

# Model : P72IA0

## Intel Yonah CPU + 945PM / ICH7-MDH Chipset

### Revision History

| A | 09/2005 | ORIGINAL RELEASE |
|---|---------|------------------|
|   |         |                  |
|   |         |                  |
|   |         |                  |
|   |         |                  |

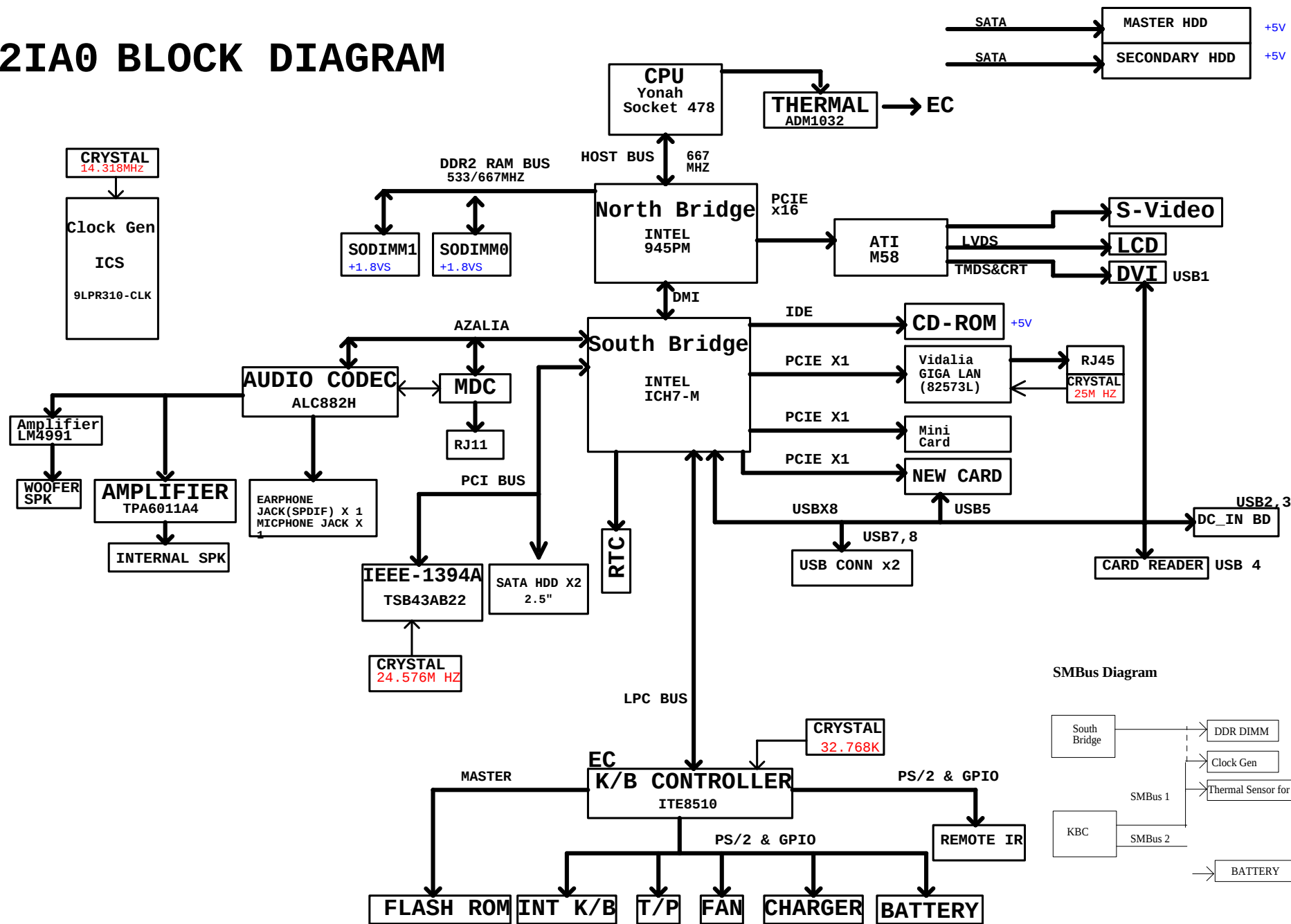
PG01 INDEX  
PG02 SYSTEM BLOCK DIAGRAM  
PG03 POWER DIAGRAM & SEQUENCE  
PG04 GPIO & POWER CONSUMPTION  
PG05 CPU Yonah-1/2  
PG06 CPU Yonah-2/2  
PG07 CLOCK GEN ICS9LPR310  
PG08 NB 945PM-HOST -1/5  
PG09 NB 945PM VGA\_PCIEXPR-2/5  
PG10 NB 945PM DDR\_MEM SYSTEM-3/5  
PG11 NB 945PM POWER-4/5  
PG12 NB 945PM VSS\_NCTF-5/5  
PG13 DDR2 CHANNELA,B  
PG14 Termination / SMP / DC IN  
PG15 PWR S/W& LCD/INVERTOR/CRT/TV  
PG16 SB ICH7-MDH -1/3  
PG17 SB ICH7-MDH -2/3  
PG18 SB ICH7-MDH -3/3  
PG19 HDD / CD-ROM

PG20 WIRELESS / NEW CARD / EMI  
PG21 I/O PORT CON  
PG22 AUD PWR / FAN CTL  
PG23 GIGA LAN INTEL 82573 L  
PG24 IEEE1394A TSB43AB22A  
PG25 EC IT8510E / BIOS / TP CON  
PG26 VGA MXM CON  
PG27 CPU\_CORE ( ISL6262 )  
PG28 1.05V/1.5V/1.8V/2.5V/0.9V  
PG29 +3.3V/+5V/+12V  
PG30 VCC SW/+1.05VS/+1.5VS  
PG31 BATT IN / Charger  
PG32 Appendix A. Ver. History

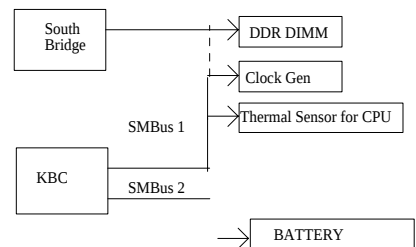
UNIWILL COMPUTER CORP.

|       |                            |  |        |   |       |
|-------|----------------------------|--|--------|---|-------|
| Title |                            |  | P72IA0 |   |       |
| Size  | Document Number            |  | INDEX  |   | Rev A |
|       | 3220                       |  |        |   |       |
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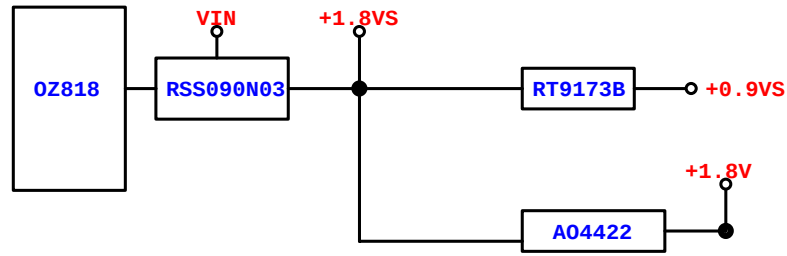
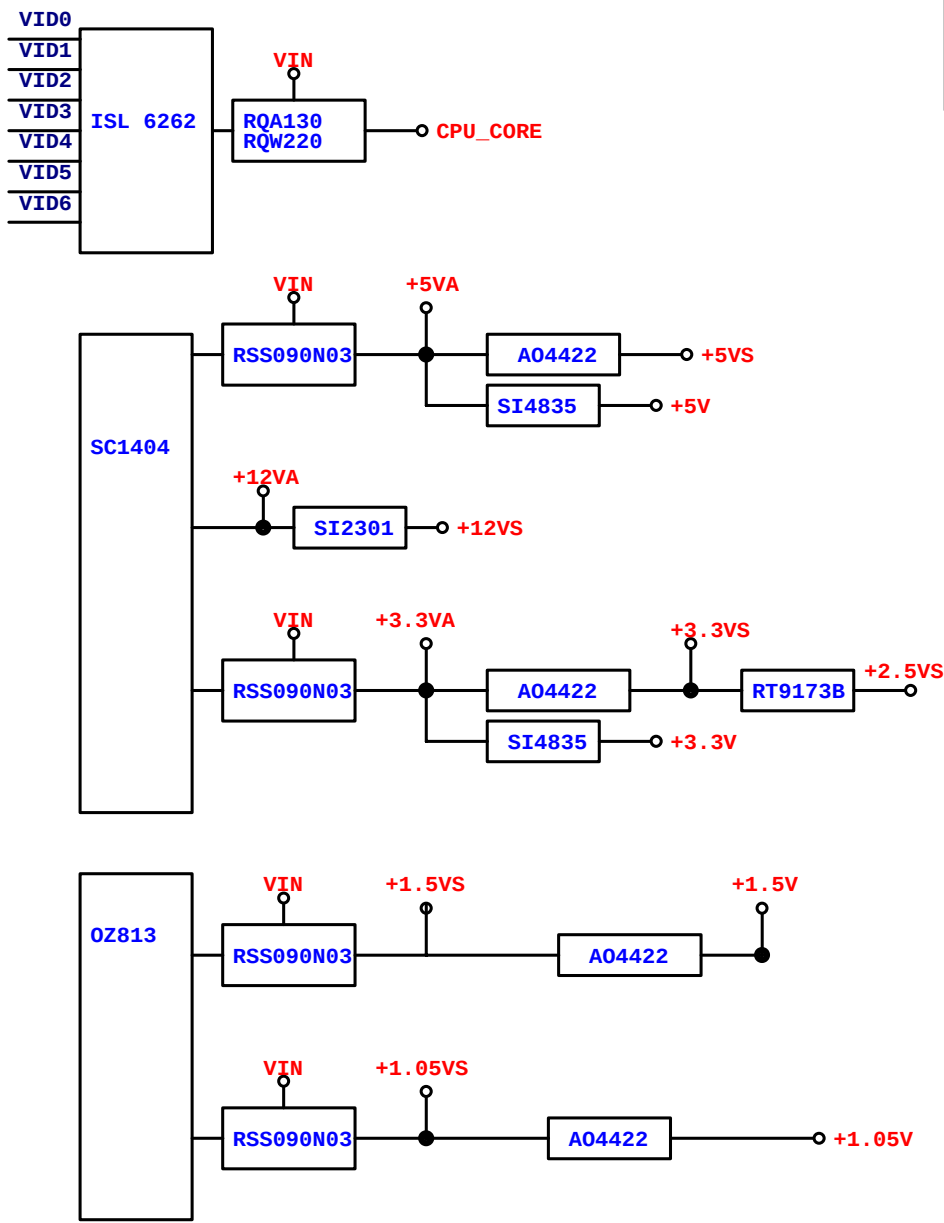
# P72IA0 BLOCK DIAGRAM



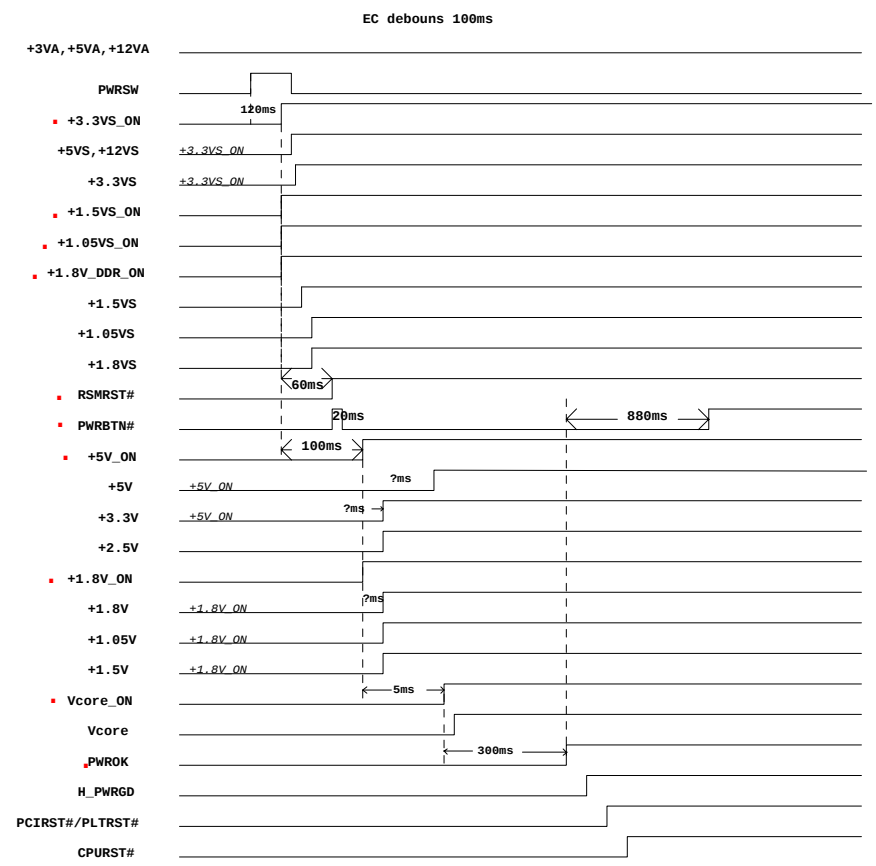
SMBus Diagram



# POWER BLOCK DIAGRAM



## POWER Sequence



EC Control Pin

| UNIWILL COMPUTER CORP. |                            |               |         |
|------------------------|----------------------------|---------------|---------|
| File                   | P72IA0                     |               |         |
| Size                   | Document Number            | POWER DIAGRAM |         |
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| ICH6-M<br>GPIO |                |
|----------------|----------------|
| GPIO0          | BM_BUSY#       |
| GP7            |                |
| GP8            | EC_EXTSMI#     |
| GPI11          | SMB_ALERT#     |
| GPI12          |                |
| GPI13          |                |
| GP018          | PM_STPPCI_ICH# |
| GP019          |                |
| GP020          | PM_STPCPU_ICH# |
| GP021          | TPM_EN         |
| GP023          |                |
| GPI024         |                |
| GPI025         |                |
| GPI026         | SATA0_GP       |
| GPI027         |                |
| GPI028         |                |
| GPIO29         | PNLSW1         |
| GPIO30         | PNLSW2         |
| GPIO31         | PNLSW0         |
| GPIO32         | PM_CLKRUN#     |
| GPIO33         |                |
| GPIO34         |                |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |

| ITE8510E<br>GPIO |                   |
|------------------|-------------------|
| GPCF0            | RF_SW#            |
| GPCF1            | SILENT#           |
| GPCF2            | IR_PS2CLK1        |
| GPCF3            | IR_PS2DAT1        |
| GPCF4            | TP_CLK            |
| GPCF5            | TP_DATA           |
| GPCF6            | MAIL#             |
| GPCF7            | BROWSER#          |
| GPI0             | SCROLL#           |
| GPI1             | CAPS#             |
| GPI2             | NUM#              |
| GPI3             | CHG_R_LED#        |
| GPI4             | CHG_G_LED#        |
| GPI5             | SUSLED_LED#       |
| GPI6             | <b>VOLMAX</b>     |
| GPH0             | +1.8V_DDR_ON      |
| GPH1             | +1.8V_ON          |
| GPH2             | +1.05VS_ON        |
| GPH3             | +3.3VS_ON         |
| GPH4             | +5V_ON            |
| GPH5             | SET_V             |
| GPH6             | +1.5VS_ON         |
| GPH7             | VCORE_ON          |
| GP64             | TP_DISABLE        |
| GP65             | LCDSW             |
| GP66             | MUTE#             |
| GP67             | EXTTS#0           |
| GP80             | CELERON_VO_DET    |
| GPB1             | CPPE#             |
| GPB2             | PM_RSMRST#        |
| GPB3             | BAT_SMBCLK        |
| GPB4             | BAT_SMBDAT        |
| GPB5             | H_A20GATE         |
| GPB6             | H_RCIN#           |
| GPB7             | RFLED_ON#         |
| GPE0             | <b>NA</b>         |
| GPE1             | CPU_BSEL0         |
| GPE2             | <b>NA</b>         |
| GPE3             | <b>NA</b>         |
| GPE4             | PWRSW             |
| GPE5             | LID#              |
| GPE6             | PCM#              |
| GPE7             | PM_SLP_S3#        |
| GP00             | ADAP_IN           |
| GP01             | REMOTE_ON#        |
| GP02             | PCI_RST#/PLT_RST# |
| GP03             | EC_EXTSMI#        |
| GP04             | PM_SLP_S4#        |
| GP05             | PM_THROTTLING#    |
| GP06             | FAN_SPD#          |
| GP07             | EC_PREST#         |
| GPA0             | BTL_BEEP          |
| GPA1             | EC_VID1           |
| GPA2             | EC_VID2           |
| GPA3             | EC_VID3           |
| GPA4             | EC_VID4           |
| GPA5             | SMP1_EN#          |
| GPA6             | SMP2_EN#          |
| GPA7             | PWRBTN#           |

| ITE8510E<br>GPIO |             |
|------------------|-------------|
| GPC0             | PWROK       |
| GPC1             | BAT2_SMBCLK |
| GPC2             | BAT2_SMBDAT |
| GPC3             | SB_ALERT#1  |
| GPC4             | SB_ALERT#2  |
| GPC5             | TP_LED#     |
| GPC6             | CHG_ON      |
| GPC7             | SILENT_LED# |
| ADC0             | BAT_TEMP    |
| ADC1             | ADAPTOR_I   |
| ADC2             | DDR2_TEMP   |
| ADC3             | VGA_TEMP    |
| DAC0             | BRIGHTADJ   |
| DAC1             | CHG_I       |
| DAC2             | FAN_CTRL0   |
| DAC3             | <b>NA</b>   |
|                  |             |
|                  |             |
|                  |             |
|                  |             |
|                  |             |

| CPU         |         |       |          |    |
|-------------|---------|-------|----------|----|
| CPU CORE(V) | ICC(mA) | W     | TEMP(°C) |    |
| 2.0G        | 1.525   | 35.7  | 54.3     | 69 |
| 2.2G        | 1.525   | 37.5  | 57.1     | 70 |
| 2.26G       | 1.525   | 38.1  | 58.0     | 70 |
| 2.4G        | 1.525   | 39.3  | 59.8     | 71 |
| 2.5G        | 1.525   | 40    | 61.0     | 72 |
| 2.53G       | 1.525   | 40.4  | 61.5     | 72 |
| 2.6G        | 1.525   | 41.05 | 62.6     | 72 |
| 2.66G       | 1.525   | 43.35 | 66.1     | 74 |
| 2.8G        | 1.525   | 44.86 | 68.4     | 75 |
| 3.06G       | 1.525   | 55.9  | 85.2     | 81 |

| MCHE            |         |       |          |
|-----------------|---------|-------|----------|
| VCC             | ICC(mA) | W     | TEMP(°C) |
| +3.3V           | 108.19  | 0.357 | 70       |
| +3.3VA          | 501.3   | 1.254 |          |
| +2.5V           | 1390    | 2.502 |          |
| +1.5V           | 33.4    | 0.084 |          |
| +VCCP           | 10      | 0.018 |          |
| +VCC_SDRCL_CORE | 266     | 0.452 |          |
|                 |         |       |          |

| ICH6-M     |         |         |          |
|------------|---------|---------|----------|
| VCC        | ICC(mA) | W       | TEMP(°C) |
| +3.3V      | 96      | 0.315   | 70       |
| +3.3VA     | 275     | 0.909   |          |
| +1.5V      | 487     | 0.876   |          |
| +1.5VA     | 27      | 0.049   |          |
| +3.3VA_RTC | 0.003   | 0.00001 |          |
|            |         |         |          |

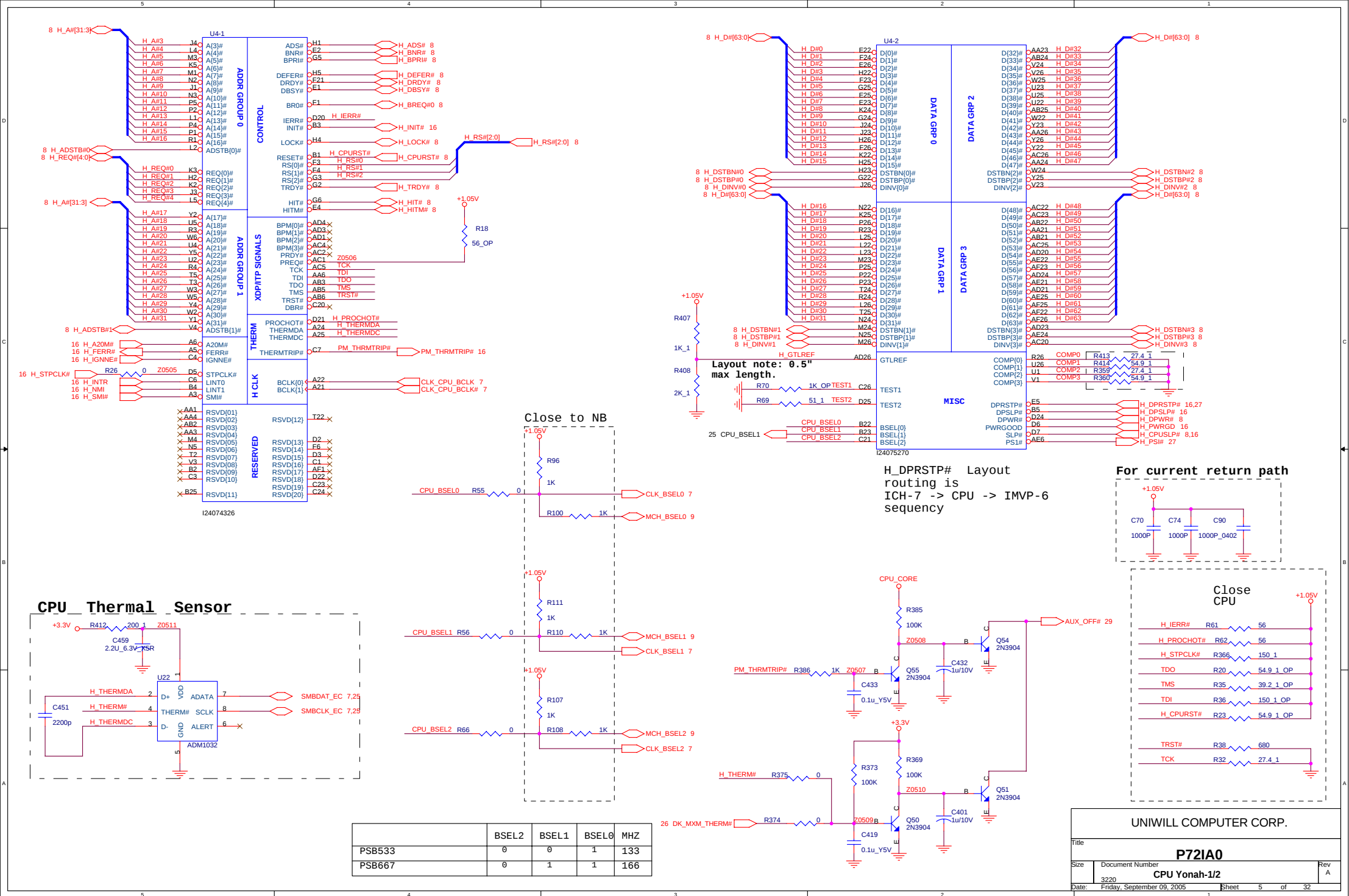
| ITE8510E |         |   |          |
|----------|---------|---|----------|
| VCC      | ICC(mA) | W | TEMP(°C) |
| +3.3V    | 300     | 1 | 70       |

| CLOCK GENERATOR |         |       |          |
|-----------------|---------|-------|----------|
| VCC             | ICC(mA) | W     | TEMP(°C) |
| +3.3V           | 180     | 0.594 | 70       |

| ALC880      |         |       |          |
|-------------|---------|-------|----------|
| VCC         | ICC(mA) | W     | TEMP(°C) |
| +3.3V(DVDD) | 71      | 0.234 | 70       |
|             |         |       |          |

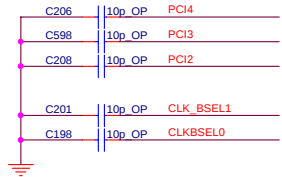
| TPA6011A4 |         |        |          |
|-----------|---------|--------|----------|
| VCC       | ICC(mA) | W      | TEMP(°C) |
| 3.3V      | 30      | 0.099W | 85       |

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





# Reserved FOR EMI



Close pin 50

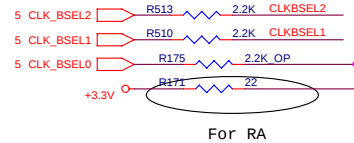
Close pin 28,42

Close pin 56

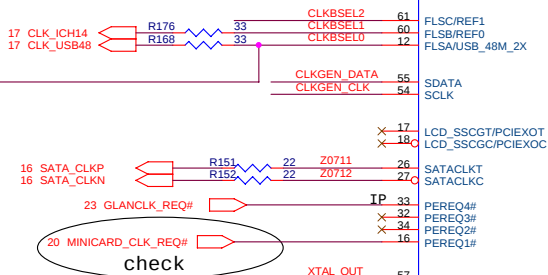
Close pin 1,7

SELDOT , 1= Pin 14/15 DOT 96MHZ , Pin 17/18 LCDCLK  
0= Pin 14/15 27MHZ Fix/SS Pin 17/18 PCIEIX

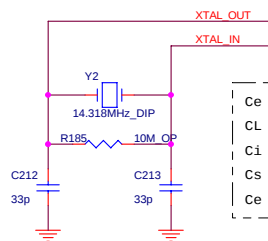
Bsel [0,2]  
Vil = 0.3  
Vih = 0.7



For RA



check



$C_e = 2 * CL - (C_s + C_i)$   
CL = Crystal Load Cap = 20p  
C<sub>i</sub> = IC internal Cap = 5p  
C<sub>s</sub> = 2p  
C<sub>e</sub> = Crystal external Cap = 33p

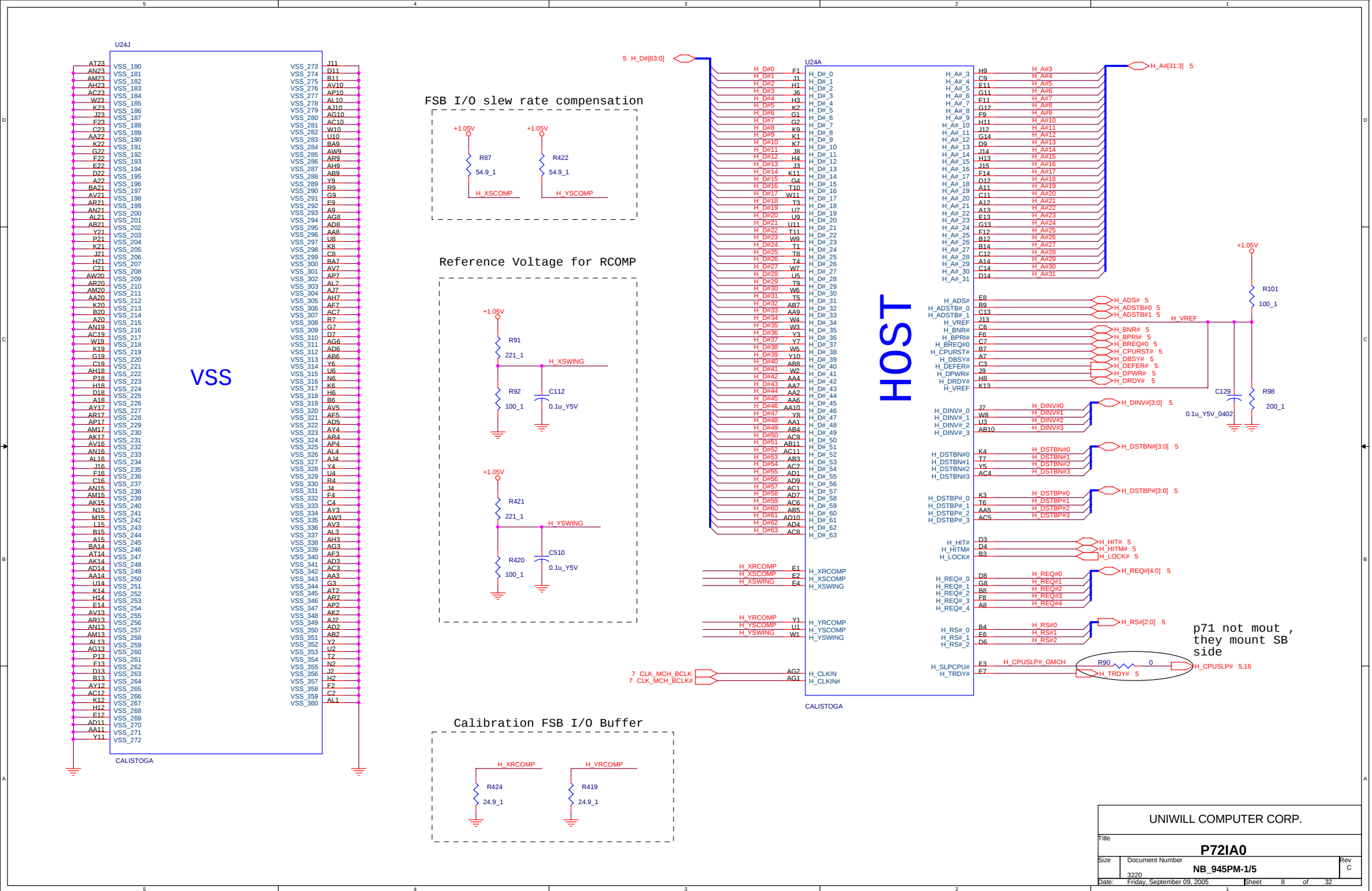
REQ1# = PCI-E 0,6  
REQ2# = PCI-E 1,8  
REQ3# = PCI-E 2,4  
REQ4# = PCI-E 3,5,7

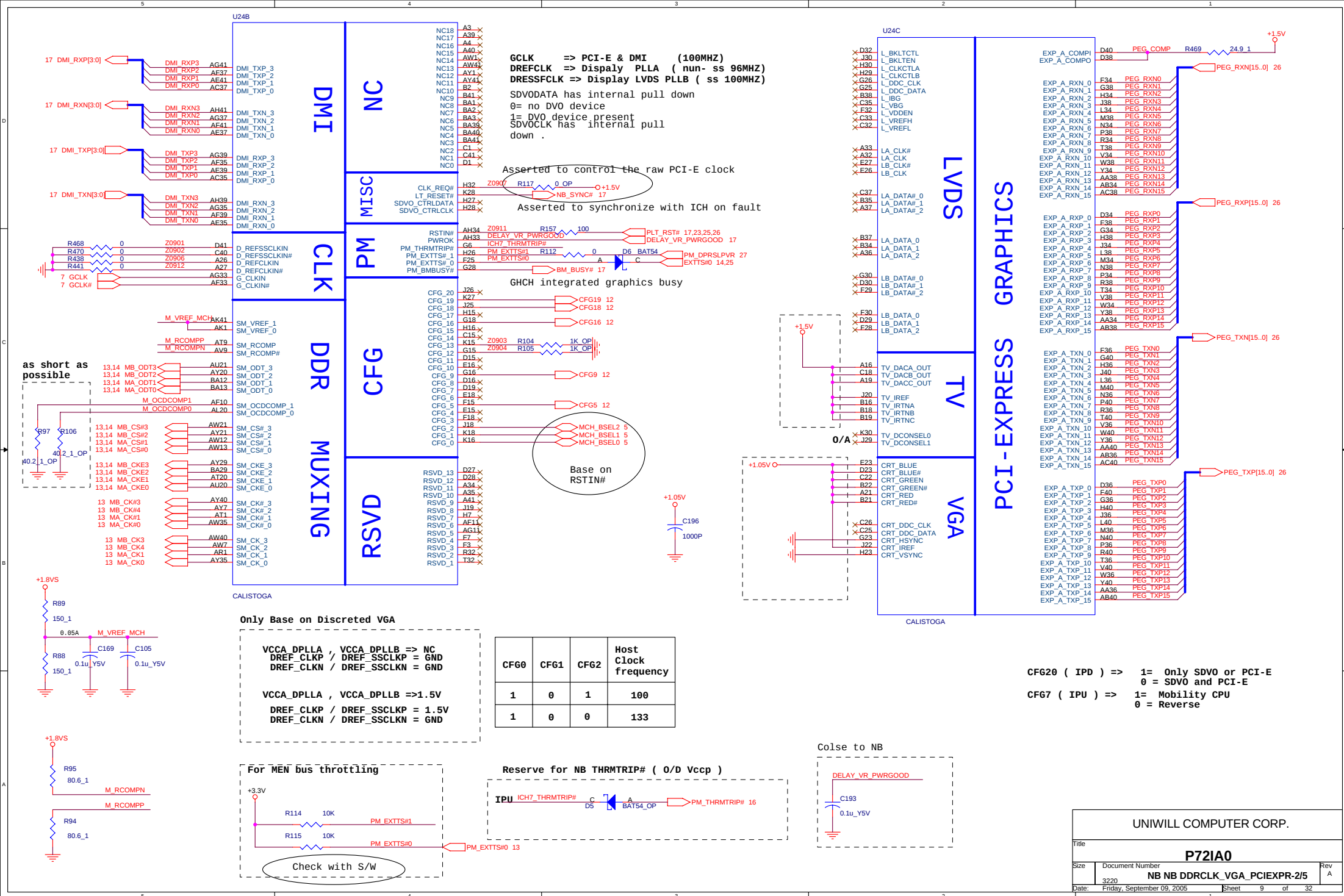
|        | FS4 | FS3 | BSEL2<br>FSLC | BSEL1<br>FSLB | BSEL0<br>FSLA | CPU<br>MHZ | PCI<br>MHZ | PCI-E<br>MHZ | SPREAD %         |
|--------|-----|-----|---------------|---------------|---------------|------------|------------|--------------|------------------|
| PSB533 | 0   | 0   | 0             | 0             | 1             | 133        | 33         | 100          | 0.5% DOWN        |
| PSB667 | 0   | 0   | 0             | 1             | 1             | 166        | 33         | 100          | 0.5% DOWN        |
| PSB533 | 0   | 1   | 0             | 0             | 1             | 133        | 33         | 100          | +/- 0.25% CENTER |
| PSB667 | 0   | 1   | 0             | 1             | 1             | 166        | 33         | 100          | +/- 0.25% CENTER |

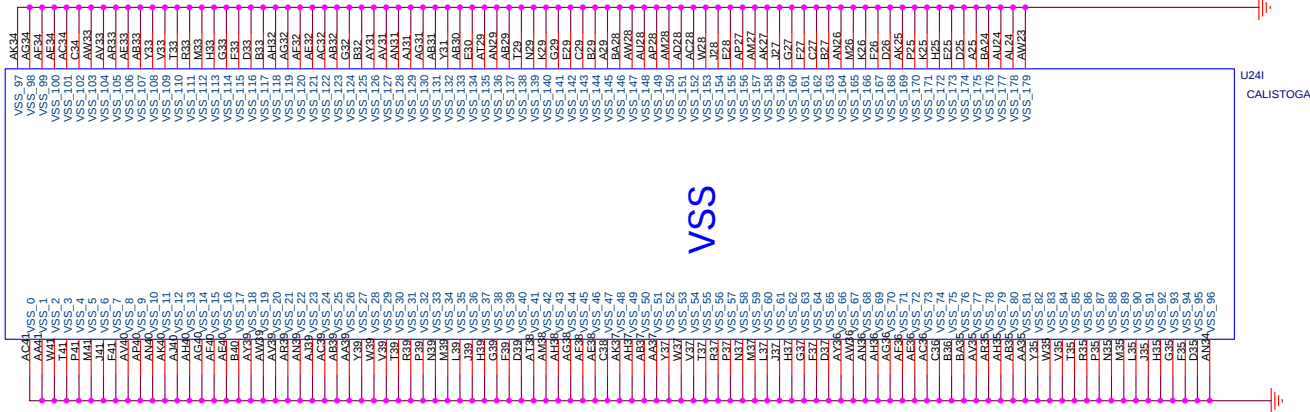
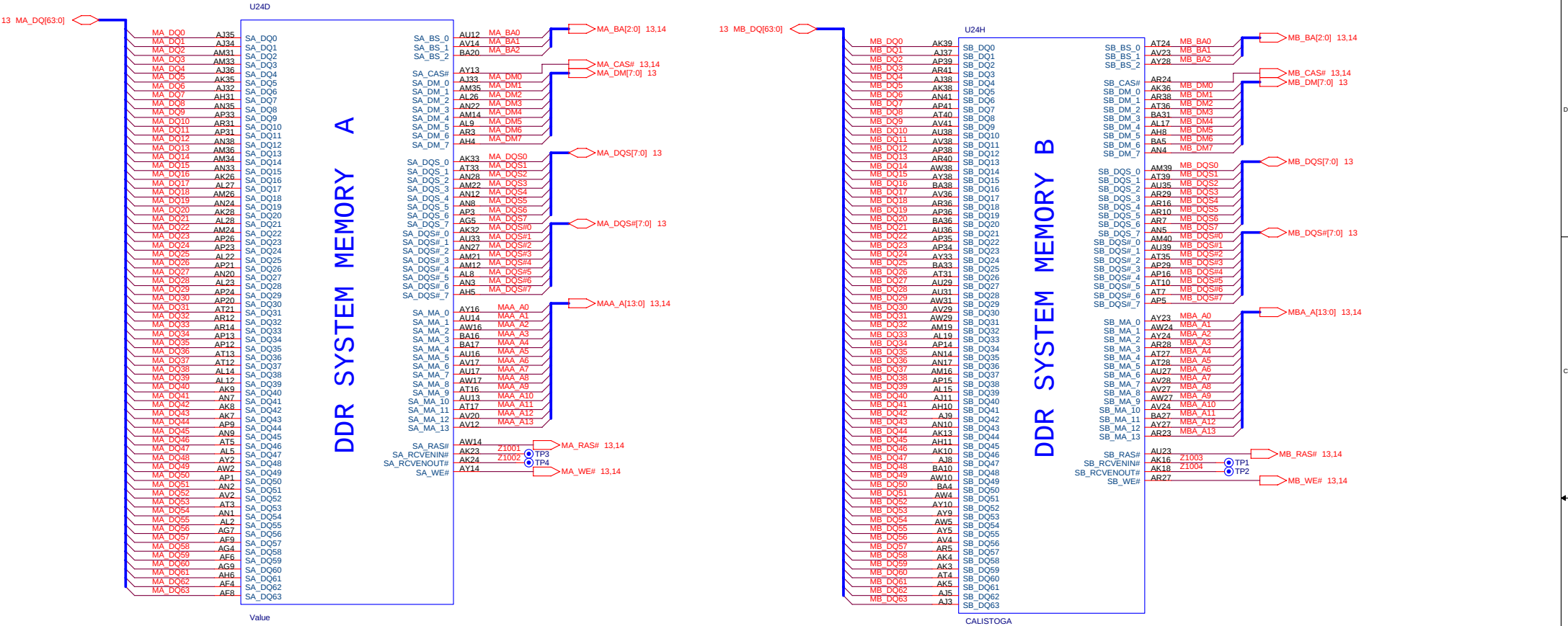
FS3 , FS 4 SEETING BY I2C BUS ??????



| UNIWILL COMPUTER CORP. |                            |                      |         |
|------------------------|----------------------------|----------------------|---------|
| Title                  |                            |                      |         |
| P721A0                 |                            |                      |         |
| Size                   | Document Number            | Rev A                |         |
|                        | 3220                       | CLOCK GEN ICS9LPR310 |         |
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# PCIE & DMI ANA

POWER <1.5 A

Intel :10UX2 + 220UX1

# 2.5V PCIE ANA

Power < 2 mA

same with P71 +1.05V O

POWER

COULD OP , SEE LAYOUT .

DACA 40mA

DACB 40mA

HOSTPLL 45mA

MENTPLL 45mA

For DDR DLL , DDR IO ,  
FSB IO < 1.9A

Filter component only need when  
GMCH core is 1.5V for extended  
graphics performance .

NB 1.05V layout < 2.5A

NB 1.5VS layout < 1.9A

NB 1.5V layout < 1.8A

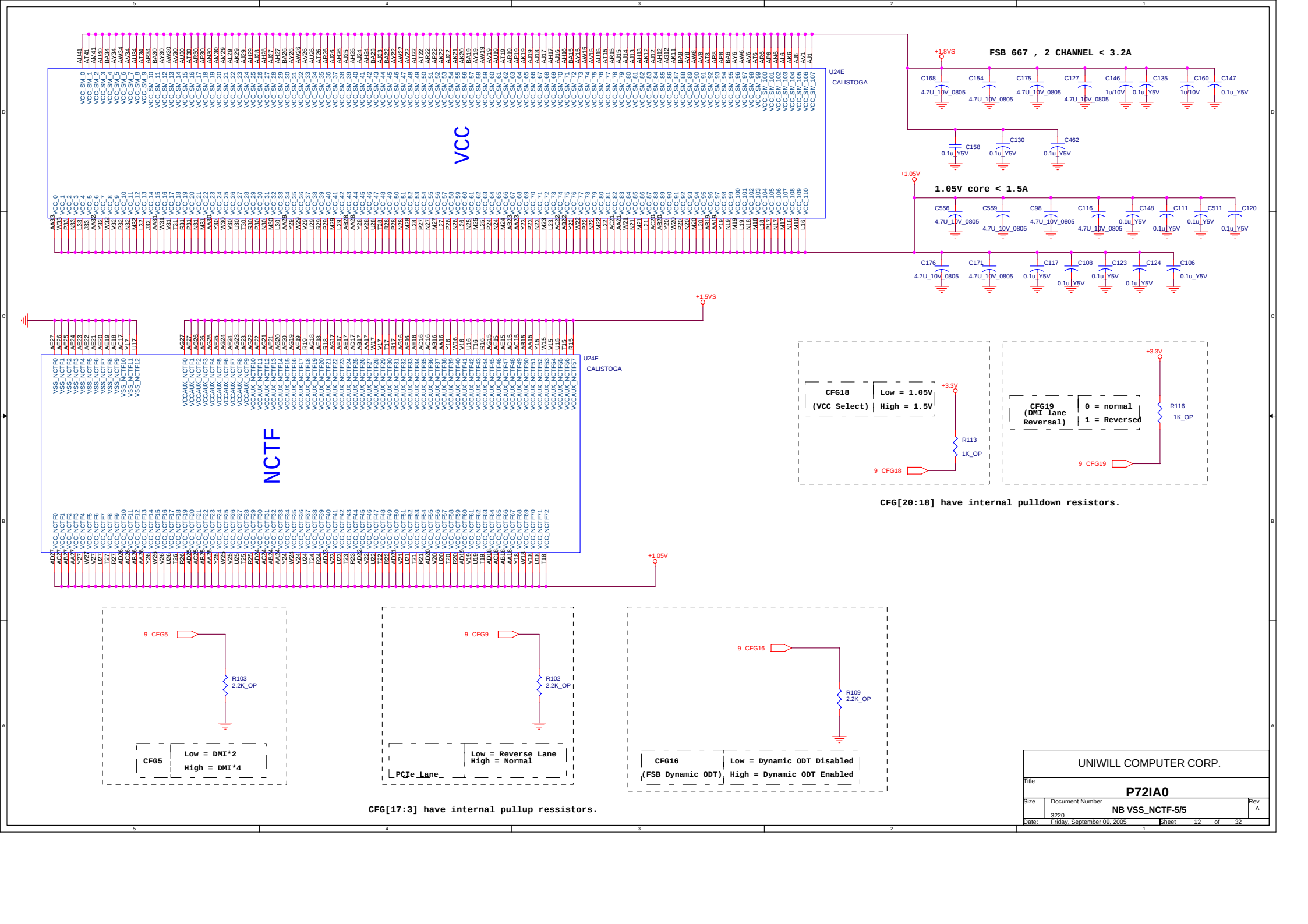
NB 2.5V layout < 0.1A

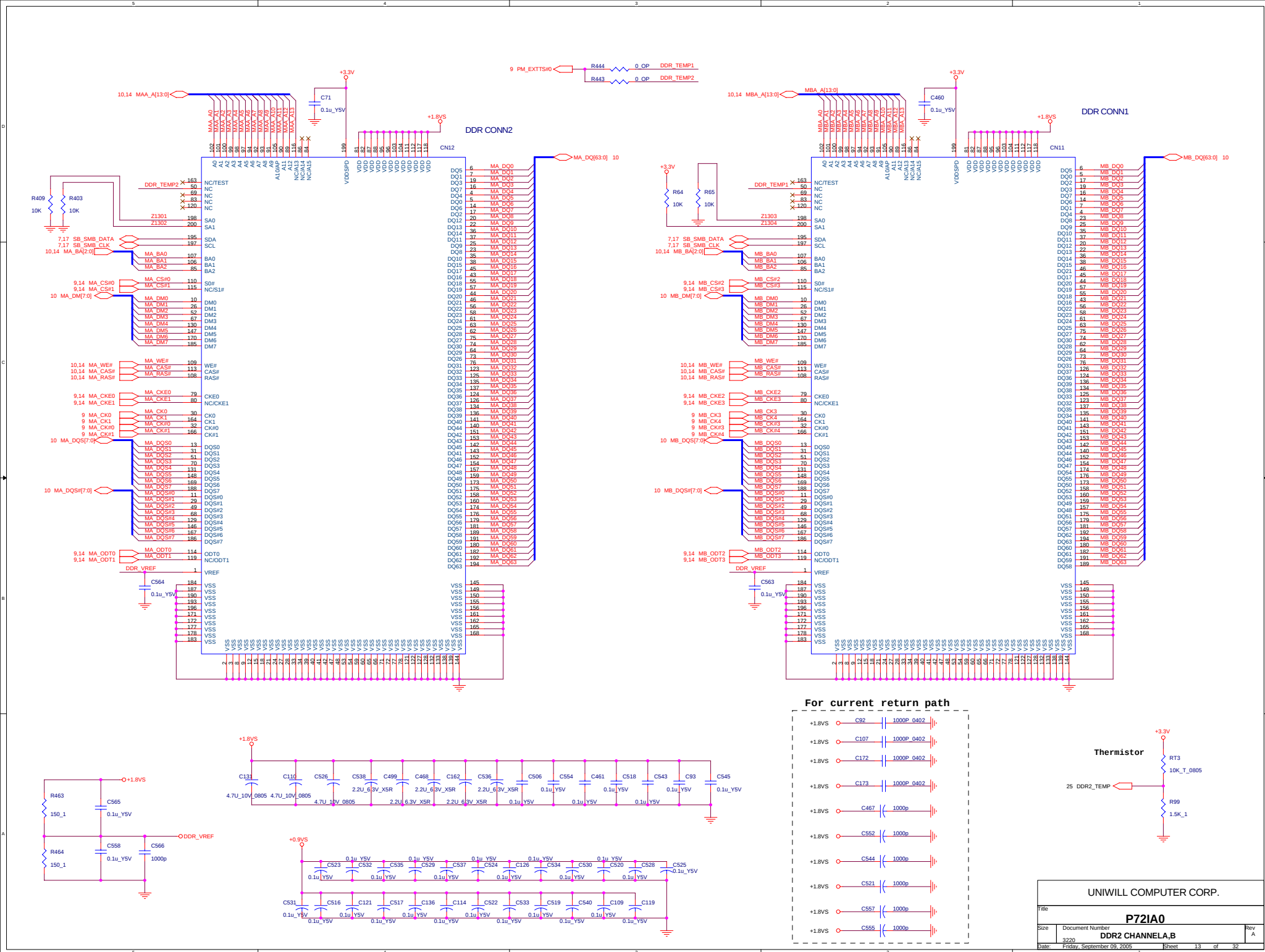
NB 3.3V layout < 0.1A

NB 1.8VS layout < 3.2A

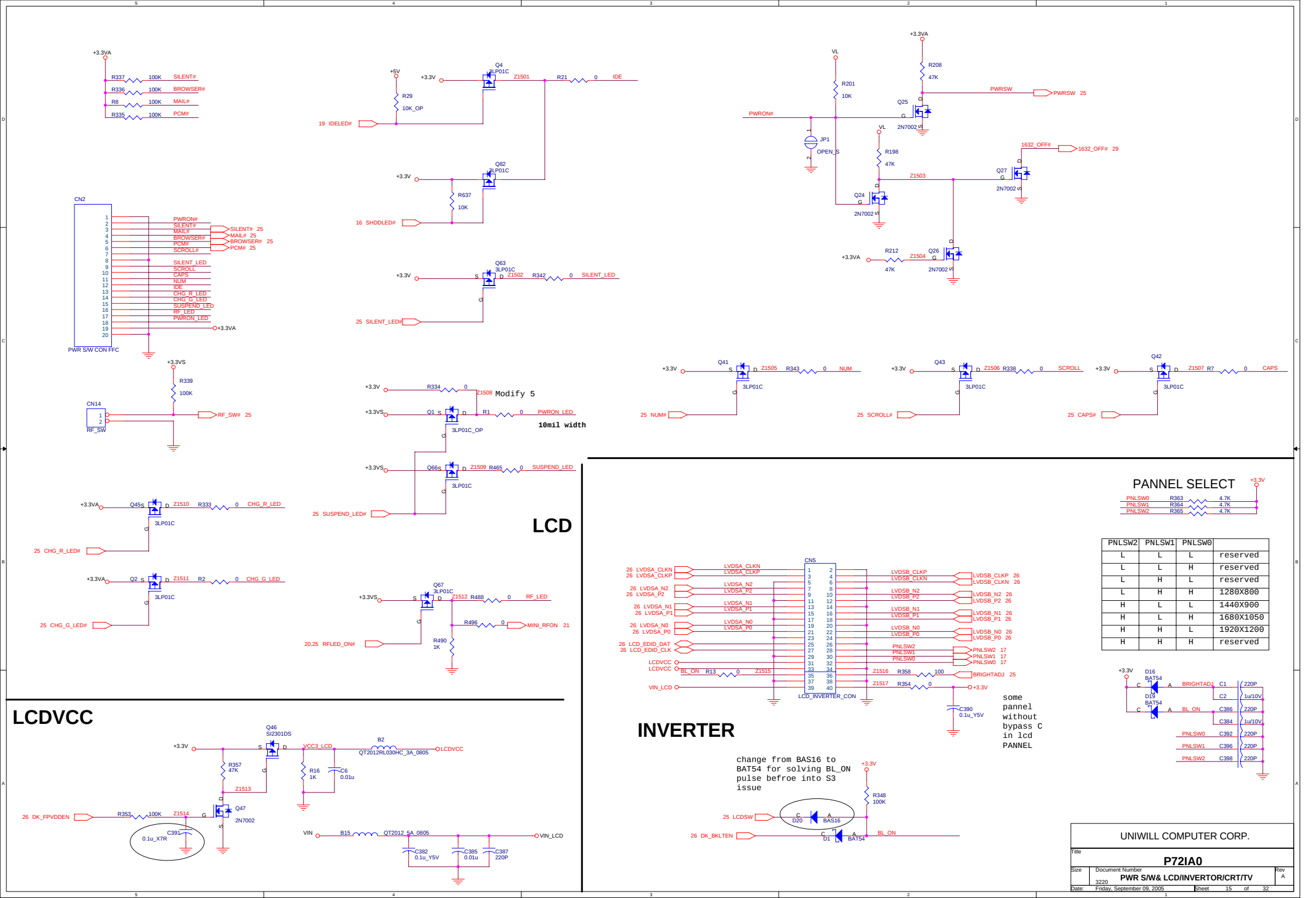
UNIWILL COMPUTER CORP.

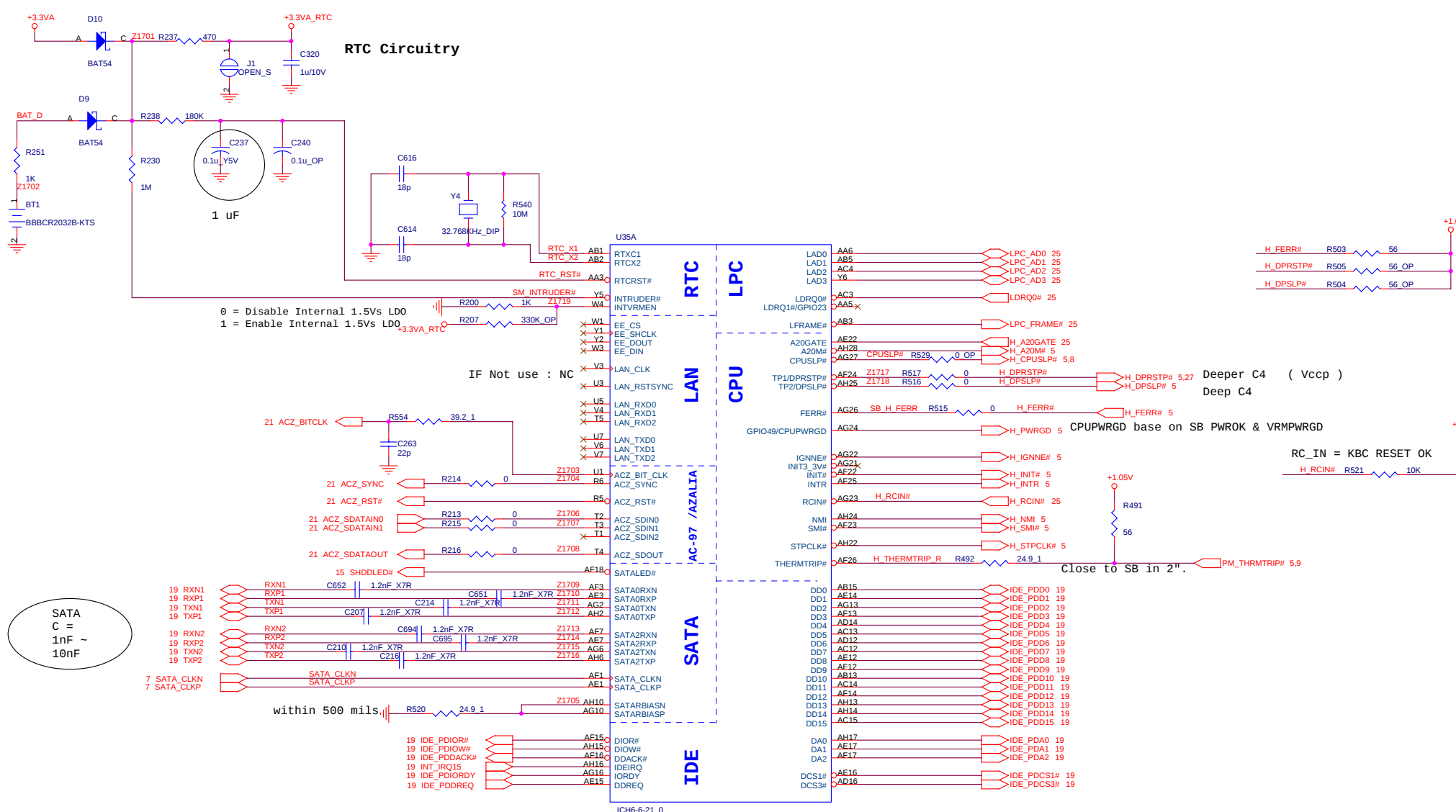
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|----------------------------|-----------------|--------------|----------|
| File                       | P72IA0          |              |          |
| Size                       | Document Number | NB POWER-4/5 |          |
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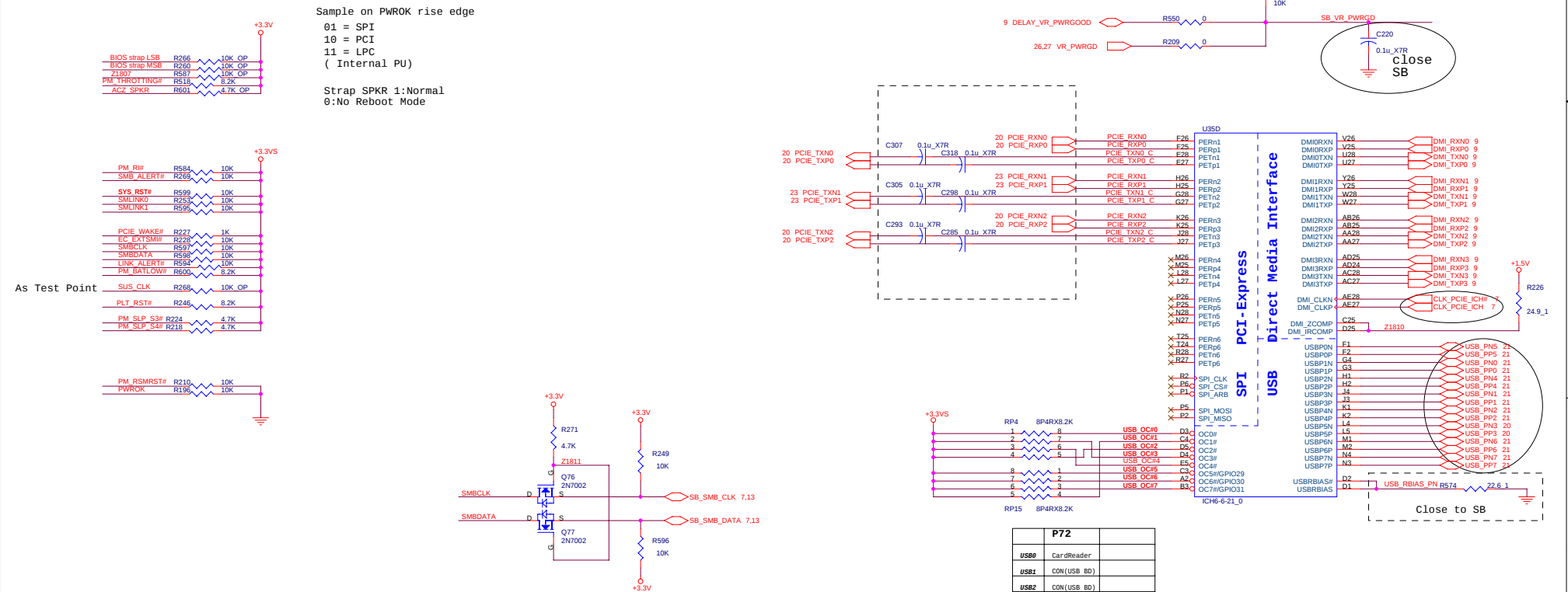








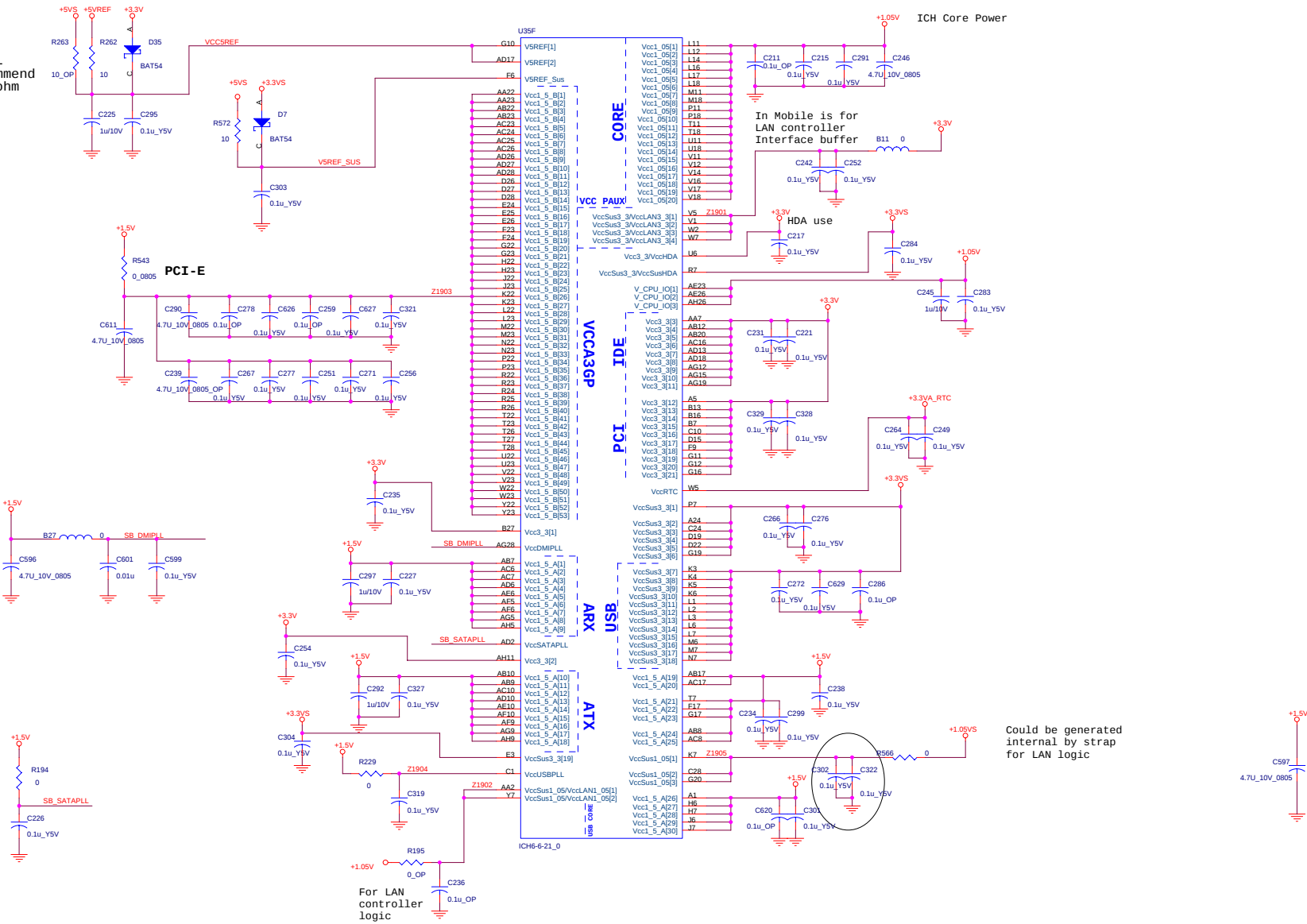




|      | P72         |  |
|------|-------------|--|
| USB0 | CardReader  |  |
| USB1 | CON(USB BD) |  |
| USB2 | CON(USB BD) |  |
| USB3 | NEW CARD    |  |
| USB4 | X           |  |
| USB5 | DOCKING     |  |
| USB6 | CON(DC BD)  |  |
| USB7 | CON(DC BD)  |  |

|                                  |                 |       |          |
|----------------------------------|-----------------|-------|----------|
| Title                            |                 |       |          |
| P72IA0                           |                 |       |          |
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|                                  | 3220            | A     |          |
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|                                  |                 |       |          |

INTEL  
recommend  
100 ohm

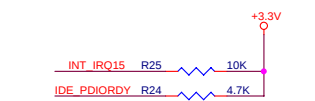
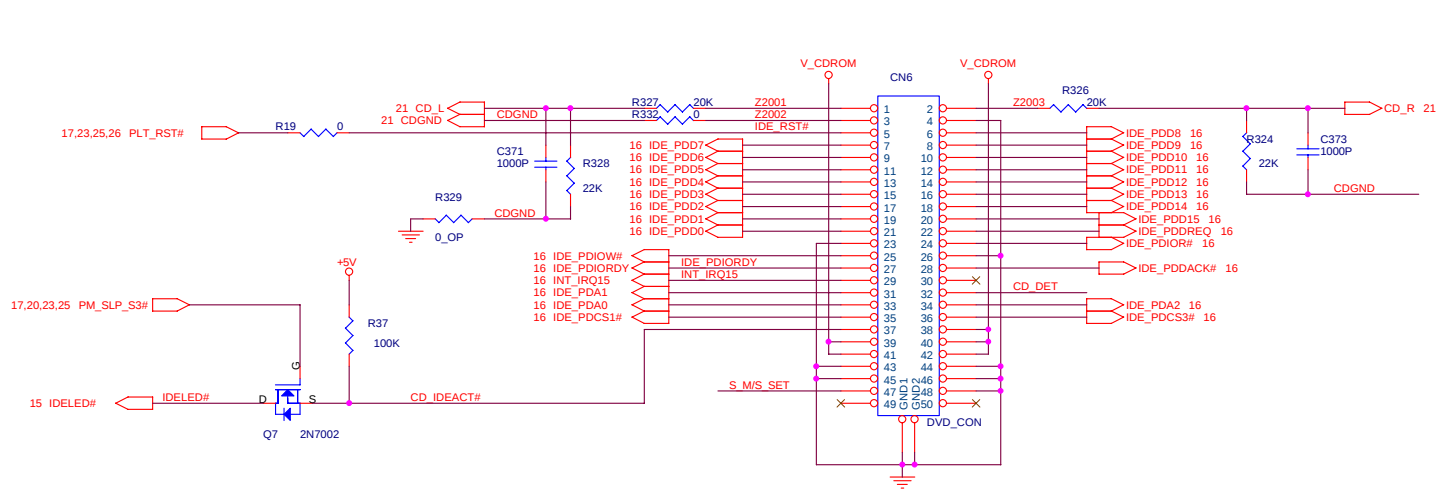


Could be generated  
internal by strap  
for LAN logic

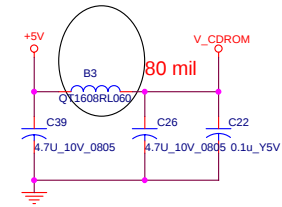
UNIWILL COMPUTER CORP.

|      |                            |                |       |
|------|----------------------------|----------------|-------|
| File | P72IA0                     |                |       |
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# CR-ROM

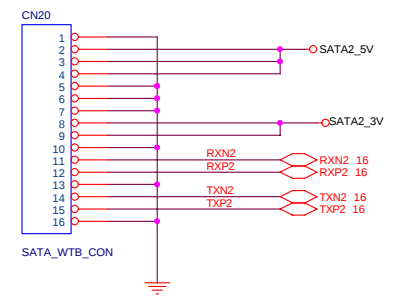
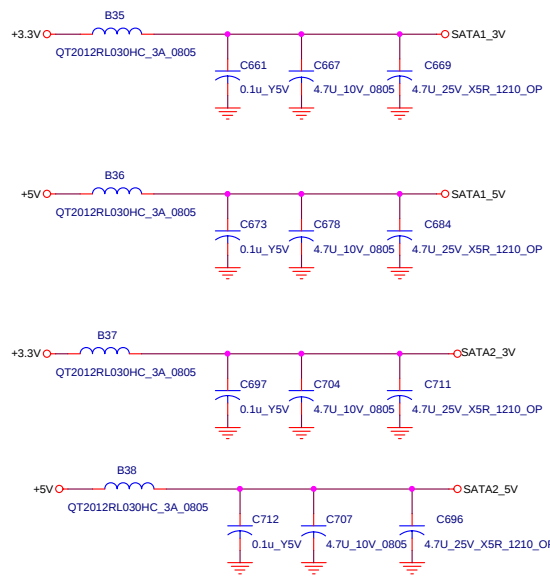
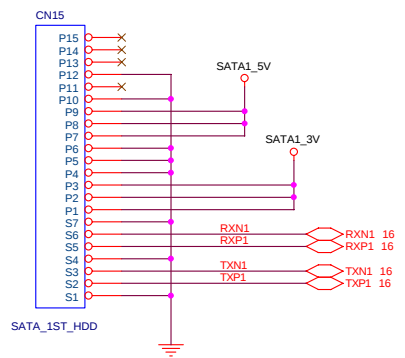


500mA Bead => 80 mils trace ?



S M/S SET R46 470  
CD\_DET R27 10K  
CSEL : Master = 0 / Slave = 1

# HDD

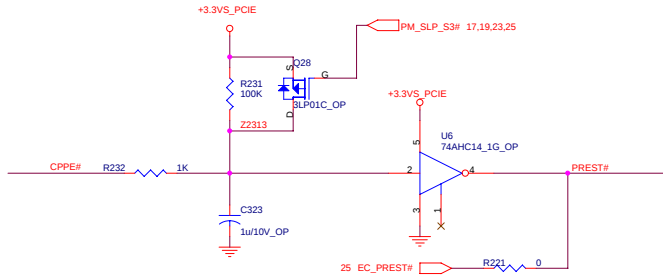
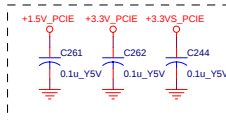
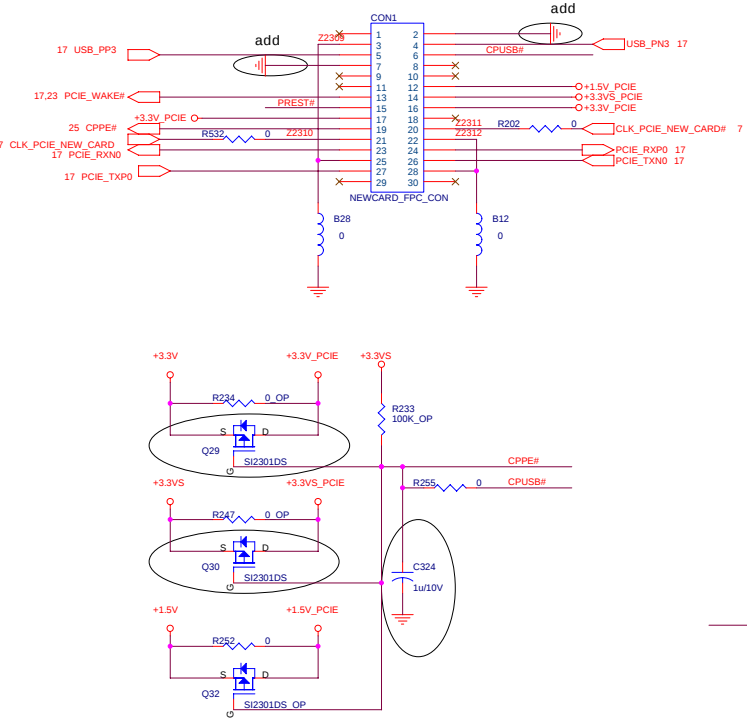
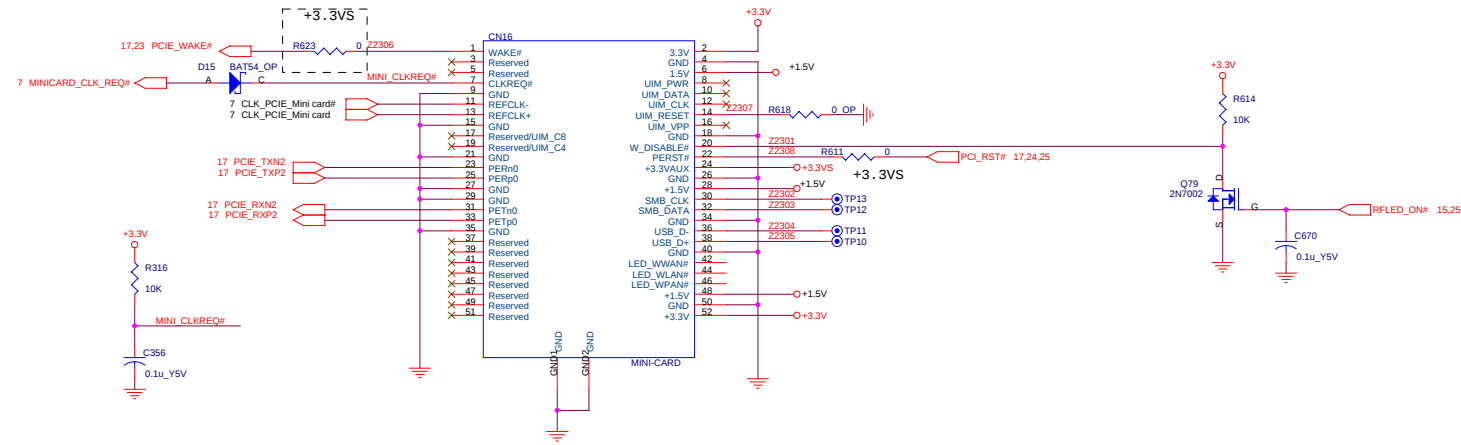
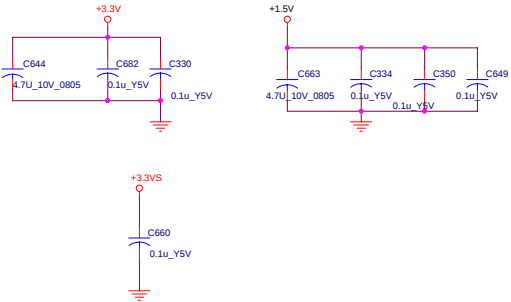


| UNIWILL COMPUTER CORP. |                            |                          |          |
|------------------------|----------------------------|--------------------------|----------|
| Title                  |                            | <b>P72IA0</b>            |          |
| Size                   | Document Number            | Rev A                    |          |
|                        | 3220                       | <b>HDD / CD-ROM CONN</b> |          |
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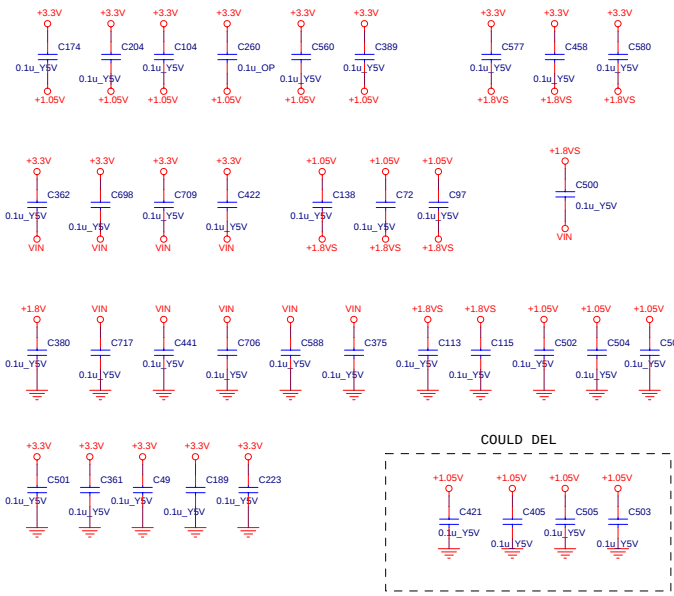
MINI CARD CONN

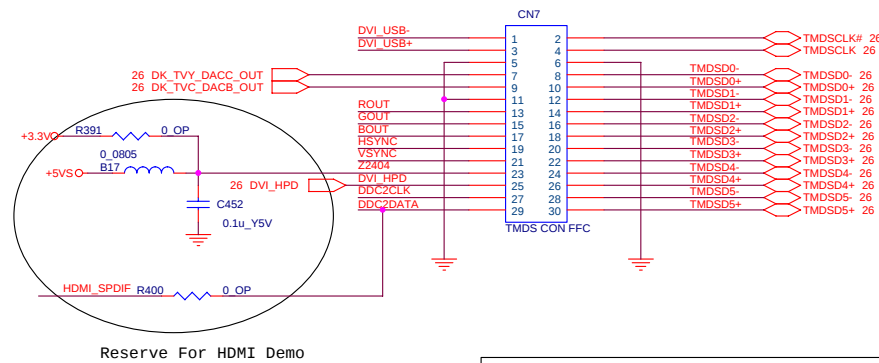
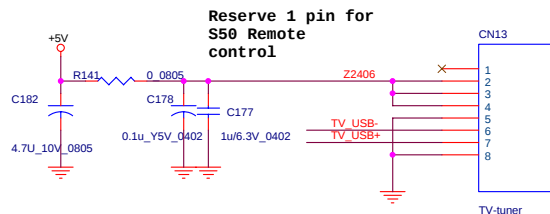
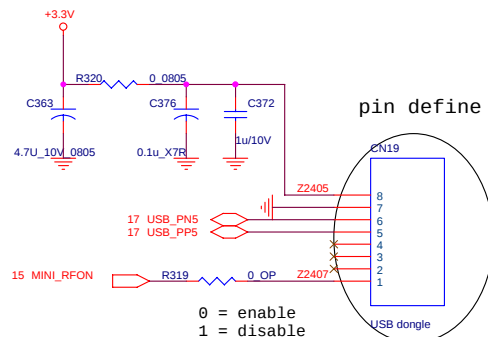
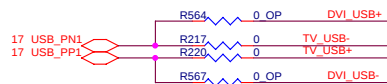
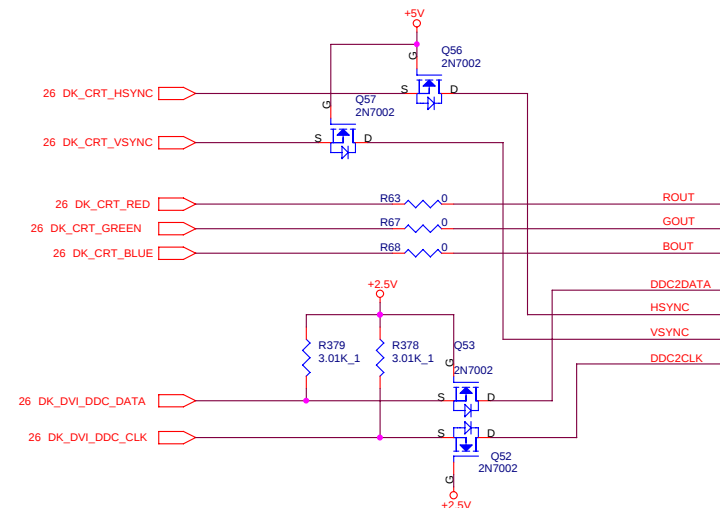
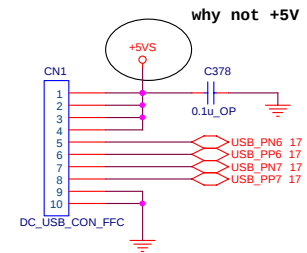
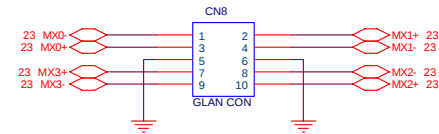
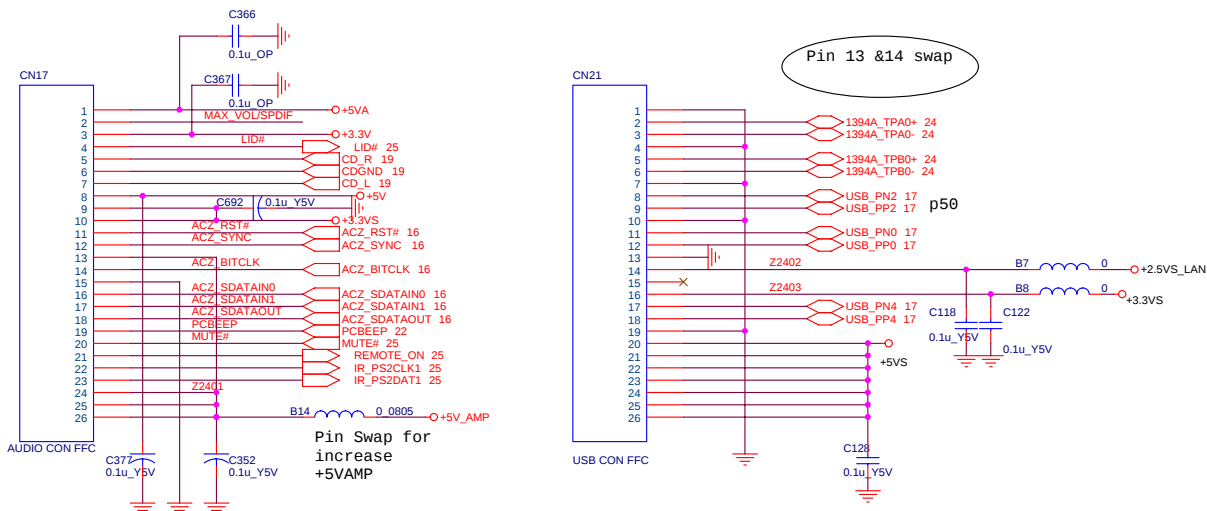
Intel PRO/Wireless 2100 LAN

|       |                   |                     |                                            |                                                                                                   |
|-------|-------------------|---------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------|
| PIN11 | LED_WLAN_LINK     | Hi(3.3V)<br>Low(0V) | SG110 ON<br>5 Flash/3 sec<br>LED OFF       | Associated AP<br>Not Associated with an AP<br>Power OFF or RF_Kill active                         |
| PIN12 | LED_WLAN_ACT      | Hi(3.3V)<br>Low(0V) | Rapid Blinking<br>Slow Blinking<br>LED OFF | Passing data traffic to AP<br>Beacon traffic to Ap<br>Power OFF or not activity or RF_Kill active |
| PIN13 | HW_RadioXMIT_OFF# | Hi(3.3V)<br>Low(0V) | Enable<br>Disable                          | Radio transmitter is ON<br>Radio transmitter turn off                                             |

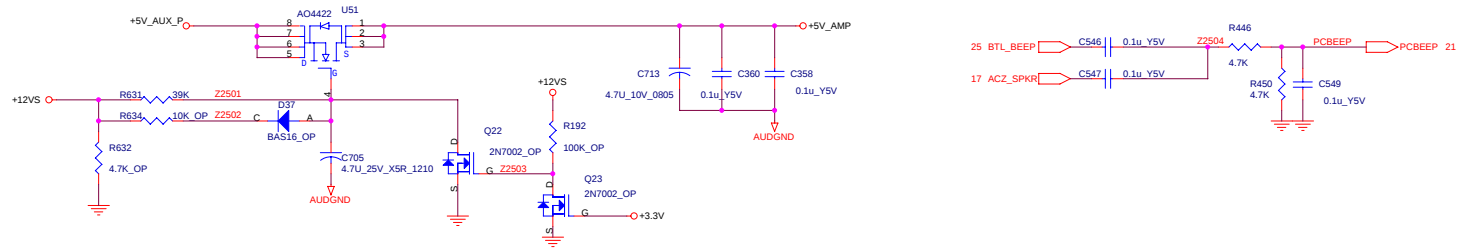


FOR EMI

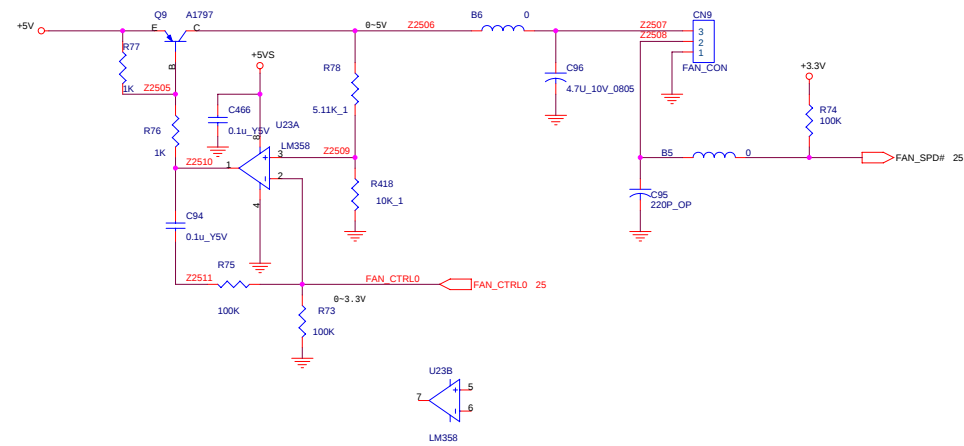




# AMP VDD

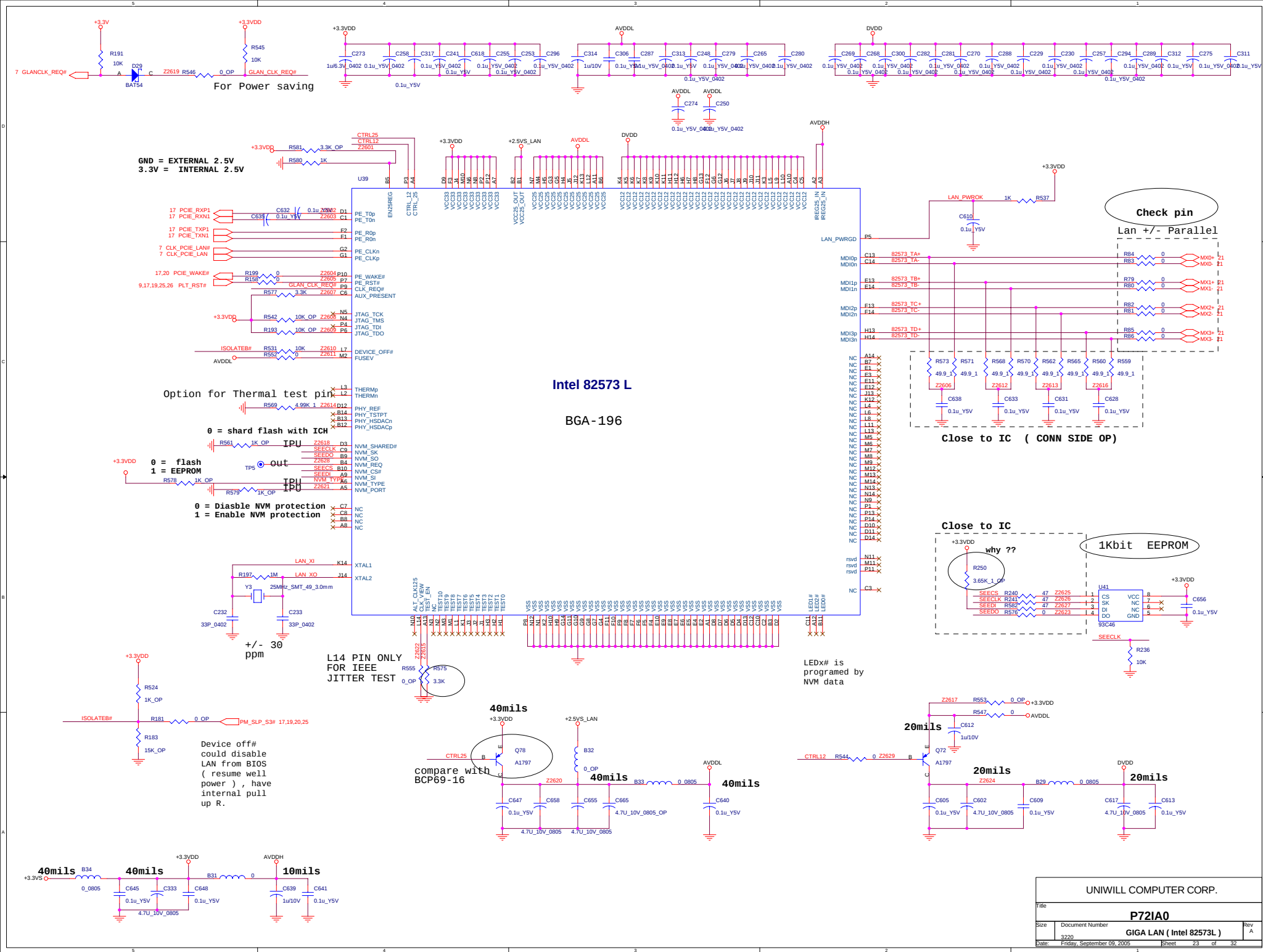


# CPU FAN CONTROL



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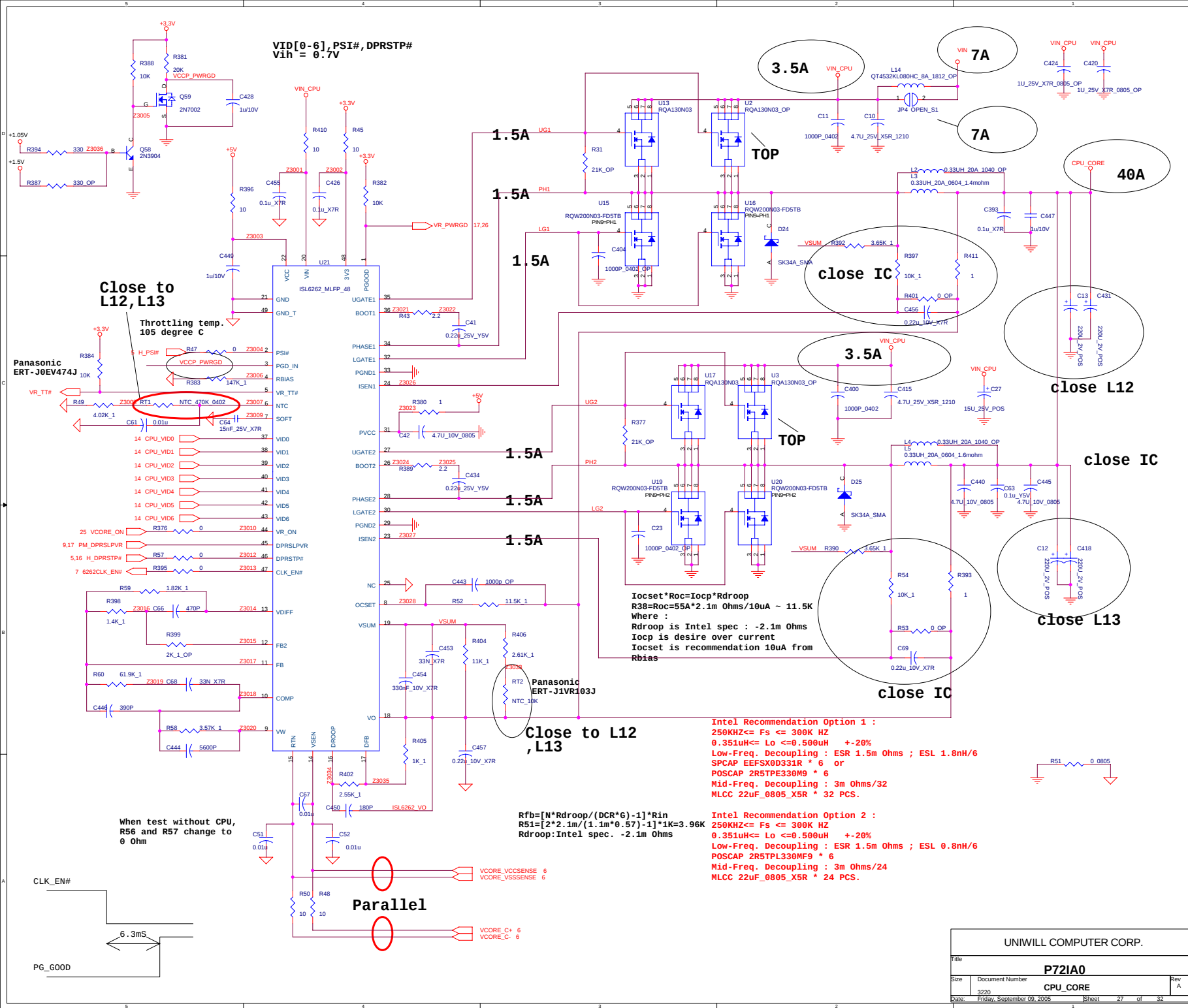
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|--------|----------------------------|-------|----------|
| P72IA0 |                            |       |          |
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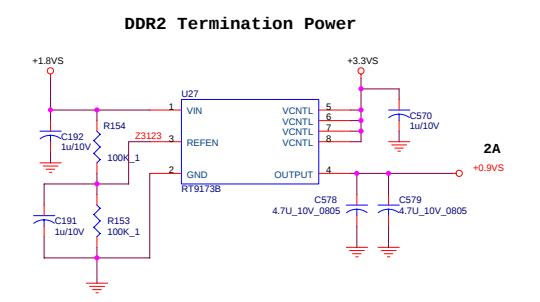
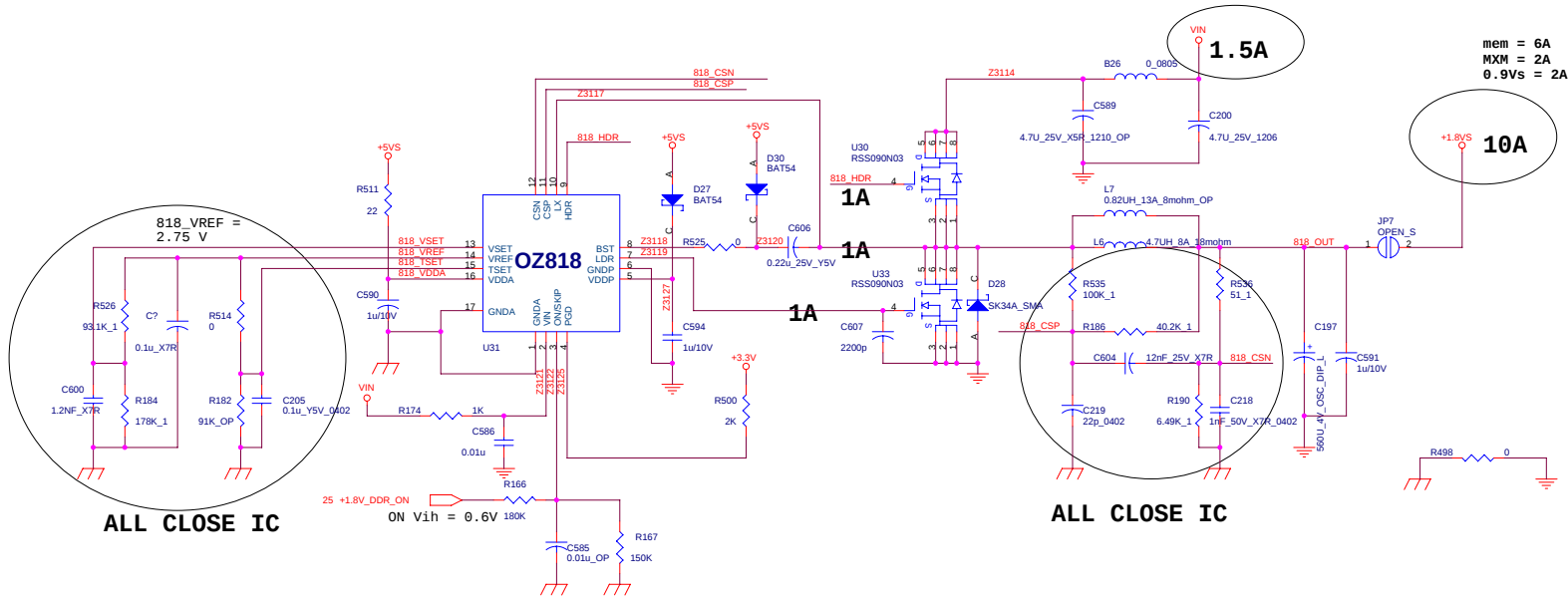
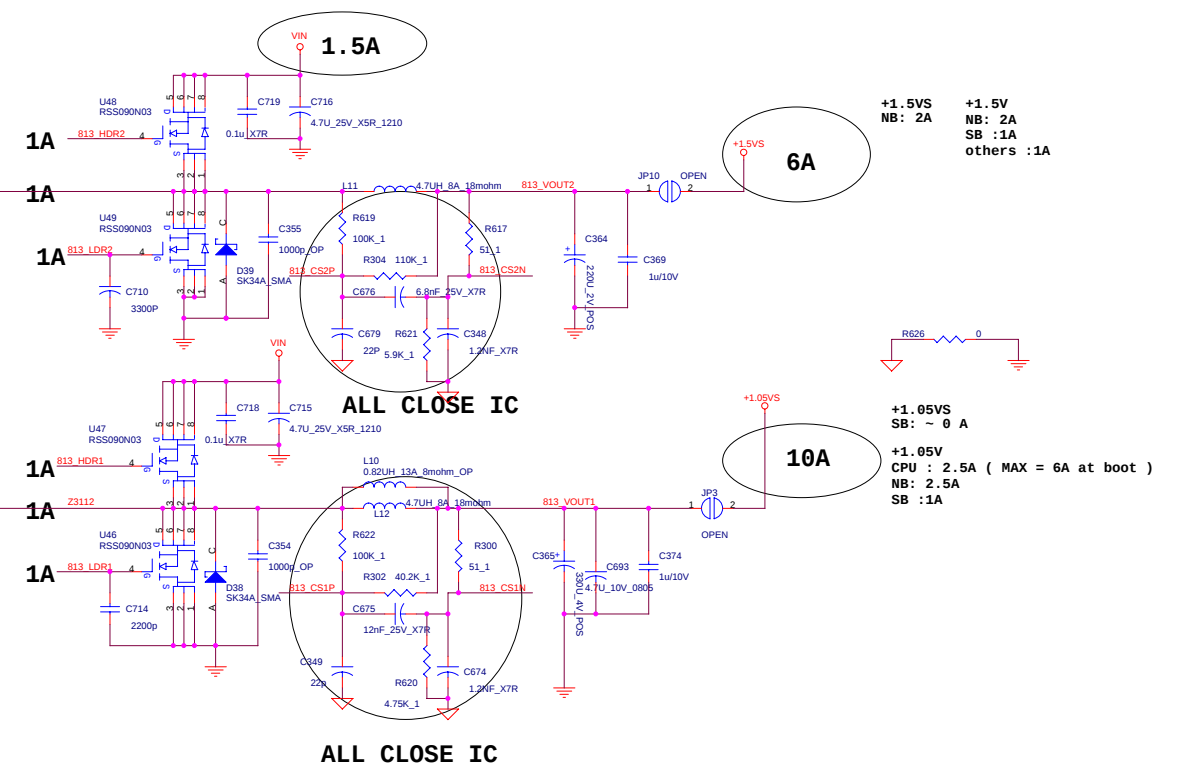
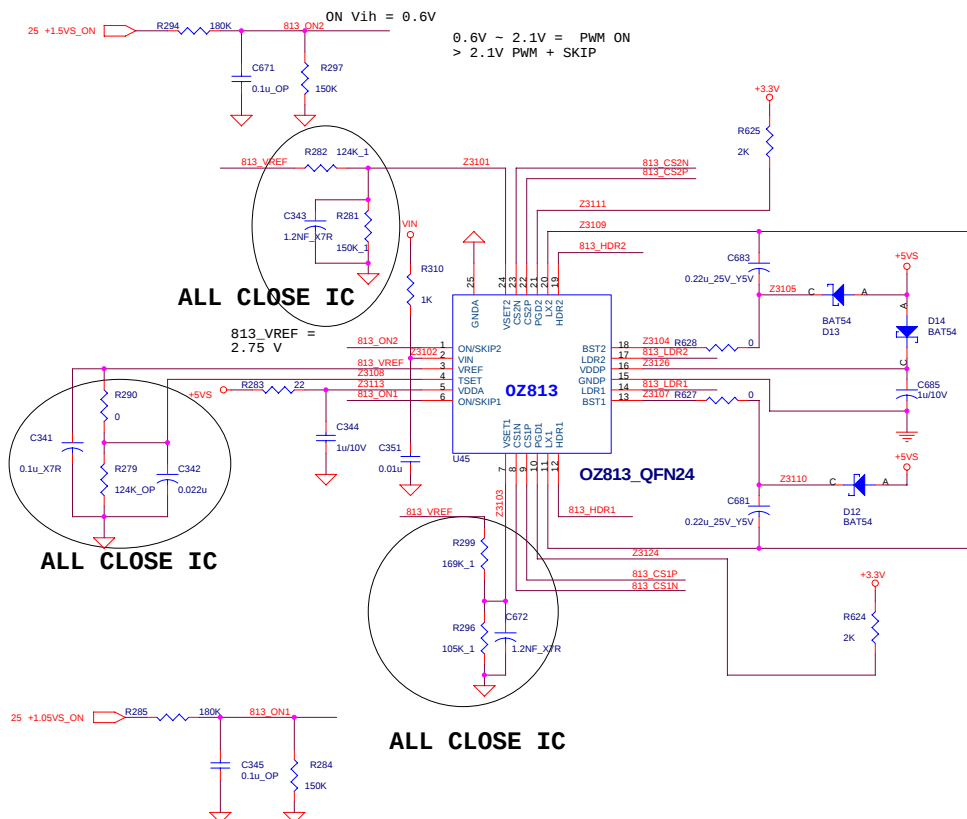




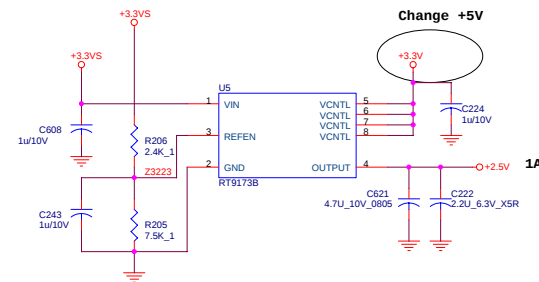
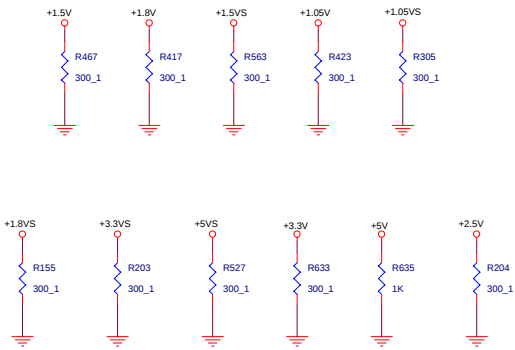
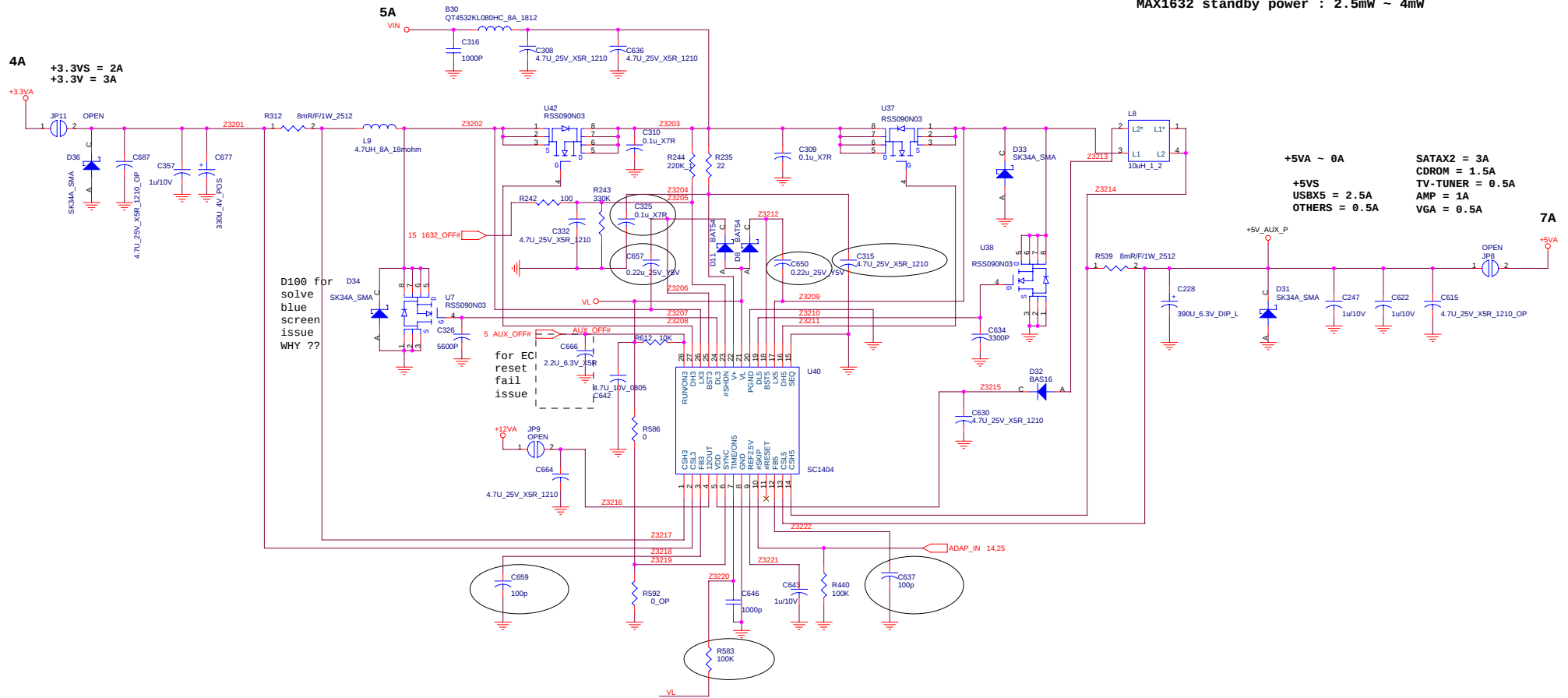








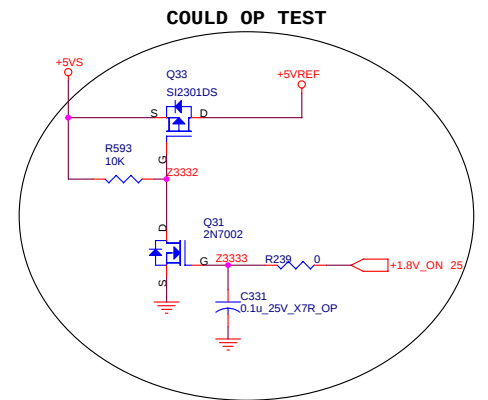
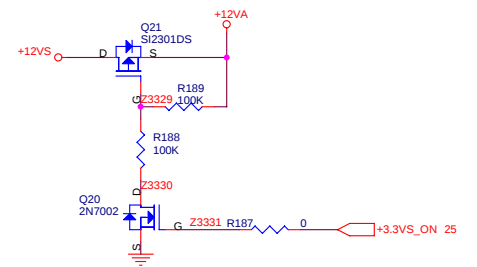
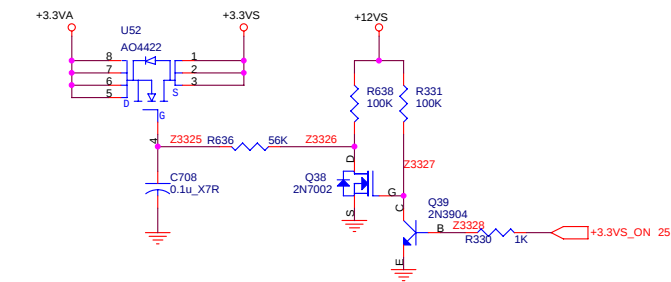
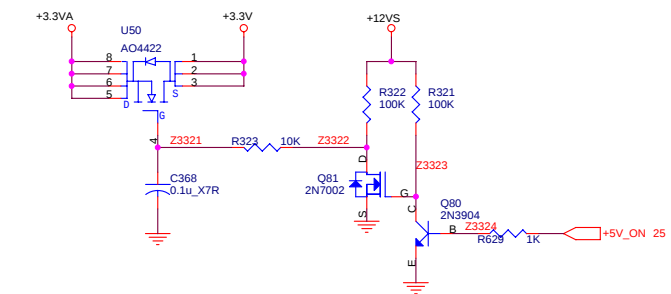
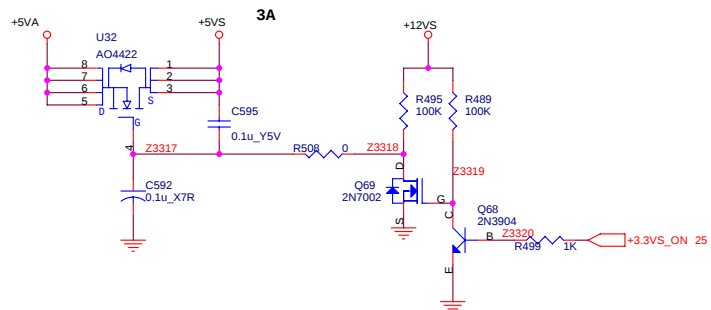
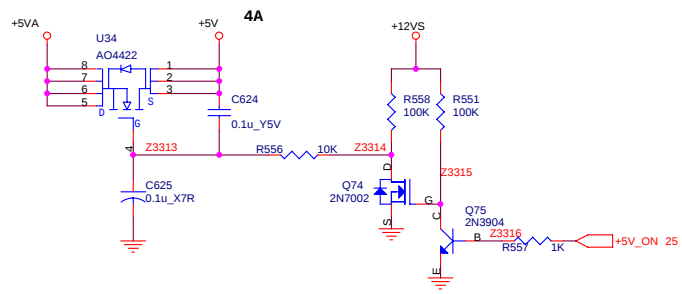
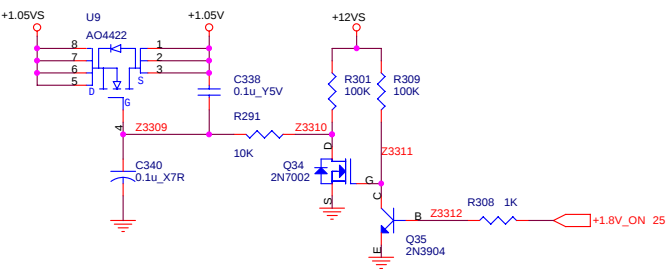
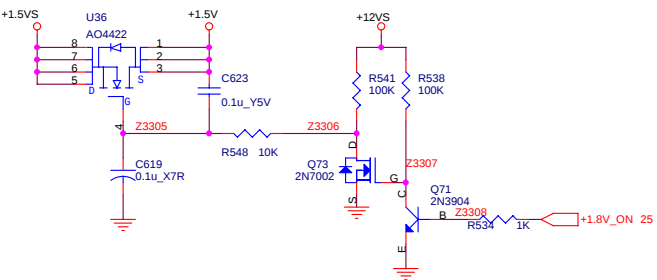
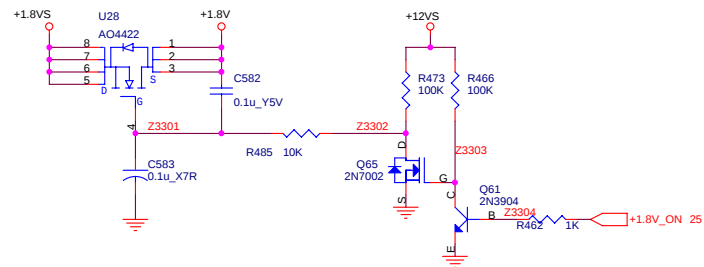
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| P721A0                 |                            |       |          |
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|            | MAX1632<br>MAX1902 | SC1404    |
|------------|--------------------|-----------|
| C637       | 0                  | 100pF     |
| C659       | 0                  | 100pF     |
| R583       | 100K_OP            | 100K      |
| R312, R539 | 15mR, 15mR         | 8mR, 8mR  |
| C315       | 0P                 | 4.7U_25V  |
| C325       | 0P                 | 0.1U_25V  |
| C650, C657 | 0.1U_16V           | 0.22U_25V |

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