

Compal Confidential

2014 S-series(400series) Rolo/Reeses/Raisinnet

INTEL Sharkbay & Crescent bay ULT –U processor with DDR3L

www.aitech1.ru
Date : 2014/02/18

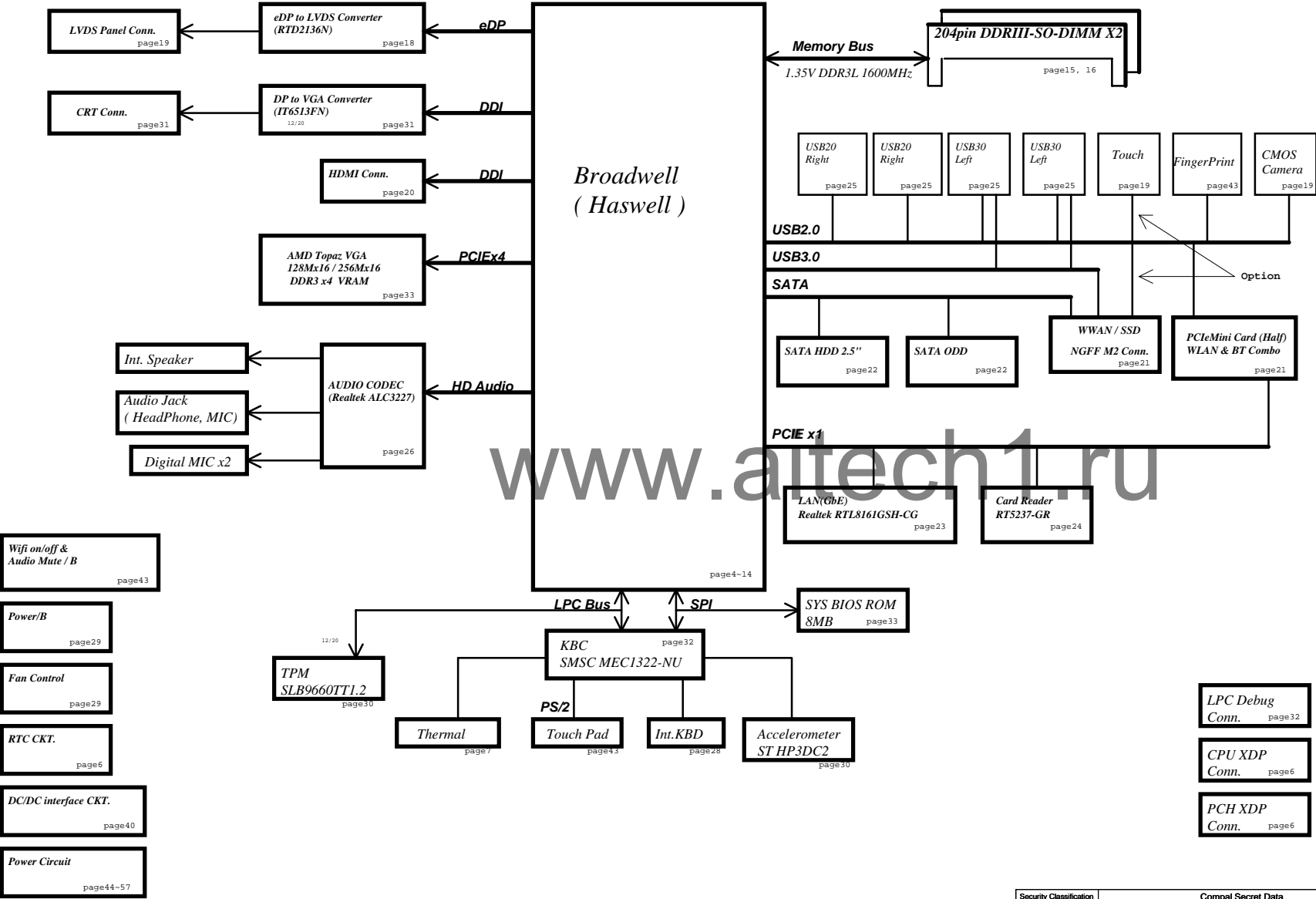
Version 0.5

| | | | | | |
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| Issued Date | 2011/06/29 | Deciphered Date | 2011/06/29 | Title | Cover Page |
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| | | | | Date: Tuesday, March 25, 2014 | Sheet 1 of 62 |

Model Name :

Intel Broadwell U / Haswell Block Diagram

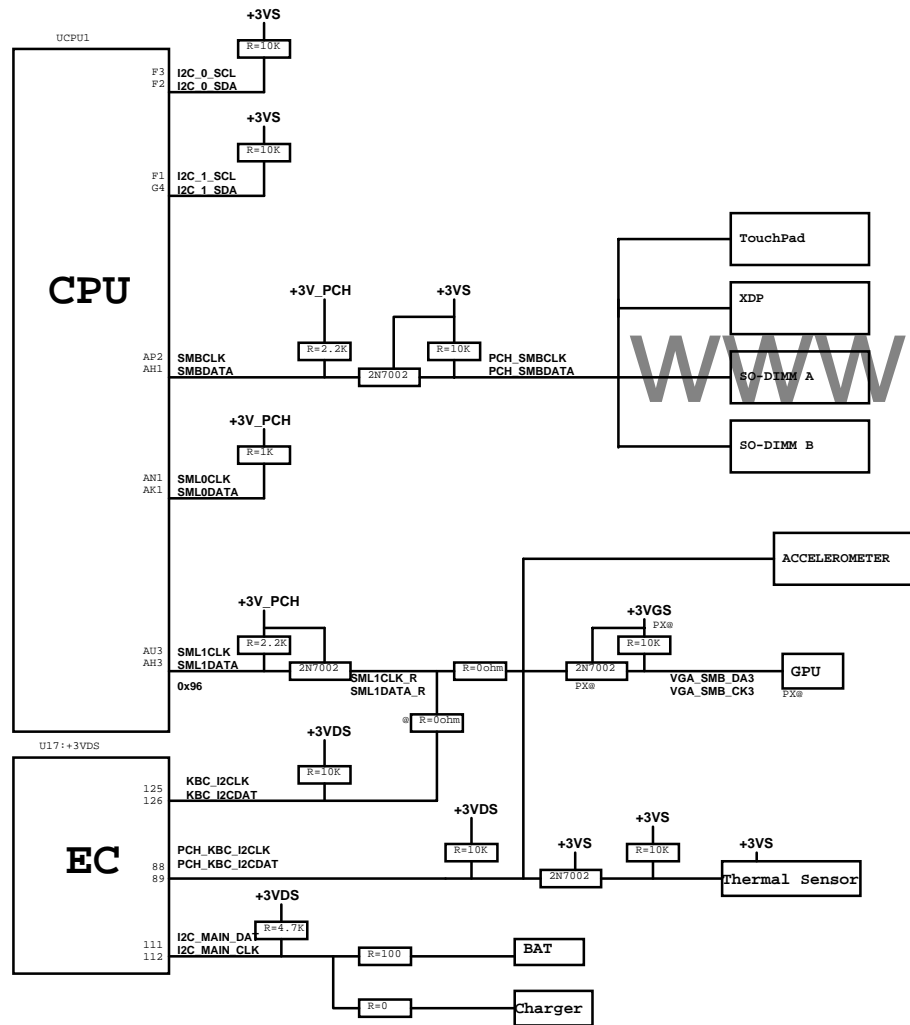
Project Name :



| | |
|---------------------|-----------------------|
| CPU DC/DC | |
| TPS51622ARSMR 50~51 | |
| INPUTS | OUTPUTS |
| B+ | VCC_VORE |
| SYSTEM DC/DC | |
| RT8243AZQW 47 | |
| INPUTS | OUTPUTS |
| B+ | 3VDS/5VDS |
| SYSTEM DC/DC | |
| RT8207MZQW 48 | |
| INPUTS | OUTPUTS |
| B+ | 1.35V_VDDQ 0.675VS |
| SYSTEM DC/DC | |
| SY8206DQNC 49 | |
| INPUTS | OUTPUTS |
| B+ | 1.05VS |
| SYSTEM DC/DC | |
| SY8003DFC 52 | |
| INPUTS | OUTPUTS |
| B+ | 1.5VS |
| SYSTEM DC/DC | |
| RT8880BGQW 54~55 | |
| INPUTS | OUTPUTS |
| B+ | +VGA_CORE |
| SYSTEM DC/DC | |
| SY8003DFC 56 | |
| INPUTS | OUTPUTS |
| B+ | +1.8VS_VGA |
| SYSTEM DC/DC | |
| SY8003DFC 57 | |
| INPUTS | OUTPUTS |
| B+ | +0.95VS_VGA |

@ is NO SMT part (empty)
short@ : short pad , don't pop.
@EMI@, @ESD@, @RF@ : Reserve , don't pop.
RF@ : RF team request, must add.
EMI@ : EMI team request, must add.
ESD@ : ESD team request, must add.

LVDS@ : Support LVDS panel. WWAN@ : For WWAN function. PX@ : GPU BOM config.
eDP@ : Support eDP panel.

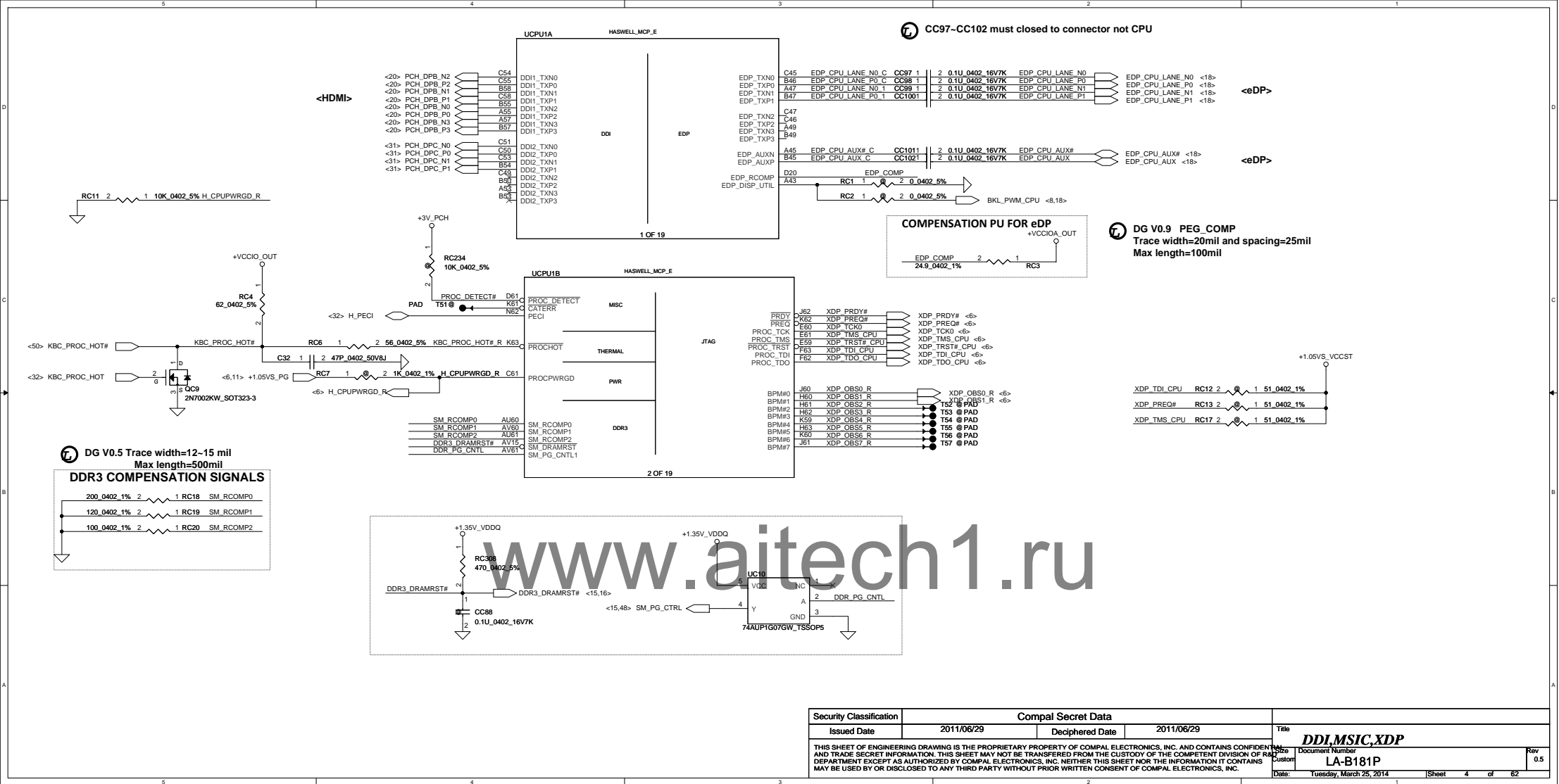


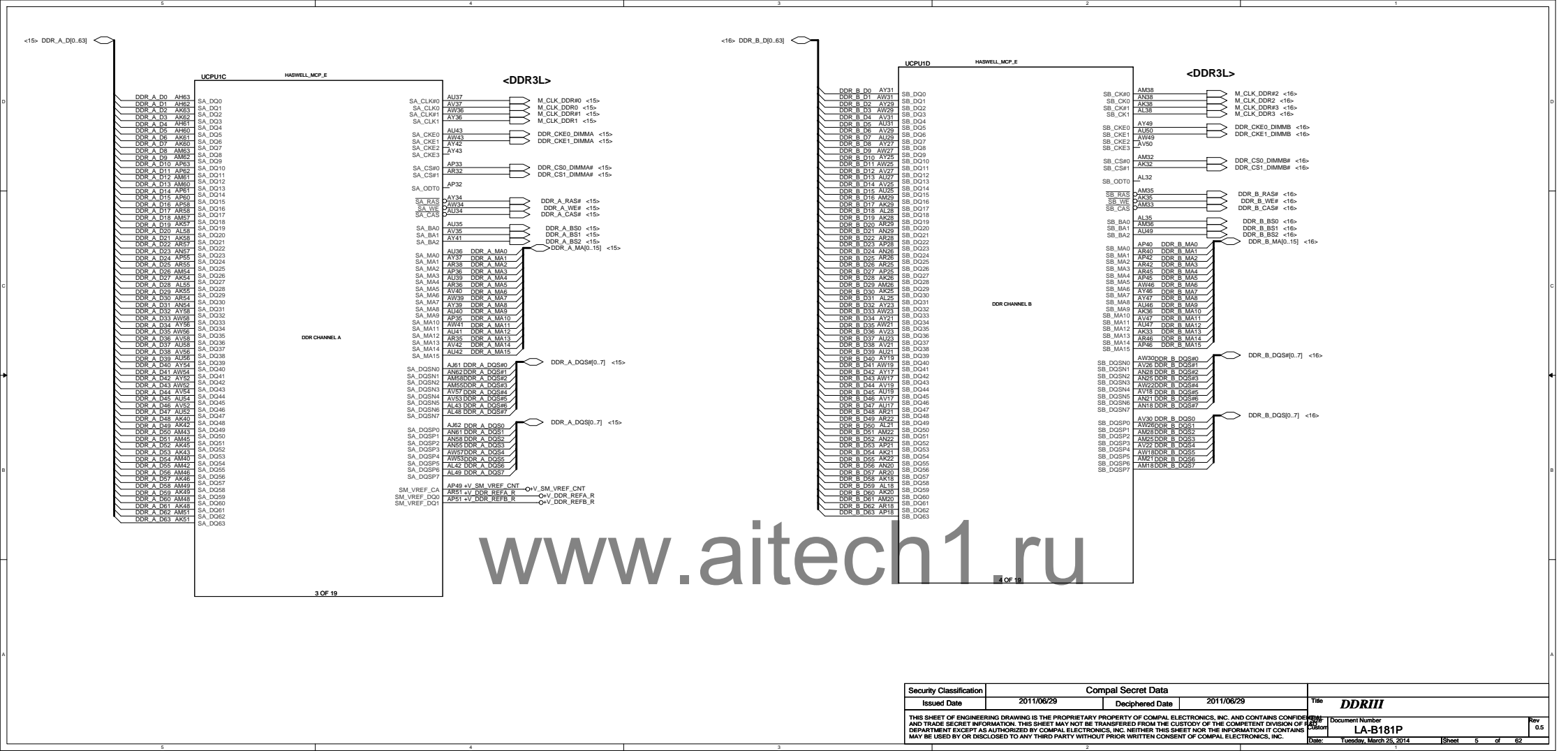
<USB2.0 port>

| USB2.0 port | DESTINATION |
|-------------|---------------------|
| 0 | CS |
| 1 | USB 2.0(Right side) |
| 2 | USB 2.0(Right side) |
| 3 | USB 2.0(Left side) |
| 4 | WLAN/BT |
| 5 | Finger Print |
| 6 | WWAN Touch (Option) |
| 7 | Camera |
| 8 | USB 2.0(Left side) |

<PCI-E,SATA,USB3.0>

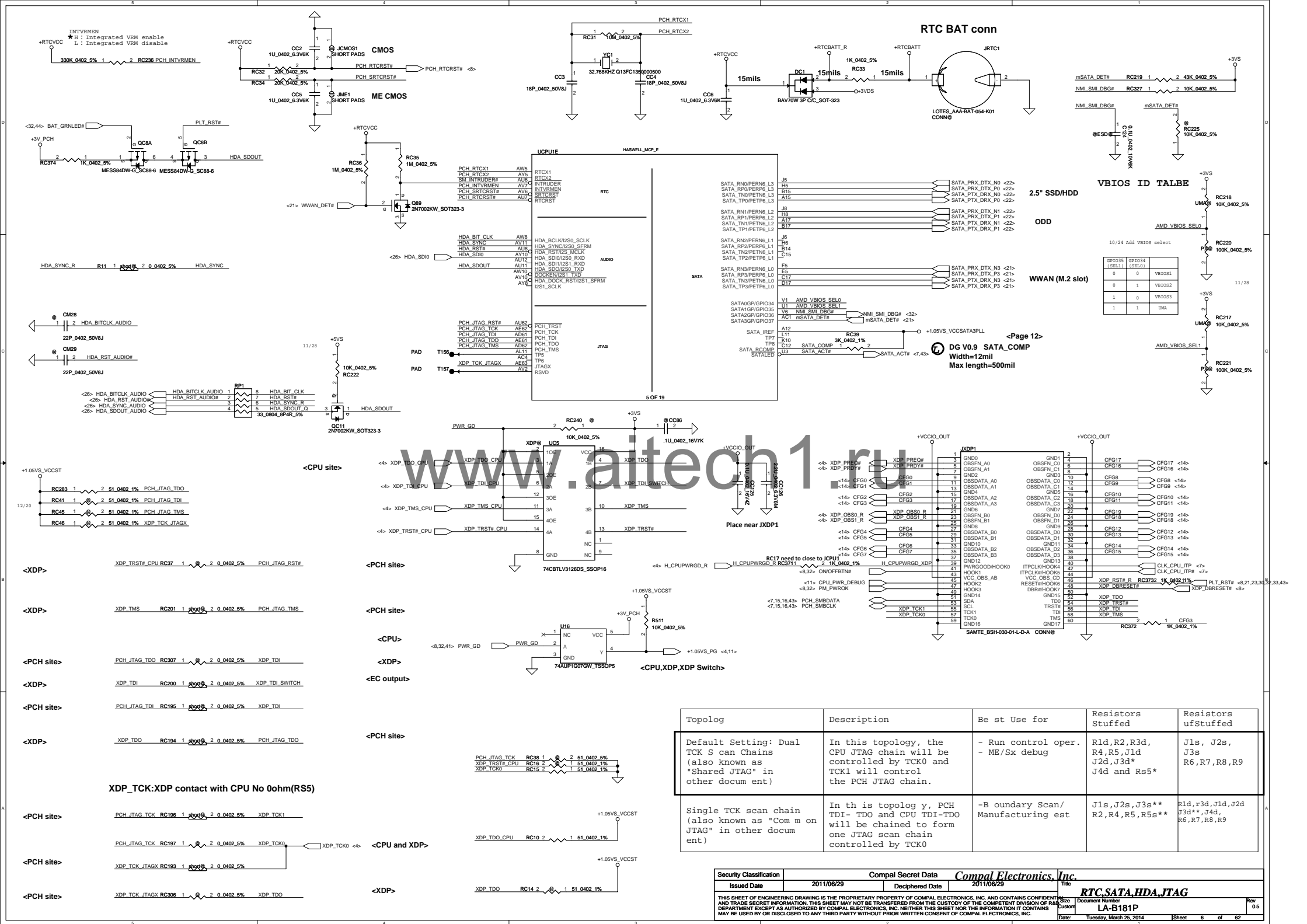
| Lane# | PCI-E | SATA | USB3.0 | DESTINATION |
|-------|-------|------|--------|--------------------|
| 1 | | | 0 | CS |
| 2 | | | 1 | USB3.0 |
| 3 | 1 | | 2 | WWAN (M.2) |
| 4 | 2 | | 3 | Card reader(PCI-E) |
| 5 | 3 | | | 10/100/1000 LAN |
| 6 | 4 | | | WLAN (M.2) |
| 7 | | | | GPU(DIS only) |
| 8 | | | | GPU(DIS only) |
| 9 | | | | GPU(DIS only) |
| 10 | | | | GPU(DIS only) |
| 11 | L3 | 3 | | 2.5" HDD |
| 12 | L2 | 2 | | ODD |
| 13 | L1 | 1 | | |
| 14 | L0 | 0 | | SSD(NGFF) |

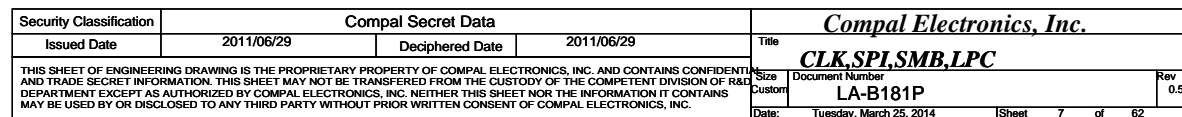
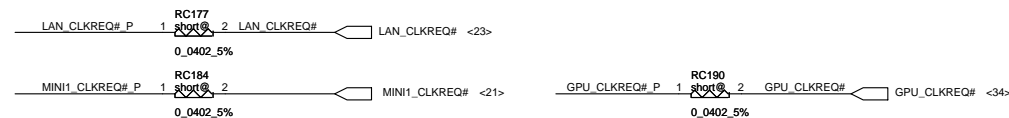
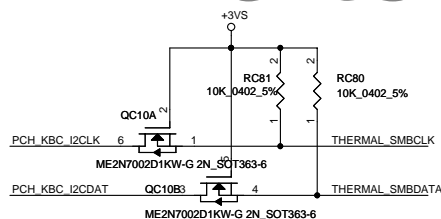
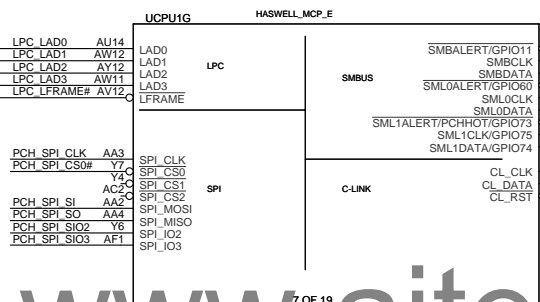
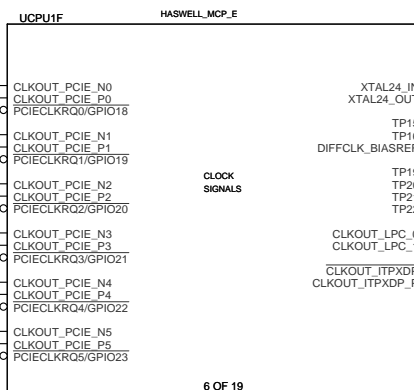
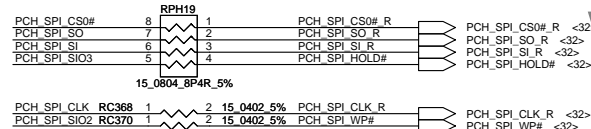
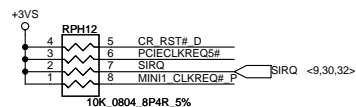


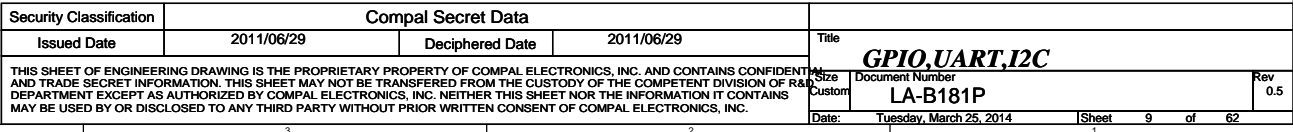


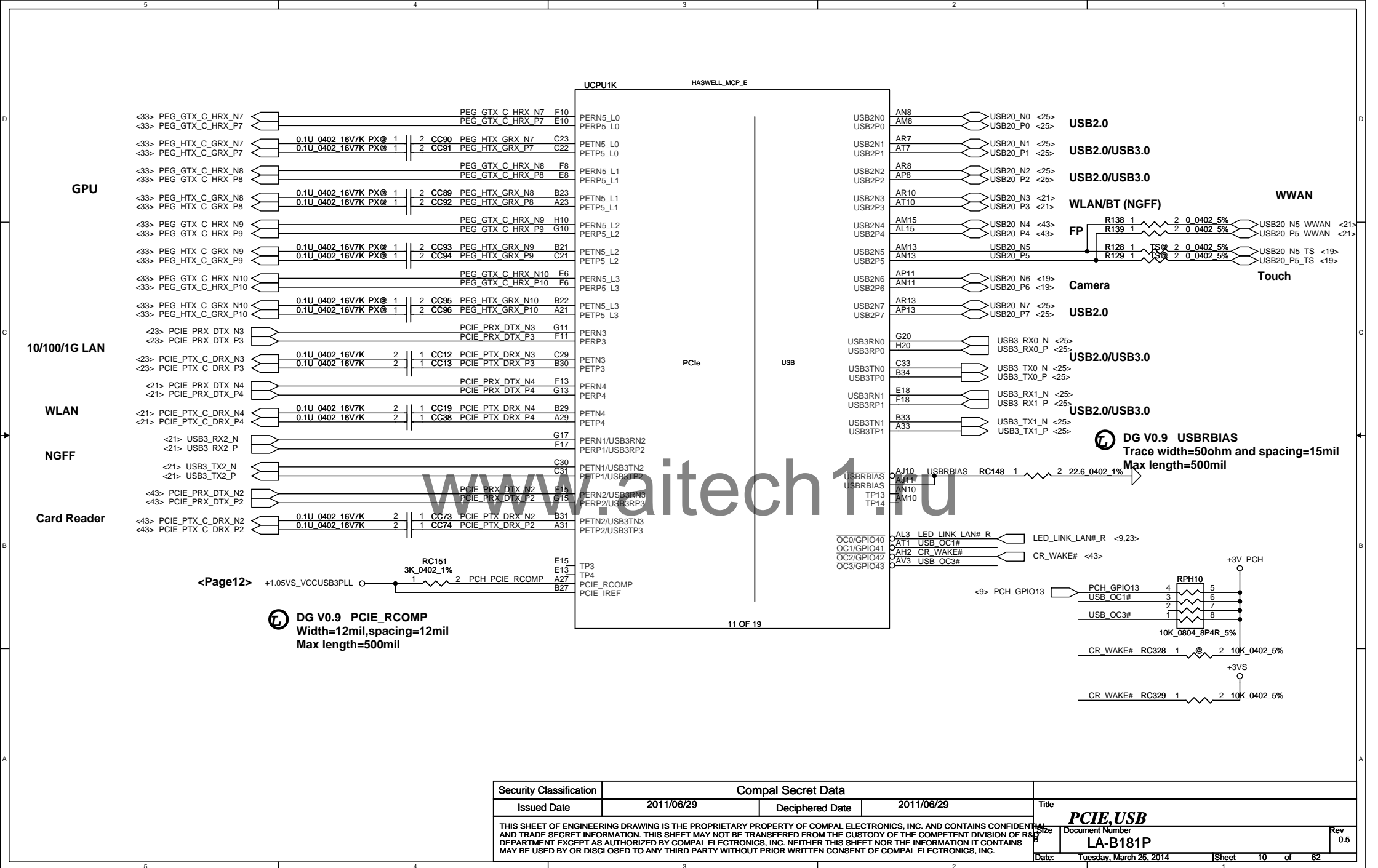
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| Date: | Tuesday, March 25, 2014 | Sheet | 5 | of | 62 |

Compal Electronics, Inc.

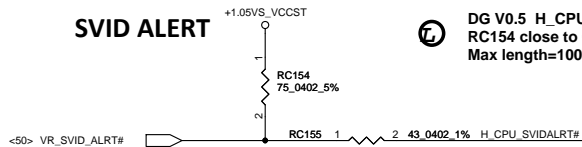






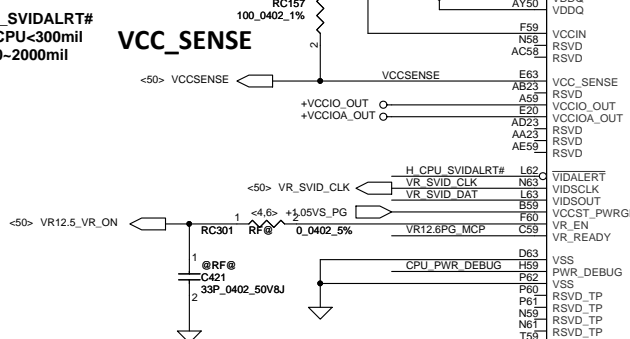


SVID ALERT

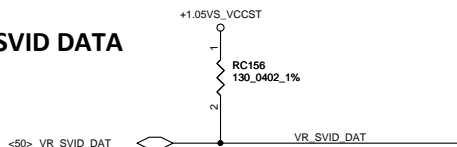


DG V0.5 H_CPU_SVIDALRT#
RC154 close to CPU<300mil
Max length=1000~2000mil

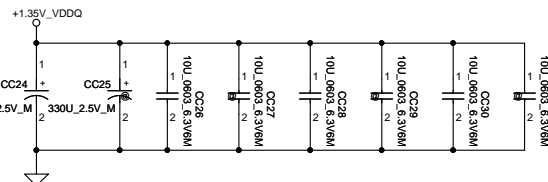
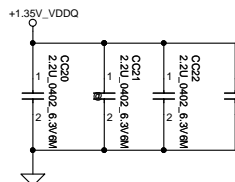
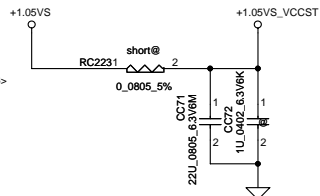
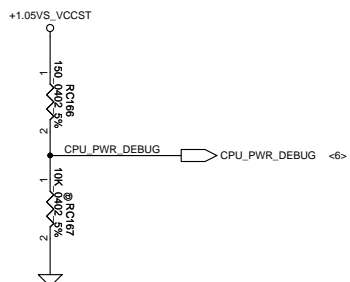
VCC_SENSE



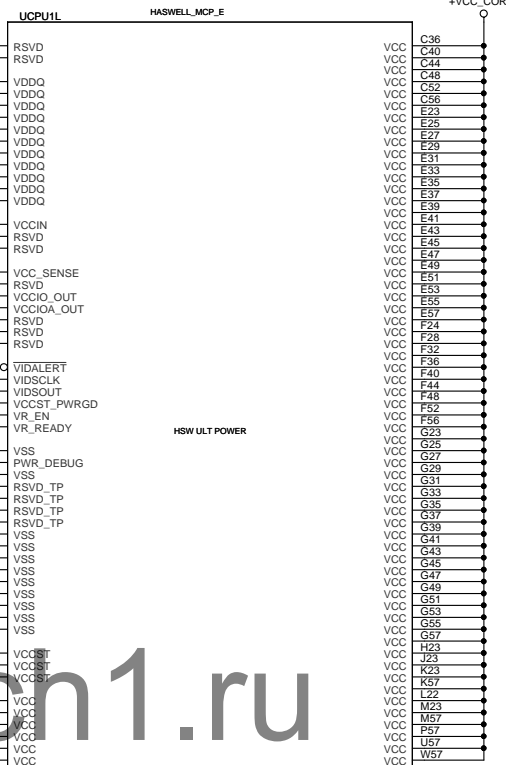
SVID DATA



DG V0.5 VIDSOUT
RC156 close to CPU<500mil
Max length=1000~2000mil

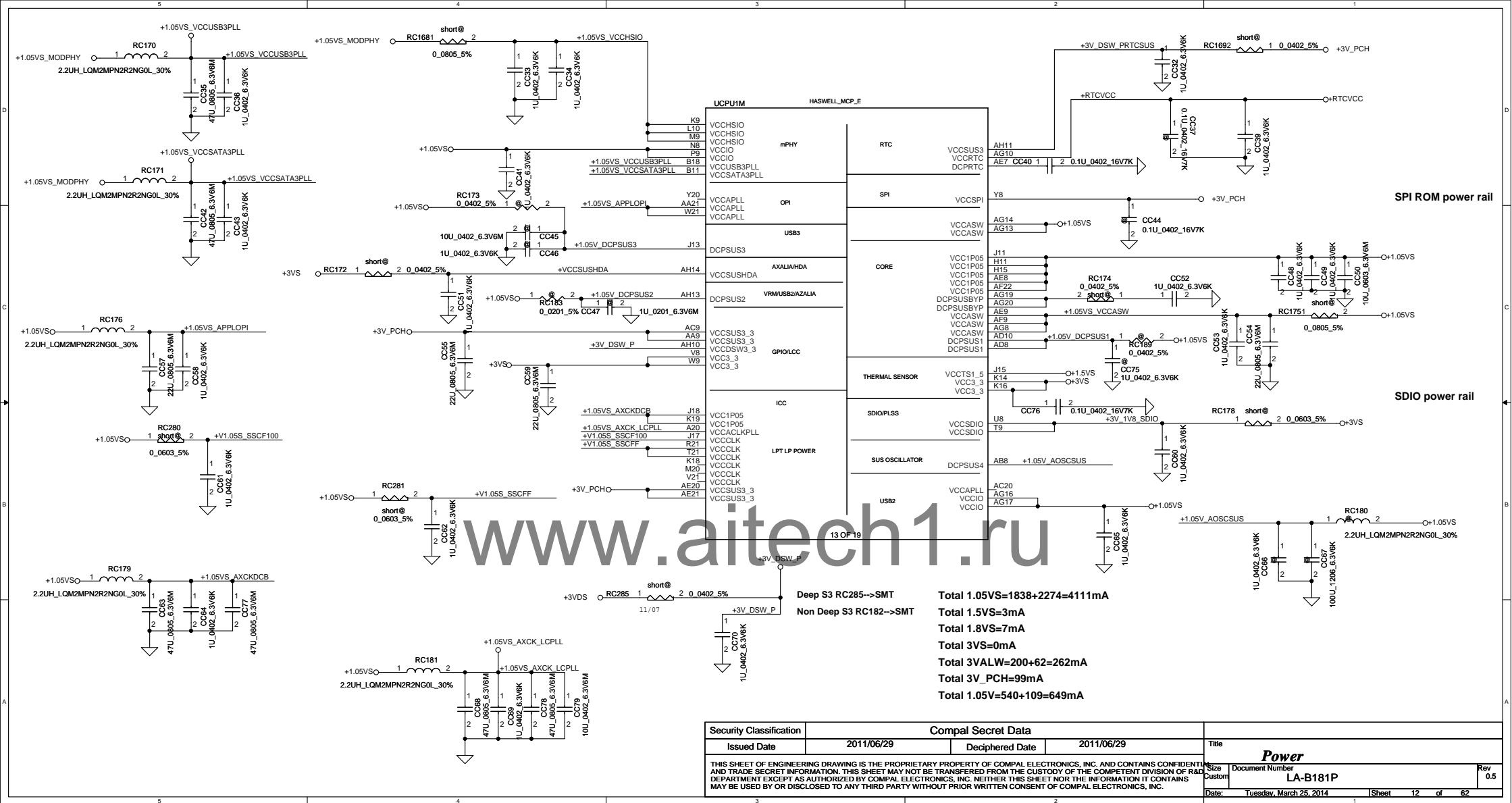


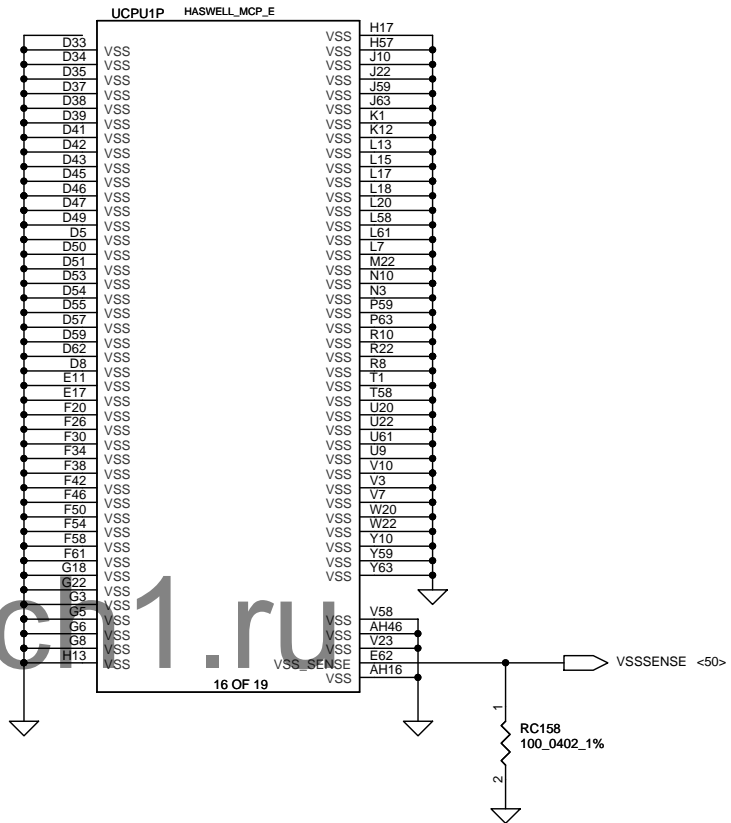
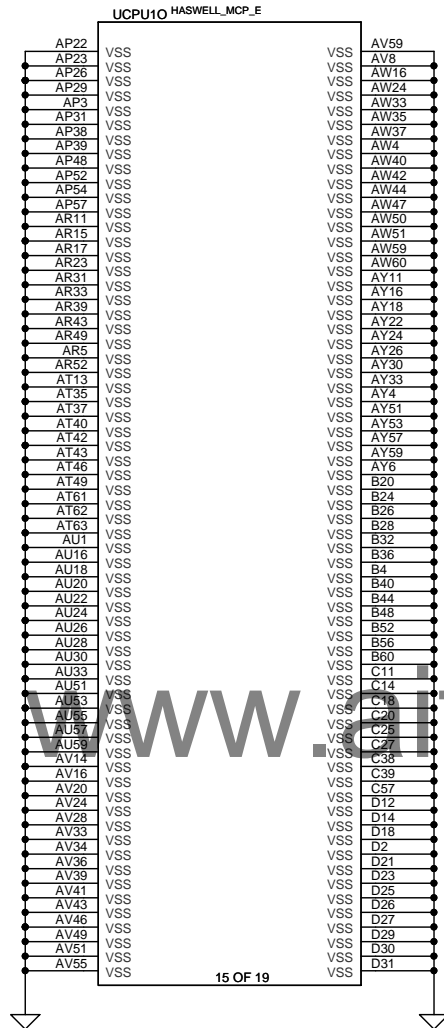
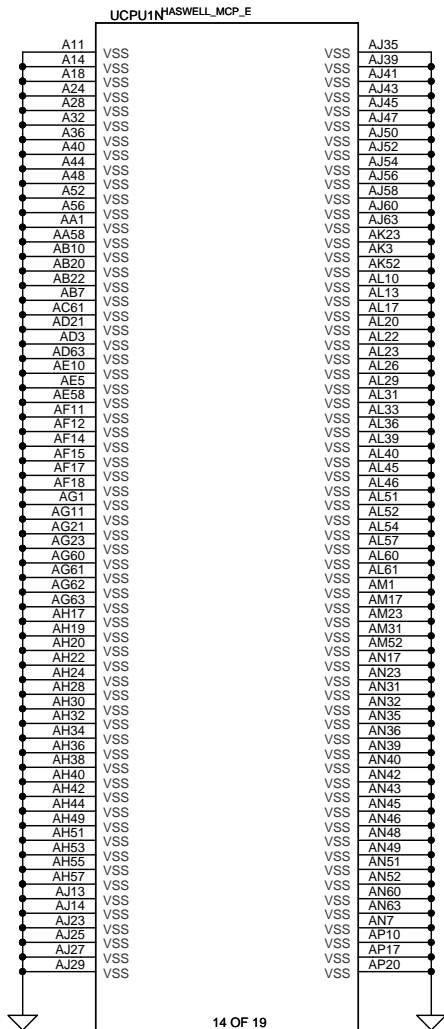
+VCC_CORE@10000mA



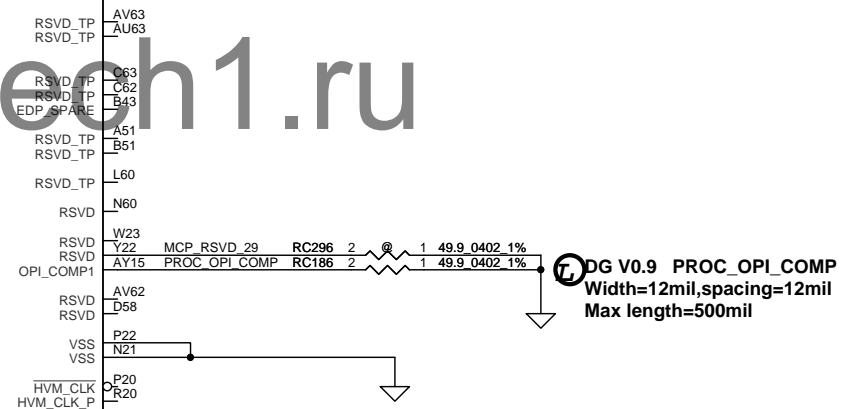
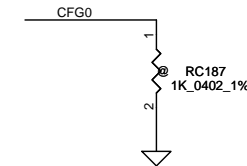
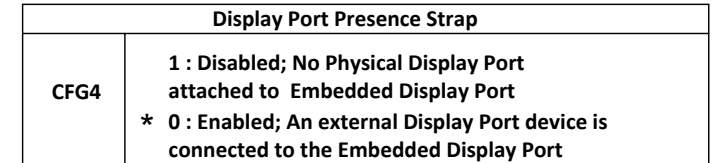
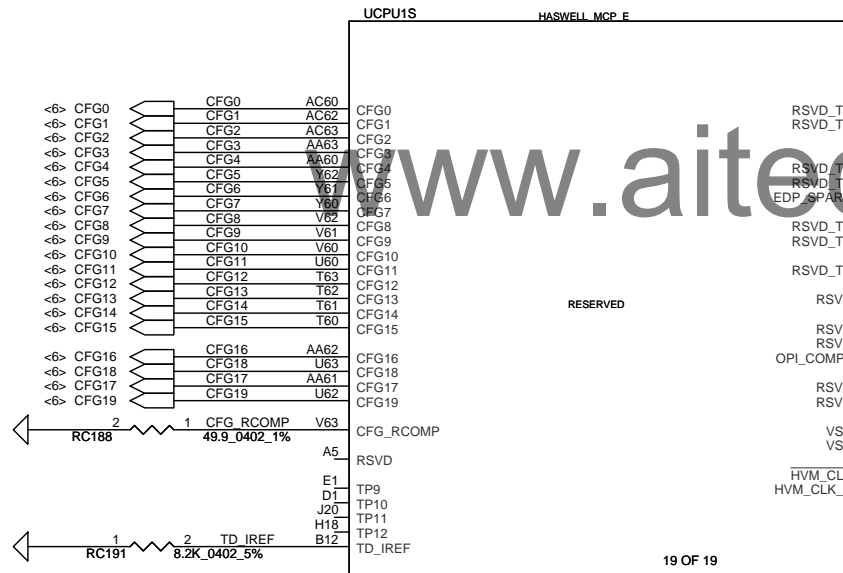
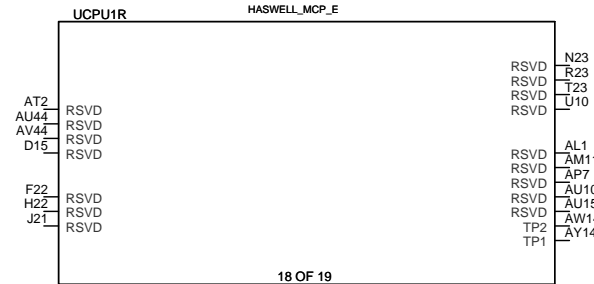
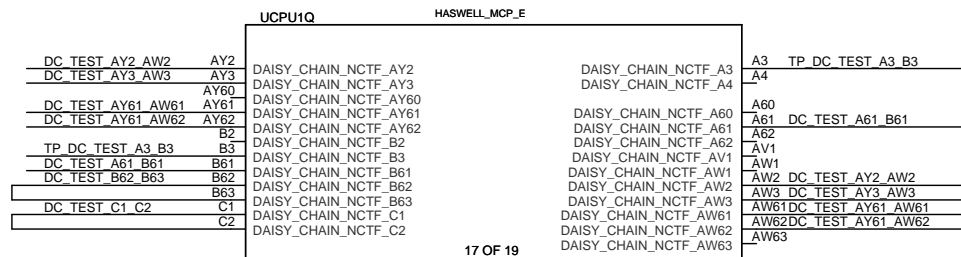
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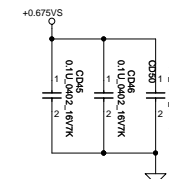


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| LA-B181P | | 0.5 | | Tuesday, March 25, 2014 | |
| Sheet | | 13 | | of 62 | |

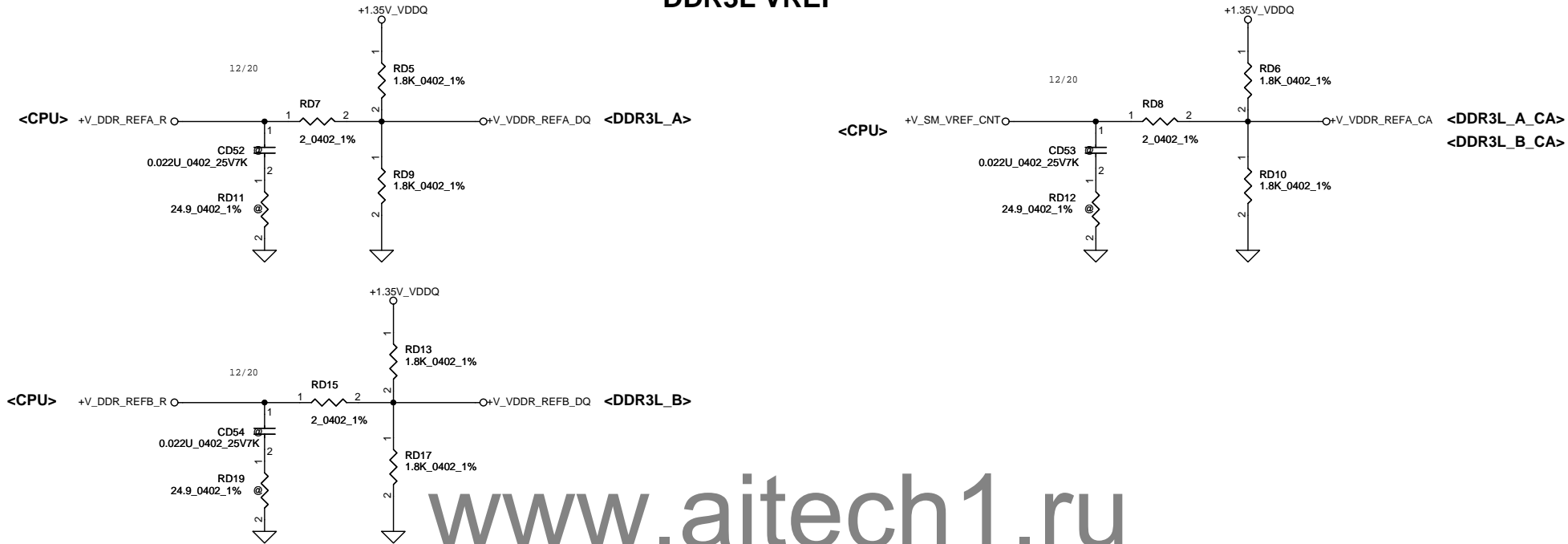


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| | | | | Sheet | 14 of 62 |

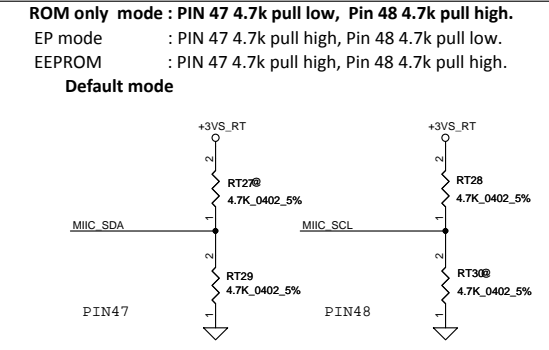
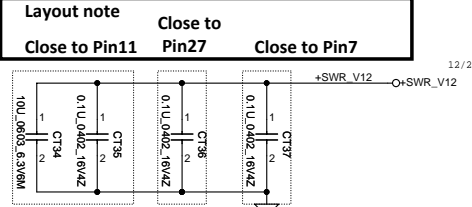
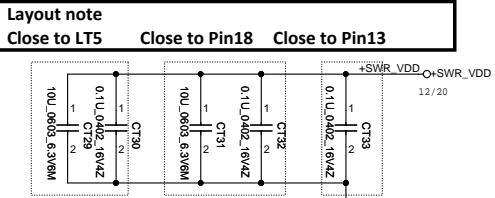
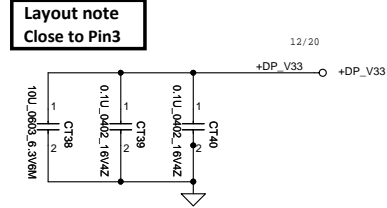
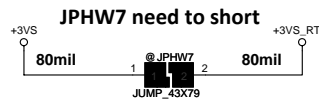
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| | | | | LA-B181P | |
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| | | | | Sheet 15 of 62 | |

Rev
0.5

DDR3L VREF

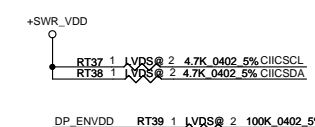
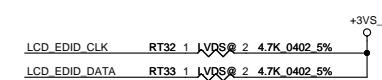
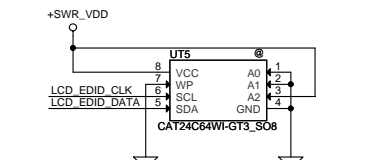
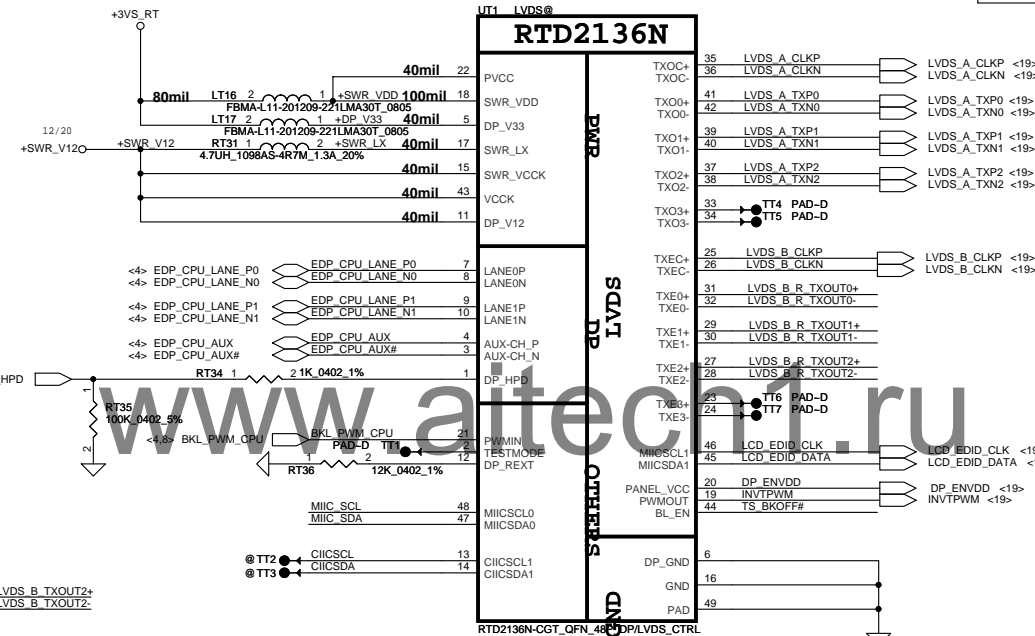
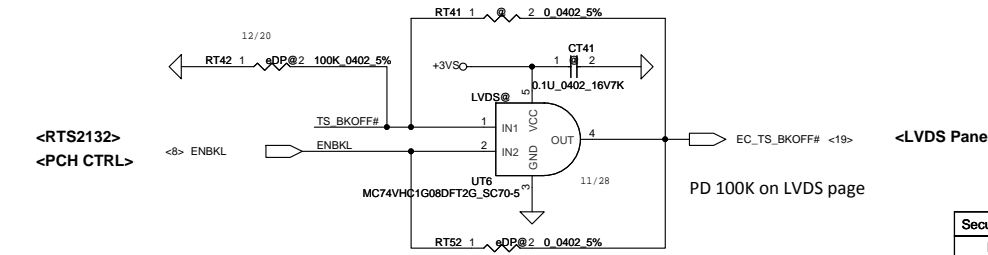
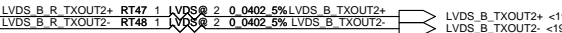
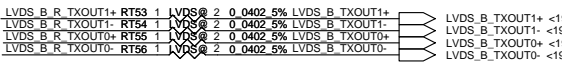
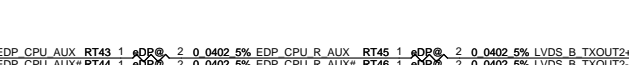
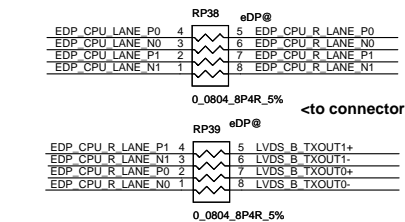


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| | | | | Date: Tuesday, March 25, 2014 | Sheet 17 of 62 |



| SWR / LDO Mode select | | |
|-----------------------|----------------|-----------|
| | LDO | SWR |
| 2132S | Do not support | mount LT7 |
| 2132R | Use 0 ohm | mount LT7 |

If use 2132R, please select LDO mode as default.



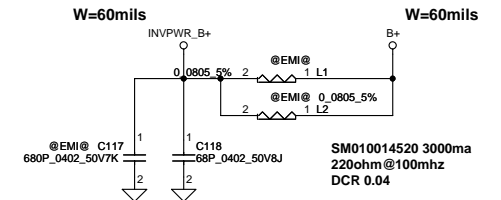
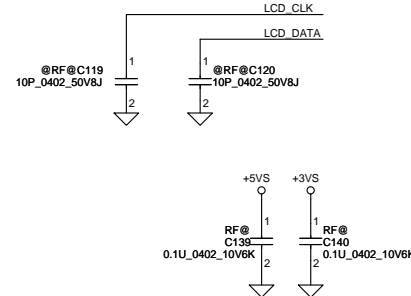
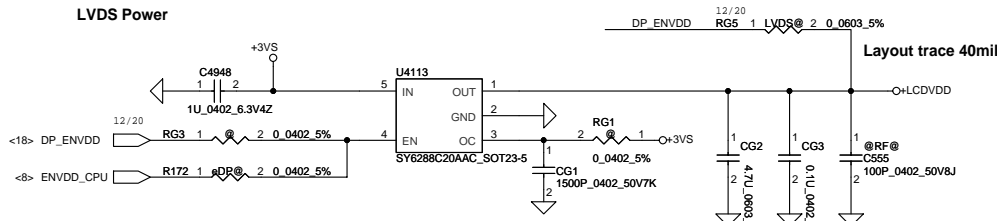
| | PIN15 | PIN16 | Accept voltage input (high level) |
|-------|------------|-------|-----------------------------------|
| 2132S | TL_ENVDD | 2132S | 3.3V |
| 2132R | +LCD_VDD * | 2132R | 1.5~3.3V |

* Version R internal Power Switch, can output 1A, Rds(on)=0.2 ohm

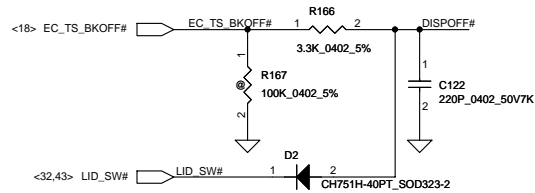
* Version R has internal level shifter, remove level shifter circuit on AMD platform

| Different between 2132S and 2132R | |
|-----------------------------------|---|
| 2132S | 2132R |
| 1. Support SWR mode | 1. Support LDO mode and SWR mode 2. Internal ROM 3. Support LCD_VDD(internal Power switch) 4. Integrates Level shifter |

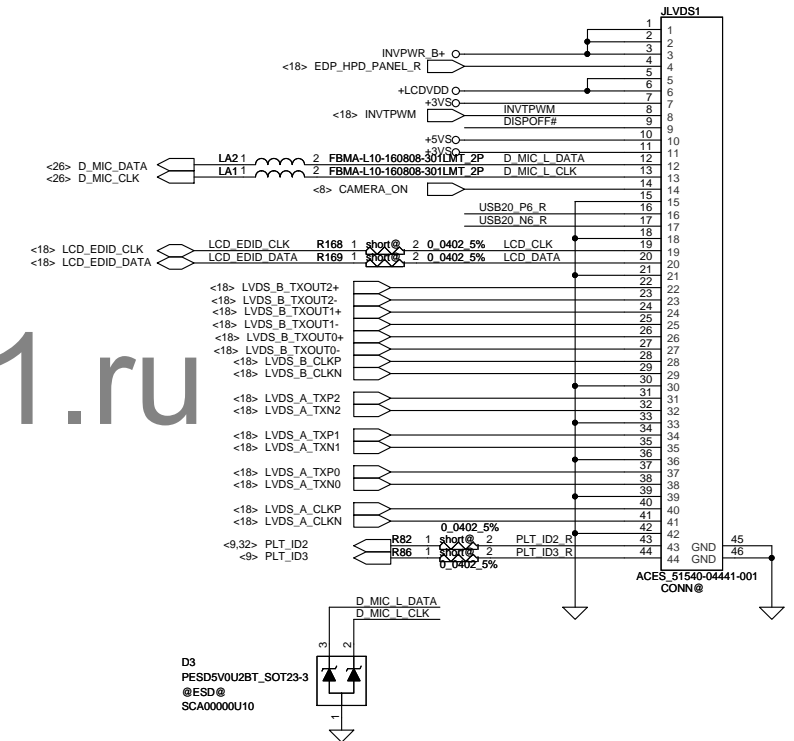
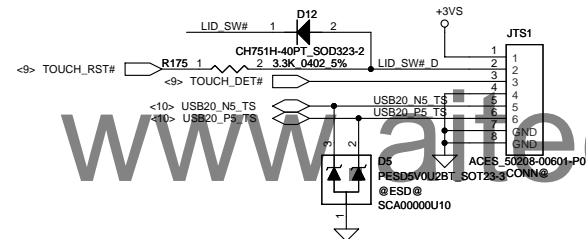
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| Issued Date | 2013/3/1 | Deciphered Date | 2015/3/1 | Title | LVDS Translator-RTD2132R |
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| | | | | Sheet | 18 of 62 |



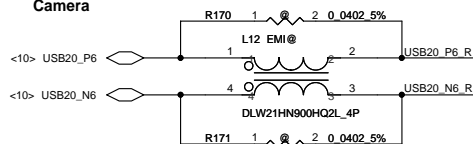
LCD/LED PANEL Conn.



Touch



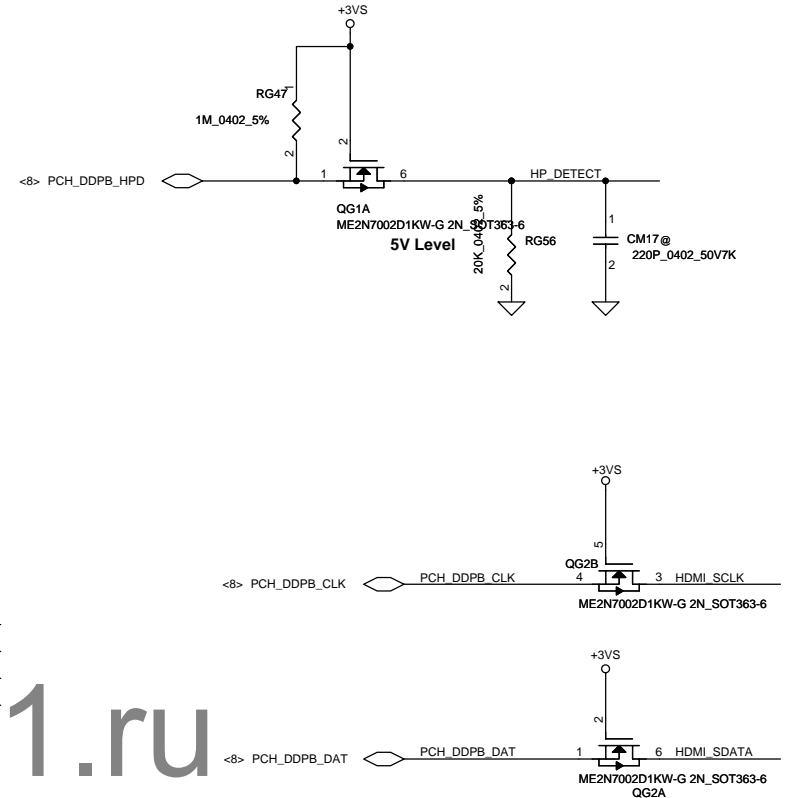
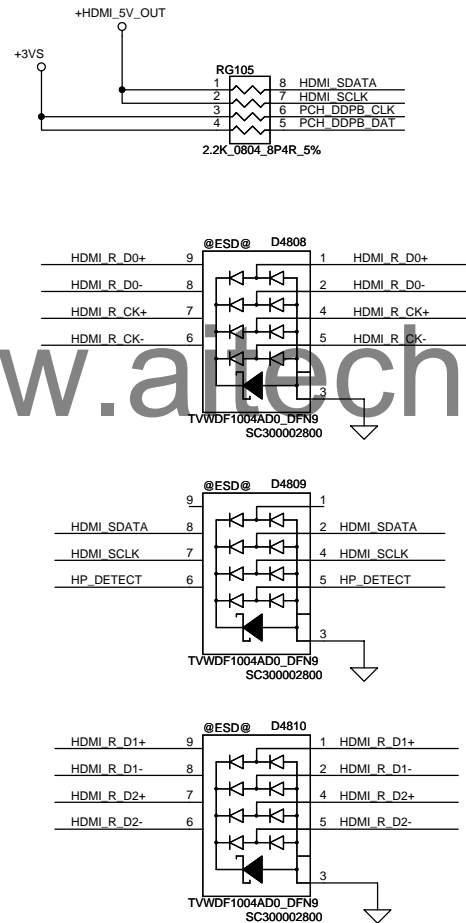
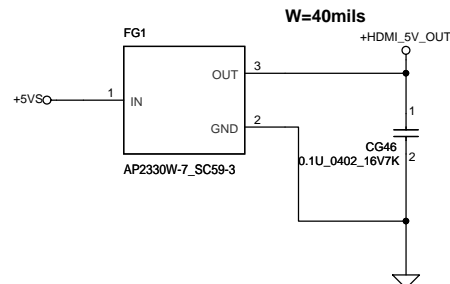
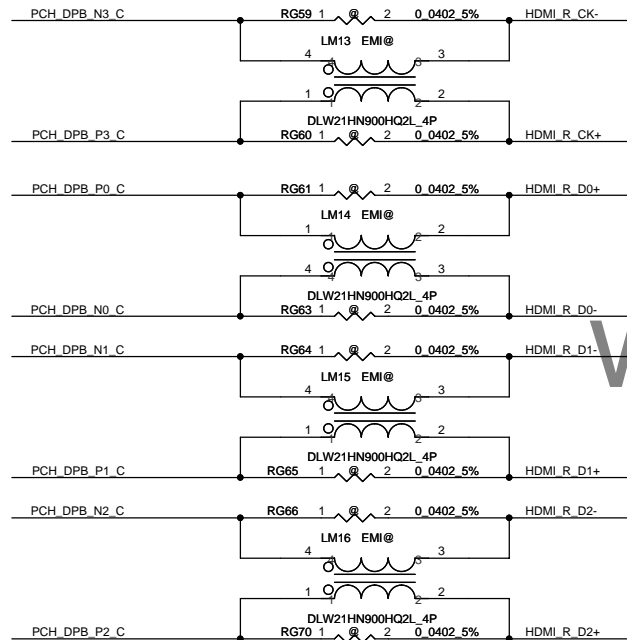
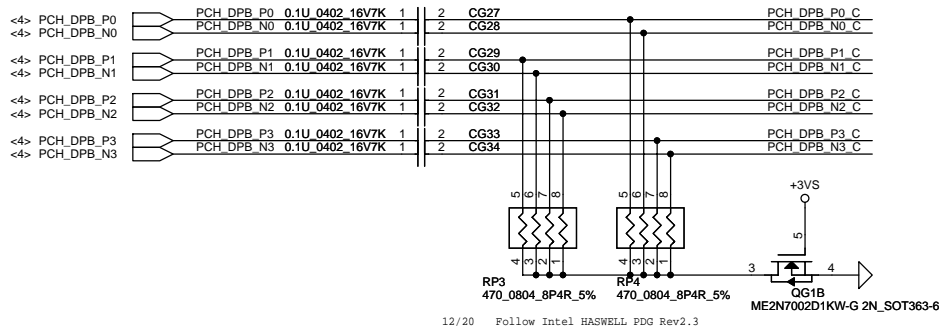
Camera



| | GPIO92 PLT_ID2 | GPIO93 PLT_ID3 |
|--------------|-------------------|-------------------|
| Rolo 14" | 0 | 1 |
| Reeses 15" | 1 | 0 |
| Raisinet 17" | 1 | 1 |

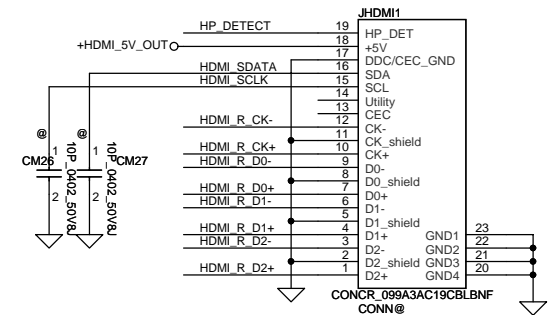
| Security Classification | Compal Secret Data | | Title | |
|---|--------------------|-----------------|------------|----------------|
| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | LA-B181P |
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| Date: Tuesday, March 25, 2014 | | | | Sheet 19 of 62 |

<CPU>



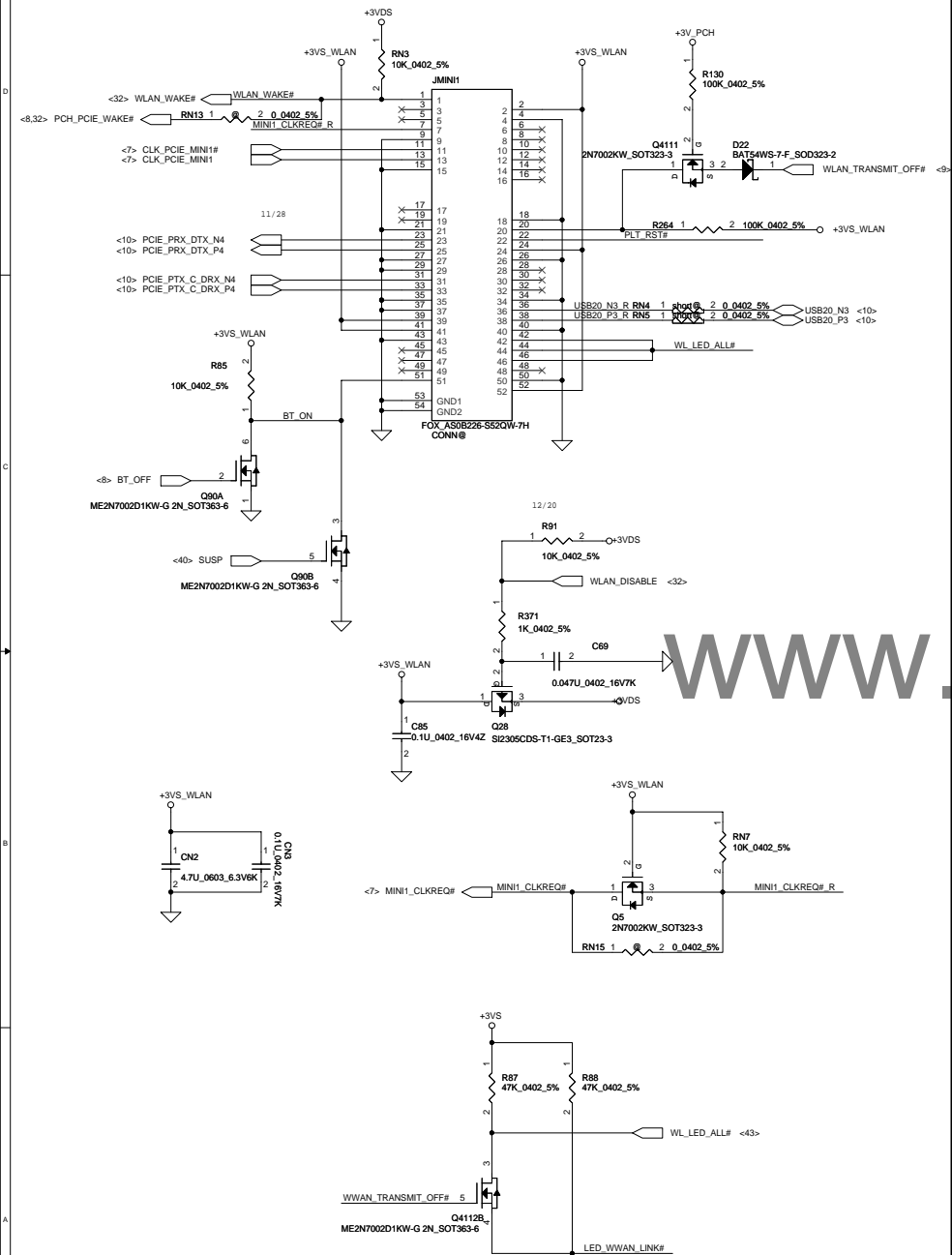
5V PULL UP IN CONNECTER SIDE

HDMI Conn.

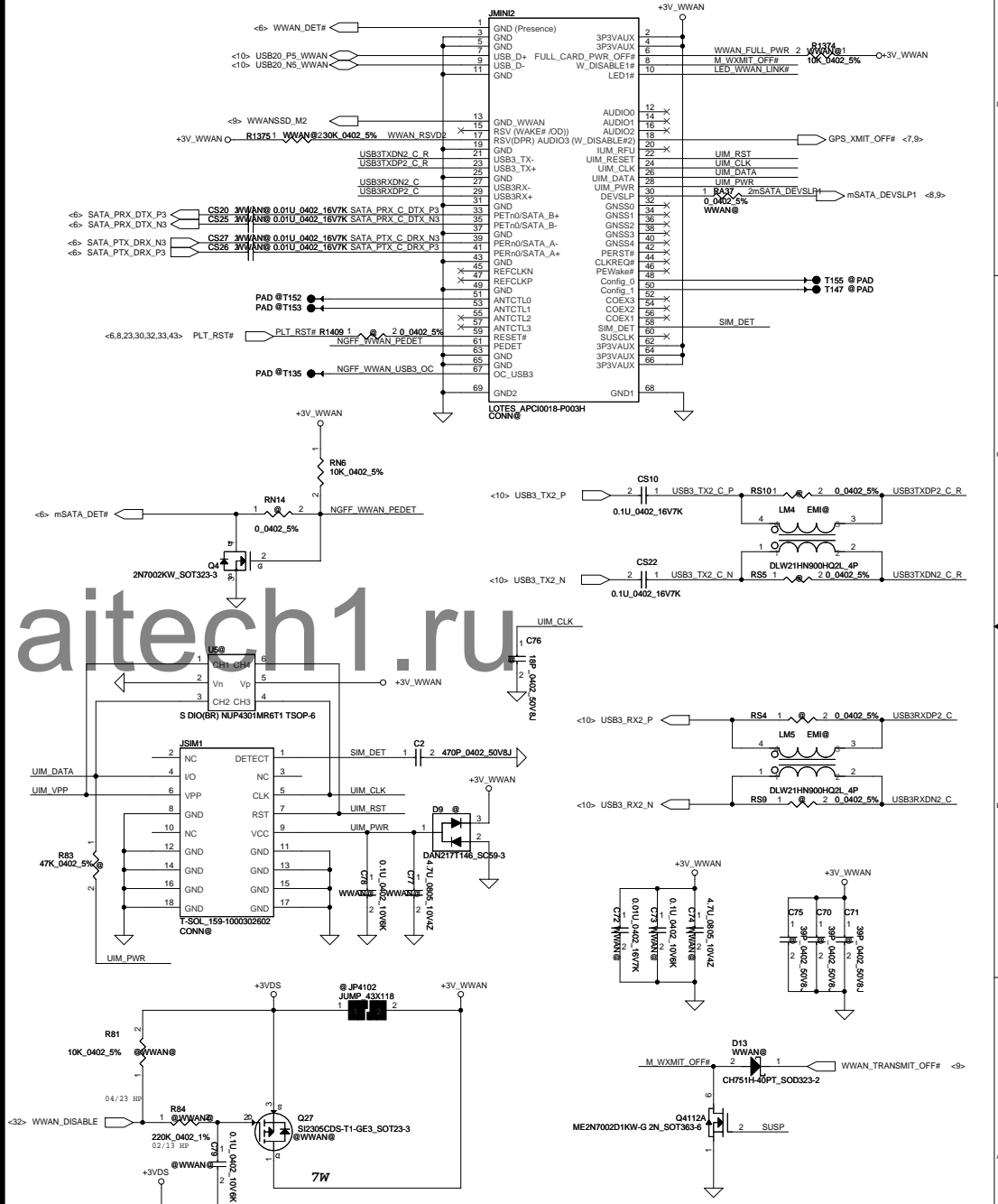


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|---|------------|--------------------|------------|--------------------------|-------------------------|
| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
| Issued Date | 2011/06/29 | Deciphered Date | 2011/06/29 | Title | HDMI Conn/Level shift |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. | | | | Size | Document Number |
| | | | | LA-B181P | Rev 0.5 |
| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 20 of 62 |

WLAN

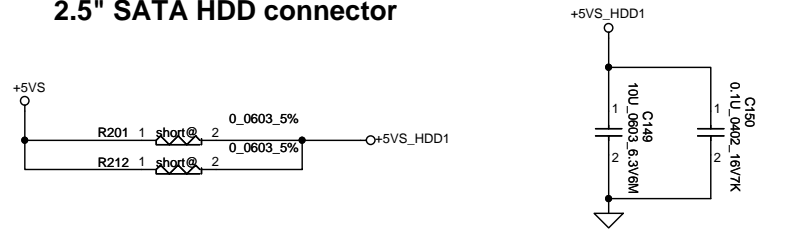


WWAN

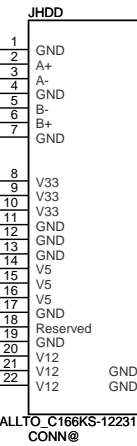


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|---|--------------------|-----------------|-------------------------|
| Security Classification | Compal Secret Data | Document Number | WLAN |
| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 |
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| | | Date | Tuesday, March 25, 2014 |
| | | Sheet | 21 of 62 |

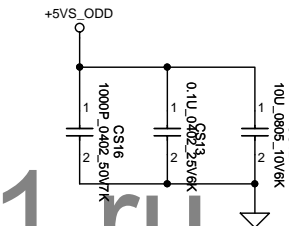
2.5" SATA HDD connector



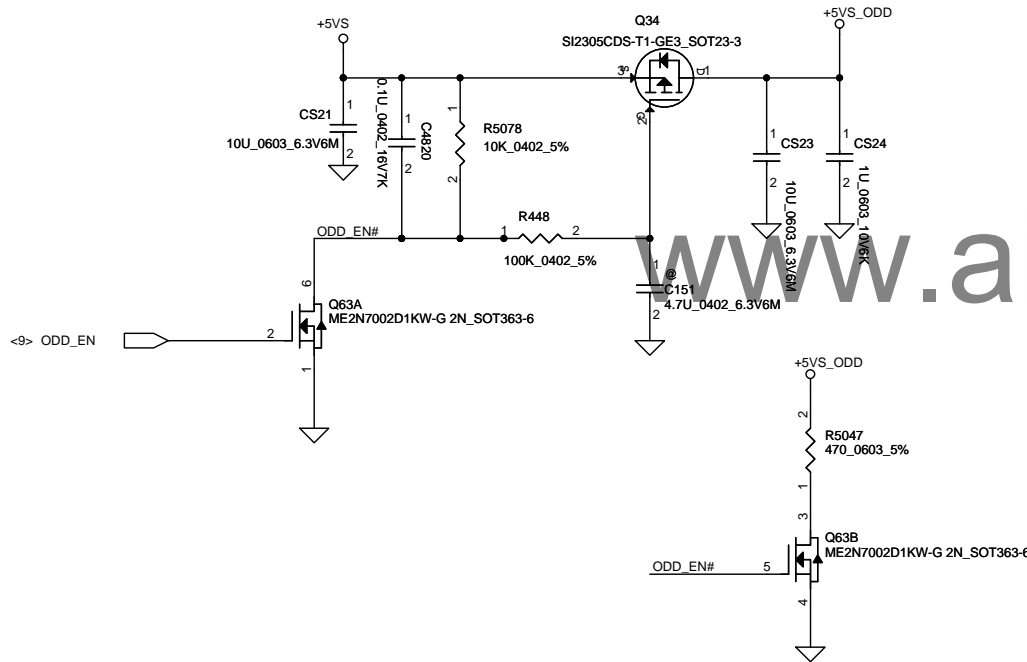
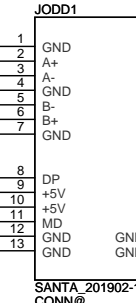
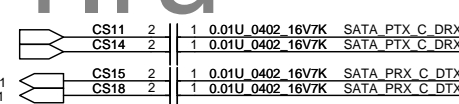
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<6> SATA_PTX_DRX_N0



Please near ODD Connector



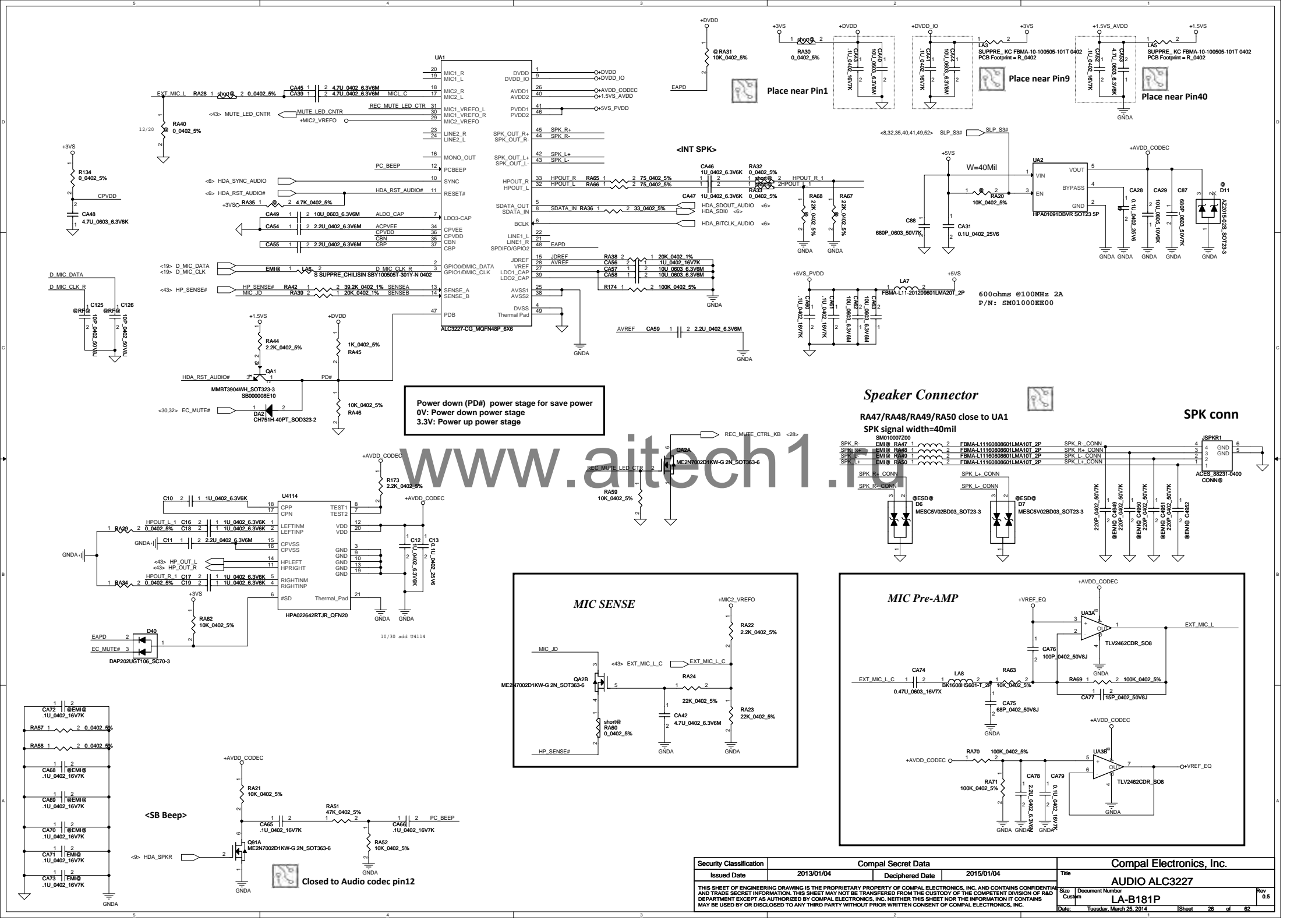
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<6> SATA_PRX_DTX_N1
<6> SATA_PRX_DTX_P1



| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
|---|------------|--------------------|------------|--------------------------|-------------------------|
| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | Title | ODD/SATA Conn |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. | | | | Document Number | LA-B181P |
| | | | | Date: | Tuesday, March 25, 2014 |
| | | | | Sheet | 22 of 62 |

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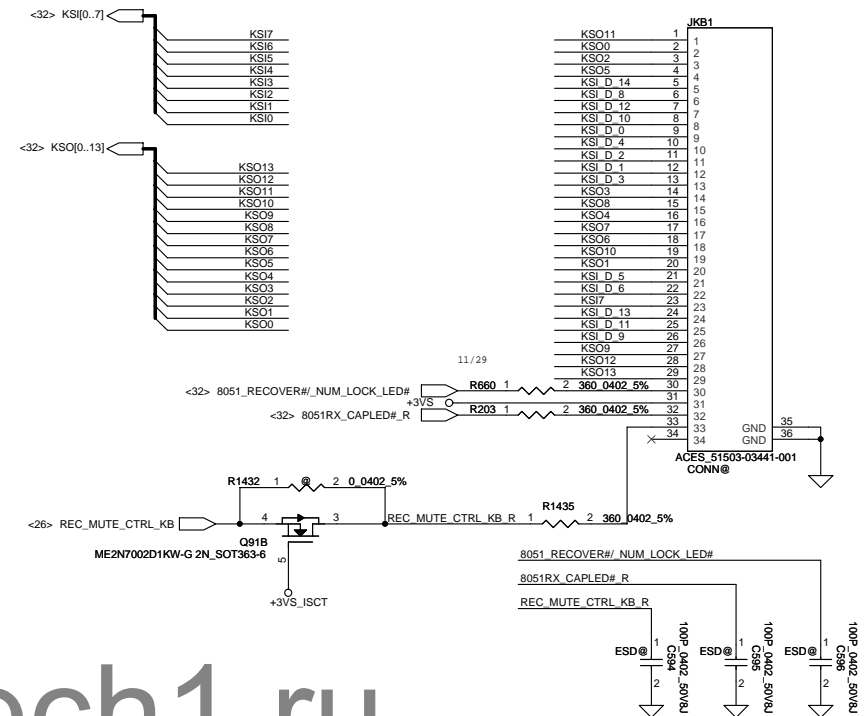
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| Issued Date | 2011/06/29 | Deciphered Date | 2011/06/29 | Card Reader RTS5237 |
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| | | | | LA-B181P |
| | | | | Rev 0.5 |
| | | | | Date: Tuesday, March 25, 2014 |
| | | | | Sheet 24 of 62 |



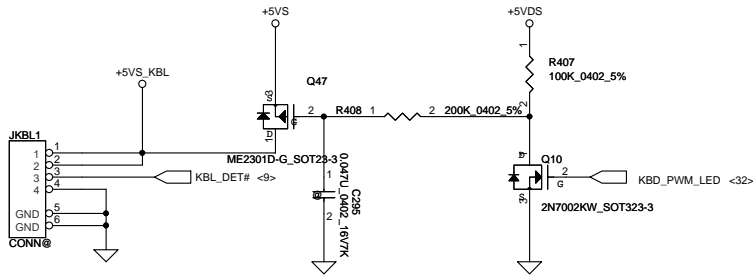
www.aitech1.ru

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| Security Classification | Compal Secret Data | | | Compal Electronics, Inc. | | |
| Issued Date | 2012/03/23 | Deciphered Date | 2012/10/21 | Title | Audio SPK Conn/Jack/MIC | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. | | | | Size | Document Number | Rev |
| | | | | C | LA-B181P | 0.5 |
| | | | | Date: | Tuesday, March 25, 2014 | Sheet 27 of 62 |

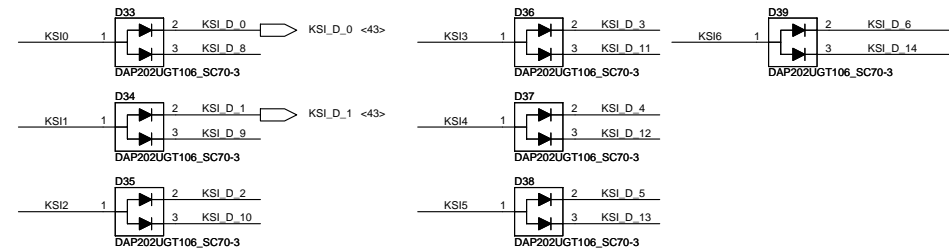
Keyboard conn



KB backlight Conn

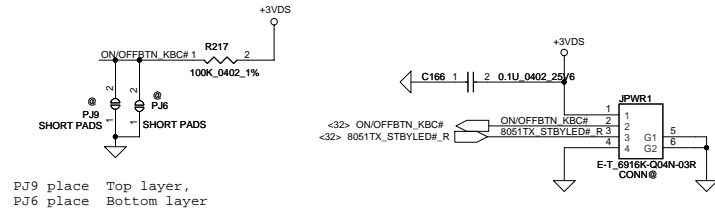


www.aitech1.ru

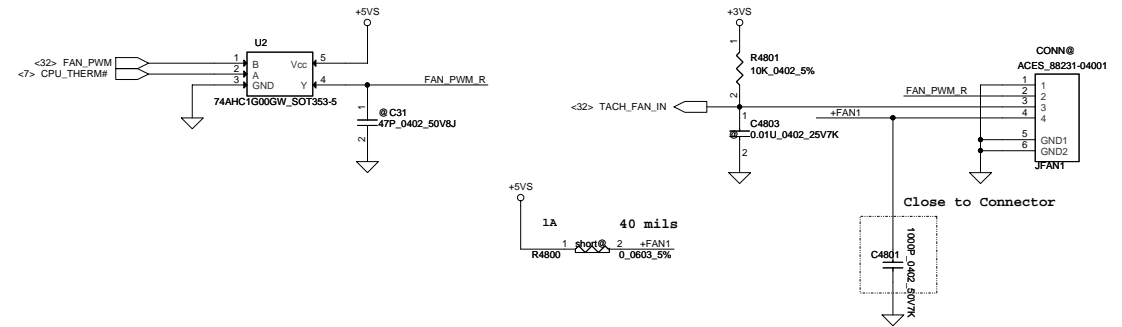


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| Security Classification | Compal Secret Data | | | Compal Electronics, Inc. | | |
| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | Title | KB/TP | |
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| | | | | Date | Tuesday, March 25, 2014 | Sheet 28 of 62 |

Power Button Connector

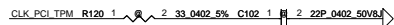


Fan Control Circuit

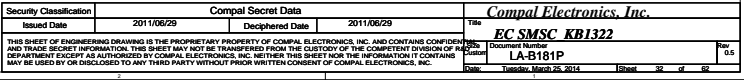


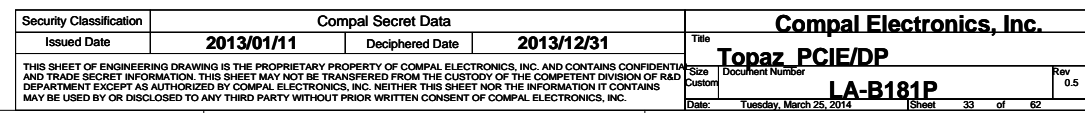
www.aitech1.ru

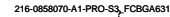
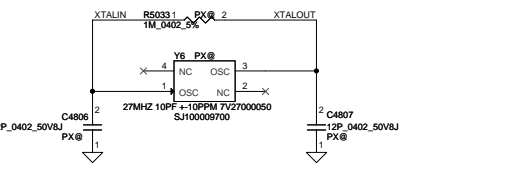
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| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | Title | | |
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| | | | | Custom | LA-B181P | 0.5 |
| | | | | Date: | Tuesday, March 25, 2014 | Sheet 29 of 62 |



| | | | | | | |
|---|------------|--------------------|------------|--|-----------------|-------|
| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. LED/Screw hole | | |
| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | Title | | |
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| | | | | | LA-B181P | 0 |
| Date: Tuesday, March 25, 2014 | | | | Sheet | 30 | of 62 |



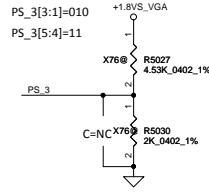




| Cap (nF) | Bitd [5:4] |
|----------|------------|
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| 82nF | 01 |
| 10nF | 10 |
| NC | 11 |

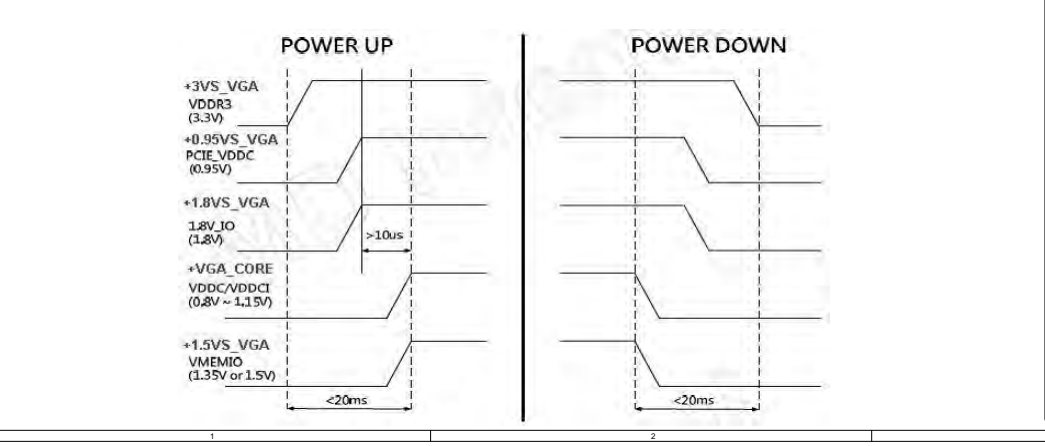
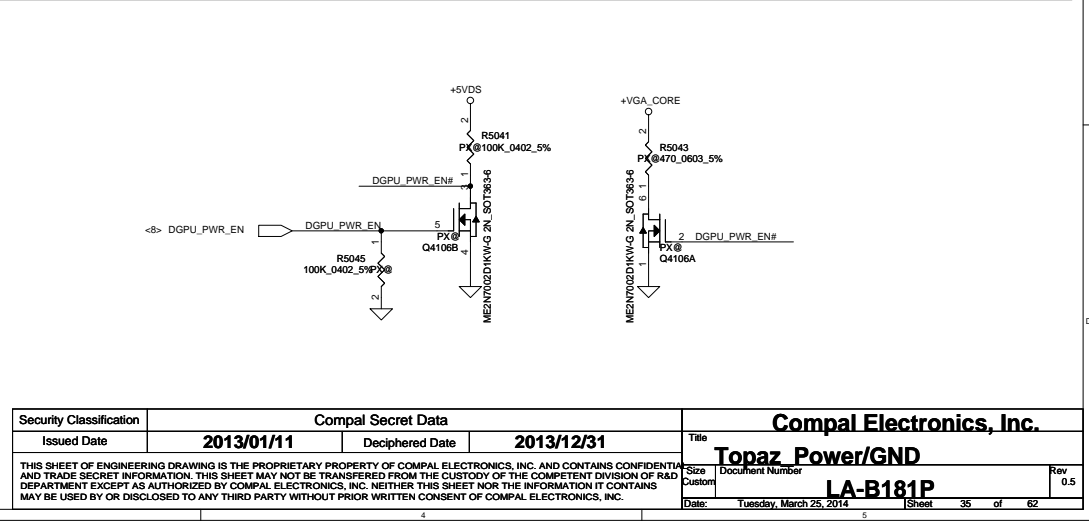


| ZZZ1 | ZZZ2 | ZZZ3 | ZZZ4 | ZZZ5 | ZZZ6 |
|-----------------------------------|-------------------------------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|
| X761G@ 11AMSUNG X7655332L03 | X762G@ 2C SAMSUNG X7655332L06 | X761G@ 2C HYUN X7655332L01 | X762G@ 2C HYUN X7655332L04 | X761G@ 2C MICRON X7655332L02 | X762G@ 2C MICRON X7655332L05 |



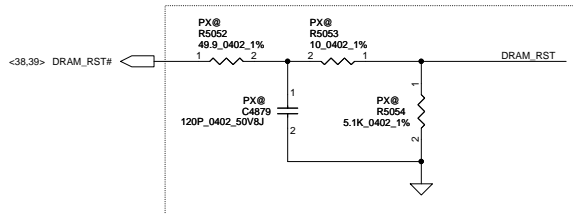
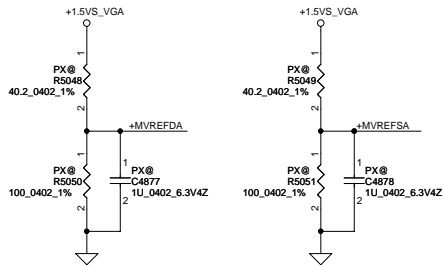
Strap Name :

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PS_3[1] BOARD_CONFIG[0] (Memory ID)
PS_3[2] BOARD_CONFIG[1] (Memory ID)
PS_3[3] BOARD_CONFIG[2] (Memory ID)
PS_3[4] AUD_PORT_CONN_PINSTRAP[1]
PS_3[5] AUD_PORT_CONN_PINSTRAP[2]
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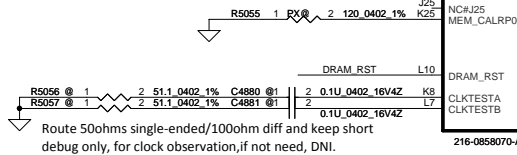
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| Security Classification | Compal Secret Data | | | Compal Electronics, Inc. | | |
| Issued Date | 2013/01/11 | Deciphered Date | 2013/12/31 | Title | Topaz Power/GND | |
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| | | | | Custom | LA-B181P | 0.5 |
| | | | | Date: | Tuesday, March 25, 2014 | Sheet 35 of 62 |

<38,39> M_DA[63..0] M_DA[63..0]
<38,39> M_MA[15..0] M_MA[15..0]
<38,39> M_DQM[7..0] M_DQM[7..0]
<38,39> M_DQS[7..0] M_DQS[7..0]
<38,39> M_DQS# [7..0] M_DQS# [7..0]



Place close to GPU (within 25mm)
and place component close to each other



Route 50ohms single-ended/100ohm diff and keep short
debug only, for clock observation, if not need, DNI.

| U4103C PX@ | | GDOR5/DOR3 | | GDOR5/DOR3 | |
|------------|-----|------------|----------|------------|--------------|
| M_DA0 | K27 | DDA0_0 | MAA0_0 | K17 | M_MAO |
| M_DA1 | J29 | DDA0_1 | MAA0_1 | J20 | M_MAO |
| M_DA2 | H30 | DDA0_2 | MAA0_2 | H23 | M_MAO |
| M_DA3 | H32 | DDA0_3 | MAA0_3 | G23 | M_MAO |
| M_DA4 | G29 | DDA0_4 | MAA0_4 | G24 | M_MAO |
| M_DA5 | F28 | DDA0_5 | MAA0_5 | H24 | M_MAO |
| M_DA6 | F26 | DDA0_6 | MAA0_6 | J19 | M_MAO |
| M_DA7 | F30 | DDA0_7 | MAA0_7 | K19 | M_MAO |
| M_DA8 | C30 | DDA0_8 | MAA0_8 | G20 | M_MAO |
| M_DA9 | F27 | DDA0_9 | MAA0_9 | L17 | M_MAO |
| M_DA10 | A28 | DDA0_10 | MAA1_0 | J14 | M_MAO |
| M_DA11 | C28 | DDA0_11 | MAA1_1 | K14 | M_MAO |
| M_DA12 | E27 | DDA0_12 | MAA1_2 | J11 | M_MAO |
| M_DA13 | G26 | DDA0_13 | MAA1_3 | J13 | M_MAO |
| M_DA14 | D26 | DDA0_14 | MAA1_4 | H11 | M_MAO |
| M_DA15 | F25 | DDA0_15 | MAA1_5 | G11 | M_MAO |
| M_DA16 | A26 | DDA0_16 | MAA1_6 | J16 | M_MAO |
| M_DA17 | C25 | DDA0_17 | MAA1_7 | L15 | M_MAO |
| M_DA18 | E25 | DDA0_18 | MAA1_8 | G14 | M_MAO |
| M_DA19 | D24 | DDA0_19 | MAA1_9 | L16 | M_MAO |
| M_DA20 | E23 | DDA0_20 | WCKA0_0 | E32 | M_DQM0 |
| M_DA21 | F23 | DDA0_21 | WCKA0_1 | E30 | M_DQM1 |
| M_DA22 | D22 | DDA0_22 | WCKA0_2 | A21 | M_DQM2 |
| M_DA23 | F21 | DDA0_23 | WCKA0_3 | C21 | M_DQM3 |
| M_DA24 | E21 | DDA0_24 | WCKA0B_1 | E13 | M_DQM4 |
| M_DA25 | D20 | DDA0_25 | WCKA1_0 | D12 | M_DQM5 |
| M_DA26 | F19 | DDA0_26 | WCKA1B_0 | E3 | M_DQM6 |
| M_DA27 | A18 | DDA0_27 | WCKA1B_1 | F4 | M_DQM7 |
| M_DA28 | D18 | DDA0_28 | EDCA0_0 | H28 | M_DQS0 |
| M_DA29 | F17 | DDA0_29 | EDCA0_1 | A23 | M_DQS1 |
| M_DA30 | A17 | DDA0_30 | EDCA0_2 | E19 | M_DQS2 |
| M_DA31 | C17 | DDA0_31 | EDCA0_3 | E15 | M_DQS3 |
| M_DA32 | E17 | DDA0_0 | EDCA1_0 | D10 | M_DQS4 |
| M_DA33 | E16 | DDA0_1 | EDCA1_1 | D6 | M_DQS5 |
| M_DA34 | F15 | DDA0_2 | EDCA1_2 | G5 | M_DQS6 |
| M_DA35 | A15 | DDA0_3 | EDCA1_3 | H27 | M_DQS#0 |
| M_DA36 | D14 | DDA0_4 | DDBIA0_0 | A27 | M_DQS#1 |
| M_DA37 | F13 | DDA0_5 | DDBIA0_1 | C23 | M_DQS#2 |
| M_DA38 | A13 | DDA0_6 | DDBIA0_2 | C19 | M_DQS#3 |
| M_DA39 | C13 | DDA0_7 | DDBIA0_3 | G15 | M_DQS#4 |
| M_DA40 | E11 | DDA0_8 | DDBIA1_0 | E9 | M_DQS#5 |
| M_DA41 | A11 | DDA0_9 | DDBIA1_1 | G4 | M_DQS#6 |
| M_DA42 | C11 | DDA0_10 | DDBIA1_2 | H19 | M_DQS#7 |
| M_DA43 | F10 | DDA0_11 | DDBIA1_3 | L18 | VRAM_ODT0 |
| M_DA44 | A9 | DDA0_12 | ADBIA0 | K16 | VRAM_ODT1 |
| M_DA45 | O9 | DDA0_13 | ADBIA1 | H28 | M_CLK0 |
| M_DA46 | D8 | DDA0_14 | H25 | M_CLK#0 | M_CLK#0 <38> |
| M_DA47 | E7 | DDA0_15 | G9 | M_CLK1 | M_CLK#1 <38> |
| M_DA48 | E7 | DDA0_16 | H9 | M_CLK#1 | M_CLK#1 <39> |
| M_DA49 | A7 | DDA0_17 | G22 | M_RAS#0 | M_RAS#0 <38> |
| M_DA50 | C7 | DDA0_18 | G17 | M_RAS#1 | M_RAS#1 <38> |
| M_DA51 | F7 | DDA0_19 | G19 | M_CAS#0 | M_CAS#0 <38> |
| M_DA52 | A5 | DDA0_20 | G16 | M_CAS#1 | M_CAS#1 <38> |
| M_DA53 | E5 | DDA0_21 | H22 | M_CS#0 | M_CS#0 <38> |
| M_DA54 | C5 | DDA0_22 | J22 | M_CS#1 | M_CS#1 <38> |
| M_DA55 | E1 | DDA0_23 | G13 | M_CKE0 | M_CKE0 <38> |
| M_DA56 | G1 | DDA0_24 | K13 | M_CKE1 | M_CKE1 <38> |
| M_DA57 | G6 | DDA0_25 | K20 | M_WE#0 | M_WE#0 <38> |
| M_DA58 | G1 | DDA0_26 | J17 | M_WE#1 | M_WE#1 <38> |
| M_DA59 | G3 | DDA0_27 | G25 | | |
| M_DA60 | J6 | DDA0_28 | H10 | | |
| M_DA61 | J1 | DDA0_29 | | | |
| M_DA62 | J3 | DDA0_30 | | | |
| M_DA63 | J6 | DDA0_31 | | | |
| +MVREFDA | K26 | MVREFDA | | | |
| +MVREFSA | J26 | MVREFSA | | | |
| | J25 | NC#J25 | | | |
| | K25 | MEM_CALRP0 | | | |
| | | DRAM_RST | | | |
| | | CLKTESTA | | | |
| | | CLKTESTB | | | |

U4103C PX@

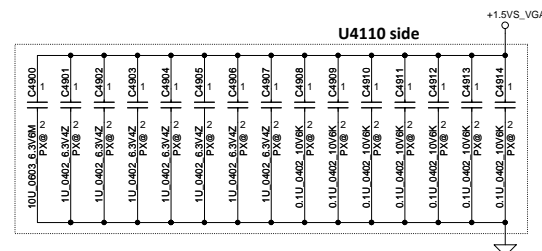
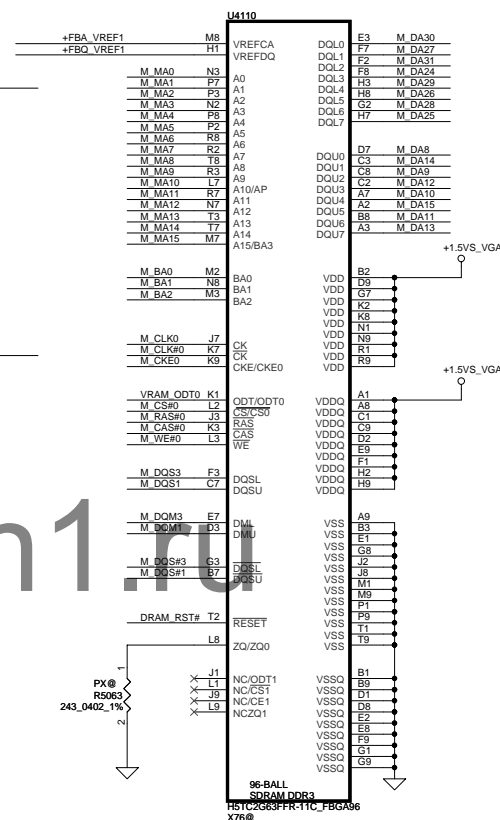
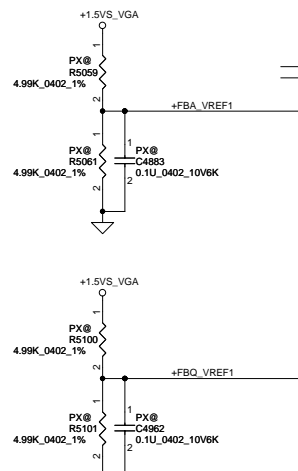
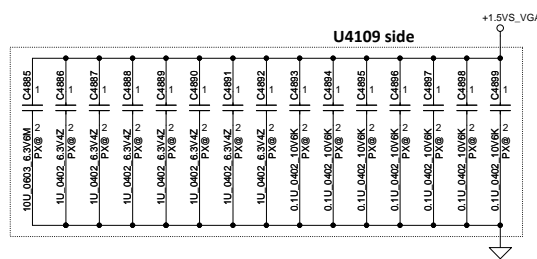
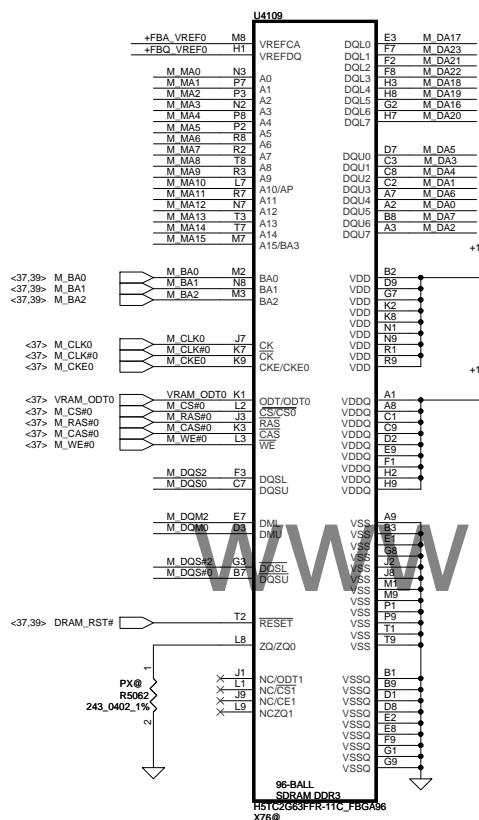
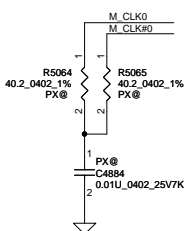
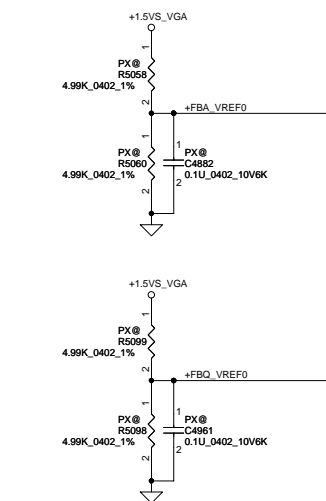
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GDOR5/DOR3

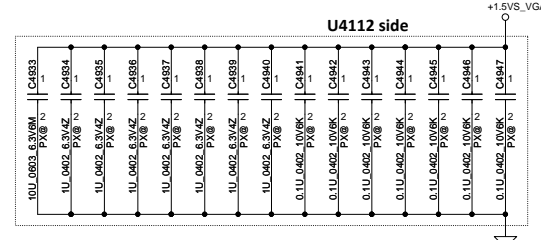
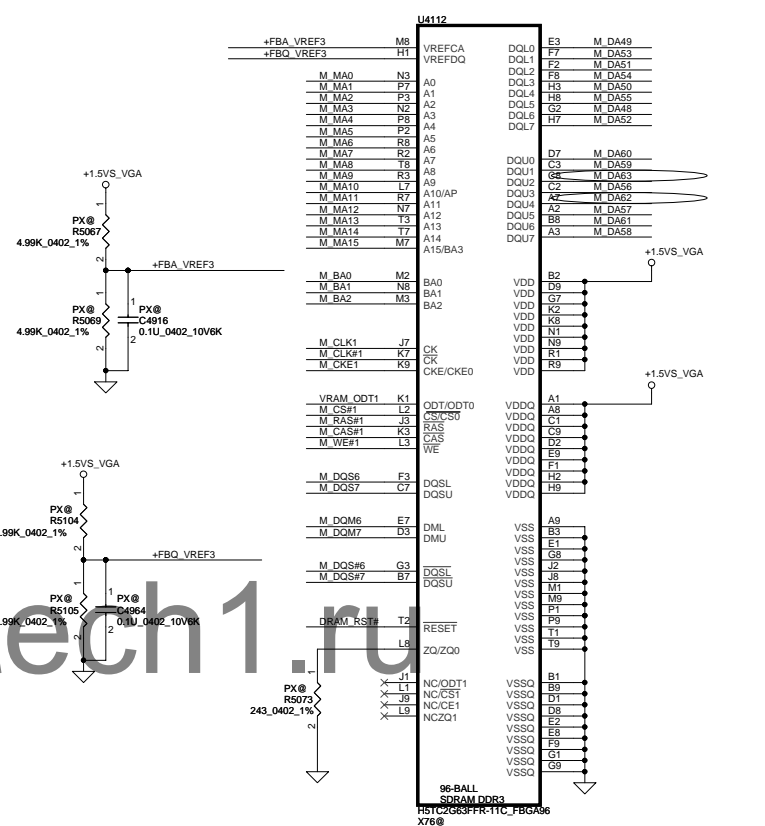
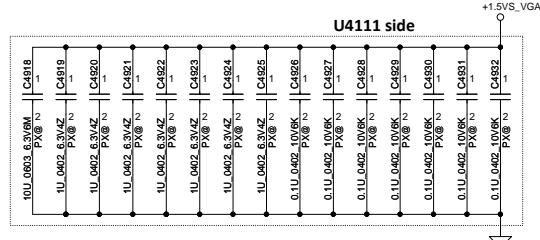
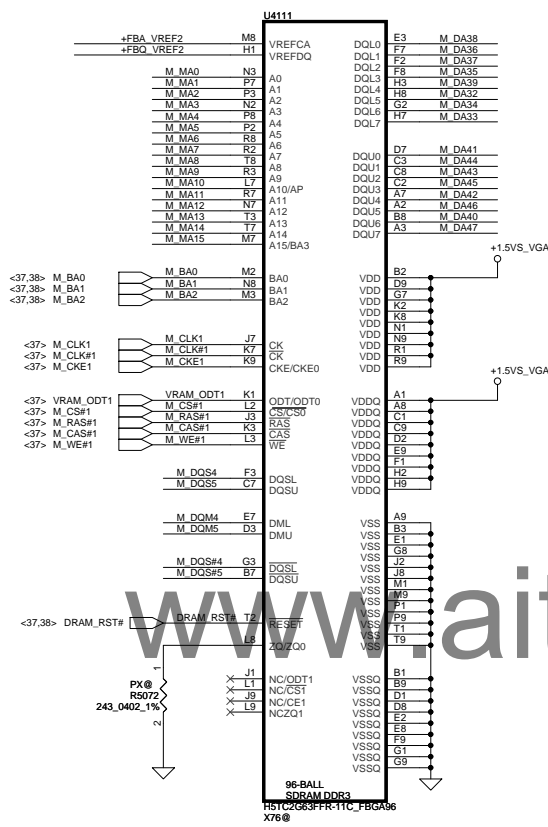
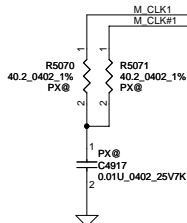
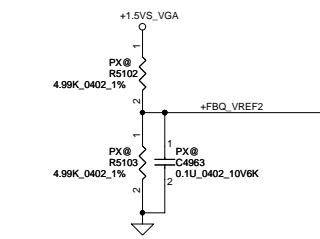
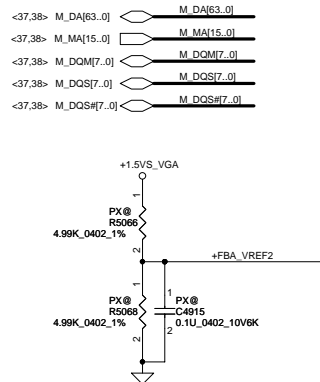
MEMORY INTERFACE

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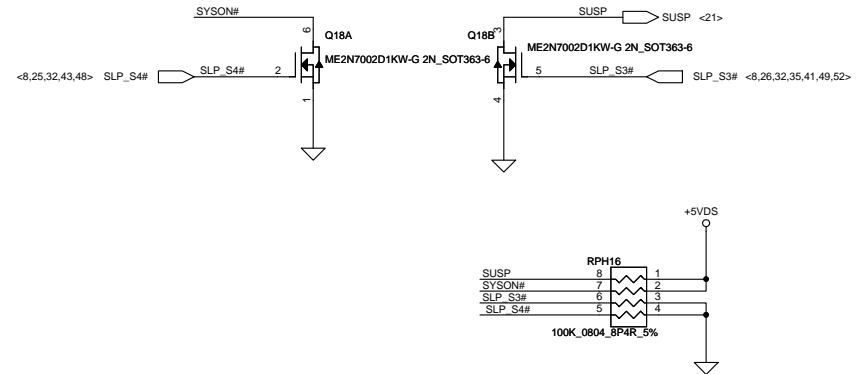
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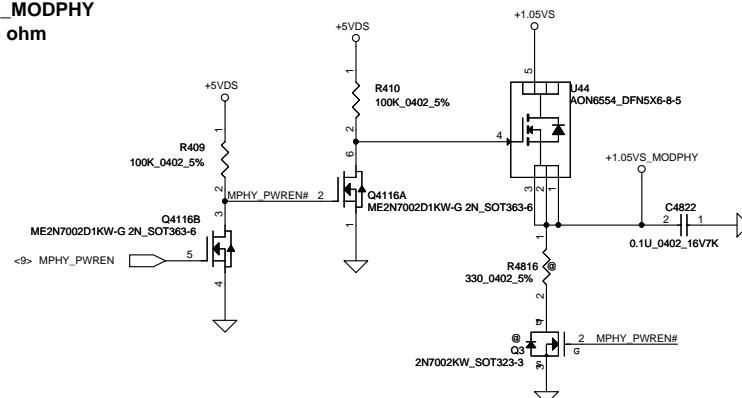
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| Security Classification | Compal Secret Data | | | Compal Electronics, Inc. | | |
| Issued Date | 2013/01/11 | Deciphered Date | 2013/12/31 | Title | Topaz VRAM A Lower | |
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| | | | | Custom | LA-B181P | 0.5 |
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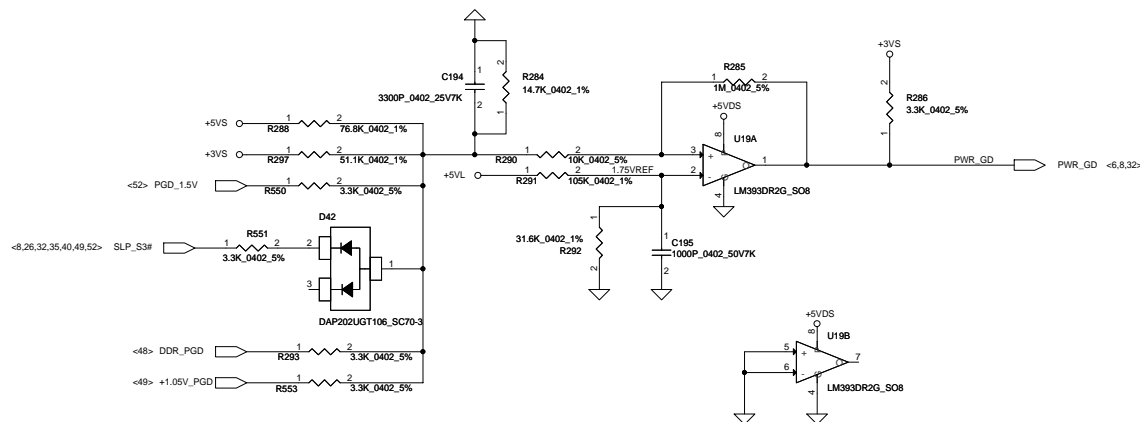
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| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | | |
| Issued Date | 2013/01/11 | Deciphered Date | 2013/12/31 | Title | Topaz VRAM A Upper | |
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| | | | | Custom | LA-B181P | |
| | | | | Date: | Tuesday, March 25, 2014 | Sheet 39 of 62 |



CPU +V1.05DX_MODPHY
Max Rdson <6m ohm
1840mA

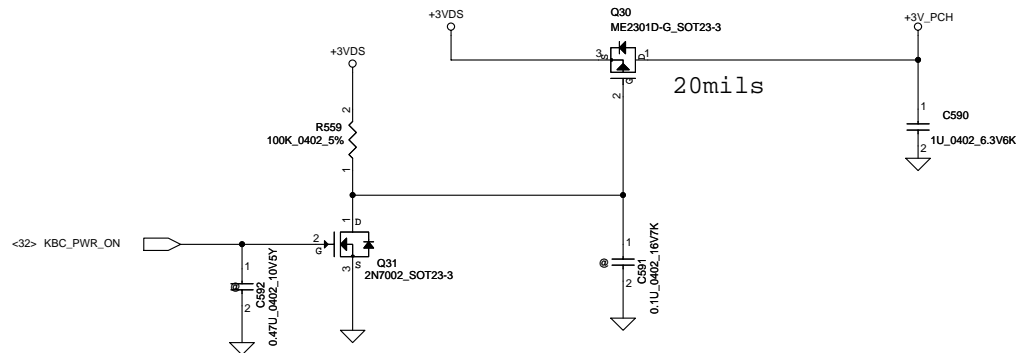


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| Security Classification | | Compal Secret Data | | | | Compal Electronics, Inc. | | | |
| Issued Date | | 2011/06/29 | | Deciphered Date | | 2011/06/29 | | Title | |
| | | | | | | | | DC Interface | |
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| | | | Size C | Document Number LA-B181P |
| | | | Date: Tuesday, March 25, 2014 | Rev 0.5 |
| | | | Sheet 41 of 62 | |



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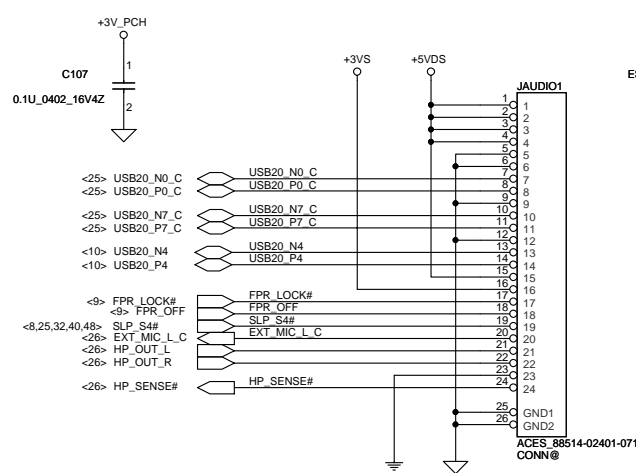
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| Issued Date | 2011/06/29 | Deciphered Date | 2011/06/29 | Title | DC DC Device-1 |
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| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 42 of 62 |
| | | | | Rev | 0.5 |

Audio Board

USB CONN

Finger printer

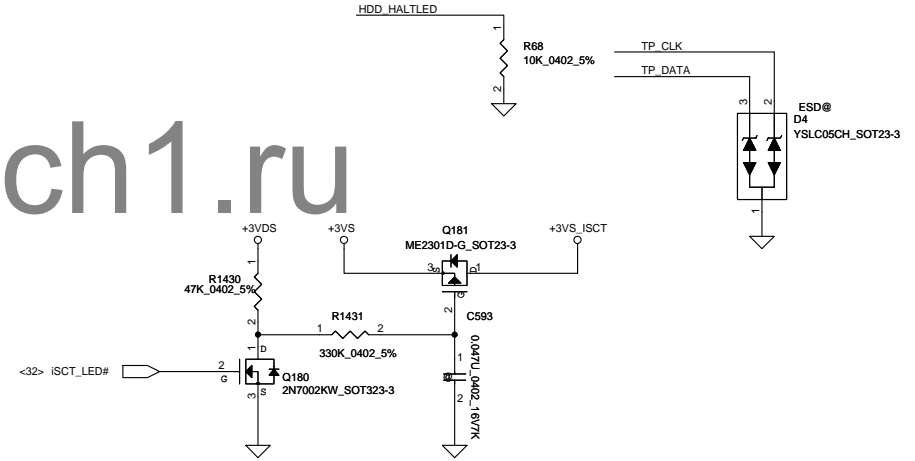
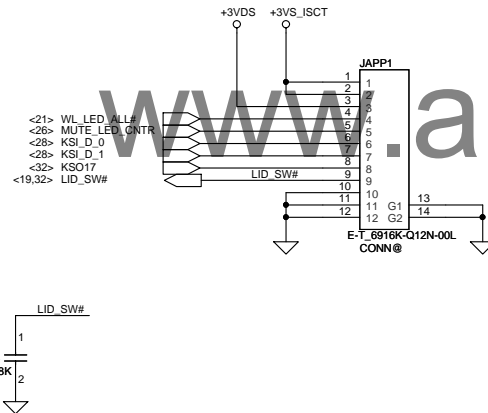
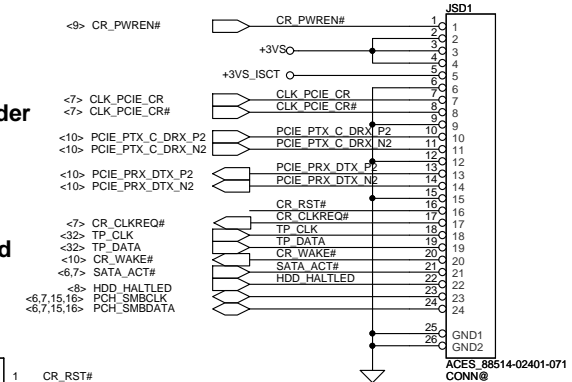
Combo Jack



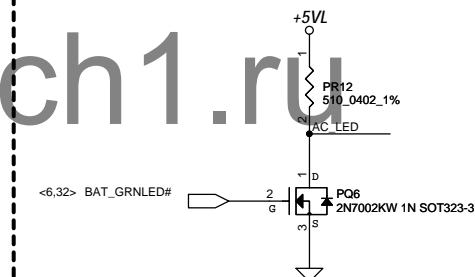
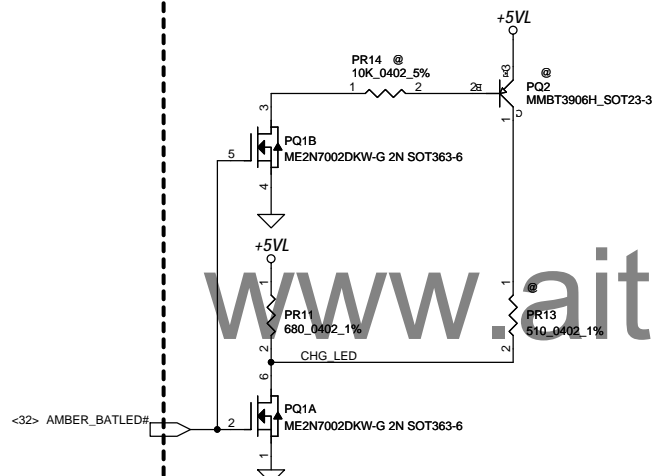
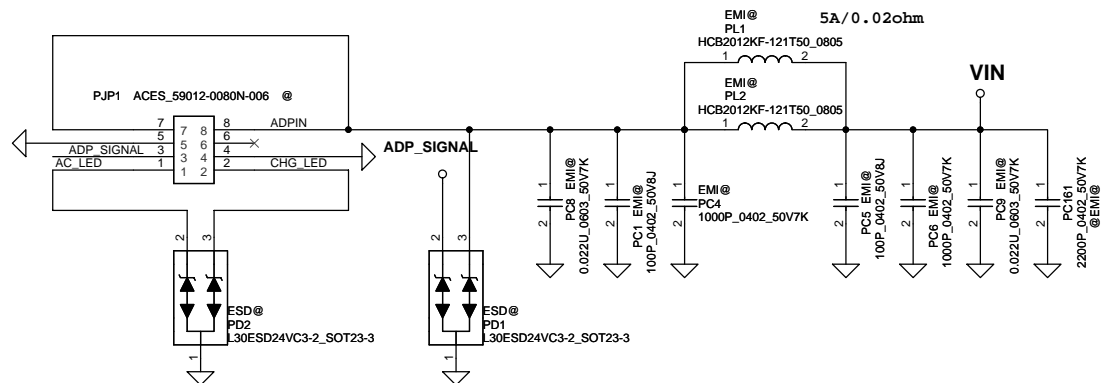
Card Reader Board

Card Reader

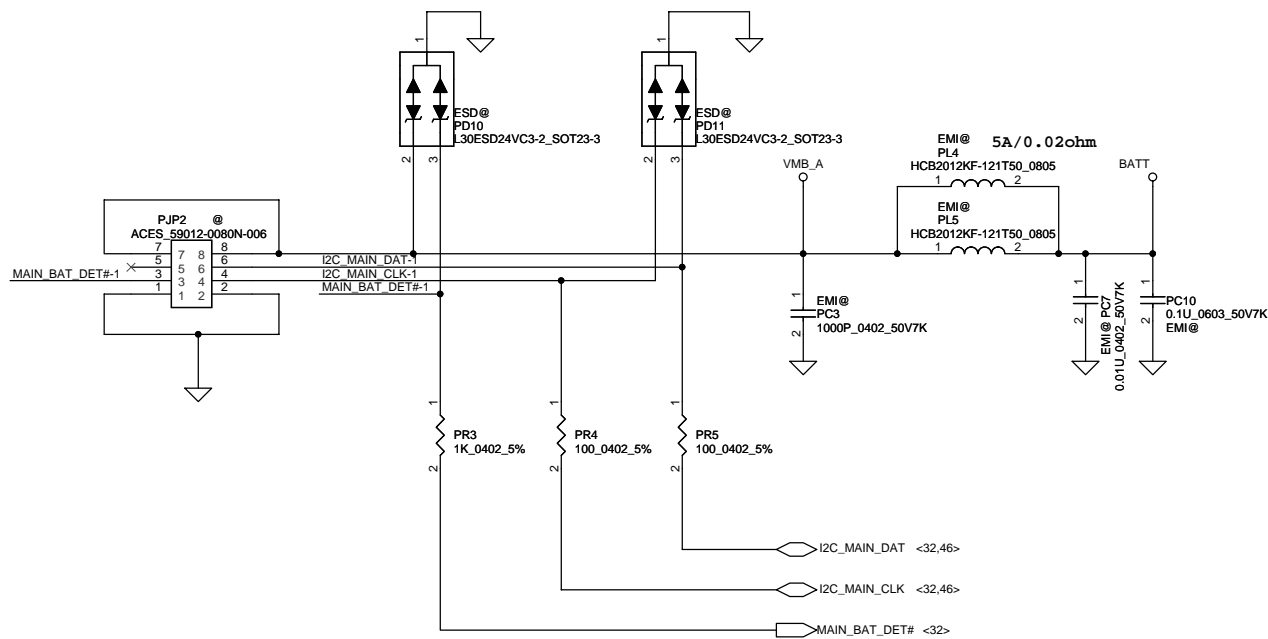
Touch Pad



| | | | | | |
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| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
| Issued Date | 2011/06/29 | Deciphered Date | 2011/06/29 | Title | DC DC Device-1 |
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| | | | | Document Number | LA-B181P |
| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 43 of 62 |

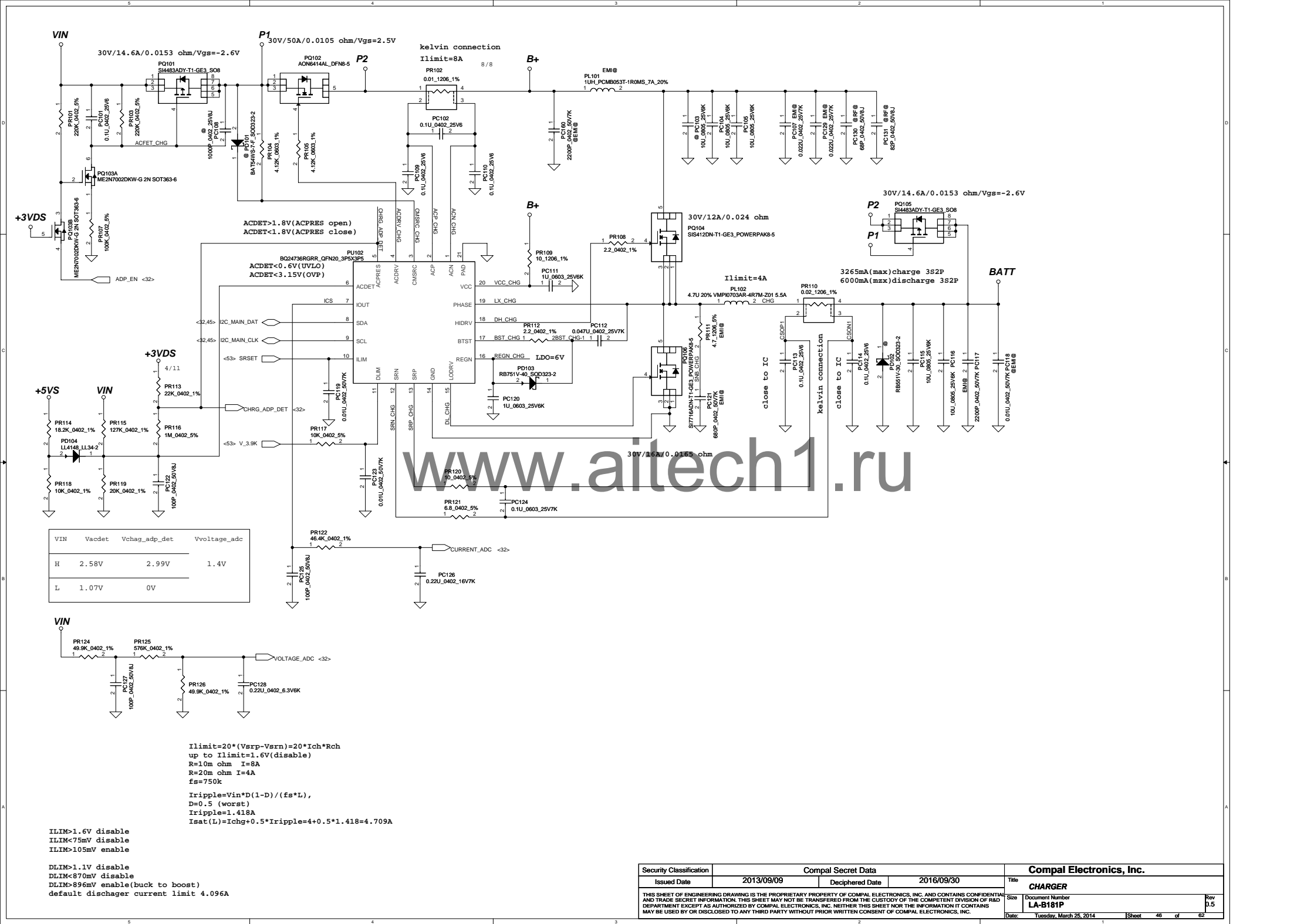


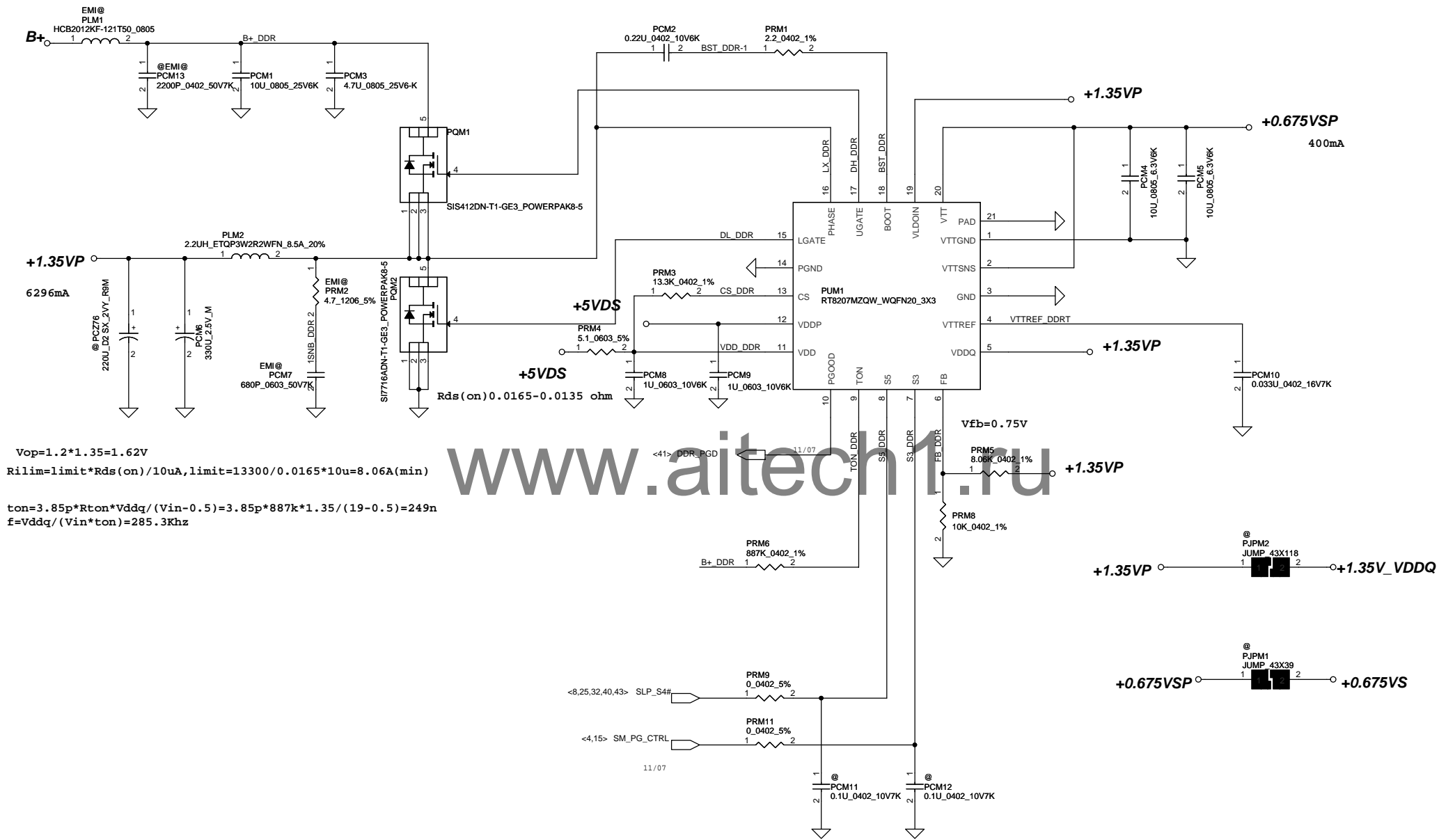
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| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
| Issued Date | 2013/09/09 | Deciphered Date | 2016/09/30 | Title | DC Conn |
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| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
| Issued Date | 2013/09/09 | Deciphered Date | 2016/09/30 | Title | BATT Conn |
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| | | | | Date: | Tuesday, March 25, 2014 |
| | | | | Sheet | 45 of 62 |
| | | | | Rev | 0.5 |

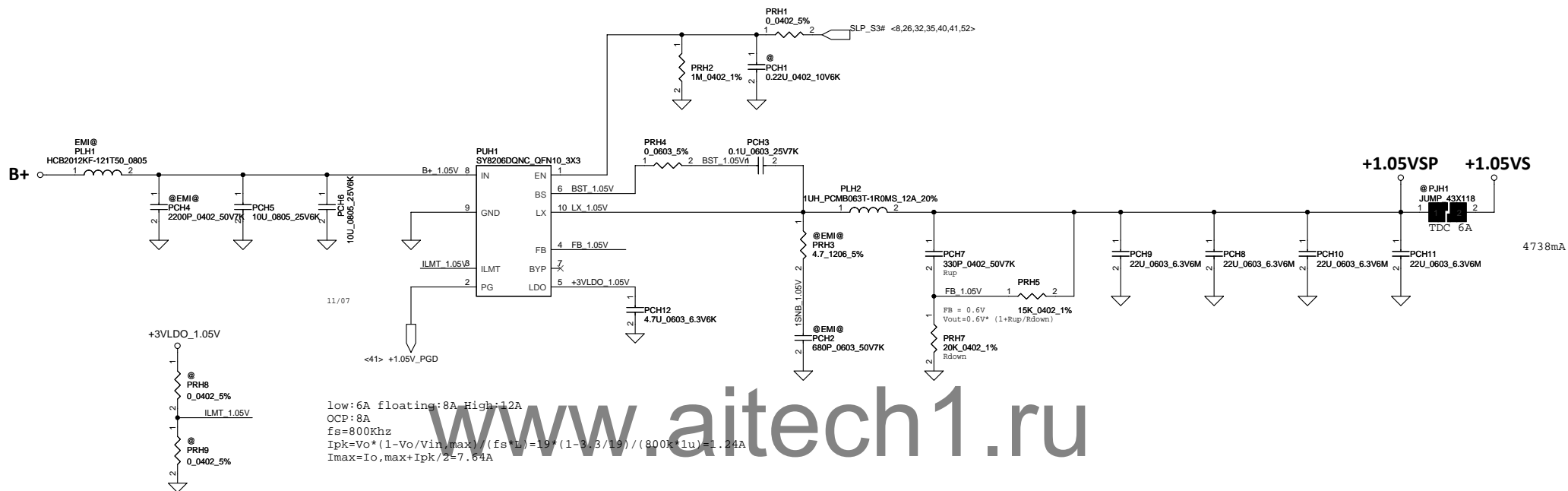




$V_{op} = 1.2 * 1.35 = 1.62V$
 $R_{lim} = \text{limit} * R_{ds(on)} / 10uA, \text{limit} = 13300 / 0.0165 * 10u = 8.06A(\text{min})$
 $t_{on} = 3.85p * R_{ton} * V_{ddq} / (V_{in} - 0.5) = 3.85p * 887k * 1.35 / (19 - 0.5) = 249n$
 $f = V_{ddq} / (V_{in} * t_{on}) = 285.3Khz$

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| | | | | LA-B181P | Rev 0.5 |
| | | | | Date: | Tuesday, March 25, 2014 |
| | | | | Sheet | 49 of 62 |

PRZ5:Vo-usr=1.7*(150/(150+9.53))=1.598V
Vusr=540mV
PRZ11:disable OSR&PT,Rosr=150K
PRZ10:setting fs R=150==>1Mhz
Ramp setting:
PRZ9=100K type:160mV
PRZ9>=150K type:40mV
boot voltage setting:
Vb-ram=1V==>2V
Vb-ram=0V==>1.7V
Vb-ram>1.525V==>0V

Iccmax=32A(15w),Iccmax=40A(28w)
IccTDC=10A(15w),IccTDC=16A(28w)
IccDyn=27A(15w),IccDyn=32A(28w)
OCP voatge seeting:
PRZ8=39K ==>18.9mV
Vimon=1.7V
Rp_n=10.74k Rcs(eff)=0.6m ohm
1.7V=10*(1+Rimon/39k)*0.6m*32,Rimon=345k

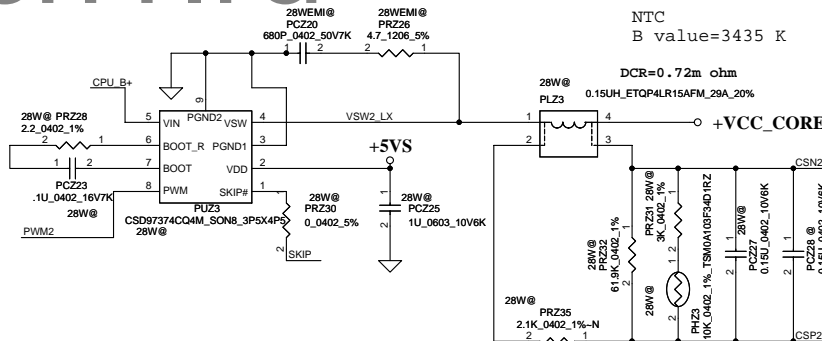
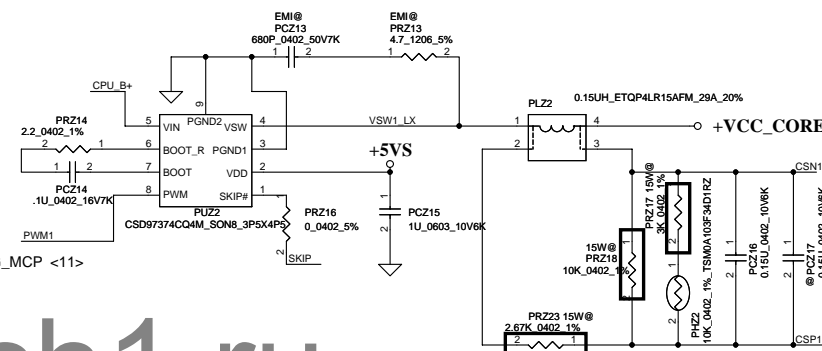
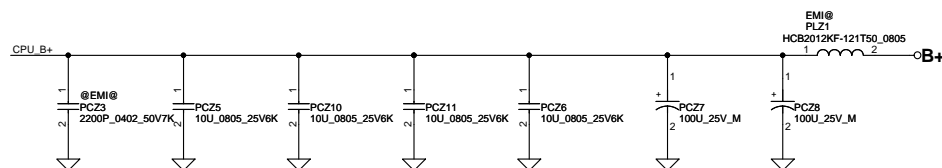
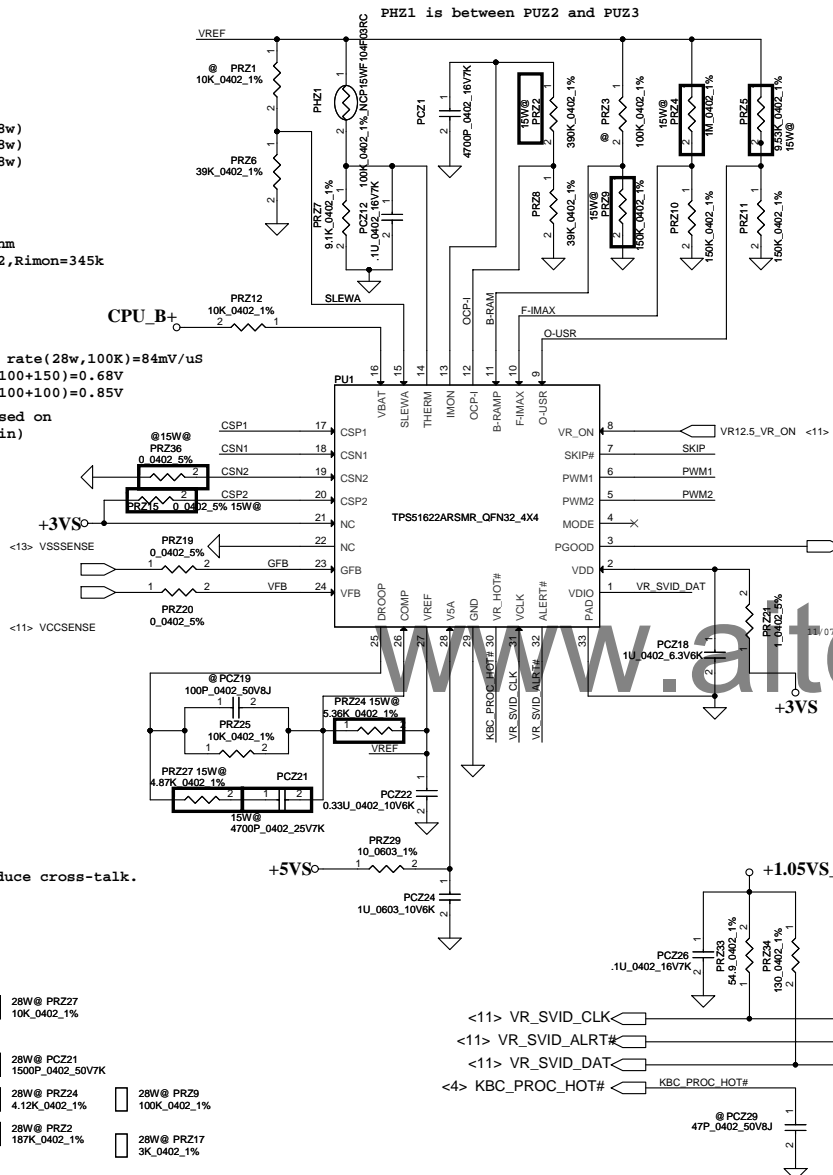
ALERT goes low,THERM=1.08V
VR_HOT goes low,THERM=1.1V

slew rate(15w,150K)=96mV/uS,slew rate(28w,100K)=84mV/uS
address selection(15w):1.7*100/(100+150)=0.68V
address selection(28w):1.7*100/(100+100)=0.85V
On-tome(ton):ON-time is fixed based on
the input voltage (at the VBAT pin)
Vssense and Vccsense need to
be difference pair
Droop>Error amplifier output.

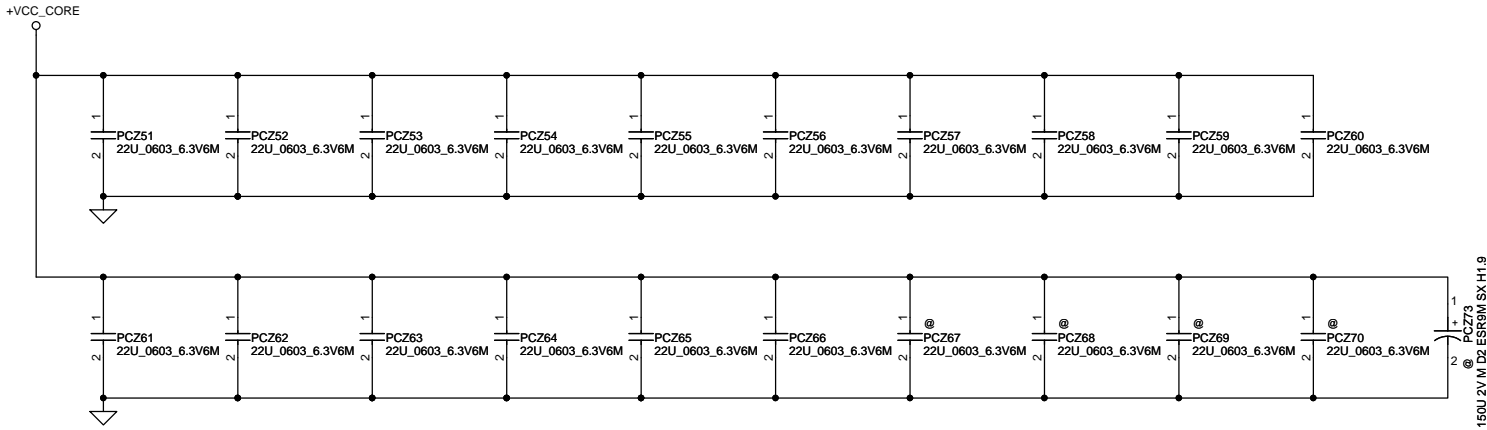
ALERT between VCLK and VDIO to reduce cross-talk.

- 28W@ PRZ27
10K_0402_1%
- 28W@ PRZ24
4.12K_0402_1%
- 28W@ PRZ2
187K_0402_1%
- 28W@ PRZ4
806K_0402_1%
- 28W@ PRZ5
280K_0402_1%
- 28W@ PRZ9
100K_0402_1%
- 28W@ PRZ17
3K_0402_1%
- 28W@ PRZ23
2.1K_0402_1%
- 28W@ PRZ18
61.9K_0402_1%

not mount 需特别注意 (15w@,28w@)



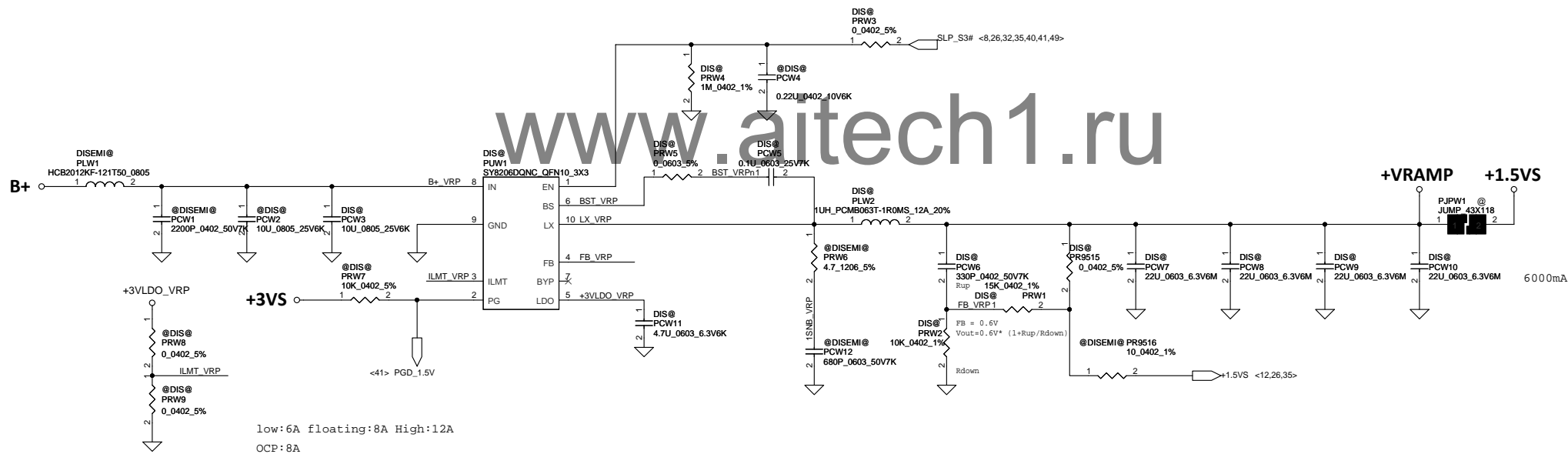
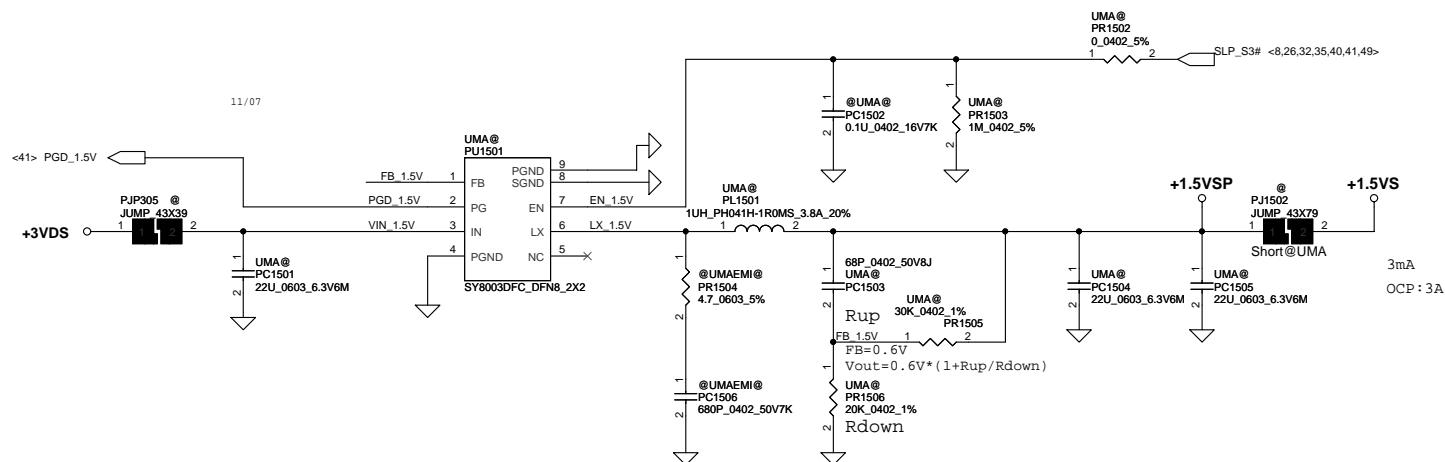
| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
|---|------------|--------------------|------------|--------------------------|-------------------------|
| Issued Date | 2013/09/09 | Deciphered Date | 2016/09/30 | Title | +CPU_CORE |
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| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 50 of 62 |



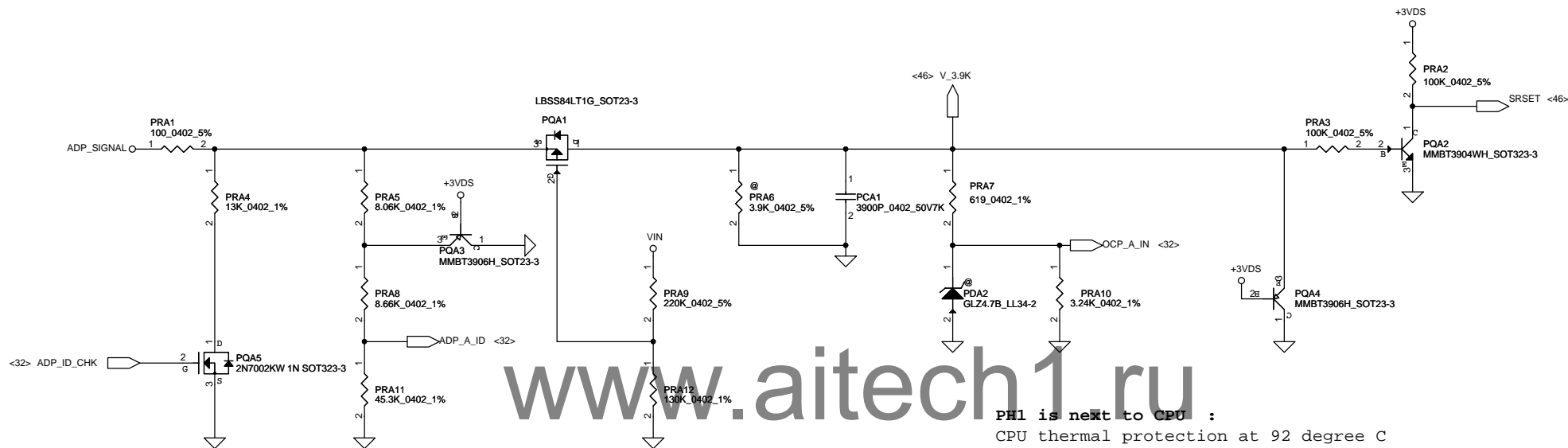
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| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 51 of 62 |

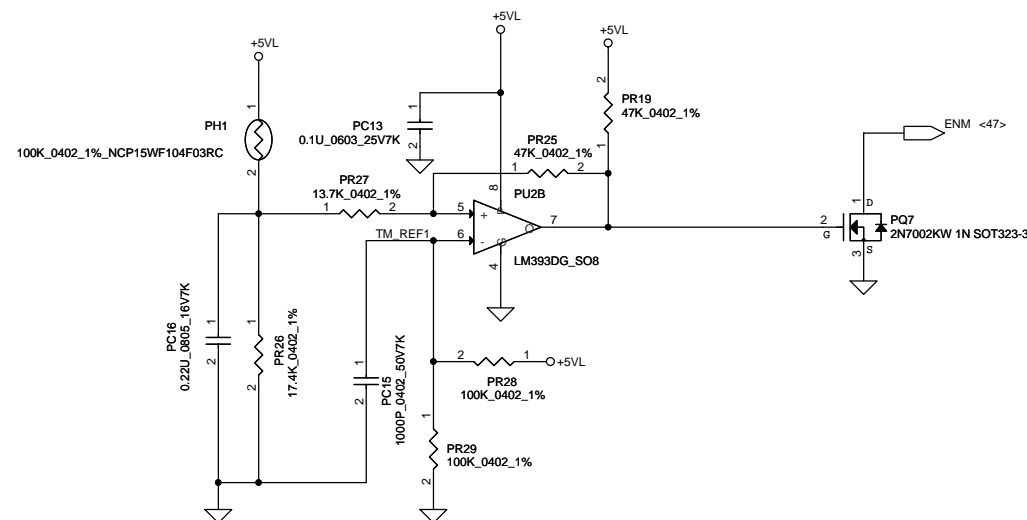
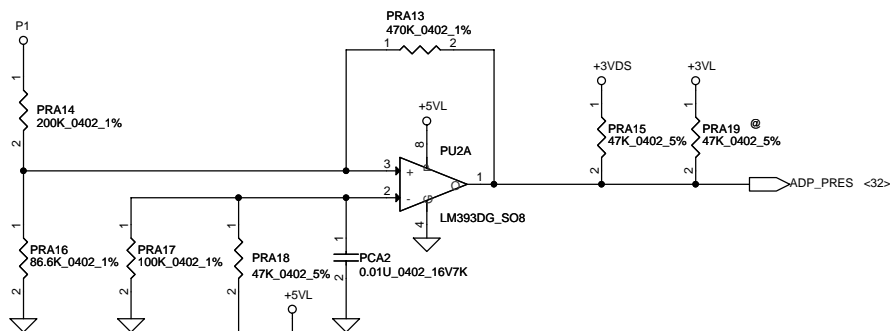
11/07



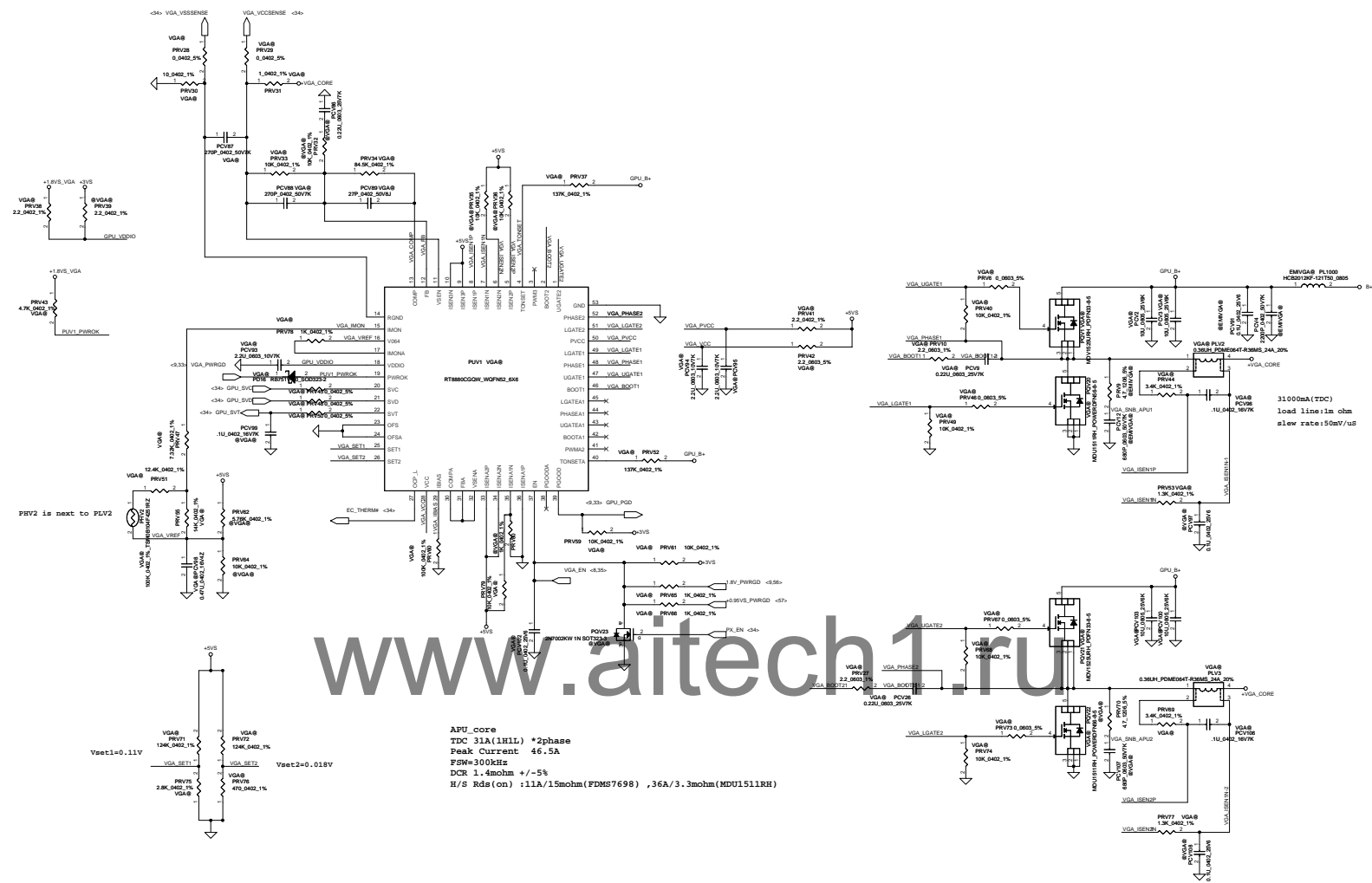
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| Date: Tuesday, March 25, 2014 | | | | | Rev 0.5 |
| Sheet 52 of 62 | | | | | |



MEMO:PRA4 and PQA5 are not mount

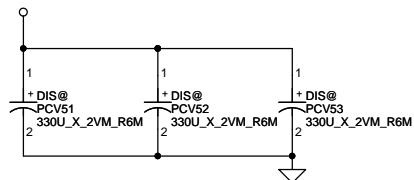


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| Issued Date | 2013/09/09 | Deciphered Date | 2016/09/30 | Title | ADP_OCP |
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| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 53 of 62 |
| | | | | Rev | 0.5 |

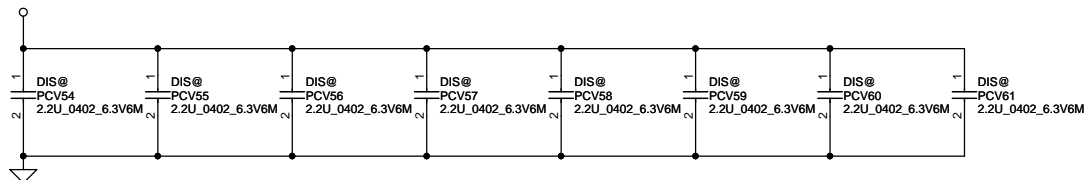


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| Issued Date | 2013/03/19 | Deciphered Date | 2013/03/19 | File | RT8880AGOW |
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| LA-8181P | | | | | 0.8 |

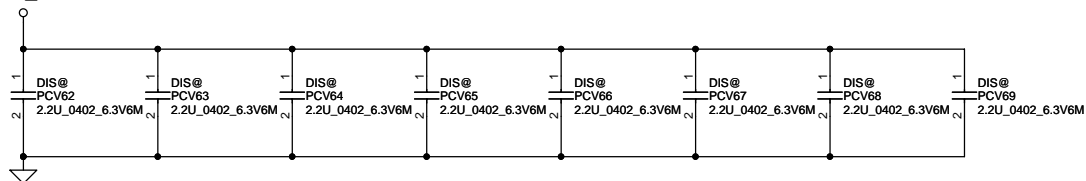
+VGA_CORE



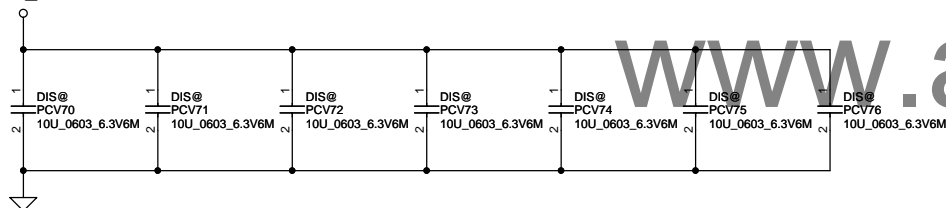
+VGA_CORE



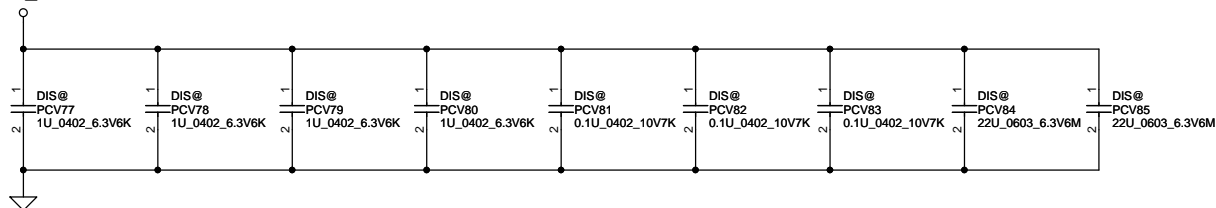
+VGA_CORE



+VGA_CORE



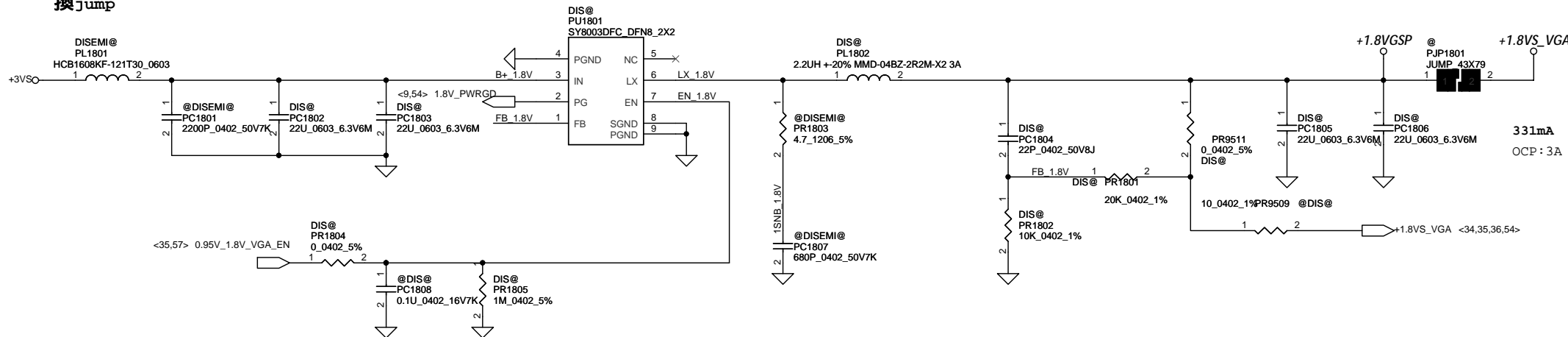
+VGA_CORE



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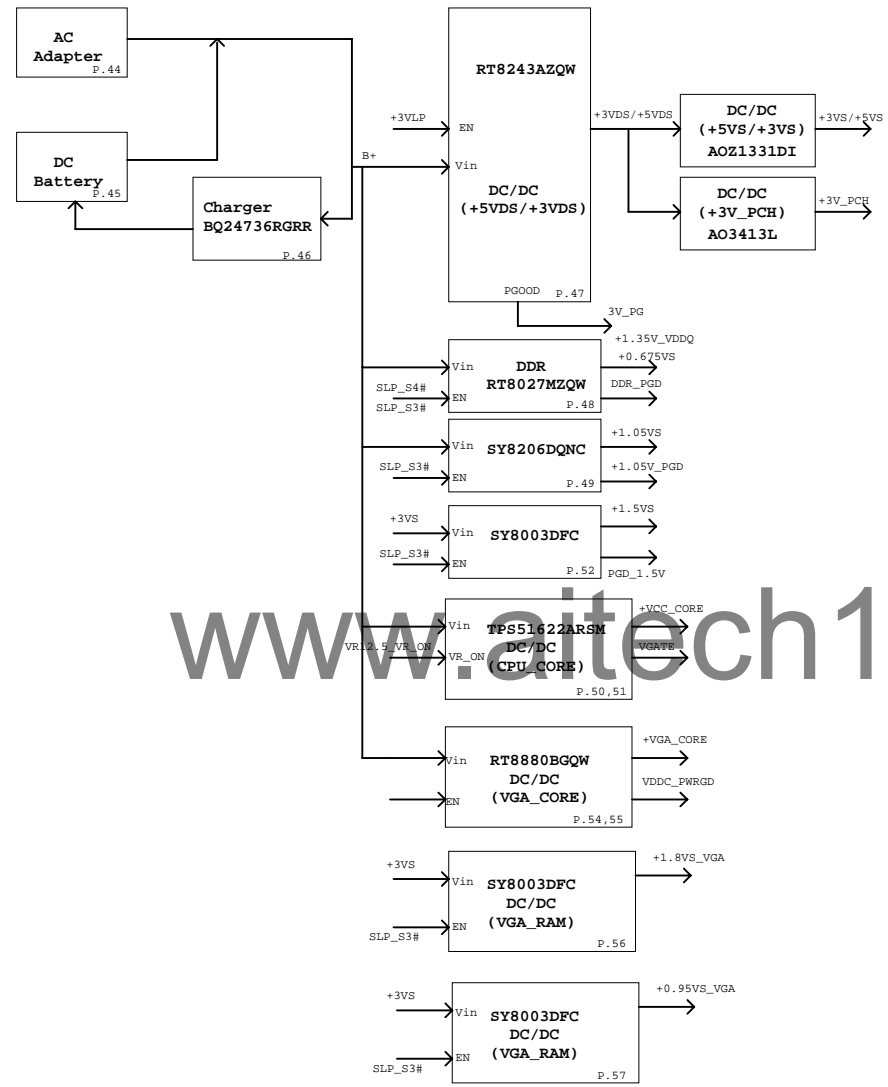
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|---|------------|--------------------|------------|--------------------------|-------------------------|
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| Issued Date | 2012/04/03 | Deciphered Date | 2016/09/30 | Title | VGA CHIP DECOUPLING |
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| | | | | Date | Tuesday, March 25, 2014 |
| | | | | Sheet | 55 of 62 |
| | | | | Rev | 0.5 |

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| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
| Issued Date | 2013/09/09 | Deciphered Date | 2016/09/30 | Title | +1.8VS_VGA |
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| | | | | Date: | LA-B181P |
| | | | | Sheet | 56 of 62 |

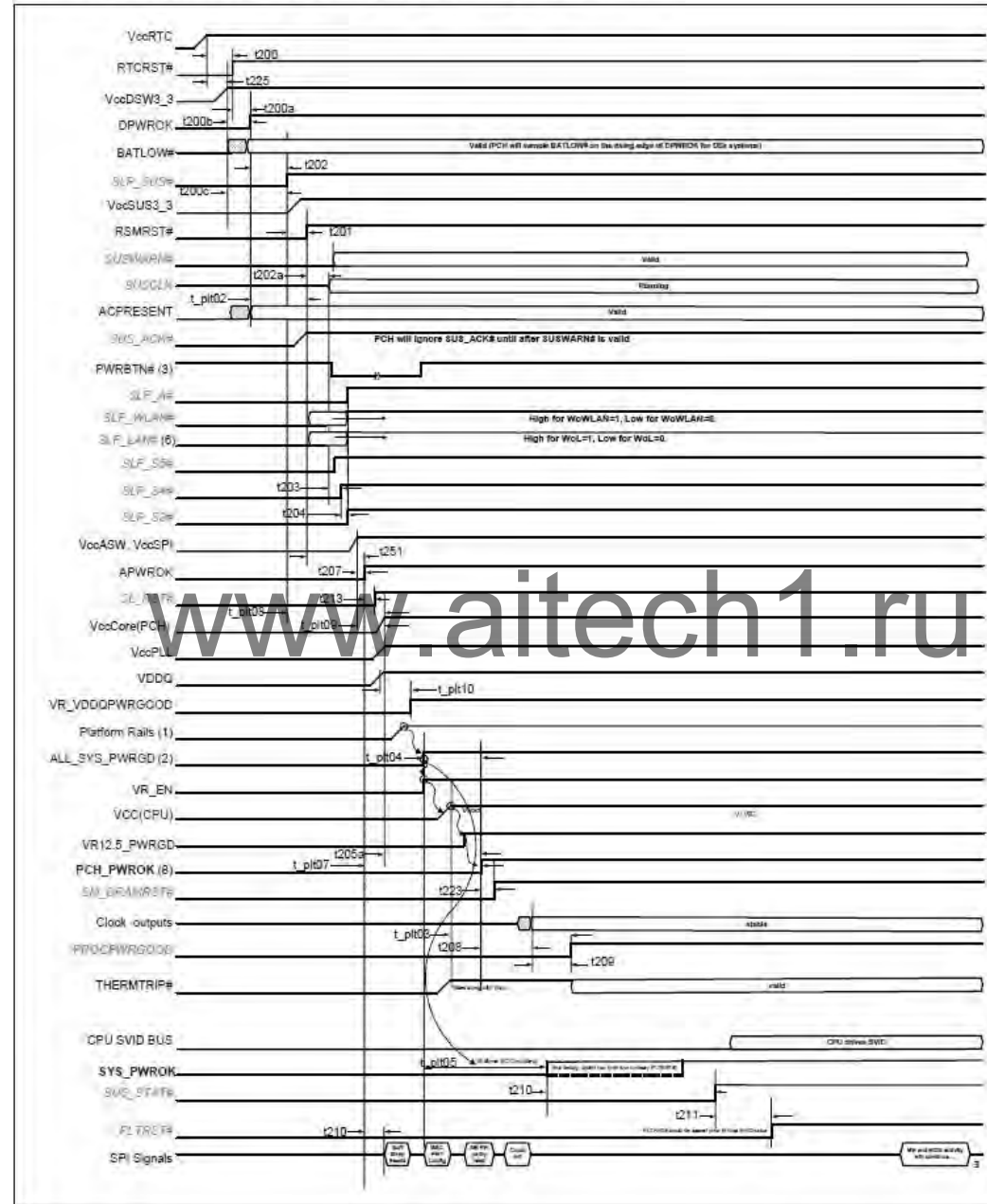


| CPU DC/DC | |
|---------------|-------------|
| TPS51622ARSMR | 50-51 |
| INPUTS | OUTPUTS |
| B+ | VCC_CORE |
| SYSTEM DC/DC | |
| RT8243AZQW | 47 |
| INPUTS | OUTPUTS |
| B+ | 3VDS/5VDS |
| SYSTEM DC/DC | |
| RT8207MZQW | 48 |
| INPUTS | OUTPUTS |
| B+ | 1.35V_VDDQ |
| | 0.675VS |
| SYSTEM DC/DC | |
| SY8206DQNC | 49 |
| INPUTS | OUTPUTS |
| B+ | 1.05VS |
| SYSTEM DC/DC | |
| SY8003DFC | 52 |
| INPUTS | OUTPUTS |
| B+ | 1.5VS |
| SYSTEM DC/DC | |
| RT8880BGQW | 54-55 |
| INPUTS | OUTPUTS |
| B+ | +VGA_CORE |
| SYSTEM DC/DC | |
| SY8003DFC | 56 |
| INPUTS | OUTPUTS |
| B+ | +1.8VS_VGA |
| SYSTEM DC/DC | |
| SY8003DFC | 57 |
| INPUTS | OUTPUTS |
| B+ | +0.95VS_VGA |

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Power ON Sequence

Timing Diagram for G3 to S0/M0 [Deep Sx Platform]



| | | | | | |
|---|--------------------|-----------------|------------|---------------------------------|-----------------------------|
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| Issued Date | 2013/02/26 | Deciphered Date | 2015/07/08 | Title Power ON Sequence | |
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| | | | | Date Tuesday, March 25, 2014 | Rev 0.5 |
| | | | | Sheet 59 | of 62 |

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

| Item | Date | Fixed Issue | Reason for change | Modify List | Phase |
|------|----------|-------------|--|--|--|
| 1 | 20131030 | | Delete 1.PQ307 2.charger air line power circuit 3.change AON7506 to SI7716(PQ106) 4.change NDS0610 to LBSS84L 5.change AON7506 to SI7716 6.change 47U 6.3V to 22U 6.3V (PCH8,PCH9) 7.PR9512 mount | 1.customer request 2.customer request 3.customer common part 4.compal change 5.customer common part 6.vender reveiw | DB0 DB0 DB0 DB0 |
| 2 | 20131031 | | 1.10U_0805_25V==>2200p_0402_50V not mount(PC160) 2.PC107,PR111,PC121,PC305,PR314 PC313,PC308,PR315,PC312,PCH4,PCZ3,PRZ13,PCZ13 PCZ20,PCZ26,PCW1,PCV4,PRV70,PCV107 3.change 147K_0402_1% to 237K_0402_1% (PRV34) change 560P_0402_50V7K to 470P_0402_50V7 (PCV88) change 10.7K_0402_1% to 22.6K_0402_1%(PRV47) change 9.76K_0402_1% to 5.6K_0402_1%(PRV51) change 15K_0402_1% to 19.1K_0402_1%(PRV55) change 910K_0402_5% to 20.5K_0402_1%(PRV75) change 910k_0402_1% to 910_0402_1%(PRV53) change 3.48K_0402_1% to 3.4K_0402_1%(PRV69) change 910k_0402_1% to 910_0402_1%(PRV77) 4.remove PR9510,PR9512,PR9514,PR9513 5.remove PC318,PRH10,PRW10,PCW13 6. PRH8,PRW8 not mount 7.22u_0805 6.3V to 22u_0603 6.3V PC1504,PC1501, PC1505,PC1802,PC1803,PC1805,PC1806,PC9502,PC9503, PC9505,PC9506,PCH9,PCH10,PCH11,PCH8 8.0.22U_0402_6.3V6K to 0.22U_0603_50V7K (PC128) | 1.EMI feedback 2.EMI feedback 3.power vender feedback 4.power change fb sense 5.for compal module design 6.current limit design | DB0 DB0 DB0 DB1 DB1 DB1 DB1 DB1 DB1 SI1 SI1 SI1 |
| 3 | 20131101 | | 1.remove PRW11 | 1.HW request | |
| 4 | 20131112 | | 1.not mount PRW7 2.change 0_0402_1% to 0_0402_5%(PR1502,PR1804, PR9504,PR9508,PR9511,PR9515) | 2.AMD request | |
| 5 | 20131202 | | 1.not mount PRZ36,PRV32 and PCV86 2.PC128 change 0.22U_0603_25V to 0.22U_0402_6.3V6K 3.add PD16,PRV43 4.add PRV45,PRV48,PCV99 and PRV50 | 1.PWR request 2.PWR request 3. customer request 4.richtek request | SI1 SI1 SI2 |
| | | | | | SI2 |

| | | | | | | |
|---|--|--------------------|--|-------------------------------|-----------------|----------------|
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| | | | | Size B | Document Number | Rev |
| | | | | LA-B181P | | 0.5 |
| | | | | Date: Tuesday, March 25, 2014 | | Sheet 60 of 62 |

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

| Item | Date | Fixed Issue | Reason for change | Modify List | Phase |
|------|----------|-------------|---|---------------------------------|---------------------------------|
| 6 | 20131210 | | add PRV78 1K_0402_1% PRV62 5.76K_0402_1% PRV64 10K_0402_1% PRV80 1K_0402_1% PRV79 10K_0402_1% PRV52 137K_0402_1% | RITCHTEK issue request | DB0 DB0 DB0 DB0 |
| | 20131221 | | PRM2 Change 4.7_1206_5% to 0_1206_5% PCM7 Change 680P_0603_50V7K to 1000P_0603_50V7K PR314 not mount==>mount PC313 not mount==>mount PR315 not mount==>mount PC312 not mount==>mount PC213 not mount==>mount PRZ13 not mount==>mount PCZ20 not mount==>mount (28W) PRZ26 not mount==>mount (28W) | EMI request | DB0 DB0 DB0 DB1 DB1 |
| | 20131226 | | PRV31 Change 10_0402_1% to 1_0402_1% PRV34 Change 127K_0402_1% to 84.5K_0402_1% PRV47 Change 22.6K_0402_1% to 7.32K_0402_1% PRV51 Change 5.6K_0402_1% to 12.4K_0402_1% PRV55 Change 19.1K_0402_1% to 14K_0402_1% PRV75 Change 20.5K_0402_1% to 2.8K_0402_1% PRV77 Change 910_0402_1% to 1.3K_0402_1% PRV53 Change 910_0402_1% to 1.3K_0402_1% PC128 Change 0.22U_0603_6.3V to 0.22U_0402_6.3V | RITCHTEK issue request | DB1 DB1 DB1 DB1 SI1 |
| | 20140102 | | PRM2 Change 0_1206_5% to 4.7_1206_5% PCM7 Change 1000P_0603_50V7K to 680P_0603_50V7K PUV1 change RT8880BGQW to RT8880CGQW | EMI request RITCHTEK request | SI1 SI1 |
| | 20140103 | | PR14,PQ2 and PR13 are not mount. PR11 Change 330_0402_1% to 680_0402_1% | Customer request | |
| | 20140106 | | PRV80 mount==>not mount PRV79 not mount==>mount | RITCHTEK issue request | |
| | 20140213 | | add PC8,PC9 and PC10 mount PR111,PC121,PC107 and PC129 PC107 2200P_0402_50V7K==>0.022_0402 25V PC129 0.1U_0402_50V7K==>0.022_0402_25V | EMC request EMC request | |
| | 20140214 | | add PC161 2200P_0402_50V7K not mount | EMC request | SI1 SI1 SI2 SI2 |

| | | | | | | |
|---|--|--------------------|--|-------------------------------|-----------------|----------------|
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| | | | | Size B | Document Number | Rev |
| | | | | LA-B181P | | 0.5 |
| | | | | Date: Tuesday, March 25, 2014 | | Sheet 61 of 62 |

ZPL40/50/70 from DB to DB-R LA-B181P REV:0.1 -> 0.2 Modify <2013.11.28 - 2013.12.03>

| Rev. | Item | Date | Impact | Change Cause | Modify Description |
|------|------|-------|-------------|--------------|--|
| 0.2 | 1 | 11/28 | OKT, LAYOUT | 6 | -Design Issue |
| 0.2 | 2 | 11/28 | OKT, LAYOUT | 7 | -Follow CHICLET |
| 0.2 | 3 | 11/28 | OKT | 8 | -DGPU_PWR_EN voltage level incorrect issue |
| 0.2 | 4 | 11/28 | OKT, LAYOUT | 9 | -DGPU power on sequence |
| 0.2 | 5 | 11/28 | OKT, LAYOUT | 18 | -Footprint incorrect issue |
| 0.2 | 6 | 11/28 | OKT, LAYOUT | 21 | -No used. |
| 0.2 | 7 | 11/28 | OKT | 23 | -O35 can't turn on issue |
| 0.2 | 8 | 11/28 | OKT | 30 | -Follow HP BIOS code request |
| 0.2 | 9 | 11/28 | OKT, LAYOUT | 30 | -Avoid leakage issue. |
| 0.2 | 10 | 11/28 | OKT, LAYOUT | 30 | -Footprint incorrect issue |
| 0.2 | 11 | 11/28 | OKT, LAYOUT | 33 | -Design issue |
| 0.2 | 12 | 11/28 | OKT, LAYOUT | 28 | -Current limit |
| 0.2 | 13 | 11/29 | OKT, LAYOUT | 30 | -Vendor request |
| 0.2 | 14 | 11/29 | OKT | 30 | -Follow CHICLET |
| 0.2 | 15 | 12/02 | OKT, LAYOUT | 6 | -Follow CHICLET |
| 0.2 | 16 | 12/02 | OKT, LAYOUT | 30 | -Follow CHICLET |
| 0.2 | 17 | 12/02 | OKT, LAYOUT | 23 | -leakage issue and FAR suggest |
| 0.2 | 18 | 12/02 | OKT, LAYOUT | 34 | -Follow 2013 RRR |
| 0.2 | 19 | 12/02 | OKT | 35 | -DGPU power on sequence |
| 0.2 | 20 | 12/03 | OKT, LAYOUT | 40 | -Follow CHICLET |

ZPL40/50/70 from DB-R to SI LA-B181P REV:0.2 -> 0.3 Modify <2013.12.04 - 2013.12.17>

| | | | | | |
|-----|----|-------|-------------|----|------------------------------------|
| 0.3 | 1 | 12/04 | OKT, LAYOUT | 29 | -Follow 2013 RRR |
| 0.3 | 2 | 12/05 | OKT | 35 | -DGPU power on sequence |
| 0.3 | 3 | 12/05 | OKT | 9 | -DGPU power on sequence |
| 0.3 | 4 | 12/05 | OKT | 10 | -For PCIE Gen2 |
| 0.3 | 5 | 12/06 | OKT | 12 | -Follow CHICLET |
| 0.3 | 6 | 12/06 | OKT | 11 | -Follow INTEL schematic |
| 0.3 | 7 | 12/06 | OKT, LAYOUT | 29 | -Platform ID identify |
| 0.3 | 8 | 12/06 | OKT, LAYOUT | 30 | - |
| 0.3 | 9 | 12/06 | OKT, LAYOUT | 40 | - |
| 0.3 | 10 | 12/09 | OKT, LAYOUT | 43 | -No leakage issue |
| 0.3 | 11 | 12/09 | OKT | 26 | -Follow CHICLET |
| 0.3 | 12 | 12/09 | OKT, LAYOUT | 17 | -Follow INTEL schematic |
| 0.3 | 13 | 12/09 | OKT, LAYOUT | 11 | -Follow INTEL schematic |
| 0.3 | 14 | 12/09 | OKT, LAYOUT | 12 | -Follow INTEL schematic |
| 0.3 | 15 | 12/10 | OKT, LAYOUT | 10 | -For WWAN, Touch share USB port |
| 0.3 | 16 | 12/10 | OKT, LAYOUT | 4 | -Follow CHICLET |
| 0.3 | 17 | 12/11 | OKT, LAYOUT | 6 | -Follow INTEL schematic |
| 0.3 | 18 | 12/11 | OKT, LAYOUT | 21 | -solve SIM card can't detect issue |
| 0.3 | 19 | 12/13 | OKT, LAYOUT | 9 | -Follow Runt |
| 0.3 | 20 | 12/13 | OKT | 8 | -solve DGPU power issue |
| 0.3 | 21 | 12/13 | OKT, LAYOUT | 21 | -Follow Runt |
| 0.3 | 22 | 12/13 | OKT, LAYOUT | 22 | -DDO power issue |
| 0.3 | 23 | 12/13 | OKT, LAYOUT | 23 | -LAN power issue |
| 0.3 | 24 | 12/13 | OKT, LAYOUT | 21 | -no need |
| 0.3 | 25 | 12/13 | OKT | 25 | -For V drop test |
| 0.3 | 26 | 12/13 | OKT, LAYOUT | 9 | -rip request |
| 0.3 | 27 | 12/13 | OKT, LAYOUT | 21 | -For GPIO initial status |
| 0.3 | 28 | 12/14 | OKT, LAYOUT | 12 | -solve power ripple |
| 0.3 | 29 | 12/16 | OKT, LAYOUT | 9 | -reserve for MPHY sequence |

ZPL40/50/70 from DB-R to SI LA-B181P REV:0.3 -> 0.4 Modify <2013.12.18 - 2013.12.25>

| | | | | | |
|-----|----|-------|-------------|----|------------------------------------|
| 0.4 | 1 | 12/20 | OKT | 9 | -Follow HP request |
| 0.4 | 2 | 12/20 | OKT, LAYOUT | 15 | -Follow Intel PDG |
| 0.4 | 3 | 12/20 | OKT, LAYOUT | 16 | -Follow Intel PDG |
| 0.4 | 4 | 12/20 | OKT, LAYOUT | 19 | -Follow Vendor request |
| 0.4 | 5 | 12/20 | OKT | 19 | -Follow HP request |
| 0.4 | 6 | 12/20 | OKT | 20 | -Follow Intel PDG |
| 0.4 | 7 | 12/20 | OKT | 21 | -Compal Request |
| 0.4 | 8 | 12/20 | OKT, LAYOUT | 23 | -Customer modify GPIO table. |
| 0.4 | 9 | 12/20 | OKT | 23 | -Prepare leakage issue when S3, S5 |
| 0.4 | 10 | 12/20 | OKT | 24 | -Vendor Request |
| 0.4 | 11 | 12/20 | OKT | 31 | -Vendor Request |
| 0.4 | 12 | 12/20 | OKT, LAYOUT | 40 | -Follow Compal common design |
| 0.4 | 13 | 12/23 | OKT, LAYOUT | 30 | -Follow RF team request |
| 0.4 | 14 | 12/24 | OKT, LAYOUT | | -Follow ESD team request |

ZPL40/50/70 from SI to PV-I LA-B181P REV:0.3 -> 0.4 Modify <2014.02.05-2014.>

| | | | | | |
|-----|----|-------|-------------|--------|---------------------------------------|
| 0.5 | 1 | 02/05 | OKT | 21 | -OSDUB pull high |
| 0.5 | 2 | 02/05 | OKT | 18, 19 | -For LVDS SKU |
| 0.5 | 3 | 02/05 | OKT | 19 | -For eDP SKU |
| 0.5 | 4 | 02/05 | OKT | 19 | -For Lid Switch issue |
| 0.5 | 5 | 02/05 | OKT, LAYOUT | 22 | -For DDO issue |
| 0.5 | 6 | 02/05 | OKT, LAYOUT | | |
| 0.5 | 7 | 02/10 | OKT, LAYOUT | 35 | -For GPU Power Sequence |
| 0.5 | 8 | 02/10 | OKT, LAYOUT | 28 | -Follow ESD team request |
| 0.5 | 9 | 02/10 | LAYOUT | 31 | - |
| 0.5 | 10 | 02/11 | OKT, LAYOUT | 40 | -SL559M1470VTR is single source issue |
| 0.5 | 11 | 02/12 | OKT | | -improve VSA_PWRGD signal quality |
| 0.5 | 12 | 02/13 | OKT, LAYOUT | 11, 19 | -Follow RF team request |
| 0.5 | 13 | 02/14 | OKT, LAYOUT | | -Follow HP request |