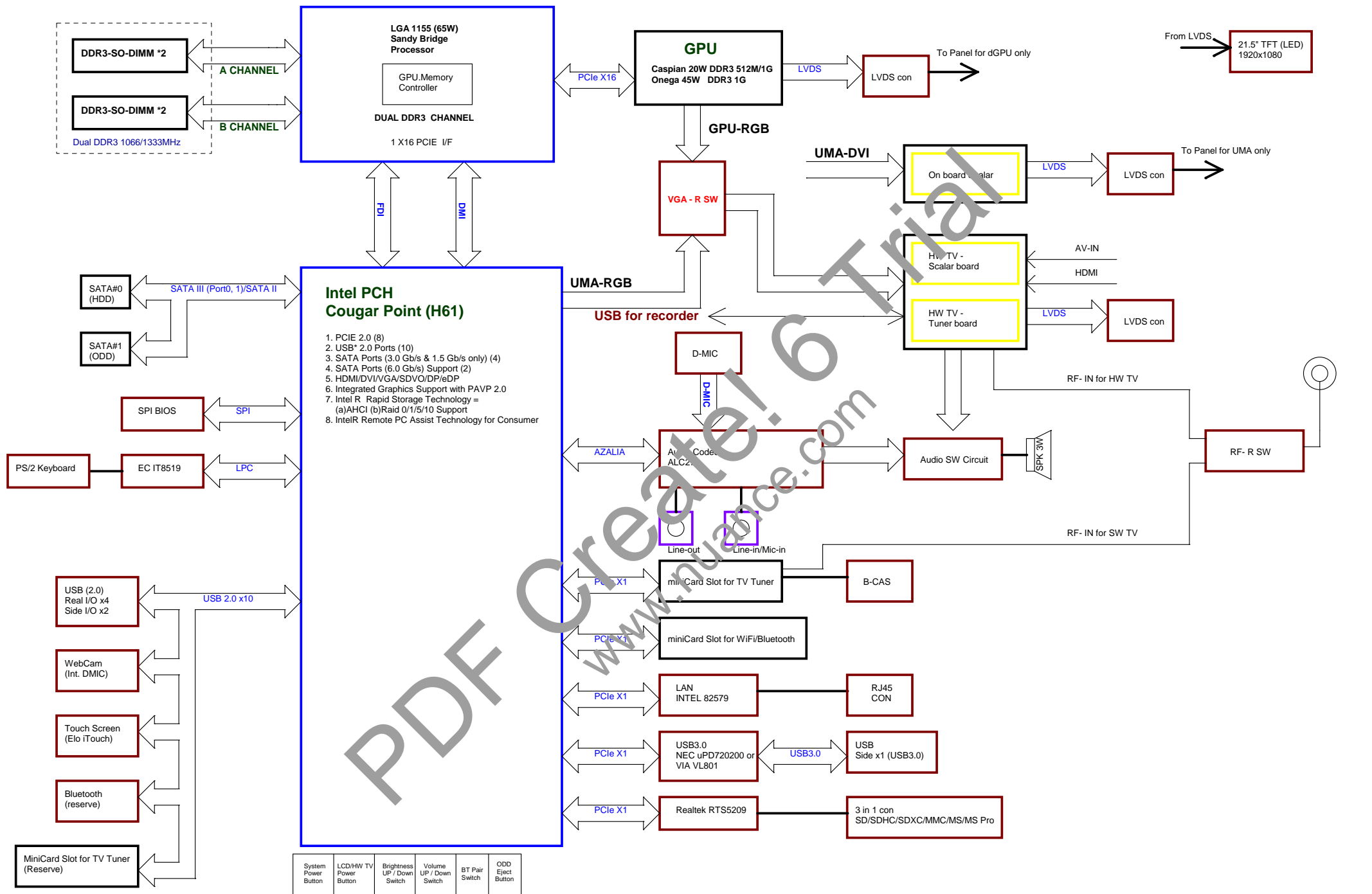


# Lenovo B320 Schematics

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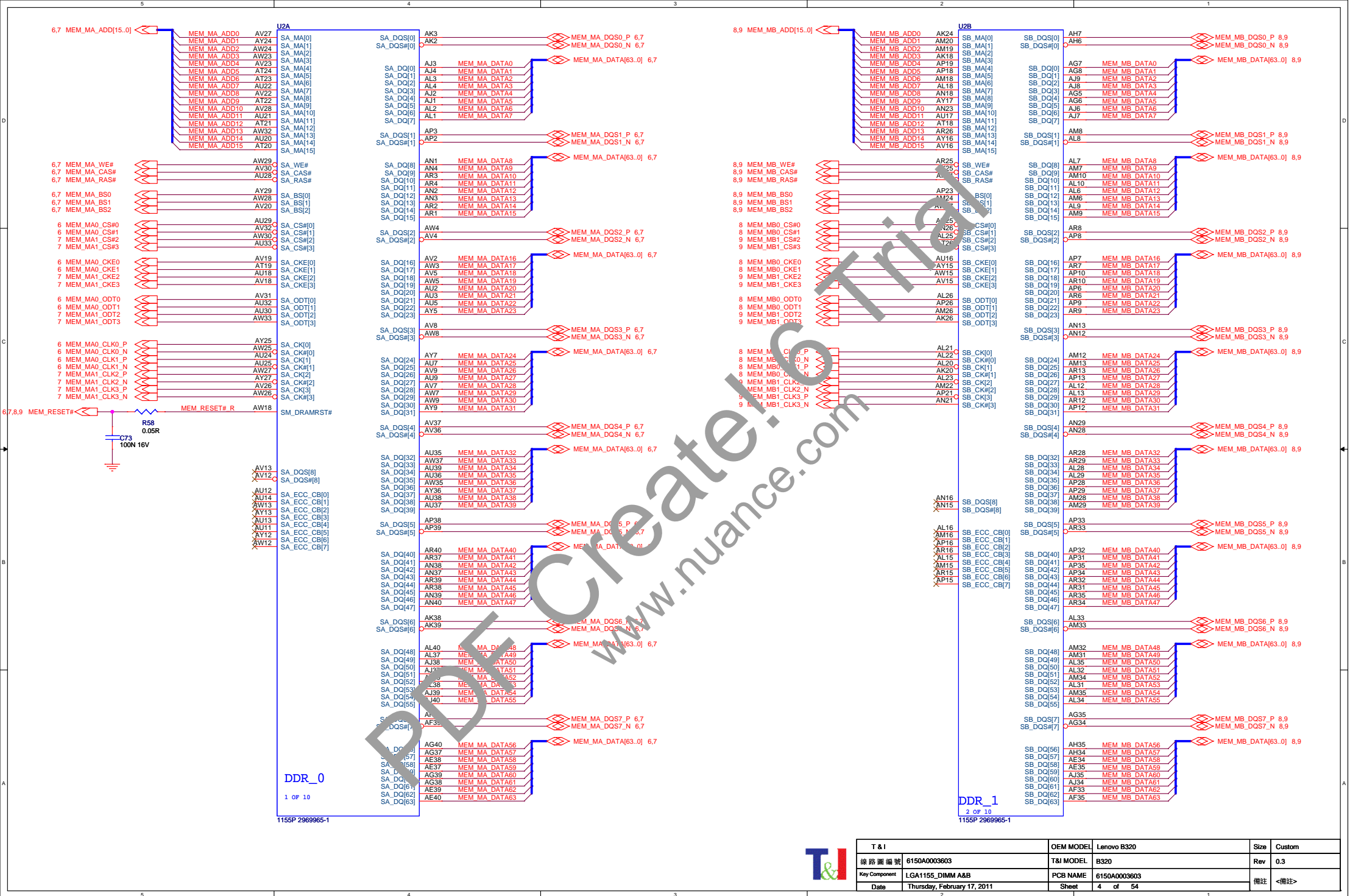
System Power Button	LCD/HW TV Power Button	Brightness UP / Down Switch	Volume UP / Down Switch	BT Pair Switch	ODD Eject Button
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System Power LED	LCD/HW TV Power LED	WIFI LED	Blue tooth LED	HDD LED	ODD LED	Webcam LED
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T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	BLOCK DIAGRAM	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	2 of 54		



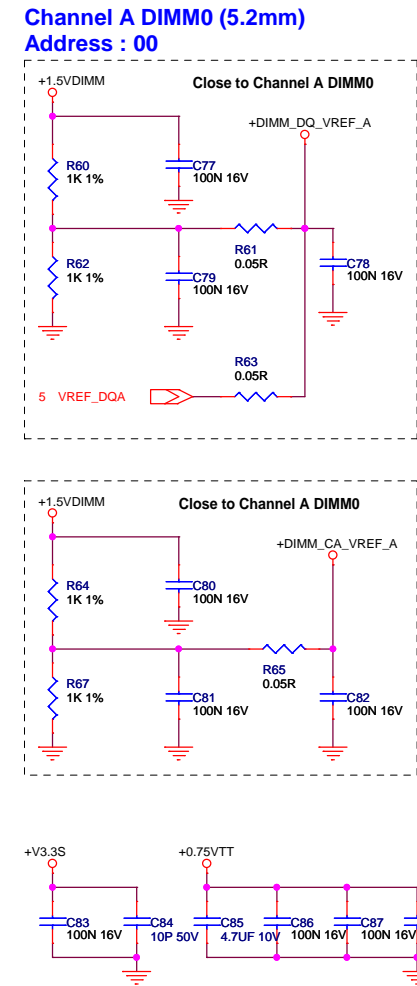
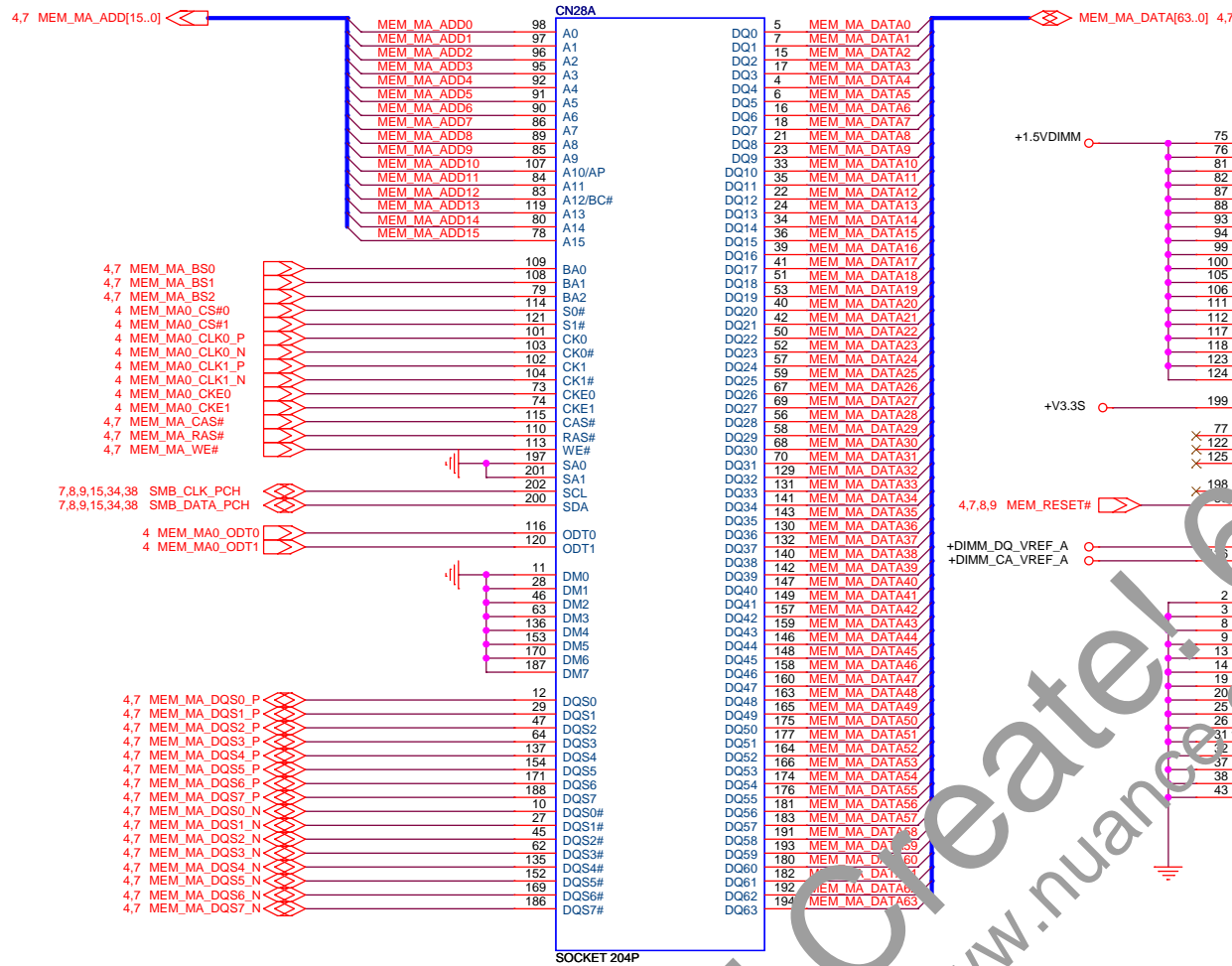


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	LGA1155_DIMM A&B	PCB NAME	6150A0003603		
Date	Thursday, February 17, 2011	Sheet	4 of 54	備註	<備註>



T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	LGA1155_Power	PCB NAME	6150A0003603		
Date	Thursday, February 17, 2011	Sheet	5 of 54	備註	<備註>





T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	DDR3 DIMM MA-CH0 5.2mm	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	6 of 54	<備註>

4,6 MEM\_MA\_ADD[15..0]

MEM\_MA\_ADD0 98  
MEM\_MA\_ADD1 97  
MEM\_MA\_ADD2 96  
MEM\_MA\_ADD3 95  
MEM\_MA\_ADD4 92  
MEM\_MA\_ADD5 91  
MEM\_MA\_ADD6 90  
MEM\_MA\_ADD7 86  
MEM\_MA\_ADD8 89  
MEM\_MA\_ADD9 85  
MEM\_MA\_ADD10 107  
MEM\_MA\_ADD11 84  
MEM\_MA\_ADD12 83  
MEM\_MA\_ADD13 119  
MEM\_MA\_ADD14 80  
MEM\_MA\_ADD15 78

CN2A

A0  
A1  
A2  
A3  
A4  
A5  
A6  
A7  
A8  
A9  
A10/AP  
A11  
A12/BC#  
A13  
A14  
A15

4,6 MEM\_MA\_BS0  
4,6 MEM\_MA\_BS1  
4,6 MEM\_MA\_BS2  
4 MEM\_MA1\_CS#2  
4 MEM\_MA1\_CS#3  
4 MEM\_MA1\_CLK2\_P  
4 MEM\_MA1\_CLK2\_N  
4 MEM\_MA1\_CLK3\_P  
4 MEM\_MA1\_CLK3\_N  
4 MEM\_MA1\_CKE2  
4 MEM\_MA1\_CKE3  
4,6 MEM\_MA\_CAS#  
4,6 MEM\_MA\_RAS#  
4,6 MEM\_MA\_WE#

109  
108  
79  
114  
121  
101  
103  
102  
104  
73  
74  
115  
110  
113  
197  
201  
202  
200

+V3.3S

6,8,9,15,34,38 SMB\_CLK\_PCH  
6,8,9,15,34,38 SMB\_DATA\_PCH

4 MEM\_MA1\_ODT2  
4 MEM\_MA1\_ODT3

116  
120  
11  
28  
46  
63  
136  
153  
170  
187

4,6 MEM\_MA\_DQS0\_P  
4,6 MEM\_MA\_DQS1\_P  
4,6 MEM\_MA\_DQS2\_P  
4,6 MEM\_MA\_DQS3\_P  
4,6 MEM\_MA\_DQS4\_P  
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4,6 MEM\_MA\_DQS6\_P  
4,6 MEM\_MA\_DQS7\_P  
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4,6 MEM\_MA\_DQS1\_N  
4,6 MEM\_MA\_DQS2\_N  
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4,6 MEM\_MA\_DQS4\_N  
4,6 MEM\_MA\_DQS5\_N  
4,6 MEM\_MA\_DQS6\_N  
4,6 MEM\_MA\_DQS7\_N

12  
29  
47  
64  
137  
154  
171  
188  
10  
27  
45  
62  
135  
152  
169  
186

SOCKET 204P

DQ0 5  
DQ1 7  
DQ2 15  
DQ3 17  
DQ4 4  
DQ5 6  
DQ6 16  
DQ7 18  
DQ8 21  
DQ9 23  
DQ10 33  
DQ11 35  
DQ12 22  
DQ13 24  
DQ14 34  
DQ15 36  
DQ16 39  
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DQ40 149  
DQ41 157  
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DQ53 174  
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DQ58 185  
DQ59 180  
DQ60 182  
DQ61 192  
DQ62 194  
DQ63

MEM\_MA\_DATA0  
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MEM\_MA\_DATA61  
MEM\_MA\_DATA62  
MEM\_MA\_DATA63

+1.5VDIMM

+V3.3S

4,6,8,9 MEM\_RESET#

+DIMM\_DQ\_VREF\_A

+DIMM\_CA\_VREF\_A

CN2B

VDD1 75  
VDD2 76  
VDD3 81  
VDD4 82  
VDD5 87  
VDD6 88  
VDD7 93  
VDD8 94  
VDD9 99  
VDD10 100  
VDD11 105  
VDD12 106  
VDD13 111  
VDD14 112  
VDD15 117  
VDD16 118  
VDD17 123  
VDD18 124  
VSS1 2  
VSS2 3  
VSS3 8  
VSS4 9  
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VSS587 1763  
VSS588 1764  
VSS589 1769  
VSS590 1770  
VSS591 1775  
VSS592 1776  
VSS593 1781  
VSS594 1782  
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VSS600 1800  
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VSS602 1806  
VSS603 1811  
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VSS610 1830  
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VSS616 1848  
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VSS618 1854  
VSS619 1859  
VSS620 1860  
VSS621 1865  
VSS622 1866  
VSS623 1871  
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VSS629 1889  
VSS630 1890  
VSS631 1895  
VSS632 1896  
VSS633 1901  
VSS634 1902  
VSS635 1907  
VSS636 1908  
VSS637 1913  
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VSS663 1991  
VSS664 1992  
VSS665 1997  
VSS666 1998  
VSS667 2003  
VSS668 2004  
VSS669 2009  
VSS670 2010  
VSS671 2015  
VSS672 2016  
VSS673 2021  
VSS674 2022  
VSS675 2027  
VSS676 2028  
VSS677 2033  
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VSS680 2040  
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VSS682 2046  
VSS683 2051  
VSS684 2052  
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VSS689 2069  
VSS690 2070  
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VSS700 2100  
VSS701 2105  
VSS702 2106  
VSS703 2111  
VSS704 2112  
VSS705 2117  
VSS706 2118  
VSS707 2123  
VSS708 2124  
VSS709 2129  
VSS710 2130  
VSS711 2135  
VSS712 2136  
VSS713 2141  
VSS714 2142  
VSS715 2147  
VSS716 2148  
VSS717 2153  
VSS718 2154  
VSS719 2159  
VSS720 2160  
VSS721 2165  
VSS722 2166  
VSS723 2171  
VSS724 2172  
VSS725 2177  
VSS726 2178  
VSS727 2183  
VSS728 2184  
VSS729 2189  
VSS730 2190  
VSS731 2195  
VSS732 2196  
VSS733 2201  
VSS734 2202  
VSS735 2207  
VSS736 2208  
VSS737 2213  
VSS738 2214  
VSS739 2219  
VSS740 2220  
VSS741 2225  
VSS742 2226  
VSS743 2231  
VSS744 2232  
VSS745 2237  
VSS746 2238  
VSS747 2243  
VSS748 2244  
VSS749 2249  
VSS750 2250  
VSS751 2255  
VSS752 2256  
VSS753 2261  
VSS754 2262  
VSS755 2267  
VSS756 2268  
VSS757 2273  
VSS758 2274  
VSS759 2279  
VSS760 2280  
VSS761 2285  
VSS762 2286  
VSS763 2291  
VSS764 2292  
VSS765 2297  
VSS766 2298  
VSS767 2303  
VSS768 2304  
VSS769 2309  
VSS770 2310  
VSS771 2315  
VSS772 2316  
VSS773 2321  
VSS774 2322  
VSS775 2327  
VSS776 2328  
VSS777 2333  
VSS778 2334  
VSS779 2339  
VSS780 2340  
VSS781 2345  
VSS782 2346  
VSS783 2351  
VSS784 2352  
VSS785 2357  
VSS786 2358  
VSS787 2363  
VSS788 2364  
VSS789 2369  
VSS790 2370  
VSS791 2375  
VSS792 2376  
VSS793 2381  
VSS794 2382  
VSS795 2387  
VSS796 2388  
VSS797 2393  
VSS798 2394  
VSS799 2399  
VSS800 2400  
VSS801 2405  
VSS802 2406  
VSS803 2411  
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VSS809 2429  
VSS810 2430  
VSS811 2435  
VSS812 2436  
VSS813 2441  
VSS814 2442  
VSS815 2447  
VSS816 2448  
VSS817 2453  
VSS818 2454  
VSS819 2459  
VSS820 2460  
VSS821 2465  
VSS822 2466  
VSS823 2471  
VSS824 2472  
VSS825 2477  
VSS826 2478  
VSS827 2483  
VSS828 2484  
VSS829 2489  
VSS830 2490  
VSS831 2495  
VSS832 2496  
VSS833 2501  
VSS834 2502  
VSS835 2507  
VSS836 2508  
VSS837 2513  
VSS838 2514  
VSS839 2519  
VSS840 2520  
VSS841 2525  
VSS842 2526  
VSS843 2531  
VSS844 2532  
V





4,8 MEM\_MB\_ADD[15..0]

MEM\_MB\_ADD0 99  
MEM\_MB\_ADD1 97  
MEM\_MB\_ADD2 96  
MEM\_MB\_ADD3 95  
MEM\_MB\_ADD4 92  
MEM\_MB\_ADD5 91  
MEM\_MB\_ADD6 90  
MEM\_MB\_ADD7 86  
MEM\_MB\_ADD8 89  
MEM\_MB\_ADD9 85  
MEM\_MB\_ADD10 107  
MEM\_MB\_ADD11 84  
MEM\_MB\_ADD12 83  
MEM\_MB\_ADD13 119  
MEM\_MB\_ADD14 80  
MEM\_MB\_ADD15 78

4,8 MEM\_MB\_BS0  
4,8 MEM\_MB\_BS1  
4,8 MEM\_MB\_BS2  
4 MEM\_MB1\_CS#2  
4 MEM\_MB1\_CS#3  
4 MEM\_MB1\_CLK2\_P  
4 MEM\_MB1\_CLK2\_N  
4 MEM\_MB1\_CLK3\_P  
4 MEM\_MB1\_CLK3\_N  
4 MEM\_MB1\_CKE2  
4 MEM\_MB1\_CKE3  
4,8 MEM\_MB\_CAS#  
4,8 MEM\_MB\_RAS#  
4,8 MEM\_MB\_WE#

6,7,8,15,34,38 SMB\_CLK\_PCH  
6,7,8,15,34,38 SMB\_DATA\_PCH

4 MEM\_MB1\_ODT2  
4 MEM\_MB1\_ODT3

4,8 MEM\_MB\_DQS0\_P  
4,8 MEM\_MB\_DQS1\_P  
4,8 MEM\_MB\_DQS2\_P  
4,8 MEM\_MB\_DQS3\_P  
4,8 MEM\_MB\_DQS4\_P  
4,8 MEM\_MB\_DQS5\_P  
4,8 MEM\_MB\_DQS6\_P  
4,8 MEM\_MB\_DQS7\_P  
4,8 MEM\_MB\_DQS0\_N  
4,8 MEM\_MB\_DQS1\_N  
4,8 MEM\_MB\_DQS2\_N  
4,8 MEM\_MB\_DQS3\_N  
4,8 MEM\_MB\_DQS4\_N  
4,8 MEM\_MB\_DQS5\_N  
4,8 MEM\_MB\_DQS6\_N  
4,8 MEM\_MB\_DQS7\_N

CN4A

A0  
A1  
A2  
A3  
A4  
A5  
A6  
A7  
A8  
A9  
A10/AP  
A11  
A12/BC#  
A13  
A14  
A15

BA0  
BA1  
BA2  
S#  
CK0#  
CK1#  
CK1#  
CKE0  
CKE1  
CAS#  
RAS#  
WE#  
SA0  
SA1  
SCL  
SDA

ODT0  
ODT1

DM0  
DM1  
DM2  
DM3  
DM4  
DM5  
DM6  
DM7

DQS0  
DQS1  
DQS2  
DQS3  
DQS4  
DQS5  
DQS6  
DQS7  
DQS0#  
DQS1#  
DQS2#  
DQS3#  
DQS4#  
DQS5#  
DQS6#  
DQS7#

SOCKET 204P

DQ0  
DQ1  
DQ2  
DQ3  
DQ4  
DQ5  
DQ6  
DQ7  
DQ8  
DQ9  
DQ10  
DQ11  
DQ12  
DQ13  
DQ14  
DQ15  
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DQ55  
DQ56  
DQ57  
DQ58  
DQ59  
DQ60  
DQ61  
DQ62  
DQ63

MEM\_MB\_DATA0  
MEM\_MB\_DATA1  
MEM\_MB\_DATA2  
MEM\_MB\_DATA3  
MEM\_MB\_DATA4  
MEM\_MB\_DATA5  
MEM\_MB\_DATA6  
MEM\_MB\_DATA7  
MEM\_MB\_DATA8  
MEM\_MB\_DATA9  
MEM\_MB\_DATA10  
MEM\_MB\_DATA11  
MEM\_MB\_DATA12  
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MEM\_MB\_DATA52  
MEM\_MB\_DATA53  
MEM\_MB\_DATA54  
MEM\_MB\_DATA55  
MEM\_MB\_DATA56  
MEM\_MB\_DATA57  
MEM\_MB\_DATA58  
MEM\_MB\_DATA59  
MEM\_MB\_DATA60  
MEM\_MB\_DATA61  
MEM\_MB\_DATA62  
MEM\_MB\_DATA63

MEM\_MB\_DATA[63..0] 4,8

CN4B

VDD1  
VDD2  
VDD3  
VDD4  
VDD5  
VDD6  
VDD7  
VDD8  
VDD9  
VDD10  
VDD11  
VDD12  
VDD13  
VDD14  
VDD15  
VDD16  
VDD17  
VDD18

VSSP  
VSS1  
VSS2  
VSS3  
VSS4  
VSS5  
VSS6  
VSS7  
VSS8  
VSS9  
VSS10  
VSS11  
VSS12  
VSS13  
VSS14  
VSS15

VREFDQ  
VREFCA

VTT1  
VTT2

GND-S1  
GND-S2  
NC3  
NC4

SOCKET 204P

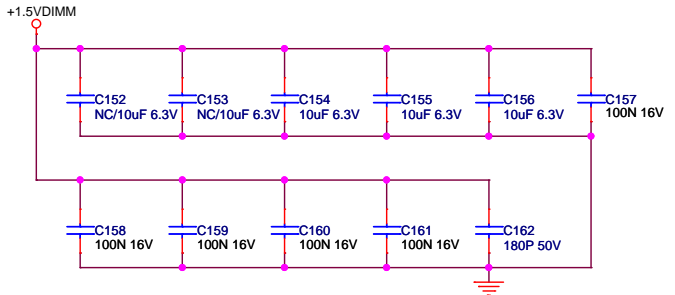
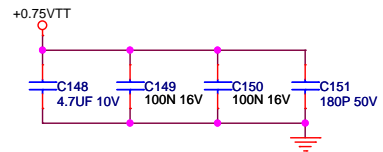
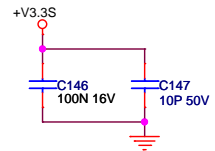
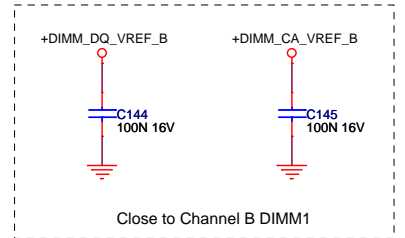
+1.5VDIMM

+V3.3S

4,6,7,8 MEM\_RESET#

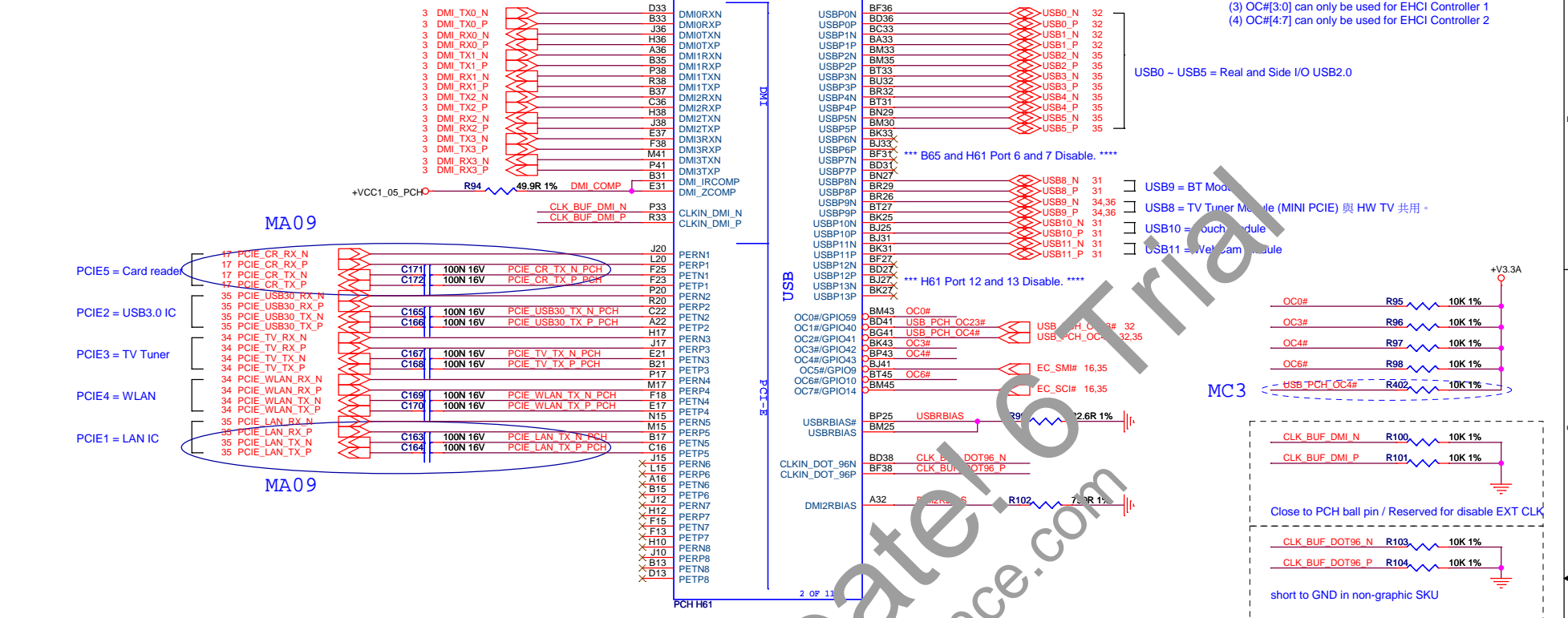
+DIMM\_DQ\_VREF\_B  
+DIMM\_CA\_VREF\_B

Channel B DIMM1 (9.2mm)  
Address : 11



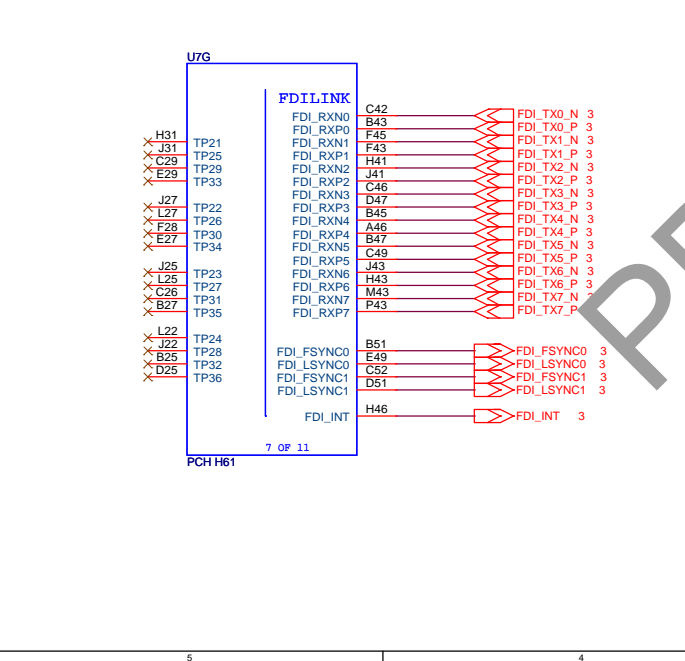
T & I	OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	DDR3 DIMM MB-CH1 9.2mm	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	9 of 54	<備註>

PCH DMI / PCIE / USB

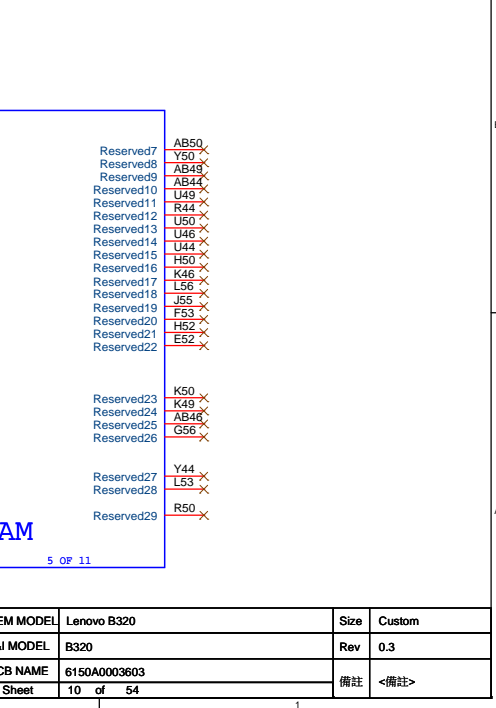
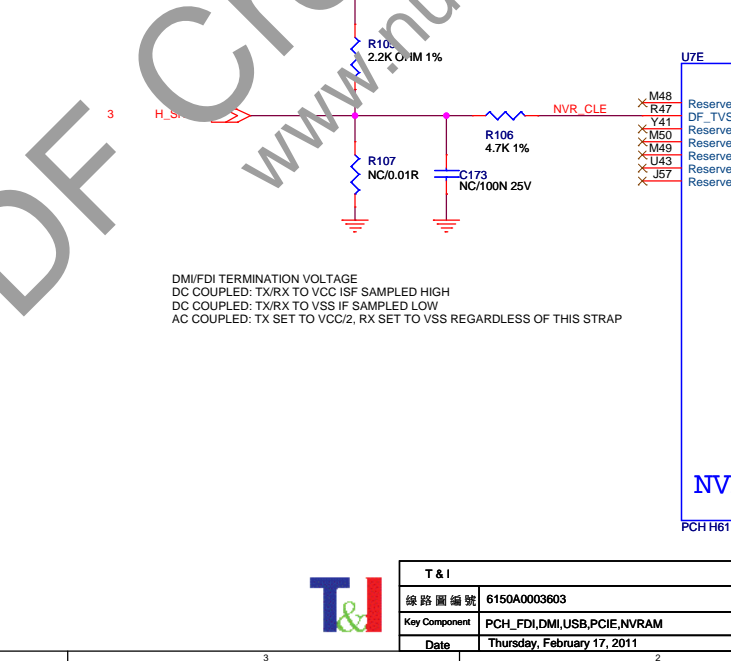


- Note
- (1) USB Port 1 & Port9 have Debug Function
  - (2) EHCI1 = USB0 ~ USB7 / EHCI2 = USB8 ~ USB13
  - (3) OC# [3:0] can only be used for EHCI Controller 1
  - (4) OC# [4:7] can only be used for EHCI Controller 2

PCH FDI

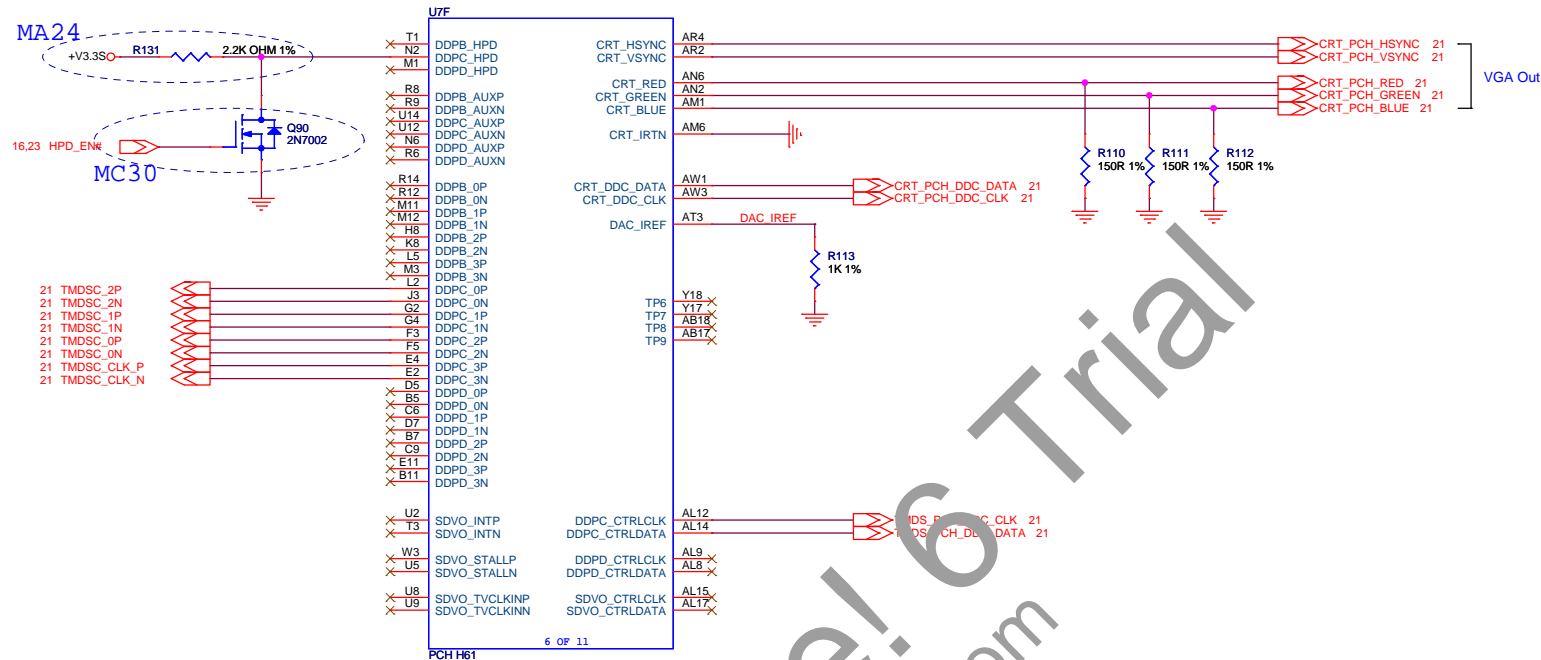


PCH ONFI

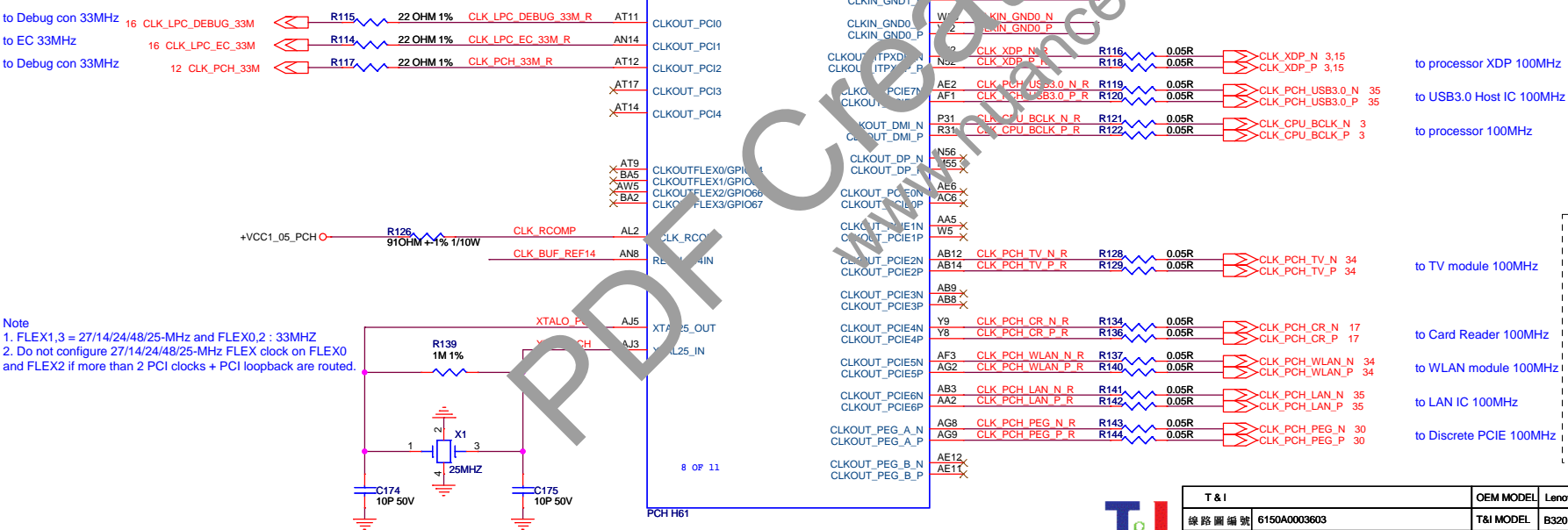


T & I		OEM MODEL		Size	
線路圖編號		T&I MODEL		Rev	
Key Component		PCB NAME		備註	
Date		Sheet		<備註>	
Thursday, February 17, 2011		6150A0003603		10 of 54	

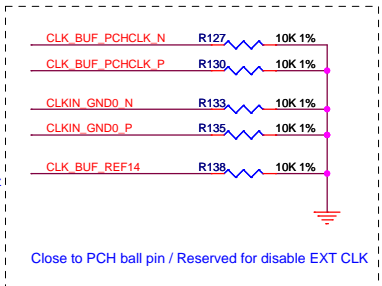
PCH Display



PCH Clock

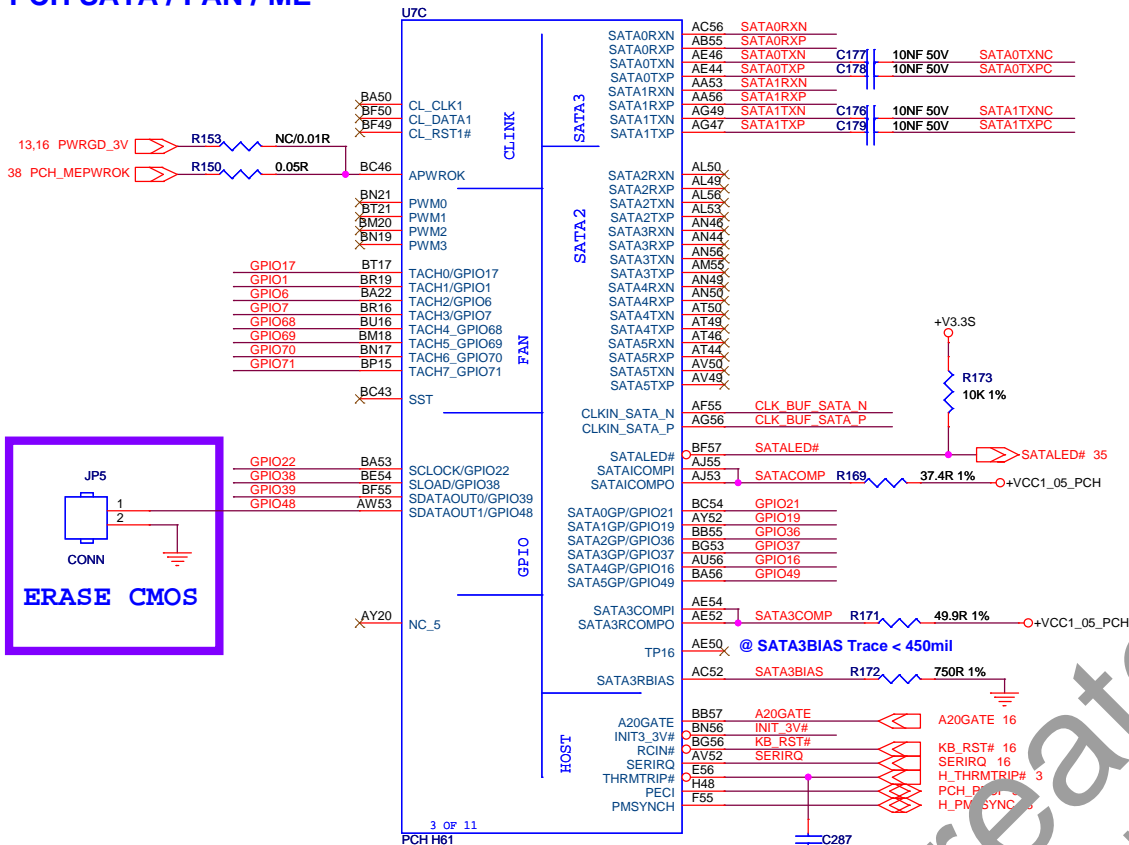


Note  
1. FLEX1,3 = 27/14/24/48/25-MHz and FLEX0,2 : 33MHz  
2. Do not configure 27/14/24/48/25-MHz FLEX clock on FLEX0 and FLEX2 if more than 2 PCI clocks + PCI loopback are routed.



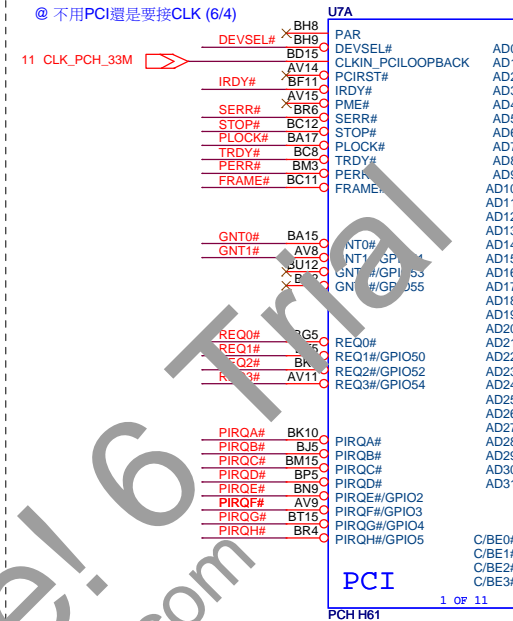
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	11 of 54	

# PCH SATA / FAN / ME

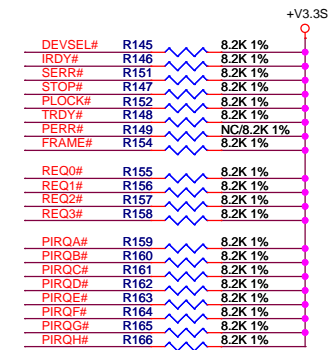


# PCH PCI

@ 不用PCI還是要接CLK (6/4)



## PCI Pull-Up

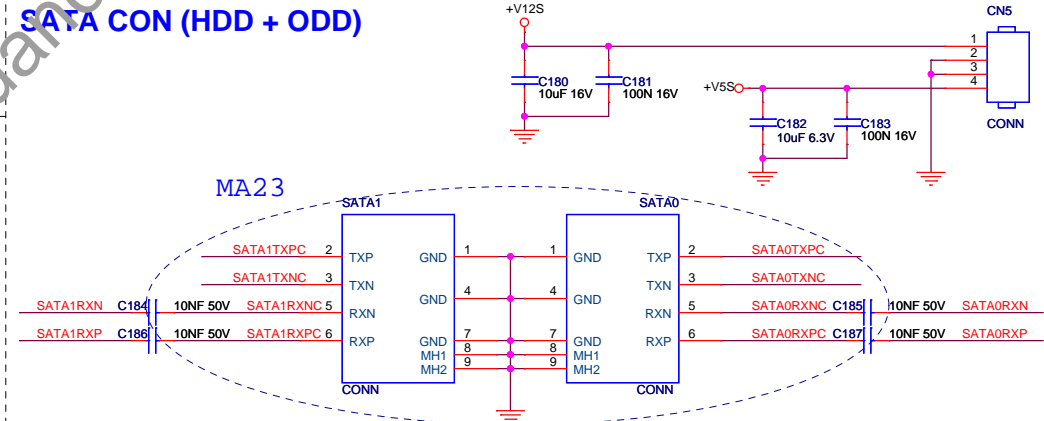


## BOOT select straps

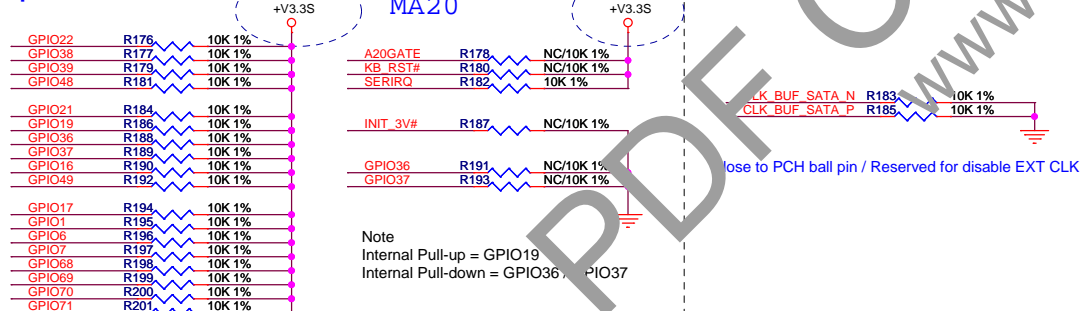
GNT1-	GNT0-/GPIO19	Boot device
0	0	LPC
1	0	PCI
1	1	SPI(Default)

1 means floating / 0 means PD 1K  
Default int pull up

# SATA CON (HDD + ODD)



## Pull-Up / Pull-down



T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	PCH_HOST, SATA, PCI	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	12 of 54	<備註>





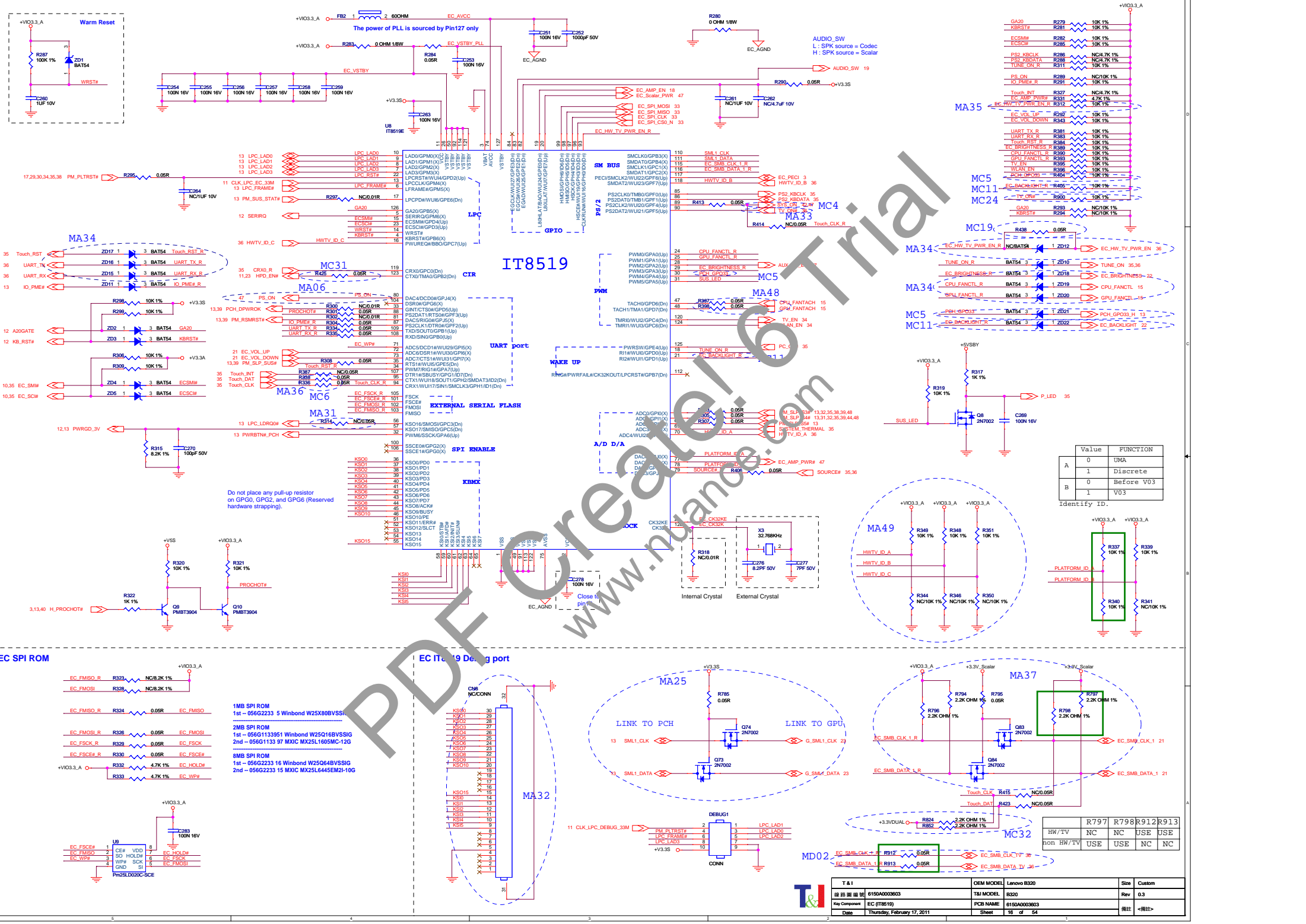


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	PC4_PWR_GND	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	14 of 54		

**Close to H2 Socket**



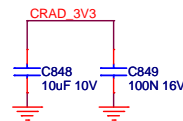
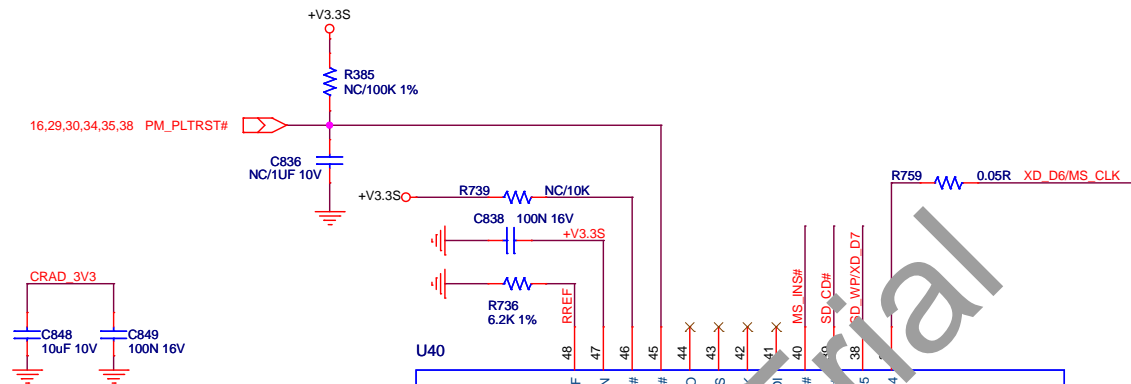
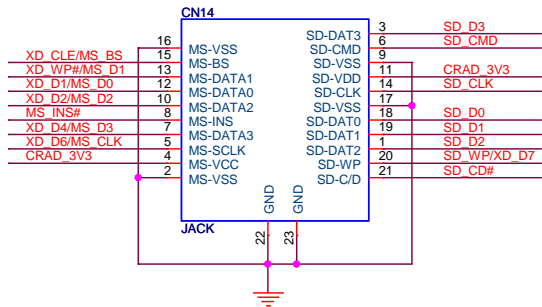
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	XDIP connect / FAN	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	15 of 54		



Value	FUNCTION
0	UMA
1	Discrete
0	Before V03
1	V03

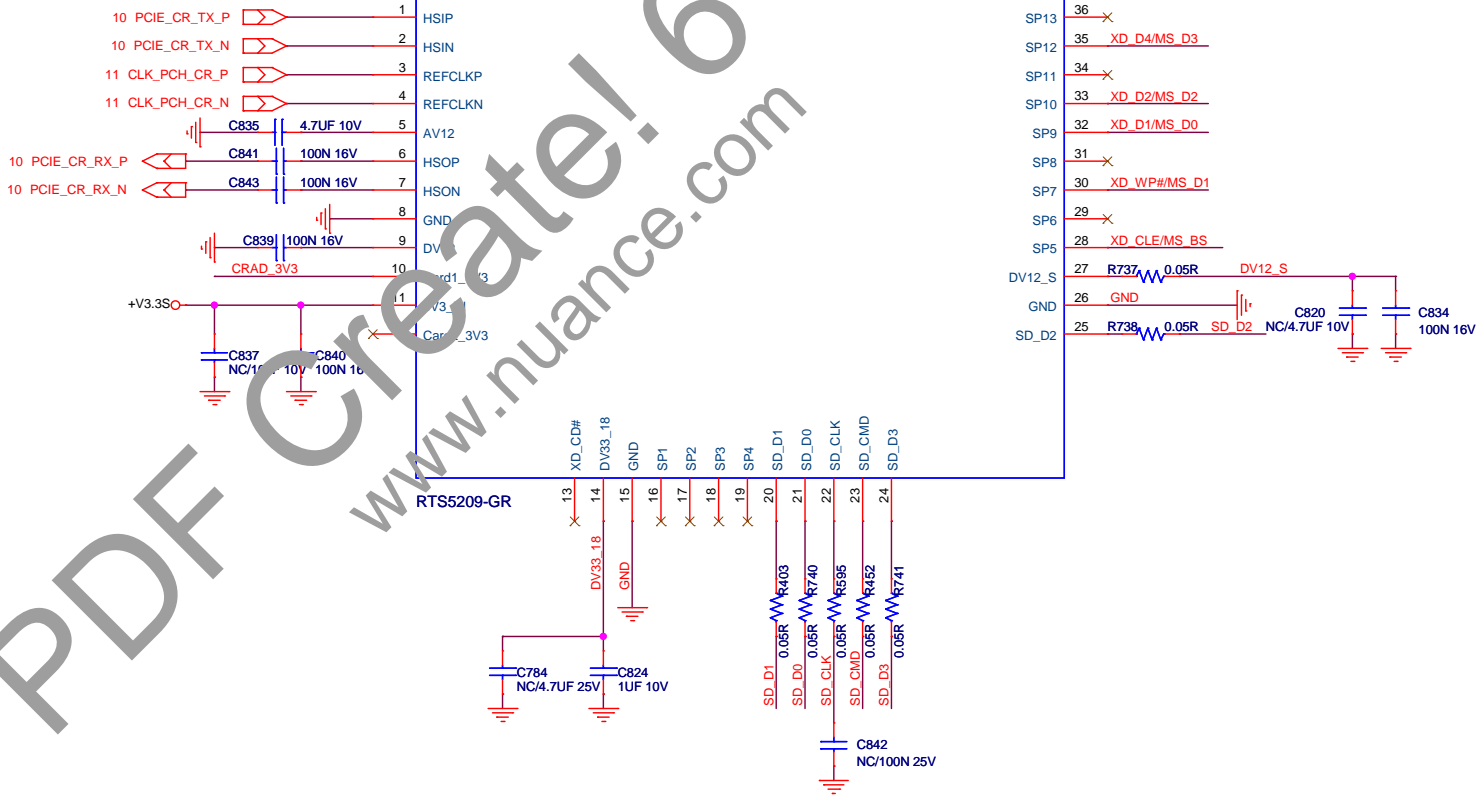
Identify ID.

T & I	OEM MODEL	Lenovo B330	Size	Custom
6150A0000003	T&I MODEL	B330	Rev	0.3
Key Component	EC (IT8518)	PCB NAME	6150A0000003	
Date	Thursday, February 17, 2011	Sheet	16 of 54	備註 <備註>



SP1	SD_D7	XD_RDY
SP2	SD_D6	XD_RE#
SP3	SD_D5	XD_CE#
SP4	SD_D4	XD_WE#
SP5	MS_BS	XD_CLE
SP6	MS_D5	XD_ALE
SP7	MS_D1	XD_WP#
SP8	MS_D4	XD_D0
SP9	MS_D0	XD_D1
SP10	MS_D2	XD_D2
SP11	MS_D6	XD_D3
SP12	MS_D3	XD_D4
SP13	MS_D7	XD_D5
SP14	MS_CLK	XD_D6
SP15	SD_WP	XD_D7

Share pin



T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Card Reader (RTS5209)	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	17 of 54	<備註>

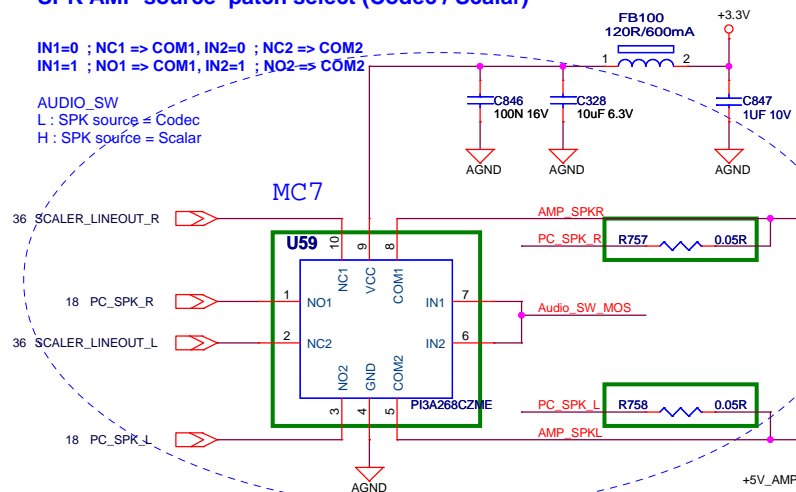




## SPK AMP source patch select (Codec / Scalar)

IN1=0 ; NC1 => COM1, IN2=0 ; NC2 => COM2  
IN1=1 ; NO1 => COM1, IN2=1 ; NO2=> COM2

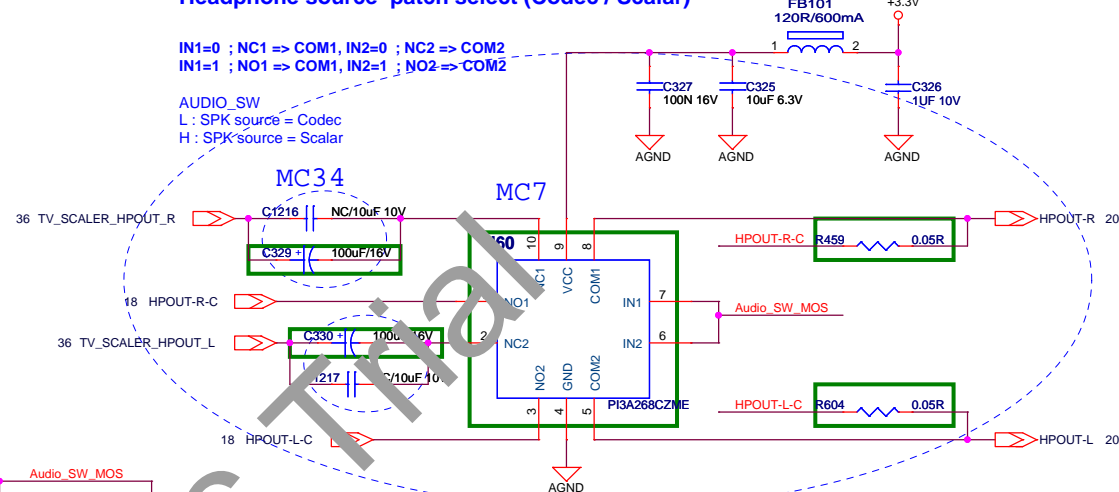
AUDIO\_SW  
L : SPK source = Codec  
H : SPK source = Scalar



## Headphone source patch select (Codec / Scalar)

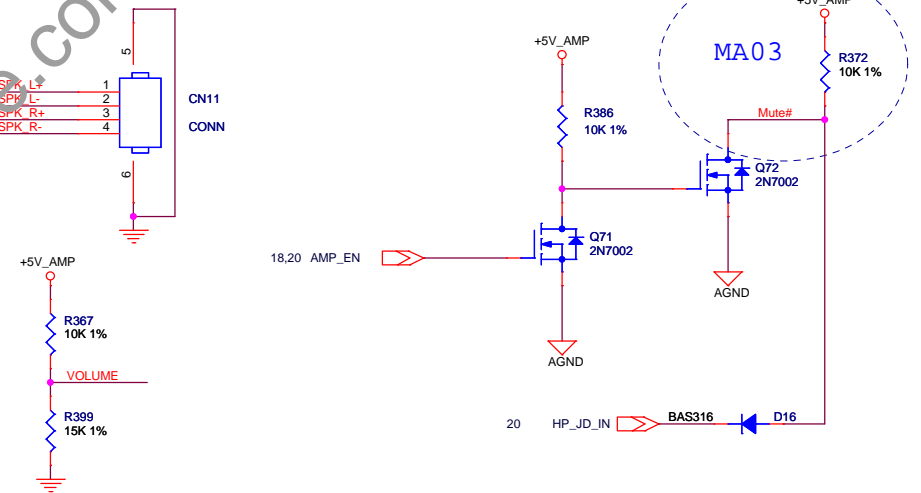
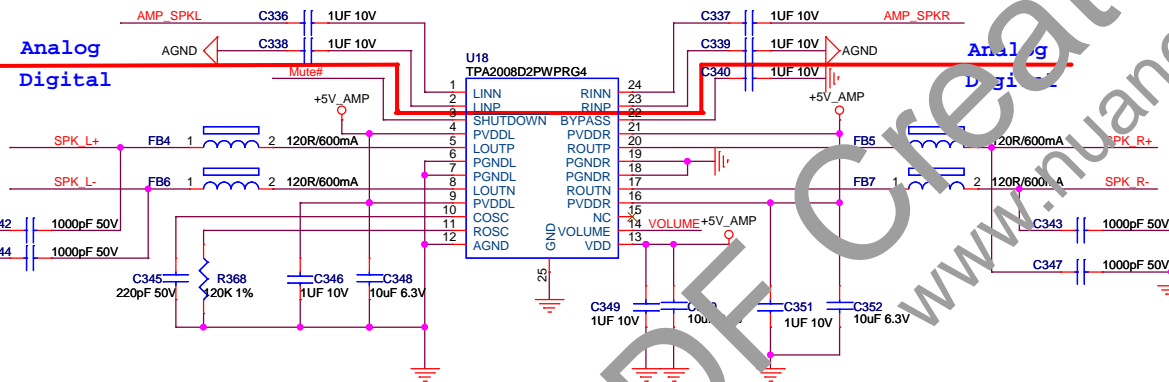
IN1=0 ; NC1 => COM1, IN2=0 ; NC2 => COM2  
IN1=1 ; NO1 => COM1, IN2=1 ; NO2=> COM2

AUDIO\_SW  
L : SPK source = Codec  
H : SPK source = Scalar



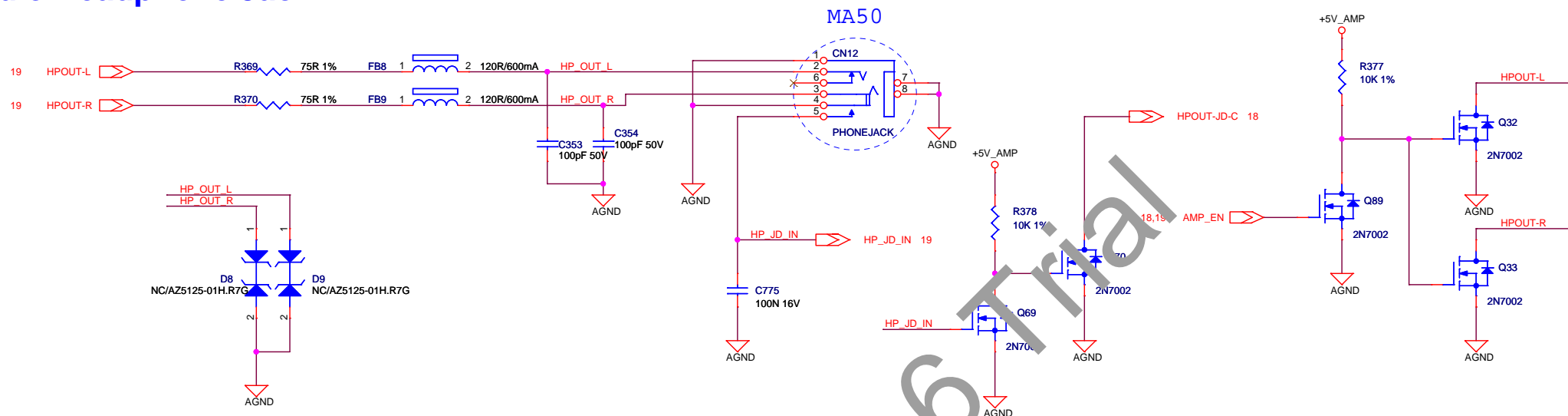
PC MODE ==> USE R757,R758,R459,R604

TV MODE ==> USE U59,U60

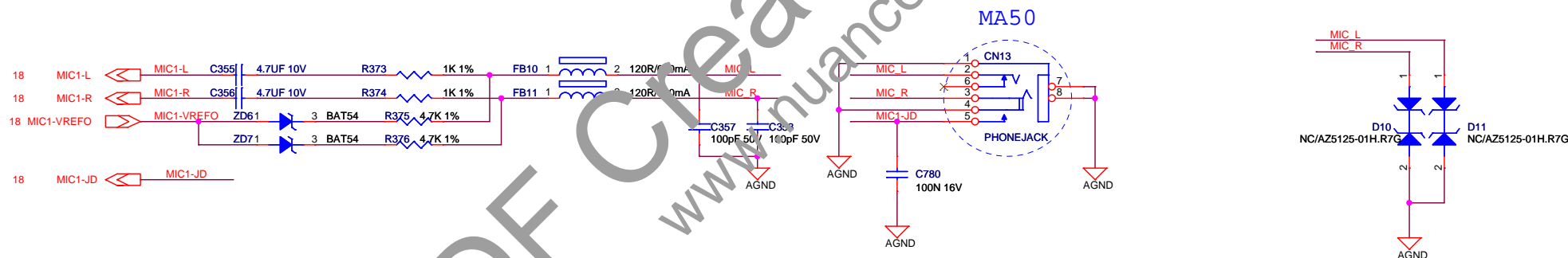


T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Audio AMP / SW	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	19 of 54	<備註>

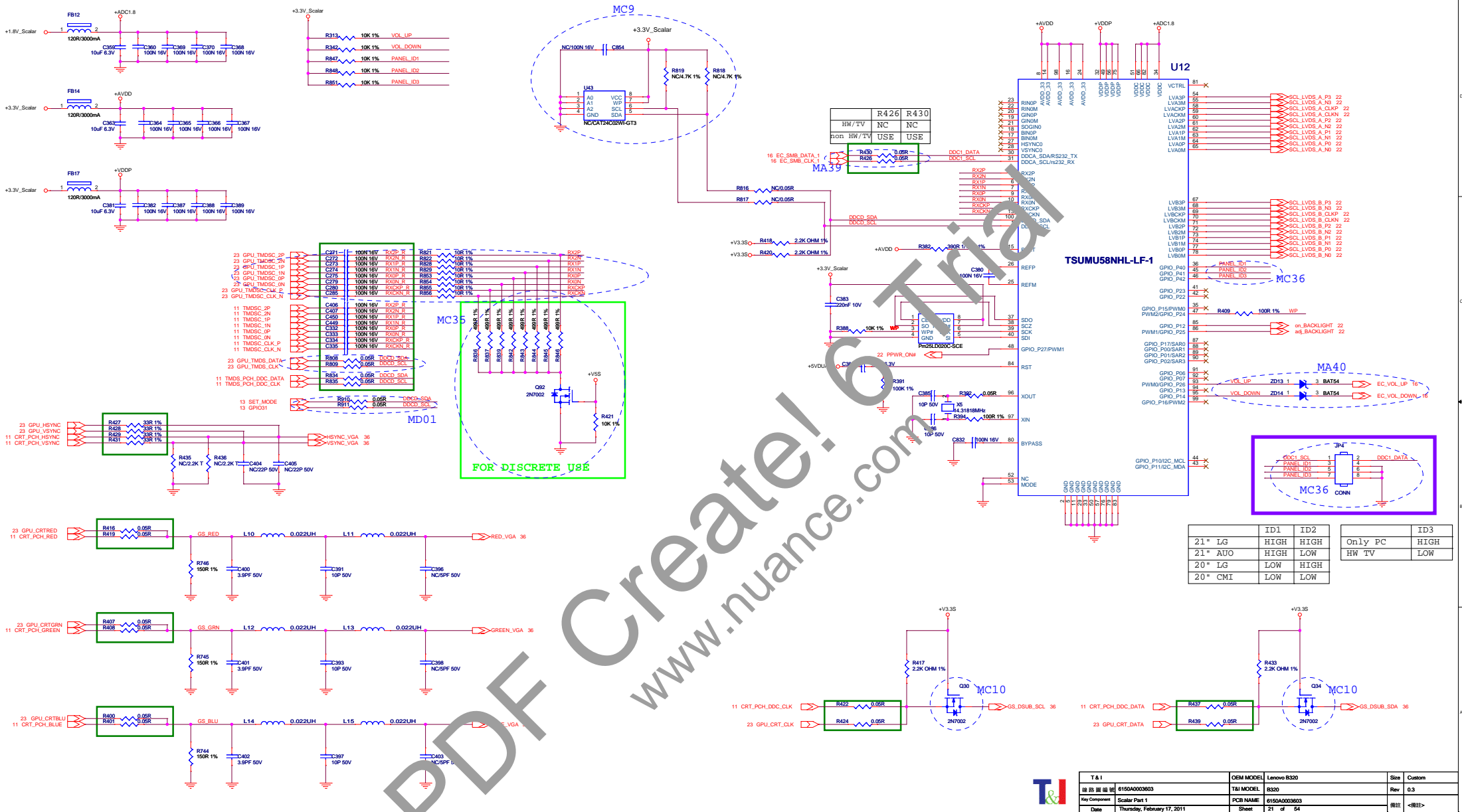
## Audio Headphone Jack



## Audio Mic Jack

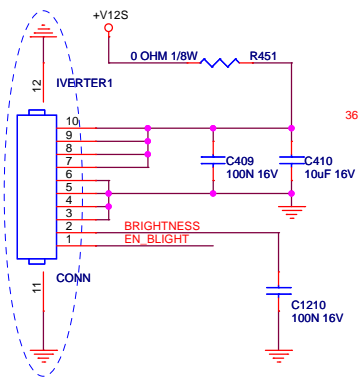


T & I		OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Audio Conn	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	20 of 54		

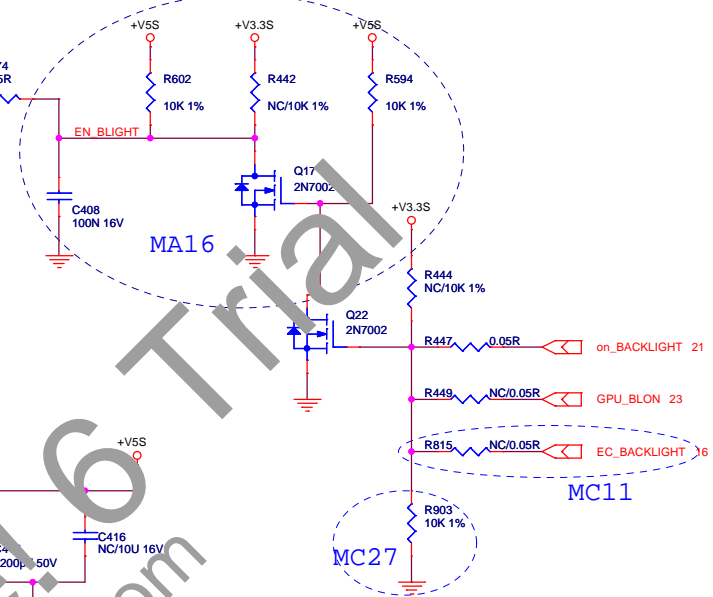
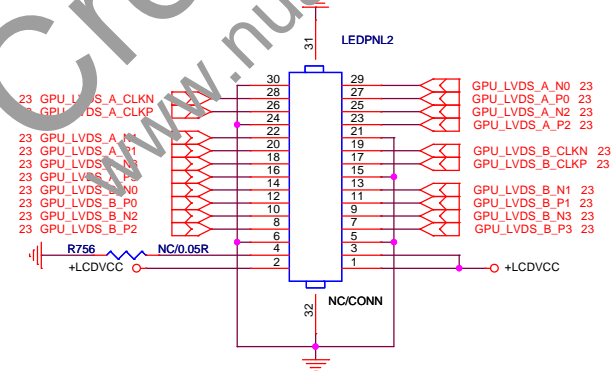
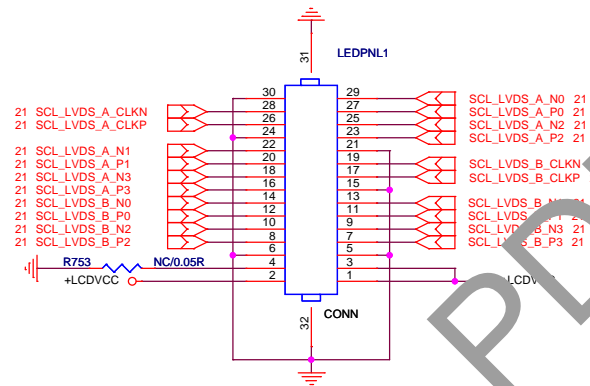
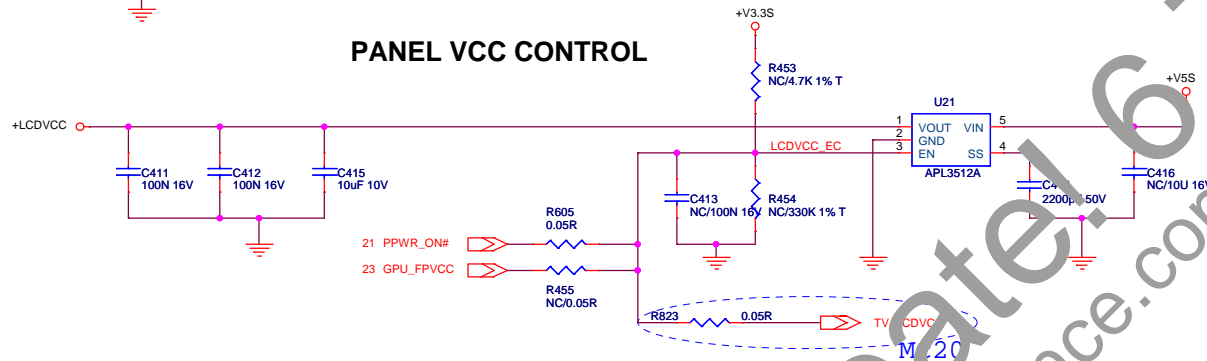


T & I		OEM MODEL	Lenovo B320	Size	Custom
Key Component		Scaler Part 1	6150A0003603	T&I MODEL	B320
Date		Thursday, February 17, 2011	Sheet	21 of 54	Rev 0.3
					備註 <備註>

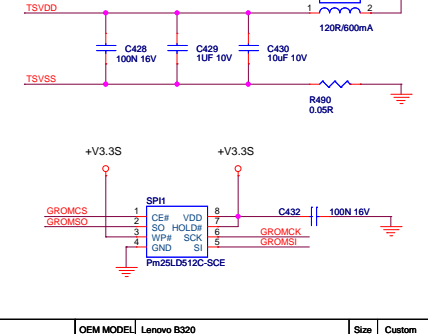
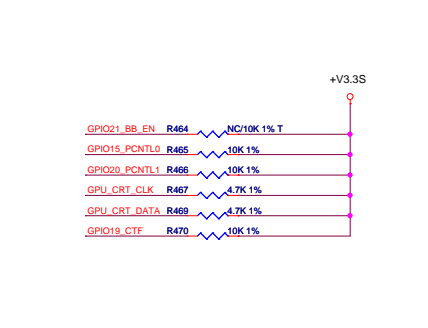
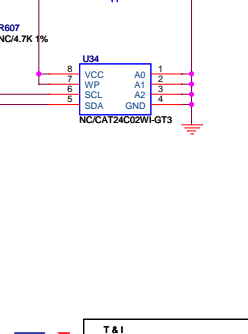
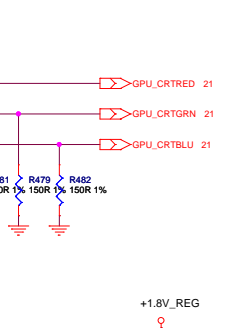
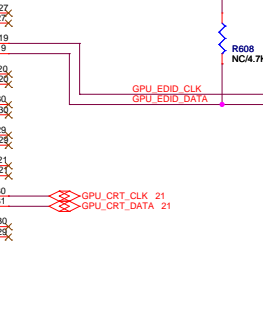
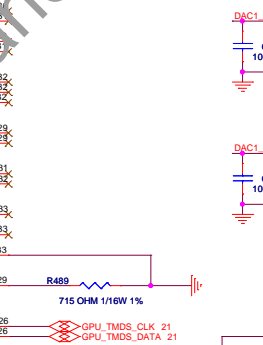
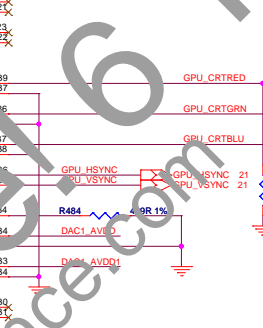
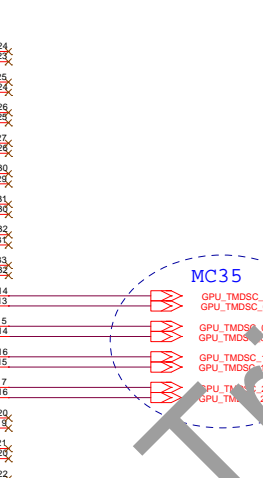
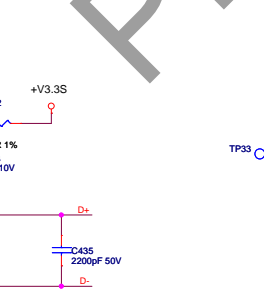
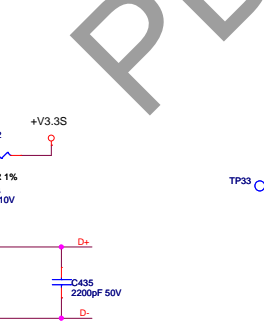
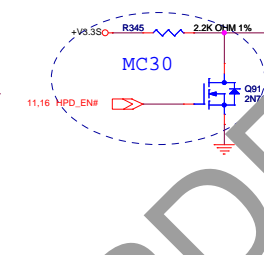
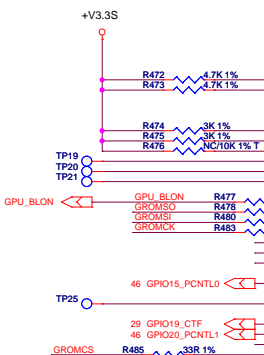
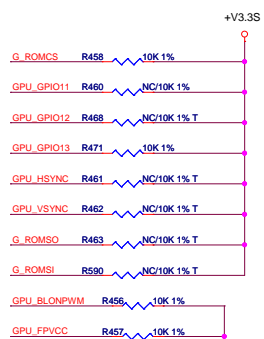
## MA42



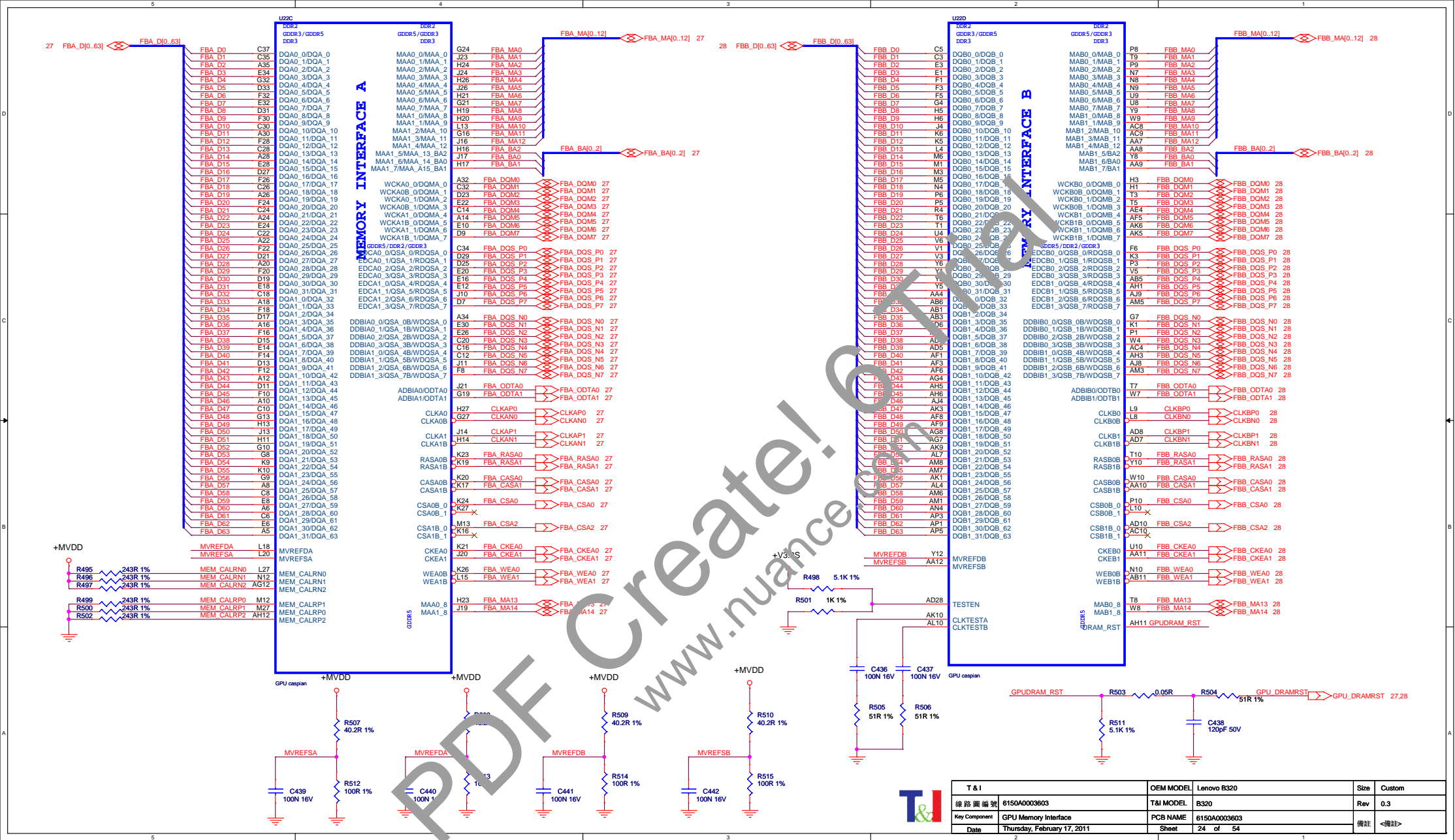
## MA16

 $M(20)$ 

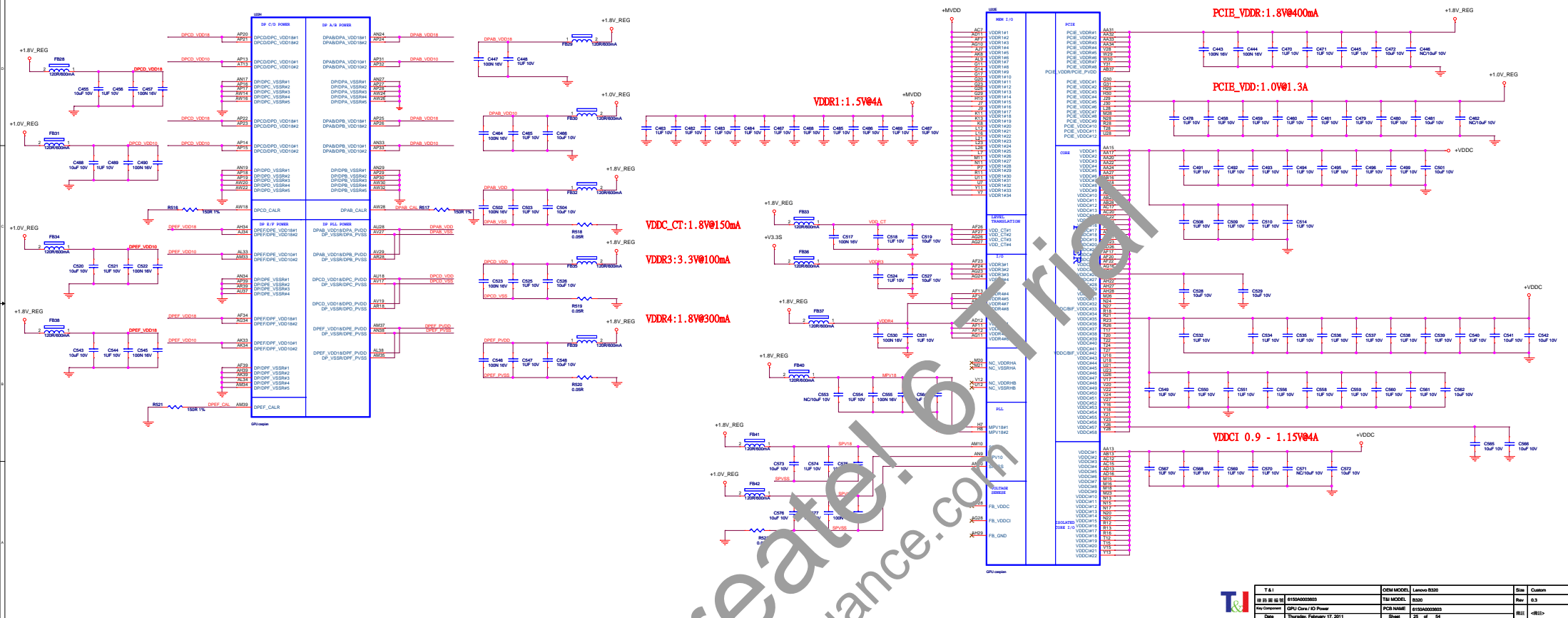
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Scalar Part 2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	22 of 54		





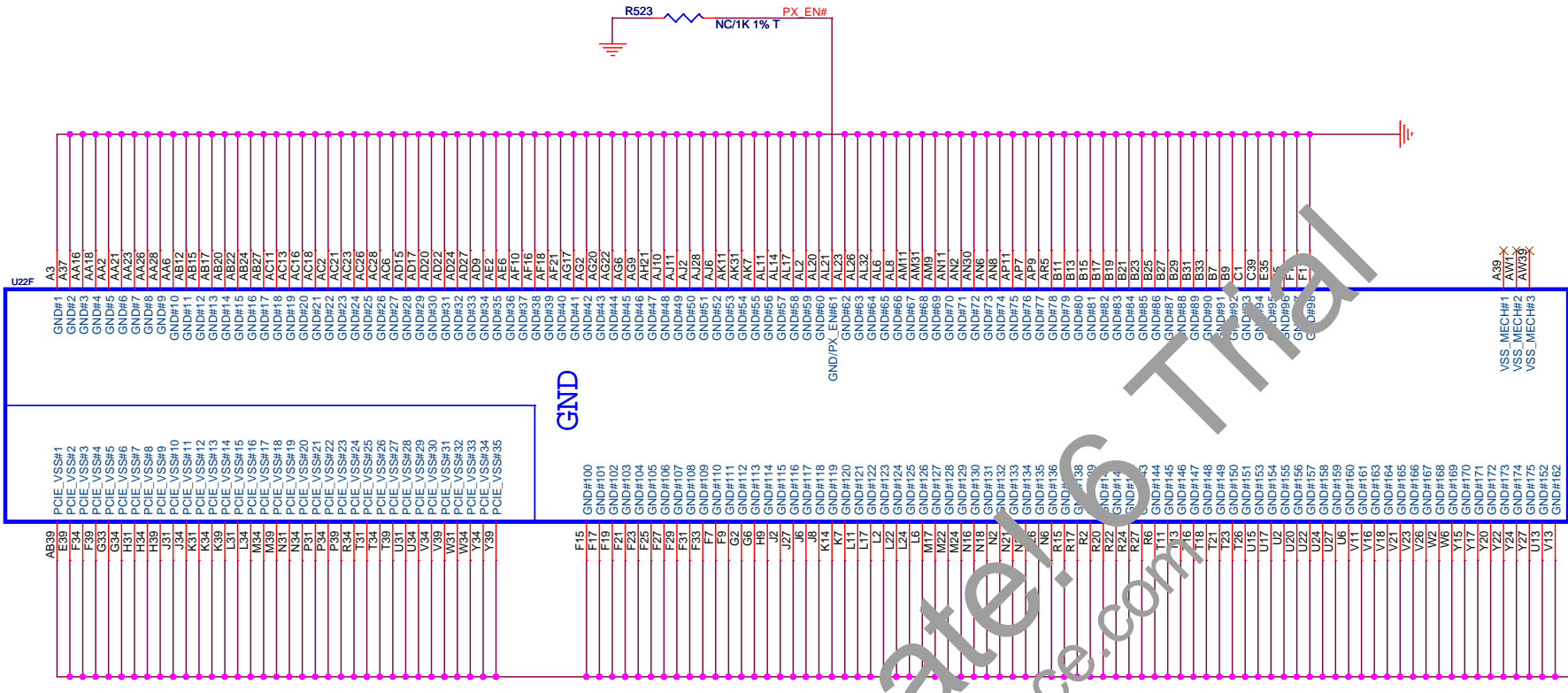


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	GPU Memory Interface	PCB NAME	6150A0003603		
Date	Thursday, February 17, 2011	Sheet	24 of 54	備註	<備註>





T & I		OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	GPU GND	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	26 of 54		

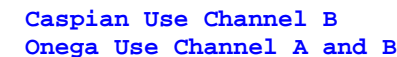



GND

A38  
AW11  
AW39

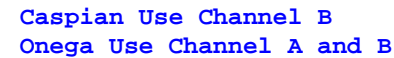
VSS\_MECH#1  
VSS\_MECH#2  
VSS\_MECH#3


34 FBA\_D[0.53] ~~XXXXXXXXXX~~ FBA\_D[0.53]



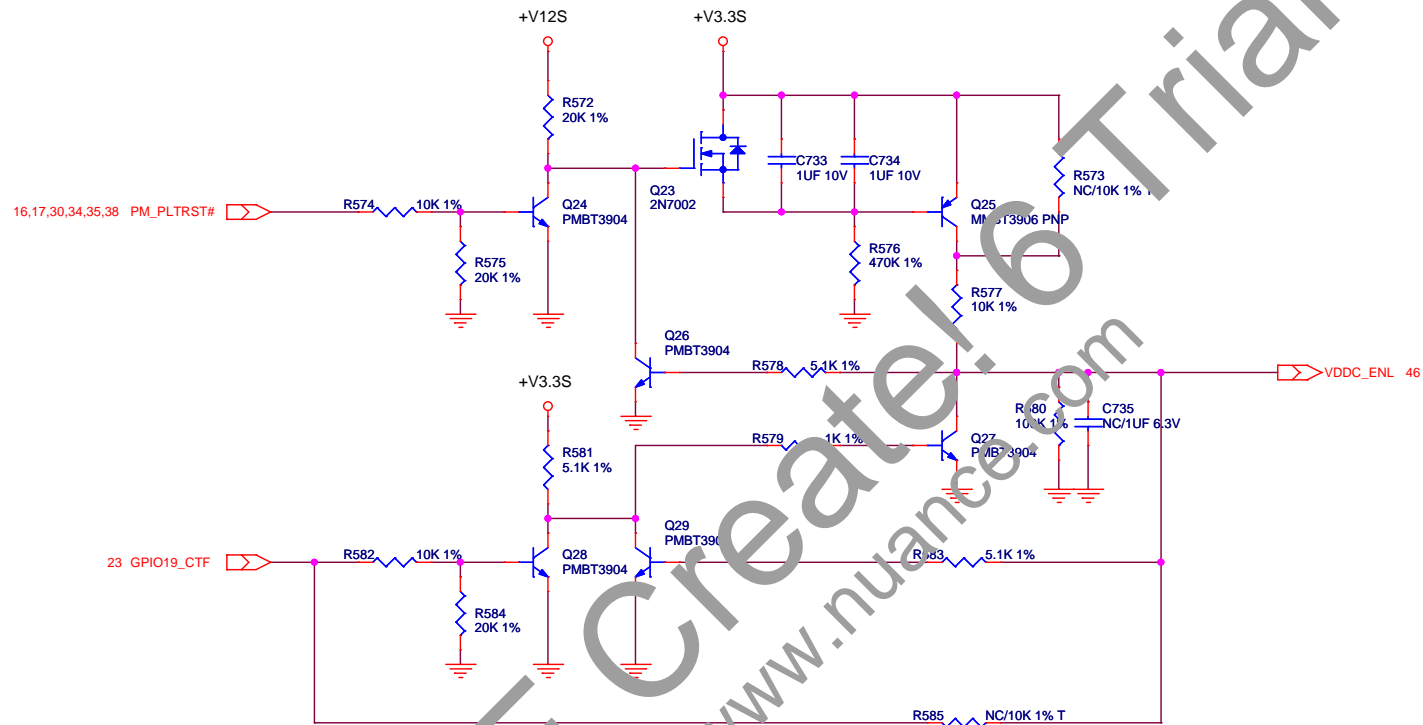
	T & I		OEM MODEL	Lanovo B320	Size	Custom
	機器圖檔		T&I MODEL	B320	Rev	0.3
	KeyComponent	GPU (DDR3 512MB  BANK A)	PCB NAME	0150A0003603		
	Date	Thursday, February 17, 2011	Sheet	27 of 54	<a href="#">前頁</a> <a href="#">&lt;前頁&gt;</a>	

24 FBB\_D[0..53] FBB\_D[0..53]

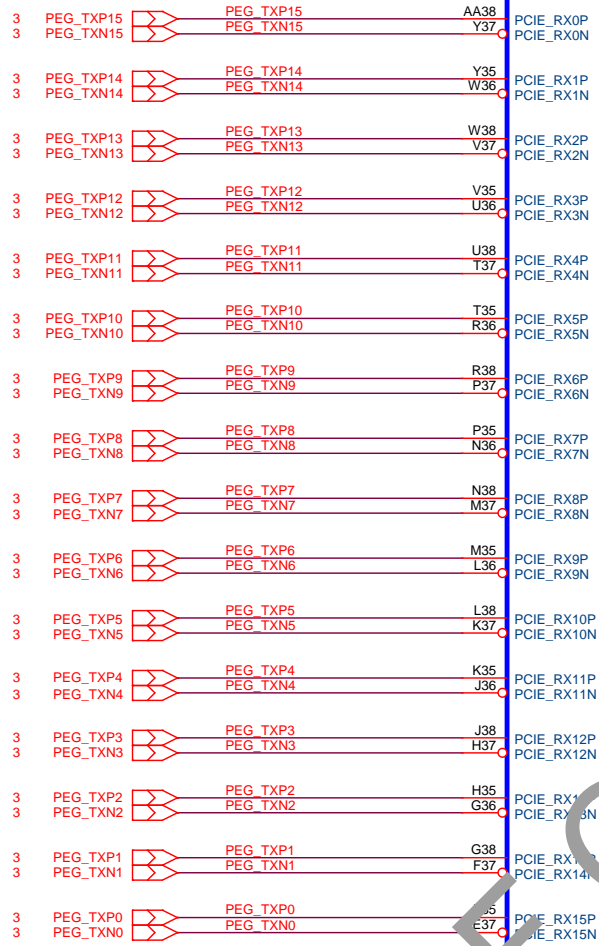
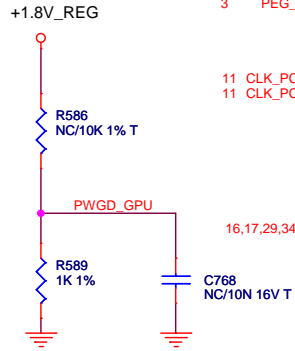


	T & I	DEM MODEL	Lenovo B320	Size	Custom	
	總代理商	E150A0003603	TAI MODEL	B320	Rev	6.3
	Key Component	GPU (DDR3 512MB BANK B)		PCB NAME	E150A0003603	
	Date	Thursday, February 17, 2011		Sheet	28 of 54	備註 <備註>





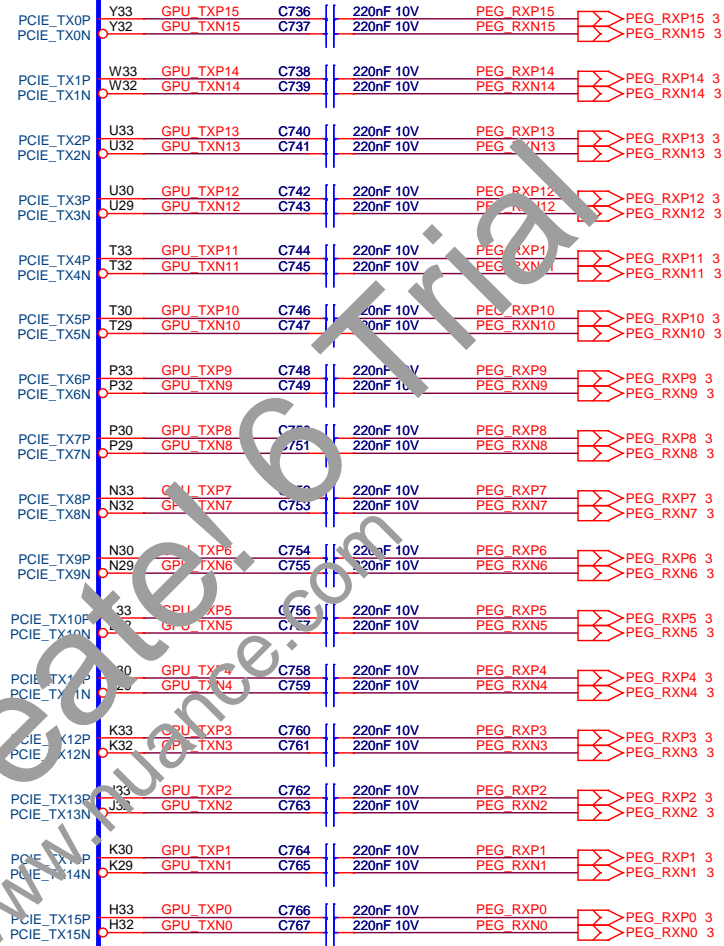
T & I		OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	GPU CTF	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	29 of 54		



U22A

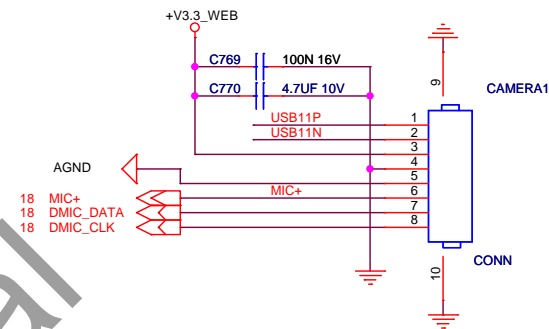
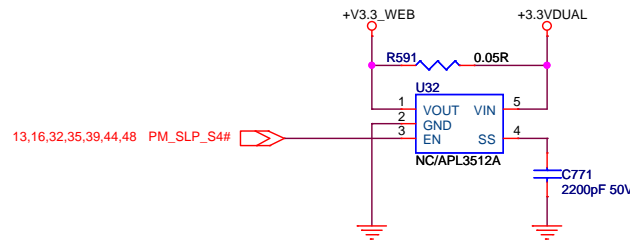
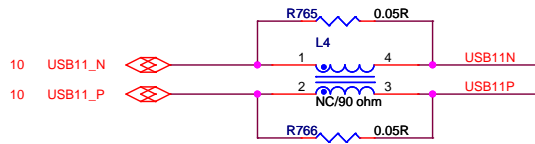
PCI EXPRESS INTERFACE

GPU caspian

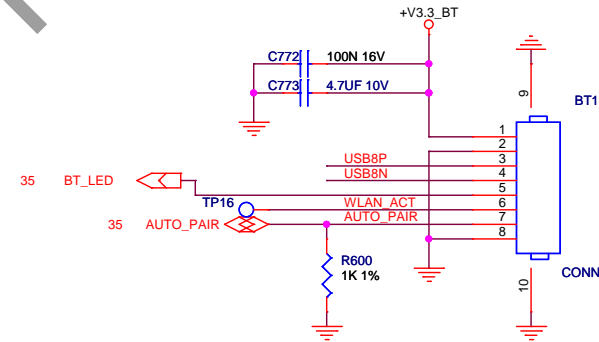
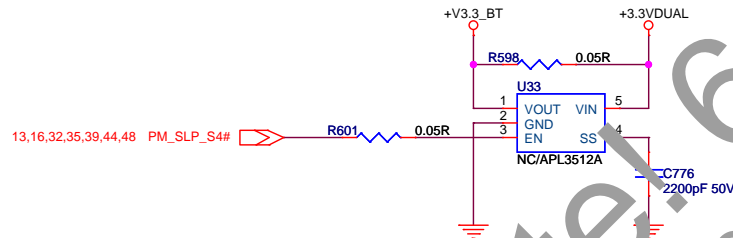
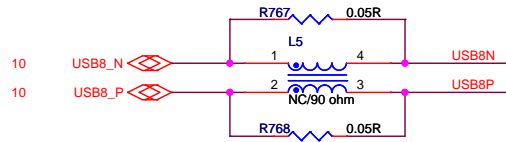


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	GPU PCI-E Interface	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	30 of 54		

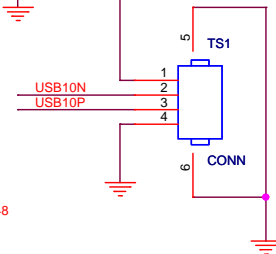
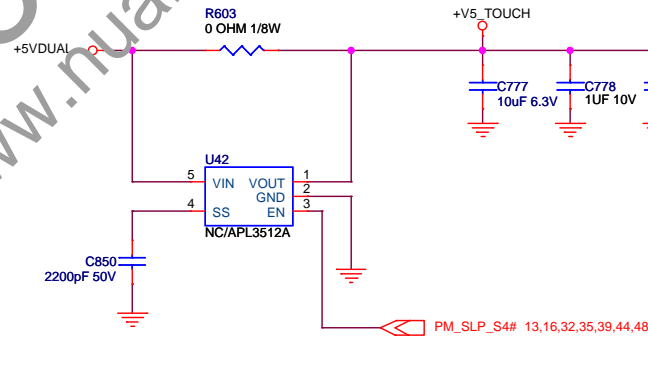
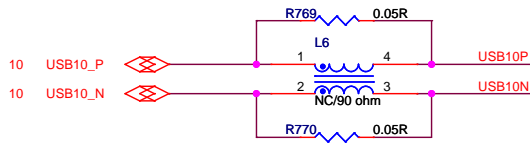
Camera + Mic



BT

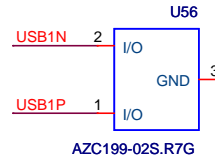
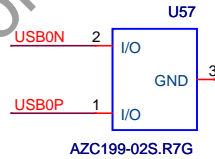
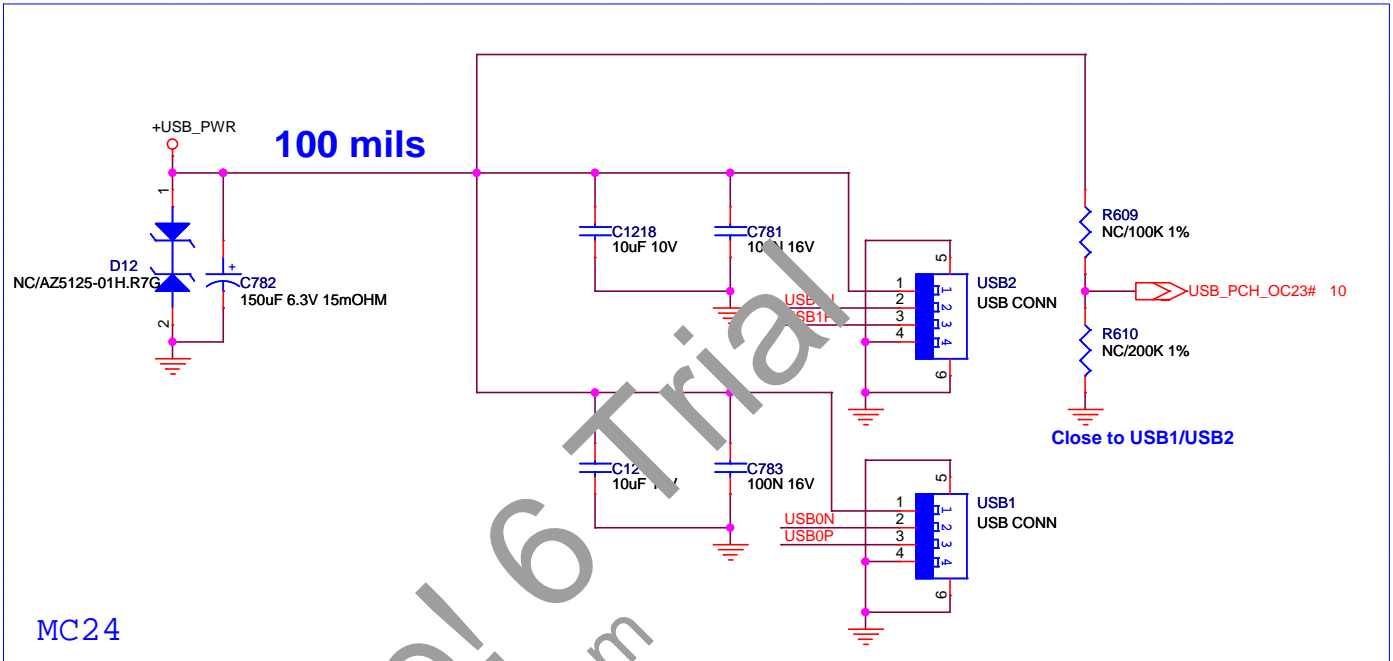
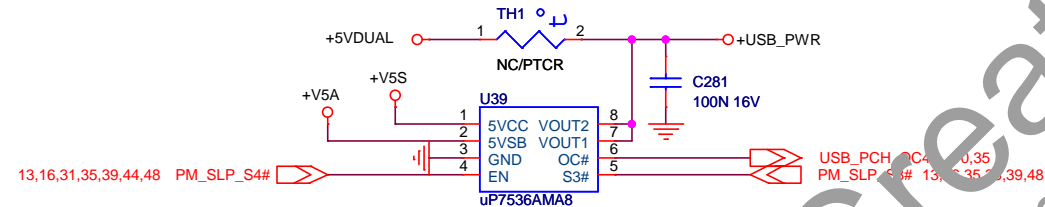
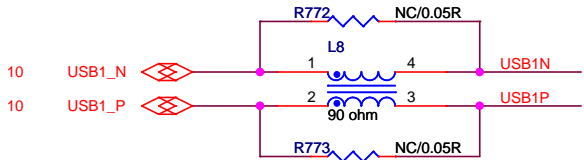
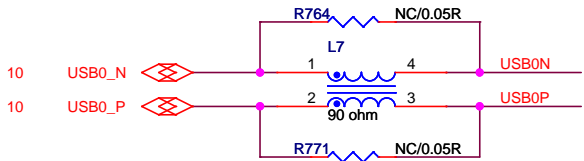


Touch Screen



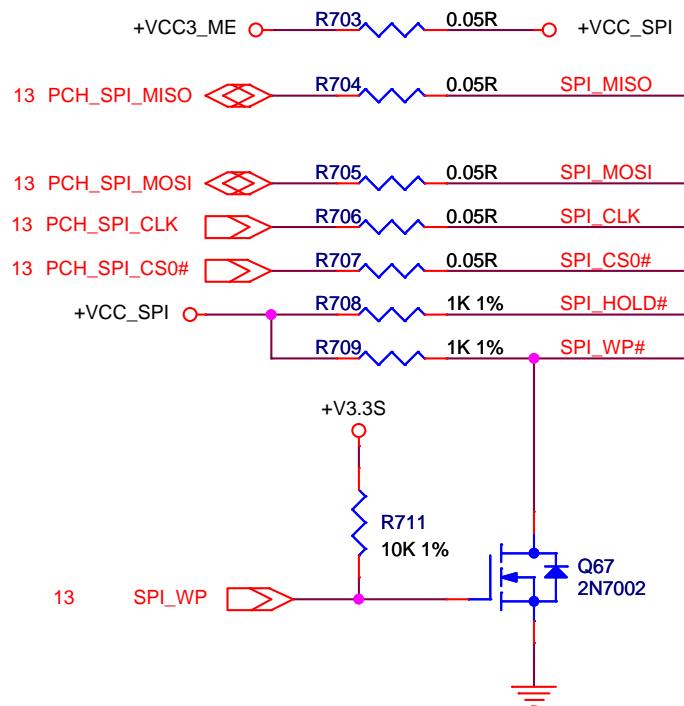
T & I	OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Webcam, BT, Touch Pad	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	31 of 54	<備註>

USB CONN x 2



T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	USB CONNx2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	32 of 54		

# BIOS SPI ROM



## 1MB SPI ROM

1st -- 056G2233 5 Winbond W25X80BVSSIG

## 2MB SPI ROM

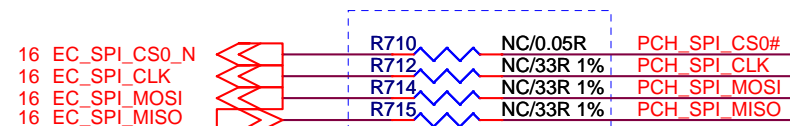
1st -- 056G1133951 Winbond W25Q16BVSSIG

2nd -- 056G1133 97 MXIC MX25L1605MC-12G

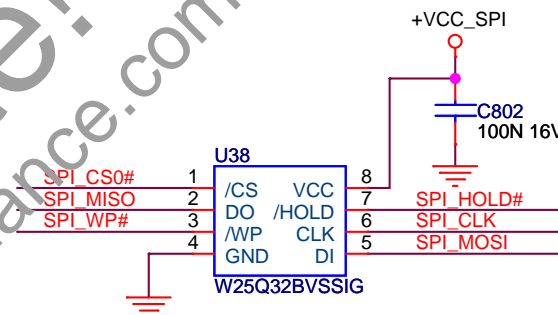
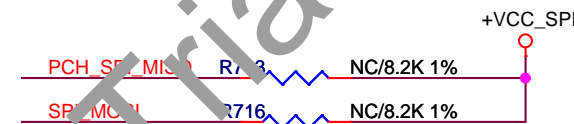
## 8MB SPI ROM

1st -- 056G2233 16 Winbond W25Q64BVSSIG

2nd -- 056G2233 15 MXIC MX25L6445EM2I-10G

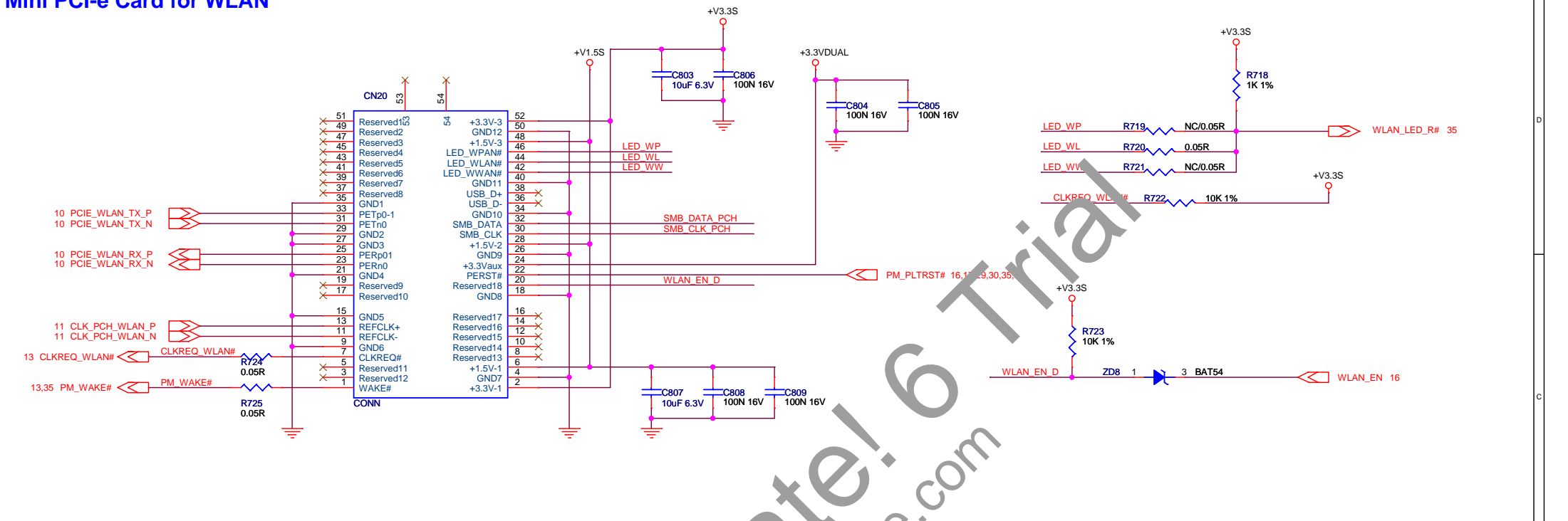


## EC HSPI

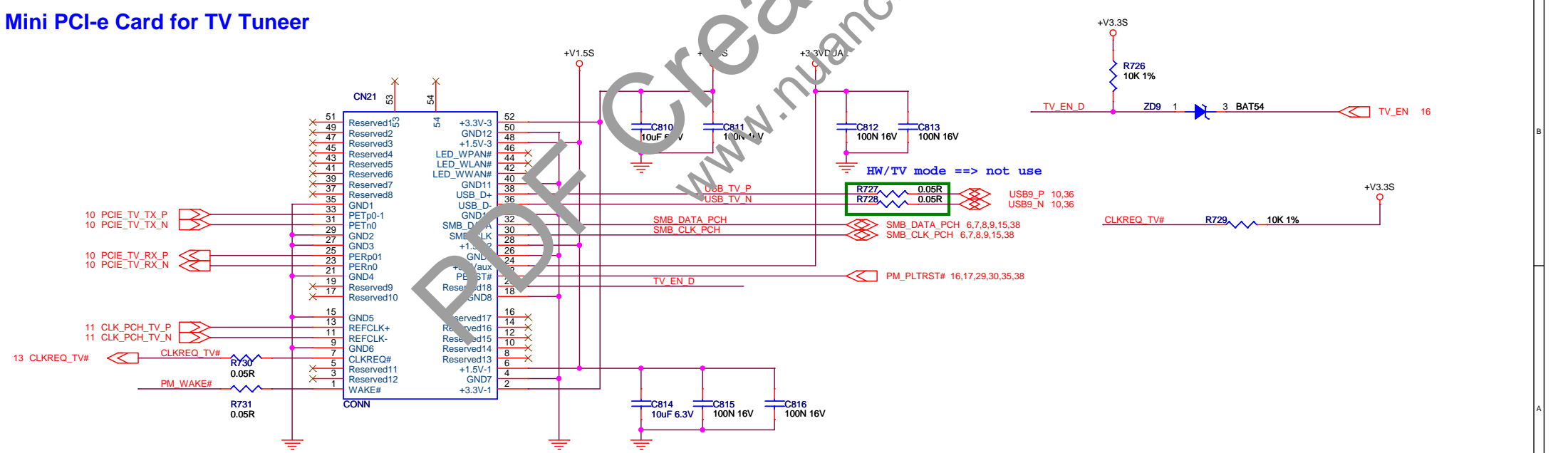


T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	SPI ROM SYS	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	33 of 54		

Mini PCI-e Card for WLAN



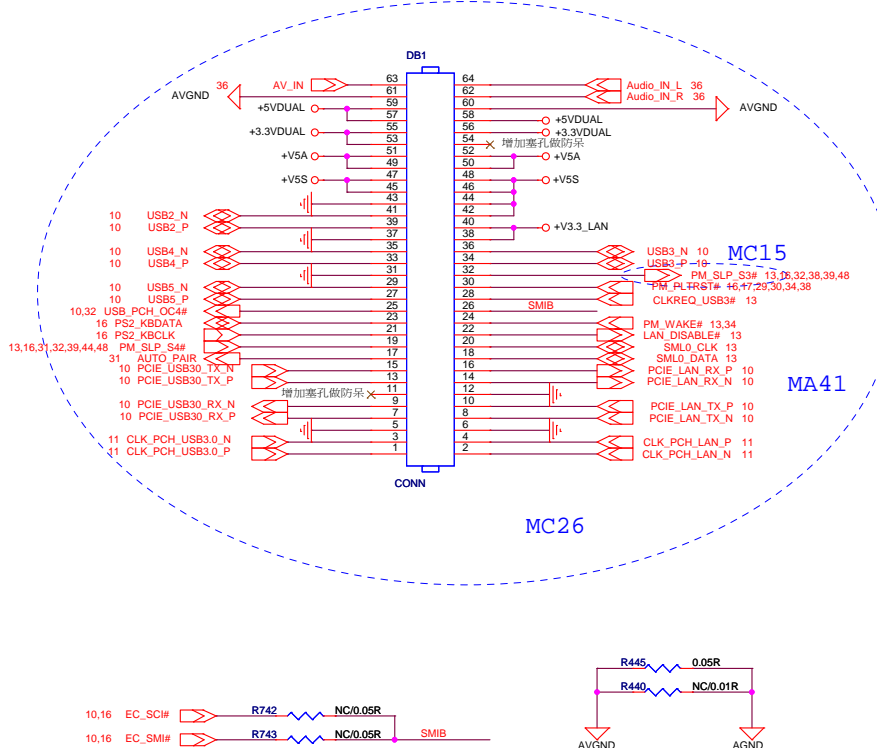
Mini PCI-e Card for TV Tuner



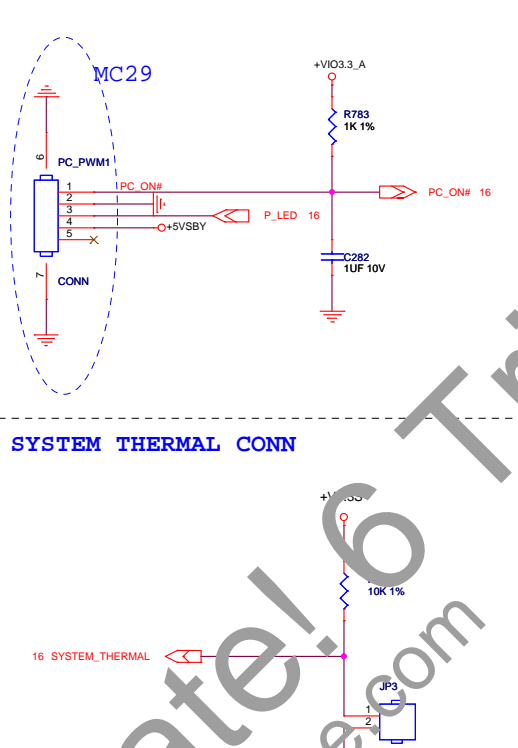
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Mini-PCI-Express x 2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	34 of 54		



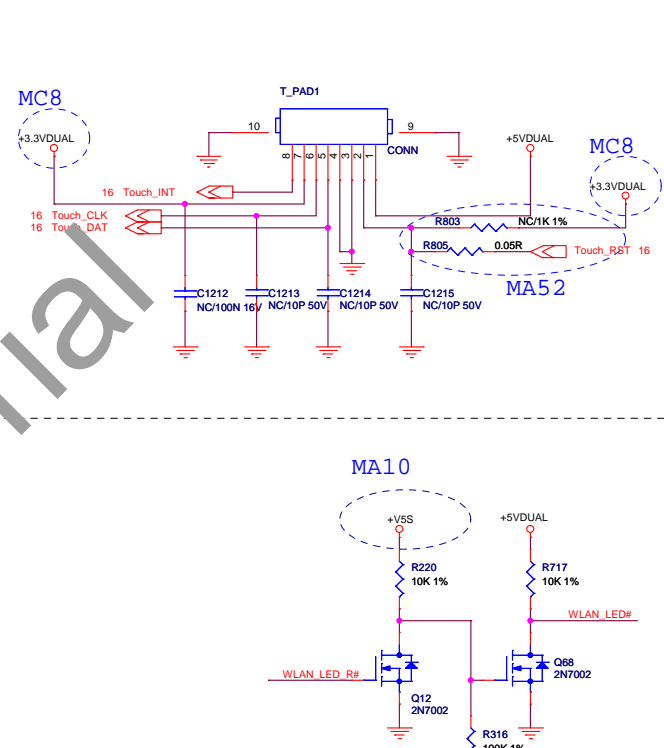
REAL IO CONN



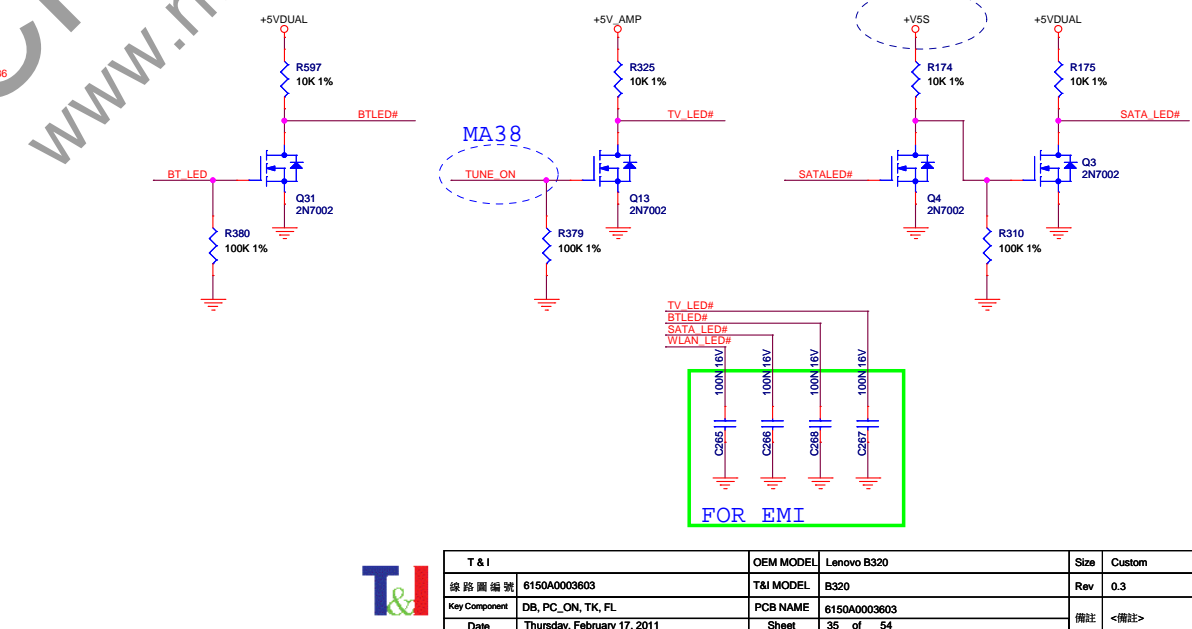
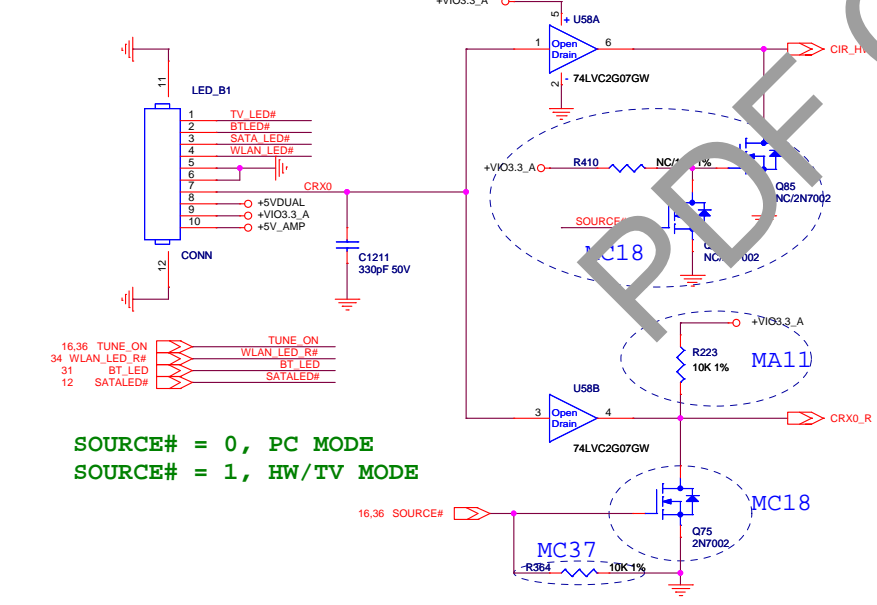
PC PWM CONN



FUNCTION TOUCH PAD CONN



FUNCTION LED CONN

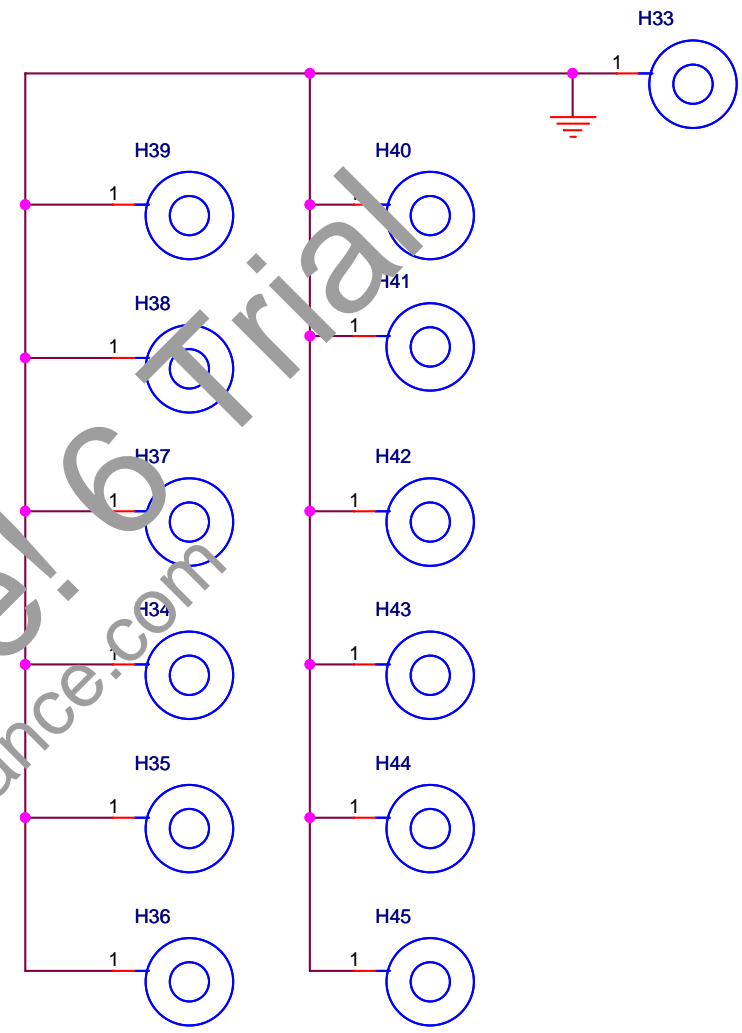
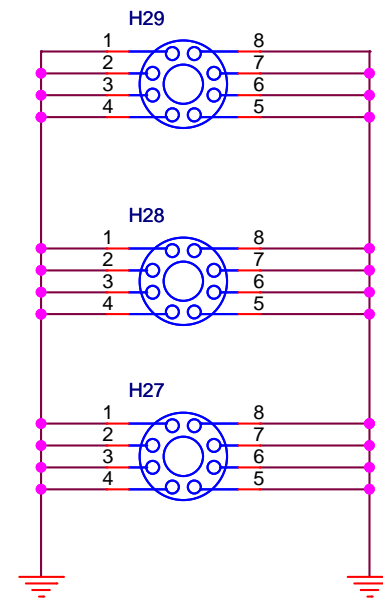
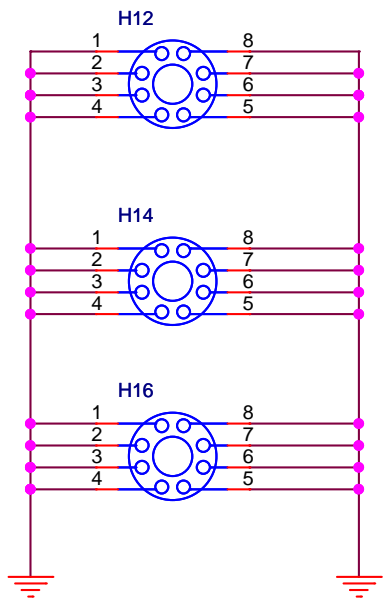


SOURCE# = 0, PC MODE  
SOURCE# = 1, HW/TV MODE



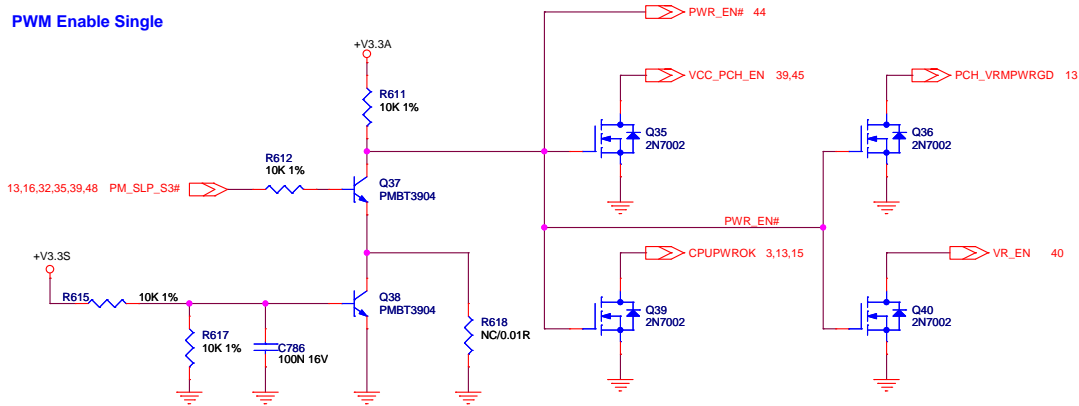
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	DB, PC_ON, TK, FL	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	35 of 54	<備註>



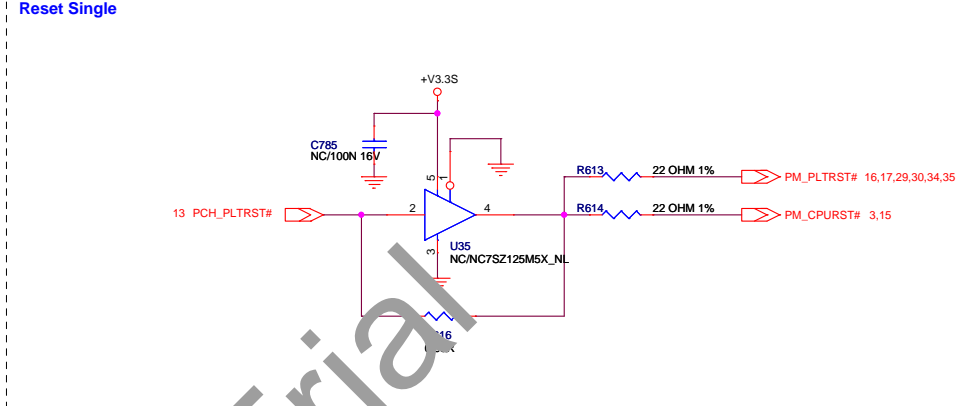


T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Screw	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	37 of 54		

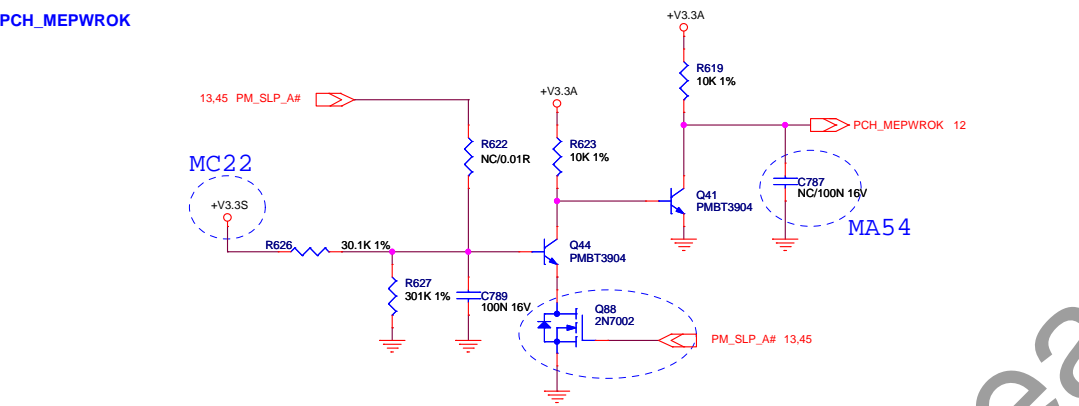
# PWM Enable Single



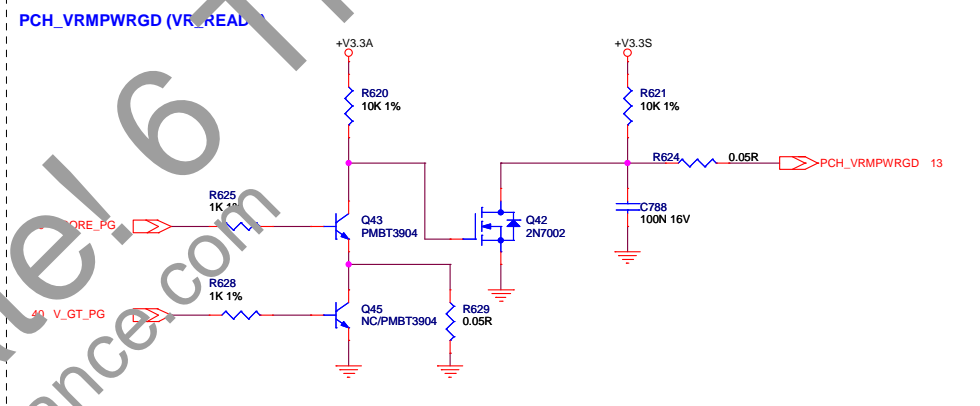
# Reset Single



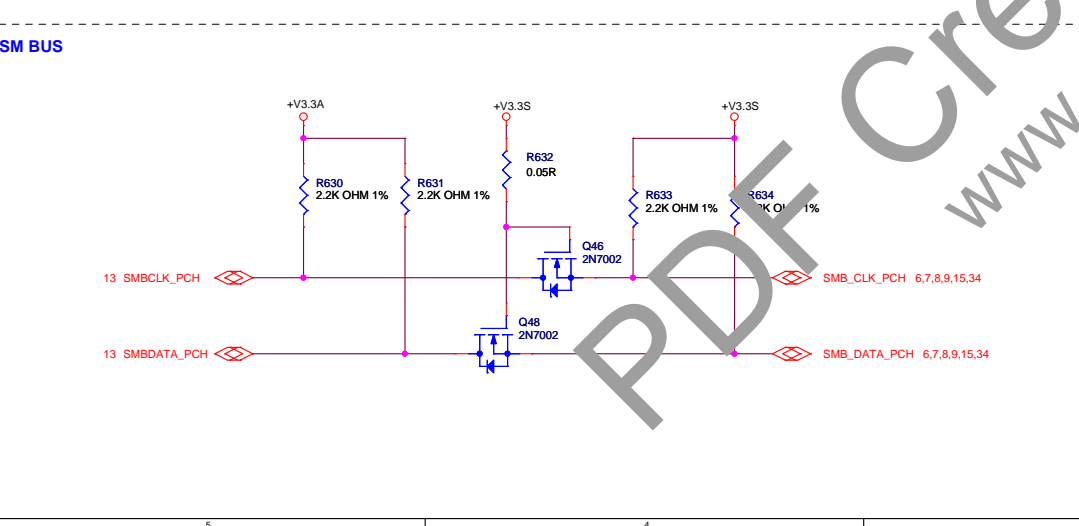
# PCH\_MEPWROK



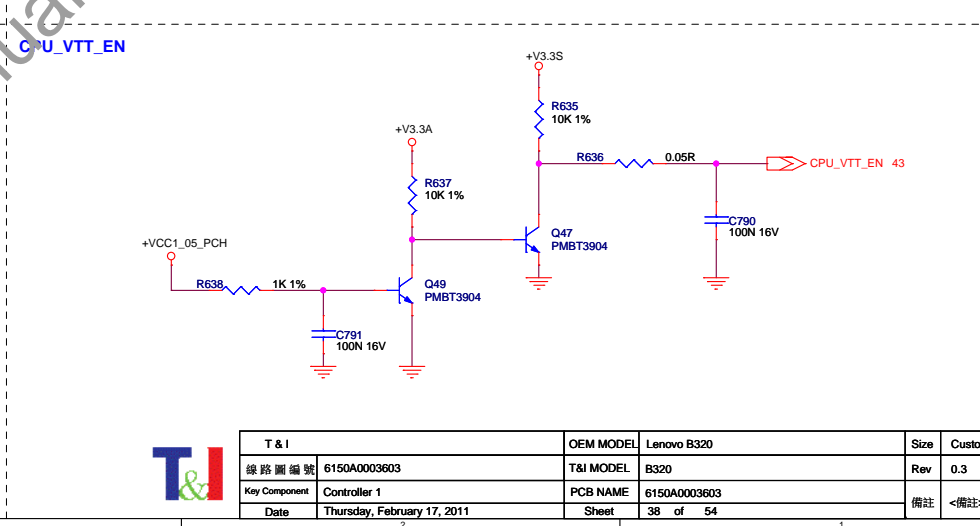
# PCH\_VRMPWRGD (VR\_READY)



# SM BUS

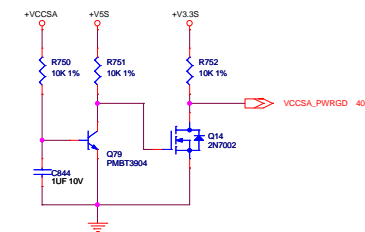
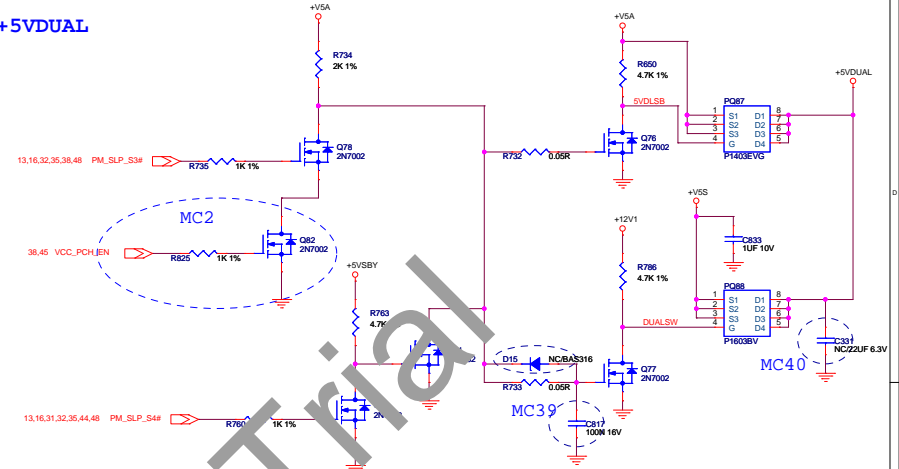


# CPU\_VTT\_EN

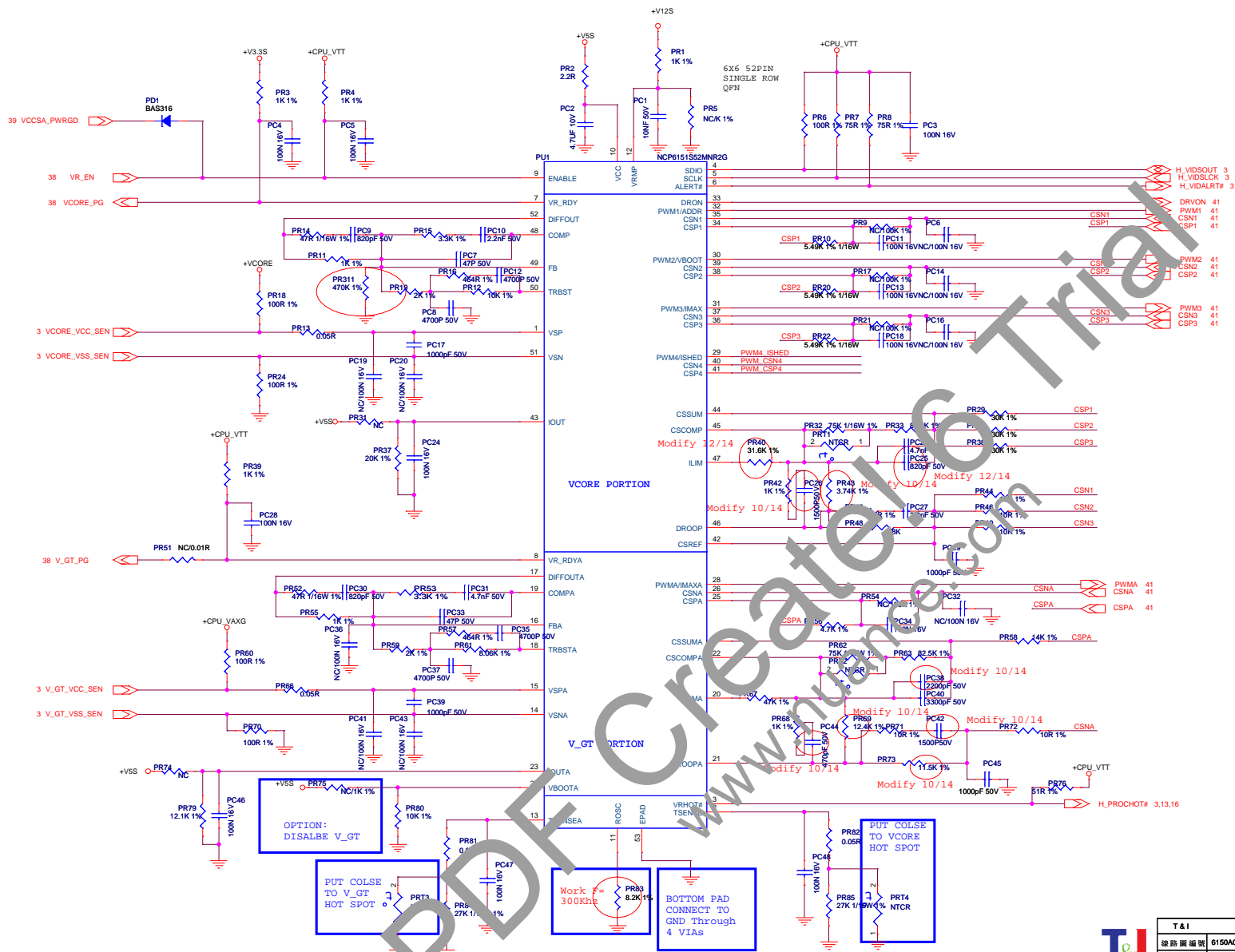


T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	38 of 54	

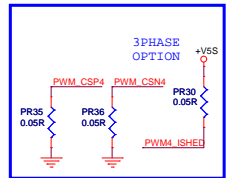
This is an input signal to the PCH from power monitoring circuit to indicate that all deep sleep power rail, VccDSW3\_3 is stable on the platform. Connect to VccDSW3\_3 power rail monitoring circuit on mother board. For platform not supporting deep sleep connect directly to RSMRST#. The DSW rails must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



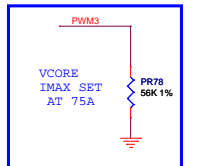
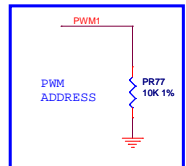
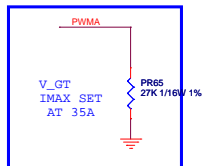
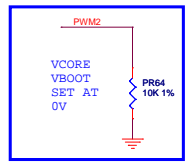
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Controller 2, +5VDUAL	PCB NAME	6150A0003603	備註 <備註>	
Date	Saturday, February 19, 2011	Sheet	38 of 54		



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

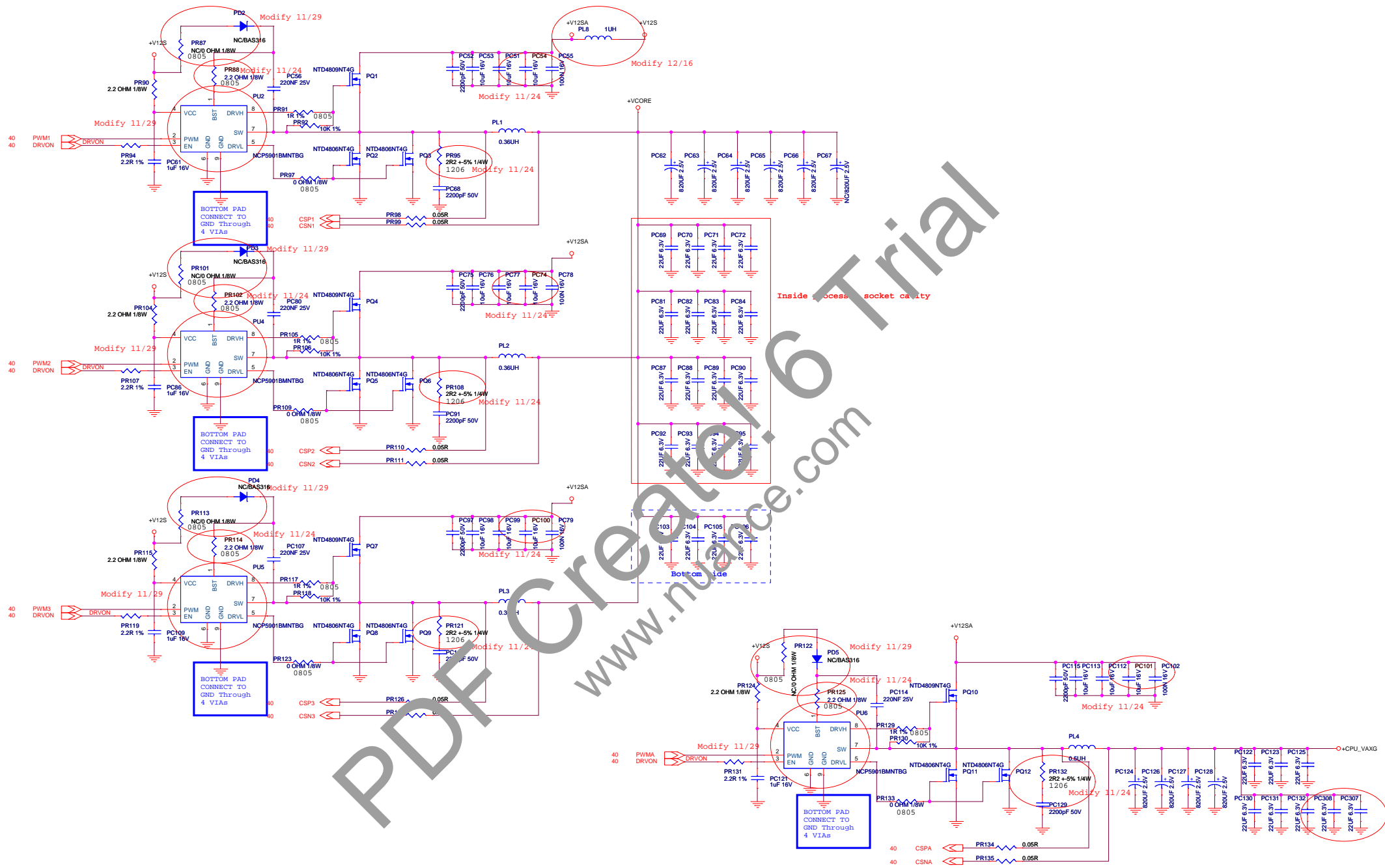


BOOT VOLTAGE	
RESISTOR VALUE	BOOT VOLTAGE
10K	0V
25K	0.9V
45K	1.0V
70K	1.1V
95K	1.2V
125K	1.35V
165K	1.5V



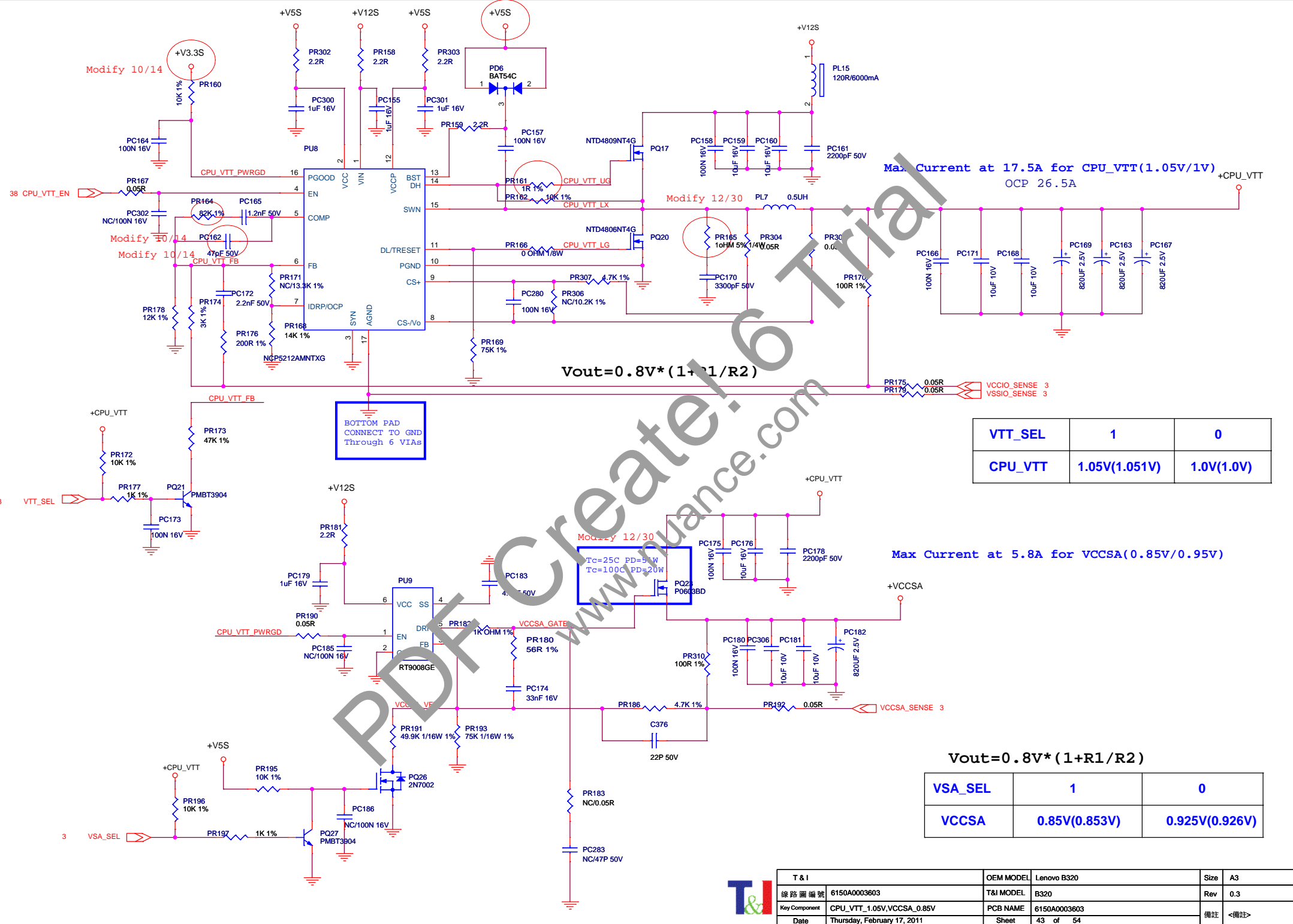
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Sugar Bay-CPU 1/2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	40 of 54		





T & I	OEM MODEL	Lenovo B320	Size	Custom	
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Sugar Bay-MOSFET 2/2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	41 of 54		





$$V_{out} = 0.8V * (1 + R1/R2)$$

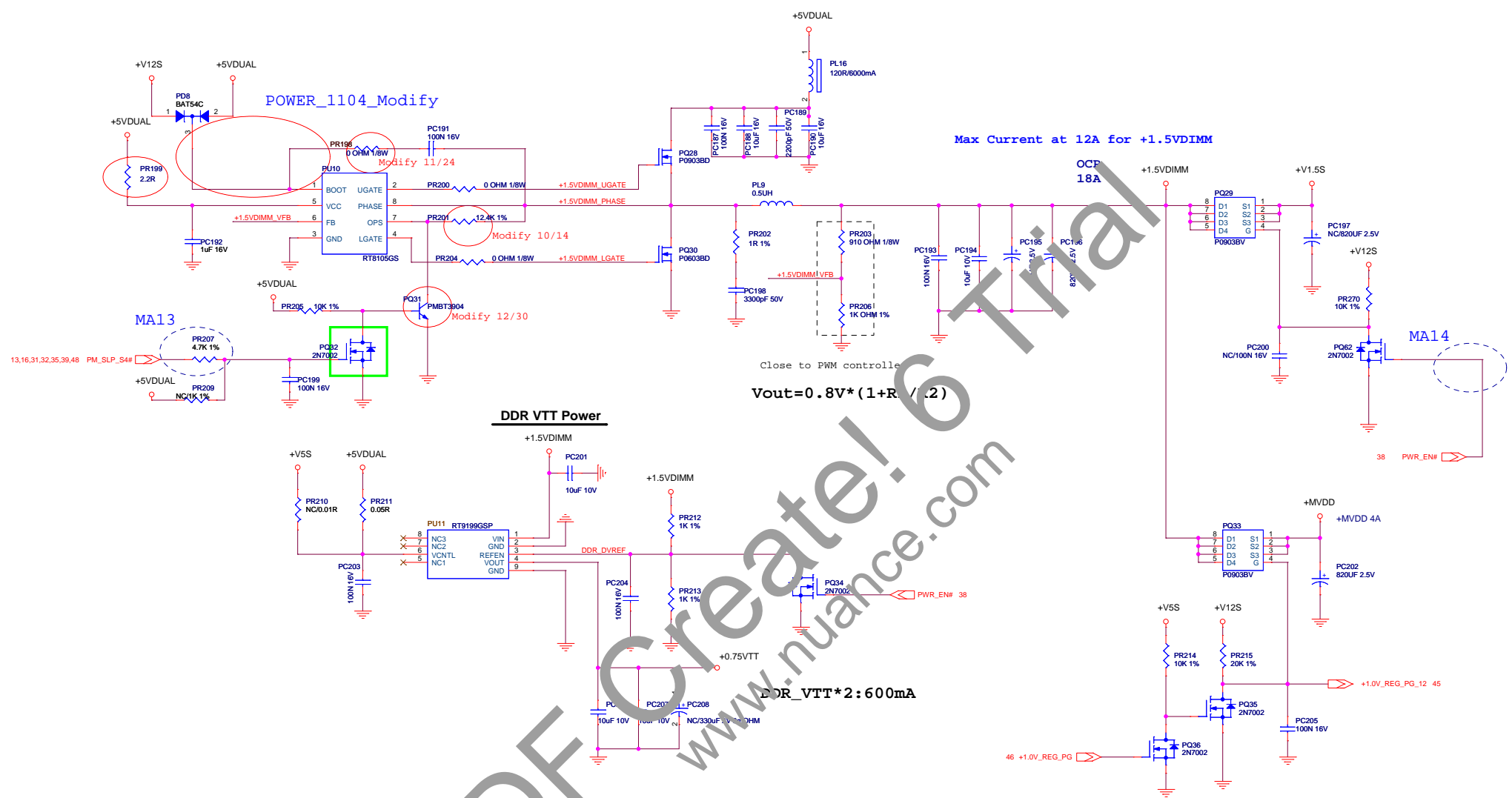
VTT_SEL	1	0
CPU_VTT	1.05V(1.051V)	1.0V(1.0V)

Max Current at 5.8A for VCCSA(0.85V/0.95V)

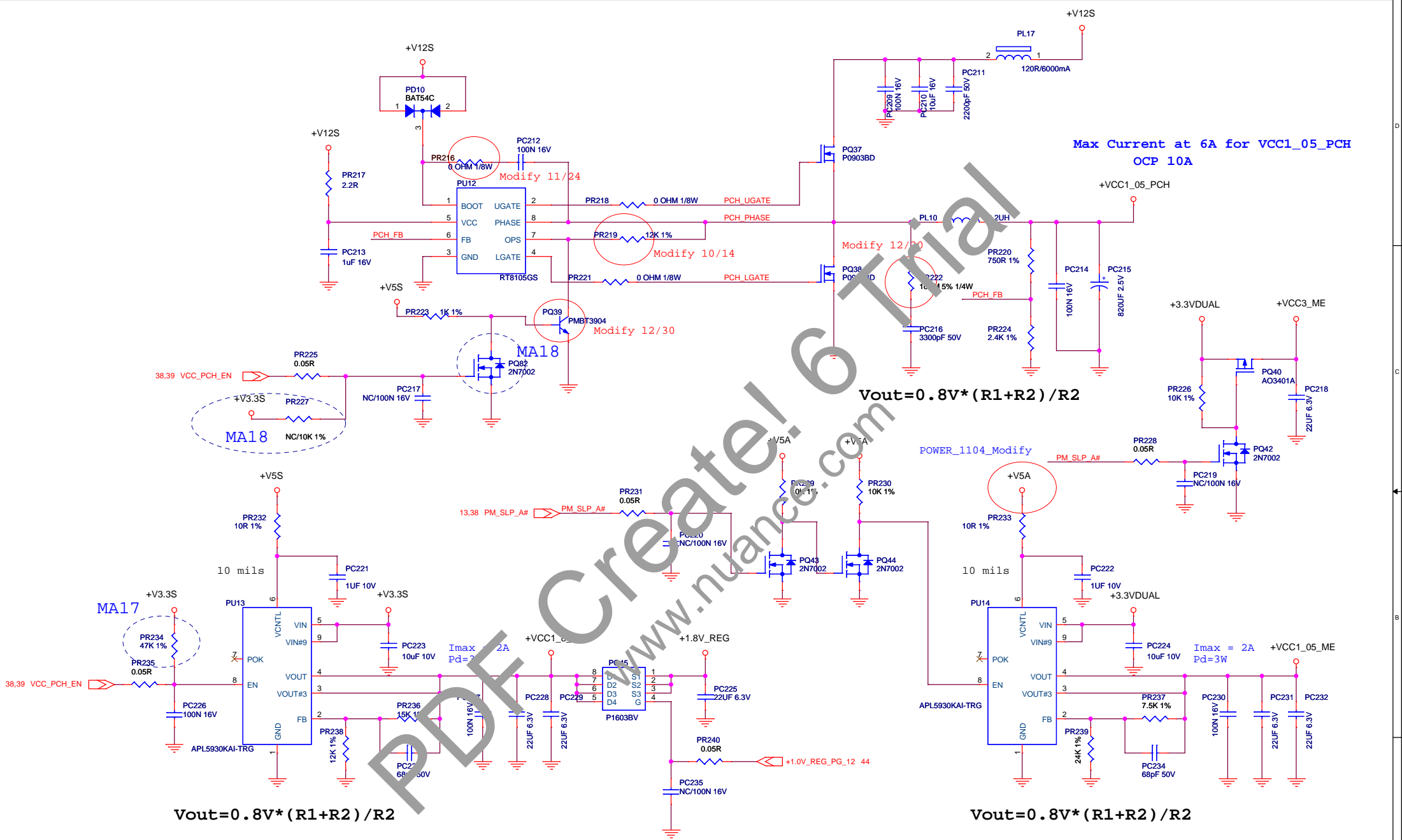
$$V_{out} = 0.8V * (1 + R1/R2)$$

VSA_SEL	1	0
VCCSA	0.85V(0.853V)	0.925V(0.926V)

T & I	OEM MODEL	Lenovo B320	Size	A3
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	43 of 54	



T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	+1.5VDIMM, +1.5VS, +0.75VTT	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	44 of 54		



Max Current at 6A for VCC1\_05\_PCH  
OCP 10A

$V_{out} = 0.8V * (R1 + R2) / R2$

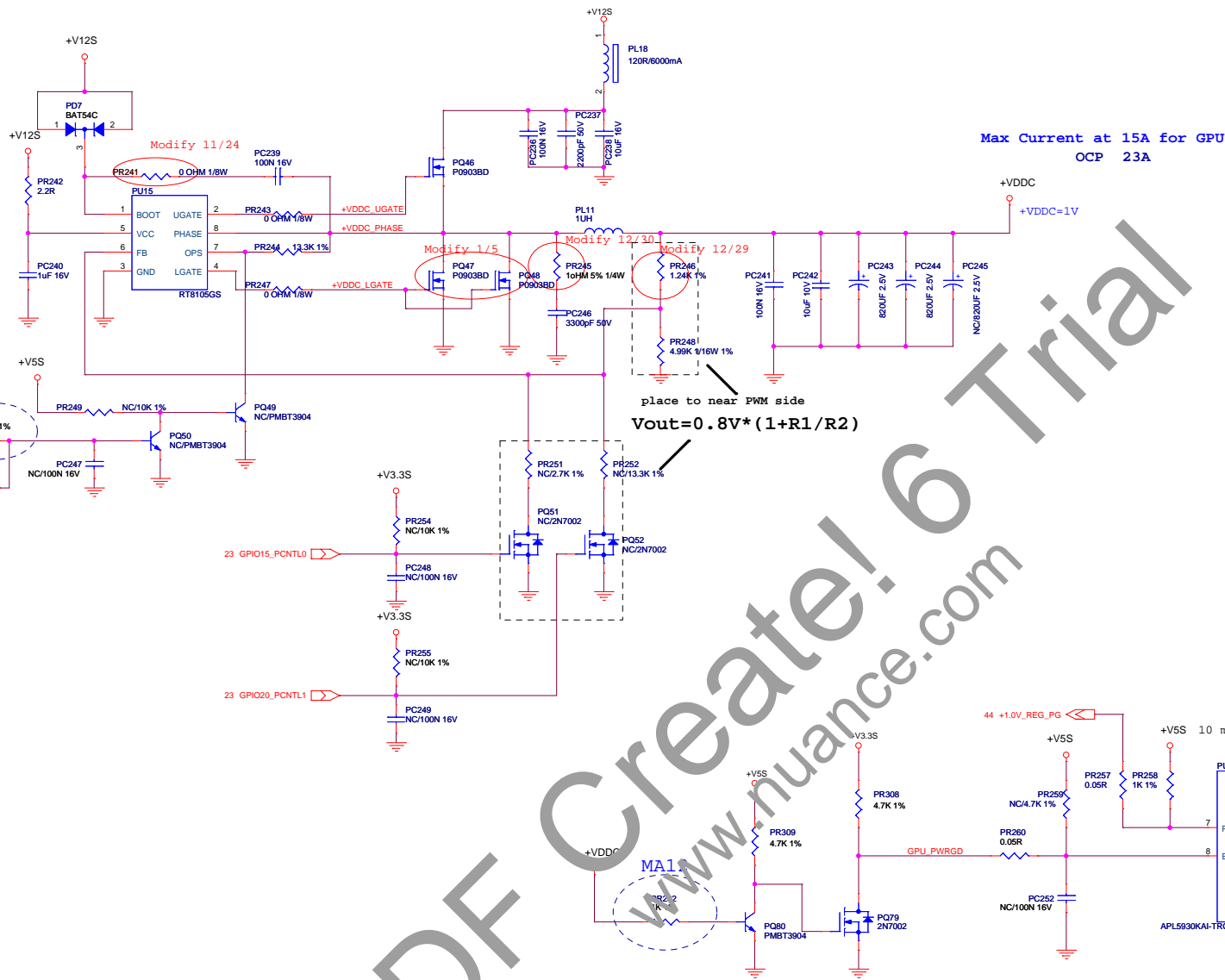
POWER\_1104\_Modify

$V_{out} = 0.8V * (R1 + R2) / R2$

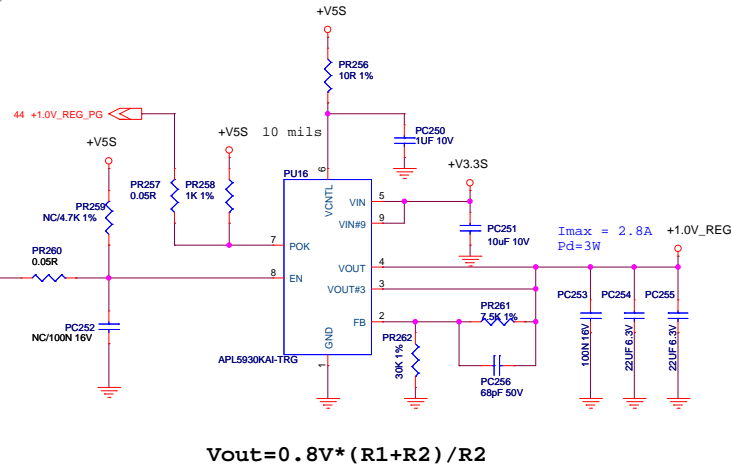
$V_{out} = 0.8V * (R1 + R2) / R2$



T & I	OEM MODEL	Lenovo B320	Size	A3
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	VCC1_05_PCH, ME, VCC1_8_PCH	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	45 of 54	<備註>



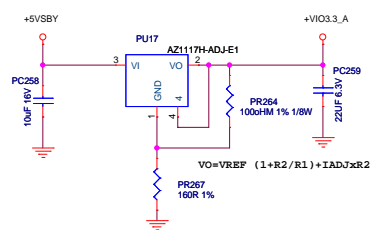
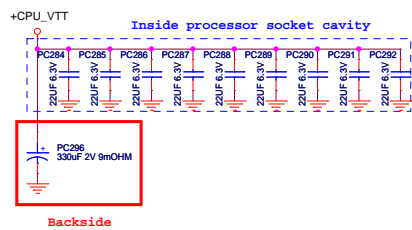
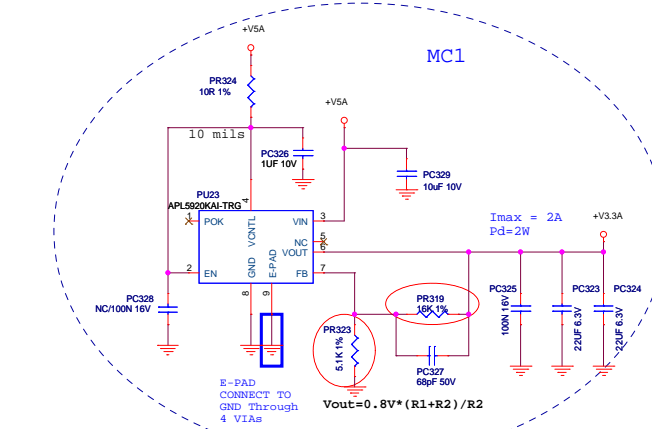
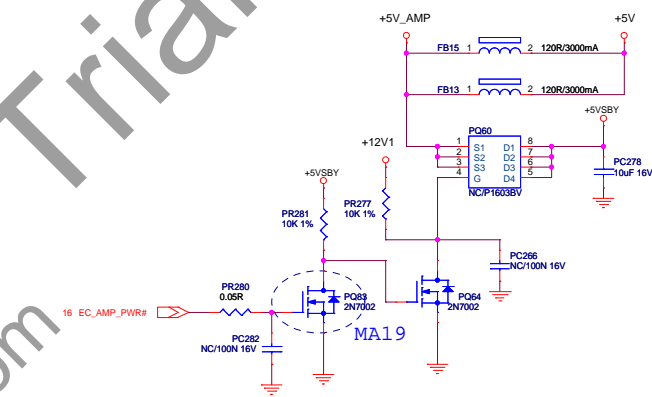
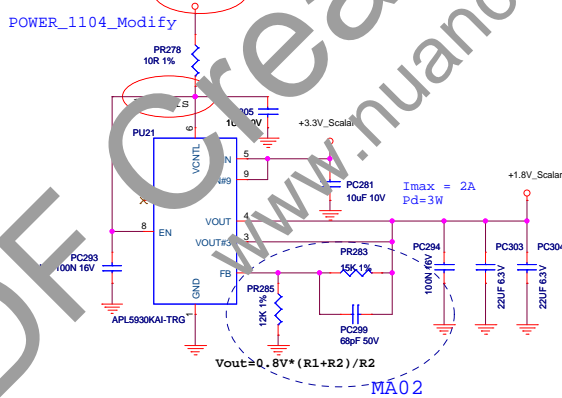
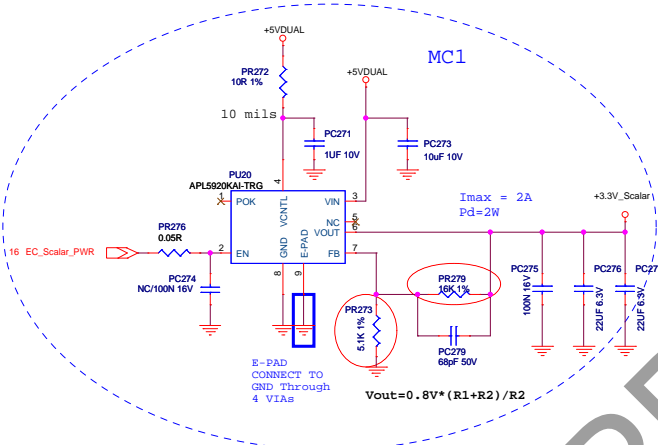
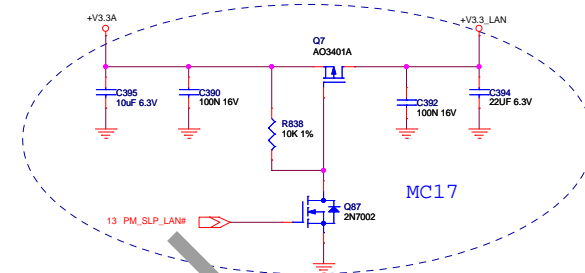
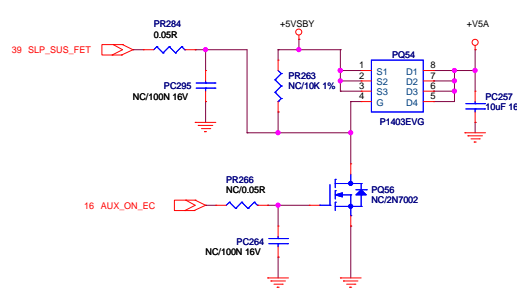
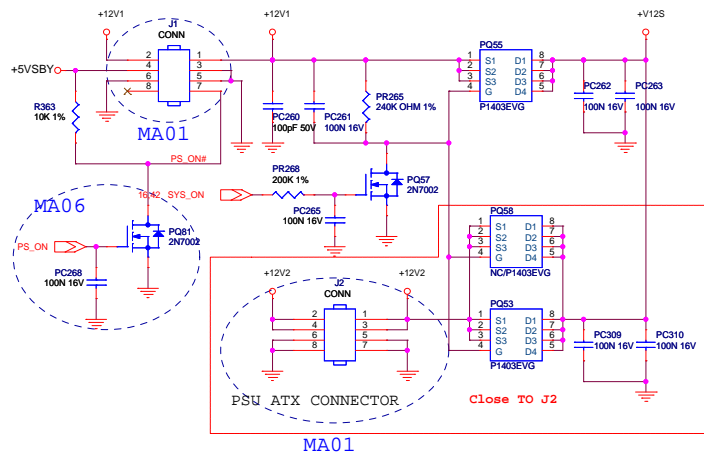
PCNTL0	PCNTL1	GPU (計算値)
0	0	0.9V
0	1	0.975V
1	0	1.0V



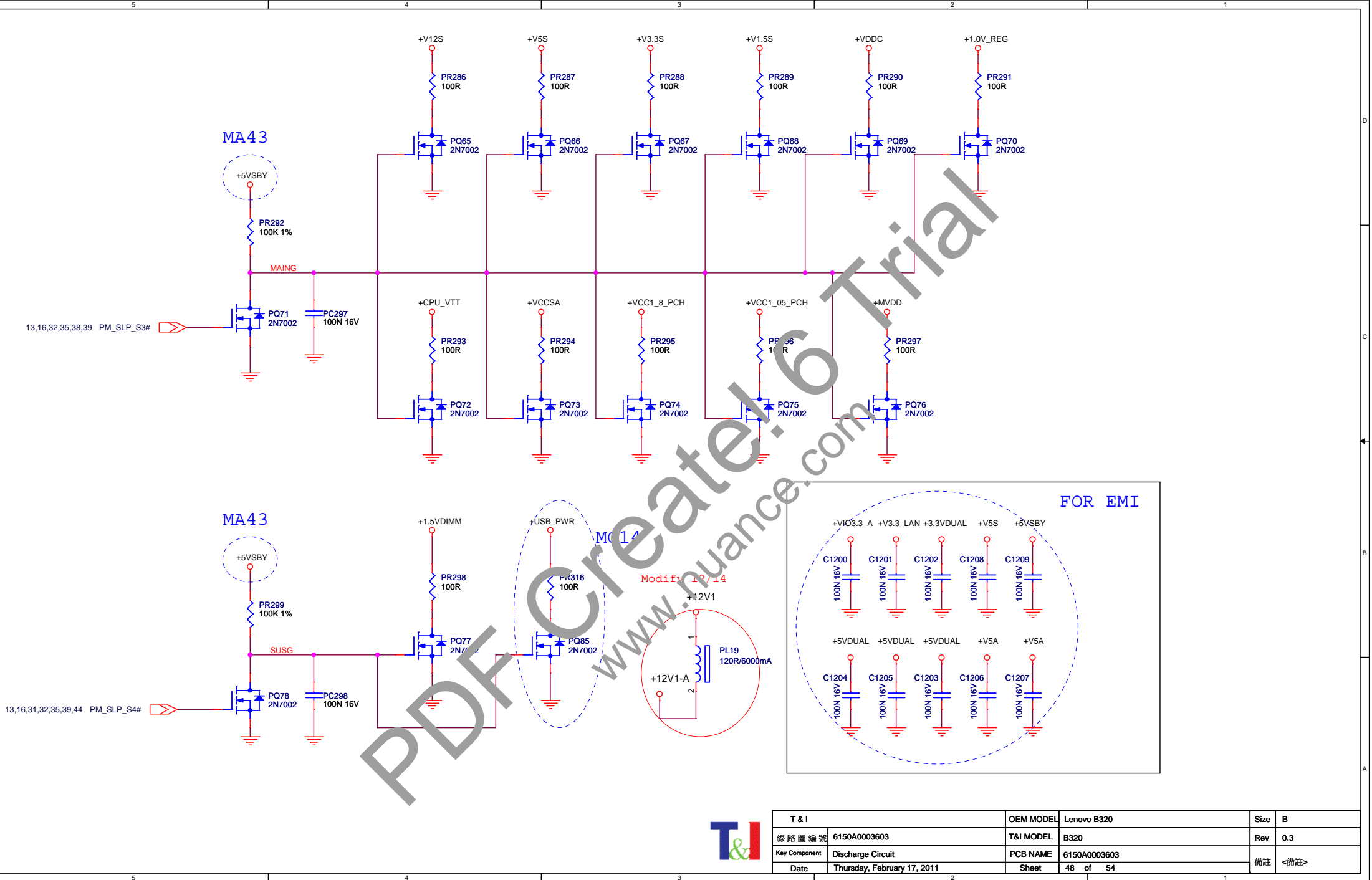
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	+VDDC, +1.0V_REG	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	46 of 54	<備註>



# PSU ATX CONNECTOR



T & I	OEM MODEL	Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	+V125, OTHER SWITCH, ATX	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	47 of 54	<備註>



T & I		OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Discharge Circuit	PCB NAME	6150A0003603	備註 <備註>	
Date	Thursday, February 17, 2011	Sheet	48 of 54		

PSON

5V Stand by 2A

12V 200W

PSU

ENABLE SIGNAL

Power Symbol

SLP\_SUS\_FET

P-MOS

+V5A

(S5)

LDO

+V3.3A

(S5)

LDO

+V3.3A

(S3)

P-MOS

+V3.3\_LAN(1.6A)

(S3)

+VIO3.3\_A(1.7A)

PM\_SLP\_S4#

+V5A

PM\_SLP\_S3#

+V5S(13A)

UPI7536

+5USB1

+5USB2

+5USB3

(S3)

X3

For Scalar

EC\_Scalar\_PWR

+5VDUAL

LDO

+3.3V\_Scalar

(S3)

LDO

+1.8V\_Scalar

(S3)

For AMP.

EC\_AMP\_PWR#

+5VSBY

N-MOS

+5V\_AMP

(S5)

EC\_HW\_TV\_PWR\_EN

+5V

(S0)

N-MOS

+V5TV(3A)

(S0)

SYS\_ON

+5V

(S0)

N-MOS

+V5S(13A)

(S0)

SYS\_ON

+3.3V

(S0)

N-MOS

+V3.3S(7A)

(S0)

VCC\_PCH\_EN

LDO

+1.0V\_REG\_PG

(S0)

VCC1\_8\_PCH(0.5A)

(S0)

CPU\_PWRGD

LDO

+1.0V\_REG

(S0)

PM\_SLP\_S4#

+V5A

PM\_SLP\_S3#

+V5S

Switch

PM\_SLP\_S4#

+5VDUAL(6A)

(S3)

PWM

+1.5VDIMM(12A)

(S3)

CPU\_VTT\_EN

DC-DC

TPS51218DSCR

CPU\_VTT (1V / 1.05V)(8.5A)

(S0)

CPU\_VTT\_PWRGD

(S0)

VCCSA

(0.85V / 0.95V)

(S0)

VCC\_PCH\_EN

DC-DC

TPS51218DSCR

VCC1\_05\_PCH (5.7A)

(S0)

VCCSA\_PWRGD

(S0)

VR\_EN

(S0)

VCORE

VCORE

(S0)

DC-DC

NCP6151S52MNR2G

CPU\_VAXG

(S0)

VDDC\_ENL

(S0)

DC-DC

TPS51218DSCR

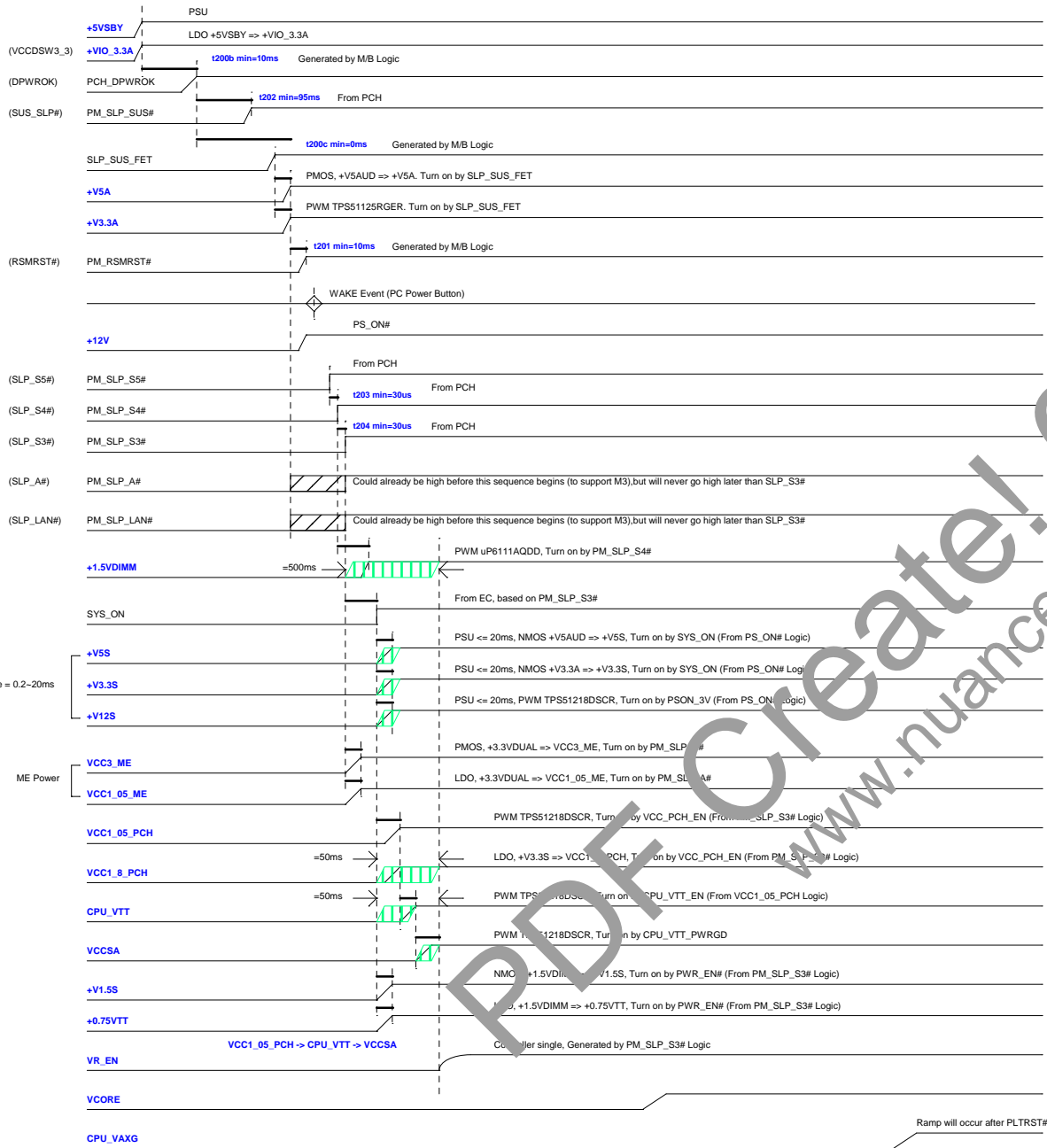
+VDDC (GPU:27A)

(S0)

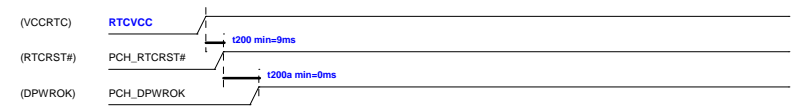


T & I		OEM MODEL		Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL		B320	Rev	0.3
Key Component	Power Map	PCB NAME		6150A0003603	備註	
Date	Thursday, February 17, 2011	Sheet		49 of 54	<備註>	

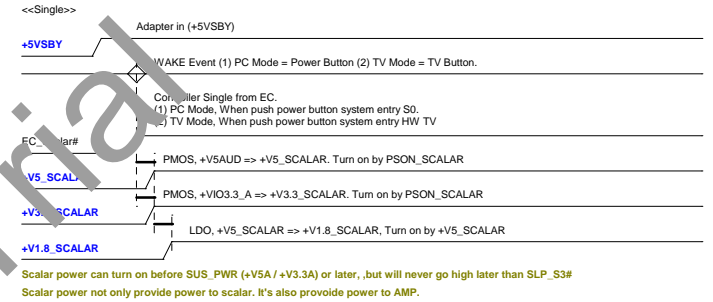
## System Power



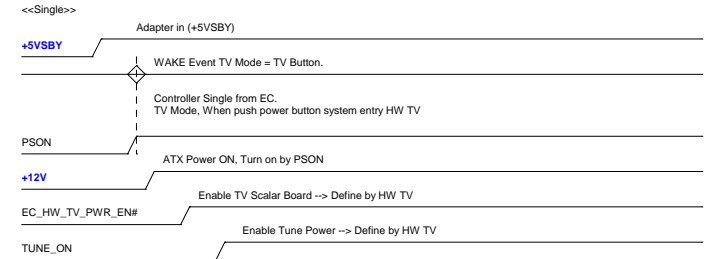
## RTC Power



## Scalar Power

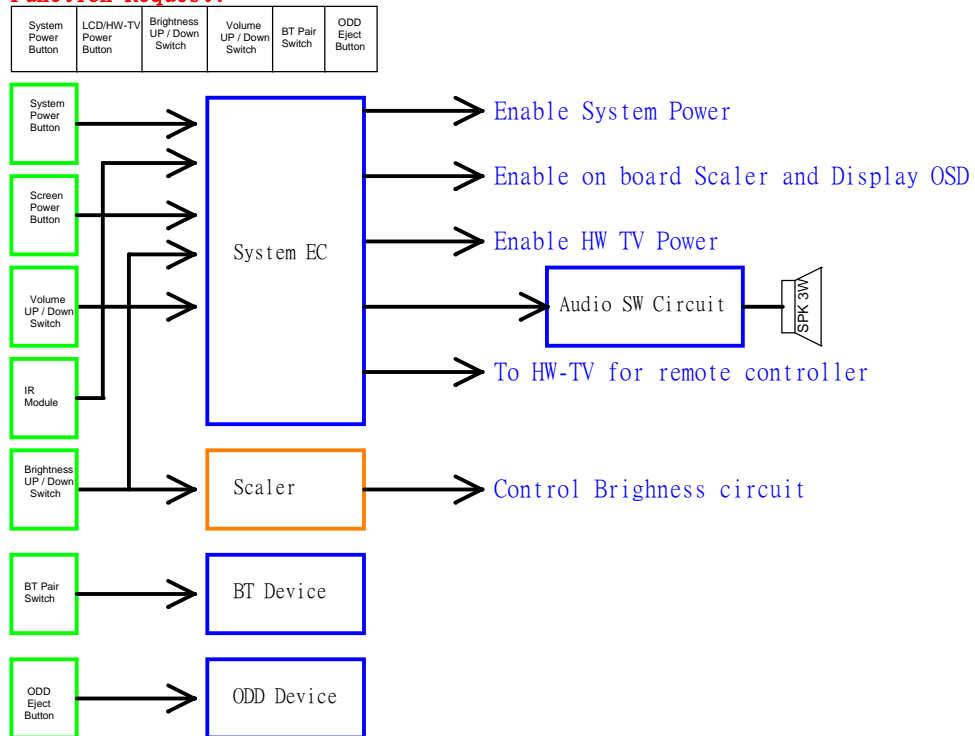


## TV Power

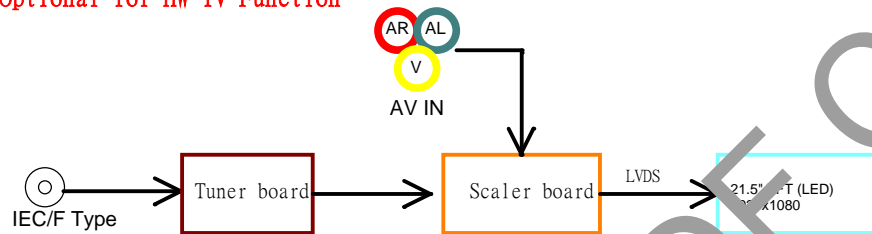


T&I	OEM MODEL	Lenovo B320	Size	Custom
6150A0003903	TAI MODEL	B320	Rev	0.3
Power Sequence	PCB NAME	6150A0003903	Sheet	50 of 54
Date	Thursday, February 17, 2011			

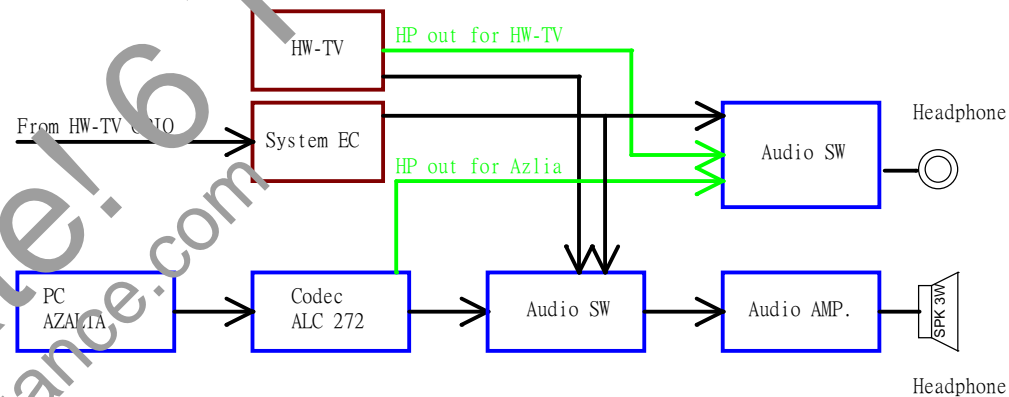
# Function Request.



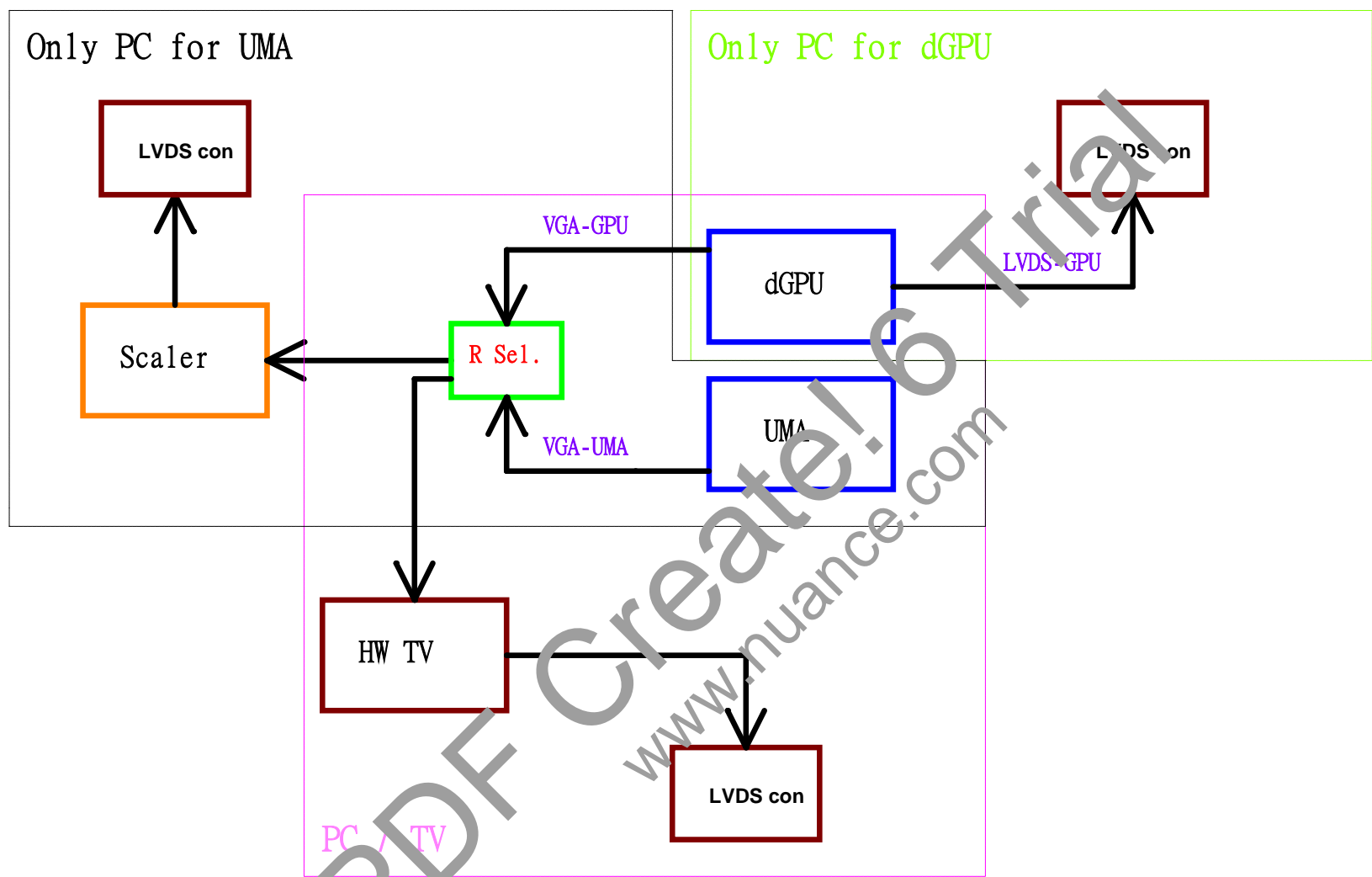
## Optional for HW TV Function



## Audio SW Circuit

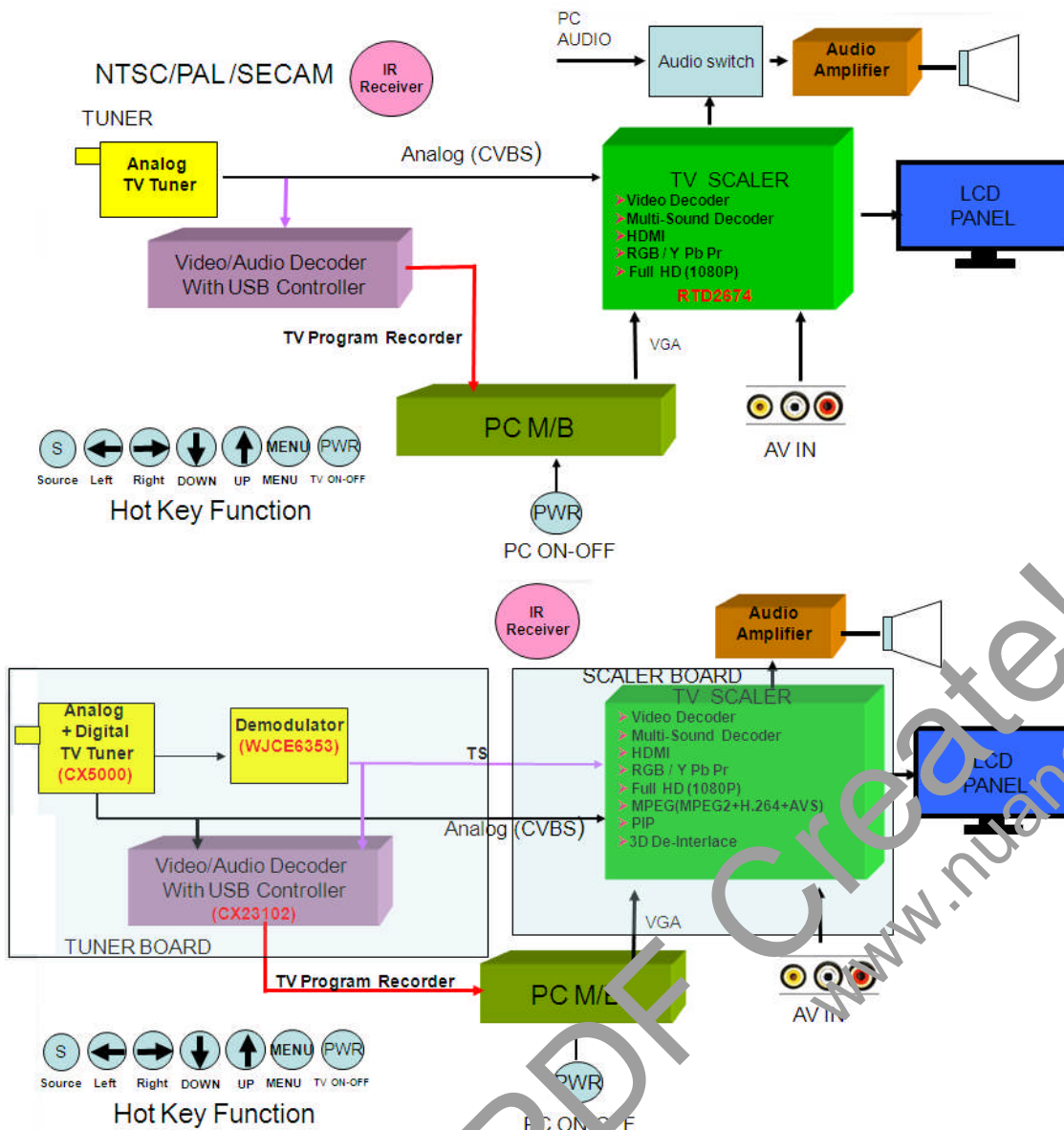


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Block_Key and Audio Switch	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	51 of 54		



T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Block_LVDS Diplay Diagram	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	52 of 54		

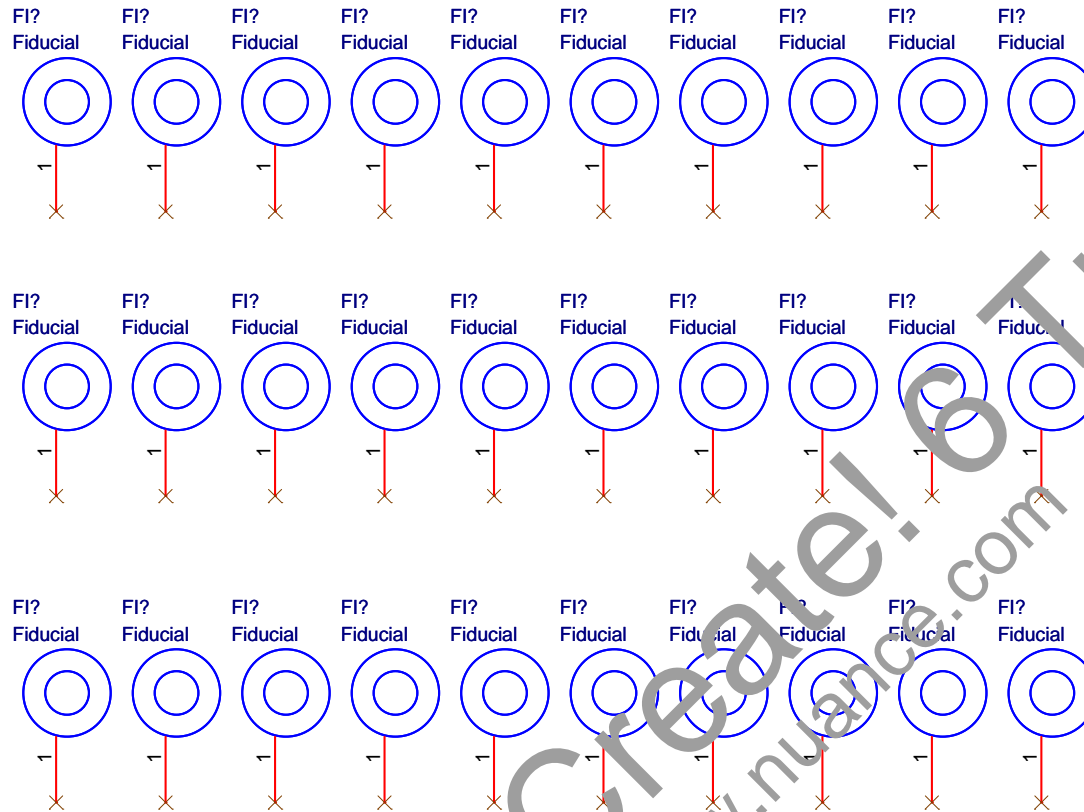




T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	HW/TV_Diagram	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	53 of 54	<備註>

Symbol	Description	Reason	Page	Note
MA01	C J1,J2	Change PSU Power from 1 conn to 2 conn. From Lenovo request	47	Version 02
MA02	C PR283,PR285,PR279,PR273	LDO Voltage divider value mistake. Change PR283 to 15K, PR285 to 12K,PR279 to 47K,PR273 to 15K	47	
MA03	A R372	Add R372 10K to reserve pull high mute#	19	
MA04	C R359	Change R359 NC to 20K to solve always mute	18	
MA05	C R352	Change R352 39.1k to 5.1K to solve HP plug in detect	18	
MA06	A PQ81	ADD PQ61 and change PS_ON# to PS_ON to solve EC didn't supply SV tolerance	16,47	
MA07	C Power Plan	Change Power Plan from +5VBSY to +VSA for solve Power on resume reset error.	39	
MA08	C Power Plan	Change Power Plan from +VSA to +5VBSY to follow demo board	39	
MA09	C PCIe Port	Change PCIe Port. Lan <-> OR to solve PCIe can't used	10	
MA10	C Power Plan	Change R174,R220 to solve LED flash when AC plug in	35	
MA11	A R223	Add R223 10K to solve U58 output OD	35	
MA12	A PR282	Add PR282 1K. Design mistake for BJT control	46	
MA13	C PR207	Change PR207 from 0ohm to 1K. Design mistake for BJT control	44	
MA14	D PR208,PQ61	Delect PR208,PQ61. Logic design mistake	44	
MA15	C PR250	Change PR250 from 0ohm to 1K. Design mistake for BJT control	46	
MA16	A R594,Q17 C R442,R602	To solve VDD power enable inverter	22	
MA17	C PR234	To pull high enable signal	45	
MA18	A PQ82,PQ84 C PR227, D PQ41,PQ39	Add PQ82,PQ84 and Change PR227 NC to 10K to pull +V3.3S	45	
MA19	A PQ83, D PQ63	Change BJT to FET to control power enable	47	
MA20	C Power Plan	Change Power Plan from +V3.3A to +V3.3S to solve leakage	12	
MA21	C Power Plan	Change Power Plan from +V3.3A to +VIO3.3A to solve leakage	14	
MA22	C Power Plan	Change Power Plan from +V3.3A to +VIO3.3A to solve leakage	13	
MA23	C SATA Conn	Change SATA Conn from ME Request.	12	
MA24	A R131	Add R131 to + V3.3S TO enable DDCP HPD	11	
MA25	A R785,Q74,Q73	Add Protect Circuit FOR PCH SMBUS_1 and GPU Thermal IC SMBUS to EC	16,23	
MA26	A R810,C852	Add RC delay on PM_RSMRST#	13	
MA27	C C189,C190	Change C189,C190 NC to 1UF	13	
MA28	C Q6	Change PMBT3904 to 2N7002	13	
MA29	C CN26	Change WAFER 2.0MM 4P to WAFER 1.25MM 4P	15	
MA30	C CN7	Change CN7 to NC	15	
MA31	C R314	Change R314 OR to NC	16	
MA32	C CN10,CN15,CN19,CN8	Change CN10,CN15,CN19,CN8 to NC	16,23,33	
MA33	C NET Name	Change TV_ON to TV_ON#	16,36	
MA34	A ZD12,ZD15,ZD16,ZD17 ZD18,ZD19,ZD20	Add ZD12 BAT54 to solve leakage of electricity	16	
MA35	A R312	Add R312 10K pull high +VIO3.3_A	16	
MA36	C NET Name	Change SMB_CLK_VGA to EC_SMB_CLK_1, Change SMB_DATA_VGA to EC_SMB_DATA_1	16	
MA37	A R794,R795,R796,R797 R798,Q83,Q84	Add Protect Circuit FOR EC SMBUS_1 to HW/TV and Touch Board	16	
MA38	C NET Name	Change EC_HW_TV_PWR_EN to TUNE_ON	35	
MA39	C NET Name	Change GS_DSUB_SCL to EC_SMB_CLK_1. Change GS_DSUB_SDA to EC_SMB_DATA_1.	21	
MA40	A ZD13,ZD14	Add ZD13,ZD14 BAT54 to solve leakage of electricity	21	
MA41	C DB1,DB2	Modify 2x32 Pin Header to 2x26 and 2x8 SPEC	35	
MA42	C IVERTER1	Change CONN SPEC FOR ME Issue	22	
MA43	C Power Plan	Change Power Plan from +VSS to +5VBSY to solve leakage of electricity	48	
MA44	A R237,R212	SETTING LED PANEL and MIC	13	
MA45	C +3.3V_LAN Solution	Change +3.3V_LAN Power Solution	47	
MA46	C POWER SOLUTION	Change 1117 to APL5930	47	
MA47	A R840,R841	Add R840 and R841 to GND	13	
MA48	A R397,R398	Add R397 and R398	16	
MA49	A HW/TV ID SET Circuit	Add HW/TV Scalar board strap ID setting	16	
MA50	C CN12,CN13 JACK SPEC	Change CN12 and CN13 JACK SPEC	20	
MA51	A Discrete RGB Circuit	Add Discrete RGB to Internal Scalar Circuit (DEL)	21	
MA52	A R803,R805	Add R803 and R805 for Touch reset pin option	36	
MA53	A OP_Circuit for Audio	Add OP_Circuit for HW/TV Scalar Lineout on PC_MB	36	
MA54	C C787	Change C787 100nF to NC	16	
MA55	C +3.3VDUAL Solution	Change +3.3VDUAL Power Solution	47	

Symbol	Description	Reason	Page	Note
MC1	C Change Power Solution	Change +3.3VDUAL,+V3.3A,+3.3V_Scalar Power Solution	42,47	Version 03
MC2	A Q82,R825	Add VCC_PCH_EN,Q82,R825 to solve S3 issue	39	
MC3	A R402	USB_PCH_OC4# add R402 to +V3.3A	10	
MC4	C SYS_ON from P94 to P89	Change SYS_ON from P94 to P89 of the EC	16	
MC5	A PCH_GPO33_H to EC	Add PCH_GPO33_H to EC Pin 30, add ZD21,R404	13,16	
MC6	C Touch Panel I2C	Change Touch Panel I2C signal to EC Pin 94 an 95	16	
MC7	C Audio SW Schematic	Change Audio SW solution	19	
MC8	C Power plan	Change Power Plan from +3.3V_Scalar to +3.3VDUAL	35	
MC9	A Scalar EDID circuit	Add scalar EDID circuit	21	
MC10	A Q30,Q34	Add Q30,Q34 to solve leakage	21	
MC11	A ZD22,EC_BACKLIGHT	Add EC_BACKLIGHT control LCD backlight and ZD22 to solve leakage	16,22	
MC12	A C284,C341	Add C284,C341 for Levono schematic review	15	
MC13	A Q59,Q61	Add Q59,Q61 for protection design	16	
MC14	A discharge circuit	Add PR316,PQ85 for USB power discharge circuit	46	
MC15	A PM_SLP_S3#	Add PM_SLP_S3# to DB1 conn	35	
MC16	A D17,D18	Add D17,D18 for protection design	47	
MC17	C LAN Power circuit	Changel +V3.3_LAN Power solution	35	
MC18	A IR_SEL# circuit	Add Q75,Q85,Q86,R410 for control IR source	35	
MC19	A R438	Add R438 bypass from EC_HW_TV_PWR_EN_R to EC_HW_TV_PWR_EN	16	
MC20	A TV_LCDVCC	Add TV_LCDVCC to HW/TV connector (TVS2)	22	
MC21	C TVS1 and TVS2 conn	Modify TVS1 and TVS2 CONN and Pin def	36	
MC22	C VCC1_05_ME to +V3.3S	Change VCC1_05_ME to +V3.3S to solve Power off Sequence (332)	38	
MC23	A R820	Add R820 on GPU XTAL for fine tune	23	
MC24	A R900	Add R900 to pull high TV_ON# for non-HW TV SKU.	16	
MC25	C AMP Solution	Change AMP Solution.	36	
MC26	D DB2 C DB1	Delect DB2 combine to DB1 for Assembly request.	35	
MC27	A R902	Change R444 to NC and Add R902 to pull low to solve power on flash.	22	
MC28	A CN29,C905,C906	ADD HW TV Fan.	15	
MC29	C Conn PC_PWM1	Change conn to prevent make short.	35	
MC30	A Q90,R345,Q91	Add Discrete and UMA HPD Pin control	11	
MC31	A R425	Add HPD_EN# to control Discrete and UMA HPD	16	
MC32	A R824,R852	Add R824 and R852 pull +3.3VDUAL	16	
MC33	A Bypass R	Add bypass resistance	18	
MC34	A C329,C330,C1216,C1217	Add C329,C330,C1216,C1217 from TV HPD to SW	19	
MC35	A Discrete DVI	Add Discrete DVI to Internal scalar	21	
MC36	A JP4	Add JP4 to setup Internal scalar panel ID	21	
MC37	A R364	Add R364 Pull GND	35	
MC38	A R830,R832	Add R830 and R832 Bypass Resistance	36	
MC39	A D15,C817	Add D15 and C817 RC Delay Function	39	
MC40	A C331	Add C331	39	
MD01	A R910,R911	Reserve system flash on board scalar function.	13,21	Version 04
MD02	A R912,R913	To solve EC can't link with HW TV.	16,36	
MD03	TVP1	TVP1 not change +12V1 to GND	36	



T & I		OEM MODEL	<Title>	Size	A
線 路 圖 編 號	<線路圖編號>	T&I MODEL	<Doc>	Rev	<RevCode>
Key Component	<Key Component>	PCB NAME	<PCB name>	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	55 of 55		