

Project Name :

Platform : Bay trail(For Valleyview-D/I/M System On Chip)

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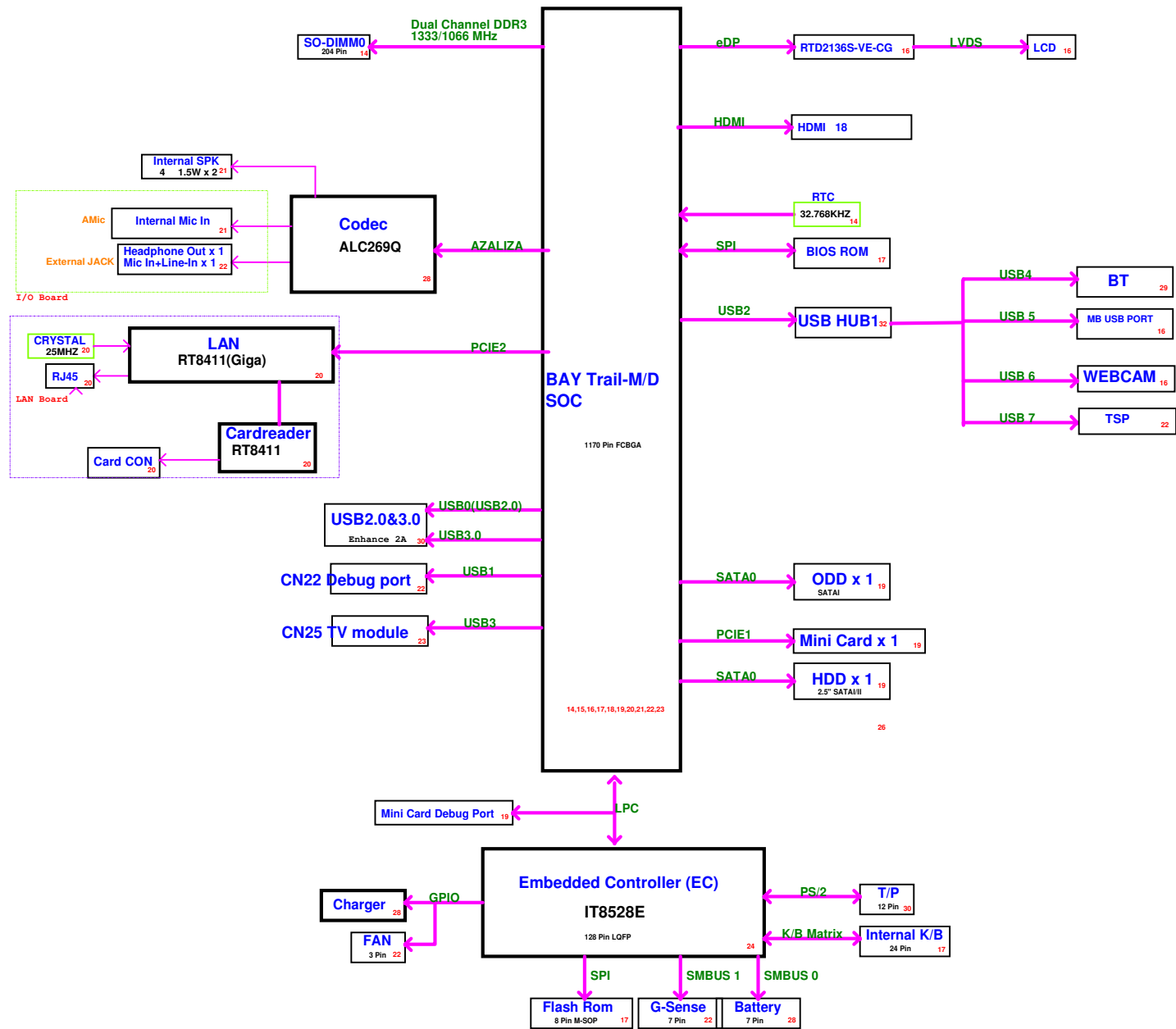
M/B Schematic Version Change List

| Release Date | Version | PCB P/N | PCB Description | PCBA P/N | Note |
|--------------|---------|-----------------|-----------------|----------|------|
| 2013-5-23 | A | 71R-H14BT4-T8A1 | | | |
| 2013-7-23 | B | 71R-H14BT4-T8B0 | | | |
| 2013-8-22 | B1 | 71R-H14BT4-T8B1 | | | |
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Daughter Board Schematic Version Change List

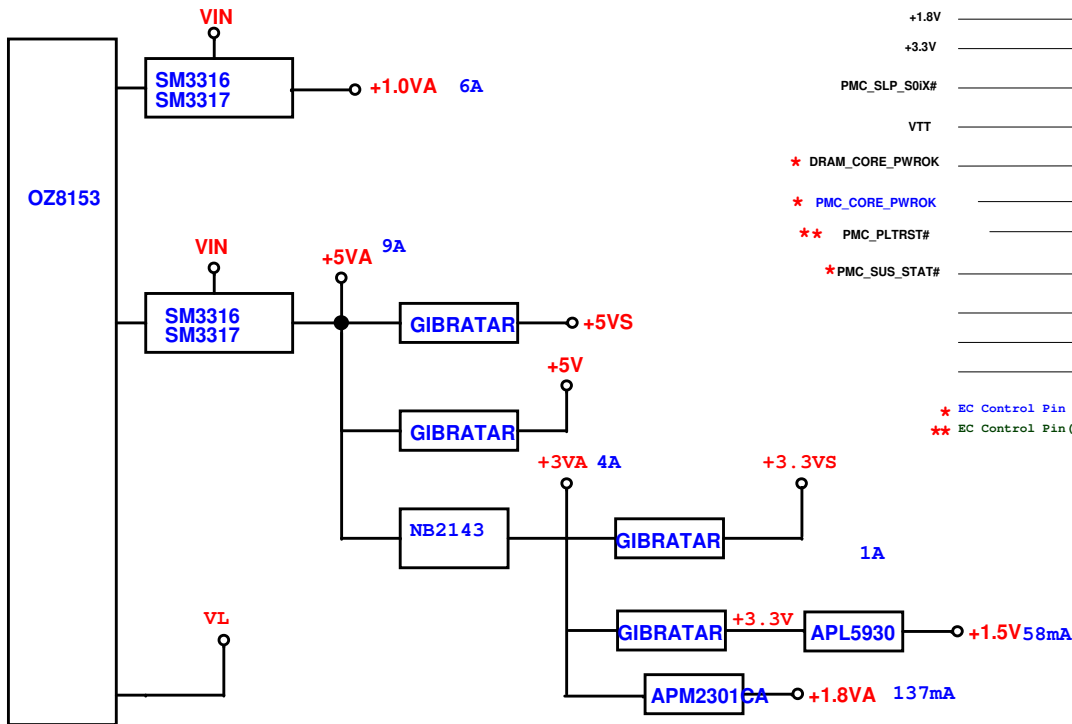
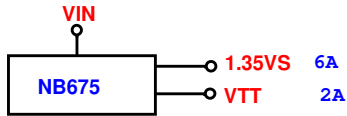
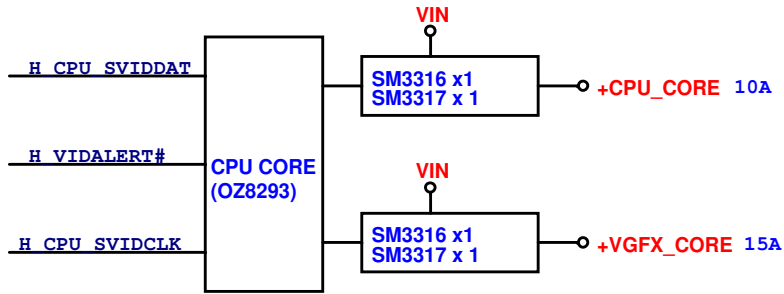
| Release Date | Version | PCB P/N | PCB Description | PCBA P/N | Note |
|--------------|---------|---------|-----------------|----------|------|
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SYSTEM BLOCK DIAGRAM

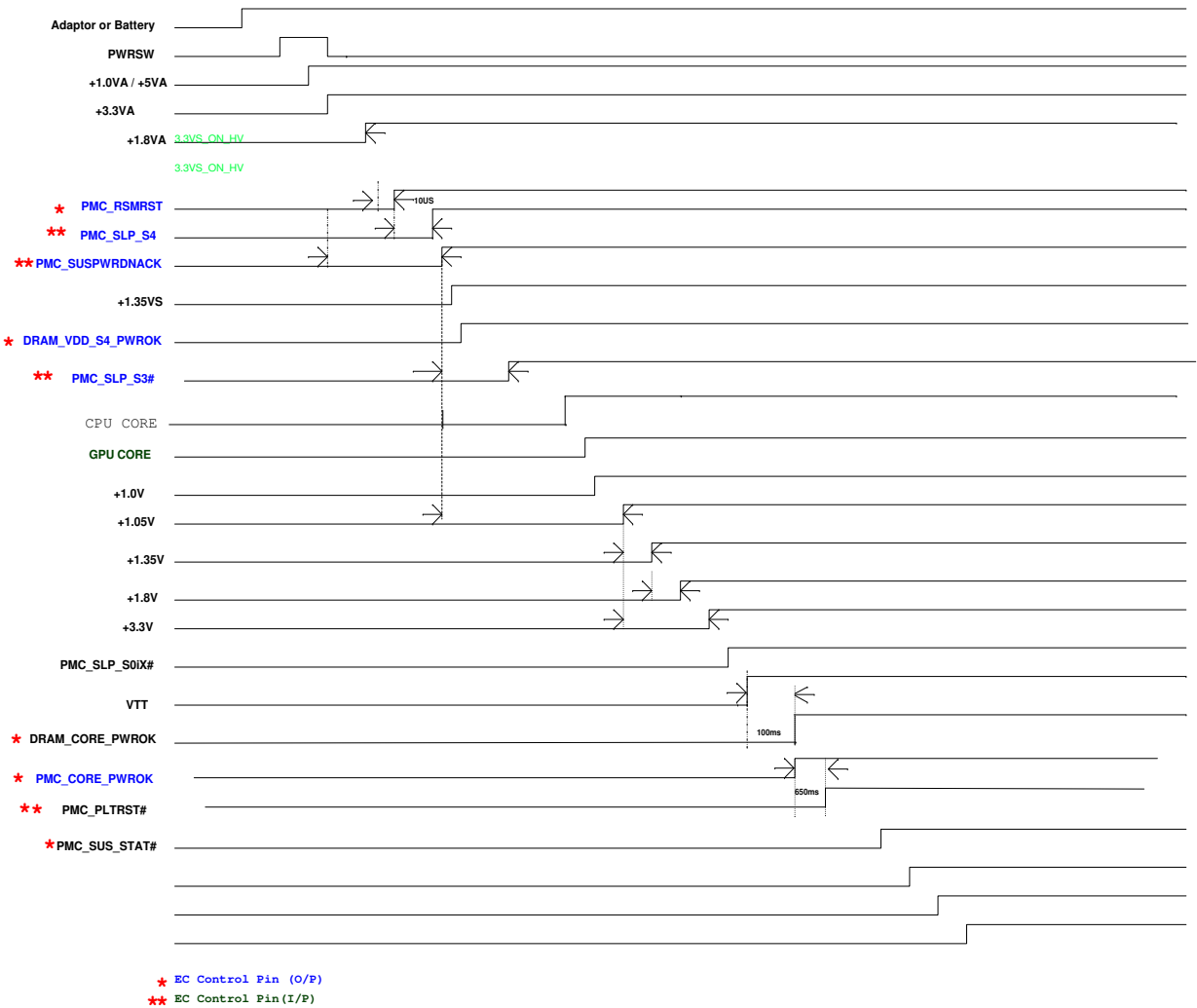


| | |
|------|--------------------|
| USB0 | USB3.0/2.0 ENHANCE |
| USB1 | CN22 Debug port |
| USB2 | USB HUB1 |
| USB3 | CN25 TV module |
| USB4 | BT |
| USB5 | MB USB PORT |
| USB6 | webcam |
| USB7 | TSP |

POWER BLOCK DIAGRAM



System Poewr On Sequence



| SOC GPIO | |
|-------------|----------------------------|
| GPIO0 | PM_BM_BUSY# |
| GPIO1 | EC_EXTSMI# |
| GPIO2 | INT_PIRQE# |
| GPIO3 | INT_PIRQF# |
| GPIO4 | INT_PIRQG# |
| GPIO5 | INT_PIRQH# |
| GPIO6 | BIOS_REC |
| GPIO7 | N.C (TACH3) |
| GPIO8 | N.C |
| GPIO9 | N.C (WOL_EN) |
| GPIO10 | N.C (ALERT#) |
| GPIO11 | SMB_ALERT# |
| GPIO12 | LAN_PHYPC |
| GPIO13 | N.C (GLAN_DOCK#) |
| GPIO14 | N.C (NETDETECT) |
| GPIO15 | PM_STPPCI# |
| GPIO17 | N.C (TACH0) |
| GPIO18 | N.C |
| GPIO19 | SATA1GP |
| GPIO21 | SATA0GP |
| GPIO22 | N.C (SCLOCK) |
| GPIO23 | LDRQ1# |
| GPIO24 | CRB_SV_DET |
| GPIO25 | PM_STPCPU# |
| GPIO26 | PM_SLP_S4_STATE# |
| GPIO27 | QRT_STATE0 |
| GPIO28 | QRT_STATE1 |
| GPIO29 | USB_OC#5 |
| GPIO30 | USB_OC#6 |
| GPIO31 | USB_OC#7 |
| GPIO32 | PM_CLKRUN# |
| GPIO33 | HDA_DOCK_EN |
| GPIO34 | N.C (HDA_DOCK_RST#) |
| GPIO35 | CLK_SATA_OE# |
| GPIO36 | SATA2GP |
| GPIO37 | SATA3GP |
| GPIO38 | ODD_DET |
| GPIO39 | ICH_GPIO39 |
| GPIO40 | USB_OC#1 |
| GPIO41 | USB_OC#2 |
| GPIO42 | USB_OC#3 |
| GPIO43 | USB_OC#4 |
| GPIO48 | MFG_MODE |
| GPIO49 | H_PWRGD |
| GPIO50 | PCI_REQ#1 |
| GPIO51 | PCI_GNT#1 |
| GPIO52 | PCI_REQ#2 |
| GPIO53 | PCI_GNT#2 |
| GPIO54 | PCI_REQ#3 |
| GPIO55 | PCI_GNT#3 |

| ITE8528 GPIO | | Default Pull/Mode |
|-----------------|------------------------|----------------------|
| GPA0 | PID_3_RF_LED_ON# | UP / GPI |
| GPA1 | BATT_VA_OFF# | UP / GPI |
| GPA2 | BTL_BEEP | UP / GPI |
| GPA3 | WLAN_PWR# | UP / GPI |
| GPA4 | +1.05V_ON | UP / GPI |
| GPA5 | SENBAT_V | UP / GPI |
| GPA6 | PM_RSMRST# | UP / GPI |
| GPA7 | EC_BL_PWM | UP / GPI |
| GPB0 | PM_SLP_S4# | UP / GPI |
| GPB1 | PM_SLP_S3# | UP / GPI |
| GPB2 | 3G_PWR# | Dn / GPI |
| GPB3 | SMBCLK | / GPI |
| GPB4 | SMBDAT | / GPI |
| GPB5 | H_A20GATE | / GPO |
| GPB6 | H_RCIN# | UP / Func1 |
| GPB7 | SAFTY_PROTECT | Dn / GPI |
| GPC0 | +1.5V_ON | Dn / GPI |
| GPC1 | SMB_CLK_EC | / GPI |
| GPC2 | SMB_DAT_EC | / GPI |
| GPC3 | PID_0_CHG_B_LED | Dn / GPI |
| GPC4 | PWRBTN3# | Dn / GPI |
| GPC5 | PANEL_DETECT_2 | Dn / GPI |
| GPC6 | VCCSA_ON | Dn / GPI |
| GPC7 | +1.5VS_ON | UP / GPI |
| GPD0 | ADAP_IN | UP / GPI |
| GPD1 | PWRBTN# | UP / GPI |
| GPD2 | PLT_RST# | UP / Func1 |
| GPD3 | PM_SUS_STAT# | UP / GPI |
| GPD4 | EC_EXTSMI# | UP / GPI |
| GPD5 | Fastcharge_EN | UP / GPI |
| GPD6 | +5V_ON | Dn / GPI |
| GPD7 | SET_V | Dn / GPI |
| GPE0 | LID# | Dn / GPI |
| GPE1 | PWR_USB_LED | Dn / GPI |
| GPE2 | ALL_SYS_PGD | Dn / GPI |
| GPE3 | Vcore_ON | Dn / GPI |
| GPE4 | PWRSW | UP / GPI |
| GPE5 | LVDS_VIN | Dn / GPI |
| GPE6 | WLAN_ON | Dn / GPI |
| GPE7 | AMP_MUTE# | UP / GPI |
| GPF0 | PCH_BL_EN | UP / GPI |
| GPF1 | +1.8V_ON | UP / GPI |
| GPF2 | BT_ON | UP / GPI |
| GPF3 | N.C | UP / GPI |
| GPF4 | TP_CLK | UP / GPI |
| GPF5 | TP_DATA | UP / GPI |
| GPF6 | EC PECI | UP / GPI |
| GPF7 | CHG_HI_VOLT# | UP / GPI |
| GPG0 | PWRBTN2# | Dn/GPO/TM |
| GPG1 | +3.3VS_ON | Dn/GPO/ID7 |
| GPG2 | EC PORST | |
| GPG6 | WEBCAN_ON | Dn / GPI |
| GPH0 | PM_CLKRUN# | Dn/GPI/ID0 |
| GPH1 | PID_1_CHG_R_LED | Dn/GPI/ID1 |
| GPH2 | PID_2_PWR_LED | Dn/GPI/ID2 |
| GPH3 | EC_HSCS0# | Dn/GPI/ID3 |
| GPH4 | EC_HSCK | Dn/GPI/ID4 |
| GPH5 | EC_HMISO | Dn/GPI/ID5 |
| GPH6 | EC_HMOSI | Dn/GPI/ID6 |

| ITE8528 GPIO | | Default Pull/Mode |
|-----------------|-------------------|----------------------|
| GPI0 | CRT_DETECT | /GPI/ADC |
| GPI1 | PANEL_DETECT | /GPI/ADC |
| GPI2 | PLATFORM_ID | /GPI/ADC |
| GPI3 | CPPE# | /GPI/ADC |
| GPI4 | BAT_I | /GPI/ADC |
| GPI5 | BATT_TEMP | /GPI/ADC |
| GPI6 | ADAPTOR_1 | /GPI/ADC |
| GPI7 | BAT_V | /GPI/ADC |
| GPJ0 | EC_BL_ON | /GPI/DAC |
| GPJ1 | EC_PROCHOT | /GPI/DAC |
| GPJ2 | FAN_CTRL0 | /GPI/DAC |
| GPJ3 | CHG_REF | /GPI/DAC |
| GPJ4 | CHG_I | /GPI/DAC |
| GPJ5 | PWR_USB# | /GPI/DAC |

| BAY TRAIL CPU | | | | |
|-------------------|--------------|---------|-----|----------|
| | CPU CORE (V) | ICC (A) | W | TEMP () |
| Bay trail D-D1750 | 1.05 | 12 | 10 | |
| Bay trail M-N2805 | 1.05 | 12 | 4.5 | |
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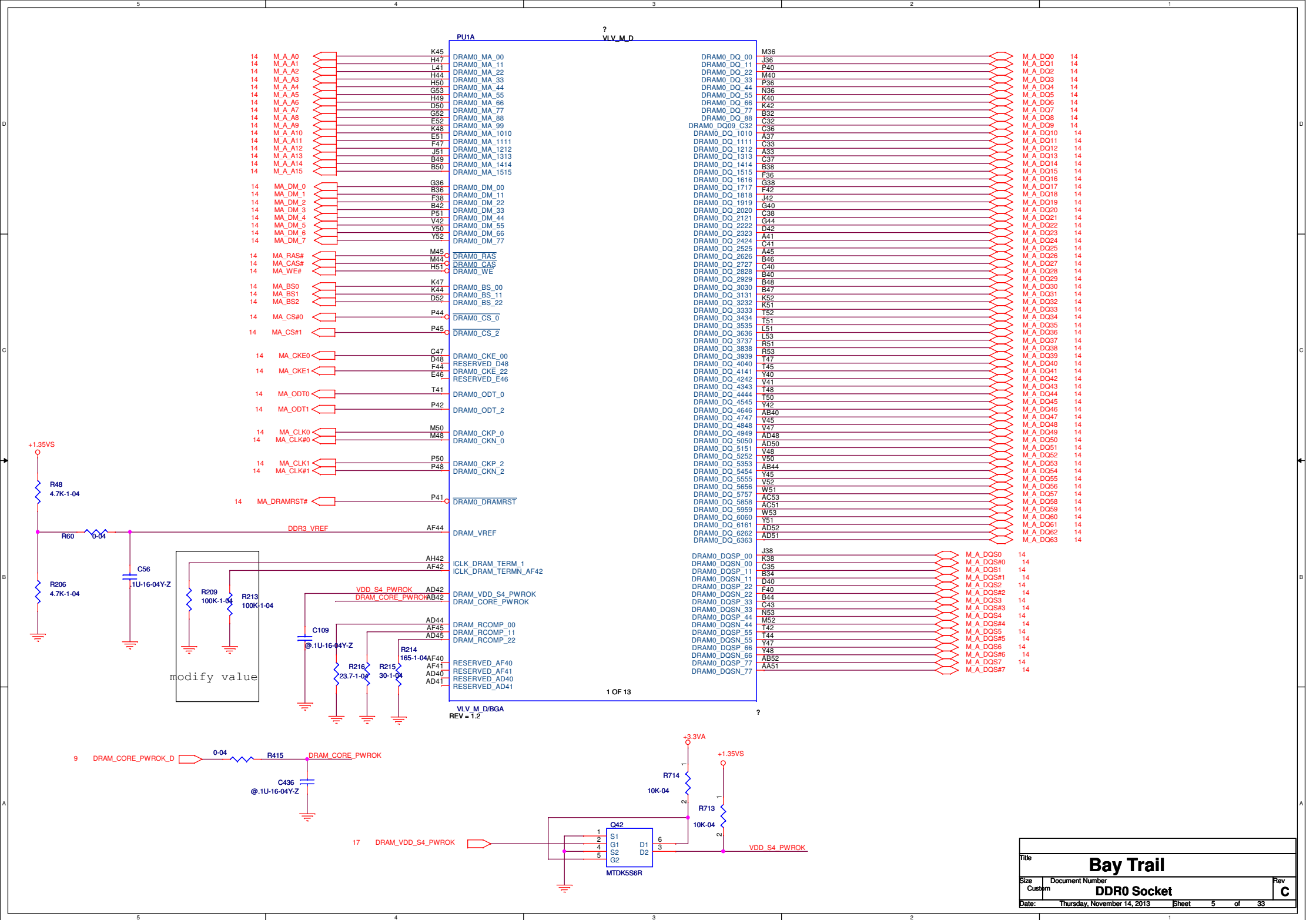
| SOC | | | | |
|-------------|----------|-------|----------|--|
| VCC | ICC (mA) | W | TEMP () | |
| +1.0VA | 202 | 0.2 | 105 | |
| +1.05V | 720 | 0.756 | | |
| +1.0V | 5487 | 5.487 | | |
| +1.2A | 35 | 0.04 | | |
| +1.35VS | 10000 | 1.43 | TEMP () | |
| +1.8VA | 53 | 0.1 | | |
| +1.8V | 84 | 0.15 | | |
| +1.5V_1.8V | 58 | 0.09 | | |
| +3.3VA | 10 | 0.033 | | |
| +3.3V | 13 | 0.04 | | |
| CPU CORE1.1 | 12000 | 16.5 | | |
| GPU CORE1.0 | 14000 | 10 | | |
| RTC3.3 | 0.0016 | | | |

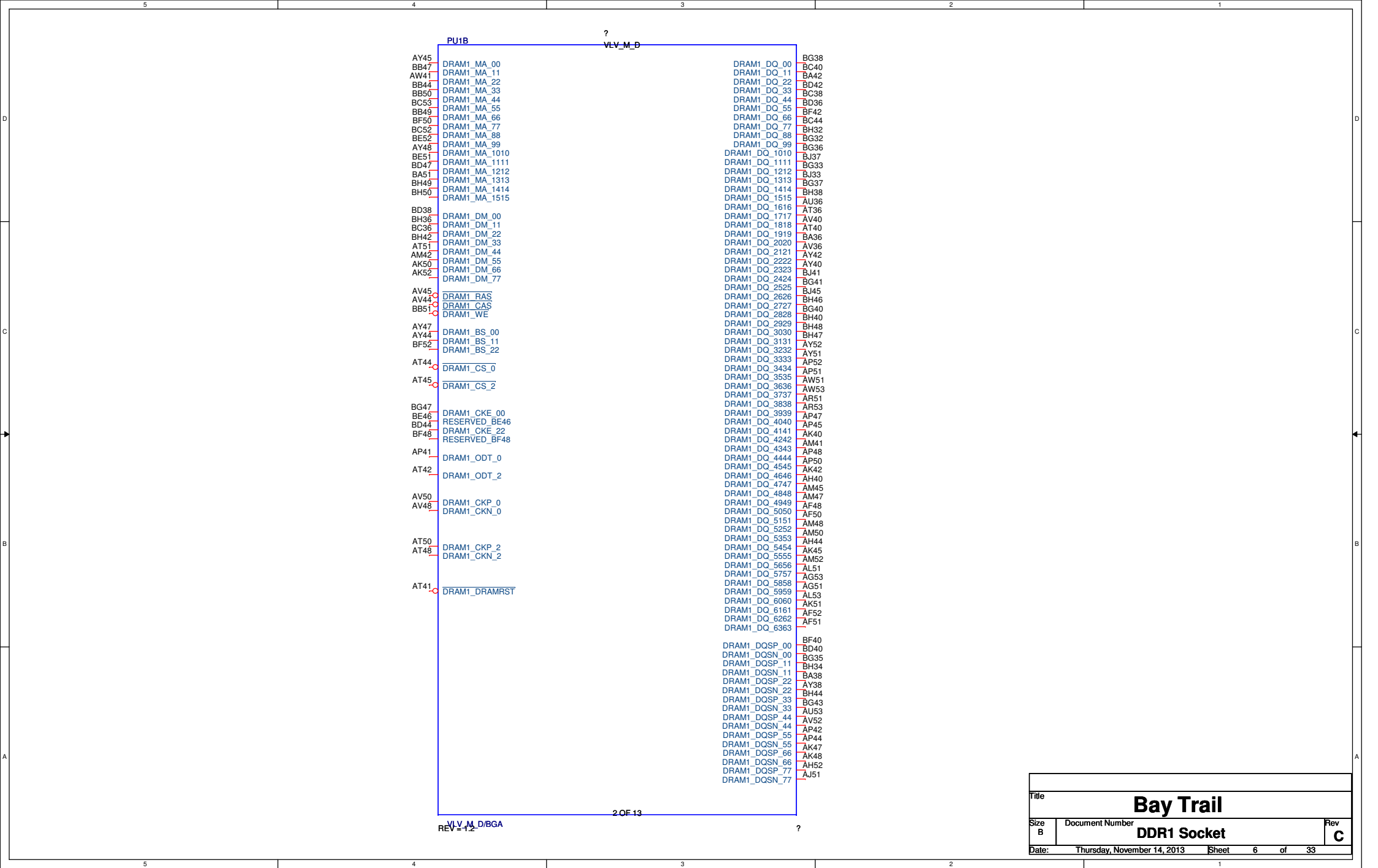
| ITE8528 | | | |
|---------|----------|-----|----------|
| VCC | ICC (mA) | mW | TEMP () |
| +3.3V | 100 | 330 | 70 |

| ALC269 | | | |
|--------------|----------|------|----------|
| VCC | ICC (mA) | mW | TEMP () |
| +3.3V (DVDD) | 200 | 660 | 70 |
| +5V (AVDD) | 1000 | 5000 | |

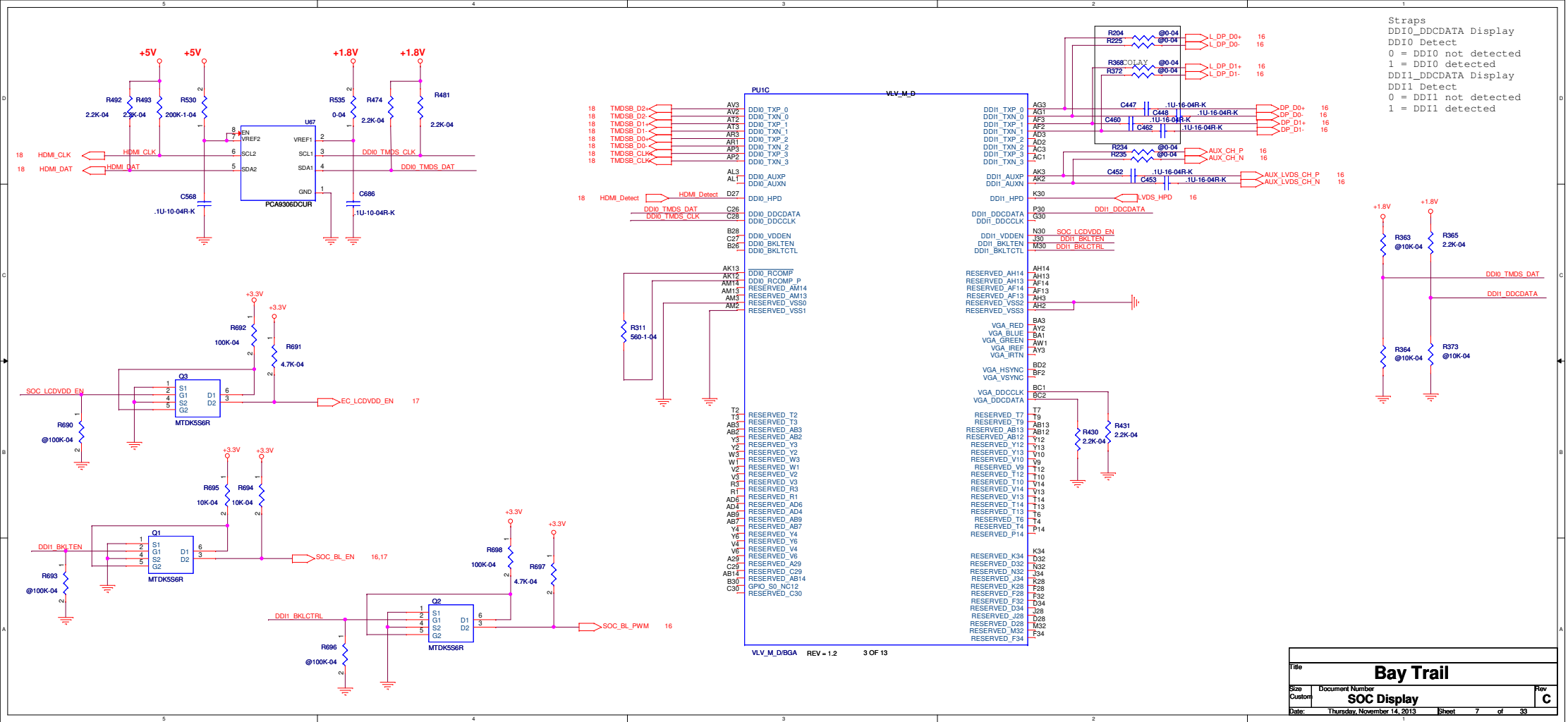
| ADM1032 | | | |
|---------|-------|------|----------|
| VCC | ICC | mW | TEMP () |
| +3.3V | 170uA | 0.56 | 150 |

| RT8411 | | | |
|--------|----------|-----|----------|
| VCC | ICC (mA) | mW | TEMP () |
| +3.3VS | 300 | 990 | 70 |
| +1.2VS | 150 | 180 | |
| | | | |

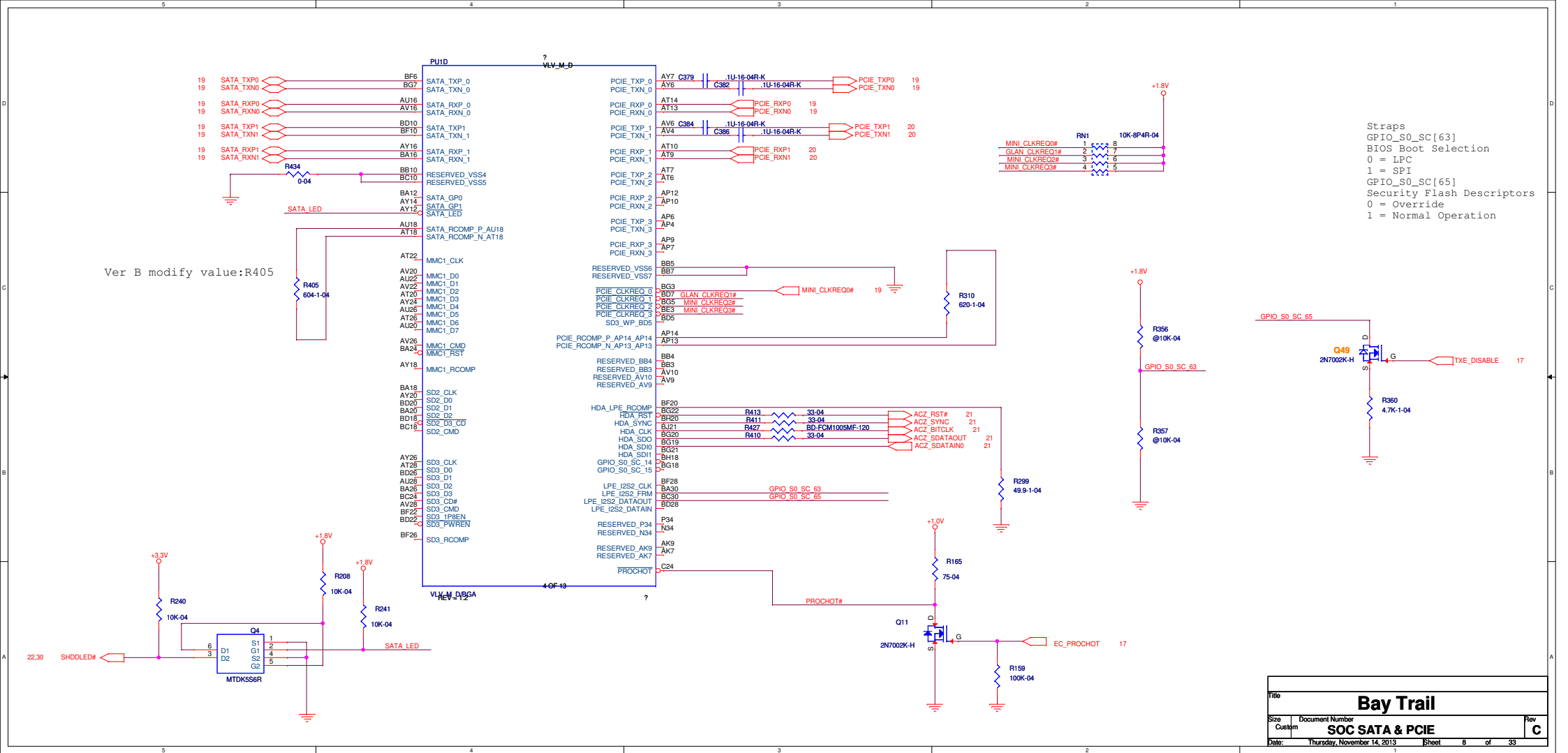




| | | |
|-----------|-----------------------------|---------------|
| Title | | |
| Bay Trail | | |
| Size | Document Number | Rev |
| B | DDR1 Socket | C |
| Date: | Thursday, November 14, 2013 | Sheet 6 of 33 |



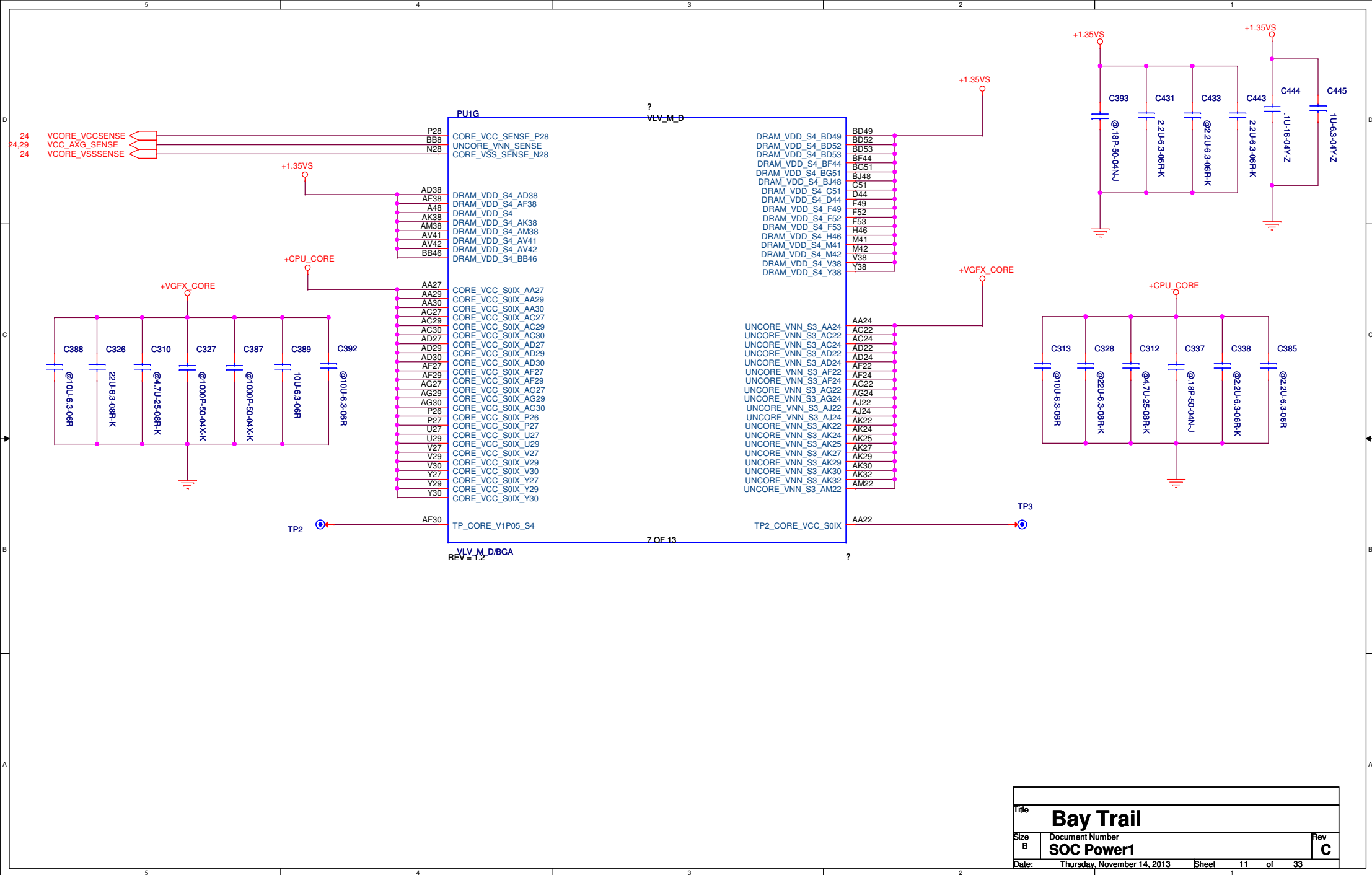
Straps
DDIO_DDCDATA Display
DDIO Detect
0 = DDIO not detected
1 = DDIO detected
DDII_DDCDATA Display
DDII Detect
0 = DDII not detected
1 = DDII detected

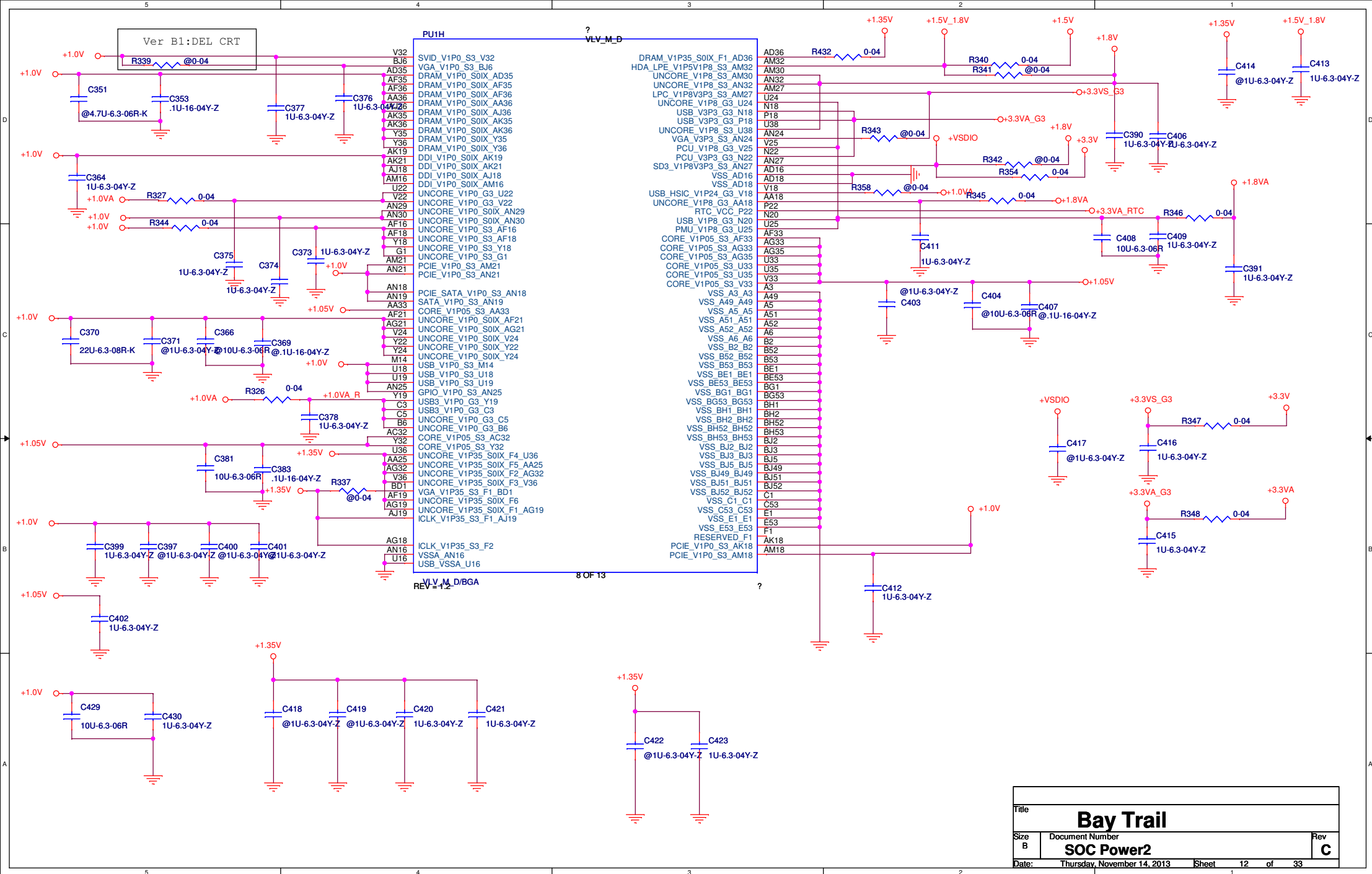


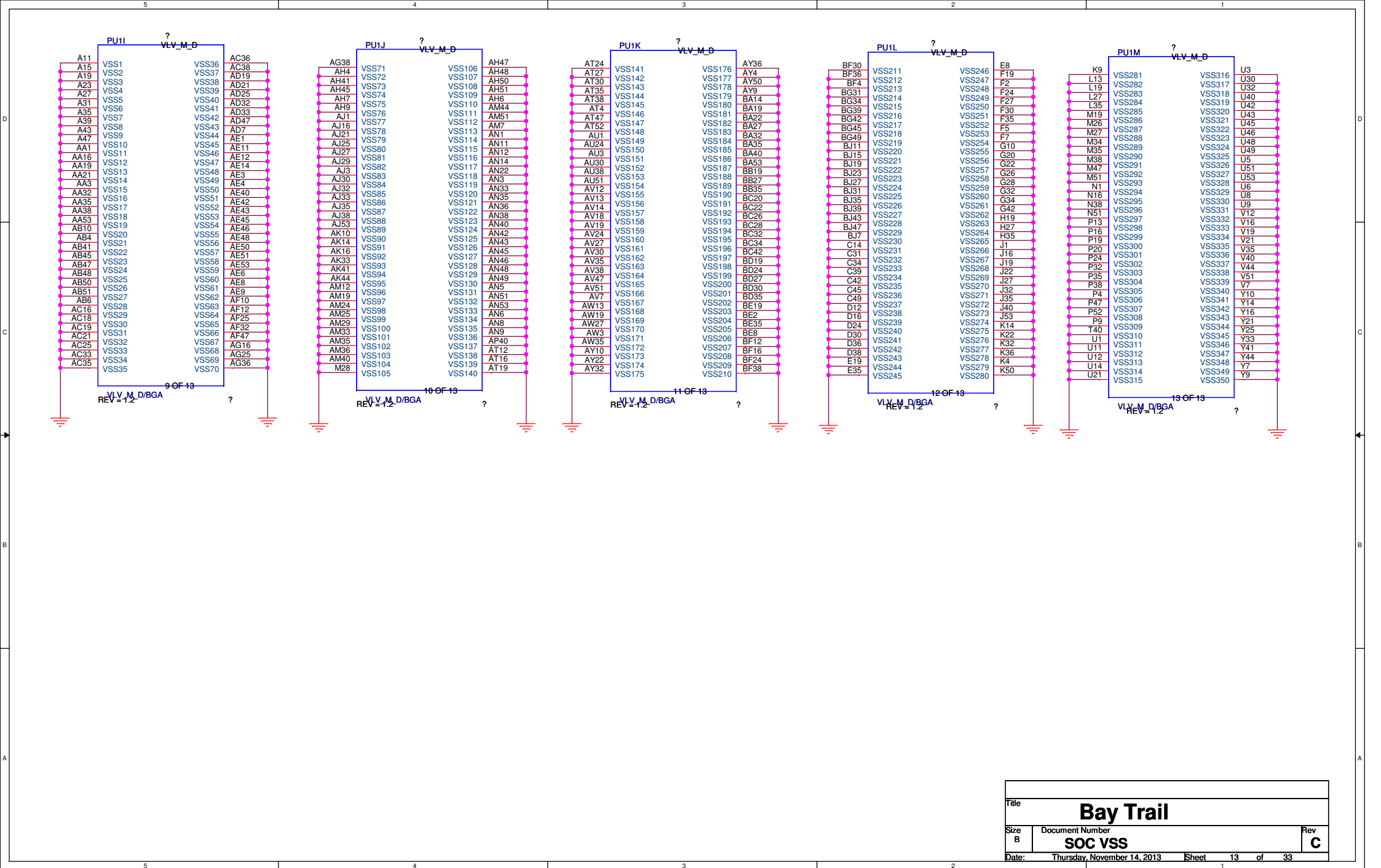
Straps
GPIO_S0_SC[63]
BIOS Boot Selection
0 = LPC
1 = SPI
GPIO_S0_SC[65]
Security Flash Descriptors
0 = Override
1 = Normal Operation

| | | | | |
|--------|-----------------------------|-------|-----------|-------|
| Title | | | Bay Trail | |
| Size | Document Number | Rev | | |
| Custkm | SOC SATA & PCIE | C | | |
| Date: | Thursday, November 14, 2013 | Sheet | 8 | of 33 |

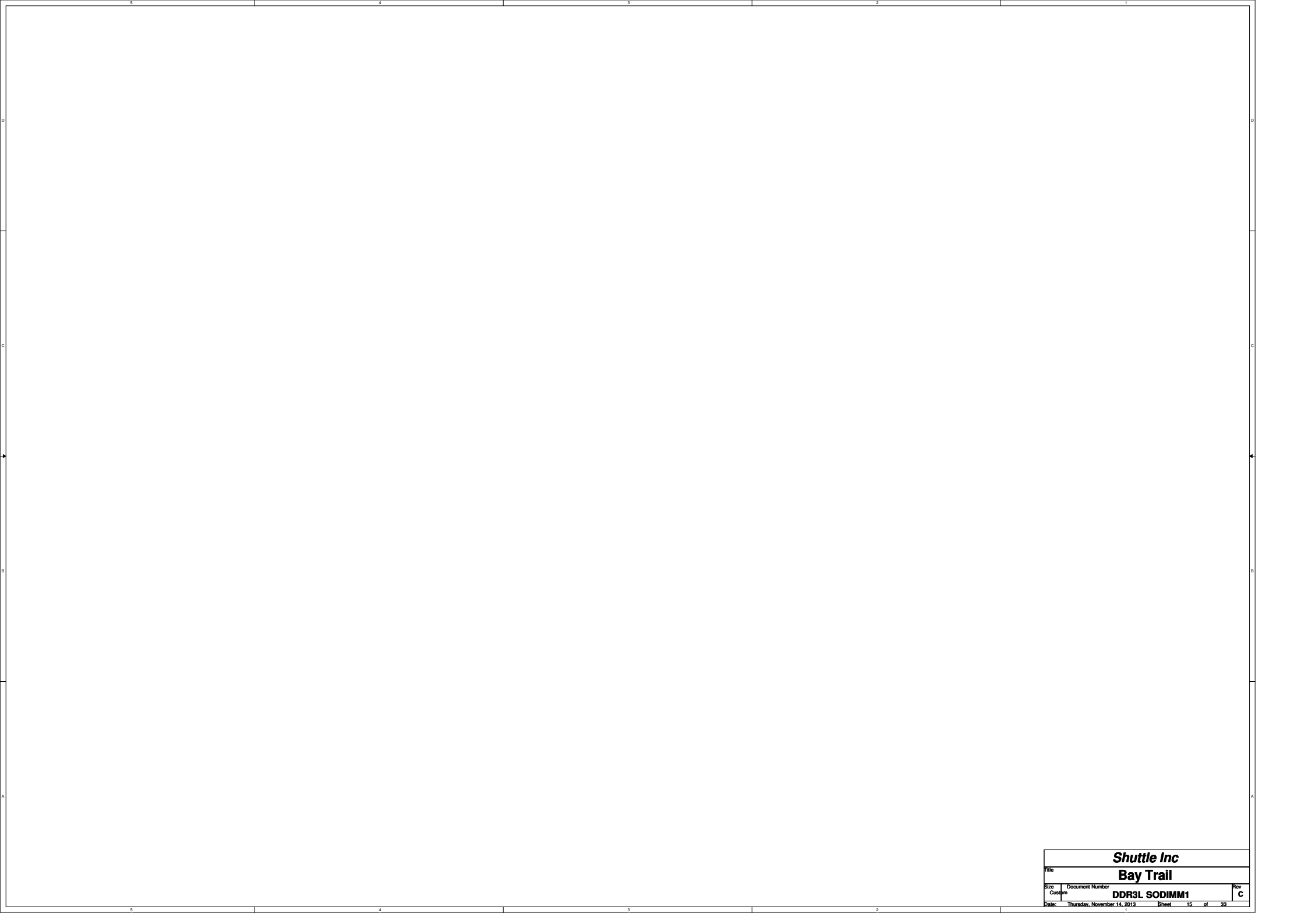








| | | |
|-----------|-----------------------------|----------------|
| Title | | |
| Bay Trail | | |
| Size B | Document Number | Rev |
| | SOC VSS | C |
| Date: | Thursday, November 14, 2013 | Sheet 13 of 33 |



D

D

C

C

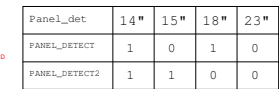
B

B

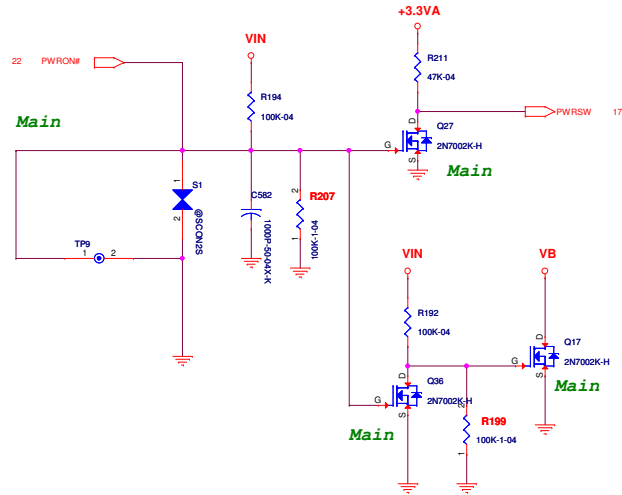
A

A

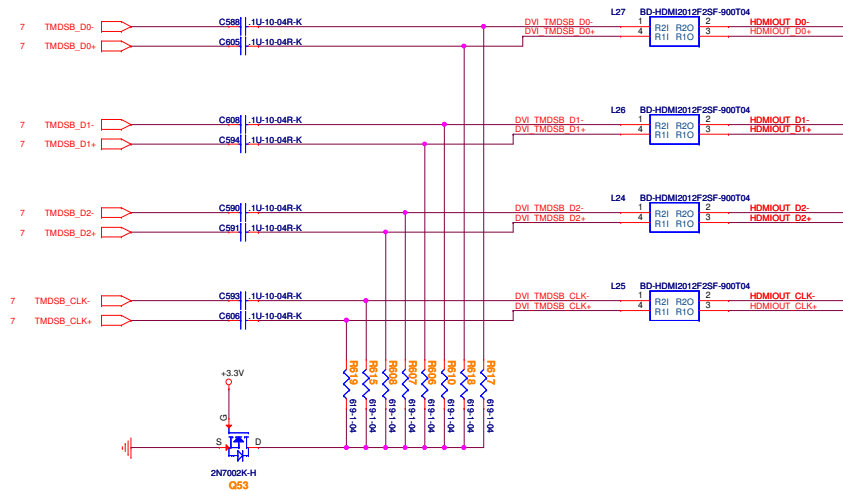
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|-------------|-----------------------------|--|----------------|
| Shuttle Inc | | | |
| Title | | | |
| Bay Trail | | | |
| Size | Document Number | | Rev |
| Custom | DDR3L SODIMM1 | | C |
| Date | Thursday, November 14, 2013 | | Sheet 15 of 33 |



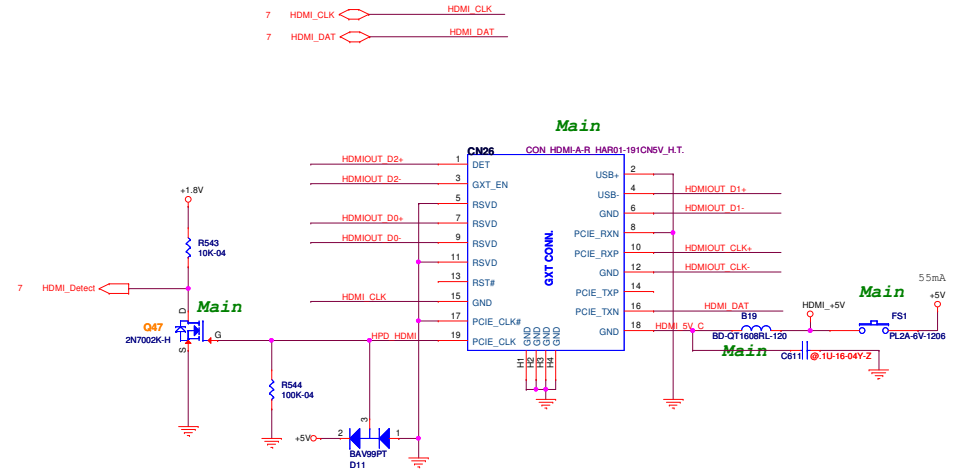
PWR SW



HDMI CONN

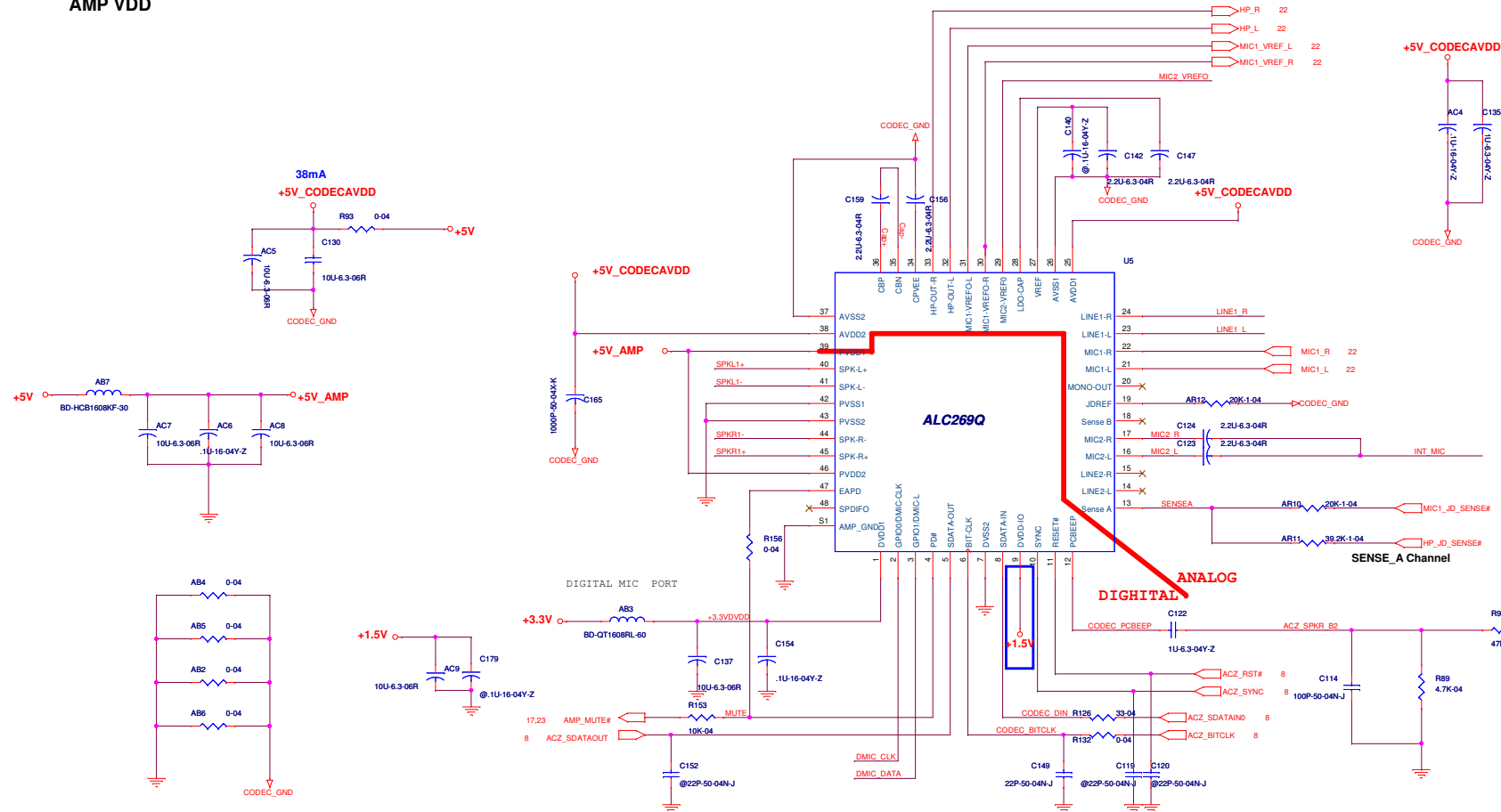


change HDMI Ver B1

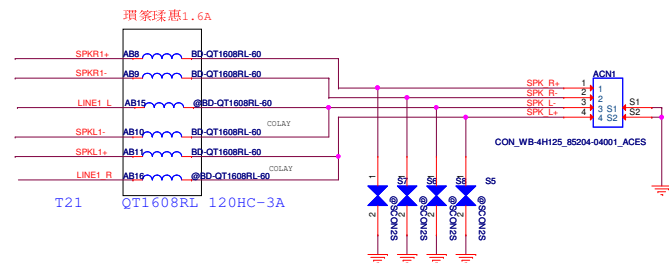


CODEC ALC269Q

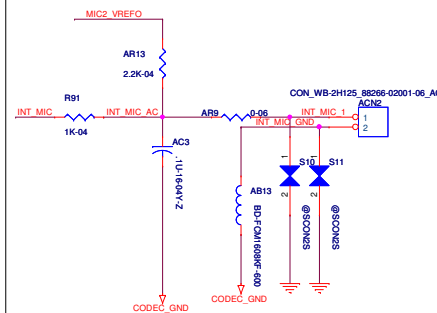
AMP VDD



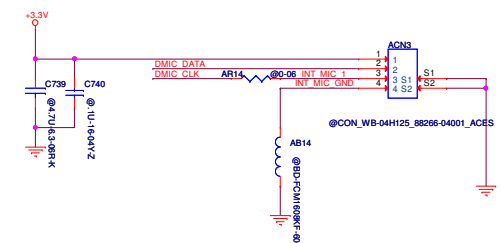
INT_SPEAKER



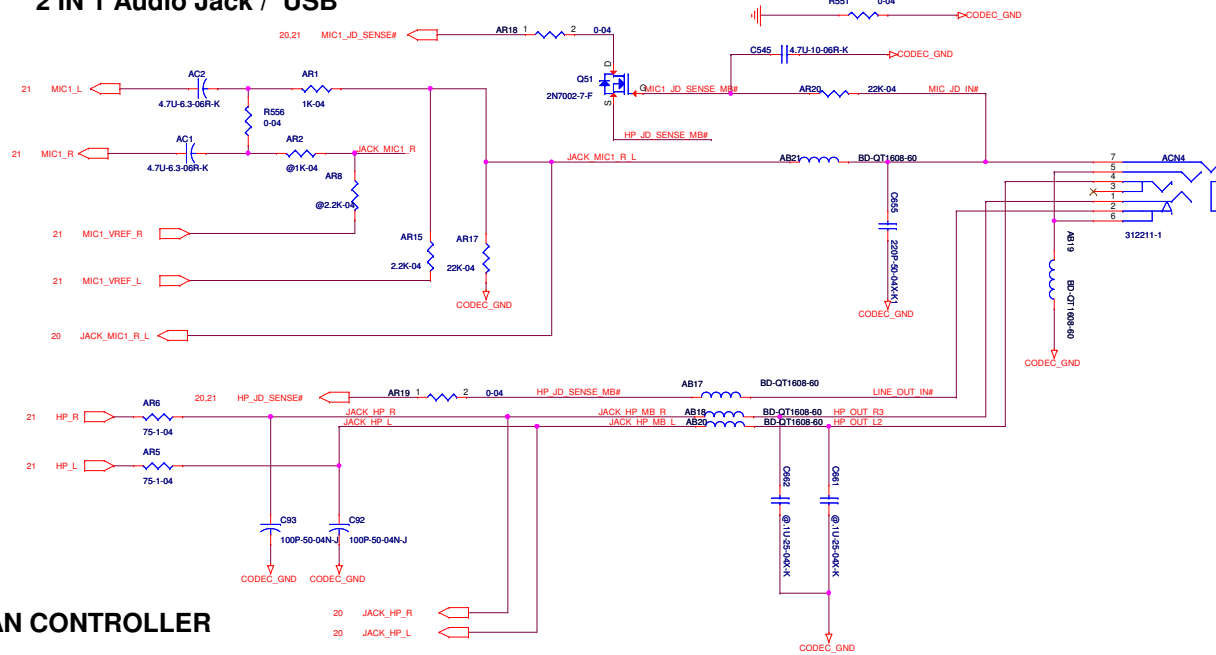
INT_MIC



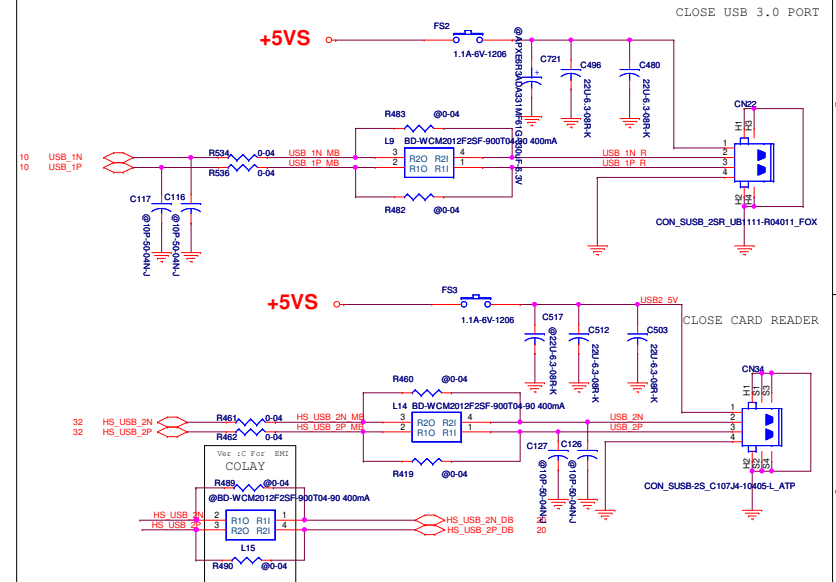
Digital Mic



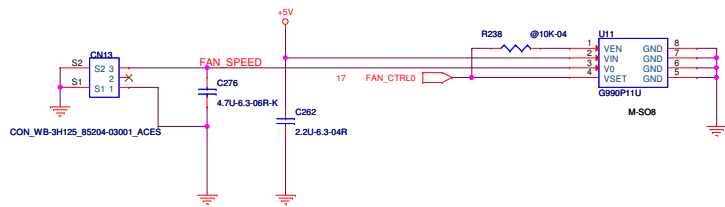
2 IN 1 Audio Jack / USB



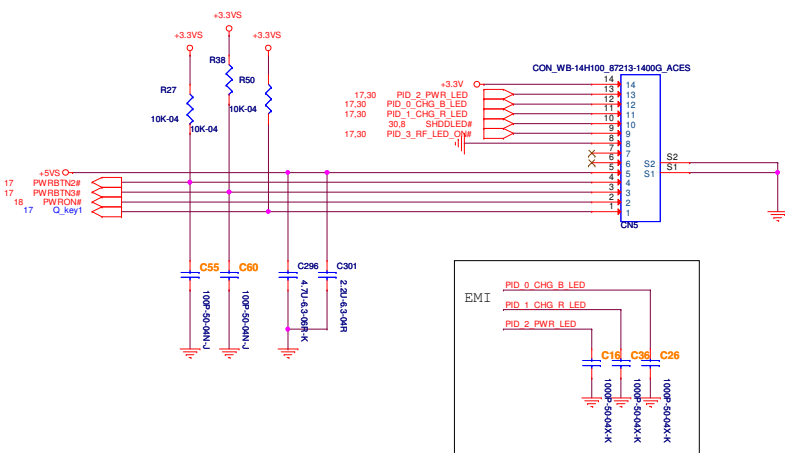
USB2.0



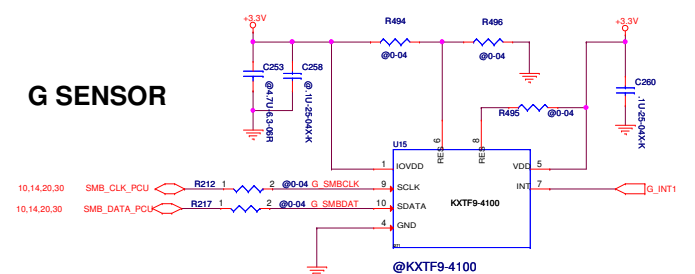
FAN CONTROLLER



EXT USB PORT 4



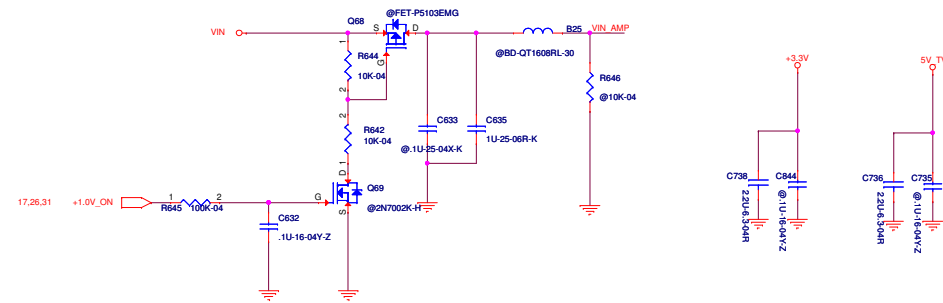
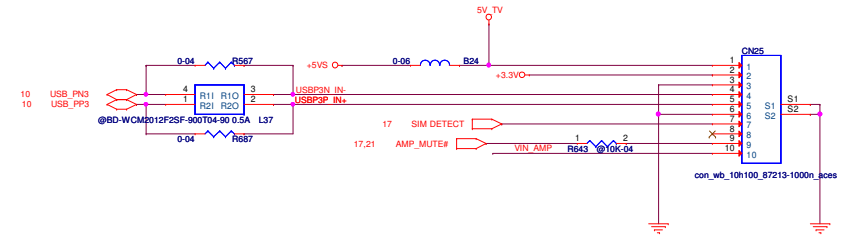
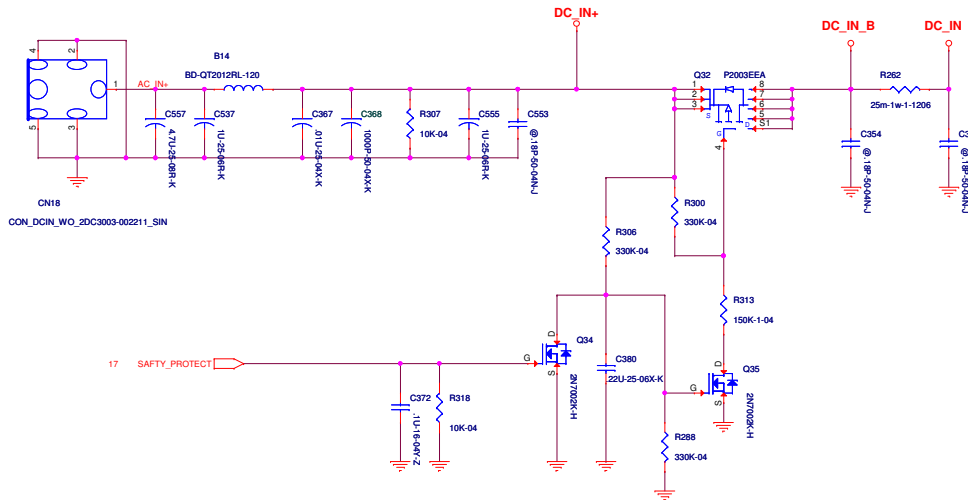
G SENSOR



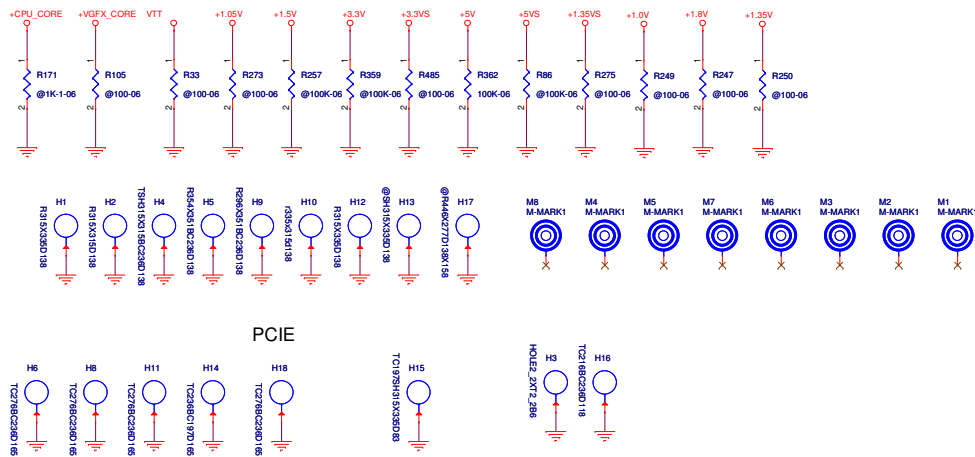
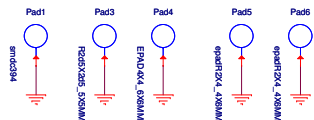
| Shuttle Inc | | | |
|-------------|-----------------------------|-----------------------------------|----------|
| Bay Trail | | | |
| Title | Document Number | Rev | |
| Size | Custom | EXT_MIC/H_P/USB/FAN/G-SENSOR/3G C | |
| Date: | Thursday, November 14, 2013 | Sheet | 22 of 33 |

DC IN

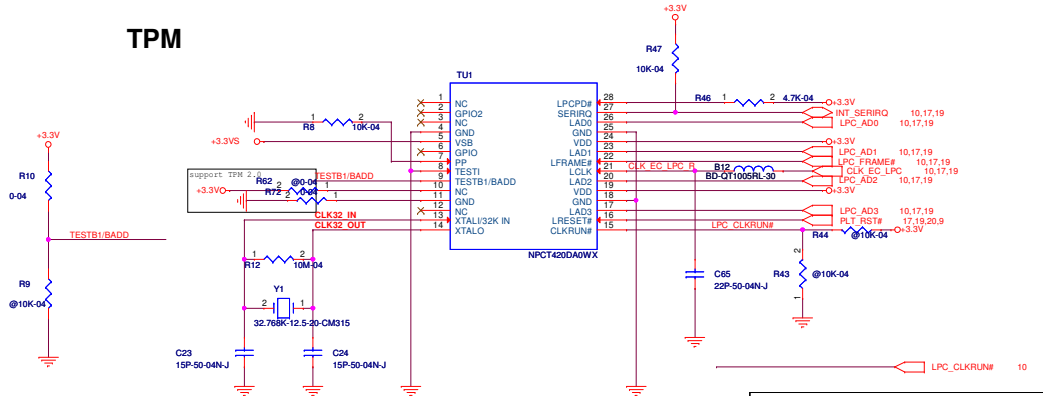
| | | | |
|--------------|---------|--|--|
| PROJECT | NH4CU | | |
| Adaptor | 40W | | |
| Rsense | 25m Ohm | | |
| Stop Charger | | | |



Discharge Resistor

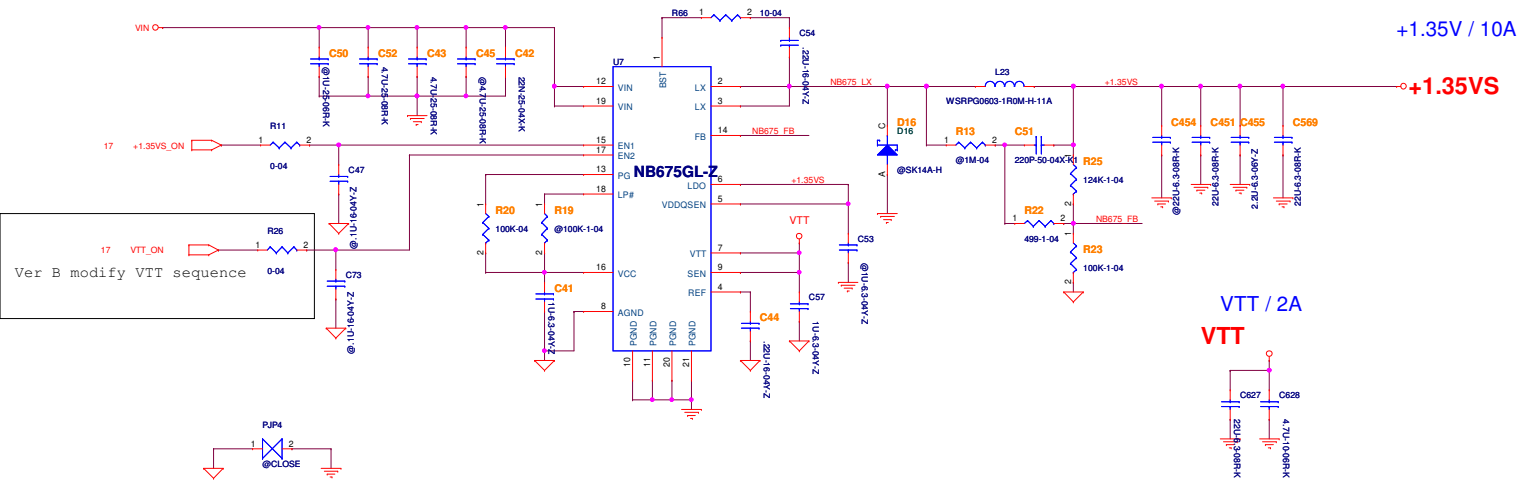


TPM



| | | |
|-------------|-----------------------------|----------------|
| Shuttle Inc | | |
| Bay Trail | | |
| Title | Document Number | Rev |
| Size | Custom | C |
| Date | Thursday, November 14, 2013 | Sheet 23 of 33 |

EXT MIC / EXT LINE IN / EXT USB JACK



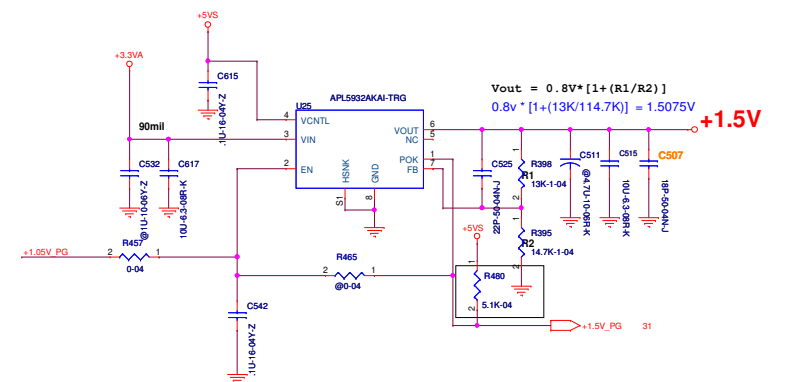
+1.35V / 10A

+1.35VS

VTT / 2A

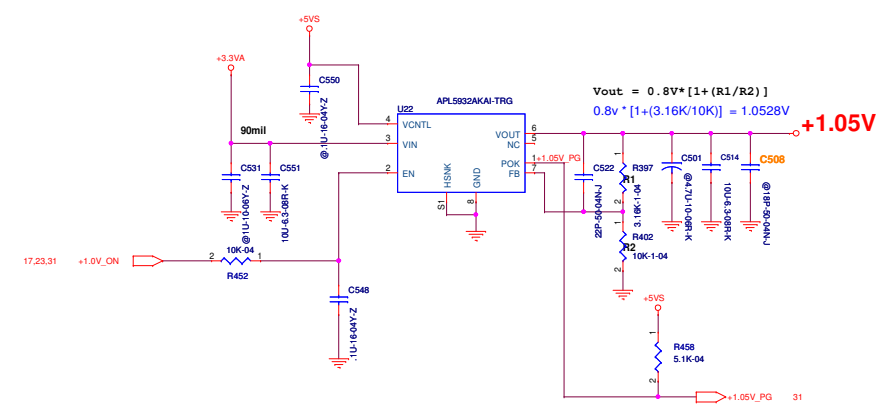
VTT

Ver B:DEL 1.2VA



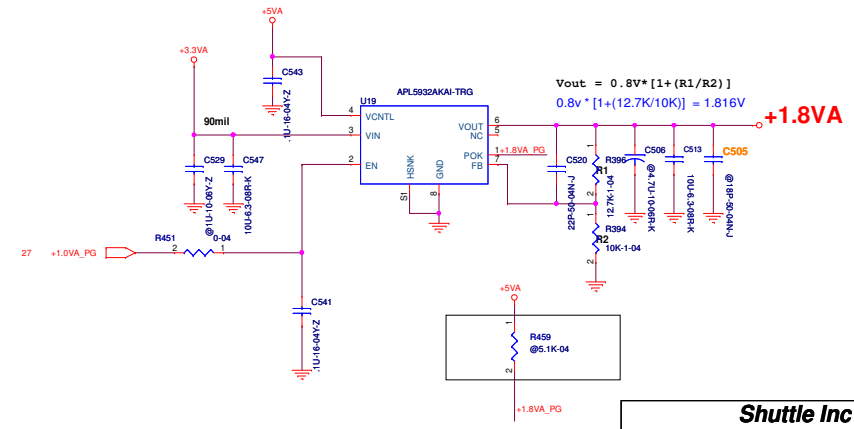
$$V_{out} = 0.8V * [1 + (R1/R2)]$$
$$0.8v * [1 + (13K/114.7K)] = 1.5075V$$

+1.5V



$$V_{out} = 0.8V * [1 + (R1/R2)]$$
$$0.8v * [1 + (3.16K/10K)] = 1.0528V$$

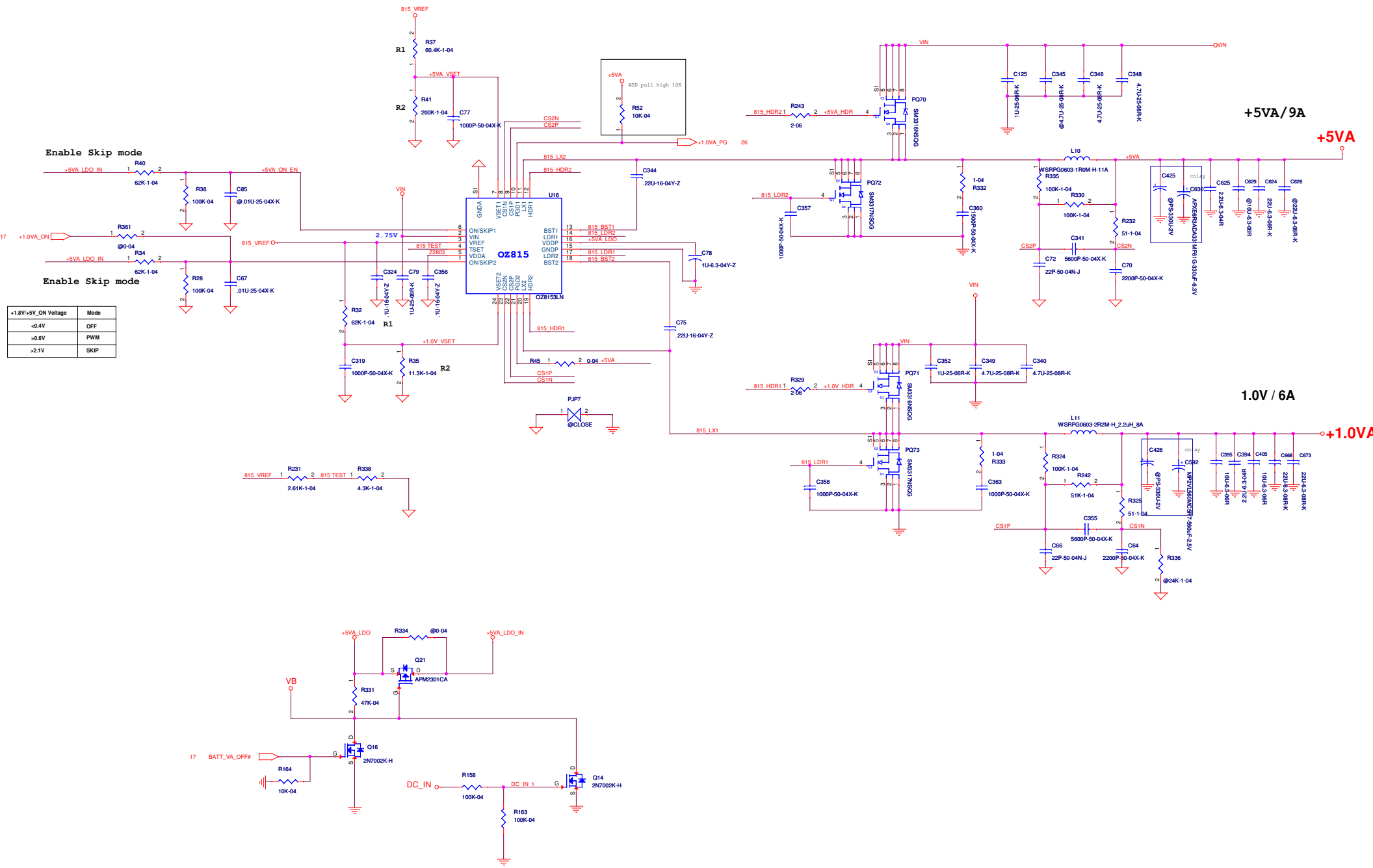
+1.05V



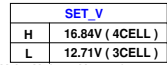
$$V_{out} = 0.8V * [1 + (R1/R2)]$$
$$0.8v * [1 + (12.7K/10K)] = 1.816V$$

+1.8VA

Output Voltage = [Vref x R2/(R1+R2)] x 2



IAD MAX
40W=>R266=34.8K
65W=>R266=71.5K



$V_{ch} = N \times (4.1 + V_{set}/10)$
 $N = \text{Cell (pin2 = hing} \rightarrow 4, \text{ low} \rightarrow 3)$

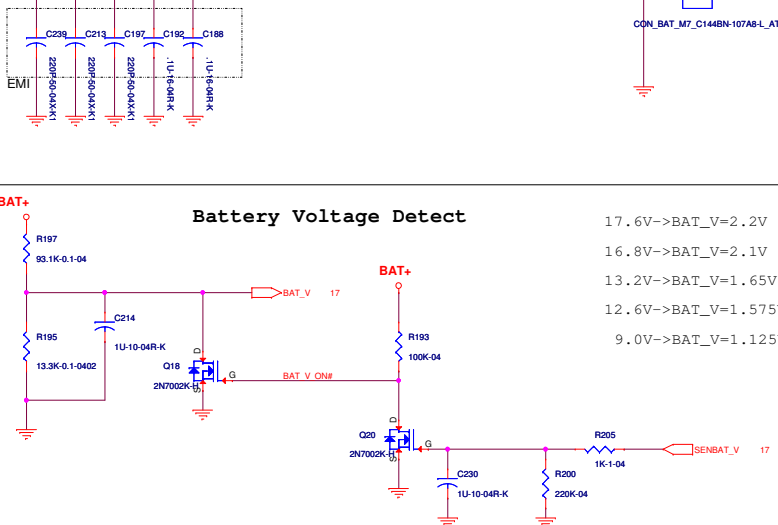
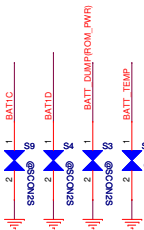
| | |
|-----------|-----------|
| HI_CHARGE | Each CELL |
| *H | *4.21V |
| L | 4.3XV |

Vch = Nx(4.1 + Vset/10)
N=Cell (pin2 =hing -->4, low -->3)

| CHG_I | Fastchg_EN | CHG Current |
|-------|------------|-------------|
| 300mv | Low | 100mA |
| 750mv | Low | 250mA |
| 3V | Low | 1A |
| 3V | Hi | 2A |

CHARGER CURRENT =V(CGHI)/(Rch*30)

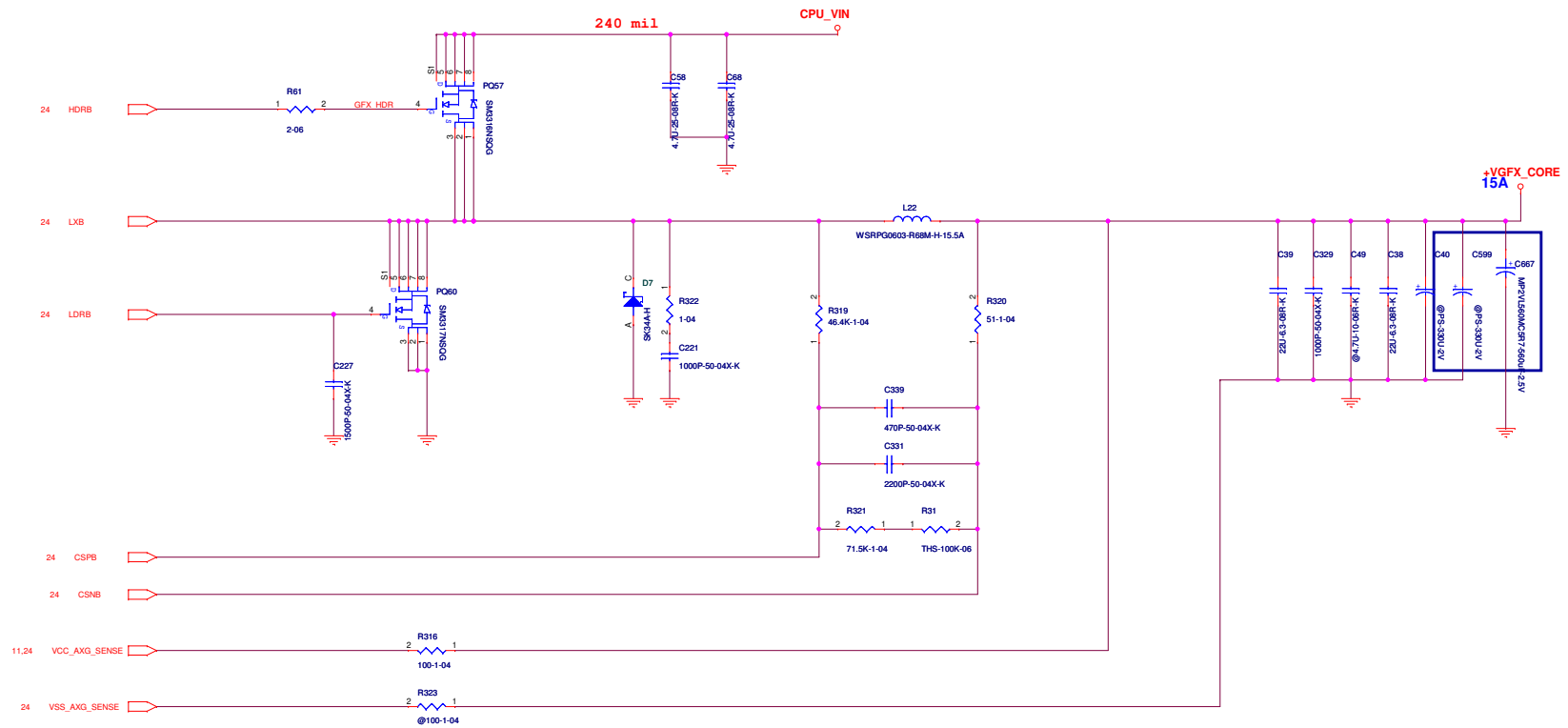
| ADAPTOR_I | |
|-----------|------|
| Voltage | W |
| 330mV | 20W |
| 660mV | 40W |
| 990mV | 60W |
| 1320mV | 80W |
| 1650mV | 100W |

$$\text{Vichg} = \text{RAD1} * \text{Irsense} * 10$$


17.6V->BAT_V=2.2V
16.8V->BAT_V=2.1V
13.2V->BAT_V=1.65V
12.6V->BAT_V=1.575V
9.0V->BAT_V=1.125V

Shuttle Inc
Bay Trail

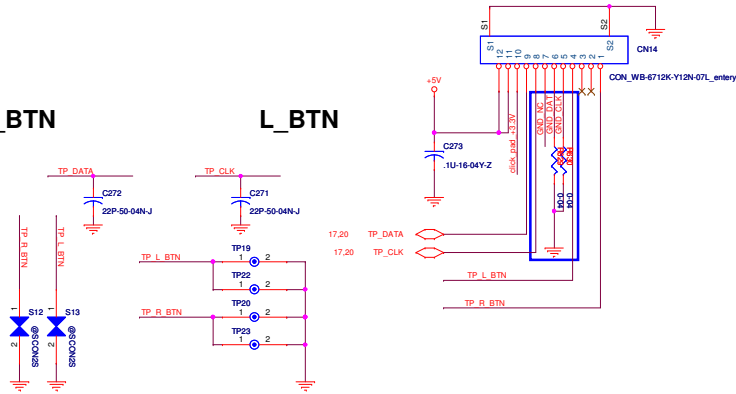
| | | | |
|--------------------|--------------------------------|-------|----------|
| Shuttle Inc | | | |
| Bay Trail | | | |
| Size | Document Number | Rev | |
| Custom | BATT IN/CHARGER(OZ8602) | B1 | |
| Date: | Thursday, November 14, 2013 | Sheet | 28 of 33 |



Touch Pad

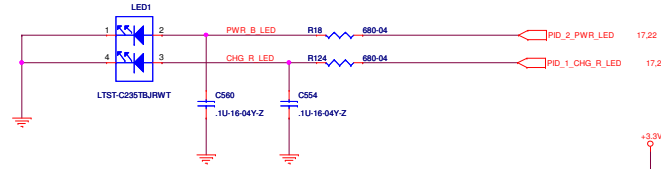
R_BTN

L_BTN



H-LED

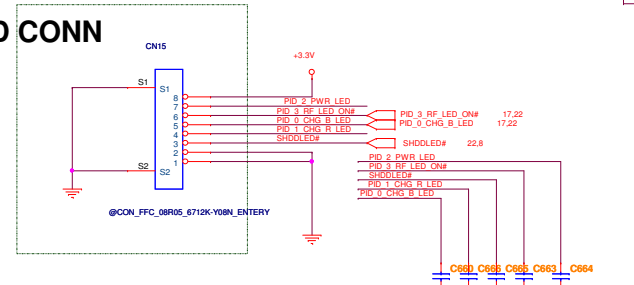
Charge LED



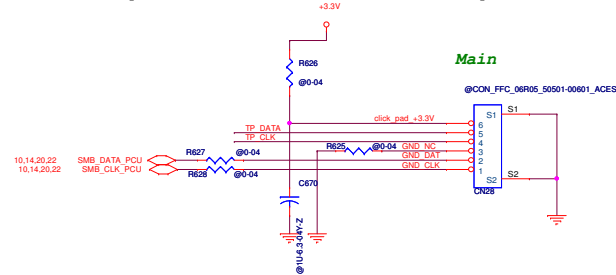
WLAN LED



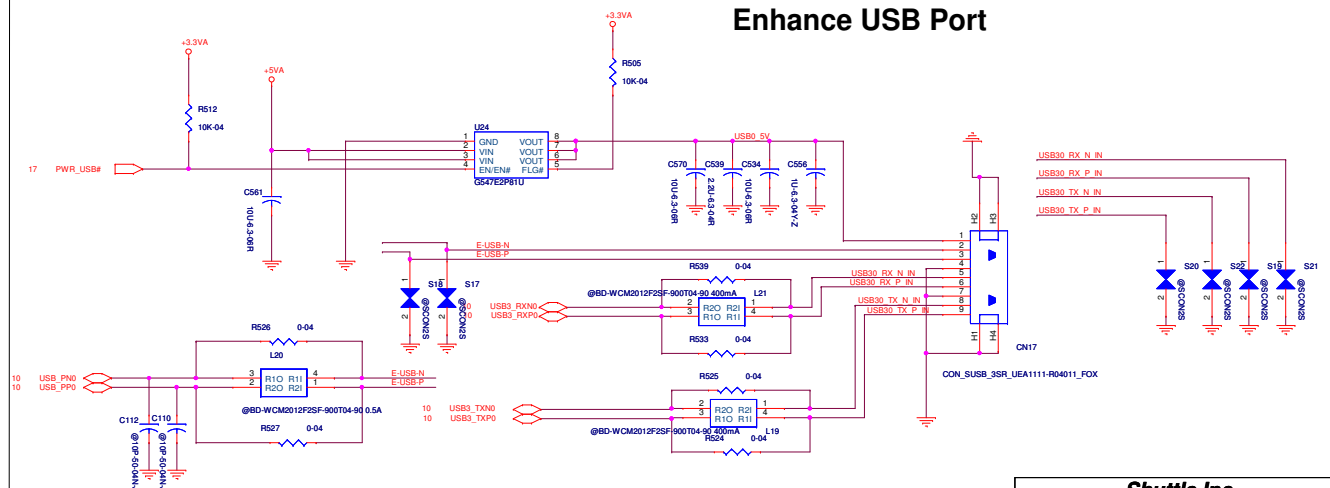
LED CONN



Click-pad / Co-LAY with Touch-pad



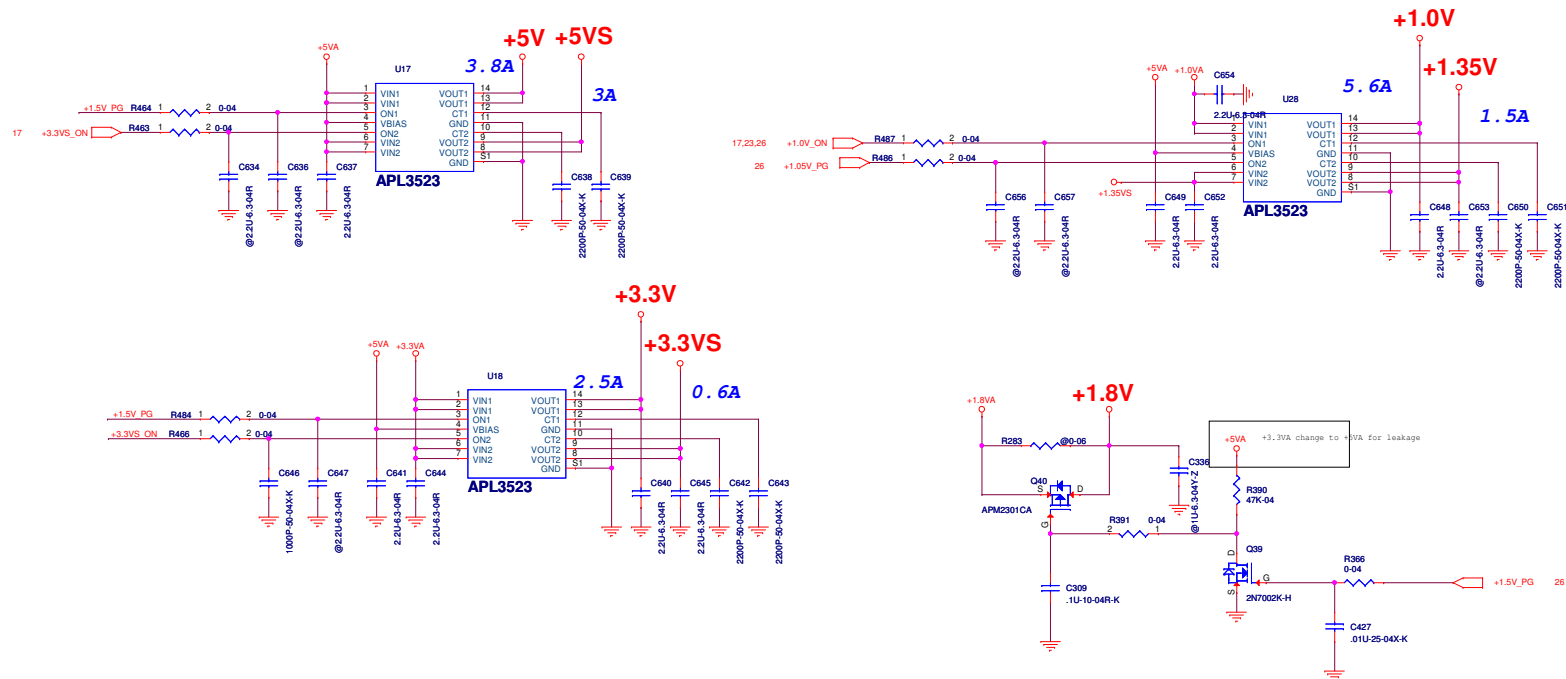
Enhance USB Port



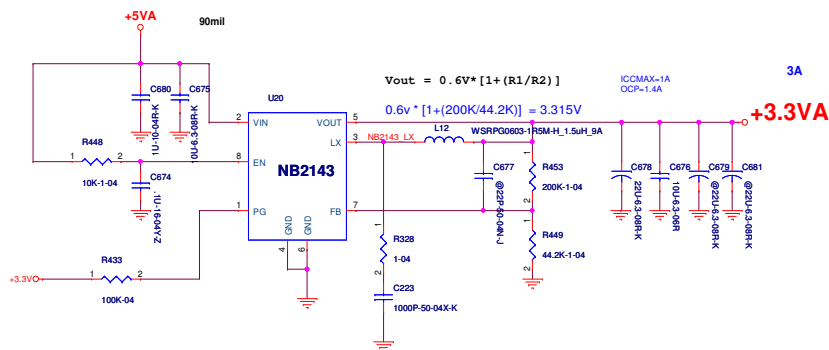
Shuttle Inc
Bay Trail

| | |
|--------|-----------------------------|
| File | |
| Size | Document Number |
| Custom | TP/LED/WEBCAM/USB CHARGER |
| Date | Thursday, November 14, 2013 |
| Sheet | 30 of 33 |

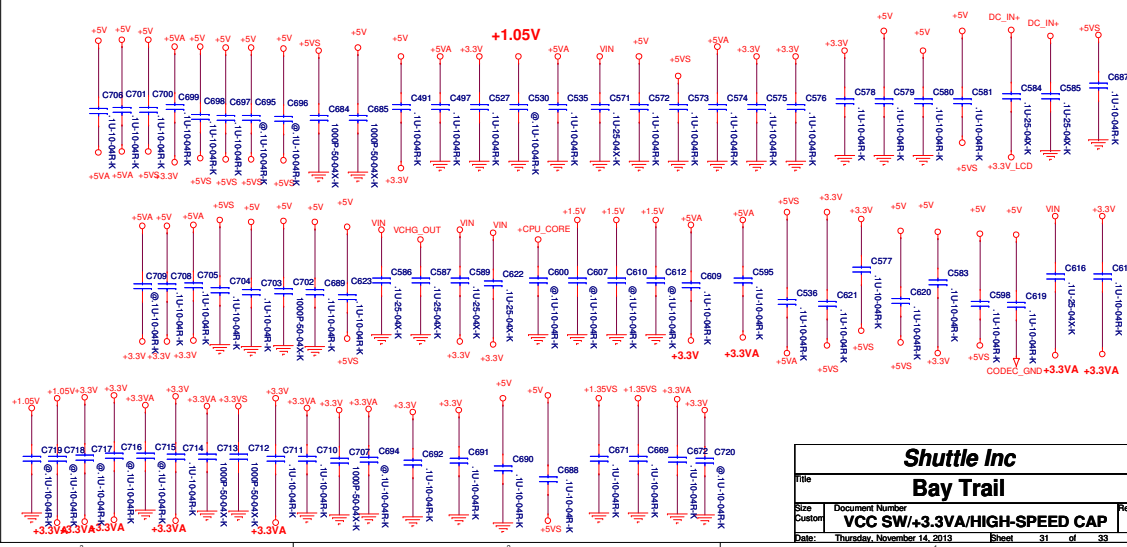
VCCSW



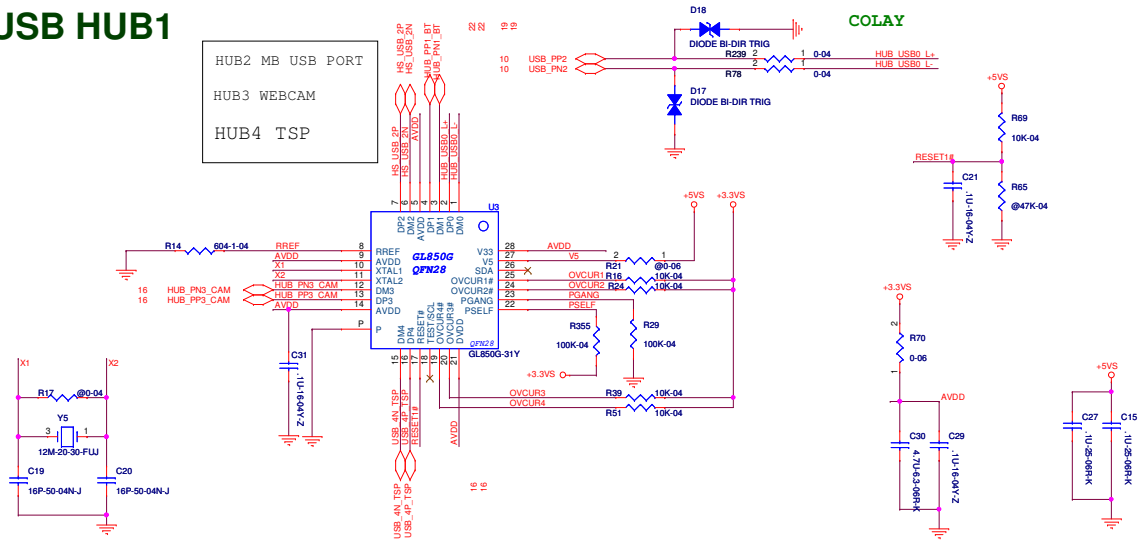
3.3VA Converter



HIGH-SPEED CAP



USB HUB1



A PHASE

MA1:Change R379 stuff for no boot issue
MA2:Change R469,R470 stuff for SMBus power plane
MA3:Change 3.3VS_G3 to +3.3VS_G3,change 3.3VA_G3 to +3.3VA_G3
MA4:Change ACPRESENT to EC pin 88
MA5:ADD 0R FOR 25MHZ CLK(R534)
MA6:ADD 0R FOR PCH SATA POWER(B6)
MA7:Sharing System BIOS ROM for KB & EC Codes(Del U7)
MA8:ADD EC_HSCK path for sharing ROM(ADD R540)
MA9:ADD EC_HSCS0# path for sharing ROM(ADD R484)
MA10:ADD EC_HMOSI path for sharing ROM(ADD R212)
MA11:ADD EC_HMISO path for sharing ROM(ADD R482)
MA12:ADD 0R FOR AMP_GND(ADD AB12)
MA13:Change CN16 PIN DEFINE
MA14:DEL R147 for PROCHOT issue
MA15:ADD ISEN1 Pull Hi +5V(ADD R356)
MA16:Change C203 SMD CAP TO DIP CAP
MA17:ADD ASM1042_SMI# path(ADD R683)
MA18:Change CN19 PIN DEFINE
MA19:ADD EMI solution(ADD C251,C257,C357,C341,C684,C686,C25,C660,C677 DEL C99,C430)

B PHASE

MA1:U25,U19,U22 PIN S1&Pin3 OPEN,Change GND
MA2:DEL CRT ADD HDMI
MA3:HUB2 Change ;HS_USB_2P, HUB3 Change : HUB_PN3_CAM, HUB4Change: USB_4N_TSP
MA4:ADD CLEAR CMOS Circuit
MA5:ADD WLAN LED
MA6:U66 U68 Change 3.3V for leakage
MA7:EC #81 ADD Support 2 cell BAT
MA8:ADD EMI Soutlion:C223, R427, C707, C684, C702, C27,C15, C260,C703,C704, C712,C713
MA9:EC #86 ADD TXE_DISABLE
MA10:PCIE_WAKE# pull high 3.3VA
MA11:ADD thermal solution move U9 close to Q101
MA12:ADD sopput 18 inch LCD ADD U23,R455,R456,R403,R374,R471
MA13:ADD Platform R221,R219
MA14:GPU core add C39,C389