

F7K Block Diagram

VGA VCORE
PAGE 85

CPU VCORE
PAGE 80

AMD
CPU
S1g1
PAGE 34,35

DDR2-800MHz

Dual Channel DDR2
SO-DIMM X 2
Up to 4GB DDRII
PAGE 7,8,9

Clock gen.
PAGE 29

Power On Sequence
PAGE 32

SYSTEM PWR
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BAT & CHARGER
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FAN + SENSOR
PAGE 50

DISCHARGE CIRCUIT
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LED&SW&TOUCHPAD
PAGE 58

DEBUG circuits
PAGE 58

AMD Turion 64 Mobile Dual Core(Taylor,S1 638pin,35W,DDR2,TL-50/52/56/60)

Li-Ion 6 cells:4800mAh,3S2P,53.28W
(3S2P;4.2*3=12.6V;2400mAh*2=4800mAh;
3.7V*3 cells*4.8A=53.28W)
Li-Ion 9 cells:7200mAh,3S3P,79.92W
(3S3P;4.2*3=12.6V;2400mAh*3=7200mAh;
3.7V*3 cells*7.2A=79.92W)

H.T 800 MHz
1600MT/s

15.4''' active matrix color TFT
15.4''' WXGA/WSXGA+
Dual Channel LVDS I/F

LVDS & INV
PAGE 45

Switch
PAGE 78

ATI
M72M
PAGE 70,71,72,73

VRAM * 8
PAGE 74,75

PCI-E *16

ATI
RS690M
PAGE 10,11,12

ALINK
4LANE

PCI-E *1

PCI-E *1

PCI-E *1

PCI-E *1

Marvell GigaLan
88E8055
PAGE 33,34

NEW CARD
PAGE 42

eSATA
PAGE 77

MINI PCIE CARD
WLAN
PAGE 53

ATI
SB600
PAGE 20,21

LPC 33MHz

Azalia

USB

PCI 33MHz

TPM 1.2
(OPTIONAL)
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KEYPAD
MATRIX
PAGE 31

INSTANT KEY
PAGE 58

LED Control,
Guage
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ISA
ROM (8MB)
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AMPLIFIER
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SPEAKER or
PHONE JACK
PAGE 37

EC IT8510E
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Azalia Codec
ALC 660
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SPDIF
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MDC Conn
(RJ11)
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SATA HDD
PAGE 51

ODD
PAGE 51

TVTUNER
PAGE 55

USB

USB 2.0
CON X5
PAGE 52

Bluetooth
USB
PAGE 53

Camera
USB
PAGE 45

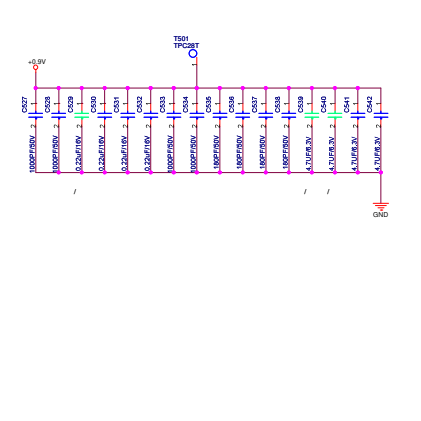
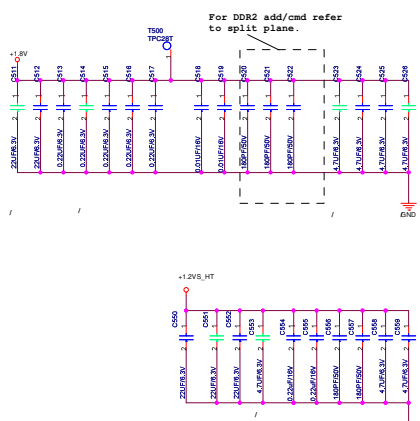
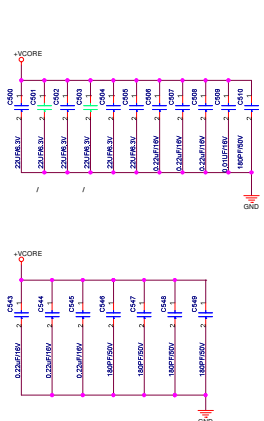
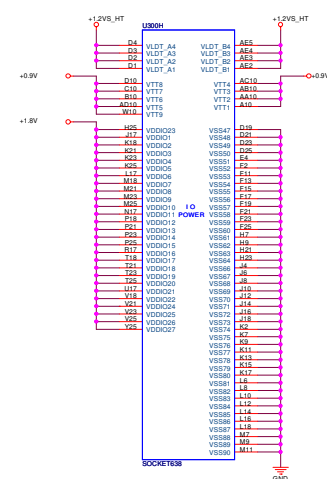
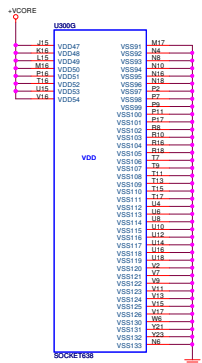
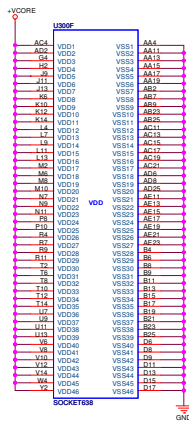
UWB
PAGE 54

CardBus
R5C833
PAGE 40,41

1394
PAGE 40

4 in 1
CARD READER
PAGE 42
MMC /SD /XD
Memory Stick/MS PRO

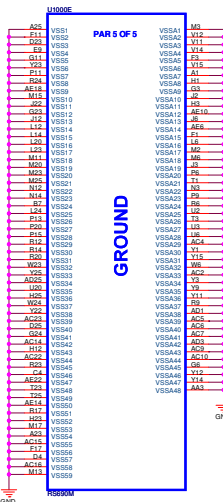


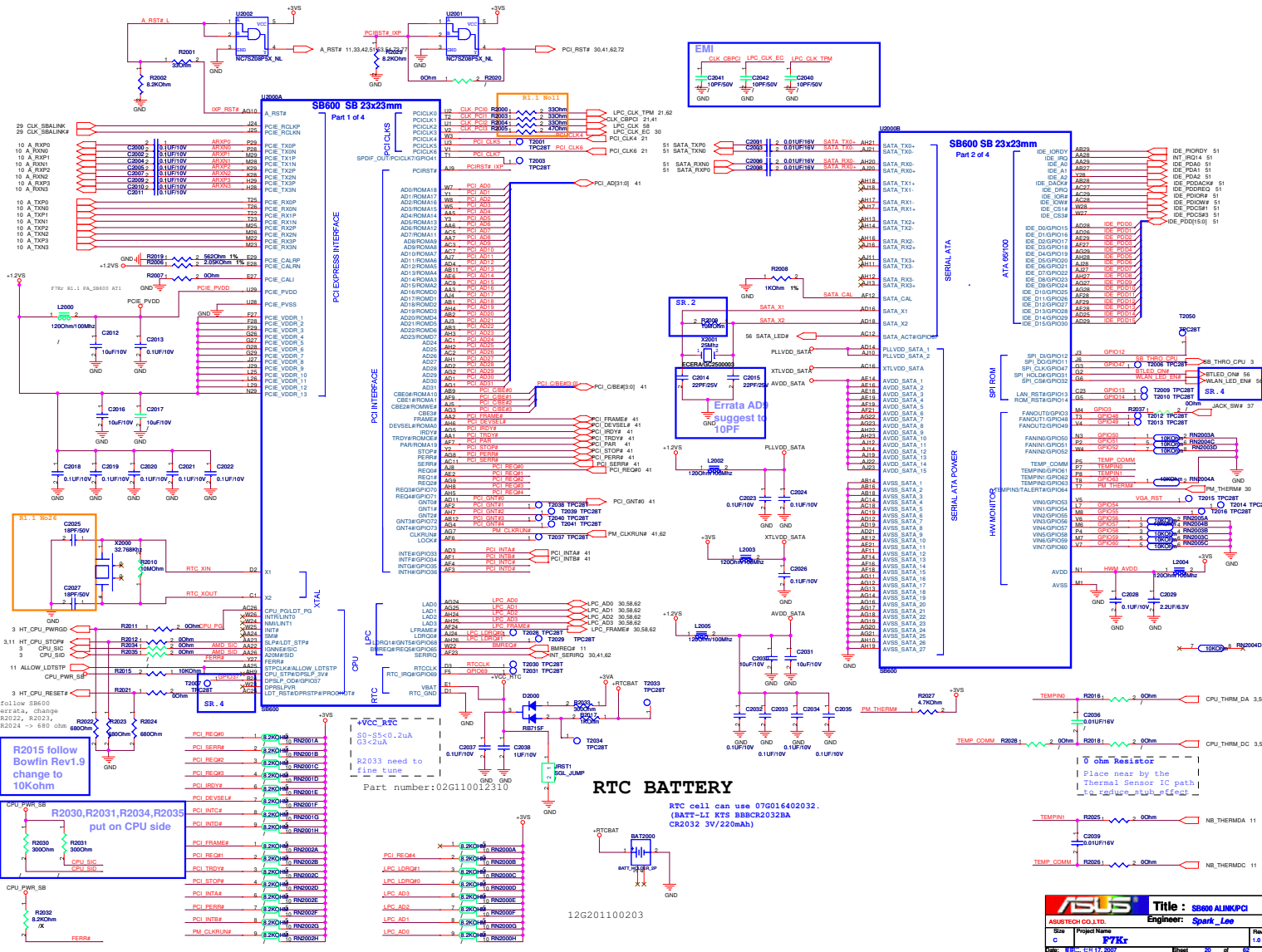


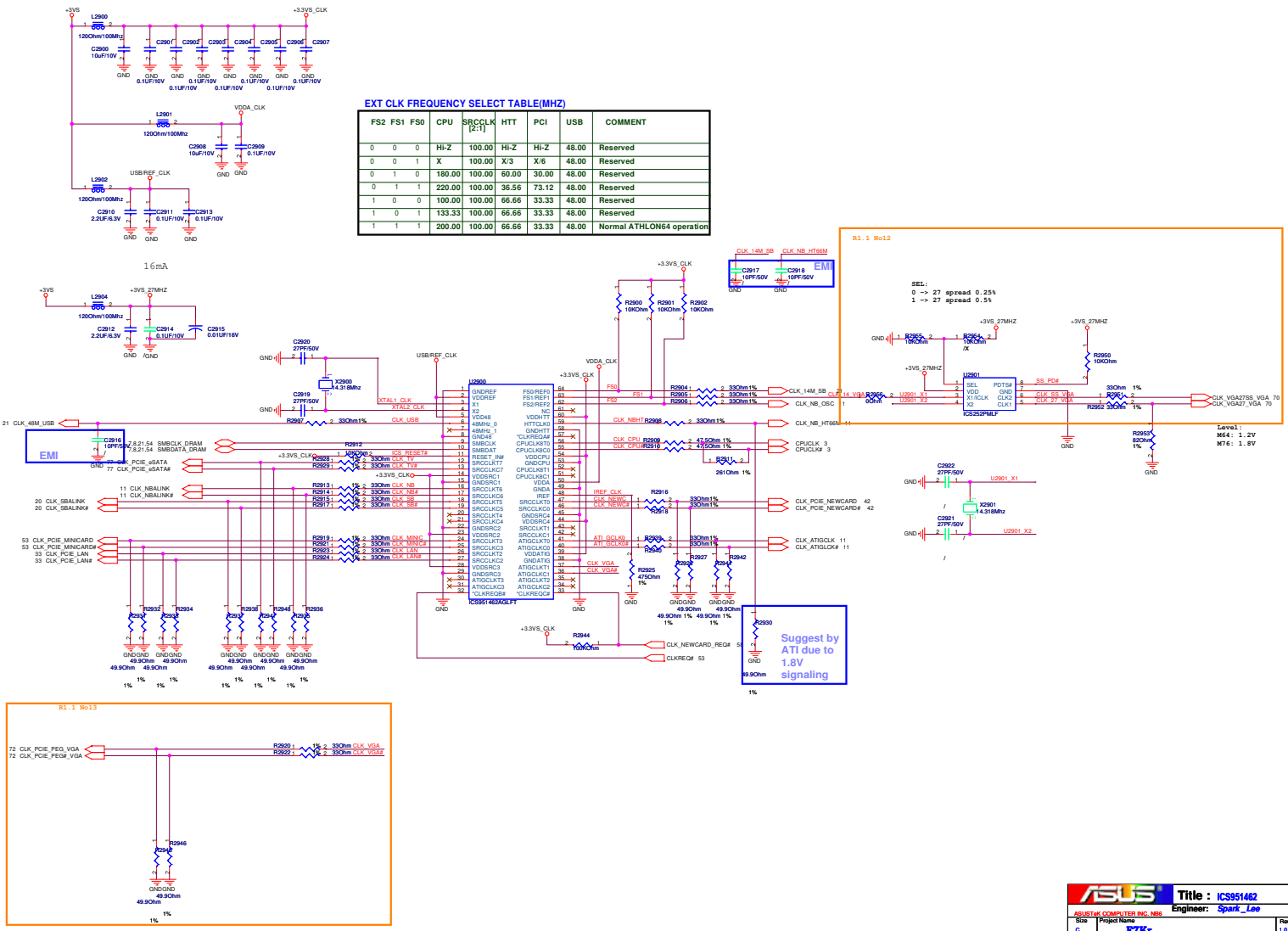
For D0R2 add/cmd refer to split plane.



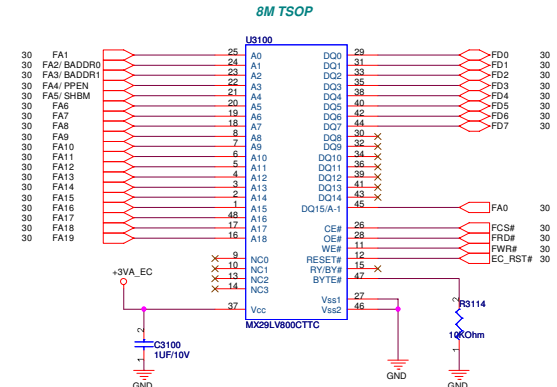
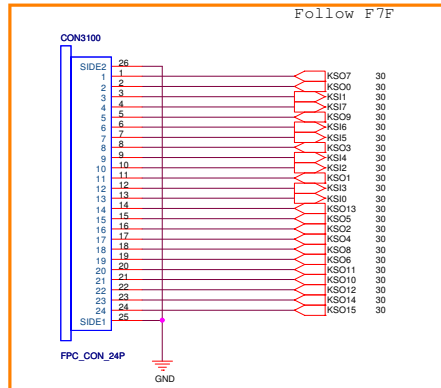




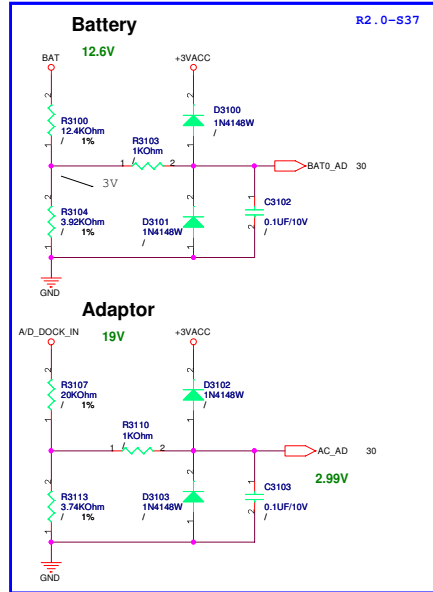




KBC connector

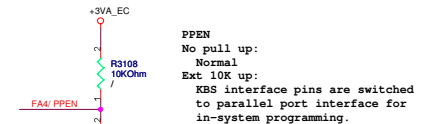
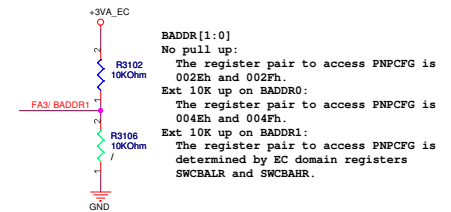
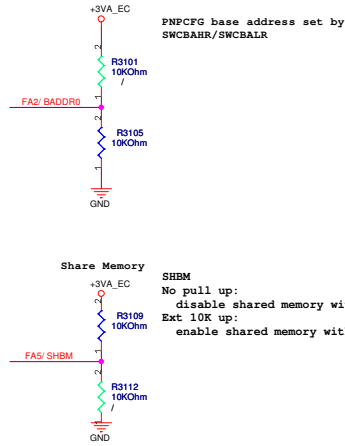


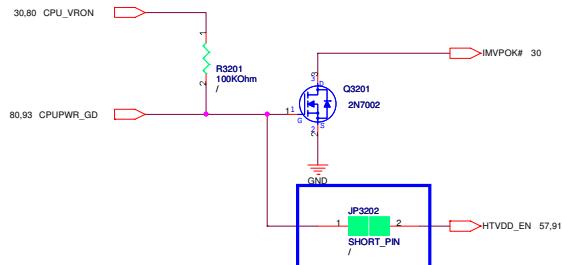
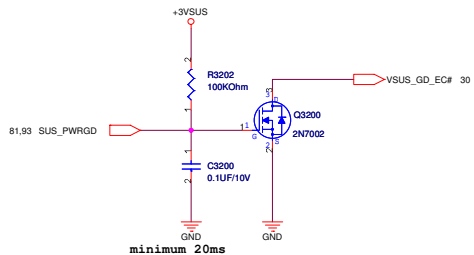
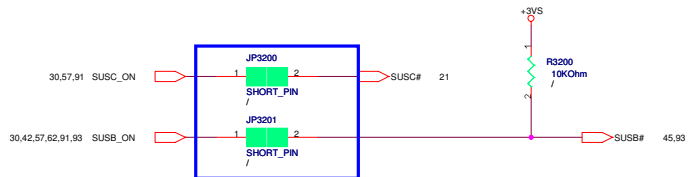
EC ADC



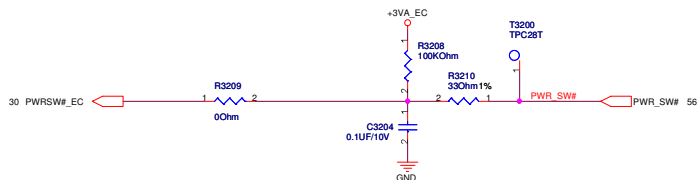
EC Hardware Strap

strap value sampled after
VSTBY power up reset

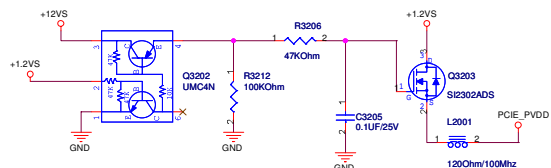
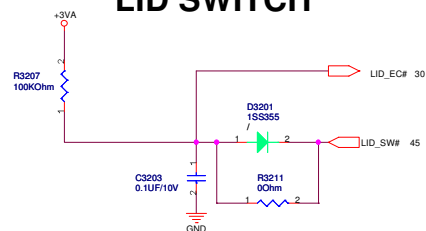




POWER SWITCH

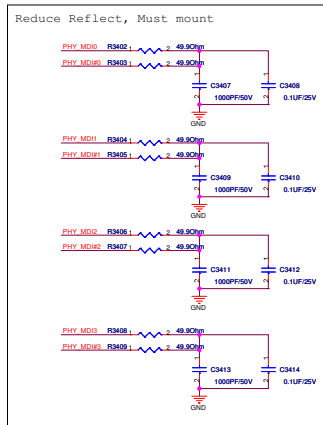
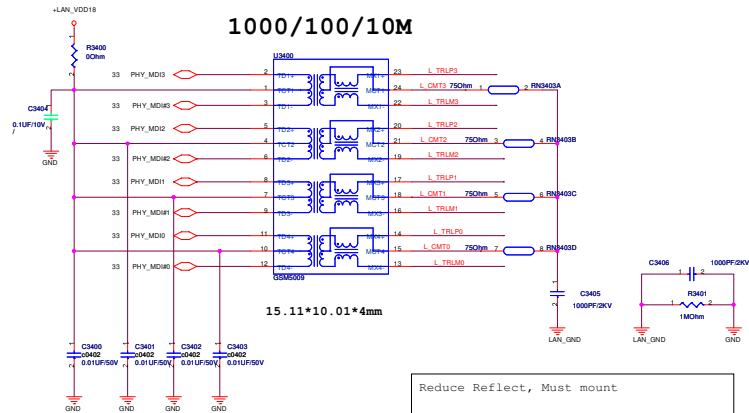


LID SWITCH

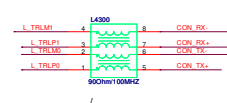


F7Kr R1.1ATI PA SB600AT1

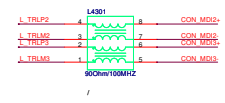
LAN PORT



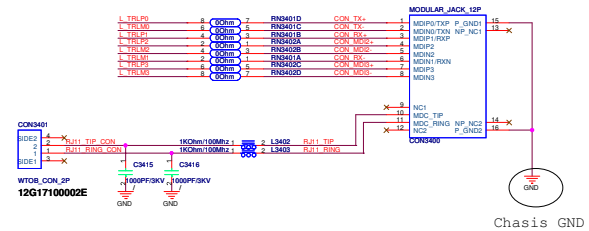
FOR EMI



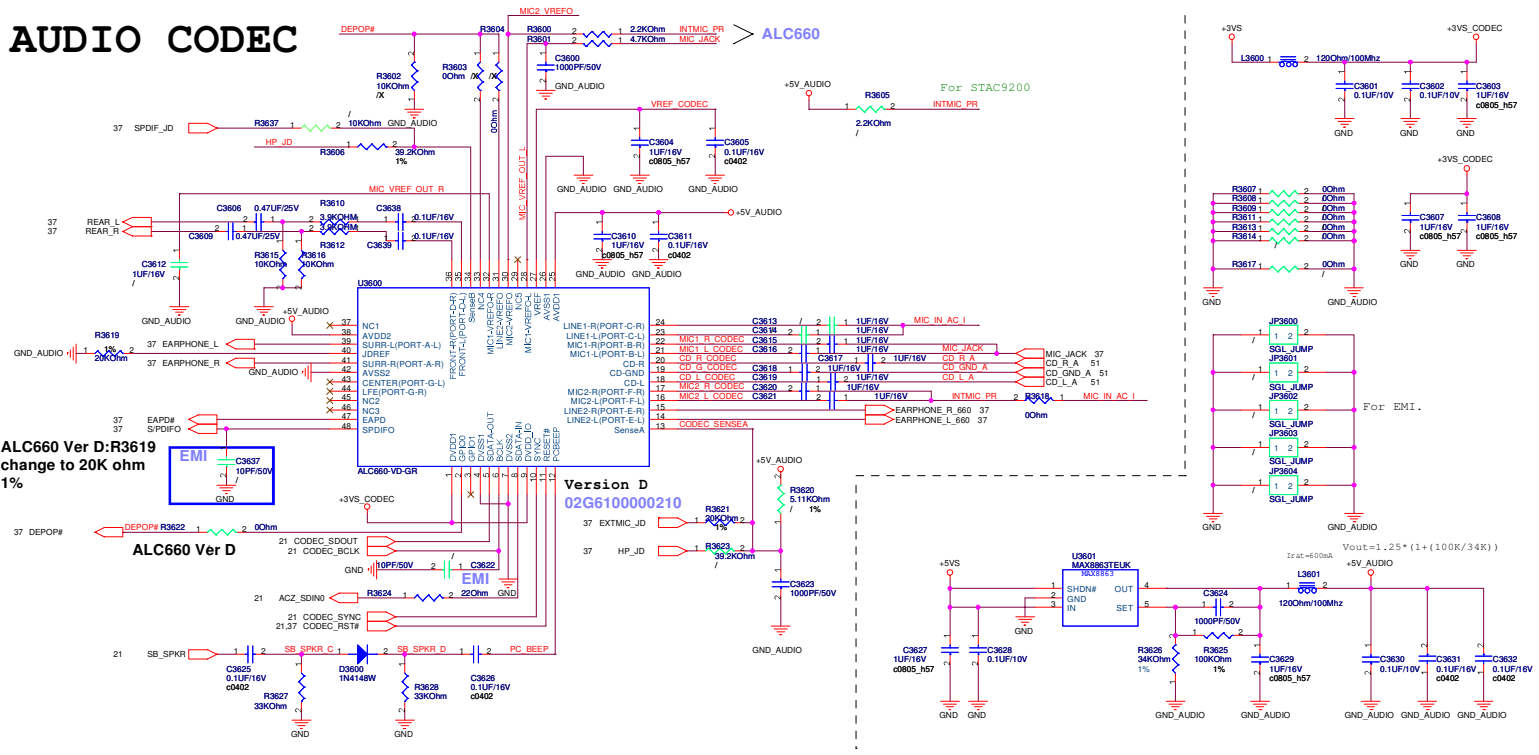
L4300 與RN3401 co-lay



L4301 與RN3402 co-lay

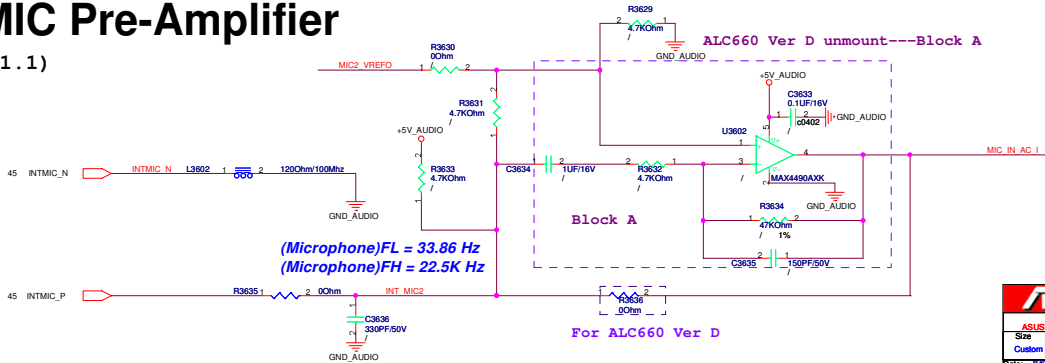


AUDIO CODEC

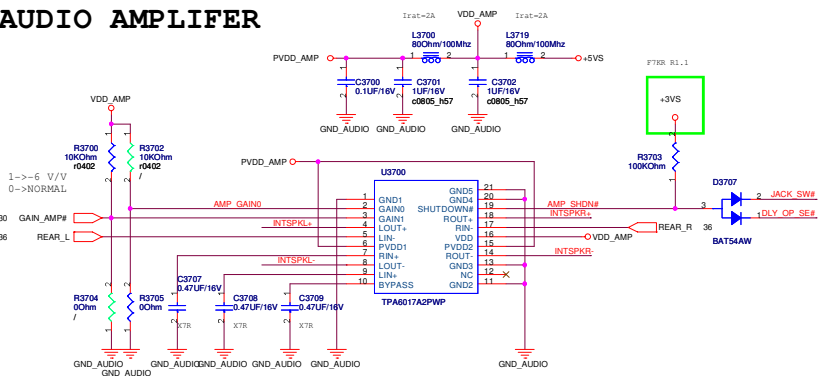


Internal MIC Pre-Amplifier

(Follow F2J R1.1)

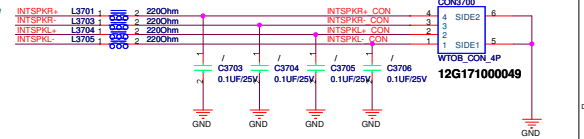


AUDIO AMPLIFIER



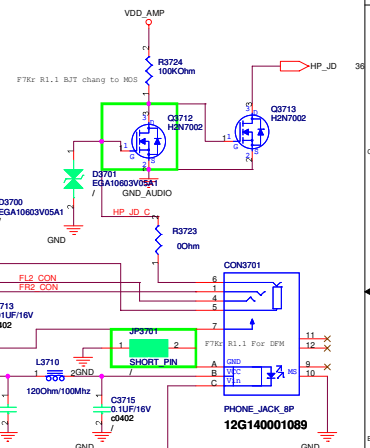
SPEAKER

To Internal
Speaker
Connector



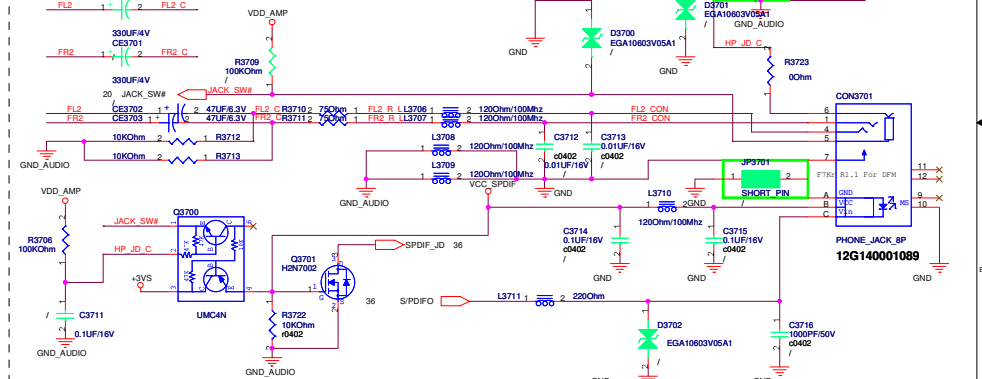
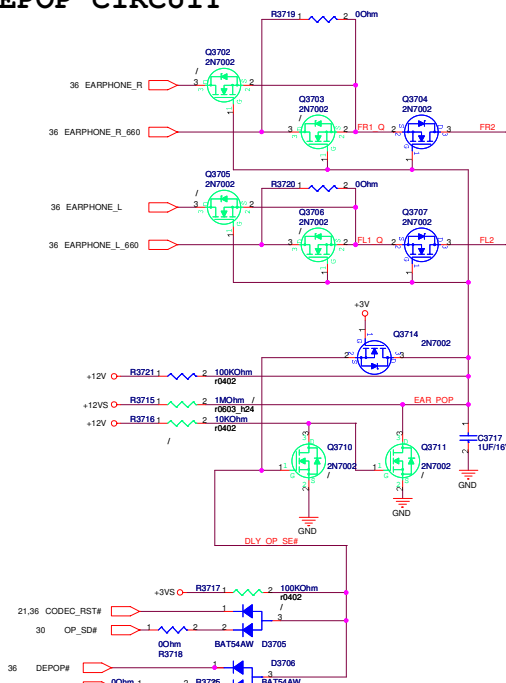
HeadPhone&SPDIF

TYPE	LINE_OUT	S/PDIF_OUT	NC
HP_JD	L	H	H
JACK_SW#	L	L	H

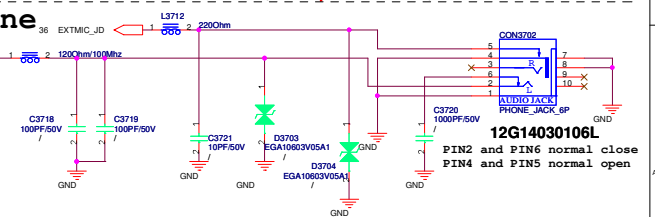


Co-Layout with CE3702/CE3703

DEPOP CIRCUIT

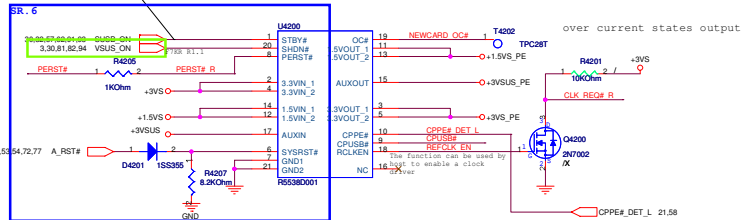


External Microphone



NEW CARD SOCKET

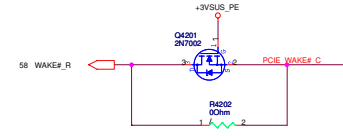
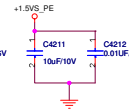
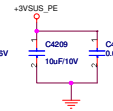
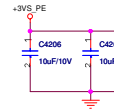
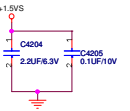
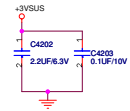
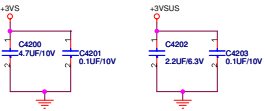
STBY# and SHDN#
->Internally
pulled up to
AUXIN



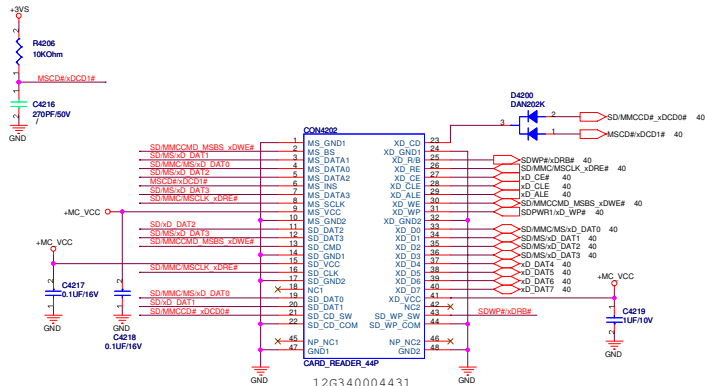
3.0V~3.6V
Ave= 1000
Max= 1300
mA

3.0V~3.6V
Ave= 200mA
Max= 275
mA

1.35V~1.65V
Ave= 500 mA
Max= 650 mA

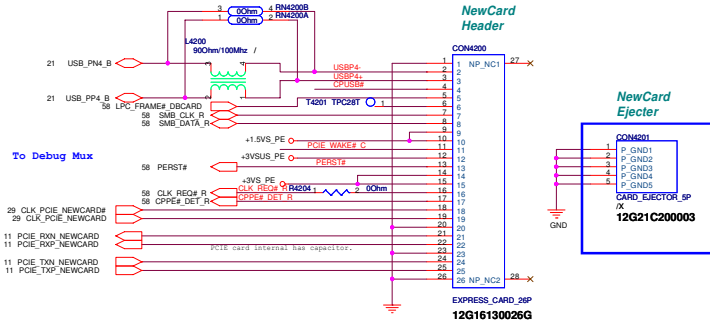


4 IN 1 CARD READER SOCKET



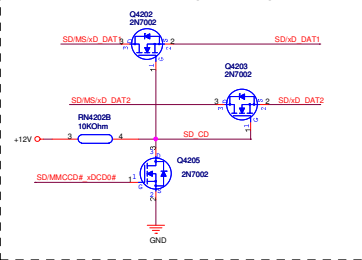
12G340004431

!! ExpressCard Standard 1.0:
Change Pin7 from RESERVED to SMBCLK
Change Pin8 from SMBCLK to SMBDATA
Change Pin9 from SMBDATA to +1.5V



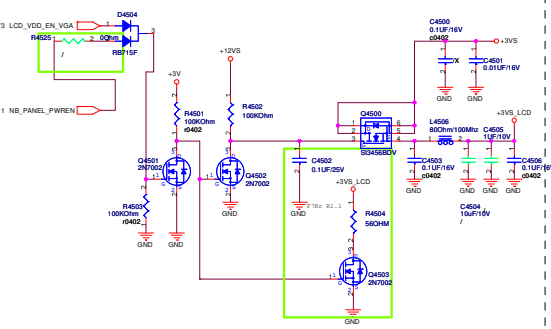
EXPRESS_CARD_26P
12G16130026G

Solve MS Duo Adaptor short problem

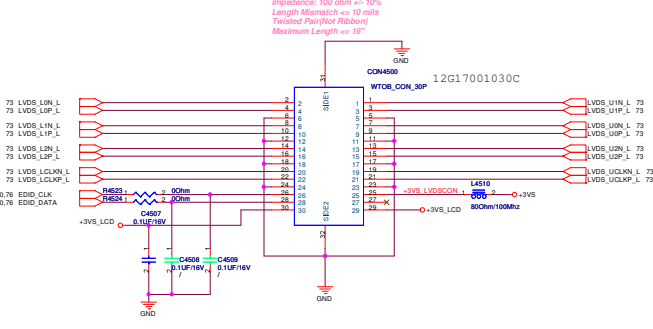


card reader socket
as possible

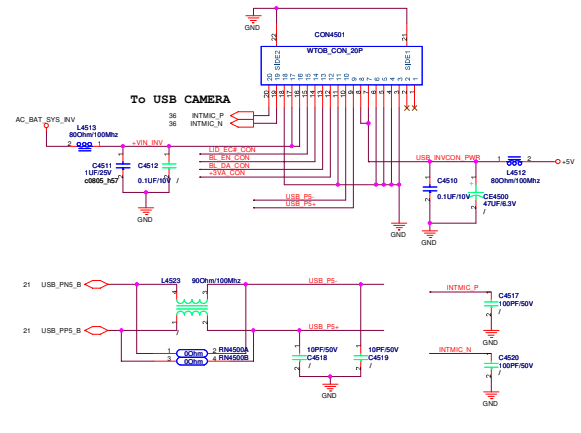
LCD Power



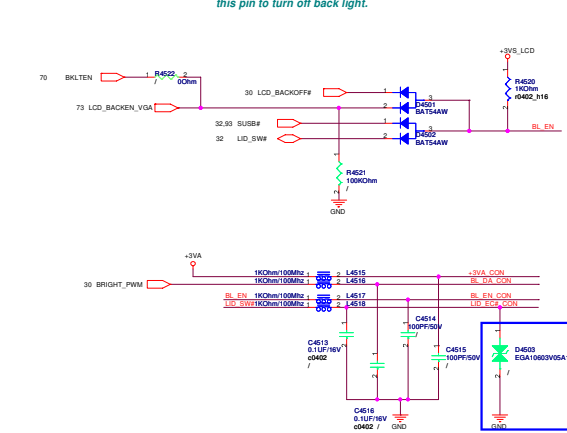
LCD LVDS Interface



INVERTER Interface

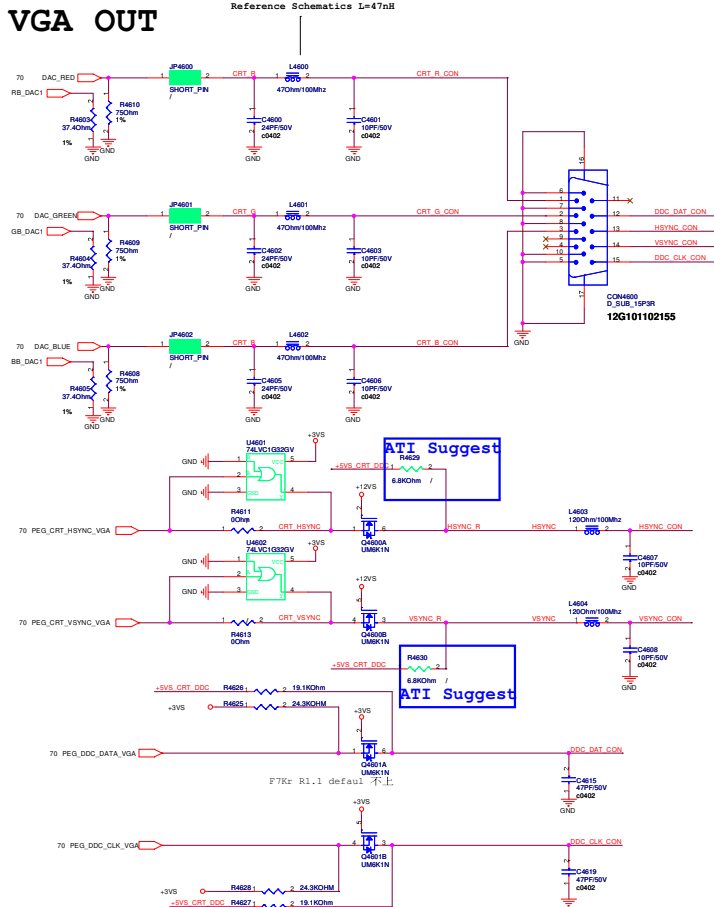


Backlight Enable



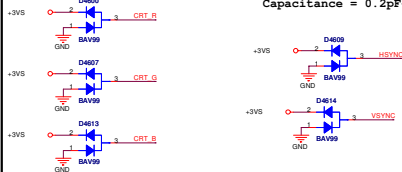
VGA OUT

Reference Schematics L=47nH



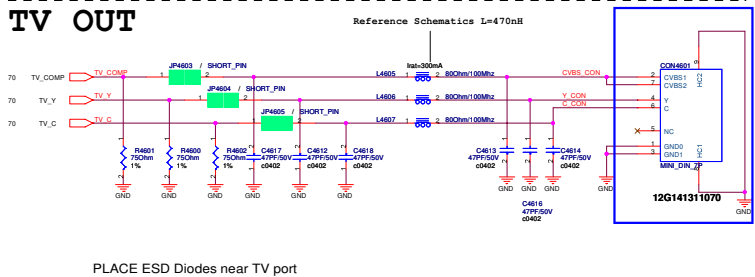
PLACE ESD Diodes near VGA port

For leakage current to +3VS
Capacitance = 0.2pF~1pF

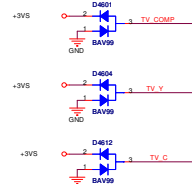


TV OUT

Reference Schematics L=470nH



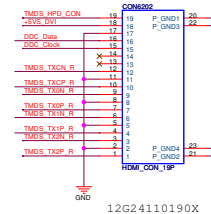
PLACE ESD Diodes near TV port



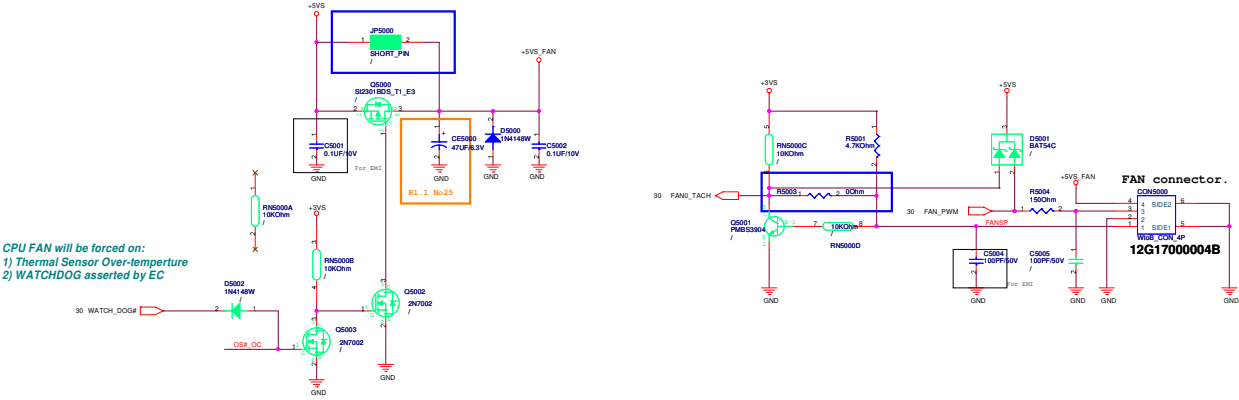
For leakage current to +3VS

Capacitance = 1.5pF

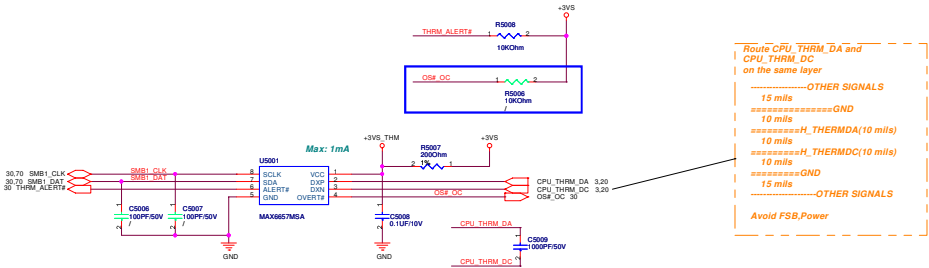
HDMI

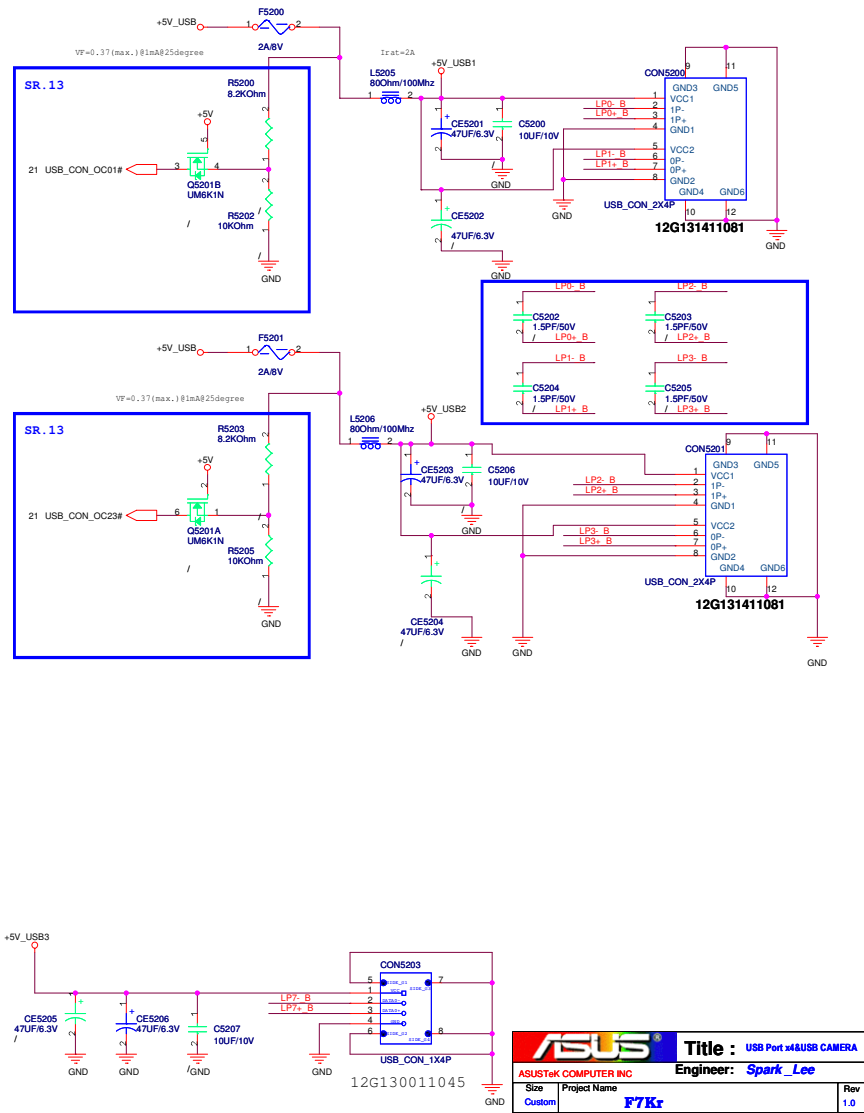
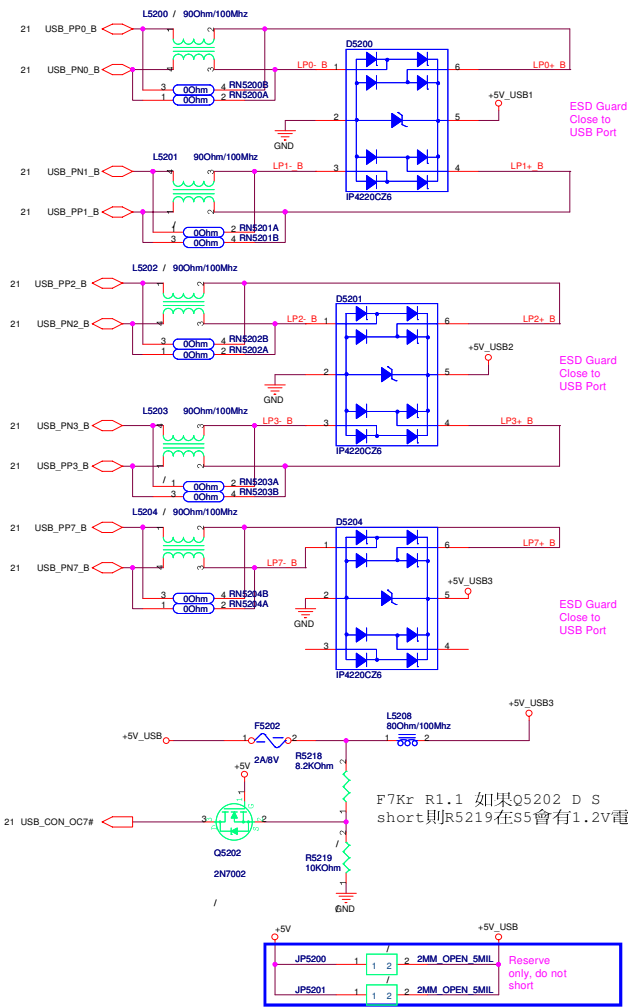


DC FAN control



Thermal Sensor

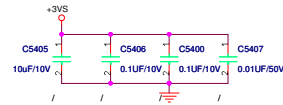
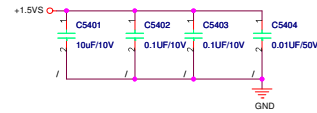




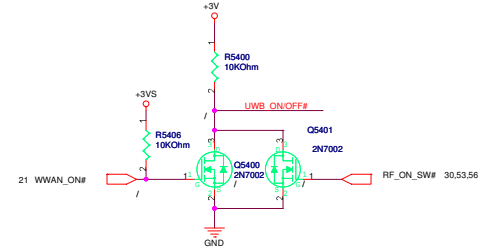
UWB

H=4.0mm

+3.003V~+3.597V
Peak = 2.75A
Normal = 1A.575V
Max= 375 mA



+3.003V~+3.597V
Max= 250 mA

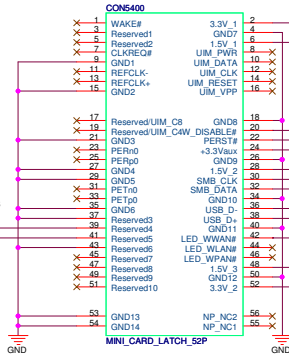


R1.1 No15

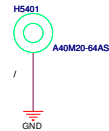
Height issue.
change to
220uF/6.3V



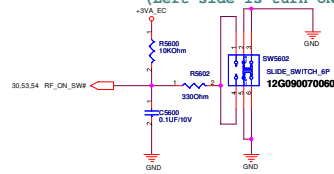
H=1.9mm



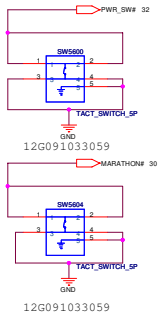
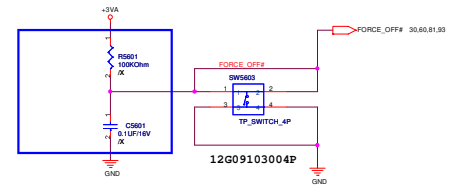
MINI_CARD_LATCH_52P
/ 12G030000526



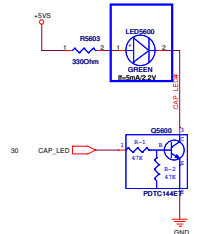
RF ON/OFF SWITCH For Side SW (Left side is turn ON.)



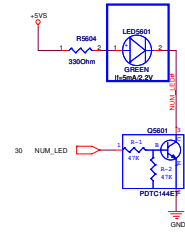
SHUT_DOWN#



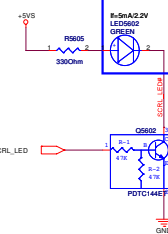
for Cap. Lock



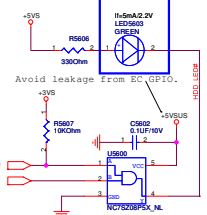
for Num Lock



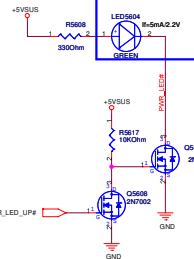
for Scroll Lock



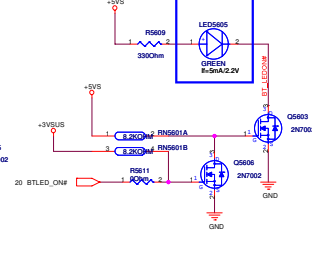
For SATA/IDE LED



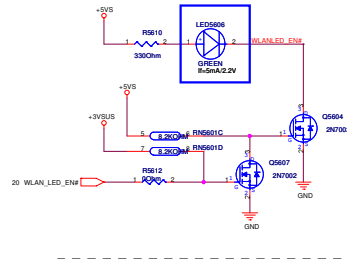
For POWER LED



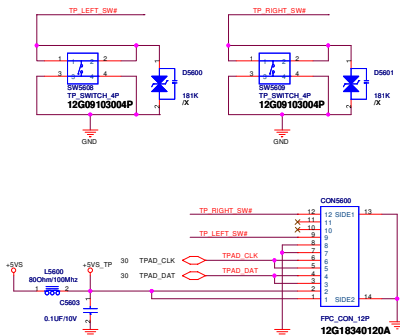
For BT LED



For WireLess LED

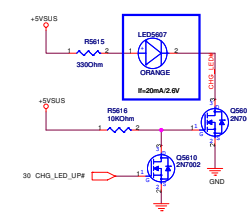


TOUCH PAD SWITCH

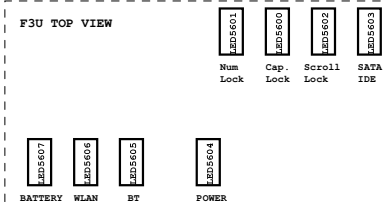


Green: 07G015700341
Orange: 07G015700064

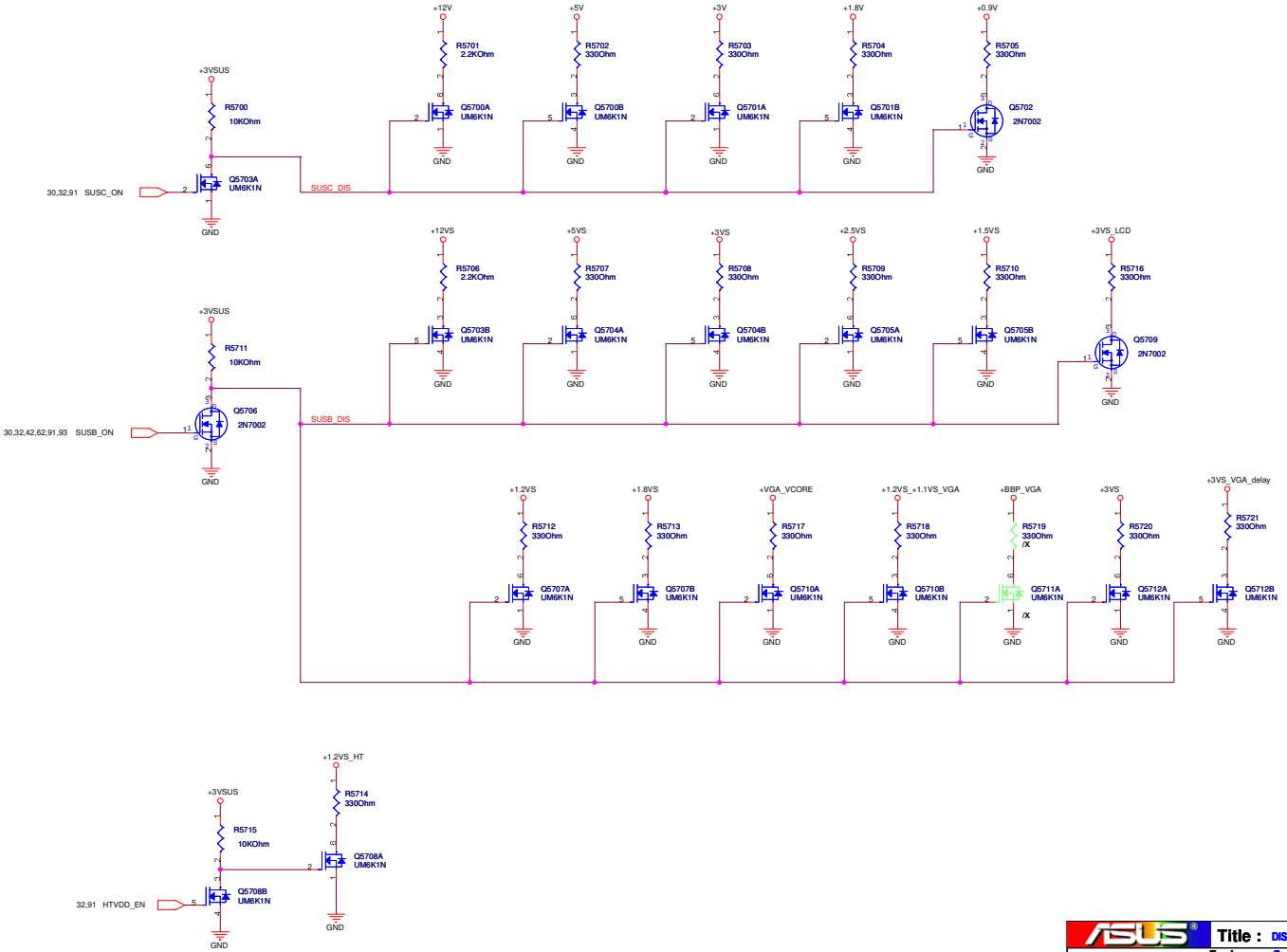
For BATTERY LED



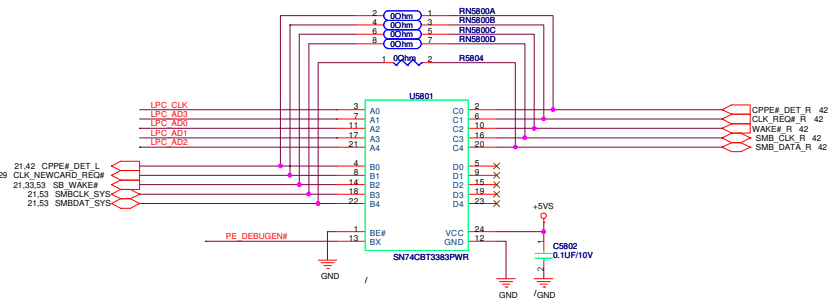
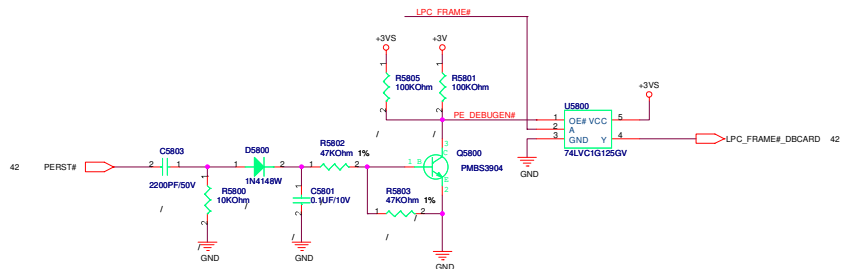
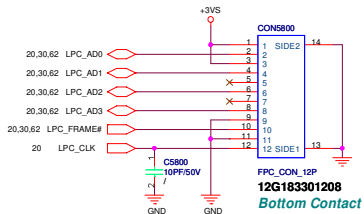
F3U TOP VIEW



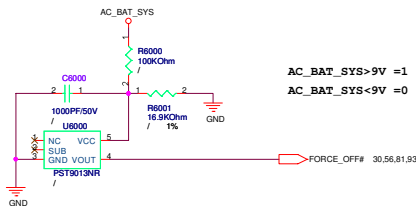
DISCHARGE CIRCUIT



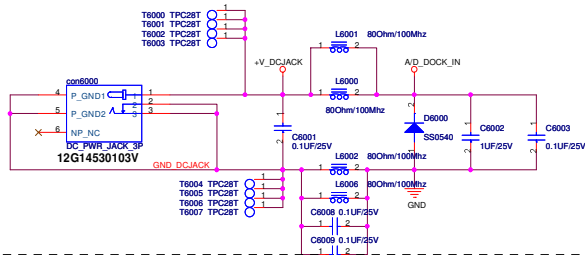
LPC DEBUG CONNECTOR



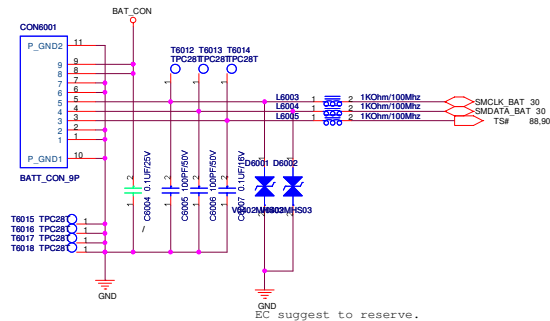
Without Battery & Pull out Adapter



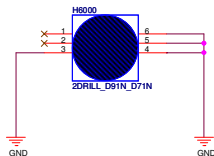
DC Power Jack



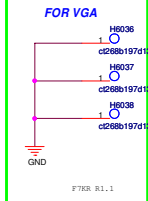
Battery Connector



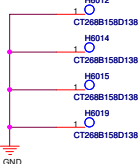
FOR LEFT UNDER



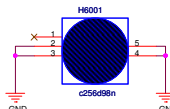
FOR VGA



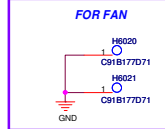
FOR CPU



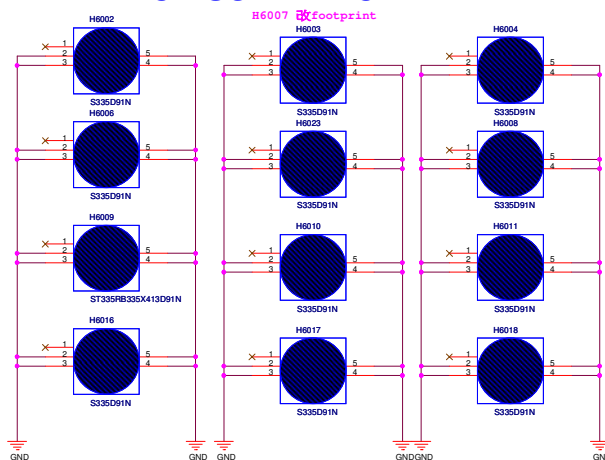
FOR FAN



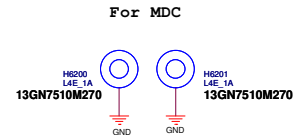
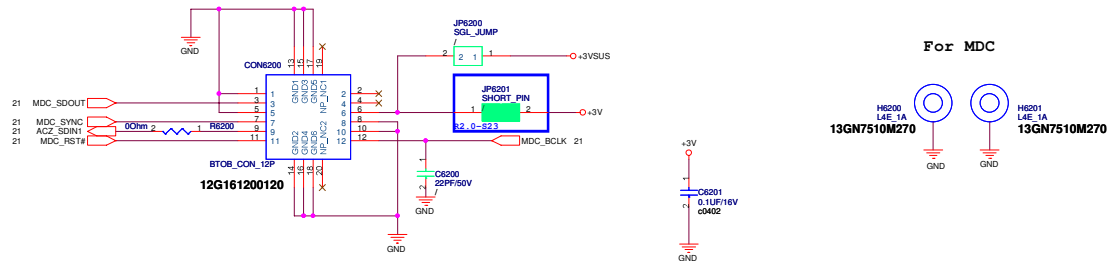
FOR FAN



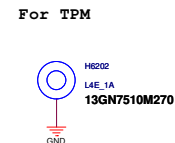
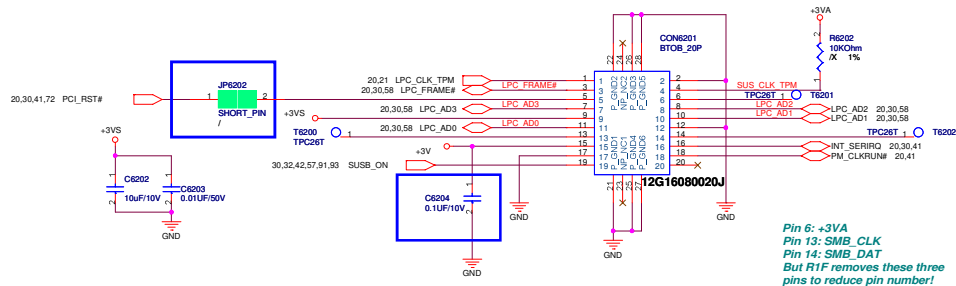
FOR SCREW HOLE



MDC CONN.



TPM CONN.



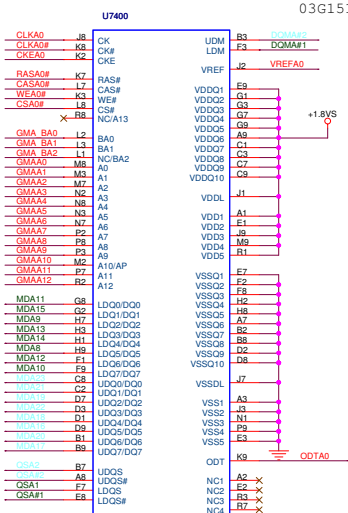
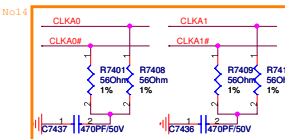
Pin 6: +3VA
Pin 13: SMB_CLK
Pin 14: SMB_DAT
But R1F removes these three pins to reduce pin number!



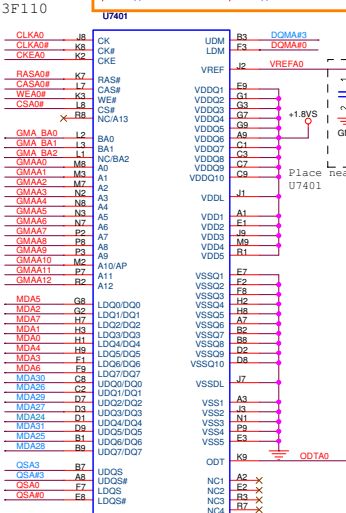


```
DDR2 16M*16-2.5 1.8V FBGA-84
03G151236012 INFINEON/HYB18T256161BF-25
03G151236214 HYNIX/HY5PS561621AFP-25
```

03G15133F110



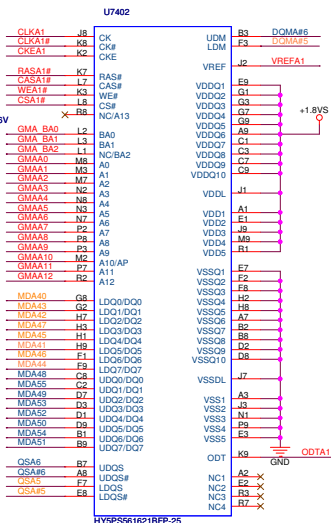
HY5PS561621BFP-25



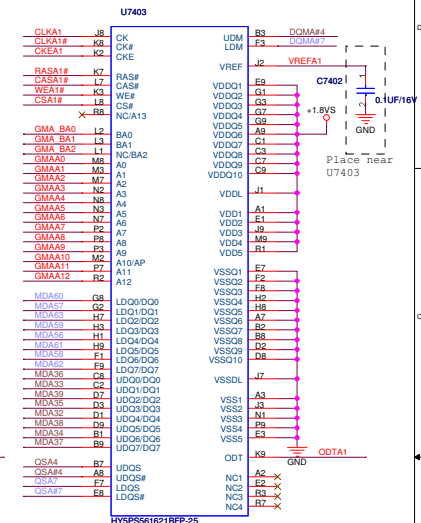
HY5PS561621BFP-2

Swapable

A



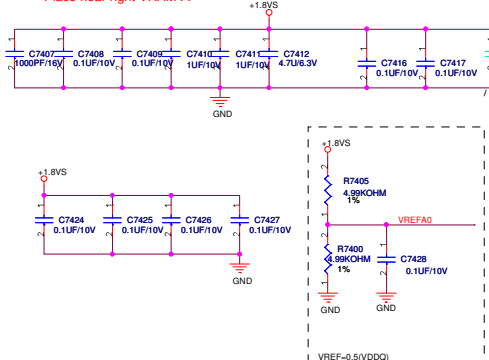
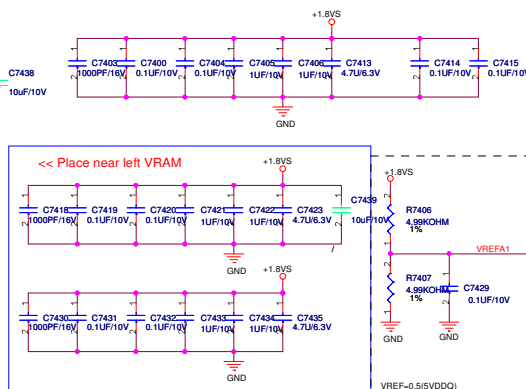
HY5PS561621RFP.2



HY5PS561621REP.3

 $V_{DD}/V_{DDQ} = 1.8V$

Place near right VRAM >>

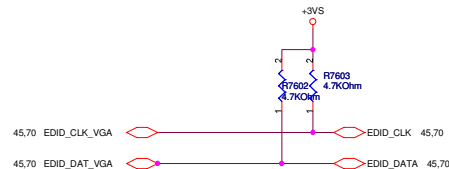
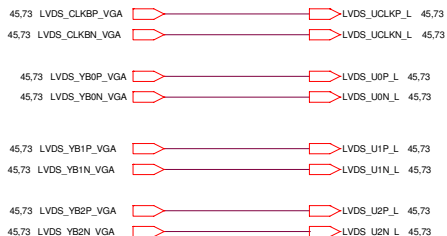
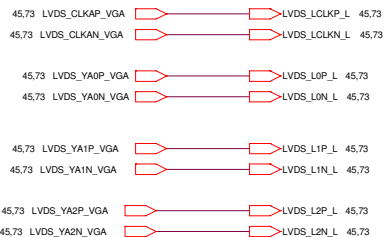
1. $V_{REF}=0.5V_{DDC}$ 

VBFF=0.5(VDDQ

- 71 MDA[63..0]  MDA[63..0]
71 DQMA#[7..0]  DQMA#[7..0]
71 QSA[7..0]  QSA[7..0]
71 QSA#[7..0]  QSA#[7..0]

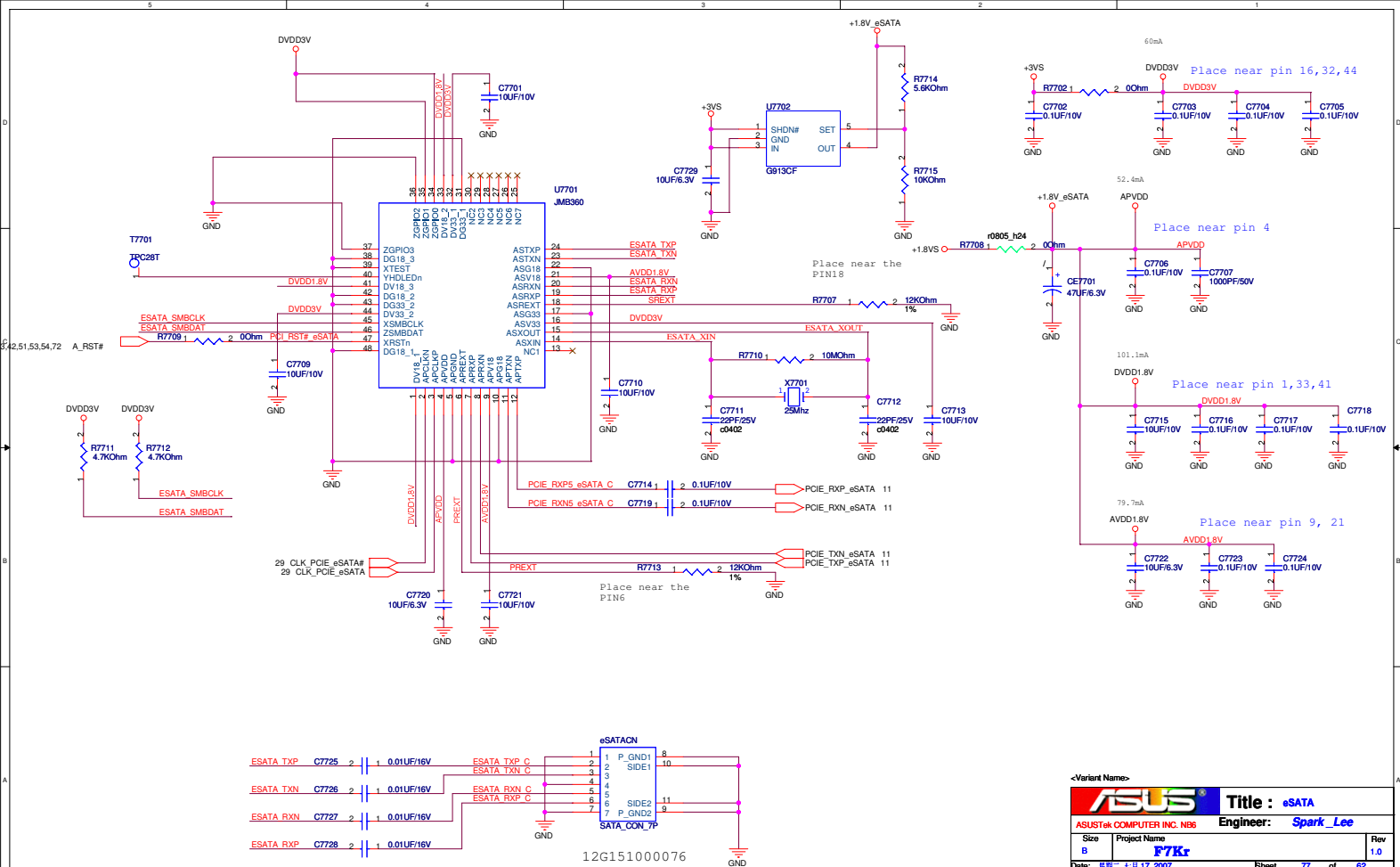
71 GMAA[12..0] 
71 GMA_BA[2..0] 

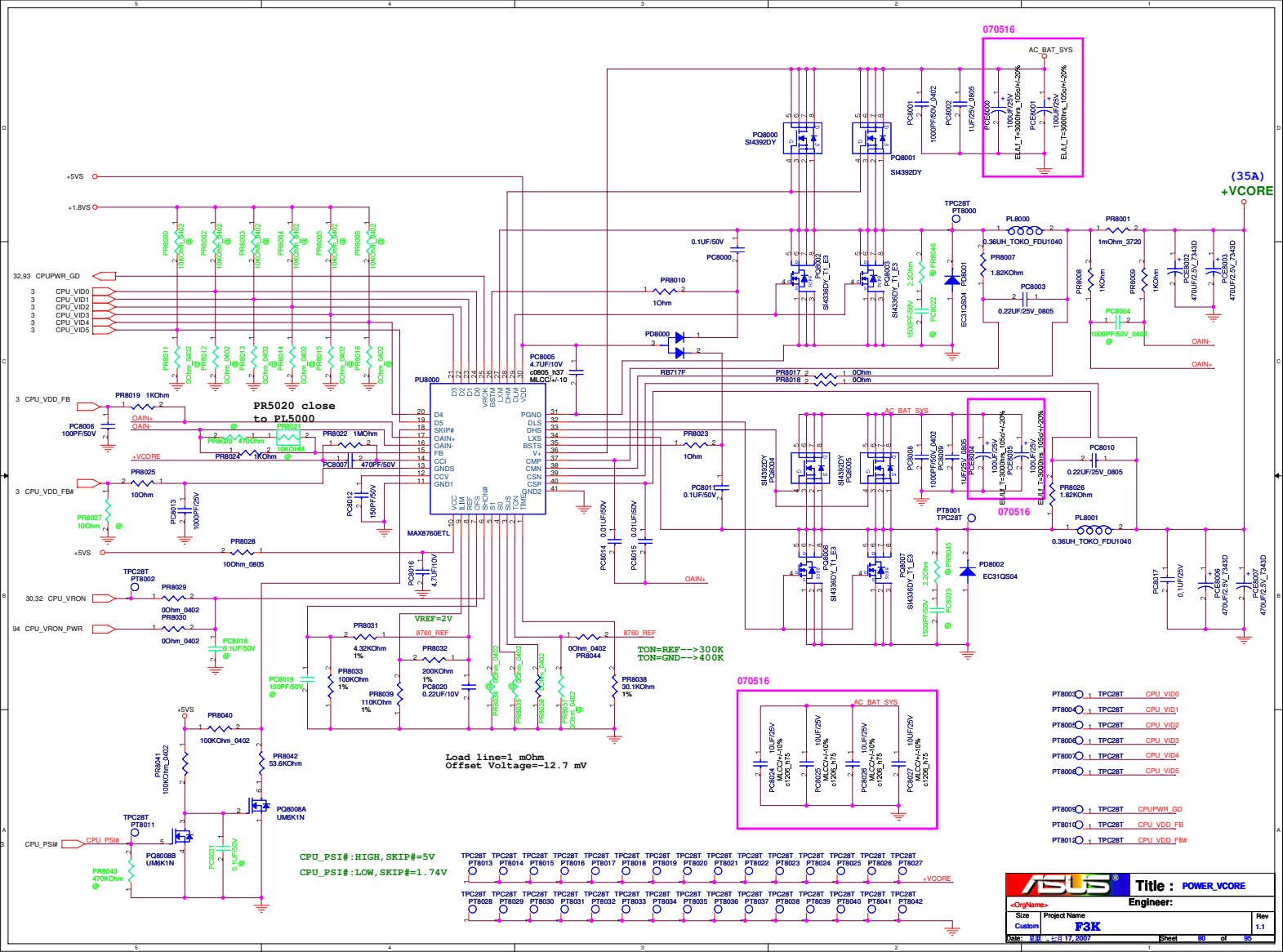
- | | | |
|----|--------|--|
| 71 | CLKA0 | |
| 71 | CLKA0# | |
| 71 | CKEA0 | |
| 71 | CSA0# | |
| 71 | RASA0# | |
| 71 | CASA0# | |
| 71 | WEA0# | |
| 71 | ODTA0 | |
| | | |
| 71 | CLKA1 | |
| 71 | CLKA1# | |
| 71 | CKEA1 | |
| 71 | CSA1# | |
| 71 | RASA1# | |
| 71 | CASA1# | |
| 71 | WEA1# | |



<Variant Name>

ASUS		Title : LVDS SWITCH	
ASUSTek COMPUTER INC. NDB		Engineer: Sean Chou	
Size	Project Name		Rev
B	F3Ka / F3Ke		1.1
Date: 2007. 4. 17		Sheet 76 of 62	

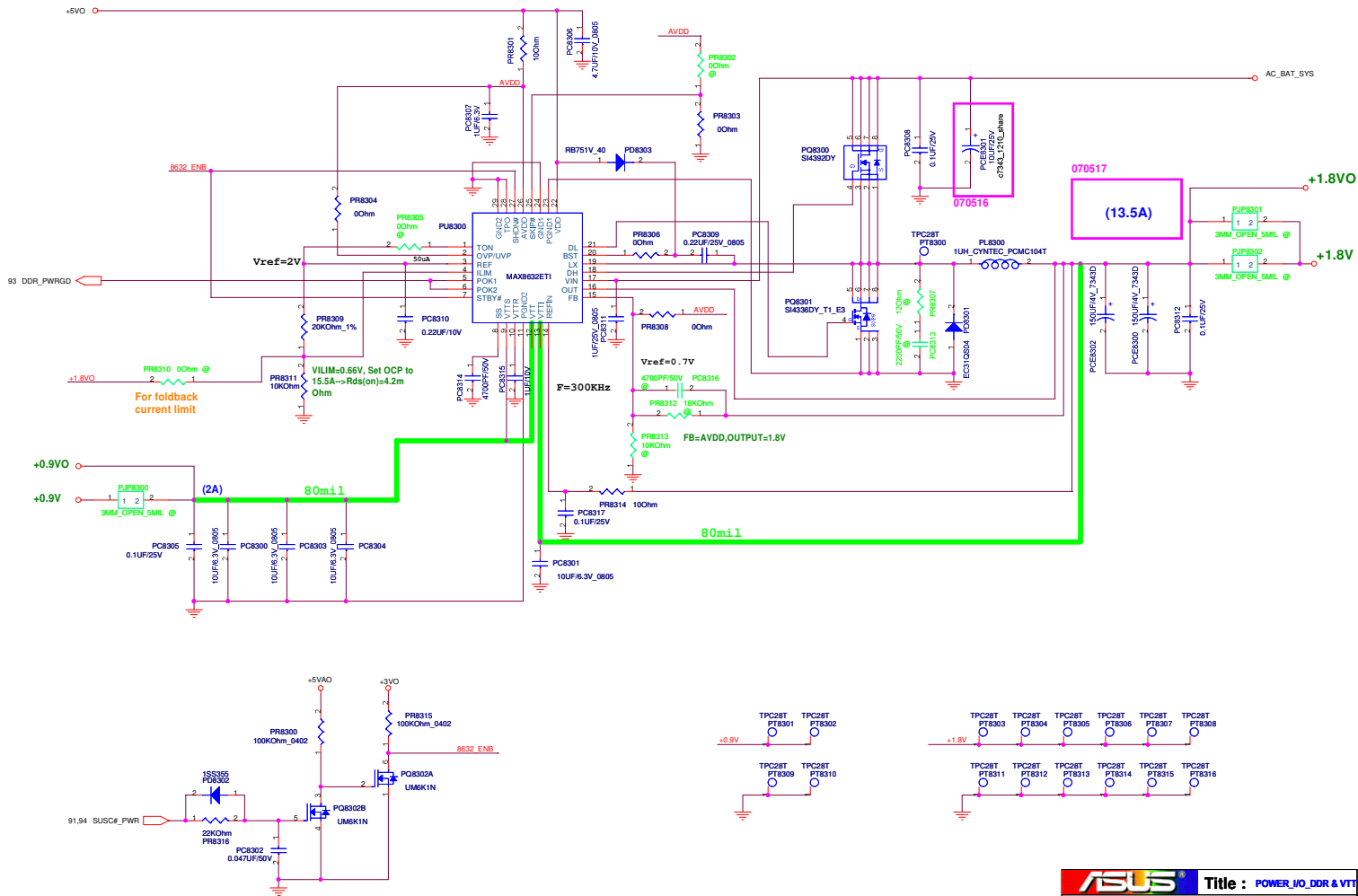


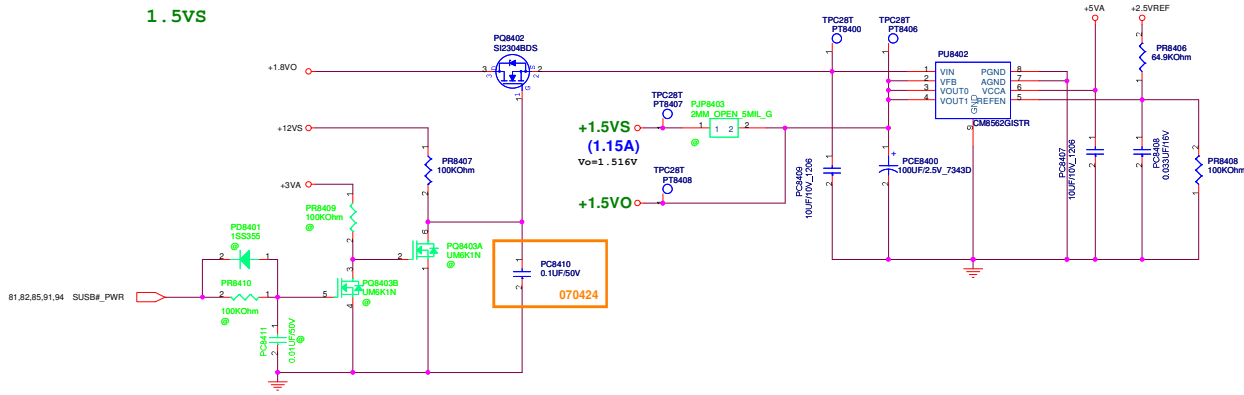
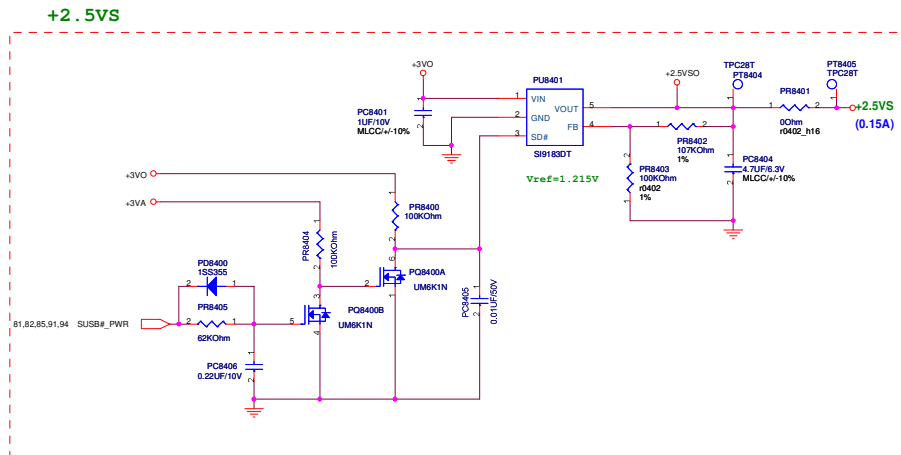


Load line=1 mOhm
Offset Voltage=12.7 mV

CPU_PSI# : HIGH, SKIP# = 5V
CPU_PSI# : LOW, SKIP# = 1.74V

- PT8001 -> TPC28T CPU_VID0
- PT8002 -> TPC28T CPU_VID1
- PT8003 -> TPC28T CPU_VID2
- PT8004 -> TPC28T CPU_VID3
- PT8005 -> TPC28T CPU_VID4
- PT8006 -> TPC28T CPU_VID5
- PT8007 -> TPC28T CPU_PWR_FB
- PT8008 -> TPC28T CPU_VDD_FB
- PT8009 -> TPC28T CPU_VDD_FBI









Title : POWER_VGA_+1.2VSP

<OrigName>Engineer:

Size	Project Name	Rev
B	F3K	1.1
Date: 08/11/17, 2007	Sheet 66 of 95	





Title : POWER_SHUTDOWN#

<OrigName>

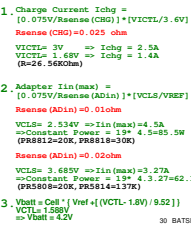
Engineer:

Size	Project Name	Rev
B	F3K	1.1

Date: 11/17/2007

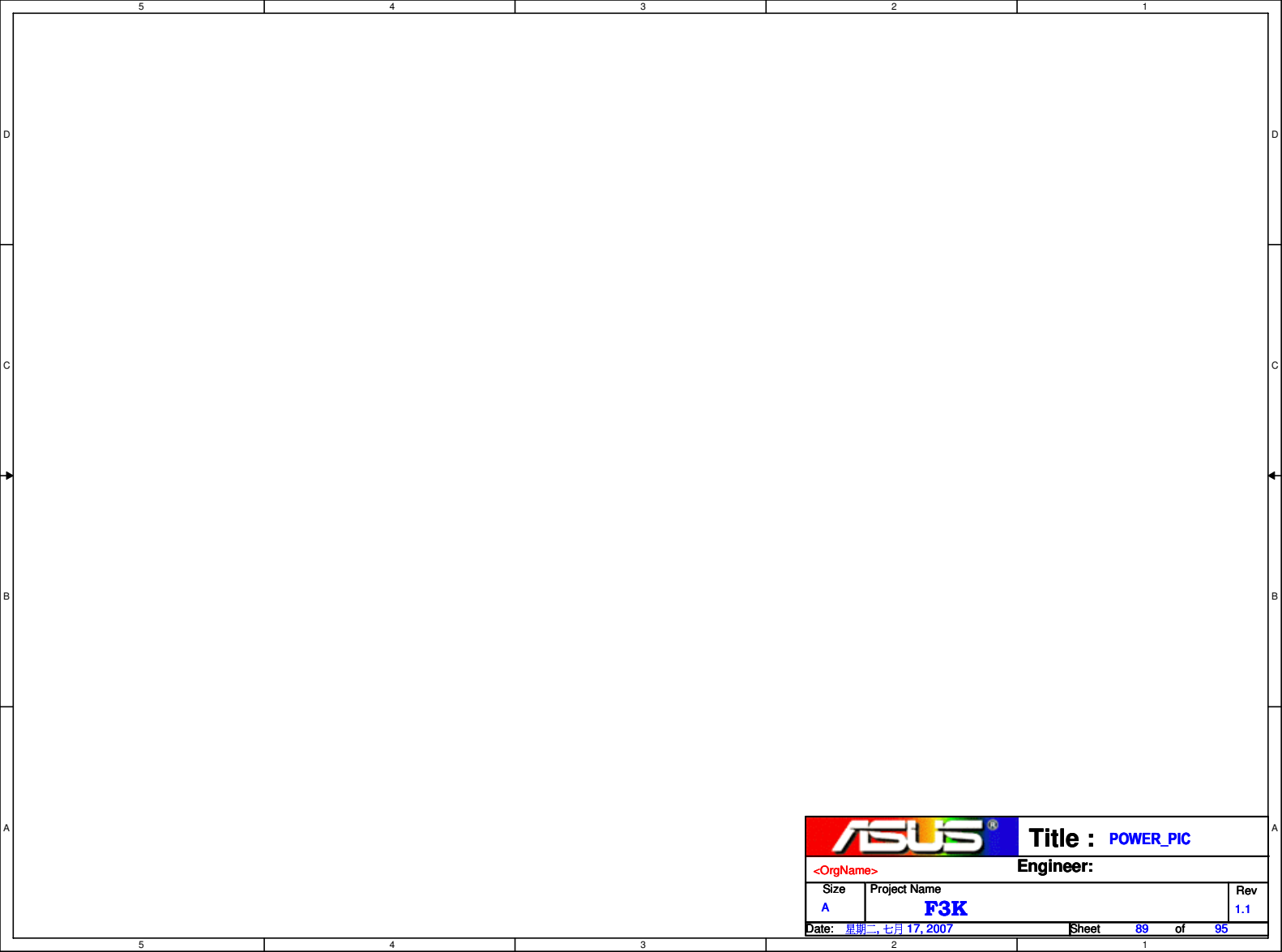
Sheet 87 of 95

90W-->4.73A



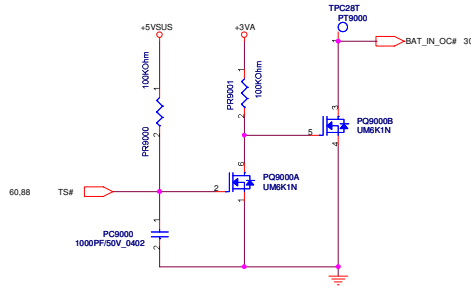
Mode pin : Vmode > 2.8V (tie to LDO pin) —> 4 Cells
2.0 > Vmode > 1.6V (floating) —> 3 Cells
0.8 > Vmode (tie to GND) —> Learning mode

AC_BAT_SYS_INV to Inverter connect,
Power trace =60mil(min),
Put JP8805 close to Q8800

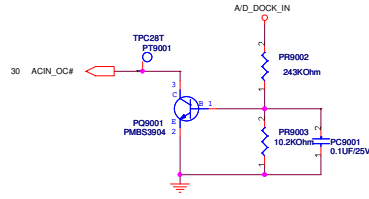


		Title : POWER_PIC	
<OrgName>		Engineer:	
Size	Project Name		Rev
A	F3K		1.1
Date: 星期二, 七月 17, 2007		Sheet 89 of 95	

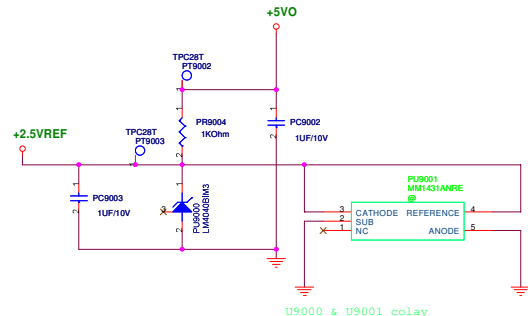
BATTERY IN DETECT



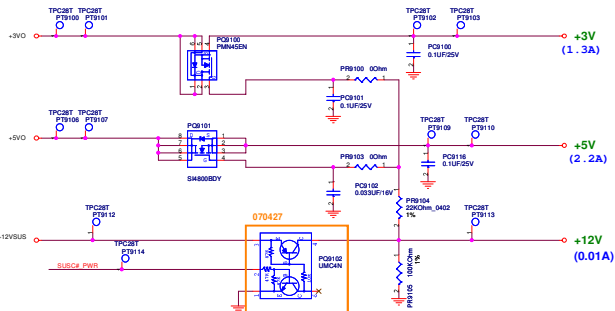
ADAPTER IN DETECT



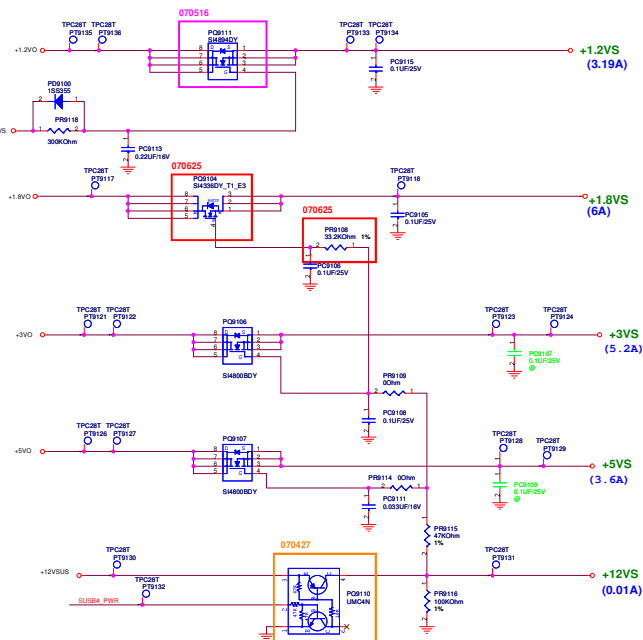
+2.5VREF



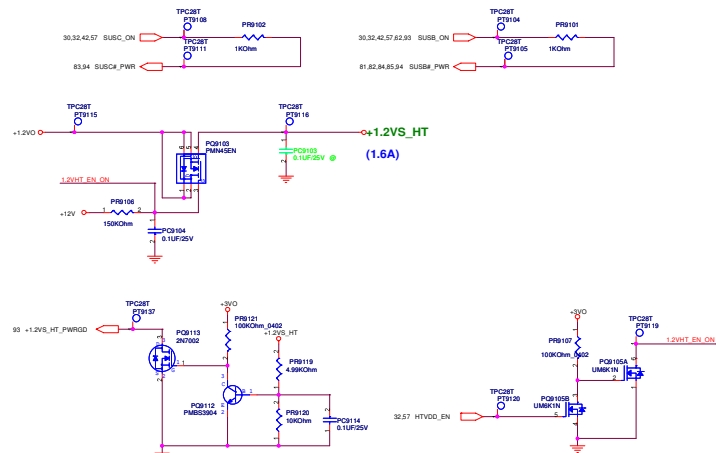
SUSC#_STAGE POWER

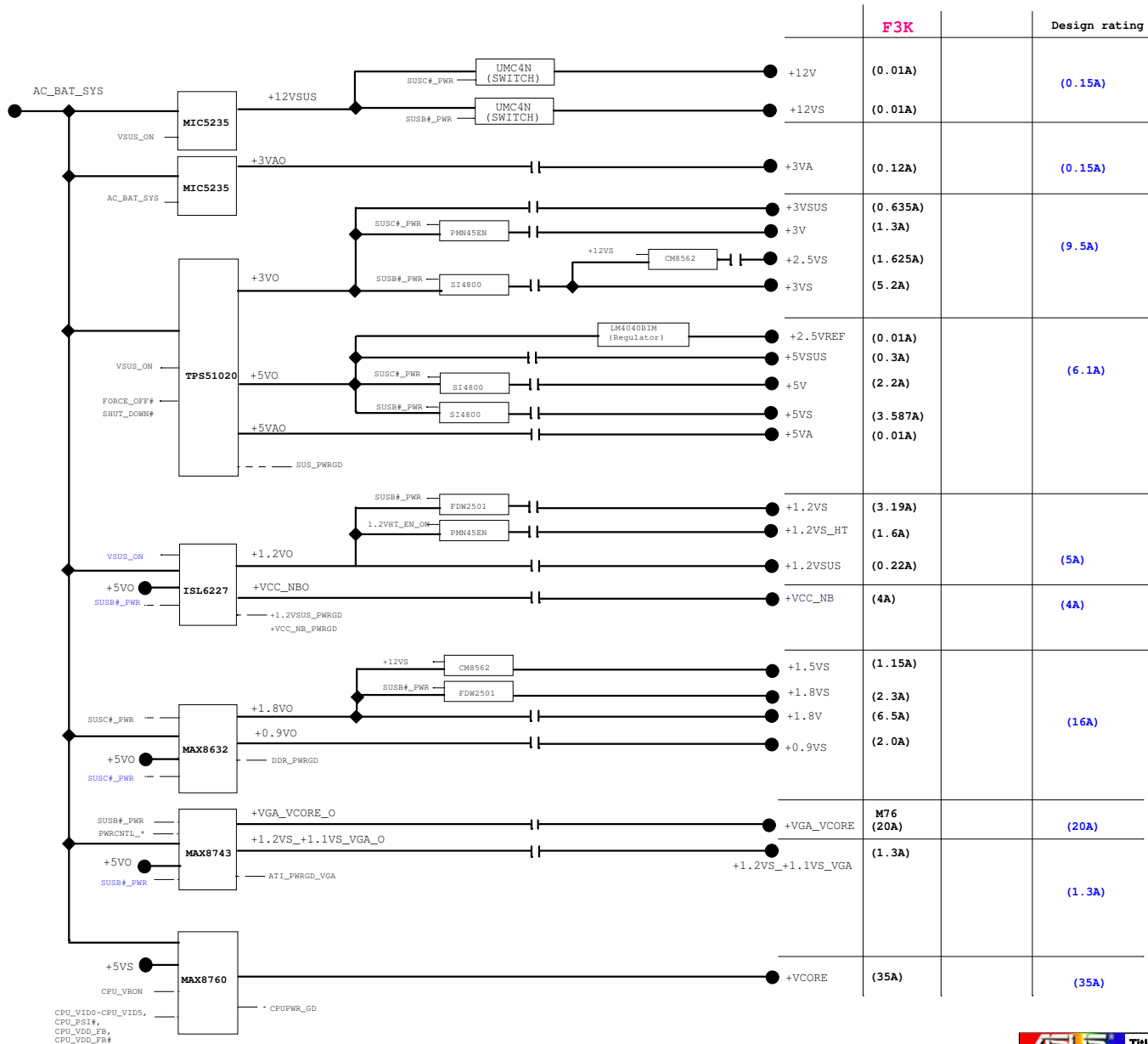


SUSB#_PWR POWER

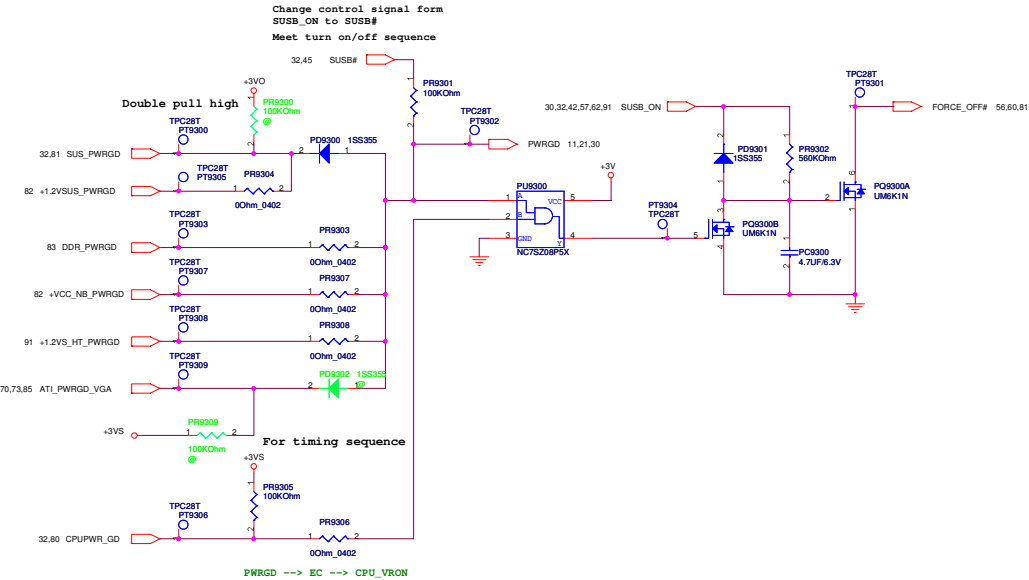


070625



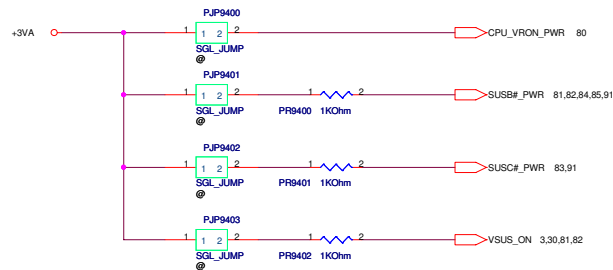


POWER GOOD DETECTOR



AC_BAT_SYS	AC_BAT_SYS	45,60,80,81,82,83,85,87,88
+3VA	+3VA	3,20,30,32,45,56,62,81,84,90
+5VA	+5VA	81,84
+5VO	+5VO	81,82,83,85,90,91
+3VO	+3VO	81,83,85,91,93
+3VSUS	+3VSUS	3,21,30,32,33,56,57,62,81
+5VSUS	+5VSUS	56,81,87,88,90
+12VSUS	+12VSUS	81,91
+12V	+12V	37,42,52,57,91
+12VS	+12VS	37,45,46,57,84,91
+3V	+3V	21,30,37,42,45,53,55,57,58,62,84,91,93
+3VS	+3VS	3,7,8,11,12,20,21,29,30,32,33,36,37,40,41,42,45,46,50,51,53,55,56,57,58,62,63,70,73,76,86,91,93
+5V	+5V	3,7,45,52,57,58,76,86,91
+5VS	+5VS	21,30,33,36,37,46,50,51,56,57,76,80,91
+2.5VO	+2.5VO	84
+2.5VS	+2.5VS	3,57,70,73,84
+1.8VO	+1.8VO	83,84,91
+1.8V	+1.8V	3,5,7,8,57,83
+1.8VS	+1.8VS	3,11,12,21,57,70,71,73,74,75,76,80,86,91
+0.9V	+0.9V	5,9,57,83
+2.5VREF	+2.5VREF	84,87,88,90
+VCORE	+VCORE	3,5,80
+VGA_VCORE	+VGA_VCORE	57,70,73,85,86
+1.2VS_+1.1VS_VGA	+1.2VS_+1.1VS_VGA	57,70,72,73,85
BAT	BAT	31,88
BAT_CON	BAT_CON	60,88

FOR POWER TEST



5

4

3

2

1

3/2 Amp change to TPA6017

D

D

C

C

B

B

A

A

		Title : History	
ASUSTek Computer INC. NB1		Engineer:	
Size A	Project Name F3K		Rev 1.1
Date: 星期二, 七月 17, 2007		Sheet 95 of 95	

5

4

3

2

1

12/08
1. RGB circuits modify
12/7. P53,54 add common choke
3. CE5200, CE5203 change package, USB add power name
4. New card change +3V_{FE}
5. delete 0 ohm on P76 switch
6. net name LFC_P0A8# -> test point; TVTUNER_ON# pull high to P55; VGND change to GND
7. change power circuits
8. delete L1200, L1203, L1202 and relative power name
9. unmount R2102 & R2116, change AVDD_SATA# bead to 2A
10. (SB) FANIN(2:0) & TEMPIN & VINO 8VIN(2:7)) use IOK to GND
12/12
11. power name +3VS_VGATHEM
12. change R5C833 and unmount C4007
12/13
13. add power name +3VS_CB & +3VS_FF, UIM_PWR_CON
14. swap VRAM
12/14
15. swap DDR, VRAM again
16. follow F30: Delete R1120, R1121, R1122, R1123, D1100, Q1101, Change U1101 to 74126 to reduce cost
12/15
17. swap DDR
18. Change C2038 to mounting component to meet ATI's requirement
12/16
19. change P11 AVDD to NB_AVDD to prevent short with P83
20. change package: U101, U701, P0B803, X3100, X2001, P09300, U3602
21. delete 3 unknown line at P74: N17626888, N17631382, N17635879, and 1 power line: N62696617
22. delete another WDR_MIS+/ WMAN_MIS- port at P94
23. change CE5200 for 6032 package, CE5000 to bigger 11G041210754
24. 2300 Q1100 Q2100 Q5000 change to 070003000120 for coincidence
12/20
25. change USB power plane
12/21
26. USB common choke swap (LP3+, 1394) & swap USB 5,6,8
27. follow F30, Change D5206, D5207, D5208, D5209 to mounting component to Protect the SB USB ports
12/25
28. add C4010 for EMI
12/26
29. swap LPC_AD3, LPC_LDRQ#1 to termination, CLK_CBPIC1, LPC_CLK, LPC_CLK_TPM, LPC_CLK_EC to RC
30. R3701, R3626, C3629 connect to GND_AUDIO
12/27
31. add JP for RGB layout
12/30
32. D4200, R7200 change part
1/5
33. U4100, U5501 change part
34. C400-C403 mount
1/12
35. follow SB 600 errata, change R2022,R2023,R2024 to 680 ohm
36. C3613, C3614 unmount mistake, change to mount part
37. change power circuits

R1.1 2007/01/23
No1: Page21, Strap correction.
No2: Page4, add pull high and change RC value for sequence. and C7300 change X7R
No3: Page70, REN ID from [0:3] to [3:0]
No4: Page70, R7009 change to P705 because of M76:256MB, M64:128MB
No5: Page31, FB connector inversion.
No6: Page31, follow dema circuit - change to 1uF
No7: Page70, VGA_GP1023 pull high
No8: Page71, follow ref11:5, delete VDDR45 3.3V path & LVDDR 3.3V for M76M, 2.5V for M64M
No9: Page54, unmount R5405 (PCI_RST of WWAN) for ok function.
No10: Page55, C4505 change to 0.1uF for fixing white screen from CMOS setup. change to 0.22uF
No11: Page20, modify PCI_CLK[3:0] damping R
No12: Page29, 35 clock gen will be changed to IC9252, R2949 3.92ohm for M64, R2953 82ohm for M76
No13: Page29, CLK for PCIe VGA is changed from SRC4 to ATIG1
No14: Page55, unmount R5501 for not supporting TV wake function
No15: Page21 & 55, (for optional)USB7 use for WLAN & WWAN, USB9 for TVTUNER
No16: Page31, A_RST# to LAN use MOS for leakage issue
No17: Page21 & 55, (for optional) add inverter 2: USB5 use for inverter 1 and inverter 2 and CE4501 change to H=1.1
No18: Page55, USB_B0 diode need mount
No19: Page42, A_RST# to NEW CARD, add diode for leakage issue
No20: Page42, change R4626 & R4627 to 2.7K ohm for CR# detect issue, R4623 & R4624 for DWI function
No21: Page21, change R2107 to 11.3K for USB eye diagram
No22: Page55, change TV_TUN to 10K and not lower for thermal issue
No23: Page55, L5502, L4530, RN4505, RN2100 swap
No24: Page21, delete RN2102 because RN4500 does the same function, change branch to page 45
No25: Page50, CE5000 change part for height issue
No26: Page20, modify RTC Capacitor = 18pF