

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

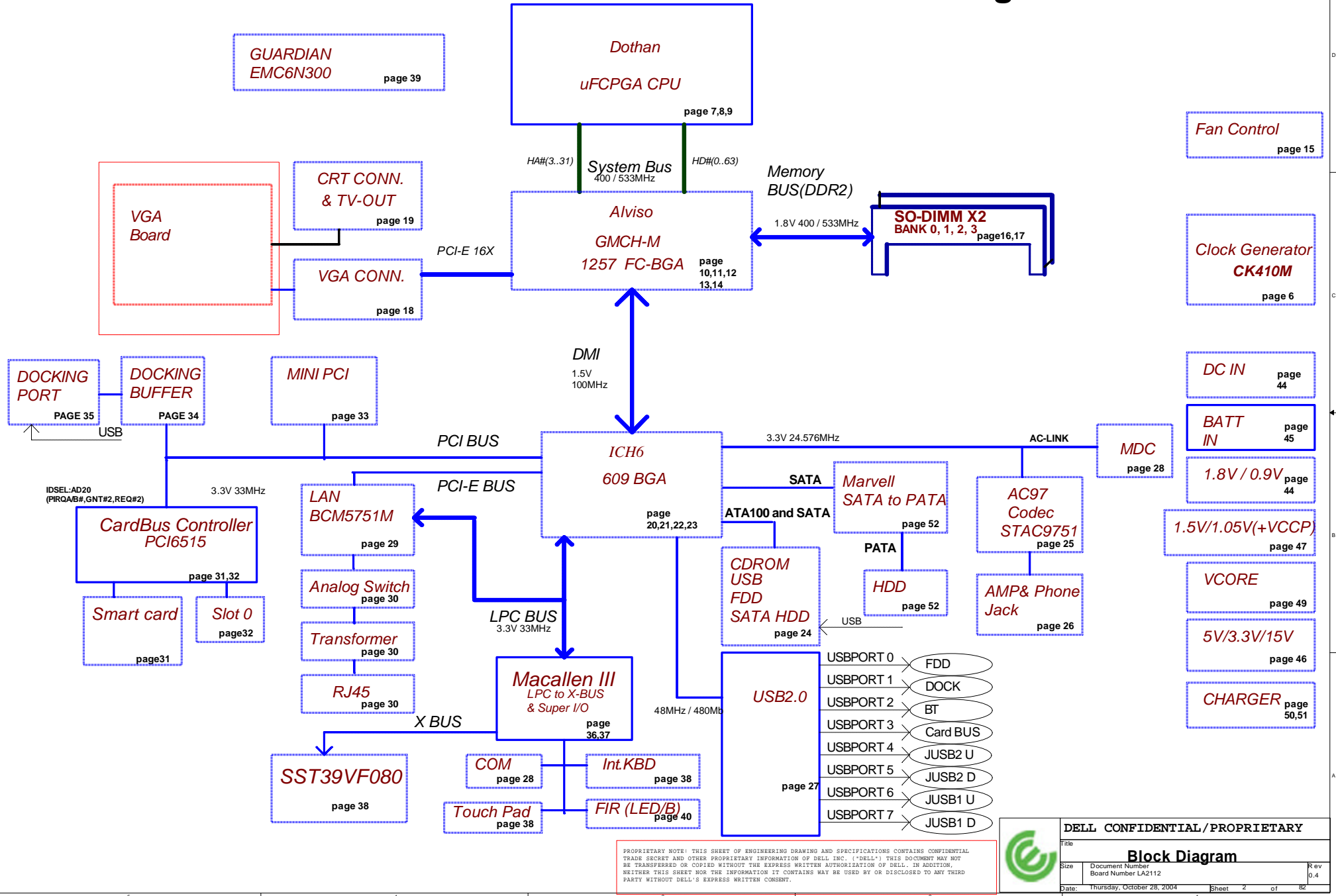
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Title			
Cover Sheet			
Size	Document Number	Rev	
	Board Number LA2112	0.4	
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Compal confidential

Block Diagram



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

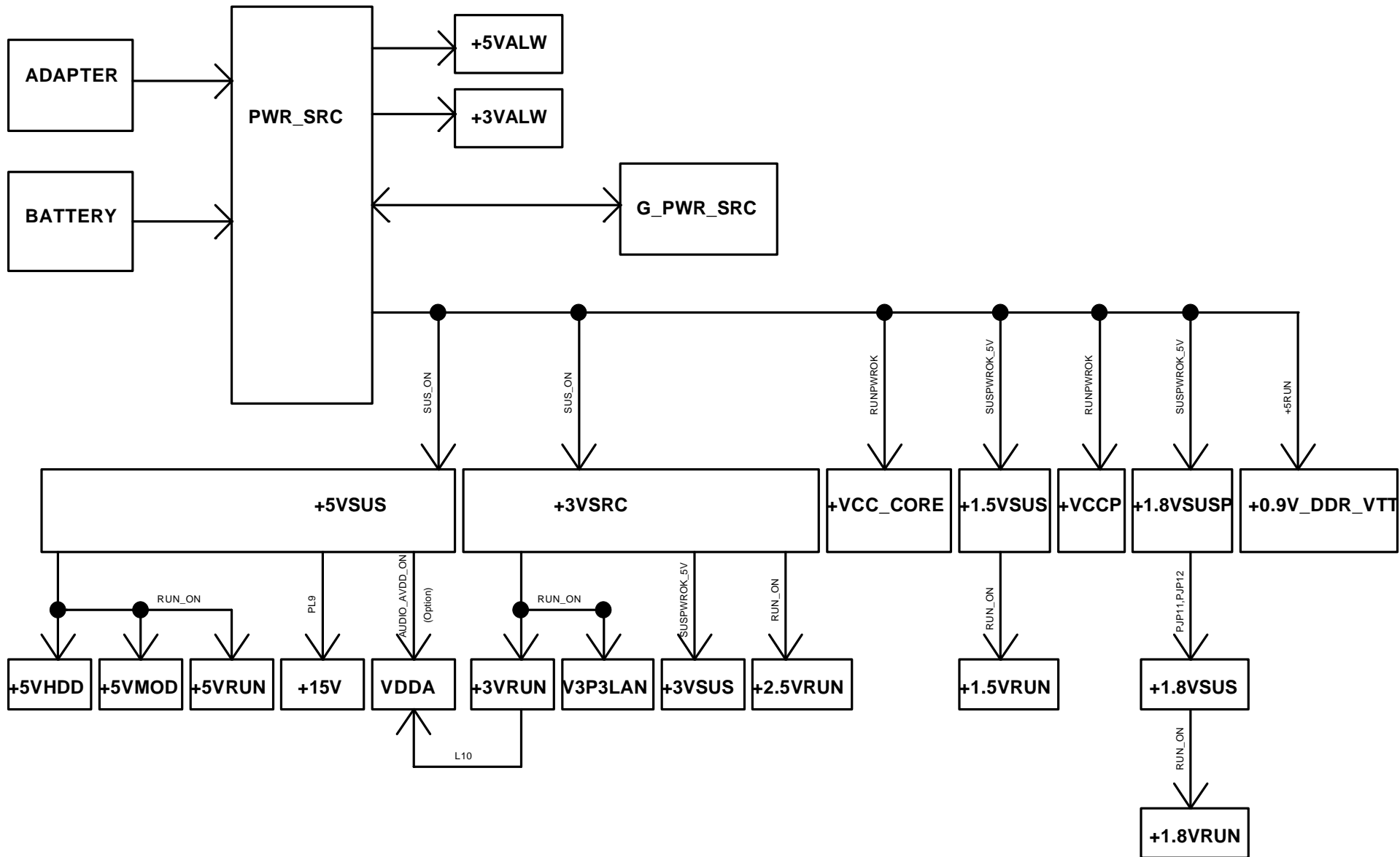
USB TABLE

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)

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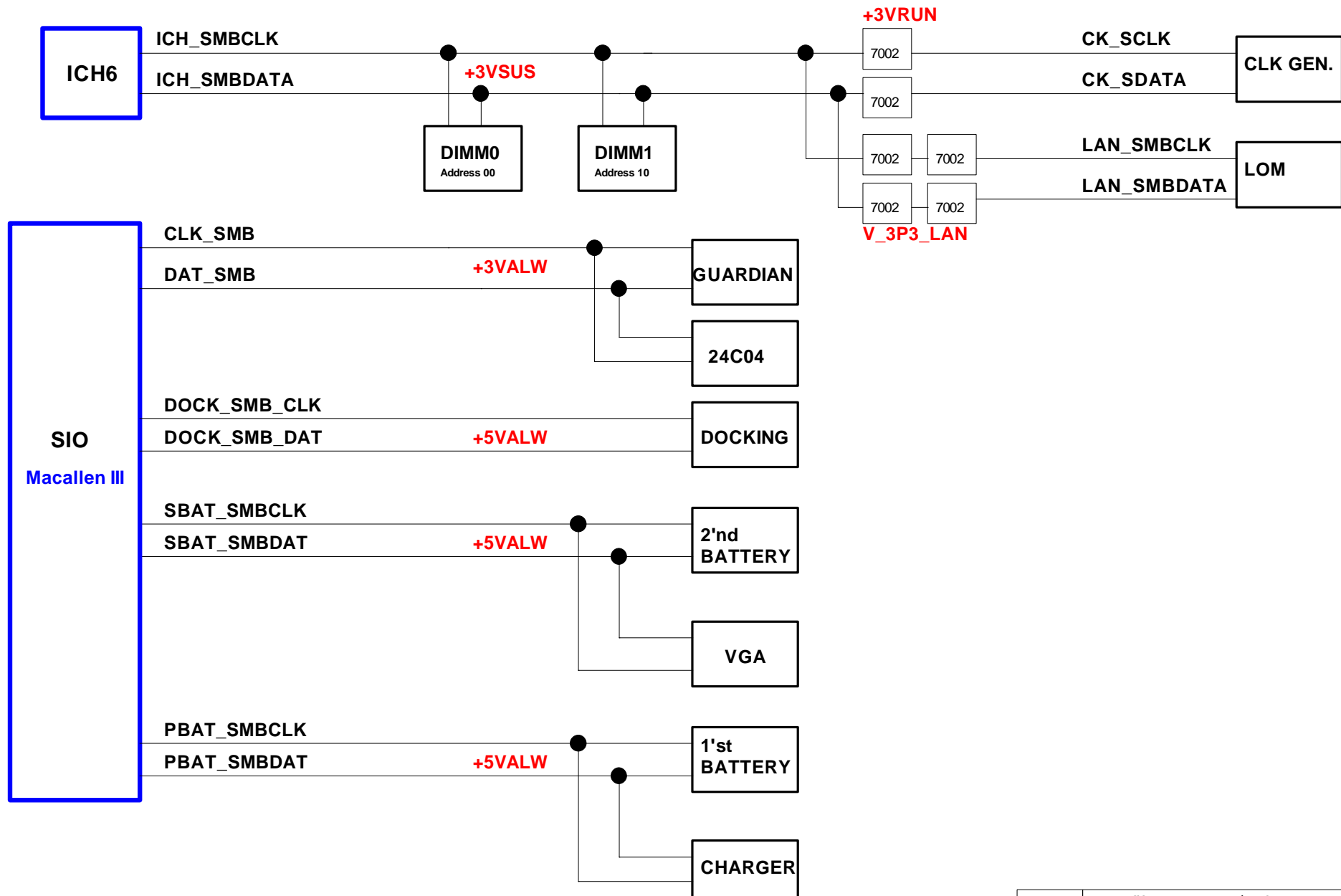


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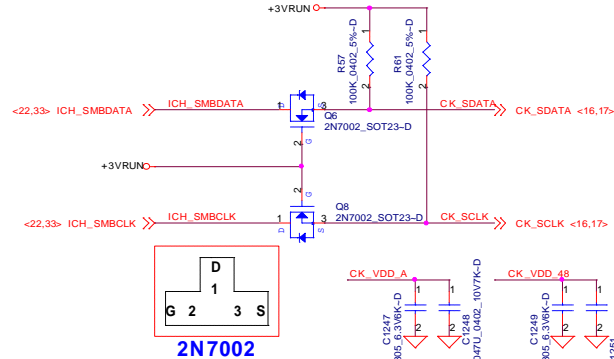
Title **Power Rail**

Size Document Number Board Number LA2112 Rev 0.4

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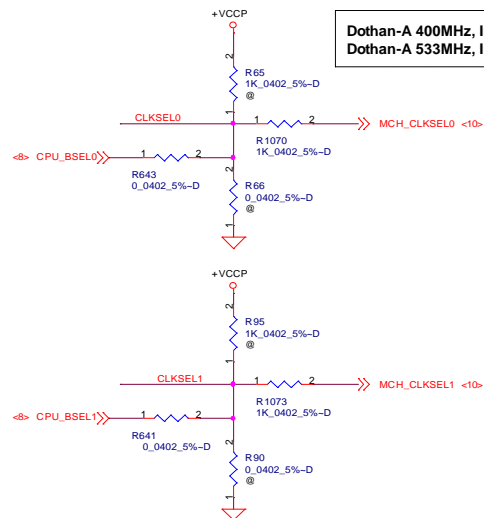


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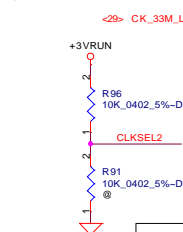


FSC CLKSEL0	FSB CLKSEL1	FSA CLKSEL2	CPU MHz	SRC MHz	PCI MHz
0	0	0	266	100	33.3
0	0	1	133	100	33.3
0	1	0	200	100	33.3
0	1	1	166	100	33.3
1	0	0	333	100	33.3
1	0	1	100	100	33.3
1	1	0	400	100	33.3
1	1	1	RESERVED		

Table : ICS 954201 / Cypress CY28411



Dothan-A 400MHz, Install R65, No pop. R66, R643
Dothan-A 533MHz, Install R66, No pop. R65, R643



	ICS	Cypress & Pericom
R68(SIOPCI)	12.1 Ohm	33 Ohm
R1206(LOMP)	4.7 Ohm	33 Ohm
R83(MINIPCI)	12.1 Ohm	33 Ohm

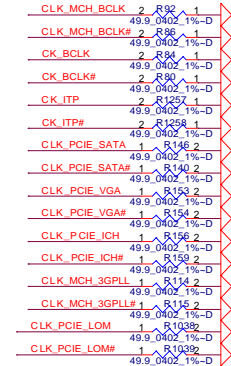
ICS - ICS954201BG
Cypress - CY28411ZXC
Pericom - PI6C410MA

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Place crystal within
500 mils of CK410

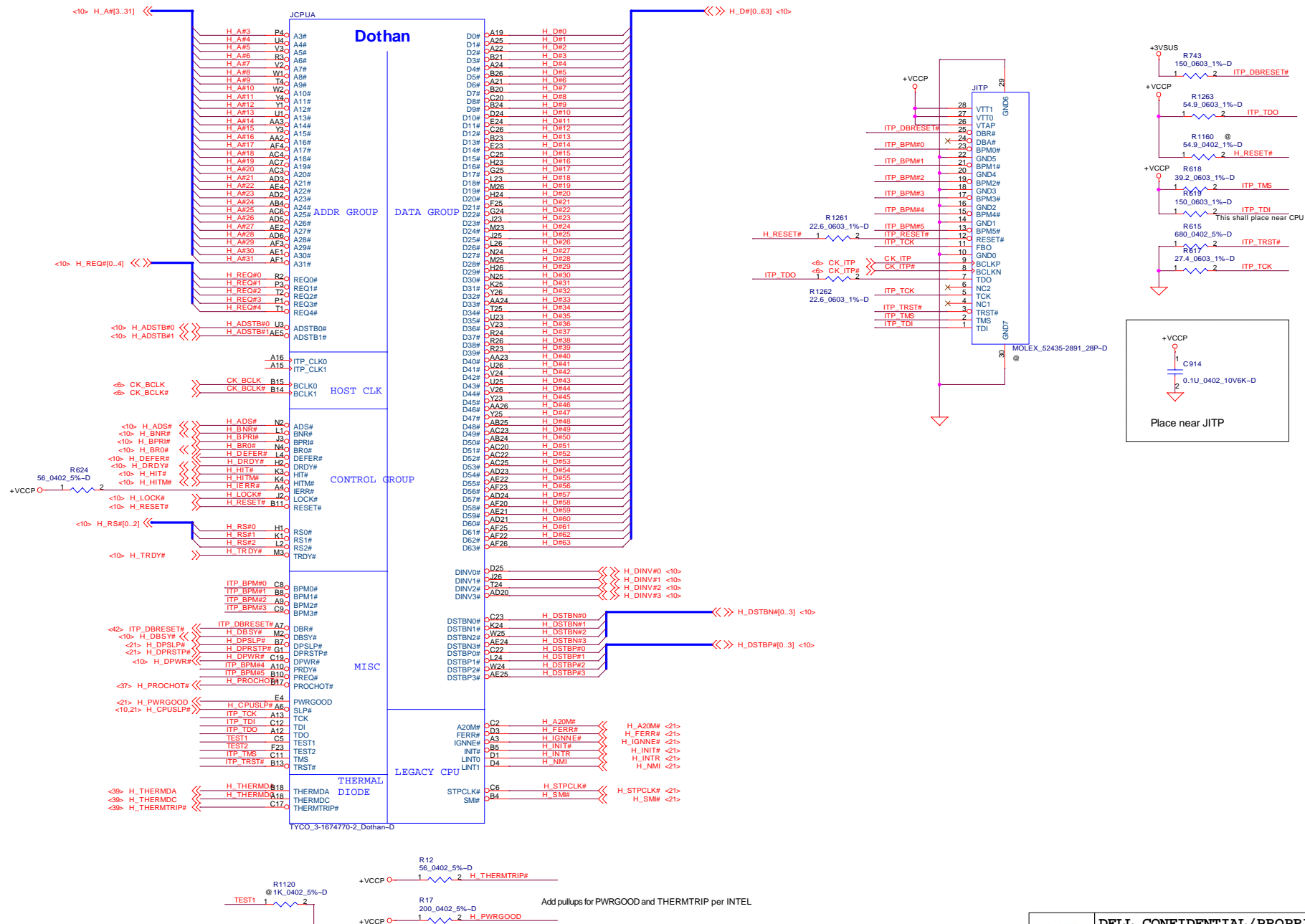
Place near each pin
W>40 mil

Place near CK410



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Clock Generator		
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Title	Dothan Processor in mFCPGA479
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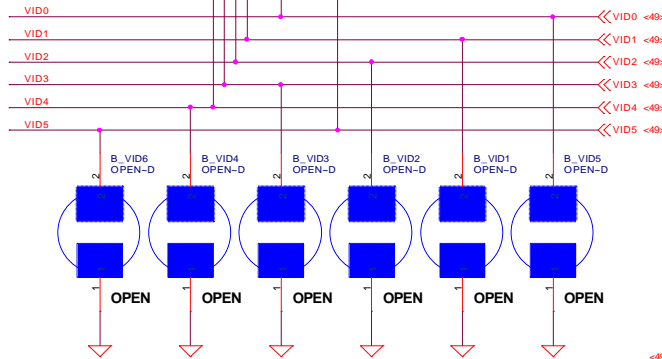
Size	Document Number Board Number A2112	Rev 0.1
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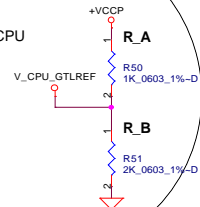
Dothan-A2 w/ 533Mhz supports both 1.5V and 1.8V.
Dothan-B step w/533Mhz supports only 1.5V

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.

<< H_PSI# <<

V_CPU_GTLREF

<< CPU_BSEL0 <<

<< CPU_BSEL1 <<

COMP0 P25

COMP1 P26

COMP2 AB2

COMP3 AB1

RSVD B2

RSVD C3

RSVD F26

RSVD AF7

RSVD AC1

RSVD L3

RSVD L6

RSVD L22

RSVD L25

RSVD T21

RSVD T23

RSVD T25

RSVD T27

RSVD T29

RSVD T31

RSVD T33

RSVD T35

RSVD T37

RSVD T39

RSVD T41

RSVD T43

RSVD T45

RSVD T47

RSVD T49

RSVD T51

RSVD T53

RSVD T55

RSVD T57

RSVD T59

RSVD T61

RSVD T63

RSVD T65

RSVD T67

RSVD T69

RSVD T71

RSVD T73

RSVD T75

RSVD T77

RSVD T79

RSVD T81

RSVD T83

RSVD T85

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RSVD T89

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RSVD T93

RSVD T95

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RSVD T99

RSVD T101

RSVD T103

RSVD T105

RSVD T107

RSVD T109

RSVD T111

RSVD T113

RSVD T115

RSVD T117

RSVD T119

RSVD T121

RSVD T123

RSVD T125

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RSVD T461

RSVD T463

RSVD T465

RSVD T467

RSVD T469

RSVD T471

RSVD T473

RSVD T475

RSVD T477

RSVD T479

RSVD T481

RSVD T483

RSVD T485

RSVD T487

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RSVD T497

RSVD T499

RSVD T501

RSVD T503

RSVD T505

RSVD T507

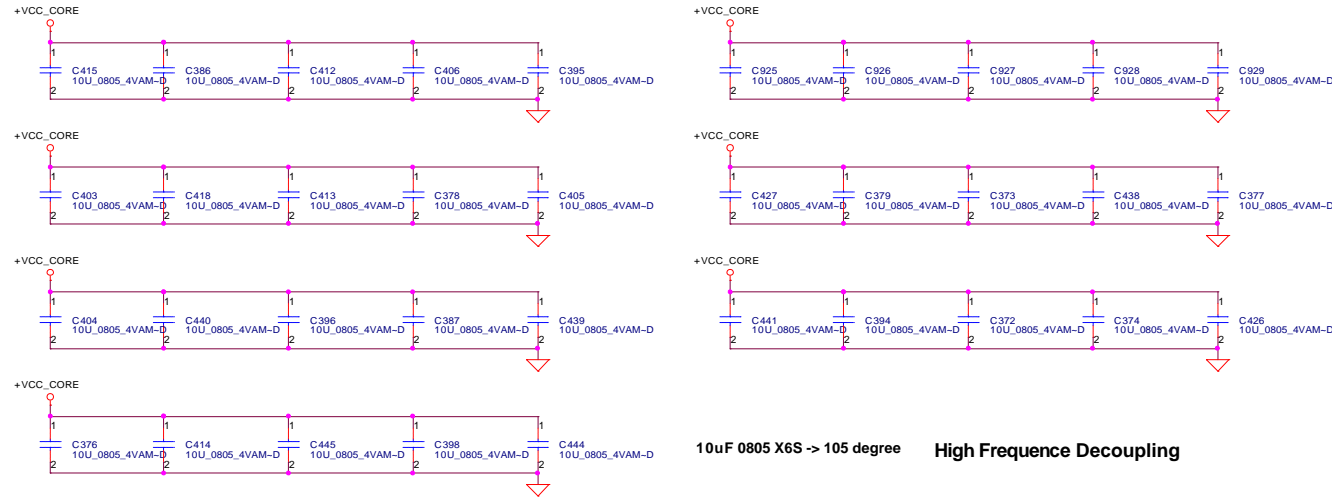
RSVD T509

RSVD T511

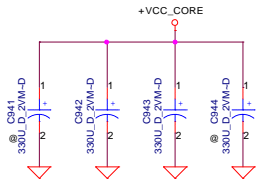
RSVD T513

RSVD T515

RSVD T517



Near VCORE regulator.

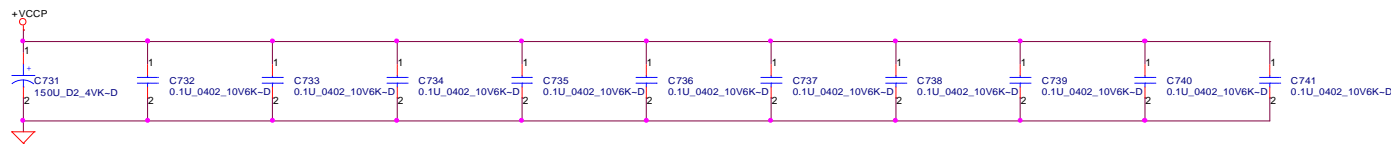


ESR <= 3m ohm
Capacitor > 880uF

9mOhm
7343
PS CAP

9mOhm
7343
PS CAP

9mOhm
7343
PS CAP



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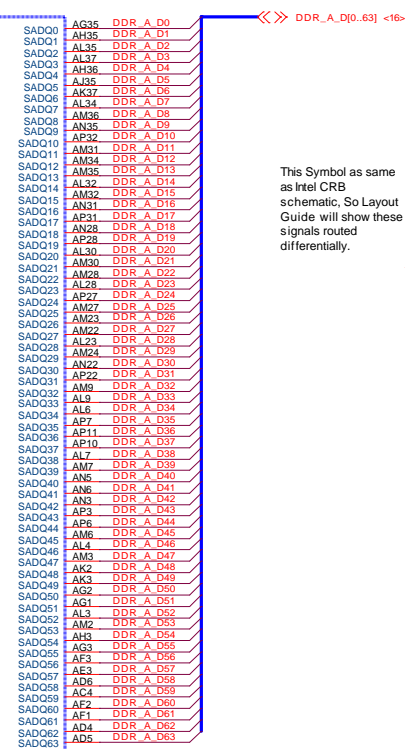
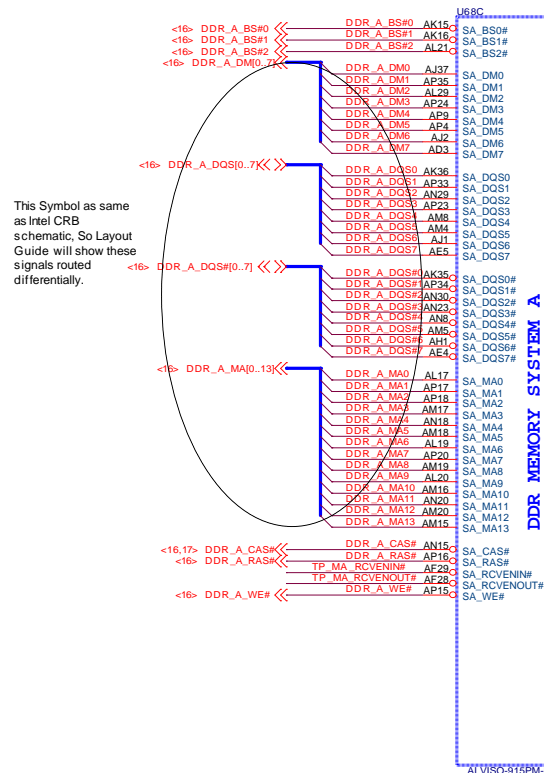


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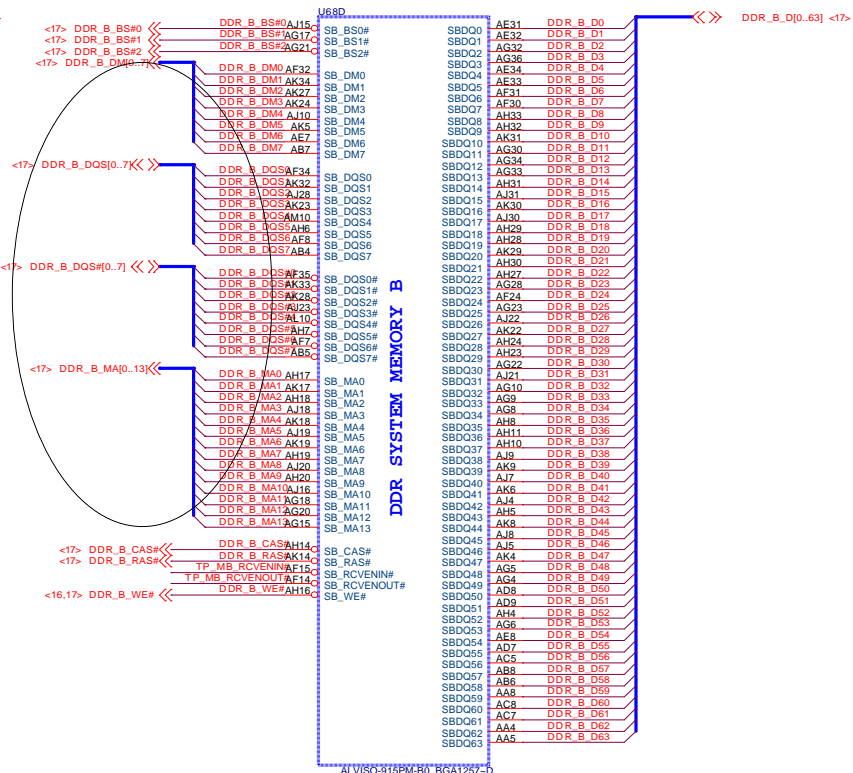
Title
CPU Bypass

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This Symbol as same as Intel CRB schematic, So Layout Guide will show these signals routed differentially.



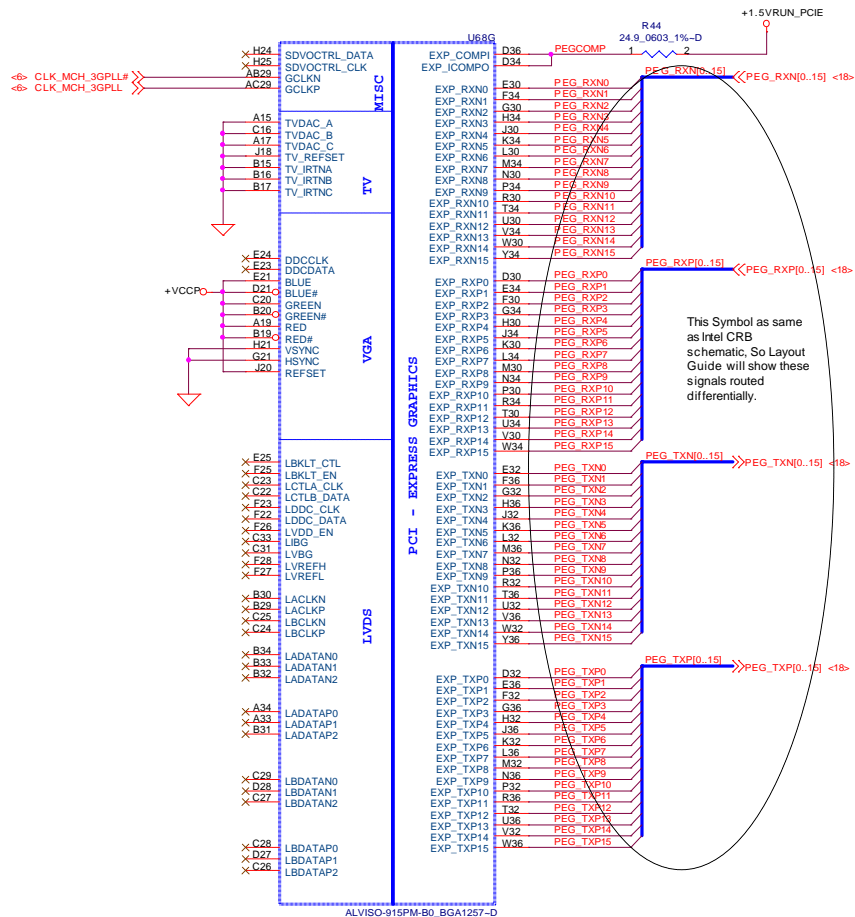
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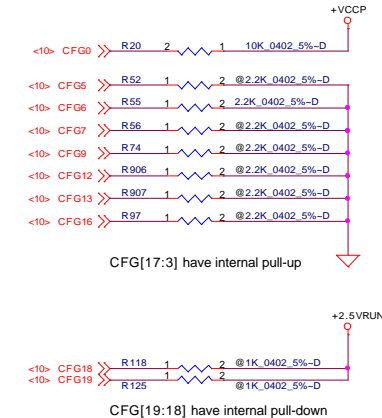
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File
Alviso(2 of 5)

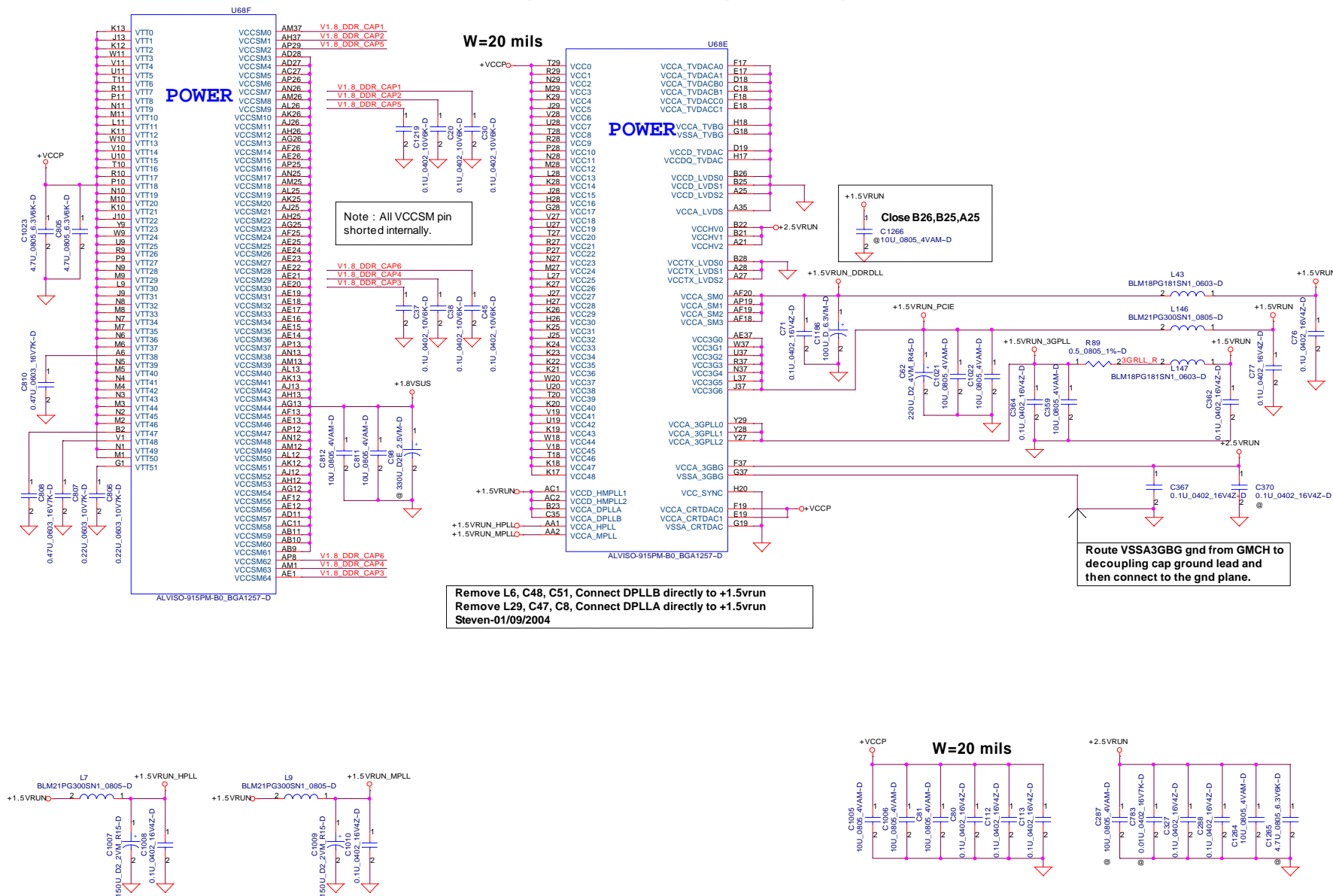
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CFG[2:0]	Refer to sheet 6 for FSB frequency select
CFG5	Low = DMI x 2 High = DMI x 4 *
CFG6	Low = DDR-II * High = DDR-I
CFG7	Low = DT/Transportable CPU High = Mobile CPU *
CFG9	Low = Reverse Lane High = Normal Operation *
CFG[13:12]	00 = Reserved 01 = 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



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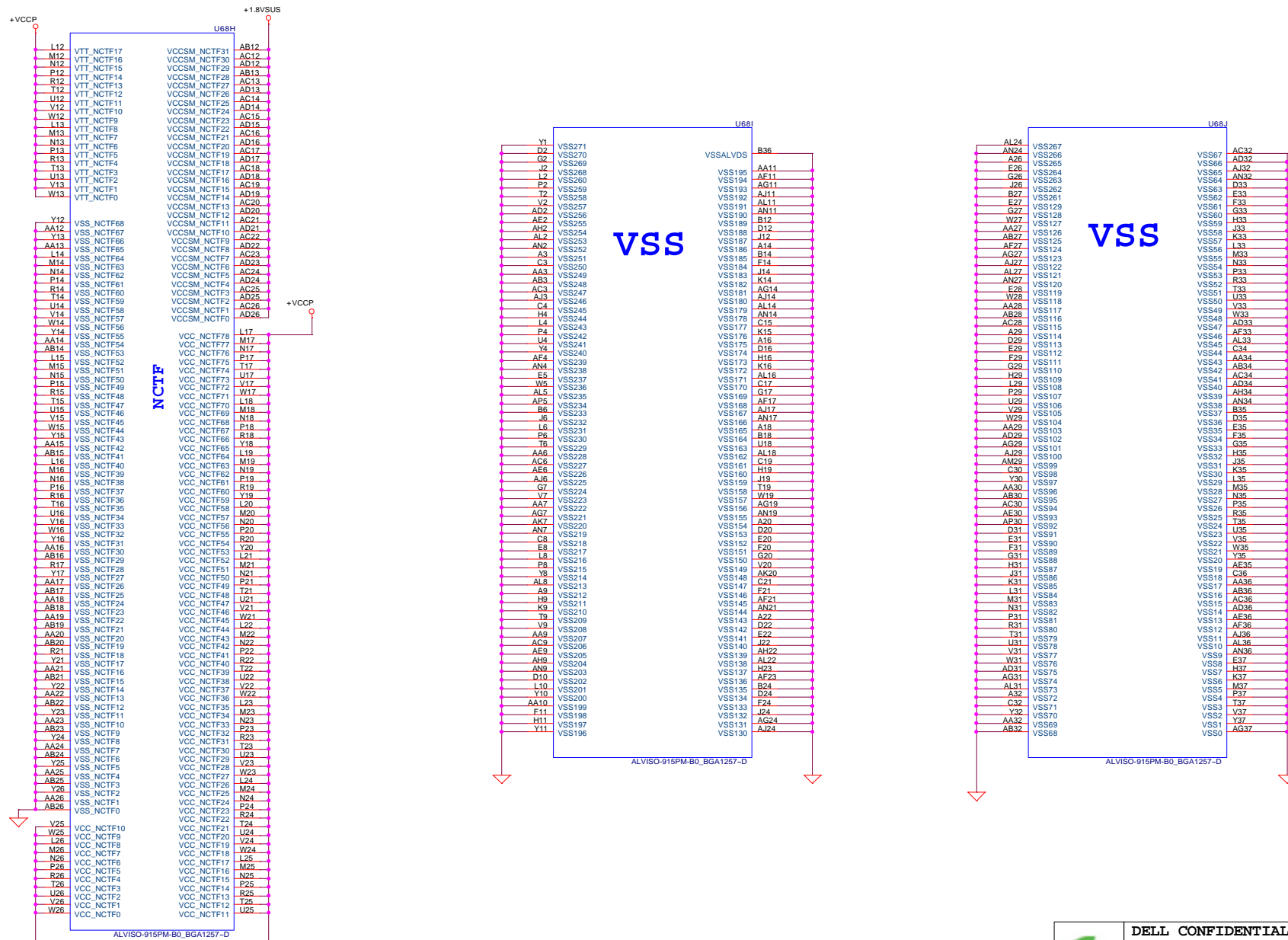


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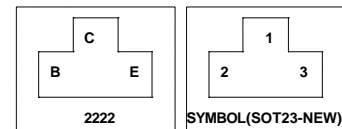
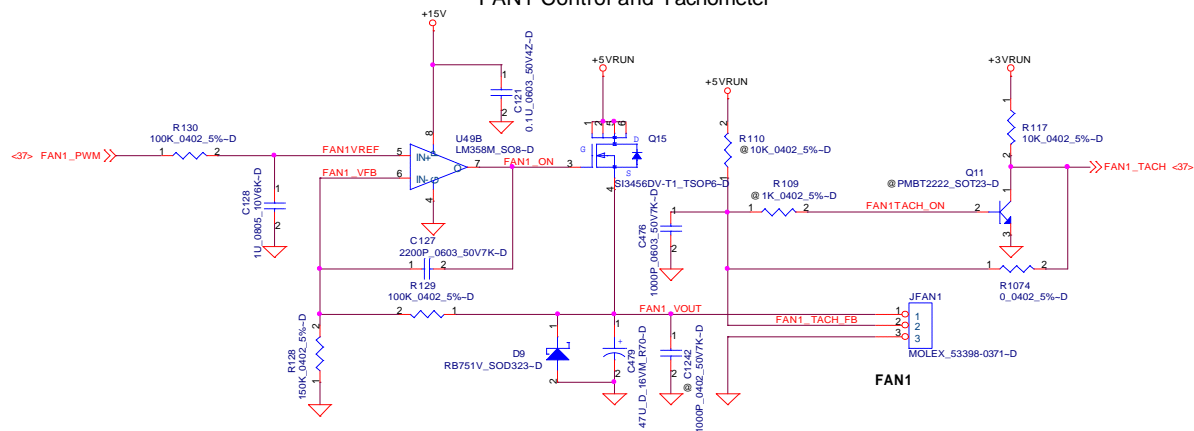
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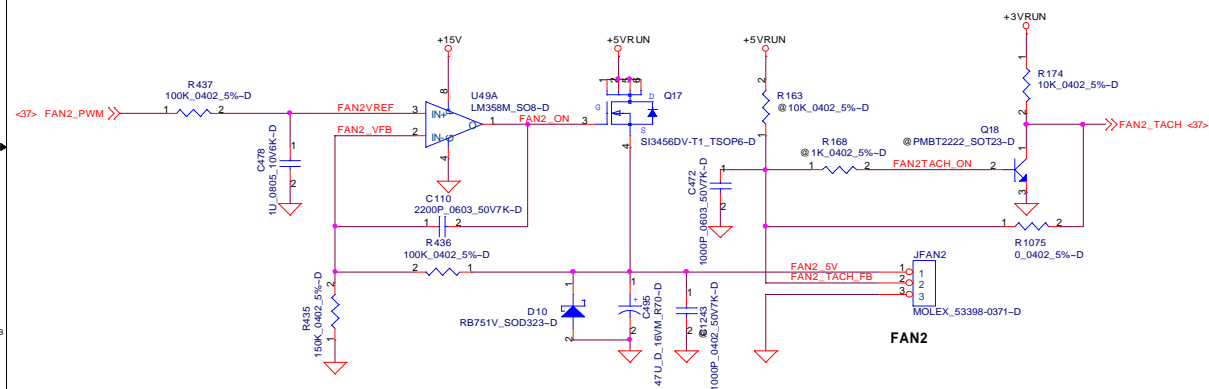
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FAN1 Control and Tachometer



FAN2 Control and Tachometer



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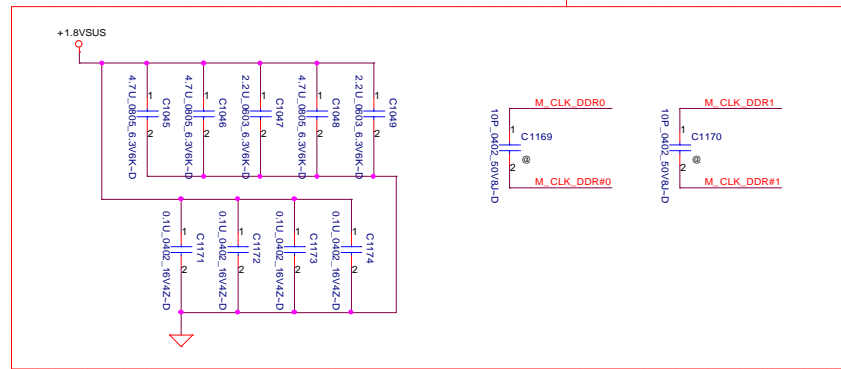
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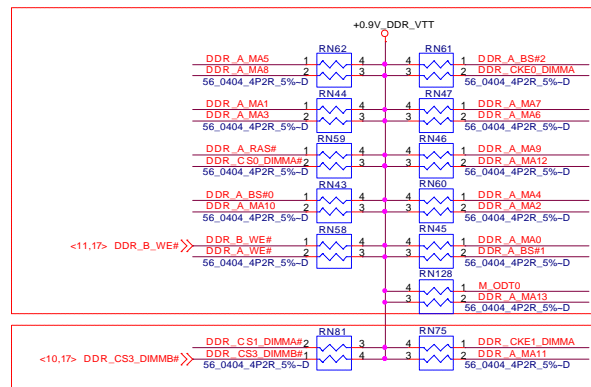
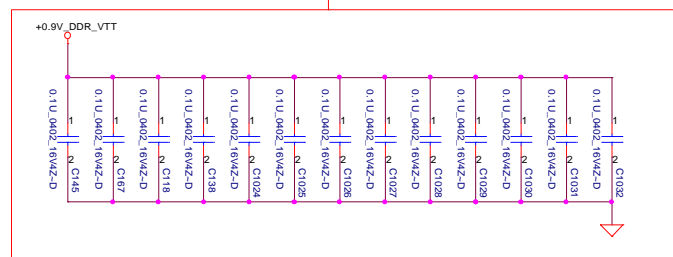
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Layout Note:
Place near JDIM1

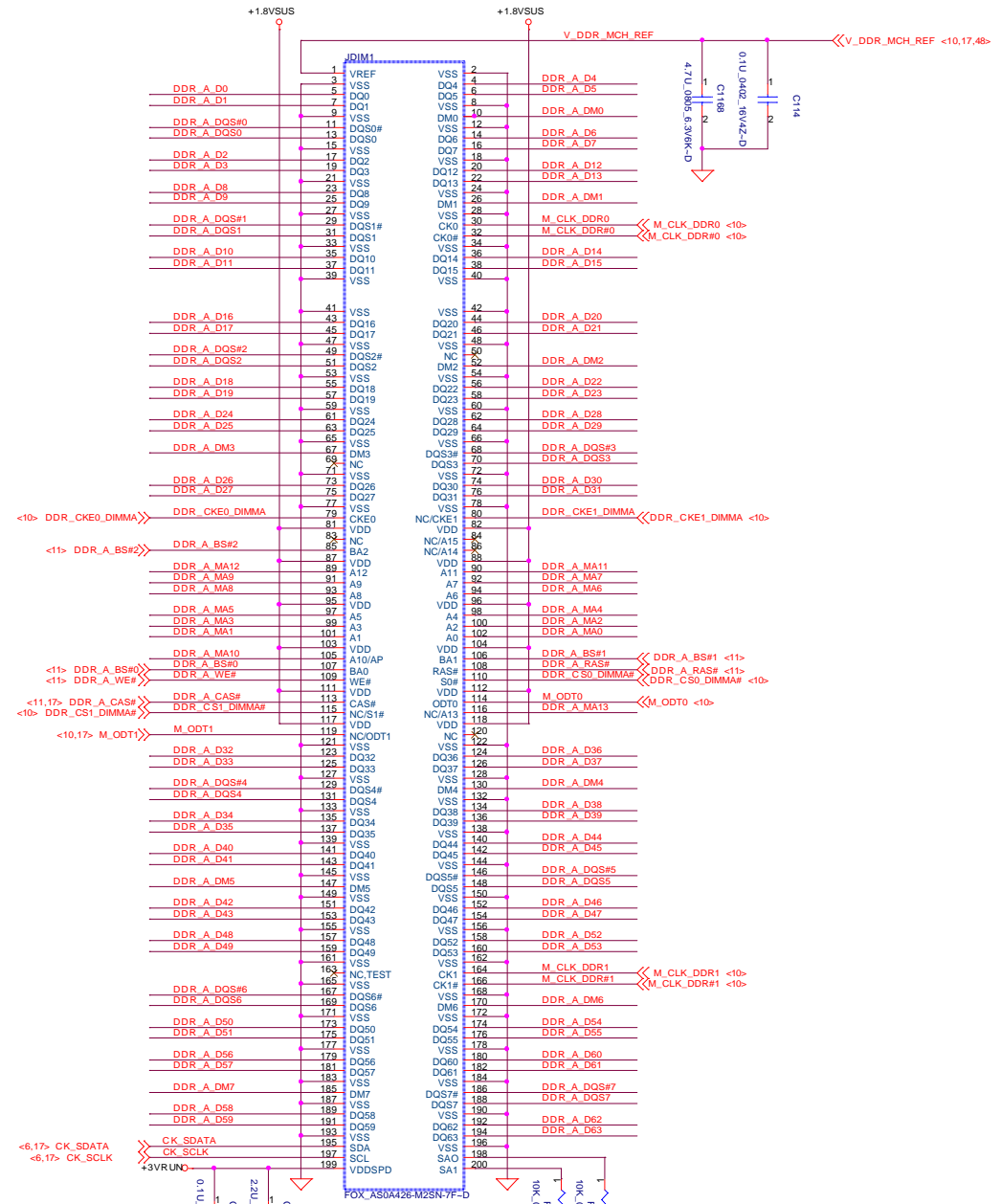


Layout Note:
Place one cap close to every 2 pullup resistors terminated to +0.9V_DDR_VTT



Layout Note:
Place these resistor
closely DIMM0,all
trace length<750 mil

Layout Note:
Place these resistor
closely DIMM0,all
trace length Max=1.3"



DIMMA STANDARD

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Title	DDRII-SODIMM SLOT1
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10.9V_DDR_VTT

0.1U.DD02.TEMAZ-D

1 C173

0.1U.DD02.TEMAZ-D

1 C174

0.1U.DD02.TEMAZ-D

1 C175

0.1U.DD02.TEMAZ-D

1 C176

0.1U.DD02.TEMAZ-D

1 C177

0.1U.DD02.TEMAZ-D

1 C178

0.1U.DD02.TEMAZ-D

1 C179

0.1U.DD02.TEMAZ-D

1 C180

0.1U.DD02.TEMAZ-D

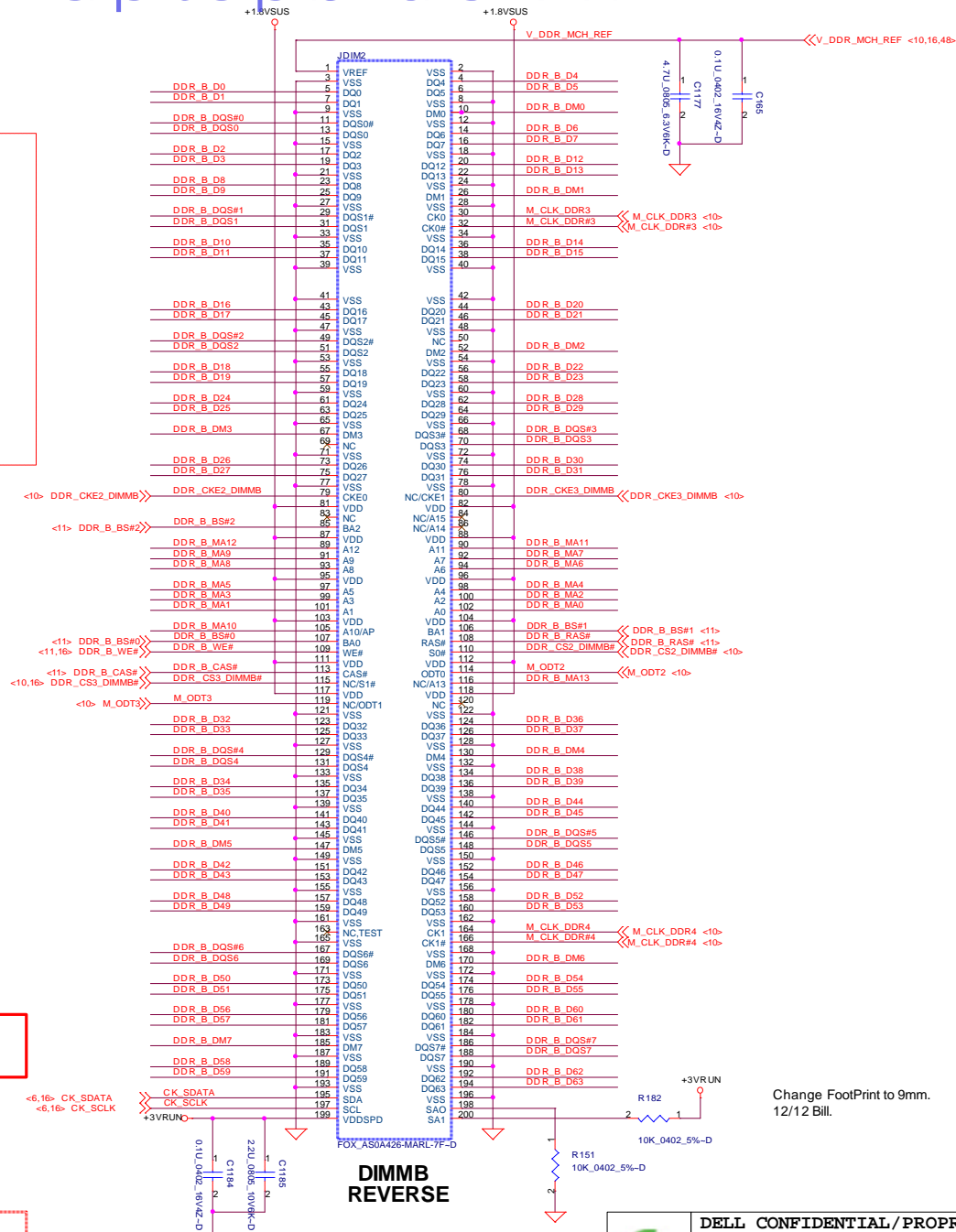
1 C181

0.1U.DD02.TEMAZ-D

1 C182

Timing diagram for DDR B signals. The diagram shows a 0.9V_VDD_VTT supply line at the top. A central vertical line represents the clock signal. On the left, signals include DDR_B MA1, MA3, BS#0, MA10, BS#1, MA0, RAS#, CS2 DIMMB#, CAS#, and A_CAS#. On the right, signals include DDR_B MA9, MA12, CKE3 DIMMB, MA5, MA8, MA7, MA6, MA4, MA2, ODT7, and RAS#13. Each signal is shown as a square wave with a period of 56.0404 μs and a duty cycle of 50%. The signals are connected to various memory banks (RN91, RN68, RN63, RN67, RN65, RN64, RN126, RN127, RN128, RN129, RN102, RN107) via a central vertical line. The diagram is labeled with timing parameters: <11,16> DDR_A_CAS# and <10,16> M_ODT1, M_ODT3.

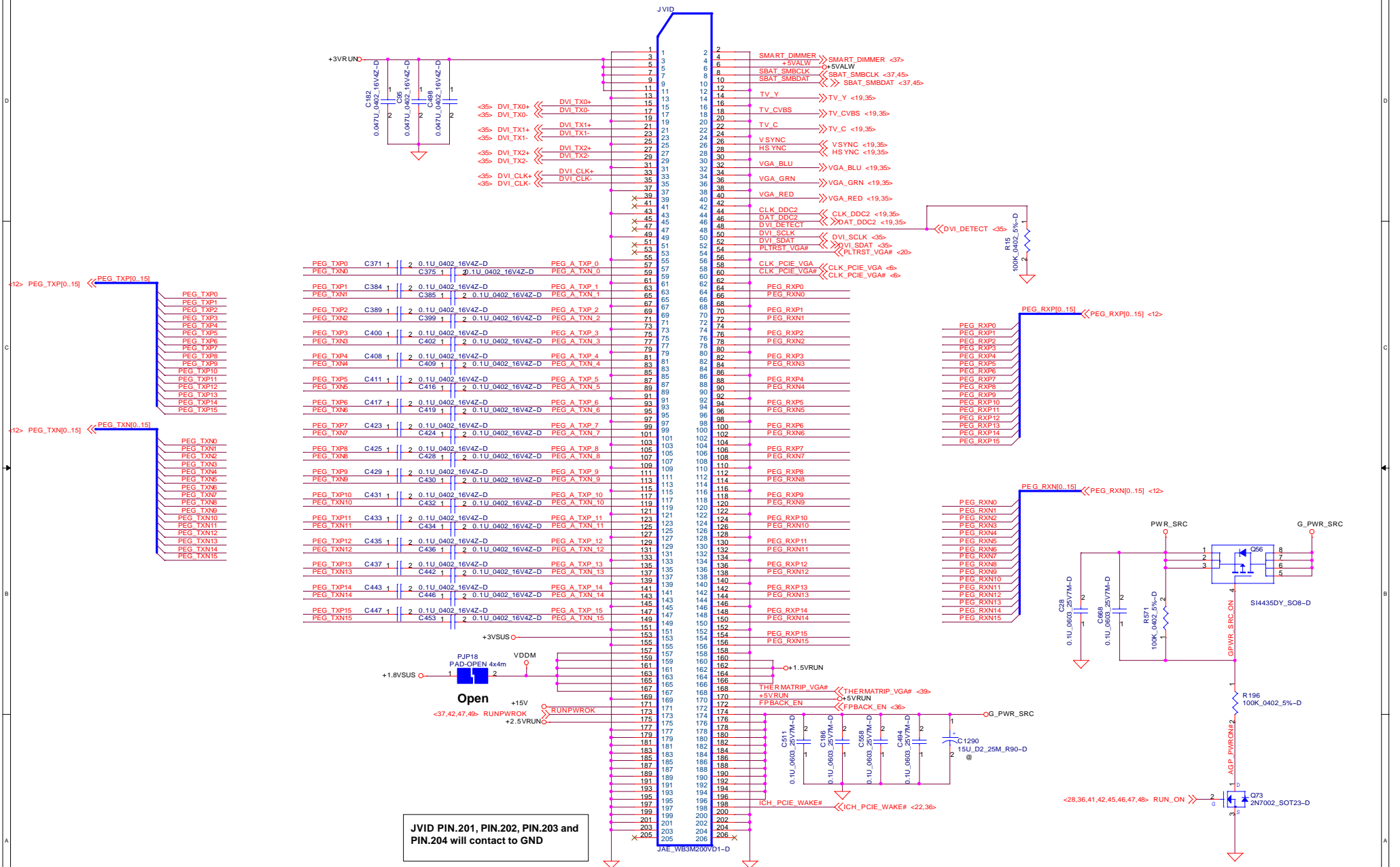
Layout Note:
Place these resistor
closely DIMM0,all
trace length
Max=1.3"

Title **DDRII-SODIMM SLOT2**

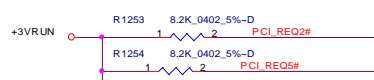
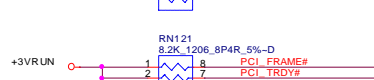
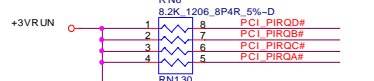
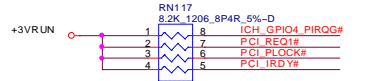
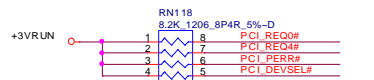
Size	Document Number Board Number A2112	F
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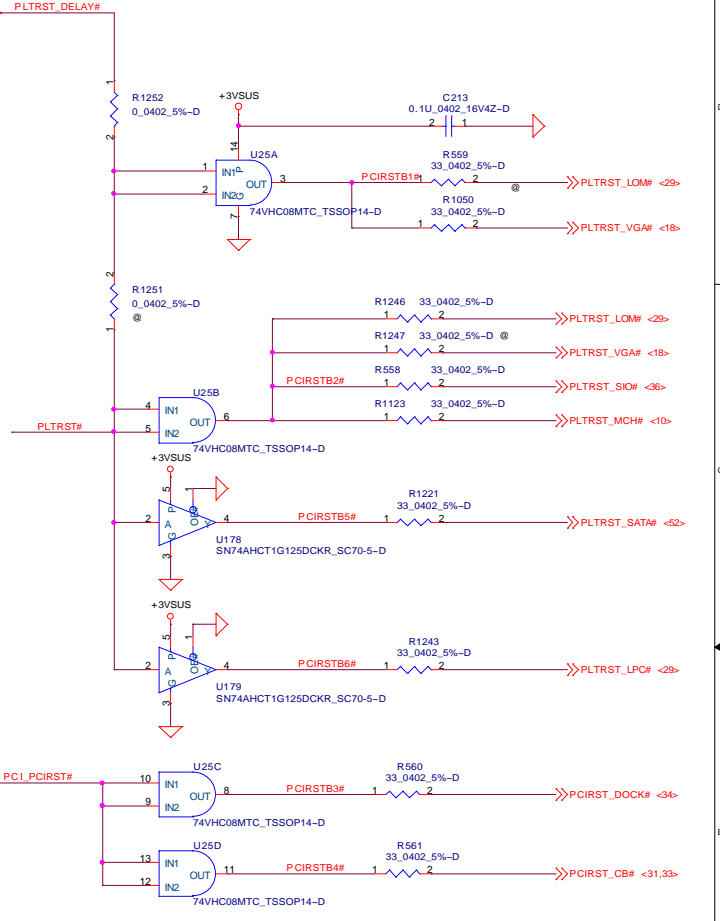
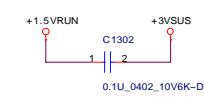
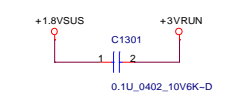
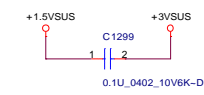
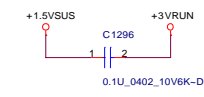
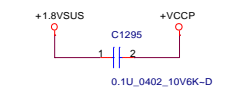
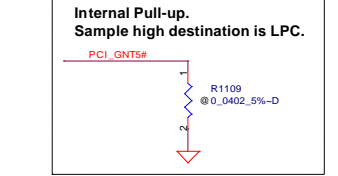
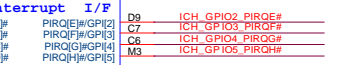
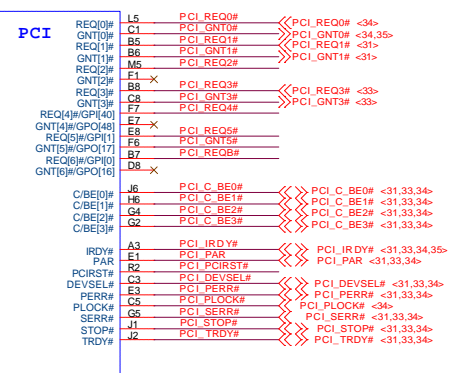
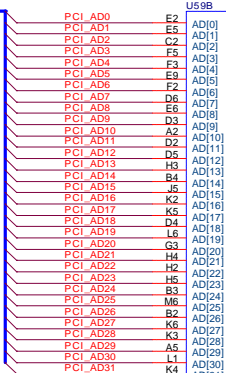




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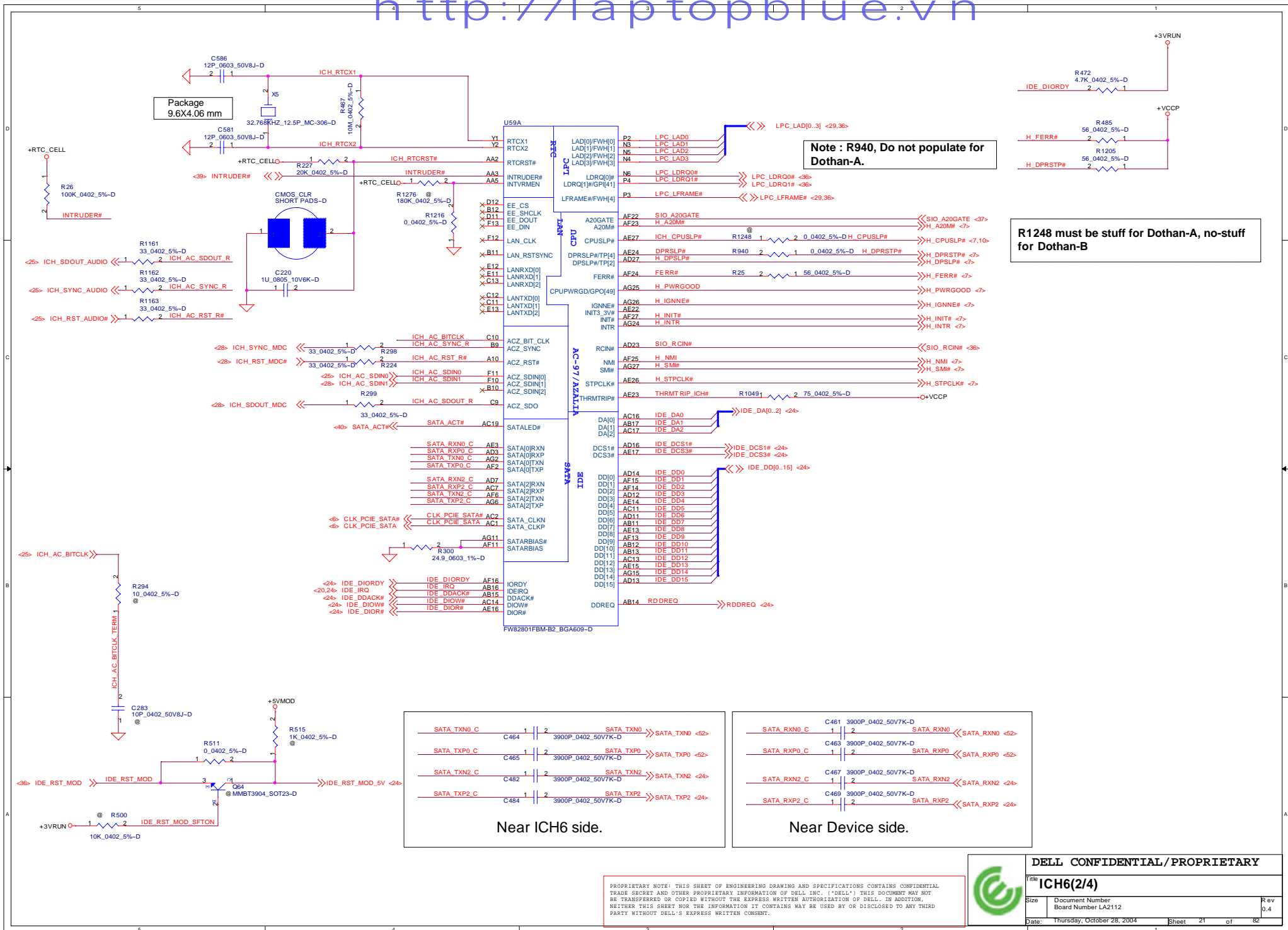
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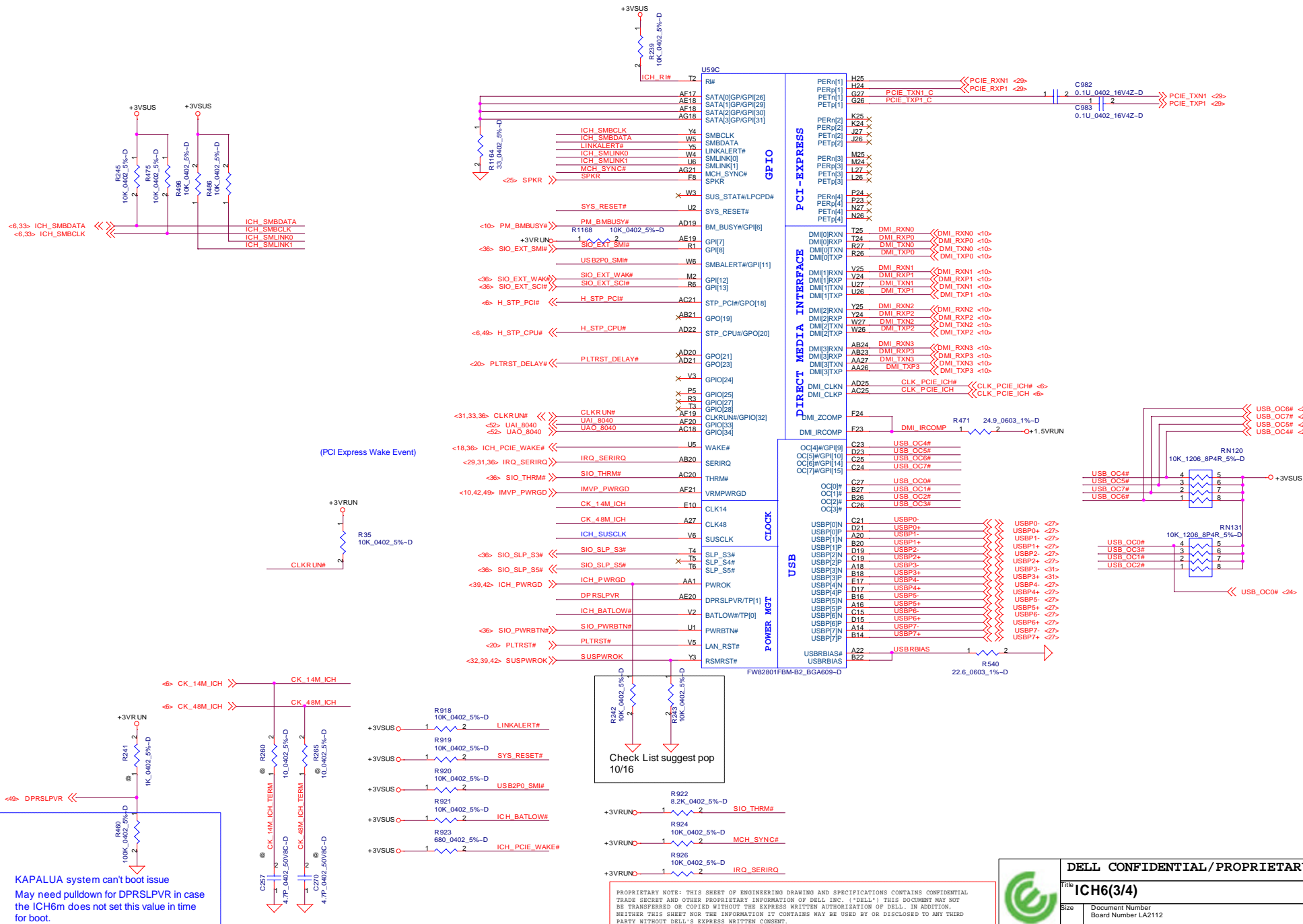
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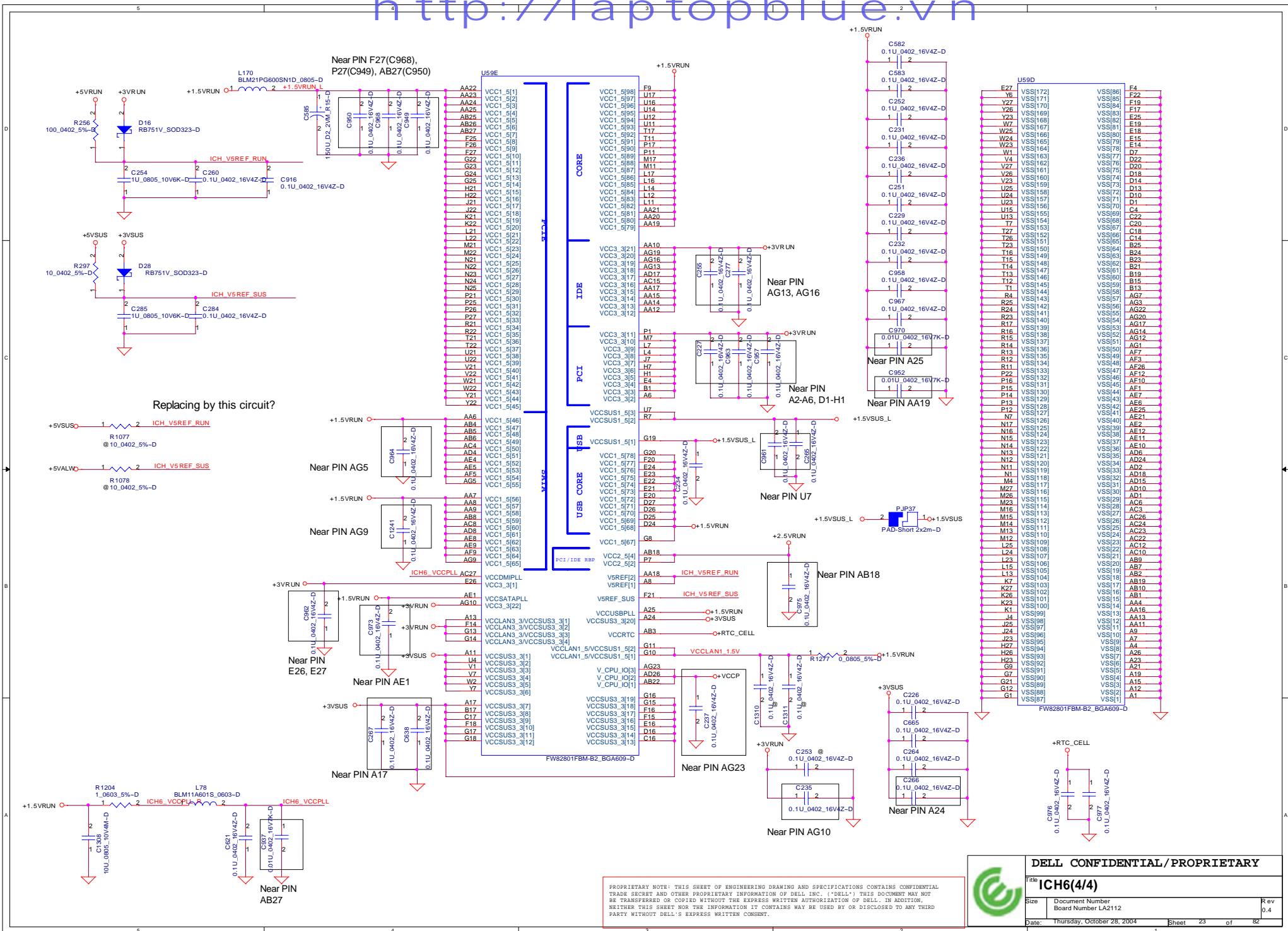
DELL CONFIDENTIAL/PROPRIETARY			
File	ICH6(1/4)		
Size	Document Number	Board Number	Rev
	LA2112		0.4
Date:	Thursday, October 28, 2004	Sheet	20 of 82

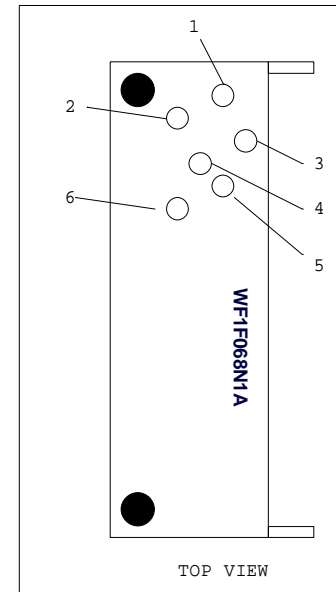
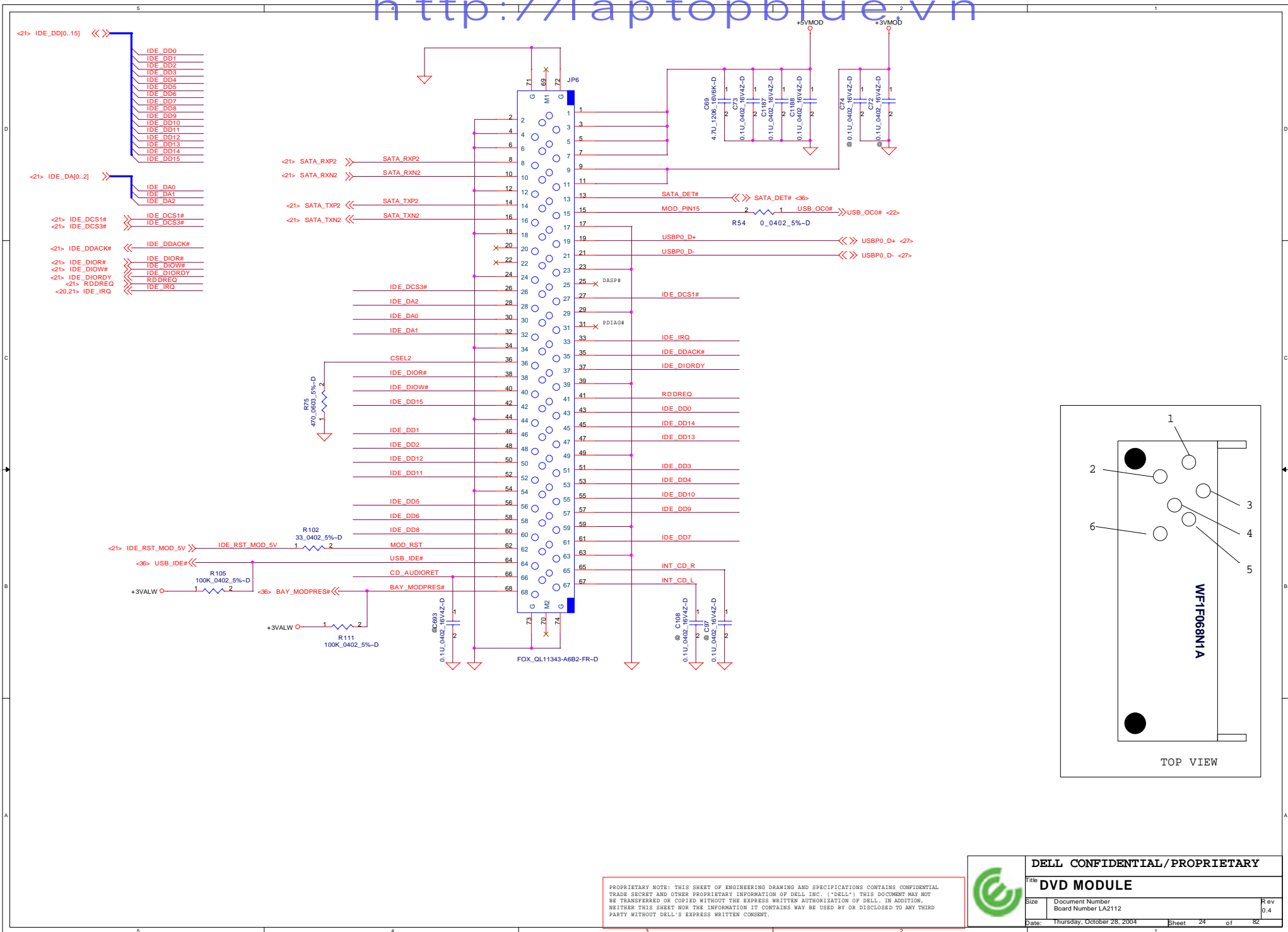





KAPALUA system can't boot issue
May need pulldown for DPRSLPVR in case
the ICH6m does not set this value in time
for boot.

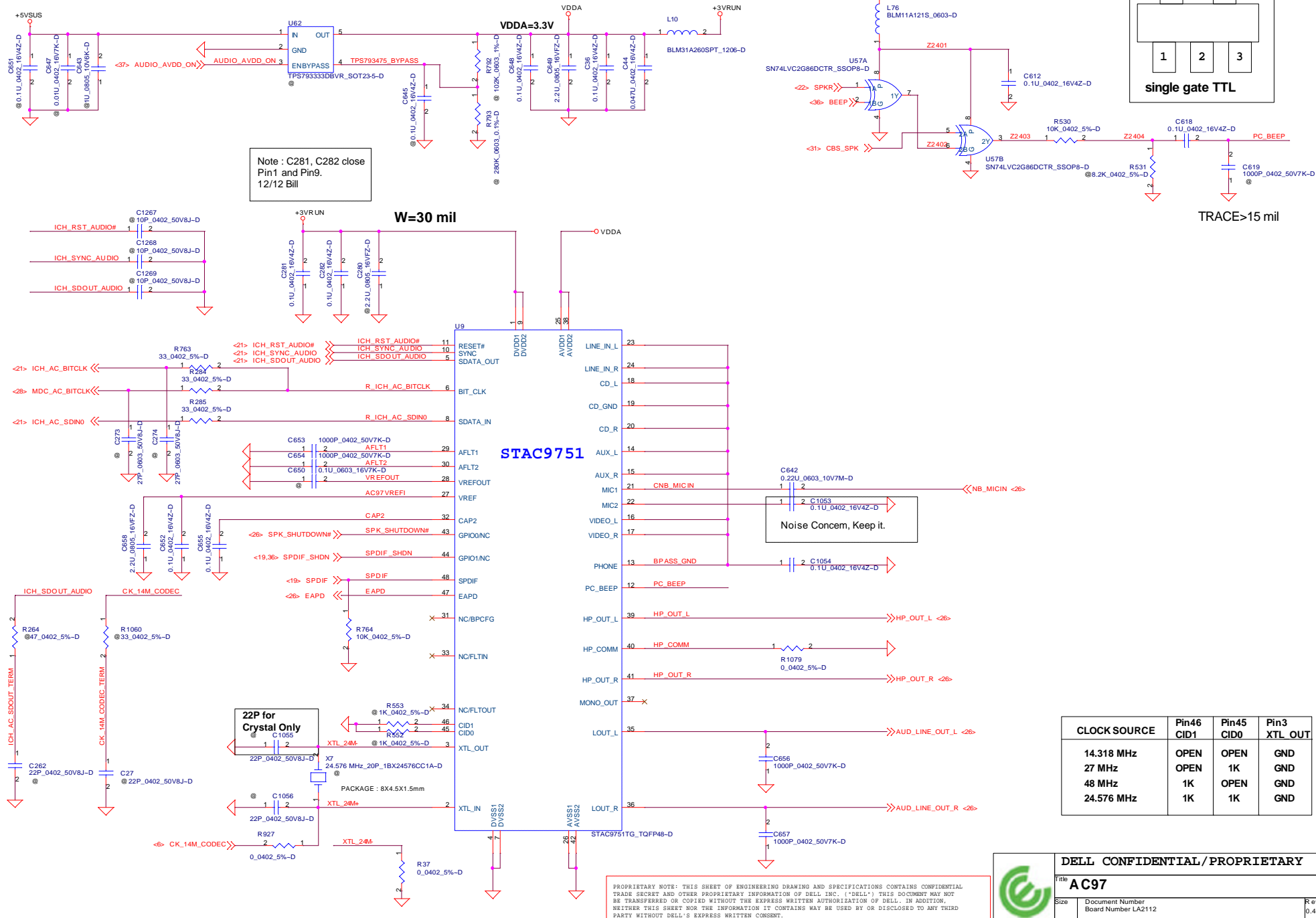
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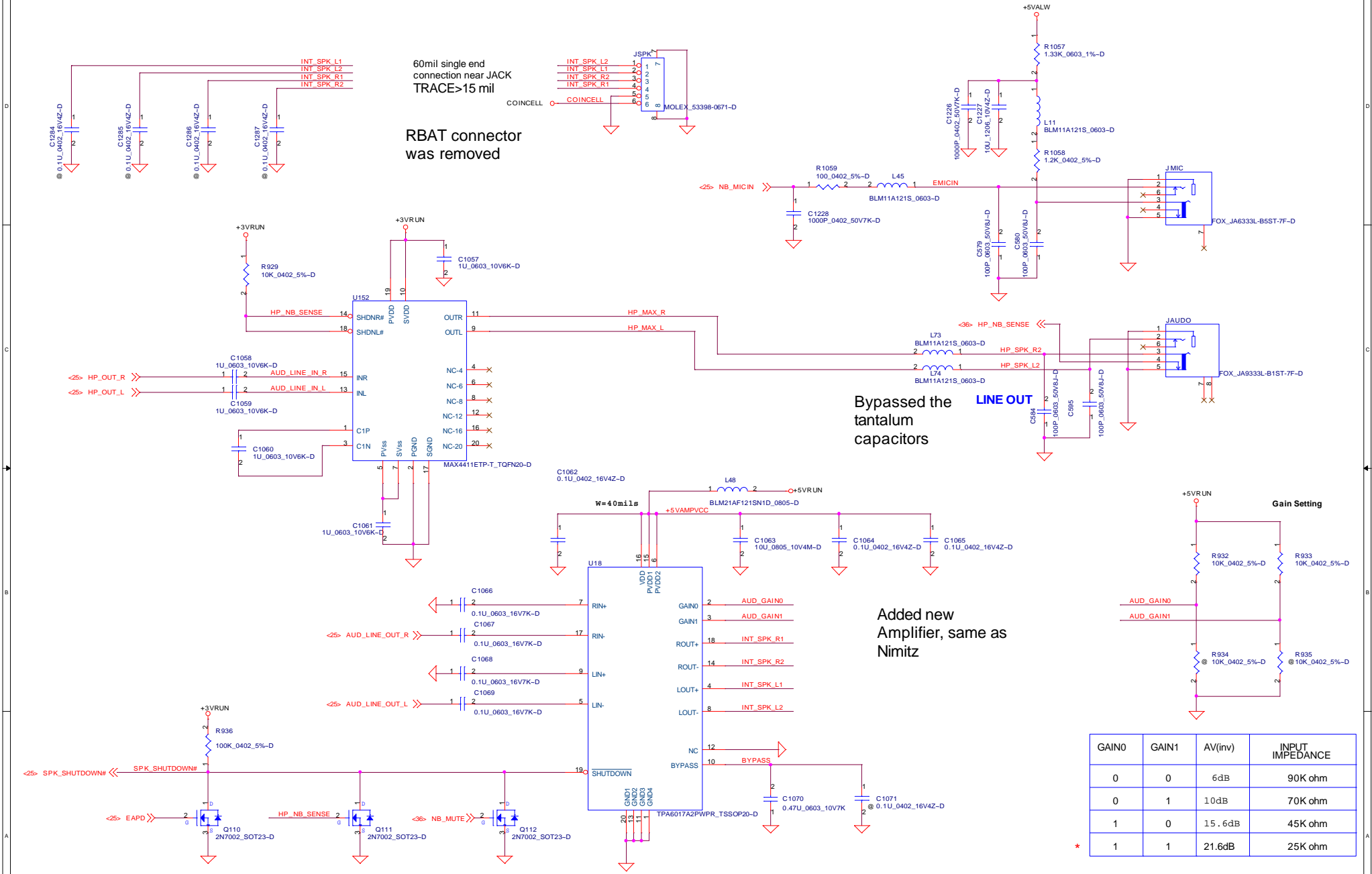


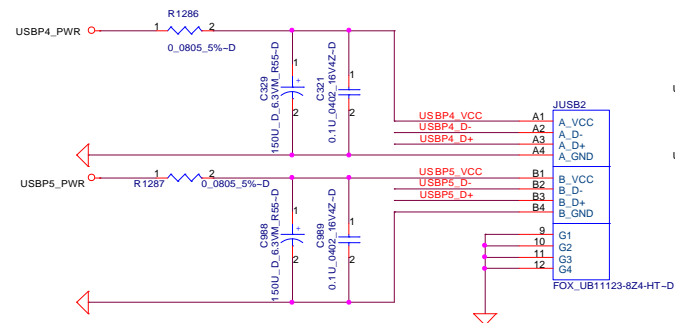
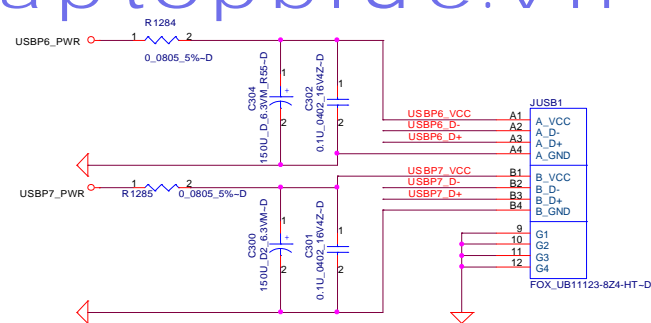
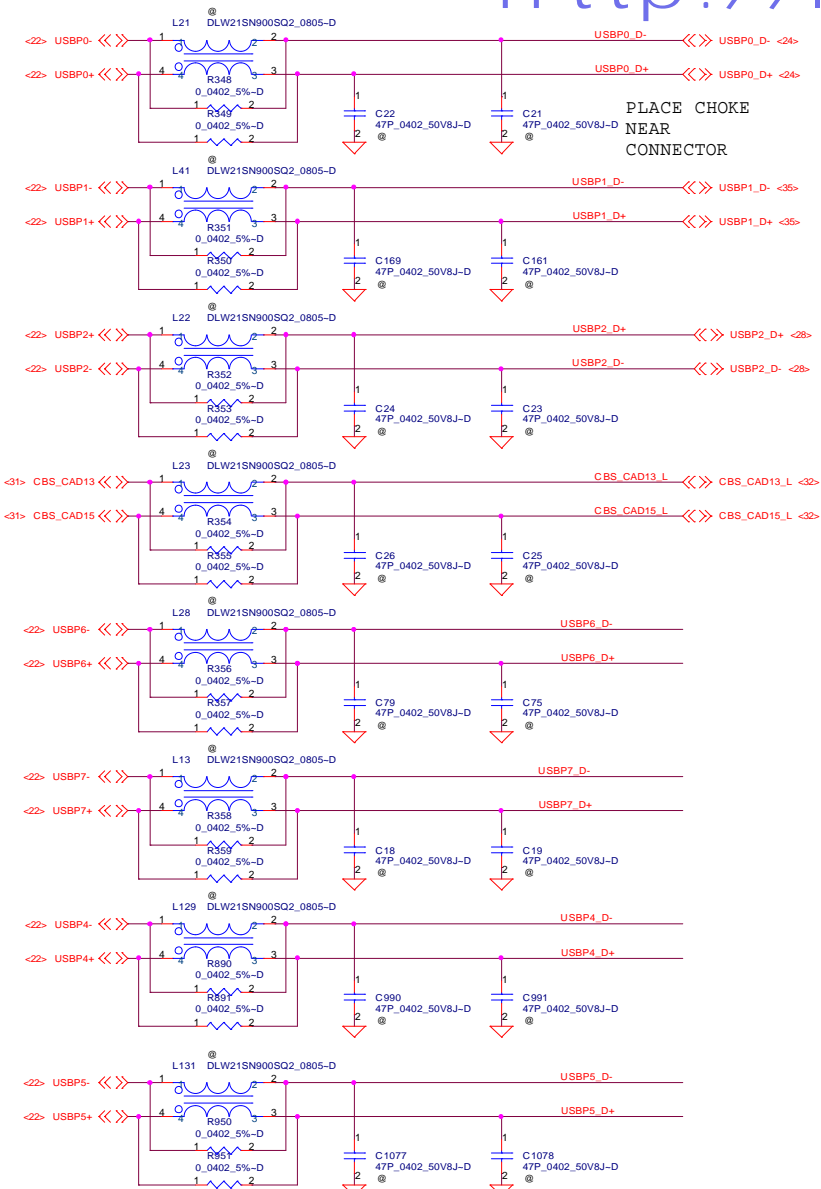
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	DELL CONFIDENTIAL/PROPRIETARY		
	Title DVD MODULE		
	Size	Document Number Board Number LA2112	Rev 0.4
	Date:	Thursday, October 28, 2004	Sheet 24 of 82

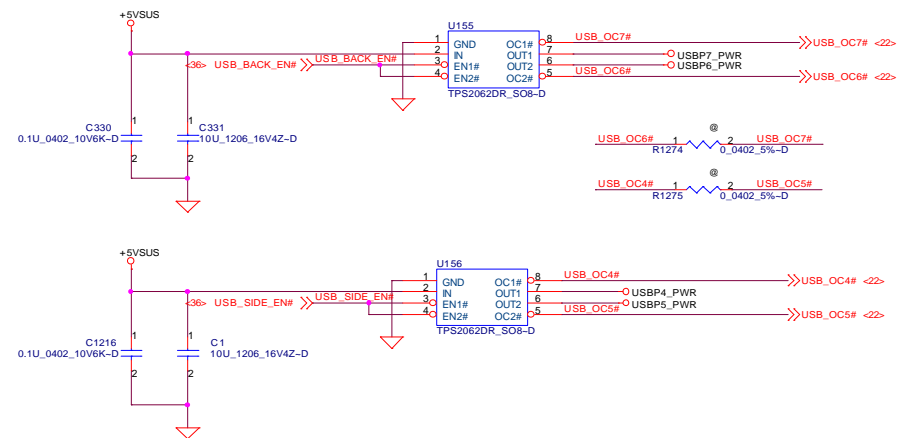
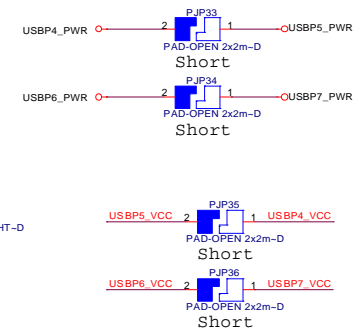


CLOCK SOURCE	Pin46 CID1	Pin45 CID0	Pin3 XTL_OUT
14.318 MHz	OPEN	OPEN	GND
27 MHz	OPEN	1K	GND
48 MHz	1K	OPEN	GND
24.576 MHz	1K	1K	GND





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)



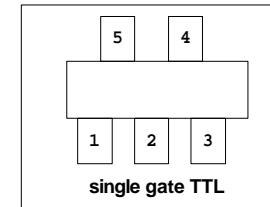
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Title: USB 2.0		
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FOX_HS6210_10P



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

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DELL CONFIDENTIAL/PROPRIETARY

Title **BT PORT and MDC**

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Layout Notice : 3.3V filter. Place as close chip as possible.

Layout Notice : 1.2V filter. Place as close chip as possible.



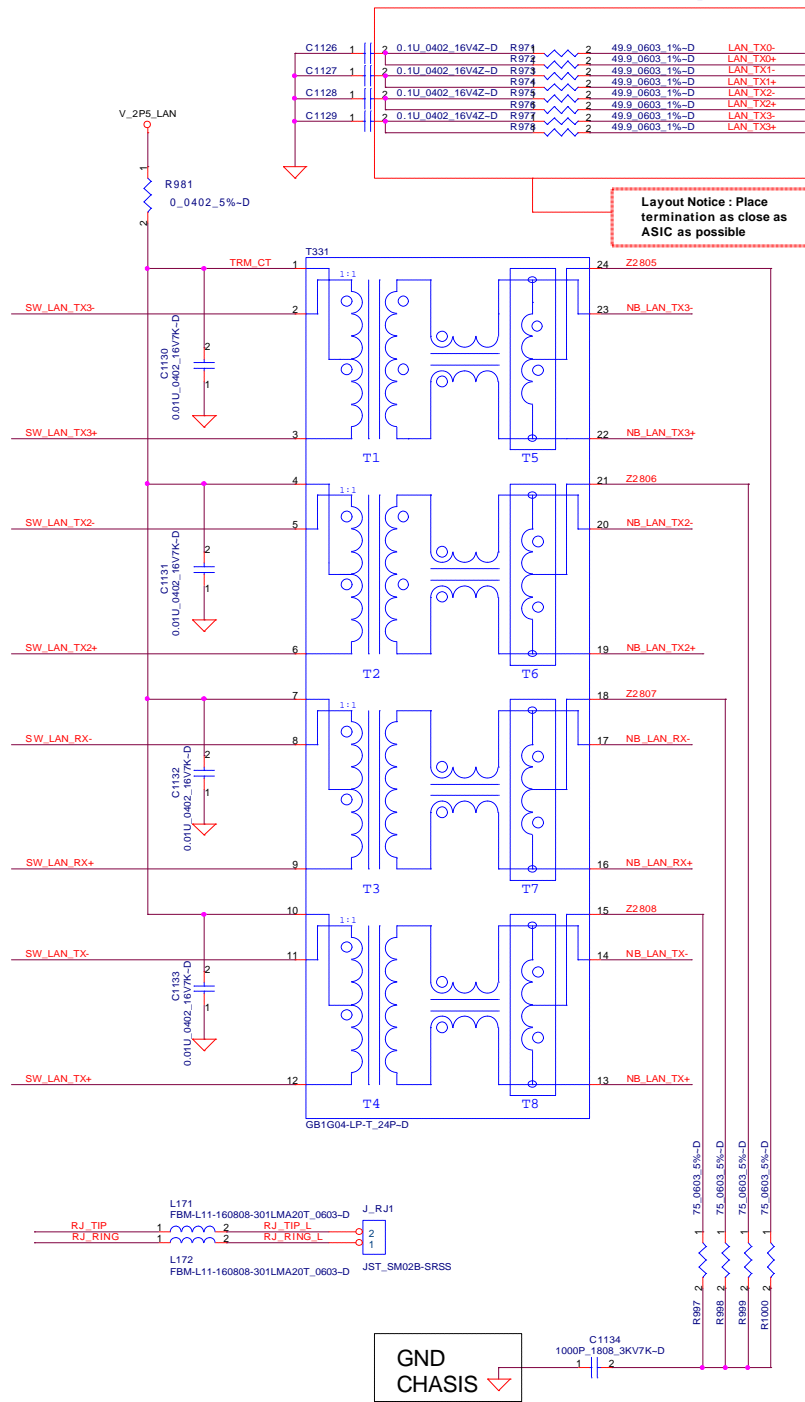
Layout Notice : Filter place as close chip as possible.

Layout Notice : Filter place as close chip as possible.

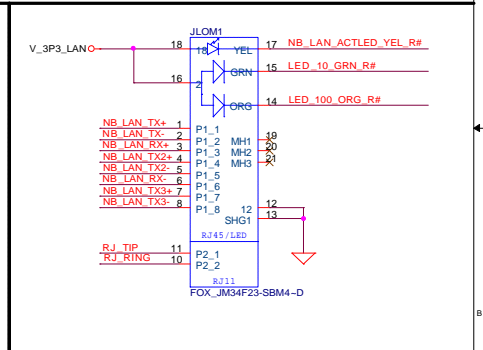
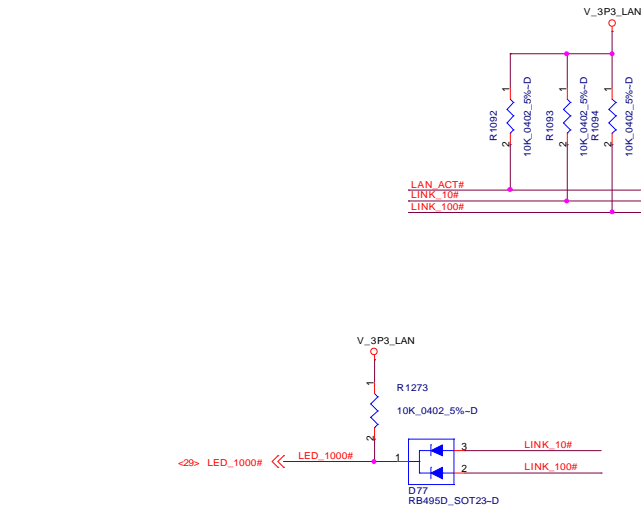
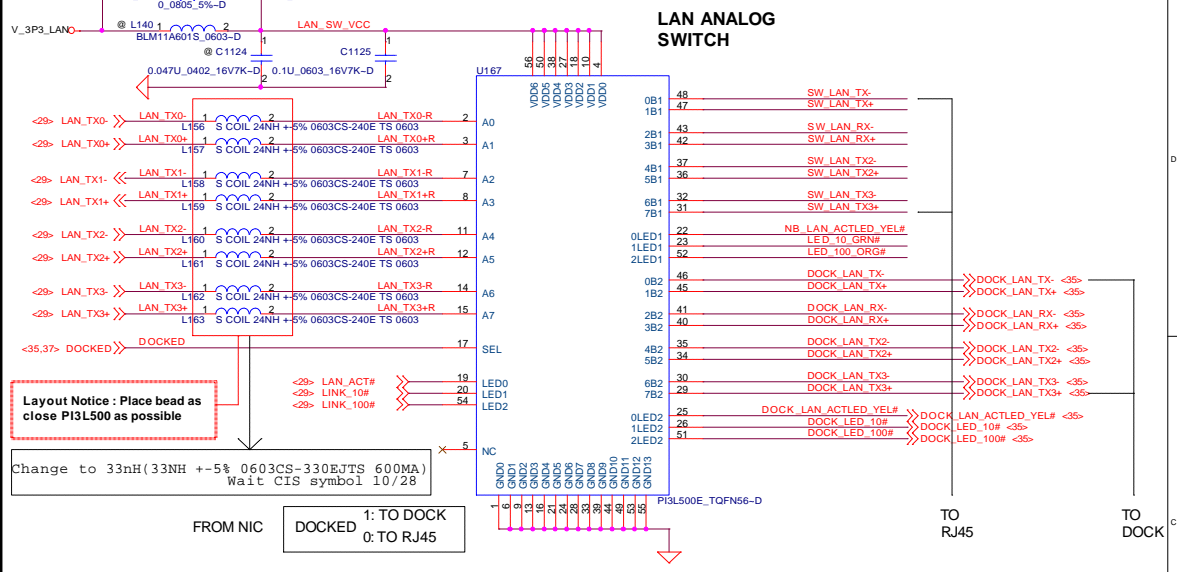
Layout Notice : Place as close chip as possible.

Layout Notice : No high speed signal should be routed near RDAC or on adjacent layer to RDAC

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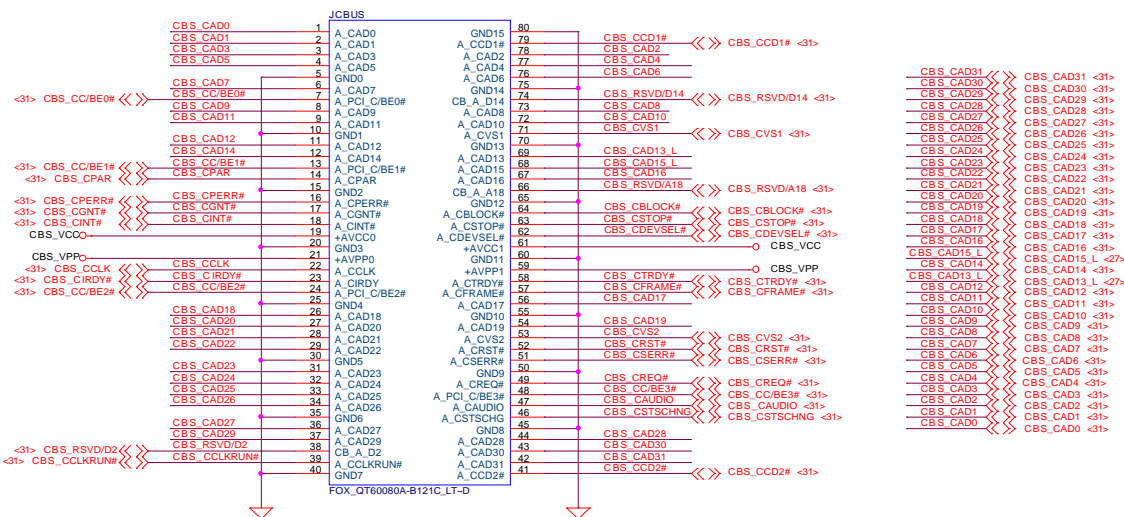
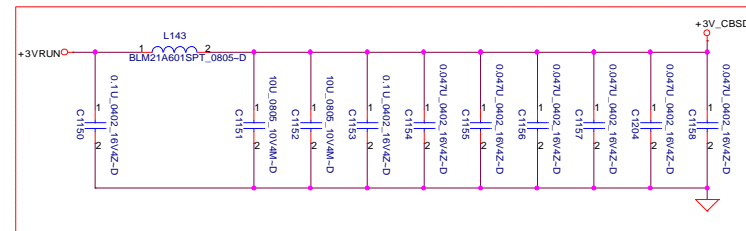
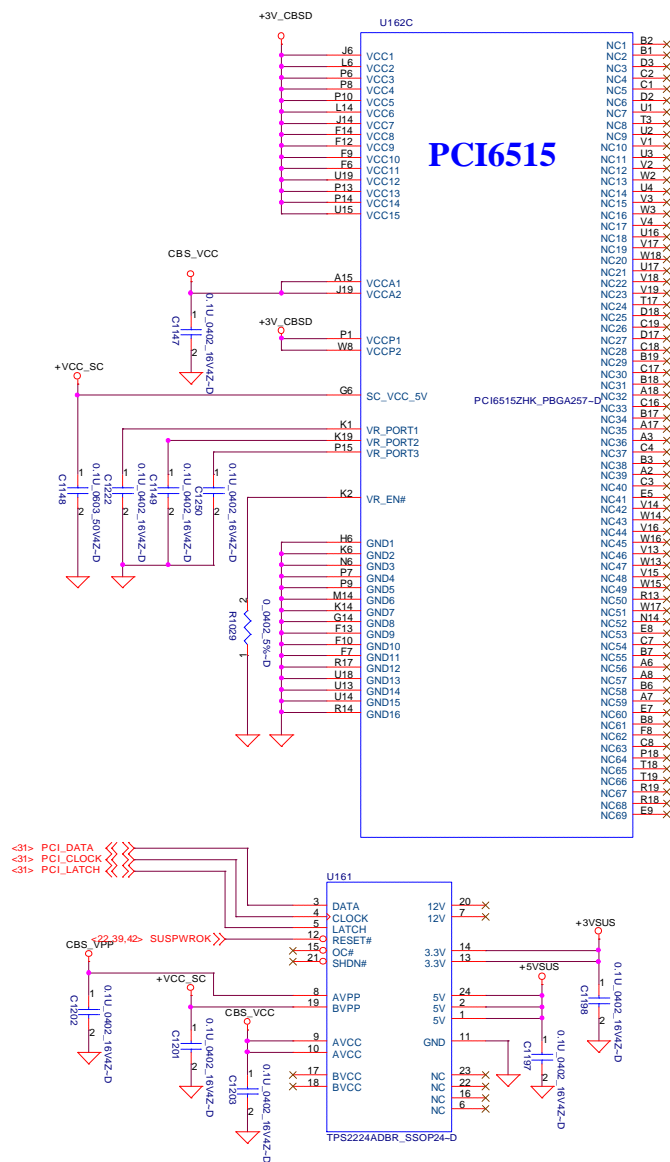


Layout Notice : Place termination as close as ASIC as possible



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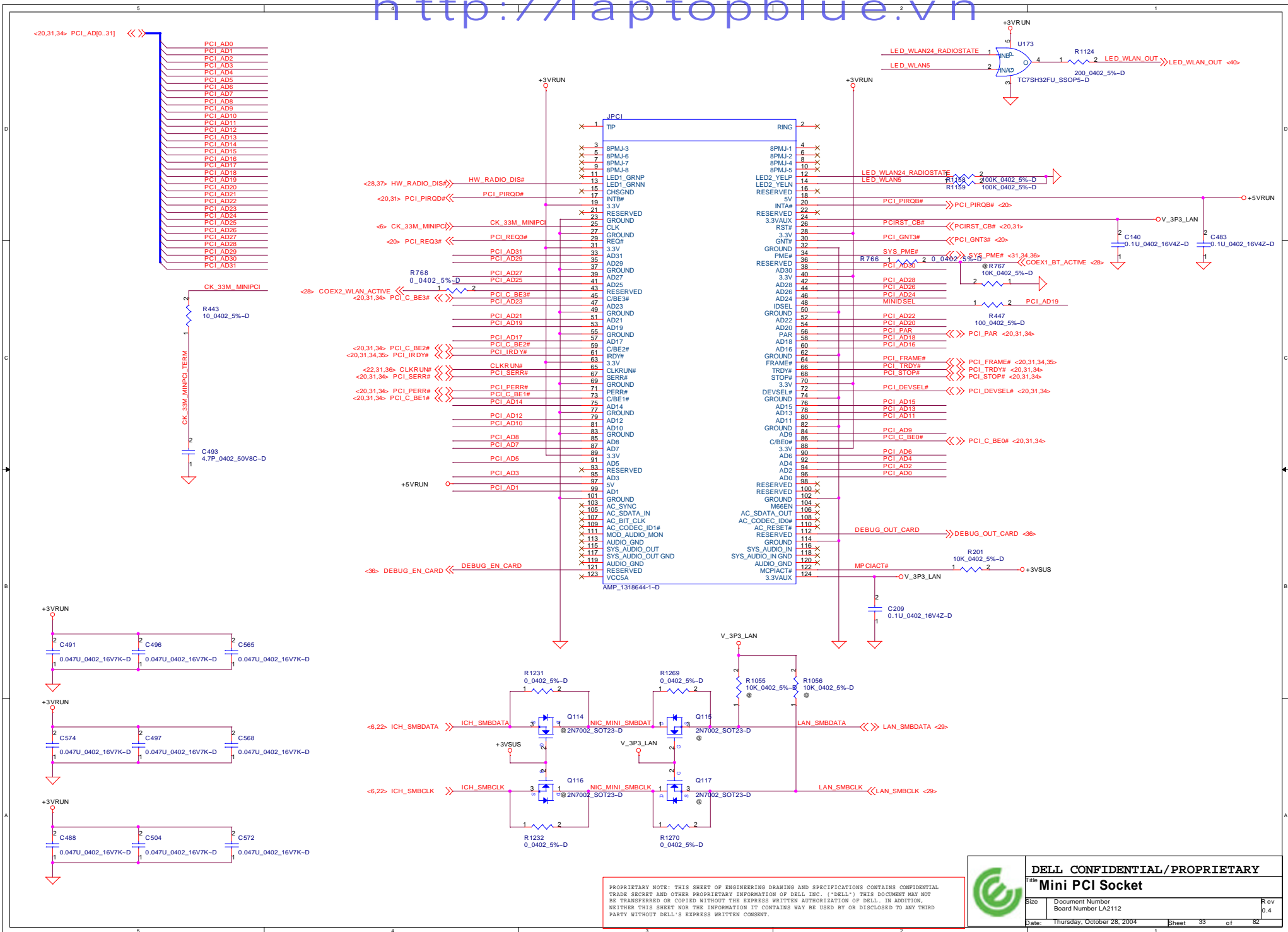


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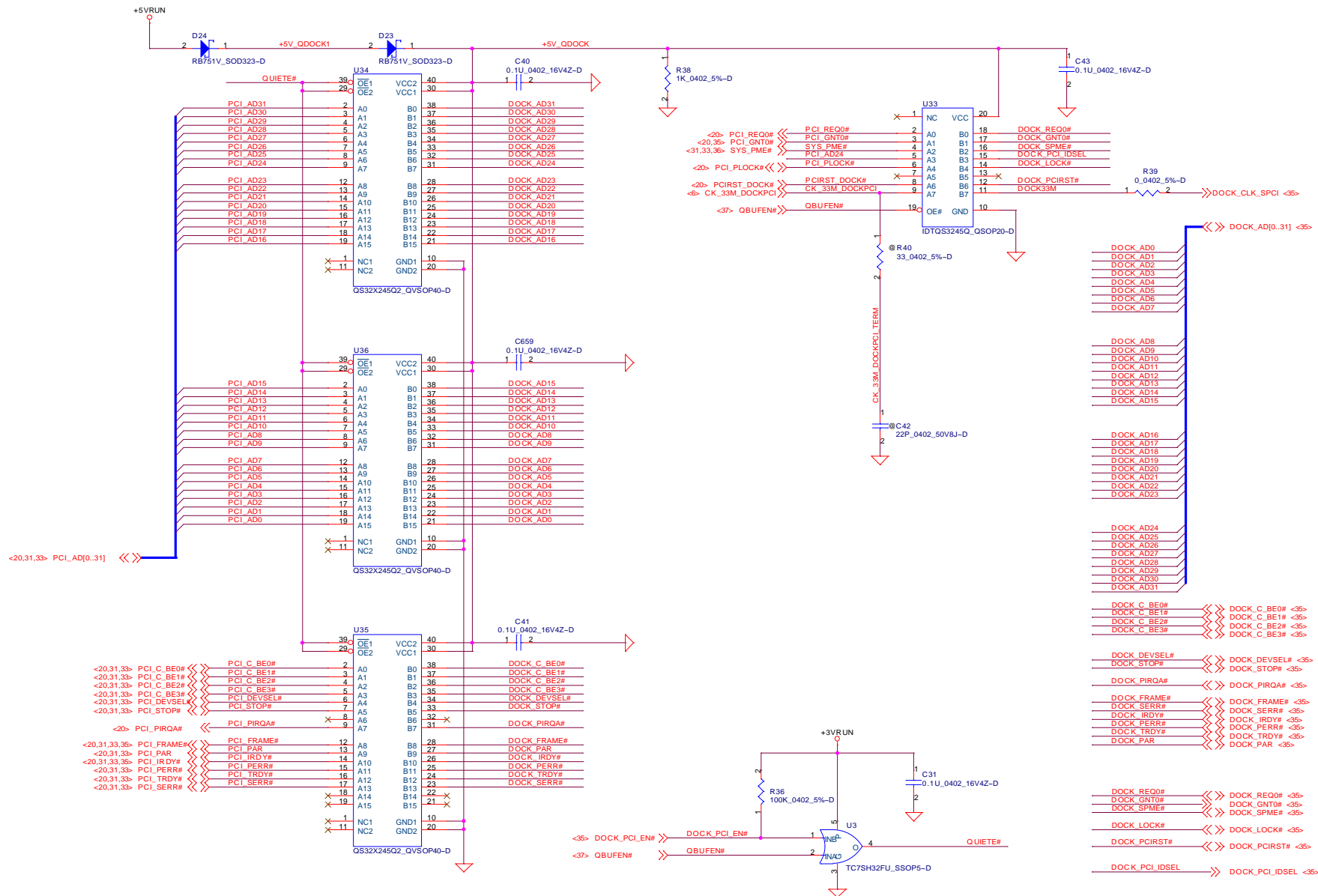


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Title Card Bus TI6515(2/2)

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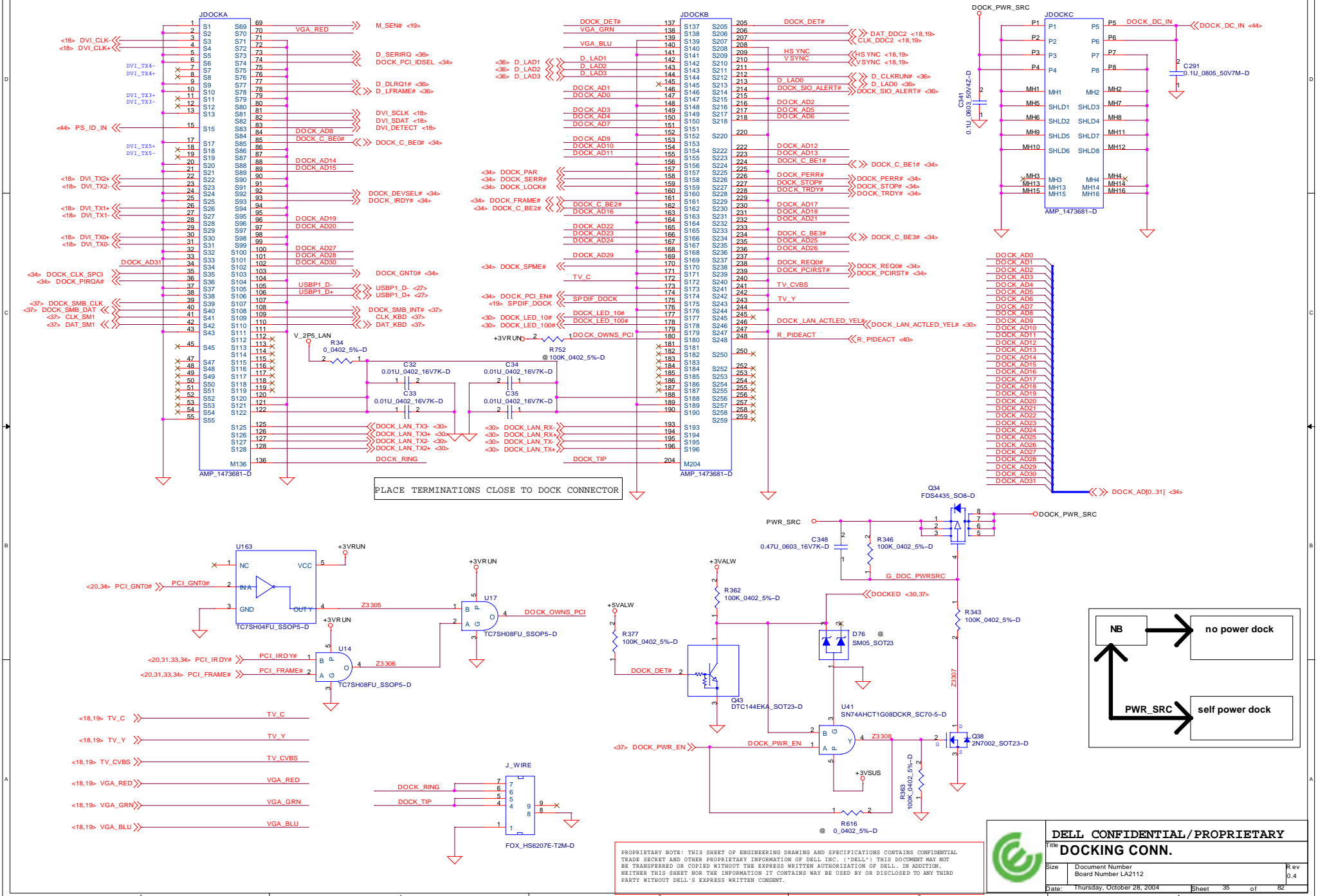


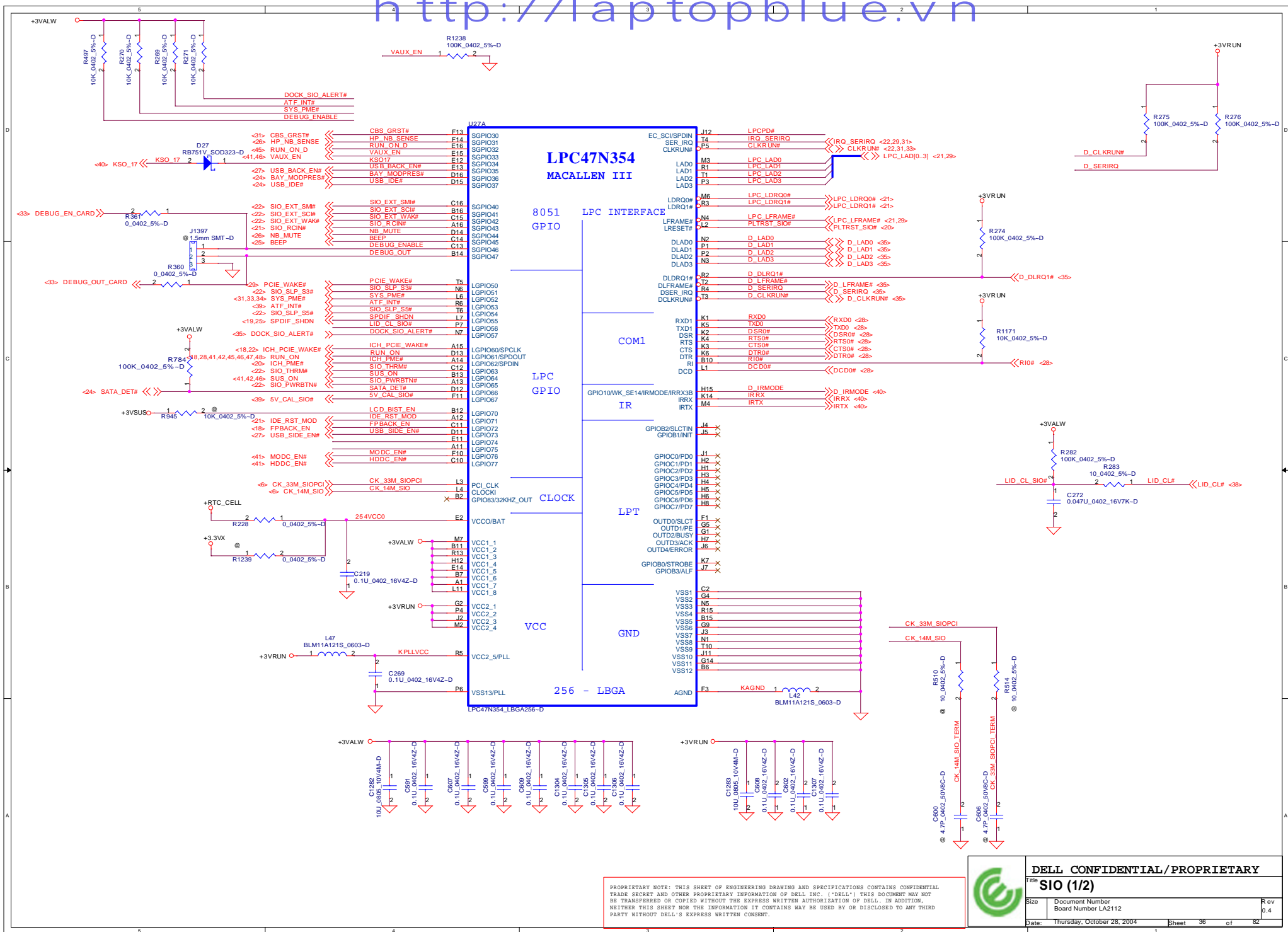
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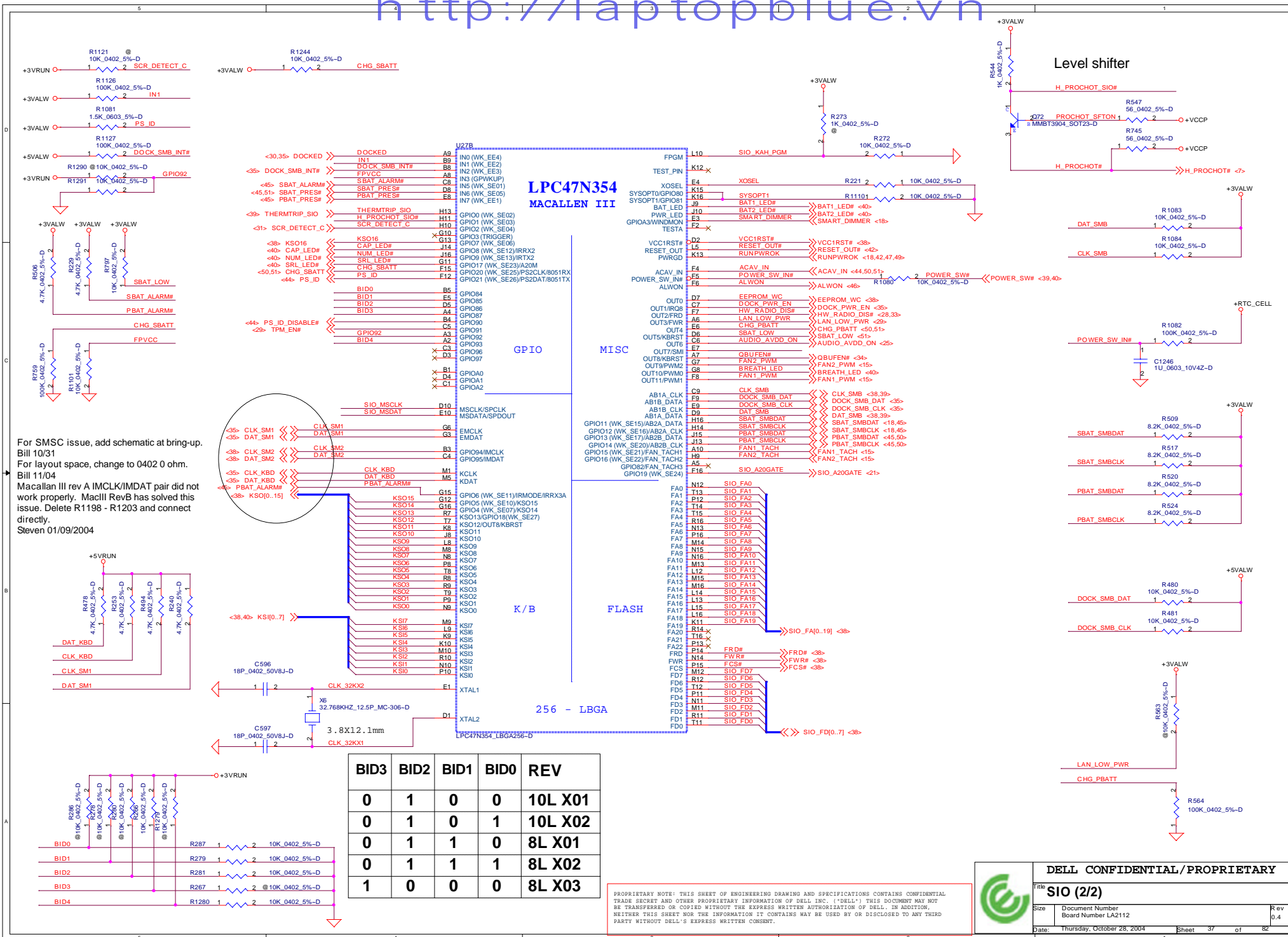
DELL CONFIDENTIAL/PROPRIETARY
DOCKING BUFFER

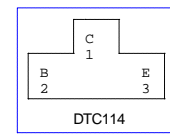
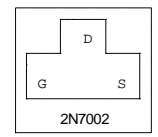
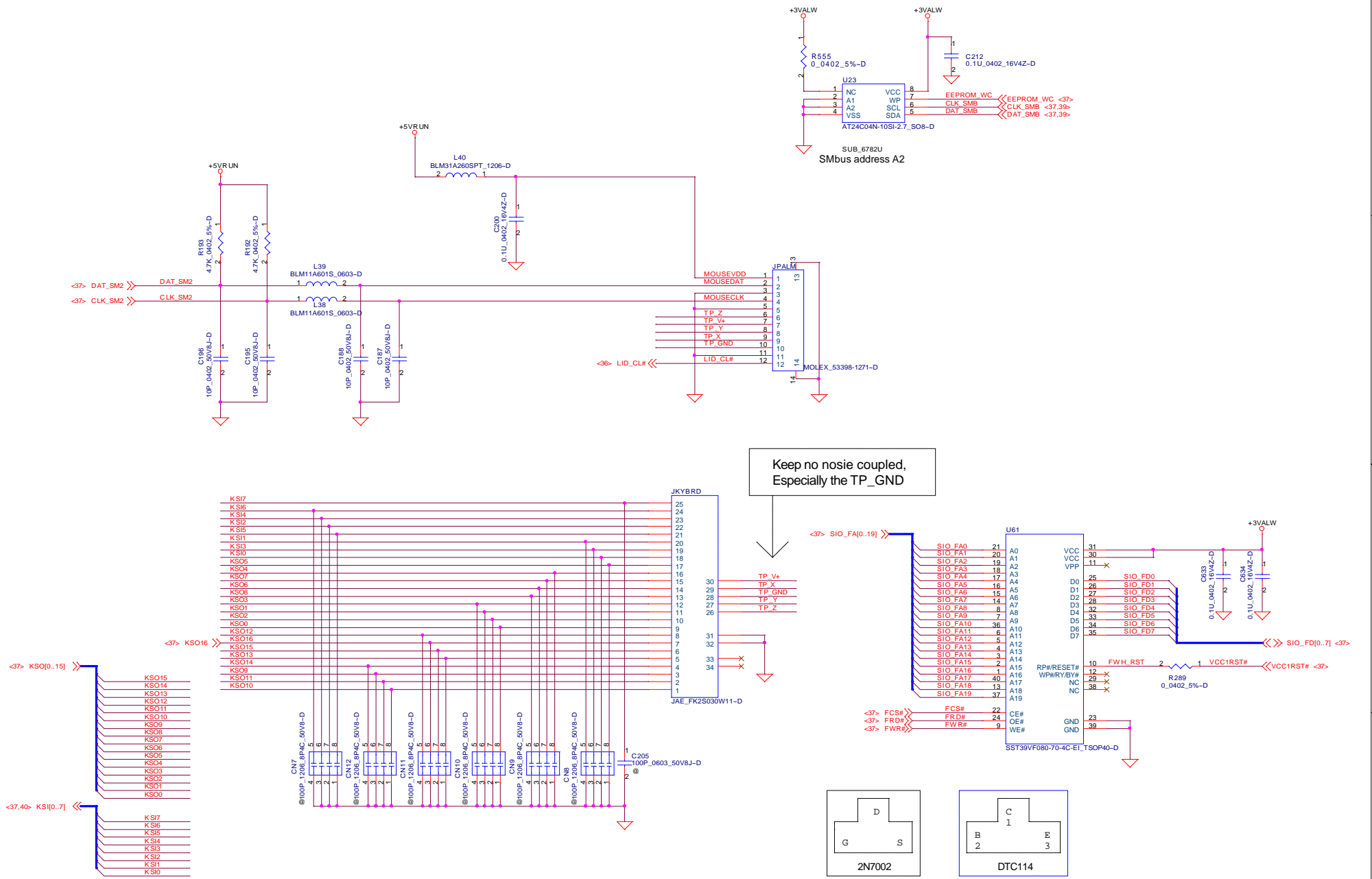
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File: INT KB		
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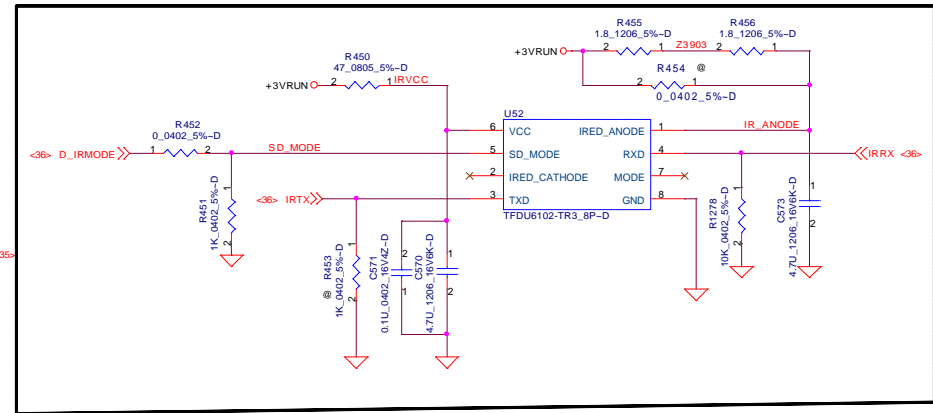
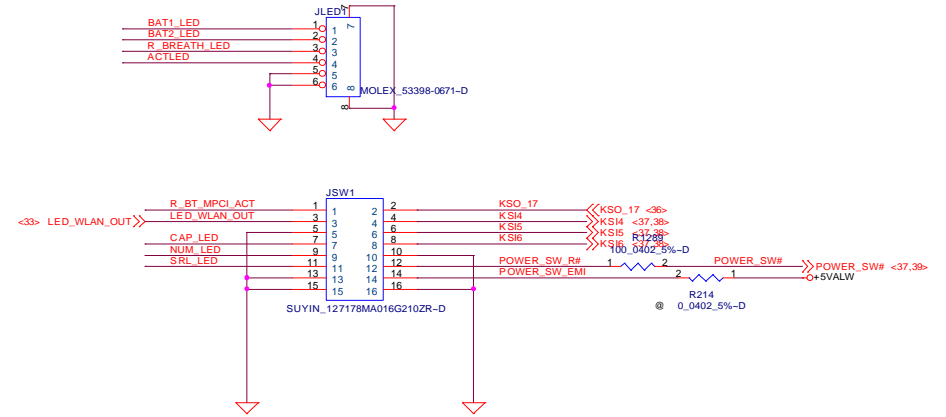
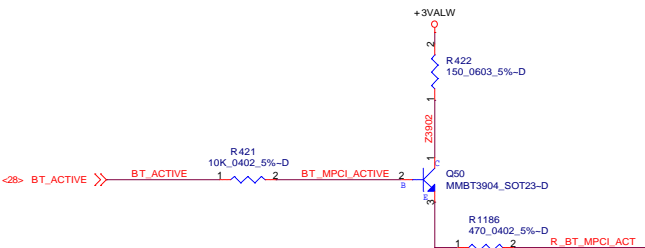
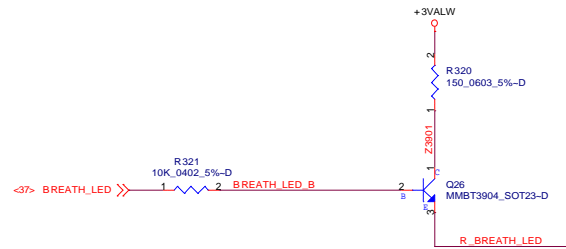
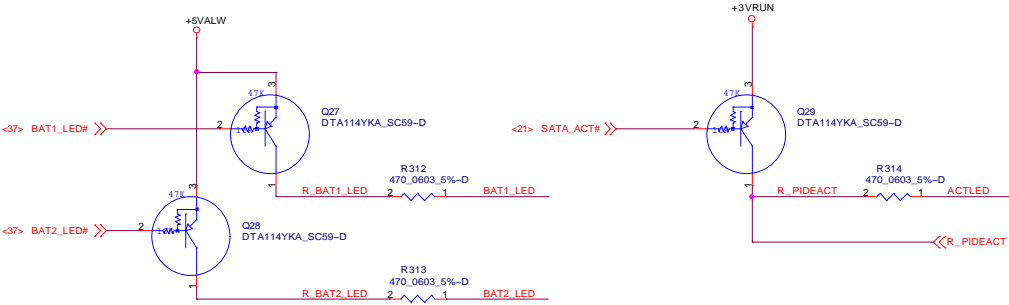
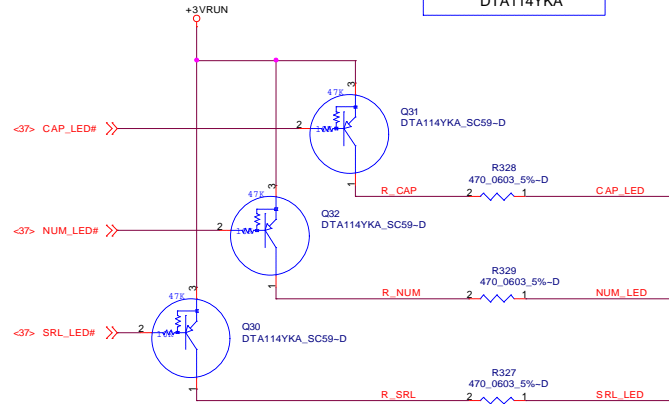
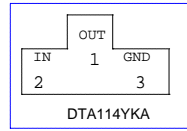


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Title **Thermtrip**

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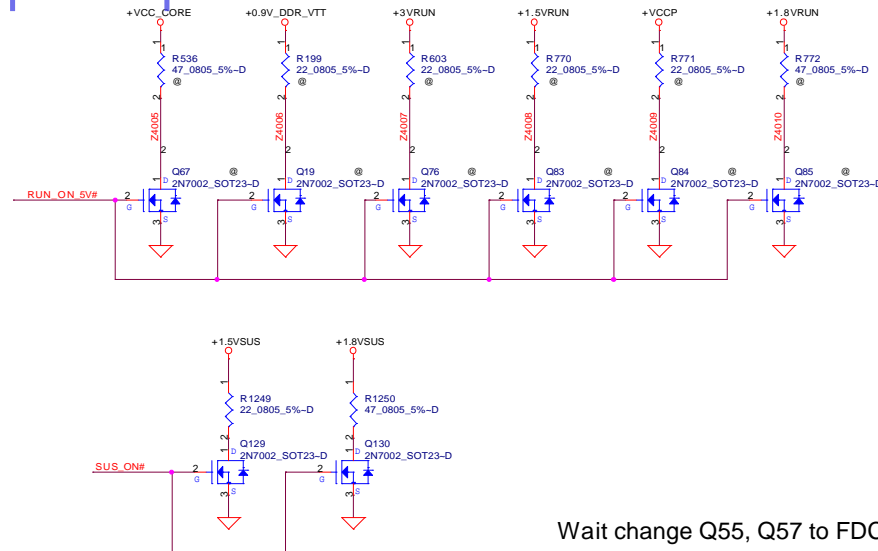
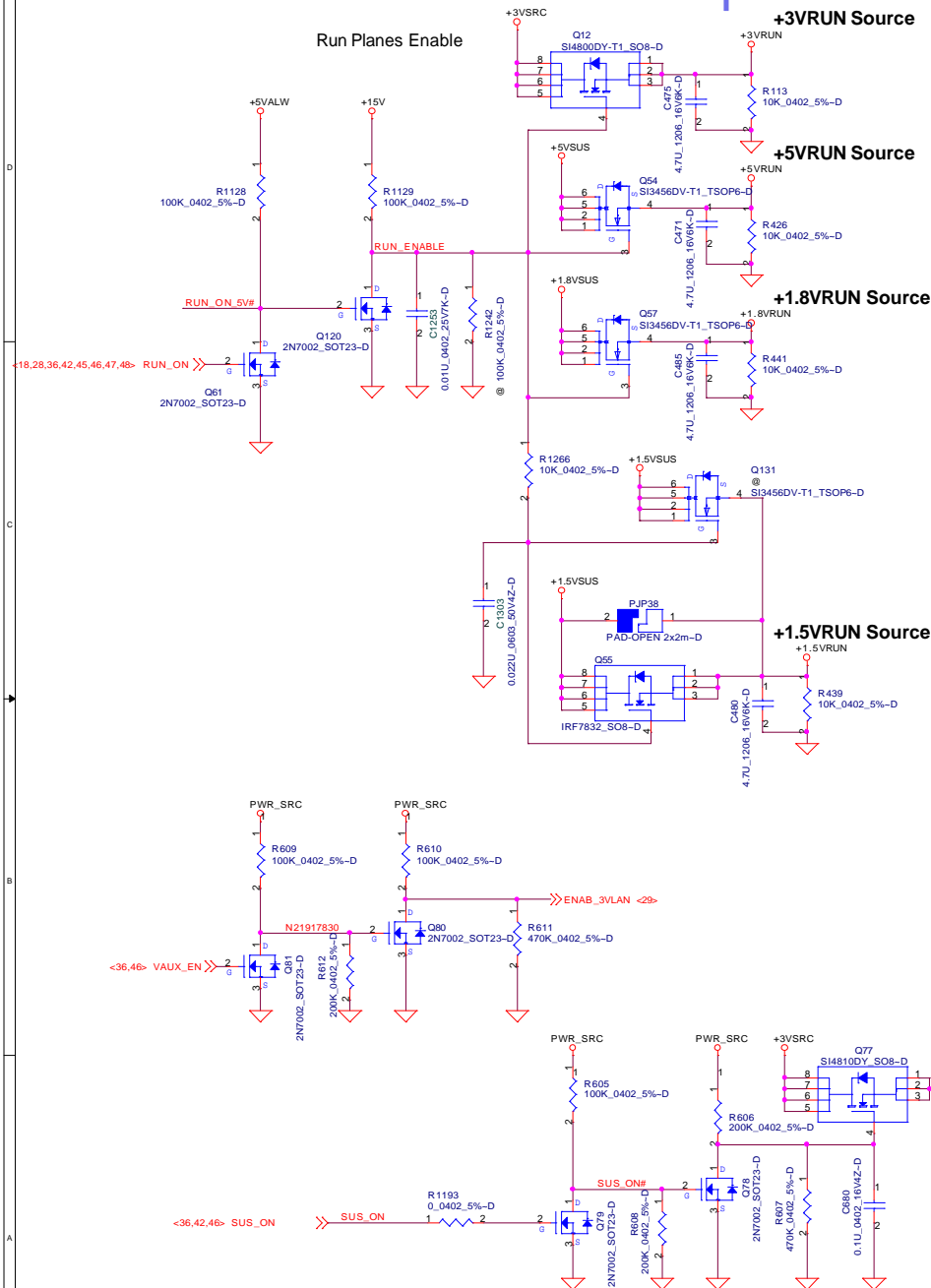
DELL CONFIDENTIAL/PROPRIETARY

File JLED/IR/PS2

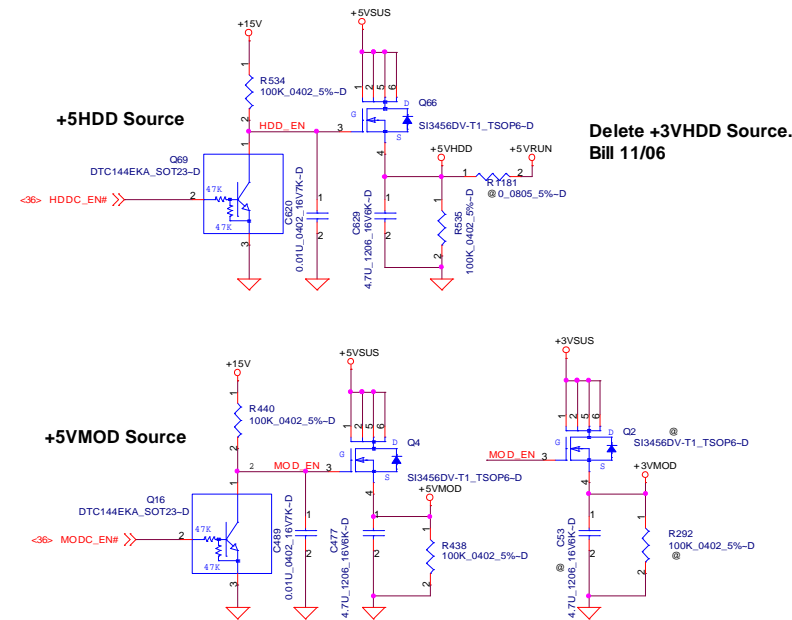
Size Document Number Board Number LA2112 Rev 0.4

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Run Planes Enable



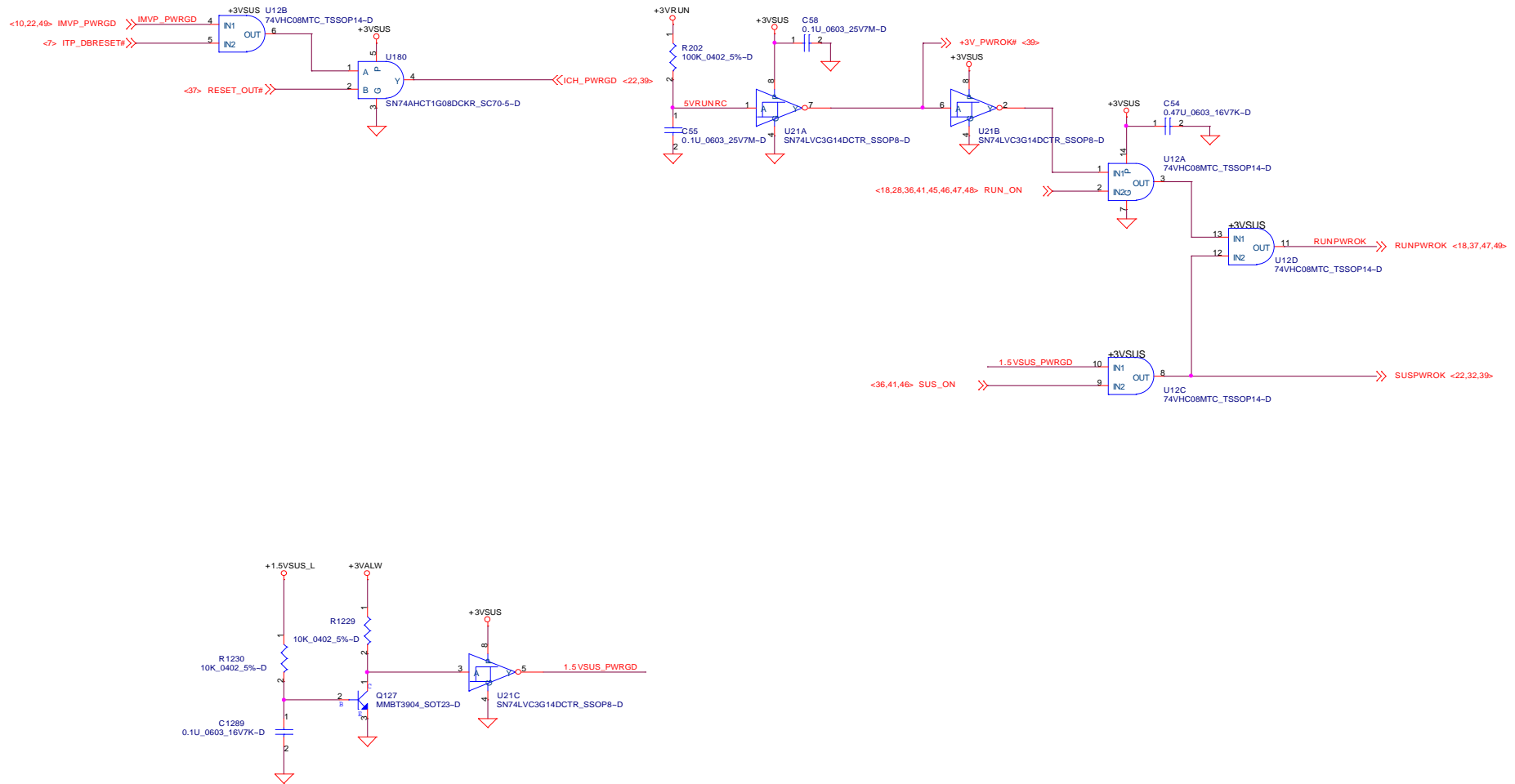
Wait change Q55, Q57 to FDC653N.



Delete +3VHDD Source.
Bill 11/06

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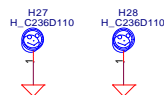
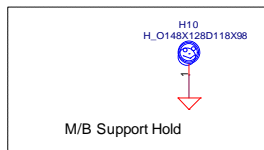
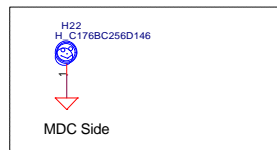
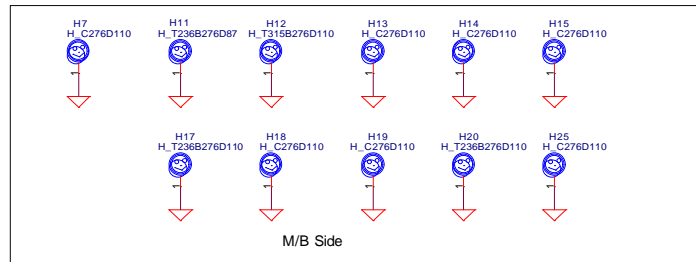
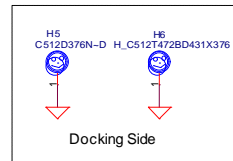
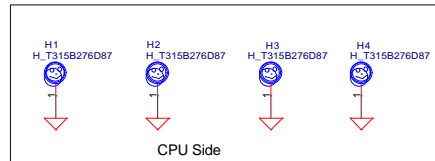
DELL CONFIDENTIAL/PROPRIETARY			
Title POWER CONTROL			
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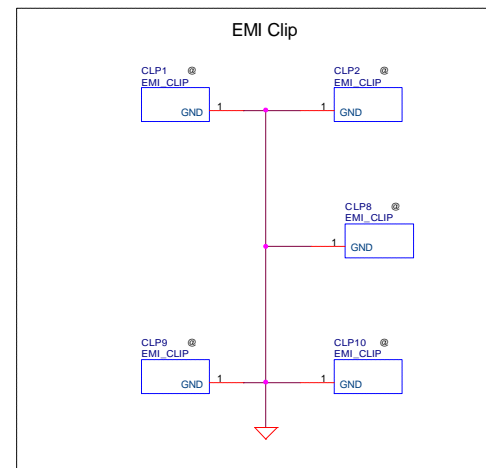
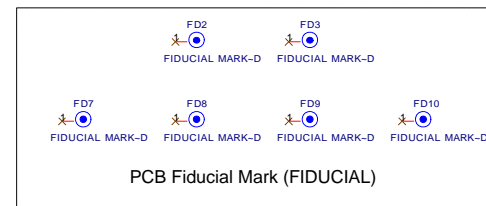
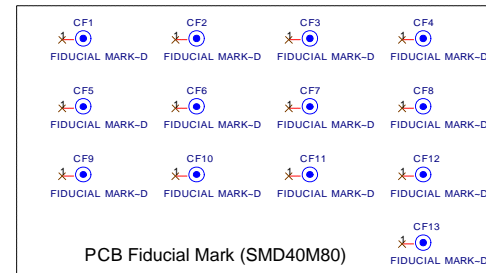
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Fiducial Mark



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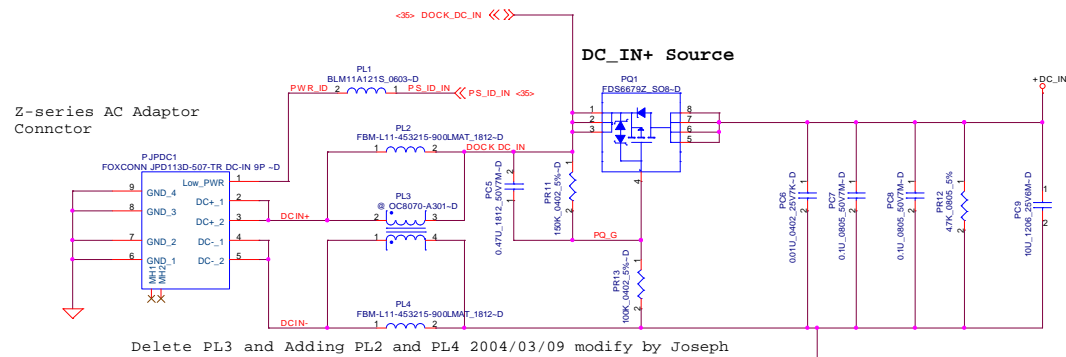
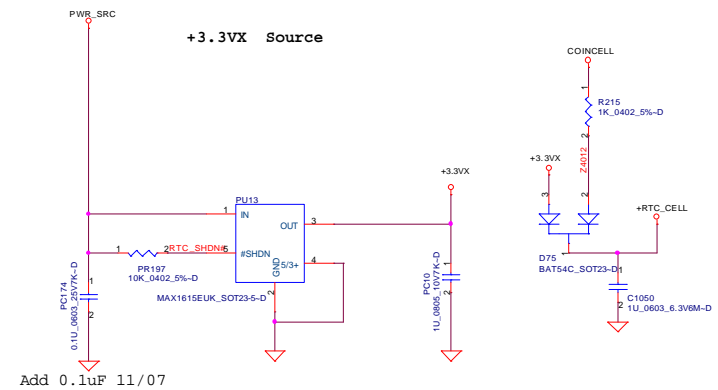
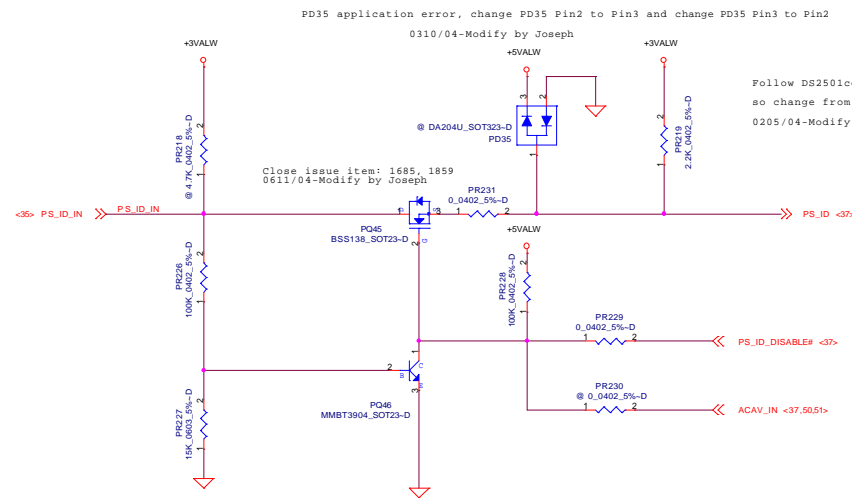


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File **PAD and Standoff**

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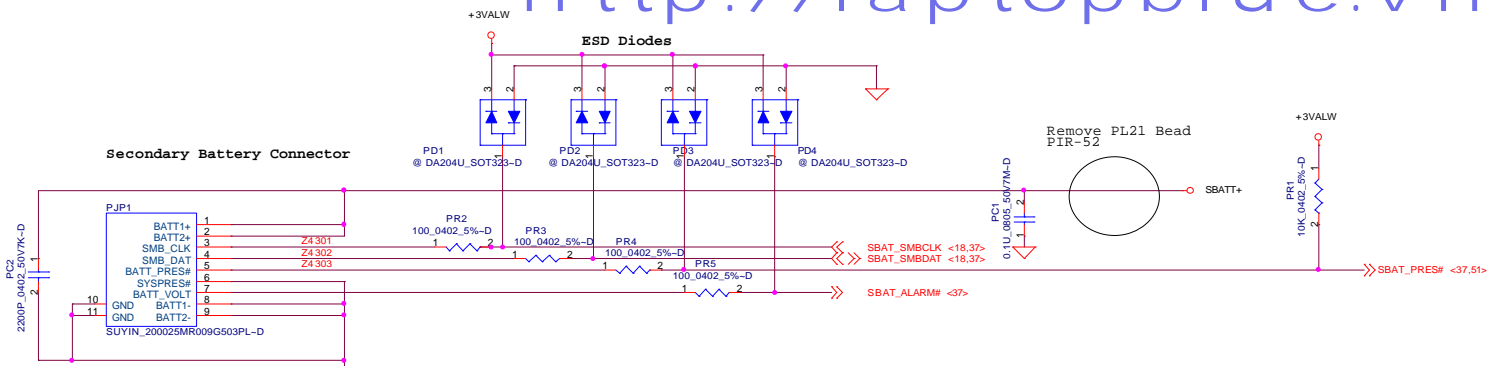


THE POINT
NOTE: *THE POINT LOCATED
AT PS MODULE

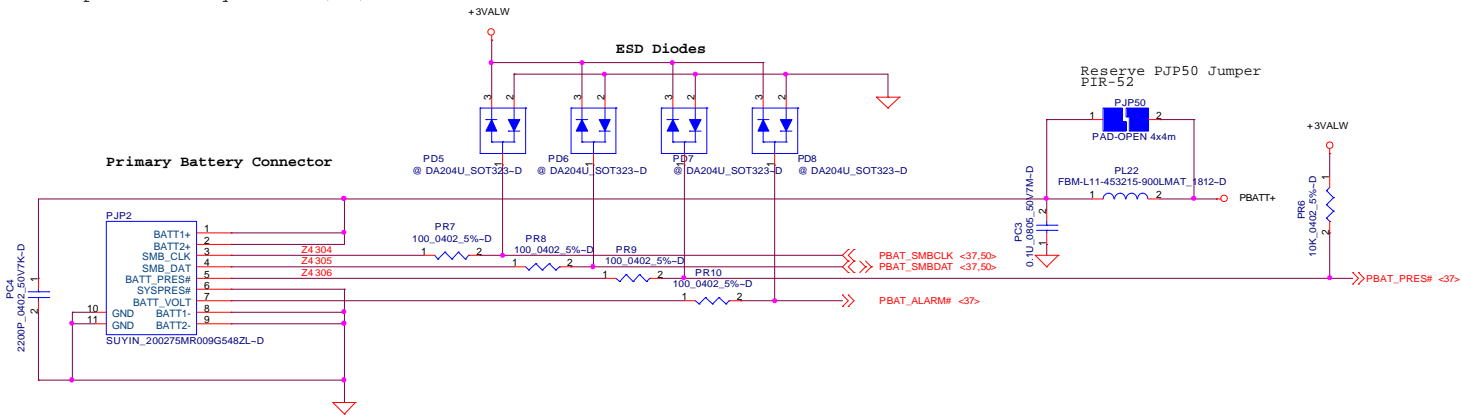
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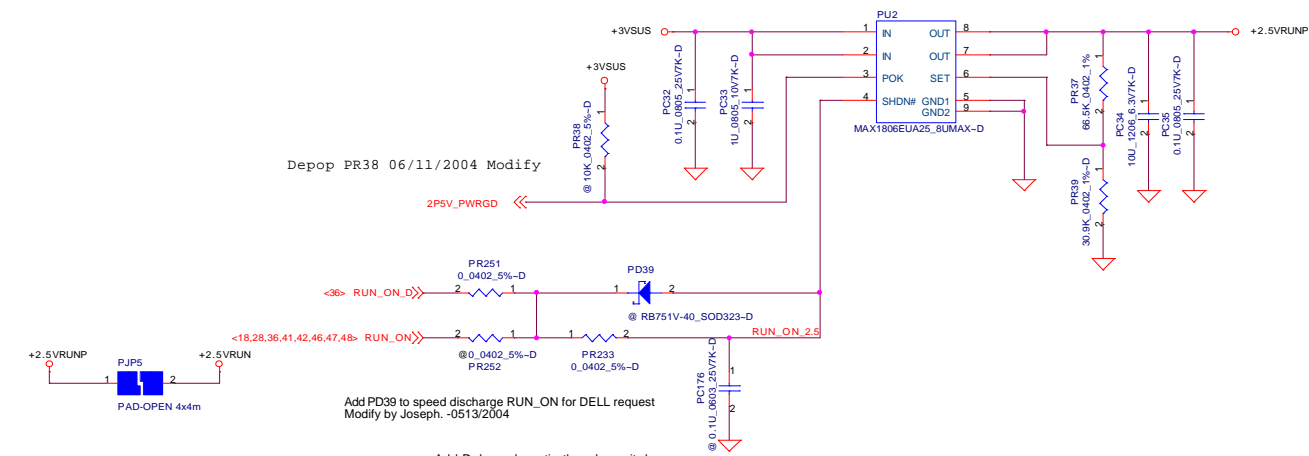
Update PJP1 symbol -01/29/2004



SUYIN_20175A-09G1
TOP view

+2.5VRUN

$$R1=R2 * (Vo / 0.8 - 1), R2:25K\sim100K.$$



Add PD39 to speed discharge RUN_ON for DELL request
Modify by Joseph. -0513/2004

Add Delay schematic, the value wait change.
12/16 Change to PWR materials

Change PR233 to achieve proper 1ms powerup delay.
Modify PR233 from 10 k to 27k by Joseph. -02/05

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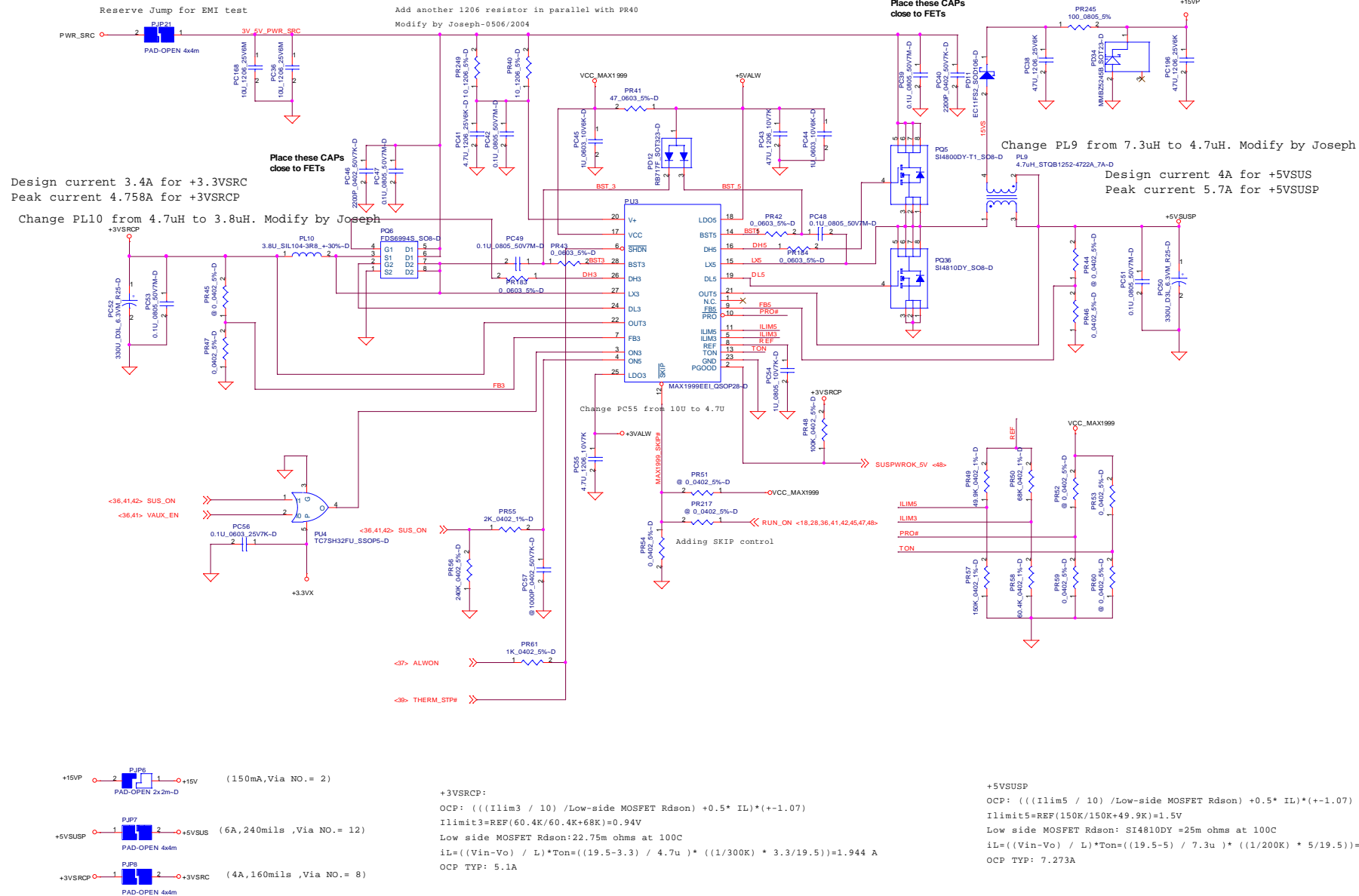


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Title		
Battery Conn./+2.5V		
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DC/DC +3V/ +5V/ +15V

Modify by Joseph 01/28/04



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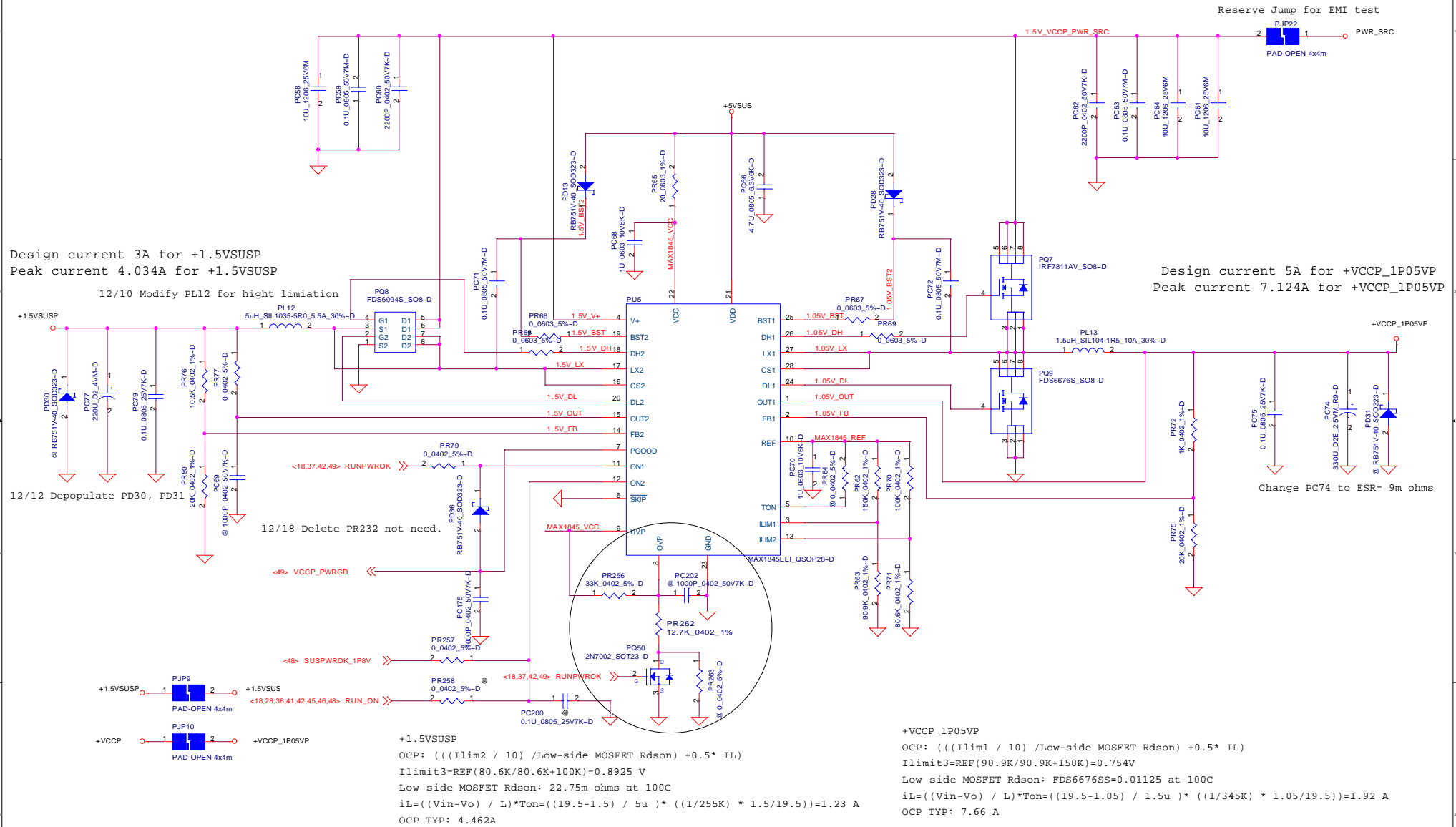


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+3.3V/+5V/+15V

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+1.5VSUSP / +VCCP_1P05VP



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Title	+1.5VSUSP /+VCCP_1P05VP
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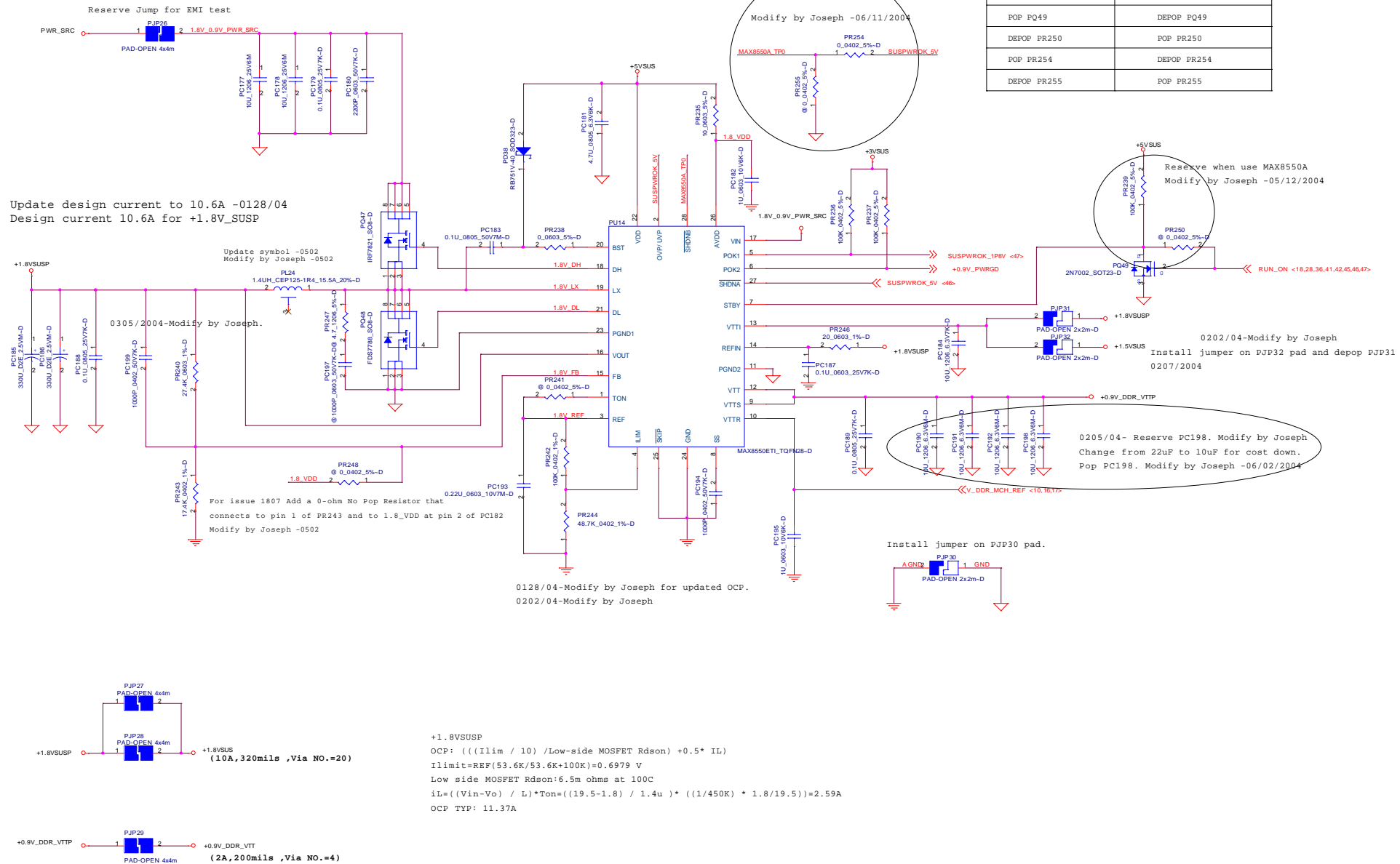
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+1.8VSUSP/ +0.9V_DDR_VTT
DDR2 Termination

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



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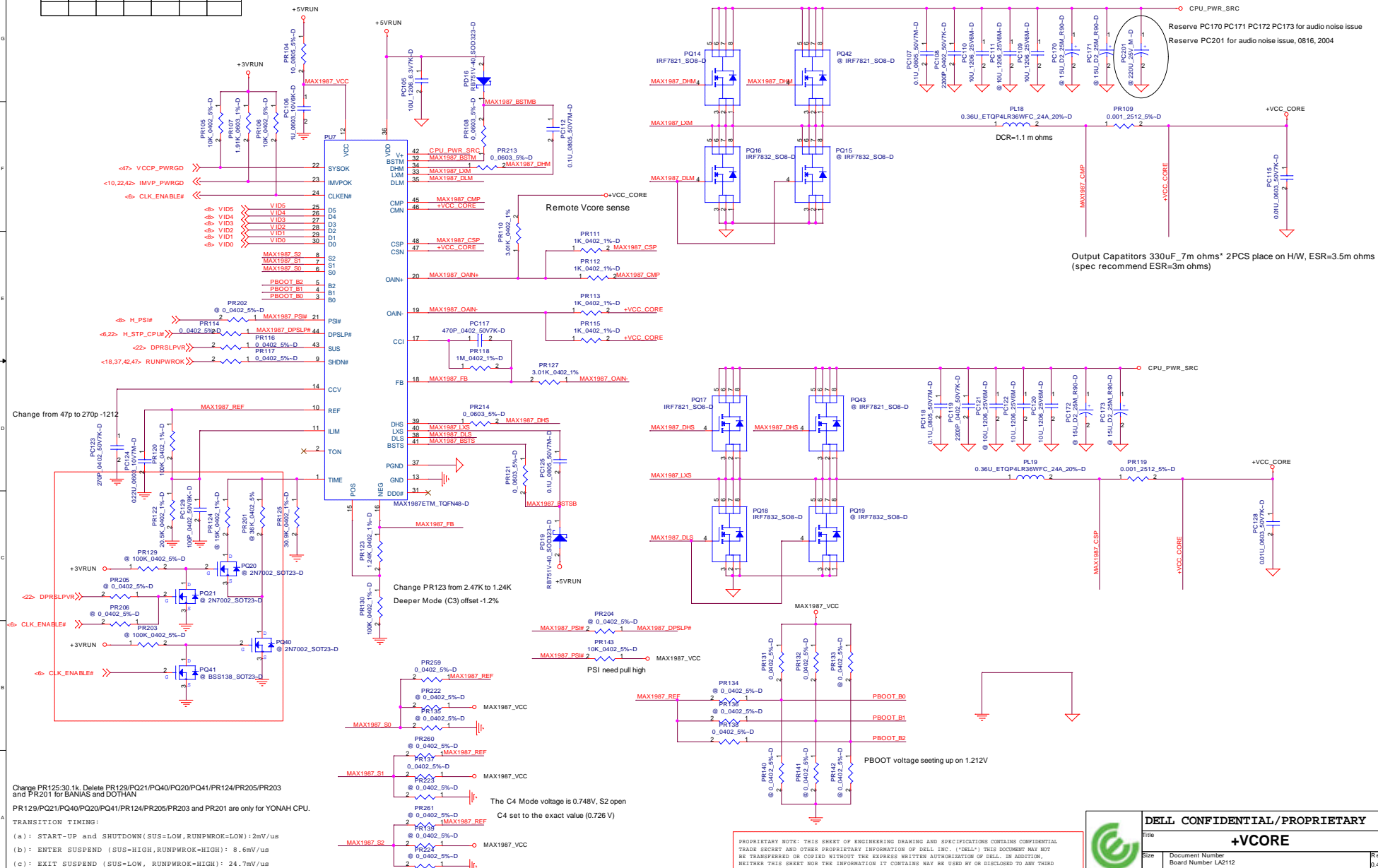
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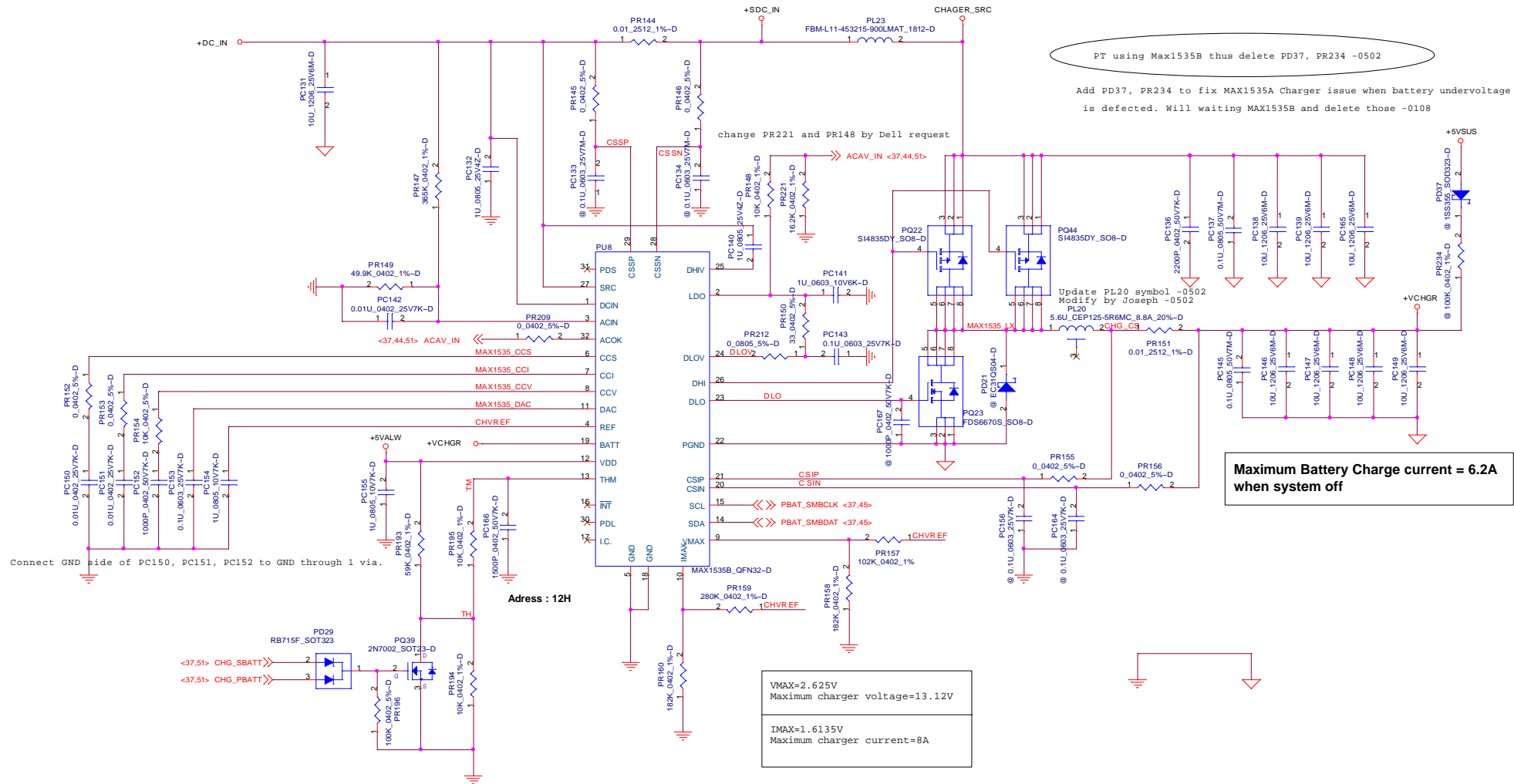
Title	+1.8VSUSP/ +0.9V DDR VT
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V I D							Vscore
VID 5	VID 4	VID 3	VID 2	VID 1	VID 0		v
0	1	1	1	1	0		1.484
0	1	1	0	0	1		1.308
1	0	1	1	1	1		0.956
1	1	1	1	0	0		0.748





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Title	Charger
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Title			
Selector			
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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

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

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

