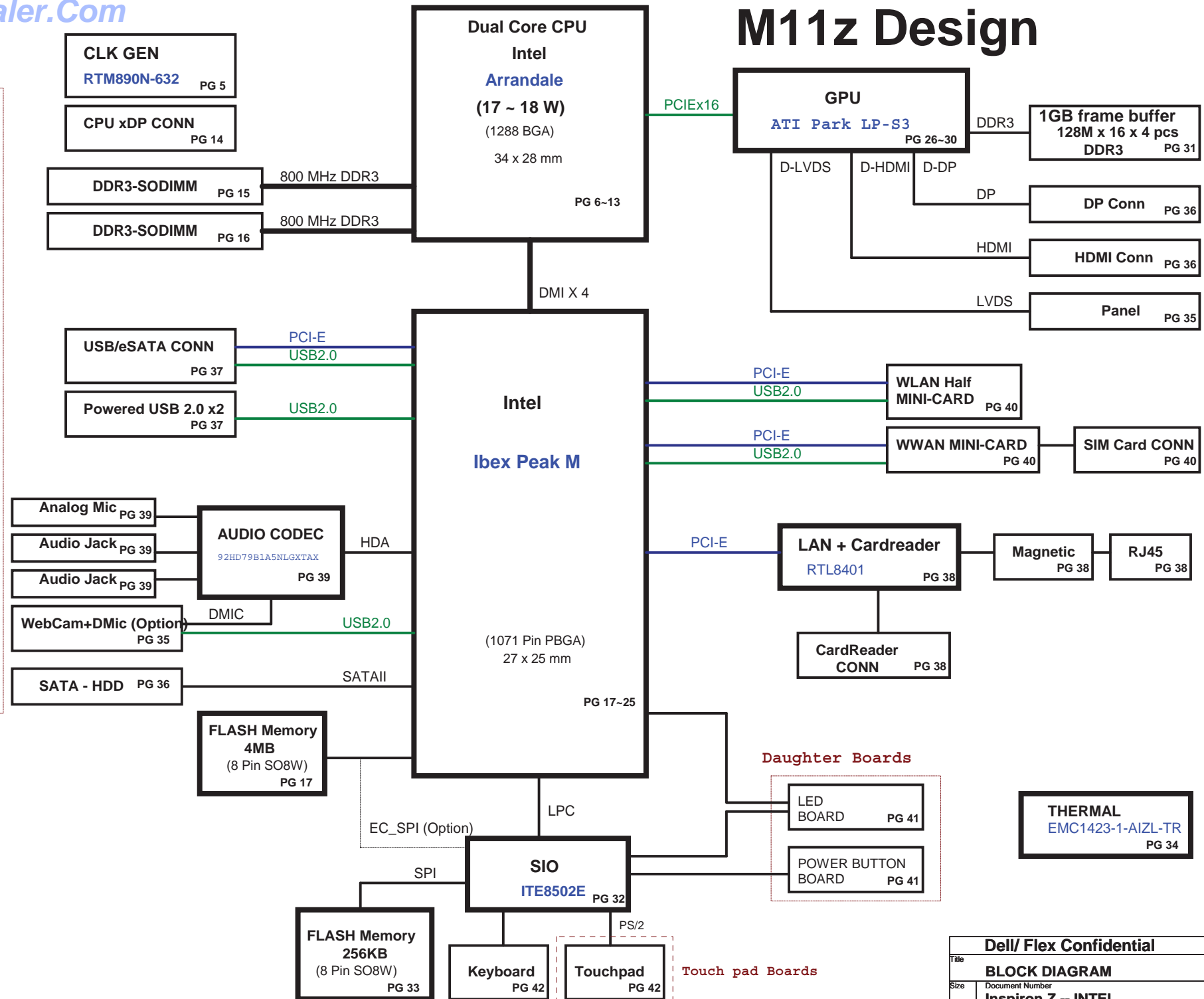
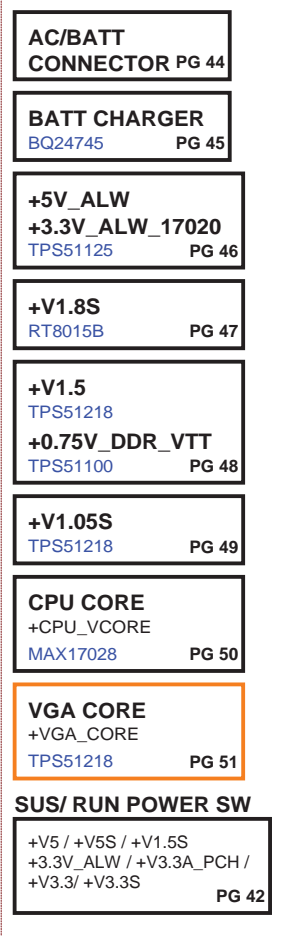


M11z Design

POWER

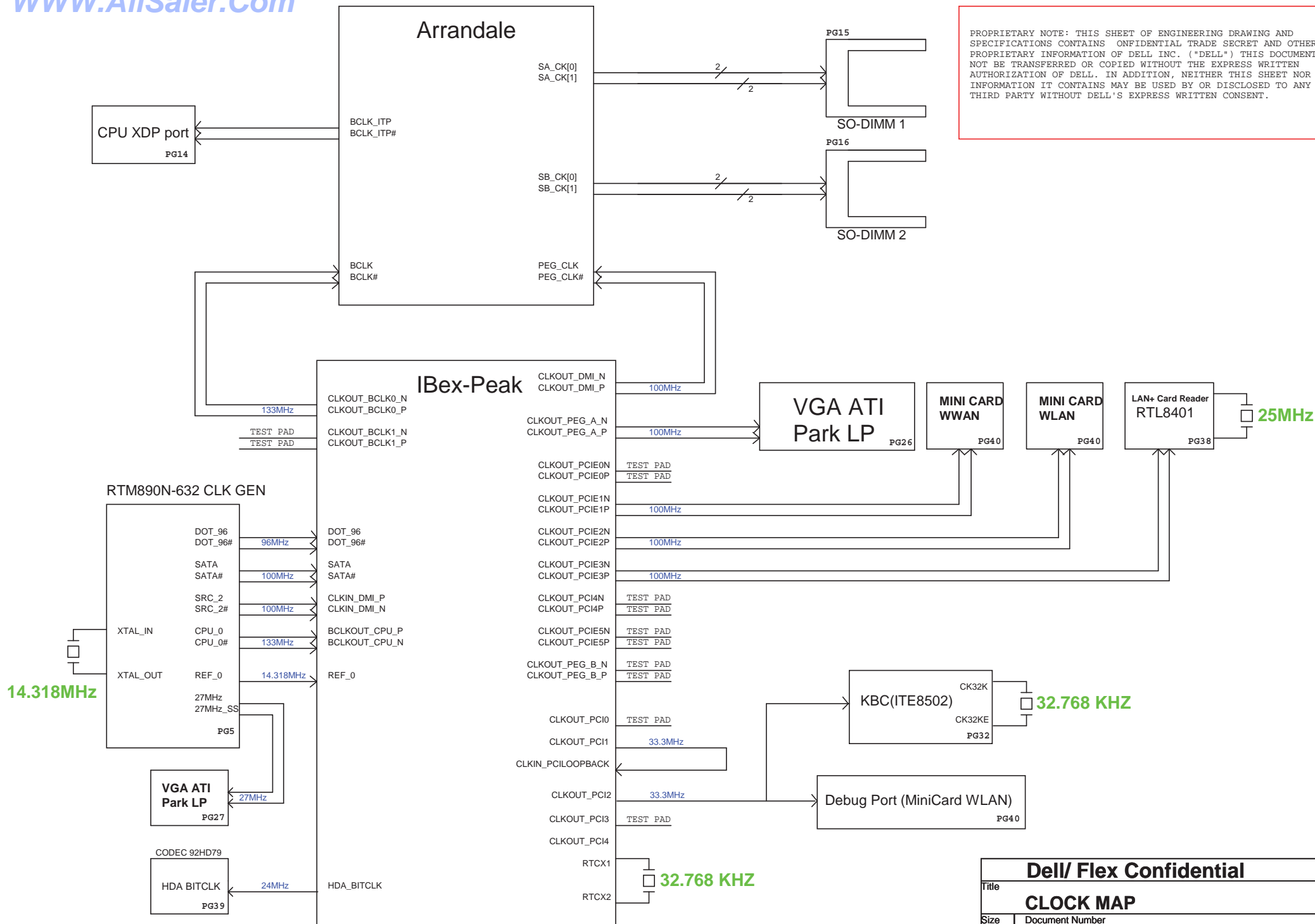


INDEX		INDEX	
Page#	Description	Page#	Description
1	BLOCK DIAGRAM	45	PWR - CHARGER_BQ24745
2	Front Page	46	PWR - 5V/3V_MAX17020ETJ+
3	CLOCK MAP	47	PWR - +V1.8S_RT8015B
4	POWER SEQUENCING	48	PWR - +V1.5 / +0.75VS
5	CLOCK GEN (RTM890N-632)	49	PWR - +V1.05S_TPS51218
6-13	CPU Arrandale	50	PWR - CPU VCORE_MAX17028
14	XDP_PROCESSOR	51	PWR - +VGA_CORE/+V1S_VGA
15-16	DDRIII SO-DIMM(204P)	52	SCREW / PAD
17-25	PCH	53	Power Block Diagram
26-30	VGA ATI Park LP	54	PCI Reset Map
31	VRAM 128Mx16	55	KBC Power Up Sequence
32	KBC - ITE8502E	56	SMBus Map
33	RTC BAT/ EC_ROM		
34	THRM_EMC1423-1		
35	LVDS / WEBCAM		
36	HDMI / DP		
37	HDD / USB / eSATA		
38	LAN/ Media_RTL8401		
39	AUDIO_92HD75B2X5NLGXYB		
40	WLAN / WWAN		
41	BT / KB / TP / LED / SW		
42	RUN POWER_SW		
43	PWRGD / RESET CIRCUIT		
44	PWR - DCIN_BAT		

Power States								
Power Rail	Control Signal	S0	S3	S4	S5	G3	S4/ M-off	S5/ M-off
+RTC_CELL	RTC	V	V	V	V	V		
+PWR_SRC	N/A	V	V	V	V			
+15V_ALW	5V_ALW_ON	V	V	V	V			
+5V_ALW	+5V_EN1/5V_ALW_ON	V	V	V	V			
+V5_LDO	+PWR_SRC	V	V	V	V			
+V3.3A	+3.3V_EN2/5V_ALW_ON	V	V	V	V			
+V3.3A_PCH	3VA_PCH_ON	V	V	V	V			
+V5	SUS_ON#	V	V					
+USB_RIGHT_PWR	USB_EN0#	V	V					
+USB_LEFT_PWR	USB_EN1#	V	V					
+V3.3	SUS_ON#	V	V					
+V1.5	SUS_ON	V	V					
+V1.5_DDR	SUS_ON#	V	V					
+V5S	RUN_ON	V						
+V3.3S	RUN_ON#	V						
+LCDVCC	LCD_DIGON_GFX	V						
+V1.8S	RUN_ON	V						
+V1.5S_VGA	RUN_ON#	V						
+V1.5S	RUN_ON#	V						
+V1.05S_VTT	RUN_ON	V						
+V1.05S	RUN_ON	V						
+V1S_VGA	RUN_ON	V						
+CPU_VCORE	IMVP_VR_ON	V						
+VGA_CORE	RUN_ON	V						
+0.75V_DDR_VTT	RUN_ON	V						

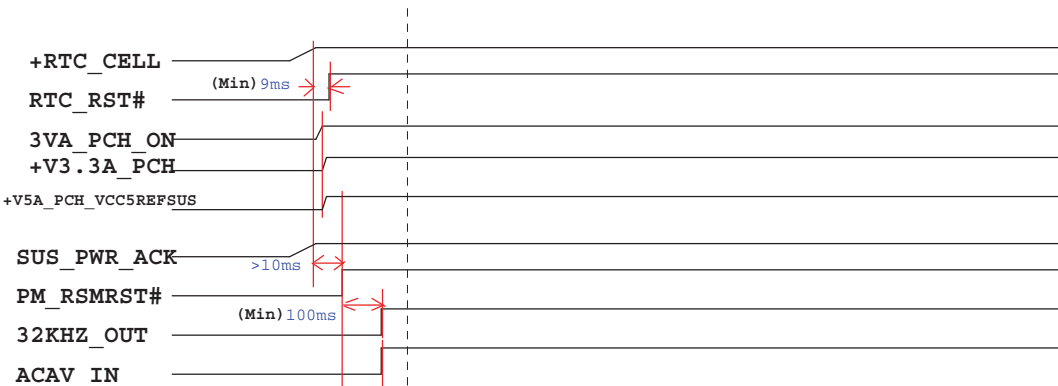
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION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

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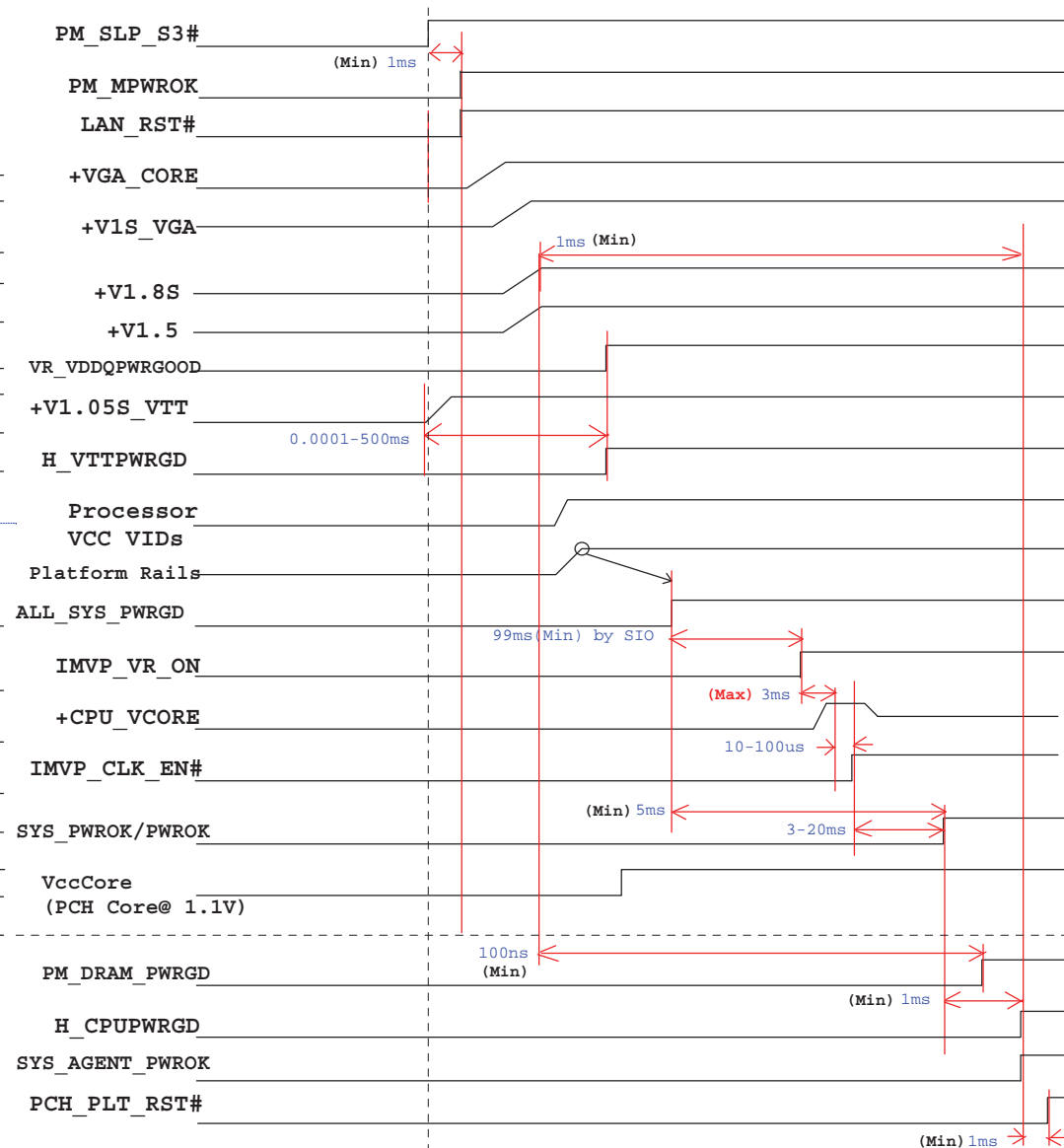
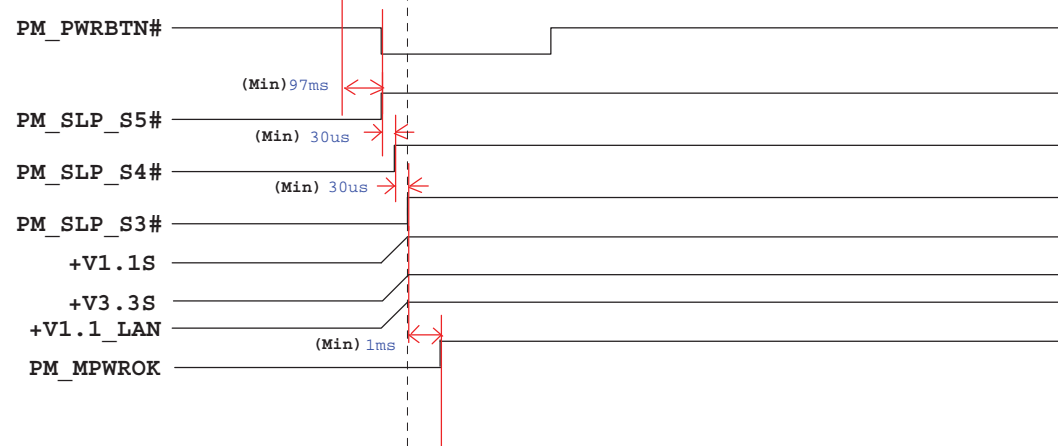


Dell/ Flex Confidential			
Title	CLOCK MAP		
Size	Document Number	Rev	
	Inspiron Z -- INTEL	X01	
Date:	Monday, January 18, 2010	Sheet	3 of 57

G3 to S5



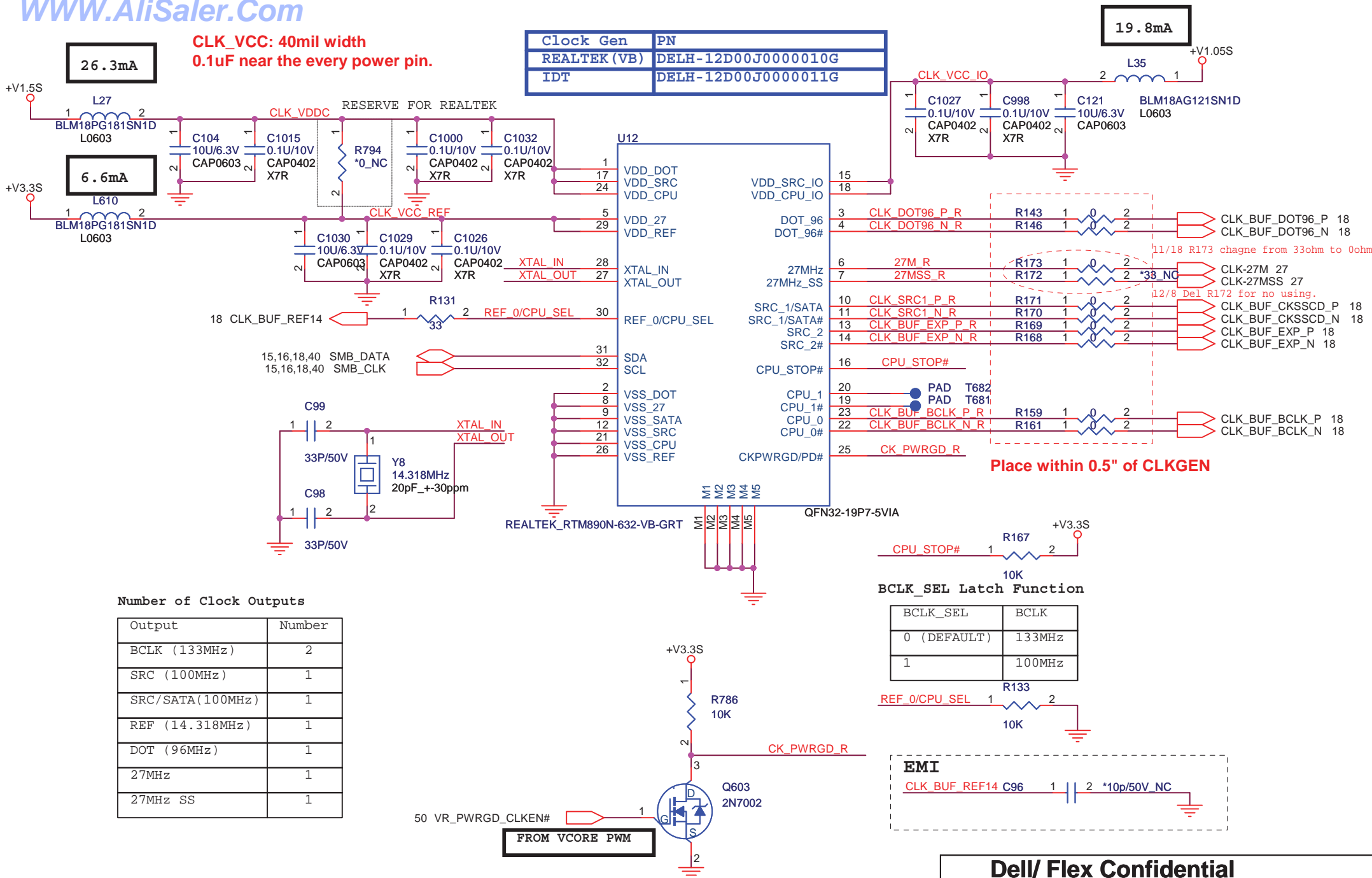
S5 to S0



Dell/ Flex Confidential			
Title			
POWER SEQUENCING			
Size	Document Number	Rev	
	Inspiron Z -- INTEL	X01	
Date:	Monday, January 18, 2010	Sheet	4 of 57

CLK_VCC: 40mil width
0.1uF near the every power pin.

Clock Gen	PN
REALTEK (VB)	DELH-12D00J0000010G
IDT	DELH-12D00J0000011G



Number of Clock Outputs

Output	Number
BCLK (133MHz)	2
SRC (100MHz)	1
SRC/SATA(100MHz)	1
REF (14.318MHz)	1
DOT (96MHz)	1
27MHz	1
27MHz SS	1

BCLK_SEL Latch Function

BCLK_SEL	BCLK
0 (DEFAULT)	133MHz
1	100MHz

Dell/ Flex Confidential

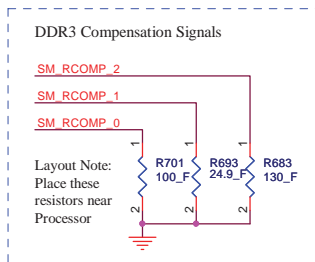
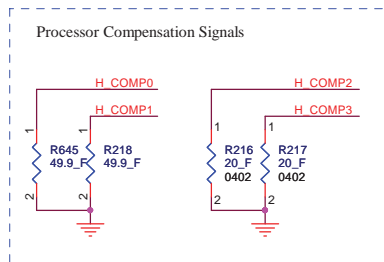
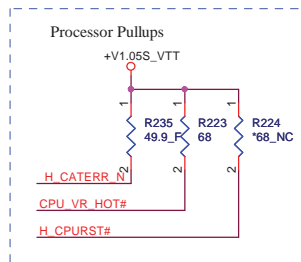
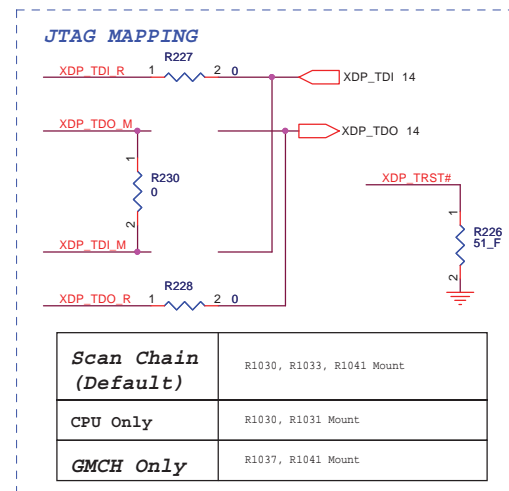
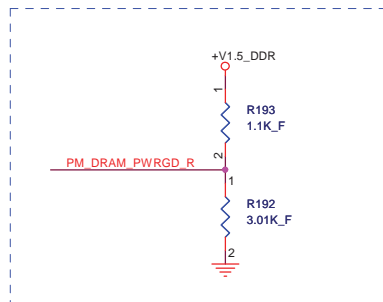
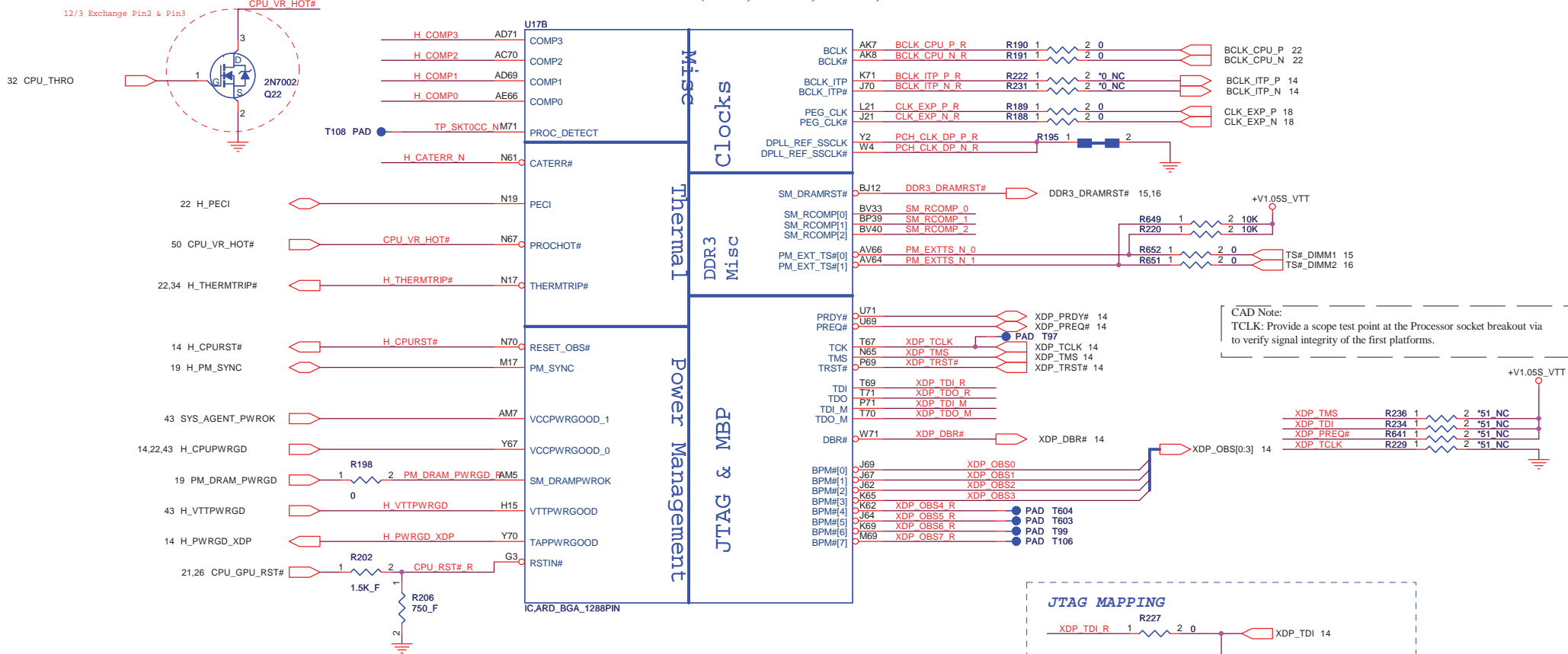
CLOCK_GEN_RTM890N-632-GRT

Size Document Number Inspiron Z -- INTEL Rev X01

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Dell/ Flex Confidential			
CPU _DMI/ PEG/ FDI			
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ARRANDALE PROCESSOR (POWER-VTT)

Arrandale VTT=1.05V

MAX 16A

3X 22uF

4X 10uF

20X 1uF

MAX 1.35A

EMI

MAX 0.2A

1.8V

1.1V RAIL POWER

CPU VIDS

SENSE LINES

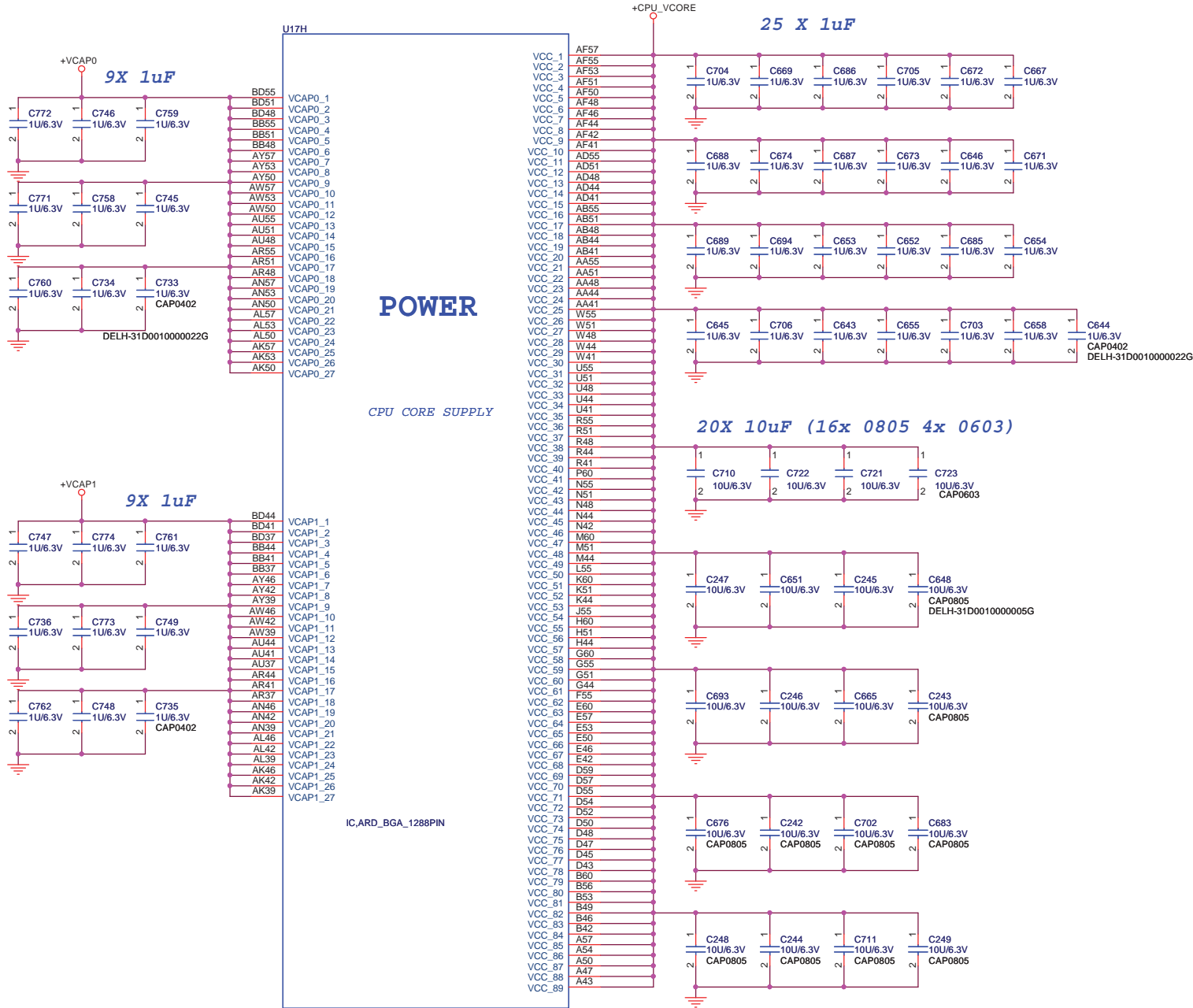
POWER

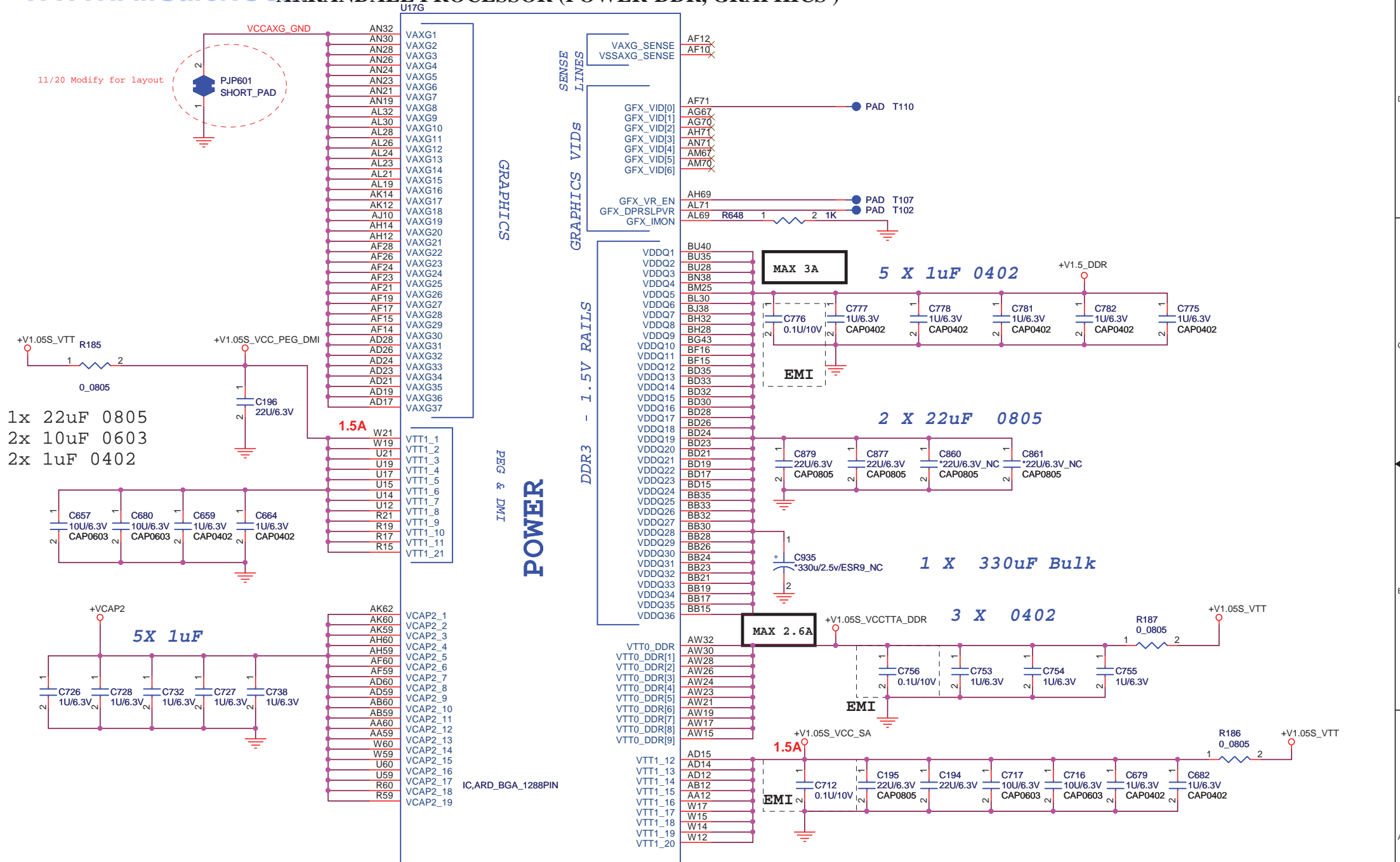
IC,ARD_BGA_1288PIN

Dell/ Flex Confidential			
Title			
CPU POWER_CORE			
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ARRANDALE PROCESSOR (POWER-CORE)

MAX 27A





Dell/ Flex Confidential

Title

CPU POWER_DDR

Size

Document Number

Inspiron Z -- INTEL

Rev

X01

Date:

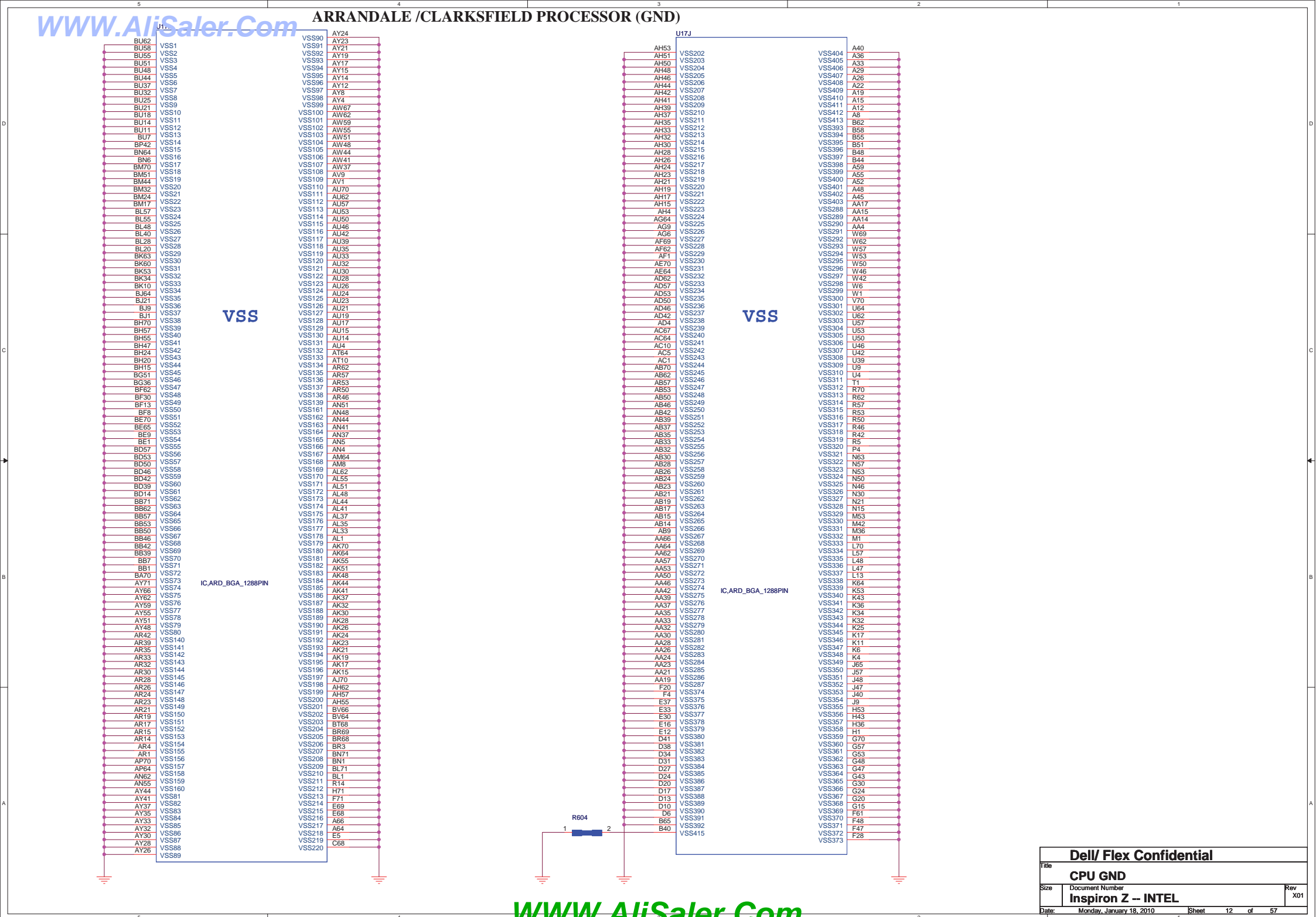
Monday, January 18, 2010

Sheet

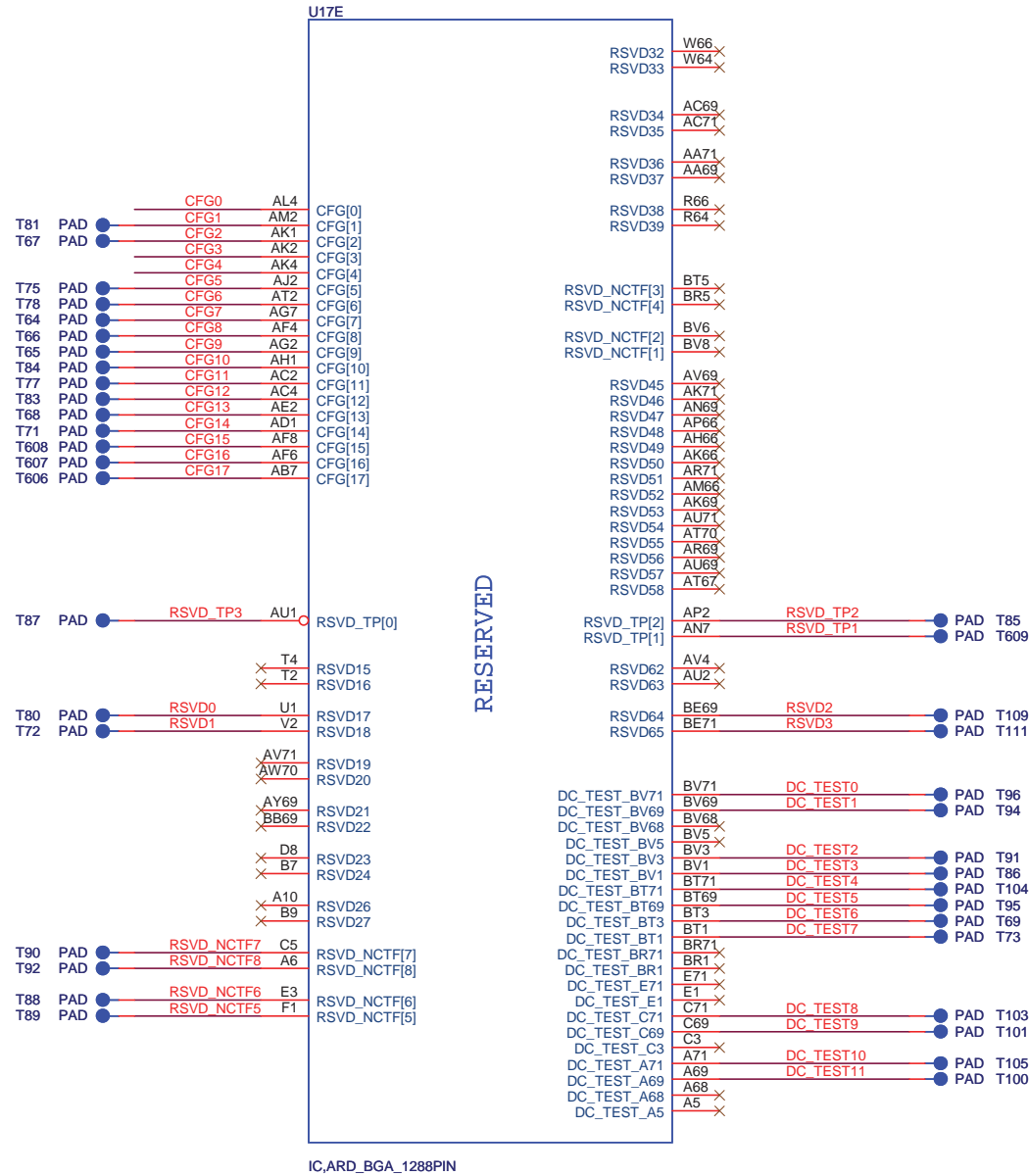
11

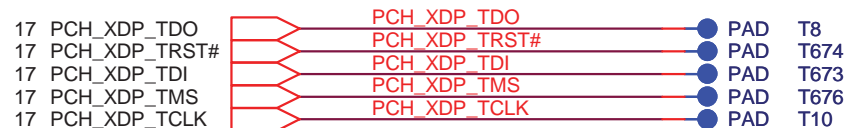
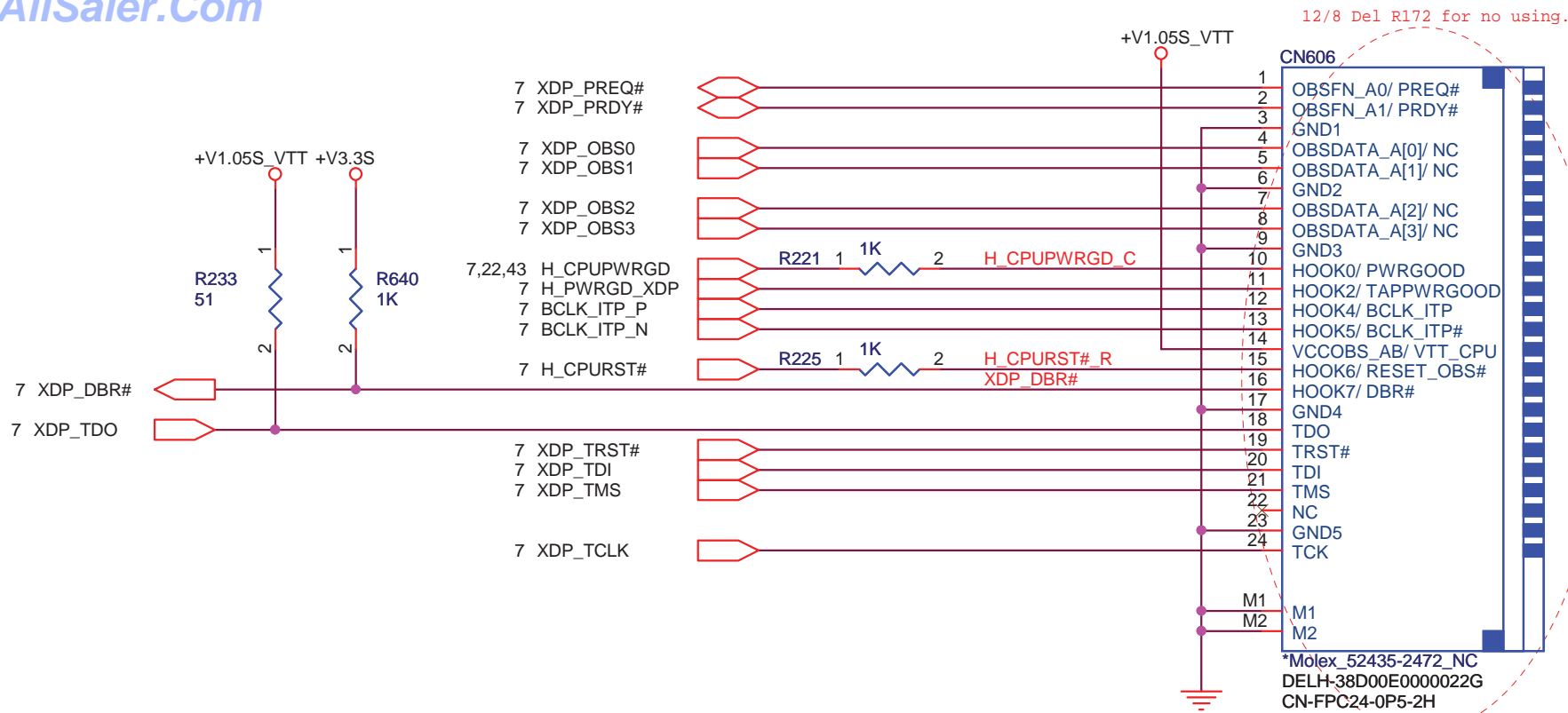
of

57



ARKLANDALE CLARKSFIELD PROCESSOR(RESERVED, CFG)



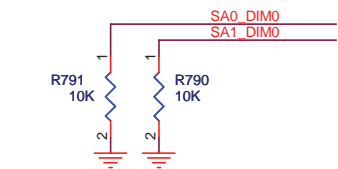
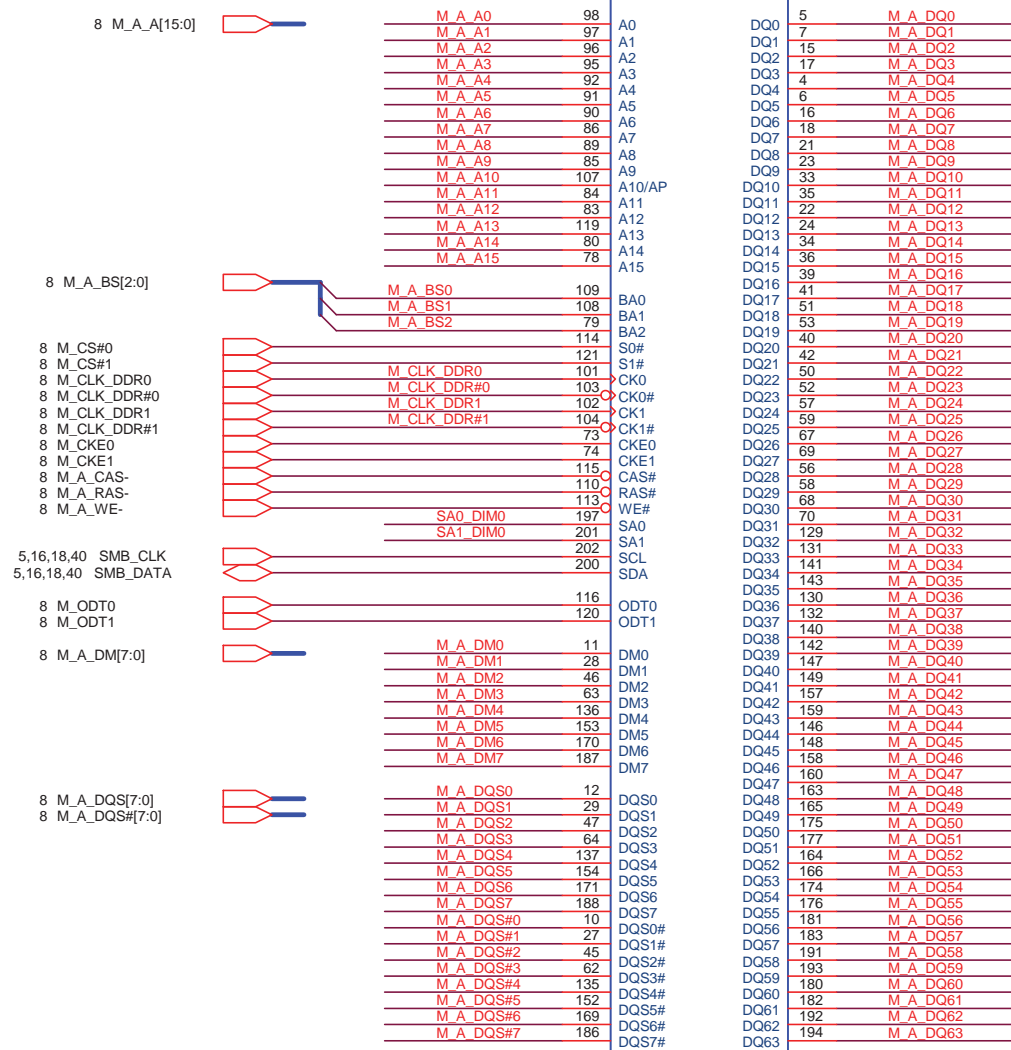


Dell/ Flex Confidential

Title
XDP_PROCESSOR/ PCH

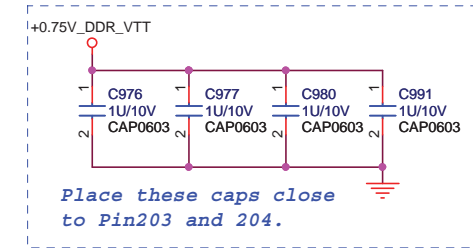
Size Document Number
Inspiron Z -- INTEL

Date: Monday, January 18, 2010 Sheet 14 of 57 Rev X01

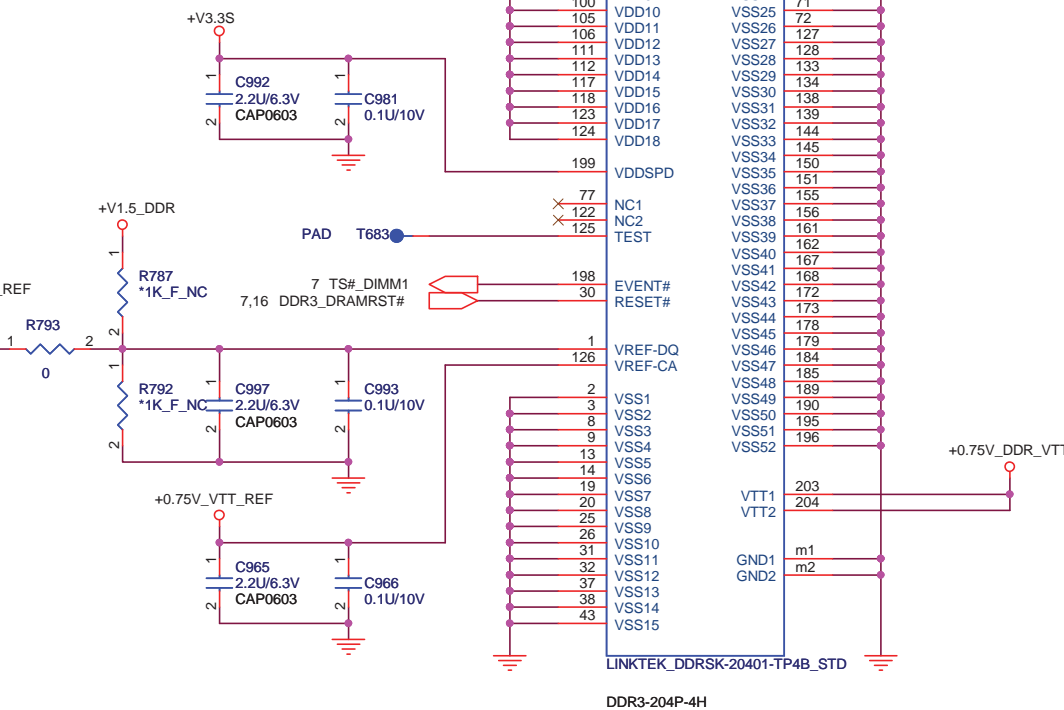


SO-DIMM Address		
SA0_DIM0 = 0, SA1_DIM0 = 0	SPD	0xA0
	TS	0x30
SA0_DIM0 = 1, SA1_DIM0 = 0	SPD	0xA2
	TS	0x32

DDR3-204P-4H



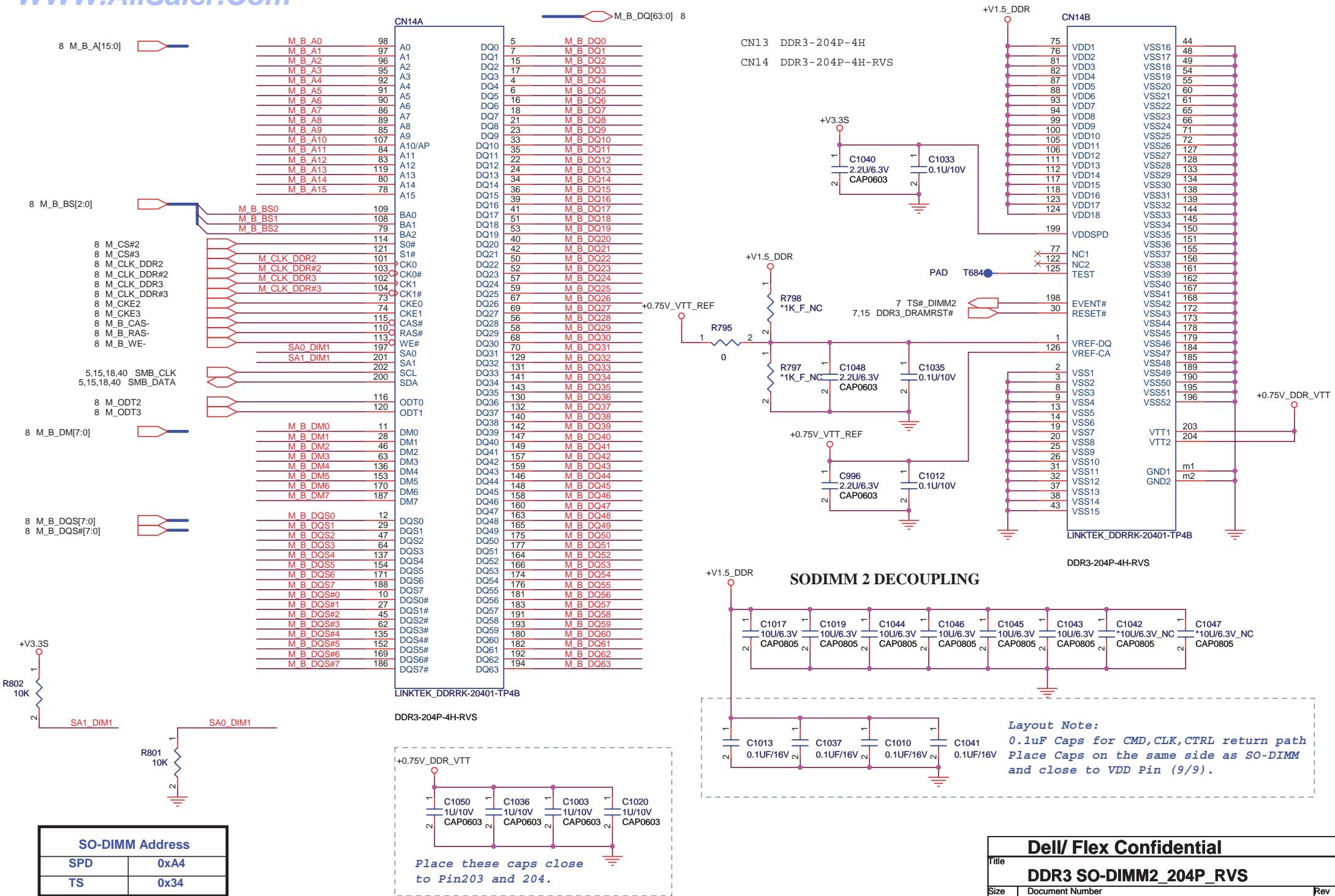
CN3 DDR3-204P-4H
CN4 DDR3-204P-4H-RVS



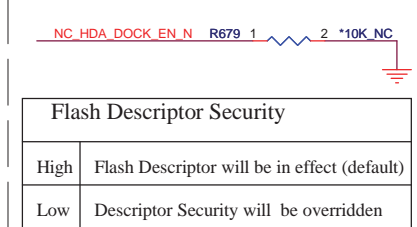
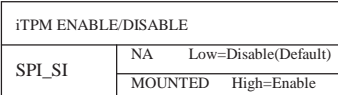
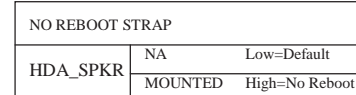
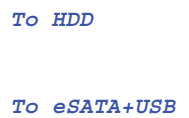
SODIMM A DECOUPLING

Layout Note:
0.1uF Caps for CMD,CLK,CTRL return path
Place Caps on the same side as SO-DIMM
and close to VDD Pin (9/9).

Dell/ Flex Confidential		
Title	DDR3 SO-DIMM1_204P_STD	
Size	Document Number	Rev X01
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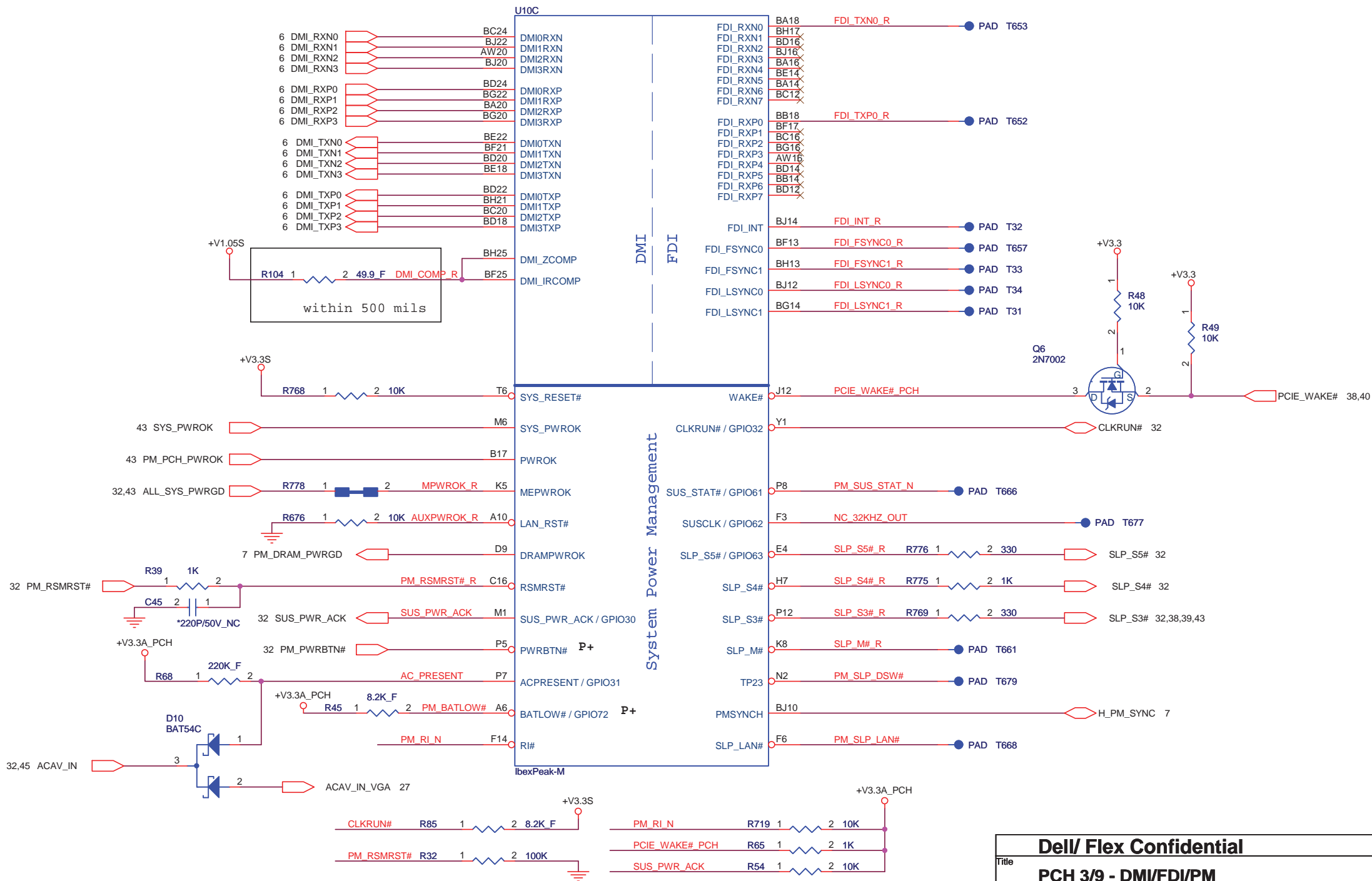
Signal	Direction	Value
LPC_LAD0	32,40	
LPC_LAD1	32,40	
LPC_LAD2	32,40	
LPC_LAD3	32,40	
LPC_LFRAME#	32,40	
LPC_DRQ#0	40	
IRQ_SERIRQ	32,40	



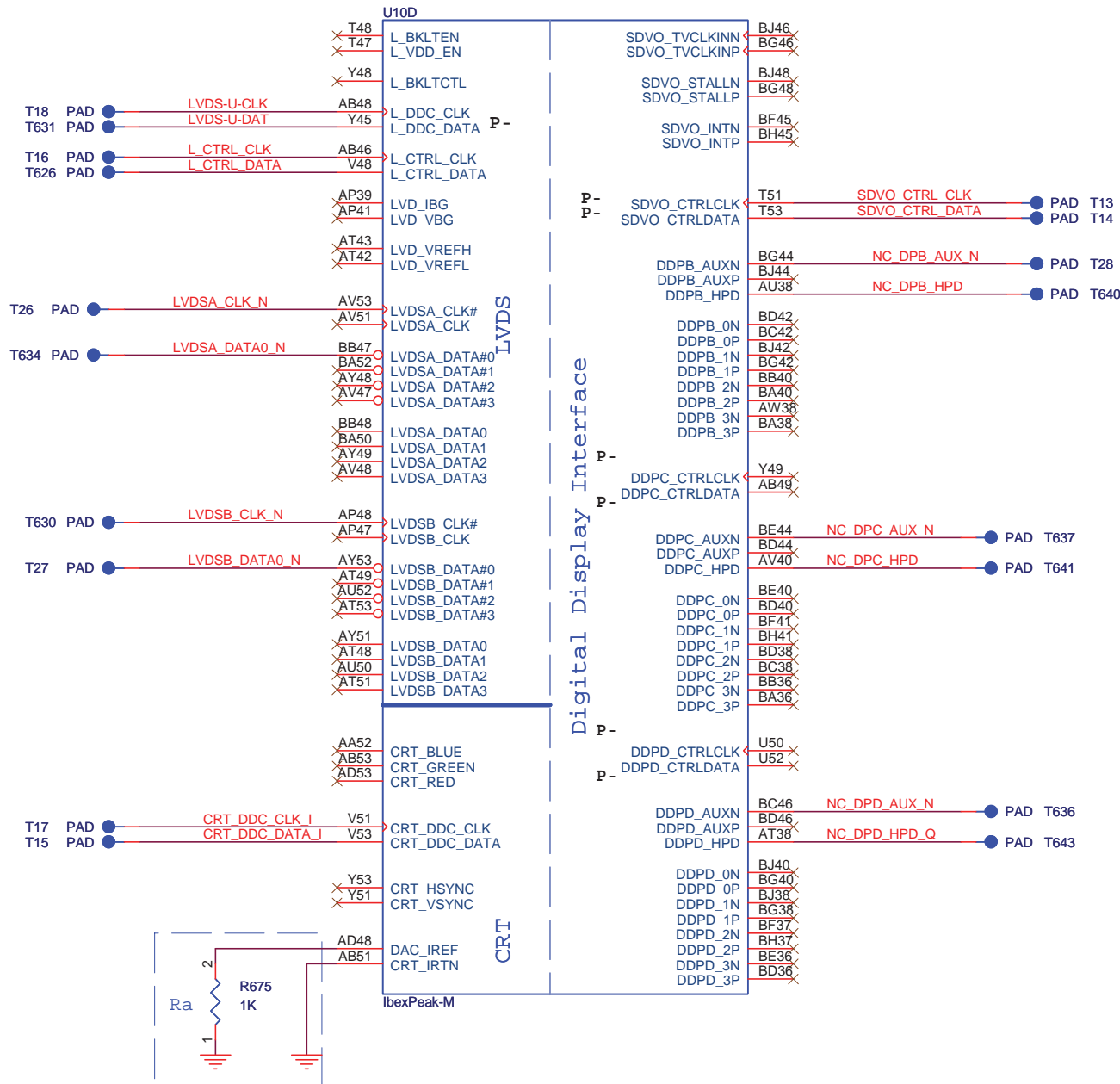
WWW.AliSaler.Com



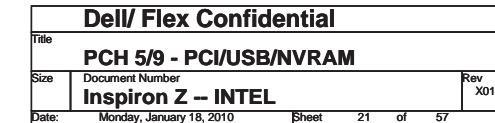
IBEX PEAK-M (DMI,FDI,GPIO)



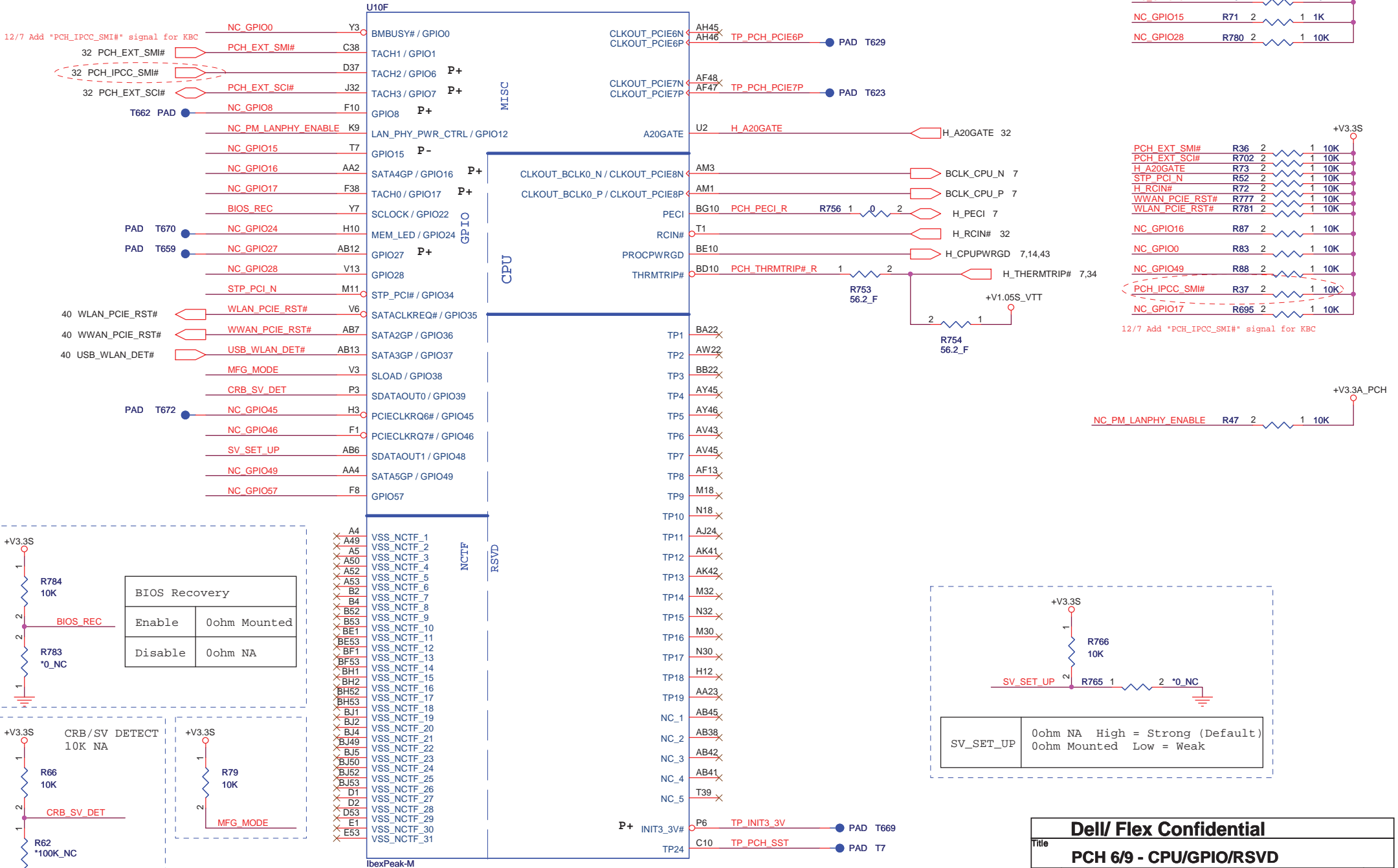
IBEX PEAK-M (LVDS,DDI)



Dell/ Flex Confidential			
Title	PCH 4/9 - CRT/DP/LVDS		
Size	Document Number	Rev	
	Inspiron Z -- INTEL	X01	
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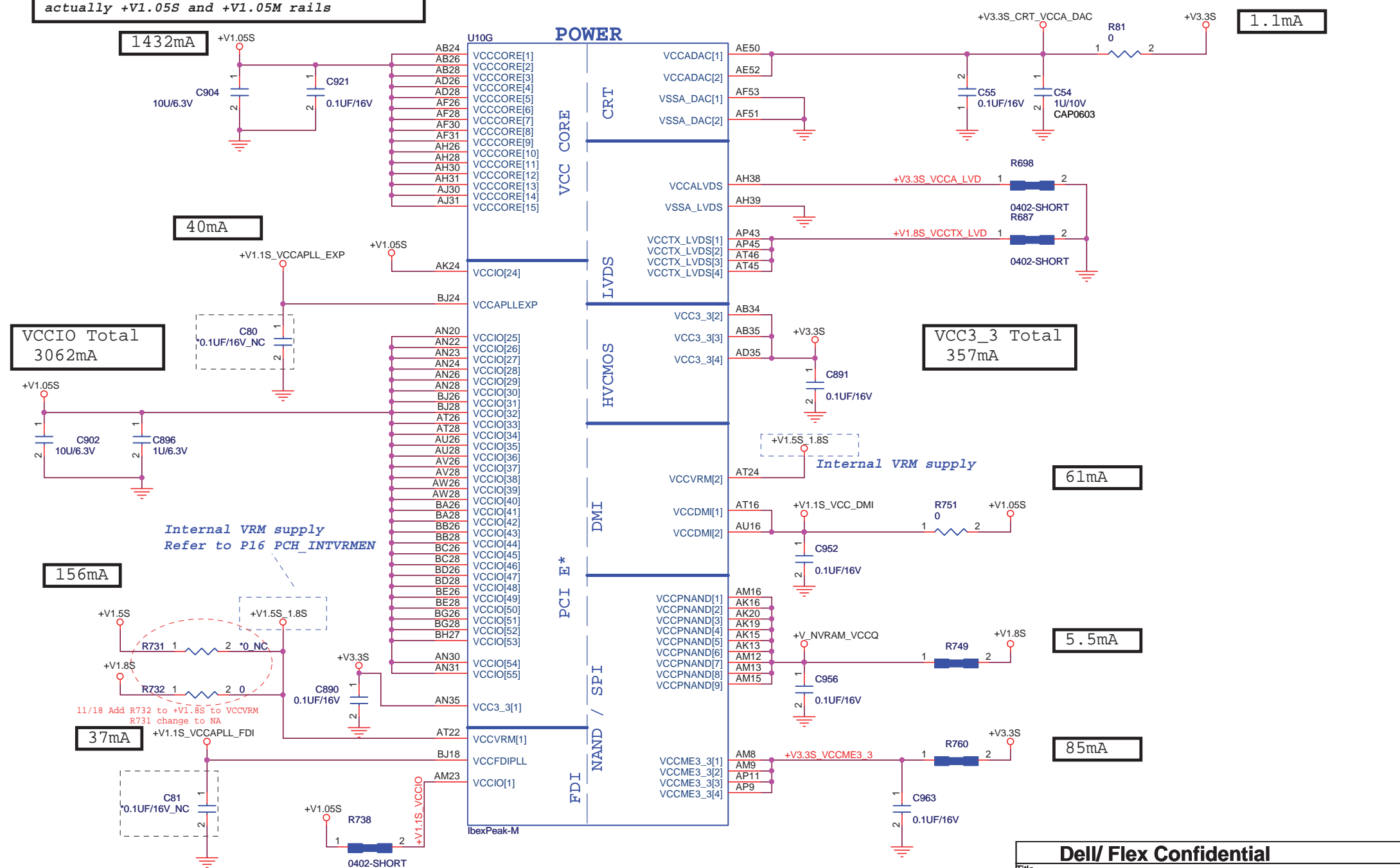


IBEX PEAK-M(GPIO,VSS_NCTF,RSVD)



Please note that all Ibox Peak-M rails with netnames +V1.1S and +V1.1M rails are actually +V1.05S and +V1.05M rails

IBEX PEAK-M(POWER)



52mA

IBEX PEAK-M(POWER)

POWER

VCCIO Total
3062mA

VCCSUS3_3 Total
163mA

Close to PCH

VCCME Total
3062mA

Please note that all Ibox Peak-M rails with netnames +V1.1S and +V1.1M rails are actually +V1.05S and +V1.05M rails

1UF*2 pcs
for 2 blocks

Internal VRM supply

Clock and Miscellaneous

PCI/GPIO/LPC

SATA

PCI/GPIO/LPC

CPU

RTC

HDA

<1mA

+5V ALW has off during S4/S5 battery mode.

<1mA

VCC3_3 Total
357mA

31mA

Internal VRM supply

<1mA

2mA

6mA

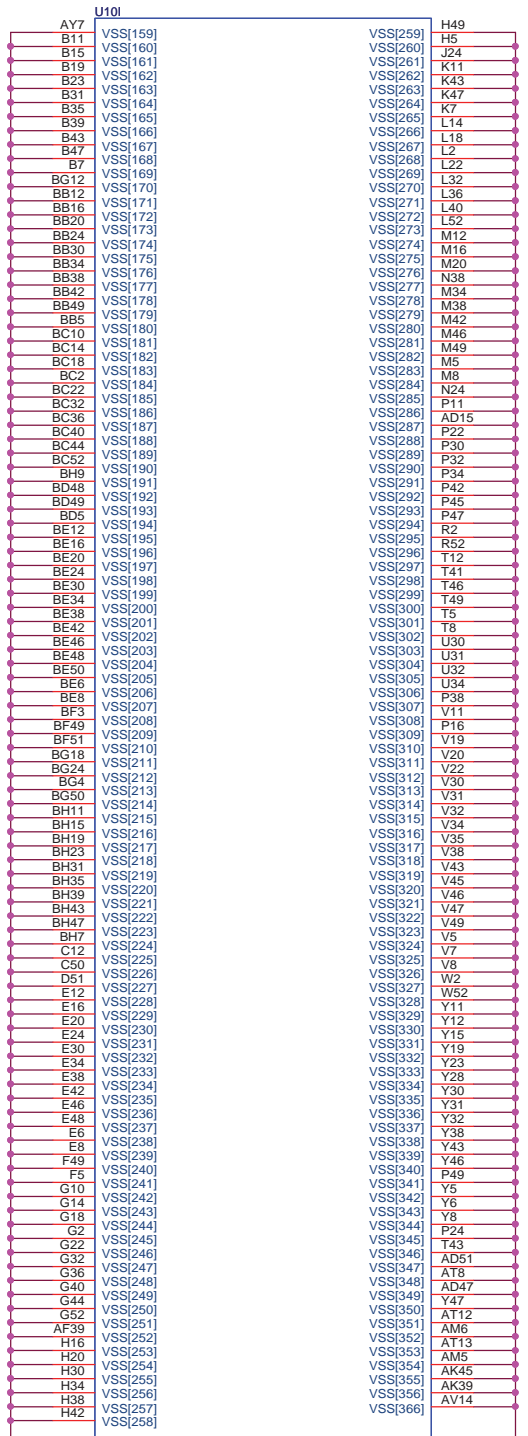
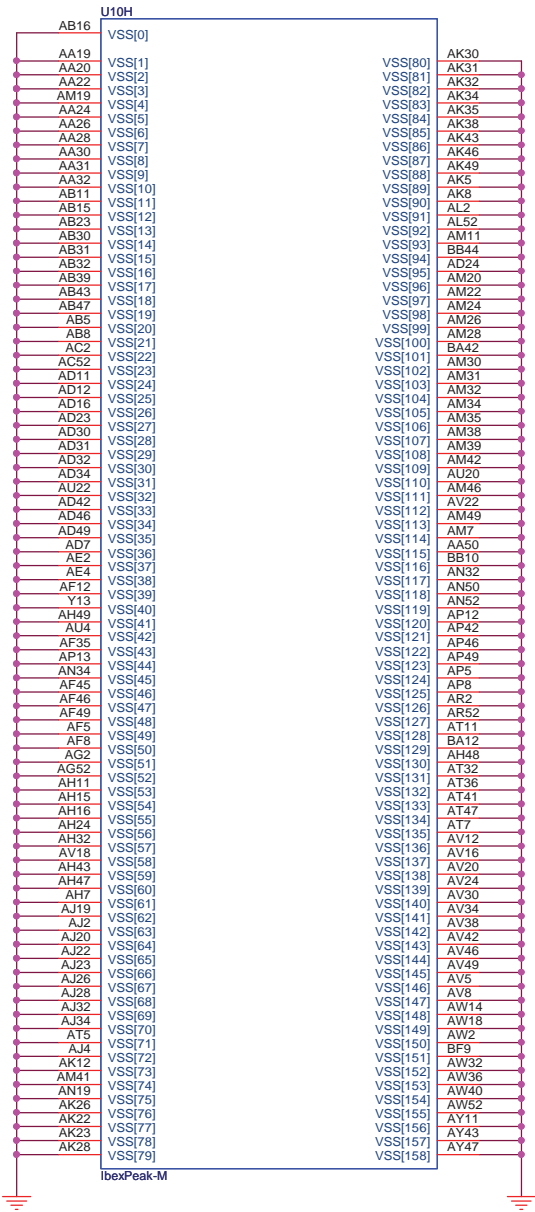
Dell/ Flex Confidential

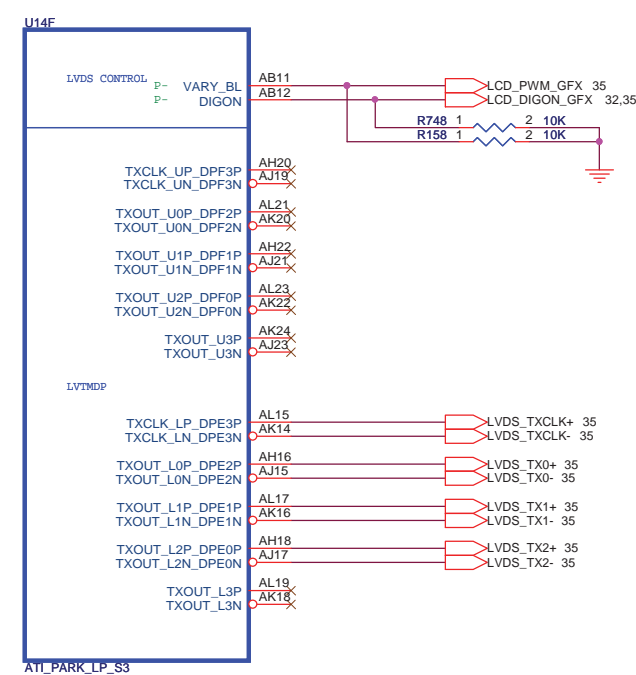
PCH 8/9 - POWER_2

Document Number
Inspiron Z -- INTEL

Date: Monday, January 18, 2010 Sheet 24 of 57

IBEX PEAK-M (GND)





All Signal had internal pull-down

```
VIP Device Strap Enable
L: Ignore VIP Device Strap
H: Enable VIP Device Strap
```



```
VGA Disable
L: VGA Controller capacity Enabled
H: The device won'y be recognized as
the system's VGA controller
```



```

HSYNC
GPIO_8_ROMSO
GPIO21_BB_EN
These Signal were Internal used only.

```

```
Transmitter Power Savings Enbale
L: 50% Tx output swing (DEFAULT)
H: Full Tx output swing
```

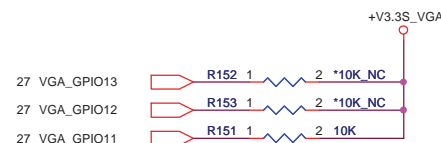


```
PCI Express Transmitter De-emphasis
Enable
L: Tx de-emphasis disable (DEFAULT)
H: Tx de-emphasis enable
```



These two TX setting can only be used if the PCIe bus design meets "Low Loss Interconnect" requirements.

If BIOS_ROM_EN = 1, then CONFIG[2:0] defines the ROM type.
If BIOS_ROM_EN = 0, then CONFIG[2:0] defines the primary memory aperture size.



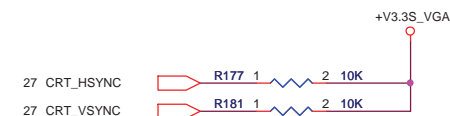
```

Enable external BIOS ROM device
L: Disable external BIOS ROM device
  (DEFAULT)
H: Enable external BIOS ROM device

```



```
LL: No audio function
LH: Audio for DP only
HL: Audio for DP& HDMI if dongle is
detected
HH: Audio both for DP& HDMI (DEFAULT)
```

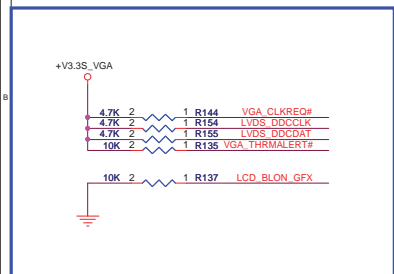
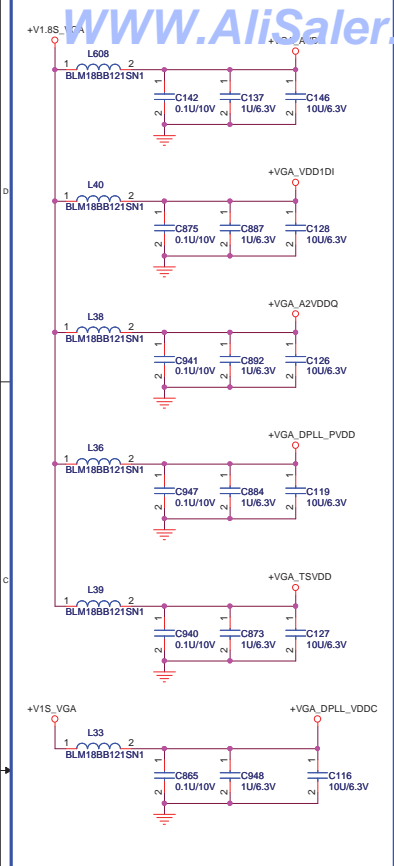


```
L: PCIe device as 2.5GT/s capable
(DEFAULT)
H: PCIe device as 5.0GT/s capable
```

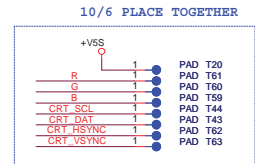
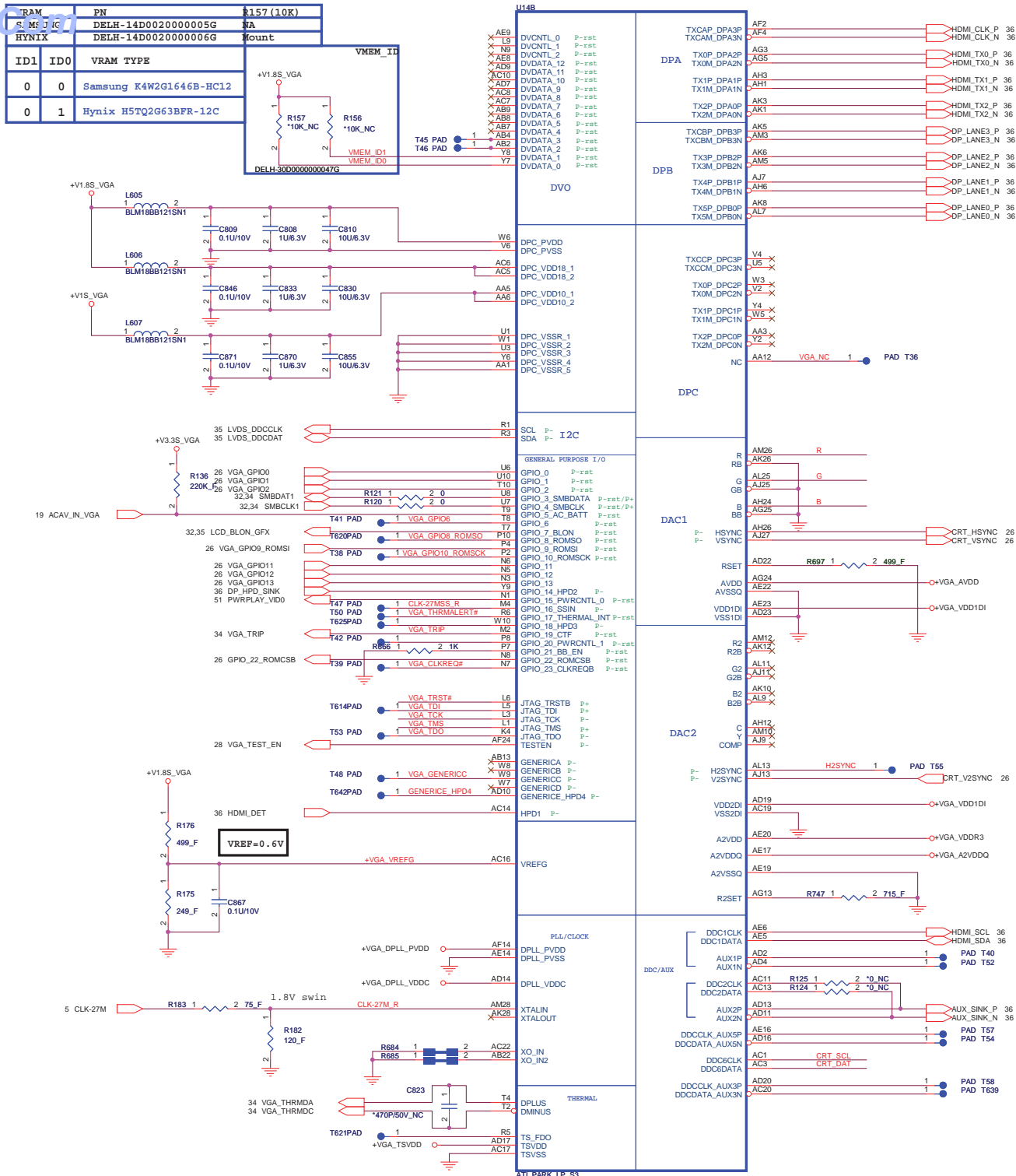
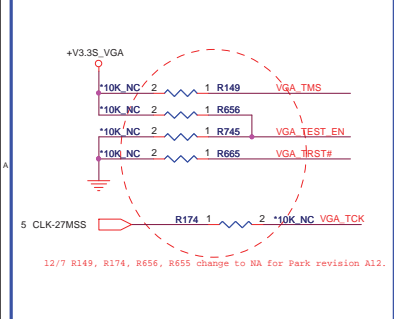


Del// Flex Confidential			
Title			
Park 1/5 - PCIE/LVDS			
Size	Document Number		Rev
	Inspiron Z -- INTEL		X01
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DRAM		PN	R157(10K)
S.M.I.J.C	DELH-14D00200000005G	NA	
HYNIX	DELH-14D00200000006G	Mount	
ID1	ID0	VRAM TYPE	
0	0	Samsung K4W2G1646B-HC12	+V1.8S_VGA
0	1	Hynix H5TQ2G63BFR-12C	R157

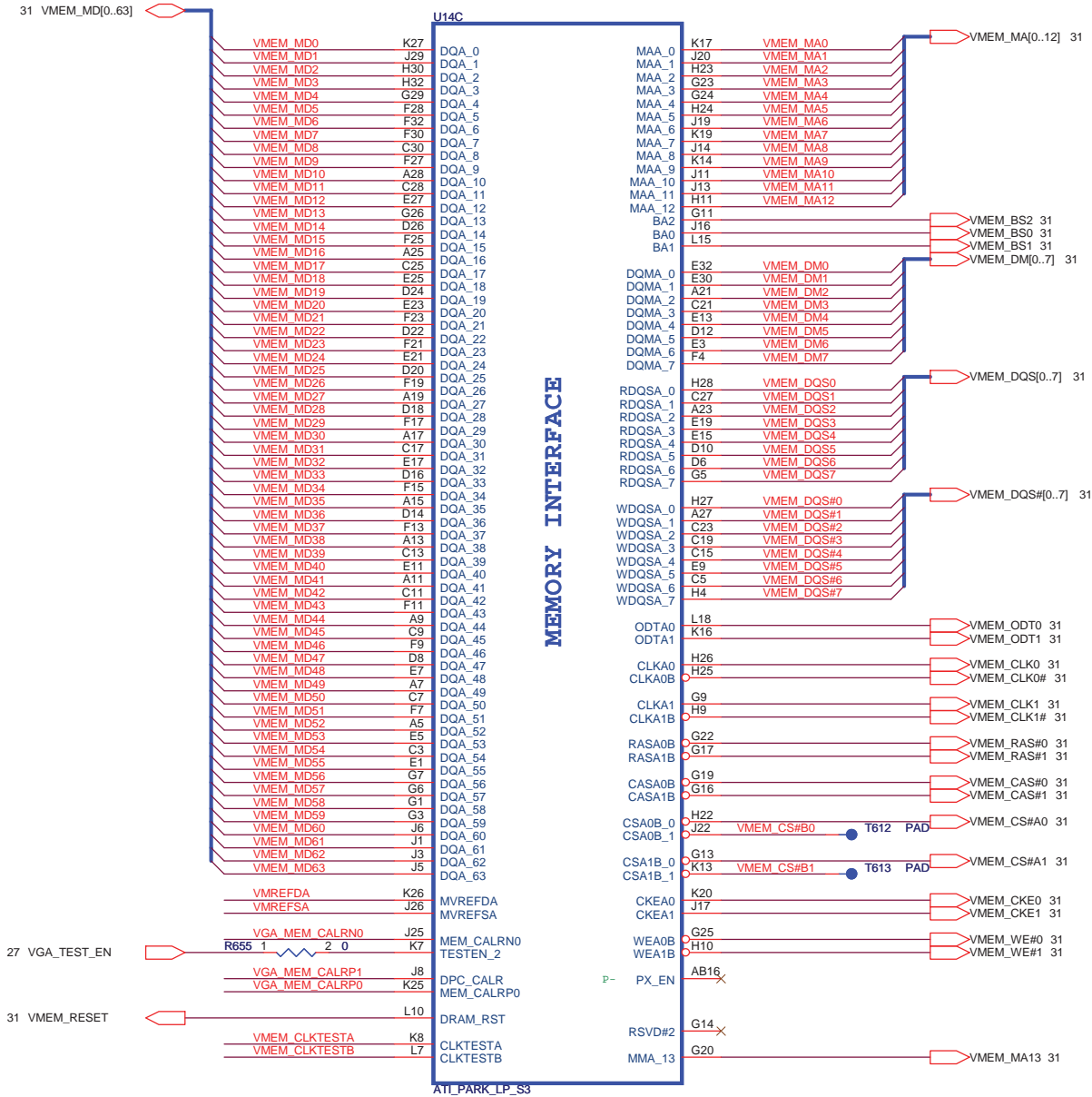
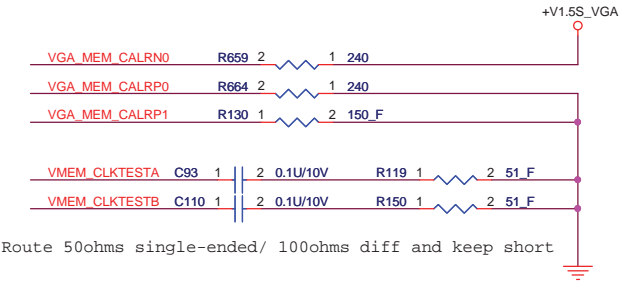
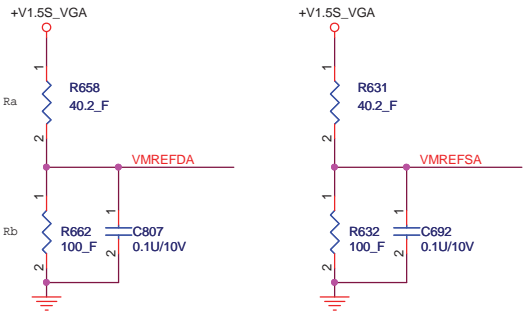


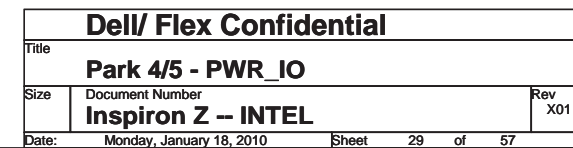
AMD Errata: ER_Park_A1

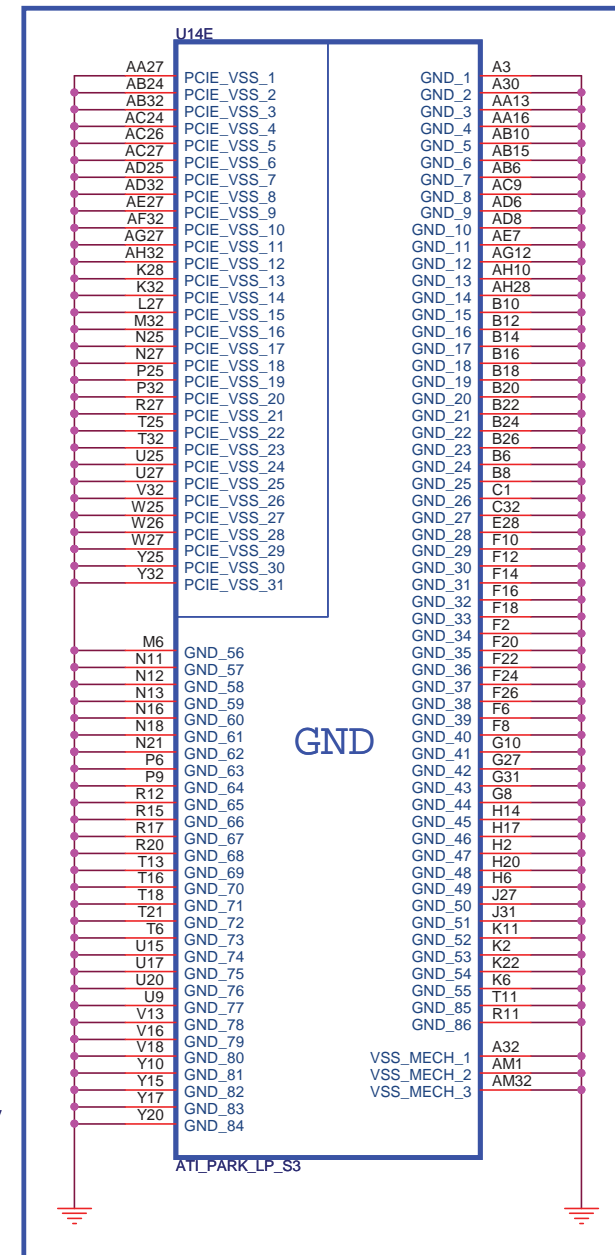


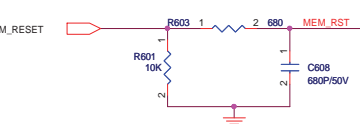
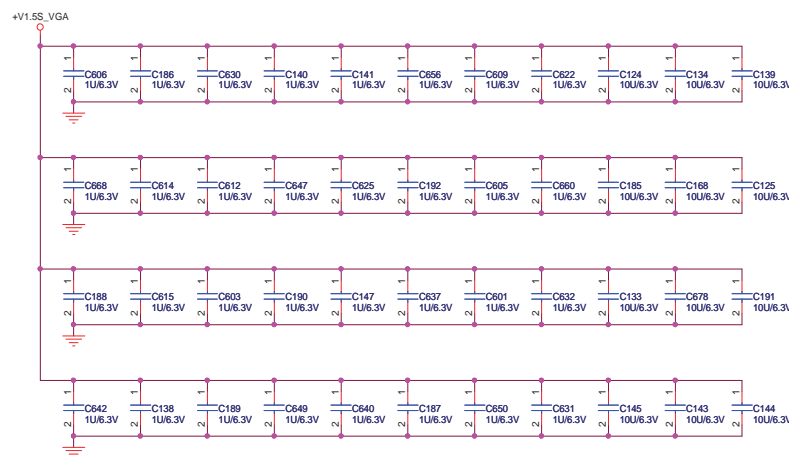
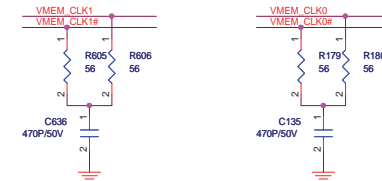
DIVIDER RESISTORS	DDR3/ GDDR3
MVREF TO 1.8V (Ra)	40.2R
MVREF TO GND (Rb)	100R

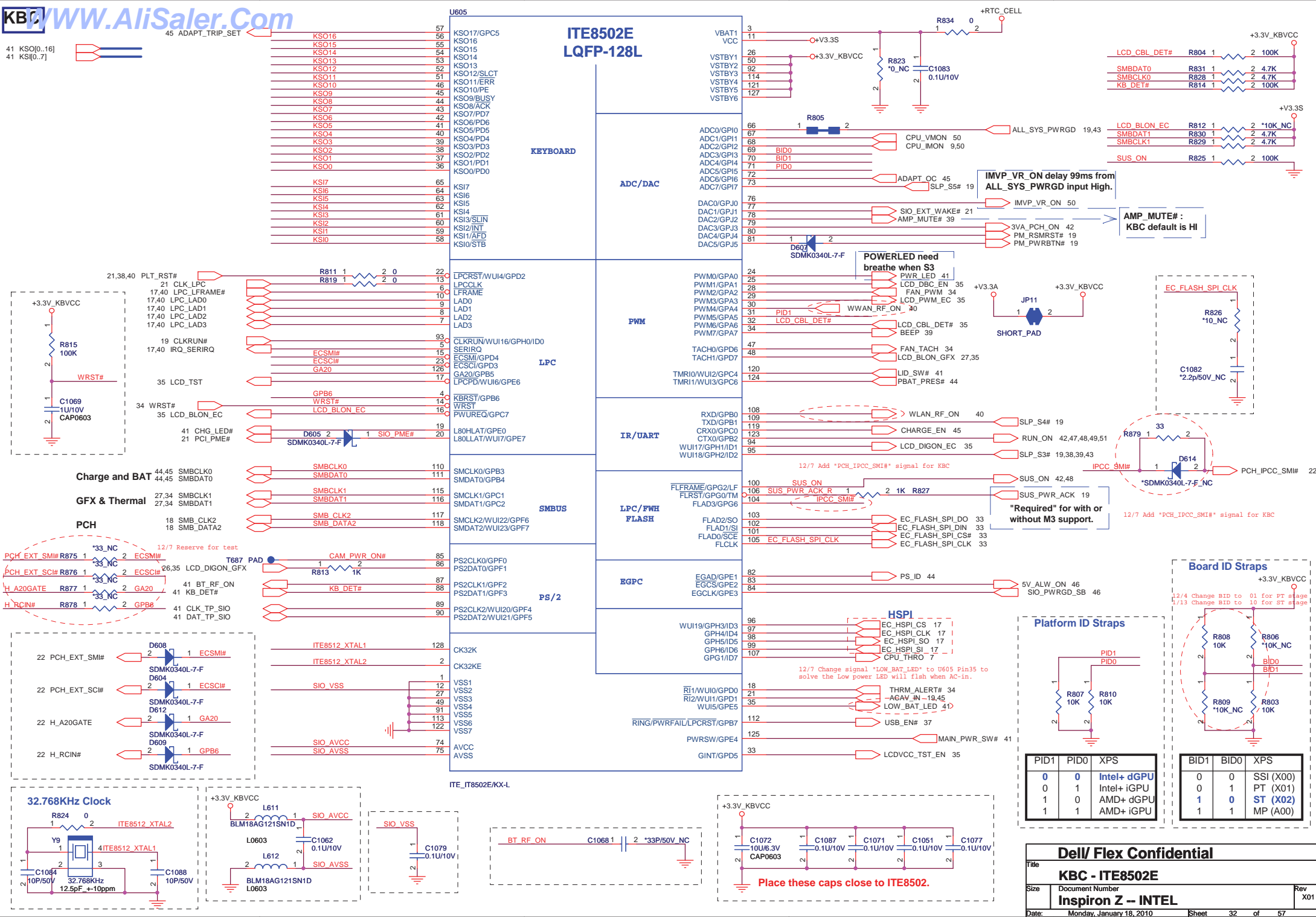
For DDR3: 0.7 * VDDR1











Del/ Flex Confidential			
Title			
KBC - ITE8502E			
Size	Document Number	Rev	
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RTC BATTERY



RTC BAT/ EC_ROM

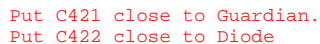
Inspiron Z -- INTEL

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Table 5.2 SYS SHDN Threshold Temperature

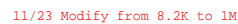
<div> <div>SYS_SHD PULL-UP</div> <div>ALERT PULL-UP</div> </div>	4.7K OHM ±10%	6.8K OHM ±10%	10K OHM ±10%	15K OHM ±10%	22K OHM ±10%	33K OHM ±10%
4.7K OHM ±10%	77°C	83°C	89°C	95°C	101°C	107°C
6.8K OHM ±10%	78°C	84°C	90°C	96°C	102°C	108°C
10K OHM ±10%	79°C	85°C	91°C	97°C	103°C	109°C
15K OHM ±10%	80°C	86°C	92°C	98°C	104°C	110°C
22K OHM ±10%	81°C	87°C	93°C	99°C	105°C	111°C
33K OHM ±10%	82°C	88°C	94°C	100°C	106°C	112°C



Place under CPU

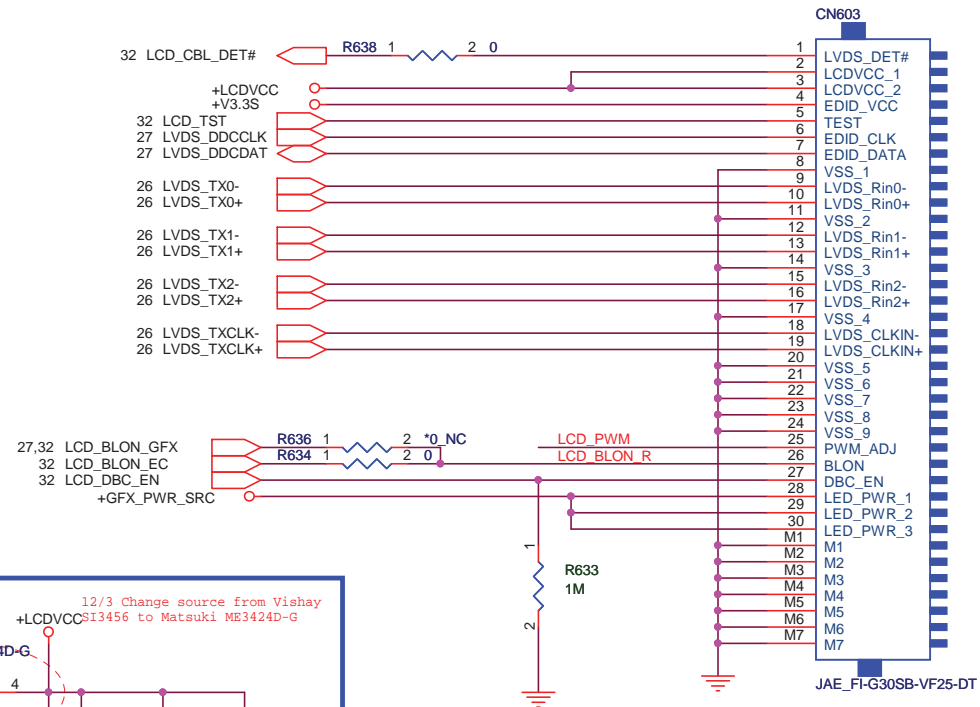
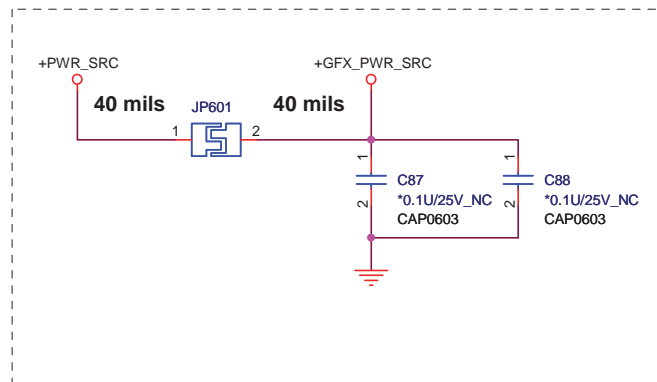


FAN



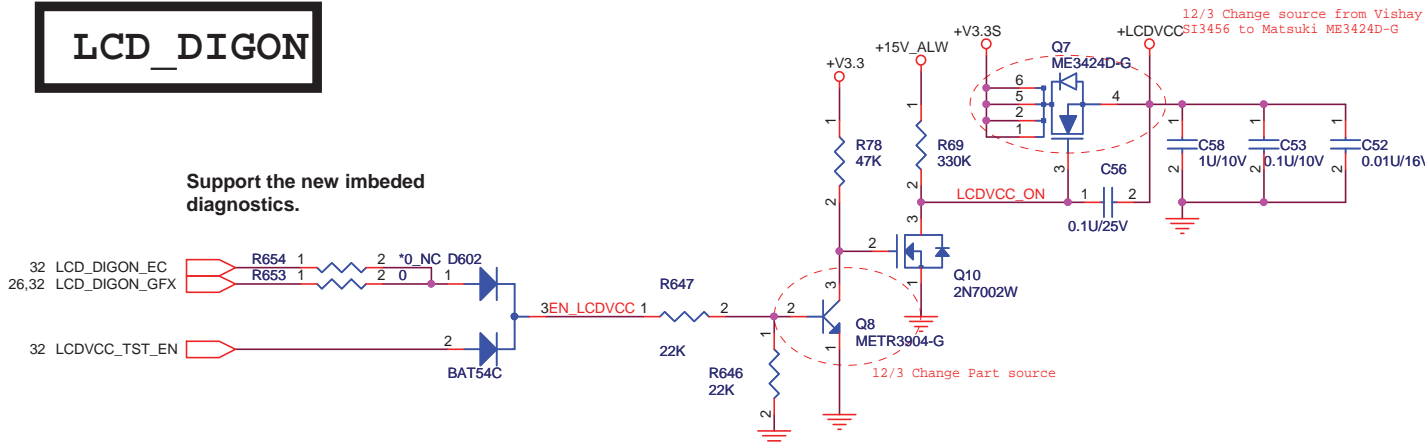
11/26 Modify FAN Conn from 5 pin to 4 pin.

LVDS

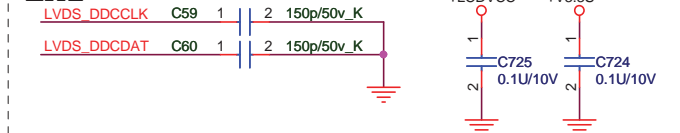


LCD_DIGON

Support the new imbedded diagnostics.

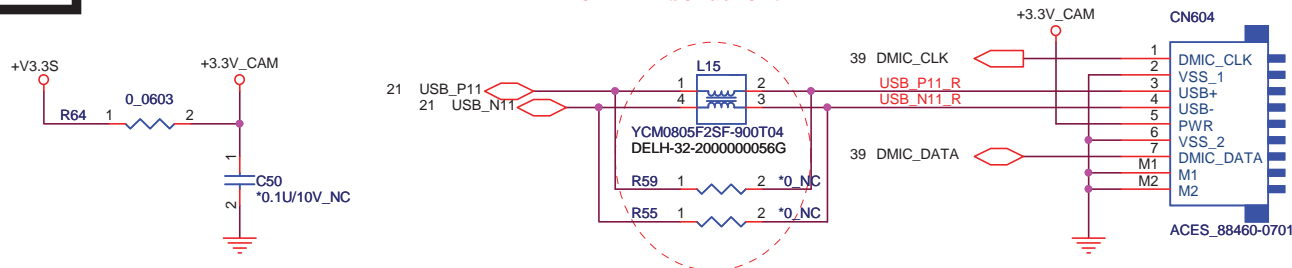


EMI



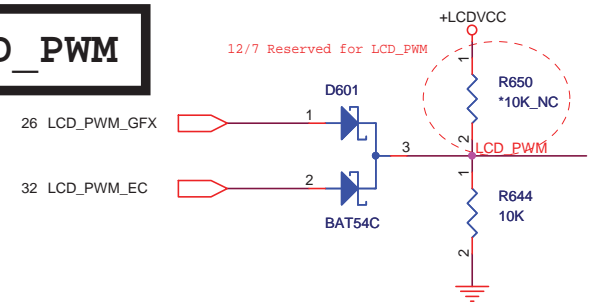
WEBCAM

12/3 Mount L15, & NA R59, R55 for EMI solution.



LCD_PWM

12/7 Reserved for LCD_PWM



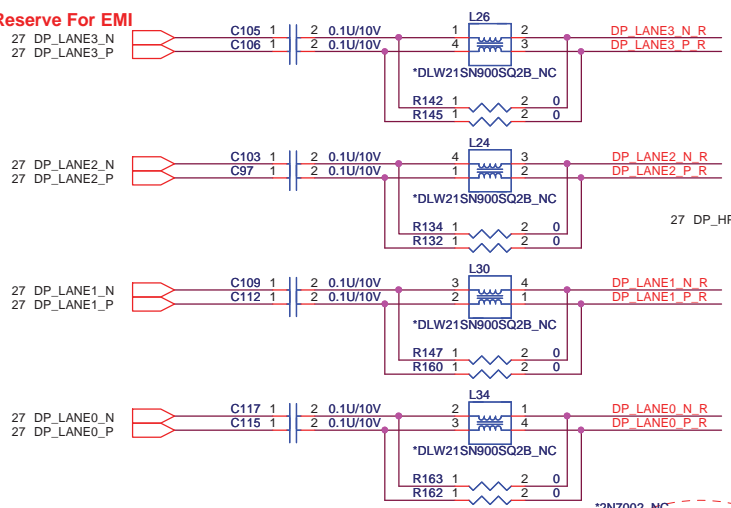
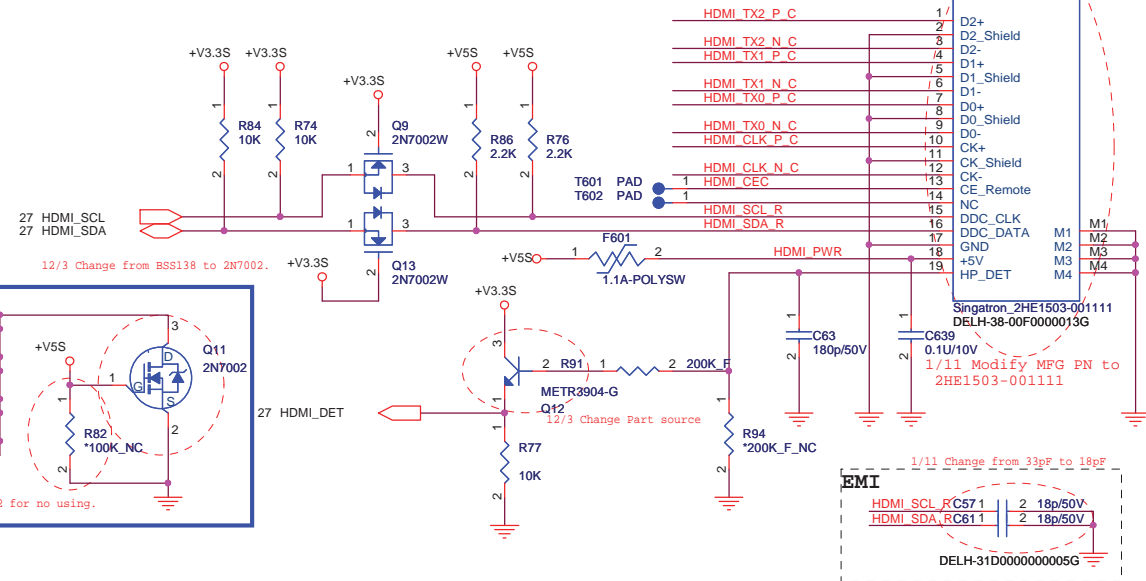
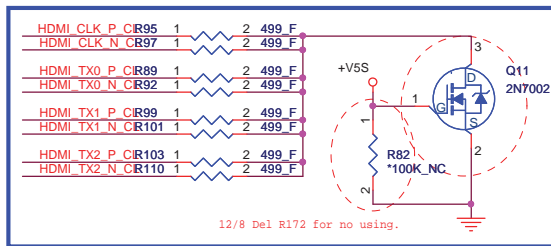
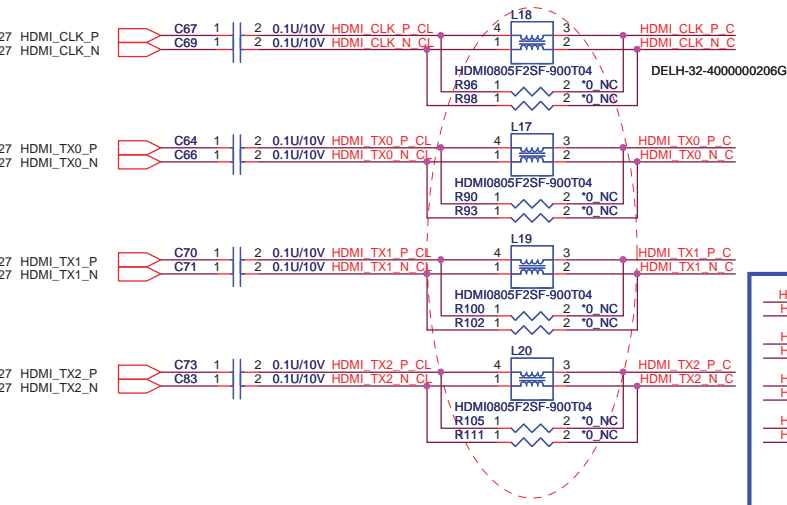
Del/ Flex Confidential

LVDS / WEBCAM

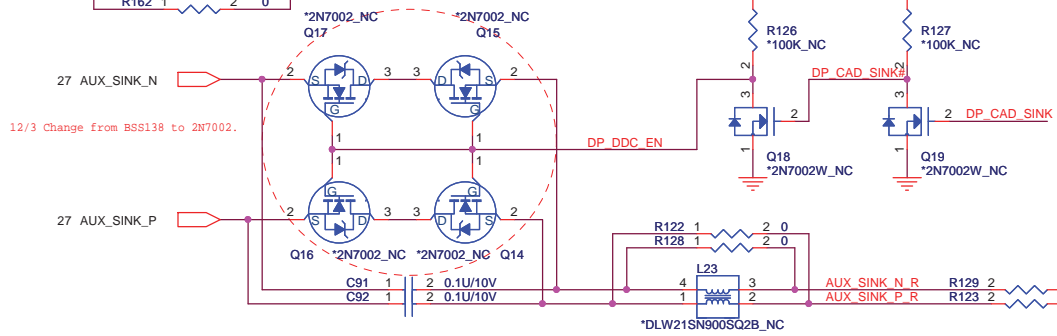
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Reserve For EMI

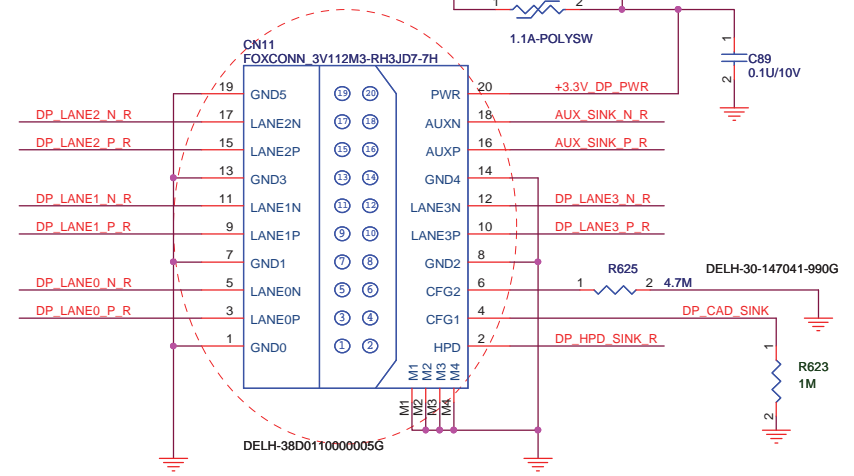
12/3 Mount L17, L18, L19, L20 & NA R90, R93, R96, R98, R100, R102, R105, R111 for EMI solution.



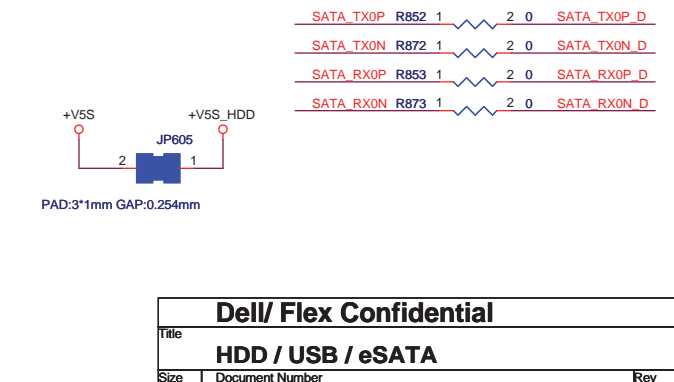
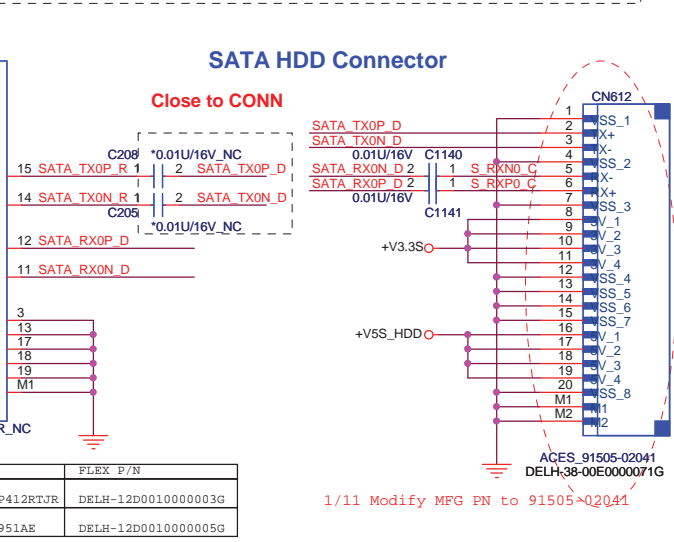
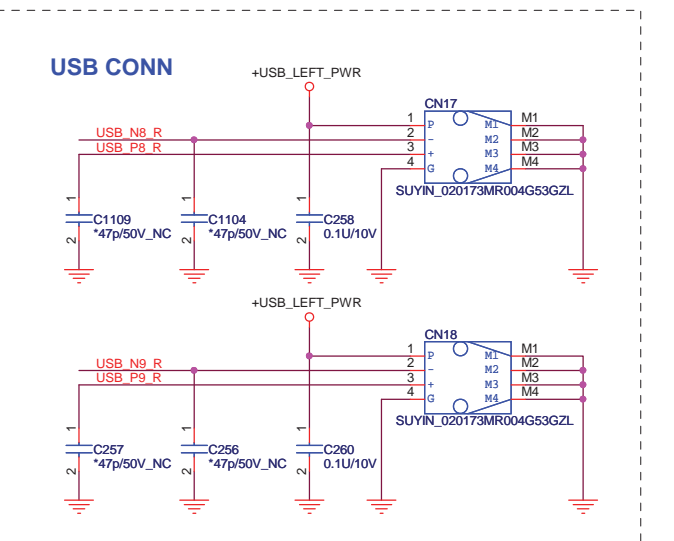
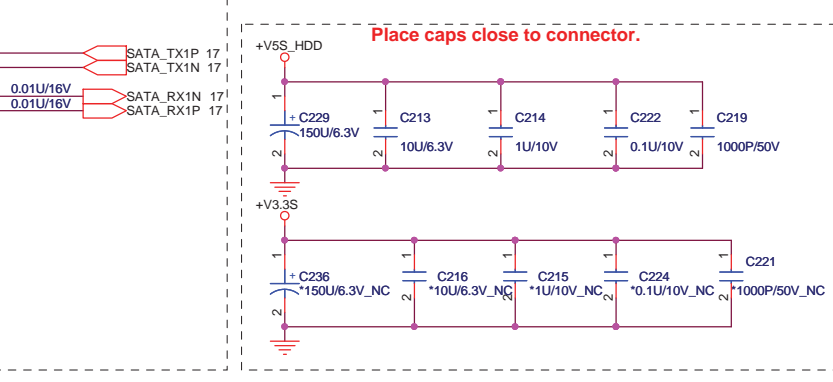
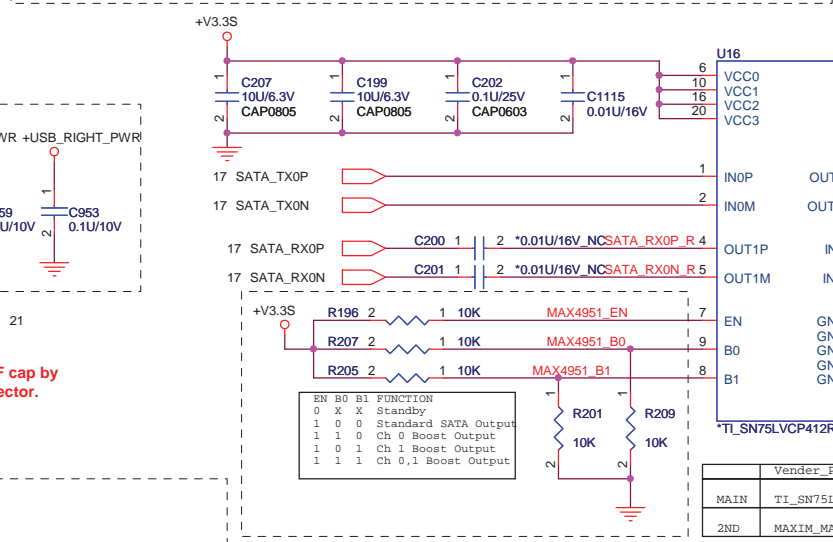
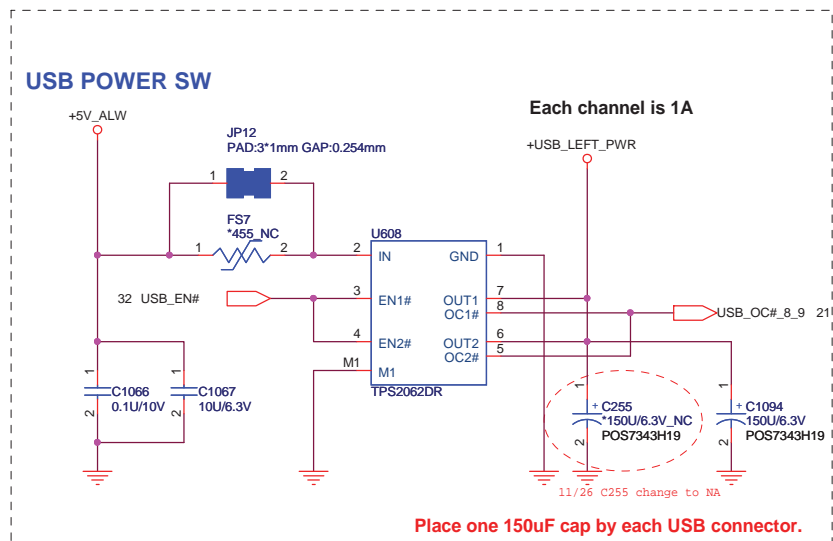
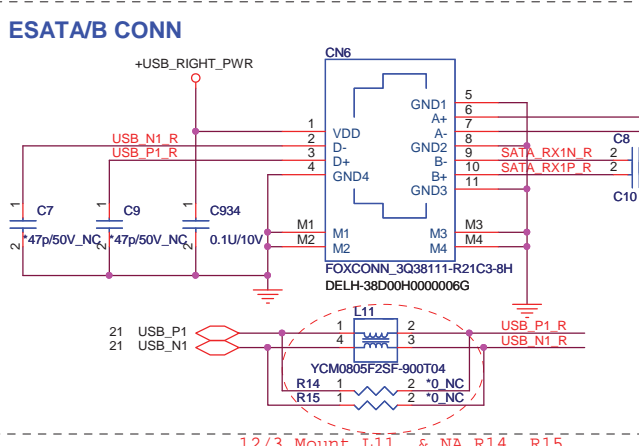
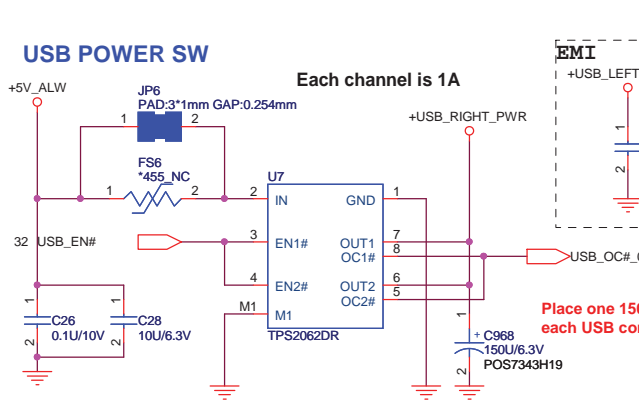
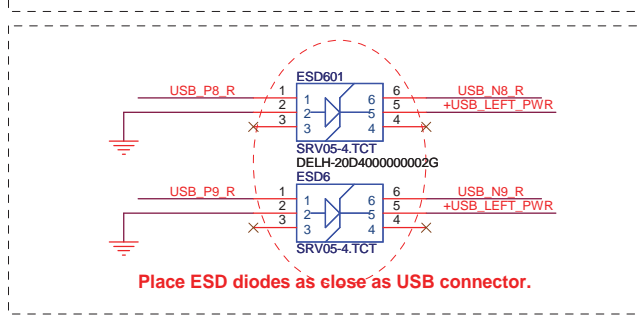
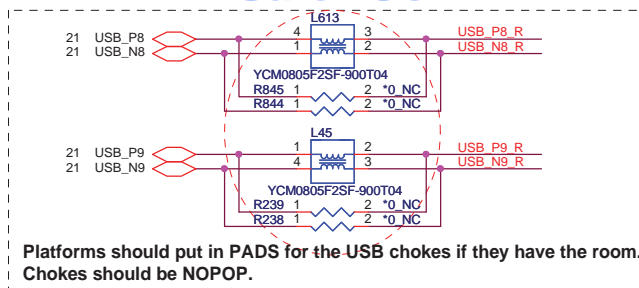
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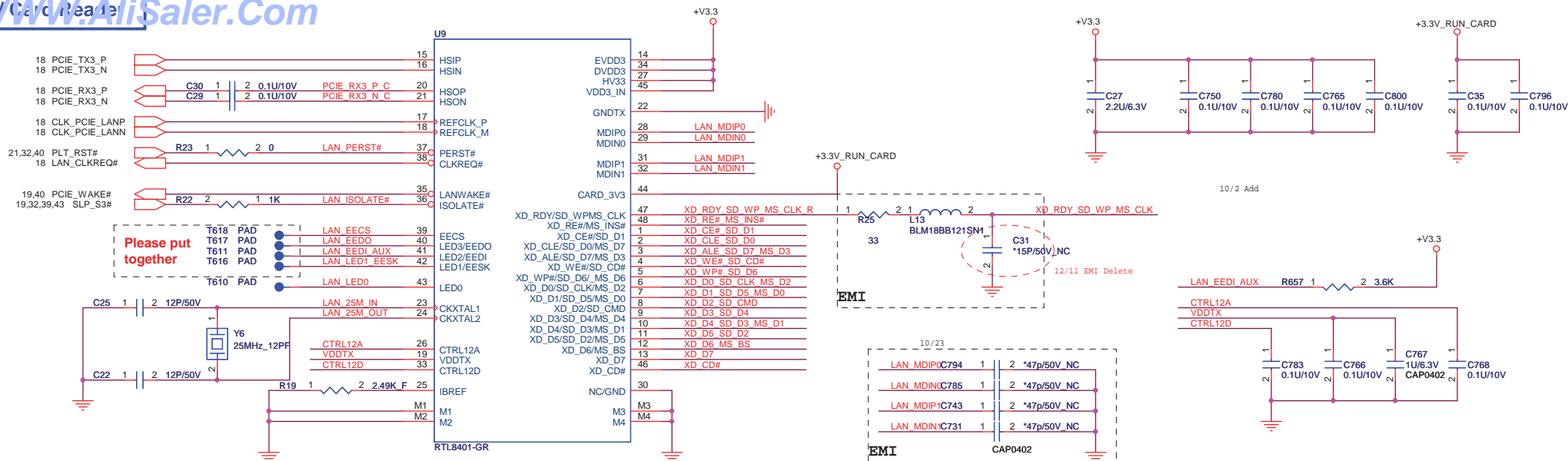


DISPLAY PORT CONNECTOR



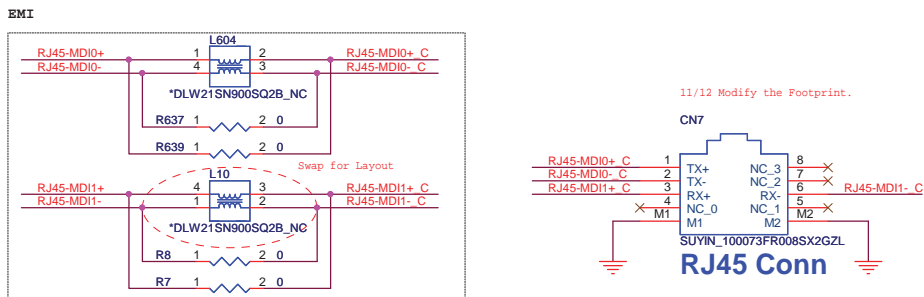
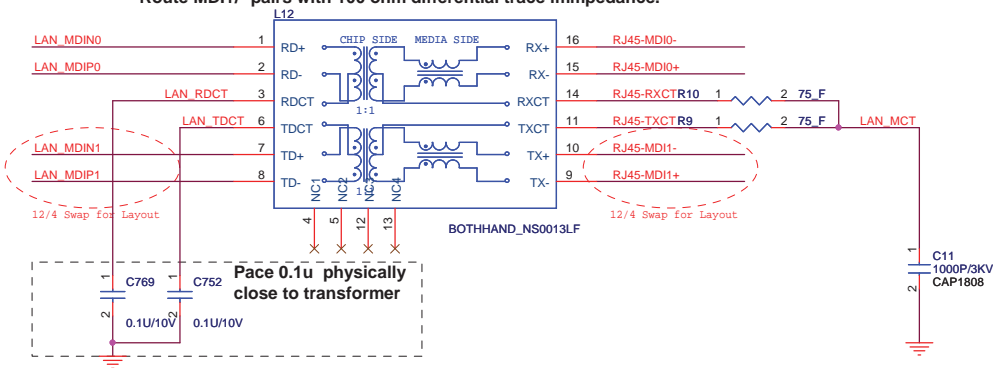
Dell/ Flex Confidential			
HDMI / DP			
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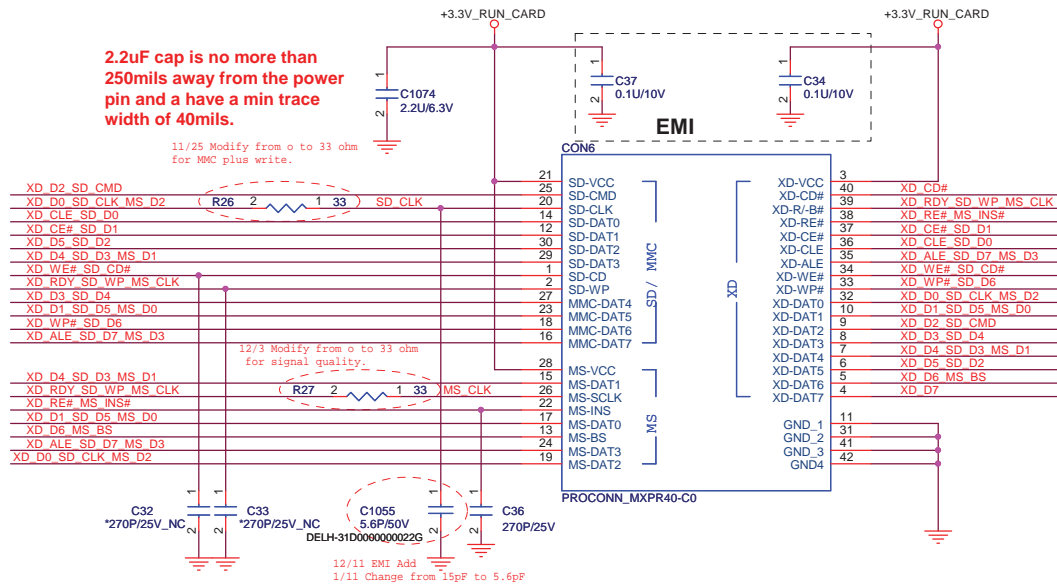
TRANSFORMER

Layout Note:
Route MDI+/- pairs with 100 ohm differential trace impedance.



Card Reader Conn

2.2uF cap is no more than 250mils away from the power pin and have a min trace width of 40mils.



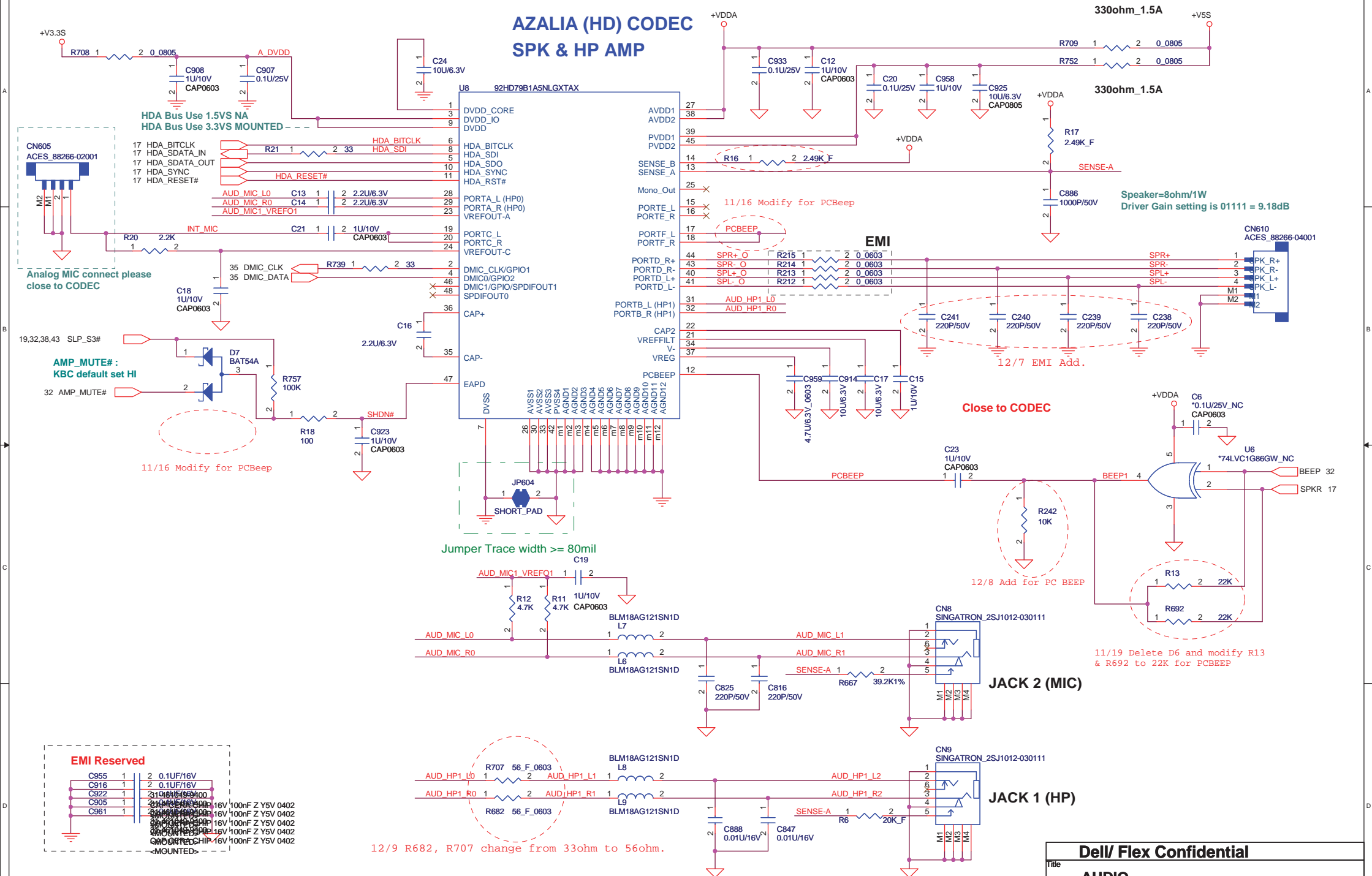
Del/ Flex Confidential

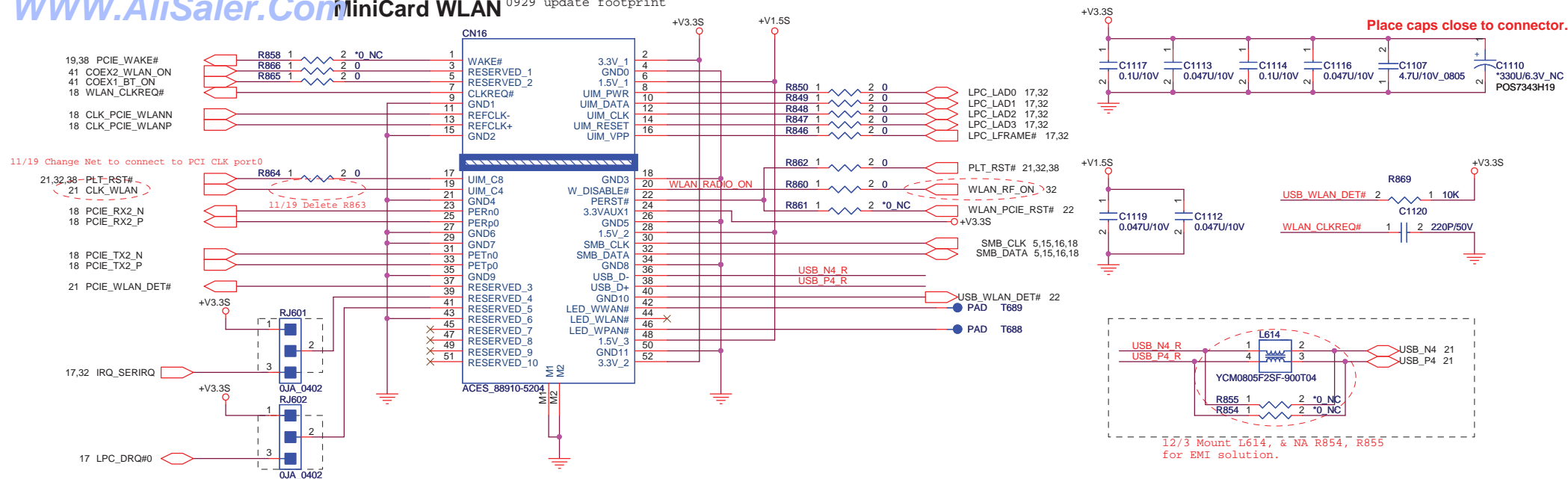
LAN/ Media_RTL8401

Inspiron Z -- INTEL

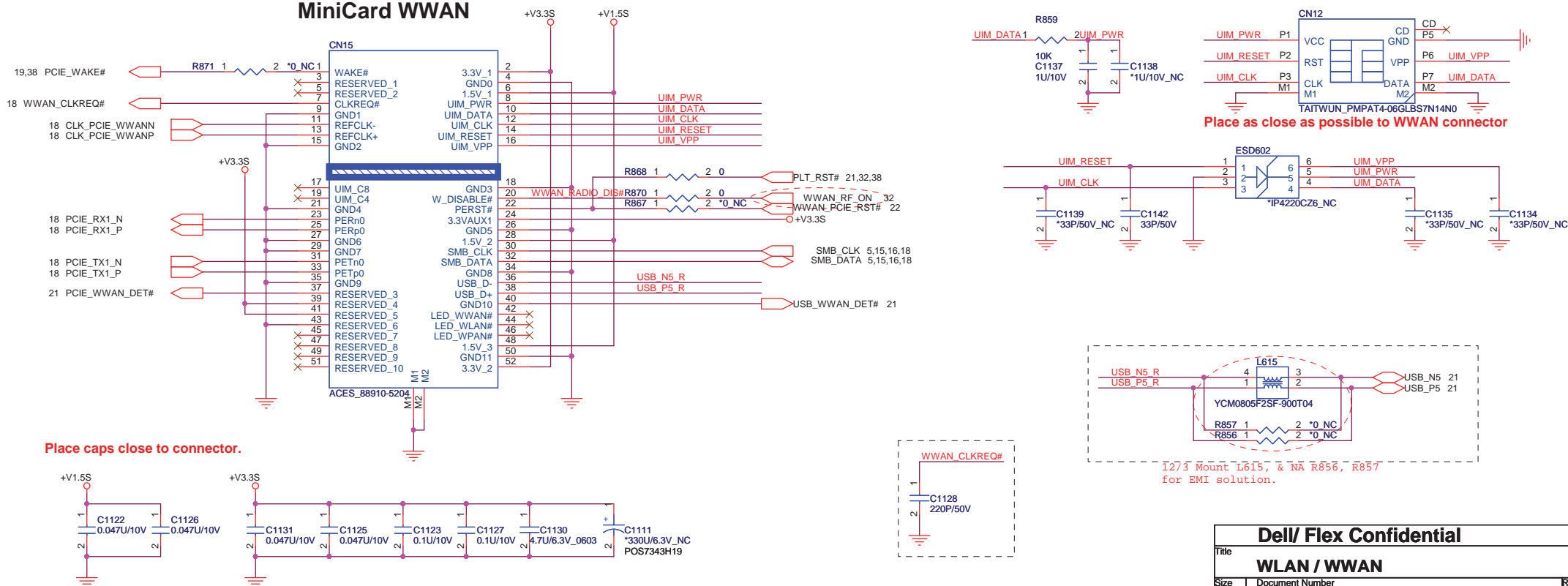
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AZALIA (HD) CODEC SPK & HP AMP





MiniCard WWAN

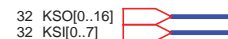
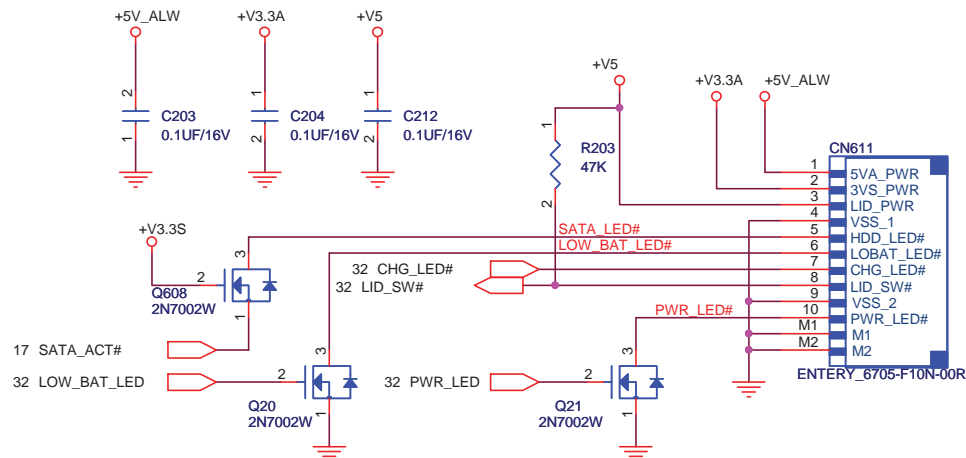
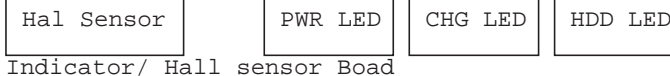


Dell/ Flex Confidential

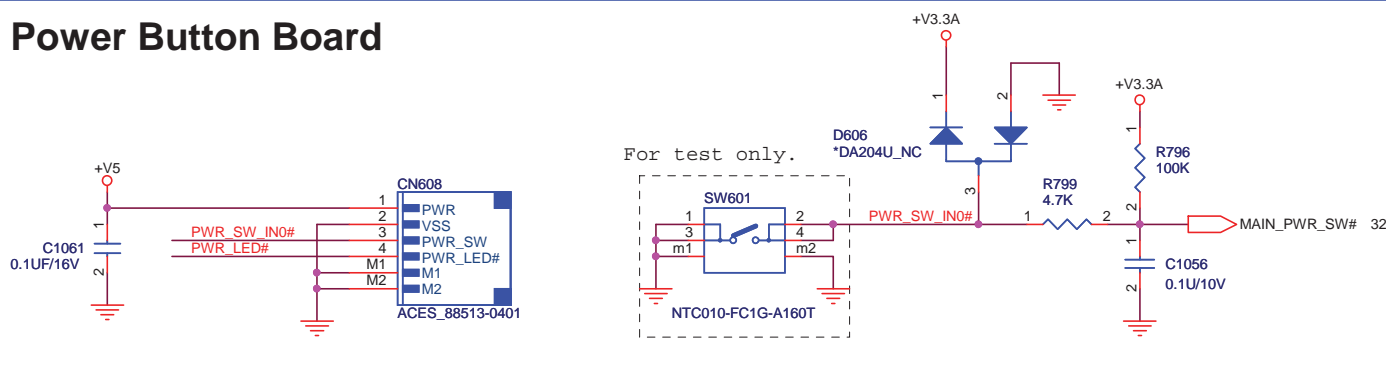
WLAN / WWAN

Inspiron Z -- INTEL

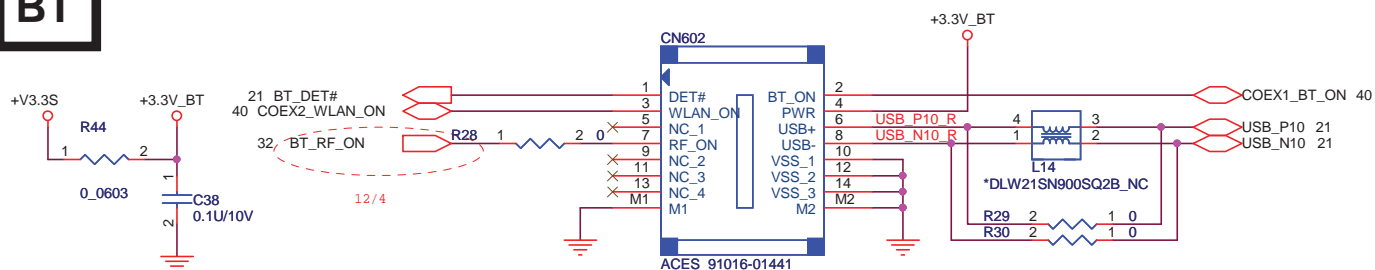
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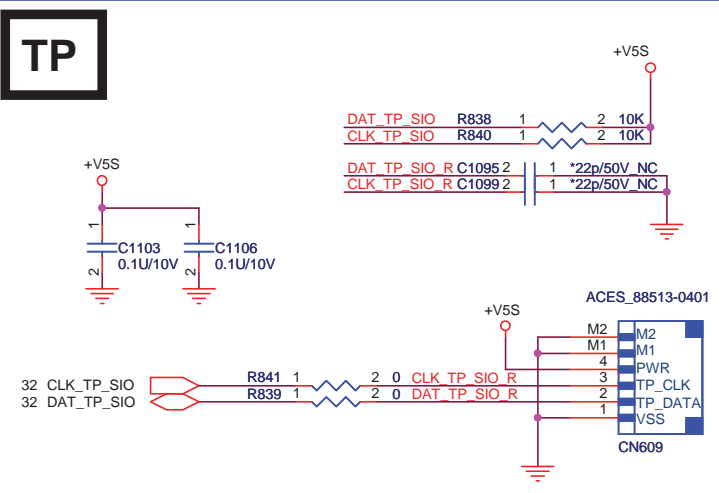
Power Button Board

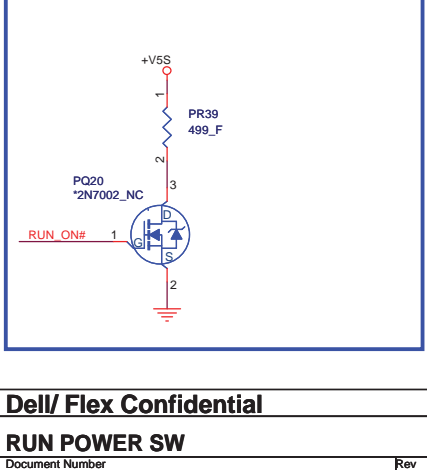
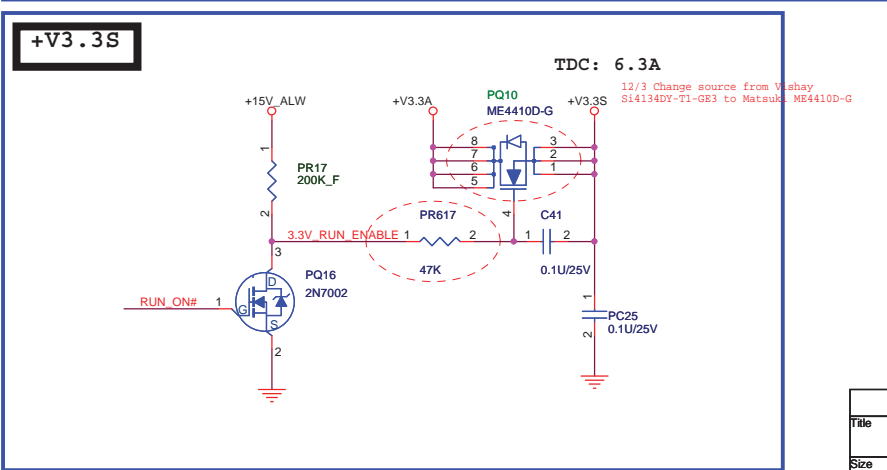
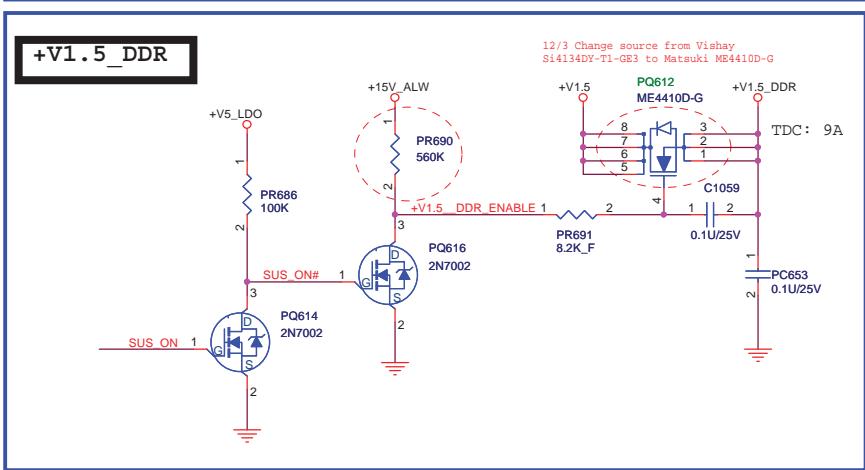
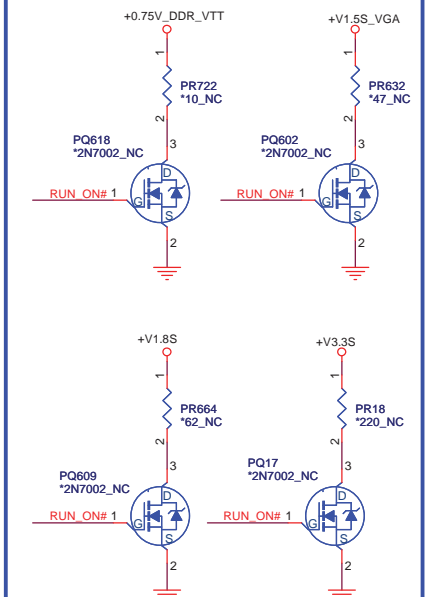
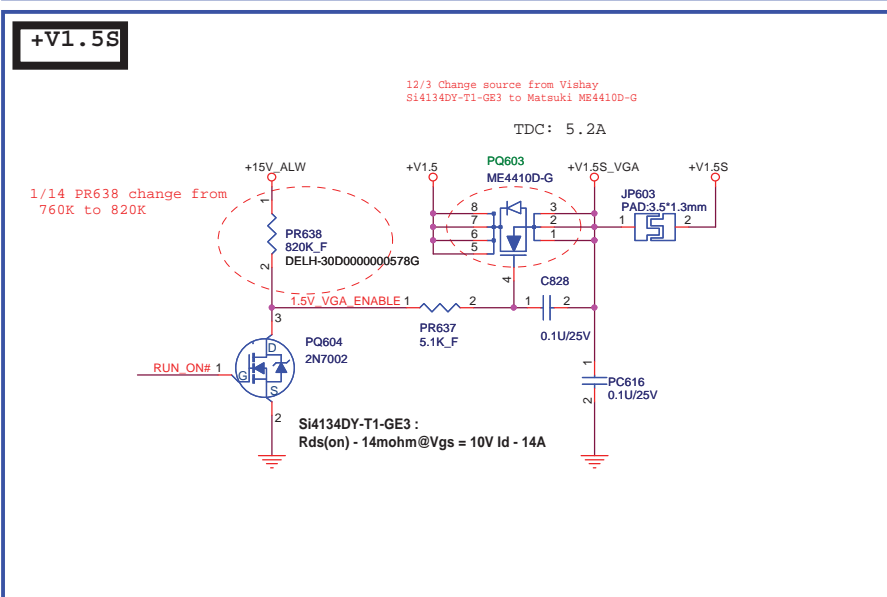
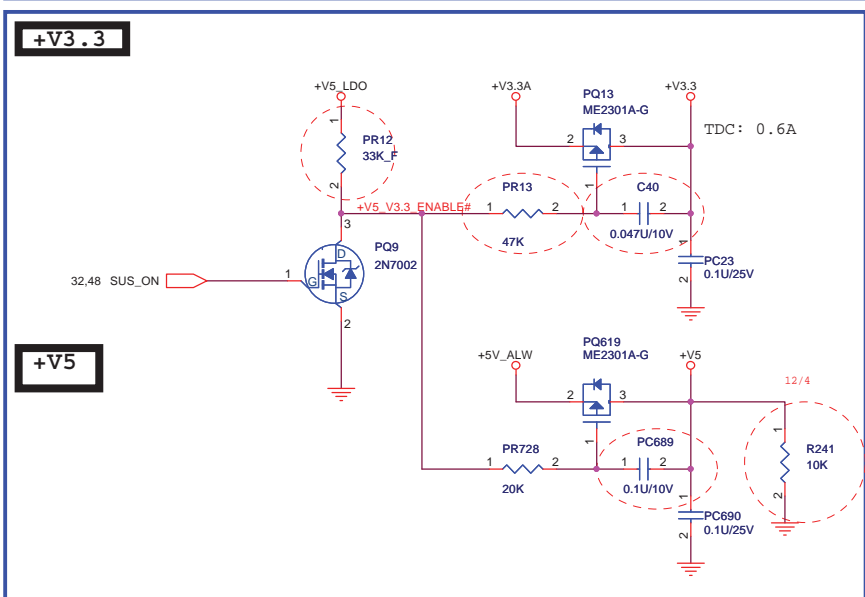
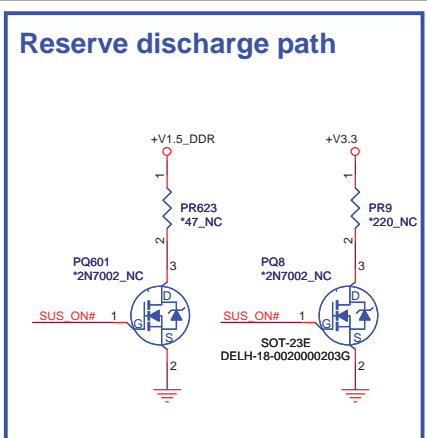
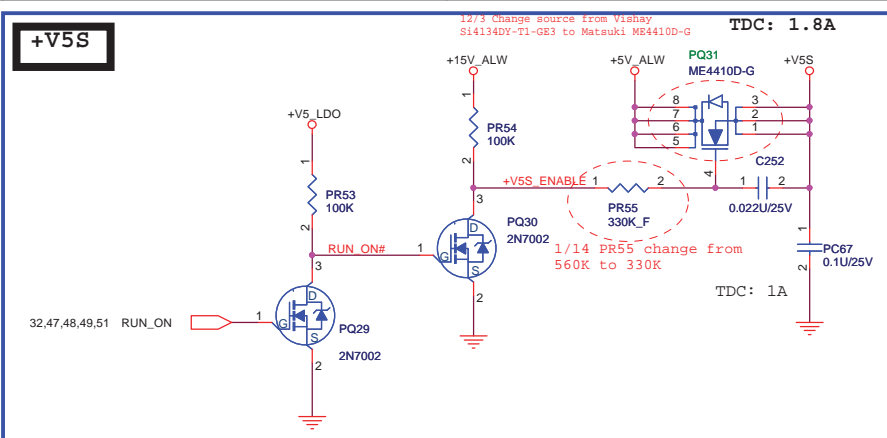
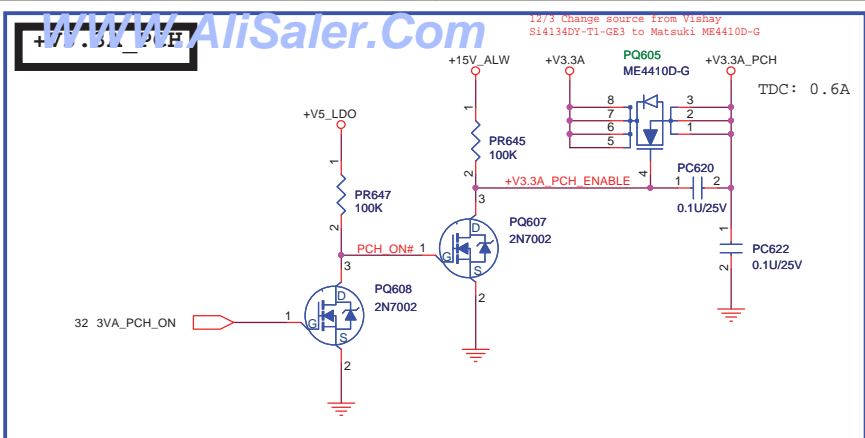


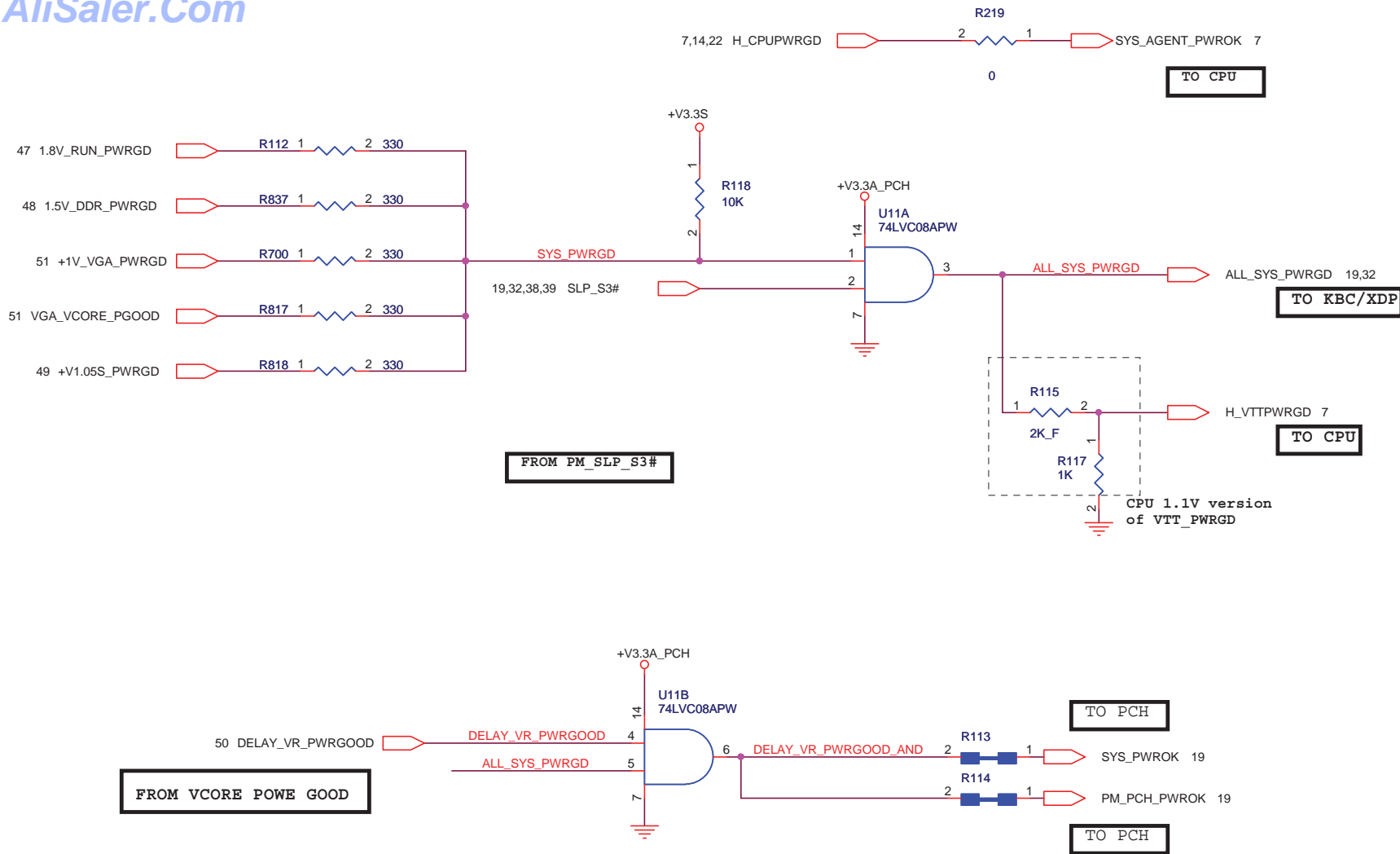
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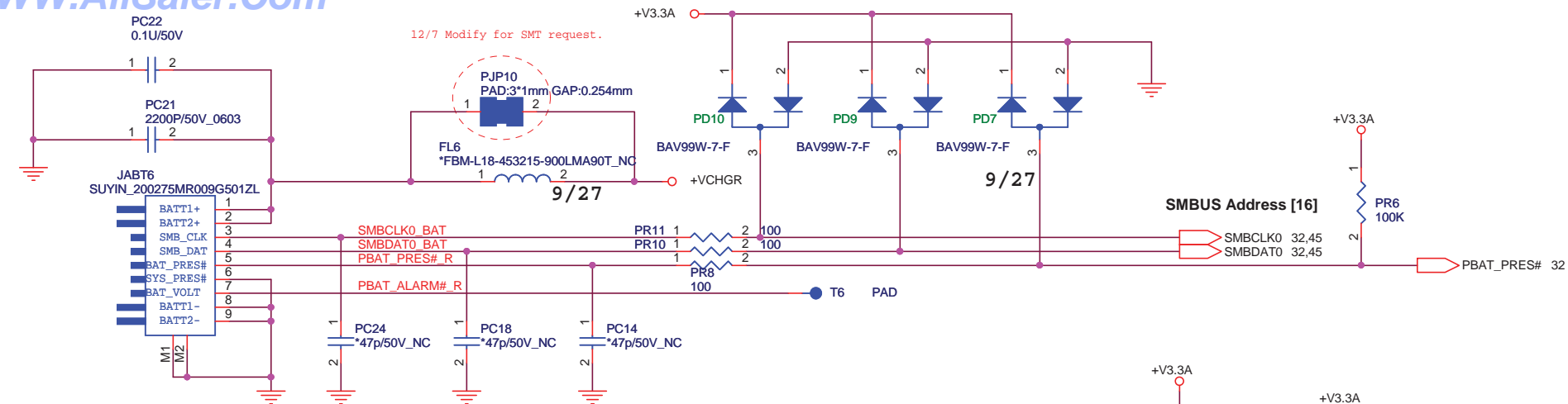


TP



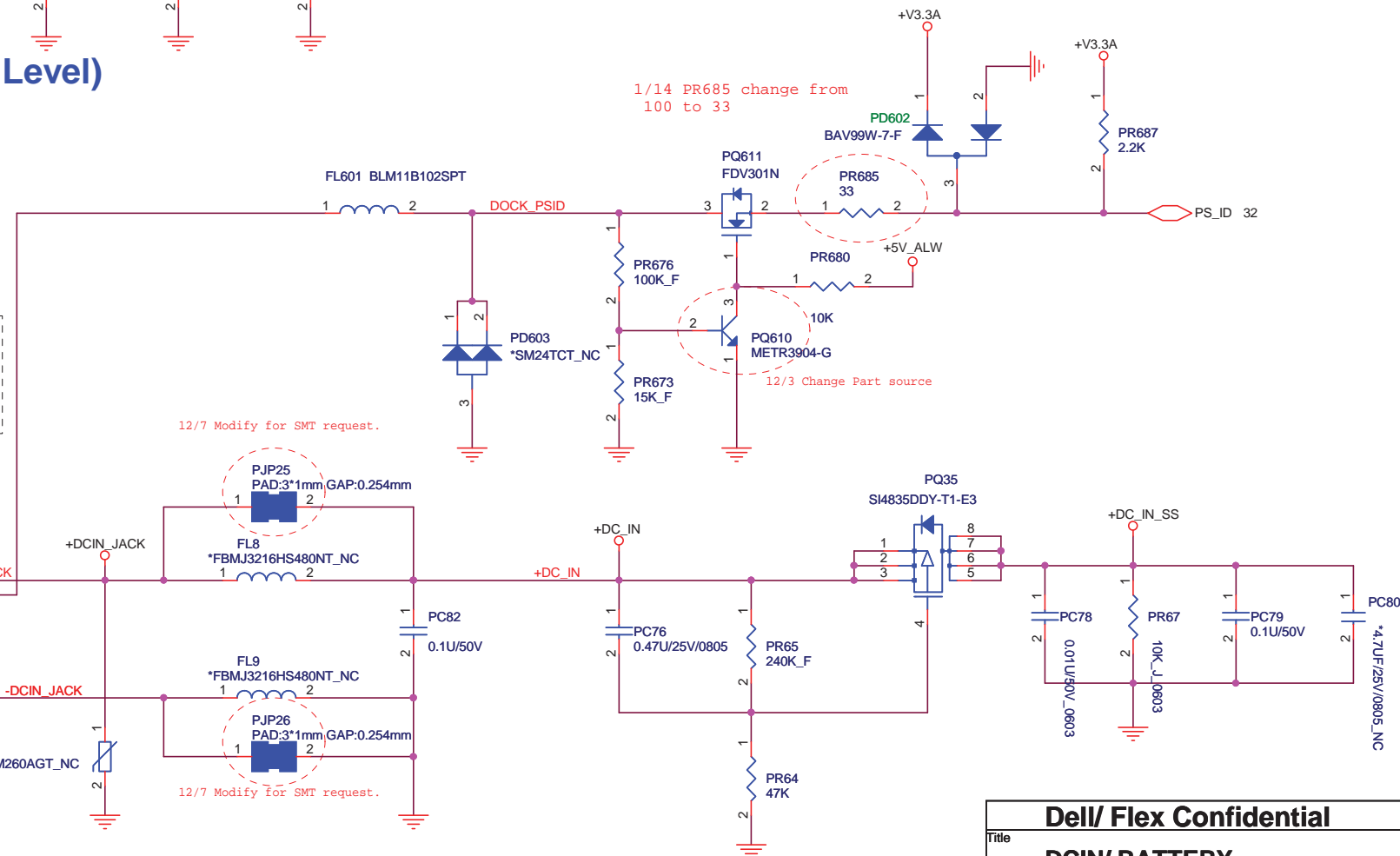
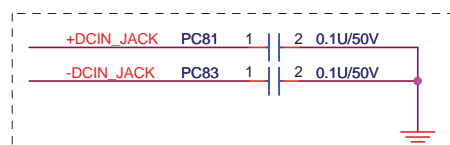




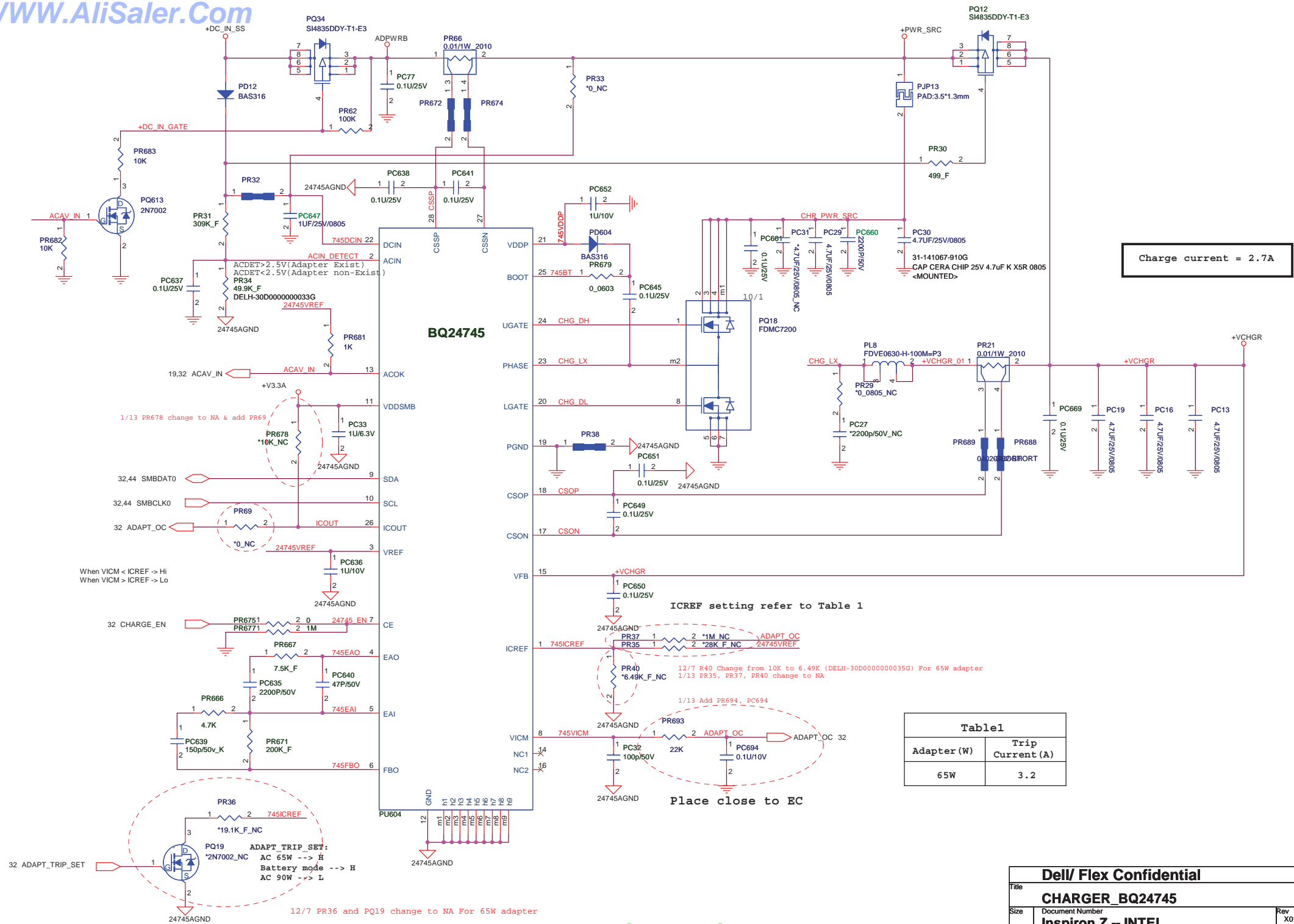


Battery Conn (030 Level)

1/14 PR685 change from 100 to 33



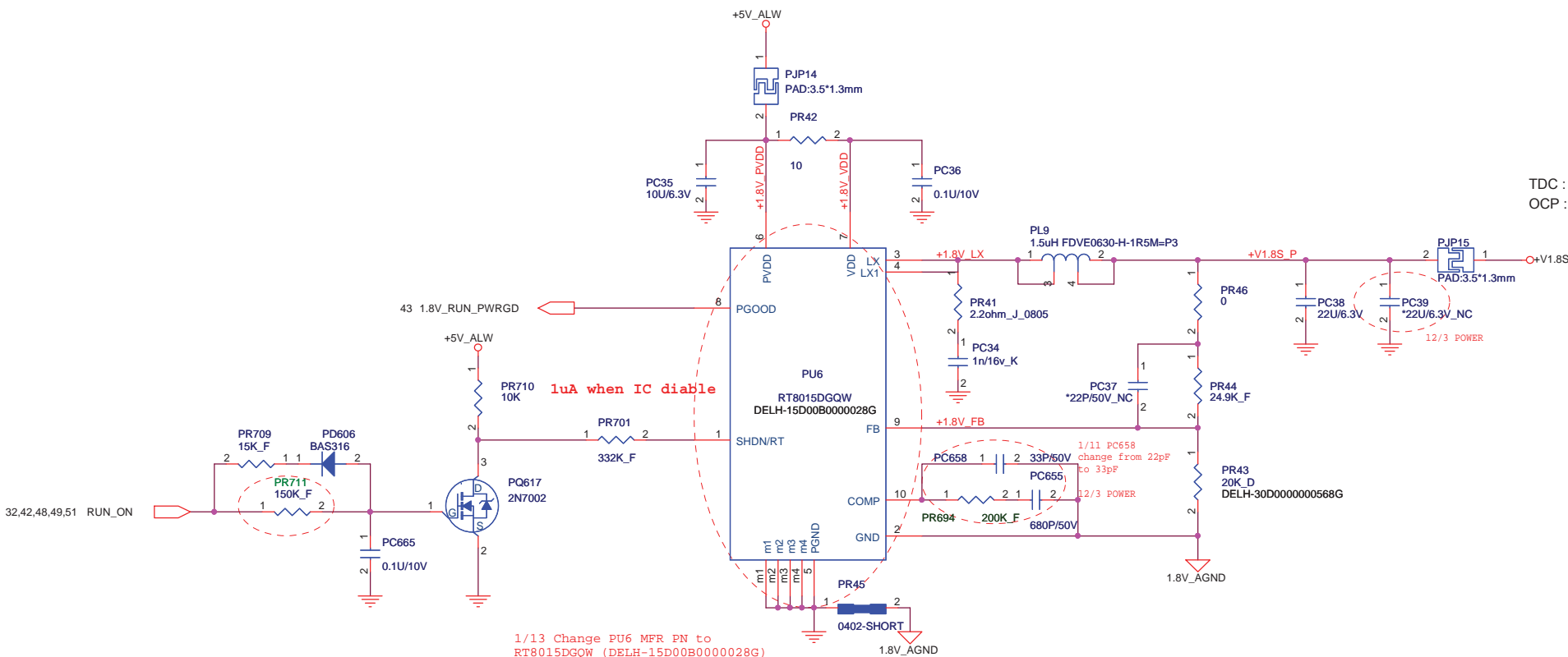
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Size	Document Number	Inspiron Z -- INTEL	
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+V1.8S

TDC : 1.47A
OCP : 2.63A

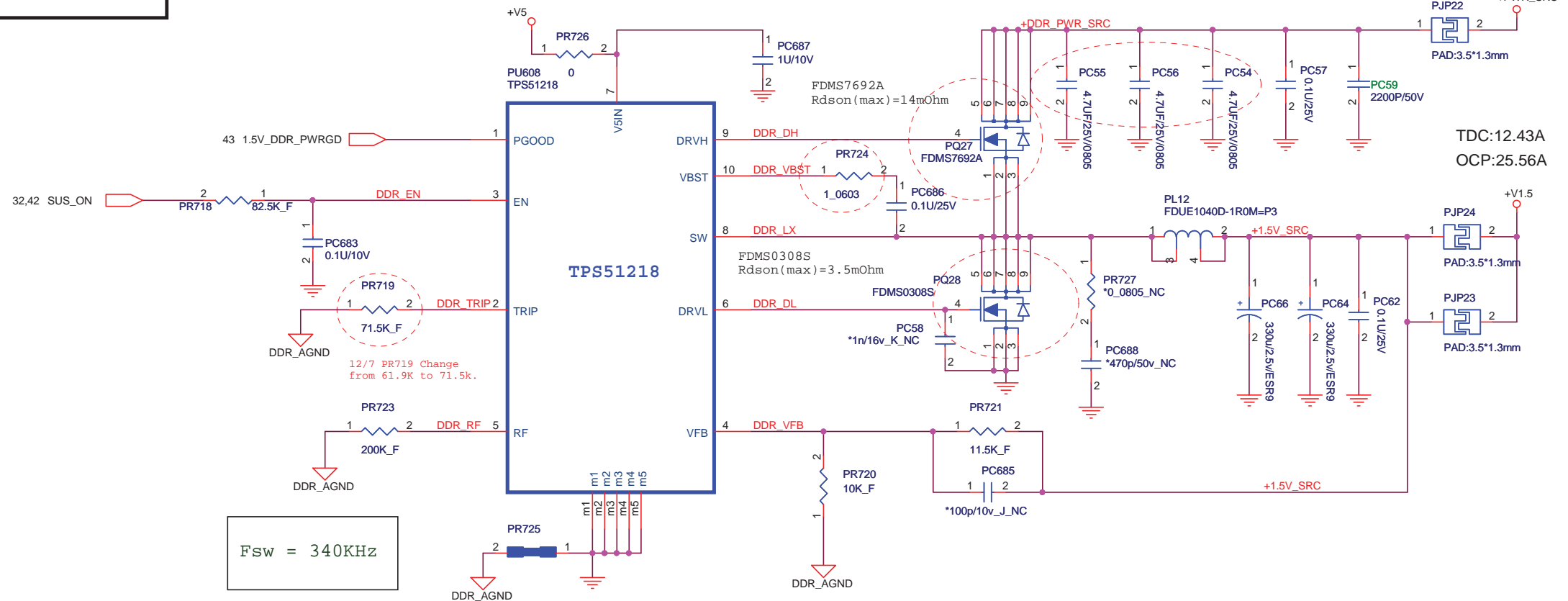


Dell/ Flex Confidential

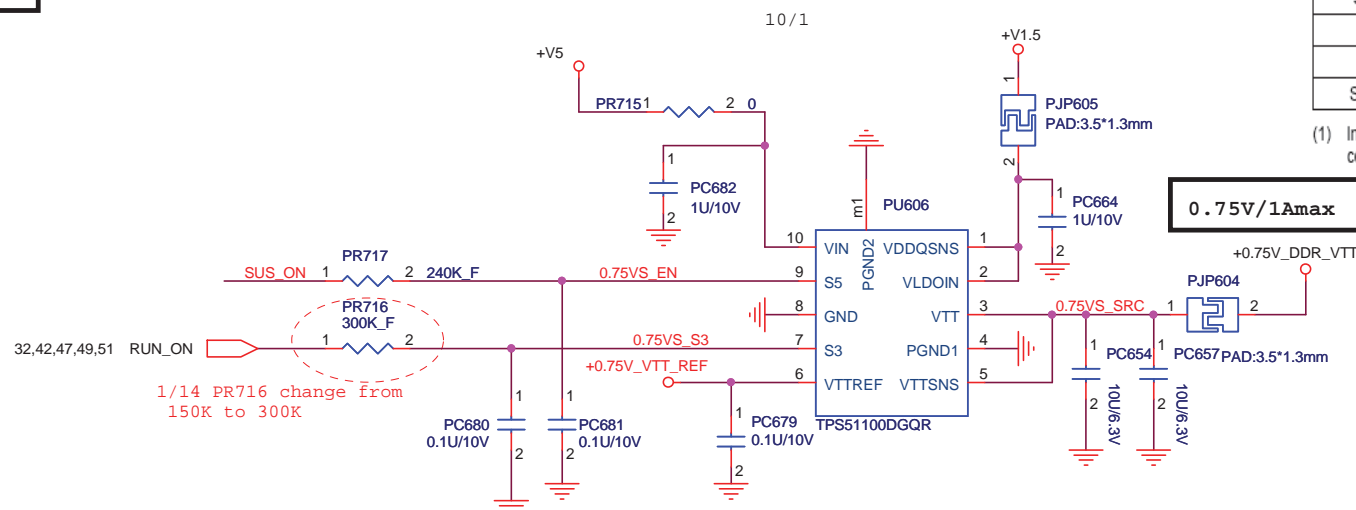
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Size	Document Number	Rev
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1.5VDDR

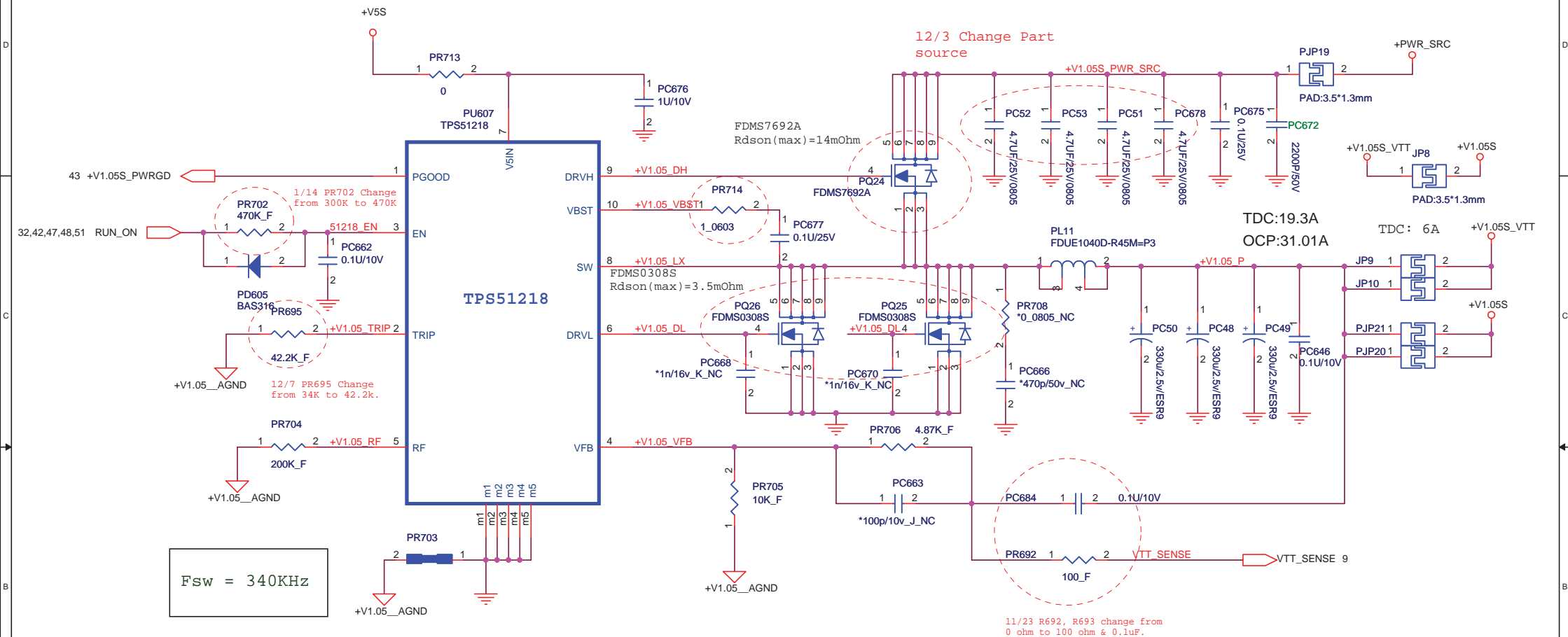
WWW.AliSaler.Com



0.75VS

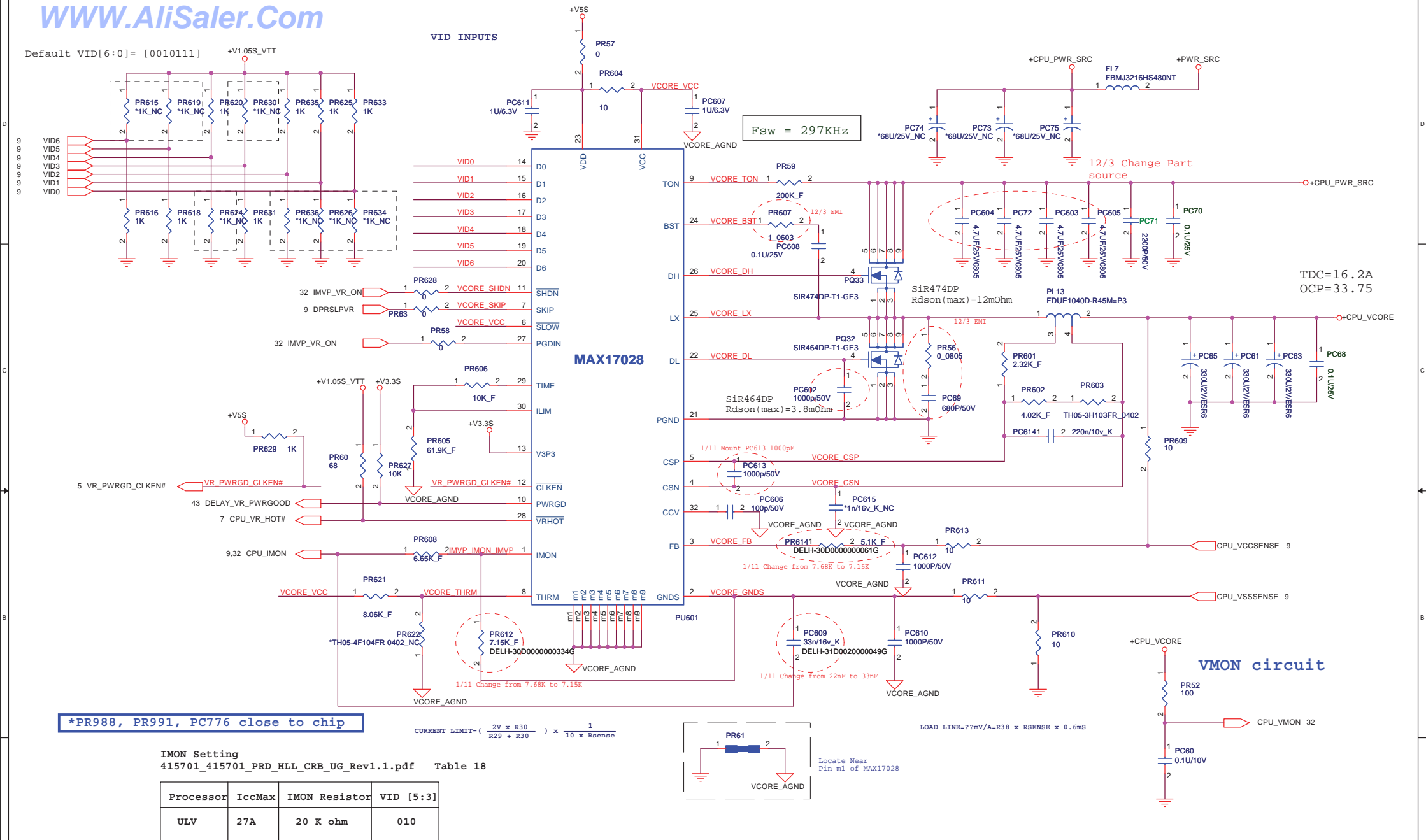


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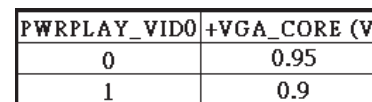


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Size	Document Number		Rev
	Inspiron Z -- INTEL		X01
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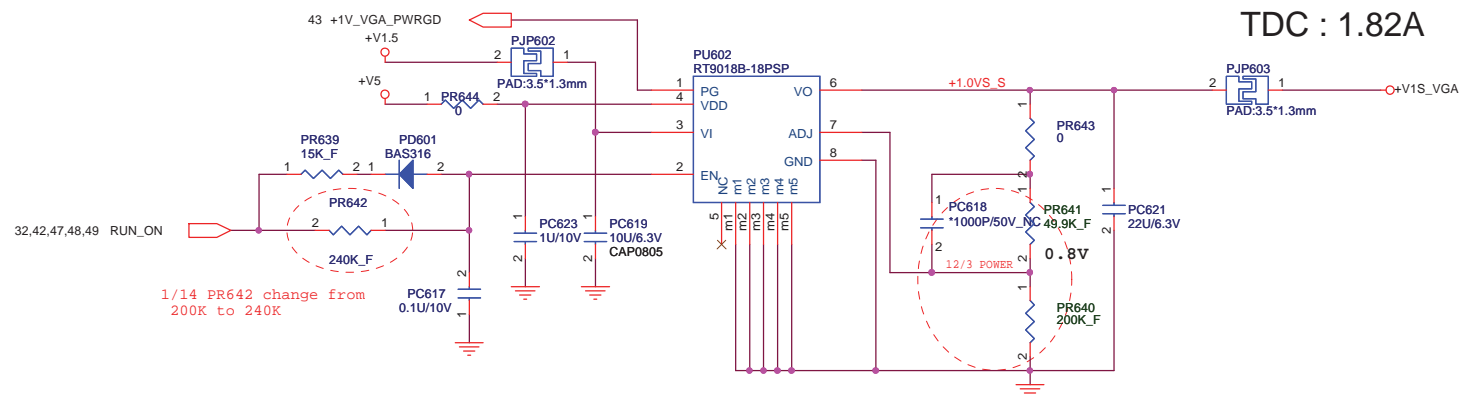
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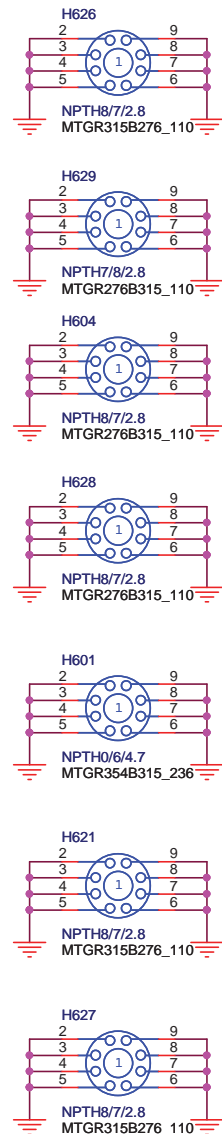
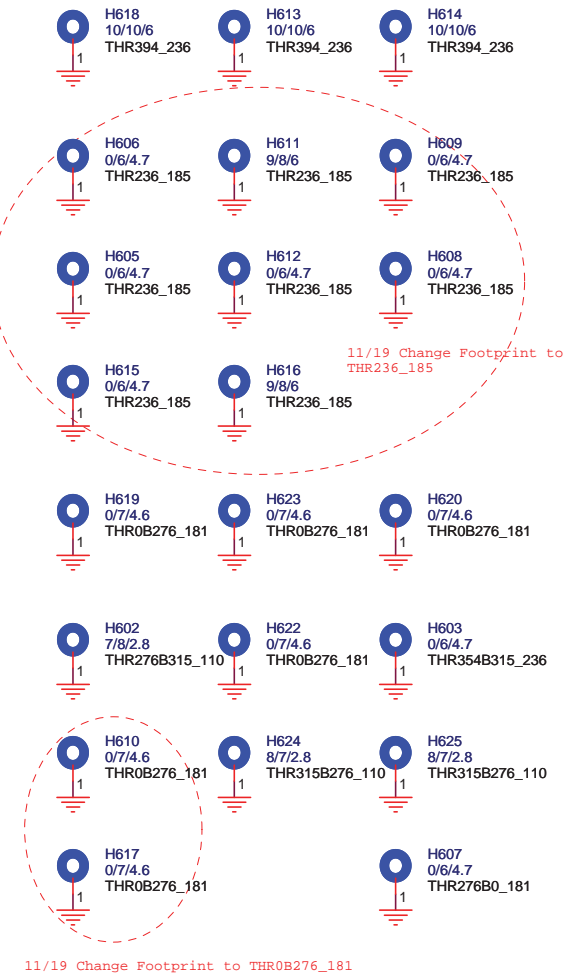


Processor	IccMax	IMON Resistor	VID [5:3]
ULV	27A	20 K ohm	010

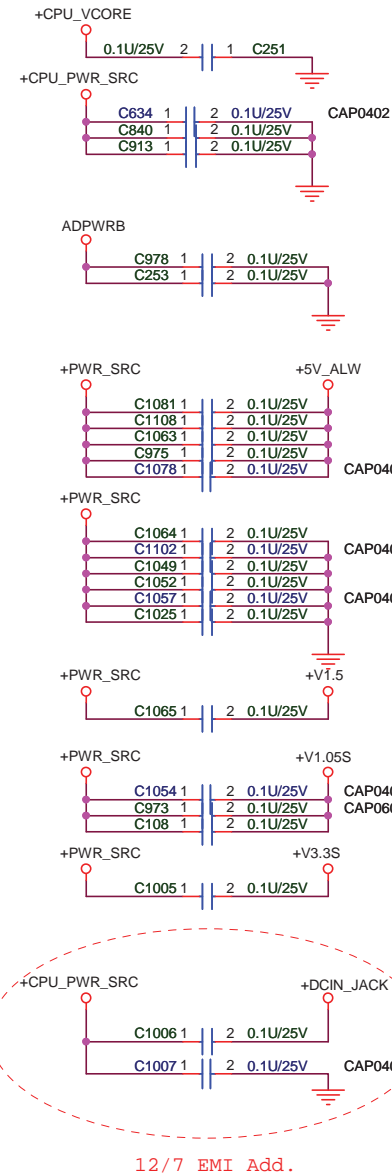
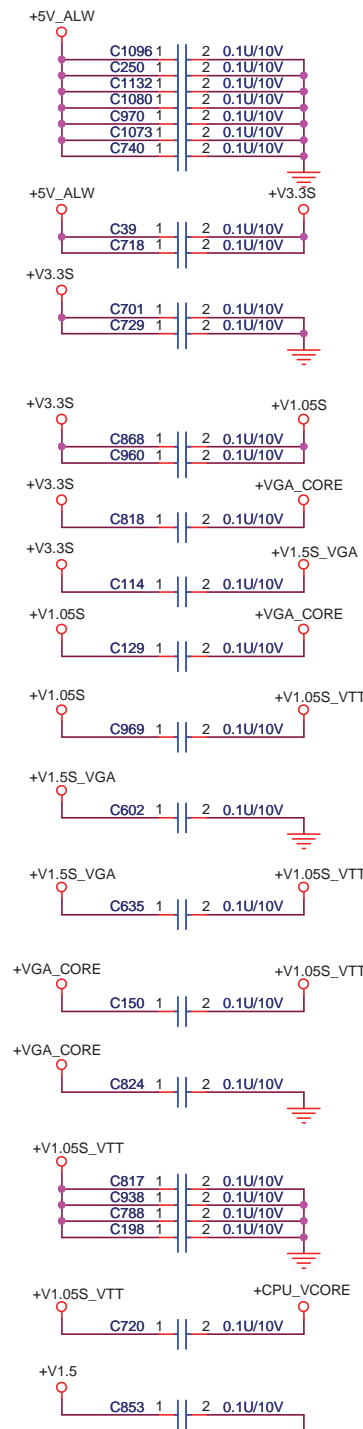


Discrete Only

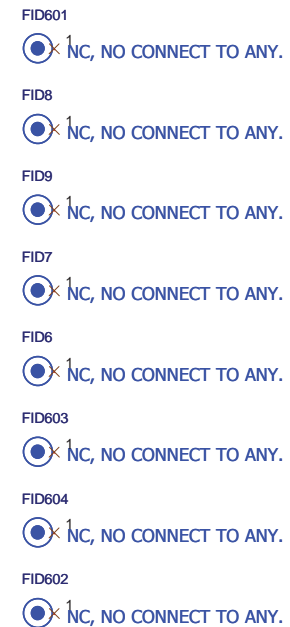




Moat Cap



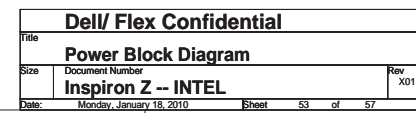
FID



DELH-31D0010000007G

DELH-31D0010000007G

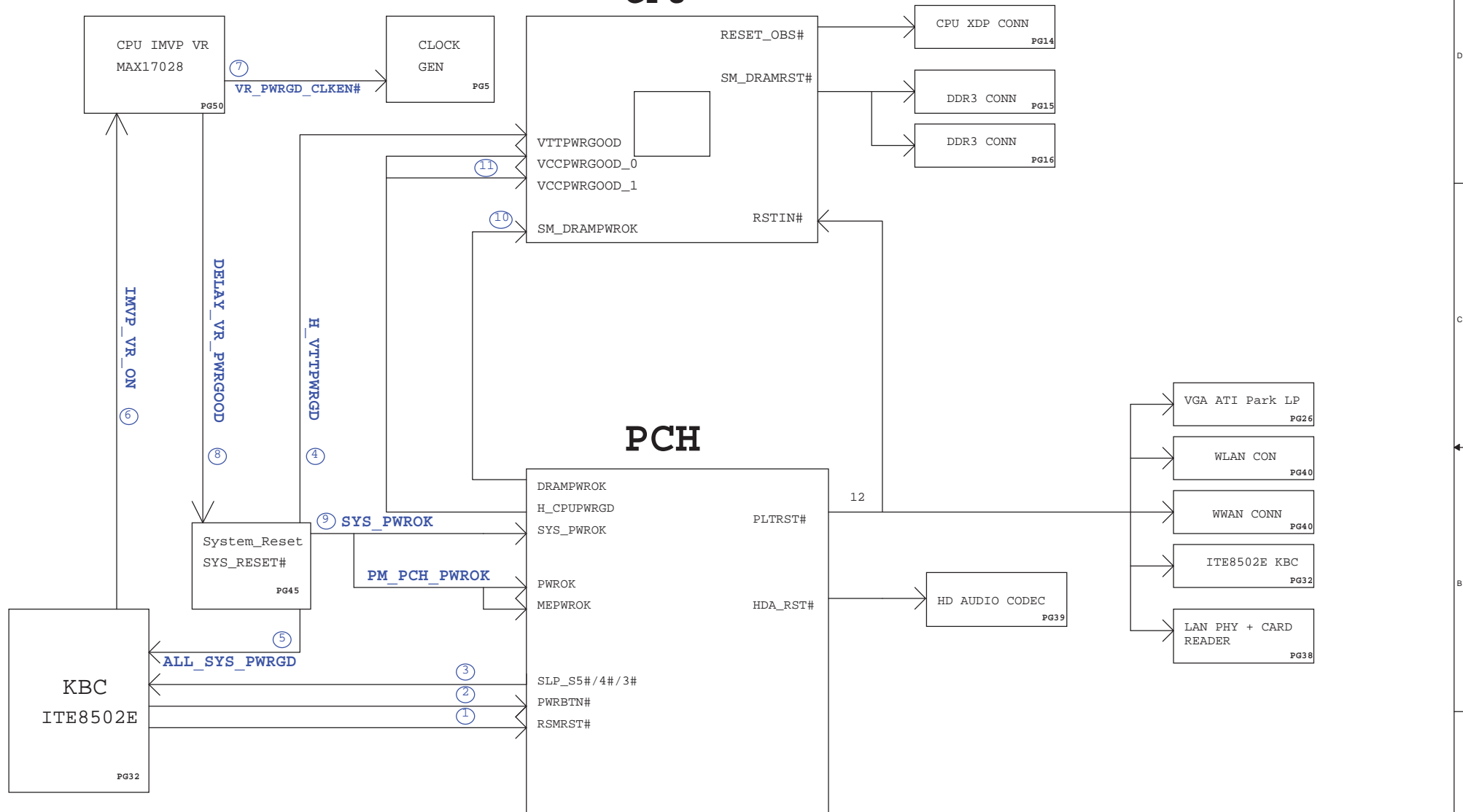
Dell/ Flex Confidential			
Title			
SCREW / PAD			
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Power Rail	+5V_ALW	+V5_LDO	+15V_ALW	+V3.3A	+V1.8S	+V1.5	+0.75V_DDR_VTT	+V1.05S	+VGA_CORE	+CPU_VCORE	+V1S_VG
TDC (Thermal Design Current)	4.66A	100mA	2mA	4.95A	1.47A	12.43A	0.7A	19.3A	11.2A	16.2A	1.82A
OCF (Over Current Protect)	8.33A	260mA		8.83A	2.63A	22.19A	6A	25.89A	20A	33.75	4.5A

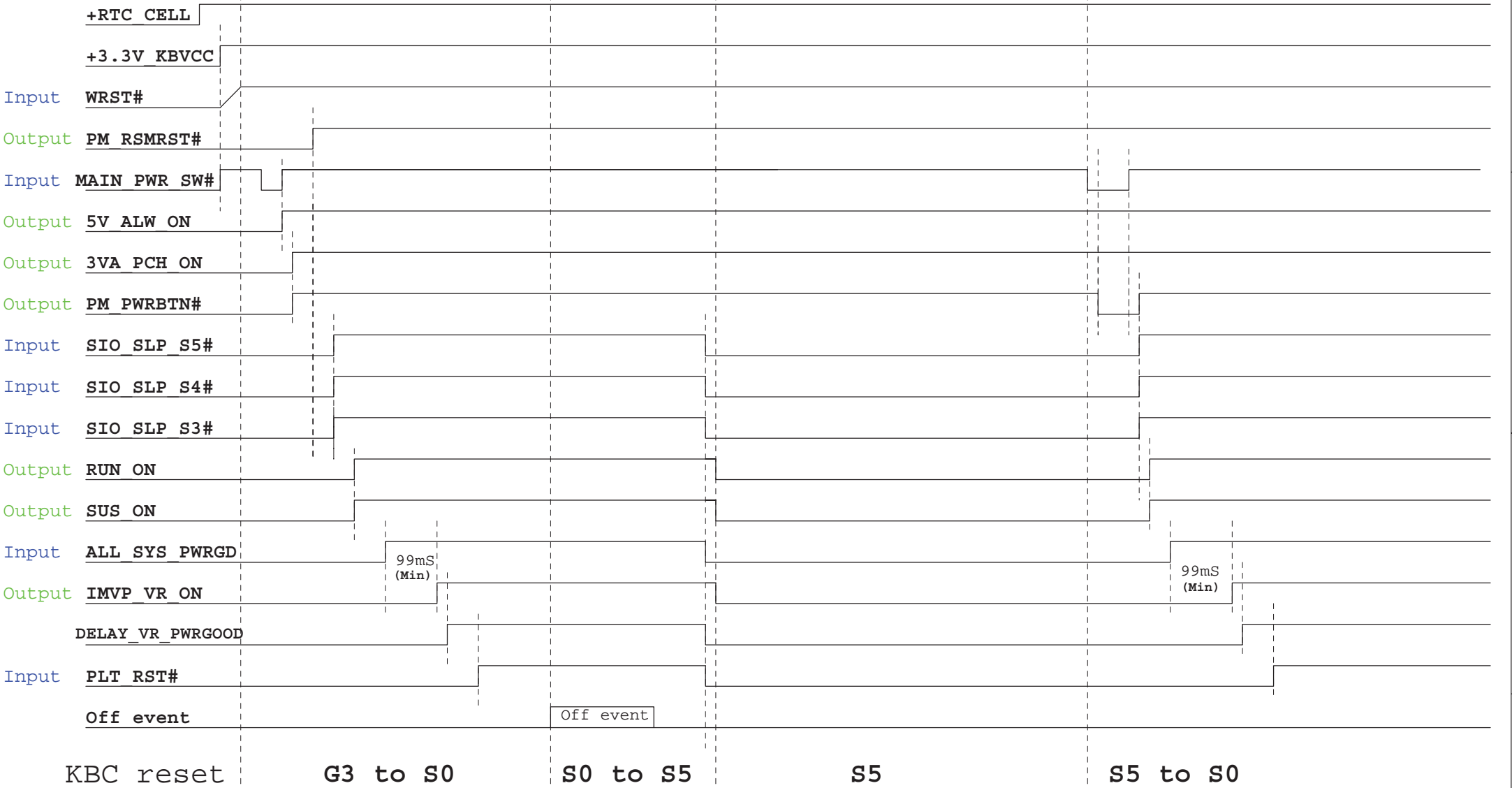
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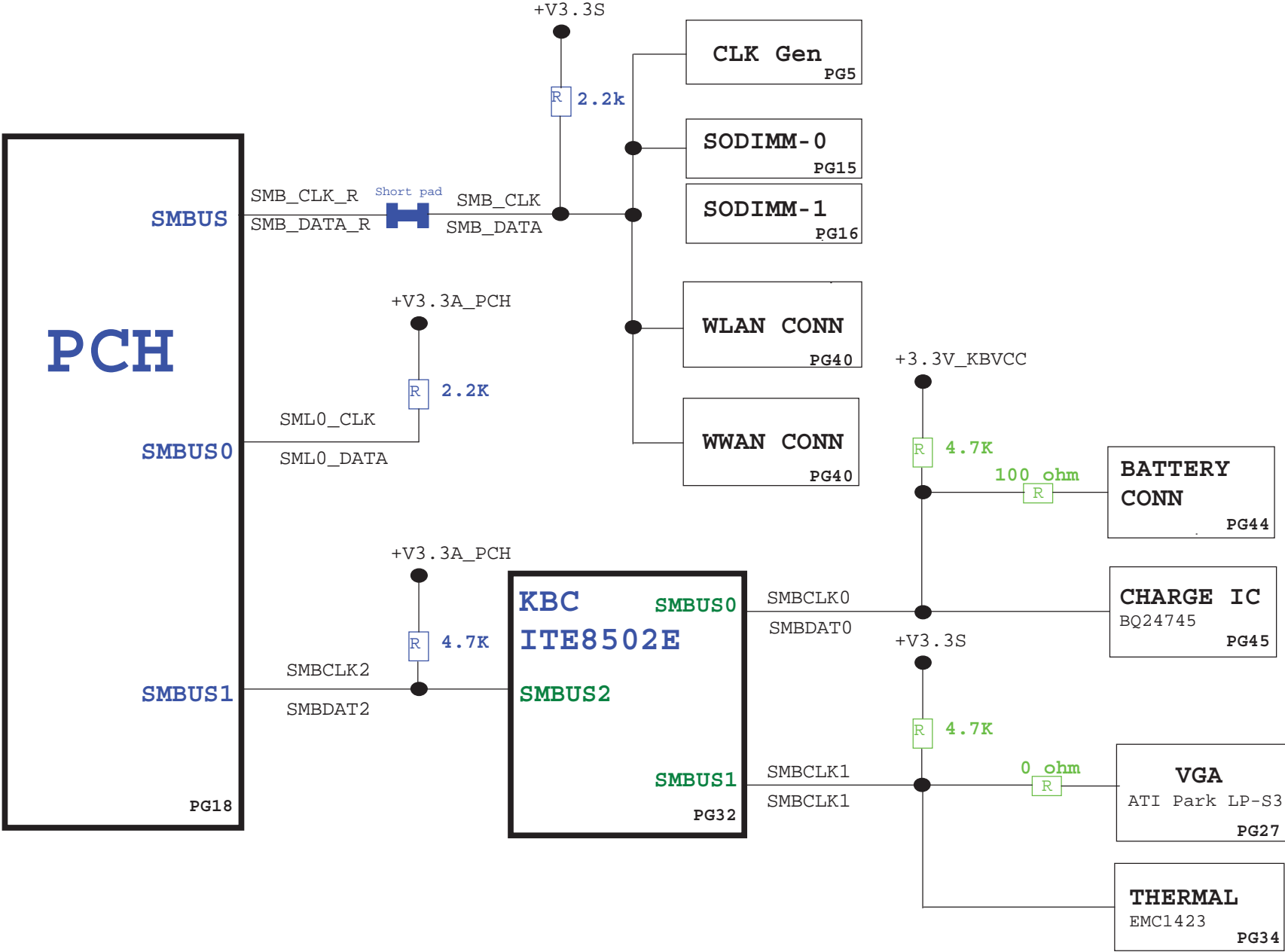
PCI RESET MAP



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Title		PCI RESET MAP	
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KBC Powre Up Sequence





Item	Fixed Issue	Reason for Change	Rev	PG#	Modify List
1	MMC Plus Can't Read	MMC Plus Can't Read	X01	38	C1055 change from 15pF to 5.6pF (DELH-31D0000000022G)
2	Update Conn MFR PN	Update Conn MFR PN	X01	36 37, 41	CN10 (HDMI) Change to DELH-38-00F00000013G, CN11 (mDP) Change to DELH-38D01100000005G CN612 (HDD) Change to DELH-38-00E00000071G, CN607 (KB) Change to DELH-38-00E00000072G
3	Update Chipset MFR PN	Update Chipset MFR PN	X01	7, 17	U17 CPU 1.2G (SLBMM) Change to DELH-11D00100000046G, U10 HM57 (SLGZR) Change to DELH-10D00100000012G
4	For HDMI SMBus Signal Quality	For HDMI SMBus Signal Quality	X01	36	C57, C67 Change from 33pF to 18pF DELH-31D00000000005G
5	Power Sequence	Power Sequence	X01	42	PR49 Change to 162K, PR55 Change to 330K, PR638 Change to 820K, PR642 Change to 240K, PR702 Change to 470K, PR716 Change to 300K.
6	Board ID Upgrade	Board ID Upgrade	X01	32	BID change from 01 to 10 for ST stage

POWER change

Item	Fixed Issue	Reason for Change	Rev	PG#	Modify List
1	Change Adapter OC control employment	Change Adapter OC control employment	X01	45	PR35, PR37, PR40, PR678 Change to NA. Add PR693 22K (DELH-30D00000000105G), Add PC694 0.1uF/10V(DELH-31D00200000012G), PR69 0ohm (NA) (DELH-30D00000000036G)
2	Improve 1.8V phase gain margin	Improve 1.8V phase gain margin	X01	47	PC658 change from 22pF to 33pF/50V(DELH-31D00000000009G)
3	PS_ID	DELL Suggestion	X01	44	PR685 Change from 100ohm to 33ohm.
4	VIMON RC Time Adjustment	From 196uS to 337uS	X01	50	PC609 change to 33nF/16V/X7R(DELH-31D00200000049G)
5	VIMON voltage precision	Vimon = 1V at load = 27A	X01	50	PR612 change to 7.15K_F_0402(DELH-30D00000000334G)
6	Improve load line precision	Improve load line precision	X01	50	PR614 change to 5.1K_F_0402(DELH-30D00000000061G)
7	Adjust the transeint response	Adjust the transeint response	X01	50	PC613 change to 1000pF/50V(DELH-31D00200000037G) and mounted
8	Update IC MFR PN	Update IC MFR PN	X01	47	Change PU6 MFR PN to RT8015DGQW (DELH-15D00B00000028G)

EMI change

Item	Fixed Issue	Reason for Change	Rev	PG#	Modify List