

COMPAL CONFIDENTIAL

MODEL NAME : *Ibiza*

COMPAL P/N :

PCB NO : *LA-1684*

Revision : *1.0*

Ibiza Schematics Document uFCBGA/uFCPGA NorthWood MT

2004-01-09

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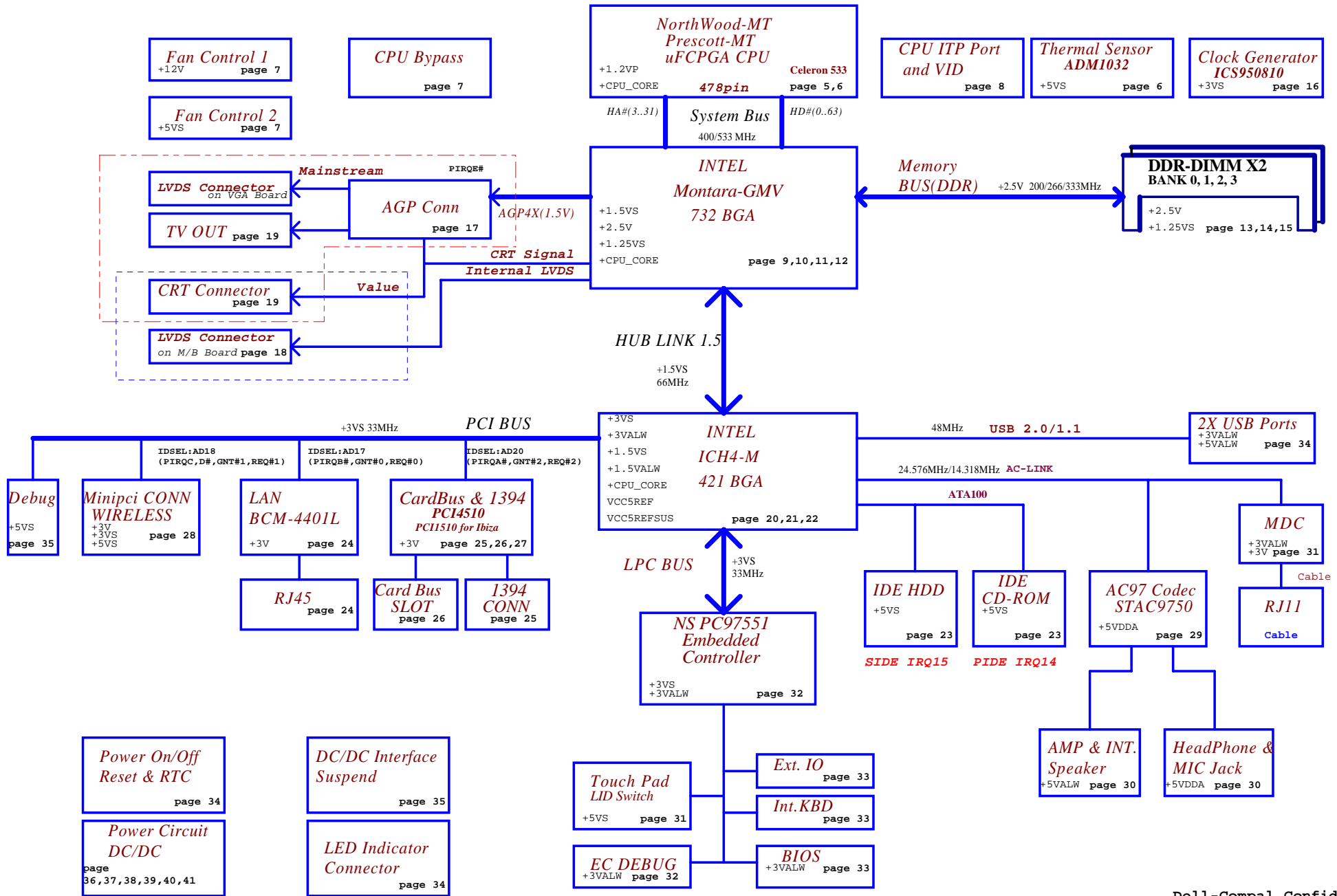
Title
Cover Sheet

Size	Document Number Ibiza LA-1684	Rev 1.0
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Date: Friday, January 09, 2004	Sheet 1 of 48
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Model : Ibiza (Abacus MT for Ext. Gfx)



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File: Block Diagram			
Size	Document Number	Rev	
	Ibiza LA-1684	1.0	
Date:	Friday, January 09, 2004	Sheet	2 of 48

ST2	FSB
L	400
H	533

Power Managment table

Signal / State	+1.5VALW +3VALW +5VALW +12VALW +12V_FAN	+3V +2.5V	+3VS +5VS +1.5VS +1.2VP +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

SCHEMATICS VERSION LIST

VERSION	ISSUE DATE	REMARK
0.1	08/19/2003	SST Release
0.2	10/06/2003	PT Release
Seperate from Abacus-MT		
0.1	11/19/2003	ST Release
1.0	01/05/2004	QT Release

Ceramic Capacitor Spec Guide:

Temperature Characteristics:

Symbol	0	1	2	3	4	5	6	7
CODE	Z5U	Z5V	Z5P	Y5U	Y5V	Y5P	X5R	X7R

8	9	A	B	C	D	E	F	G
NP0	COG		BJ	CH	CJ	CK	SH	SJ

H	I	J	
UJ	UK	SL	

Tolerance:

Symbol	A	B	C	D	F	G	H	J
CODE	+0.05PF	+0.1PF	+0.25PF	+0.5PF	+1PF	+2%	+3%	+5%

K	M	N	P	Q	V	X	Z	
+10%	+20%	+30%	+100,-0%	+30,-10%	+20,-10%	+40,-20%	+80,-20%	

SMBUS Control Table

	SOURCE	INVERTER	BATT	SERIAL EEPROM	THERMAL SENSOR (CPU)	THERMAL SENSOR (LM75)	SODIMM	CLK CHIP	MINI PCI	LCD	VGA Thermal ADM1032
SMB_EC_CK1 SMB_EC_DAI	PC87591L	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓
SMB_EC_CK2 SMB_EC_DAI2	PC87591L	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗
SMB_CLK SMB_CDATA	ICH4-M	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗
LCD_DDCCLK LCD_DDCCDATA	M-GT	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗

Item	Function	Note
1@	Ibiza	Montara GMV with no TV, 1394
2@	Abacus-MT	Montara-PM
@	DEPOP	

GMV supply 533 Celeron, and use the internal Gfx

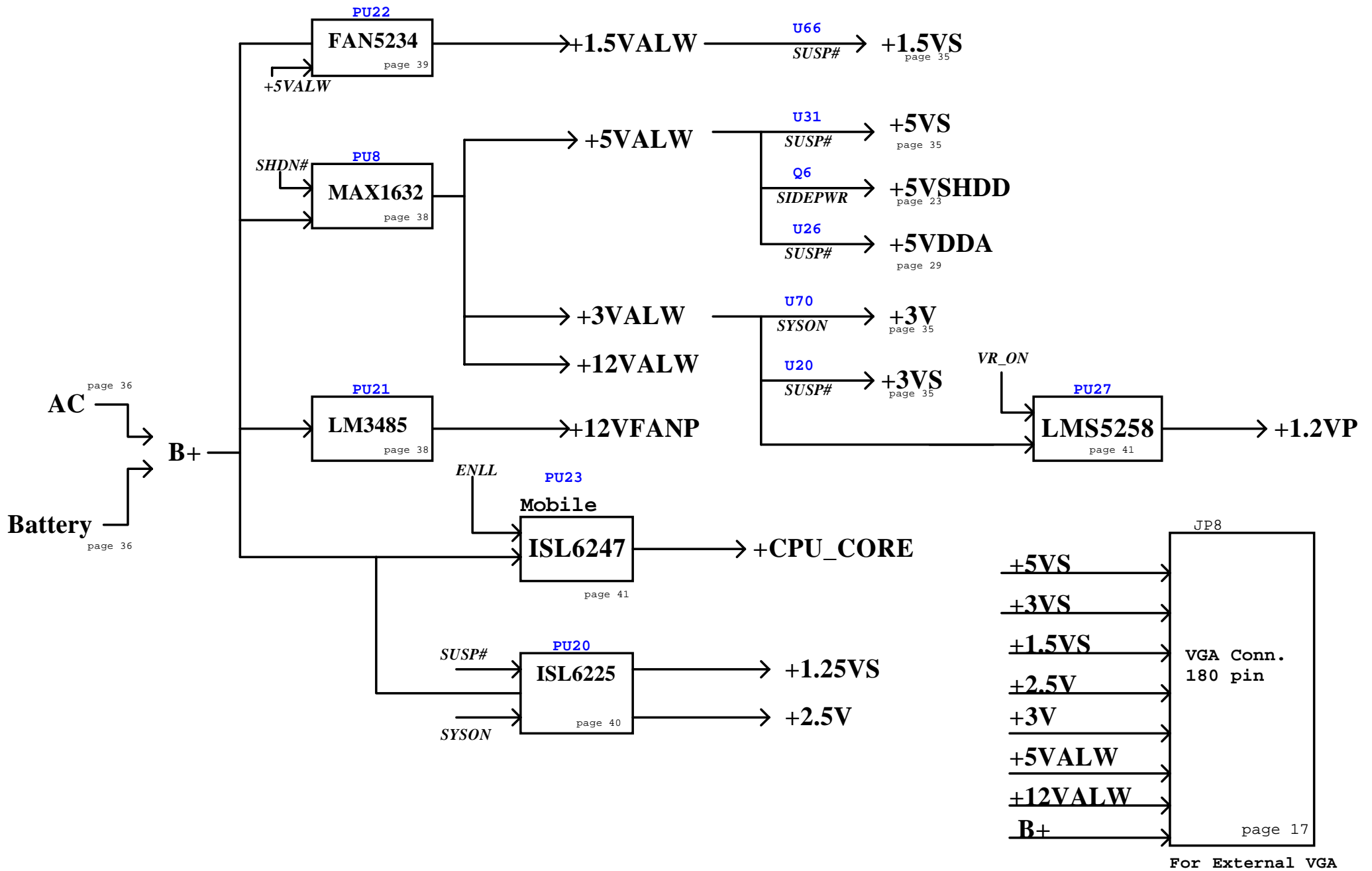
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Title		
Note & Revision		
Size	Document Number	Rev
	Ibiza LA-1684	0.1
Date:	Friday, January 09, 2004	Sheet 3 of 48



For External VGA

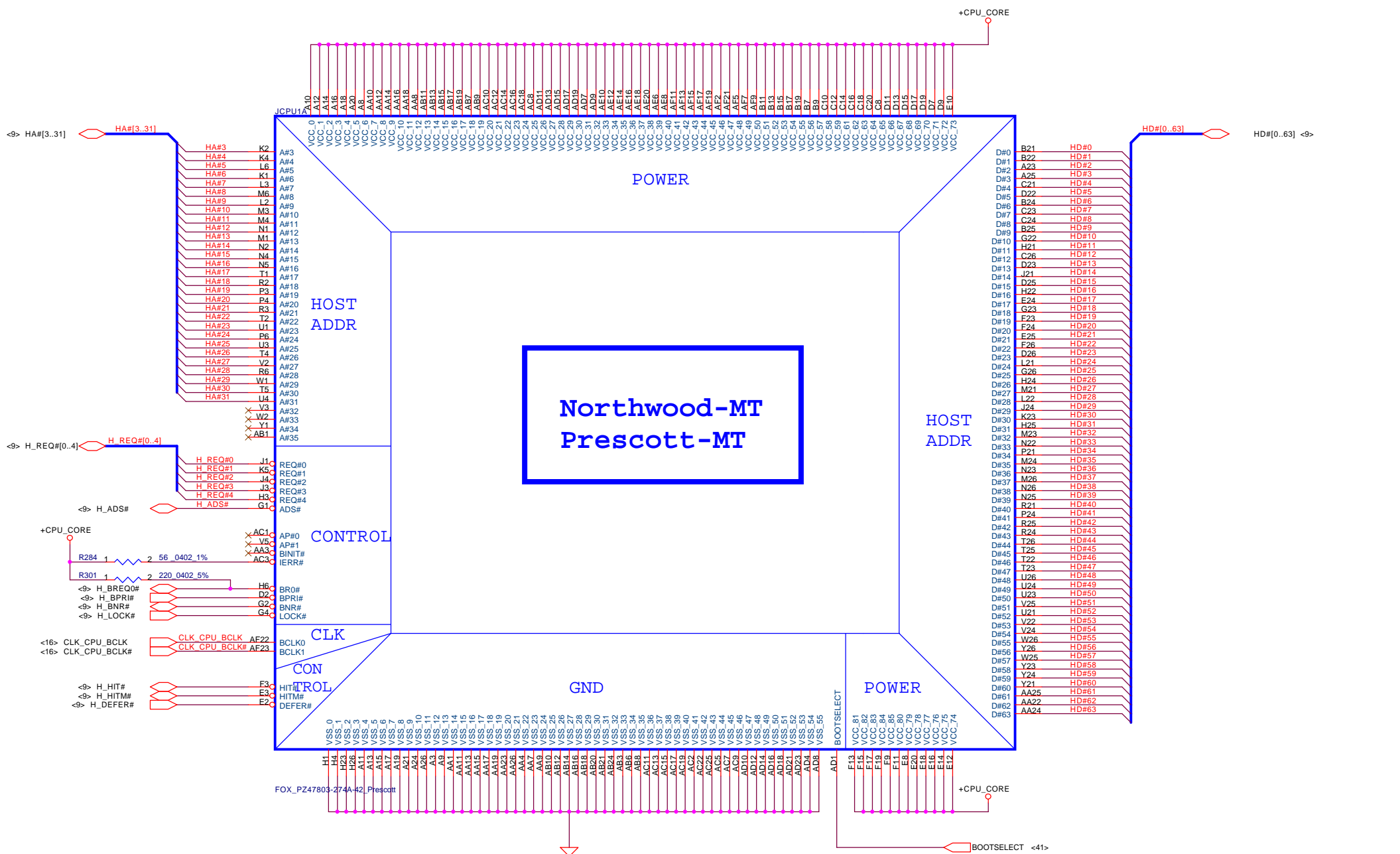
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File			POWER DIAGRAM	
Size	Document Number	Ibiza LA-1684		Rev
				1.0
Date:	Friday, January 09, 2004	Sheet	4	of 48

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Northwood-MT Prescott-MT



NWD: L PSD: H
PSD Pull-up internal

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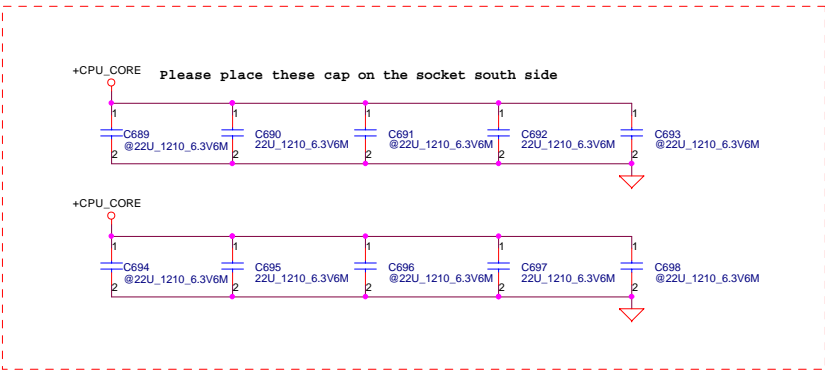
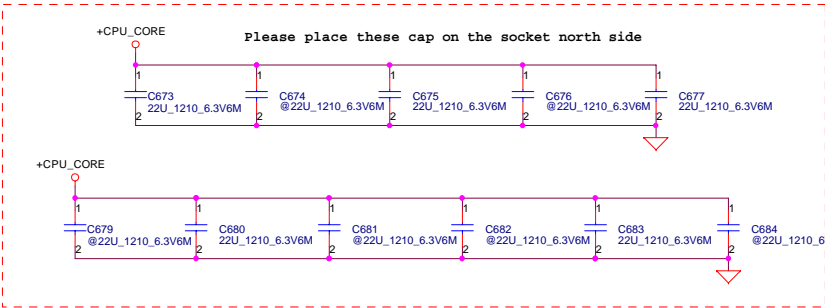
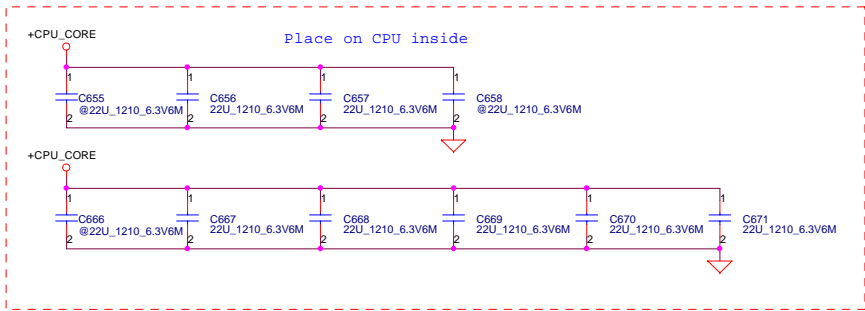
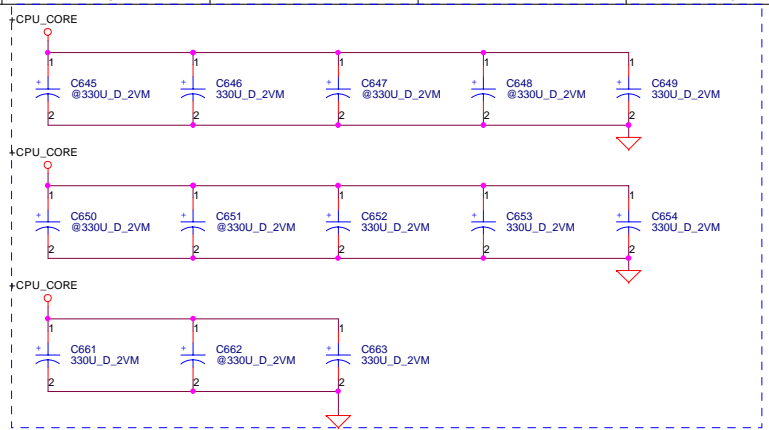


File: Prescott / P4 uFCPGA (1/2)		
Size:	Document Number: Ibiza LA-1684	Rev: 1.0
Date: Friday, January 09, 2004	Sheet: 5 of 48	

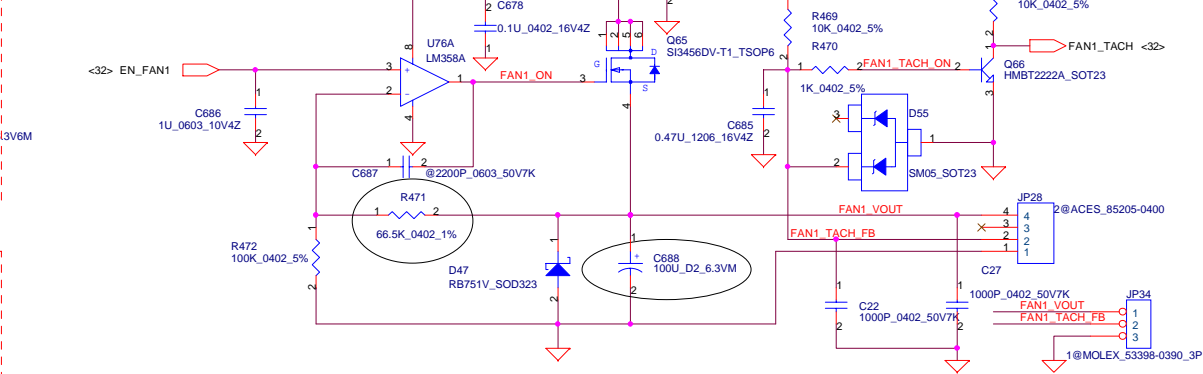
Layout note :
 Place close to CPU, Use 2-3 vias per PAD.
 Place 22uF caps x31 pcs, populated 14pcs.

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

For Desktop's CPU:
 330uF x 7 / 7m ohm each
 depop 8pcs

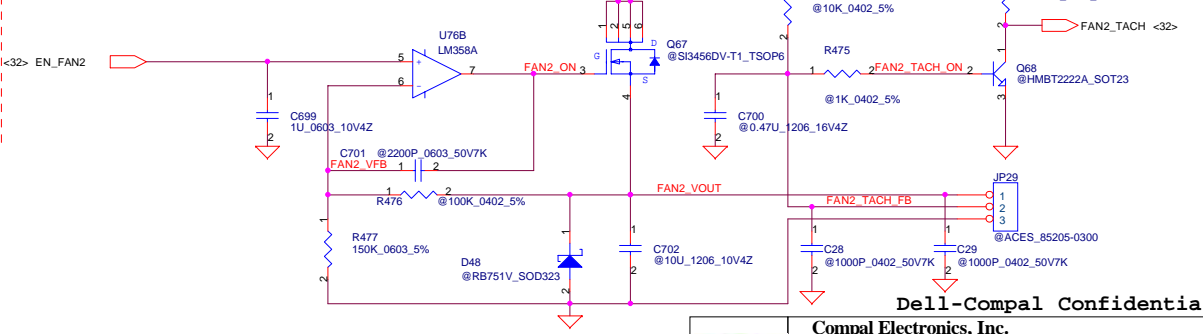


Fan1 Control circuit



Note: R471 - 66.5K_1% for +5V Fan ; 300k_1% for +12V Fan

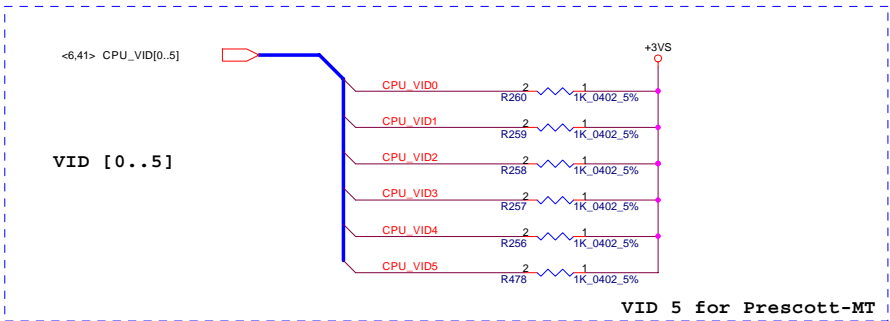
Fan2 Control circuit



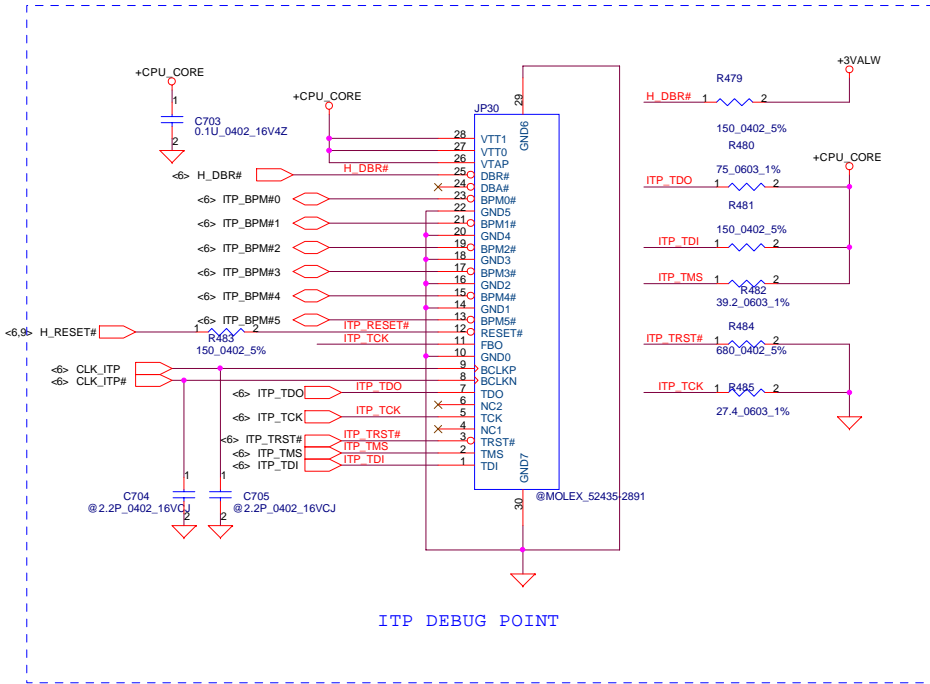
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Title CPU Decoupling CAP. & Fan control		
Size	Document Number Ibiza LA-1684	Rev 1.0
Date: Friday, January 09, 2004	Sheet 7	of 48

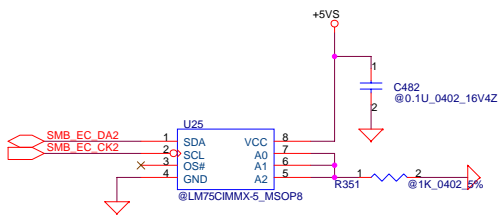


VID	4	3	2	1	0	V
	0	1	0	1	1	1.5750
	0	1	1	0	0	1.5500
	0	1	1	0	1	1.5250
	0	1	1	1	0	1.5000
	0	1	1	1	1	1.4750
	1	0	0	0	0	1.4500
	1	0	0	0	1	1.4250
	1	0	0	1	0	1.4000
	1	0	0	1	1	1.3750
	1	0	1	0	0	1.3500
	1	0	1	0	1	1.3250
	1	0	1	1	0	1.3000
	1	0	1	1	1	1.2750
	1	1	0	0	0	1.2500
	1	1	0	0	1	1.2250
	1	1	0	1	0	1.2000
	1	1	0	1	1	1.1750
	1	1	1	0	0	1.1500
	1	1	1	0	1	1.1250
	1	1	1	1	0	1.1000
	1	1	1	1	1	off

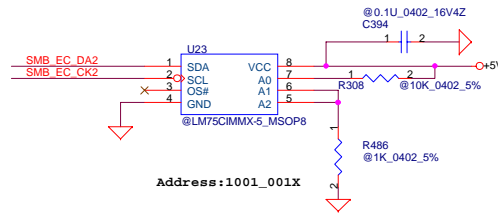


ITP Debug Connector

<6.32> SMB_EC_DA2
<6.32> SMB_EC_CK2



Address:1001_000X

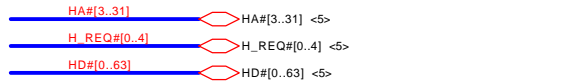


Address:1001_001X

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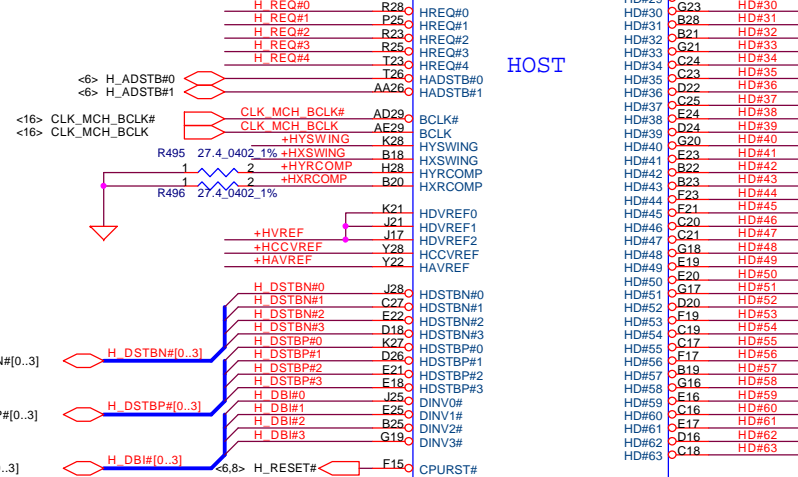
U77 use Montara-GMV for Internal Gfx



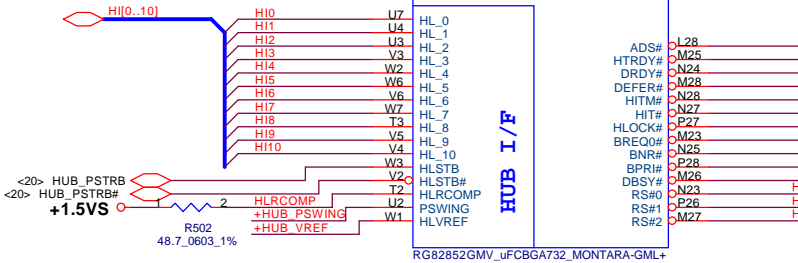
Montara-GT

HA#3	P23	HA#3	HD#0	K22	HD#0
HA#4	T28	HA#4	HD#1	H27	HD#1
HA#5	T28	HA#5	HD#2	K25	HD#2
HA#6	R27	HA#6	HD#3	L24	HD#3
HA#7	U23	HA#7	HD#4	J27	HD#4
HA#8	U24	HA#8	HD#5	G28	HD#5
HA#9	R24	HA#9	HD#6	L27	HD#6
HA#10	U28	HA#10	HD#7	L23	HD#7
HA#11	V28	HA#11	HD#8	L25	HD#8
HA#12	U27	HA#12	HD#9	J24	HD#9
HA#13	T27	HA#13	HD#10	H25	HD#10
HA#14	V27	HA#14	HD#11	K23	HD#11
HA#15	U28	HA#15	HD#12	G27	HD#12
HA#16	V28	HA#16	HD#13	K26	HD#13
HA#17	Y24	HA#17	HD#14	J23	HD#14
HA#18	V28	HA#18	HD#15	H26	HD#15
HA#19	V23	HA#19	HD#16	E25	HD#16
HA#20	W28	HA#20	HD#17	E26	HD#17
HA#21	Y28	HA#21	HD#18	B27	HD#18
HA#22	AA27	HA#22	HD#19	H23	HD#19
HA#23	W24	HA#23	HD#20	E27	HD#20
HA#24	W23	HA#24	HD#21	G25	HD#21
HA#25	W27	HA#25	HD#22	E28	HD#22
HA#26	Y27	HA#26	HD#23	D27	HD#23
HA#27	AA28	HA#27	HD#24	G24	HD#24
HA#28	V28	HA#28	HD#25	C28	HD#25
HA#29	AB27	HA#29	HD#26	G26	HD#26
HA#30	Y26	HA#30	HD#27	G22	HD#27
HA#31	AB28	HA#31	HD#28	C26	HD#28
			HD#29	E26	HD#29
			HD#30	G23	HD#30
			HD#31	B28	HD#31
			HD#32	G21	HD#32
			HD#33	B21	HD#33
			HD#34	C24	HD#34
			HD#35	C23	HD#35
			HD#36	D22	HD#36
			HD#37	C25	HD#37
			HD#38	E24	HD#38
			HD#39	D24	HD#39
			HD#40	G20	HD#40
			HD#41	E23	HD#41
			HD#42	B22	HD#42
			HD#43	B23	HD#43
			HD#44	E23	HD#44
			HD#45	E21	HD#45
			HD#46	C20	HD#46
			HD#47	C21	HD#47
			HD#48	G18	HD#48
			HD#49	E19	HD#49
			HD#50	E20	HD#50
			HD#51	G17	HD#51
			HD#52	D20	HD#52
			HD#53	E19	HD#53
			HD#54	C19	HD#54
			HD#55	C17	HD#55
			HD#56	E17	HD#56
			HD#57	B19	HD#57
			HD#58	G16	HD#58
			HD#59	E16	HD#59
			HD#60	C16	HD#60
			HD#61	E17	HD#61
			HD#62	D16	HD#62
			HD#63	C18	HD#63

HOST

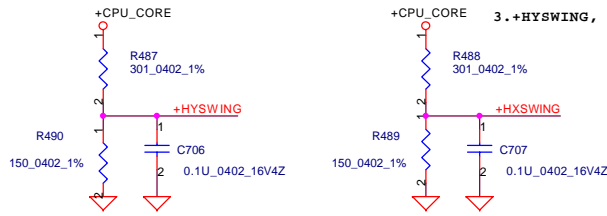


HUB I/F



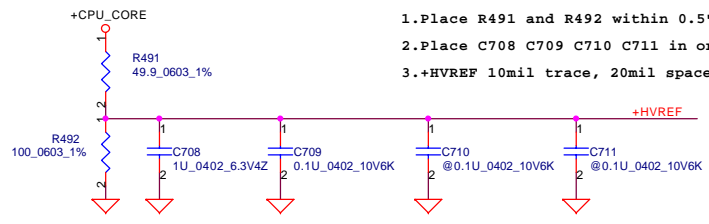
HXSWING and HYSWING Ref. Voltage

1. Place R487 and R490 within 0.5" of U77 pin K28
2. Place R488 and R489 within 0.5" of U77 pin B18
3. +HYSWING, +HXSWING 10mil trace, 20mil space.

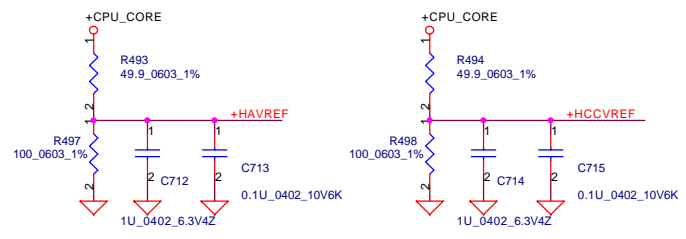


Host data Ref. Voltage

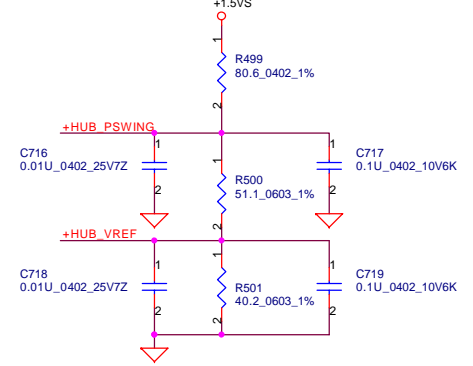
1. Place R491 and R492 within 0.5" of U77 pin K21 J21 J17
2. Place C708 C709 C710 C711 in order from U77 to divider
3. +HVREF 10mil trace, 20mil space.



Host Address Ref. Voltage



HUBLink reference Voltage



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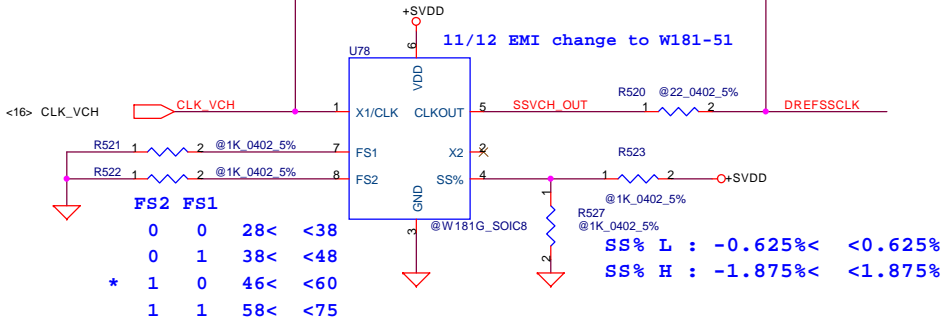
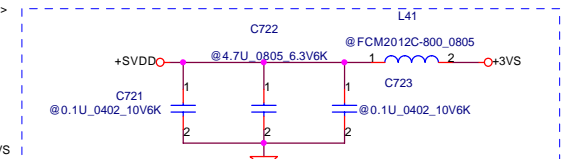
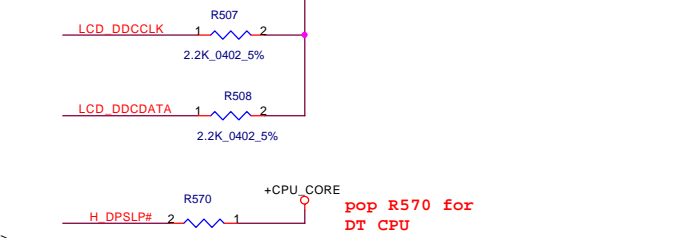
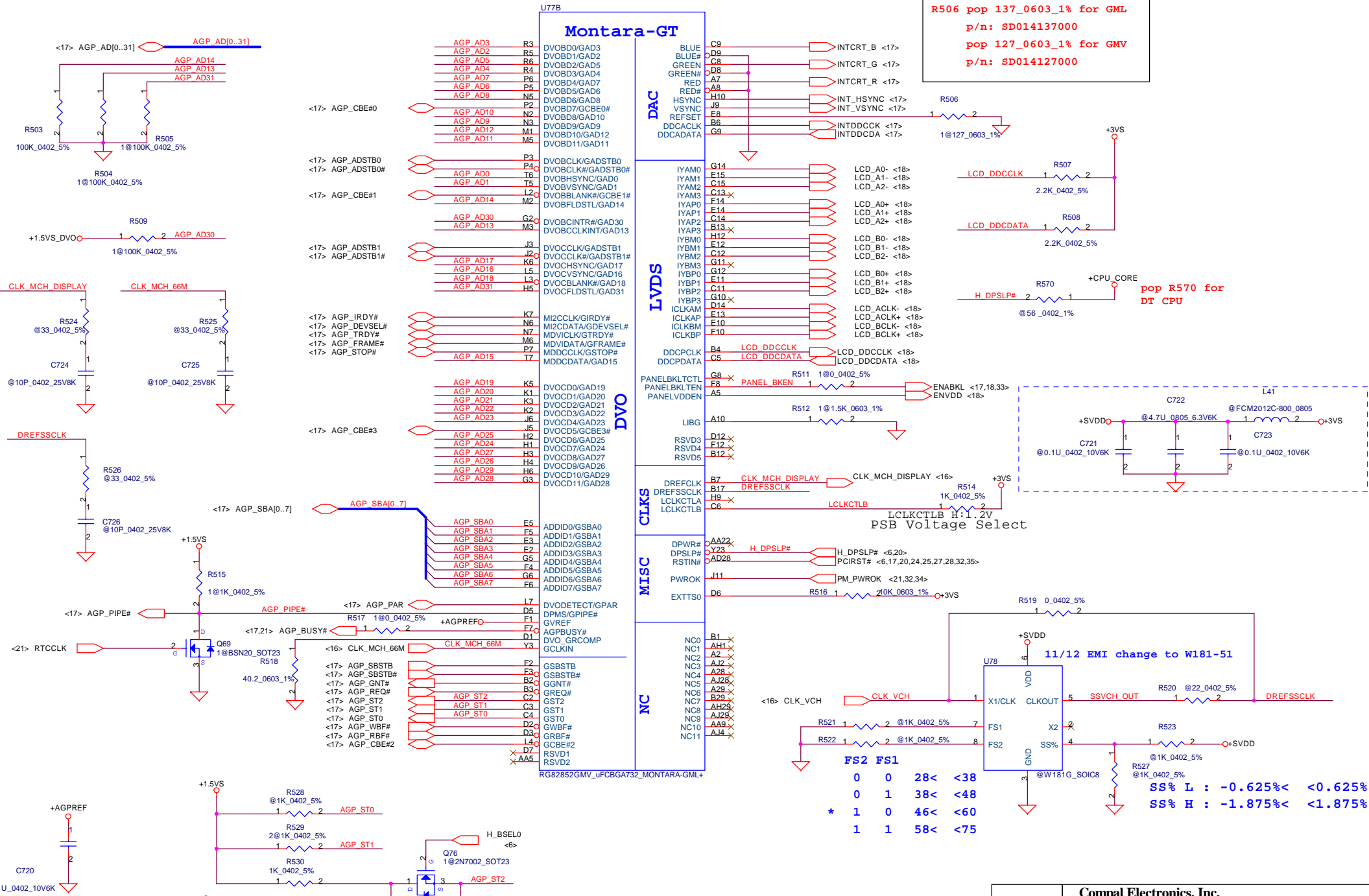
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Title	Montara-GT (1/4)	
Size	Document Number	Rev
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Date:	Friday, January 09, 2004	Sheet 9 of 48

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check spec.

R506 pop 137_0603_1% for GML
p/n: SD014137000
pop 127_0603_1% for GMV
p/n: SD014127000

Montara-GT



FS2	FS1	0	0	28	<	<38
		0	1	38	<	<48
*	1	0	46	<	<	<60
		1	1	58	<	<75

SS% L : -0.625% < -0.625%
SS% H : -1.875% < -1.875%

R530 wait 533 Celeron
ST2 L : 400 H : 533

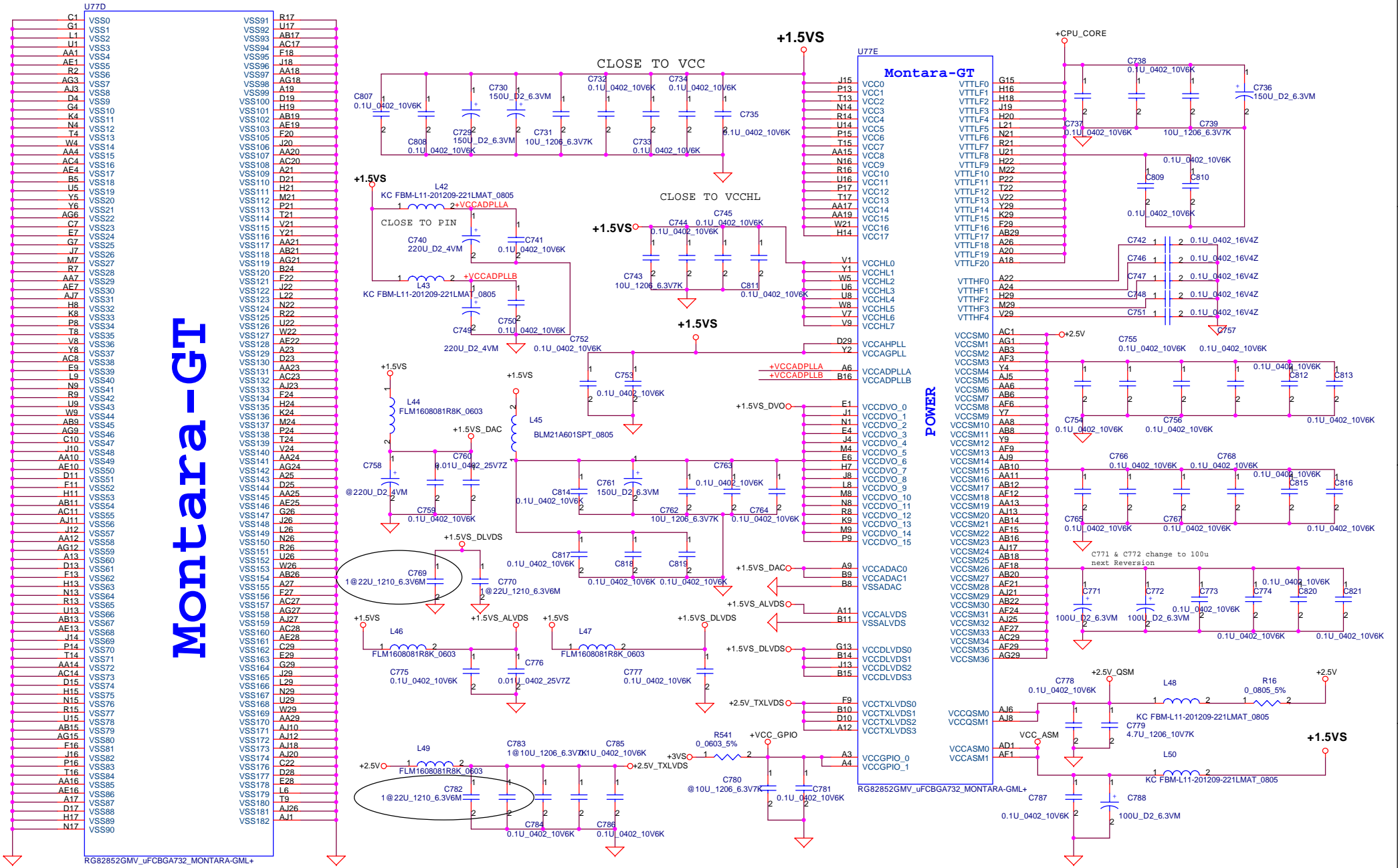
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Title: **Montara-GT (24)**

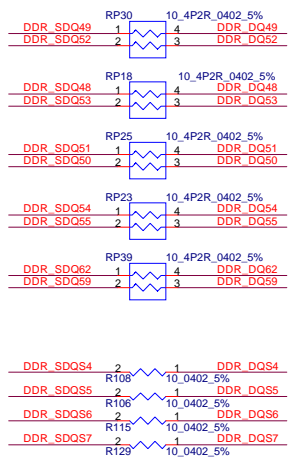
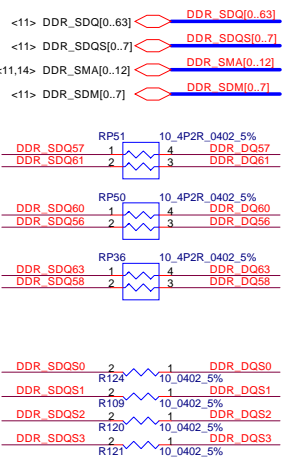
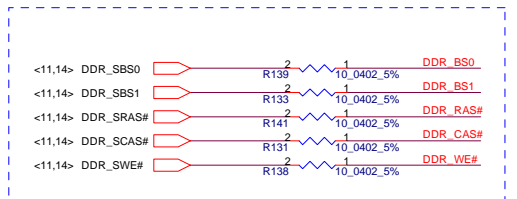
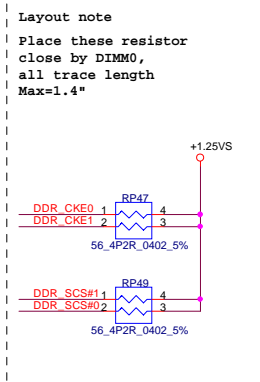
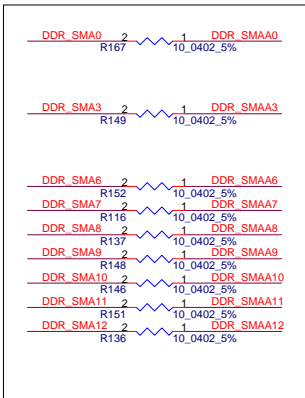
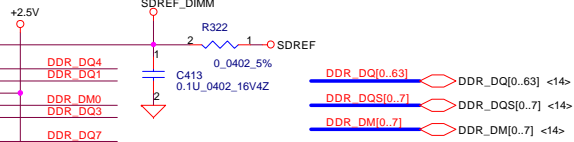
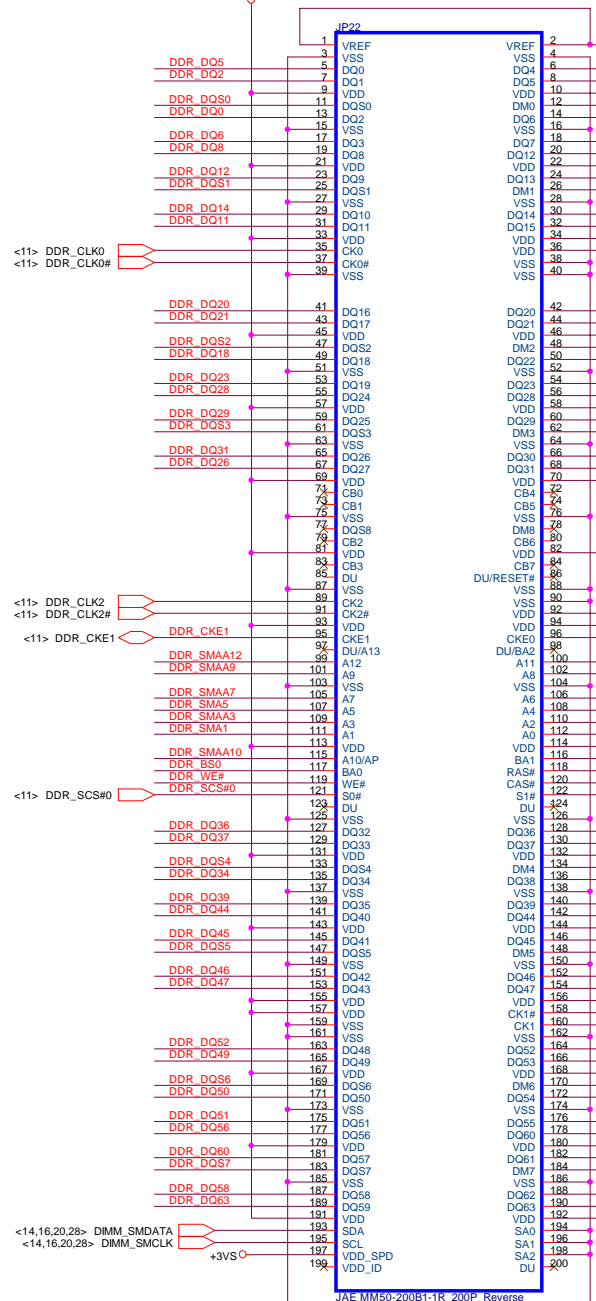
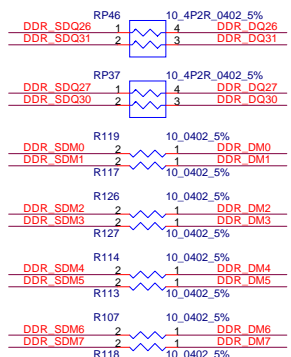
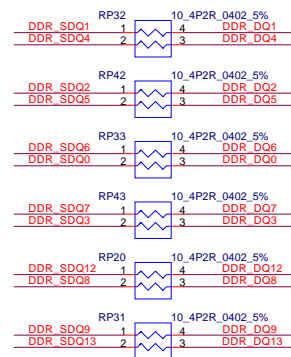
Size	Document Number	Rev
	Ibiza LA-1684	1.0
Date:	Friday, January 09, 2004	Sheet 10 of 48

Montara-GT



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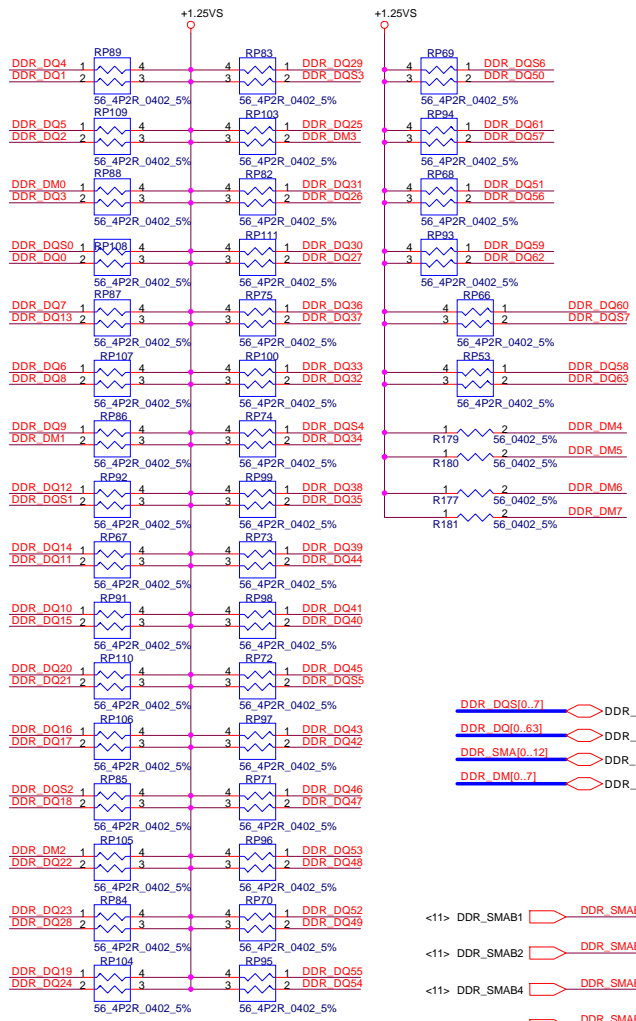


Layout note
Place these resistors close to DIMM0, all trace length<500 mil

DDR TOPOLOGY 2 FOR SMAA[0, 3, 6:12], SBA[1, 0], SRAS#, SCAS#, SWE#

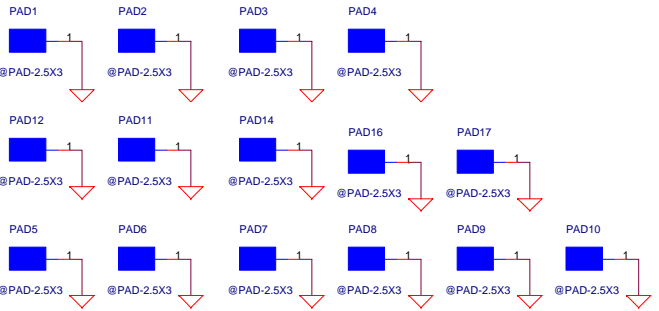
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File: DDR-SODIMM SLOT0
Size: Document Number
Ibiza LA-1684
Date: Friday, January 09, 2004
Sheet: 13 of 48
Rev: 1.0

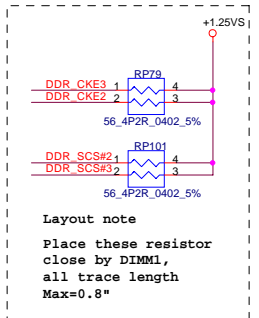
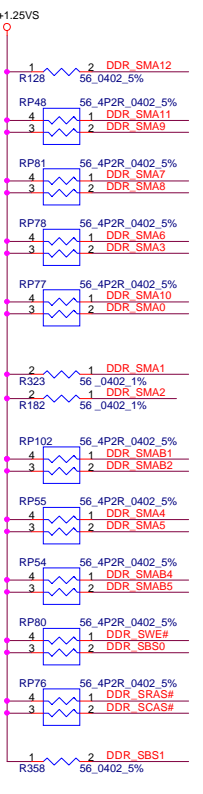
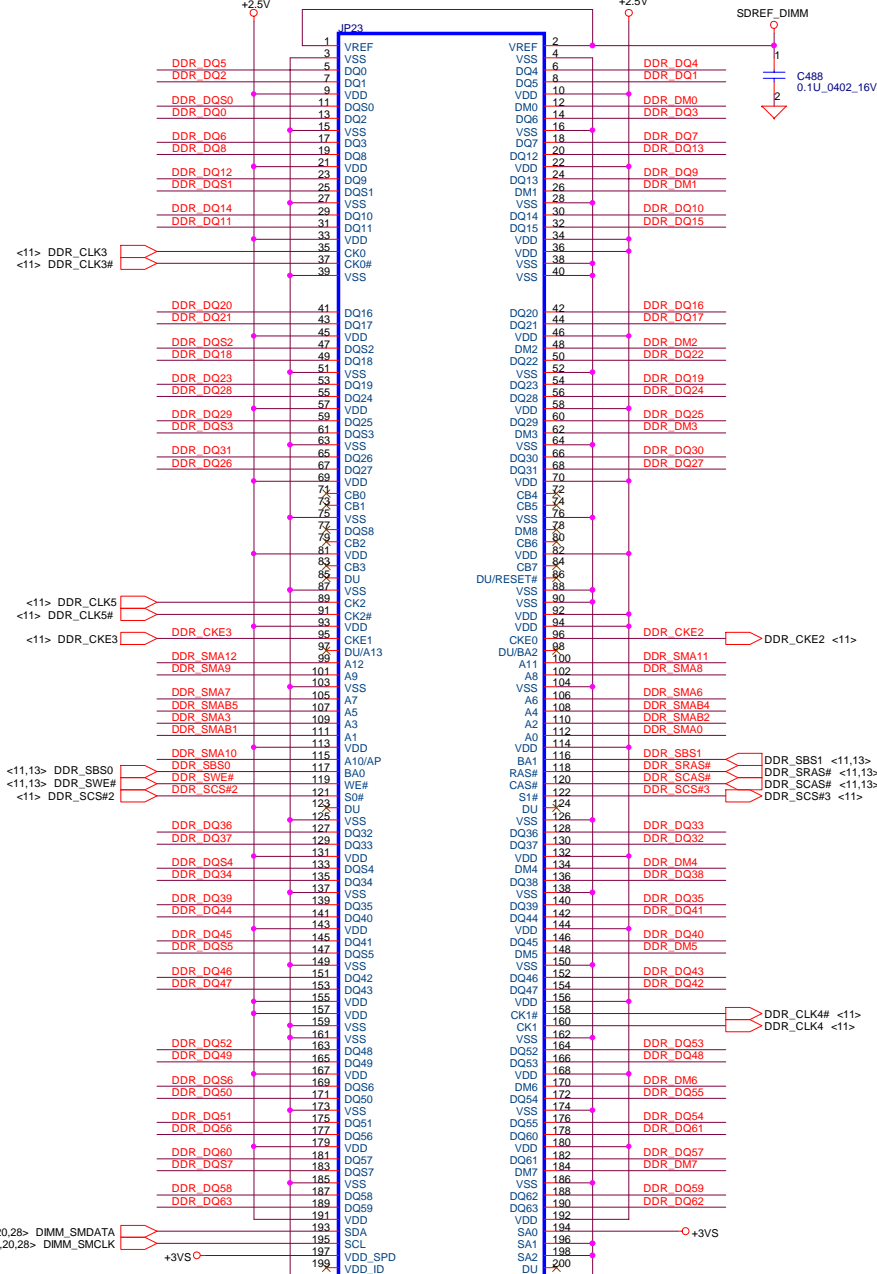


Layout note
Place these resistor closely DIMM1, all trace length<=800mil

EMI Clip PAD for Memory Door



DDR TOPOLOGY 2 FOR SMAA[0, 3, 6:12], SBA[1, 0], SRAS#, SCAS#, SWE#



Layout note
Place these resistor close by DIMM1, all trace length Max=0.8"



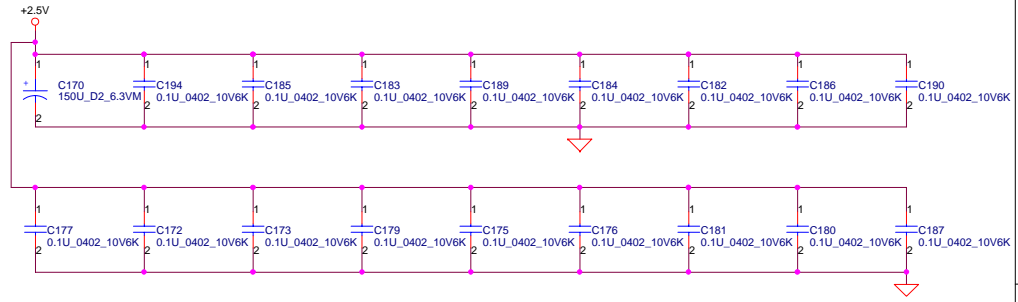
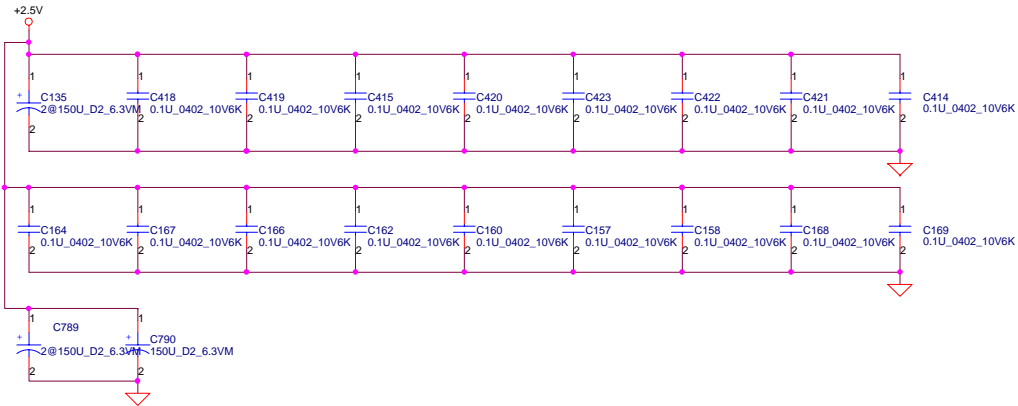
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Compal Electronics, Inc.		
Title: DDR-SODIMM SLOT1		
Size	Document Number	Rev
	Ibiza LA-1684	1.0
Date:	Friday, January 09, 2004	Sheet 14 of 48

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

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



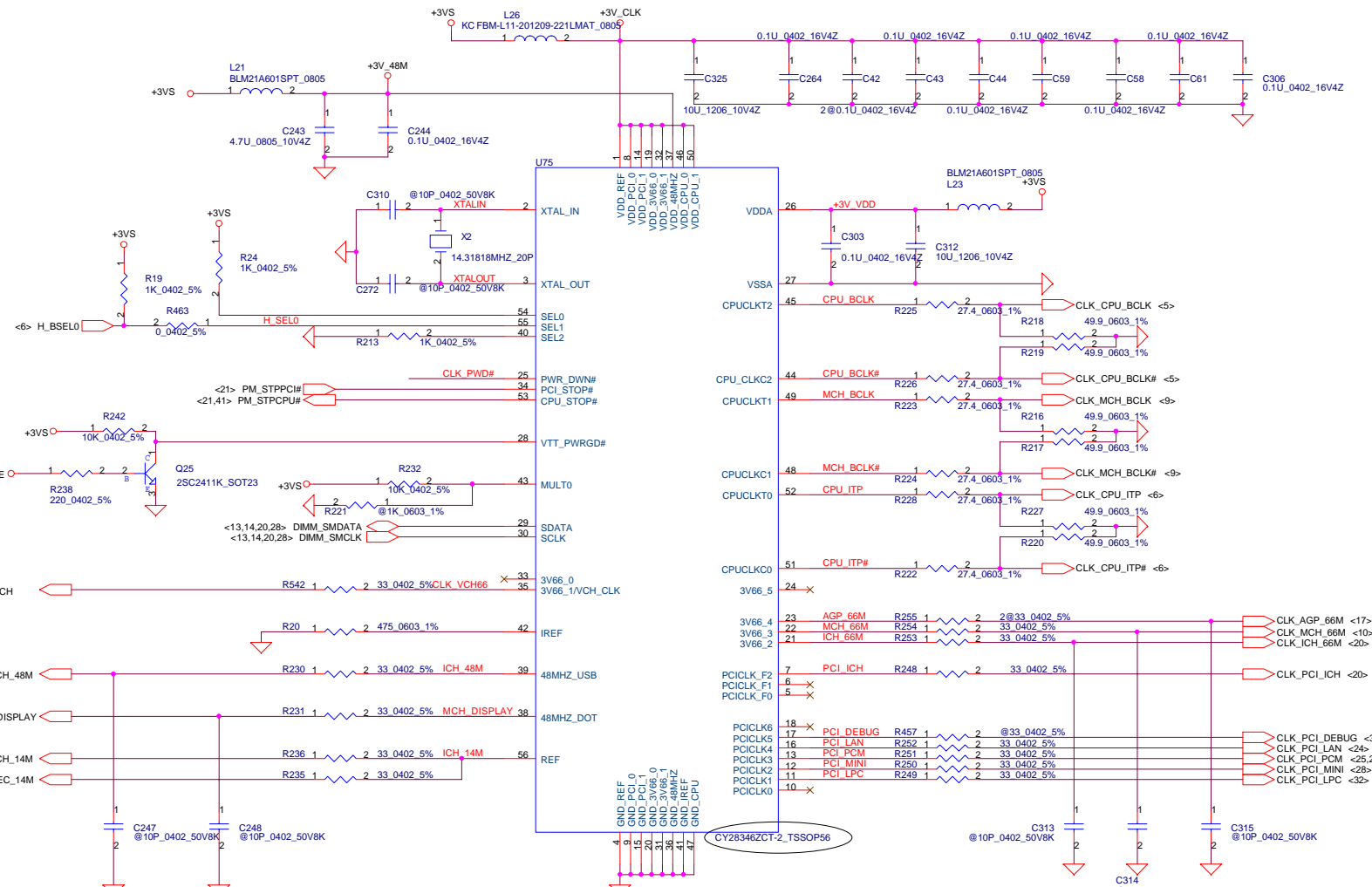
Layout note :
Place one cap close to every 2 pull up resistors termination to +1.25VS



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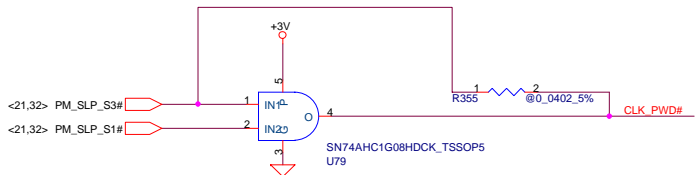
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Compal Electronics, Inc.		
Title DDR SODIMM Decoupling		
Size	Document Number Ibiza LA-1684	Rev 1.0
Date: Friday, January 09, 2004	Sheet 15 of 48	



CPU Frequency Select Table

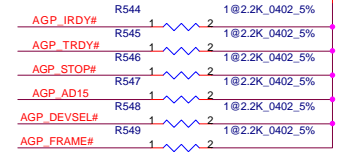
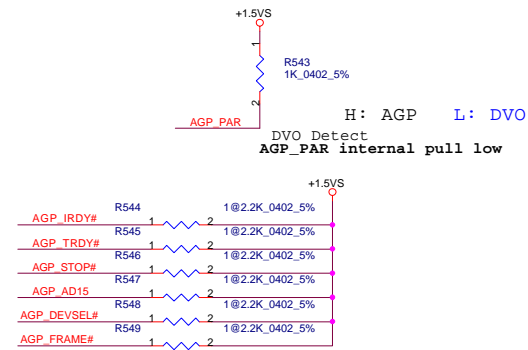
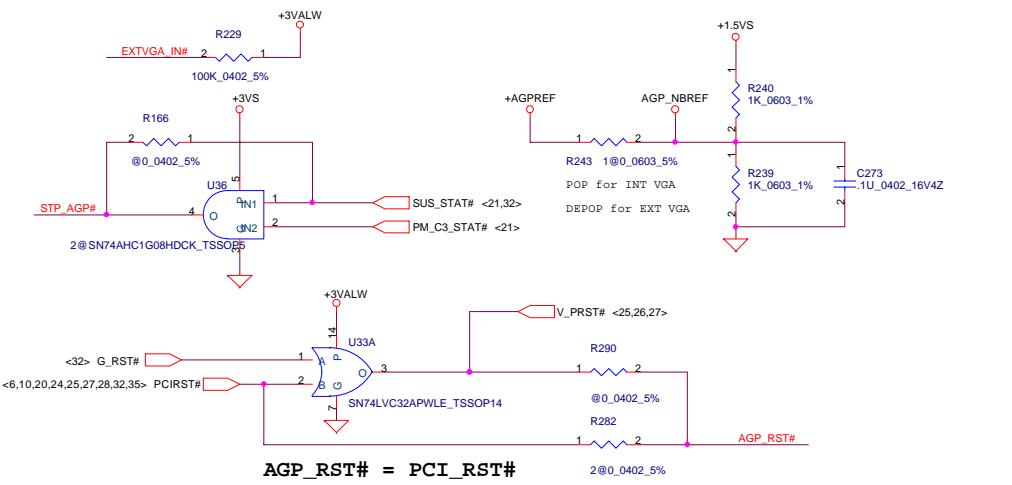
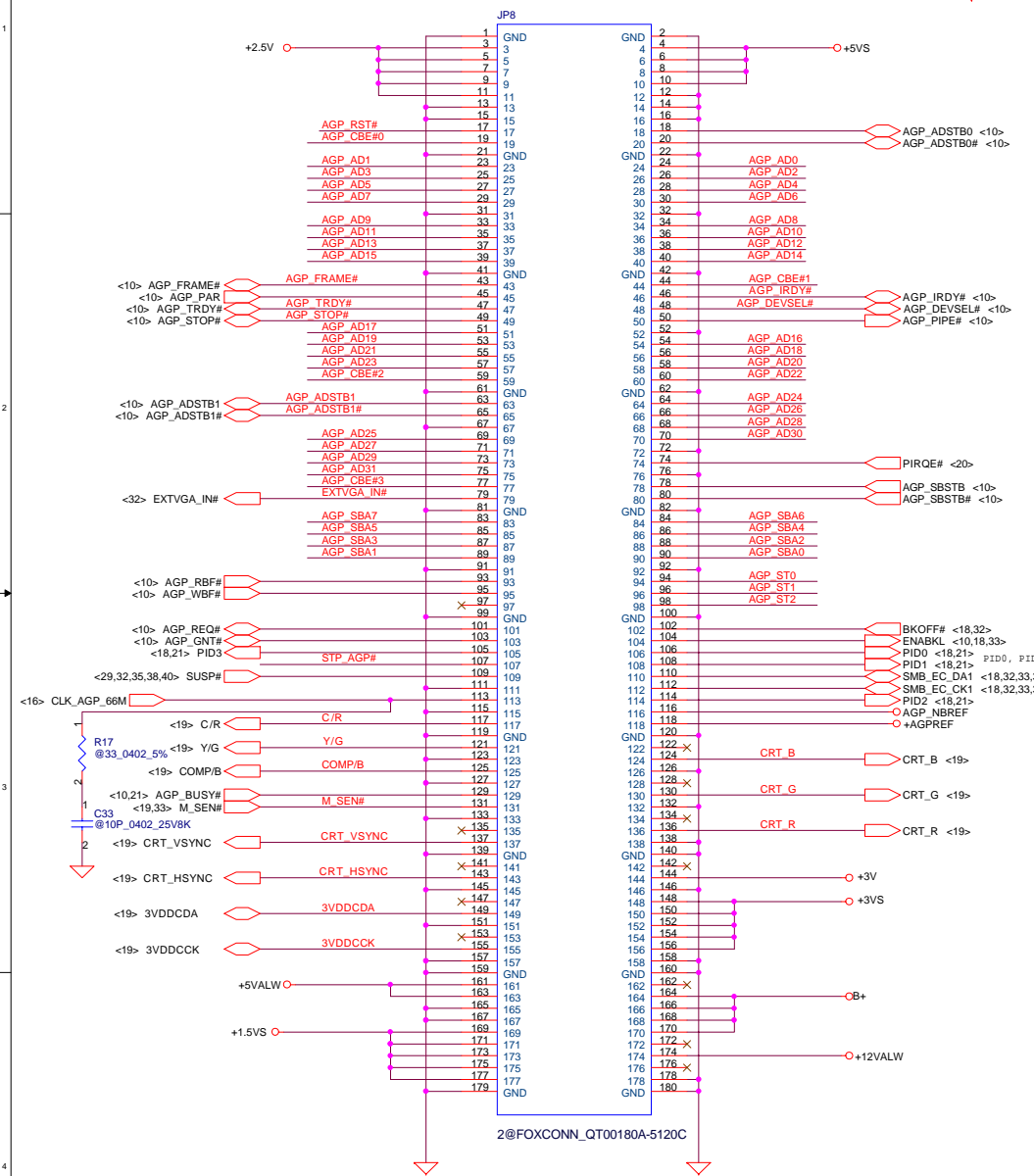
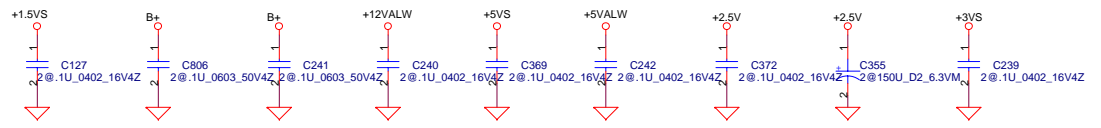
SEL[2:0]	CK-408 Speed
001	100 MHZ
011	133 MHZ



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<10> AGP_ST[0..2] AGP ST[0..2]
 <10> AGP_SBA[0..7] AGP SBA[0..7]
 <10> AGP_AD[0..31] AGP AD[0..31]
 <10> AGP_CBE#[0..3] AGP CBE#[0..3]

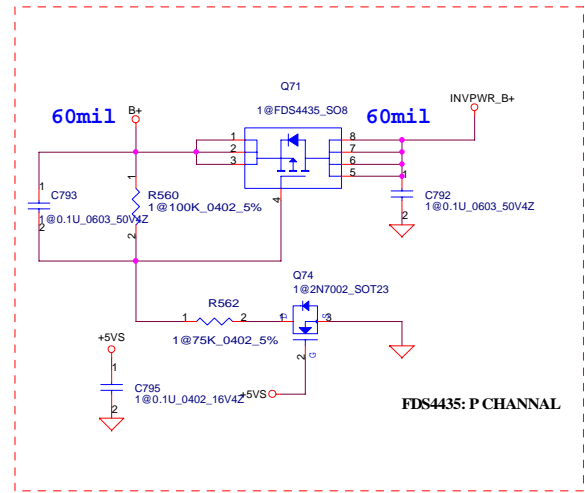
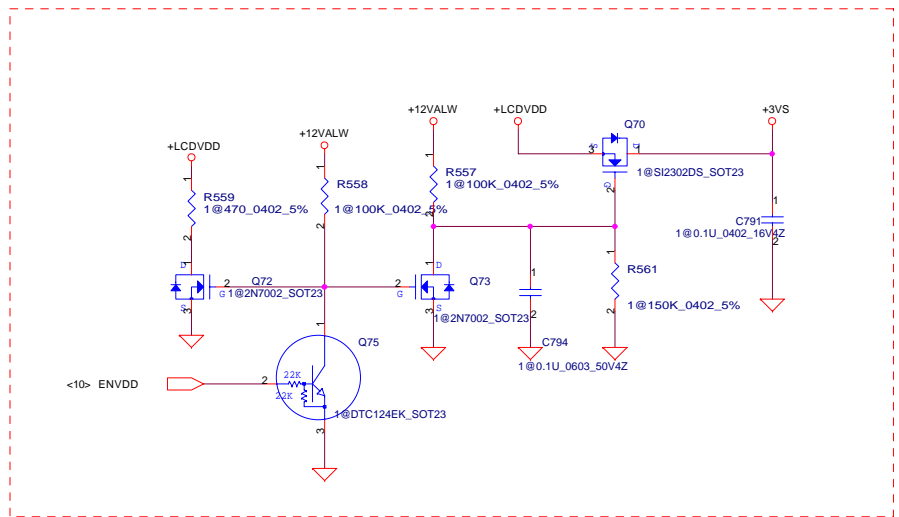
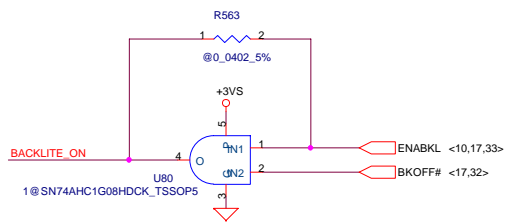
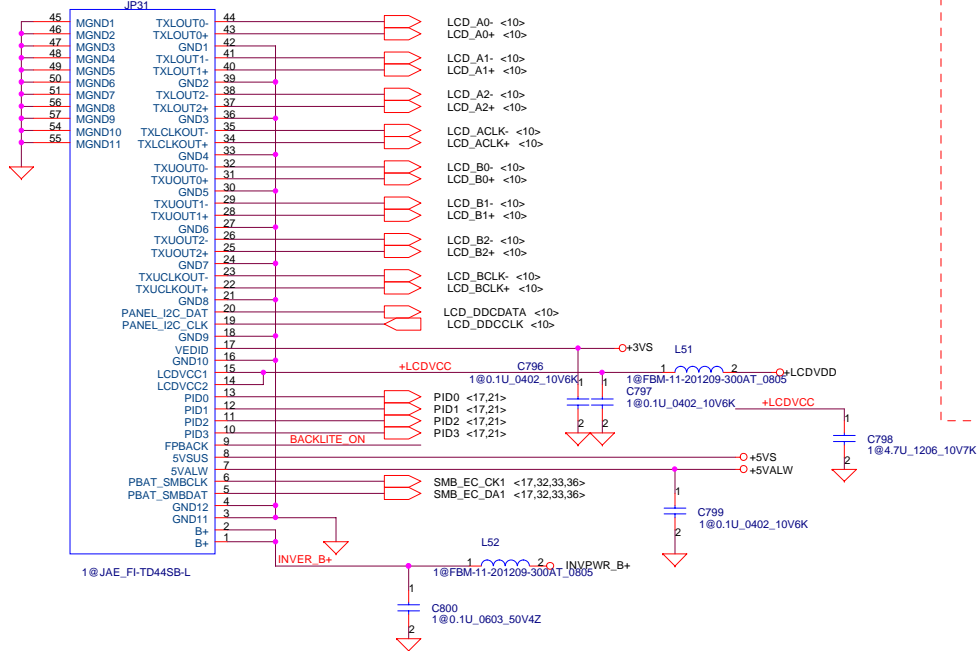


* EXTVGA_IN#
 1: internal graphic
 2: external AGP



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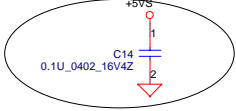
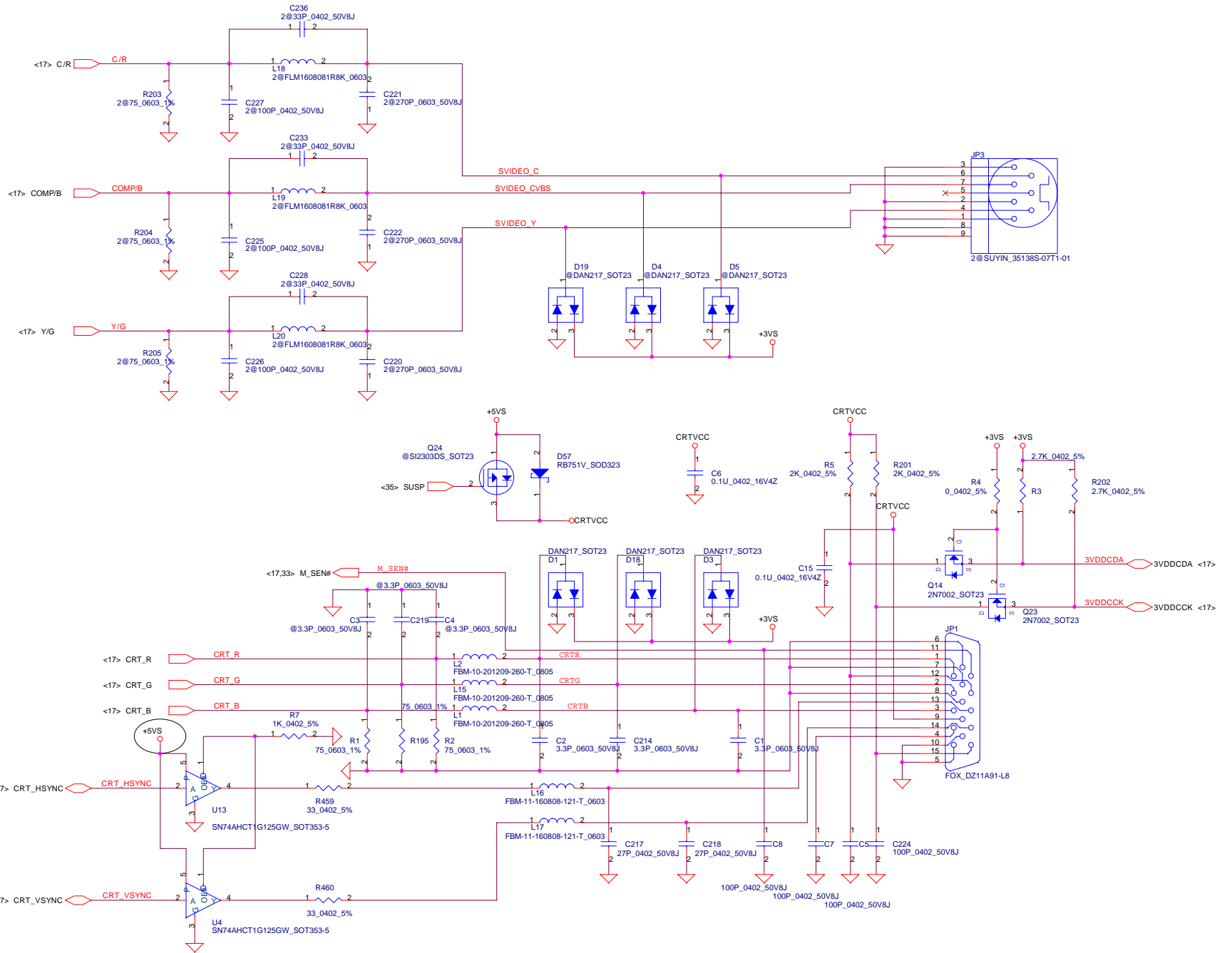
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Title: Internal LVDS		
Size: Document Number	Ibiza LA-1684	
Date: Friday, January 09, 2004	Sheet: 18	of 48

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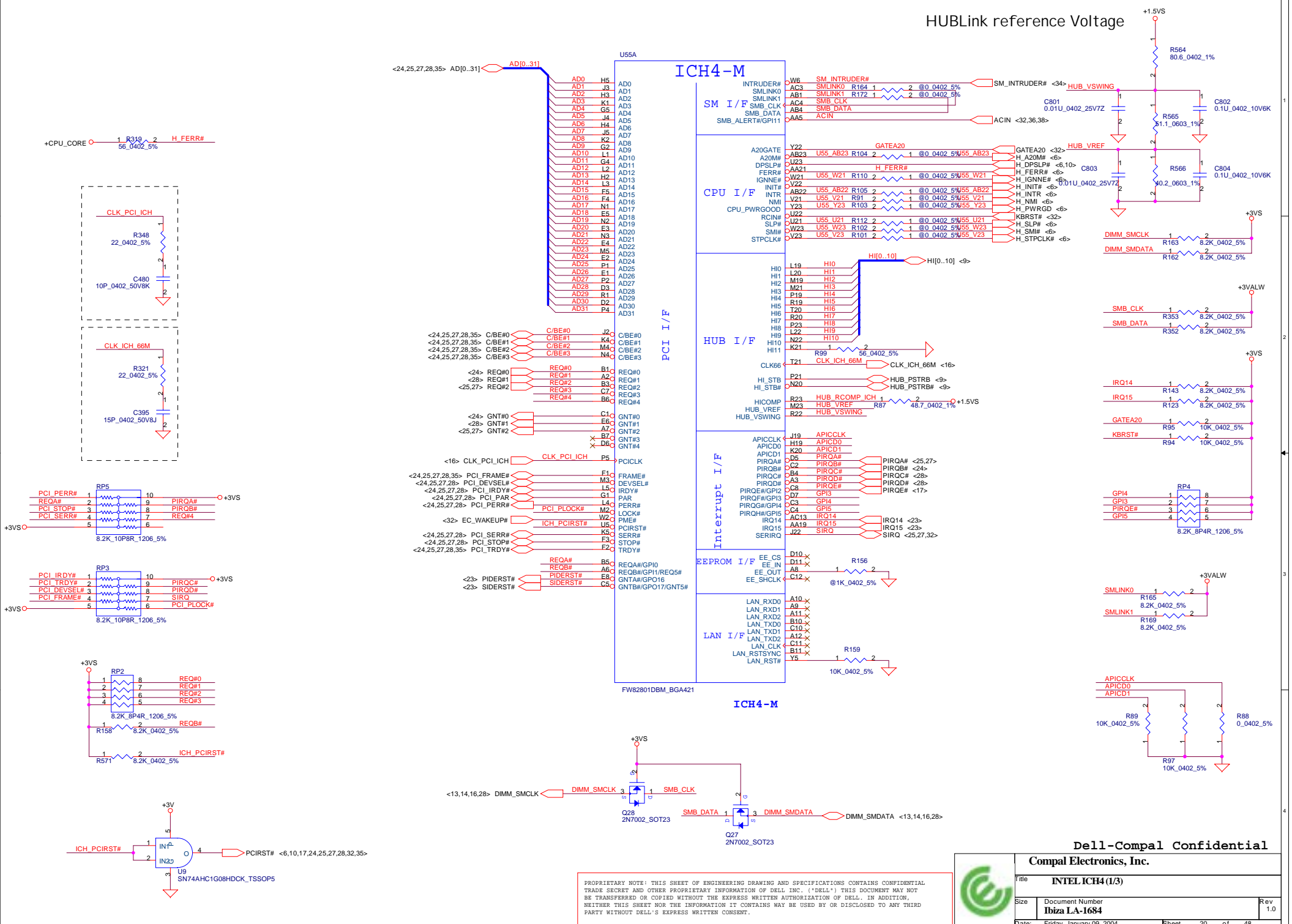
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File		TVOUT & CRT	
Size	Document Number	Ibiza LA-1684	
Date:	Friday, January 09, 2004	Sheet	19 of 48
Rev	1.0		

HUBLink reference Voltage

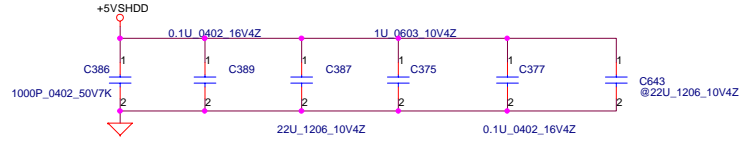
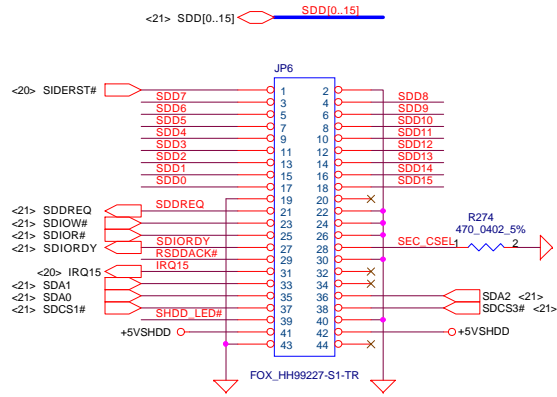


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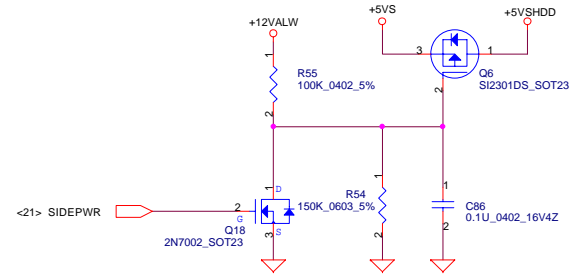
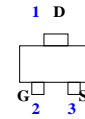
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Compal Electronics, Inc.	
File INTELICH4(I/3)	
Size	Document Number Ibiza LA-1684
Date: Friday, January 09, 2004	Sheet 20 of 48

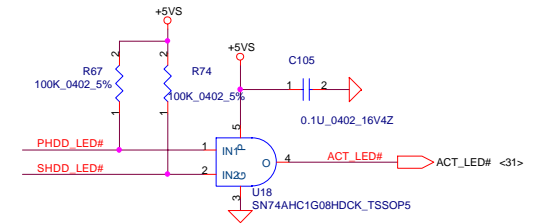
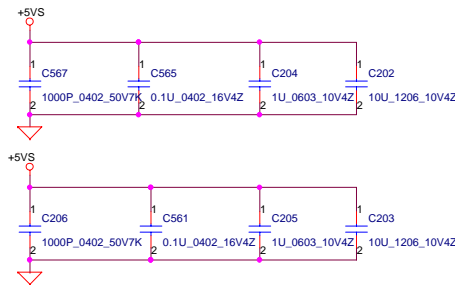
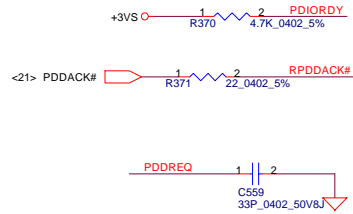
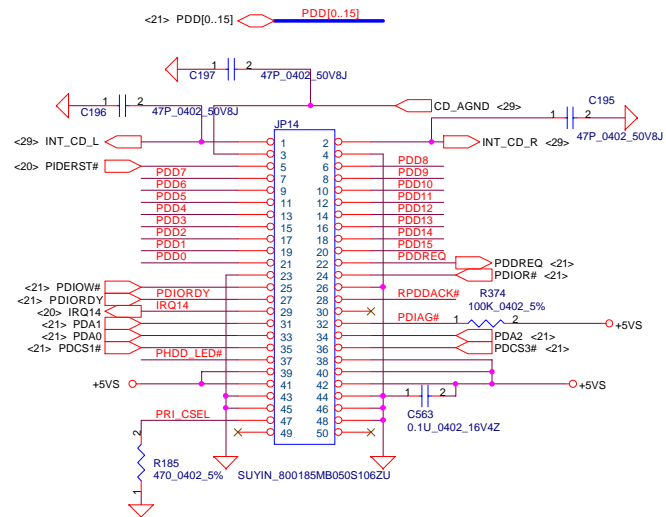
HDD Connector



SI2301DS: P CHANNEL
 VGS: -4.5V, RDS: 130 mOHM
 VGS: -2.5V, RDS: 190mOHM
 Id(MAX): 2.3A
 VGS(MAX): +-8V



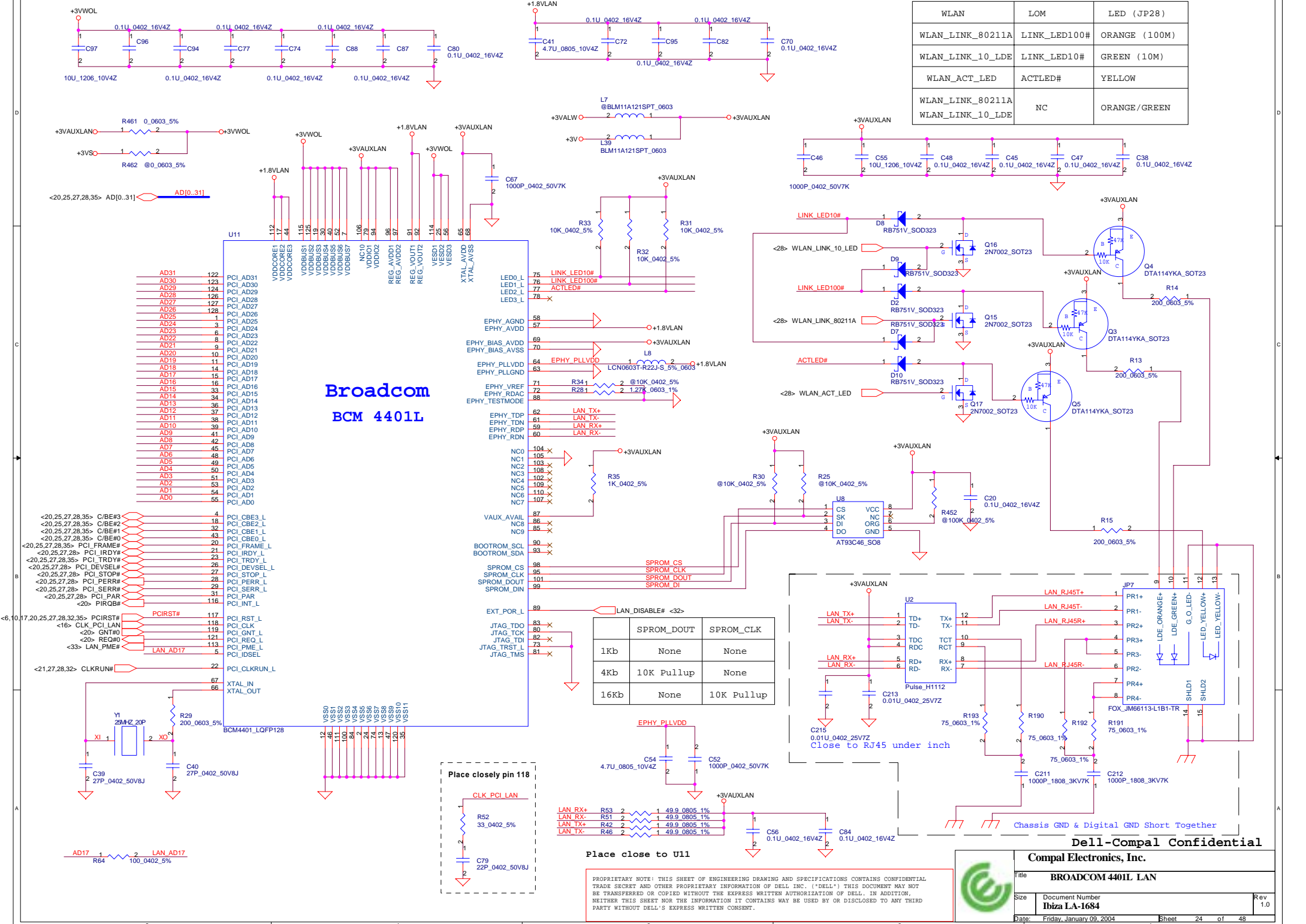
CD-ROM Connector



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Compal Electronics, Inc.		
Title: IDE/FDD/CD-ROM Module		
Size	Document Number Ibiza LA-1684	Rev 1.0
Date:	Friday, January 09, 2004	Sheet 23 of 48

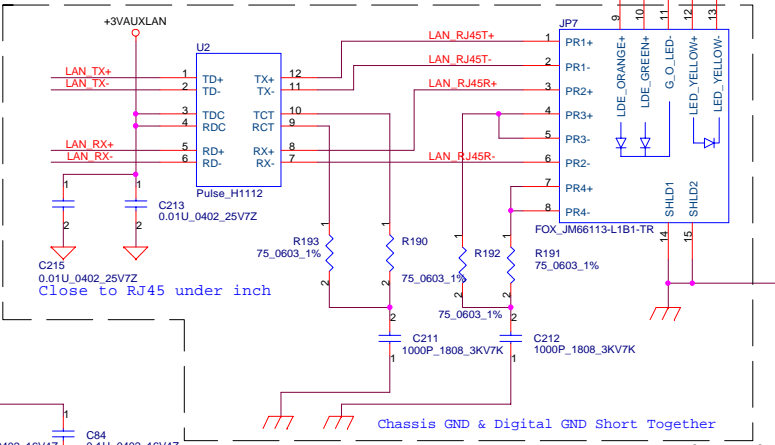
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WLAN	LOM	LED (JP28)
WLAN_LINK_80211A	LINK_LED100#	ORANGE (100M)
WLAN_LINK_10_LDE	LINK_LED10#	GREEN (10M)
WLAN_ACT_LED	ACTLED#	YELLOW
WLAN_LINK_80211A		
WLAN_LINK_10_LDE	NC	ORANGE/GREEN

**Broadcom
BCM 4401L**

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1Kb	None	None
4Kb	10K Pullup	None
16Kb	None	10K Pullup

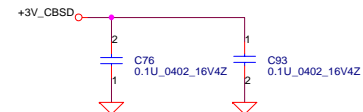
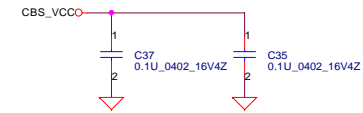
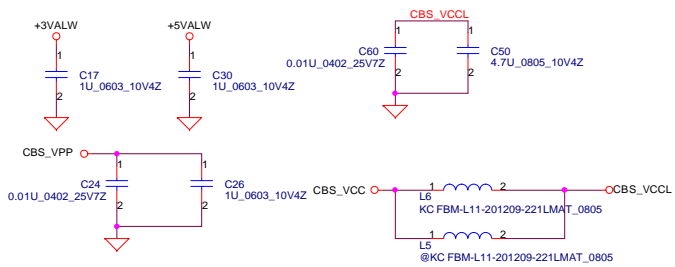
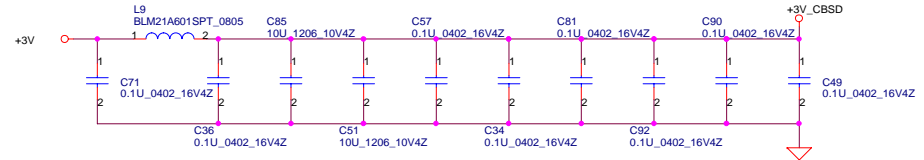
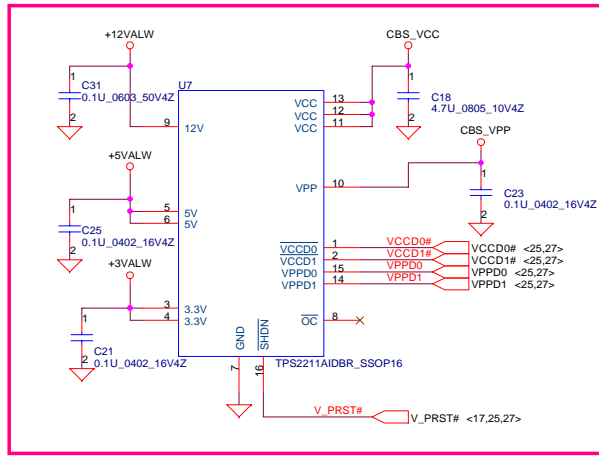


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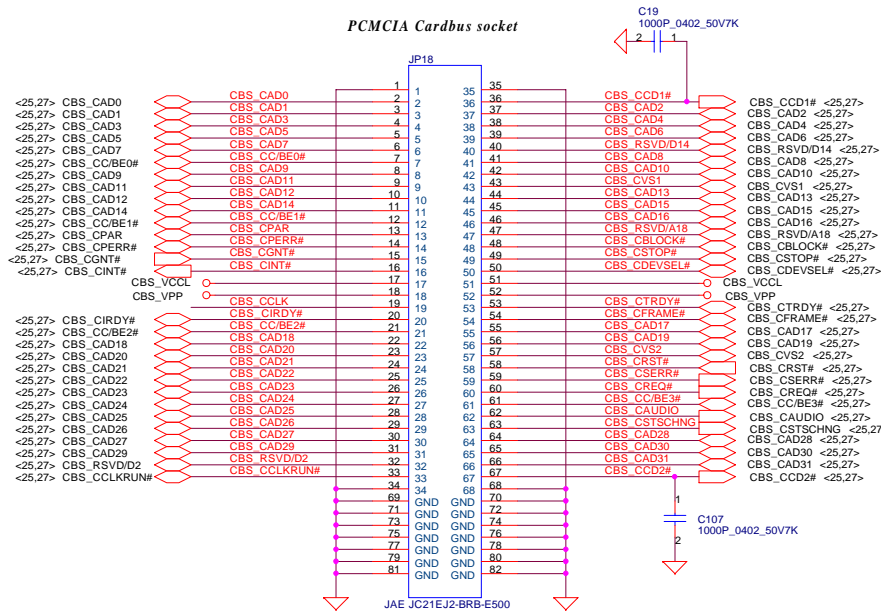
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Size	Document Number Ibiza LA-1684	Rev 1.0
Date: Friday, January 09, 2004	Sheet 24	of 48

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PCMCIA Power Controller



PCMCIA Cardbus socket



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Compal Electronics, Inc.

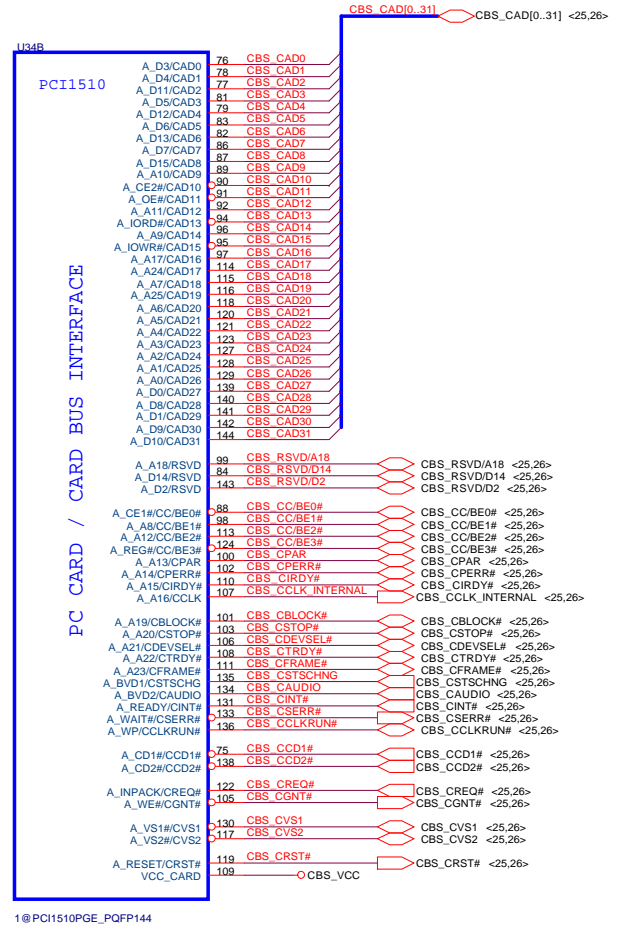
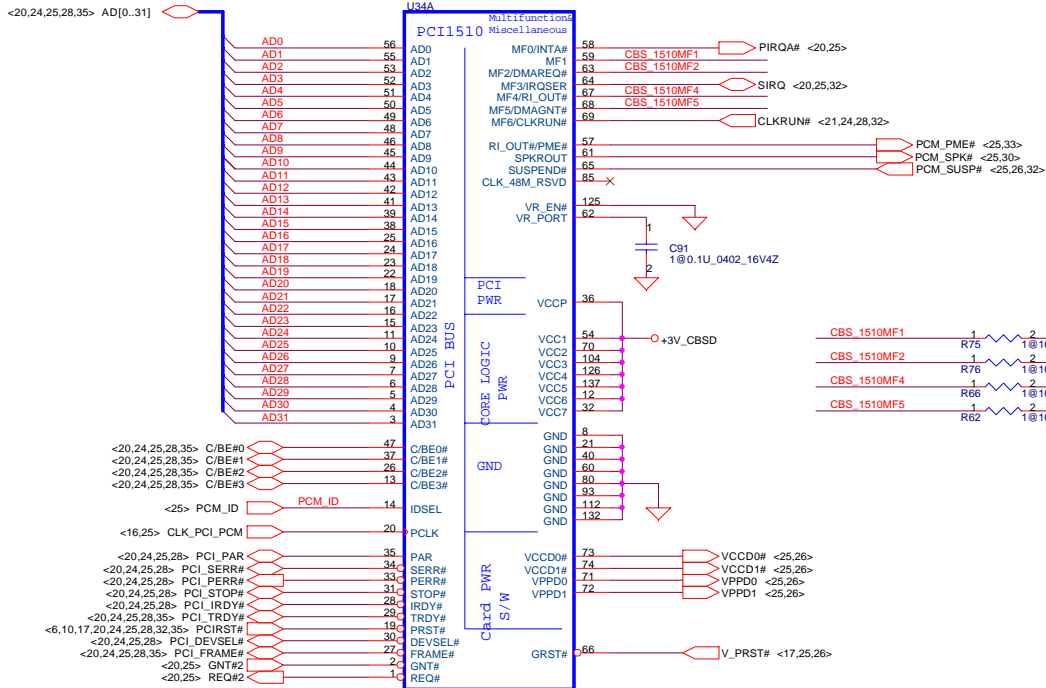
Title: PCMCIA Socket

Size: Document Number
Ibiza LA-1684

Date: Friday, January 09, 2004 Sheet 26 of 48

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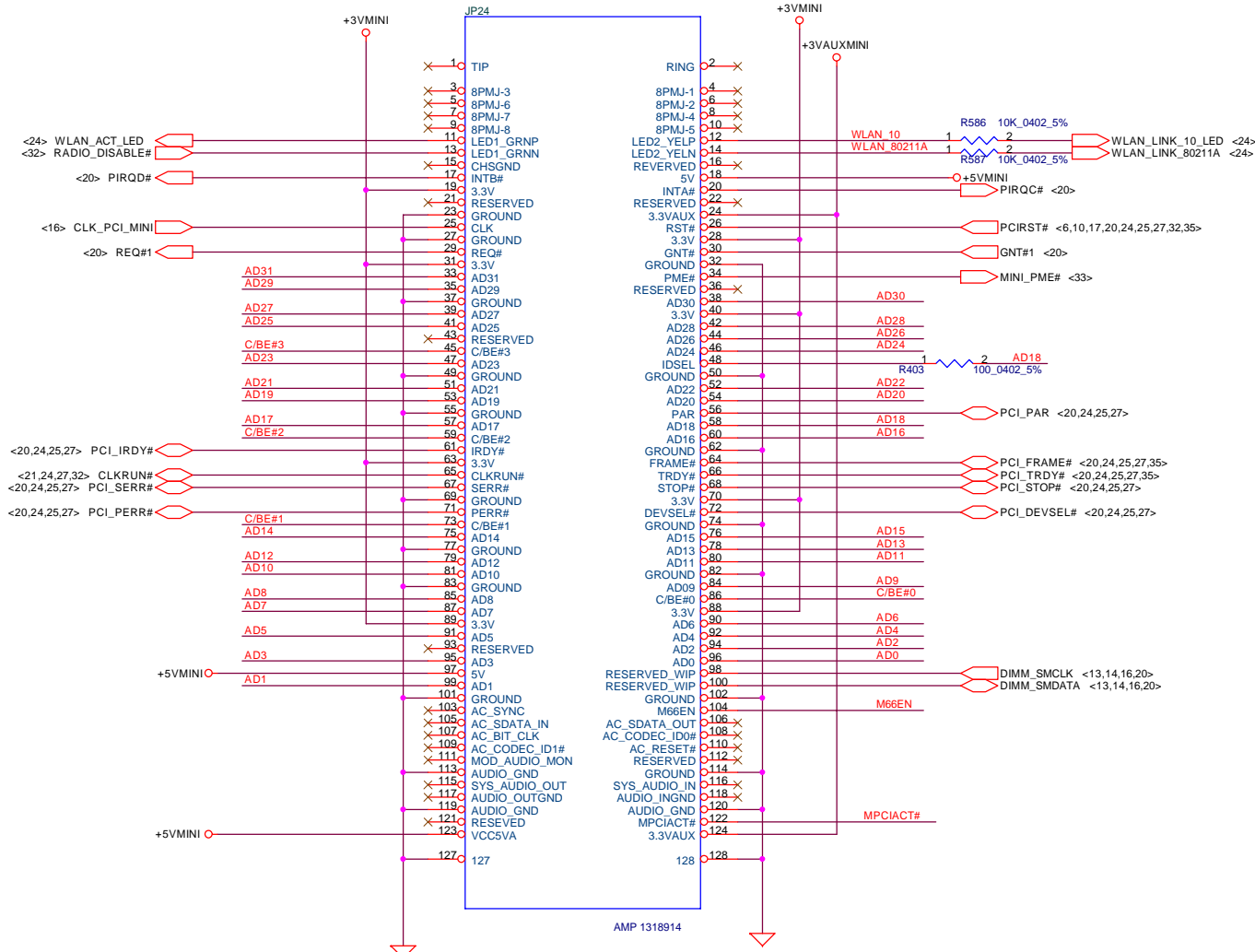
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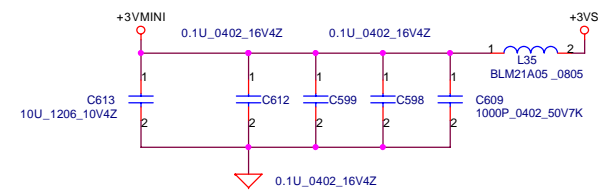
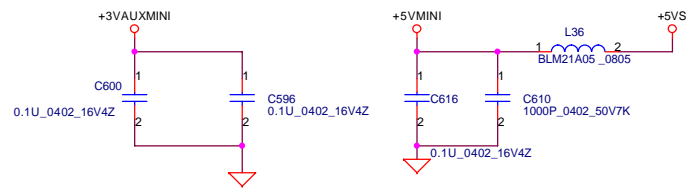
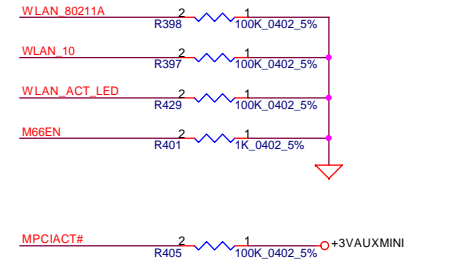
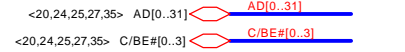
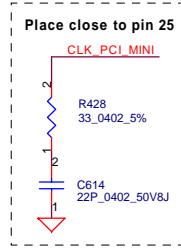
Title PCMCIA Controller PCI1510		
Size	Document Number Ibiza LA-1684	Rev 1.0
Date	Friday, January 09, 2004	Sheet 27 of 48

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MINI PCI TYPE III



WIRELESS SUPPORT ONLY

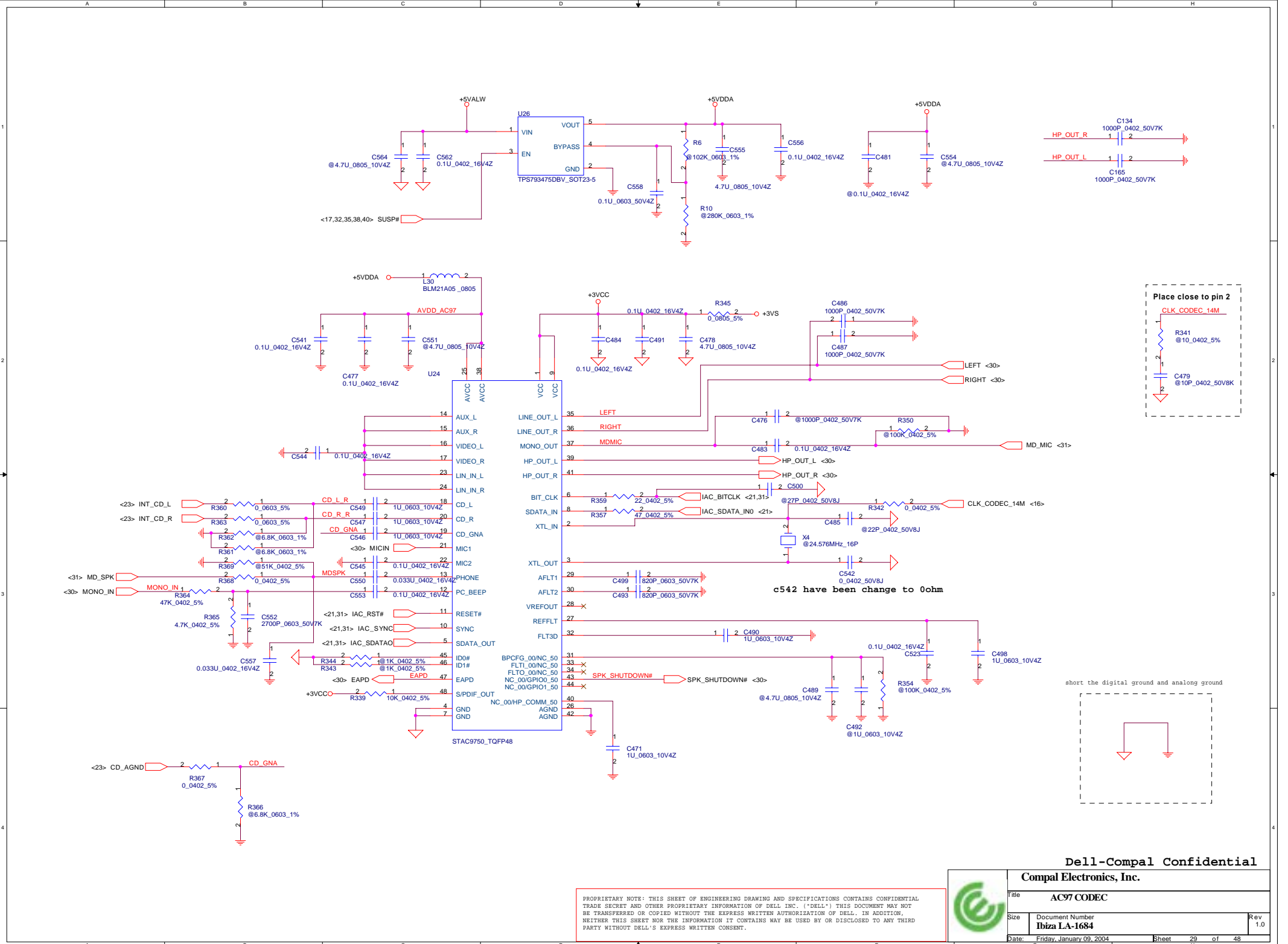


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Title: **MiniPci Port**

Size	Document Number	Rev
	Ibiza LA-1684	1.0
Date:	Friday, January 09, 2004	Sheet 28 of 48



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Compal Electronics, Inc.

Title AC97 CODEC

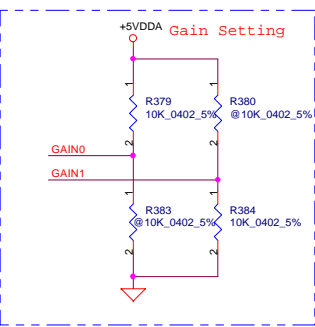
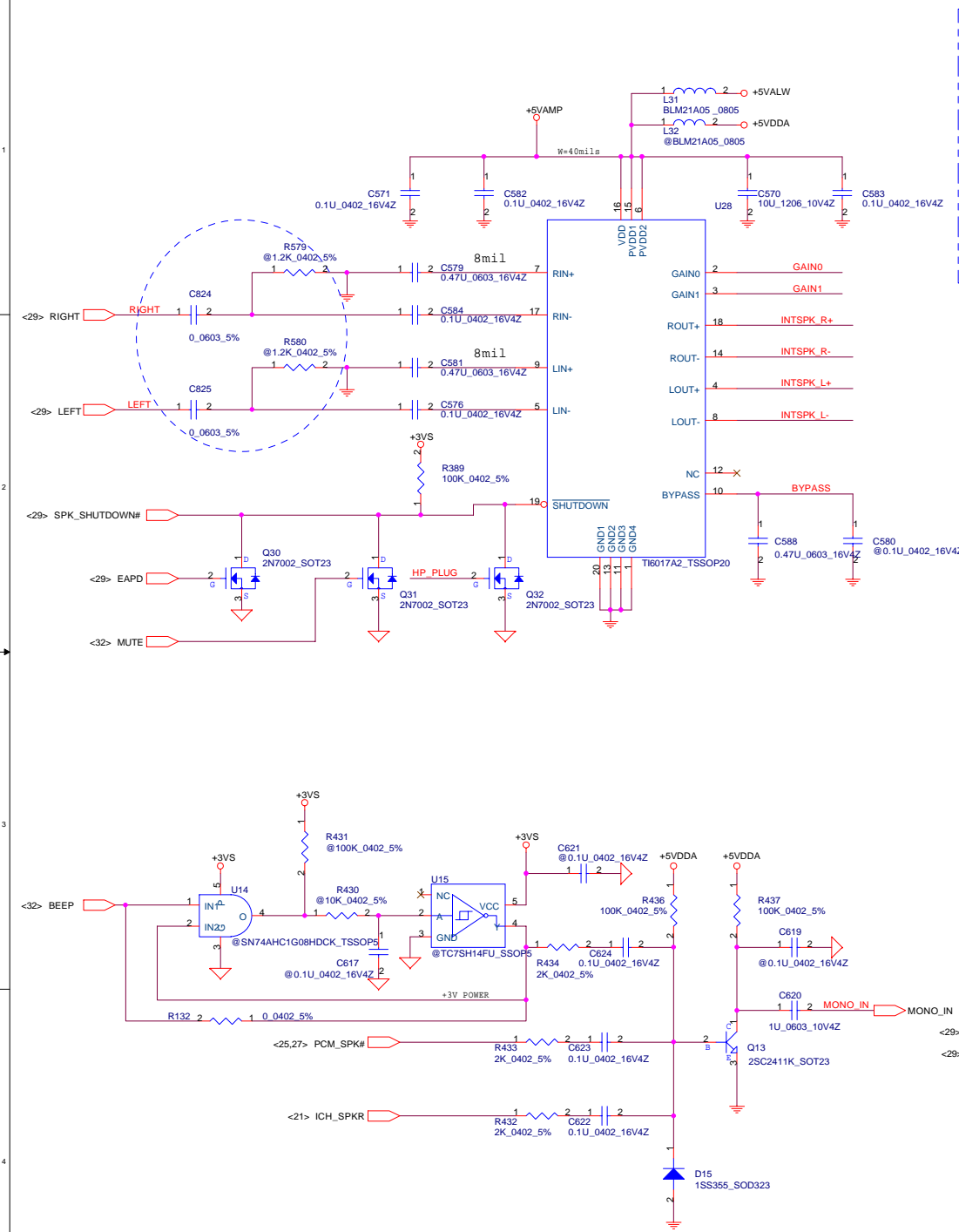
Size Document Number
Ibiza LA-1684

Date: Friday, January 09, 2004 Sheet 29 of 48

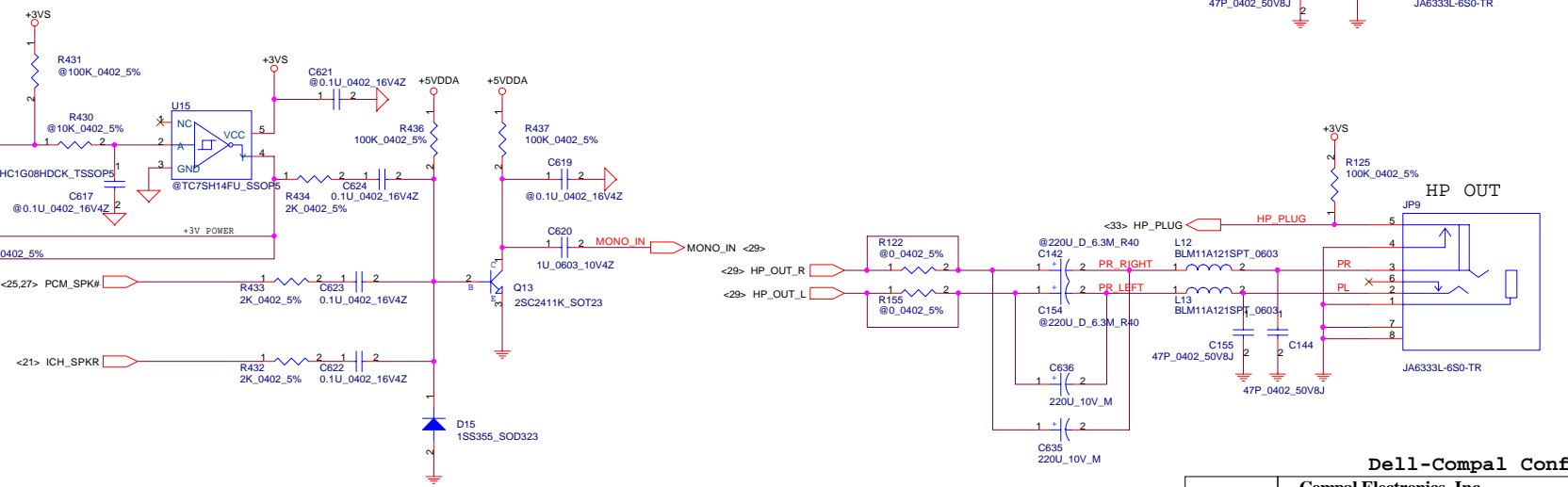
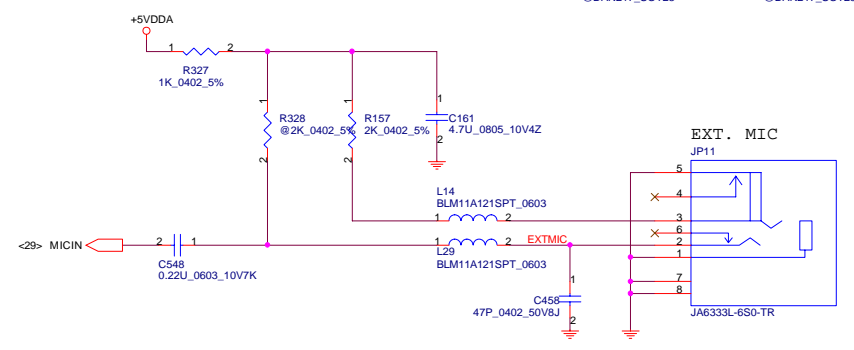
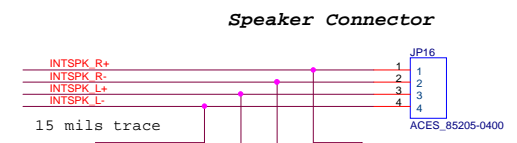
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Rev 1.0



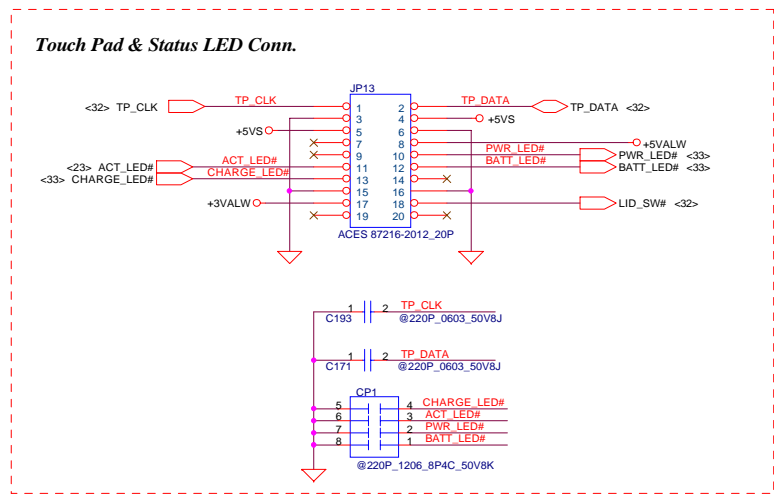
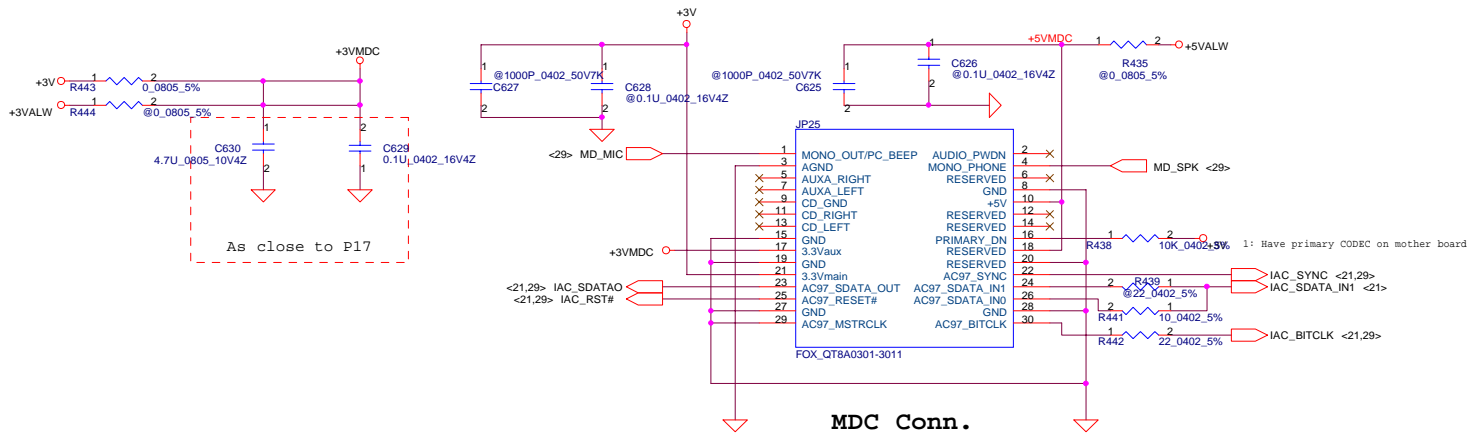
GAIN0	GAIN1	AV (inv)	INPUT IMPEDANCE
0	0	6dB	90K ohm
0	1	10dB	70K ohm
1	0	15.6dB	45K ohm
1	1	21.6dB	25K ohm



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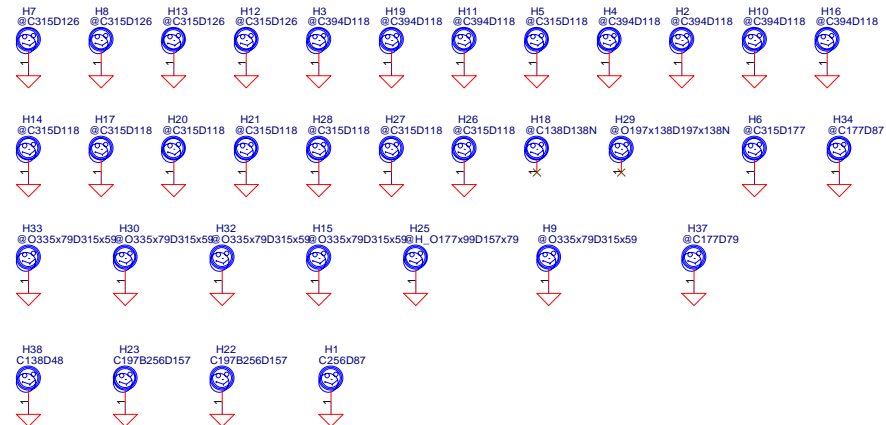
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		Size: Document Number Ibiza LA-1684	Rev: 1.0
Date: Friday, January 09, 2004		Sheet 30 of 48	

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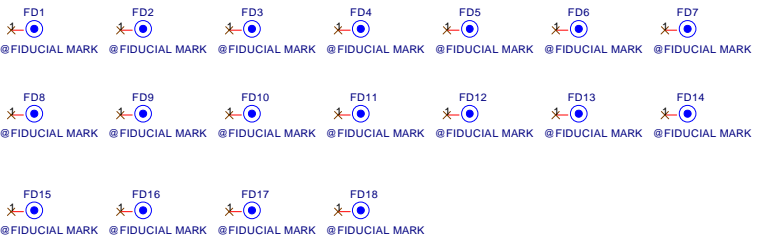


MDC Note
 Pin 1 is NC for Pctel and connexant MDC modem
 Pin 2 is NC for Pctel and connexant MDC modem

Screw Hole



Fiducial Mark



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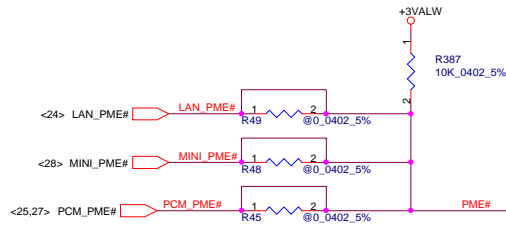
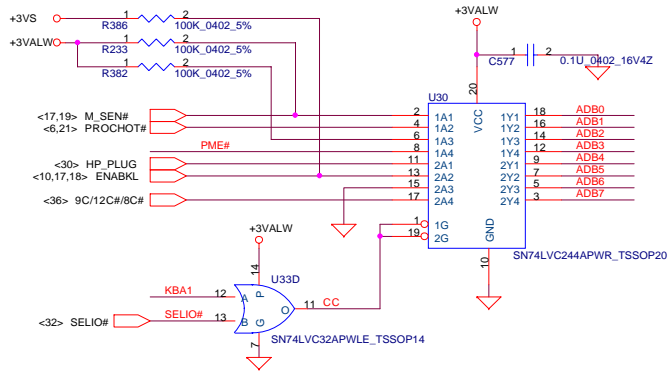
Dell-Compal Confidential
 Compal Electronics, Inc.

Title: **MDC/SWITCH Connector**

Size: Document Number **Ibiza LA-1684** Rev 1.0

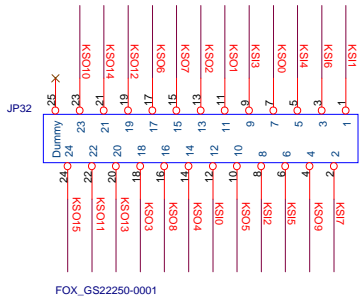
Date: Friday, January 09, 2004 Sheet 31 of 48

Input Port

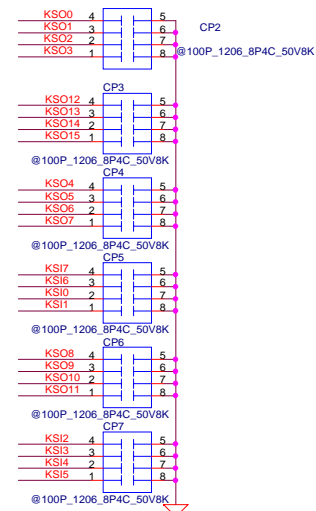


Internal KB connector

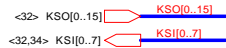
INT_KBD CONN.



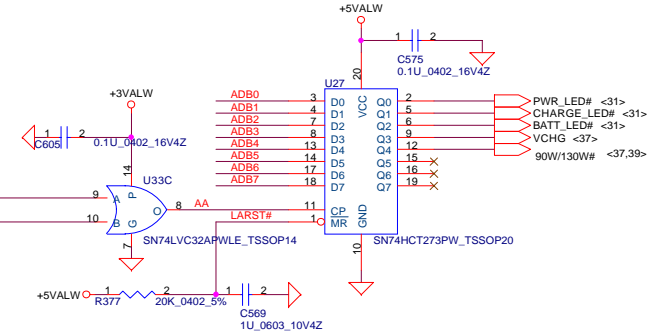
FOX_GS22250-0001



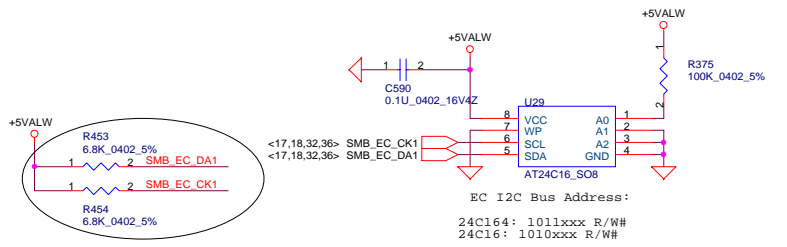
can swap



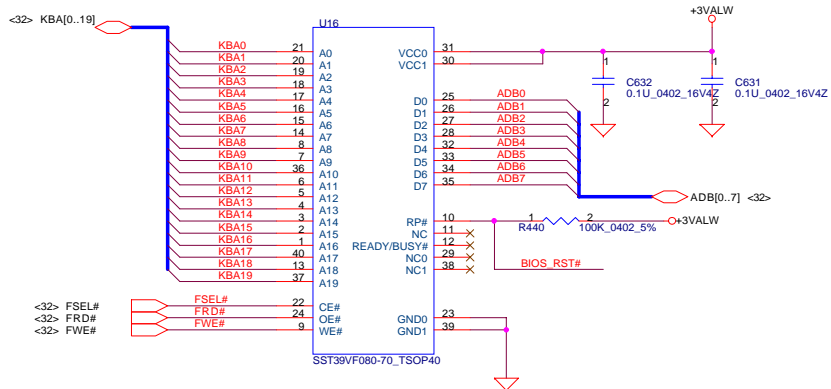
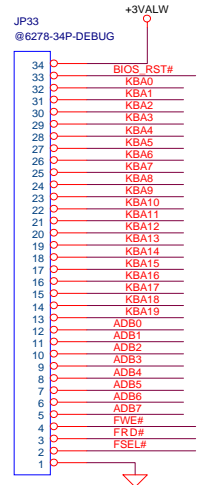
Output Port



NM24C164 Address definition: 1 A2 A1# A0 B2 B1 B0 R/W#



EC I2C Bus Address:
24C164: 1011xxxx R/W#
24C16: 1010xxxx R/W#



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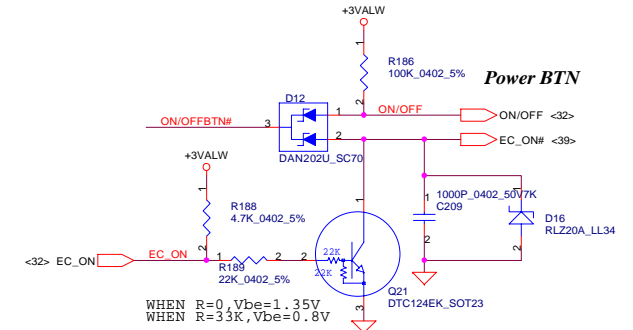
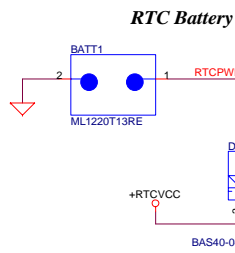
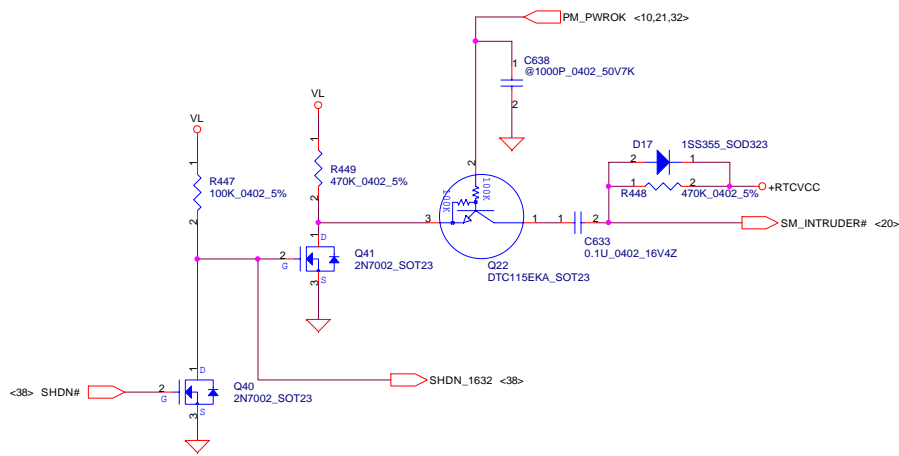
Compal Electronics, Inc.

Title: **EC Extend I/O KB Conn. & BIOS**

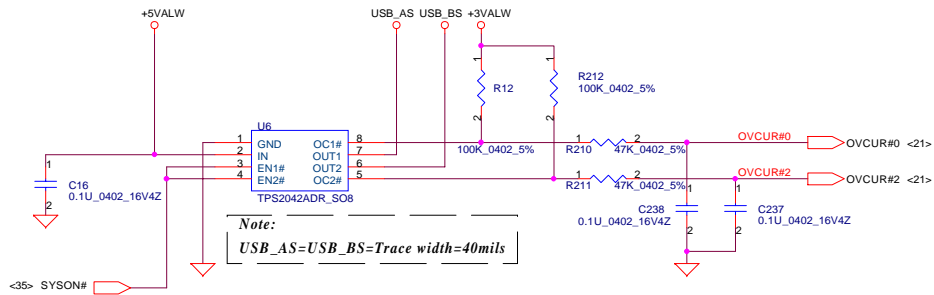
Size: Document Number **Ibiza LA-1684** Rev 1.0

Date: Friday, January 09, 2004 Sheet 33 of 48

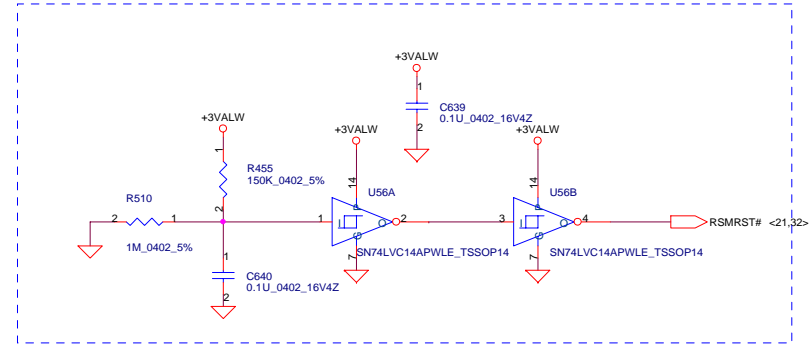
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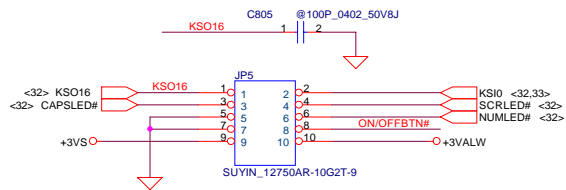
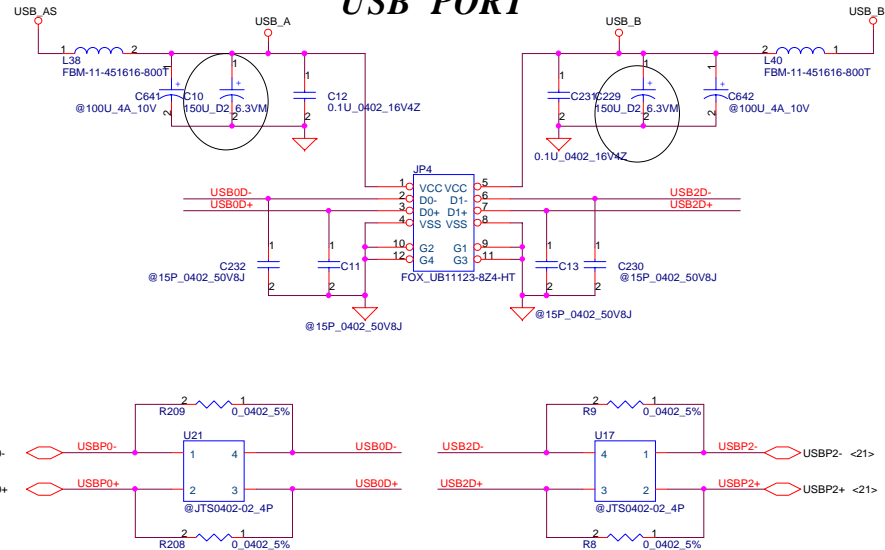
USB Over Current



Note:
 USB_AS=USB_BS=Trace width=40mils

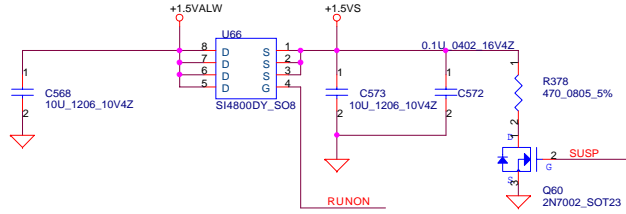


USB PORT

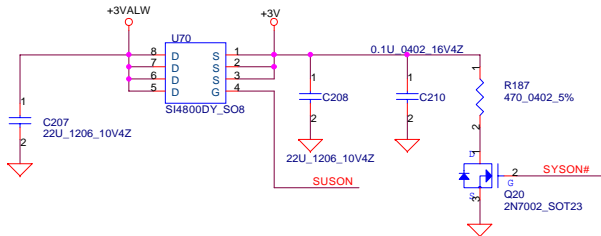


Power SW Function Button

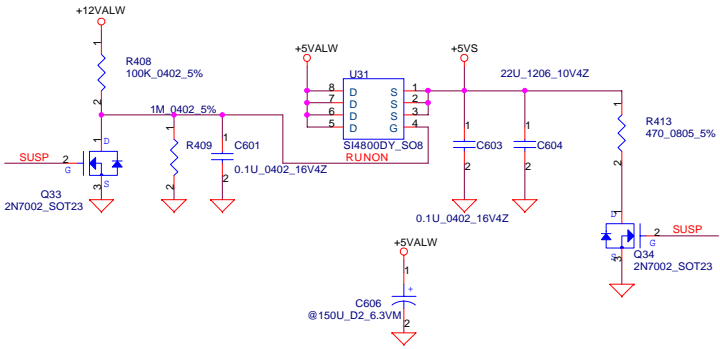
+1.5VALW to +1.5VS Transfer



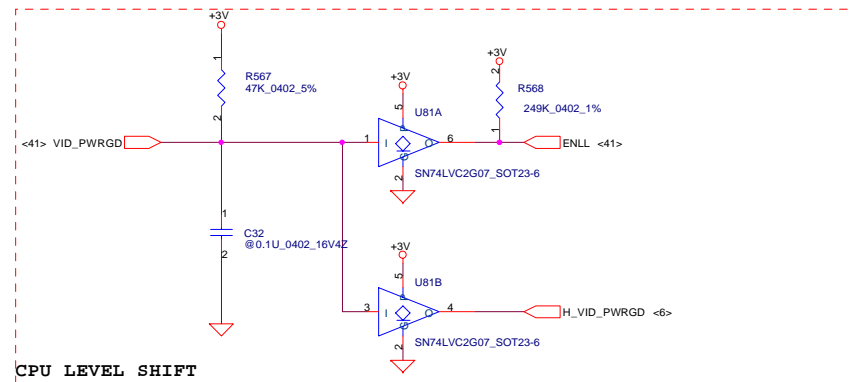
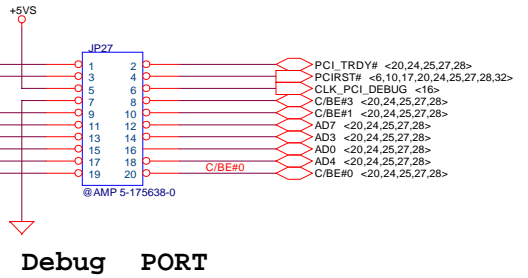
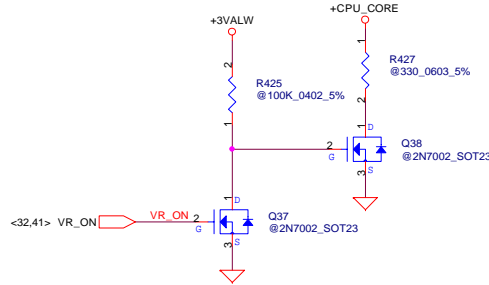
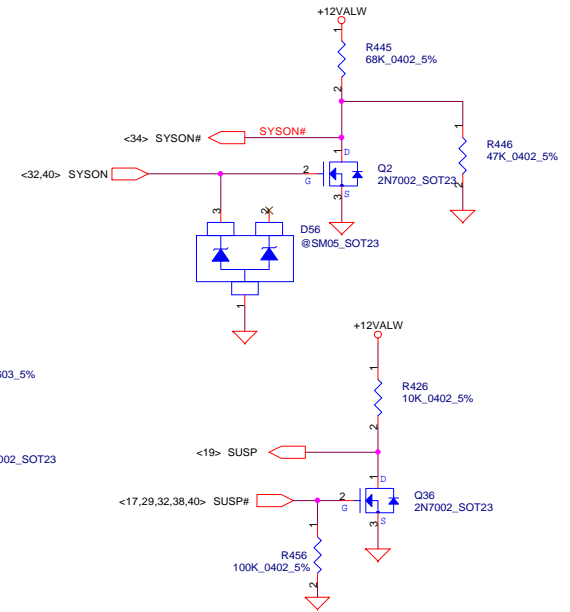
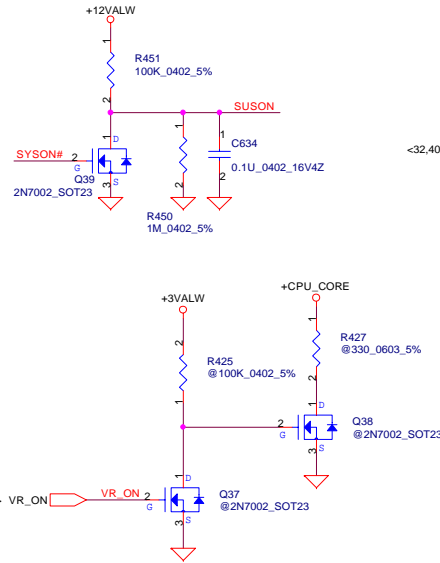
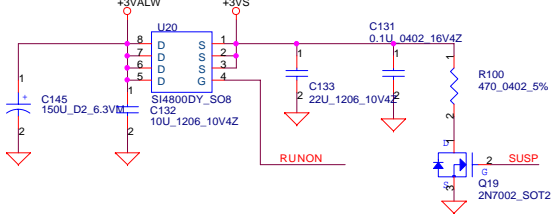
+3VALW to +3V Transfer



+5VALW to +5VS Transfer



+3VALW to +3VS Transfer



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File DC/DC Circuit / Debug Port		
Size	Document Number Ibiza LA-1684	Rev 1.0
Date: Friday, January 09, 2004	Sheet	35 of 48

I_{adp}=0~4.10A (90W)
I_{adp}=0~3A (65W)

I_{REF}=0.82*I_{charge}
I_{REF}=0~3.3V

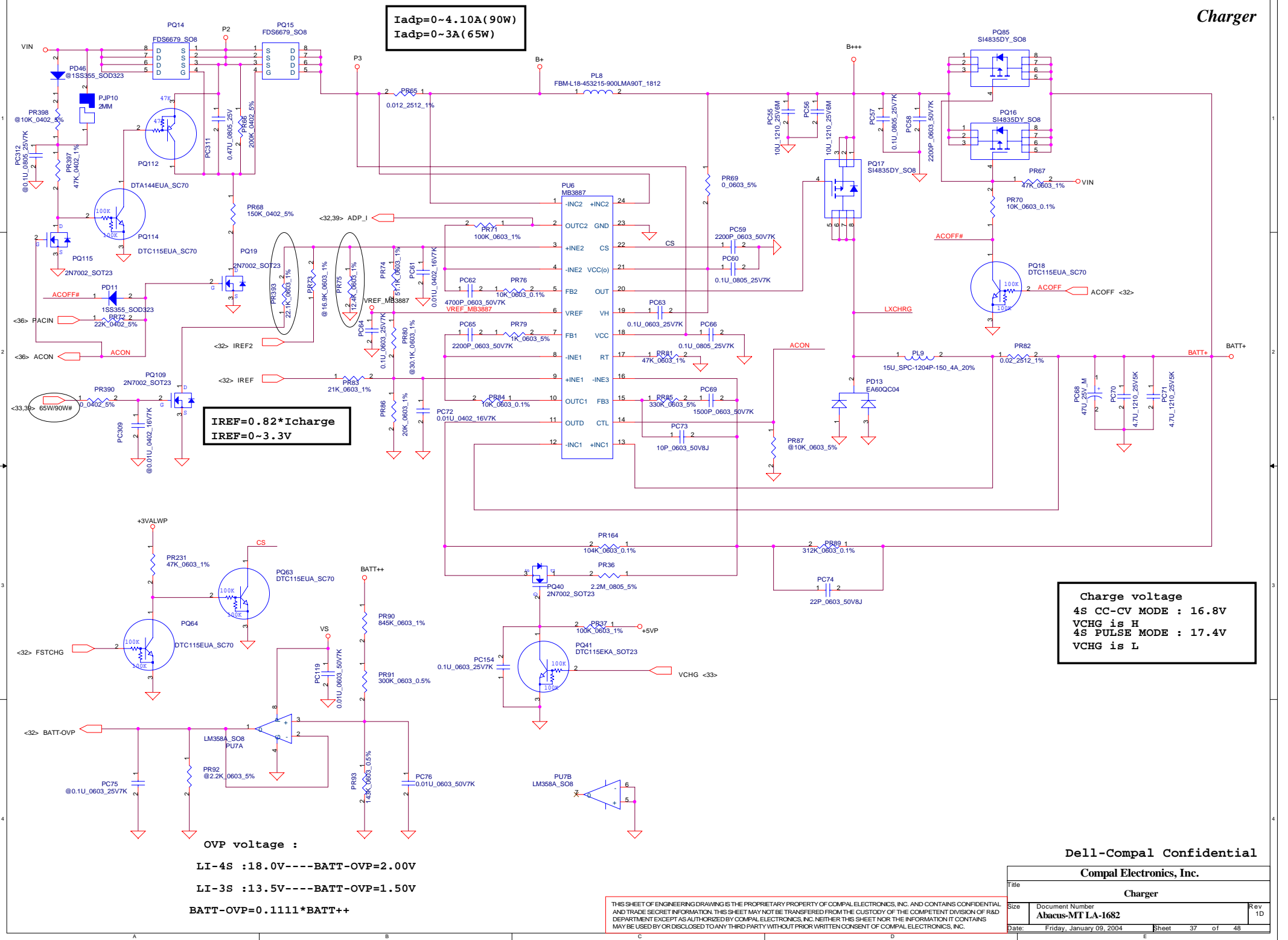
Charge voltage
4S CC-CV MODE : 16.8V
V_{CHG} is H
4S PULSE MODE : 17.4V
V_{CHG} is L

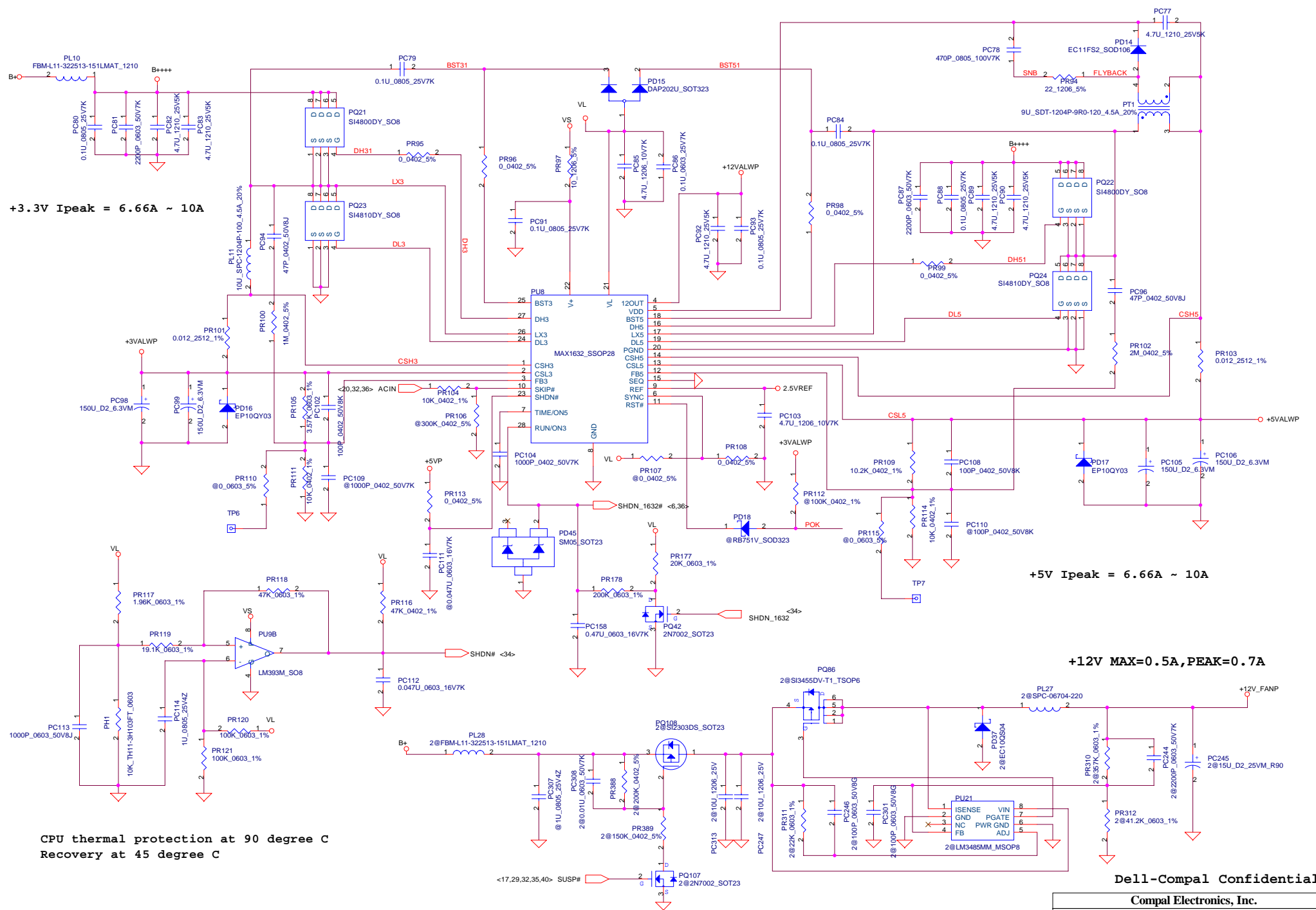
OVP voltage :
LI-4S :18.0V---BATT-OVP=2.00V
LI-3S :13.5V---BATT-OVP=1.50V
BATT-OVP=0.1111*BATT++

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Compal Electronics, Inc.			
Charger			
Title	Charger		
Size	Document Number	Rev	
	Abacus-MT LA-1682	1D	
Date:	Friday, January 09, 2004	Sheet	37 of 48





+3.3V Ipeak = 6.66A ~ 10A

+5V Ipeak = 6.66A ~ 10A

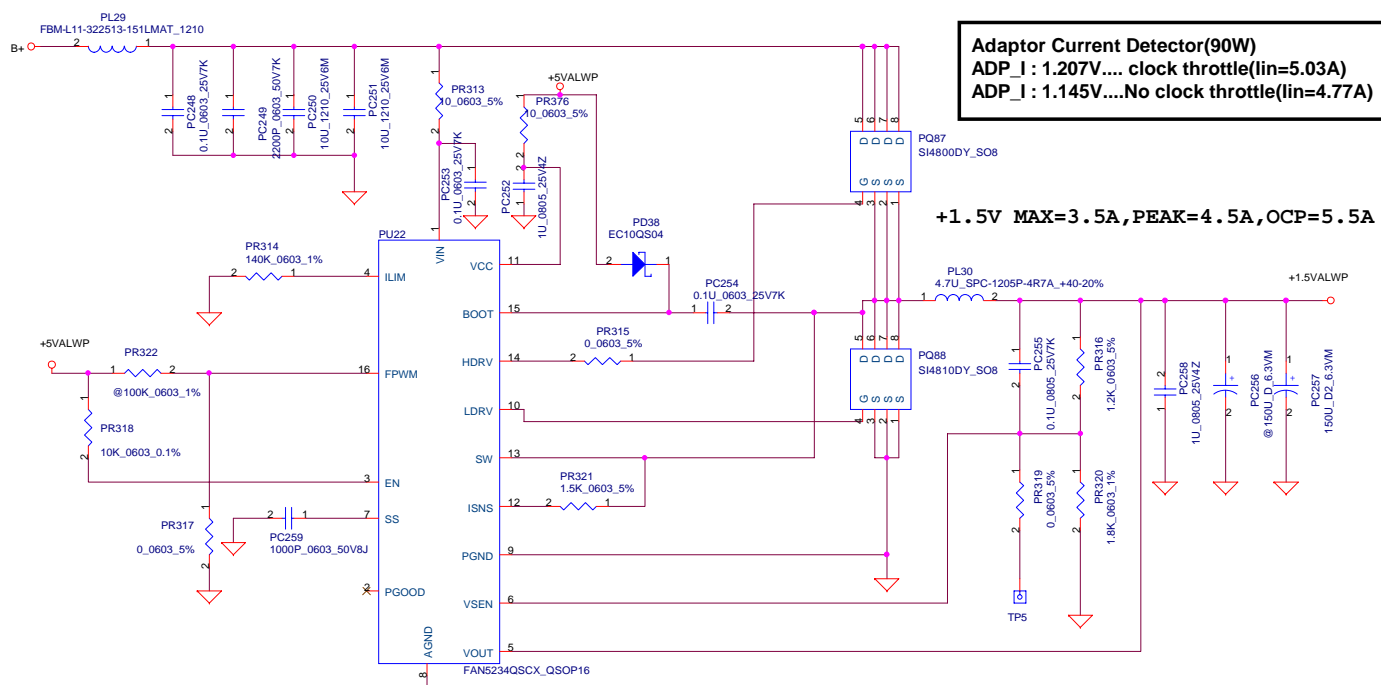
+12V MAX=0.5A, PEAK=0.7A

CPU thermal protection at 90 degree C
Recovery at 45 degree C

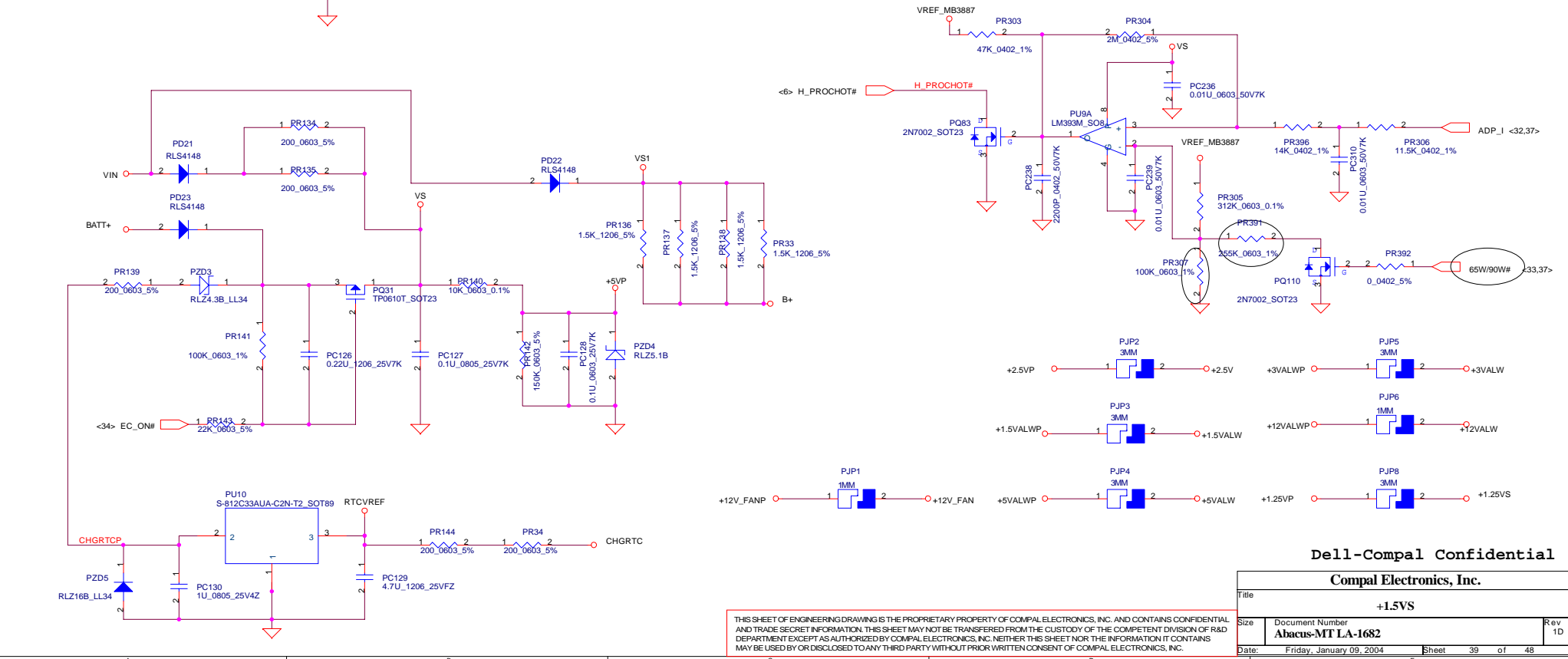
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Title			+3.3V/+5V/+12V/+12V_FANP		
Size	Document Number	Abacus-MT LA-1682			Rev
Date	Friday, January 09, 2004	Sheet	38	of	48

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Adaptor Current Detector(65W)
 ADP_I : 0.936V.... clock throttle(lin=3.9A)
 ADP_I : 0.828V....No clock throttle(lin=3.45A)

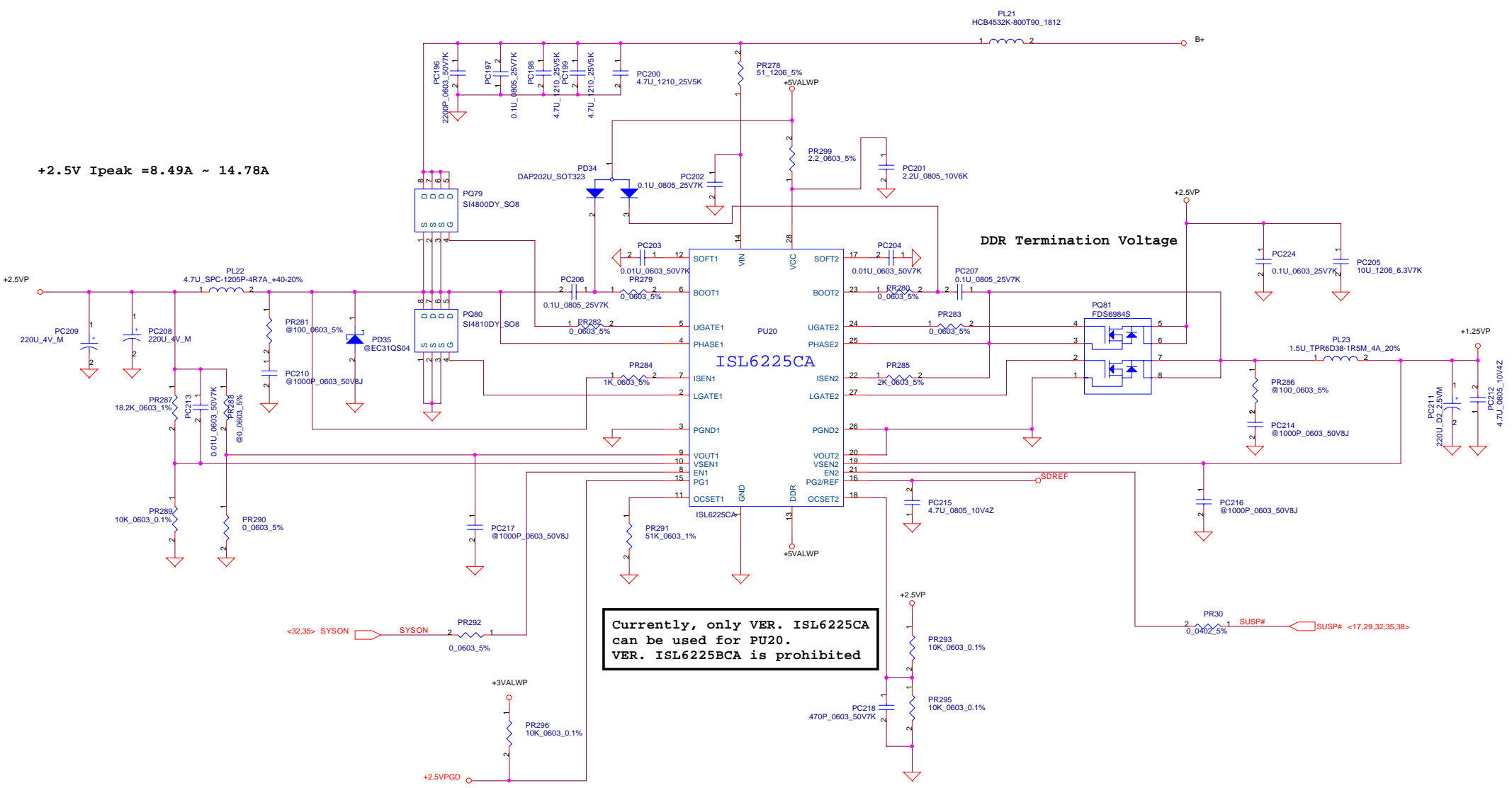


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Compal Electronics, Inc.		
+1.5VS		
Title		
Size	Document Number	Rev
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Date	Friday, January 09, 2004	Sheet 39 of 48

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+2.5V Ipeak = 8.49A ~ 14.78A

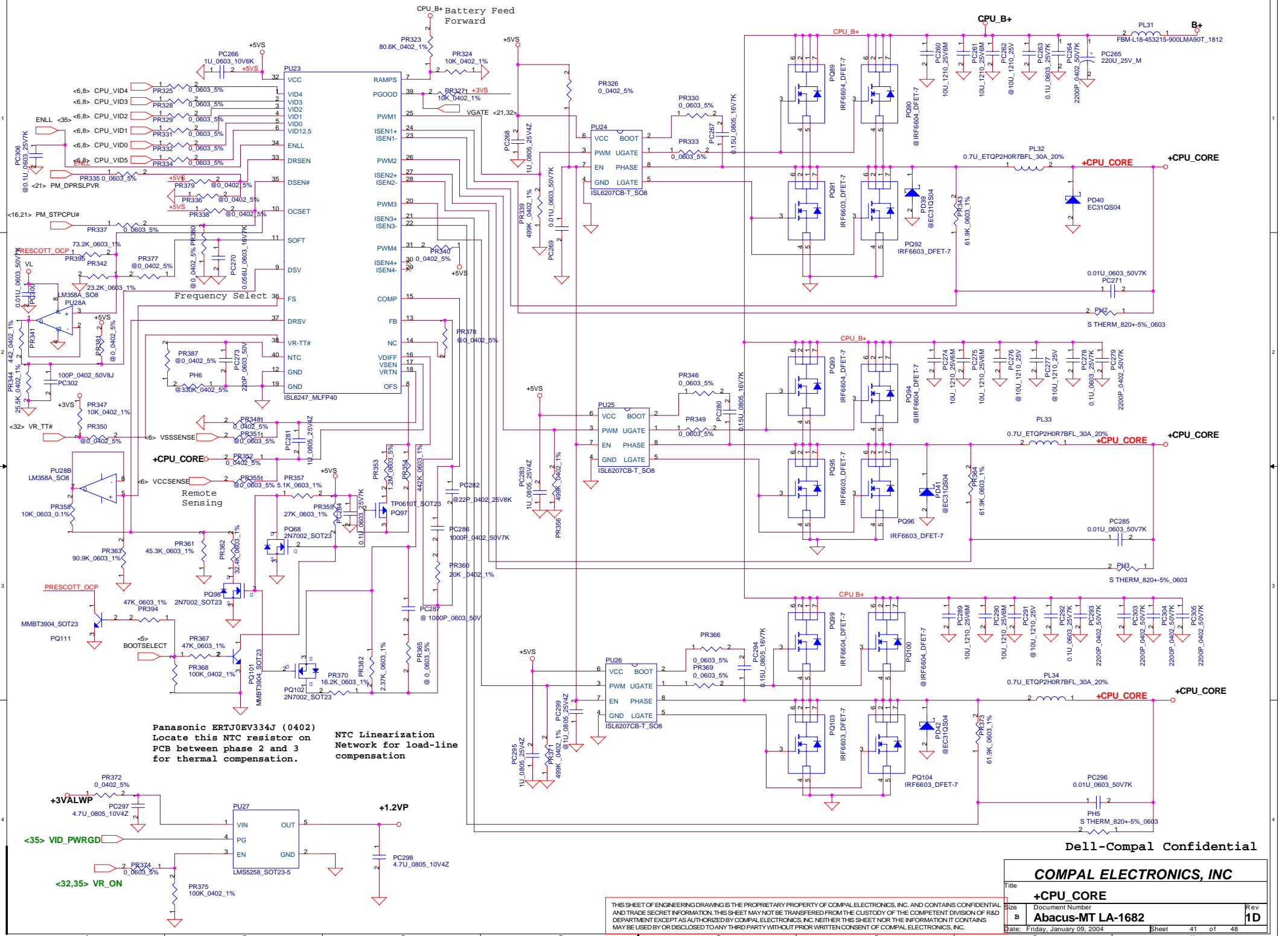


Currently, only VER. ISL6225CA
 can be used for PU20.
 VER. ISL6225BCA is prohibited

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COMPAL ELECTRONICS, INC		
Title	DDR POWER 2.5V & 1.25V	
Size	Document Number	Rev
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Panasonic ERTJ0EV334J (0402)
 Locate this NTC resistor on
 PCB between phase 2 and 3
 for thermal compensation.

NTC Linearization
 Network for load-line
 compensation

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COMPAL ELECTRONICS, INC		
Title	+CPU_CORE	
Size	Document Number	Rev
B	Abacus-MT LA-182	1D
Date:	Friday, January 09, 2004	Sheet 41 of 48

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