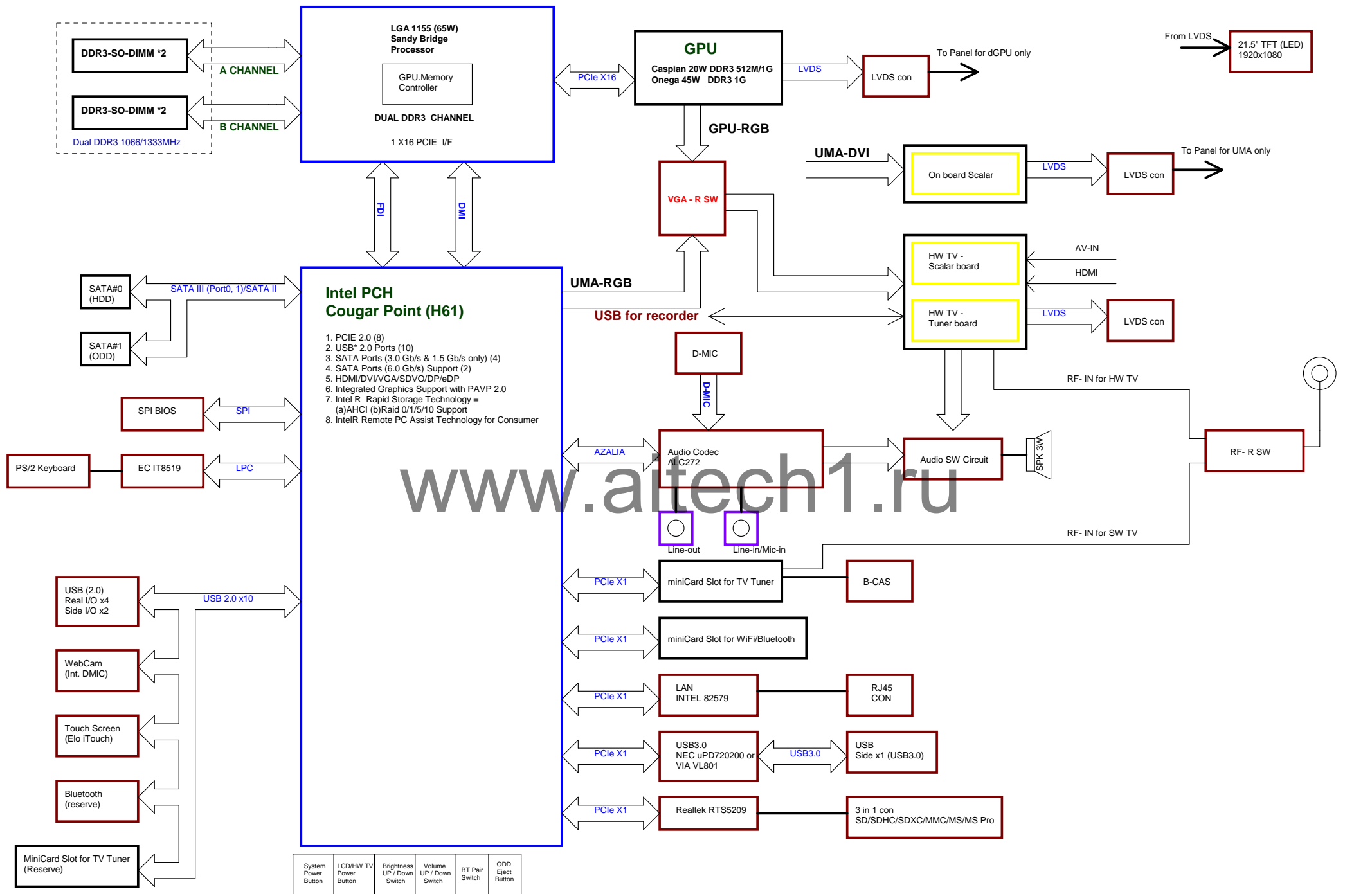


# Lenovo B320 Schematics

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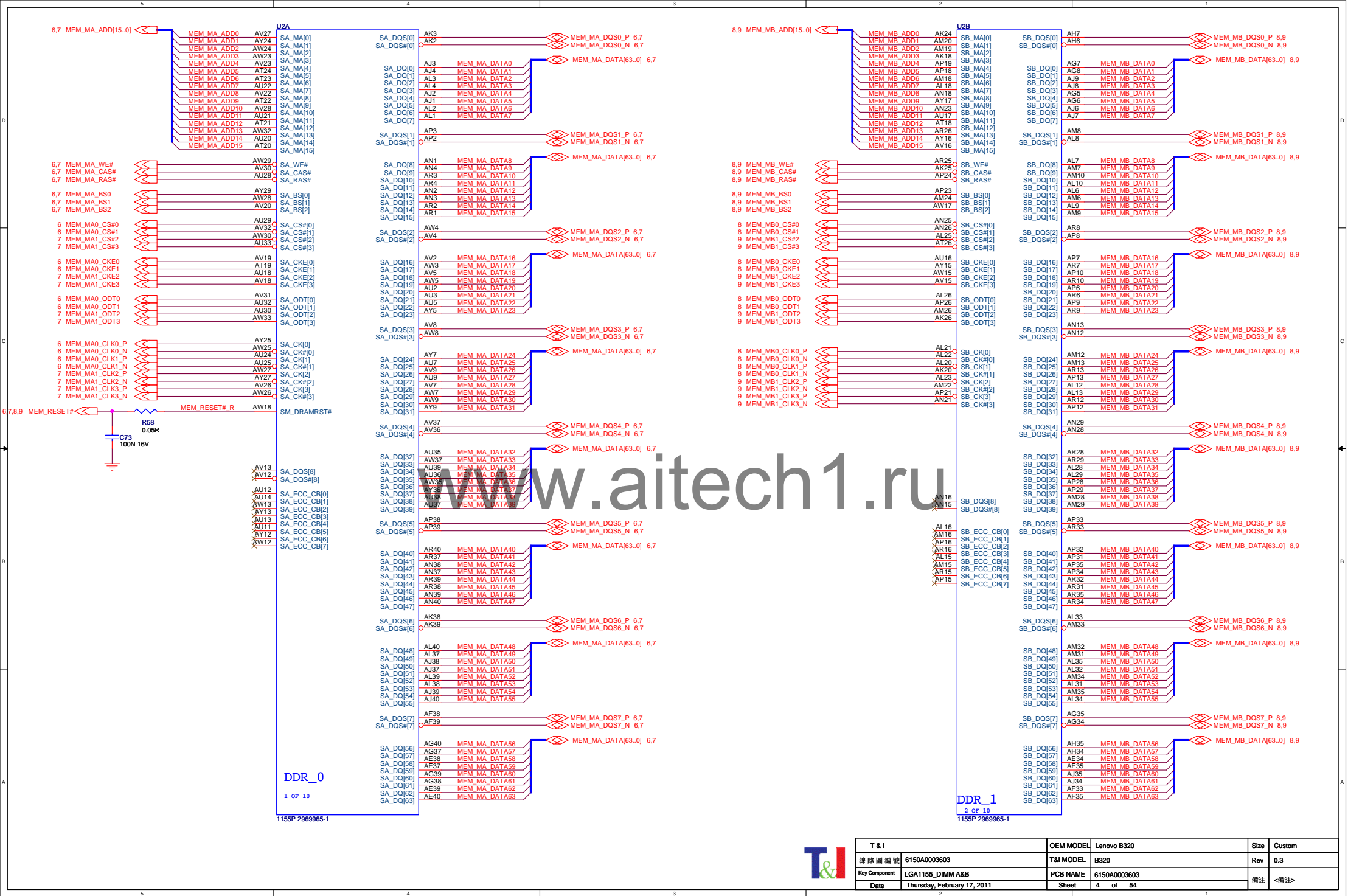


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T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	BLOCK DIAGRAM	PCB NAME	6150A0003603	備註
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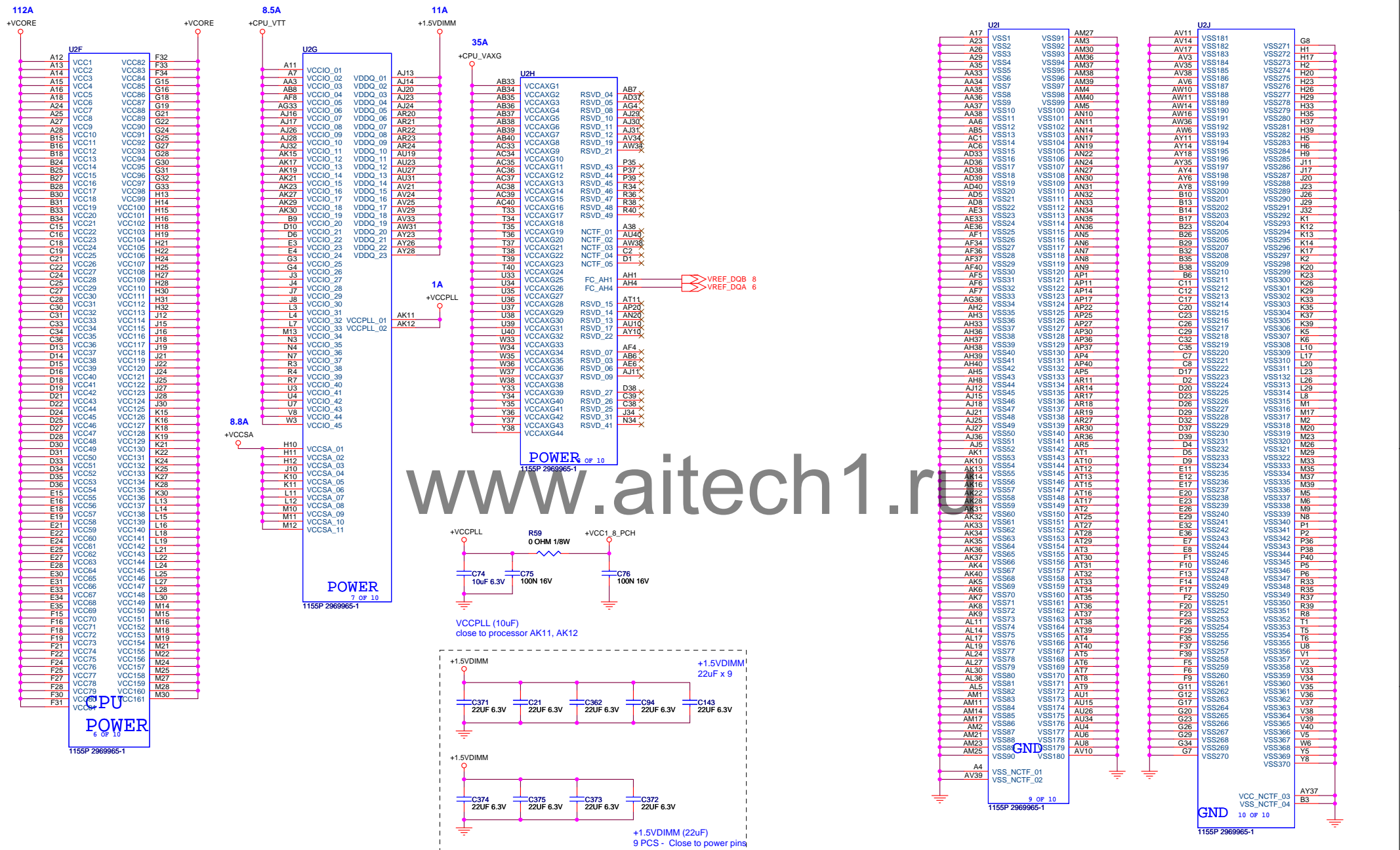




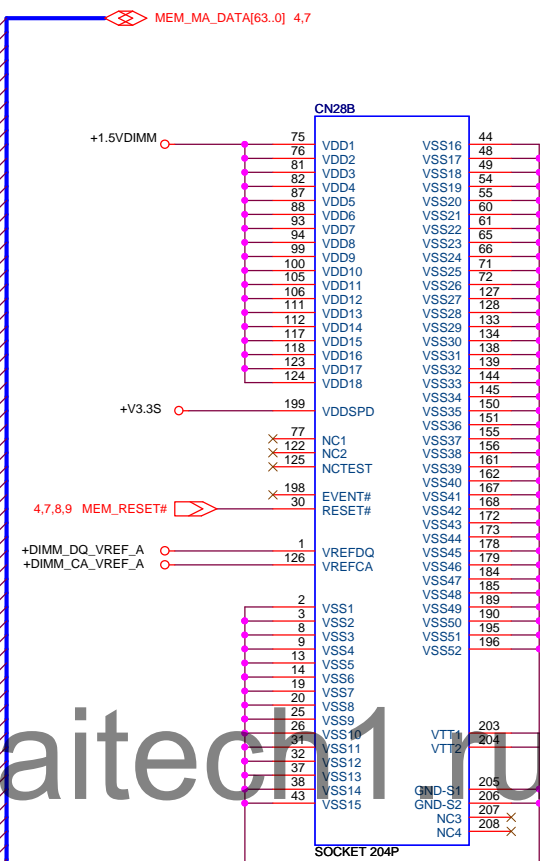
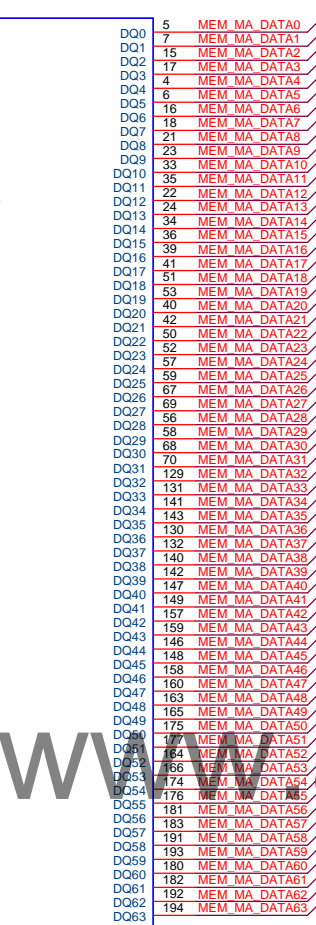
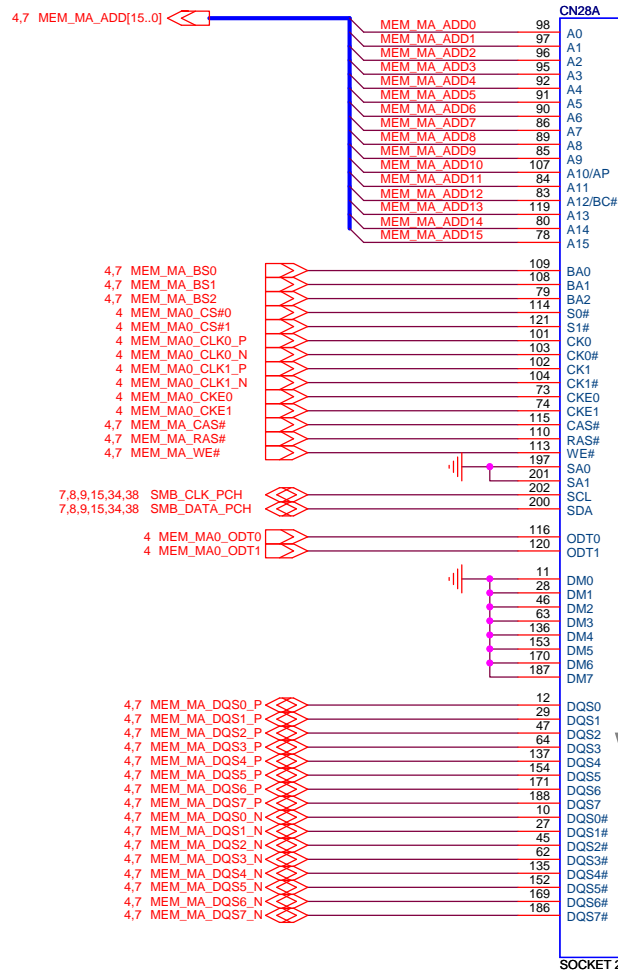
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	LGA1155_DIMM A&B	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	4 of 54	<備註>



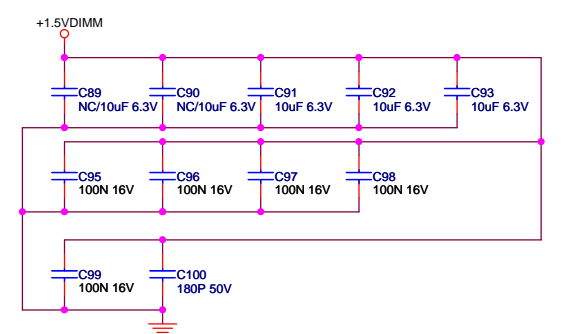
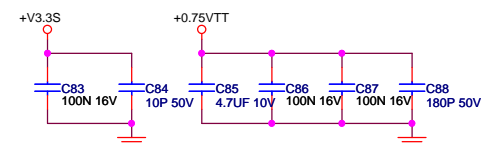
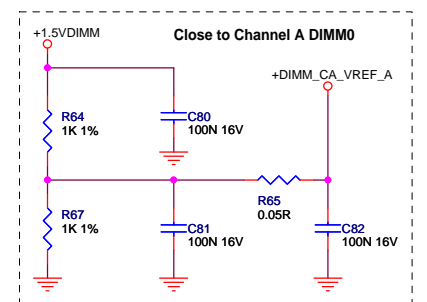
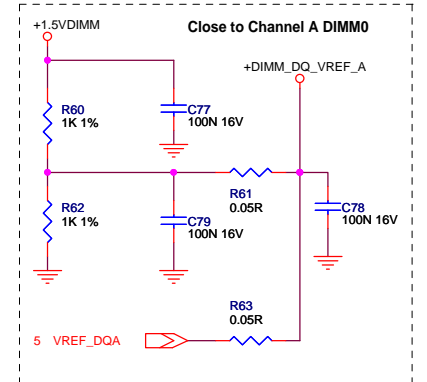
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T & I		OEM MODEL	Lenovo B320	Size	
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	LGA1155_Power	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	5 of 54		



## Channel A DIMM0 (5.2mm) Address : 00



T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	DDR3 DIMM MA-CH0 5.2mm	PCB NAME	6150A0003603	備註	<備註>
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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#

BA0  
BA1  
BA2  
S1#  
CK0  
CK0#  
CK1  
CK1#  
CKE0  
CKE1  
CAS#  
RAS#  
WE#  
SA0  
SCL  
SDA

+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

ODT0  
ODT1

DM0  
DM1  
DM2  
DM3  
DM4  
DM5  
DM6  
DM7

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

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  
DQ16  
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DQ48  
DQ49  
DQ50  
DQ51  
DQ52  
DQ53  
DQ54  
DQ55  
DQ56  
DQ57  
DQ58  
DQ59  
DQ60  
DQ61  
DQ62  
DQ63

MEM\_MA\_DATA0  
MEM\_MA\_DATA1  
MEM\_MA\_DATA2  
MEM\_MA\_DATA3  
MEM\_MA\_DATA4  
MEM\_MA\_DATA5  
MEM\_MA\_DATA6  
MEM\_MA\_DATA7  
MEM\_MA\_DATA8  
MEM\_MA\_DATA9  
MEM\_MA\_DATA10  
MEM\_MA\_DATA11  
MEM\_MA\_DATA12  
MEM\_MA\_DATA13  
MEM\_MA\_DATA14  
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MEM\_MA\_DATA50  
MEM\_MA\_DATA51  
MEM\_MA\_DATA52  
MEM\_MA\_DATA53  
MEM\_MA\_DATA54  
MEM\_MA\_DATA55  
MEM\_MA\_DATA56  
MEM\_MA\_DATA57  
MEM\_MA\_DATA58  
MEM\_MA\_DATA59  
MEM\_MA\_DATA60  
MEM\_MA\_DATA61  
MEM\_MA\_DATA62  
MEM\_MA\_DATA63

MEM\_MA\_DATA[63..0] 4,6

CN2B

+1.5VDIMM

+V3.3S

4,6,8,9 MEM\_RESET#

+DIMM\_DQ\_VREF\_A  
+DIMM\_CA\_VREF\_A

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

VSS16  
VSS17  
VSS18  
VSS19  
VSS20  
VSS21  
VSS22  
VSS23  
VSS24  
VSS25  
VSS26  
VSS27  
VSS28  
VSS29  
VSS30  
VSS31  
VSS32  
VSS33  
VSS34  
VSS35  
VSS36  
VSS37  
VSS38  
VSS39  
VSS40  
VSS41  
VSS42  
VSS43  
VSS44  
VSS45  
VSS46  
VSS47  
VSS48  
VSS49  
VSS50  
VSS51  
VSS52

VDDSPD

NC1  
NC2  
NCTEST

EVENT#  
RESET#

VREFDQ  
VREFCA

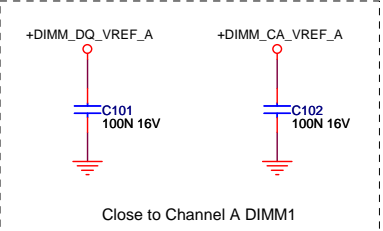
VSS1  
VSS2  
VSS3  
VSS4  
VSS5  
VSS6  
VSS7  
VSS8  
VSS9  
VSS10  
VSS11  
VSS12  
VSS13  
VSS14  
VSS15

VTT1  
VTT2

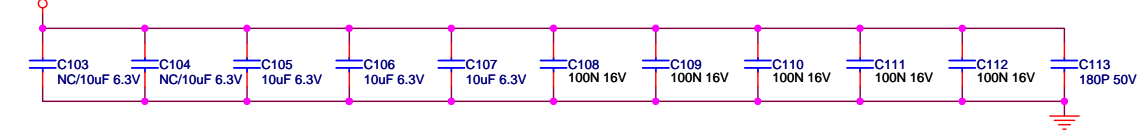
GND-S1  
GND-S2  
NC3  
NC4

SOCKET 204P

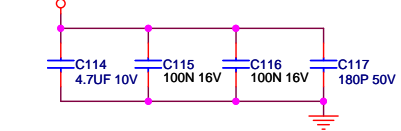
Channel A DIMM1 (9.2mm)  
Address : 01



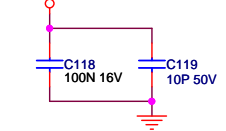
+1.5VDIMM



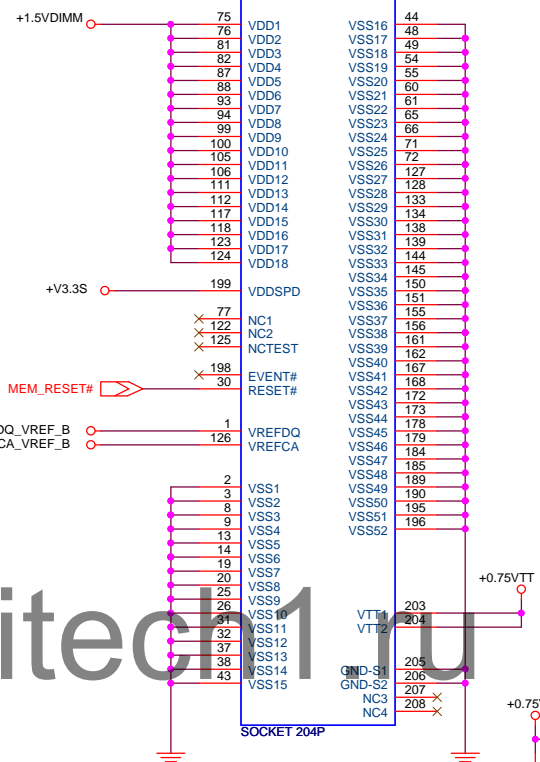
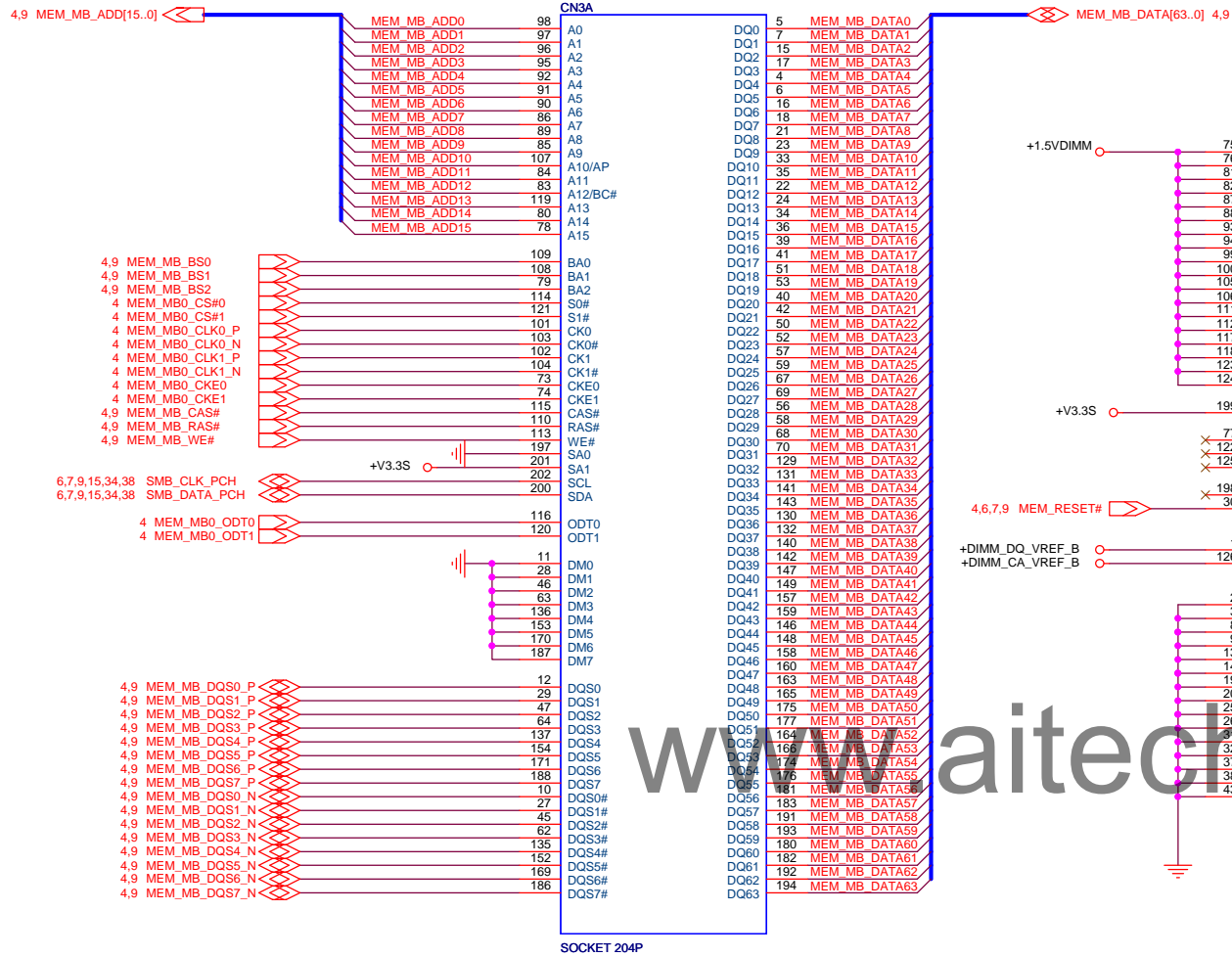
+0.75VTT



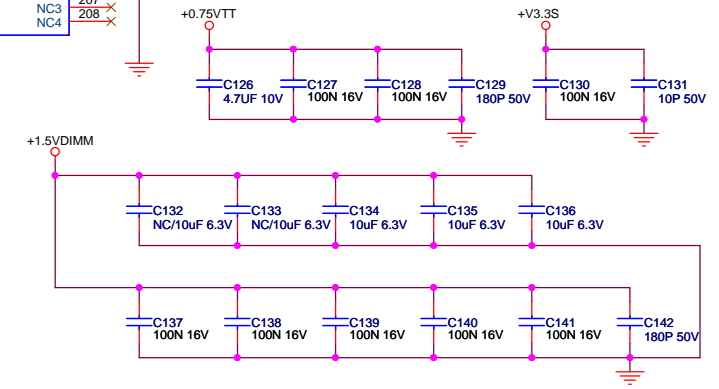
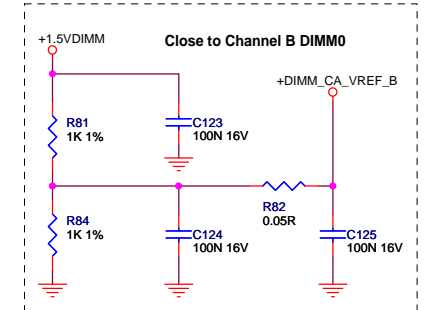
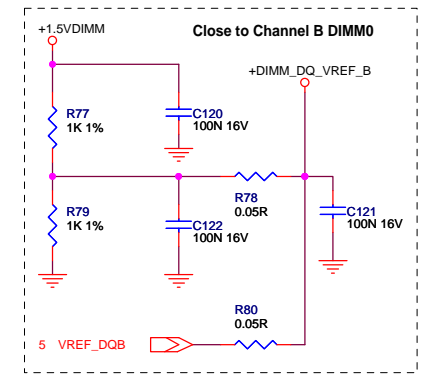
+V3.3S



T & I	OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	DDR3 DIMM MA-CH1 9.2mm	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	7 of 54	<備註>



Channel B DIMM0 (5.2mm)  
Address : 10

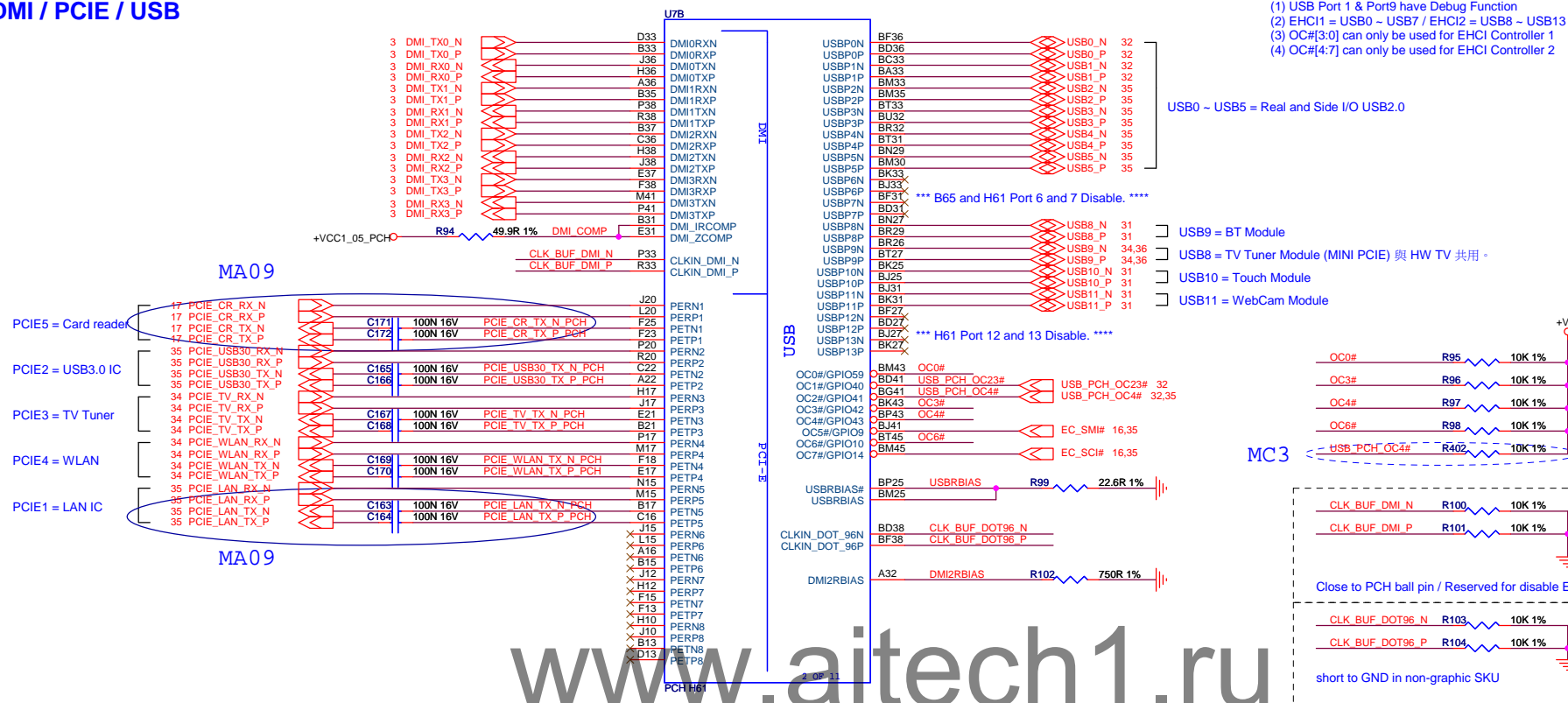


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	DDR3 DIMM MB-CH0 5.2mm	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	8 of 54		



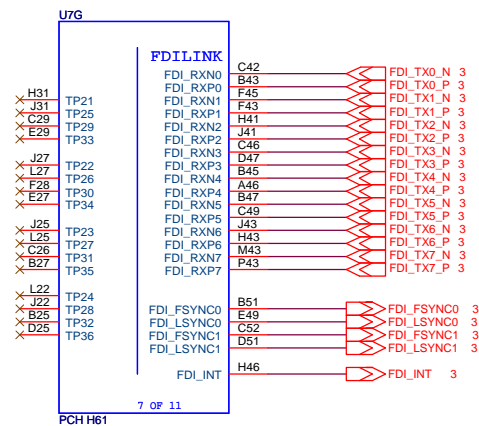


**PCH DMI / PCIE / USB**

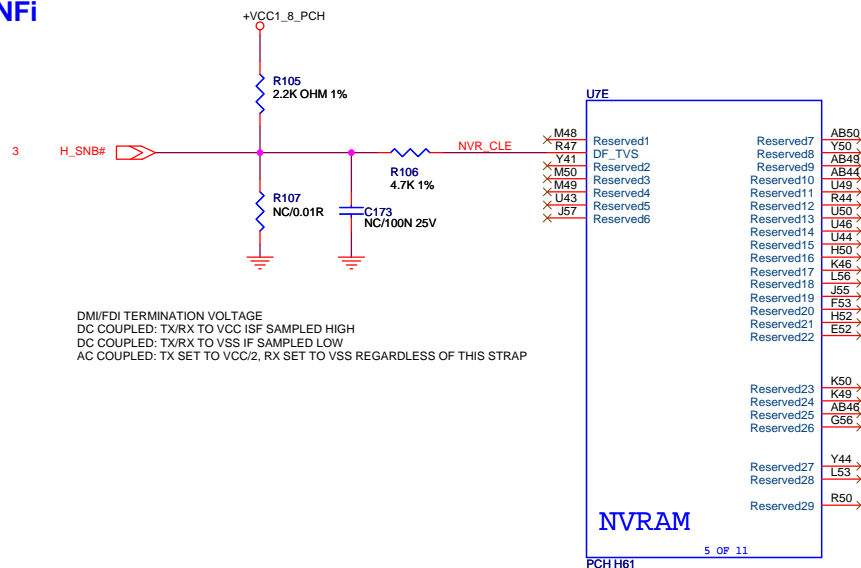


MC 3

**PCH FDI**



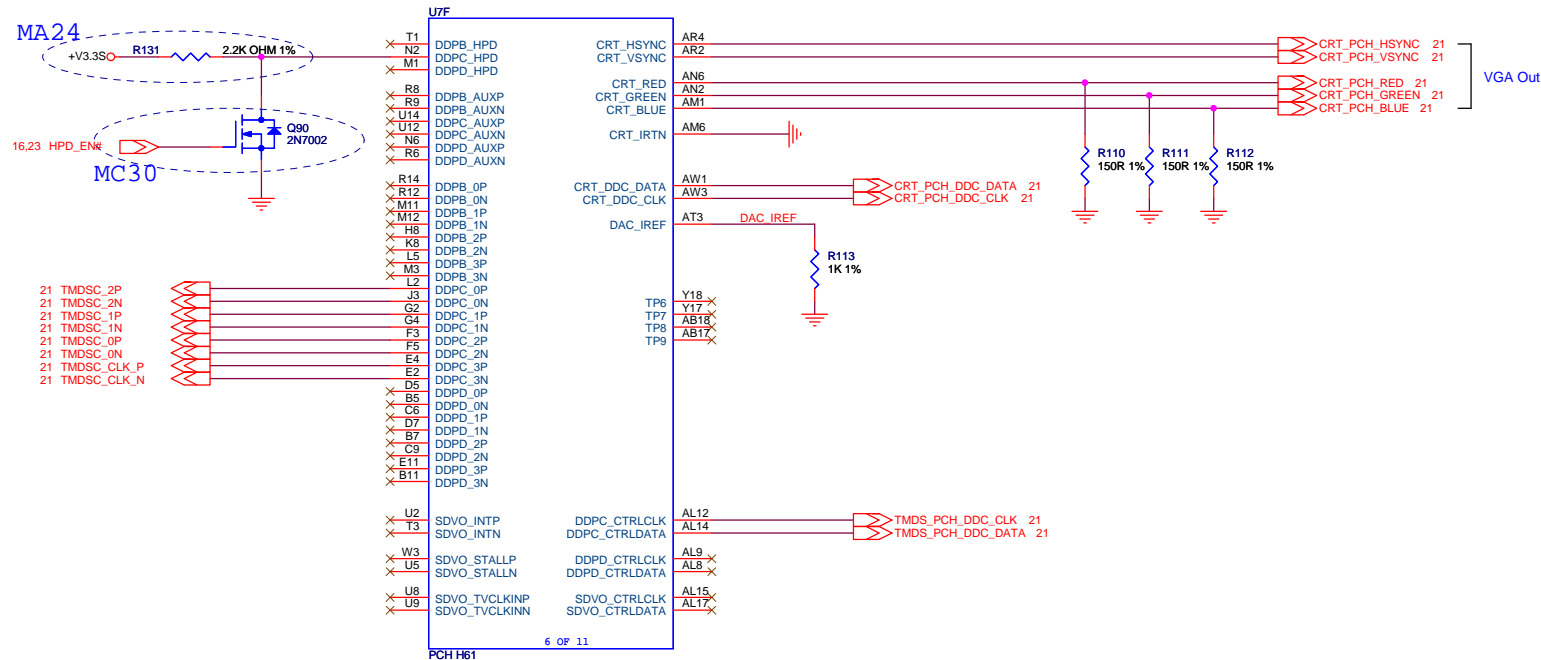
## PCH ONFi



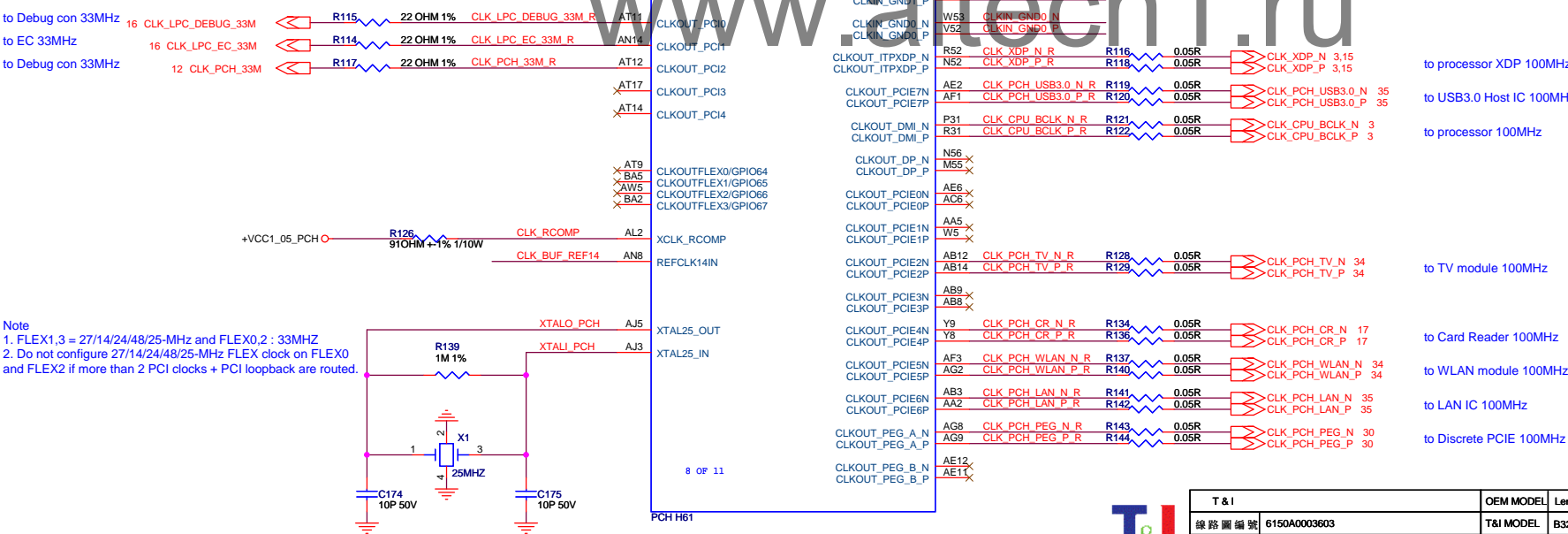
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	PCH,FDI,DMI,USB,PCIE,NVRAM	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	10 of 54		



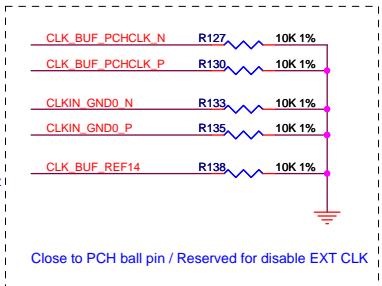
PCH Display



PCH Clock

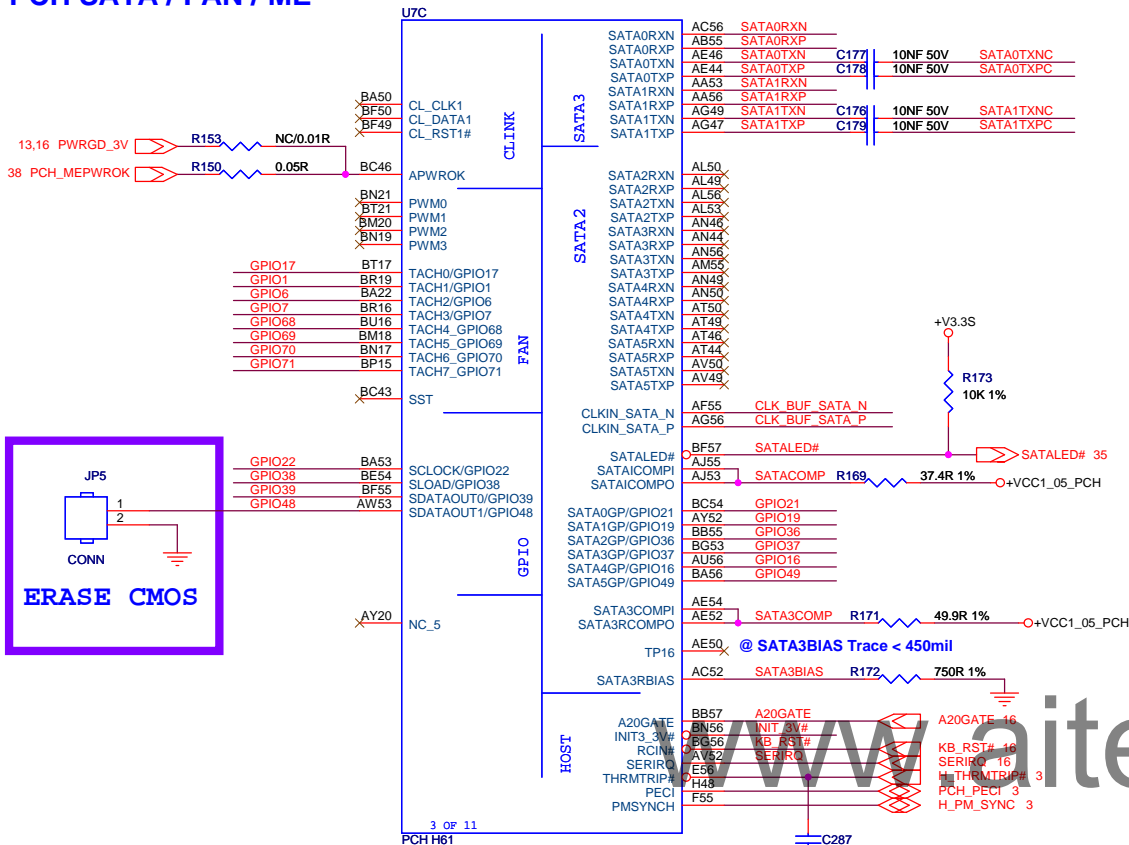


Note  
1. FLEX1,3 = 27/14/24/48/25-MHz and FLEX0,2 : 33MHz  
2. Do not configure 27/14/24/48/25-MHz FLEX clock on FLEX0 and FLEX2 if more than 2 PCI clocks + PCI loopback are routed.



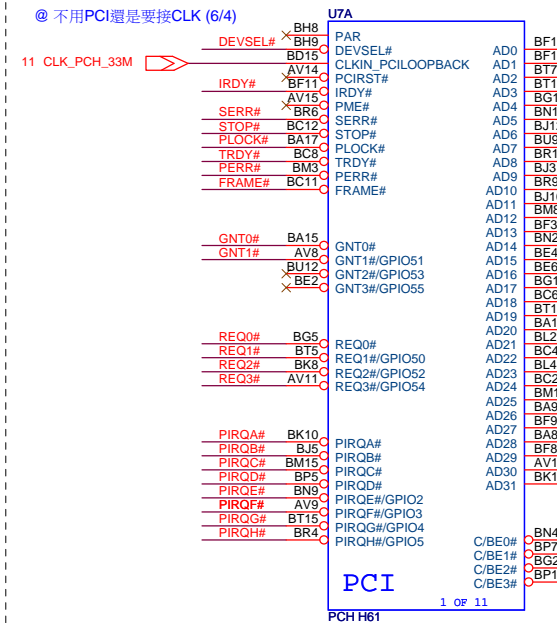
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	PCH_DP, CLK BUFFER	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	11 of 54	<備註>

## PCH SATA / FAN / ME

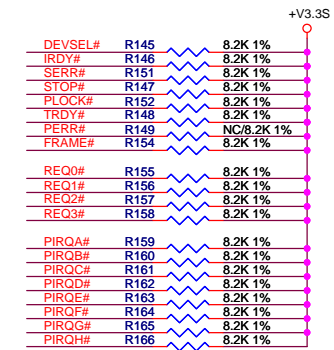


## PCH PCI

@ 不用PCI還是要接CLK (6/4)



## PCI Pull-Up

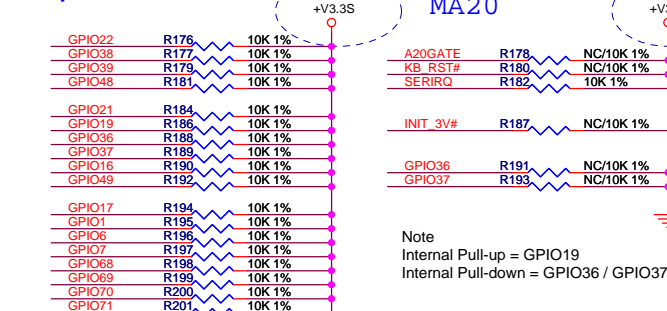


## BOOT select straps

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

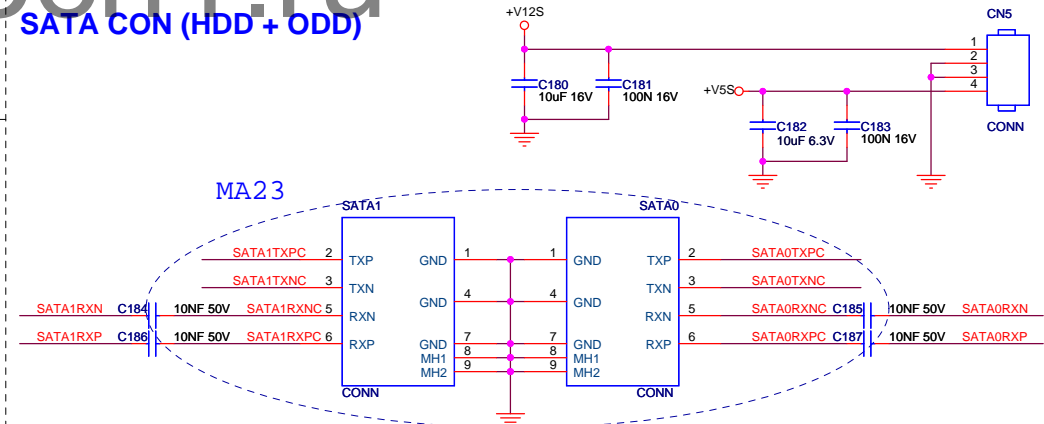
## Pull-Up / Pull-down



CLK BUF SATA N R183 10K 1%  
CLK BUF SATA P R185 10K 1%

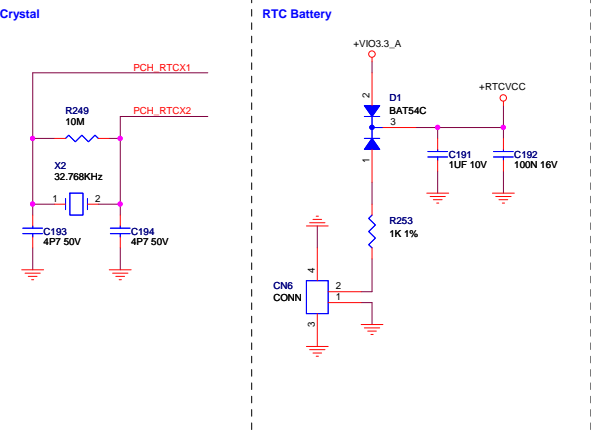
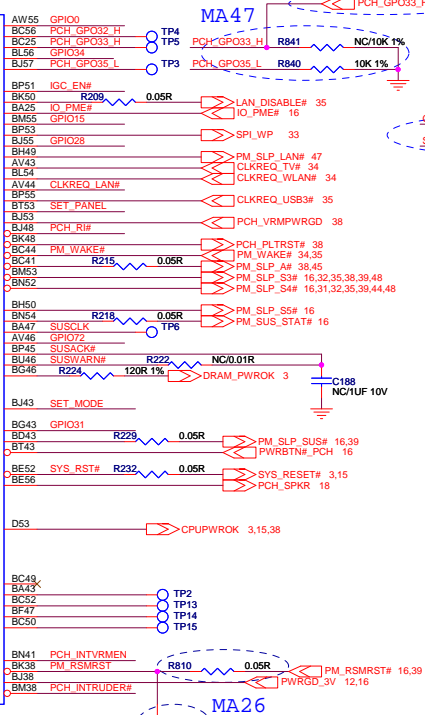
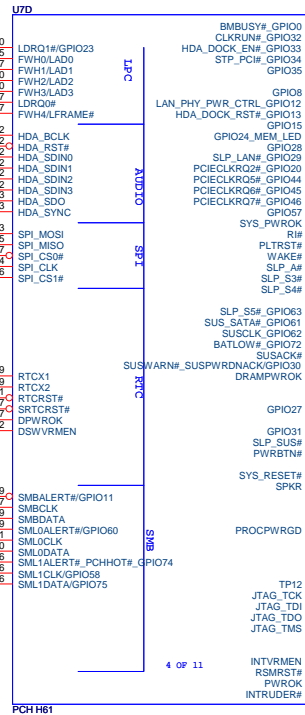
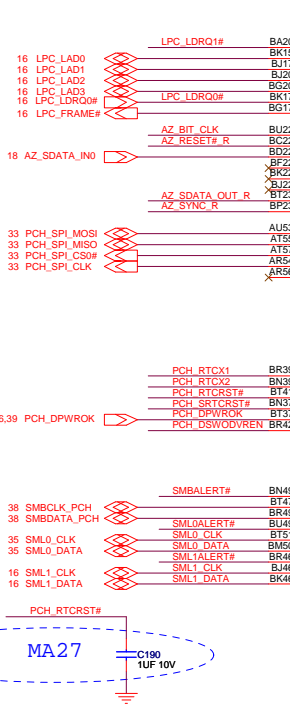
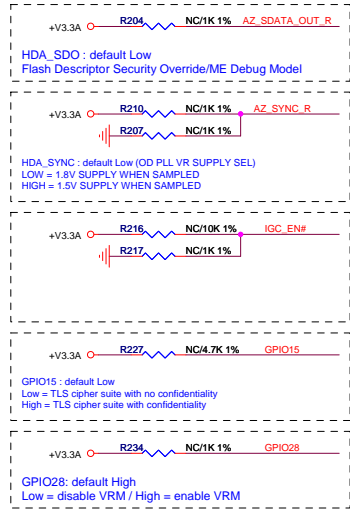
Close to PCH ball pin / Reserved for disable EXT CLK

## SATA CON (HDD + ODD)



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>

PCH HDA / SPI / LPC / MISC

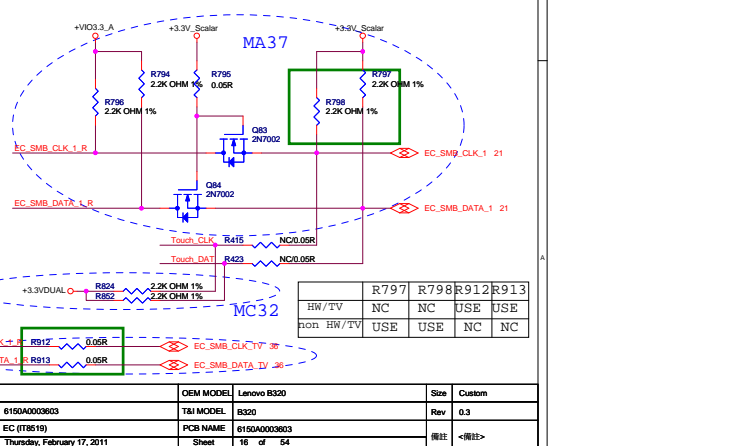
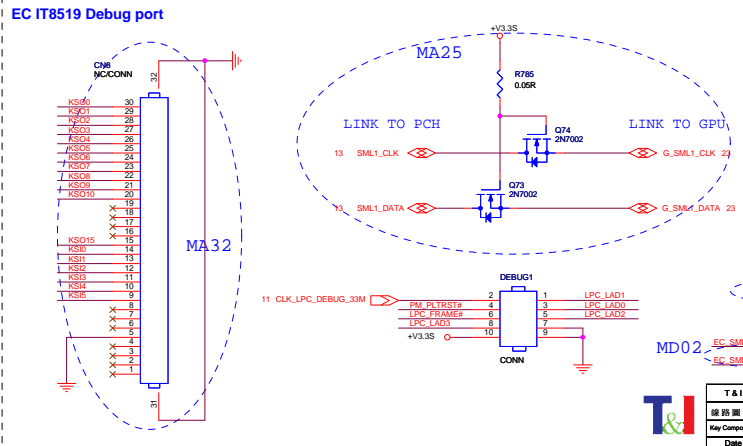
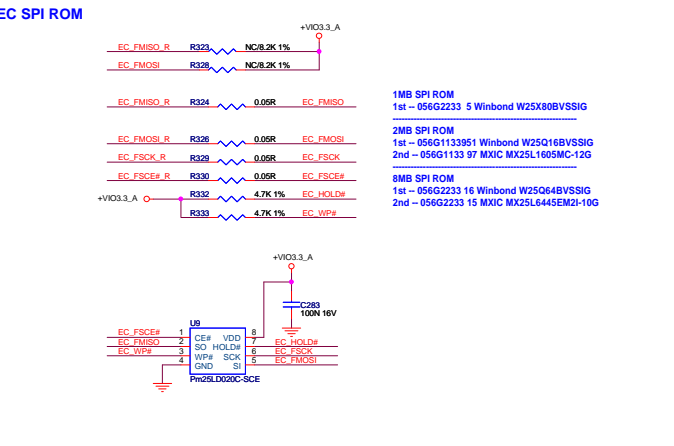
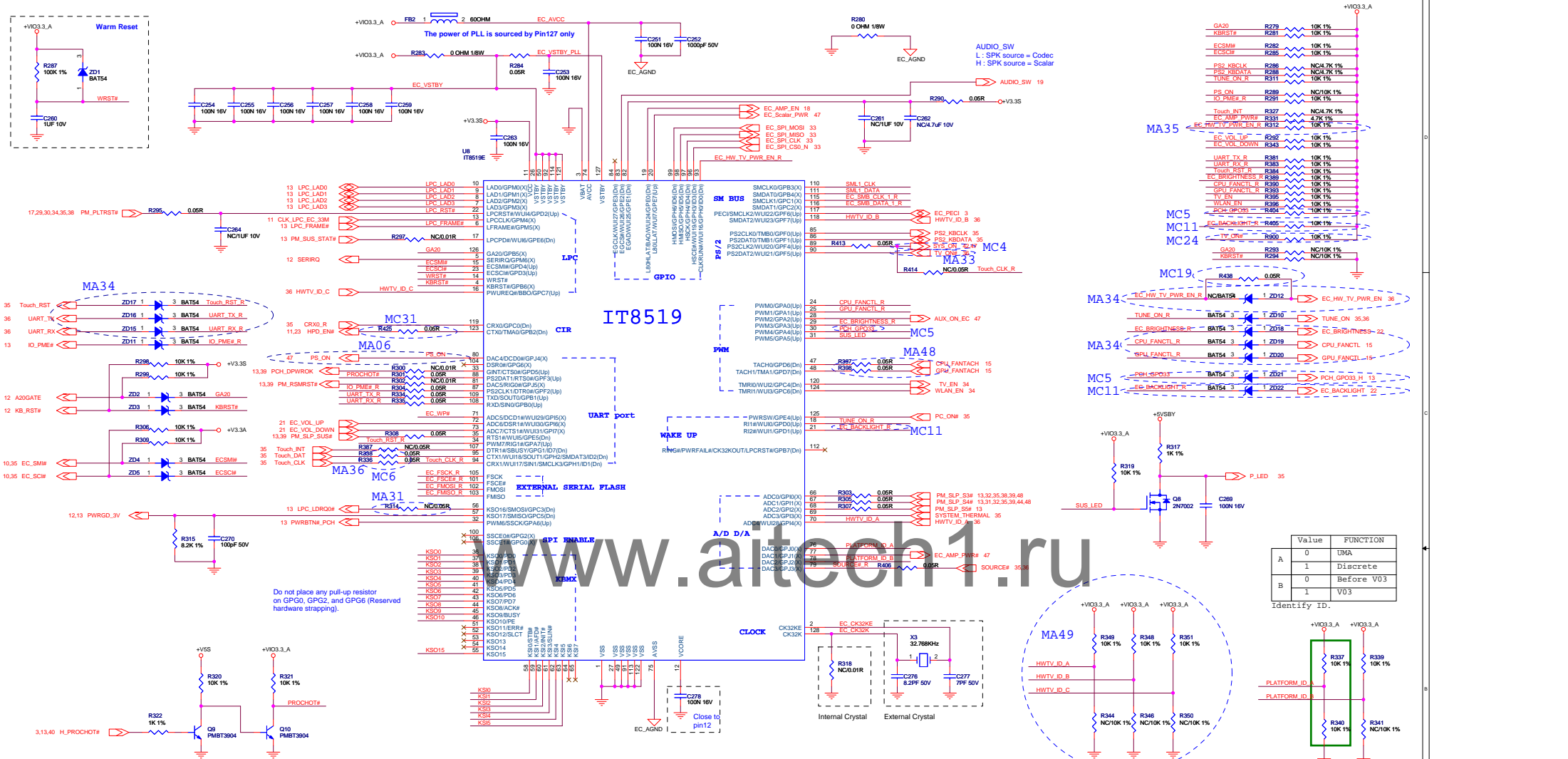




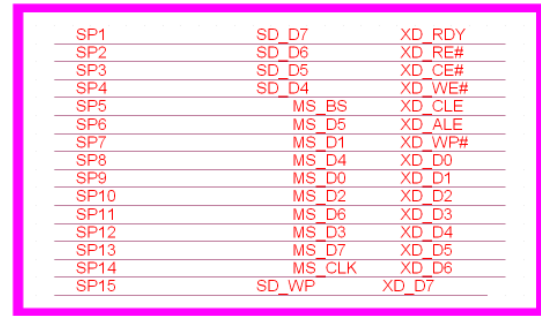
**Close to H2 Socket**



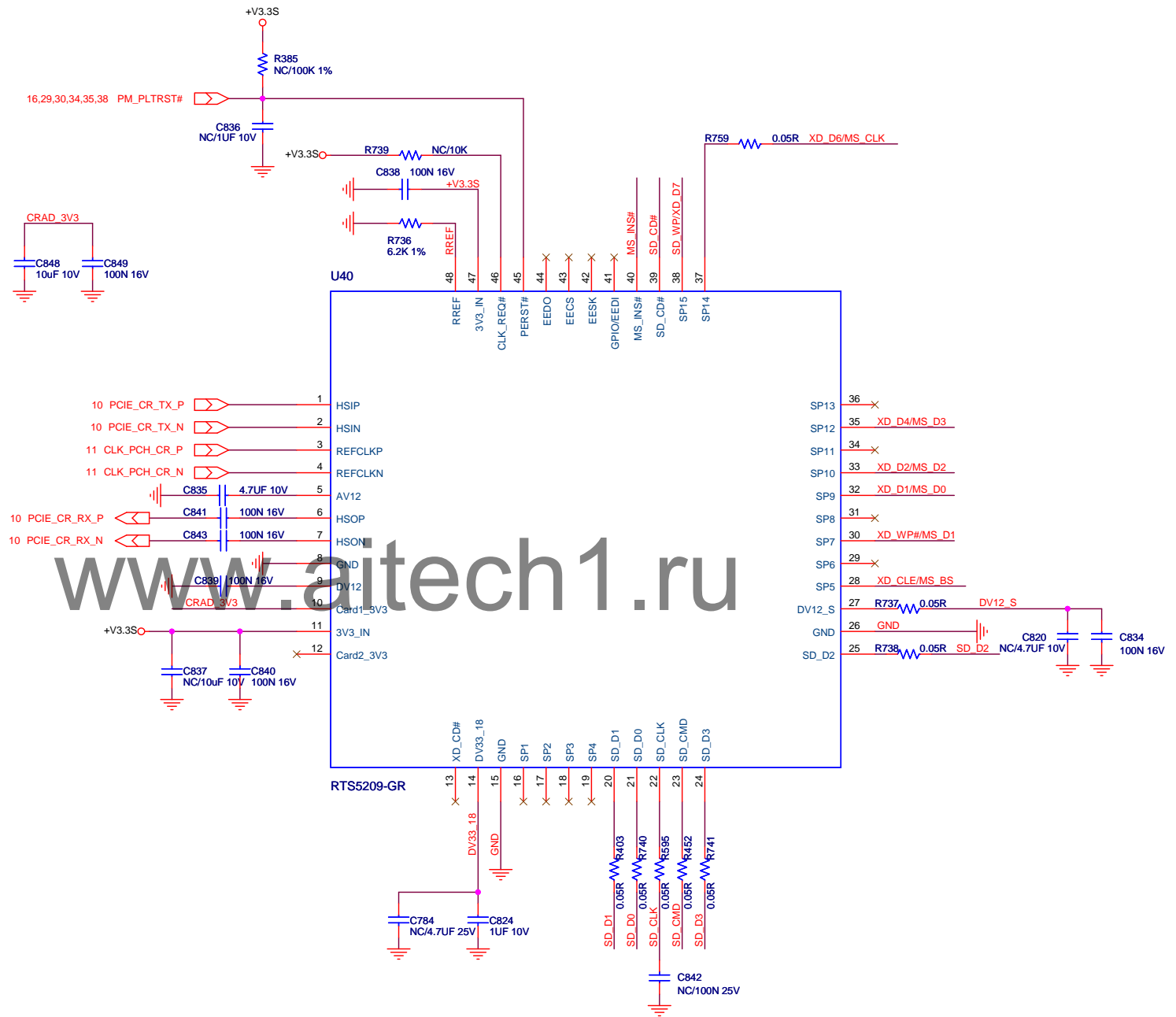
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	XDIP connect / FAN	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	15 of 54		







Share pin



T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Card Reader (RTS5209)	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	17 of 54		

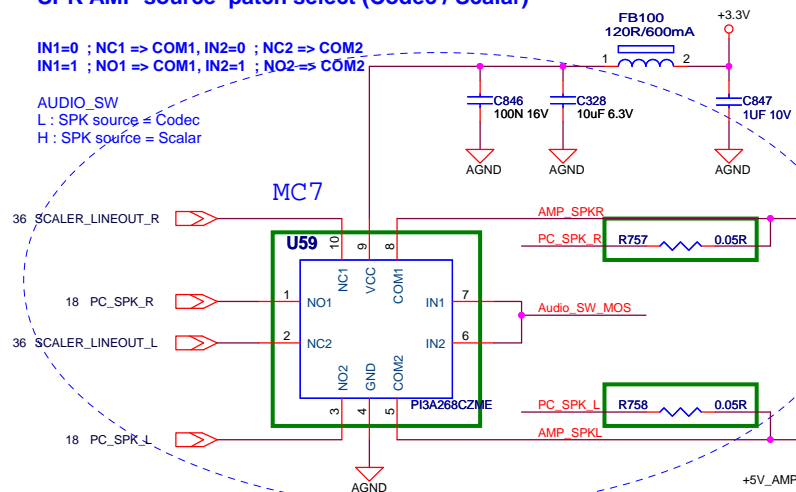


T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Audio Codec (ALC272)	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	18 of 54		

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

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

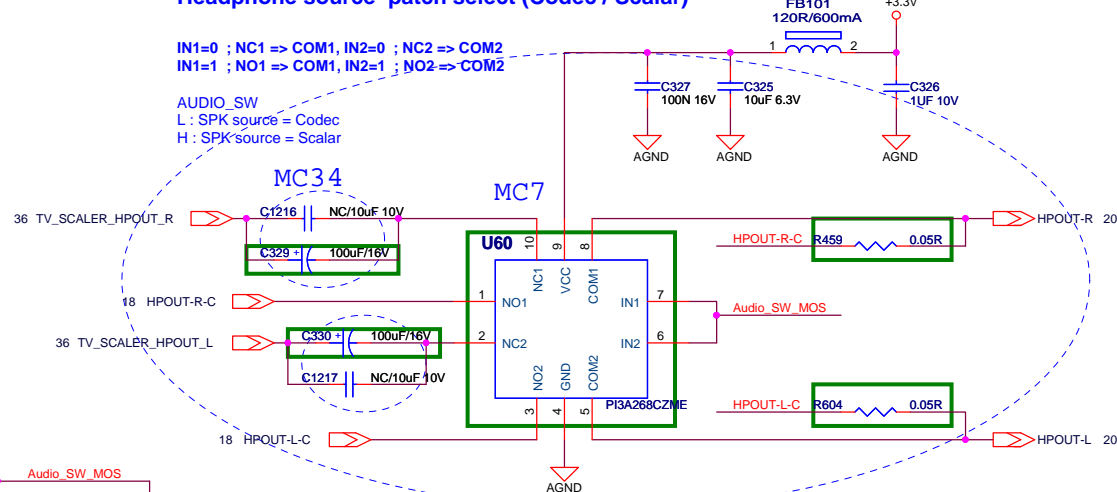
AUDIO\_SW  
L : SPK source = Codec  
H : SPK source = Scalar



## 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

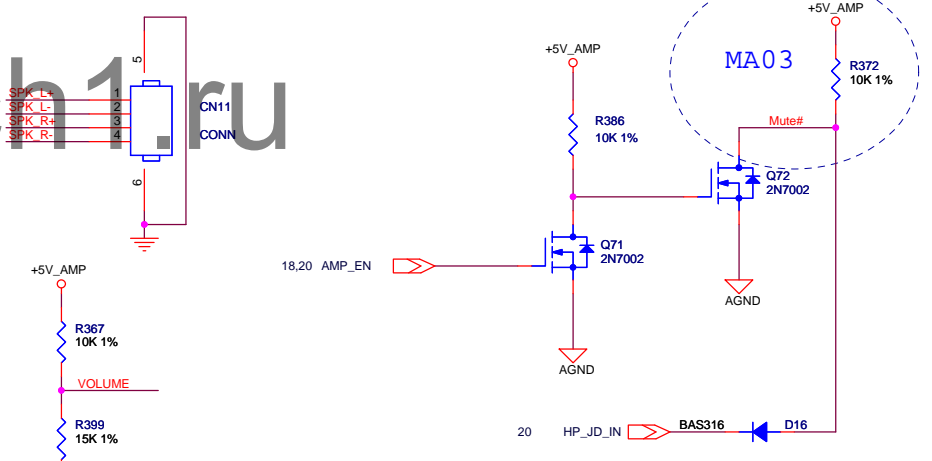
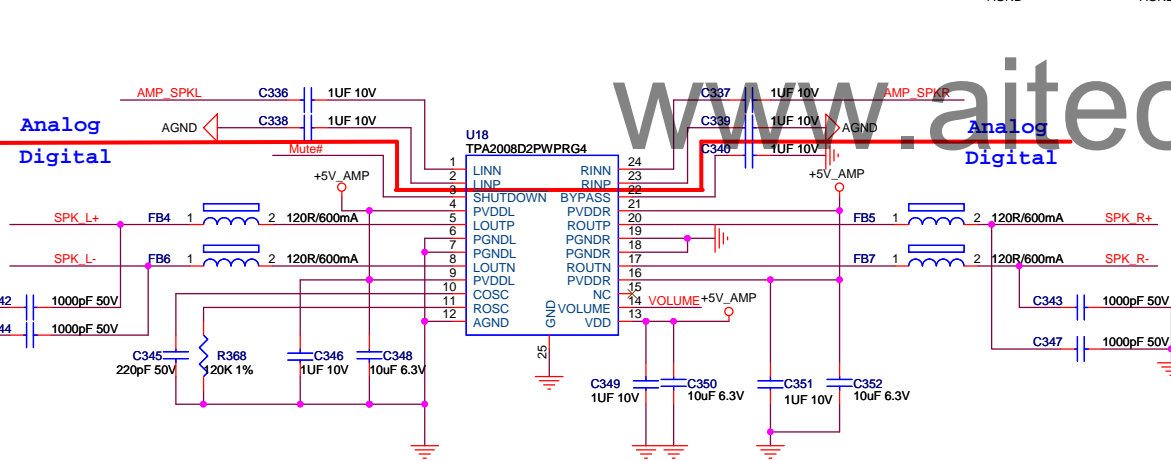


PC MODE ==> USE R757,R758,R459,R604  
TV MODE ==> USE U59,U60

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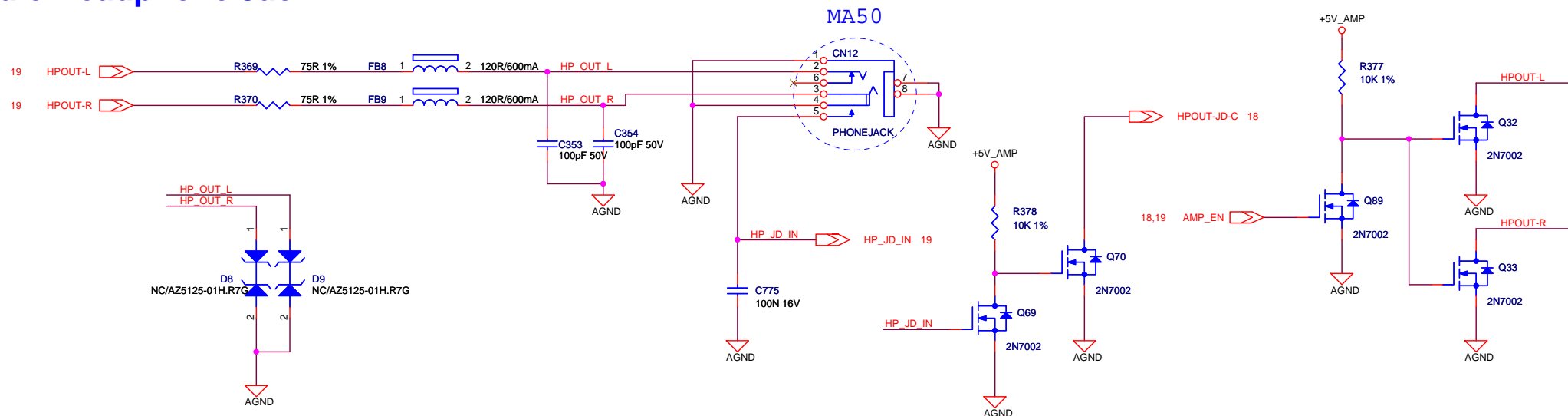
Analog  
Digital

Analog  
Digital

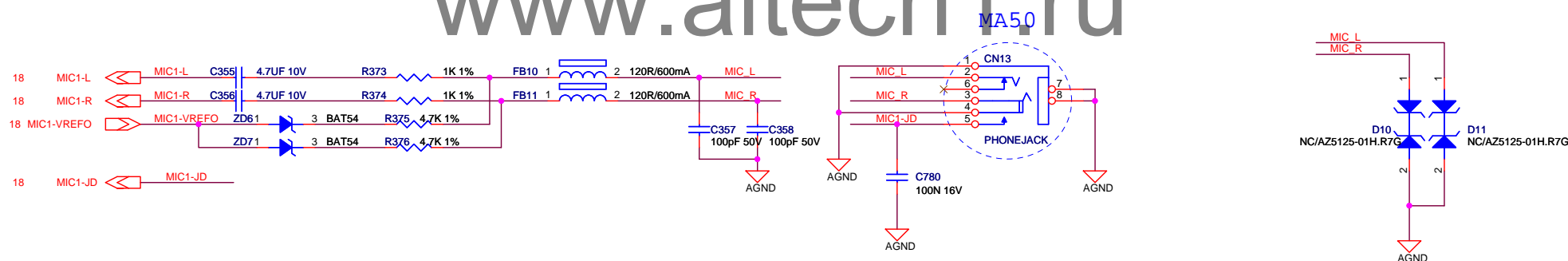


T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Audio AMP / SW	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	19 of 54	<備註>

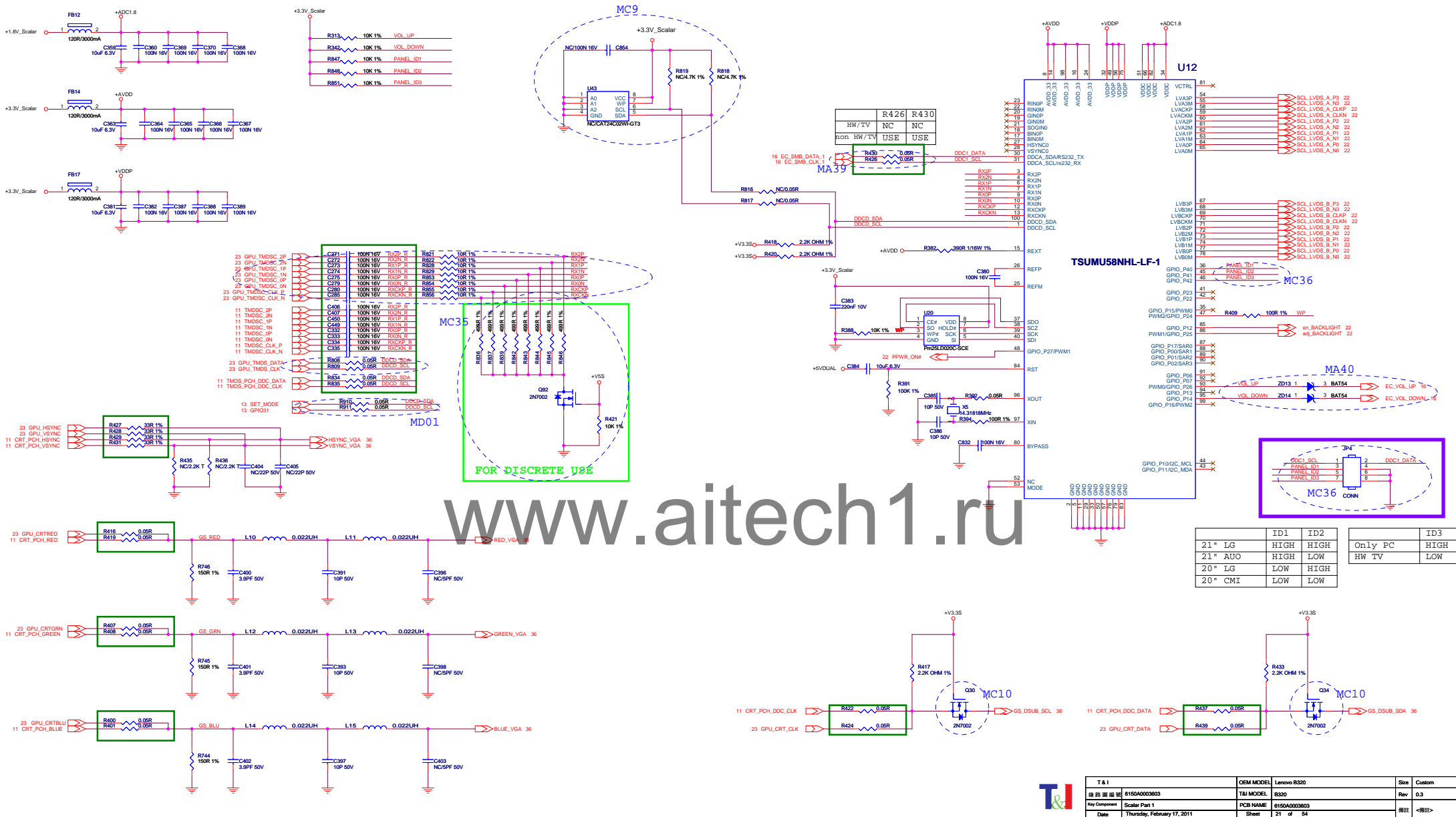
## Audio Headphone Jack



## 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		

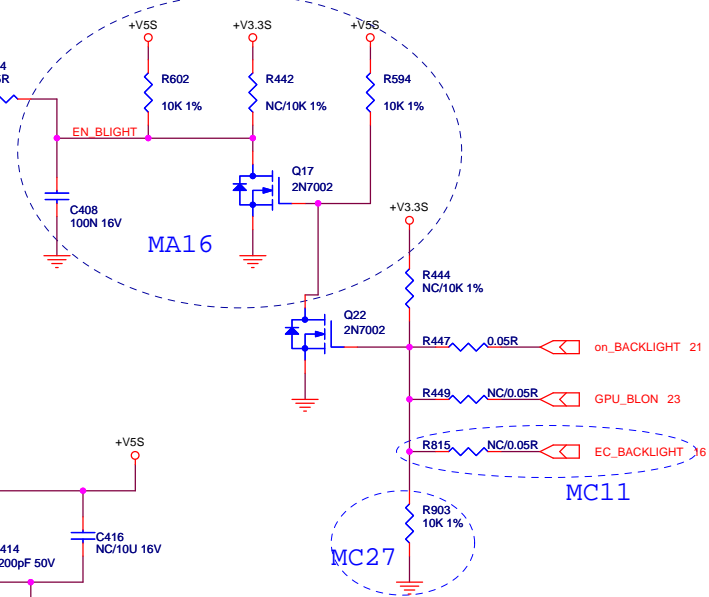
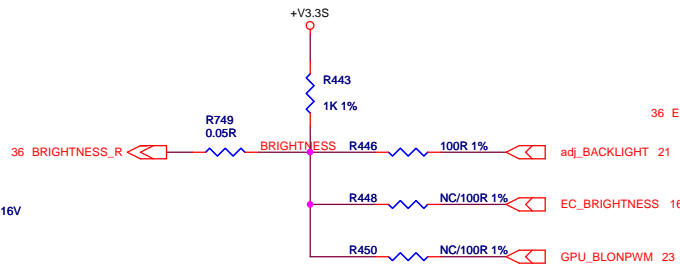
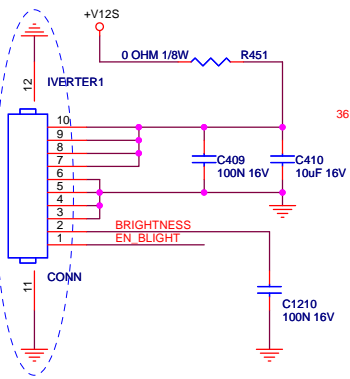


T & I		OEM MODEL	Lenovo B320	Size	Custom
6150A0003603		T&I MODEL	B320	Rev	0.3
Scaler Part 1		PCB NAME	6150A0003603	備註	
Date	Thursday, February 17, 2011	Sheet	21 of 54	<備註>	

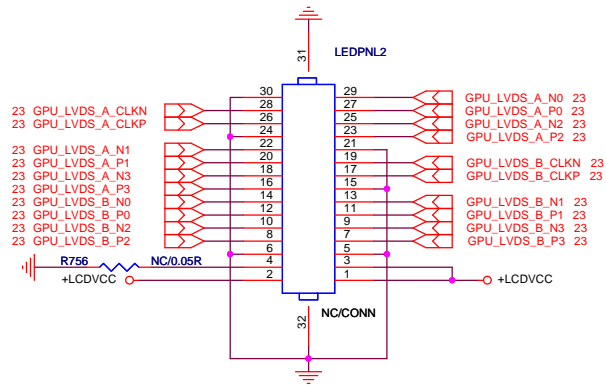
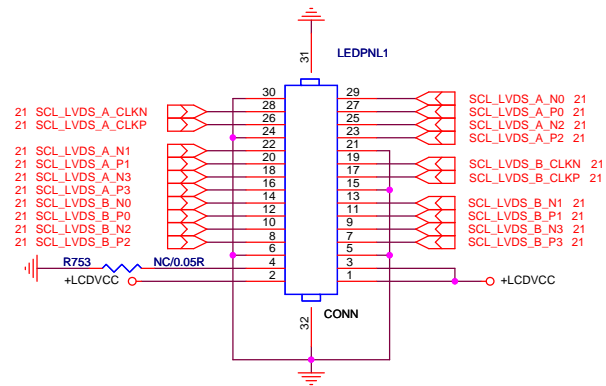
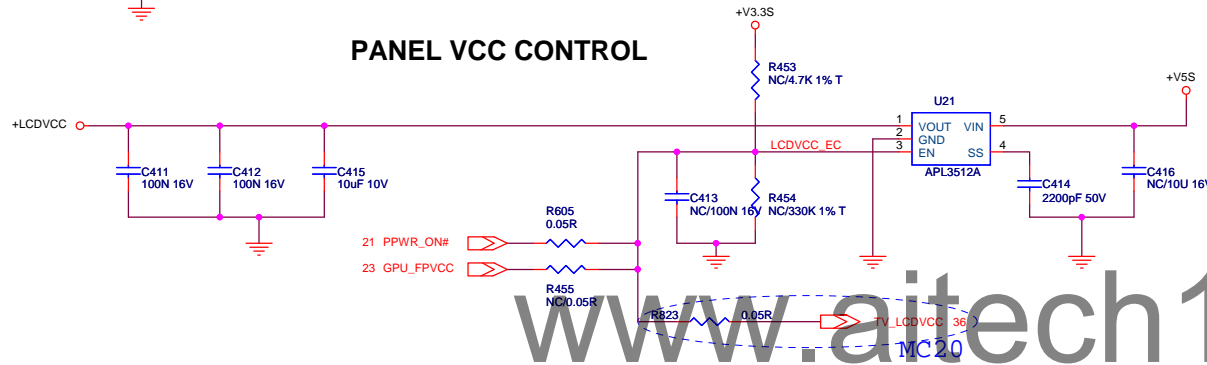
## BRIGHTNESS CONTROL

## BACKLIGHT ENABLE

MA42



## PANEL VCC CONTROL

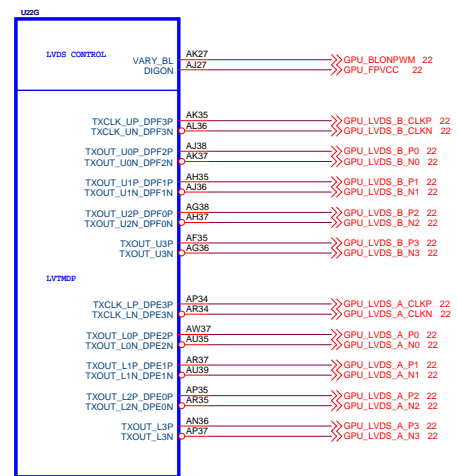


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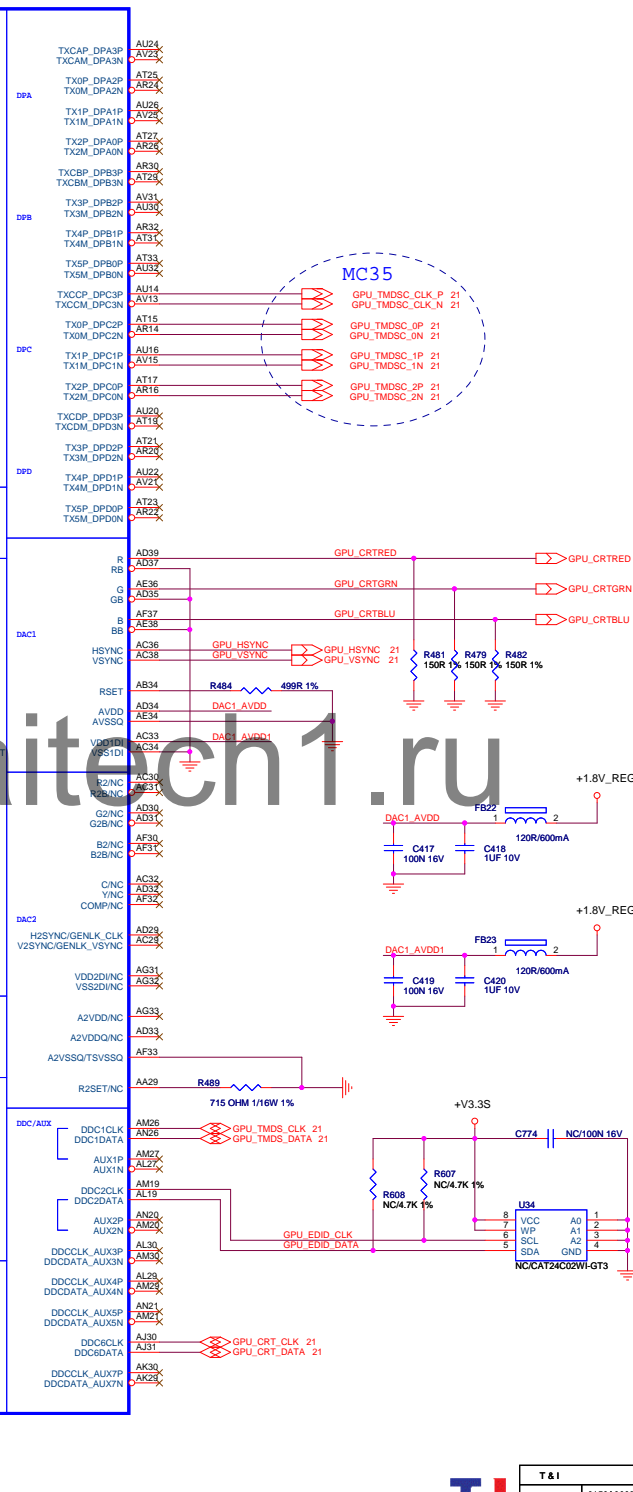
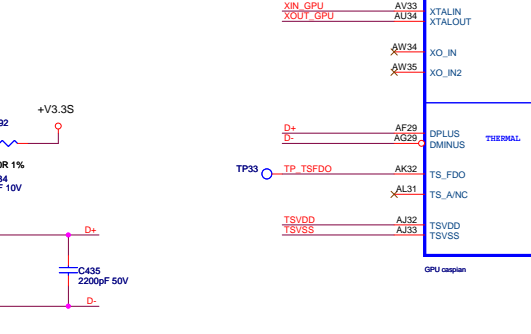
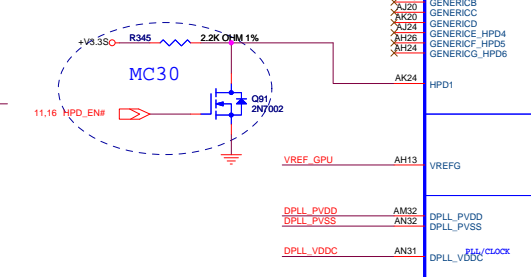
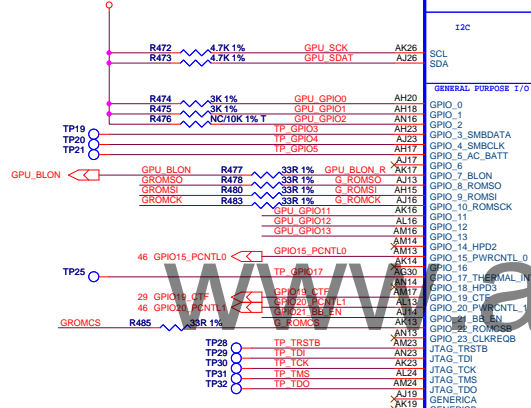
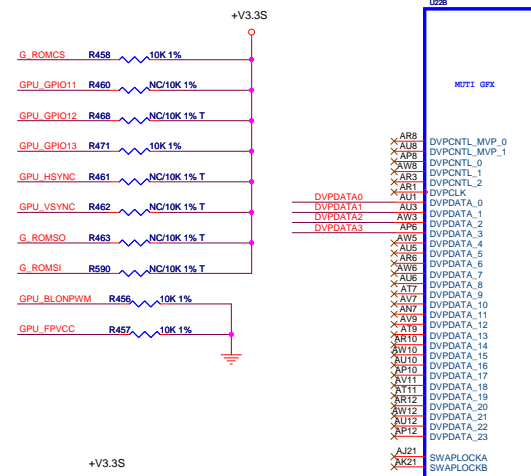
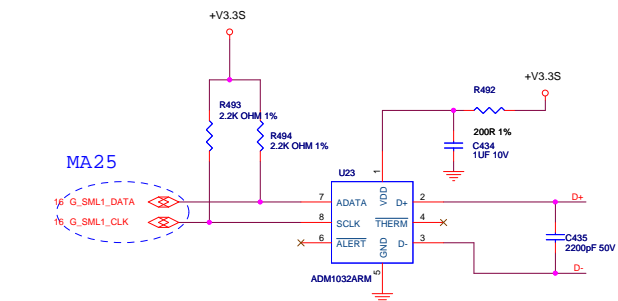
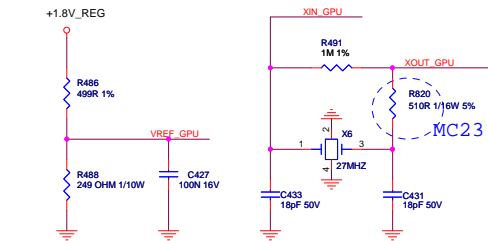
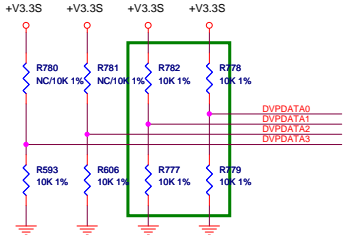
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Scalar Part 2	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	22 of 54	<備註>



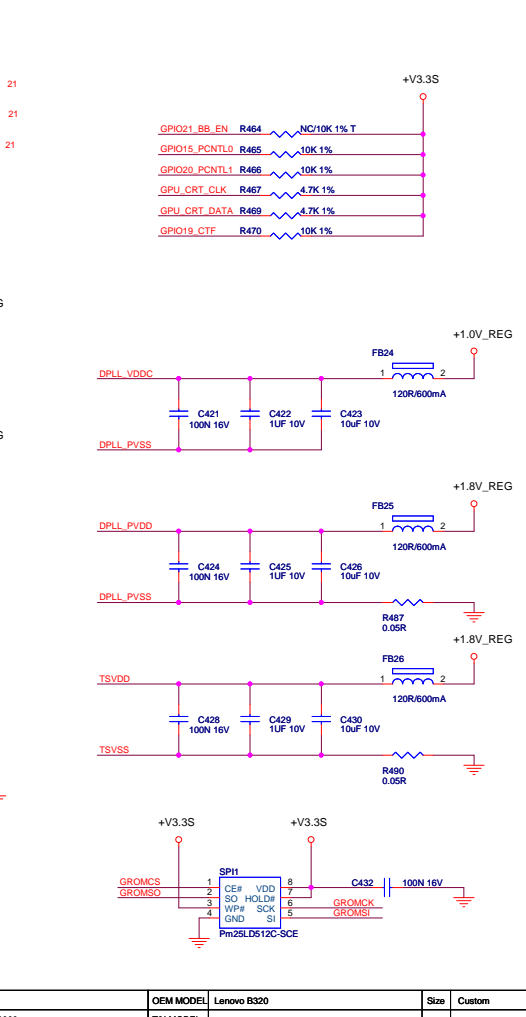


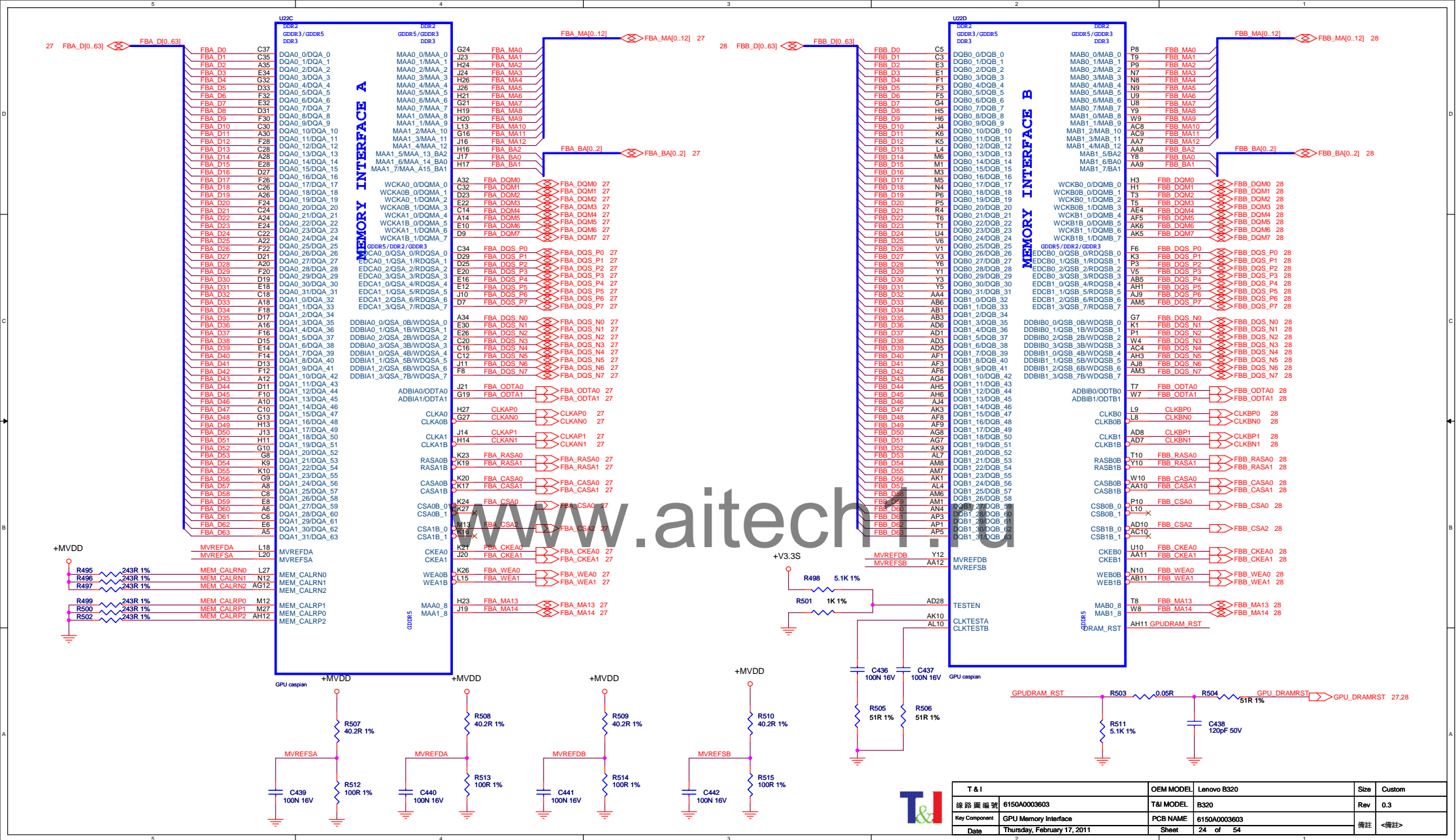
GPU capion

DDR3 64M*16	DVPDATA[3:1:0]
Hynix H5TQ1G63BFR-12C	0 0 0 0
Samsung K4W1G1646E-HC12	0 0 0 1
Hynix H5TQ1G63BFR-11C(12C)	0 0 1 0
Samsung K4W1G1646E-HC11	0 0 1 1

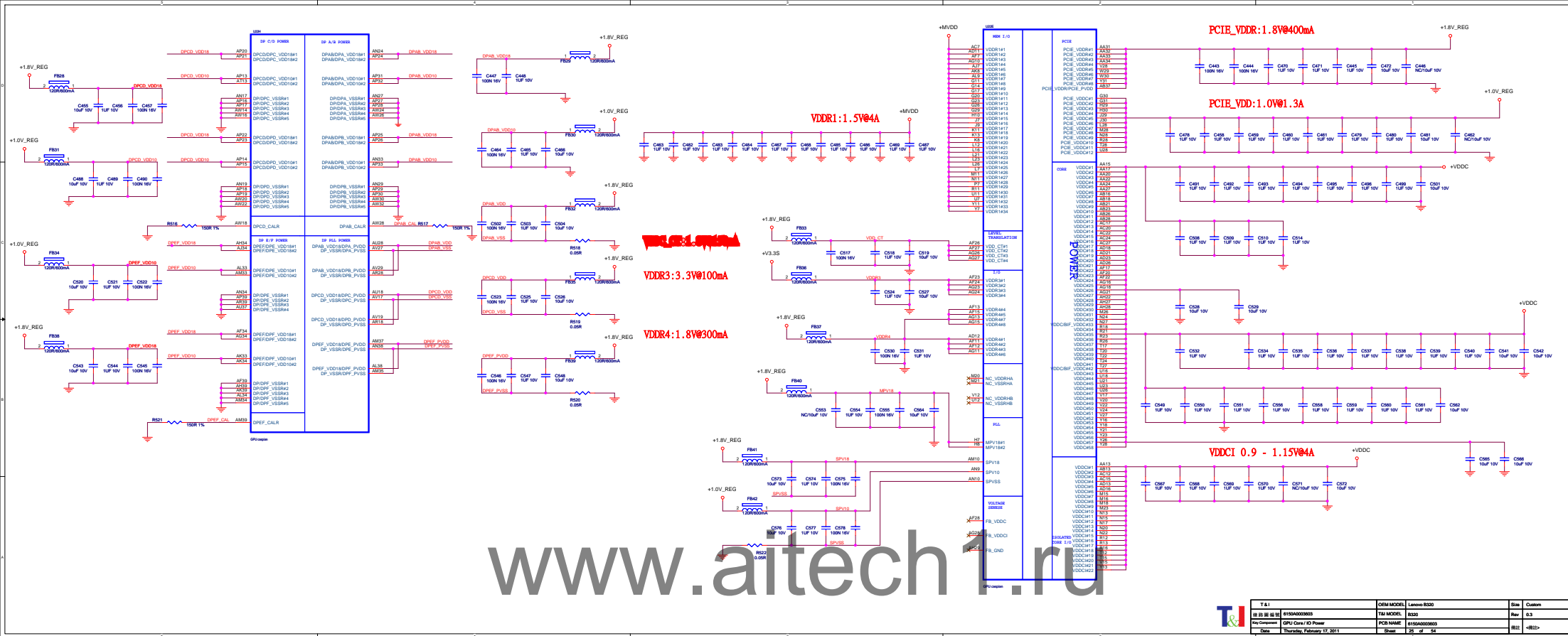



GPIO_8	0 - CLKREQ# power management capability is disabled 1 - CLKREQ# power management capability is enabled
GPIO_22	0 - Disable external BIOS ROM device 1 - Enable external BIOS ROM device
GPIO_13 GPIO_12 GPIO_11	BIOS_ROM_EN = 1, ROM type BIOS_ROM_EN = 0, primary memory aperture [100] ==> Pm25LD512
GPIO_9	0 - VGA Controller capacity enabled 1 - will not be recognized as the system
GPIO_2	0 = PCIe device as 2.5 GT/s 1 = PCIe device as 5.0 GT/s
GPIO_1	0: Tx de-emphasis disabled 1: Tx de-emphasis enabled
GPIO_0	0: 50% Tx output swing 1: Full Tx output swing
HSYNC VSYNC	HSYNC = AUD[1] VSYNC = AUD[0] 00 - No audio function; 01 - Audio for DisplayPort and HDMI if adapter is detected; 10 - Audio for DisplayPort only; 11 - Audio for both DisplayPort and HDMI.





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>

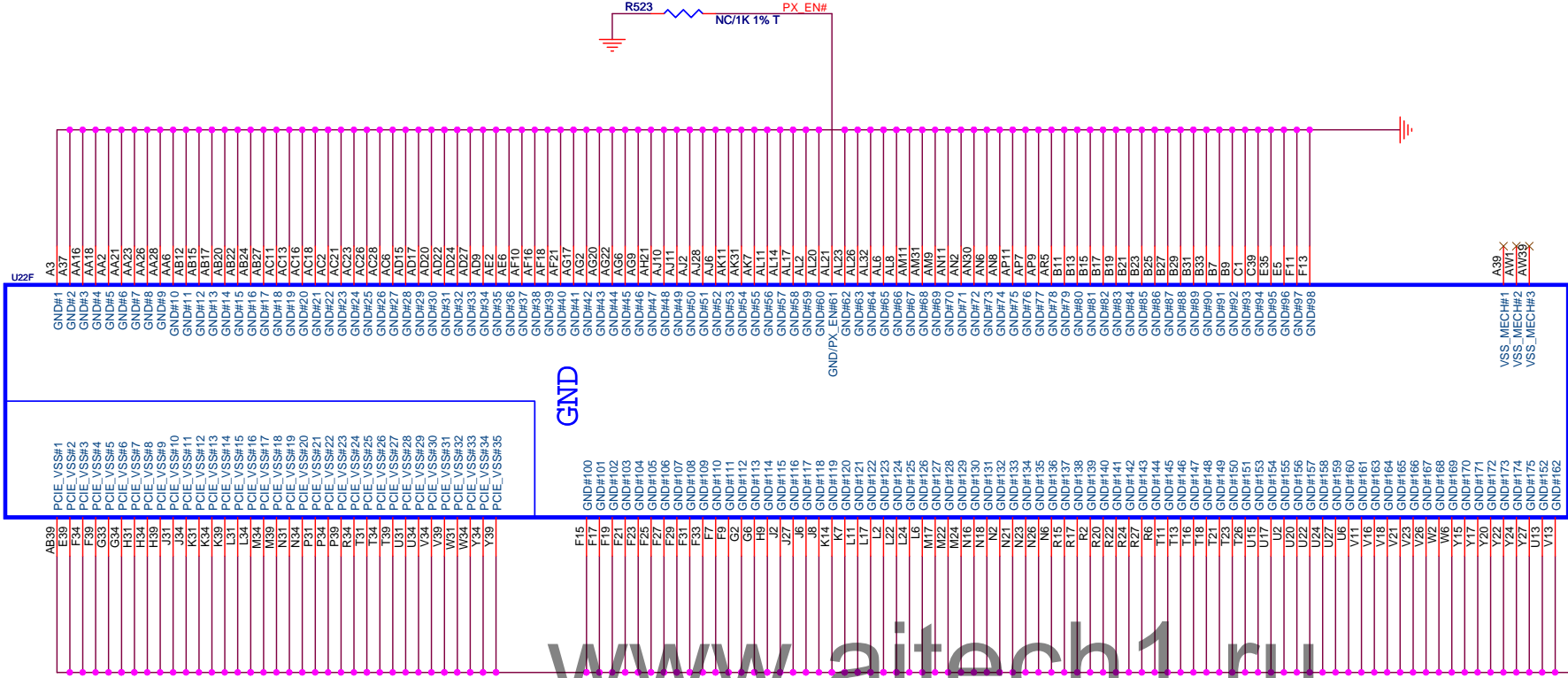


	T & I		CRM MODEL	Lemnos B320	Size	Custom
	機殼圖檔號	8150A0003003	TM MODEL	B320	Rev	0.3
	Key Component	GPU Core / IO Power	PCB NAME	8150A0003003	備註	<REV>
	Date	Thursday, February 17, 2011	Sheet	25 of 54		

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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		

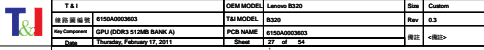


GND

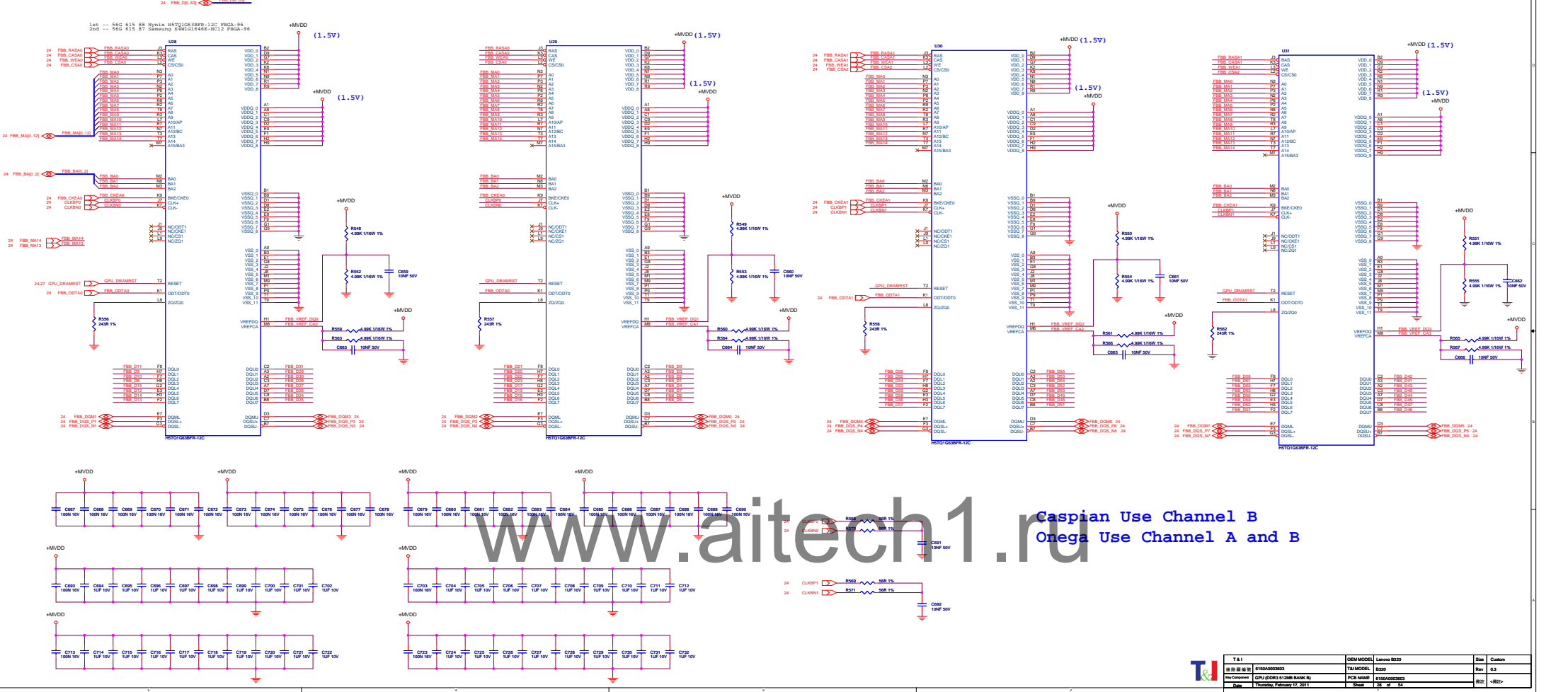
A39  
AW1  
AW39


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

34 FBA\_D(p.63) FBA\_D(p.63)

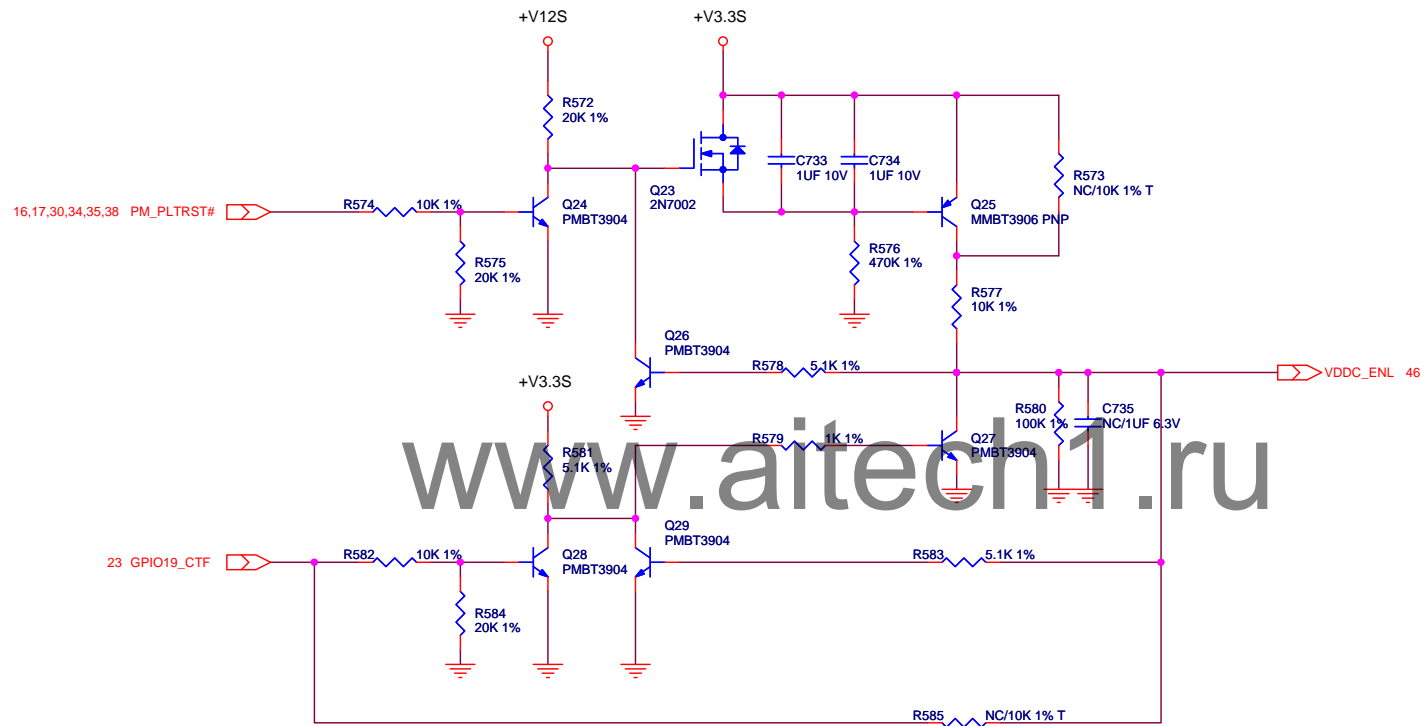


## CHANNEL B

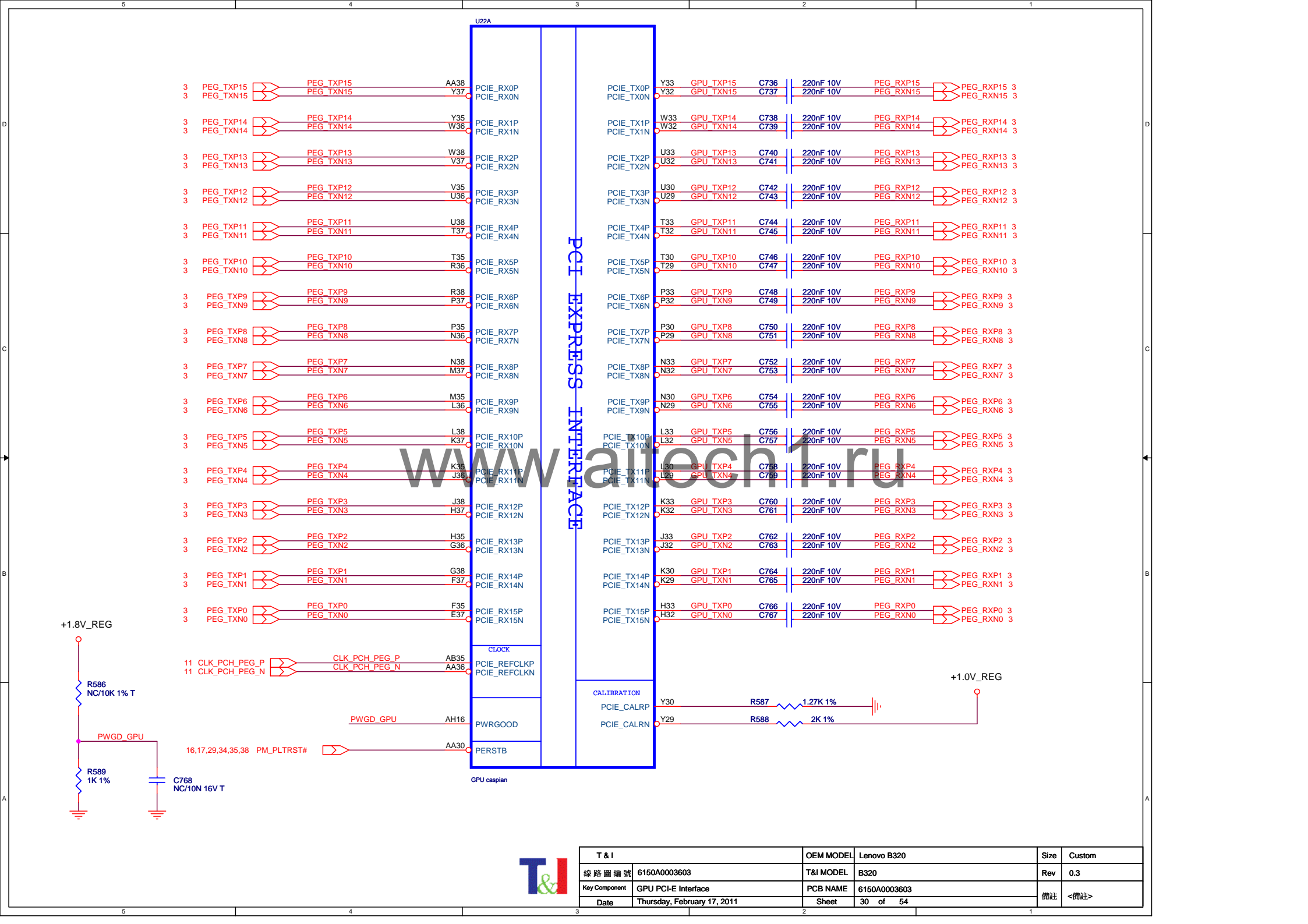


	T & I		OEM MODEL		Laroux B320	Size	Custom	
	機器型番		6150A0030603	T&I MODEL		B320	Rev	0.3
	Key Component		GPU (DOR3 S128M BANK 8)	PCB NAME		6150A0030603		
	Date		Thursday, February 17, 2011	Sheet		28 of 54		修正 <修正>

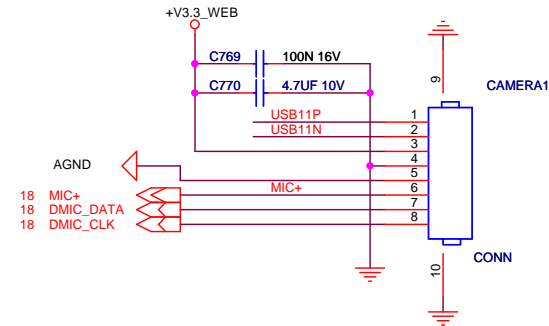
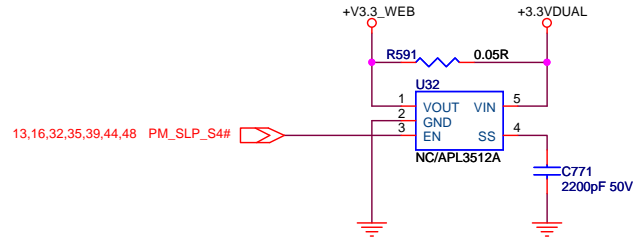
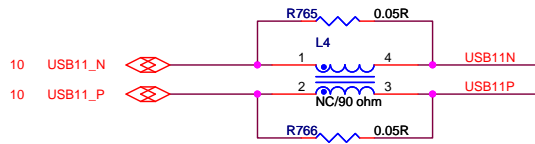




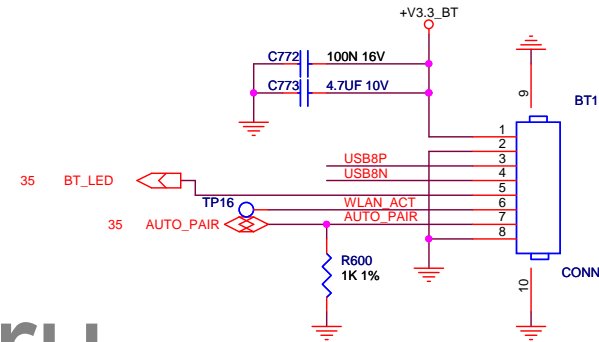
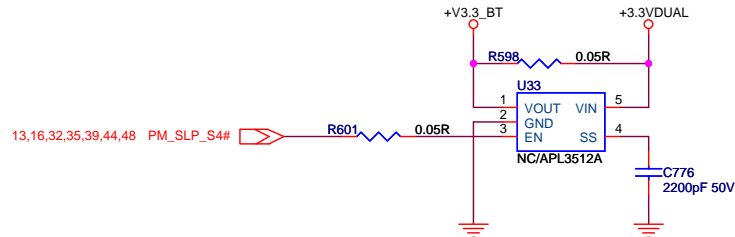
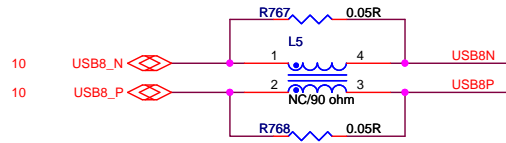
T & I		OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	GPU CTF	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	29 of 54		



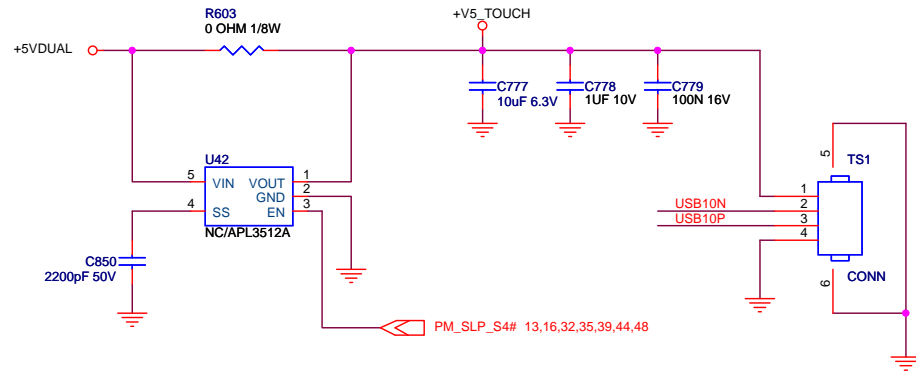
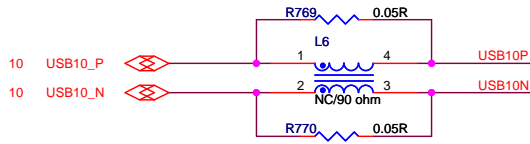
Camera + Mic



BT

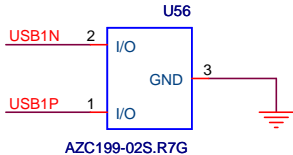
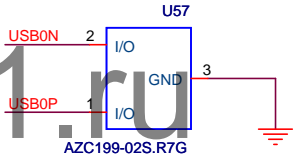
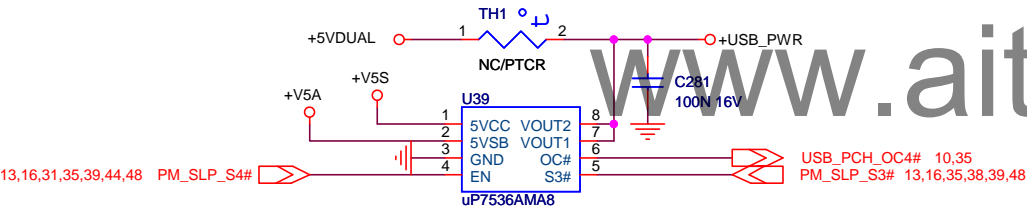
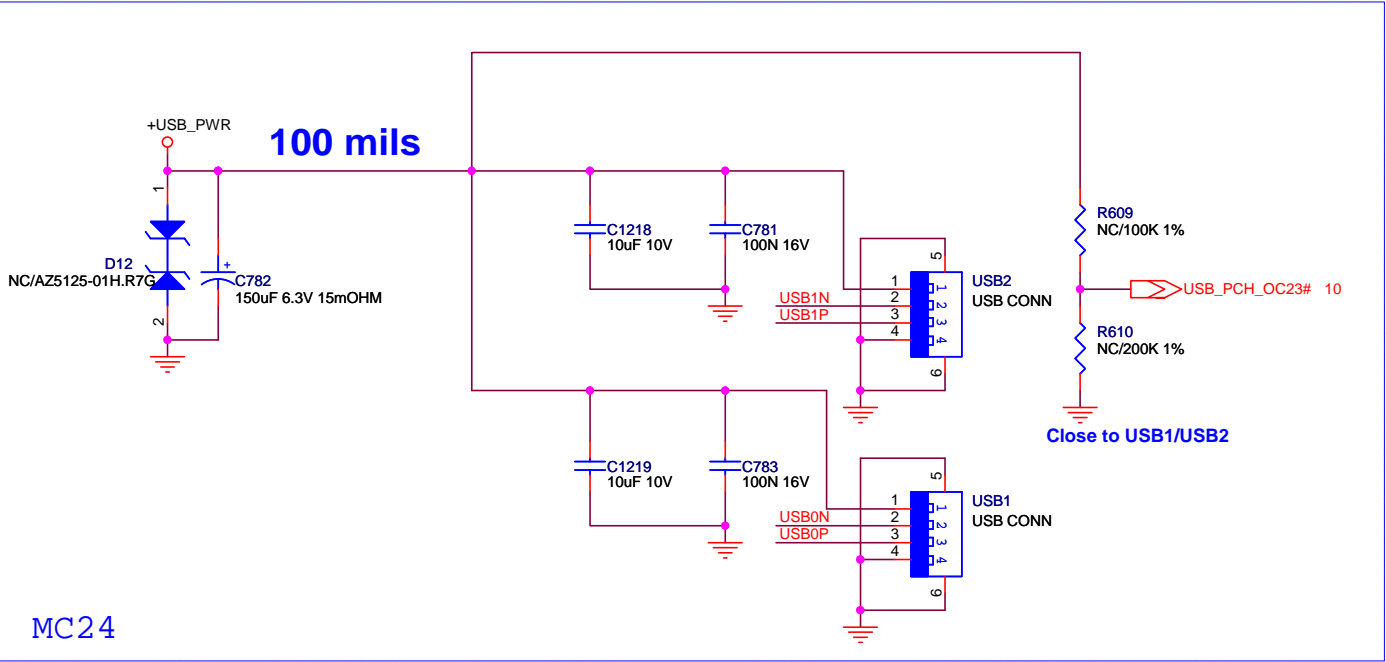
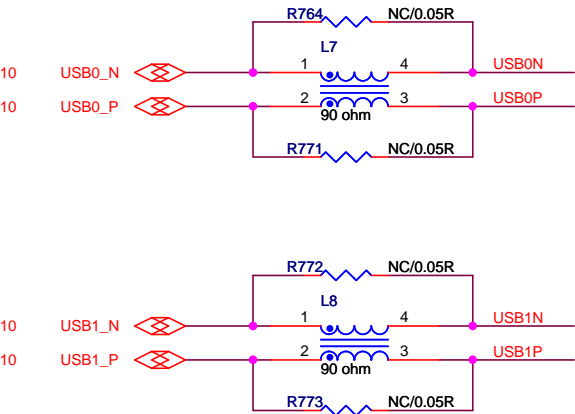


Touch Screen



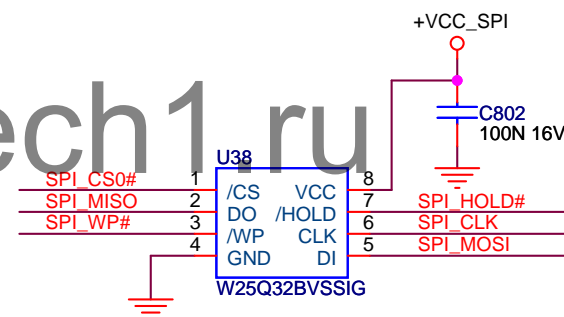
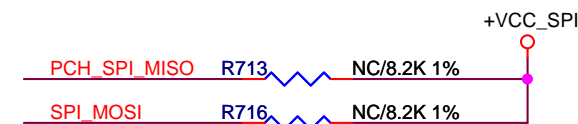
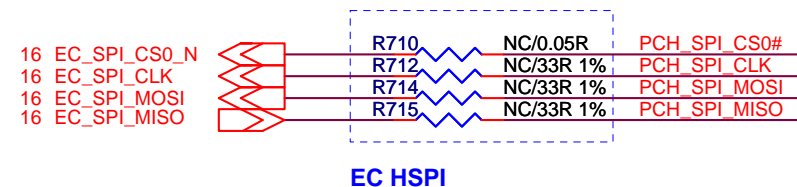
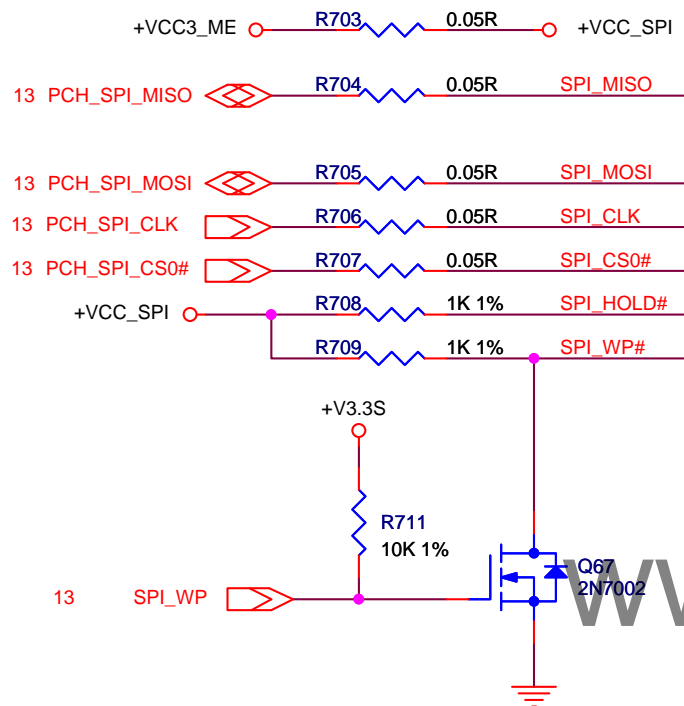
T & I	OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Webcam, BT, Touch Pad	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	31 of 54	<備註>

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

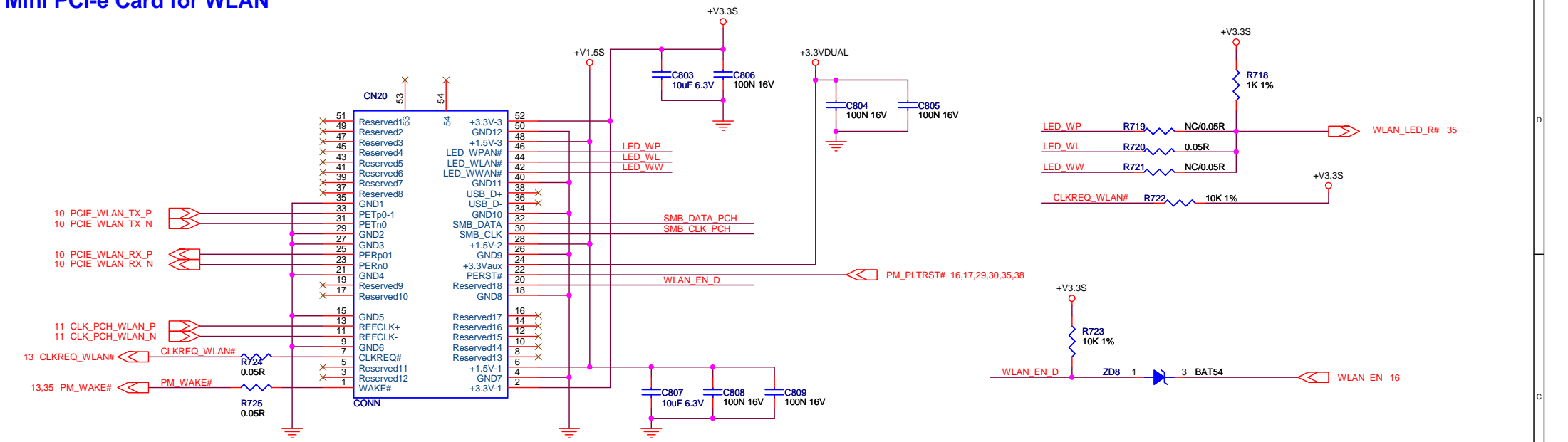
1st -- 056G2233 16 Winbond W25Q64BVSSIG

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



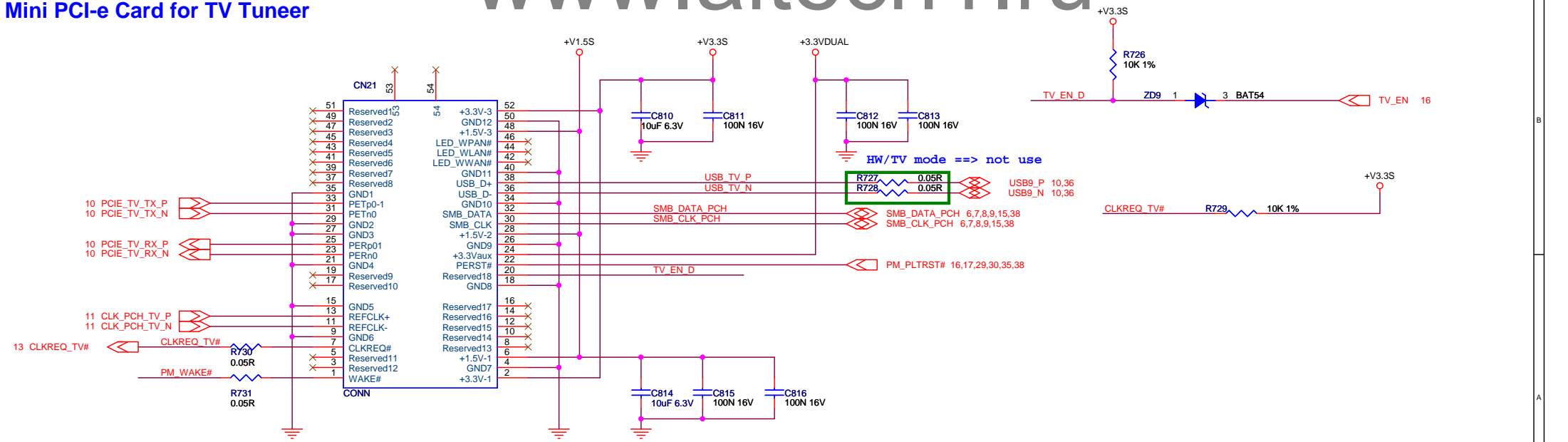
T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	SPI ROM SYS	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	33 of 54		

Mini PCI-e Card for WLAN



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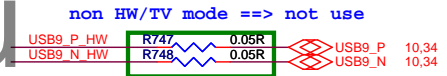
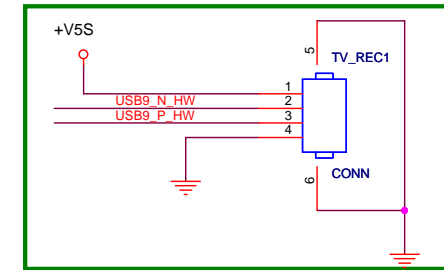
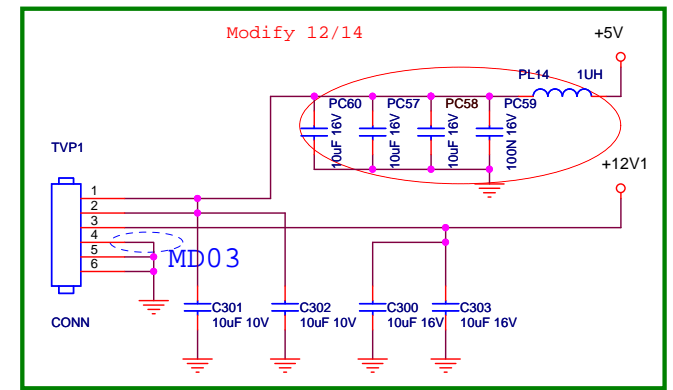
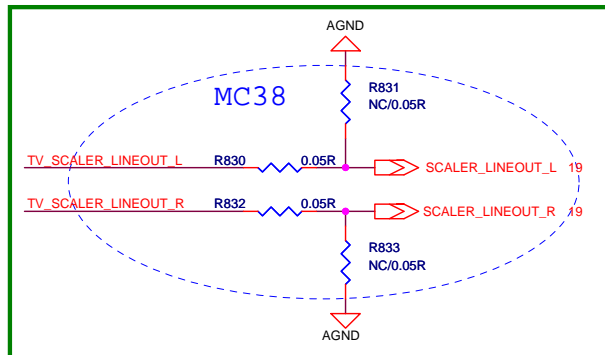
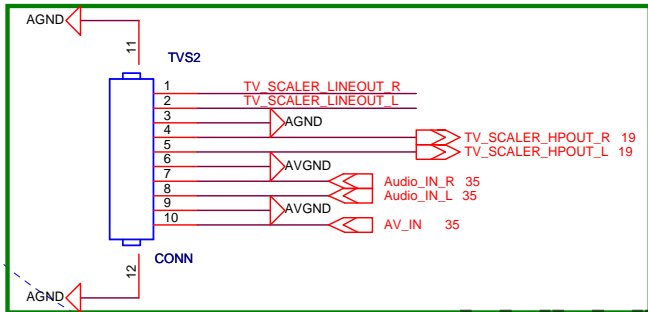
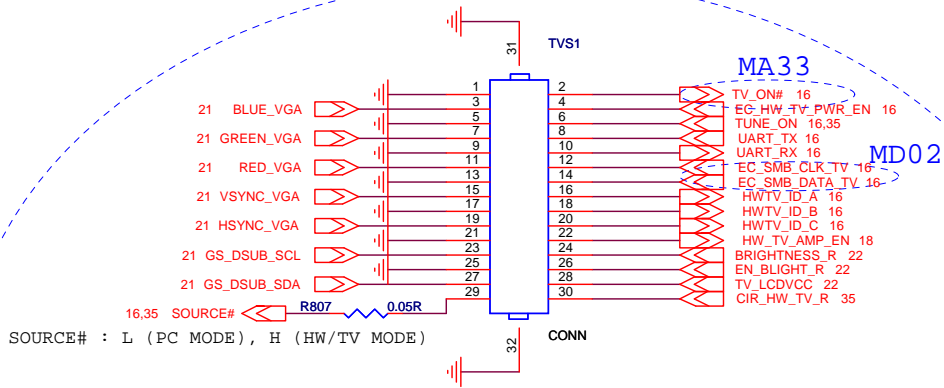
Mini PCI-e Card for TV Tuner



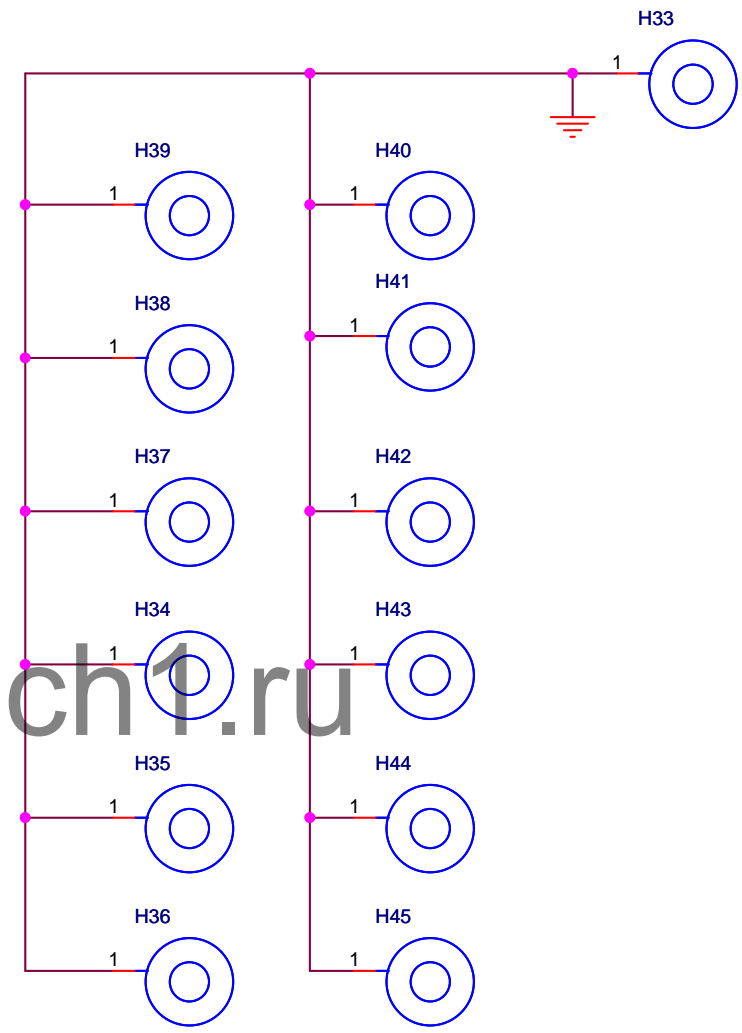
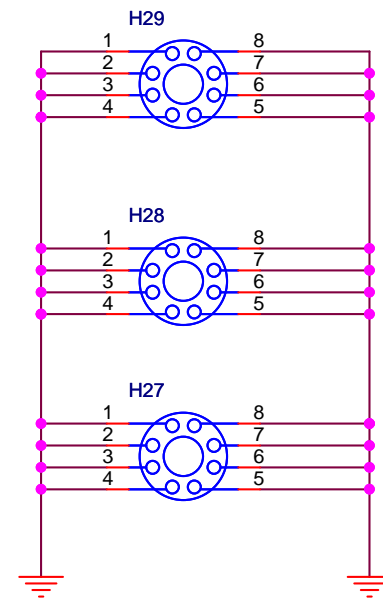
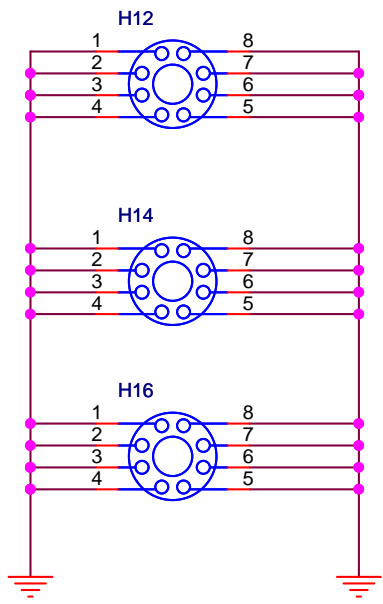
T & I		OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Mini-PCI-Express x 2	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	34 of 54		





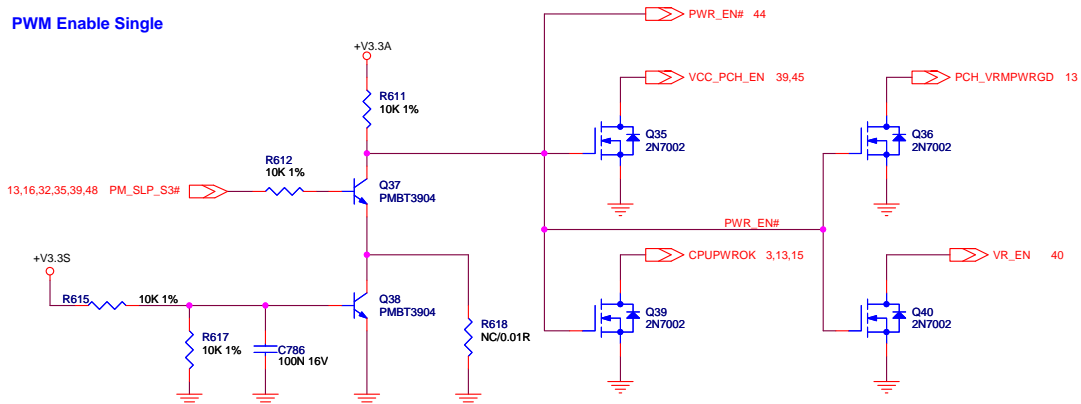


T & I	OEM MODEL	Lenovo B320	Size	B
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	HW/TV_CONN	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	36 of 54	<備註>

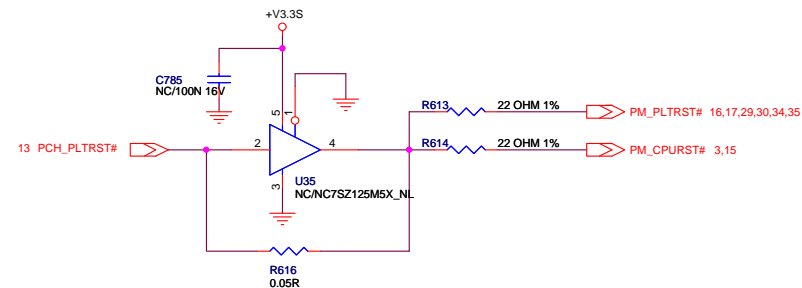


T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Screw	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	37 of 54		

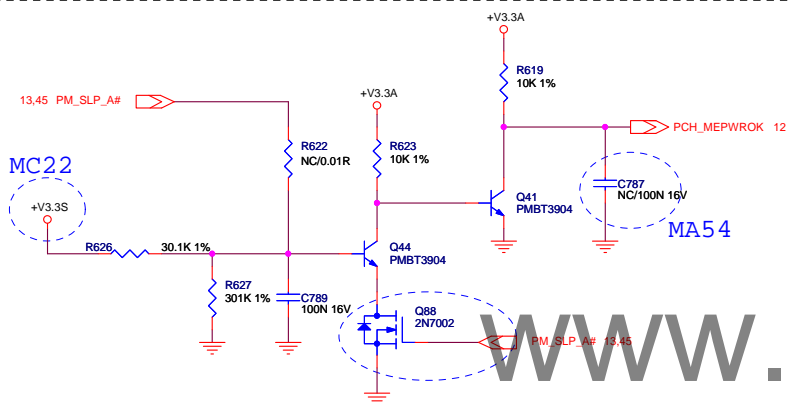
## PWM Enable Single



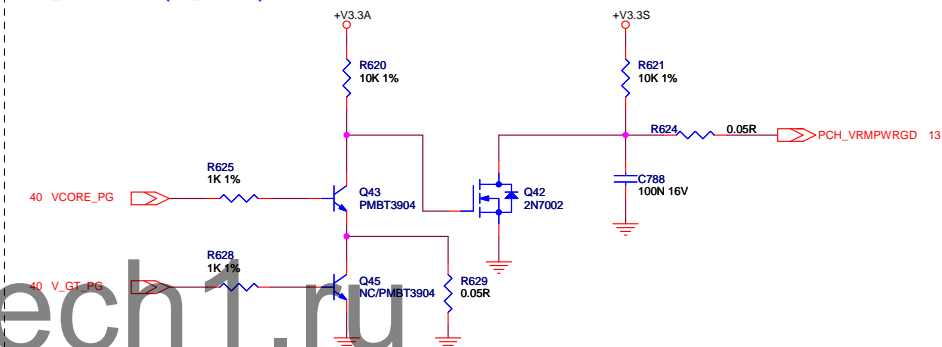
## Reset Single



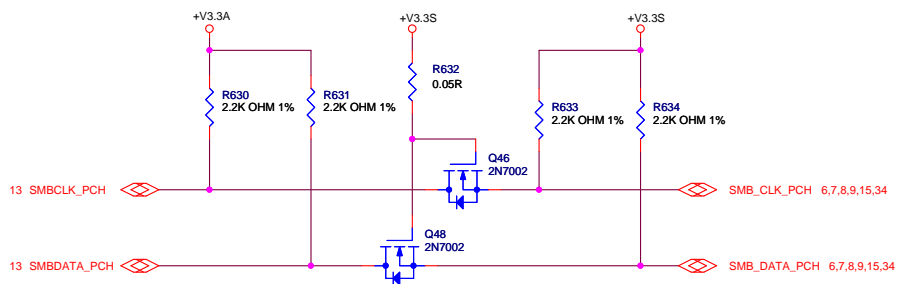
## PCH\_MEPWROK



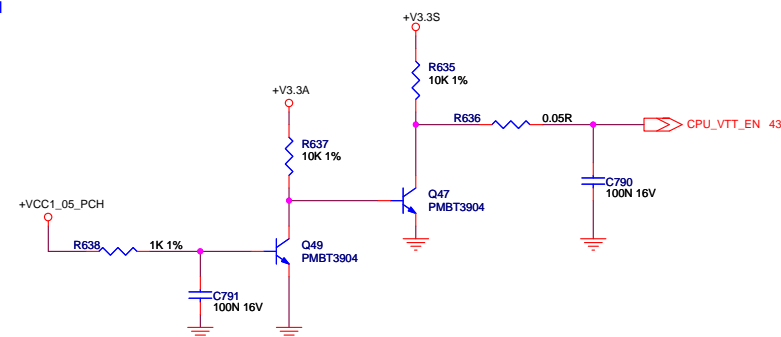
## PCH\_VRMPWRGD (VR\_READY)



## SM BUS



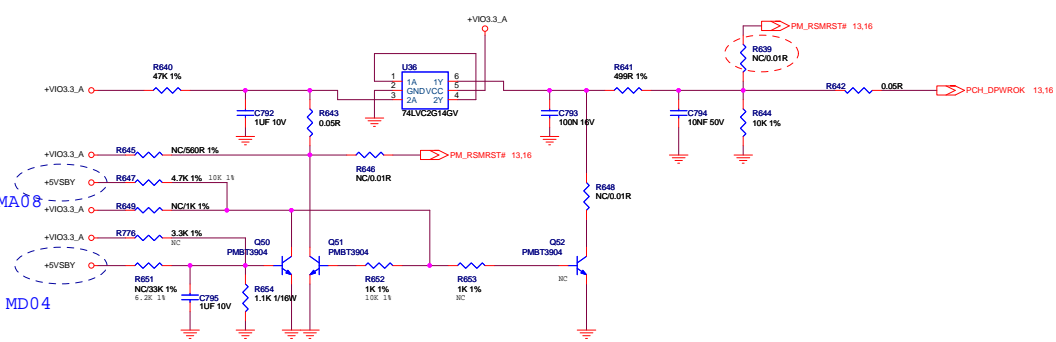
## CPU\_VTT\_EN



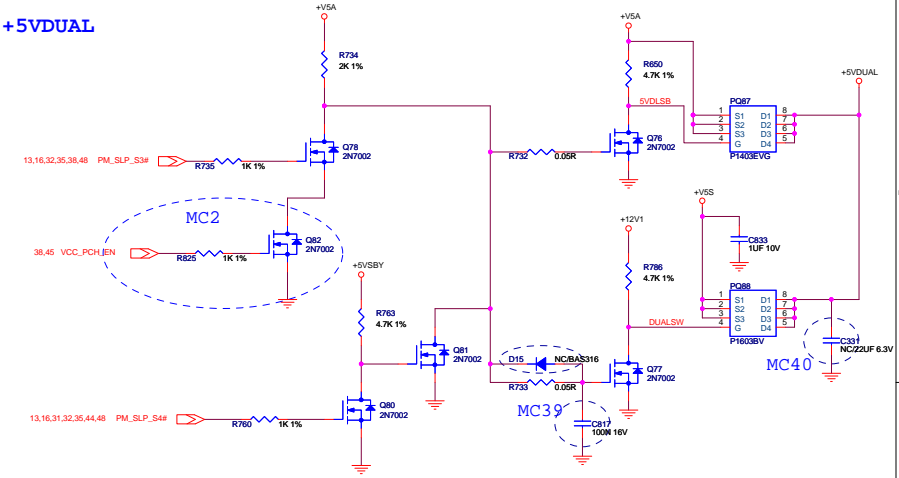
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Controller 1	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	38 of 54	<備註>

PCH\_DPWROK

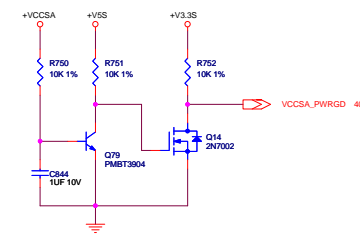
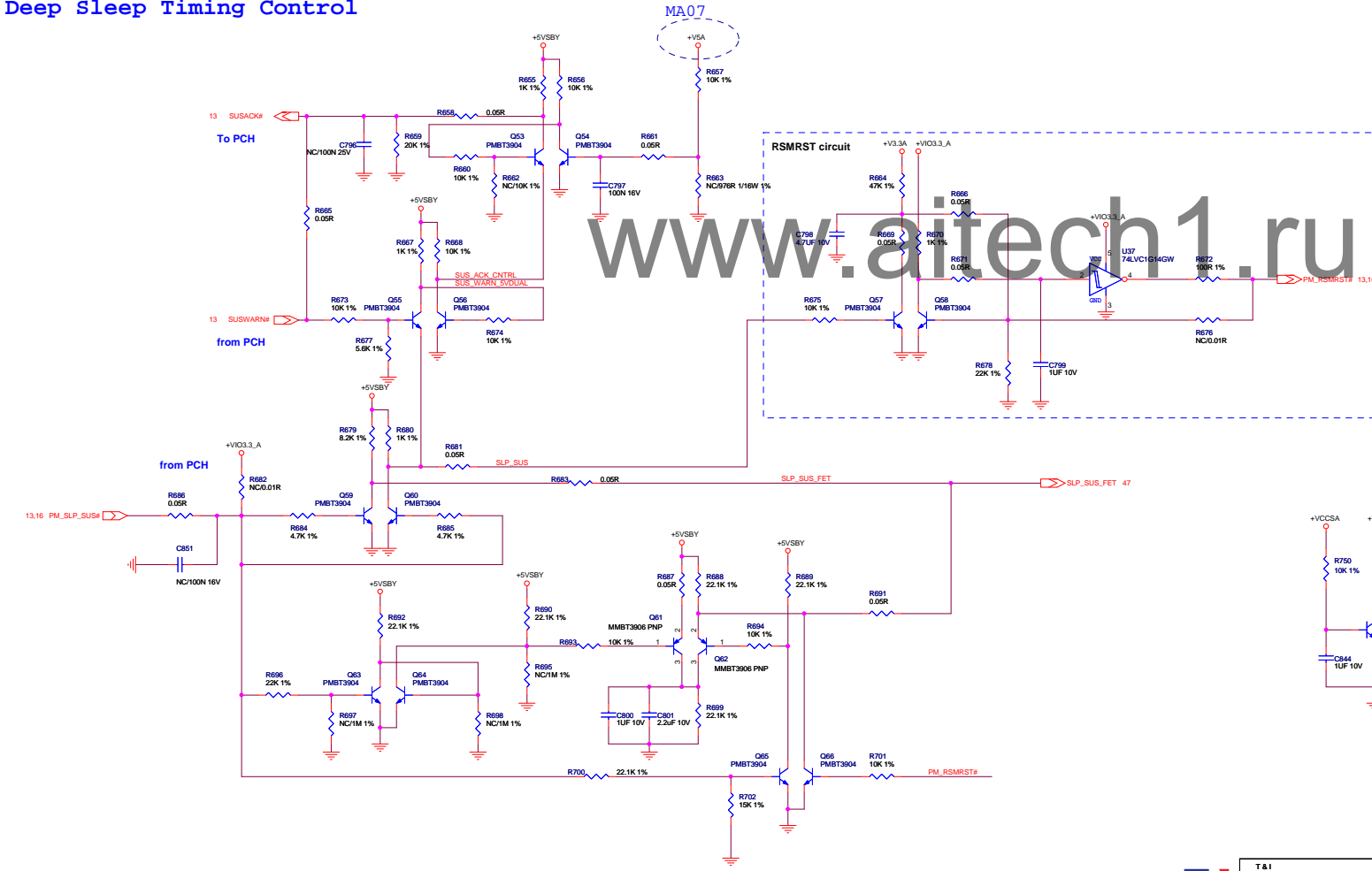
This is an input signal to the PCH from power monitoring circuit to indicate that all deep sleep power rail, VcdDSW3\_3 is stable on the platform. Connect to VcdDSW3\_3 power rail monitoring circuit on mother board. For platform not supporting deep sleep connect directly to RSMRST#. The DSW rails must be stable for at least 10 ms before DPWROK is asserted to PCH.



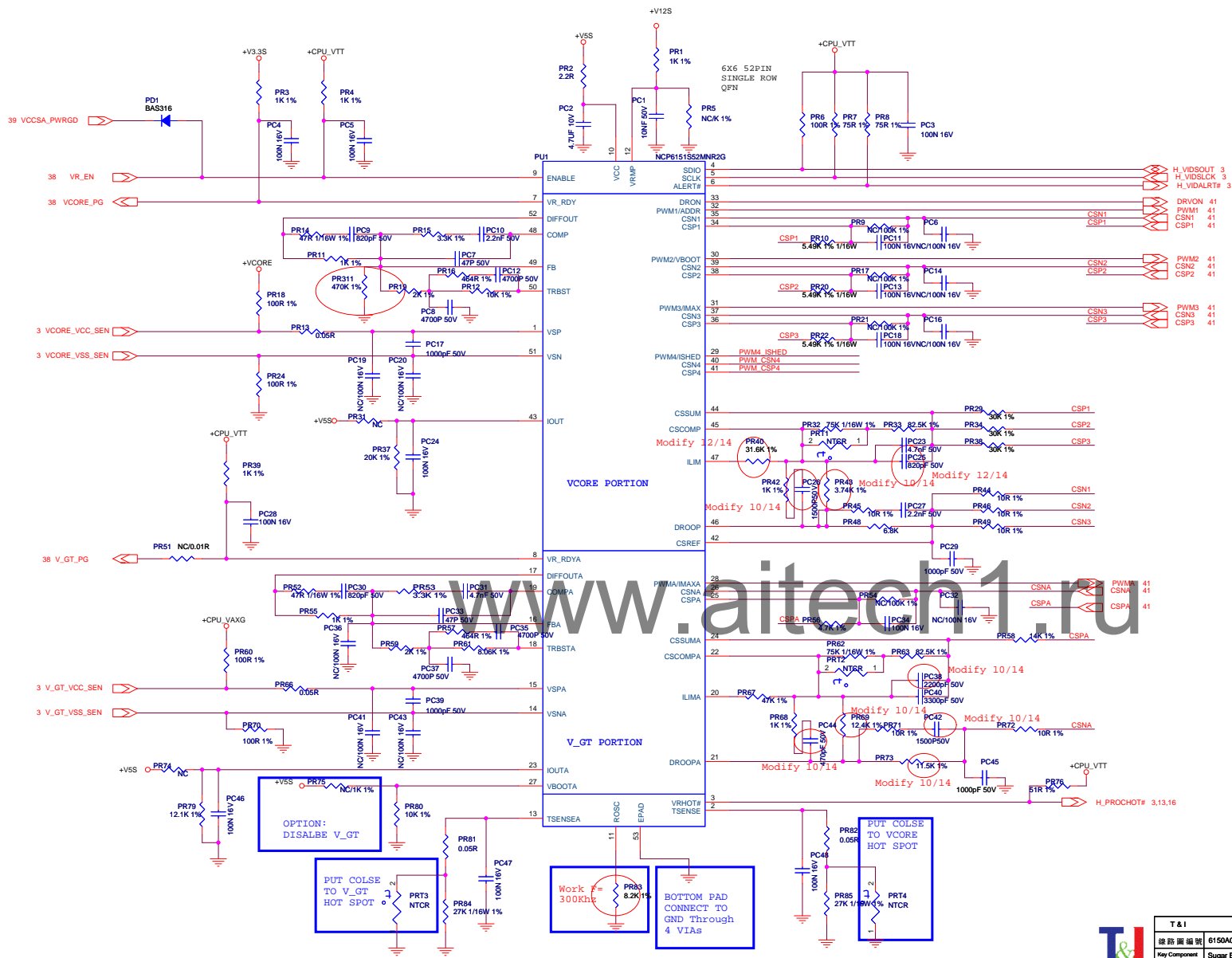
+5VDUAL



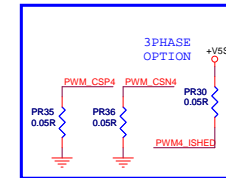
Deep Sleep Timing Control



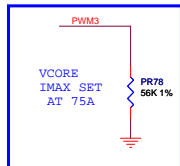
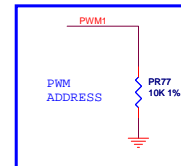
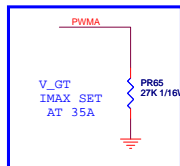
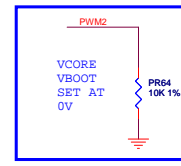
T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	Controller 2, +5VDUAL	PCB NAME	6150A0000303	備註
Date	Saturday, February 19, 2011	Sheet	38 of 54	<備註>



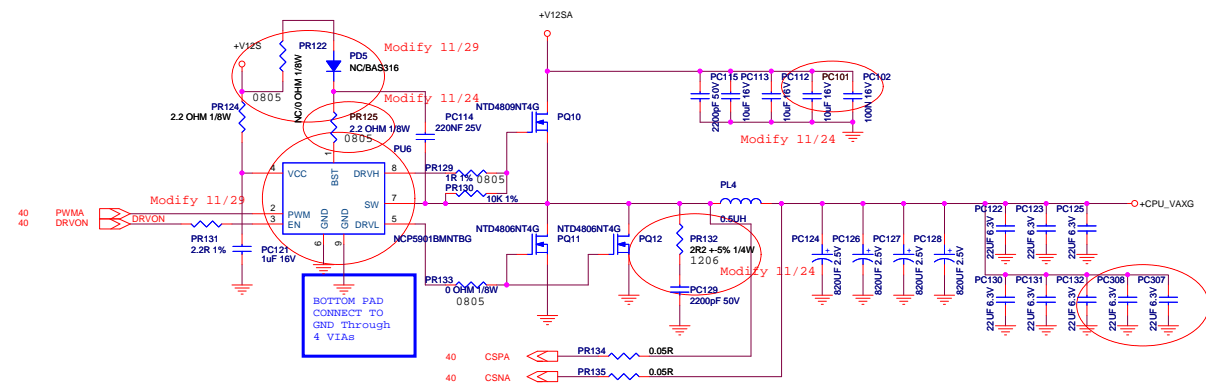
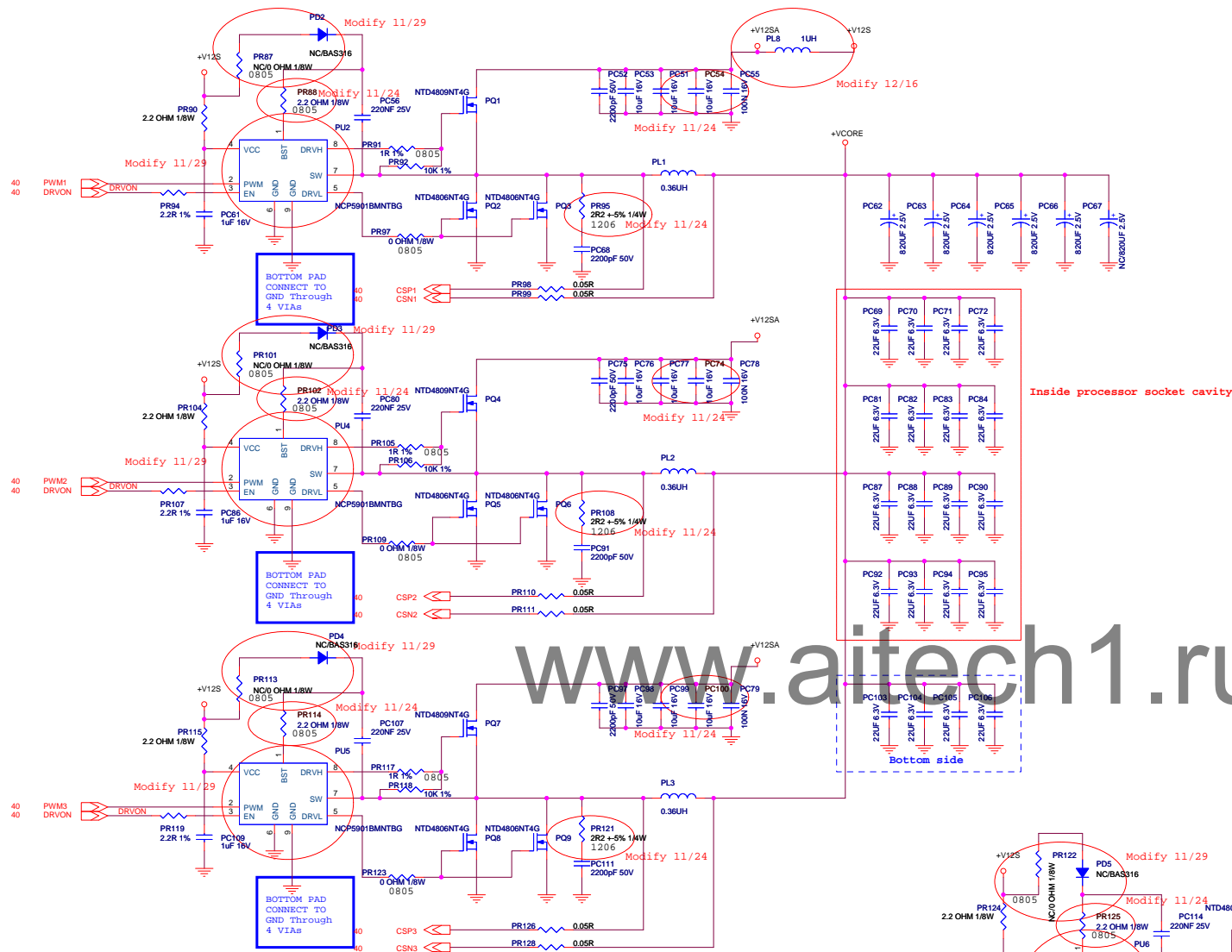
PWM ADDRESS		
RESISTOR VALUE	SVID ADDRESS FOR VCORE RAIL	SVID ADDRESS FOR V_GT RAIL
10K	0000	0001
25K	0010	0011
45K	0100	0101
70K	0110	0111
95K	1000	1001
125K	1010	1011
165K	1100	1101



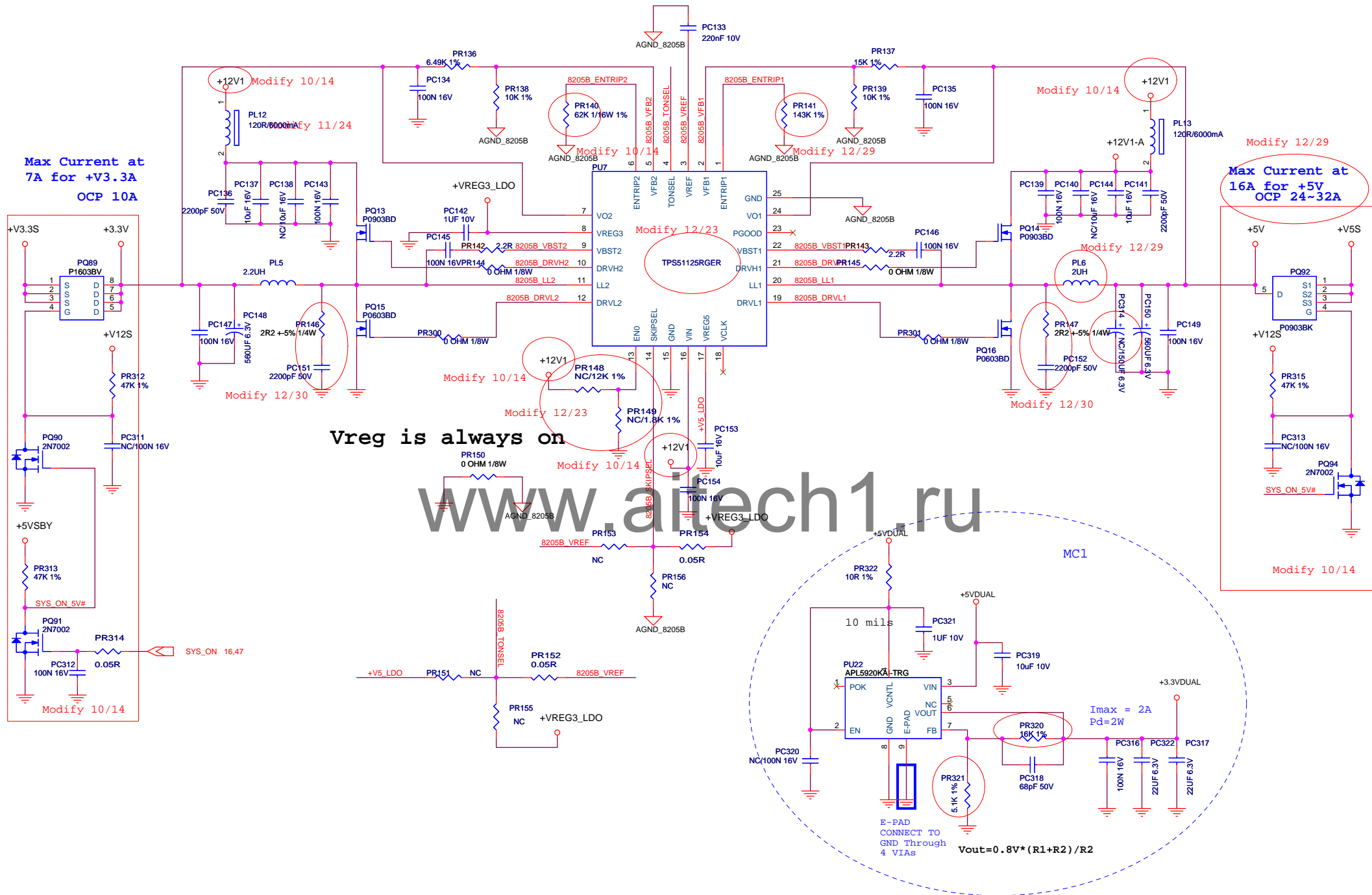
BOOT VOLTAGE	
RESISTOR VALUE	BOOT VOLTAGE
10K	0V
25K	0.9V
45K	1.0V
70K	1.1V
95K	1.2V
125K	1.35V
165K	1.5V



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	40 of 54	

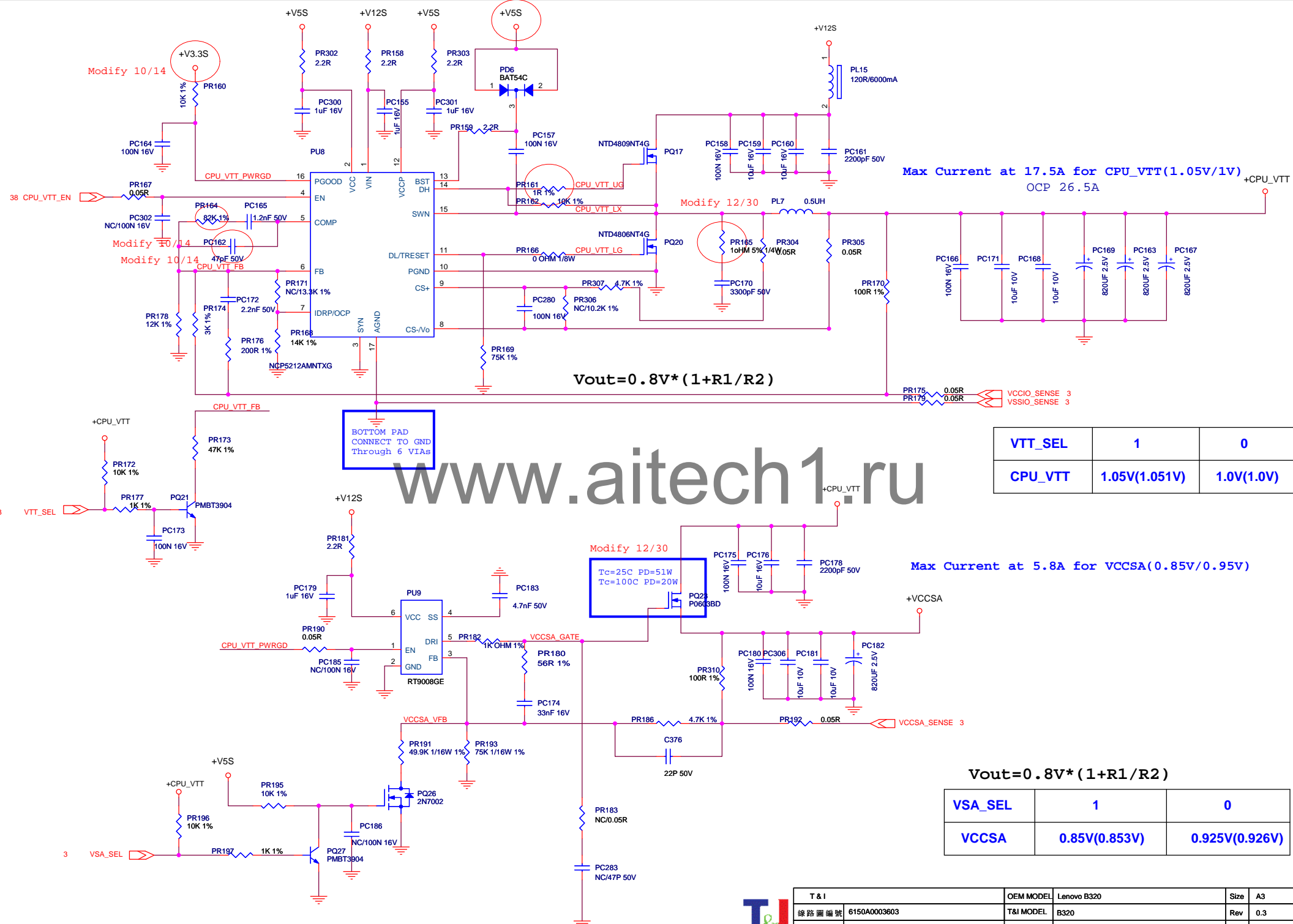


T & I	OEM MODEL	Lenovo B320	Size	Custom
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	Sugar Bay-MOSFET 2/2	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	41 of 54	<備註>



T & I		OEM MODEL	Lenovo B320	Size	A3
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	+5V, +VSS, +V3.3S, +3.3DUAL	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	42 of 54		





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

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

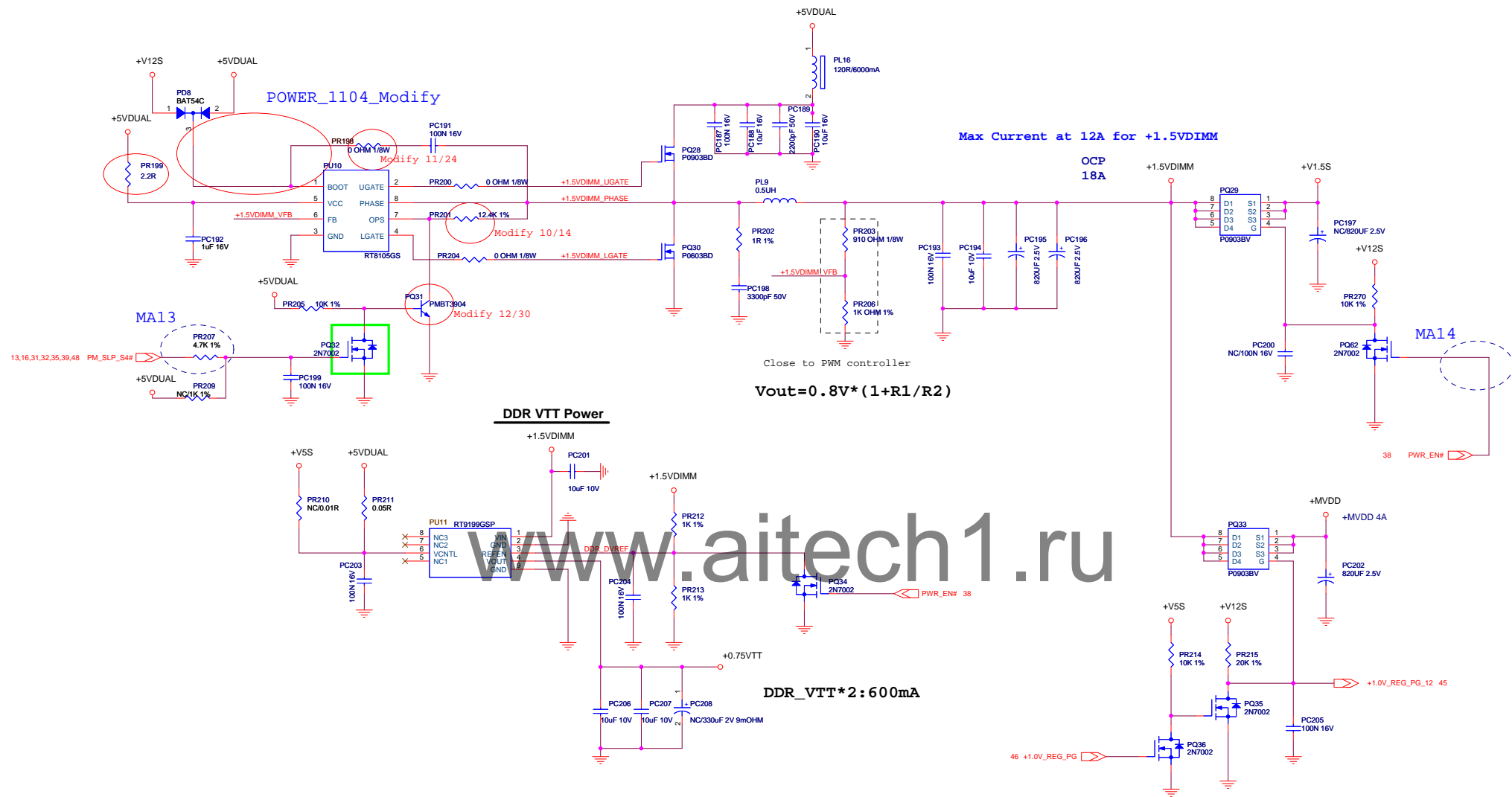
Max Current at 5.8A for VCCSA(0.85V/0.95V)

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

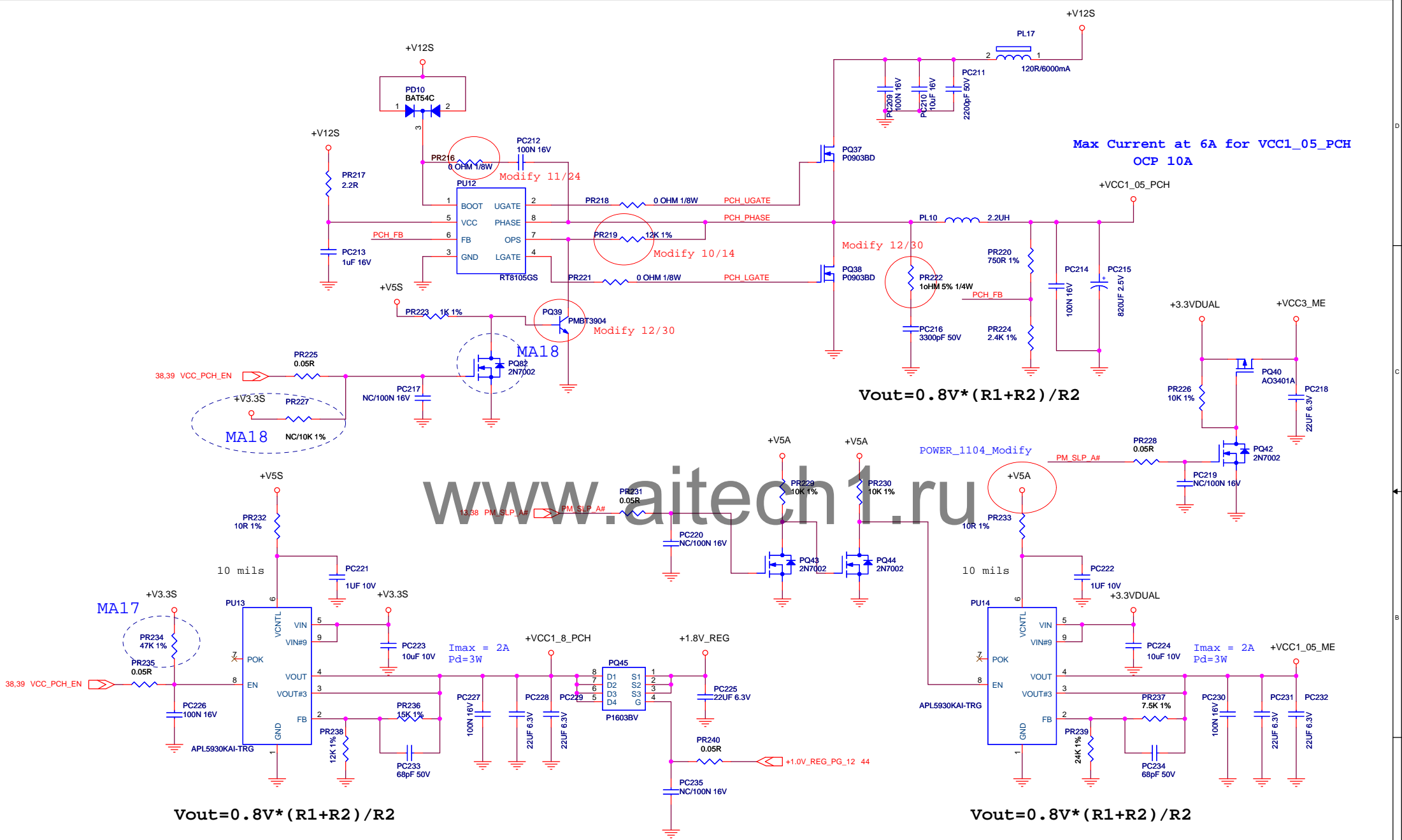
VSA_SEL	1	0
VCCSA	0.85V(0.853V)	0.925V(0.926V)



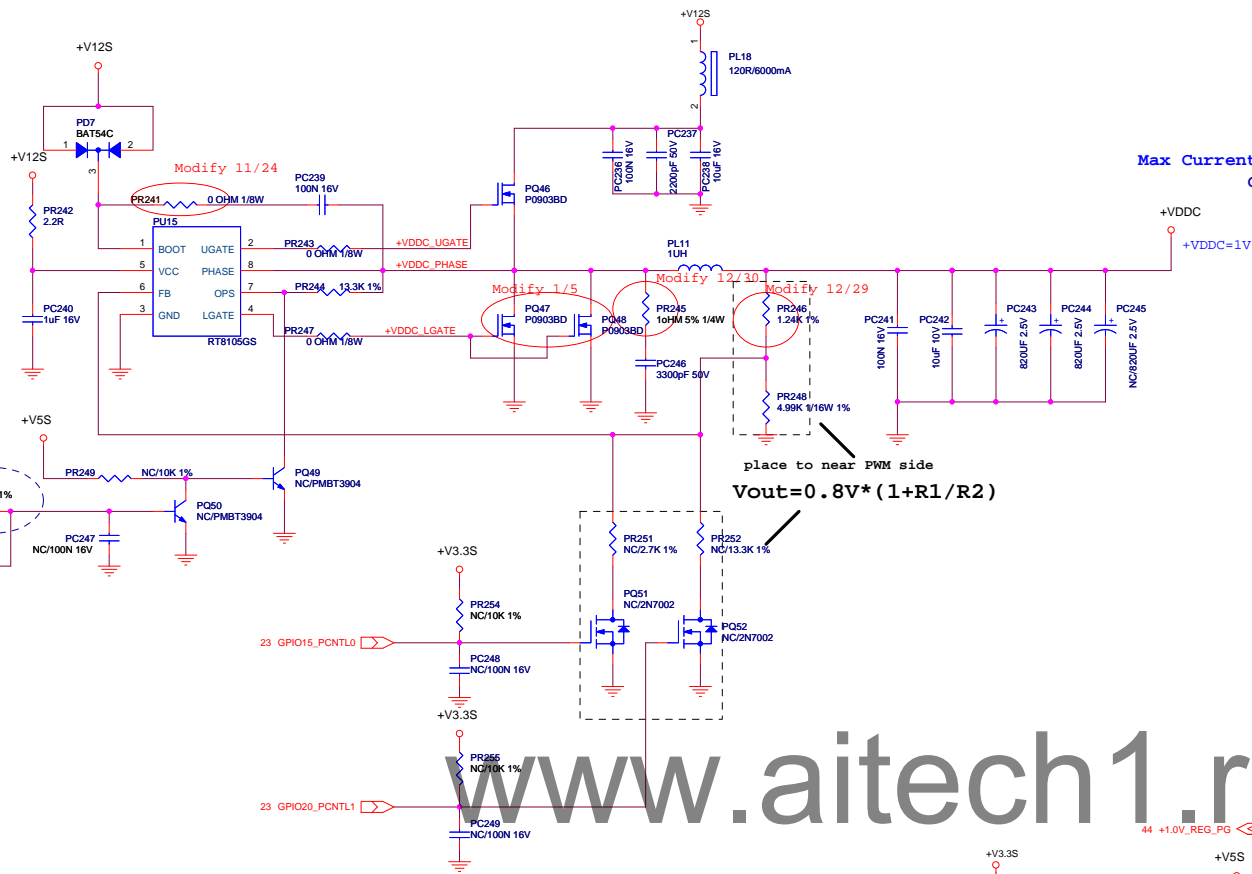
T & I	OEM MODEL	Lenovo B320	Size	A3
線路圖編號	T&I MODEL	B320	Rev	0.3
Key Component	PCPU_VTT_1.05V,VCCSA_0.85V	PCB NAME	6150A0003603	備註
Date	Thursday, February 17, 2011	Sheet	43 of 54	<備註>



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

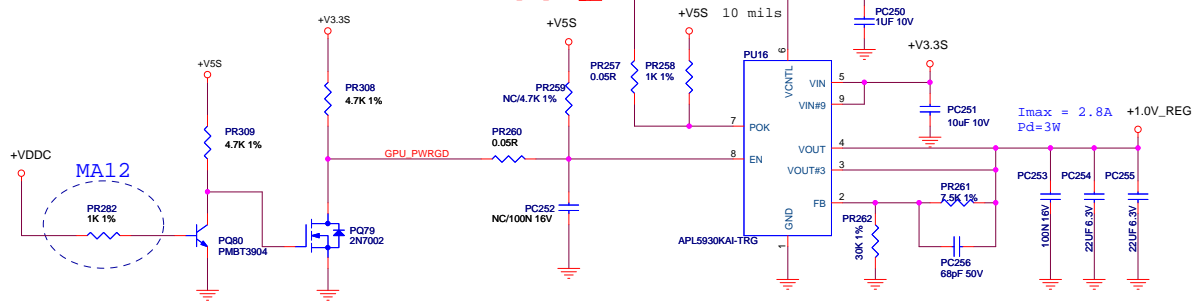


T & I		OEM MODEL	Lenovo B320	Size	A3
線路圖編號		T&I MODEL	B320	Rev	0.3
Key Component		PCB NAME	6150A0003603	備註	<備註>
Date		Sheet	45 of 54		



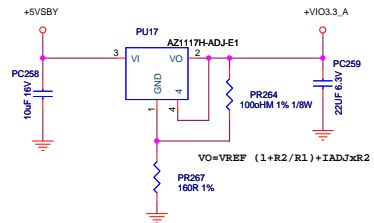
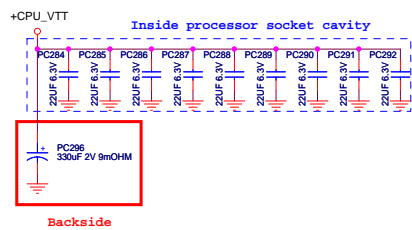
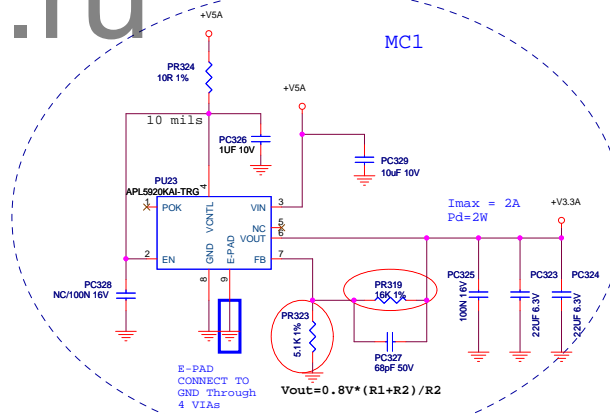
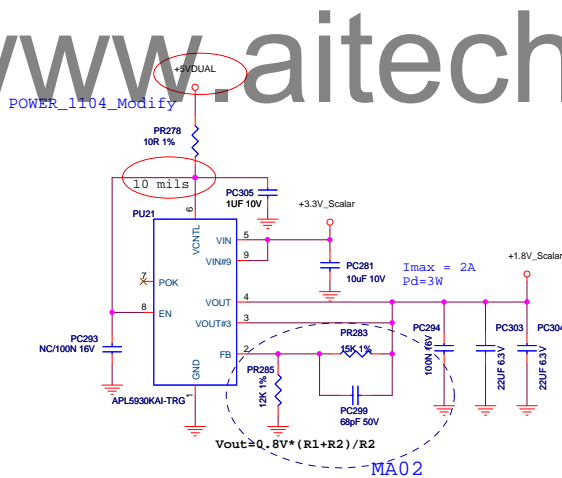
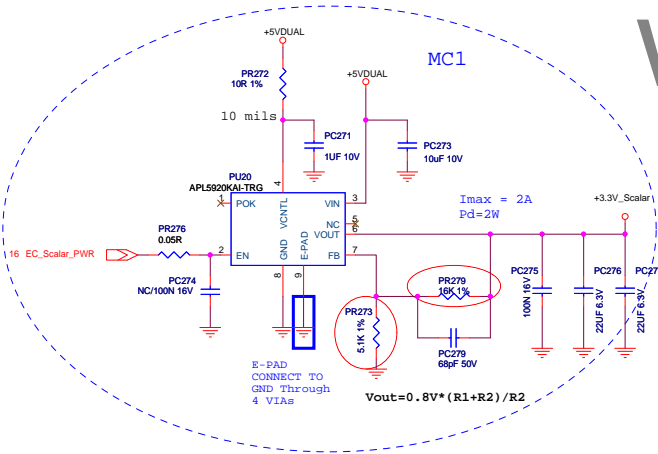
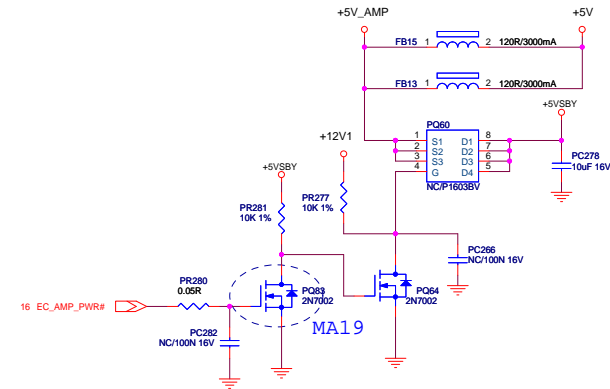
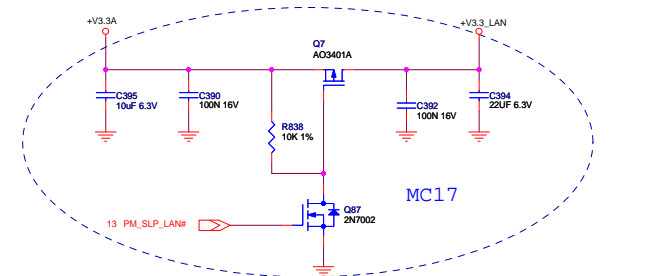
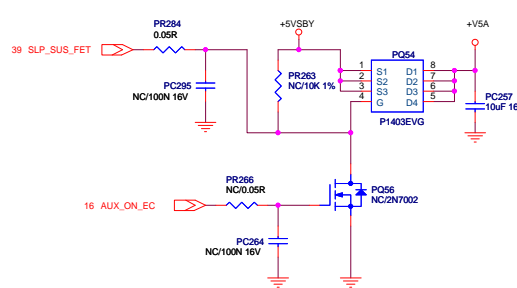
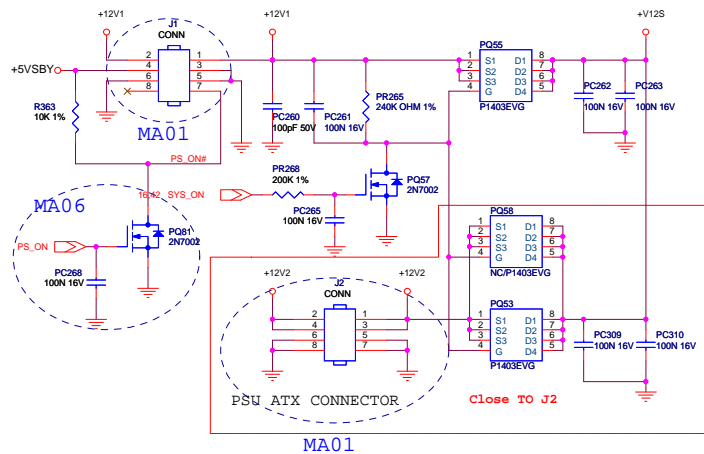
PCNTL0	PCNTL1	GPU (計算値)
0	0	0.9V
0	1	0.975V
1	0	1.0V

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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	46 of 54	

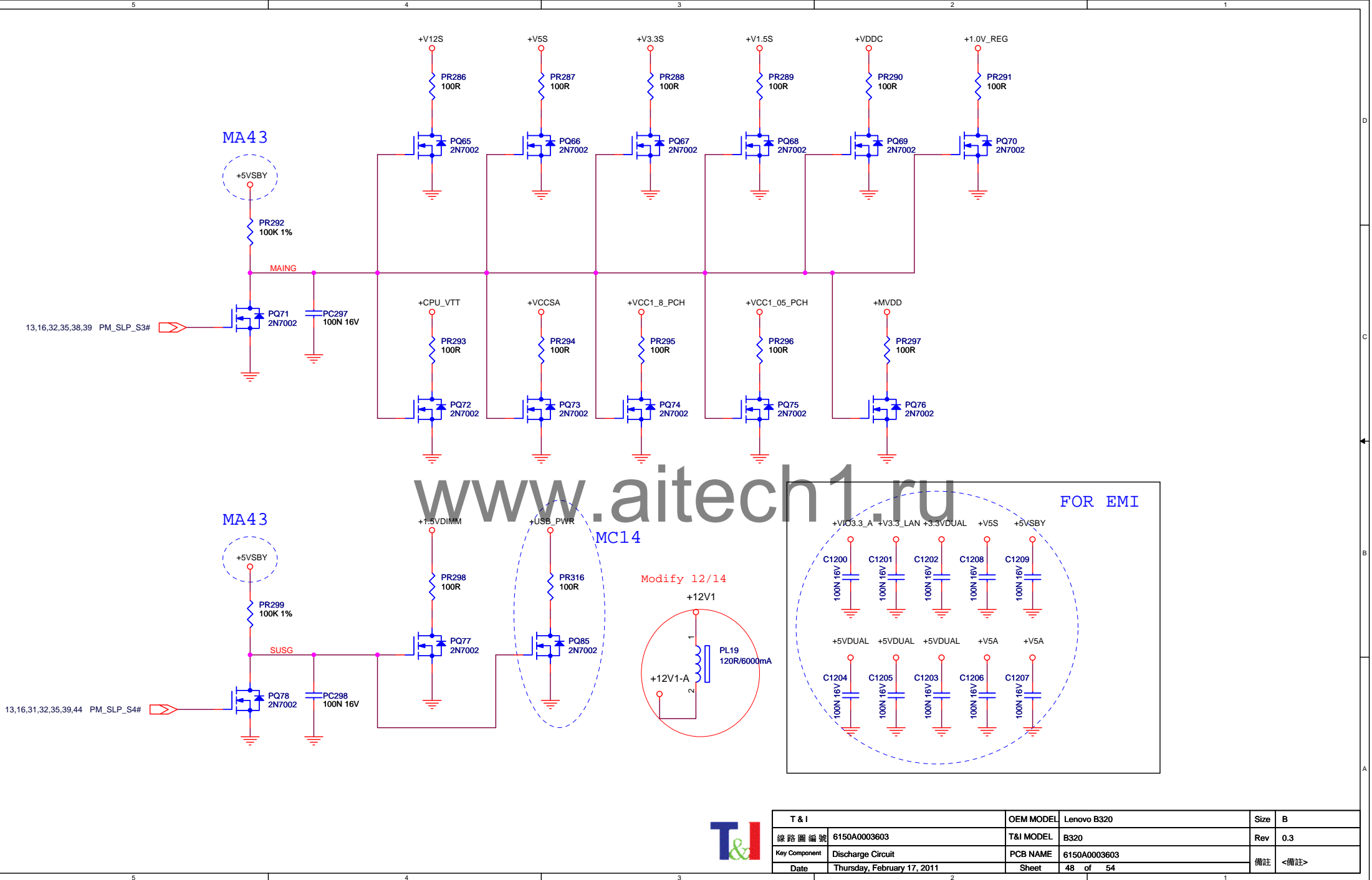
# PSU ATX CONNECTOR



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T & I	OEM MODEL	Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL	B320	Rev
Key Component	+V12S, OTHER SWITCH, ATX	PCB NAME	6150A0003603	0.3
Date	Thursday, February 17, 2011	Sheet	47 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	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)

+5USB1

+5USB2

+5USB3

(S3)

X3

For Scalar

EC\_Scalar\_PWR

+5VDUAL

LDO

+3.3V\_Scalar

(S3)

LDO

+1.8V\_Scalar

(S3)

For AMP.

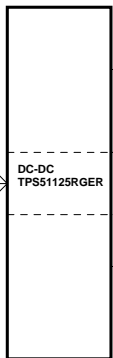
EC\_AMP\_PWR#

+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)

+5VDUAL

(S3)

(S3)

(S3)

(S3)

(S3)

(S3)

(S3)

(S3)

(S3)

(S3)

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(S3)

PM\_SLP\_A#

+3.3VDUAL

(S3)

P-MOS

VCC3\_ME

(S3)

PM\_SLP\_A#

+3.3VDUAL

(S3)

LDO

VCC1\_05\_ME(1.6A)

(S3)

VCC\_PCH\_EN

(S0)

LDO

+1.0V\_REG\_PG

(S0)

N-MOS

+1.8V\_REG

(S0)

GPU\_PWRGD

(S0)

LDO

+1.0V\_REG

(S0)

N-MOS

+1.5VDIMM(12A)

(S3)

PM\_SLP\_S4#

+V5A

PM\_SLP\_S3#

+V5S

Switch

+5VDUAL(6A)

(S3)

P-MOS

+1.5VDIMM(12A)

(S3)

CPU\_VTT\_EN

(S0)

DC-DC

TPS51218DSCR

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

(S0)

CPU\_VTT\_PWRGD

(S0)

DC-DC

TPS51218DSCR

VCCSA (0.85V / 0.95V)

(S0)

VCC\_PCH\_EN

(S0)

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)

PWR\_EN#

(S0)

N-MOS

+V1.5S

(S0)

To Mini Card

+1.0V\_REG\_PG

(S0)

N-MOS

+MVDD(4A)

(S0)

To GPU

PWR\_EN#

(S0)

LDO

+0.75VTT

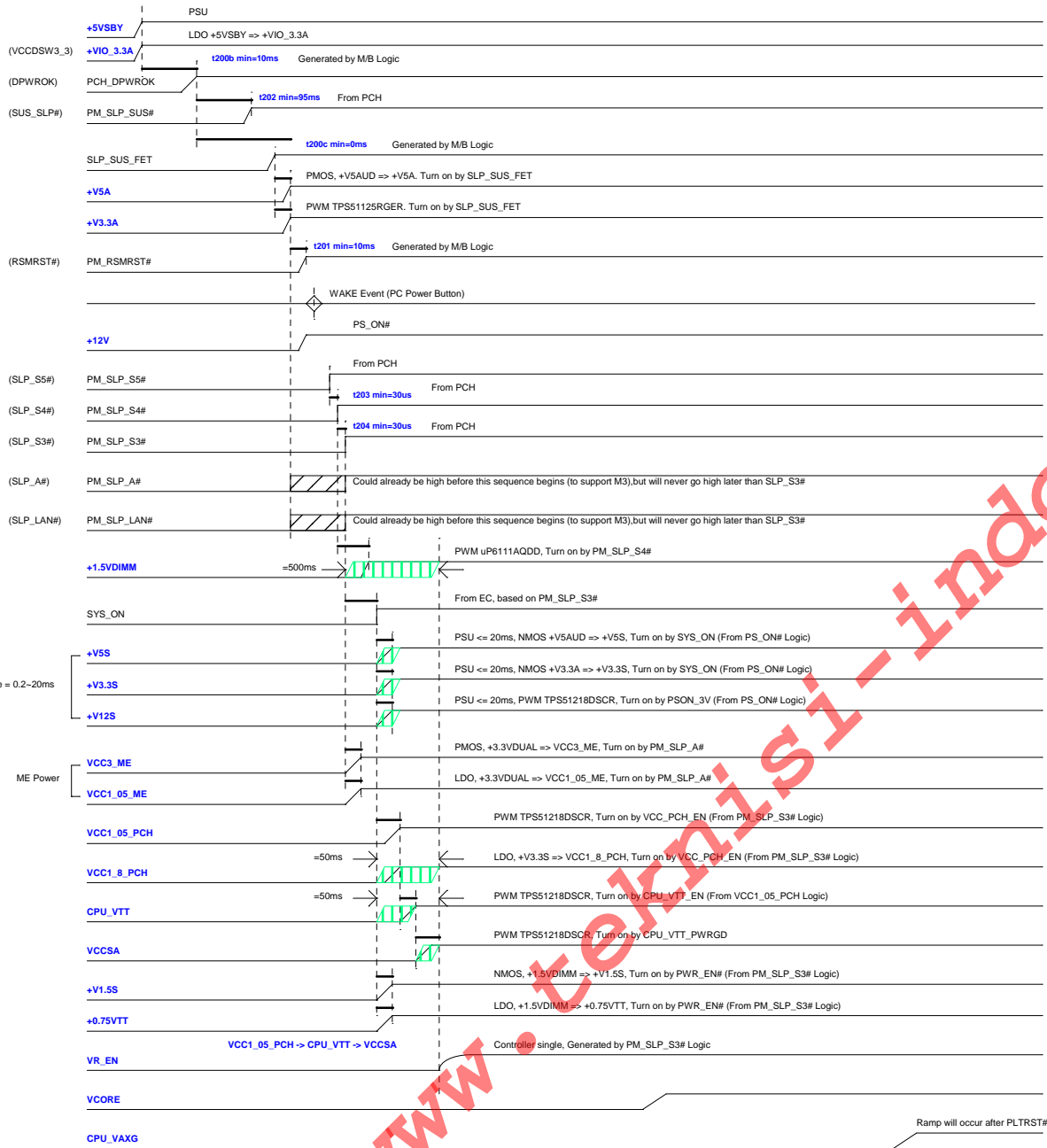
(S0)



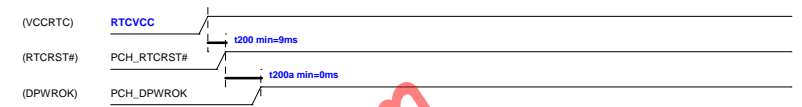
T & I		OEM MODEL		Lenovo B320	Size	C
線路圖編號	6150A0003603	T&I MODEL		B320	Rev	0.3
Key Component	Power Map	PCB NAME		6150A0003603	備註	
Date	Thursday, February 17, 2011	Sheet		49 of 54	<備註>	



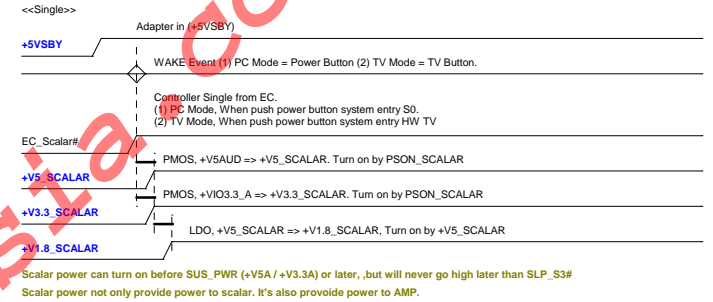
## System Power



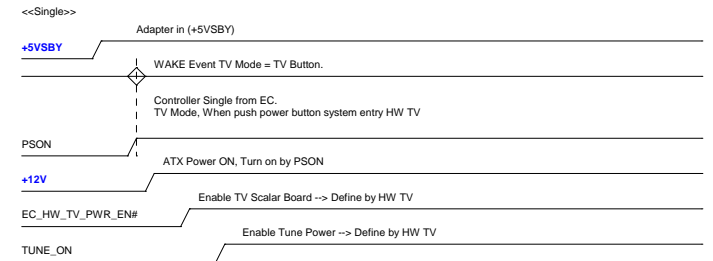
## RTC Power



## Scalar Power

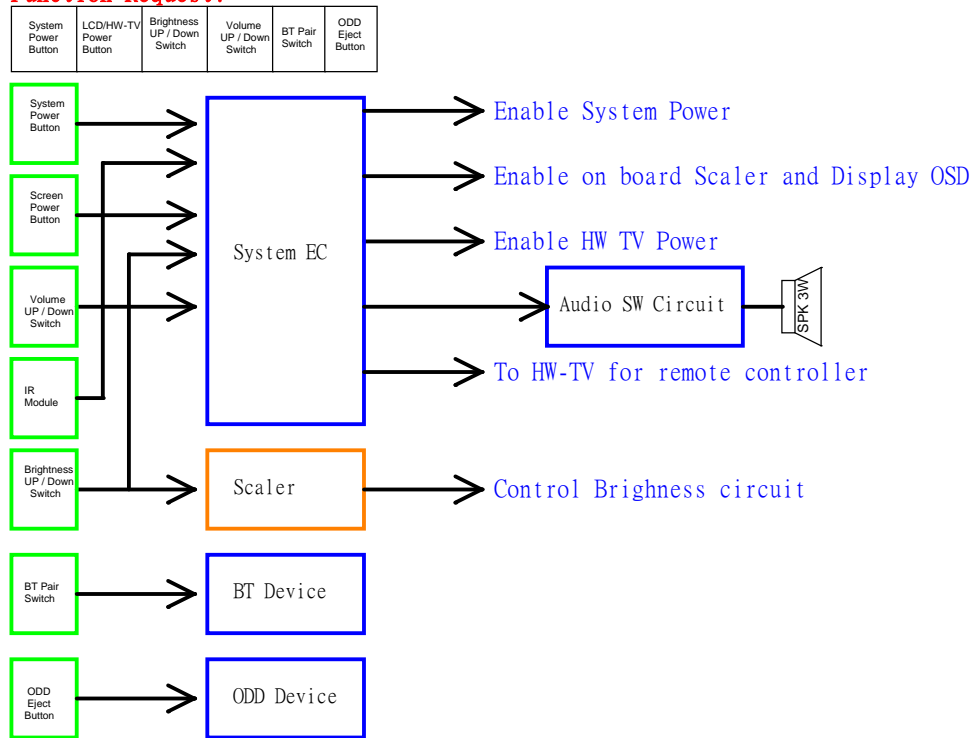


## TV Power

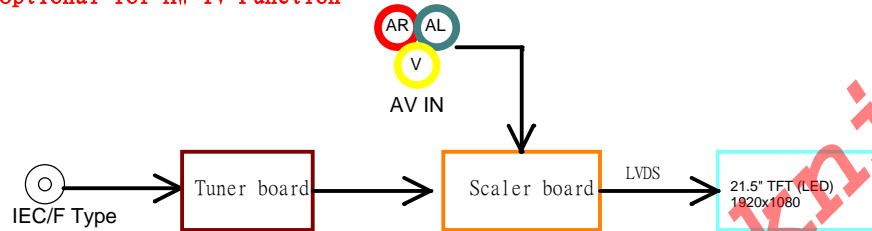


T & I	OEM MODEL	Lenovo B320	Size	Custom
6150A0003903	TAI MODEL	B320	Rev	0.3
Power Sequence	PCB NAME	6150A0003903	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	50	of 54

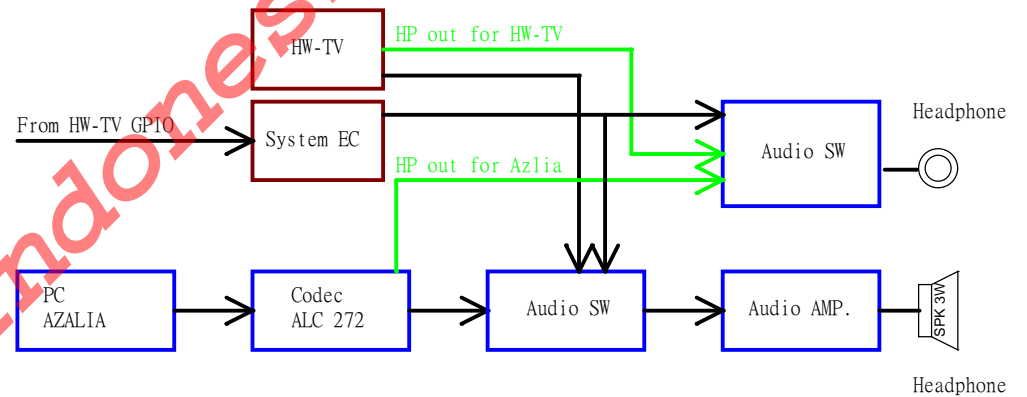
## Function Request.



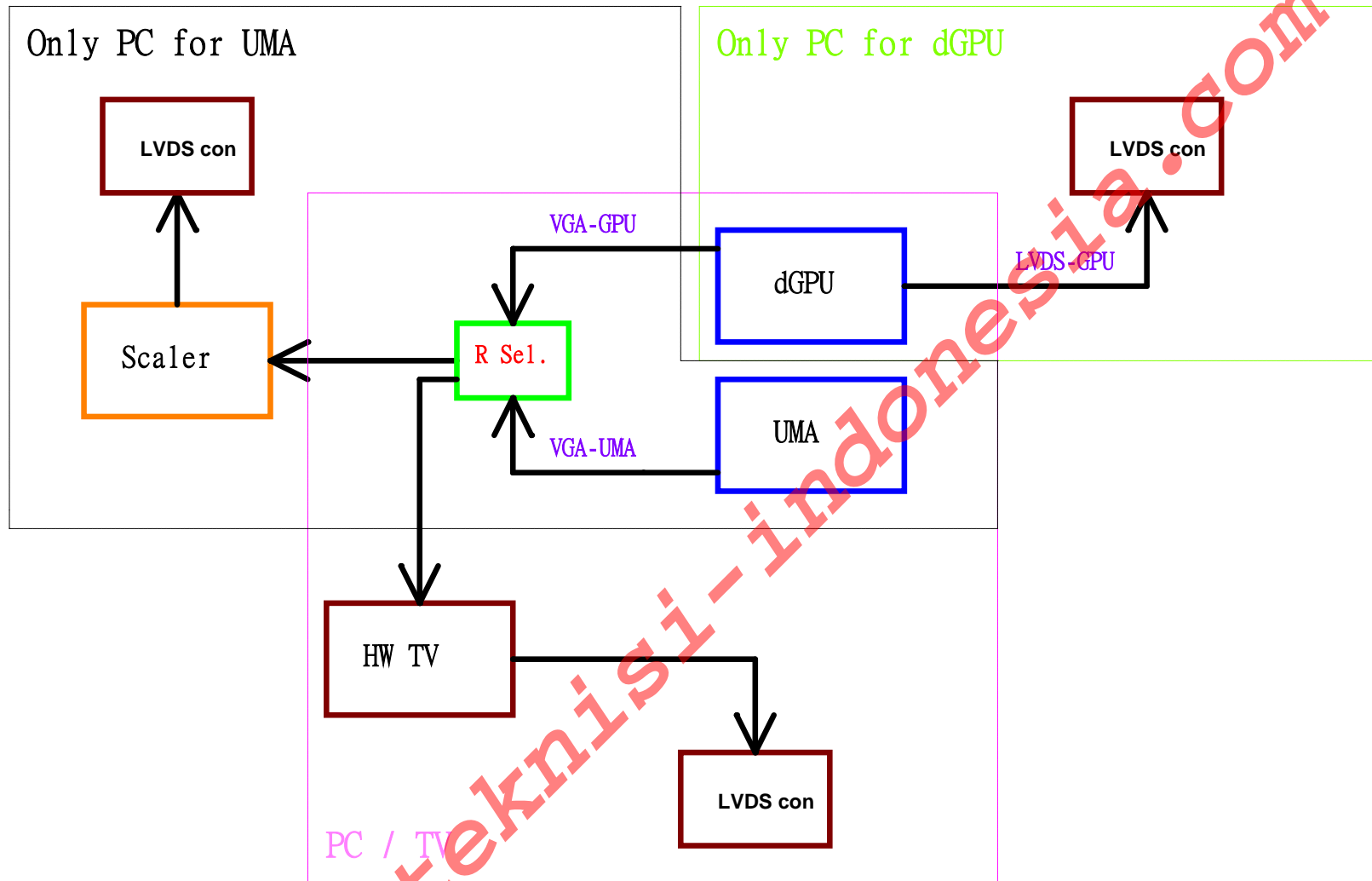
## Optional for HW TV Function



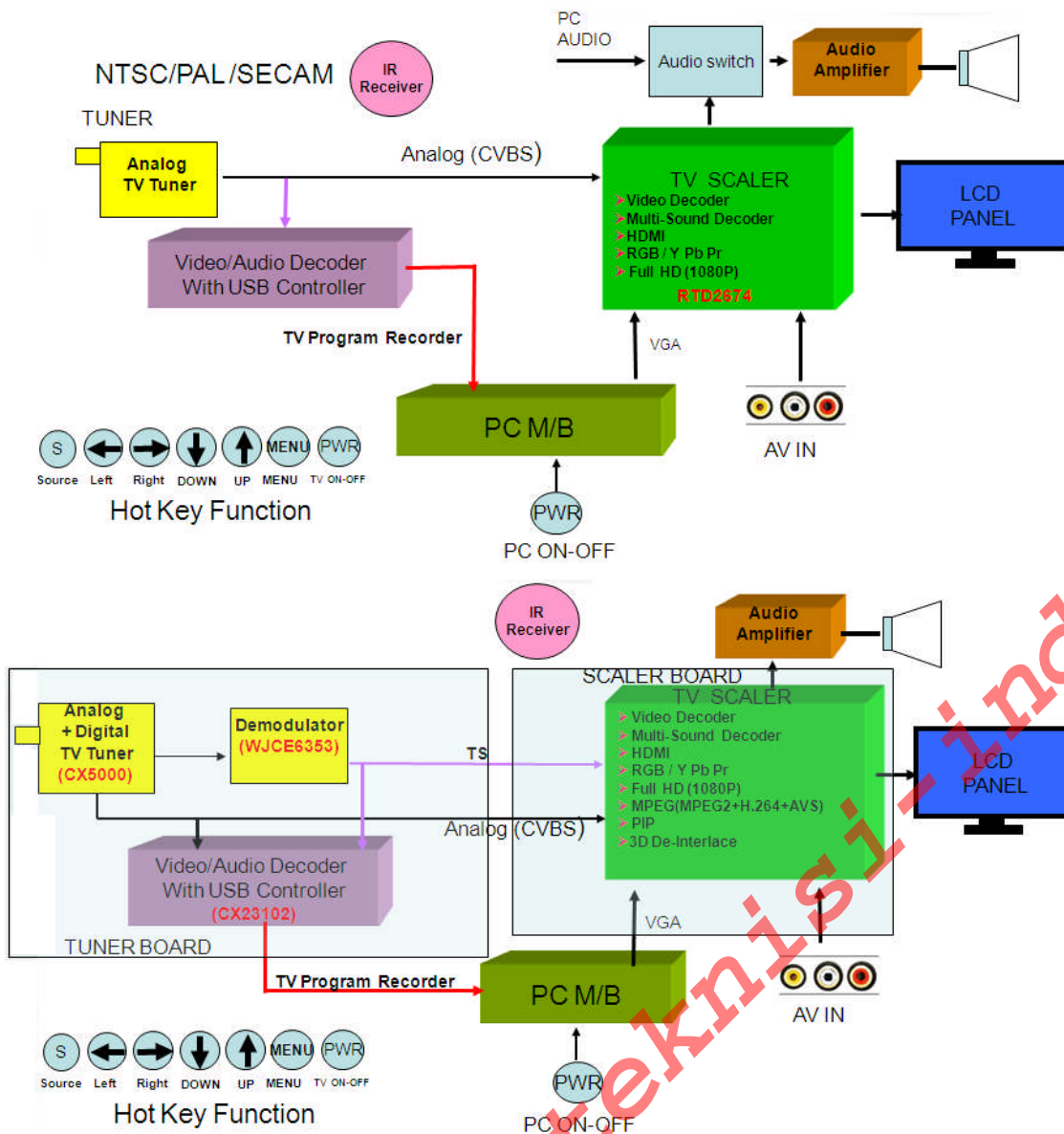
## Audio SW Circuit



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		



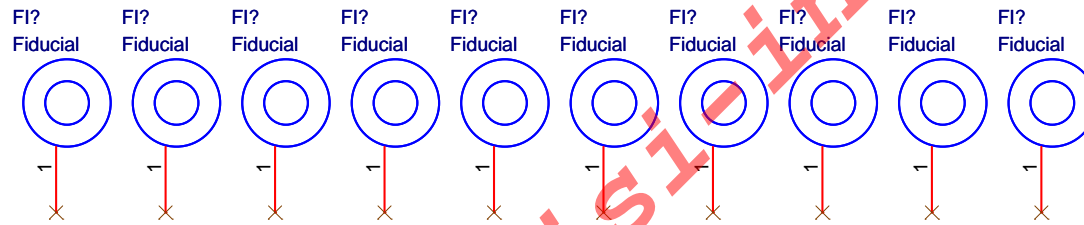
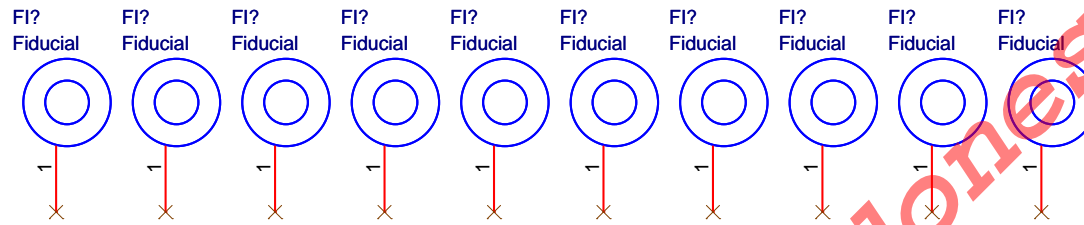
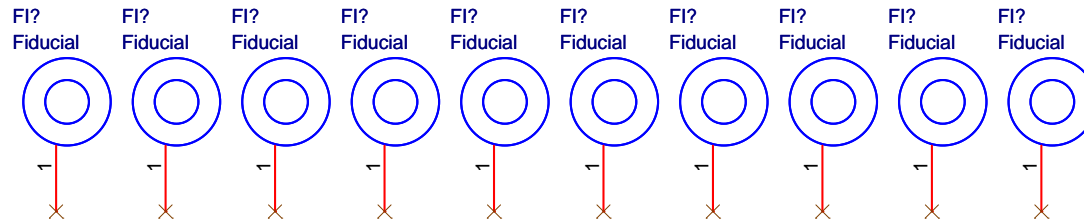
T & I		OEM MODEL	Lenovo B320	Size	A
線路圖編號	6150A0003603	T&I MODEL	B320	Rev	0.3
Key Component	Block_LVDS Diplay Diagram	PCB NAME	6150A0003603	備註	<備註>
Date	Thursday, February 17, 2011	Sheet	52 of 54		



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 SPBC	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	35	
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	38	
MA55	C +3.3VDUAL Solution	Change +3.3VDUAL Power Solution	42	

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	15	
MC14	A discharge circuit	Add PR316,PQ85 for USB power discharge circuit	48	
MC15	A PM_SLP_S3#	Add PM_SLP_S3# to DB1 conn	35	
MC16	A D17,D18	Add D17,D18 for protection design	15	
MC17	C LAN Power circuit	Changel +V3.3_LAN Power solution	47	
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 define	36	
MC22	C VCC1_05_ME to +V3.3S	Change VCC1_05_ME to +V3.3S to solve Power off Sequence (t232)	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 mistake.	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_HPOUT 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 Slove EC can't link with HW TV.	16,36	
MD03	C TVP1 conn	TVP1 conn 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>
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