

COMPAL CONFIDENTIAL

MODEL NAME : *DBL10 -- Sapporo X*

COMPAL P/N : *DA8BL10L010*

PCB NO : *LA-1931*

Revision : *1.0*

DBL10 -- Sapporo X Schematics Document

uFCBGA/uFCPGA NorthWood MT

2003-09-19 v1.0

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.		
Title		
Cover Sheet		
Size	Document Number	Rev
	401264	1B
Date:	~P期二、十月 28, 2003	Sheet 1 of 49

Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+1.2V	1.2V switched power rail for CPU AGTL Bus	ON	ON	OFF
+1.25VS	1.25V switched power rail	ON	OFF	OFF
+1.5VALW	1.5V always on power rail	ON	ON	ON
+1.5V	1.5V power rail	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+2.5V	2.5V power rail	ON	ON	OFF
+3VALW	3.3V always on power rail	ON	ON	ON
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched power rail	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON
+RTCBATT	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

Power Management table

Signal \ State	+1.5VALW +3VALW +5VALW +12VALW	+5V +3V +2.5V +1.2V	+5VS +3VS +1.5VS +CPU_CORE +1.25VS
S0	ON	ON	ON
S1	ON	ON	ON
S3	ON	ON	OFF
S5 S4/AC	ON	OFF	OFF
S5 S4/AC don't exist	OFF	OFF	OFF

Board ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra	100K +/- 5%			
Board ID	Rb	V _{AD_BID min}	V _{AD_BID typ}	V _{AD_BID max}
0	0	0 V	0 V	0 V
1	8.2K +/- 1%	0.216 V	0.250 V	0.289 V
2	18K +/- 1%	0.436 V	0.503 V	0.538 V
3	33K +/- 1%	0.712 V	0.819 V	0.875 V
4	56K +/- 1%	1.036 V	1.185 V	1.264 V
5	100K +/- 1%	1.453 V	1.650 V	1.759 V
6	200K +/- 1%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

External PCI Devices (follow PCI IRQ routing plannig ver0.2.04)

Device	IDSEL#	REQ#/GNT#	Interrupts - (ICH4-M)
CardBus (ENE-CB1410)	AD20	2	PIRQA#
IEEE 1394 (VIA-VT6301S)	AD16	0	PIRQE#
LAN (Realtek-RTL8101L)	AD17	3	PIRQF#
Mini-PCI	AD18	1 INTA#/INTB#	PIRQG# / PIRQH#

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 100X b
EEPROM(24C16)	1010 000X b		

EC SM Bus2 address

ICH4 SM Bus address

Device	Address
CLK GEN (ICS-950810)	1101 001X

Board ID	PCB Revision
0	0.1
1	
2	
3	
4	
5	
6	
7	

Compal Electronics, Inc.

Title
SCHEMATIC, M/B LA-1931

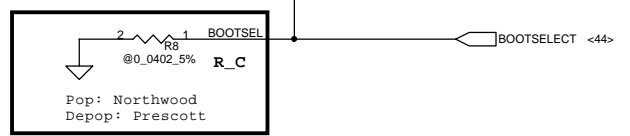
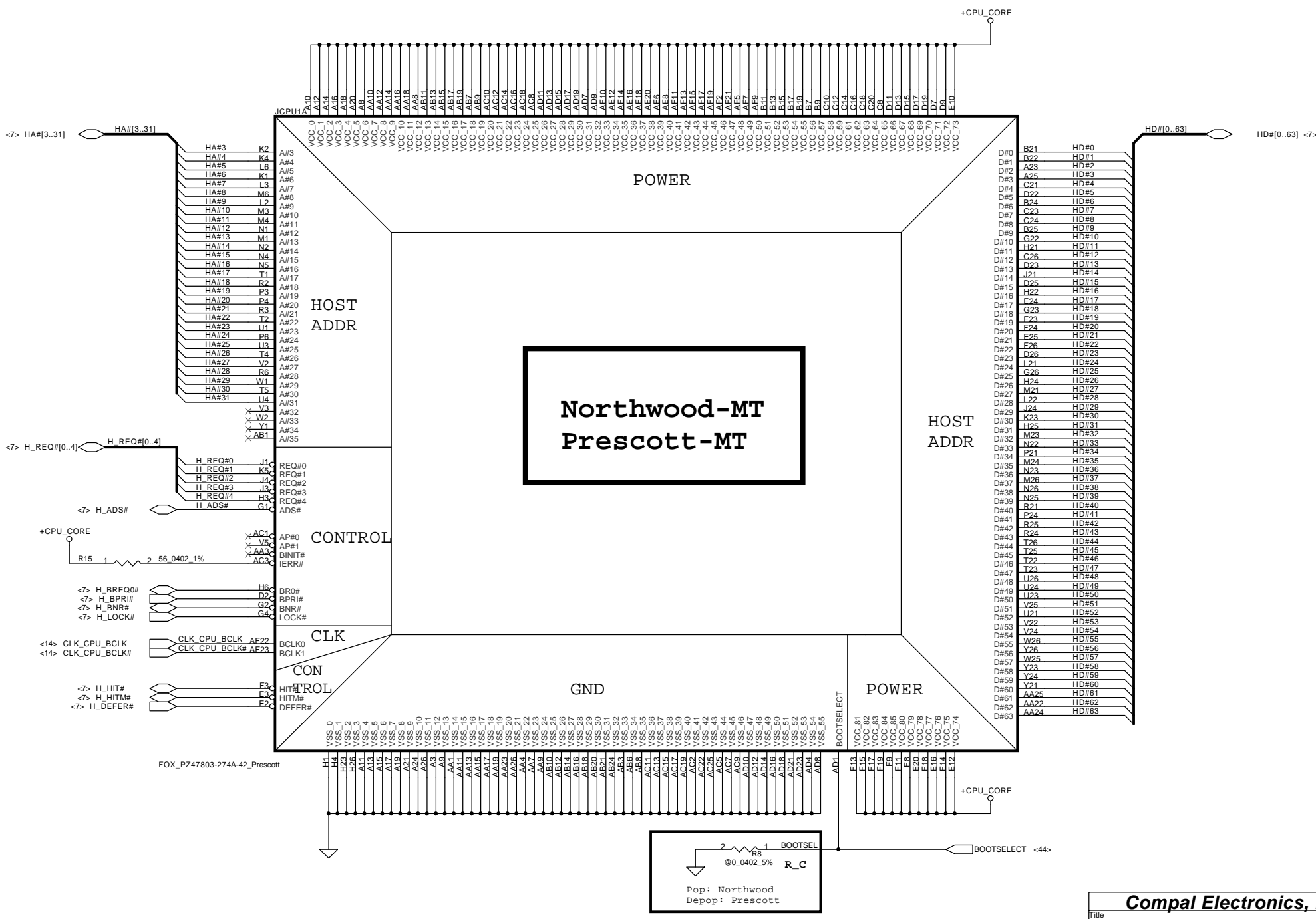
Size Document Number
401264

Date: ~P期三, 九月 24, 2003

Sheet 3 of 49

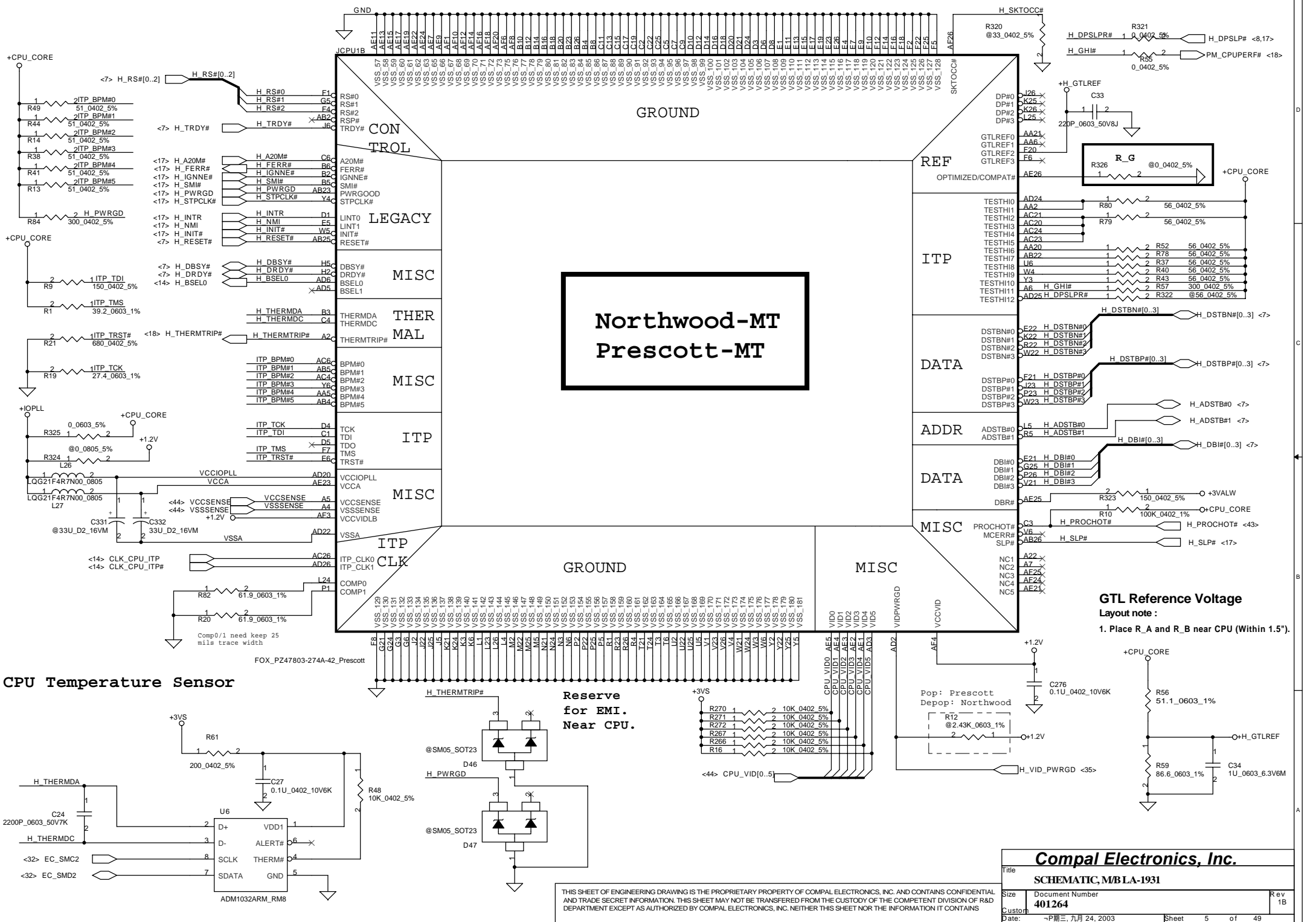
Rev
1B

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



Compal Electronics, Inc.		
Title SCHMATIC, MB LA-1931		
Size	Document Number	Rev
Custom	401264	1B
Date:	~P期三, 九月 24, 2003	Sheet 4 of 49

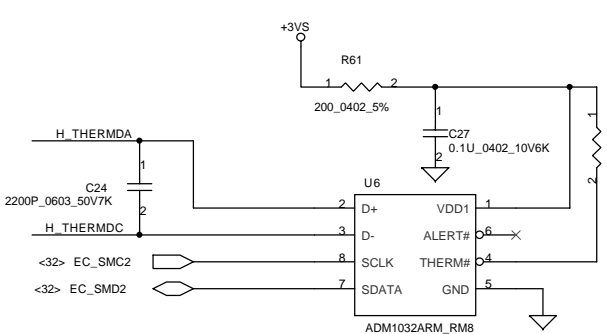
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS



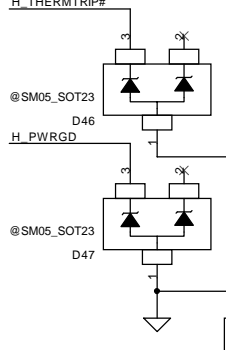
Northwood-MT Prescott-MT

GTL Reference Voltage
Layout note:
1. Place R_A and R_B near CPU (Within 1.5").

CPU Temperature Sensor



Reserve
for EMI.
Near CPU.



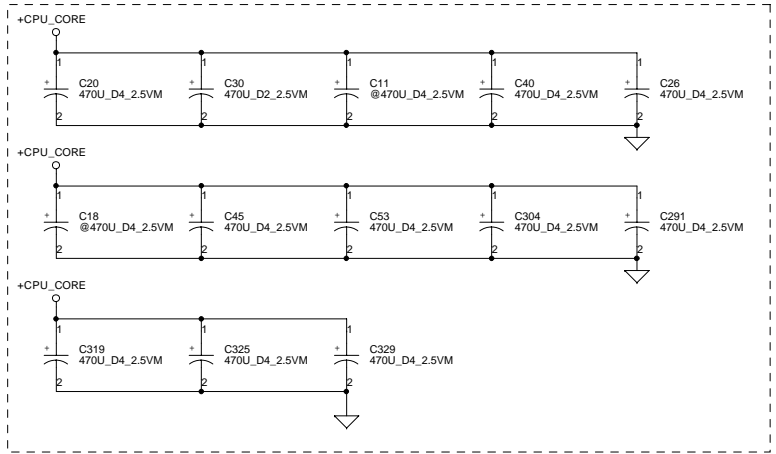
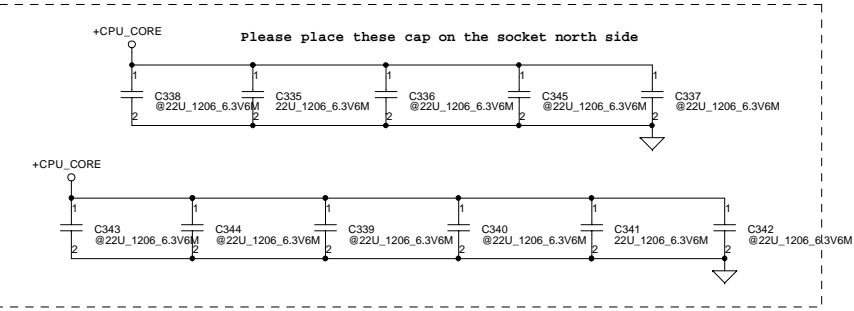
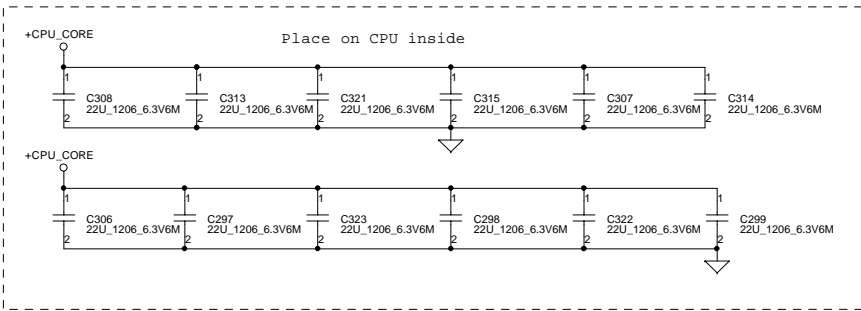
Compal Electronics, Inc.		
Title SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
Custom	401264	1B
Date:	~P期三, 九月 24, 2003	Sheet 5 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS

Layout note :
 Place close to CPU. Use 2-3 vias per PAD.
 Place 22uF caps x31 pcs, populated 14pcs.

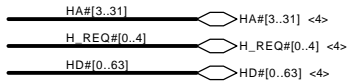
Layout note :
 Place close to CPU power and ground pin as possible (<1inch)

For Desktop's CPU:
 470uFx15/12mOhm H=1.8 each
 Total 0.923m ohm



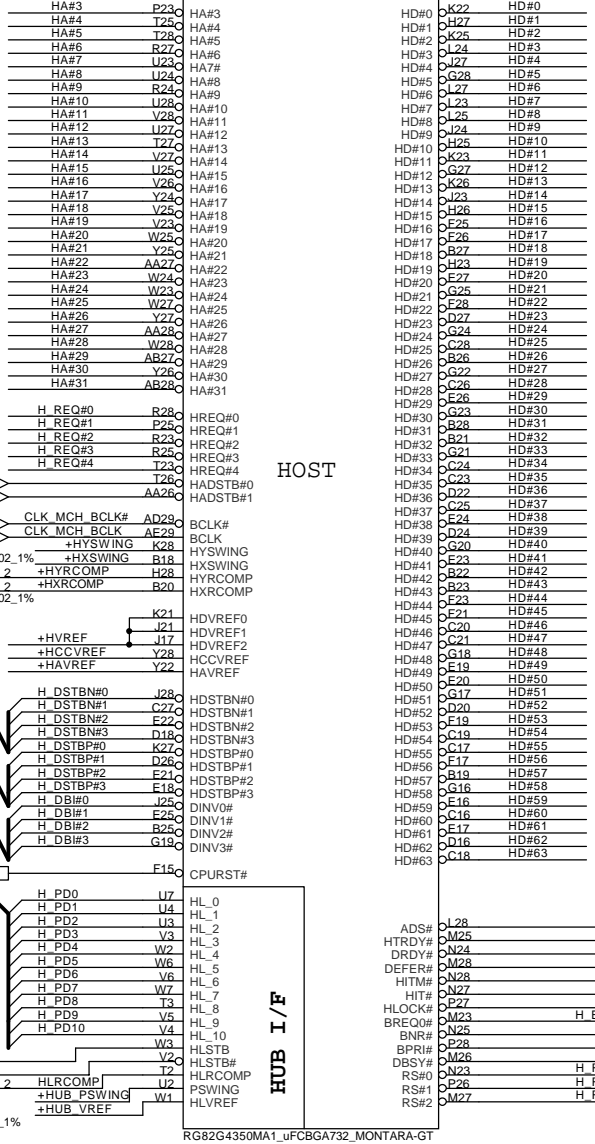
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS

Compal Electronics, Inc.		
Title	SCHEMATIC, MB LA-1931	
Size	Document Number	Rev
Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 6 of 49

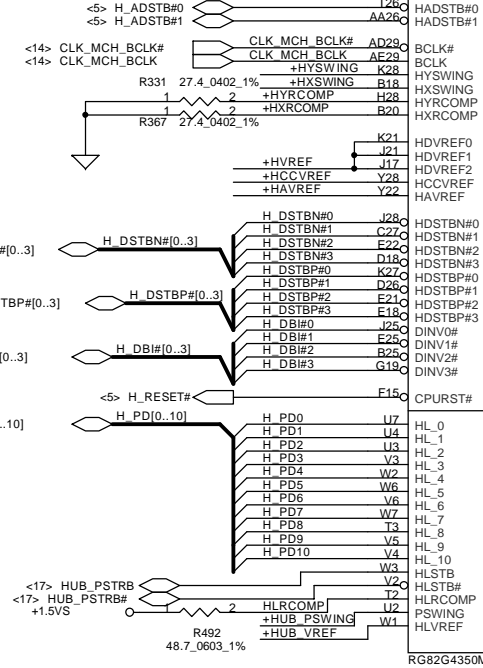


U26A

Montara-GT



HOST

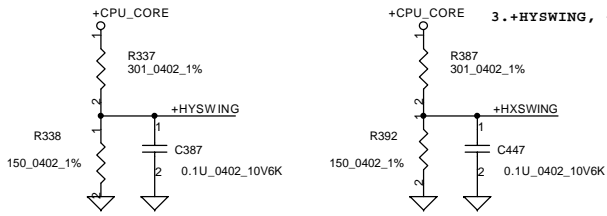


HUB I/F

RG82G4350MA1_UFCBGA732_MONTARA-GT

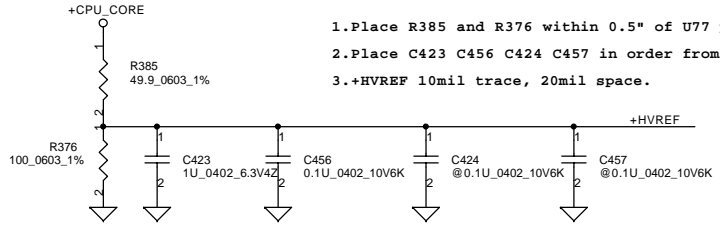
HXSWING and HYSWING Ref. Voltage

1. Place R337 and R338 within 0.5" of U77 pin K28
2. Place R387 and R392 within 0.5" of U77 pin B18
3. +HYSWING, +HXSWING 10mil trace, 20mil space.

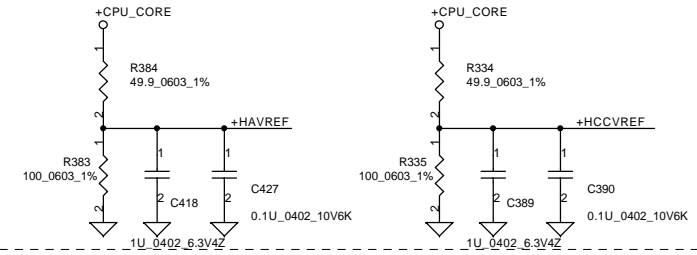


Host data Ref. Voltage

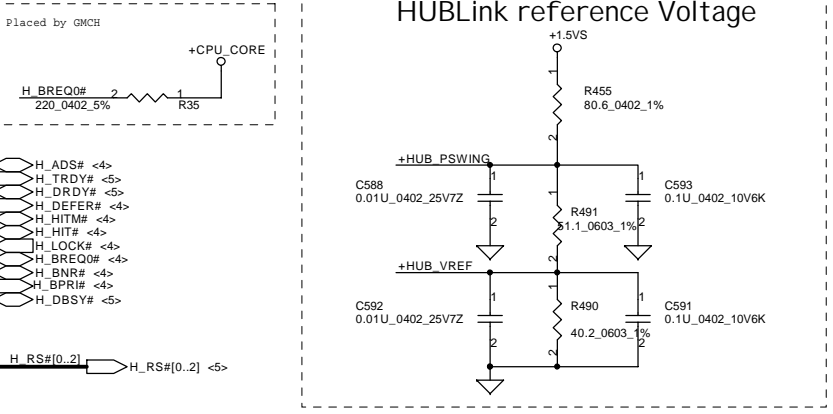
1. Place R385 and R376 within 0.5" of U77 pin K21 J21 J17
2. Place C423 C456 C424 C457 in order from U77 to divider
3. +HVREF 10mil trace, 20mil space.



Host Address Ref. Voltage

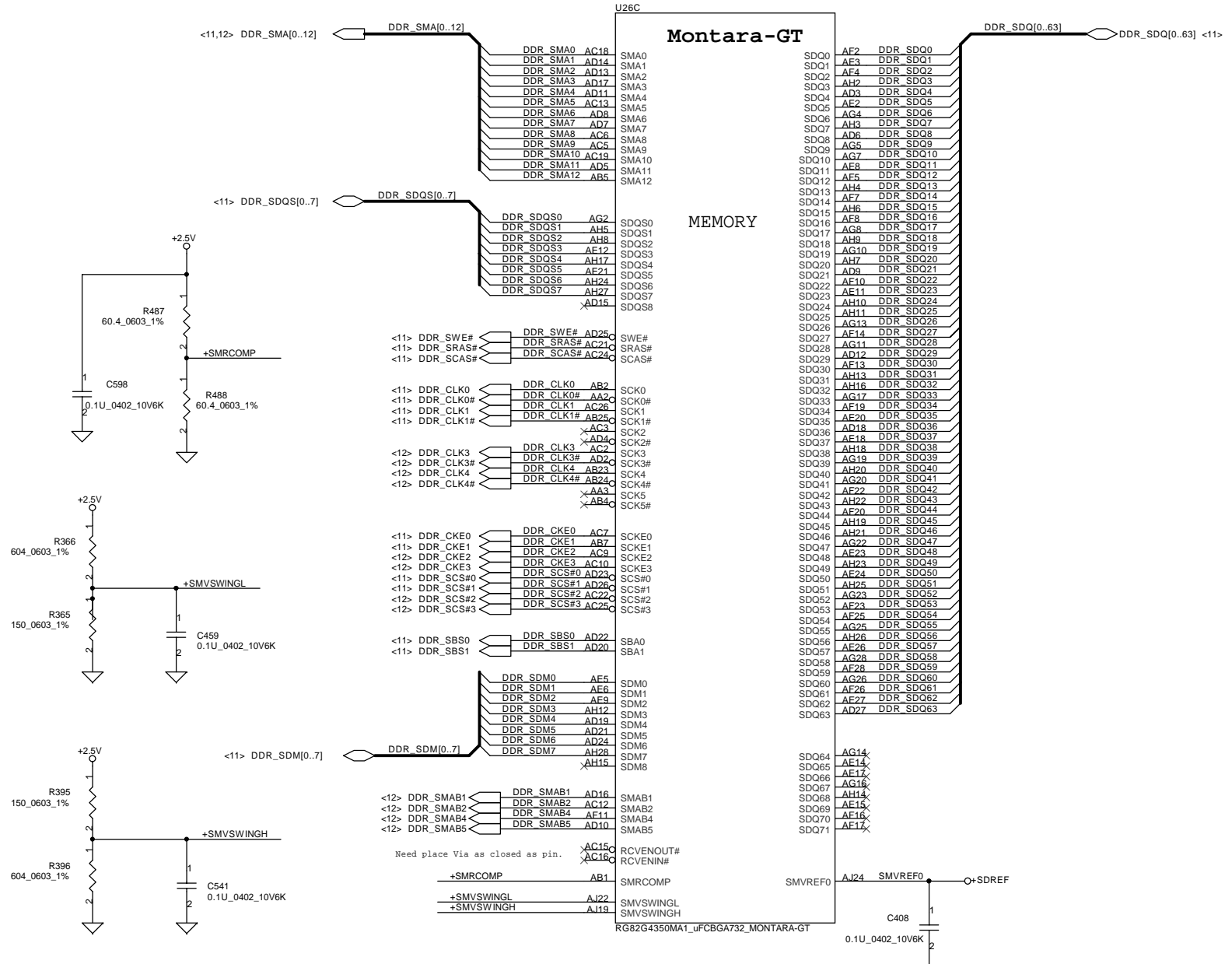


HUBLink reference Voltage



THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.		
Title SCHEMATIC, M/BLA-1931		
Size	Document Number 401264	Rev 1B
Date:	~P期三, 九月 24, 2003	Sheet 7 of 49

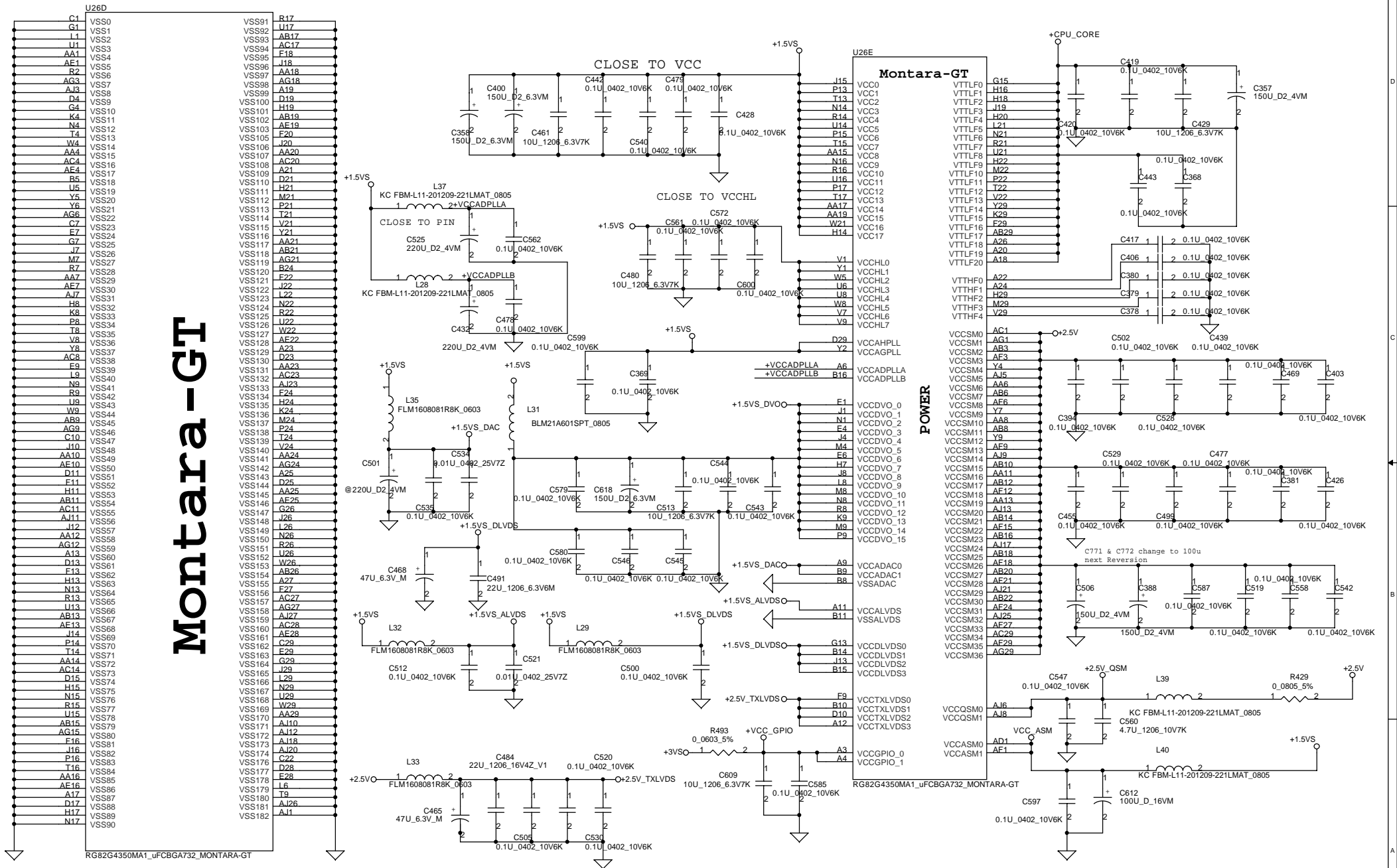


TOPOLOGY 1 FOR DDR
 SMAA[12:6,3,0], SBA[1:0], SRAS#, SCAS#, SWE#

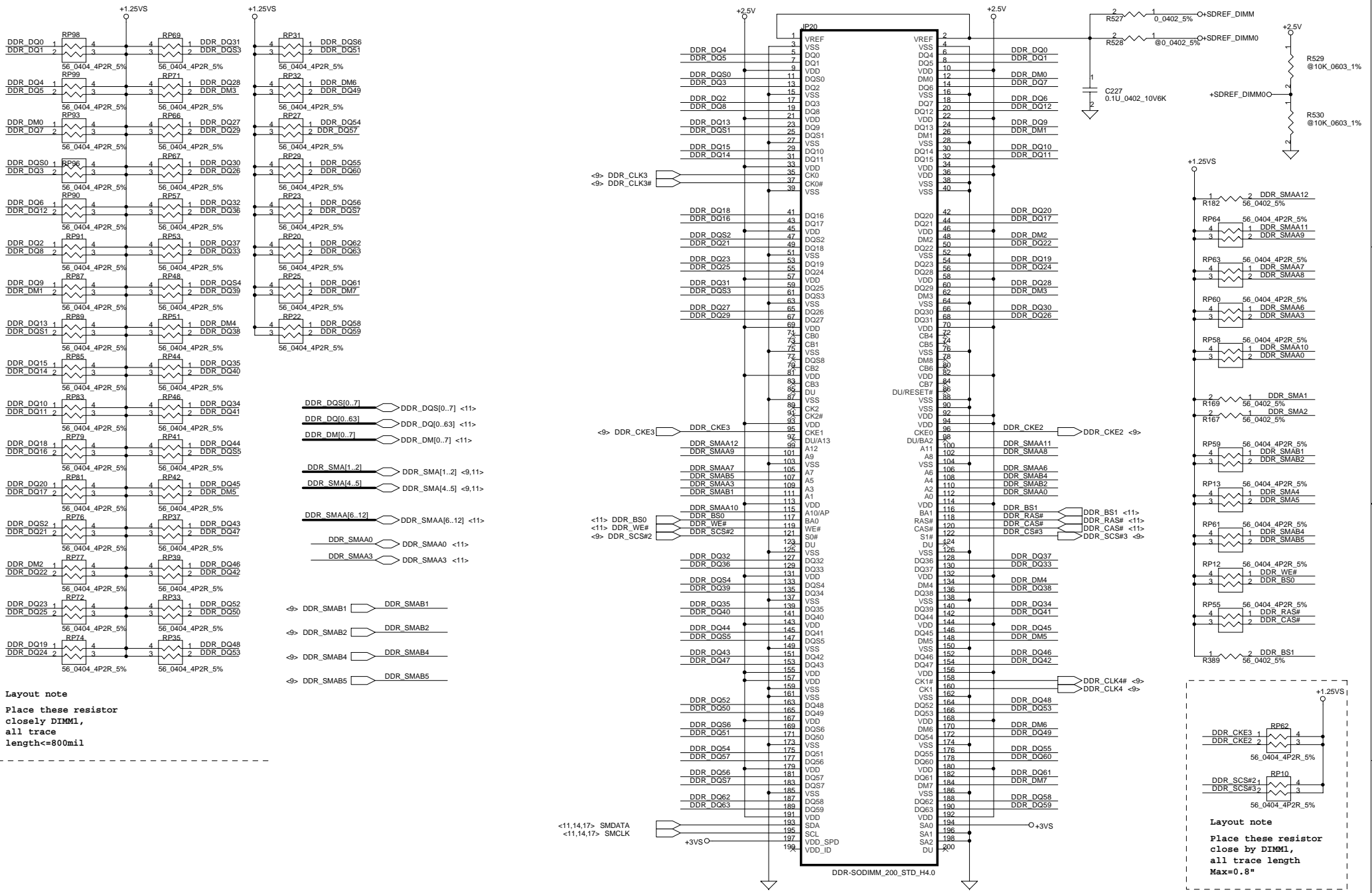
Compal Electronics, Inc.		
Title		
SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
	401264	1B
Date:	~P 星期三, 九月 24, 2003	Sheet 9 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Montara-GT



||
||
||



Layout note
Place these resistor closely DMM1, all trace length<=800mil

Layout note
Place these resistor close by DIM1, all trace length Max=0.8"

DDR TOPOLOGY 1 FOR SMAA[0, 3, 6:12], SBA[1, 0], SRAS#, SCAS#, SWE#

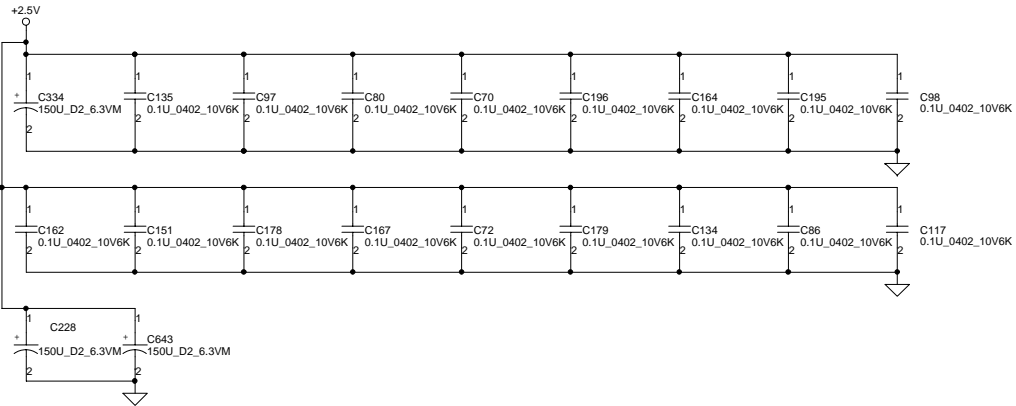
Compal Electronics, Inc.

SCHEMATIC, M/B LA-1931

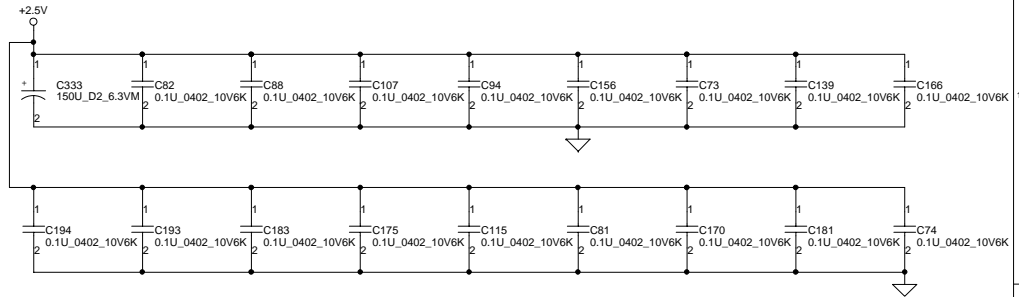
Title		
SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 12 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

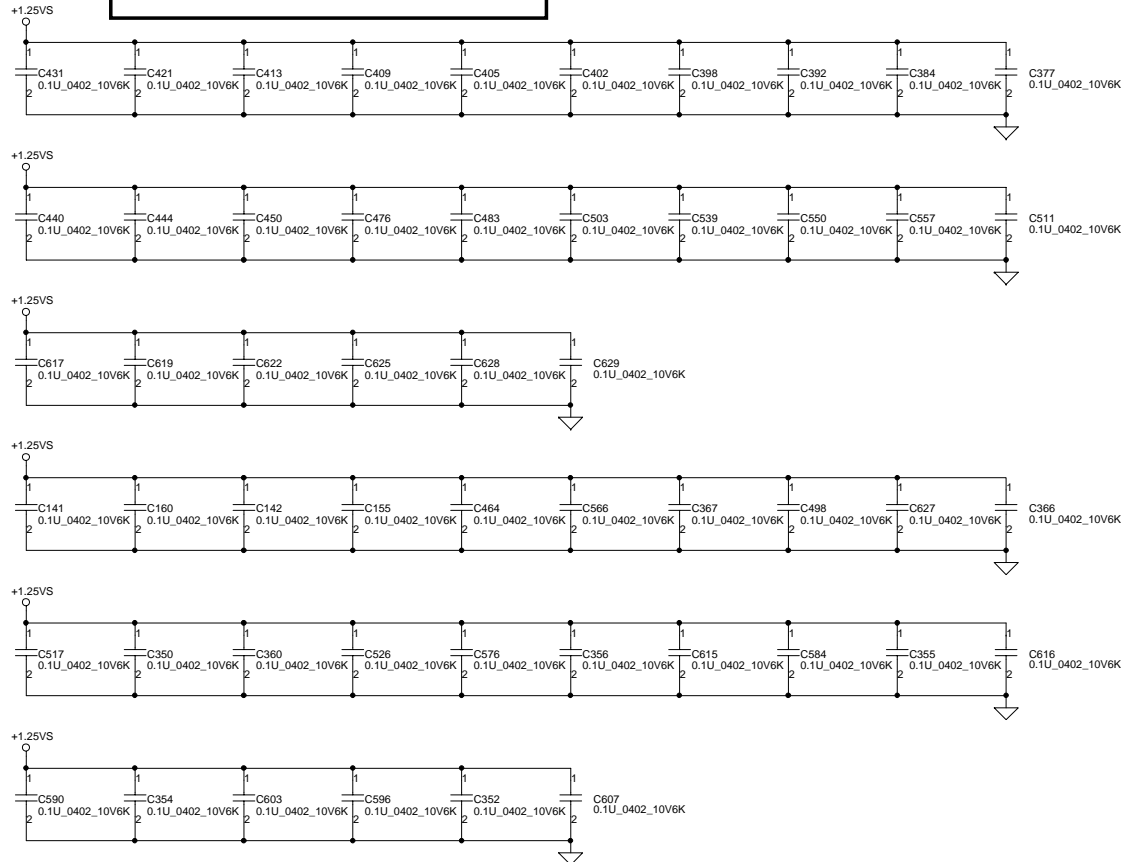
Layout note :
Distribute as close as possible to DDR-SODIMM0.



Layout note :
Distribute as close as possible to DDR-SODIMM1.



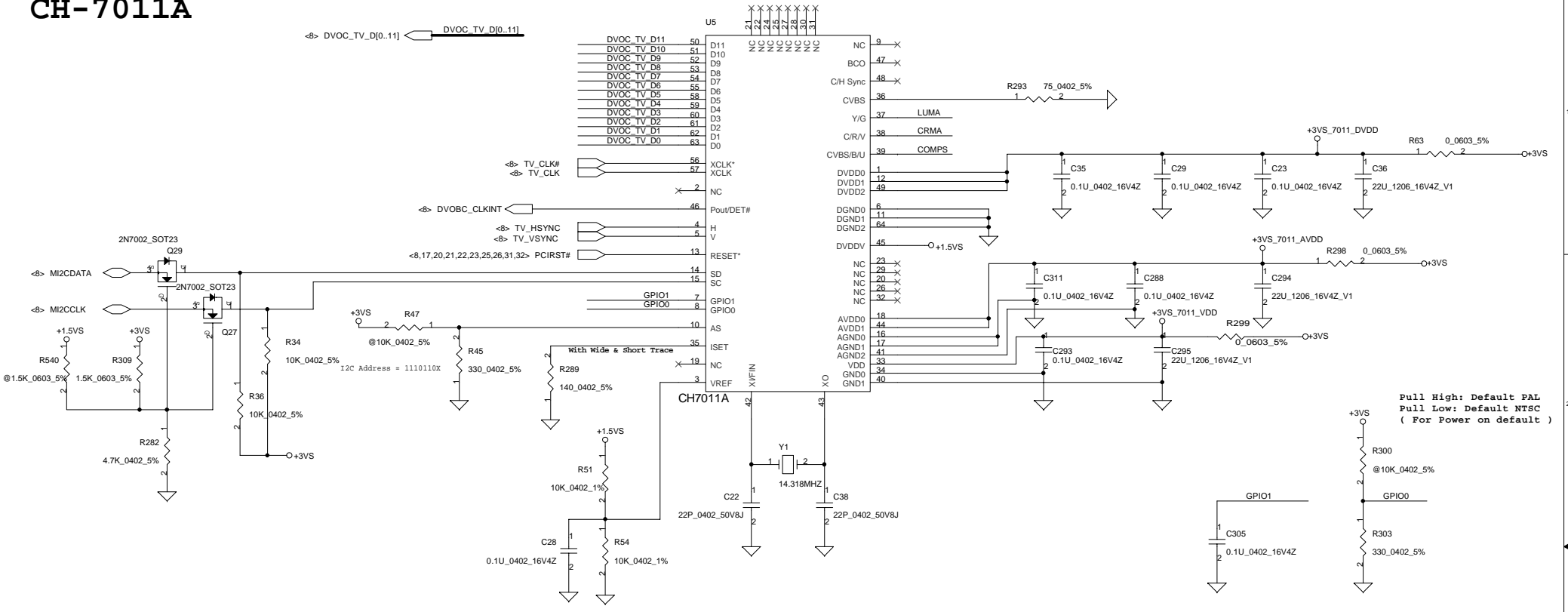
Layout note :
Place one cap close to every 2 pull up resistors termination to +1.25VS



THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

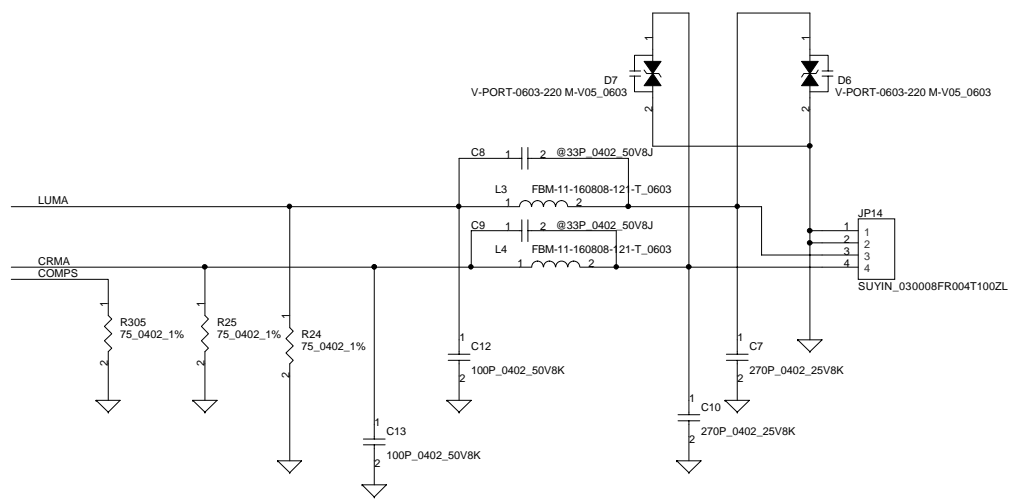
Compal Electronics, Inc.		
Title SCHEMATIC, M/B LA-1931		
Size	Document Number 401264	Rev 1B
Date: 星期三, 九月 24, 2003	Sheet 13	of 49

CH-7011A



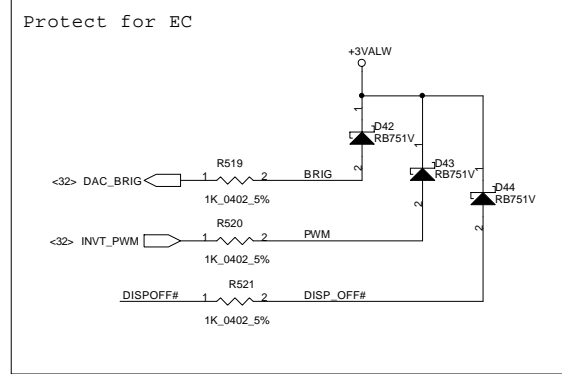
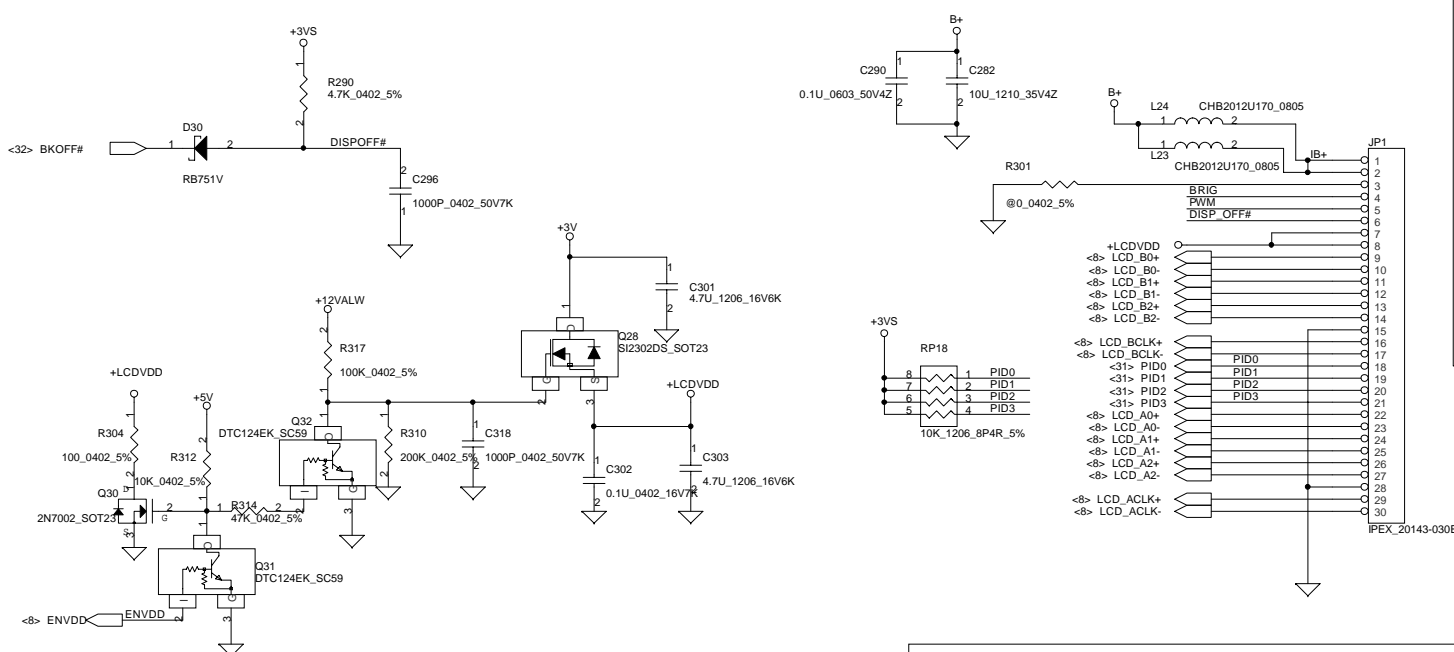
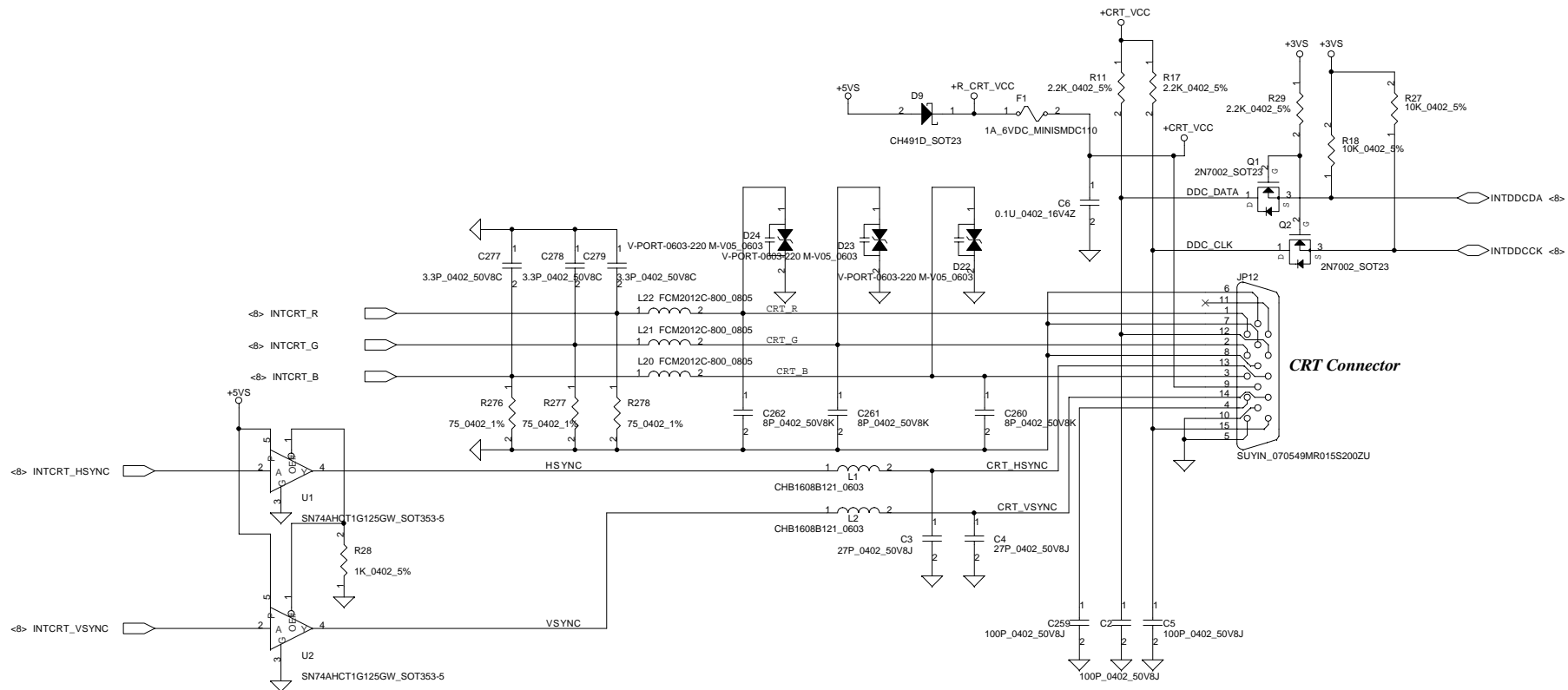
Full High: Default PAL
Full Low: Default NTSC
(For Power on default)

TV-OUT CONN.



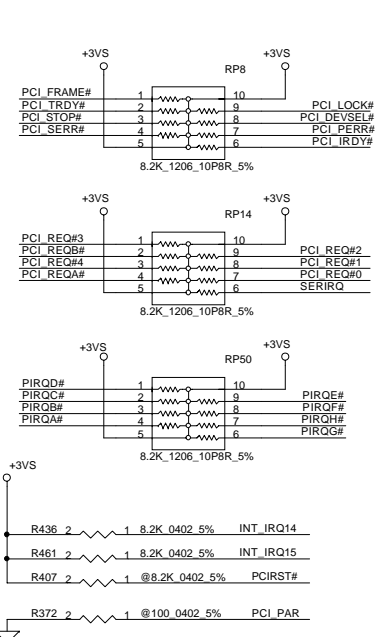
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.			
SCHEMATIC, M/B LA-1931			
Title	Size	Document Number	Rev
	Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet	15 of 49



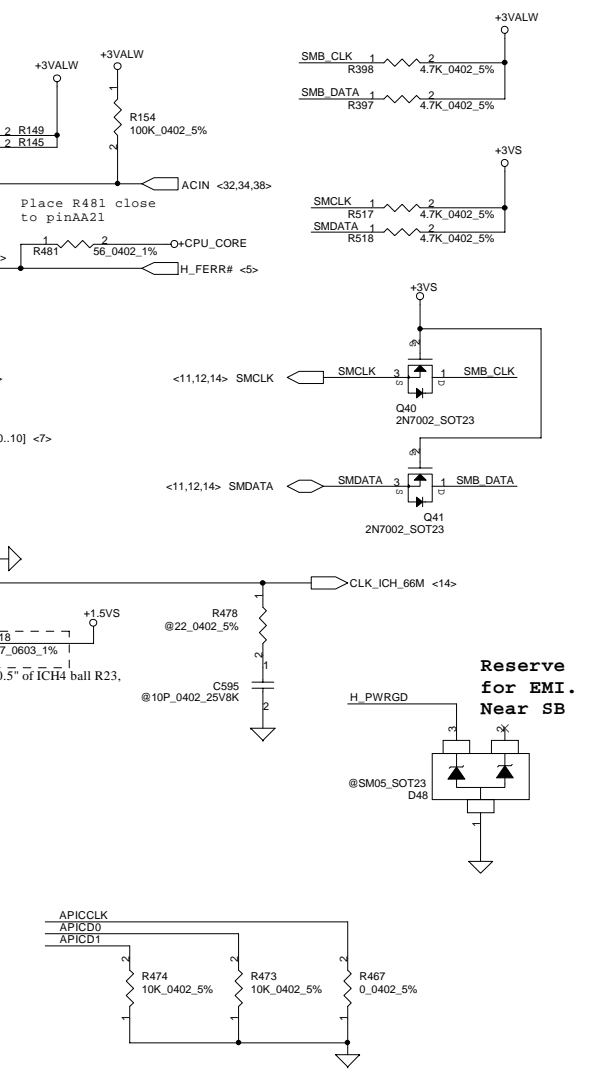
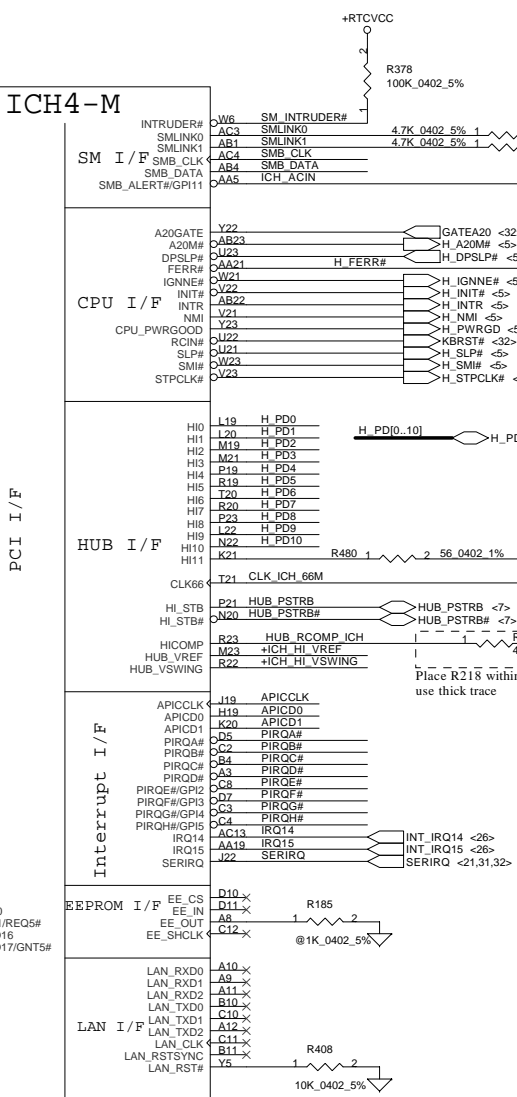
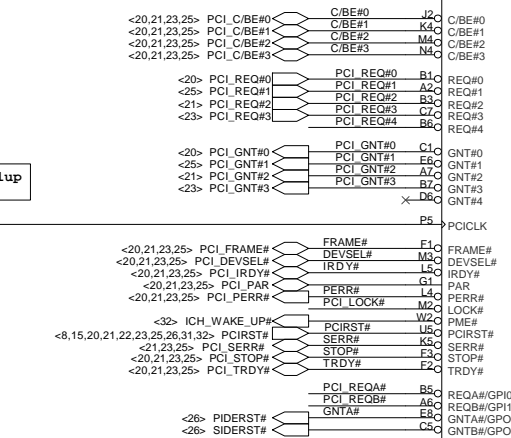
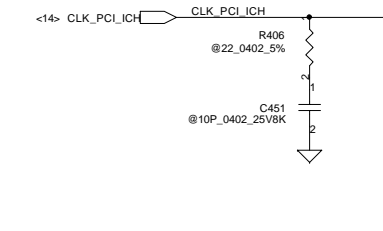
Compal Electronics, Ltd.			
SCHEMATIC, M/B LA-1931			
Size	Document Number	Rev	
Customer	401264	1B	
Date:	星期三, 九月 24, 2003	Sheet	16 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

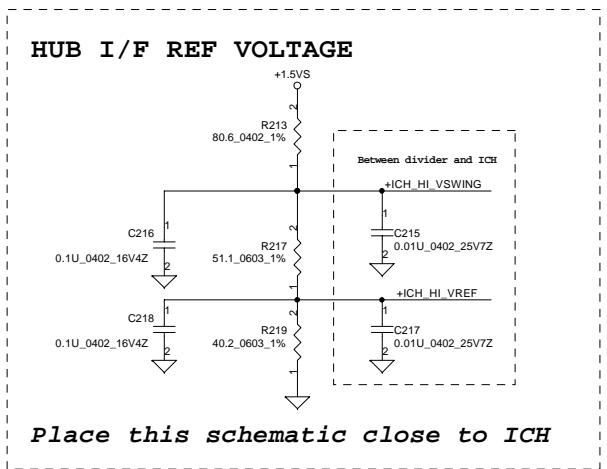


<20,21,23,25> PCI_AD[0..31] PCI_AD0[0..31]

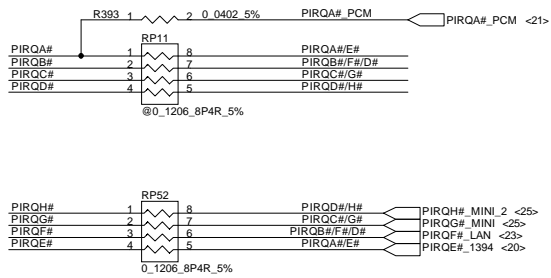
Note:
In ICH4, PCI_GNT[0..4] don't need external pullup



Reserve for EMI. Near SB



Place this schematic close to ICH



	Topology 1: Pop : RP52 and R393 Depop : RP11
1394	Trace: PIROE#_1394 Use IRQE
CardBus	Trace:PIRQA# Use IRQA
LAN	Trace:PIROF#_LAN Use IRQF
MINIPCI	Trace:PIROG# Use IRQG

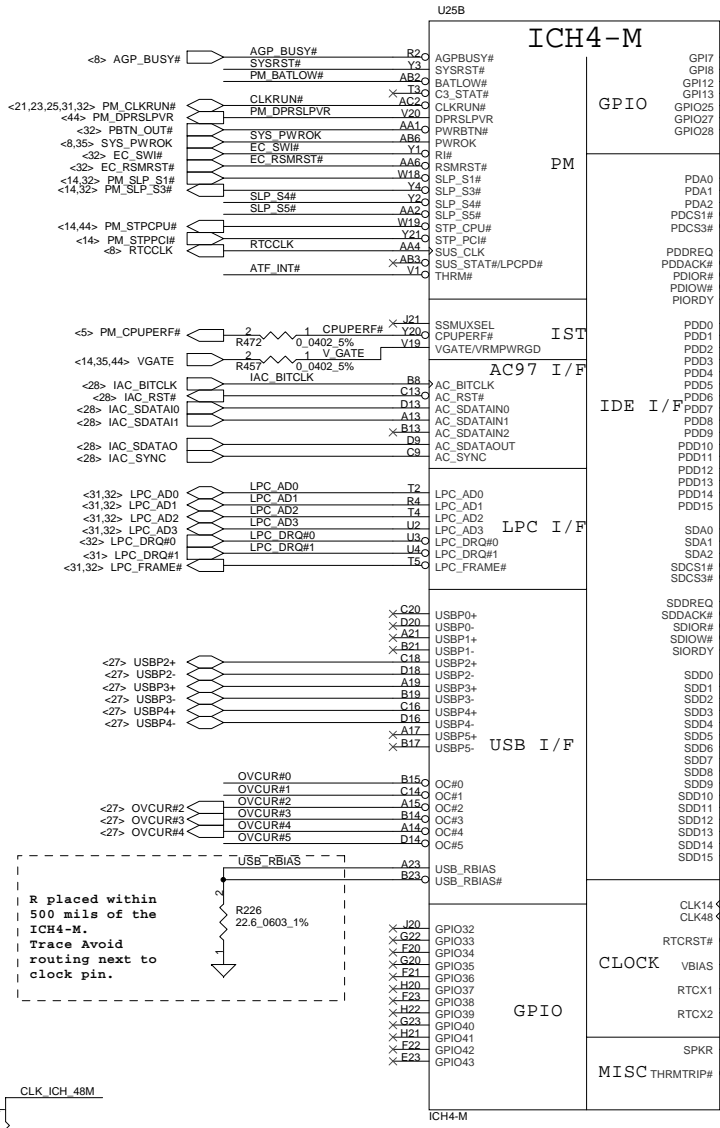
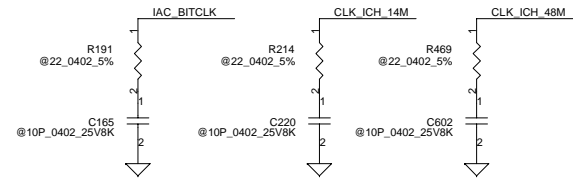
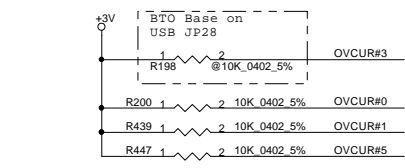
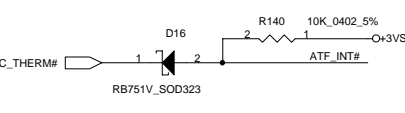
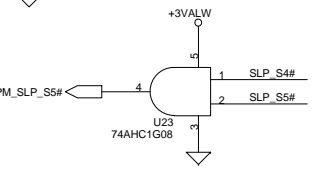
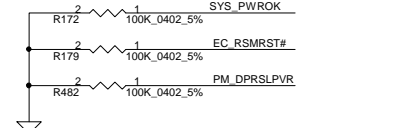
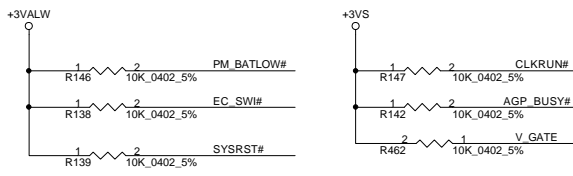
Compal Electronics, Ltd.

Title: SCHEMATIC, M/B LA-1931

Size: Document Number
Customer: 401264

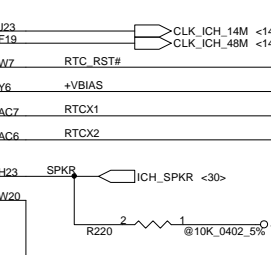
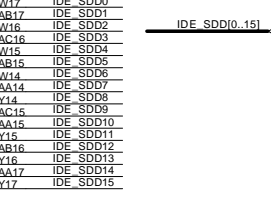
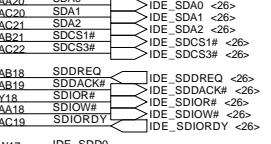
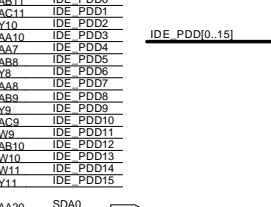
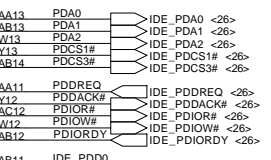
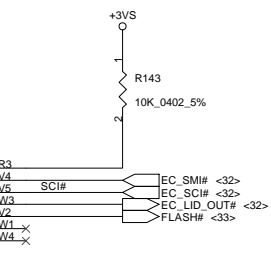
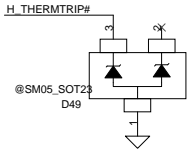
Date: 星期三, 九月 24, 2003 Sheet 17 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

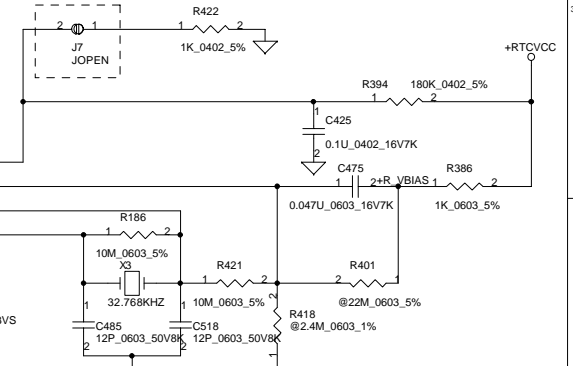


Place within 500 mils of the ICH4-M. Trace Avoid routing next to clock pin.

Reserve for EMI. Near SB.



Place J1 close to DDR-SODIMM

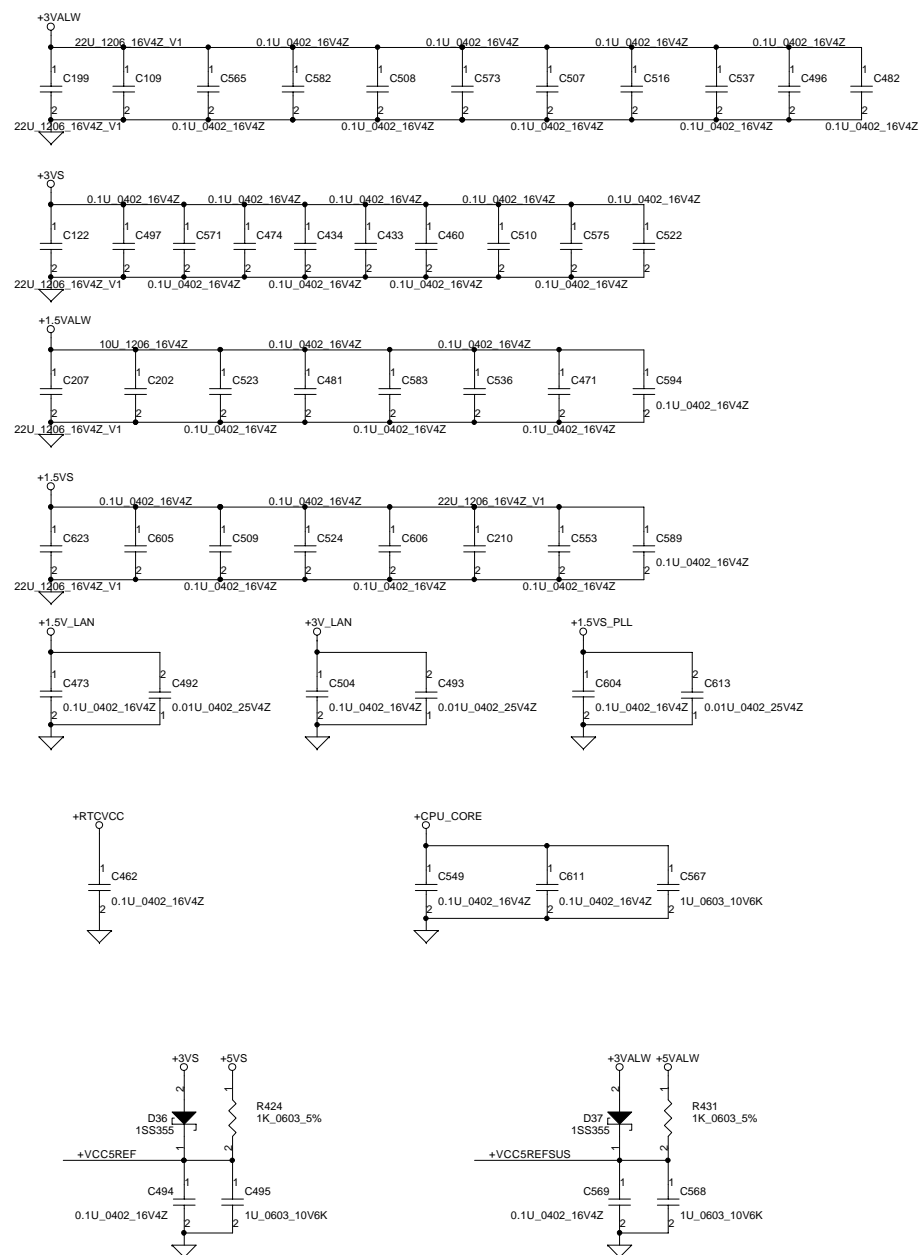
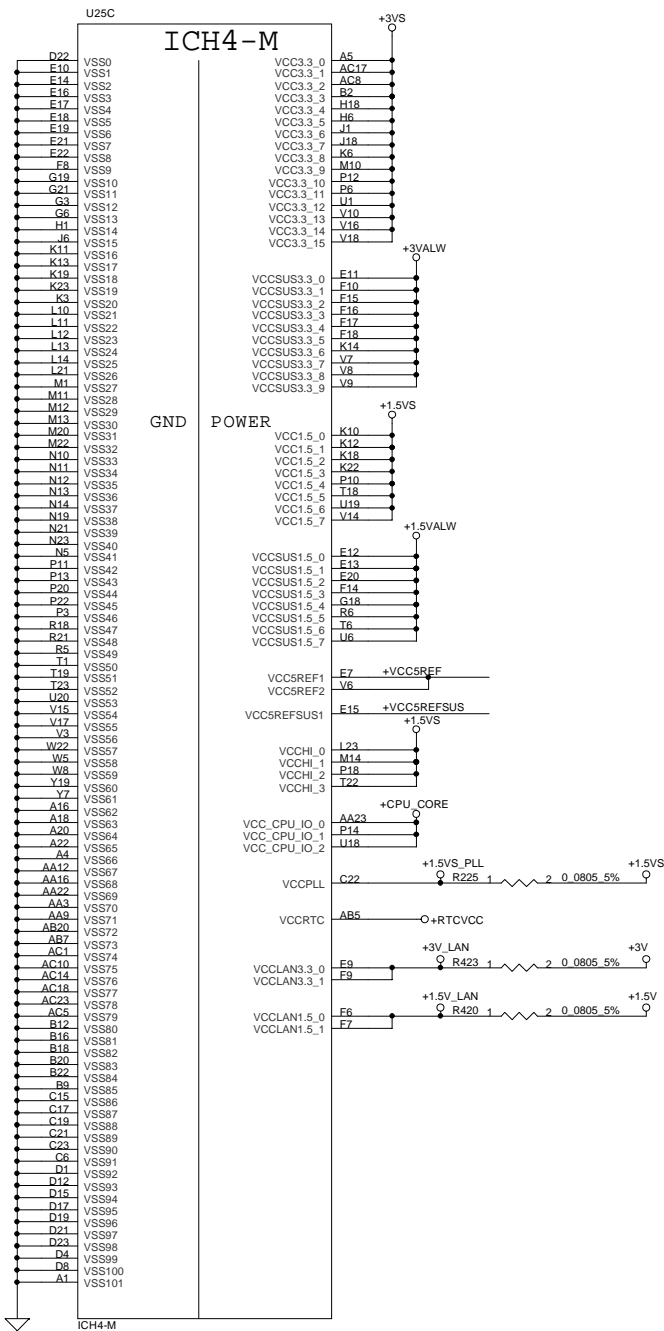


Place R502 near to U12 pinW20



Compal Electronics, Ltd.			
SCHEMATIC, M/B LA-1931			
Title	Document Number	Rev	
	401264	1B	
Date:	星期三, 九月 24, 2003	Sheet	18 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

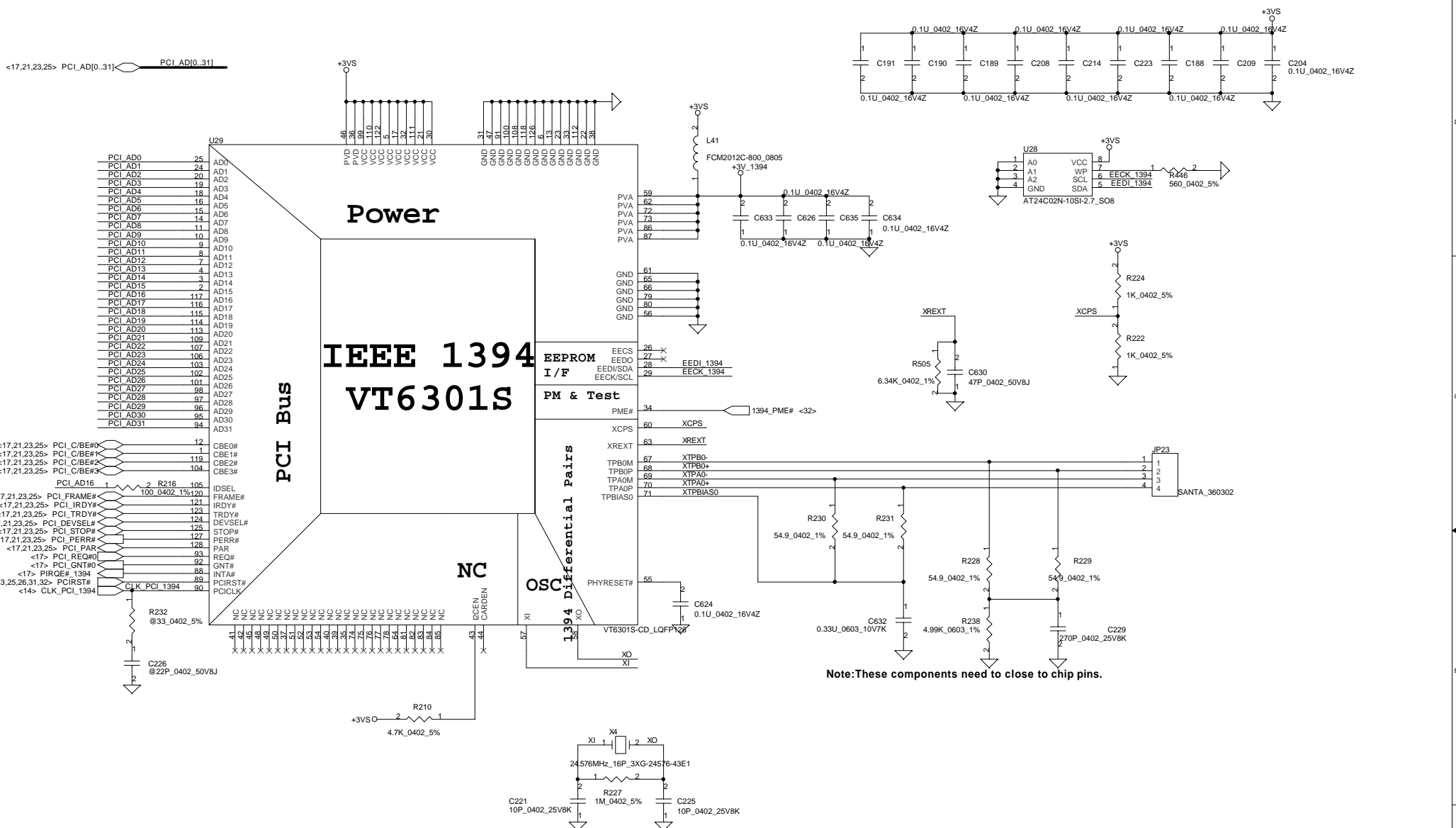


Compal Electronics, Ltd.

SCHEMATIC, M/B LA-1931

Title		Document Number		Rev
		401264		1B
Size	Customer	Date:	Sheet	of
		星期三, 九月 24, 2003	19	49

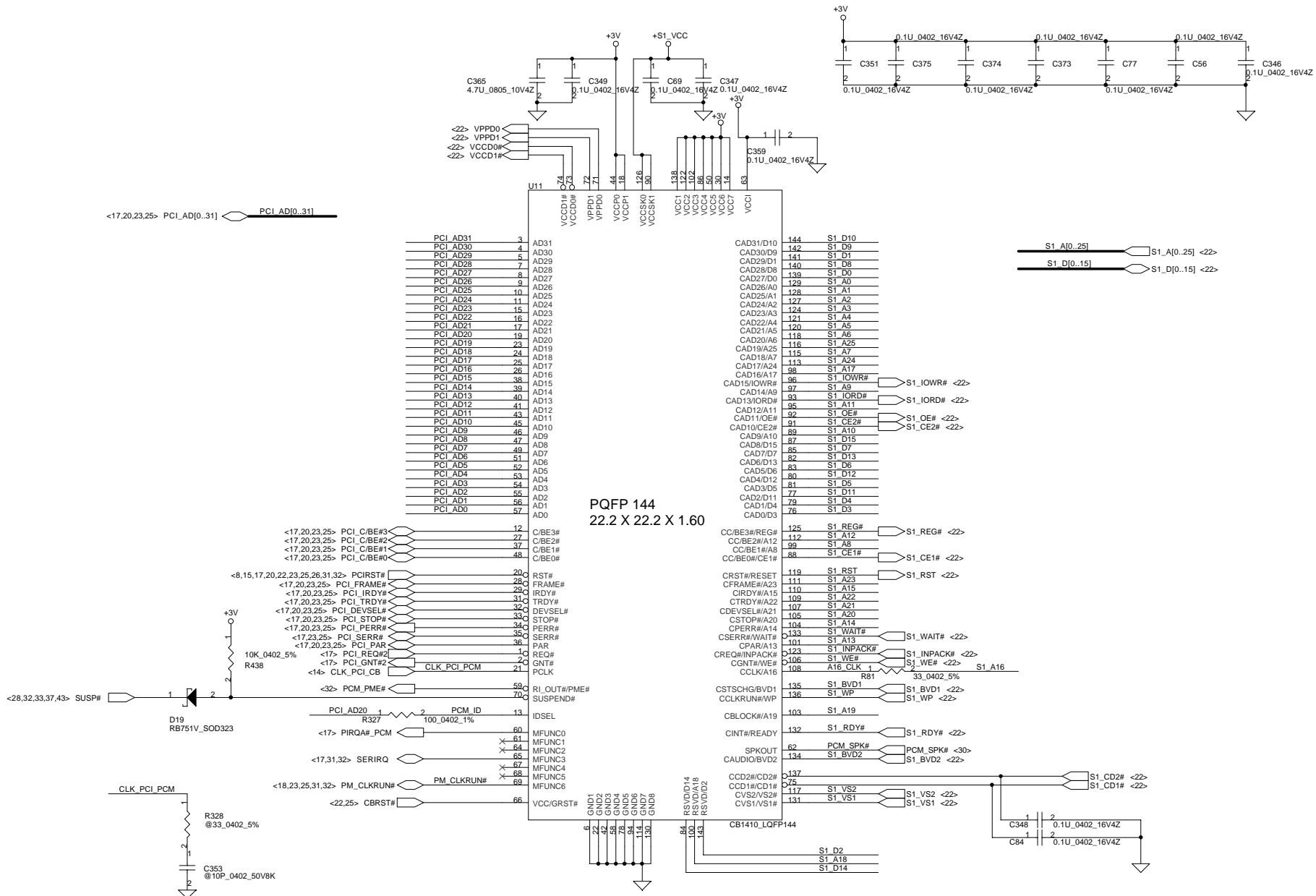
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



Note: These components need to close to chip pins.

Compal Electronics, Inc.		
Title		
SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
Custom	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 20 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



PCI AD31	3	AD31	CAD31/D10	144	S1 D10
PCI AD30	4	AD30	CAD30/D9	141	S1 D9
PCI AD29	5	AD29	CAD29/D8	140	S1 D8
PCI AD28	7	AD28	CAD27/D0	139	S1 D0
PCI AD28	8	AD27	CAD26/A0	129	S1 A0
PCI AD25	9	AD26	CAD25/A1	128	S1 A1
PCI AD24	10	AD25	CAD24/A2	127	S1 A2
PCI AD23	11	AD24	CAD23/A3	124	S1 A3
PCI AD22	15	AD23	CAD22/A4	121	S1 A4
PCI AD21	16	AD22	CAD21/A5	120	S1 A5
PCI AD20	17	AD21	CAD20/A6	118	S1 A6
PCI AD19	19	AD20	CAD19/A25	116	S1 A25
PCI AD18	23	AD19	CAD18/A7	115	S1 A7
PCI AD18	24	AD18	CAD17/A24	113	S1 A24
PCI AD17	25	AD17	CAD16/A17	98	S1 A17
PCI AD16	26	AD17	CAD15/IOVR#	96	S1 IOVR# <-22>
PCI AD15	38	AD16	CAD14/A9	97	S1 A9
PCI AD14	39	AD14	CAD13/IOVR#	93	S1 IOVR# <-22>
PCI AD13	40	AD13	CAD13/IOVR#	95	S1 A11
PCI AD12	41	AD13	CAD12/A11	92	S1 A11
PCI AD11	43	AD12	CAD11/CE#	91	S1 CE# <-22>
PCI AD10	45	AD10	CAD10/CE2#	89	S1 CE2# <-22>
PCI AD9	46	AD9	CAD9/A10	87	S1 D15
PCI AD8	47	AD9	CAD8/D15	85	S1 D7
PCI AD7	49	AD8	CAD7/D7	82	S1 D13
PCI AD6	51	AD6	CAD6/D13	83	S1 D6
PCI AD5	52	AD5	CAD5/D6	80	S1 D12
PCI AD4	53	AD4	CAD4/D12	81	S1 D5
PCI AD3	54	AD4	CAD3/D5	77	S1 D11
PCI AD2	55	AD2	CAD2/D11	79	S1 D4
PCI AD1	56	AD1	CAD1/D4	76	S1 D3
PCI AD0	57	AD0	CAD0/D3		

PQFP 144
22.2 X 22.2 X 1.60

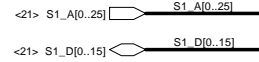
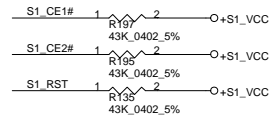
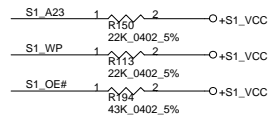
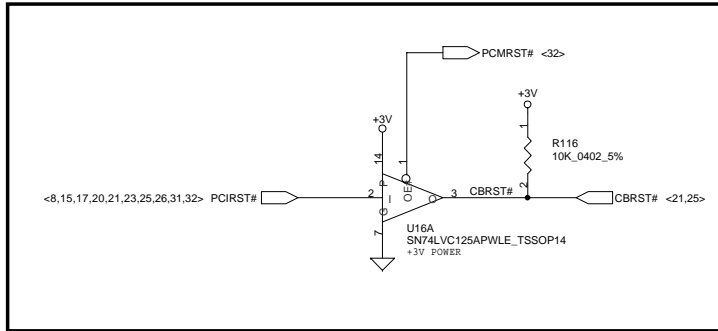
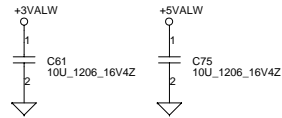
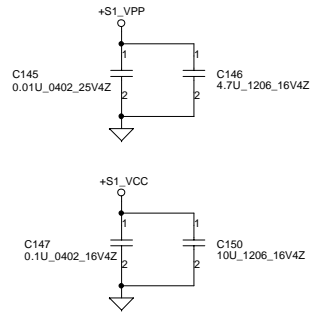
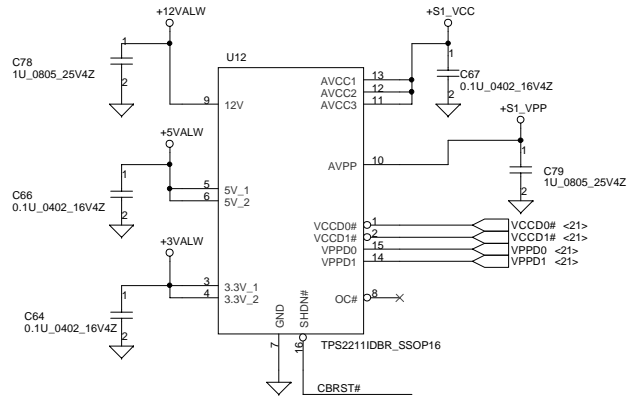
Compal Electronics, Ltd.

Title
SCHEMATIC, M/B LA-1931

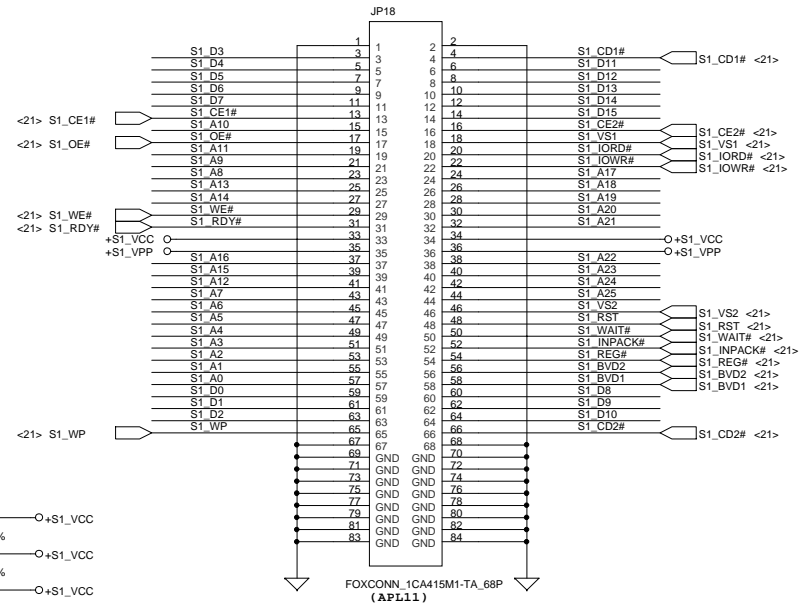
Size	Document Number	Rev
Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 21 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

PCMCIA Power Controller



CardBus Socket



Compal Electronics, Ltd.

Title SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 22 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

PCI AD0	47	AD0
PCI AD1	46	AD1
PCI AD2	45	AD2
PCI AD3	43	AD3
PCI AD4	42	AD4
PCI AD5	41	AD5
PCI AD6	40	AD6
PCI AD7	39	AD7
PCI AD8	36	AD8
PCI AD9	35	AD9
PCI AD10	34	AD10
PCI AD11	33	AD11
PCI AD12	32	AD12
PCI AD13	30	AD13
PCI AD14	29	AD14
PCI AD15	28	AD15
PCI AD16	15	AD16
PCI AD17	13	AD17
PCI AD18	14	AD18
PCI AD19	12	AD19
PCI AD20	11	AD20
PCI AD21	10	AD21
PCI AD22	9	AD22
PCI AD23	8	AD23
PCI AD24	93	AD24
PCI AD25	96	AD25
PCI AD26	92	AD26
PCI AD27	91	AD27
PCI AD28	89	AD28
PCI AD29	87	AD29
PCI AD30	86	AD30
PCI AD31	85	AD31

<17,20,21,25> PCI_AD[0..31] PCI_AD[0..31]

<17,20,21,25>	PCI_C/BE#0	38	C/BE#0
<17,20,21,25>	PCI_C/BE#1	27	C/BE#1
<17,20,21,25>	PCI_C/BE#2	17	C/BE#2
<17,20,21,25>	PCI_C/BE#3	84	C/BE#3

PCI_AD17 1 LAN_IDSEL 98 IDSEL

<17,20,21,25>	PCI_PAR	24	PAR
<17,20,21,25>	PCI_FRAME#	18	FRAME#
<17,20,21,25>	PCI_IRDY#	19	IRDY#
<17,20,21,25>	PCI_TRDY#	20	TRDY#
<17,20,21,25>	PCI_DEVSEL#	21	DEVSEL#
<17,20,21,25>	PCI_STOP#	23	STOP#

<17,20,21,25>	PCI_PERR#	25	PERR#
<17,21,25>	PCI_SERR#	26	SERR#

<17>	PCI_REQ#3	83	REQ#
<17>	PCI_GNT#3	82	GNT#

<17>	PIRQF#_LAN	80	INTA#
<17>	PCI_GNT#3	79	INTB#

<32>	LAN_PME#	57	PME#
------	----------	----	------

<8,15,17,20,21,22,25,26,31,32>	PCIRST#	81	RST#
<14>	CLK_PCI_LAN	97	PCICLK
<18,21,25,31,32>	PM_CLKRUN#	50	CLKRUN#

VDD	6	DGND1
VDD	22	DGND2
VDD	37	DGND3
VDD	49	DGND4
VDD	90	DGND5
VDD	95	AGND1
VDD		AGND2
VDD		AGND3

Power

RTL8101L_LQFP100

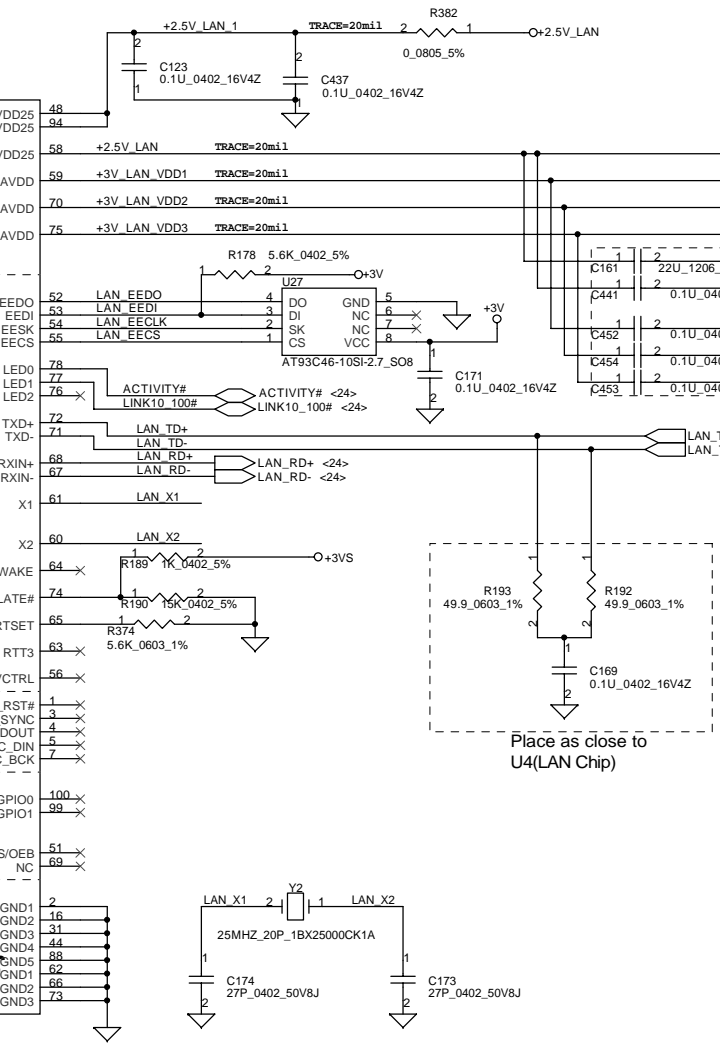
Power

PCI I/F

LAN I/F

Power

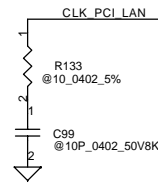
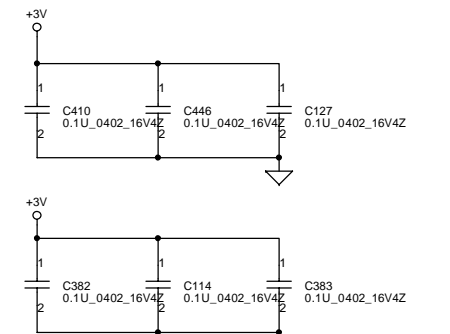
AC-Link



RTL8101L has internal +2.5V generator at pin58

Place closed to RTL8101L pin58

Place as close to U4(LAN Chip)

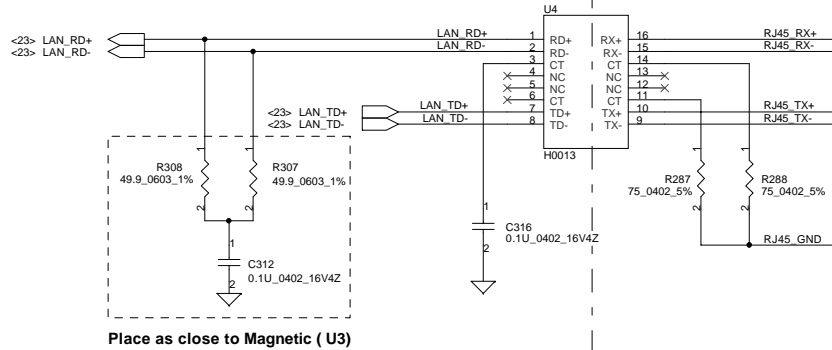


Compal Electronics, Inc.		
Title	SCHEMATIC, M/B LA-1931	
Size	Document Number	Rev
	401264	1B
Date:	~P期三, 九月 24, 2003	Sheet 23 of 49

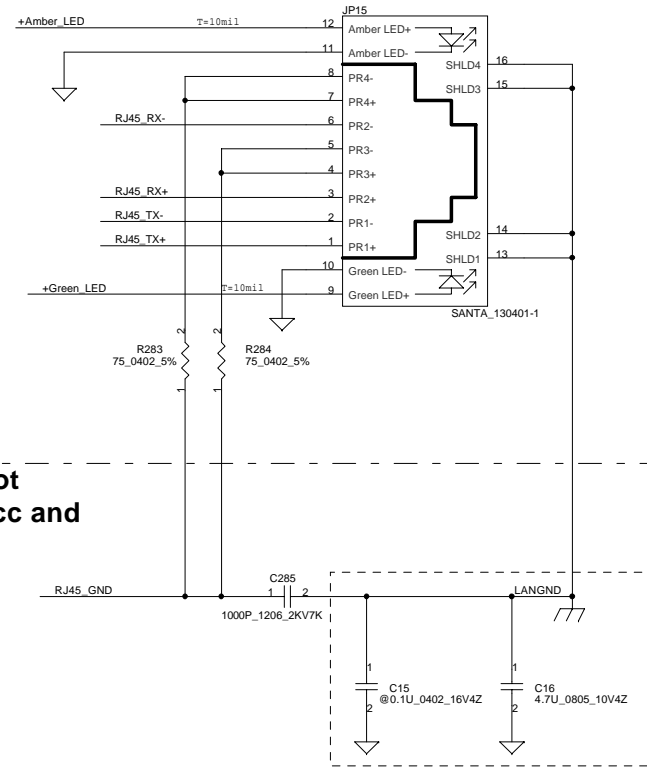
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Keep Out 40mil

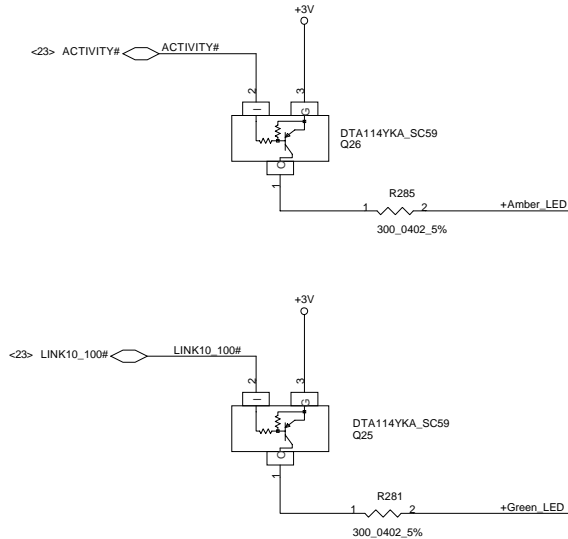
Layout Note
H0013 pls close to
conn.



LAYOUT NOTICE: This area do not connect to power plan include Vcc and GND in any layer

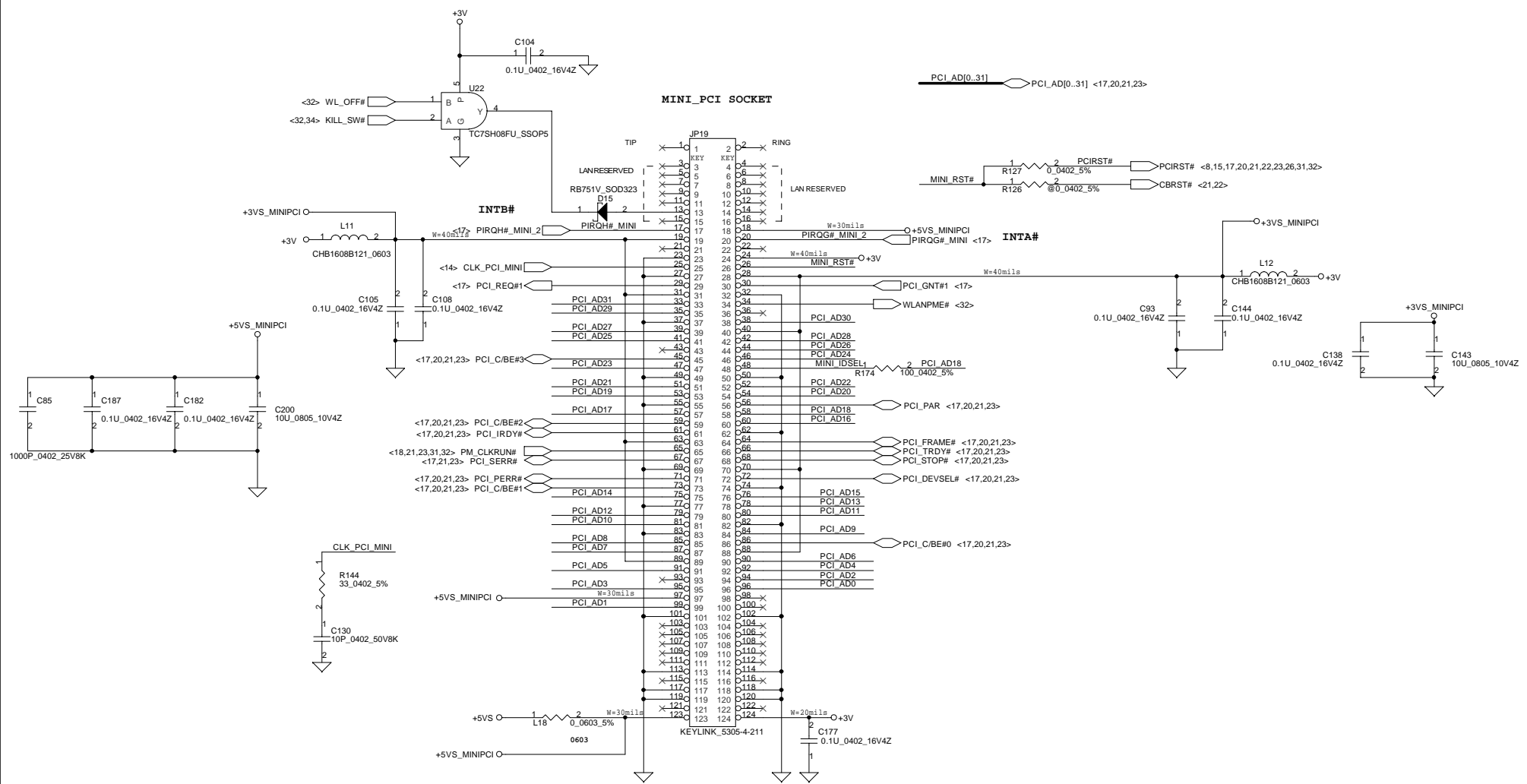


Termination plane should be copied to chassis ground and also depends on safety concern



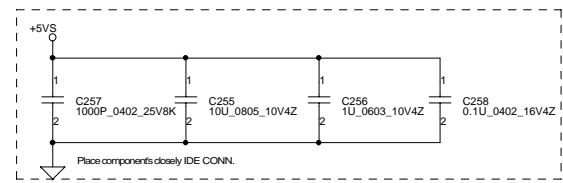
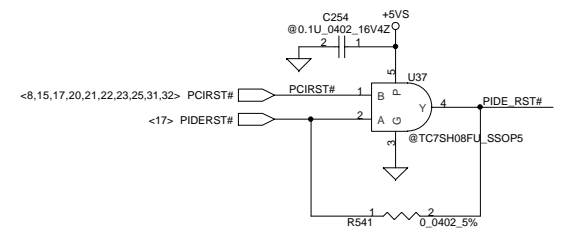
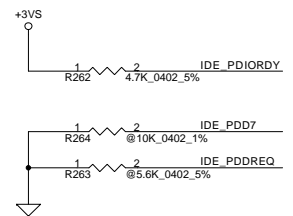
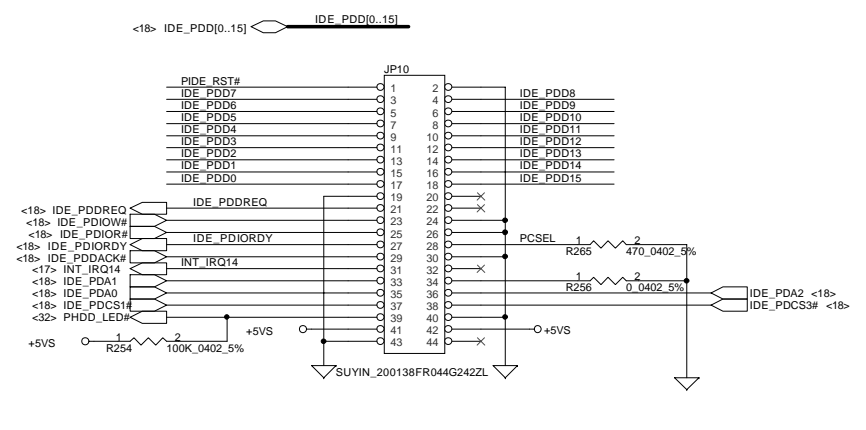
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.		
Title SCHEMATIC, M/B LA-1931		
Size Customer	Document Number 401264	Rev 1B
Date: 星期三, 九月 24, 2003	Sheet 24 of 49	

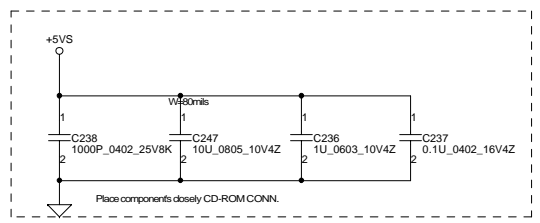
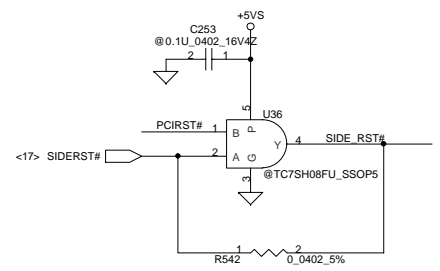
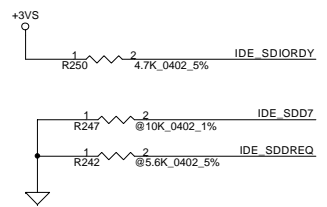
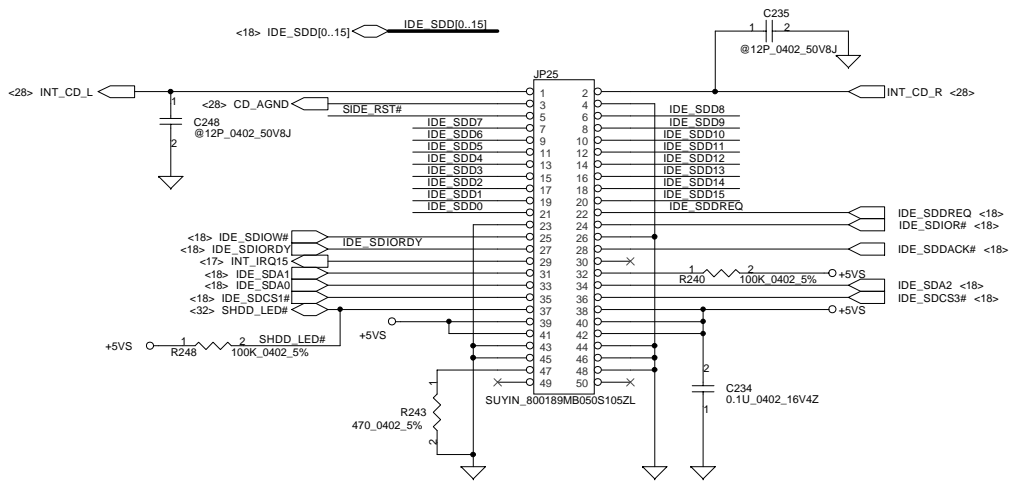


THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

IDE Module CONN.



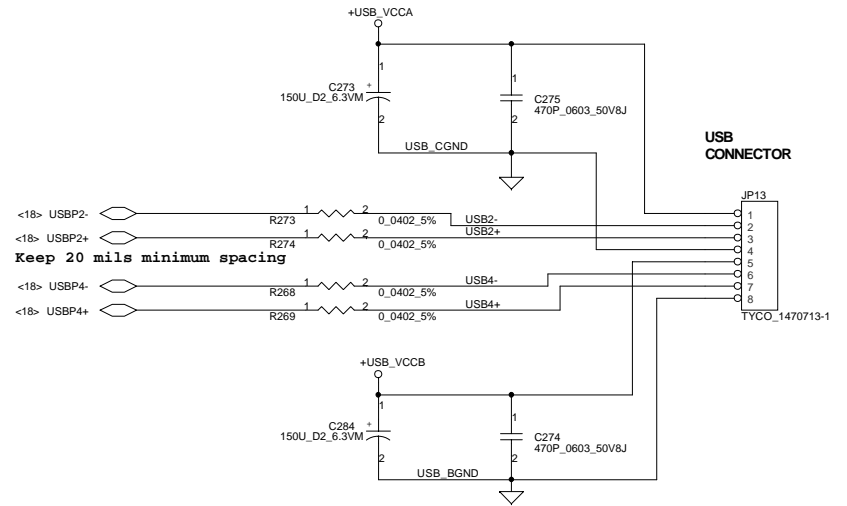
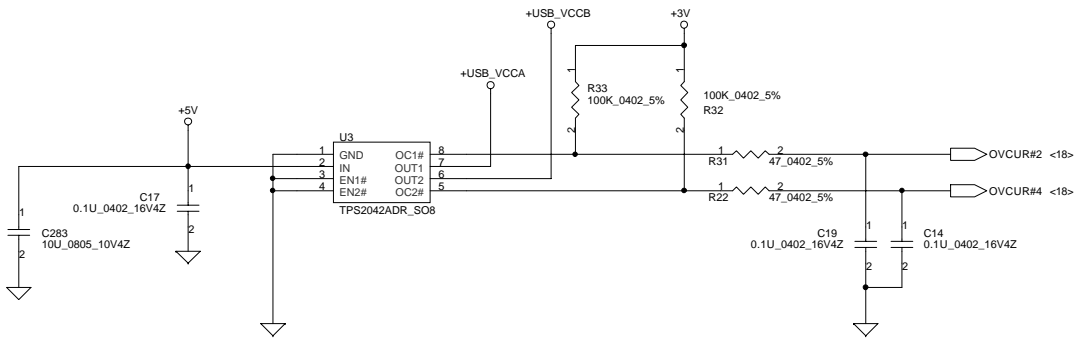
CD-ROM Module CONN.



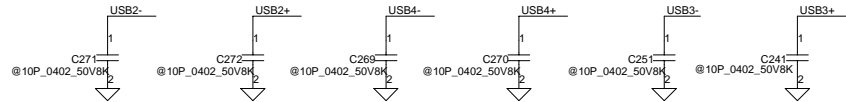
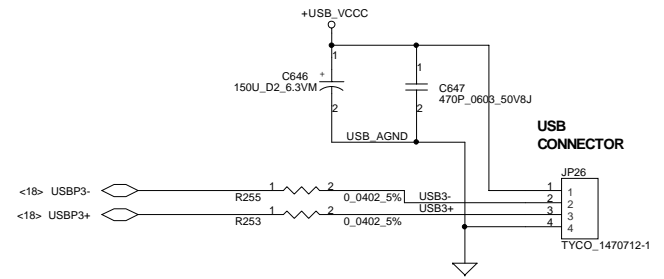
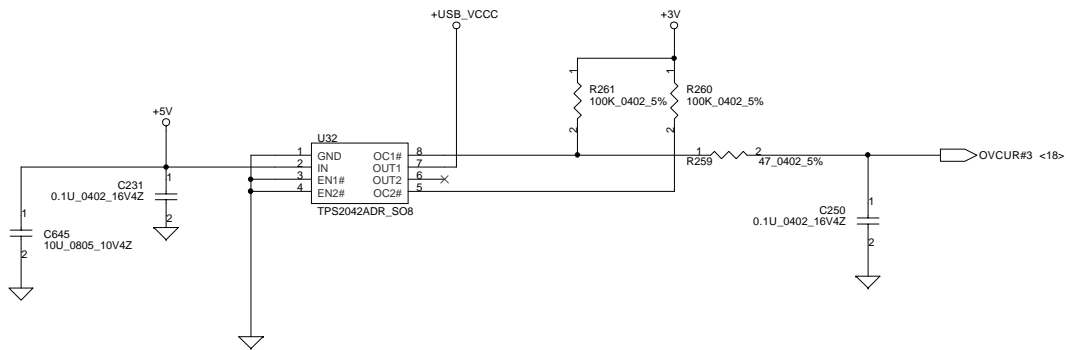
Compal Electronics, Ltd.

Title		SCHEMATIC, WB LA-1931	
Size	Document Number	Rev	
Cus#	401264	1B	
Date:	星期三, 九月 24, 2003	Sheet	26 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETITION DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



Keep 20 mils minimum spacing



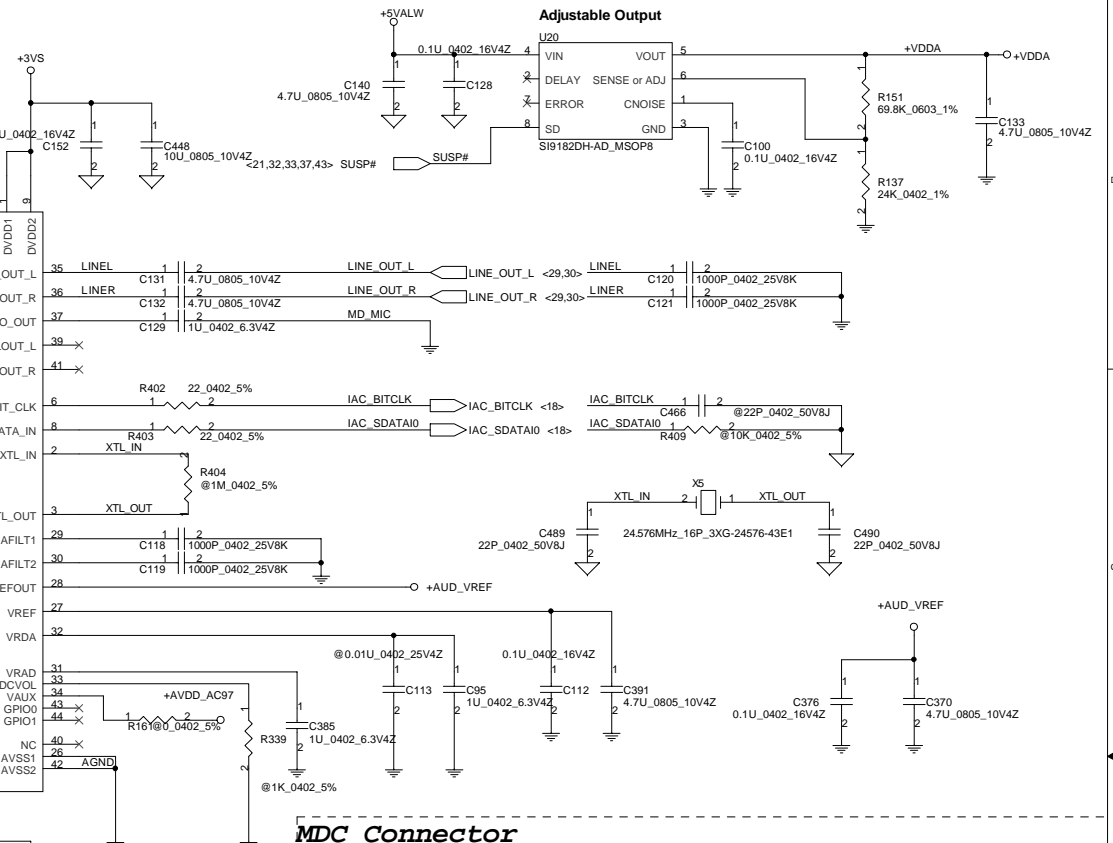
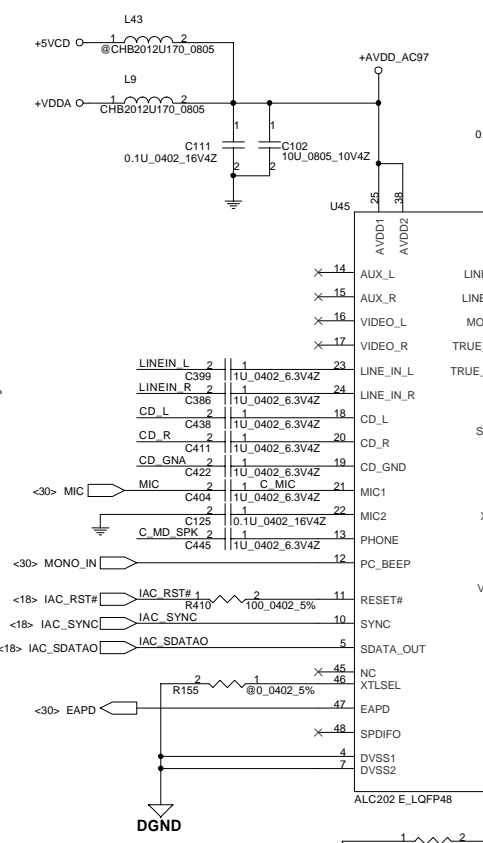
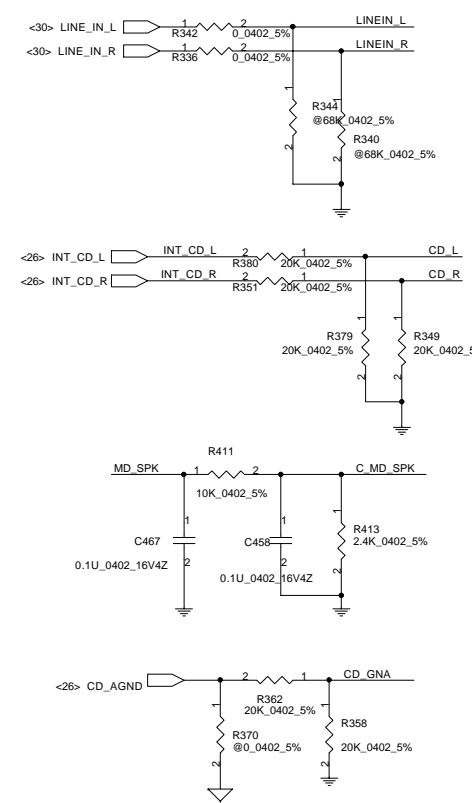
Compal Electronics, Ltd.

Title: SCHEMATIC, W/B LA-1931

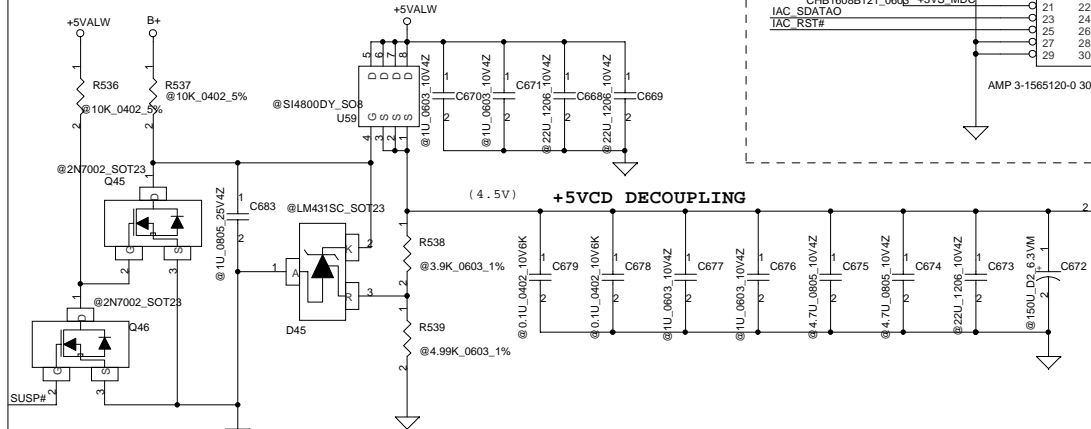
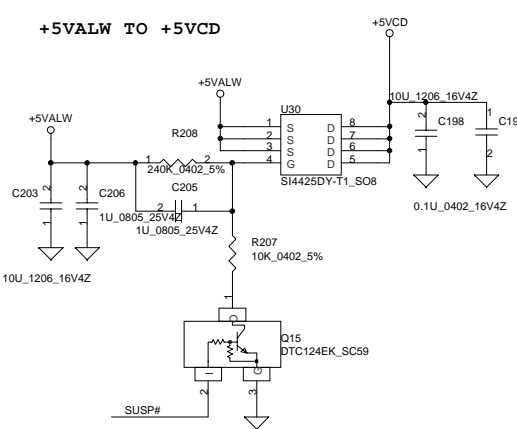
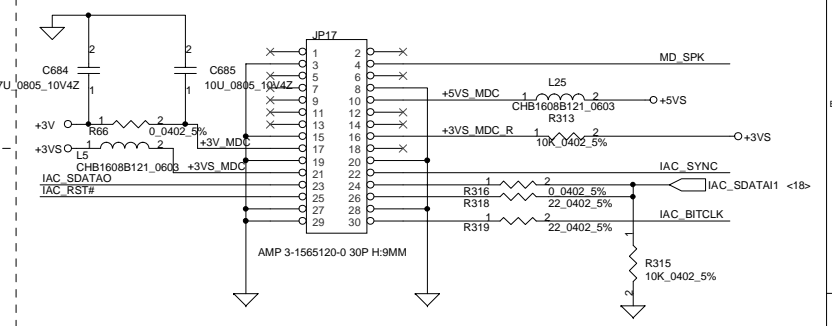
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE INFORMATION DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Size	Document Number	Rev
Cus#	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 27 of 49

AC97 Codec

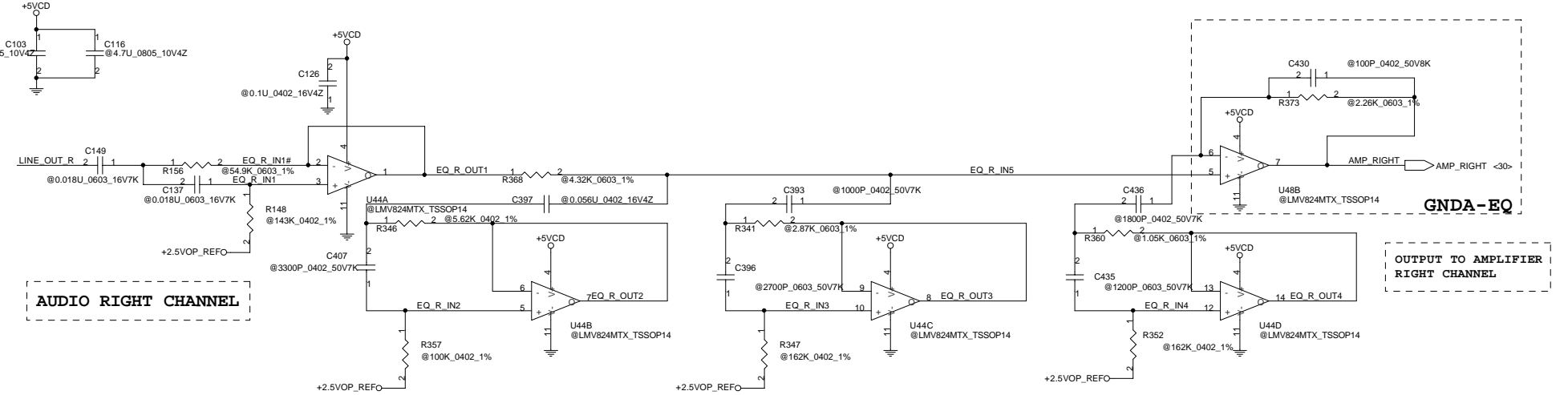
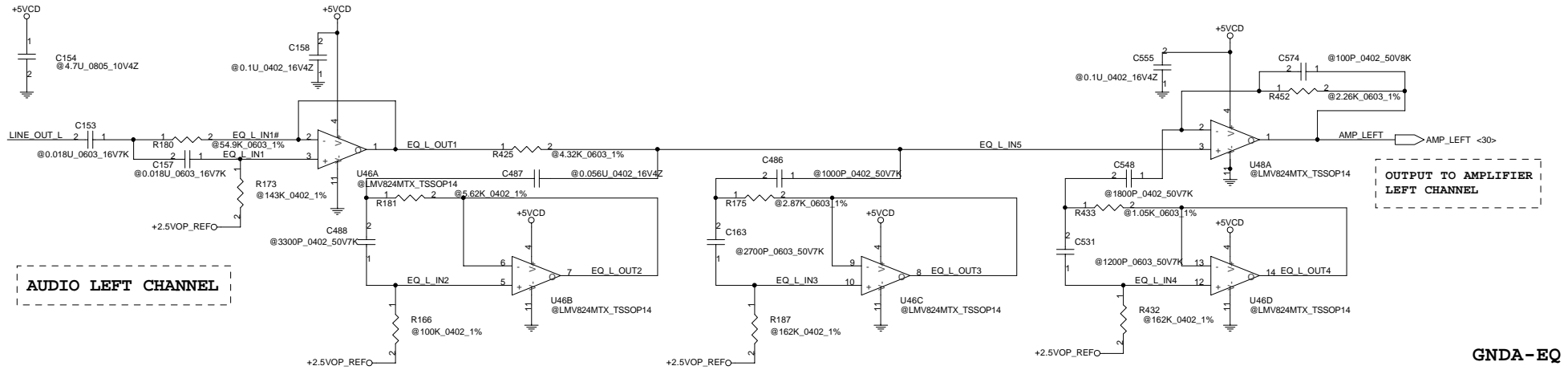
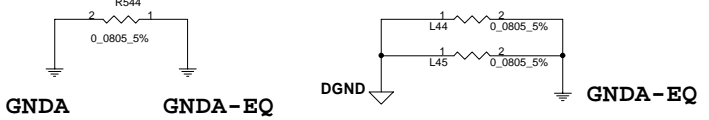
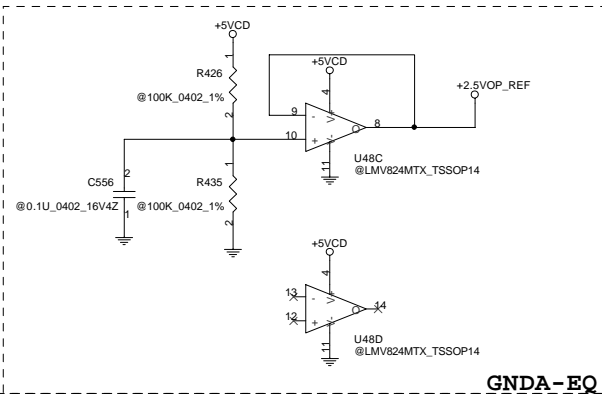
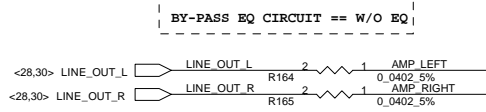


MDC Connector



Compal Electronics, Ltd.			
Title: SCHEMATIC, M/B LA-1931			
Size: 401264	Document Number:	Rev: 1B	
Date: 星期三, 九月 24, 2003	Sheet: 28	of: 49	

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



Compal Electronics, Ltd.			
SCHEMATIC, M/B LA-1931			
Title	Document Number	Rev	
Customer	401264	1B	
Date:	星期三, 九月 24, 2003	Sheet	29 of 49

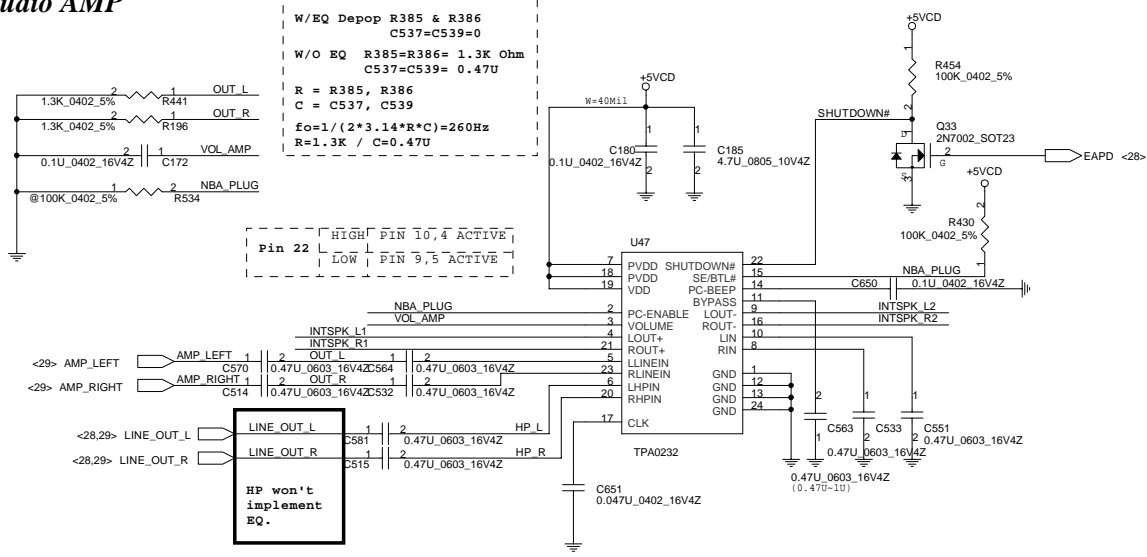
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Audio AMP

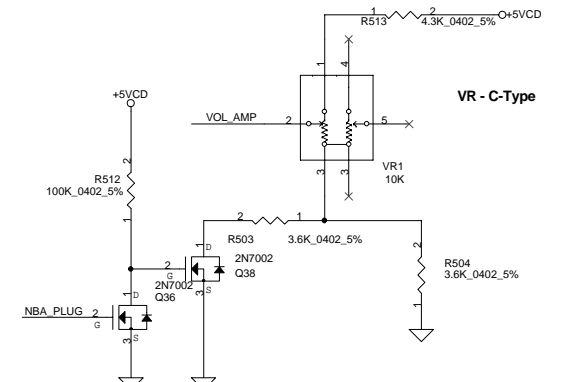
W/EQ Depop R385 & R386
C537=C539=0
W/O EQ R385=R386= 1.3K Ohm
C537=C539= 0.47U

R = R385, R386
C = C537, C539
 $f_o = 1 / (2 * 3.14 * R * C) = 260\text{Hz}$
R=1.3K / C=0.47U

Pin 22 HIGH PIN 10,4 ACTIVE
Pin 19 LOW PIN 9,5 ACTIVE

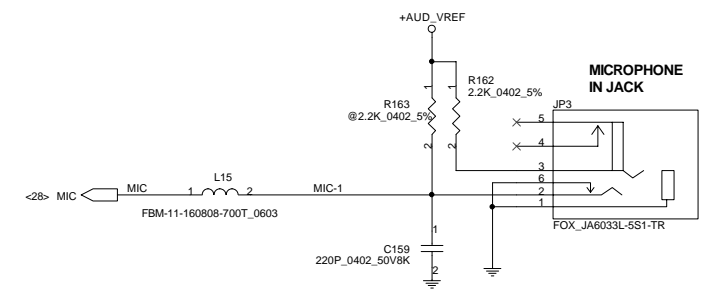
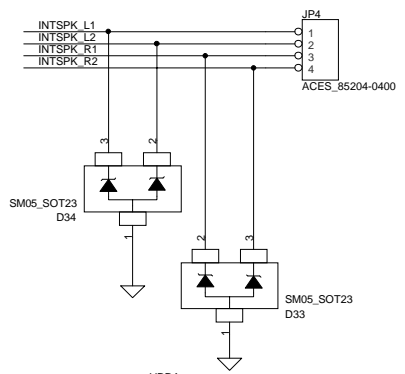


	W/EQ	W/O EQ
R513	4.3K	4.3K
R504	3.6K	3.6K
R503	6.2K	3.6K
Bias (Gain)	SPK 0.687 V 10 dB HP 1.006 V -2 dB	SPK 0.560 V 12 dB HP 1.006 V -2 dB

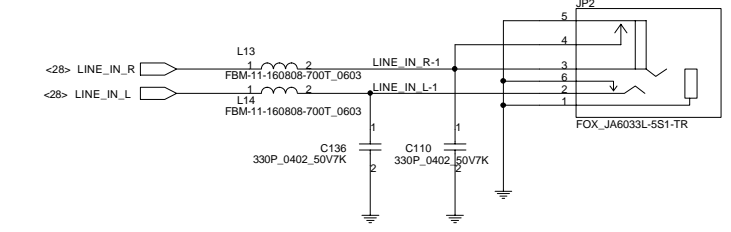


HP won't implement EQ.

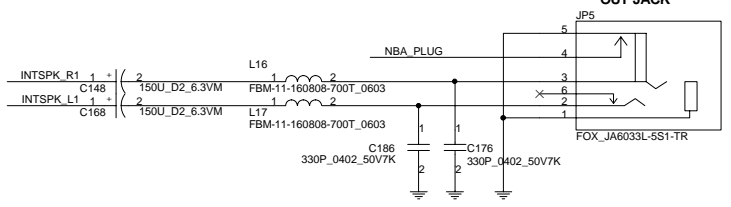
Speaker Connector



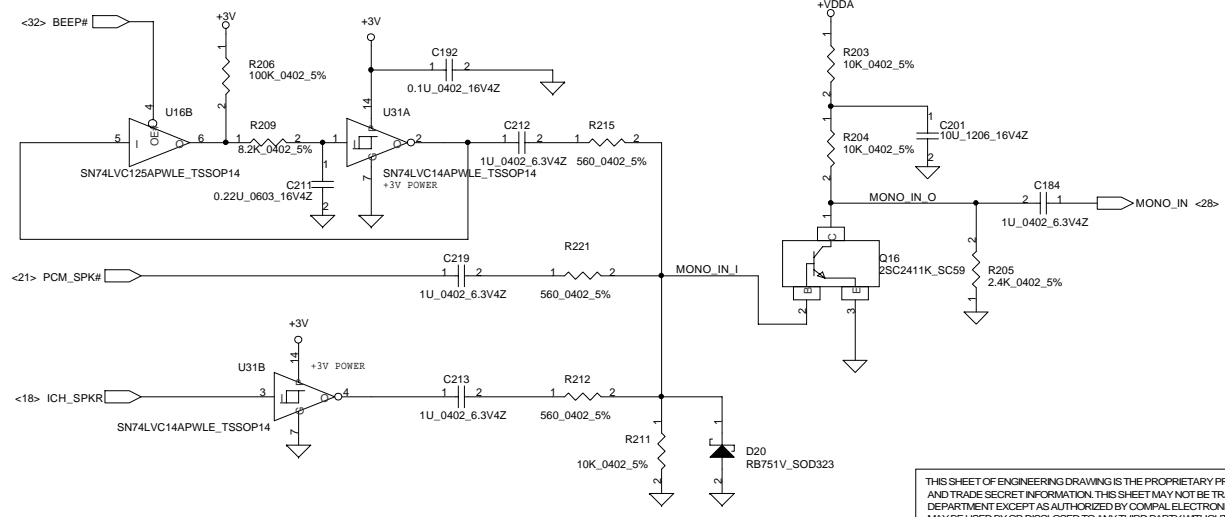
LINE IN JACK



HEADPHONE OUT JACK

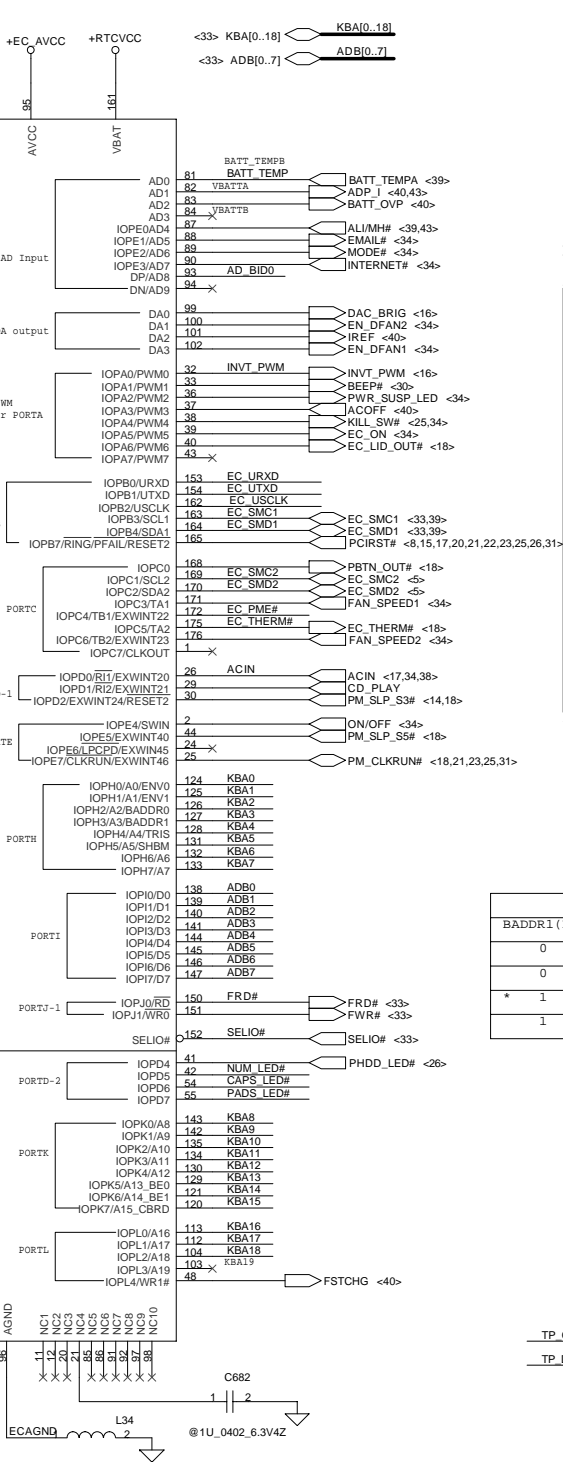
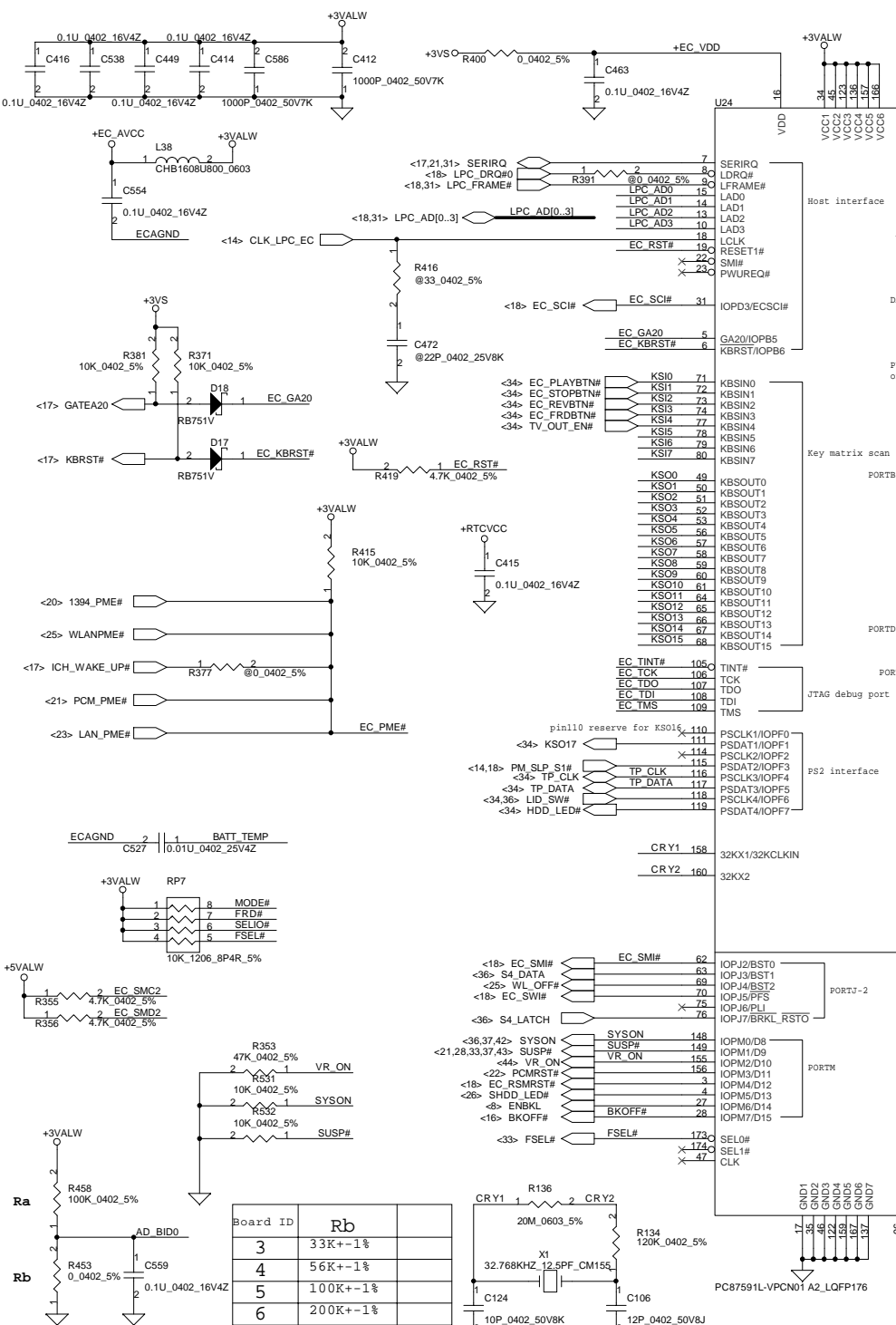
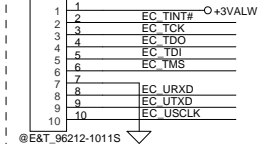


System Sound

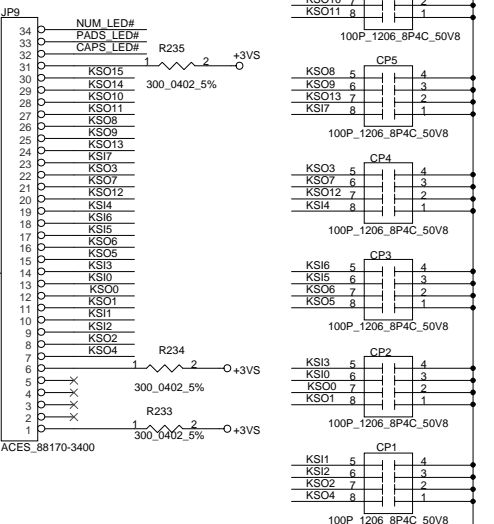


THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.
 Title: SCHEMATIC, M/B LA-1931
 Size: Document Number
 Customer: 401264
 Date: 星期三, 九月 24, 2003
 Sheet: 30 of 49
 Rev: 1B



KEYBOARD CONN.



I/O Address table with columns: BADDR1 (KBA3), BADDR0 (KBA2), Index, Data. Rows show addresses 0, 1, * 1, 1 and their corresponding data values.

ENVO (KBA0) ENV1 (KBA1) TRIS (KBA4) table with rows for IRE, OBD, DEV, PROG and their corresponding values.

SHBM(KBA5)=1: Enable shared memory with host BIOS. TRIS(KBA4)=1: While in IRE and OBD, float all the signals for clip-on ISE use.

Analogue Board ID definition, Please see page 3.

Table with columns Board ID and Rb. Rows show Board IDs 3, 4, 5, 6 and their corresponding Rb values (33K+-1%, 56K+-1%, 100K+-1%, 200K+-1%).

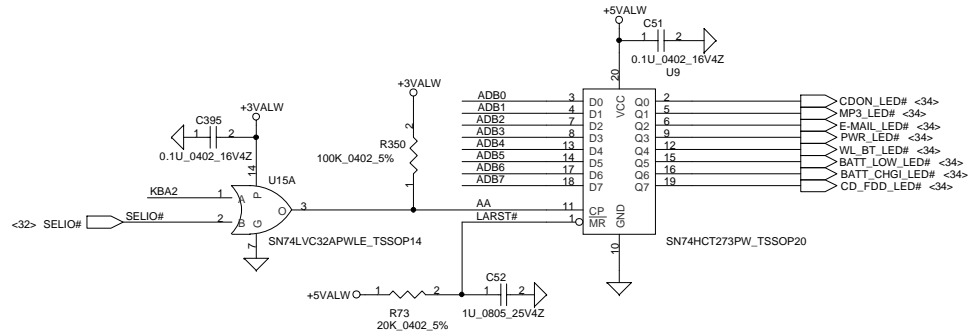
PROPRIETARY NOTE

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

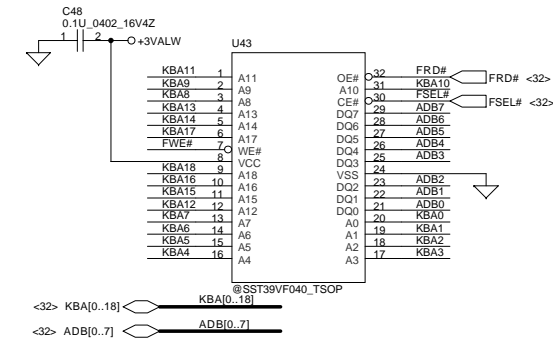
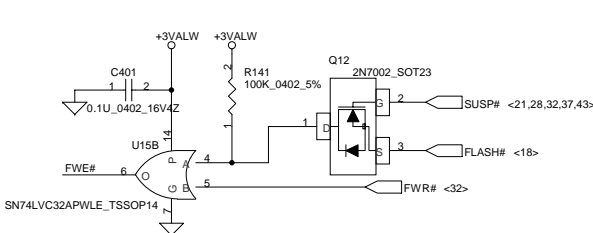
Compal Electronics, Ltd.

SCHEMATIC, M/B LA-1931

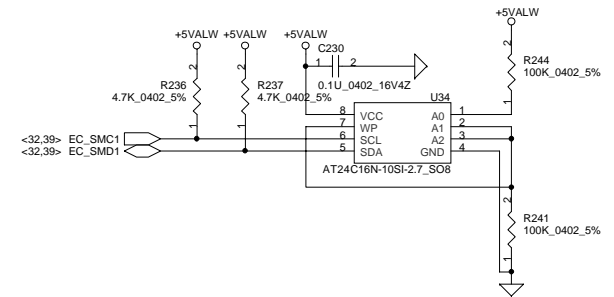
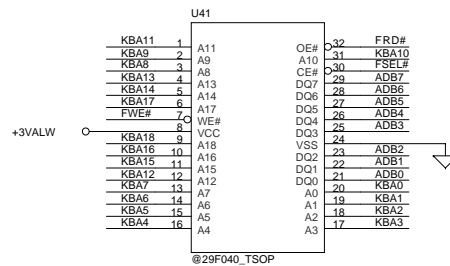
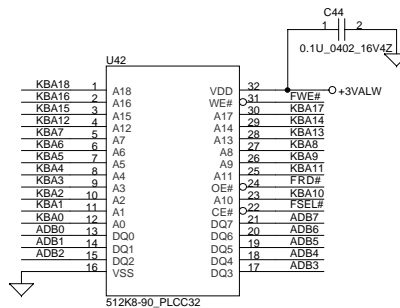
Table with columns: Title, Size, Document Number, Rev, Date, Sheet, of, Date. Values include 401264, 1B, 星期三, 九月 24, 2003, 32, of, 49.



System BIOS



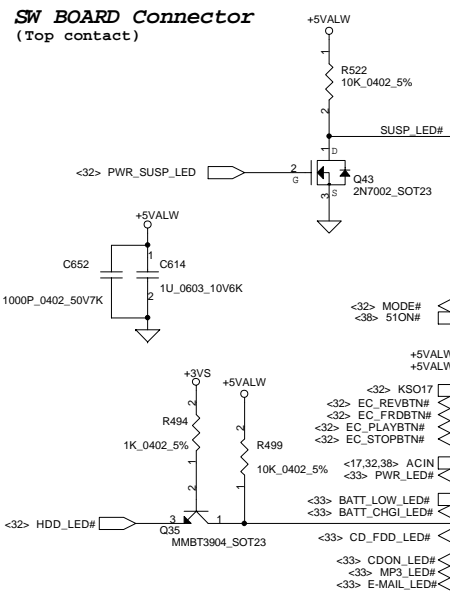
SMBus EEPROM



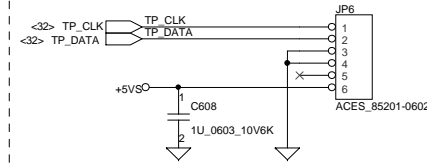
Compal Electronics, Ltd.		
Title SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
Cus#	401264	1B
Date:	日期三, 九月 24, 2003	Sheet 33 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

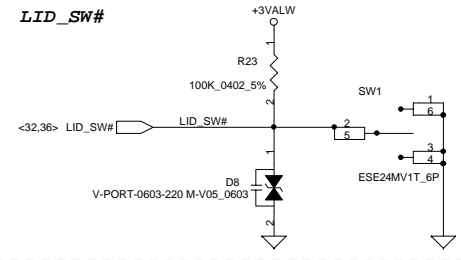
SW BOARD Connector
(Top contact)



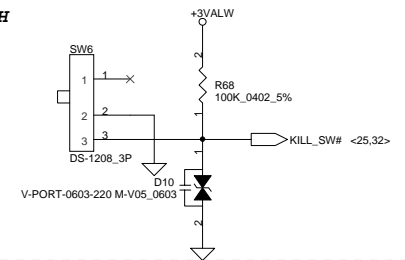
Touch Pad Connector



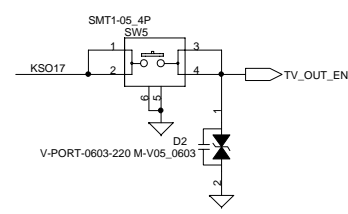
LID_SW#



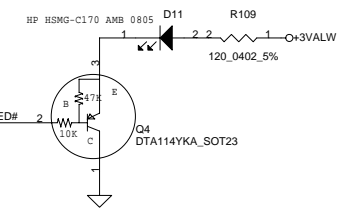
Kill SWITCH



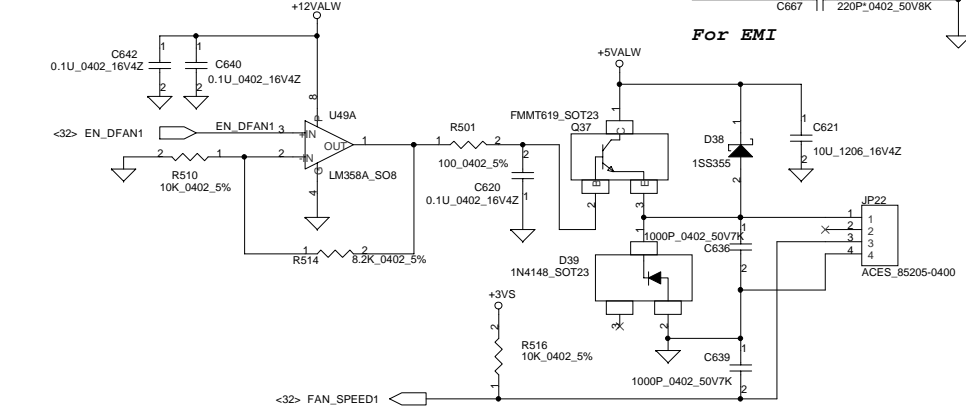
TV-OUT BUTTON



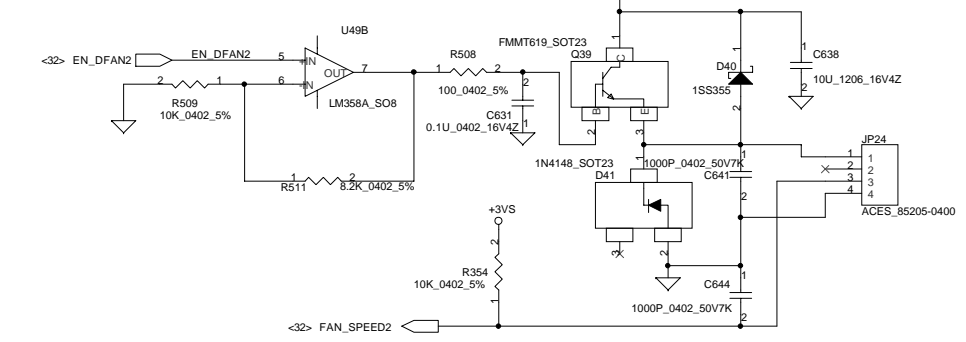
WIRELESS ACTIVE AMB LED



FAN CONN. 1

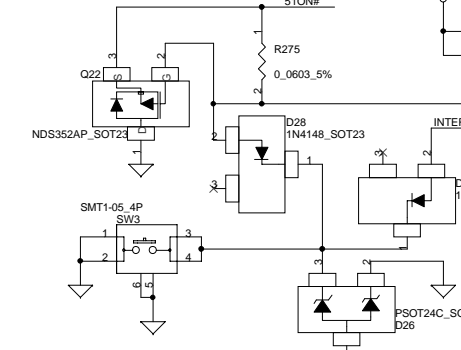


FAN CONN. 2

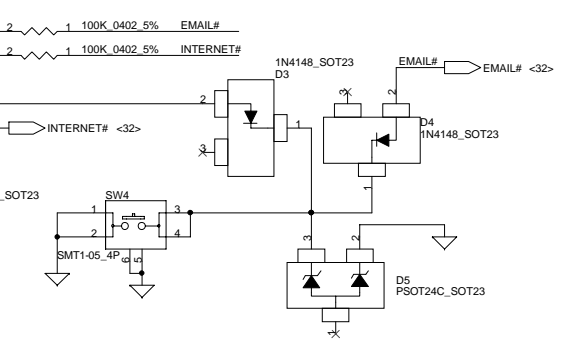


For EMI

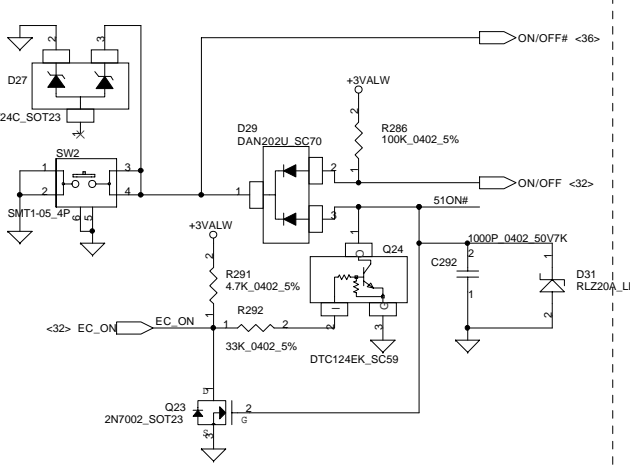
Internet Button



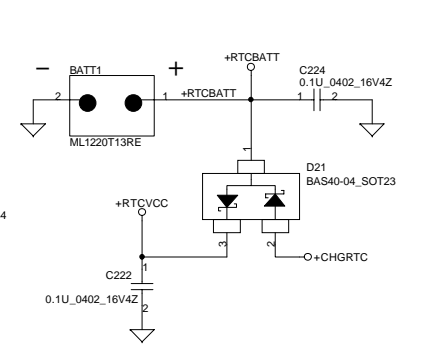
User Button & E-MAIL SW



Power Button



RTC BATT



51ON#	C653	100P_0402_50V8K
MODE#	C654	100P_0402_50V8K
KSO17	C655	100P_0402_50V8K
EC REVBTN#	C656	100P_0402_50V8K
EC FRDBTN#	C657	100P_0402_50V8K
EC PLAYBTN#	C658	100P_0402_50V8K
EC STOPBTN#	C659	1000P_0402_50V7K
ACIN	C660	100P_0402_50V8K
PWR_LED#	C661	1000P_0402_50V7K
SUSP_LED#	C662	1000P_0402_50V7K
BATT_LOW_LED#	C663	1000P_0402_50V7K
BATT_CHGI_LED#	C664	100P_0402_50V8K
HDD_LED#	C665	100P_0402_50V8K
MP3_LED#	C666	100P_0402_50V8K
E-MAIL_LED#	C667	220P_0402_50V8K

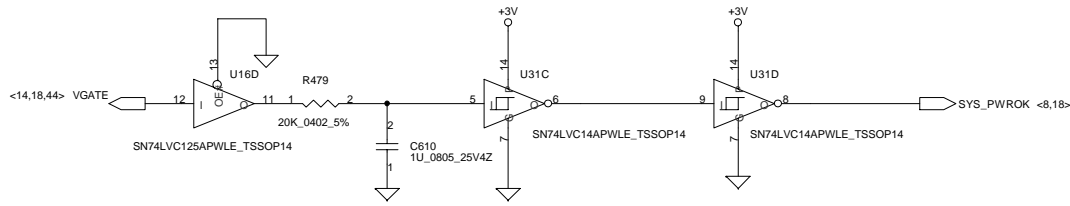
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.

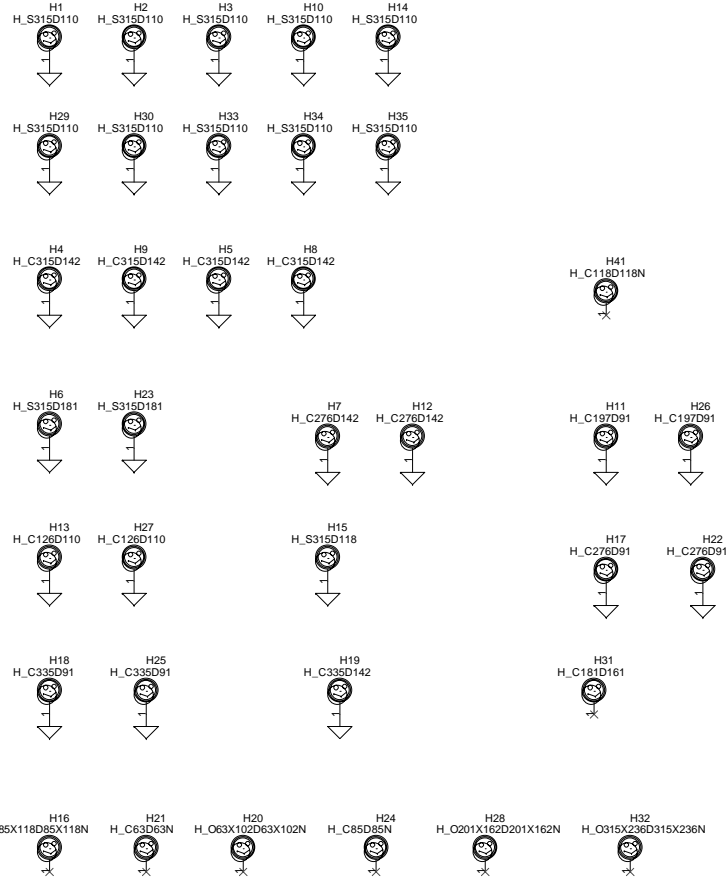
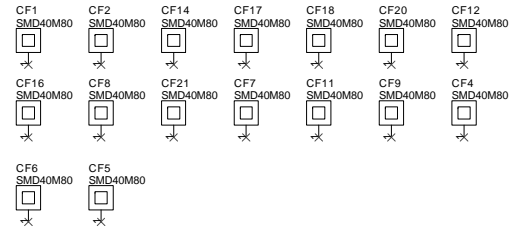
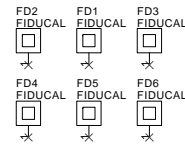
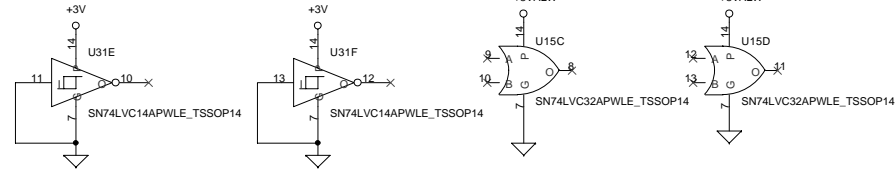
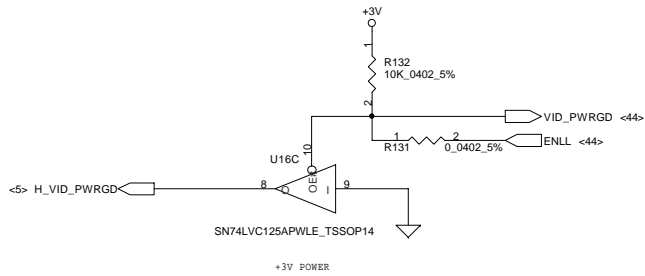
SCHEMATIC, M/B LA-1931

Title	Document Number	Rev
Size	401264	1B
Customer		
Date	星期三, 九月 24, 2003	Sheet 34 of 49

Power Good Circuit



VID_PWRGD

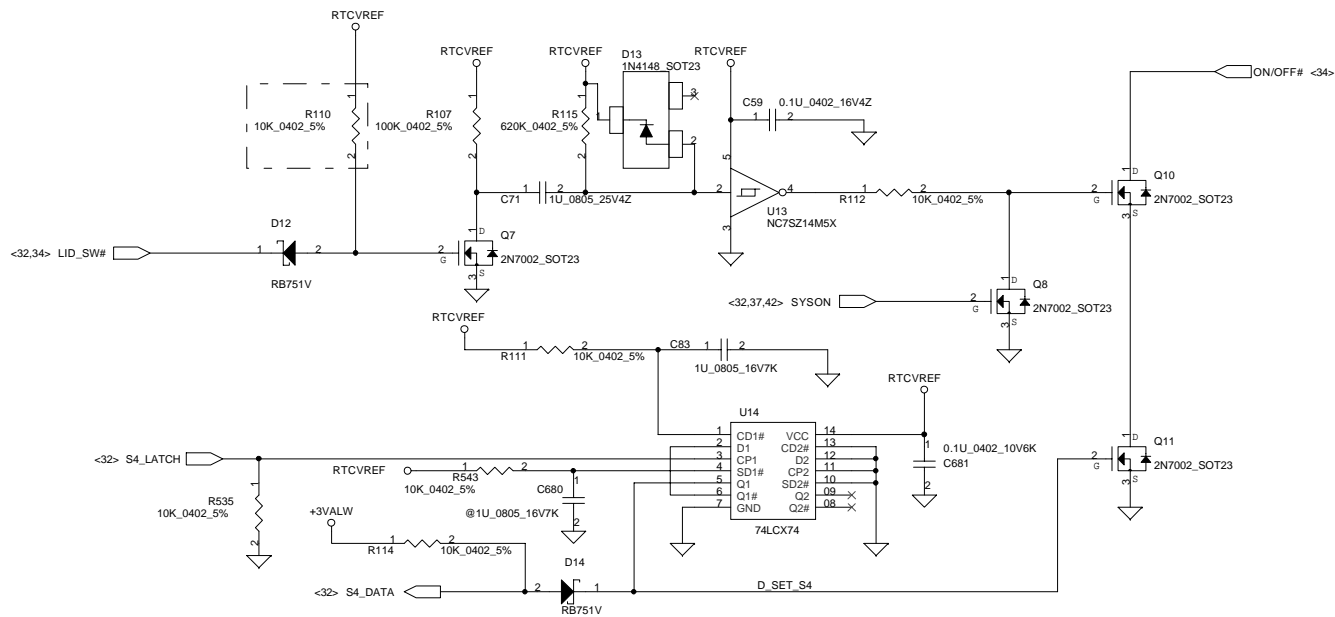


Compal Electronics, Ltd.

Title: **SCHEMATIC, M/B LA-1931**

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

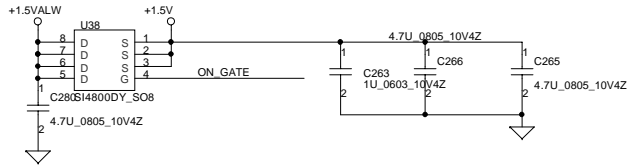
Size	Document Number	Rev
Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 35 of 49



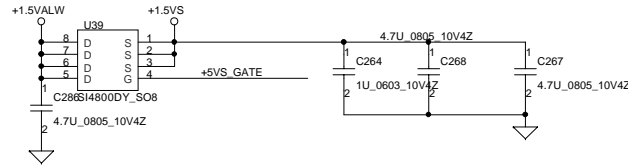
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.		
Title SCHEMATIC, M/B LA-1931		
Size Customer	Document Number 401264	Rev 1B
Date:	星期三, 九月 24, 2003	Sheet 36 of 49

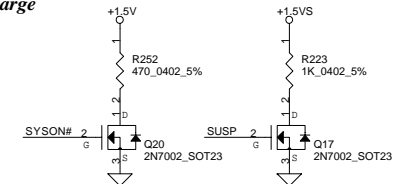
+1.5VALW To +1.5V Transfer



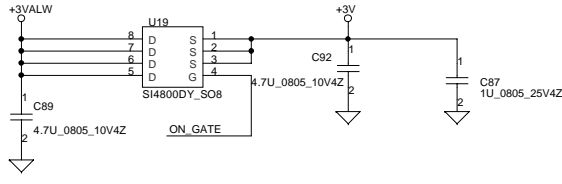
+1.5VALW To +1.5VS Transfer



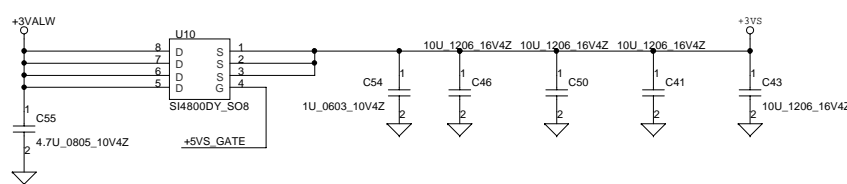
+1.5V & +1.5VS Discharge



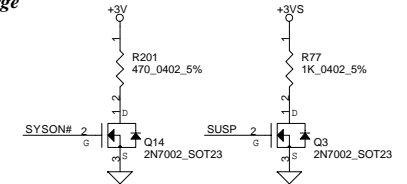
+3VALW To +3V Transfer



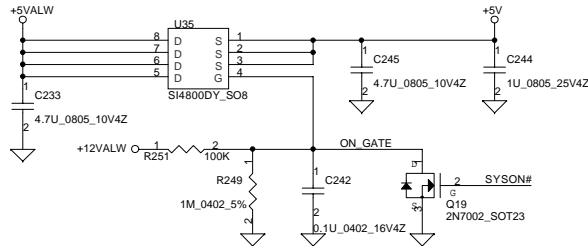
+3VALW To +3VS Transfer



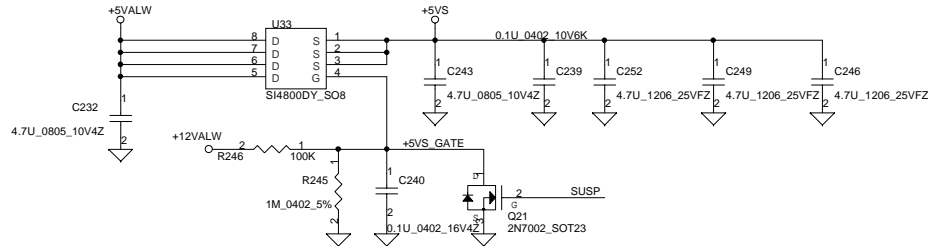
+3V & +3VS Discharge



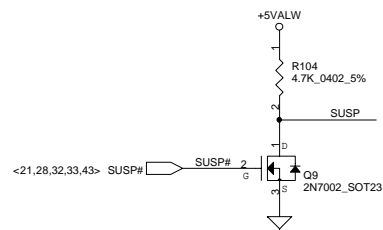
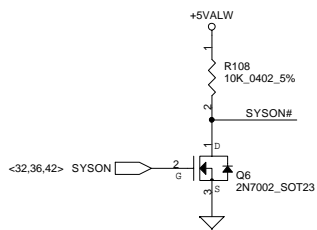
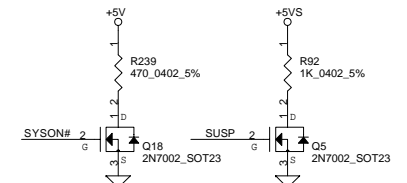
+5VALW To +5V Transfer



+5VALW To +5VS Transfer

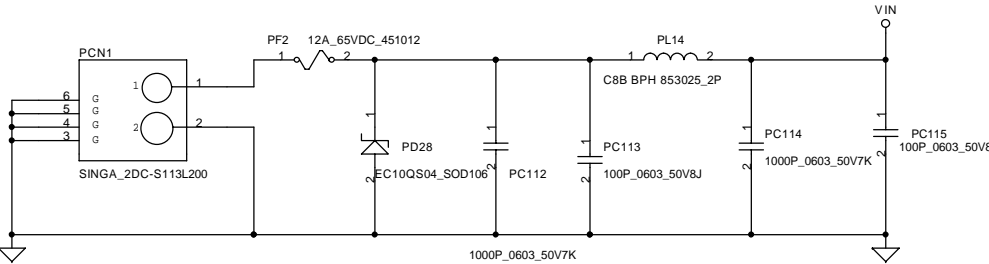


+5V & +5VS Discharge

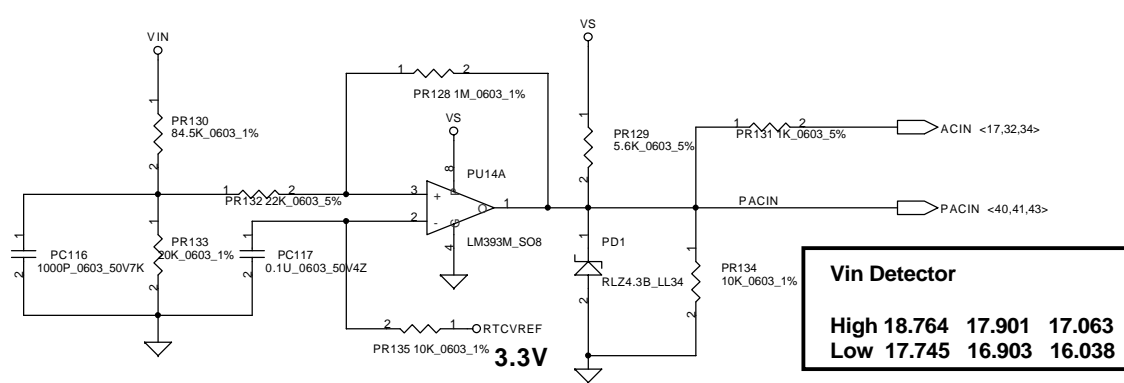


THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

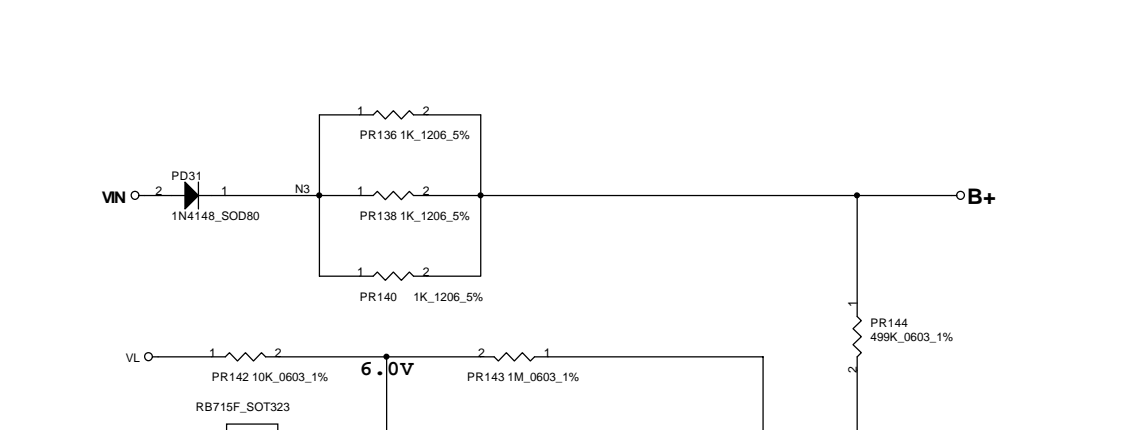
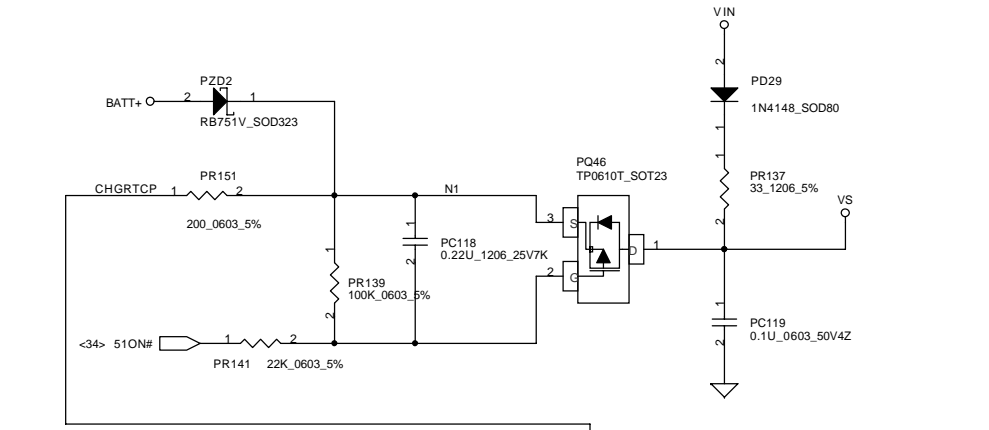
Compal Electronics, Ltd.		
SCHEMATIC, M/B LA-1931		
Size	Document Number	Rev
Customer	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 37 of 49



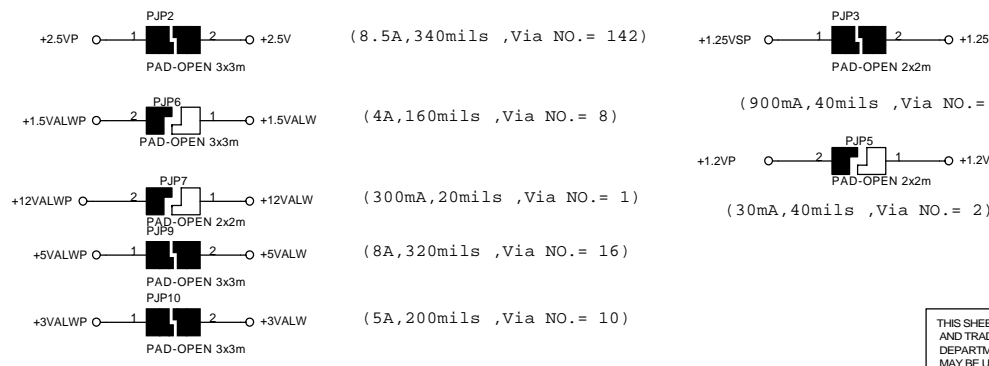
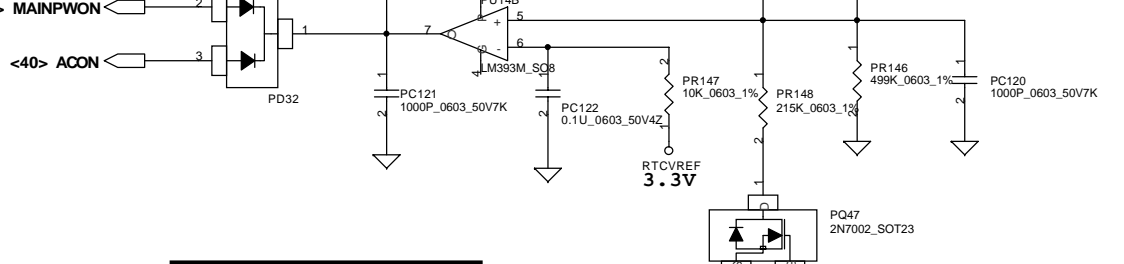
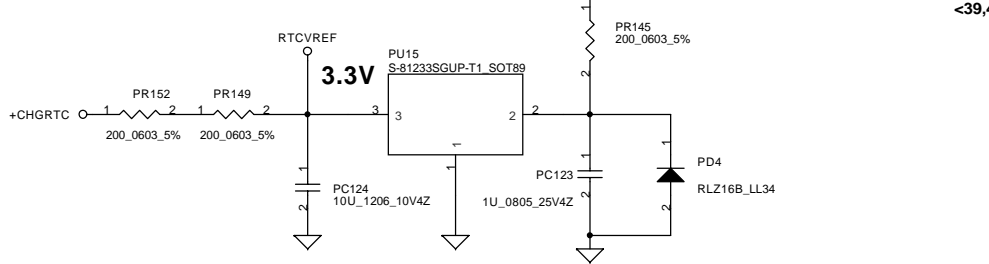
SINGA_2DC-S133L200	120W
SINGA_2DC-S726B201	90W



Vin Detector		
High	18.764	17.901 17.063
Low	17.745	16.903 16.038



Precharge detector		
<39,41>	15.34	15.90 16.48
<40>	13.13	13.71 14.20



Compal Electronics, Ltd.

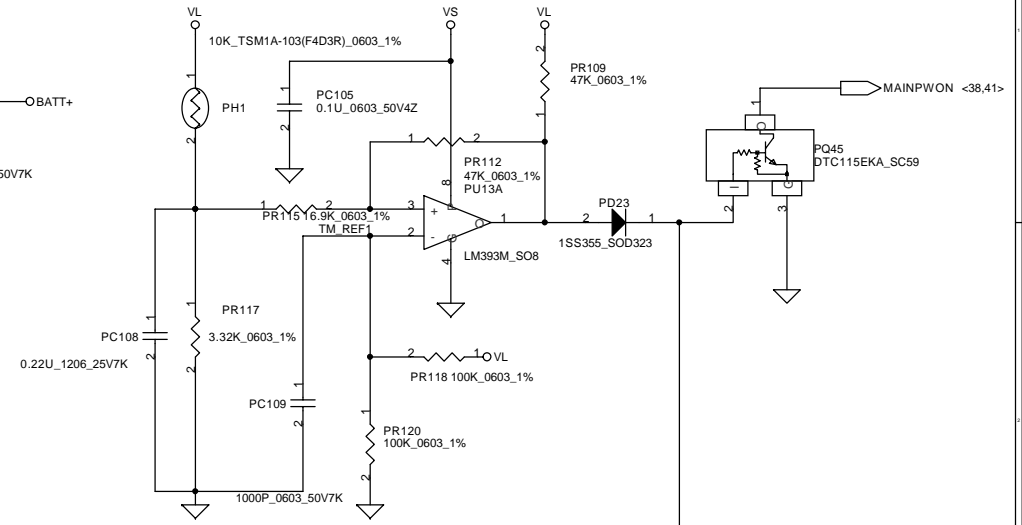
Title: **SCHEMATIC, MB LA-1931**

Size B Document Number **401264** R ev 1B

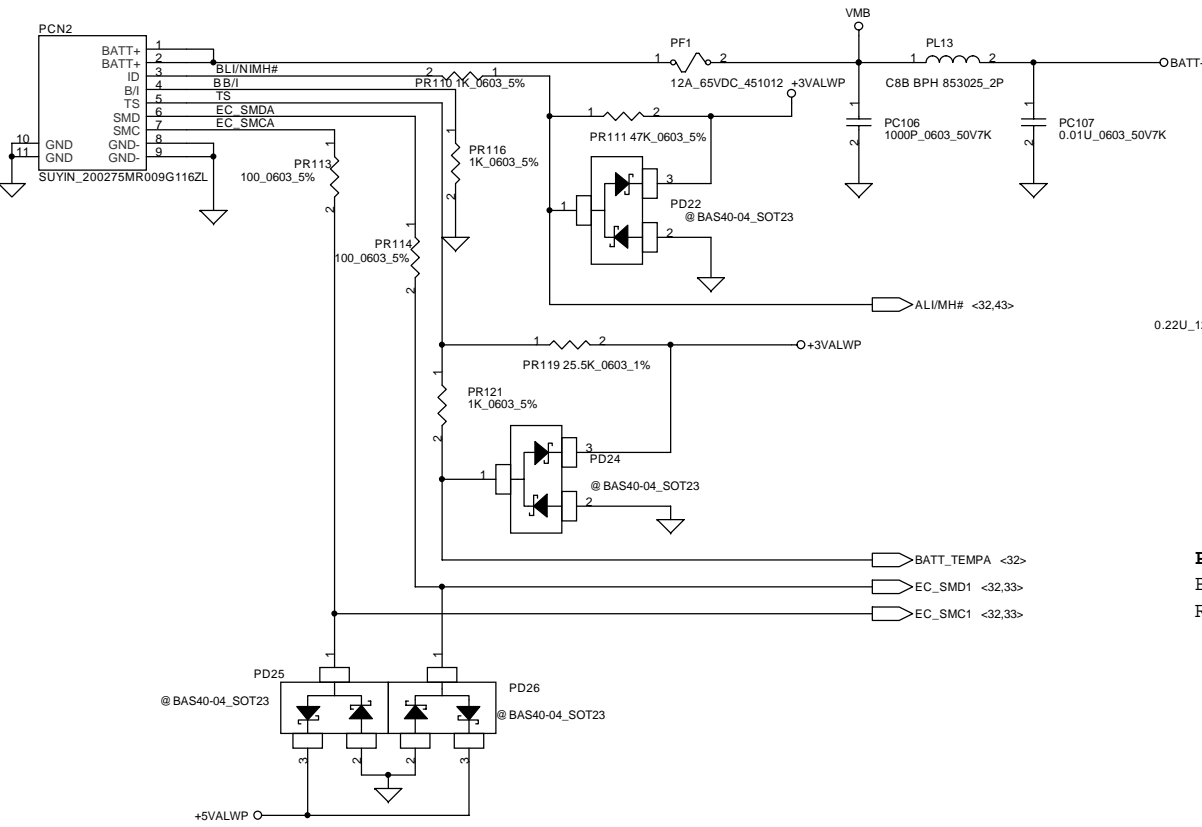
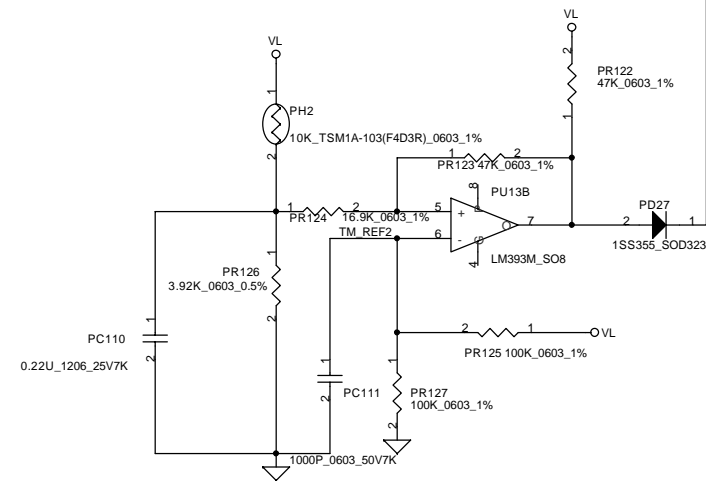
Date: -P 星期三, 九月 24, 2003 Sheet 38 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

PH1 under CPU botten side :
 CPU thermal protection at 84 degree C
 Recovery at 44(45) degree C



PH2 near main Battery CONN :
 BAT. thermal protection at 78 degree C
 Recovery at 39(40) degree C



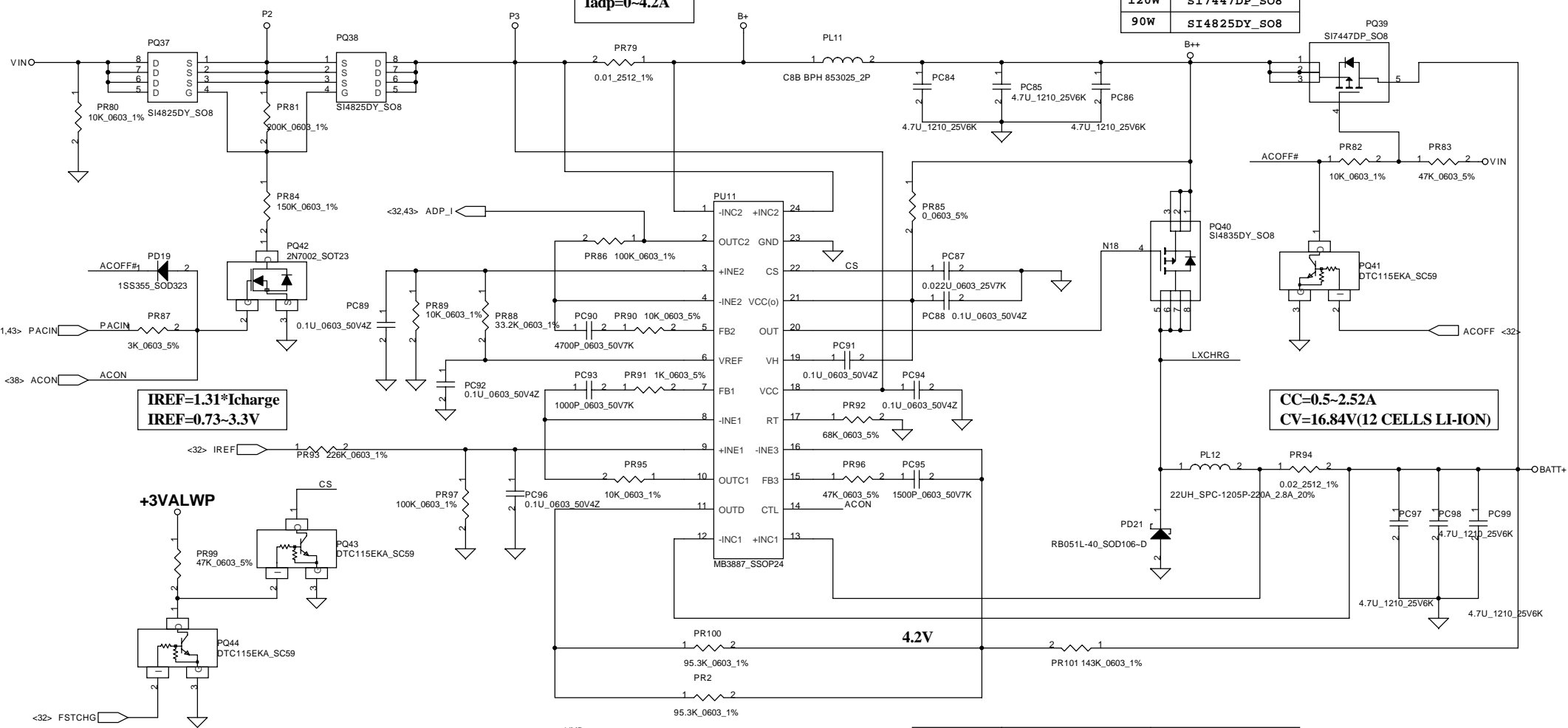
Compal Electronics, Ltd.

Title		SCHEMATIC, M/B LA-1931	
Size	Document Number	R ev	
B	401264	1B	
Date:	-P 版三, 九月 24, 2003	Sheet	39 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

	PQ39
120W	SI7447DP_SO8
90W	SI4825DY_SO8

Iadp=0-4.2A



IREF=1.31*Icharge
IREF=0.73-3.3V

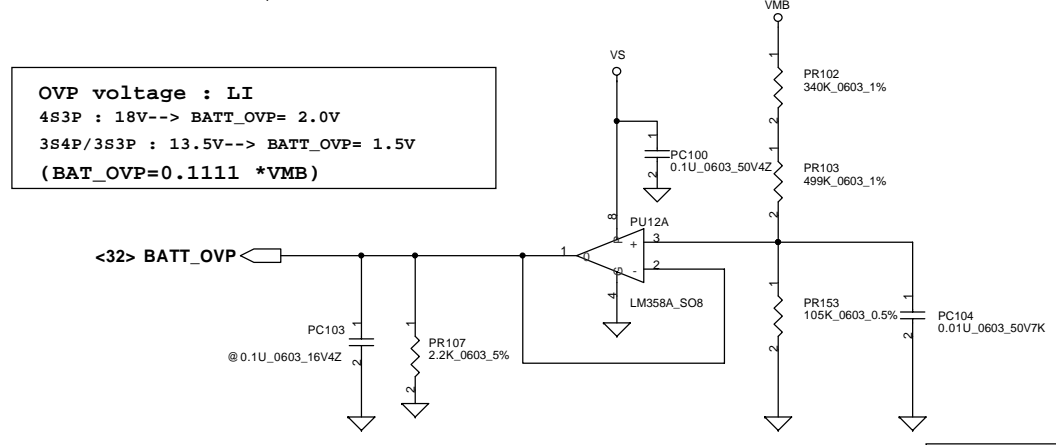
CC=0.5-2.52A
CV=16.84V(12 CELLS LI-ION)

+3VALWP

4.2V

OVP voltage : LI
4S3P : 18V--> BATT_OVP= 2.0V
3S4P/3S3P : 13.5V--> BATT_OVP= 1.5V
(BATT_OVP=0.1111 *VMB)

	120W	90W
PR79	0.01_2512_1%	0.015_2512_1%
PR86	100K_0603_5%	10K_0603_5%
PR88	33.2K_0603_1%	29.4K_0603_1%
PR90	10K_0603_5%	4.7K_0603_5%



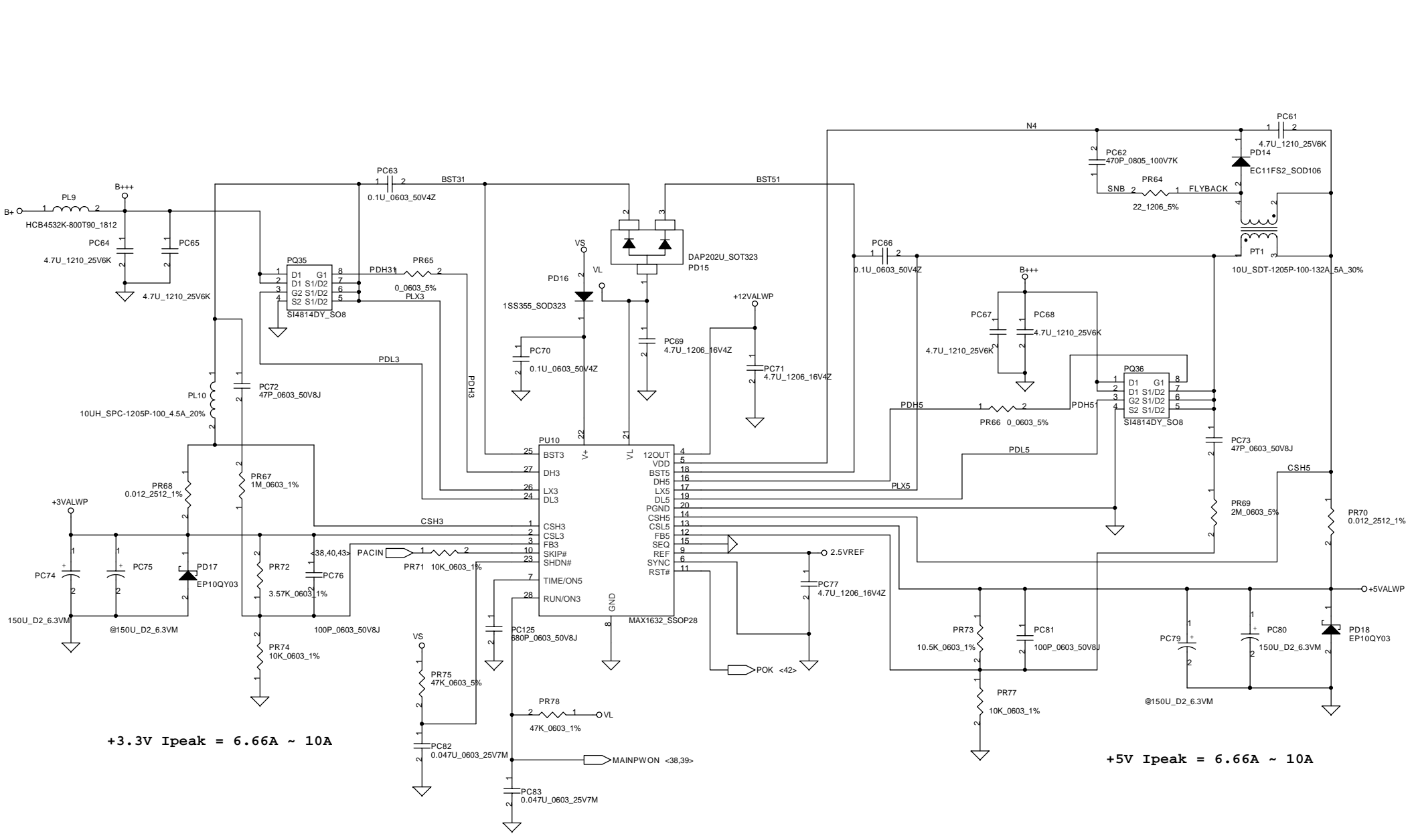
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.

Title: **SCHEMATIC, MB LA-1931**

Size B	Document Number 401264	Rev 1B
--------	----------------------------------	-----------

Date: -P 星期三, 九月 24, 2003 Sheet 40 of 49



+3.3V Ipeak = 6.66A ~ 10A

+5V Ipeak = 6.66A ~ 10A

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.			
Title			
SCHEMATIC, M/B LA-1931			
Size	Document Number	Rev	
B	401264	1B	
Date:	-P 星期三, 九月 24, 2003	Sheet	41 of 49

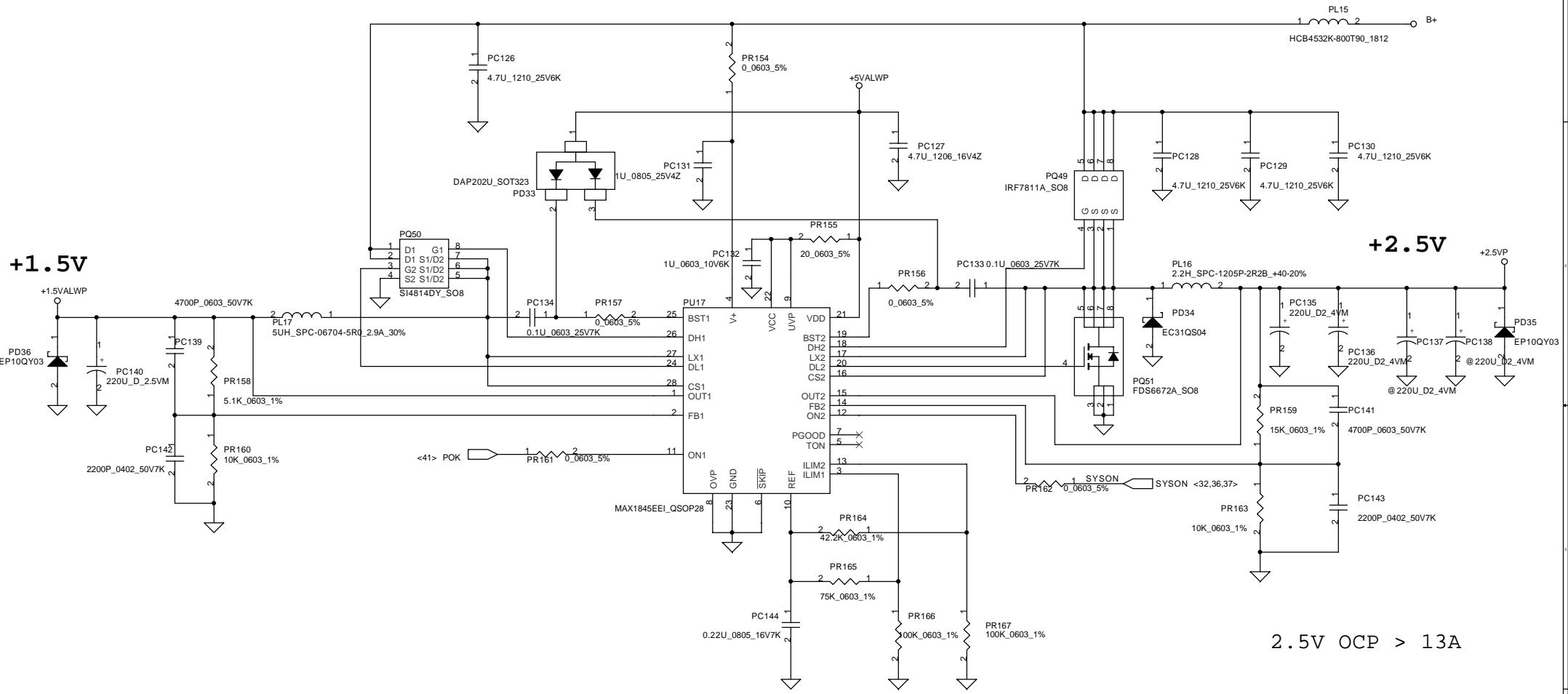
+2.5V/+1.5V

+1.5V

+2.5V

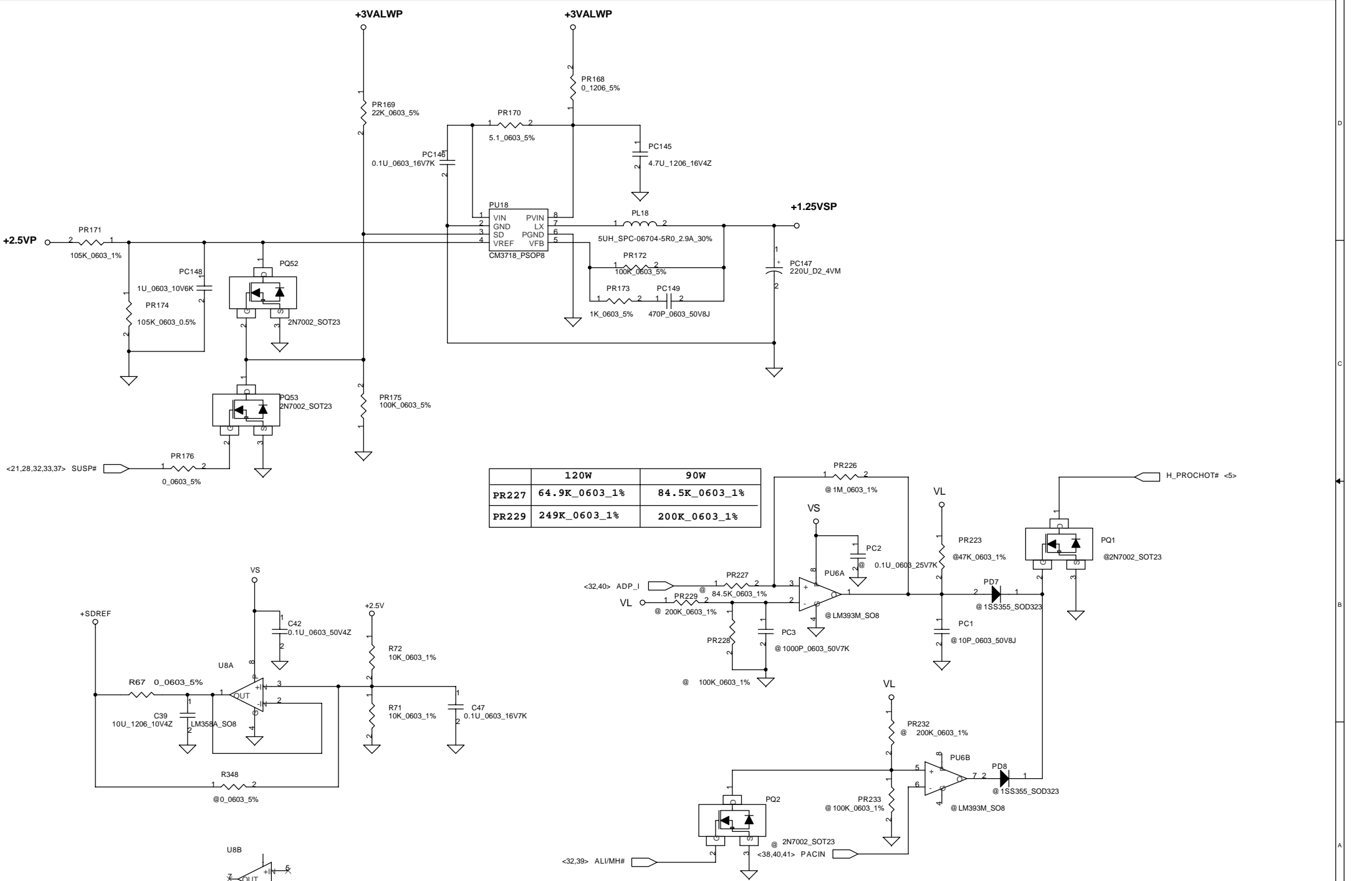
+2.5VP

2.5V OCP > 13A



THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.			
Title SCHEMATIC, M/B LA-1931			
Size Custom	Document Number 401264	Rev 1B	
Date: -P 星期三, 九月 24, 2003	Sheet 42	of	49



	120W	90W
PR227	64.9K_0603_1%	84.5K_0603_1%
PR229	249K_0603_1%	200K_0603_1%

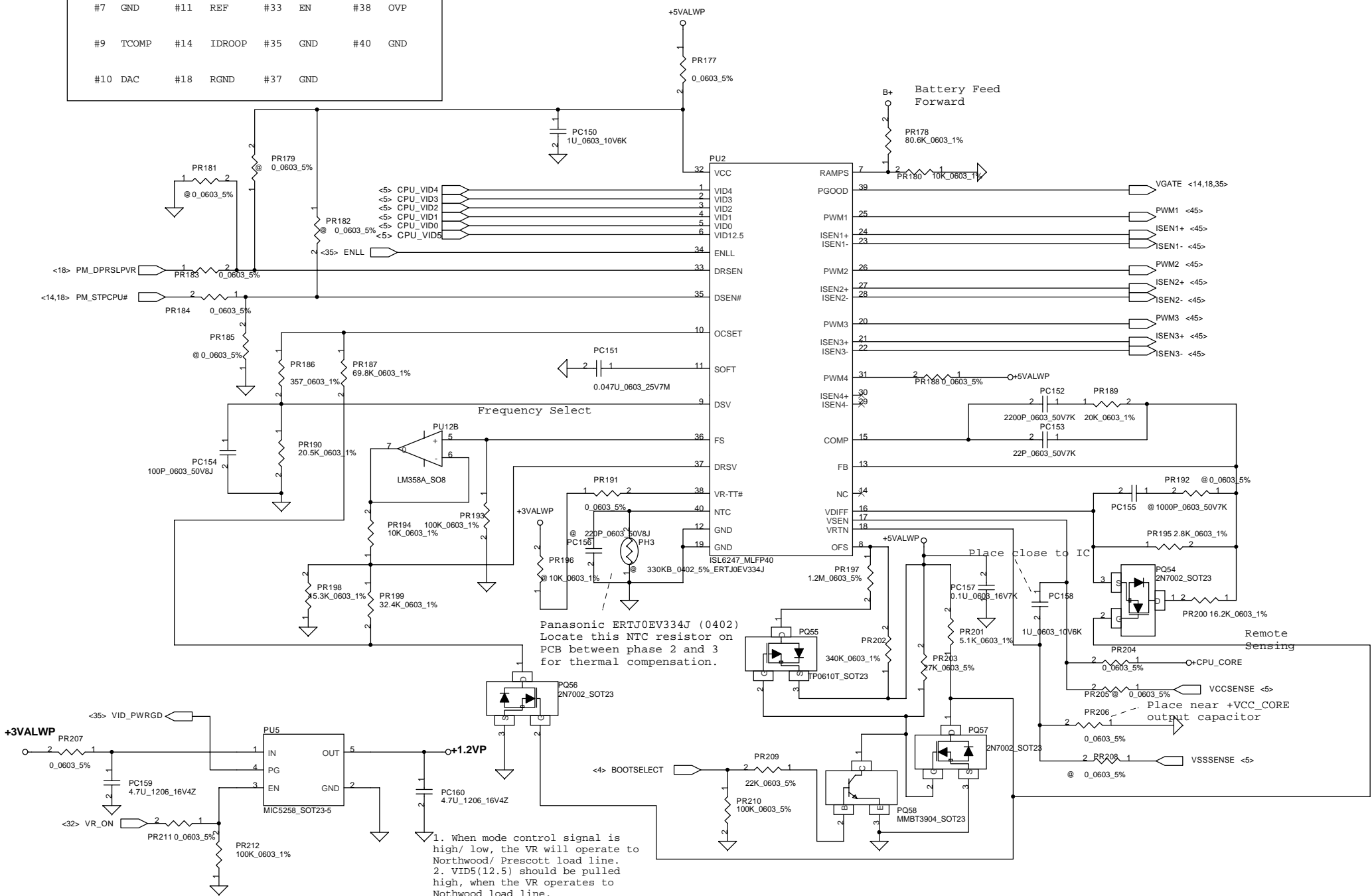
Compal Electronics, Ltd.

Title: **SCHEMATIC, M/B LA-1931**

Size	Document Number	Rev
Customer	401264	1B
Date:	~P星期三, 九月 24, 2003	Sheet 43 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

#7 GND	#11 REF	#33 EN	#38 OVP
#9 TCOMP	#14 IDROOP	#35 GND	#40 GND
#10 DAC	#18 RGND	#37 GND	



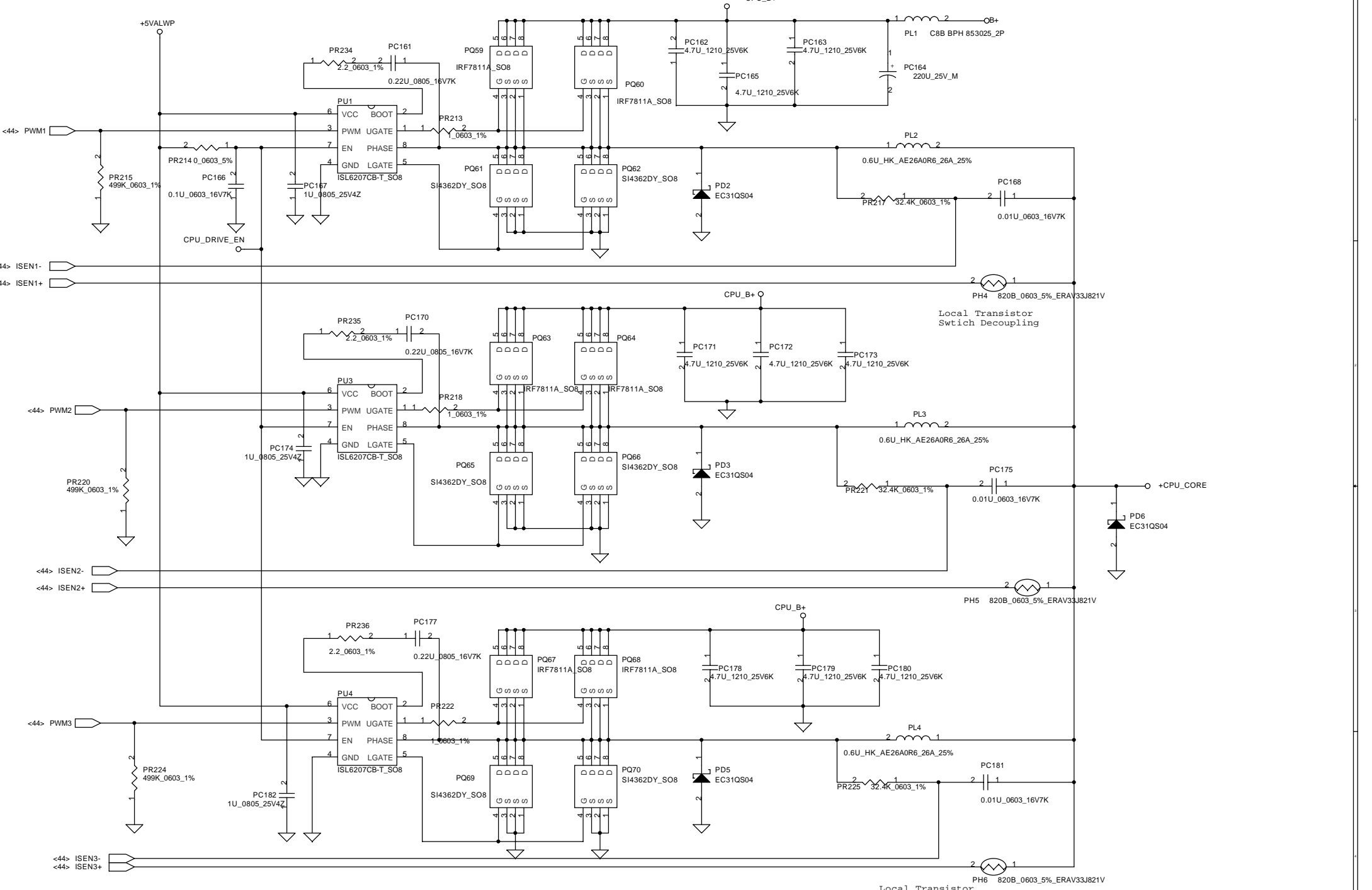
Panasonic ERTJ0EV334J (0402)
 Locate this NTC resistor on
 PCB between phase 2 and 3
 for thermal compensation.

1. When mode control signal is high/ low, the VR will operate to Northwood/ Prescott load line.
2. VID5(12.5) should be pulled high, when the VR operates to Northwood load line.

BOOTSELECT=1 PRESCOTT
 BOOTSELECT=0 NORTHWOOD

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.			
Title SCHEMATIC, M/B LA-1931			
Size B	Document Number 401264	Rev 1B	
Date:	-P 星期三, 九月 24, 2003	Sheet	44 of 49



Local Transistor
Switch Decoupling

Compal Electronics, Ltd.		
Title SCHEMATIC, M/B LA-1931		
Size Custom	Document Number 401264	Rev 1B
Date: -P 星期三, 九月 24, 2003	Sheet 45	of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

REV 0.1

Date	Page	Description
04/10	21	Delete Power interface short line.
04/13	21, 22	Change Card Bus controller as one slote CB1410
	11, 12	Swap RAM data signals.
04/16	29	Add EQ circuit
	43	Add throuloling circuit.
	26, 31	Add FIR and Remove SW DJ cicuit
04/24	17	Add R569 and R570 for Layout Request. Move Signal IRQE#~H# from RP92 to RP91 and del RP92.
	14	CLK-GEN. pin 1(VDD_REF) and pin 46(VDD_CPU_0) change power plan as +3V_VDD. Suggestion from ICS C249 and C251 change power plane as +3VDD
04/25	45	PL4 swap pin1 and pin2.
	6	Change CPU Decoupling CAP. from 22U_1210_6.3V6M to 22U_1206_6.3V6M (H=1.6)
	32	1. EC GPIO signal HDD_LED# move from pin114 to pin119. 2. Add signal PM_SLP_S1# on EC GPIO pin115.
	28	Q44 for +5VCD change part name as U55
04/28	8	Del R73, cause it duplicate pull high.
	27	Change C478 and C488 from 150U to 10U
	36	Change R480 from 560K to 620K Ohm
	4	Add R571 for BOOTSELECT
	5	Add R573 for OPTIMIZED/COMPAT#
	18	Add R572 for signal PM_DPRSLPVR
04/29		Rename from Layout
04/30	33	R73 0402 -> 0603 and C52 0805 -> 0603
	16	C2, C5, C259, C3, C4, C6, C260, C261 and C262 Link CIS.
	5	Thermal Sensor : Del R62, R61 8.2K-->200Ohm and power +5VS -> +3VS, C27 value 0.1U -> 1U, Sensor power rout direction : +3VS -> R61 -> C27.1 -> U6.1
	17	Add Q40 and Q41, R517 and R518 for SMBus isolate solution.
05/01	8	Change CRT_HSYNC -> INTCRT_HSYNC and CRT_VSYNC -> INTCRT_VSYNC on MGCH terminal.
05/02	33	Remove dummy net on SUSP#.
	16	R28, C277, C278 and C279 modify P/N for CIS link
	17	C215 and C217 modify P/N for CIS link
	22	C145 modify P/N for CIS link
	20	Remove dummy net on Xi
	14	R83 and R94 modify P/N for CIS link
05/03	32	CP4 pin2 add connected to GND
05/05	42	PR151 pin1 SYSON signal --> MAINPWON
	8	Swap U26.B6 (INTDDCDA) and U26.G9 (INTDDCCK) --> U26.B6 (INTDDCCK) and U26.G9 (INTDDCDA)
	9	+SDREF circuit move to page 44
	6	Modify Cap.s location same with Layout
	14	Change R129 net from PM_SLP_S3# to PM_SLP_S1#
	16	Add R519 and R520 for EC protect
05/06	20	EEDI_LAN --> EEDI_1394; EECK_LAN --> EECK_1394
	27	Remove R26. Delete USBEN# and U3.3, U3.4, U32.3 and U32.4 connect to GND. Delete R30, R279, R258 and R257. Change C273, C284 and C646 220U -->150U.
	42	PR151 pin1 SYSON signal --> POK; PU10 pin 11 output POK.
	5	R324 size 0603 -> 0805
	32	U24.175 ATF_INT# --> EC_THERM#
05/07	28	Add L42 between GND and AGND by EMI request.
	17	R408, remove @ for Intel comment.
	5	R56 60.4_0603_1% --> 51.1_0603_1%; R59 102_0603_1% -> 86.6_0603_1%
05/08	35	H19 GNDA -> GND; H31 GND -> GNDA
	37	C242 0.01U -> 0.1U.
	11	JP21 DDR-SO-DIMM link with CIS.
	29	De-pop EQ components, add @ symbol on components.

Compal Electronics, Ltd.		
Title SCHEMATIC, WB LA-1931		
Size Custom	Document Number 401264	Rev 1B
Date: 星期三, 九月 24, 2003	Sheet 46	of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

REV 0.2

Date	Page	Description
05/12	35	Change H31 GND --> AGND and H19 AGND --> GND
	37	R104 and R108 power plane changed, +3VALW --> +5VALW
05/29	40	Change PR100 47.5K-->95.3K PR100 47.5K-->95.3K;PQ37,PQ38,PQ39 SI4835DY-->SI4825DY PR79 0.015-->0.01; PR86 10K-->100K ;PR90 4.7K-->10K; PR88 29.4K-->33.2K Add PR2 95.3K
	38	Change PCN1 90W-->120W
	20	U29 Pin 37 pull up with 4.7K Ohm --> U29 Pin 43 change X4 footprint same as X2
	16	Add Protect circuit for EC (Add D42, D43 ,D44 and R521)
	32	PWR_SUSP_LED# --> PWR_SUSP_LED
	34	Add reverse circuit for PWR_SUSP_LED (Add Q43 and R522).
	23	change Y2 footprint same as X2
	36	change J1 ~ J6 footprint from JUMP_2MM to 2MM
05/30	35	Add H41 and change H13 H27 size.
06/02	38	Change PL14 value
	39	Change PL13 value
	45	Change PL1 value
	40	Change PQ39 and PL11 value
	11	Add R523, R524, R525 and R526, Del R515
	12	Add R527, R528, R529 and R530
06/03	6	Delete C281, C287, C300, C309, C317, C324, C327 and C330.
06/05	34	Add C648 and C649 for EMI request
	32	Add R531 and R532 for EC floating issue
	8	Add R533 for DVO device detect

Compal Electronics, Ltd.		
Title		
SCHEMATIC, WB LA-1931		
Size	Document Number	Rev
	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 47 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

REV 0.3

Date	Page	Description
06/12	25	Swap IRQG#_MINI2 and IRQH#_MINI
06/30	30	Change sound resource, cause Headphone without EQ.
07/01	40	Modify PQ38 direction
	28	Add regulator : Add Q44, Q45, Q46, D45 and R536 ~ R539.
		Change C95, C129, C385, C386, C399, C404, C441, C422, C438 and C445 size : 0603 -> 0402.
	29	Change R166, R357, R426, R435, R148, R173, R187, R347, R352, R432, R181 and R346 size : 0603 -> 0402.
	30	Change amplifier from TPA6011A4 to TPA0232.
		Add R534, C651 and C650
		Delete R202, R199, R434 and R442.
		Change C563 1U to 0.47U
		Change VR type from A-Curve to C-Curve.
		Change C184, C212, C213, C219 size 0603 -> 0402.
	14	R129 change net from PM_SLP_S1# to PM_SLP_S3#
		Q13 : 2SC2411K --> 2N7002
		R445 : 10K --> 0 Ohm
	10	Change C491 size : 1210 -> 1206; Change C465 and C468 size : 1210 --> D type
	35	Change SYS_PWROK control signal
	25	SWAP PIRQG#_MINI and PIRQH#_MINI_2
07/09	14	U21 and R128 add '@', and R129 remove '@' CLK_PWD#.
	26	U36, U37, C253 and C254 --> @; Add R541 and 542 --> 0 Ohm
	28	Change Q44 --> U59; Add decoupling CAPs., C668 ~ C679.
	35	Change H13 and H27 size
	30	Change ESD diode type near speaker connector. Change D35 and D33 type, Del D34 and D32.
07/10	36	Change S4 resume function power plane +RTC_VCC -> RTCVREF
		Add R543, C680 and C681
	32	Add C682, reserve for PC97551.
07/16	5	R270 R271 R272 R267 R266 R16 R220 1K_0402_5% --> 10K_0402_5%
	32, 8	Delete R412 R399 R369 R390 R485 R306
	16	R304, R314, R317, R310, C318 1_0603_5% -> 1_0402_5%
	18	R422 1_0603_5% -> 1_0402_5%
07/16	5	Add D46 and D47 for EMI solution
	17	Add D48 for EMI solution
	19	Add D49 for EMI solution
	10	C491 C_1210 -> C_1206
	30	MONO_IN GNDA --> GND
07/18	28	Delete L36, L19, L10 and L42
07/21	30	D33, D34 GND --> GNDA
07/22	35	H31 GNDA --> Non-PDH hole.
	29	EQ-1 and EQ-2 GNDA --> GNDA-EQ
		Add R544 for GNDA <-> GNDA-EQ
		Add L44 L45 for EMI request GND <-> GNDA-EQ
	28	Add L36, L19, L10 and L42 for EMI request GNDA <-> GND

Compal Electronics, Ltd.		
Title SCHEMATIC, WB LA-1931		
Size	Document Number	Rev
Cust	401264	1B
Date:	星期三, 九月 24, 2003	Sheet 48 of 49

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

REV 1.0

Date	Page	Description
08/04	28	Reserve C683, C684 and C685 for Audio noise issue R370 --> @ C467 and C458 change as 0.1U for Audio noise issue
08/18	44	PC151 0.033U -->0.047U; PC152 1000P --> 2200P; Add PC153 22P
09/19	44	PR195 2.26K --> 2.8K
09/22	45	PR217 PR221 PR225 48.4K -->32.4K

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Ltd.		
Title SCHEMATIC, WB LA-1931		
Size Custom	Document Number 401264	Rev 1B
Date: 星期三, 九月 24, 2003	Sheet 49	of 49