Kirkini Block Diagram

(Discrete)

Project code: 91.4G801.001
PCB P/N :
REVISION : 05248-SA

CLK GEN.
ICS954305E
(IDT CV155) 3

Mobile CPU
Yonah 478
1.66G/1.83G/2G 4, 5

G791
FAN*2 19

FSB 400/533/667MHz

DDR2
533 MHz 11,12

DDR2
533 MHz 11,12

533/667MHz

533/667MHz

Calistoga
Ver.:A2 :71.945PM.00U / QK46
6,7,8,9,10

PCI E x 16

nVidia
G71M (MXM-3)
(GDDR3 256/512MB)
OR
G72MV/G73M (MXM-2)
(GDDR2 128/256MB)
49

TMDS D HDMI 53
TMDS C DVI 54
LVDS A&B 17" TFT LCD WXGA,WSXGA, WXGA(Dual Lamp) 13
RGB CRT CRT 14
TV-Out TV-Out 14

PCB STACKUP
TOP
VCC
S
S
GND
BOTTOM

X4 DMI

ICH7M
Ver. : B0, 71.ICH7M.A0U / QK65
15,16,17,18

Line In 31
Int. MIC@1 31
Int. MIC@2 31
Codec ALC883 30
AZALIA

Line Out (SPDIF) 31
OP AMP G1421 31
INT.SPKR 31
SUBWF 30
SUBWF TPA6211 31

RJ11
MODEM MDC Card 23

PCI

LAN 24
BCM5788-M
TXFM 25
RJ45 25

TI PCI 7412 26,27
PWR SW TSP2220A 29
MS/MS Pro/xD/ MMC/SD/SDIO 6 in 1 28
PCMCIA Support TypeII 29
1394 CONN 27

Mini-PCI TV Tuner 1.5x 32
Mini-PCI TV Tuner 1.5x 33

RAId 0,1 SI 3512E 20

SATA0
SATA1

SATA0
SATA Bridge ULi M5285
PATA
CDROM 22
1st HD (PATA or SATA) 22
2nd HD SATA only 22

USB
1,2,4,6
7
3
0
5
1
2
3,4
Bluetooth 23
New Card 31
USB Port 4P(1R+3L) 23
Web Camera 13
Mini Card I 28

PCIE

LPC
SIO PC87392 35
KBC KB3910SF 34
PS2
X bus
TPM SLB9635TT1D1 37
LPC DEBUG CONN. 37
PRT
COM1
IR
FIR/CIR TFDU7100 35
Touch Pad 36
INT. KB 36
BIOS MX29LV800 1 Mb 37

Easy Port 4 (124 PIN)

AC IN	RJ45-11	SEARIAL PORT	CRT	PRINTER	PS2	MIC	LINE IN	LINE OUT	TV OUT	DVI	PCIE*2	SMBUS

38, 39

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SYSTEM DC/DC
TPS51120 41

INPUTS	OUTPUTS
DCBATOUT	5V_S5 3D3V_S5

SYSTEM DC/DC
MAX8743EE 42

INPUTS	OUTPUTS
DCBATOUT	1D05V_S0 1D8V_S3

TPS51100 44

1D8V_S3	DDR_VREF_S0

APL5332KAC 44

3D3V_S0	2D5V_S0

APL5912-U 44

1D8V_S3	1D5V_S0

MAXIM CHARGER
MAX8725+Max1773 43

INPUTS	OUTPUTS
DCBATOUT	CHG_PWR 18V 4.0A UP+5V 5V 100mA

CPU DC/DC
ISL6262 39,40

INPUTS	OUTPUTS
DCBATOUT	VCC_CORE_S0 0~1.3V 44A

ATI M54 DC/DC
FAN5234 53

INPUTS	OUTPUTS
DCBATOUT	VGA_CORE_S0

APL5331KAC 44

1D8V_S0	1D2V_S0

<Variant Name>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: BLOCK DIAGRAM
Size: A3 | Document Number: Kirkini | Rev: SA
Date: Monday, February 20, 2006 | Sheet 1 of 56

ICH7M Integrated Pull-up and Pull-down Resistors

ICH7-M EDS 17837 1.5V1

EE_DIN, EE_DOUT, GNT[3:0], GPIO[25], GNT[4]#/GPIO48, GNT[5]#/GPO17, PME#, LAD[3:0]#/FHW[3:0]#, LAN_RXD[2:0] LDRQ[0], LDRQ[1]/GPIO[41], PWRBTN#, TP[3]	ICH7 internal 20K pull-ups
DD[7], DDREQ	ICH7 internal 11.5K pull-downs
ACZ_BIT_CLK, ACZ_RST#, ACZ_SDIN[2:0], ACZ_SDOUT, ACZ_SYNC, DPRSLPVR/GPIO16, EE_CS, SPI_ARB, SPI_CLK, SPKR,	ICH7 internal 20K pull-downs
USB[7:0][P,N]	ICH7 internal 15K pull-downs
SATALED#	ICH7 internal 15K pull-up
LAN_CLK	ICH7 internal 100K pull-down

ICH7M IDE Integrated Series Termination Resistors

DD[15:0], DIOW#, DIOR#, DREQ, DDACK#, IORDY, DA[2:0], DCS1#, DCS3#, IDEIRQ	approximately 33 ohm

ICH7M Functional Strap Definitions

page 16

Signal	Usage/When Sampled	Comment
ACZ_SDOUT	XOR Chain Entrance/ PCIE Port Config bit1, Rising Edge of PWROK	Allows entrance to XOR Chain testing when TP3 pulled low.When TP3 not pulled low at rising edge of PWROK,sets bit1 of RPC.PC(Config Registers: offset 224h)
ACZ_SYNC	PCIE bit0, Rising Edge of PWROK.	Sets bit0 of RPC.PC(Config Registers:Offset 224h)
EE_CS	Reserved	This signal should not be pull high.
EE_DOUT	Reserved	This signal should not be pull low.
GNT2#	Reserved	This signal should not be pull low.
GNT3#	Top-Block Swap Override. Rising Edge of PWROK.	Sampled low:Top-Block Swap mode(inverts A16 for all cycles targeting FWH BIOS space). Note: Software will not be able to clear the Top-Swap bit until the system is rebooted without GNT3# being pulled down.
GNT5#/ GPIO17#, GNT4#/ GPIO48	Boot BIOS Destination Selection. Rising Edge of PWROK.	Controllable via Boot BIOS Destination bit (Config Registers:Offset 3410h:bit 11:10). GNT5# is MSB, 01-SPI, 10-PCI, 11-LPC.
DPRSLPVR	Reserved	This signal should not be pull high.
GPIO25	Reserved. Rising Edge of RSMRST#.	This signal should not be pull low.
INTVRMEN	Integrated VccSus1_05 VRM Enable/Disable. Always sampled.	Enables integrated VccSus1_05 VRM when sampled high
LINKALERT#	Reserved	Requires an external pull-up resistor.
REQ[4:1]#	XOR Chain Selection. Rising Edge of PWROK.	TBD, Chapter 8.
SATALED#	Reserved	This signal should not be pull low.
SPKR	No Reboot. Rising Edge of PWROK.	If sampled high, the system is strapped to the "No Reboot" mode(ICH7 will disable the TCO Timer system reboot feature). The status is readable via the NO REBOOT bit.
TP3	XOR Chain Entrance. Rising Edge of PWROK.	This signal should not be pull low unless using XOR Chain testing.

954305D 27Mhz/LCDCLK Spread and Frequency Selection Table

page 3

SS3 Byte9 bit 7	SS2 bit6	SS1 bit5	SS0 bit4	Spread Amount%
0	0	0	0	-0.50 Down
0	0	0	1	-1.00 Down
0	0	1	0	-1.50 Down
0	0	1	1	-2.00 Down
0	1	0	0	-0.75 Down
0	1	0	1	-1.25 Down
0	1	1	0	-1.75 Down
0	1	1	1	-2.25 Down
1	0	0	0	+-0.25 Center
1	0	0	1	+-0.5 Center
1	0	1	0	+-0.75 Center
1	0	1	1	+-1.0 Center
1	1	0	0	+-0.25 Center
1	1	0	1	+-0.5 Center
1	1	1	0	+-0.75 Center
1	1	1	1	+-1.0 Center

PCI Routing

DEVICE	IDSEL	INT -> PIRQ	REQ/GNT
MiniPCI Slot 1 & Slot 2	AD21	A/C→E B/D→E	REQ1# / GNT1#
Cardbus Controller TI7412	AD22	A→G B→B C→F D→G	REQ0# / GNT0#
RAID	AD20	A→A	REQ3# / GNT3#
LAN	AD23	A→H	REQ2# / GNT2#

Calistoga Strapping Signals and Configuration

EDS 17050 0.71

page 7

Pin Name	Strap Description	Configuration
CFG[2:0]	FSB Frequency Select	001 = FSB533 011 = FSB667 others = Reserved
CFG[4:3]	Reserved	
CFG5	DMI x2 Select	0 = DMI x2 1 = DMI x4 (Default)
CFG6	Reserved	
CFG7	CPU Strap	0 = Reserved 1 =Mobile CPU(Default)
CFG8	Reserved	
CFG9	PCI Express Graphics Lane Reversal	0 = Reverse Lanes,15->0,14->1 ect.. 1= Normal operation(Default):Lane Numbered in order
CFG[11:10]	Reserved	
CFG[13:12]	XOR/ALL Z test straps	00 = Reserved 01 = XOR mode enabled 10 = All Z mode enabled 11 = Normal Operation (Default)
CFG[15:14]	Reserved	Reserved
CFG16	FSB Dynamic ODT	0 = Dynamic ODT Disabled 1 = Dynamic ODT Enabled (Default)
CFG17	Global R-comp Disable (All R-comps)	0 = All R-comp Disable 1 = Normal Operation (Default)
CFG18	VCC Select	0 = 1.05V (Default) 1 = 1.5V
CFG19	DMI Lane Reversal	0 = Normal operation (Default):lane Numbered in order 1 =Reverse Lane,4->0,3->1 ect...
CFG20	SDVO/PCIE Concurrent	0 = Only SDVO or PCIE x1 is operational (Default) 1 =SDVO and PCIE x1 are operating simultaneously via the PEG port
SDVOCRTL_DATA	SDVO Present	0 = No SDVO Card present (Default) 1= SDVO Card present

NOTE: All strap signals are sampled with respect to the leading edge of the Calistoga GMCH PWORK in signal.

History

<Variant Name>

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: Reference

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 2 of 56

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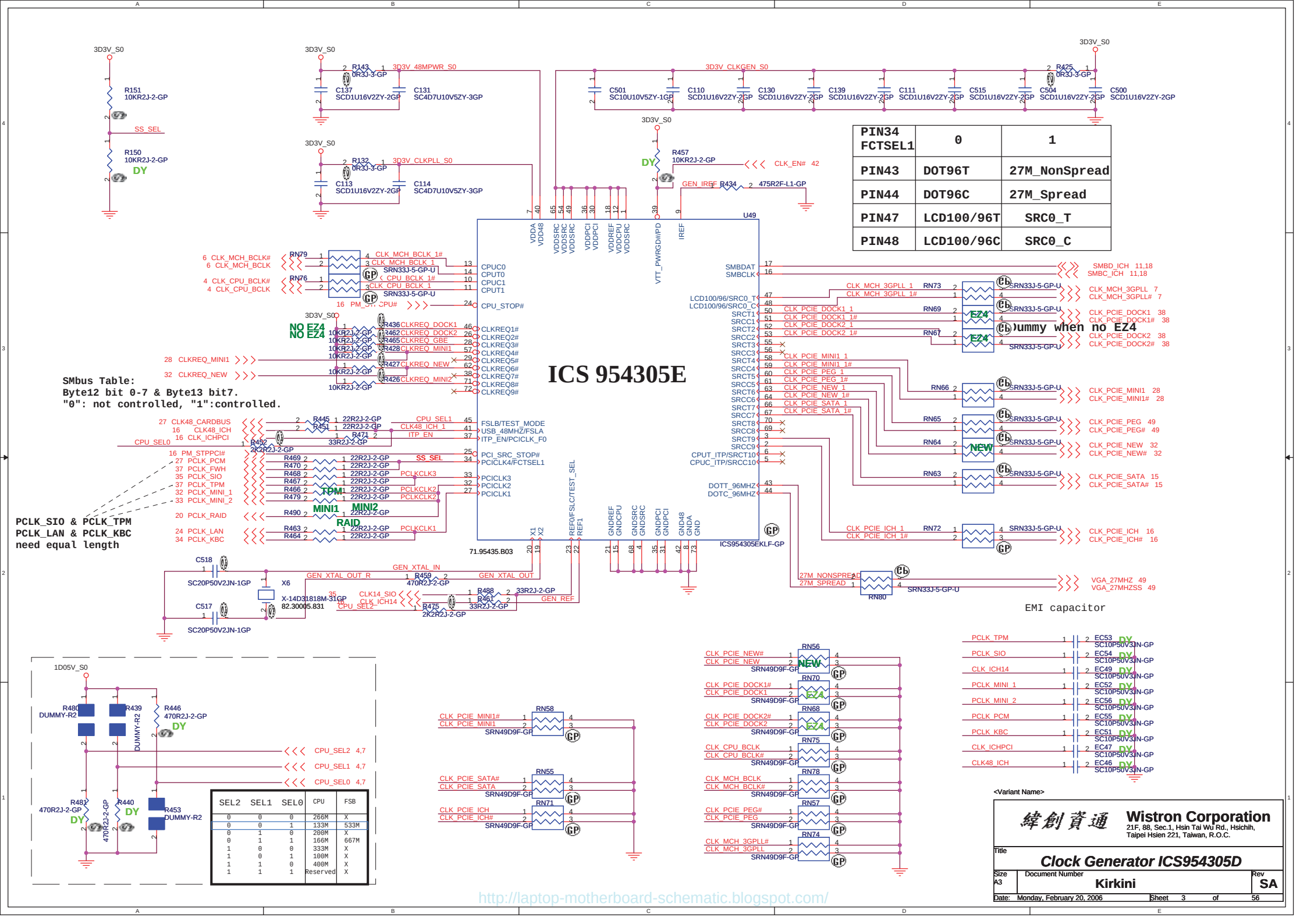
ICS 954305E
U49
ICS954305EKLF-GP
71.95435.B03
SMBus Table:
Byte12 bit 0-7 & Byte13 bit7.
"0": not controlled, "1":controlled.
PCLK_SIO & PCLK_TPM
PCLK_LAN & PCLK_KBC
need equal length
NO EZ4
NO EZ4
TPM
MINI1
MINI2
RAID
EZ4
EZ4
EZ4
NEW
NEW
DY
Dummy when no EZ4
EMI capacitor
PIN34 FCTSEL1 | 0 | 1
PIN43 | DOT96T | 27M_NonSpread
PIN44 | DOT96C | 27M_Spread
PIN47 | LCD100/96T | SRC0_T
PIN48 | LCD100/96C | SRC0_C
SEL2 SEL1 SEL0 | CPU | FSB
0 0 0 | 266M | X
0 0 1 | 133M | 533M
0 1 0 | 200M | X
0 1 1 | 166M | 667M
1 0 0 | 333M | X
1 0 1 | 100M | X
1 1 0 | 400M | X
1 1 1 | Reserved | X
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Clock Generator ICS954305D
Size A3
Document Number
Kirkini
Rev SA
Date: Monday, February 20, 2006
Sheet 3 of 56
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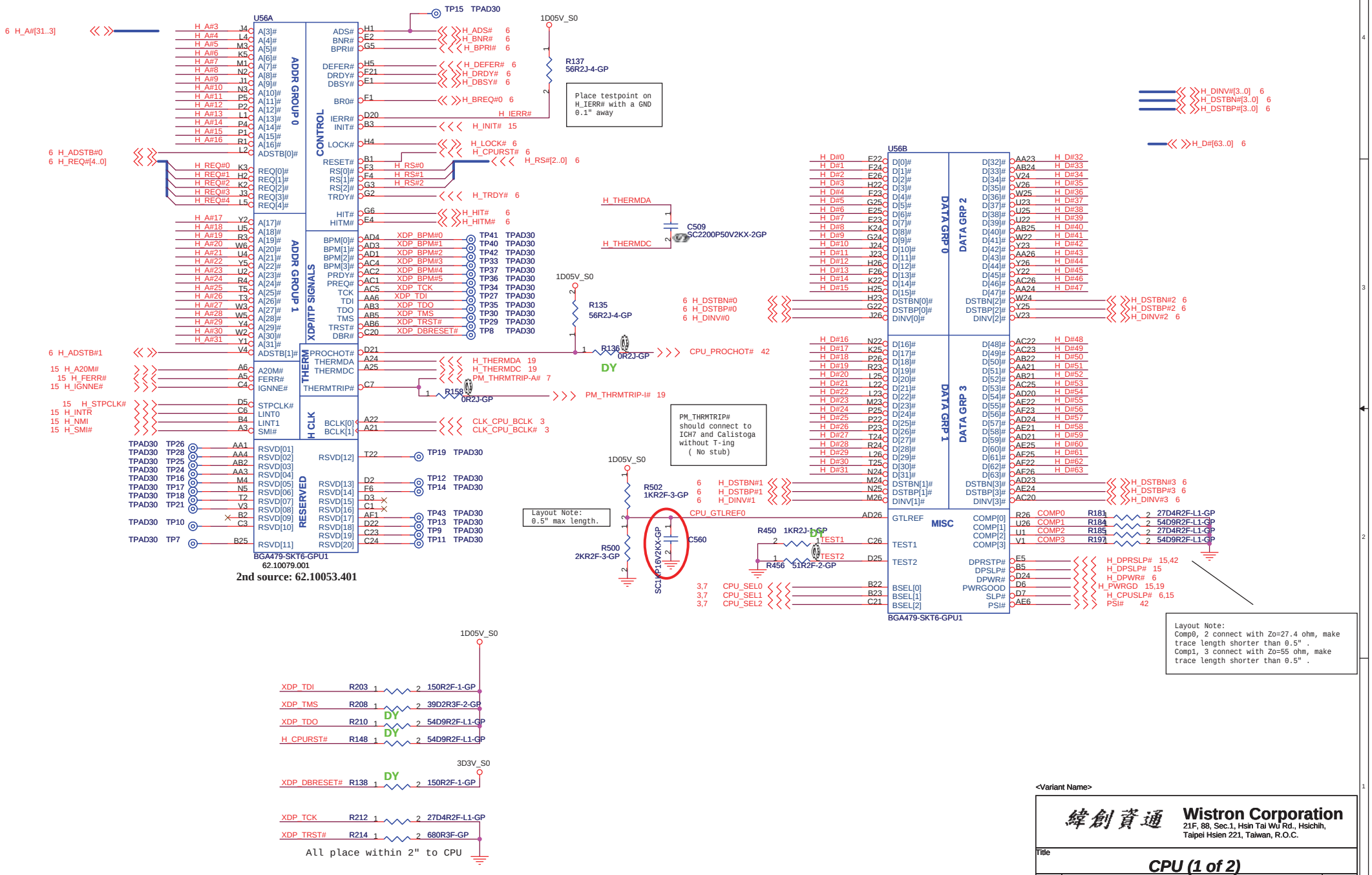

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Wistron Corporation
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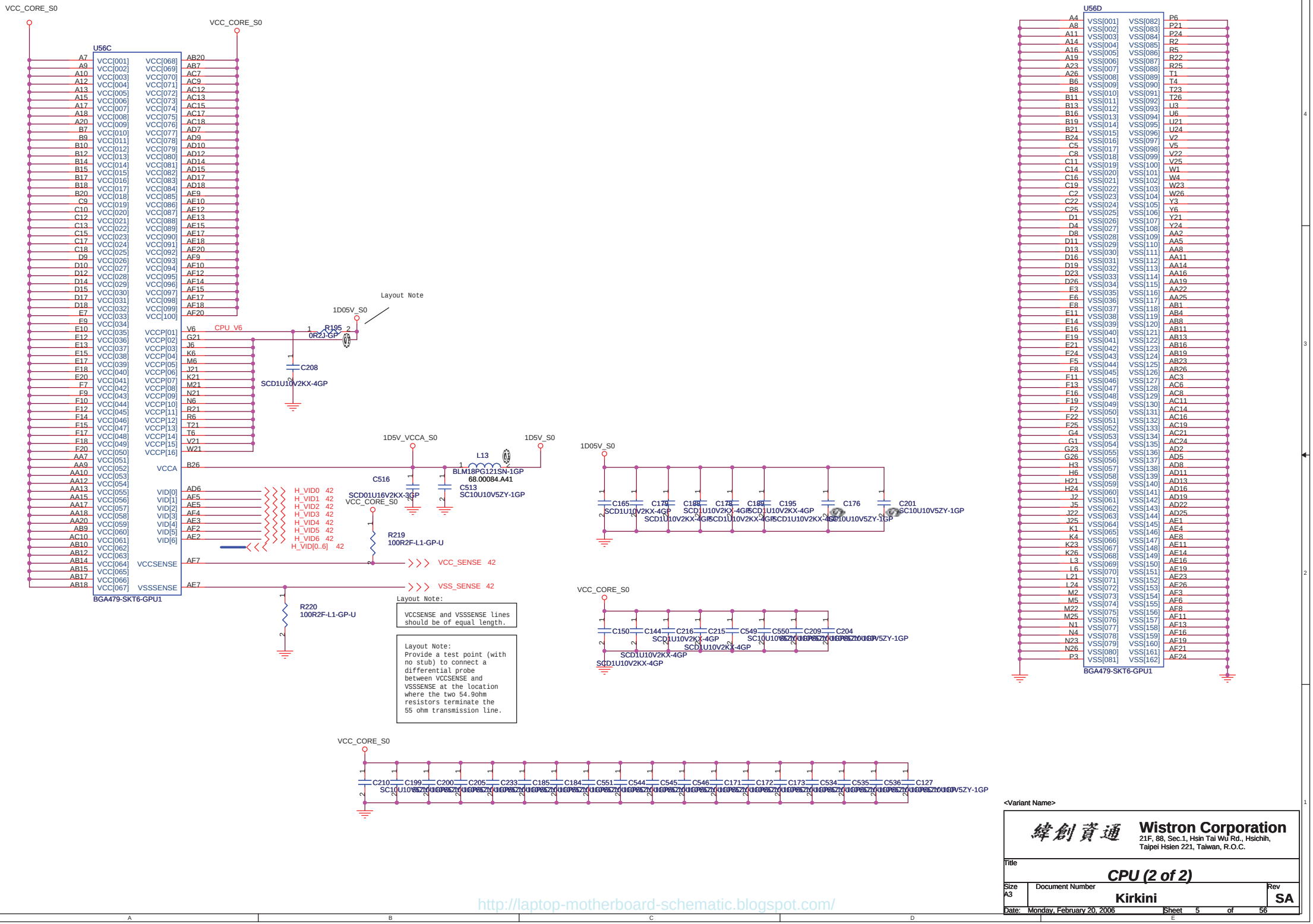
Title: CPU (1 of 2)

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 4 of 56



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<Variant Name>

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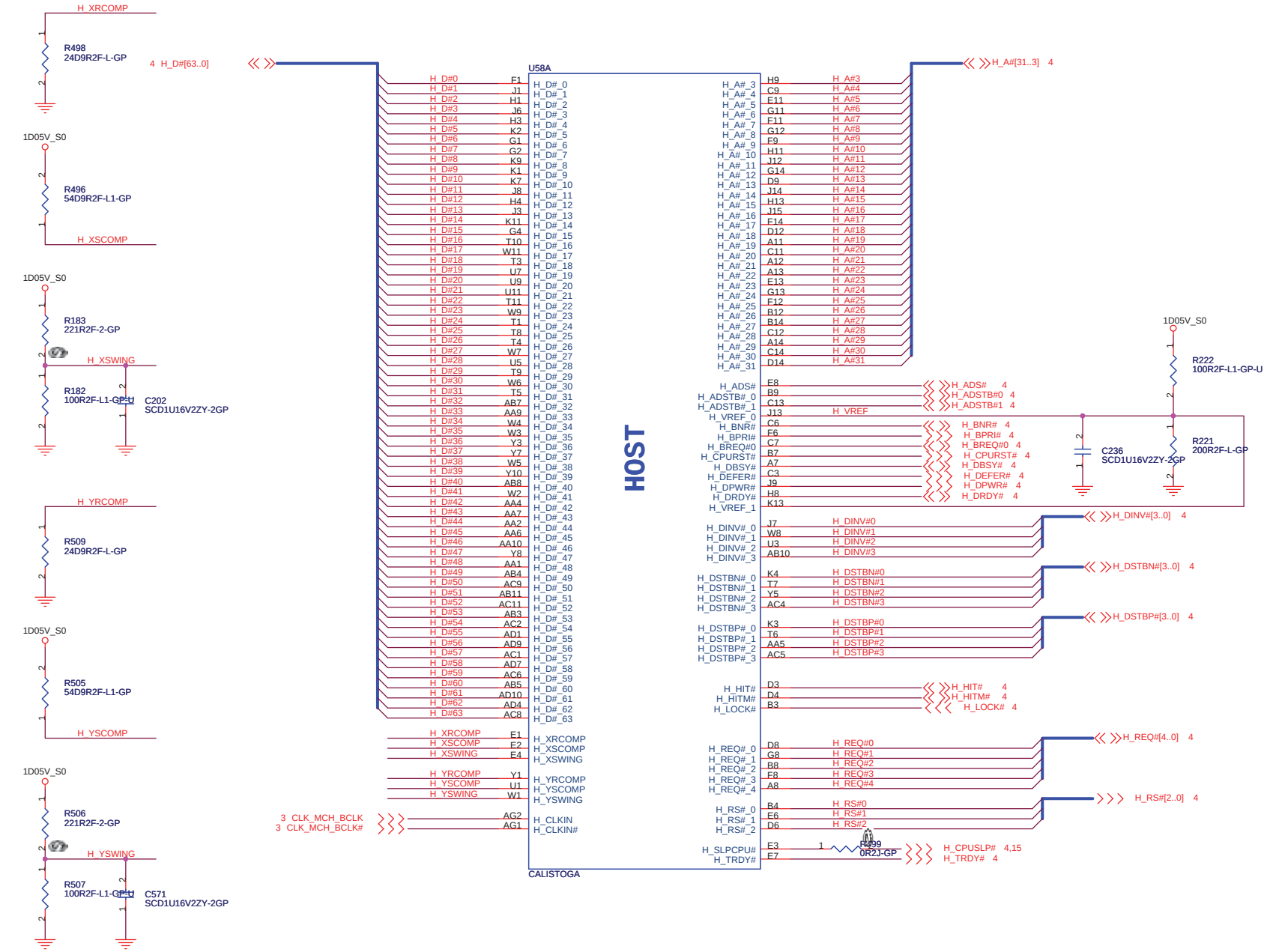
Title: CPU (2 of 2)

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 5 of 56



Place them near to the chip (< 0.5")

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<Variant Name>

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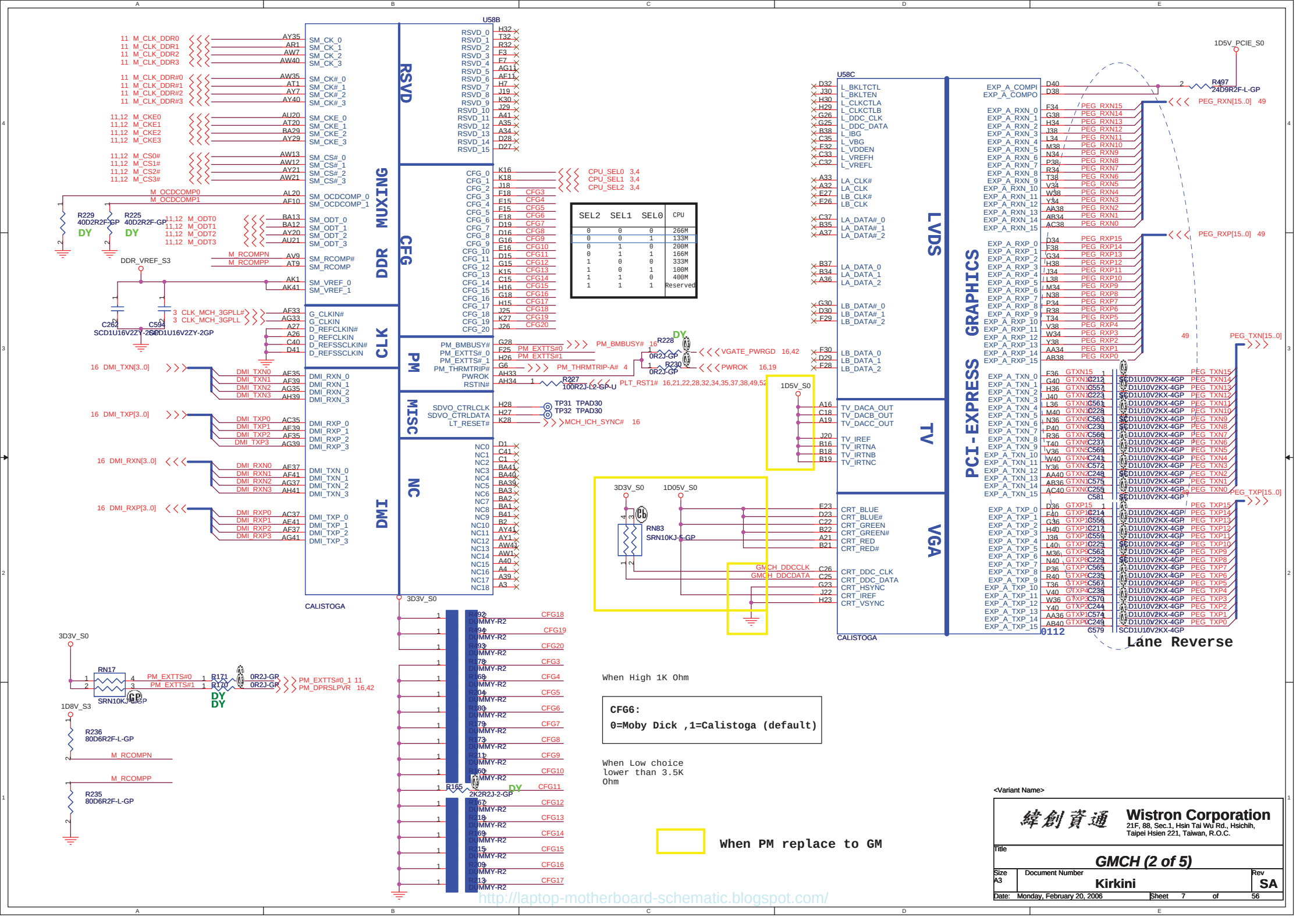
Title: ***GMCH (1 of 5)***

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 6 of 56



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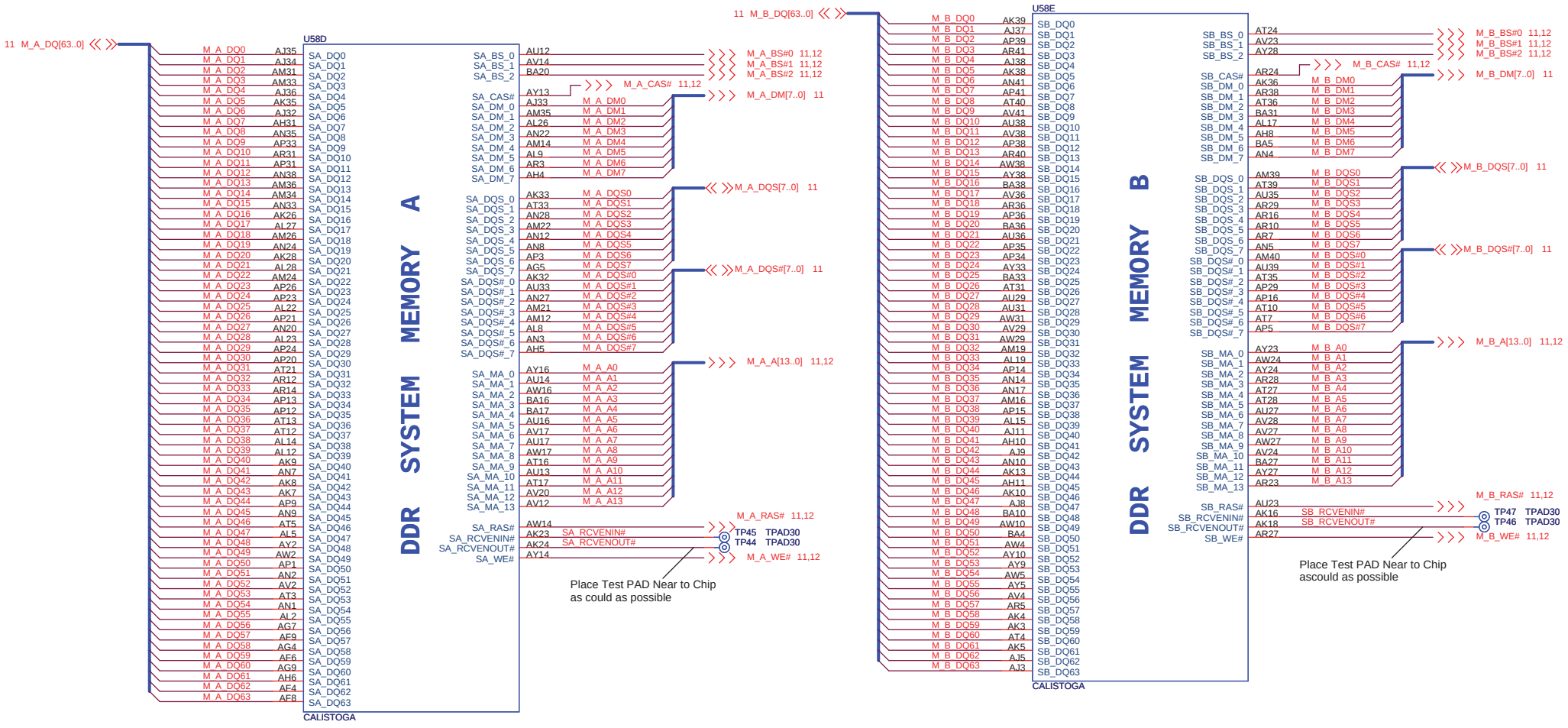

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<Variant Name>

緯創資通 **Wistron Corporation**
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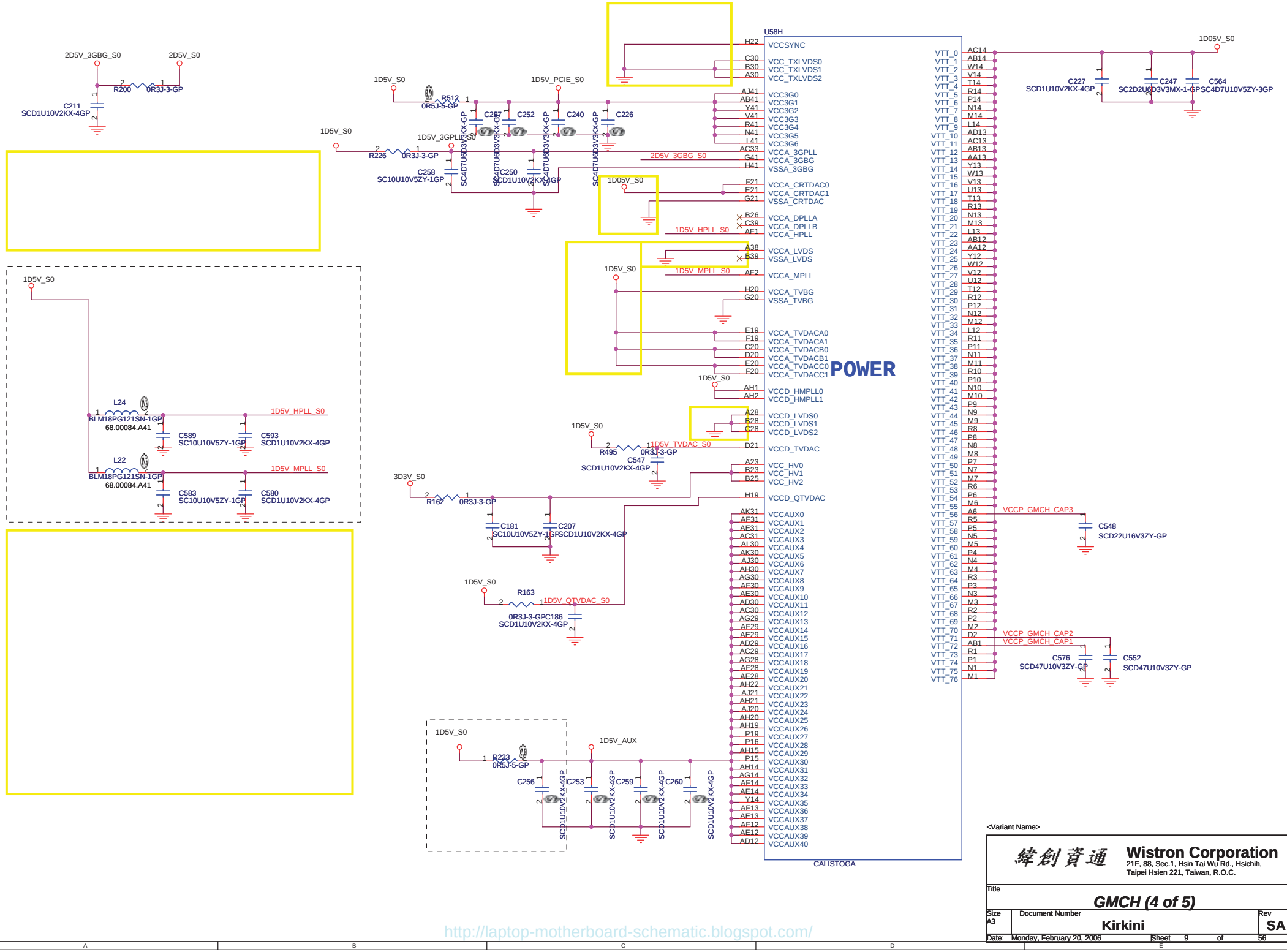
Title: **GMCH (3 of 5)**

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 8 of 56



<Variant Name>

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: **GMCH (4 of 5)**

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 9 of 56

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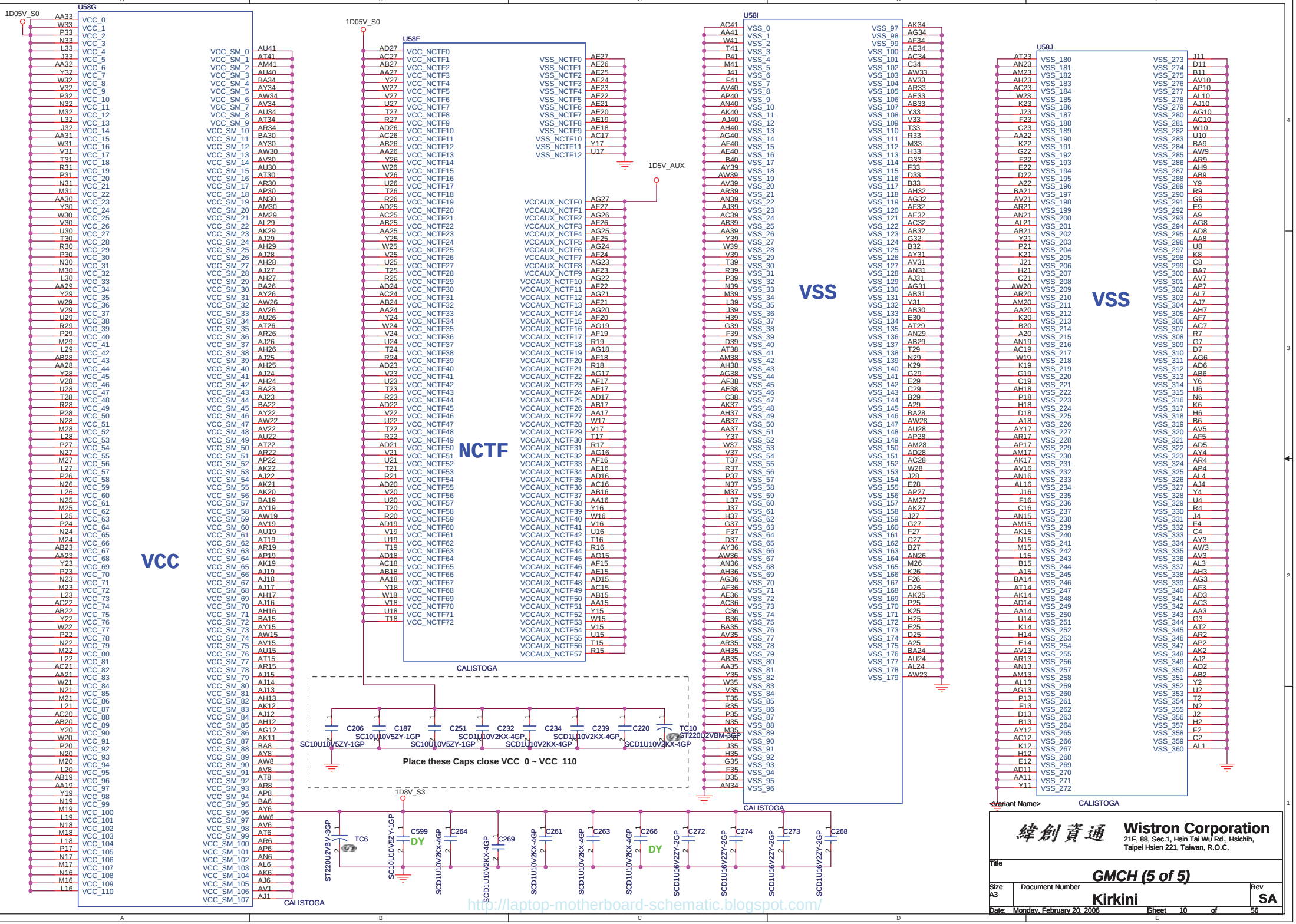
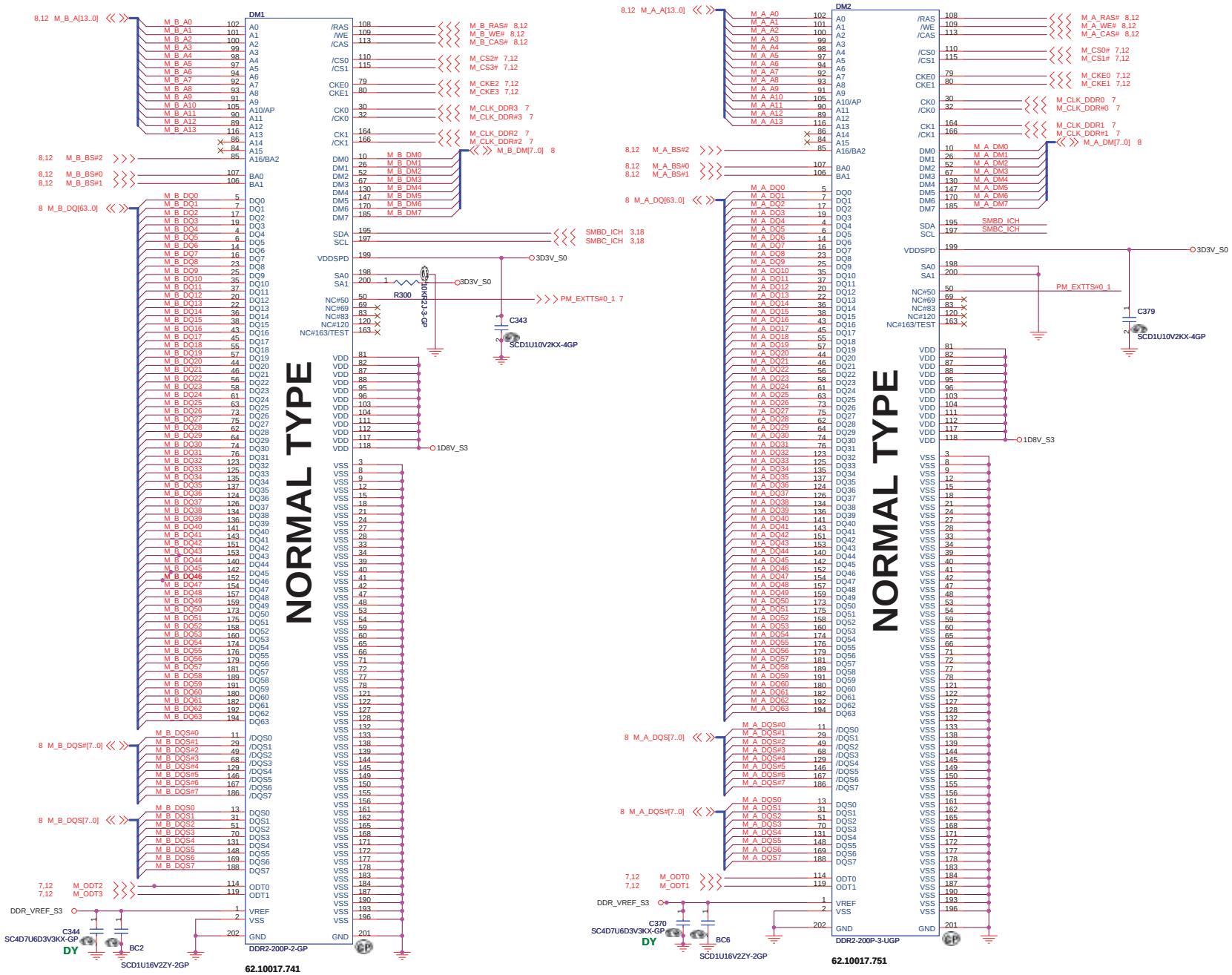


http://laptop-motherboard-schematic.blogspot.com/

Company	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	GMCH (5 of 5)
Size	A3
Document Number	Kirkini
Rev	SA
Date	Monday, February 20, 2006
Sheet	10 of 56



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<Core Design>

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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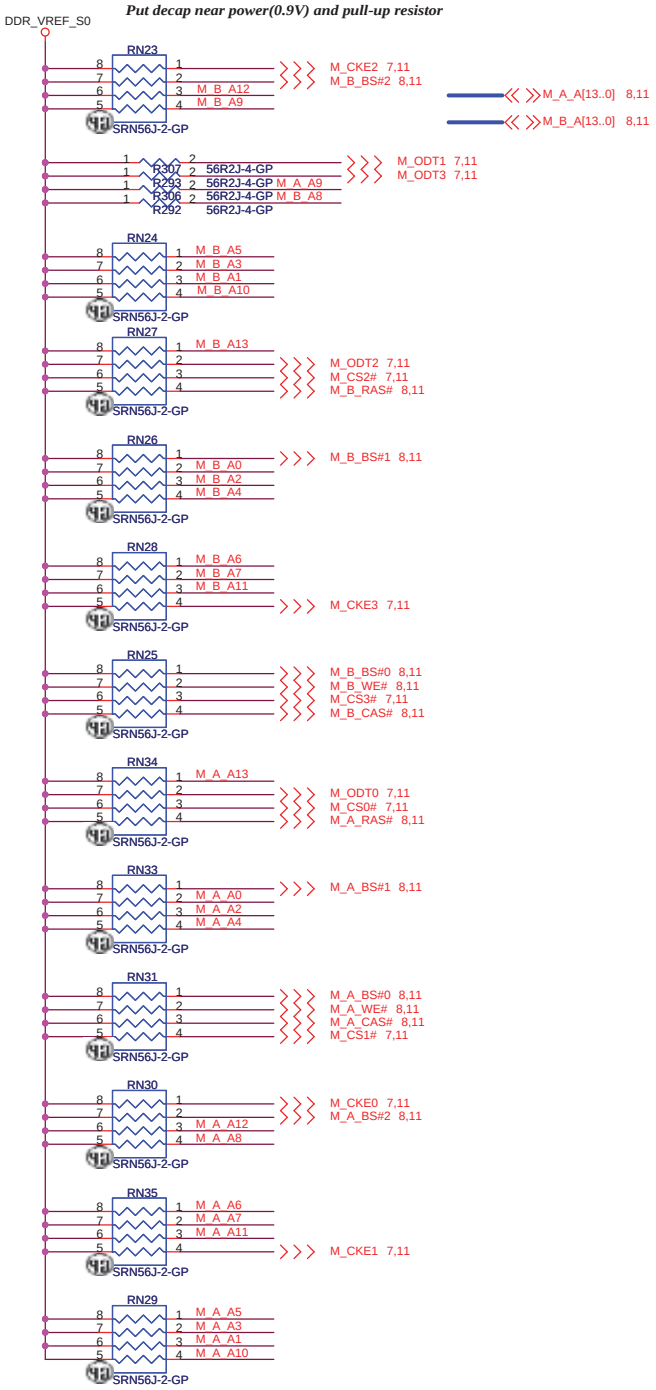
Title: DDR Socket

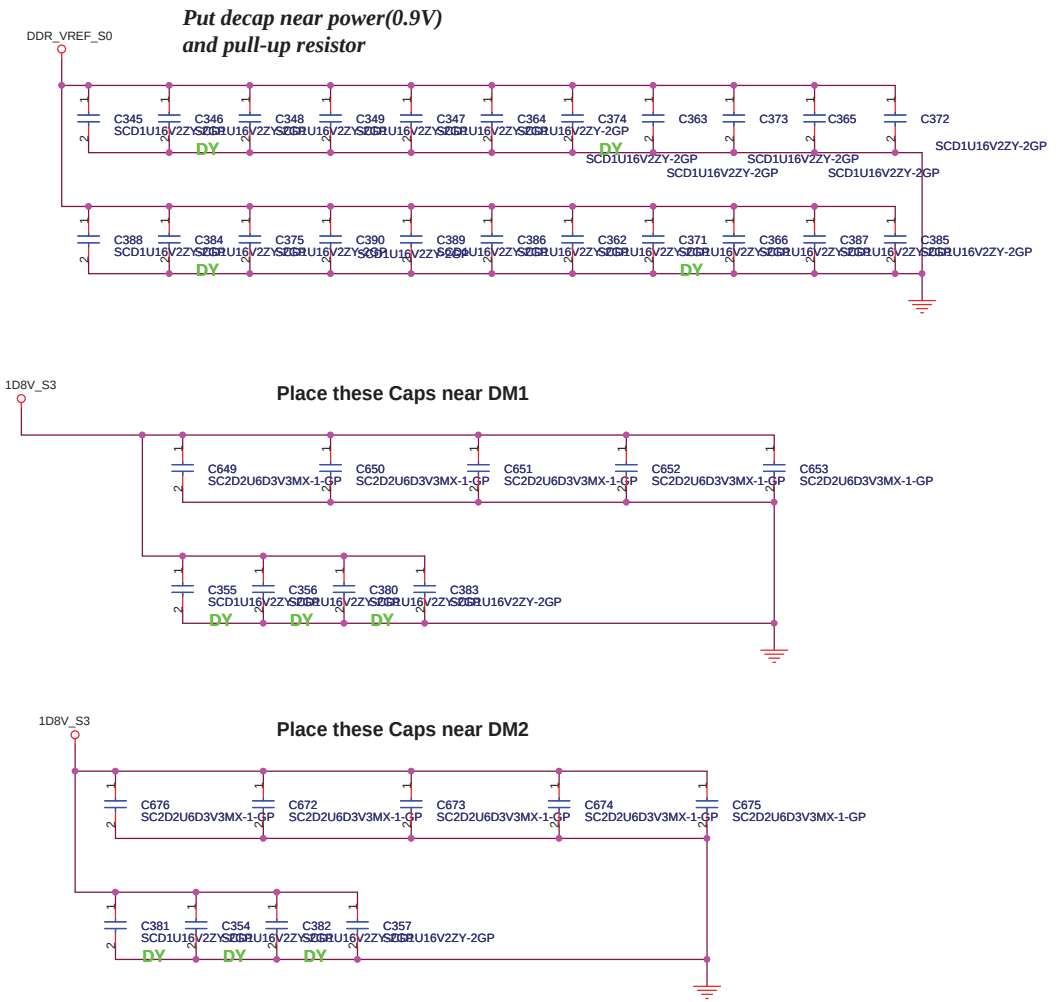
Size: Custom | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 11 of 56

PARALLEL TERMINATION



Decoupling Capacitor



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<Variant Name>

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Title: ***DDR2 Termination Resistor***

Size	Document Number	Rev
A3	Kirkini	SA

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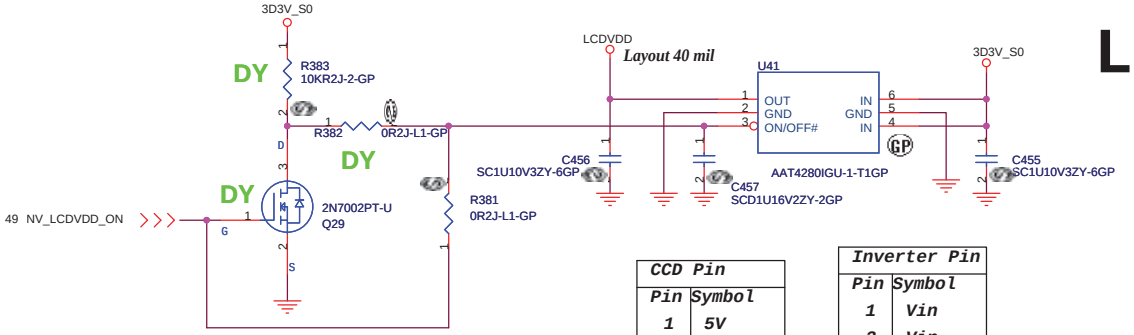
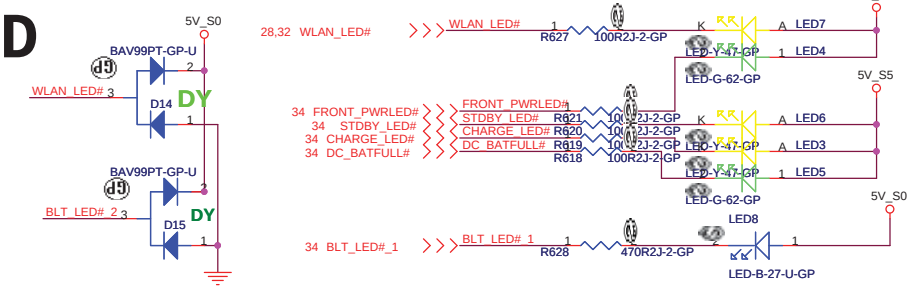


LED

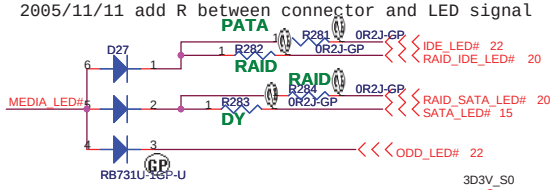


CCD Pin	
Pin	Symbol
1	5V
2	USB-
3	USB+
4	GND
5	GND

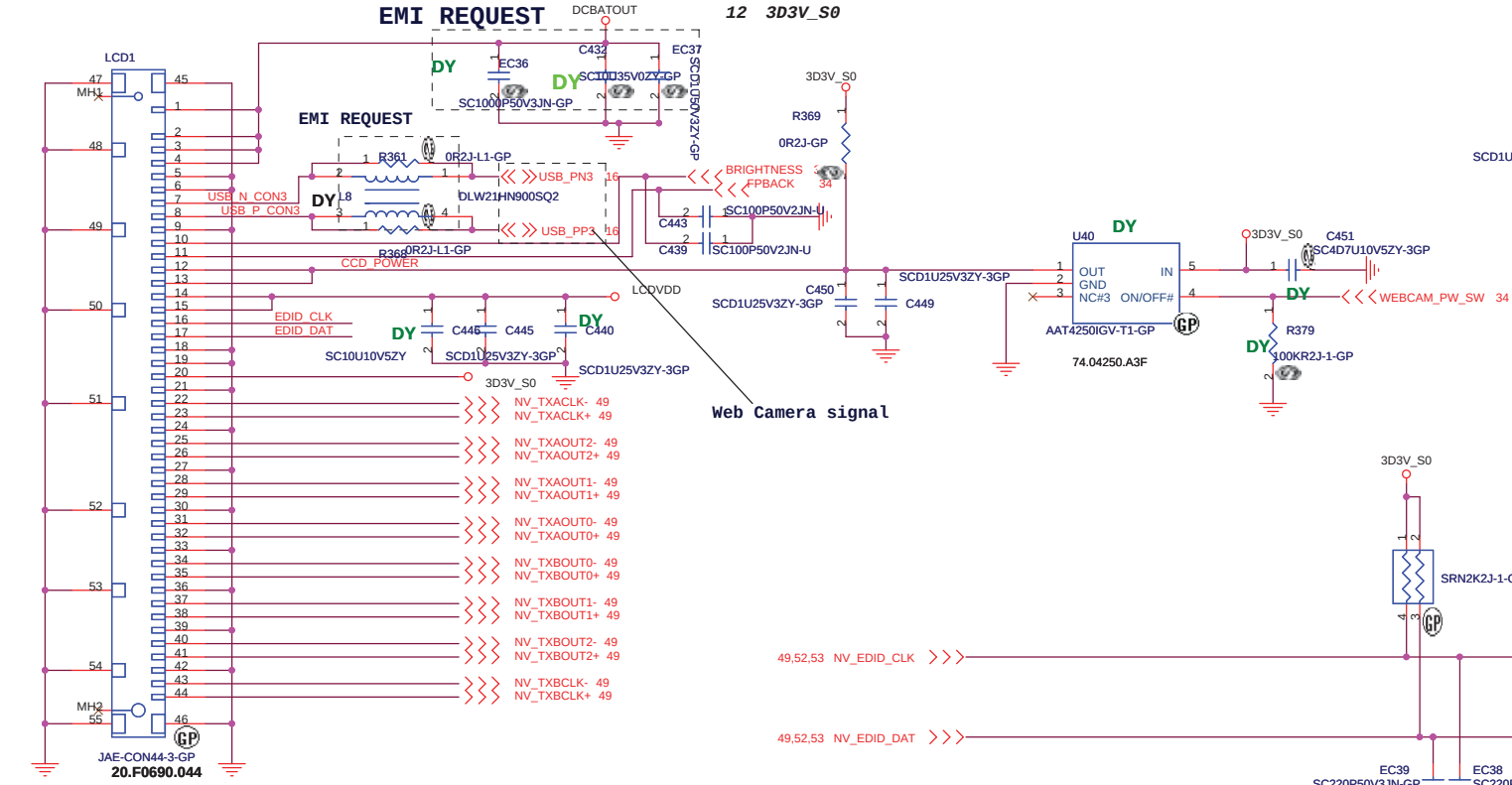
Inverter Pin	
Pin	Symbol
1	Vin
2	Vin
3	PWM
4	BLON
5	GND
6	GND

LED BD CONN

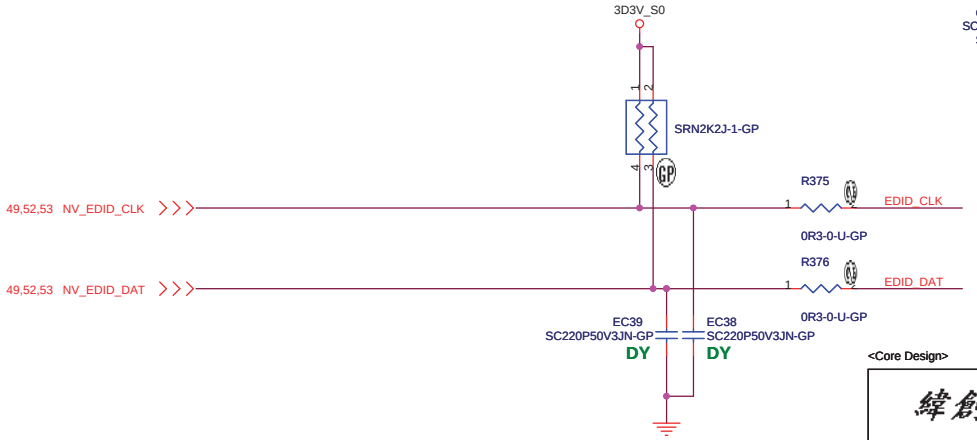
2005/11/11 add R between connector and LED signal

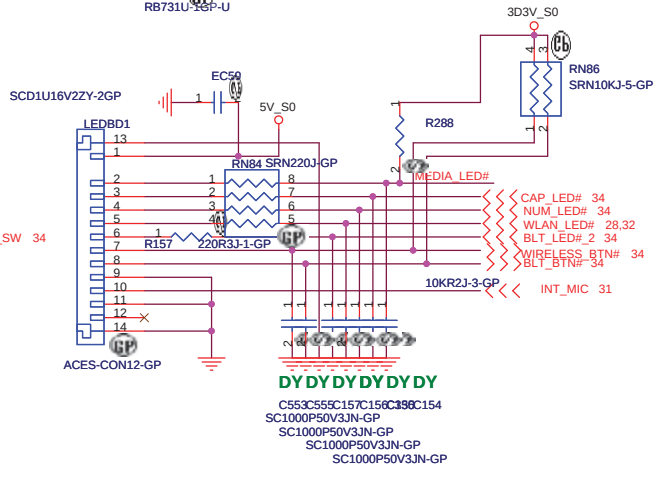


LCD/INVERTER CONN



refer Myall-SA LCD CONN





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<Core Design>

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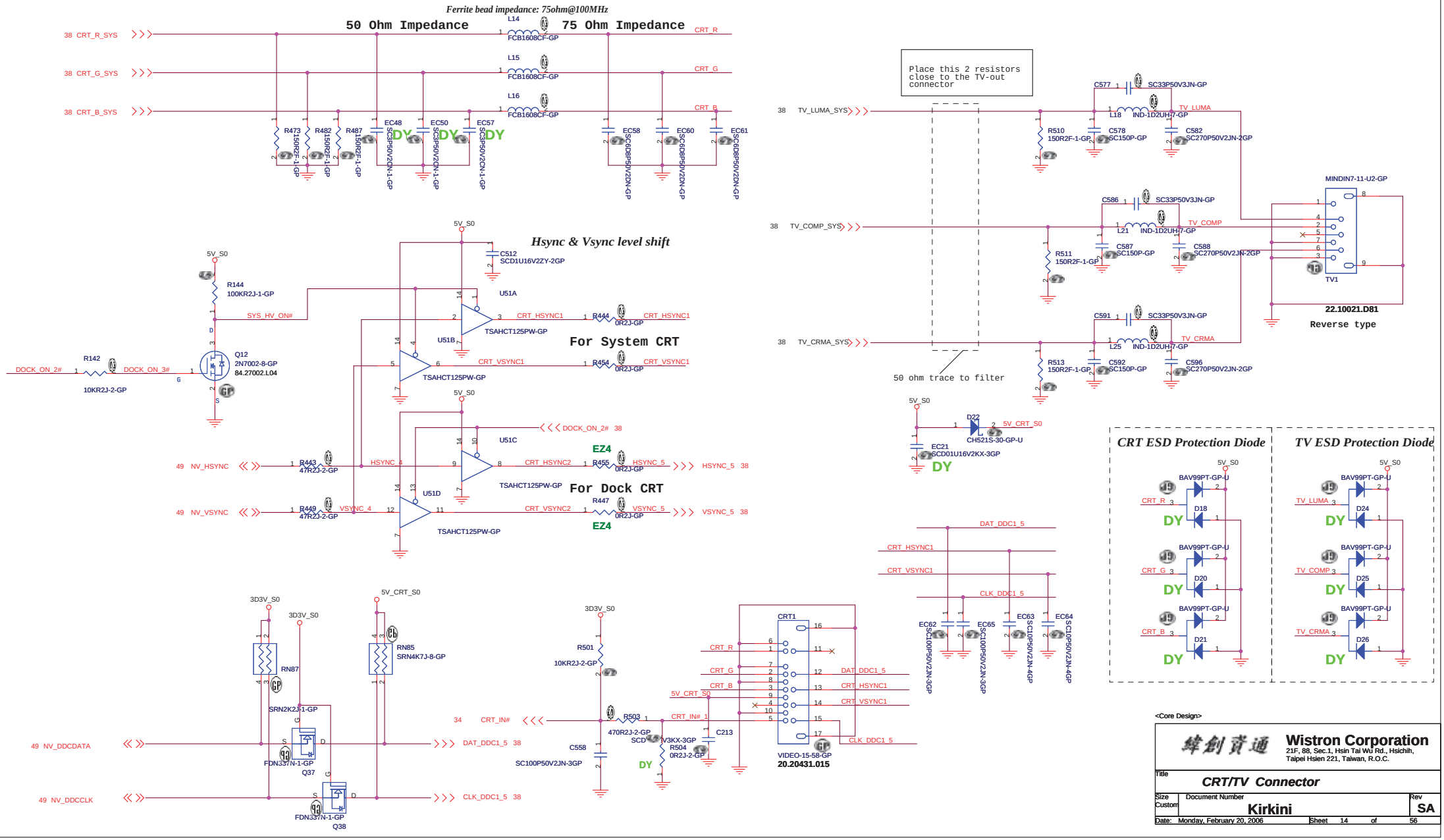
Title: LCD CONN & LED

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 13 of 56

CRT CONNECTOR

TV CONNECTOR



<Core Design>

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CRT/TV Connector

Size: Custom | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 14 of 56

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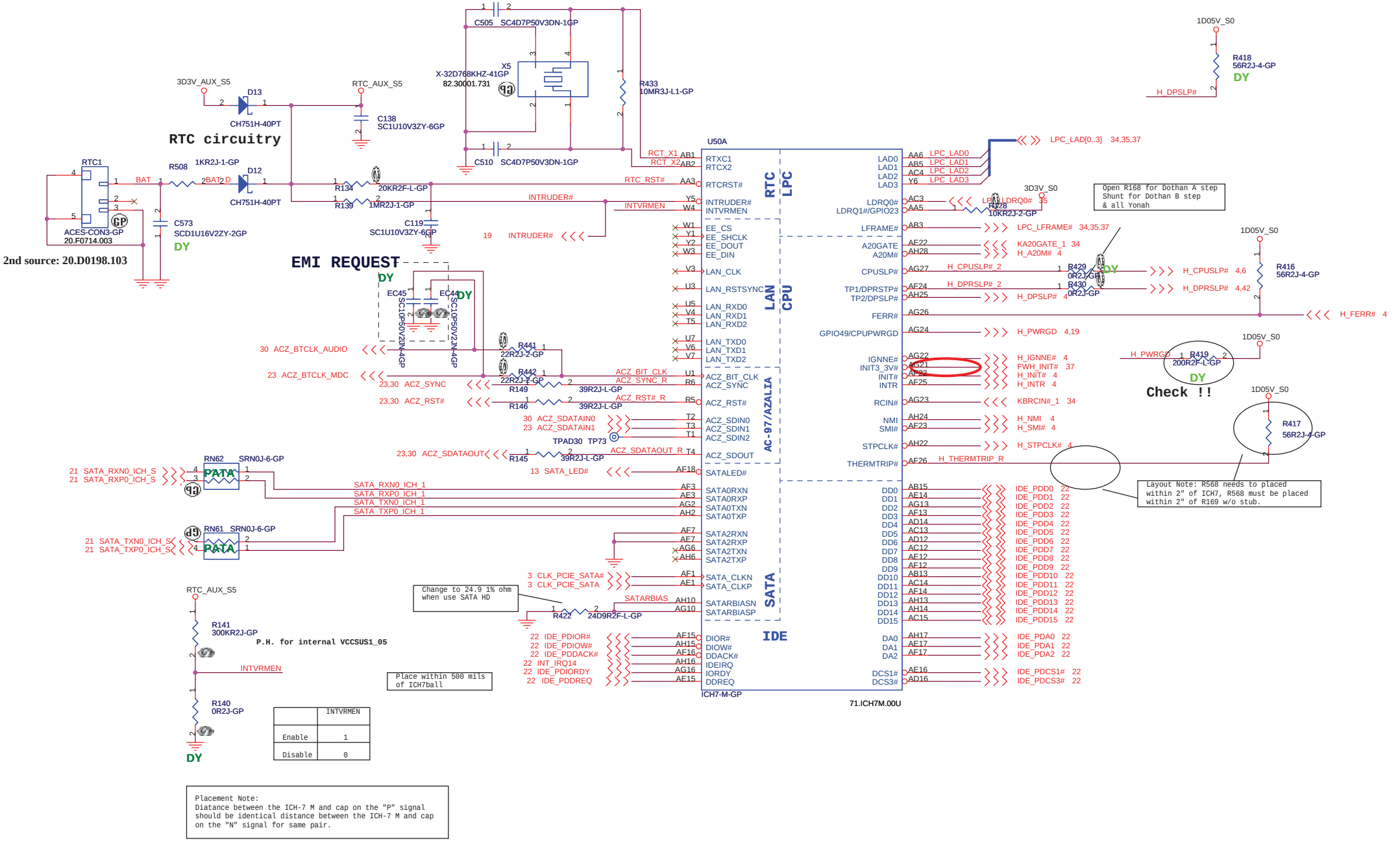

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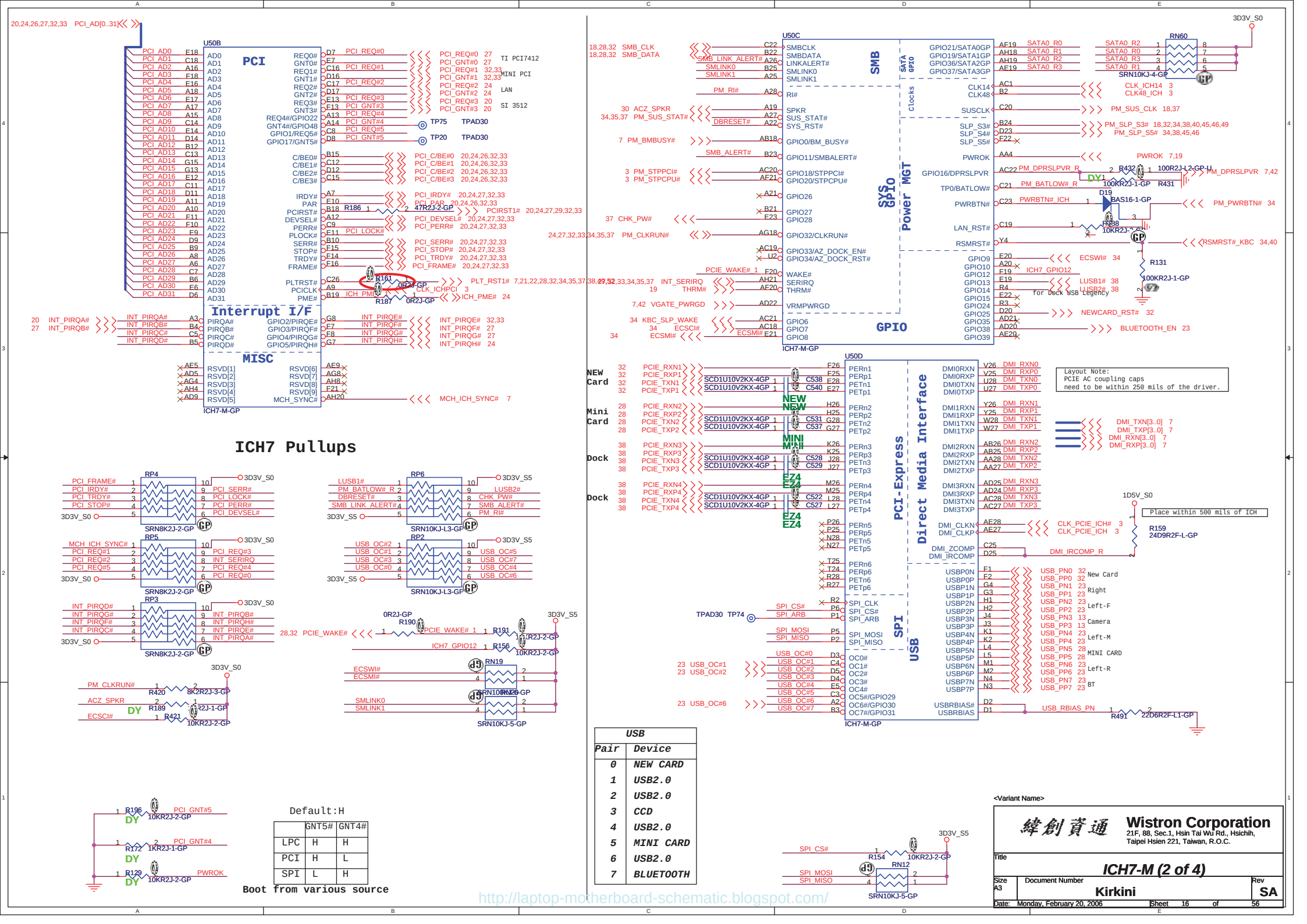

USB	
Pair	Device
0	NEW CARD
1	USB2.0
2	USB2.0
3	CCD
4	USB2.0
5	MINI CARD
6	USB2.0
7	BLUETOOTH

	GNT5#	GNT4#
LPC	H	H
PCI	H	L
SPI	L	H

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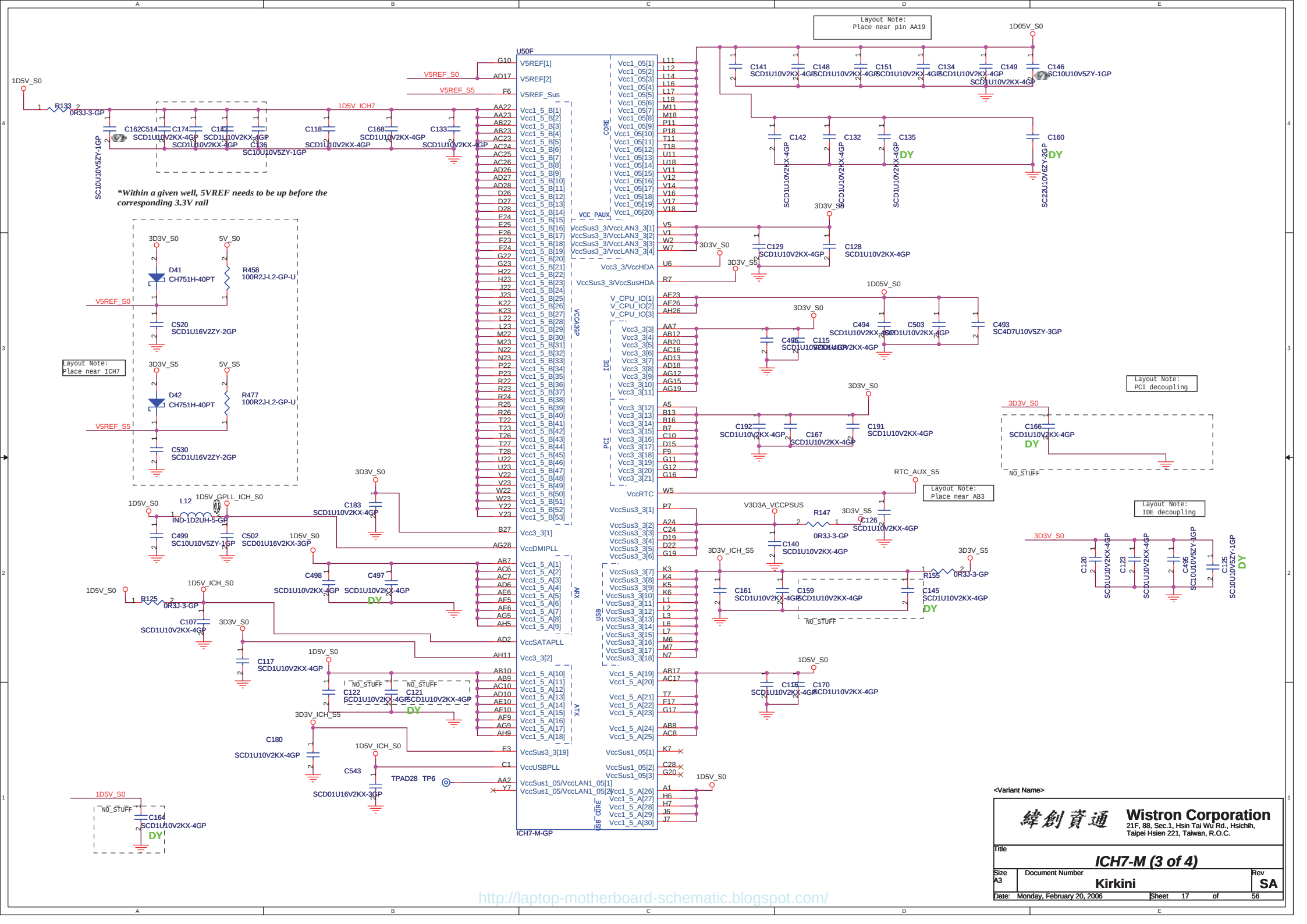
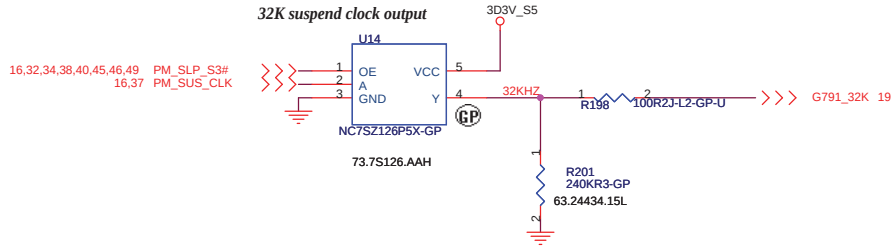
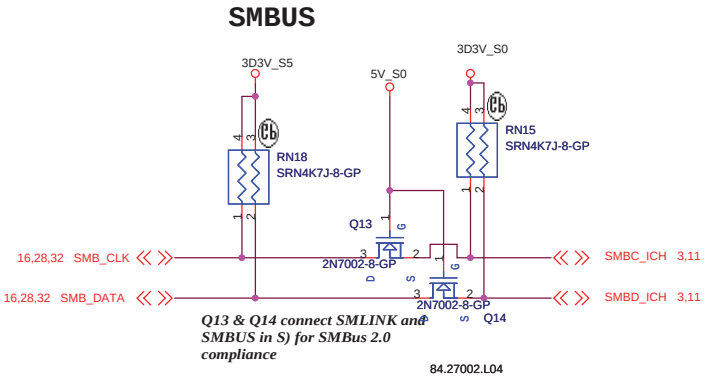
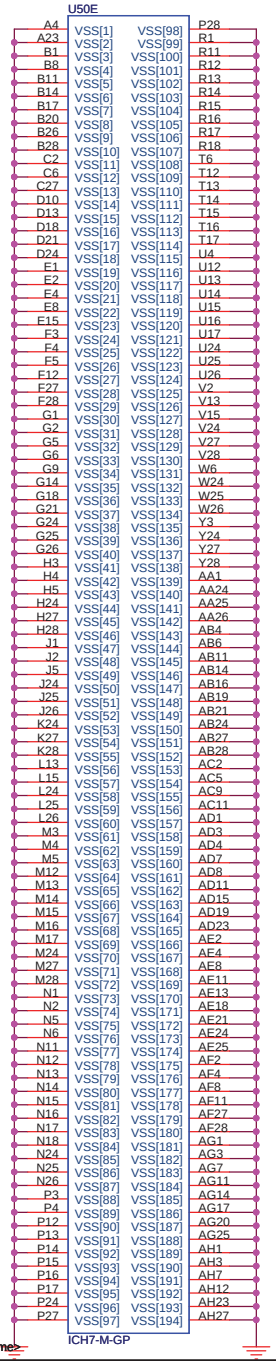

U50F
ICH7-M-GP
*Within a given well, 5VREF needs to be up before the corresponding 3.3V rail
Layout Note: Place near pin AA19
Layout Note: Place near ICH7
Layout Note: PCI decoupling
Layout Note: Place near AB3
Layout Note: IDE decoupling
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title
ICH7-M (3 of 4)
Size A3
Document Number
Kirkini
Rev SA
Date: Monday, February 20, 2006
Sheet 17 of 56
http://laptop-motherboard-schematic.blogspot.com/







<Variant Name>

緯創資通	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title: ICH7-M (4 of 4)		
Size: A3	Document Number: Kirkini	Rev: SA
Date: Monday, February 20, 2006	Sheet 18 of 56	

http://laptop-motherboard-schematic.blogspot.com/

G791 Thermal sensor & Fan controller

Layout 15 mil
FAN1_VCC
C193 SCD1U16V2ZY-2GP
C196 SC10U10V5ZY-1GP
D17 BAT54-4-GP
C194 SC2200P50V2KX-2GP
DY

Layout 15 mil
FAN2_VCC
C153 SCD1U16V2ZY-2GP
C147 SC10U10V5ZY-1GP
D16 BAT54-4-GP
C152 SC2200P50V2KX-2GP
DY

Layout 30 mil

5V_S0
R177 200R2F-L-GP
5V_G791_S0
C198 SC10U10V5ZY-1GP
R176 10KR2J-3-GP
C163 SC10U10V5ZY-1GP
C169 SCD1U16V2ZY-2GP
C175 SCD1U16V2ZY-2GP
V_DEGREE

Setting T8 as
125 Degree

V_DEGREE
=(((Degree-72)*0.02)+0.34)*VCC

R175 49K9R2F
DY

U12
G791SFUF-GP
VCC
DVCC
FAN1
FAN2
FG1
FG2
RESET#
THERM_SET
THERM#
ALERT#
SCL
SDA
CLK
DXP1
DXP2
DXP3
SGND
SGND
SGND
DGND

SMB_CLK_W
SMB_DATA_W
SMB_CLK_W 34,38
SMB_DATA_W 34,38
G791_32K 18

HW_SHUT#
THRM# 1

GAP-CLOSE G1
GAP-CLOSE G2

VGA_THERMDA 49
VGA_THERMDC 49
H_THERMDA 4
H_THERMDC 4

for VGA shudown

SYS_THERMDA
SYS_THERMDC
SC470P50V2KX-3GP C554
Q39 PMBS3904-1-GP
Place near Q6 as close as possible

for SYSTEM

DXP1:108 Degree
DXP2:H/W Setting
DXP3:88 Degree

3D3V_S0
R153 10KR2J-3-GP
R152 0R2J-GP
THRM# 16

7,16 PWROK
C197 SC2200P50V2KX-2GP
DY
R174 10KR2J-3-GP
G792_RESET#
4K7R2J-2-GP R166

5V_S0
C20 SCD1U16V3KX-3GP
R20 10KR2J-3-GP
C602
R514 10KR2J-3-GP
C19 SC100P50V2JN-3GP
C604 SC100P50V2JN-3GP

FAN1_VCC
FAN1 20.F0714.003 ACES-CON3-GP
FAN2
MLX-CON3-9-GP 20.D0198.103
FAN2_VCC
Layout 15 mil

PURE_HW_SHUTDOWN#
HW_SHUT#
R118 0R2J-GP
HW_SHUT# 1

D10 BAW56PT-U
3D3V_AUX_S5
R123 10KR2J-3-GP
D11 BAT54-4-GP
DY

(dummy, KBC already delay)
C108 SCD1U16V2ZY-2GP

R127 0R2J-GP
INTRUDER# 15
THERMAL_ALL_SHUT# 34,40

HW thermal shut down tempature setting 95 degree
(18D2 Ohm), 85 degree (25.699 Ohm).
Put the back of CPU .

5V_AUX_S5
R194 10R2J-2-GP
C203 SCD01U16V2KX-3GP
R193 0R2J-GP
R192 0R2J-GP
R164 25D5R2F-GP
CPU_THSET
PURE_HW_SHUTDOWN#
U13
SET
GND
OUT#
VCC
HYST
CPU_TH_HYST
G709T1UF-GP
74.00709.A7F

Rset=0.0012T*T-0.9308T+96.147

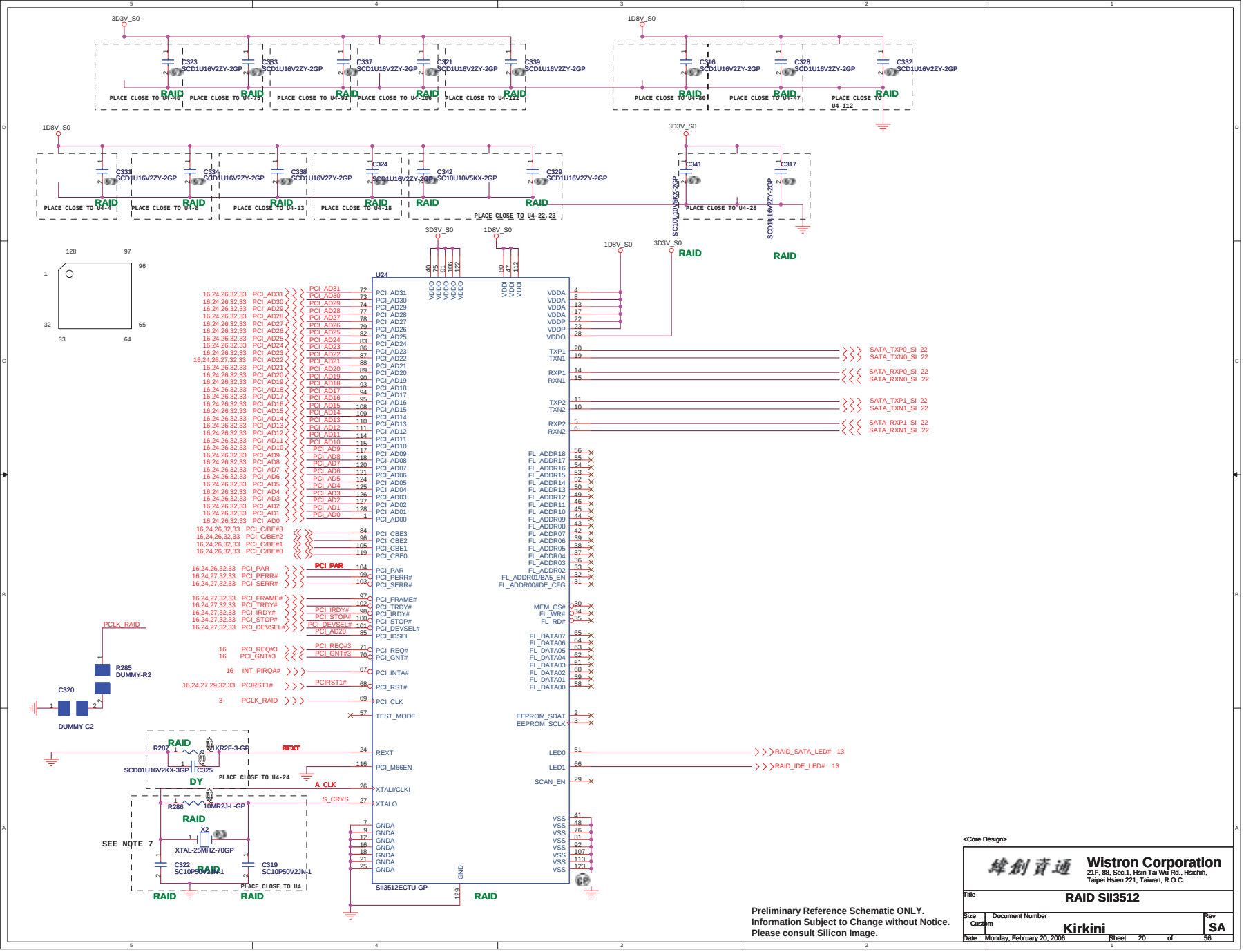
4,15 H_PWRGD
R120 1KR2J-1-GP
C99 SCD1U16V2ZY-2GP
Q11 PMBT2222A-1GP
1D05V_S0
R119 56R2J-4-GP
PM_THRMTRIP-I# 4

<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thermal/Fan Controllor
Size: A3
Document Number: Kirkini
Rev: SA
Date: Monday, February 20, 2006
Sheet 19 of 56

http://laptop-motherboard-schematic.blogspot.com/



Preliminary Reference Schematic ONLY.
Information Subject to Change without Notice.
Please consult Silicon Image.

<Core Design>

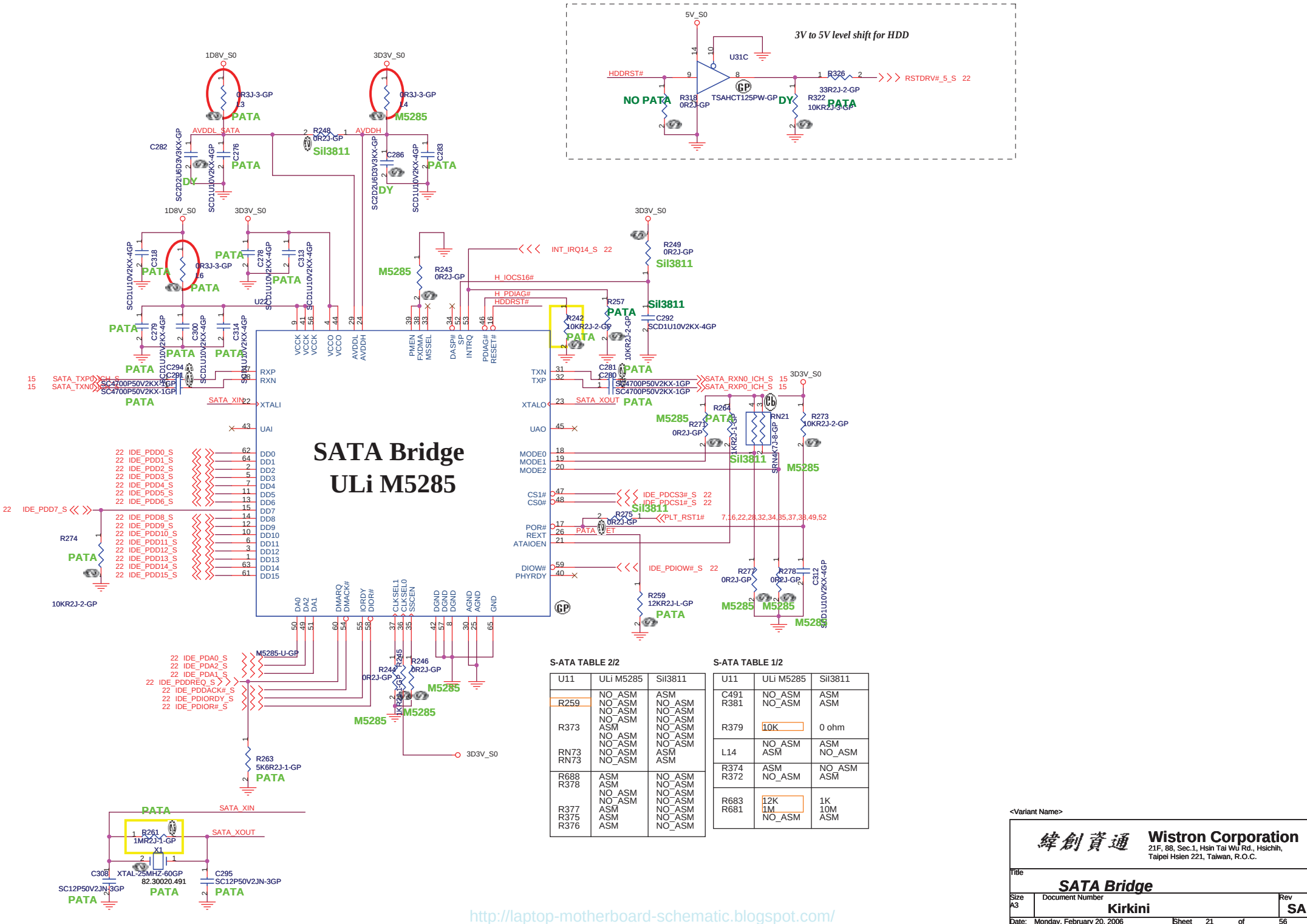
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: RAID SII3512

Size: Custom | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 20 of 56

http://laptop-motherboard-schematic.blogspot.com/



S-ATA TABLE 2/2

U11	ULi M5285	Sil3811
	NO_ASM	ASM
R259	NO_ASM	NO_ASM
	NO_ASM	NO_ASM
	NO_ASM	NO_ASM
R373	ASM	NO_ASM
	NO_ASM	NO_ASM
	NO_ASM	NO_ASM
RN73	NO_ASM	ASM
RN73	NO_ASM	ASM
R688	ASM	NO_ASM
R378	ASM	NO_ASM
	NO_ASM	NO_ASM
	NO_ASM	NO_ASM
R377	ASM	NO_ASM
R375	ASM	NO_ASM
R376	ASM	NO_ASM

S-ATA TABLE 1/2

U11	ULi M5285	Sil3811
C491	NO_ASM	ASM
R381	NO_ASM	ASM
R379	10K	0 ohm
L14	NO_ASM	ASM
	ASM	NO_ASM
R374	ASM	NO_ASM
R372	NO_ASM	ASM
R683	12K	1K
R681	1M	10M
	NO_ASM	ASM

<Variant Name>

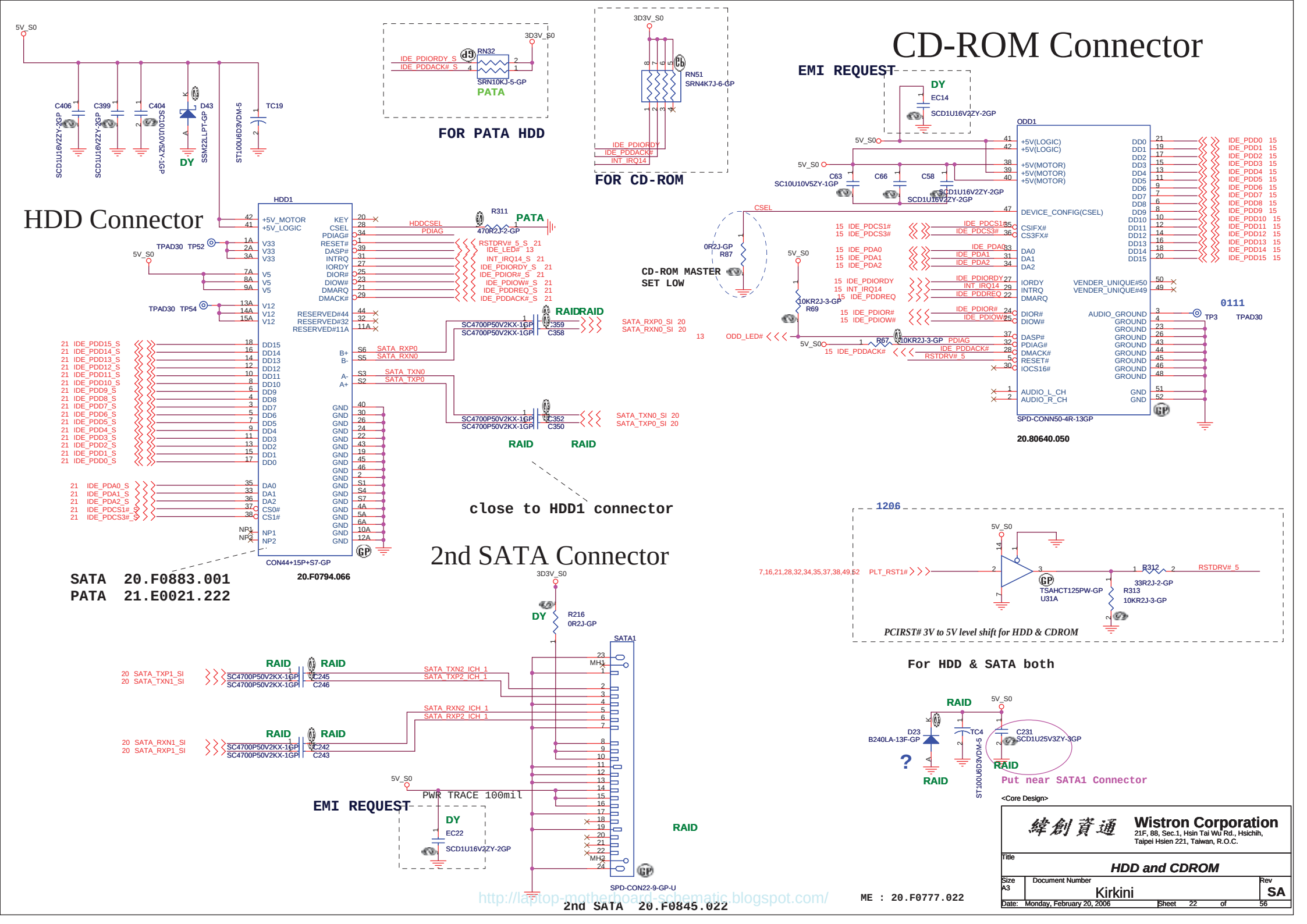
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **SATA Bridge**

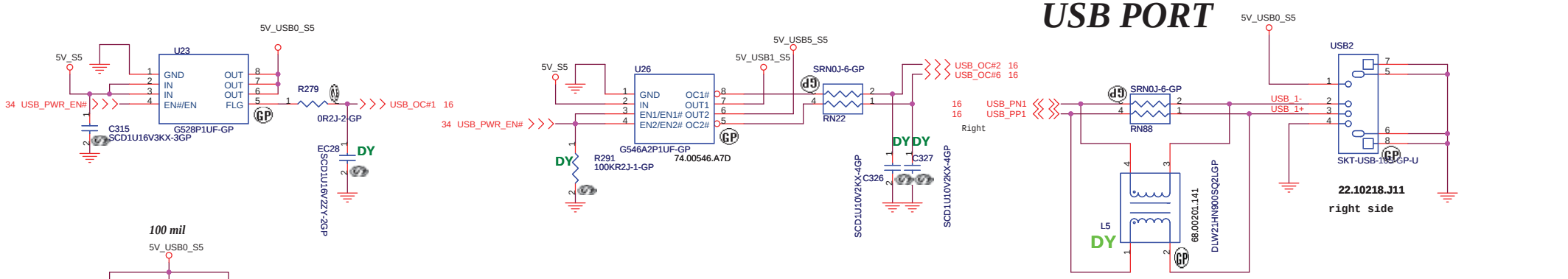
Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 21 of 56

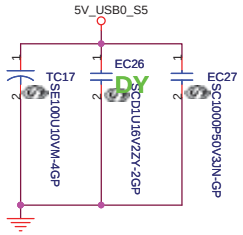
http://laptop-motherboard-schematic.blogspot.com/


CD-ROM Connector
EMI REQUEST
FOR PATA HDD
FOR CD-ROM
HDD Connector
CD-ROM MASTER
SET LOW
close to HDD1 connector
2nd SATA Connector
SATA 20.F0883.001
PATA 21.E0021.222
20.F0794.066
20.80640.050
PCIRST# 3V to 5V level shift for HDD & CDROM
For HDD & SATA both
Put near SATA1 Connector
EMI REQUEST
PWR TRACE 100mil
2nd SATA 20.F0845.022
ME : 20.F0777.022
http://laptop-motherboard-schematic.blogspot.com/
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
HDD and CDROM
Kirkini
SA
Monday, February 20, 2006
22
56

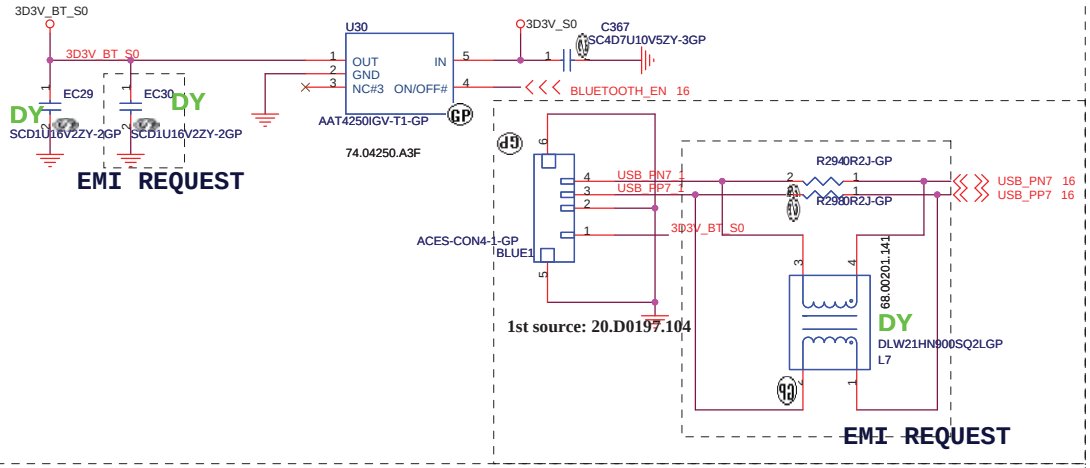
USB PORT



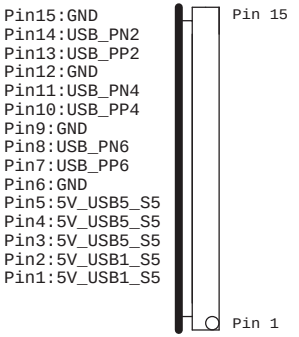
100 mil

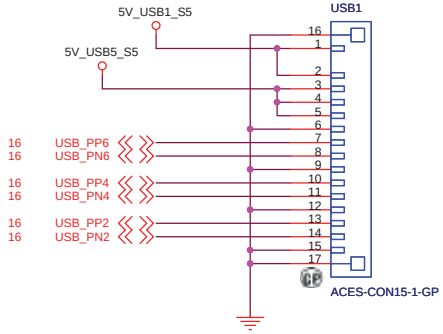


BLUETOOTH MODULE



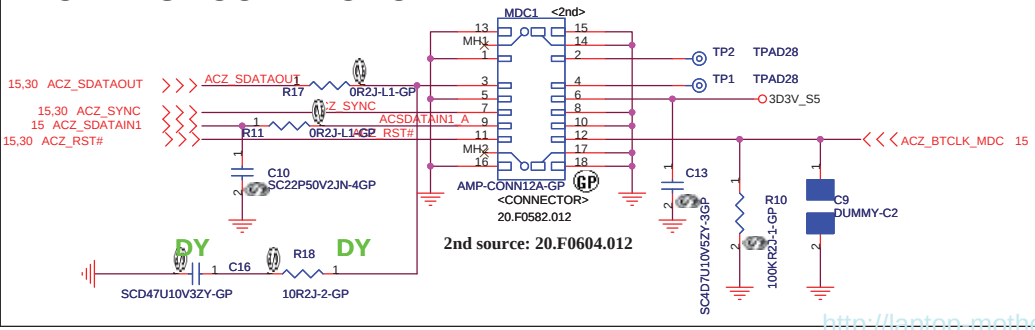
MB
Top view





MDC 1.5 CONNECTOR

CHANGE TO AZ



http://laptop-motherboard-schematic.blogspot.com/

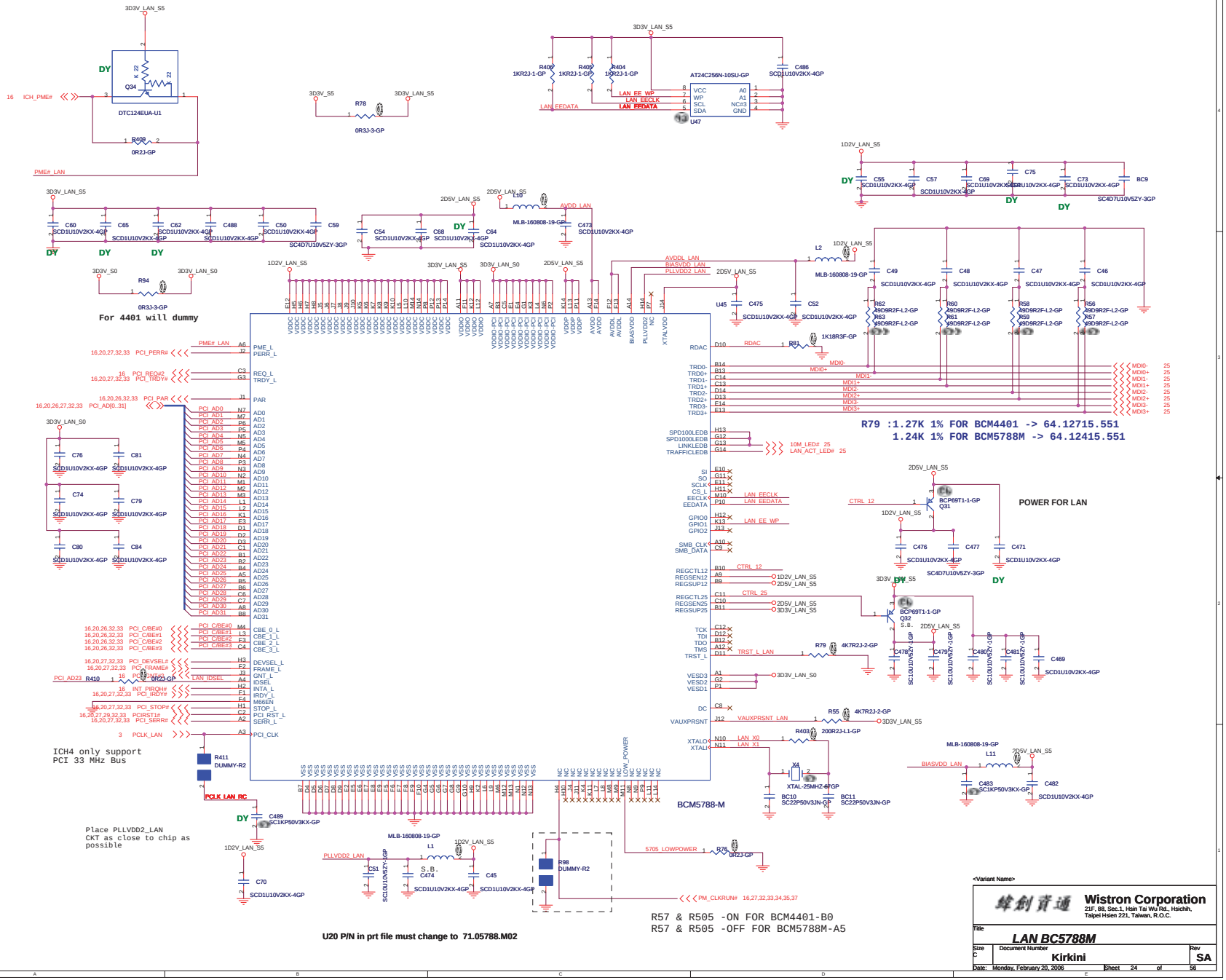
<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **USB / MDC / BLUETOOTH**

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 23 of 56



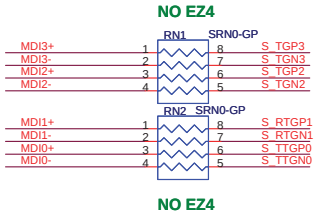
http://laptop-motherboard-schematic.blogspot.com/

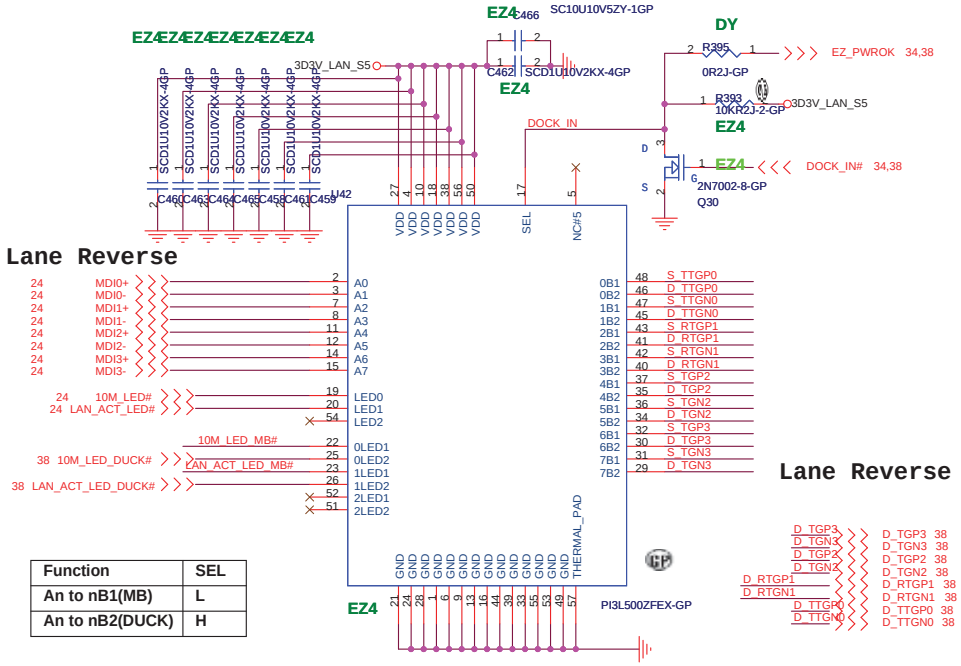
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: LAN BC5788M

Size: C | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 24 of 56





Function	SEL
An to nB1(MB)	L
An to nB2(DUCK)	H

1.route on bottom as differential pairs.
2.Tx+/Tx- are pairs. Rx+/Rx- are pairs.
3.No vias, No 90 degree bends.
4.pairs must be equal lengths.
5.6mil trace width,12mil separation.
6.36mil between pairs and any other trace.
7.Must not cross ground moat,except RJ-45 moat.

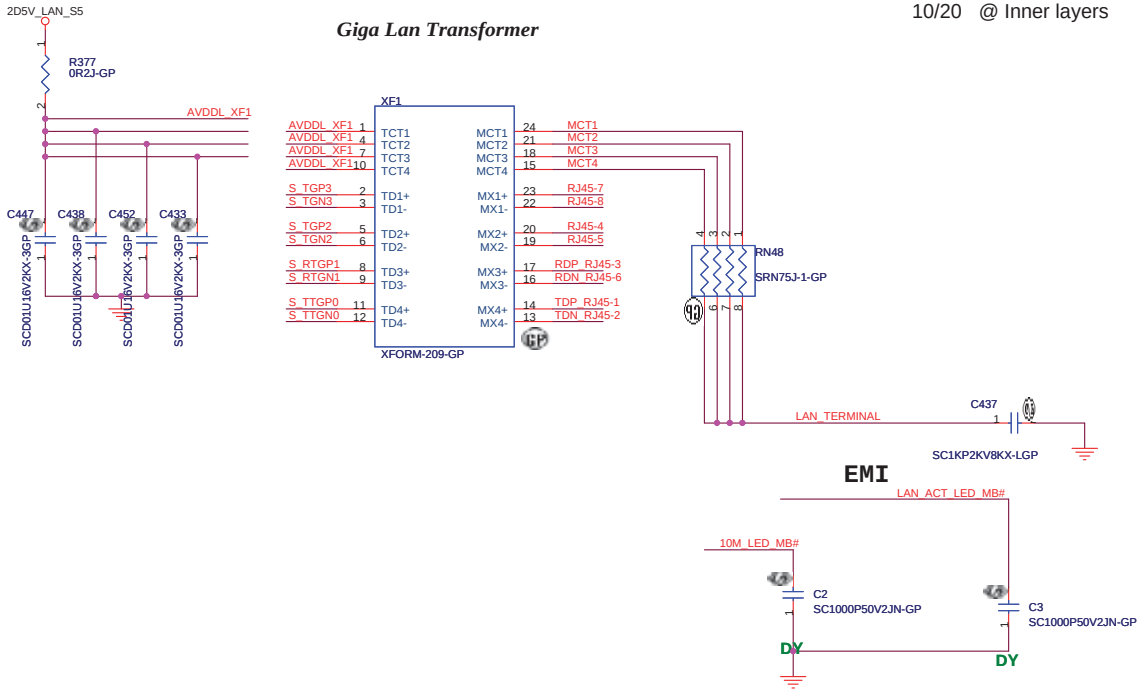
Green LED: Speed 100: ON / Speed 10:OFF
Yellow LED: Link: ON, TX/RX: Flash(10Hz)

RJ11 signal must leave the other signal or power plane 100mil.

DOC_TIP,DOC_RING,TIP,RING:
W/S : 10/100 @ Surface layers
10/20 @ Inner layers

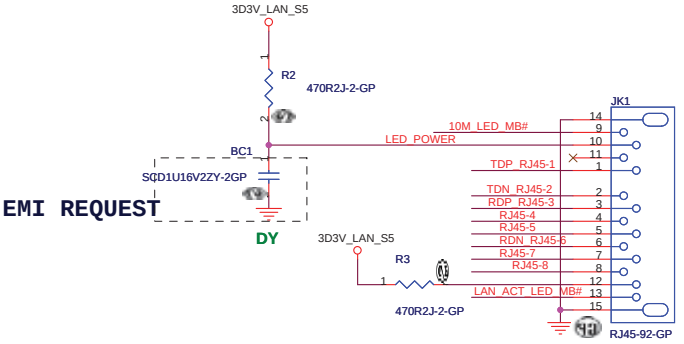
RJ45 Connector

Giga Lan Transformer



EMI

EMI REQUEST



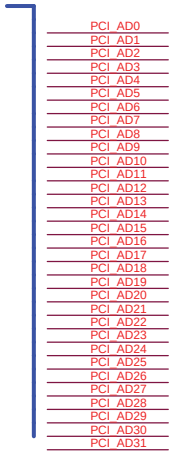
22.10245.E91

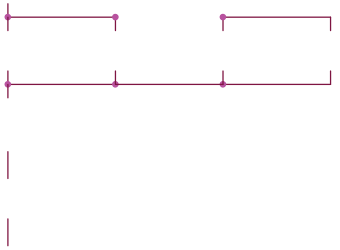
Link: Green -10M / 100M / 1Gbps/802.11b
Activity: Yellow

<Variant Name>

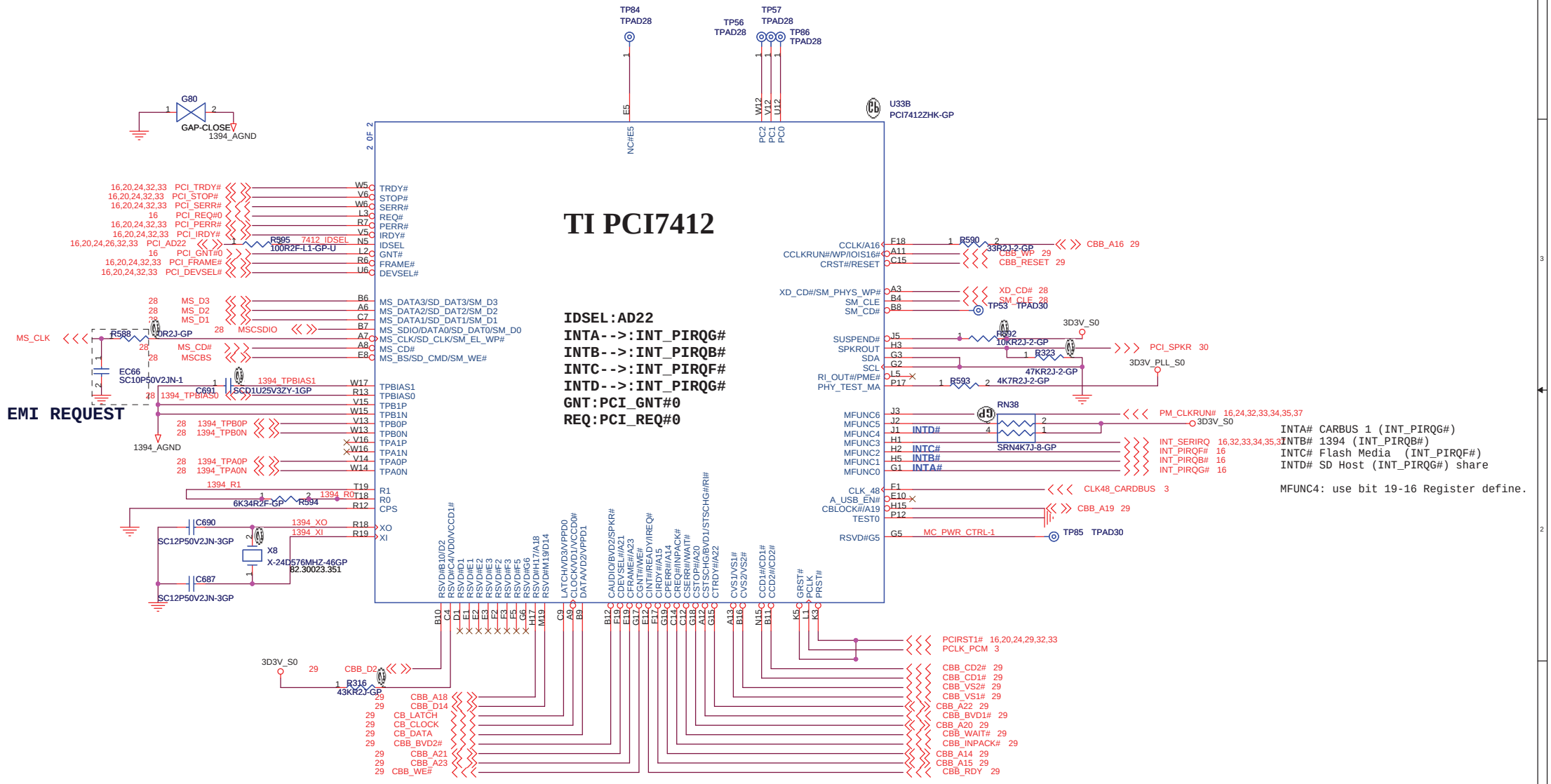
鋒創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***LAN Connector***	
Size: Custom	Document Number: Kirkini	Rev: SA
Date: Monday, February 20, 2006	Sheet 25 of 56	

http://laptop-motherboard-schematic.blogspot.com/





http://laptop-motherboard-schematic.blogspot.com/



http://laptop-motherboard-schematic.blogspot.com/

<Variant Name>

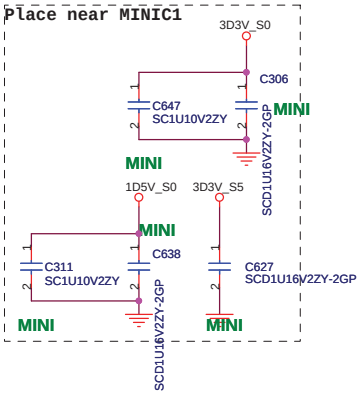
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

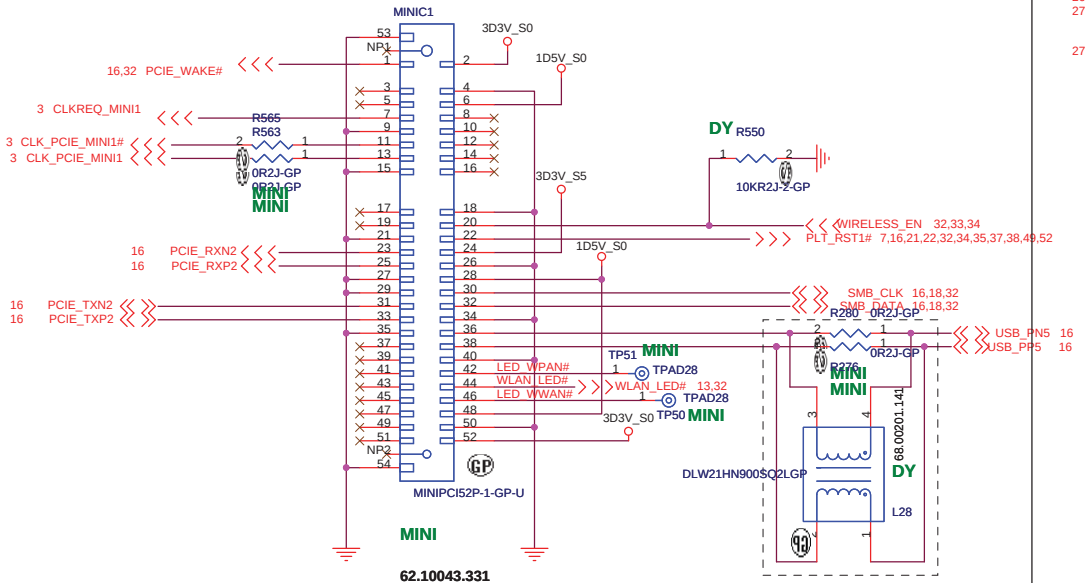
Title: TI PCI7412 (2 of 2)

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 27 of 56

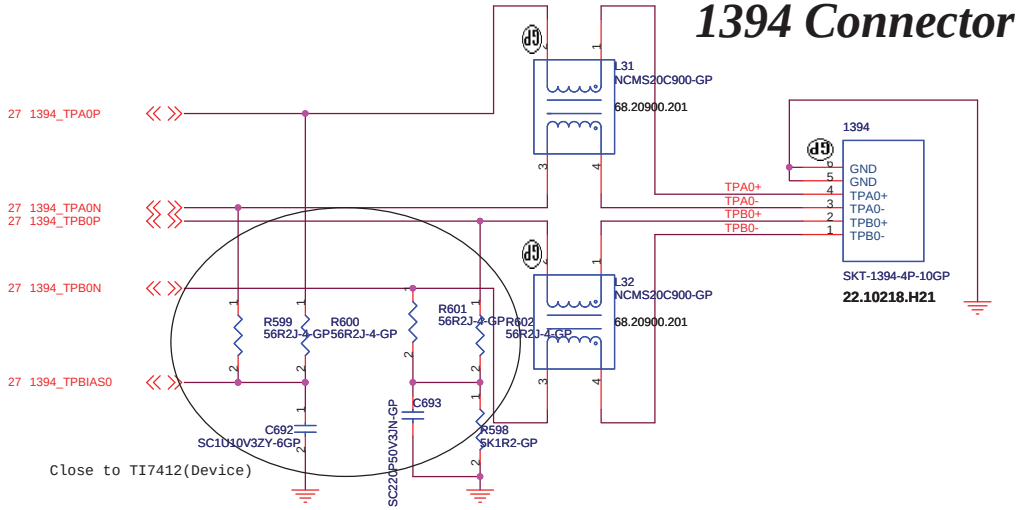
Mini Card Connector

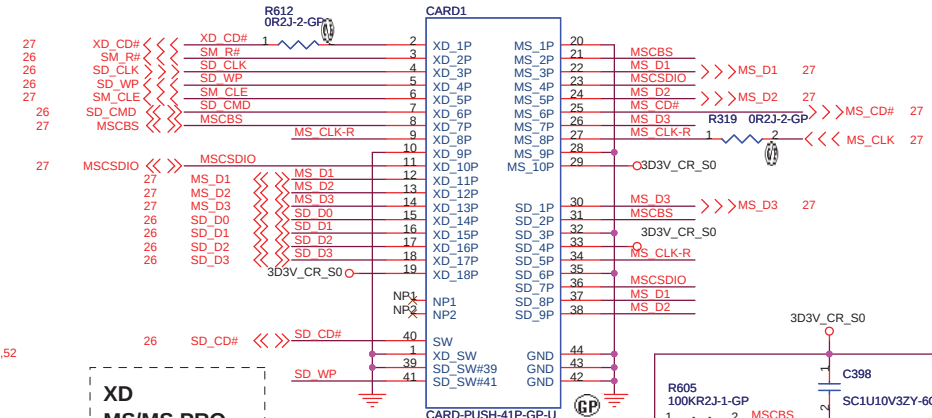




EMI REQUEST

1394 Connector



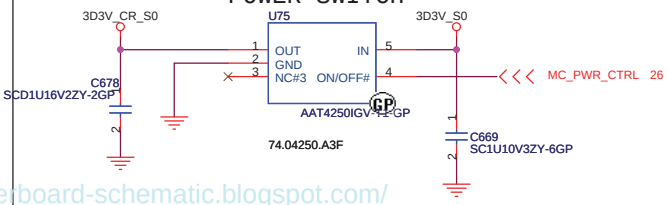


Bottom VIEW

1 36

Reader

POWER SWITCH



http://laptop-motherboard-schematic.blogspot.com/

<Variant Name>

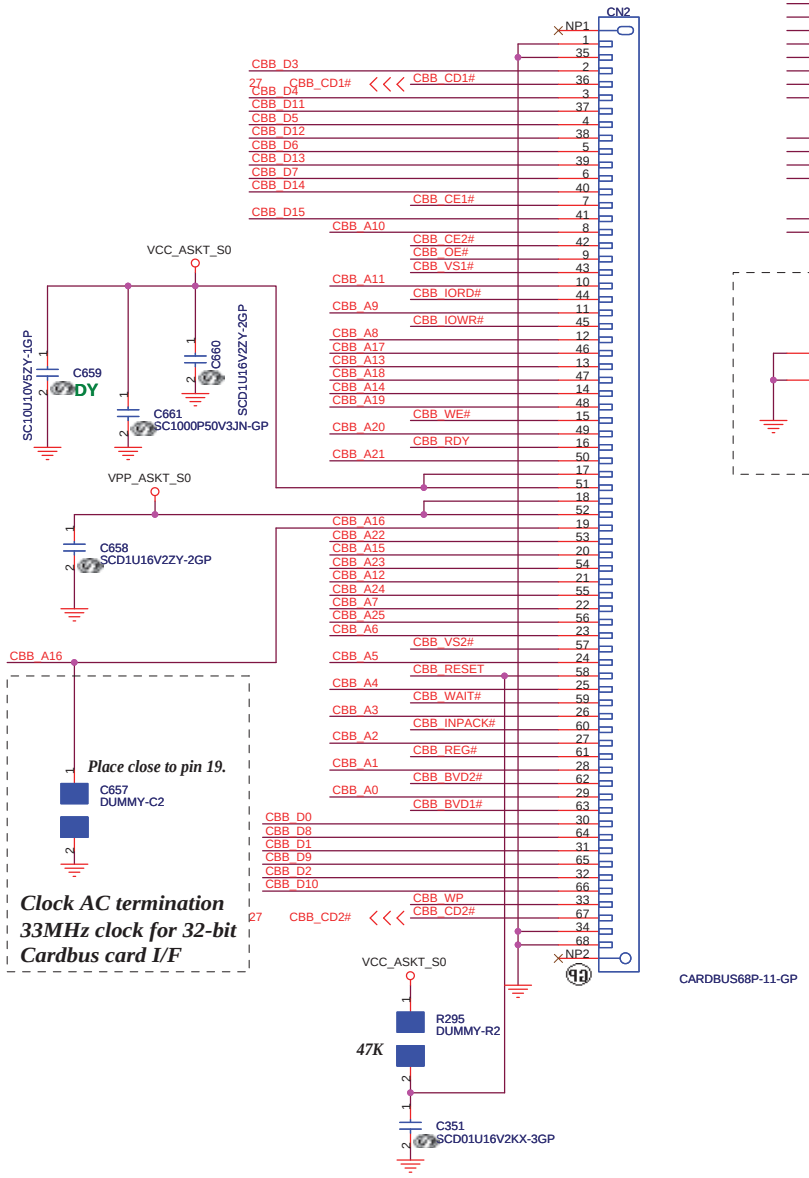
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***MINI CARD / 1394/6 in 1 card***

Size	Document Number	Rev
A3	Kirkini	SA

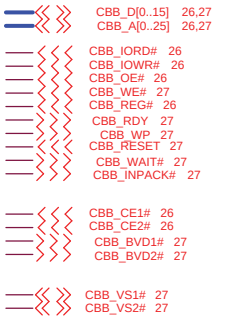
Date: Monday, February 20, 2006 Sheet 28 of 56

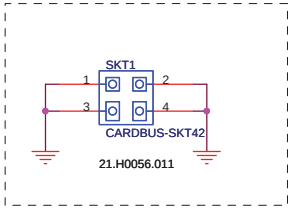
PCMCIA Socket



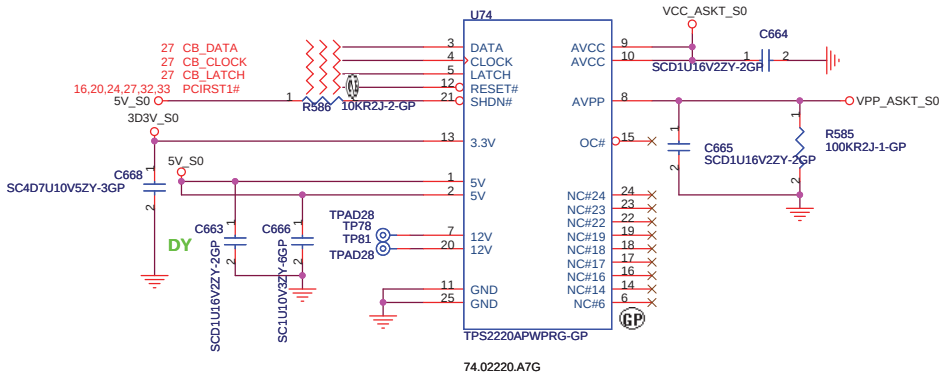
CARDBUS68P-11-GP

Cardbus I/F





Power switch



http://laptop-motherboard-schematic.blogspot.com/

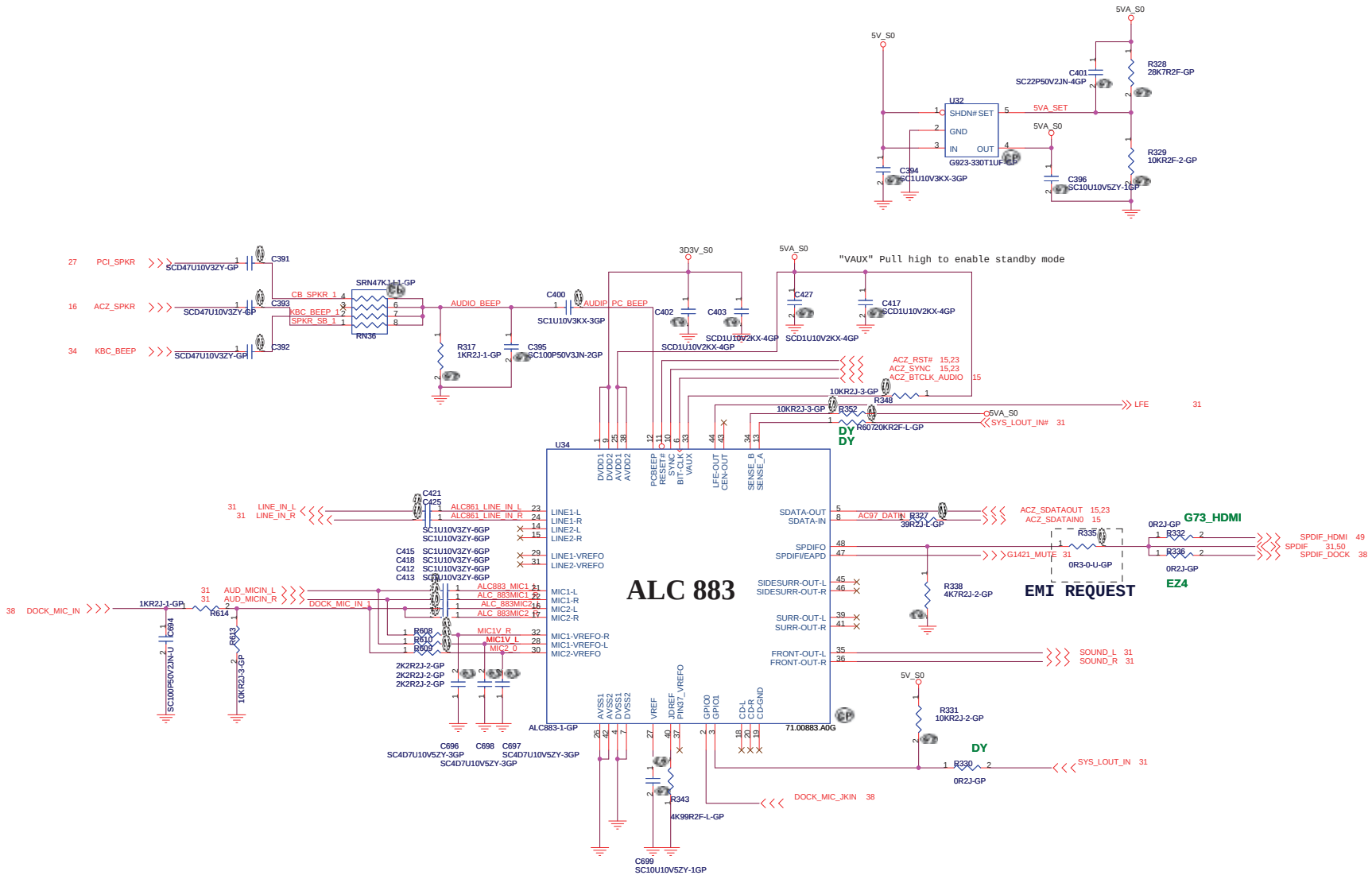
<Variant Name>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: PCMCIA/WEB Camera

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 29 of 56



http://laptop-motherboard-schematic.blogspot.com/

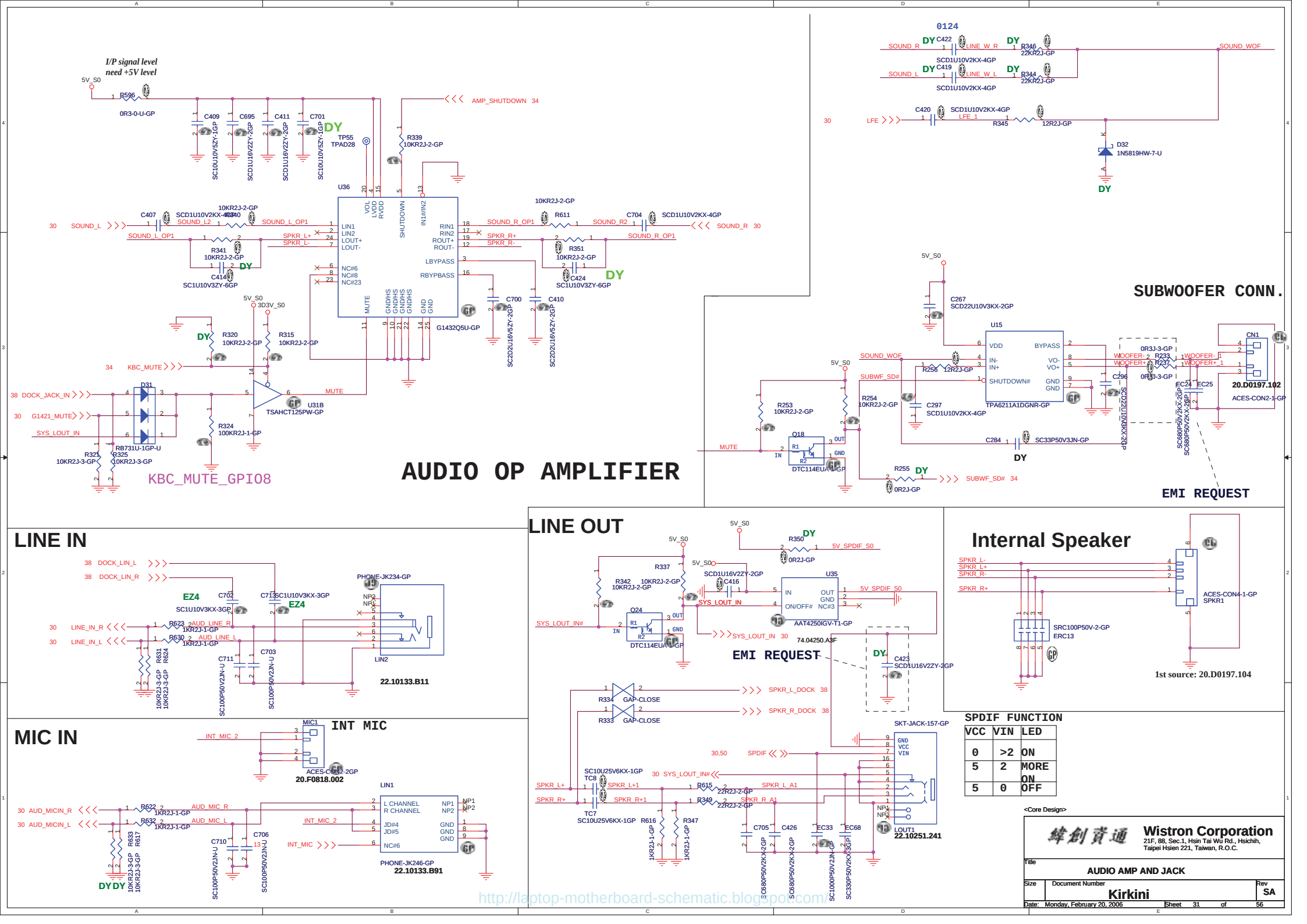
<Core Design>

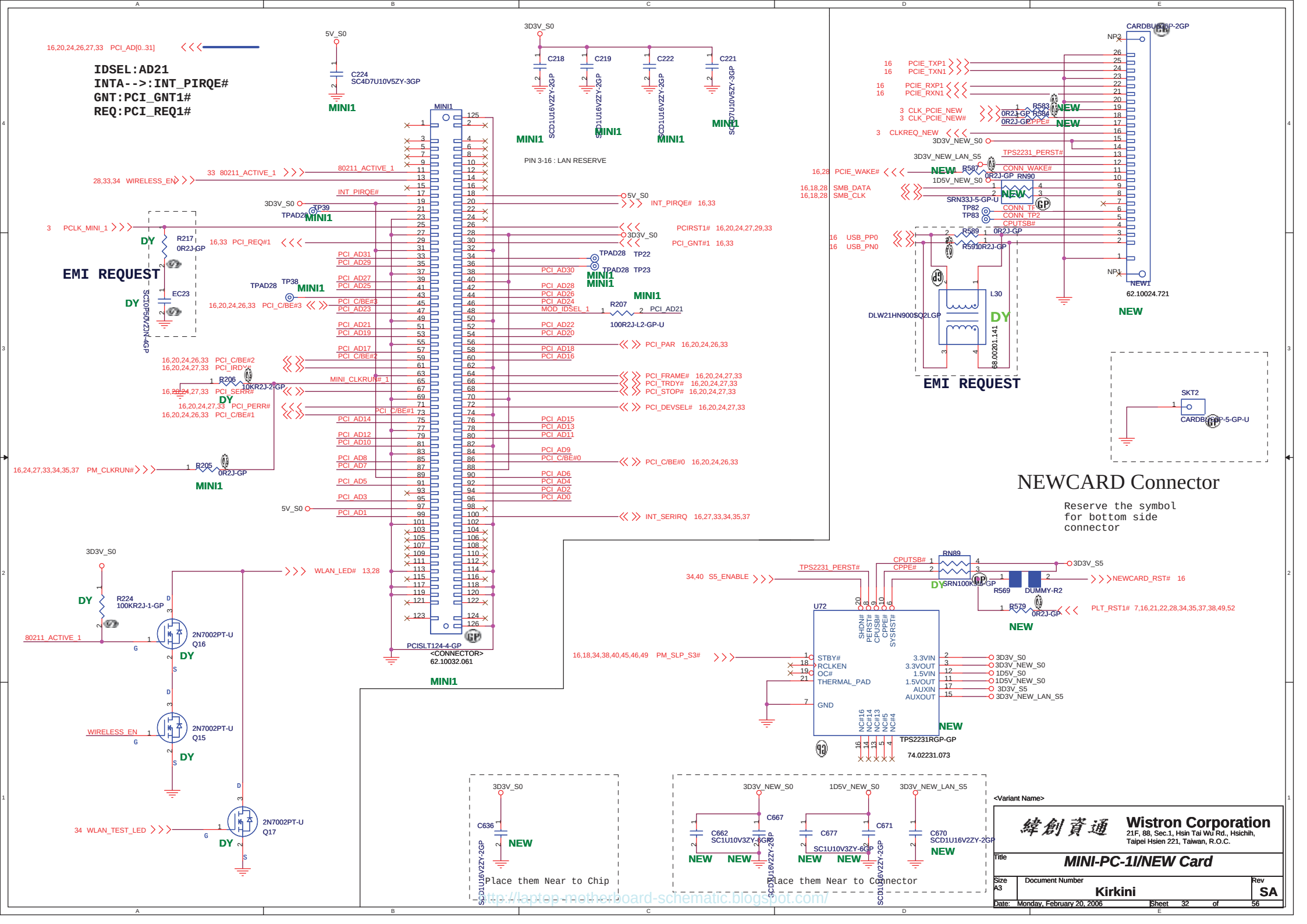
蜂創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

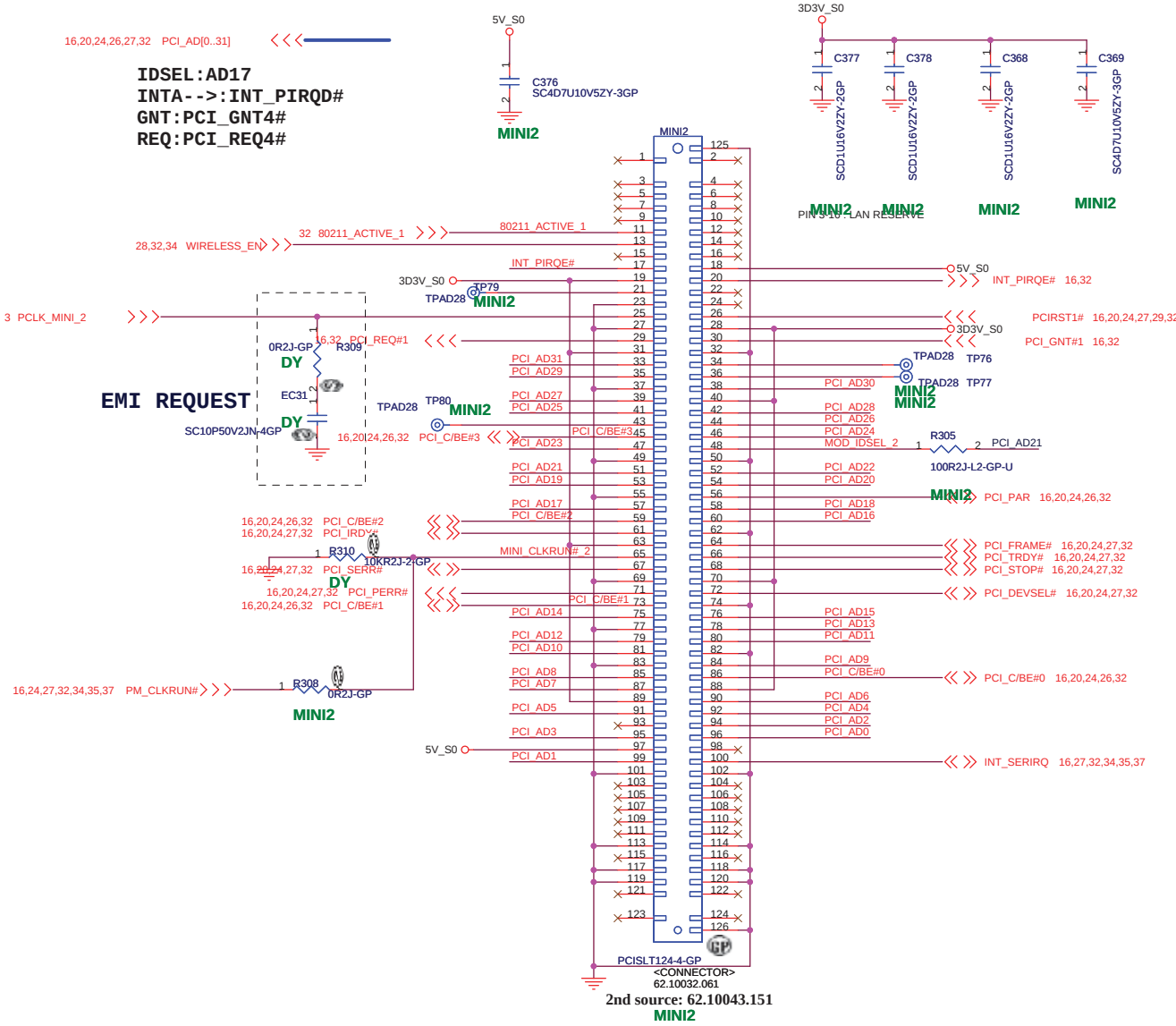
Title: **AZALIA CODEC - ALC883**

Size	Document Number	Rev
Custom	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 30 of 56


AUDIO OP AMPLIFIER
LINE IN
MIC IN
LINE OUT
SUBWOOFER CONN.
EMI REQUEST
Internal Speaker
INT MIC
I/P signal level
need +5V level
KBC_MUTE_GPIO8
SPDIF FUNCTION
VCC VIN LED
0 >2 ON
5 2 MORE ON
5 0 OFF
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
AUDIO AMP AND JACK
Kirkini
Monday, February 20, 2006
http://laptop-motherboard-schematic.blogspot.com/

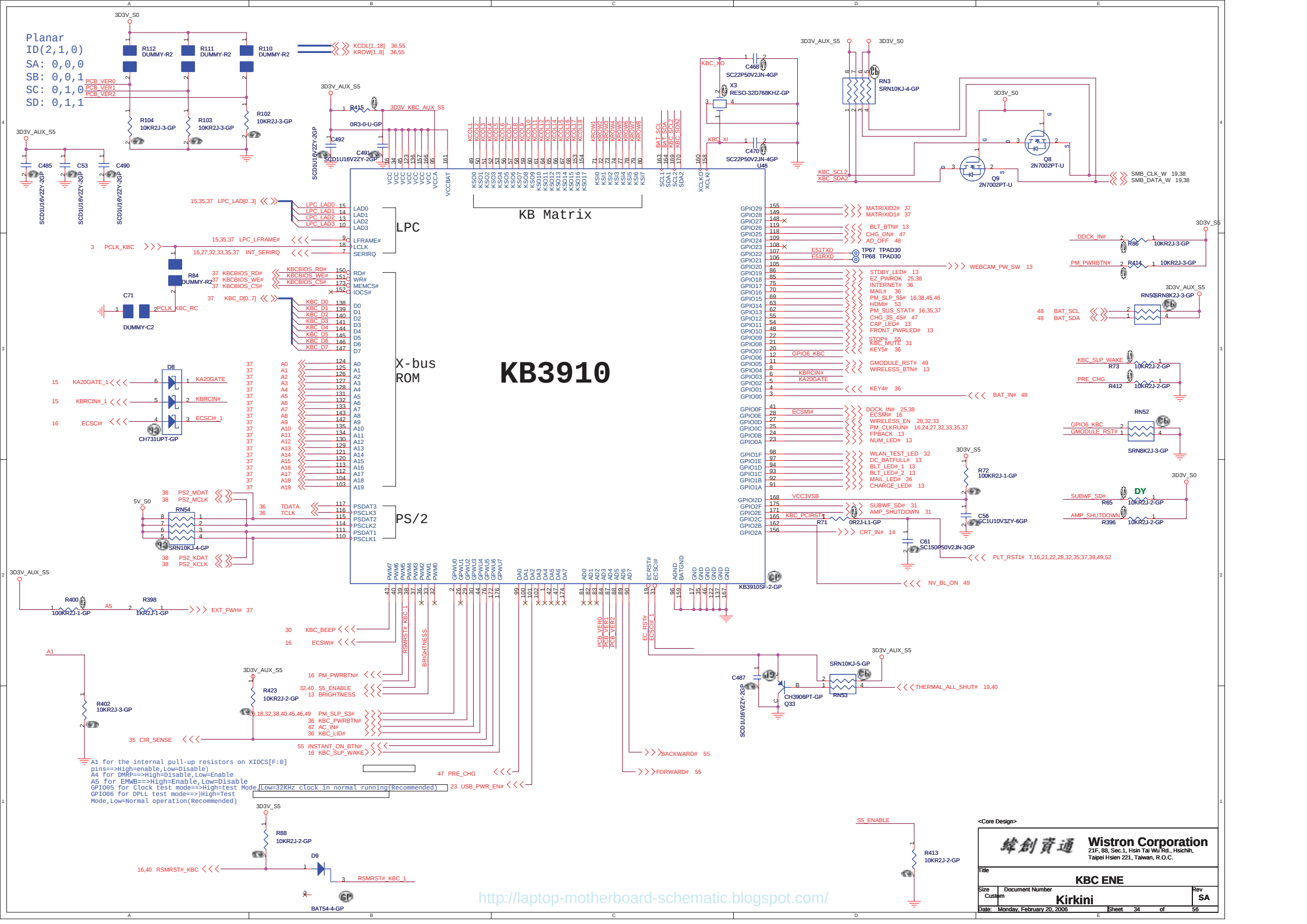

IDSEL:AD21
INTA-->:INT_PIRQE#
GNT:PCI_GNT1#
REQ:PCI_REQ1#
EMI REQUEST
EMI REQUEST
NEWCARD Connector
Reserve the symbol for bottom side connector
PIN 3-16 : LAN RESERVE
Place them Near to Chip
Place them Near to Connector
PCISLT124-4-GP
<CONNECTOR>
62.10032.061
TPS2231RGP-GP
74.02231.073
CARDBUS68P-2GP
62.10024.721
DLW21HN900SQ2LGP
68.00201.141
SRN33J-5-GP-U
SRN100K5-GP
CARDBUS68P-5-GP-U
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
MINI-PC-1I/NEW Card
Kirkini
Monday, February 20, 2006
http://laptop-motherboard-schematic.blogspot.com/

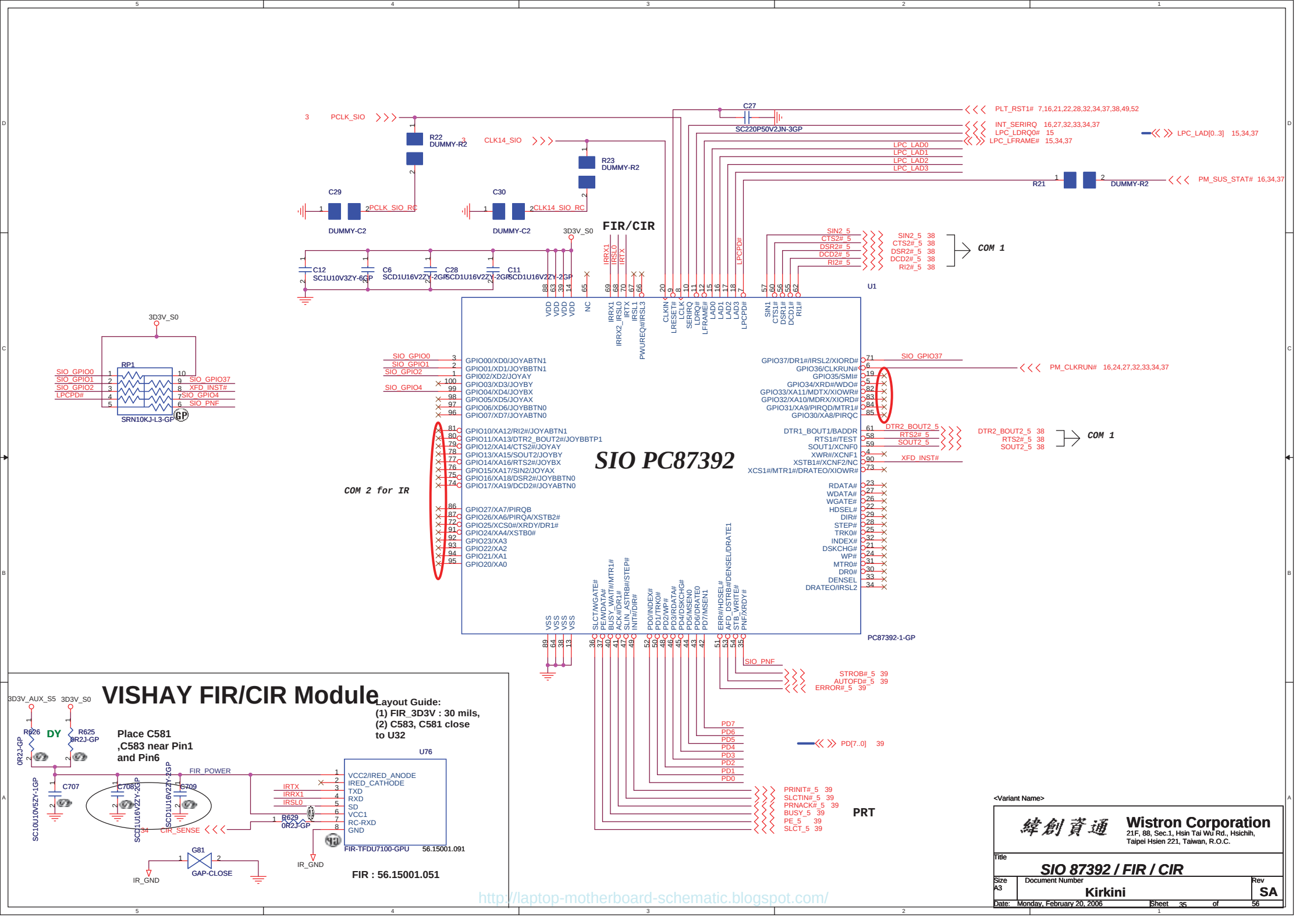


http://laptop-motherboard-schematic.blogspot.com/

<Variant Name>

Title	MINI-PCI-2		
Size A3	Document Number Kirkini		Rev SA
Date: Monday, February 20, 2006	Sheet 33 of 56		

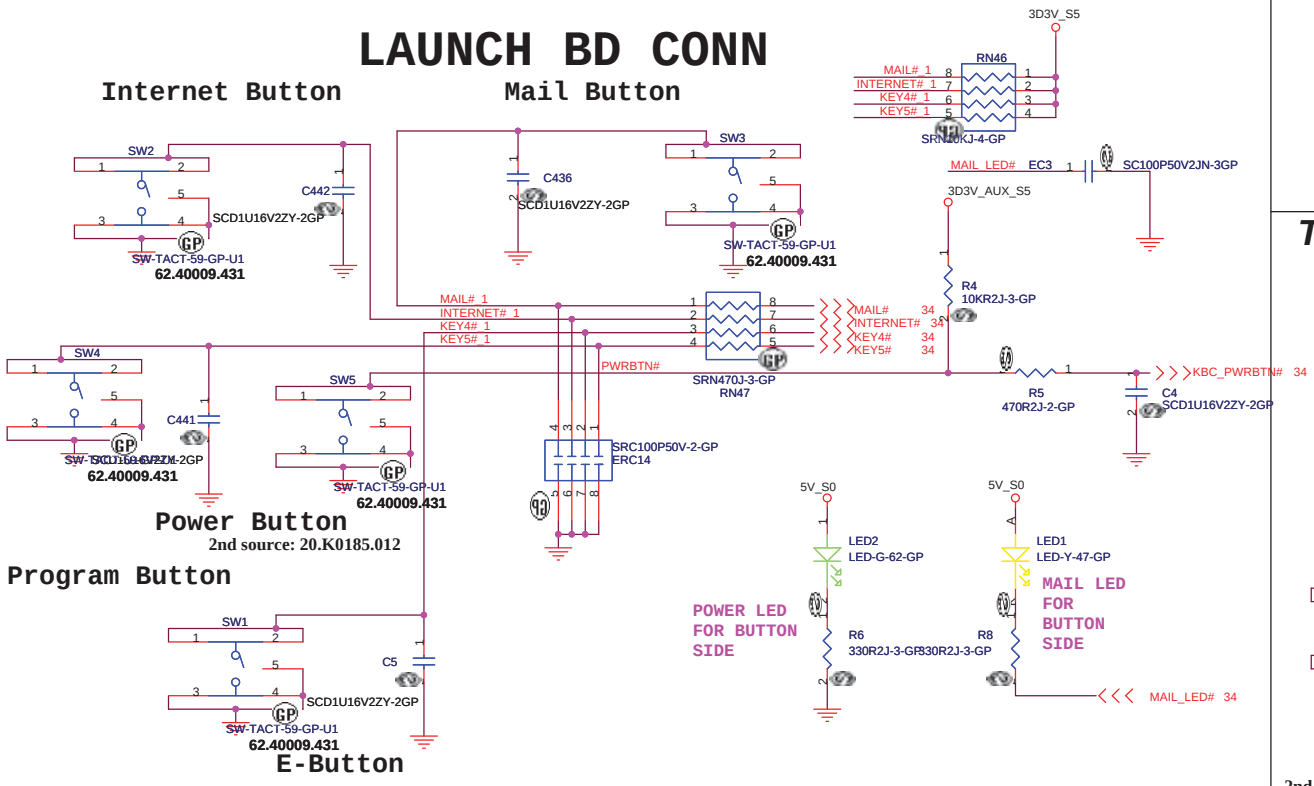

Planar
ID(2,1,0)
SA: 0,0,0
SB: 0,0,1
SC: 0,1,0
SD: 0,1,1
KB3910
KB Matrix
LPC
X-bus ROM
PS/2
KB3910SF-2-GP
U46
SC22P50V2JN-4GP
RESO-32D768KHZ-GP
SRN10KJ-4-GP
SRN10KJ-5-GP
CH731UPT-GP
CH3906PT-GP
BAT54-4-GP
SCD1U16V2ZY-2GP
DUMMY-C2
DUMMY-R2
0R3-0-U-GP
10KR2J-3-GP
10KR2J-2-GP
100KR2J-1-GP
1KR2J-1-GP
0R2J-L1-GP
SC1U10V3ZY-6GP
SC150P50V2JN-3GP
2N7002PT-U
SRN10KJ-4-GP
SRN8K2J-3-GP
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
KBC ENE
Kirkini
Date: Monday, February 20, 2006
Sheet 34 of 56
http://laptop-motherboard-schematic.blogspot.com/


SIO PC87392
FIR/CIR
PRT
COM 1
COM 2 for IR
U1
PC87392-1-GP
SRN10KJ-L3-GP
VISHAY FIR/CIR Module
Layout Guide:
(1) FIR_3D3V : 30 mils,
(2) C583, C581 close to U32
Place C581 ,C583 near Pin1 and Pin6
FIR : 56.15001.051
FIR-TFDU7100-GPU
56.15001.091
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
SIO 87392 / FIR / CIR
Kirkini
Monday, February 20, 2006
http://laptop-motherboard-schematic.blogspot.com/

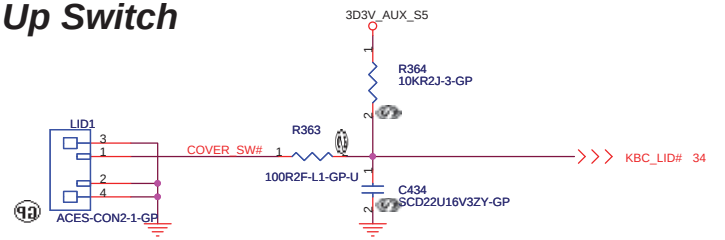
LAUNCH BD CONN

Internet Button

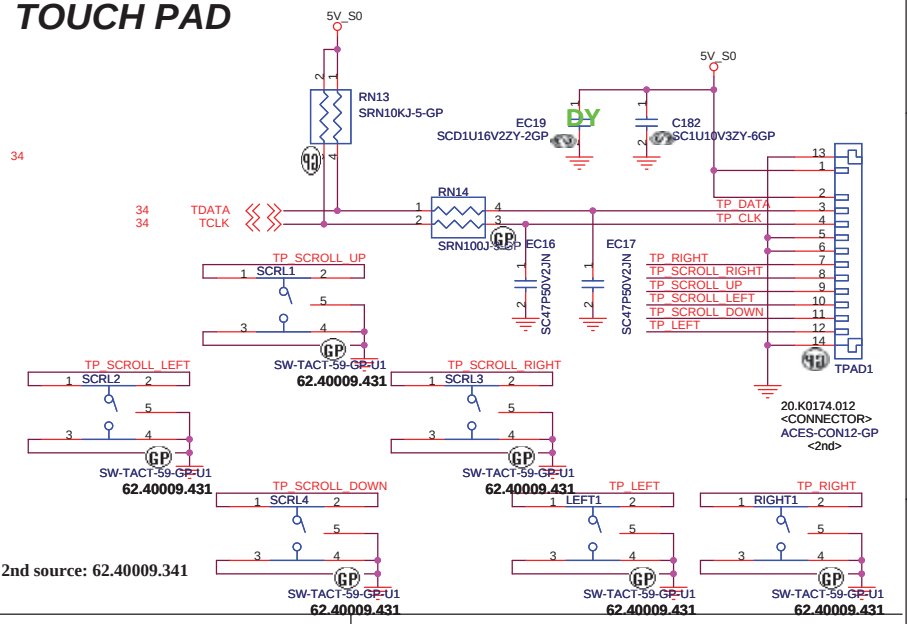
Mail Button



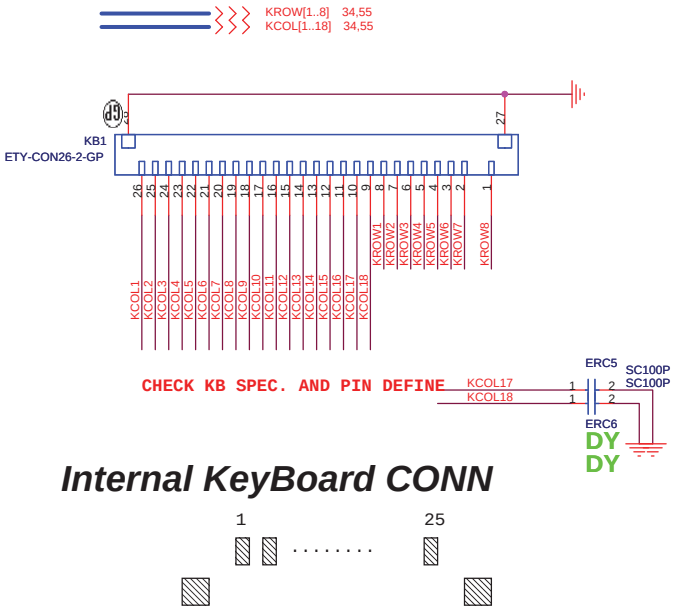
Cover Up Switch



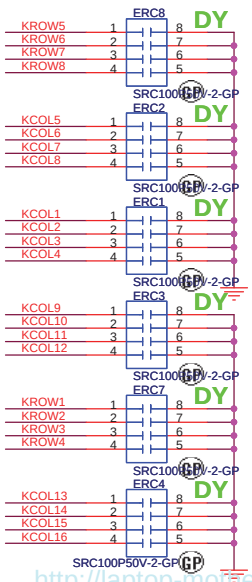
TOUCH PAD

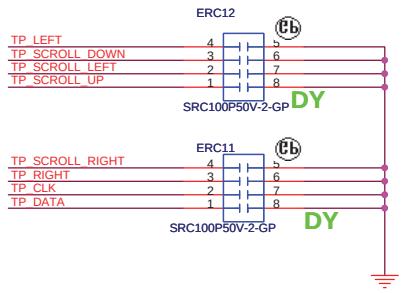


Internal KeyBoard CONN



EMI Bypass cap.





http://laptop-motherboard-schematic.blogspot.com/

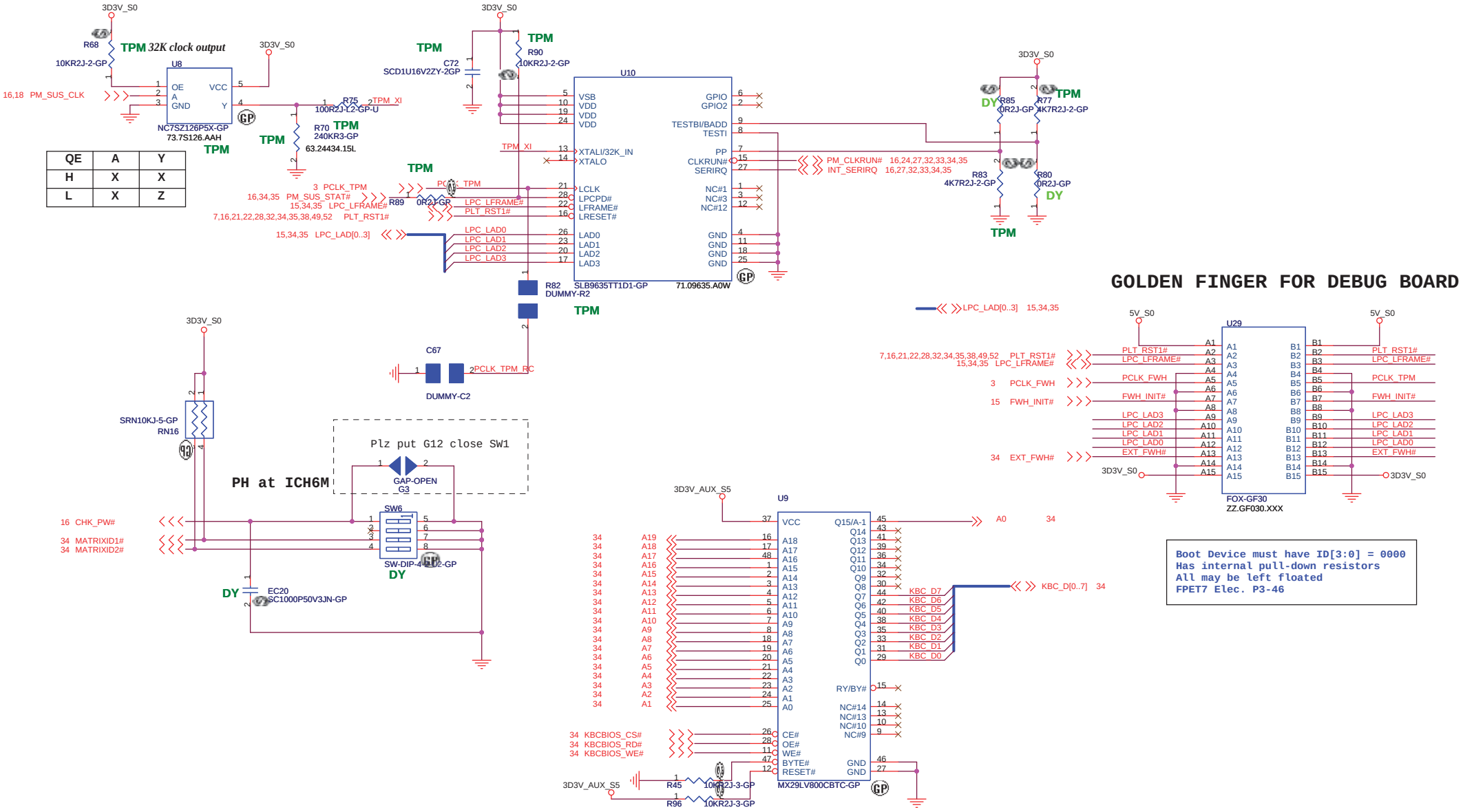
<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: BUTTONs / KB / TOUCHPAD

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 36 of 56



QE	A	Y
H	X	X
L	X	Z

http://laptop-motherboard-schematic.blogspot.com/

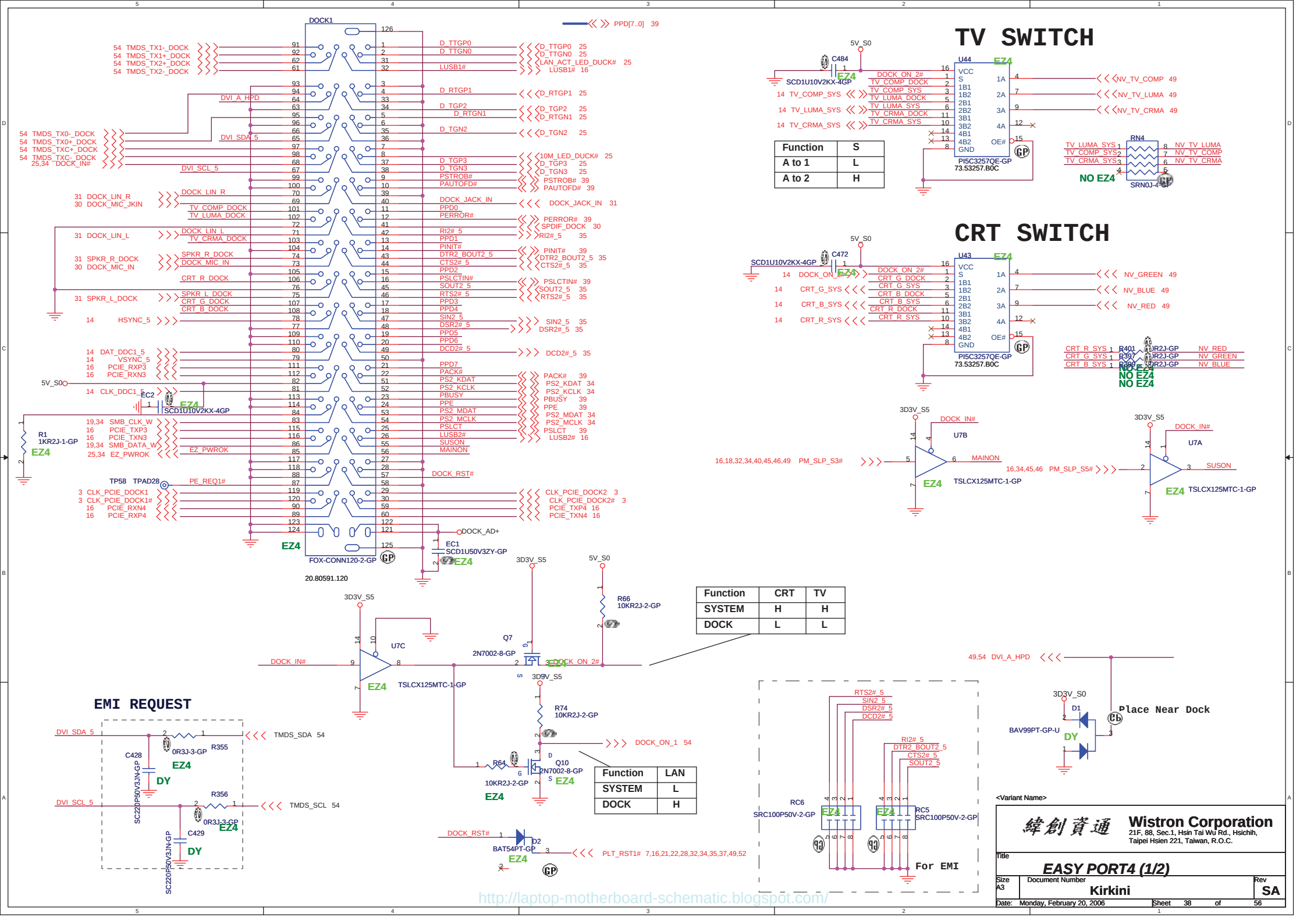
<Variant Name>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: TPM & BIOS

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 37 of 56


TV SWITCH
CRT SWITCH
EMI REQUEST
DOCK1
FOX-CONN120-2-GP
20.80591.120
U7C
TSLCX125MTC-1-GP
U7B
U7A
U44
U43
PI5C3257QE-GP
73.53257.B0C
SCD1U10V2KX-4GP
SCD1U50V3ZY-GP
BAV99PT-GP-U
BAT54PT-GP
2N7002-8-GP
SRN0J-4-GP
SRC100P50V-2-GP
SC220P50V3JN-GP
0R3J-3-GP
10KR2J-2-GP
1KR2J-1-GP
EZ4
DY
NO EZ4
Place Near Dock
For EMI
Function | S
A to 1 | L
A to 2 | H
Function | CRT | TV
SYSTEM | H | H
DOCK | L | L
Function | LAN
SYSTEM | L
DOCK | H
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
EASY PORT4 (1/2)
Kirkini
SA
Monday, February 20, 2006
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56
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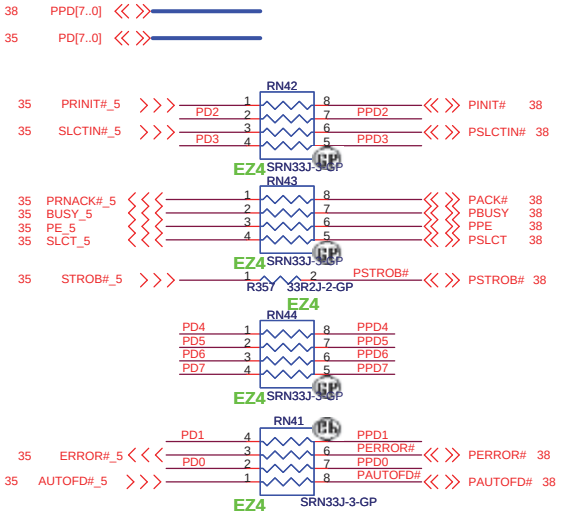
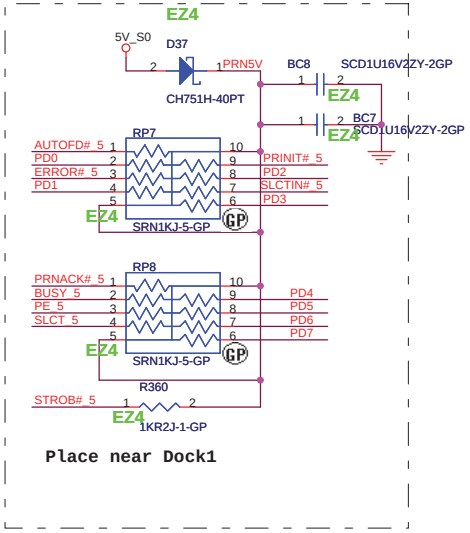
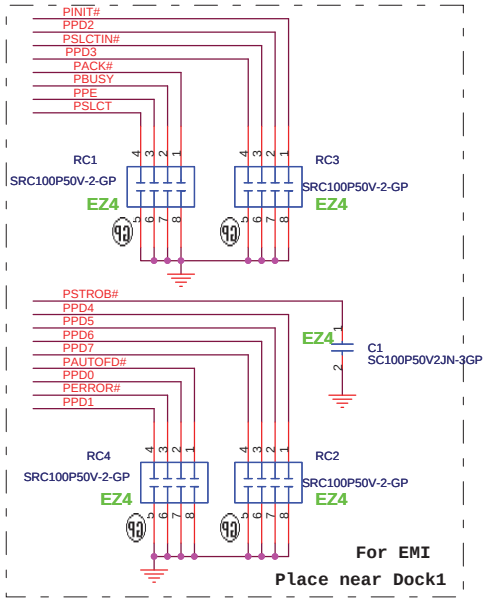
PRINT PORT







http://laptop-motherboard-schematic.blogspot.com/

<variant_name>

緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***EASY PORT4 (2/2)***

Size	Document Number	Rev
A3	Kirkini	SA

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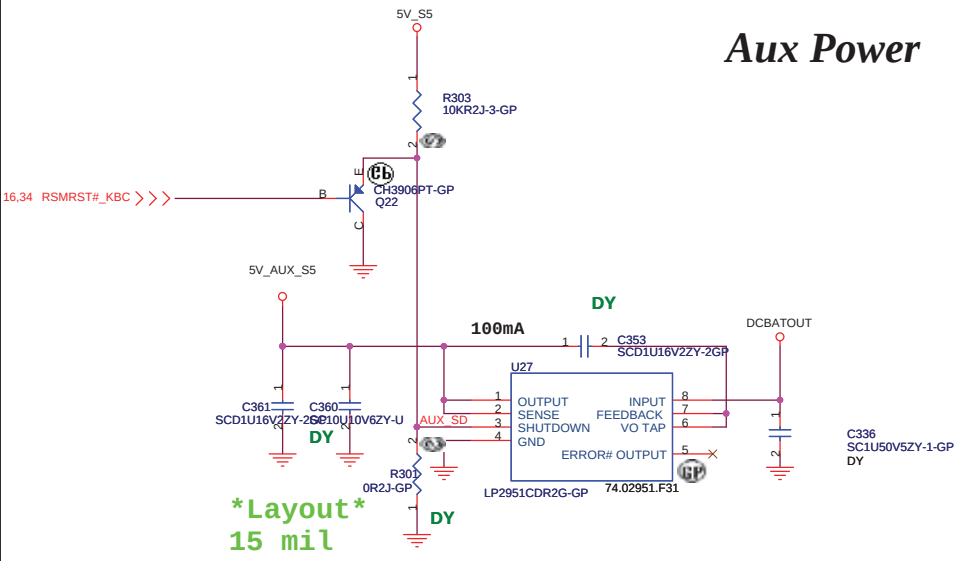
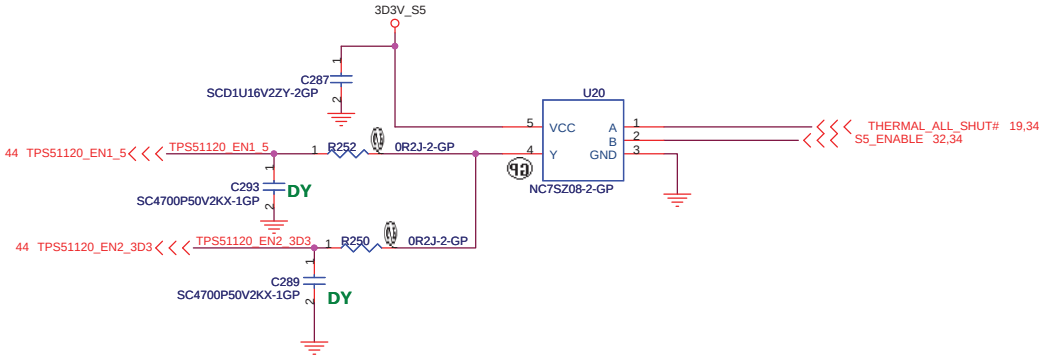
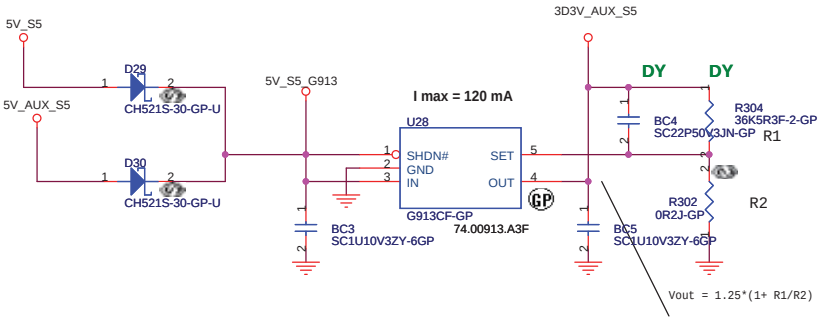
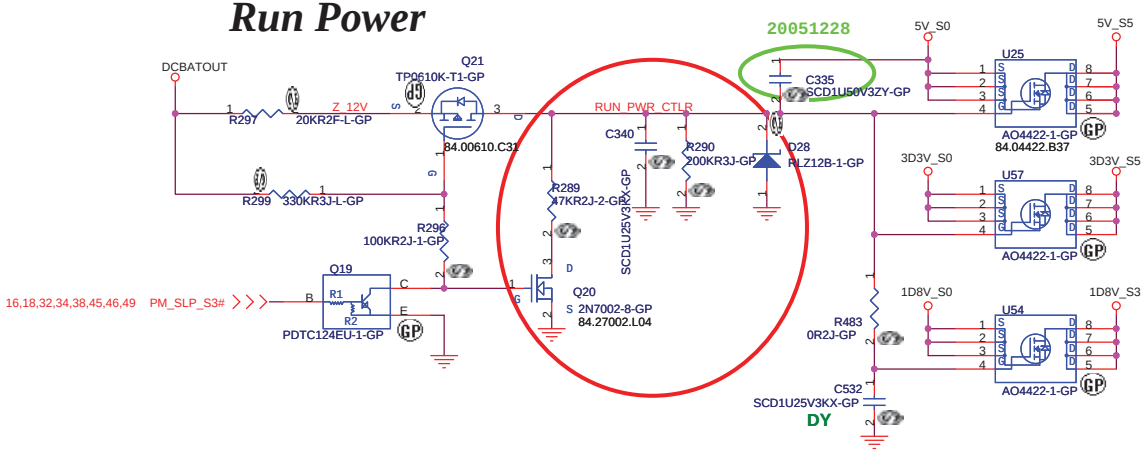
Aux Power







Run Power



http://laptop-motherboard-schematic.blogspot.com/

<Variant Name>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: RUN and AUX POWER

Size	Document Number	Rev
A3	Kirkini	SA

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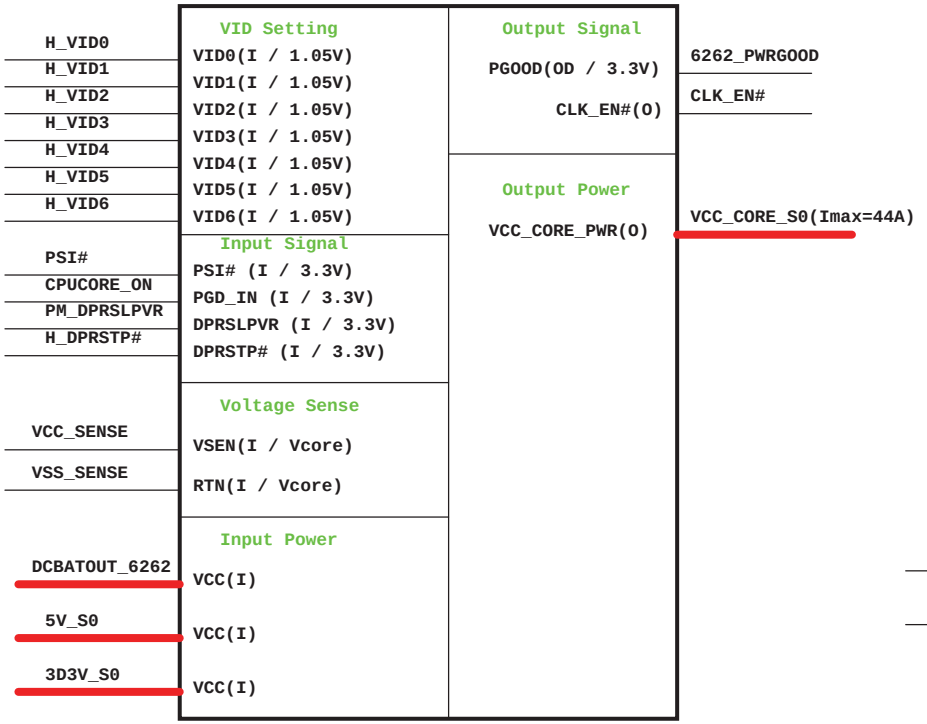
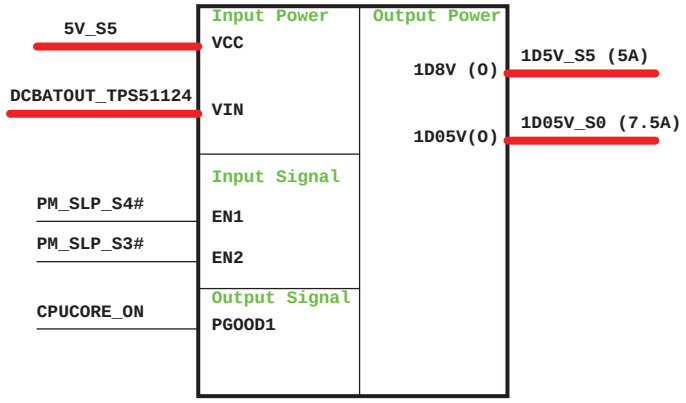
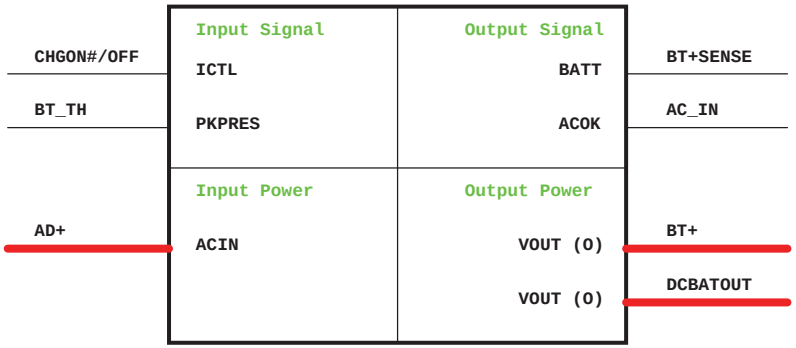
CPU_CORE
Intersil ISL6262



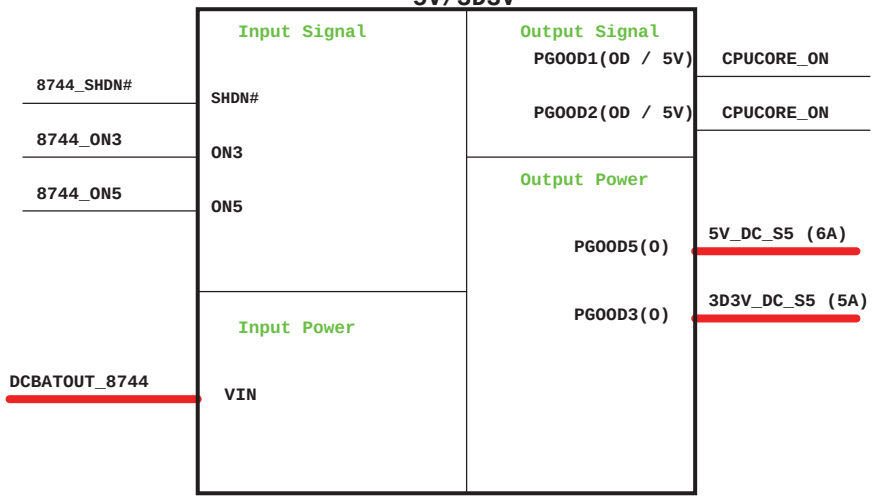
TI TPS51124
1D5V/1D05V



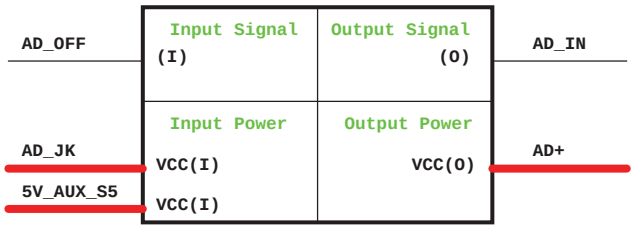
Charger ISL6255



MAX8744
5V/3D3V



Adapter



<Variant Name>

緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Power Block Diagram***

Size	Document Number	Rev
A3	Kirkini	SA

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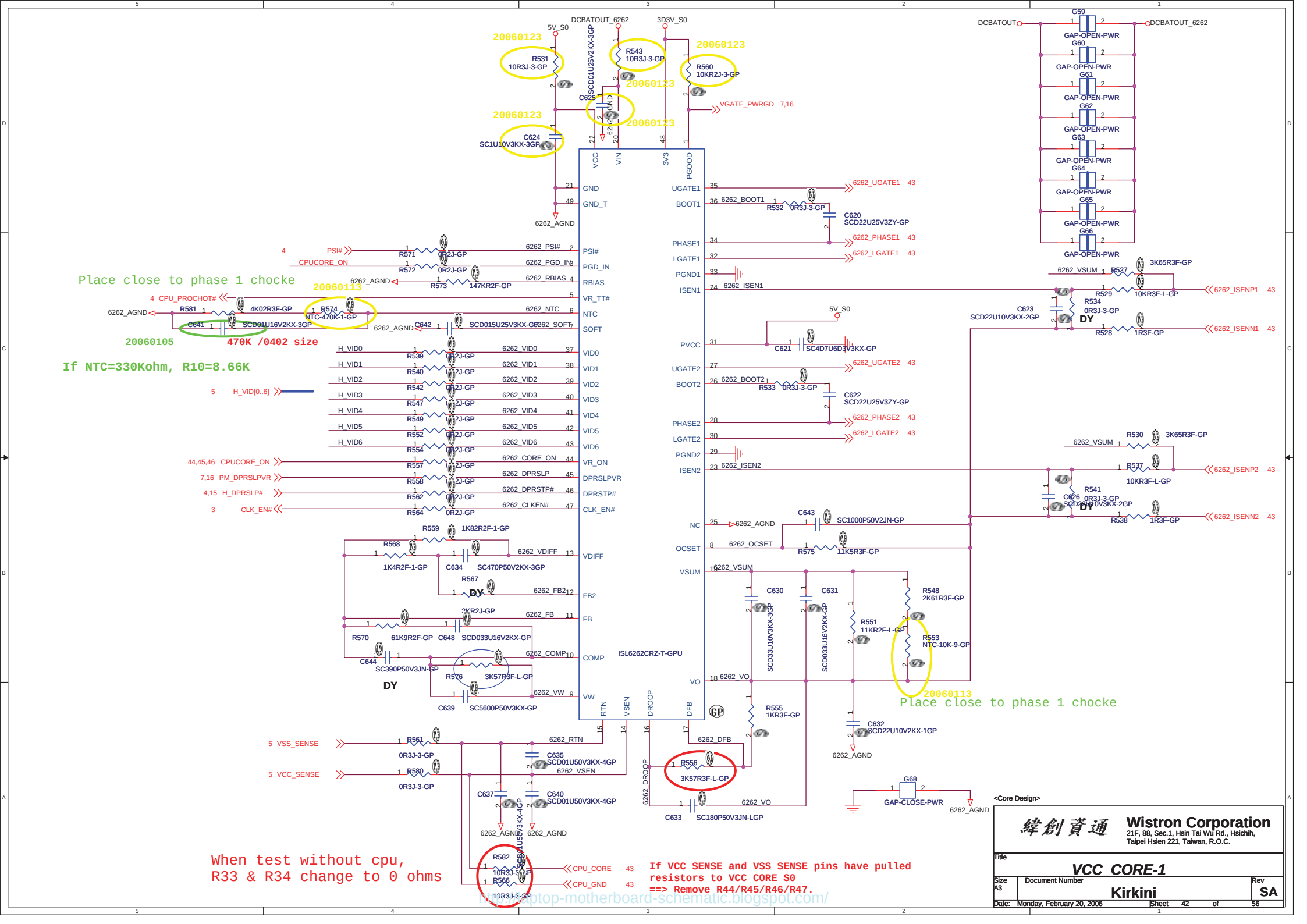
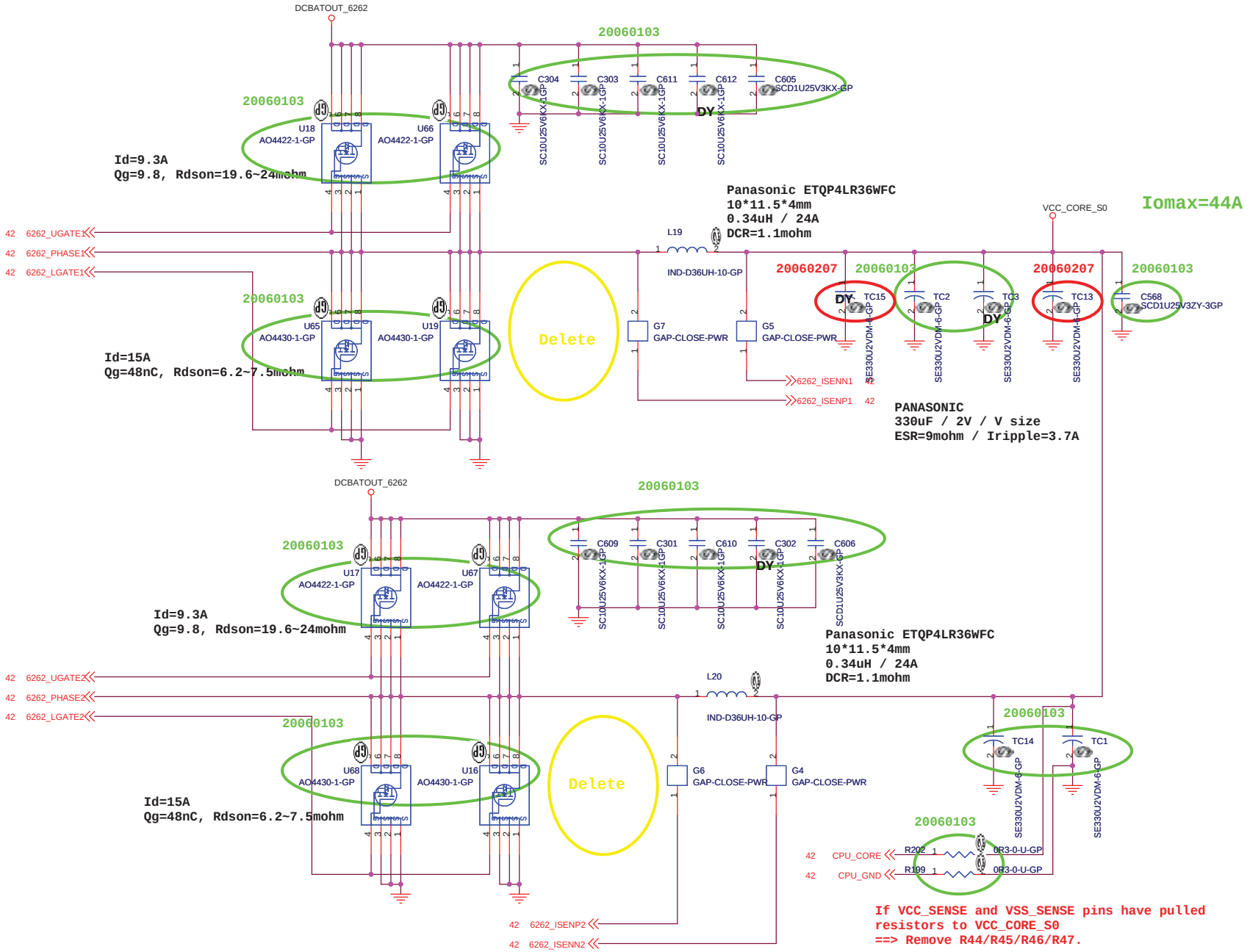

Place close to phase 1 chocke
If NTC=330Kohm, R10=8.66K
470K /0402 size
When test without cpu,
R33 & R34 change to 0 ohms
If VCC_SENSE and VSS_SENSE pins have pulled resistors to VCC_CORE_S0
==> Remove R44/R45/R46/R47.
ISL6262CRZ-T-GPU
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
VCC CORE-1
Kirkini
Monday, February 20, 2006



http://laptop-motherboard-schematic.blogspot.com/

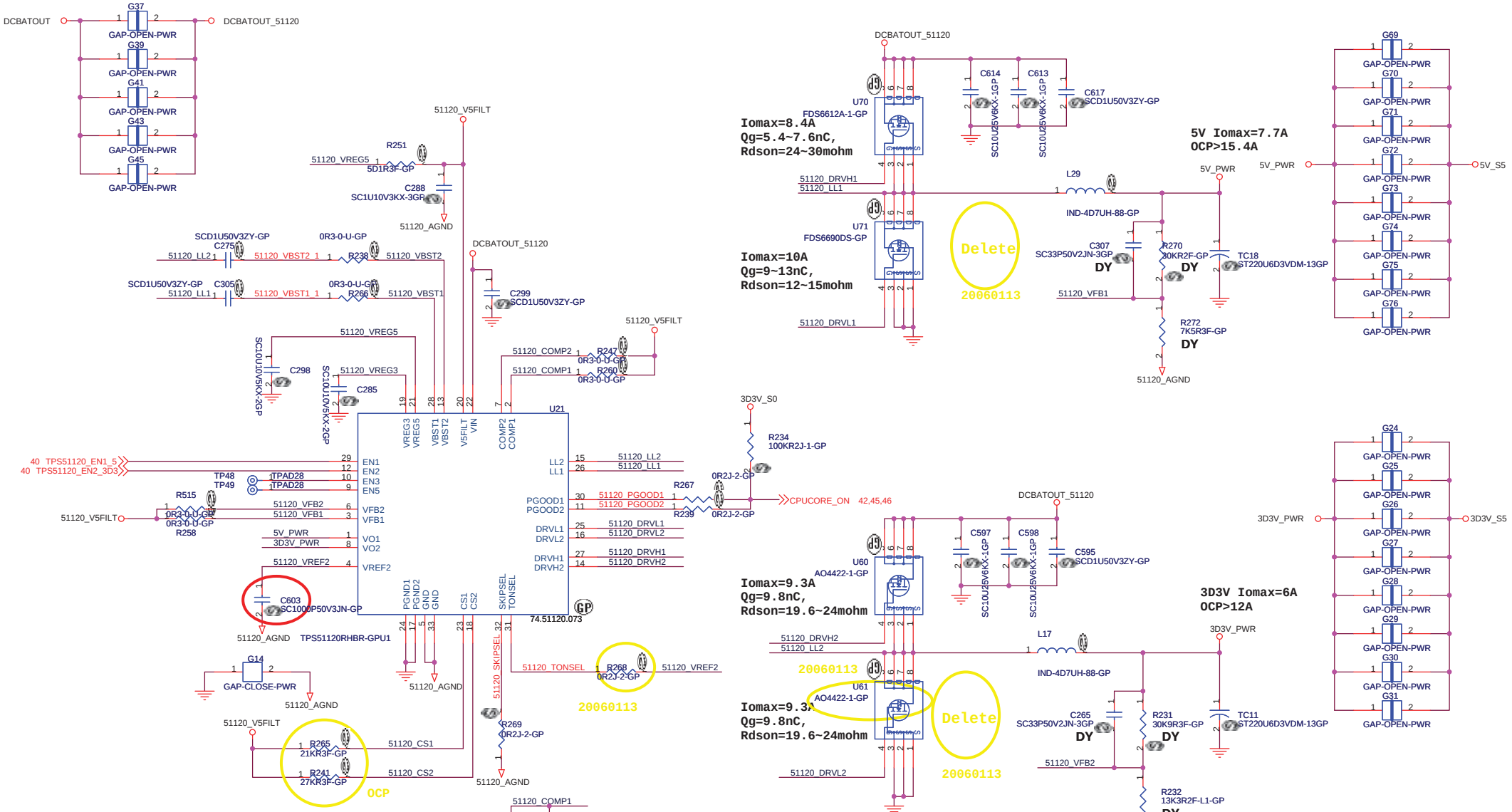
<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: VCC_CORE_2

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 43 of 56



	GND	VREF2	FLOAT	V5FILT
SKIPSEL	AUTOSKIP	AUTOSKIP /FAULTS OFF	PWM	PWM
COMP	N/A	N/A	CURRENT MODE	D-Cap MODE
TONSEL	380k/CH1 590k/CH2	290k/CH1 440k/CH2	220k/CH1 330k/CH2	180k/CH1 280k/CH2
VFB1	N/A	not use	ADJ.	5V Fixed Output
VFB2	N/A	not use	ADJ.	3.3V Fixed Output
EN1,EN2	Switcher OFF	not use	Swithchr ON	Switcher ON
EN3,EN5	LDO OFF	not use	LDO ON	VREG3 on

http://laptop-motherboard-schematic.blogspot.com/

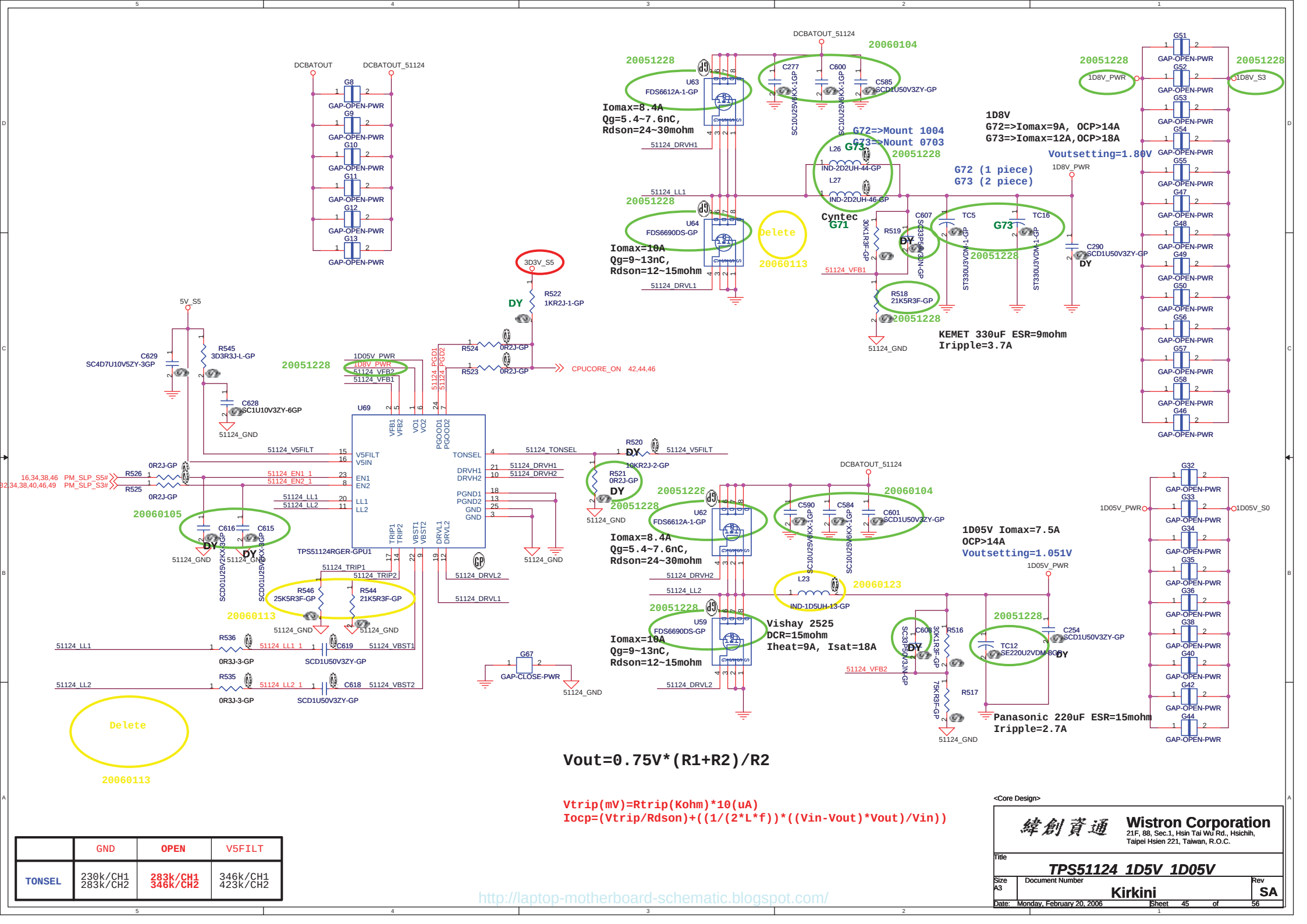
<Variant Name>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: TPS51120 5V / 3D3V

Size: A3 | Document Number: Kirkini | Rev: SA

Date: Monday, February 20, 2006 | Sheet 44 of 56



	GND	OPEN	V5FILT
TONSEL	230k/CH1 283k/CH2	283k/CH1 346k/CH2	346k/CH1 423k/CH2

http://laptop-motherboard-schematic.blogspot.com/

<Core Design>

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: TPS51124 1D5V 1D05V

Size: A3 | Document Number: Kirkini | Rev: SA

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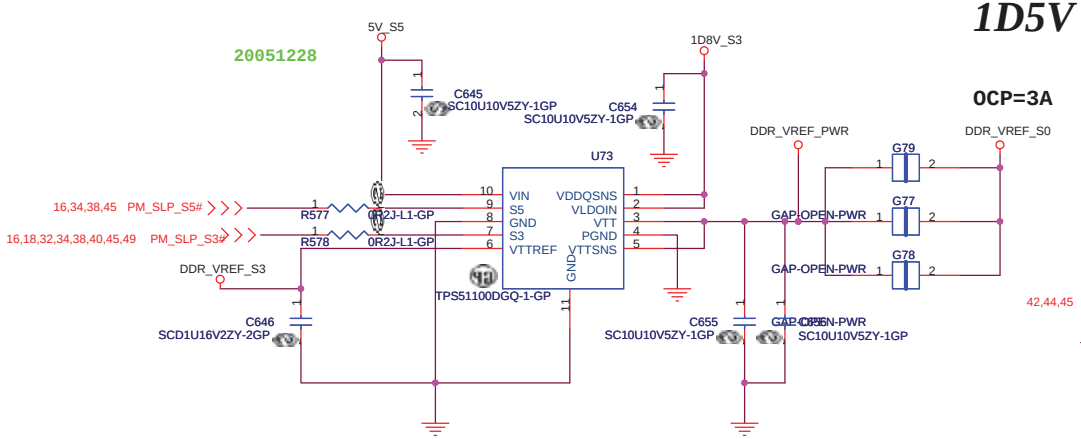
0D9V

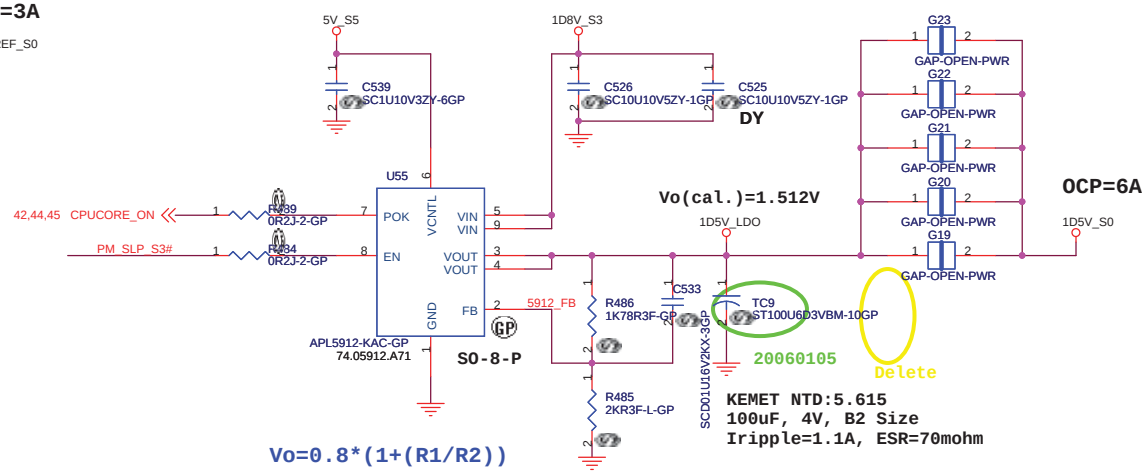
0D9V_S3
Iomax=1.5A



1D5V

OCP=3A

1D5V_S0
Iomax=4.0A



http://laptop-motherboard-schematic.blogspot.com/

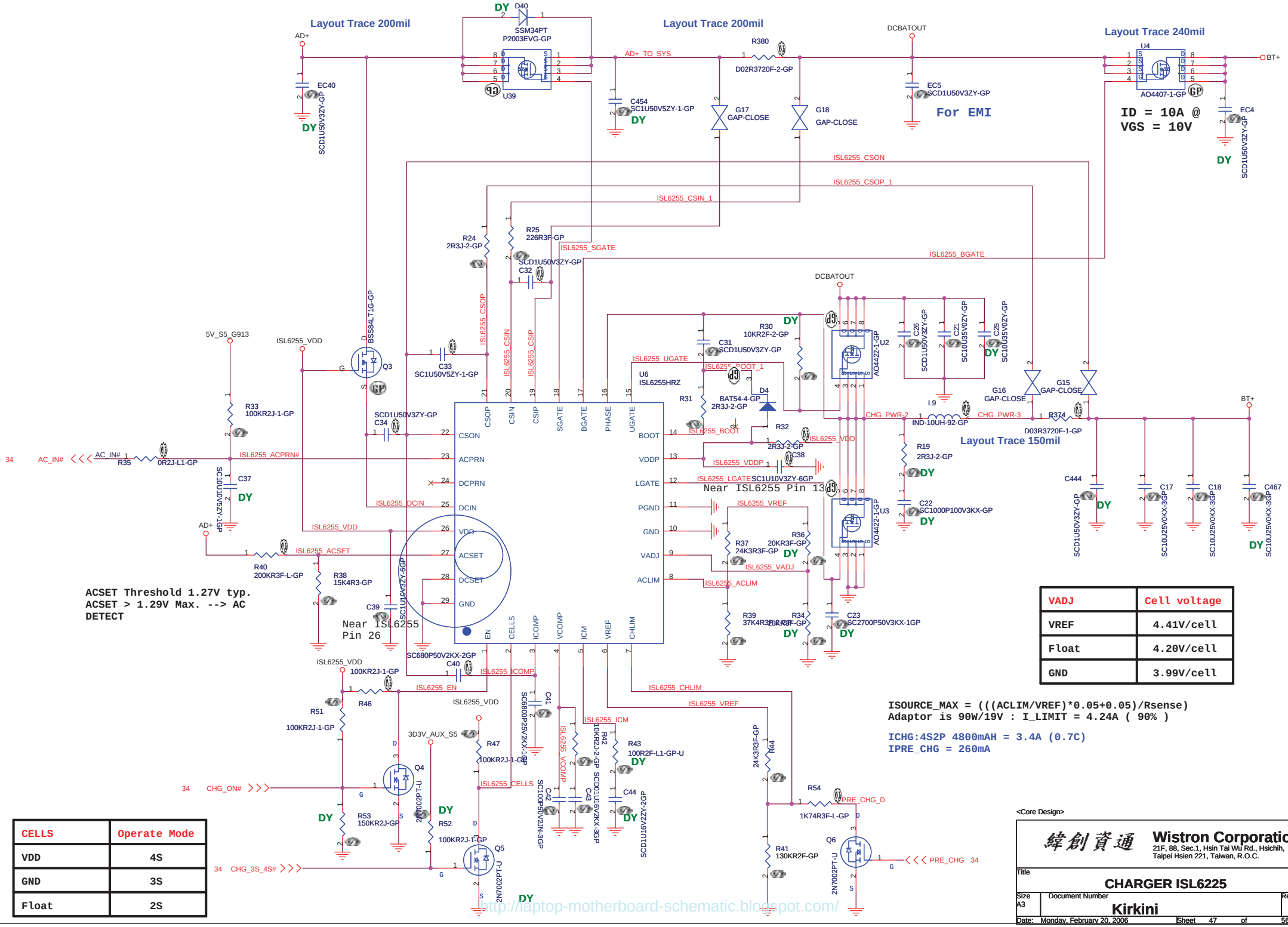
<Variant Name>

緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: *1.5V_APL5912 / 0.9V_TPS51100*

Size	Document Number	Rev
A3	Kirkini	SA

Date: Monday, February 20, 2006 Sheet 46 of 56



VADJ	Cell voltage
VREF	4.41V/cell
Float	4.20V/cell
GND	3.99V/cell

CELLS	Operate Mode
VDD	4S
GND	3S
Float	2S

http://laptop-motherboard-schematic.blogspot.com/

<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CHARGER ISL6225

Size	Document Number	Rev
A3	Kirkini	SA

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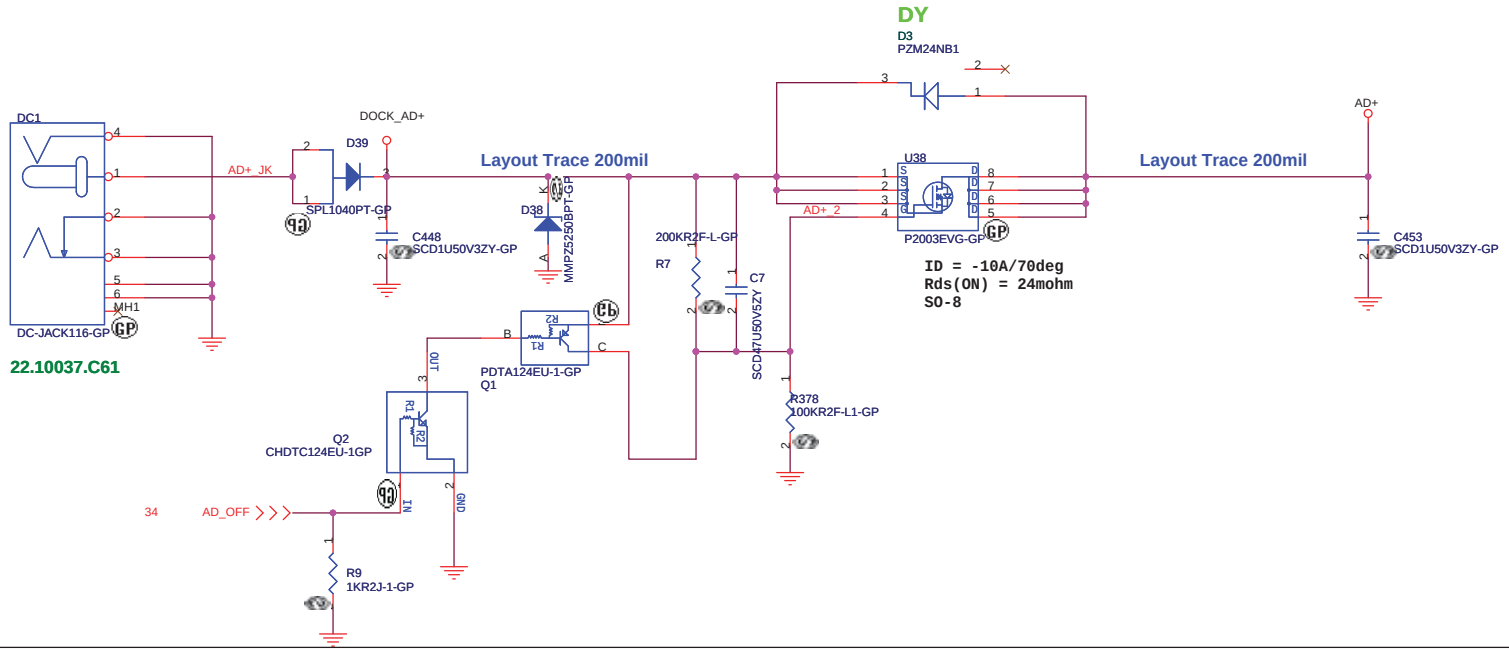
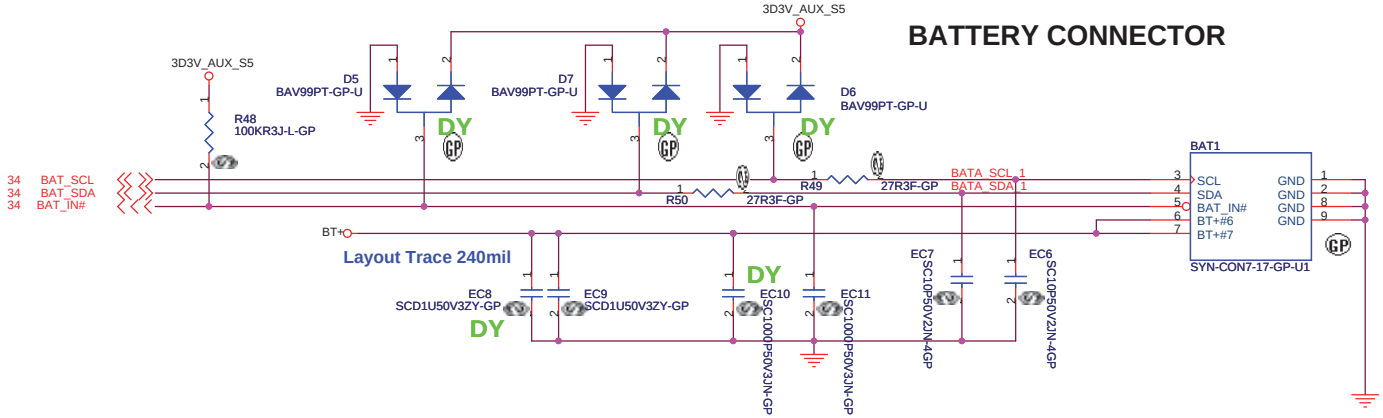
Adaptor in to generate DCBATOUT



BATTERY CONNECTOR



<Variant Name>

緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	AD/BATT CONN	
Size A3	Document Number Kirkini	Rev SA
Date: Monday, February 20, 2006	Sheet 48 of 56	

http://laptop-motherboard-schematic.blogspot.com/

NV SMBus
A(pin143&145) : VGA(CRT) / DOCK
B(pin218&220) : DVI
C(pin208&210) : HDMI / TPI / LVDS

Put near graphic connector

7 PEG_TXP[15..0]
7 PEG_TXN[15..0]
7 PEG_RXP[15..0]
7 PEG_RXN[15..0]

13 NV_TXBOUT0+
13 NV_TXBOUT0-
13 NV_TXBOUT1+
13 NV_TXBOUT1-
13 NV_TXBOUT2+
13 NV_TXBOUT2-
13 NV_TXBCLK+
13 NV_TXBCLK-
38 NV_BLUE
38 NV_GREEN
38 NV_RED
38 NV_TV_COMP
38 NV_TV_LUMA
38 NV_TV_CRMA

NV_TXACLK- 13
NV_TXACLK+ 13
NV_TXAOUT2- 13
NV_TXAOUT2+ 13
NV_TXAOUT1- 13
NV_TXAOUT1+ 13
NV_TXAOUT0- 13
NV_TXAOUT0+ 13
NV_EDID_DAT 13,52,53
NV_EDID_CLK 13,52,53
NV_LCDVDD_ON 13
NV_BL_ON 34
DDCB_DAT 51,52,54
DDCB_CLK 51,52,54

16,18,32,34,38,40,45,46 PM_SLP_S3#
R126 0R2J-GP
5V_S0
C104 SCD1U25V3KX-GP
1D8V_S0
R474 0R5J-5-GP
R460 0R5J-5-GP
R476 0R5J-5-GP
C523 C519 SCD1U25V3KX-GP
C507 C511 SCD1U25V3KX-GP
DCBATOUT
3D3V_S0
2D5V_S0
C35 SC10U10V6ZY-U
C36 SCD1U25V3KX-GP
CN5 TYCO-CONN230A-GP
20.F0871.230

TP66 TP5 TP4 TP61 TP60 TPAD30 TP59 TP65 TP64 TP63 TP62

EMI REQUEST

TMDS_A_TX0+ R384 0R2J-GP → TMDS_A_TX0+ 54
TMDS_A_TX0- R385 0R2J-GP → TMDS_A_TX0- 54
TMDS_A_TX1+ R386 0R2J-GP → TMDS_A_TX1+ 54
TMDS_A_TX1- R387 0R2J-GP → TMDS_A_TX1- 54
TMDS_A_TX2+ R388 0R2J-GP → TMDS_A_TX2+ 54
TMDS_A_TX2- R389 0R2J-GP → TMDS_A_TX2- 54
TMDS_A_TXC+ R390 0R2J-GP → TMDS_A_TXC+ 54
TMDS_A_TXC- R391 0R2J-GP → TMDS_A_TXC- 54

DVI_A_HPD 38,54
VGA_27MHZ 3
VGA_27MHZSS 3

3 CLK_PCIE_PEG#
3 CLK_PCIE_PEG

7,16,21,22,28,32,34,35,37,38,52 PLT_RST1#
34 GMODULE_RST#
R407 0R2J-GP
R408 0R2J-GP

53 HDMI_CEC
14 NV_HSYNC
14 NV_VSYNC
14 NV_DDCCLK
14 NV_DDCDATA
30 SPDIF_HDMI
52 GPU_BUFRST#
52 MP_INT
52 GPU_PRGM#
19 VGA_THERMDA
19 VGA_THERMDC

TMDS_B_TX0+ 51
TMDS_B_TX0- 51
TMDS_B_TX1+ 51
TMDS_B_TX1- 51
TMDS_B_TX2+ 51
TMDS_B_TX2- 51
TMDS_B_TXC+ 51
TMDS_B_TXC- 51

G73_HDMI
R392 0R2J-GP
R394 0R2J-GP
DVI_B_HPD 51,53
1930_HDMI_HPD 52
G71_HDMI

<Core Design>

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: KBC ENE
Size: A3
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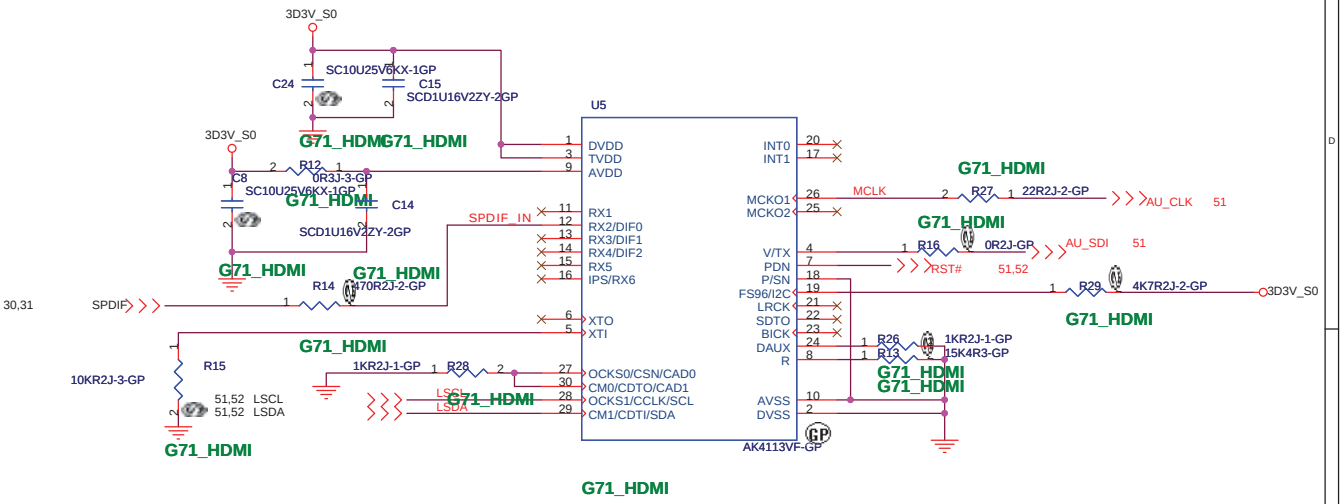

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<Variant Name>

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***HDMI AUDIO CODEC***

Size	Document Number	Rev
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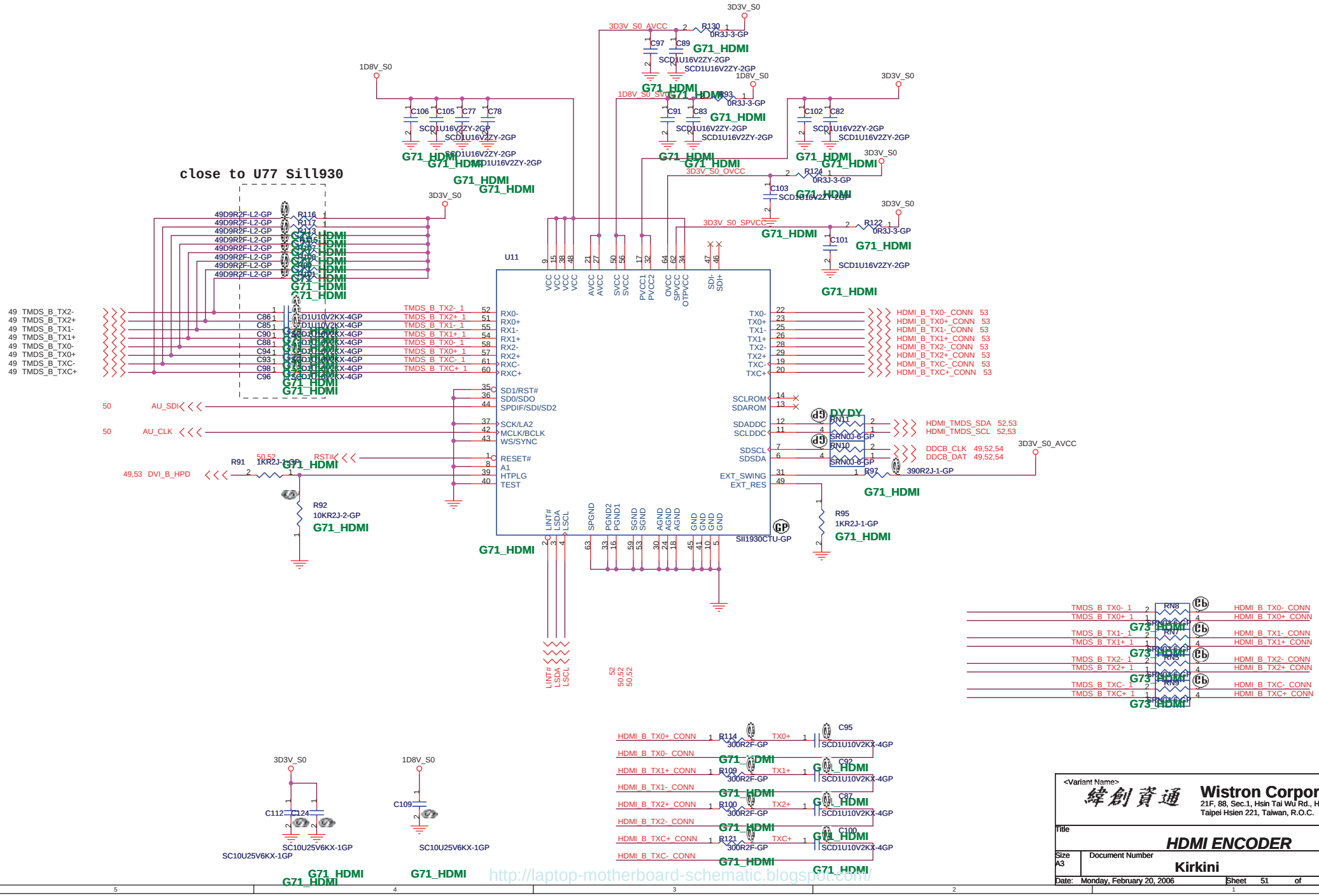

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緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: **HDMI ENCODER**

Size	Document Number	Rev
A3	Kirkini	SA

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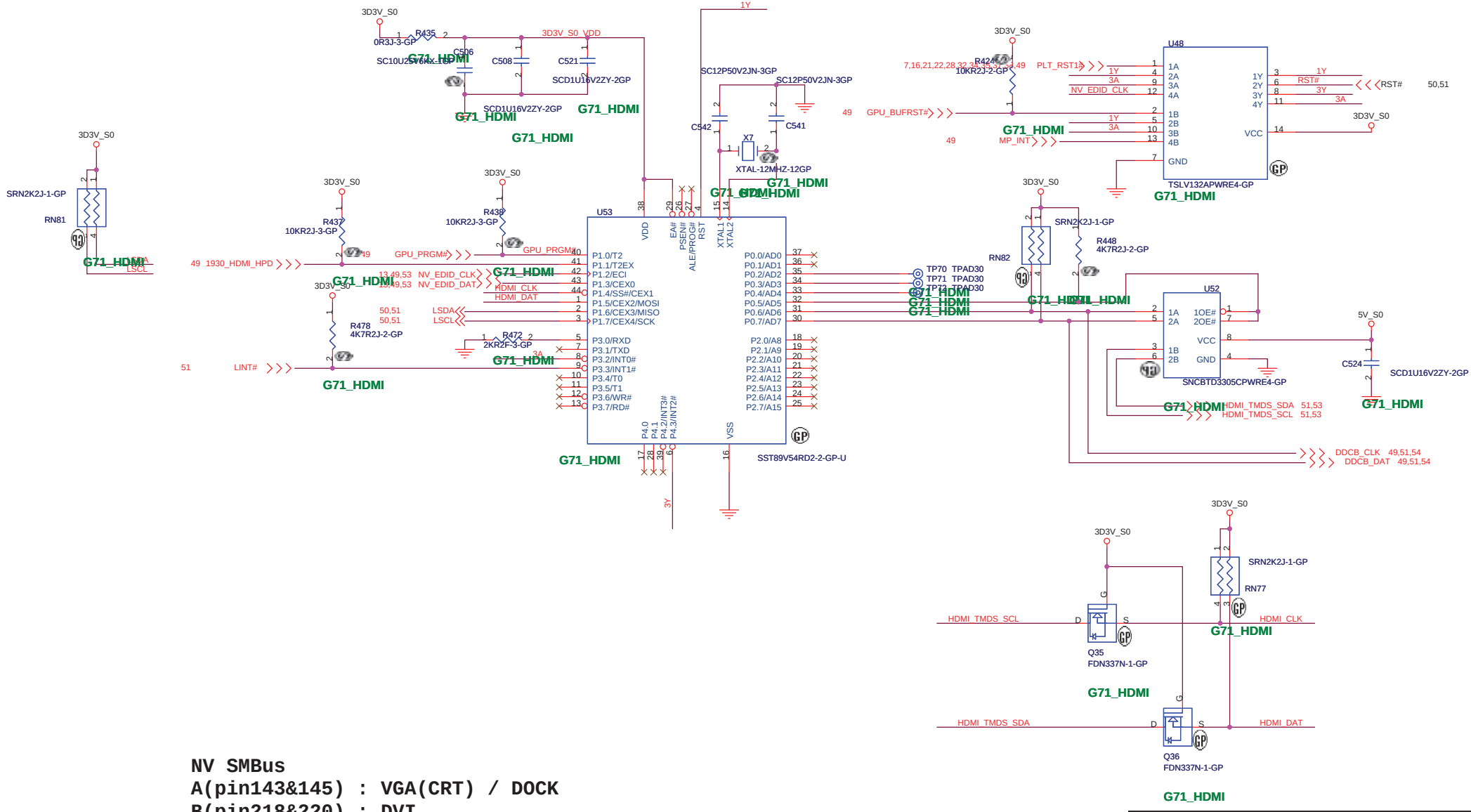

NV SMBus
A(pin143&145) : VGA(CRT) / DOCK
B(pin218&220) : DVI
C(pin208&210) : HDMI / TPI / LVDS

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<Variant Name>
緯創資通
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***MICRO CONTROLLER***

Size	Document Number	Rev
A3	Kirkini	SA

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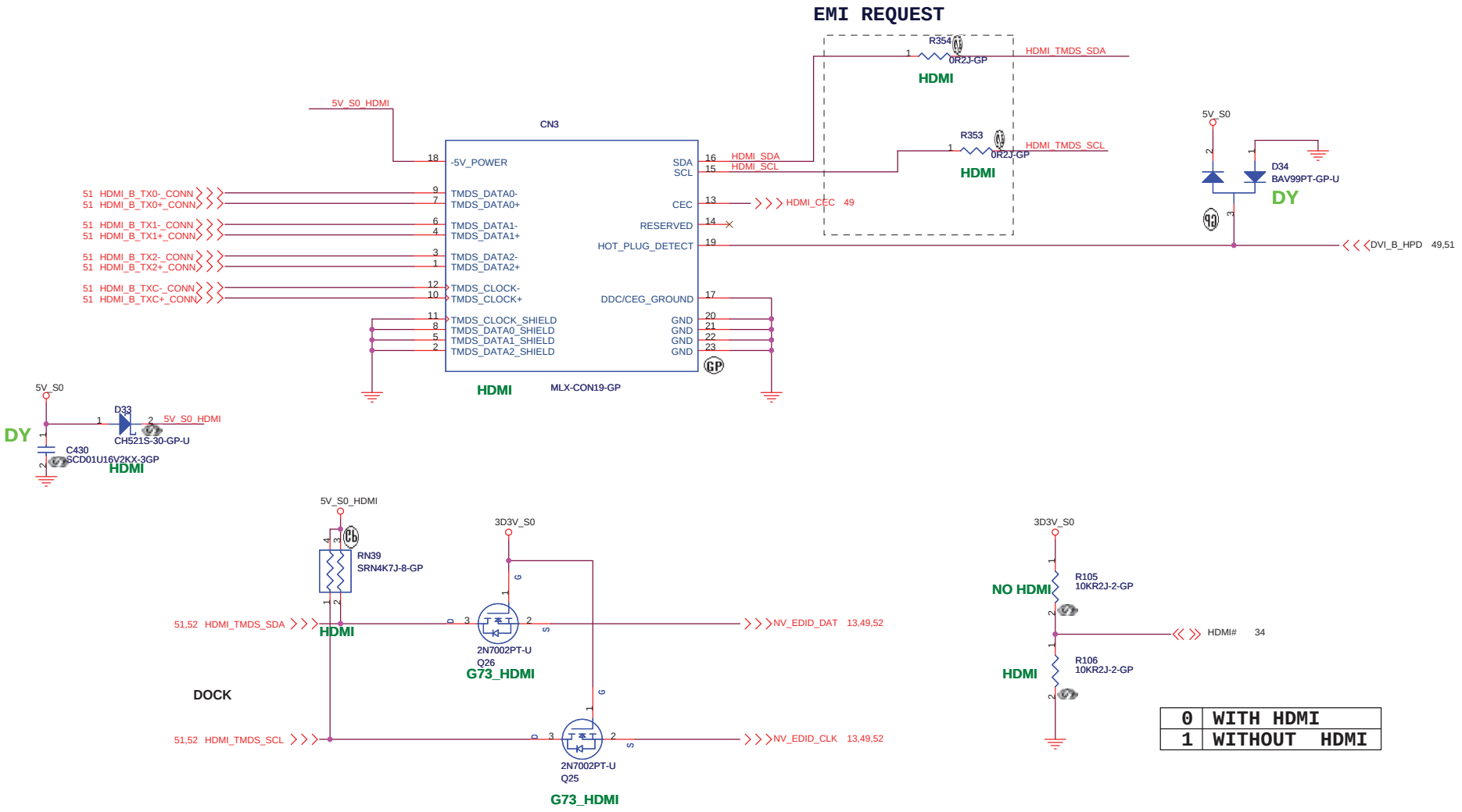

0	WITH HDMI
1	WITHOUT HDMI

<Variant Name>

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Title: HDMI CONNECTOR

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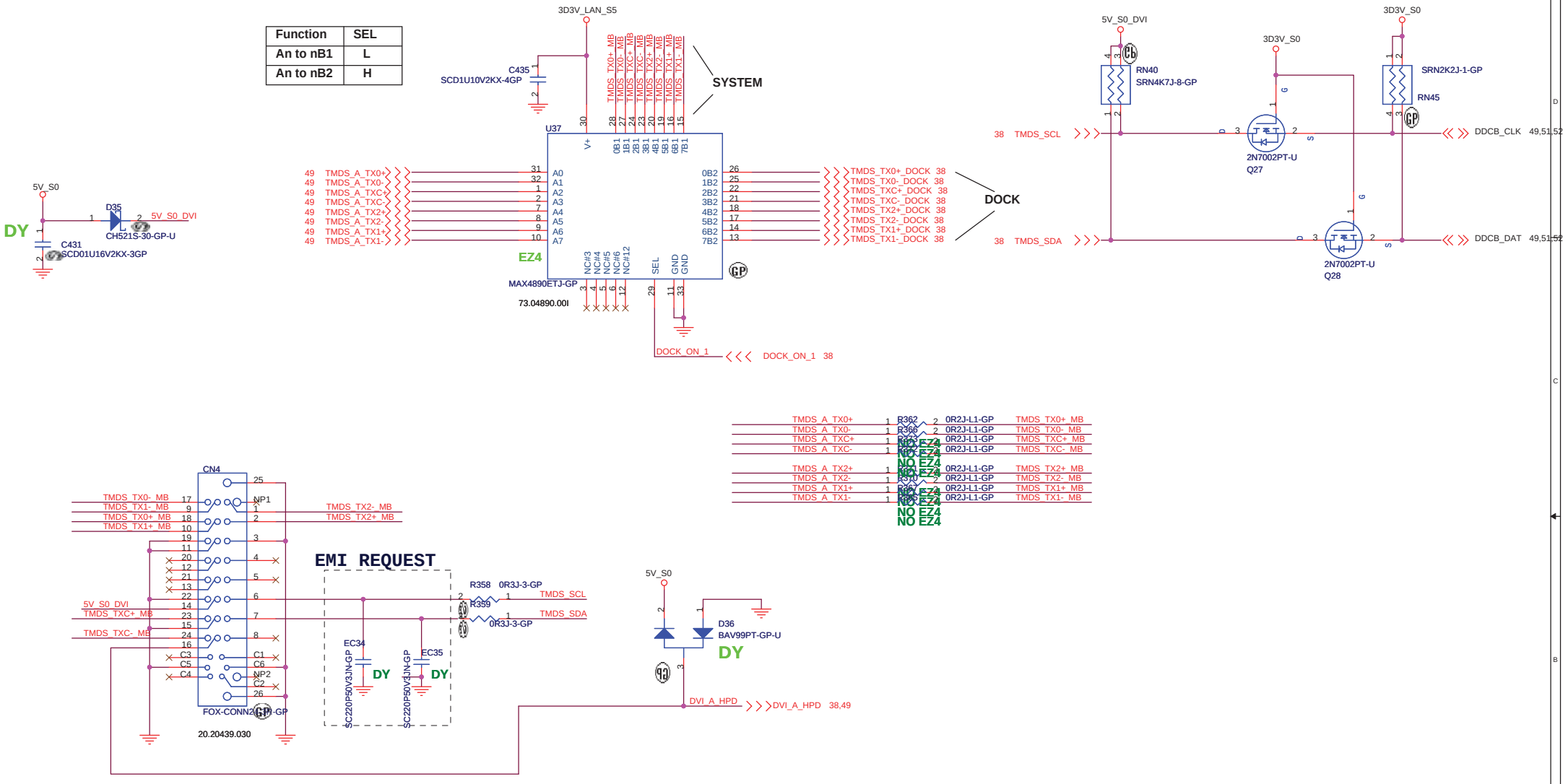
Function	SEL
An to nB1	L
An to nB2	H



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<Variant Name>

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	**DVI CONNECTOR**
Size A3 / Document Number	**Kirkini** / Rev **SA**
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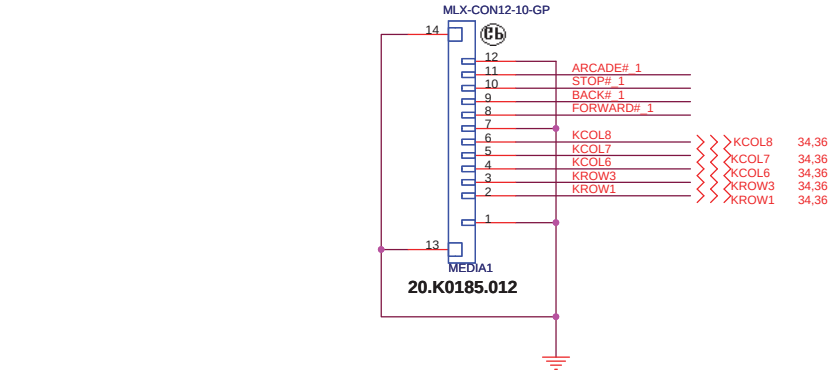
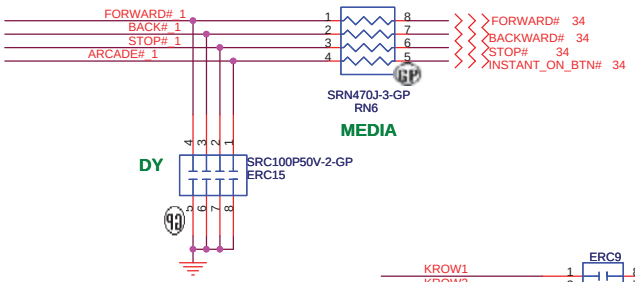
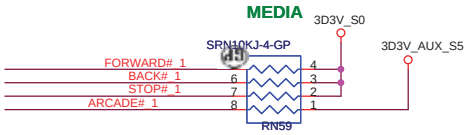
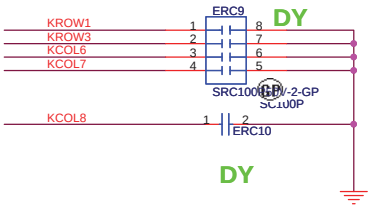



```
Pin12:GND
Pin11:ARCADE#_1
Pin10:STOP#_1
Pin9:BACK#_1
Pin8:FORWARD#_1
Pin7:GND
Pin6:KCOL8
Pin5:KCOL7
Pin4:KCOL6
Pin3:KROW3
Pin2:KROW1
Pin1:GND
```

MB
Top view







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<Variant Name> 緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***MEDIA BD CONNECTOR***	
Size A3	Document Number **Kirkini**	Rev **SA**
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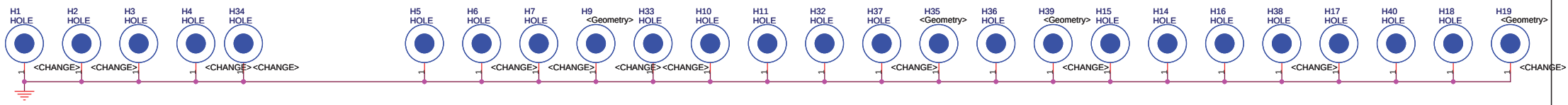

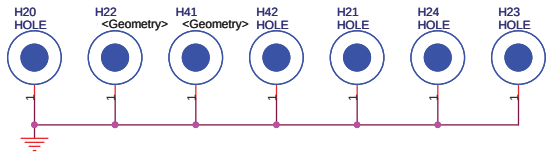

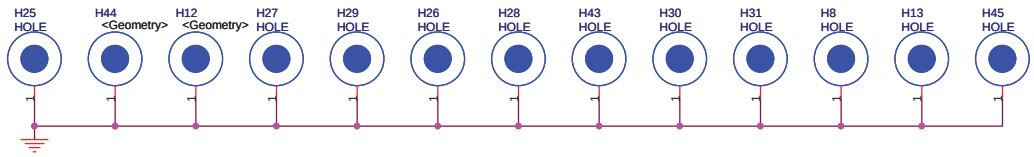

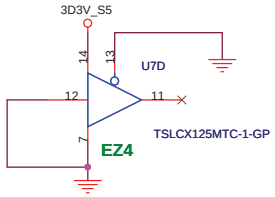

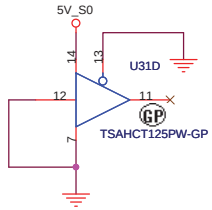

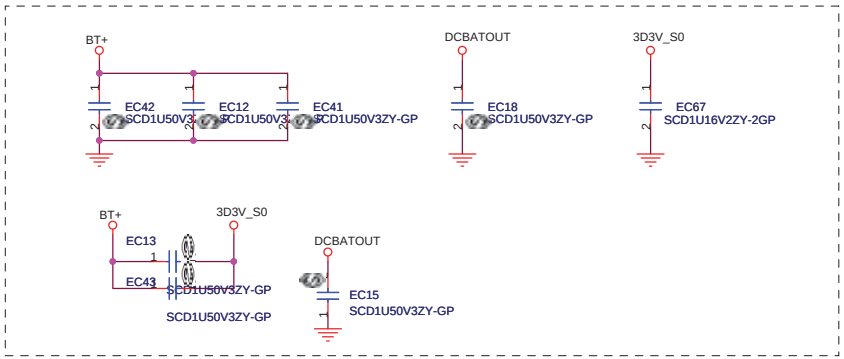

EMI REQUEST

0210

<Core Design>

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Title	**EMI**
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