

# Lenovo B340/B540 Schematics

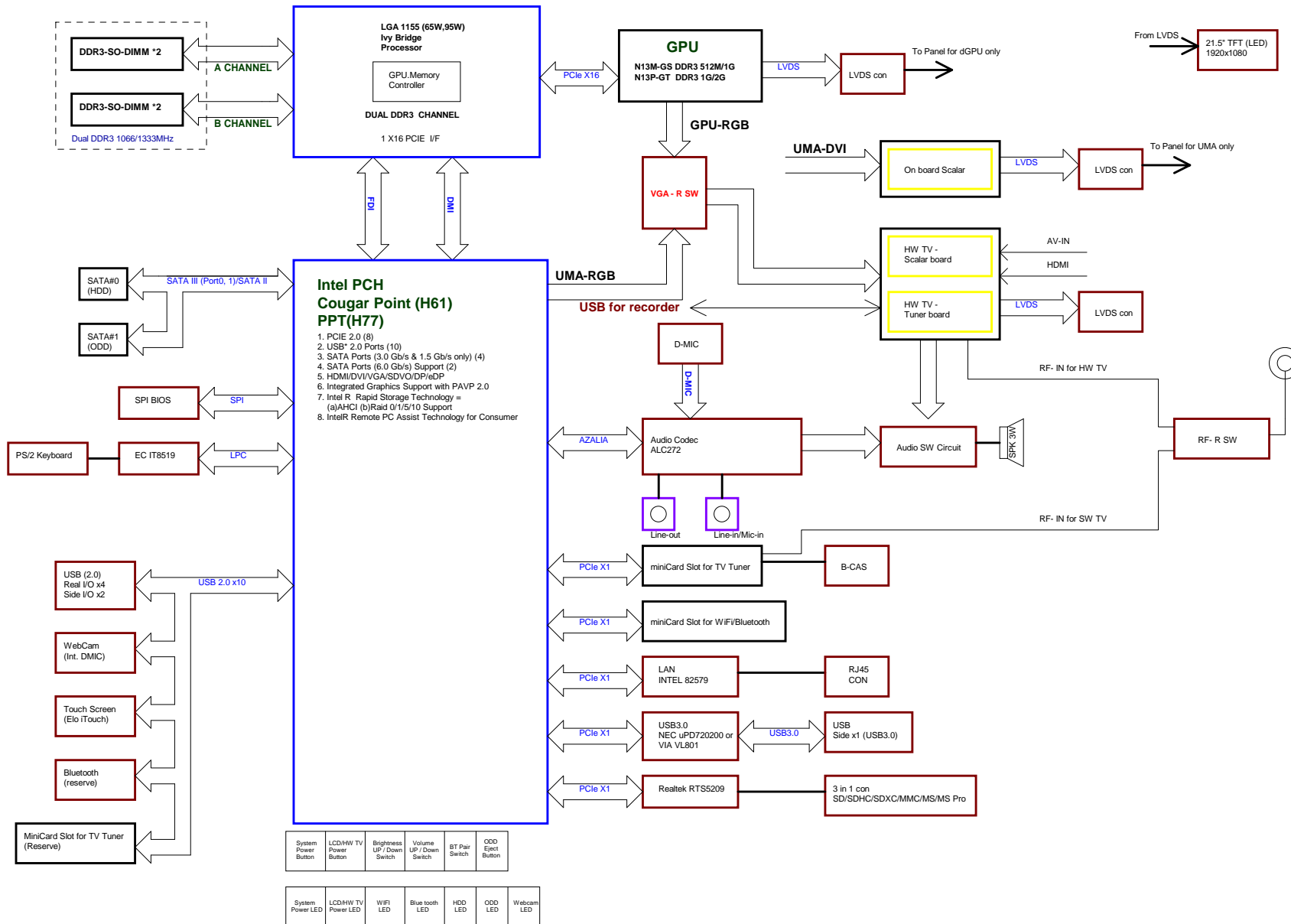
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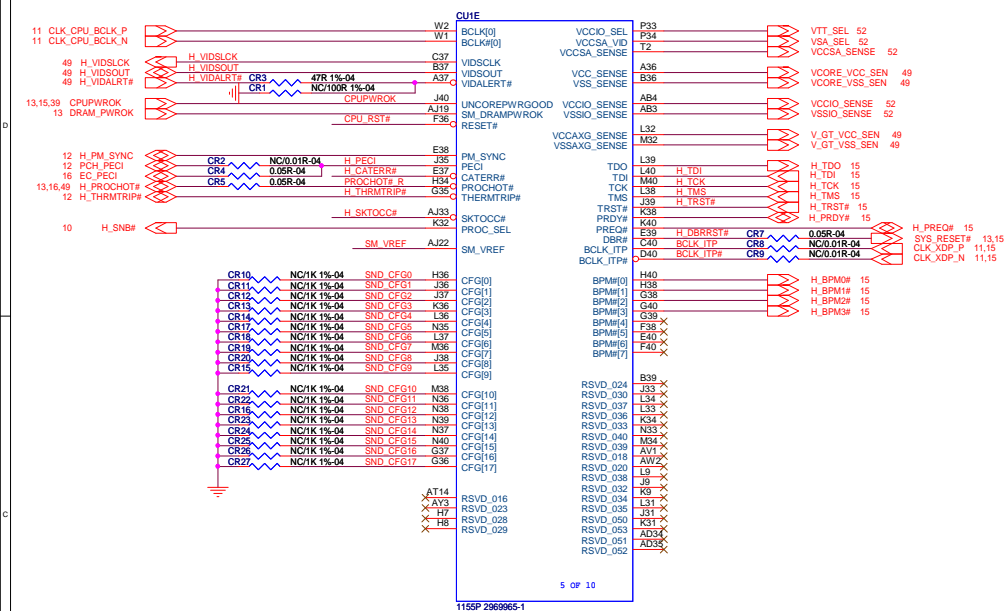


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	COVER SHEET	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	1 of 65	<備註>



T & I	OEM MODEL	Lanovo B340/B540	Size	C
機路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	BLOCK DIAGRAM	PCB NAME	6150A0003603	0.1
Date	Friday, December 23, 2011	Sheet	2 of 65	備註 <備註>

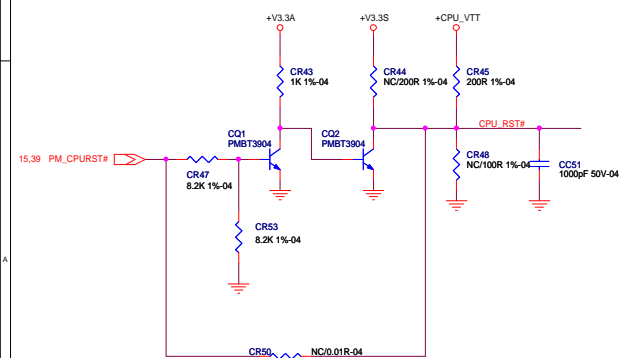
**H2\_E**



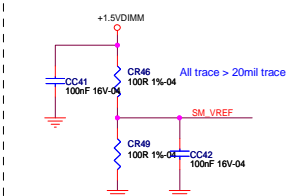
CFG	H	L	NOTE
0	R5VD	R5VD	R5VD
1	R5VD	R5VD	R5VD
2	NOVM	REVERSE	LANE REVERSAL[0], x16
3	R5VD	R5VD	R5VD
4	R5VD	R5VD	R5VD
7	R5VD	R5VD	R5VD
8	R5VD	R5VD	R5VD
9	R5VD	R5VD	R5VD
10	R5VD	R5VD	R5VD
11	R5VD	R5VD	R5VD
12	R5VD	R5VD	R5VD
13	R5VD	R5VD	R5VD
14	R5VD	R5VD	R5VD
15	R5VD	R5VD	R5VD
16	R5VD	R5VD	R5VD
17	R5VD	R5VD	R5VD

CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2x8
0	1	RSVD
0	0	X8.X4.X4

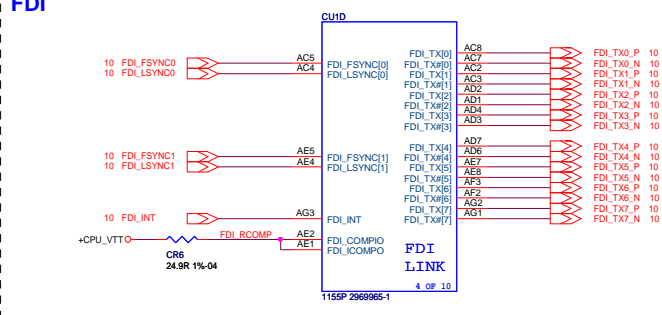
CFG 0-17 all internal PULL-UP



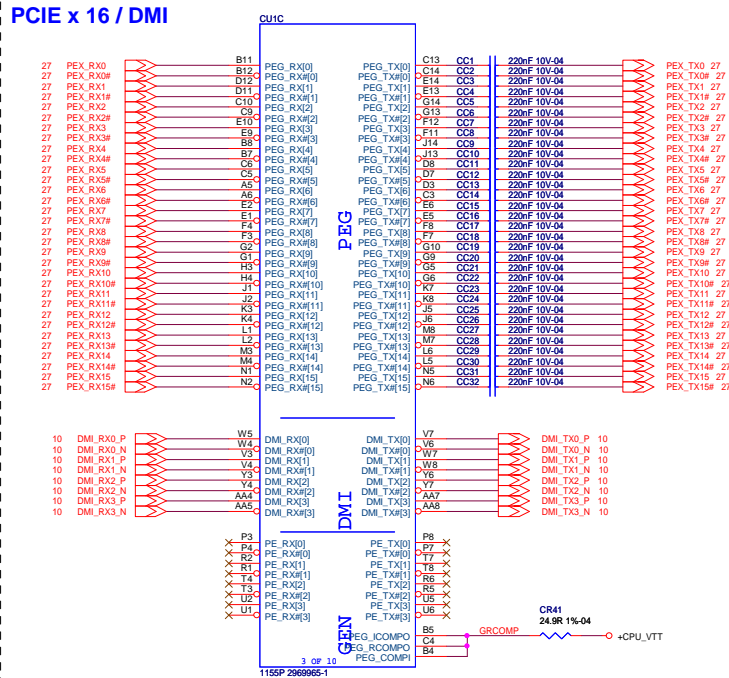
## SM VREF



**FDI**

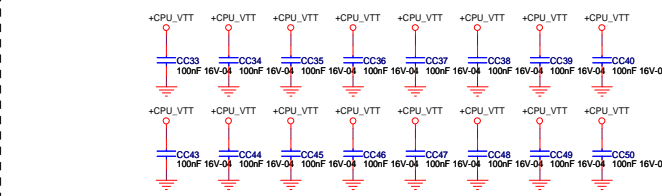


## PCIE x 16 / DMI

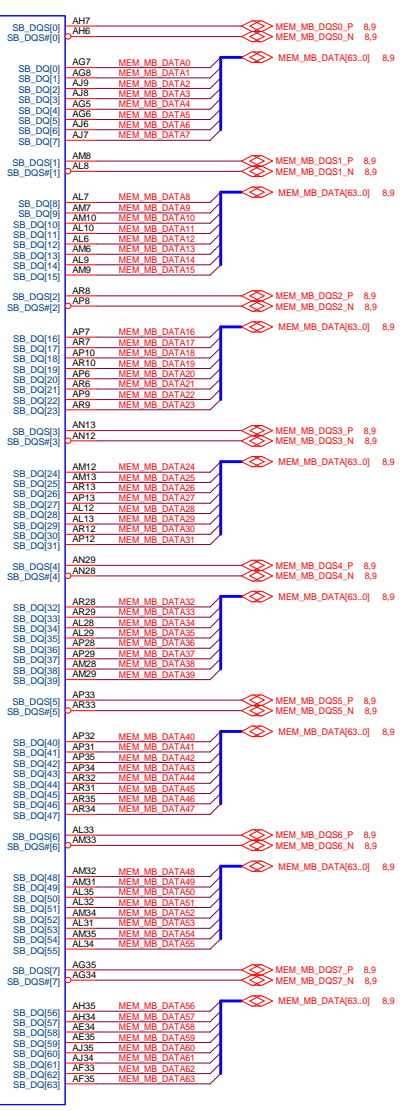
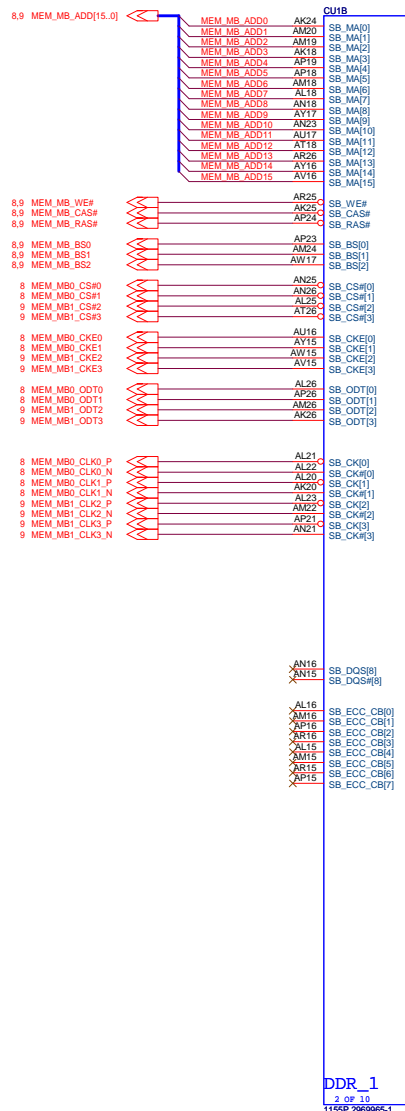
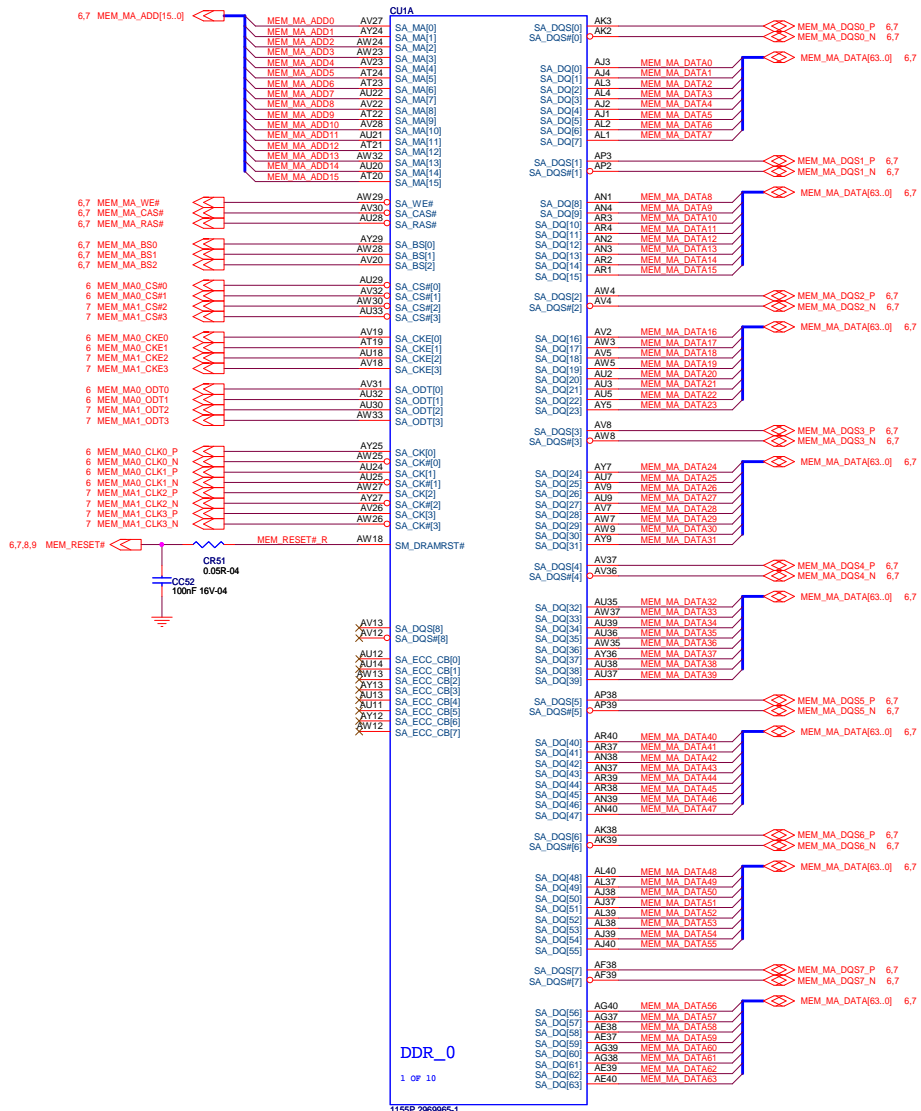


(1) SHORT B4 & C4 TOGETHER, ROUTE AS A SINGLE 4 MIL TRACE TO 24.9 OHM  
(2) ROUTE B5 TO 24.9 OHM AS A SEPERATE 10 MIL TRACE

### Stitching caps for PCIe.DMI.FDI bus



T & I		OEM MODEL	Lenovo B340/B540	Size	C
鐵路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	LGA1155_DMI/FDI/PEG/CFG	PCB Name	6150A0003603		
Date	Friday, December 23, 2011	Sheet	3 of 65	備註	◀備註▶

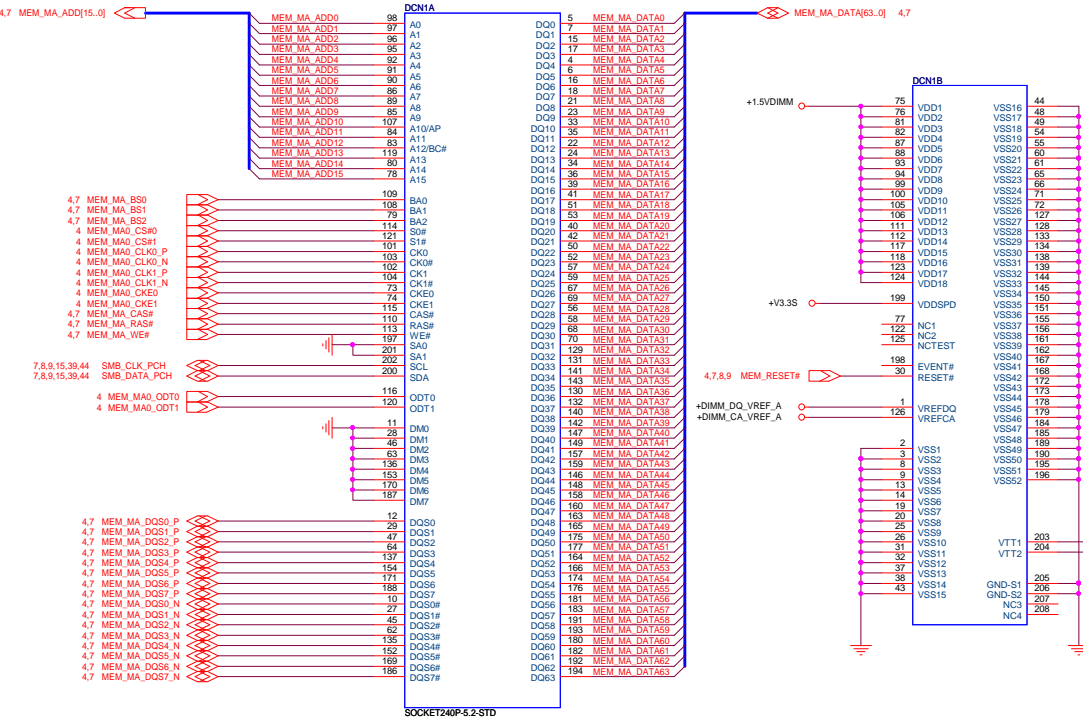


T & I	OEM MODEL	Lenovo B340/B540	Size	C
Key Component	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	LGA1155_DIMM A&B	PCB NAME	6150A0003603	0.1
Date	Friday, December 23, 2011	Sheet	4 of 65	備註 <備註>

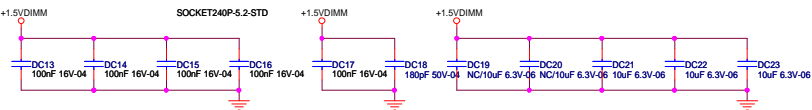
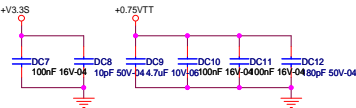
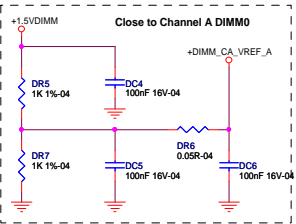
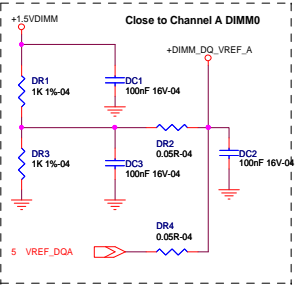


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	PCB NAME	6150A0003603	備註	◆變更◆
Date	Friday, December 23, 2011	Sheet	5 of 65	

BOM Option  
H61 --> DCN1 stuff  
H77 --> DCN1 stuff

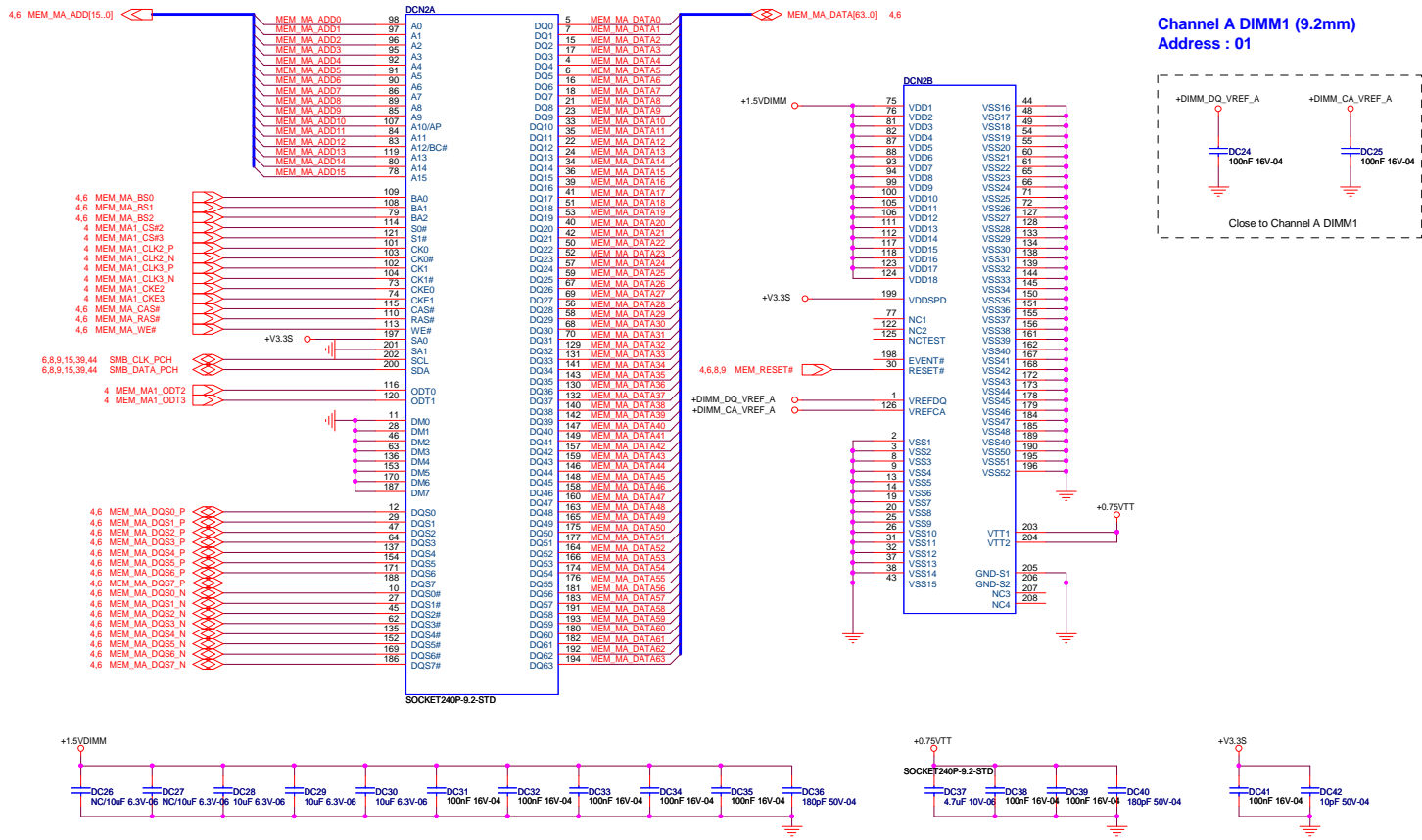


Channel A DIMM0 (5.2mm)  
Address : 00

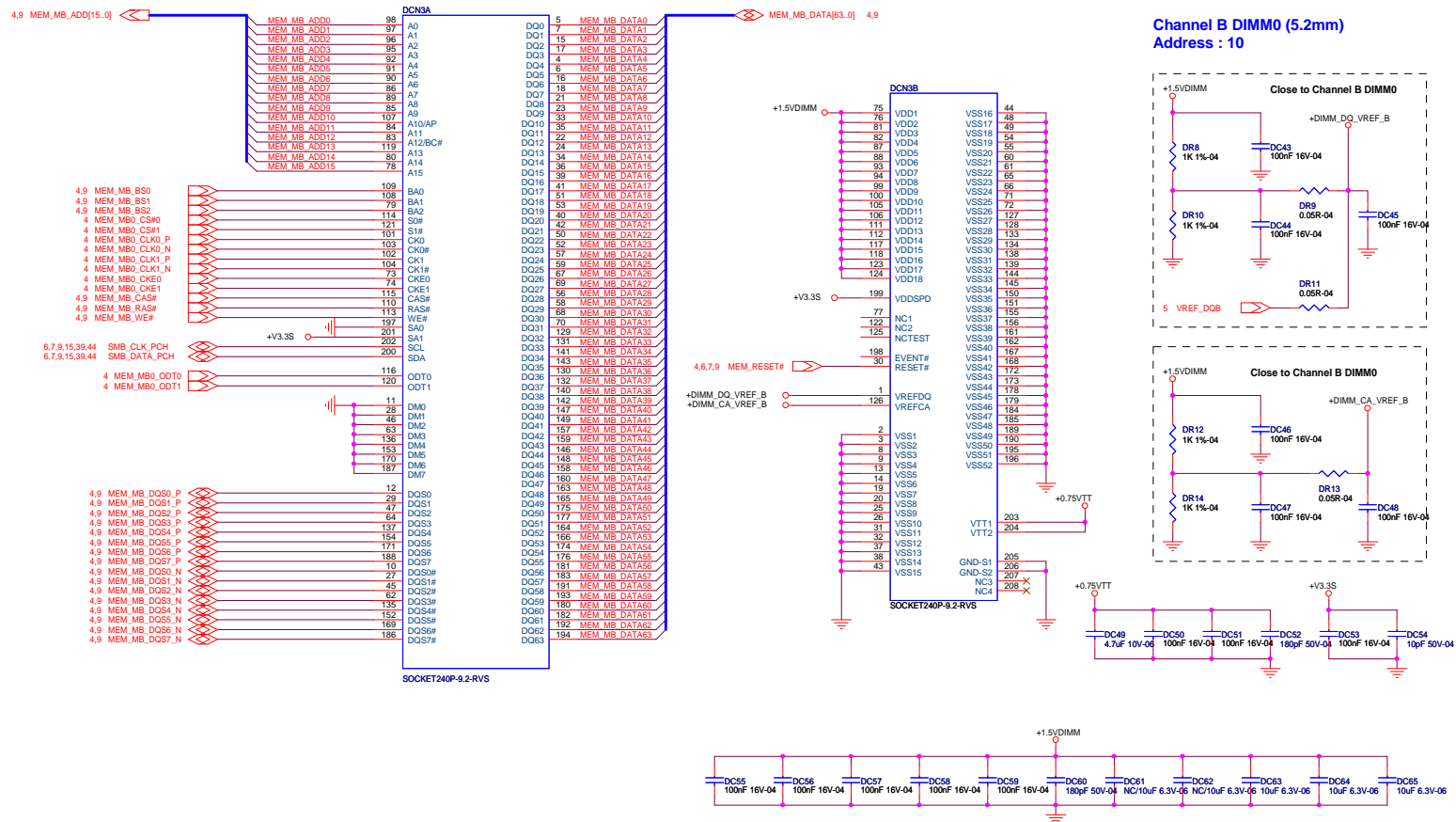


T & I	OEM MODEL	Lenovo B340/B540	Size	C
Key Component	T&I MODEL	B340_B540	Rev	0.1
Date	PCB NAME	6150A0003603	備註	<備註>
Friday, December 23, 2011	Sheet	6 of 65		

BOM Option  
H61 --> DCN2 don't stuff  
H77 --> DCN2 stuff



T & I		OEM MODEL	Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	DDR3 DIMM MA-CH1 9.2mm	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	7 of 65		





H61 --> DCN4 don't stuff  
H77 --> DCN4 stuff



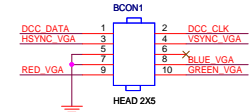
T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	DDR3 DIMM MB-CH1 9.2mm	PCB NAME	6150A0003603		
Date	Friday, December 23, 2011	Sheet	9 of 65	備註	<備註>



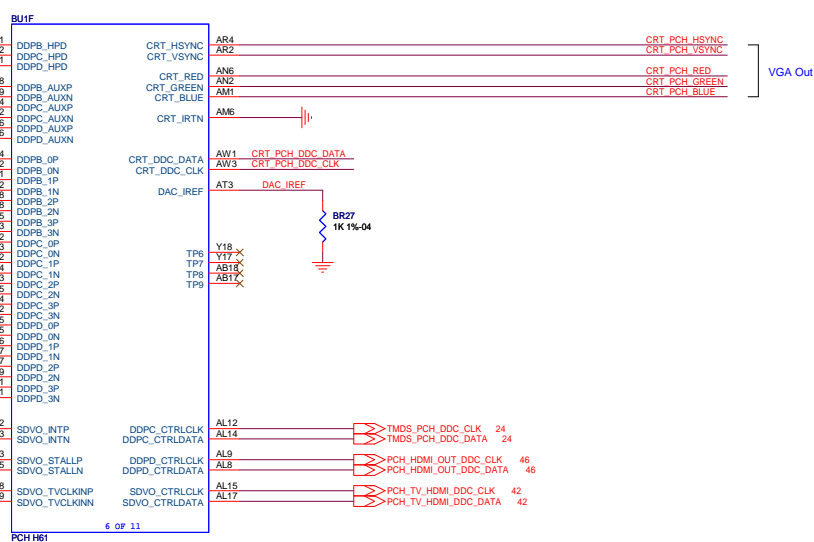
**PCH Display**

The diagram illustrates the PCH Display section, showing connections for CRT and GPU signals to VGA outputs. The connections are as follows:

- Red Channel:**
  - CRT\_PCH\_RED (0.05R-04) connects to BR734 (0.05R-04), which connects to RED\_VGA.
  - GPU\_DACA\_RED (0.05R-04) connects to BR735 (0.05R-04), which connects to RED\_VGA.
  - A 75R 1% 04 resistor is connected between RED\_VGA and ground.
- Green Channel:**
  - CRT\_PCH\_GREEN (0.05R-04) connects to BR738 (0.05R-04), which connects to GREEN\_VGA.
  - GPU\_DACA\_GREEN (0.05R-04) connects to BR737 (0.05R-04), which connects to GREEN\_VGA.
  - A 75R 1% 04 resistor is connected between GREEN\_VGA and ground.
- Blue Channel:**
  - CRT\_PCH\_BLUE (0.05R-04) connects to BR742 (0.05R-04), which connects to BLUE\_VGA.
  - U\_DACA\_BLUE (0.05R-04) connects to BR743 (0.05R-04), which connects to BLUE\_VGA.
  - A 75R 1% 04 resistor is connected between BLUE\_VGA and ground.
- DDC Signals:**
  - CRT\_PCH\_DDC\_CLK (0.05R-04) connects to BR736 (0.05R-04), which connects to DDC\_CLK.
  - GPU\_I2CA\_SCL (0.05R-04) connects to BR746 (0.05R-04), which connects to DDC\_CLK.
  - A +V3.3S supply is connected to the DDC\_CLK line.
  - CRT\_PCH\_DDC\_DATA (0.05R-04) connects to BR749 (0.05R-04), which connects to DDC\_DATA.
  - GPU\_I2CA\_SDA (0.05R-04) connects to BR747 (0.05R-04), which connects to DDC\_DATA.
  - A +V3.3S supply is connected to the DDC\_DATA line.
- HSync and VSync Signals:**
  - CRT\_PCH\_HSYNC (0.05R-04) connects to BR744 (0.05R-04), which connects to Hsync\_VGA.
  - GPU\_HSYNC (0.05R-04) connects to BR758 (0.05R-04), which connects to Hsync\_VGA.
  - CRT\_PCH\_VSYNC (0.05R-04) connects to BR746 (0.05R-04), which connects to Vsync\_VGA.
  - GPU\_VSYNC (0.05R-04) connects to BR757 (0.05R-04), which connects to Vsync\_VGA.



## PCH Display



Debug con 33MHz  
to EC 33MHz  
con 33MHz

16 CLK\_LPC\_DEBUG\_33M  
16 CLK\_LPC\_EC\_33M  
12 CLK\_PCH\_33M

+VCC1\_05\_PCH

BR46  
91R 1% 06

CLK\_RCOMP  
CLK\_BUF\_REF14

AL2  
AN8

XTAL0\_PCH  
XTAL1\_PCH

BR57  
1M 1% 04

BX1  
25MHZ







BC38  
10pF 50V-04

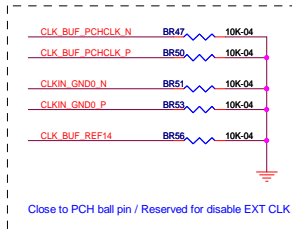
BC29  
10pF 50V-04

8 0P 11

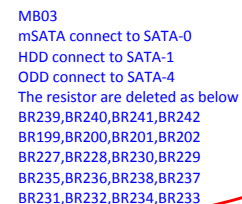
PCH H61

Note  
1. FLEX1.3 = 27/14/24/48/25-MHz and FLEX0.2 = 33MHz  
2. Do not configure 27/14/24/48/25-MHz FLEX clock on FLEX0 and FLEX2 if more than 2 PCI clocks + PCI loopback are routed.

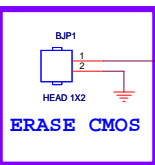
 CLK_XDP_N 3,15  CLK_XDP_P 3,15	to processor XDP 100MHz
 CLK_PCH_USB3.0_N 46  CLK_PCH_USB3.0_P 46	to USB3.0 Host IC 100MHz
 CLK_CPU_BCLK_N 3  CLK_CPU_BCLK_P 3	to processor 100MHz



T & I		OEM MODEL		Lenovo B340/B540	Size	C
磁路編號	6150A0003603	T&I MODEL	B340_B540		Rev	0.1
Key Component	PCH_DP, CLK BUFFER	PCB NAME	6150A0003603			
Date	Friday, December 23, 2011	Sheet	11 of 65		備註	<備註>

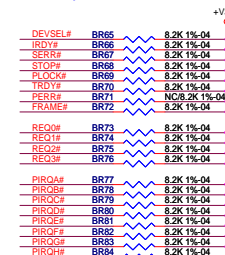


MB46  
Delete BR63, Add BR64  
to meet power on sequence

[illegible]

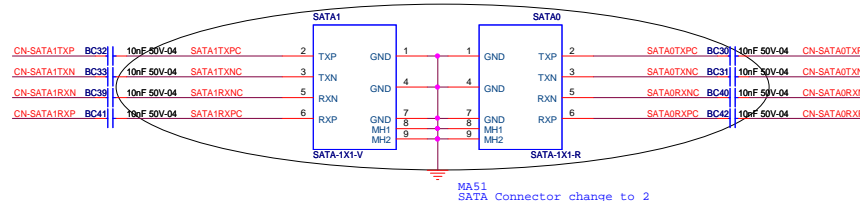
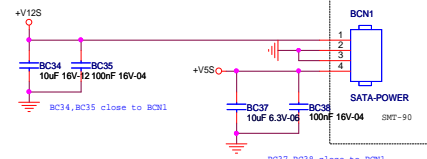
Close to PCH ball pin / Reserved for disable EXT CLK

@ 不用PCI還是要接CI



GNT1-	GNT0-/GPIO19	Boot device
0	0	LPC
1	0	PCI
1	1	SPI(Default)

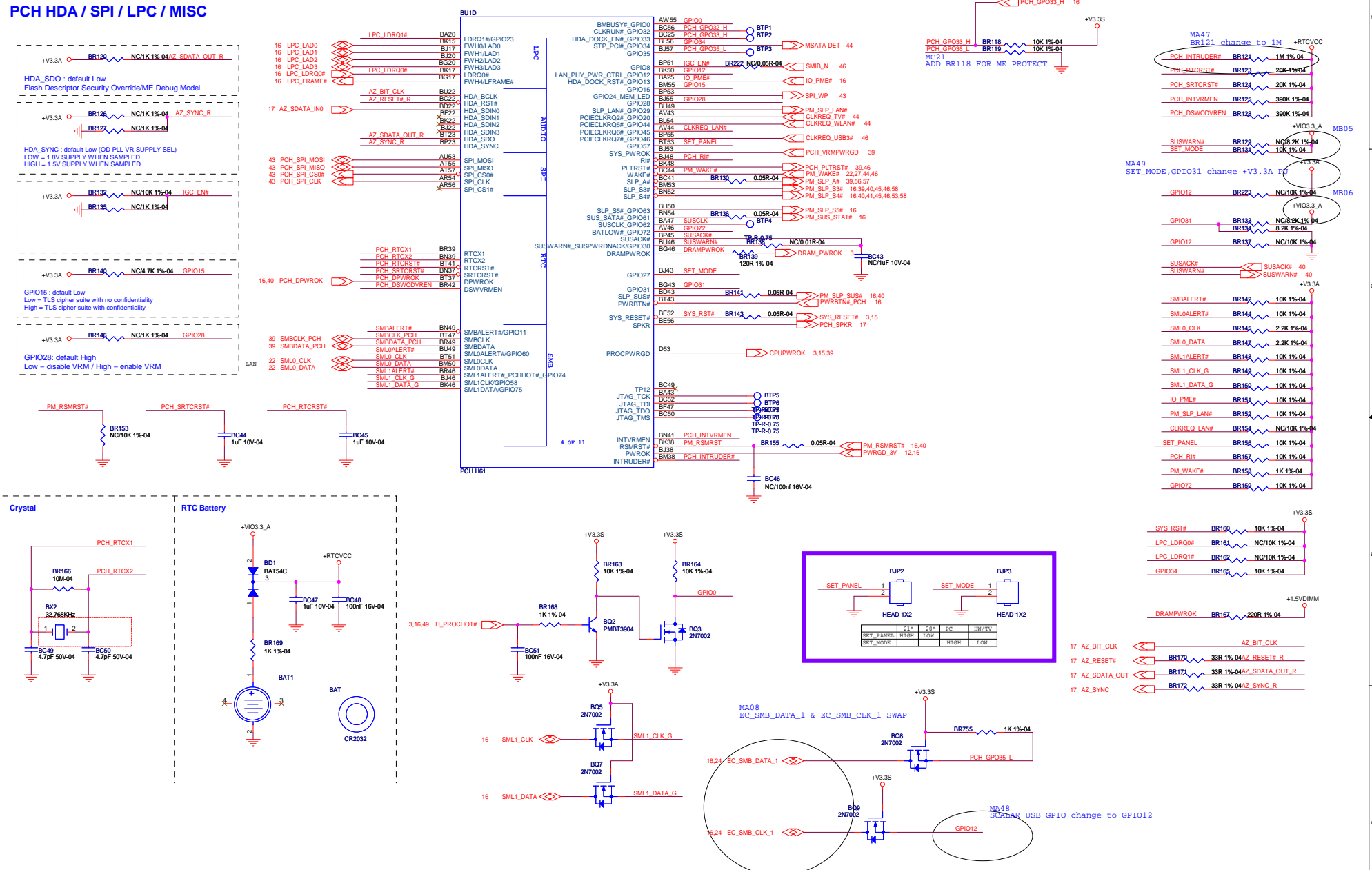
### SATA CON (HDD + ODD)



T & I		OEM MODEL	Lenovo B34Q/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B34Q_B540	Rev	0.1
Key Component	PCH_HOST, SATA, PCI	PCB NAME	6150A0003603		
Date	Friday, December 23, 2011	Sheet	12 of 65	備註	<u>備註</u>

MB04  
GPIO27,GPIO31 power well change to +VIO3.3\_A

## PCH HDA / SPI / LPC / MISC

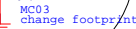
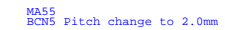
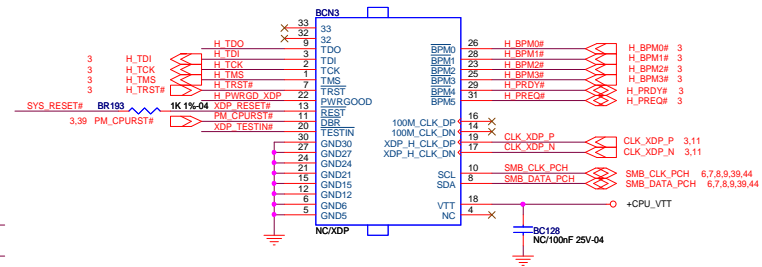


T & I		OEM MODEL	Lenovo B340/B540	Size	C
機箱圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	PCI GPIO, CTRL, AUDIO	PCB NAME	6150A0003603	備註	<備註>
Date	Saturday, February 04, 2012	Sheet	13 of 65		



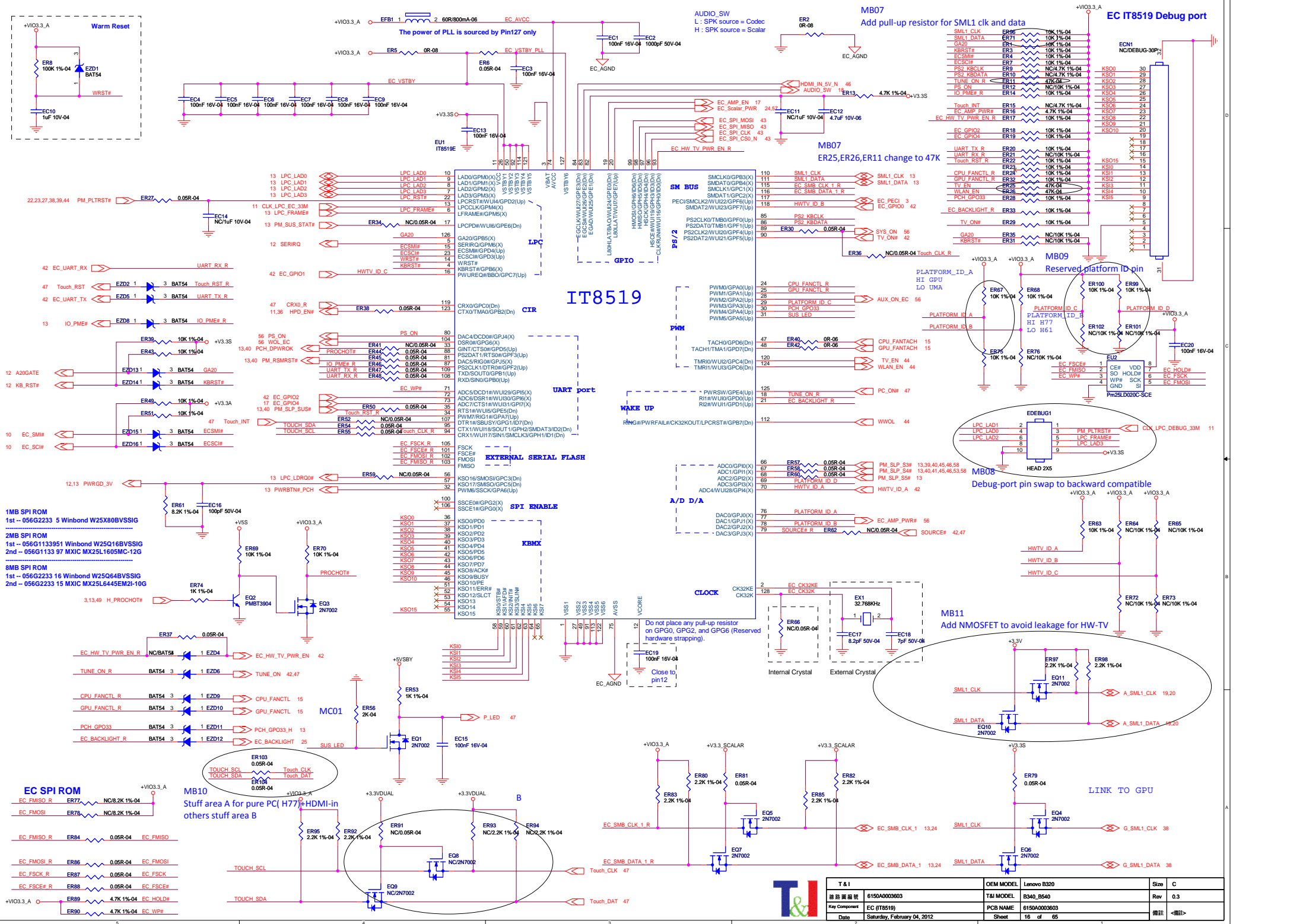
T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	PCH_PWR_GND	PCB NAME	6150A0003603		
Date	Friday, December 23, 2011	Sheet	14 of 65	備註	<備註>

**Close to H2 Socket**



T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	XDP connect / FAN	PCB NAME	6150A0003603	備註	<備註>
Date	Saturday, February 04, 2022	Sheet	15 of 65		





T & I	OEM MODEL	Lenovo B320	Size	C
總代理商	T&I MODEL	B340_B540	Rev	0.3
Key Component	EC (IT8519)	6150A0003603	PCB NAME	6150A0003603
Date	Saturday, February 04, 2012	Sheet	16 of 65	備註 <備註>



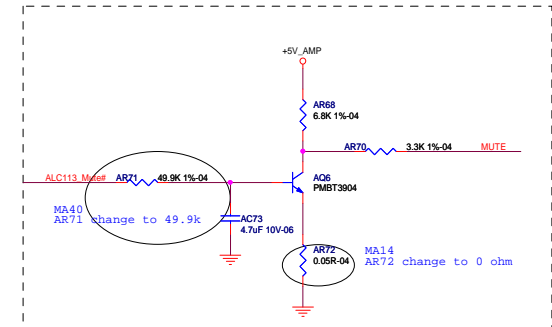
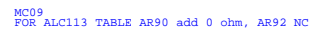
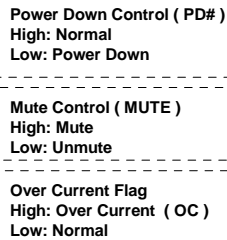






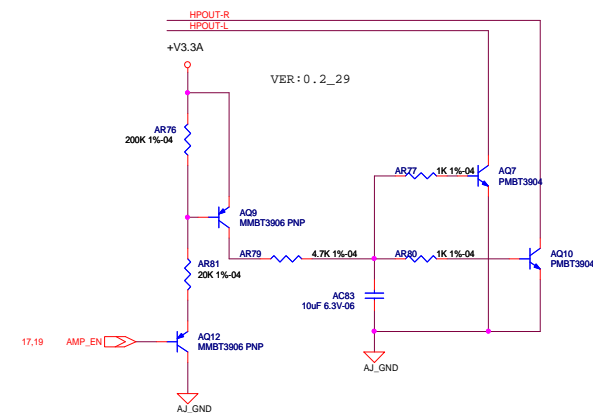
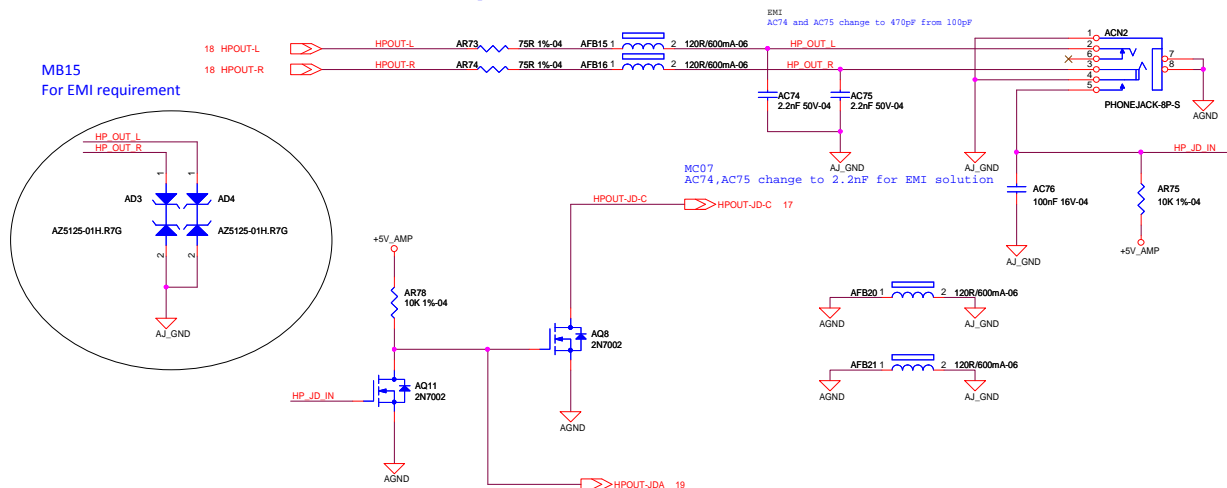
MA46  
ALC113 change to G\_SML1\_DATA/CLK  
16,19 A\_SML1\_DATA

MB14  
ALC113 change to A\_SML1\_DATA/CLK



## Audio Headphone Jack

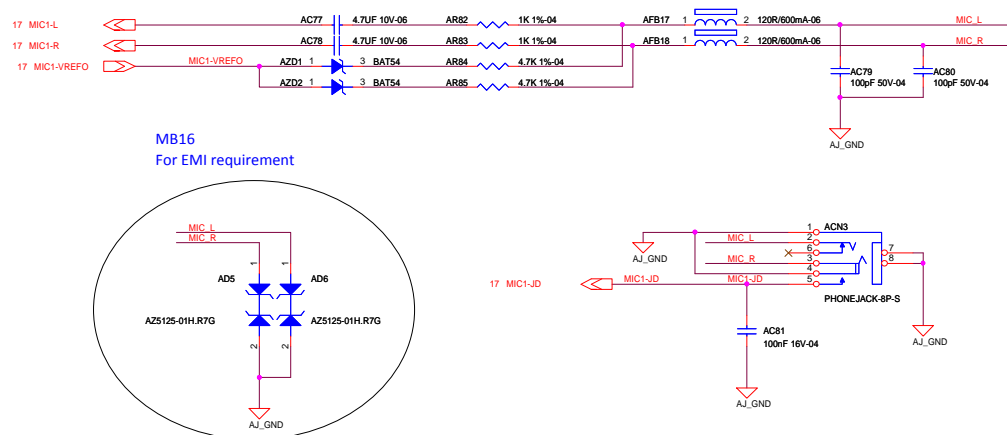
MB15  
For EMI requirement



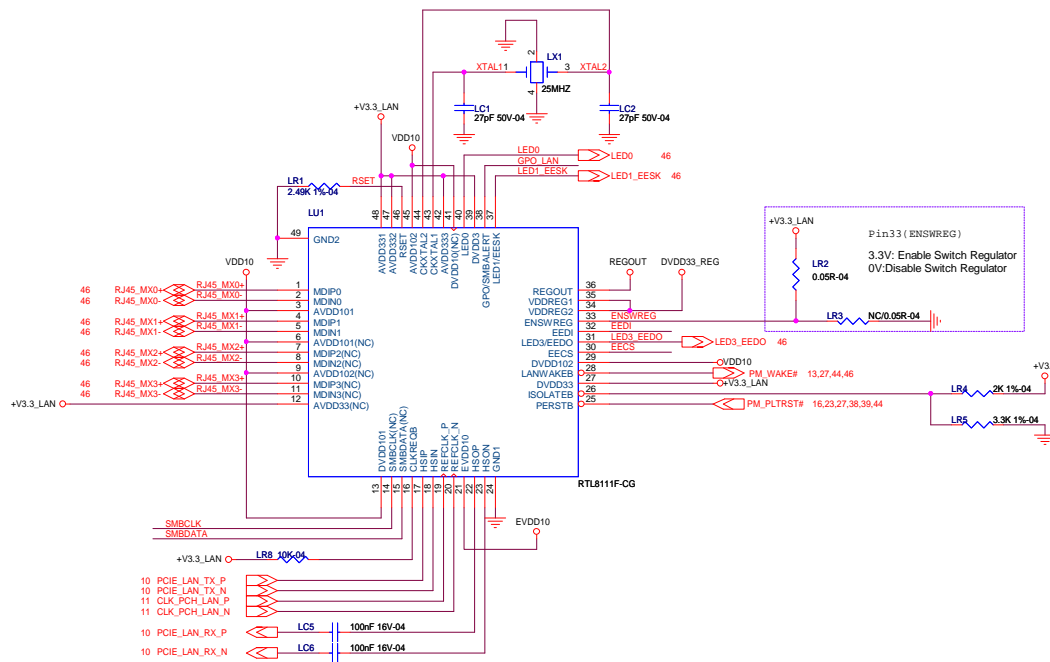
修改部分, 解 Pop Noise

## Audio Mic Jack

MB16  
For EMI requirement

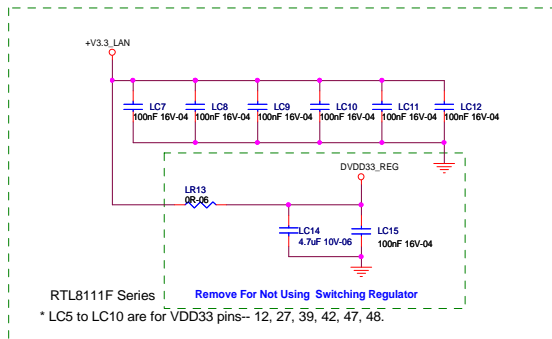


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	Audio Conn	PCB NAME	6150A0003603	0.1
Date	Saturday, February 04, 2012	Sheet	21 of 65	備註 <備註>



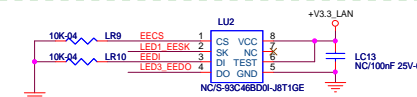
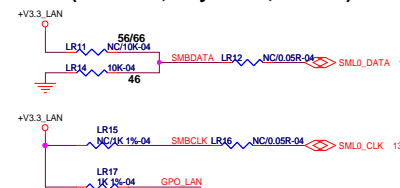
# G:100M O:1G

LED1-0	00	01	10	11
LED0	ACTall	ACTall/ LINKall	ACTall/ LINK10	ACT10/ LINK10
LED1	LINK100	LINK100	LINK100	ACT100/ LINK100
LED3	LINK1000	LINK1000	LINK1000	ACT1000/ LINK1000

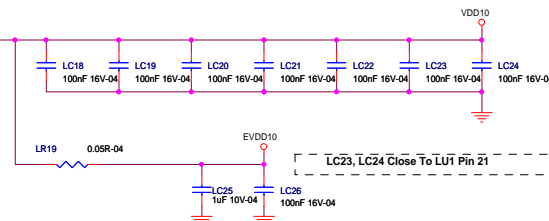
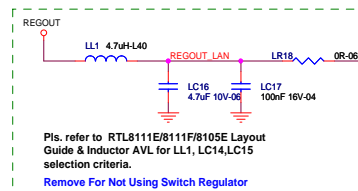


## \*\*\* RTL8111F Series EEPROM / ASF / Efuse Function (3 Option )\*\*\*

### Function (EEPROM,Only Efuse,NO ASF)



- When using EEPROM only without ASF function.  
Using LR9 For 93C56/66  
Using LR12 For 93C46  
Note: For RTL8111E-VL and RTL8111F,LR15 must be 1K.



RTL8111F Series  
\* LC16 to LC22 are for VDD10 pins-- 3, 6, 9, 13, 29, 41, 45.

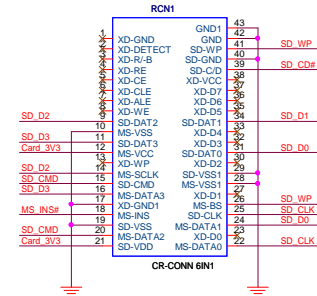
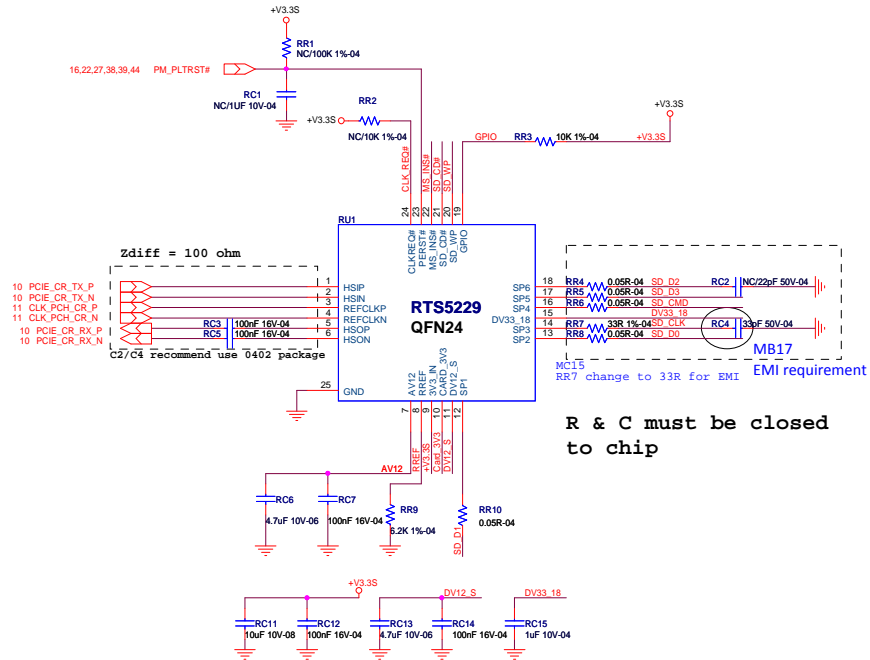
LC23,LC24 are for EVDD10 pins--21.



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	05 DB Giga LAN (RTL8111E)	PCB NAME	6150A0008001	備註
Date	Friday, December 23, 2011	Sheet	22 of 65	<備註>

SP1	SD_D1	MS_B5
SP2	SD_D0	MS_D1
SP3	SD_CLK	MS_D0
SP4	SD_CMD	MS_D2
SP5	SD_D3	MS_D3
SP6	SD_D2	MS_CLK

Share Pin

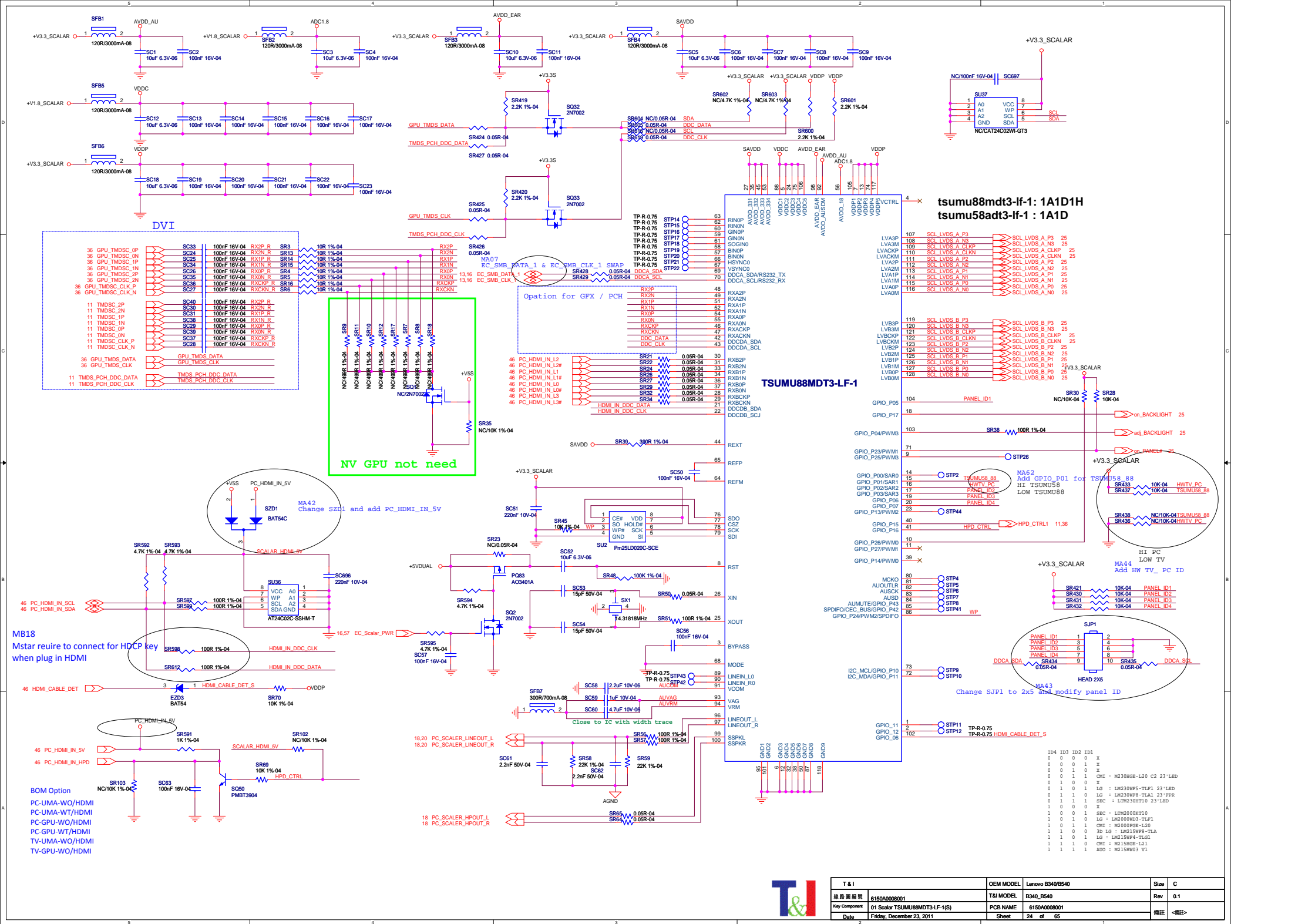


MA59 change RCN1 footprint

Combo socket



T & I	OEM MODEL	Lenovo B340	Size	C
6150A0003603	T&I MODEL	B340_B540	Rev	0.3
Card Reader (RTS5209)	PCB NAME	6150A0003603	備註	<備註>
Saturday, February 04, 2012	Sheet	23 of 65		







5	4	3	2	1
D				D
C				C
B				B
A				A
5	4	3	2	1



T & I		OEM MODEL	B320	Size	C
線路圖編號		T&I MODEL	B340_B340	Rev	0.4
Key Component	06 DB USB3.0	PCB NAME	715G4690-T0D-000-0060	備註 <備註>	
Date	Friday, December 23, 2011	Sheet	26 of 65		

BOM Option

- UMA --> all don't stuff
- GPU --> all stuff



T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	LGA1155_DMVFD/PEG/CFG	PCB NAME	6150A0003603		
Date	Friday, December 23, 2011	Sheet	27 of 65	備註	<備註>

# Frame Buffer Partitions A/B

BOM Option  
UMA --> all don't stuff  
GPU --> all stuff

GUIB

2/19 FBA

FBA\_D00

FBA\_D01

FBA\_D02

FBA\_D03

FBA\_D04

FBA\_D05

FBA\_D06

FBA\_D07

FBA\_D08

FBA\_D09

FBA\_D10

FBA\_D11

FBA\_D12

FBA\_D13

FBA\_D14

FBA\_D15

FBA\_D16

FBA\_D17

FBA\_D18

FBA\_D19

FBA\_D20

FBA\_D21

FBA\_D22

FBA\_D23

FBA\_D24

FBA\_D25

FBA\_D26

FBA\_D27

FBA\_D28

FBA\_D29

FBA\_D30

FBA\_D31

FBA\_D32

FBA\_D33

FBA\_D34

FBA\_D35

FBA\_D36

FBA\_D37

FBA\_D38

FBA\_D39

FBA\_D40

FBA\_D41

FBA\_D42

FBA\_D43

FBA\_D44

FBA\_D45

FBA\_D46

FBA\_D47

FBA\_D48

FBA\_D49

FBA\_D50

FBA\_D51

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FBA\_D55

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FBA\_D101

FBA\_D102

FBA\_D103

FBA\_D104

FBA\_D105

FBA\_D106

FBA\_D107

FBA\_D108

FBA\_D109

FBA\_D110

FBA\_D111

FBA\_D112

FBA\_D113

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FBA\_D221

FBA\_D222

FBA\_D223

FBA\_D224

FBA\_D225

FBA\_D226

FBA\_D227

FBA\_D228

FBA\_D229

FBA\_D230

FBA\_D231

FBA\_D232

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FBA\_D245

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FBA\_D247

FBA\_D248

FBA\_D249

FBA\_D250

FBA\_D251

FBA\_D252

FBA\_D253

FBA\_D254

FBA\_D255

FBA\_D256

FBA\_D257

FBA\_D258

FBA\_D259

FBA\_D260

FBA\_D261

FBA\_D262

FBA\_D263

FBA\_D264

FBA\_D265

FBA\_D266

FBA\_D267

FBA\_D268

FBA\_D269

FBA\_D270

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FBA\_D275

FBA\_D276

FBA\_D277

FBA\_D278

FBA\_D279

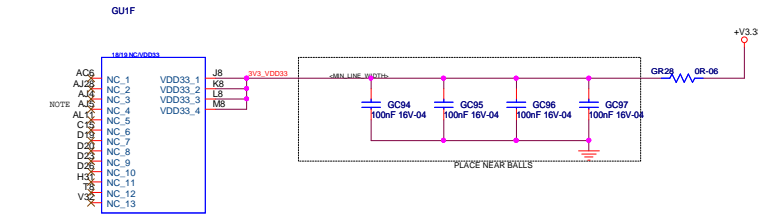
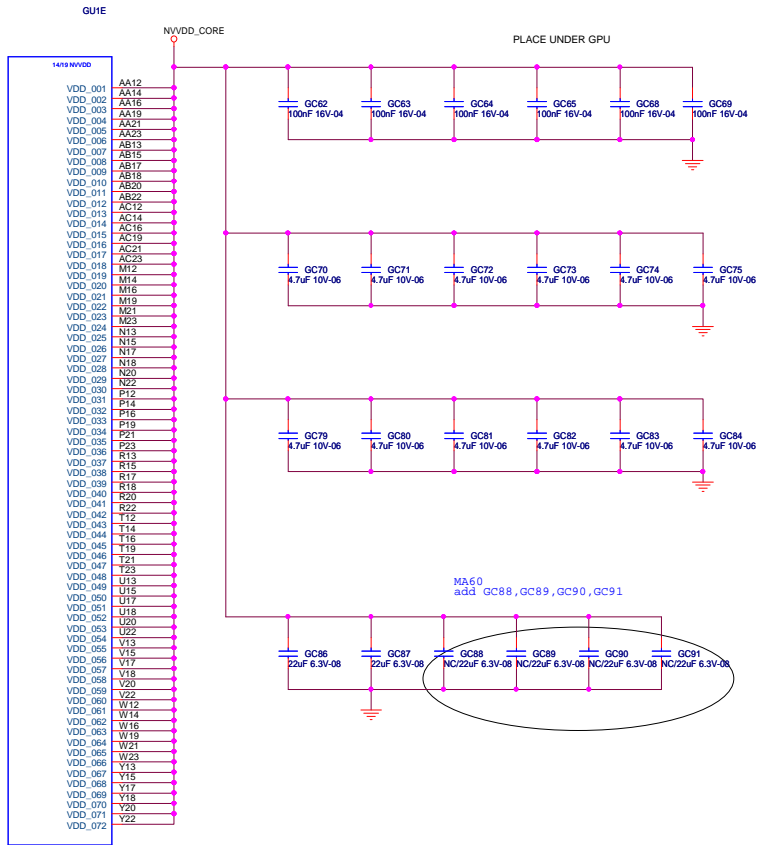
FBA\_D280

FBA\_D281

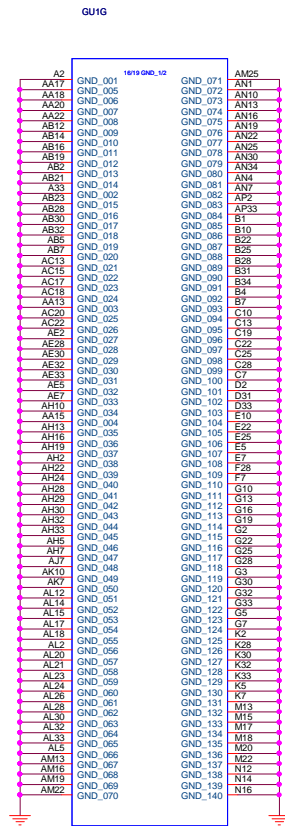
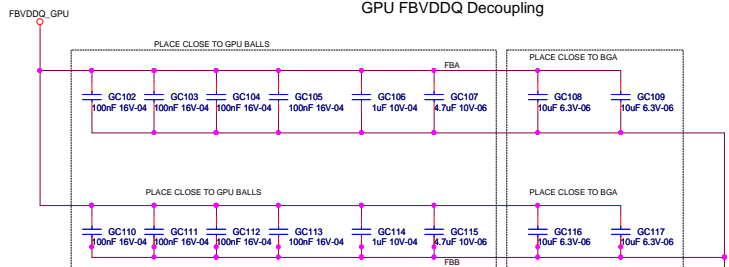
FBA\_D282

FBA

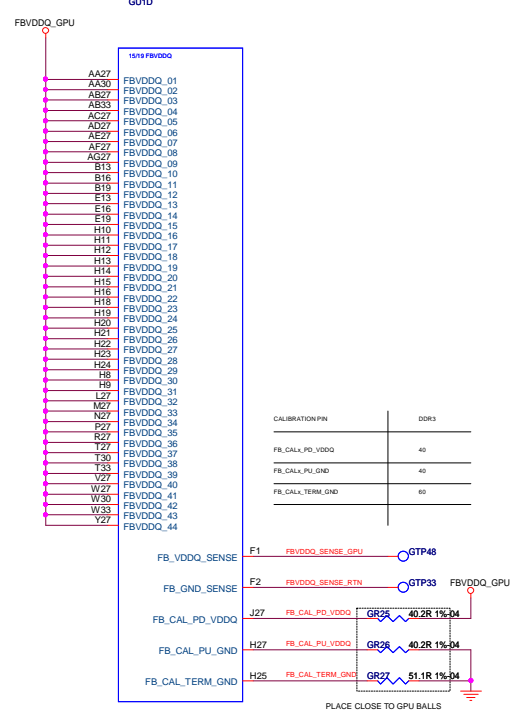
# Power/Decoupling: NVVDD,3V3\_NV,GRND,and Optional



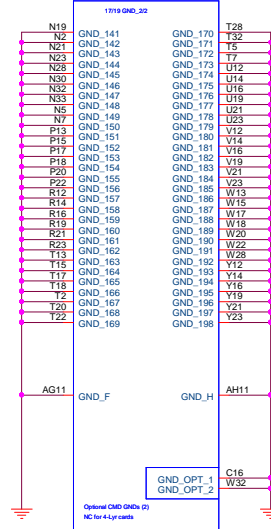
GPU FBVDDQ Decoupling



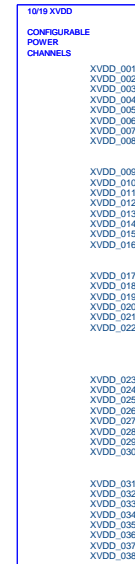
BOM Option  
UMA --> all don't stuff  
GPU --> all stuff



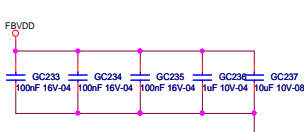
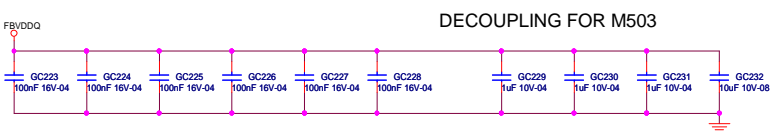
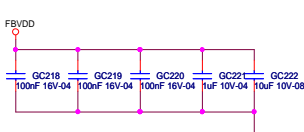
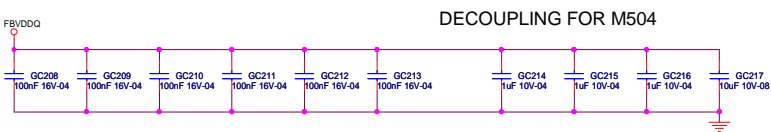
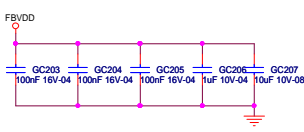
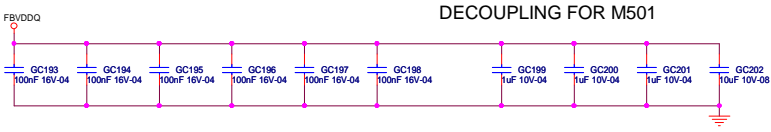
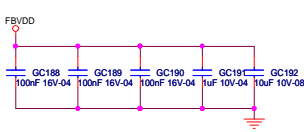
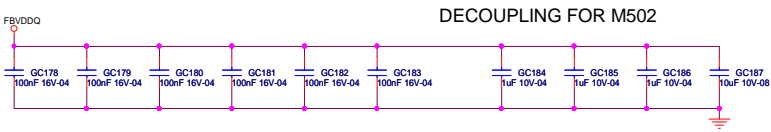
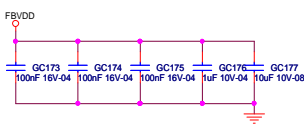
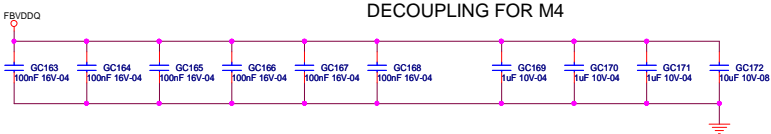
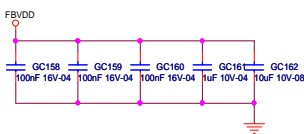
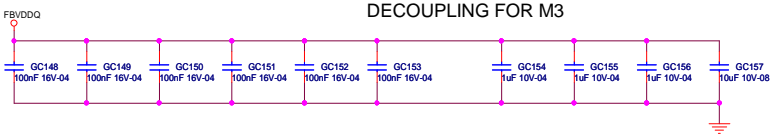
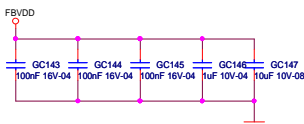
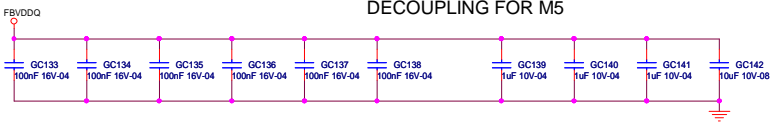
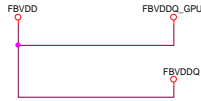
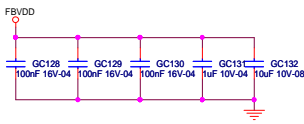
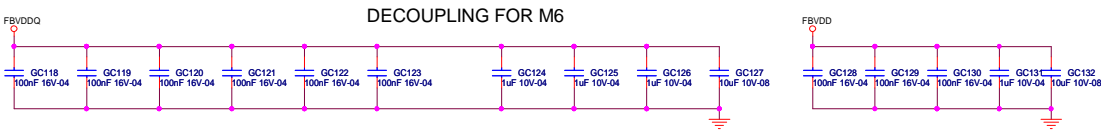
GUI1



GUIH



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	B340_B540	Rev	0.1
Key Component	LGA1155_DM/FD/PEG/CFG	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	29 of 65	<備註>

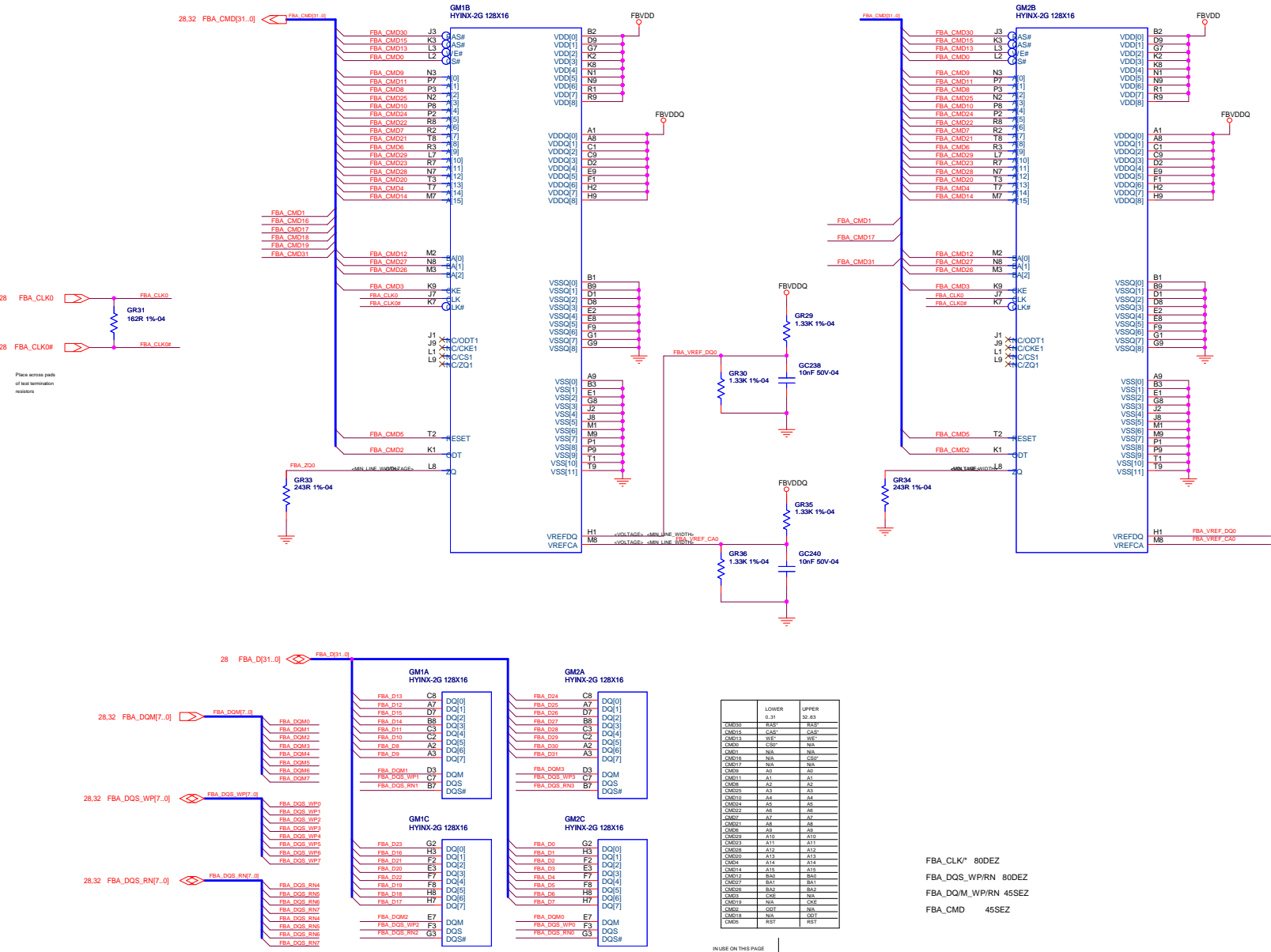


BOM Option  
UMA --> all don't stuff  
GPU --> all stuff

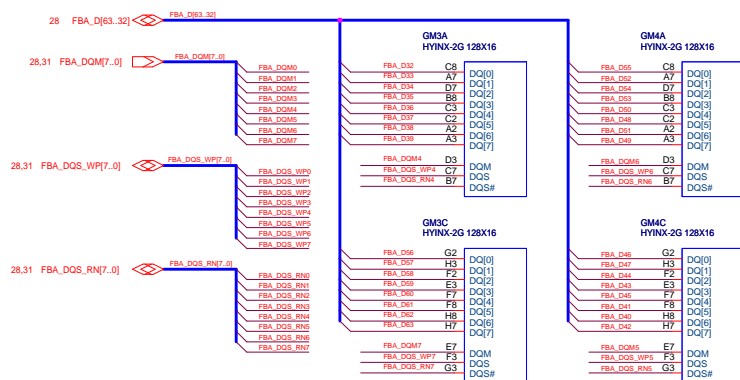
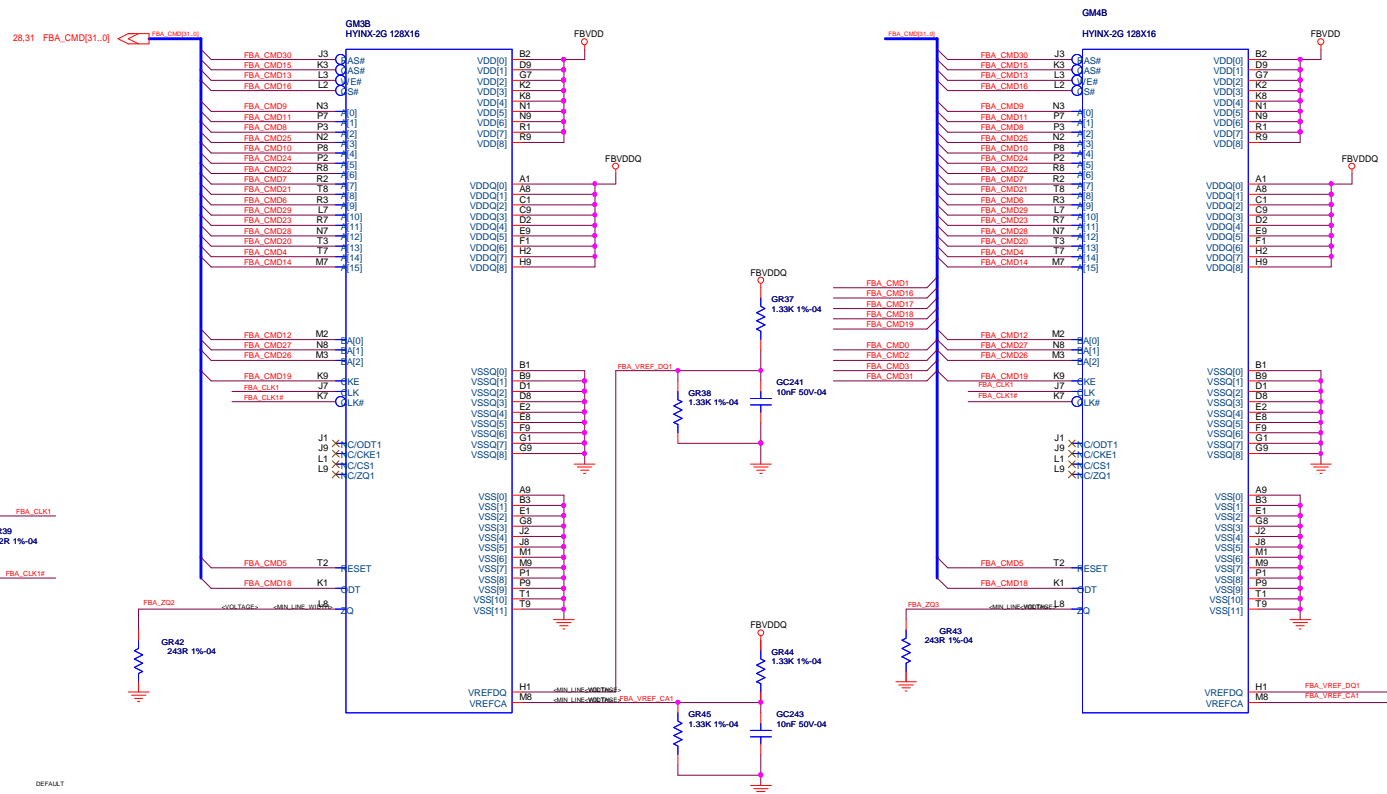


T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	LGA1155_DM/FD/PEG/CFG	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	30 of 65		

Memory Lower Partition A



## Memory Upper Partition A



	LOWER	UPPER
	0.31	32.83
CM005	CAS	CAS
CM014	CAS	CAS
CM013	WE	WE
CM017	CSO	WE
CM016	N/A	N/A
CM018	N/A	CSO
CM019	AS	AS
CM020	A1	A1
CM021	A2	A2
CM025	A3	A3
CM026	A4	A4
CM024	A5	A5
CM022	A6	A6
CM023	A7	A7
CM021	A8	A8
CM020	A9	A9
CM029	A10	A10
CM023	A11	A11
CM024	A12	A12
CM020	A13	A13
CM024	A14	A14
CM025	A15	A15
CM012	BA2	BA2
CM011	BA1	BA1
CM008	BA2	BA2
CM013	OE2	N/A
CM019	N/A	OE2
CM022	CO2	N/A
CM018	N/A	CO2
CM005	EST	EST

IN USE ON  
THIS PAGE

T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	LGA1155_DM/FDI/PEG/CPU	PCB NAME	6150AQ00303	
Date	Friday, November 23, 2014	Sheet	21 of 66	備註 <備註>

## BOM Option

UMA --> all don't stuff

GPU --> N13M-GE2 512MB , 16Mbx16 x4

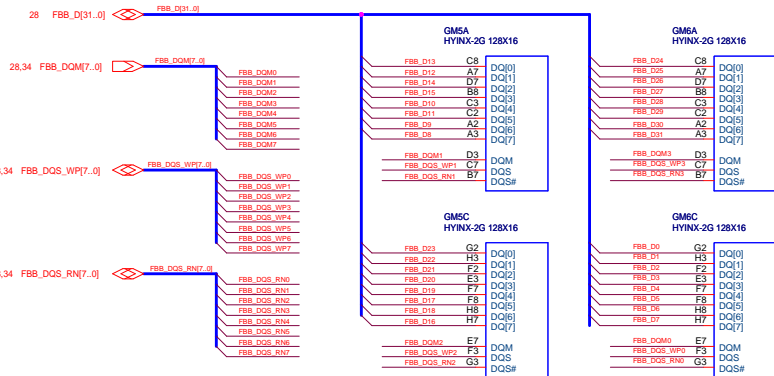
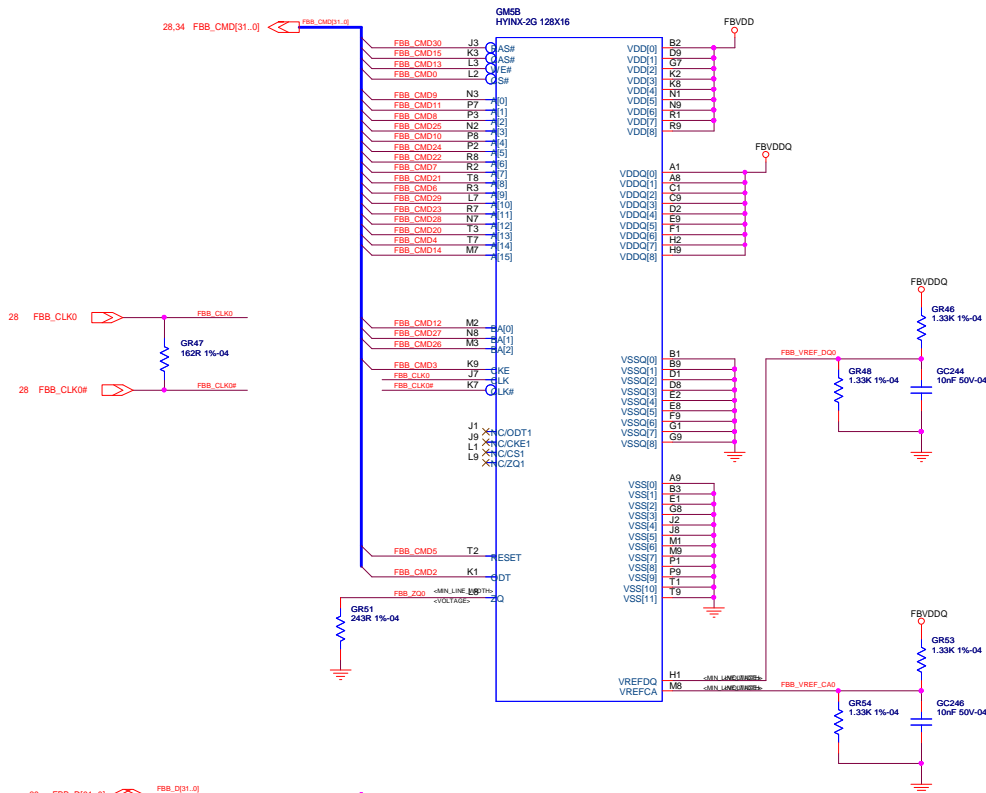
GPU --> N13M-GE2 1GB, 16Mbx16 x8

GPU --> N13P-GT 1GB , 16Mbx16 x8

GPU --> N13P-GT 2GB , 128Mbx16 x8



# Memory Lower Partition B



	LOWER	UPPER
FBV_CMD[0]	0.31	32.43
FBV_CMD[1]	0.31	32.43
FBV_CMD[2]	0.31	32.43
FBV_CMD[3]	0.31	32.43
FBV_CMD[4]	0.31	32.43
FBV_CMD[5]	0.31	32.43
FBV_CMD[6]	0.31	32.43
FBV_CMD[7]	0.31	32.43
FBV_CMD[8]	0.31	32.43
FBV_CMD[9]	0.31	32.43
FBV_CMD[10]	0.31	32.43
FBV_CMD[11]	0.31	32.43
FBV_CMD[12]	0.31	32.43
FBV_CMD[13]	0.31	32.43
FBV_CMD[14]	0.31	32.43
FBV_CMD[15]	0.31	32.43

IN USE ON THIS PAGE

BOM Option

UMA --> all don't stuff

GPU --> N13M-GE2 512MB, 16Mbx16 x4

GPU --> N13M-GE2 1GB, 16Mbx16 x8

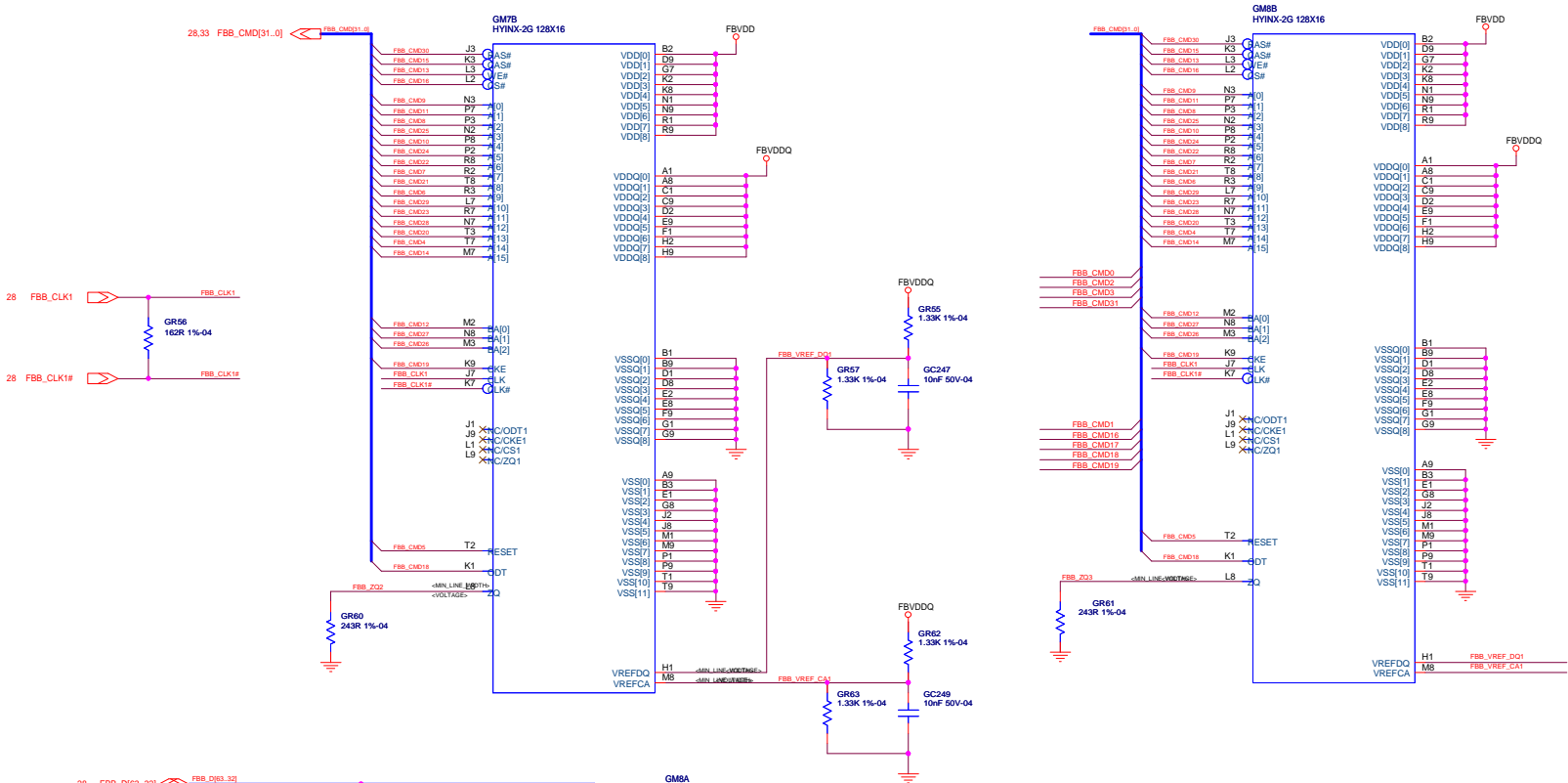
GPU --> N13P-GT 1GB, 16Mbx16 x8

GPU --> N13P-GT 2GB, 128Mbx16 x8



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev 0.1
Key Component	LGA1155_DM/FD/PE/GCFG	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	33 of 65	<備註>

Memory Upper Partition B



BOM Option  
UMA --> all don't stuff  
GPU --> N13M-GE2 512MB, 16Mbx16 x4  
GPU --> N13M-GE2 1GB, 16Mbx16 x8  
GPU --> N13P-GT 1GB, 16Mbx16 x8  
GPU --> N13P-GT 2GB, 128Mbx16 x8

	LOWER 8-31	UPPER 32-63
CMD00	RAS#	RAS#
CMD01	CAS#	CAS#
CMD02	WE#	WE#
CMD03	CS#	CS#
CMD04	OE#	OE#
CMD05	NA	NA
CMD06	NA	NA
CMD07	NA	NA
CMD08	NA	NA
CMD09	A1	A1
CMD10	A2	A2
CMD11	A3	A3
CMD12	A4	A4
CMD13	A5	A5
CMD14	A6	A6
CMD15	A7	A7
CMD16	A8	A8
CMD17	A9	A9
CMD18	A10	A10
CMD19	A11	A11
CMD20	A12	A12
CMD21	A13	A13
CMD22	A14	A14
CMD23	A15	A15
CMD24	B0	B0
CMD25	B1	B1
CMD26	B2	B2
CMD27	B3	B3
CMD28	B4	B4
CMD29	B5	B5
CMD30	B6	B6
CMD31	B7	B7
CMD32	B8	B8
CMD33	B9	B9
CMD34	B10	B10
CMD35	B11	B11
CMD36	B12	B12
CMD37	B13	B13
CMD38	B14	B14
CMD39	B15	B15
CMD40	RST	RST

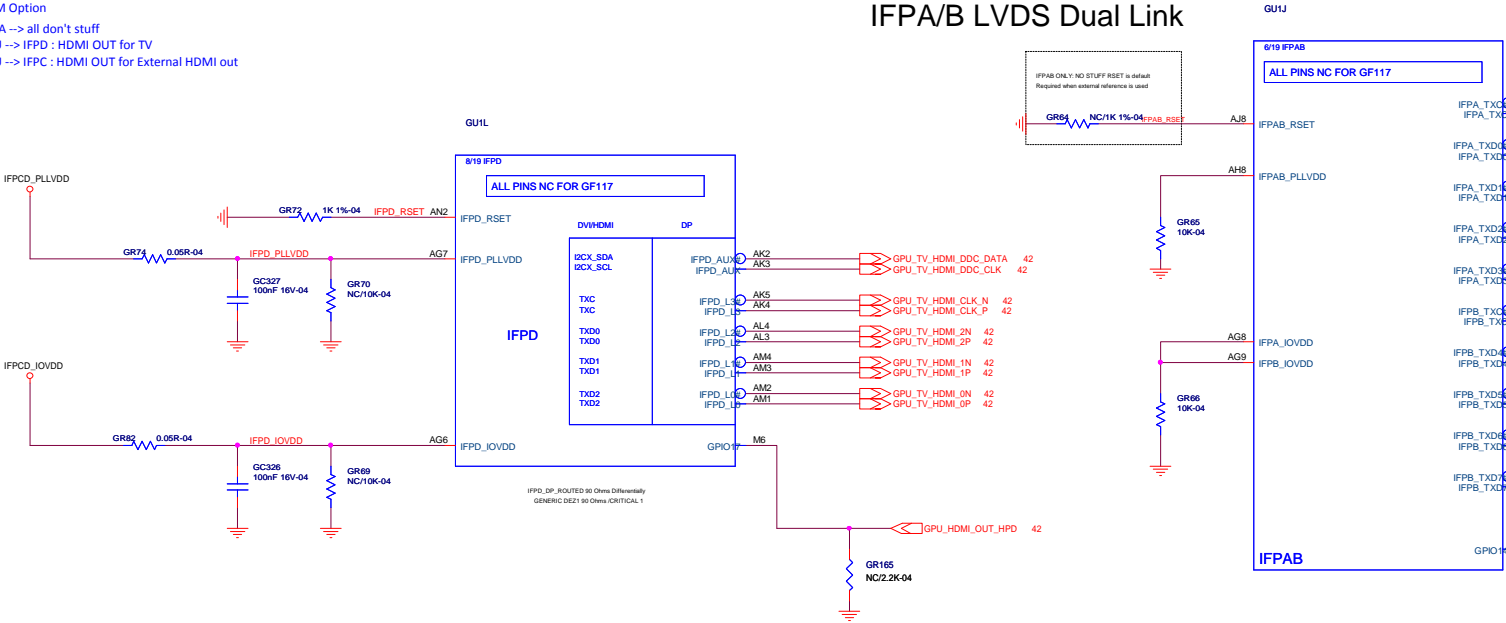
IN USE ON  
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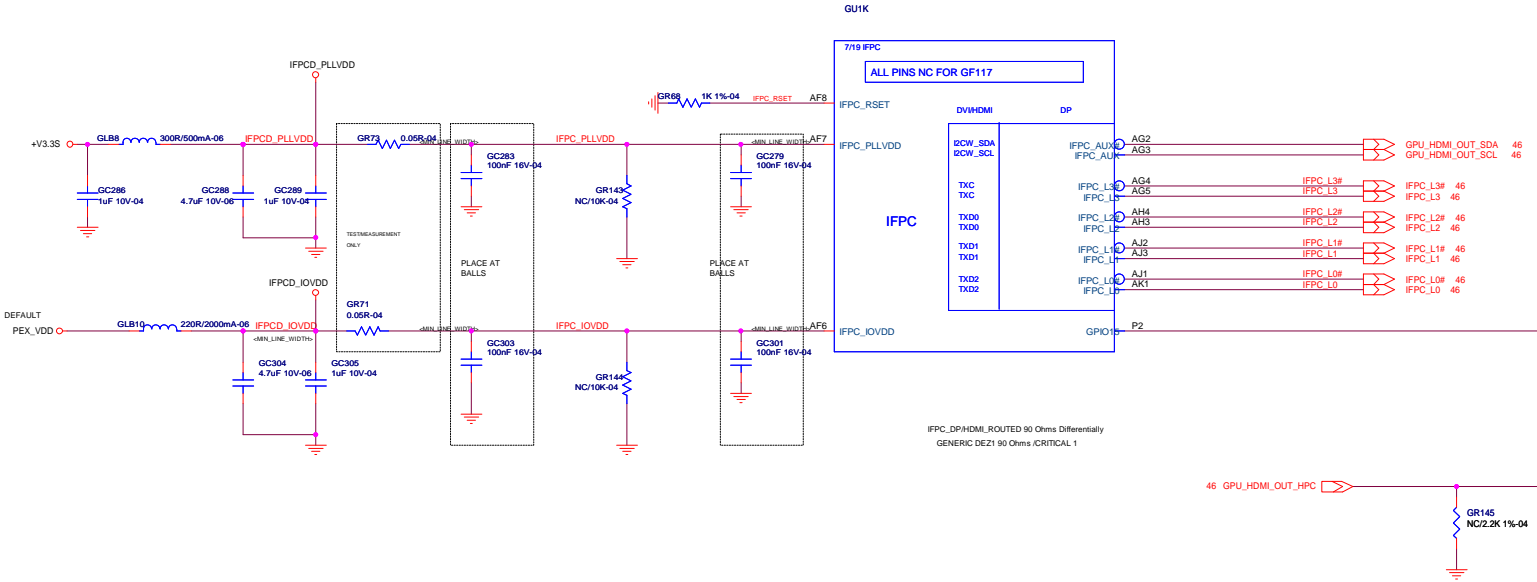
T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	B340_B540	Rev	0.1
Key Component	LGA1155_DM/FD/PEG/CFG	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	34 of 65	<備註>

BOM Option  
UMA -> all don't stuff  
GPU -> IFPD : HDMI OUT for TV  
GPU -> IFPC : HDMI OUT for External HDMI out

IFPA/B LVDS Dual Link



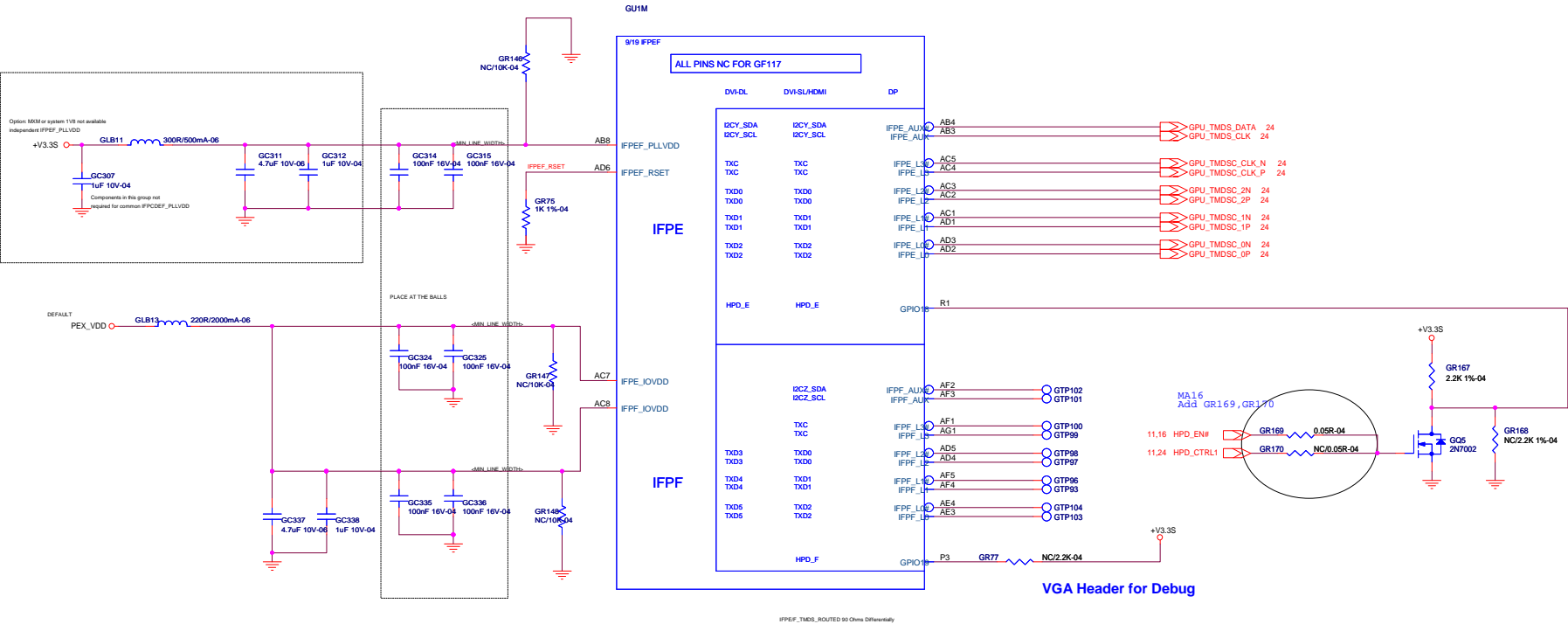
IFPC NATIVE HDMI OR DP



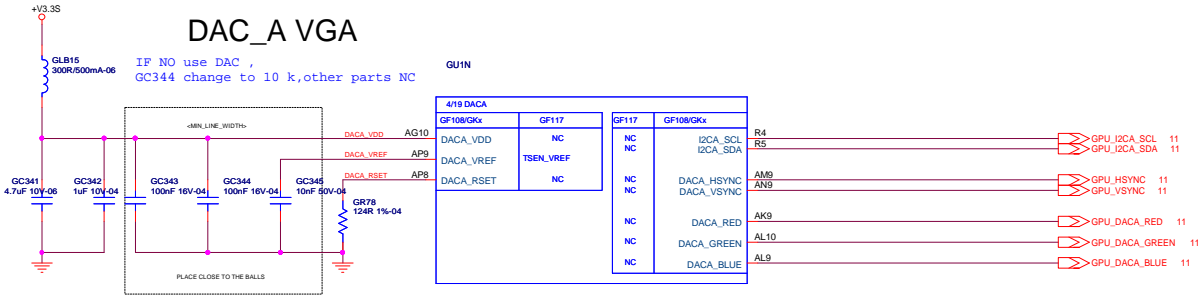
T & I		OEM MODEL	Lenovo B340/B540	Size	C
機路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	LGA1155_DM/FD/PEG/CFG	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	35 of 65		

BOM Option  
UMA -> all don't stuff  
GPU -> IFPE : DVI OUT for PC

IFPE/F Dual Link TMDS DVI-I

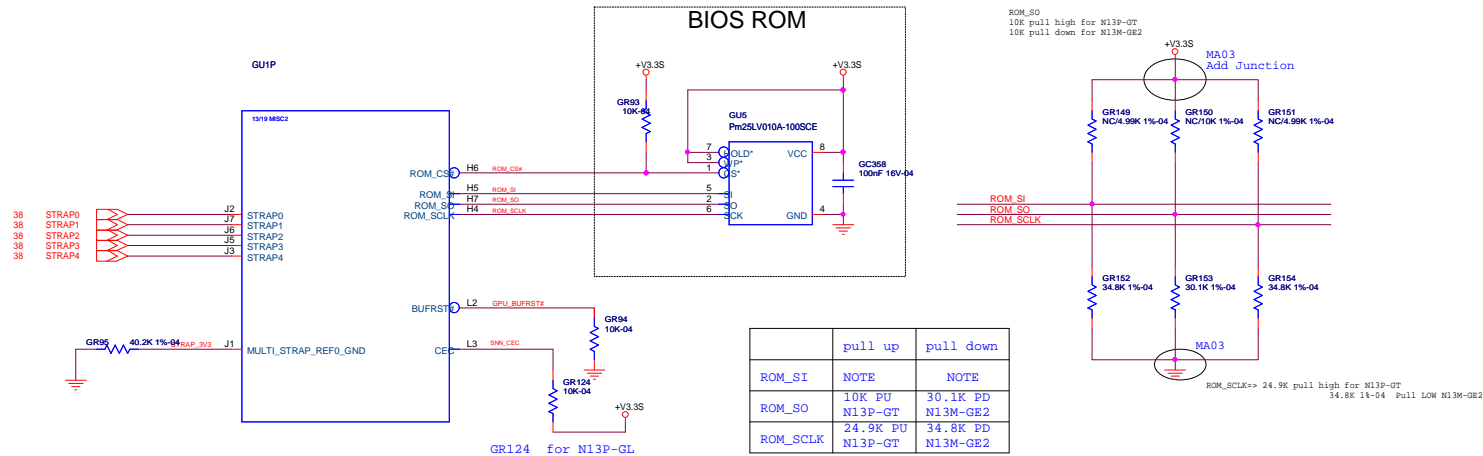
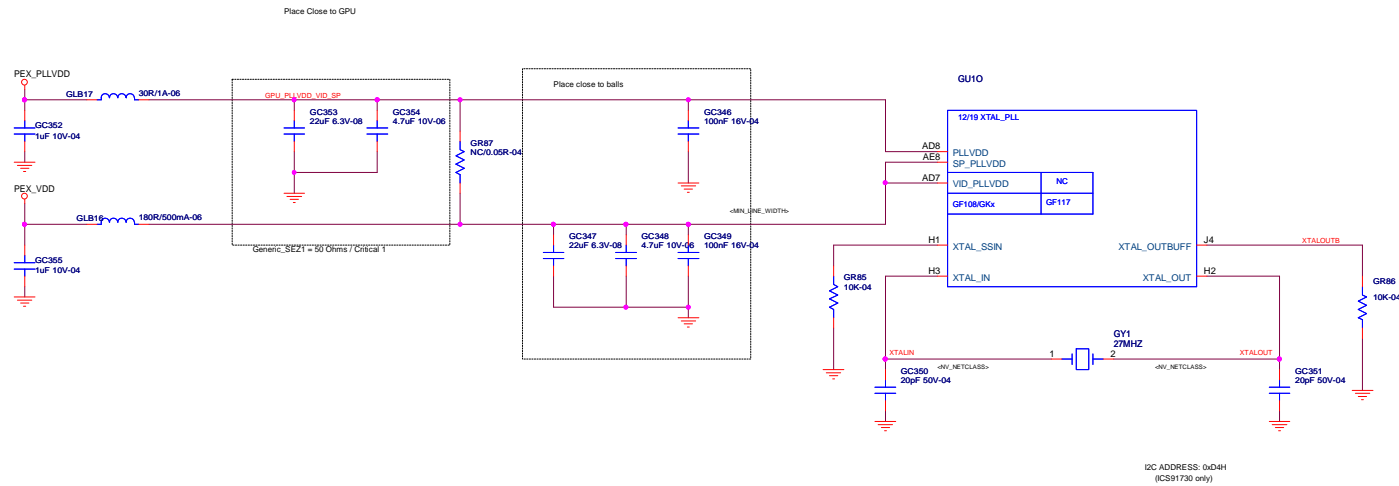


DAC\_A VGA



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	LGA1155_DM/FD/PEG/CFG	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	36 of 65	<備註>

## BIOS, External SS, and Mechanical Components



	pull up	pull down
ROM_SI	NOTE	NOTE
ROM_SO	10K PU N13P-GT	30.1K PD N13M-GE2
ROM_SCLK	24.9K PU N13P-GT	34.8K PD N13M-GE2

```
NOTE N13P-GT/GS
128X16 DDR3 samsung 0X7 K4W2G1646C-HC11C
PD 45.3K
64X16 DDR3 samsung 0X3 K4W1G1646G-BC11C
PD 20K

128X16 DDR3 Hynix 0X6 H5TQ2G63BFR-11C
PD 34.8K
64X16 DDR3 Hynix 0X2 H5TQ1G63DFR-11C
PD 15K
```

```
NOTE N13M-GE2
128X16 DDR3 samsung 0X7 K4W2G1646C-HC11C
PD 45.3K
64X16 DDR3 samsung 0X3 K4W1G1646G-BC11C
PD 20K

128X16 DDR3 Hynix 0X6 H5TQ2G63BFR-11C
PD 34.8K
64X16 DDR3 Hynix 0X2 H5TQ1G63DFR-11C
PD 15K
```

BOM Option  
UMA --> all don't stuff  
GPU --> Please refer to left table to configure N13x-xx

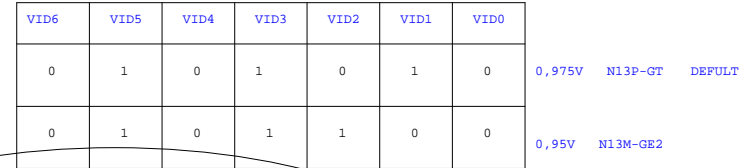
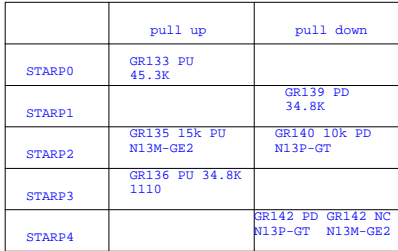
PIN NAME	MULTI-LEVEL	BINARY PRODUCTION	BINARY BRINGUP
MULTI_STRAP_REF_GND	40.2K TO GND	NO STUFF	NOT SUPPORTED

GF117/GK10X STRAPPING MODE TABLE			
PIN NAME	MULTI-LEVEL	BINARY PRODUCTION	BINARY BRINGUP
MULTI_STRAP_REF_GND	40.2K TO GND	NOT SUPPORTED	NO STUFF

T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	LG61155_DM/VD/PEG/CFG	PCB Name	6150A0003603	備註	<≪≪≪>
Date	Friday, December 23, 2011	Sheet	37 of 65		



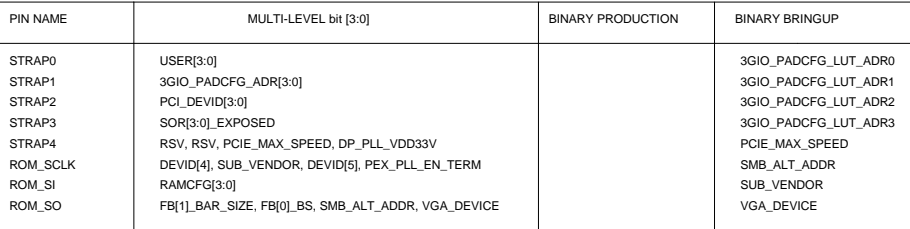
GPIO	Function	GPIO	Function
GPIO 0	Debug/Service Header/Alt_Fan PWM		I2C PORT C
GPIO 1	VID 2	EXPND 0	Level Shift Error Correction
GPIO 2	LCD brightness control (BL PWM)	EXPND 1	NVGEM GPIO EXP1/ PS_Margin*
GPIO 3	LCD Power enable (PPEN)	EXPND 2	NVGEM GPIO EXP2/PS_MR*
GPIO 4	LCD Backlight enable (BLEN)	EXPND 3	GPIO_DEBUG_SERVICE HEADER
GPIO 5	VID 0		
GPIO 6	VID 1		
GPIO 7	3D STEREO		SMBUS
GPIO 8	GPU Overtemp	EXPND 4	GPU_PS_EN
GPIO 9	GPU thermal Alert	EXPND 5	RSVD
GPIO 10	FB Vref Control (not used sDDR3)	EXPND 6	PEX_RST
GPIO 11	FBVDD/Q VID (Reserved)	EXPND 7	RSVD
GPIO 12	PWR_Level AC Detect		
GPIO 13	PS1 Vprgm Enable		
GPIO 14	HPD for IFP AB (not used)		
GPIO 15	HPD for IFP C (HDMI/DP)		
GPIO 16	Fan PWM control		
GPIO 17	HPD for IFP D (DP)		
GPIO 18	HPD for IFP E (DVI-I DL)		
GPIO 19	HPD for IFP F (not used)		
GPIO 20	NVGEM Debug GPIO13		
GPIO 21	NVGEM Debug GPIO14		




BOM Option

UMA --> all don't stuff

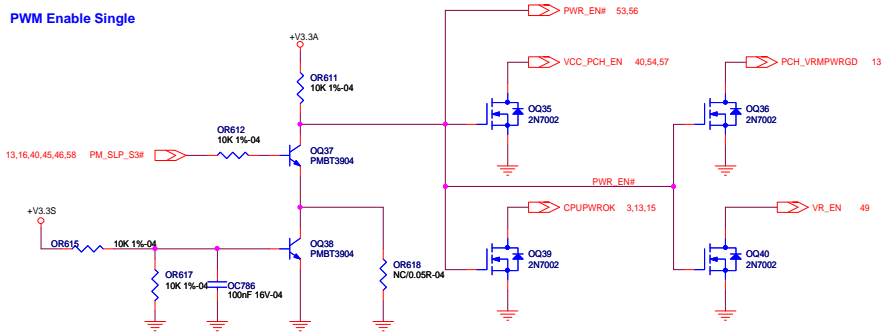
GPU --> Please refer to below table to configure N13x-xx



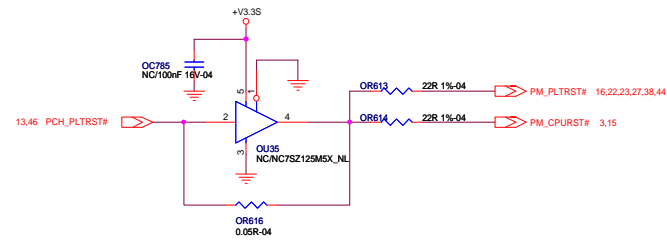
NOTE 3: Bring-up SKU(s) have jumper configurable subvendor and DEVID\_4 settings see the ROM\_SCLK STRAP

	T & I		OEM MODEL	Lenovo B340/B540	Size	C
	總路圖編號		T&I MODEL	B340_B540	Rev	0.1
	Key Component		PCB NAME	6150A0003603		
	Date		Saturday, February 04, 2012	Sheet	38 of 65	備註 <備註>

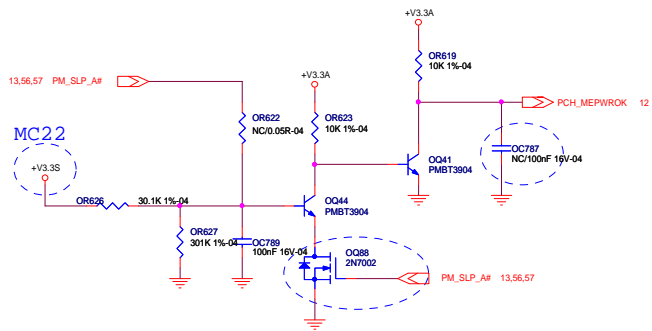
# PWM Enable Single



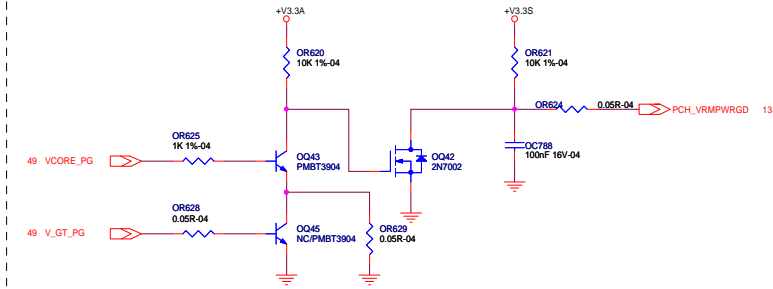
# Reset Single



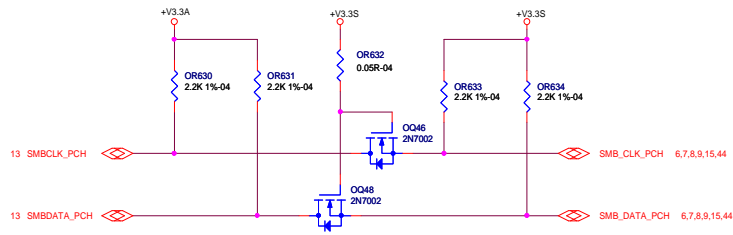
# PCH\_MEPWROK



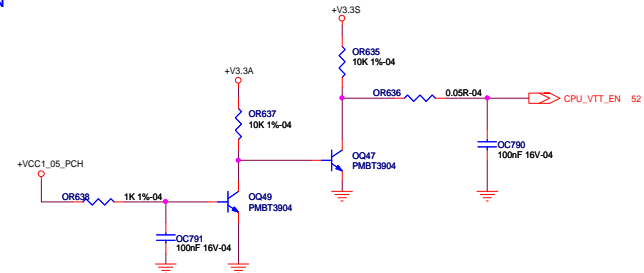
# PCH\_VRMPWRGD (VR\_READY)



# SM BUS

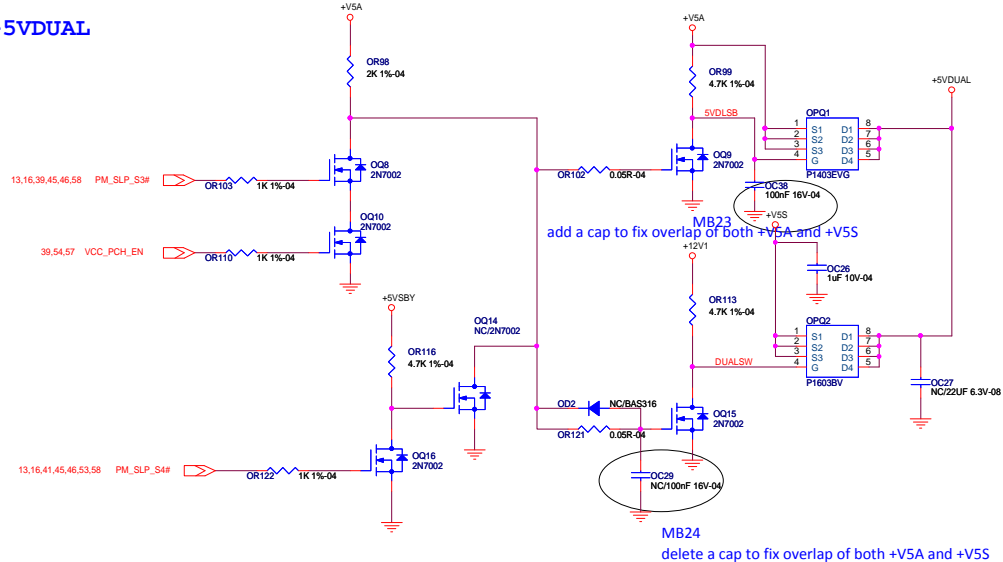


# CPU\_VTT\_EN



T & I	OEM MODEL	Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Controller 1	PCB NAME	6150A0003603	0.3
Date	Friday, December 23, 2011	Sheet	39 of 65	備註 <備註>

This is an input signal to the PCH from power monitoring circuit to indicate that all deep sleep power rail, VccDSW3\_3 is stable on the platform. Connect to VccDSW3\_3 power rail monitoring circuit on mother board. For platform not supporting deep sleep connect directly to RSMRST#. The DSW rails must be stable for at least 10 ms before DPWRK is asserted to PCH.



**MB24**  
Don't stuff OR126

**MB49**  
Delete QO17, QO18, QO20 for EUP

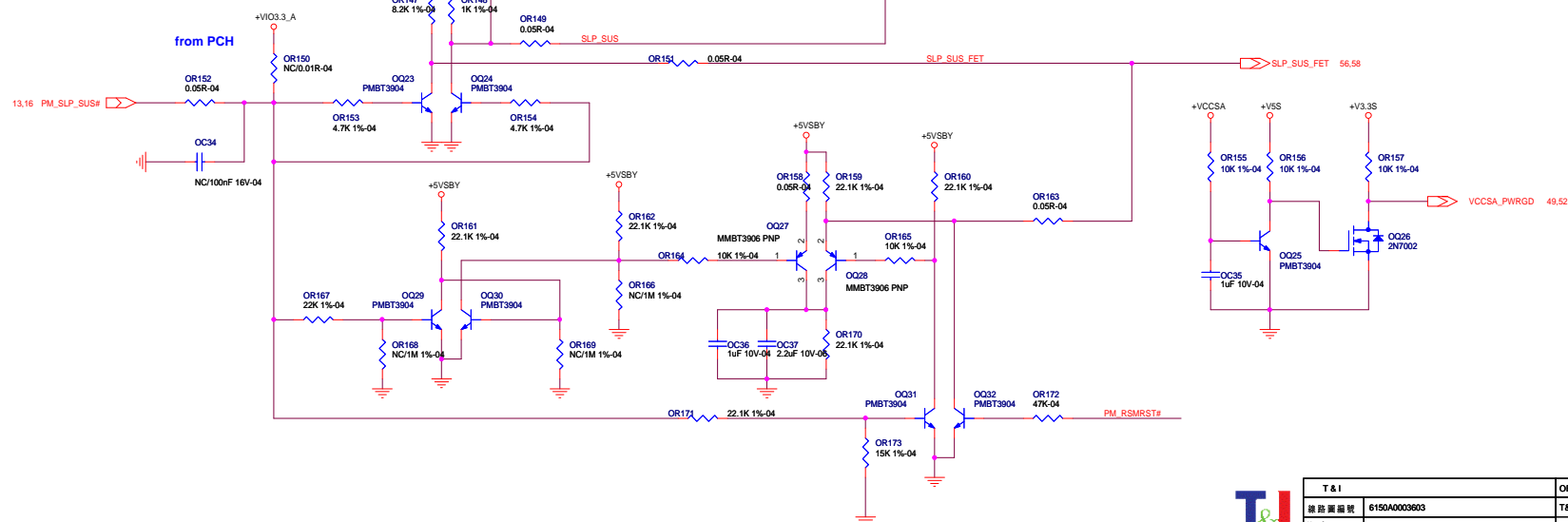
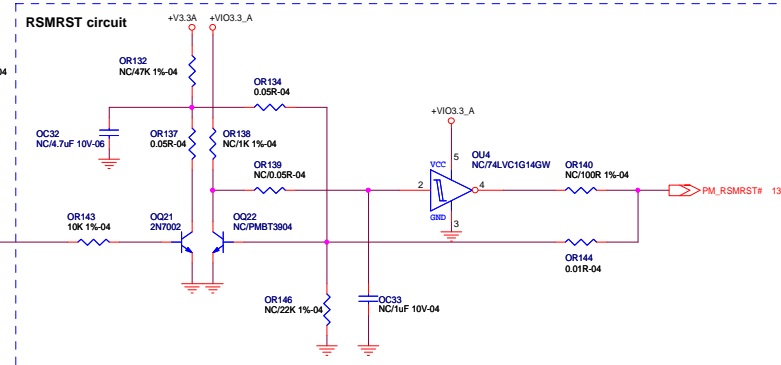
**SUSACK#** (to PCH)

**SUSWARN#** (from PCH)

**SUSACK CNTRL**  
**SUS\_WARN INDIVID**

**+5VSBY**  
**+VIO3.3\_A**

**OR121** 1K 1%-04  
**OR122** 1K 1%-04  
**OR123** 1K 1%-04  
**OR124** 10K 1%-04  
**OR125** 10K 1%-04  
**OR126** NC 0.05R-04  
**OR127** 20K 1%-04  
**OR128** 10K 1%-04  
**OR129** 0.05R-04  
**OR130** NC 10K 1%-04  
**OR131** NC 976R 1%-04  
**OR132** 10K 1%-04  
**OR133** 0.05R-04  
**OR134** 10K 1%-04  
**OR135** 1K 1%-04  
**OR136** 10K 1%-04  
**OR137** 10K 1%-04  
**OR138** 10K 1%-04  
**OR139** 10K 1%-04  
**OR140** 0.05R-04  
**OR141** 10K 1%-04  
**OR142** 10K 1%-04  
**OR143** 10K 1%-04  
**OR144** 10K 1%-04  
**OR145** 5.6K 1%-04  
**OR146** 10K 1%-04  
**OR147** 8.2K 1%-04  
**OR148** 1K 1%-04  
**OR149** 0.05R-04  
**OC20** 100nF 16V-04  
**OC21** 100nF 16V-04  
**QO17** NC/PMBT3904  
**QO18** NC/PMBT3904  
**QO19** 10K 1%-04  
**QO20** NC/PMBT3904  
**QO21** NC/PMBT3904  
**QO29** NC/PMBT3904

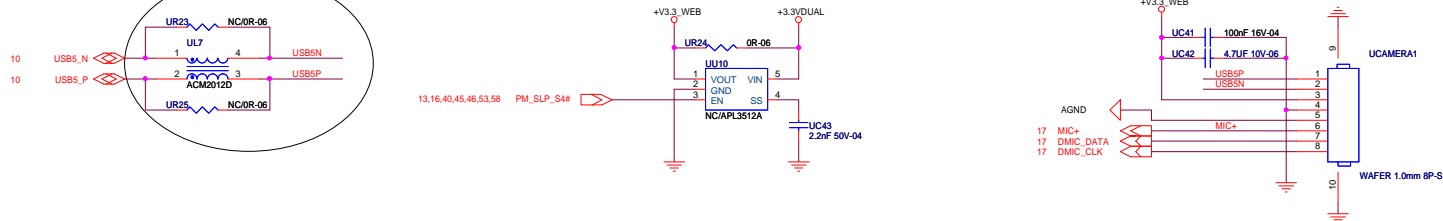


T & I		OEM MODEL	Lenovo B320	Size	C
總路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Controller 2, +5VDUAL	PCB NAME	6150A0003603		
Date	Saturday, February 04, 2012	Sheet	40 of 65	備註	<備註>

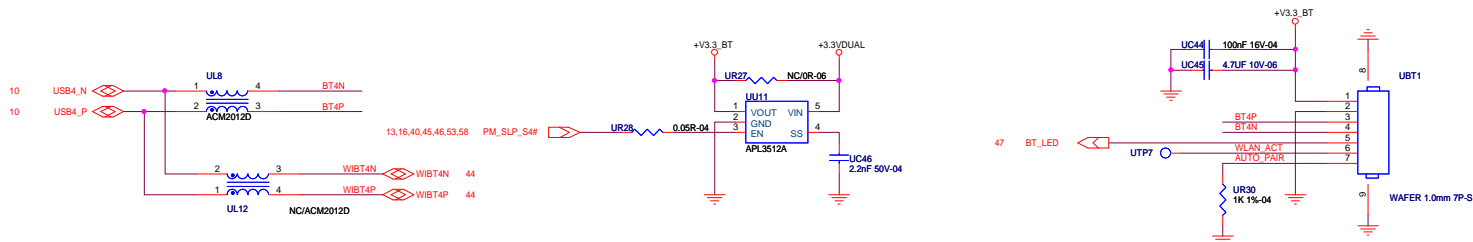


MB25  
For EMI requirement

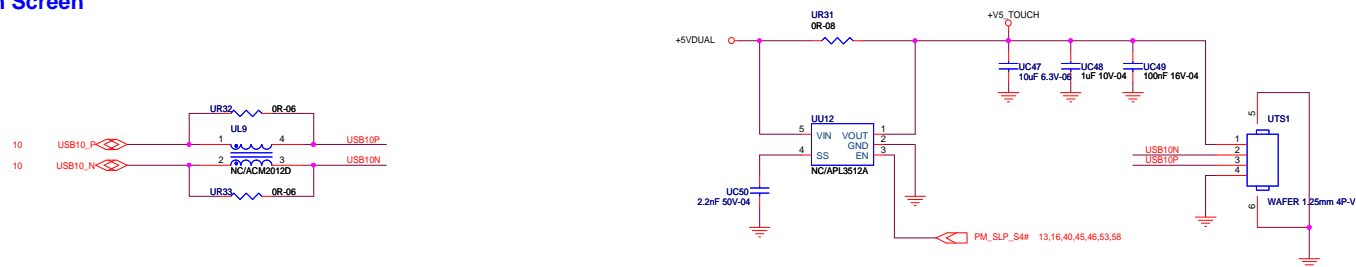
## Camera + Mic



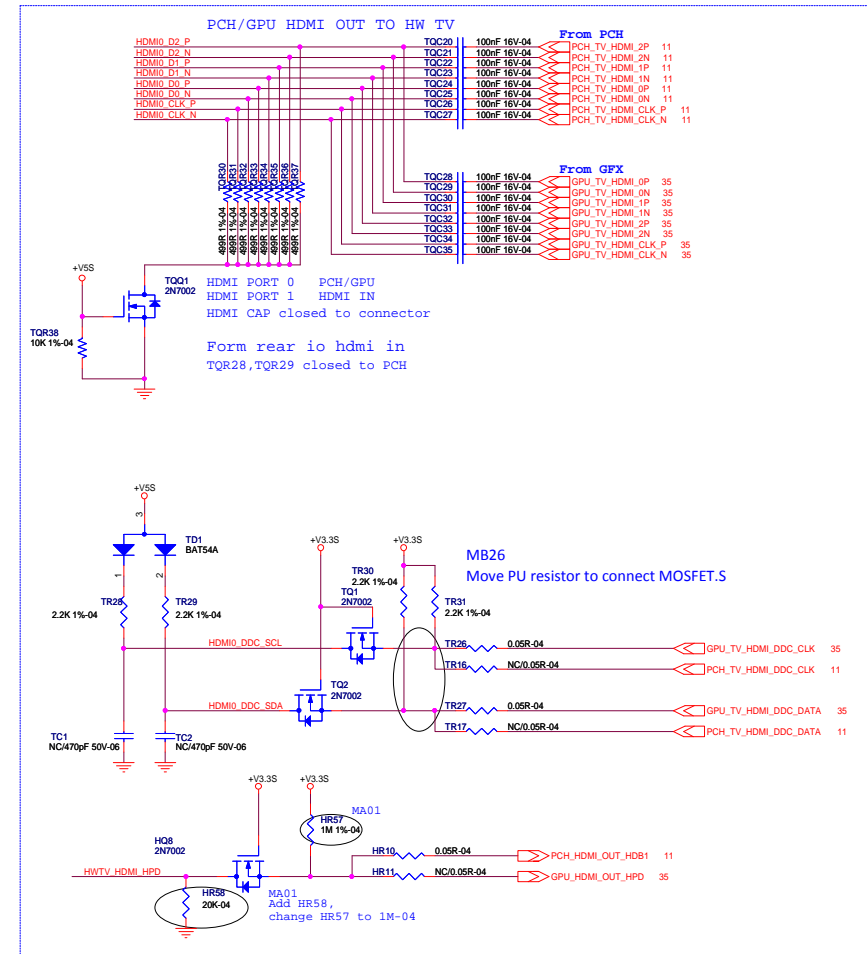
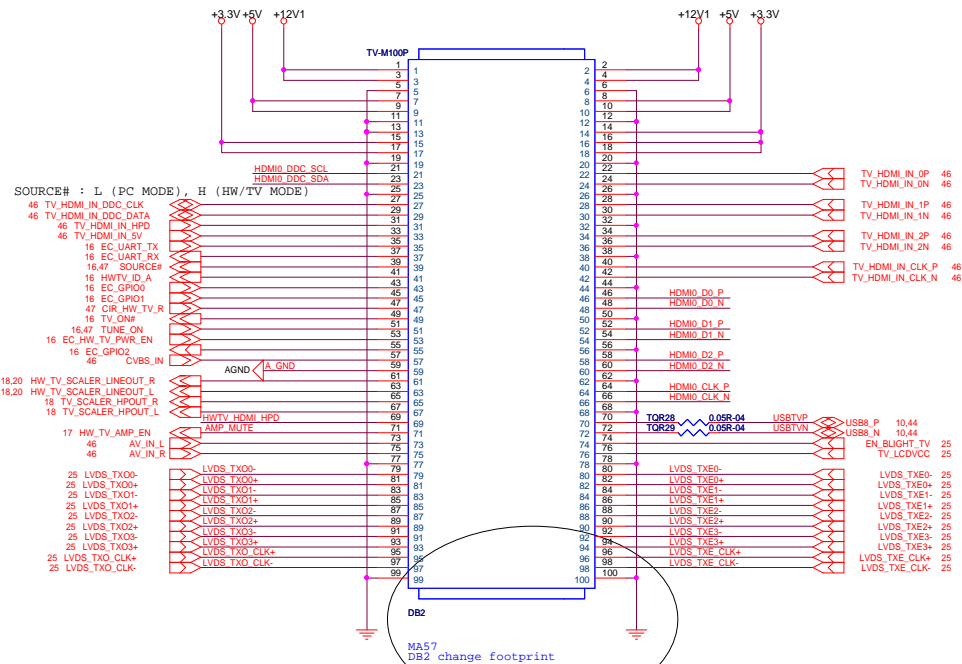
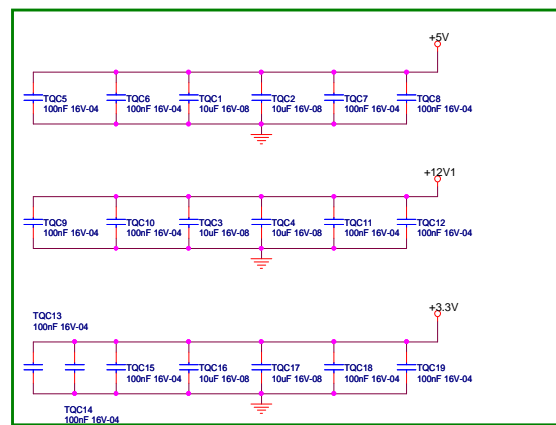
## BT



## Touch Screen

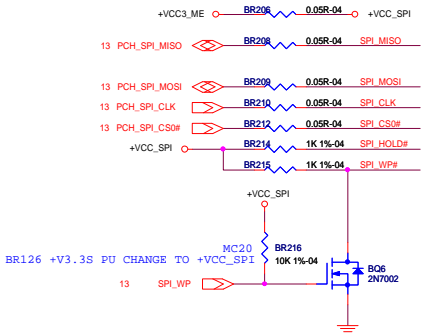


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	Webcam, BT, Touch Pad	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	41 of 65	

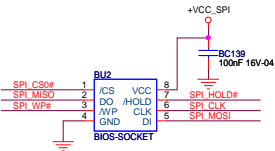
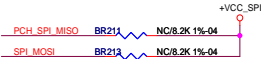
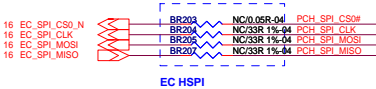


T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150/A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	HW/TV_CONN	PCB Name	6150/A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	42 of 65		

BIOS SPI ROM

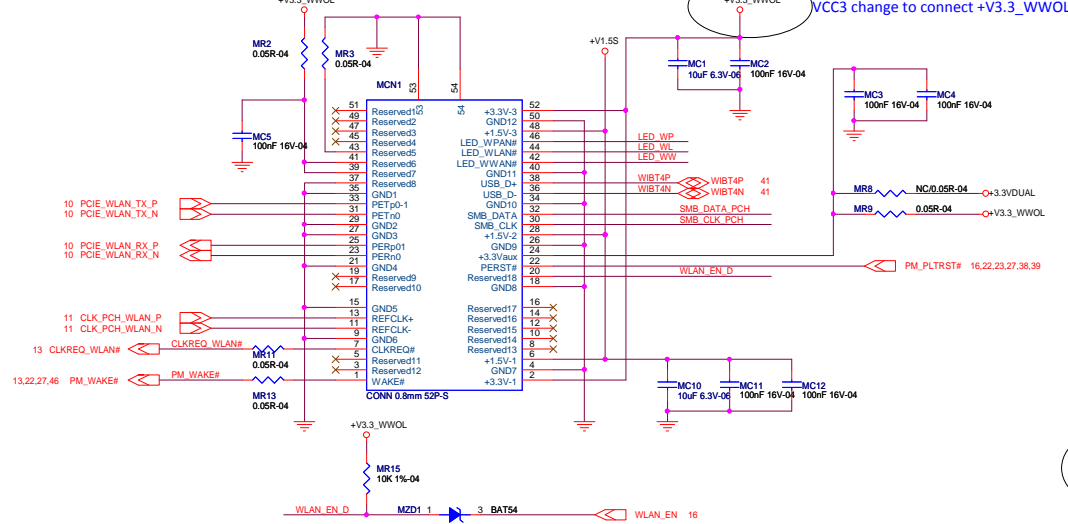


- 1MB SPI ROM  
1st -- 056G2233 5 Winbond W25X80BVSSIG
- 2MB SPI ROM  
1st -- 056G1133951 Winbond W25Q16BVSSIG  
2nd -- 056G1133 97 MXIC MX25L1605MC-12G
- 8MB SPI ROM  
1st -- 056G2233 16 Winbond W25Q64BVSSIG  
2nd -- 056G2233 15 MXIC MX25L6445EM2I-10G



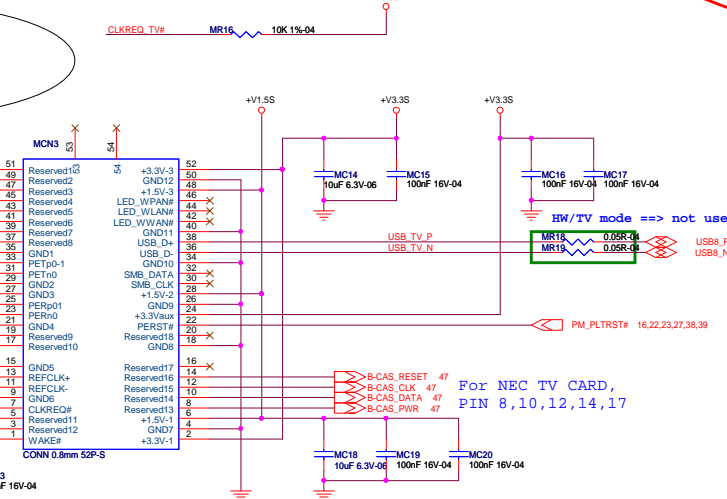
T & I	OEM MODEL	Lanovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	SPI ROM SYS	PCB NAME	6150A0003603	0.1
Date	Saturday, February 04, 2012	Sheet	43 of 65	備註 <備註>

## Mini PCI-e Card for WLAN



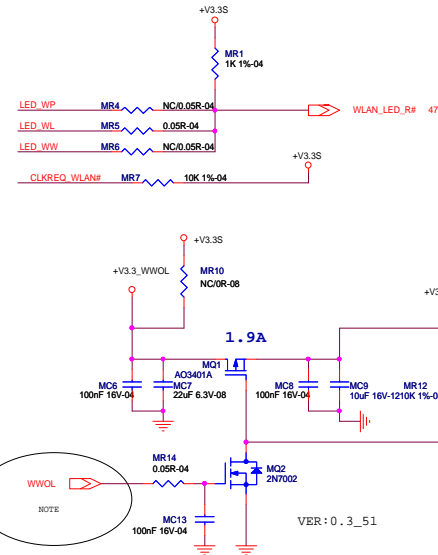
BOM Option  
H61 --> MCN2 don't stuff  
H77 --> MCN2 stuff

## Mini PCI-e Card for TV Tuner



For NEC TV CARD,  
PIN 8,10,12,14,17

MB27  
VCC3 change to connect +V3.3\_WWOL



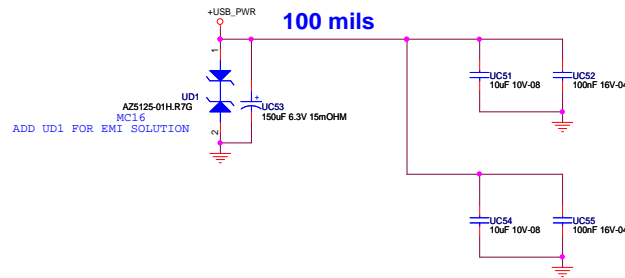
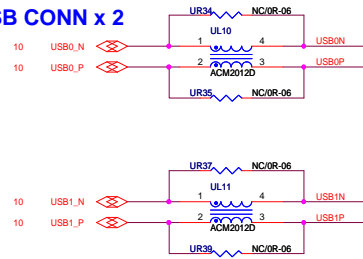
MB29  
SW-TV connector pin 20 is NC  
delete MR17,MZD2

MB43  
To support NEC TV card  
add +12V, +5V at reserved pin



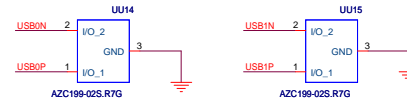
T & I	OEM MODEL	Lenovo B340/B540	Size	C
總代理商號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	Mini-PCI-Express x 2	PCB NAME	6150A0003603	備註
Date	Friday, December 23, 2011	Sheet	44 of 65	<備註>

# USB CONN x 2

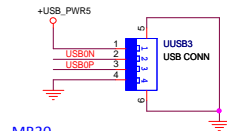


MB32

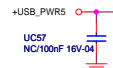
USB3.0 change to USB2.0 for side IO  
delete common-mode-choke  
UL13,UL14,UL15,UL16



MA05  
USB3.0 TX / RX SWAP

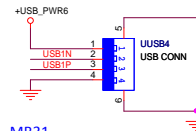


MB30  
USB3.0 change to USB2.0 for side IO

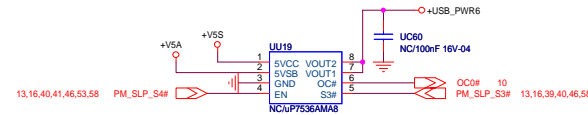
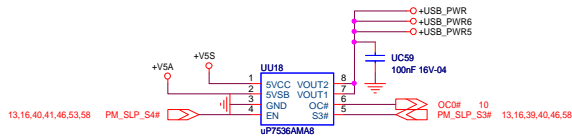
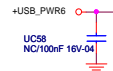


MB33  
USB3.0 change to USB2.0 for side IO  
delete UU16,UU17

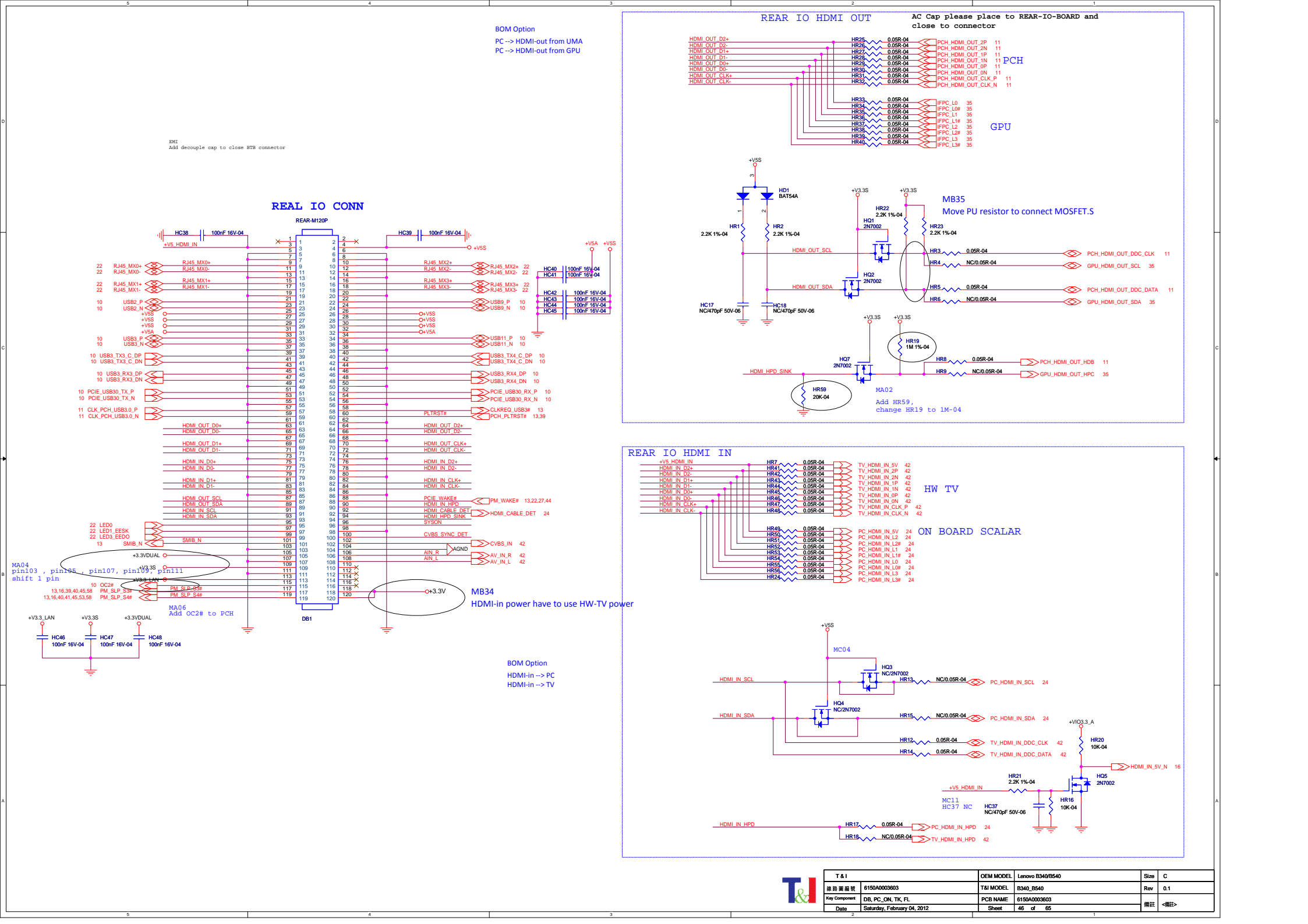
MA05  
USB3.0 TX / RX SWAP  
MA58  
UUSB3,UUSB4 Change footprint



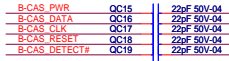
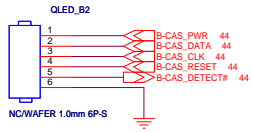
MB31  
USB3.0 change to USB2.0 for side IO



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	PCB NAME	6150A0003603	備註	<備註>
Date	Sheet	45 of 65		



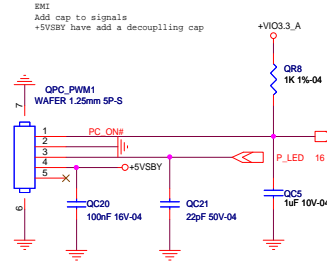
## NEC-B CAS



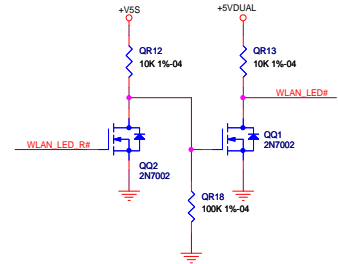
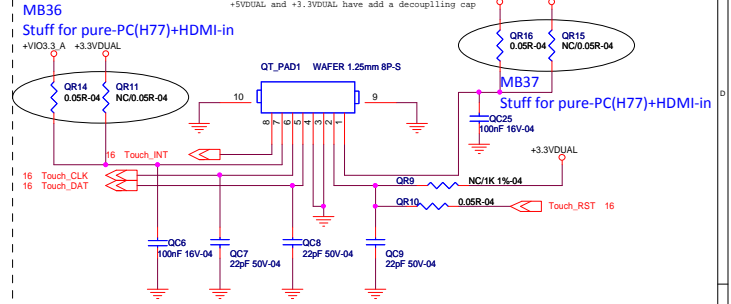
EMI  
Add cap to signals  
Smart-card clock have add serial terminator and C to clock

CC Lai  
This symbol pin sequence have error  
and change pin sequence to 123456

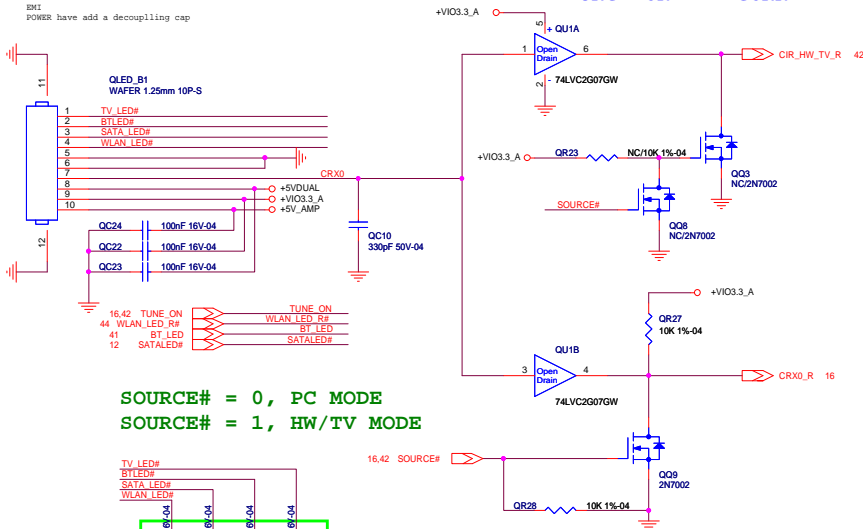
## PC PWR CONN



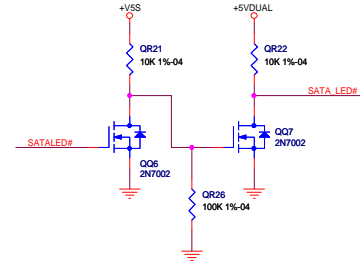
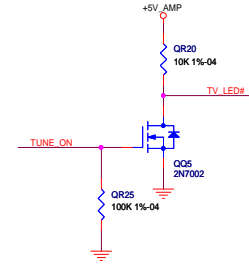
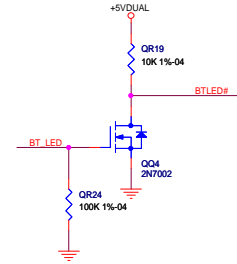
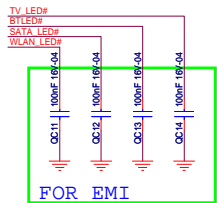
## FUNCTION TOUCH PAD CONN



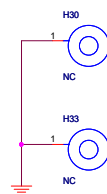
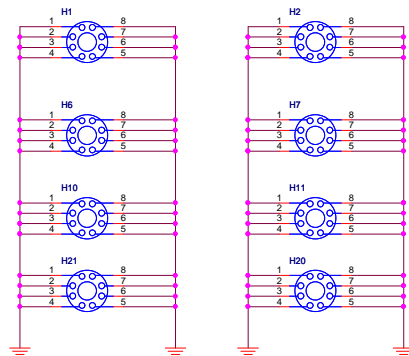
## FUNCTION LED CONN



SOURCE# = 0, PC MODE  
SOURCE# = 1, HW/TV MODE

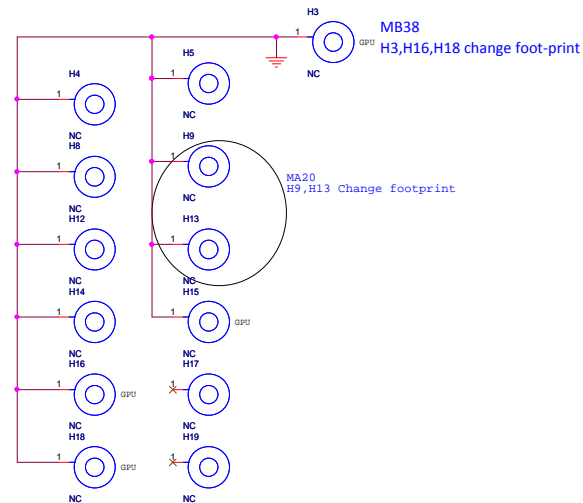


T & I	OEM MODEL	Lenovo B340/B540	Size	C
Key Component	DB, PC_ON, TK, FL	T&I MODEL	B340_B540	Rev
Date	Friday, December 23, 2011	PCB NAME	6150A0003603	0.1
		Sheet	47 of 65	備註 <備註>



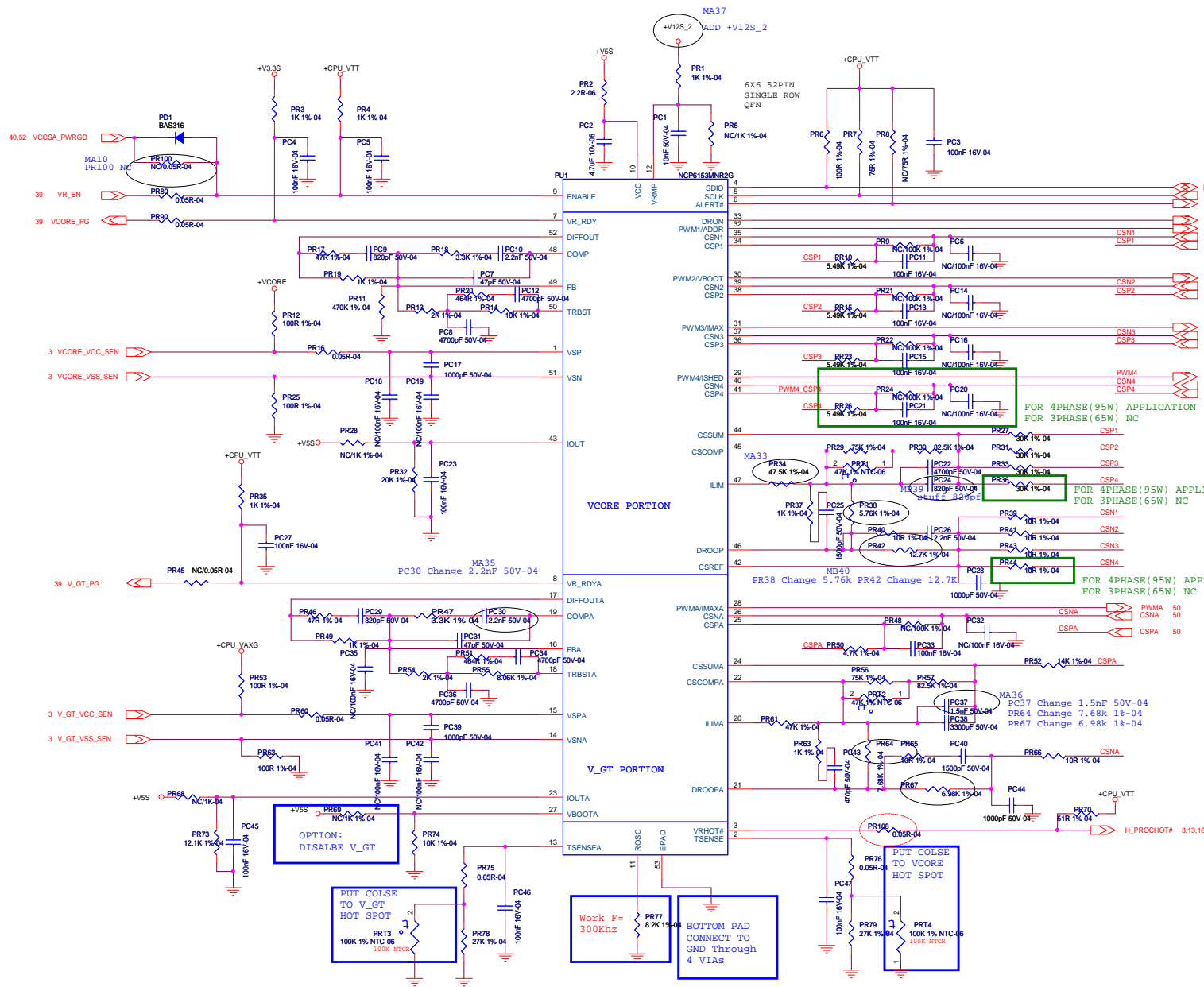
H31  
JUMP-2.00

H32  
JUMP-2.00

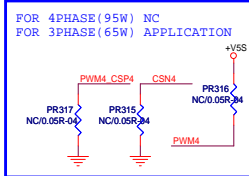


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	Screw	PCB NAME	6150A0003603	0.1
Date	Friday, December 23, 2011	Sheet	48 of 65	備註 <備註>



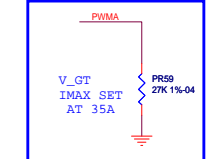
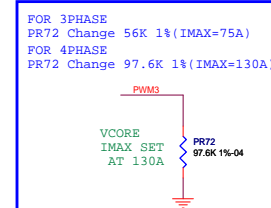
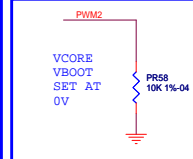
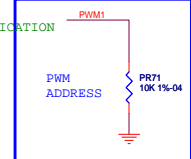


PWM ADDRESS		
RESISTOR VALUE	SVID ADDRESS FOR VCORE RAIL	SVID ADDRESS FOR V_GT RAIL
10K	0000	0001
25K	0010	0011
45K	0100	0101
70K	0110	0111
95K	1000	1001
125K	1010	1011
165K	1100	1101

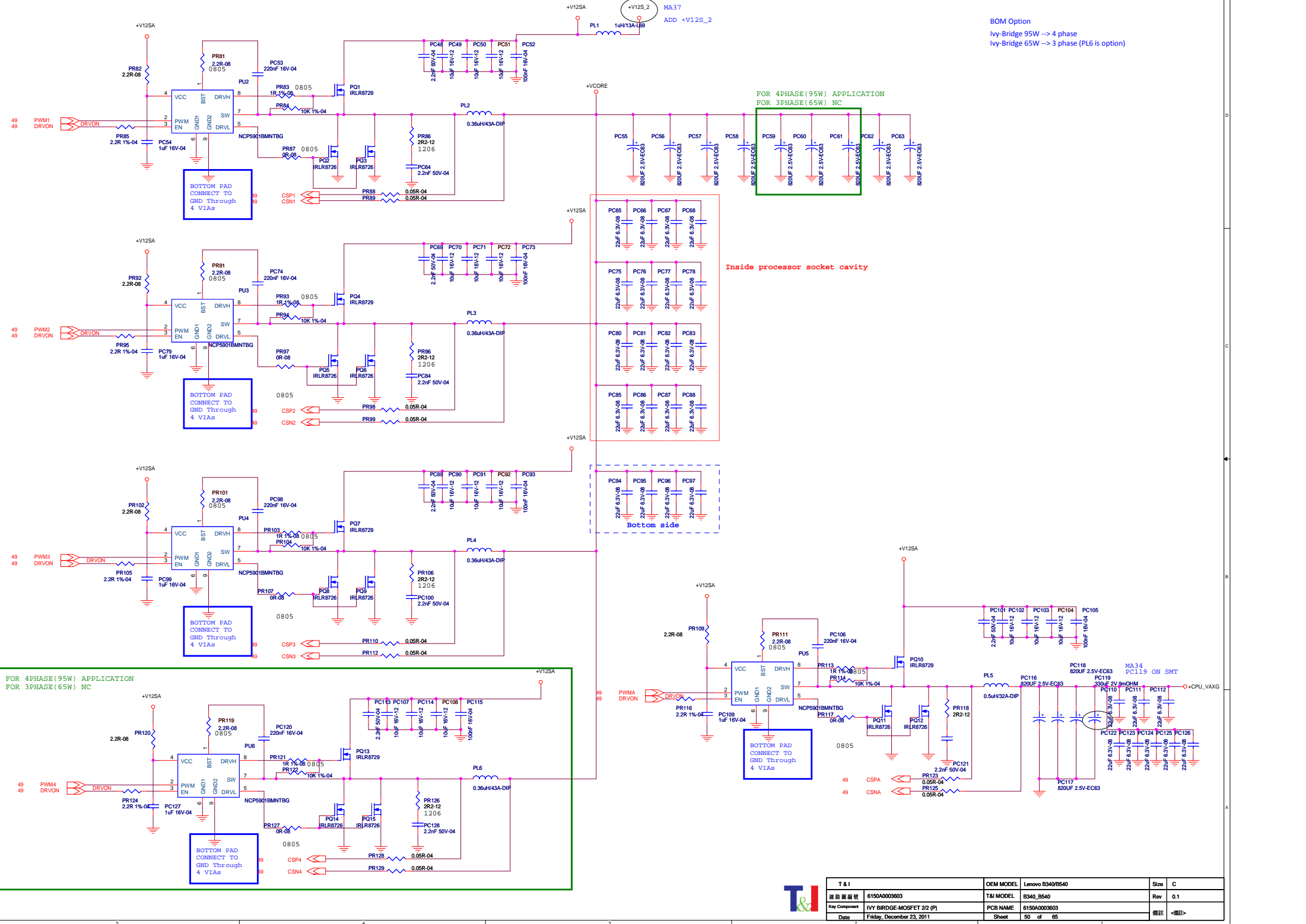


BOOT VOLTAGE	
RESISTOR VALUE	BOOT VOLTAGE
10K	0V
25K	0.9V
45K	1.0V
70K	1.1V
95K	1.2V
125K	1.35V
165K	1.5V

PR34	OCF
47.5K	170A(95W)
34K	120A(65W)



T&I	OEM MODEL	Lenovo B340/B540	Size	C
Key Component	T&I MODEL	B340_B540	Rev	0.1
Date	PCB NAME	6150A0003603	備註	<備註>
Saturday, December 24, 2011	Sheet	49 of 65		



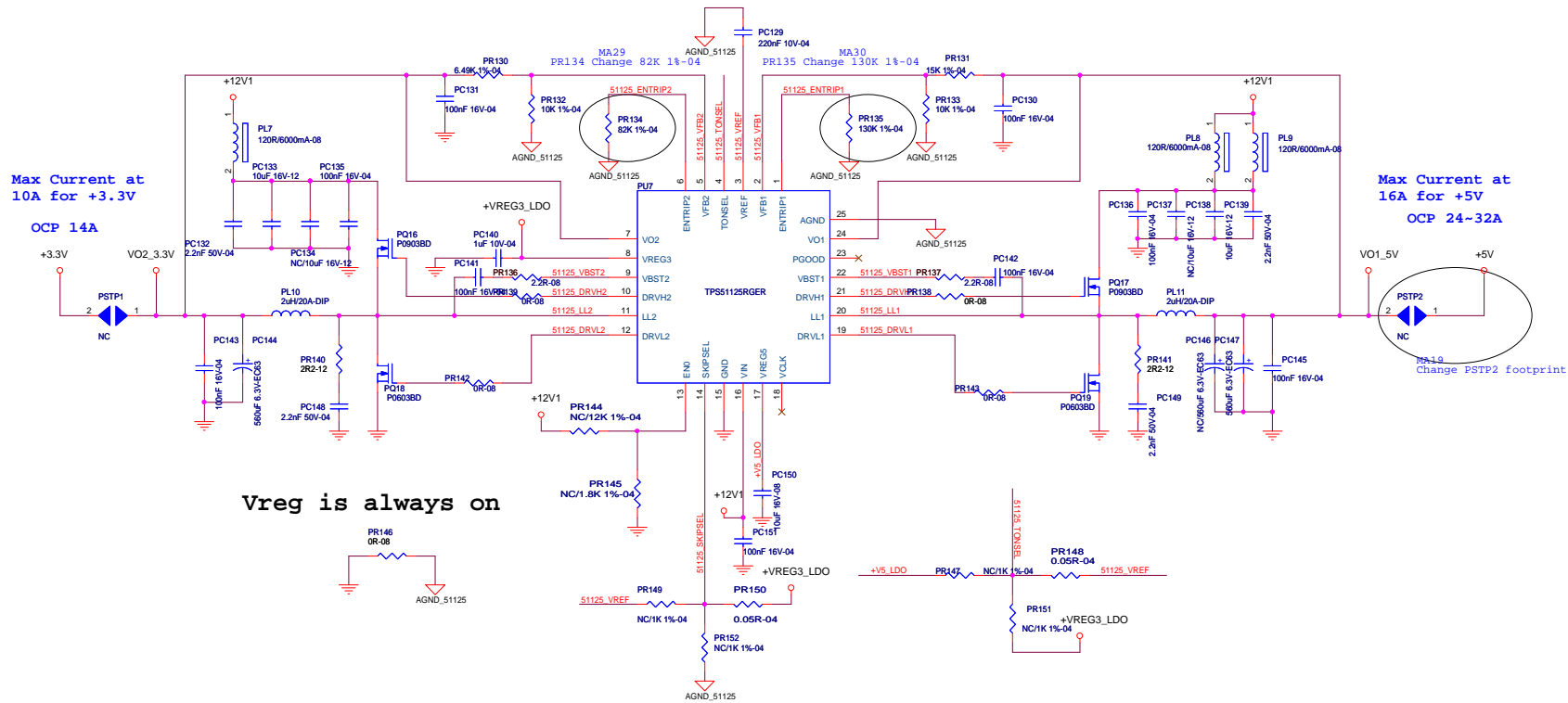
BOM Option  
Ivy-Bridge 95W --> 4 phase  
Ivy-Bridge 65W --> 3 phase (PL6 is option)

Inside processor socket cavity

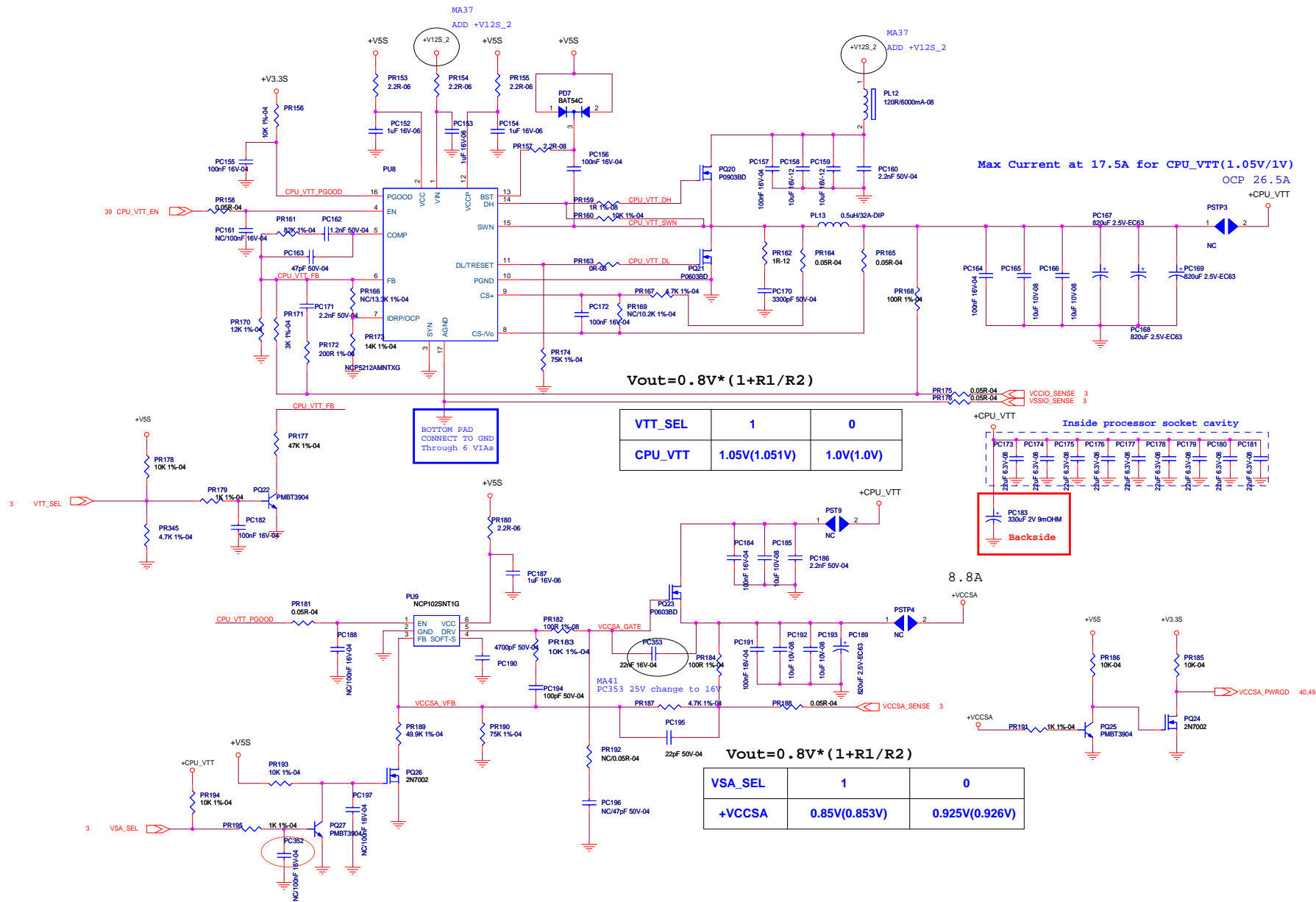
FOR 4PHASE(95W) APPLICATION  
FOR 3PHASE(65W) NC

Bottom PAD CONNECT TO GND Through 4 Vias

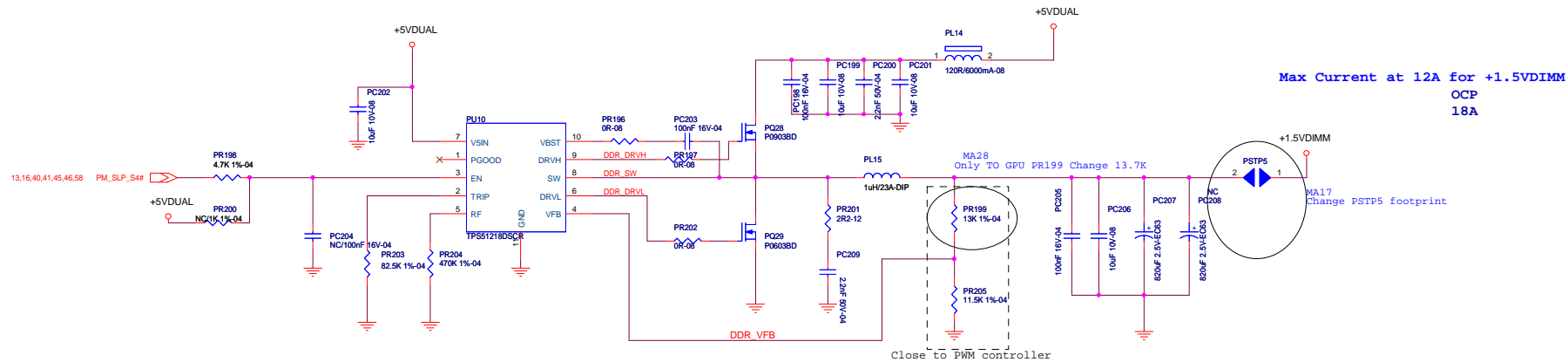
T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	IVY BRIDGE-MOSFET 2/2 (P)	PCB NAME	6150A0003603	0.1
Date	Friday, December 23, 2011	Sheet	50 of 65	備註 <備註>



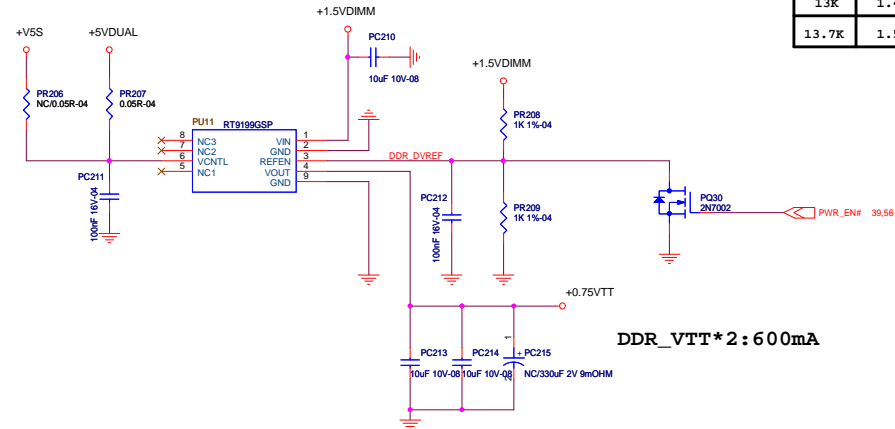
T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	SYSTEM +V5,+V3.3(P)	PCB NAME	6150A0003603	備註 <備註>
Date	Friday, December 23, 2011	Sheet	51 of 65	



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev
Key Component	CPU_VTT_1.05V,VCCA_0.85V(P)	PCB NAME	6150A0003603	0.1
Date	Friday, December 23, 2011	Sheet	S2 of 65	備註 <備註>



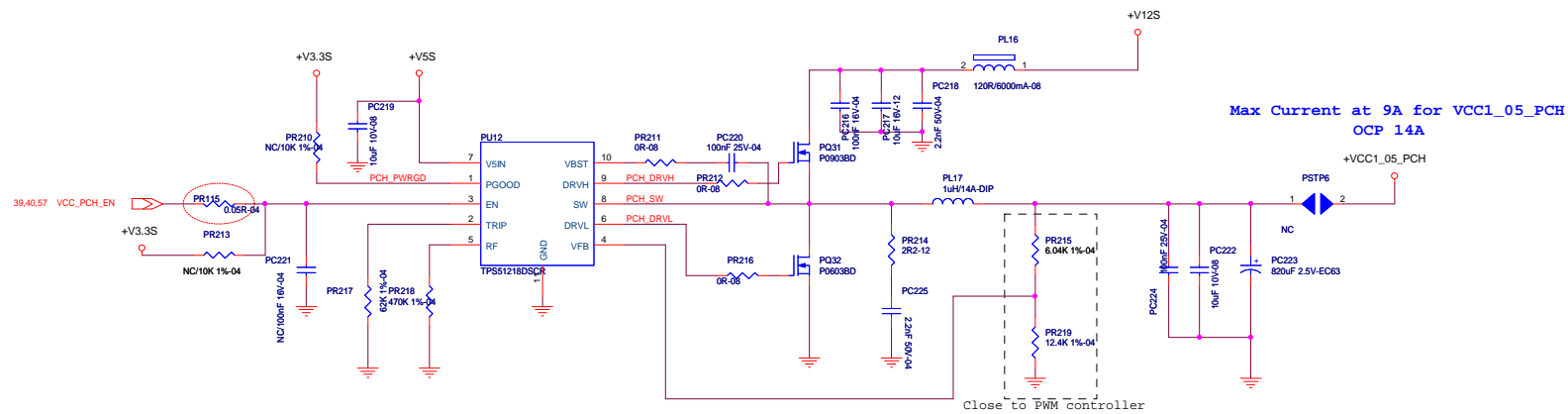
### DDR VTT Power



PR199	+1.5VDIMM
13K	1.49V
13.7K	1.54V(For GPU)



T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	53 of 65	



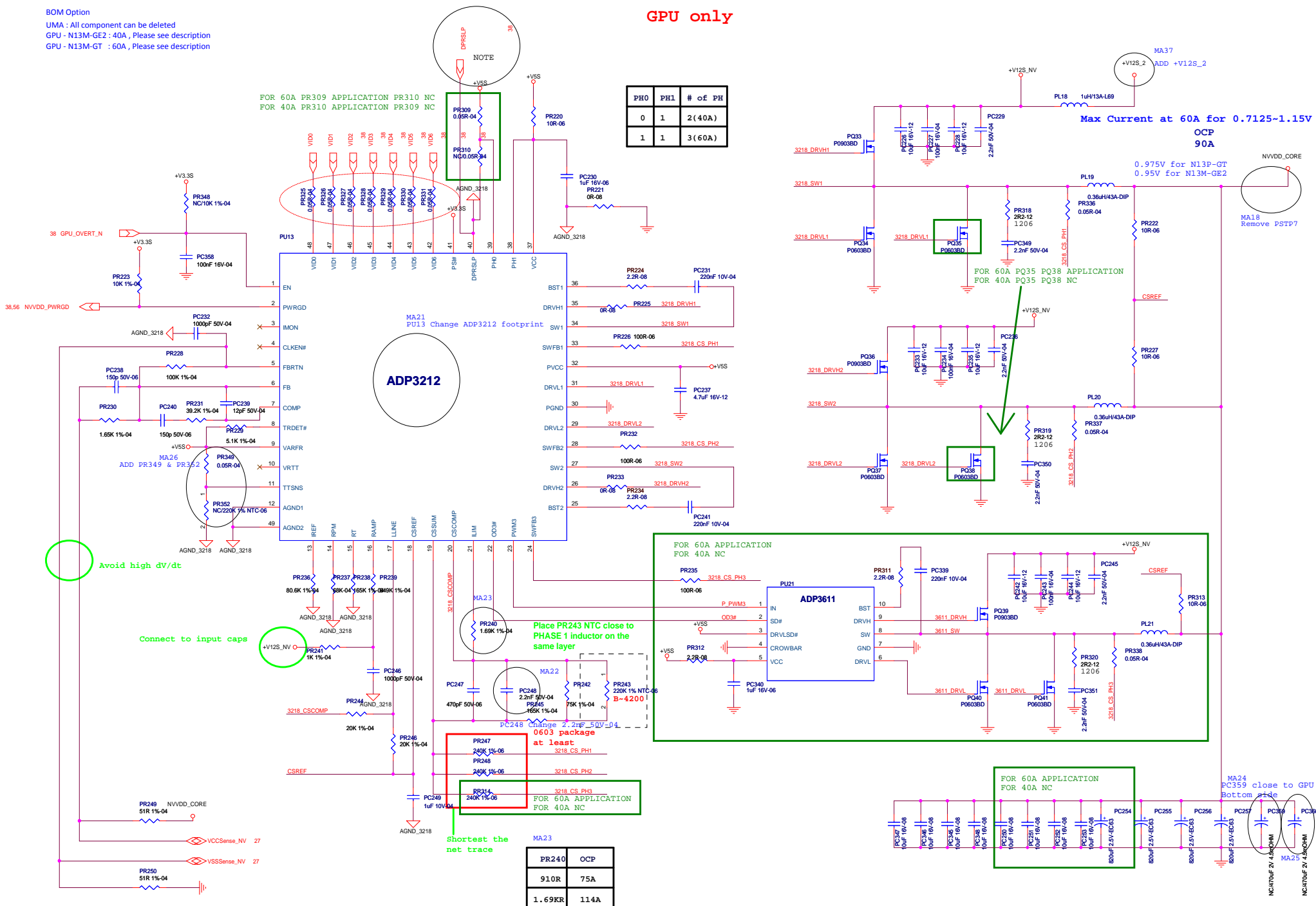
T & I		OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號		T&I MODEL	B340_B540	Rev	0.1
Key Component		PCB NAME		備註 <備註>	
Date		Sheet			
Friday, December 23, 2011		54 of 65			

BOM Option  
 UMA : All component can be deleted  
 GPU - N13M-GE2 : 40A , Please see description  
 GPU - N13M-GT : 60A , Please see description

## GPU only

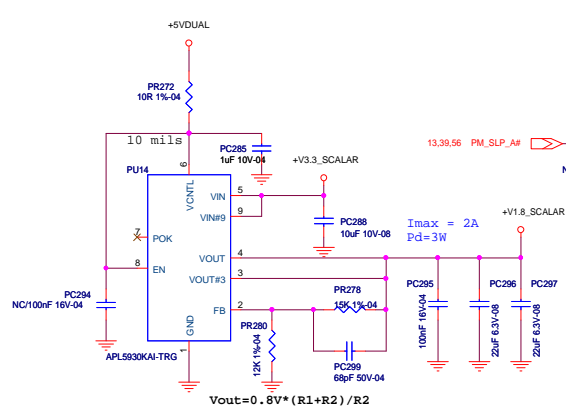
FOR 60A PR309 APPLICATION PR310 NC  
 FOR 40A PR310 APPLICATION PR309 NC

PH0	PH1	# of PH
0	1	2 (40A)
1	1	3 (60A)









13.39,56 PM\_SLP\_A#

+V1.8\_SCALAR

$I_{max} = 2A$   
 $P_d = 3W$

PC294  
NC/100nF 16V-04

PC295  
100nF 16V-04

PC296  
22uF 6.3V-08

PC297  
22uF 6.3V-08

PC298  
10uF 10V-08

PC299  
68pF 50V-04

PC300  
10uF 10V-08

PC301  
22uF 6.3V-08

PC302  
22uF 6.3V-08

PC303  
100nF 16V-04

PC304  
1uF 10V-04

PC305  
1uF 10V-04

PC306  
10uF 10V-08

PC307  
1uF 10V-04

PC308  
10uF 10V-08

PC309  
10uF 10V-08

PC310  
NC/100nF 16V-04

PC311  
68pF 50V-04

PC312  
100nF 16V-04

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22uF 6.3V-08

PC314  
22uF 6.3V-08

PC315  
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PC316  
100nF 16V-04

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22uF 6.3V-08

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22uF 6.3V-08

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100nF 16V-04

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22uF 6.3V-08

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100nF 16V-04

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68pF 50V-04

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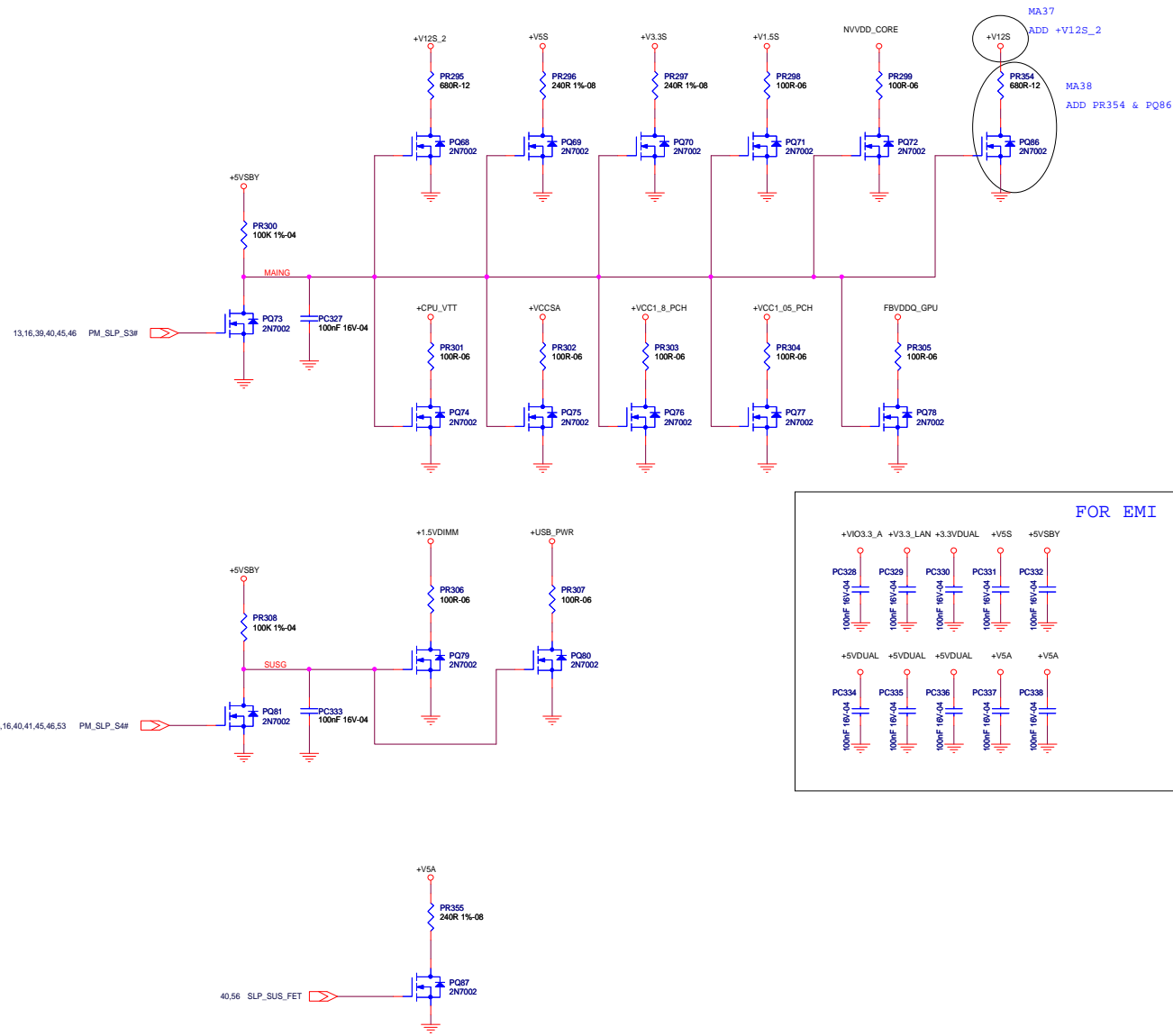
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PC508  
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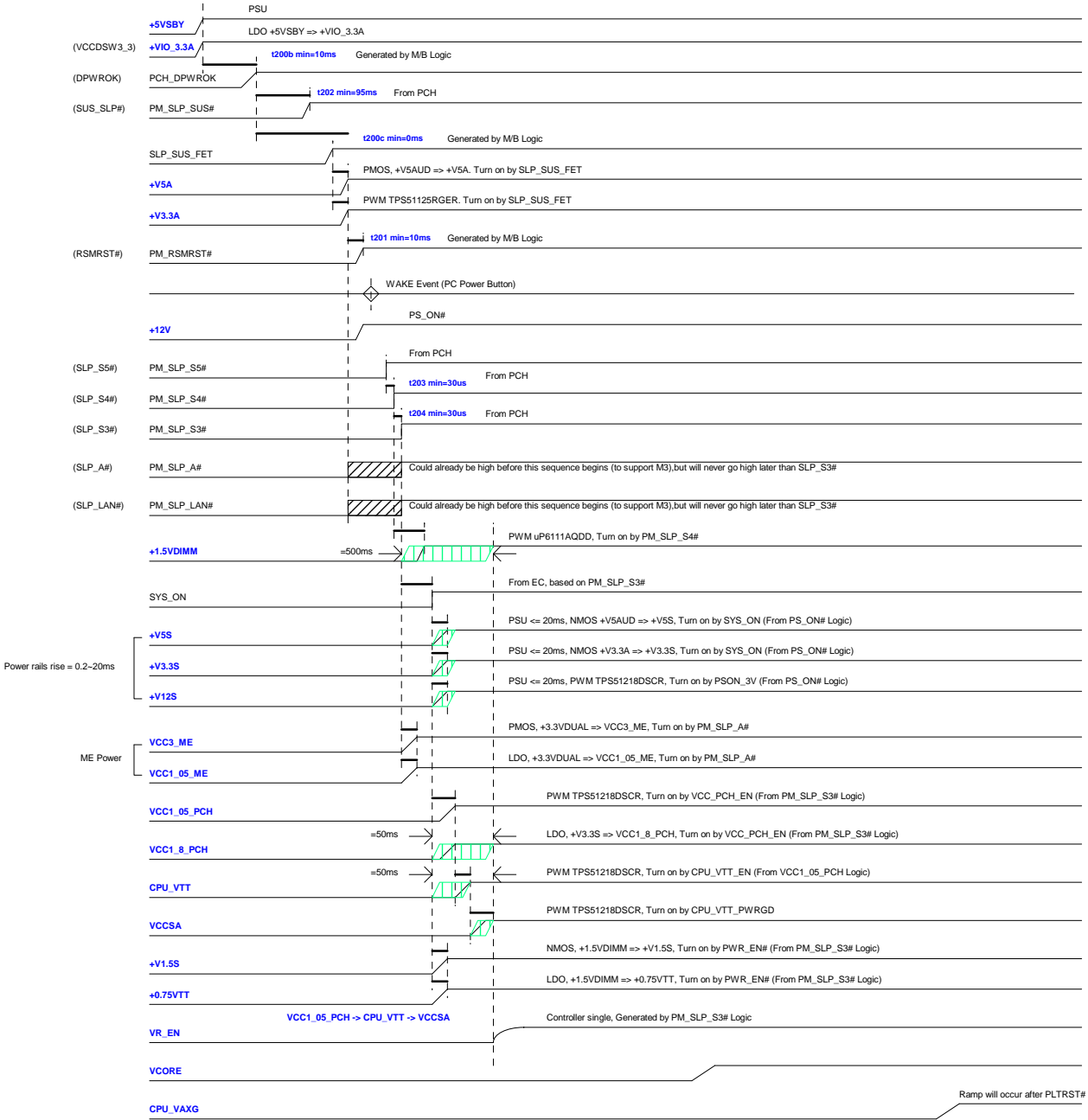


T & I	OEM MODEL	Lenovo B340/B540	Size	C
線路圖編號	T&I MODEL	B340_B540	Rev	0.1
Key Component	Discharge Circuit(P)	PCB NAME	6150A0003603	備註 <備註>
Date	Friday, December 23, 2011	Sheet	58 of 65	

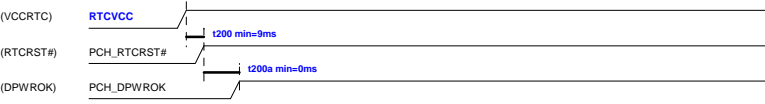


T & I		OEM MODEL	Lenovo B340/B540	Size	C
雜貨圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	Power Map	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	59 of 65		

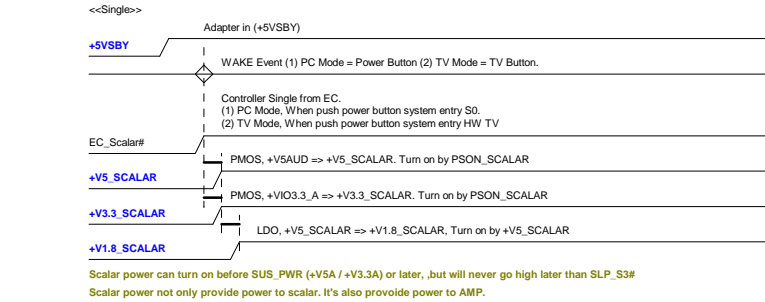
System Power



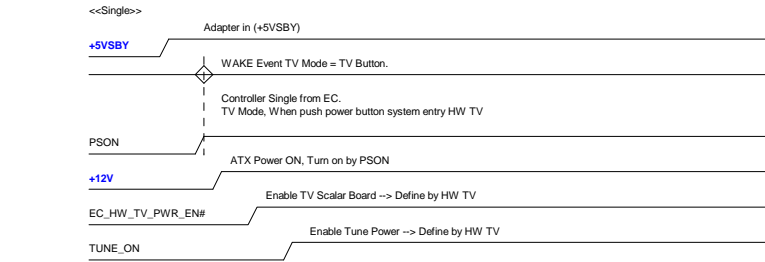
RTC Power




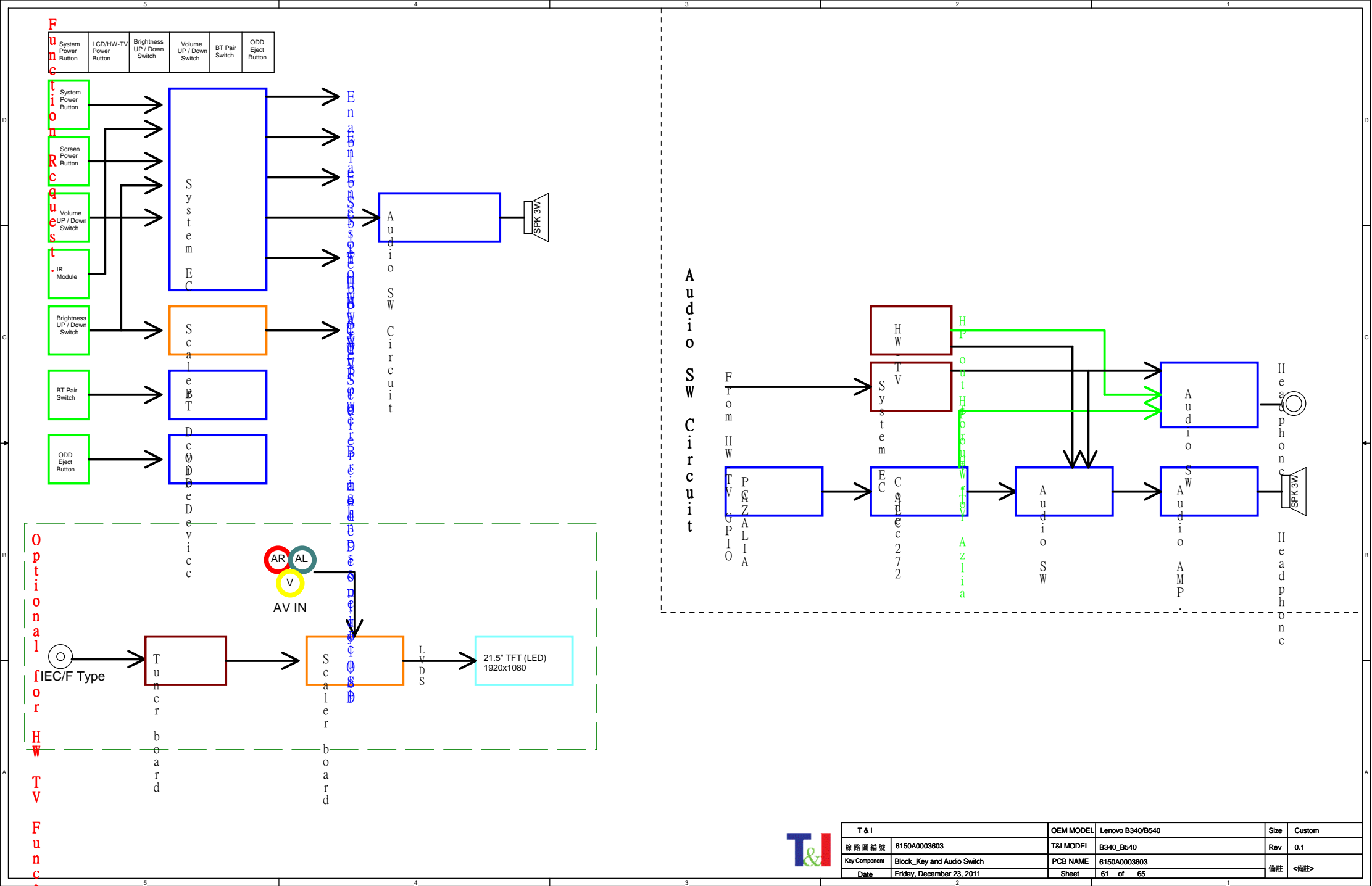
Scalar Power



TV Power



	T & I		OEM MODEL		Lenovo B340/B540		Size	Custom		
	规格书编号		6150A0003603		TAI MODEL		B340_B540		Rev	0.1
	Key Component		Power Sequence		PCB NAME		6150A0003603		备注	<None>
	Date		Friday, December 23, 2011		Sheet		60 of 65			



T & I		OEM MODEL	Lenovo B340/B540	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B340_B540	Rev	0.1
Key Component	Block_Key and Audio Switch	PCB NAME	6150A0003603	備註	<備註>
Date	Friday, December 23, 2011	Sheet	61 of 65		



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線路圖編號

Key Component

Date

6150A0003603

HW/TV\_Diagram

Friday, December 23, 2011

T & I

OEM MODEL

T&I MODEL

PCB NAME

Lenovo B340/B540

B340\_B540

6150A0003603

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Size

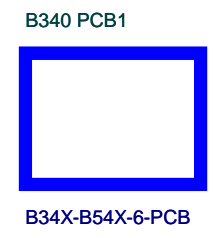
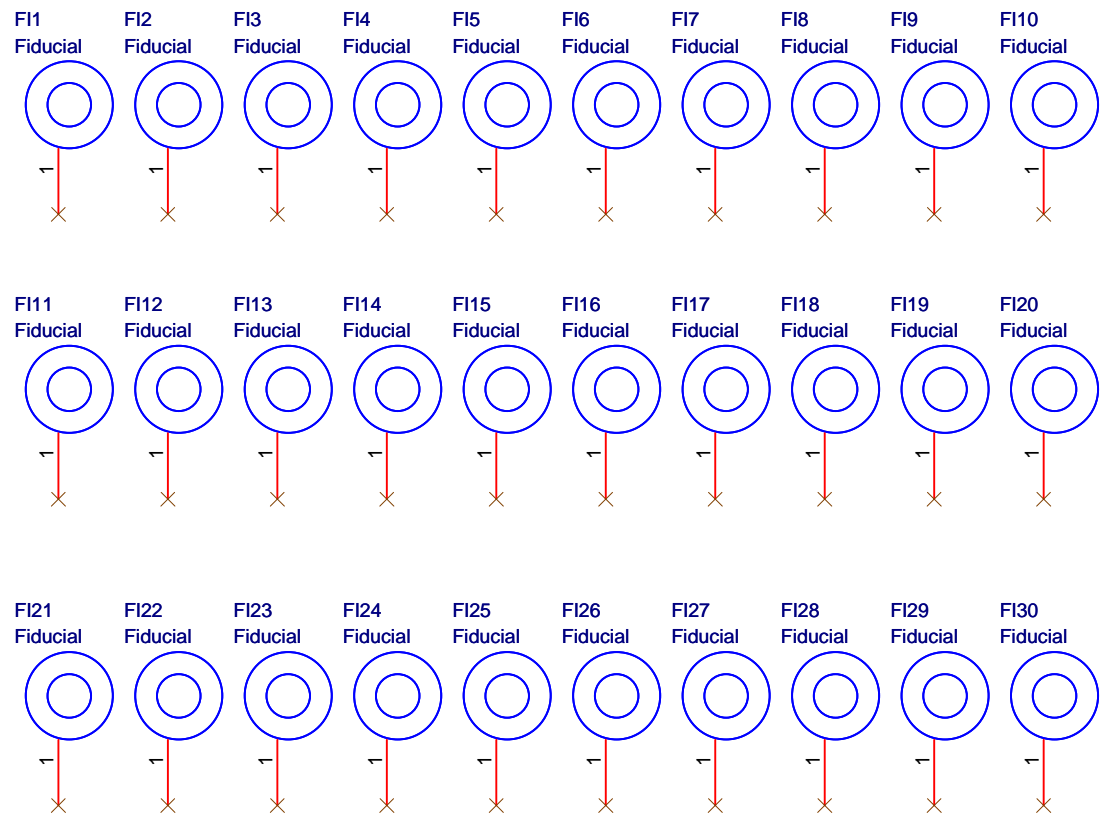
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備註

Custom

0.1

<備註>



T & I		OEM MODEL	Lenovo B340/B540		Size	A
線 路 圖 編 號	<線路圖編號>	T&I MODEL	B340_B540		Rev	0.1
Key Component	<Key Component>	PCB NAME	<PCB name>		備註	<備註>
Date	Friday, December 23, 2011	Sheet	64 of 65			

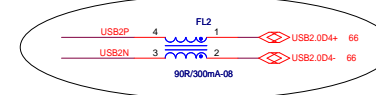
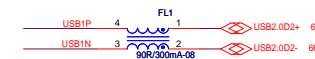
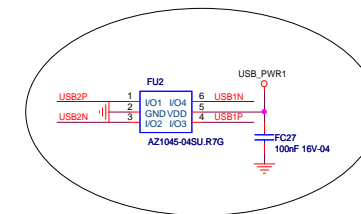
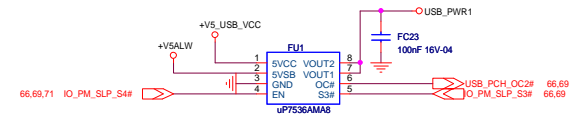
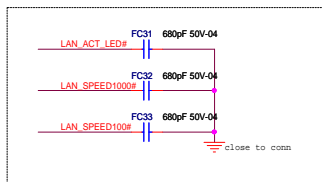


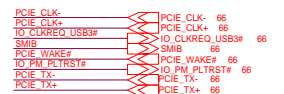
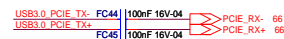
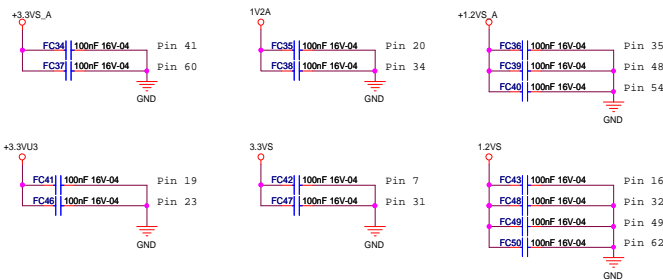




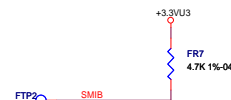
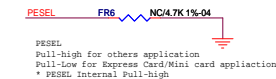
Note3

### Note3

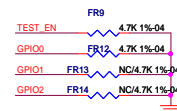




Note4

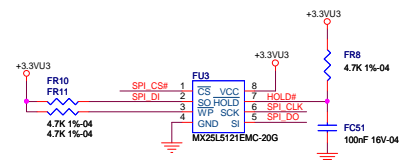


Connect to chipset GPIO Pin must have SMI function.  
SMI is open-drain or push-pull by FW control  
open-drain pull to SMI pin I/O power  
Need BIOS setting USB legacy mode support



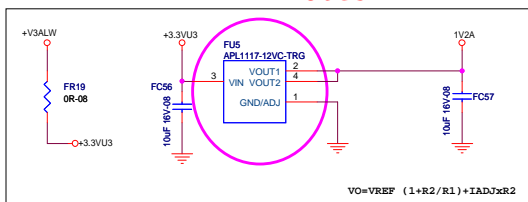
GPIO0	GPIO1	GPIO2	Function
1	1	0	Asynchronous Mode( default )
0	0	x	Debug/Test Mode

\* GPIO0 GPIO1 GPIO2 internal Pull-high

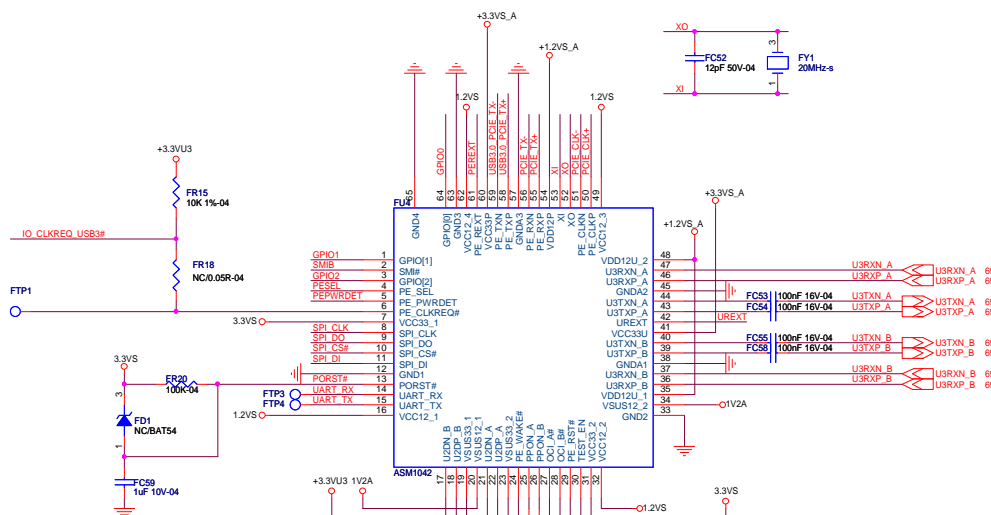
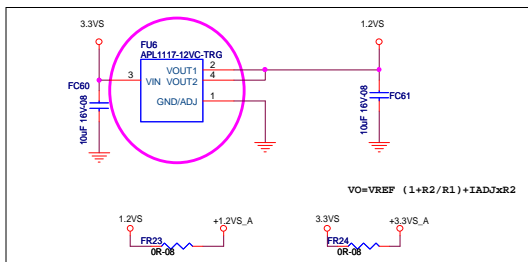


Support for S0,S3

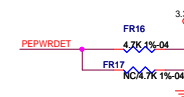
Note5



Support for S0,S1



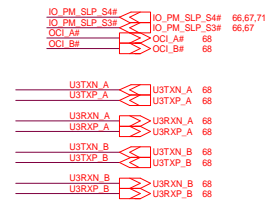
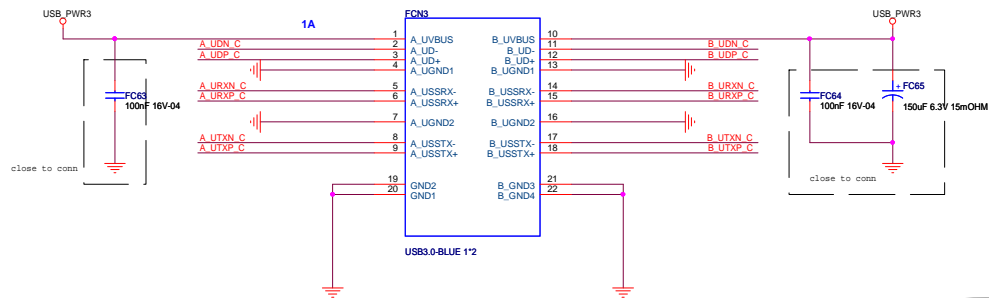
Note4



PEPWRDET  
PCI Express Remote/Wakeup Indicator  
Pull-high support D3 Cold  
Pull-low support D3 Hot

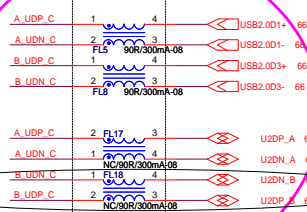


T & I	OEM MODEL	B540B340	Size	C
線路圖編號	T&I MODEL	B540B340	Rev	1.0
Key Component	PCB NAME	715G4690-T00-000-0060	備註	<備註>
Date	Friday, December 23, 2011	Sheet	68	of 72



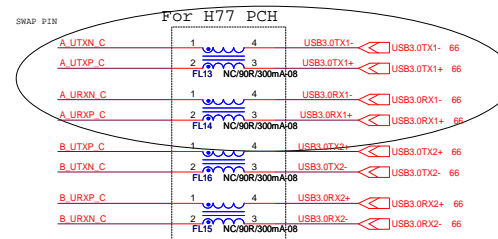
## Note 6

### USB2.0 TO PCH

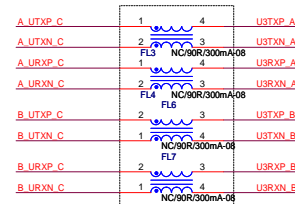


### USB2.0 TO ASMedia

Please place these common-mode-choke to together

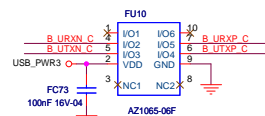
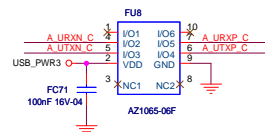
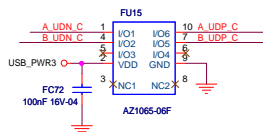
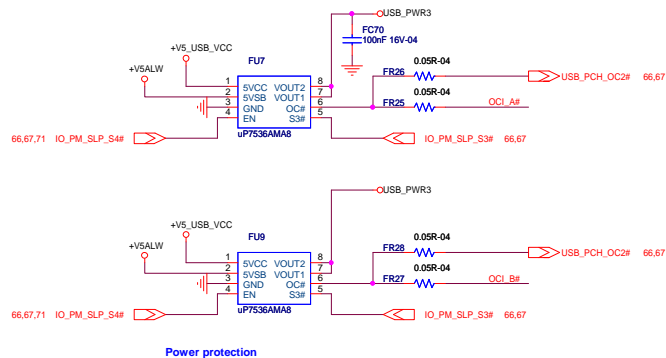


Please place these common-mode-choke to together



### For ASMedia

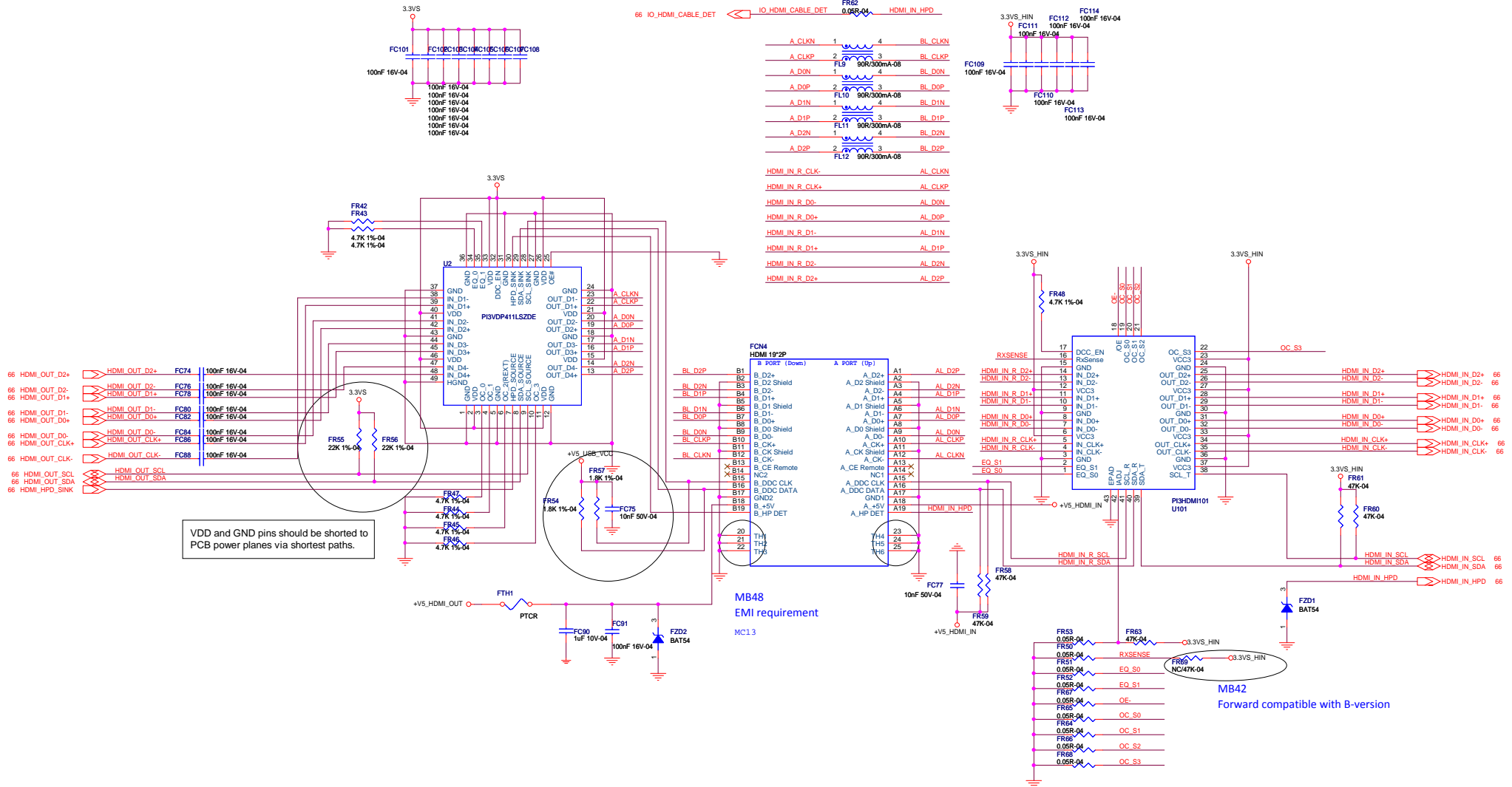
Please place these common-mode-choke to together



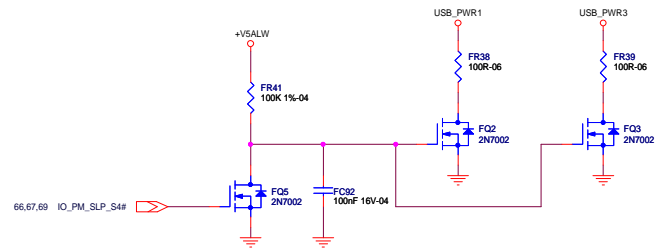
### ESD USB3.0



T & I	OEM MODEL	B540B340	Size	C
線路圖編號	T&I MODEL	B540B340	Rev	1.0
Key Component	PCB NAME	71504690-T00-000-0000	備註	<備註>
Date	Friday, December 23, 2011	Sheet	68 of 72	



T & I	OEM MODEL	BS40B340	Size	C
總務課	T&I MODEL	BS40B340	Rev	1.0
Key Component	PCB NAME	715G4680-T0D-000-0060	備註	<備註>
Date	Saturday, February 04, 2012	Sheet	70 of 72	



T & I		OEM MODEL	B540B340	Size	C
線路圖編號		T&I MODEL	B540B340	Rev	1.0
Key Component	01 DB Conn / BT / AV IN	PCB NAME	715G4690-T0D-000-0060	備註	<備註>
Date	Friday, December 23, 2011	Sheet	71 of 72		

Symbol	Description	Reason	Page	Note
Note1	C FDB1 PIN 110 GND (LAYOUT)			
Note2	C FH1,FH2 footprint (LAYOUT)			
Note3	C SWAP FCN2 PIN11,12,13,14 (LAYOUT)			
Note4	A ASMedia USB2.0			
Note5	C FU5 FU6 APL1117-12VC-TRG			
Note6	A FL17 FL18			



T & I		OEM MODEL	B540B340	Size	C
線路圖編號		T&I MODEL	B540B340	Rev	1.0
Key Component	01 DB Conn / BT / AV IN	PCB NAME	715G4690-T0D-000-0060	備註	<備註>
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