

LAGUNA

REV : X03

@ : Depop Component

PRELIMINARY

LA-2112 (8 Layer M/B for LAGUNA)

Dothan Schematic with Capture CIS and Function field

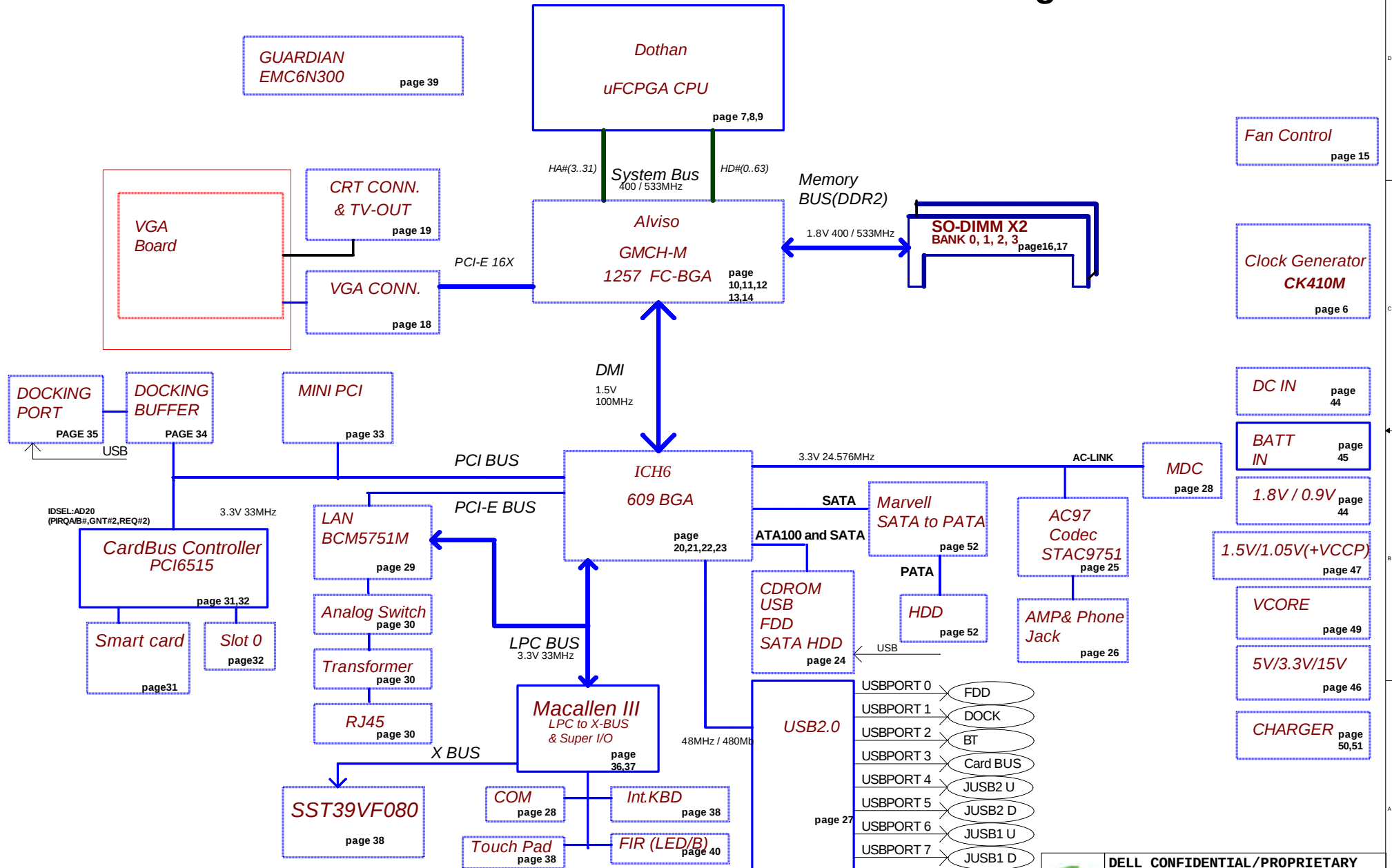
uFCPGA Dothan
10-07-2004
REV: 0.4

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY			
Title			
Cover Sheet			
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	1 of 82

Block Diagram



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY		
Title	Block Diagram	
Size	Document Number Board Number LA2112	Rev 0.4
Date	Thursday, October 28, 2004	Sheet 2 of 82

PM TABLE

State \ power plane	+3VALW +5VALW +RTC_CELL +3.3VX	+3VSUS +5VSUS +1.8VSUS +1.5VSUS +15V	+5VRUN +3VRUN +0.9V_DDR_VTT +2.5VRUN +1.8VRUN +1.5VRUN +VCC_CORE +VCCP
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

PCI TABLE

PCI DEVICE	IDSEL	REQ#/GNT#	PIRQ
CARD BUS	AD17	1	D,C
DOCK	AD24	0	A
MINI PCI	AD19	3	D,B

USB TABLE

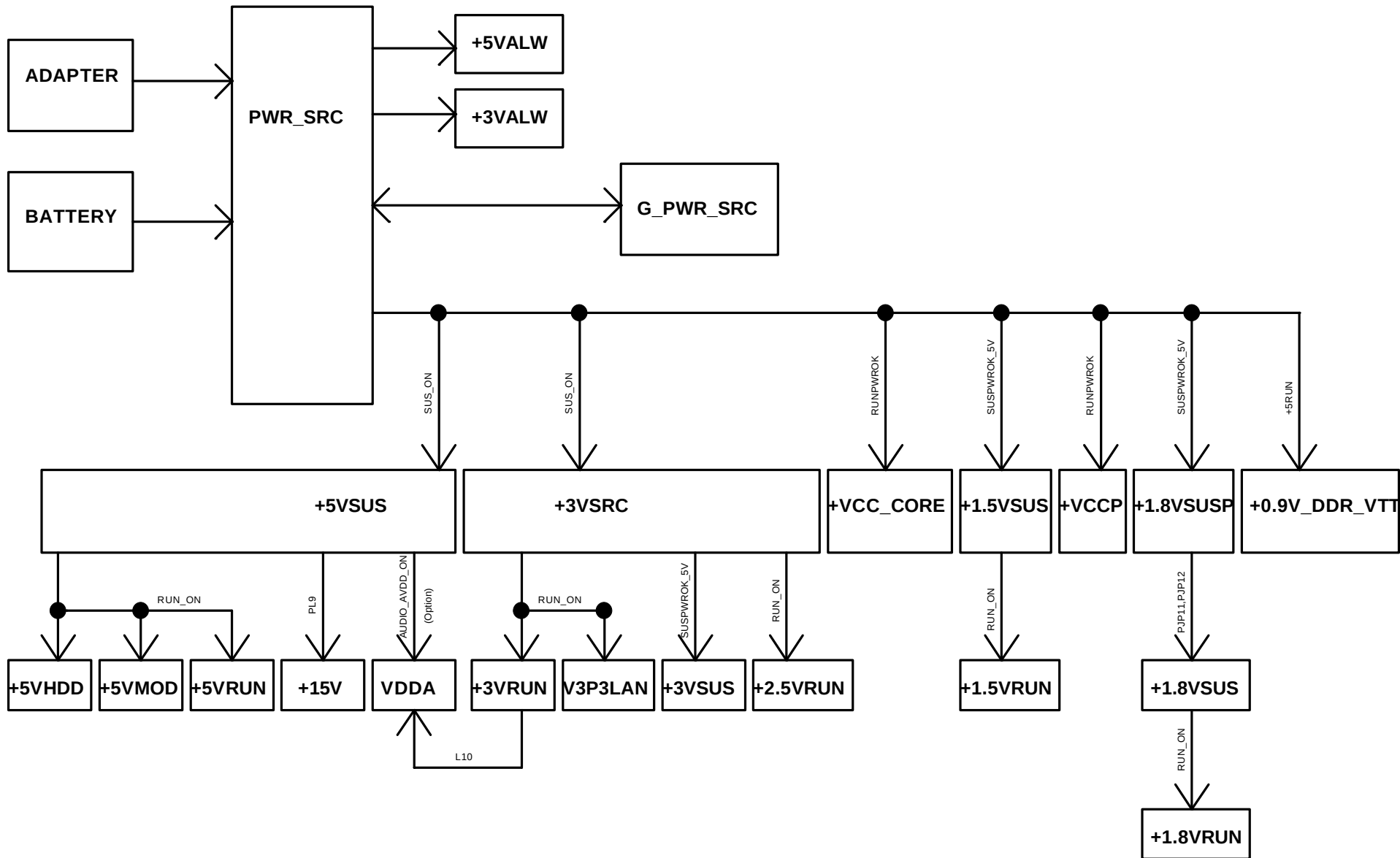
USB PORT#	DESTINATION
0	FDD (module bay)
1	DOCK
2	MPCI (BlueTooth)
3	NEW Connector
4	USB Port 2(Top)
5	USB Port 2(Bottom)
6	USB Port 1(Top)
7	USB Port 1(Bottom)

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



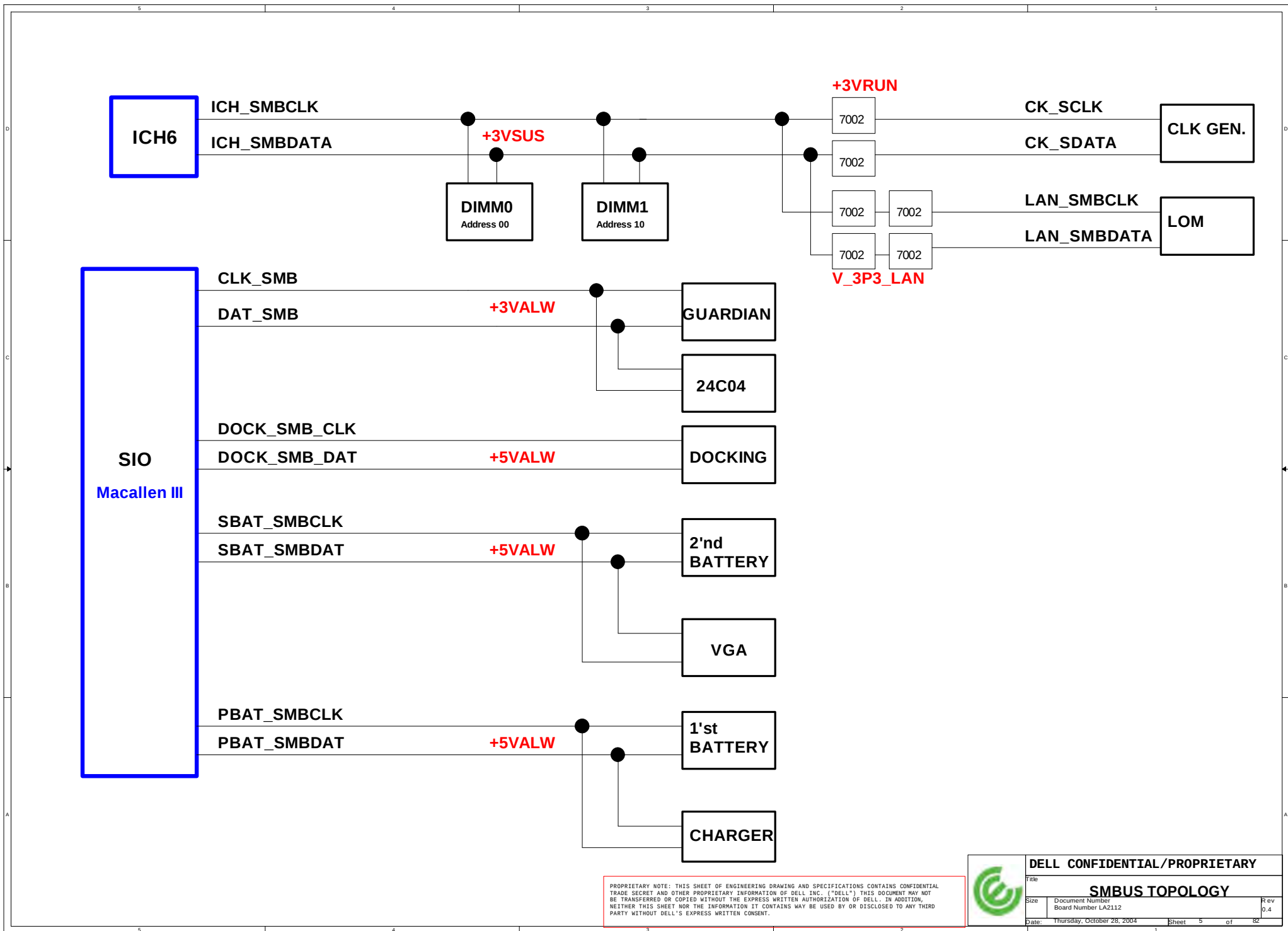
DELL CONFIDENTIAL/PROPRIETARY

Title Index and Config.		
Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 3 of 82

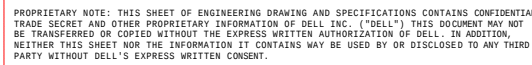
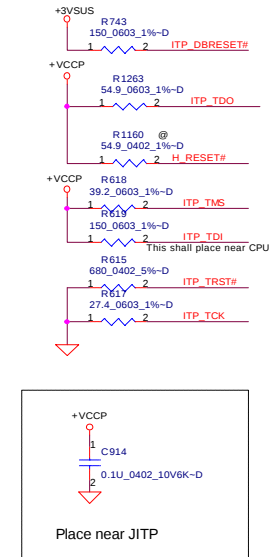


PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY			
Title		Power Rail	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	4 of 82



DELL CONFIDENTIAL/PROPRIETARY			
Title		SMBUS TOPOLOGY	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	5 of 82

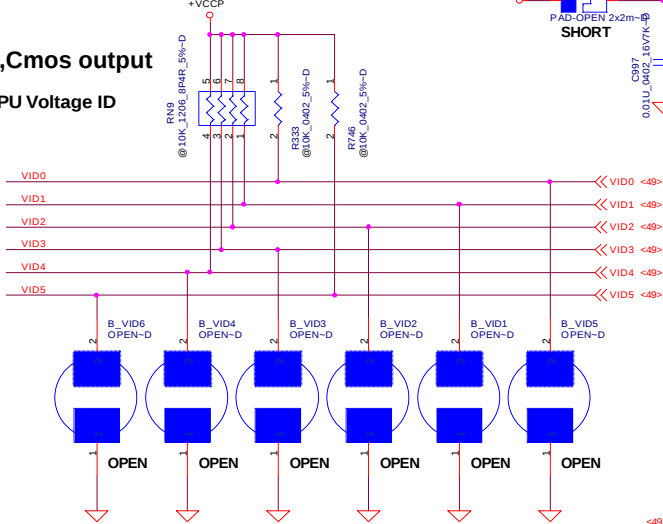


Size	Document Number Board Number LA2112	R 0.
Date:	Thursday, October 28, 2004	Sheet 7 of 82

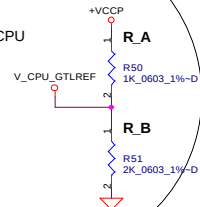
Dothan-A2 w/ 533Mhz supports both 1.5V and 1.8V.
Dothan-B step w/533Mhz supports only 1.5V

For test only ,Cmos output

CPU Voltage ID



Layout close CPU



Resistor placed within 0.5" of CPU pin. Trace should be at least 25 miles away from any other toggling signal.

Dothan

POWER, GROUND, RESERVED SIGNALS AND NC

Dothan

POWER, GROUND

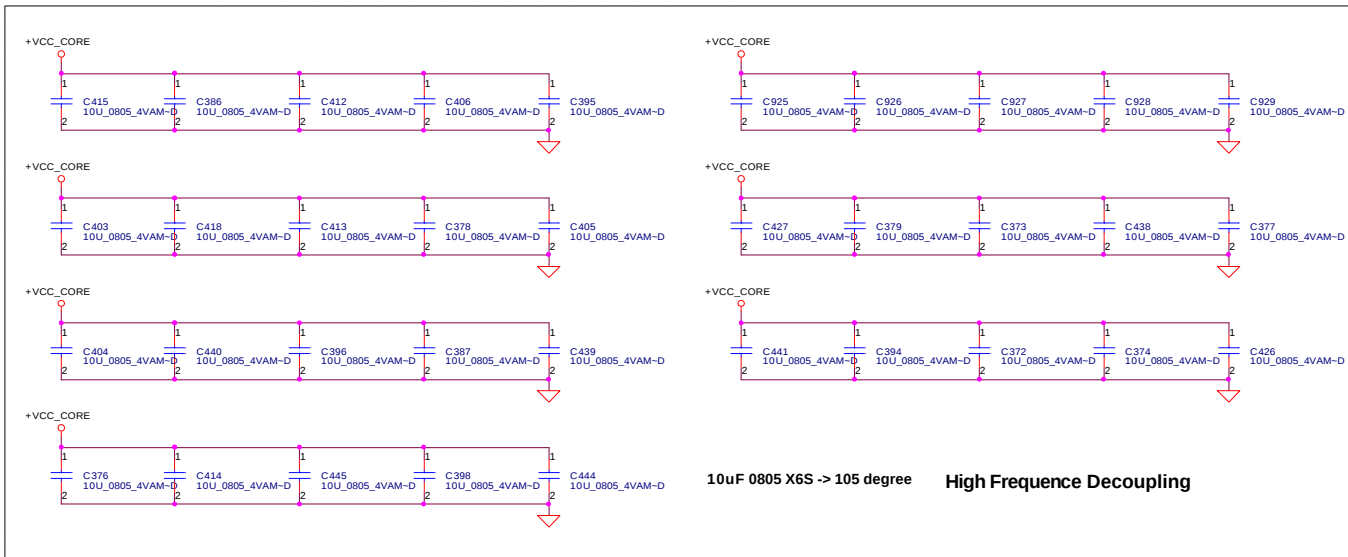
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



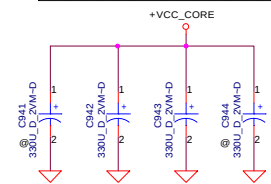
DELL CONFIDENTIAL/PROPRIETARY

Dothan Processor in mFCPGA479

Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 8 of 82

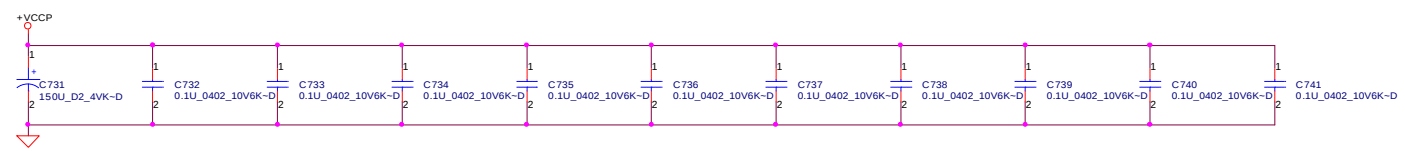


Near VCORE regulator.



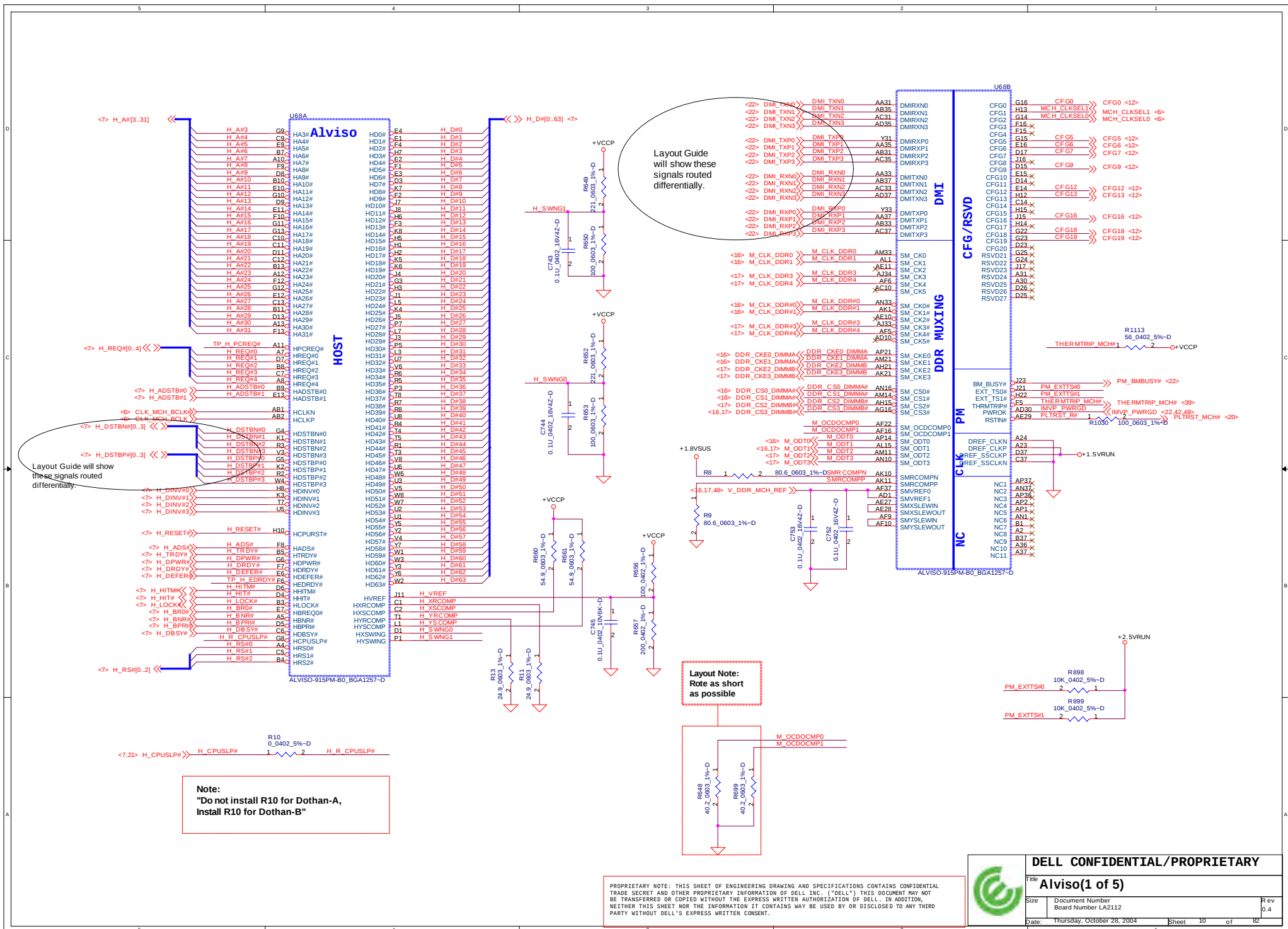
ESR <= 3m ohm
Capacitor > 880uF

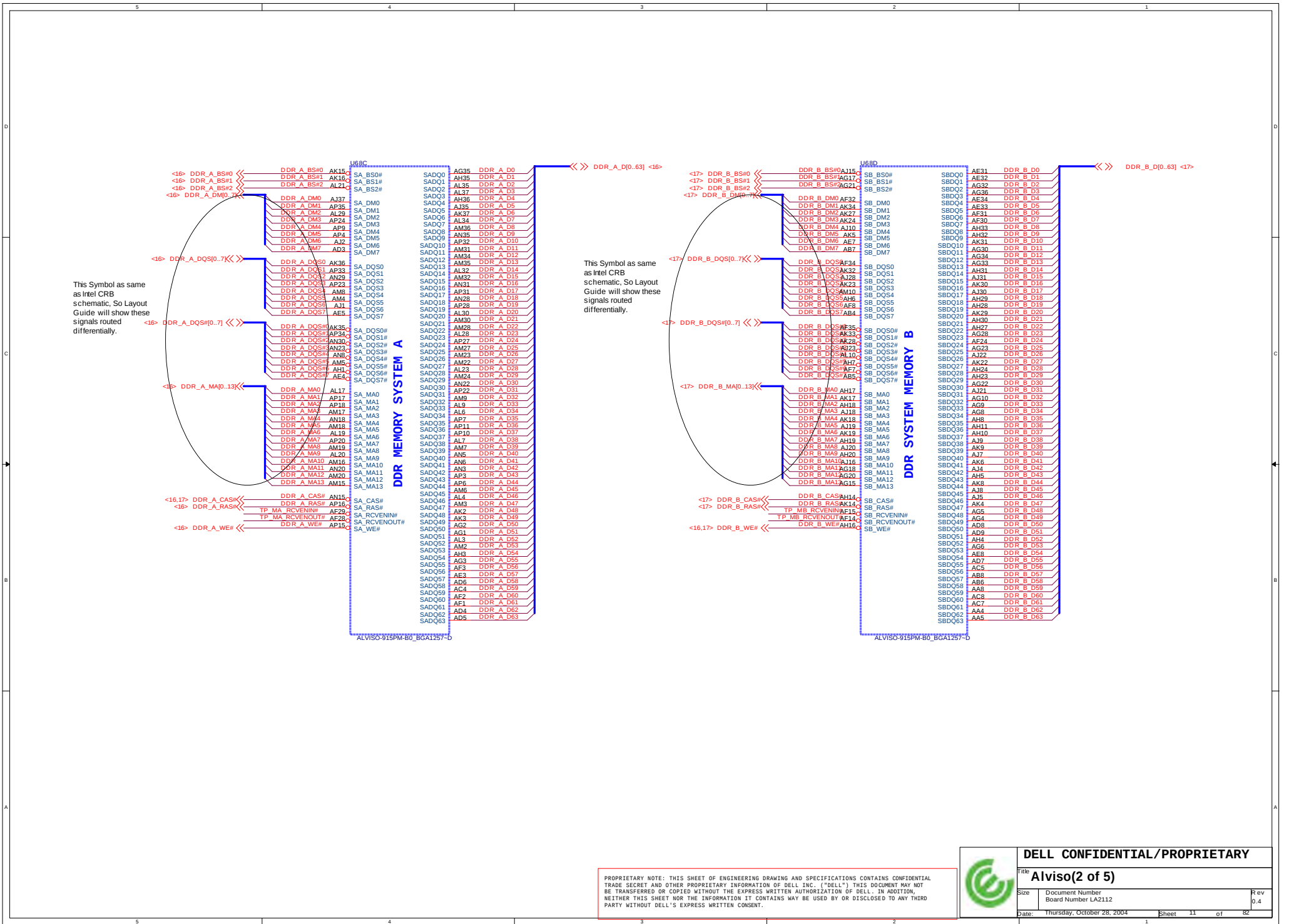
9mOhm 9mOhm 9mOhm
7343 7343 7343
PS CAP PS CAP PS CAP



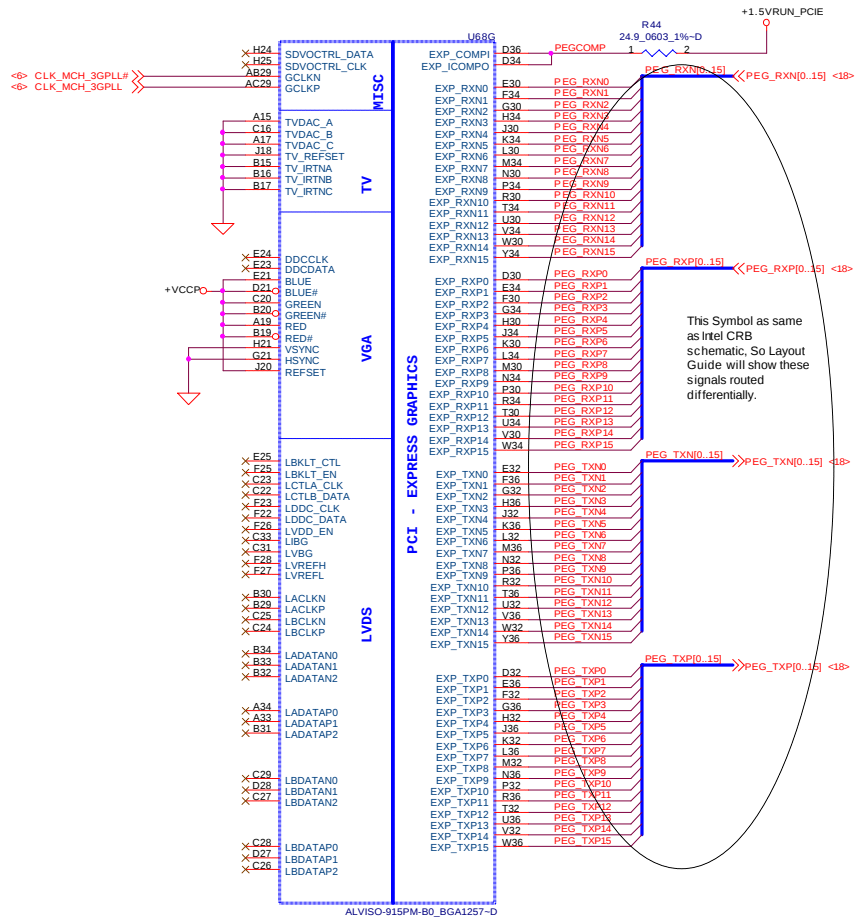
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

		DELL CONFIDENTIAL/PROPRIETARY	
		CPU Bypass	
Title Size Date:	Document Number Board Number LA2112 Thursday, October 28, 2004	Rev 0.4 Sheet 9 of 82	

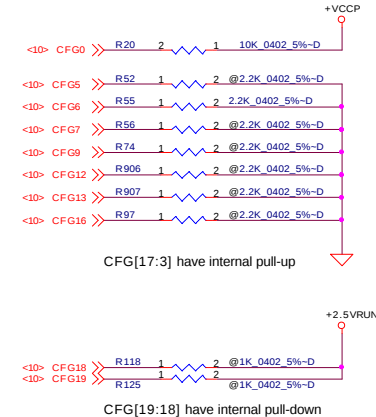




PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



CFG[2:0]	Refer to sheet 6 for FSB frequency select
CFG5	Low = DMI x 2 High = DMI x 4 *
CFG6	Low = DDR-II * High = DDR-I
CFG7	Low = DT/Transportable CPU High = Mobile CPU *
CFG9	Low = Reverse Lane High = Normal Operation *
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation (Default) *
CFG16 (FSB Dynamic ODT)	Low = Disabled High = Enabled *
CFG18 (VCC Select)	Low = 1.05V (Default) * High = 1.5V
CFG19 (VTT Select)	Low = 1.05V (Default) * High = 1.2V



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY			
File	Alviso(3 of 5)		
Size	Document Number Board Number LA2112	Rev	0.4
Date:	Thursday, October 28, 2004	Sheet	12 of 82

POWER

W=20 mils

POWER

Note : All VCCSM pin shorted internally.

Close B26,B25,A25

Route VSSA3GBG gnd from GMCH to decoupling cap ground lead and then connect to the gnd plane.

Remove L6, C48, C51, Connect DPLL2 directly to +1.5vrun
Remove L29, C47, C8, Connect DPLLA directly to +1.5vrun
Steven-01/09/2004

W=20 mils

+2.5VRUN

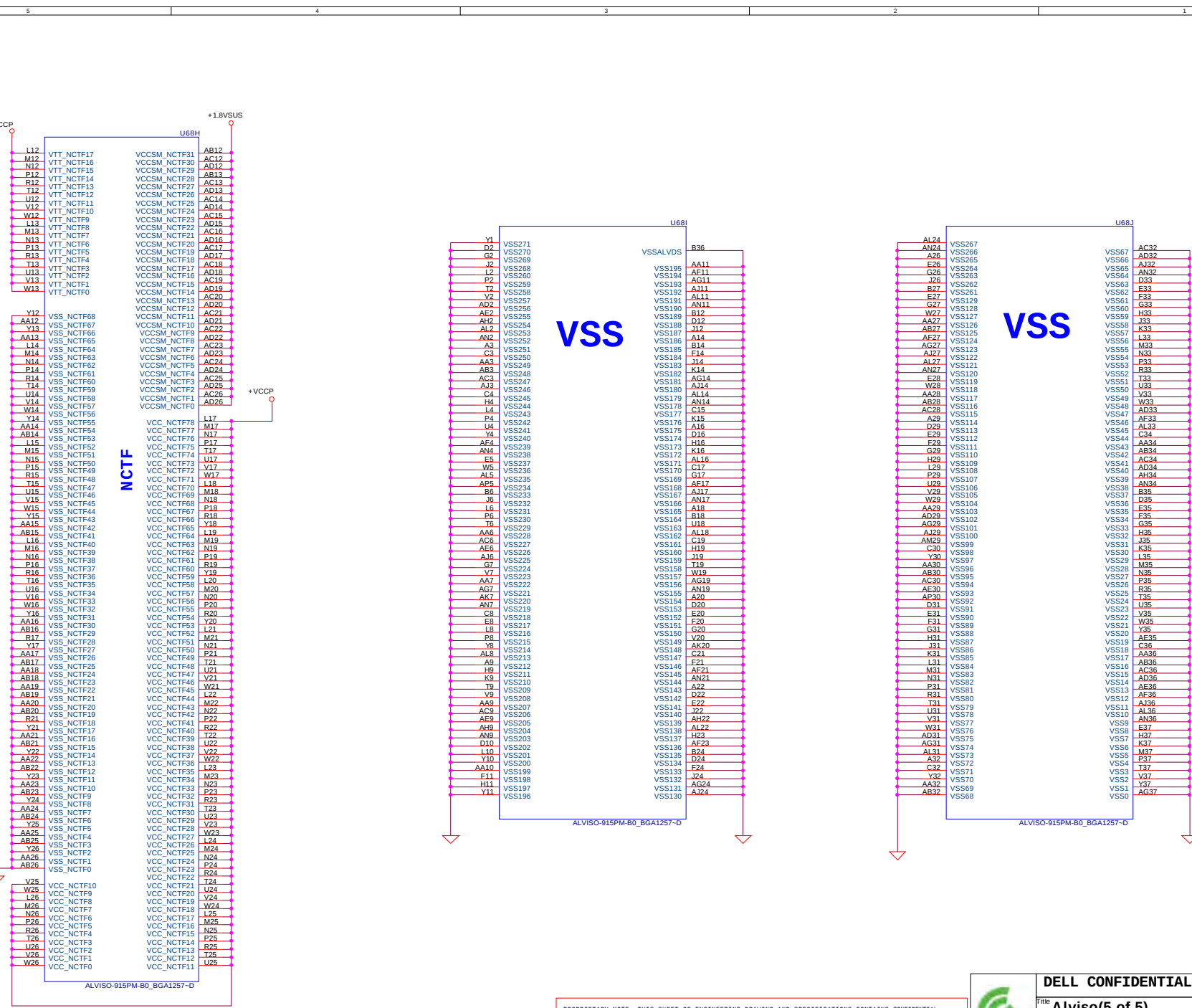
DELL CONFIDENTIAL/PROPRIETARY

Alviso(4 of 5)

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 13 of 82



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



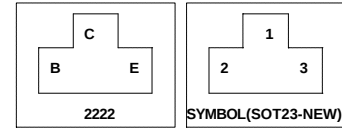
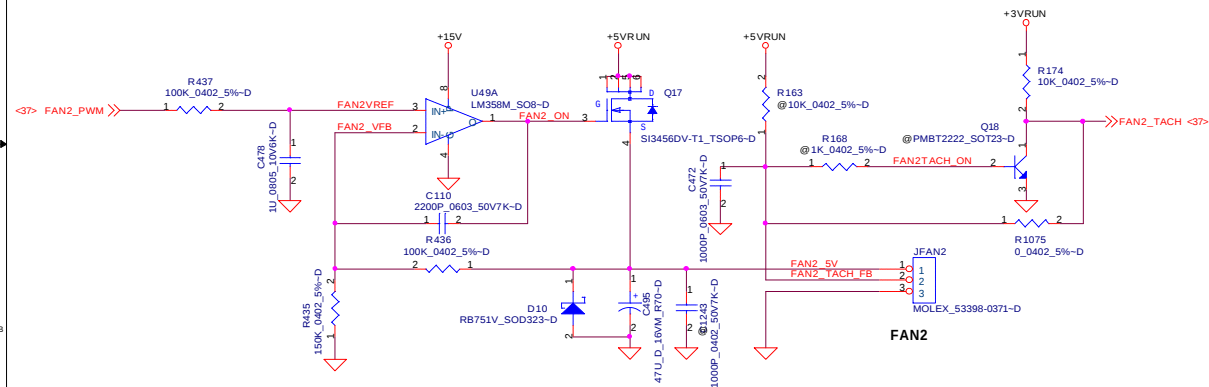
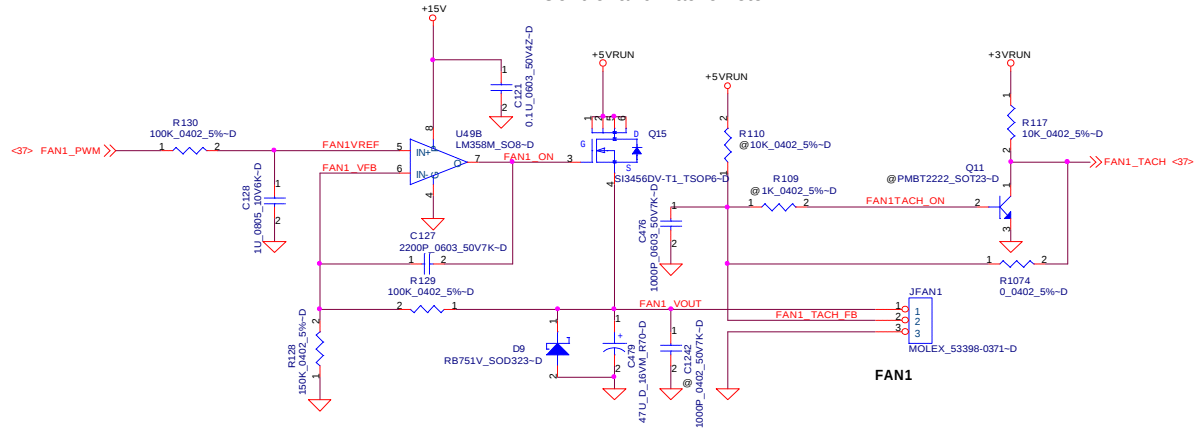
DELL CONFIDENTIAL/PROPRIETARY

Date: **Alviso(5 of 5)**

Size	Document Number Board Number LA2112	Rev 0.4
------	--	------------

Date: Thursday, October 28, 2004 Sheet 14 of 82

FAN2 Control and Tachometer



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

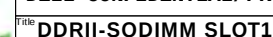
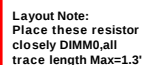
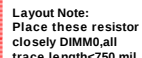
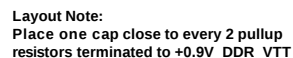
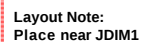


DELL CONFIDENTIAL/PROPRIETARY

Title ITP Debug CONN. & FAN

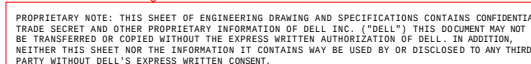
Size	Document Number Board Number LA2112	Rev 04
------	--	-----------

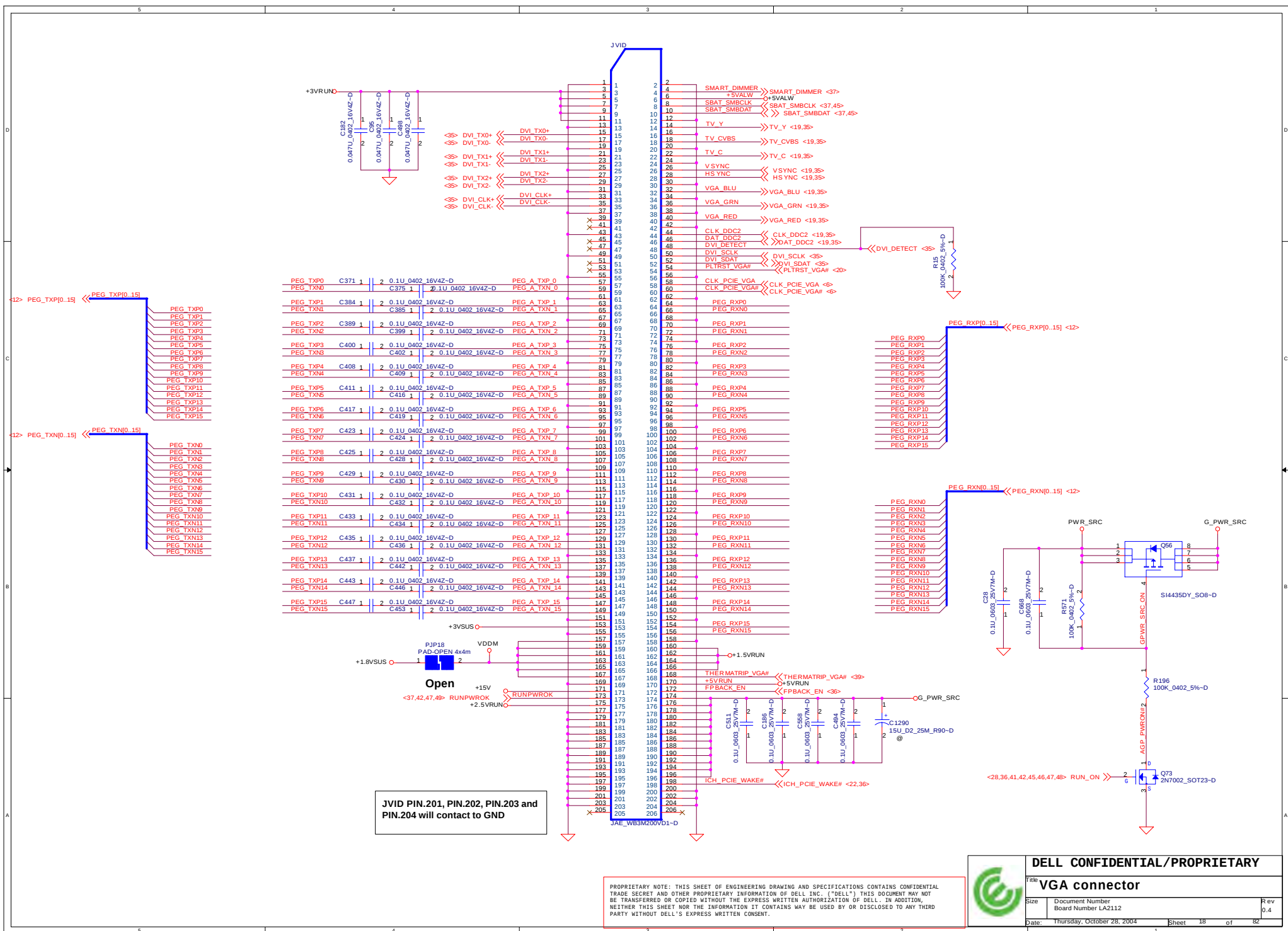
Date: Thursday, October 28, 2004 Sheet 15 of 82

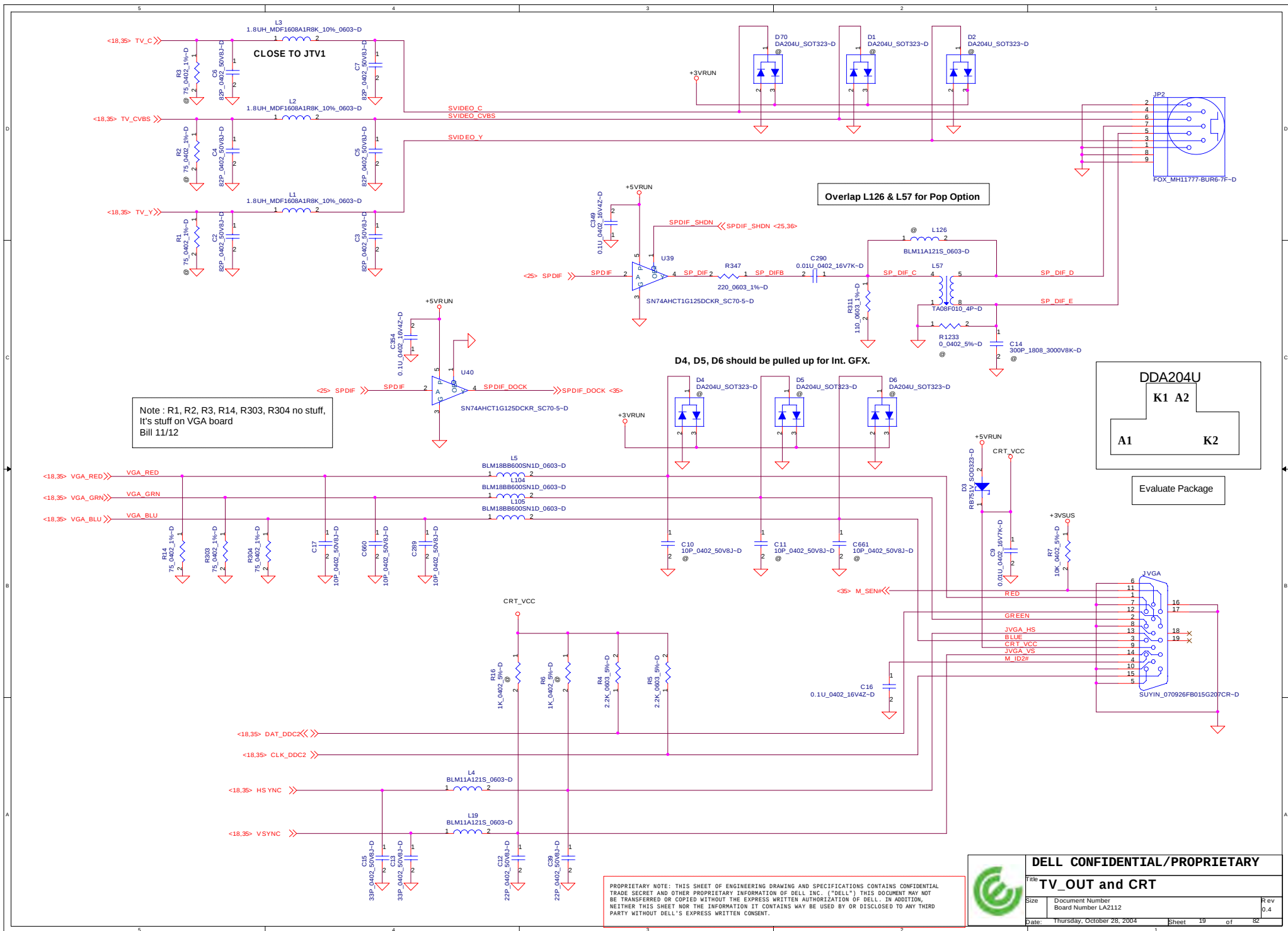


Size	Document Number Board Number LA2112	R
Date	Thursday, October 28, 2004	Sheet 15 of 82

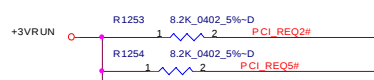
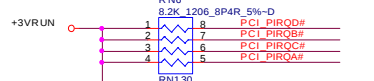
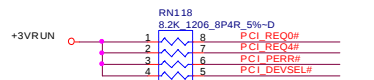
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.







PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

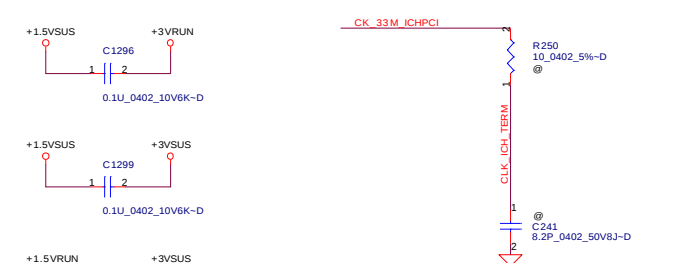
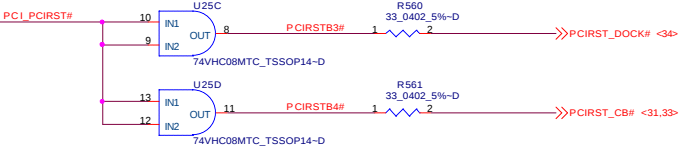
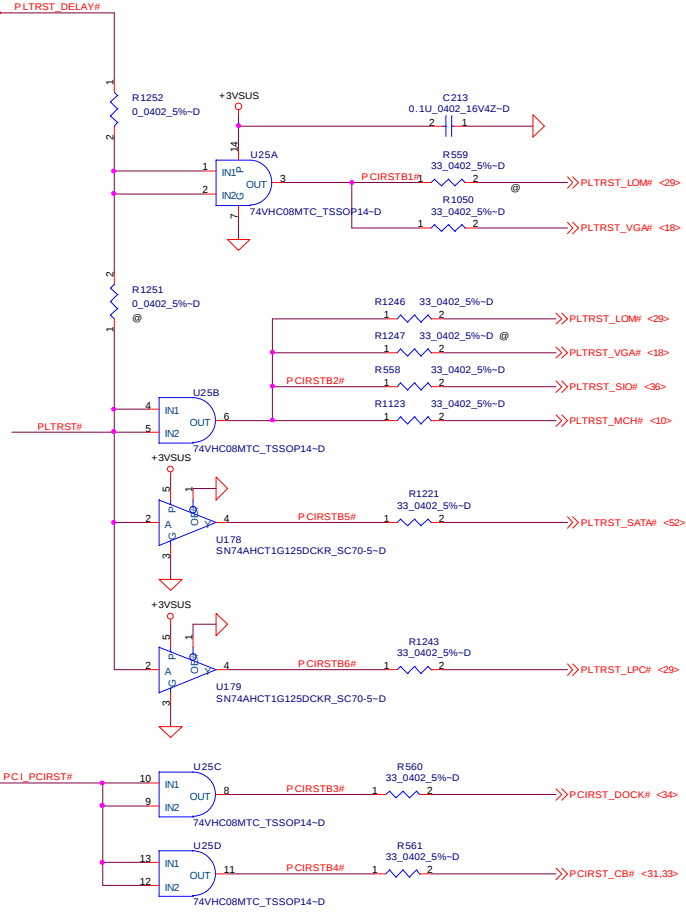
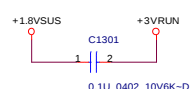
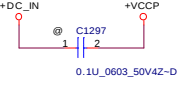
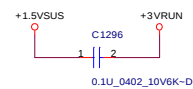
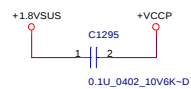
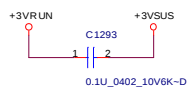
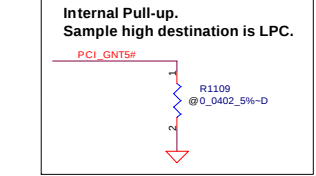
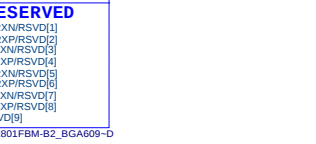
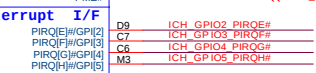
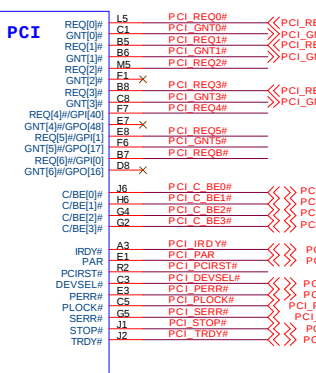


<<31,33,34> PCI_AD[0..31] <<>

<<31,33,34,35> PCI_FRAME# <<>

<<34> PCI_PIRQA# <<>
<<33> PCI_PIRQB# <<>
<<31> PCI_PIRQC# <<>
<<31,33> PCI_PIRQD# <<>

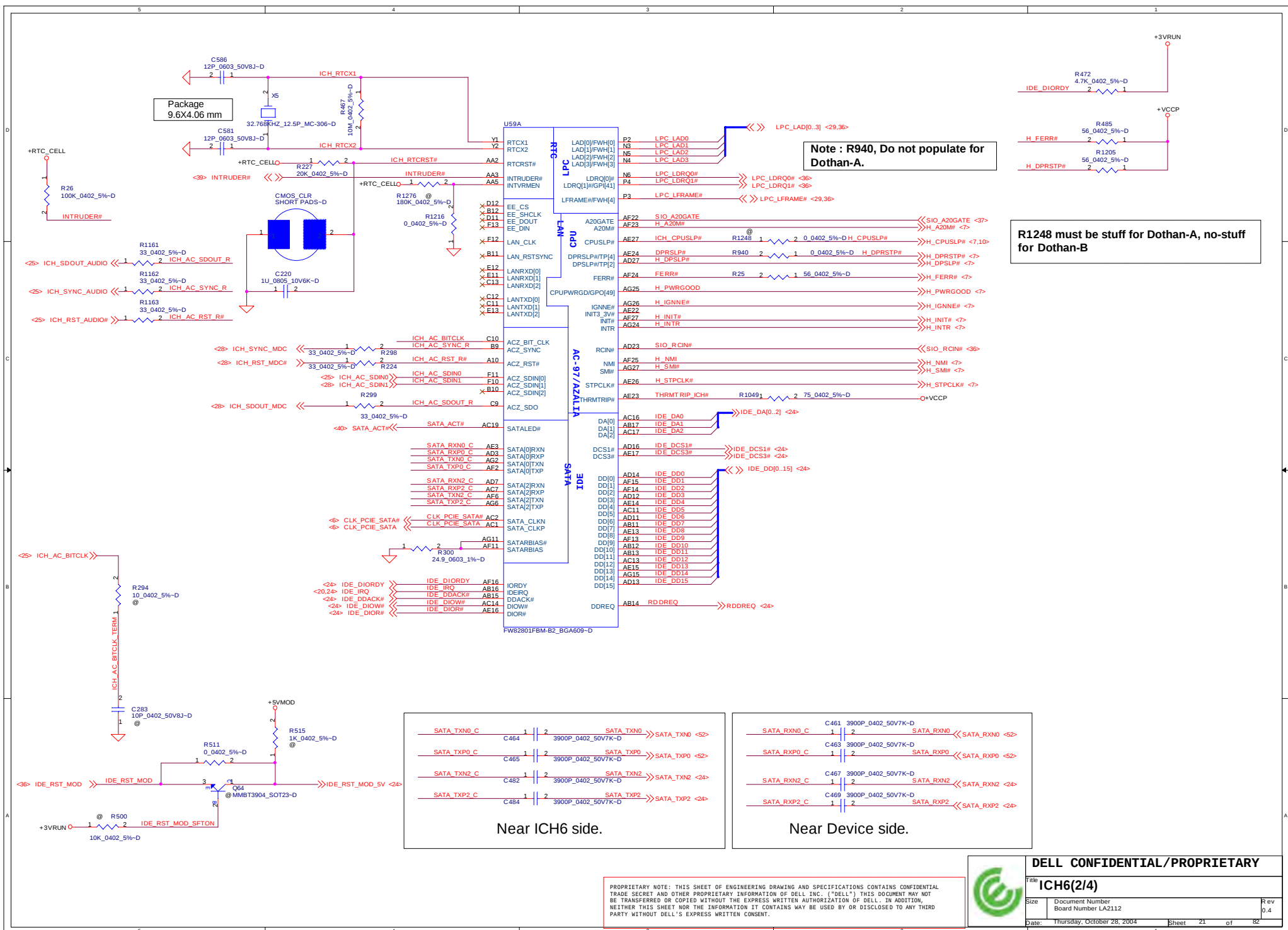
<<IDE_IRQ <21,24>

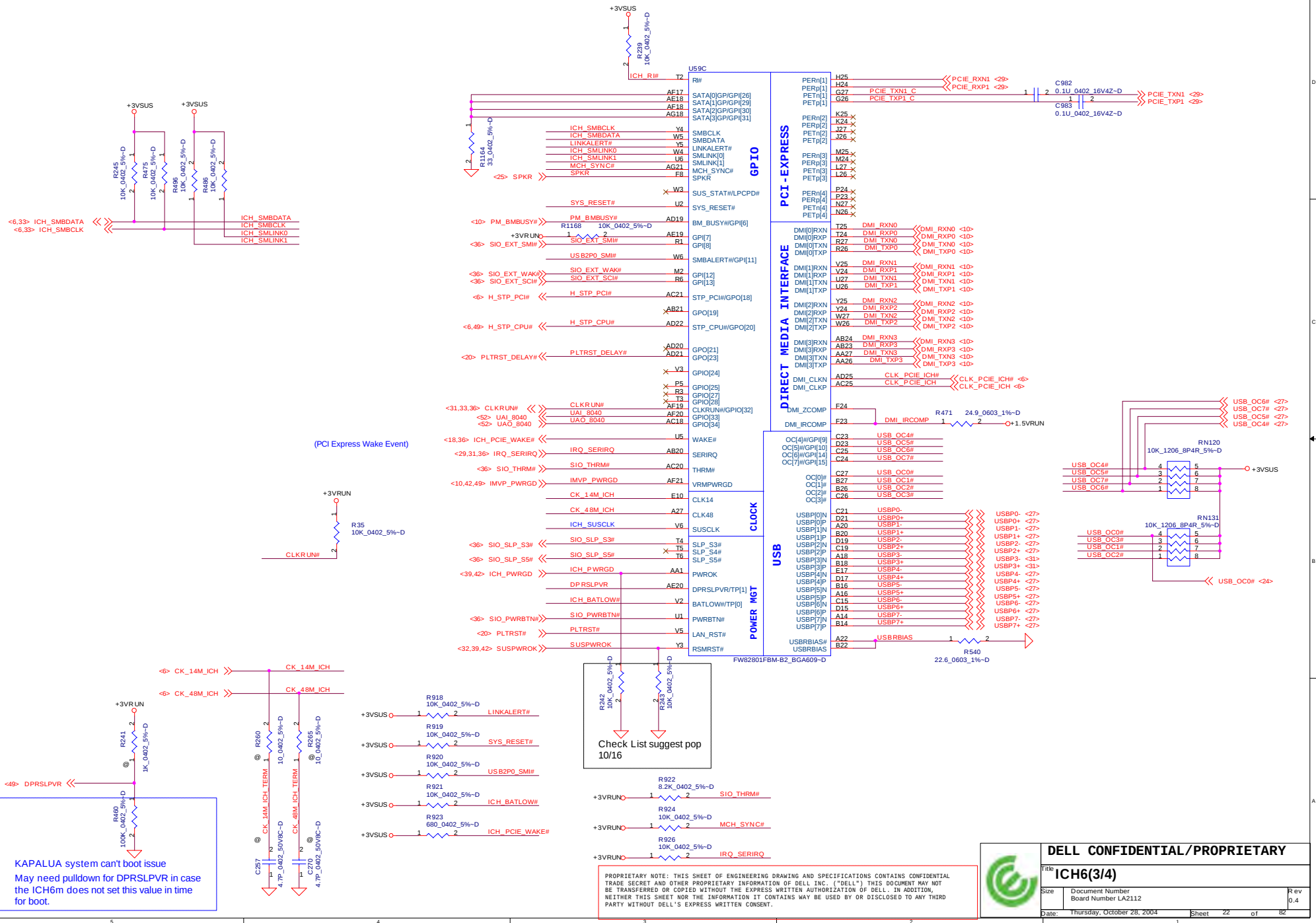


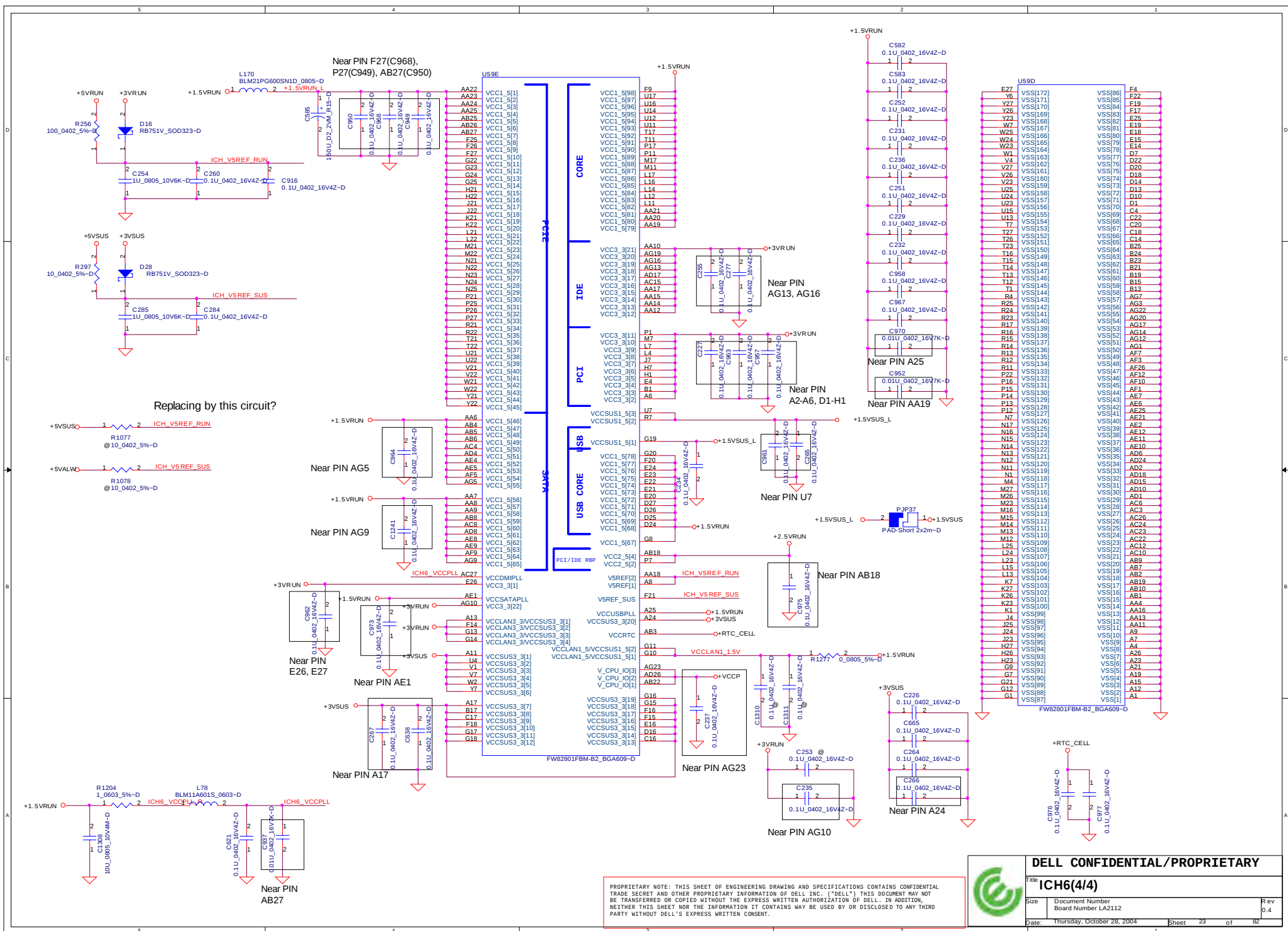
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

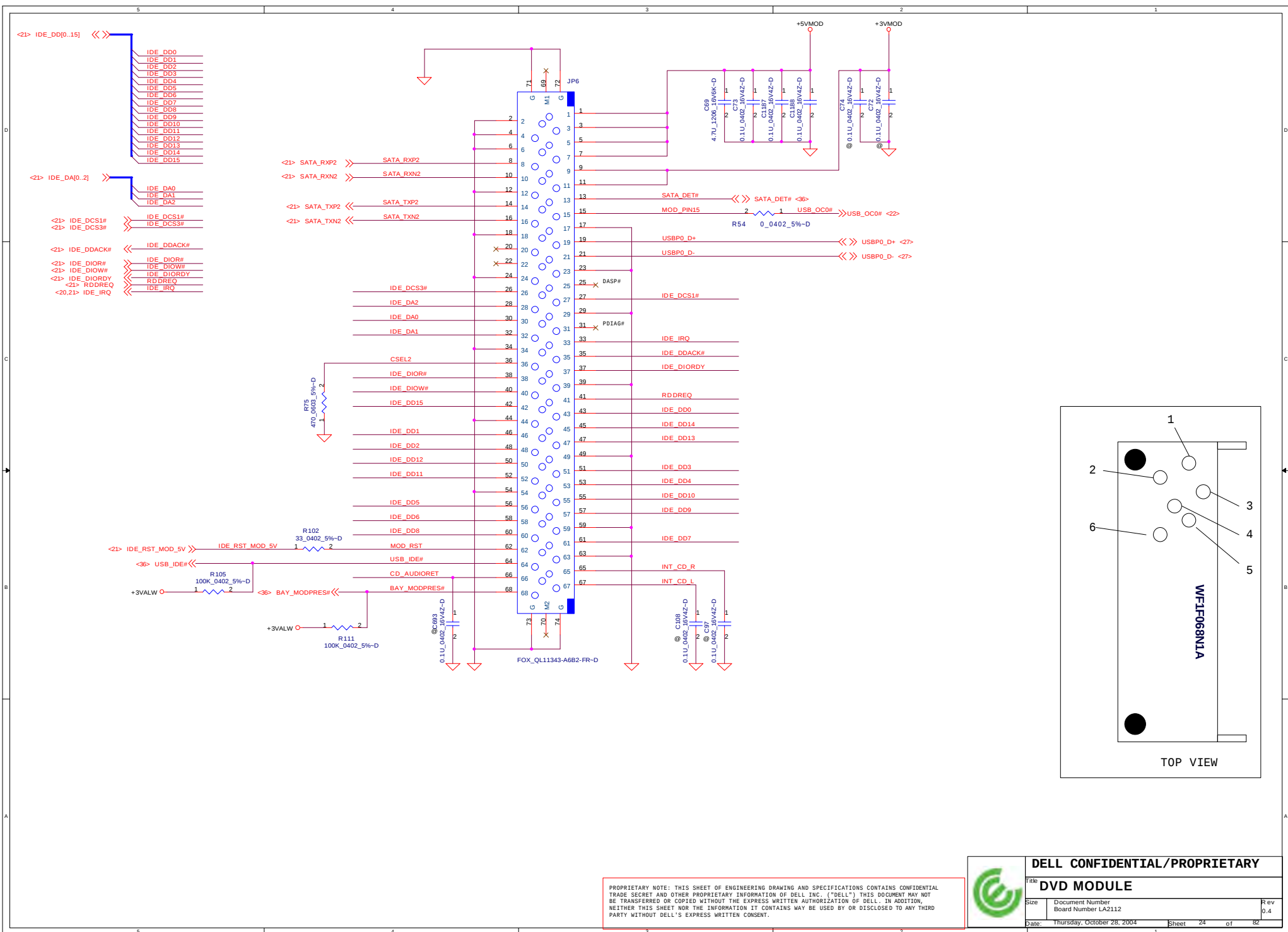


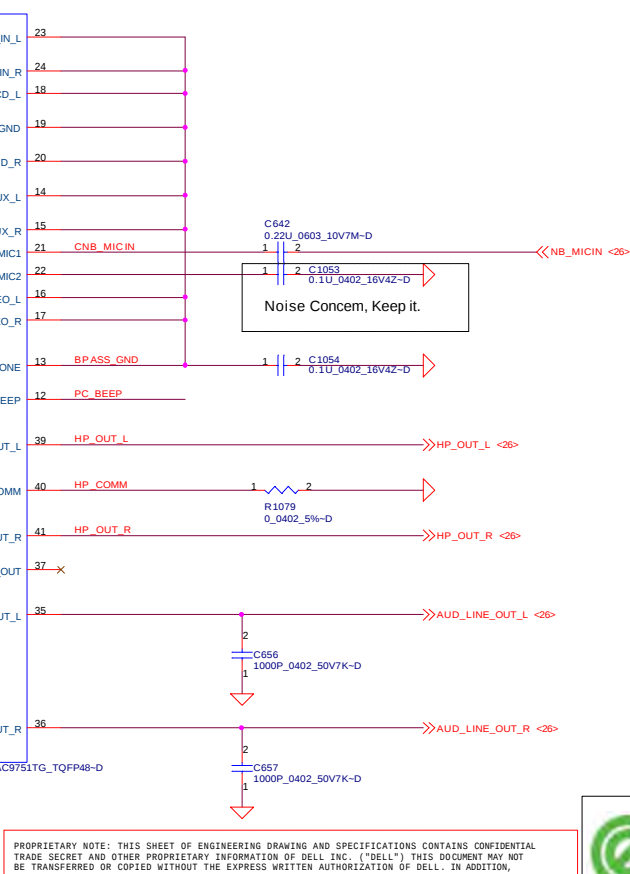
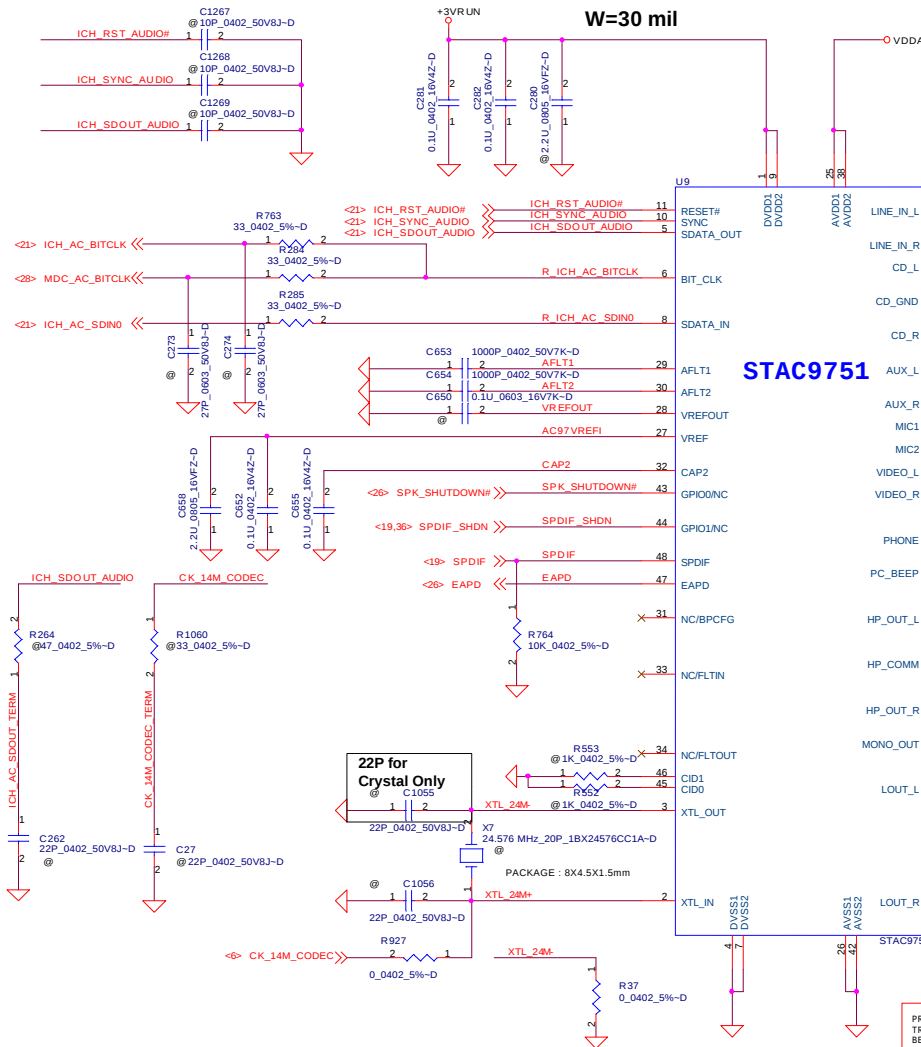
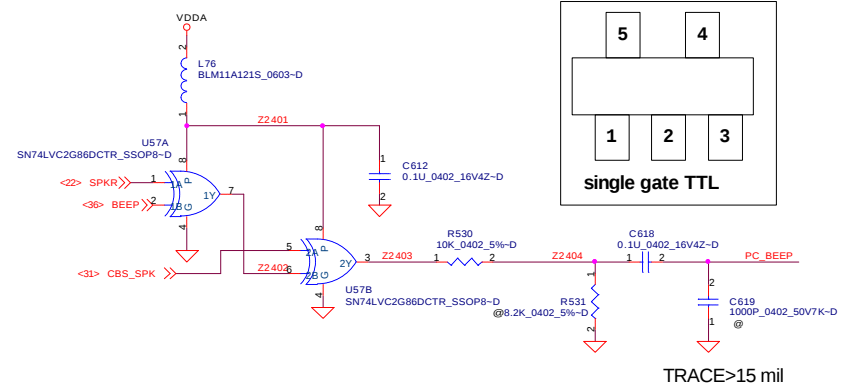
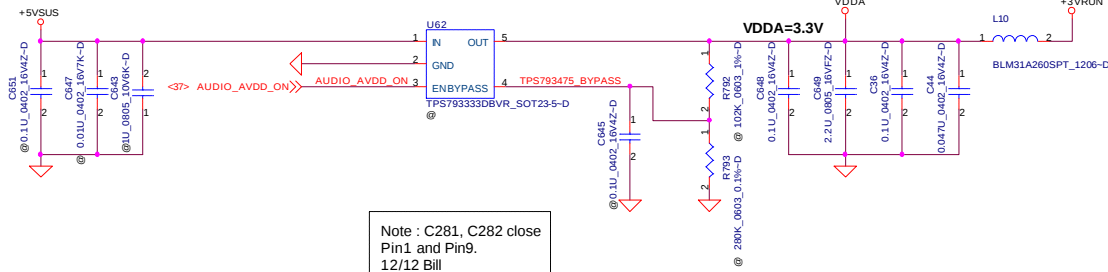
DELL CONFIDENTIAL/PROPRIETARY			
File	ICH6(1/4)		
Size	Document Number	Board Number	Rev
	LA2112		0.4
Date:	Thursday, October 28, 2004	Sheet	20 of 82





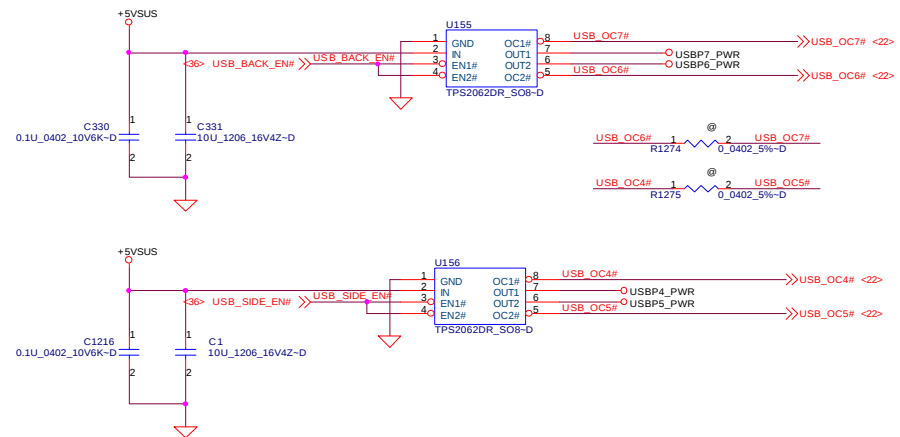
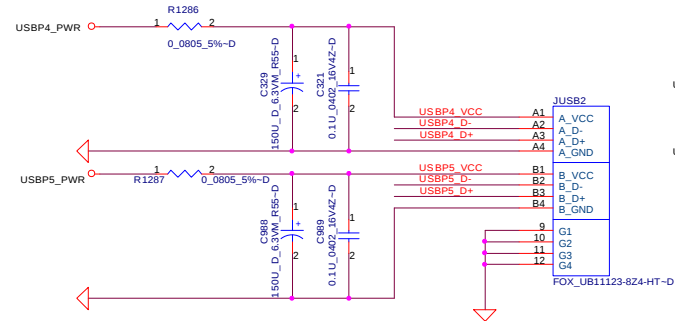
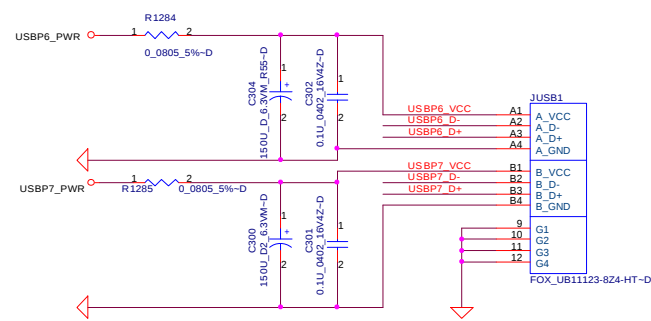
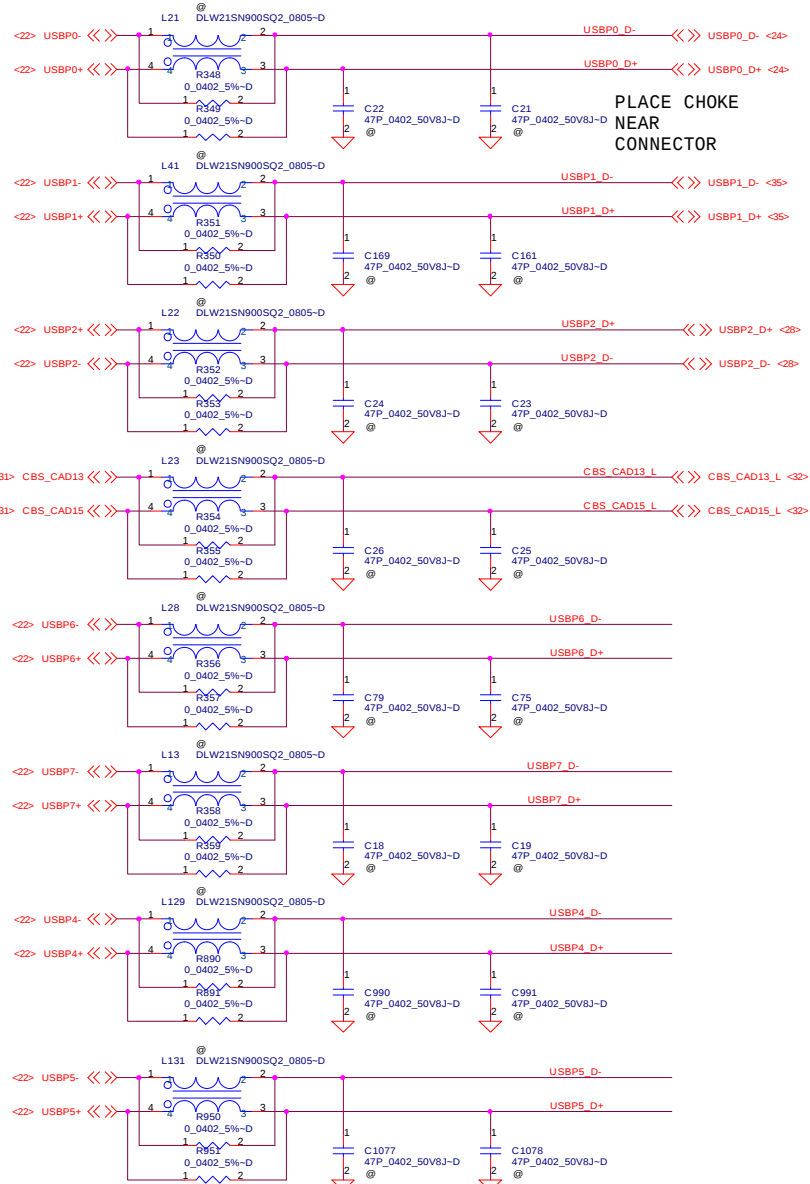




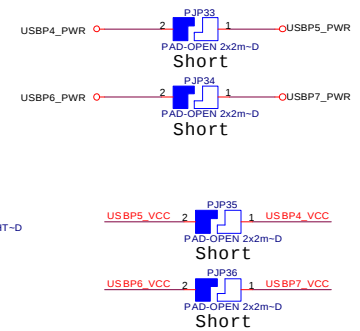


CLOCK SOURCE	Pin46 CID1	Pin45 CID0	Pin3 XTL OUT
14.318 MHz	OPEN	OPEN	GND
27 MHz	OPEN	1K	GND
48 MHz	1K	OPEN	GND
24.576 MHz	1K	1K	GND

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



USB PORT#	DESTINATION
0	FDD (module bay)
1	DOCK
2	MPCI (BlueTooth)
3	NEW Connector
4	USB Port 2(Top)
5	USB Port 2(Bottom)
6	USB Port 1(Top)
7	USB Port 1(Bottom)

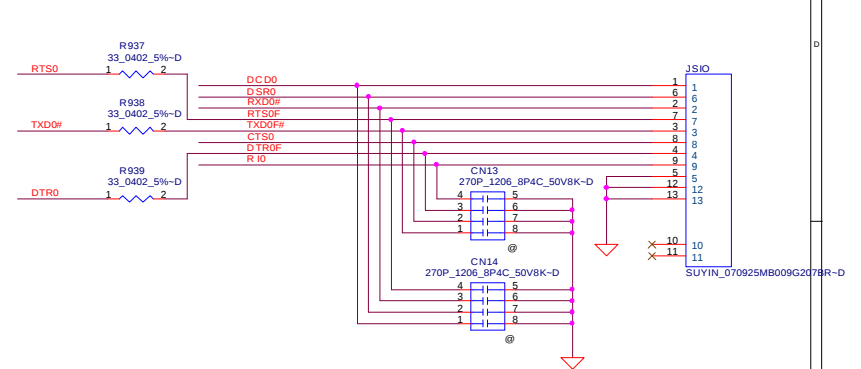
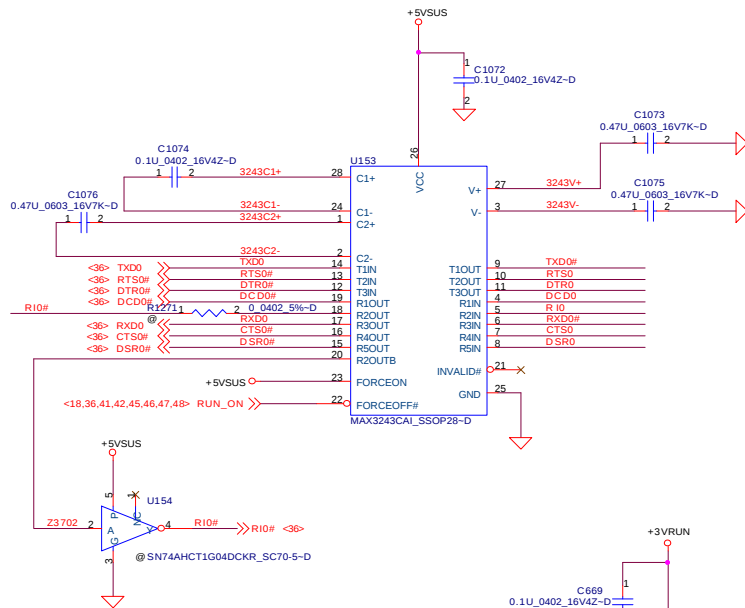


PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

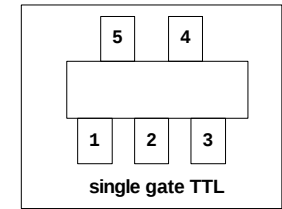
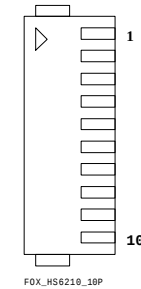


DELL CONFIDENTIAL/PROPRIETARY

Title USB 2.0		
Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 27 of 82



TOP view



New MDC connector.

1	GND	RES	2
3	IAC_SDATA0	RES	4
5	GND	3.3V	6
7	IAC_SYNC	GND	8
9	IAC_SDATAIN	GND	10
11	IAC_RESET#	IAC_BITCLK	12

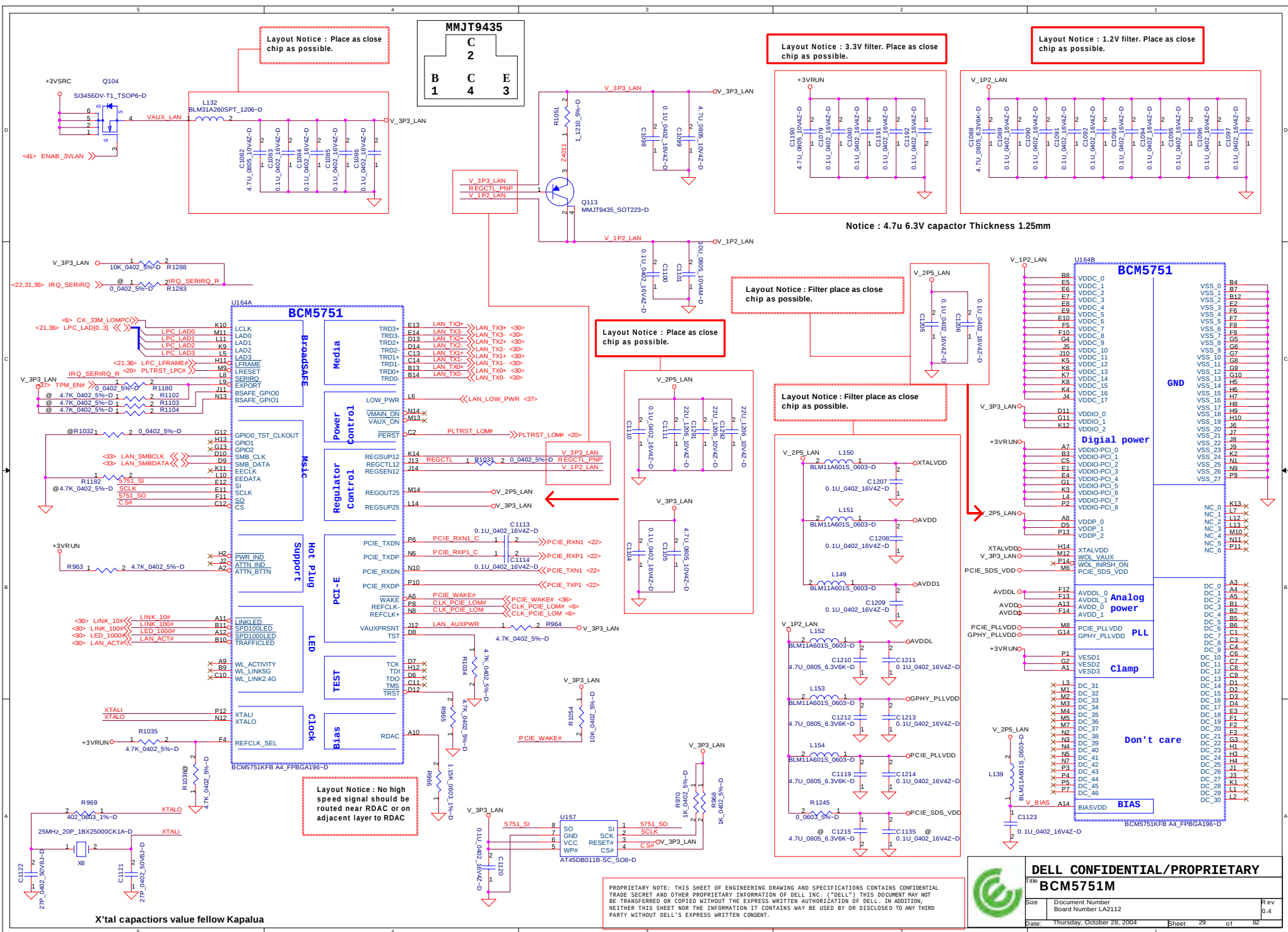
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

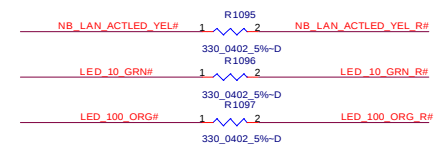
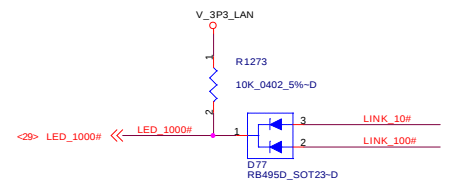
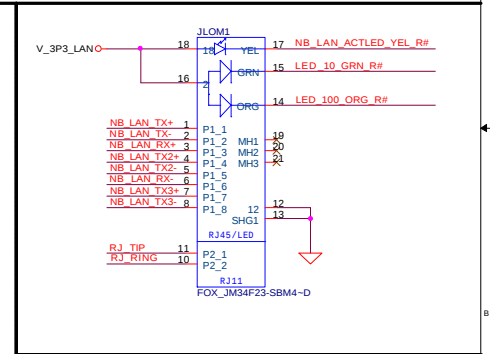
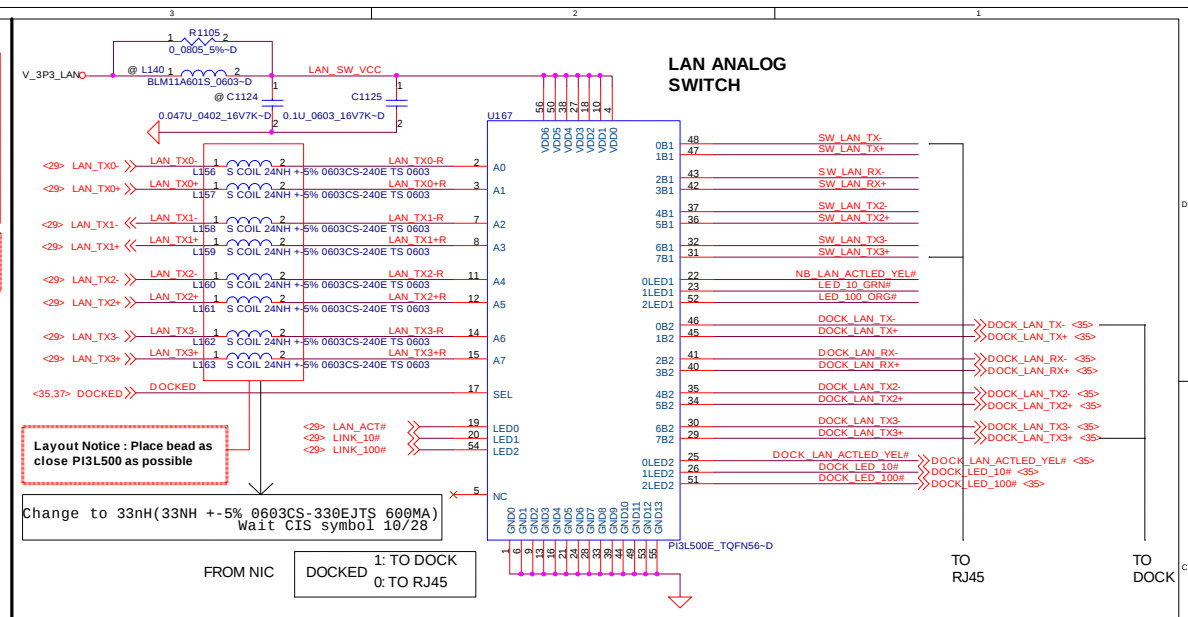


DELL CONFIDENTIAL/PROPRIETARY

Title BT PORT and MDC

Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 28 of 82



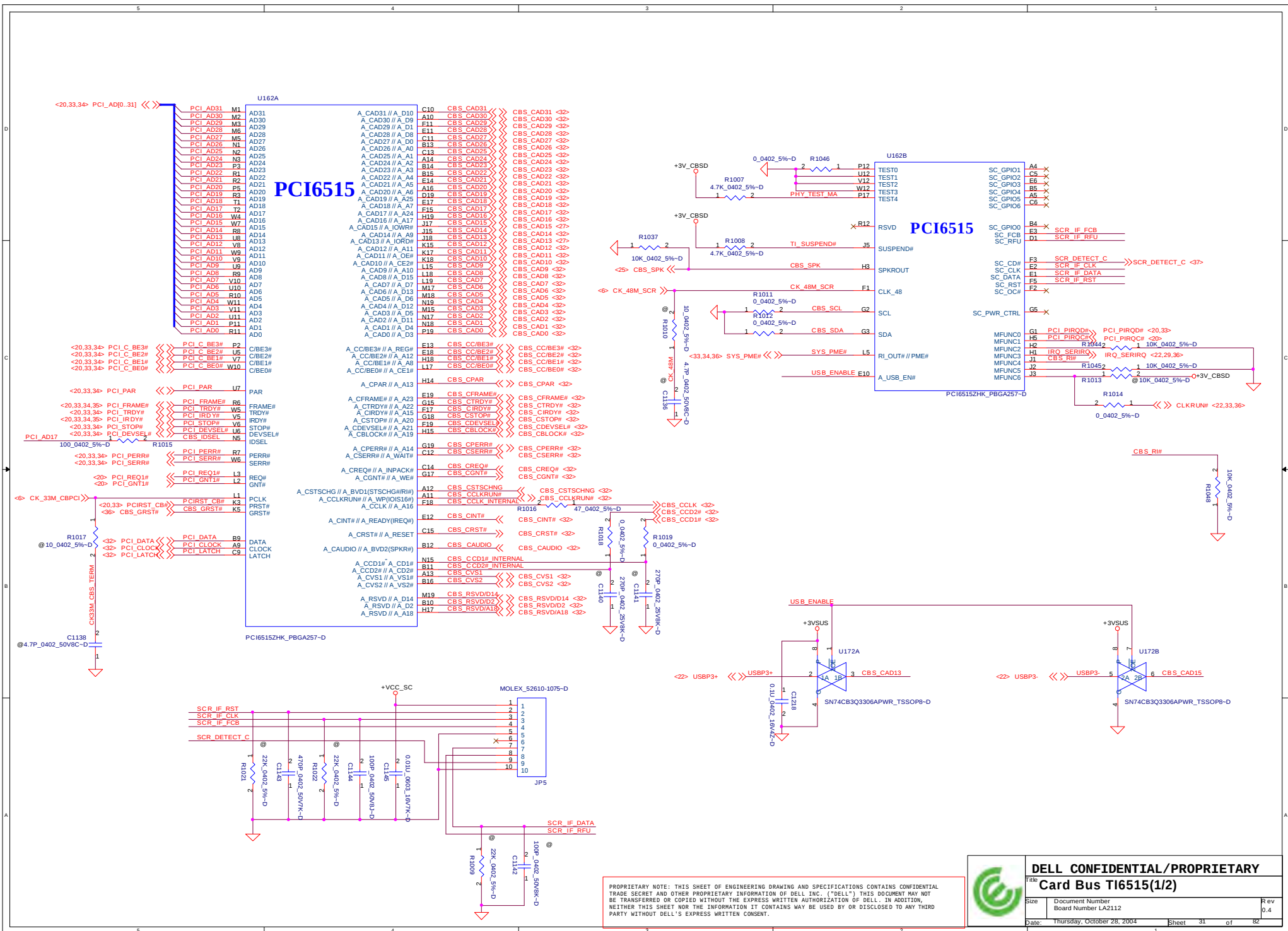


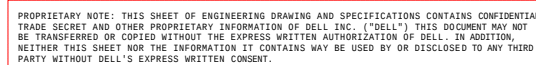
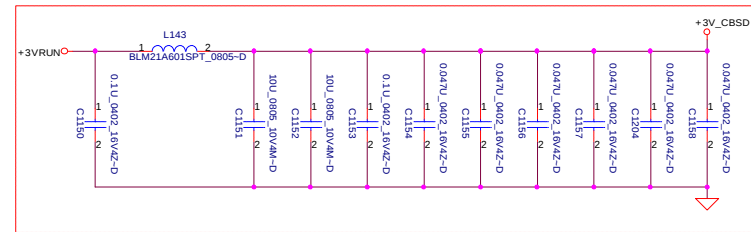
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



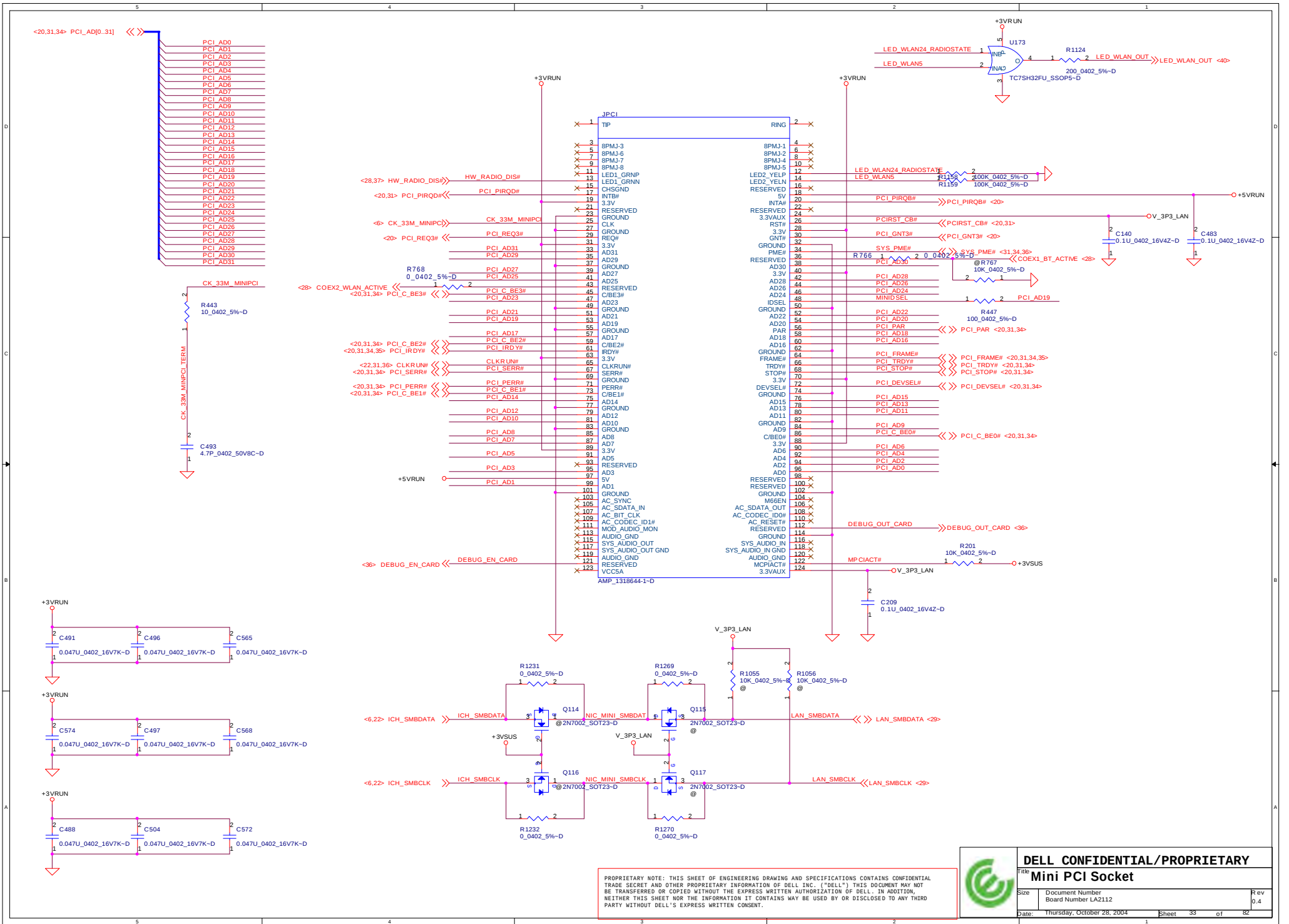
DELL CONFIDENTIAL/PROPRIETARY
Title **LAN TRANSFORMER**

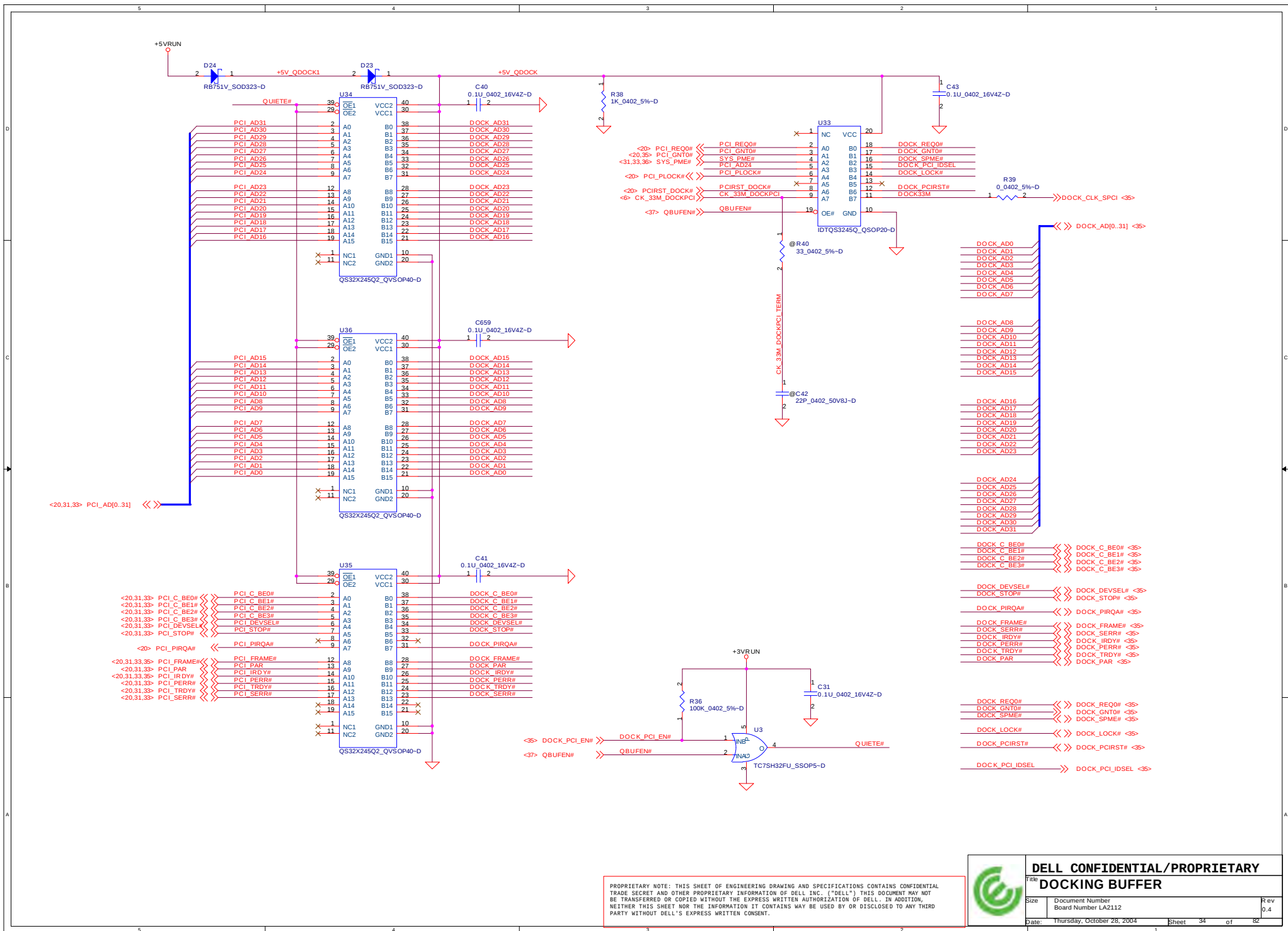
Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 30 of 82





Size	Document Number Board Number LA2112	Rev 0.4
Date	Thursday, October 28, 2004	Sheet 32 of 82



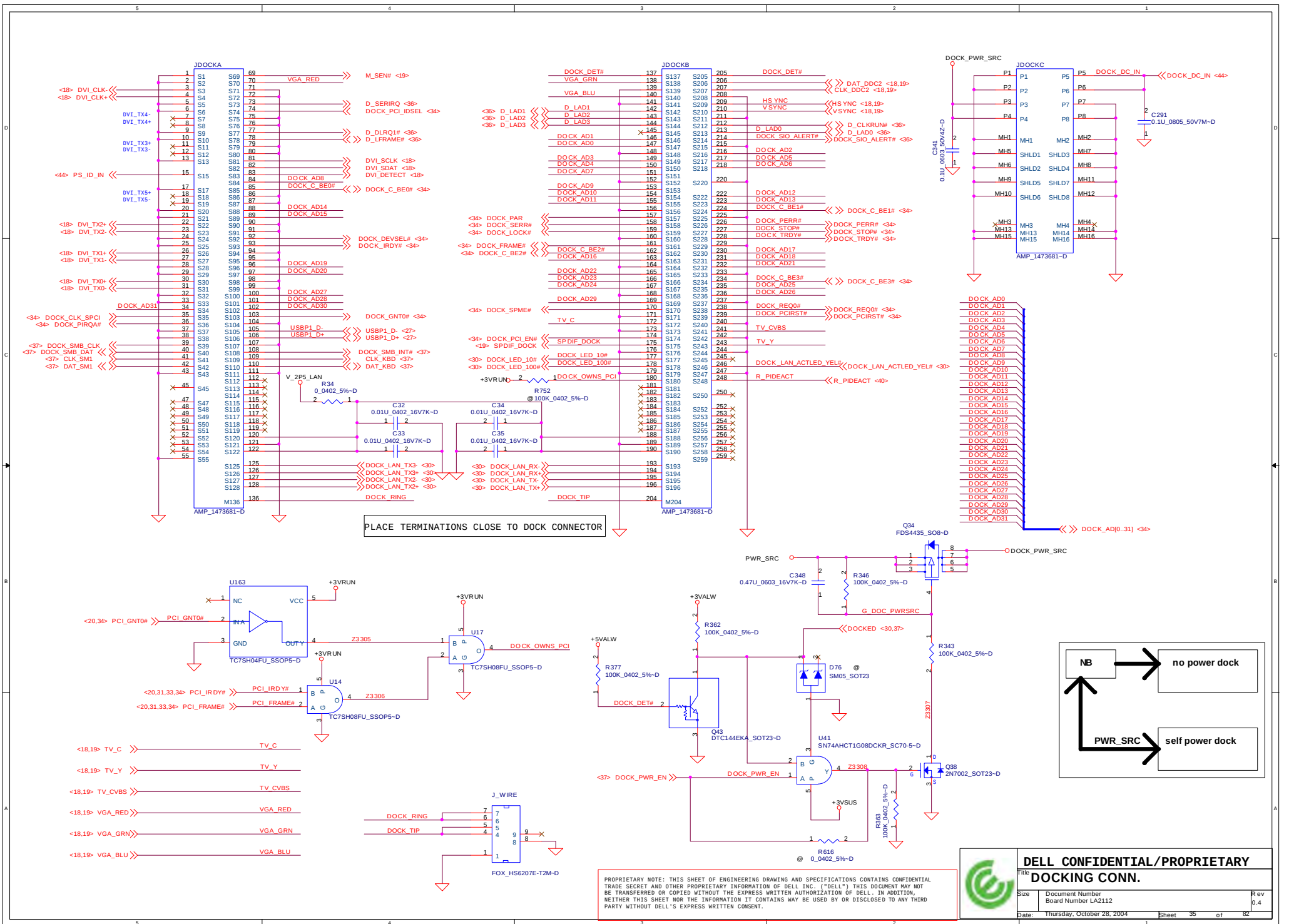


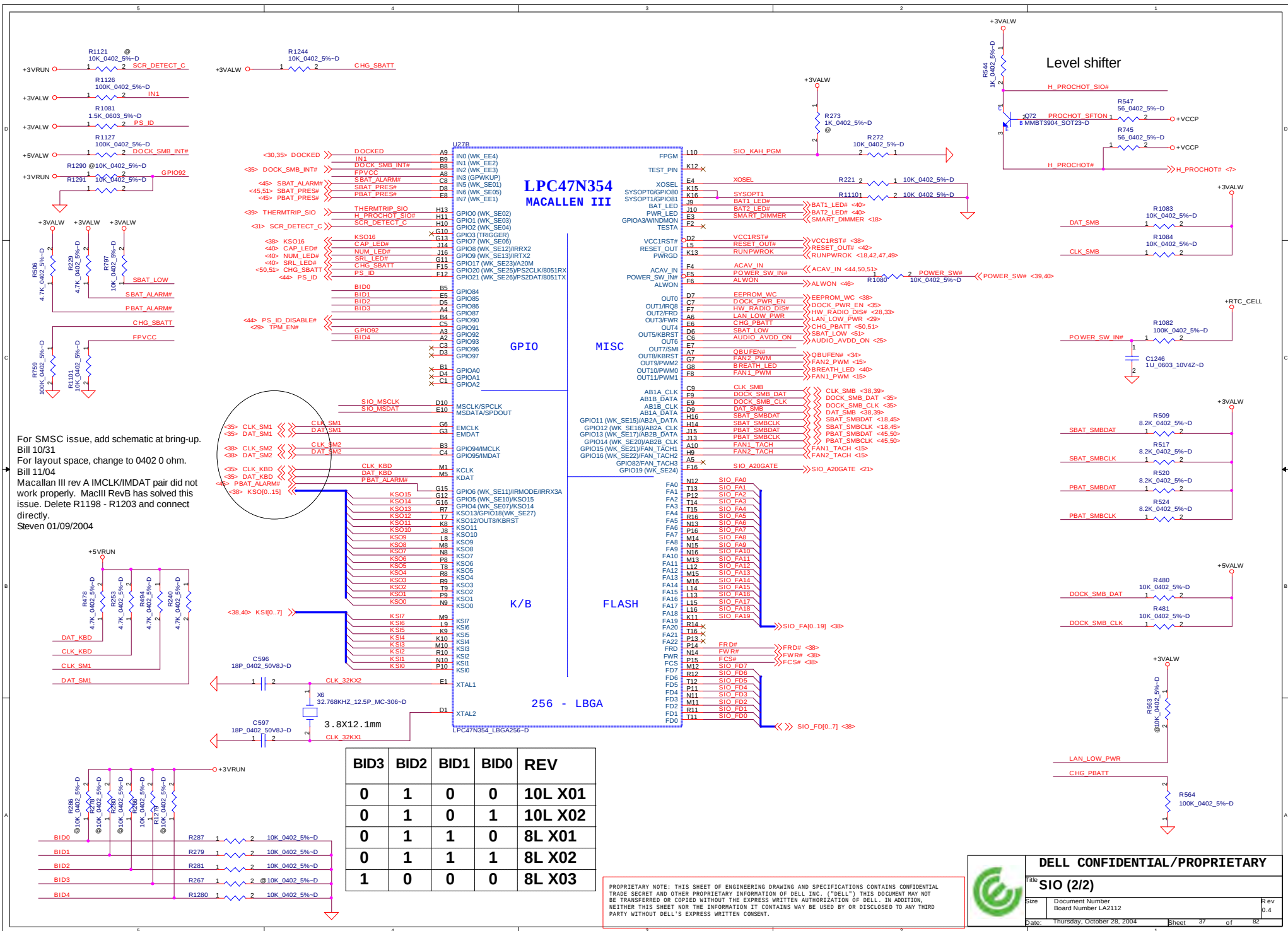
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

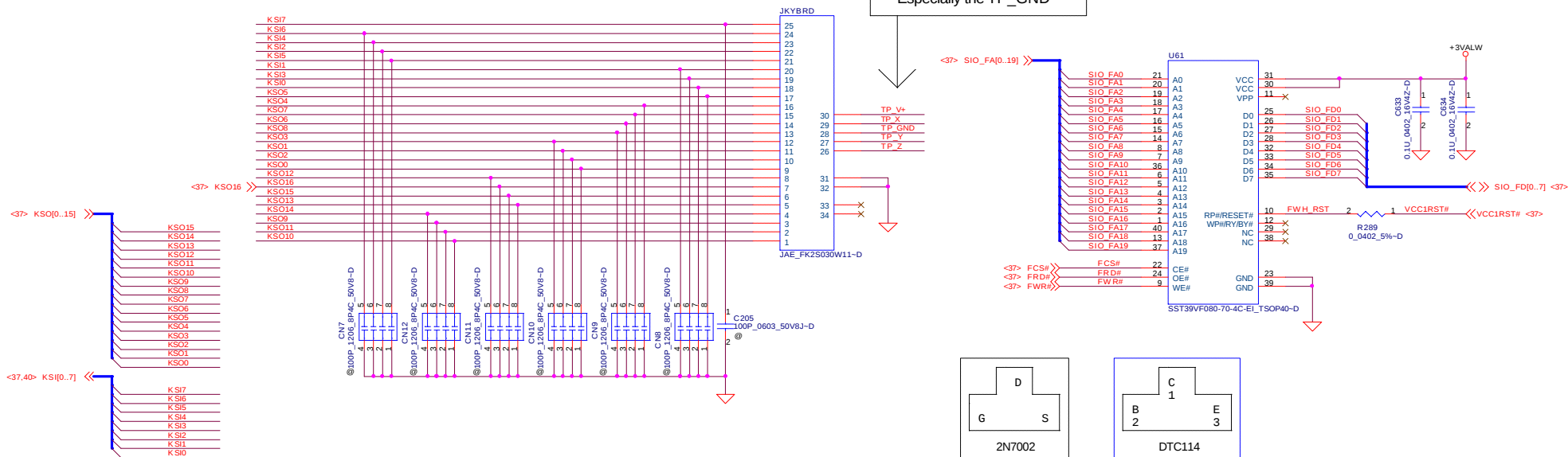
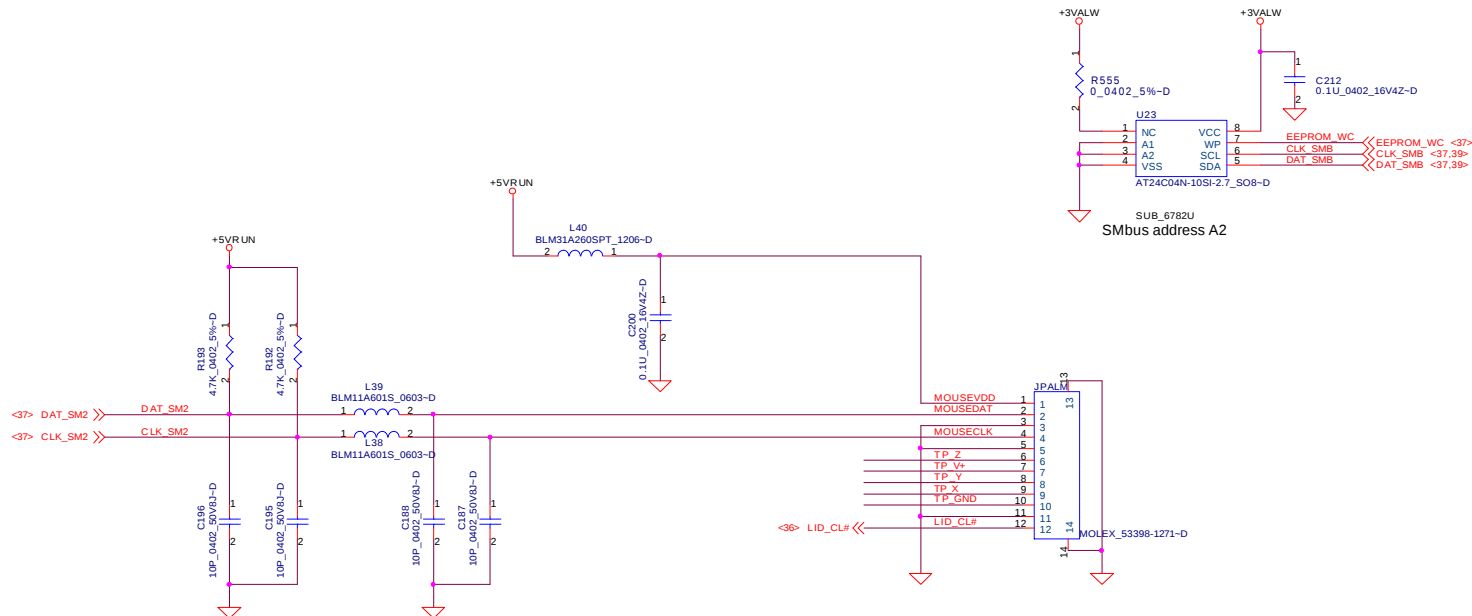


DELL CONFIDENTIAL/PROPRIETARY
DOCKING BUFFER

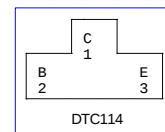
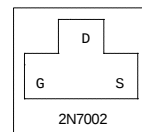
Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 34 of 82







Keep no nosie coupled,
Especially the TP_GND



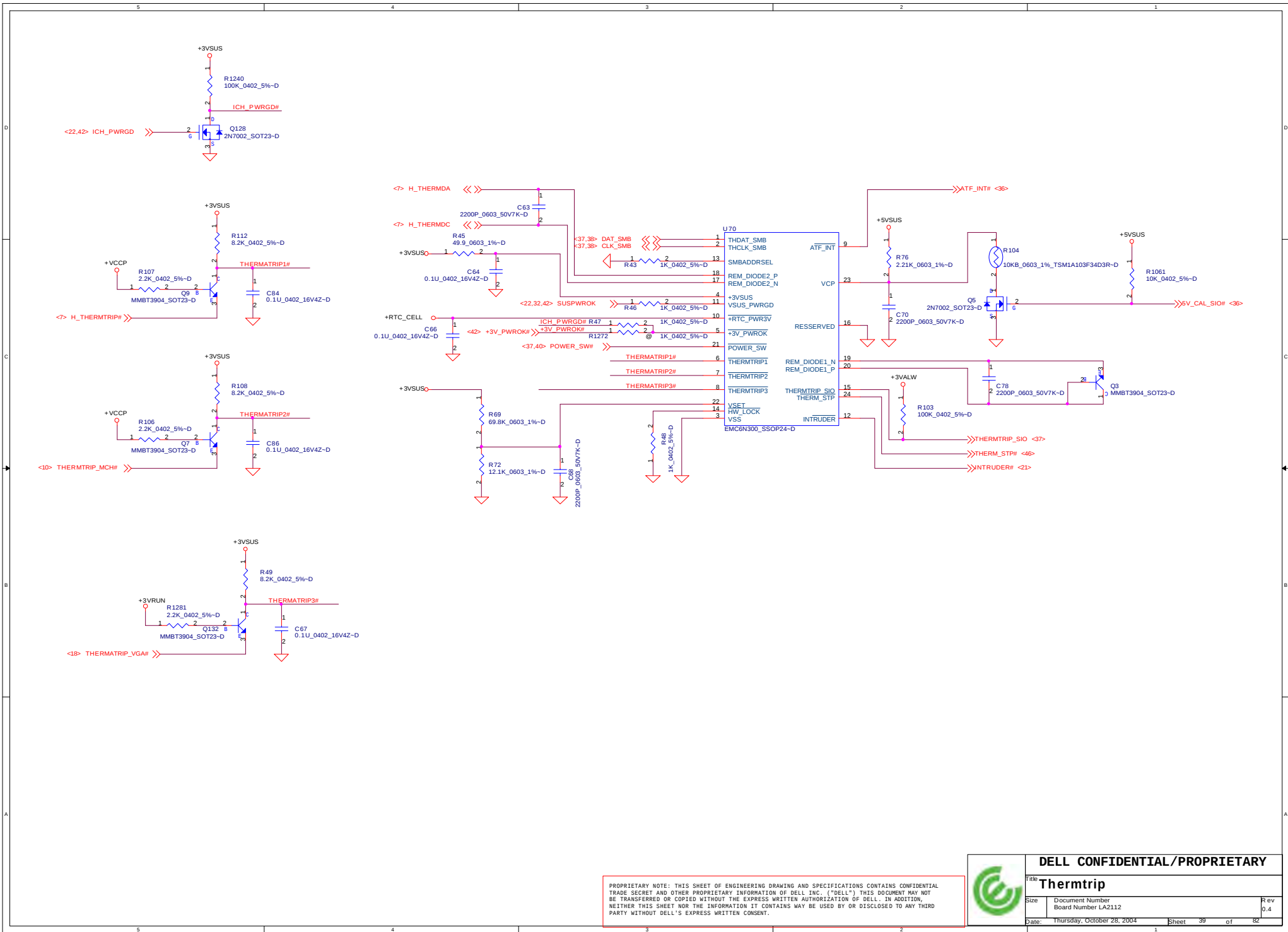
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY

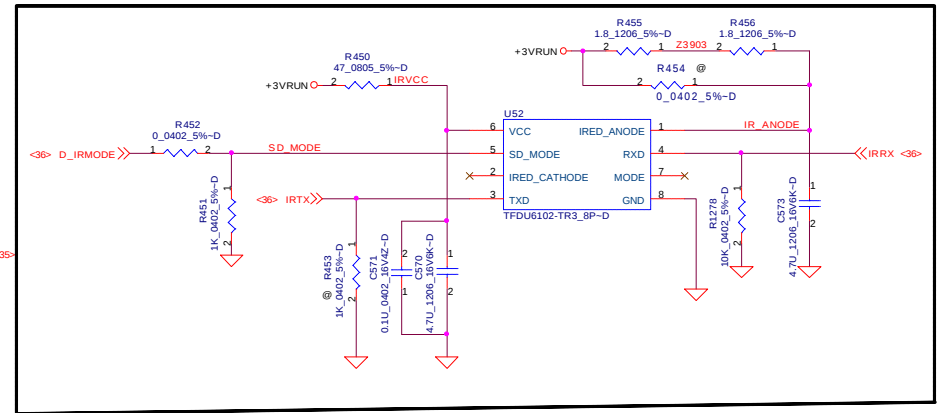
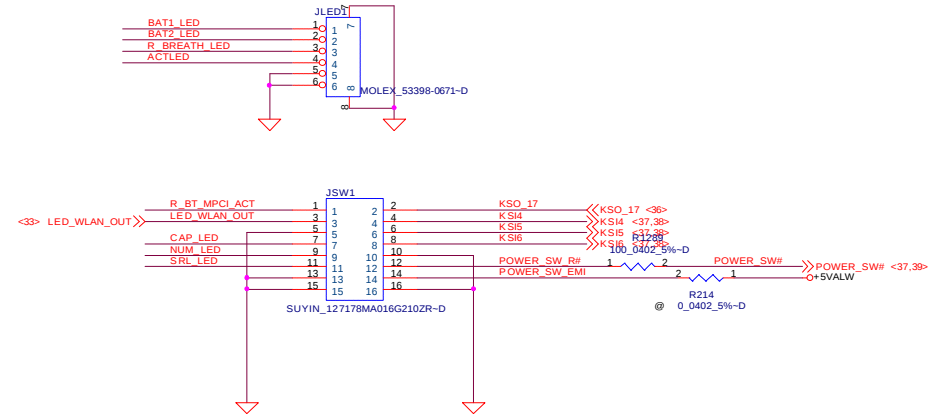
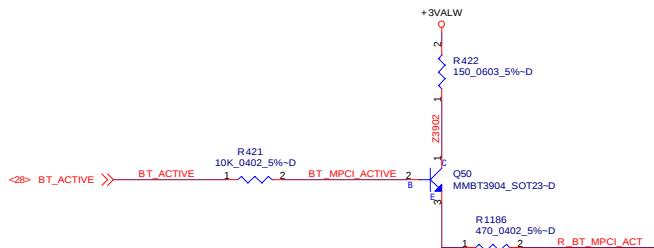
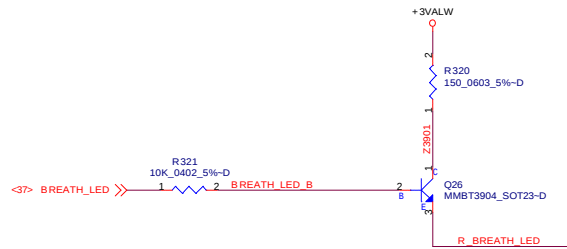
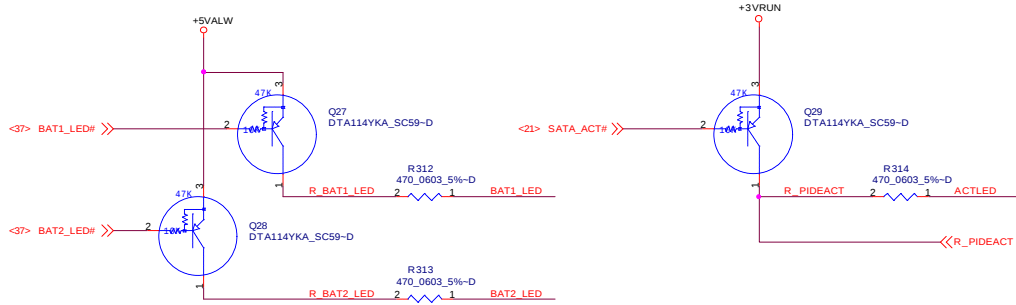
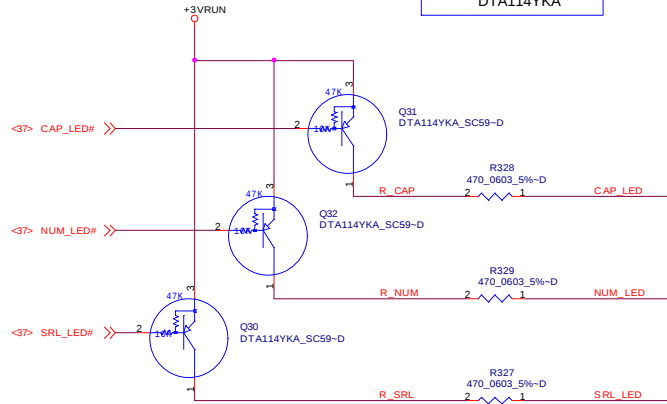
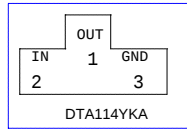
INT KB

Size	Document Number	Rev
	Board Number LA2112	0.4
Date:	Thursday, October 28, 2004	Sheet 38 of 82



DELL CONFIDENTIAL/PROPRIETARY

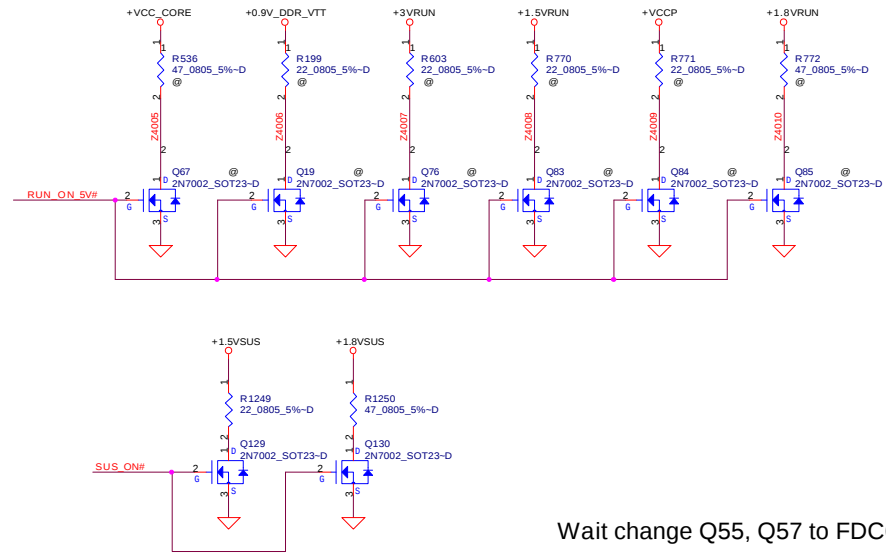
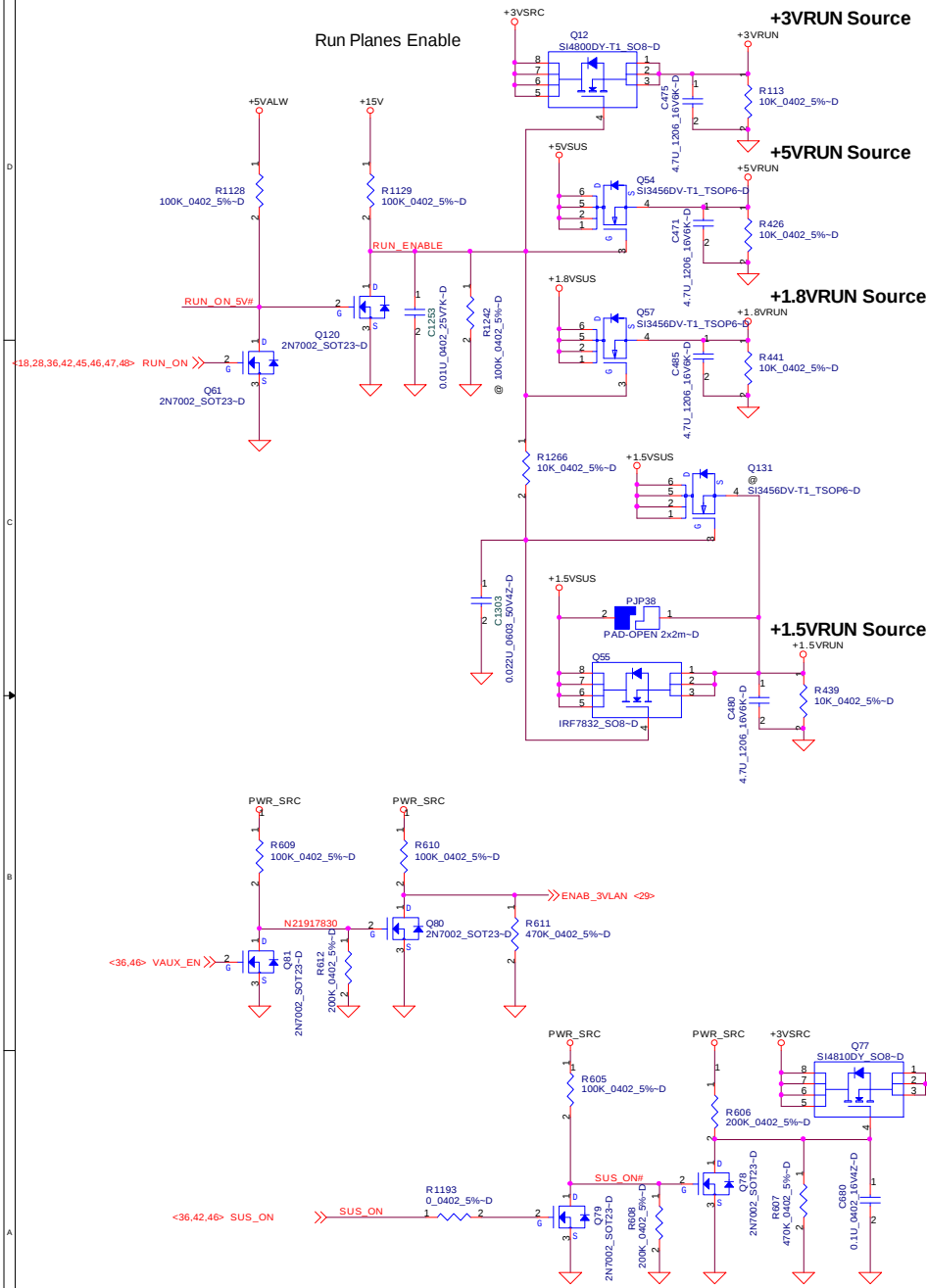
Title		Thermtrip	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	39 of 82



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY			
Title		JLED/IR/PS2	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	40 of 82

Run Planes Enable



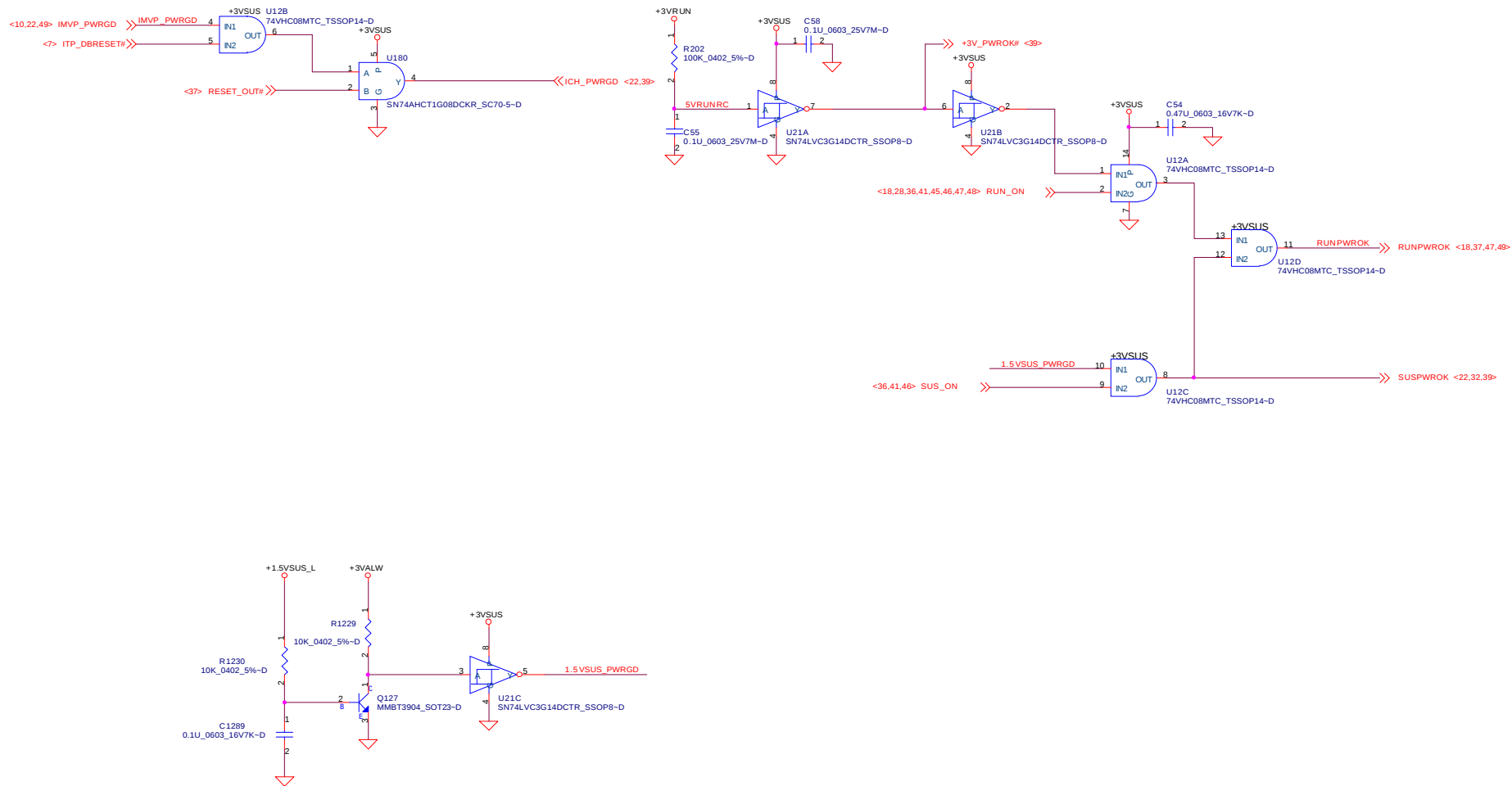
Wait change Q55, Q57 to FDC653N.

Delete +3VHDD Source.
Bill 11/06

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

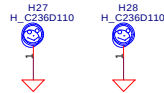
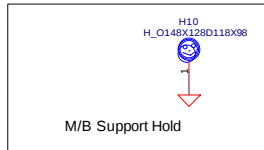
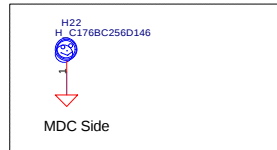
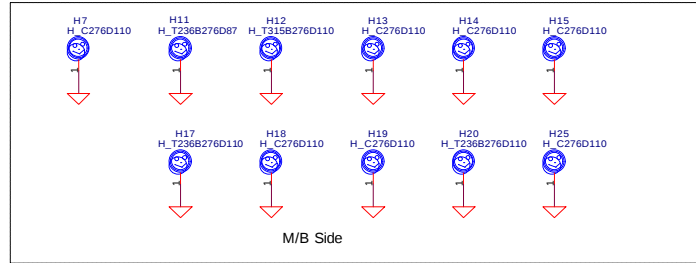
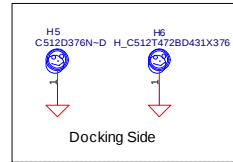
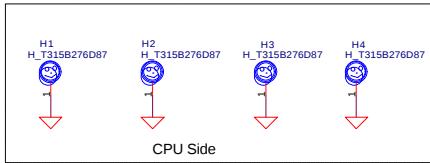


DELL CONFIDENTIAL/PROPRIETARY			
Title		POWER CONTROL	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	41 of 82

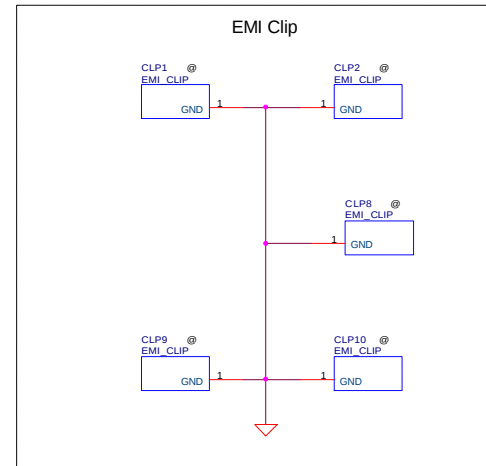
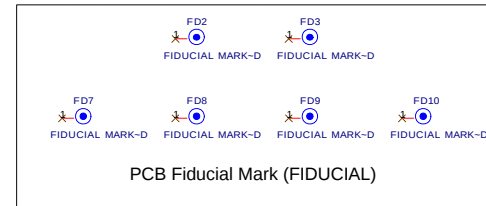
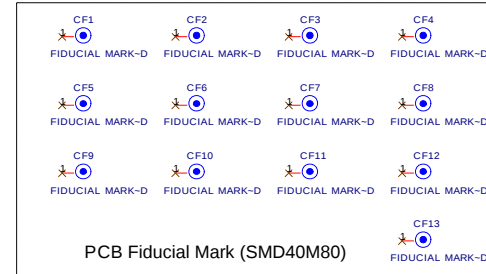


PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY			
Title	Power Sequence		
	Size	Document Number Board Number LA2112	Rev 0.4
Date:	Thursday, October 28, 2004	Sheet 42 of 82	



Fiducial Mark



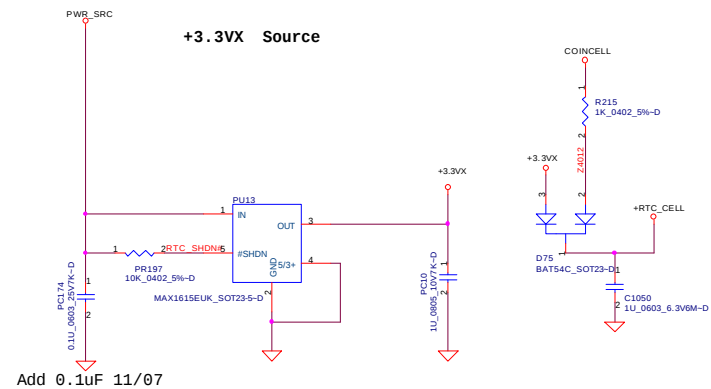
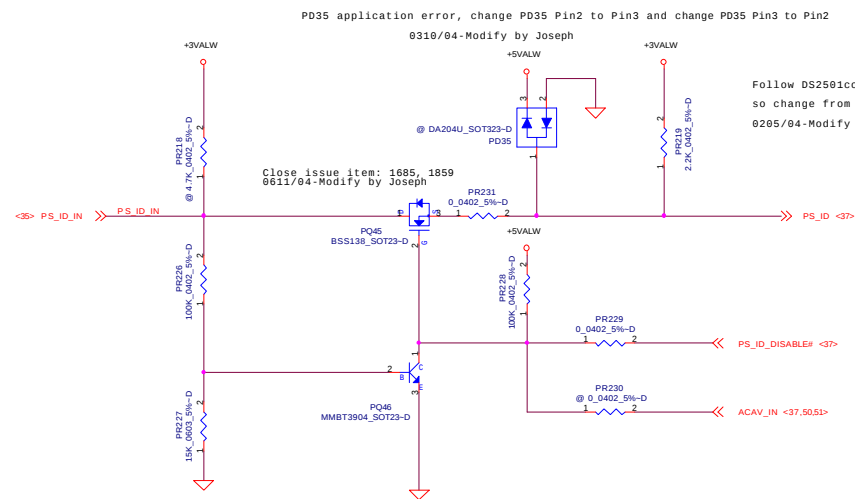
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



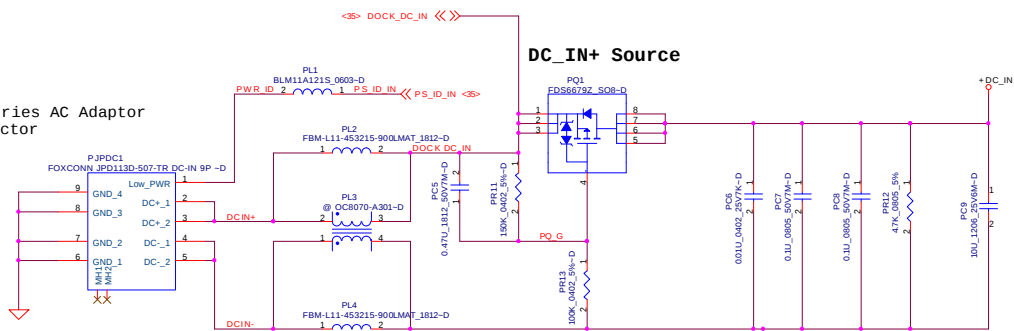
DELL CONFIDENTIAL/PROPRIETARY

File: PAD and Standoff

Size: Document Number Board Number LA2112 Rev 0.4
Date: Thursday, October 28, 2004 Sheet 43 of 82



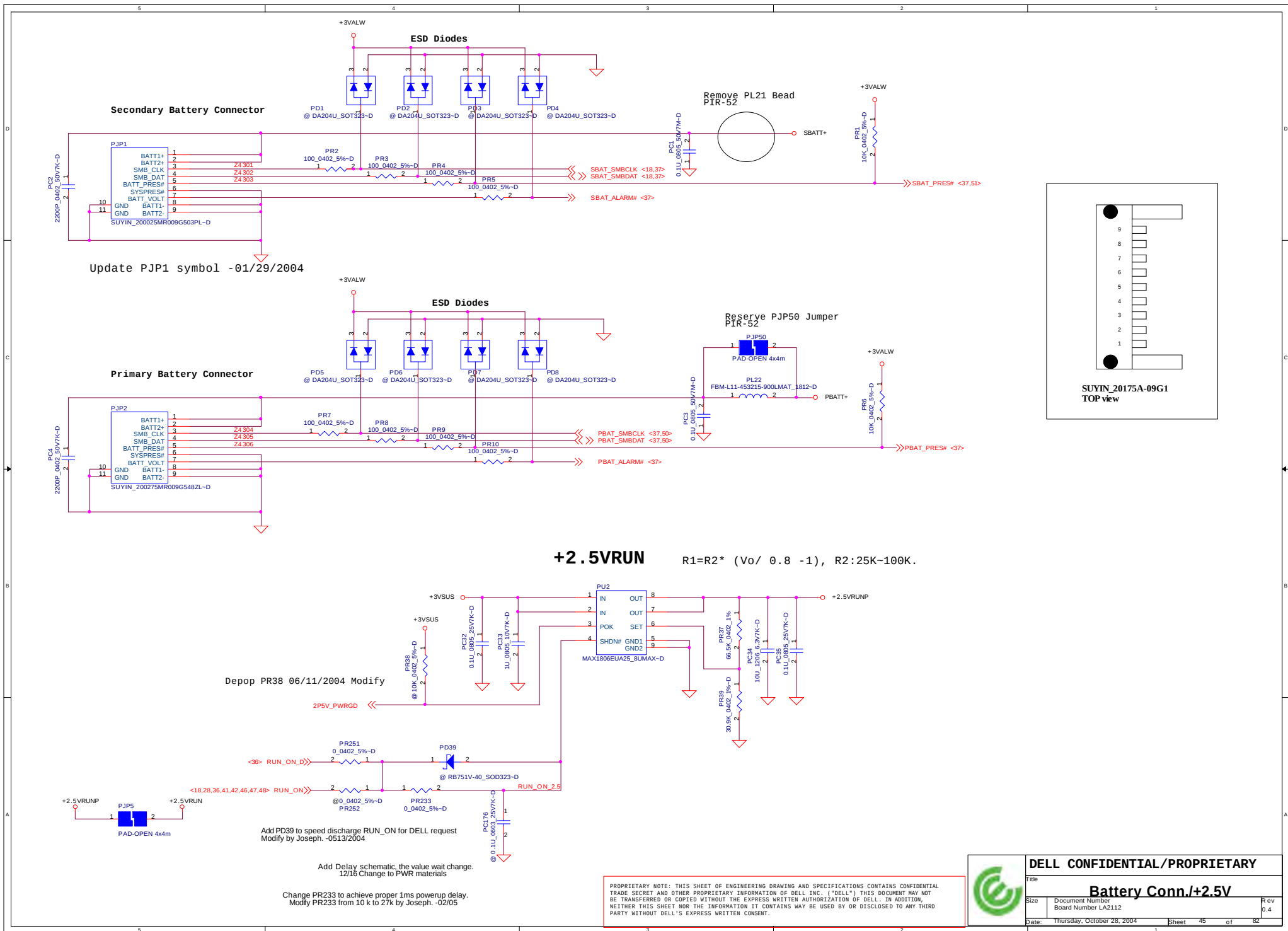
Z-series AC Adaptor Connctor



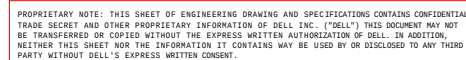
THE POINT
 NOTE: "THE POINT LOCATED
 AT PS MODULE"

PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
 TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
 BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
 NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRDO
 PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY			
Title		+DCIN	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date	Thursday, October 28, 2004	Sheet	44 of 82



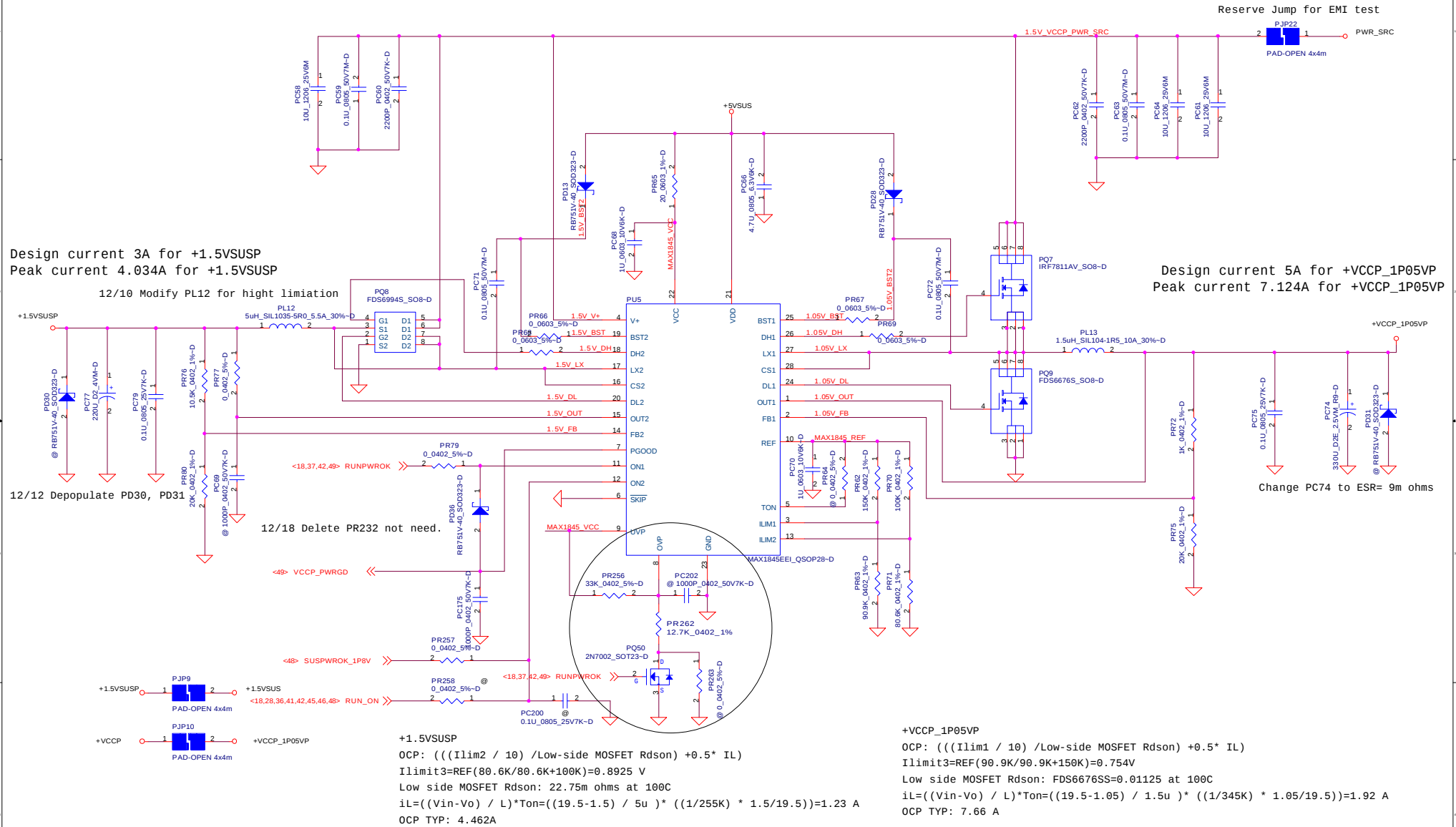
Modify by Joseph 01/28/04



+3.3V/+5V/+15V

Title			
+3.3V/+5V/+15V			
Size	Document Number Board Number LA2112		Rev 3.4
Date:	Thursday, October 28, 2004	Sheet 46 of 82	

+1.5VSUSP / +VCCP_1P05VP



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY

Title	+1.5VSUSP /+VCCP 1P05VP
-------	--------------------------------

Size	Document Number Board Number LA2112
------	--

Date: Thursday, October 28, 2004 Sheet 47 of 82

Rev	
0.4	

+1.8VSUSP/ +0.9V_DDR_VTT DDR2 Termination

MAX8550	MAX8550A
POP PR239	DEPOP PR239
POP PQ49	DEPOP PQ49
DEPOP PR250	POP PR250
POP PR254	DEPOP PR254
DEPOP PR255	POP PR255

Modify by Joseph -06/11/2004

Reserve when use MAX8550A
Modify by Joseph -05/12/2004

Update design current to 10.6A -0128/04
Design current 10.6A for +1.8V_SUSP

Update symbol -0502
Modify by Joseph -0502

0305/2004-Modify by Joseph.

0202/04-Modify by Joseph

Install jumper on PJP32 pad and depop PJP31
0207/2004

0205/04- Reserve PC198. Modify by Joseph
Change from 22uF to 10uF for cost down.
Pop PC198. Modify by Joseph -06/02/2004

For issue 1807 Add a 0-ohm No Pop Resistor that
connects to pin 1 of PR243 and to 1.8_VDD at pin 2 of PC182
Modify by Joseph -0502

0128/04-Modify by Joseph for updated OCP.
0202/04-Modify by Joseph

Install jumper on PJP30 pad.

+1.8VSUSP
OCP: $((I_{lim} / 10) / \text{Low-side MOSFET } R_{ds(on)} + 0.5) \cdot I_L$
 $I_{limit} = \text{REF}(53.6K/53.6K+100K)=0.6979 \text{ V}$
Low side MOSFET $R_{ds(on)}$: 6.5m ohms at 100C
 $I_L = ((V_{in} - V_o) / L) \cdot T_{on} = ((19.5 - 1.8) / 1.4 \mu) \cdot ((1/450K) \cdot 1.8/19.5) = 2.59A$
OCP TYP: 11.37A

(10A, 320mils, Via NO.=20)

(2A, 200mils, Via NO.=4)

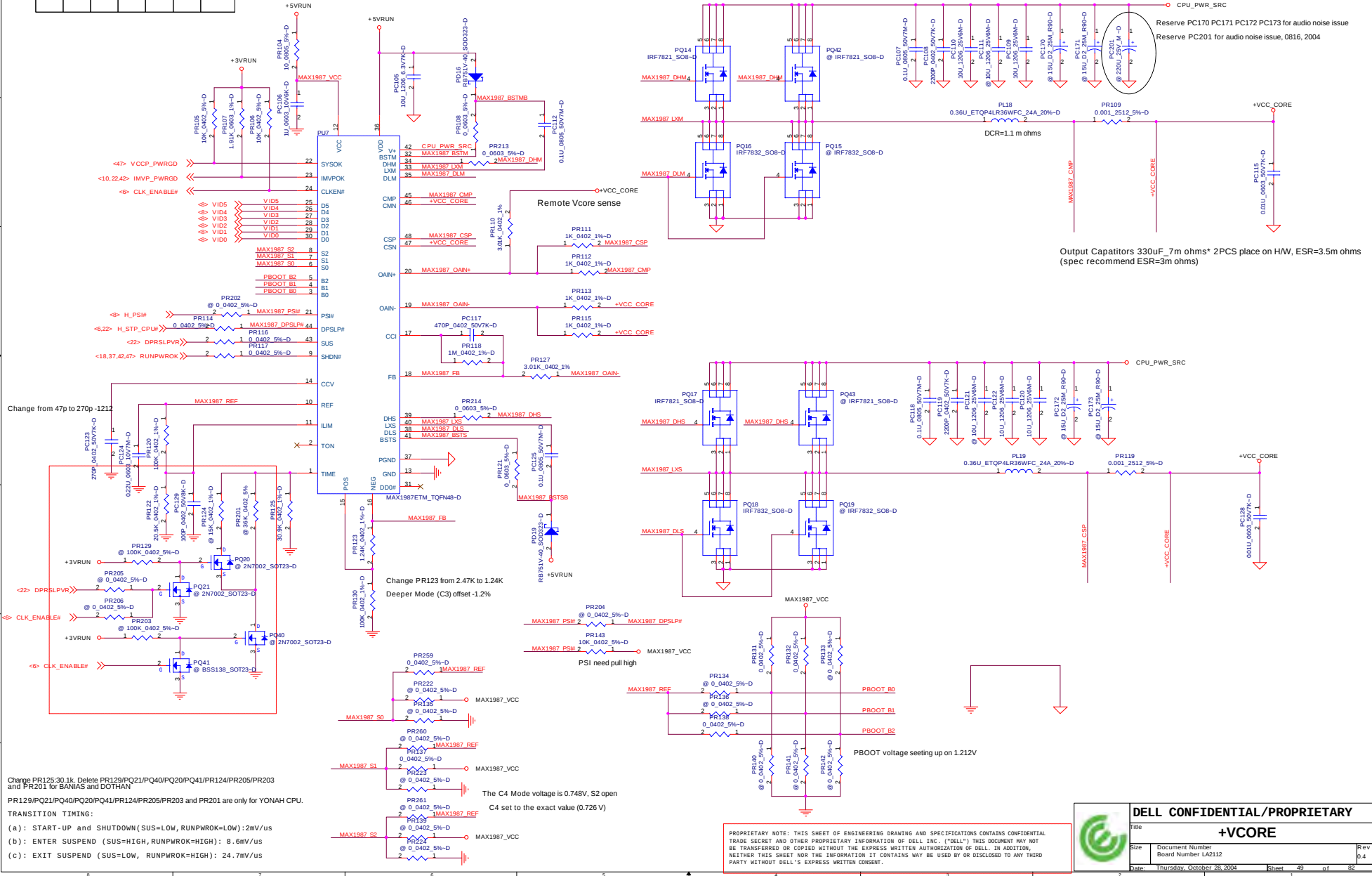
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL
TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT
BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION,
NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD
PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY

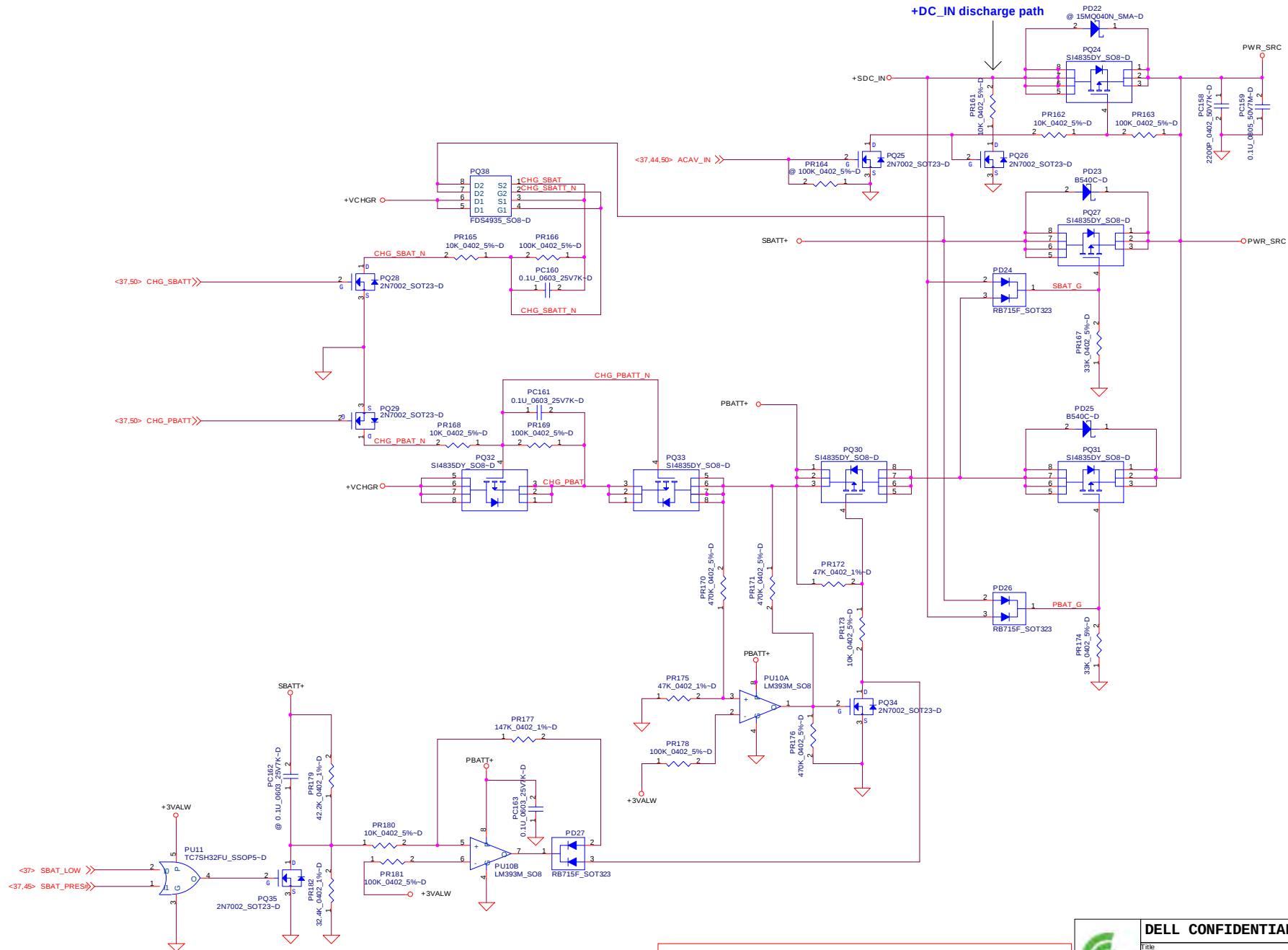
Title
+1.8VSUSP/ +0.9V_DDR_VT
Size Document Number
Board Number LA2112
Date Thursday, October 28, 2004 Sheet 48 of 82

V I D						Vcore
VID 5	VID 4	VID 3	VID 2	VID 1	VID 0	V
0	1	1	1	1	0	1.484
0	1	1	0	0	1	1.308
1	0	1	1	1	1	0.956
1	1	1	1	0	0	0.748



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL, INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.

DELL CONFIDENTIAL/PROPRIETARY			
Title		+VCCORE	
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date	Thursday, October 28, 2004	Sheet	49 of 82



PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL"). THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.



DELL CONFIDENTIAL/PROPRIETARY

Title			Selector
Size	Document Number	Rev	
	Board Number LA2112	0.4	
Date:	Thursday, October 28, 2004	Sheet	51 of 82

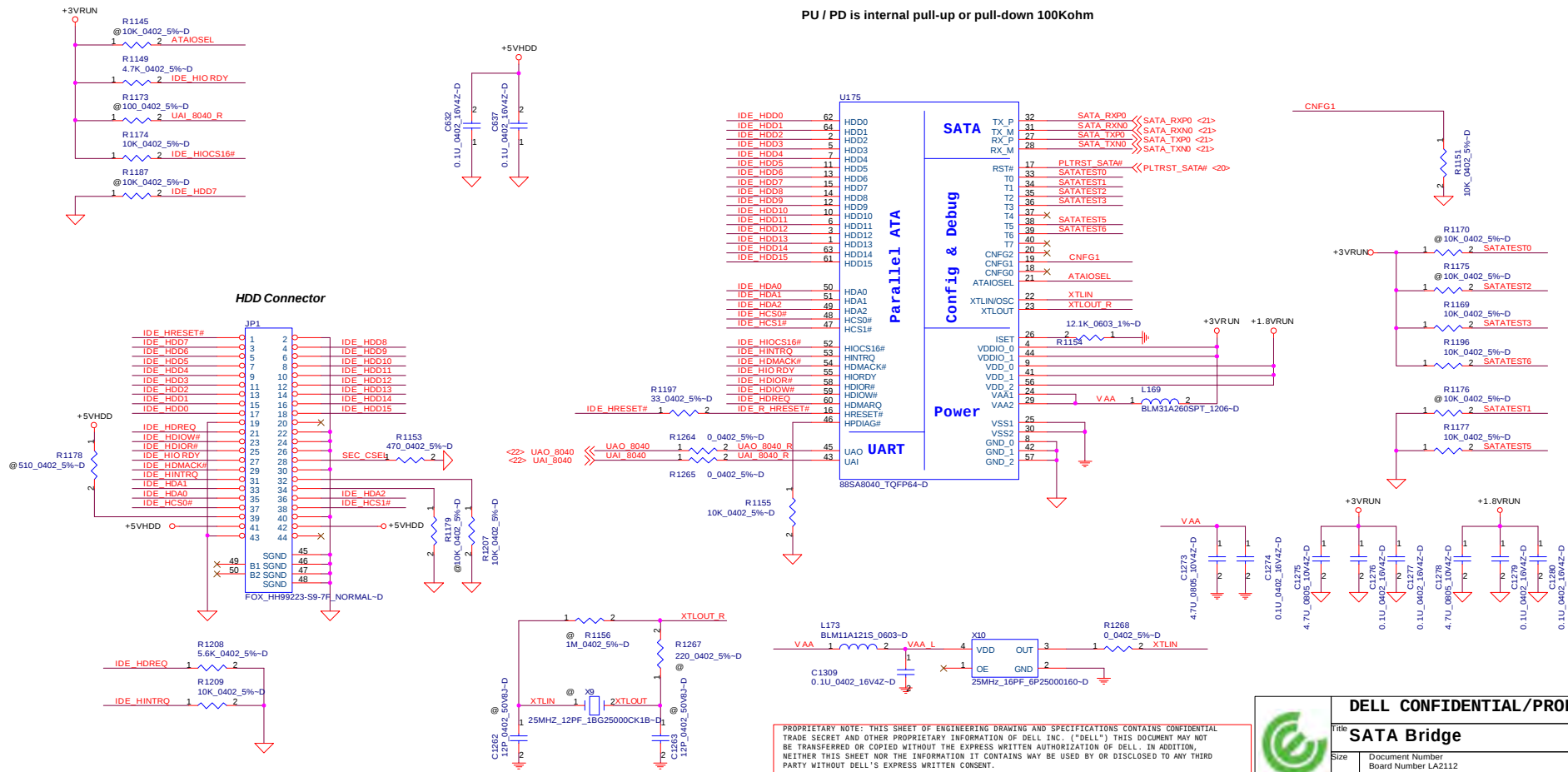
SATATEST3	SATATEST4	
0	0	20MHz
0	1	25MHz
1	0	30MHz
1	1	40MHz

Pin Name	Pin No.	Int. PU/PD	Settings
SATATEST0	33	PD	NC
SATATEST1	34	PU	NC
SATATEST2	35	PD	NC
SATATEST3	36	PD	1
SATATEST4	37	PD	NC
SATATEST5	38	PU	0
SATATEST6	39	PD	NC
SATATEST7	40	PD	NC
CFG0	20	PD	NC
CFG1	19	PU	0
CFG2	18	PD	NC

Sets maximum transfer rate and UDMA mode

CNFG2	CNFG1	CNFG0	NOTE
0	0	0	Device Mode 100MB/s
0	0	1	Device Mode 133MB/s
0	1	0	Device Mode 150MB/s
1	0	0	Host Mode 100MB/s
1	0	1	Host Mode 133MB/s
1	1	0	Host Mode 150MB/s
0	1	1	Reserved
1	1	1	Reserved

PU / PD is internal pull-up or pull-down 100Kohm



DELL CONFIDENTIAL/PROPRIETARY

File: SATA Bridge

Size: Document Number Board Number LA2112 Rev 0.4

Date: Thursday, October 28, 2004 Sheet 52 of 82