turn on Audio DJ when system only with battery and no adapter. Because +V3.3SUS will be turn off when system only with battery. Need turn on +V3.3SUS by connect DJ_SW# to 3V_ON. Change D45 to DAP202K. Page 37.</p> <p>8. LAN crystal accurate is 39.2ppm, it can't meet spec. +/-30ppm). Change from 15pF to 18pF to meet spec. page 19.</p> <p>9. Some system can't boot by battery only. Because signal "SHUTDOWN#" be latch at low state. Change R6 value from 470K to 100K. Page 45.</p> <p>10.QT bug : Noise occur from headphone via speaker out jack. Change R124,R298,R285 from Bead to 0 ohm. Page 30,31.</p> <p>11.The Power LED should not be bright when enabled Audio DJ in power off mode. Page 36.</p> <p>12.The inductor will cause the 2.5V power control loop unstable. Change L40 to R389 Page 19.</p> <p>13. Balance the LED Brightness. Fine tune R value,R140 470-->220,R311,R312 470-->1K. Page 36.</p> <p>14. G571(U49) 593 Control Signal(U37) VPPD0 : VPPEN1 VPPD1 : VPPEN0 Otherwise, CardBus Card may be destroyed. Page 23.</p> <p>15. When issue OTP RESET#, system can't be turn off & display white screen. Because LTC3728 can't be shutdown by only put low 3V_ON. Need shutdown +V3.3SUS & +5VO at the same time. Delete D40. Page 37.</p> <p>16. Change Q63,Q66,Q71 and no load Q63,R338,C482,R354,R358,C502,U47 for cost down. page 35,37,44.</p> <p>17. Add test point for Taipei Factory request. page 6,12,15,16,19,30,36,37,38,39,42,43,44</p> <p>18. QT bug: Pop noise can be heard via headphone when system boot, restart and resume from S3. Modify De-Pop circuit. page 31,37.</p> <p>19. Taipei factory request : Add R391 for different battery charge current test at 8 cells and 4 cells. Page44.</p>

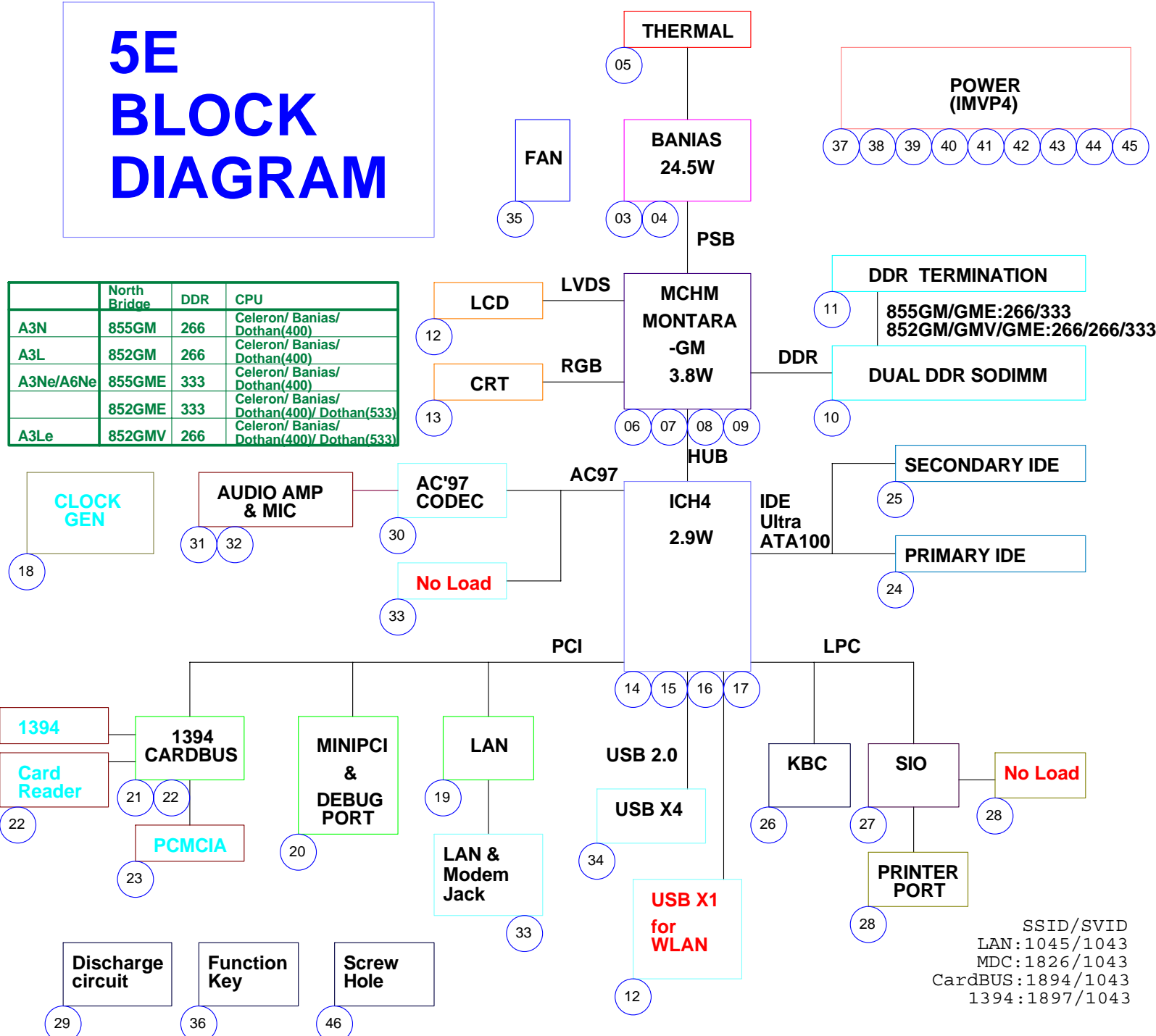
Rev	Date	Description
R2.0 Orange Block	04/04/27	<p>20. EMI request, load C144, C525. page 32.</p> <p>21. ICH4 GPIO [24:43] , default state is output high, if PID_[0:3] be connected to GND by LCD cable, these GPIO will issue +V3.3 (default output high) short to GND during system power on. Add R=2.2K to prevent this kind of situation. Page 15.</p> <p>22. Measurement team Problem: VGA EA fail below items 1,V-SYNC:under shoot over 30% of high level voltage range. 2,H-SYNC:over shoot over 30% of high level voltage range, under shoot over 30% of high level voltage range. Change Change C304, C305 from 5pF to 33pF. Page 13.</p> <p>23. EMI request use Choke on USB & 1394 ports. Delete option R, don't co-layout. Page 22,34.</p> <p>24. EMI request : Add C531,C532,C533,C535. Delete C147,C433. Change C110,C163 connection. Change C410 location. Change C378,C379,C410,C163,C110 to 0.1uF/10V. Change C471,C468 to 0.1uF/25V. Change C45,C33,C28,C134,C332,C399,C341 to 0.1uF/10V and don't load. Change C40 to 0.1uF/10V. Change C249 to 0.1uF/25V and don't load. Page 10,46. Change R104 from 0 ohm to bead. Page 31.</p> <p>25. Change C26,C98,C104,C325 (page3) , C362 (page7) , C324,C329 (page9) , C436 (page14) , C190,C441 (page16) , C366,C367 (page19) , C247 (page21) , C467,C473,C478 (page22) , C236 (page23) , C209,C210,C211,C242 (page40) , from 0.01uF/25V to 0.01uF/10V. Use 10V is OK.</p> <p>26. Measurement team Problem: VGA EA fail in rise time and fall time of RGB signal at resolution 1024X768 at 60Hz. Change L6,L7,L8 from 750hm/100MHz to 700hm/100MHz. Page 13.</p> <p>27. Load FAN on/off component : /FAN_SPD. page 35.</p> <p>28. Change L53,L54 from 09-012400000 to 09-012400001 for cost down. page38.</p> <p>29. CON1,CON7,CON12,CON15 and J4 change to formal P/N. page 12,24,25,36,44.</p> <p>30. For EMI RD's request, change R384 from 0 ohm to Ferrite bead, and add EMI capacitors: C28,C33,C45,C134,C167,C175,C332,C341,C399,C249. Page 32,46.</p> <p>A3L. For A3L platform : change U32 to 852GM, R148. page 6,7,8,9,40.</p>
R2.1 Pink Block	04/05/14	<p>1. For ESD test fail at switch, If we want to use ESD protect diode, we can't connect switch pin 1&2, pin3&4 to make sure the energy will go through ESD diode : SW1-5. page36.</p> <p>2. Forget pull high at D54.3. Add R392 pull high to +V3.3S. page 31.</p> <p>3. For cost down. Delete R=0 OHM. R389,R331,R124,R298,R285,R281,R276 (no load),R290 (no load) . page 19,22,30,31</p> <p>4. QT report that a "pop" noise occurs when booting. This is because the timing of OP_SD# to control audio AMP ON. Change D49 from DAP2020K to 1N4148W-A2 to control the AMP shutdown only the JACK_IN#, and control SE/BTL# by D54.3. page 31.</p> <p>5. In audio DJ mode, DJ_LED turns on Q91 and PWR_LED_UP will connect to GND which may damage PIC. Use RN80A to prevent it. page 36.</p> <p>6. Power RD modification: Delete 0 Ohm: R135,R136,R137 Delete U24, change Q34 to 3904 and add R393,R394. Change R202,R356,R357 BOM to modify BAT CV tolerance to more accurate. Delet Q5,Q1,C18,R9,R10,RN2 and add R395. page 40,43,45.</p> <p>7. Swap RN80 for smoother layout. page 36.</p> <p>8. QT bug: when booting or being idle, two A3 with USB CCD module will sometimes appear "Hi-speed device plug into low-speed hub" in Windows XP/2000. Adjust USBBIAS and USBBIAS# external resistor R138 from 18.2ohm to 22.6ohm. page 15.</p>

Rev	Date	Description
R2.1 Pink Block	04/07/16	<p>9. For TPE_ENG Power RD's request to unify OTP_RESET#, FORCE_OFF#_SW and FORCE_OFF# into single name: FORCE_OFF#. page 37,44.</p> <p>10. About 2019 item, factory don't need it now. Delete R391. page 44.</p> <p>11. C117 don't need use 25V, change to 4.7uF/10V. page 9.</p> <p>12. Factory found that there are two A3 systems will fail at On Off test. Net " PM DPRSLPVR" will be issued wrong status by Vcore Power IC MAX1987 when system on . Add a 20pF at R106.2 or change R106 from 1K to 0 OHM can solve this issue. Change R106 to 0 OHM. Page 38.</p> <p>13. Power request. Don't need use 1K ohm, change R100,R292,R329,R168 from 1K to 0 ohm. Page 38,42.</p> <p>14. Fine tune E-mail LED (R140 : from 220 to 1K)& Wireless LED (R312 : from 1K to 680) for customer's request. Page 36.</p> <p>15. Because C535 will touch with the boss of C mechanical part. Don't load C535. Page 46.</p> <p>16. Even we pull down pin 1 or pin 2 of DAP202K, the UM6K1N is still possible to be turn on. It is because that the maximum forward voltage of DAP202K is 1.2V but the gate threshold voltage of UM6K1N is 0.8V-1.5V. Change D32,D45 and D54 from DAP202K to RB717F since the maximum forward voltage of RB717F is only 0.37V. Page 31,35,37.</p> <p>17. Phone jack (P/N: 12-140001087) used in A3N/L has been phased out. The vendor suggests us to use 12-140001088 as substitution. Page 31.</p> <p>18. As R2.1 item 16, we changed D32,D45 and D54 from DAP202K to RB717F. But SMT reports that RB717F has smaller package than DAP202K such that may cause connection between RB717F and pad failed. In A3 design, the forward current will be no more than 0.5mA. According to DAP202K forward characteristics, it's impossible to reach the minimum threshold voltage of UM6K1N (0.8V). So it's safe to change D32, D45 and D54 from RB717F back to DAP202K. Page 31,35,37.</p> <p>19. 5E customer doesn't need the MDC and SIR function, so A3L removes the relative components: R30, R31, R129, R143, R144, R186, R190, R305, RN21, RN66, RN67, C149, C174, C180, C185, CN6, CON5, H14, H16, U35. Page 15,28,30,33,46.</p> <p>20. D23 uses DIODE 1N4148W-A2 but its larger forward voltage may makes KBC M38857 detect error. Change it to Schottky diode SS0540 that has smaller forward voltage. Page 44.</p> <p>21. Taipei SMT reports that X2 (07-010303271) has open risk, and recommends us to use 07-010303273 as first source, 07-010303271 and 07-010703273 as second source for manufacturability improve. Page 15.</p> <p>22. Factory found that there are some X4 part don't work. Change C522,C533 from 33pF to 15pF. Page 44.</p>

Rev	Date	Description
R2.2 Light Blue Block	04/09/22	<p>3. Refer to R2.1 item 12, reserve C536 but load 1M ohm for PM DPRSLPVR. Page 38.</p> <p>6. Modify layout footprint for R:2.1 item 21. Page 15.</p> <p>7. Based on Power RD's request, change Q41 from 07-005151010 to 07-005159010 for cost down. Page 45.</p> <p>8. 7H Project VFLP : Remove Super I/O : U11,C143,C146,C127,C151,C136,R103,RN17,Q16,R82,R63. Page 27,18. Remove Printer Port : LN1, LN2, LN3, LN4, CN8, CN9, CN10, CN11, L36, CN7, C300. Page 28. Remove IR: R129,U35,C174,C180,C185,RN21,RN66,RN67. Page 28. Remove MiniPCI Port : CON17,C487,C485,C469,C486,C470,R332,R81. Page 20,18. Remove WLAN function : RN86,Q87,Q88,Q79,R312. Page 12,20,36. Remove USB CMOS camera & USB WLAN function : CE29,L51,L52,L50,C11,C12. Page 12. Set normal type ODD as master : No load R127, Load R126. Page 25.</p> <p>9. Power "VCC,VCCASM,VCCHL,VCCAGPLL,VCCADPELLA,VCCADPLL" have different defined value in datasheet and RDDP. Confirmed with Intel FAE to get the final correct value, and will be phased in on R2.2 and R:2.4 BOM. Page 9,40.</p> <p>10. R249,R251,R252 will have different value based on different North Bridge. All the corresponding values are listed in Page 7 and will be phase in on R2.2 and R:2.4 BOM. Page 7.</p> <p>11. Because Vendor (CC&C) can't support hardware On/Off WLAN module function, don't load Q87 at R:2.2 & R2.4. Page 12.</p> <p>12. Factory found that there are some DDR SO-DIMM(UNIFOSA,MOSEL)will fail during Memory test of Run-In test. Change R176 from 19.6K to 20.5K 1%, fine tune +V2.5 from 2.5V to 2.592V. Add SO-DIMM noise margin at R:2.2 & R:2.4. Page 40.</p> <p>13. For 5E customer, don't need USB CMOS camera, no load L51, C12. Page 12.</p> <p>14. Change C193,194,195 for 7H customer's request about the gap between these capacitors and Mechanical C part. Change Cap from 2.5mm height(11-03B210621) to 2.0mm(11-031110621). Page 40.</p> <p>15. For M/E request, add a second source 12-172010300 on CON2. Page 12.</p> <p>16. Change CE9 for 7H customer's request about the gap between these capacitors and Mechanical C part. Change Cap from 2.8mm height(11-08D210711) to 1.8mm(11-08D215706). Page 41.</p> <p>17. When the system temperature rise high due to the system running at heavy loading. The leak current(IR) of D30 schottky diode will be increased, the H/W AC detect circuit will make a wrong state. Net " ACIN_OC " will issue " high". Change C301 from 0.1uF to 1Kohm, it can solve this problem. Make sure it will issue "low" at this moment. Page 45.</p> <p>18. For the request from 7H customer, change CE15,CE18 from Tantalum capacitor (11-015000220) to Oxi capacitor. Page 9. 2004/9/29 : Change at VPLP R:2.2, A3L R:2.4,A3Le R:2.4,A3Ne R:2.4.</p> <p>19. For the request from 7H customer, follow the USB spec. , one port max current is 0.5A, so two ports max current is 1A. Change F1,F2 from 1.5A/6V polyswitch to 1.1A/6V polyswitch, P/N is 07-014110900 (2nd source is 07-014110201). Change at VPLP R:2.2 only. Page 34</p> <p>20. 7H customer found that there are some VPLP system use Bufferlo WLI-CB-AG54 Wireless LAN PC-card will fail at some channel when connect to Access Point. Add C390 with 10pF and change C499 from 0.1uF to 1000pF (11-034110241) to reduce clock and power noise. Modify VPLP BOM only. Page 18,23.</p> <p>21. +V5A will issue leakage current to +V3.3SUS by U48.4 --> D45 --> RN76B when plug in Battery module only. Change C379 from 0.1uF to 1K ohm (10-004401020). Page 46.</p> <p>22. The position pin of CON9 & CN7 are base on 1.2mm PCB design, but A3& A6 PCB is 1.6mm. Modify the length of position pin of these connector (CON9: 12-101102154 , CN7:12-10110025I). Page 13,28.</p>
	04/10/01	
	04/10/14	
	04/10/22	

Rev	Date	Description
R2.3 Brown Block	04/07/23	<p>1. For Vendor request : Pin footprint diameter is 1.0mm+/-0.05, but ASUS rule is diameter*diameter = (L*L+W*W). Modify Battery Connector J1 as vendor spec. **NO FIX**. Page 44.</p> <p>2. For Thermal RD request : Let the fan be off before BIOS control because it can let user doesn't feel the fan on-off noise obvious while system boot. Use OP_SD_DLY to control it. Page 31,35.</p> <p>3. None (the same as R:2.2 item 1)</p> <p>4. QT Bug: Noise occurred during system resume from S1. The timing of DLY_OP_SD# and AC97_RST# still can not prevent the pop noise. Realtek recommends to use pin47 EAPD to substitute AC97_RST#. This pin can be controlled by codec driver to meet our timing request. Page 30,31.</p> <p>5. Change D23 to SCHOTTKY RB751V-40 to decrease part type. Page 44.</p> <p>6. Modify short pad for factory's request. page 37(JP32), page 39(JP15,16,19,26,27), page 40(JP9,24), page 42(JP17,18).</p> <p>7. For A3 series ID2 power switch, add a Blue LED, change R309 from 470 ohm to 220 ohm. Page 36.</p> <p>8. Add CPU +VCCA power switch circuit to meet Celeron/ Banias/ Dothan(400)/ Dothan(533) CPU spec. Page 3,4,18.</p> <p>9. Base on Factory SMT request : modify CN7 & CON9 footprint (only for 1.6mm thickness PCB). page 13,28.</p> <p>10. Re-load C535 because the position is changed and will not touch with boss of C mechanical part. page 46.</p> <p>11. Modify R106, R100, R292, R329, R168 to Short Pin JP36, JP37, JP38, JP39, JP40 for power function parts cost down. page 38,42.</p> <p>12. To synchronize the parts in the schematic with BOM, change R104, R302, R303, R91, R92, R384, R111, R112, R31, R30 to L55, L56, L57, L58, L59, L60, L61, L62, L63, L64. page 31,32,33.</p> <p>13. Remove 0 ohm: R377 and R180 for cost down. page 22,43.</p> <p>14. Based on Power RD's request, change Q45 from 07-005151010 to 07-005159010 for cost down. Page 43.</p> <p>15. BIOS RD request to distinguish PCB version by reading PCB_VID[2:0]. Change PCB_VID[2:0] configuration and add descriptions. Page 21.</p> <p>*. Because R:2.4 item 2. We can't phase in R:2.3.</p>
R2.4 Gray Block	04/08/27	<p>1. To improve ESD margin. Add De-Bounce circuit. Page 36.</p> <p>2. Add GST[2:0] strap circuit for supporting Dothan 533 CPU. Page 8.</p> <p>3. Taipei Factory report that some A3N systems still failed(13/5000) in resuming from suspend to RAM. Power RD request to change JP36 back to R106 and change the value to 100K ohm. Page 38.</p> <p>4. For EMI request. Connect switch pin 1&2, pin3&4 of SW1-5. page36.</p> <p>5. Change PCB VID for R.2.4 page 21.</p> <p>6. Remove JP37 and JP39. page36.</p> <p>7. As R2.4 item 3, Power RD find the root cause: When system booting or resuming from S3, the signal " PM DPRSLPVR" from South Bridge, it will be floating in a short time(40ms) and cause +V CORE output wrong voltage(0.76V). Add a resistor 1M ohm between net " PM DPRSLPVR" and GND in order to keep PM DPRSLPVR at low state when floating. Add R106 = 0ohm and change C536 to R410 (1M ohm). page 38.</p>
	04/10/14	<p>8. The position pin of CON9 & CN7 are base on 1.2mm PCB design, but A3& A6 PCB is 1.6mm. Modify the length of position pin of these connector (CON9: 12-101102154 , CN7:12-10110025I). Page 13,28.</p> <p>9. For cost down , add 06-045021010 AUDIO AMP. TPA0102 (power is 1.5W) as first source and change original part (power is 2W) as second source. Page 31.</p> <p>10. For power team request. Change Q2 from UMZ1N(Not easy to buy it) to BC847BPN. Page 45.</p>

5E BLOCK DIAGRAM



	North Bridge	DDR	CPU
A3N	855GM	266	Celeron/ Banias/ Dothan(400)
A3L	852GM	266	Celeron/ Banias/ Dothan(400)
A3Ne/A6Ne	855GME	333	Celeron/ Banias/ Dothan(400)
	852GME	333	Celeron/ Banias/ Dothan(400)/ Dothan(533)
A3Le	852GMV	266	Celeron/ Banias/ Dothan(400)/ Dothan(533)

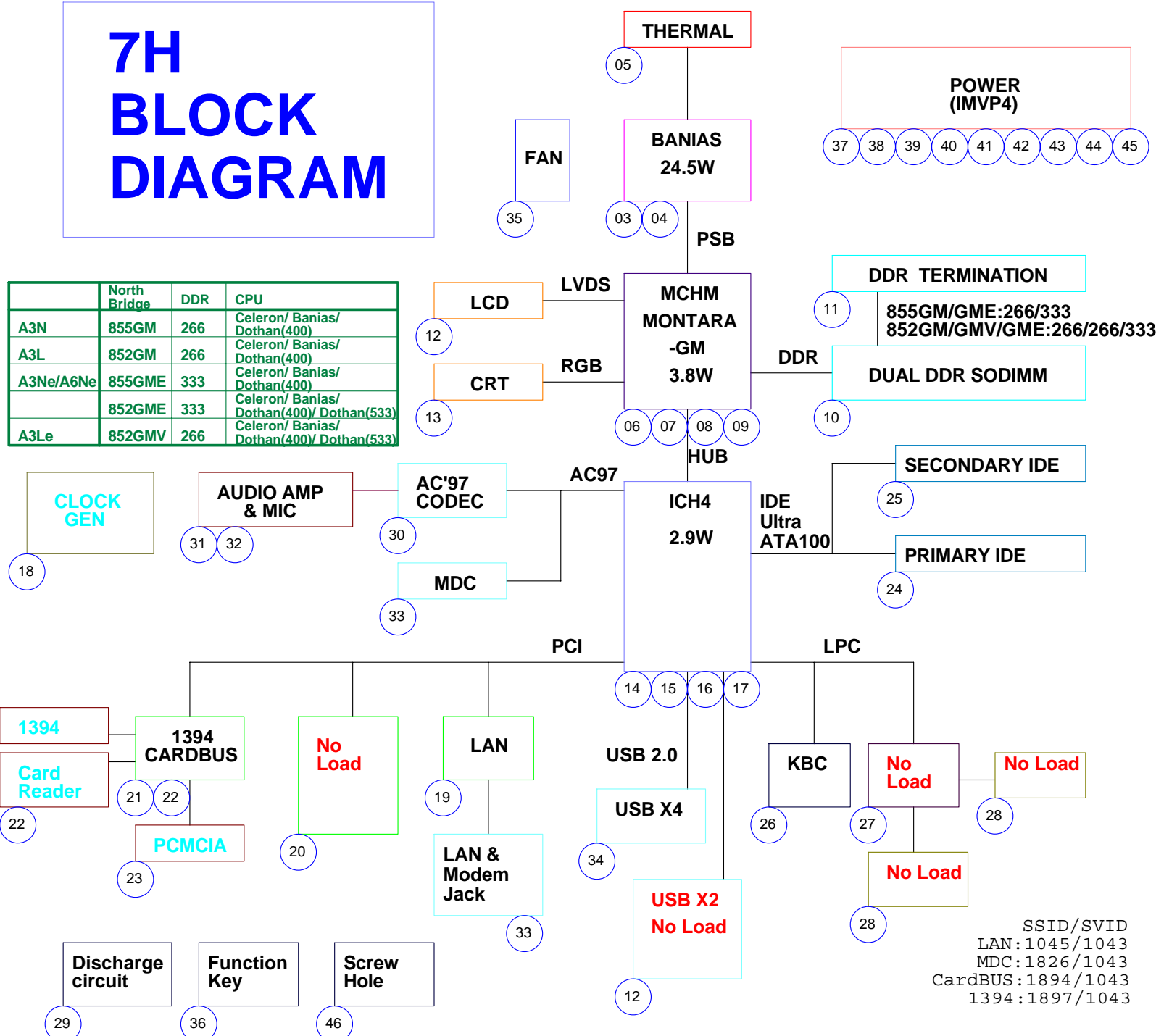
FILE LIST

01

- 01_BLOCK DIAGRAM
- 02_POWER DIAGRAM
- 03_CPU-BANIAS(HOST)
- 04_CPU-BANIAS(PWR)
- 05_THERMAL
- 06_NB-MCHM(DDR)
- 07_NB-MCHM(HOST)
- 08_NB-MCHM(VGA)
- 09_NB-MCHM(PWR)
- 10_DUAL DDR SODIMM
- 11_DDR TERMINATION
- 12_LVDS & BACKLIGHT
- 13_CRT CONNECTOR
- 14_ICH4-M(HUB_PCI)
- 15_ICH4-M(H_U_IDE_PM)
- 16_ICH4-M(PWR)
- 17_ICH4-M_PULLUP
- 18_CLOCK-ICS950815
- 19_LAN-RTL8100CL
- 20_MINIPCI
- 21_CB1394-R5C593(1)
- 22_CB1394-R5C593(2)
- 23_PCPCIA SOCKET
- 24_IDE-HD
- 25_IDE-ODD
- 26_KBC-M38857
- 27_SIO-ITE7805
- 28_IR&LPT_PORT
- 29_DISCHARGE CIRCUIT
- 30_CODEC-ALC650
- 31_AUDIO AMP
- 32_MIC
- 33_MDC&RJ45&RJ11
- 34_USB
- 35_FAN&Audio DJ
- 36_FUNCTION KEY
- 37_PWR & RESET SEQ
- 38_VCORE
- 39_1.25V&1.8V
- 40_2.5V&1.5V&1.35V&1.05V
- 41_SYSTEM
- 42_LOAD SWITCH
- 43_CHARGER
- 44_PIC16C54
- 45_BATLOW/SD#
- 46_SCREW HOLE & M/B SETTING
- 47_REVISION(1)
- 48_REVISION(2)
- 49_REVISION(3)
- 50_REVISION(4)
- 51_BLOCK DIAGRAM 5E
- 52_BLOCK DIAGRAM 7H
- 53_Part Reference 1
- 54_Part Reference 2
- 55_Power Net Reference

SSID/SVID
LAN: 1045/1043
MDC: 1826/1043
CardBUS: 1894/1043
1394: 1897/1043

7H BLOCK DIAGRAM



	North Bridge	DDR	CPU
A3N	855GM	266	Celeron/ Banias/ Dothan(400)
A3L	852GM	266	Celeron/ Banias/ Dothan(400)
A3Ne/A6Ne	855GME	333	Celeron/ Banias/ Dothan(400)
	852GME	333	Celeron/ Banias/ Dothan(400)/ Dothan(533)
A3Le	852GMV	266	Celeron/ Banias/ Dothan(400)/ Dothan(533)

FILE LIST

01

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- 04_CPU-BANIAS(PWR)
- 05_THERMAL
- 06_NB-MCHM(DDR)
- 07_NB-MCHM(HOST)
- 08_NB-MCHM(VGA)
- 09_NB-MCHM(PWR)
- 10_DUAL DDR SODIMM
- 11_DDR TERMINATION
- 12_LVDS & BACKLIGHT
- 13_CRT CONNECTOR
- 14_ICH4-M(HUB_PCI)
- 15_ICH4-M(H_U_IDE_PM)
- 16_ICH4-M(PWR)
- 17_ICH4-M_PULLUP
- 18_CLOCK-ICS950815
- 19_LAN-RTL8100CL
- 20_MINIPCI
- 21_CB1394-R5C593(1)
- 22_CB1394-R5C593(2)
- 23_PCPCIA SOCKET
- 24_IDE-HD
- 25_IDE-ODD
- 26_KBC-M38857
- 27_SIO-ITE7805
- 28_IR&LPT_PORT
- 29_DISCHARGE CIRCUIT
- 30_CODEC-ALC650
- 31_AUDIO AMP
- 32_MIC
- 33_MDC&RJ45&RJ11
- 34_USB
- 35_FAN&Audio DJ
- 36_FUNCTION KEY
- 37_PWR & RESET SEQ
- 38_VCORE
- 39_1.25V&1.8V
- 40_2.5V&1.5V&1.35V&1.05V
- 41_SYSTEM
- 42_LOAD SWITCH
- 43_CHARGER
- 44_PIC16C54
- 45_BATLOW/SD#
- 46_SCREW HOLE & M/B SETTING
- 47_REVISION(1)
- 48_REVISION(2)
- 49_REVISION(3)
- 50_REVISION(4)
- 51_BLOCK DIAGRAM 5E
- 52_BLOCK DIAGRAM 7H
- 53_Part Reference 1
- 54_Part Reference 2
- 55_Power Net Reference

SSID/SVID
LAN: 1045/1043
MDC: 1826/1043
CardBUS: 1894/1043
1394: 1897/1043

BAT1-15	CN9A-28	CN25A-11	C24-3	C83-9	C145-30	C206-40	C264-41	C322-3	C380-6	C450-21	C512-43	D35-40	JP28-42	L38-9	Q30-42	Q75-42	RN10A-33	RN31A-15
CE1-4	CN9B-28	CN25B-11	C25-9	C84-19	C146-27	C207-39	C265-41	C323-9	C381-18	C451-16	C513-43	D36-41	JP29-42	L39-38	Q31-42	Q76A-45	RN10B-33	RN31B-15
CE2-38	CN9C-28	CN25C-11	C26-3	C85-9	C148-30	C208-39	C266-41	C324-9	C382-19	C452-16	C514-18	D37-37	JP31-32	L41-38	Q32A-17	Q76B-45	RN10C-33	RN31C-15
CE3-38	CN9D-28	CN25D-11	C27-9	C86-9	C149-30	C209-40	C267-41	C325-3	C383-18	C453-16	C515-18	D38-37	JP32-37	L42-9	Q32B-17	Q77A-36	RN10D-33	RN31D-15
CE4-39	CN10A-28	CN26A-11	C28-46	C87-9	C150-10	C210-40	C268-41	C326-9	C384-18	C454-16	C516-12	D39-21	JP33-30	L43-36	Q33-41	Q77B-36	RN11A-8	RN33A-8
CE5-25	CN10B-28	CN26B-11	C29-9	C88-18	C151-27	C211-40	C269-41	C327-9	C385-18	C455-14	C517-12	D41-37	JP34-30	L44-40	Q34-40	Q78A-36	RN11B-8	RN33B-8
CE6-40	CN10C-28	CN26C-11	C30-9	C89-4	C152-39	C212-15	C270-22	C328-7	C386-19	C457-16	C518-12	D42-35	JP35-31	L45-40	Q35-40	Q78B-36	RN11C-8	RN34A-8
CE7-40	CN10D-28	CN26D-11	C31-38	C90-9	C154-30	C213-15	C271-43	C329-9	C387-18	C458-16	C519-12	D44-37	JP39-42	L46-40	Q36-14	Q79A-36	RN11D-8	RN34B-8
CE8-40	CN11A-28	CN27A-11	C32-37	C91-19	C155-30	C214-41	C272-41	C330-9	C389-18	C459-16	C520-43	D45-37	JP40-42	L47-21	Q37A-41	Q79B-36	RN13A-30	RN35A-31
CE9-41	CN11B-28	CN27B-11	C33-46	C92-18	C156-30	C215-40	C273-43	C331-38	C390-18	C460-16	C521-43	D46-37	J1-36	L48-43	Q37B-41	Q80A-26	RN13B-30	RN35B-31
CE10-41	CN11C-28	CN27C-11	C34-4	C93-18	C157-30	C216-15	C274-43	C332-46	C391-18	C461-40	C522-44	D47-37	J2-33	L49-41	Q38-41	Q80B-26	RN13C-30	RN35C-31
CE11-34	CN11D-28	CN27D-11	C35-4	C94-19	C158-30	C217-39	C275-41	C333-8	C392-18	C463-21	C523-44	D48-43	J3-31	L50-12	Q39-44	Q81A-43	RN13D-30	RN35D-31
CE12-34	CN12-31	CN28A-11	C36-9	C95-9	C159-39	C218-40	C276-43	C334-9	C393-18	C464-21	C524-18	D49-31	J4-44	L51-12	Q40-22	Q81B-26	RN14A-30	RN36A-35
CE13-24	CN13-32	CN28B-11	C37-38	C96-18	C160-30	C219-40	C277-43	C335-4	C394-18	C465-40	C525-32	D50-35	LED1-26	L52-12	Q41-45	Q82A-31	RN14B-30	RN36B-35
CE14-9	CN14A-11	CN28C-11	C38-9	C97-19	C161-31	C220-15	C278-43	C336-4	C395-18	C466-23	C526-30	D51-43	LED2-26	L53-38	Q42A-45	Q82B-31	RN15A-30	RN36C-35
CE15-9	CN14B-11	CN28D-11	C39-4	C98-3	C162-27	C221-40	C279-43	C337-4	C396-18	C467-22	C527-30	D52-41	LED3-26	L54-38	Q42B-45	Q83A-31	RN15B-30	RN36D-35
CE16-9	CN14C-11	CN29A-31	C40-46	C99-9	C163-46	C222-16	C280-43	C338-4	C397-18	C468-46	C528-43	D53-31	LED4-26	L55-31	Q43-22	Q83B-31	RN15C-30	RN37A-35
CE17-9	CN14D-11	CN29B-31	C41-4	C100-3	C164-30	C223-40	C281-41	C339-8	C398-35	C469-20	C529-43	D54-31	LED5-36	L56-31	Q44-43	Q84A-31	RN15D-30	RN37B-35
CE18-9	CN15A-11	CN29C-31	C42-4	C101-19	C165-30	C224-42	C282-44	C340-4	C399-46	C470-20	C530-31	F1-34	LN1-28	L57-31	Q45-43	Q84B-31	RN16A-27	RN37C-35
CE19-38	CN15B-11	CN29D-31	C43-38	C102-9	C166-30	C225-15	C283-44	C341-46	C400-6	C471-46	C531-10	F2-34	LN2-28	L58-31	Q46-43	Q85A-31	RN16B-27	RN37D-35
CE20-9	CN15C-11	CON1-12	C44-7	C103-3	C167-46	C226-21	C284-44	C342-33	C401-6	C472-15	C532-46	H1-46	LN3-28	L59-31	Q47-41	Q85B-31	RN16C-27	RN38A-31
CE21-9	CN15D-11	CON2-12	C45-46	C104-3	C168-10	C227-40	C285-44	C343-4	C404-35	C473-22	C533-46	H3-46	LN4-28	L60-32	Q48-45	Q86A-35	RN16D-27	RN38B-31
CE22-9	CN16A-11	CON5-33	C46-7	C105-38	C169-39	C228-41	C286-44	C344-4	C405-9	C474-37	C535-46	H4-46	L1-12	L61-32	Q49-45	Q86B-35	RN17A-27	RN39A-6
CE23-9	CN16B-11	CON6-26	C47-9	C106-38	C170-30	C229-40	C287-43	C345-7	C406-9	C475-37	C537-4	H5-46	L2-12	L62-32	Q50-45	Q87A-12	RN17B-27	RN39B-6
CE24-10	CN16C-11	CON7-36	C48-7	C107-18	C171-27	C230-40	C288-43	C346-4	C407-9	C476-21	C538-4	H6-46	L3-36	L63-33	Q51-45	Q87B-12	RN18A-25	RN39C-6
CE25-10	CN16D-11	CON8-22	C49-9	C108-19	C172-26	C231-41	C289-41	C347-9	C408-9	C477-21	D1-45	H7-46	L4-13	L64-33	Q52-12	Q88-20	RN18B-25	RN39D-6
CE26-10	CN17A-11	CON9-13	C50-9	C109-35	C173-26	C232-21	C290-12	C348-33	C410-46	C478-22	D2-12	H8-46	L5-13	Q2-45	Q53A-12	Q89A-13	RN18C-25	RN39E-6
CE27-10	CN17B-11	CON10-34	C51-4	C110-46	C174-28	C233-21	C291-12	C349-5	C411-35	C479-22	D3-13	H9-46	L6-13	Q3A-13	Q53B-12	Q89B-13	RN18D-25	RN39F-6
CE28-40	CN17C-11	CON11-34	C52-7	C111-18	C175-46	C234-39	C292-12	C350-9	C412-35	C480-22	D4-13	H10-46	L7-13	Q3B-13	Q54-8	Q90-35	RN19A-26	RN39G-6
	CN17D-11														Q55-35		RN19B-26	RN39H-6
																	RN19C-26	RN40A-6
																	RN19D-26	RN40B-6
CE29-12	CN18A-11	CON12-24	C53-8	C112-31	C176-40	C235-40	C293-12	C351-4	C413-31	C481-37	D5-13	H11-46	L8-13	Q4A-13	Q57-35	Q91-36		
CE30-31	CN18B-11	CON13-35	C54-38	C113-38	C177-29	C236-23	C294-12	C352-4	C414-31	C482-37	D6-38	H14-46	L9-36	Q4B-13	Q58A-36	Q92-35		
CE31-31	CN18C-11	CON14A-10	C55-19	C114-6	C178-14	C237-22	C295-12	C353-4	C417-30	C483-37	D7-36	H16-46	L10-34	Q7-38	Q58B-36	Q93A-4	RN21A-28	RN40C-6
CE32-35	CN18D-11	CON14B-10	C56-9	C115-31	C179-29	C238-21	C296-12	C354-5	C421-27	C484-35	D8-36	H18-46	L11-34	Q8A-24	Q59A-36	Q93B-4	RN21B-28	RN40D-6
CN1A-36	CN19A-11	CON15-25	C57-4	C116-6	C180-28	C239-40	C297-45	C355-4	C422-31	C485-20	D9-36	H19-46	L12-34	Q8B-24	Q59B-36	Q94A-8	RN21C-28	RN40E-6
CN1B-36	CN19B-11	CON16-23	C58-9	C117-9	C181-26	C240-23	C298-12	C356-7	C425-31	C486-20	D10-36	H20-46	L13-34	Q9-38	Q60-21	Q94B-8	RN21D-28	RN40F-6
CN1C-36	CN19C-11	CON17-20	C59-4	C118-6	C182-26	C241-40	C299-45	C357-4	C426-30	C487-20	D11-36	JP3-27	L14-34	Q10-19	Q61A-42	RN1A-45	RN21E-28	RN40G-6
CN1D-36	CN19D-11	C1-12	C60-9	C119-31	C183-26	C242-40	C300-28	C358-4	C427-30	C488-39	D12-38	JP4-39	L15-34	Q11-38	Q61B-42	RN1B-45	RN22A-26	RN40H-6
CN2A-10	CN20A-11	C2-12	C61-19	C120-31	C184-15	C243-23	C301-45	C359-4	C428-30	C489-37	D13-38	JP5-39	L16-9	Q12-38	Q62A-29	RN1C-45	RN22B-26	RN41A-6
CN2B-10	CN20B-11	C3-45	C62-19	C121-31	C185-28	C244-22	C302-12	C360-4	C429-30	C490-23	D14-30	JP6-40	L17-33	Q13-30	Q62B-29	RN1D-45	RN22C-26	RN41B-6
CN2C-10	CN20C-11	C4-45	C63-9	C122-38	C186-15	C245-23	C303-13	C361-19	C430-30	C491-37	D15-30	JP7-40	L18-19	Q14-30	Q63A-37	RN3A-13	RN22D-26	RN41C-6
CN2D-10	CN20D-11	C5-45	C64-19	C123-39	C187-16	C246-16	C304-13	C362-7	C431-30	C493-35	D16-16	JP9-40	L19-18	Q15A-39	Q63B-37	RN3B-13	RN23A-26	RN41D-6
CN3A-10	CN21A-11	C6-45	C65-19	C124-31	C189-16	C247-21	C305-13	C363-7	C432-30	C494-37	D17-21	JP10-40	L20-18	Q15B-39	Q64-29	RN4A-13	RN23B-26	RN41E-6
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CN3C-10	CN21C-11	C8-45	C67-9	C126-38	C191-15	C249-46	C307-13	C365-19	C435-36	C496-42	D19-16	JP12-40	L22-22	Q18-27	Q65B-35	RN4C-13	RN24B-26	RN41G-6
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CN4D-10	CN22D-11	C13-36	C72-18	C131-30	C196-42	C312-34	C312-34	C370-18	C440-16	C502-44	D24-43	JP17-42	L27-44	Q22-40	Q68A-29	RN6B-12	RN25C-26	RN42D-6
CN5A-10	CN23A-11	C14-36	C73-9	C132-38	C197-42	C255-22	C313-34	C371-18	C441-16	C503-23	D26-12	JP18-42	L28-44	Q23-40	Q68B-29	RN6C-12	RN25D-26	RN42E-6
CN5B-10	CN23B-11	C15-36	C74-9	C133-38	C198-16	C256-44	C314-34	C372-18	C442-16	C504-23	D27-12	JP19-39	L29-12	Q24-40	Q69A-37	RN6D-12	RN26A-17	RN42F-6
CN5C-10	CN23C-11	C16-36	C75-9	C134-46	C199-16	C257-41	C315-34	C373-38	C443-16	C505-23	D28-45	JP20-43	L30-12	Q25-40	Q69B-37	RN7A-24	RN26B-17	RN42G-6
CN5D-10	CN23D-11	C17-13	C76-18	C136-27	C200-39	C258-41	C316-34	C374-8	C444-21	C506-43	D29-45	JP21-22	L31-12	Q26-42	Q70A-37	RN7B-24	RN26C-17	RN42H-6
CN6-33	CN24A-11	C19-13	C77-9	C137-30	C201-40	C259-41	C317-34	C375-9	C445-16	C507-23	D30-45	JP22-40	L33-12	Q27A-40	Q70B-37	RN8A-24	RN26D-17	RN43A-6
CN7-28	CN24B-11	C20-13	C79-7	C138-30	C202-21	C260-22	C318-34	C376-7	C446-16	C508-23	D31-35	JP23-40	L34-12	Q27B-40	Q71A-35	RN8B-24	RN28A-14	RN43B-6
CN8A-28	CN24C-11	C21-34	C80-19	C139-38	C203-40	C261-41	C319-34	C377-7	C447-16	C509-23	D32-35	JP24-40	L35-12	Q28A-40	Q71B-35	RN8C-24	RN28B-14	RN43C-6
CN8B-28	CN24D-11	C22-34	C81-7	C143-27	C204-40	C262-20	C320-9	C378-46	C448-23	C510-23	D33-40	JP26-39	L36-28	Q28B-40	Q72-37	RN8D-24	RN29A-17	RN43D-6
CN8C-28		C23-38	C82-19	C144-32	C205-40	C263-41	C321-9	C379-46										

RN44A-6	RN53A-11	RN61A-11	RN73A-29	RP2A-17	R49-7	R117-30	R182-40	R249-7	R324-40	R398-4	T19-38	T78-45	T138-15	T199-12	U33-5
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RN44D-6	RN53D-11	RN61D-11	RN73D-29	RP2D-17	R52-18	R120-30	R185-22	R252-7	R327-40	R401-18	T22-38	T81-38	T141-42	T202-16	U36-21
RN44E-6	RN53E-11	RN61E-11	RN74A-35	RP2E-17	R53-38	R121-31	R186-33	R253-7	R328-41	R402-18	T23-38	T83-40	T142-39	T203-16	U37A-22
RN44F-6	RN53F-11	RN61F-11	RN74B-35	RP2F-17	R54-19	R122-10	R187-45	R254-19	R330-41	R403-18	T24-38	T84-40	T143-42	T204-30	U37B-21
RN44G-6	RN53G-11	RN61G-11	RN74C-35	RP2G-17	R55-18	R123-30	R188-45	R255-19	R332-20	R404-4	T25-38	T85-42	T144-38	T205-36	U38-15
RN44H-6	RN53H-11	RN61H-11	RN74D-35	RP2H-17	R56-18	R125-26	R190-33	R256-19	R333-22	R405-4	T26-39	T86-8	T145-40	T206-36	U39-39
RN45A-6	RN54A-11	RN62A-11	RN75A-37	RP3A-17	R57-18	R126-25	R192-41	R257-19	R334-22	R406-36	T27-38	T87-8	T146-42	T207-36	U43-37
RN45B-6	RN54B-11	RN62B-11	RN75B-37	RP3B-17	R58-18	R127-25	R193-41	R260-3	R335-22	R407-8	T28-41	T88-3	T147-38	T208-36	U44A-35
RN45C-6	RN54C-11	RN62C-11	RN75C-37	RP3C-17	R59-18	R128-29	R194-33	R261-3	R336-22	R408-8	T29-39	T89-45	T148-42	T209-36	U44B-35
RN45D-6	RN54D-11	RN62D-11	RN75D-37	RP3D-17	R60-18	R129-28	R195-41	R262-7	R337-22	R409-8	T30-43	T90-8	T149-41	T210-36	U45A-37
RN45E-6	RN54E-11	RN62E-11	RN76A-37	RP3E-17	R61-18	R130-40	R196-41	R263-18	R338-37	R410-38	T31-44	T91-8	T150-14	T211-36	U45B-37
RN45F-6	RN54F-11	RN62F-11	RN76B-37	RP3F-17	R62-18	R131-16	R197-41	R264-18	R339-22	SW1-36	T32-40	T92-3	T151-39	T212-36	U45C-37
RN45G-6	RN54G-11	RN62G-11	RN76C-37	RP3G-17	R63-18	R132-14	R198-41	R265-18	R342-39	SW2-36	T33-40	T93-3	T152-41	T213-36	U45D-37
RN45H-6	RN54H-11	RN62H-11	RN76D-37	RP3H-17	R64-18	R133-14	R199-43	R266-18	R343-37	SW3-36	T34-40	T94-3	T153-41	T214-37	U45E-37
RN46A-6	RN55A-11	RN63A-11	RN77A-33	RP4A-17	R66-7	R134-16	R200-43	R267-18	R344-39	SW4-36	T35-40	T95-3	T154-43	T215-37	U45F-37
RN46B-6	RN55B-11	RN63B-11	RN77B-33	RP4B-17	R67-7	R138-15	R201-43	R269-7	R345-35	SW5-36	T36-40	T96-3	T155-41	T216-42	U47-44
RN46C-6	RN55C-11	RN63C-11	RN77C-33	RP4C-17	R68-18	R139-15	R202-43	R270-7	R346-35	SW6-37	T37-44	T97-38	T156-41	T217-38	U48-37
RN46D-6	RN55D-11	RN63D-11	RN77D-33	RP4D-17	R69-19	R140-36	R203-42	R271-3	R351-37	TP1-40	T38-41	T98-3	T157-42	U1-45	U49-23
RN46E-6	RN55E-11	RN63E-11	RN78A-44	RP4E-17	R70-19	R141-15	R204-43	R272-6	R352-43	TP2-39	T39-40	T99-38	T159-21	U2-33	U50-43
RN46F-6	RN55F-11	RN63F-11	RN78B-44	RP4F-17	R71-3	R142-15	R205-42	R273-6	R353-43	TP3-40	T40-42	T100-38	T160-21	U3-19	U51A-37
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RN46H-6	RN55H-11	RN63H-11	RN80B-36	RP4H-17	R75-3	R144-15	R207-44	R275-35	R355-43	TP5-40	T42-21	T102-38	T162-39	U6-35	U51C-37
RN47A-6	RN56A-11	RN64A-26	RN80C-36	R1-45	R76-3	R145-16	R208-43	R277-6	R356-43	TP6-40	T43-14	T103-3	T163-41	U7-31	U51D-37
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RN47F-6	RN56F-11		RN84B-31												U52C-30
RN47G-6	RN56G-11	RN65A-26													U52D-37
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		RN65C-26	RN85B-31	R7-45	R83-18	R151-40	R215-45	R286-38	R362-43	TP12-6	T50-15	T109-6	T170-44	U14-30	U52F-31
		RN65D-26	RN85C-31	R8-45	R84-18	R152-40	R216-45	R287-38	R363-43	TP13-19	T51-15	T110-6	T171-38	U15-27	
RN48A-6	RN57A-11	RN65E-26	RN85D-31	R11-12	R85-18	R153-21	R217-12	R288-38	R364-43	TP14-39	T52-41	T111-6	T172-41	U16-26	
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RN48E-6	RN57E-11	RN66D-28	RN86D-12	R25-24	R89-6	R157-39	R221-3	R299-30	R368-18	TP18-43	T56-44	T115-38	T176-42	U20B-15	X2-15
RN48F-6	RN57F-11	RN67A-28	RN87A-30	R26-24	R90-6	R158-39	R222-3	R300-30	R371-45	TP19-43	T57-38	T116-38	T177-44	U20C-15	X3-22
RN48G-6	RN57G-11	RN67B-28	RN87B-30	R27-34	R93-38	R159-16	R223-3	R301-30	R372-45	TP20-44	T58-41	T117-38	T178-44	U20D-16	X4-44
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RN50H-11	RN59C-11	RN70D-22	RN90D-36	R41-8	R107-38	R173-40	R240-7	R316-21	R388-43	T10-45	T70-45	T129-39	T190-43	U31B-3	
RN51A-11	RN59D-11	RN71A-37	RN91A-8	R42-38	R108-38	R174-40	R241-7	R317-21	R390-31	T11-38	T71-45	T130-42	T192-44	U31C-3	
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RN51E-11	RN59H-11	RN72A-29	RP1C-26	R46-7	R114-30	R178-23	R246-3	R321-21	R395-45	T15-38	T75-40	T135-40	T196-44	U32B-6	
RN51F-11	RN60A-11	RN72B-29	RP1D-26	R47-8	R115-30	R179-40	R247-3	R322-21	R396-31	T17-38	T76-45	T136-40	T197-44	U32C-8	
RN51G-11	RN60B-11	RN72C-29	RP1E-26	R48-8	R116-30	R181-40	R248-3	R323-21	R397-4	T18-38	T77-45	T137-44	T198-8	U32D-8	
RN51H-11	RN60C-11	RN72D-29	RP1F-26											U32E-9	
RN52A-11	RN60D-11		RP1G-26												
RN52B-11	RN60E-11		RP1H-26												
RN52C-11	RN60F-11														
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