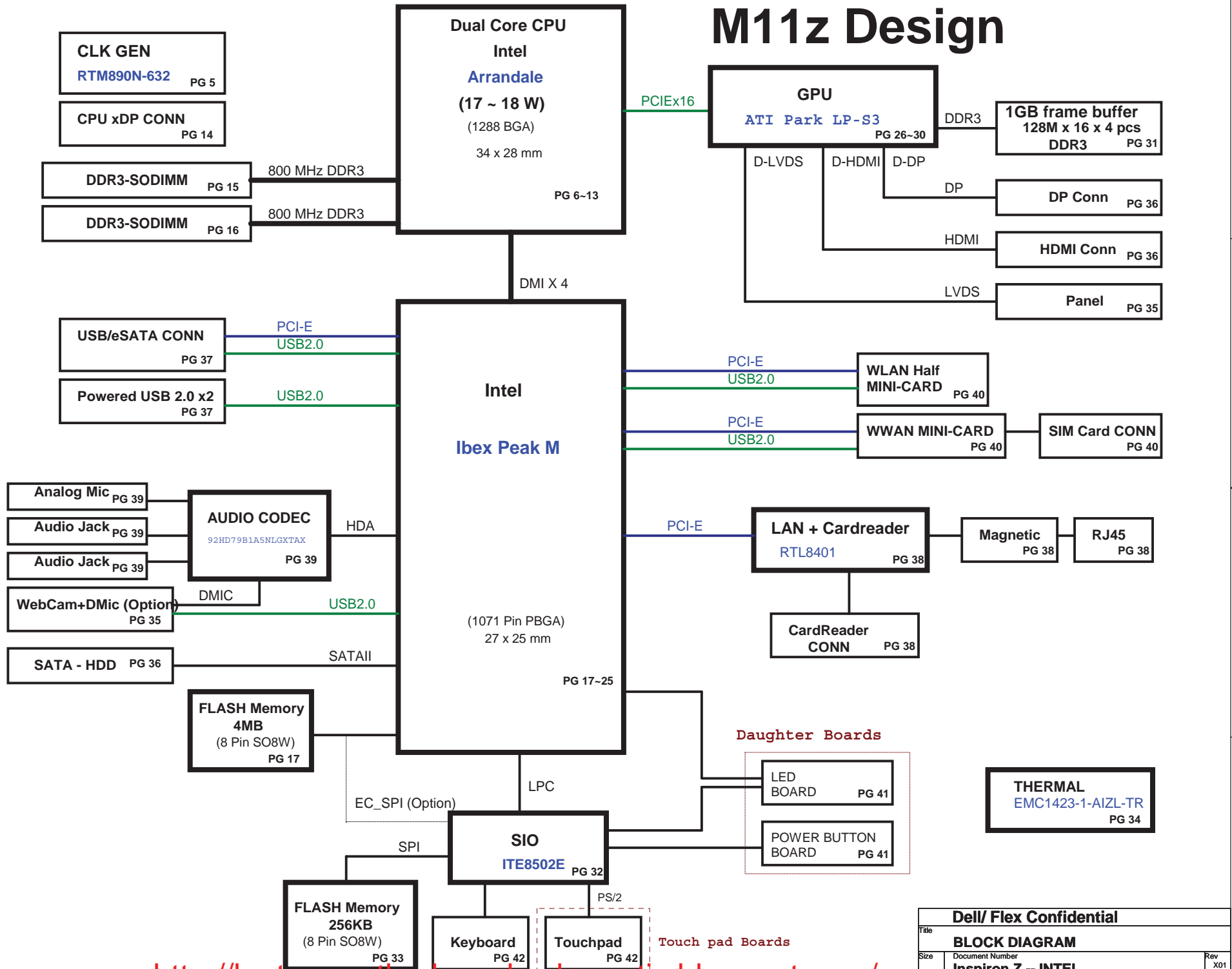


M11z Design

POWER

- AC/BATT CONNECTOR PG 44
- BATT CHARGER BQ24745 PG 45
- +5V_ALW +3.3V_ALW_17020 TPS51125 PG 46
- +V1.8S RT8015B PG 47
- +V1.5 TPS51218 +0.75V_DDR_VTT TPS51100 PG 48
- +V1.05S TPS51218 PG 49
- CPU CORE +CPU_VCORE MAX17028 PG 50
- VGA CORE +VGA_CORE TPS51218 PG 51
- SUS/ RUN POWER SW +V5 / +V5S / +V1.5S +3.3V_ALW / +V3.3A_PCH / +V3.3 / +V3.3S PG 42



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| | | |
|--------------------------------|----------------------------|---------------|
| Dell/ Flex Confidential | | |
| Title | BLOCK DIAGRAM | |
| Size | Document Number | Rev |
| | Inspiron Z -- INTEL | X01 |
| Date | Monday, January 18, 2010 | Sheet 1 of 57 |

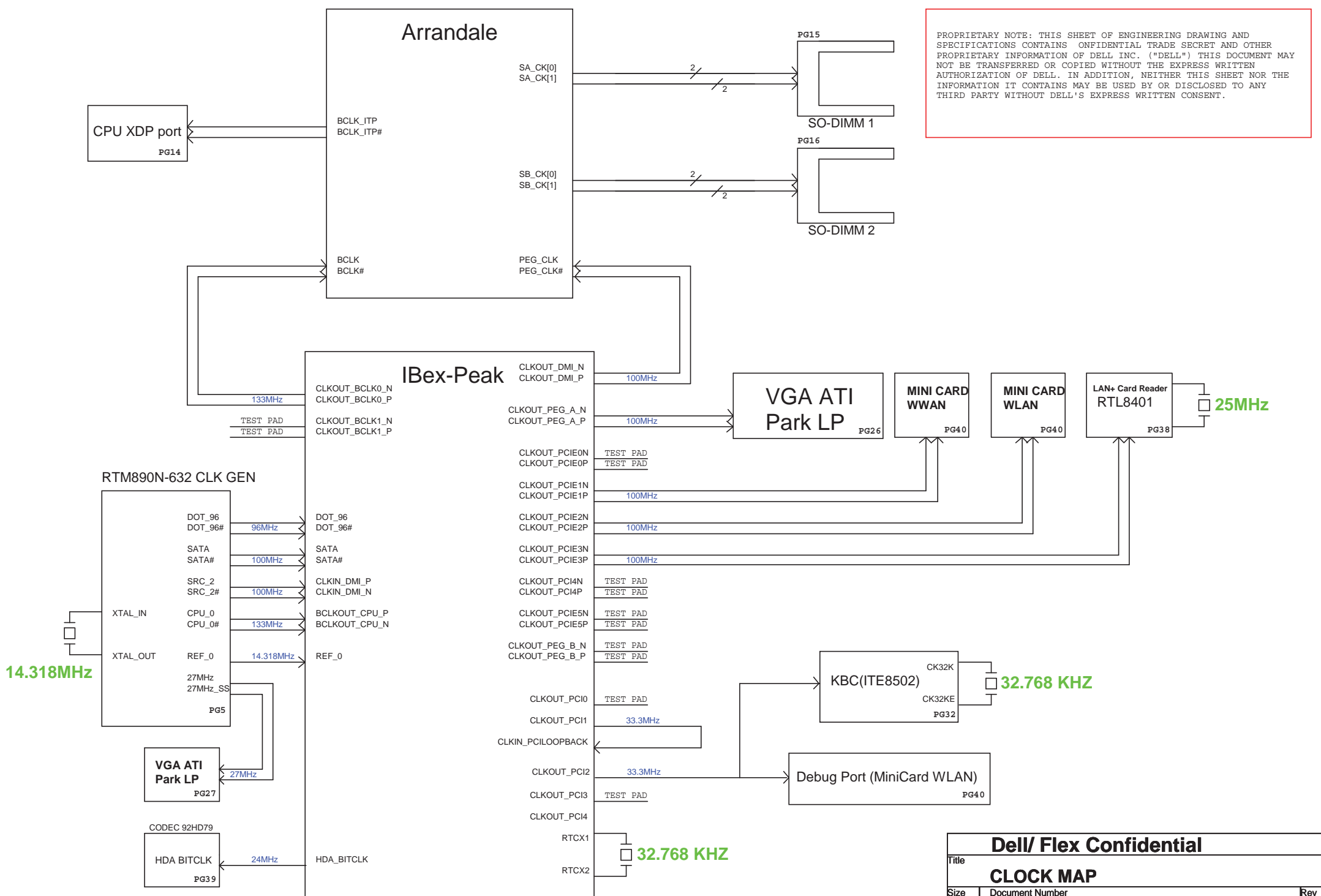
| Page# | INDEX Description | Page# | INDEX Description |
|-------|-------------------------|-------|--------------------------|
| 1 | BLOCK DIAGRAM | 45 | PWR - CHARGER_BQ24745 |
| 2 | Front Page | 46 | PWR - 5V/3V_MAX17020ETJ+ |
| 3 | CLOCK MAP | 47 | PWR - +V1.8S_RT8015B |
| 4 | POWER SEQUENCING | 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_92HD75B2X5NLGXBYB | | |
| 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 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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14.318MHz

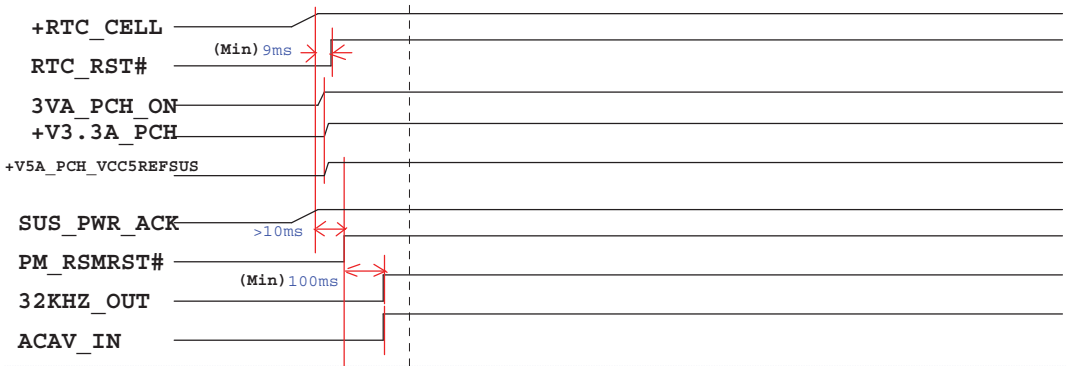
25MHz

32.768 KHZ

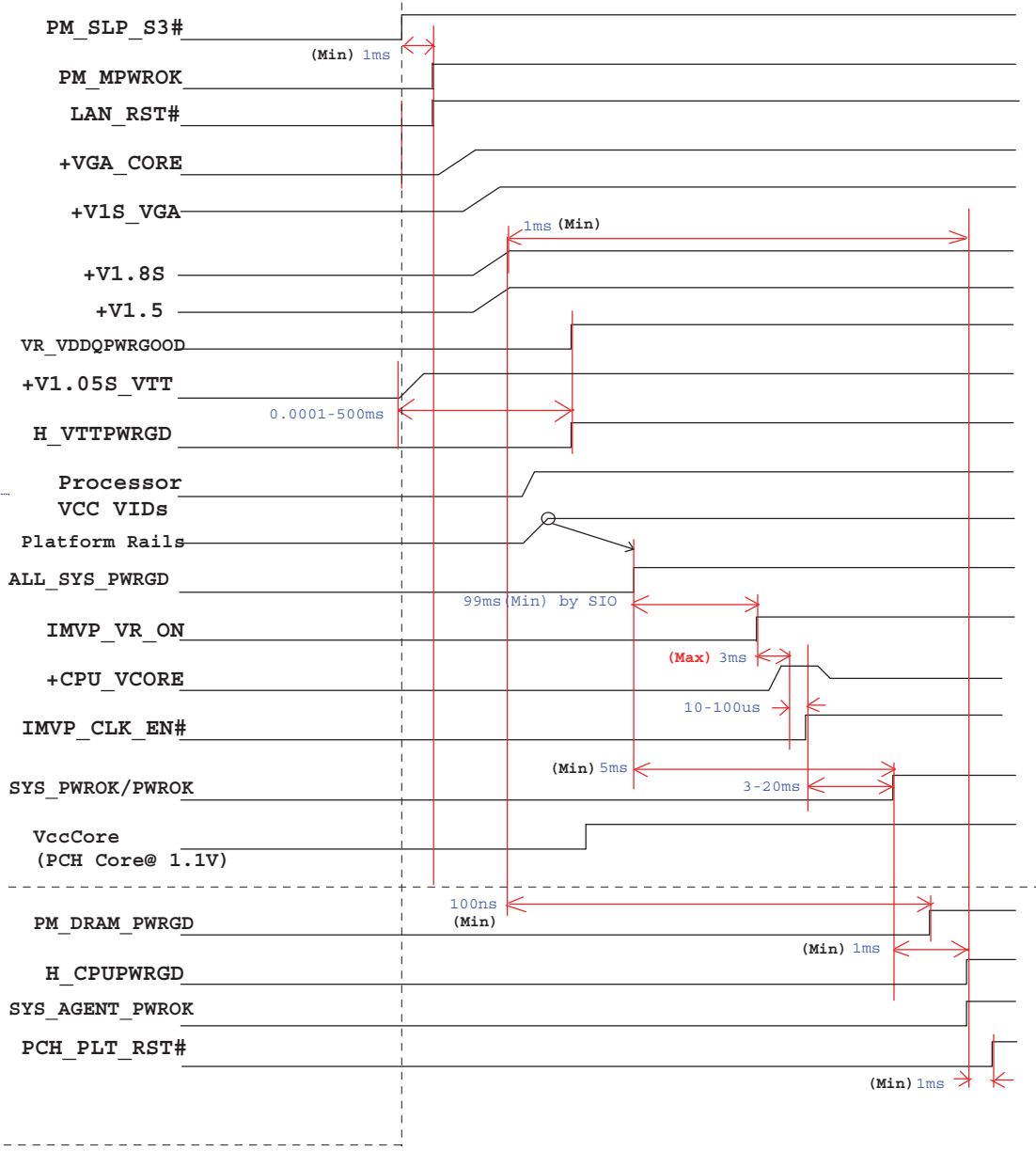
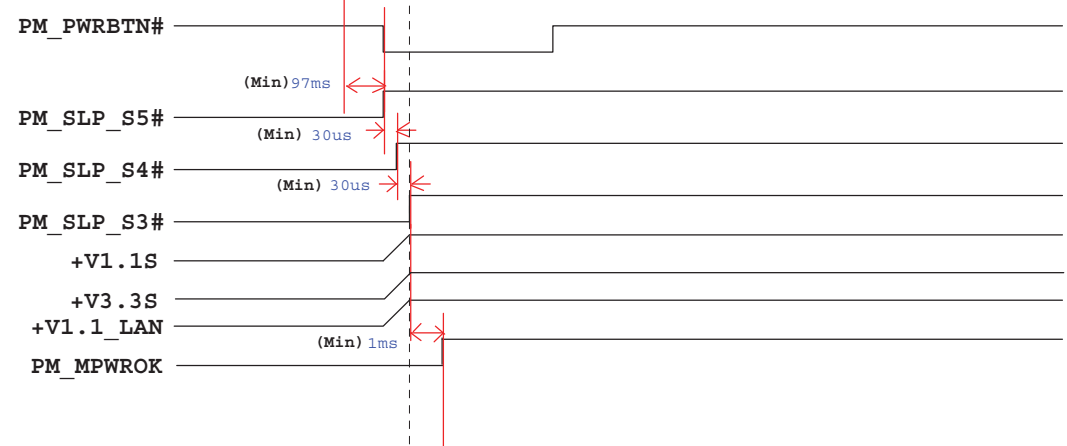
32.768 KHZ

| | | |
|--------------------------------|----------------------------|---------------|
| 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

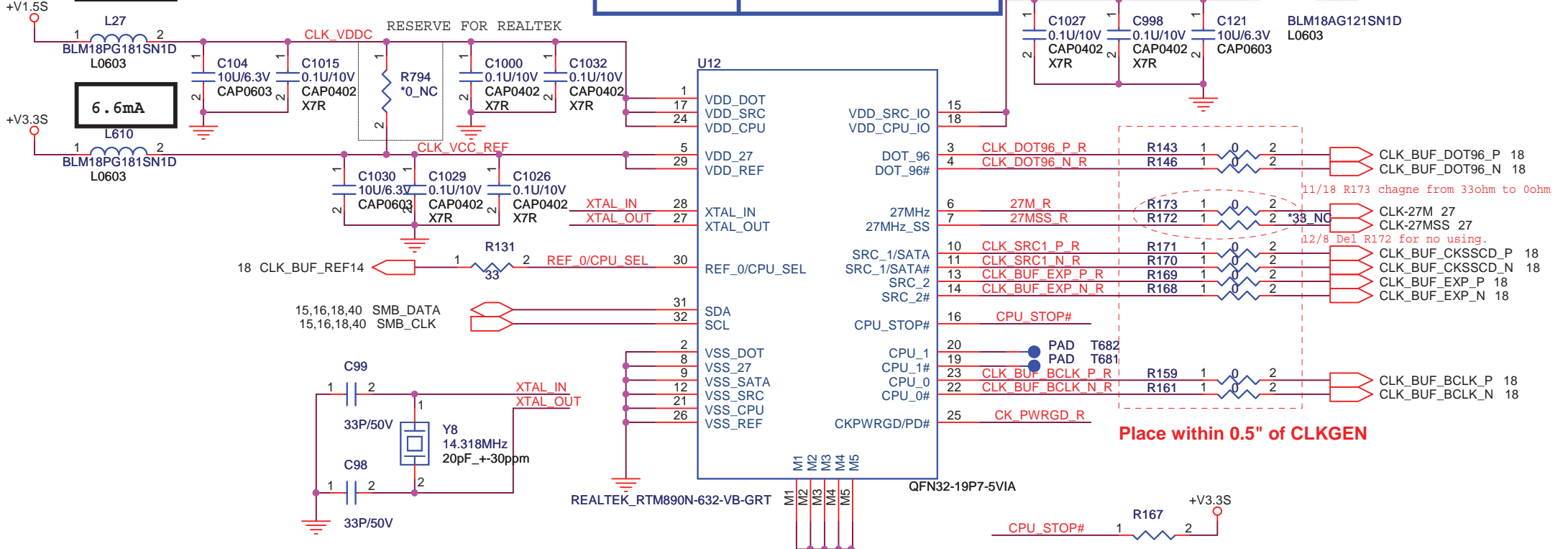


| | | | |
|----------------------------------|-----------------|------------|---------|
| Dell/ Flex Confidential | | | |
| Title POWER SEQUENCING | | | |
| Size | Document Number | Rev X01 | |
| Date: Monday, January 18, 2010 | | Sheet | 4 of 57 |

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

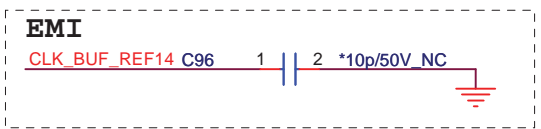
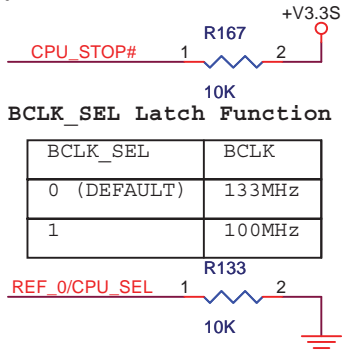
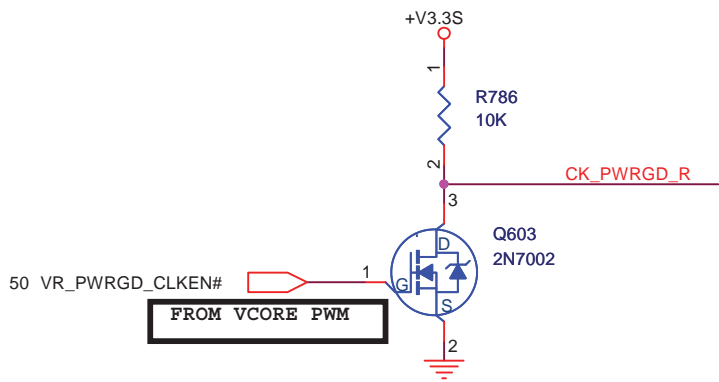
| | |
|------------------|---------------------|
| Clock Gen | PN |
| REALTEK (VB) | DELH-12D00J0000010G |
| IDT | DELH-12D00J0000011G |

19.8mA



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 |



Place within 0.5" of CLKGEN

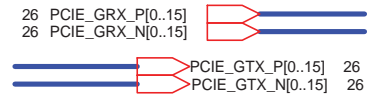
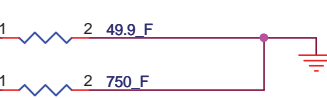
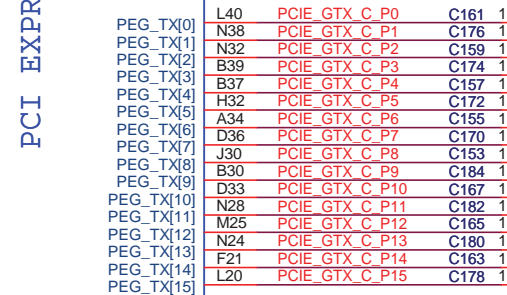
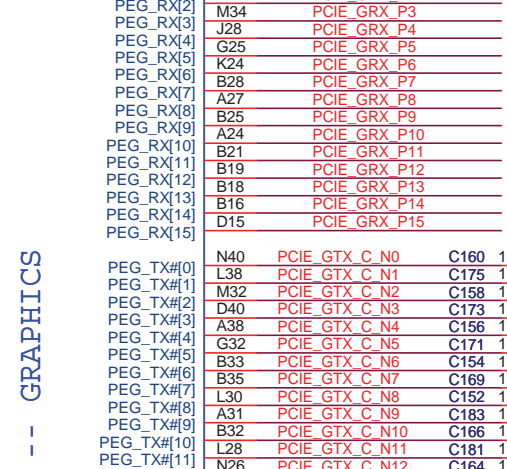
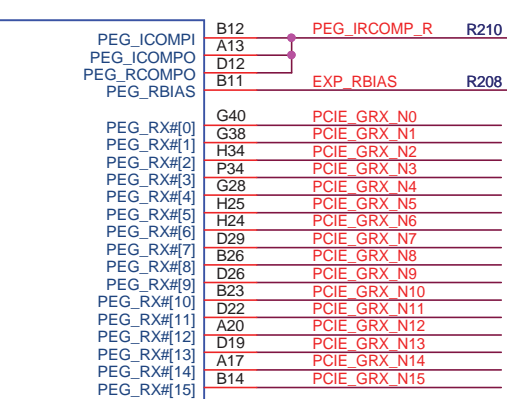
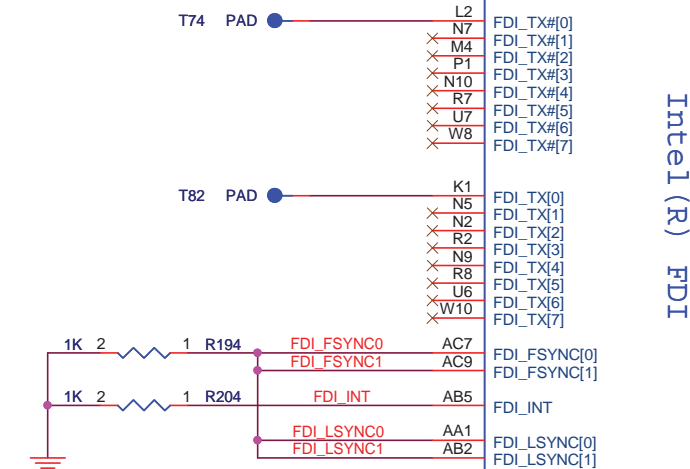
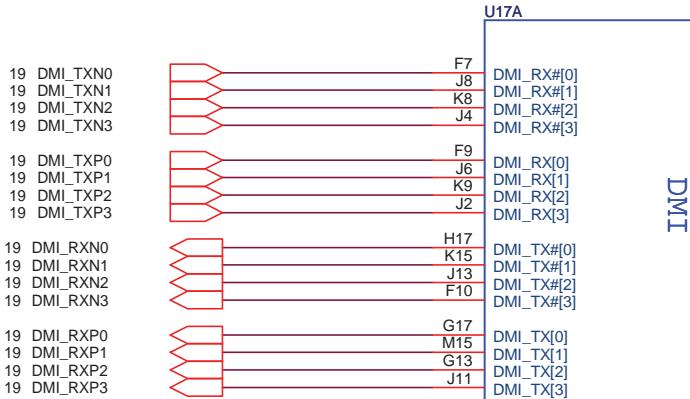
Dell/ Flex Confidential

Title: **CLOCK_GEN_RTM890N-632-GRT**

Size: Document Number **Inspiron Z -- INTEL** Rev X01

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ARRANDALE PROCESSOR (DMI, PEG, FDI)



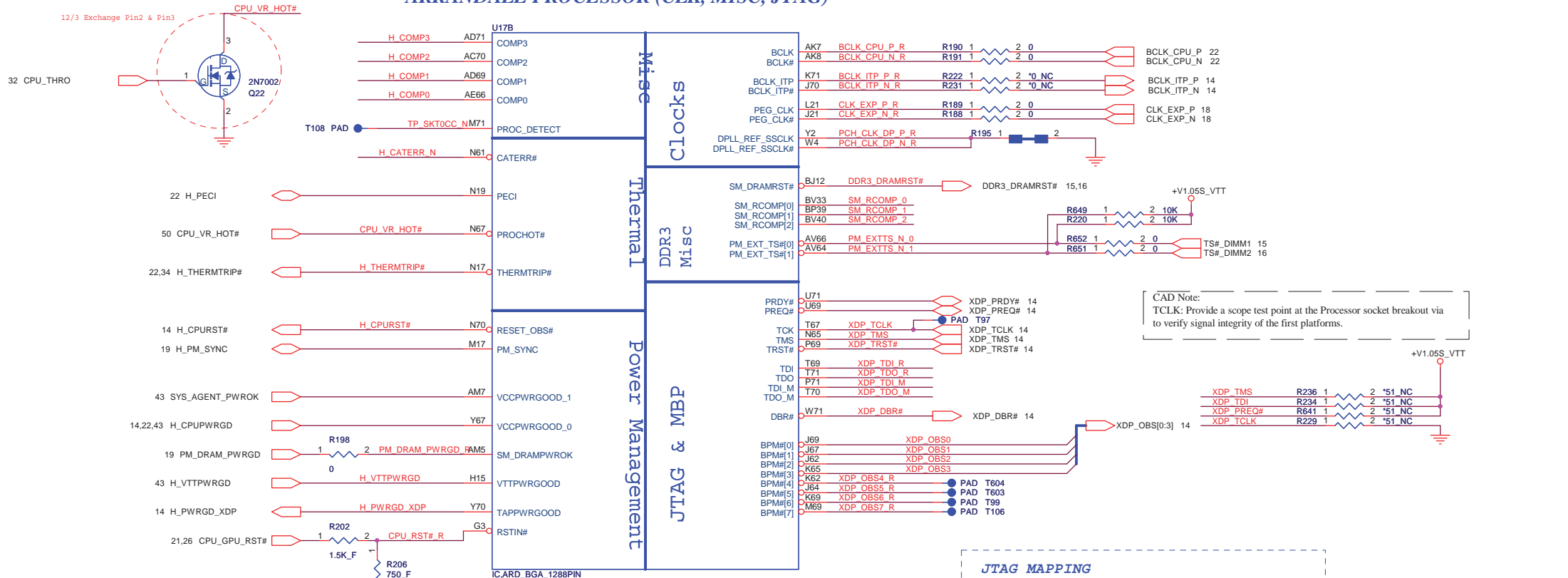
PCI EXPRESS -- GRAPHICS

IC,ARD_BGA_1288PIN

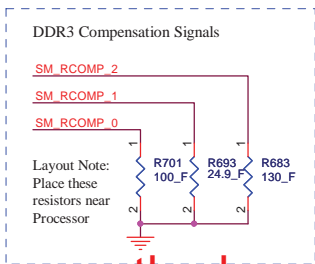
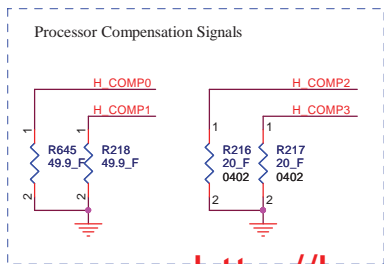
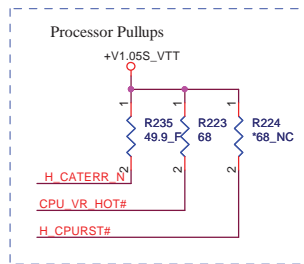
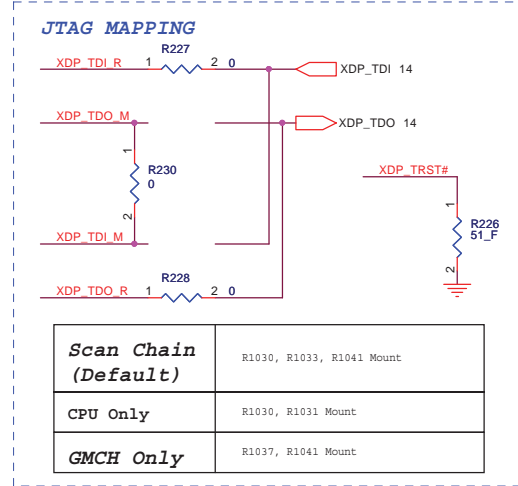
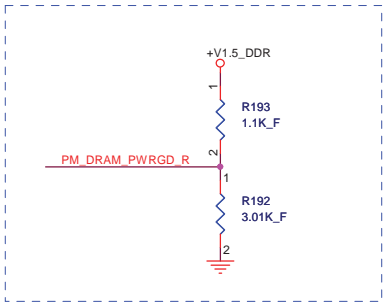
DELH-31D0020000012G

| | |
|-----------------------------------|------------|
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| Title CPU_DMI/ PEG/ FDI | |
| Size Document Number | Rev X01 |
| Date Monday, January 18, 2010 | |
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ARRANDALE PROCESSOR (CLK, MISC, JTAG)

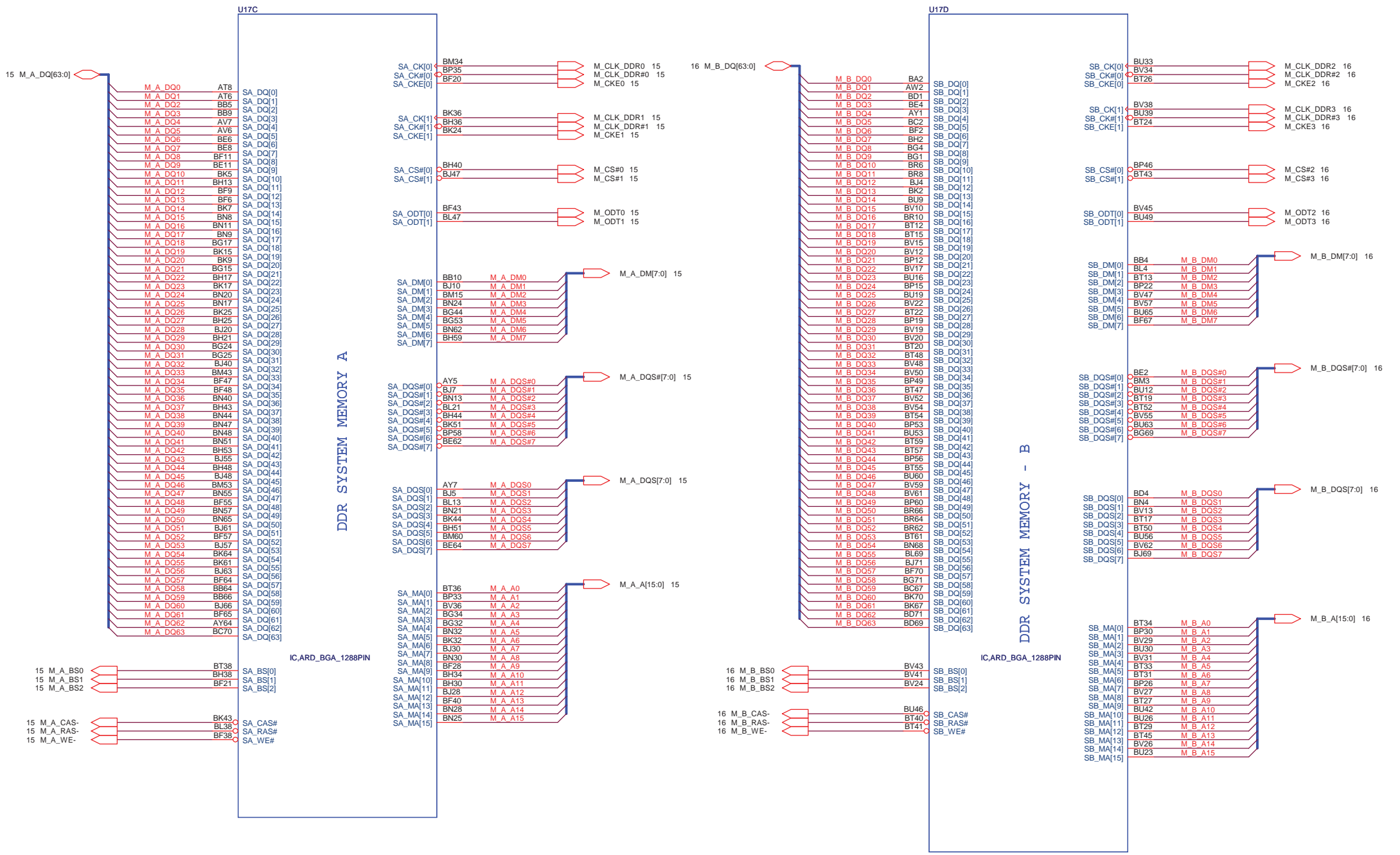


CAD Note:
TCLK: Provide a scope test point at the Processor socket breakout via to verify signal integrity of the first platforms.



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ARRANDALE PROCESSOR (DDR3)



BGA1288-34X28

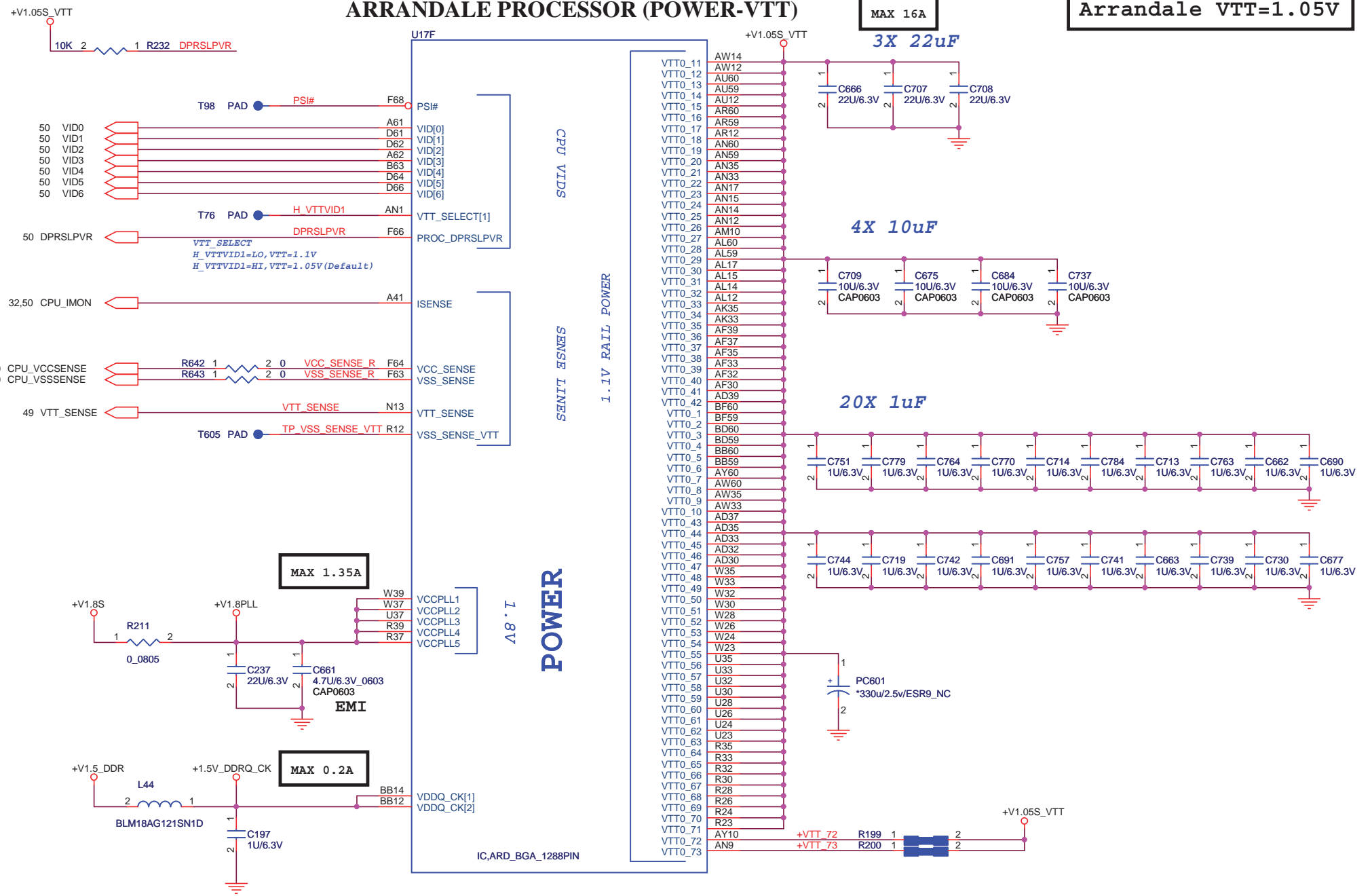
<http://laptop-motherboard-schematic.blogspot.com/>

| | | |
|--------------------------------|----------------------------|---------------|
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| CPU_DDR3 | | |
| Size | Document Number | Rev |
| | Inspiron Z -- INTEL | X01 |
| Date: | Monday, January 18, 2010 | Sheet 8 of 57 |

ARRANDALE PROCESSOR (POWER-VTT)

Arrandale VTT=1.05V

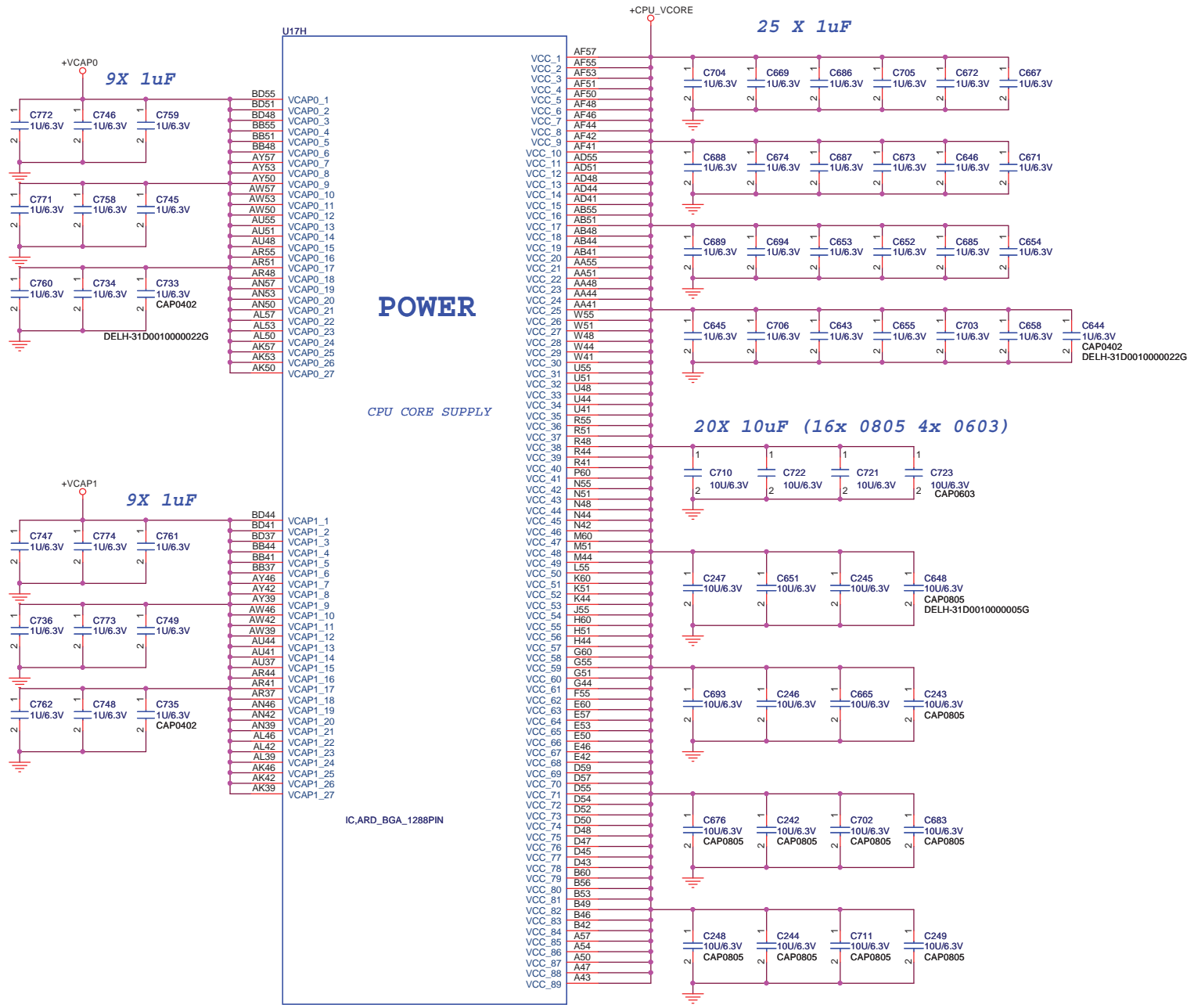
MAX 16A



| | | |
|--------------------------------|--------------------------|---------------|
| Dell/ Flex Confidential | | |
| Title CPU POWER_CORE | | |
| Size | Document Number | Rev X01 |
| Date: | Monday, January 18, 2010 | Sheet 9 of 57 |

ARRANDALE PROCESSOR (POWER-CORE)

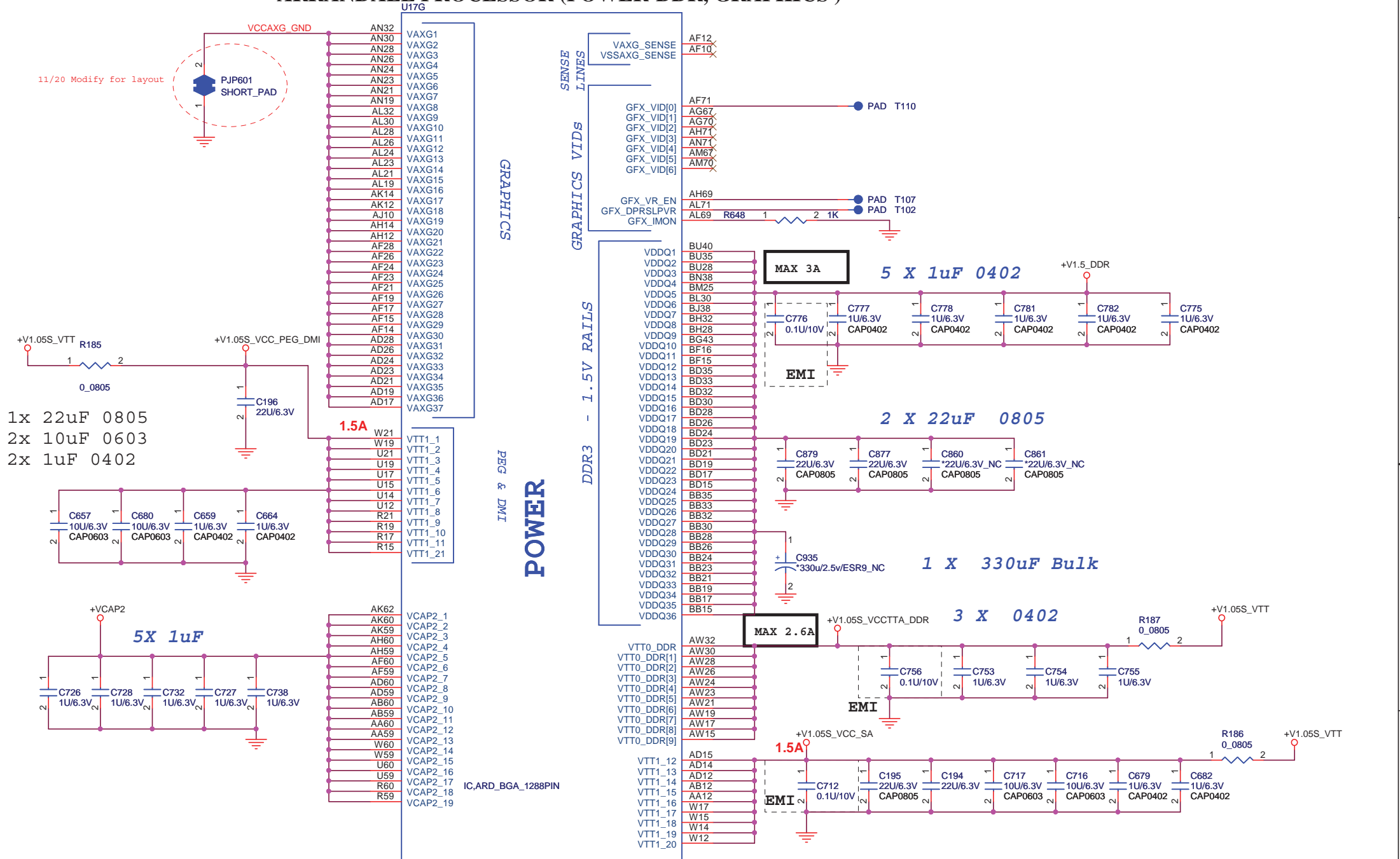
MAX 27A



<http://laptop-motherboard-schematic.blogspot.com/>

| | | |
|-------------------------|--|----------------|
| Dell/ Flex Confidential | | |
| Title CPU POWER_VTT | | |
| Size | Document Number Inspiron Z -- INTEL | Rev X01 |
| Date: | Monday, January 18, 2010 | Sheet 10 of 57 |

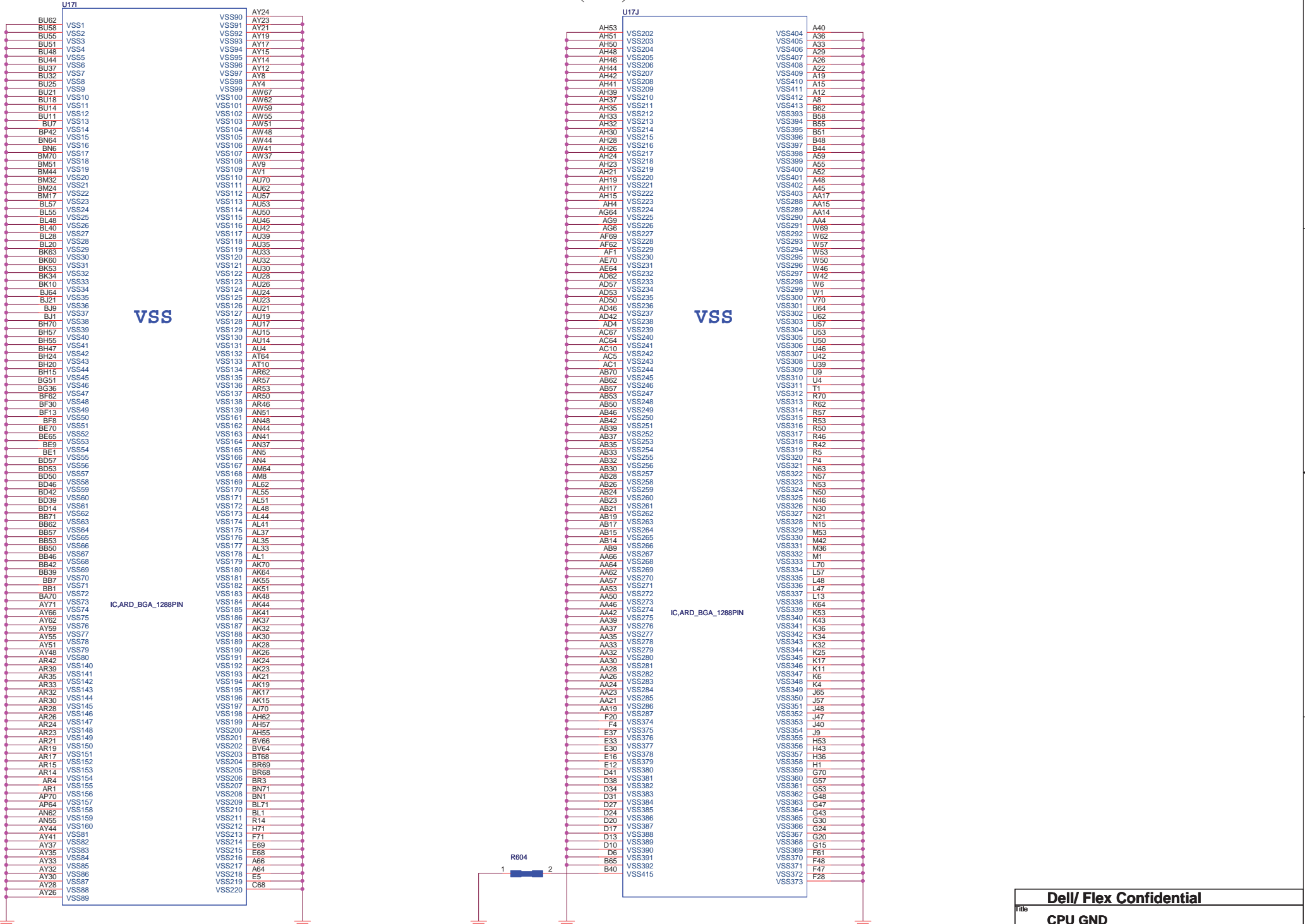
ARRANDALE PROCESSOR (POWER-DDR, GRAPHICS)



| | | |
|--------------------------------|--------------------------|-----|
| Dell/ Flex Confidential | | |
| CPU POWER_DDR | | |
| Size | Document Number | Rev |
| Date: | Monday, January 18, 2010 | X01 |
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<http://laptop-motherboard-schematic.blogspot.com/>

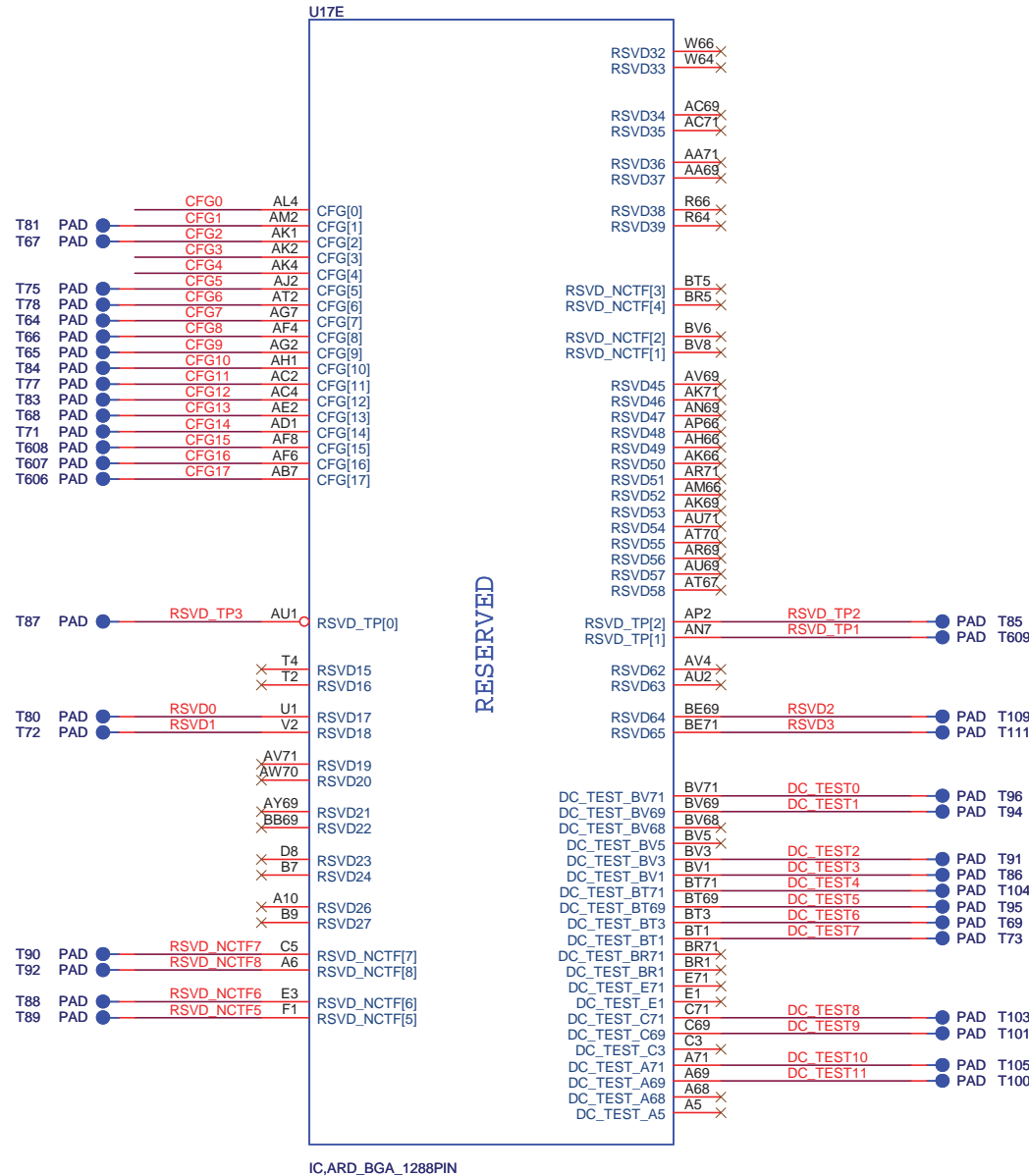
ARRANDALE /CLARKSFIELD PROCESSOR (GND)



<http://laptop-motherboard-schematic.blogspot.com/>

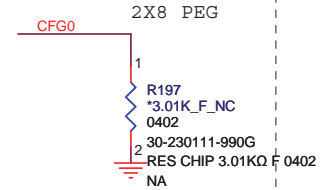
| | | |
|--------------------------------|--------------------------|----------------|
| Dell/ Flex Confidential | | |
| Title | CPU GND | |
| Size | Document Number | Rev X01 |
| Inspiron Z -- INTEL | | |
| Date: | Monday, January 18, 2010 | Sheet 12 of 57 |

ARRANDALE /CLARKSFIELD PROCESSOR(RESERVED, CFG)



CFG Straps for PROCESSOR

| PCI-Express Configuration Select | |
|----------------------------------|--|
| CFG0 | 1:Single PEG(Default) 0:Bifurcation enabled |



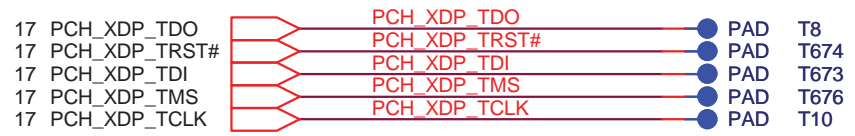
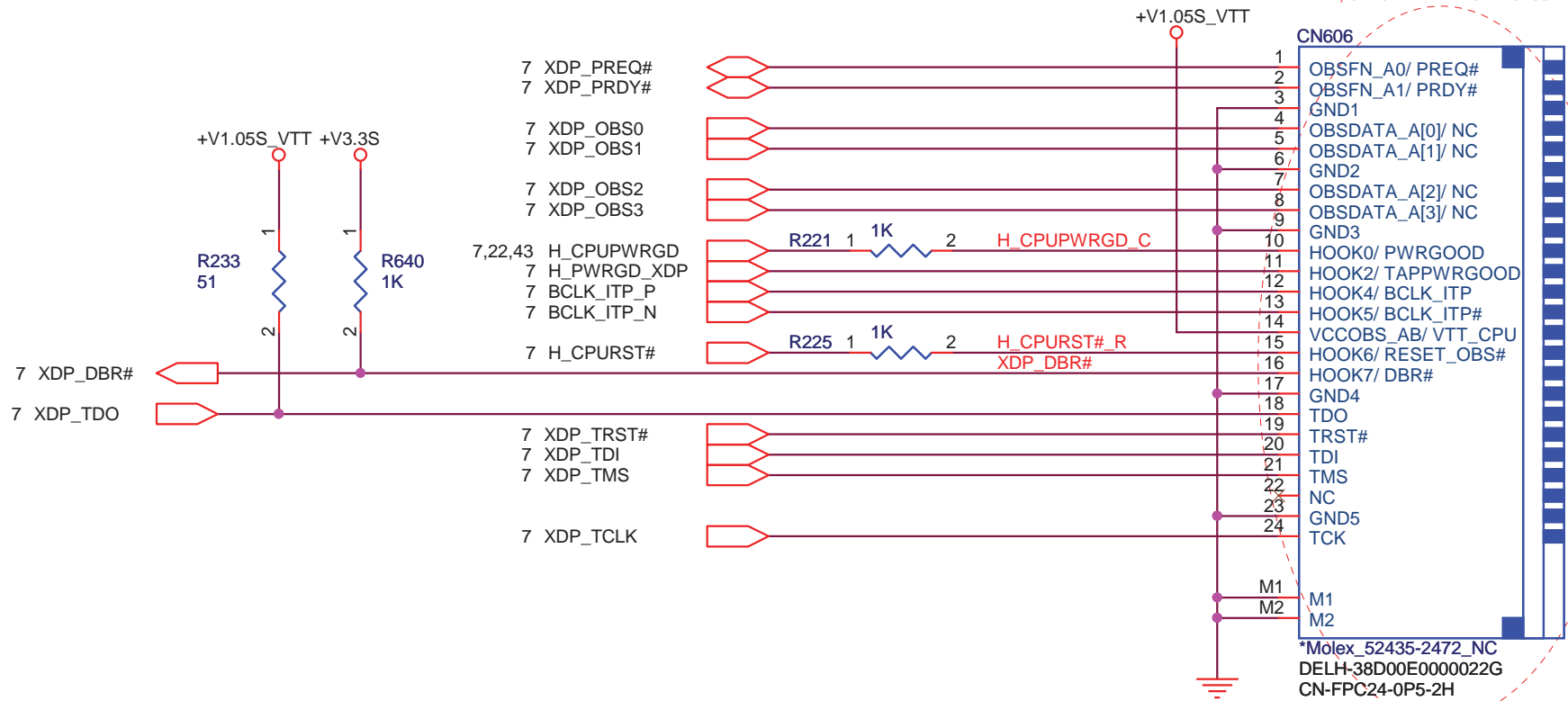
| CFG3 - PCI-Express Static Lane Reversal | |
|---|---|
| CFG3 | 1 :Normal Operation(Default) 0 :Lane Numbers Reversed 15 -> 0, 14 -> 1, ... |



| CFG4 - Display Port Presence | |
|------------------------------|--|
| CFG4 | 1:Disabled; No Physical Display Port attached to Embedded Display Port (Default) 0:Enabled; An external Display Port device is connected to the Embedded Display Port |



12/8 Del R172 for no using.

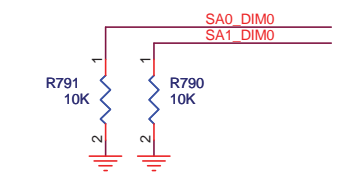
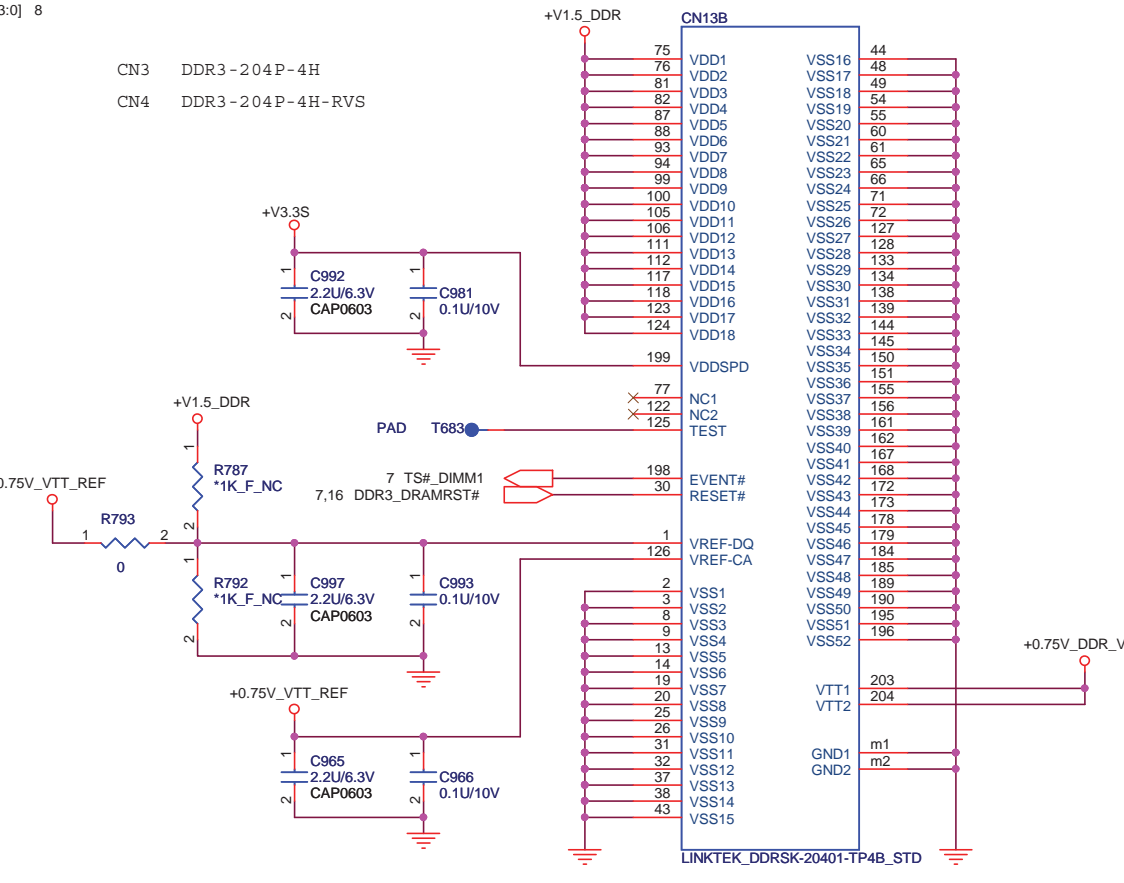
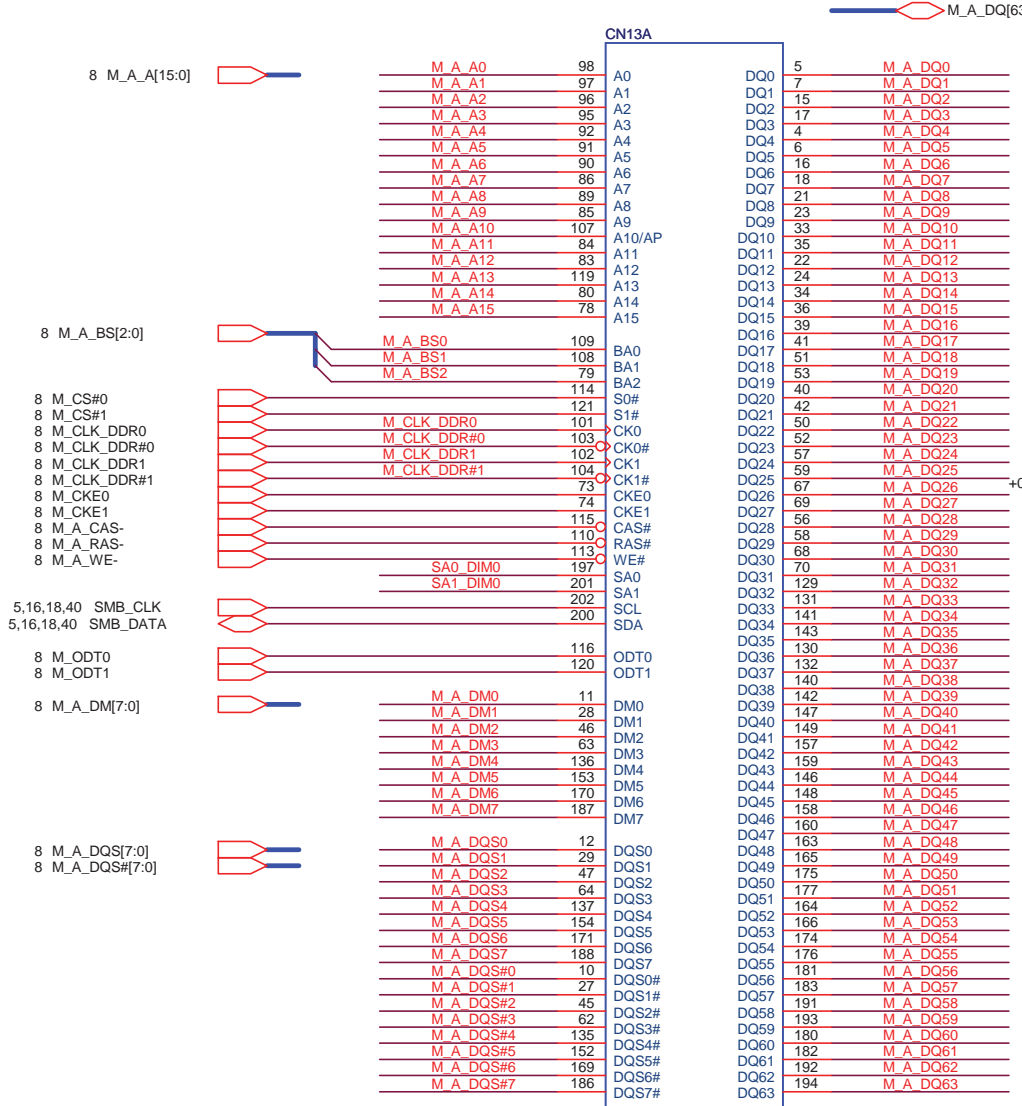


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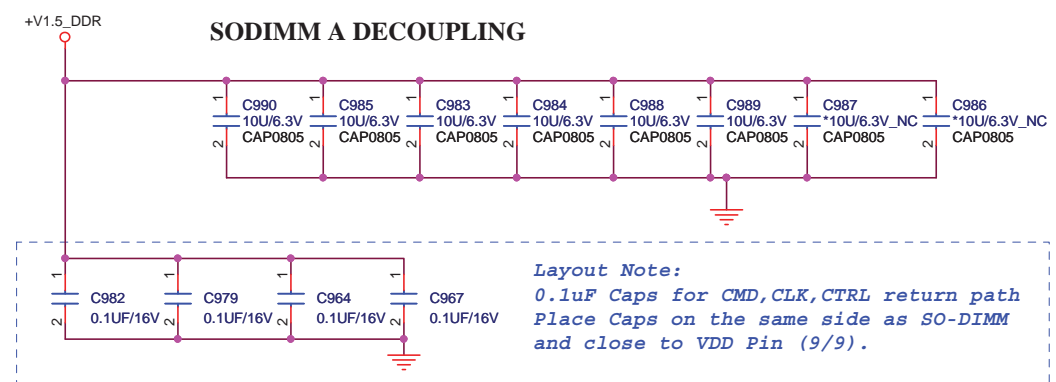
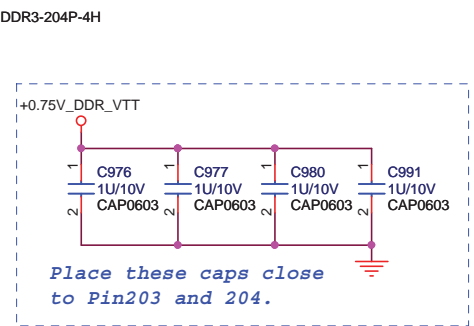
Title
XDP_PROCESSOR/ PCH

| | | |
|------|---------------------------|-----|
| Size | Document Number | Rev |
| | Inspiron Z-- INTEL | X01 |

| | | | | | |
|-------|--------------------------|-------|----|----|----|
| Date: | Monday, January 18, 2010 | Sheet | 14 | of | 57 |
|-------|--------------------------|-------|----|----|----|



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



8 M_B_A[15:0]

M_B_A0 98
M_B_A1 97
M_B_A2 96
M_B_A3 95
M_B_A4 92
M_B_A5 91
M_B_A6 90
M_B_A7 86
M_B_A8 89
M_B_A9 85
M_B_A10 107
M_B_A11 84
M_B_A12 83
M_B_A13 119
M_B_A14 80
M_B_A15 78

8 M_B_BS[2:0]

M_B_BS0 109
M_B_BS1 108
M_B_BS2 79

8 M_CS#2
8 M_CS#3
8 M_CLK_DDR2
8 M_CLK_DDR#2
8 M_CLK_DDR3
8 M_CLK_DDR#3
8 M_CKE2
8 M_CKE3
8 M_B_CAS-
8 M_B_RAS-
8 M_B_WE-

M_B_BS0 109
M_B_BS1 108
M_B_BS2 79
M_CLK_DDR2 114
M_CLK_DDR#2 121
M_CLK_DDR3 101
M_CLK_DDR#3 103
M_CLK_DDR3 102
M_CLK_DDR#3 104
CK1# 73
CKE0 74
CKE1 74
CAS# 115
RAS# 110
WE# 113
SA0_DIM1 197
SA1_DIM1 201

5,15,18,40 SMB_CLK
5,15,18,40 SMB_DATA

SA0_DIM1 197
SA1_DIM1 201

8 M_ODT2
8 M_ODT3

SA0 197
SA1 201

8 M_B_DM[7:0]

M_B_DM0 11
M_B_DM1 28
M_B_DM2 46
M_B_DM3 63
M_B_DM4 136
M_B_DM5 153
M_B_DM6 170
M_B_DM7 187

8 M_B_DQS[7:0]
8 M_B_DQS#[7:0]

M_B_DQS0 12
M_B_DQS1 29
M_B_DQS2 47
M_B_DQS3 64
M_B_DQS4 137
M_B_DQS5 154
M_B_DQS6 171
M_B_DQS7 188
M_B_DQS#0 10
M_B_DQS#1 27
M_B_DQS#2 45
M_B_DQS#3 62
M_B_DQS#4 135
M_B_DQS#5 152
M_B_DQS#6 169
M_B_DQS#7 186



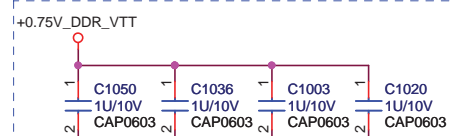
| SO-DIMM Address | |
|-----------------|------|
| SPD | 0xA4 |
| TS | 0x34 |

CN14A
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15

DQ0 5
DQ1 15
DQ2 17
DQ3 4
DQ4 6
DQ5 16
DQ6 18
DQ7 21
DQ8 23
DQ9 33
DQ10 35
DQ11 22
DQ12 24
DQ13 34
DQ14 36
DQ15 39
DQ16 41
DQ17 51
DQ18 53
DQ19 40
DQ20 42
DQ21 52
DQ22 52
DQ23 57
DQ24 59
DQ25 67
DQ26 69
DQ27 68
DQ28 56
DQ29 58
DQ30 68
DQ31 70
DQ32 129
DQ33 131
DQ34 141
DQ35 143
DQ36 130
DQ37 132
DQ38 140
DQ39 142
DQ40 147
DQ41 149
DQ42 157
DQ43 159
DQ44 146
DQ45 148
DQ46 158
DQ47 160
DQ48 163
DQ49 165
DQ50 175
DQ51 177
DQ52 166
DQ53 174
DQ54 176
DQ55 181
DQ56 183
DQ57 191
DQ58 193
DQ59 180
DQ60 182
DQ61 192
DQ62 194
DQ63 194

LINKTEK_DDRRK-20401-TP4B

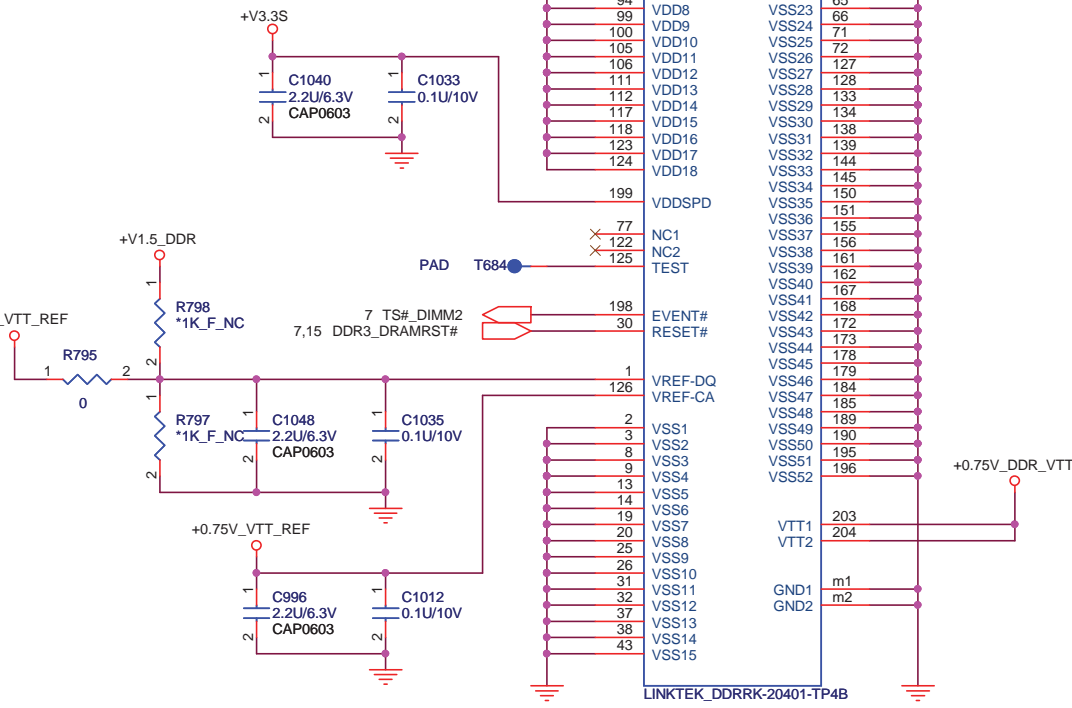
DDR3-204P-4H-RVS



Place these caps close to Pin203 and 204.

M_B_DQ[63:0] 8

CN13 DDR3-204P-4H
CN14 DDR3-204P-4H-RVS



SODIMM 2 DECOUPLING

DDR3-204P-4H-RVS

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).

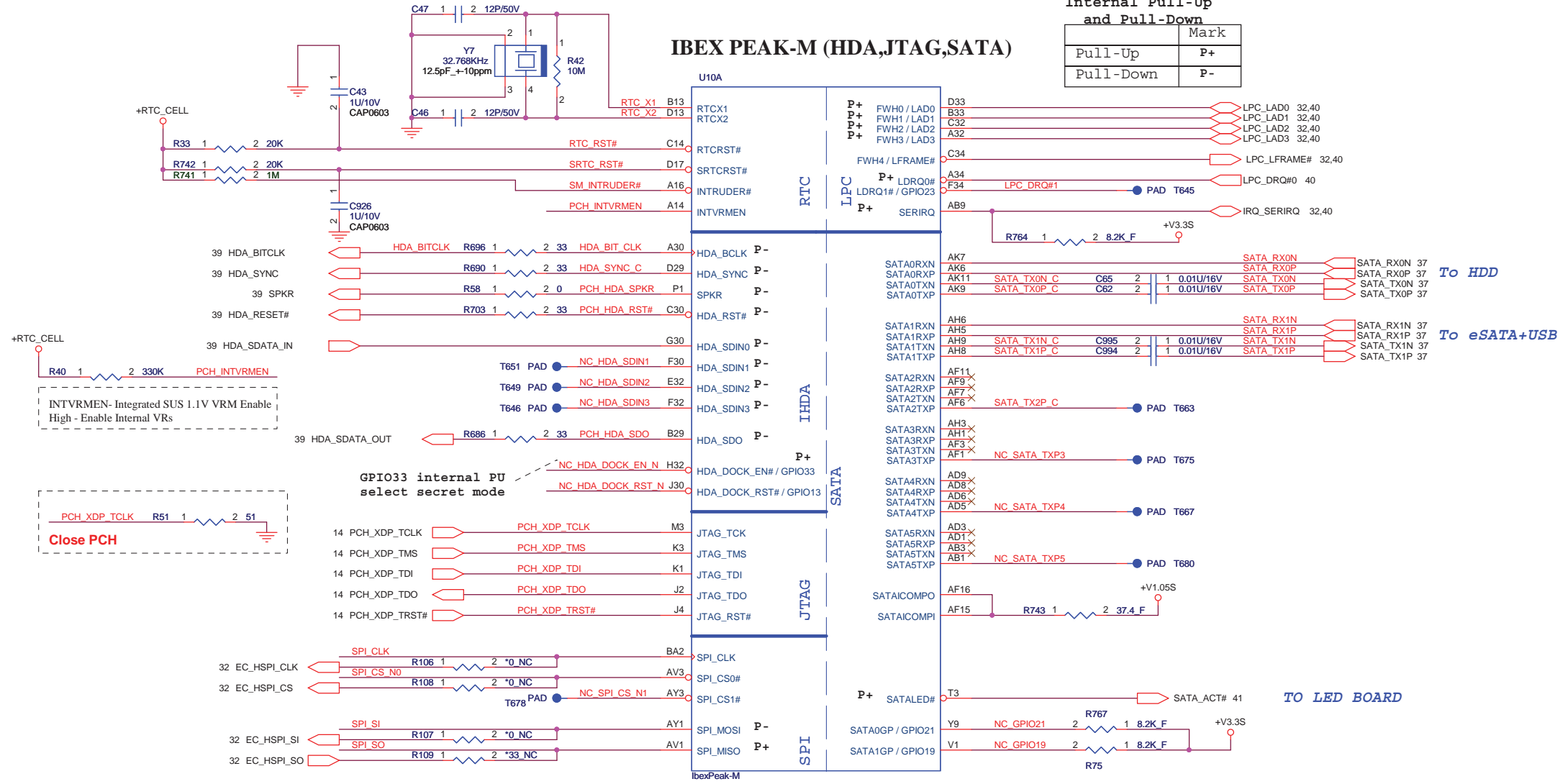
Dell/ Flex Confidential

| | | |
|------------------------|--------------------------|----------------|
| Title | | |
| DDR3 SO-DIMM2_204P_RVS | | |
| Size | Document Number | Rev |
| | Inspiron Z -- INTEL | X01 |
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IBEX PEAK-M (HDA,JTAG,SATA)

Internal Pull-Up and Pull-Down

| Pull-Up | Mark |
|-----------|------|
| Pull-Up | P+ |
| Pull-Down | P- |



INTVRMEN- Integrated SUS 1.1V VRM Enable High - Enable Internal VRs

Close PCH

GPIO33 internal PU select secret mode

| | |
|-----------------|--|
| NO REBOOT STRAP | |
| HDA_SPKR | NA Low=Default MOUNTED High=No Reboot |

| | |
|---------------------|--|
| iTPM ENABLE/DISABLE | |
| SPI_SI | NA Low=Disable(Default) MOUNTED High=Enable |

| | |
|---------------------------|--|
| Flash Descriptor Security | |
| High | Flash Descriptor will be in effect (default) |
| Low | Descriptor Security will be overridden |

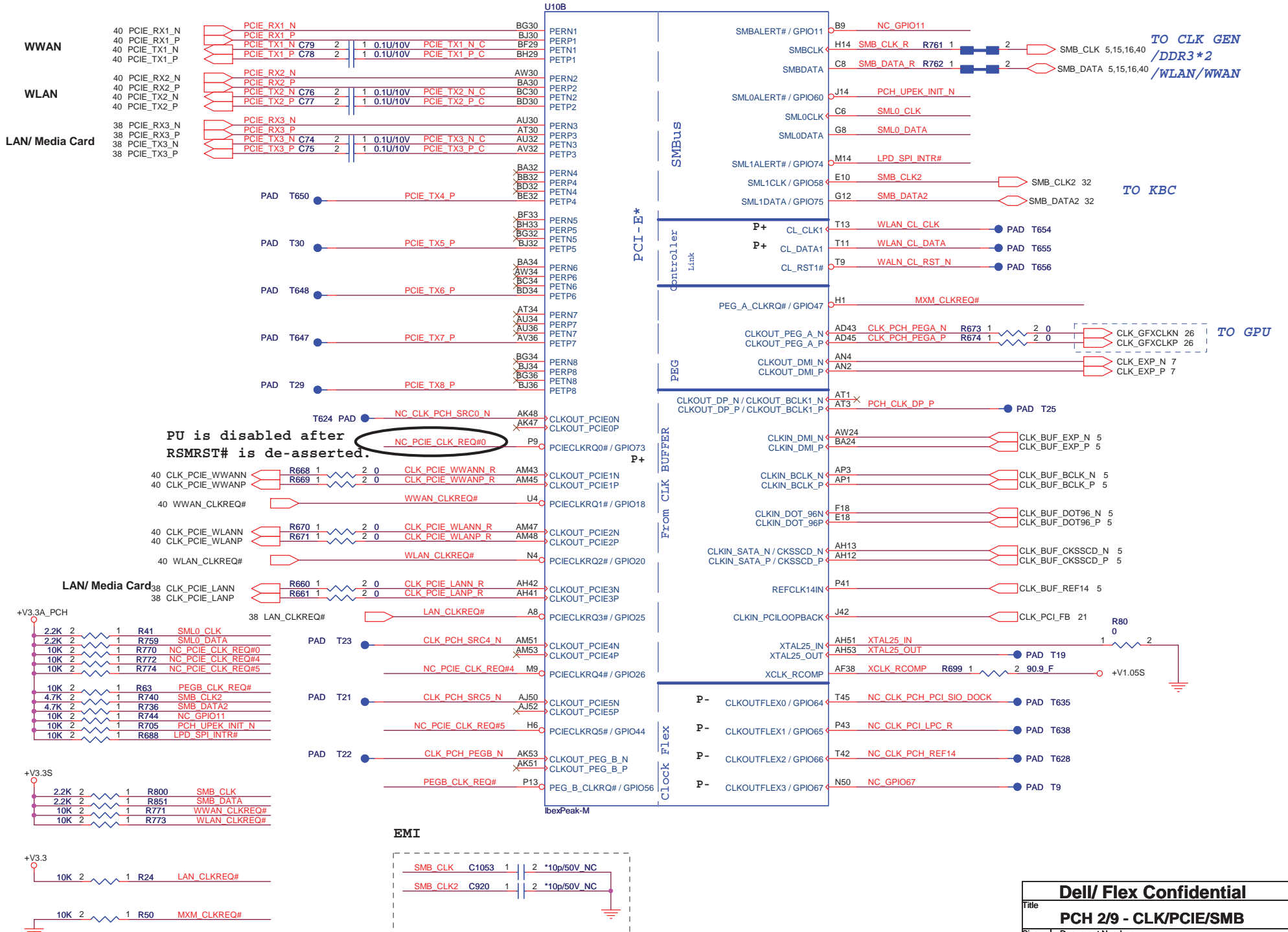
DELL/ Flex Confidential

Title: **PCH I/9 - HDA/LPC/SATA**

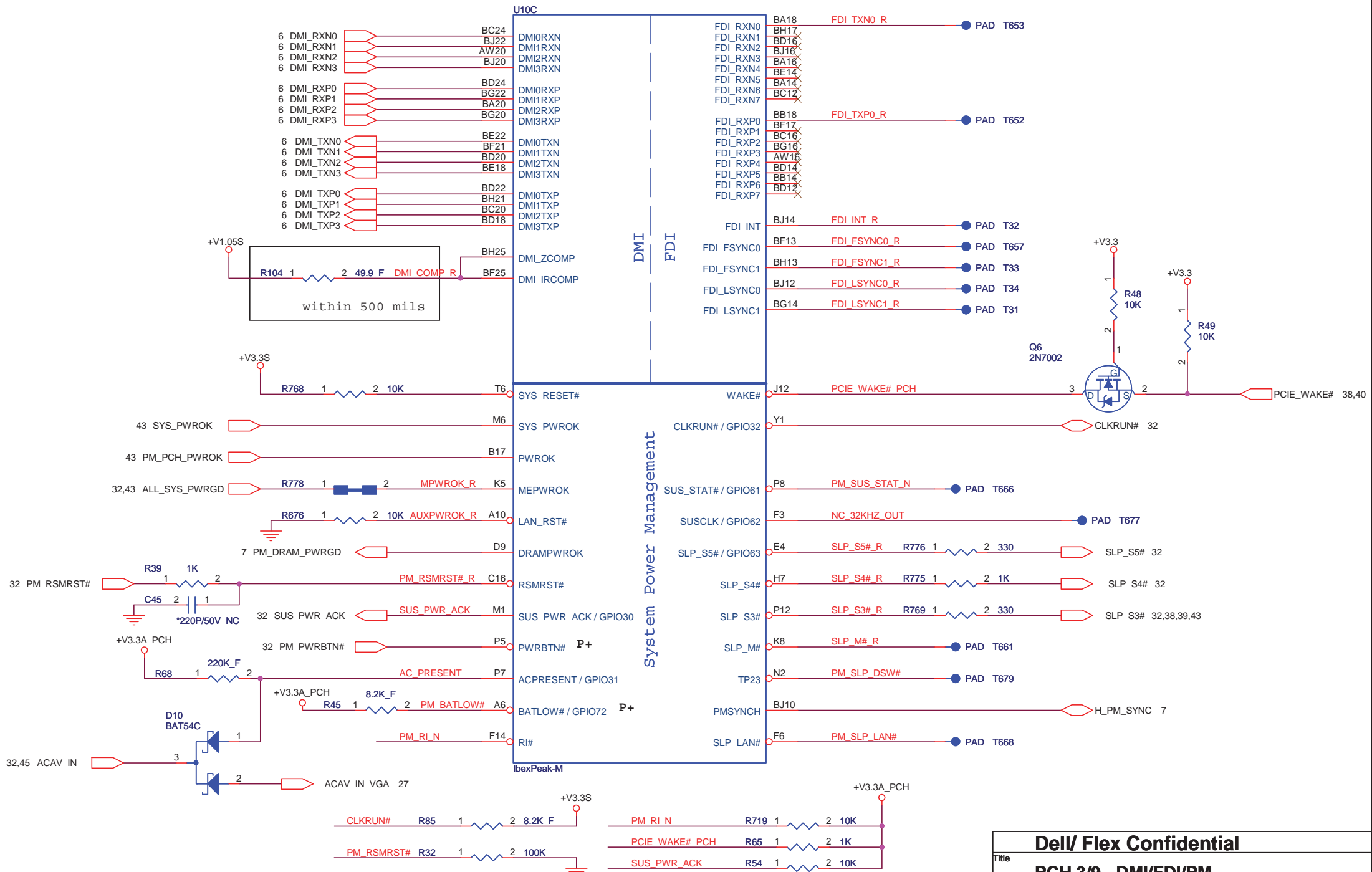
Size: _____ Document Number: **Inspiron Z -- INTEL** Rev: X01

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IBEX PEAK-M (PCI-E, SMBUS, CLK)



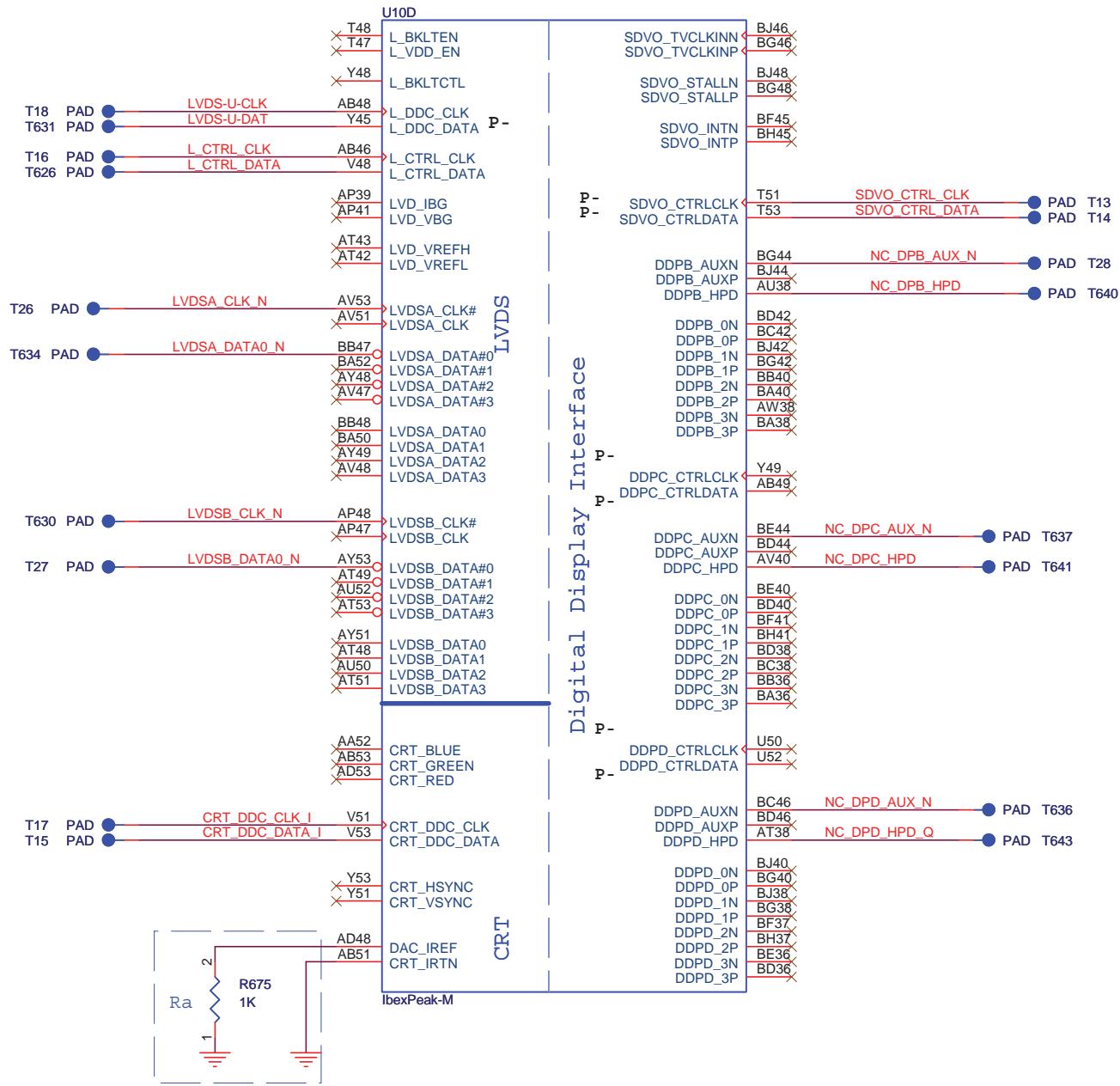
IBEX PEAK-M (DMI,FDI,GPIO)



<http://laptop-motherboard-schematic.blogspot.com/>

| | | |
|--------------------------------------|---|----------------|
| Dell/ Flex Confidential | | |
| Title PCH 3/9 - DMI/FDI/PM | | |
| Size | Document Number Inspiron Z -- INTEL | Rev X01 |
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IBEX PEAK-M (LVDS,DDI)



SDVO

Display Port B

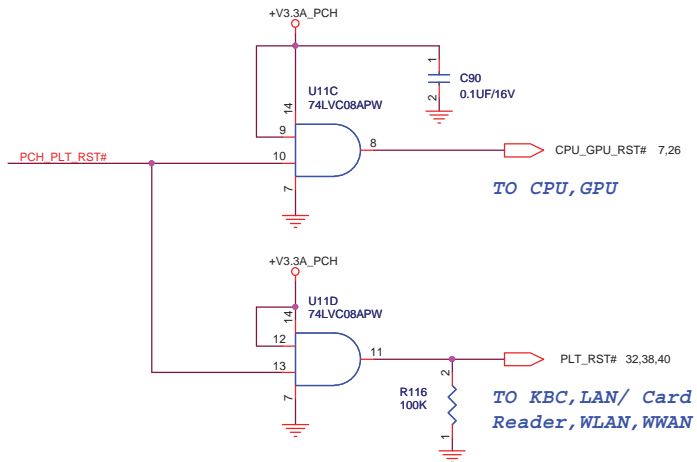
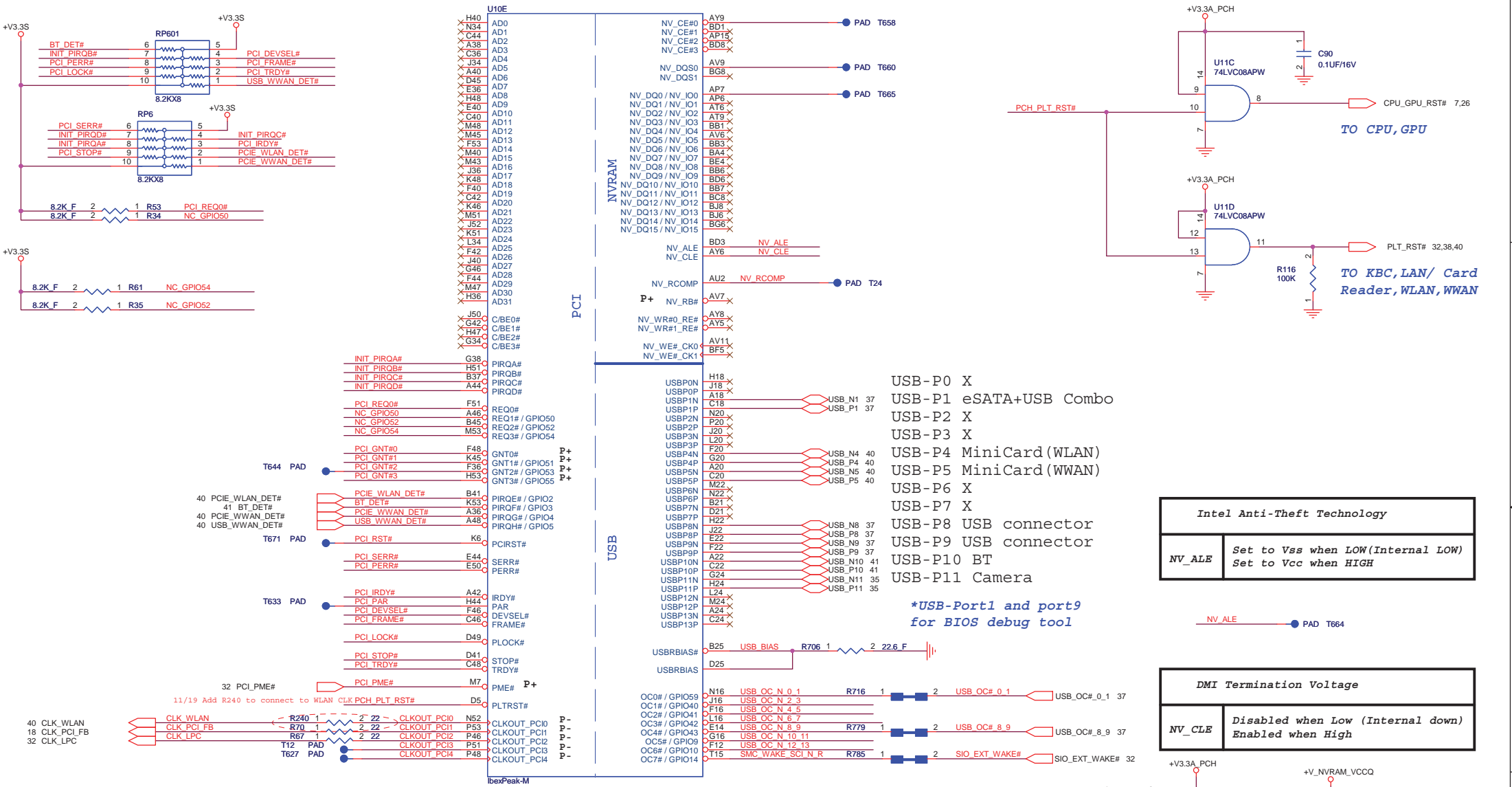
Display Port C

Display Port D

Internal VGA disable
 keep Ra to GND and IRTN
 keep connect to GND

| | | |
|--------------------------------|------------------------------|----------------|
| Dell/ Flex Confidential | | |
| Title | PCH 4/9 - CRT/DP/LVDS | |
| Size | Document Number | Rev |
| | Inspiron Z -- INTEL | X01 |
| Date | Monday, January 18, 2010 | Sheet 20 of 57 |

IBEX SWAP-M (PCI,USB,INTEL(R) TURBO MEMORY)



- USB-P0 X
- USB-P1 eSATA+USB Combo
- USB-P2 X
- USB-P3 X
- USB-P4 MiniCard (WLAN)
- USB-P5 MiniCard (WWAN)
- USB-P6 X
- USB-P7 X
- USB-P8 USB connector
- USB-P9 USB connector
- USB-P10 BT
- USB-P11 Camera

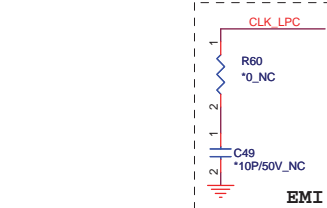
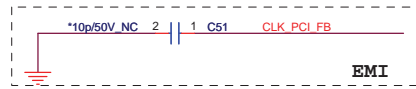
**USB-Port1 and port9 for BIOS debug tool*

Intel Anti-Theft Technology

NV_ALE Set to Vss when LOW (Internal LOW)
Set to Vcc when HIGH

DMI Termination Voltage

NV_CLE Disabled when Low (Internal down)
Enabled when High

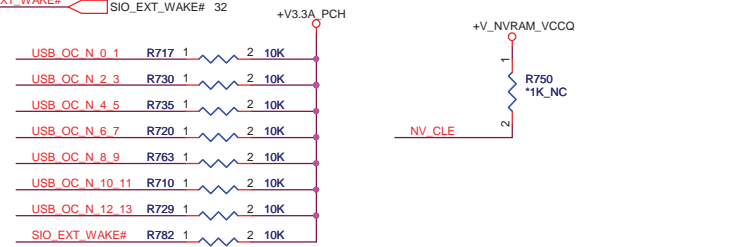


A16 swap override Strap/Top-Block Swap Override jumper

| | |
|------------|---|
| PCI_GNT_N3 | Low = A16 swap override/Top-Block Swap Override enabled High = Default |
|------------|---|

Boot BIOS Strap (internal pull up 20k)

| PCI_GNT_N0 | PCI_GNT_N1 | Boot BIOS Location |
|------------|------------|--------------------|
| 0 | 0 | LPC |
| 0 | 1 | Reserved (NAND) |
| 1 | 0 | PCI |
| 1 | 1 | SPI -> NOW |



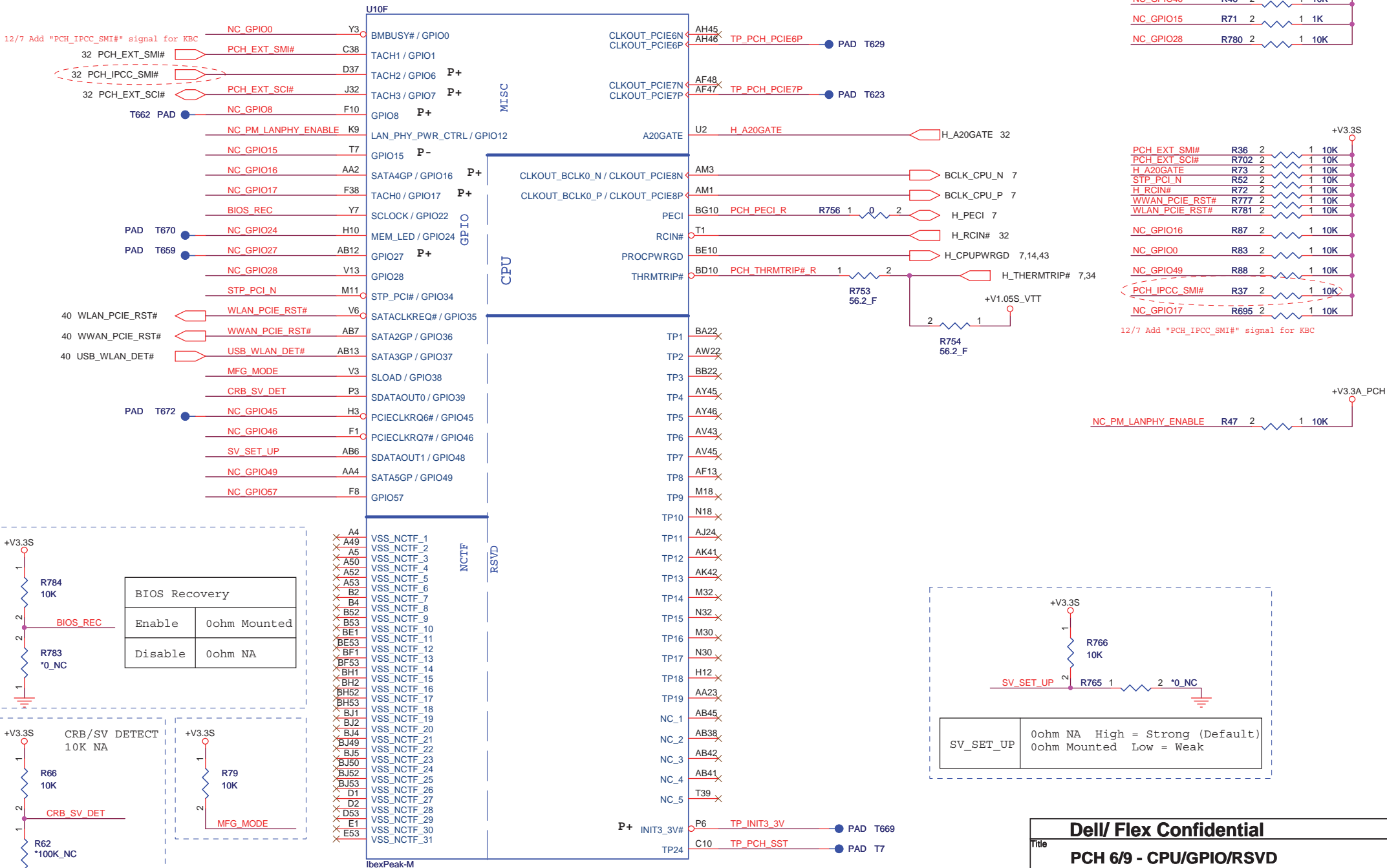
Dell/ Flex Confidential

PCH 5/9 - PCI/USB/NVRAM

Size: Document Number Inspiron Z -- INTEL Rev X01

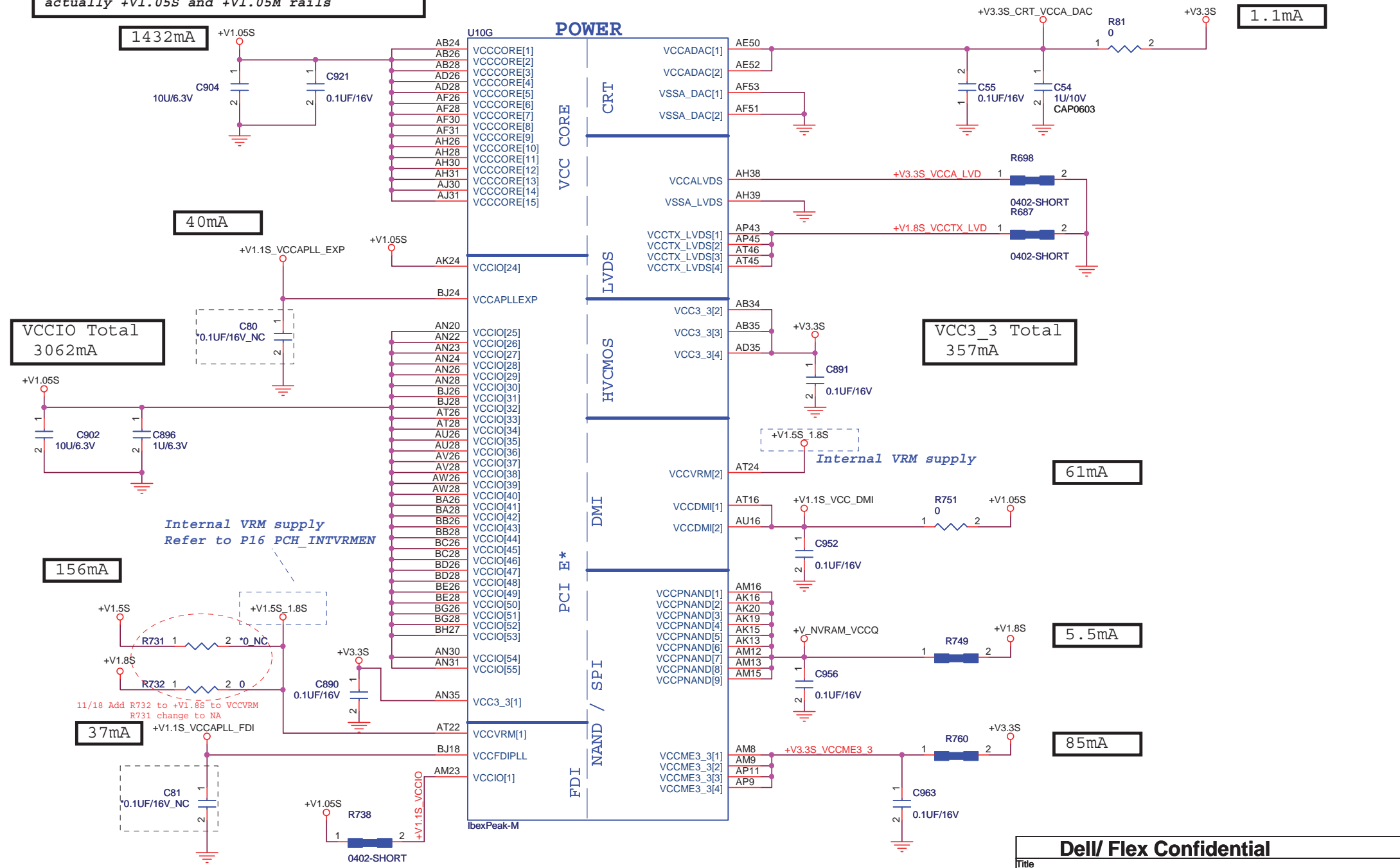
Date: Monday, January 18, 2010 Sheet 21 of 57

IBEX PEAK-M(GPIO,VSS_NCTF,RSVD)



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

IBEX PEAK-M(POWER)

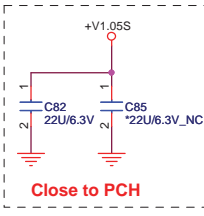


| | | |
|-----------------------------------|---|----------------|
| Dell/ Flex Confidential | | |
| Title PCH 7/9 - POWER_1 | | |
| Size | Document Number Inspiron Z -- INTEL | Rev X01 |
| Date | Monday, January 18, 2010 | Sheet 23 of 57 |

52mA

IBEX PEAK-M(POWER)

VCCIO Total
3062mA



320mA

VCCME Total
3062mA

Please note that all IbeX 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

VCCSUS3_3 Total
163mA

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

<1mA

<1mA

68mA
69mA

Internal VRM supply

VCC3_3 Total
357mA

31mA

EMI

EMI

Internal VRM supply

EMI

<1mA

6mA

2mA

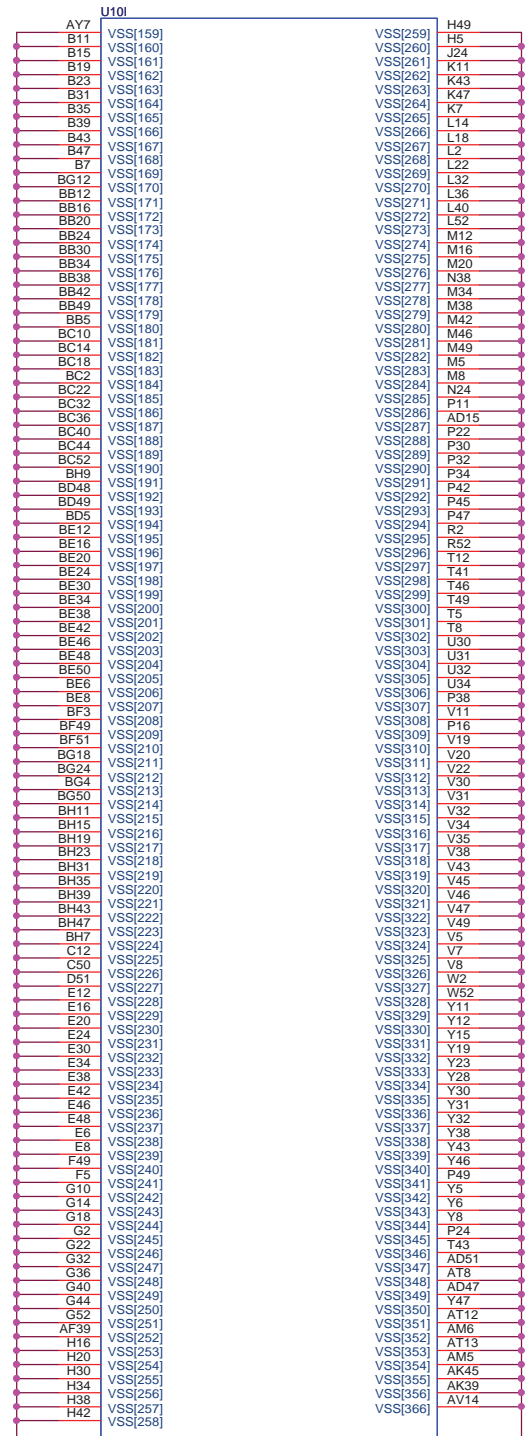
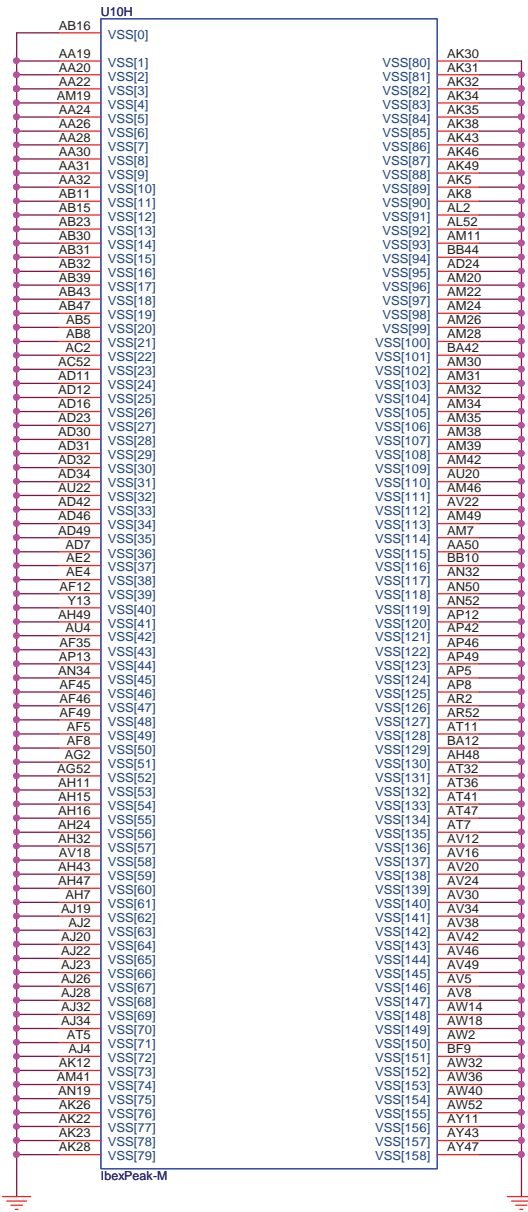
Dell/ Flex Confidential

Title: **PCH 8/9 - POWER_2**

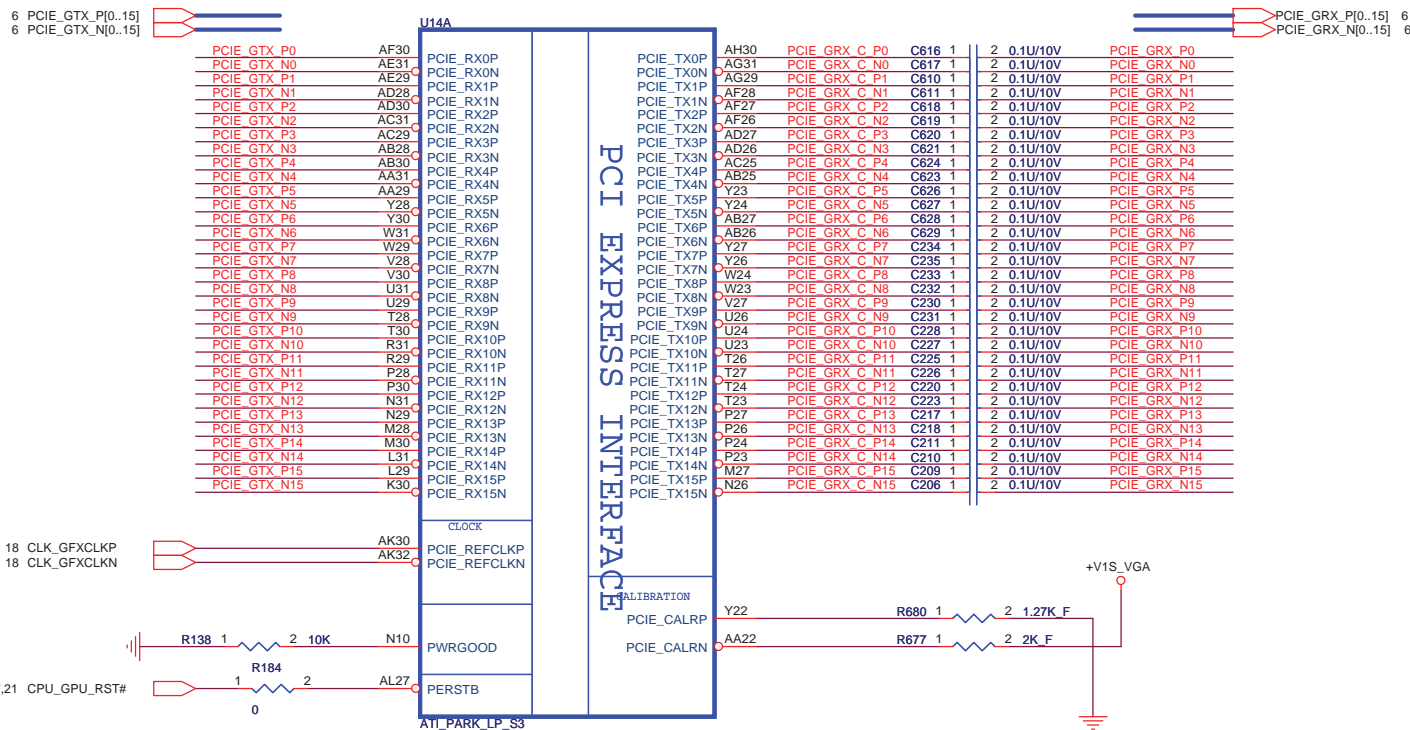
Size: Document Number **Inspiron Z -- INTEL** Rev: X01

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IBEX PEAK-M (GND)



| | | |
|--------------------------------|---|----------------|
| Dell/ Flex Confidential | | |
| Title PCH 9/9 - GND | | |
| Size | Document Number Inspiron Z -- INTEL | Rev X01 |
| Date: | Monday, January 18, 2010 | Sheet 25 of 57 |



Madison H/W STRAPS

All Signal had internal pull-down

VIP_DEVICE_STRAP_EN

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

27 CRT_V2SYNC PAD T56

TX_PWRS_ENB

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

27 VGA_GPIO0 R139 1 2 *10K_NC +V3.3S_VGA

VGA_DIS

VGA Disable
 L: VGA Controller capacity Enabled
 H: The device won't be recognized as the system's VGA controller

27 VGA_GPIO9_ROMSI PAD T51

TX_DEEMPH_EN

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

27 VGA_GPIO1 R141 1 2 *10K_NC +V3.3S_VGA

RESERVED

HSYNC
 GPIO_8_ROMSO
 GPIO21_BB_EN
 These Signal were Internal used only.

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

27 GPIO_22_ROMCSB PAD T49

CONFIG[2, 1, 0]

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.

27 VGA_GPIO13 R152 1 2 *10K_NC +V3.3S_VGA
 27 VGA_GPIO12 R153 1 2 *10K_NC
 27 VGA_GPIO11 R151 1 2 10K

BIOS_ROM_EN

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

AUD[1, 0]

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)

27 CRT_HSYNC R177 1 2 10K
 27 CRT_VSYNC R181 1 2 10K

BIF_GEN2_EN_A

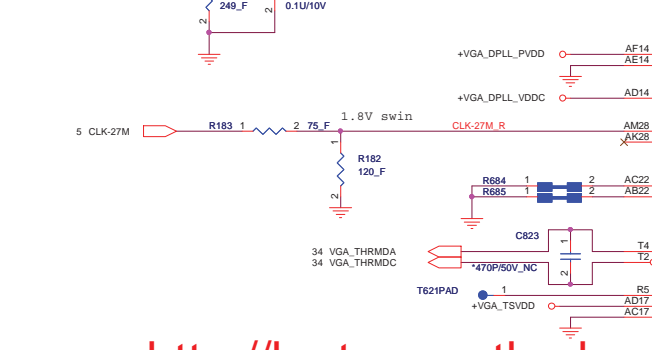
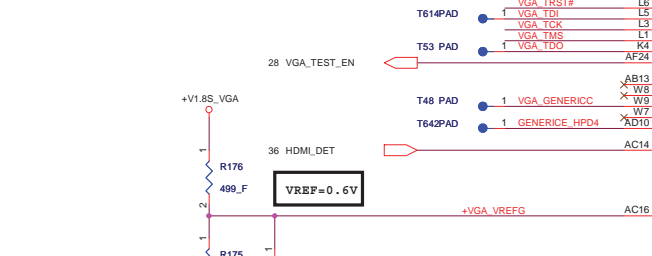
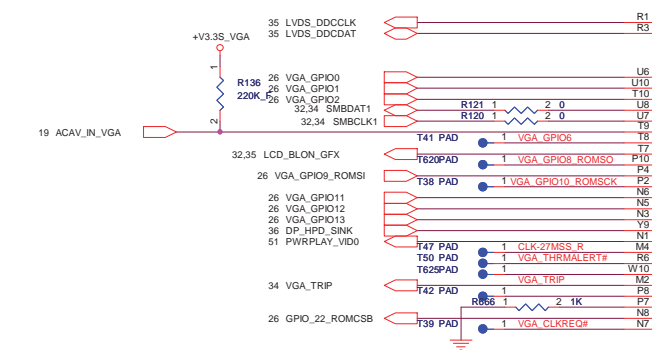
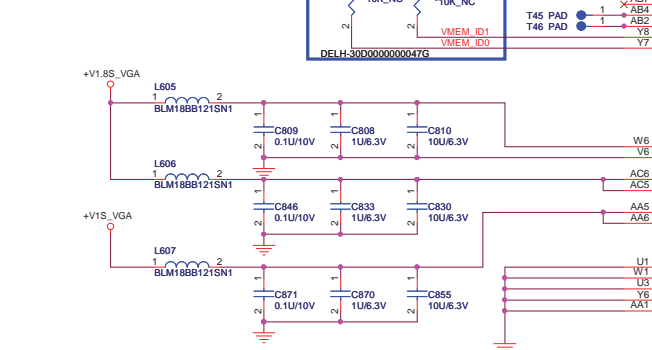
L: PCIe device as 2.5GT/s capable (DEFAULT)
 H: PCIe device as 5.0GT/s capable

27 VGA_GPIO2 R140 1 2 *10K_NC +V3.3S_VGA

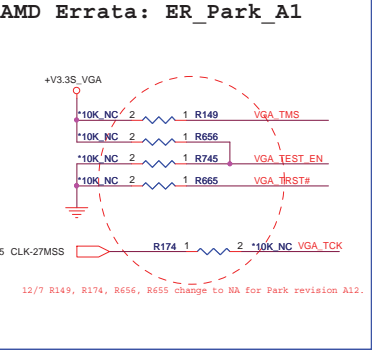
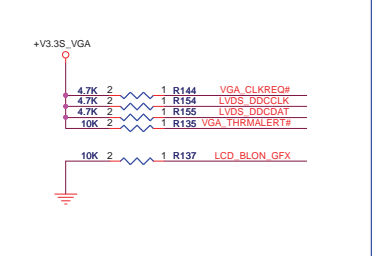
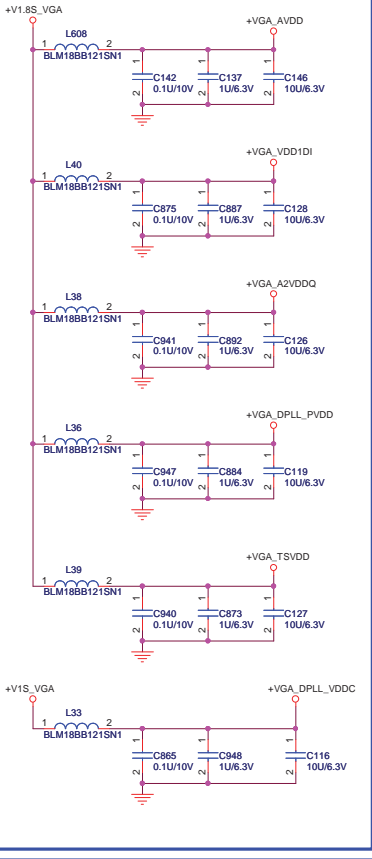
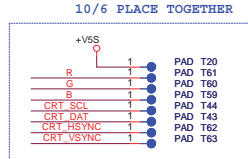
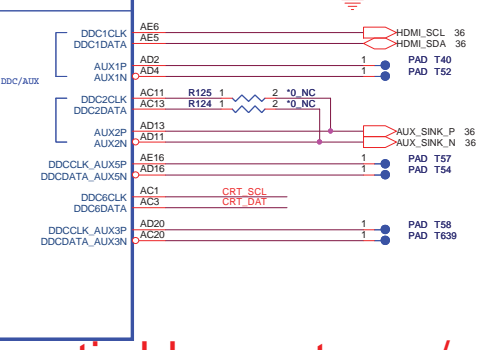
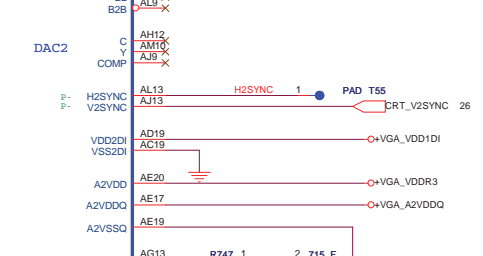
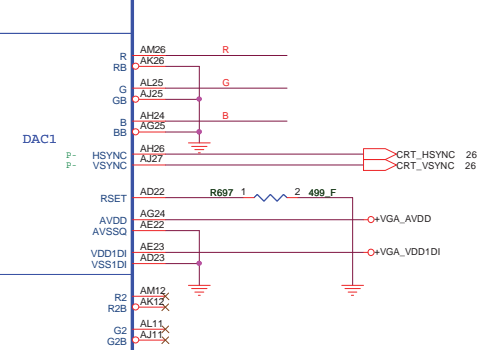
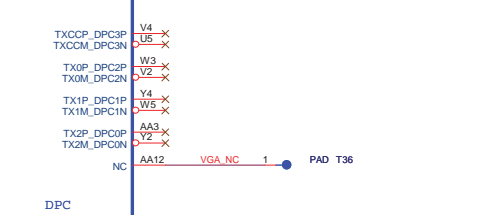
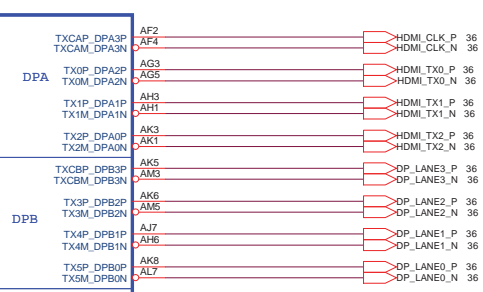
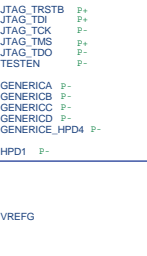
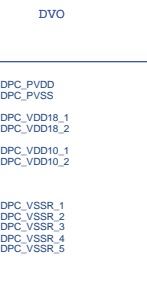
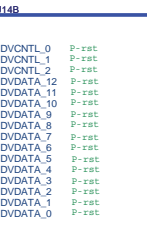
| | | |
|--------------------------------|----------------------------|----------------|
| Dell/ Flex Confidential | | |
| Park 1/5 - PCIe/LVDS | | |
| Size | Document Number | Rev |
| | Inspiron Z -- INTEL | X01 |
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| VRAM | PN | Mount |
|---------|--------------------|-------|
| SAMSUNG | DELH-14D002000005G | NA |
| HYNIX | DELH-14D002000006G | Mount |

| ID1 | ID0 | VRAM TYPE |
|-----|-----|-------------------------|
| 0 | 0 | Samsung K4W2G1646B-HC12 |
| 0 | 1 | Hynix H5TQ263BFR-12C |



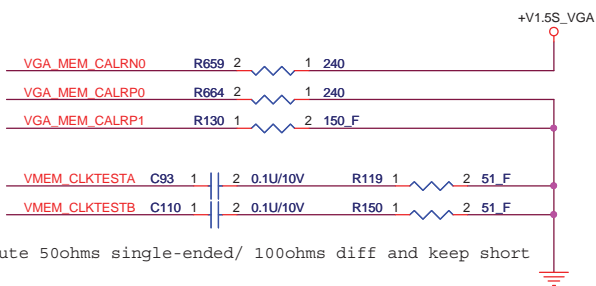
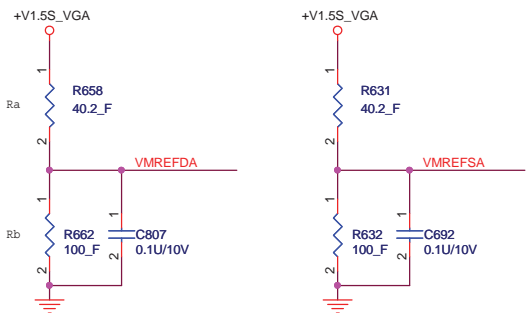
12/7 R149, R174, R656, R655 change to NA for Park revision A12.



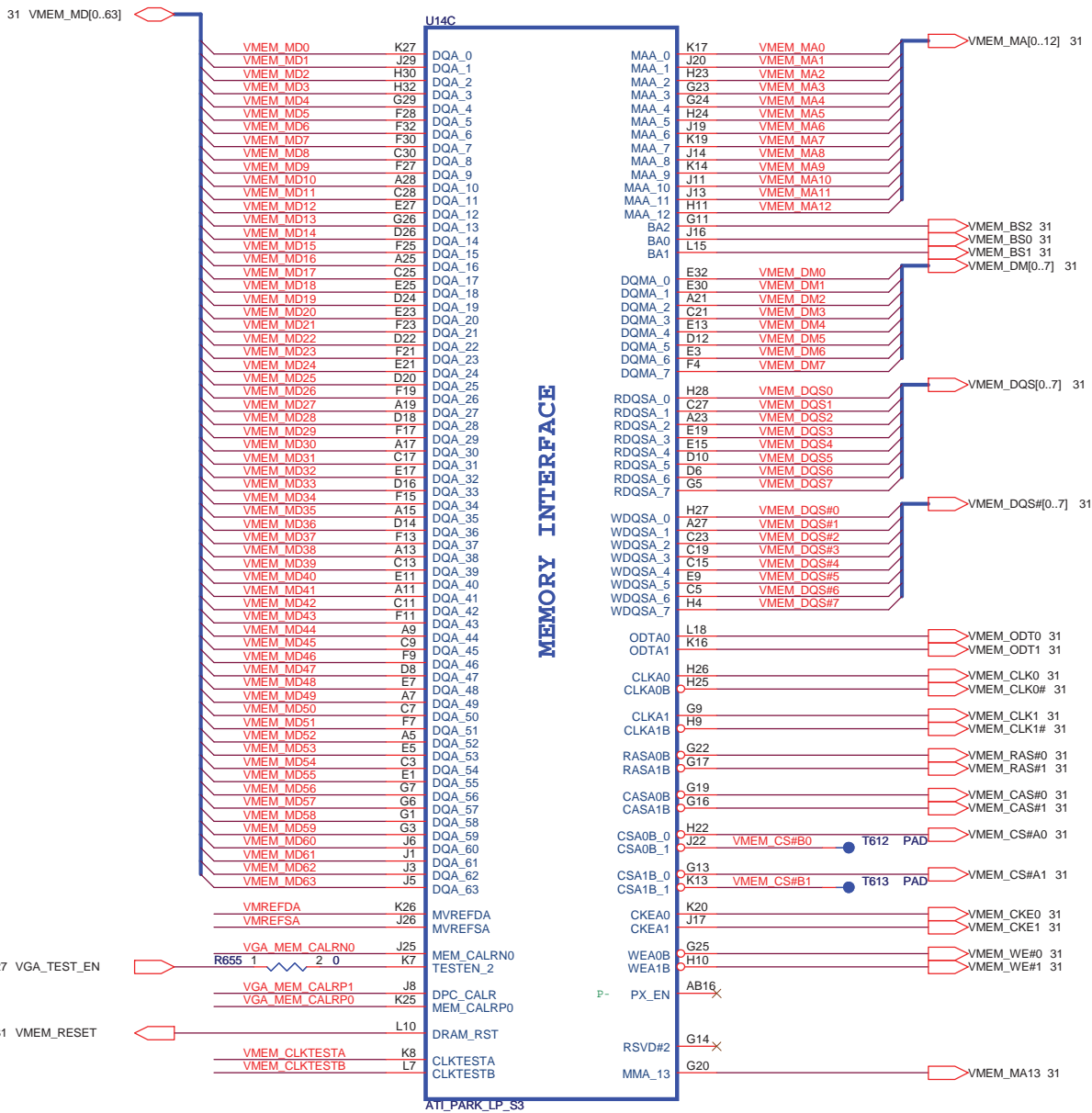
12/7 R149, R174, R656, R655 change to NA for Park revision A12.

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

For DDR3: $0.7 * VDDR1$

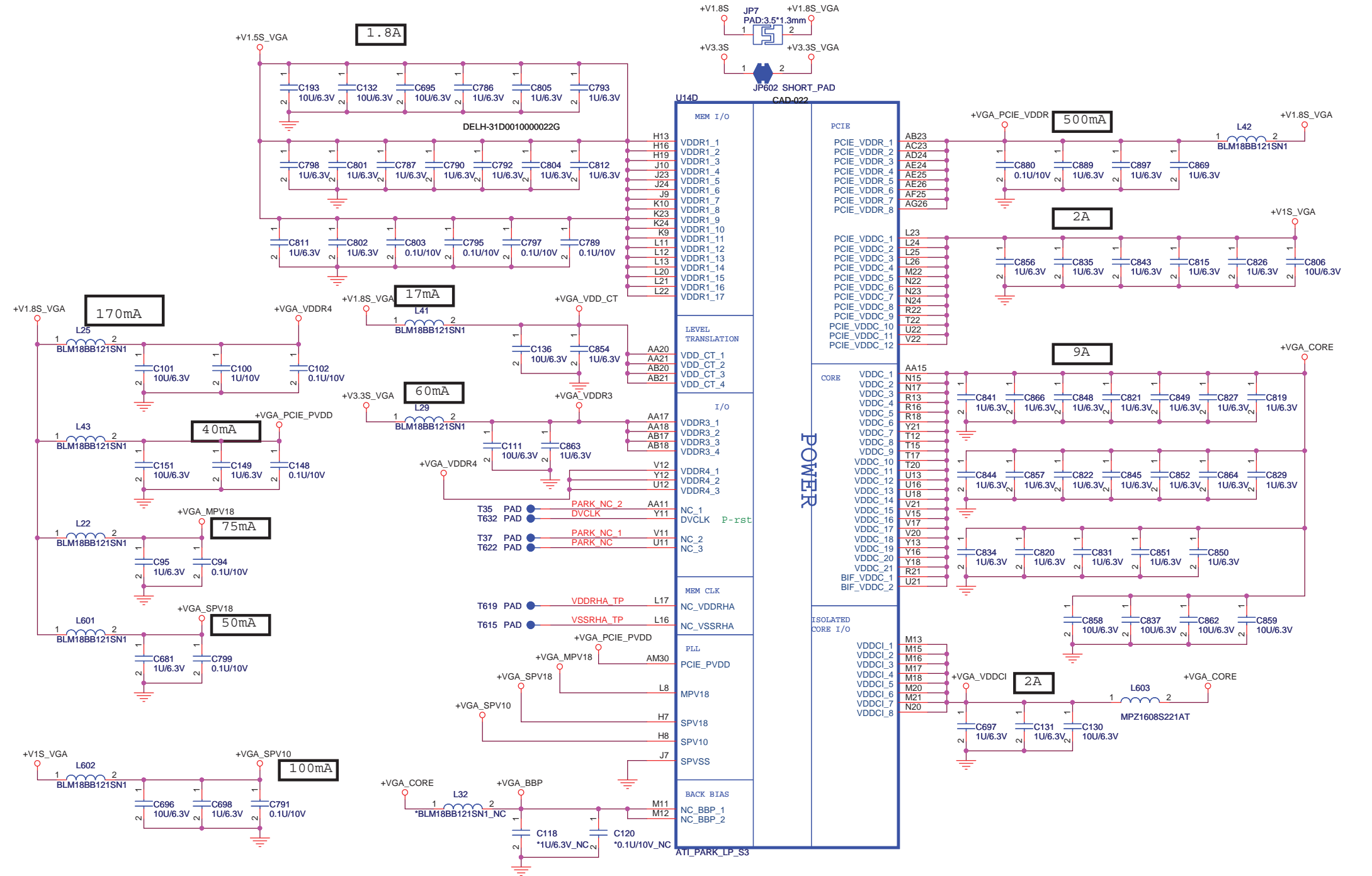


Route 50ohms single-ended/ 100ohms diff and keep short



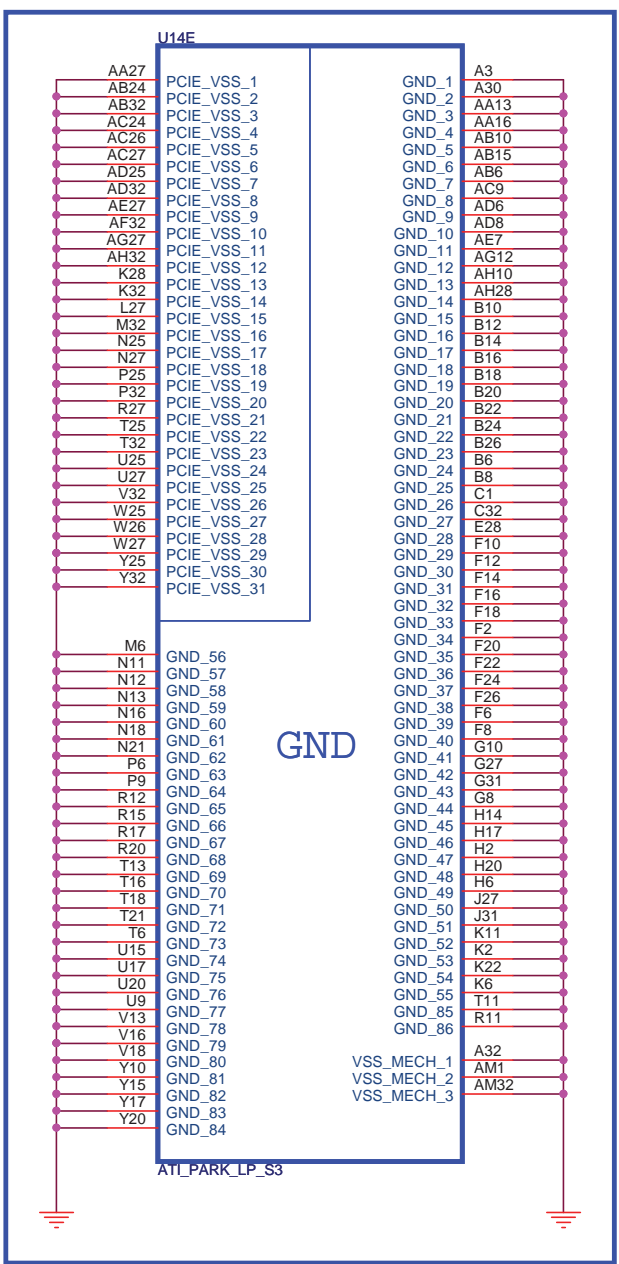
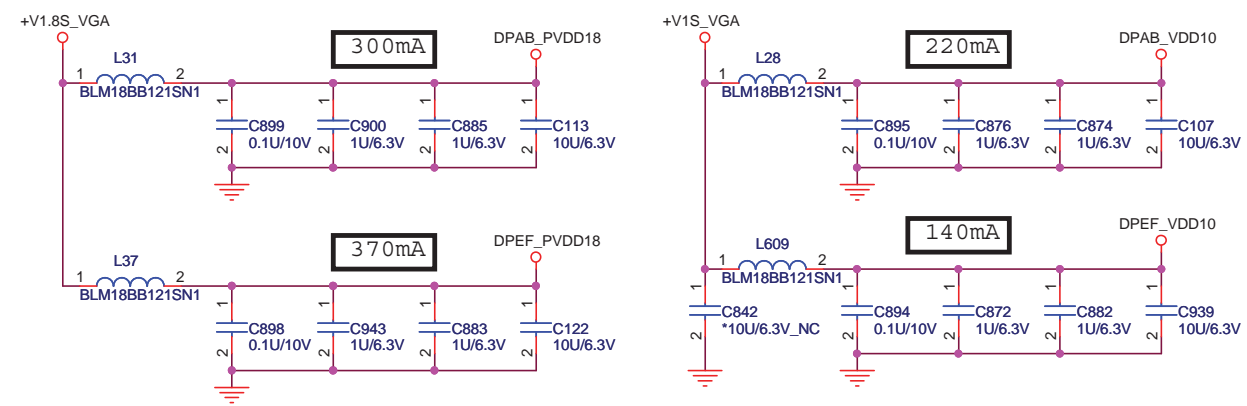
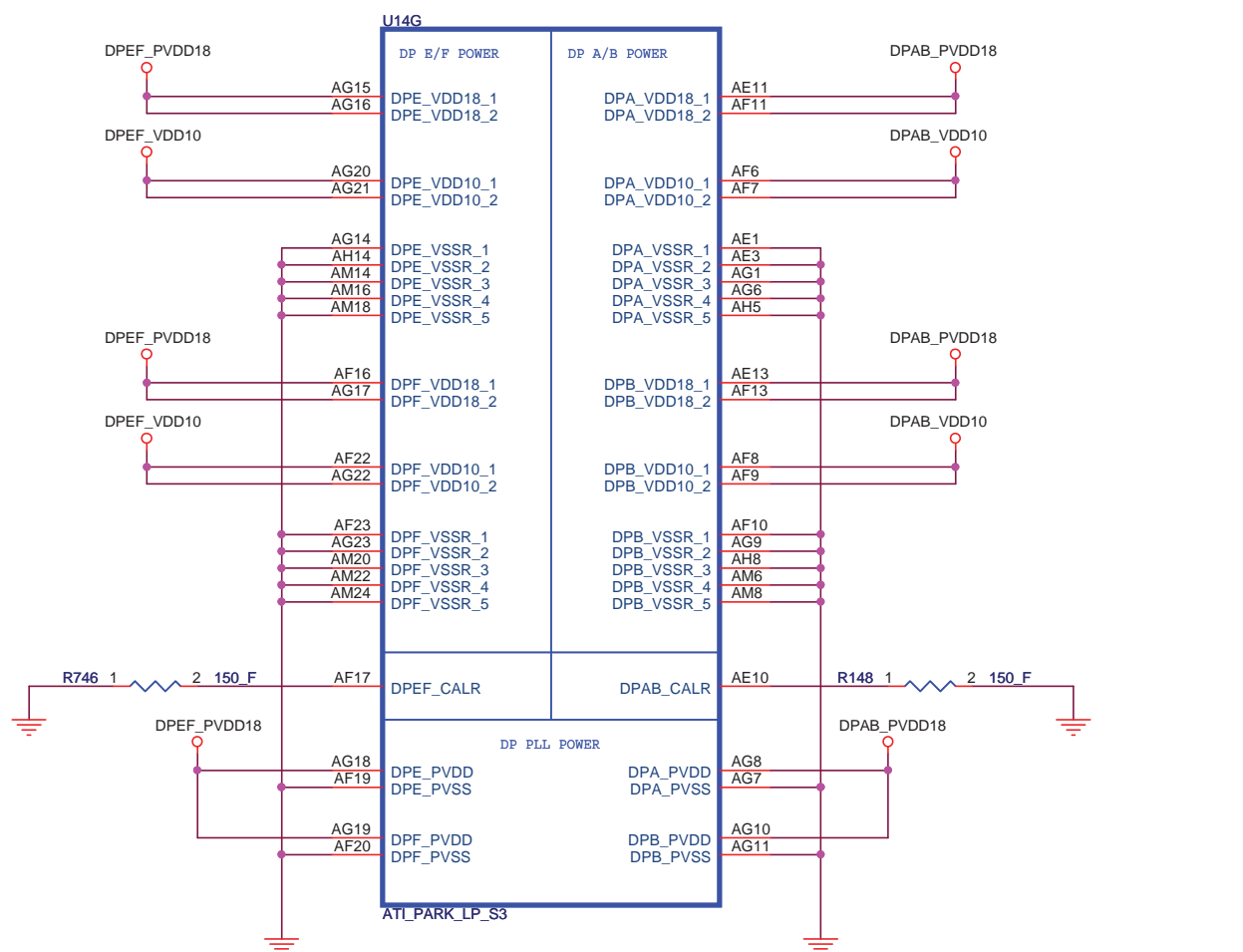
MEMORY INTERFACE

| | | | |
|--------------------------------|----------------------------|-------|----------|
| Dell/ Flex Confidential | | | |
| Title | | | |
| Park 3/5 - VRAM_ IF | | | |
| Size | Document Number | Rev | |
| | Inspiron Z -- INTEL | X01 | |
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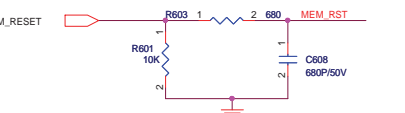
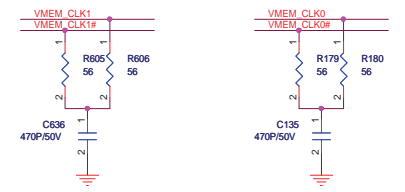
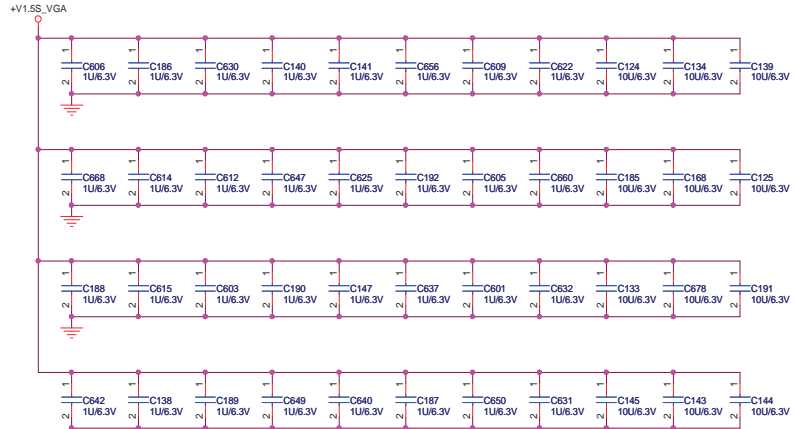
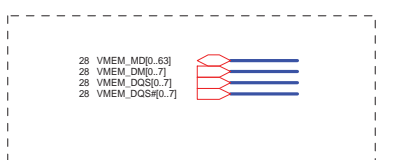
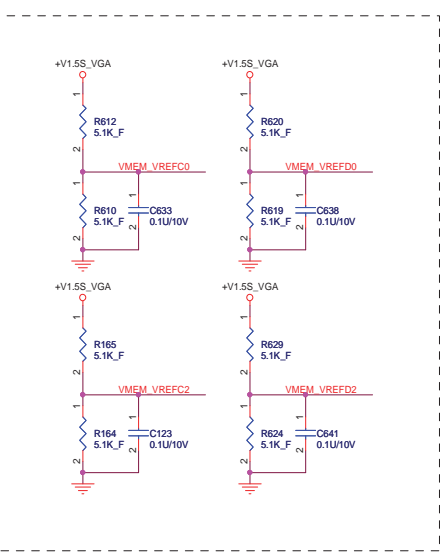
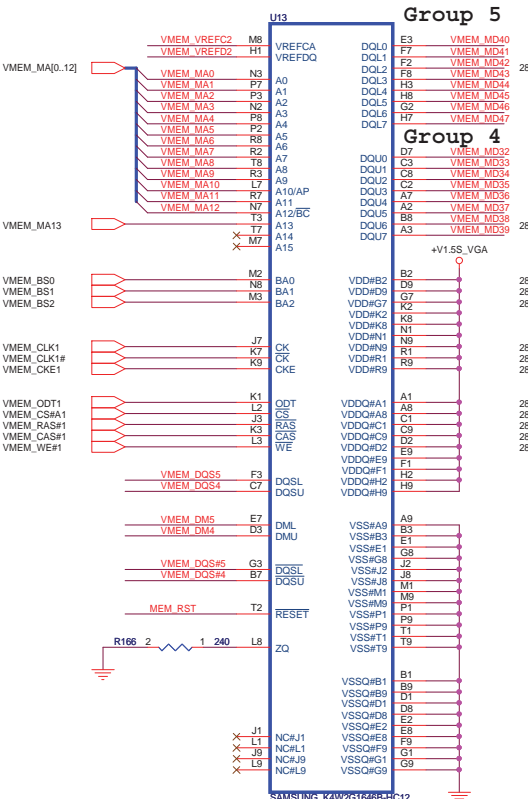
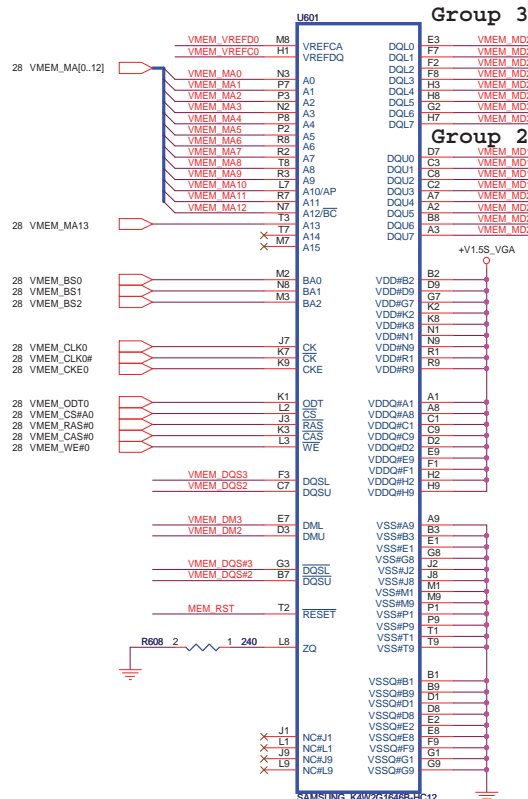
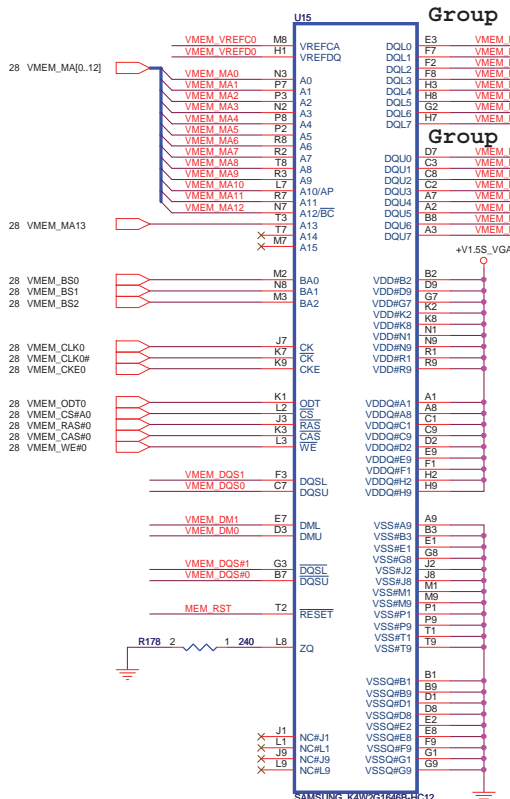
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| Dell/ Flex Confidential | | |
| Title Park 4/5 - PWR_IO | | |
| Size | Document Number Inspiron Z -- INTEL | Rev X01 |
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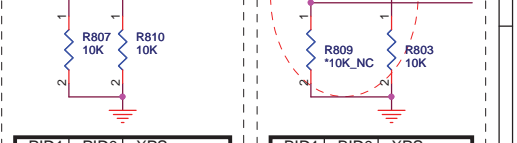
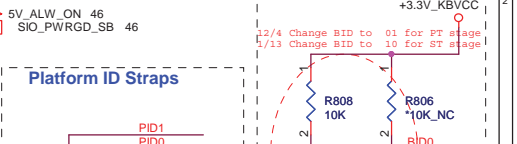
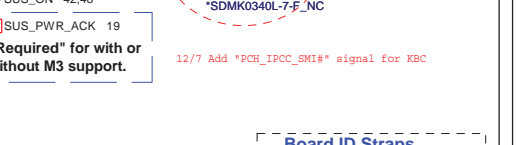
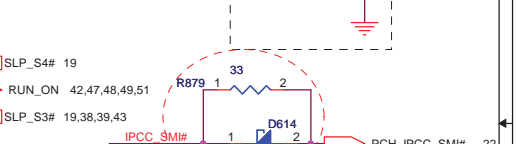
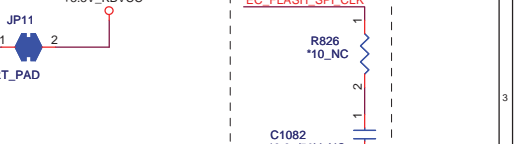
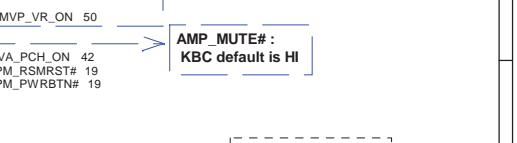
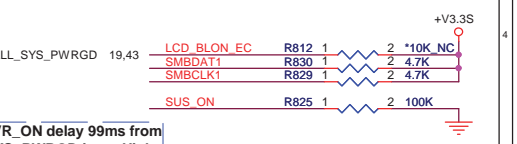
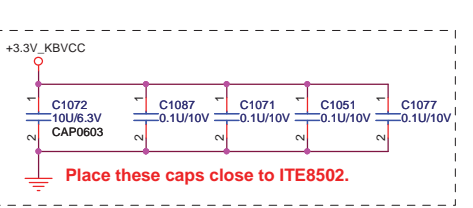
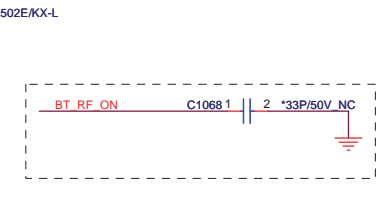
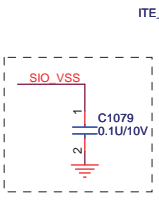
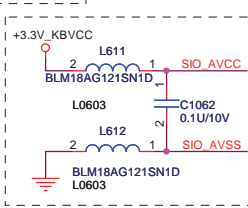
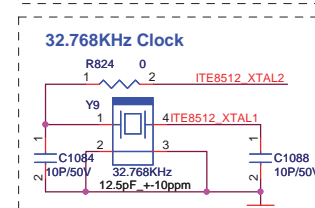
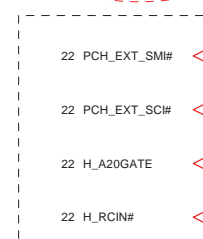
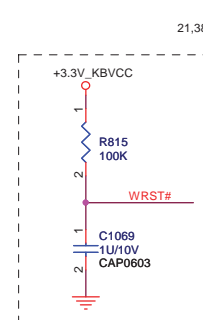
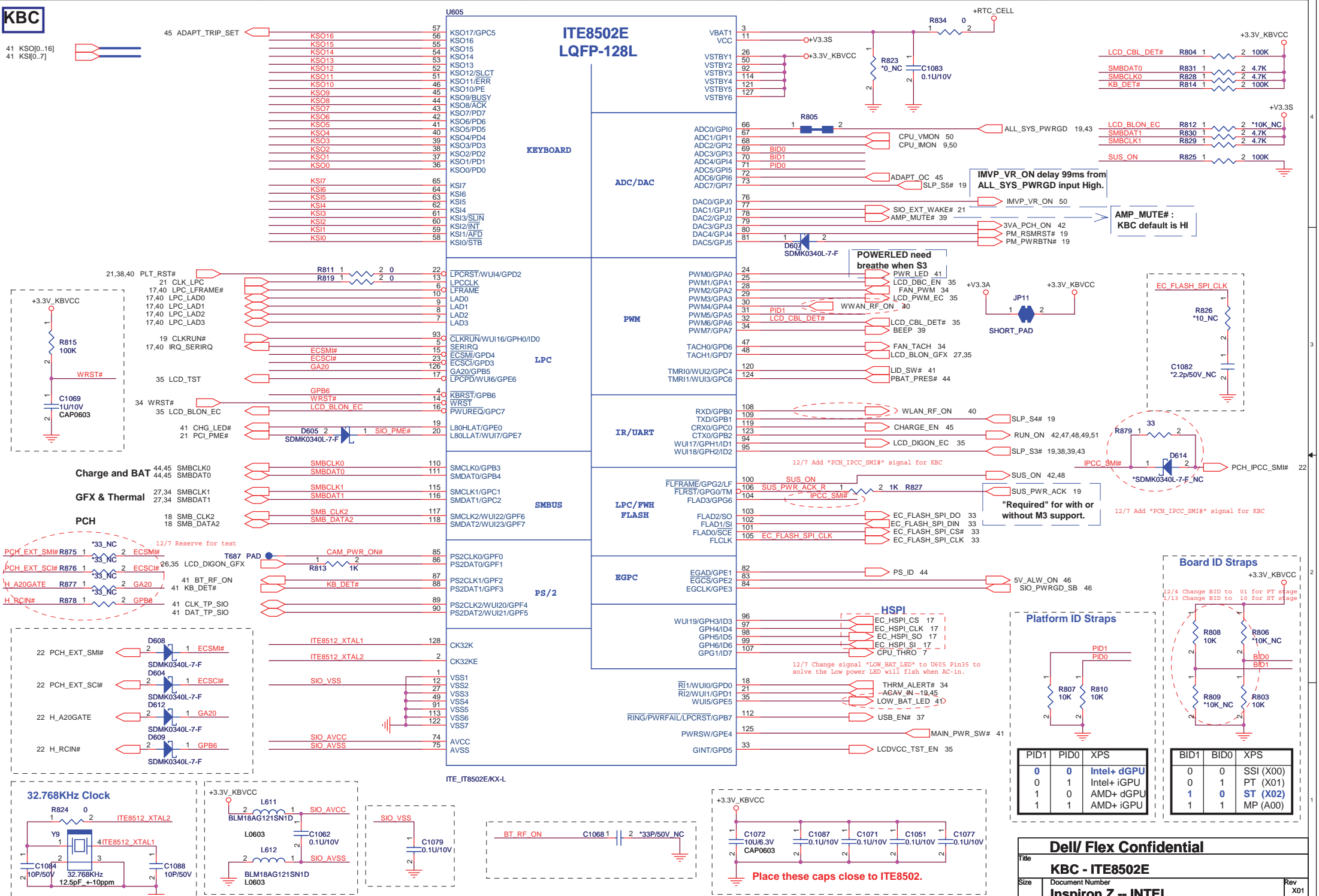
| | | |
|--|----------------------------|----------------|
| Dell/ Flex Confidential | | |
| Title Park 5/5 - PWR_DAC/GND | | |
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41 KSO[0..16]
41 KS[0..7]



| PID1 | PID0 | XPS |
|------|------|-------------|
| 0 | 0 | Intel+ dGPU |
| 0 | 1 | Intel+ iGPU |
| 1 | 0 | AMD+ dGPU |
| 1 | 1 | AMD+ iGPU |

| BID1 | BID0 | XPS |
|------|------|-----------|
| 0 | 0 | SSI (X00) |
| 0 | 1 | PT (X01) |
| 1 | 0 | ST (X02) |
| 1 | 1 | MP (A00) |

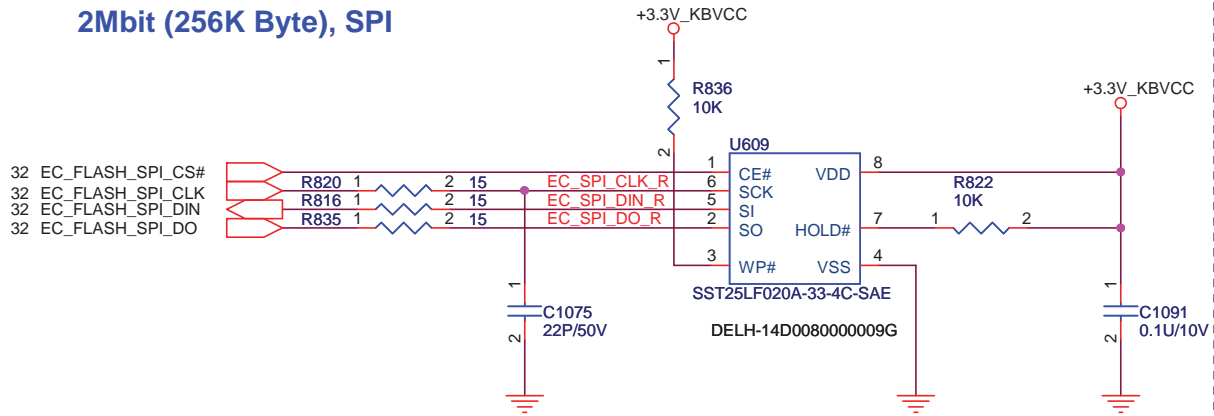
Dell/ Flex Confidential

Title: **KBC - ITE8502E**

Size: Document Number **Inspiron Z -- INTEL** Rev X01

Date: Monday, January 18, 2010 Sheet 32 of 57

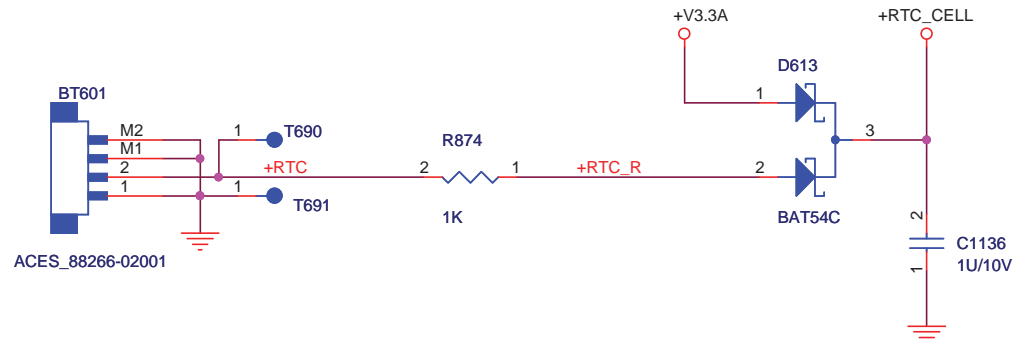
2Mbit (256K Byte), SPI



RFI

| | | | |
|------------------|---------|---|-------------|
| EC_FLASH_SPI_CS# | C1092 1 | 2 | *33P/50V_NC |
| EC_FLASH_SPI_DIN | C1070 1 | 2 | *33P/50V_NC |
| EC_FLASH_SPI_DO | C1090 1 | 2 | *33P/50V_NC |

RTC BATTERY



Dell/ Flex Confidential

Title

RTC BAT/ EC_ROM

Size

Document Number

Inspiron Z -- INTEL

Rev

X01

Date

Monday, January 18, 2010

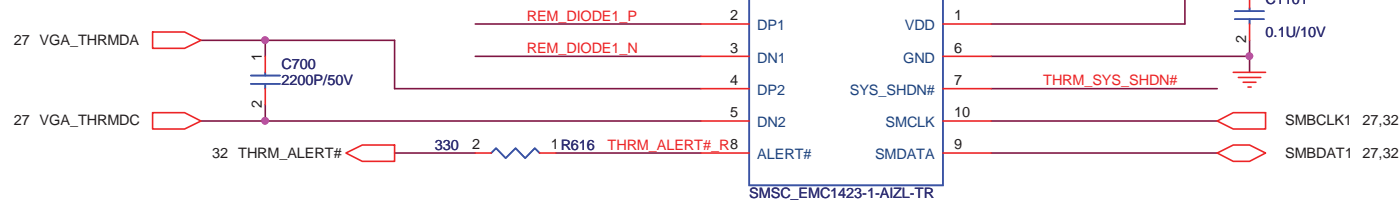
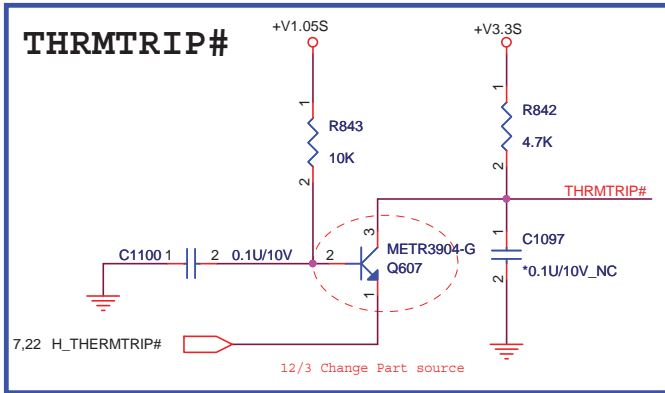
Sheet

33

of

57

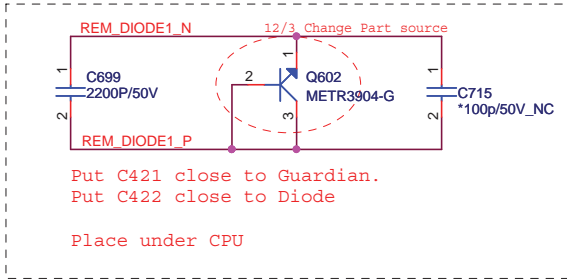
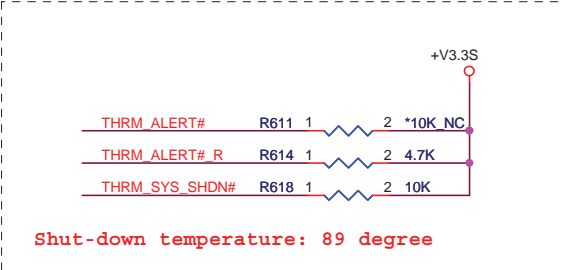
THRMTRIP#



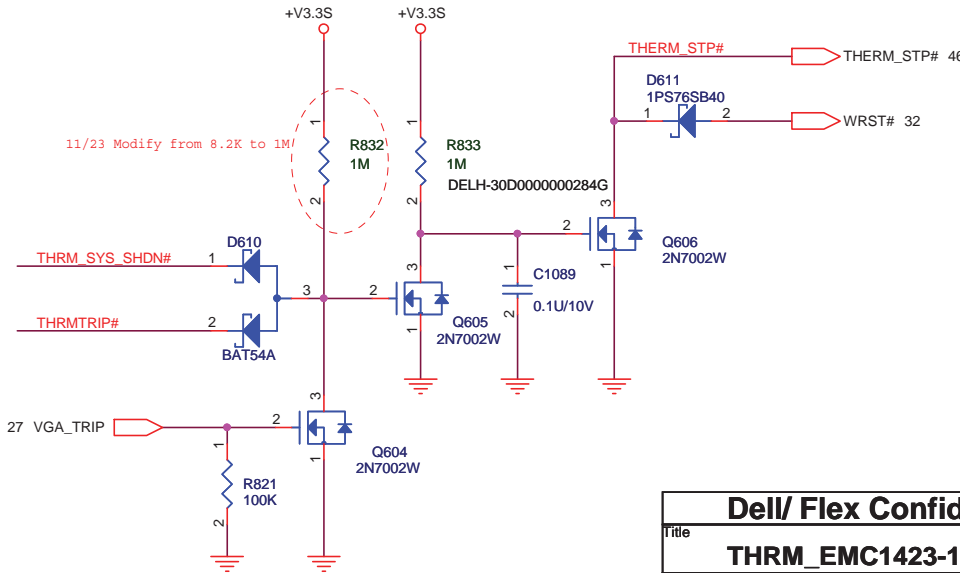
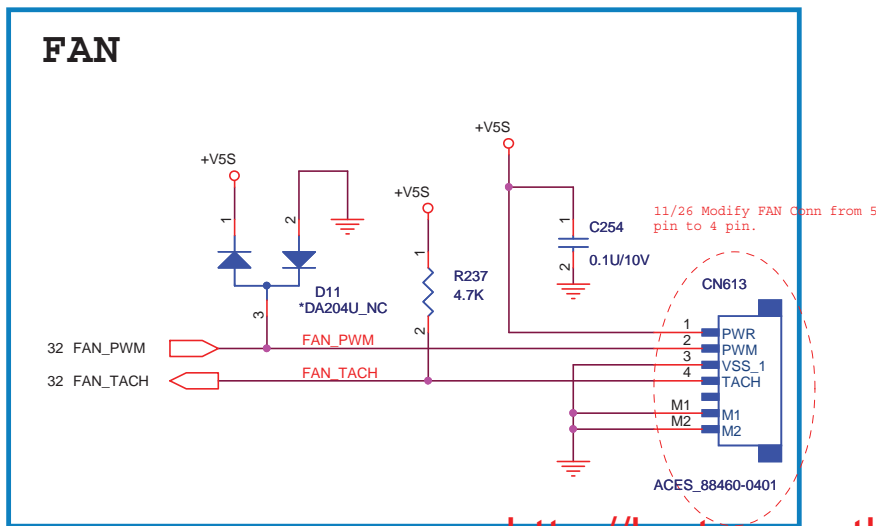
SM bus Address: 100_1100b

Table 5.2 SYS_SHDN Threshold Temperature

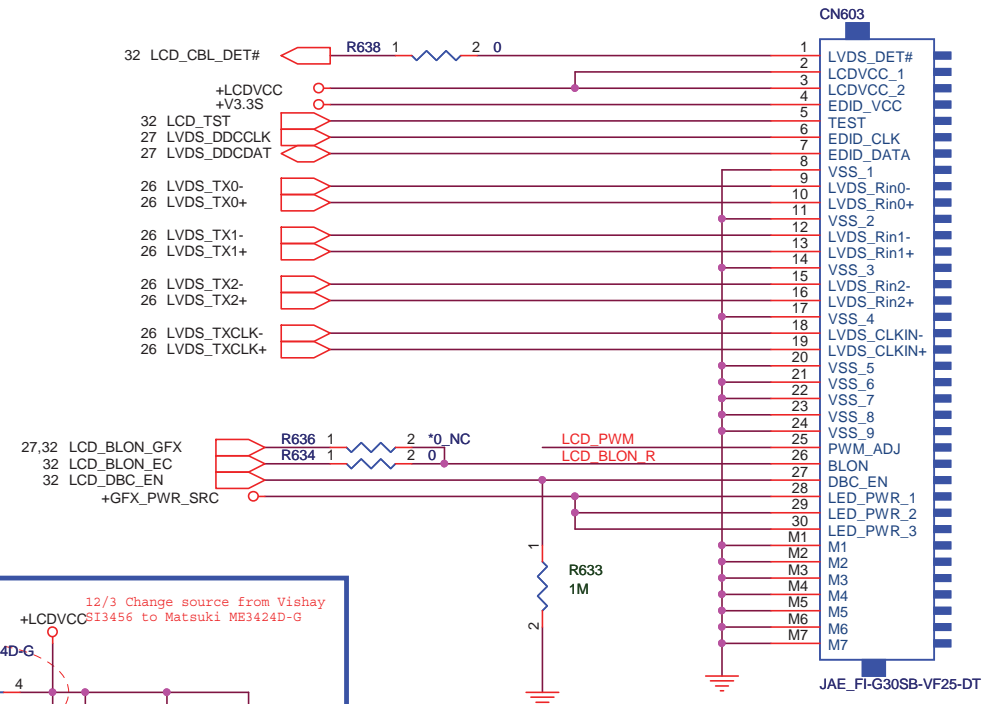
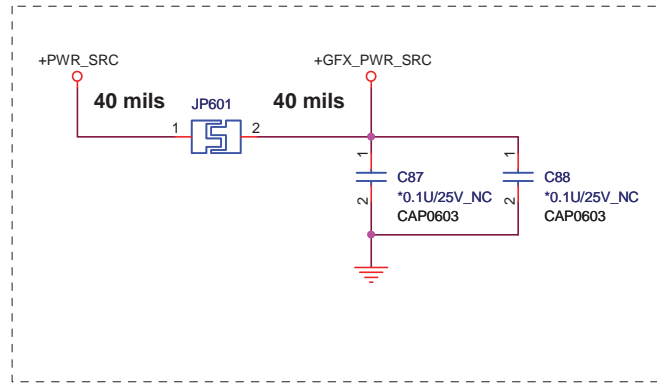
| ALERT PULL-UP / SYS_SHD PULL-UP | 4.7K OHM ±10% | 6.8K OHM ±10% | 10K OHM ±10% | 15K OHM ±10% | 22K OHM ±10% | 33K OHM ±10% |
|---------------------------------|---------------|---------------|--------------|--------------|--------------|--------------|
| 4.7K OHM ±10% | 77°C | 83°C | 89°C | 95°C | 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 |



FAN

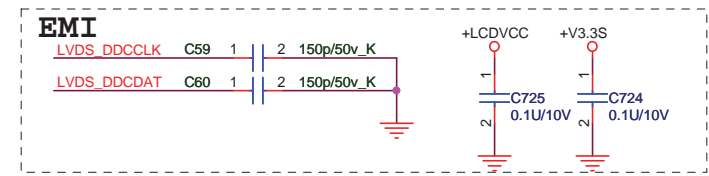
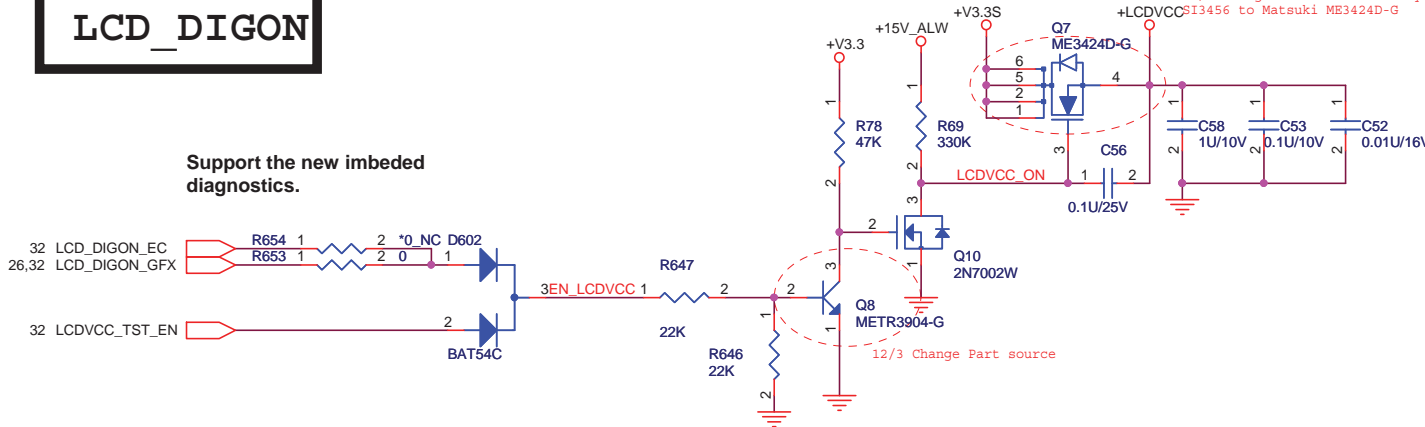


LVDS



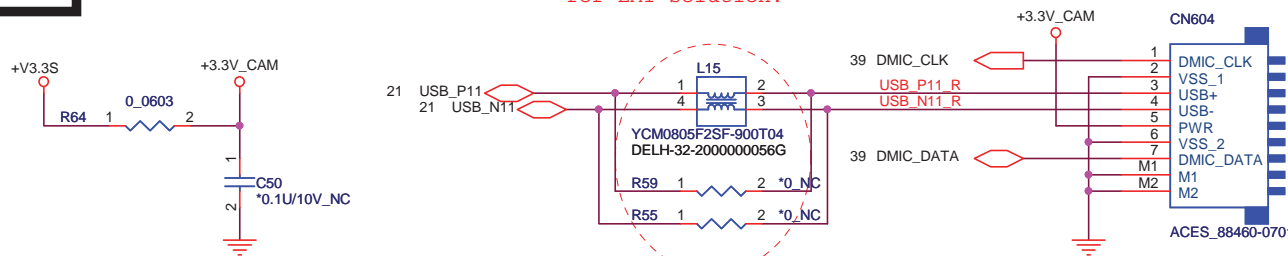
LCD_DIGON

Support the new imbedded diagnostics.



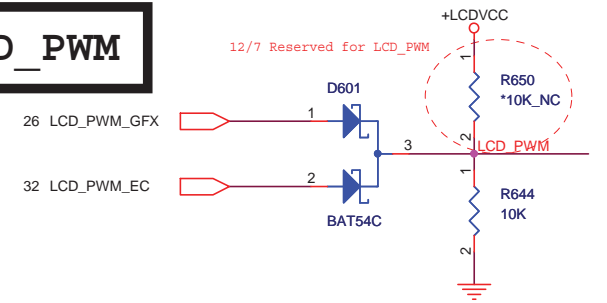
WEBCAM

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



LCD_PWM

12/7 Reserved for LCD_PWM



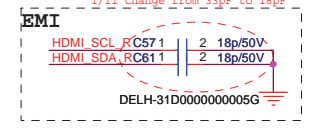
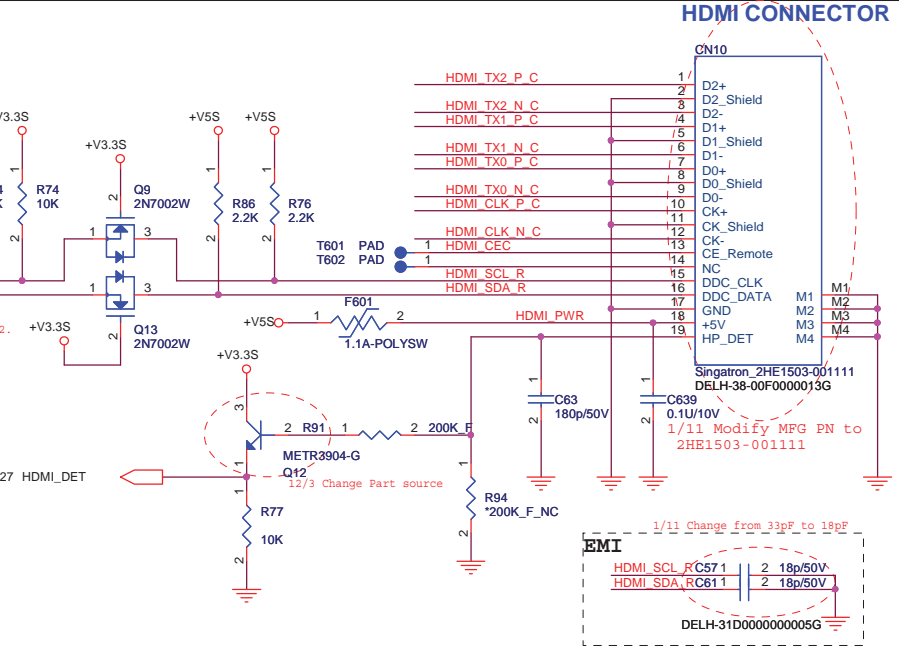
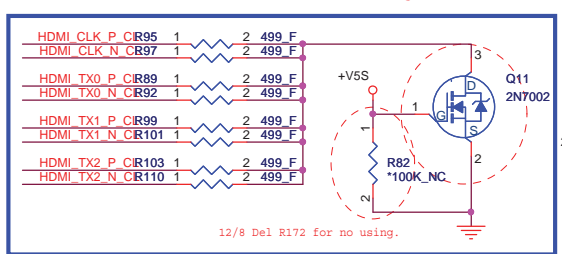
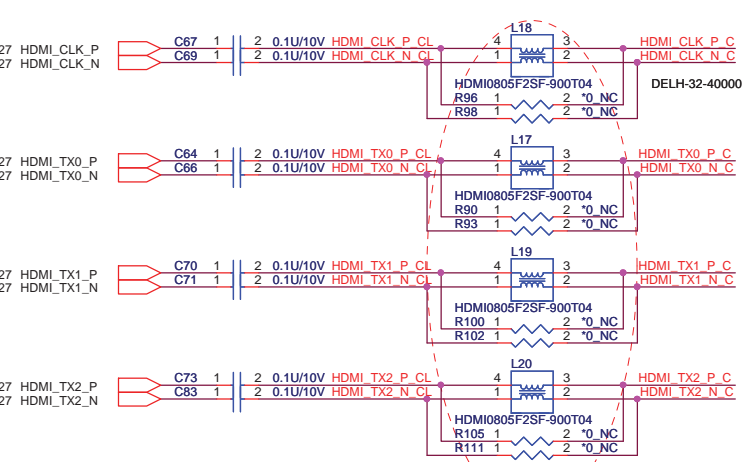
Dell/ Flex Confidential

LVDS / WEBCAM

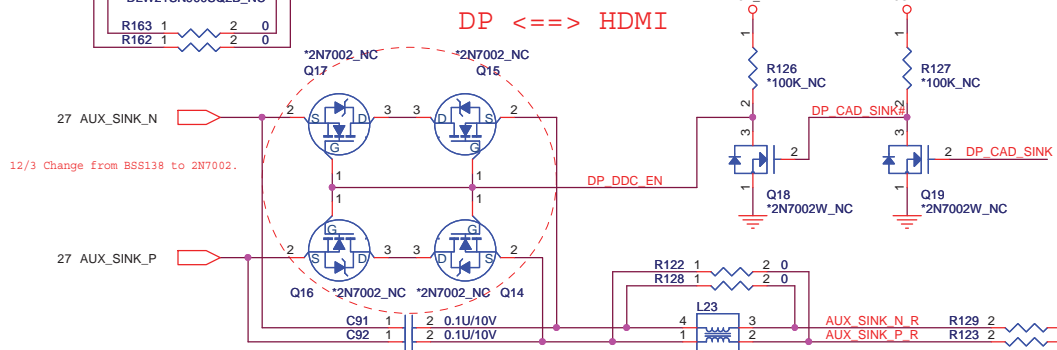
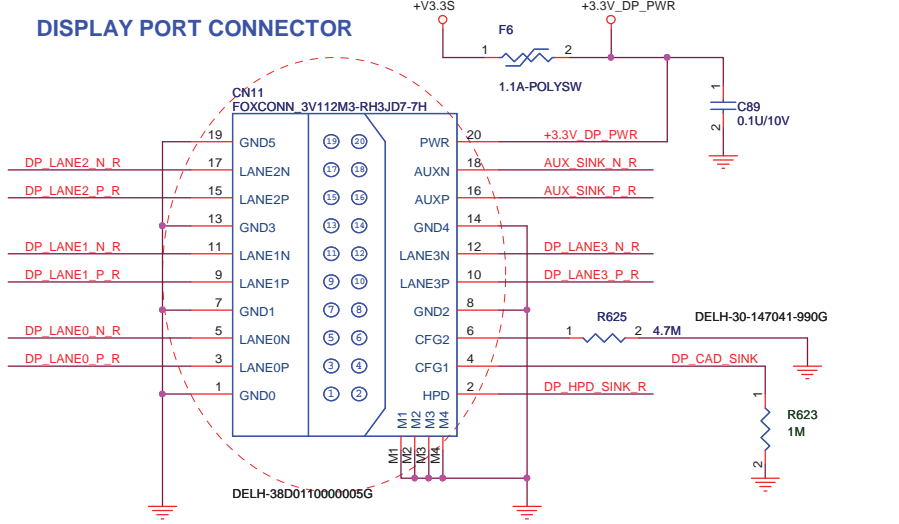
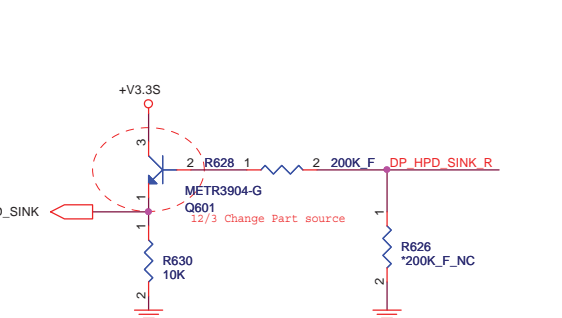
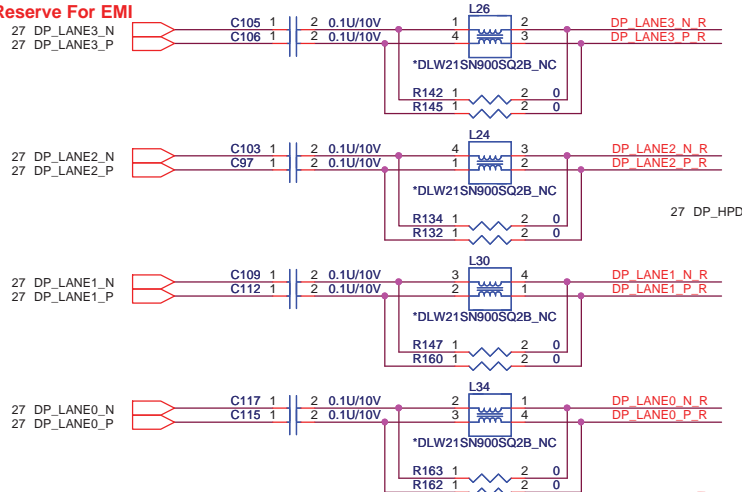
| | | |
|-------|--------------------------|-----|
| Size | Document Number | Rev |
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Reserve For EMI

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

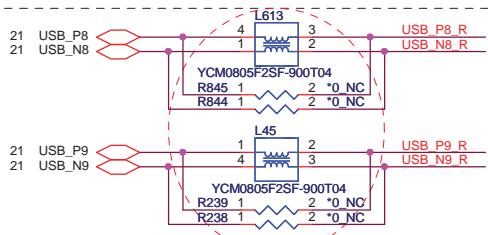


Reserve For EMI

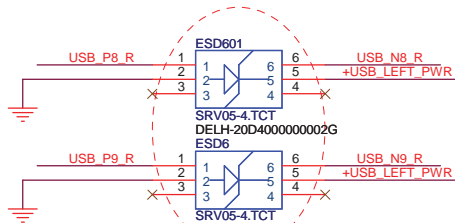


| | | |
|--------------------------------|----------------------------|----------------|
| Dell/ Flex Confidential | | |
| Title | HDMI / DP | |
| Size | Document Number | Rev |
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USB Jack x 2 12/3 Mount L45, L613, & NA R238, R239, R844, R845 for EMI solution.

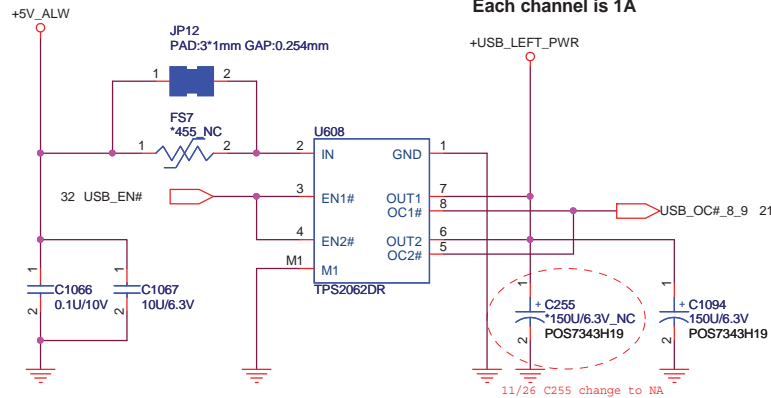


Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.



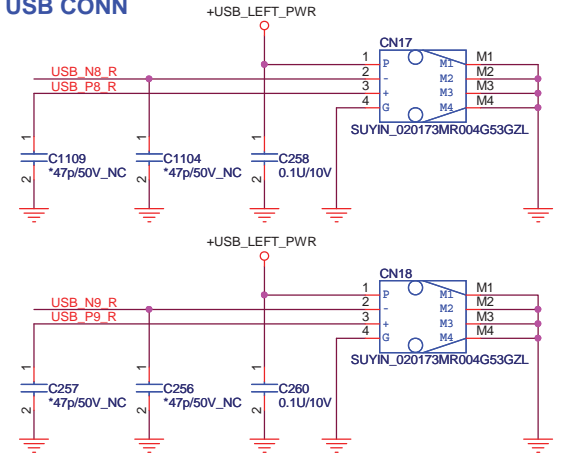
Place ESD diodes as close as USB connector.

USB POWER SW



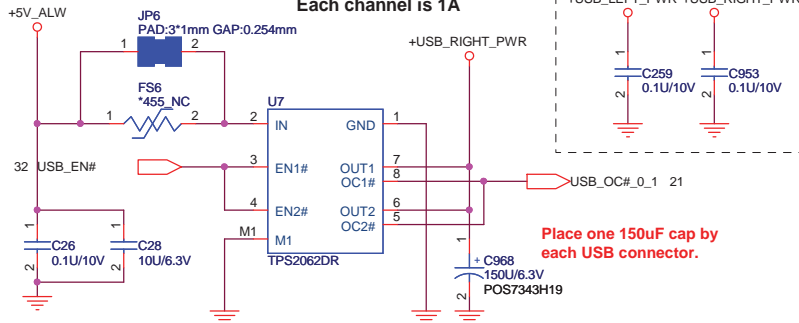
Place one 150uF cap by each USB connector.

USB CONN

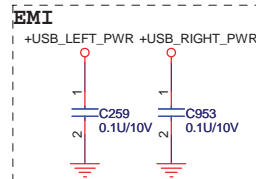


USB POWER SW

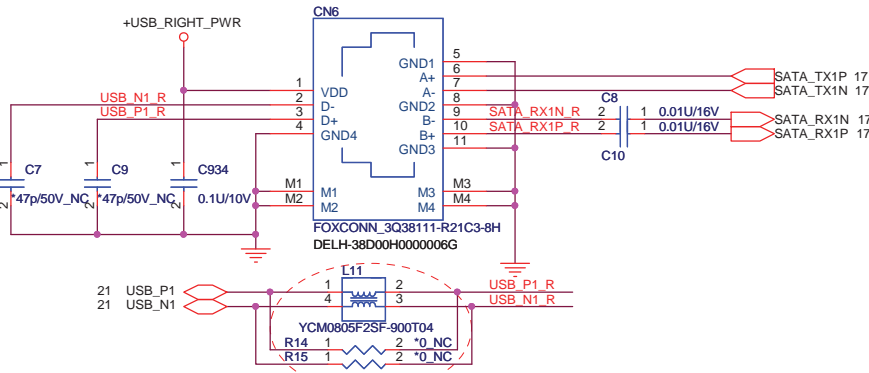
Each channel is 1A



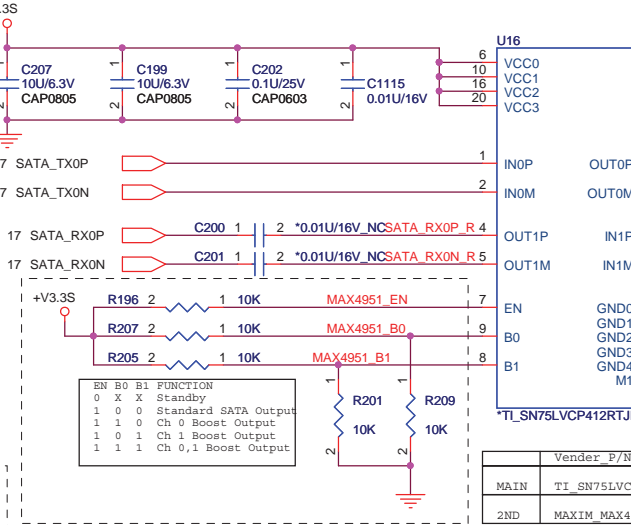
Place one 150uF cap by each USB connector.



ESATA/B CONN



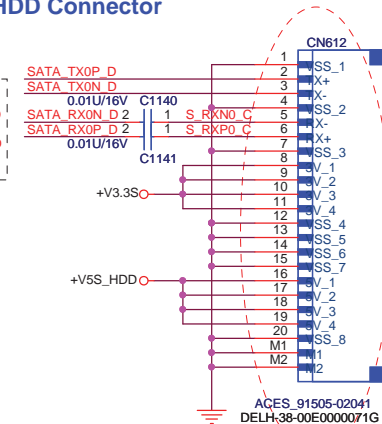
12/3 Mount L11, & NA R14, R15 for EMI solution.



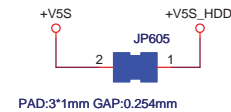
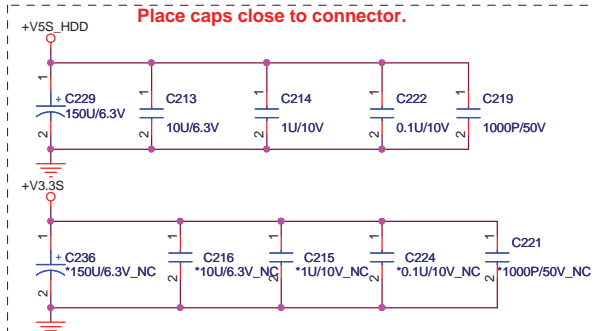
Place caps close to connector.

SATA HDD Connector

Close to CONN

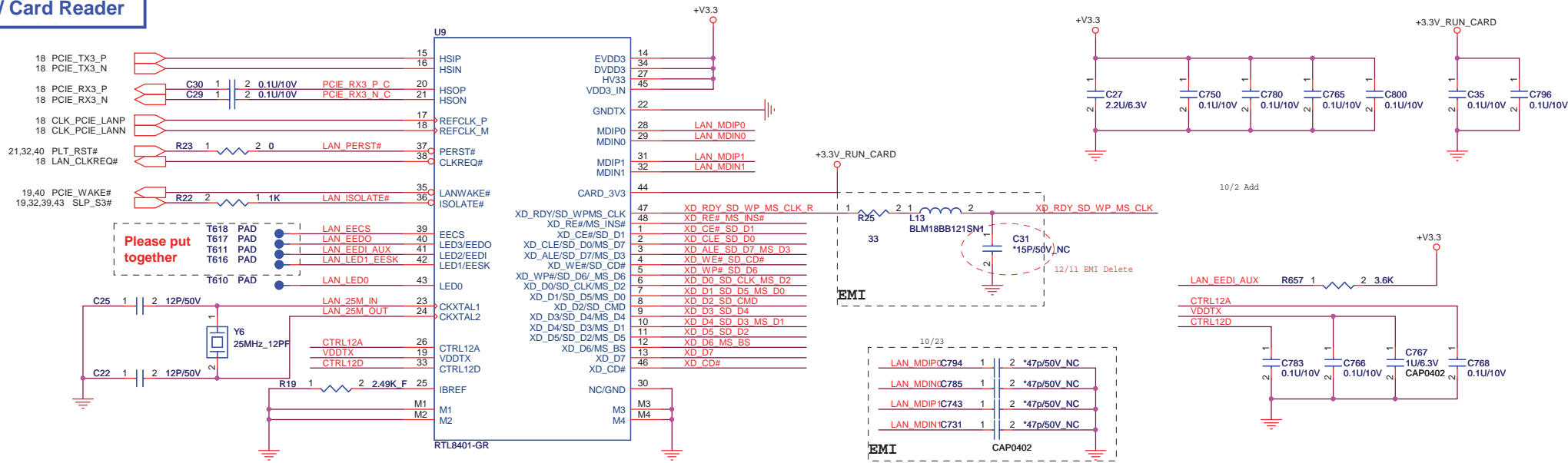


1/11 Modify MFG PN to 91505-02041



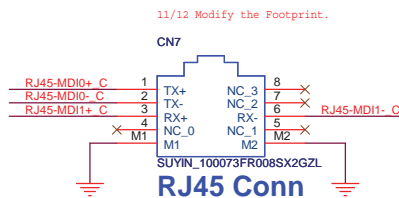
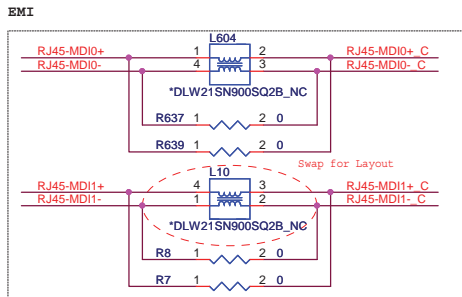
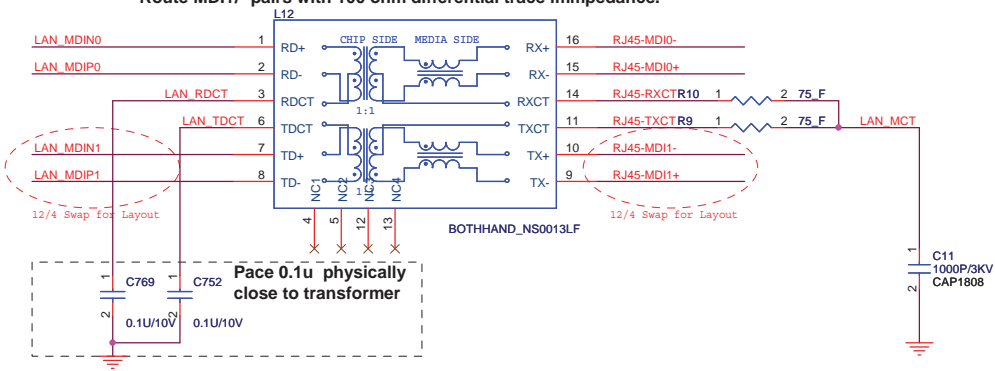
| Vender_P/N | FLEX_P/N |
|-------------------------|---------------------|
| MAIN TI SN75LVCP412RTJR | DELH-12D0010000003G |
| 2ND MAXIM MAX4951AE | DELH-12D0010000005G |

LAN/ Card Reader



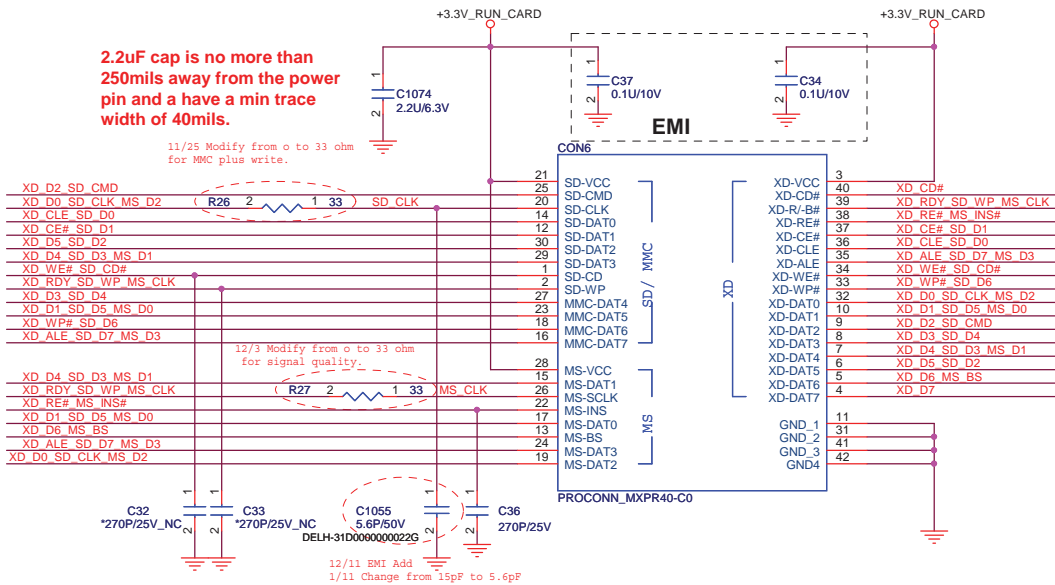
TRANSFORMER

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



Card Reader Conn

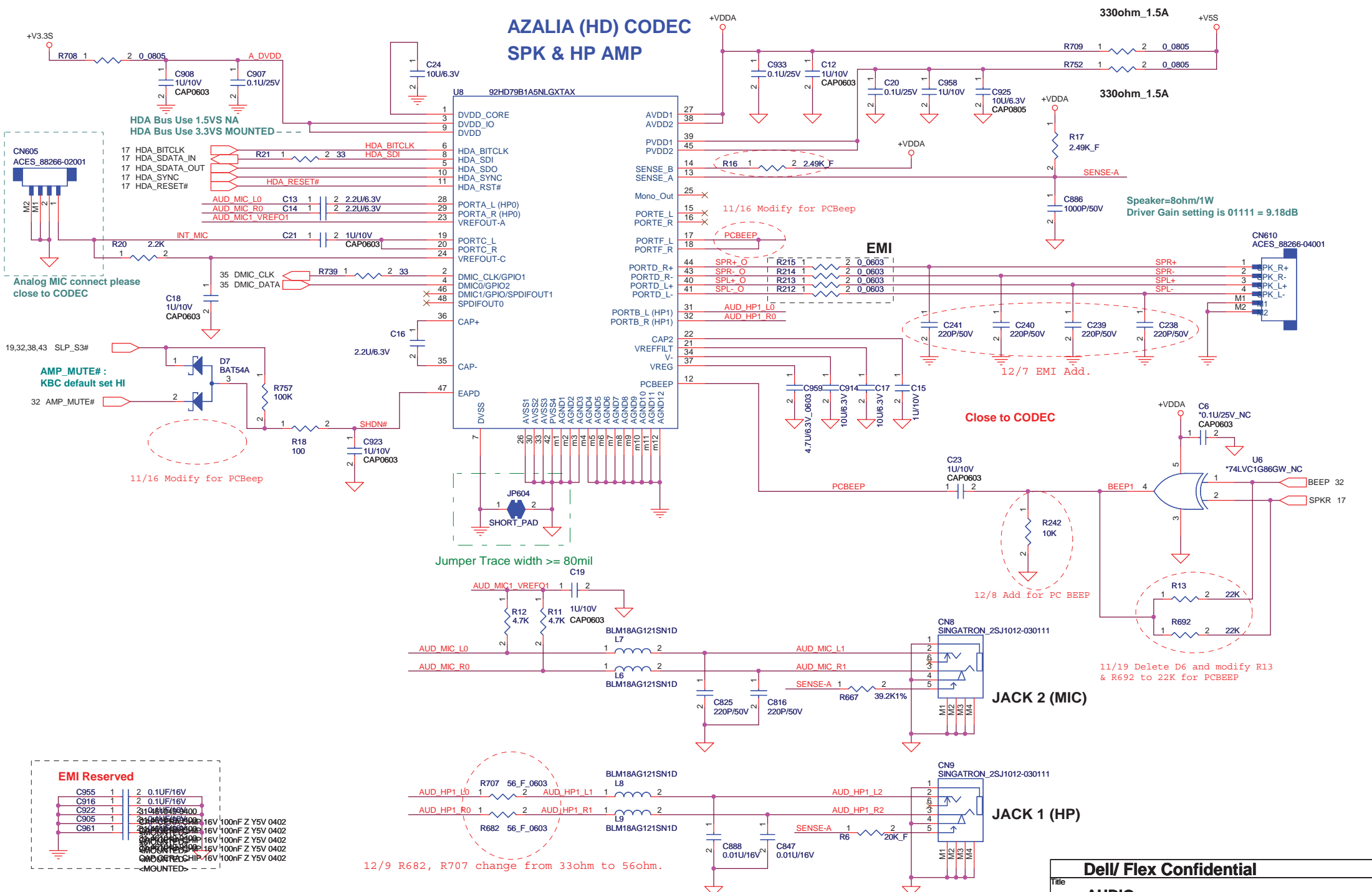
2.2uF cap is no more than 250mils away from the power pin and a have a min trace width of 40mils.



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LAN/ Media_RTL8401

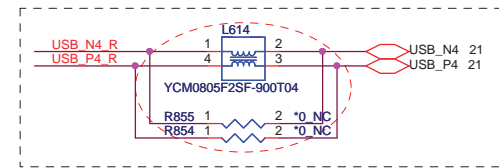
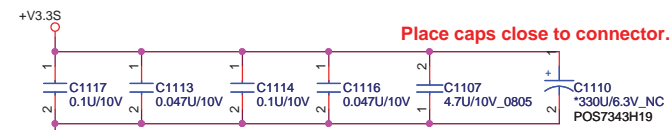
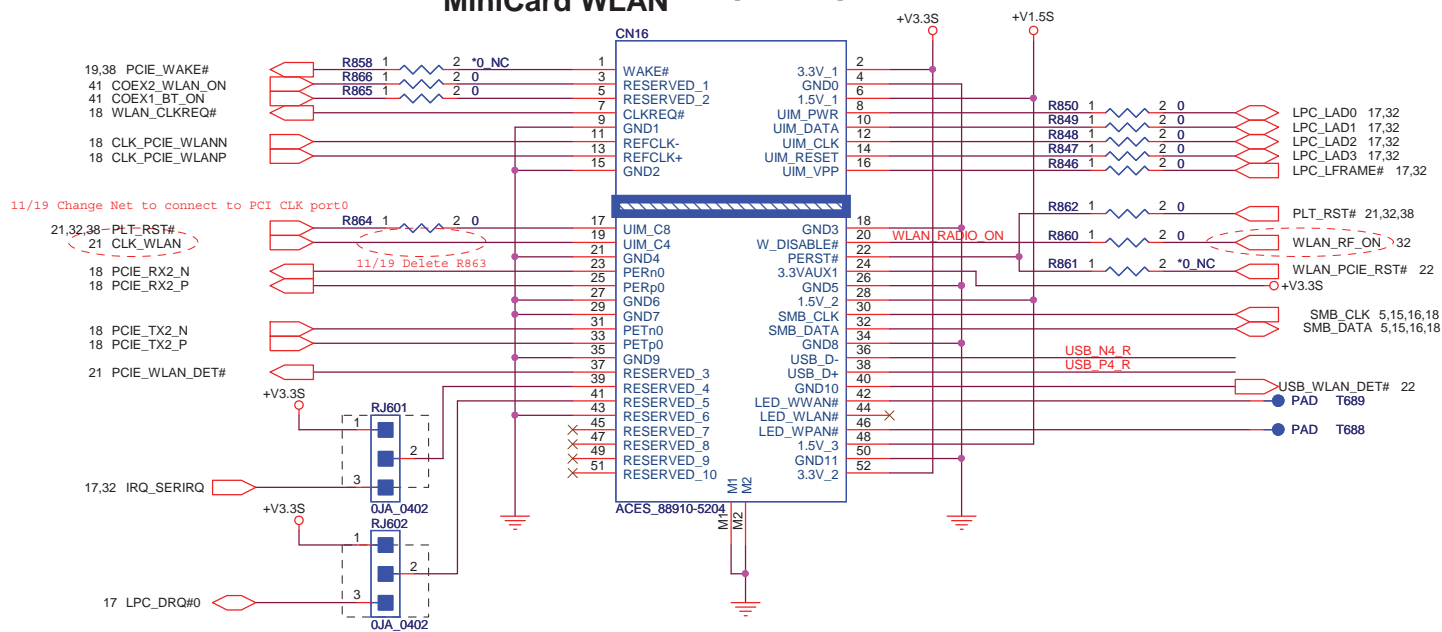
AZALIA (HD) CODEC SPK & HP AMP



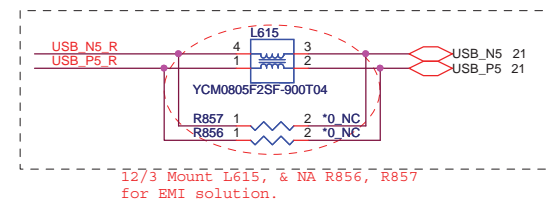
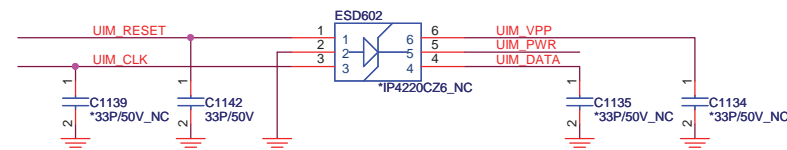
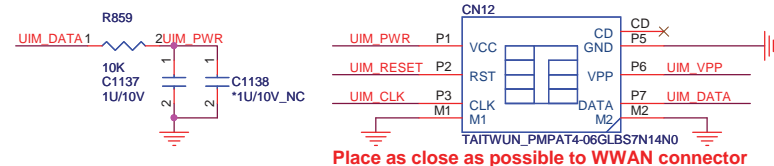
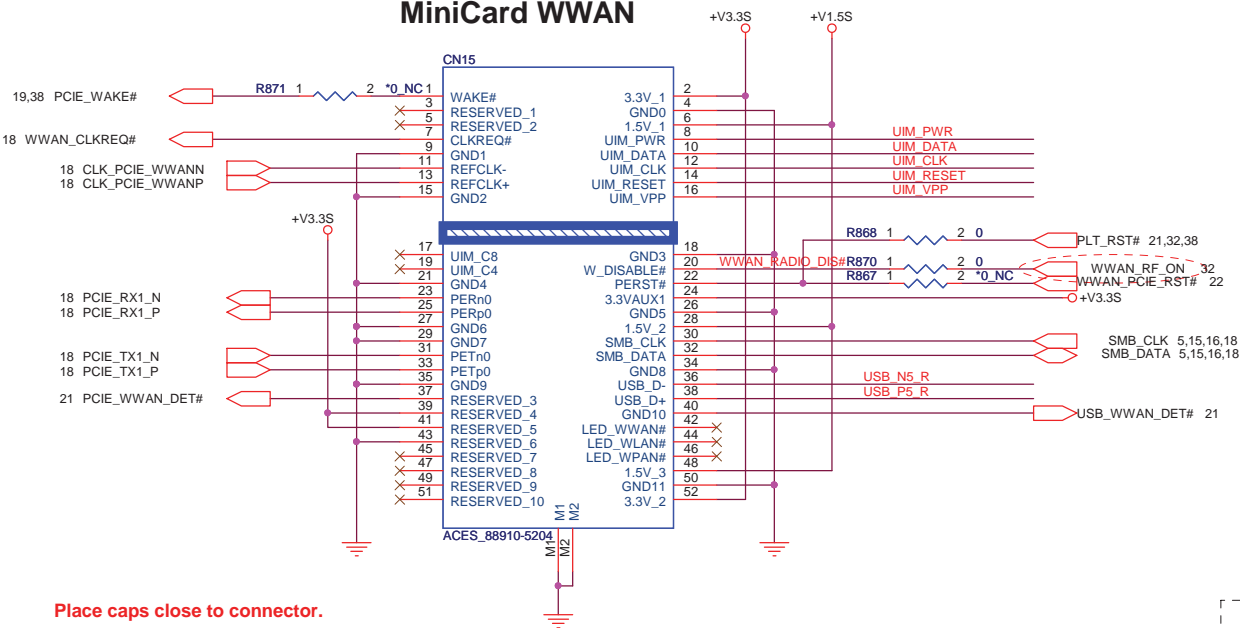
<http://laptop-motherboard-schematic.blogspot.com/>

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|-------------------------------|---------------------------|----------------|
| Del/ Flex Confidential | | |
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| AUDIO | | |
| Size | Document Number | Rev |
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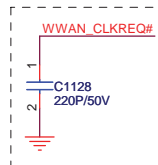
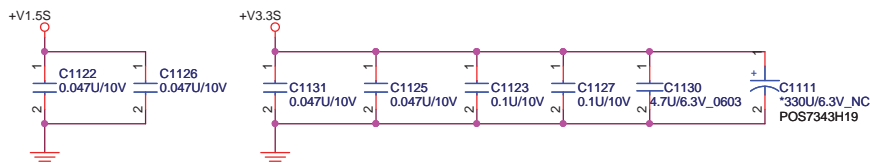
MiniCard WLAN 0929 update footprint



MiniCard WWAN

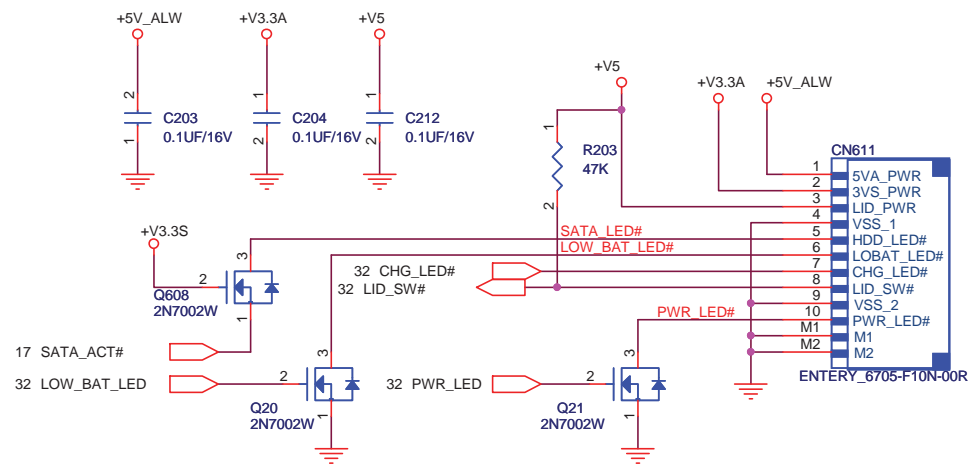
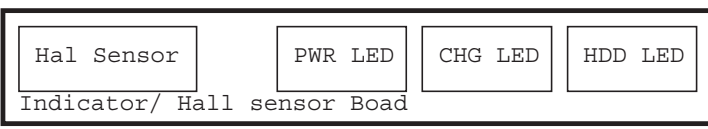


Place caps close to connector.

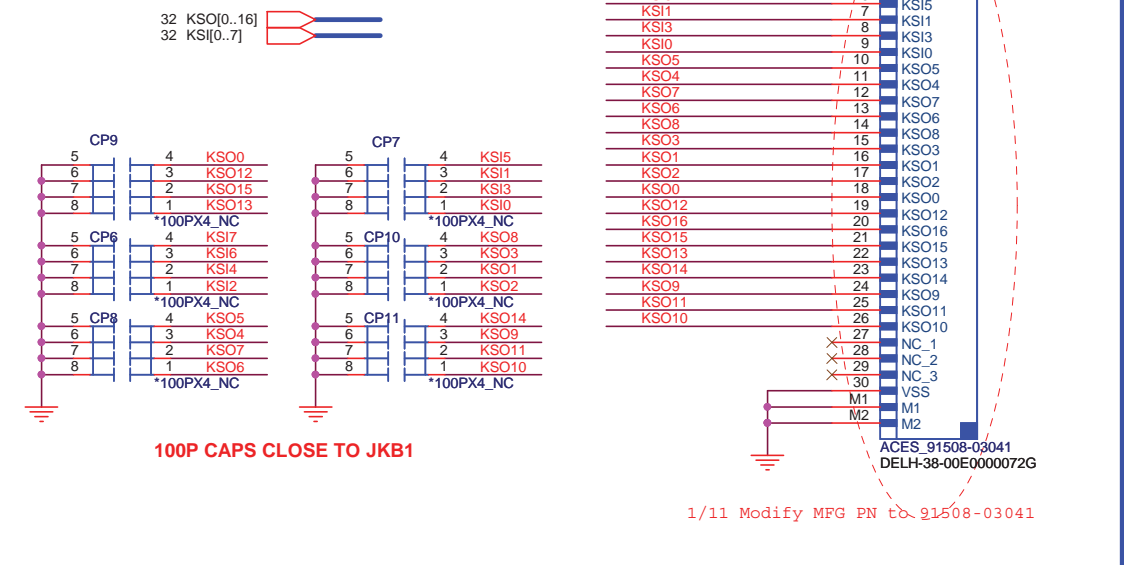


| | | | |
|--------------------------------|----------------------------|-------|----------|
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| WLAN / WWAN | | | |
| Size | Document Number | Rev | |
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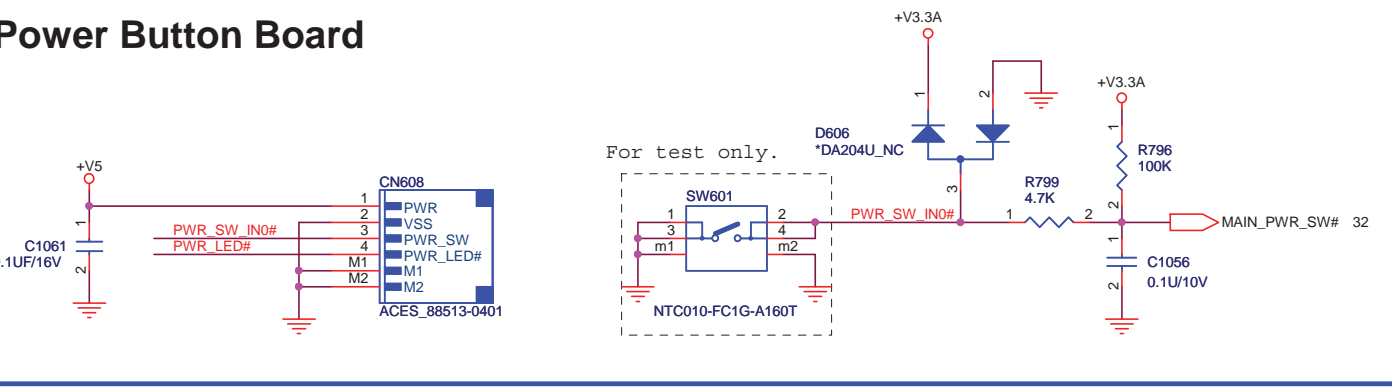
Indicator Board



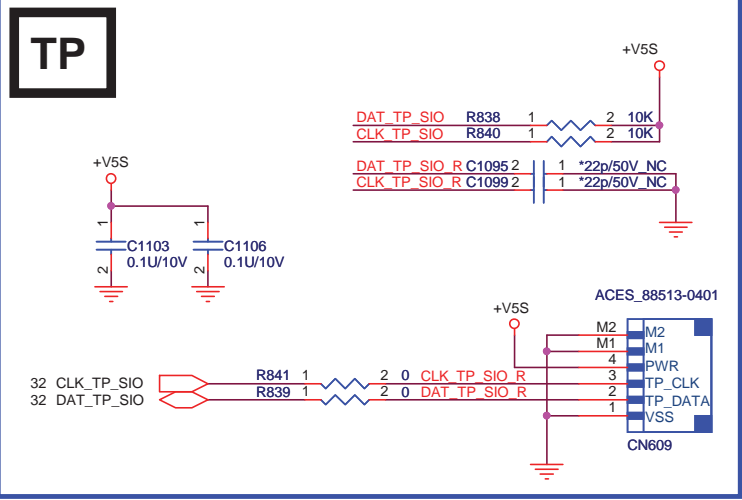
KB



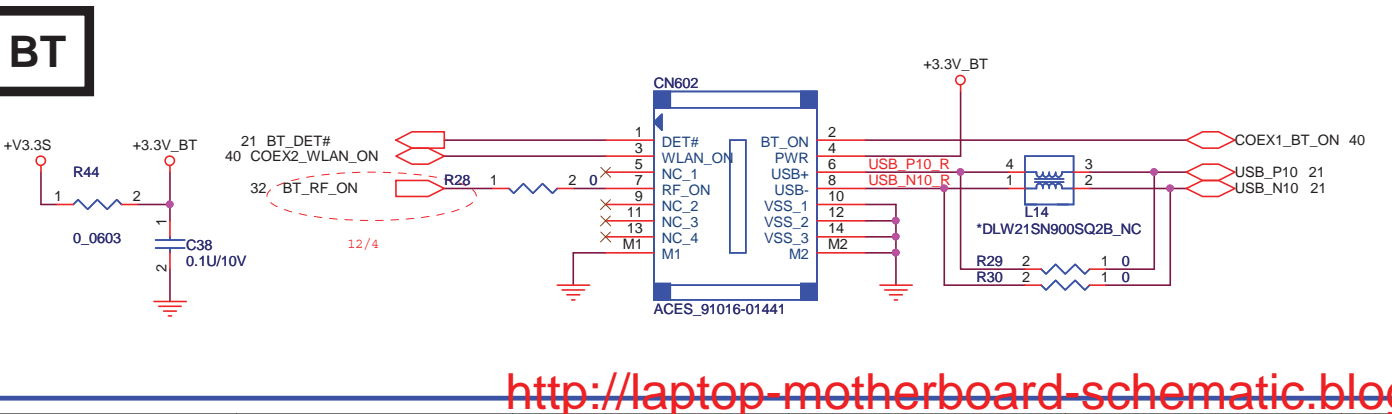
Power Button Board



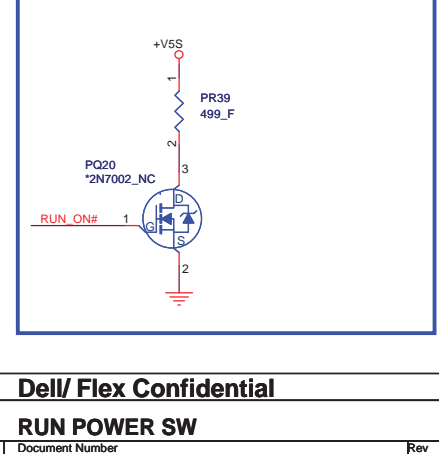
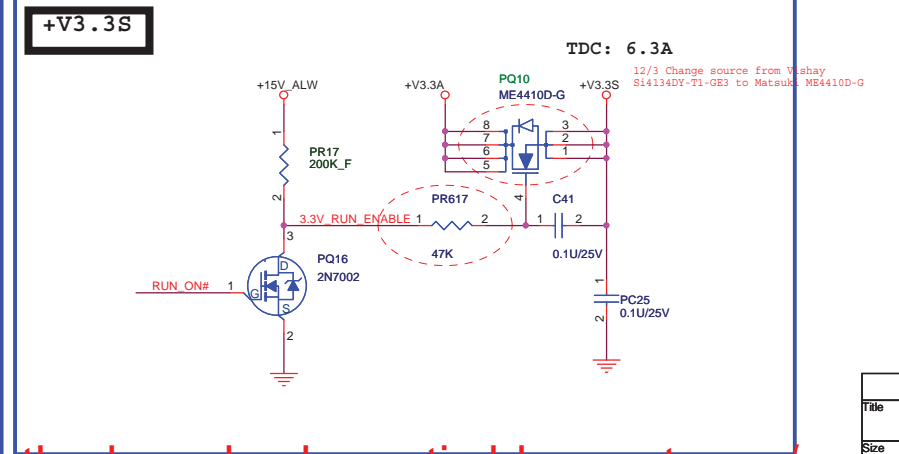
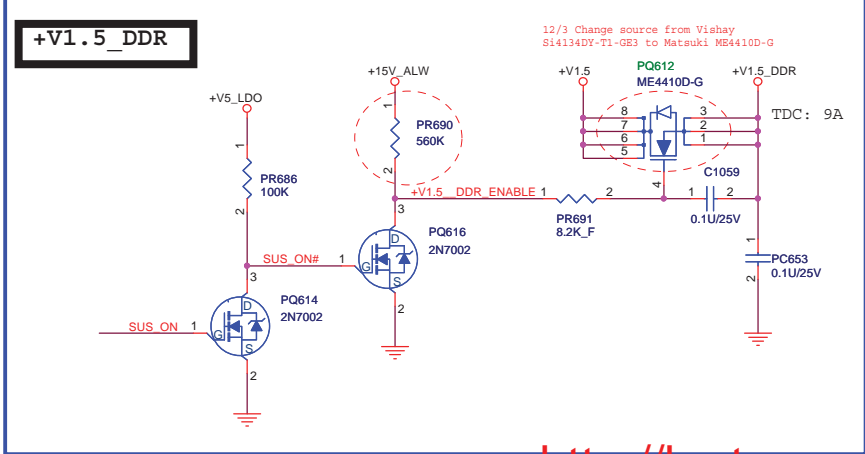
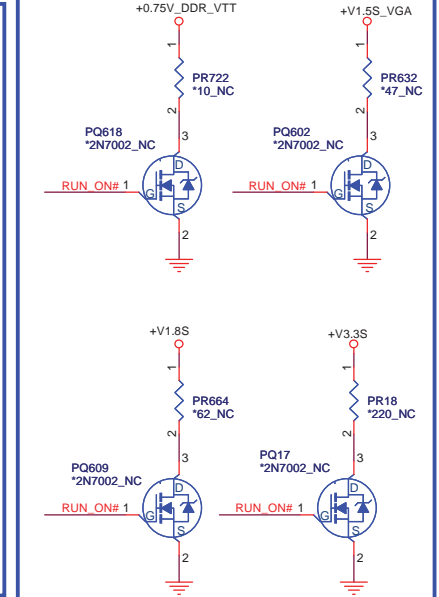
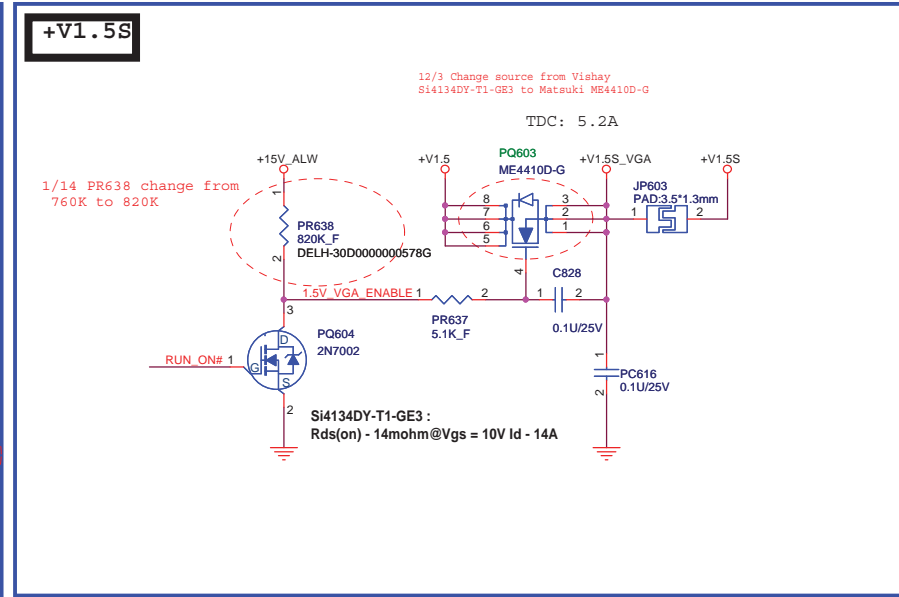
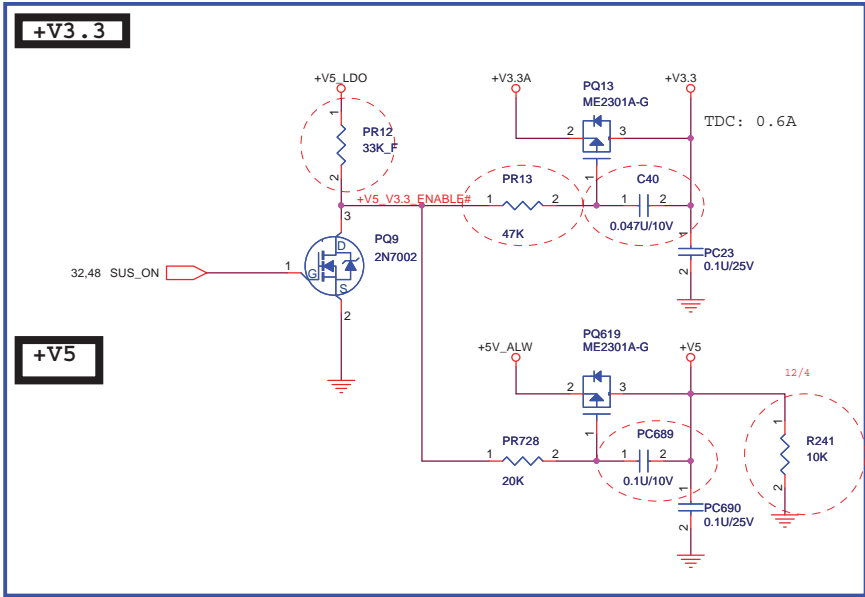
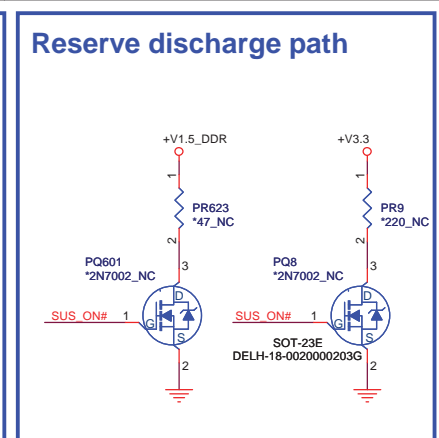
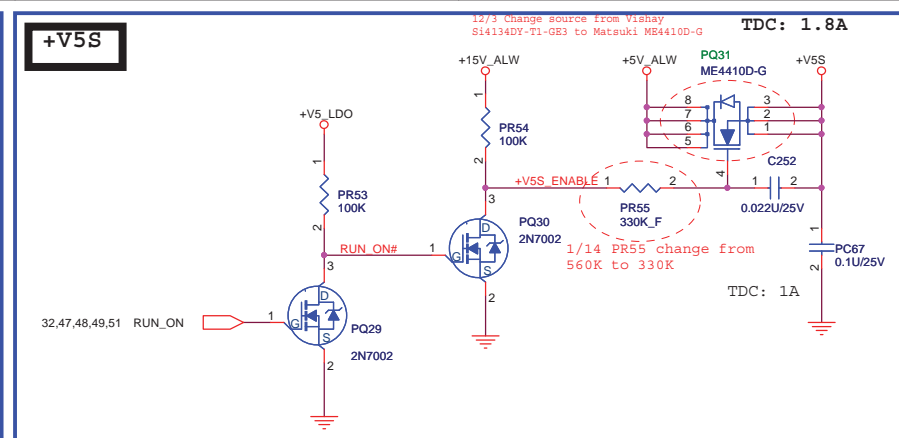
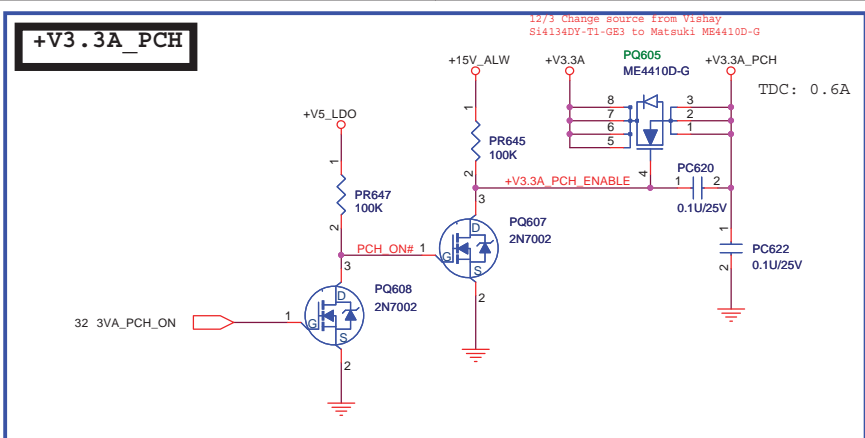
TP

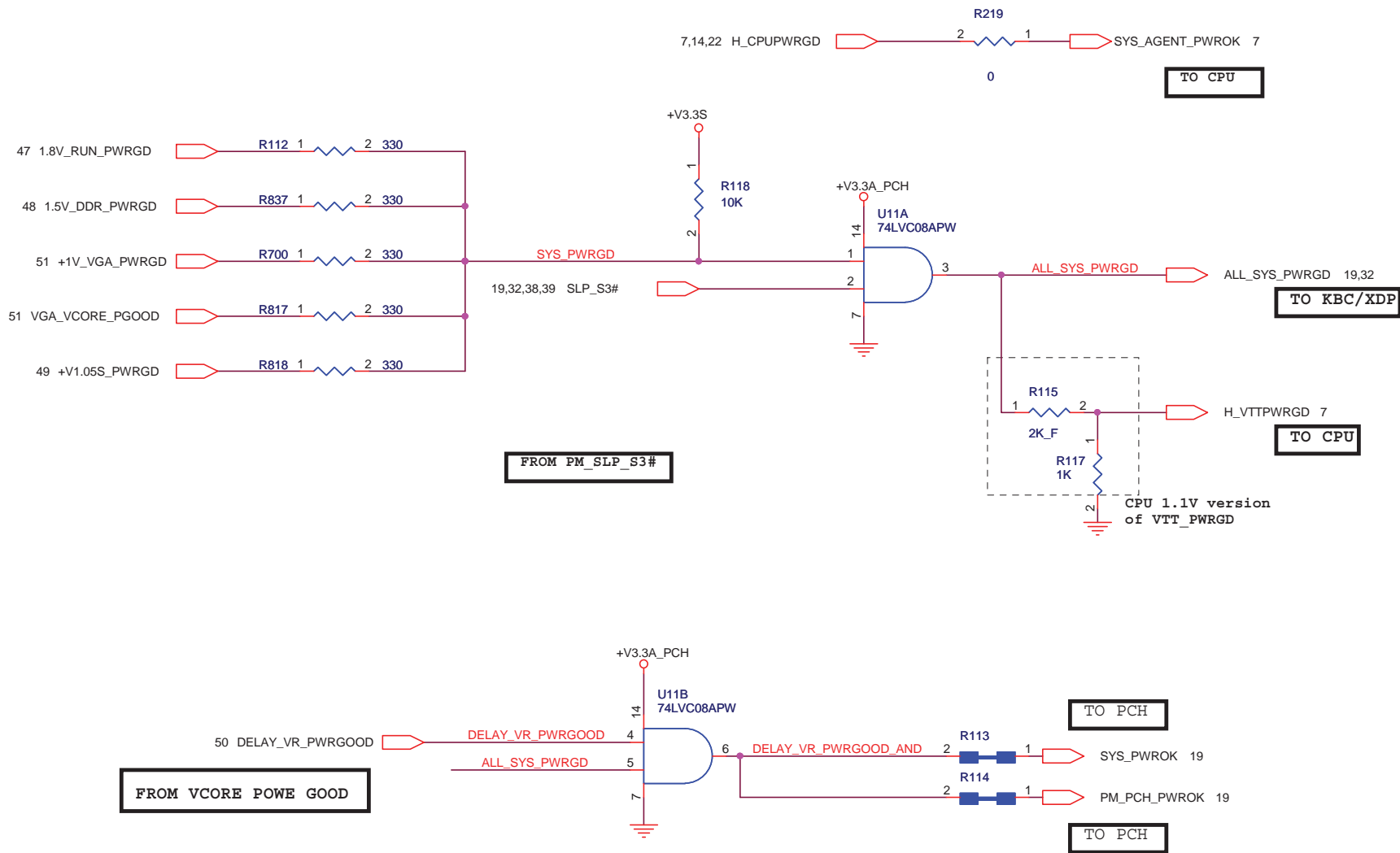


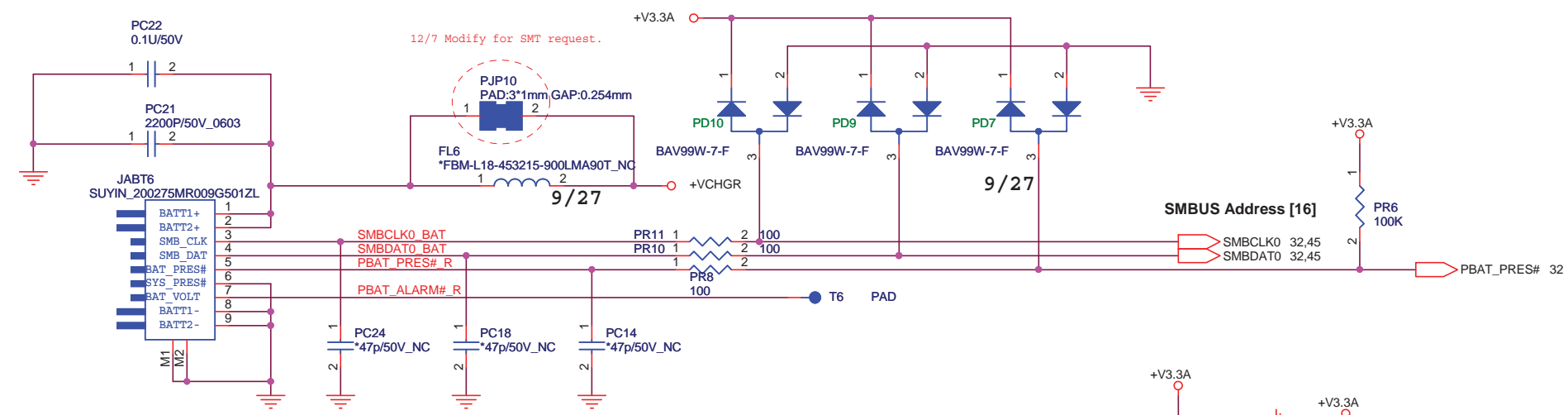
BT



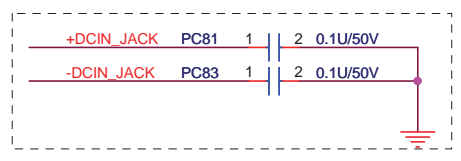
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| Dell/ Flex Confidential | | |
| Title | BT / KB / TP / LED / SW | |
| Size | Document Number | Rev X01 |
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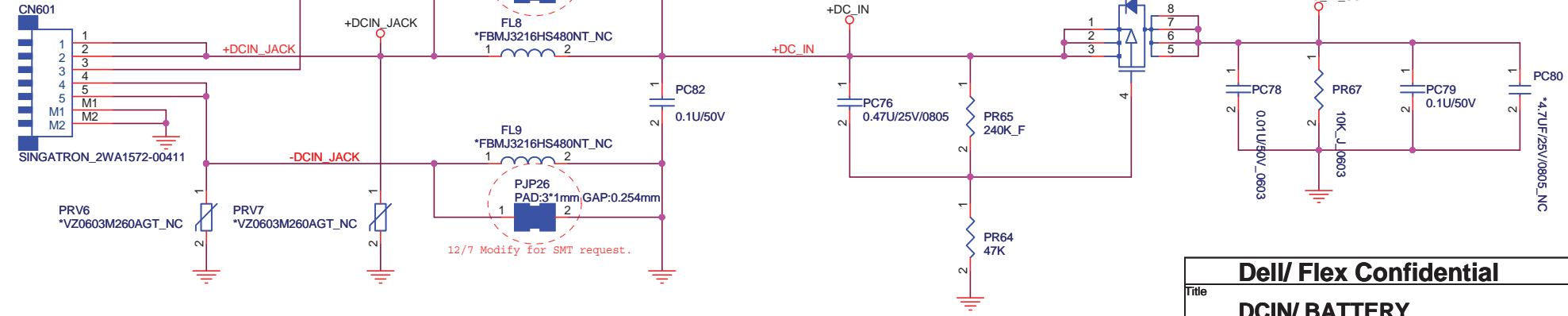




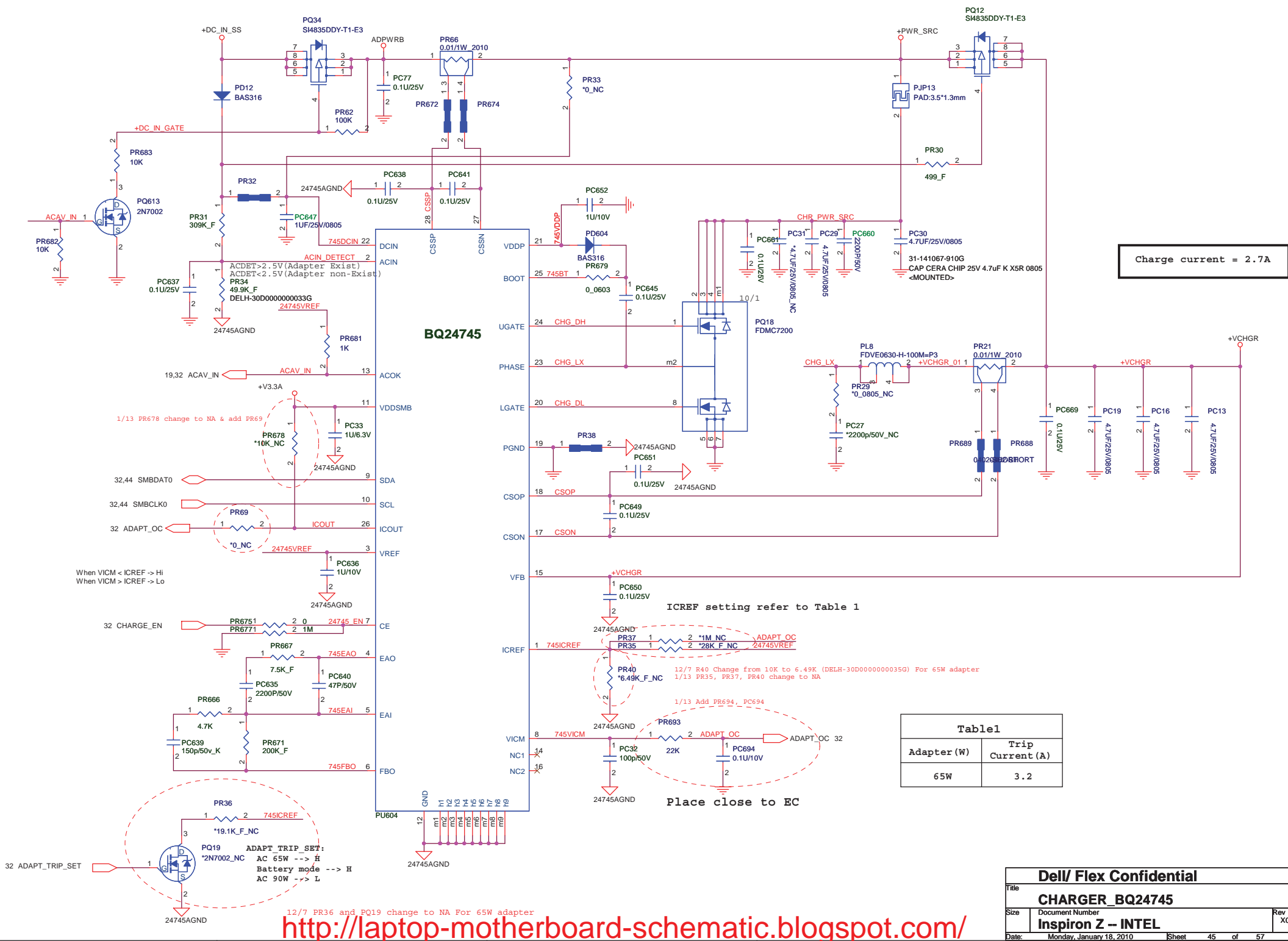
Battery Conn (030 Level)



DC Jack (030 Level)



| | | |
|--------------------------------|----------------------------|----------------|
| Dell/ Flex Confidential | | |
| Title | | |
| DCIN/ BATTERY | | |
| Size | Document Number | Rev |
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Charge current = 2.7A

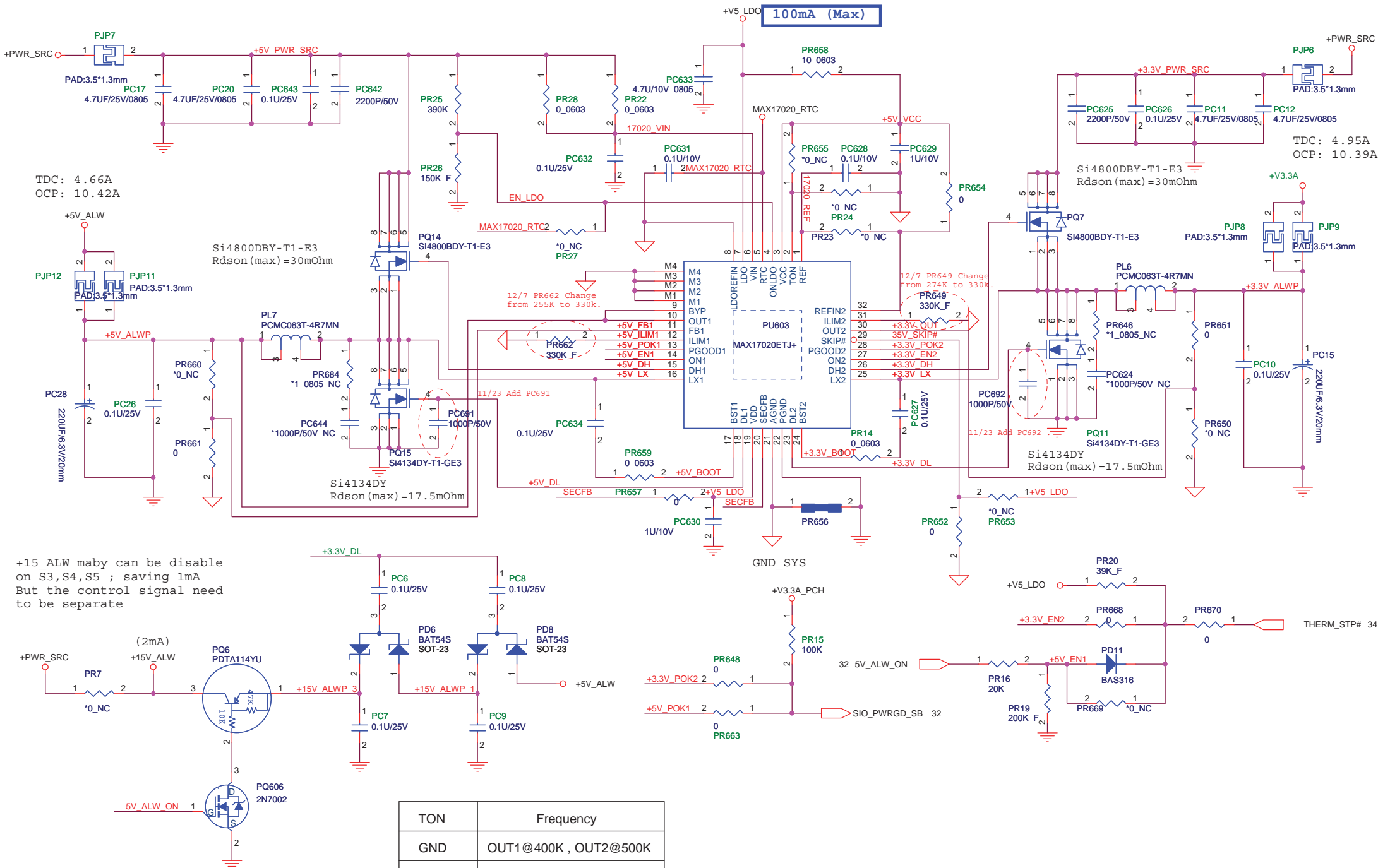
ICREF setting refer to Table 1

| Adapter (W) | Trip Current (A) |
|-------------|------------------|
| 65W | 3.2 |

Place close to EC

12/7 PR36 and PQ19 change to NA For 65W adapter

<http://laptop-motherboard-schematic.blogspot.com/>



TDC: 4.66A
OCP: 10.42A

Si4800DBY-T1-E3
Rdson(max)=30mOhm

Si4134DY
Rdson(max)=17.5mOhm

TDC: 4.95A
OCP: 10.39A

Si4800DBY-T1-E3
Rdson(max)=30mOhm

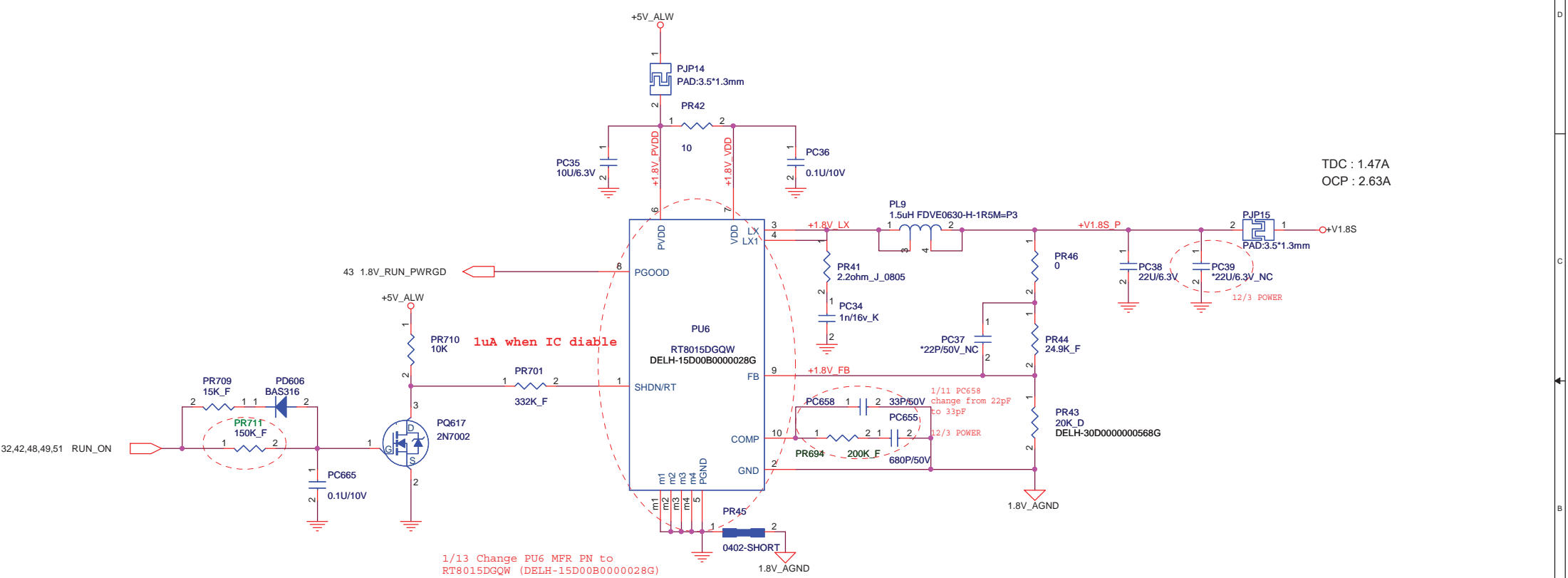
Si4134DY
Rdson(max)=17.5mOhm

+15_ALW maby can be disable
on S3,S4,S5 ; saving 1mA
But the control signal need
to be separate

| | |
|------|-----------------------|
| TON | Frequency |
| GND | OUT1@400K , OUT2@500K |
| VCC | OUT1@200K , OUT2@300K |
| OPEN | OUT1@400K , OUT2@300K |

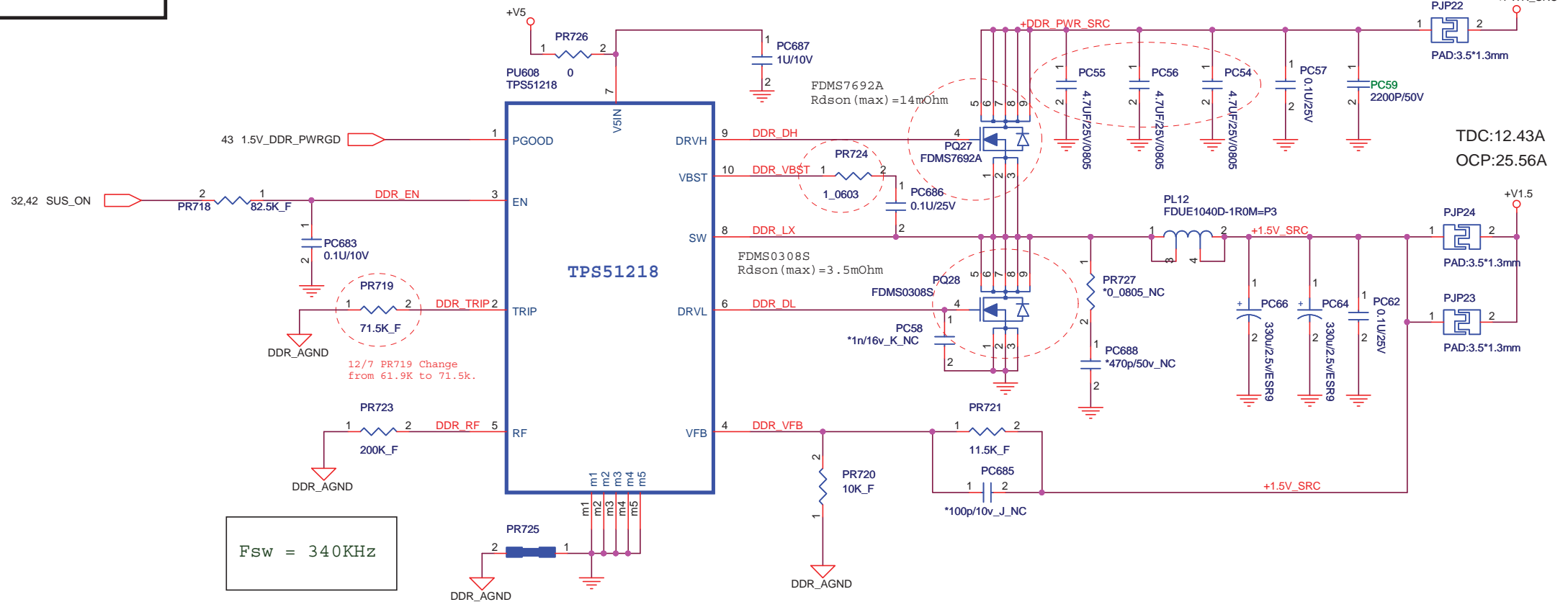
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|--------------------------------|--------------------------|----------------|
| Dell/ Flex Confidential | | |
| SYS 5V/3V(MAX17020) | | |
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+V1.8S



| Dell/ Flex Confidential | | |
|--------------------------------|---|----------------|
| Title +V1.8S_RT8015B | | |
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1.5VDDR



0.75VS

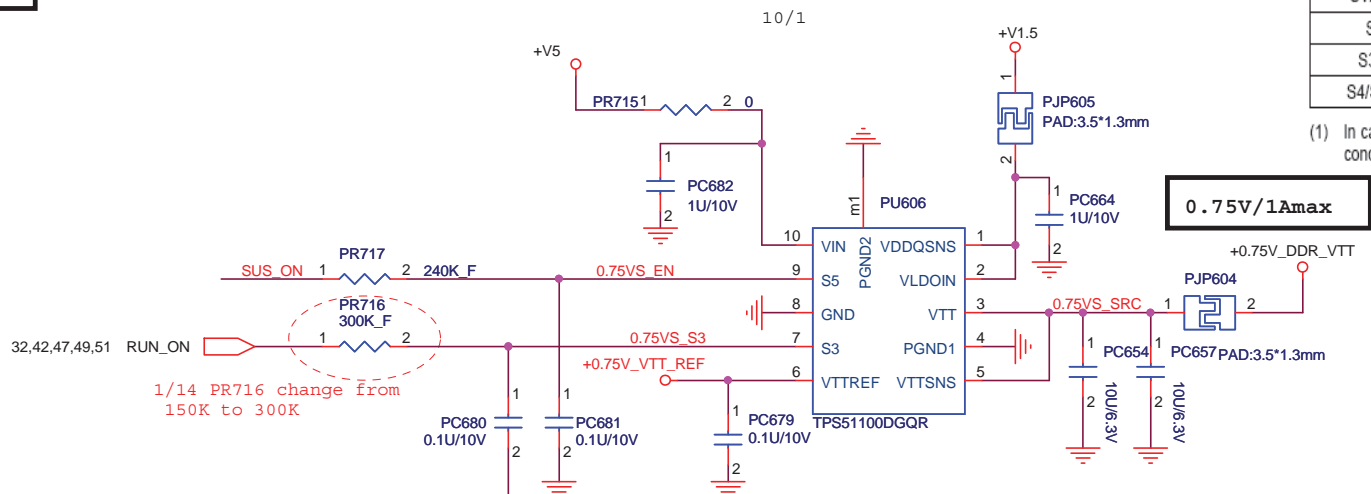


Table 1. S3 and S5 Control Table

| STATE | S3 | S5 | VTTREF | VTT |
|----------------------|----|----|---------------|---------------|
| S0 | H | H | 1 | 1 |
| S3 ⁽¹⁾ | L | H | 1 | 0 (high-Z) |
| S4/S5 ⁽¹⁾ | L | L | 0 (discharge) | 0 (discharge) |

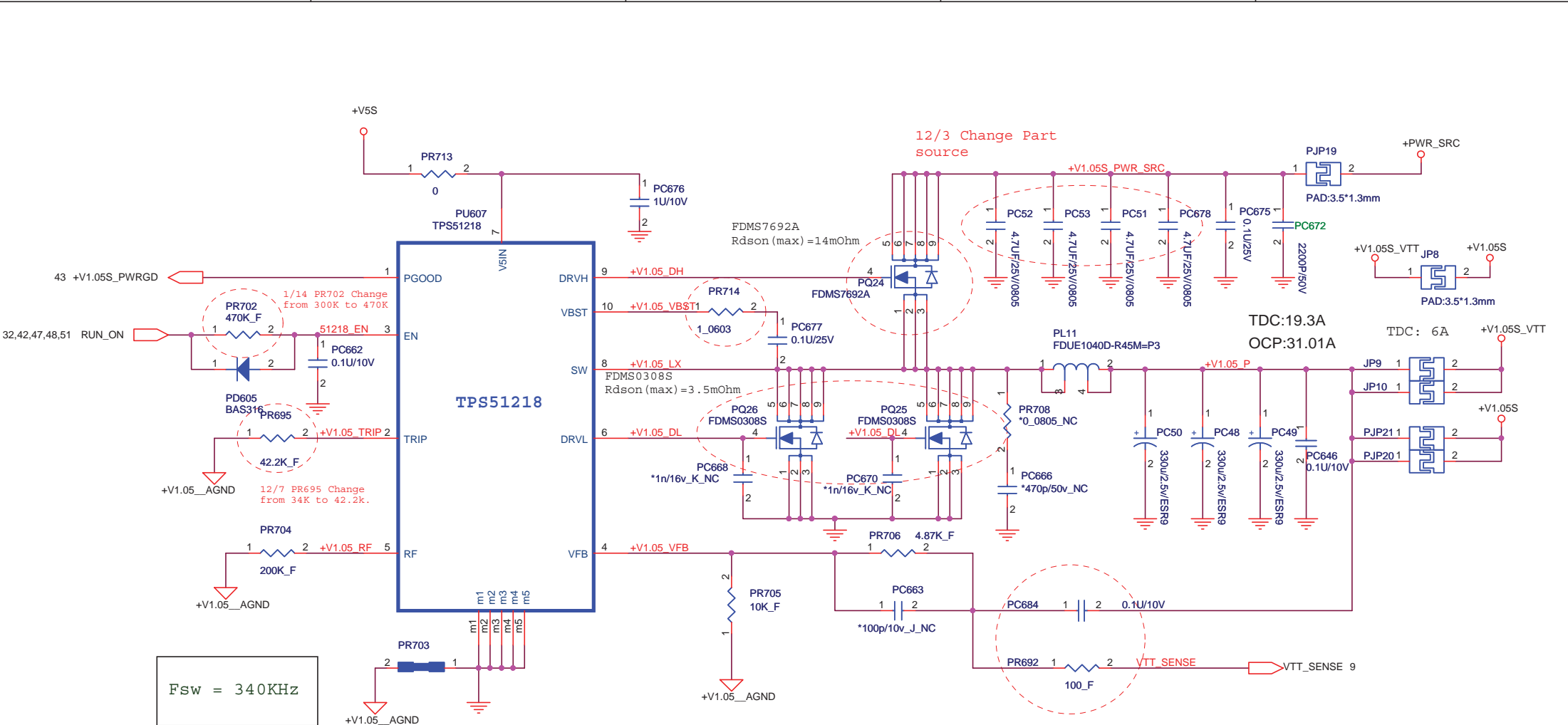
(1) In case S3 is forced to H and S5 to L, VTTREF is discharged and VTT is at High-Z state. This condition is NOT recommended.

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Title: **+V1.5 / +0.75VS**

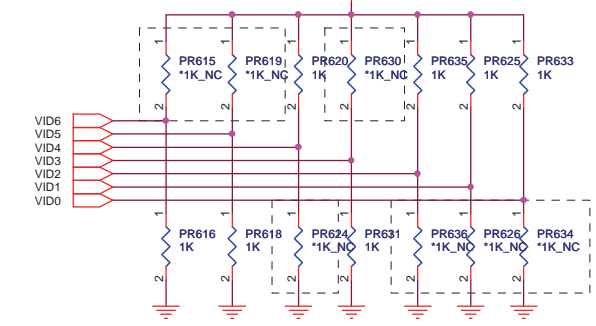
Size: Document Number: **Inspiron Z -- INTEL** Rev: X01

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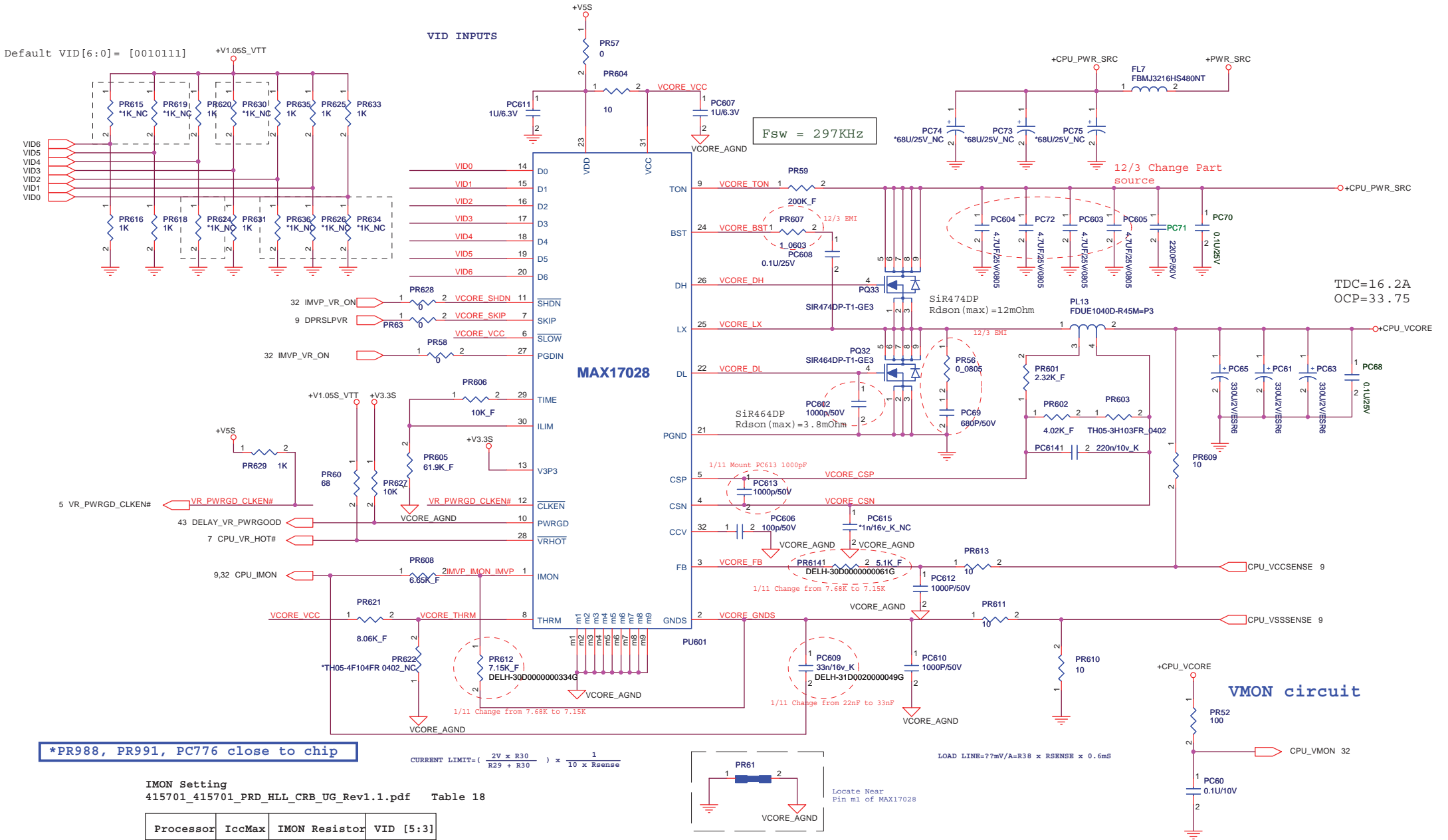
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| Title +V1.05S_TPS51218 | | |
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Default VID[6:0] = [00101111]



VID INPUTS

MAX17028

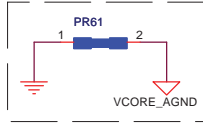


*PR988, PR991, PC776 close to chip

$$\text{CURRENT LIMIT} = \left(\frac{2V \times R30}{R29 + R30} \right) \times \frac{1}{10 \times R\text{sense}}$$

IMON Setting
415701_415701_PRD_HLL_CRB_UG_Rev1.1.pdf Table 18

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



Locate Near Pin m1 of MAX17028

$$\text{LOAD LINE} = \text{??mV/A} = R38 \times R\text{SENSE} \times 0.6\text{ms}$$

VMON circuit

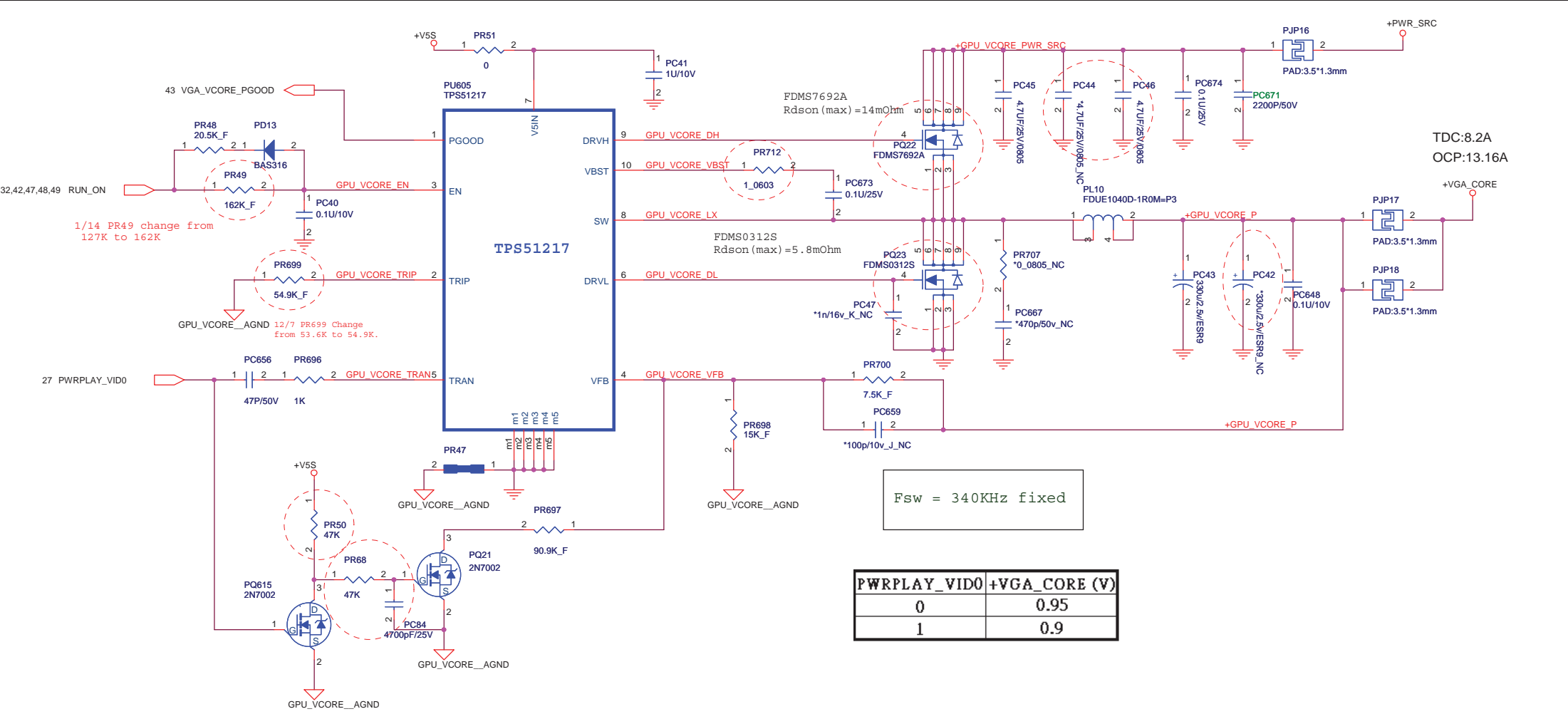
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Title: **CPU CORE_MAX17028**

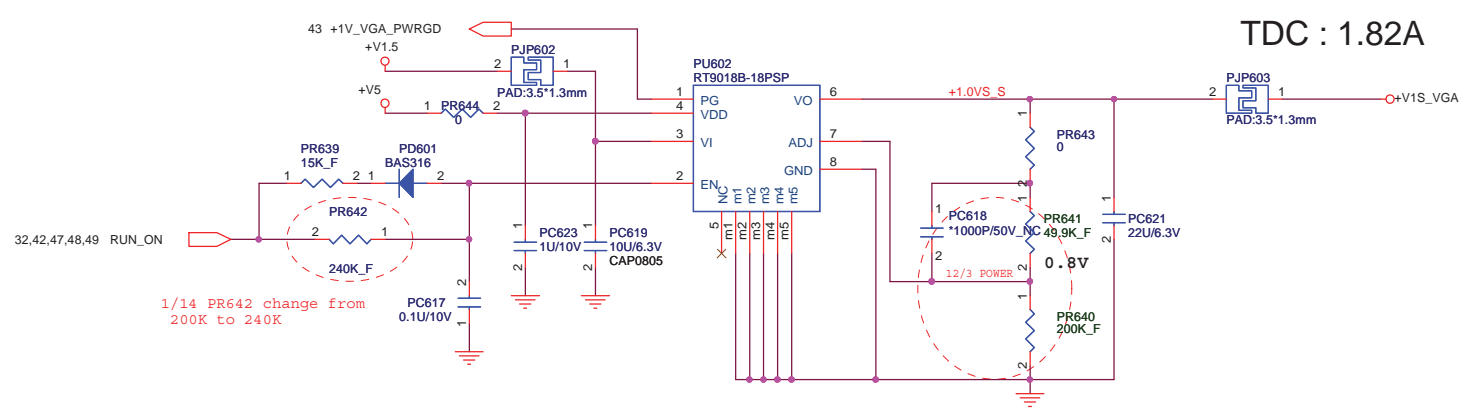
Size: Document Number
Date: Monday, January 18, 2010

Rev: X01

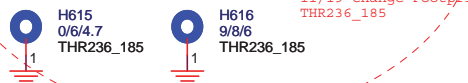
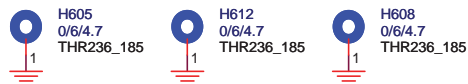
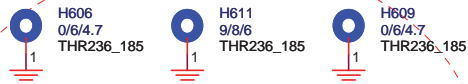
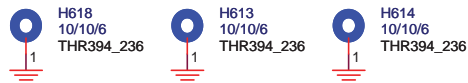
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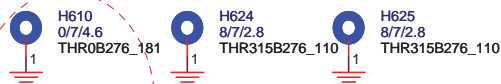
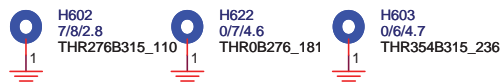
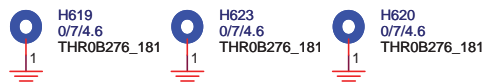
Discrete Only



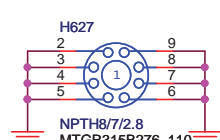
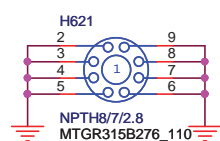
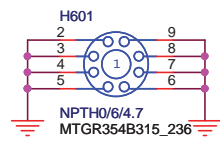
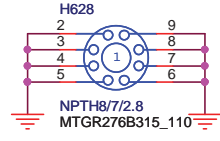
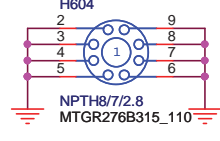
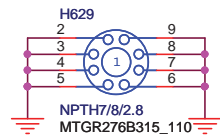
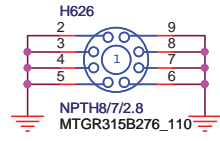
Screw Hole



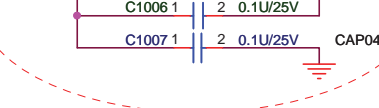
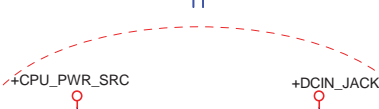
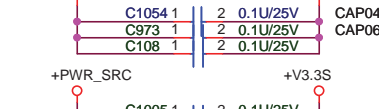
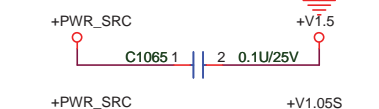
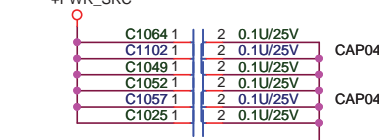
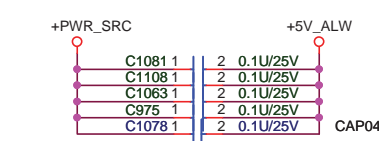
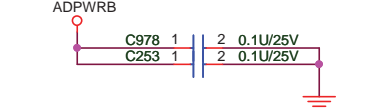
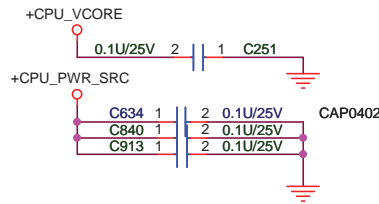
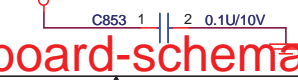
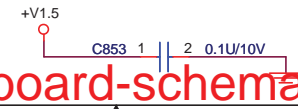
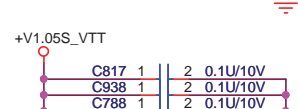
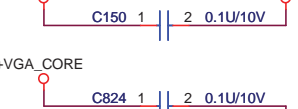
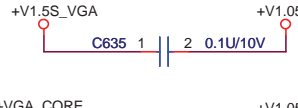
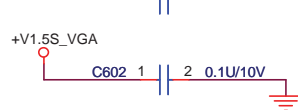
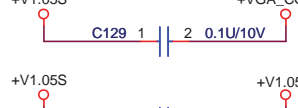
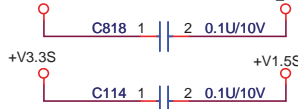
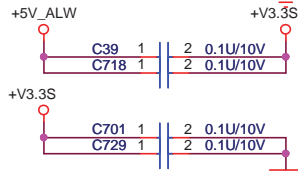
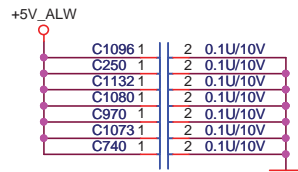
11/19 Change Footprint to THR236_185



11/19 Change Footprint to THROB276_181

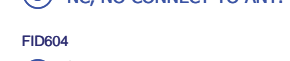


Moat Cap



12/7 EMI Add.

FID

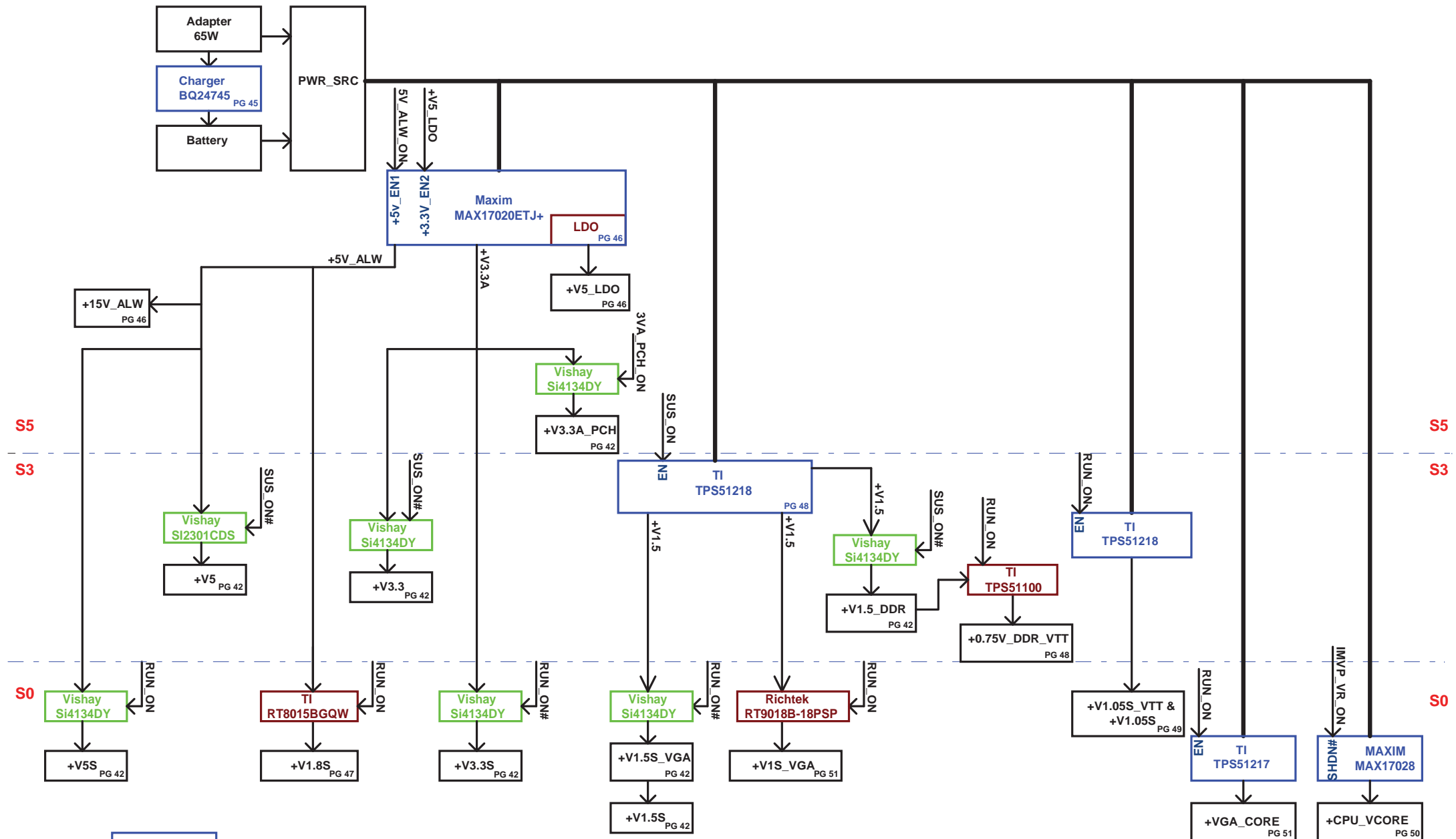


DELH-31D0010000007G

DELH-31D0010000007G

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| | | |
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| Title | | |
| SCREW / PAD | | |
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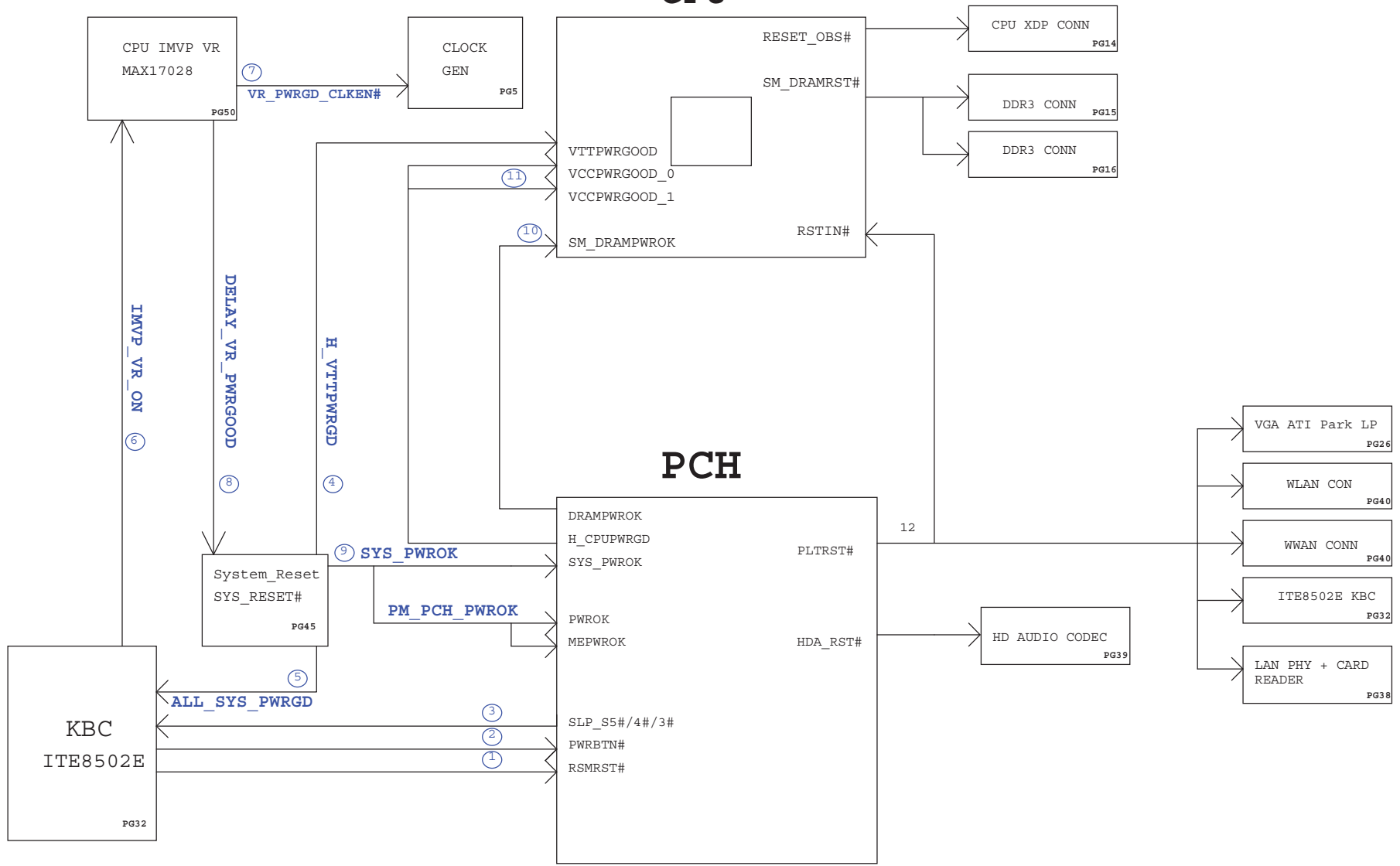
PWM Switching
LDO
Mosfet

| 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_VGA |
|---------------------------------|---------|---------|----------|--------|--------|--------|----------------|---------|-----------|------------|----------|
| 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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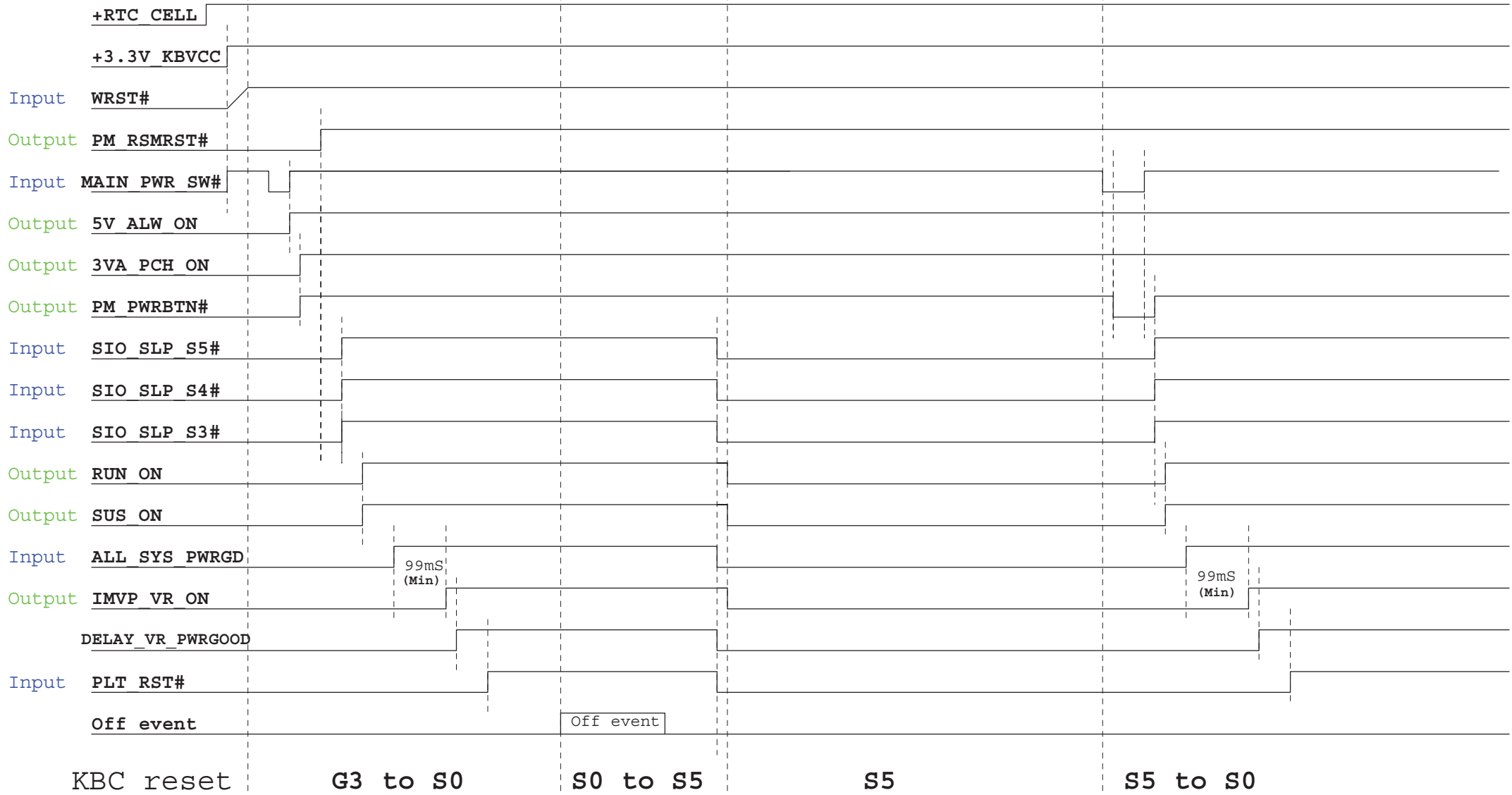
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 Size: _____ Document Number: **Inspiron Z -- INTEL** Rev: X01
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PCI RESET MAP

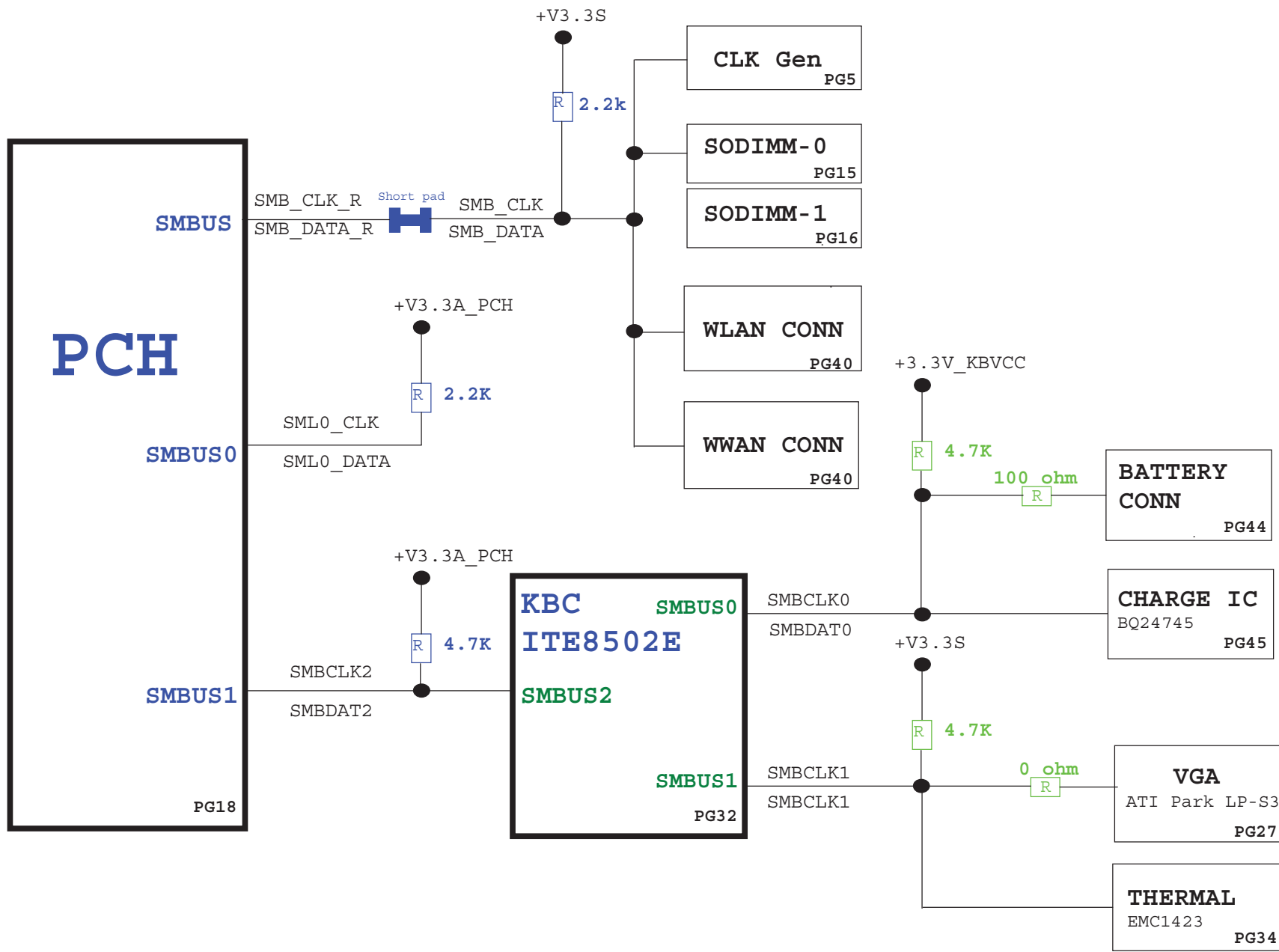


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|--------------------------------|--------------------------|---------|----------|
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| Title PCI RESET MAP | | | |
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KBC Powere Up Sequence



| | | | |
|-------------------------------------|--------------------------|----------|----------|
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| Title: KBC Power Up Sequence | | | |
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| | | |
|--------------------------------|--------------------------|----------------|
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| Title | SMBus Map | |
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EE change

| 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-38-00F0000013G, CN11 (mDP) Change to DELH-38D0110000005G CN612 (HDD) Change to DELH-38-00E0000071G, CN607 (KB) Change to DELH-38-00E0000072G |
| 3 | Update Chipset MFR PN | Update Chipset MFR PN | X01 | 7, 17 | U17 CPU 1.2G (SLMM) Change to DELH-11D0010000046G, U10 HM57 (SLGZR) Change to DELH-10D0010000012G |
| 4 | For HDMI SMBus Signal Quality | For HDMI SMBus Signal Quality | X01 | 36 | C57, C67 Change from 33pF to 18pF DELH-31D0000000005G |
| 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-30D0000000105G), Add PC694 0.1uF/10V(DELH-31D0020000012G), PR69 0ohm (NA) (DELH-30D0000000036G) |
| 2 | Improve 1.8V phase gain margin | Improve 1.8V phase gain margin | X01 | 47 | PC658 change from 22pF to 33pF/50V(DELH-31D0000000009G) |
| 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-31D0020000049G) |
| 5 | VIMON voltage precision | Vimon = 1V at load = 27A | X01 | 50 | PR612 change to 7.15K_F_0402(DELH-30D0000000334G) |
| 6 | Improve load line precision | Improve load line precision | X01 | 50 | PR614 change to 5.1K_F_0402(DELH-30D0000000061G) |
| 7 | Adjust the transeint response | Adjust the transeint response | X01 | 50 | PC613 change to 1000pF/50V(DELH-31D0020000037G) 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 |
|------|-------------|-------------------|-----|-----|-------------|
| | | | | | |