COMPAL CONFIDENTIAL

MODEL NAME : *JAL21*

PCB NO : *LA-4042P (DAA00000T0L)*

BOM P/N : *43153331L01*

M09 Maybach DIS

uFCPGA Mobile Penryn
Intel Cantiga PM + ICH9M

2007-10-30

REV : 0.1

@ : Nopop Component

MB PCB

Part Number	Description
DAA00000R0L	PCB 03P LA-4051P REV0 M/B

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Block Diagram
Compal confidential
Model : JAL22

FAN
+FAN1_VOUT
page 18

Thermal GUARDIAN III EMC4002
+3.3V_SUS
page 18

Pentium-M
Penryn -4MB (Socket P)
uFCPGA CPU
478pin
+1.5V_RUN
+1.05V_VCCP
+VCC_CORE
page 7,8,9

CPU ITP Port
+1.05V_VCCP
page 7

Clock Generator
CK505
SLG8LP554
+3.3V_M
page6

CRT CONN
+5V_RUN
page 20

Video Switch
TS3DV520
+3.3V_RUN
page 20

VGA
VGA/SVID
SVID

NV G98
+FBVDDQ
+3.3V_RUN
+1.1V_GFX_PCIE
+GPU_CORE
page 51,52,53,54,55,56

H_A#(3..35)
System Bus
FSB 1066 MHz
H_D#(0..63)

PCIE-E 16X

INTEL
Cantiga
1329pin BGA
+1.5V_RUN
+1.8V_MEM
+1.05V_VCCP
+3.3V_RUN
+1.05V_M
page 10,11,12,13,14,15

Memory BUS (DDR2)
+1.8V_MEM 667/800 MHz

DDRII-DIMM X2
BANK 0, 1, 2, 3, 4 ,5 ,6 ,7 ,8
page 16,17
+0.9V_DDR_VTT
+1.8V_MEM

LVDS CONN
+5V_ALW
+3.3V_RUN on M/B Board
+PWR_SRC
page 19

LVDS
DPC

DP Switch
TS2DP512
+5V_RUN
page 21

DPB

DMI
+1.5V_RUN
100MHz

PCI BUS
+3VRUN 33MHz
IDSEL:AD17
(GNT#1,REQ#1)
(PIRQD#,PIRQB#,PIRQC#)

CardBus
R5C847
+3.3V_RUN
page 31,32

SNIFFER
IEEE1394
page 31

INTEL
ICH9-M
676pin BGA
+5V_ALW
+5V_RUN
+RTC_CELL
+3.3V_RUN
+3.3V_ALW_ICH
+1.5V_RUN
+1.05V_VCCP
page 22,23,24,25

48MHz

USB[11]
USB Port
Camera
page 19

Trough LVDS Cable

USB[2,3] LEFT SIDE
E-SATA
USB Port1 X1
Charger USB Port X1
+5V_ALW
page 33
SATA4

USB[0,1] RIGHT SIDE
USB Ports X2
+5V_ALW
On IO/B

DOCKING PORT
+PWR_SRC
+1.8V_LAN_M
page 35

DP CONN
+5V_RUN
page 21

SD CONN
+3.3V_RUN
page 31

DAI
SATA5
USB[8,9]
Through FPC to SD Board
USB[7]
Through FPC to IO Board

GLCI/LCI
Azalia I/F

S-ATA(4)

Intel Boazman
82567LF
+3.3V_ALW
+1.8V_LAN_M
+1V_LAN_M
page 29

LAN Switch
P13L500
+3.3V_LAN
page 30

PCI Express BUS

PCIE3
Mini Card 3
WPAN/BT/Robson
+3.3V_RUN
+1.5V_RUN
page 34
USB[6]

PCIE2
Mini Card 2
WLAN
+3.3V_WLAN
+1.5V_RUN
page 34
USB[4]

PCIE1
Mini Card 1
WWAN
+3.3V_RUN
+1.5V_RUN
page 34
USB[5]

SIM card
page 34

LPC BUS
+3V_RUN
33MHz

SATA1
E-Module
+5V_MOD
page 26

SATA0
S-HDD
+3.3V_RUN
+5V_HDD
page 26

Azalia Codec
92HD71B
+3.3V_RUN
+VDDA
page 27

AMP & INT.
Speaker
+5V_RUN
page 28

RJ45
On IO/B

Trough LVDS Cable
Dig. MIC
+VDDA

RFID
page 36

USH I/F
BCM5880
TPM 1.2
+3.3V_RUN
+2.5V_AVDD_5880
+1.2V_AVDD_5880
page 36
USB[10]

LPC BUS

SMSC KBC
MEC5035
+RTC_CELL
+3.3V_ALW
page 38

SPI
W25X32VSSIG
+3.3V_LAN
page 24
32Mbit
W25X32VSSIG
+3.3V_LAN
page 24

DAI
SSM2602
+3.3V_RUN
page 27
DOCKING

DC IN
BATT IN
page 43

SCREW HOLE
LED
page 42

3V/5V
page 44

73S8009CN
+3.3V_RUN
page 36

Smart Card
page 36

USBH

ME & LED
page 42

SMBus

BC

SPI
SST25VF
16Mbit
+3.3V_ALW
page 38

MDC
+3V_SUS

HeadPhone &
MIC Jack
+3.3V_RUN
On IO/B

GPUCORE / 1.1V
page 41

1.5V/1.05V
page 45

Selector
page 40

1.8V/0.9V
page 46

CHARGER
page 48

VCORE (IMVP-6)
page 47

BC BUS
Expend GPIO
ECE1088
+3.3V_ALW
page 39

RJ11
Through Cable

Biometric
+3.3V_RUN
page 33

ECE1077
+3.3V_ALW

Touch Pad
page 39

Int.KBD &
Stick
page 39

Stick

Trough Cable

BC BUS
SMSC SIO
ECE5028
+3.3V_ALW
page 37

DOCK LPC BUS

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POWER STATES

Signal / State	SLP S3#	SLP S4#	SLP S5#	S4 STATE#	SLP M#	ALWAYS PLANE	M PLANE	SUS PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON	ON
S3 (Suspend to RAM) / M1	LOW	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	OFF	ON
S4 (Suspend to DISK) / M1	LOW	HIGH	HIGH	LOW	HIGH	ON	ON	ON	OFF	ON
S5 (SOFT OFF) / M1	LOW	HIGH	LOW	LOW	HIGH	ON	ON	ON	OFF	ON
S3 (Suspend to RAM) / M-OFF	LOW	HIGH	HIGH	HIGH	LOW	ON	OFF	ON	OFF	OFF
S4 (Suspend to DISK) / M-OFF	LOW	LOW	HIGH	LOW	LOW	ON	OFF	OFF	OFF	OFF
S5 (SOFT OFF) / M-OFF	LOW	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF	OFF

PM TABLE

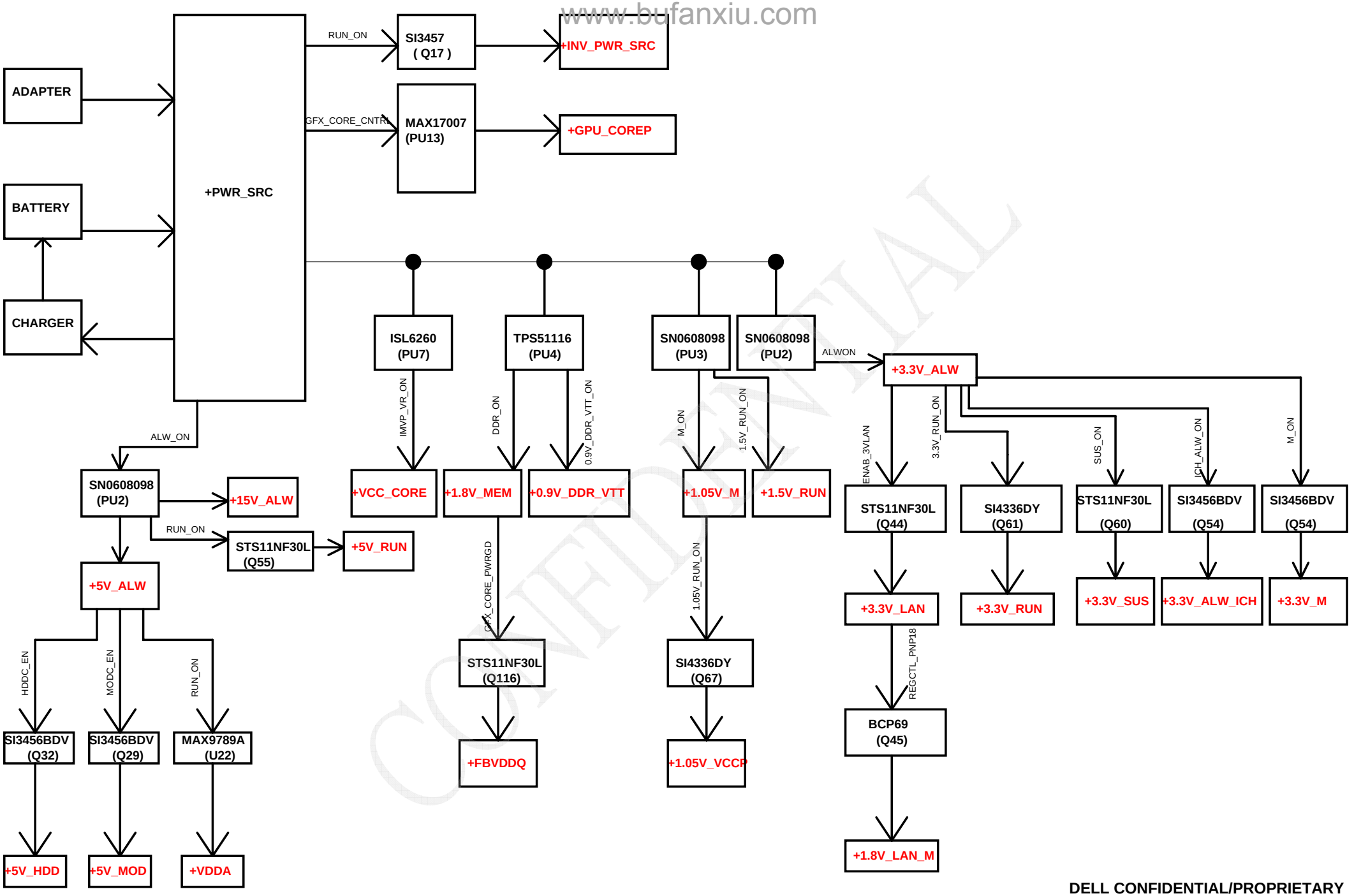
power plane / State	+15V_ALW +5V_ALW +3.3V_ALW_ICH +3.3V_RTC_LDO	+3.3V_SUS +1.8V_MEM	+5V_RUN +3.3V_RUN +2.5V_RUN +1.5V_RUN +0.9V_DDR_VTT +GPU_CORE +VCC_CORE +1.05V_VCCP +FBVDDQ +1.1V_GFX_PCIE	+3.3V_M +1.05V_M	+3.3V_M +1.05V_M (M-OFF)
S0	ON	ON	ON	ON	ON
S3	ON	ON	OFF	ON	OFF
S5 S4/AC	ON	OFF	OFF	ON	OFF
S5 S4/AC don't exist	OFF	OFF	OFF	OFF	OFF

PCI TABLE

PCI DEVICE	IDSEL	REQ#/GNT#	PIRQ
R5C847	AD17	REQ#1 / GNT#1	PIRQ[B..D]

	USB PORT#	DESTINATION
ICH9-M	0	JUSB1 (Ext Right Side Top)
	1	JUSB1 (Ext Right Side Bottom)
	2	JESA1 (Ext Left Side Bottom)
	3	JESA1 (Ext Left Side TOP)
	4	WLAN
	5	WWAN
	6	WPAN
	7	Card Bus/Express card
	8	DOCKING
	9	DOCKING
	10	USH->BIO
	11	Camera

PCI EXPRESS	DESTINATION
Lane 1	MINI CARD-1 WWAN
Lane 2	MINI CARD-2 WLAN
Lane 3	MINI CARD-3 BT/UWB
Lane 4	EXPRESS CARD
Lane 5	None
Lane 6	10/100/1G LAN



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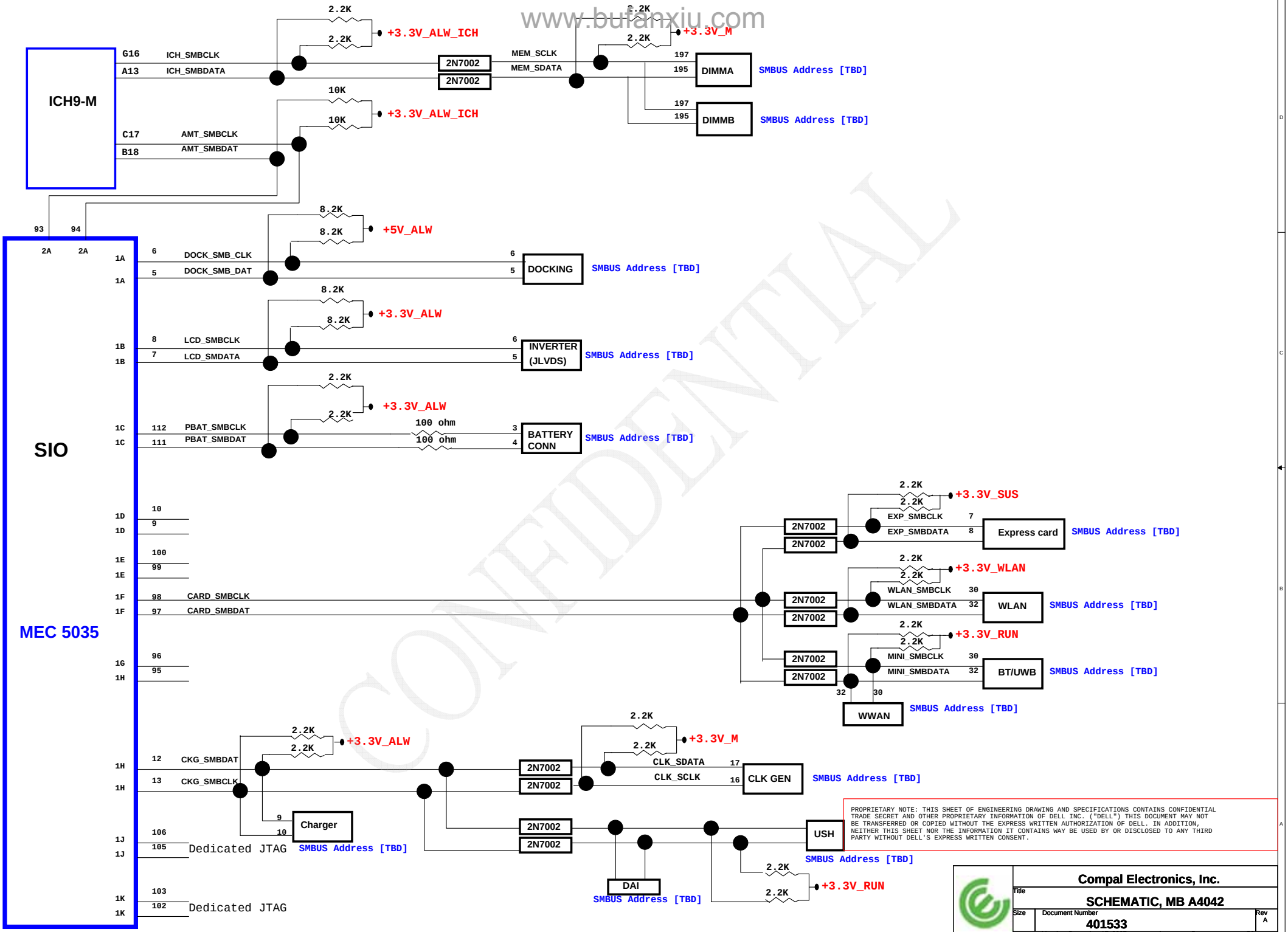

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FSC CLKSEL2	FSB CLKSEL1	FSA CLKSEL0	CPU MHz	SRC MHz	PCI MHz
0	0	0	266	100	33.3
0	0	1	133	100	33.3
0	1	0	200	100	33.3
0	1	1	166	100	33.3
1	0	0	333	100	33.3
1	0	1	100	100	33.3
1	1	0	400	100	33.3

Place crystal within 500 mils of CK505

TME	PIN 32
0	overclocking enabled
1	overclocling disabled

ITP_EN	PIN 37
0	Pin 5/6 as SRC_10
1	Pin 5/6 as CPU_ITP

FCTSEL1	PIN43	PIN44	PIN47	PIN48
0=UMA	DOT96T	DOT96C	96/100M_T	96/100M_C
1=DIS	27M_out	27M SSout	SRCT0	SRCC0

0=UMA
1=Disc. GRFX down

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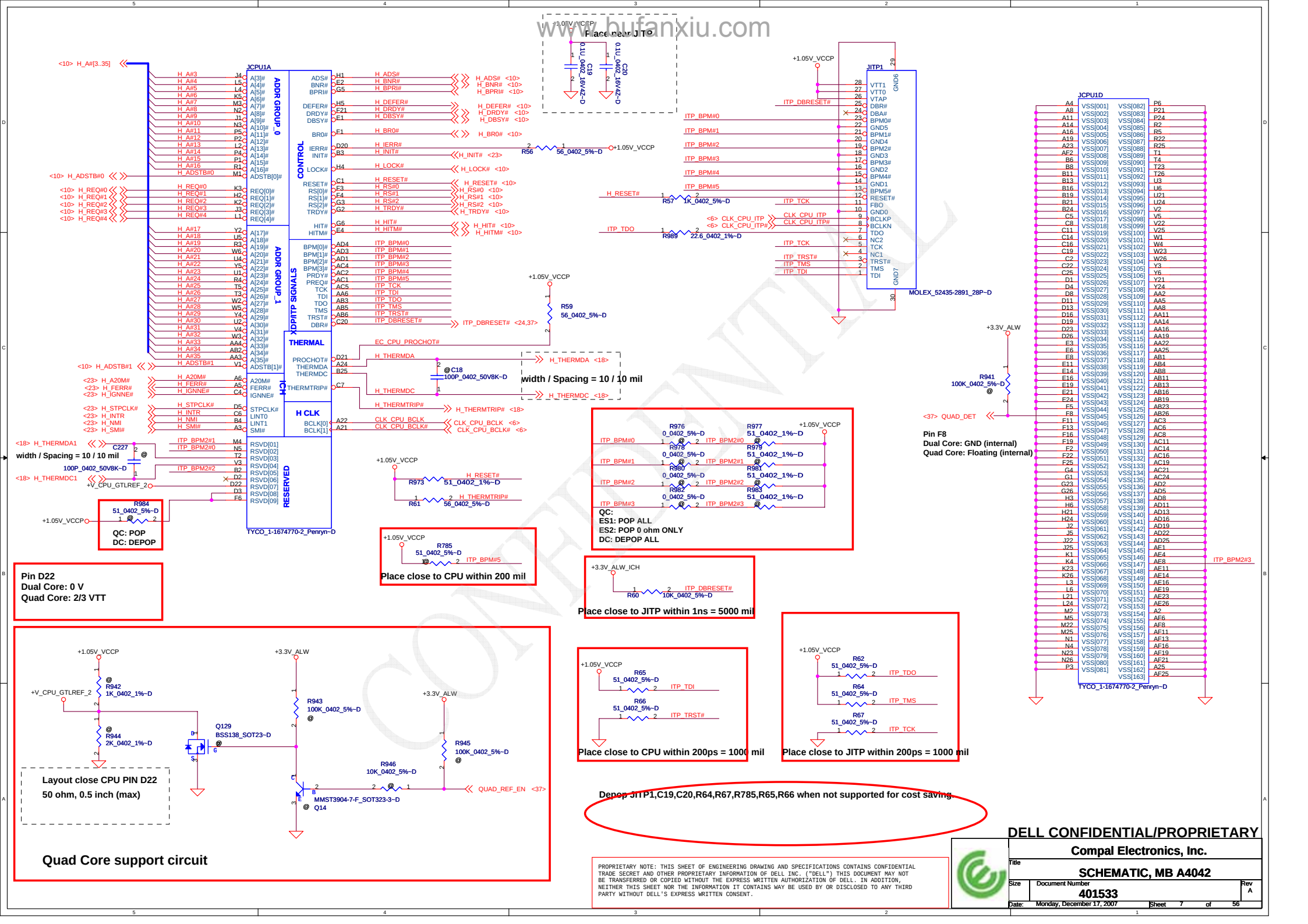

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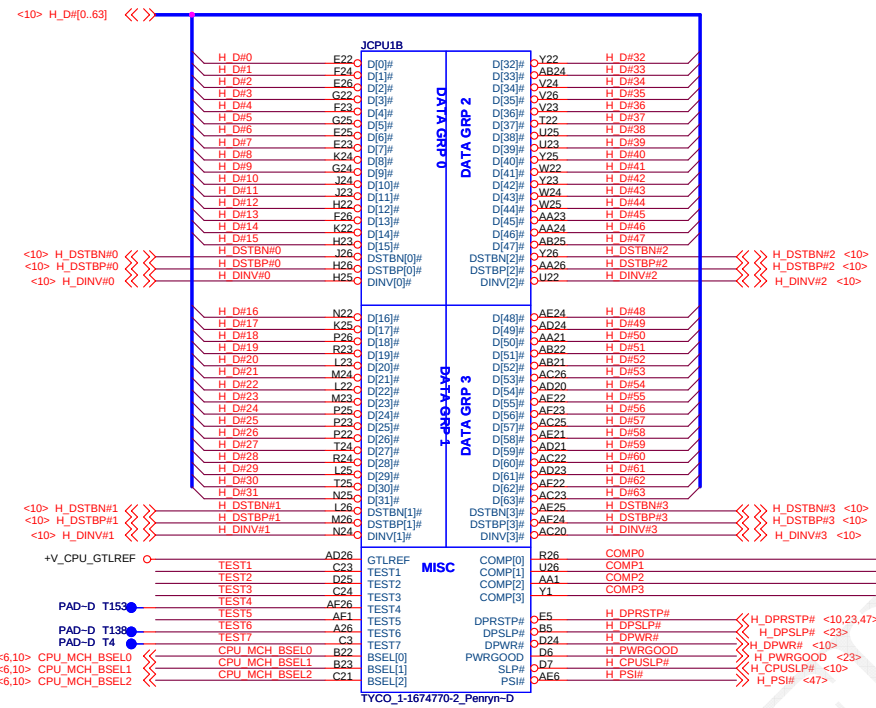
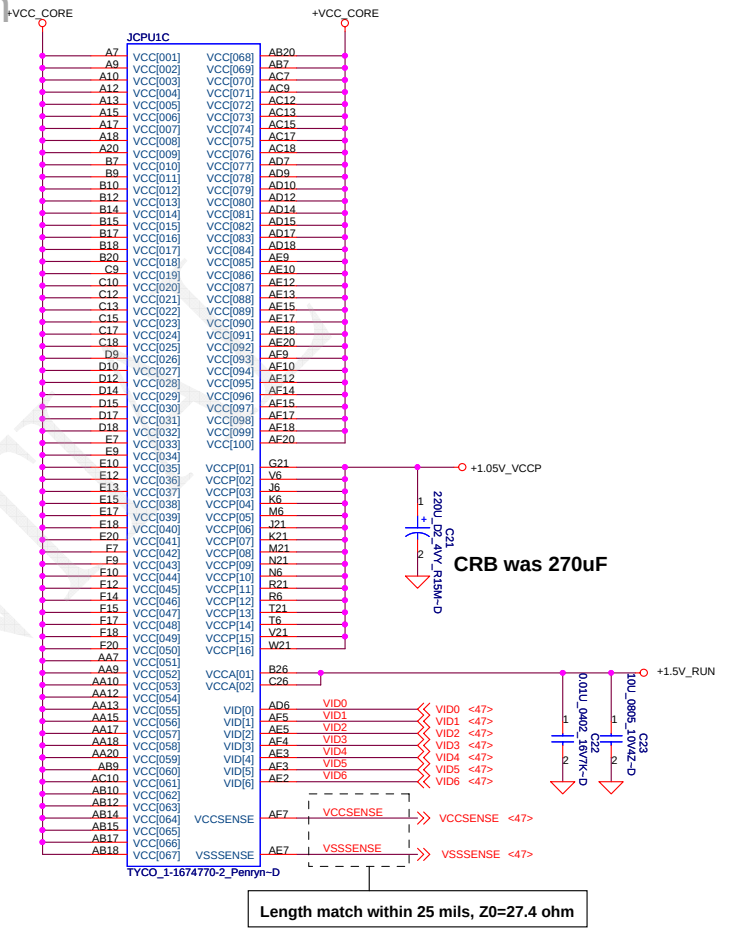
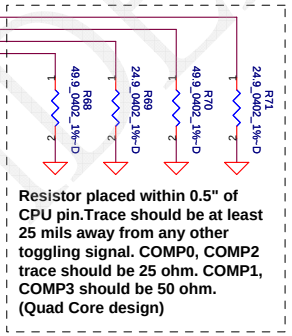
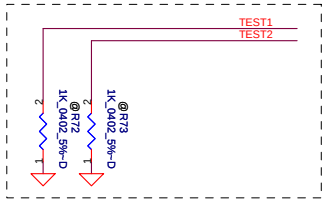
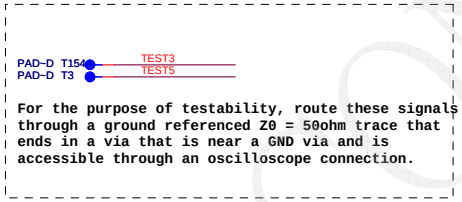




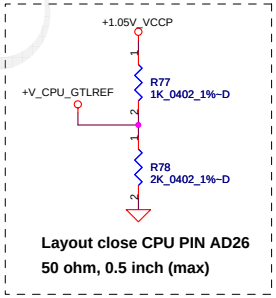


Dual Core Should follow Quad Core value
Avia should support Quad / Dual Core CPU

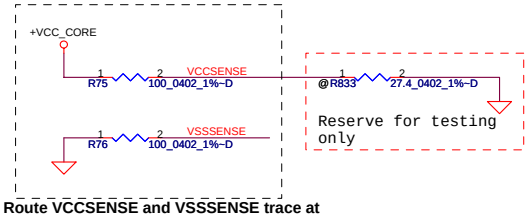




FSB	BCLK	BSEL2	BSEL1	BSEL0
533	133	0	0	1
667	166	0	1	1
800	200	0	1	0
1067	266	0	0	0



Place R75 and R76 near CPU



Route VCCSENSE and VSSSENSE trace at
27.4 ohms, 7 mils spacing and the placement should be within 1 inch (max)

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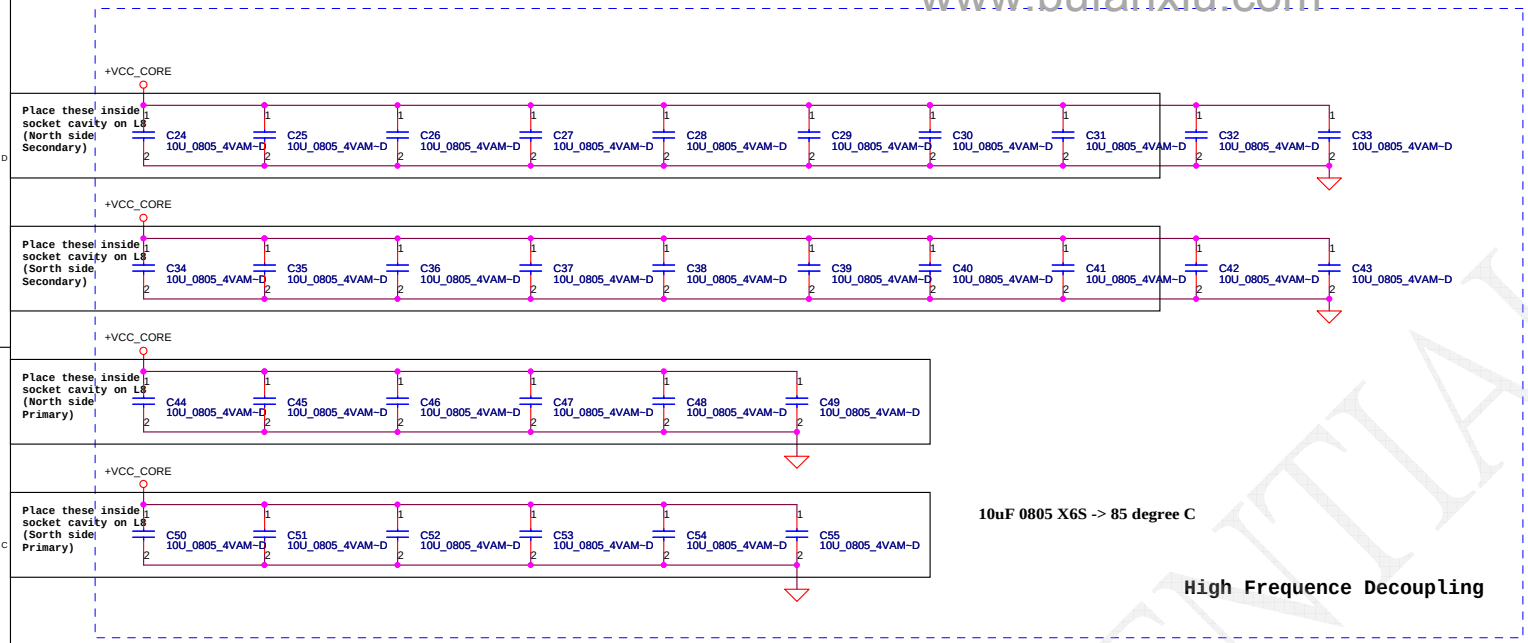
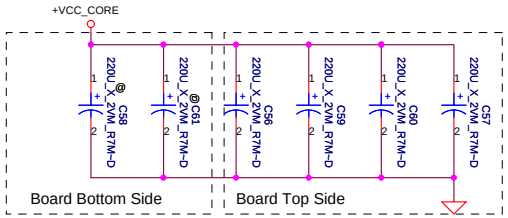


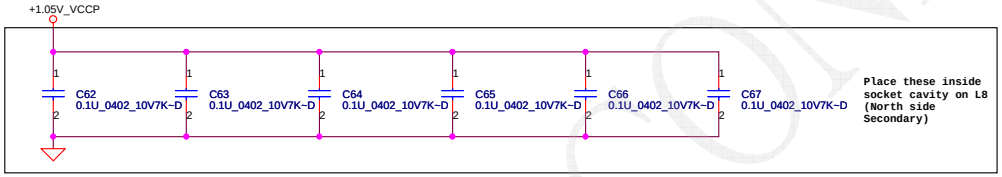
10uF 0805 X6S -> 85 degree C

High Frequence Decoupling

Near VCORE regulator.



ESR <= 1.5m ohm
Capacitor > 1320uF



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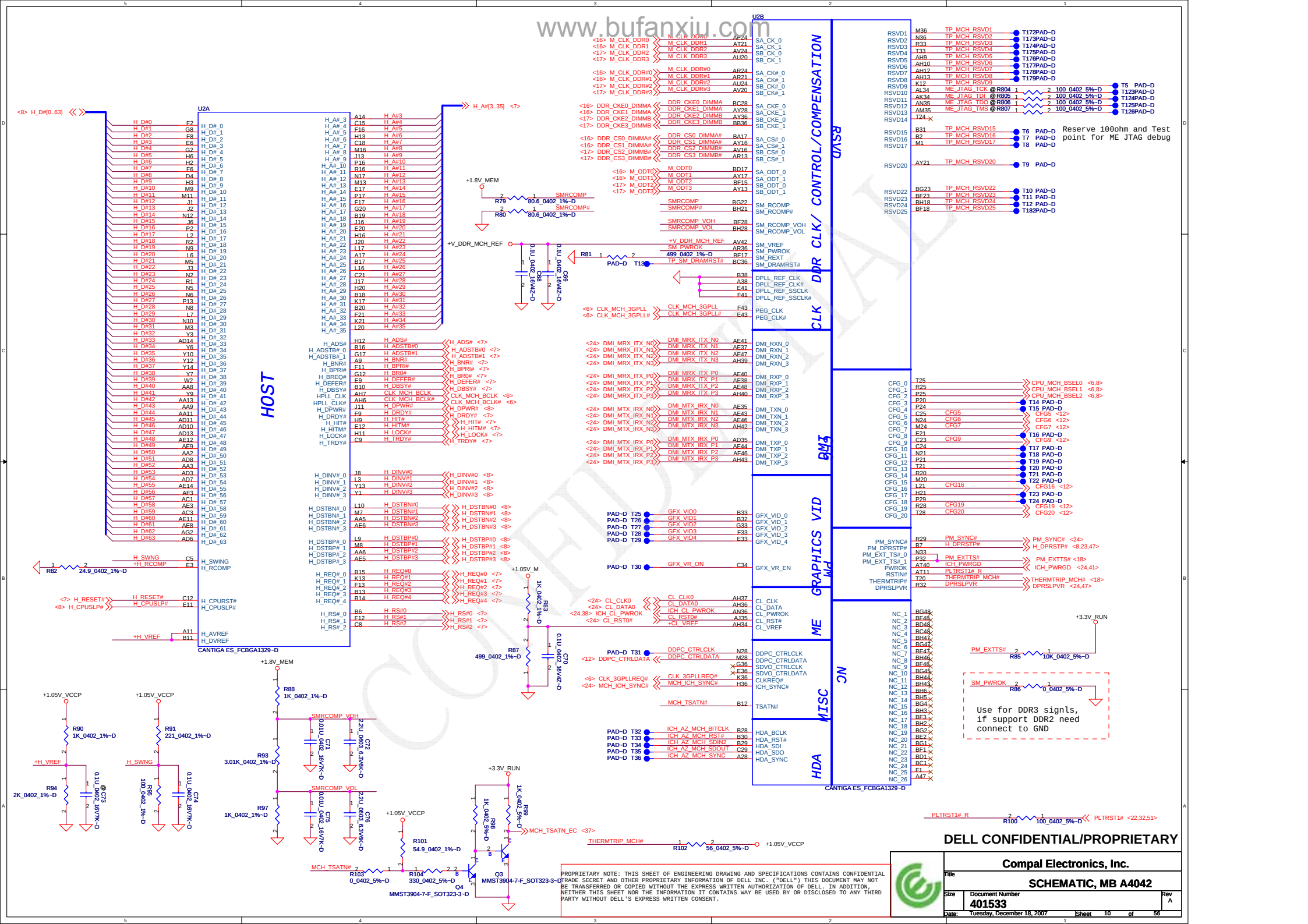

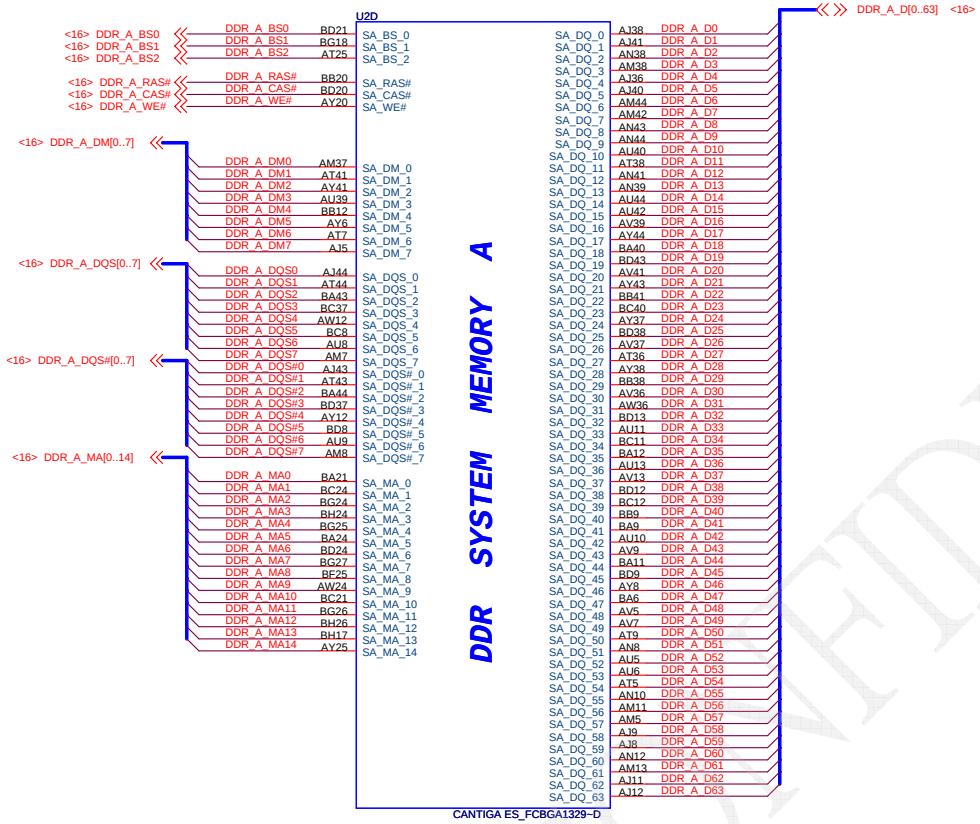

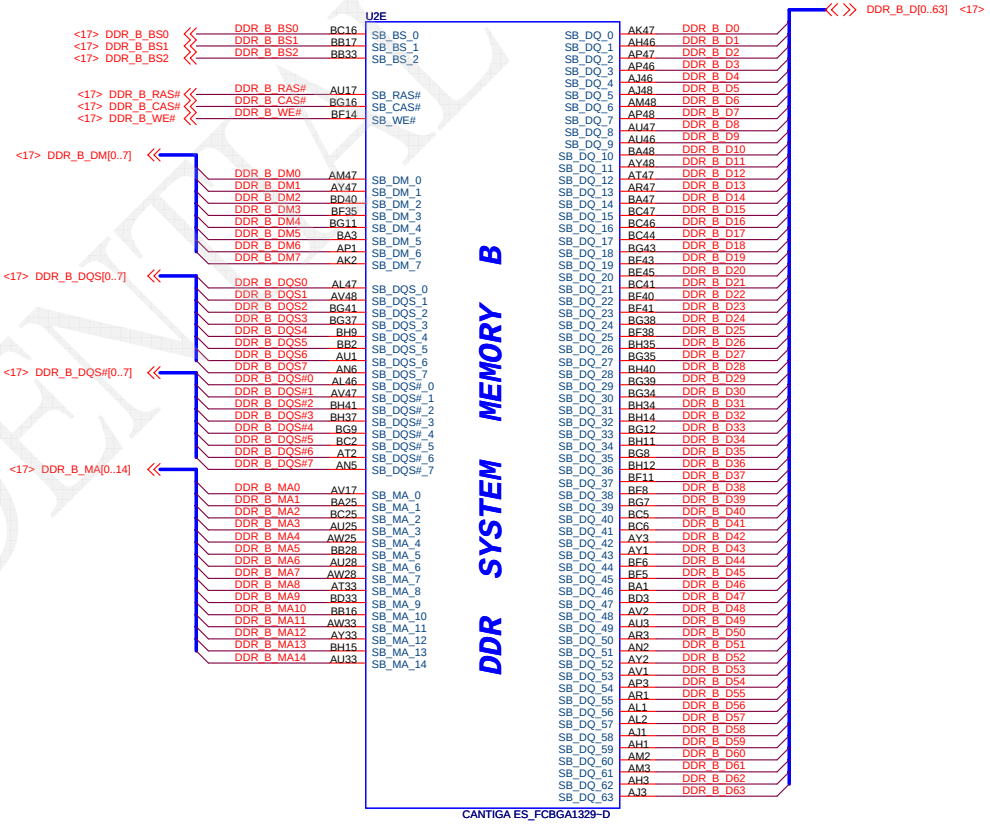

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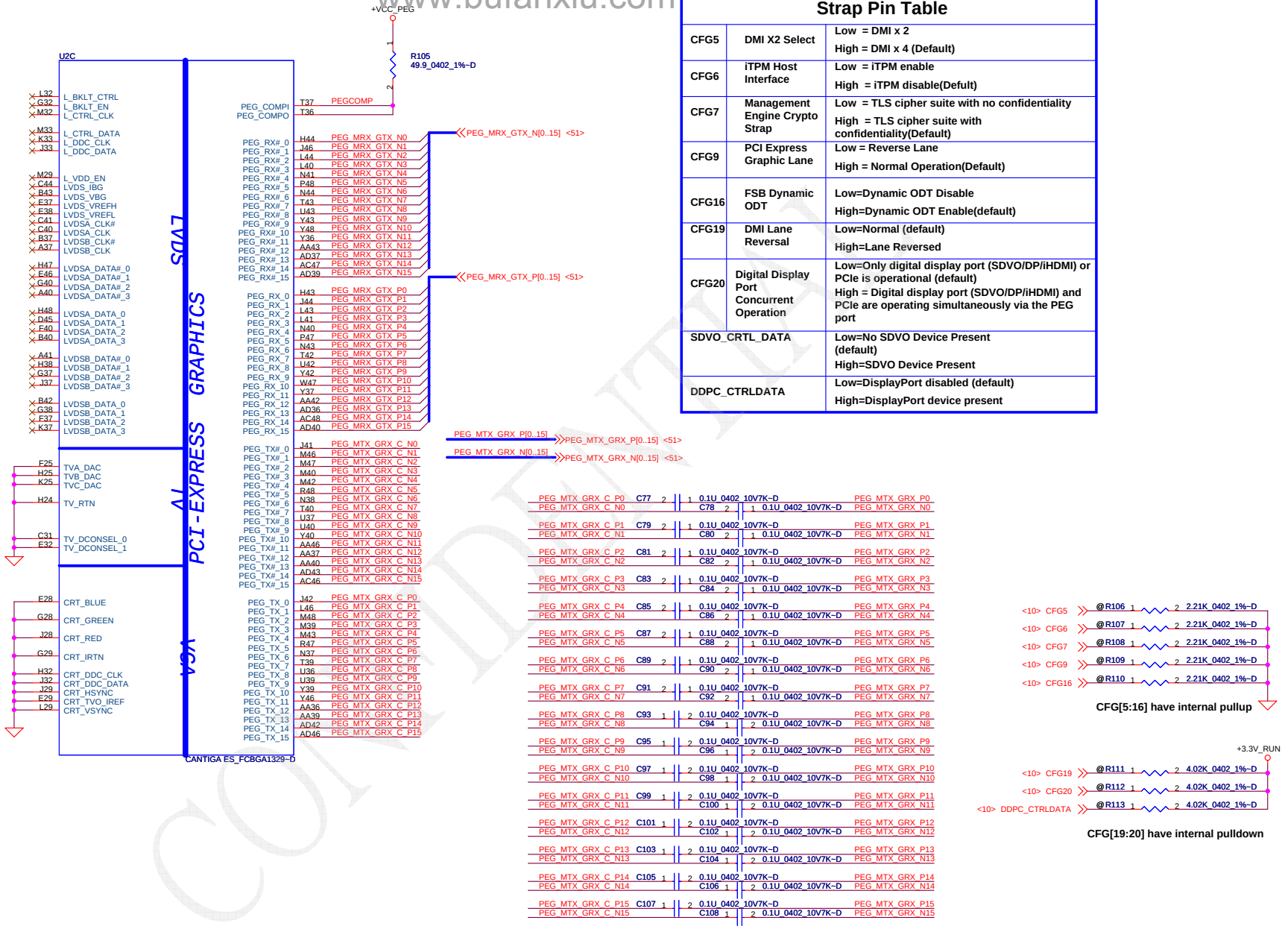
Strap Pin Table

CFG5	DMI X2 Select	Low = DMI x 2 High = DMI x 4 (Default)
CFG6	iTPM Host Interface	Low = iTPM enable High = iTPM disable(Delfult)
CFG7	Management Engine Crypto Strap	Low = TLS cipher suite with no confidentiality High = TLS cipher suite with confidentiality(Default)
CFG9	PCI Express Graphic Lane	Low = Reverse Lane High = Normal Operation(Default)
CFG16	FSB Dynamic ODT	Low=Dynamic ODT Disable High=Dynamic ODT Enable(default)
CFG19	DMI Lane Reversal	Low=Normal (default) High=Lane Reversed
CFG20	Digital Display Port Concurrent Operation	Low=Only digital display port (SDVO/DP/iHDMI) or PCIe is operational (default) High = Digital display port (SDVO/DP/iHDMI) and PCIe are operating simultaneously via the PEG port
SDVO_CRTL_DATA		Low=No SDVO Device Present (default) High=SDVO Device Present
DDPC_CTRLDATA		Low=DisplayPort disabled (default) High=DisplayPort device present



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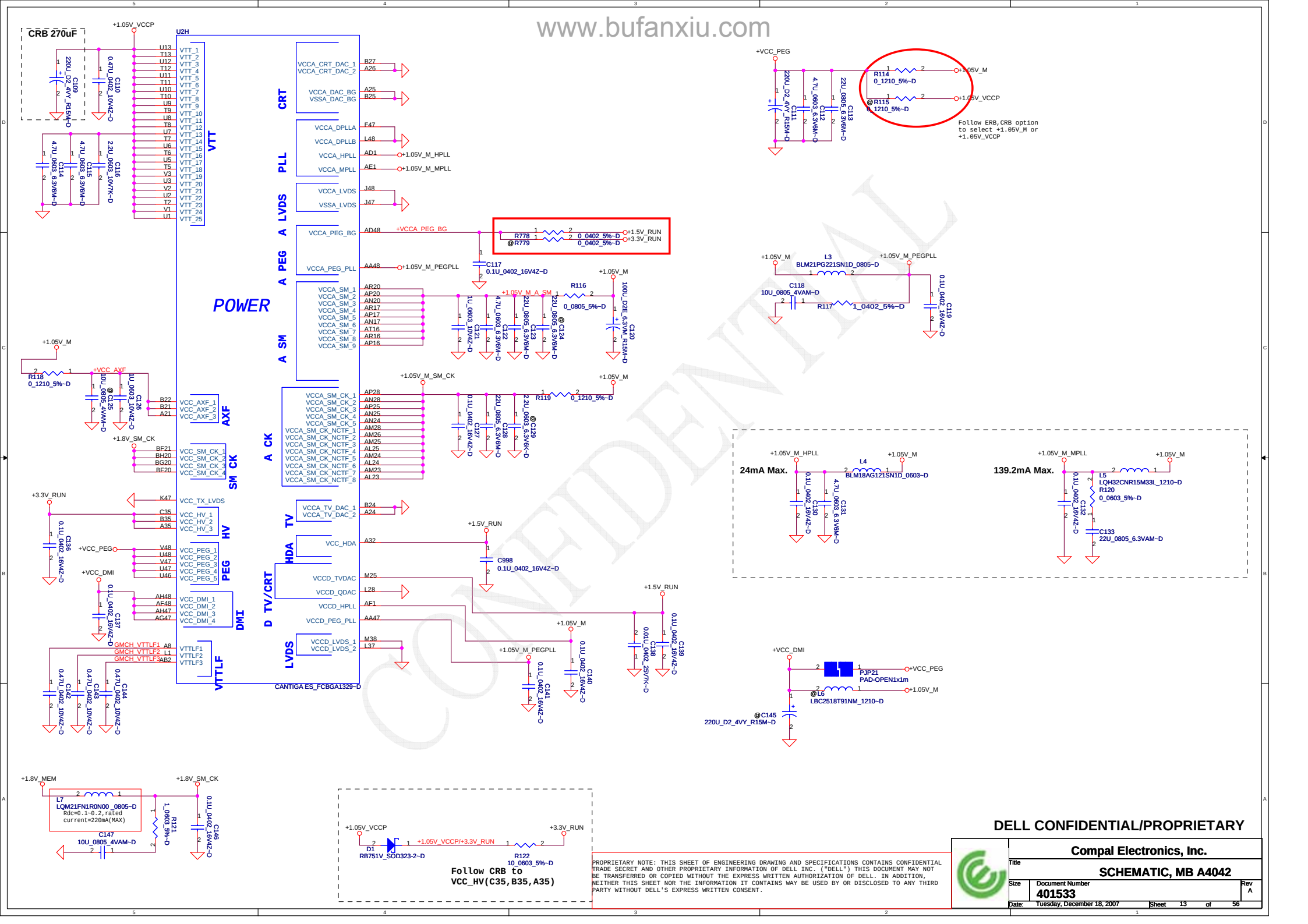

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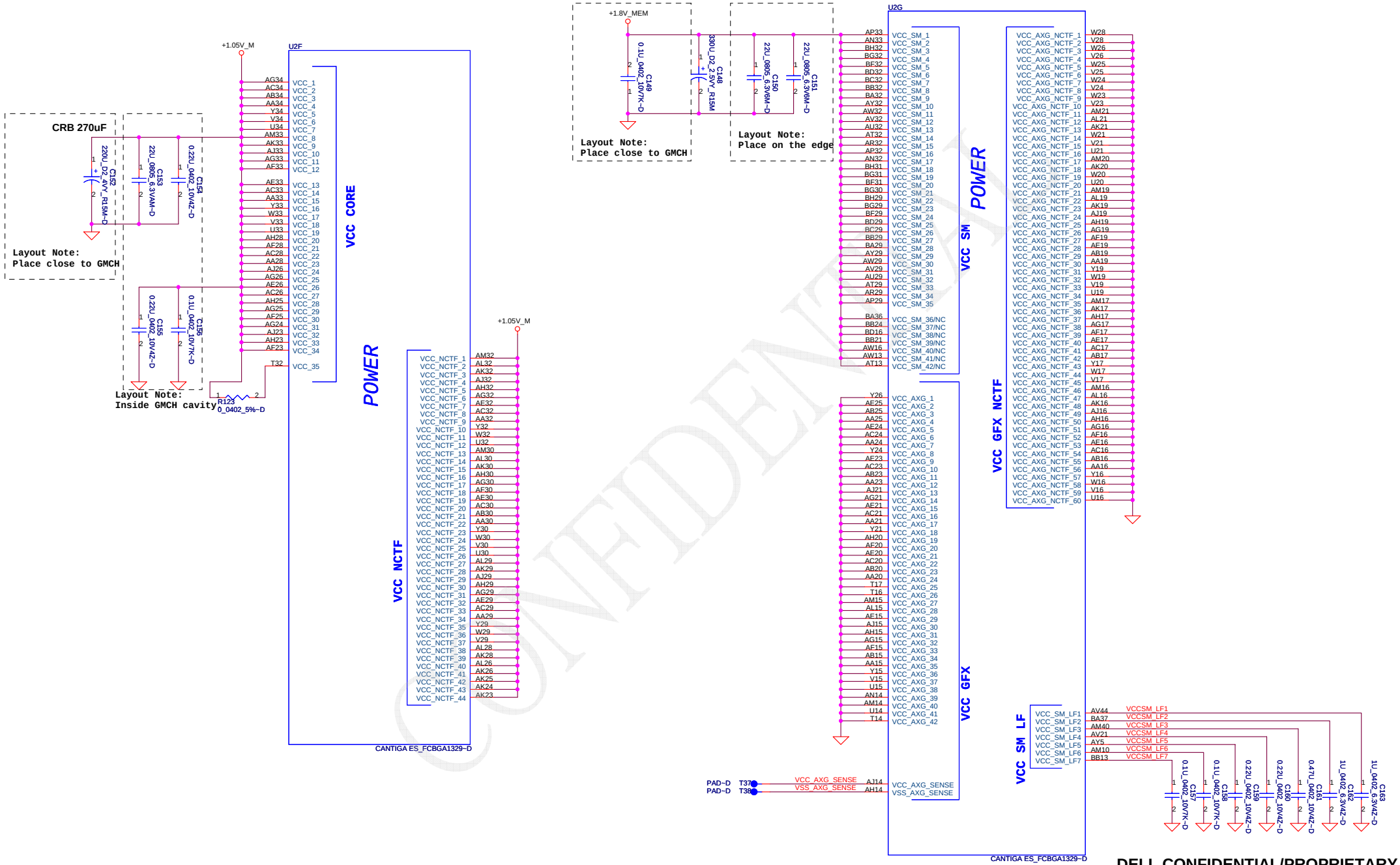

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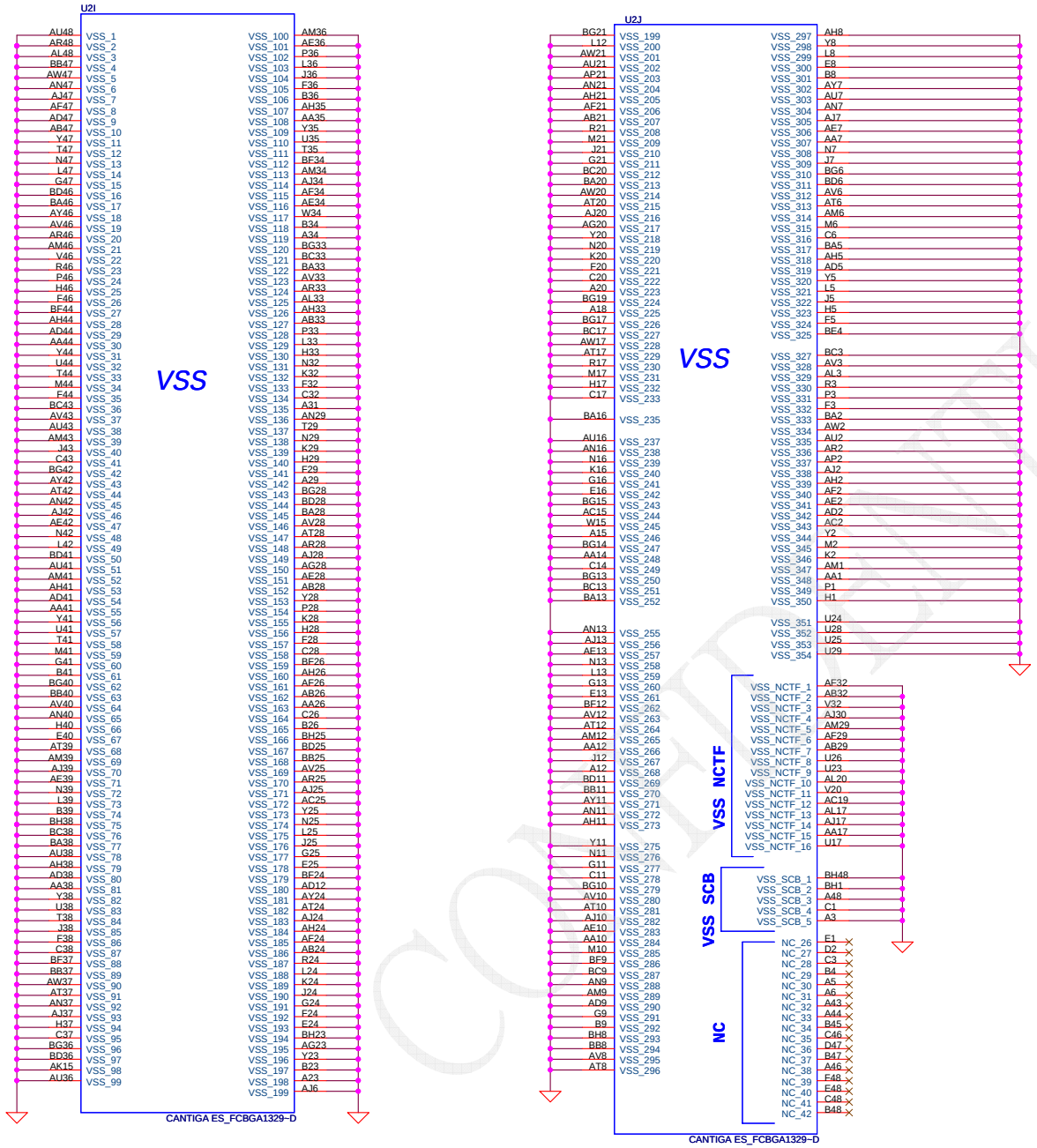

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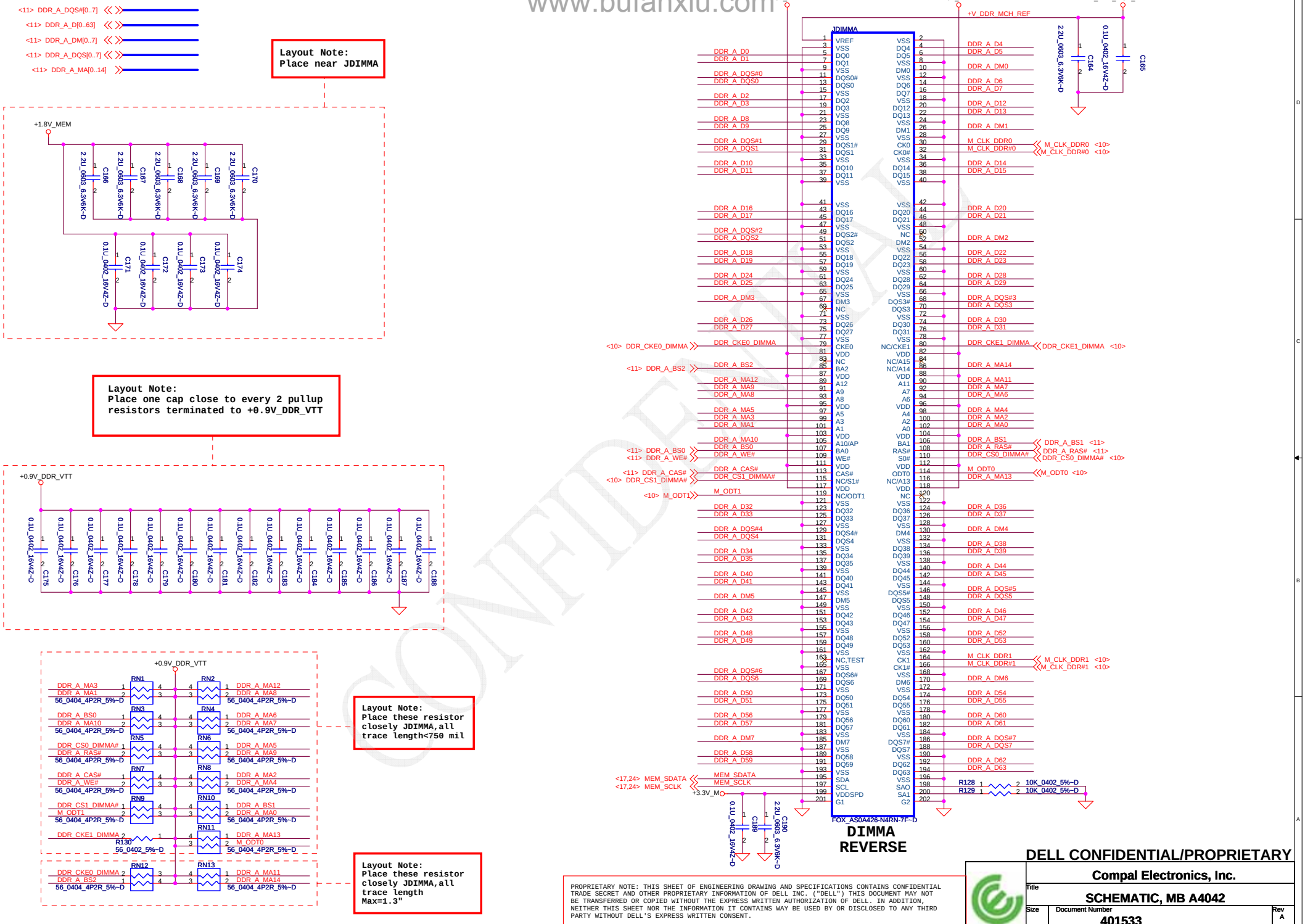

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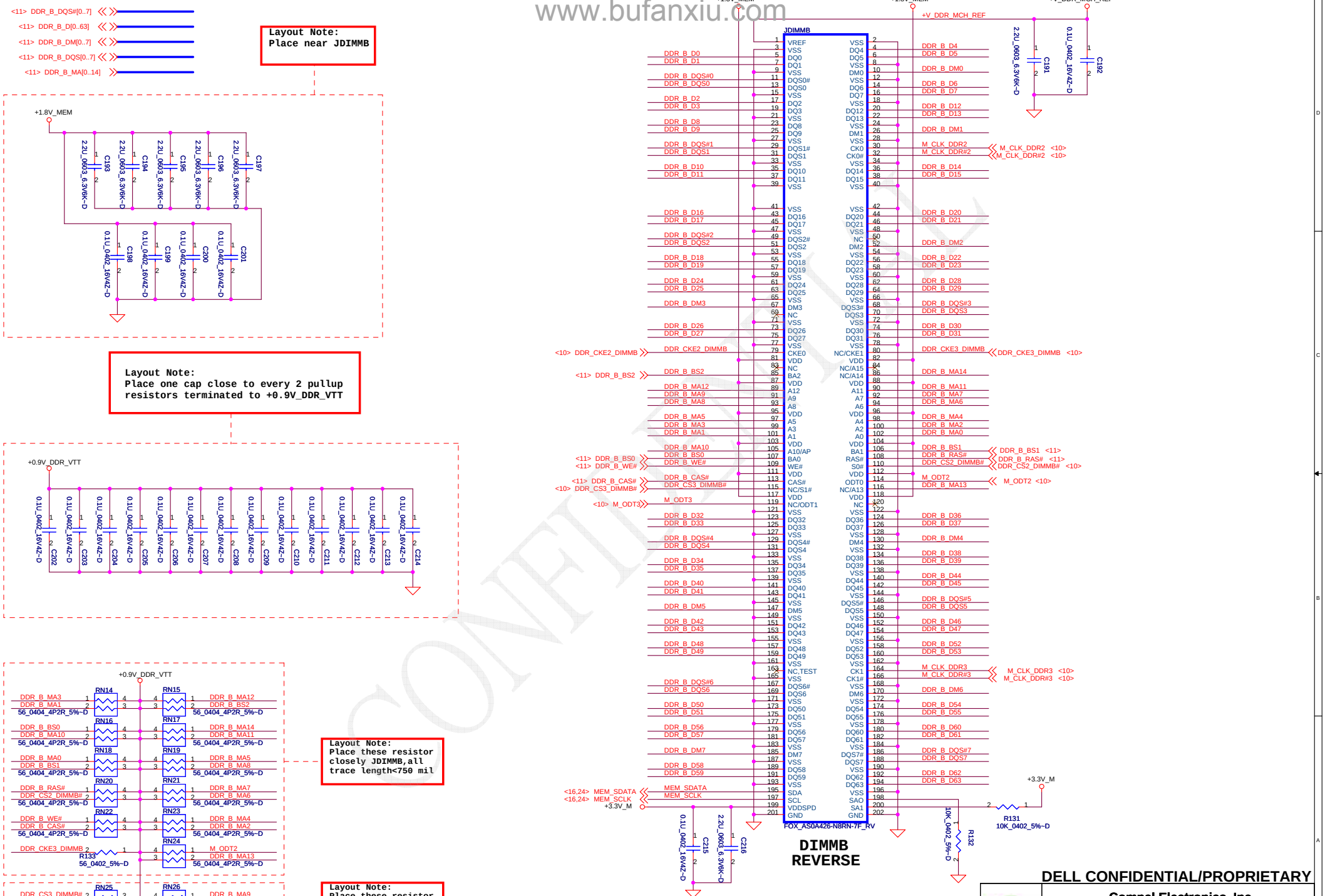

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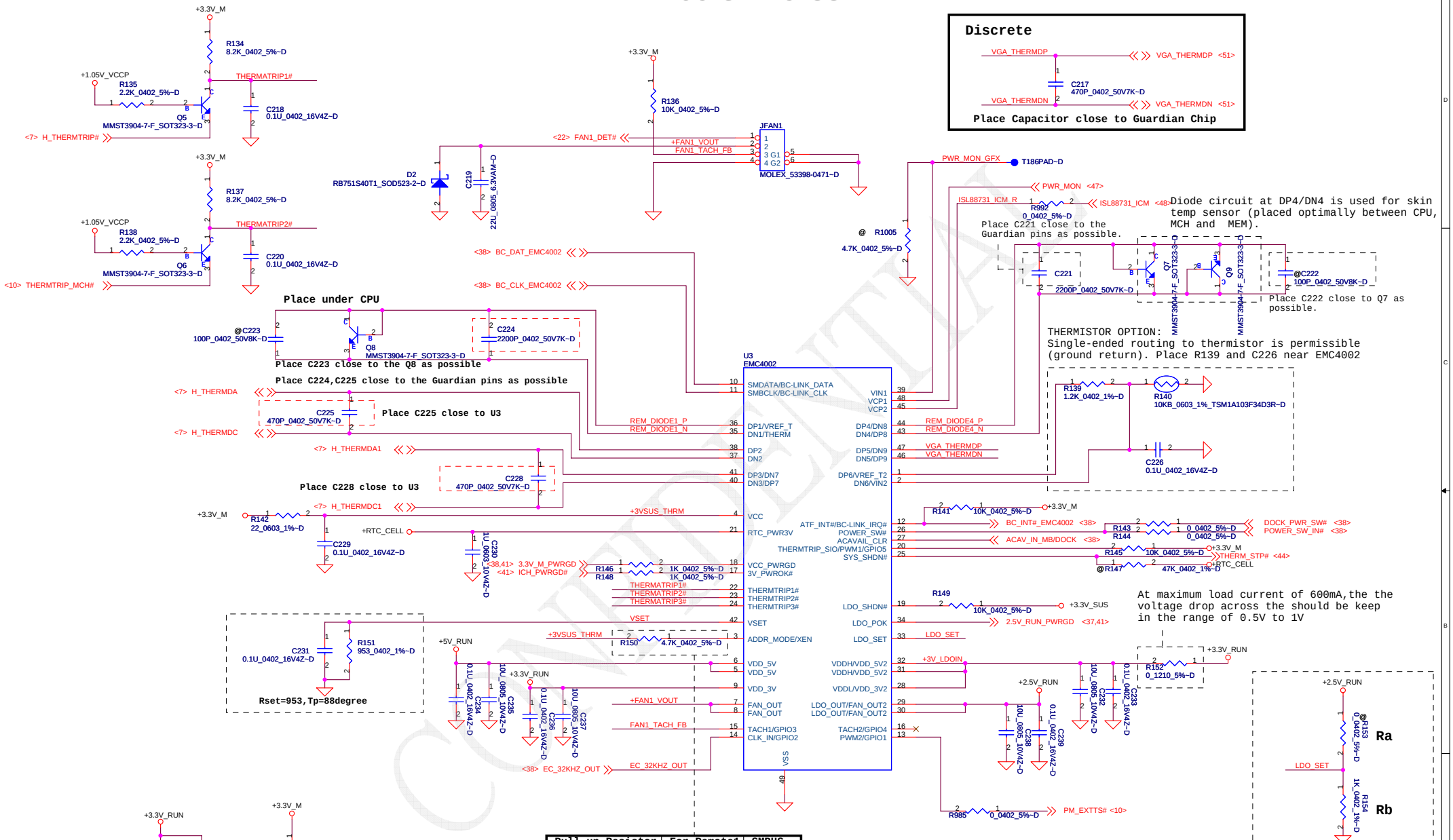

Pull-up Resistor on ADDR_MODE/XEN	For Remote1 mode	SMBUS Address
<= 4.7K +/- 5%	2N3904	2F(r/w)
10K	2N3904	2E(r/w)
18K	Thermistor	2F(r/w)
>= 33K	Thermistor	2E(r/w)

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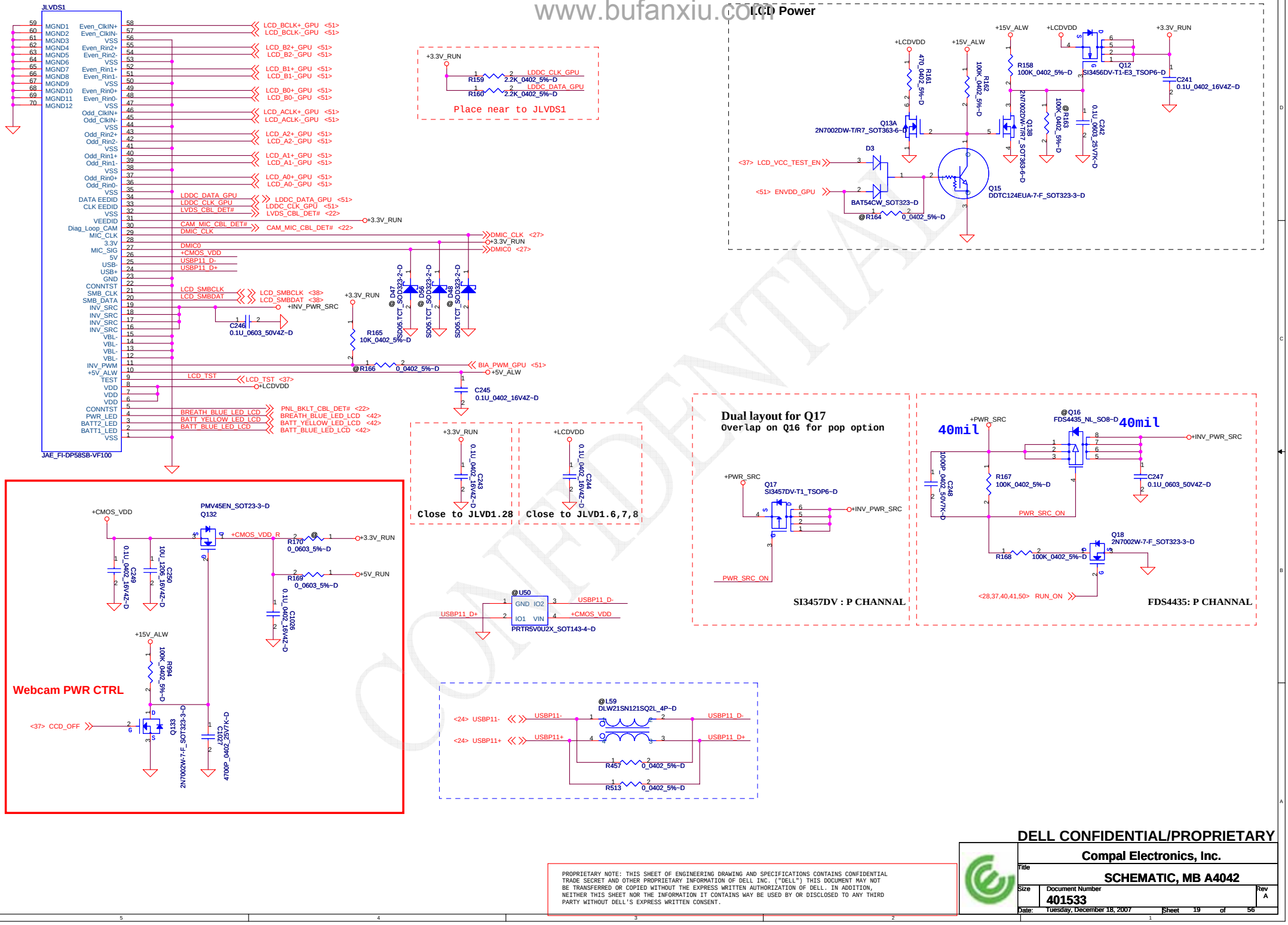

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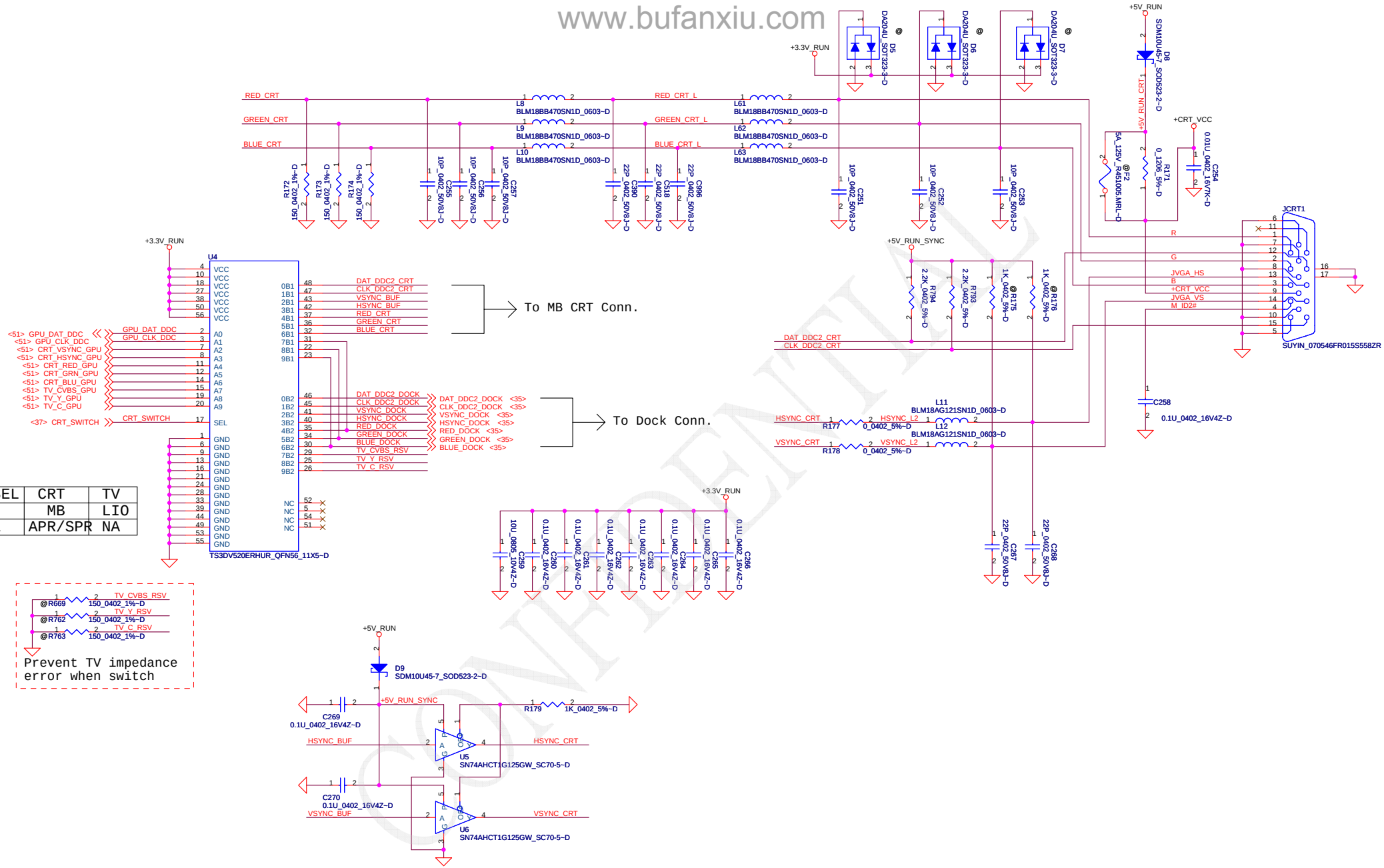

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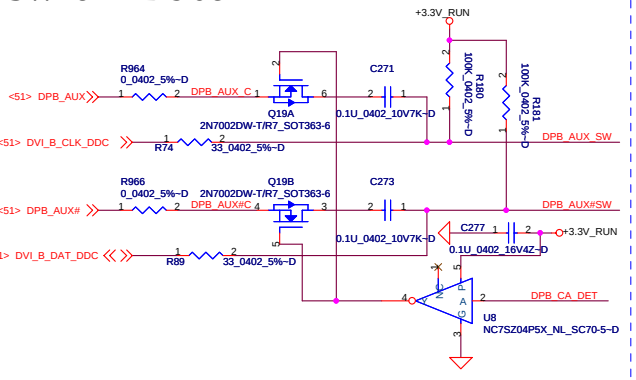
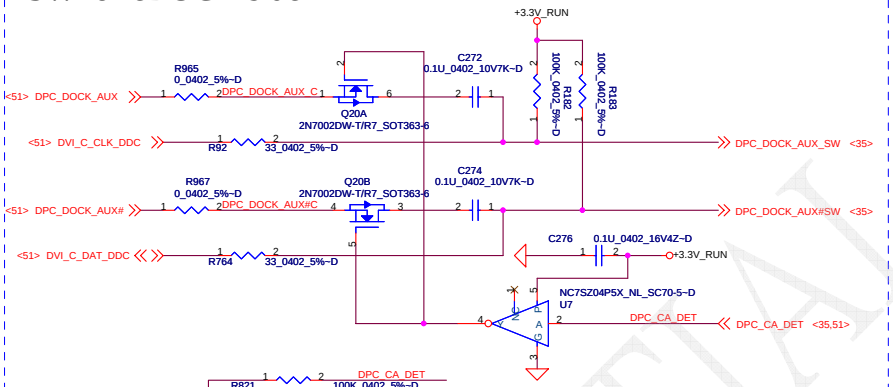
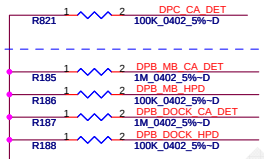
Display port Connector

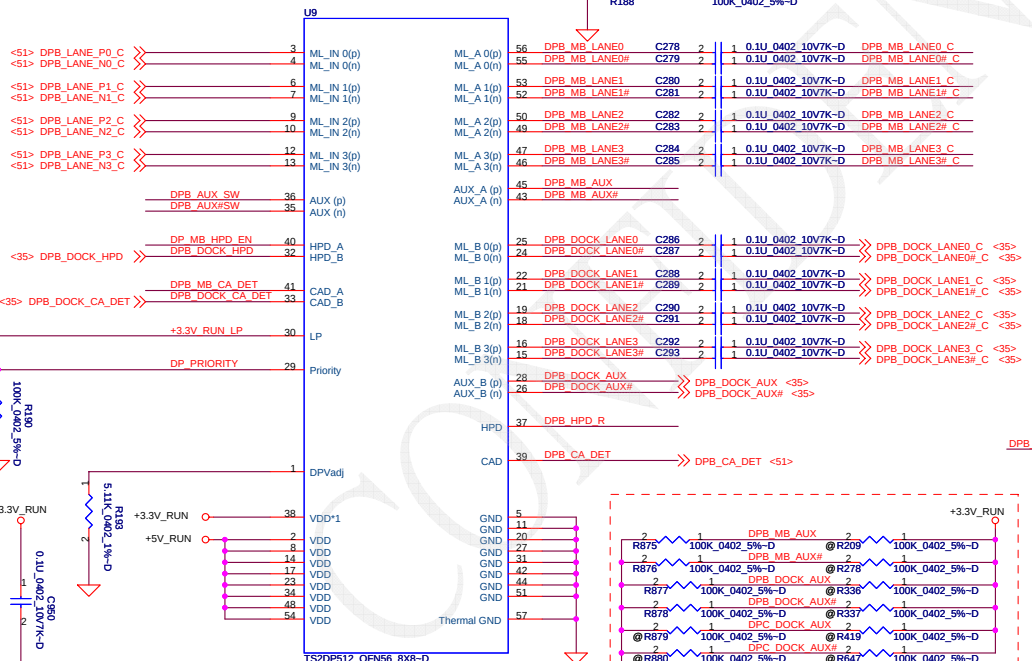
SW for MB side

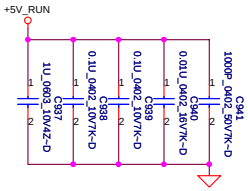


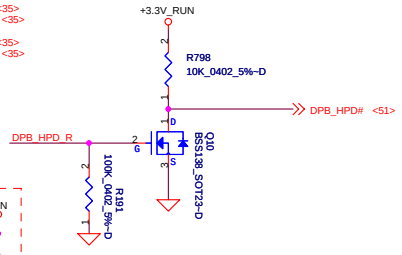
SW for eDOCK side

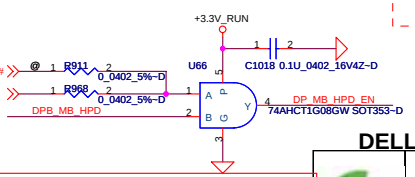


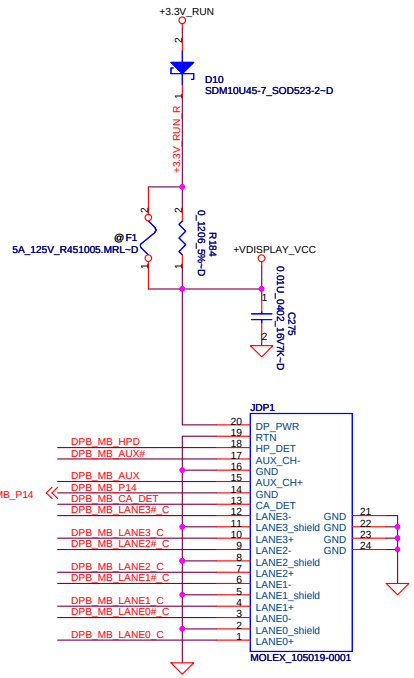


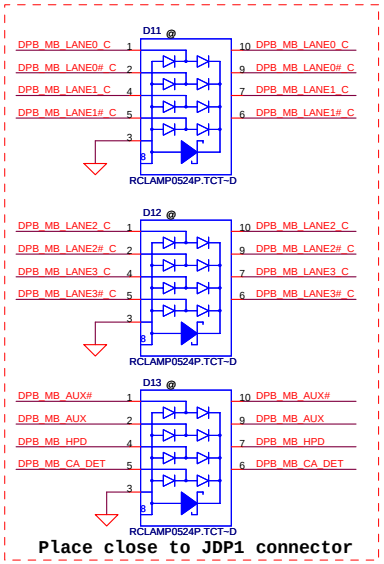












Pin30	Level	State	Description
LP	Hi	Normal Mode	Standard operational mode for device
	Low	Low power Mode	Device is forced into a low power mode causing the output s to go to a high-Z state, all other inputs are ignore

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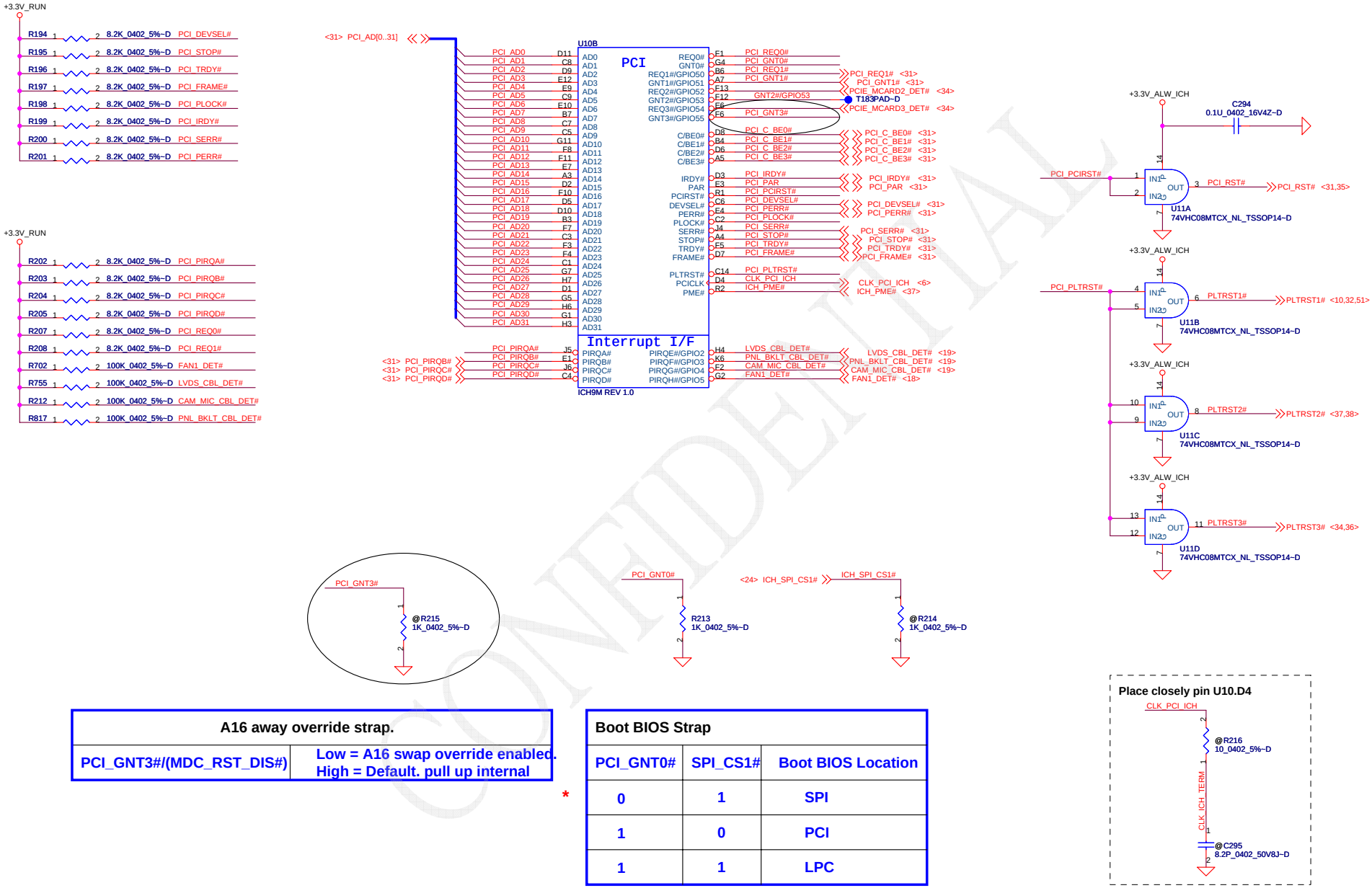

A16 away override strap.	
PCI_GNT3#/(MDC_RST_DIS#)	Low = A16 swap override enabled. High = Default. pull up internal

*

Boot BIOS Strap		
PCI_GNT0#	SPI_CS1#	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC

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CMOS_CLR1	CMOS setting
Shunt	Clear CMOS
Open	Keep CMOS

ME_CLR1	TPM setting
Shunt	Clear ME RTC Registers
Open	Keep ME RTC Registers

Package
9.6X4.06 mm

ICH9M Internal VR Enable Strap
(Internal VR for VccSus1.05, VccSus1.5, VccCL1.5)

ICH_INTVRMEN	Low = Internal VR Disabled High = Internal VR Enabled(Default)

ICH9M LAN100 SLP Strap
(Internal VR for VccLAN1.05 and VccCL1.05)

ICH_LAN100_SLP	Low = Internal VR Disabled High = Internal VR Enabled(Default)

Close to U55

XOR Chain Entrance Strap

ICH RSVD_TP3	HDA SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation (Default)
1	1	Set PCIE port config bit 1

R375, R961, R960, R962 Q130 remove for RTC detect function

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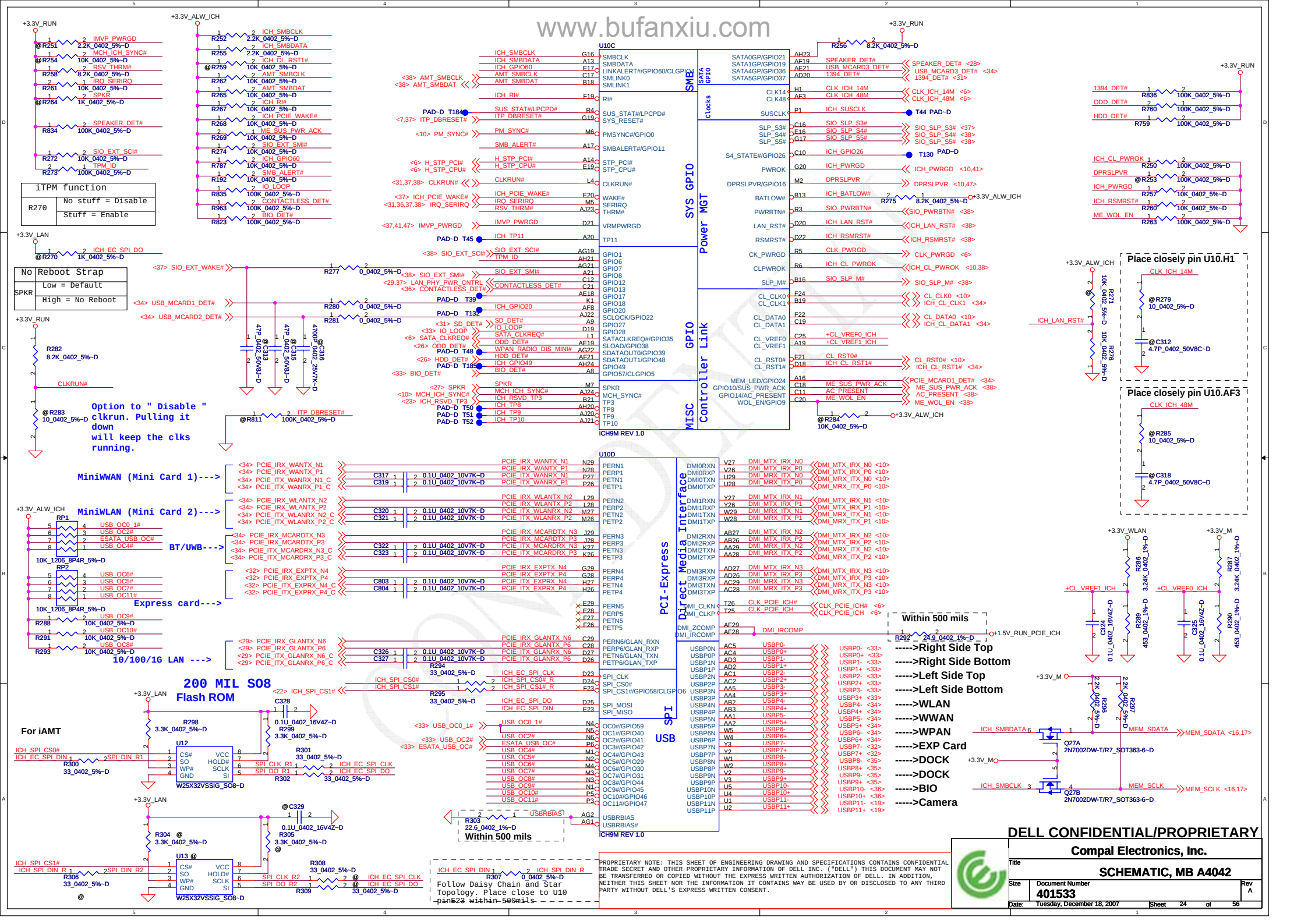

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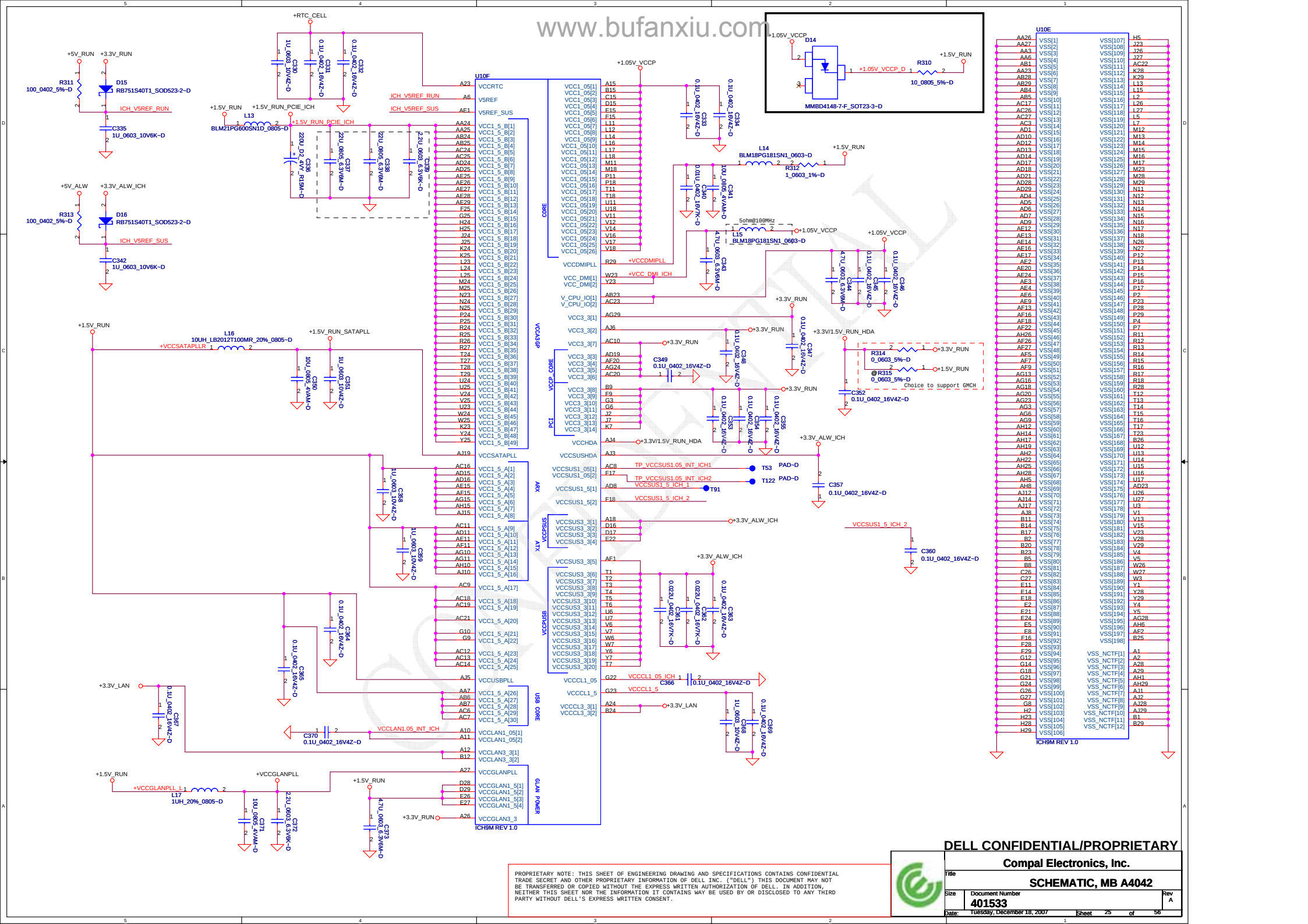

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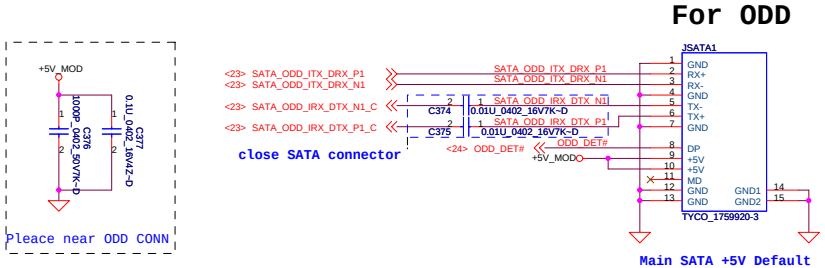

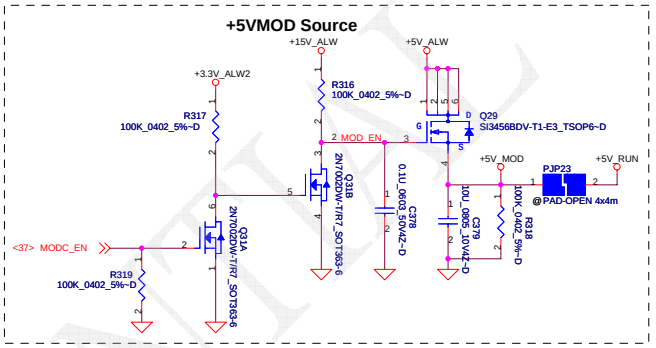

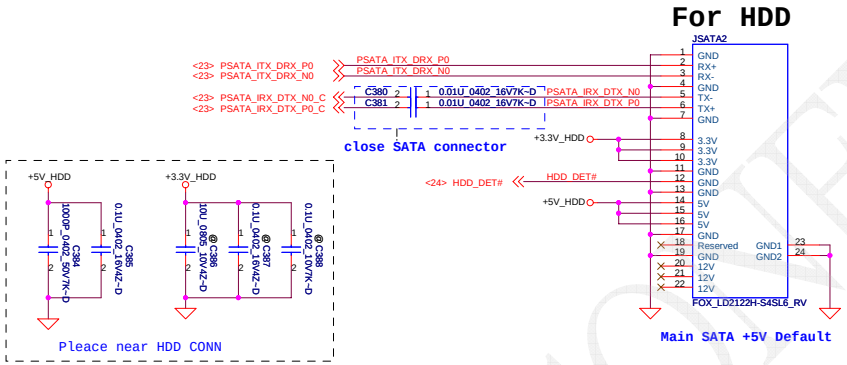

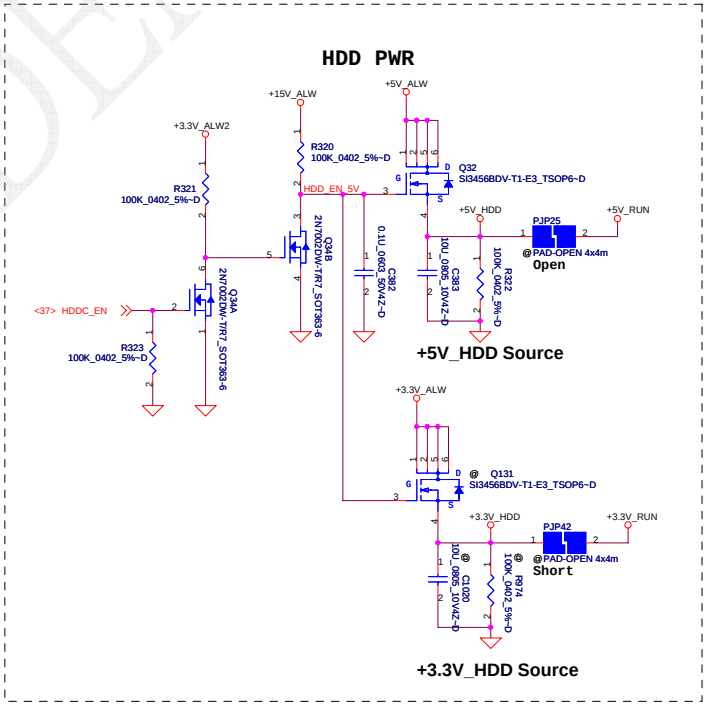

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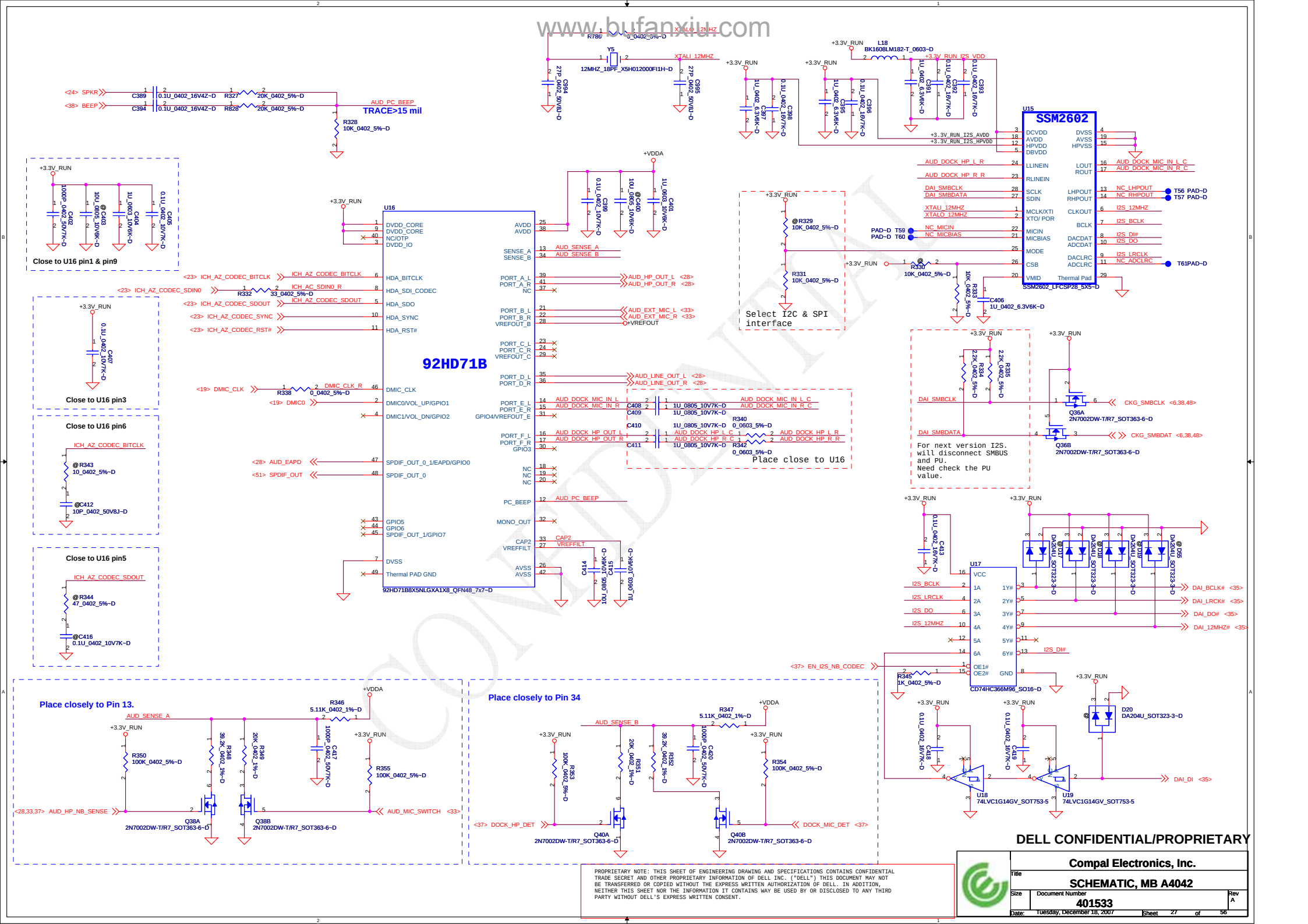

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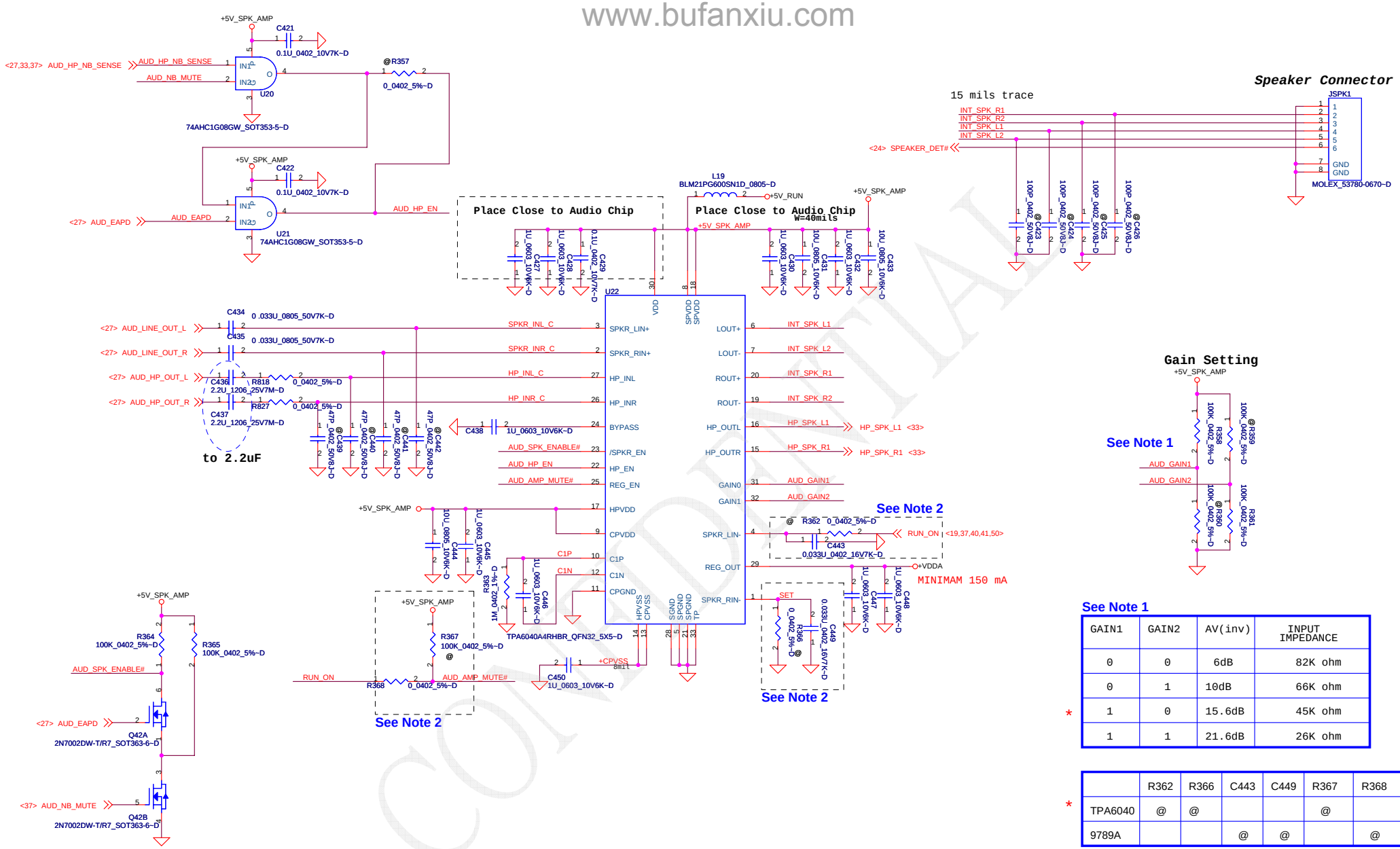

See Note 1

GAIN1	GAIN2	AV(inv)	INPUT IMPEDANCE
0	0	6dB	82K ohm
0	1	10dB	66K ohm
1	0	15.6dB	45K ohm
1	1	21.6dB	26K ohm

*

	R362	R366	C443	C449	R367	R368
TPA6040	@	@			@	
9789A			@	@		@

*

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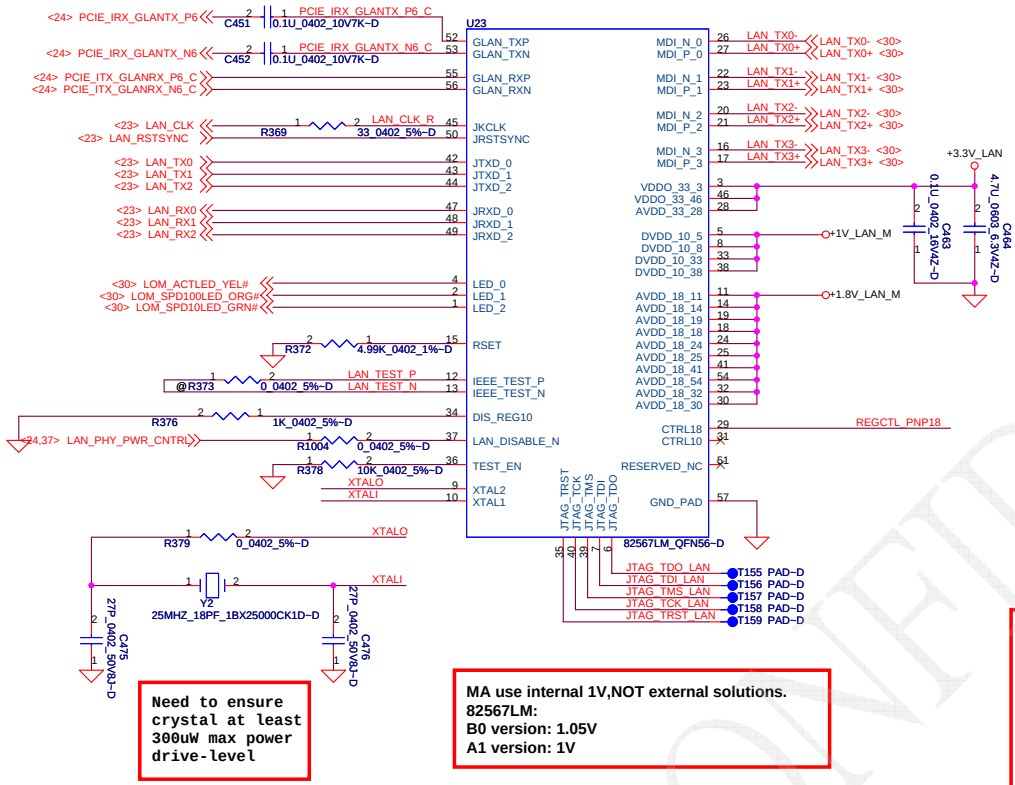
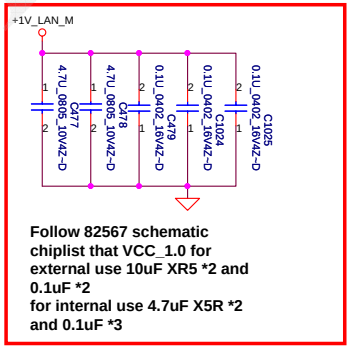


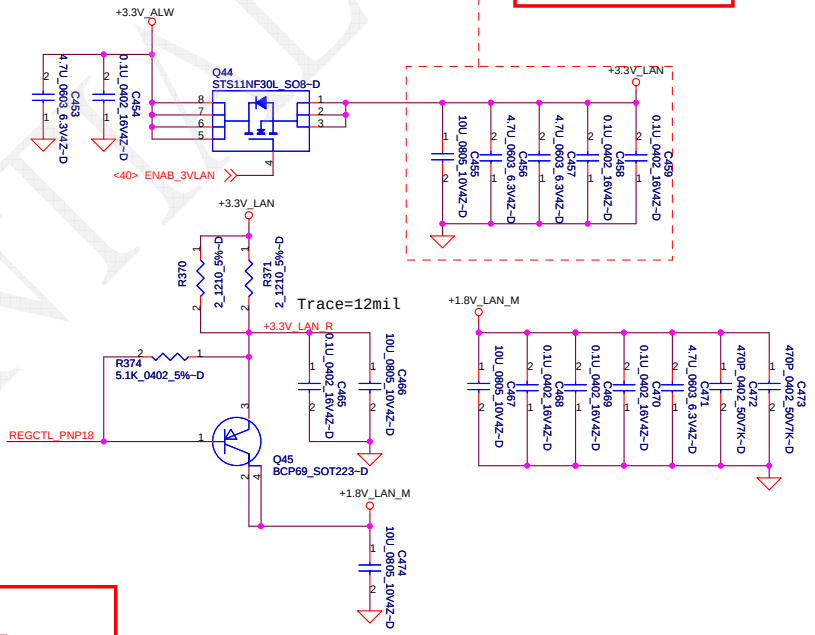
Need to ensure crystal at least 300uW max power drive-level

MA use internal 1V,NOT external solutions.
82567LM:
B0 version: 1.05V
A1 version: 1V



Follow 82567 schematic chiplist that VCC_1.0 for external use 10uF XR5 *2 and 0.1uF *2
for internal use 4.7uF X5R *2 and 0.1uF *3

Layout Notice : Place as close chip as possible.



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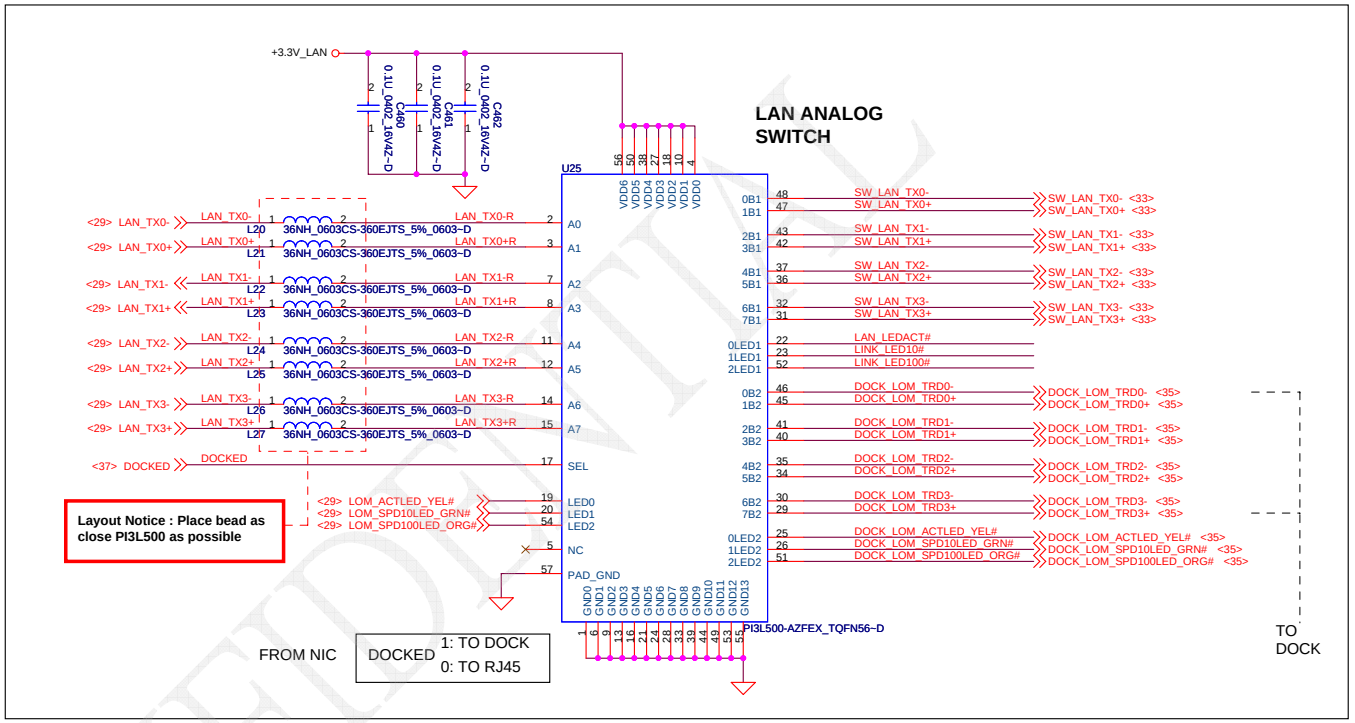

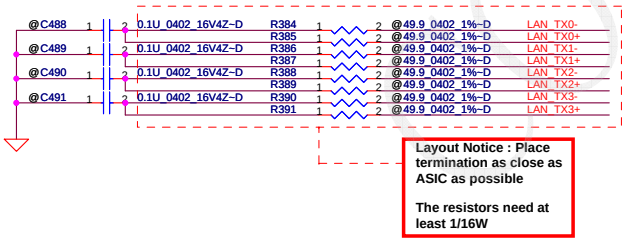

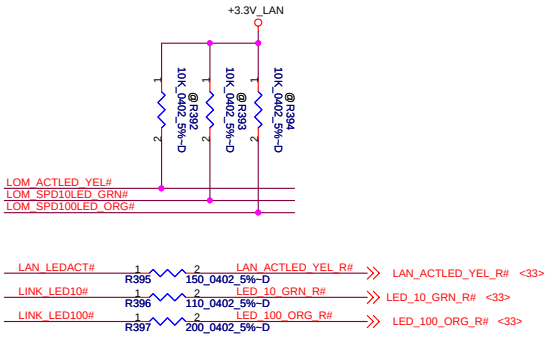

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U26A

R5C847-CSP208Q

PCI I/F

16 bit PC card I/F

RST & INT &

CLK

AUDIO

1394 I/F

USB TEST

Media Card I/F

R5C847-CSP208Q_CSP208-D

must have clean layout

must have clean layout

close to R5C847

For MMC PLUS

close to U26

Close to U26

Close to Pin A16,B16

Close to JP5 pin5

Close to JP5 pin5

U27

R5531V002-E2-FA_SSOP16-D

JS1394

HRS_FH28E-20S-0.5SH(11)

JSD1

HRS_FH28E-20S-0.5SH(11)

U28

AAT4250IGV-T1_SOT23-5-D

Some SD Caps move to SD board.

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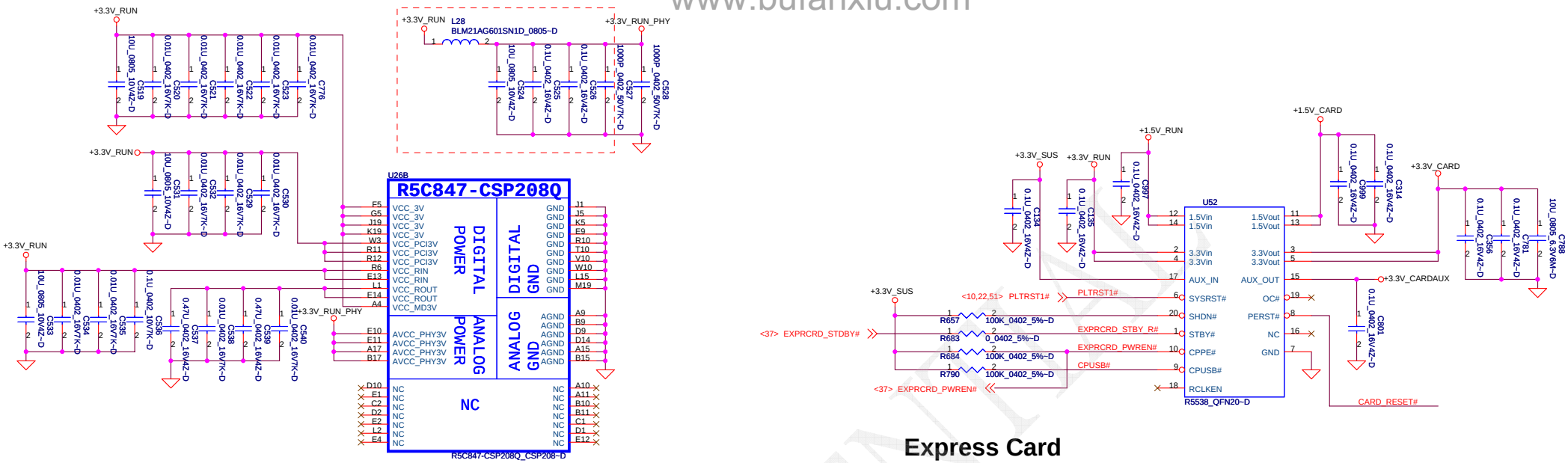
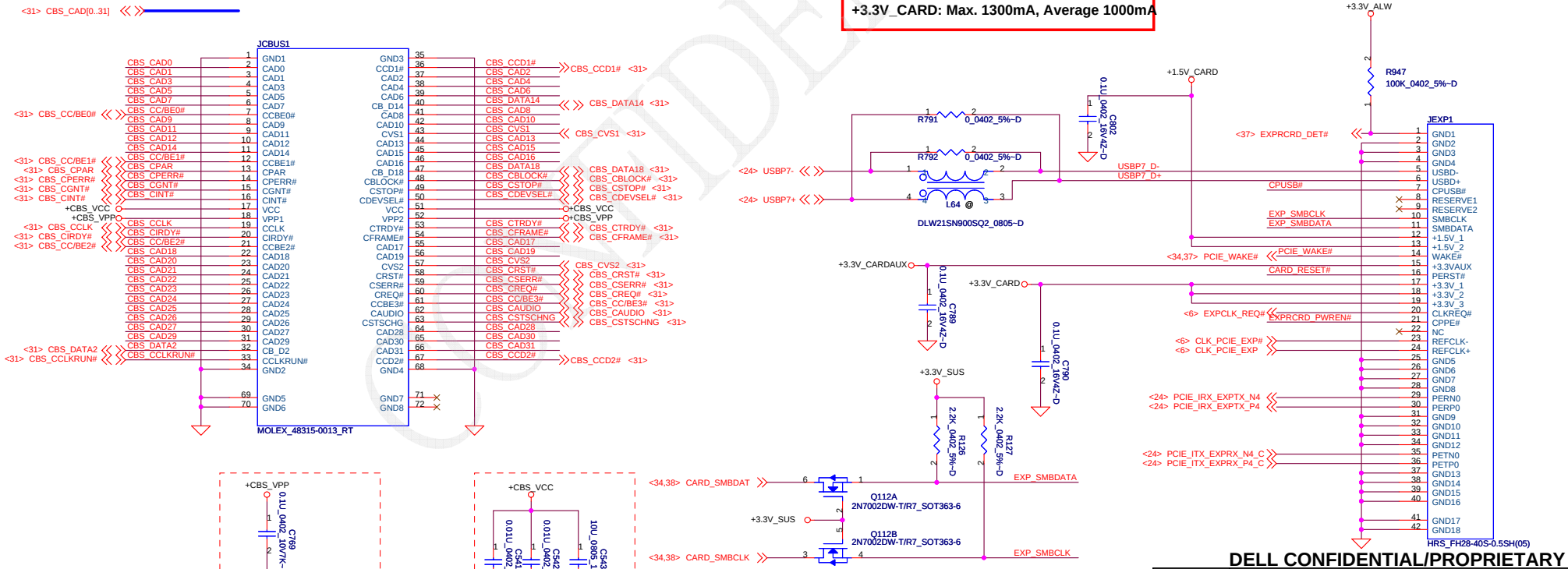


Express Card

+1.5V_CARD: Max. 650mA, Average 500mA
+3.3V_CARD: Max. 1300mA, Average 1000mA



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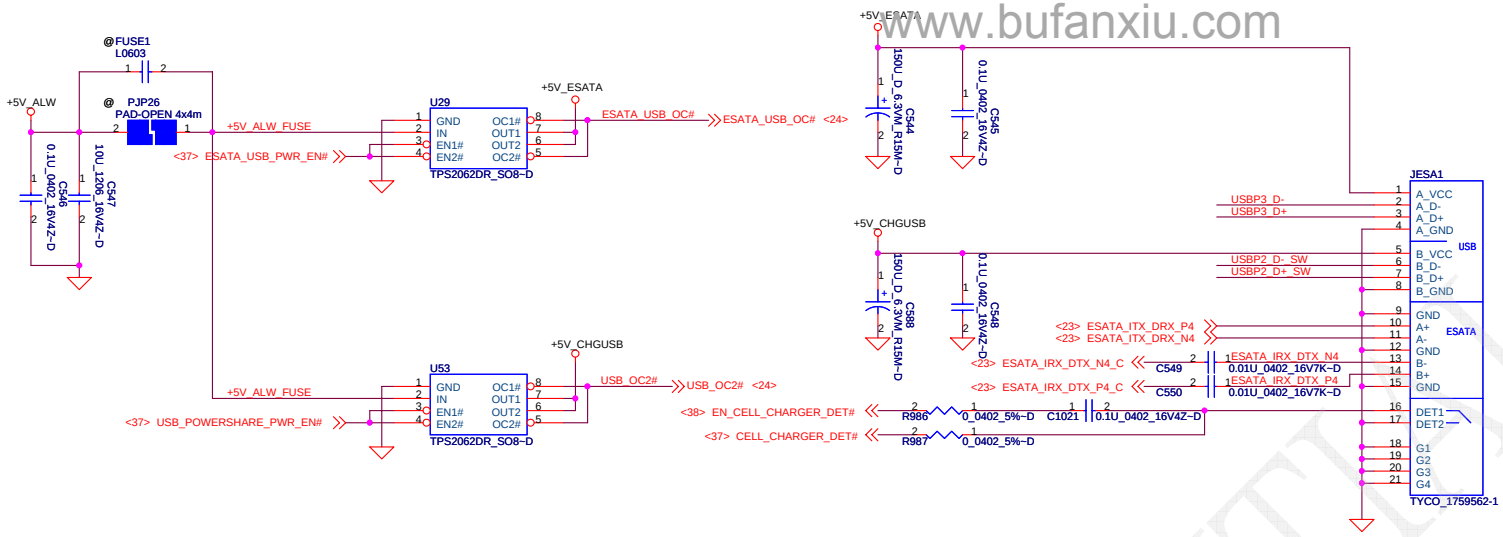
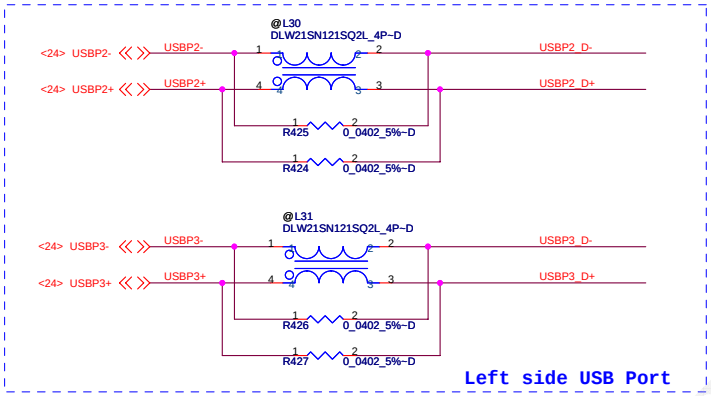
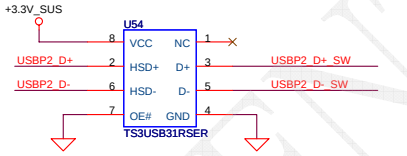
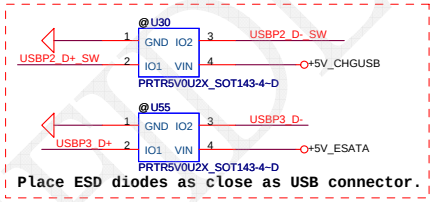
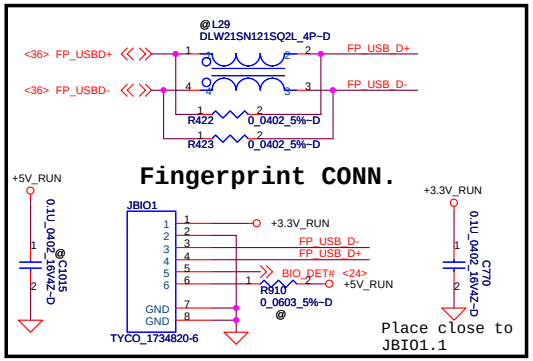
USB PORT#	DESTINATION
0	JUSB1 (Ext Right Side Top)
1	JUSB1 (Ext Right Side Bottom)
2	JESA1 (Ext Left Side Bottom)
3	JESA1 (Ext Left Side TOP)
4	WLAN
5	WWAN
6	WPAN
7	Express card
8	DOCKING
9	DOCKING
10	USH->BIO
11	Camera

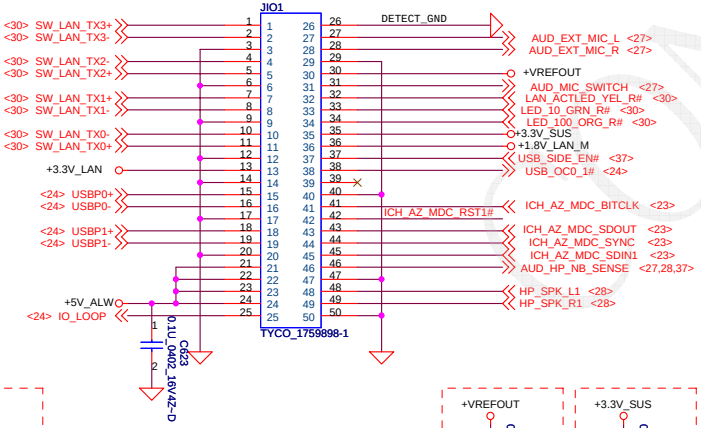


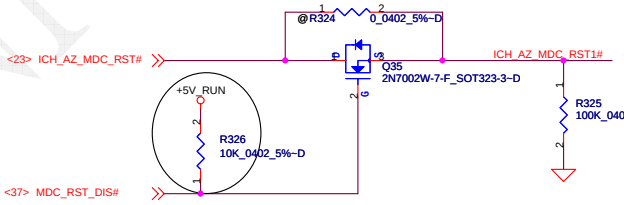


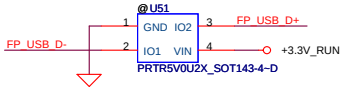


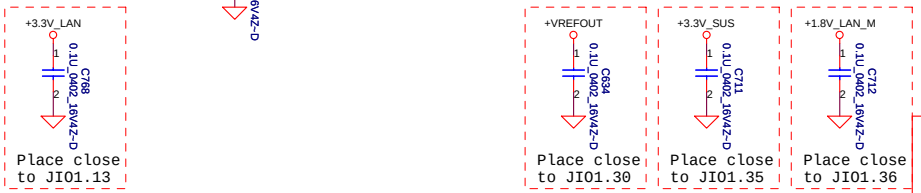












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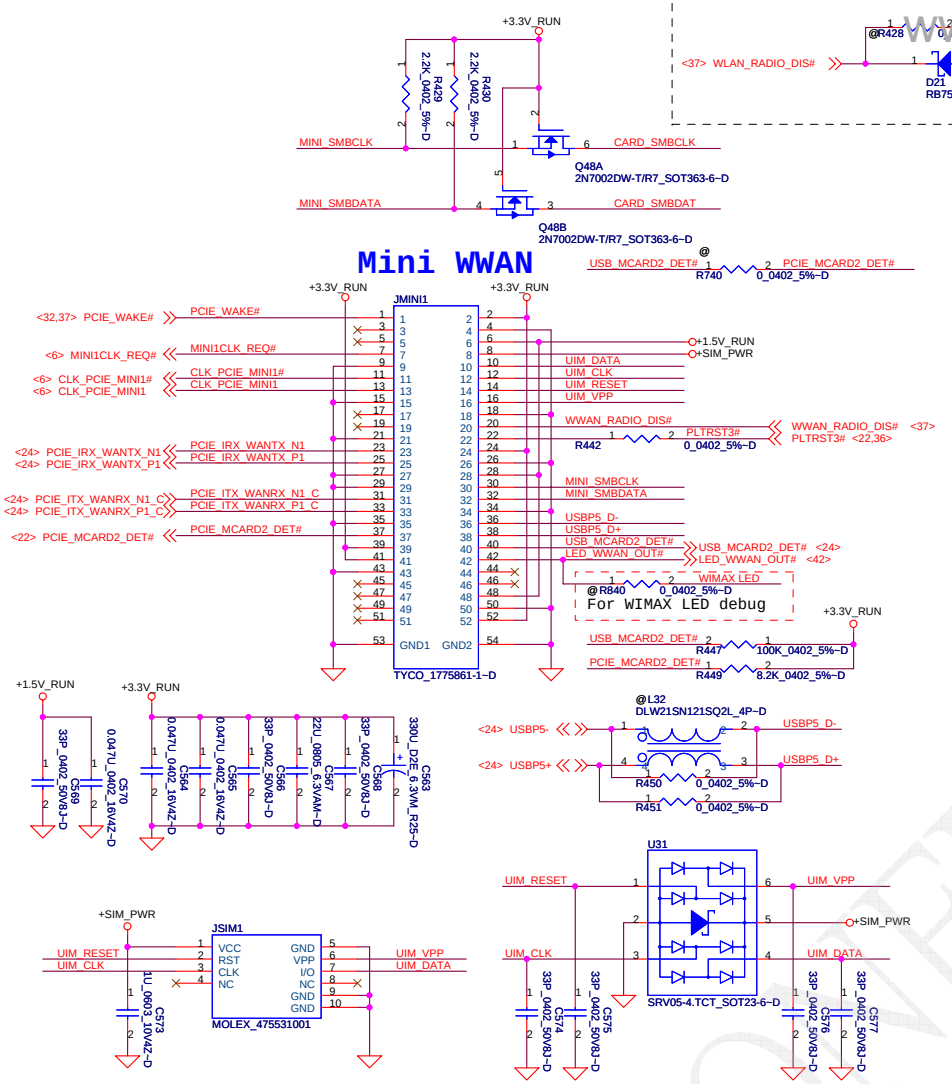
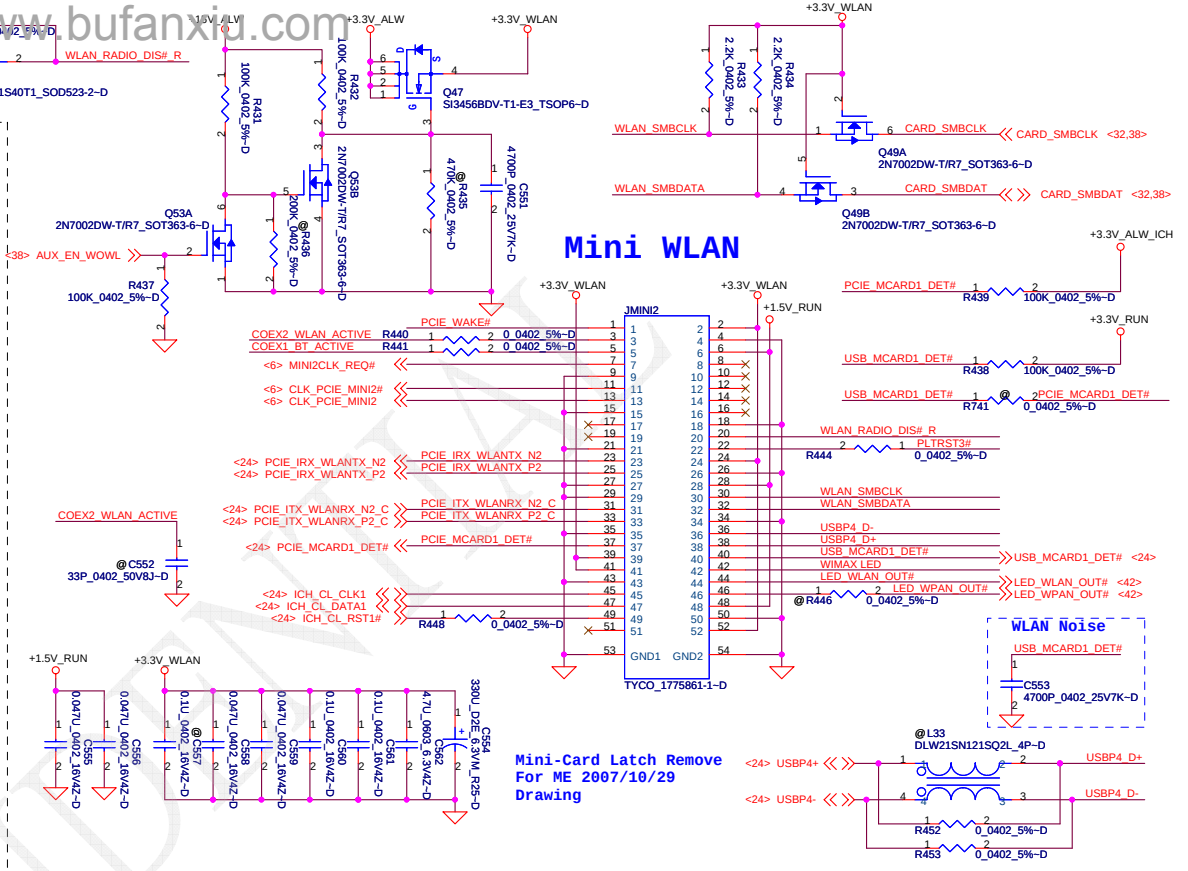
Mini WWAN

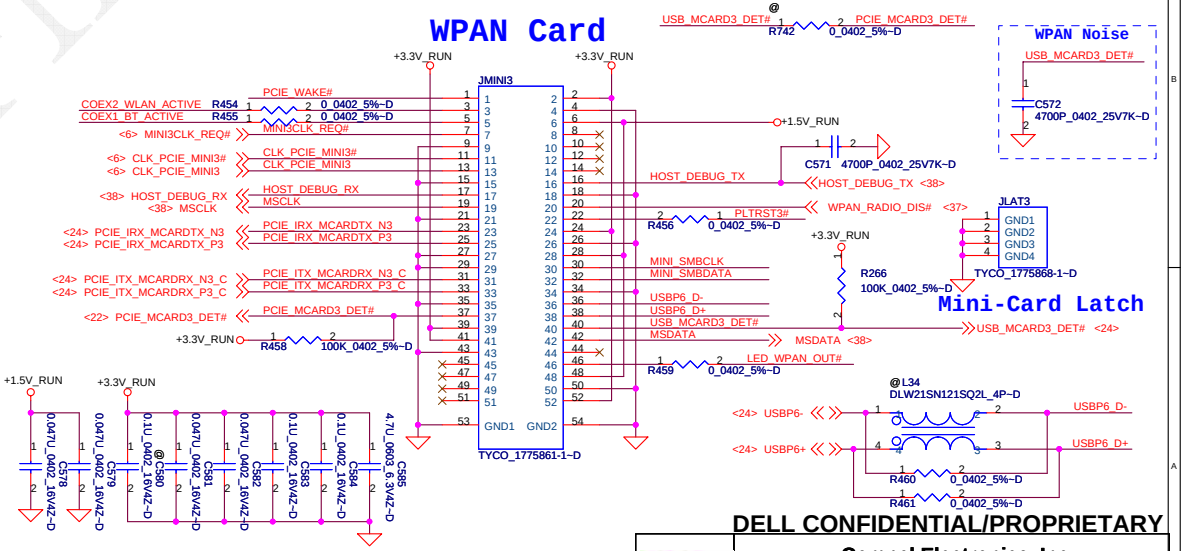


PWR Rail	Voltage Tolerance	Primary Power		Aux Power
		Peak	Normal	Normal
+3.3V	+-9%	1000	750	
+3.3Vaux	+-9%	330	250	250 (Wake enable) 5 (Not wake enable)
+1.5V	+-5%	500	375	NA

Mini WLAN



WPAN Card



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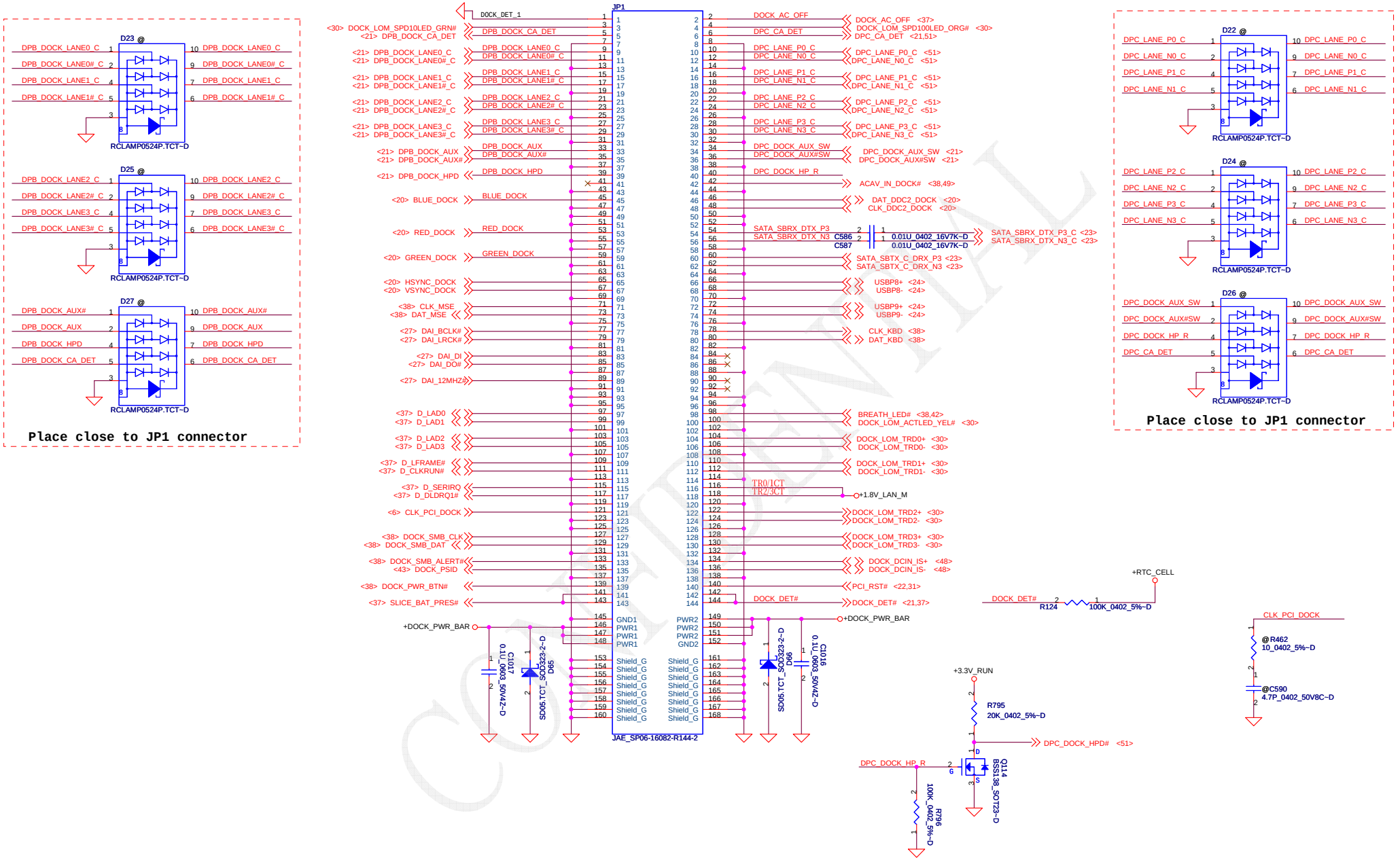

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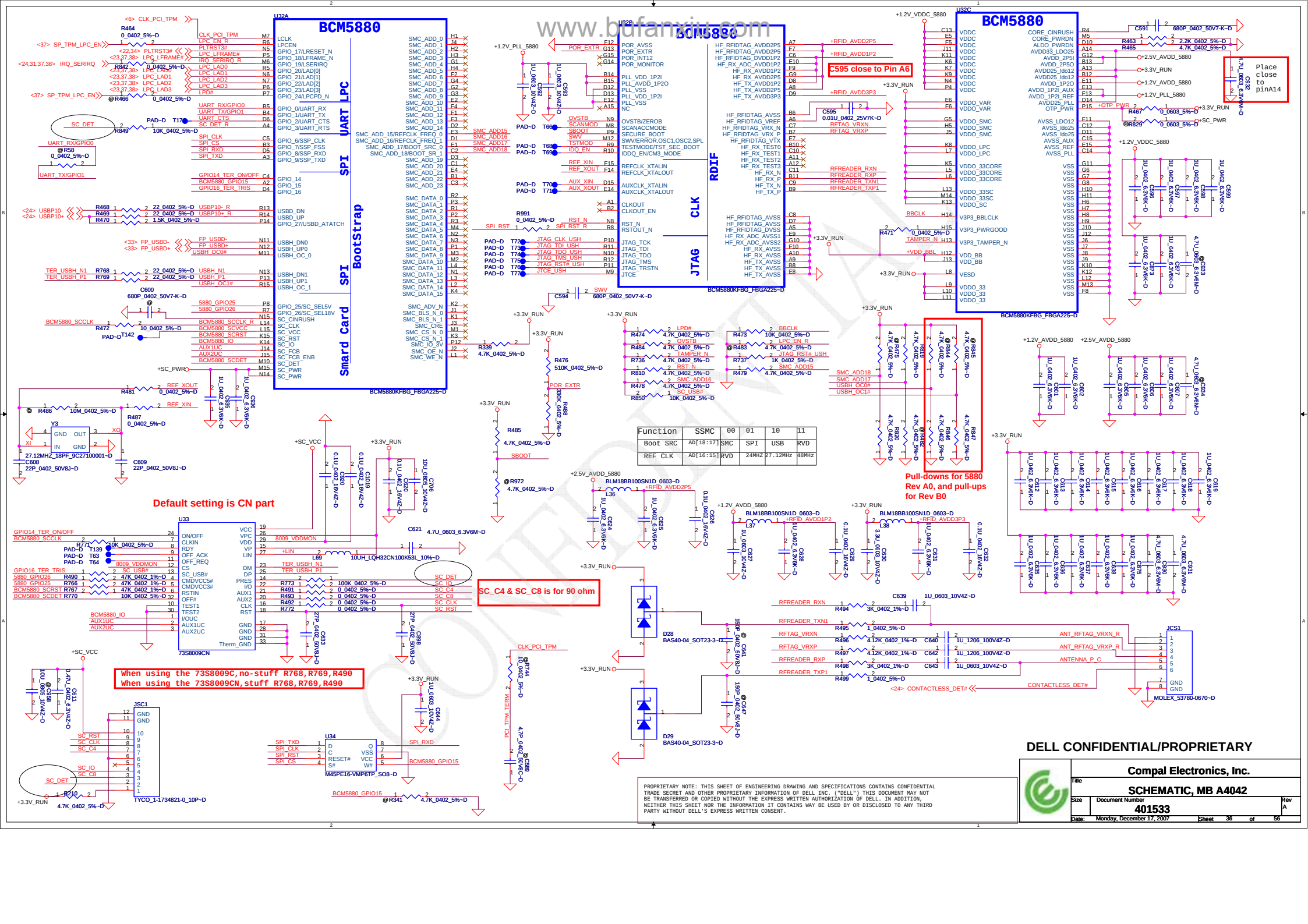

remove the circuit, No need for BIOS

	BID2	BID1	BID0	REV
	0	0	0	X00
	0	0	0	X01
	0	0	1	X02
	0	1	0	X03
	0	1	1	A00
	1	0	0	

CHIPSET_ID1	CHIPSET_ID0	
0	0	Roush-I Foose-I
0	1	Roush-A
1	0	SmFF
1	1	Nike

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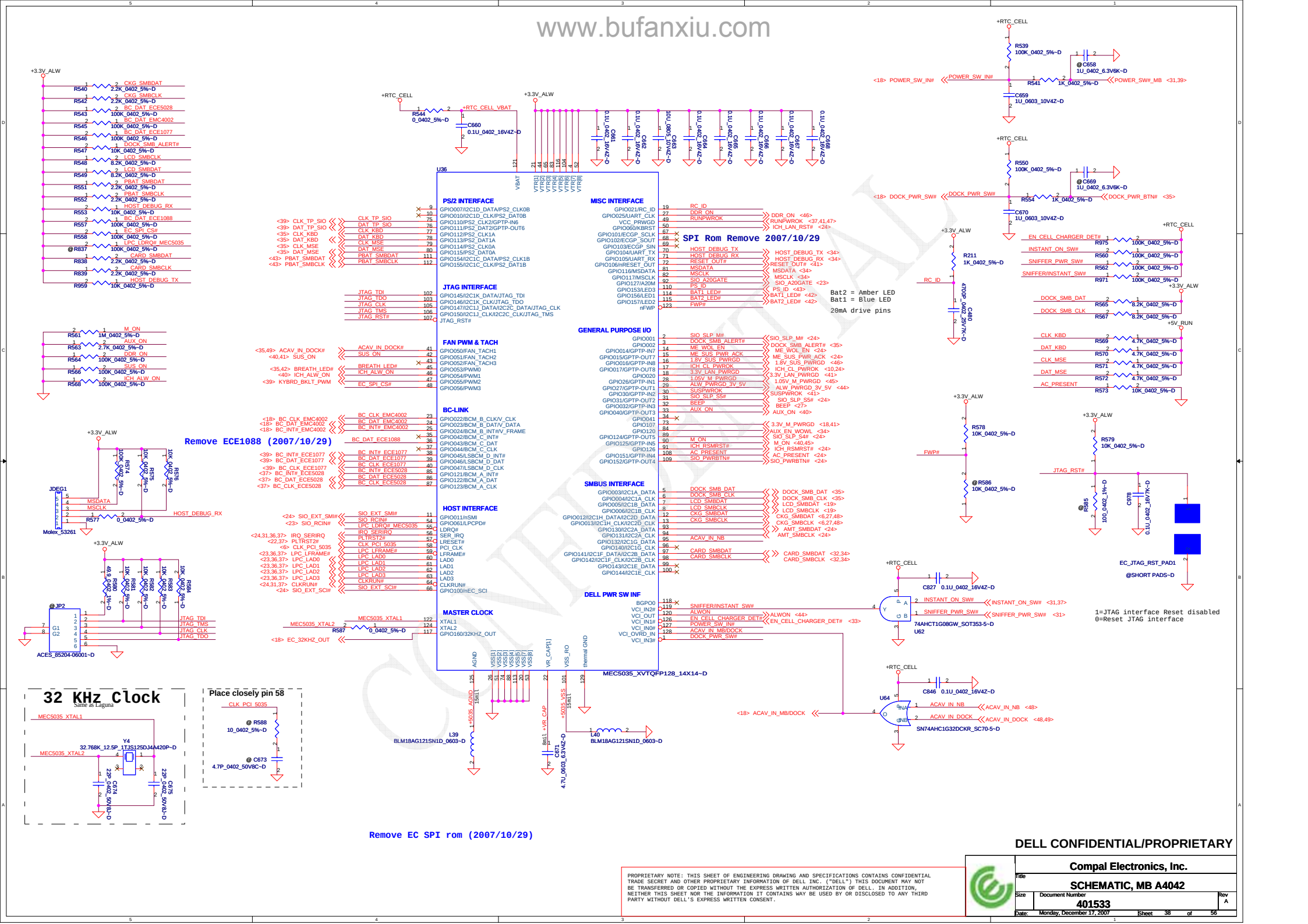

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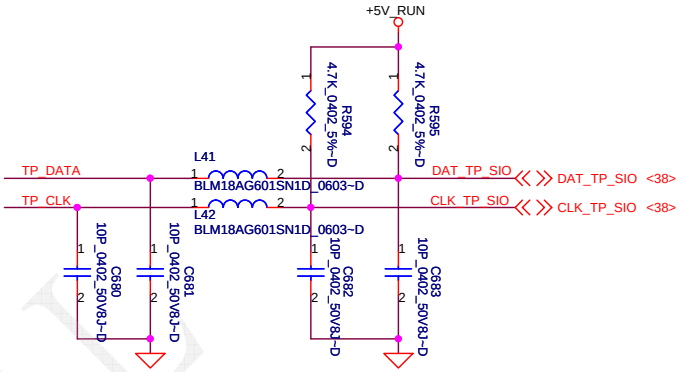

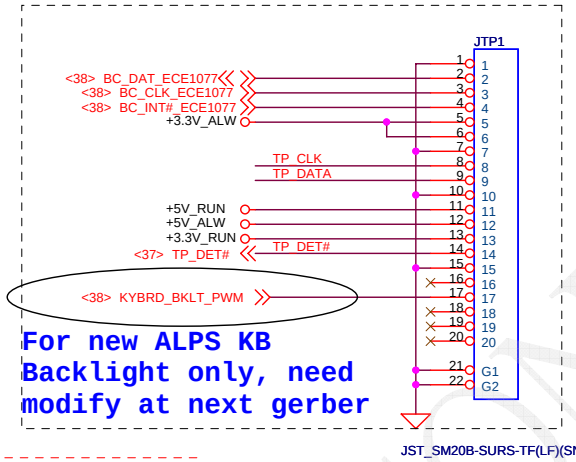

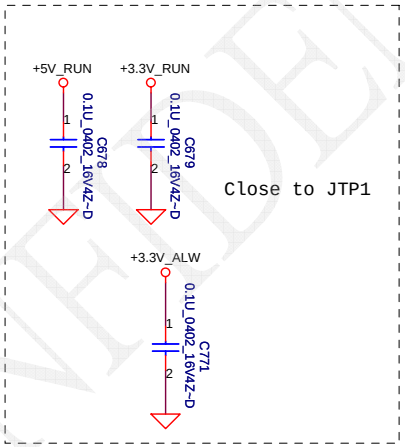

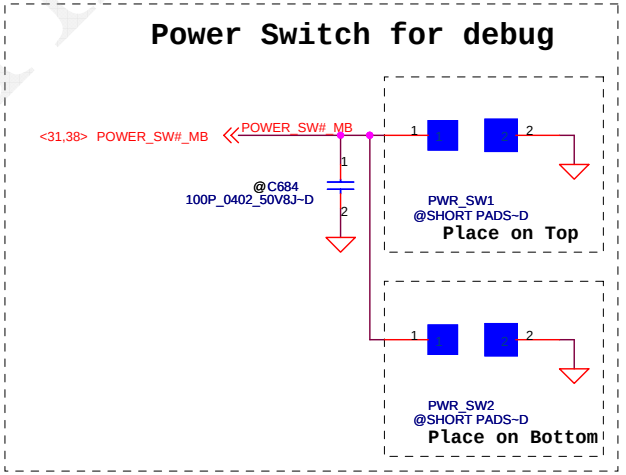

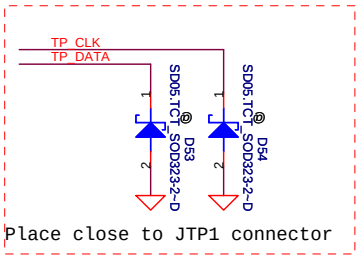

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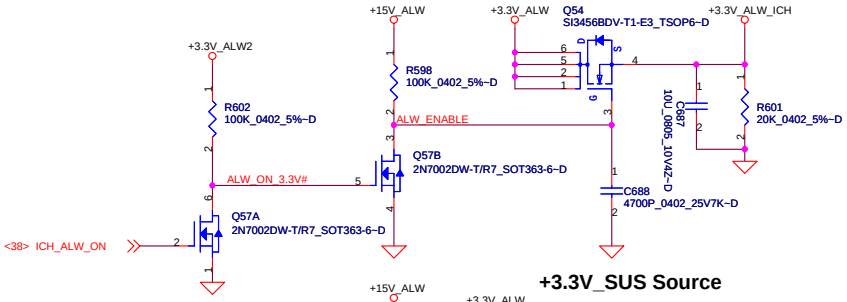
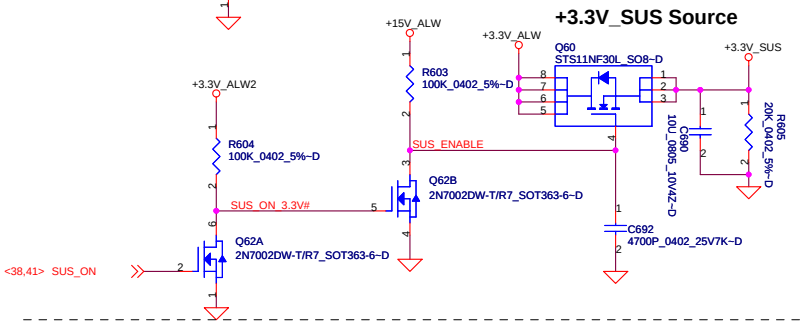
DC/DC Interface

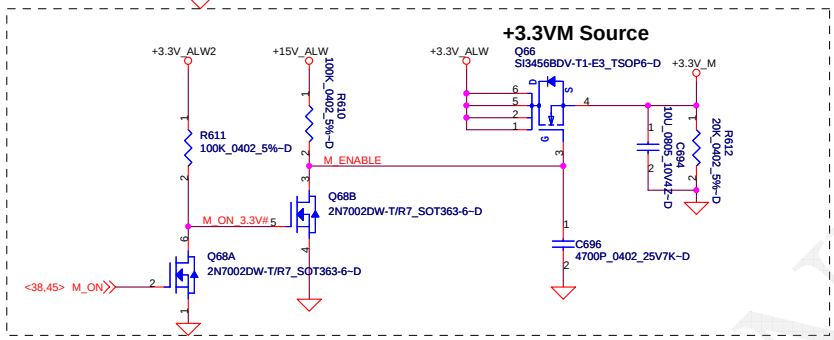
+3.3V_ALW_ICH Source



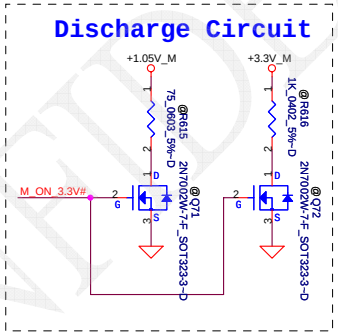
+3.3V_SUS Source

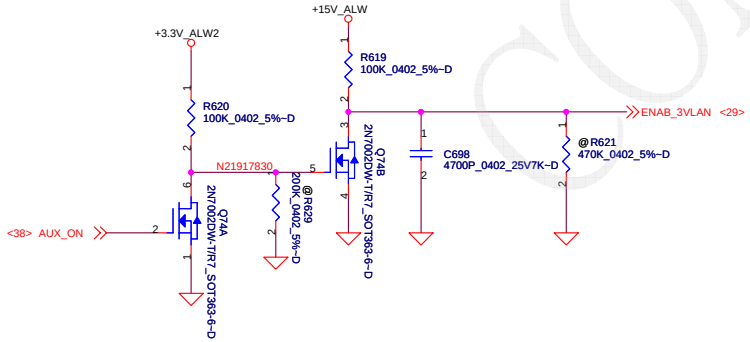


+3.3VM Source

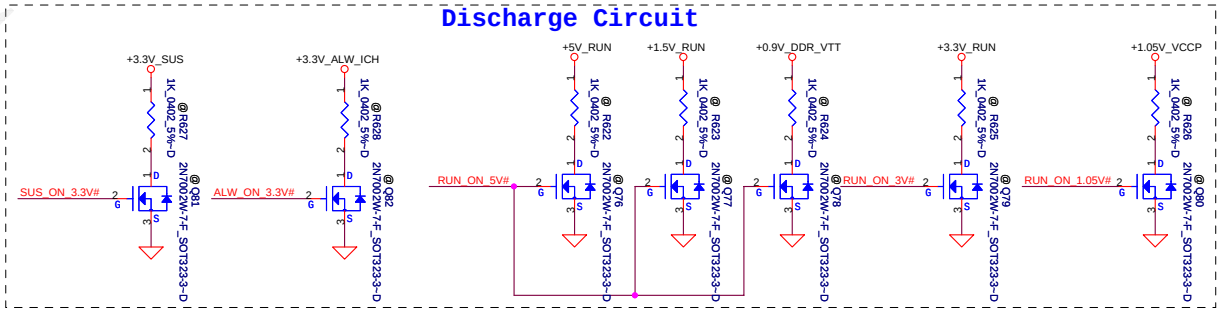


Discharge Circuit

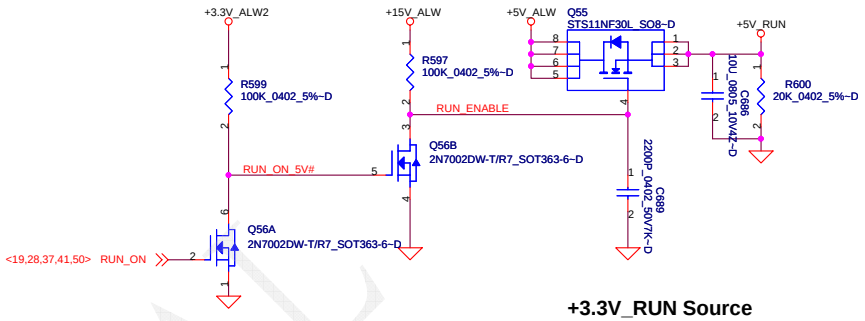




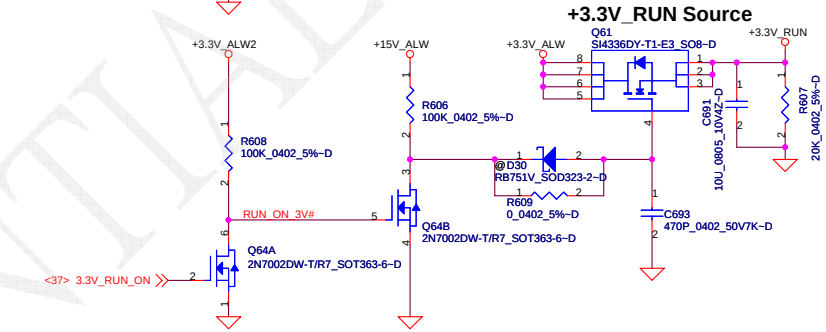
Discharge Circuit



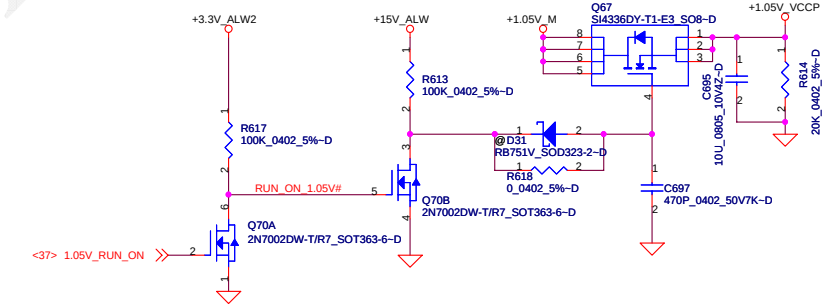
+5VRUN Source



+3.3V_RUN Source



+1.05V_VCCP Source



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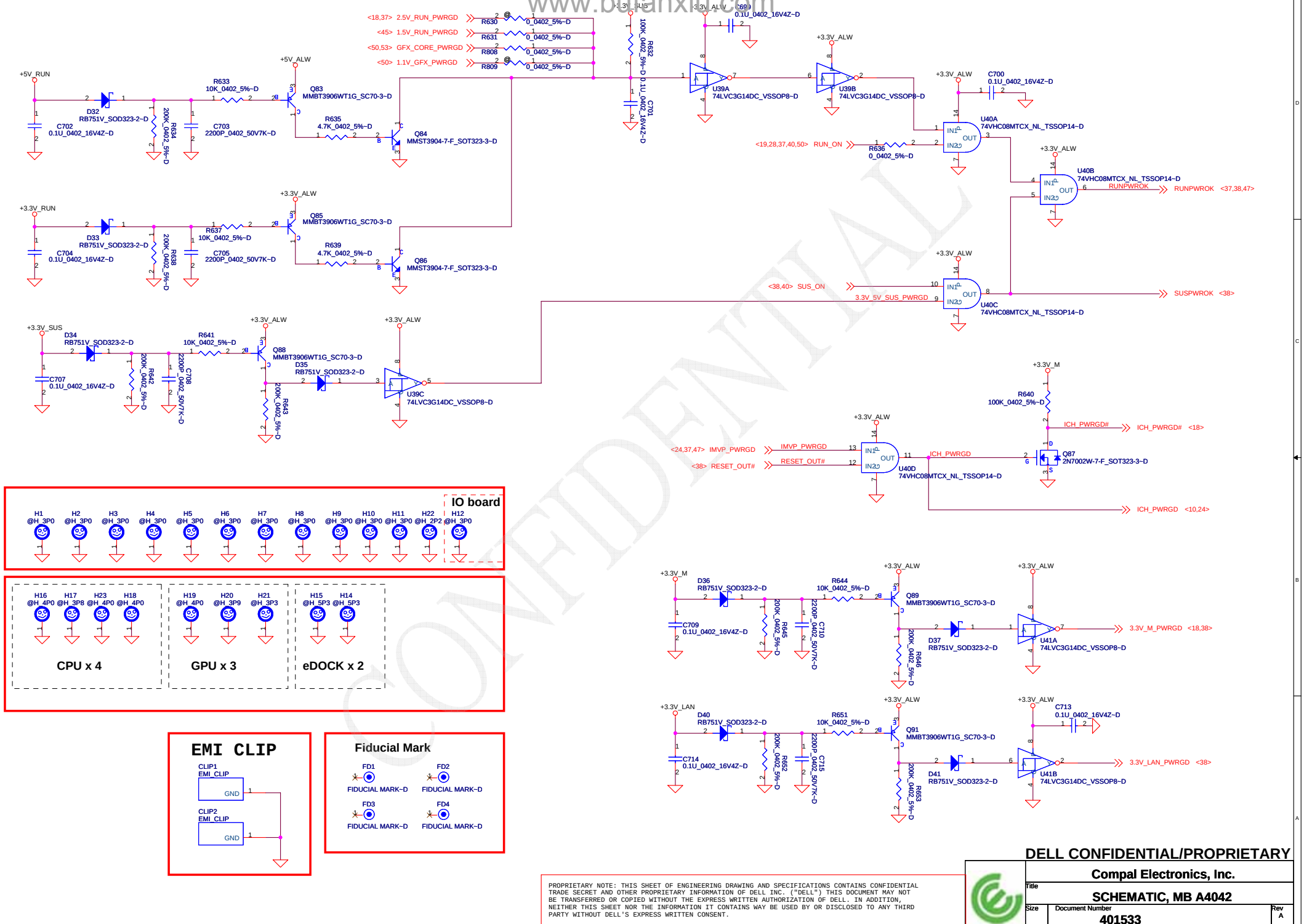

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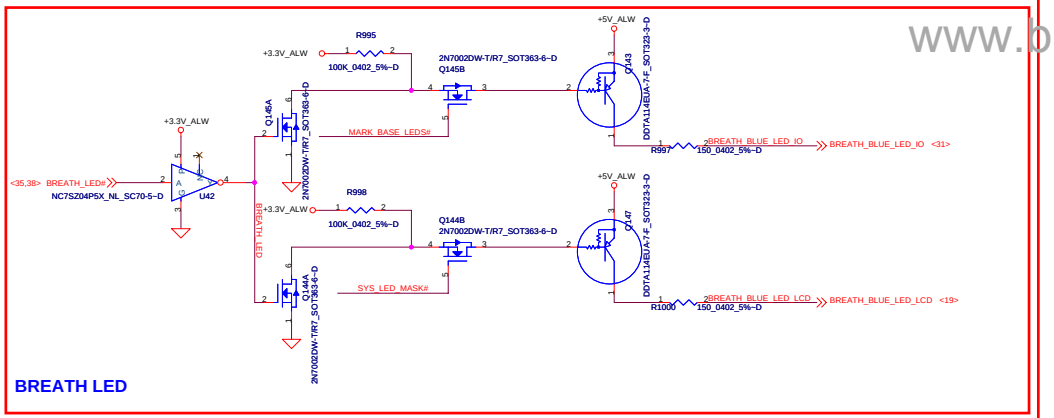
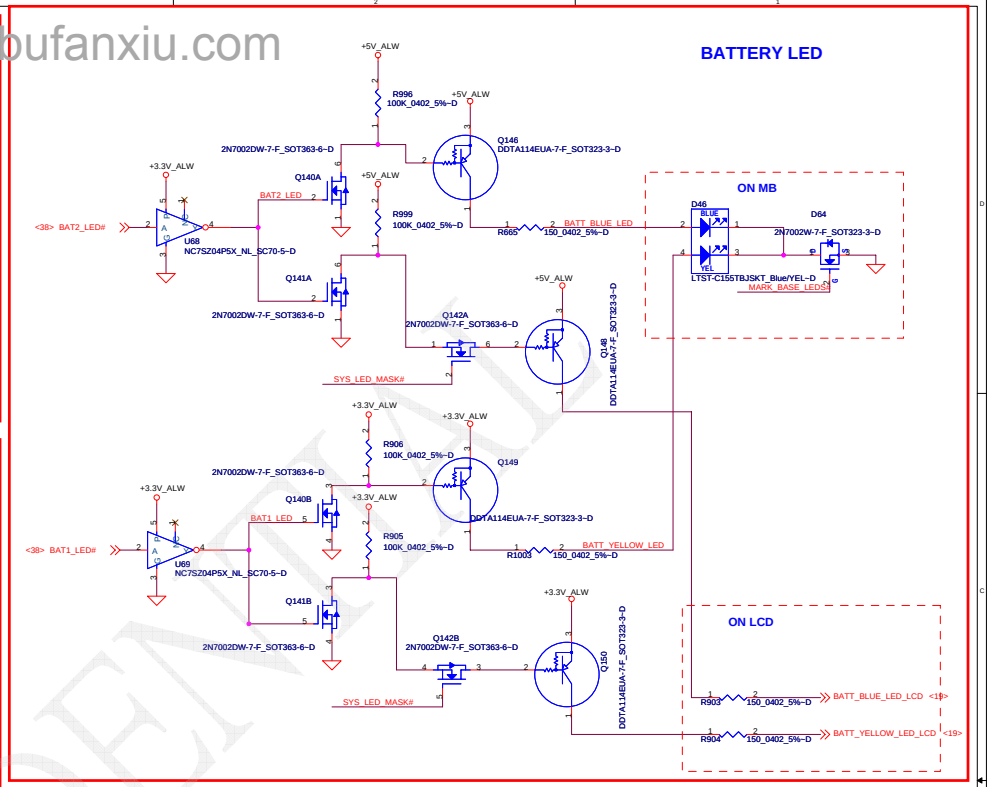
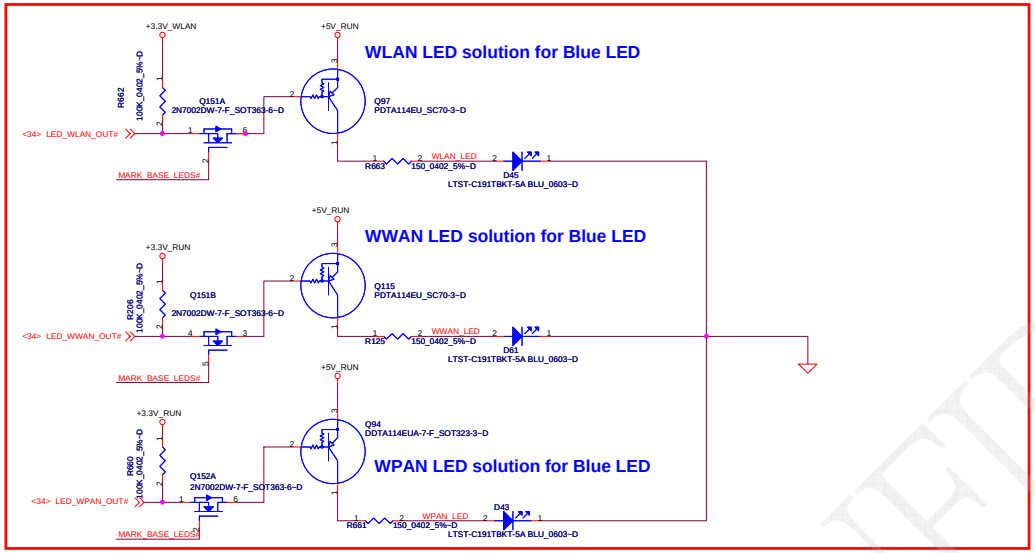
BREATH LED



BATTERY LED



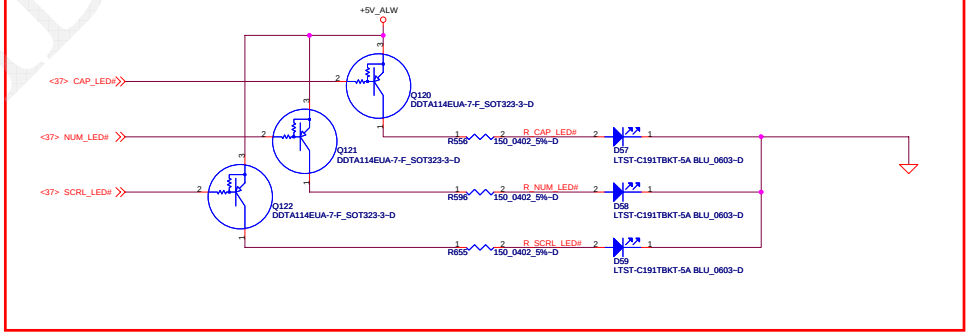
WLAN LED solution for Blue LED



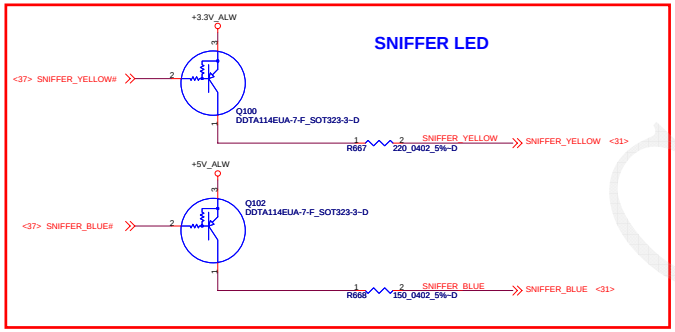
WWAN LED solution for Blue LED

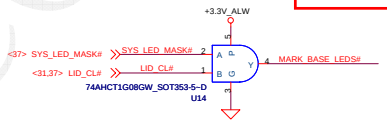
WPAN LED solution for Blue LED

KEYBOARD STATUS LED

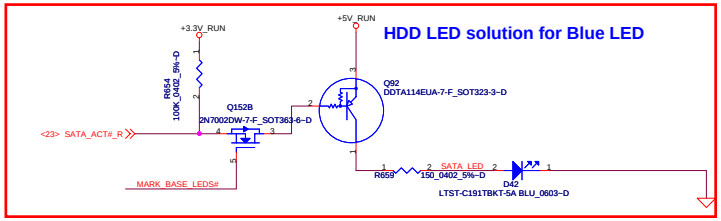


SNIFFER LED





HDD LED solution for Blue LED



BIOS GPIO Table for LED Control

	SYS_LED_MARK#	LID_CL#
MARK ALL LED (SNIFFER FUNCTION)	Low	X
MARK BASE MB LEDs (Lid Closed)	High	Low
Do Not Mark LEDs (Lid Opened)	High	High

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COIN RTC Battery

+COINCELL
PR1 1K_0402_5%~D
+3.3V_RTC_LDO
Z4012
PAD~D@ T47
+COINCELL
RTC_BAT_DET_R#
JRTC1 MOLEX_53398-0371~D
+RTC_CELL
PD1 BAT54CW_SOT323~D
PC1 1U_0603_10V6K~D
Move to power schematic

Primary Battery Connector

FOX_BP02093-P5652-7F~D
PBATT1
PC3 2200P_0402_50V7K~D
Z4304
Z4305
Z4306
PR3 100_0402_5%~D
PR4 100_0402_5%~D
PR5 100_0402_5%~D
PR6 @ 100_0402_5%~D
PBAT_SMBCLK <38>
PBAT_SMBDAT <38>
PBAT_ALARM#

ESD Diodes

+3.3V_ALW
PD2 DA204U_SOT323~D
PD3 DA204U_SOT323~D
PD4 DA204U_SOT323~D
PD5 DA204U_SOT323~D

PL1 FBMA-L18-453215-900LMA90T_1812~D
PJP1 PAD-OPEN 4x4m
PBATT+
PC2 0.1U_0603_25V7K~D
PR2 10K_0402_1%~D
+3.3V_ALW
PBAT_PRES# <37>

DC_IN+ Source

DCIN_CBL_DET# <37>
PJPDC1 MOLEX_87437-0663
-DCIN_JACK
+DCIN_JACK
PL3 FBMJ4516HS720NT_1806~D
PL4 FBMJ4516HS720NT_1806~D
PC5 0.1U_0603_25V7K~D
PD9 V20603M26A04PT_0603
PC10 0.1U_0603_25V7K~D
PR16 0_0402_5%~D
PQ4B IMD2AT-108_SC74-6~D
PC4 0.47U_0805_25V7K~D
PR14 240K_0402_5%~D
+DC_IN
PQ3 FDS6679AZ_SO8~D
+DC_IN_SS
PC6 0.1U_0603_25V7K~D
PC7 0.1U_0603_25V7K~D
PC8 0.1U_0603_25V7K~D
PR15 4.7K_0805_5%~D
PC9 10U_1206_25V6M~D
PR17 47K_0402_1%~D
PR18 47K_0402_1%~D
PC11 0.1U_0603_25V7K~D
<49> NB_AC_OFF_BJT
PQ4A IMD2AT-108_SC74-6~D
PQ5 RHU002N06_SOT323
NB_AC_OFF_R
PR172 0_0402_5%~D
NB_AC_OFF <37,49>
PC12 0.1U_0603_25V7K~D

Power Switch

NB_PSID
PL2 BLM18BD102SN1D_0603~D
PD7 SM24_SOT23
PR7 @ 0_0402_5%~D
PQ1 FDV301N_SOT23~D
PR9 33_0402_5%~D
PD6 DA204U_SOT323~D
+5V_ALW
+3.3V_ALW
PR8 2.2K_0402_5%~D
NB_PSID_TSSA63157
PR10 100K_0402_1%~D
PR12 15K_0402_1%~D
PQ2 MMST3904-7-F_SOT323~D
PR11 10K_0402_1%~D
PD8 @ DA204U_SOT323~D
PR13 @ 10K_0402_5%~D
PSID_DISABLE# <37>

<35> DOCK_PSID
PU1 TSSA63157/DCKR_SC70-6~D
GPIO_PSID_SELECT <37>
+5V_ALW
PS_ID <38>

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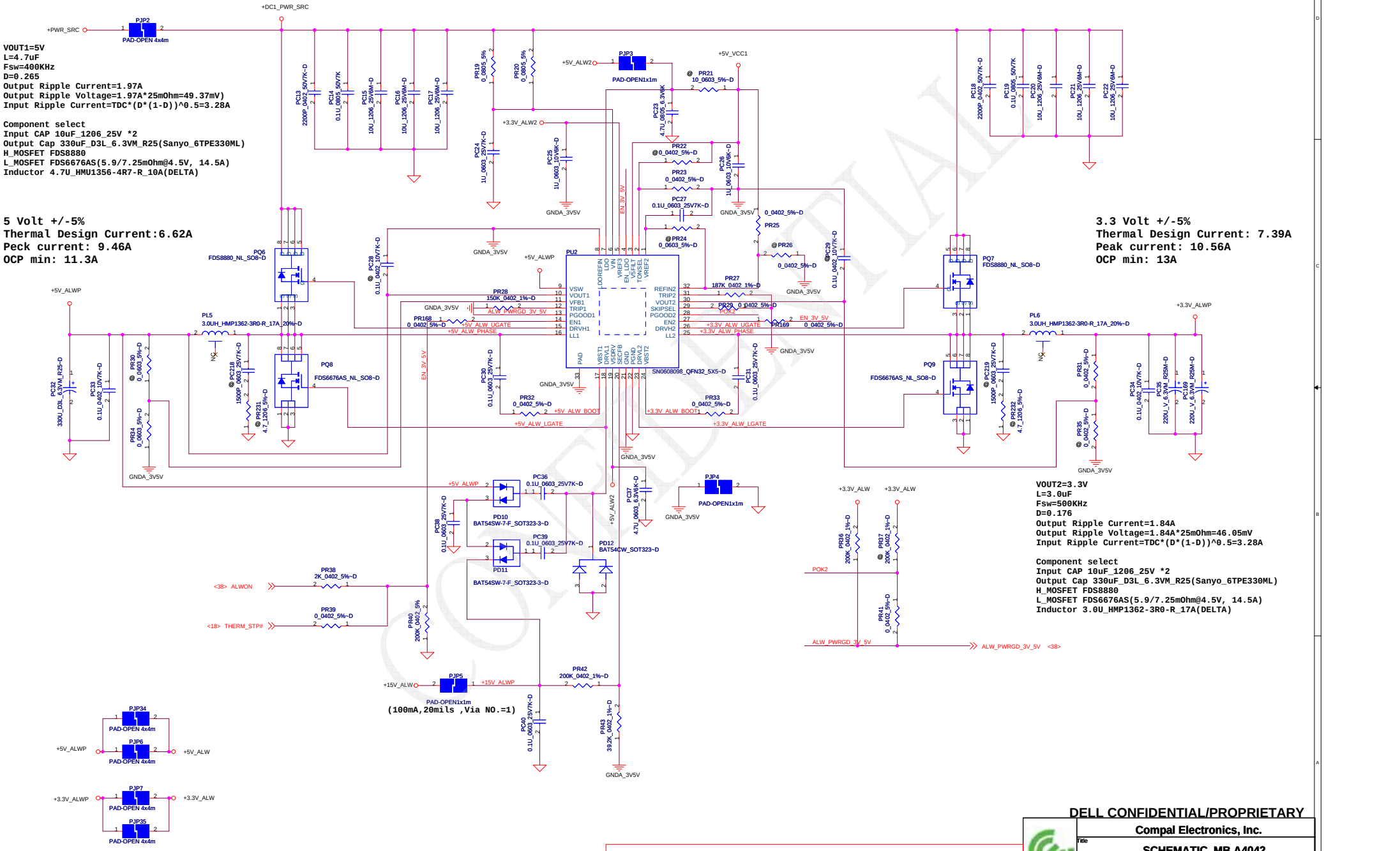
+3.3V_ALWP/ +5V_ALWP/ +5V_ALW2 / +15V_ALWP



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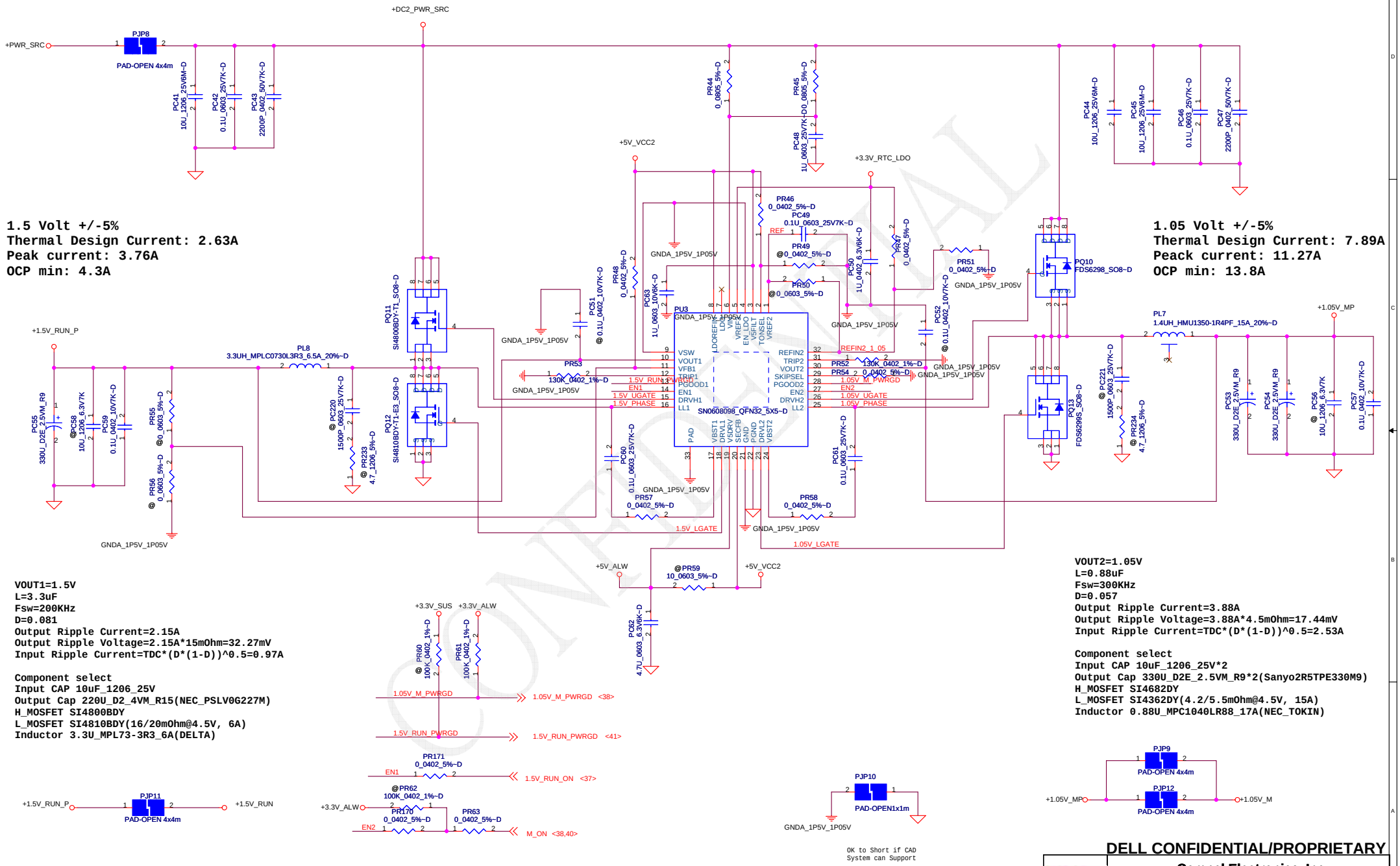
+1.5V_RUN / +1.05V_M/ +3.3V_RTC_LDO



VOUT1=1.5V
L=3.3uF
Fsw=200KHz
D=0.081
Output Ripple Current=2.15A
Output Ripple Voltage=2.15A*15mOhm=32.27mV
Input Ripple Current=TDC*(D*(1-D))^0.5=0.97A

Component select
Input CAP 10uF_1206_25V
Output Cap 220U_D2_4VM_R15(NEC_PSLV0G227M)
H_MOSFET SI4800BDY
L_MOSFET SI4810BDY(16/20mOhm@4.5V, 6A)
Inductor 3.3U_MPL73-3R3_6A(DELTA)

VOUT2=1.05V
L=0.88uF
Fsw=300KHz
D=0.057
Output Ripple Current=3.88A
Output Ripple Voltage=3.88A*4.5mOhm=17.44mV
Input Ripple Current=TDC*(D*(1-D))^0.5=2.53A

Component select
Input CAP 10uF_1206_25V*2
Output Cap 330U_D2E_2.5VM_R9*2(Sanyo2R5TPE330M9)
H_MOSFET SI4682DY
L_MOSFET SI4362DY(4.2/5.5mOhm@4.5V, 15A)
Inductor 0.88U_MPC1040LR88_17A(NEC_TOKIN)

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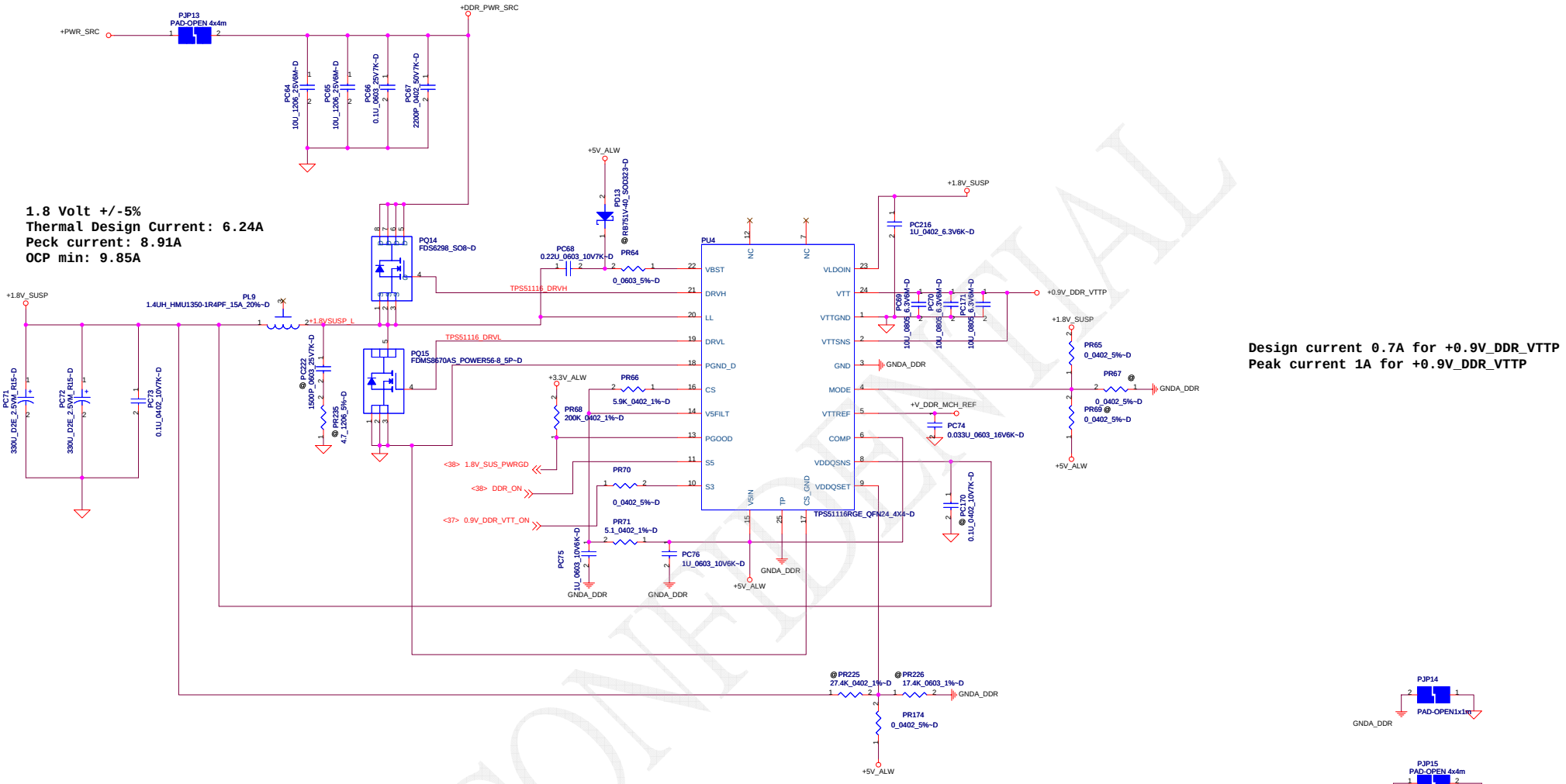
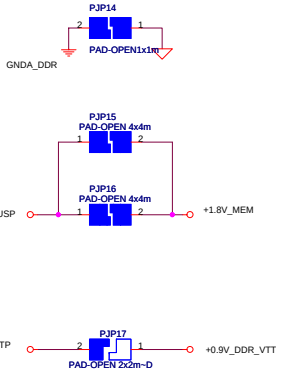
+1.8VSUSP/ +0.9V_DDR_VTT

DDR2 Termination

1.8 Volt +/-5%
Thermal Design Current: 6.24A
Peck current: 8.91A
OCP min: 9.85A

Design current 0.7A for +0.9V_DDR_VTTP
Peak current 1A for +0.9V_DDR_VTTP





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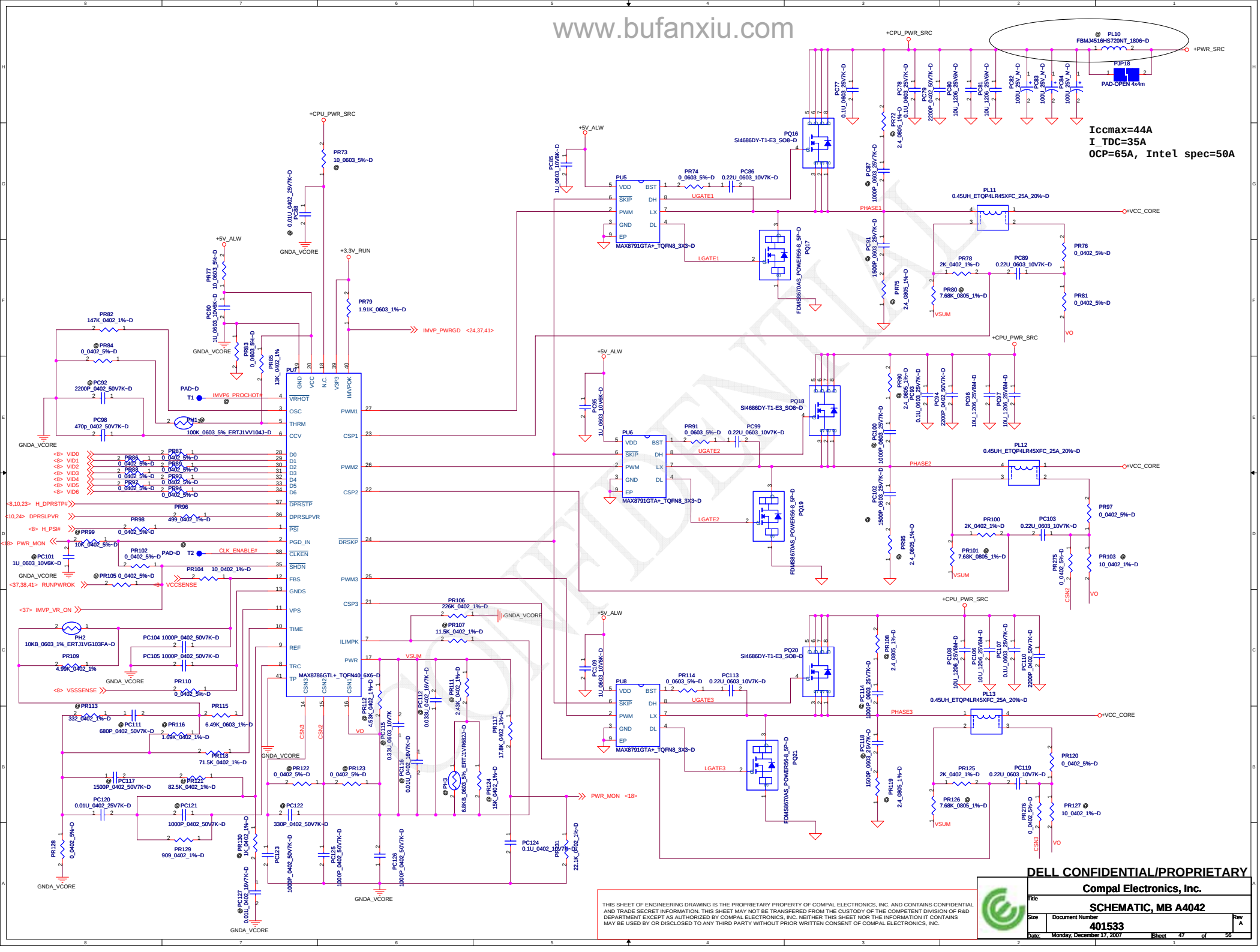

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TABLE 3, PIN NAME DIFFERENCES		
PIN	MAXIM	INTERSIL
1	GND	NC
3	REF	VREF
4	CCS	ICOMP
5	CCI	NC
6	CCV	VCOMP
7	DAC	NC
8	IINP	ICM
11	VDD	VDDSMB
14	BATSEL	NC
15	FBSA	VFB
16	FBSB	NC
17	CSIN	CSON
18	CSIP	CSOP
20	DLO	LGATE
21	LDO	VDDP
23	LX	PHASE
24	DHI	UGATE
25	BST	BOOT

"NC" means no-connect

Maximum charging current is 6.24A

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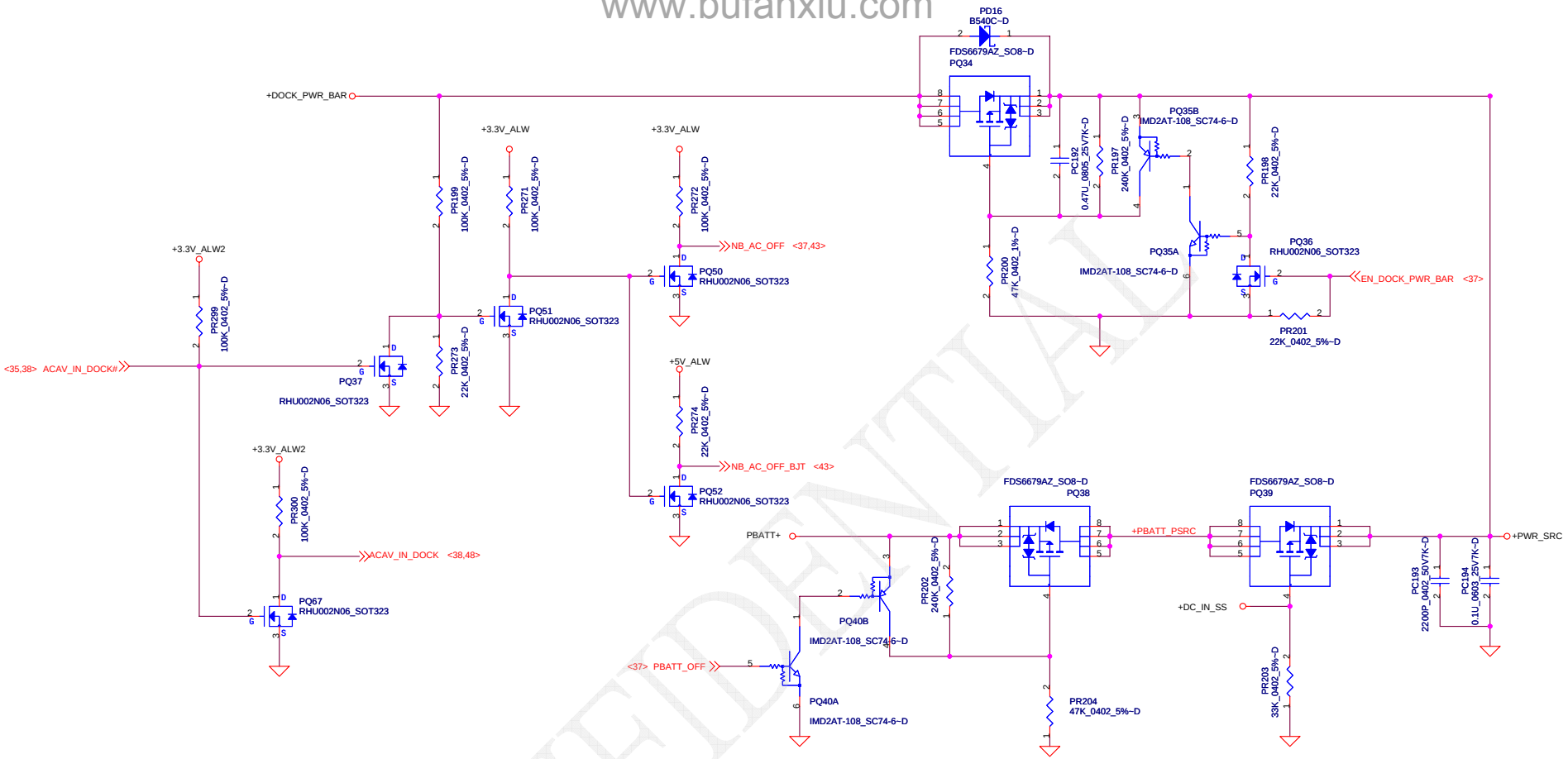

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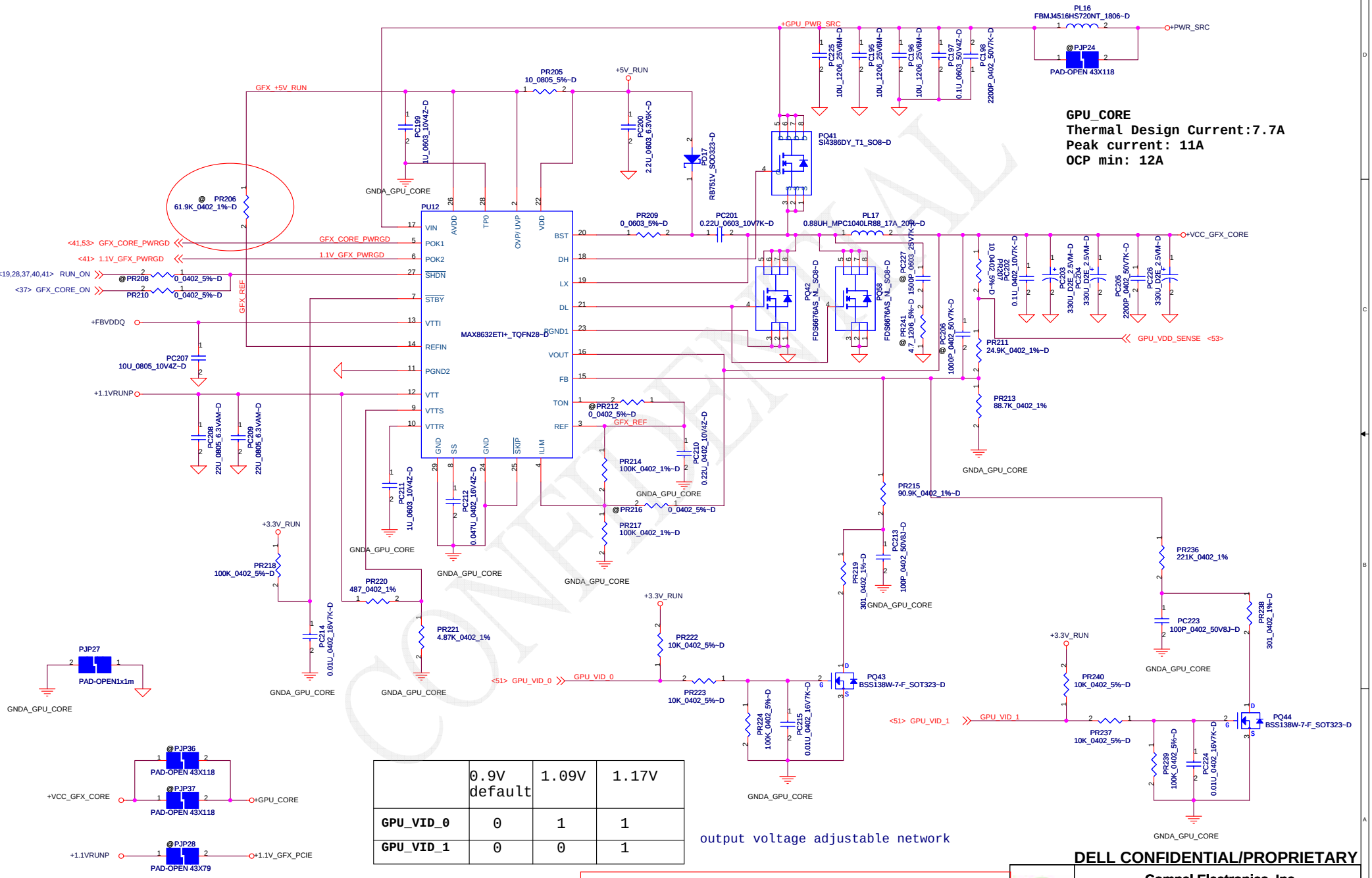

	0.9V default	1.09V	1.17V
GPU_VID_0	0	1	1
GPU_VID_1	0	0	1

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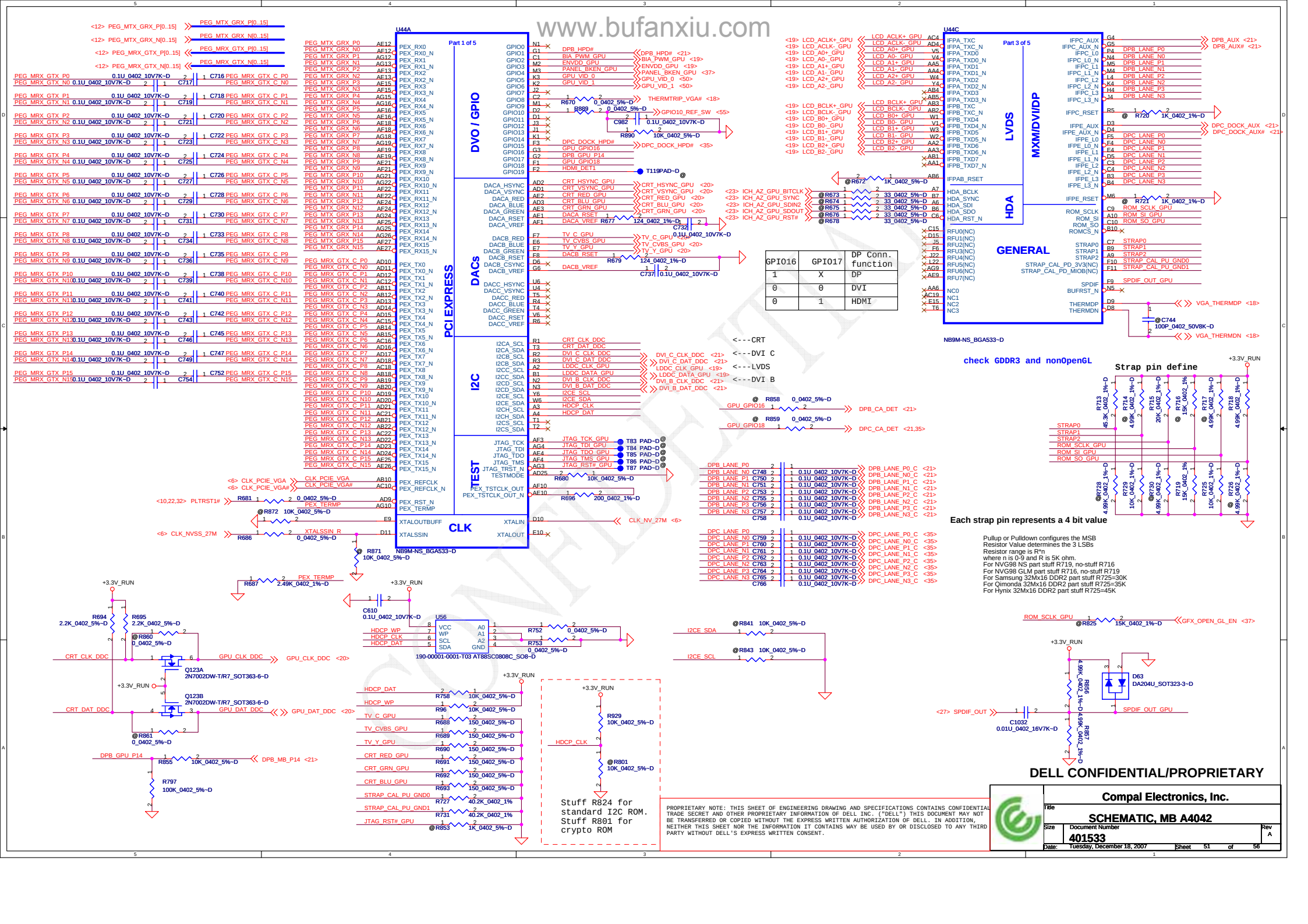

GPIO16	GPIO17	DP Conn. function
1	X	DP
0	0	DVI
0	1	HDMI

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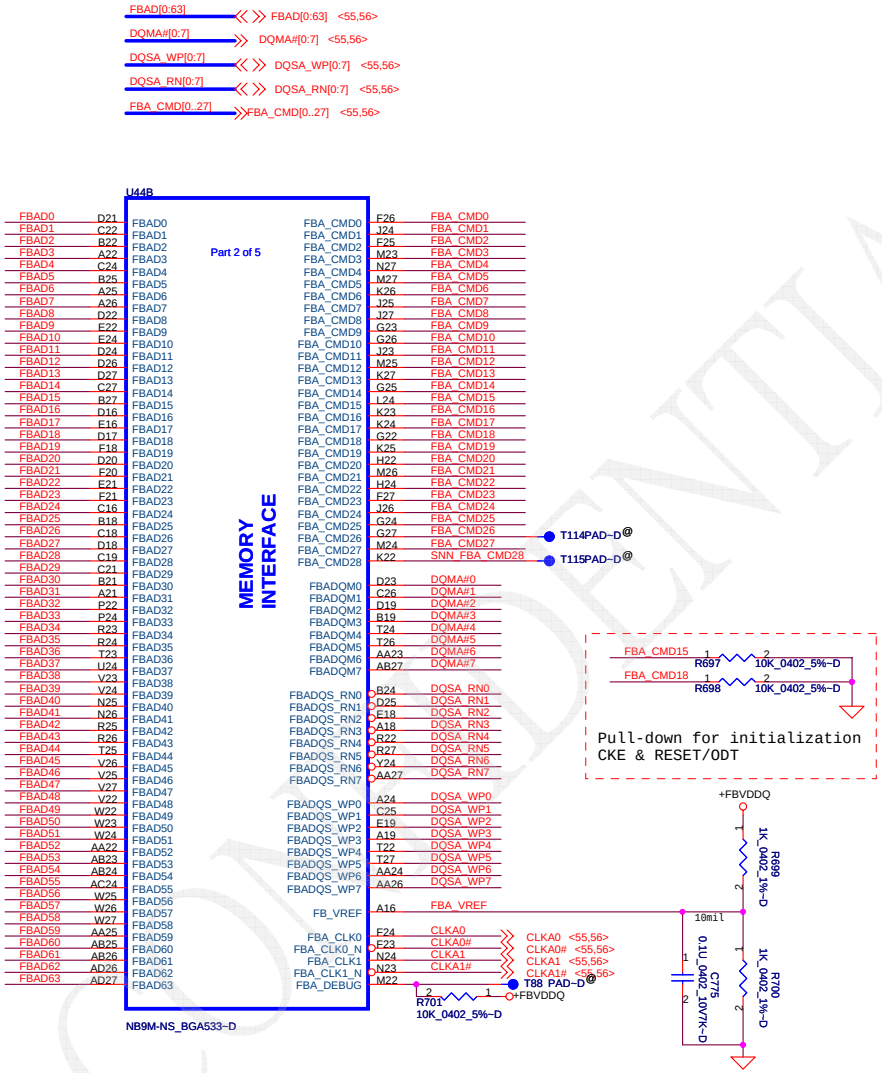

	0..31	32..63
FBA_CMD0	A4	
FBA_CMD1	RAS#	RAS#
FBA_CMD2	A5	
FBA_CMD3	BA1	BA1
FBA_CMD4		A2
FBA_CMD5		A4
FBA_CMD6		A3
FBA_CMD7	CS1#	CS1#
FBA_CMD8	CS0#	CS0#
FBA_CMD9	A11	A11
FBA_CMD10	CAS#	CAS#
FBA_CMD11	WE#	WE#
FBA_CMD12	BA0	BA0
FBA_CMD13		A5
FBA_CMD14	A12	A12
FBA_CMD15	RST/ODT	RST/ODT
FBA_CMD16	A7	A7
FBA_CMD17	A10	A10
FBA_CMD18	CKE	CKE
FBA_CMD19	A0	A0
FBA_CMD20	A9	A9
FBA_CMD21	A6	A6
FBA_CMD22	A2	
FBA_CMD23	A8	A8
FBA_CMD24	A3	
FBA_CMD25	A1	A1
FBA_CMD26	A13	A13
FBA_CMD27	BA2	BA2
FBA_CMD28	RFU0	RFU0
FBA_CMD29	RFU1	RFU1
FBA_CMD30	RFU2	RFU2

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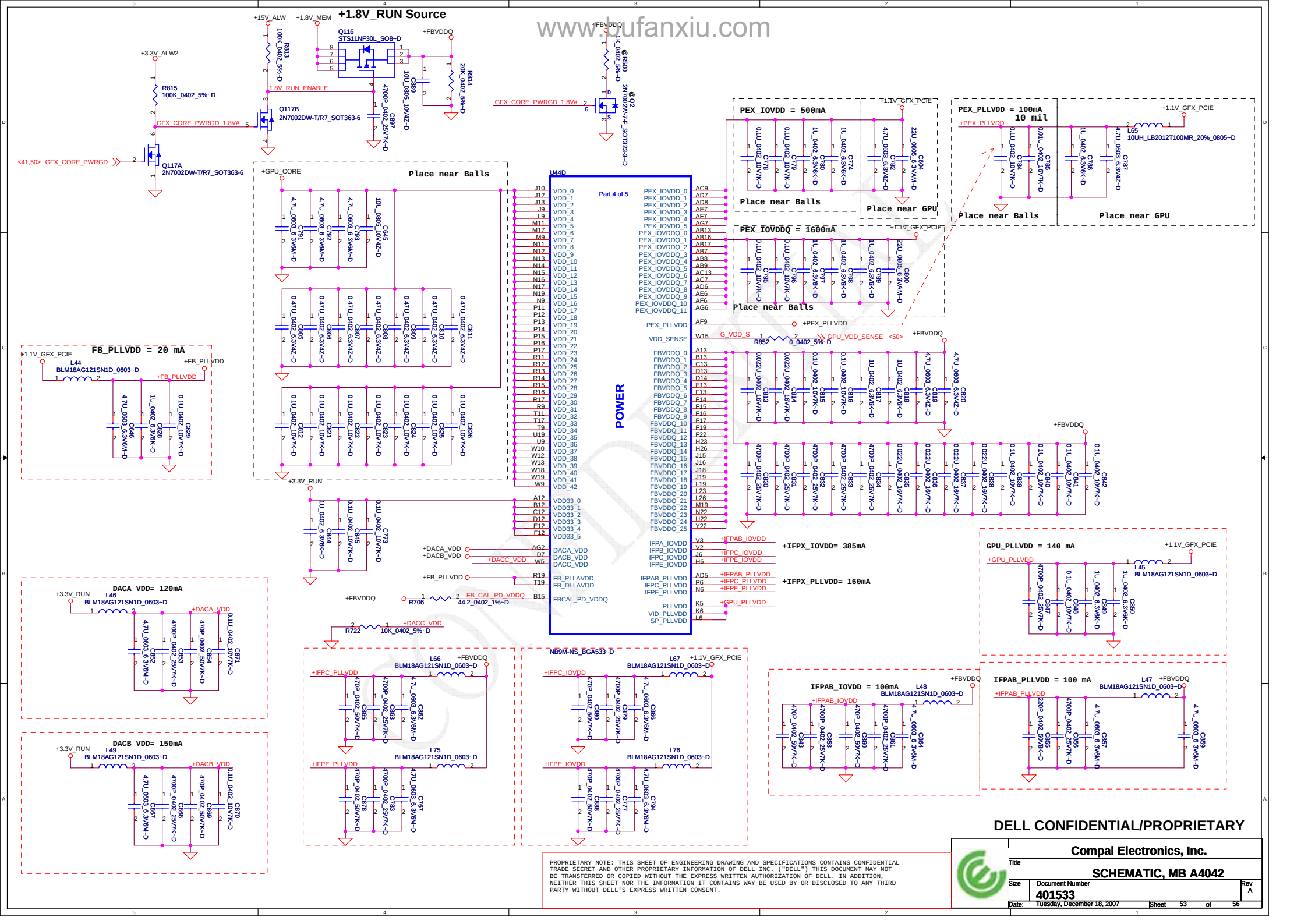
+1.8V_RUN Source
www.hufanxiu.com
+15V_ALW
+1.8V_MEM
+3.3V_ALW2
R813 100K_0402_5%~D
R815 100K_0402_5%~D
Q116 STS11NF30L_SO8~D
Q117B 2N7002DW-T/R7_SOT363-6
Q117A 2N7002DW-T/R7_SOT363-6
1.8V_RUN_ENABLE
GFX_CORE_PWRGD_1.8V#
<41,50> GFX_CORE_PWRGD
+FBVDDQ
R814 20K_0402_5%~D
C889 10U_0805_10V4Z~D
C887 4700P_0402_25V7K~D
R500 1K_0402_5%~D
Q2 2N7002DW-7-F_SOT323-6
U44D
Part 4 of 5
POWER
+GPU_CORE
Place near Balls
PEX_IOVDD = 500mA
PEX_IOVDDQ = 1600mA
PEX_PLLVDD = 100mA
10 mil
+1.1V_GFX_PCIE
Place near GPU
FB_PLLVDD = 20 mA
L44 BLM18AG121SN1D_0603~D
+FB_PLLVDD
+3.3V_RUN
R852 0_0402_5%~D
G_VDD_S
GPU_VDD_SENSE
<50>
+PEX_PLLVDD
+IFPX_IOVDD= 385mA
+IFPX_PLLVDD= 160mA
GPU_PLLVDD = 140 mA
L45 BLM18AG121SN1D_0603~D
+GPU_PLLVDD
DACA VDD= 120mA
L46 BLM18AG121SN1D_0603~D
+DACA_VDD
DACB VDD= 150mA
L49 BLM18AG121SN1D_0603~D
+DACB_VDD
+DACC_VDD
R722 10K_0402_5%~D
+FB_CAL_PD_VDDQ
R706 44.2_0402_1%~D
NB9M-NS_BGA533~D
L66 BLM18AG121SN1D_0603~D
L67 BLM18AG121SN1D_0603~D
L75 BLM18AG121SN1D_0603~D
L76 BLM18AG121SN1D_0603~D
+IFPC_PLLVDD
+IFPE_PLLVDD
+IFPC_IOVDD
+IFPE_IOVDD
IFPAB_IOVDD = 100mA
L48 BLM18AG121SN1D_0603~D
+IFPAB_IOVDD
IFPAB_PLLVDD = 100 mA
L47 BLM18AG121SN1D_0603~D
+IFPAB_PLLVDD
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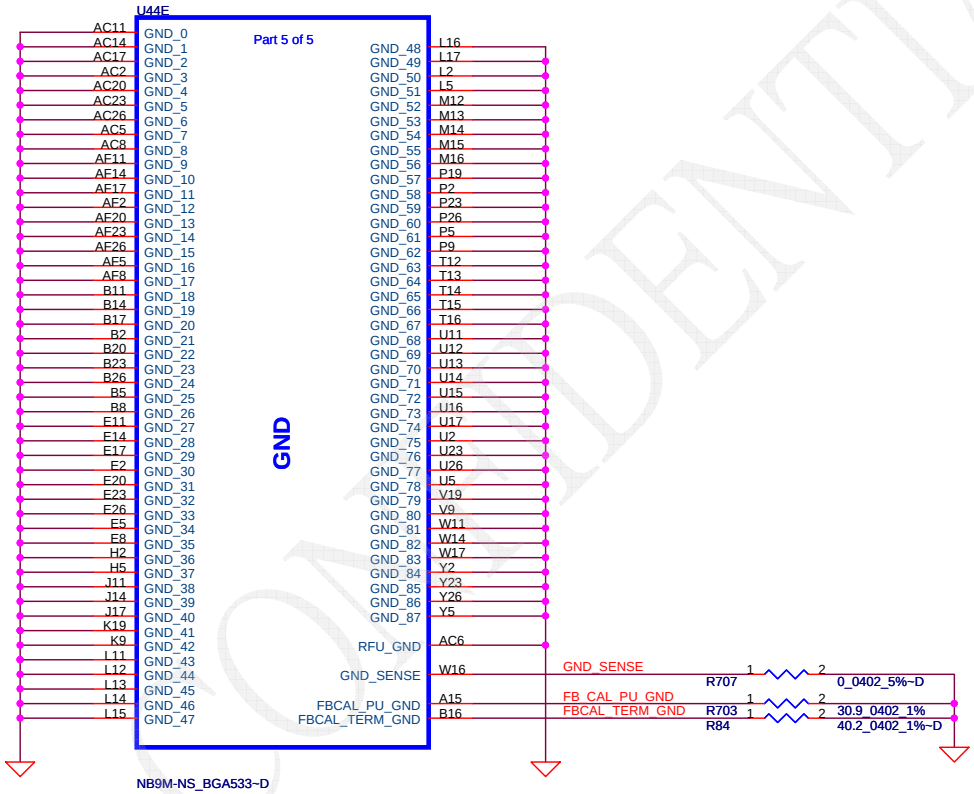

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32Mx32 GDDR3

U57

T143

CLKA0 — R750 475_0402_1%~D — CLKA0#

243 ohm for NB8P
475 ohm for NB9X
Place close to U57

<52,56> CLKA0
<52,56> CLKA0#

R862 243_0402_1%~D

FBA_VREF_1 <56>
FBA_VREF_2 <56>

+FBVDDQ

K4J10324QD-BC12_FBGA136~D

Mirror U58

RAS# --> BA2
CAS# --> CS0#
WE# --> CKE
CS0# --> CAS#
A0 --> A4
A1 --> A5
A2 --> A6
A3 --> A9
A4 --> A0
A5 --> A1
A6 --> A2
A7 --> A11
A8 --> A10
A9 --> A3
A10 --> A8
A11 --> A7
CKE --> WE#
BA0 --> BA1
BA1 --> BA0
BA2 --> RAS#
NC/CS1# --> NV/CS1#

T144

U58

32Mx32 GDDR3

U58 is Mirror

<52,56> CLKA1
<52,56> CLKA1#

R863 243_0402_1%~D

FBA_VREF_3 <56>
FBA_VREF_4 <56>

FBAD[0..63] <52,56>
DQSA_WP[0..7] <52,56>
DQSA_RN[0..7] <52,56>
DQMA#[0..7] <52,56>
FBA_CMD[0..27] <52,56>

CLKA1 — R824 475_0402_1%~D — CLKA1#

243 ohm for NB8P
475 ohm for NB9X
Place close to U58

U58 is Mirror

Avia

R734 511_0402_1%~D
12 mil
R866 909_0402_1%~D
R887 1.18K_0402_1%~D
C872 0.01U_0402_16V7K~D
FBA_VREF_1
FBA_VREF_5
Q116 2N7002W-7-F_SOT323-3~D
R738 511_0402_1%~D
12 mil
R869 909_0402_1%~D
R870 1.18K_0402_1%~D
C919 0.01U_0402_16V7K~D
FBA_VREF_2
GPIO10_REF_SW <51>

need check new value for NB9M

Place below decoupling caps close U57

C908 4.7U_0603_6.3V6M~D
C909 4.7U_0603_6.3V6M~D
C890 4.7U_0603_6.3V6M~D
C910 0.1U_0402_10V7K~D
C911 0.1U_0402_10V7K~D
C891 0.1U_0402_10V7K~D
C892 0.1U_0402_10V7K~D
C893 0.1U_0402_10V7K~D
C912 0.1U_0402_10V7K~D
C894 0.01U_0402_16V7K~D
C895 0.01U_0402_16V7K~D
C896 0.01U_0402_16V7K~D
C913 0.01U_0402_16V7K~D
C914 0.01U_0402_16V7K~D
C915 0.01U_0402_16V7K~D
C916 0.01U_0402_16V7K~D

Place below decoupling caps close U58

C899 4.7U_0603_6.3V6M~D
C900 4.7U_0603_6.3V6M~D
C881 0.1U_0402_10V7K~D
C882 0.1U_0402_10V7K~D
C883 0.1U_0402_10V7K~D
C884 0.1U_0402_10V7K~D
C901 0.1U_0402_10V7K~D
C902 0.1U_0402_10V7K~D
C903 0.1U_0402_10V7K~D
C885 0.01U_0402_16V7K~D
C886 0.01U_0402_16V7K~D
C887 0.01U_0402_16V7K~D
C904 0.01U_0402_16V7K~D
C905 0.01U_0402_16V7K~D
C906 0.01U_0402_16V7K~D
C907 0.01U_0402_16V7K~D

R864 511_0402_1%~D
12 mil
R831 909_0402_1%~D
R832 1.18K_0402_1%~D
C917 0.01U_0402_16V7K~D
FBA_VREF_3
FBA_VREF_6
Q118 2N7002W-7-F_SOT323-3~D
R865 511_0402_1%~D
12 mil
R867 909_0402_1%~D
R868 1.18K_0402_1%~D
C918 0.01U_0402_16V7K~D
FBA_VREF_4
GPIO10_REF_SW <51>

need check new value for NB9M

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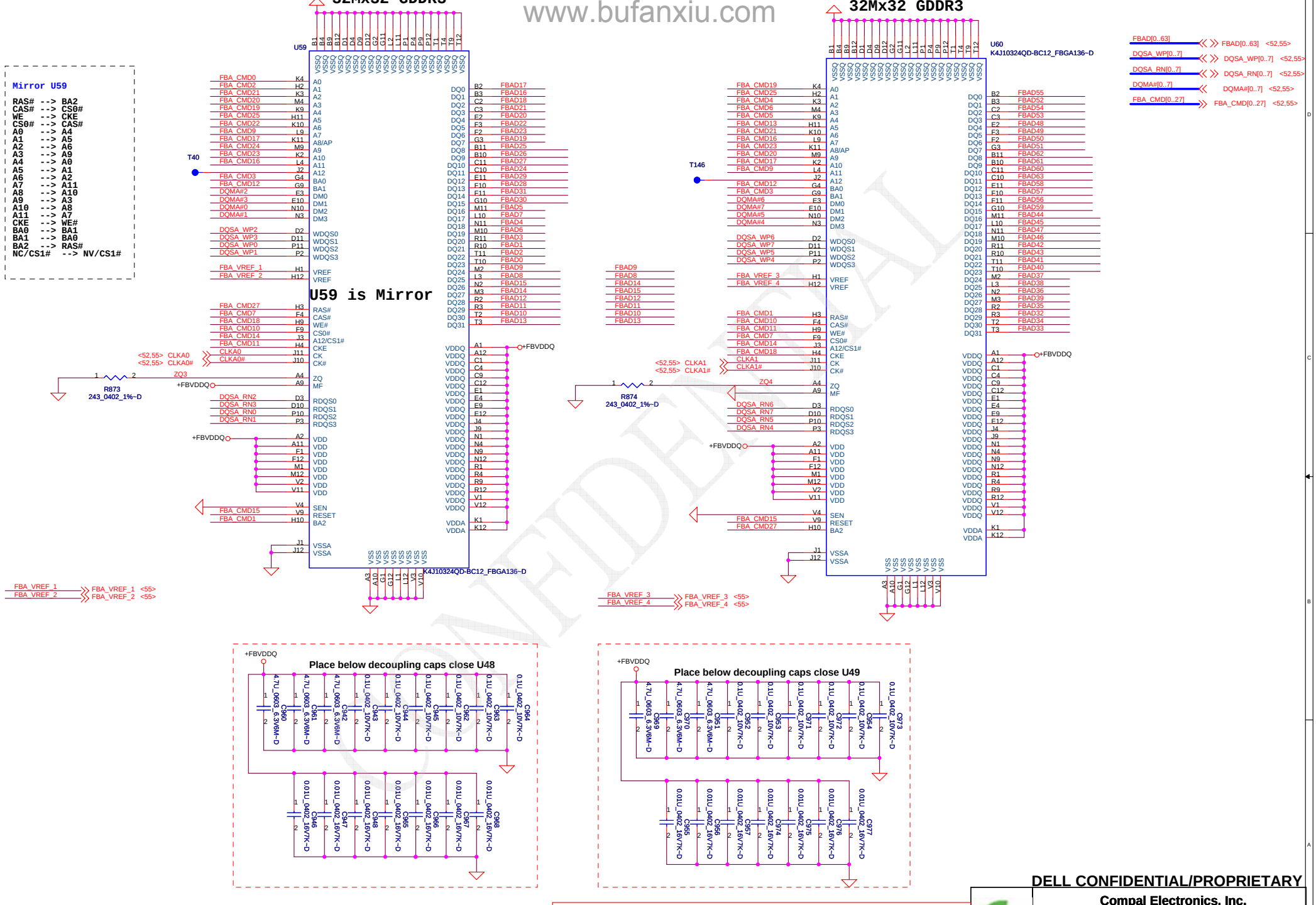

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