

Compal Confidential

Q5WV8 Schematics Document

AMD "Comal" Platform

AMD Trinity APU / Hudson M3 FCH / ATI Thames XT

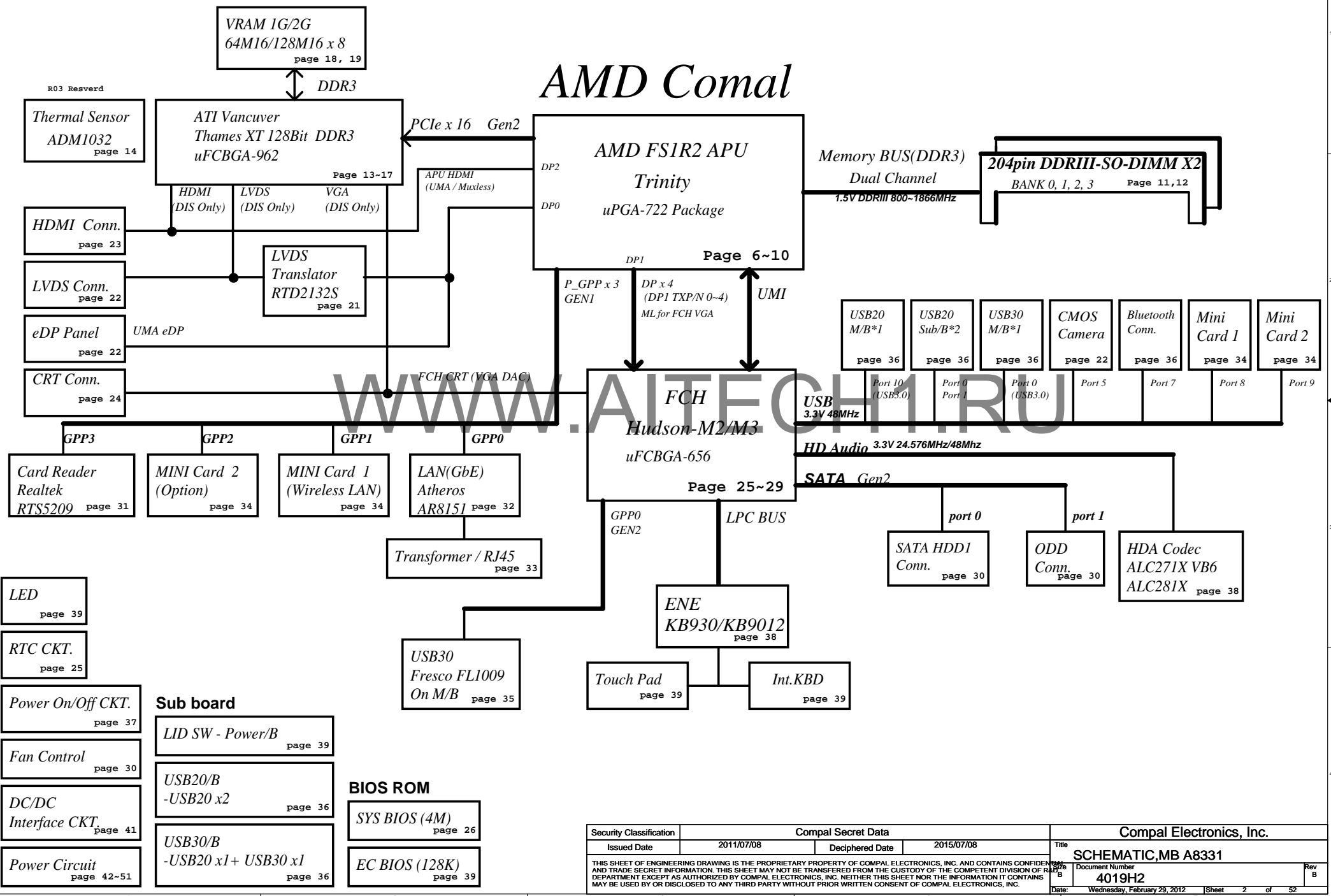
2012-01-05A

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Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2011/07/08	Deciphered Date	2015/07/08	Title	SCHEMATIC,MB A8331	
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				B	4019H2	B
Date: Wednesday, February 29, 2012				Sheet 1 of 52		

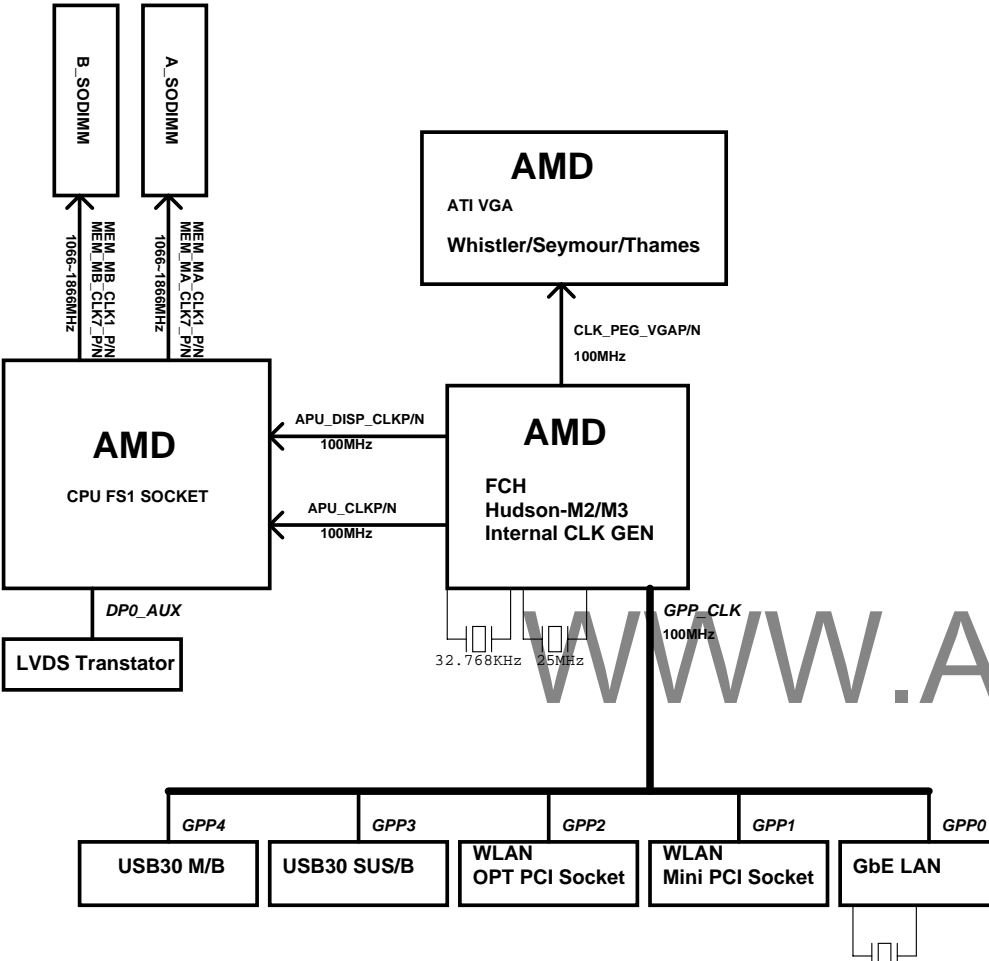
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Model Name : Q5WV8



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				Date:	Wednesday, February 29, 2012
				Sheet	2 of 52

CLOCK DISTRIBUTION

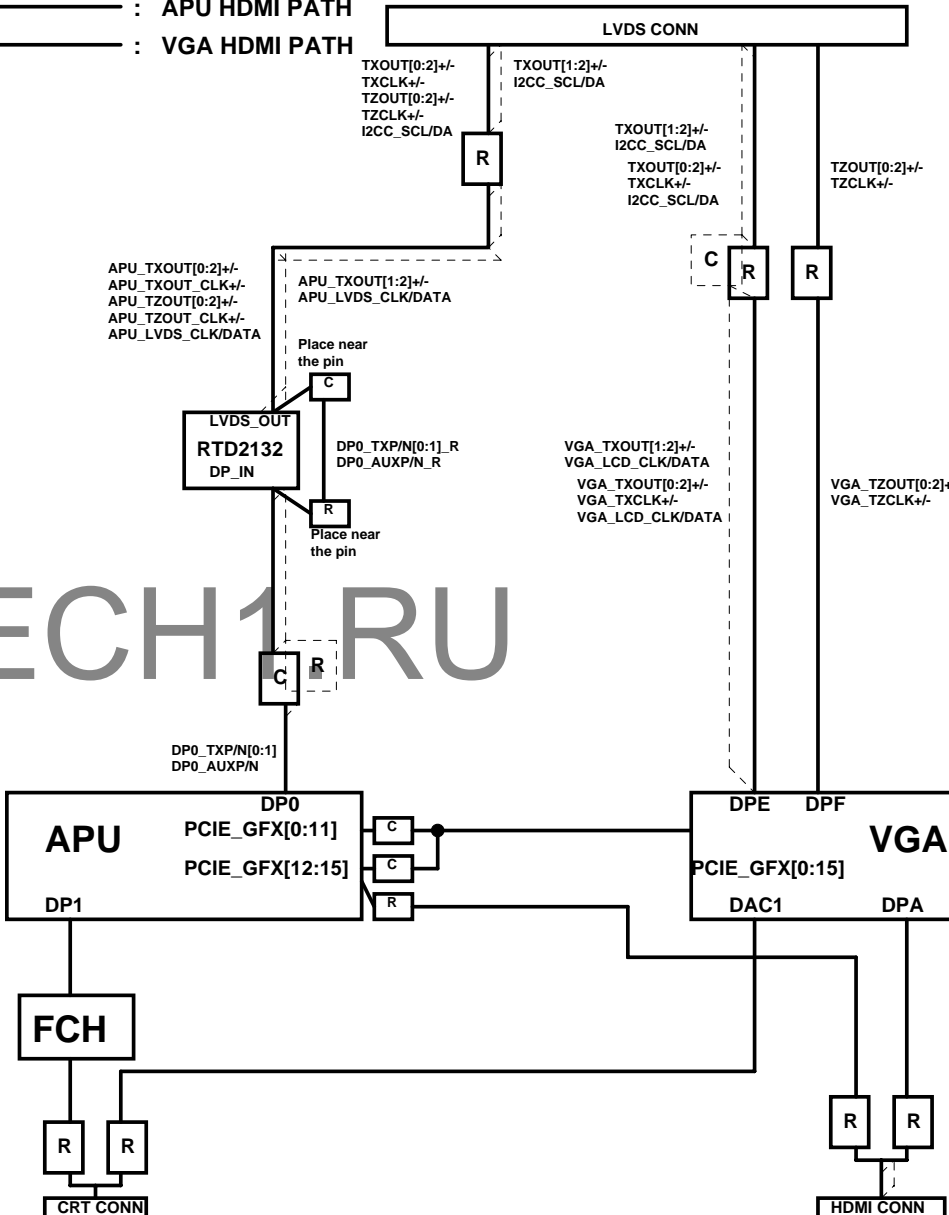


DISPLAY DISTRIBUTION

- ```

_____ : LVDS PATH
_____, --- : eDP PATH
_____ : APU HDMI PATH
_____ : VGA HDMI PATH

```



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                    |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|--------------------|-----|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                    |     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08         | Deciphered Date | 2015/07/08 | Title                    | SCHEMATIC,MB A8331 |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Custom                   | 4019H2             | B   |



Voltage Rails

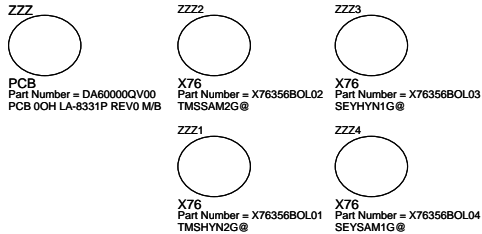
| Power Plane  | Description                                  | S1  | S3  | S5  |
|--------------|----------------------------------------------|-----|-----|-----|
| VIN          | Adapter power supply (19V)                   | N/A | N/A | N/A |
| B+           | AC or battery power rail for power circuit.  | N/A | N/A | N/A |
| +CPU_CORE    | Core voltage for CPU                         | ON  | OFF | OFF |
| +CPU_CORE_NB | Voltage for On-die VGA of APU                | ON  | OFF | OFF |
| +VGA_CORE    | 0.95-1.2V switched power rail                | ON  | OFF | OFF |
| +VDDCI       | 0.95-1.2V switched power rail                | ON  | OFF | OFF |
| +0.75VS      | 0.75V switched power rail for DDR terminator | ON  | ON  | OFF |
| +1.0VSG      | 1.0V switched power rail for VGA             | ON  | OFF | OFF |
| +1.1ALW      | 1.1V switched power rail for FCH             | ON  | ON  | ON* |
| +1.1VS       | 1.1V switched power rail for FCH             | ON  | OFF | OFF |
| +1.2VS       | 1.2V switched power rail for APU             | ON  | OFF | OFF |
| +1.5V        | 1.5V power rail for CPU VDDIO and DDR        | ON  | ON  | OFF |
| +1.5VS       | 1.5V switched power rail                     | ON  | OFF | OFF |
| +1.8VSG      | 1.8V switched power rail                     | ON  | OFF | OFF |
| +2.5VS       | 2.5V for CPU_VDDA                            | ON  | OFF | OFF |
| +3VALW       | 3.3V always on power rail                    | ON  | ON  | ON* |
| +3V_LAN      | 3.3V power rail for LAN                      | ON  | ON  | ON  |
| +3VS         | 3.3V switched power rail                     | ON  | OFF | OFF |
| +5VALW       | 5V always on power rail                      | ON  | ON  | ON* |
| +5VS         | 5V switched power rail                       | ON  | OFF | OFF |
| +VSB         | VSB always on power rail                     | ON  | ON  | ON* |
| +RTCVCC      | RTC power                                    | ON  | ON  | ON  |

Note : ON\* means that this power plane is ON only with AC power available, otherwise it is OFF.

| STATE                | SIGNAL | SLP_S1# | SLP_S3# | SLP_S4# | SLP_S5# | +VALW | +V  | +VS | Clock |
|----------------------|--------|---------|---------|---------|---------|-------|-----|-----|-------|
| Full ON              |        | HIGH    | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | ON    |
| S1(Power On Suspend) |        | LOW     | HIGH    | HIGH    | HIGH    | ON    | ON  | ON  | LOW   |
| S3 (Suspend to RAM)  |        | LOW     | LOW     | HIGH    | HIGH    | ON    | ON  | OFF | OFF   |
| S4 (Suspend to Disk) |        | LOW     | LOW     | LOW     | HIGH    | ON    | OFF | OFF | OFF   |
| S5 (Soft OFF)        |        | LOW     | LOW     | LOW     | LOW     | ON    | OFF | OFF | OFF   |

Board ID / SKU ID Table for AD channel

| Vcc      | 3.3V +/- 5%  |             |             |             |
|----------|--------------|-------------|-------------|-------------|
| Ra/Rc/Re | 100K +/- 5%  |             |             |             |
| Board ID | Rb / Rd / Rf | VAD_BID min | VAD_BID typ | VAD_BID max |
| 0        | 0            | 0 V         | 0 V         | 0 V         |
| 1        | 8.2K +/- 5%  | 0.216 V     | 0.250 V     | 0.289 V     |
| 2        | 18K +/- 5%   | 0.436 V     | 0.503 V     | 0.538 V     |
| 3        | 33K +/- 5%   | 0.712 V     | 0.819 V     | 0.875 V     |
| 4        | 56K +/- 5%   | 1.036 V     | 1.185 V     | 1.264 V     |
| 5        | 100K +/- 5%  | 1.453 V     | 1.650 V     | 1.759 V     |
| 6        | 200K +/- 5%  | 1.935 V     | 2.200 V     | 2.341 V     |
| 7        | NC           | 2.500 V     | 3.300 V     | 3.300 V     |



BOARD ID Table

| Board ID | PCB Revision |
|----------|--------------|
| 0        | EVT          |
| 1        | EVT2         |
| 2        | DVT          |
| 3        |              |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |

BOM Option Table

BOM Config

| BOM Structure | Description                              | UMA | Thames | EVT2 UMA | DVT UMA-LVDS | DVT UMA-eDP | DVT PX5 1G-LVDS | DVT PX5 1G-eDP | DVT PX5 2G-LVDS |  |
|---------------|------------------------------------------|-----|--------|----------|--------------|-------------|-----------------|----------------|-----------------|--|
| M2@           | Use Hudson-M2                            |     |        | V        |              |             |                 |                |                 |  |
| M3@           | Use Hudson-M3                            | V   | V      |          | V            | V           | V               | V              | V               |  |
| 930@          | Use EC 930                               | V   | V      |          |              |             |                 |                |                 |  |
| 9012@         | Use EC 9012                              |     |        | V        | V            | V           | V               | V              | V               |  |
| UMA@          | Display output from APU (UMA only or PX) | V   | V      | V        | V            | V           | V               | V              | V               |  |
| DISO@         | Display output from VGA (DIS only)       |     |        |          |              |             |                 |                |                 |  |
| VGALVDS@      | VGA output LVDS (DIS only)               |     |        |          |              |             |                 |                |                 |  |
| VGA@          | Use VGA (PX or DIS only)                 |     | V      |          |              |             | V               | V              | V               |  |
| THA@          | VGA: Thames                              |     | V      |          |              |             | V               | V              | V               |  |
| SEY@          | VGA: Seymour                             |     |        |          |              |             |                 |                |                 |  |
| 128@          | Use VRAM channel A&B                     |     | V      |          |              |             | V               | V              | V               |  |
| PX@           | PX function                              |     | V      |          |              |             | V               | V              | V               |  |
| BACO@         | BACO function (PX4.0)                    |     | V      |          |              |             |                 |                |                 |  |
| NOBACO@       | Without BACO function (DISO and PX5.0)   |     |        |          |              |             | V               | V              | V               |  |
| TL@           | LVDS Translator (for LVDS)               | V   | V      | V        | V            |             | V               |                | V               |  |
| EDP@          | Use eDP Panel                            |     |        |          |              | V           |                 | V              |                 |  |
| APUEDP@       | APU output eDP                           |     |        |          |              | V           |                 | V              |                 |  |
| VGAEDP@       | VGA output eDP (DIS only)                |     |        |          |              |             |                 |                |                 |  |
| 271@          | Realtek ALC271x VB6                      | V   | V      | V        | V            | V           | V               | V              | V               |  |
| 281@          | Realtek ALC281x                          |     |        |          |              |             |                 |                |                 |  |
| ZERO@         | ZERO Power ODD function                  |     |        |          |              |             |                 |                |                 |  |
| FL@           | Fresco FL1009 USB3.0 Controller          |     |        | V        |              |             |                 |                |                 |  |
| 8151@         | LAN Atheros AR8151 10/100/1000M LAN      |     |        | V        | V            | V           | V               | V              | V               |  |
| 8152@         | LAN Atheros AR8152 10/100M LAN           |     |        |          |              |             |                 |                |                 |  |
| X76@          | VRAM ID Table (Load By X76J)             |     |        |          |              |             |                 |                |                 |  |
| CONN@         | Connector (Control by ME)                |     |        |          |              |             |                 |                |                 |  |

x = 1 is read cmd, x= 0 is write cmd.

External PCI Devices

| Device | IDSEL# | REQ#/GNT# | Interrupts |
|--------|--------|-----------|------------|
|        |        |           |            |
|        |        |           |            |
|        |        |           |            |
|        |        |           |            |
|        |        |           |            |

EC SM Bus1 address

EC SM Bus2 address

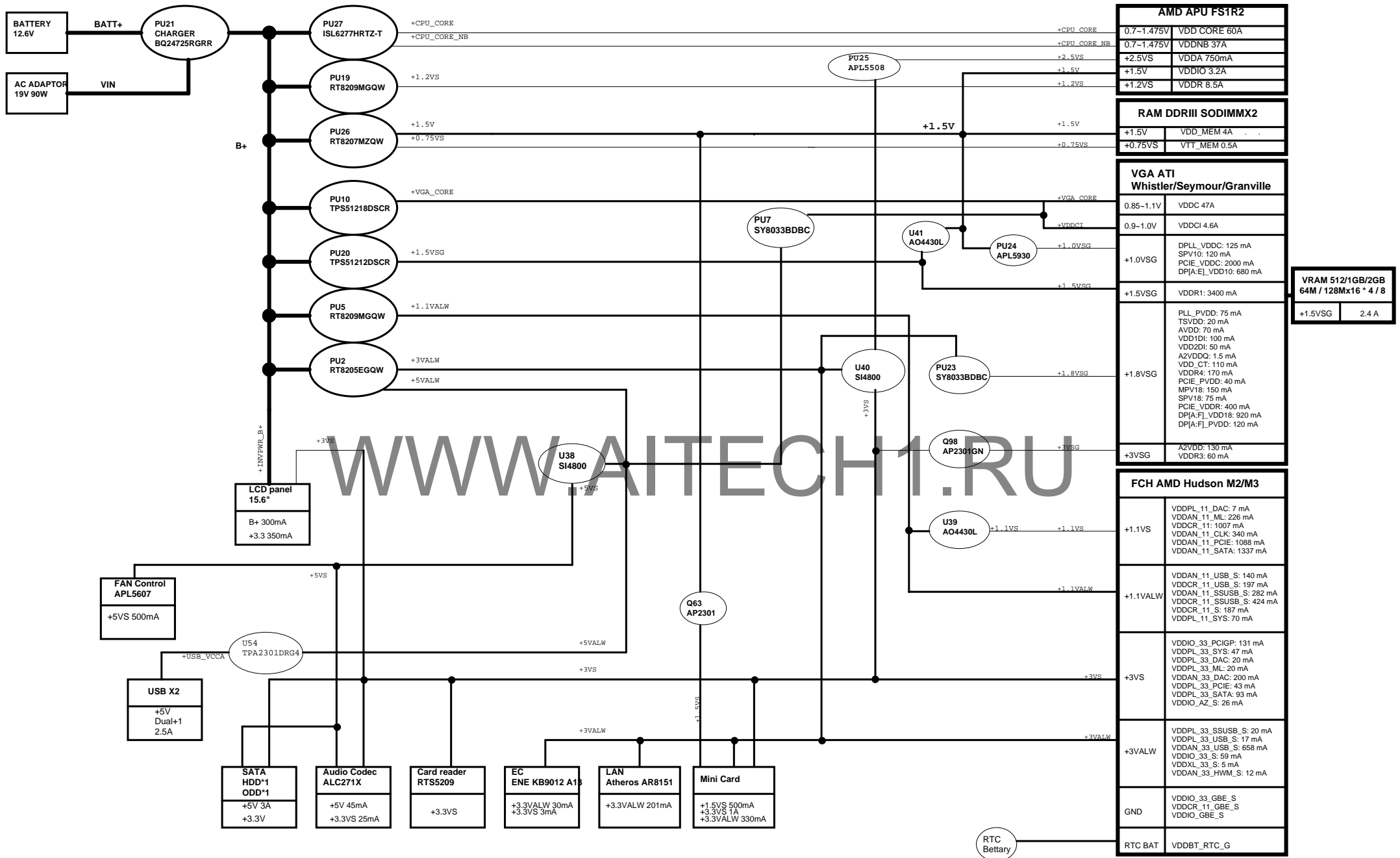
| Device        | Address     | HEX | Device               | Address     | HEX |
|---------------|-------------|-----|----------------------|-------------|-----|
| Smart Battery | 0001 011X b | 16H | ADI ADM1032 (VGA)    | 1001 101X b | 9AH |
|               |             |     | SB-TSI (APU)         | 1001 100X b | 98H |
|               |             |     | LVDS TR( RTD-2132S)  | 1010 100X b | A8H |
|               |             |     | VGA Internal Thermal | 1000 001X b | 82H |

FCH SM Bus 0 address

FCH SM Bus 1 address

| Device    | Address     | HEX | Device | Address | HEX |
|-----------|-------------|-----|--------|---------|-----|
| DDR DIMM1 | 1101 000X b | 90  |        |         |     |
| DDR DIMM2 | 1101 001X b | 94  |        |         |     |
|           |             |     |        |         |     |
|           |             |     |        |         |     |







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<13> PCIE\_GTX\_C\_FRX\_N[0..15]

PCIE\_FTX\_C\_GRX\_P[0..15] <13>

PCIE\_FTX\_C\_GRX\_N[0..15] <13>

JCPU1A

PCI EXPRESS

PCIE\_GTX\_C\_FRX\_P0 AB8  
PCIE\_GTX\_C\_FRX\_N0 AB7  
PCIE\_GTX\_C\_FRX\_P1 AA9  
PCIE\_GTX\_C\_FRX\_N1 AA8  
PCIE\_GTX\_C\_FRX\_P2 AA5  
PCIE\_GTX\_C\_FRX\_N2 AA6  
PCIE\_GTX\_C\_FRX\_P3 Y8  
PCIE\_GTX\_C\_FRX\_N3 Y7  
PCIE\_GTX\_C\_FRX\_P4 W9  
PCIE\_GTX\_C\_FRX\_N4 W8  
PCIE\_GTX\_C\_FRX\_P5 W5  
PCIE\_GTX\_C\_FRX\_N5 W6  
PCIE\_GTX\_C\_FRX\_P6 V8  
PCIE\_GTX\_C\_FRX\_N6 V7  
PCIE\_GTX\_C\_FRX\_P7 U9  
PCIE\_GTX\_C\_FRX\_N7 U8  
PCIE\_GTX\_C\_FRX\_P8 U5  
PCIE\_GTX\_C\_FRX\_N8 U6  
PCIE\_GTX\_C\_FRX\_P9 T8  
PCIE\_GTX\_C\_FRX\_N9 T7  
PCIE\_GTX\_C\_FRX\_P10 R9  
PCIE\_GTX\_C\_FRX\_N10 R8  
PCIE\_GTX\_C\_FRX\_P11 R6  
PCIE\_GTX\_C\_FRX\_N11 R6  
PCIE\_GTX\_C\_FRX\_P12 P8  
PCIE\_GTX\_C\_FRX\_N12 P7  
PCIE\_GTX\_C\_FRX\_P13 N9  
PCIE\_GTX\_C\_FRX\_N13 N8  
PCIE\_GTX\_C\_FRX\_P14 N5  
PCIE\_GTX\_C\_FRX\_N14 N6  
PCIE\_GTX\_C\_FRX\_P15 M8  
PCIE\_GTX\_C\_FRX\_N15 M7

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Y4 PCIE\_FTX\_GRX\_N2 C922 VGA@ 1  
Y2 PCIE\_FTX\_GRX\_P3 C923 VGA@ 1  
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W3 PCIE\_FTX\_GRX\_P4 C925 VGA@ 1  
W2 PCIE\_FTX\_GRX\_N4 C926 VGA@ 1  
V5 PCIE\_FTX\_GRX\_P5 C927 VGA@ 1  
V4 PCIE\_FTX\_GRX\_N5 C928 VGA@ 1  
V2 PCIE\_FTX\_GRX\_P6 C929 VGA@ 1  
V1 PCIE\_FTX\_GRX\_N6 C930 VGA@ 1  
U3 PCIE\_FTX\_GRX\_P7 C931 VGA@ 1  
U2 PCIE\_FTX\_GRX\_N7 C932 VGA@ 1  
T5 PCIE\_FTX\_GRX\_P8 C933 VGA@ 1  
T4 PCIE\_FTX\_GRX\_N8 C934 VGA@ 1  
T2 PCIE\_FTX\_GRX\_P9 C935 VGA@ 1  
U3 PCIE\_FTX\_GRX\_N9 C937 VGA@ 1  
B3 PCIE\_FTX\_GRX\_P10 C938 VGA@ 1  
R2 PCIE\_FTX\_GRX\_N10 C939 VGA@ 1  
P5 PCIE\_FTX\_GRX\_P11 C940 VGA@ 1  
P4 PCIE\_FTX\_GRX\_N11 C941 VGA@ 1  
P2 PCIE\_FTX\_GRX\_P12 C942 VGA@ 1  
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N3 PCIE\_FTX\_GRX\_P13 C944 VGA@ 1  
N2 PCIE\_FTX\_GRX\_N13 C945 VGA@ 1  
M5 PCIE\_FTX\_GRX\_P14 C946 VGA@ 1  
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AD7 P\_GPP\_RXN1  
AC9 P\_GPP\_RXP2  
AC8 P\_GPP\_RXN2  
AC5 P\_GPP\_RXP3  
AC6 P\_GPP\_RXN3

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GLAN

WLAN

Option Mini (R03 modify Reserved)

Card Reader

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AG9 P\_UMI\_RXN0  
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AG5 P\_UMI\_RXN1  
AE7 P\_UMI\_RXP2  
AE6 P\_UMI\_RXN2  
AE8 P\_UMI\_RXP3  
AE9 P\_UMI\_RXN3

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AG3 UMI\_FTX\_MRX\_N0 C957 1  
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2 .1U\_0402\_16V7K UMI\_FTX\_C\_MRX\_P2  
2 .1U\_0402\_16V7K UMI\_FTX\_C\_MRX\_N2  
2 .1U\_0402\_16V7K UMI\_FTX\_C\_MRX\_P3  
2 .1U\_0402\_16V7K UMI\_FTX\_C\_MRX\_N3

+1.2VS 1 R539 2 P\_ZVDD AG11 196\_0402\_1%

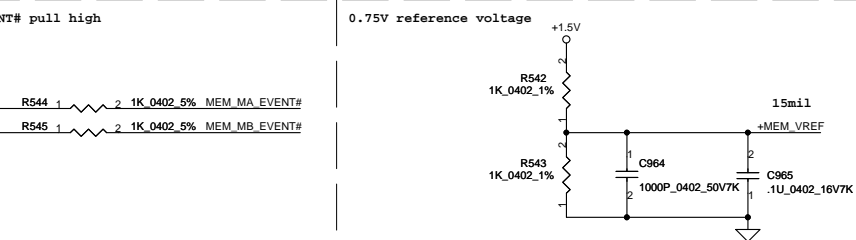
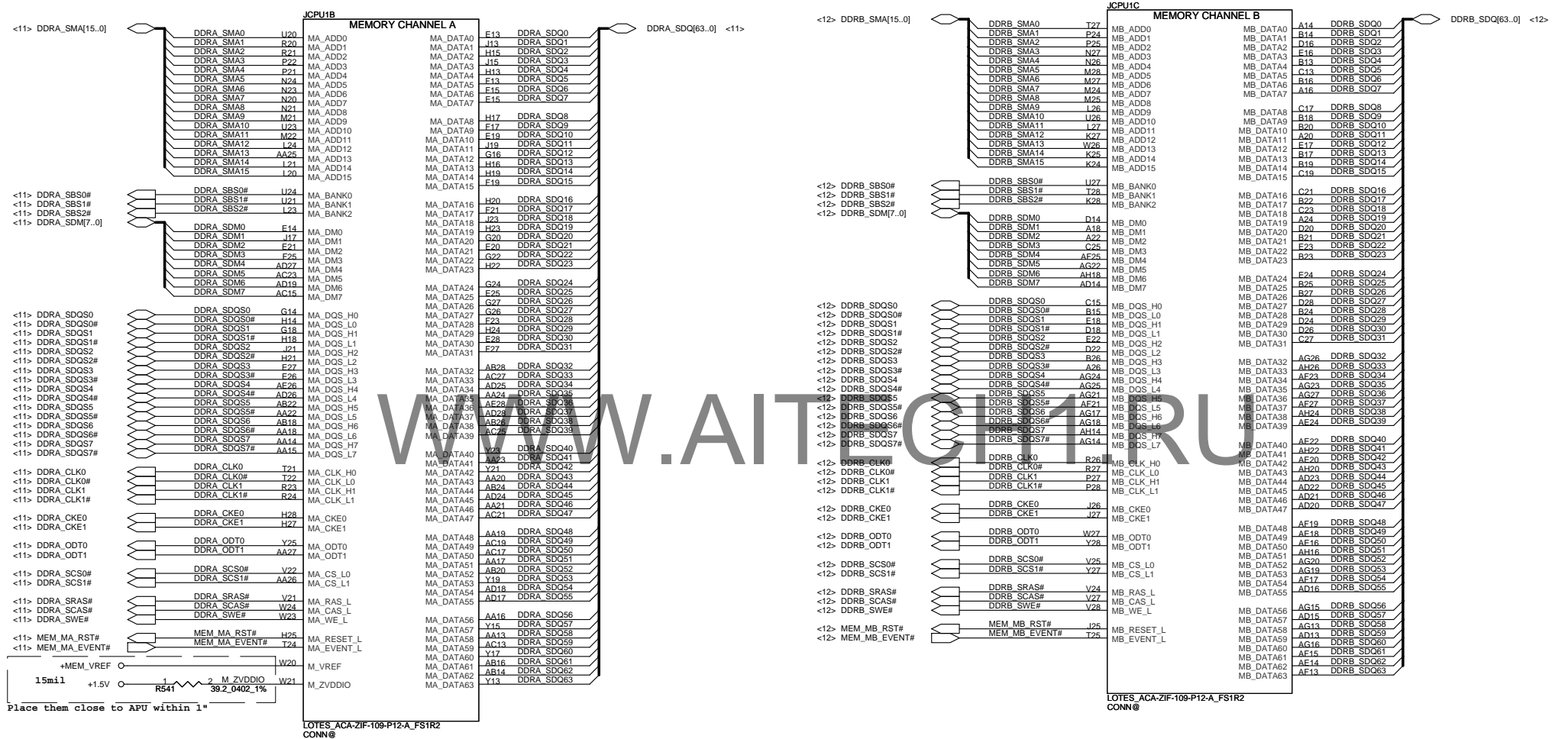
P\_ZVDD P\_ZVSS

AH11 1 P\_ZVSS 2 R540 196\_0402\_1%

LOTES\_ACA-ZIF-109-P12-A\_FS1R2  
CONN@

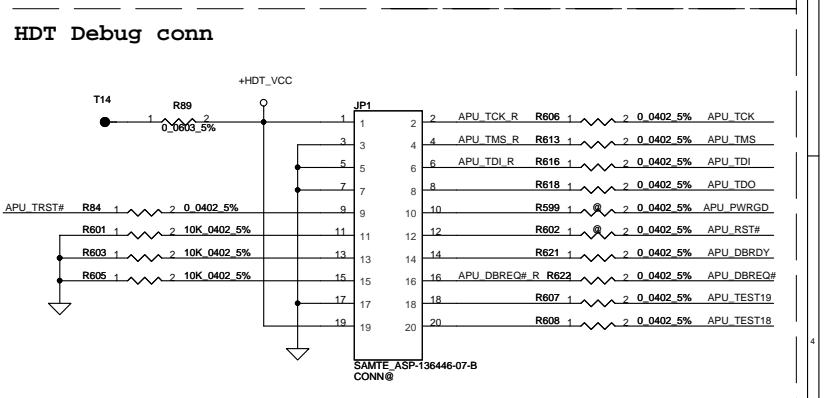
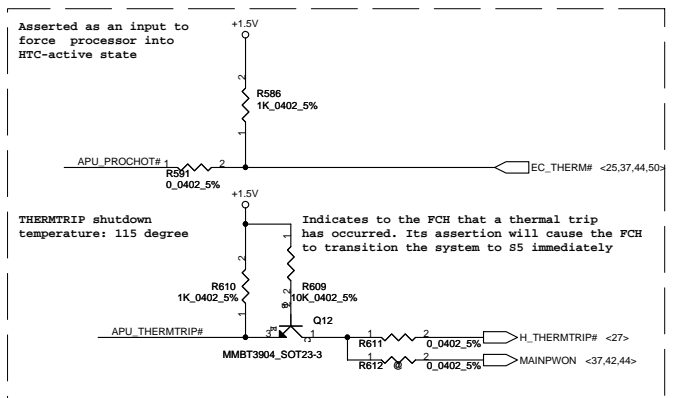
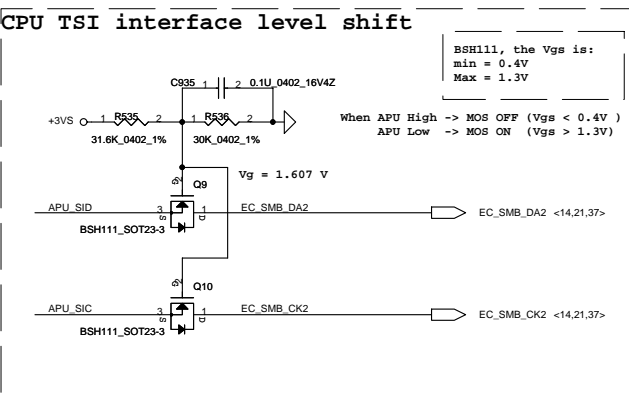
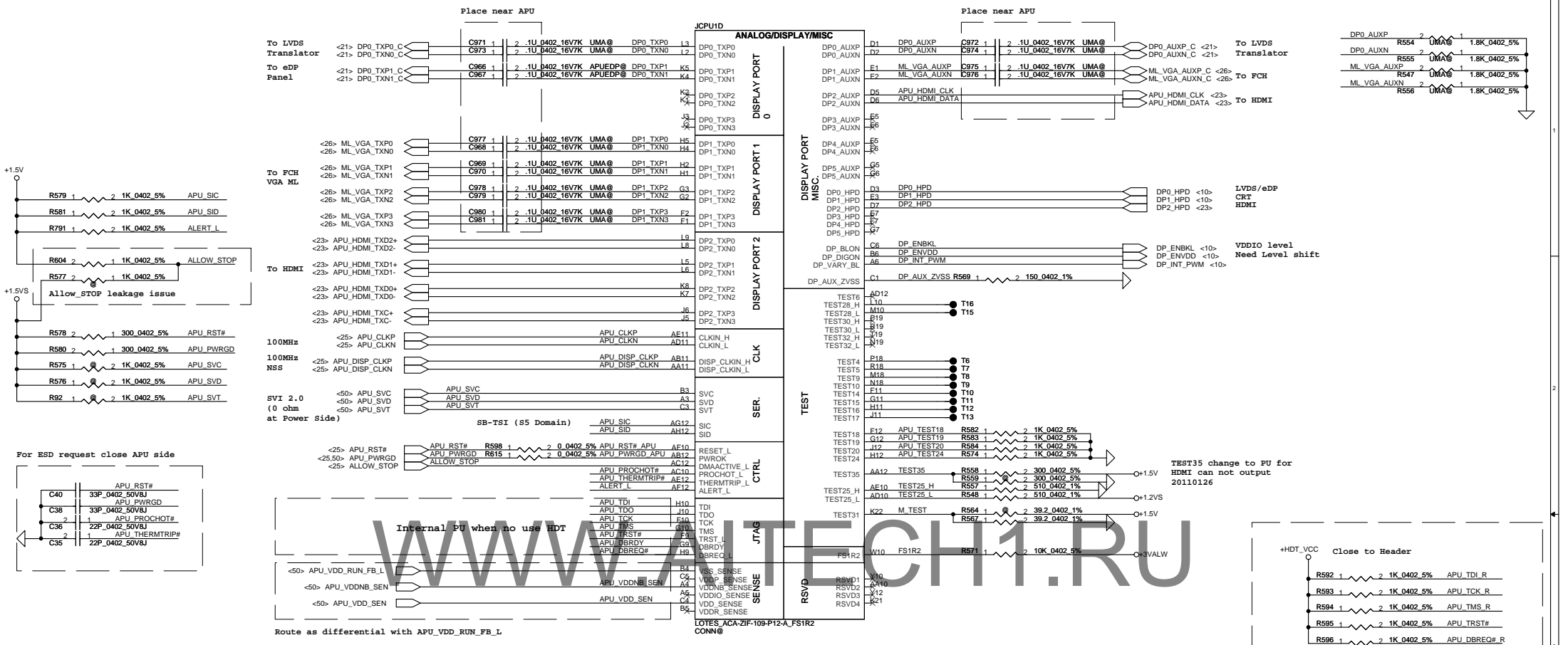
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.           |                           |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Wednesday, February 29, 2012 |                           | Rev B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 6 of 52                      |                           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                    |                           |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                    |                           |       |





| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                    |                        |
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| Date: Wednesday, February 29, 2012                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                    |            | Sheet 7                  | of 52                  |

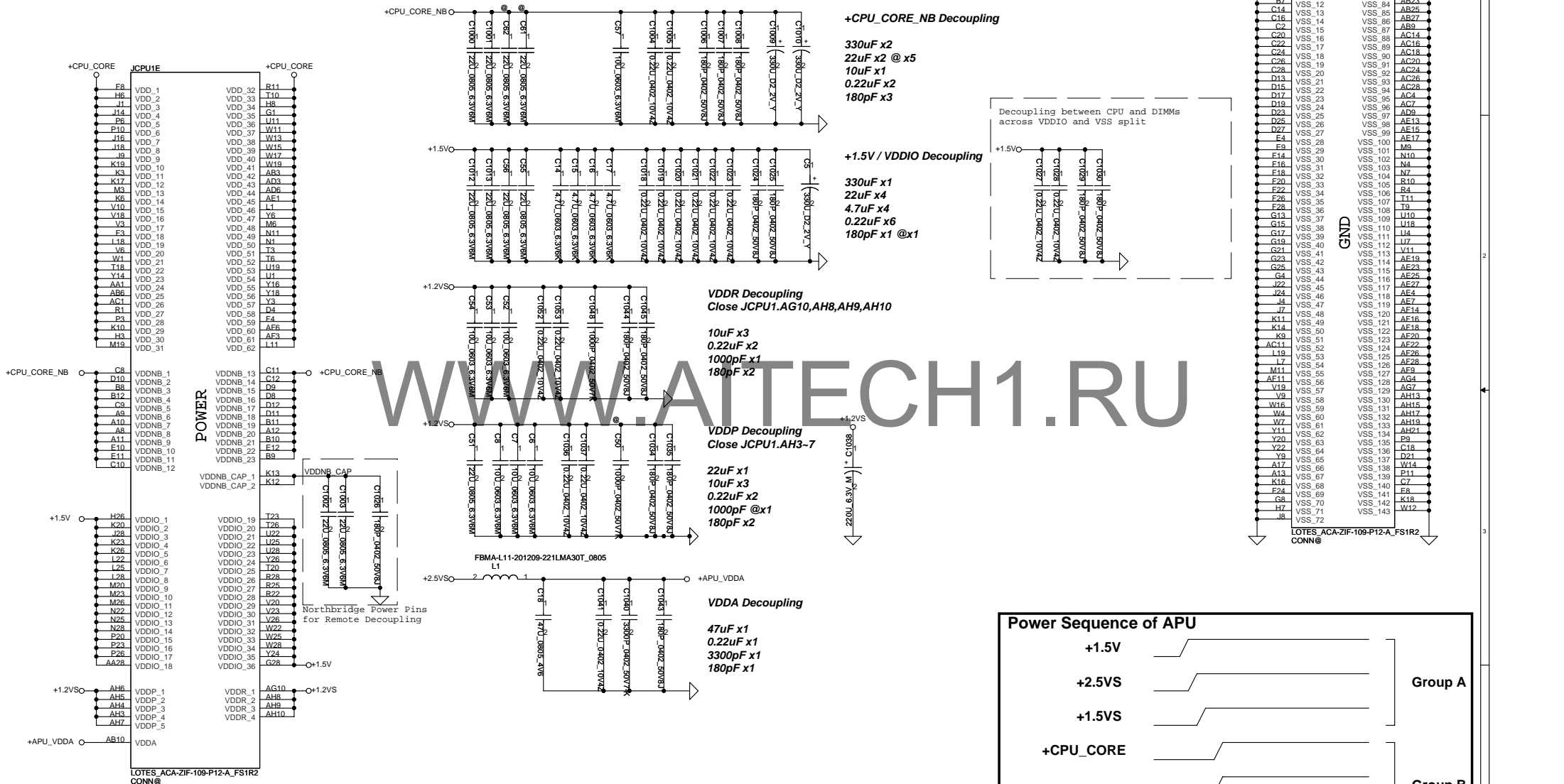




| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                                    |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Rev B                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Date: Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Sheet 8 of 52                      |



| Power Name            | Consumption      |
|-----------------------|------------------|
| VDD<br>+CPU_CORE      | <b>60A</b>       |
| VDDNB<br>+CPU_CORE_NB | <b>37A</b>       |
| VDDIO                 | <b>3.2A</b>      |
| VDDP / VDDR<br>+1.2VS | <b>5A / 3.5A</b> |
| VDDA<br>+2.5VS        | <b>0.75A</b>     |



| Pop / @    | 330uF | 220uF | 47uF  | 22uF  | 10uF | 4.7uF | 0.22uF | 0.01uF | 3300pF | 1nF   | 180pF |
|------------|-------|-------|-------|-------|------|-------|--------|--------|--------|-------|-------|
| Pumori 2.0 |       | 0     | 19/11 | 7     | 5    | 17    | 3      | 1      | 1 / 1  | 13/3  |       |
| Comal      | 7 / 2 | 1     | 1     | 19/11 | 7    | 4     | 17     | 3      | 1      | 1 / 1 | 14/2  |
| P5WS5      | 7 / 2 | 1     | 1     | 13    | 3    | 8     | 19     | 3      | 1      | 4     | 16    |

Security Classification

Compal Secret Data

Issued Date

2011/07/08

Deciphered Date

2015/07/08

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Rev

B

Compal Electronics, Inc.

Schematic, MB A8331

4019H2

Wednesday, February 29, 2012

Sheet

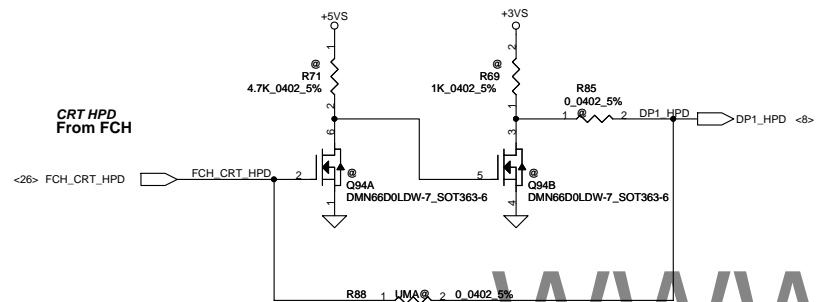
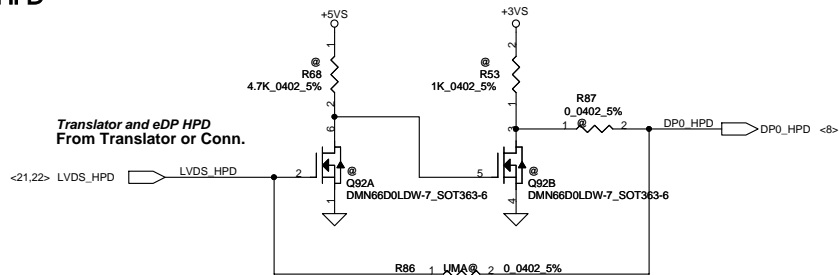
9

of

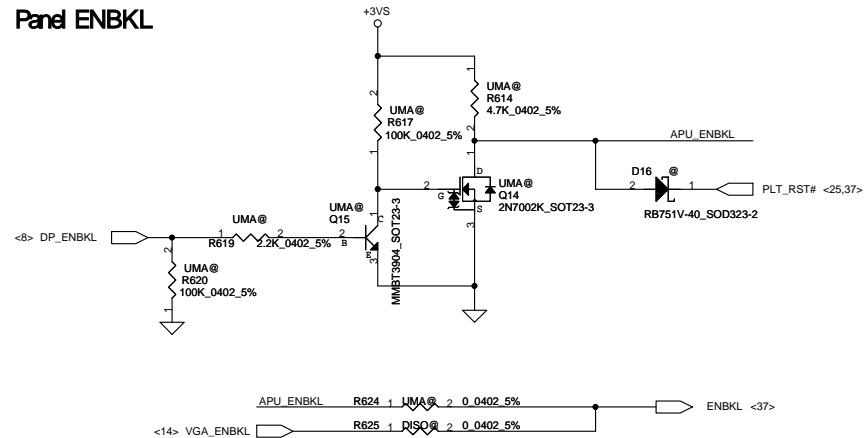
52



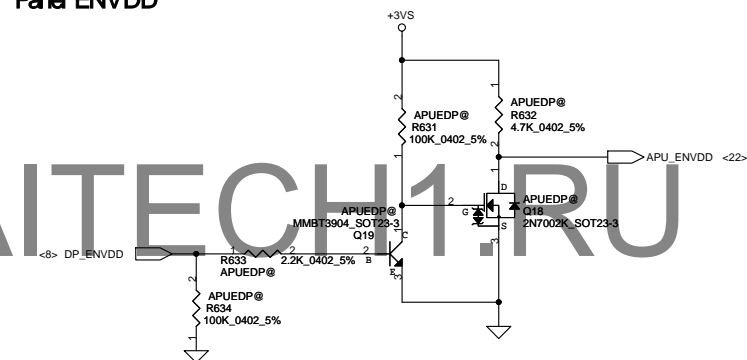
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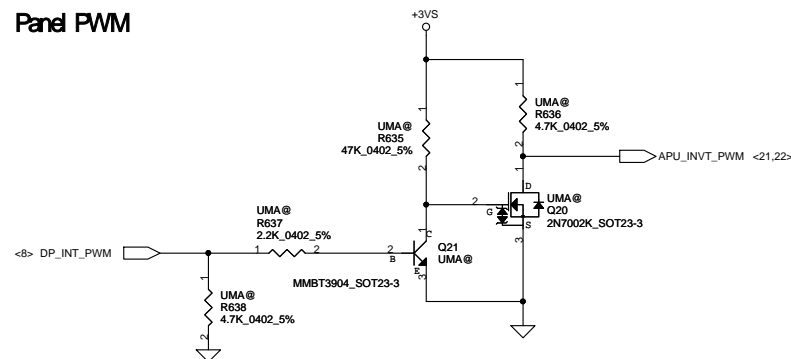
# Panel ENBKL



# Panel ENVDD

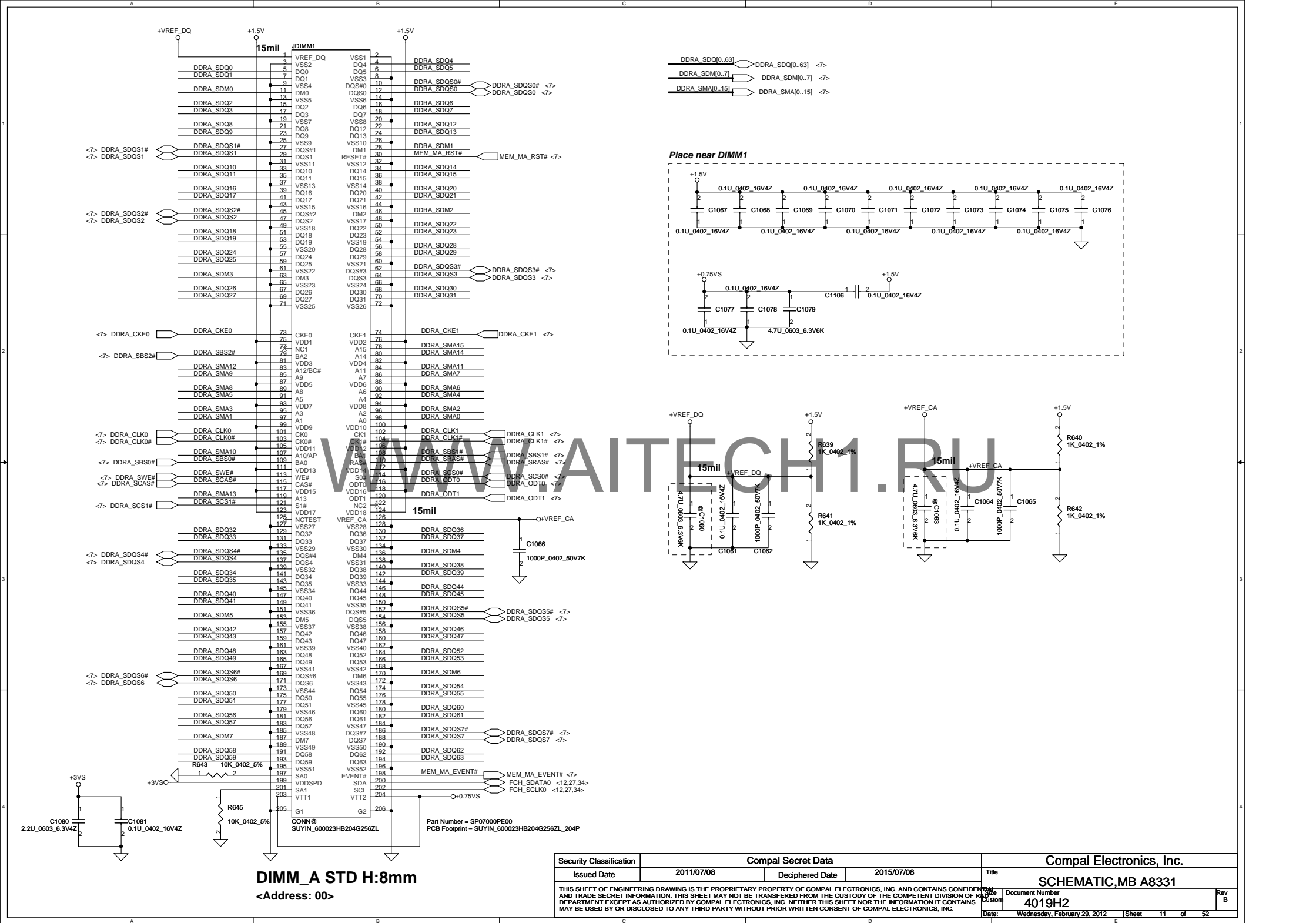


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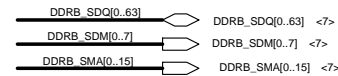
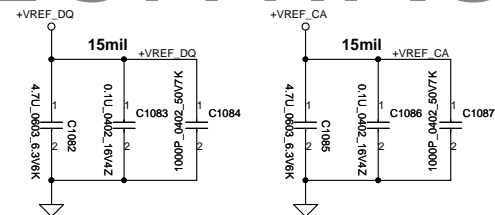


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Date                     | Wednesday, February 28, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Sheet                    | 10 of 52                     |





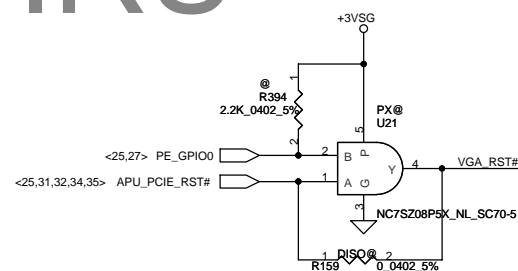
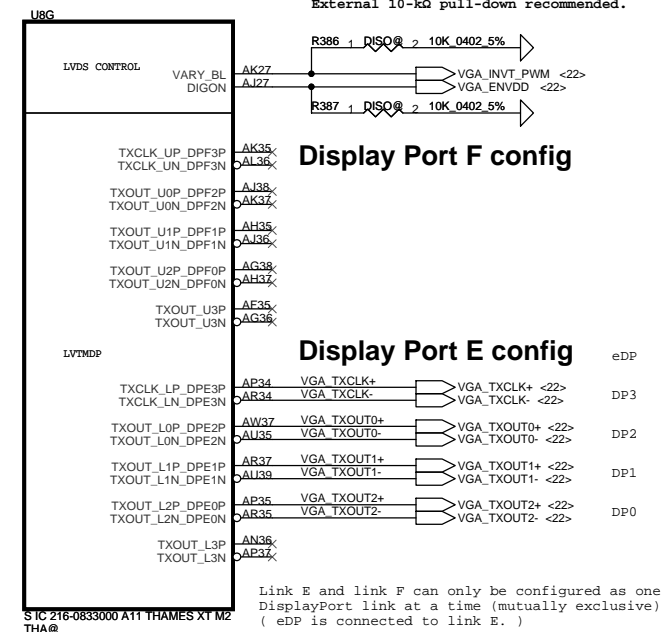


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            |                          |                              |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------------|--------------------------|------------------------------|----------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |            | Date:                    | Wednesday, February 29, 2012 | Sheet 12 of 52 |



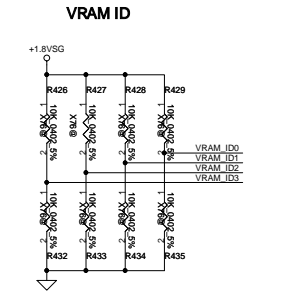
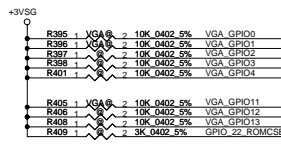
<VARY\_BL>  
LCD PWM (pulse width modulated)  
output to adjust LCD brightness  
Active High  
External 10-kΩ pull-down recommended.



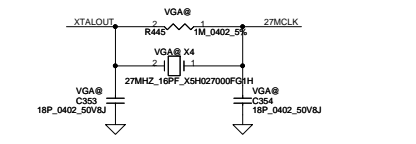
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |                 |                          |  | Custom             | 4019H2                       | B              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |                 |                          |  | Date:              | Wednesday, February 29, 2012 | Sheet 13 of 52 |



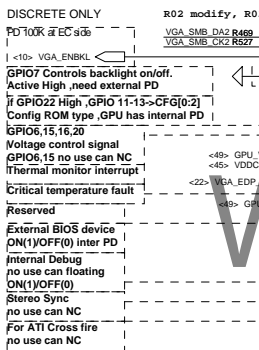
| Strap Name    | Pin Straps description <all internal PD>                                                                                                                                                                              | Setting |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| VIP_DEVICE_EN | V2SYN (GENLK_VSYN)<br>VIP Device Strap Enable indicates to the software driver (Internal PD) 0: Driver would ignore the value sampled on VHAD_0 during reset 1: VHAD_0 to determine whether or not a VIP slave device | 0       |
| VGA_DIS       | GPIO9<br>VGA Disable determines (Internal PD) 0: VGA Controller capacity enabled 1: The device will not be recognized as the system's VGA controller                                                                  | 0       |
| TX_PWRS_ENB   | GPIO10<br>Transmitter Power Saving Enable (Internal PD) 0: 50% Tx output swing 1: full Tx output swing                                                                                                                | 1       |
| TX_DEEMPH_EN  | GPIO1<br>PCI Express Transmitter De-emphasis Enable (Internal PD) 0: Tx de-emphasis disabled 1: Tx de-emphasis enabled                                                                                                | 1       |
| CONFIG[2]     | GPIO13                                                                                                                                                                                                                | 001     |
| CONFIG[1]     | GPIO12                                                                                                                                                                                                                |         |
| CONFIG[0]     | GPIO11                                                                                                                                                                                                                |         |
| BIOS_ROM_EN   | GPIO22<br>Enable external BIOS ROM device (Internal PD) 0: Disable, 1: Enable                                                                                                                                         | 0       |
| AUD[1]        | HSYNC                                                                                                                                                                                                                 | 11      |
| AUD[0]        | VSYN                                                                                                                                                                                                                  |         |
| BIF_GEN2_EN   | GPIO2<br>Advertises the PCI-E device as 5.0 GT/s capable at power-on 1= Advertises the PCI-E device as 5.0 GT/s capable at power-on 5.0 GT/s capability will be controlled by software                                | 0       |
| RESERVED      | H2SYN CLK GPIO8 GPIO21                                                                                                                                                                                                | DNI     |



| DVDPDATA ID3ID2ID1ID0 | Van SPD Name                            |
|-----------------------|-----------------------------------------|
| 00h                   | 0 0 0 0 SAM 933 K4W1G1646G-BC11 64Mx16  |
| 01h                   | 0 0 0 1 SAM 933 K4W2G1646C-BC11 128Mx16 |
| 02h                   | 0 0 0 0                                 |
| 03h                   | 0 0 0 1                                 |
| 04h                   | 0 1 0 0 AMD 900 23EY2387MB11 64Mx16     |
| 05h                   | 0 1 0 1 AMD 900 23EY4187MA11 128Mx16    |
| 06h                   | 0 1 1 0                                 |
| 07h                   | 0 1 1 1                                 |
| 08h                   | 1 0 0 0 HYN 900 H5TQ1G63DFR-11C         |
| 09h                   | 1 0 0 1 HYN 900 H5TQ2G63BFR-11C         |
| 0Ah                   | 1 0 1 0                                 |
| 0Bh                   | 1 0 1 1                                 |
| 0Ch                   | 1 1 0 0 MIC 900 MT41J64M16JT-10TG:G     |
| 0Dh                   | 1 1 0 1 MIC 900 MT41J128M16HA-10TG:D    |
| 0Eh                   | 1 1 1 0                                 |
| 0Fh                   | 1 1 1 1                                 |



GPIO5 fast-power reduction:  
HW control will cause display disturb  
should use SW method control  
GPIO6 voltage control signal, No use can NC

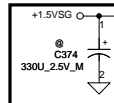






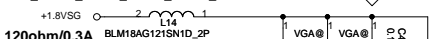


R04 Modify BOM



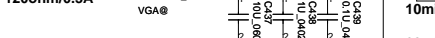
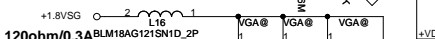
SM010030010

300ma 120ohm@100mhz DCR 0.3



SM010030010

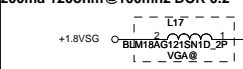
300ma 120ohm@100mhz DCR 0.3



470ohm/1A

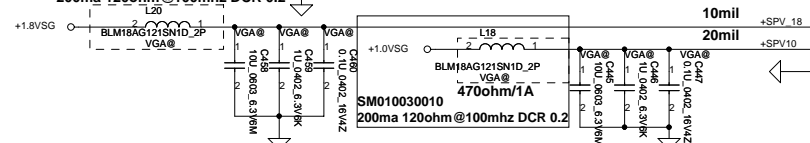
SM010030010

200ma 120ohm@100mhz DCR 0.2



SM010030010

200ma 120ohm@100mhz DCR 0.2



VREF

MEM I/O

AC7

VDDR#1#1

AC11

VDDR#1#2

AC10

VDDR#1#3

AC9

VDDR#1#4

AC8

VDDR#1#5

AC7

VDDR#1#6

AC6

VDDR#1#7

AC5

VDDR#1#8

AC4

VDDR#1#9

AC3

VDDR#1#10

AC2

VDDR#1#11

AC1

VDDR#1#12

AC0

VDDR#1#13

AC0

VDDR#1#14

AC0

VDDR#1#15

AC0

VDDR#1#16

AC0

VDDR#1#17

AC0

VDDR#1#18

AC0

VDDR#1#19

AC0

VDDR#1#20

AC0

VDDR#1#21

AC0

VDDR#1#22

AC0

VDDR#1#23

AC0

VDDR#1#24

AC0

VDDR#1#25

AC0

VDDR#1#26

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VDDR#1#27

AC0

VDDR#1#28

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VDDR#1#29

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VDDR#1#30

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VDDR#1#31

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VDDR#1#32

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VDDR#1#33

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VDDR#1#34

AC0

VDDR#1#35

AC0

VDDR#1#36

AC0

VDDR#1#37

AC0

VDDR#1#38

AC0

VDDR#1#39

AC0

VDDR#1#40

AC0

VDDR#1#41

AC0

VDDR#1#42

AC0

VDDR#1#43

AC0

VDDR#1#44

AC0

VDDR#1#45

AC0

VDDR#1#46

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VDDR#1#47

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VDDR#1#48

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VDDR#1#59

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VDDR#1#60

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VDDR#1#61

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VDDR#1#63

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VDDR#1#64

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VDDR#1#66

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VDDR#1#67

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VDDR#1#68

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VDDR#1#69

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VDDR#1#70

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VDDR#1#71

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VDDR#1#72

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VDDR#1#73

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VDDR#1#74

AC0

VDDR#1#75

AC0

VDDR#1#76

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VDDR#1#78

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VDDR#1#79

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VDDR#1#80

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VDDR#1#81

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VDDR#1#83

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VDDR#1#123

AC0

VDDR#1#124

AC0

VDDR#1#125

AC0

VDDR#1#126

AC0

VDDR#1#127

AC0

VDDR#1#128

AC0

VDDR#1#129

AC0

VDDR#1#130

AC0

VDDR#1#131

AC0

VDDR#1#132

AC0

VDDR#1#133

AC0

VDDR#1#134

AC0

VDDR#1#135

AC0

VDDR#1#136

AC0

VDDR#1#137

AC0

VDDR#1#138

AC0

VDDR#1#139

AC0

VDDR#1#140

AC0

VDDR#1#141

AC0

VDDR#1#142

AC0

VDDR#1#143

AC0

VDDR#1#144

AC0

VDDR#1#145

AC0

VDDR#1#146

AC0

VDDR#1#147

AC0

VDDR#1#148

AC0

VDDR#1#149

AC0

VDDR#1#150

AC0

VDDR#1#151

AC0

VDDR#1#152

AC0

VDDR#1#153

AC0

VDDR#1#154

AC0

VDDR#1#155

AC0

VDDR#1#156

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AC0

VDDR#1#159

AC0

VDDR#1#160

AC0

VDDR













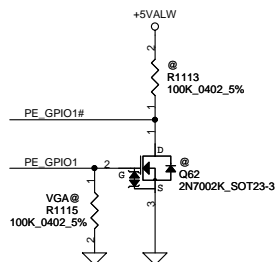


Timing diagram for Figure 10: +VGA\_CORE and +VDDC\_PWREN timing. The diagram shows the relationship between SUSP#, +3VSG, VGA\_ON, VGA\_PWR\_ON, 1.5\_VDDC\_PWREN, +VGA\_CORE, +1.5VSG, +1.0VSG, and +1.8VSG. A 10ms scale bar is provided for the first four signals, and a 20ms scale bar for the last four signals.

PE\_GPIO1

VGA\_PWR\_ON

>2ms



|                | Dis only  | Muxless High performance GPU | Muxless Power-saving GPU |
|----------------|-----------|------------------------------|--------------------------|
| VGA_PWR_ON     | 1         | 1                            | 0                        |
| 1.5_VDDC_PWREN | 1         | 1                            | 0                        |
| +3.3VSG        | ON        | ON                           | OFF                      |
| +1.8VSG        | ON        | ON                           | OFF                      |
| +1.0VSG        | ON        | ON                           | OFF                      |
| +VGA_CORE      | ON        | ON                           | OFF                      |
| +1.5VSG        | ON        | ON                           | OFF                      |
| +BIF_VDDC      | +VGA_CORE | +VGA_CORE                    | OFF                      |

|                | Normal mode | BACO mode |
|----------------|-------------|-----------|
| PX_EN          | 0           | 1         |
| 1.5_VDDC_PWREN | 1           | 0         |
| VDDC_EN        | 1           | 0         |
| 1.0_EN         | 0           | 1         |
| +3.3VSG        | ON          | ON        |
| +1.8VSG        | ON          | ON        |
| +1.0VSG        | ON          | ON        |
| +VGA_CORE      | ON          | OFF       |
| +1.5VSG        | ON          | OFF       |
| +BIF_VDDC      | +VGA_CORE   | +1.0VSG   |

|                          | Graville      | Whistler and Seymour   |
|--------------------------|---------------|------------------------|
| VGA_PWR_ON source signal | INT_VGAPWR_ON | VGA_ON                 |
| +3.3VSG                  | VGA_PWR_ON    | SUSP#                  |
| +1.8VSG                  | VGA_PWR_ON    | VGA_PWR_ON             |
| +1.0VSG                  | VGA_PWR_ON    | VGA_PWR_ON             |
| +VDDCI                   | VGA_PWR_ON    | Combine with +VGA_CORE |
| +VGA_CORE                | VGA_PWR_ON    | 1.5_VDDC_PWREN         |
| +1.5VSG                  | VGA_PWR_ON    | 1.5_VDDC_PWREN         |

OFF

1.0VSG

NOBACO@R649 1 2 0 0402 5%

+3VS C1103 BACO@ 0.1U\_0402\_16V4Z

BACO@ U19

VGA PWR ON

+3VS0 R650 1 BACO@ 10K\_0402 5%

NC7SZ08P5X\_NL\_SC70-5

1.5\_VDDC\_PWREN

1.5\_VDDC\_PWREN <40,45,47,48

# VGA Power ON Circuit

Delay SUSP# 10ms

Delay EC\_PWROK 50ms

For VGA Power on contro

Security Classification

Issued Date

2011/07/08

Heathrow and Chelsea +1.0V\_SG connect to +BIF\_VDDC

R02 Modify

1.0V\_SG

AO3416L\_SOT23-3

20mil

+BIF\_VDDC

30mil

NOBACO@

0.0805\_5%

+VGA\_CORE

Pop for PX5 & DISO

1.0\_EN

VDDC\_EN

+VGA\_CORE

AO3416L\_SOT23-3

30mil

R03 Modify BOM

VGA@

C1105

22u\_0805\_6.3V6M

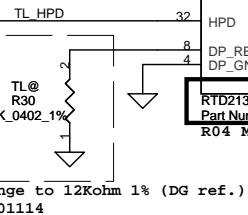
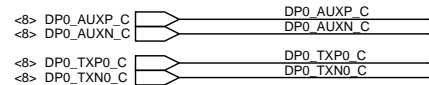
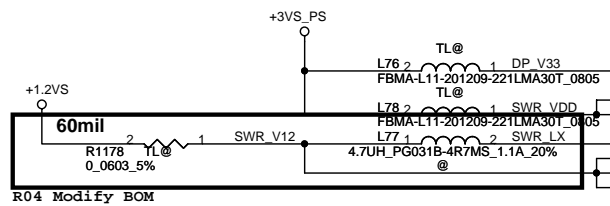
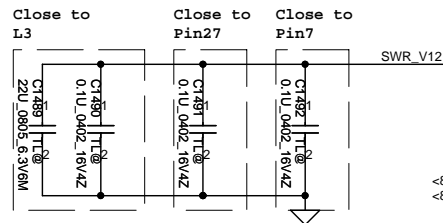
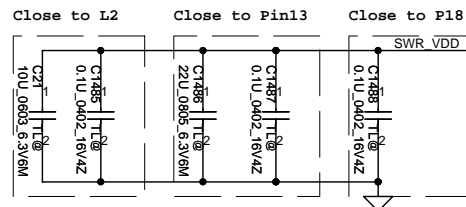
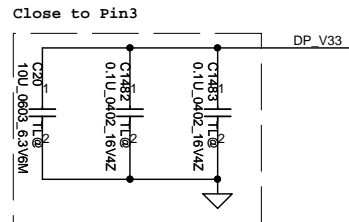
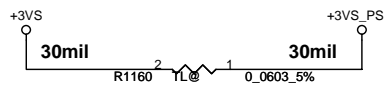
AO3416 NMOS

Vgs(th)(Max)= 1V

Rds(on)(Max)= 22m ohm @Vgs=4.5V

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          |                    |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|-----------------|--------------------------|--------------------|------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data |                 | Compal Electronics, Inc. |                    |                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          | 4019H2             | B                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                    |                 |                          | Date               | Wednesday, February 29, 2012 |



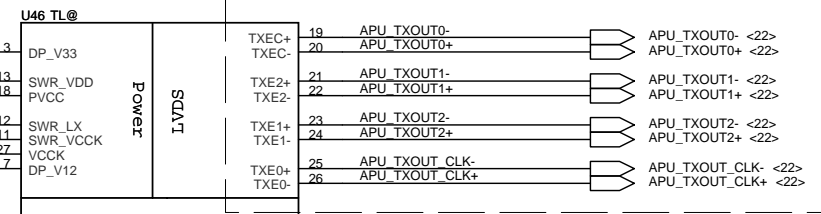
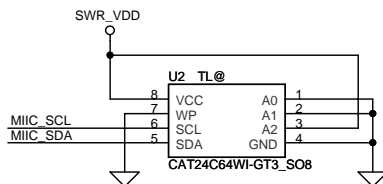


<10,22> LVDS\_HPD

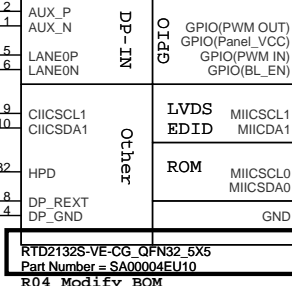
APU Co-layerDP function



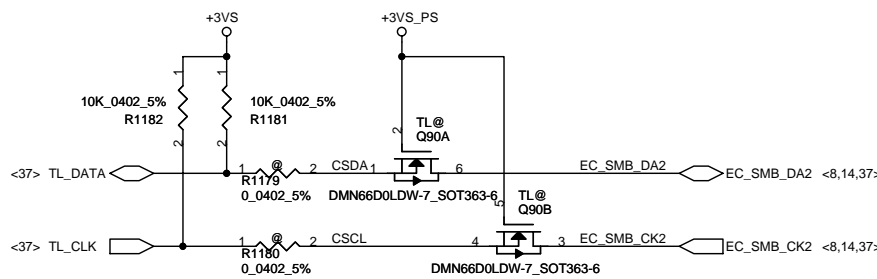
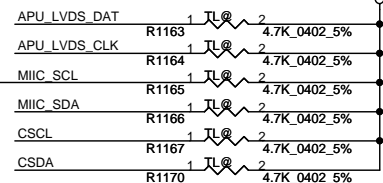
EEROM



RTD2132S



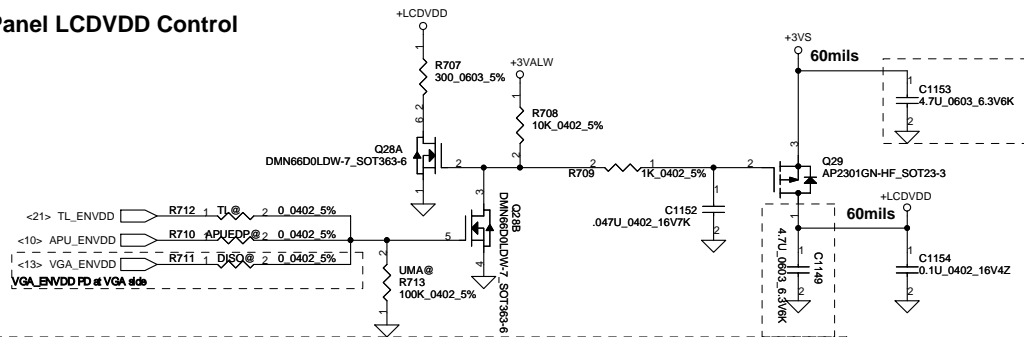
Pop when no use EEEPRON



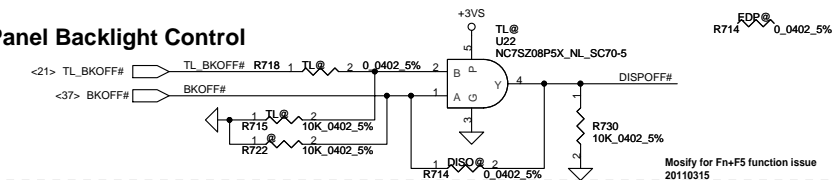
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            | Sheet                    | 21 of 52                     |



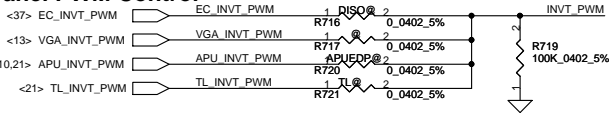
## Panel LCDVDD Control



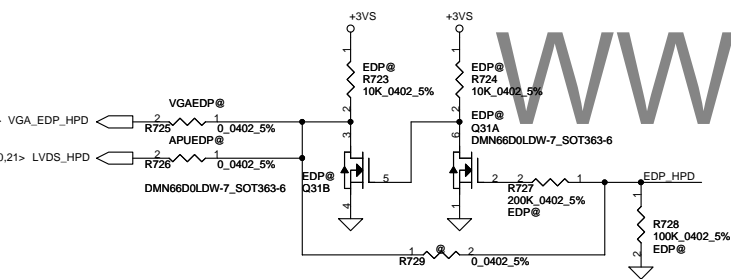
## Panel Backlight Control



## Panel PWM Control



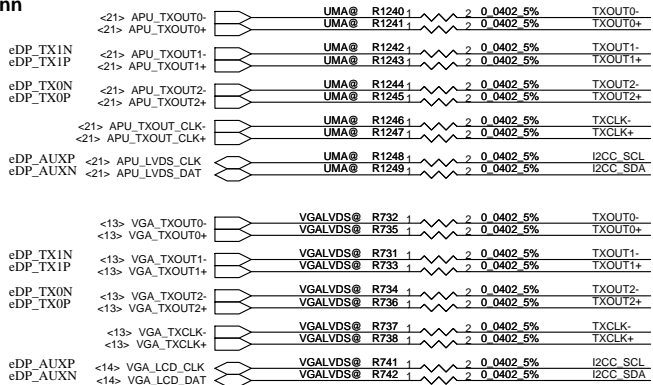
## eDP HDP for APU and VGA



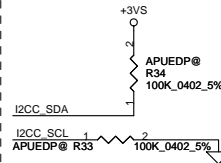
## Place near LVDS Conn

## Translator LVDS Output

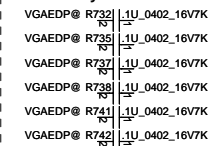
## VGA LVDS Output



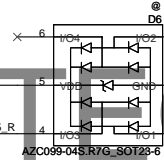
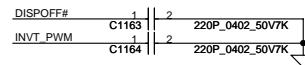
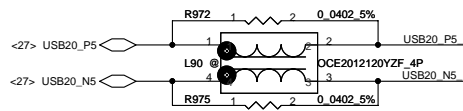
DG ref. Need close to eDP Conn.  
201011251400



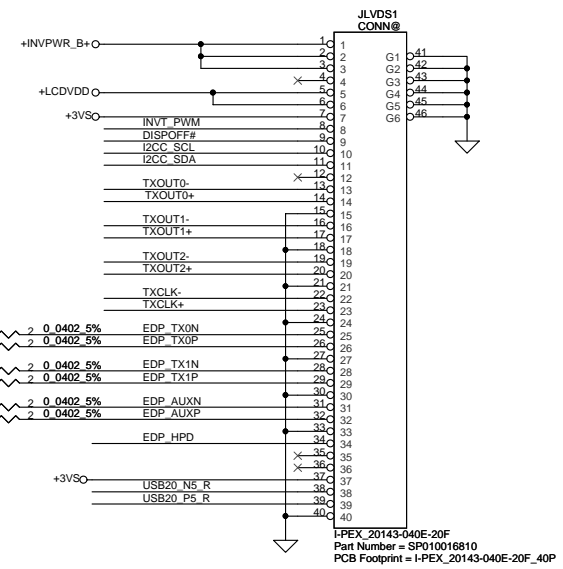
## VGA Co-lay eDP function



| UMA/DIS LVDS/eDP Mapping table |            |              |          |          |
|--------------------------------|------------|--------------|----------|----------|
| UMA                            | DIS        | Panel        |          |          |
| LVDS                           | eDP        | LVDS         | eDP      | Conn.    |
| APU_TXOUT0+                    |            | VGA_TXOUT0+  |          | TXOUT0+  |
| APU_TXOUT0-                    |            | VGA_TXOUT0-  |          | TXOUT0-  |
| APU_TXOUT1+                    | DP0_TXP1_R | VGA_TXOUT1+  | eDP_TX1P | TXOUT1+  |
| APU_TXOUT1-                    | DP0_TXN1_R | VGA_TXOUT1-  | eDP_TX1N | TXOUT1-  |
| APU_TXOUT2+                    | DP0_TXP0_R | VGA_TXOUT2+  | eDP_TX0P | TXOUT2+  |
| APU_TXOUT2-                    | DP0_TXN0_R | VGA_TXOUT2-  | eDP_TX0N | TXOUT2-  |
| APU_TXOUT_CLK+                 |            | VGA_TXCLK+   |          | TXCLK+   |
| APU_TXOUT_CLK-                 |            | VGA_TXCLK-   |          | TXCLK-   |
| APU_TZOUT0+                    |            | VGA_TZOUT0+  |          | TZOUT0+  |
| APU_TZOUT0-                    |            | VGA_TZOUT0-  |          | TZOUT0-  |
| APU_TZOUT1+                    |            | VGA_TZOUT1+  |          | TZOUT1+  |
| APU_TZOUT1-                    |            | VGA_TZOUT1-  |          | TZOUT1-  |
| APU_TZOUT2+                    |            | VGA_TZOUT2+  |          | TZOUT2+  |
| APU_TZOUT2-                    |            | VGA_TZOUT2-  |          | TZOUT2-  |
| APU_TZOUT_CLK+                 |            | VGA_TZCLK+   |          | TZCLK+   |
| APU_TZOUT_CLK-                 |            | VGA_TZCLK-   |          | TZCLK-   |
| APU_LVDS_CLK                   | DP0_AUXP_R | VGA_LCD_CLK  | eDP_AUXP | I2CC_SCL |
| APU_LVDS_DAT                   | DP0_AUXN_R | VGA_LCD_DATA | eDP_AUXN | I2CC_SDA |

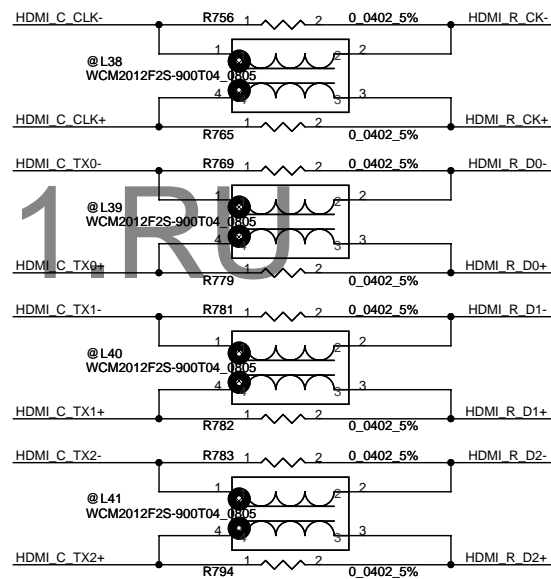
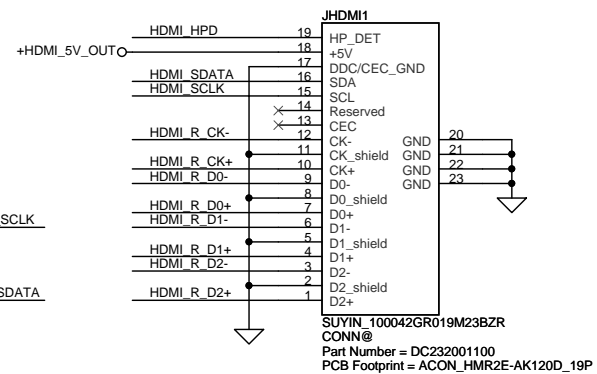


## LCD/LED PANEL Conn.



| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Title                        |     |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Wednesday, February 29, 2012 |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet 22 of 52               |     |





From APU

For UMA HDMI termination BOM option

|      |   |       |             |
|------|---|-------|-------------|
| R784 | 2 | UMA@1 | 604_0402_1% |
| R786 | 2 | UMA@1 | 604_0402_1% |

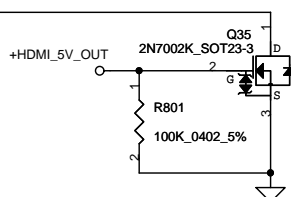
|      |   |       |             |
|------|---|-------|-------------|
| R788 | 2 | UMA@1 | 604_0402_1% |
| R790 | 2 | UMA@1 | 604_0402_1% |

|      |   |       |             |
|------|---|-------|-------------|
| R792 | 2 | UMA@1 | 604_0402_1% |
| R795 | 2 | UMA@1 | 604_0402_1% |

R797 2 ~~UMA@1~~ 604\_0402\_1%  
R799 2 ~~UMA@1~~ 604\_0402\_1%

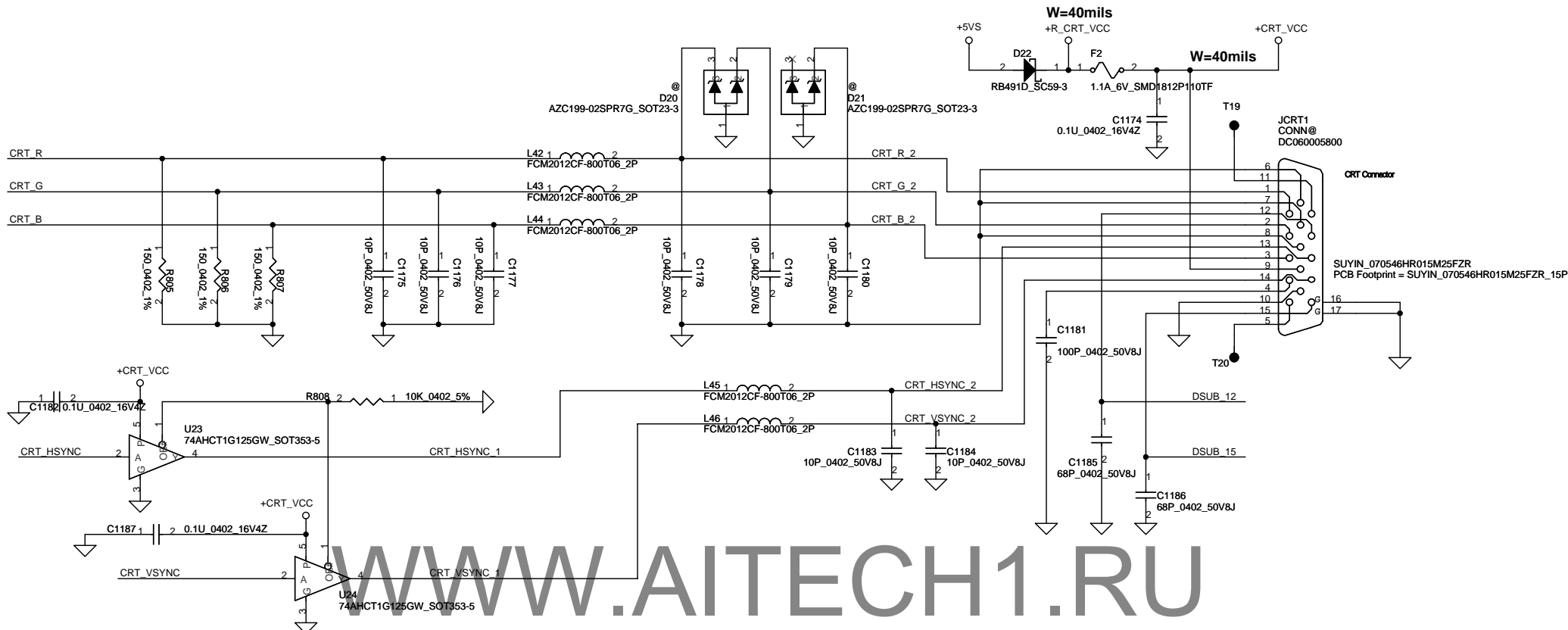
Near the connector

|                     |   |     |      |     |                      |   |   |          |    |
|---------------------|---|-----|------|-----|----------------------|---|---|----------|----|
| HDMI C TX2- R C1166 | 1 | 1.U | 0402 | 16V | HDMI C TX2-DISO@R784 | 1 | 2 | 499.0402 | 1% |
| HDMI C TX2+ R C1167 | 1 | 1.U | 0402 | 16V | HDMI C TX2-DISO@R786 | 1 | 2 | 499.0402 | 1% |
| HDMI C TX1- R C1168 | 1 | 1.U | 0402 | 16V | HDMI C TX1-DISO@R788 | 1 | 2 | 499.0402 | 1% |
| HDMI C TX1+ R C1169 | 1 | 1.U | 0402 | 16V | HDMI C TX1-DISO@R790 | 1 | 2 | 499.0402 | 1% |
| HDMI C TX0- R C1170 | 1 | 1.U | 0402 | 16V | HDMI C TX0-DISO@R792 | 1 | 2 | 499.0402 | 1% |
| HDMI C TX0+ R C1171 | 1 | 1.U | 0402 | 16V | HDMI C TX0-DISO@R795 | 1 | 2 | 499.0402 | 1% |
| HDMI C CLK- R C1172 | 1 | 1.U | 0402 | 16V | HDMI C CLK-DISO@R797 | 1 | 2 | 499.0402 | 1% |
| HDMI C CLK+ R C1173 | 1 | 1.U | 0402 | 16V | HDMI C CLK-DISO@R799 | 1 | 2 | 499.0402 | 1% |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                                    |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------------------|--------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc.           |                    |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date: Wednesday, February 29, 2012 | Sheet 23 of 52     |





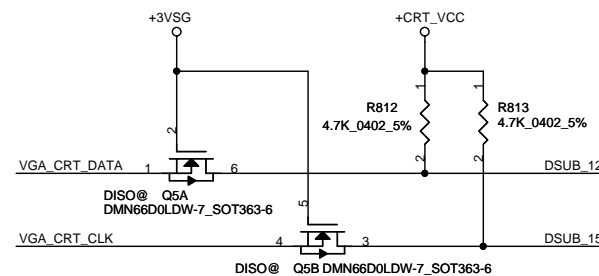
Use common via

From FCH

From VGA

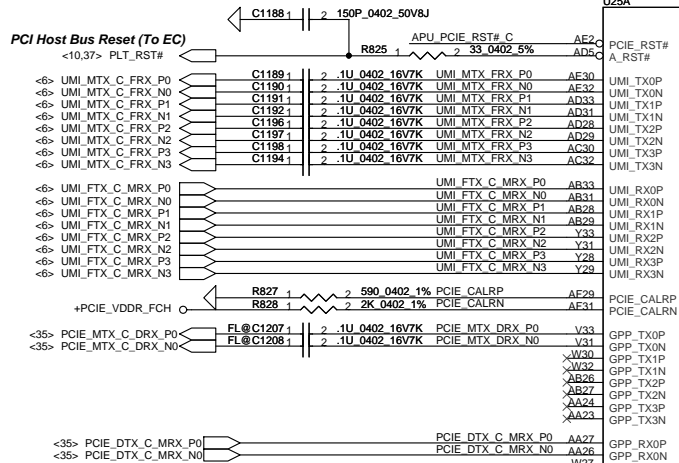
|                      |                 |      |   |       |   |           |           |
|----------------------|-----------------|------|---|-------|---|-----------|-----------|
| <26> FCH_CRT_R       | FCH_CRT_R       | R809 | 2 | UMA@  | 1 | 0.0402_5% | CRT_R     |
| <26> FCH_CRT_G       | FCH_CRT_G       | R810 | 2 | UMA@  | 1 | 0.0402_5% | CRT_G     |
| <26> FCH_CRT_B       | FCH_CRT_B       | R811 | 2 | UMA@  | 1 | 0.0402_5% | CRT_B     |
| <26> FCH_CRT_HSYNC   | FCH_CRT_HSYNC   | R814 | 2 | UMA@  | 1 | 0.0402_5% | CRT_HSYNC |
| <26> FCH_CRT_VSYNC   | FCH_CRT_VSYNC   | R815 | 2 | UMA@  | 1 | 0.0402_5% | CRT_VSYNC |
| <26> FCH_CRT_DDC_SDA | FCH_CRT_DDC_SDA | R816 | 2 | UMA@  | 1 | 0.0402_5% | DSUB_12   |
| <26> FCH_CRT_DDC_SCL | FCH_CRT_DDC_SCL | R817 | 2 | UMA@  | 1 | 0.0402_5% | DSUB_15   |
| <14> VGA_CRT_R       | VGA_CRT_R       | R818 | 2 | DISO@ | 1 | 0.0402_5% | CRT_R     |
| <14> VGA_CRT_G       | VGA_CRT_G       | R819 | 2 | DISO@ | 1 | 0.0402_5% | CRT_G     |
| <14> VGA_CRT_B       | VGA_CRT_B       | R820 | 2 | DISO@ | 1 | 0.0402_5% | CRT_B     |
| <14> VGA_CRT_HSYNC   | VGA_CRT_HSYNC   | R821 | 2 | DISO@ | 1 | 0.0402_5% | CRT_HSYNC |
| <14> VGA_CRT_VSYNC   | VGA_CRT_VSYNC   | R822 | 2 | DISO@ | 1 | 0.0402_5% | CRT_VSYNC |
| <14> VGA_CRT_DATA    | VGA_CRT_DATA    |      |   |       |   |           |           |
| <14> VGA_CRT_CLK     | VGA_CRT_CLK     |      |   |       |   |           |           |

Close to Conn side

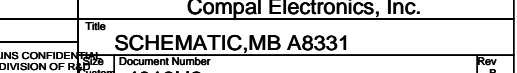
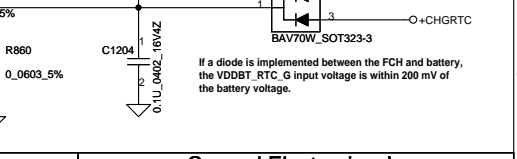
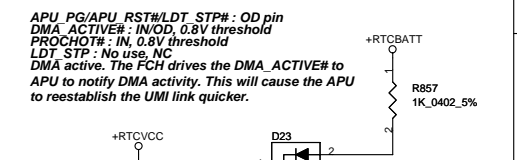
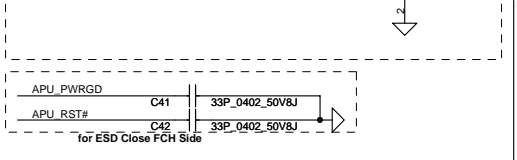
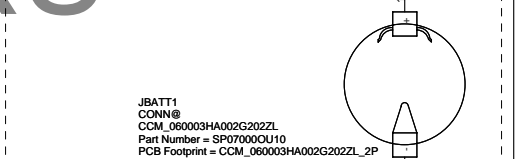
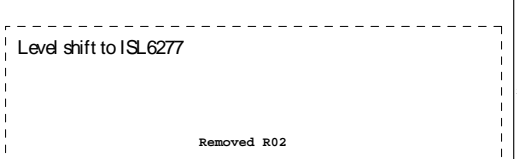
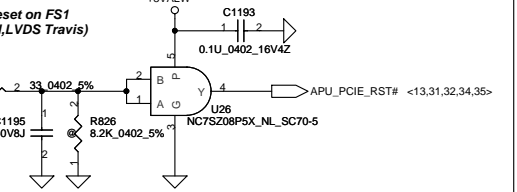
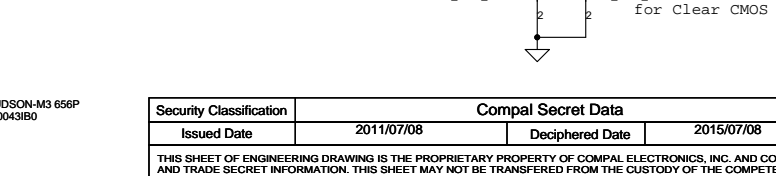
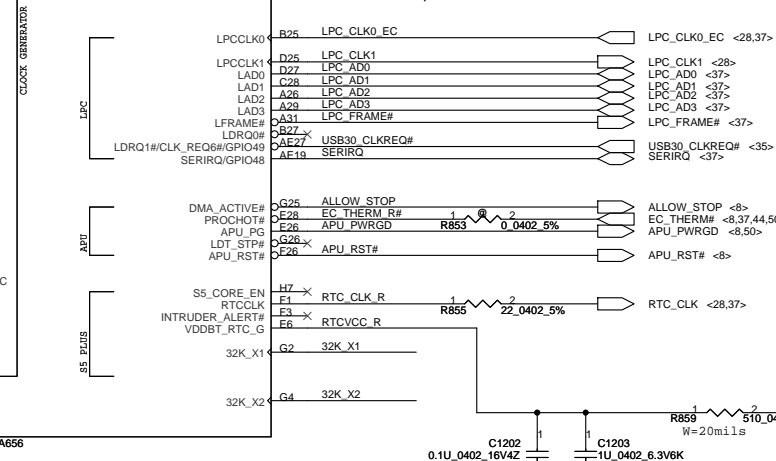
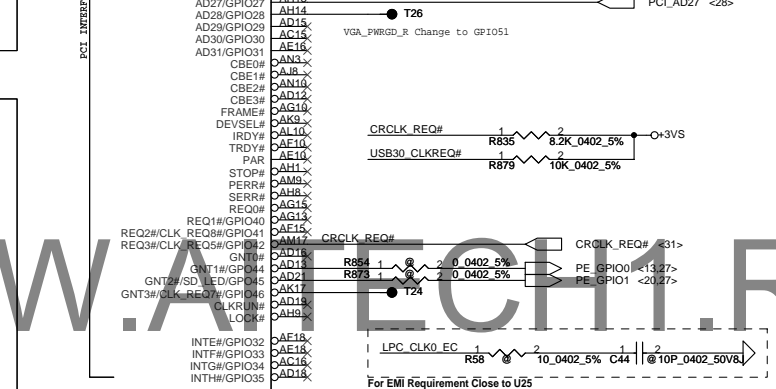
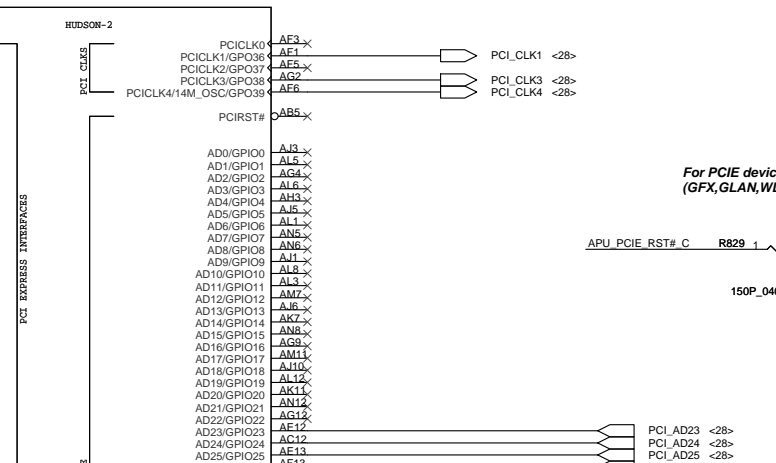
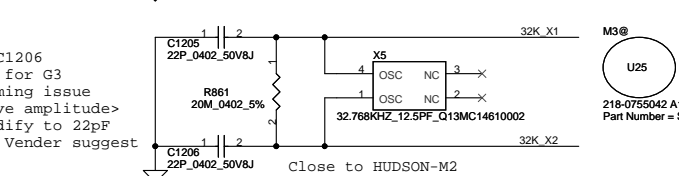
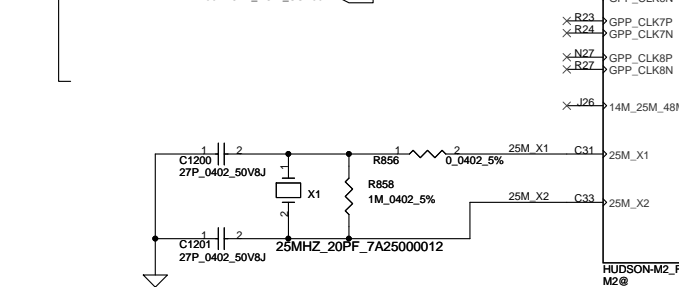
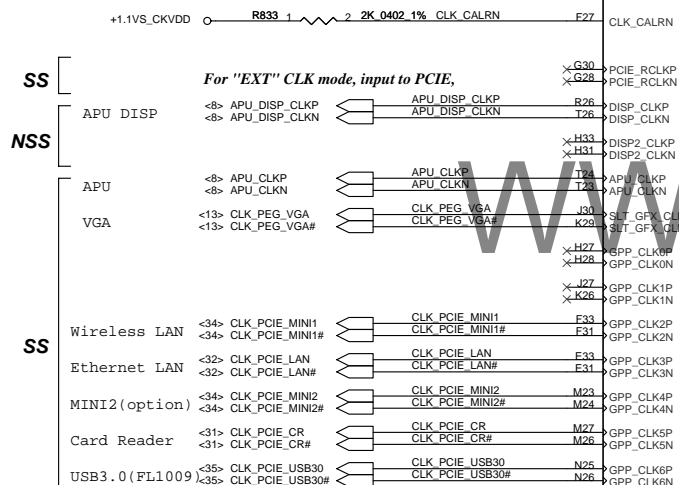


| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                |            | Compal Secret Data |            | Compal Electronics, Inc. |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|------------------------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                            | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    | SCHEMATIC,MB A8331           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Date:                    | Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                    |            | Sheet                    | 24 of 52                     |





GPP Port For USB30 on SUSB  
GPP Port For USB30 on M/B 20101103



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                    |  |                 |  |                          |  |          |  |                              |  |       |  |                |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|-----------------|--|--------------------------|--|----------|--|------------------------------|--|-------|--|----------------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Compal Secret Data |  |                 |  | Compal Electronics, Inc. |  |          |  |                              |  |       |  |                |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 2011/07/08         |  | Deciphered Date |  | 2015/07/08               |  | Title    |  | SCHEMATIC,MB A8331           |  |       |  |                |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                    |  |                 |  |                          |  | Customer |  | 4019H2                       |  |       |  |                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                    |  |                 |  |                          |  | Date:    |  | Wednesday, February 29, 2012 |  |       |  | Sheet 25 of 52 |  |







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

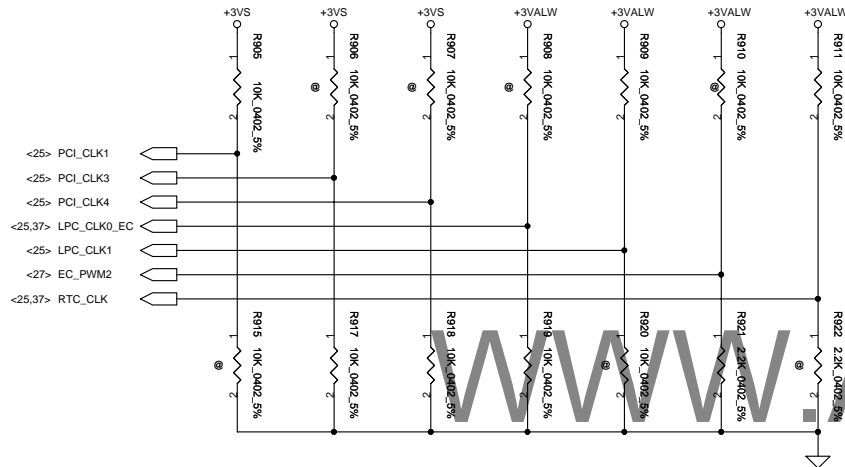
|                   |  |
|-------------------|--|
| Electronics, Inc. |  |
|                   |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                    |            |                          |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|------------|--------------------------|---------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     | Compal Secret Data |            | Compal Electronics, Inc. |                     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2011/07/08          | Deciphered Date    | 2015/07/08 | Title                    | SCHEMATIC, MB A8331 |
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| Doc No.                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Engineering 90 5010 | Sheet              | 59         | of                       | 63                  |



## STRAP PINS

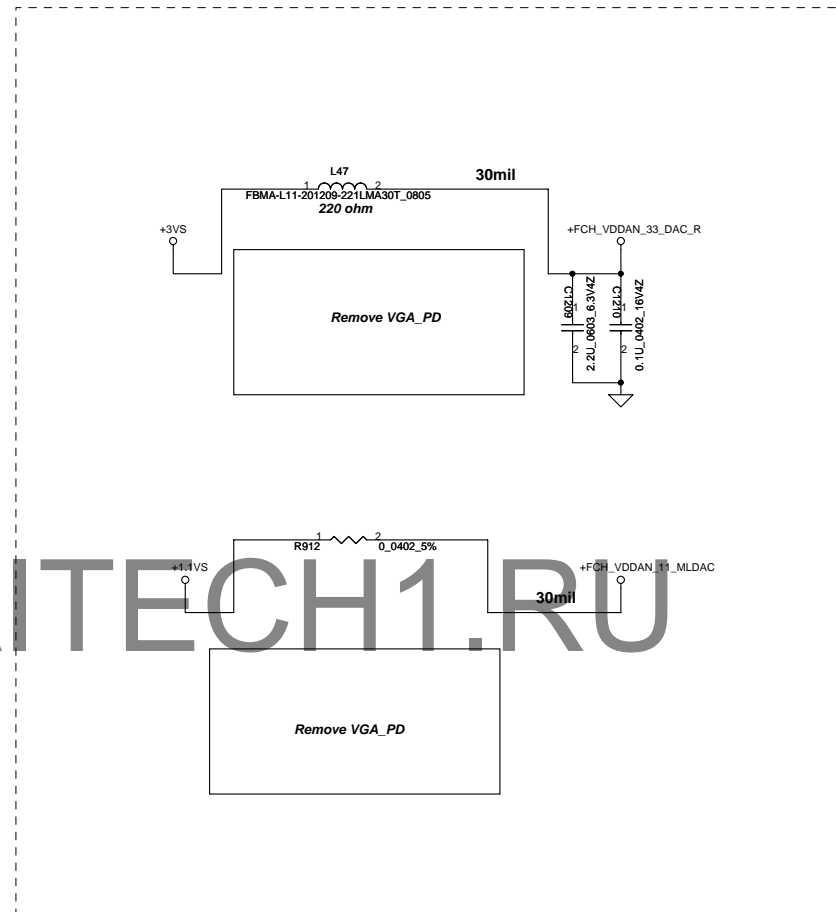
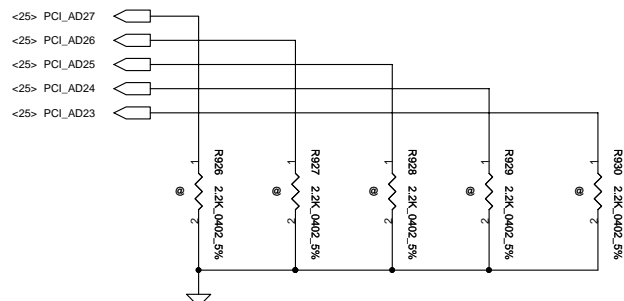
|           | PCI_CLK1                      | PCI_CLK3                            | PCI_CLK4                           | LPC_CLK0                  | LPC_CLK1                     | EC_PWM2            | RTC_CLK                                |
|-----------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|------------------------------|--------------------|----------------------------------------|
| PULL HIGH | ALLOW<br>PCIE GEN2<br>DEFAULT | USE<br>DEBUG<br>STRAPS              | NON_FUSION<br>CLOCK MODE           | EC<br>ENABLED             | CLKGEN<br>ENABLED<br>DEFAULT | LPC ROM            | S5 PLUS<br>MODE<br>DISABLED<br>DEFAULT |
| PULL LOW  | FORCE<br>PCIE GEN1            | IGNORE<br>DEBUG<br>STRAP<br>DEFAULT | FUSION<br>CLOCK<br>MODE<br>DEFAULT | EC<br>DISABLED<br>DEFAULT | CLKGEN<br>DISABLE            | SPI ROM<br>DEFAULT | S5 PLUS<br>MODE<br>ENABLED             |



## DEBUG STRAPS

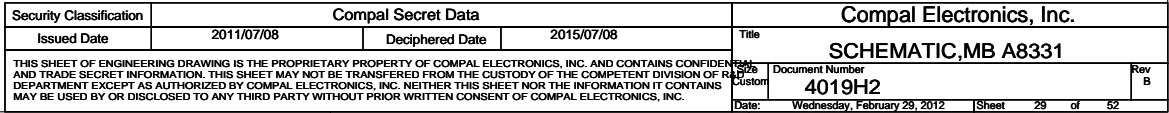
FCH HAS 15K INTERNAL PU FOR PCI\_AD[27:23]

| PCI_AD26  | PCI_AD27                  |                                      | PCI_AD25                 | PCI_AD24                              | PCI_AD23                           |
|-----------|---------------------------|--------------------------------------|--------------------------|---------------------------------------|------------------------------------|
| PULL HIGH | USE PCI<br>PLL<br>DEFAULT | DISABLE<br>ILA<br>AUTORUN<br>DEFAULT | USE FC<br>PLL<br>DEFAULT | USE DEFAULT<br>PCIE STRAPS<br>DEFAULT | DISABLE PCI<br>MEM BOOT<br>DEFAULT |
| PULL LOW  | BYPASS<br>PCI PLL         | ENABLE<br>ILA<br>AUTORUN             | BYPASS<br>FC PLL         | USE EEPROM<br>PCIE STRAPS             | ENABLE PCI<br>MEM BOOT             |



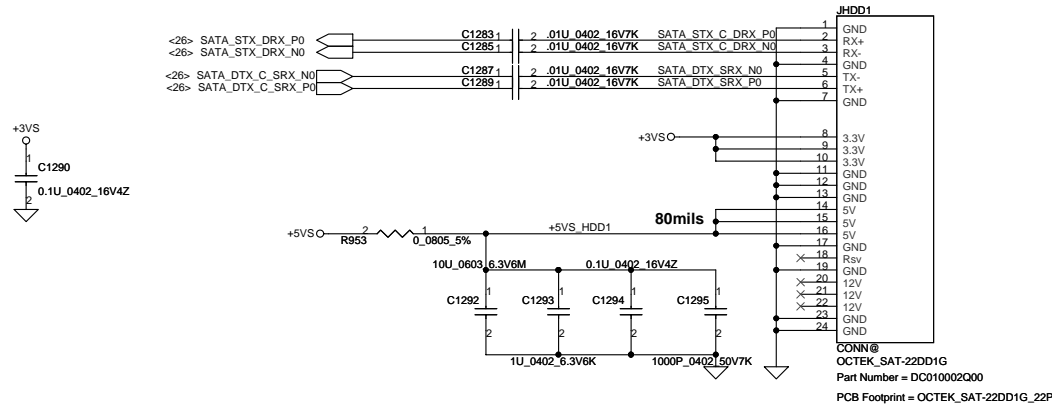
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                              |  |                 |  |                          |  |                    |  |       |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------|--|-----------------|--|--------------------------|--|--------------------|--|-------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Compal Secret Data           |  |                 |  | Compal Electronics, Inc. |  |                    |  |       |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 2011/07/08                   |  | Deciphered Date |  | 2015/07/08               |  | Title              |  |       |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                              |  |                 |  |                          |  | Document Number    |  | Rev B |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                              |  |                 |  |                          |  | 4019H2             |  |       |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Wednesday, February 29, 2012 |  |                 |  | Sheet 28 of 52           |  |                    |  |       |  |



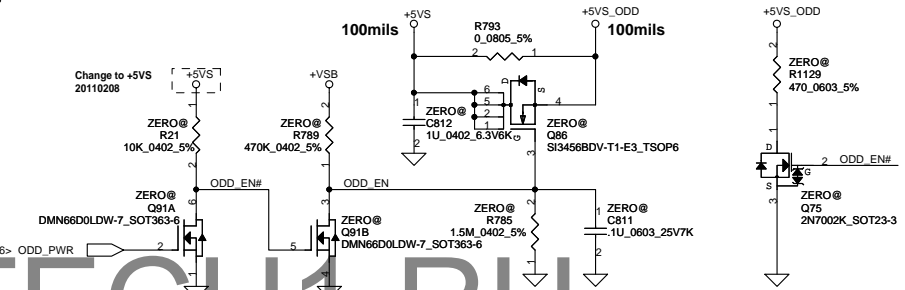
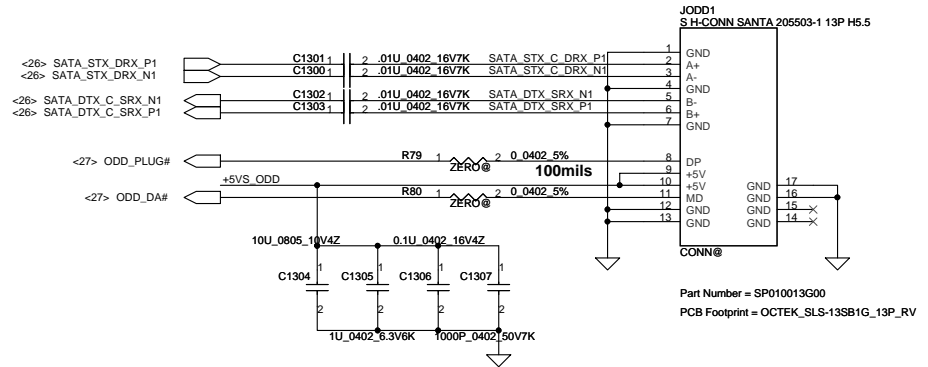




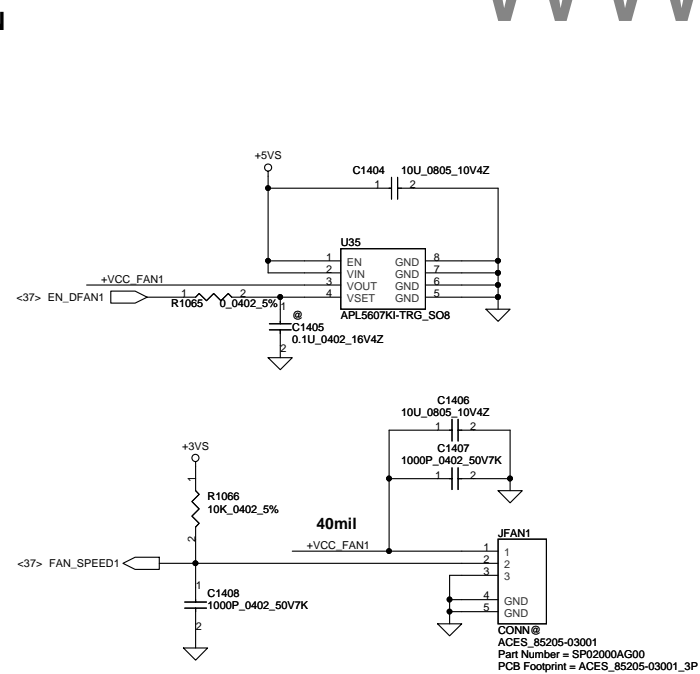
**SATA HDD1 Conn.**



**SATA ODD Conn.**

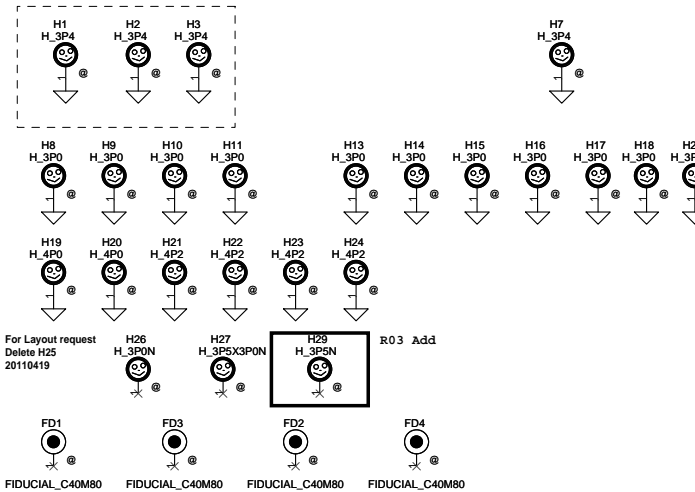


**FAN**



Screw Hole      Follow P5WE0

## FAN Stand-Off



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                    |            |                          |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------|------------|--------------------------|---------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              | Compal Secret Data |            | Compal Electronics, Inc. |                     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08                   | Deciphered Date    | 2015/07/08 | Title                    | SCHEMATIC, MB A8331 |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                    |            | 4019H2                   |                     |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Wednesday, February 29, 2012 | Sheet              | 30         | of                       | 52                  |

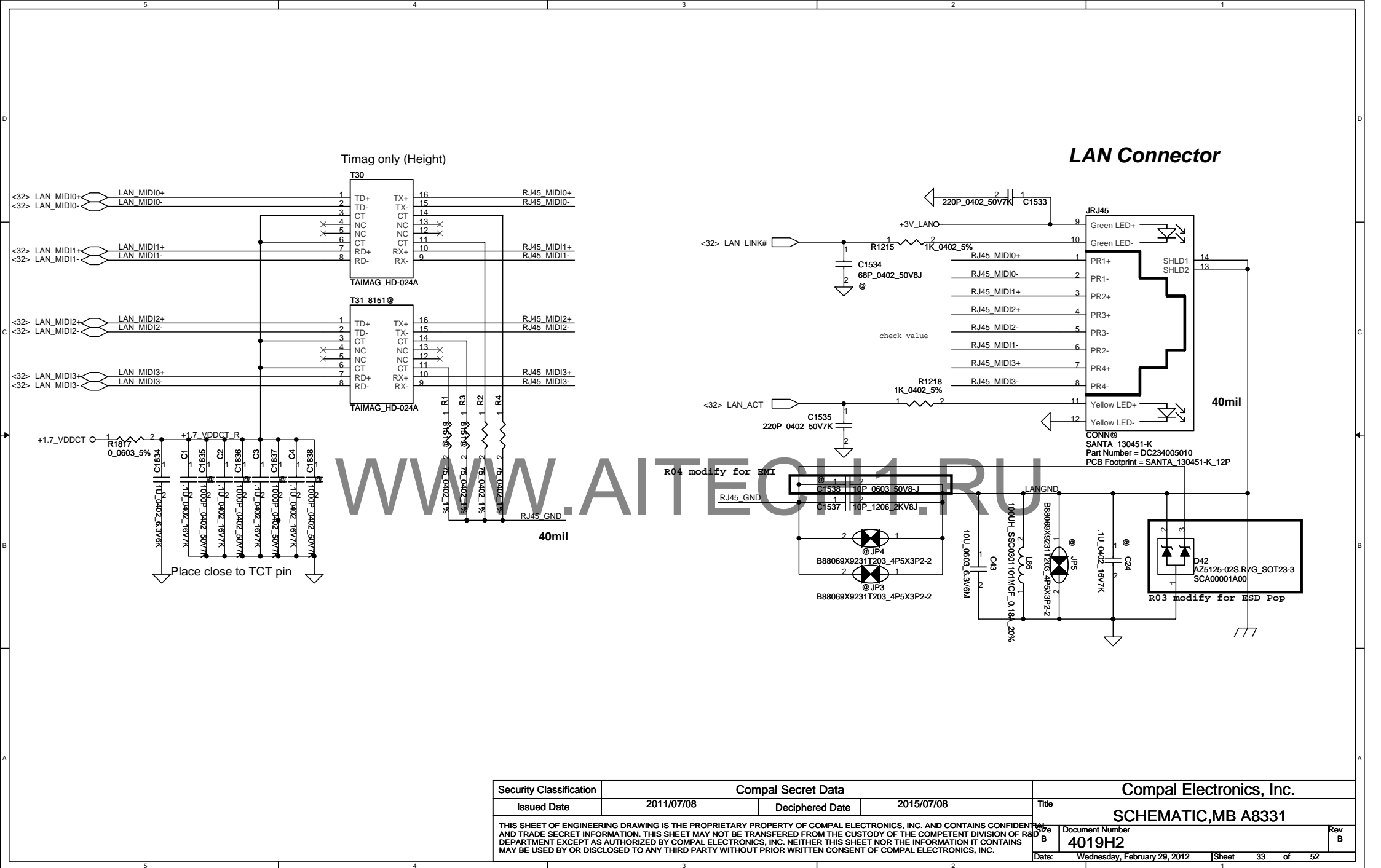












|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|-------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |       |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    |       |
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| Date: Wednesday, February 29, 2012                                                                                                                                                                                                                                                                                                                                                                                                                            |            | Sheet 33 of 52     |            | Document Number          | Rev B |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 4019H2                   |       |

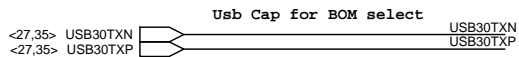




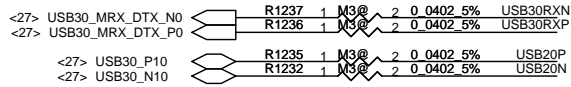




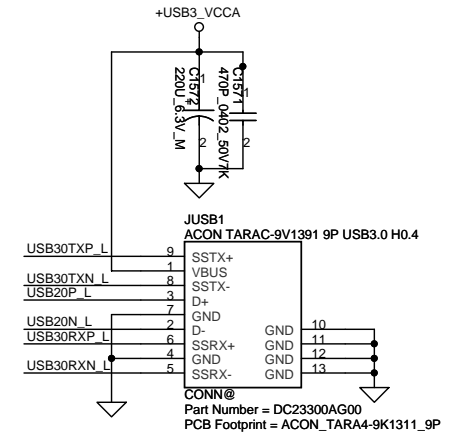
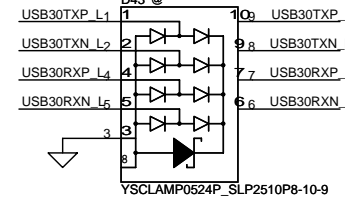
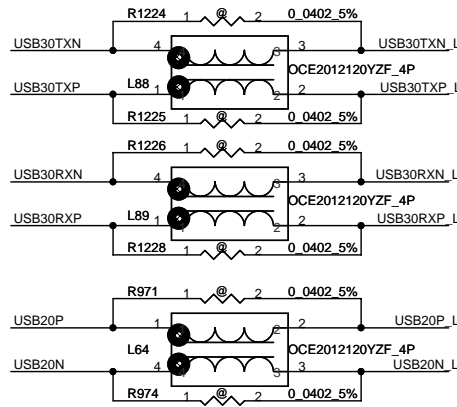
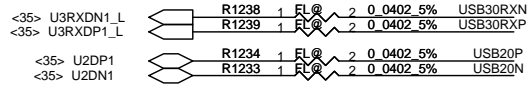




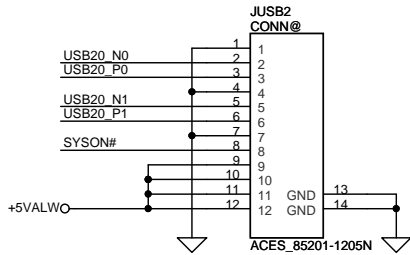
## From FCH



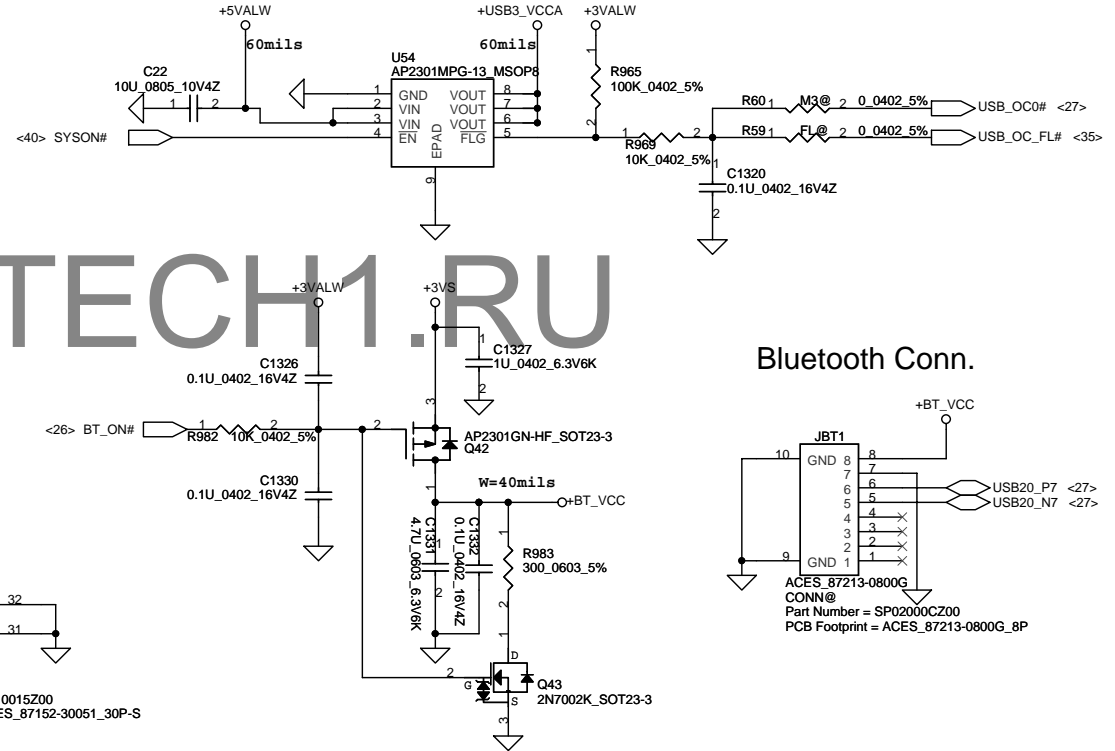
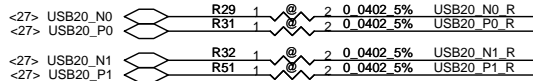
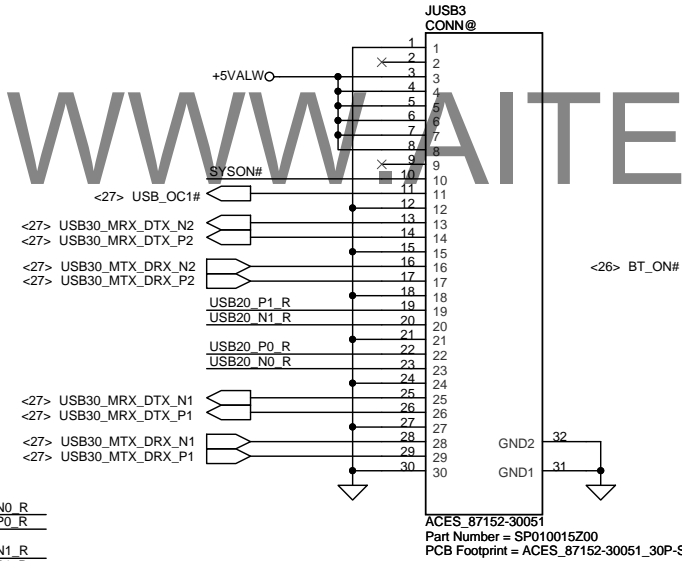
## From Fresco



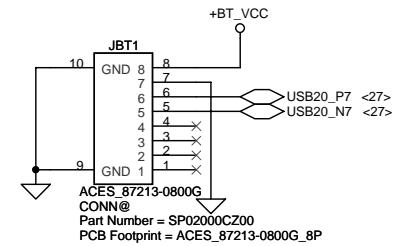
## 12 Pin USB20/B Conn



## 30 Pin USB30/B Zif Conn.

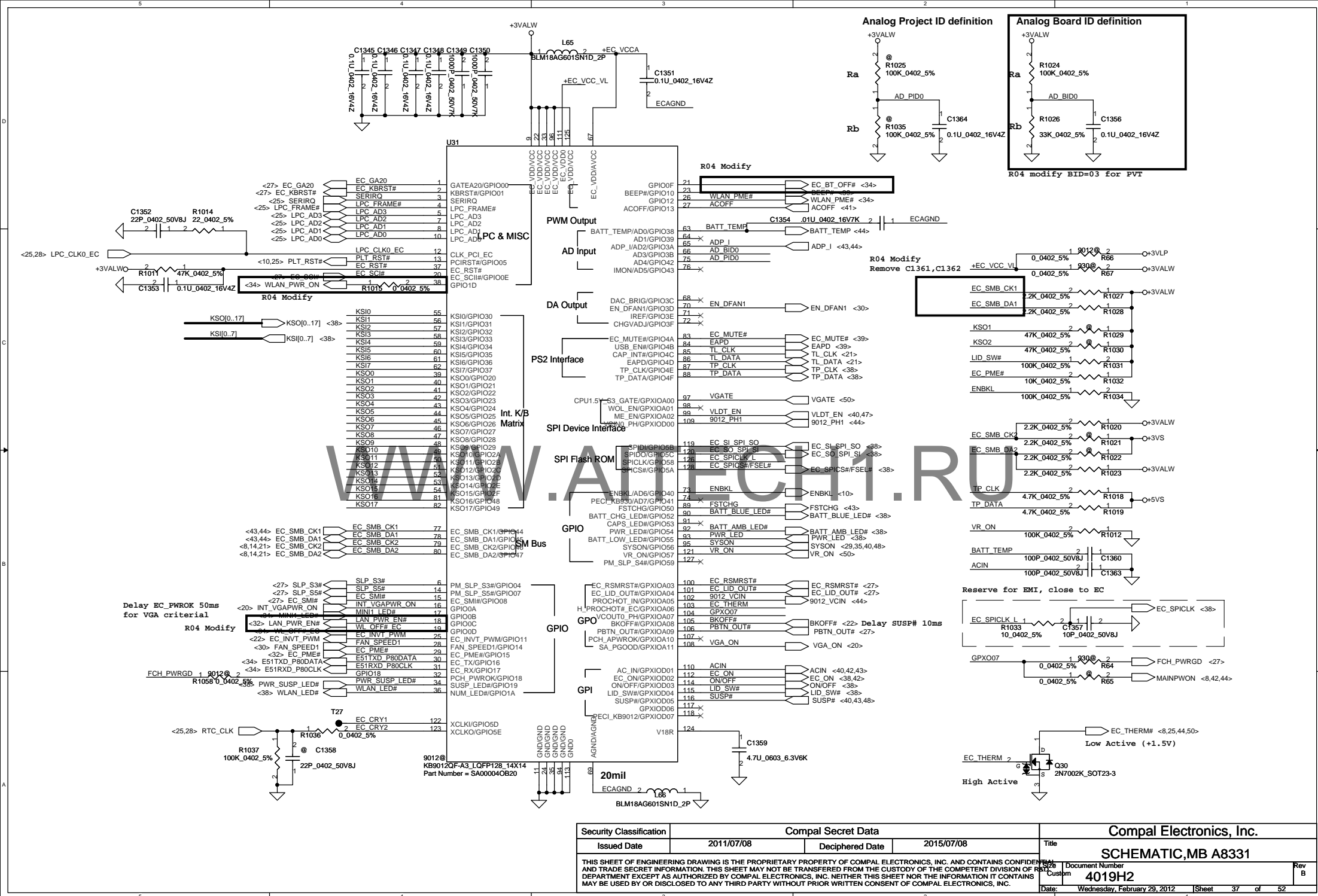


## Bluetooth Conn.



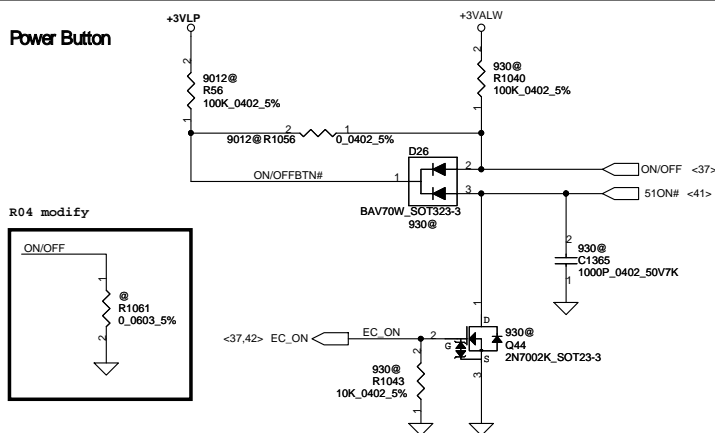
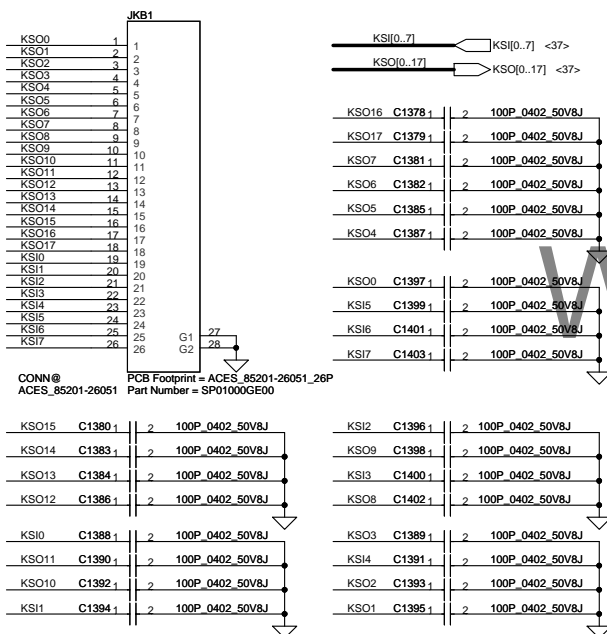
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|------------------------------|
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    | SCHEMATIC,MB A8331           |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 36 of 52                     |





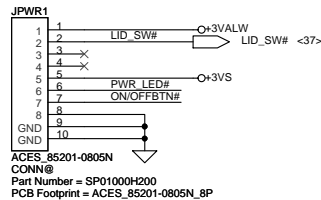


## R04 modify

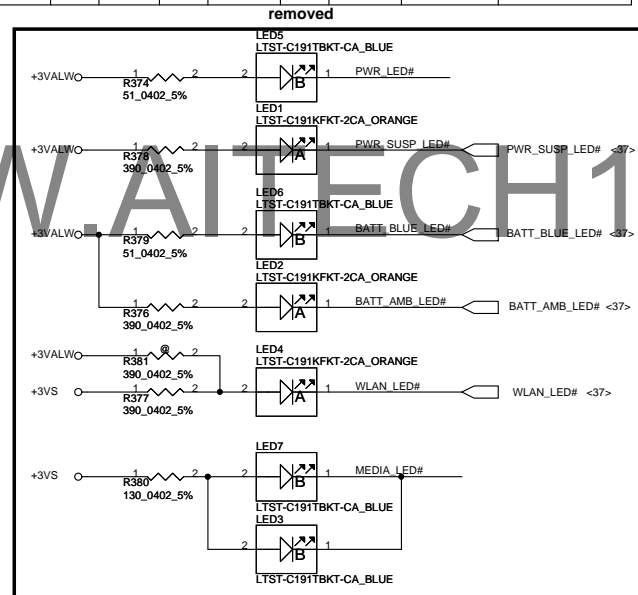
JKB1

| Signal              | Pin   | Function    | Supply | Current | Power    | Notes           |
|---------------------|-------|-------------|--------|---------|----------|-----------------|
| <37> EC_SPICLK#SEL# | R1050 | SPICLK#SEL# | 3.3V   | 4.7K    | 0.002 5% | EC_SPICLK# <37> |
|                     | R1051 | SPICLK#     | 3.3V   | 4.7K    | 0.002 5% | EC_SPICLK# <37> |
| +3VALWO             | R1052 | 3VALWO      | 3.3V   | 4.7K    | 0.002 5% | EC_3VALWO <37>  |
|                     | R1053 | 3VALWO      | 3.3V   | 4.7K    | 0.002 5% | EC_3VALWO <37>  |
|                     | R1054 | 3VALWO      | 3.3V   | 4.7K    | 0.002 5% | EC_3VALWO <37>  |

**LED**

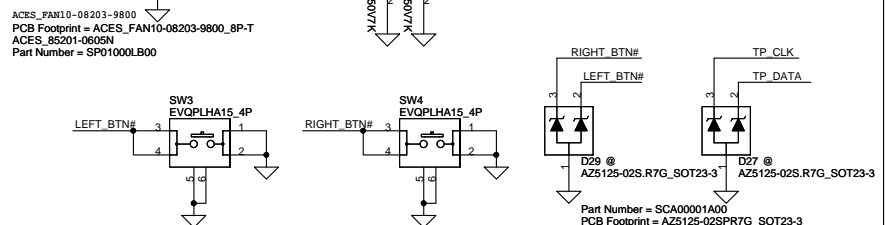


| LED Status  | Power/SUS |       | Battery |        | 3G / WLAN |       | BlueTooth | ACIN |
|-------------|-----------|-------|---------|--------|-----------|-------|-----------|------|
|             | ON        | SUS   | Full    | Charge | 3G        | WLAN  |           |      |
| NEW70/80/90 | Blue      | Amber | Blue    | Amber  |           | Amber |           |      |

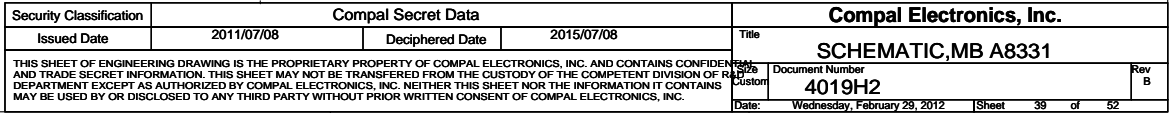


R04 Modify LED Vender to LITE-ON  
Change R follow Q5WVH

| CONN@<br>JTP1 |            |  |
|---------------|------------|--|
| 1             | FCH_SCLK1  |  |
| 2             | TP_VDD     |  |
| 3             | TP_CLK     |  |
| 4             | TP_DATA    |  |
| 5             | LEFT_BTN#  |  |
| 6             | RIGHT_BTN# |  |
| 7             |            |  |
| 8             | FCH_SDATA1 |  |
| 9             |            |  |
| GND           |            |  |
| GND           |            |  |

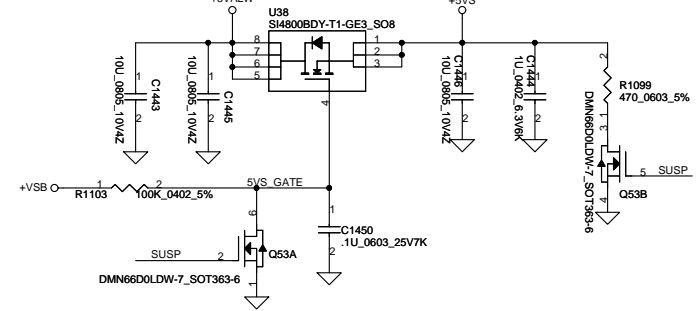




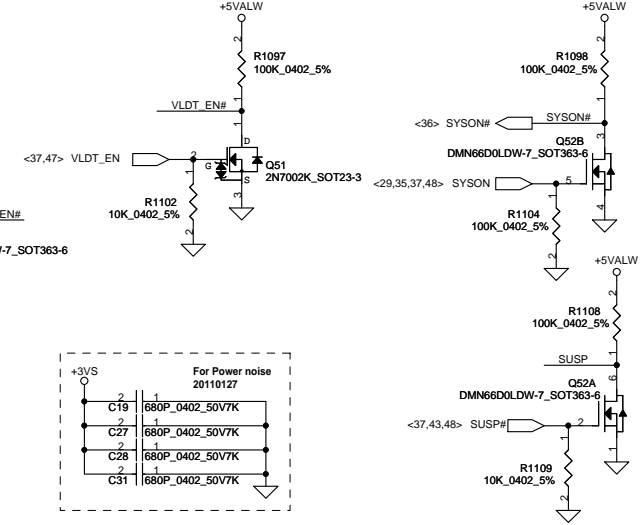
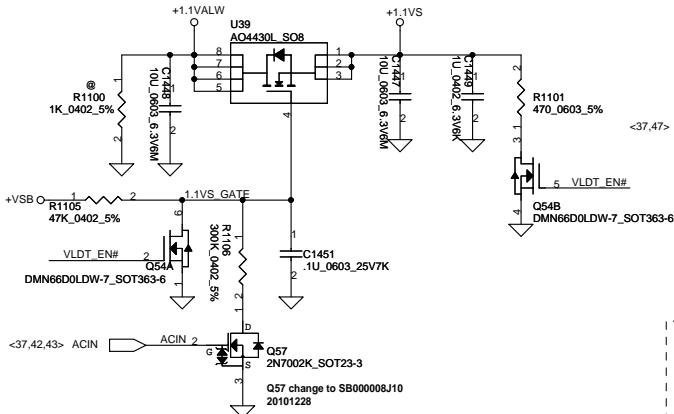




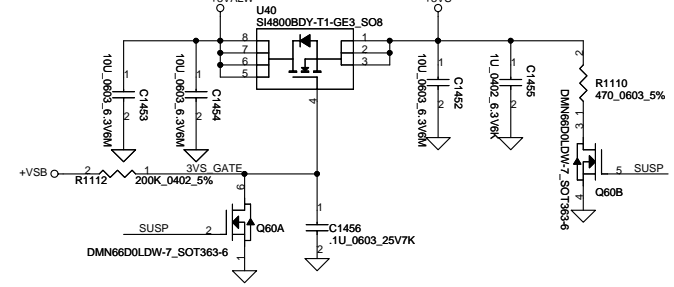
**+5VALW TO +5VS (5A)**



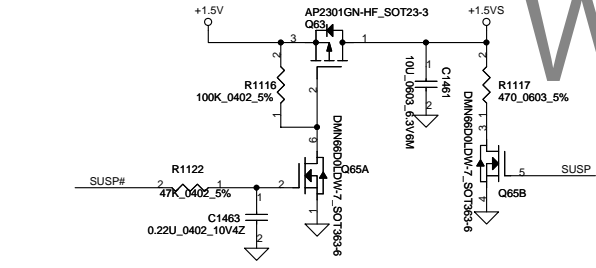
**+1.1VALW TO +1.1VS (1.1A)**



## +3VALW TO +3VS (3.3A)

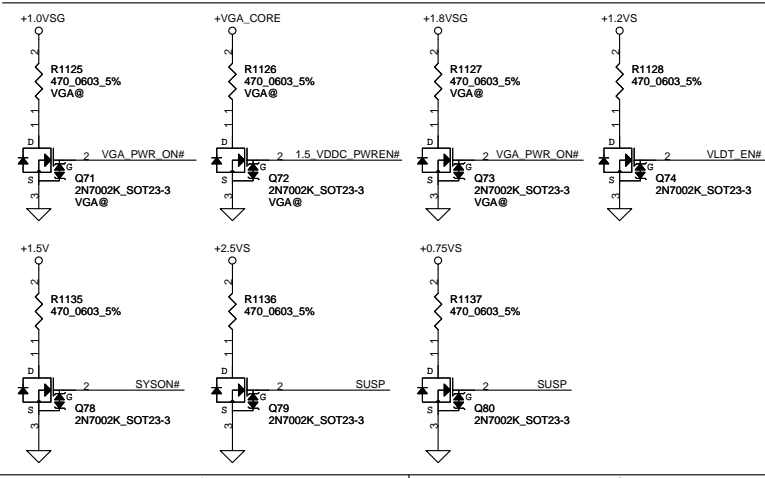
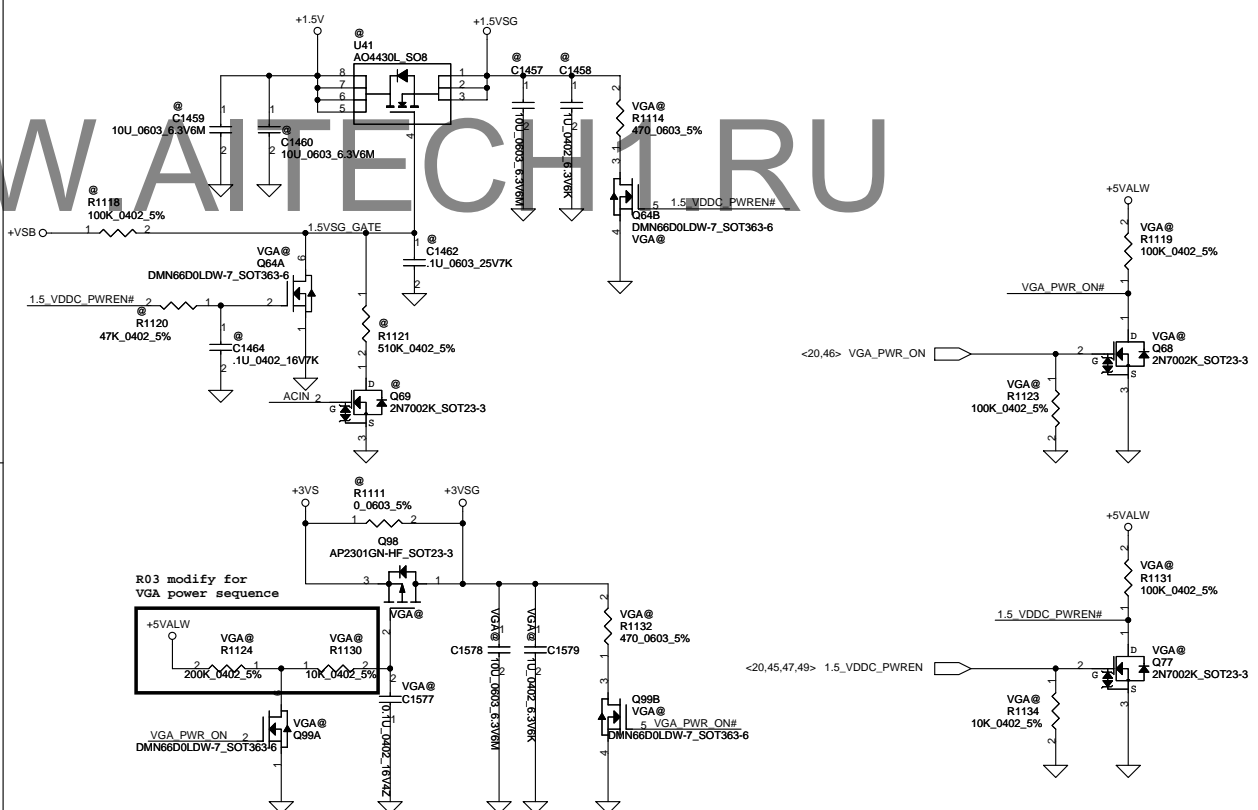


**-1.5V TO +1.5VS (1.5A)**



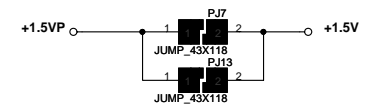
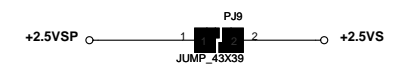
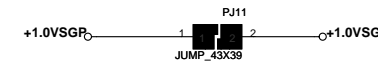
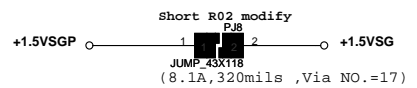
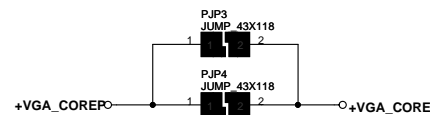
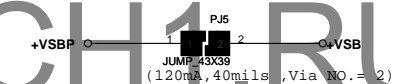
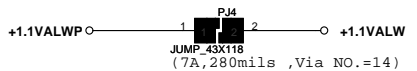
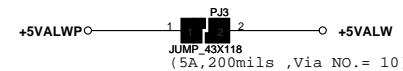
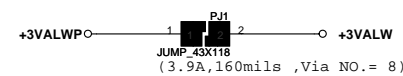
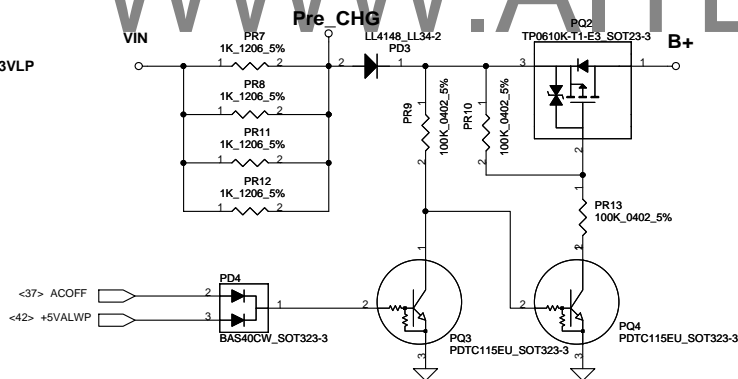
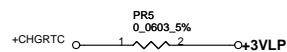
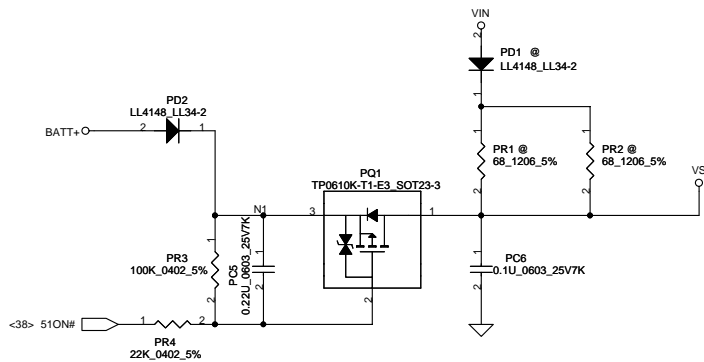
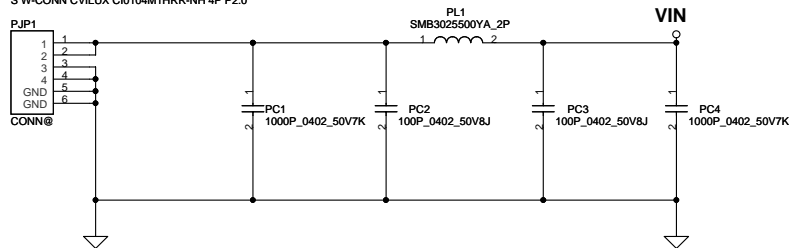
## VGA Power

**+1.5V to +1.5VSG (1.5A)**



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                              |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    | SCHMATIC,MB A8331            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | 4019H2                   |                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date                     | Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 40 of 52                     |





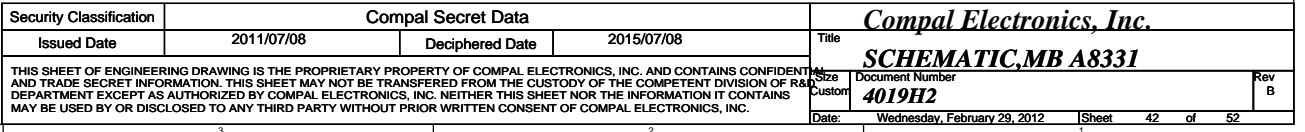
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                              |                |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                              |                |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    |                              |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Docu                     | Document Number              | Rev            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Custom                   | 4019H2                       | B              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Wednesday, February 29, 2012 | Sheet 41 of 52 |

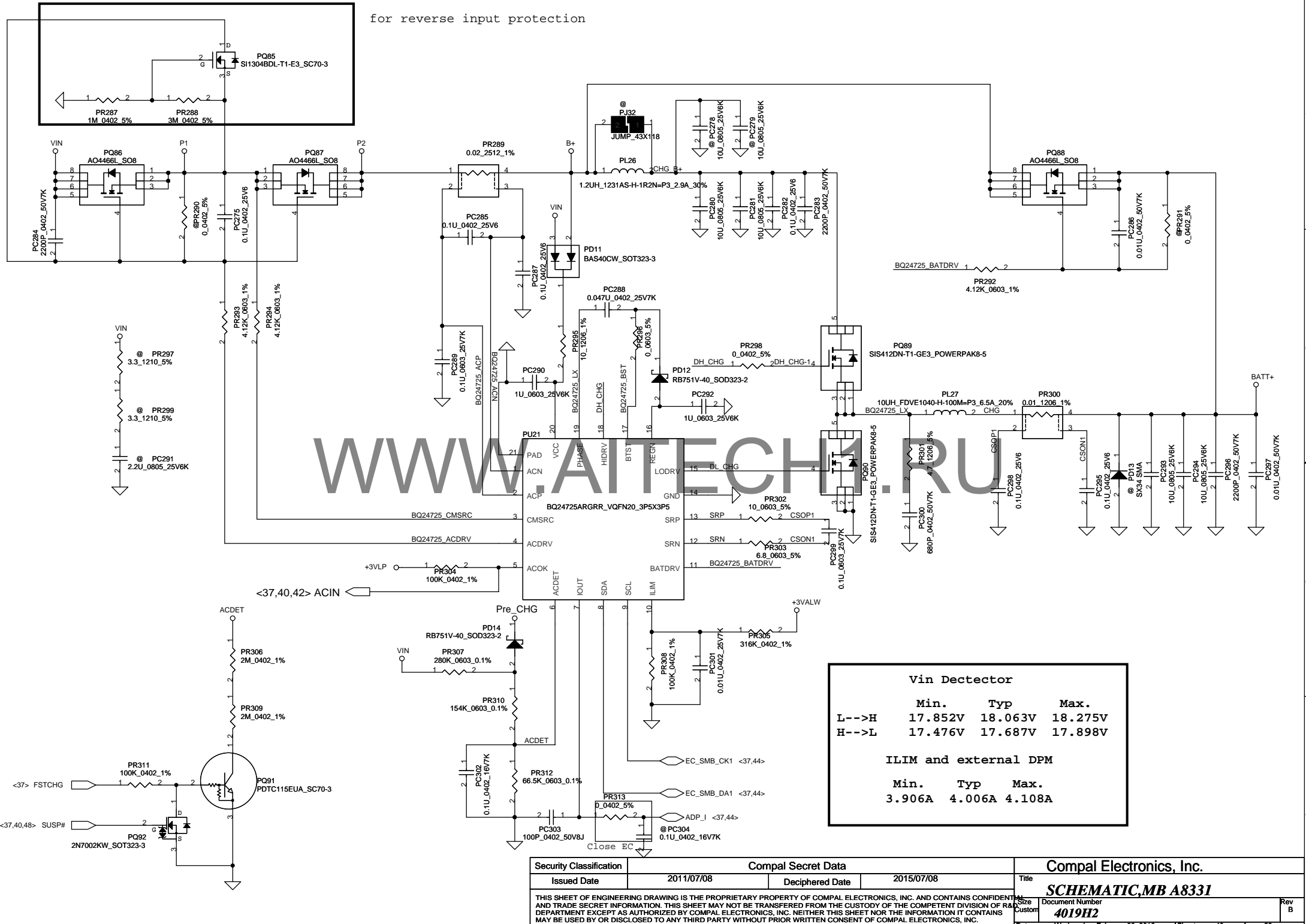
Compal Electronics, Inc.

SCHEMATIC, MB A8331









for reverse input protection

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| Vin Dectector |         |         |         |
|---------------|---------|---------|---------|
|               | Min.    | Typ     | Max.    |
| L-->H         | 17.852V | 18.063V | 18.275V |
| H-->L         | 17.476V | 17.687V | 17.898V |

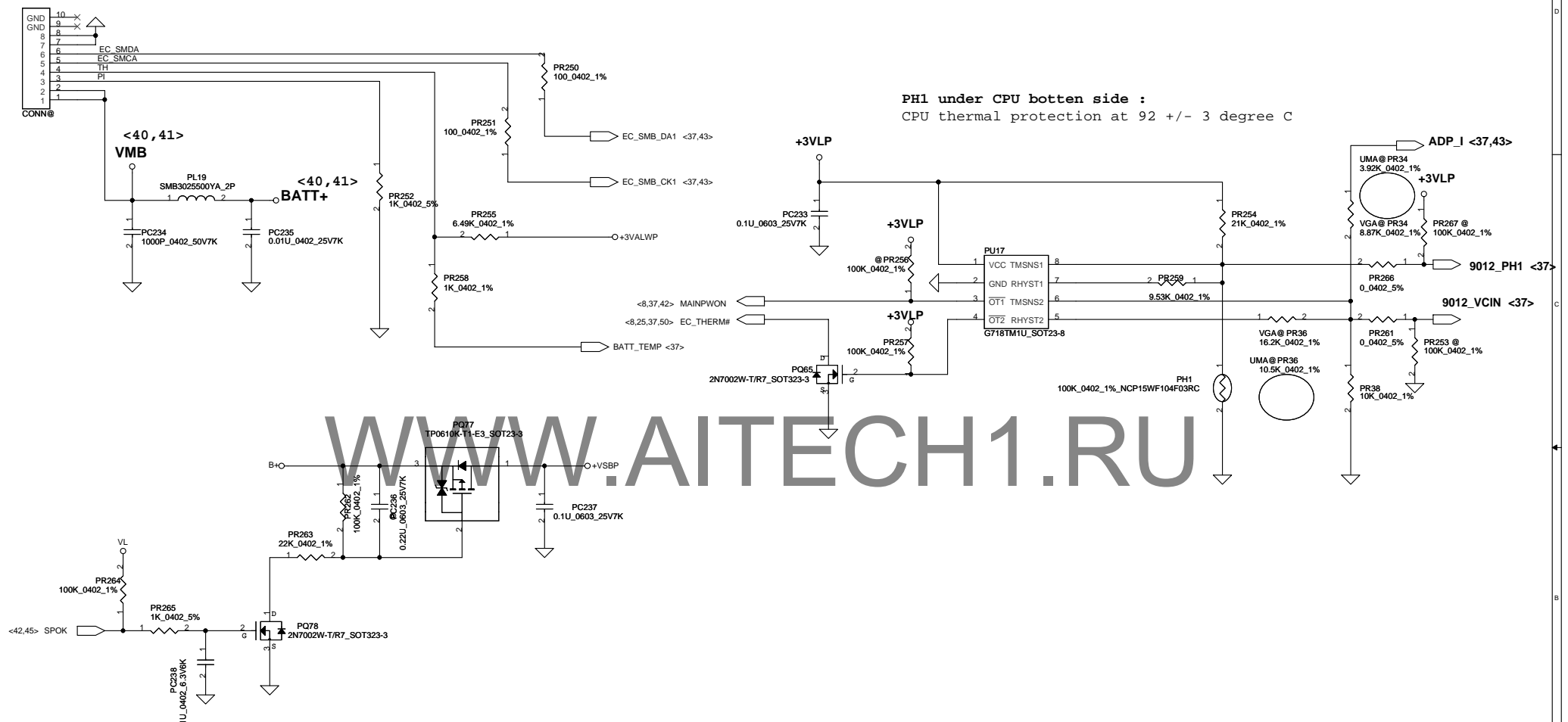
| ILIM and external DPM |        |        |        |
|-----------------------|--------|--------|--------|
|                       | Min.   | Typ    | Max.   |
|                       | 3.906A | 4.006A | 4.108A |

| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                     |
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| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                    | SCHEMATIC, MB A8331 |
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| Date: Wednesday, February 29, 2012                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                    |            | Sheet                    | 43 of 52            |



Part Number = DC040008G00  
PCB Footprint = SUYIN\_200275GR008G13GZR\_8P-T

PJP2  
SUYIN\_200275GR008G16BZR 8P



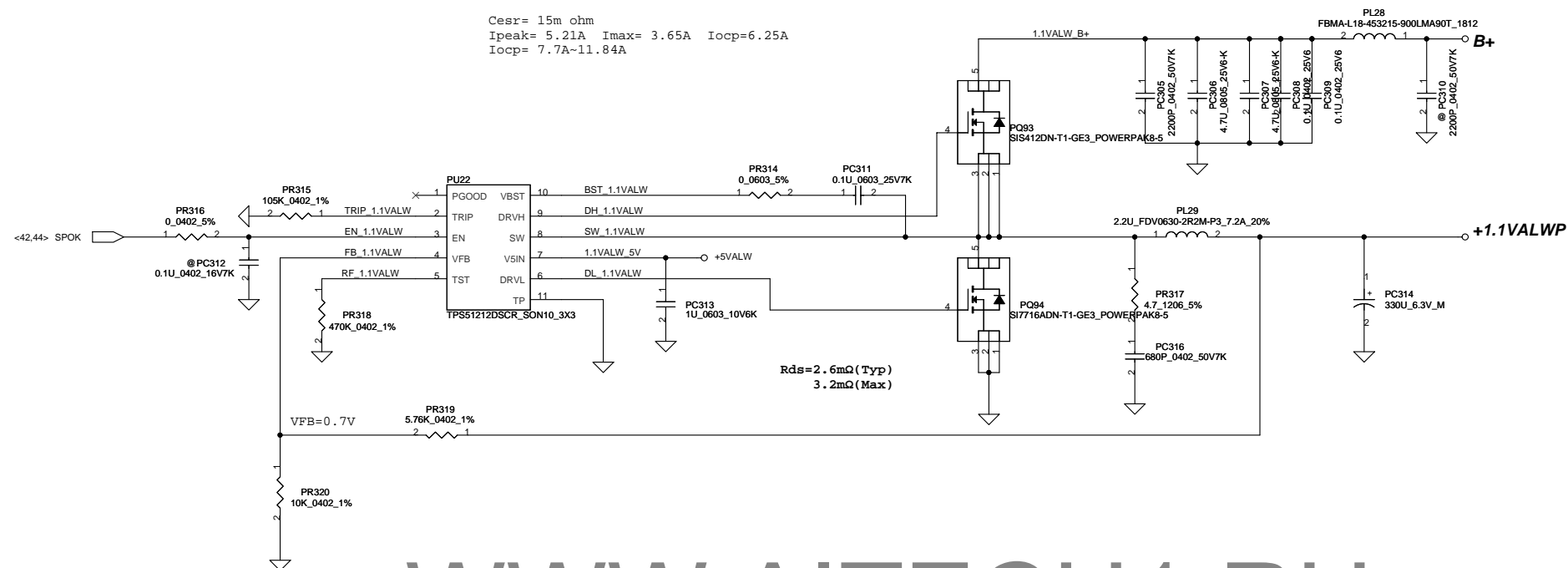
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |            |                          |                     |
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| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 |            | Compal Electronics, Inc. |                     |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08         | Deciphered Date | 2015/07/08 | Title                    | SCHEMATIC, MB A8331 |
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| Date: Wednesday, February 28, 2012                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |            |                          | Sheet 44 of 52      |

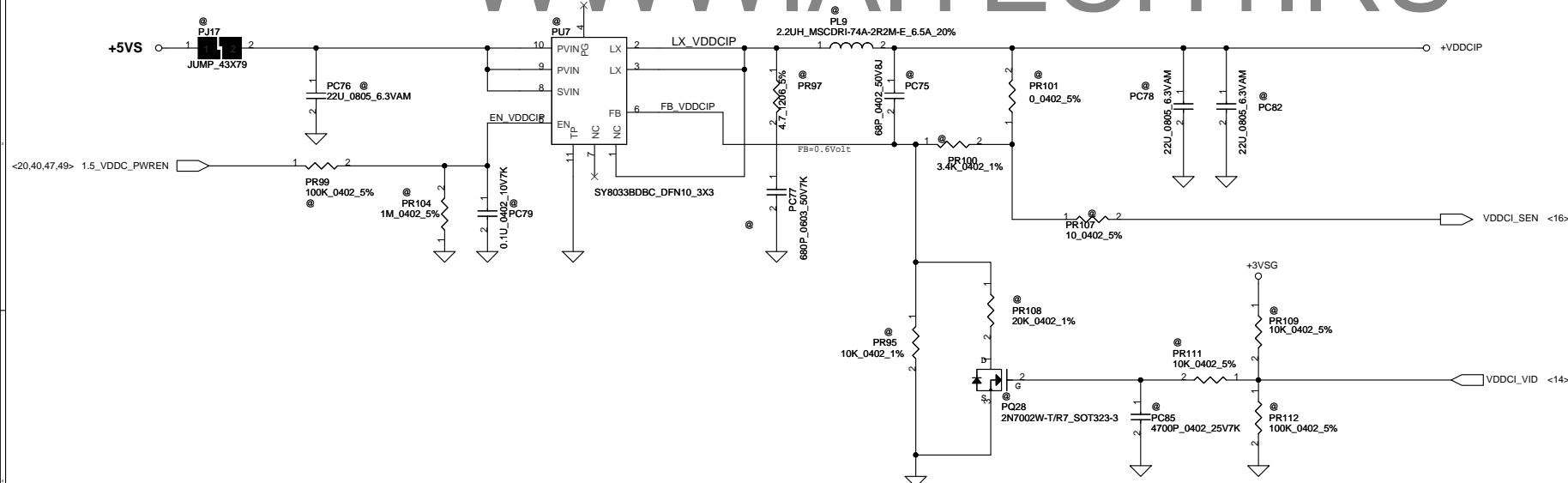


VFB= 0.7V  
 $V_o = V_{FB} * (1 + 5.76K/10K) = 1.1V$   
 Freq= 266~314KHz , 290KHz (typ)

Cesr= 15m ohm  
 Ipeak= 5.21A Imax= 3.65A Iocp=6.25A  
 Iocp= 7.7A~11.84A

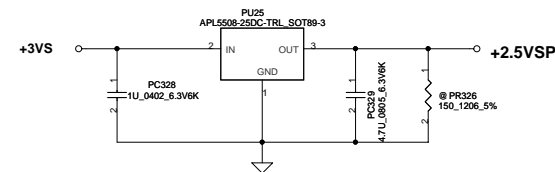
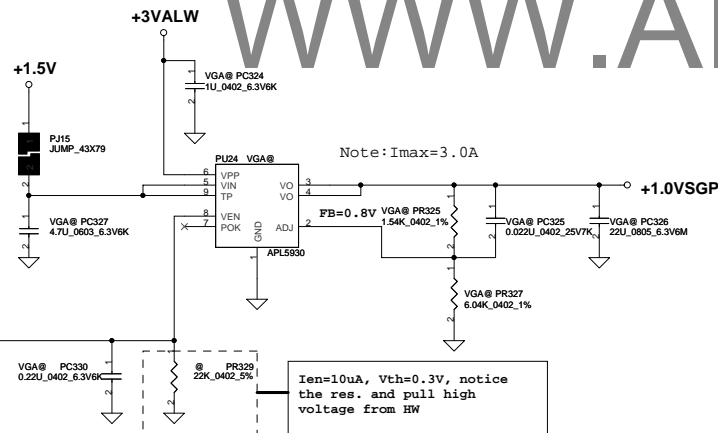
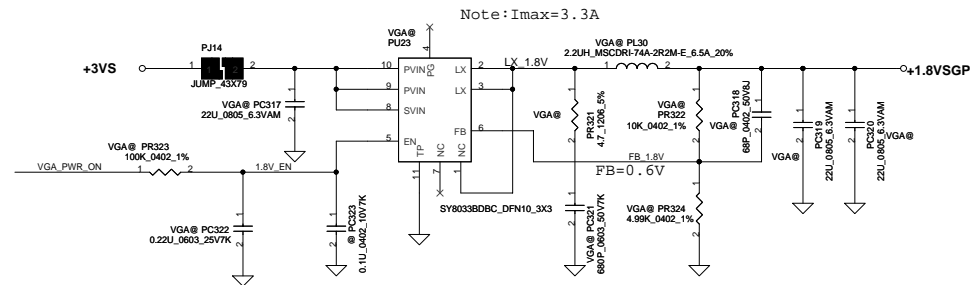


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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            |                              |                           |          |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------------------|---------------------------|----------|--|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                         |            | Compal Secret Data |            | Compal Electronics, Inc.     |                           |          |  |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2011/07/08 | Deciphered Date    | 2015/07/08 | Title                        |                           |          |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                    |            | Doc<br>Custom                | Document Number<br>4019H2 | Rev<br>B |  |
| Date:                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |                    |            | Wednesday, February 29, 2012 |                           |          |  |
| ISheet                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                    |            | 45 of 52                     |                           |          |  |

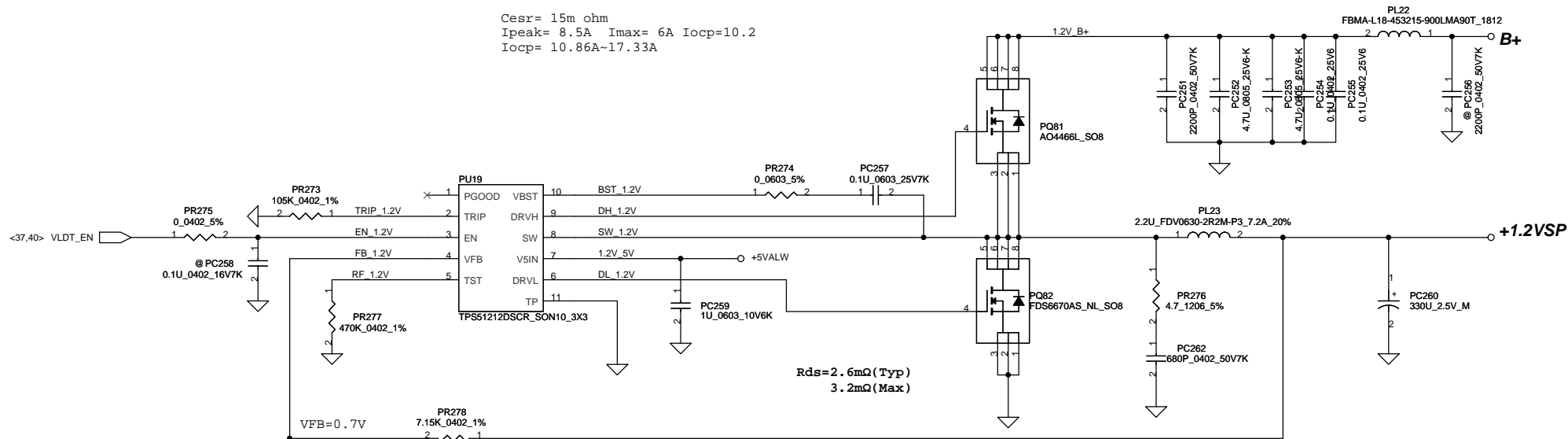




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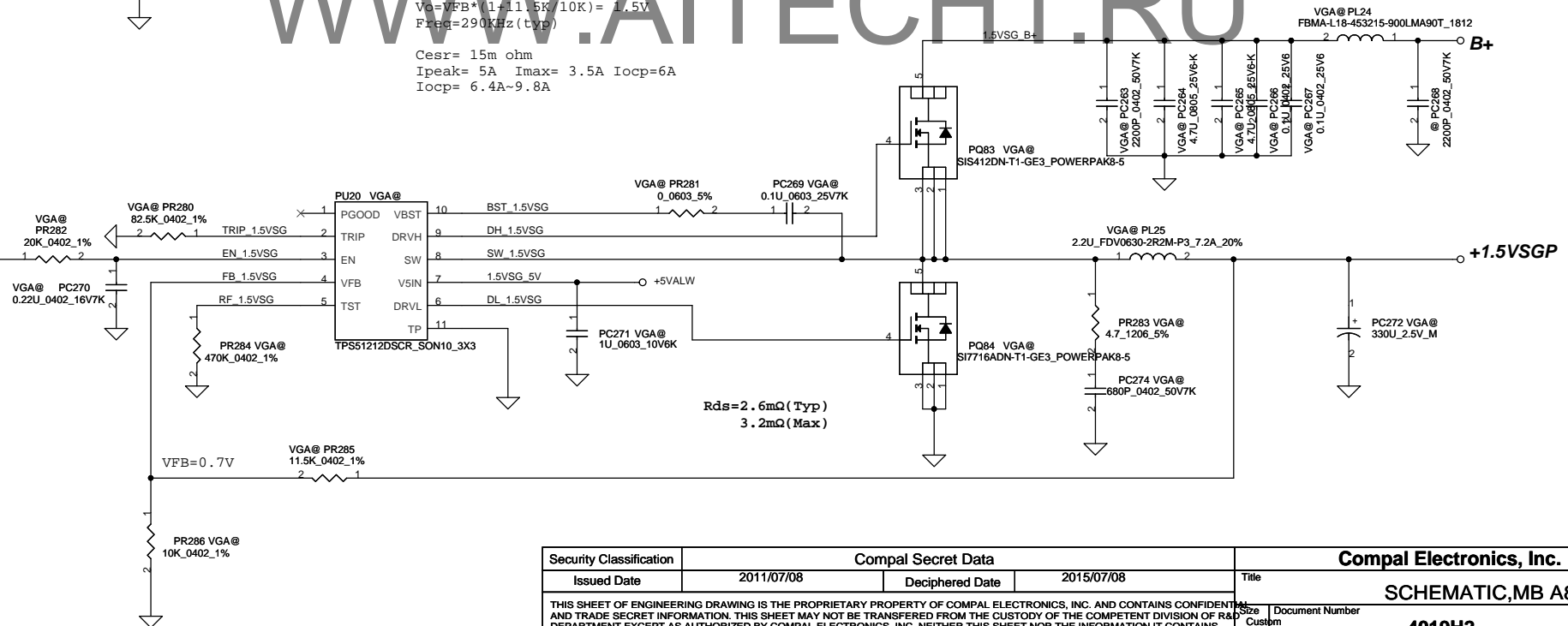


VFB= 0.7V  
 $V_o = VFB * (1 + 7.15K / 10K) = 1.2V$   
Freq= 266~314KHz , 290KHz( typ )  
  
Cesr= 15m ohm  
Ipeak= 8.5A Imax= 6A Iocp=10.2  
Iocp= 10.86A~17.33A



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VFB= 0.704V  
 $V_o = VFB * (1 + 11.5K / 10K) = 1.5V$   
Freq=290KHz( typ )  
  
Cesr= 15m ohm  
Ipeak= 5A Imax= 3.5A Iocp=6A  
Iocp= 6.4A~9.8A



|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|--------------------------|------------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       | Compal Secret Data |                 | Compal Electronics, Inc. |                                    |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08         | Deciphered Date | 2015/07/08               | Title                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Document Number                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | 4019H2                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Rev B                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Date: Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                          | Sheet 47 of 52                     |

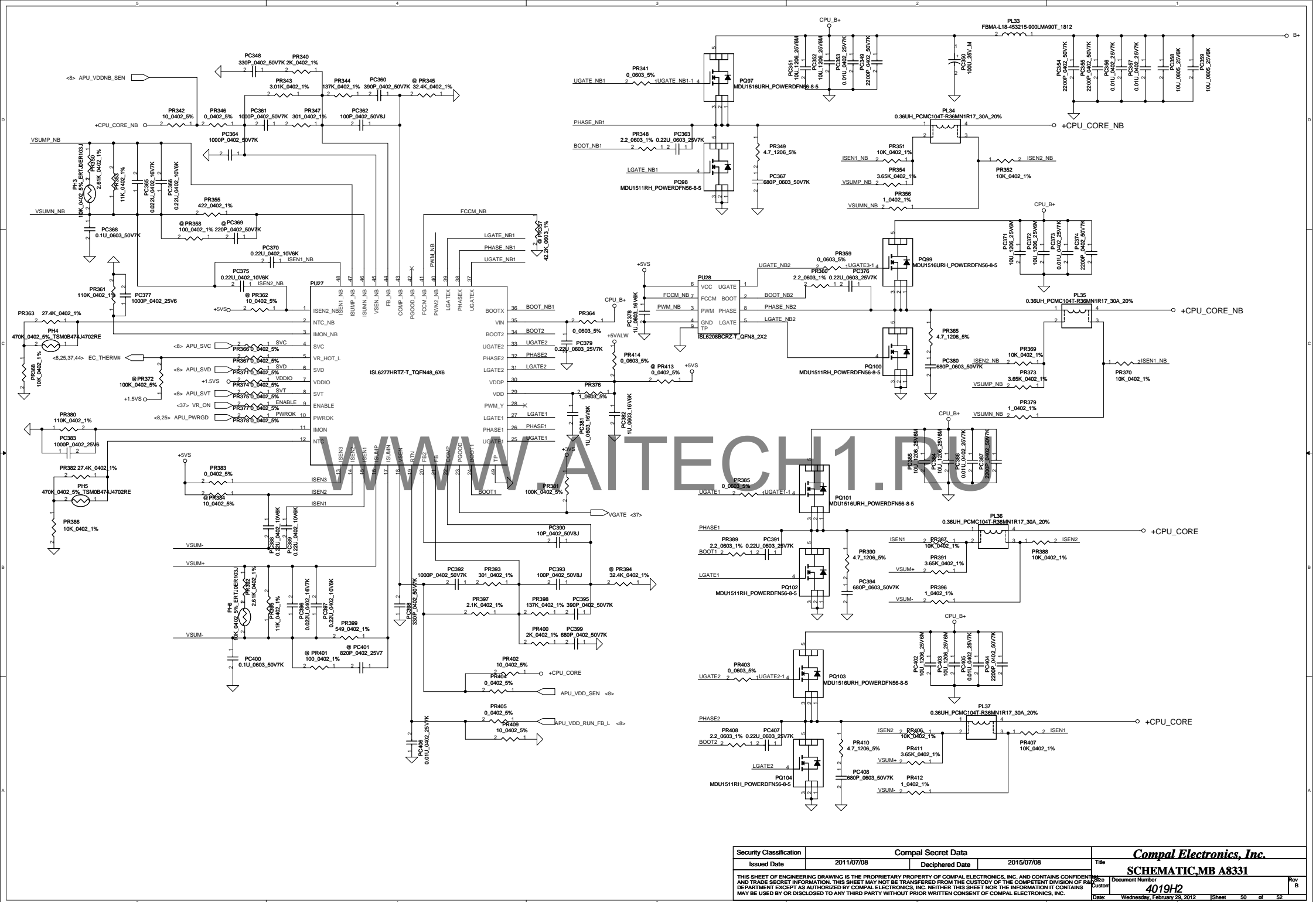












|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                              |            |        |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------|------------|--------|-----------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data           |            | Title  |                 |
| Issued Date                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/07/08 | Deciphered Date              | 2015/07/08 | Size   | Document Number |
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| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | Wednesday, February 29, 2012 |            | Sheet  | 50 of 52        |



| Item | Fixed Issue | Reason for change | Rev. | PG# | Modify List | Date | Phase |
|------|-------------|-------------------|------|-----|-------------|------|-------|
| 1    |             |                   |      |     |             |      |       |
| 2    |             |                   |      |     |             |      |       |
| 3    |             |                   |      |     |             |      |       |
| 4    |             |                   |      |     |             |      |       |
| 5    |             |                   |      |     |             |      |       |
| 6    |             |                   |      |     |             |      |       |
| 7    |             |                   |      |     |             |      |       |
| 8    |             |                   |      |     |             |      |       |
| 9    |             |                   |      |     |             |      |       |
| 10   |             |                   |      |     |             |      |       |
| 11   |             |                   |      |     |             |      |       |
| 12   |             |                   |      |     |             |      |       |
| 13   |             |                   |      |     |             |      |       |
| 14   |             |                   |      |     |             |      |       |
| 15   |             |                   |      |     |             |      |       |
| 16   |             |                   |      |     |             |      |       |

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Version change list (P.I.R. List)

EVT Stage (0.1~0.2)

- 0817 Pop C1025 180p for VDDIO (SCL v1.02)  
Change D16,D17 to SCS00000Z00
- 0818 Change Q50 from BSH138 to BSH111  
Unpop R1100 for +1.1VALW  
Add D26 BOM Structure for 930@  
unpop D4 for USB issue
- 0903 1.Change Card Reader Controller to RTS5209  
2.Change LAN to Atheros AR8151  
3.Removed D17
- 0904 Add Mini2 Debug Port
- 0905 1.Add Fresco FL1009 USB3.0 Controller  
P20. BACO BIFVDDC update  
P25. remove Q25 APU power ok
- 0915 1.Remove EC X2
- 0916 1.Add C1361/C1362 10pF for EMI  
2.Change D27/D29 footprint to AZ5125  
3.Add R402 10k for reserved  
4.Add R469/R527 for VGA Internal Thermal Sensor
- 0926 1.Change D4 to SC300001G00 for ESD request  
2.Change D33/D34/D37/D40/D41 to SCA00001A00 for ESD request

DVT Stage (0.2~0.3)

- 1.Unpop C954, C955 for Mini2 reserved.  
2.Remove R587, R588, Q11 for no need level shift.  
3.Pop R469, R527  
Unpop U9, R391, C352, C324  
for VGA Internal Thermal Interface.  
4.Unpop C374 330uF for Use discrete +1.5VSG circuit.  
5.Add R1169 1k for RTS2132 Vender suggestion.  
6.Reserved R1177 for option EEPROM.  
7.Add R1178 for RTS2132 discrete +1.2VS power.  
8.Reserved SMBUS(TL\_CLK/TL\_DATA) to EC for EEPROM option.  
9.Reserved BACO circuit and pop C1105.  
10.Change D4, D6 to AZC099 for ESD reserved.  
11.Change D20, D21 to AZC199-02SPR7G for ESD reserved.  
12.Remove D44, D45 for no need.  
13.Change C1211, R837 BOM to TL@.  
14.Change JTP1 to 6P/8P co-lay footprint for WIN8.  
15.Add SMBUS(FCH\_SCLK1/FCH\_SDAT1) for JTP1.  
16.Reserved GPIO166 for future used.  
17.Add H29 for ME update.  
18.Add C1719, C1720 10pF for RTD5209 EMI request.  
19.Change L1801 footprint.  
20.Pop D42 and change to SCA00001A00 for ESD.  
21.Change C1537 to 10pF 2KV for EMI/ESD.  
22.Unpop C1336, C1337, C1338, C1333, C1334, C1335  
for MINI2 Reserved.  
23.Modify C1911 always pop for noise reduce.  
24.Modify R60 to M3@.  
25.Change Board ID to "02" for DVT.  
26.Add Q30 for EC THERM reverse for EC common code.  
27.Change 9012\_PH2 netname to 9012\_VGIN for VC function.  
28.Unpop R65 for External OTP.  
29.Change L68 +5VS to +VDDA.  
30.Chnage R1124 to 200k, R1130 to 10k for VGA Power Sequence.  
31.Pop R997 for W/L BT combo card BT ON/OFF  
32.Change U28 SPI ROM from MXIC to EON

PVT Stage

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            |                          |                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|--------------------------|------------------------------|
| Security Classification                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | Compal Secret Data |            | Compal Electronics, Inc. |                              |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Date:                    | Wednesday, February 29, 2012 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                    |            | Sheet                    | 52 of 52                     |