

# COMPAL CONFIDENTIAL

MODEL NAME : *PAL51/53*

PCB NO : *LA-6592P (DAA00001V10)*

BOM P/N : *43192931L01*

GPIO MAP: E3 Master GPIO Map10102010.xlsx

## E3 MACALLAN 14" SG

rPGA Sandy Bridge +  
FCBGA PCH Cougar Point-M

2011-1-13

REV : 1.0(A00)

@ : Nopop Component

CONN@ : ME control and stuff by default

| MB Type              | BOM P/N     |    |    |
|----------------------|-------------|----|----|
| TPM EN/ TCM DIS      | 43192931L01 | 1@ | 3@ |
| TPM DIS/ TCM EN      | 43192931L02 | 2@ | 4@ |
| TPM DIS/ TCM DIS     | 43192931L03 | 2@ | 3@ |
| ATG TPM EN/ TCM DIS  | 43192931L11 | 1@ | 3@ |
| ATG TPM DIS/ TCM EN  | 43192931L12 | 2@ | 4@ |
| ATG TPM DIS/ TCM DIS | 43192931L13 | 2@ | 3@ |

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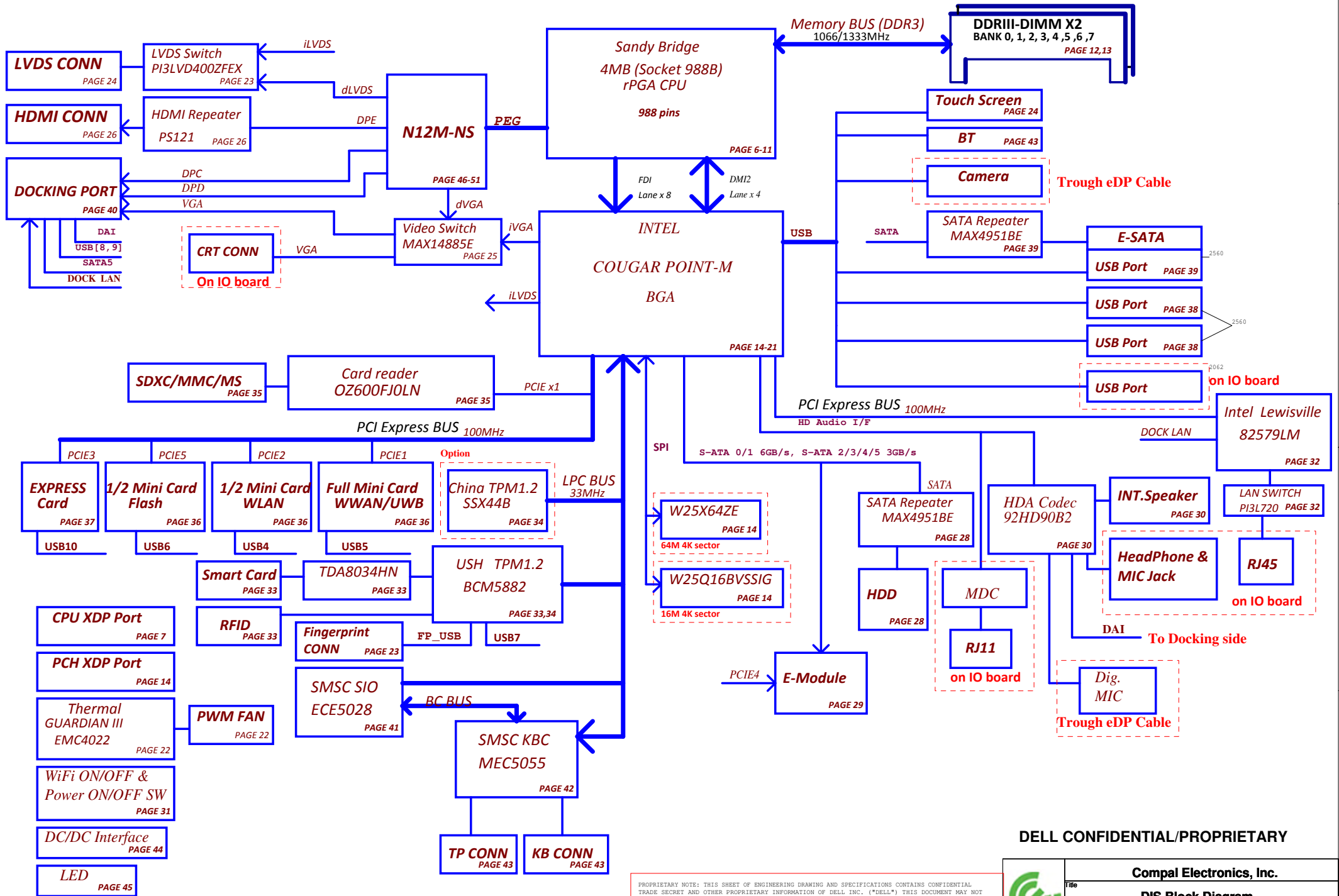
| Title                      |                 |
|----------------------------|-----------------|
| Cover Sheet                |                 |
| Size                       | Document Number |
|                            | LA-6592P        |
| Date                       | Rev             |
| Thursday, January 13, 2011 | 1.0             |
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[www.VinaFix.vn](http://www.VinaFix.vn)

| Part Number | Description                   |
|-------------|-------------------------------|
| DAA00001V10 | PCB OFE LA-6592P REV0 M/8 DIS |



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|                                 |                            |       |         |
|---------------------------------|----------------------------|-------|---------|
| <b>Compal Electronics, Inc.</b> |                            |       |         |
| <b>DIS Block Diagram</b>        |                            |       |         |
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**POWER STATES**

| State \ Signal               | SLP S3# | SLP S4# | SLP S5# | SLP A# | ALWAYS PLANE | M PLANE | SUS PLANE | RUN PLANE | CLOCKS |
|------------------------------|---------|---------|---------|--------|--------------|---------|-----------|-----------|--------|
| S0 (Full ON) / M0            | HIGH    | HIGH    | HIGH    | HIGH   | ON           | ON      | ON        | ON        | ON     |
| S3 (Suspend to RAM) / M3     | LOW     | HIGH    | HIGH    | HIGH   | ON           | ON      | ON        | OFF       | OFF    |
| S4 (Suspend to DISK) / M3    | LOW     | LOW     | HIGH    | HIGH   | ON           | ON      | OFF       | OFF       | OFF    |
| S5 (SOFT OFF) / M3           | LOW     | LOW     | LOW     | HIGH   | ON           | ON      | OFF       | OFF       | OFF    |
| S3 (Suspend to RAM) / M-OFF  | LOW     | HIGH    | HIGH    | LOW    | ON           | OFF     | ON        | OFF       | OFF    |
| S4 (Suspend to DISK) / M-OFF | LOW     | LOW     | HIGH    | LOW    | ON           | OFF     | OFF       | OFF       | OFF    |
| S5 (SOFT OFF) / M-OFF        | LOW     | LOW     | LOW     | LOW    | ON           | OFF     | OFF       | OFF       | OFF    |

**PM TABLE**

| State \ power plane  | +15V_ALW<br>+5V_ALW<br>+3.3V_ALW_PCH<br>+3.3V_RTC_LDO | +3.3V_SUS<br>+1.5V_MEM | +5V_RUN<br>+3.3V_RUN<br>+1.8V_RUN<br>+1.5V_RUN<br>+0.75V_DDR_VTT<br>+VCC_CORE<br>+1.05V_RUN_VTT<br>+1.05V_RUN | +3.3V_M<br>+1.05V_M | +3.3V_M<br>+1.05V_M<br>(M-OFF) |
|----------------------|---|------------------------|---|---------------------|--------------------------------|
| S0                   | ON  | ON                     | ON  | ON                  | ON                             |
| S3                   | ON  | ON                     | OFF   | ON                  | OFF                            |
| S5 S4/AC             | ON  | OFF                    | OFF   | ON                  | OFF                            |
| S5 S4/AC don't exist | OFF   | OFF                    | OFF   | OFF                 | OFF                            |

| SATA   | DESTINATION        |
|--------|--------------------|
| SATA 0 | HDD                |
| SATA 1 | ODD/ E3 Module Bay |
| SATA 2 | NA                 |
| SATA 3 | NA                 |
| SATA 4 | ESATA              |
| SATA 5 | Dock               |

need to update Power Status and PM Table

| PCH | USB PORT# | DESTINATION              |
|-----|-----------|--------------------------|
|     | 0         | JUSB2 (Right side 1)     |
|     | 1         | JUSB3 (Right side 2)     |
|     | 2         | JESA1 (Right Side ESATA) |
|     | 3         | JESA1 (Ext Left Side )   |
|     | 4         | WLAN                     |
|     | 5         | WWAN                     |
|     | 6         | JMINI3(Flash)            |
|     | 7         | USH->BIO                 |
|     | 8         | DOCKING                  |
|     | 9         | DOCKING                  |
|     | 10        | Express card             |
|     | 11        | Bluetooth                |
|     | 12        | Camera                   |
| 13  | LCD Touch |                          |

| USH | 0 | BIO |
|-----|---|-----|
|     | 1 | NA  |

| PCI EXPRESS | DESTINATION          |
|-------------|----------------------|
| Lane 1      | MINI CARD-1 WWAN     |
| Lane 2      | MINI CARD-2 WLAN     |
| Lane 3      | Express card         |
| Lane 4      | E3 Module Bay (USB3) |
| Lane 5      | 1/2vMINI CARD-3 PCIE |
| Lane 6      | MMI                  |
| Lane 7      | 10/100/1G LOM        |
| Lane 8      | None                 |

| DSC DP/HDMI Port | Connetion      |
|------------------|----------------|
| Port C           | Dock DP port 2 |
| Port D           | Dock DP port 1 |
| Port E           | MB HDMI Conn   |

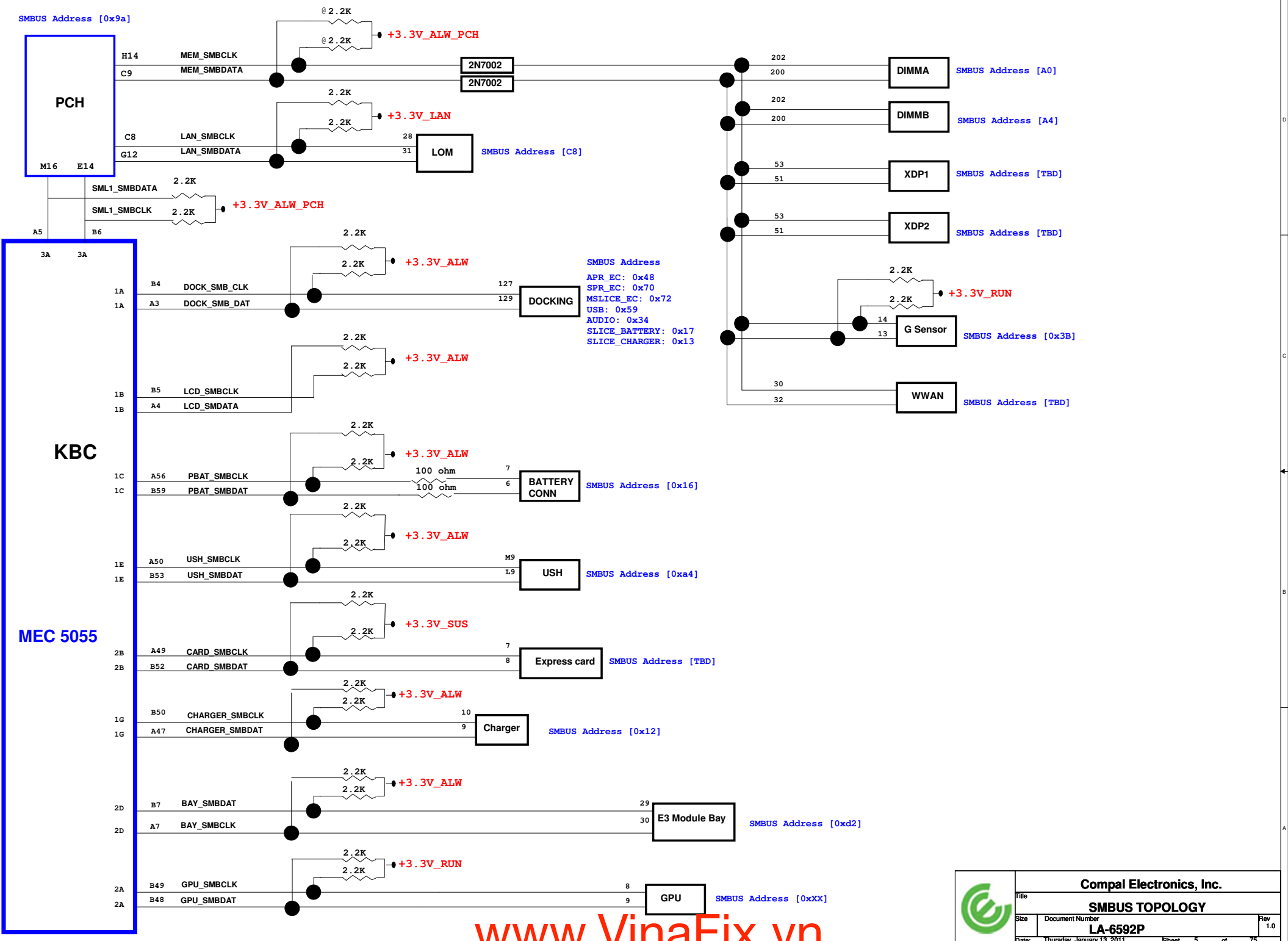
| Layer No. | Name                             | Material    | Thickness (Material SPEC.) Unit : mil | Thickness (Actuality) Unit : mil |
|-----------|----------------------------------|-------------|---------------------------------------|----------------------------------|
|           |                                  | SolderMask  | min 0.4                               | 0.50000                          |
|           |                                  | Add Plating |                                       | 1.45000                          |
| 1         | Top                              | Copper foil | 0.5oz(0.68)                           | 0.65000                          |
|           |                                  | Prepreg     | 1080                                  | 2.75000                          |
| 2         | GND1                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Core        | 4mil                                  | 3.89000                          |
| 3         | IN 1                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Prepreg     | 1506                                  | 5.50000                          |
| 4         | GND2                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Core        | 3mil                                  | 3.09000                          |
| 5         | IN 2                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Prepreg     | 1506*2                                | 11.50000                         |
| 6         | IN 3                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Core        | 3mil                                  | 3.09000                          |
| 7         | VCC                              | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Prepreg     | 1506                                  | 5.50000                          |
| 8         | IN 4                             | Copper foil | 1oz(1.35)                             | 1.35000                          |
|           |                                  | Core        | 4mil                                  | 3.89000                          |
| 9         | GND 3                            | Copper foil | 1oz(1.35)                             | 1.30000                          |
|           |                                  | Prepreg     | 1080                                  | 2.75000                          |
| 10        | Bottom                           | Copper foil | 0.5oz(0.68)                           | 0.65000                          |
|           |                                  | Add Plating |                                       | 1.45000                          |
|           |                                  | SolderMask  | min 0.4                               | 0.50000                          |
|           | Overall Thickness (1.45mm ± 10%) |             |                                       | 57.91000                         |

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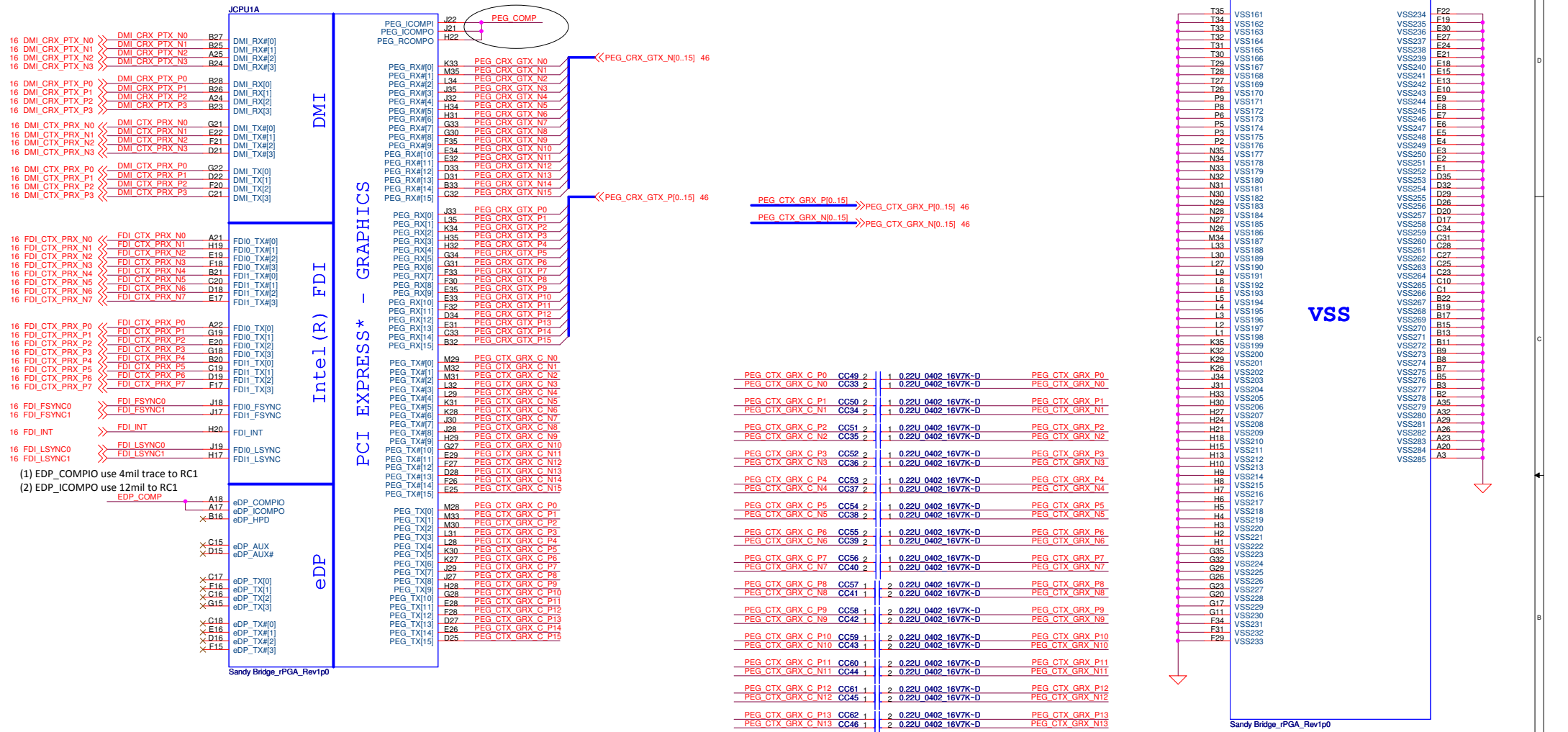
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**Index and Config.**  
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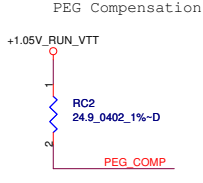
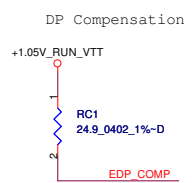




(1) PEG\_RCOPMO (H22) use 4mil connect to PEG\_ICOMPI, then use 4mil connect to RC2.  
 (2) PEG\_ICOMPO use 12mil connect to RC2



(1) EDP\_COMPIO use 4mil trace to RC1  
 (2) EDP\_ICOMPO use 12mil to RC1



eDP\_COMPIO and ICOMPO signals should be shorted near balls and routed with typical impedance <25 mohms

PEG\_ICOMPI and RCOPMO signals should be shorted and routed with - max length = 500 mils - typical impedance = 43 mohms  
 PEG\_ICOMPO signals should be routed with - max length = 500 mils - typical impedance = 14.5 mohms

|                   |      |   |   |       |      |         |                 |
|-------------------|------|---|---|-------|------|---------|-----------------|
| PEG CTX GRX C P0  | CC49 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P0  |
| PEG CTX GRX C N0  | CC33 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N0  |
| PEG CTX GRX C P1  | CC50 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P1  |
| PEG CTX GRX C N1  | CC34 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N1  |
| PEG CTX GRX C P2  | CC51 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P2  |
| PEG CTX GRX C N2  | CC35 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N2  |
| PEG CTX GRX C P3  | CC52 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P3  |
| PEG CTX GRX C N3  | CC36 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N3  |
| PEG CTX GRX C P4  | CC53 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P4  |
| PEG CTX GRX C N4  | CC37 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N4  |
| PEG CTX GRX C P5  | CC54 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P5  |
| PEG CTX GRX C N5  | CC38 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N5  |
| PEG CTX GRX C P6  | CC55 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P6  |
| PEG CTX GRX C N6  | CC39 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N6  |
| PEG CTX GRX C P7  | CC56 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P7  |
| PEG CTX GRX C N7  | CC40 | 2 | 1 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N7  |
| PEG CTX GRX C P8  | CC57 | 2 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P8  |
| PEG CTX GRX C N8  | CC41 | 2 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N8  |
| PEG CTX GRX C P9  | CC58 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P9  |
| PEG CTX GRX C N9  | CC42 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N9  |
| PEG CTX GRX C P10 | CC59 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P10 |
| PEG CTX GRX C N10 | CC43 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N10 |
| PEG CTX GRX C P11 | CC60 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P11 |
| PEG CTX GRX C N11 | CC44 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N11 |
| PEG CTX GRX C P12 | CC61 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P12 |
| PEG CTX GRX C N12 | CC45 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N12 |
| PEG CTX GRX C P13 | CC62 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P13 |
| PEG CTX GRX C N13 | CC46 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N13 |
| PEG CTX GRX C P14 | CC63 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P14 |
| PEG CTX GRX C N14 | CC47 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N14 |
| PEG CTX GRX C P15 | CC64 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX P15 |
| PEG CTX GRX C N15 | CC48 | 1 | 2 | 0.22u | 0402 | 16V7K-D | PEG CTX GRX N15 |

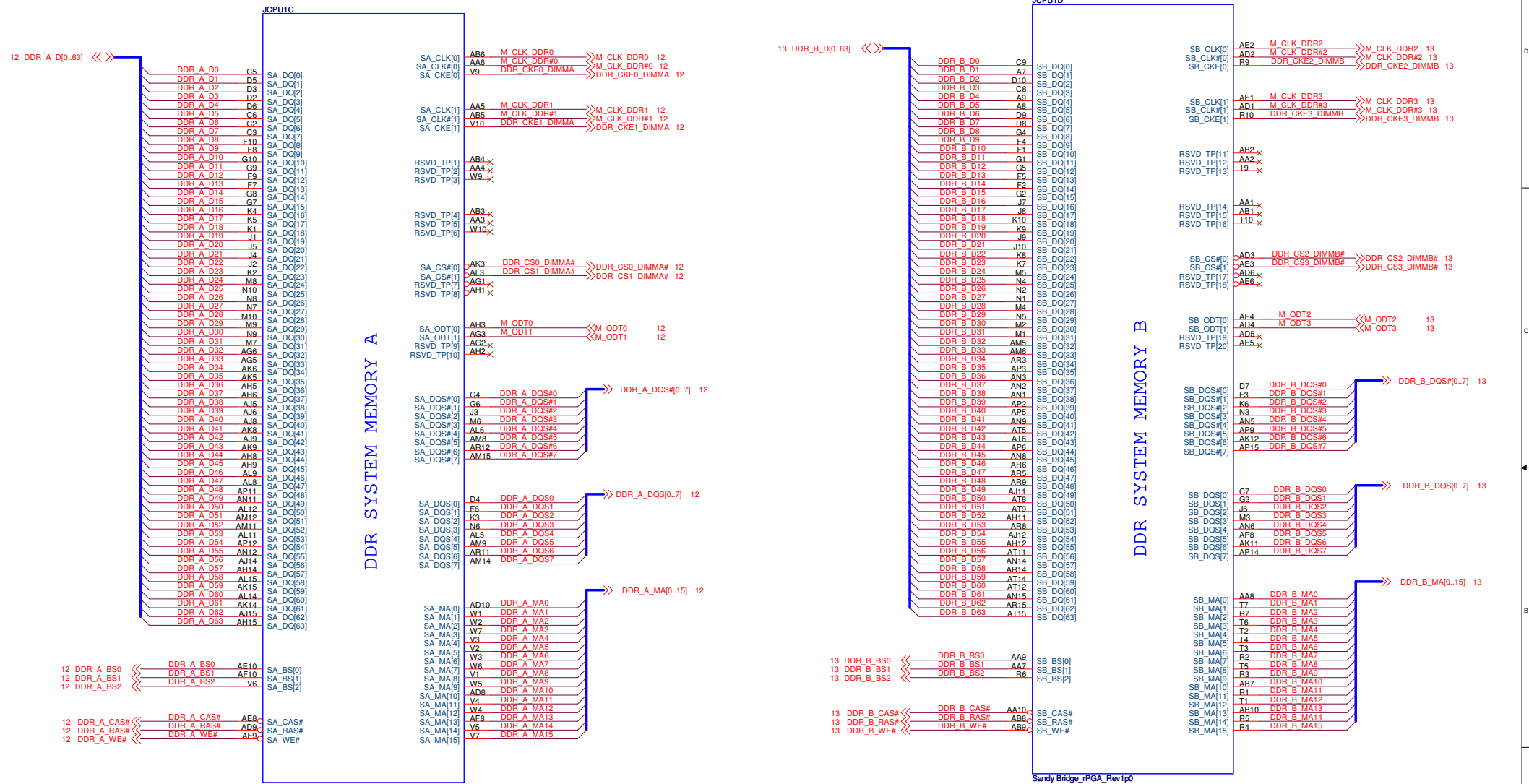
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 Sandy Bridge (1/6)  
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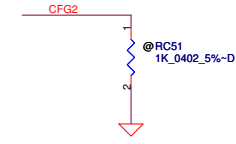
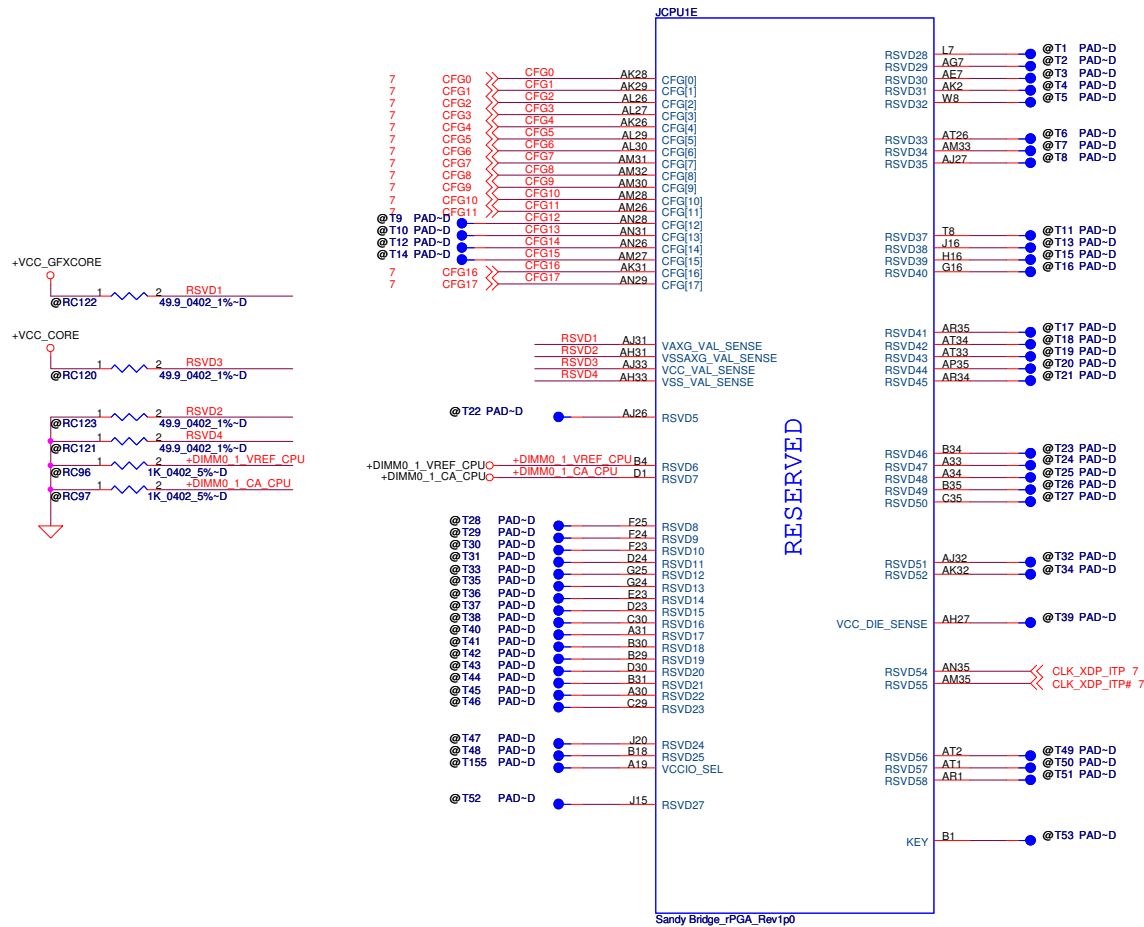
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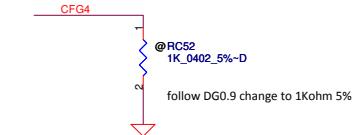
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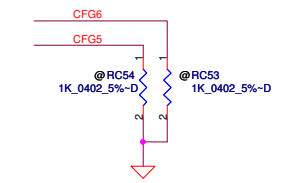
# CFG Straps for Processor



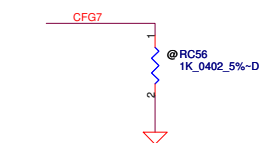
| PEG Static Lane Reversal - CFG2 is for the 16x |  |
|--|--|
| CFG2   | 1: (Default) Normal Operation; Lane # definition matches socket pin map definition<br>0: Lane Reversed |



| Display Port Presence Strap |  |
|-----------------------------|--|
| CFG4                        | 1 : Disabled; No Physical Display Port attached to Embedded Display Port<br>0 : Enabled; An external Display Port device is connected to the Embedded Display Port |



| PCIe Port Bifurcation Straps |  |
|------------------------------|--|
| CFG[6:5]                     | 11: (Default) x16 - Device 1 functions 1 and 2 disabled<br>10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled<br>01: Reserved - (Device 1 function 1 disabled ; function 2 enabled)<br>00: x8,x4,x4 - Device 1 functions 1 and 2 enabled |



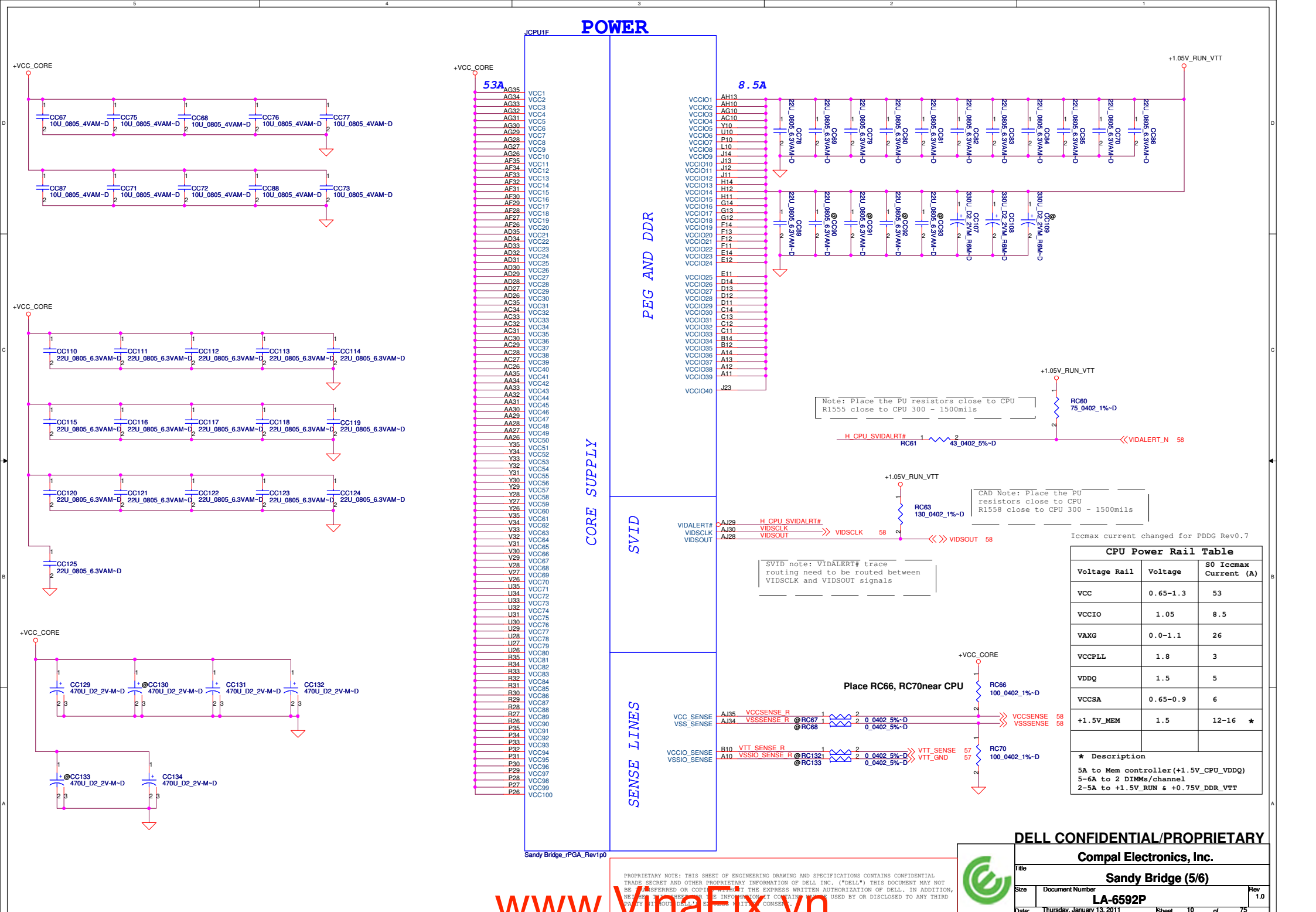
| PEG DEFER TRAINING |   |
|--------------------|---|
| CFG7               | 1: (Default) PEG Train immediately following xxRESETB de assertion<br>0: PEG Wait for BIOS for training |

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| <b>Sandy Bridge (4/6)</b>       |                            |       |         |
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**POWER**

**PEG AND DDR**

**CORE SUPPLY**

**SVID**

**SENSE LINES**

Sandy Bridge iPGA\_Rev1p0

- AG35 VCC1
- AG34 VCC2
- AG33 VCC3
- AG32 VCC4
- AG31 VCC5
- AG30 VCC6
- AG29 VCC7
- AG28 VCC8
- AG27 VCC9
- AG26 VCC10
- AF35 VCC11
- AF34 VCC12
- AF33 VCC13
- AF32 VCC14
- AF31 VCC15
- AF30 VCC16
- AF29 VCC17
- AF28 VCC18
- AF27 VCC19
- AF26 VCC20
- AD35 VCC21
- AD34 VCC22
- AD33 VCC23
- AD32 VCC24
- AD31 VCC25
- AD30 VCC26
- AD29 VCC27
- AD28 VCC28
- AD27 VCC29
- AD26 VCC30
- AC35 VCC31
- AC34 VCC32
- AC33 VCC33
- AC32 VCC34
- AC31 VCC35
- AC30 VCC36
- AC29 VCC37
- AC28 VCC38
- AC27 VCC39
- AC26 VCC40
- AA35 VCC41
- AA34 VCC42
- AA33 VCC43
- AA32 VCC44
- AA31 VCC45
- AA30 VCC46
- AA29 VCC47
- AA28 VCC48
- AA27 VCC49
- AA26 VCC50
- Y35 VCC51
- Y34 VCC52
- Y33 VCC53
- Y32 VCC54
- Y31 VCC55
- Y30 VCC56
- Y29 VCC57
- Y28 VCC58
- Y27 VCC59
- Y26 VCC60
- V35 VCC61
- V34 VCC62
- V33 VCC63
- V32 VCC64
- V31 VCC65
- V30 VCC66
- V29 VCC67
- V28 VCC68
- V27 VCC69
- V26 VCC70
- U35 VCC71
- U34 VCC72
- U33 VCC73
- U32 VCC74
- U31 VCC75
- U30 VCC76
- U29 VCC77
- U28 VCC78
- U27 VCC79
- U26 VCC80
- R35 VCC81
- R34 VCC82
- R33 VCC83
- R32 VCC84
- R31 VCC85
- R30 VCC86
- R29 VCC87
- R28 VCC88
- R27 VCC89
- R26 VCC90
- P35 VCC91
- P34 VCC92
- P33 VCC93
- P32 VCC94
- P31 VCC95
- P30 VCC96
- P29 VCC97
- P28 VCC98
- P27 VCC99
- P26 VCC100

Note: Place the PU resistors close to CPU R1555 close to CPU 300 - 1500mils

CAD Note: Place the PU resistors close to CPU R1558 close to CPU 300 - 1500mils

SVID note: VIDALERT# trace routing need to be routed between VIDSCLK and VIDSOUT signals

Place RC66, RC70 near CPU

Iccmax current changed for PDDG Rev0.7

| CPU Power Rail Table |          |                       |
|----------------------|----------|-----------------------|
| Voltage Rail         | Voltage  | S0 Iccmax Current (A) |
| VCC                  | 0.65-1.3 | 53                    |
| VCCIO                | 1.05     | 8.5                   |
| VAXG                 | 0.0-1.1  | 26                    |
| VCCPLL               | 1.8      | 3                     |
| VDDQ                 | 1.5      | 5                     |
| VCCSA                | 0.65-0.9 | 6                     |
| +1.5V_MEM            | 1.5      | 12-16 *               |

\* Description  
 5A to Mem controller(+1.5V\_CPU\_VDDQ)  
 5-6A to 2 DIMMs/channel  
 2-5A to +1.5V\_RUN & +0.75V\_DDR\_VTT

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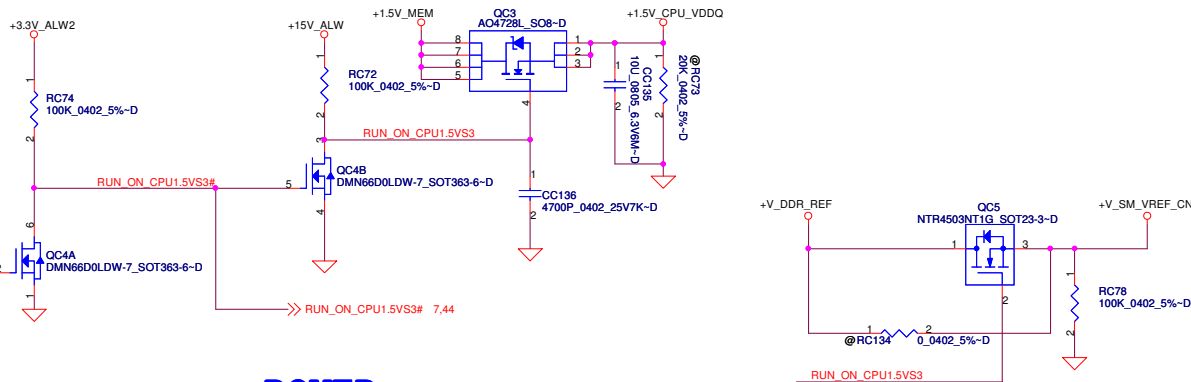
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Sandy Bridge (5/6)

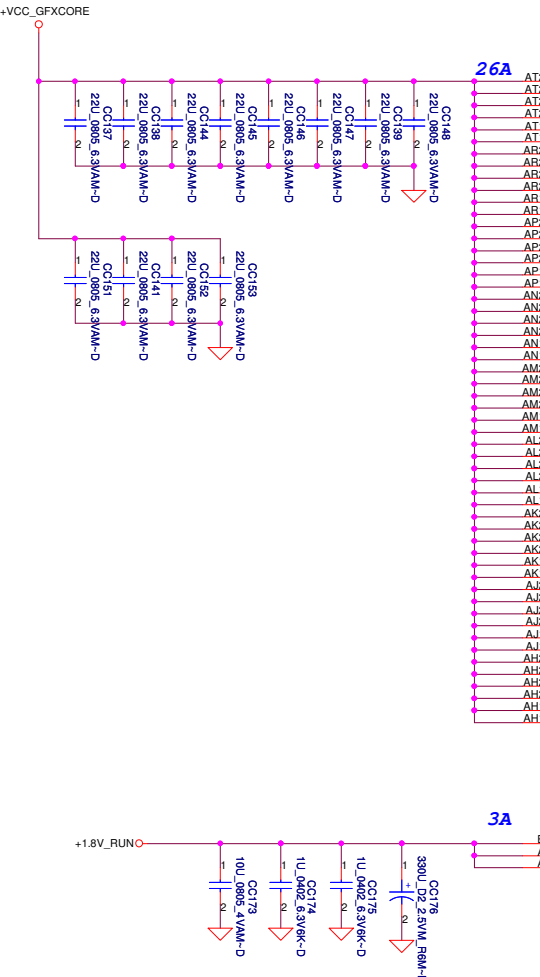
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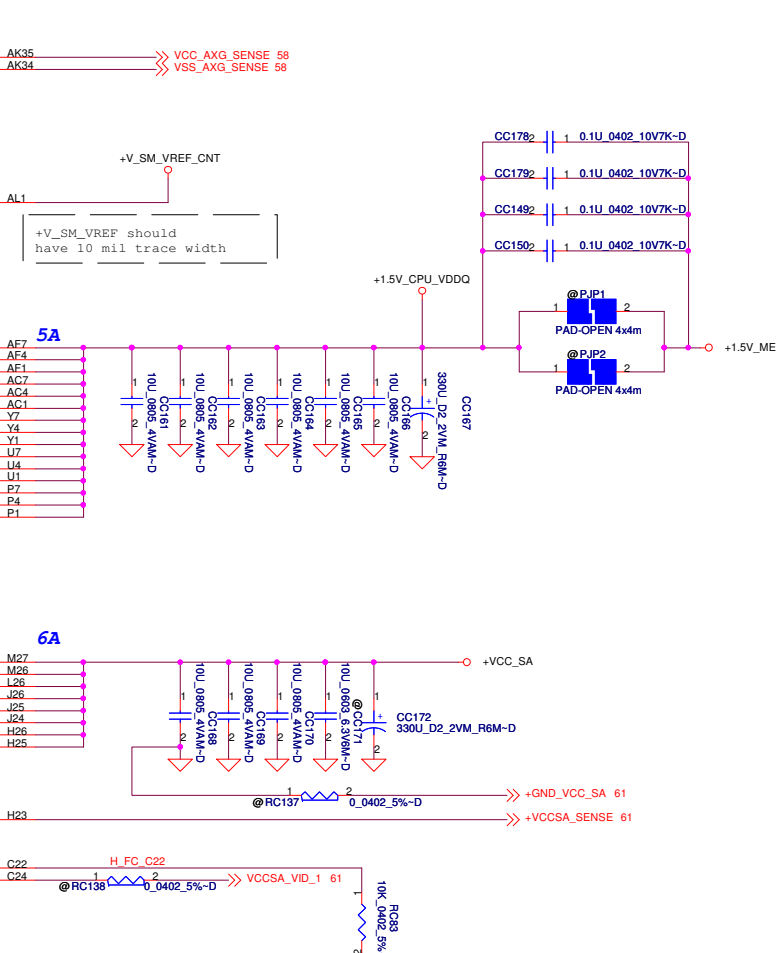
**+1.5V\_CPU\_VDDQ Source**



**POWER**



| JCPU1G      | JCPU1H        |
|-------------|---------------|
| AT24 VAXG1  | AJ22 VSS81    |
| AT23 VAXG2  | VSS2 AJ19     |
| AT21 VAXG3  | VSS3 VSS83    |
| AT20 VAXG4  | VSS4 AJ16     |
| AT18 VAXG5  | VSS5 VSS84    |
| AT17 VAXG6  | VSS6 VSS85    |
| AR24 VAXG7  | VSS7 VSS86    |
| AR23 VAXG8  | VSS8 AJ4      |
| AR21 VAXG9  | VSS9 VSS87    |
| AR20 VAXG10 | VSS10 VSS88   |
| AR19 VAXG11 | VSS11 VSS89   |
| AR17 VAXG12 | VSS12 VSS90   |
| AP24 VAXG13 | VSS13 VSS91   |
| AP23 VAXG14 | VSS14 VSS92   |
| AP21 VAXG15 | VSS15 VSS93   |
| AP20 VAXG16 | VSS16 VSS94   |
| AP18 VAXG17 | VSS17 VSS95   |
| AN24 VAXG18 | VSS18 VSS96   |
| AN23 VAXG19 | VSS19 VSS97   |
| AN21 VAXG20 | VSS20 VSS98   |
| AN20 VAXG21 | VSS21 VSS99   |
| AN18 VAXG22 | VSS22 VSS100  |
| AN17 VAXG23 | AH7 AH16      |
| AM24 VAXG24 | VSS101 VSS102 |
| AM23 VAXG25 | VSS103 AH4    |
| AM21 VAXG26 | VSS104 AG9    |
| AM20 VAXG27 | VSS105 VSS106 |
| AM18 VAXG28 | VSS107 VSS108 |
| AM17 VAXG29 | VSS109 VSS110 |
| AL24 VAXG30 | VSS111 VSS112 |
| AL23 VAXG31 | VSS113 VSS114 |
| AL21 VAXG32 | VSS115 VSS116 |
| AL20 VAXG33 | VSS117 VSS118 |
| AL18 VAXG34 | VSS119 VSS120 |
| AL17 VAXG35 | AE27 AE28     |
| AK24 VAXG36 | VSS121 VSS122 |
| AK23 VAXG37 | VSS123 VSS124 |
| AK21 VAXG38 | VSS125 VSS126 |
| AK20 VAXG39 | VSS127 VSS128 |
| AK18 VAXG40 | VSS129 VSS130 |
| AK17 VAXG41 | VSS131 VSS132 |
| AJ24 VAXG42 | VSS133 VSS134 |
| AJ23 VAXG43 | VSS135 VSS136 |
| AJ21 VAXG44 | VSS137 VSS138 |
| AJ20 VAXG45 | VSS139 VSS140 |
| AJ18 VAXG46 | VSS141 VSS142 |
| AJ17 VAXG47 | VSS143 VSS144 |
| AH24 VAXG48 | VSS145 VSS146 |
| AH23 VAXG49 | VSS147 VSS148 |
| AH21 VAXG50 | VSS149 VSS150 |
| AH20 VAXG51 | VSS151 VSS152 |
| AH18 VAXG52 | VSS153 VSS154 |
| AH17 VAXG53 | VSS155 U9     |
|             | VSS156 U8     |
|             | VSS157 U5     |
|             | VSS158 U6     |
|             | VSS159 U3     |
|             | VSS160 U2     |



| JCPU1G      | JCPU1H        |
|-------------|---------------|
| AT24 VAXG1  | AJ22 VSS81    |
| AT23 VAXG2  | VSS2 AJ19     |
| AT21 VAXG3  | VSS3 VSS83    |
| AT20 VAXG4  | VSS4 AJ16     |
| AT18 VAXG5  | VSS5 VSS84    |
| AT17 VAXG6  | VSS6 VSS85    |
| AR24 VAXG7  | VSS7 VSS86    |
| AR23 VAXG8  | VSS8 AJ4      |
| AR21 VAXG9  | VSS9 VSS87    |
| AR20 VAXG10 | VSS10 VSS88   |
| AR19 VAXG11 | VSS11 VSS89   |
| AR17 VAXG12 | VSS12 VSS90   |
| AP24 VAXG13 | VSS13 VSS91   |
| AP23 VAXG14 | VSS14 VSS92   |
| AP21 VAXG15 | VSS15 VSS93   |
| AP20 VAXG16 | VSS16 VSS94   |
| AP18 VAXG17 | VSS17 VSS95   |
| AN24 VAXG18 | VSS18 VSS96   |
| AN23 VAXG19 | VSS19 VSS97   |
| AN21 VAXG20 | VSS20 VSS98   |
| AN20 VAXG21 | VSS21 VSS99   |
| AN18 VAXG22 | VSS22 VSS100  |
| AN17 VAXG23 | AH7 AH16      |
| AM24 VAXG24 | VSS101 VSS102 |
| AM23 VAXG25 | VSS103 AH4    |
| AM21 VAXG26 | VSS104 AG9    |
| AM20 VAXG27 | VSS105 VSS106 |
| AM18 VAXG28 | VSS107 VSS108 |
| AM17 VAXG29 | VSS109 VSS110 |
| AL24 VAXG30 | VSS111 VSS112 |
| AL23 VAXG31 | VSS113 VSS114 |
| AL21 VAXG32 | VSS115 VSS116 |
| AL20 VAXG33 | VSS117 VSS118 |
| AL18 VAXG34 | VSS119 VSS120 |
| AL17 VAXG35 | AE27 AE28     |
| AK24 VAXG36 | VSS121 VSS122 |
| AK23 VAXG37 | VSS123 VSS124 |
| AK21 VAXG38 | VSS125 VSS126 |
| AK20 VAXG39 | VSS127 VSS128 |
| AK18 VAXG40 | VSS129 VSS130 |
| AK17 VAXG41 | VSS131 VSS132 |
| AJ24 VAXG42 | VSS133 VSS134 |
| AJ23 VAXG43 | VSS135 VSS136 |
| AJ21 VAXG44 | VSS137 VSS138 |
| AJ20 VAXG45 | VSS139 VSS140 |
| AJ18 VAXG46 | VSS141 VSS142 |
| AJ17 VAXG47 | VSS143 VSS144 |
| AH24 VAXG48 | VSS145 VSS146 |
| AH23 VAXG49 | VSS147 VSS148 |
| AH21 VAXG50 | VSS149 VSS150 |
| AH20 VAXG51 | VSS151 VSS152 |
| AH18 VAXG52 | VSS153 VSS154 |
| AH17 VAXG53 | VSS155 U9     |
|             | VSS156 U8     |
|             | VSS157 U5     |
|             | VSS158 U6     |
|             | VSS159 U3     |
|             | VSS160 U2     |

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**Sandy Bridge (6/6)**  
**LA-6592P**  
 Date: Thursday, January 13, 2011 Sheet 11 of 75

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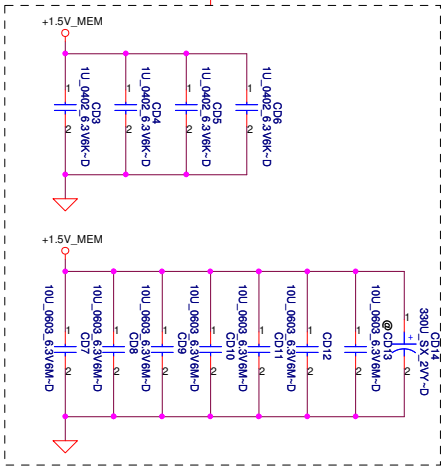
Note:  
Check voltage tolerance of  
VREF\_DQ at the DIMM socket

- 8 DDR\_A\_DQS#0[0.7] <<>
- 8 DDR\_A\_D[0.63] <<>
- 8 DDR\_A\_DQS#0[0.7] <<>
- 8 DDR\_A\_MA[0.15] <<>

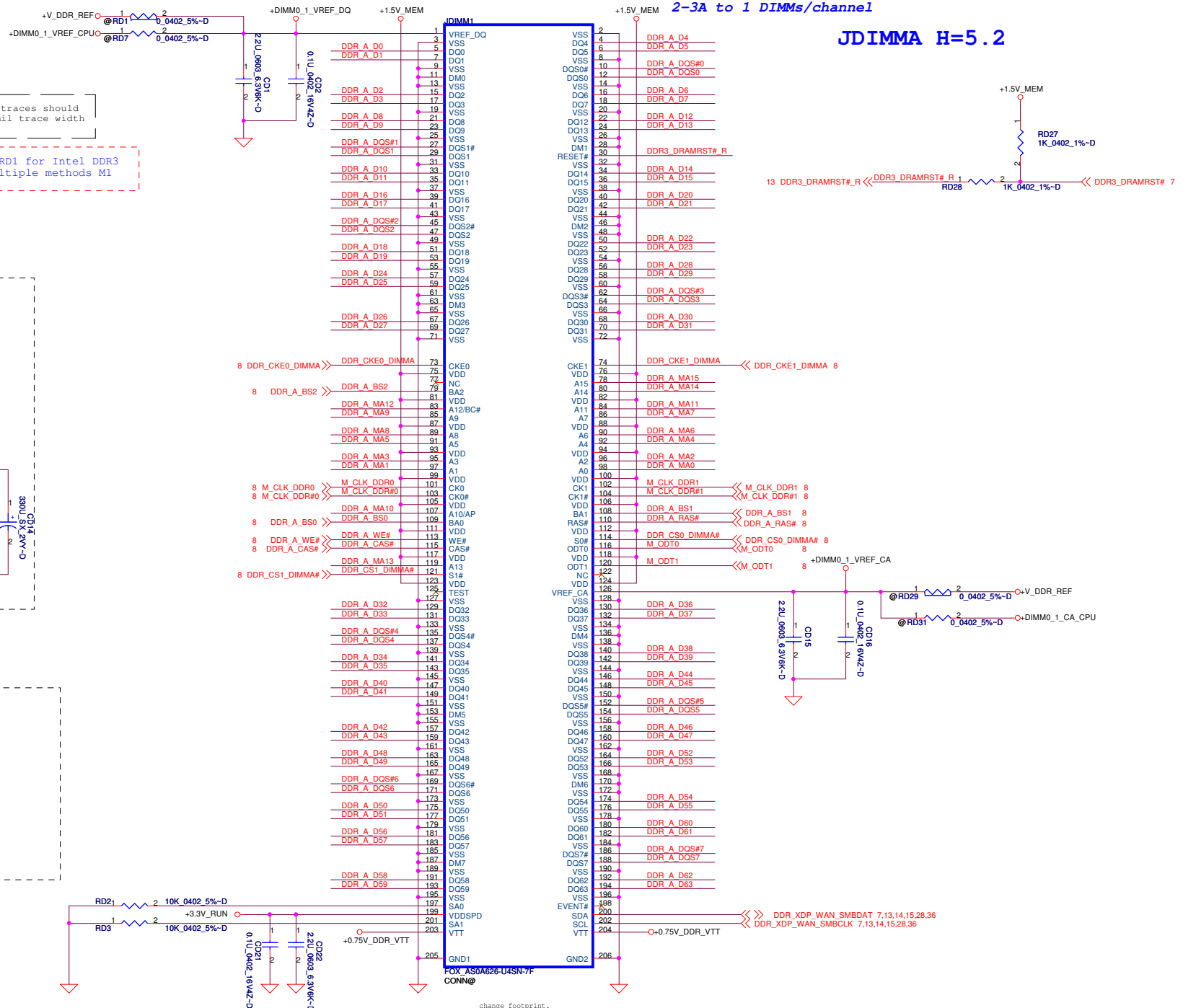
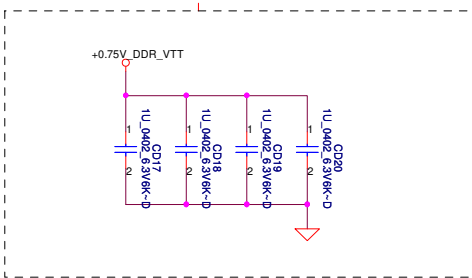
All VREF traces should  
have 10 mil trace width

Populate RD1 for Intel DDR3  
VREFDQ multiple methods M1

Layout Note:  
Place near JDIMMA



Layout Note:  
Place near JDIMMA.203,204



### JDIMMA H=5.2

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|       |                            |                     |          |
|-------|----------------------------|---------------------|----------|
| Title |                            | DDR3II-SODIMM SLOT1 |          |
| Size  | Document Number            | LA-6592P            |          |
| Date: | Thursday, January 13, 2011 | Sheet               | 12 of 75 |

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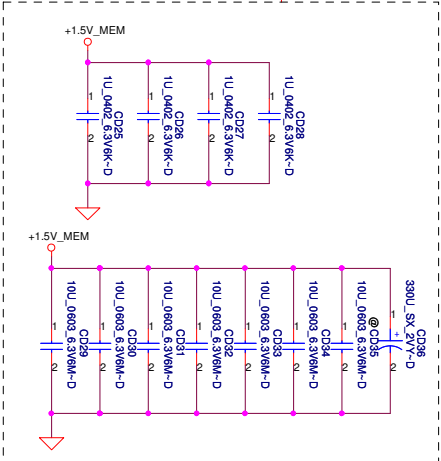
All VREF traces should have 10 mil trace width

Populate RD4 for Intel DDR3 VREFDQ multiple methods M1

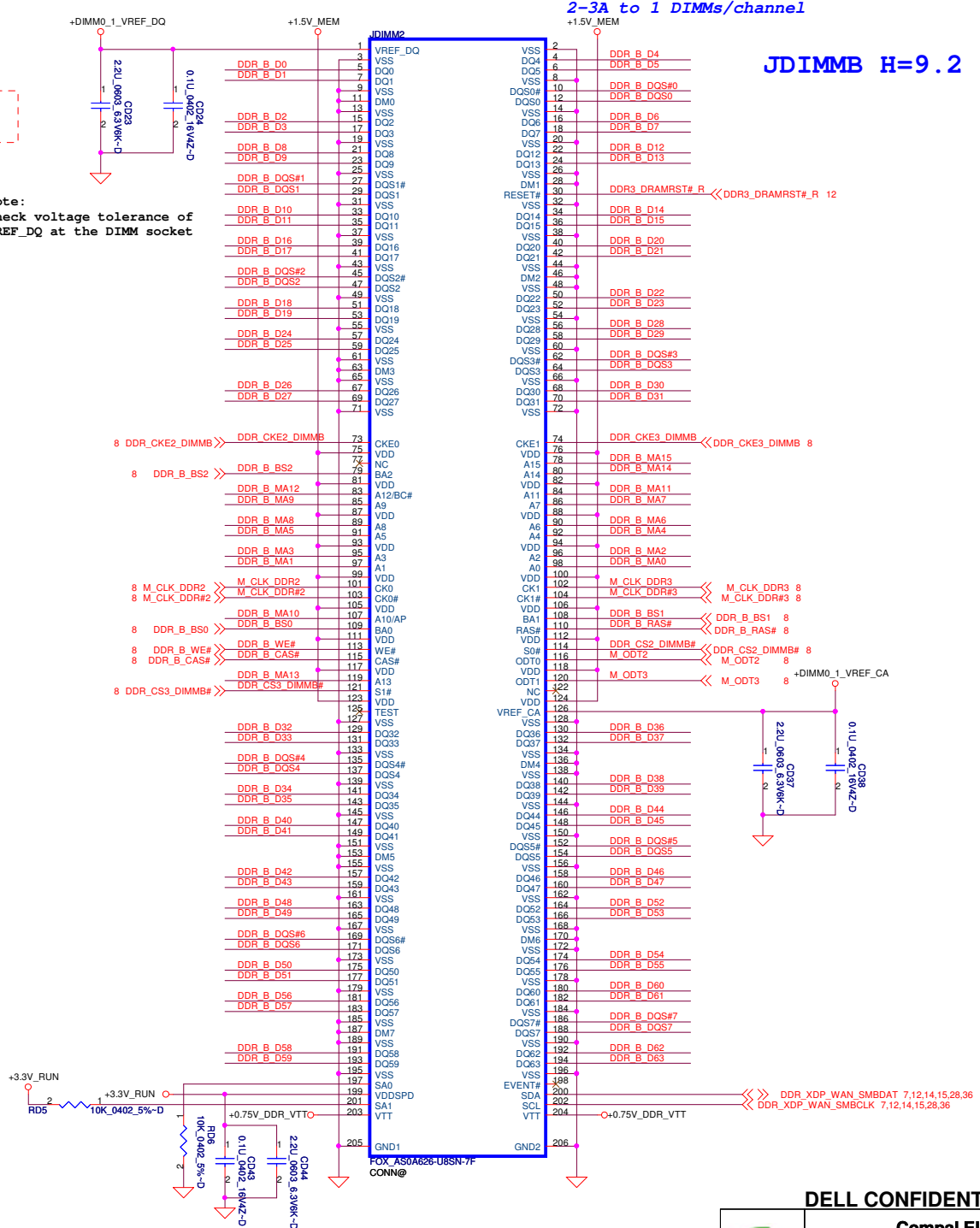
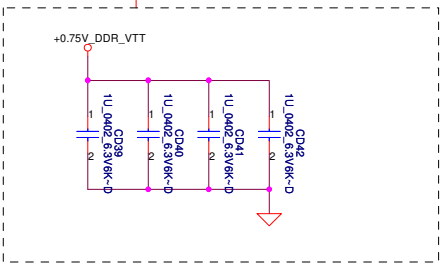


Note: Check voltage tolerance of VREF\_DQ at the DIMM socket

Layout Note: Place near JDIMMB



Layout Note: Place near JDIMMB.203,204



JDIMMB H=9.2

2-3A to 1 DIMMs/channel

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|                            |  |  |                     |  |  |
|----------------------------|--|--|---------------------|--|--|
| File                       |  |  | DDR3II-SODIMM SLOT2 |  |  |
| Size                       |  |  | Document Number     |  |  |
| Date                       |  |  | LA-6592P            |  |  |
| Thursday, January 13, 2011 |  |  | Sheet 13 of 75      |  |  |

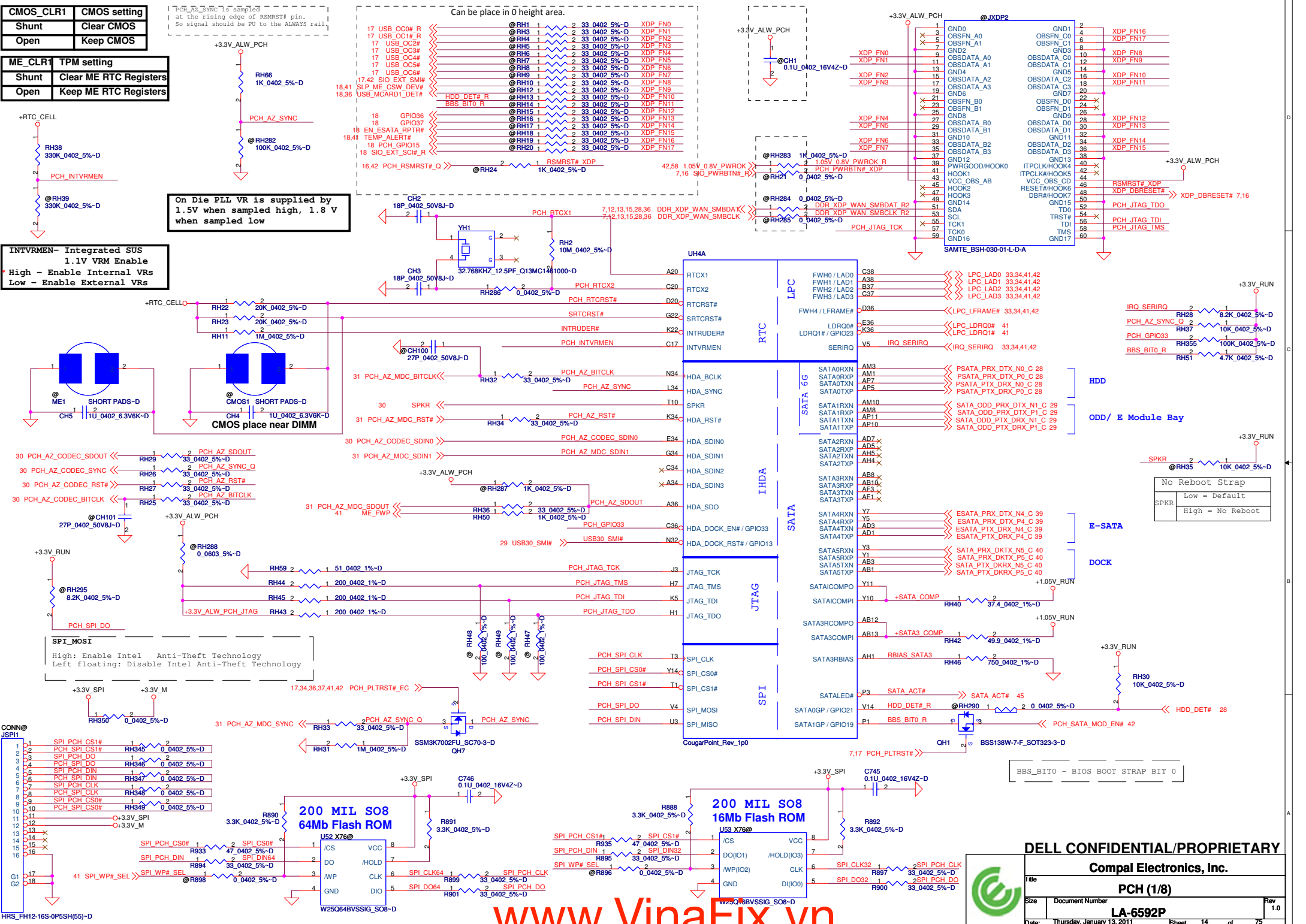
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www.VinaFix.vn

| CMOS CLR1 | CMOS setting |
|-----------|--------------|
| Shunt     | Clear CMOS   |
| Open      | Keep CMOS    |

| ME CLR1 | TPM setting            |
|---------|------------------------|
| Shunt   | Clear ME RTC Registers |
| Open    | Keep ME RTC Registers  |

**INTVRMEN- Integrated SUS**  
 1.1V VRM Enable  
 High - Enable Internal VRs  
 Low - Enable External VRs



On Die PLL VR is supplied by 1.5V when sampled high, 1.8 V when sampled low

High: Enable Intel Anti-Theft Technology  
 Left floating: Disable Intel Anti-Theft Technology

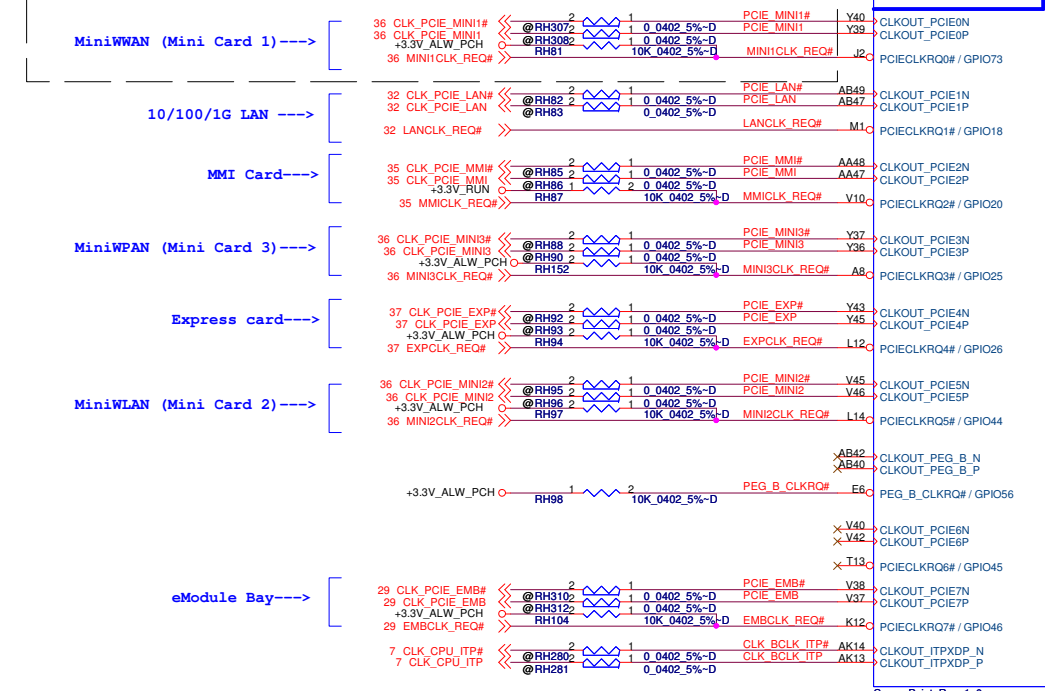
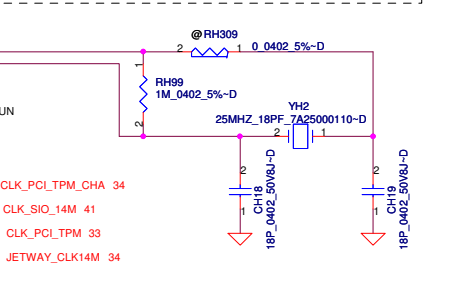
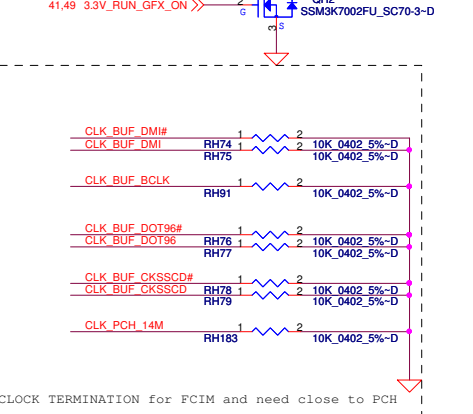
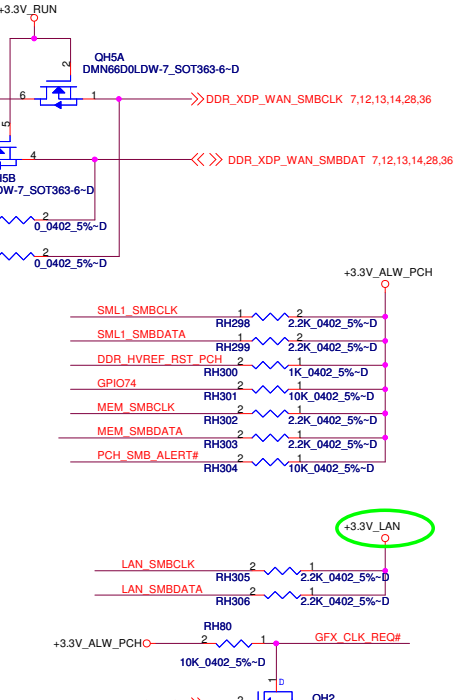
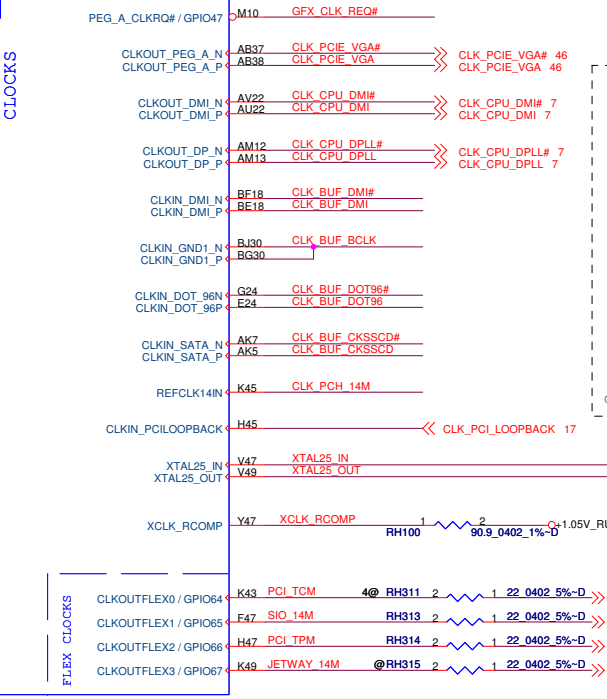
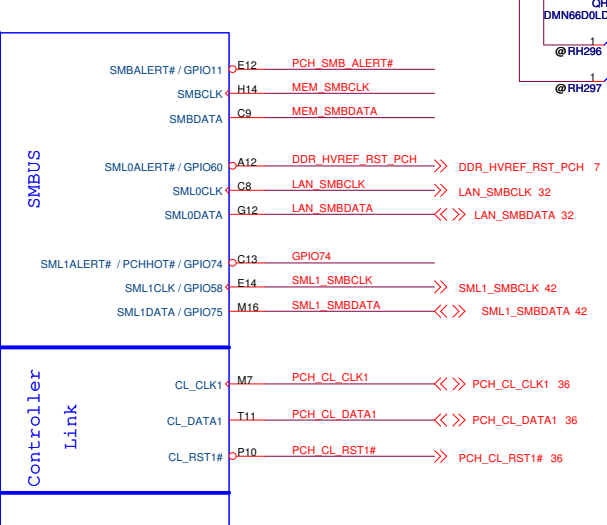
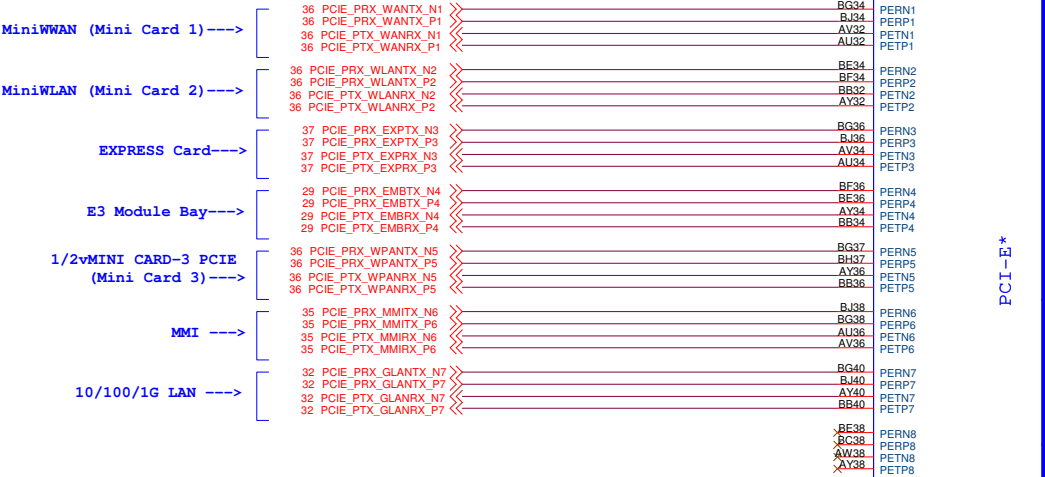
No Reboot Strap  
 Low = Default  
 High = No Reboot

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|       |                            |                                 |          |
|-------|----------------------------|---------------------------------|----------|
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|       |                            | <b>PCH (1/8)</b>                |          |
| Title | Document Number            | Rev 1.0                         |          |
|       |                            | <b>LA-6592P</b>                 |          |
| Date: | Thursday, January 13, 2011 | Sheet                           | 14 of 75 |



Follow DG0.9 Device down & Express/Mini card topology

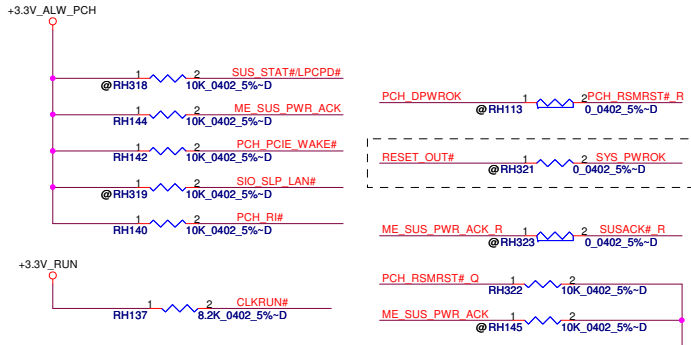


PCIE REQ power rail:  
suspend: 0 3 4 5 6 7  
core: 1 2

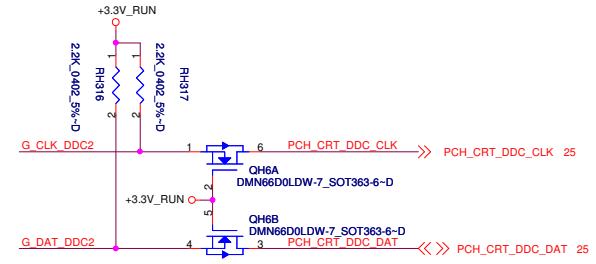
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**Compal Electronics, Inc.**  
 Title: **PCH (2/8)**  
 Size: **LA-6592P**  
 Date: **Tuesday, January 18, 2011** Sheet **15** of **75**  
 Rev: **1.0**





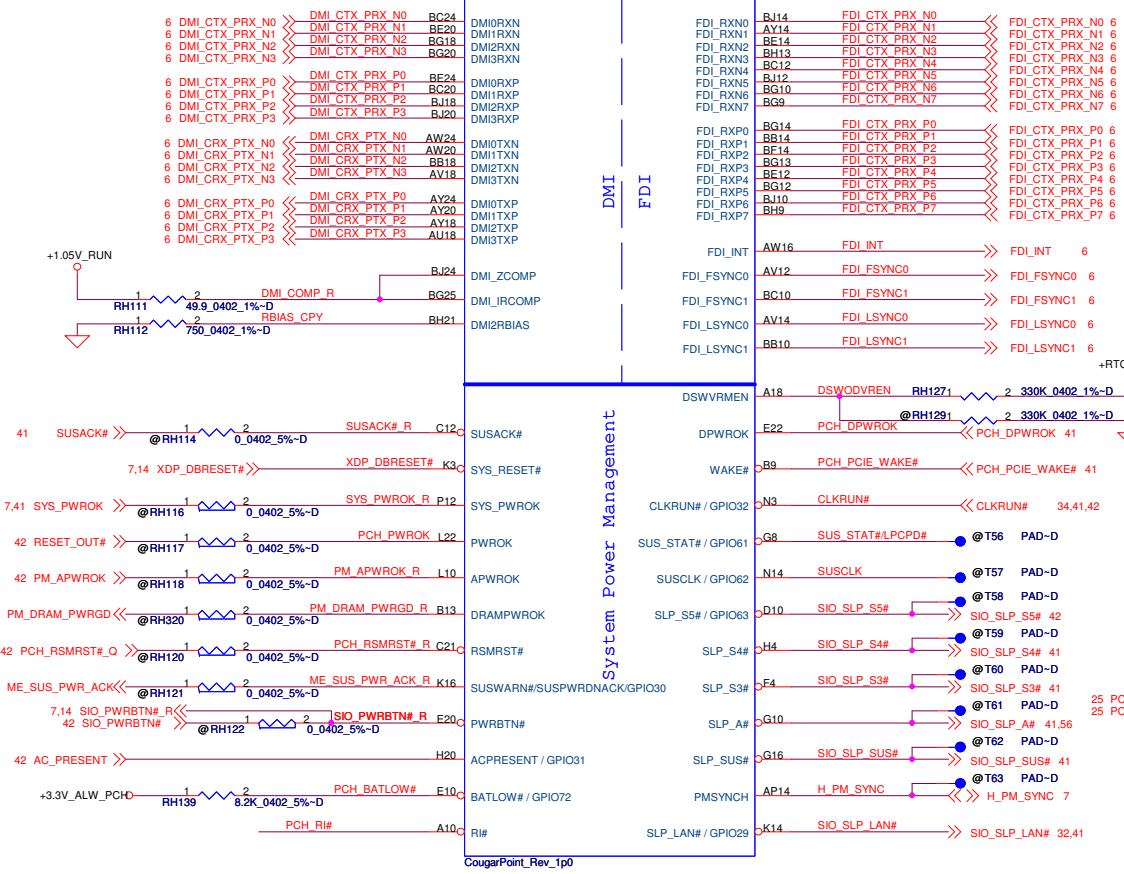
DSWODVREN - On Die DSW VR Enable  
 Enabled (DEFAULT)  
 HIGH: R221 STUFFED,  
 R222 UNSTUFFED  
 Disabled  
 LOW: R221 STUFFED,  
 R222 UNSTUFFED



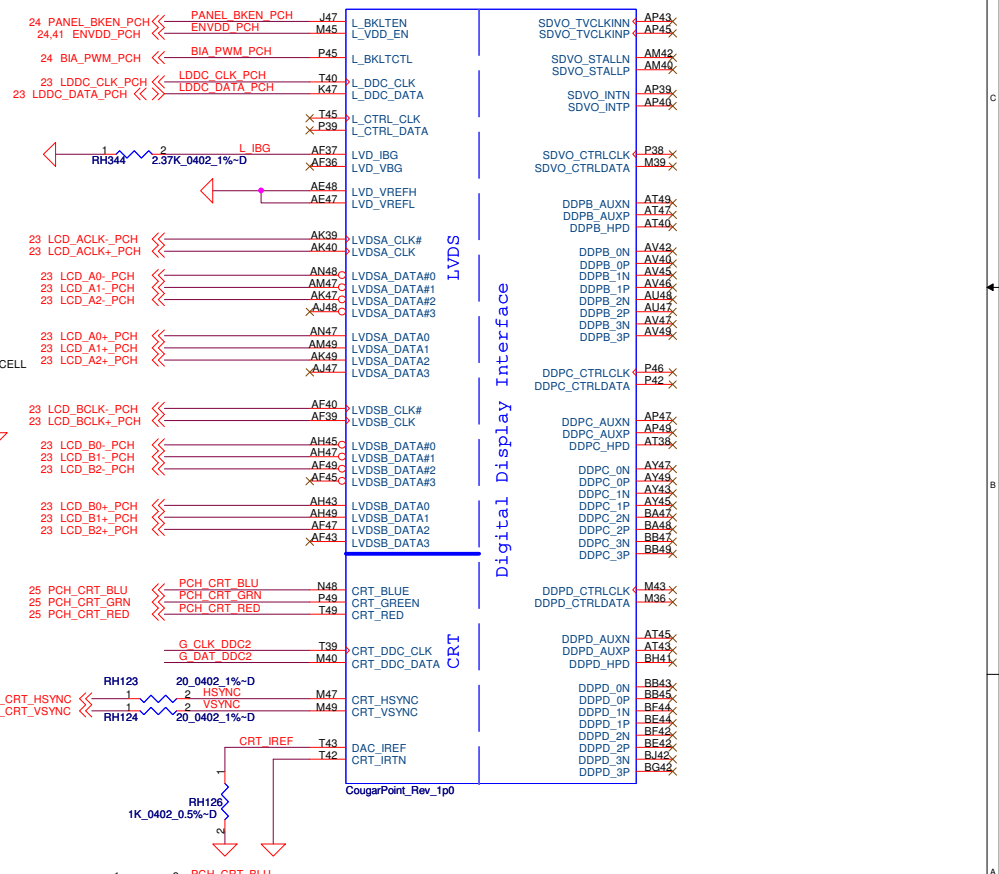
| L_DDC_DATA - LVDS Detected |                      |
|----------------------------|----------------------|
| 1                          | LVDS is detected     |
| 0                          | LVDS is not detected |

Intel request DDPB can not support eDP

UH4C



UH4D



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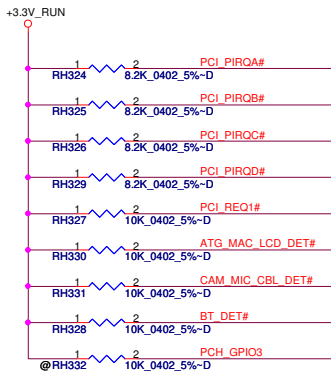
**Compal Electronics, Inc.**

**PCH (3/8)**

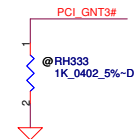
LA-6592P

Thursday, January 13, 2011

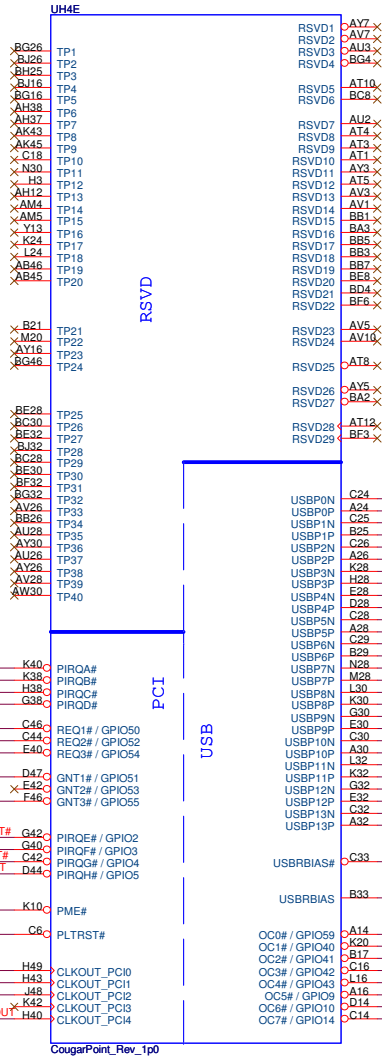
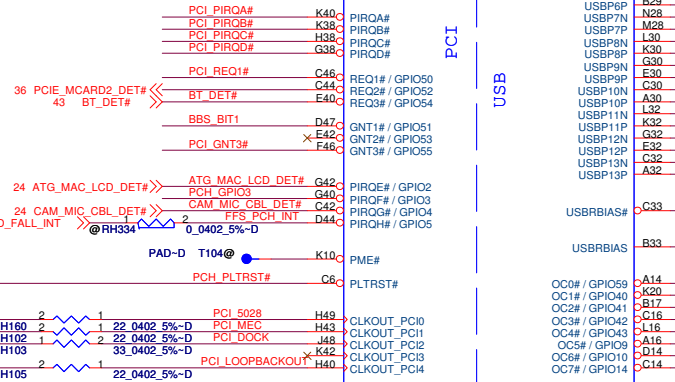
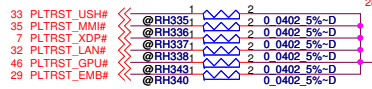
Sheet 16 of 75



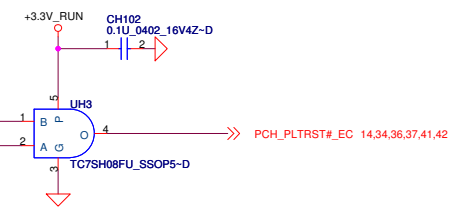
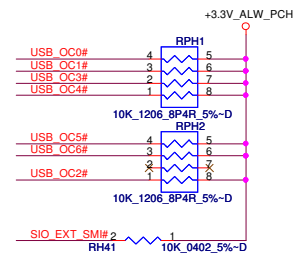
|             |                                      |
|-------------|--------------------------------------|
| LVDS_CBL_ID | High : Normal type panel             |
|             | Low : High contrast ratio brightness |



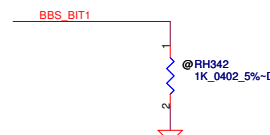
|  |                                  |
|--|----------------------------------|
| A16 swap override Strap/Top-Block Swap Override jumper |                                  |
| PCI_GNT#3  | Low = A16 swap<br>High = Default |



- >Right Side 1
- >Right Side 2
- >Right Side (ESATA)
- >Left Side
- >WLAN/WIMAX
- >WWAN/UWB
- >Flash
- >USH
- >DOCK
- >DOCK
- >Express Card
- >Blue Tooth
- >Camera
- >LCD Touch

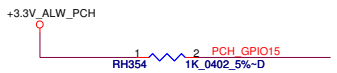


| BBS_BIT1 | SATA_SLPD (BBS_BIT0) | Boot BIOS Location |
|----------|----------------------|--------------------|
| 0        | 0                    | LPC                |
| 0        | 1                    | Reserved (NAND)    |
| 1        | 0                    | PCI                |



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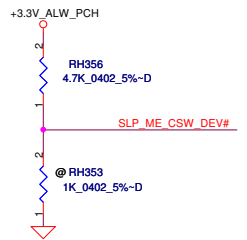
|                                 |                            |                |
|---------------------------------|----------------------------|----------------|
| <b>Compal Electronics, Inc.</b> |                            |                |
| <b>PCH (4/8)</b>                |                            |                |
| Size                            | Document Number            | Rev            |
|                                 | <b>LA-6592P</b>            | 1.0            |
| Date:                           | Thursday, January 13, 2011 | Sheet 17 of 75 |



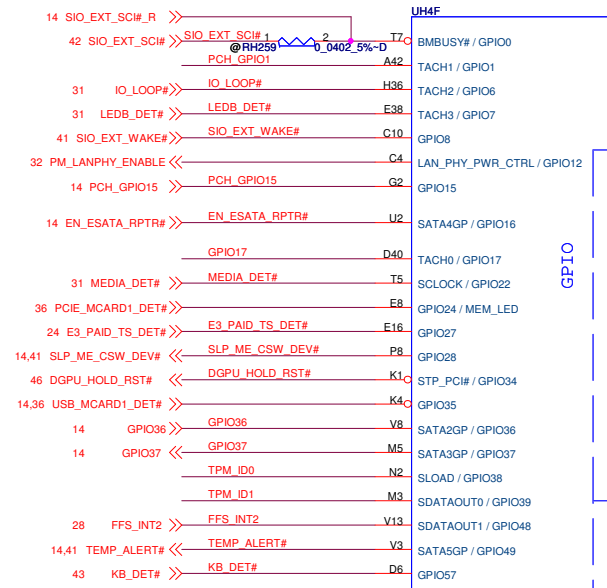
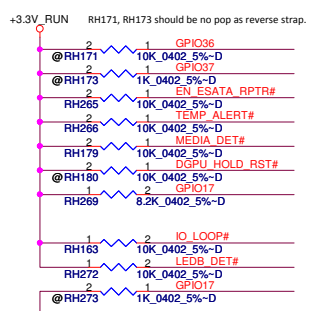
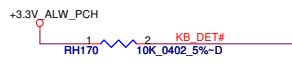
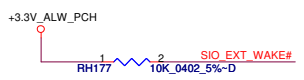
PCH\_GPIO15 TLS Confidentiality

Low = Intel ME Crypto Transport Layer Security (TLS) cipher suite with no confidentiality

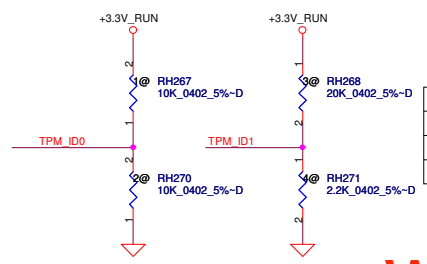
High = Intel ME Crypto TLS cipher suite with confidentiality



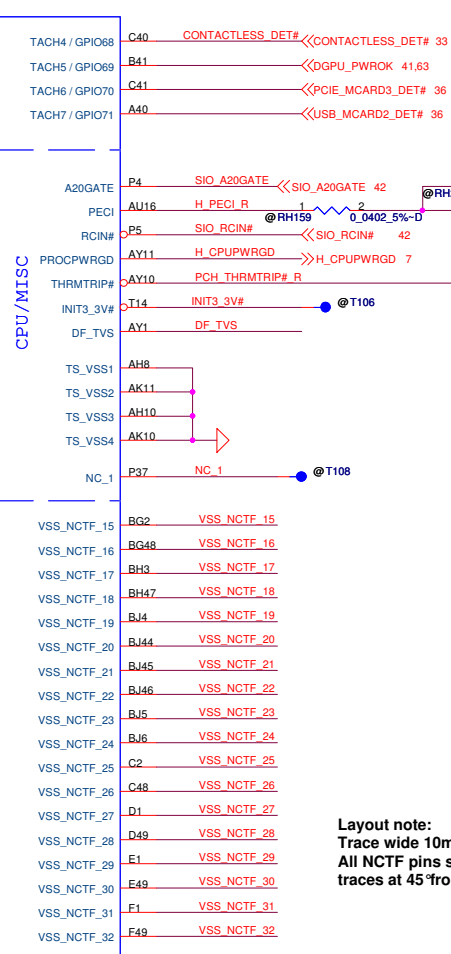
Note: PCH has internal pull up 20k ohm on E3\_PAID\_TS\_DET# (GPIO27)



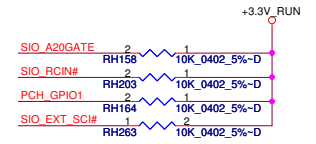
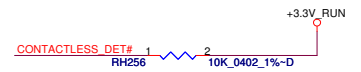
Layout note:  
Trace wide 10mil & length 30mil  
All NCTF pins should have thick traces at 45° from the pad.



|                      | TPM_ID0 | TPM_ID1 |
|----------------------|---------|---------|
| China TPM            | 0       | 0       |
| No TPM, No China TPM | 0       | 1       |
| USH2.0               | 1       | 1       |



Layout note:  
Trace wide 10mil & length 30mil  
All NCTF pins should have thick traces at 45° from the pad.



PLACE RH150 CLOSE TO THE BRANCHING POINT ( TO CPU and NVRAM CONNECTOR)

DF\_TVS R<sub>1</sub> RH150 (0.0402\_5%-D)

| DMI & FDI Termination Voltage |   |
|-------------------------------|---|
| DF_TVS                        | Set to Vss when LOW<br>Set to Vcc when HIGH |

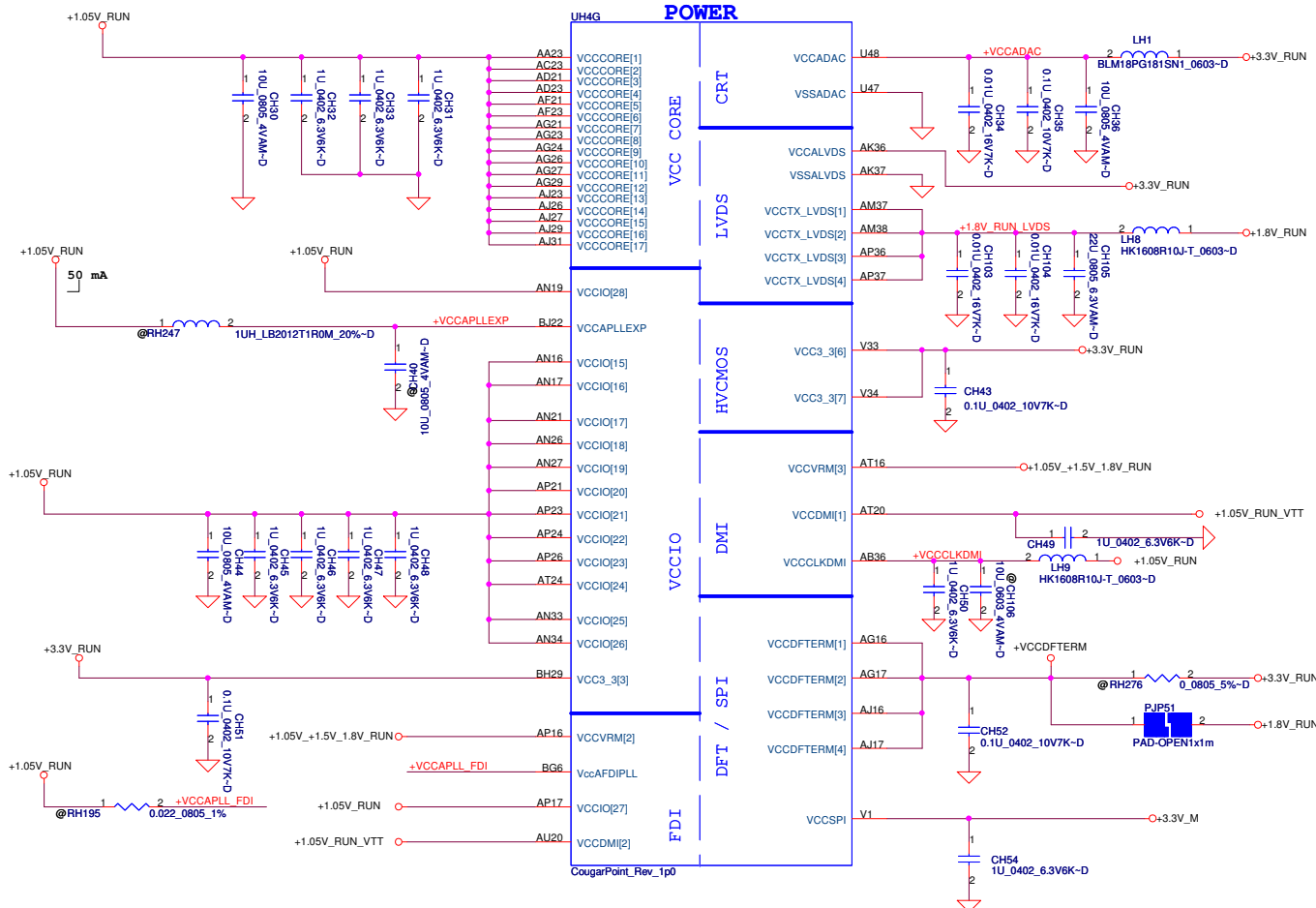
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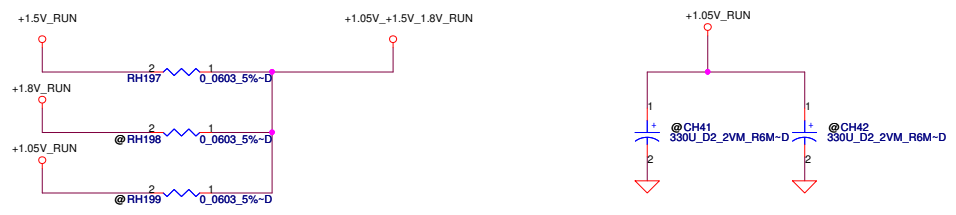
Title: PCH (5/8)

Size: Document Number: LA-6592P Rev: 1.0

Date: Thursday, January 13, 2011 Sheet: 18 of 75



| PCH Power Rail Table |           |                       |
|----------------------|-----------|-----------------------|
| Voltage Rail         | Voltage   | SO Iccmax Current (A) |
| V_PROC_IO            | 1.05      | 0.001                 |
| V5REF                | 5         | 0.001                 |
| V5REF_Sus            | 5         | 0.001                 |
| Vcc_3                | 3.3       | 0.266                 |
| VccADAC3             | 3.3       | 0.001                 |
| VccADPLLA            | 1.05      | 0.08                  |
| VccADPLLB            | 1.05      | 0.08                  |
| VccCore              | 1.05      | 1.3                   |
| VccDMI               | 1.05      | 0.042                 |
| VccIO                | 1.05      | 2.925                 |
| VccASW               | 1.05      | 1.01                  |
| VccSPI               | 3.3       | 0.020                 |
| VccDSW3_3            | 3.3       | 0.003                 |
| VCCDFTERM            | 1.8       | 0.19                  |
| VccRTC               | 3.3       | 2 (mA)                |
| VccSus3_3            | 3.3       | 0.119                 |
| VccSusHDA            | 3.3       | 0.01                  |
| VccVRM               | 1.8 / 1.5 | 0.16                  |
| VccClkDMI            | 1.05      | 0.02                  |
| VccSSC               | 1.05      | 0.095                 |
| VccDIFFCLKN          | 1.05      | 0.055                 |
| VccALVDS             | 3.3       | 0.001                 |
| VccTX_LVDS           | 1.8       | 0.06                  |



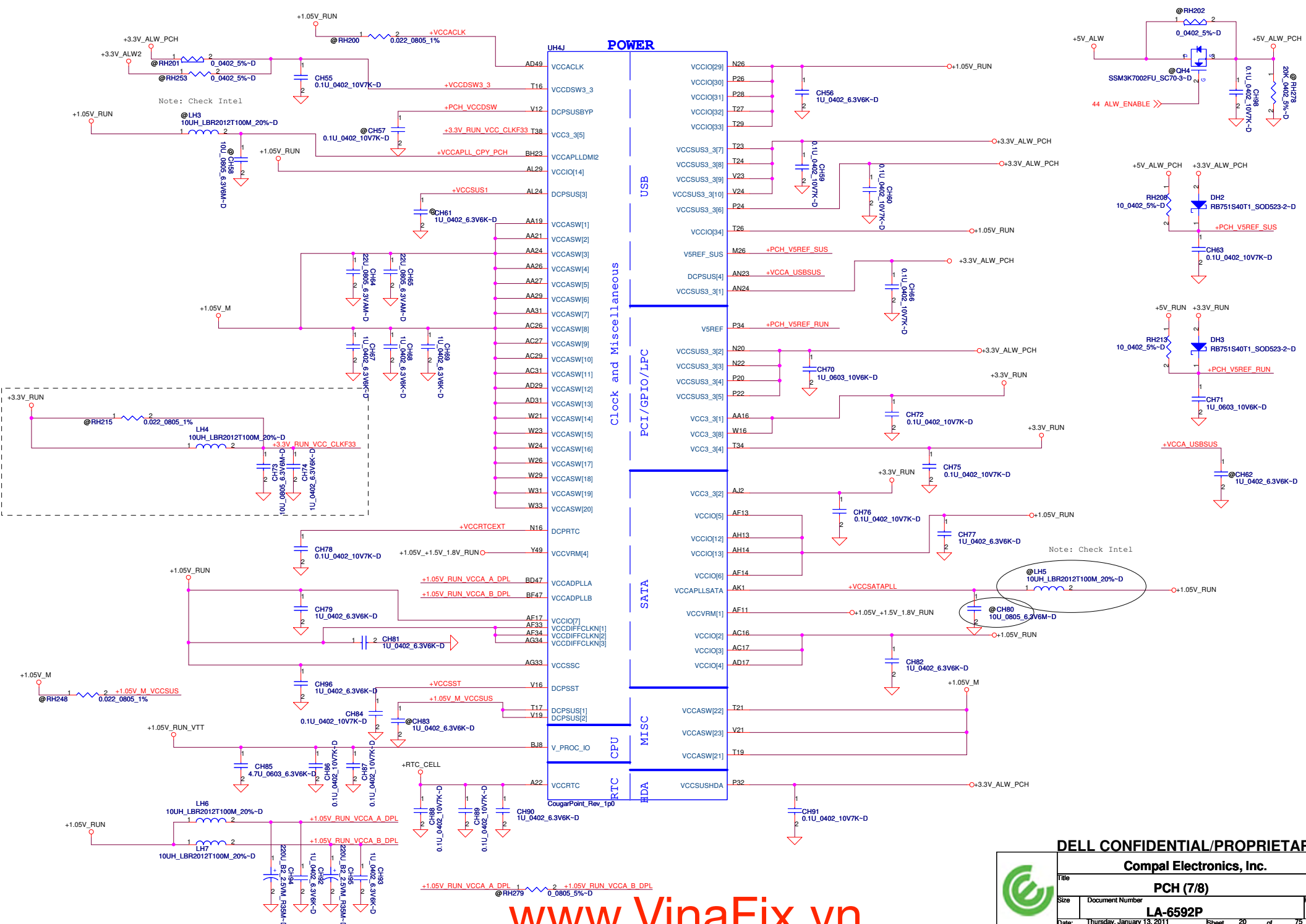
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**Compal Electronics, Inc.**

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|----------------------------|--|--|------------------|--|--|
| Title                      |  |  | <b>PCH (6/8)</b> |  |  |
| Size                       |  |  | Document Number  |  |  |
|                            |  |  | <b>LA-6592P</b>  |  |  |
| Date                       |  |  | Rev              |  |  |
| Thursday, January 13, 2011 |  |  | 1.0              |  |  |
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| Compal Electronics, Inc. |                            |                |
| PCH (7/8)                |                            |                |
| Size                     | Document Number            | Rev            |
|                          | LA-6592P                   | 1.0            |
| Date:                    | Thursday, January 13, 2011 | Sheet 20 of 75 |

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| H5   |         | UH4H     |      |
|------|---------|----------|------|
|      | VSS[0]  |          |      |
| AA17 | VSS[1]  | VSS[80]  | AK38 |
| AA2  | VSS[2]  | VSS[81]  | AK4  |
| AA3  | VSS[3]  | VSS[82]  | AK42 |
| AA33 | VSS[4]  | VSS[83]  | AK46 |
| AA34 | VSS[5]  | VSS[84]  | AK8  |
| AB11 | VSS[6]  | VSS[85]  | AL16 |
| AB14 | VSS[7]  | VSS[86]  | AL17 |
| AB39 | VSS[8]  | VSS[87]  | AL19 |
| AB4  | VSS[9]  | VSS[88]  | AL2  |
| AB43 | VSS[10] | VSS[89]  | AL21 |
| AB5  | VSS[11] | VSS[90]  | AL23 |
| AB7  | VSS[12] | VSS[91]  | AL26 |
| AC19 | VSS[13] | VSS[92]  | AL27 |
| AC2  | VSS[14] | VSS[93]  | AL31 |
| AC21 | VSS[15] | VSS[94]  | AL33 |
| AC24 | VSS[16] | VSS[95]  | AL34 |
| AC33 | VSS[17] | VSS[96]  | AL46 |
| AC34 | VSS[18] | VSS[97]  | AM11 |
| AC48 | VSS[19] | VSS[98]  | AM14 |
| AD10 | VSS[20] | VSS[99]  | AM36 |
| AD11 | VSS[21] | VSS[100] | AM39 |
| AD12 | VSS[22] | VSS[101] | AM43 |
| AD13 | VSS[23] | VSS[102] | AM45 |
| AD19 | VSS[24] | VSS[103] | AM46 |
| AD24 | VSS[25] | VSS[104] | AM7  |
| AD26 | VSS[26] | VSS[105] | AN2  |
| AD27 | VSS[27] | VSS[106] | AN29 |
| AD33 | VSS[28] | VSS[107] | AN3  |
| AD34 | VSS[29] | VSS[108] | AN31 |
| AD36 | VSS[30] | VSS[109] | AP12 |
| AD37 | VSS[31] | VSS[110] | AP19 |
| AD38 | VSS[32] | VSS[111] | AP28 |
| AD39 | VSS[33] | VSS[112] | AP30 |
| AD4  | VSS[34] | VSS[113] | AP38 |
| AD40 | VSS[35] | VSS[114] | AP4  |
| AD42 | VSS[36] | VSS[115] | AP42 |
| AD43 | VSS[37] | VSS[116] | AP44 |
| AD45 | VSS[38] | VSS[117] | AP8  |
| AD46 | VSS[39] | VSS[118] | AR2  |
| AD8  | VSS[40] | VSS[119] | AR48 |
| AE2  | VSS[41] | VSS[120] | AT1  |
| AE3  | VSS[42] | VSS[121] | AT13 |
| AF10 | VSS[43] | VSS[122] | AT18 |
| AF12 | VSS[44] | VSS[123] | AT22 |
| AD14 | VSS[45] | VSS[124] | AT26 |
| AD16 | VSS[46] | VSS[125] | AT28 |
| AF16 | VSS[47] | VSS[126] | AT30 |
| AF19 | VSS[48] | VSS[127] | AT32 |
| AF24 | VSS[49] | VSS[128] | AT34 |
| AF26 | VSS[50] | VSS[129] | AT39 |
| AF27 | VSS[51] | VSS[130] | AT42 |
| AF29 | VSS[52] | VSS[131] | AT46 |
| AF31 | VSS[53] | VSS[132] | AT7  |
| AF38 | VSS[54] | VSS[133] | AU24 |
| AF4  | VSS[55] | VSS[134] | AU30 |
| AF4  | VSS[56] | VSS[135] | AV16 |
| AF46 | VSS[57] | VSS[136] | AV20 |
| AF5  | VSS[58] | VSS[137] | AV24 |
| AF7  | VSS[59] | VSS[138] | AV30 |
| AF8  | VSS[60] | VSS[139] | AV38 |
| AG19 | VSS[61] | VSS[140] | AV4  |
| AG2  | VSS[62] | VSS[141] | AV43 |
| AG31 | VSS[63] | VSS[142] | AV8  |
| AG48 | VSS[64] | VSS[143] | AW14 |
| AH11 | VSS[65] | VSS[144] | AW18 |
| AH3  | VSS[66] | VSS[145] | AW2  |
| AH36 | VSS[67] | VSS[146] | AW22 |
| AH39 | VSS[68] | VSS[147] | AW26 |
| AH40 | VSS[69] | VSS[148] | AW28 |
| AH42 | VSS[70] | VSS[149] | AW32 |
| AH46 | VSS[71] | VSS[150] | AW36 |
| AH7  | VSS[72] | VSS[151] | AW40 |
| AJ19 | VSS[73] | VSS[152] | AW46 |
| AJ21 | VSS[74] | VSS[153] | AW48 |
| AJ24 | VSS[75] | VSS[154] | AY11 |
| AJ33 | VSS[76] | VSS[155] | AY12 |
| AJ34 | VSS[77] | VSS[156] | AY22 |
| AK12 | VSS[78] | VSS[157] | AY28 |
| AK3  | VSS[79] | VSS[158] |      |

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| UH4I |          | H46      |      |
|------|----------|----------|------|
| AY4  | VSS[159] | VSS[259] | K18  |
| AY42 | VSS[160] | VSS[260] | K26  |
| AY46 | VSS[161] | VSS[261] | K39  |
| AY8  | VSS[162] | VSS[262] | K46  |
| B11  | VSS[163] | VSS[263] | K7   |
| B15  | VSS[164] | VSS[264] | L18  |
| B19  | VSS[165] | VSS[265] | L2   |
| B23  | VSS[166] | VSS[266] | L20  |
| B27  | VSS[167] | VSS[267] | L26  |
| B31  | VSS[168] | VSS[268] | L28  |
| B35  | VSS[169] | VSS[269] | L36  |
| B39  | VSS[170] | VSS[270] | L48  |
| B7   | VSS[171] | VSS[271] | M12  |
| F45  | VSS[172] | VSS[272] | M16  |
| BB12 | VSS[173] | VSS[273] | M18  |
| BB16 | VSS[174] | VSS[274] | M22  |
| BB20 | VSS[175] | VSS[275] | M24  |
| BB22 | VSS[176] | VSS[276] | M24  |
| BB24 | VSS[177] | VSS[277] | M30  |
| BB28 | VSS[178] | VSS[278] | M32  |
| BB30 | VSS[179] | VSS[279] | M34  |
| BB38 | VSS[180] | VSS[280] | M38  |
| BB4  | VSS[181] | VSS[281] | M4   |
| BB46 | VSS[182] | VSS[282] | M42  |
| BC14 | VSS[183] | VSS[283] | M46  |
| BC18 | VSS[184] | VSS[284] | M8   |
| BC2  | VSS[185] | VSS[285] | N18  |
| BC22 | VSS[186] | VSS[286] | P30  |
| BC26 | VSS[187] | VSS[287] | P47  |
| BC32 | VSS[188] | VSS[288] | P11  |
| BC34 | VSS[189] | VSS[289] | P18  |
| BC36 | VSS[190] | VSS[290] | T33  |
| AM7  | VSS[191] | VSS[291] | P40  |
| BC42 | VSS[192] | VSS[292] | P43  |
| BC48 | VSS[193] | VSS[293] | P47  |
| BD46 | VSS[194] | VSS[294] | P7   |
| BE5  | VSS[195] | VSS[295] | R2   |
| BE26 | VSS[196] | VSS[296] | R48  |
| BE28 | VSS[197] | VSS[297] | T12  |
| BE40 | VSS[198] | VSS[298] | T31  |
| BE10 | VSS[199] | VSS[299] | T37  |
| BF12 | VSS[200] | VSS[300] | T4   |
| BF16 | VSS[201] | VSS[301] | W34  |
| BF20 | VSS[202] | VSS[302] | T46  |
| BF22 | VSS[203] | VSS[303] | T47  |
| BF24 | VSS[204] | VSS[304] | T9   |
| BF26 | VSS[205] | VSS[305] | V11  |
| BF28 | VSS[206] | VSS[306] | V17  |
| BD3  | VSS[207] | VSS[307] | V26  |
| AT11 | VSS[208] | VSS[308] | V27  |
| BF38 | VSS[209] | VSS[309] | V29  |
| BF40 | VSS[210] | VSS[310] | V31  |
| BF8  | VSS[211] | VSS[311] | V36  |
| BF17 | VSS[212] | VSS[312] | V39  |
| BG33 | VSS[213] | VSS[313] | V43  |
| BG21 | VSS[214] | VSS[314] | V7   |
| BG44 | VSS[215] | VSS[315] | W17  |
| BG8  | VSS[216] | VSS[316] | W19  |
| BH11 | VSS[217] | VSS[317] | W2   |
| BH15 | VSS[218] | VSS[318] | W27  |
| BH17 | VSS[219] | VSS[319] | W48  |
| BH19 | VSS[220] | VSS[320] | Y12  |
| H10  | VSS[221] | VSS[321] | Y38  |
| BH27 | VSS[222] | VSS[322] | Y4   |
| BH31 | VSS[223] | VSS[323] | Y42  |
| BH33 | VSS[224] | VSS[324] | Y6   |
| BH35 | VSS[225] | VSS[325] | Y6   |
| BH39 | VSS[226] | VSS[326] | BG29 |
| BH43 | VSS[227] | VSS[327] | N24  |
| BH7  | VSS[228] | VSS[328] | AJ3  |
| D3   | VSS[229] | VSS[329] | AD47 |
| D12  | VSS[230] | VSS[330] | B43  |
| D16  | VSS[231] | VSS[331] | BE10 |
| D18  | VSS[232] | VSS[332] | BG41 |
| D22  | VSS[233] | VSS[333] | BG41 |
| D24  | VSS[234] | VSS[334] | G14  |
| D26  | VSS[235] | VSS[335] | H16  |
| D30  | VSS[236] | VSS[336] | T36  |
| D32  | VSS[237] | VSS[337] | BG22 |
| D34  | VSS[238] | VSS[338] | BG24 |
| D38  | VSS[239] | VSS[339] | C22  |
| D42  | VSS[240] | VSS[340] | AP13 |
| D8   | VSS[241] | VSS[341] | M14  |
| E18  | VSS[242] | VSS[342] | M14  |
| E26  | VSS[243] | VSS[343] | AP3  |
| G18  | VSS[244] | VSS[344] | AP1  |
| G20  | VSS[245] | VSS[345] | BE16 |
| G26  | VSS[246] | VSS[346] | BC16 |
| G28  | VSS[247] | VSS[347] | BG28 |
| G36  | VSS[248] | VSS[348] | BJ28 |
| G48  | VSS[249] | VSS[349] |      |
| H12  | VSS[250] | VSS[350] |      |
| H18  | VSS[251] | VSS[351] |      |
| H22  | VSS[252] | VSS[352] |      |
| H24  | VSS[253] |          |      |
| H26  | VSS[254] |          |      |
| H30  | VSS[255] |          |      |
| H32  | VSS[256] |          |      |
| H34  | VSS[257] |          |      |
| F3   | VSS[258] |          |      |

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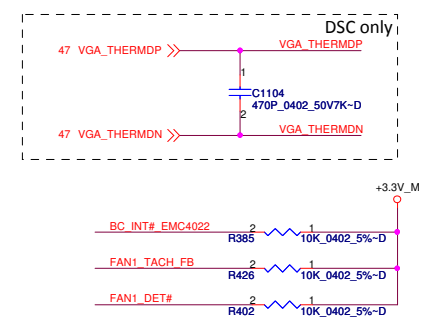
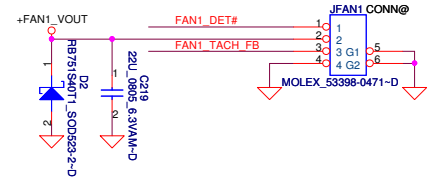
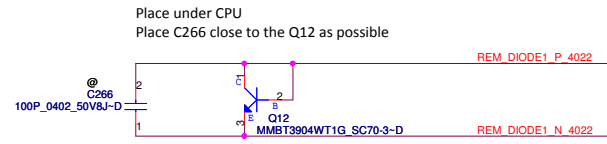
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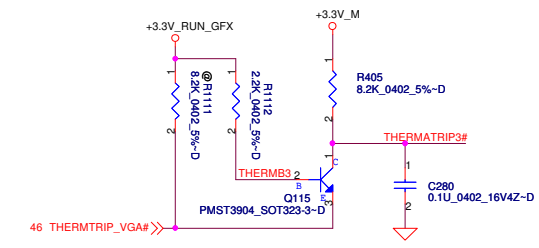
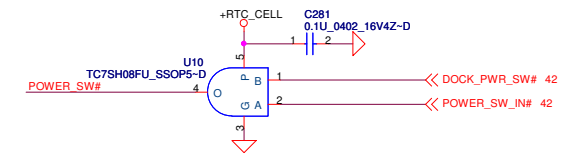
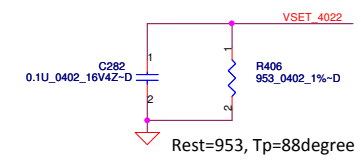
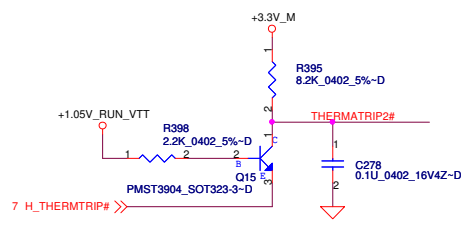
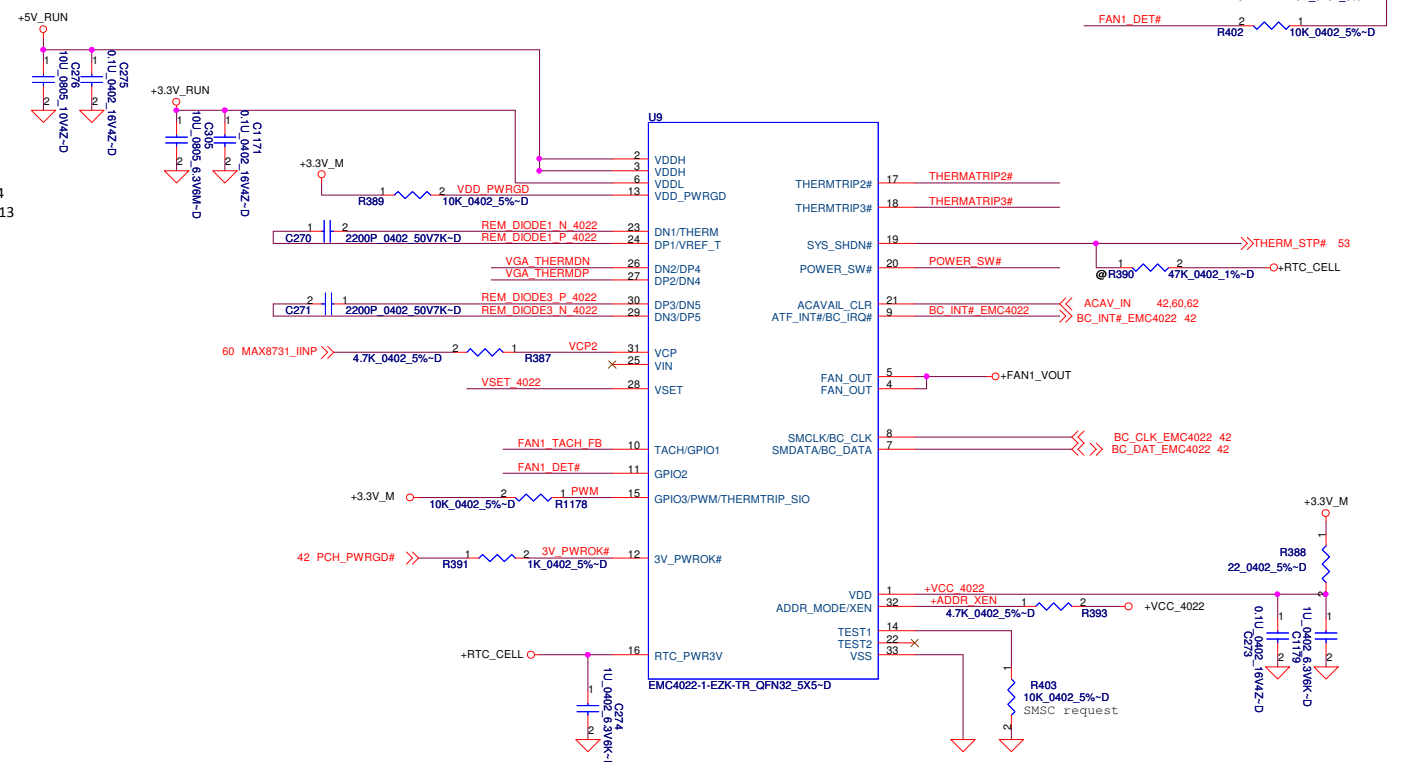
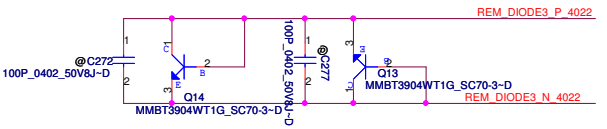
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| Title |  |  | PCH (8/8)                  |  |  |
| Size  |  |  | Document Number            |  |  |
|       |  |  | LA-6592P                   |  |  |
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- DP3/DN3 for SODIMM on Q14, place Q14 close to SODIMM and C272 close to Q14
- DP5/DN5 for Skin on Q13, place Q13 close to JMINI1 for WWAN and C277 close Q13



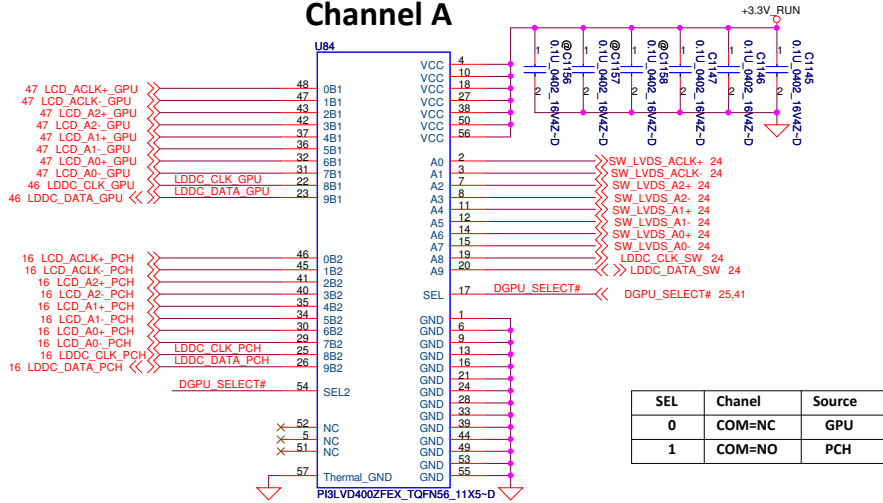
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| <b>Compal Electronics, Inc.</b> |                            |          |       |
| <b>FAN &amp; Thermal Sensor</b> |                            |          |       |
| <b>LA-6592P</b>                 |                            |          |       |
| File                            | Document Number            | Rev      |       |
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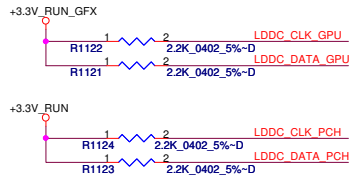
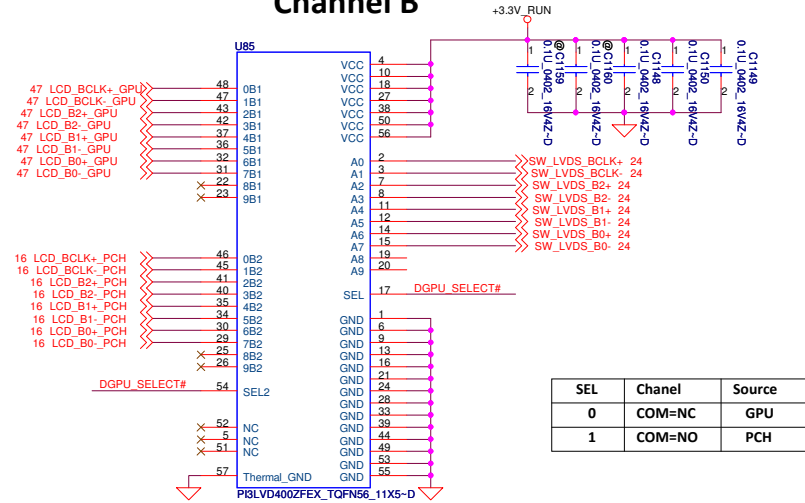
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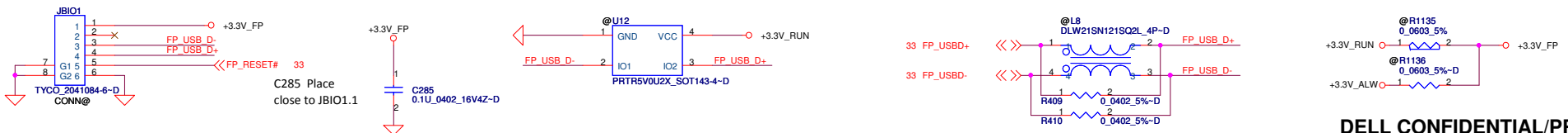
### Channel A



### Channel B



### Fingerprint CONN.

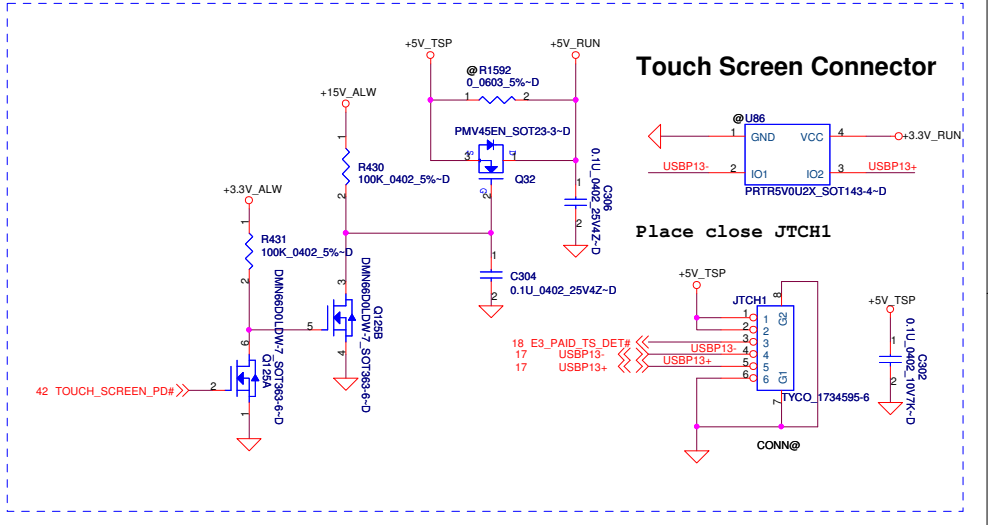
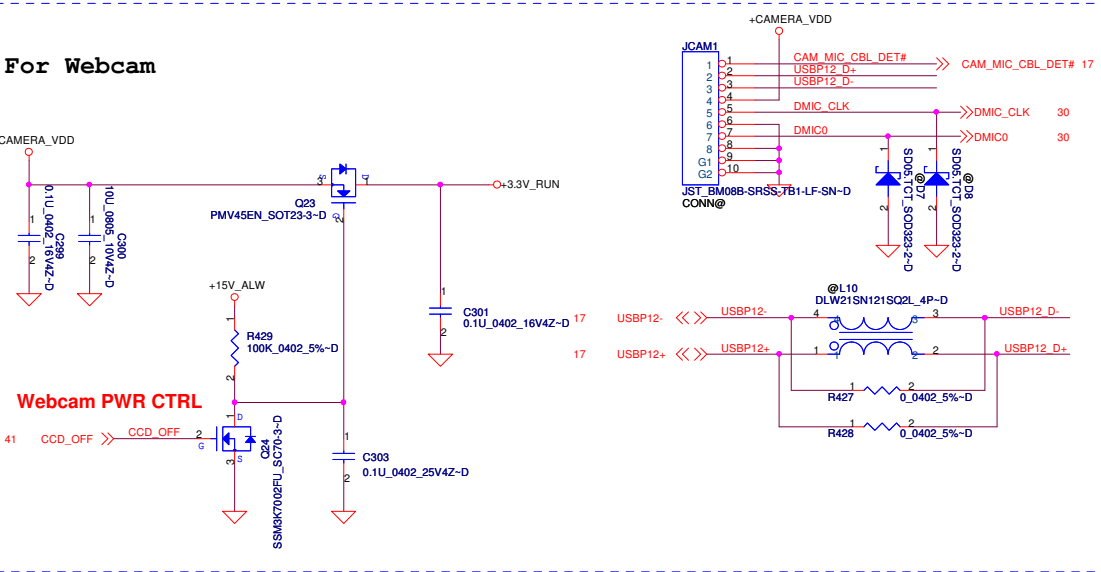
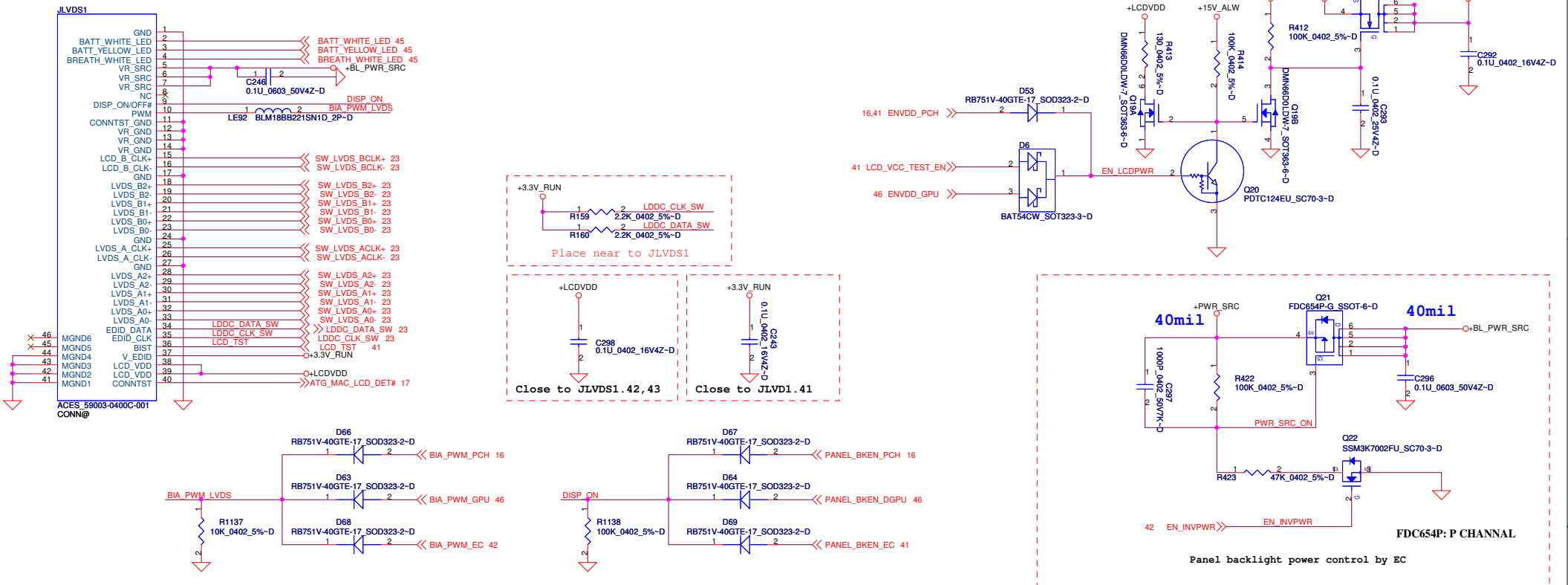


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|                                  |                                    |                   |          |
|----------------------------------|------------------------------------|-------------------|----------|
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| Title<br><b>LVDS SW/FP Conn.</b> |                                    |                   |          |
| Size                             | Document Number<br><b>LA-6592P</b> | Rev<br><b>1.0</b> |          |
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LCD Power



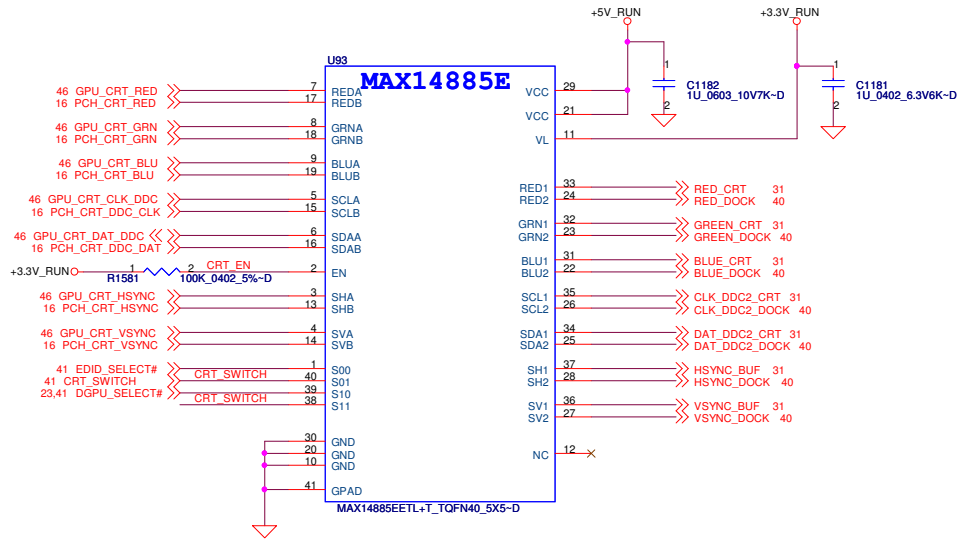
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|                                    |                            |       |     |
|------------------------------------|----------------------------|-------|-----|
| <b>Compal Electronics, Inc.</b>    |                            |       |     |
| <b>eDP &amp; CAM &amp; TS Conn</b> |                            |       |     |
| <b>LA-6592P</b>                    |                            |       |     |
| Size                               | Document Number            | Sheet | Rev |
|                                    |                            | 24    | 1.0 |
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Channel A --> GPU

Channel B --> PCH



Port 1 --> MB Port RGB

Port 2 --> Docking Port RGB

|              |              |              |              |              |
|--------------|--------------|--------------|--------------|--------------|
| CRT_SWITCH   | 0            | 0            | 1            | 1            |
| DGPU_SELECT# | 0            | 1            | 0            | 1            |
| EDID_SELECT# | 0            | 1            | 0            | 1            |
|              | A --> Port 1 | B --> Port 1 | A --> Port 2 | B --> Port 2 |

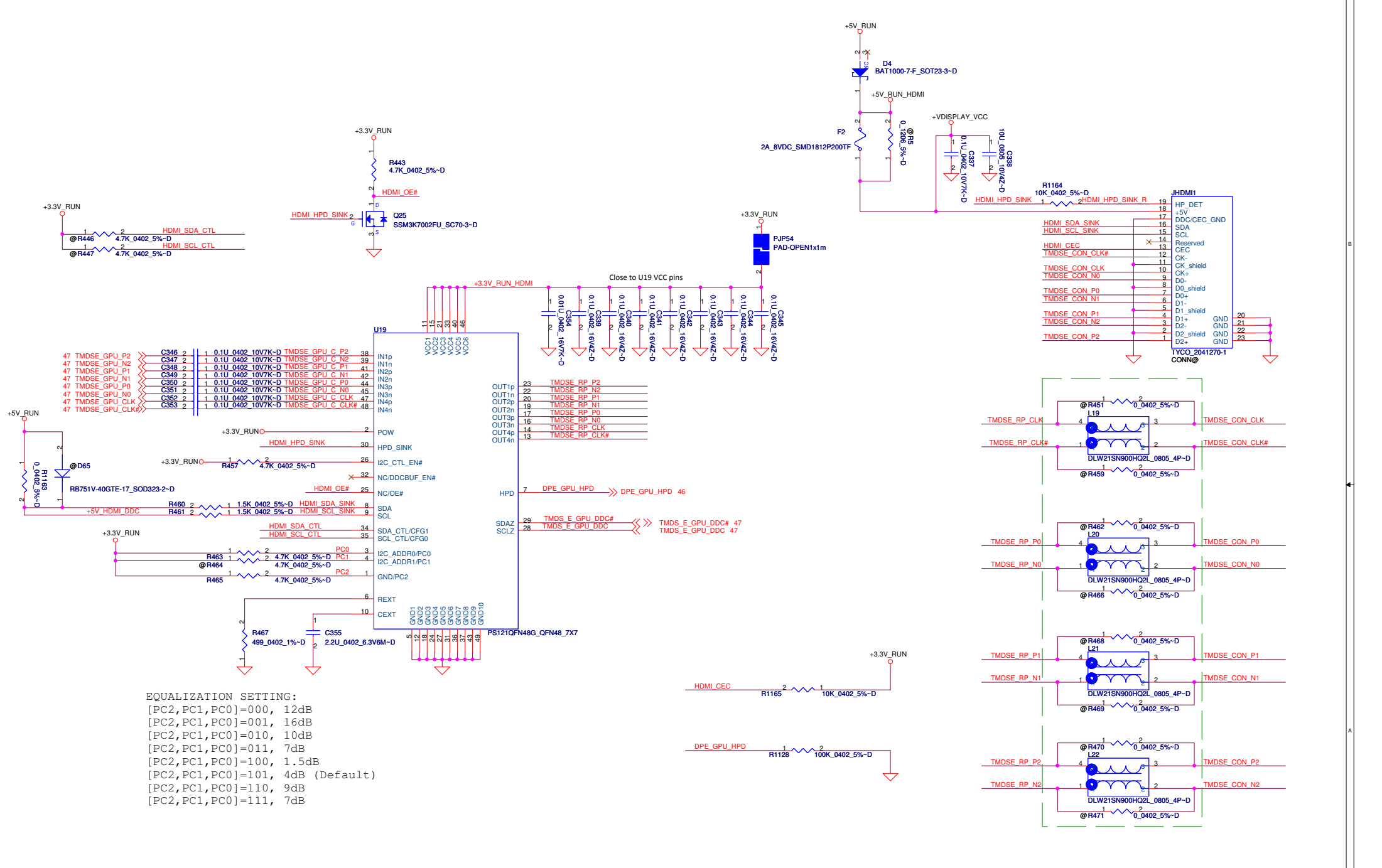
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|                           |                             |            |          |
|---------------------------|-----------------------------|------------|----------|
| Compal Electronics, Inc.  |                             |            |          |
| Title<br>CRT/Video switch |                             |            |          |
| Size                      | Document Number<br>LA-6592P | Rev<br>1.0 |          |
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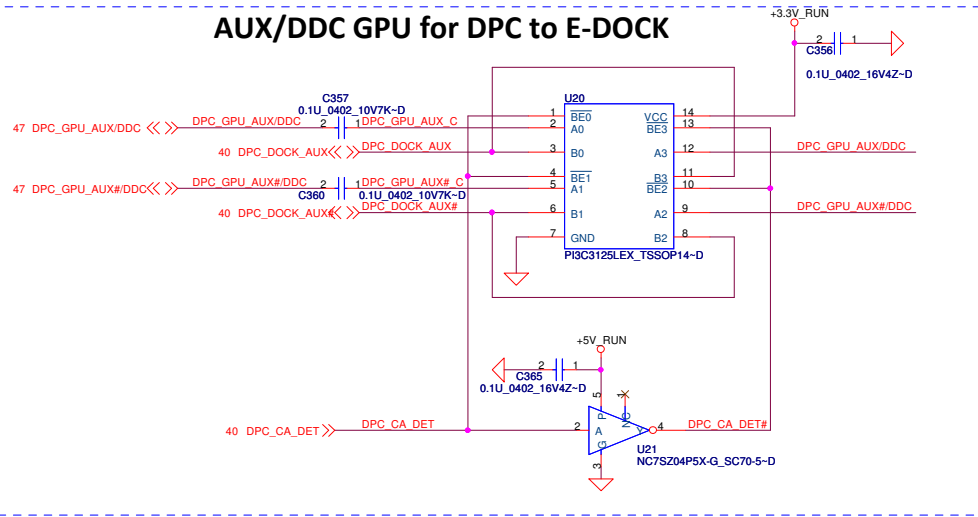
EQUALIZATION SETTING:  
 [PC2,PC1,PC0]=000, 12dB  
 [PC2,PC1,PC0]=001, 16dB  
 [PC2,PC1,PC0]=010, 10dB  
 [PC2,PC1,PC0]=011, 7dB  
 [PC2,PC1,PC0]=100, 1.5dB  
 [PC2,PC1,PC0]=101, 4dB (Default)  
 [PC2,PC1,PC0]=110, 9dB  
 [PC2,PC1,PC0]=111, 7dB

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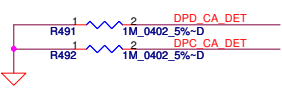
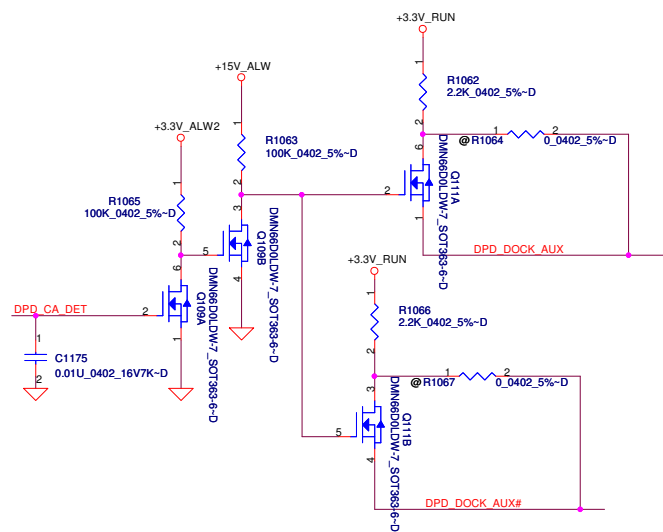
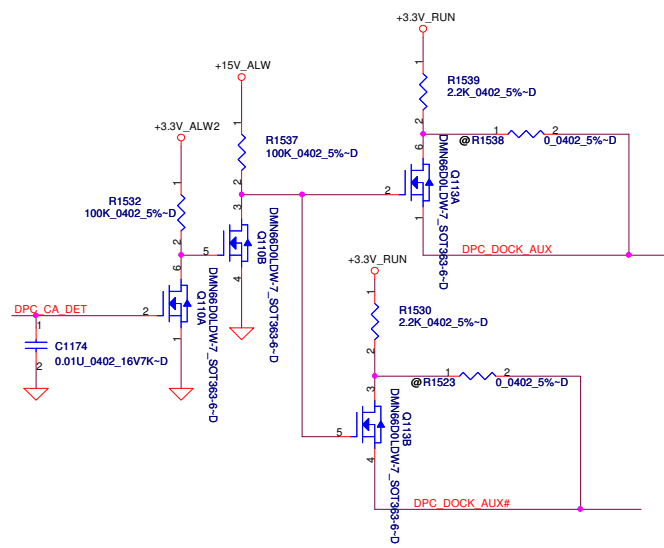
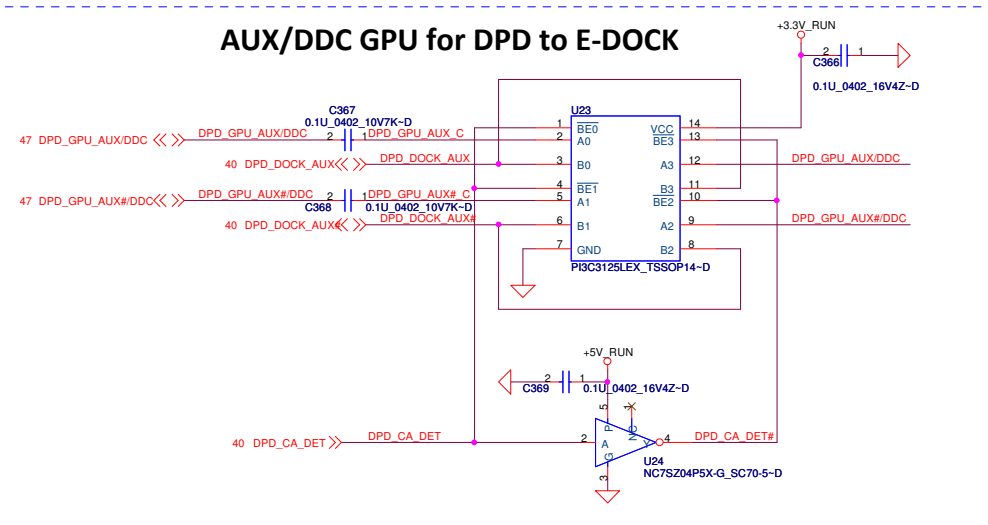
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|---------------------------------|---------------------------|-------|----------|
| <b>Compal Electronics, Inc.</b> |                           |       |          |
| <b>HDMI port</b>                |                           |       |          |
| Size                            | Document Number           | Rev   |          |
|                                 | <b>LA-6592P</b>           | 1.0   |          |
| Date:                           | Tuesday, January 18, 2011 | Sheet | 26 of 75 |

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### AUX/DDC GPU for DPC to E-DOCK



### AUX/DDC GPU for DPD to E-DOCK

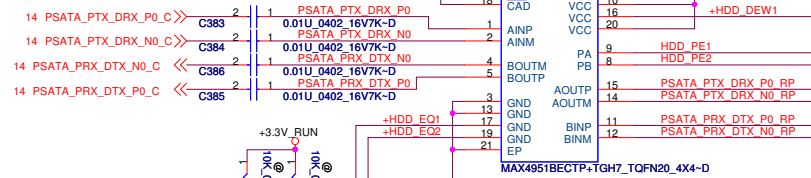


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|   |                            |                                 |          |
|---|----------------------------|---------------------------------|----------|
|  |                            | <b>Compal Electronics, Inc.</b> |          |
|   |                            | <b>DP AUX SW</b>                |          |
| File  |                            |                                 |          |
| Size  | Document Number            | Rev                             |          |
|   | <b>LA-6592P</b>            | 1.0                             |          |
| Date:   | Thursday, January 13, 2011 | Sheet                           | 27 of 75 |

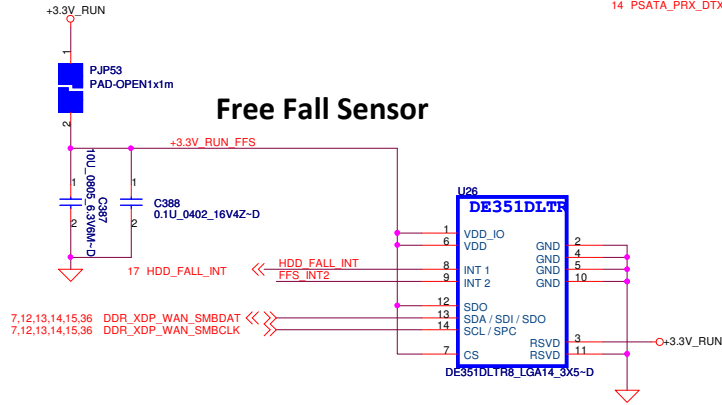
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### HDD Repeater

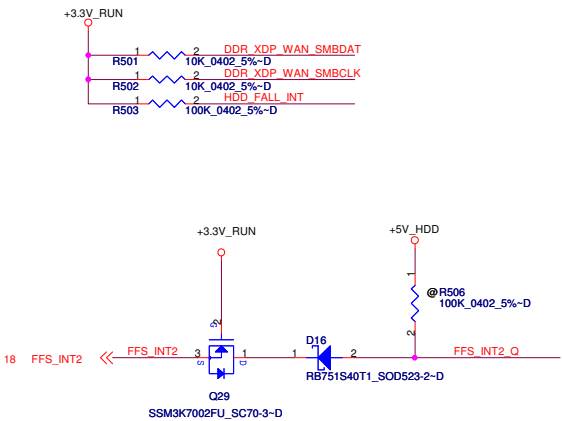
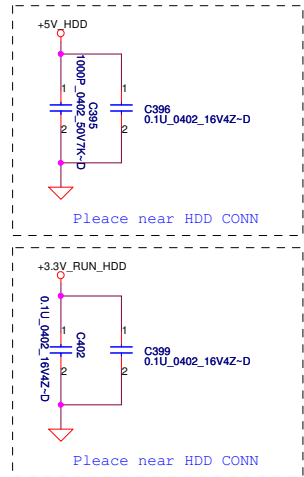
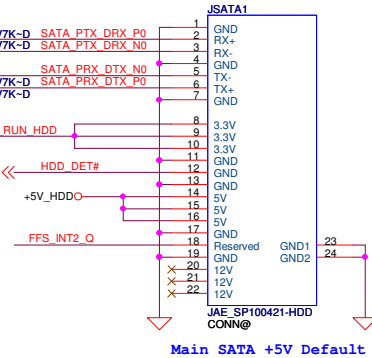
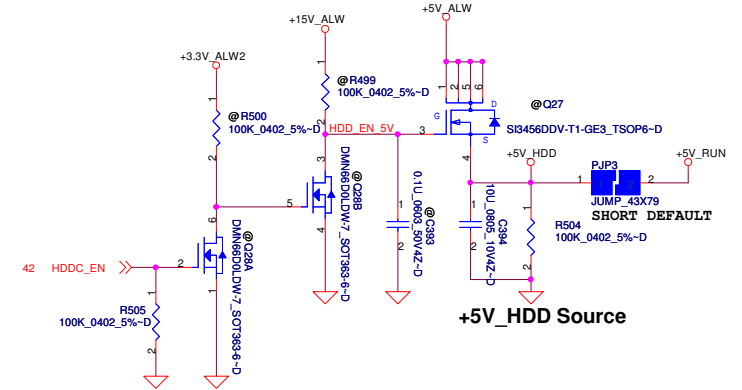


Note: +HDD\_DEW1, +HDD\_DEW2, +HDD\_EQ1, +HDD\_EQ2 need to route 10 mils and R1169, R1171, R1174, R1176 need to change to 10k and no stuff R1174, R1176 to support TI SN75LVCP601

### Free Fall Sensor



### HDD PWR



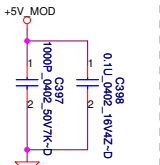
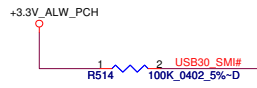
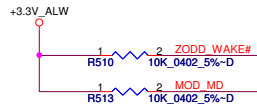
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Compal Electronics, Inc.



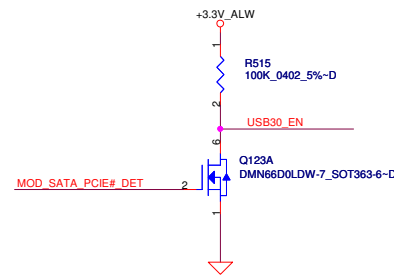
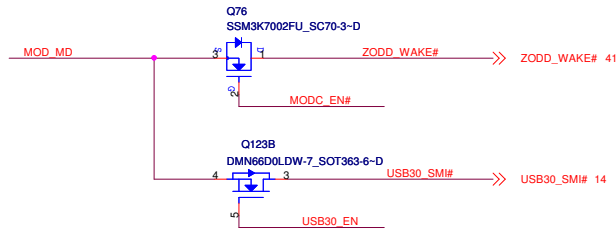
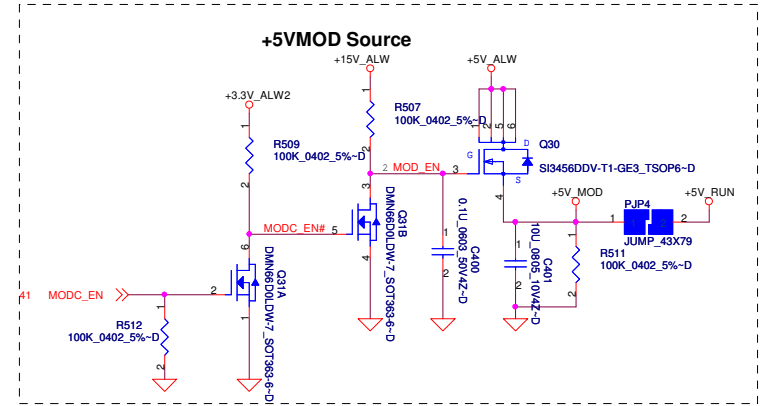
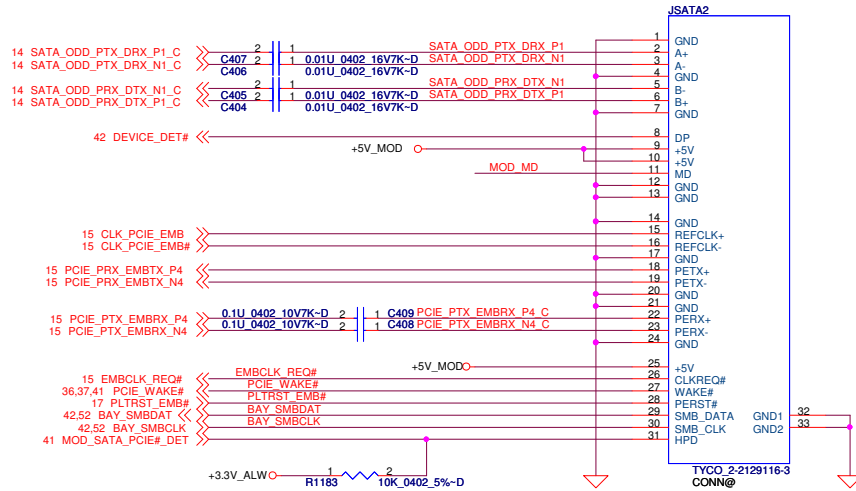
|               |                            |       |          |
|---------------|----------------------------|-------|----------|
| Title         |                            |       |          |
| HDD CONNECTOR |                            |       |          |
| Size          | Document Number            | Rev   |          |
|               | LA-6592P                   | 1.0   |          |
| Date:         | Thursday, January 13, 2011 | Sheet | 28 of 75 |

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Please near ODD CONN

### For ODD



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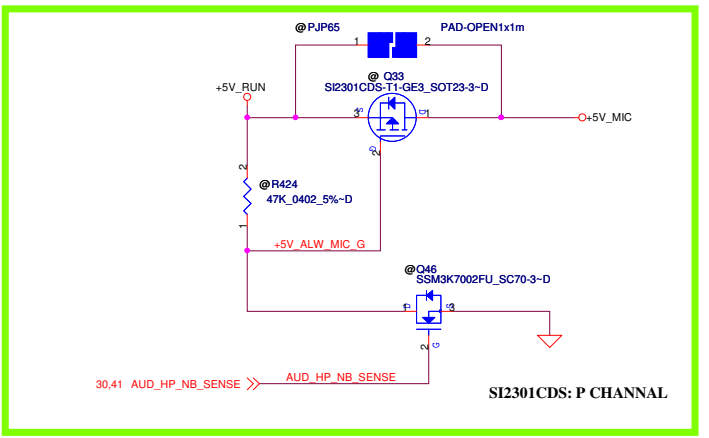
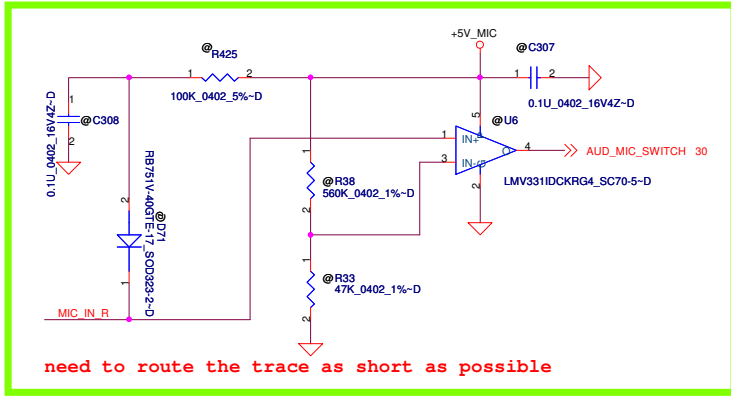
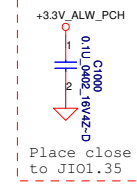
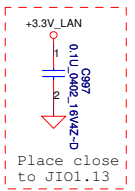
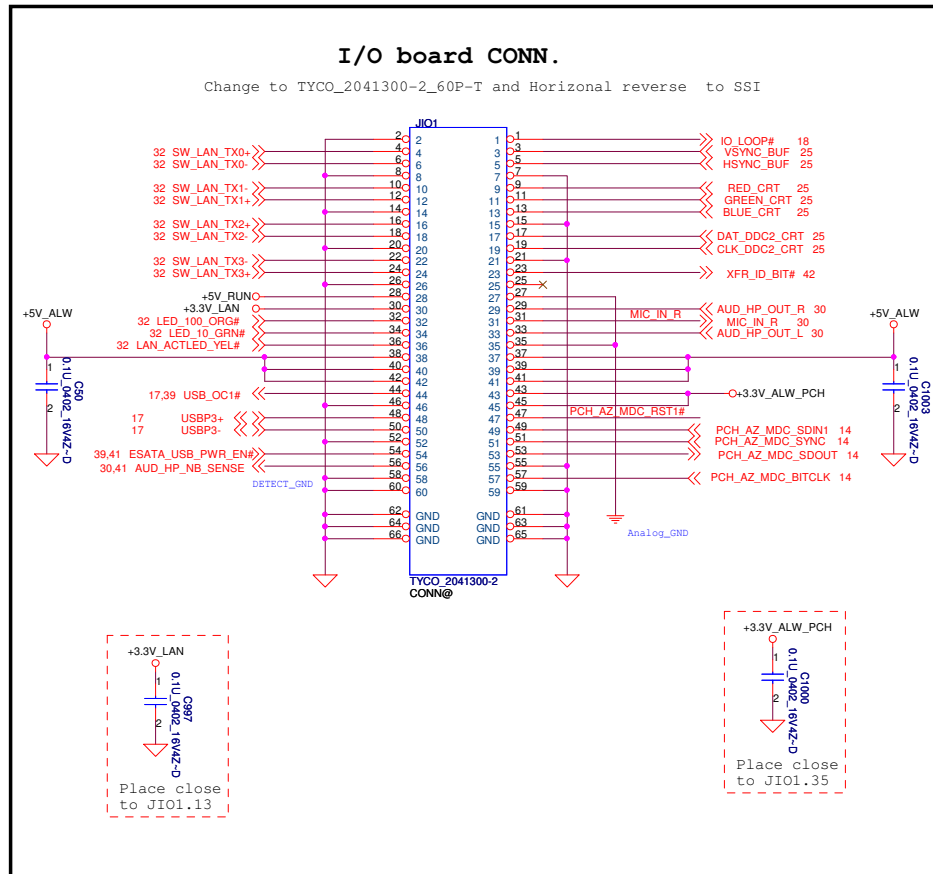
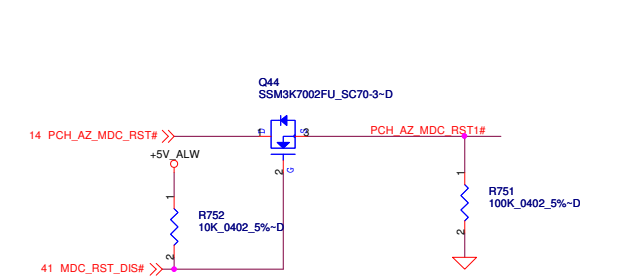
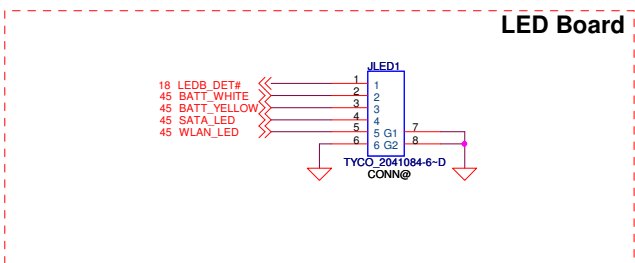
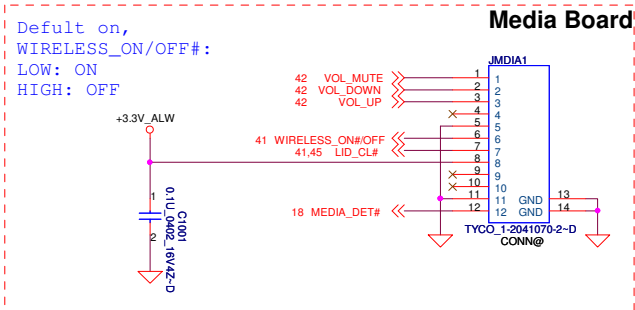
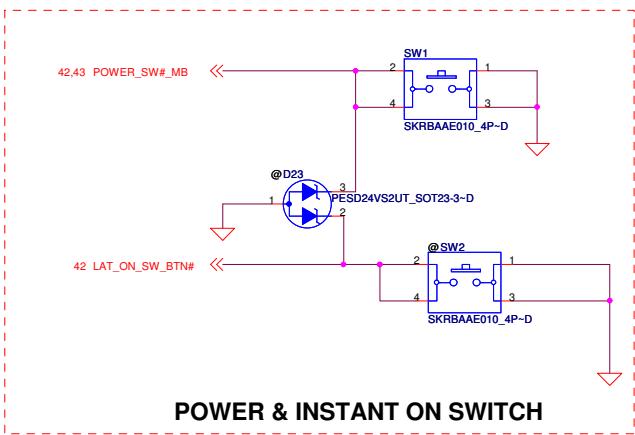
Compal Electronics, Inc.

|               |                            |       |          |
|---------------|----------------------------|-------|----------|
| Title         |                            |       |          |
| ODD CONNECTOR |                            |       |          |
| Size          | Document Number            | Rev   |          |
|               | LA-6592P                   | 1.0   |          |
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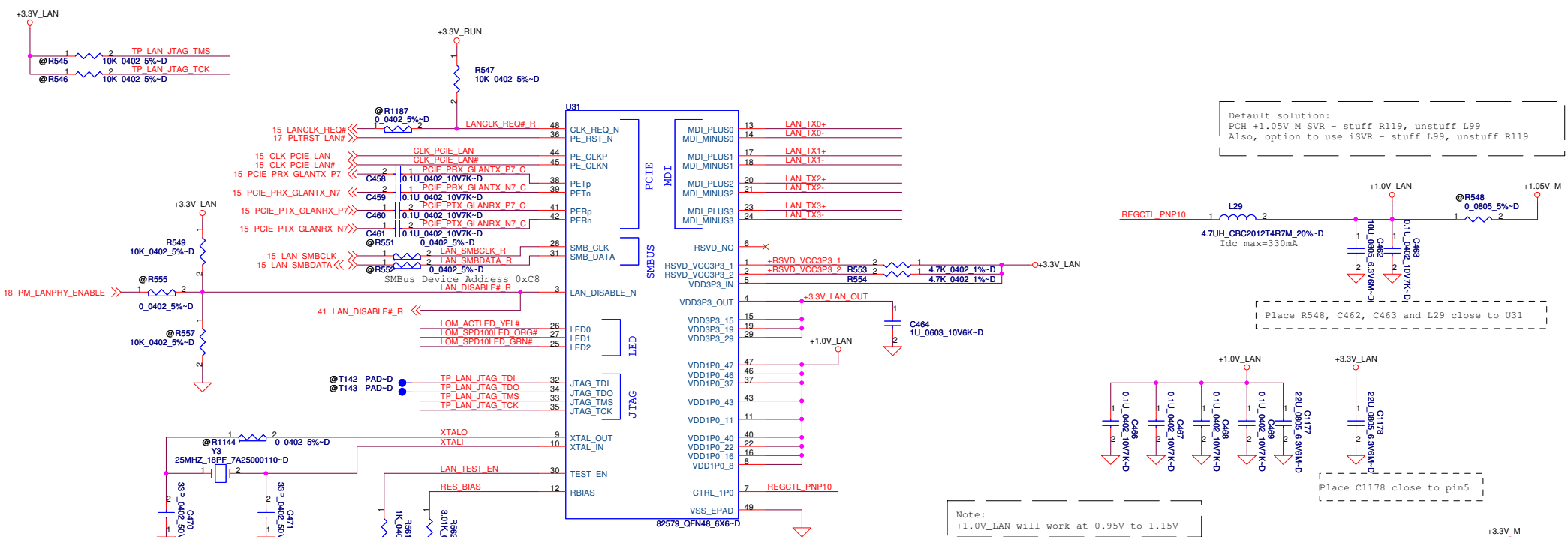






|       |  |                            |  |
|-------|--|----------------------------|--|
| Title |  | PWR SW/Sub-board Connector |  |
| Size  |  | Document Number            |  |
|       |  | LA-6592P                   |  |
| Date  |  | Thursday, January 13, 2011 |  |
|       |  | Sheet 31 of 75             |  |

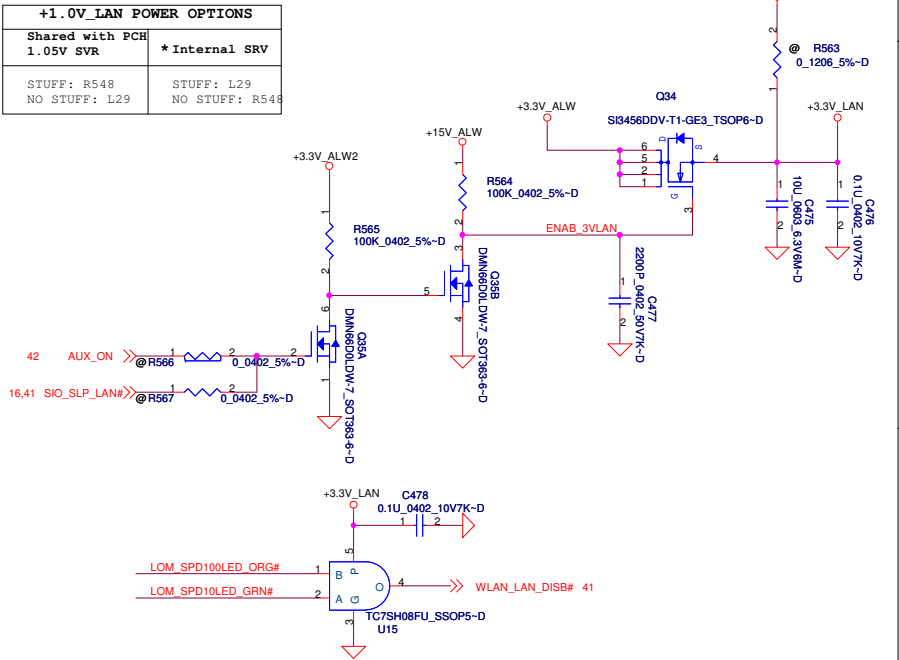
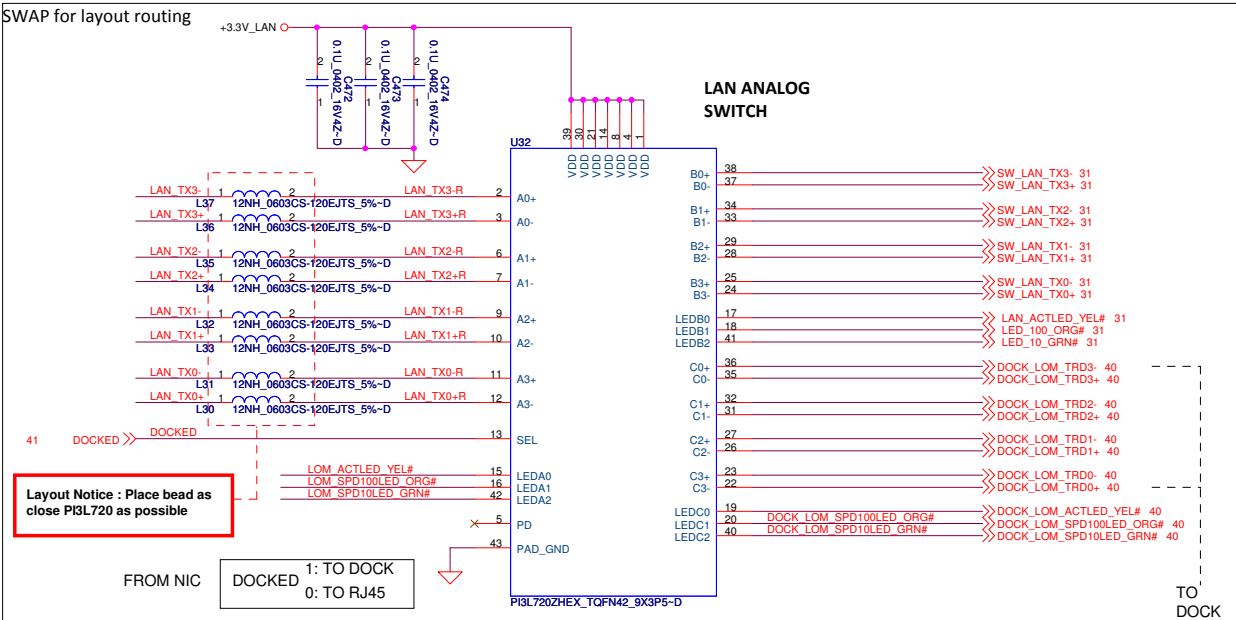
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Need to verify A3 silicon drive power before removing C427  
KDS crystal vender verify driving level in A3

R1200 Resistor Value:  
3.01 kohm for Hanksville-M LOM  
2.37 kohm for Hanksville-D LOM

Note:  
+1.0V\_LAN will work at 0.95V to 1.15V



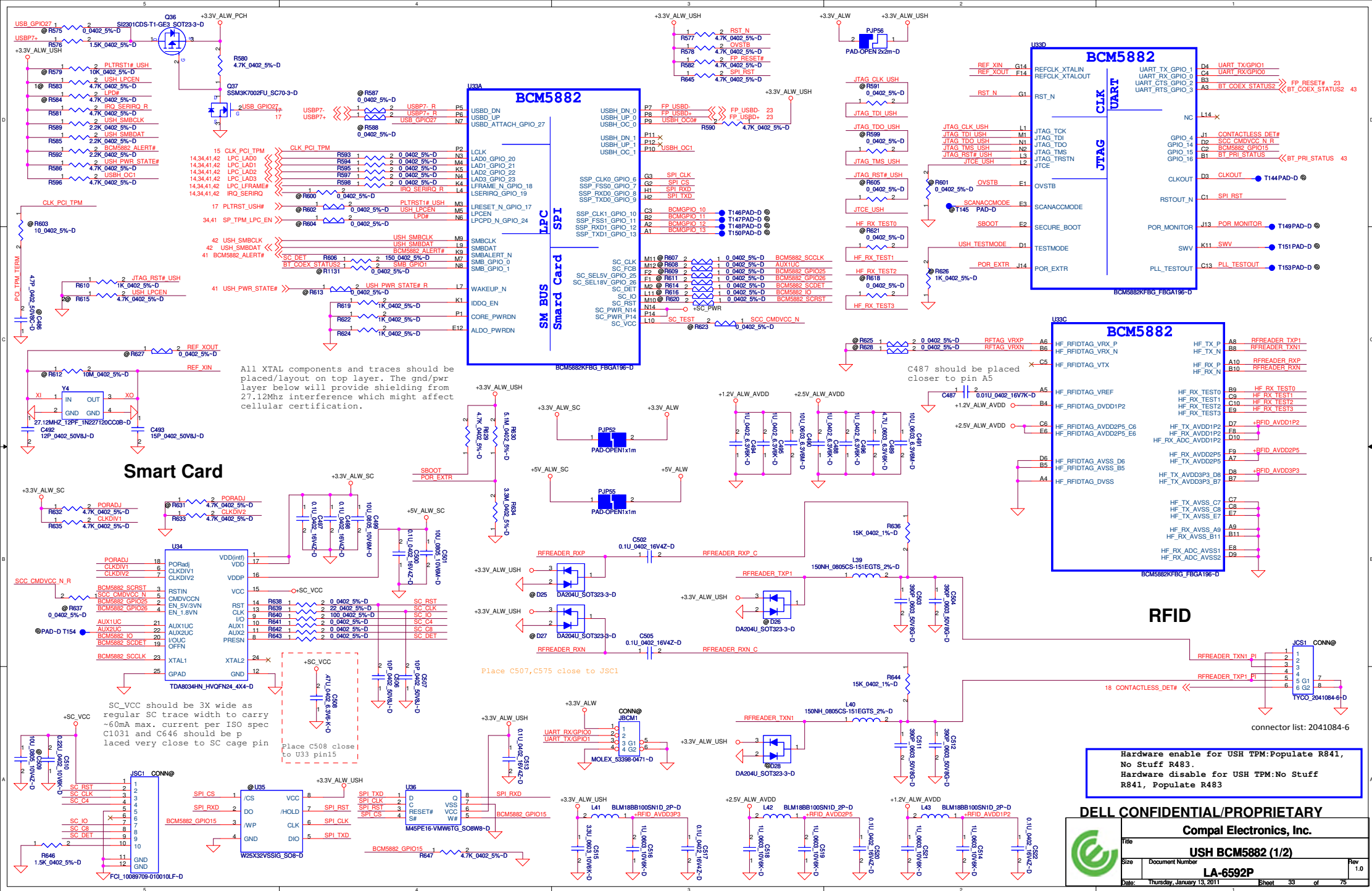
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Compal Electronics, Inc.

Title: Intel 82579 (Hanksville) / LAN SW

Size: LA-6592P

Date: Thursday, January 13, 2011 Sheet 32 of 75

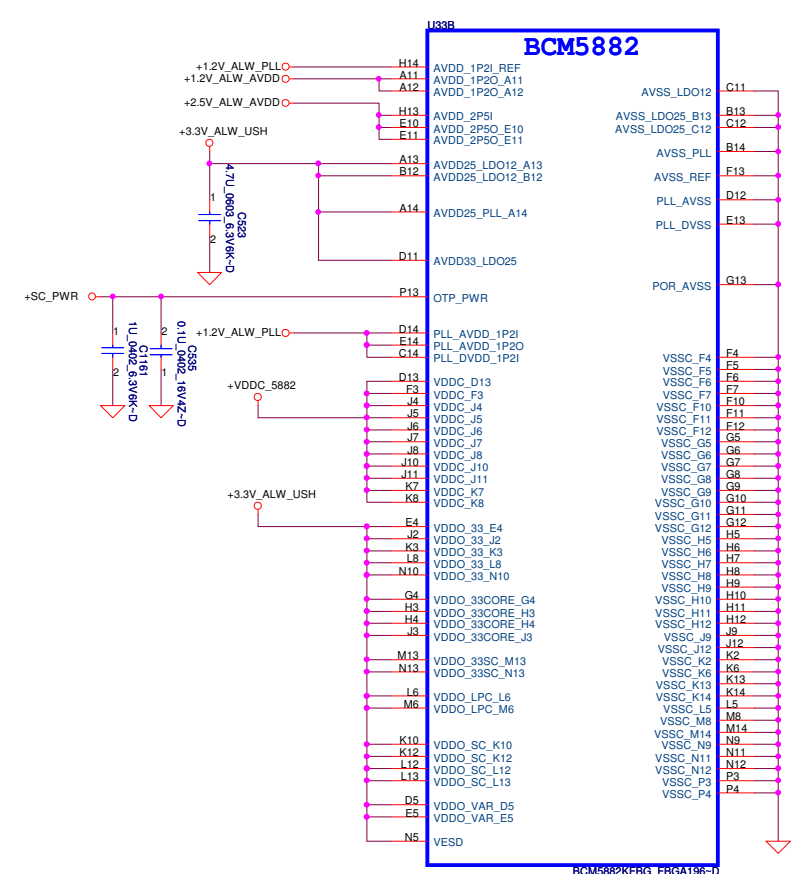
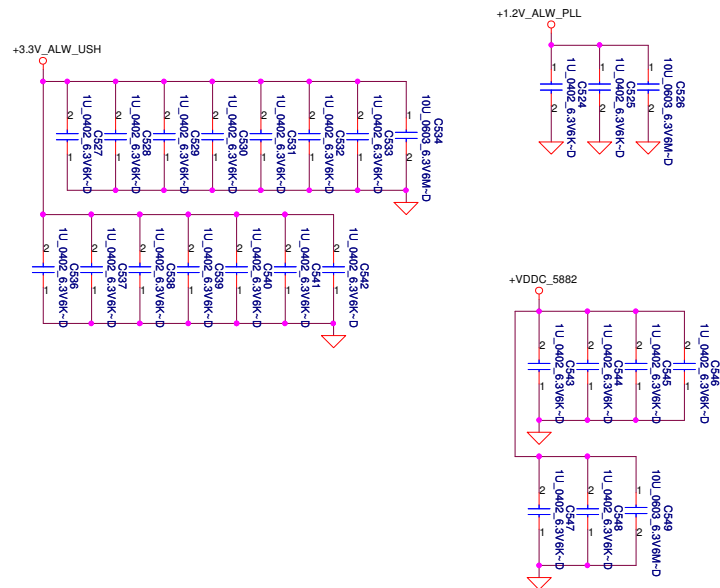


Hardware enable for USH TPM:Populate R841, No Stuff R483.  
 Hardware disable for USH TPM:No Stuff R841, Populate R483

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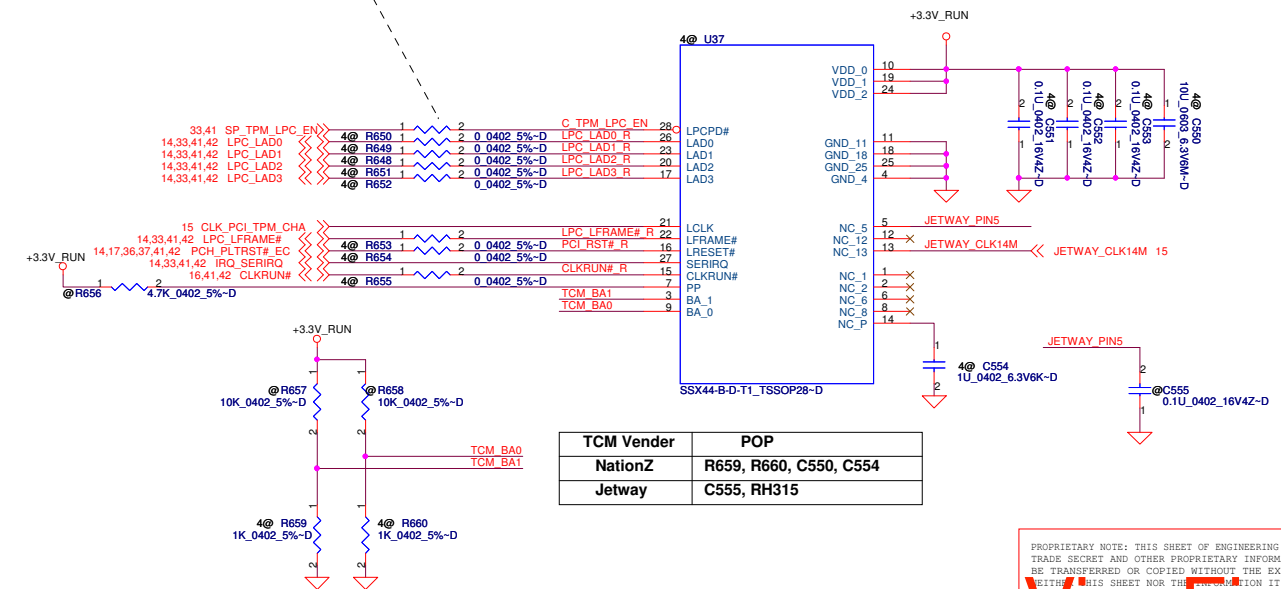
**Compal Electronics, Inc.**

|       |                            |          |          |
|-------|----------------------------|----------|----------|
| File  | USH BCM5882 (1/2)          |          |          |
| Size  | Document Number            | LA-6592P | Rev 1.0  |
| Date: | Thursday, January 13, 2011 | Sheet    | 33 of 75 |



LOW: Power Down Mode  
High: Working Mode

**China TCM: NationZ & Jetway co-lay**



| TCM Vender | POP                    |
|------------|------------------------|
| NationZ    | R659, R660, C550, C554 |
| Jetway     | C555, RH315            |

| USH BCM5882 and China TCM Z8H172T Option |                      |            |            |                     |
|--|----------------------|------------|------------|---------------------|
| PART/PIN                                 | Ref Des              | TCM Enable | TPM Enable | ALL TPM/TCM Disable |
| TCM circuit                              | All 4@               | POP        | @          | @                   |
| USH_LPCEN                                | PU R583<br>PD R615   | @<br>POP   | POP<br>@   | @<br>@              |
| SIO 5028 ->SP_TPM_LPC_EN                 | PU R772              | @          | @          | @                   |
| PCH GPIO39 ->TPM_ID1                     | PU RH268<br>PD RH271 | @<br>POP   | POP<br>@   | POP<br>@            |
| PCH GPIO38 ->TPM_ID0                     | PU RH267<br>PD RH270 | @<br>POP   | POP<br>@   | POP<br>POP          |

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**Ush Electronics, Inc.**

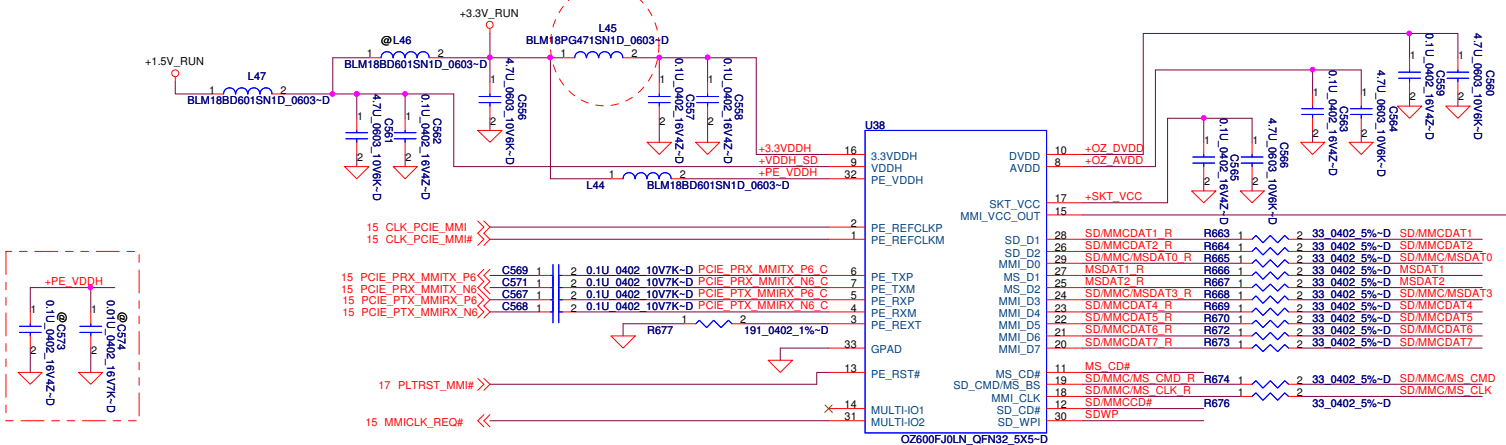
**USH BCM5882 (2/2)**

**LA-6592P**

Date: Thursday, January 13, 2011 Sheet 34 of 75

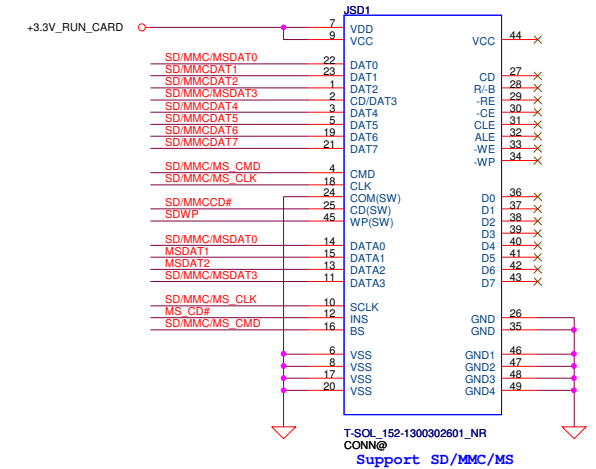
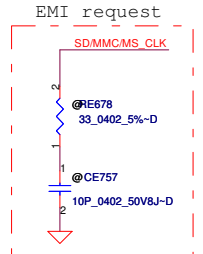
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need to apply CIS symbol.



place close to pin U38.32

Note: The trace need to route as daisy-chain and the trace of SD signals need to route as short as possible



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|                      |                            |       |          |
|----------------------|----------------------------|-------|----------|
| Title                |                            |       |          |
| Card Reader OZ600FJ0 |                            |       |          |
| LA-6592P             |                            |       |          |
| Size                 | Document Number            | Rev   | 1.0      |
| Date:                | Thursday, January 13, 2011 | Sheet | 35 of 75 |

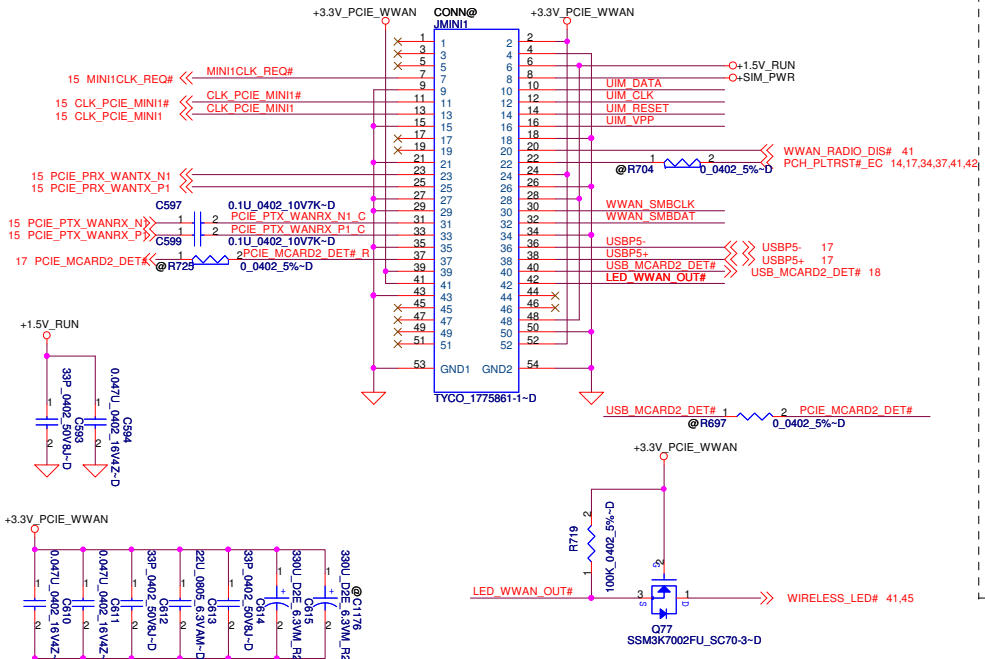
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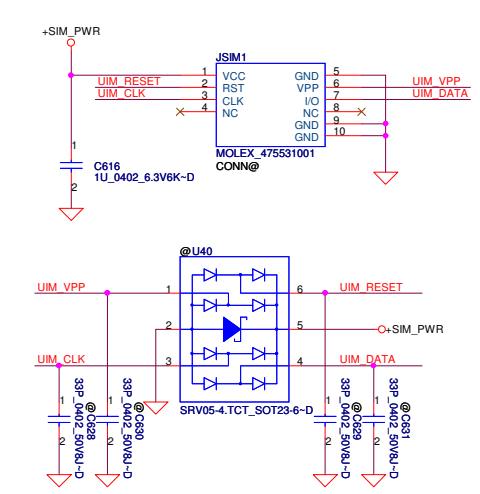




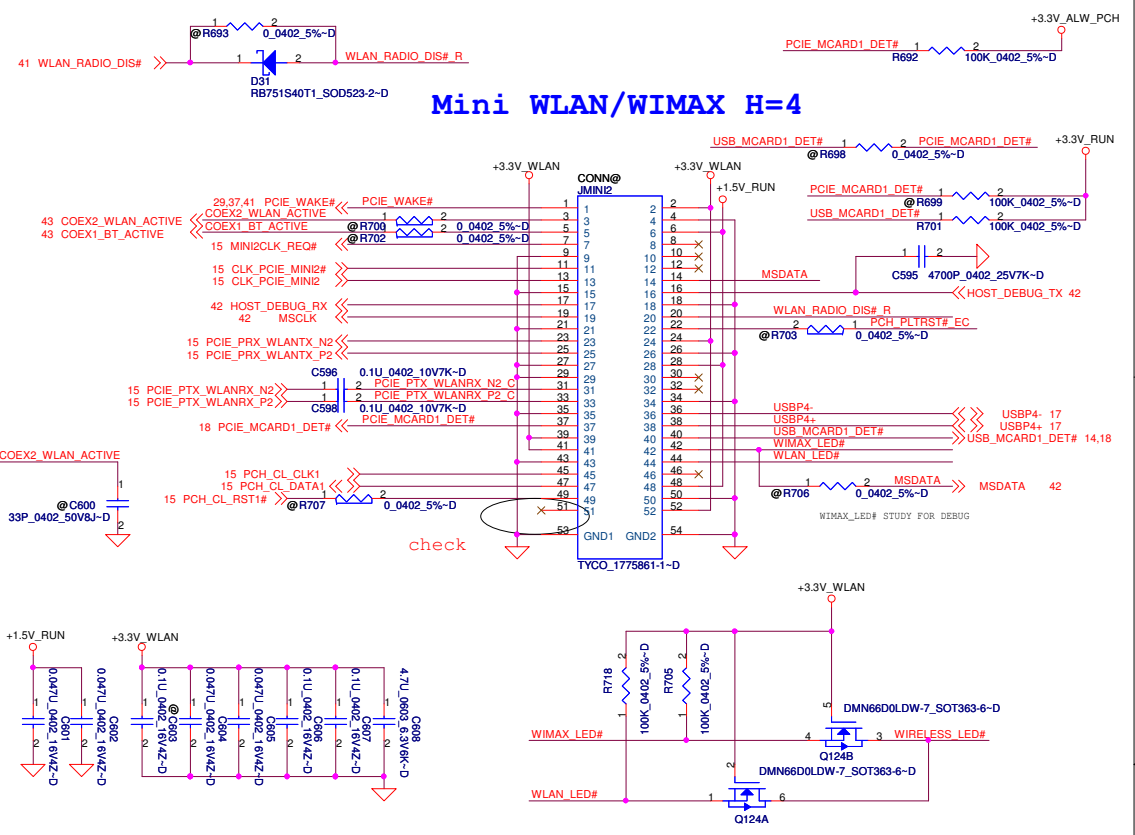
### Mini WWAN/GPS/LTE/UWB H=5.2



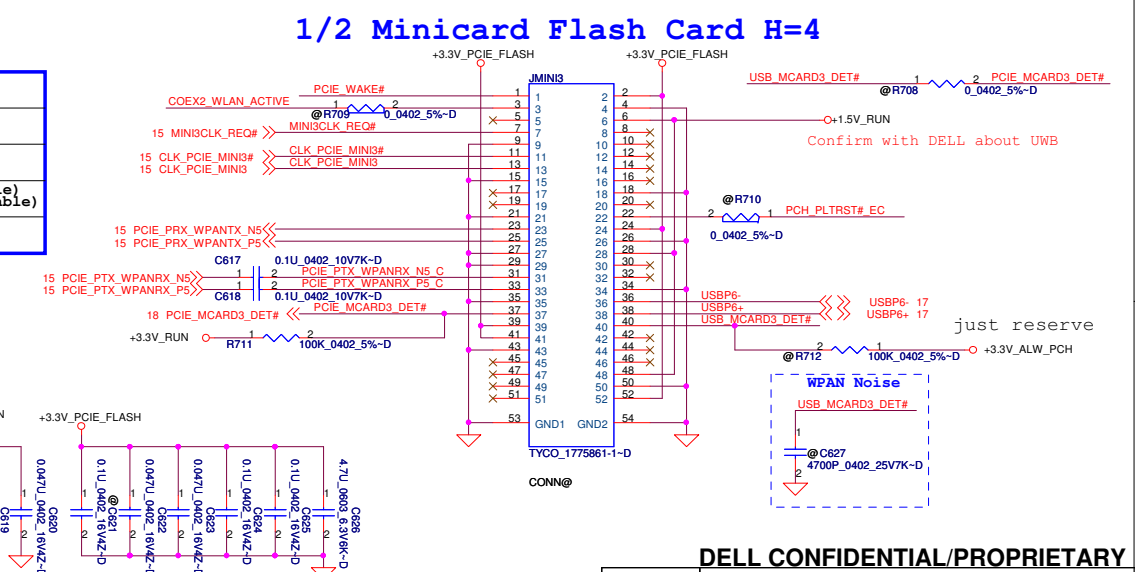
### SIM Card Push-Push



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



### Mini WLAN/WIMAX H=4



### 1/2 Minicard Flash Card H=4

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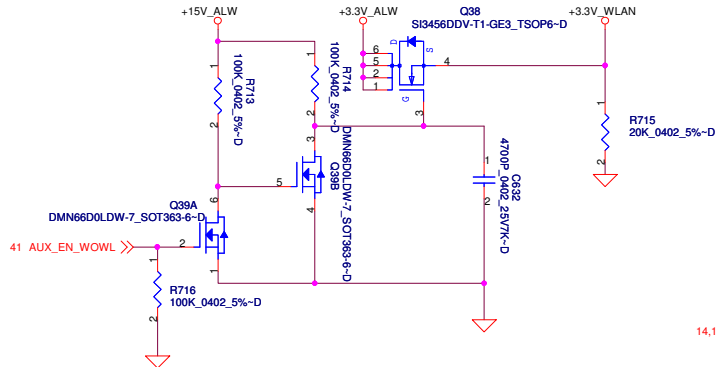


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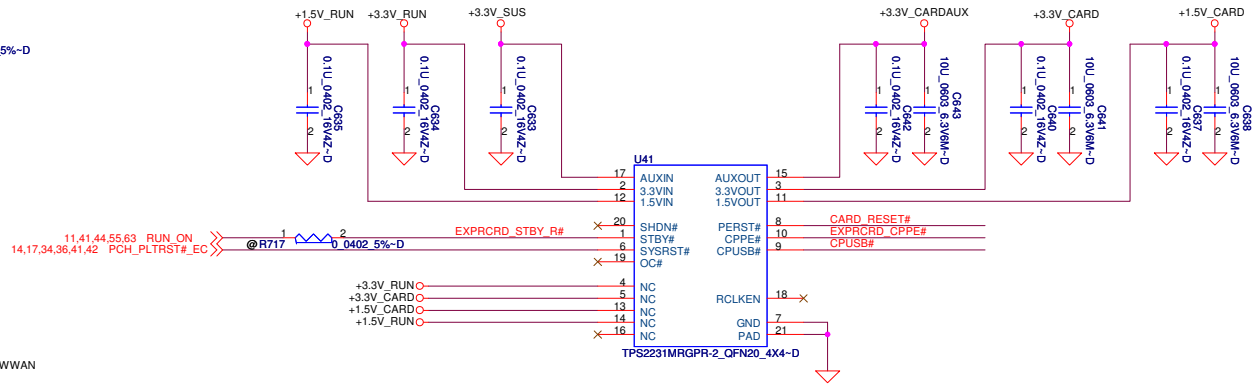
|                          |                            |       |          |
|--------------------------|----------------------------|-------|----------|
| Compal Electronics, Inc. |                            |       |          |
| Title: Mini Card         |                            |       |          |
| Size                     | Document Number            | Rev   |          |
|                          | LA-6592P                   | 1.0   |          |
| Date:                    | Thursday, January 13, 2011 | Sheet | 36 of 75 |



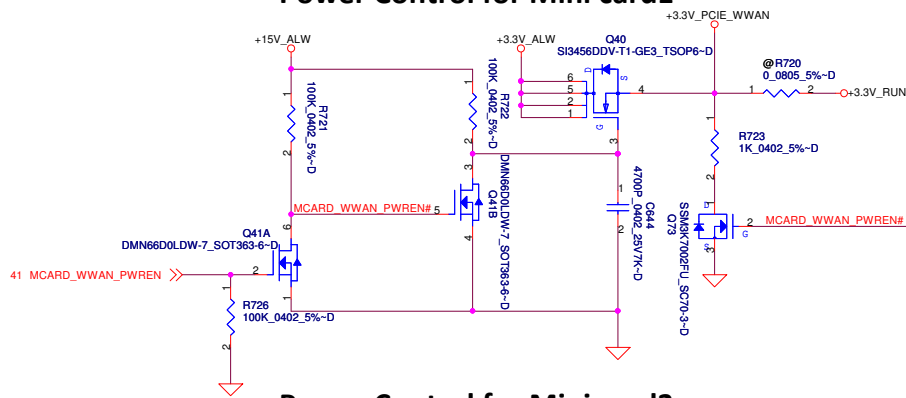
### Power Control for Mini card2



### Express Card PWR S/W

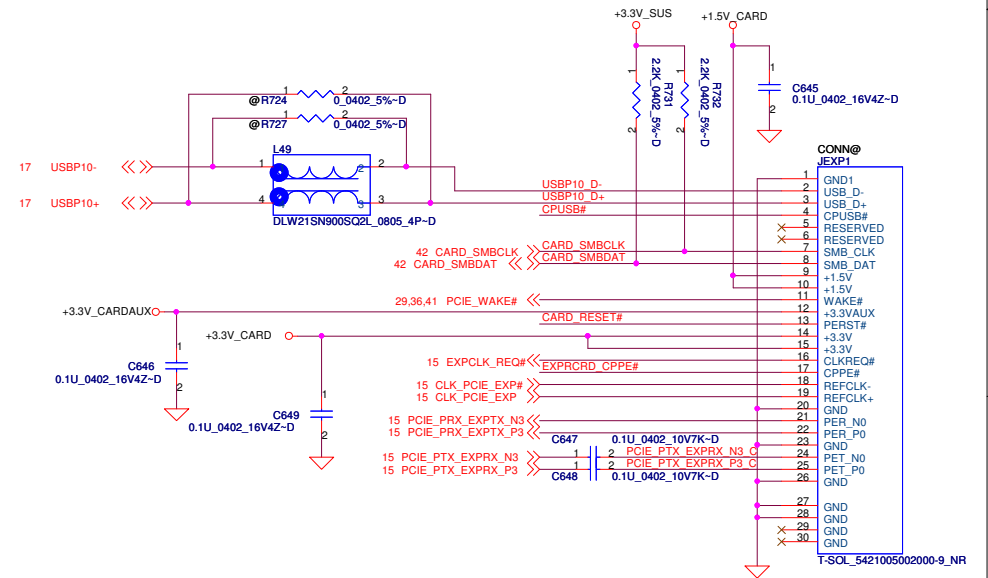


### Power Control for Mini card1

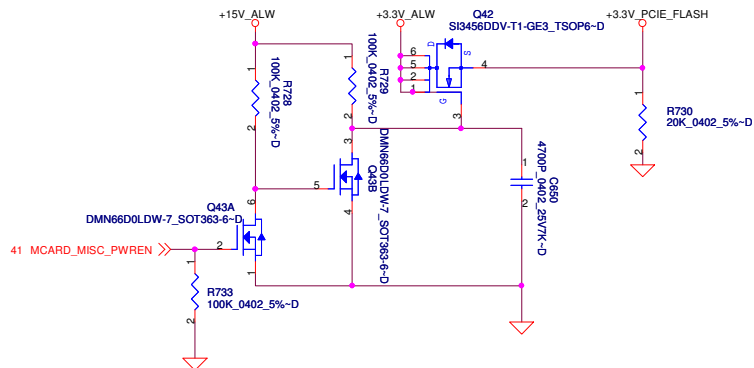


[Note: Add connection on pin4, pin5, pin13 and pin14 to support GMT 2nd source part]

### Express Card Conn.



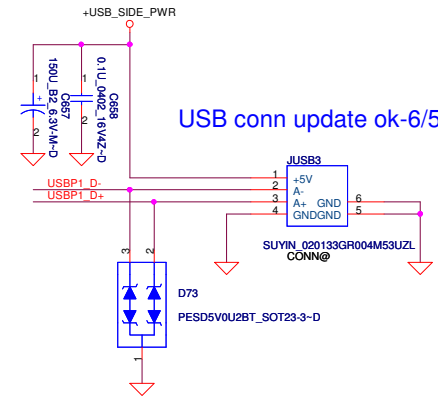
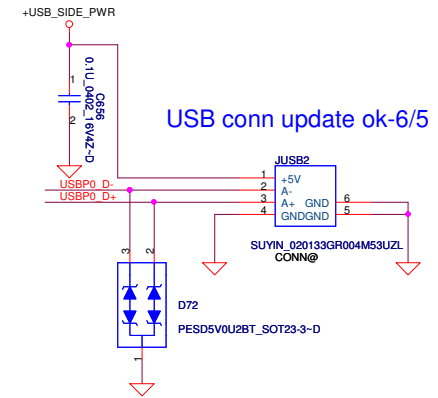
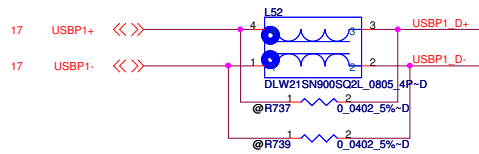
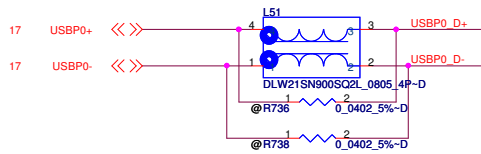
### Power Control for Mini card3



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|   |                           |       |          |
|---|---------------------------|-------|----------|
| Compal Electronics, Inc.                |                           |       |          |
| Title<br><b>PCIe-SATA SW / PCIe PWR</b> |                           |       |          |
| Size                                    | Document Number           | Rev   |          |
|   | <b>LA-6592P</b>           | 1.0   |          |
| Date:                                   | Tuesday, January 18, 2011 | Sheet | 37 of 75 |

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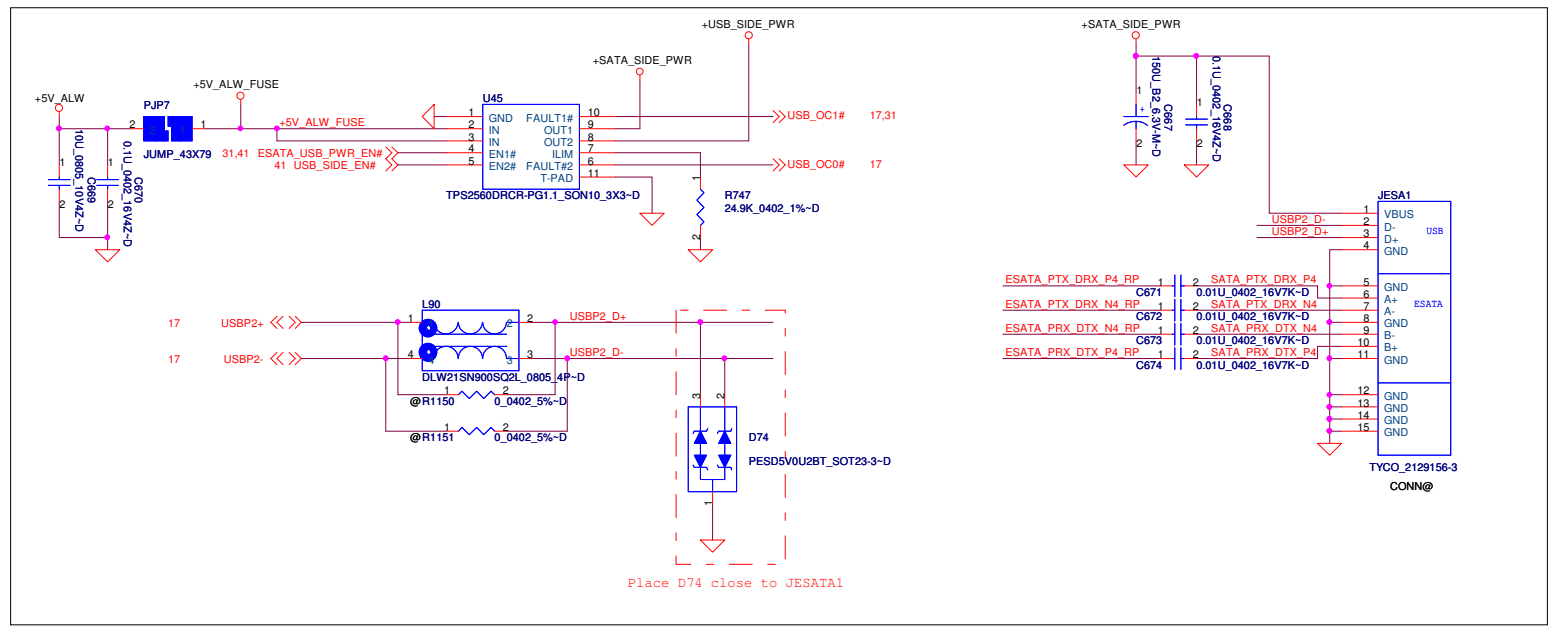
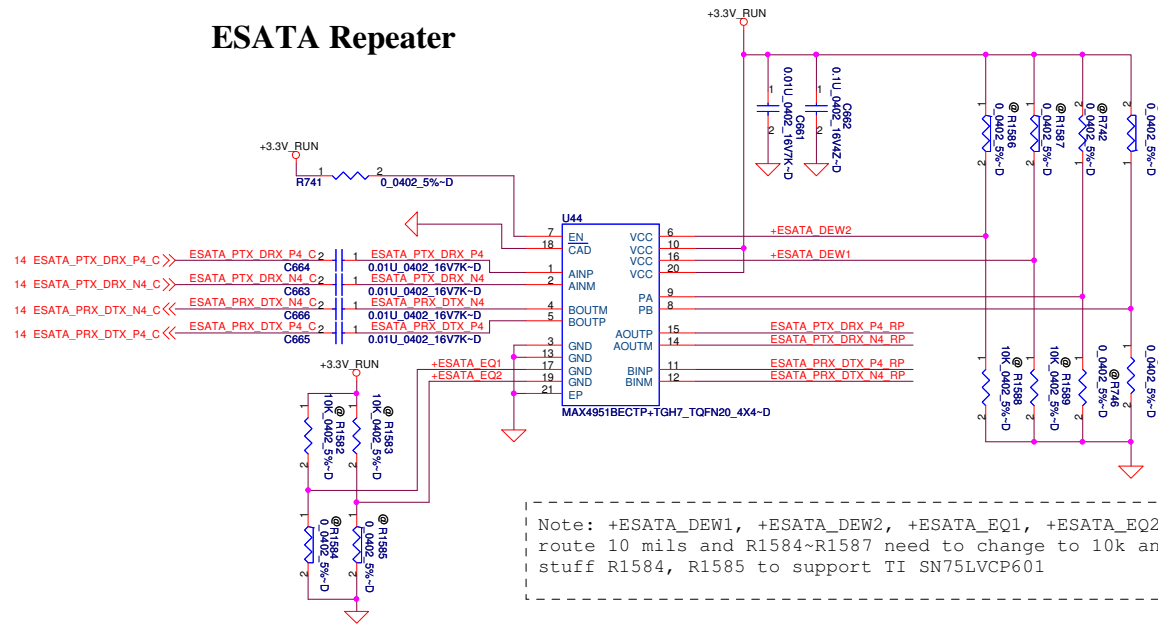


|       |                           |        |          |
|-------|---------------------------|--------|----------|
| Title |                           | USB x2 |          |
| Size  | Document Number           | Rev    |          |
|       | LA-6592P                  | 1.0    |          |
| Date: | Tuesday, January 18, 2011 | Sheet  | 38 of 75 |

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# ESATA Repeater



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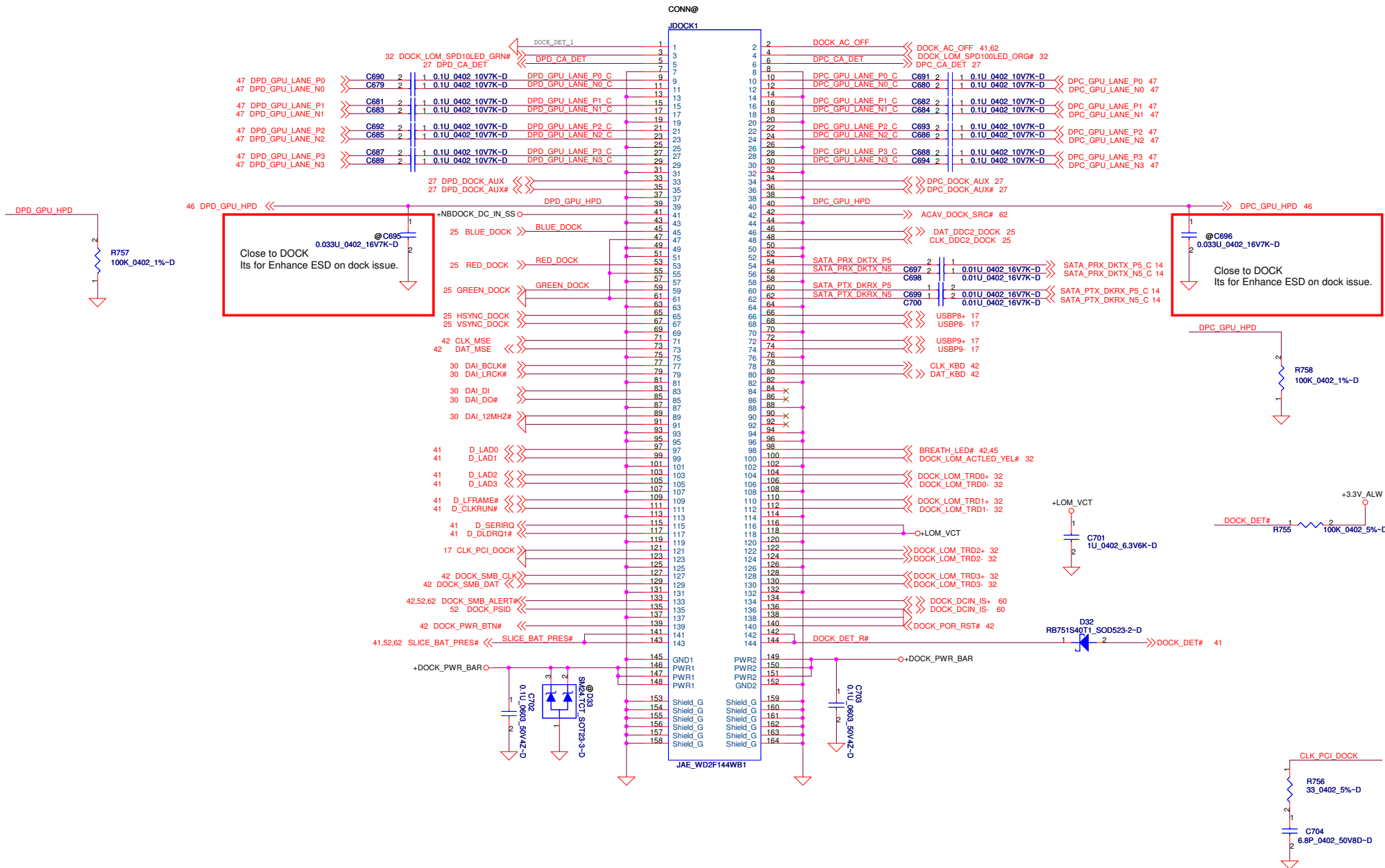
Title: USB/ESATA/IO/MDC

Size: Document Number: LA-6592P Rev: 1.0

Date: Tuesday, January 18, 2011 Sheet: 39 of 75

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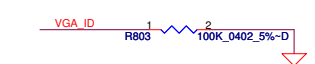
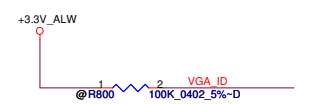
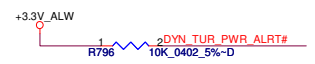
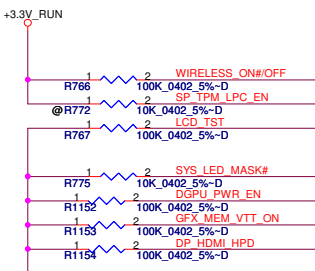
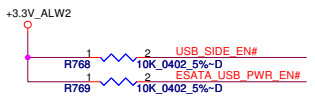
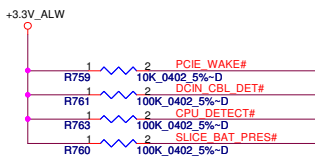
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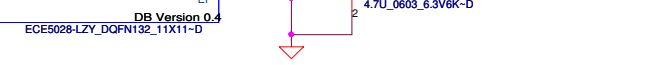
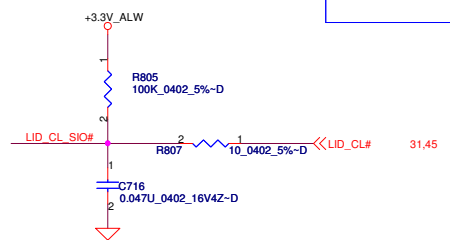
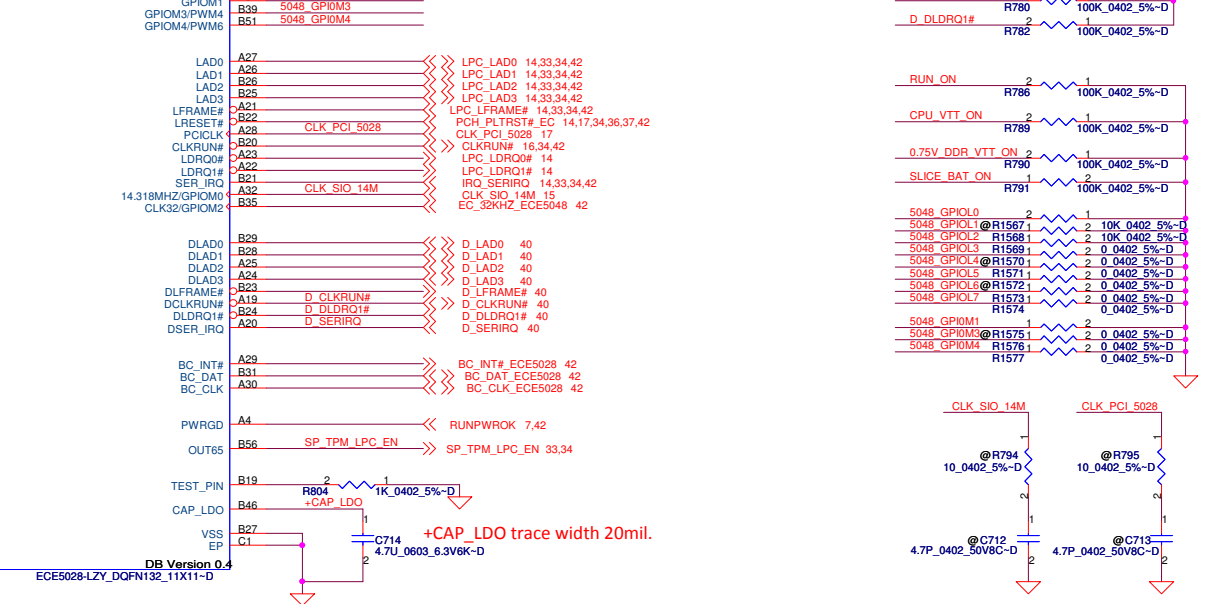
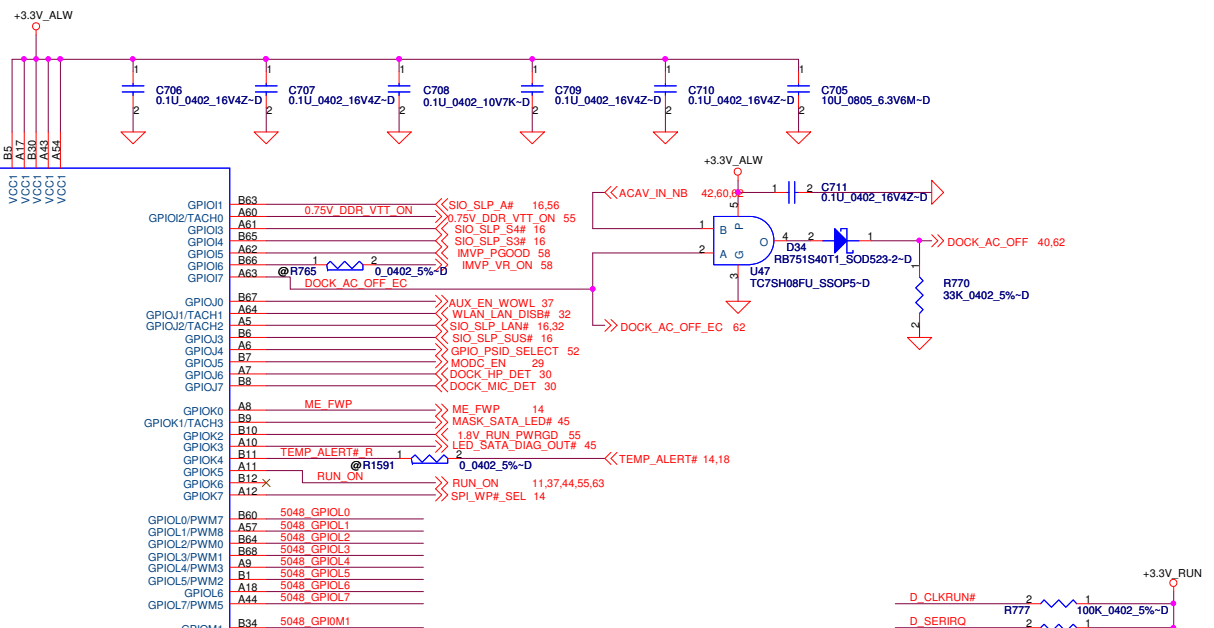
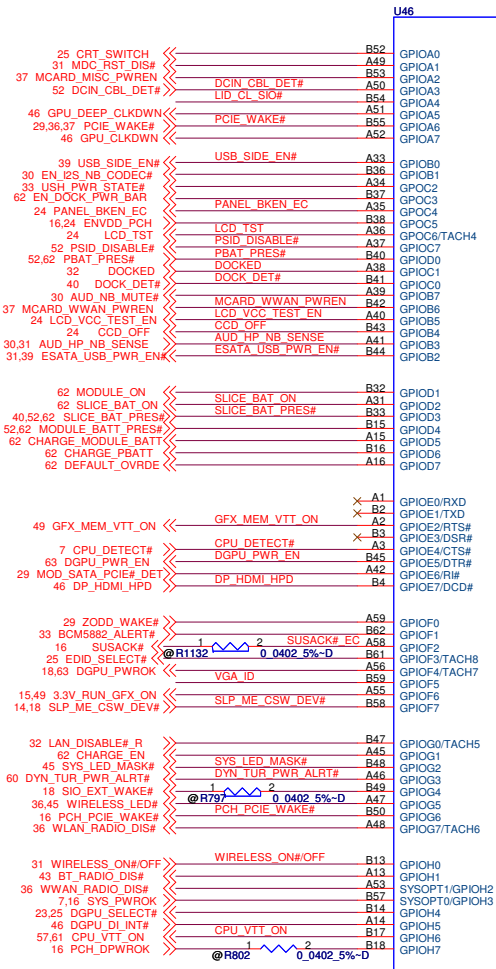
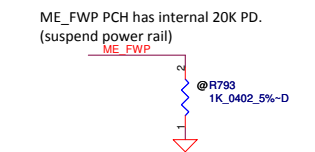
Compal Electronics, Inc.



|              |                            |       |          |
|--------------|----------------------------|-------|----------|
| Title        |                            |       |          |
| DOCKING CONN |                            |       |          |
| Size         | Document Number            | Rev   |          |
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|          | VGA_ID |
|----------|--------|
| Discrete | 0      |
| UMA      | 1      |



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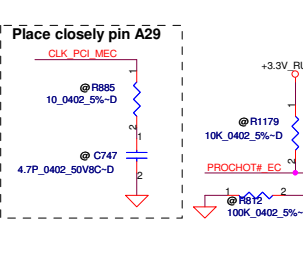
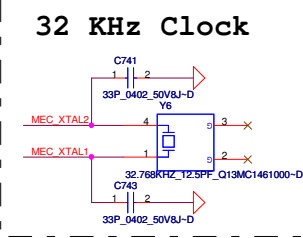
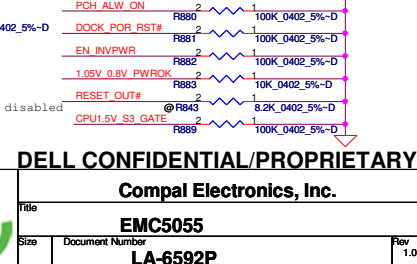
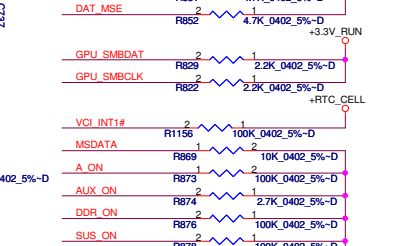
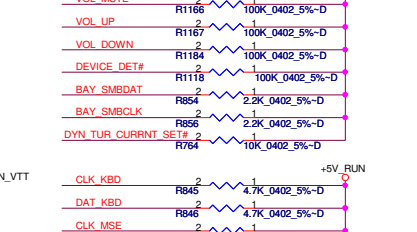
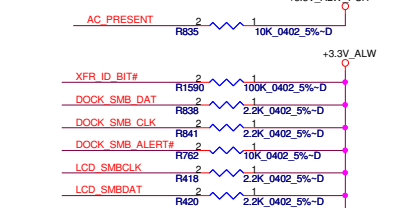
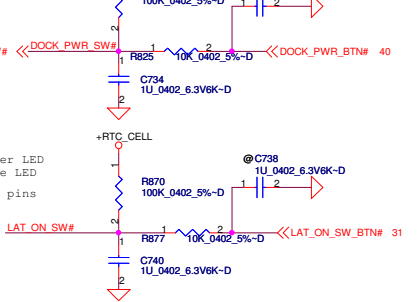
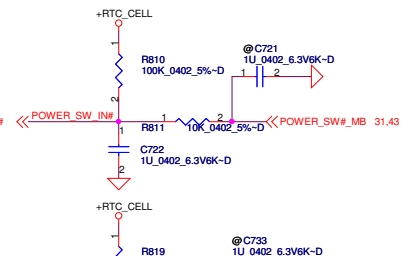
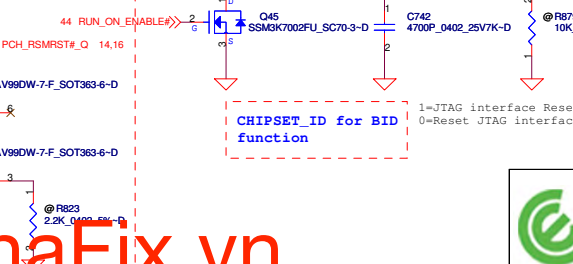
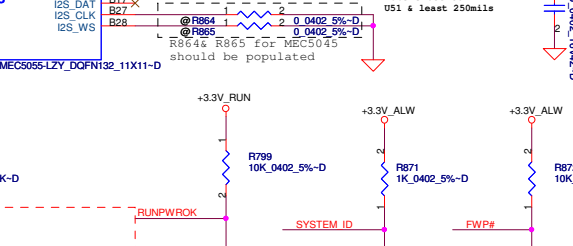
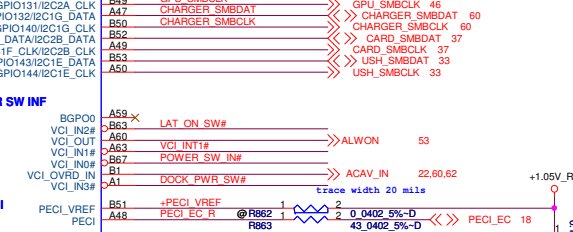
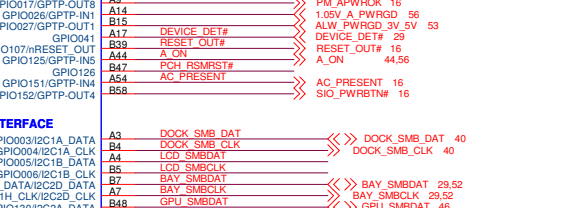
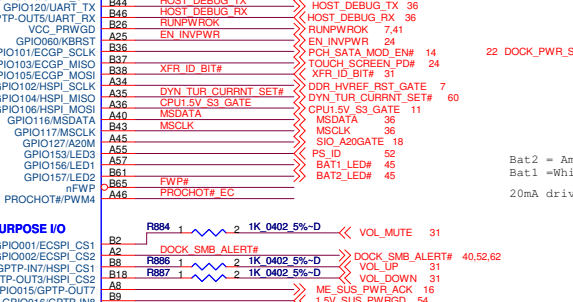
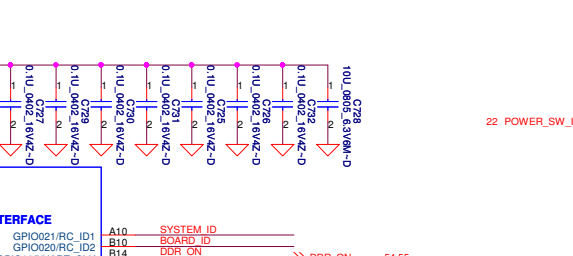
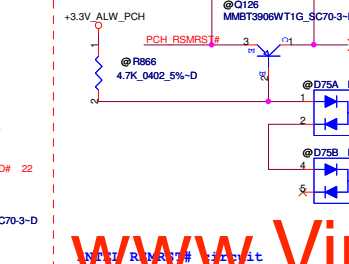
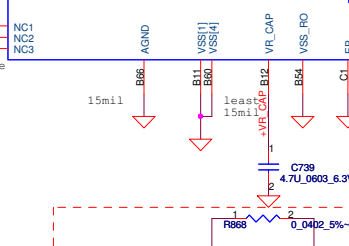
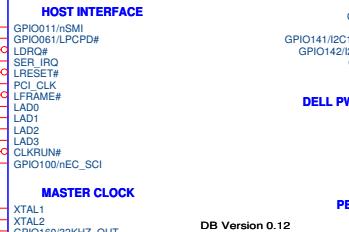
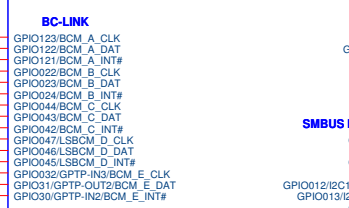
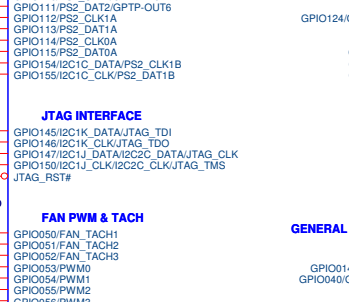
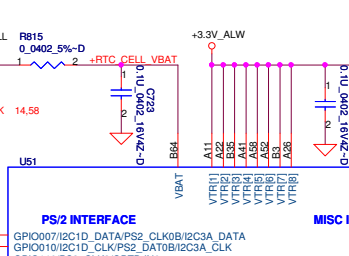
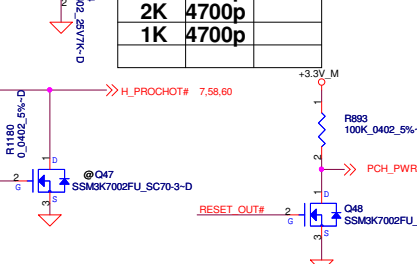
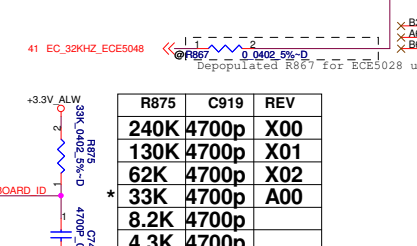
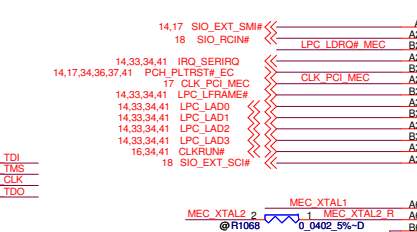
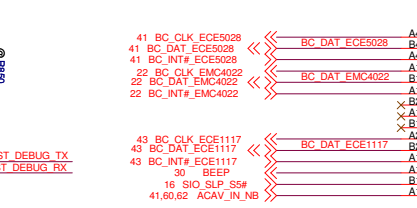
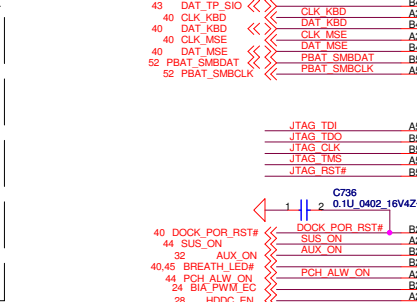
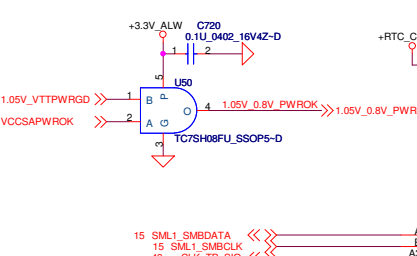
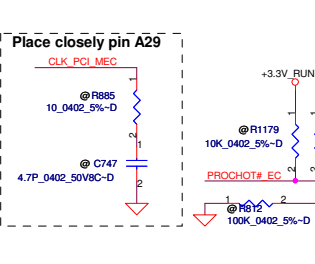
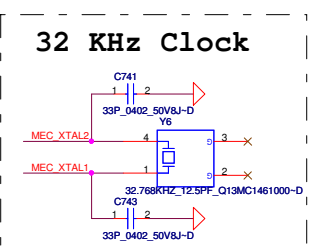
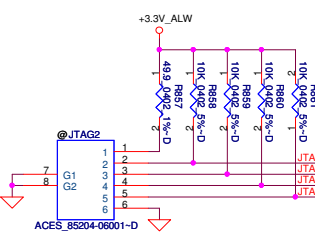
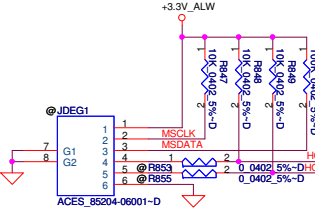
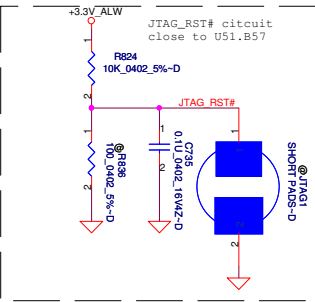
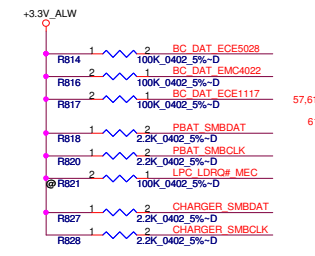
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Title: **ECE5028**

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| Size | Document Number | Rev        |
|      | <b>LA-6592P</b> | <b>1.0</b> |

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| R875 | C919  | REV |
|------|-------|-----|
| 240K | 4700p | X00 |
| 130K | 4700p | X01 |
| 62K  | 4700p | X02 |
| 33K  | 4700p | A00 |
| 8.2K | 4700p |     |
| 4.3K | 4700p |     |
| 2K   | 4700p |     |
| 1K   | 4700p |     |

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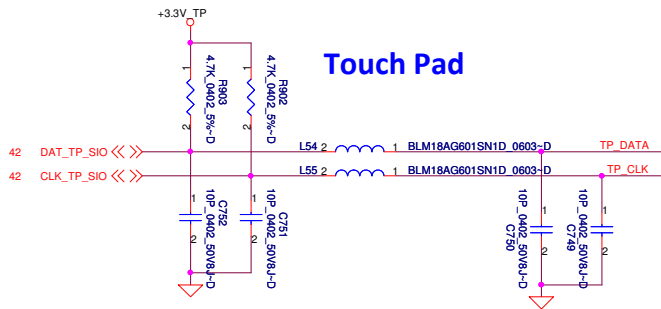
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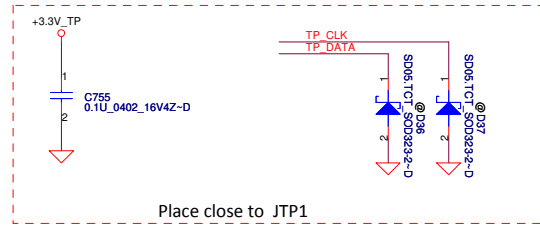
Part Number: LA-6592P

Date: Thursday, January 13, 2011

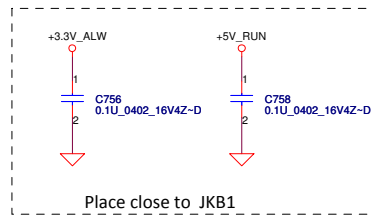
Sheet: 42 of 75



### Touch Pad



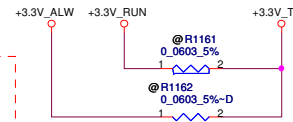
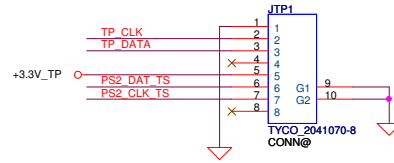
Place close to JTP1



Place close to JKB1

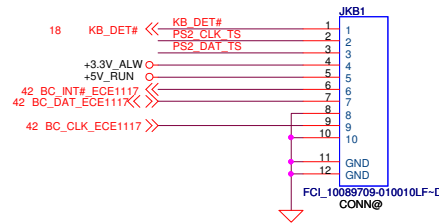
Pin reverse for PT

### Touch Pad Conn. Pitch=0.5mm



Change KB connector to same as JSC1

### KB Conn. Pitch=1.0mm



#### @LVDS cable

| Part Number | Description                         |
|-------------|-------------------------------------|
| DC020003Y0L | H-COHN SET 2LX MB-LCD 14 WXGA(+1ch) |

#### @RTC BATT

| Part Number | Description                  |
|-------------|------------------------------|
| GC20323M000 | BATT CR2032 3V 220MAH MAXELL |

#### @FAN

| Part Number | Description                          |
|-------------|--------------------------------------|
| DC28A000800 | FAN SET DAQ20 DC5V AB7405HB-HB3 ADDA |

#### @Speak

| Part Number | Description                |
|-------------|----------------------------|
| PK230003Q0L | SPK PACK 2LX 2.0W 4 OHM FG |

#### @LED Board FFC

| Part Number | Description                             |
|-------------|---|
| NBX0000RPOL | FFC 6P H P1 PAD=0.7 87.4MM MB-LED/B OFD |

#### @MEDIA Board FFC

| Part Number | Description                              |
|-------------|--|
| NBX0000RS0L | FFC 12P G P.5 PAD.3 75MM MB-VOLUME/B OFD |

#### @LVDS cable

| Part Number | Description                            |
|-------------|--|
| DC02C00180L | H-COHN SET OFD MB-LCD CAM LED 2CHANNEL |

#### @SG DC IN wire cable

| Part Number | Description                            |
|-------------|--|
| DC30100B00L | CONN SET OFE DCJACK-MB WDM-DCE30002-DF |

#### @Battery bridge cable

| Part Number | Description                     |
|-------------|---------------------------------|
| DC020014210 | H-COHN SET OFD M/B-BATTERY 9PIN |

#### @MDC wire set cable

| Part Number | Description           |
|-------------|-----------------------|
| DC30100BL0L | CONN SET OFD MDC-RJ11 |

#### @T/P FFC

| Part Number | Description                             |
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| NBX0000RR0L | FFC 8P F P0.5 PAD=0.3 136MM MB-TP/B OFD |

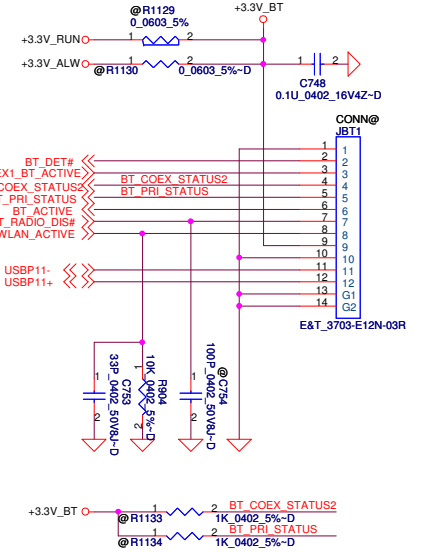
#### @KB FFC

| Part Number | Description                            |
|-------------|--|
| SP070007V0L | S SOCKET TYCO 1770551-1 10P H5.9 SMART |

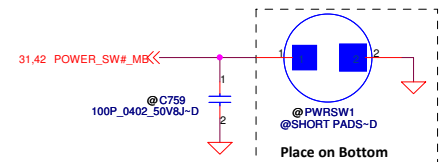
#### @BT wire cable

| Part Number | Description          |
|-------------|----------------------|
| DC020014Y0L | H-COHN SET OFD MB-BT |

### BlueTooth



### Power Switch for debug



Place on Bottom

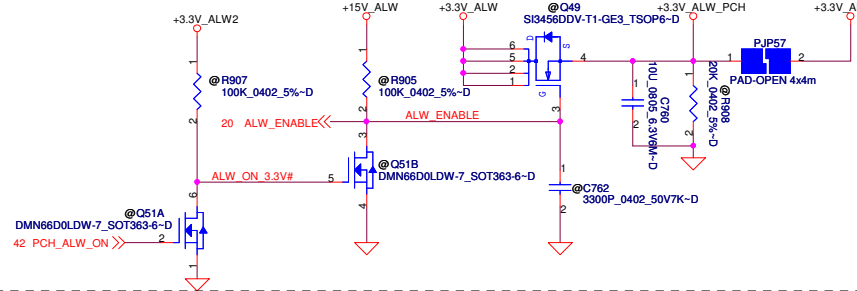
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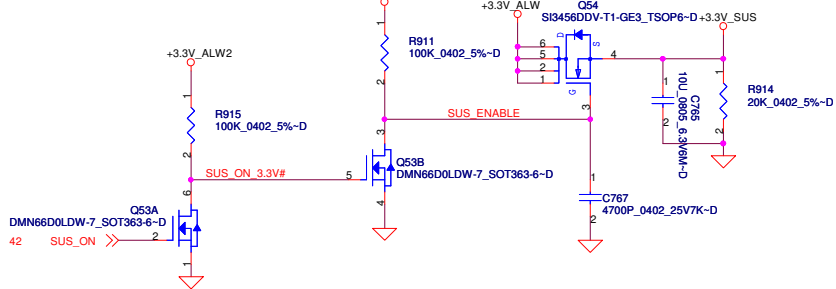
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|---------------------|----------------------------|-------|----------|
| Touch Pad/Int KB/BT |                            |       |          |
| Size                | Document Number            | Rev   |          |
|                     | LA-6592P                   | 1.0   |          |
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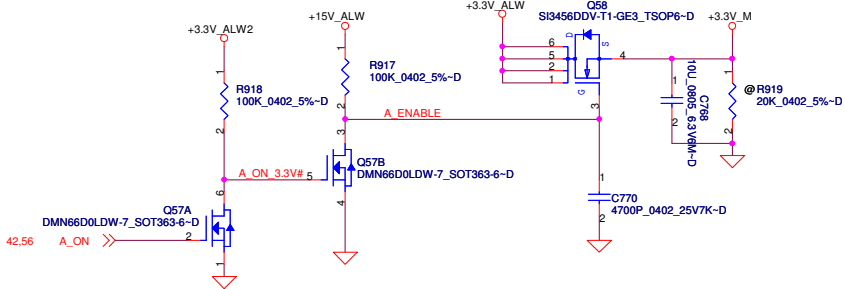
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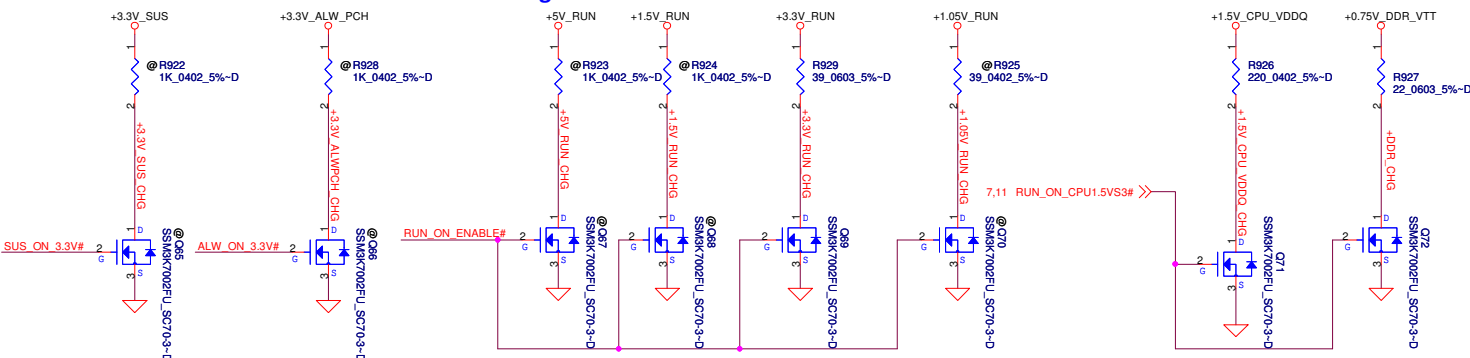
### +3.3V\_SUS Source



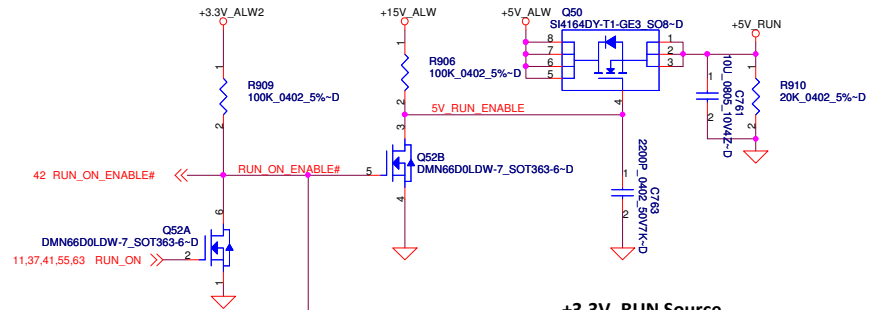
### +3.3V\_M Source



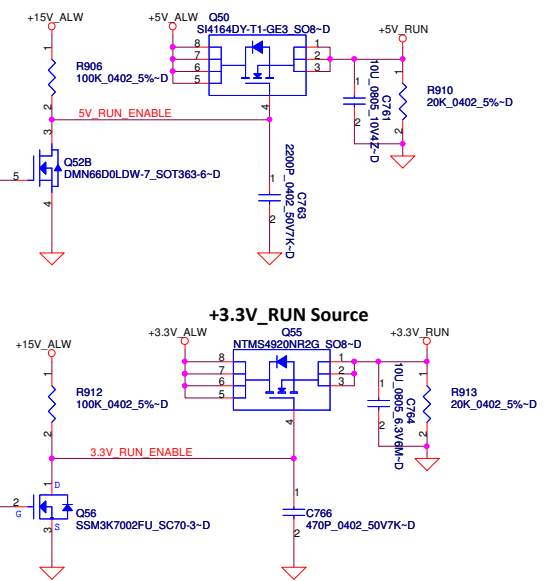
### Discharg Circuit



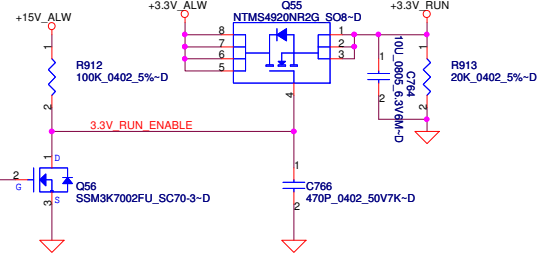
### DC/DC Interface



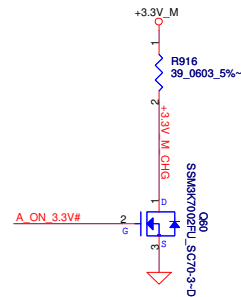
### +5V\_RUN Source



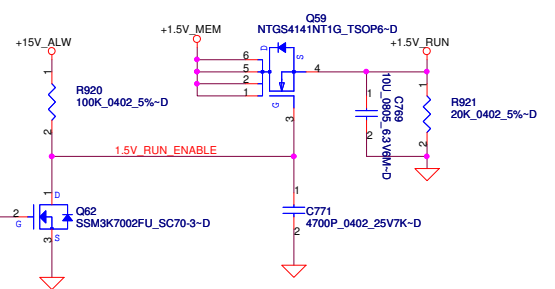
### +3.3V\_RUN Source



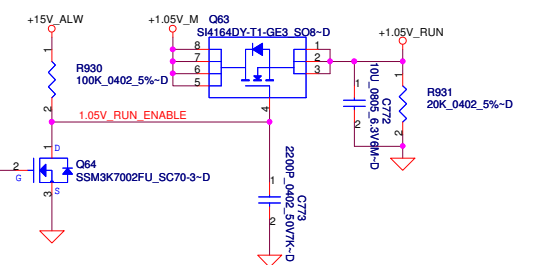
### Discharg Circuit



### +1.5V\_RUN Source



### +1.05V\_RUN Source



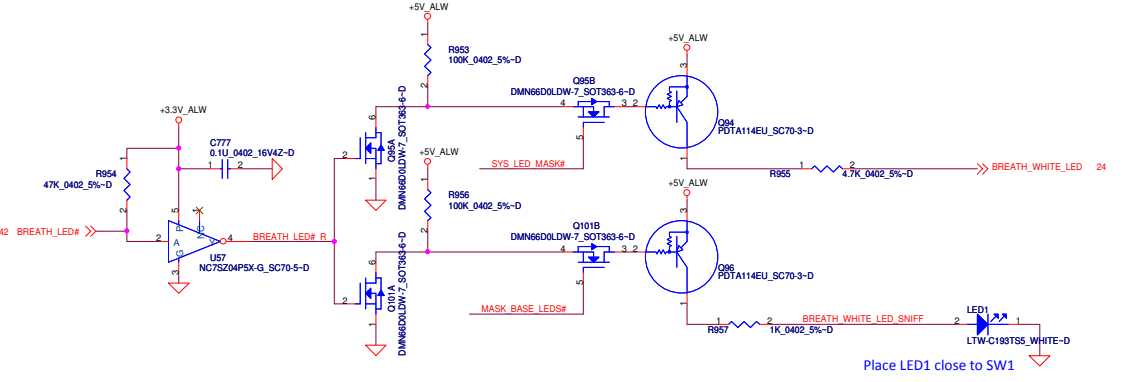
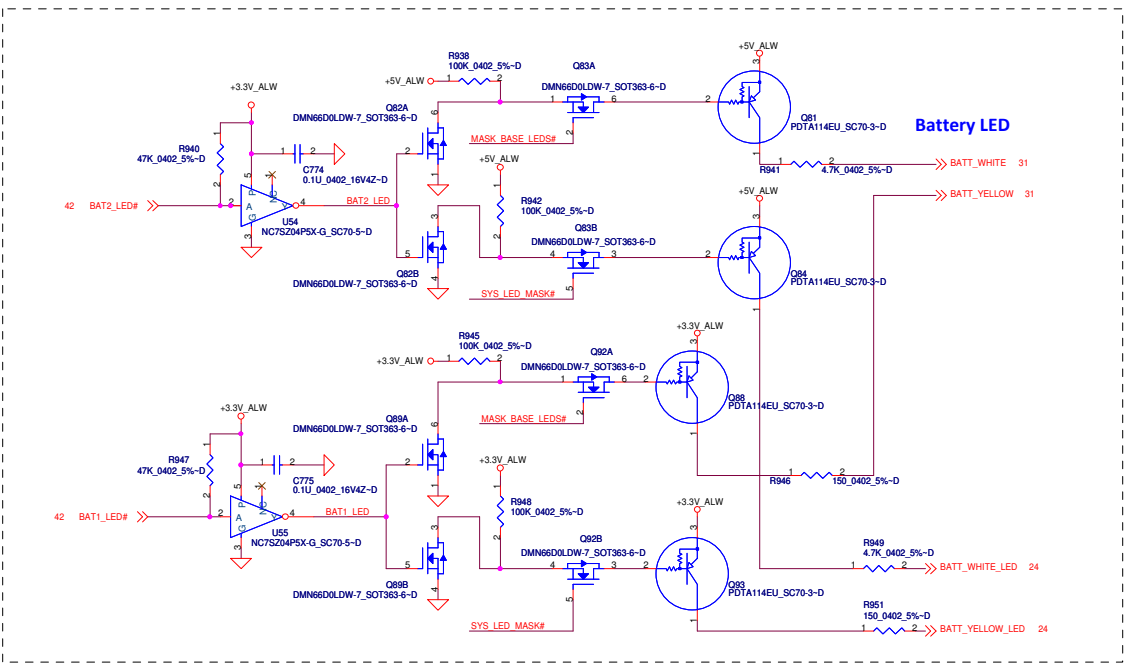
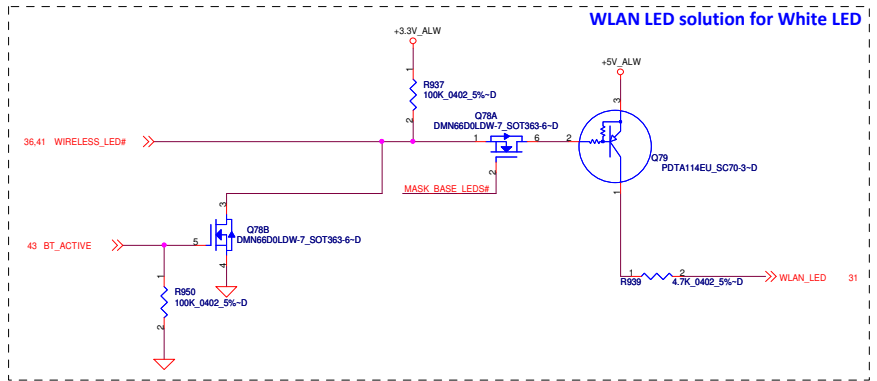
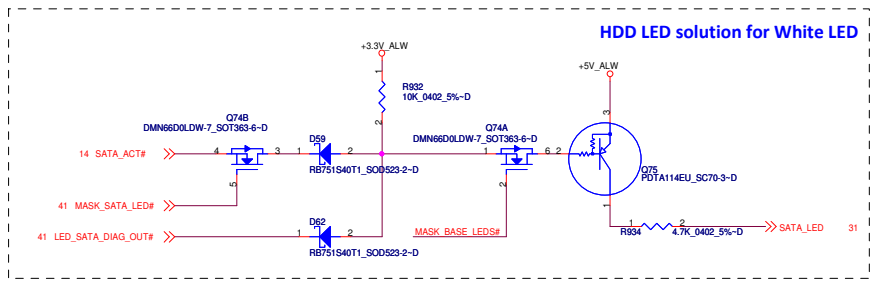
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POWER CONTROL

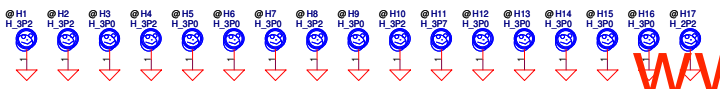
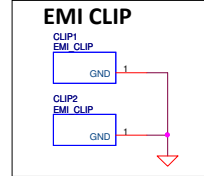
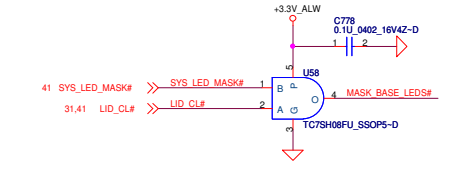
LA-6592P

|       |                            |                |
|-------|----------------------------|----------------|
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- Fiducial Mark**
- ⊙ FD1
  - ⊗ (circle with cross) FIDUCIAL MARK-D
  - ⊙ FD2
  - ⊗ (circle with cross) FIDUCIAL MARK-D
  - ⊙ FD3
  - ⊗ (circle with cross) FIDUCIAL MARK-D
  - ⊙ FD4
  - ⊗ (circle with cross) FIDUCIAL MARK-D

|                                  | SYS_LED_MASK# | LID_CL# |
|----------------------------------|---------------|---------|
| Mask All LEDs (Sniffer Function) | 0             | X       |
| Mask Base MB LEDs (Lid Closed)   | 1             | 0       |
| Do not Mask LEDs (Lid Opened)    | 1             | 1       |



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**Compal Electronics, Inc.**

**PAD and Standoff**

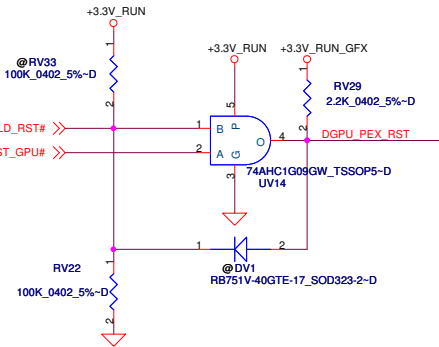
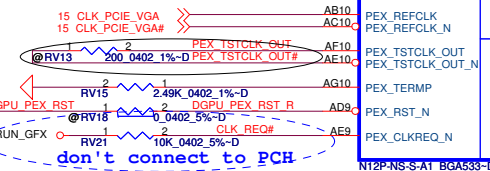
Document Number: **LA-6592P**

Date: Thursday, January 13, 2011 Sheet 45 of 75

6 PEG\_CTX\_GRX\_P0.[15] >>> PEG\_CTX\_GRX\_P0.[15]  
 6 PEG\_CTX\_GRX\_N0.[15] >>> PEG\_CTX\_GRX\_N0.[15]  
 6 PEG\_CRX\_GTX\_P0.[15] <<< PEG\_CRX\_GTX\_P0.[15]  
 6 PEG\_CRX\_GTX\_N0.[15] <<< PEG\_CRX\_GTX\_N0.[15]

|                 |      |   |   |       |      |         |                   |
|-----------------|------|---|---|-------|------|---------|-------------------|
| PEG_CRX_GTX_P0  | CV1  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P0  |
| PEG_CRX_GTX_N0  | CV2  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N0  |
| PEG_CRX_GTX_P1  | CV4  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P1  |
| PEG_CRX_GTX_N1  | CV3  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N1  |
| PEG_CRX_GTX_P2  | CV5  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P2  |
| PEG_CRX_GTX_N2  | CV6  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N2  |
| PEG_CRX_GTX_P3  | CV7  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P3  |
| PEG_CRX_GTX_N3  | CV8  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N3  |
| PEG_CRX_GTX_P4  | CV9  | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P4  |
| PEG_CRX_GTX_N4  | CV10 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N4  |
| PEG_CRX_GTX_P5  | CV11 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P5  |
| PEG_CRX_GTX_N5  | CV12 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N5  |
| PEG_CRX_GTX_P6  | CV14 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P6  |
| PEG_CRX_GTX_N6  | CV15 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N6  |
| PEG_CRX_GTX_P7  | CV16 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P7  |
| PEG_CRX_GTX_N7  | CV17 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N7  |
| PEG_CRX_GTX_P8  | CV18 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P8  |
| PEG_CRX_GTX_N8  | CV19 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N8  |
| PEG_CRX_GTX_P9  | CV20 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P9  |
| PEG_CRX_GTX_N9  | CV21 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N9  |
| PEG_CRX_GTX_P10 | CV22 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P10 |
| PEG_CRX_GTX_N10 | CV23 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N10 |
| PEG_CRX_GTX_P11 | CV24 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P11 |
| PEG_CRX_GTX_N11 | CV25 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N11 |
| PEG_CRX_GTX_P12 | CV26 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P12 |
| PEG_CRX_GTX_N12 | CV27 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N12 |
| PEG_CRX_GTX_P13 | CV28 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P13 |
| PEG_CRX_GTX_N13 | CV29 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N13 |
| PEG_CRX_GTX_P14 | CV30 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P14 |
| PEG_CRX_GTX_N14 | CV31 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N14 |
| PEG_CRX_GTX_P15 | CV32 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_P15 |
| PEG_CRX_GTX_N15 | CV33 | 2 | 1 | 0.22U | 0402 | 16V7K-D | PEG_CRX_GTX_C_N15 |

Differential signal

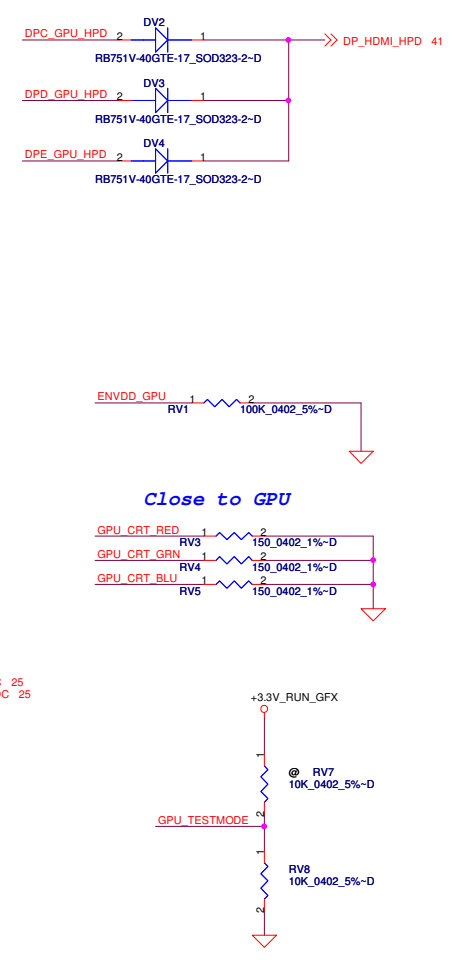
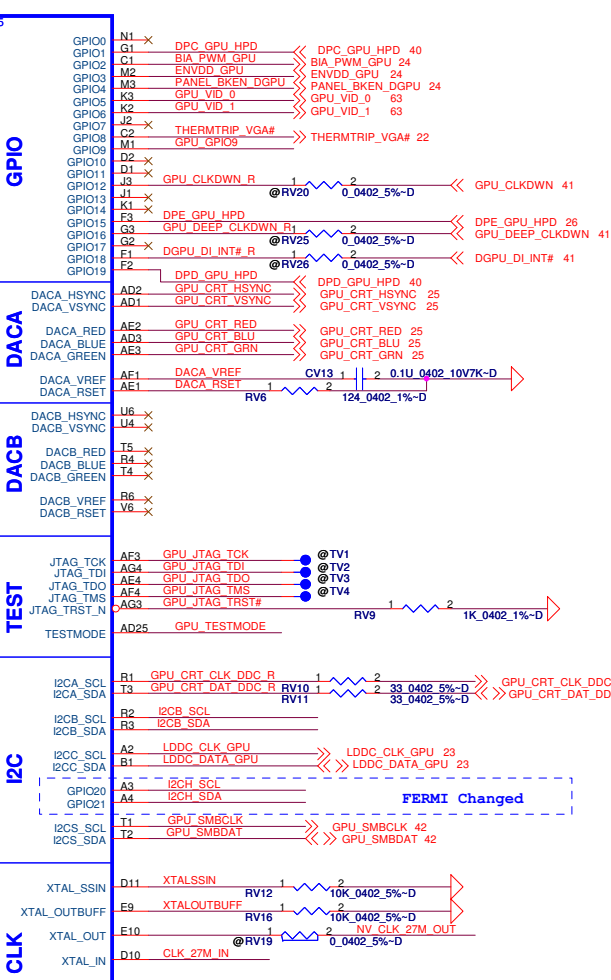


|                   |      |             |             |
|-------------------|------|-------------|-------------|
| UV14              |      | Part 1 of 5 |             |
| PEG_CTX_GRX_P0    | AE12 | PEX_RX0     | GPIO0       |
| PEG_CTX_GRX_P1    | AE13 | PEX_RX0_N   | GPIO1       |
| PEG_CTX_GRX_N1    | AG19 | PEX_RX1     | GPIO2       |
| PEG_CTX_GRX_P2    | AE13 | PEX_RX2     | GPIO3       |
| PEG_CTX_GRX_P3    | AE14 | PEX_RX2_N   | GPIO4       |
| PEG_CTX_GRX_N3    | AF15 | PEX_RX3     | GPIO5       |
| PEG_CTX_GRX_P4    | AG15 | PEX_RX3_N   | GPIO6       |
| PEG_CTX_GRX_P5    | AG16 | PEX_RX4     | GPIO7       |
| PEG_CTX_GRX_N5    | AE18 | PEX_RX4_N   | GPIO8       |
| PEG_CTX_GRX_P6    | AE18 | PEX_RX5     | GPIO9       |
| PEG_CTX_GRX_N6    | AE19 | PEX_RX5_N   | GPIO10      |
| PEG_CTX_GRX_P7    | AE19 | PEX_RX6     | GPIO11      |
| PEG_CTX_GRX_N7    | AG19 | PEX_RX6_N   | GPIO12      |
| PEG_CTX_GRX_P8    | AE19 | PEX_RX7     | GPIO13      |
| PEG_CTX_GRX_N8    | AE19 | PEX_RX7_N   | GPIO14      |
| PEG_CTX_GRX_P9    | AE21 | PEX_RX8     | GPIO15      |
| PEG_CTX_GRX_N9    | AE22 | PEX_RX8_N   | GPIO16      |
| PEG_CTX_GRX_P10   | AG21 | PEX_RX9     | GPIO17      |
| PEG_CTX_GRX_N10   | AG22 | PEX_RX9_N   | GPIO18      |
| PEG_CTX_GRX_P11   | AE22 | PEX_RX10    | GPIO19      |
| PEG_CTX_GRX_N11   | AE22 | PEX_RX10_N  | GPIO19      |
| PEG_CTX_GRX_P12   | AE24 | PEX_RX11    | DACA_HSNC   |
| PEG_CTX_GRX_N12   | AE24 | PEX_RX11_N  | DACA_VSYNC  |
| PEG_CTX_GRX_P13   | AG24 | PEX_RX12    | DACA_RED    |
| PEG_CTX_GRX_N13   | AG24 | PEX_RX12_N  | DACA_BLUE   |
| PEG_CTX_GRX_P14   | AG25 | PEX_RX13    | DACA_GREEN  |
| PEG_CTX_GRX_N14   | AG25 | PEX_RX13_N  | DACA_RED    |
| PEG_CTX_GRX_P15   | AE27 | PEX_RX14    | DACA_BLUE   |
| PEG_CTX_GRX_N15   | AE27 | PEX_RX14_N  | DACA_GREEN  |
| PEG_CRX_GTX_C_P0  | AD10 | PEX_TX0     | DACA_VREF   |
| PEG_CRX_GTX_C_N0  | AD11 | PEX_TX0_N   | DACA_RSET   |
| PEG_CRX_GTX_C_N1  | AC12 | PEX_TX1     | DACB_HSNC   |
| PEG_CRX_GTX_C_P2  | AB11 | PEX_TX1_N   | DACB_VSYNC  |
| PEG_CRX_GTX_C_N2  | AB12 | PEX_TX2     | DACB_RED    |
| PEG_CRX_GTX_C_N3  | AD14 | PEX_TX2_N   | DACB_BLUE   |
| PEG_CRX_GTX_C_P4  | AD15 | PEX_TX3     | DACB_GREEN  |
| PEG_CRX_GTX_C_N4  | AC15 | PEX_TX3_N   | DACB_VREF   |
| PEG_CRX_GTX_C_P5  | AB14 | PEX_TX4     | DACB_RSET   |
| PEG_CRX_GTX_C_N5  | AB15 | PEX_TX4_N   | TESTMODE    |
| PEG_CRX_GTX_C_P6  | AC16 | PEX_TX5     | JTAG_TCK    |
| PEG_CRX_GTX_C_N6  | AD16 | PEX_TX5_N   | JTAG_TDI    |
| PEG_CRX_GTX_C_P7  | AD16 | PEX_TX6     | JTAG_TDO    |
| PEG_CRX_GTX_C_N7  | AD16 | PEX_TX6_N   | JTAG_TMS    |
| PEG_CRX_GTX_C_P8  | AC18 | PEX_TX7     | JTAG_TRST#  |
| PEG_CRX_GTX_C_N8  | AC18 | PEX_TX7_N   | JTAG_TRST_N |
| PEG_CRX_GTX_C_P9  | AB18 | PEX_TX8     | JTAG_TMS    |
| PEG_CRX_GTX_C_N9  | AB18 | PEX_TX8_N   | JTAG_TRST#  |
| PEG_CRX_GTX_C_P10 | AD19 | PEX_TX9     | JTAG_TMS    |
| PEG_CRX_GTX_C_N10 | AD20 | PEX_TX9_N   | JTAG_TRST#  |
| PEG_CRX_GTX_C_P11 | AD21 | PEX_TX10    | JTAG_TMS    |
| PEG_CRX_GTX_C_N11 | AC21 | PEX_TX10_N  | JTAG_TRST#  |
| PEG_CRX_GTX_C_P12 | AB21 | PEX_TX11    | JTAG_TMS    |
| PEG_CRX_GTX_C_N12 | AB22 | PEX_TX11_N  | JTAG_TRST#  |
| PEG_CRX_GTX_C_P13 | AG22 | PEX_TX12    | JTAG_TMS    |
| PEG_CRX_GTX_C_N13 | AD22 | PEX_TX12_N  | JTAG_TRST#  |
| PEG_CRX_GTX_C_P14 | AD23 | PEX_TX13    | JTAG_TMS    |
| PEG_CRX_GTX_C_N14 | AD24 | PEX_TX13_N  | JTAG_TRST#  |
| PEG_CRX_GTX_C_P15 | AE25 | PEX_TX14    | JTAG_TMS    |
| PEG_CRX_GTX_C_N15 | AE26 | PEX_TX14_N  | JTAG_TRST#  |
| PEG_CRX_GTX_C_P15 | AE26 | PEX_TX15    | JTAG_TMS    |
| PEG_CRX_GTX_C_N15 | AE26 | PEX_TX15_N  | JTAG_TRST#  |

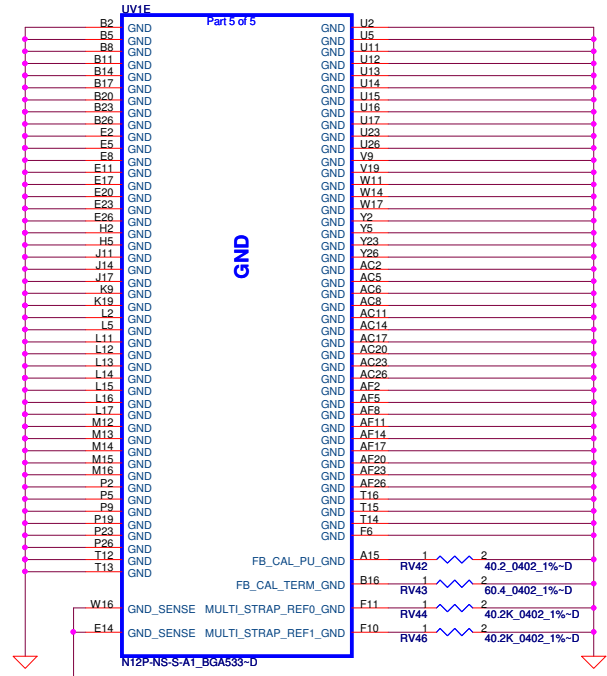
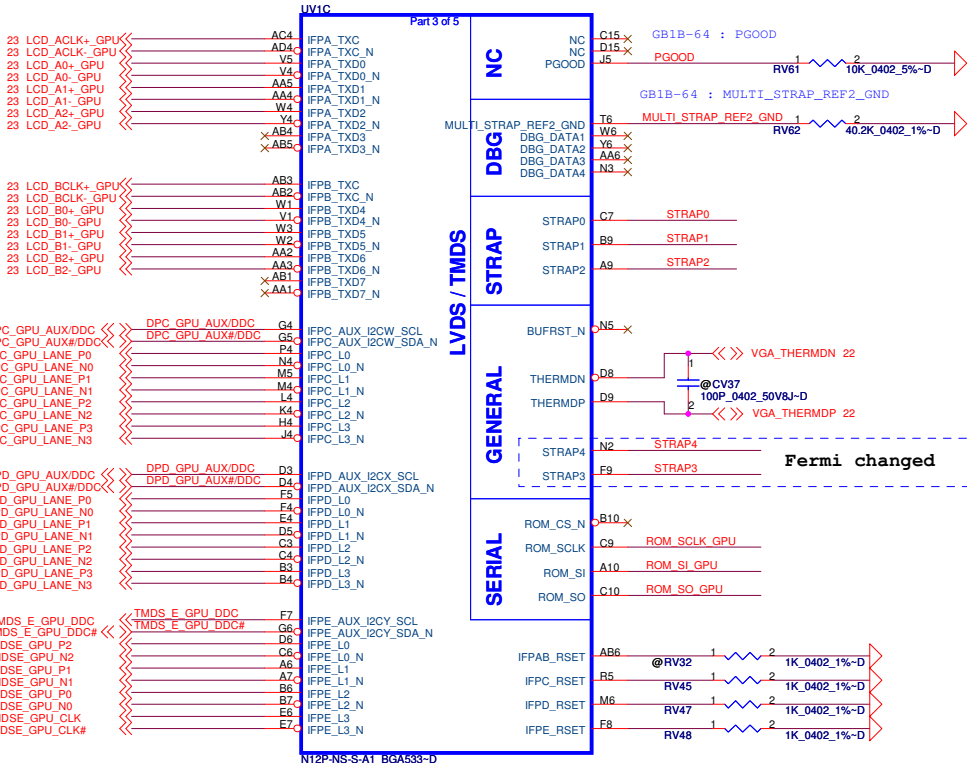
N12P-NS-S-A1\_BGA533-D

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|                                      |                 |         |                            |
|--------------------------------------|-----------------|---------|----------------------------|
| <b>Compal Electronics, Inc.</b>      |                 |         |                            |
| Title: <b>N12P_PCIE,I2C,DAC,GPIO</b> |                 |         |                            |
| Size:                                | Document Number | Rev 1.0 |                            |
| LA-6592P                             |                 | Date:   | Thursday, January 13, 2011 |
| Sheet 46 of 75                       |                 |         |                            |

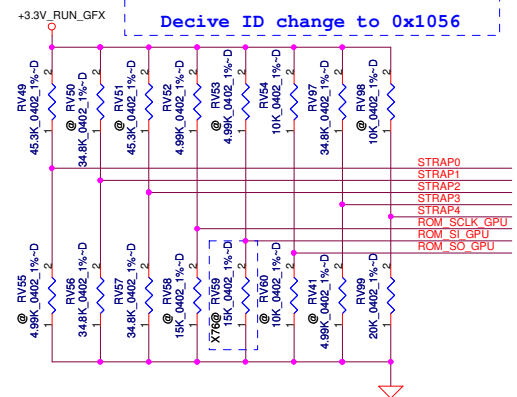


TO DOCKING

TO DOCKING

TO MB HDMI

Decive ID change to 0x1056



| Resistor Values | Pull-up to +3V | Pull-down to Gnd |
|-----------------|----------------|------------------|
| 5K              | 1000           | 0000             |
| 10K             | 1001           | 0001             |
| 15K             | 1010           | 0010             |
| 20K             | 1011           | 0011             |
| 25K             | 1100           | 0100             |
| 30K             | 1101           | 0101             |
| 35K             | 1110           | 0110             |
| 45K             | 1111           | 0111             |

**\*\* Hynix 64Mx16 DDR3 part stuff RV59=15K  
Samsung 64Mx16 DDR3 part stuff RV59=20K**  
  
**Hynix 128Mx16 DDR3 part stuff RV59=35K  
Samsung 128Mx16 DDR3 part stuff RV59=45.3K**

|        |                          |
|--------|--------------------------|
| STRAP0 | USER[3:0]                |
| STRAP1 | 3GIO_PADCFG_LUT_ADR[3:0] |
| STRAP2 | PCI_DEVID[3:0]           |

|          |  |
|----------|--|
| ROM_SCLK | PCIDEVID_EXT, SUB_VENDOR, SLOT_CLK, PEX_PLL_EN |
| ROM_SI   | RAM_CFG[3:0]                                   |
| ROM_SO   | XCLK_417, FB_0_BAR_SIZE, ALT_ADOOR, VGA_DEVICE |

set to multi-level straps

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**Compal Electronics, Inc.**

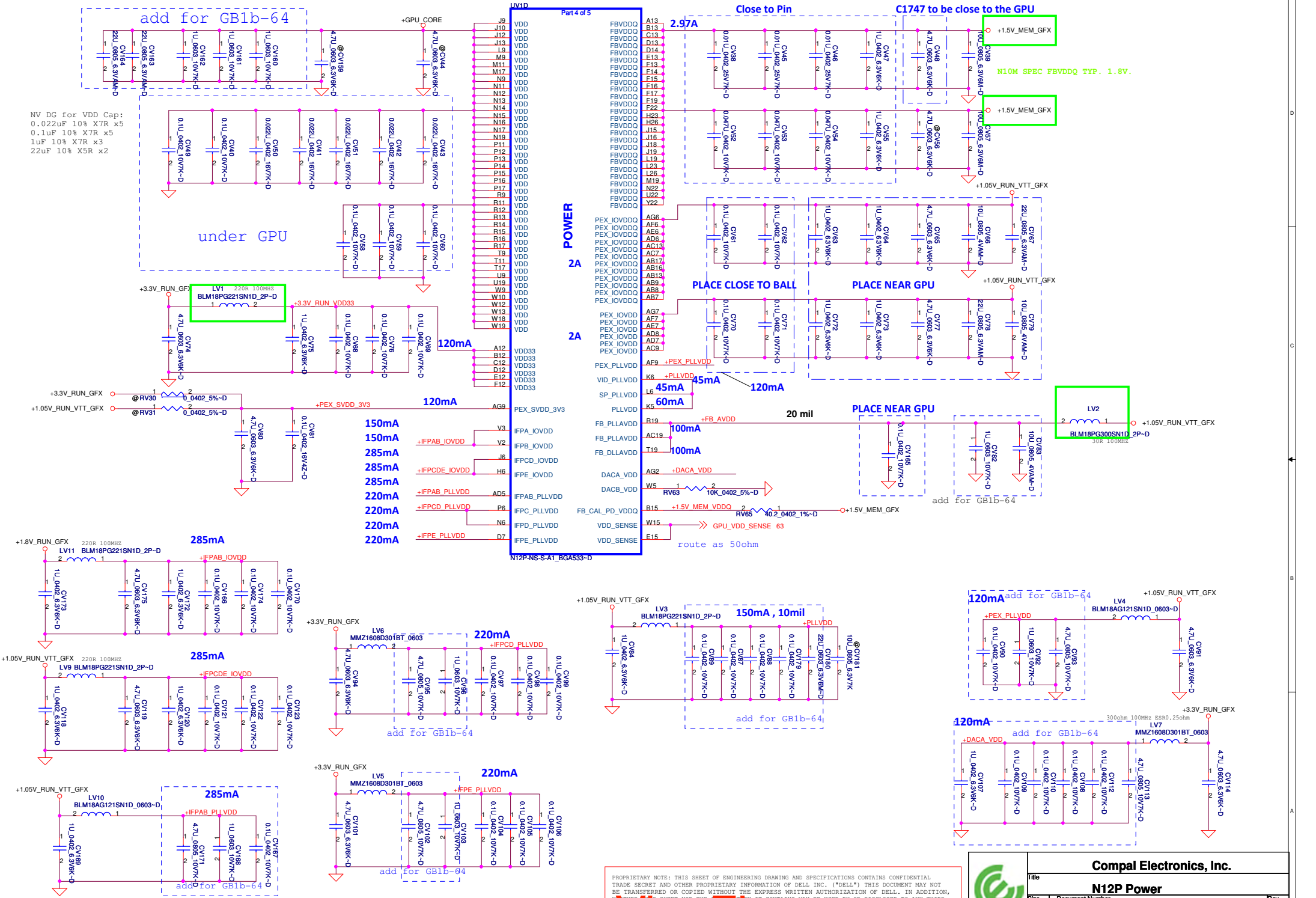
Title: **N12P DP, STRAP, GND**

Size: **LA-6592P**

Date: Thursday, January 13, 2011

Rev: **1.0**

Sheet: **47** of **75**



NV DG for VDD Cap:  
 0.022uF 10% X7R x5  
 0.1uF 10% X7R x5  
 1uF 10% X7R x3  
 22uF 10% X5R x2

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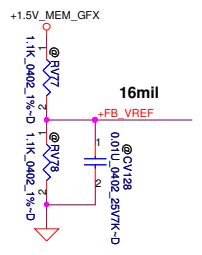
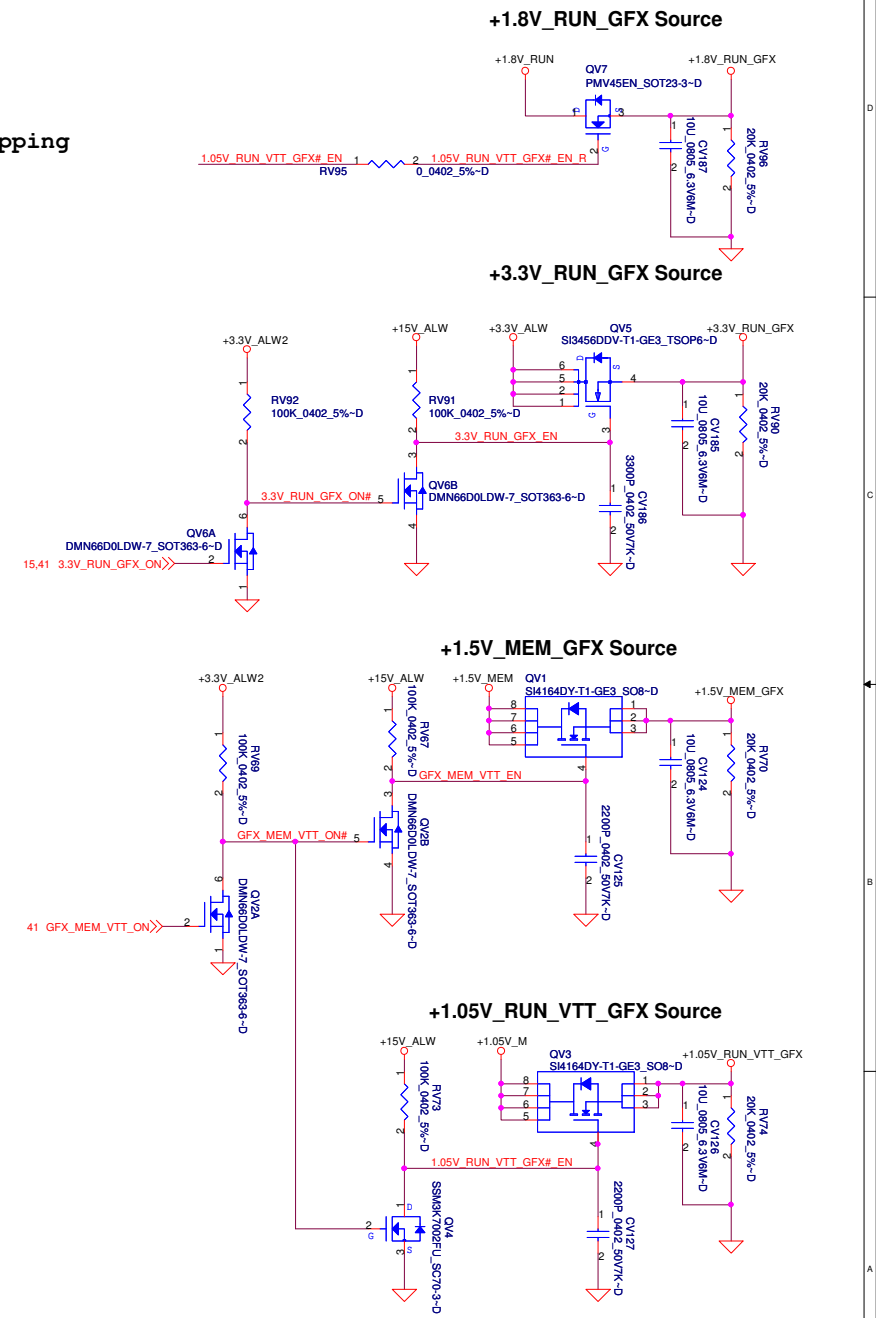
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|---------------------------------|-----------------|----------------------------|----------|
| <b>Compal Electronics, Inc.</b> |                 |                            |          |
| <b>N12P Power</b>               |                 | Rev 1.0                    |          |
| Size                            | Document Number | Date                       |          |
|                                 | <b>LA-6592P</b> | Thursday, January 13, 2011 |          |
|                                 |                 | Sheet                      | 48 of 75 |

FBAD[0..63] <<> FBAD[0..63] 50.51  
 FBA\_CMD[0..30] <<> FBA\_CMD[0..30] 50.51  
 DQMA#[0..7] <<> DQMA#[0..7] 50.51  
 DQSA\_RN[0..7] <<> DQSA\_RN[0..7] 50.51  
 DQSA\_WP[0..7] <<> DQSA\_WP[0..7] 50.51

### Mode E - Mirror Mode Mapping



| Address | DATA Bus |
|---------|----------|
| CMD0    | ODT_L    |
| CMD1    | CS1#_L   |
| CMD2    | CS0#_L   |
| CMD3    | CKE_L    |
| CMD4    | A9       |
| CMD5    | A6       |
| CMD6    | A3       |
| CMD7    | A0       |
| CMD8    | A8       |
| CMD9    | A12      |
| CMD10   | A1       |
| CMD11   | RAS#     |
| CMD12   | A13      |
| CMD13   | BA1      |
| CMD14   | A14      |
| CMD15   | CAS#     |
| CMD16   | CKE_H    |
| CMD17   | CS1#_H   |
| CMD18   | CS0#_H   |
| CMD19   | ODT_H    |
| CMD20   | RST      |
| CMD21   | A7       |
| CMD22   | A4       |
| CMD23   | A11      |
| CMD24   | A2       |
| CMD25   | A10      |
| CMD26   | A5       |
| CMD27   | BA2      |
| CMD28   | WE#      |
| CMD29   | BA0      |
| CMD30   | A15      |



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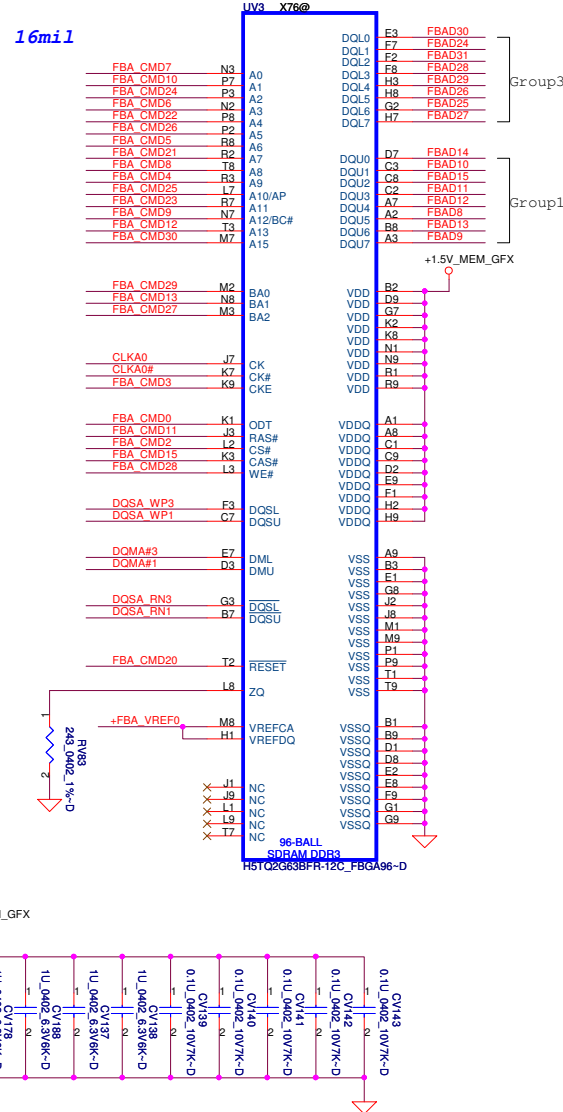
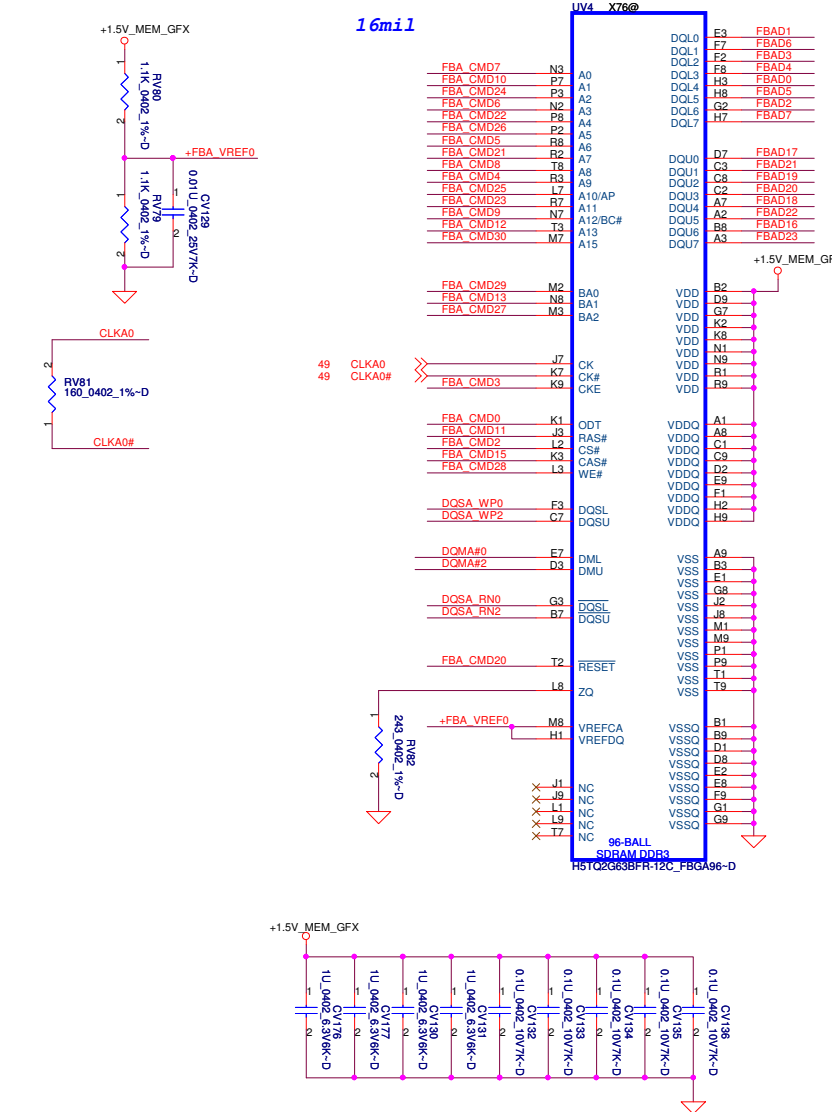
**Compal Electronics, Inc.**  
**N12P Memory**  
**LA-6592P**  
 Date: Thursday, January 13, 2011 Sheet 49 of 75



# Memory Partition A - Lower 32 bits

change to Hynix

- FBA\_CMD[0..30] <<< FBA\_CMD[0..30] 49.51
- FBAD[0..63] <<<>> FBAD[0..63] 49.51
- DQMA#[0..7] <<<>> DQMA#[0..7] 49.51
- DQSA\_RN[0..7] <<<>> DQSA\_RN[0..7] 49.51
- DQSA\_WP[0..7] <<<>> DQSA\_WP[0..7] 49.51



## Mode E - Mirror Mode Mapping

| Address | DATA Bus |        |
|---------|----------|--------|
|         | 0..31    | 32..63 |
| CMD0    | ODT_L    |        |
| CMD1    | CS1#_L   |        |
| CMD2    | CS0#_L   |        |
| CMD3    | CKE_L    |        |
| CMD4    | A9       | A11    |
| CMD5    | A6       | A7     |
| CMD6    | A3       | BA1    |
| CMD7    | A0       | A12    |
| CMD8    | A8       | A8     |
| CMD9    | A12      | A0     |
| CMD10   | A1       | A2     |
| CMD11   | RAS#     | RAS#   |
| CMD12   | A13      | A14    |
| CMD13   | BA1      | A3     |
| CMD14   | A14      | A13    |
| CMD15   | CAS#     | CAS#   |
| CMD16   |          | CKE_H  |
| CMD17   |          | CS1#_H |
| CMD18   |          | CS0#_H |
| CMD19   |          | ODT_H  |
| CMD20   | RST      | RST    |
| CMD21   | A7       | A6     |
| CMD22   | A4       | A5     |
| CMD23   | A11      | A9     |
| CMD24   | A2       | A1     |
| CMD25   | A10      | WE#    |
| CMD26   | A5       | A4     |
| CMD27   | BA2      | A15    |
| CMD28   | WE#      | A10    |
| CMD29   | BA0      | BA0    |
| CMD30   | A15      | BA2    |

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Title: **VRAM A Lower**

Document Number: **LA-6592P**

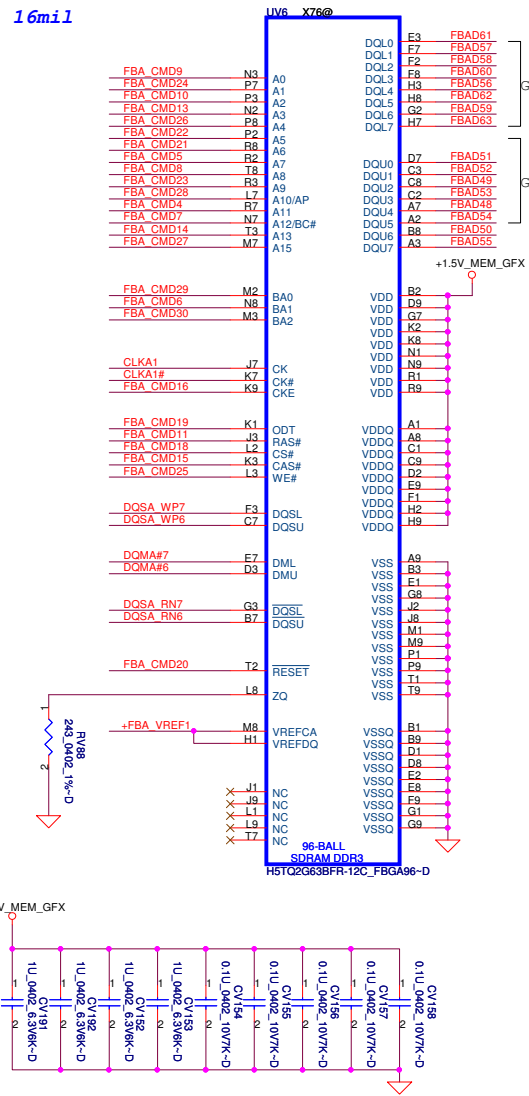
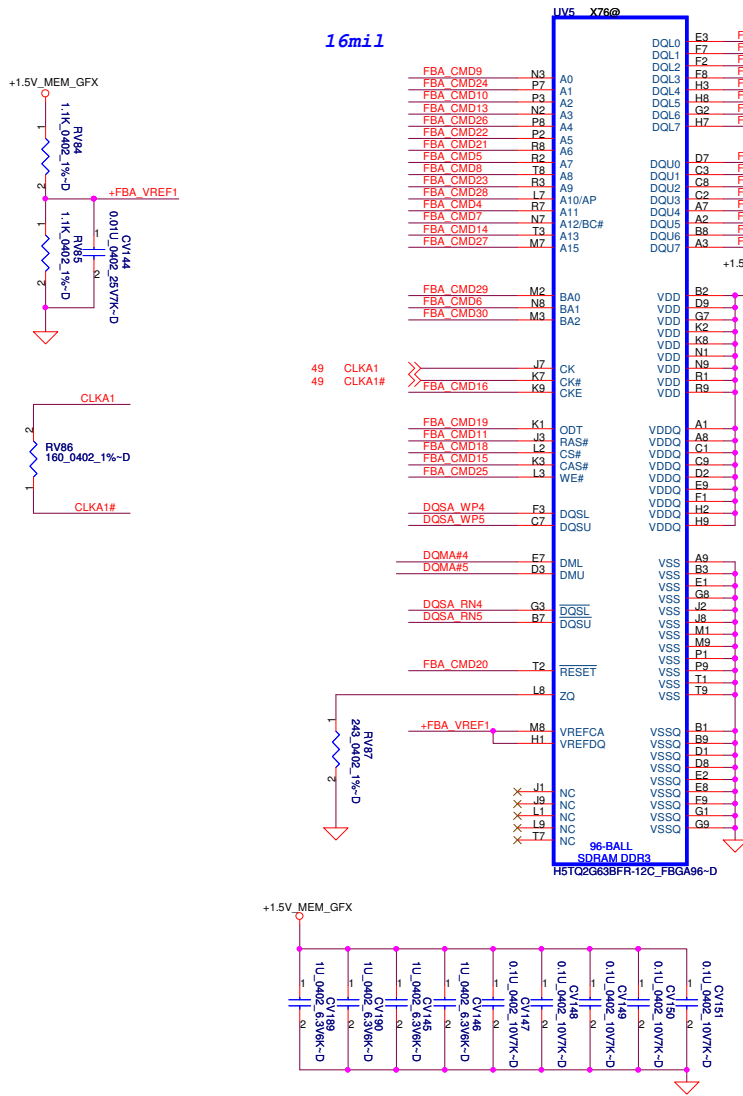
Rev: **1.0**

Date: Thursday, January 13, 2011 Sheet: 50 of 75



# Memory Partition A - Upper 32 bits

- FBAD[0..63] <<>> FBAD[0..63] 49.50
- FBA\_CMD[0..30] <<>> FBA\_CMD[0..30] 49.50
- DOMA#[0..7] <<>> DOMA#[0..7] 49.50
- DQSA RN[0..7] <<>> DQSA\_RN[0..7] 49.50
- DQSA WP[0..7] <<>> DQSA\_WP[0..7] 49.50



## Mode E - Mirror Mode Mapping

| Address | DATA Bus |        |
|---------|----------|--------|
|         | 0..31    | 32..63 |
| CMD0    | ODT_L    |        |
| CMD1    | CS1#_L   |        |
| CMD2    | CS0#_L   |        |
| CMD3    | CKE_L    |        |
| CMD4    | A9       | A11    |
| CMD5    | A6       | A7     |
| CMD6    | A3       | BA1    |
| CMD7    | A0       | A12    |
| CMD8    | A8       | A8     |
| CMD9    | A12      | A0     |
| CMD10   | A1       | A2     |
| CMD11   | RAS#     | RAS#   |
| CMD12   | A13      | A14    |
| CMD13   | BA1      | A3     |
| CMD14   | A14      | A13    |
| CMD15   | CAS#     | CAS#   |
| CMD16   |          | CKE_H  |
| CMD17   |          | CS1#_H |
| CMD18   |          | CS0#_H |
| CMD19   |          | ODT_H  |
| CMD20   | RST      | RST    |
| CMD21   | A7       | A6     |
| CMD22   | A4       | A5     |
| CMD23   | A11      | A9     |
| CMD24   | A2       | A1     |
| CMD25   | A10      | WE#    |
| CMD26   | A5       | A4     |
| CMD27   | BA2      | A15    |
| CMD28   | WE#      | A10    |
| CMD29   | BA0      | BA0    |
| CMD30   | A15      | BA2    |

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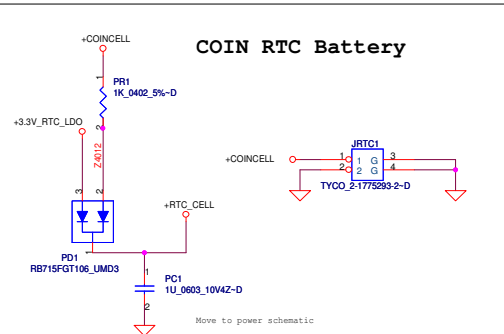
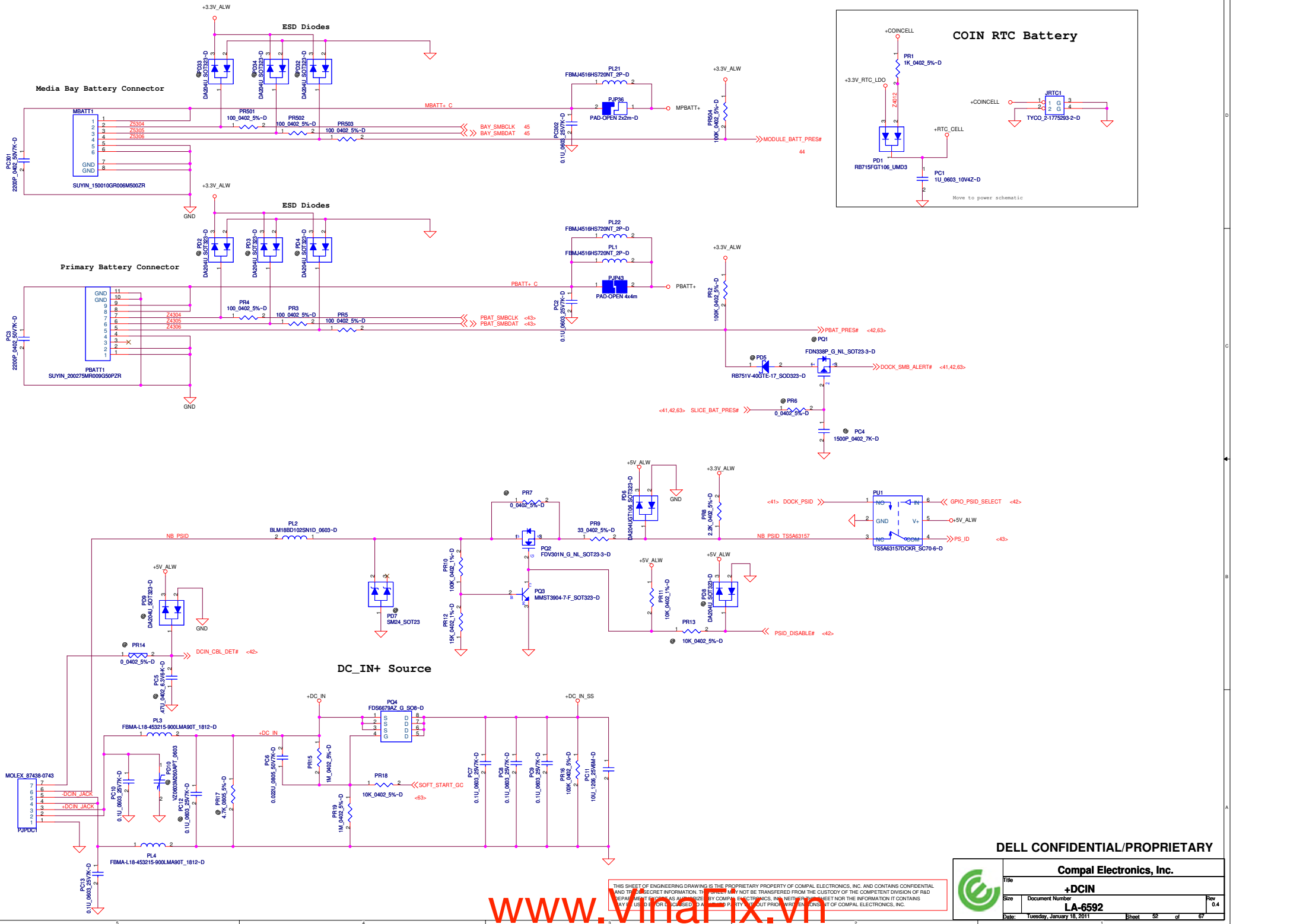
**Compal Electronics, Inc.**

**VRAM A Upper**

**LA-6592P**

Rev 1.0

Date: Thursday, January 13, 2011 Sheet 51 of 75



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|       |                           |                                 |         |
|-------|---------------------------|---------------------------------|---------|
|       |                           | <b>Compal Electronics, Inc.</b> |         |
|       |                           | <b>+DCIN</b>                    |         |
| Size  | Document Number           | LA-6592                         | Rev 0.4 |
| Date: | Tuesday, January 18, 2011 | Sheet 52                        | of 67   |

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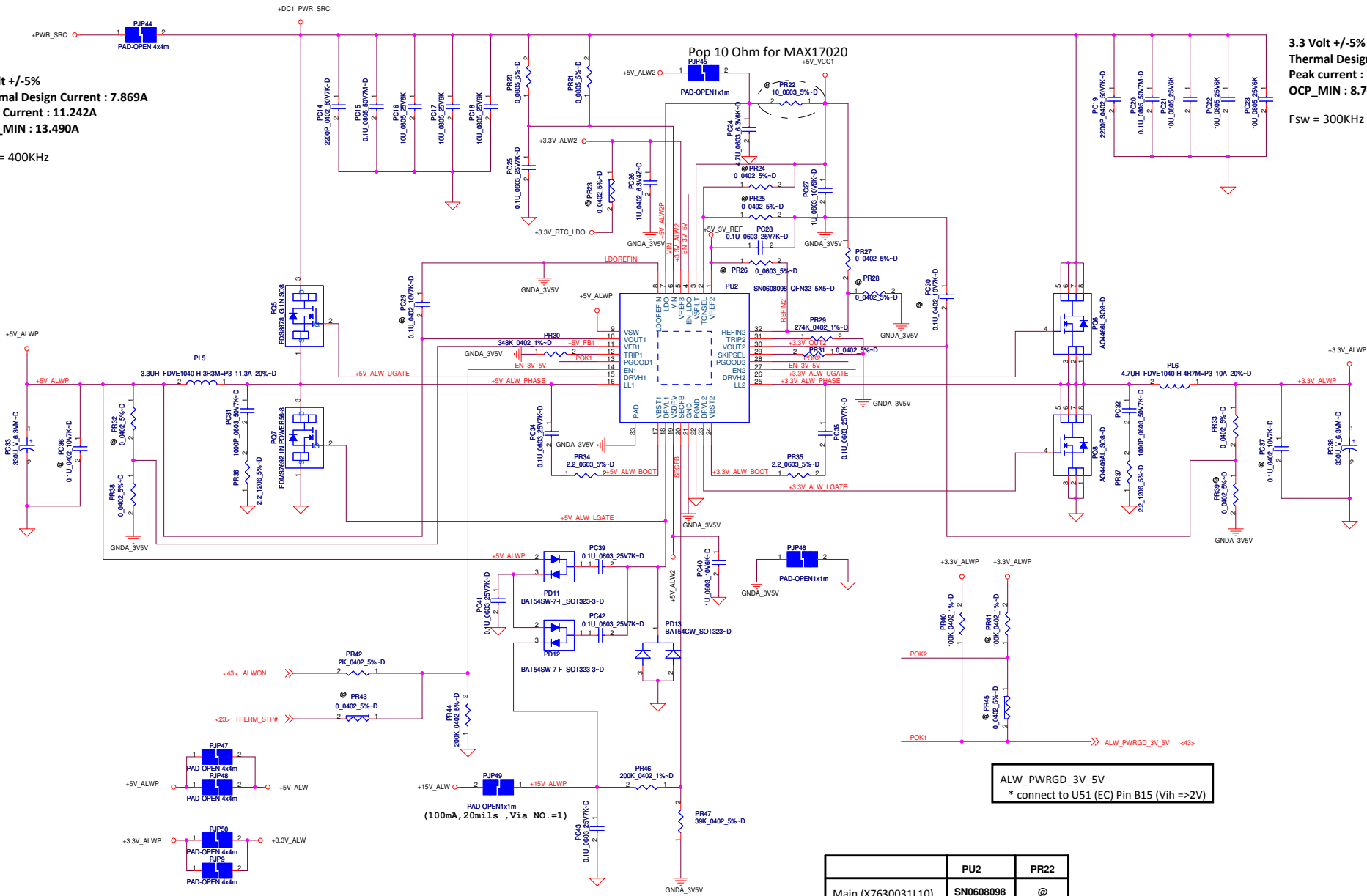
www.vinafix.vn

+3.3V\_ALWP / +5V\_ALWP / +5V\_ALW2 / +15V\_ALWP / +3.3V\_RTC\_LDO

5 Volt +/-5%  
 Thermal Design Current : 7.869A  
 Peak Current : 11.242A  
 OCP\_MIN : 13.490A

Fsw = 400KHz

3.3 Volt +/-5%  
 Thermal Design Current : 5.079A  
 Peak current : 7.256A  
 OCP\_MIN : 8.707A  
 Fsw = 300KHz



ALW\_PWRGD\_3V\_5V  
 \* connect to U51 (EC) Pin B15 (Vih =>2V)

|                    | PU2       | PR22   |
|--------------------|-----------|--------|
| Main (X7630031L10) | SN0608098 | @      |
| 2nd (X7630031L11)  | MAX17020  | 10 Ohm |

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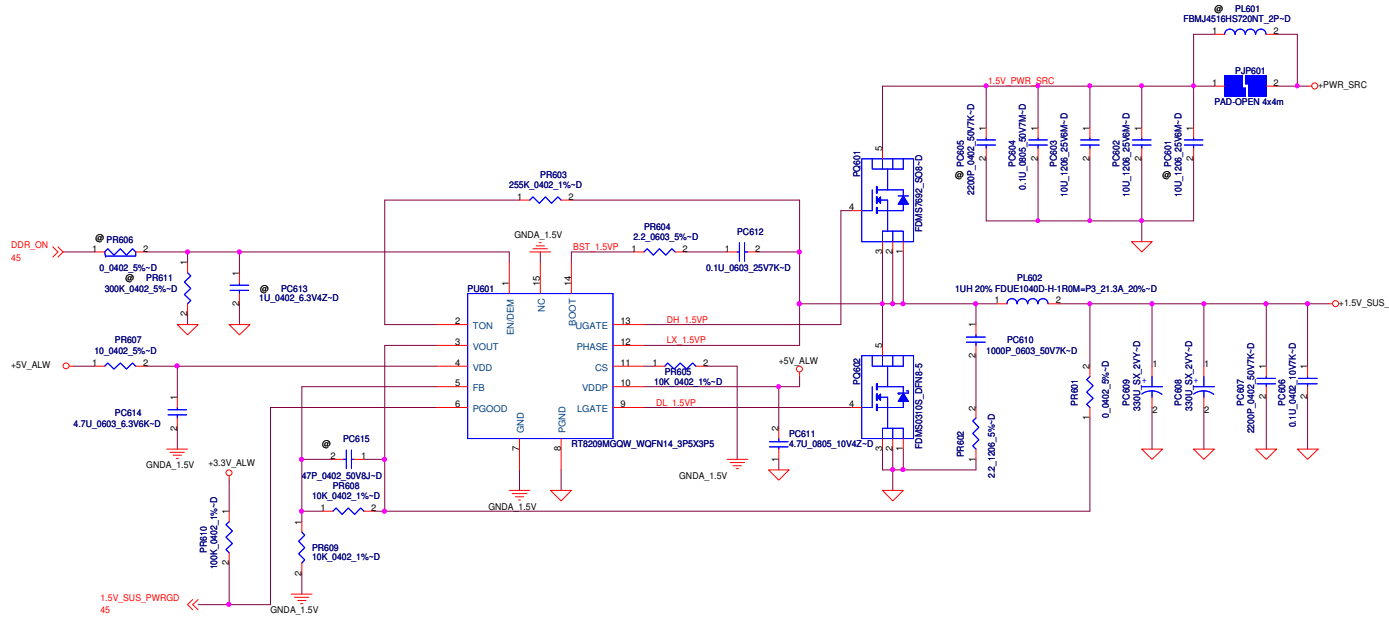
Title: DC/DC +3V/ +5V

Size: Document Number LA-6592

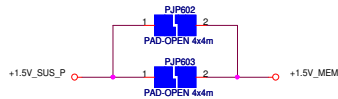
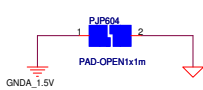
Date: Tuesday, January 18, 2011 Sheet 53 of 67

+1.5V\_SUS\_P

1.5 Volt +/-5%  
 Thermal Design Current: 12.275A  
 Peak current: 17.535A  
 OCP\_MIN: 21.042A



1.5V\_SUS\_PWRGD  
 \* connect to U51 (EC) Pin B9 (Vih => 2V)



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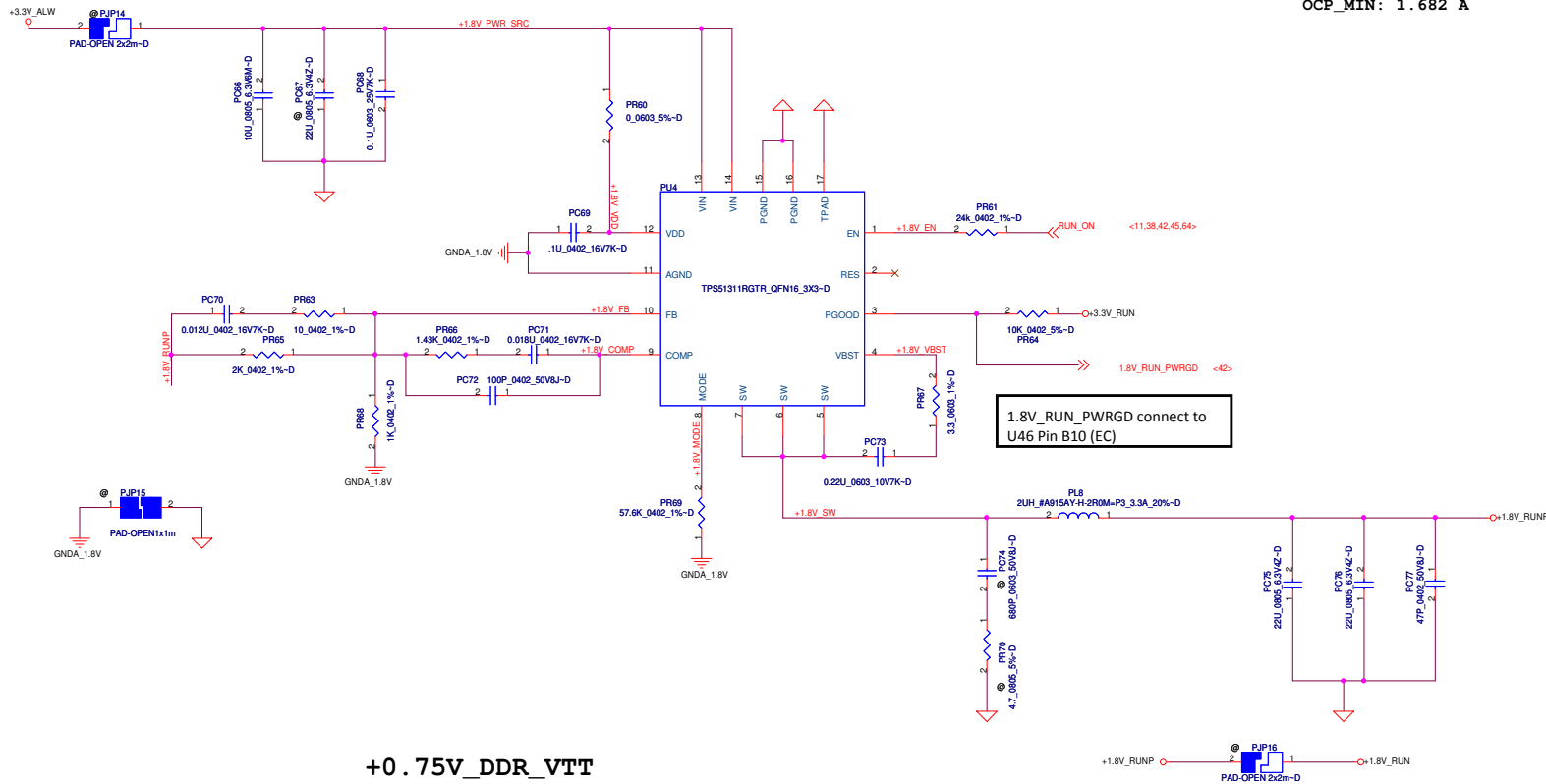
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|       |                           |                  |          |
|-------|---------------------------|------------------|----------|
| Title |                           | <b>+1.5V MEM</b> |          |
| Size  | Document Number           | Rev              |          |
|       | <b>LA-6592</b>            | <b>0.4</b>       |          |
| Date: | Tuesday, January 18, 2011 | Sheet            | 54 of 67 |

### +1.8V\_RUNP

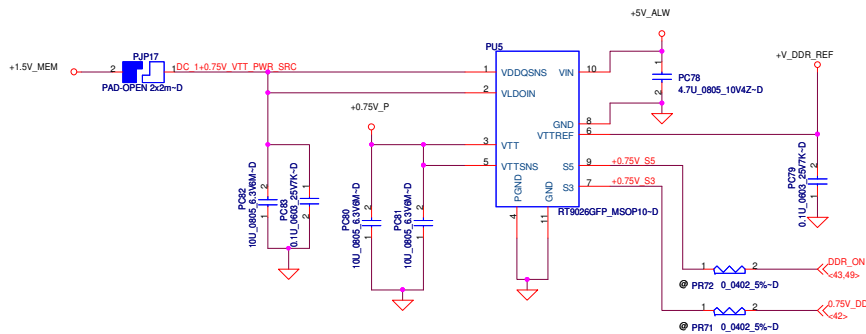
1.8 Volt +/-5%  
 Thermal Design Current: 0.981 A  
 Peak current: 1.402 A  
 OCP\_MIN: 1.682 A



### +0.75V\_DDR\_VTT

DDR3 Termination

0.75Volt +/-5%  
 Thermal Design Current: 0.525A  
 Peak current: 0.75A



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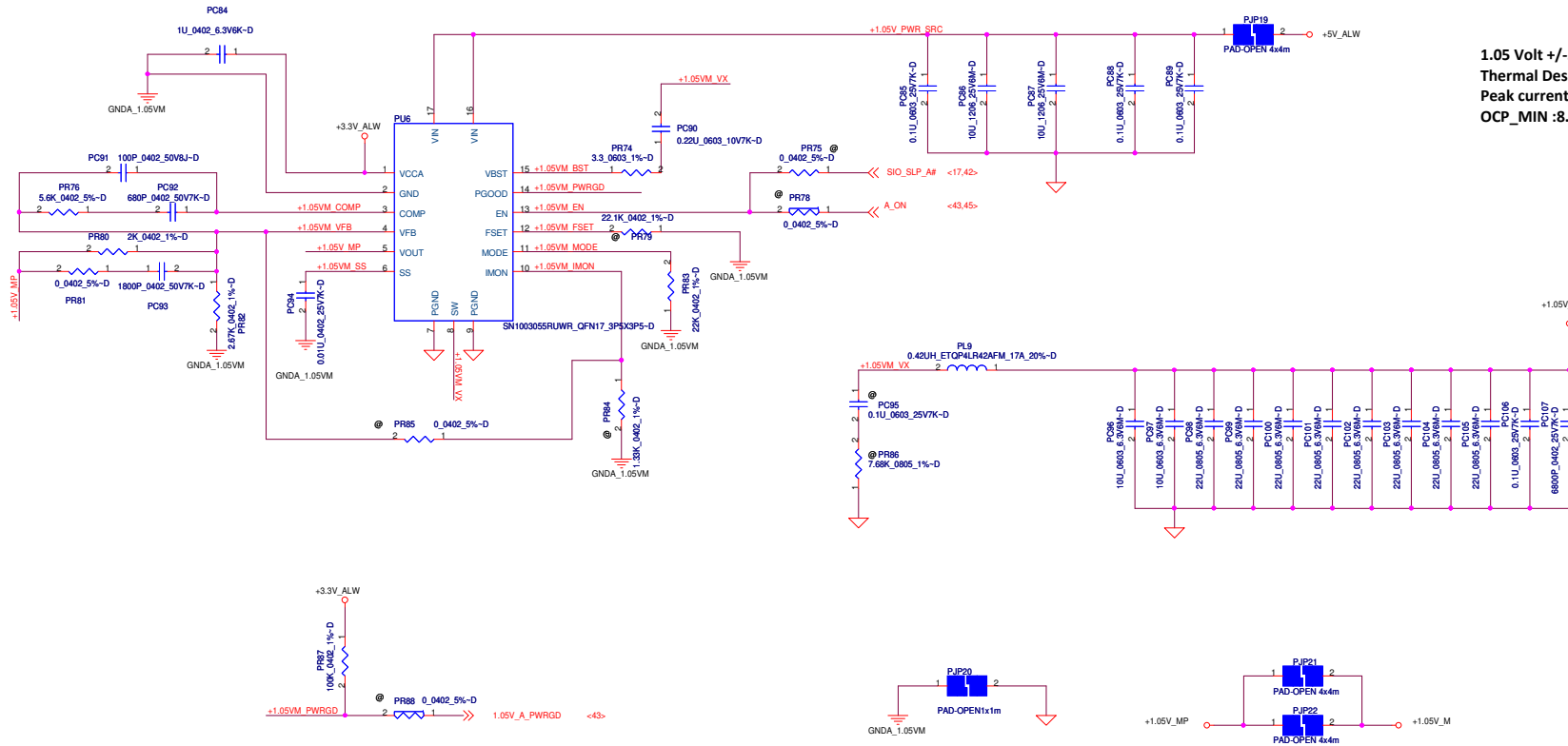
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+0.75V DDR VT/+1.8V RUN

|       |                           |         |     |       |
|-------|---------------------------|---------|-----|-------|
| Title | +0.75V DDR VT/+1.8V RUN   |         | Rev | 0.4   |
| Size  | Document Number           | LA-6592 |     |       |
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+1.05V\_M

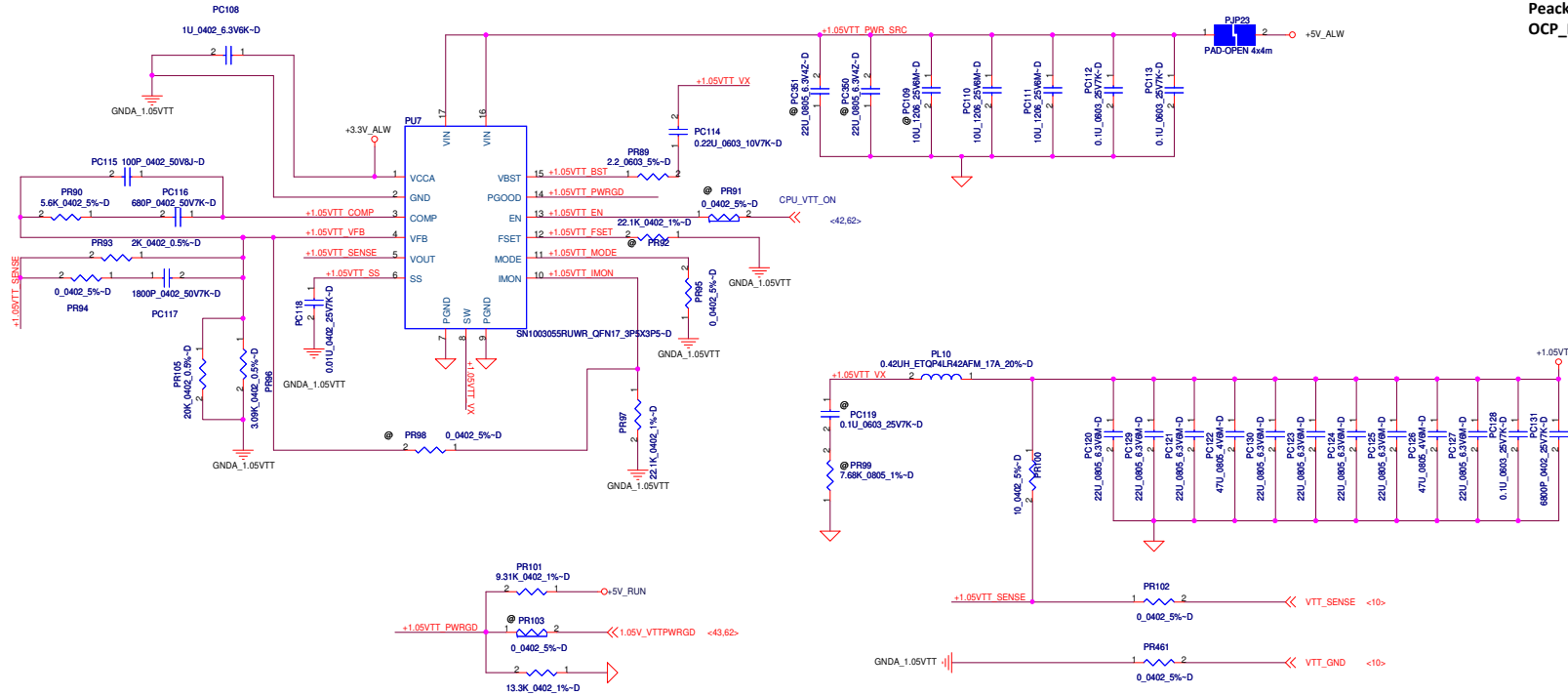


1.05 Volt +/-5%  
 Thermal Design Current : 4.782A  
 Peak current : 6.832A  
 OCP\_MIN :8.198A

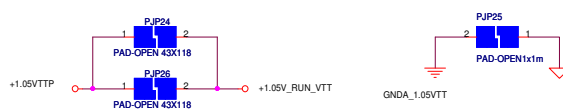
1.05V\_A\_PWRGD  
 \* connect to U51 (EC) Pin A14 (Vih => 2V)

**+1.05VTT**

**1.05Volt**  
 => (+/- 5% AC + DC +Ripple)  
 => (+/- 2% DC + Ripple)  
**Thermal Design Current : 5.980A**  
**Peack current : 8.970A**  
**OCP\_MIN : 10.764A**



**1.05V\_VTTPWRGD**  
 \* connect to PU13 Pin 15 (Vih => 2V)  
 \* connect to U50 Pin 1 (Vih => 2.31V)

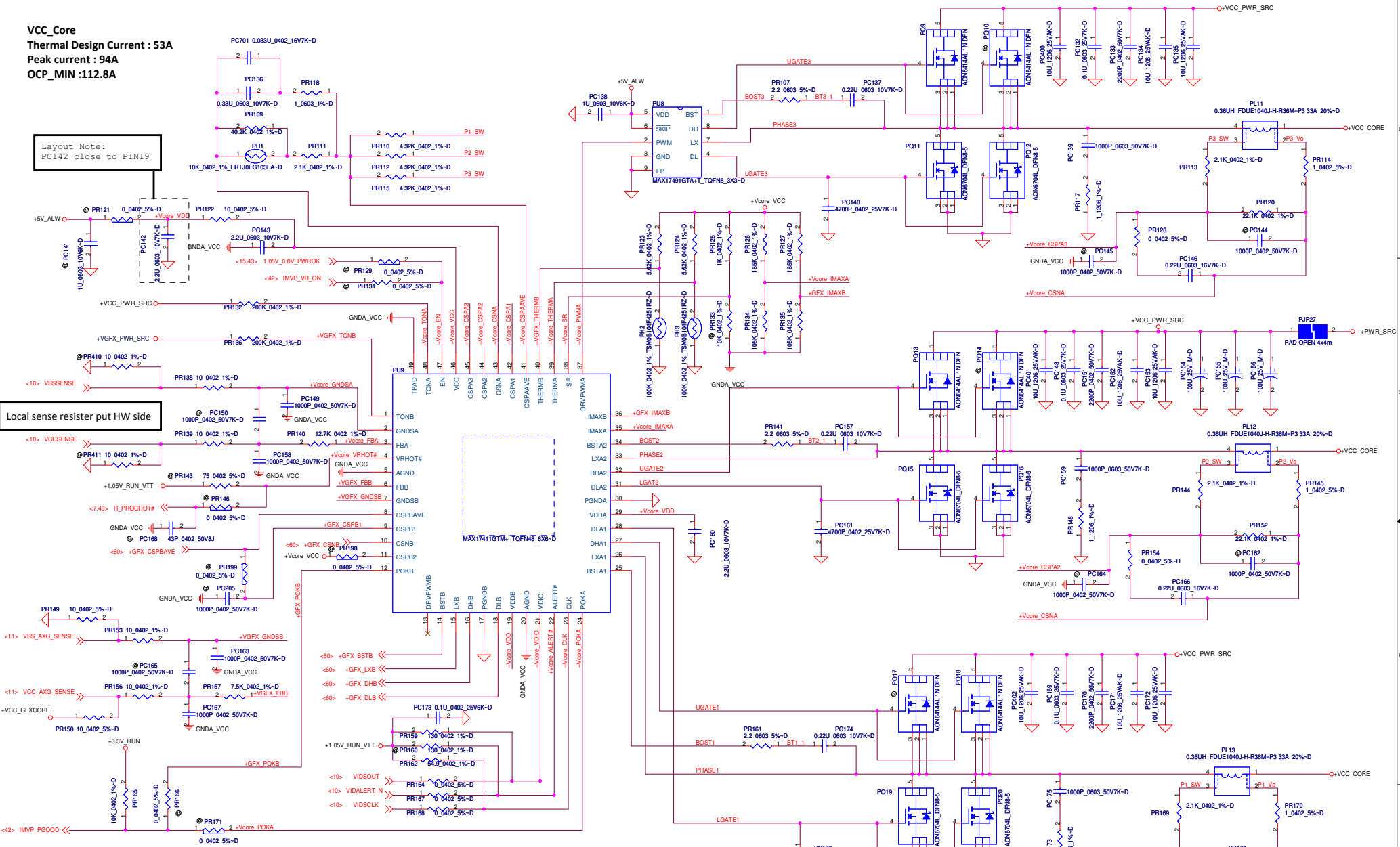


|                                 |                           |
|---------------------------------|---------------------------|
| <b>Compal Electronics, Inc.</b> |                           |
| <b>ISL95870A +1.05V RUN VTT</b> |                           |
| Size                            | Document Number           |
| <b>LA-6592</b>                  |                           |
| Date:                           | Tuesday, January 18, 2011 |
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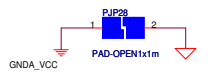
VCC\_Core  
 Thermal Design Current : 53A  
 Peak current : 94A  
 OCP\_MIN :112.8A

Layout Note:  
 PC142 close to PIN19



Local sense resistor put HW side

IMVP\_PGOOD connect to U46 Pin A62 (EC)



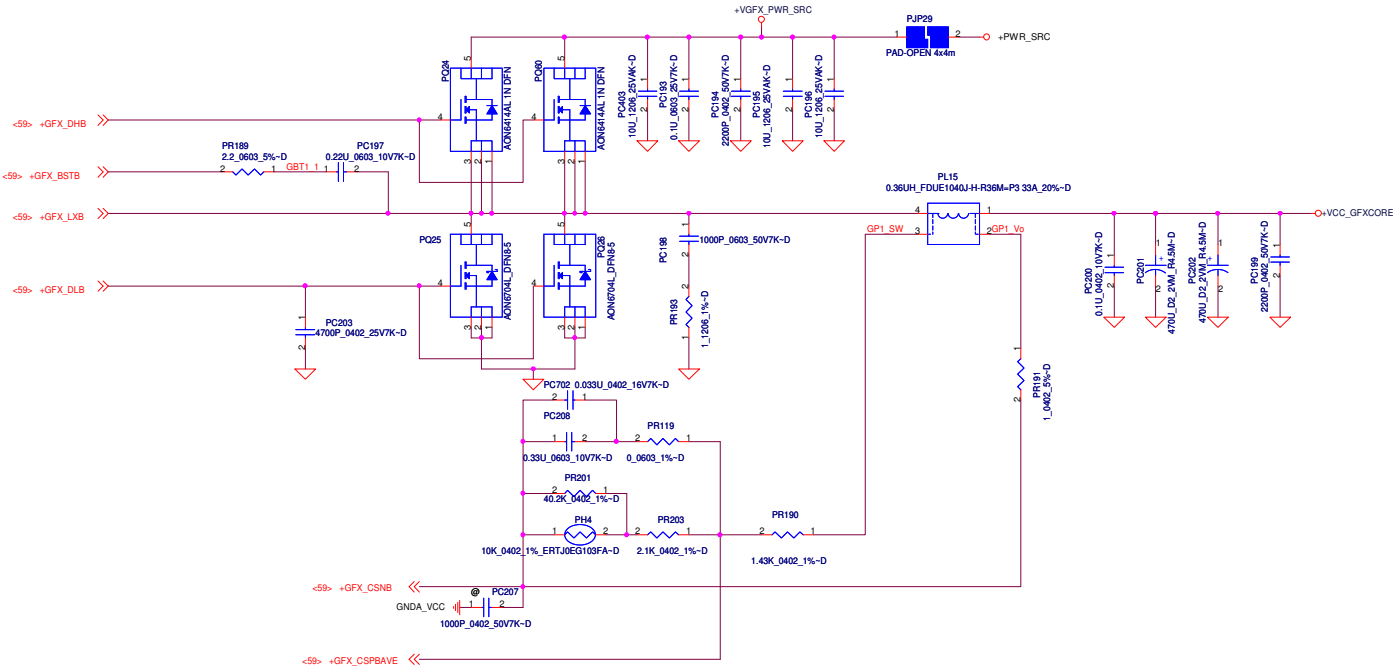
| Vcore/VAXG H/S Mosfet | PQ9,PQ13,PQ18,PQ24,PQ60,PQ52 |
|-----------------------|------------------------------|
| Main (X7630031L08)    | AON6414AL                    |
| 2nd                   | SIR472                       |
| 3rd (X7630031L09)     | MDU2657RH                    |

| Vcore/VAXG L/S Mosfet | PQ11,PQ12,PQ15,PQ16,PQ19,PQ20,PQ25,PQ26,PQ53 |
|-----------------------|--|
| Main (X7630031L08)    | AON6704L                                     |
| 2nd                   | SIR164DP                                     |
| 3rd (X7630031L09)     | MDU2653RH                                    |

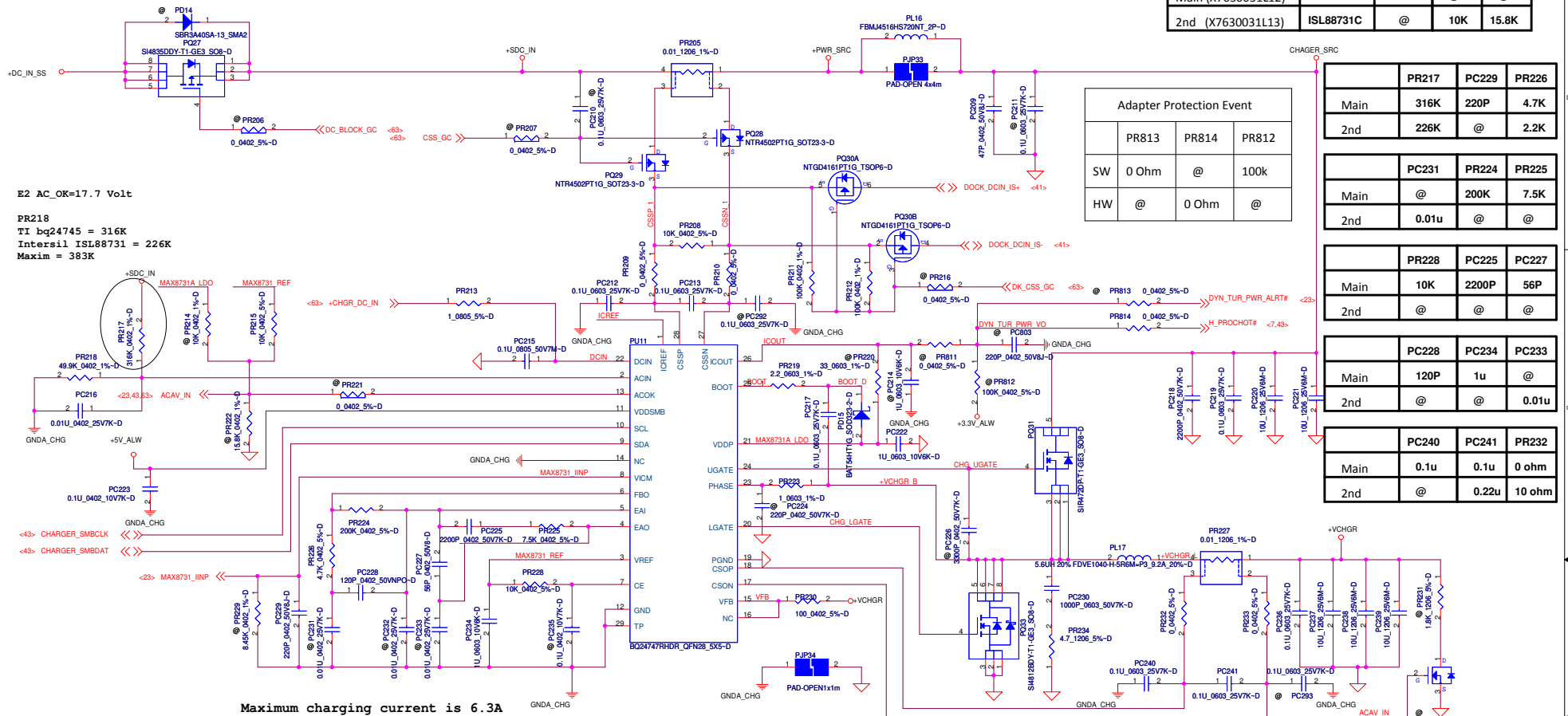
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|                                   |             |                                    |           |
|-----------------------------------|-------------|------------------------------------|-----------|
|                                   |             | Title<br>Vcore                     |           |
|                                   |             | Size<br>Document Number<br>LA-6592 | Rev<br>04 |
| Date<br>Tuesday, January 18, 2011 | Sheet<br>58 | of<br>67                           |           |

VCC\_AXG  
 Thermal Design Current : 21.5A  
 Peak current : 33A  
 OCP\_MIN :39.6A



|                    |           |       |       |       |
|--------------------|-----------|-------|-------|-------|
|                    | PU11      | PR215 | PR214 | PR222 |
| Main (X7630031L12) | BQ24747   | 10K   | @     | @     |
| 2nd (X7630031L13)  | ISL88731C | @     | 10K   | 15.8K |



E2 AC\_OK=17.7 Volt  
 PR218  
 TI bq24745 = 316K  
 Intersil ISL88731 = 226K  
 Maxim = 383K

| Adapter Protection Event |       |       |       |
|--------------------------|-------|-------|-------|
|                          | PR813 | PR814 | PR812 |
| SW                       | 0 Ohm | @     | 100k  |
| HW                       | @     | 0 Ohm | @     |

|      |       |       |       |
|------|-------|-------|-------|
|      | PR217 | PC229 | PR226 |
| Main | 316K  | 220P  | 4.7K  |
| 2nd  | 226K  | @     | 2.2K  |

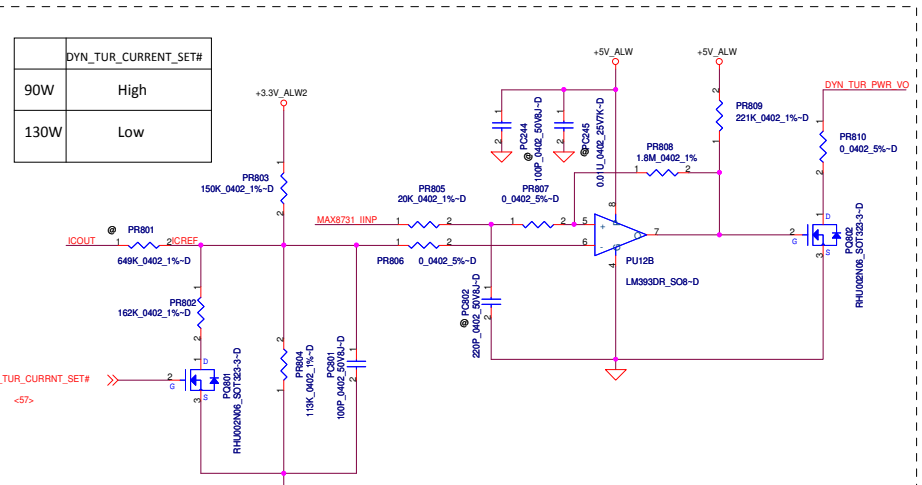
|      |       |       |       |
|------|-------|-------|-------|
|      | PC231 | PR224 | PR225 |
| Main | @     | 200K  | 7.5K  |
| 2nd  | 0.01u | @     | @     |

|      |       |       |       |
|------|-------|-------|-------|
|      | PR228 | PC225 | PC227 |
| Main | 10K   | 2200P | 56P   |
| 2nd  | @     | @     | @     |

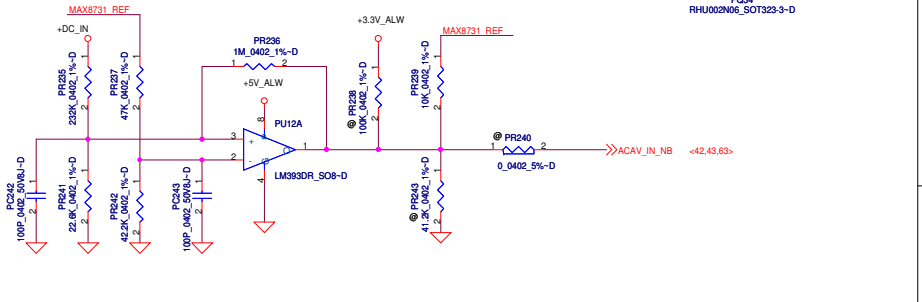
|      |       |       |       |
|------|-------|-------|-------|
|      | PC228 | PC234 | PC233 |
| Main | 120P  | 1u    | @     |
| 2nd  | @     | @     | 0.01u |

|      |       |       |        |
|------|-------|-------|--------|
|      | PC240 | PC241 | PR232  |
| Main | 0.1u  | 0.1u  | 0 ohm  |
| 2nd  | @     | 0.22u | 10 ohm |

Maximum charging current is 6.3A



| DYN_TUR_CURRENT_SET# |      |
|----------------------|------|
| 90W                  | High |
| 130W                 | Low  |



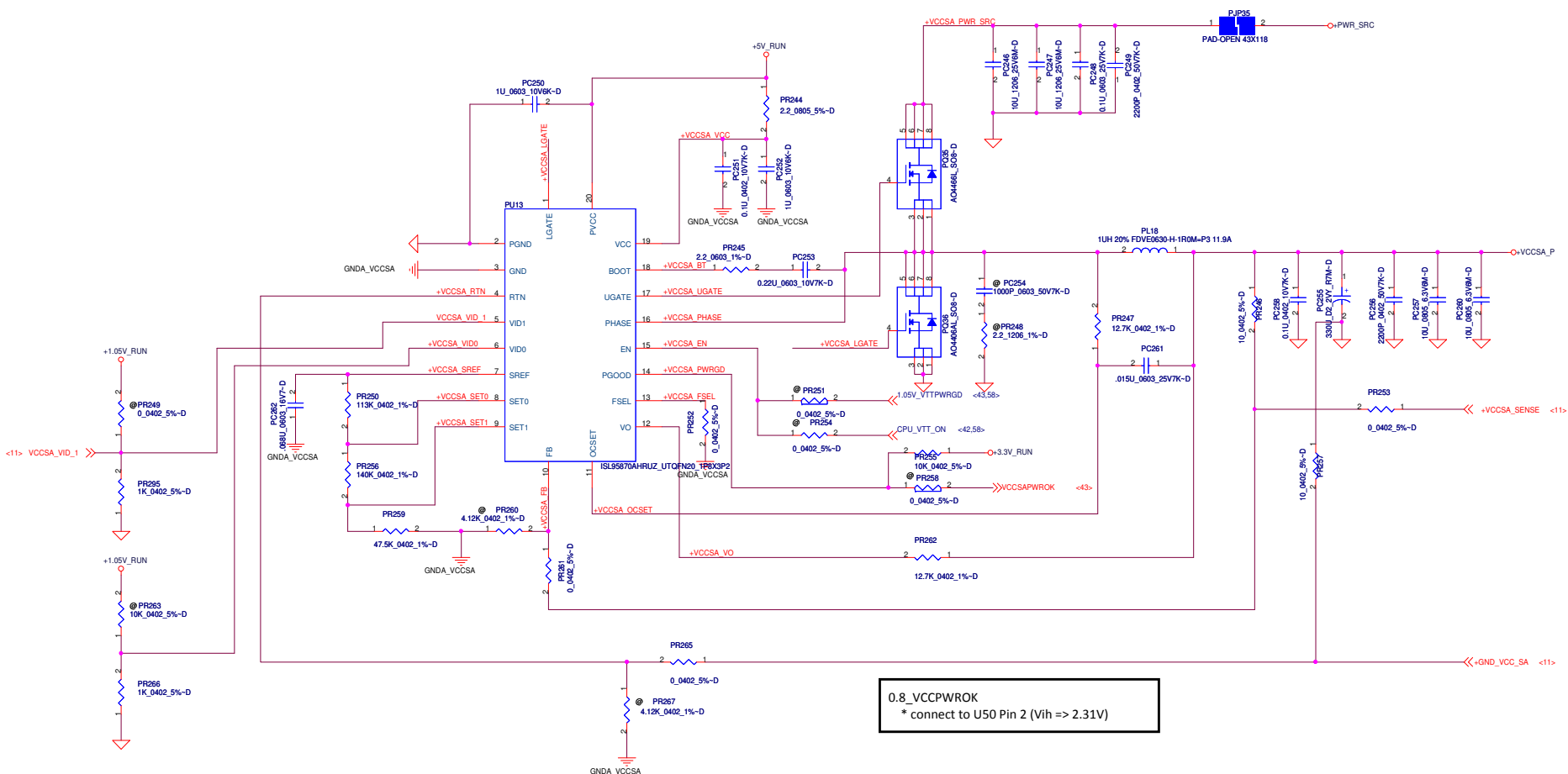
|      |       |         |       |       |        |        |        |
|------|-------|---------|-------|-------|--------|--------|--------|
|      | PR223 | PR220   | PC214 | PC292 | PR209  | PR210  | PC213  |
| Main | 1 ohm | @       | @     | @     | 0 ohm  | 0 ohm  | 0.1u   |
| 2nd  | 0 ohm | 4.7 ohm | 1u    | 0.1u  | 10 ohm | 10 ohm | 0.047u |

Adapter Protection Circuit for Turbo Mode

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|       |                           |                          |          |
|-------|---------------------------|--------------------------|----------|
|       |                           | Compal Electronics, Inc. |          |
|       |                           | Charger                  |          |
| Size  | Document Number           | LA-6592                  | Rev      |
| Date: | Tuesday, January 18, 2011 | Sheet                    | 60 of 67 |

VCCSA  
 Thermal Design Current : 4.2A  
 Peak current : 6A  
 OCP\_MIN : 7.2A



0.8\_VCCPWROK  
 \* connect to U50 Pin 2 (Vih => 2.31V)

|             |      |      |
|-------------|------|------|
| VCCSA_VID_1 | 0.9V | 0.8V |
|             | 0    | 1    |

output voltage adjustable network

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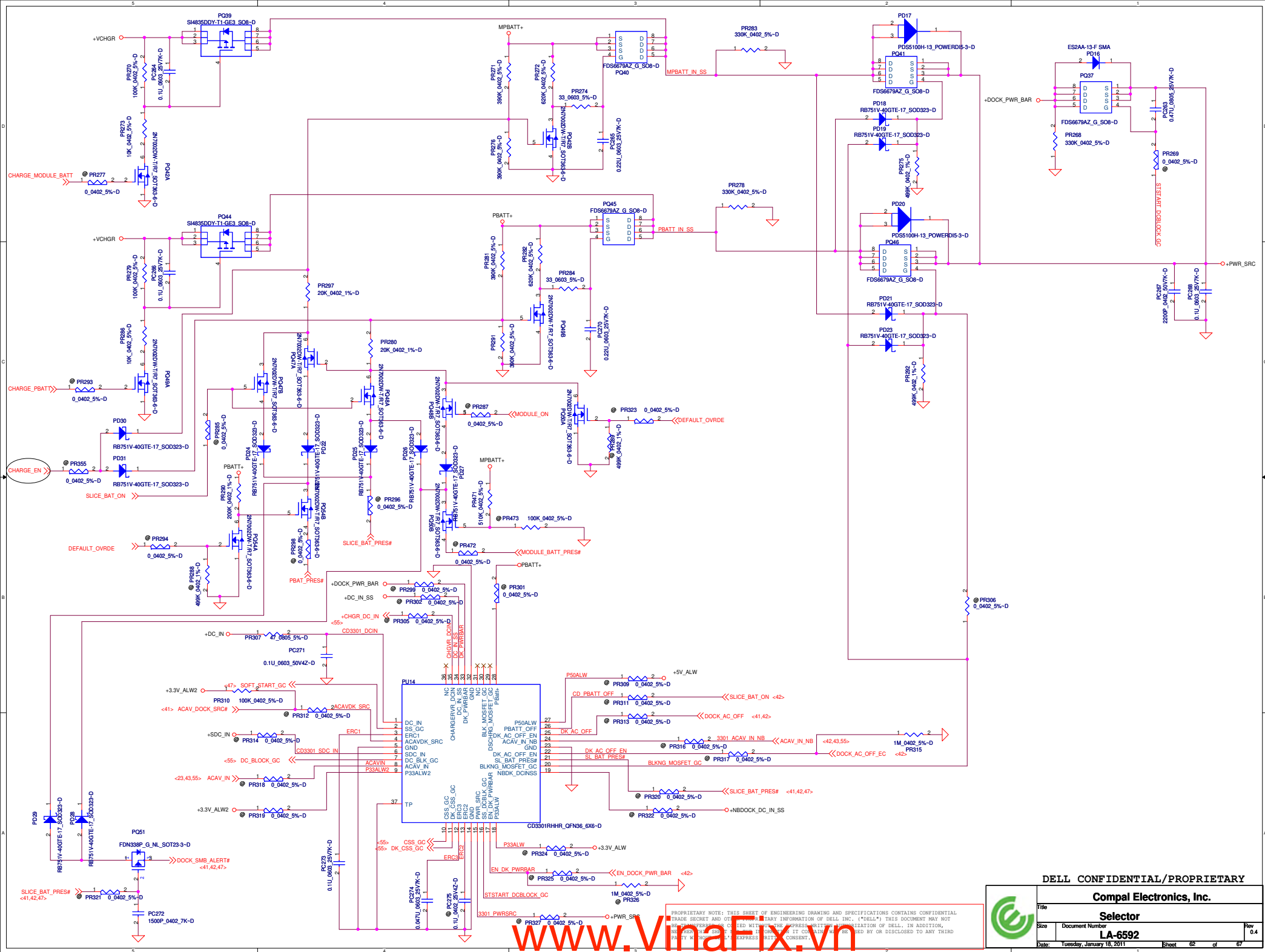
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ISL95870A 0.8V VCC SA

|      |                 |     |
|------|-----------------|-----|
| Size | Document Number | Rev |
|      | LA-6592         | 0.4 |

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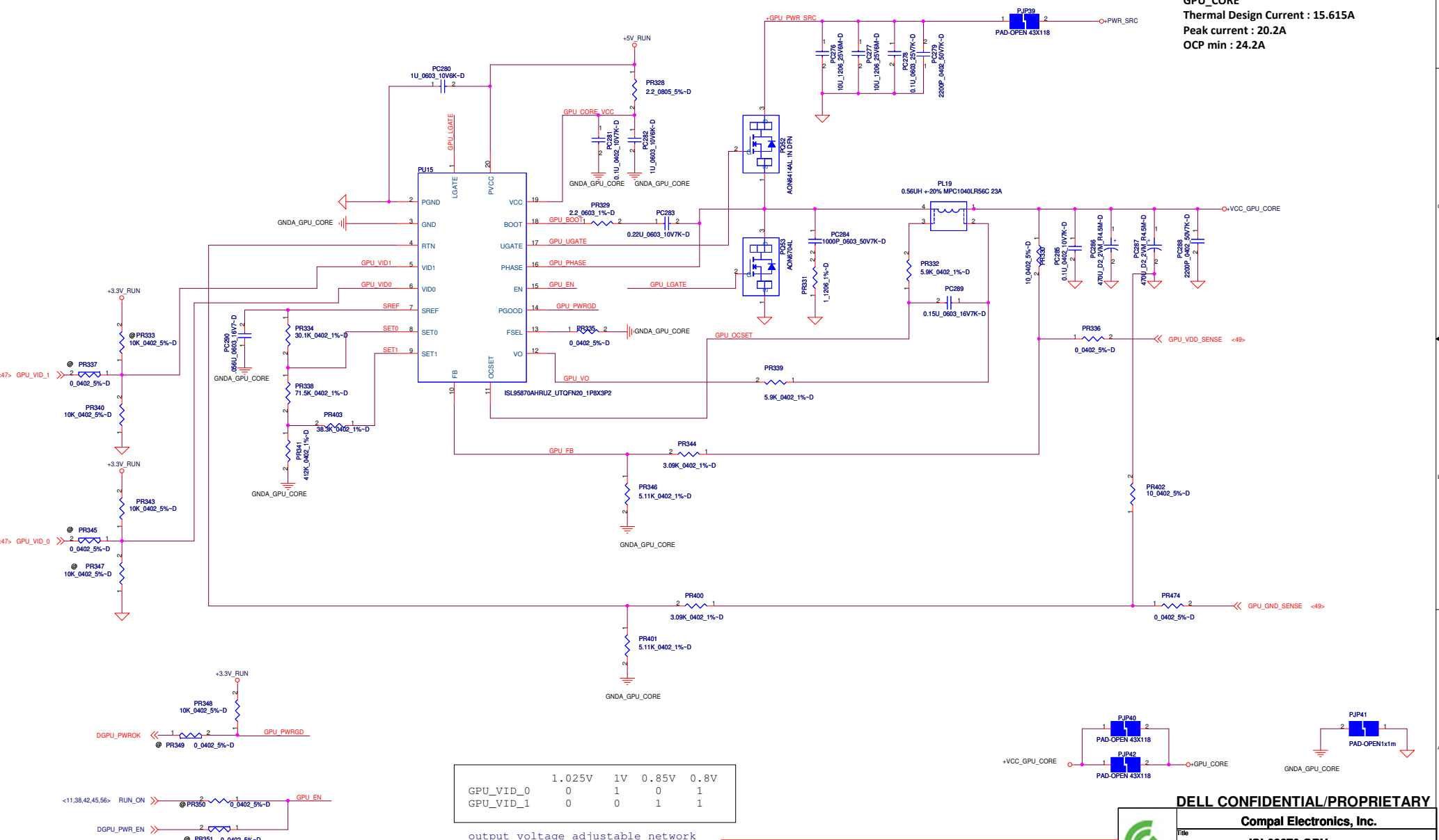
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|   |                           |                                 |          |
|---|---------------------------|---------------------------------|----------|
|  |                           | <b>Compal Electronics, Inc.</b> |          |
|   |                           | <b>Selector</b>                 |          |
| Size  | Document Number           | <b>LA-6592</b>                  |          |
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**GPU\_CORE**  
 Thermal Design Current : 15.615A  
 Peak current : 20.2A  
 OCP min : 24.2A



|           |        |    |       |      |
|-----------|--------|----|-------|------|
|           | 1.025V | 1V | 0.85V | 0.8V |
| GPU_VID_0 | 0      | 1  | 0     | 1    |
| GPU_VID_1 | 0      | 0  | 1     | 1    |

output voltage adjustable network

[www.vimalix.vn](http://www.vimalix.vn)

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**Compal Electronics, Inc.**

**ISL62870 GPU core**

|       |                           |                |
|-------|---------------------------|----------------|
| Size  | Document Number           | Rev            |
|       | <b>LA-6592</b>            | 0.4            |
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# Version Change List (P. I. R. List)

| Item | Page# | Title          | Date | Request Owner | Issue Description   | Solution Description   | Rev. |
|------|-------|----------------|------|---------------|---|--|------|
| 1    | 61    | VCCSA          | 6/30 | Intersil      | VCCSA spike issue   | Delete PR264<br>Delete VCCSA_VID_0 net<br>Connect VCCSA_VID_1 net to PIN5<br>Depop PR249, PR267 and PR260<br>Change PR261 and PR260 to 0 Ohm (SD02800008L) from 24.9k (SD03424918L)<br>Change PR259 to 47.5k (SD03447528L) from 274k (SD03427438L)<br>Change PR256 to 140k (SD03414038L) from 0 Ohm (SD02800008L)<br>Change PR250 to 113k ( ) from 34k (SD03434028L)<br>Add pull down PR295 10k(SD02810028L) | X01  |
| 2    | 61    | VCCSA          | 6/30 | Intel         | Change VCCSA VID pull down resistor value                                   | Change PR295 and PR266 to 1k (SD02810018L) from 10k (SD02810028L)  | X01  |
| 3    | 53    | 3V/5V          | 7/15 | Compal        | 3V/5V Bulk cap interfere with ME  | Change PC33 and PC38 to 330U/25m/H1.9(SGA00001A8L) from 330U/25m/H2.8 (SGA1933131L)  | X01  |
| 4    | 54    | +1.5V_SUS      | 7/15 | Compal        | Vendor will not support this part   | Change PC609 and PC608 to 330U/9m/2V (SGA20331E0L) from 330U/9m/2.5V (SGA19331D1L)   | X01  |
| 5    | 52    | DCIN           | 7/15 | Compal        | PL3 and PL4 current rating is not enough for 130W adapter                   | Change PL2 and PL3 to FBMA-L18-453215-900LMA90T (SM01002078L) from FBMJ4516HS720NT(SM010009C8L)  | X01  |
| 6    | 52    | DCIN           | 7/15 | Compal        | PL1 current rating is not enough for 9cell (3.0Ah 1C) discharge current     | Change PL1 to FBMJ4516HS720NT(SM010009C8L) from FBMA-L18-453215-900LMA90T (SM01002078L)<br>Add PL22 FBMJ4516HS720NT(SM010009C8L)   | X01  |
| 7    | 53    | 3V/5V          | 7/16 | Compal        | 10u/1206/X5R/25V will COS   | Change PC16,PC17,PC18,PC21,PC22 and PC23 to 10u/0805/X5R (SE00000QK00) from 10u/1206/X5R (SE142106M8L)   | X01  |
| 8    | 53    | 3V/5V          | 7/16 | Compal        | +3.3V phase node over Mosfet Vds rating                                     | Change PQ6 A04466L (SB00000CG8L) from SI4128DY (SB00000IR0L)<br>Change PQ8 A04712L (SB00000AJ1L) from SI4134DY(SB00000KB0L)  | X01  |
| 9    | 53    | 3V/5V          | 7/16 | Compal        | PC24 down size to 0603 from 0805  | Change PC24 to 4.7u/6.3V/0603 (SE107475K8L) from 4.7u/6.3V/0805 (SE093475K8L)  | X01  |
| 10   | 61    | VCCSA          | 7/16 | Compal        | VCCSA output voltage is not constant so change some net name                | Change +0.8V_VCC net name to +VCCSA_P<br>Change 0.8V_VCCPWROK net name to VCCSAPWROK<br>Change +0.8V_VCC_SA net name to +VCC_SA  | X01  |
| 11   | 54    | 1.5V_SUS       | 7/16 | Richtek       | Reserve Pull down resistor on EN pin for power consumption issue            | Add 0402 resistor pad on EN pin  | X01  |
| 12   | 60    | Charger        | 7/18 | Compal        | PQ27 body diode can handle surge current when adapter plug in so depop PD14 | Depop PD14 SBR3A40SA (SC100003J00)   | X01  |
| 13   | 62    | Selector       | 7/18 | Compal        | Leakage issue on PD16   | Change PD16 to ES2AA (SC100005A0L) from SBR3A40SA (SC100003J00)  | X01  |
| 14   | 58,59 | Axg_core Vcore | 7/20 | MAXIM         | Reserve 0402 cap pad for transient fine tune                                | Add PC701 and PC702 0402 cap pad   | X01  |
| 15   | 60    | Charger        | 7/20 | Compal        | Reserve adapter protection circuit for turbo mode                           | Change PU11 pin1 net name to ICREF from GNDA_CHG<br>Change PU11 pin26 net name to ICOUT from VCC<br>Reserve PR801,PR802,PR803,PR804,PR805,PR806,PR807,PR808,PR809,PR810,PR811,PR812<br>Reserve PC801,PC802,PC803   | X01  |
| 16   | 61    | VCCSA          | 7/20 | Compal        | VCCSA phase node over Mosfet Vds rating                                     | Change PQ35 A04466L (SB00000CG8L) from SI4128DY (SB00000IR0L)<br>Change PQ36 A04712L (SB00000AJ1L) from SI4172DY(SB00000HN0L)  | X01  |

|   |                 |                                 |  |
|---|-----------------|---------------------------------|--|
|  |                 | <b>Compal Electronics, Inc.</b> |  |
|   |                 | Title: <b>PWR_PIR</b>           |  |
| Size  | Document Number | Rev 04                          |  |
|   | <b>LA-6592</b>  |                                 |  |
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# Version Change List (P. I. R. List)

| Item | Page#                | Title   | Date | Request Owner | Issue Description  | Solution Description  | Rev. |
|------|----------------------|---|------|---------------|--|---|------|
| 17   | 58                   | Vcore<br>VAXG_core                                | 7/24 | MAXIM         | Fine tune OCP setting for Pass 2 IC                              | Change PR127 to 165K (SD03416530L) from 100K (SD03410038L)<br>Change PR135 to 105K (SD03410538L) from 150K (SD03415038L)<br>Change PR126 to 165K (SD03416530L) from 100K (SD03410038L)<br>Change PR134 to 105K (SD03410538L) from 150K (SD03415038L)  | X01  |
| 18   | 58,59                | Vcore<br>VAXG_core                                | 7/24 | MAXIM         | Phase node switching waveform abnormal issue for Pass 2 IC       | Change PR118 to 1 Ohm (SD014100B8L) from 2 Ohm (SD013200B8L)<br>Change PR119 to 1 Ohm (SD014100B8L) from 2 Ohm (SD013200B8L)  | X01  |
| 19   | 53                   | 3V/5V   | 7/28 | Comapl        | Broad band issue in 700MHz                                       | Pop PC32 1000P (SE025102K8L)<br>Pop PR37 2.2 Ohm (SD011220B8L)<br>Pop PC31 1000P (SE025102K8L)<br>Pop PR36 2.2 Ohm (SD011220B8L)<br>Change PR35 to 2.2 Ohm (SD013220B8L) from 1 Ohm (SD013100B8L)<br>Change PR35 to 2.2 Ohm (SD013220B8L) from 1 Ohm (SD013100B8L)  | X01  |
| 20   | 58                   | Vcore   | 7/28 | Comapl        | Bump noise in band of 700MHz                                     | Pop PC139 470P (SE024471J8L)<br>Pop PC159 470P (SE024471J8L)<br>Pop PR117 2.2 Ohm (SD011220B8L)<br>Pop PR148 2.2 Ohm (SD011220B8L)  | X01  |
| 21   | 54,58<br>59,63<br>56 | 1.5V<br>Vcore<br>VGF_X_Core<br>GPU_core<br>1.05VM | 7/28 | Comapl        | Broad band in 800MHz and 900MHz                                  | Pop PC610 1000P (SE025102K8L)<br>Pop PR602 2.2 Ohm (SD011220B8L)<br>Pop PC175 470P (SE024471J8L)<br>Pop PR173 2.2 Ohm (SD011220B8L)<br>Pop PC198 470P (SE024471J8L)<br>Pop PR193 2.2 Ohm (SD011220B8L)<br>Pop PC284 1000P (SE025102K8L)<br>Pop PR331 2.2 Ohm (SD011220B8L)<br>Pop PC85 0.1u (SE00000Q900)         | X01  |
| 22   | 60                   | Charger   | 7/28 | TI            | Pop adapter protection component for turbo mode with TI solution | Pop PR803 100k (SD03410038L)<br>Pop PR804 78.7k (SD03478728L)<br>Pop PR802 115k (SD034111538L)<br>Pop PR801 1.87M ( )<br>Pop PQ801 RHU002N06 (SB50206008L)<br>Pop PR812 100K (SD02810038L)<br>Pop PC801 100P (SE071101J8L)  | X01  |
| 23   | 58,59                | Vcore<br>VAXG_core                                | 7/28 | Compal        | Fine tune load line and transient for Vcore and VAXG_core        | Change PR140 to 11.8k (SD03411828L) from 12.4k (SD00000AJ8L)<br>Change PR157 to 8.25k (SD03482518L) from 8.66K(SD03486618L)<br>Pop PC701 and PC702 0.033uF (SE076333K8L)  | X01  |
| 24   | 56                   | Selector  | 9/2  | Compal        | Change parts to HF parts   | Change PQ51 FDN338P_G (SB90338001L) from FDN338P (SB90338008L)<br>Change PD18, PD19, PD21, PD22, PD23, PD24, PD25, PD26, PD27, PD28, PD29, PD30 and PD31 RB751V-40GTE-17 (SCS00004L0L) from RB751V (SC1B751V08L)<br>Change PQ37, PQ40, PQ41, PQ45 and PQ46 FDS6679AZ_G (SB000009D1L) from FDS6679AZ (SB000009D8L) | X02  |
| 25   | 46                   | +DCIN   | 9/2  | Compal        | Change parts to HF parts   | Change PD6 DA204UGT106 (SC60000170L) from DA204UT106 (SC1A204U00L)<br>Change PQ4 FDS6679AZ_G (SB000009D1L) from FDS6679AZ (SB000009D8L)<br>Change PD1 RB715FGT106 (SCSB715F010) from RB715F (SCSB715F08L)<br>Change PQ2 FDV301N_G (SB503010020) from FDV301N (SB50301008L)  | X02  |
| 26   | 47                   | +5V/3.3<br>/+15VALW                               | 9/2  | Compal        | Change parts to HF parts   | Change PQ5 FDS8878_G (SB00000BV1L) from FDS8878 (SB00000BV8L)   | X02  |
| 27   | 54                   | Charger   | 9/2  | Compal        | Change parts to HF parts   | Change PQ33 SI4812BDY-T1-GE3 (SB00000DI1L) from SI4812BDY-T1-E3 (SB00000DI0L)<br>Change PL17 FDVE1040-H-5R6M=P3 (SH00000CH1L) from FDVE1040-5R6M=P3 (SH00000CH0L)<br>Change PQ27 SI4835DDY-T1-GE3 (SB00000FF1L) from SI4835DDY-T1-E3 (SB00000FF0L)  | X02  |
| 28   | 48                   | +1.5V_SUS   | 9/2  | Compal        | Change parts to HF parts   | Change PL602 FDUE1040D-H-1R0M=P3 (SH000009U1L) from FDUE1040D-1R0M=P3 (SH000009U0L)   | X02  |


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|---------------|---------------|---------------------|------------------|-------------------|---|--|----------------|
| 29            | 47            | +5V/3.3 /+15VALW    | 9/2              | TI                | Fine tune OCP setting for +5V/+3.3V   | Change PR29 to 274K (SD03427438L) from 220K (SD03422038L)<br>Change PR30 to 348K (SD00000WW8L) from 243K (SD03424338L)   | X02            |
| 30            | 56            | Selector            | 9/13             | Compal            | Change parts to HF parts  | Change PQ39 and PQ44 SI4835DDY-T1-GE3 (SB00000FF1L) from SI4835DDY-T1-E3 (SB00000FF0L)   | X02            |
| <del>31</del> | <del>60</del> | <del>charger</del>  | 9/13             | <del>Compal</del> | <del>Fine tune adapter protection circuit for 2nd source and reserve H_PROCHOT#</del> | <del>Delete PQ802 and PR807<br/>MAX8731_IINP signal connect change to inverting input from Non inverting input<br/>ICREF signal connect change to Non inverting input from inverting input<br/>Depop PR811 and PR813 0 Ohm (SD02800008L)<br/>Depop PR814</del>   | X02            |
| 32            | 56            | +1.05VM             | 9/14             | TI                | Fine tune OCP setting   | Change PR83 to 22k (SD03422028L) from 10k (SD03410028L)  | X02            |
| 33            | 56            | +1.05VM             | 10/05            | Compal            | 22u/1206/6.3V COS issue   | Change PC98 ~ PC105 to 22u/0805 (SE00000110L) from 22u/1206 (SE077226M8L)  | X02            |
| 34            | 57            | +1.05VTT            | 10/05            | Compal            | 22u/1206/6.3V COS issue   | Change PC123 ~ PC125, PC121, PC127, PC120, PC129 and PC130 to 22u/0805 (SE00000110L) from 22u/1206 (SE077226M8L)<br>Change PC122 and PC126 to 47u/0805 (SE00000G60L) from 22u/1206 (SE077226M8L)   | X02            |
| 35            | 52            | DCIN                | 10/05            | Compal            | 6 ~ 7mA leakage current in slice  | Change PR2 and PR504 to 100K (SD02810038L) from 10K (SD03410028L)  | X02            |
| 36            | 61            | VCCSA               | 10/14            | Compal            | Fine tune VCCSA OCP setting for 2nd and 3rd source choke                              | Change PR247 and PR262 to 12.7k (SD03412728L) from 11.5k (SD03411528L)   | X02            |
| 37            | <del>63</del> | <del>GPU_Core</del> | <del>10/14</del> | <del>nVidia</del> | <del>Fix output voltage to 0.9V for nVidia ES sample</del>                            | <del>Depop PR337 and PR345 0 Ohm (SD02800008L)<br/>Depop PR347 10K (SD02810028L)<br/>Depop PR343 10K (SD02810028L)</del>   | <del>X02</del> |
| 38            | 63            | GPU_Core            | 10/14            | Compal            | Change OCP setting for new nVidia chip  | Change PR332 and PR339 to 5.9k (SD03459018L) from 4.22k (SD03442218L)  | X02            |
| 39            | 63            | GPU_Core            | 11/09            | nVidia            | Change VID setting for new nVidia chip. Default set 1V.                               | Depop PR347 10K (SD02810028L)<br>Pop PR343 10K (SD02810028L)<br>Change PR344 and PR400 to 3.09k (SD00000J38L) from 3.57k (SD03435718L)<br>Change PR341 to 412k (SD00000678L) from 402k (SD034402380)<br>Change PR403 to 38.3k (SD03438328L) from 200k (SD03420038L)<br>Change PR338 to 71.5k (SD03471528L) from 0 Ohm (SD02800008L)<br>Change PR334 to 30.1k (SD03430128L) from 23.7k (SD03423728L)                                  | X03            |
| 40            | 62            | Selector            | 11/09            | Compal            | Fine tune main and media battery switching to slice battery transient time            | Change PC270 and PC265 to 0.22uF (SE000005Z8L) from 1uF (SE00000698L)  | X03            |
| 41            | 60            | Charger             | 11/09            | Compal            | Change adapter protection circuit trip point. (Adapter rated current + 0.75A)         | Change PR802 to 107k (SD03410738L) from 115k (SD03411538L)<br>Change PR801 to 649K (SD03464938L) from 1.87M (SD00000WN0L)<br>Change PR804 to 80.6K (SD03480628L) from 78.7k (SD03478728L)  | X03            |
| 42            | 60            | Charger             | 11/09            | Compal            | Change adapter protection event to HW from SW   | Pop PR814 0 Ohm (SD02800008L)<br>Depop PR813 0 Ohm (SD02800008L)<br>Depop PR812 100k Ohm (SD02810038L)   | X03            |
| 43            | 60            | Charger             | 12/09            | Compal            | H_PROCHOT# can not pull high issue with external circuit at DC mode                   | Change PR803.1 net nam to +3.3V_ALW2 from MAX8731_REF<br>Change PQ801.3, PR804.1 and PC801.2 net nam to PGND from GAND_CHG   | X04            |
| 44            | 60            | Charger             | 12/09            | Compal            | H_PROCHOT# pull low level can not meet Intel SPEC with TI solution at AC mode         | Depop PR801 (SD03464938L)<br>Change PR802 to 174k (SD03417438L) from 107k (SD03410738L)<br>Change PR803 to 150k (SD03415038L) from 100k (SD03410038L)<br>Change PR804 to 113k (SD03411338L) from 80.6K (SD03480628L)<br>Pop PR806, PR807, PR810 0 Ohm (SD02800008L)<br>Pop PQ802 RHU002N06 (SB50206008L)<br>Pop PR809 221K (SD00000HX8L)<br>Pop PR808 1.8M (SD00000K180)<br>Pop PR805 20K (SD03420028L)<br>Depop PR811 (SD02800008L) | X04            |

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|------|----------|--------------------------|-------|---------------|---|--|------|
| 45   | 58,59,63 | +Vcore<br>+VAXG<br>+VGPU | 12/10 | Compal        | Change sunbber valure for 3rd source MOSFET             | Change PC139, PC159, PC175, PC198, PC284 to 1000P (SE025102K8L) from 470P (SE024471J8L)<br>Change PR117, PR148, PR173, PR193, PR331 to 1 Ohm (SD012100B8L) from 2.2 Ohm (SD011220B8L)  | X04  |
| 46   | 60       | Charger                  | 12/17 | TI            | H_PROCHOT# spike voltage issue when AC to DC transient  | Pop PR208 10k (SD02810028L)  | X04  |
| 47   | 58,59    | +Vcore<br>+VAXG          | 12/17 | Compal        | Fine tune VAXG and Vcore load line for 2nd source choke | Change PR157 to 7.5k (SD03475018L) from 8.25k(SD03482518L)<br>Change PR140 to 12.7k (SD03412728L) from 11.8k (SD03411828L)   | X04  |
| 48   | 59       | +VAXG                    | 12/17 | MAXIM         | Low side driver no signal when loading over 10A         | Change PR119 to 0 Ohm (SD01400008L) from 1 Ohm (SD014100B8L)   | X04  |
| 49   | 60       | Charger                  | 01/12 | Compal        | Adapter protection trip point for 2nd source            | Change PR802 to 162k (SD03416238L) from 174k (SD03417438L)   | A00  |
| 50   | 52 ~ 63  | ALL                      | 01/12 | Compal        | Remove debug resistor (0 Ohm)                           | Change PR14,PR23,PR43,PR45,PR71,PR72,PR78,PR88,PR91,PR103,PR121,PR129,PR146,PR171,PR198<br>PR199,PR206,PR207,PR216,PR221,PR240,PR251,PR258,PR269,PR277,PR285,PR287,PR293,PR294<br>PR296,PR298,PR299,PR301,PR302,PR305,PR309,PR311,PR312,PR313,PR314,PR316,PR317,PR318<br>PR319,PR321,PR322,PR323,PR324,PR325,PR337,PR345,PR349,PR351,PR355,PR472,PR606 footprint | A00  |

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|------|----------|-------|-----------|---------------|--|--|------|
| 1    | 7        | HW    | 6/15/2010 | COMPAL        | Boot issue                                       | Change QC1 control from SUS_ON to RUN_ON_CPU1.5VS3#  | X01  |
| 2    | 11       | HW    | 6/15/2010 | COMPAL        | Modify net name                                  | Change +0.8V_VCC_SA to +VCC_SA   | X01  |
| 3    |          | HW    | 6/15/2010 | COMPAL        | Follow PPM recommendation to change material     | Change capacitors from 10uF_0805_10V Y5V to 10uF_0805_6.3V_X5R: C305,C387,C462,C705,C728,C760,C764,C765,C768,C769,C772,CC135,CH58,CH73,CH80,CV124,CV126,CV185,CV187<br>Change capacitors from 10uF_0805_6.3V to 10uF_0603_6.3V: C475,C638,C641,C643<br>Change resistors to 0402 size: RC134, RH201,RH253,RH208,RH213<br>Delete RH192 and add PJP51 | X01  |
| 4    | 14       | HW    | 6/15/2010 | COMPAL        | De-pop PCH XDP                                   | De-pop RH1, RH3~RH10, RH12~RH21, RH24, RH283~RH285, CH1  | X01  |
| 5    | 14       | HW    | 6/15/2010 | COMPAL        | Change HDA_SYNC topology                         | Add QH7 and RH37   | X01  |
| 6    | 17,29,42 | HW    | 6/15/2010 | COMPAL        | Change ODD connector from 13 pin to 31 pin       | Change ODD connector to 31 pin, add @R1189,RH340 and remove C1168, C1169,C1170,U87,U88,U89, R1188 and short R1188 pin1 and pin2 together   | X01  |
| 7    | 18       | HW    | 6/17/2010 | COMPAL        | Remove touch screen PAID pull down circuit       | Remove RH241   | X01  |
| 8    | 18       | HW    | 6/17/2010 | INTEL         | Follow Intel Design Guide Rev1.0                 | Change RH149 to 1k and RH150 to 4.7k   | X01  |
| 9    | 22       | HW    | 6/17/2010 | COMPAL        | Change EMC4002 to EMC4022                        | Change U9 to EMC4022, remove R392,R394 R866,R404,C279  | X01  |
| 10   | 25       | HW    | 6/17/2010 | COMPAL        | Change CRT SW to MAX14885                        | Change CRT SW to MAX14885 and add C1181,C1182, R1581 remove C325~C336  | X01  |
| 11   | 26       | HW    | 6/17/2010 | COMPAL        | Safety request                                   | Add no stuff D4 and co-lay with F2, change F2 to 2A_8V   | X01  |
| 12   | 28, 39   | HW    | 6/17/2010 | COMPAL        | Change SATA repeater to MAX4951BE                | Change U25, U44 to MAX4591BE and change R1169,R1171,R1174,R1176 to 0 ohm and stuff R1174,R1176   | X01  |
| 13   | 30       | HW    | 6/17/2010 | COMPAL        | Change Codec to ZB version and speaker connector | Change JSPK1 to TYCO_1734595-6 and change U72 to ZB version and stuff C962   | X01  |
| 14   | 33       | HW    | 6/17/2010 | COMPAL        | Add Jumper for power consumption measurement     | Add PJP52,PJP55  | X01  |
| 15   | 33       | HW    | 6/17/2010 | COMPAL        | Change SI2301BDS to C version                    | Change Q36 to SI2301CDS  | X01  |
| 16   | 33       | HW    | 6/17/2010 | BRCOM         | Change RFID capacitors for more popular          | Change C502,C505 from 1uF to 0.1uF   | X01  |
| 17   | 35       | HW    | 6/17/2010 | COMPAL        | Link R677 to CIS                                 | Link R677 to CIS to have the correct part number   | X01  |
| 18   | 37       | HW    | 6/17/2010 | COMPAL        | Change express card power SW to TPS2231MRGPR-2   | Change U41 to TPS2231MRGPR-2 and remove C636,C639  | X01  |
| 19   | 41       | HW    | 6/17/2010 | COMPAL        | Add pull down on SLICE_BAT_ON                    | Add R791   | X01  |
| 20   | 42       | HW    | 6/17/2010 | COMPAL        | Board ID   | Change R875 to 130K  | X01  |
| 21   | 46       | HW    | 6/17/2010 | COMPAL        | BIOS request                                     | De-pop DV1, RV29 and pop U14   | X01  |

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| 22   | 11, 14, 42                 | HW    | 6/18/2010 | COMPAL        | EOL concern  | Change CC176 to SGA00005H0L, change YH1, Y6 to SJ132P7KWLL   | X01  |
| 23   | 43                         | HW    | 6/18/2010 | COMPAL        | Change connector   | Change JKB1 to same as JSC1  | X01  |
| 24   | 43                         | HW    | 6/18/2010 | COMPAL        | Change TP pin definition   | Reverse TP pin definition for PT   | X01  |
| 25   | 41, 42                     | HW    | 6/18/2010 | COMPAL        | Add series resistor and pull up resistors on MIC_MUTE#, VOL_MUTE, VOL_UP, VOL_DOWN | Add R773, R806, R884, R886, R887, R1166, R1167, R1184  | X01  |
| 26   | 24, 45                     | HW    | 6/18/2010 | COMPAL        | Correct net name for LED signal  | Modify signal name BREATH_BLUE_LED to BREATH_WHITE_LED and BREATH_BLUE_LED_SNIFF to BREATH_WHITE_LED_SNIFF   | X01  |
| 27   | 26, 40, 41, 46             | HW    | 6/21/2010 | NVIDIA        | Add HPD circuit to inform system for NV request                                    | Add DV2, DV3, DV4, R1154 and use ECE5028 GPIOE7/DCD# as HPD signal to inform system  | X01  |
| 28   | 32                         | HW    | 6/21/2010 | INTEL         | Remove useless resistors   | Remove R556, R558, R559, R560 and short the pin1 and pin2 together   | X01  |
| 29   | 24, 28, 29, 32, 37, 44, 49 | HW    | 6/22/2010 | COMPAL        | Change part for Halogen free   | Change Q18, Q27, Q30, Q34, Q38, Q40, Q42, Q49, Q54, Q58, QV5 to HF part  | X01  |
| 30   | 10                         | HW    | 6/22/2010 | COMPAL        | To have better return path   | De-pop CC130 and pop CC134   | X01  |
| 31   | 44                         | HW    | 6/23/2010 | COMPAL        | Solution +1.5V_RUN voltage drop issue  | Change Q59 from SI3456BDV to NTGS4141NT1G  | X01  |
| 32   | 41                         | HW    | 6/23/2010 | COMPAL        | Remove double pull high resistor   | Remove R1177   | X01  |
| 33   | 29                         | HW    | 6/23/2010 | COMPAL        | Remove useless resistor  | Remove R1125, R1126  | X01  |
| 34   | 44                         | HW    | 6/25/2010 | COMPAL        | NTMS4107NR2G EOL   | Change Q55 to NTMS4920NR2G   | X01  |
| 35   | 10                         | HW    | 6/25/2010 | COMPAL        | CC129~CC134 D2T LESR5M EOL   | Change CC129~CC134 to SGA00004X0L  | X01  |
| 36   | 24                         | HW    | 6/25/2010 | COMPAL        | Change LVDS connector to 40 pin  | Change JLVDS1 to 40 pin  | X01  |
| 37   | 31                         | HW    | 6/25/2010 | COMPAL        | Change I/O connector to TYCO   | Change JIO1 vendor from Lotes to TYCO  | X01  |
| 38   | 24                         | HW    | 6/25/2010 | COMPAL        | PT panel change touch screen pin definition  | Change JTS1 pin definition for new TS pin define   | X01  |
| 39   | 14, 29, 36, 42             | HW    | 7/1/2010  | COMPAL        | Modify Module Bay circuit  | 1. Remove R1181, R1182, R1189. 2. Change BAY_SMBUS, DEVICE_DET# pull up power rail from +3.3V_RUN to +3.3V_ALW. 3. Change net name ODD_DET# to PCH_SATA_MOD_EN#. 4. Add Q123, Q76, R513, R514, R515 for USB_SMI# circuit. 5. De-pop C627, R712 | X01  |
| 40   | 24                         | HW    | 7/1/2010  | COMPAL        | Stuff PWM pull down resistor for PT solution                                       | Pop R1137  | X01  |
| 41   | 7                          | HW    | 7/1/2010  | COMPAL        | For support XDP device   | De-pop RC9   | X01  |
| 42   | 15, 18, 41, 42             | HW    | 7/1/2010  | COMPAL        | Base on GPIO map to modify   | 1. Move SLP_ME_CSW_DEV# from GPIO45 to GPIO28, add MCARD_PCIE_SATA# on 5028 GPIOE3. 2. Remove RH238, change RH80 from 1k to 10k. 3. Change SLICE_BAT_PRES# pull up power rail from +3.3V_ALW2 to +3.3V_ALW. 4. Add R889                        | X01  |

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| 43   | 24                | HW    | 7/1/2010  | COMPAL        | PWM function                                     | Remove R1139,R1140 and add D68,D69  | X01  |
| 44   | 11                | HW    | 7/1/2010  | COMPAL        | VCCSA VID circuit                                | Change VCCSA_VID_0 to VCCSA_VID_1 and pop RC138   | X01  |
| 45   | 36,45             | HW    | 7/2/2010  | COMPAL        | Modify LED circuit                               | Remove R1578,R1579,R1580,D42,D60,D61, add Q77,Q124,R705,R718,R719   | X01  |
| 46   | 22                | HW    | 7/2/2010  | COMPAL        | Modify thermal diode for thermal request         | Remove C268,C269, use DP1/DN1 for CPU,DP2/DN2 for GPU, DP3/DN3 for DIMM, DN5/DP5 for WWAM                                     | X01  |
| 47   | 15,32             | HW    | 7/5/2010  | COMPAL        | EOL concern                                      | Change Y3 and YH2 from 1Y725000CE1A to 7A25000110   | X01  |
| 48   | 11,24,27,45       | HW    | 7/7/2010  | COMPAL        | Change part for Halogen free part                | Change QC5 to NTR4501NT1G, U21,U24,U54,U55,U57 change to NC7SZ04P5X-G, Q21 change to FDC654P-G                                | X01  |
| 49   | 29                | HW    | 7/7/2010  | COMPAL        | USB30 SMI circuit                                | Stuff R513 due to this pin is OD type on USB30 module   | X01  |
| 50   | 29                | HW    | 7/8/2010  | COMPAL        | Link CIS symbol                                  | Link JSATA2 CIS symbol  | X01  |
| 51   | 35                | HW    | 7/9/2010  | O2-Mirco      | Add discharge circuit for +3.3V_RUN_CARD         | Add R826 on +3.3V_RUN_CARD  | X01  |
| 52   | 15,29,32,35,36,37 | HW    | 7/9/2010  | COMPAL        | Move PCIE TX AC coupling capacitors close to PCH | Move C408,C409,C460,C461,C567,C568,C596,C597,C598,C599,C617,C618,C647,C648 to page 15 to close to PCH                         | X01  |
| 53   | 14                | HW    | 7/12/2010 | COMPAL        | To solve SPI EA                                  | Add R933,R935 on SPI chip select signals  | X01  |
| 54   | 24                | HW    | 7/12/2010 | COMPAL        | Link CIS symbol                                  | Link JLWDS1   | X01  |
| 55   | 28                | HW    | 7/12/2010 | COMPAL        | Meet EA result                                   | Stuff R493,R494   | X01  |
| 56   | 24,30,35,38,39    | EMI   | 7/12/2010 | COMPAL        | EMI request to solve EMI issue                   | Add R678,C757,L92,L93, and stuff L51,L52,L90, de-pop R736~R739,R1150,R1151, and remove R1106                                  | X01  |
| 57   | 31,41,45          | HW    | 7/13/2010 | Dell          | Remove Mic mute function and LED                 | Remove R773,R806,R1108,R1061,Q105 and delete MIC_MUTE# signal   | X01  |
| 58   | 28                | HW    | 7/13/2010 | COMPAL        | Follow EA result                                 | De-pop R493,R494 and pop R495,R496  | X01  |
| 59   | 29                | HW    | 7/13/2010 | COMPAL        | Modify zero ODD circuit                          | Change ZODD_WAKE#,MODC_EN#,MOD_SATA_PCIE#_DET,USB30_EN connection   | X01  |
| 60   | 33                | HW    | 7/14/2010 | COMPAL        | Change power rail for smart card                 | Change R632,R635 pull up power rail from +3.3V_ALW to +3.3V_ALW_SC  | X01  |
| 61   | 22                | HW    | 7/14/2010 | COMPAL        | Reserve capacitor for WWAN thermal diode         | Add @C277   | X01  |
| 62   | 14,17,18          | HW    | 7/14/2010 | COMPAL        | To solve back drive issue                        | Move SIO_EXT_SMI# from PCH GPIO1 to GPIO14, remove RH254, and change RH164 pull up power rail from +3.3V_RUN to +3.3V_ALW_PCH | X01  |
| 63   | 45                | HW    | 7/14/2010 | COMPAL        | Remove CLIP                                      | Remove CLIP3,CLIP4,CLIP6~CLIP8  | X01  |
| 64   | 38,39             | HW    | 7/15/2010 | COMPAL        | Remove one TPS2560 for cost saving               | Remove U43,C659,C660,R740,PJP6, and share with power source of U45  | X01  |
| 65   | 31,41,45          | HW    | 7/15/2010 | COMPAL        | Remove speaker LED                               | Remove Q119,Q102,R1109,R1059  | X01  |

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| 66   | 17, 18     | HW    | 7/15/2010 | COMPAL        | Add pull up for PCH GPIO1               | Add RH41 and change reference RH164 to RH41   | X01  |
| 67   | 24, 30, 35 | HW    | 7/16/2010 | COMPAL        | Change part reference for EMI request   | Change L92 to LE92, L93 to LE93, R678 to RE678, CE757 to CE757  | X01  |
| 68   | 20, 44     | HW    | 7/16/2010 | COMPAL        | For cost saving                         | Add PJP57, RH202, no stuff QH4, Q49, RH278, R908  | X01  |
| 69   | 22         | HW    | 7/16/2010 | COMPAL        | Modify current sense connection         | Move MAX8731_IINP from U9.25 to U9.31   | X01  |
| 70   | 41, 42     | HW    | 7/16/2010 | DELL          | Follow GPIO 0713                        | Add DYN_TURB_PWR_ALRT#, DYN_TUR_CURRNT_SET#, and change R796 pull up power rail from +3.3V_RUN to +3.3V_ALW | X01  |
| 71   | 35         | HW    | 7/16/2010 | COMPAL        | Follow vendor request                   | De-pop RE678, CE757   | X01  |
| 72   | 28, 45     | HW    | 7/19/2010 | COMPAL        | Part leverage select                    | Change D16, D59, D62 to SC100000S0L   | X01  |
| 73   | 14         | HW    | 7/19/2010 | COMPAL        | Follow Intel XDP design                 | Change RH43, RH44, RH45 to 200 ohm  | X01  |
| 74   | 38, 39     | HW    | 7/19/2010 | COMPAL        | Change power rail for layout limitation | Change U90, U91 power rail to +USB_SIDE_PWR, U92 power rail to +SATA_SIDE_PWR                               | X01  |
| 75   | 46         | HW    | 7/19/2010 | NV            | NV request to add 10k pull on GPIO9     | Add RV102   | X01  |
| 76   | 23         | HW    | 7/20/2010 | SMSC          | Follow SMSC review result               | Add R403  | X01  |
| 77   | 31         | HW    | 7/20/2010 | COMPAL        | Change USB3 (on IO/B) enable signal     | Change USB3 enable signal from USB_SIDE_EN# to ESATA_USB_PWR_EN#  | X01  |
| 78   | 31         | HW    | 7/20/2010 | COMPAL        | Change JIO1 for correct connector list  | Change JIO1 to TYCO_2041300-2   | X01  |
| 79   | 46         | HW    | 7/20/2010 | NV            | Follow NV request                       | Add RV103, RV104, @RV20, @RV25, @RV26 and de-pop R1111  | X01  |
| 80   | 26         | HW    | 7/20/2010 | Safety        | Follow safety request                   | De-pop F2, pop D4 and add R5  | X01  |
| 81   | 17, 30, 40 | HW    | 7/20/2010 | EMI           | Follow EMI request                      | Add RE1098, RE1100, RE1101, RE1102, CE573, CE574, change RH103, R756 to 33 ohm, C704 to 12pF                | X01  |
| 82   | 14         | HW    | 7/20/2010 | COMPAL        | Change SPI chip select damping R        | Change R933, R935 to 47 ohm   | X01  |
| 83   | 24, 39     | HW    | 7/20/2010 | COMPAL        | Change material for small size          | Change C300, C669 from 1206 16V to 0805 10V   | X01  |
| 84   | 24         | HW    | 7/20/2010 | COMPAL        | Change U86 power rail for touch screen  | Change U86.4 power rail from +3.3V_RUN to +5V_RUN   | X01  |
| 85   | 38, 39     | HW    | 7/20/2010 | COMPAL        | Remove useless capacitors               | Remove C1151~C1154  | X01  |
| 86   | 41         | HW    | 7/20/2010 | COMPAL        | Follow GPIO map                         | Change R796 to 10k ohm, add R764  | X01  |
| 87   | 44         | HW    | 7/20/2010 | COMPAL        | Change PJP57 footprint                  | Change PJP57 footprint to 4x4m  | X01  |
| 88   | 31         | HW    | 7/21/2010 | COMPAL        | Modify HP & Mic circuit                 | Change JIO1 pin connection  | X01  |
| 89   | 36         | HW    | 7/21/2010 | COMPAL        | Add 0 ohm R on PCIE_MCARD2_DET#         | Add R725  | X01  |
| 90   | 40         | HW    | 7/21/2010 | COMPAL        | Follow EA request                       | Change C704 to 6.8pF  | X01  |

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| 91   | 35             | HW    | 7/21/2010 | COMPAL        | Change JSD1 to support Memory Stick                            | Change R666,R667, change JSD1   | X01  |
| 92   | 31, 42         | HW    | 7/22/2010 | COMPAL        | GPIO MAP update.   | add R1590   | X01  |
| 93   | 39             | HW    | 7/22/2010 | COMPAL        | Follow Vender request.   | add R1582~R1585   | X01  |
| 94   | 39             | HW    | 7/23/2010 | COMPAL        | To compatible with SN75LVCP601                                 | Add R1586~R1589   | X01  |
| 95   | 41             | HW    | 7/23/2010 | COMPAL        | Add 0 ohm R on TEMP_ALERT# for backup                          | Add R1591   | X01  |
| 96   | 24, 42         | HW    | 7/24/2010 | COMPAL        | Follow GPIO map to add touch screen power down control circuit | Add TOUCH_SCREEN_PD#, Q125,Q32,R430,R431,C304,C306, and change JTCH1 pin 1,pin2 from +5V_RUN to +5V_TSP | X01  |
| 97   | 24             | HW    | 7/26/2010 | COMPAL        | Reserve a 0 ohm resistor for +5V_TSP                           | Add R1592   | X01  |
| 98   | 45             | HW    | 7/26/2010 | COMPAL        | Add pull down 100k on BT_ACTIVE                                | Add R950  | X01  |
| 99   | 48             | HW    | 7/27/2010 | NV            | Follow NV suggestion to modify BOM                             | De-pop CV184, and change CV183 to 1uF,CV182 to 4.7uF, CV109 to 470pF,CV110 to 4700pF, LV8 to 100nH      | X01  |
| 100  | 37             | HW    | 8/23/2010 | COMPAL        | Add connection for express card SW                             | Add connection of pin4,pin5,pin13 and pin 14  | X01  |
| 101  | 18             | HW    | 8/23/2010 | Intel         | Follow Intel design guide Rev1.2                               | Change RH149 to 2.2k and RH150 to 0 ohm   | X01  |
| 102  | 46             | HW    | 8/23/2010 | COMPAL        | De-pop pull up resistors                                       | De-pop RV23,RV24  | X01  |
| 103  | 14, 18, 30     | HW    | 8/23/2010 | DELL          | Remove PAID function of RTC and speaker                        | Change speaker connector to 4 pin and remove RTC_DET# and SPEAKER_DET#                                  | X01  |
| 104  | 17             | HW    | 8/26/2010 | Intel         | Follow Intel check list rev1.2                                 | Add @RH332  | X01  |
| 105  | 14, 18         | HW    | 8/26/2010 | Intel         | Follow Intel request   | Add RH51 and RH356  | X01  |
| 106  | 33             | HW    | 8/27/2010 | BRCOM         | Follow BRCOM request   | Change L39,L40 to rated current is 400mA  | X01  |
| 107  | 45             | HW    | 8/27/2010 | COMPAL        | Follow ME request  | Change H17 to 2P2   | X01  |
| 108  | 16             | HW    | 8/27/2010 | COMPAL        | Reserve pull down R for ME_SUS_PWR_ACK                         | Add @RH145  | X01  |
| 109  | 36             | HW    | 9/2/2010  | COMPAL        | De-pop ESD diode   | De-pop U40  | X01  |
| 110  | 11             | HW    | 9/2/2010  | COMPAL        | Change QC5 VGS to 20V part                                     | Change QC5 to SB00000HK0L   | X01  |
| 111  | 45             | HW    | 9/3/2010  | COMPAL        | Follow ME request  | Change H11 from 3P8 to 3P7  | X01  |
| 112  | 26             | HW    | 9/3/2010  | COMPAL        | Follow safety request  | Pop F2 and de-pop R5  | X01  |
| 113  | 46, 47, 48, 49 | HW    | 9/6/2010  | COMPAL        | Change GPU to N12P FERMI                                       | Change UV1 to N12P FERMI  | X01  |
| 114  | 24, 26, 46     | HW    | 9/8/2010  | COMPAL        | Change RB751V to HF part                                       | Change D53,D63~D69,DV1~DV4 to SCS00004L0L   | X01  |

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| 115            | 30, 31         | HW            | 9/9/2010              | IDT               | To solve pop noise and detect issue             | Add U6, Q33, Q46, D70, D71, R425, R33, R38, R424, R161, R352, R1088, C967, C307, C308  | X01            |
| 116            | 35             | HW            | 9/10/2010             | O2                | To solve RF noise issue                         | Add @C573, @C574, L45  | X01            |
| 117            | 50, 51         | HW            | 9/14/2010             | COMPAL            | Change VRAM to 800MHz                           | Change UV3~UV6 to SA00003VS0L  | X01            |
| 118            | 30, 38, 39     | HW            | 9/14/2010             | COMPAL            | For EMI request                                 | Change C973~C976 to 680pF and pop, add L91~L94, D72~D74, remove U90~U92  | X01            |
| 119            | 35             | HW            | 9/14/2010             | O2                | Modify circuit                                  | Remove R661, R662, add L46, L47, change L45 to SM01000GG0T   | X01            |
| 120            | 17, 24         | HW            | 9/15/2010             | COMPAL            | To support high contrast ratio brightness       | Change net name from LVDS_CBL_DET# to LVDS_CBL_ID  | X01            |
| 121            | 37, 38, 39     | HW            | 9/16/2010             | COMPAL            | change materials                                | Change L49, L51, L52, L90 to SM070001E0L   | X01            |
| 122            | 46, 48, 50, 51 | HW            | 9/20/2010             | Nvidia            | Vender request                                  | add CV89, CV176, CV177, CV178, CV188~CV192, RV30, RV31, change RV81/86 to 160ohm RV59 to 15K, CV80 to 4.7uF, CV40, CV58, CV59, CV60 to 0.1u, CV41, CV42, CV43, CV50, CV51 to 0.022u. CV160~CV162 to 1u, CV181 to 10u CV180 to 22u, pop RV99 and change it to 20K pop RV41 and change to 4.99K, de-pop RV50, pop RV56. Rename from I2CS_SCL/SDA to I2CH_SCL/SDA | X01            |
| 123            | 48             | HW            | 9/28/2010             | Nvidia            | Vender request                                  | Change LV3 to SM01000BE0L (220ohm)   | X01            |
| 124            | 24             | HW            | 9/28/2010             | COMPAL            | solve PWM leakage issue.                        | Change R1137 to 10Kohm   | X01            |
| 125            | 46             | HW            | 9/28/2010             | COMPAL            | solve system can't boot in UMA only mode.       | correct from U14 to UV14 and change the PN to SA00003Y00L. pop RV29, <del>de-pop RV22</del>  | X01            |
| 126            | 14             | HW            | 10/01/2010            | COMPAL            | DG1.5 update.                                   | add RH31   | X01            |
| 127            | 32             | HW            | 10/04/2010            | COMPAL            | GPIO MAP update.                                | add U15, C478.   | X01            |
| 128            | 45             | HW            | 10/04/2010            | COMPAL            | LED brightness test result                      | change R957 to 1K, R955, R941, R949, R939, R934 to 4.7K  | X01            |
| 129            | 32             | HW            | 10/07/2010            | COMPAL            | Solve LAN Package Lost Problem                  | change L30~L37 from 22NH to 12NH.  | X01            |
| 130            | 9              | HW            | 10/07/2010            | COMPAL            | DG1.5 update.                                   | depop RC96, RC97   | X01            |
| 131            | 30             | HW            | 10/07/2010            | COMPAL            | change Codec to YA version.                     | change the PN from SA00003ZZ1L to SA00003ZZ2L  | X01            |
| 132            | 17, 24, 41     | HW            | 10/11/2010            | COMPAL            | Follow GPIO Map                                 | Change LVDS_CBL_ID to ATG_MAC_LCD_DET#, remove R771  | X02            |
| 133            | 31             | HW            | 10/11/2010            | DELL              | Remove Latitude On button                       | Depop SW2  | X02            |
| 134            | 28             | HW            | 10/12/2010            | DELL              | Support SSD                                     | Add PJP64, C399, C402  | X02            |
| 135            | 31             | HW            | 10/18/2010            | IDT               | Change GND reference                            | Change Mic detect circuit DGND to AGND   | X02            |
| <del>136</del> | <del>30</del>  | <del>HW</del> | <del>10/19/2010</del> | <del>COMPAL</del> | <del>Change Mic detect to external detect</del> | <del>Remove R161 and add C1164</del>   | <del>X02</del> |
| 137            | 14, 18         | HW            | 10/19/2010            | COMPAL            | Follow Intel debug port DG                      | Connect PCH_GPIO15 to PCH_XDP  | X02            |

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| 138  | 42             | HW    | 10/19/2010 | COMPAL        | Change board ID to X02                    | Change R875 to 62k  | X02  |
| 139  | 30, 31         | HW    | 10/21/2010 | COMPAL        | Modify Mic detect circuit                 | 1. Add PJP65, 2. Change C307,C308 to 0402 size 3. Change C308 connection, 4. Change Mic detect power from +5V_ALW to +5V_RUN, 5. De-pop Q33,Q46,R424, 6. Move C1180 to +VREFOUT_R | X02  |
| 140  | 18             | HW    | 10/22/2010 | COMPAL        | Follow check list rev1.0                  | Change RH177 to 10k   | X02  |
| 141  | 31             | HW    | 10/26/2010 | COMPAL        | Cost saving                               | Change C307,C308 to 0402 package  | X02  |
| 142  | 34             | HW    | 10/26/2010 | COMPAL        | Follow BRCOM request                      | Pop C1161   | X02  |
| 143  | 14~21          | HW    | 10/28/2010 | Intel         | Change PCH stepping                       | Change UH4 to B2 stepping   | X02  |
| 144  | 30, 31         | HW    | 10/28/2010 | COMPAL        | Use internal Mic detect circuit           | De-pop D71,R425,R33,R38,C307,C308,U6, R352,R1088,C967   | X02  |
| 145  | 47             | HW    | 11/1/2010  | NV            | Solve HDMI audio issue                    | De-pop RV41, change RV97 to 34.8K and stuff it  | X02  |
| 146  | 47             | HW    | 11/1/2010  | NV            | Chagne Device ID to 0x1056                | De-pop RV51,change RV57 to 34.8k and stuff  | X02  |
| 147  | 47             | HW    | 11/1/2010  | NV            | Follow NV request                         | De-pop RV60, change RV54 to 10k and stuff it, change RV52 to 4.99k  | X02  |
| 148  | 15             | HW    | 11/5/2010  | COMPAL        | To fix ME issue                           | De-pop RH296,RH297, pop QH5,RH302,RH303   | X02  |
| 149  | 37             | HW    | 11/16/2010 | COMPAL        | To fix soldering issue                    | Change express card connector JEXP1 to TAISOL 5-421005002000-9  | X02  |
| 150  | 28             | HW    | 11/17/2010 | Intel         | Follow Intel CRB design                   | Change R501,R502 to 10k   | X02  |
| 151  | 12, 13         | HW    | 11/18/2010 | COMPAL        | Follow part reference design rule         | Change JDIMMA1 & JDIMMB1 to JDIMM1 & JDIMM2   | X02  |
| 152  | 46, 47, 48, 49 | HW    | 11/18/2010 | NV            | Change GPU to QS sample                   | Change UV1 to N12P-NS-S-A1  | X02  |
| 153  | 28, 44         | HW    | 11/19/2010 | COMPAL        | For cost saving                           | De-pop R499,R500,C393,Q28,R905,R907,C762,Q51  | X02  |
| 154  | 31             | HW    | 11/22/2010 | COMPAL        | Follow part reference design rule         | Change JMEDIA1 to JMDIA1  | X02  |
| 155  | 14             | HW    | 11/22/2010 | COMPAL        | Change SPI ROM to version C               | Change U52 to SA000039A1L, U53 to SA00003F01L   | X02  |
| 156  | 46             | HW    | 12/03/2010 | COMPAL        | Solve GPU reset timing issue              | Add RV33 100Kohms pull up to +3.3V_RUN and de-pop RV22  | X02  |
| 157  | 42             | HW    | 12/03/2010 | COMPAL        | Follow INTEL DG1.5 RSMRST# timing circuit | Just add RSMRST# circuit for backup. but de-pop   | X02  |
| 158  | 46             | HW    | 12/07/2010 | COMPAL        | Solve GPU reset timing issue              | de-pop RV33 and pop RV22  | X02  |
| 159  | 18             | HW    | 12/07/2010 | COMPAL        | Audio MIC detect selection                | de-pop RH269 and add RH273 1Kohms pull low  | X02  |
| 160  | 33             | HW    | 12/17/2010 | COMPAL        | Follow NXP design guide                   | Add @C575   | A00  |

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# Version Change List (P. I. R. List)

| Item | Page#  | Title | Date       | Request Owner | Issue Description               | Solution Description   | Rev. |
|------|--------|-------|------------|---------------|---------------------------------|--|------|
| 160  | 14     | HW    | 12/17/2010 | COMPAL        | For cost saving                 | De-pop RH47, RH48, RH49, RH288   | A00  |
| 161  | 42     | HW    | 12/20/2010 | COMPAL        | Change Board ID                 | Change R875 to 33k   | A00  |
| 162  | 42     | HW    | 12/21/2010 | COMPAL        | To solve backdrive issue        | Pop Q45  | A00  |
| 163  | 33, 34 | HW    | 12/24/2011 | COMPAL        | Change USH chip to CID7         | Change U33 to SA00003A01L  | A00  |
| 164  | 34     | HW    | 1/6/2011   | COMPAL        | update TPM/TCM pop option table | Correct pop option table   | A00  |
| 165  | ALL    | HW    | 1/11/2011  | COMPAL        | For cost saving                 | Change 125pcs 0402 0 ohm resistors and 3pcs 0603 0 ohm footprint to new footprint which is short pin1 and pin2 | A00  |

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|-------|----------------------------|----------------|----------|
| Title |                            | EE P.I.R (7/7) |          |
| Size  | Document Number            | Rev            |          |
|       | LA-6592P                   | 1.0            |          |
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