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H61M06

Fab A

Micro ATX 8.9X6.8

CPU:

Intel Sandy Bridge processors in LGA1155 Package

System Chipset:

PCH

Main Memory:

Dual Channel / DDR-III * 2 (Max 8GB)

On Board Device:

SIO: IT8772

LAN: RelTek RTL8111F/8105E

HDA Codec: ALC662

BIOS:SPI Flash ROM 4Mbyte

Expansion Slots:

PCI EXPRESS 16X SLOT *1

PCI EXPRESS 1X SLOT * 2

H61MXE-S

USB3+RTL8111F+POWER MOS+Solid CAP

H61MXE

RTL8111F

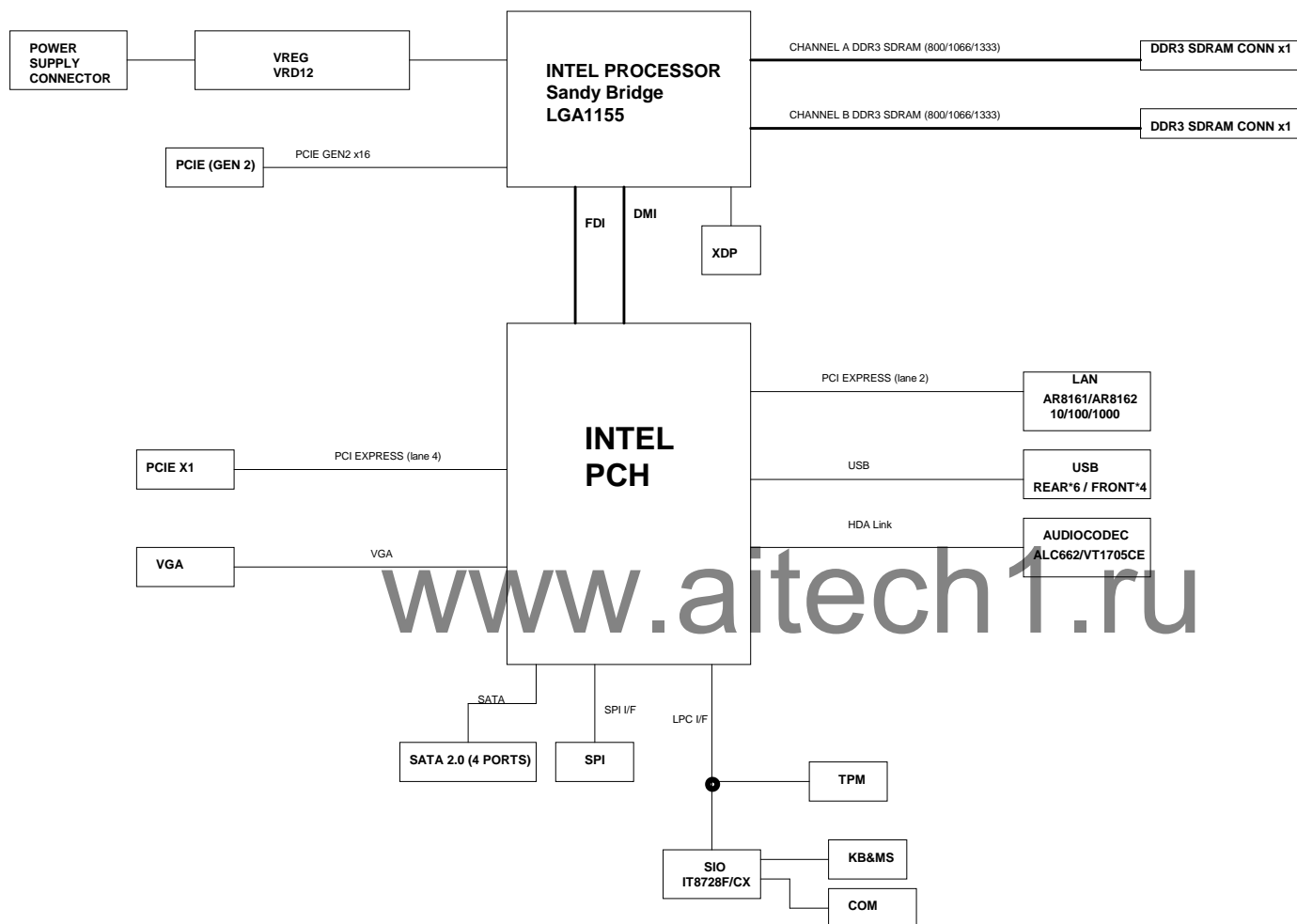
H61MXE-V

RTL8105E

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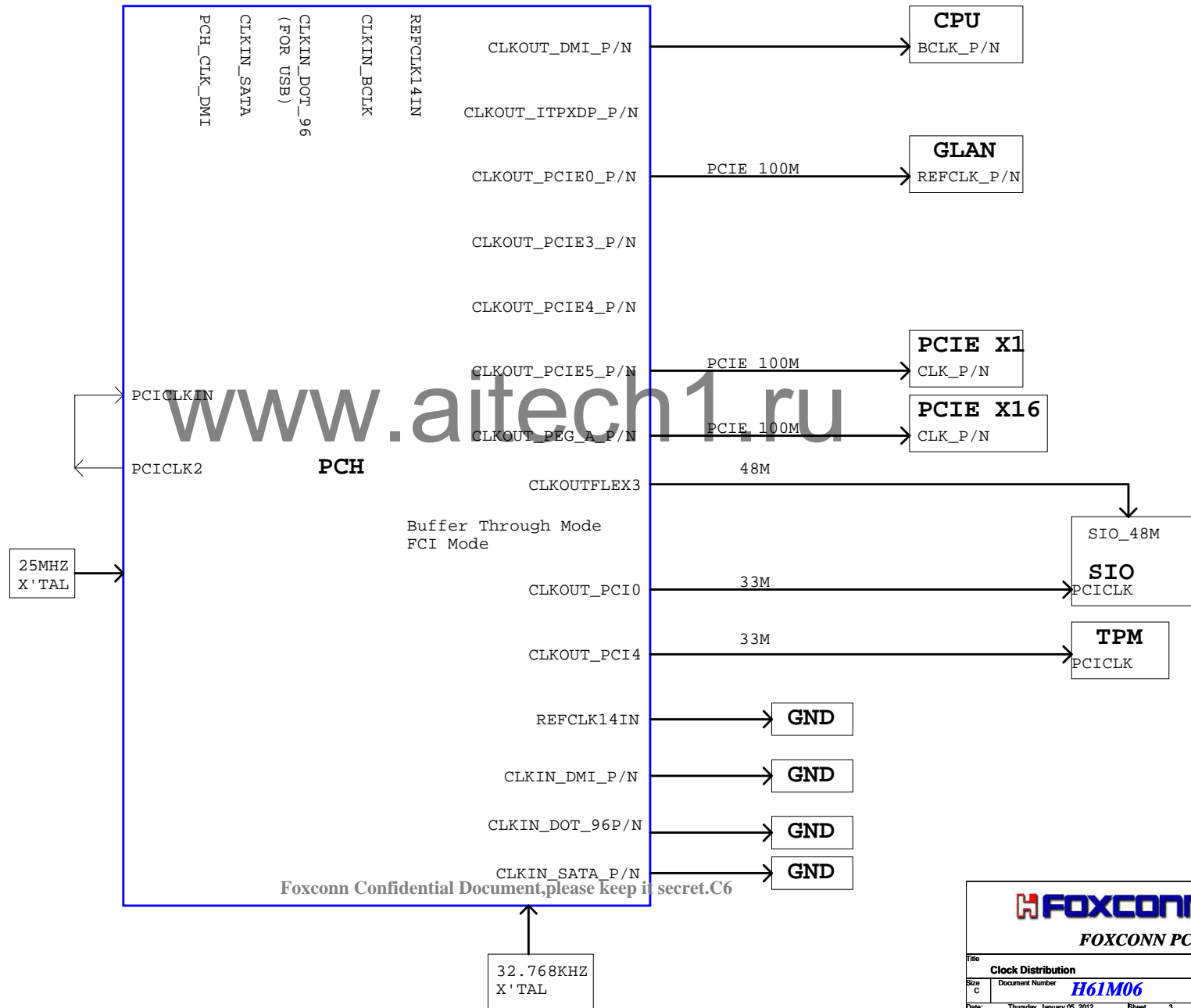
| | | |
|--|----------------------------|---------------|
|  FOXCONN PCEG | | |
| Title | | |
| Cover Sheet | | |
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BLOCK DIAGRAM

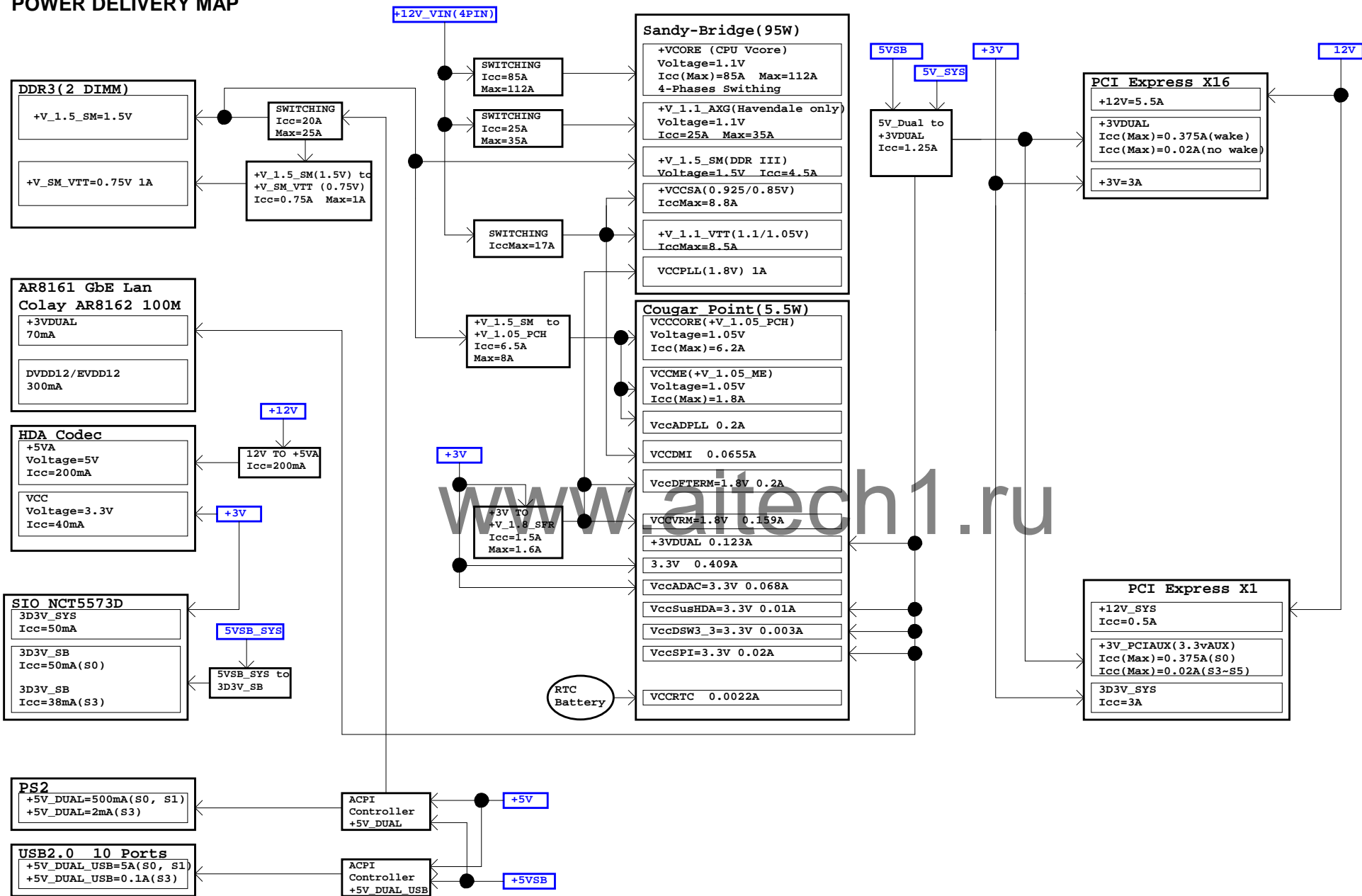


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|  FOXCONN PCEG | |
| Title | |
| Block Diagram | |
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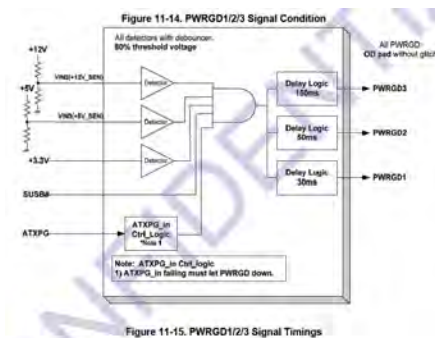
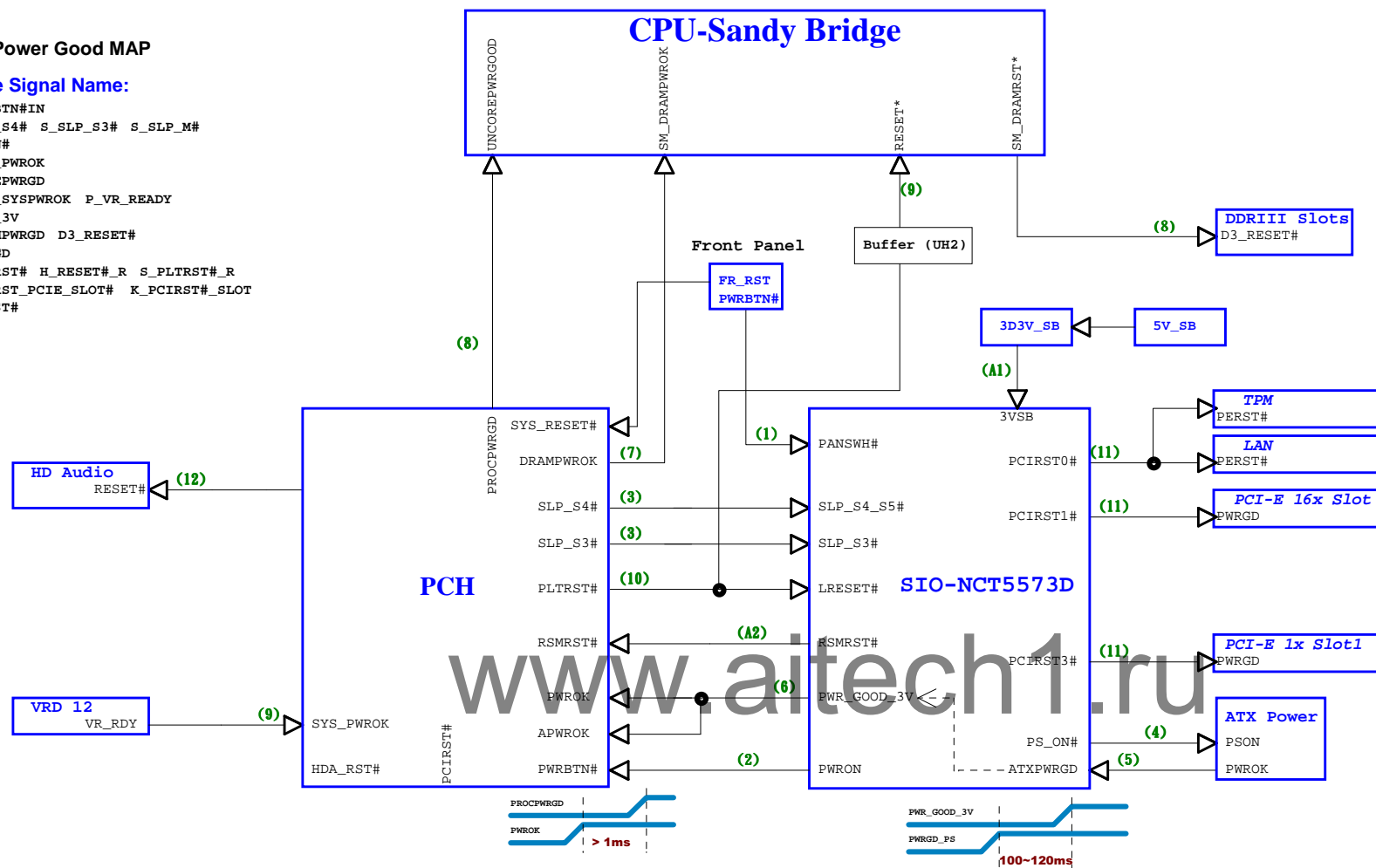
POWER DELIVERY MAP



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Sequence Signal Name:

- ```
(1) O_PWRBTN#IN
(2) S_SLP_S4# S_SLP_S3# S_SLP_M#
(3) O_PSON#
(4) B_ATX_PWROK
(5) PCH_MEPWRGD
(6) S_PCH_SYSPWROK P_VR_READY
(7) PWROK_3V
(8) H_DRAMPWRGD D3_RESET#
(9) H_PWRGD
(10) S_PLTRST# H_RESET# R S_PLTRST#_R
(11) X_PLTRST_PCIE_SLOT# K_PCIEST#_SLOT
(12) A_Z_RST#
```



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**FOXCONN PCEG**

|                  |                            |       |         |
|------------------|----------------------------|-------|---------|
| Title            |                            |       |         |
| Reset/power good |                            |       |         |
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IRQ Routing Table

|       | INTA# | INTB# | INTC# | INTD# | IDSEL | REQn# | GNTn# |
|-------|-------|-------|-------|-------|-------|-------|-------|
| Slot1 | A     | B     | C     | D     | 16    | 0     | 0     |

|       | INTA# | INTB# | INTC# | INTD# | IDSEL | REQn# | GNTn# |
|-------|-------|-------|-------|-------|-------|-------|-------|
| Slot2 | B     | C     | D     | A     | 17    | 2     | 2     |

STRAPPING Table

CPU side

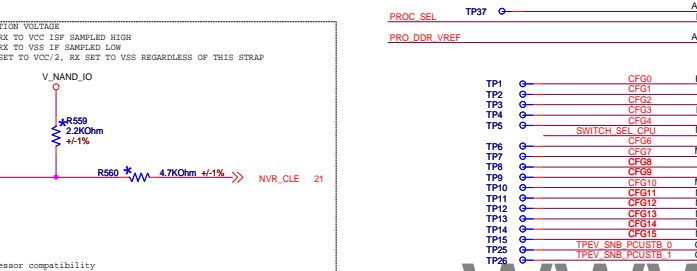
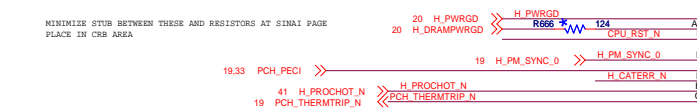
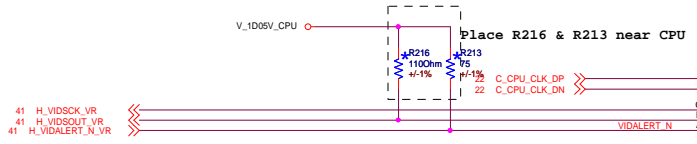
| CFG[17:0] | Description                                    |                                                                                                        |
|-----------|------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| [2]       | PCI Express static x16 lane numbering reversal | 1: normal <b>Default</b><br>0: lane numbers reversed                                                   |
| [6:5]     | PCI Express Bifurcation                        | 00: 1x8, 2x4 PCI Express<br>01: reserved<br>10: 2x8 PCI Express<br>11: 1x16 PCI Express <b>Default</b> |

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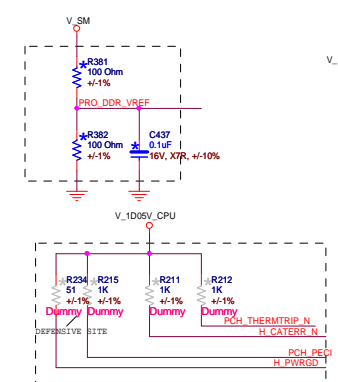
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**FOXCONN PCEG**

|                                                     |                                  |          |
|-----------------------------------------------------|----------------------------------|----------|
| Title<br><b>STRAP</b>                               |                                  |          |
| Size<br>C                                           | Document Number<br><b>H61M06</b> | Rev<br>A |
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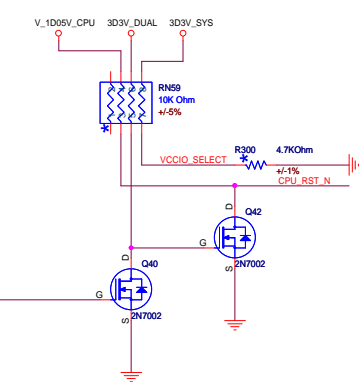
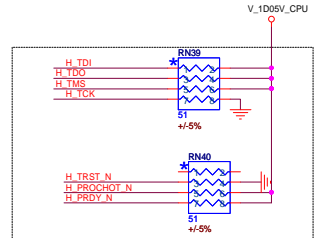
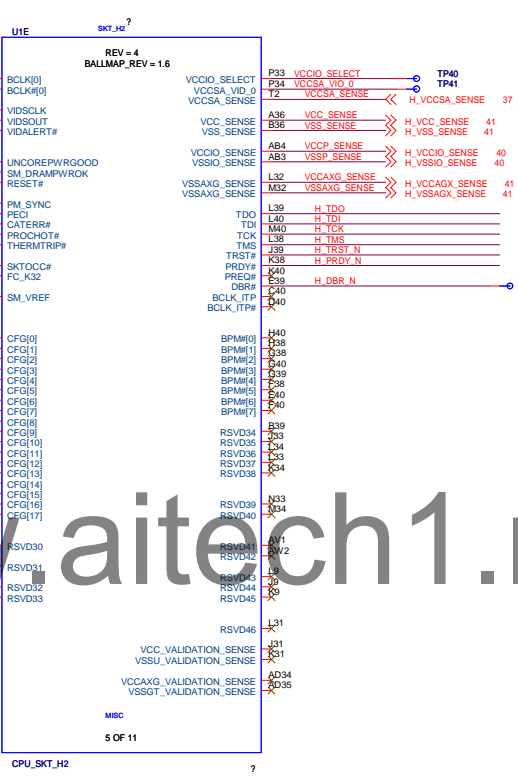
PLACE R381, R382, C437 IN SOCKET CAVITY



PLACE TDO TERMINATION  
NEAR XDP CONNECTOR

TERMINATION IDEALLY TO BE  
PLACED PLACE CLOSE TO EACH OTHER TO REDUCE STUB  
NEXT TO IT OR WITHIN 1.5 OF CPU.

PLACE TRST\* TERMINATION  
ANYWHERE ON ROUTE.



Need to be double checked.

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**FOXCONN**

**FOXCONN PCEG**

File  
**CPU1-MSIC**

Size  
C

Document Number  
**H61M06**

Rev  
A

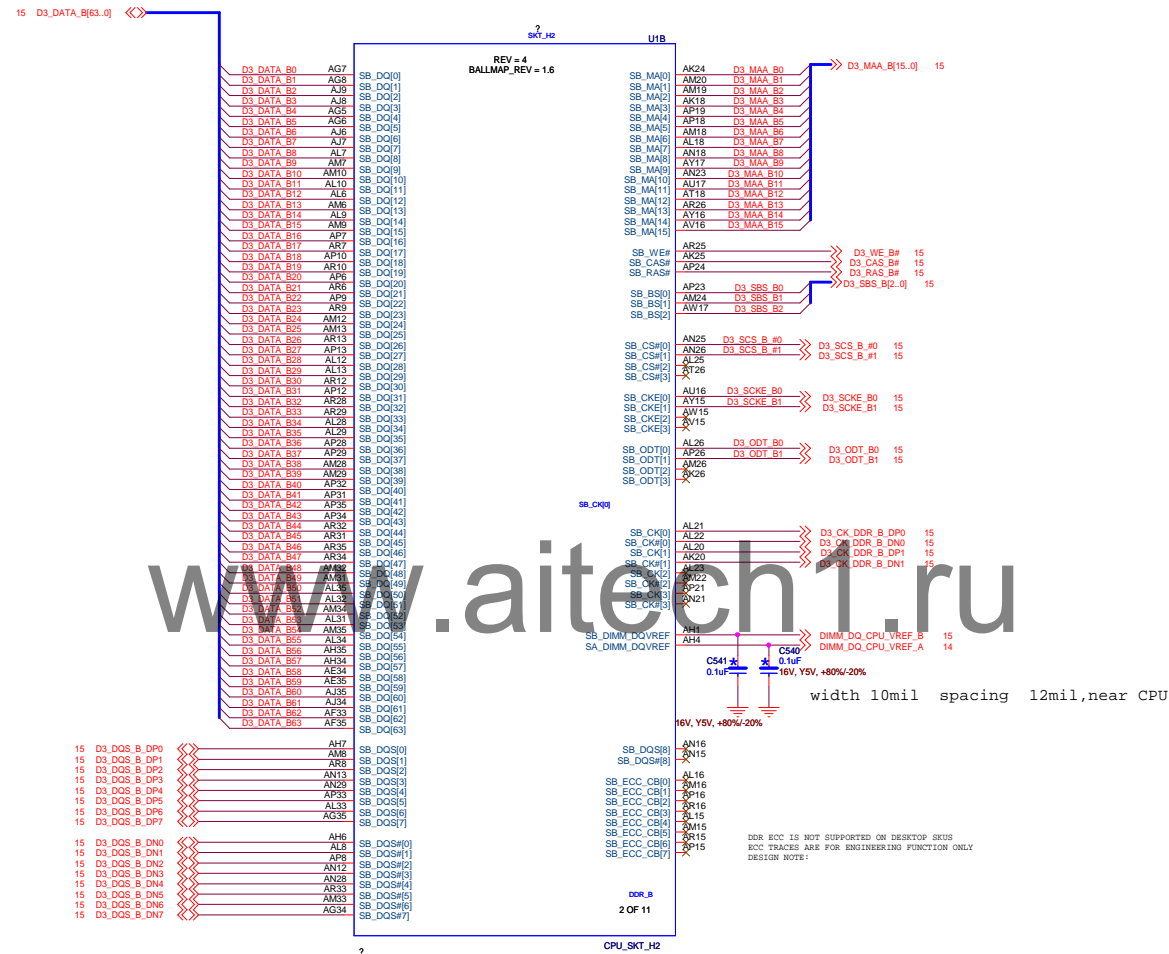
Date  
Thursday, January 05, 2012

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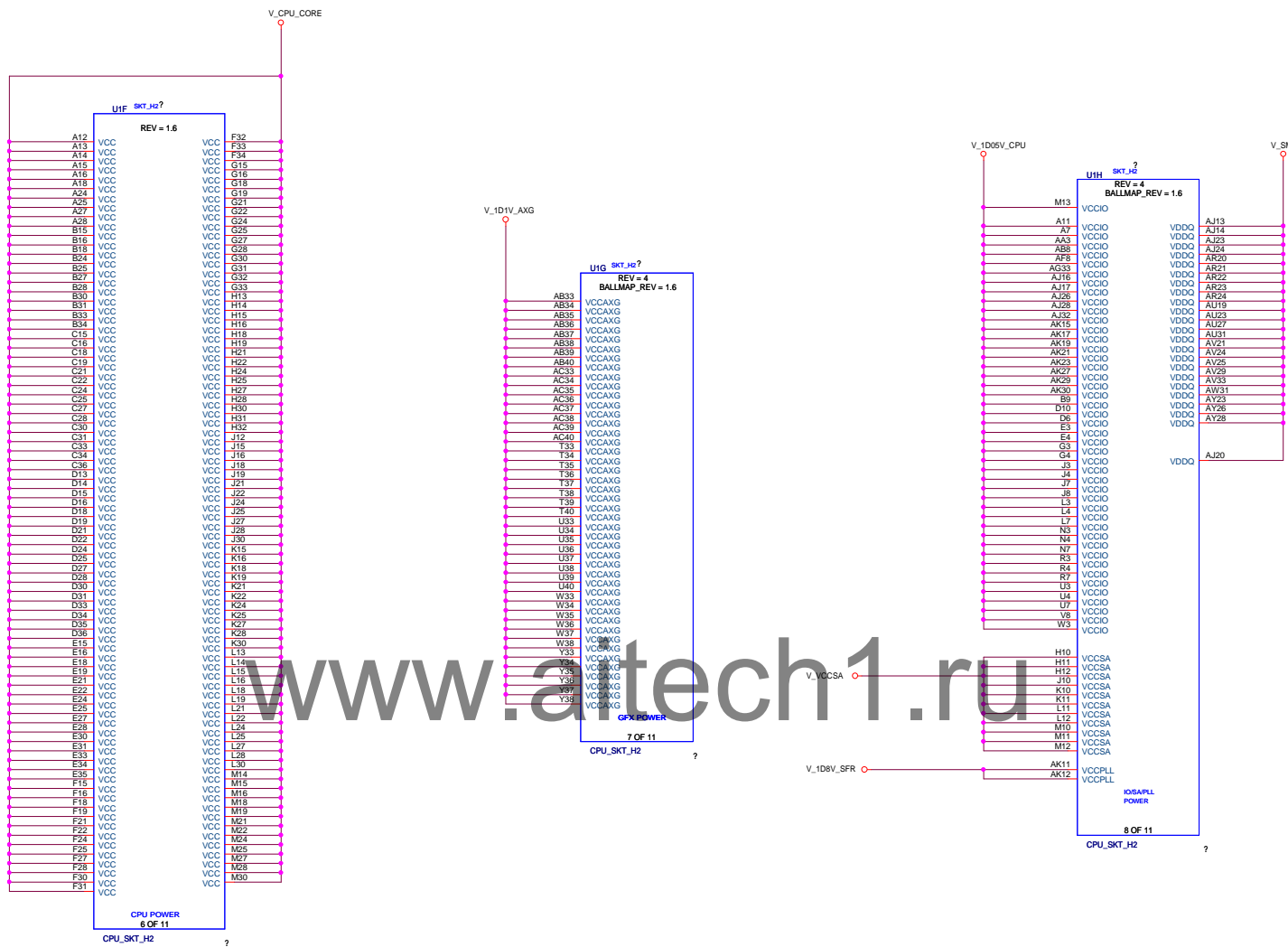




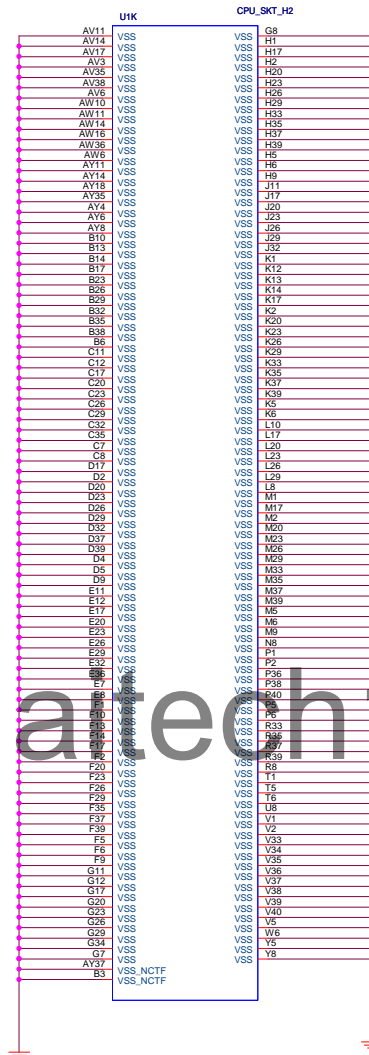
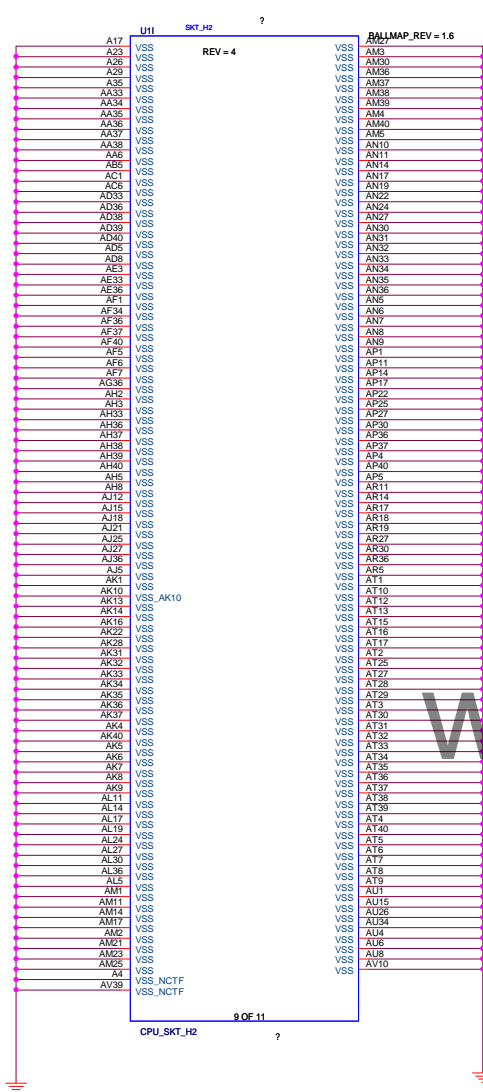




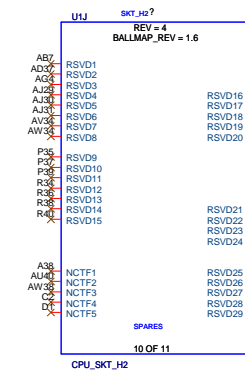
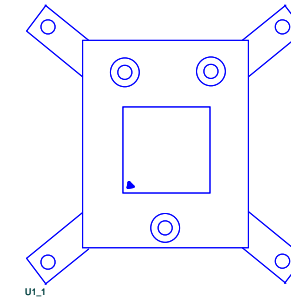
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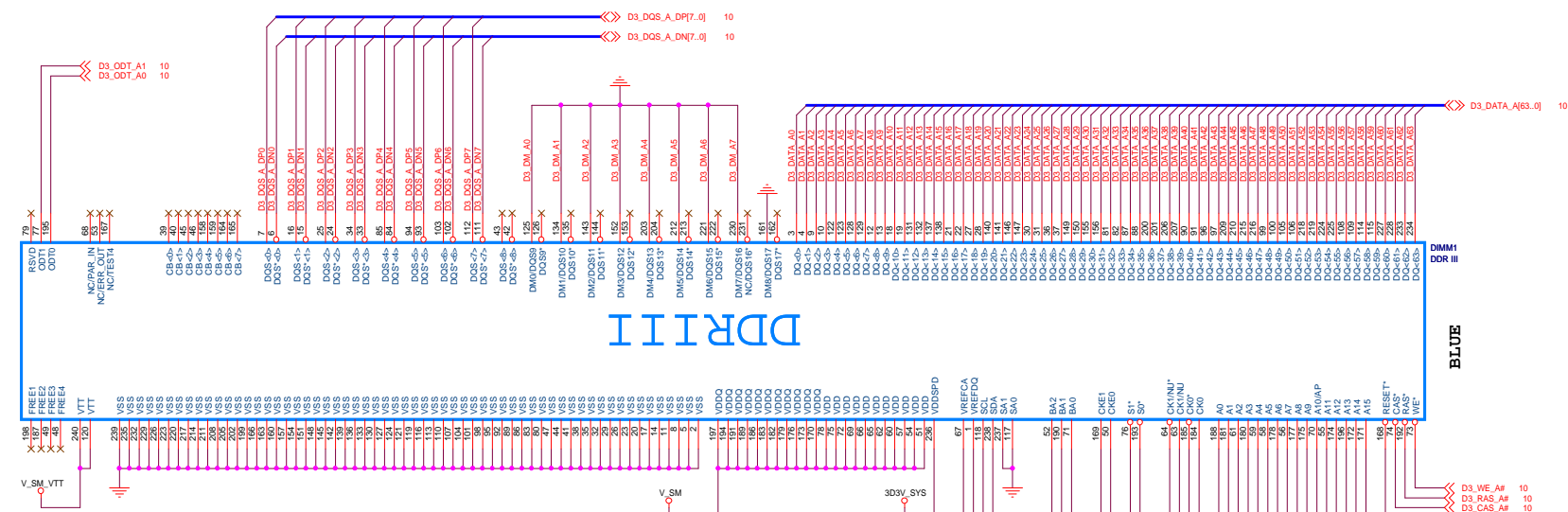
Fab 1.0



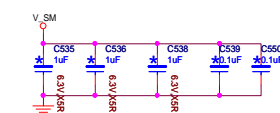
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|                                                      |                                  |          |
|------------------------------------------------------|----------------------------------|----------|
|                                                      |                                  |          |
| <b>FOXCONN PCEG</b>                                  |                                  |          |
| Title<br><b>CPU6-GND</b>                             |                                  |          |
| Size<br>C                                            | Document Number<br><b>H61M06</b> | Rev<br>A |
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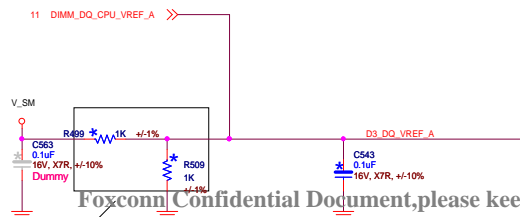
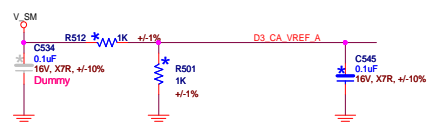
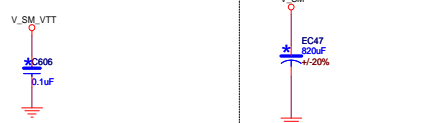
CHANNEL A DIMM 1  
SMB ADDRESS:000



CLOSE TO DIMM POWER PIN

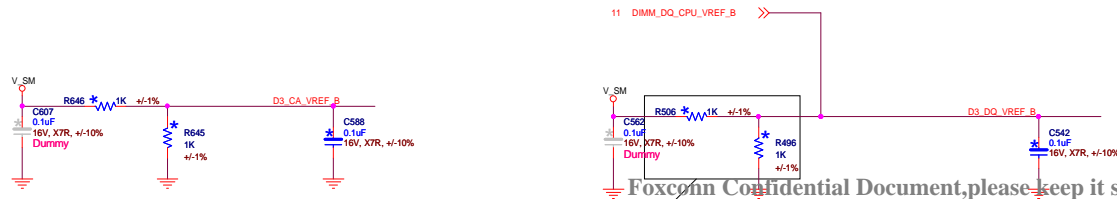
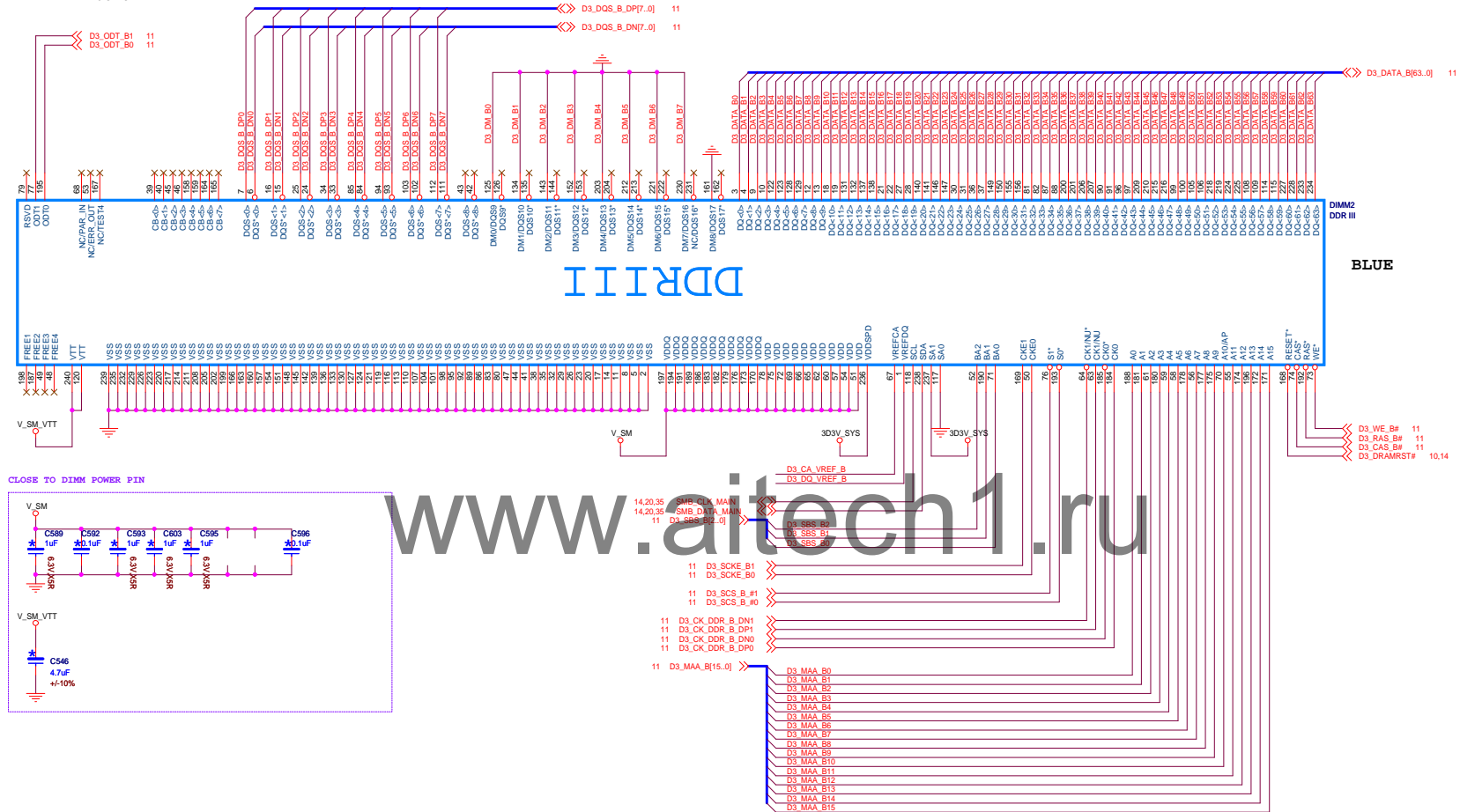


PLACE BETWEEN DIMM1 AND  
CPU



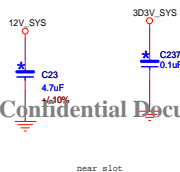
PLACE RESISTORS CLOSE TO CH\_A DIMMS  
ON DIMM\_VREF\_A


CHANNEL B DIMM 3  
SMB ADDRESS:010



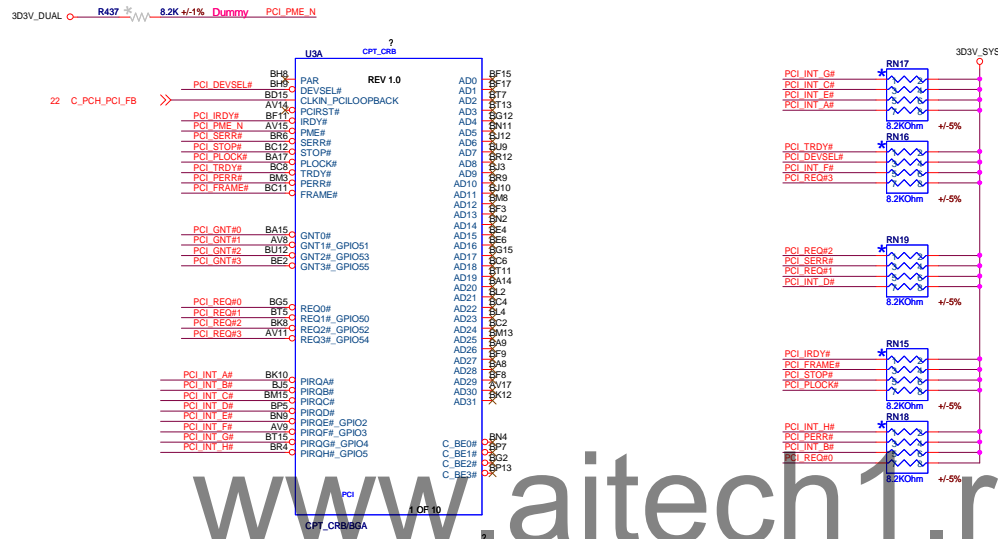
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PLACE RESISTORS CLOSE TO CH\_B DIMMS  
ON DIMM\_VREF\_B



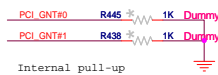
|                                                                                                                  |                            |       |    |       |
|------------------------------------------------------------------------------------------------------------------|----------------------------|-------|----|-------|
|  <p><b>FOXCONN PCEG</b></p> |                            |       |    |       |
| Title                                                                                                            |                            |       |    |       |
| PCIE X16/X1                                                                                                      |                            |       |    |       |
| Size                                                                                                             | Document Number            |       |    | Rev   |
| C                                                                                                                | H61M06                     |       |    | A     |
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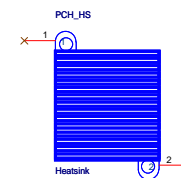
STRAP: Boot BIOSselect check whether GNT1 or SATA1GP(GPIO19)

| BOOT DEVICE | GNT1 | SATA1GP |
|-------------|------|---------|
| LPC         | 0    | 0       |
| NAND        | 0    | 1       |
| PCI         | 1    | 0       |
| SPI         | 1    | 1       |




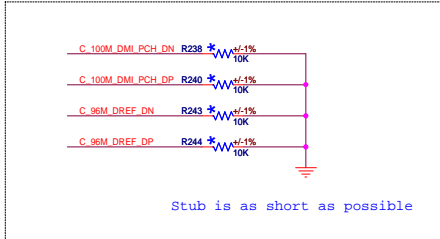
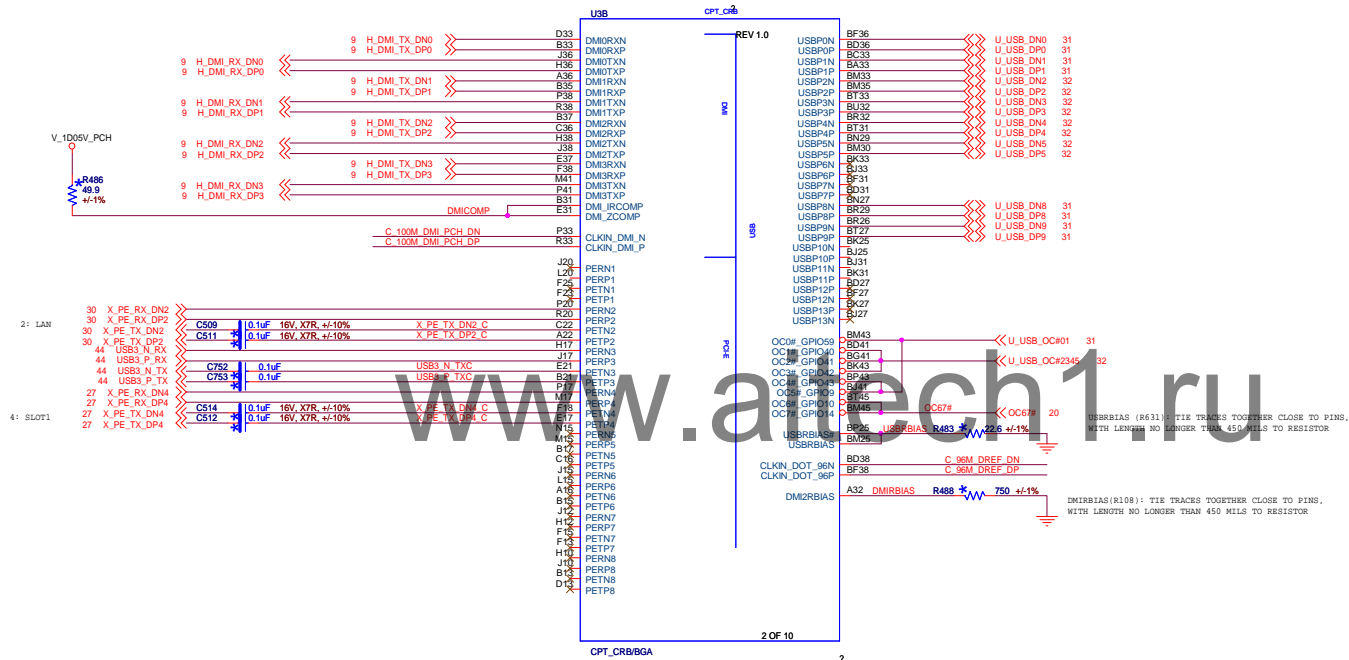
DG 0.7  
GNT3 is top block swap mode:  
connect to ground with 4.7k ohm weak  
pull down resistor for top block swap mode

GNT2#/GPIO53:ESI strap for server platform  
ONLY.Do not pull low.




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|                                                                                                              |                                  |          |
|--------------------------------------------------------------------------------------------------------------|----------------------------------|----------|
| <br><b>FOXCONN PCEG</b> |                                  |          |
| Title<br><b>PCH1-PCI</b>                                                                                     |                                  |          |
| Size<br>C                                                                                                    | Document Number<br><b>H61M06</b> | Rev<br>A |
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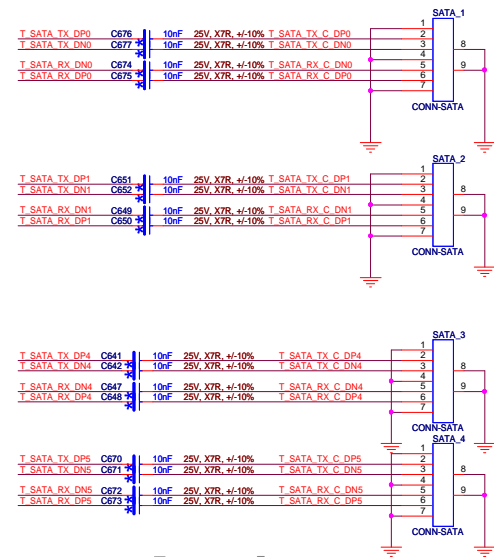
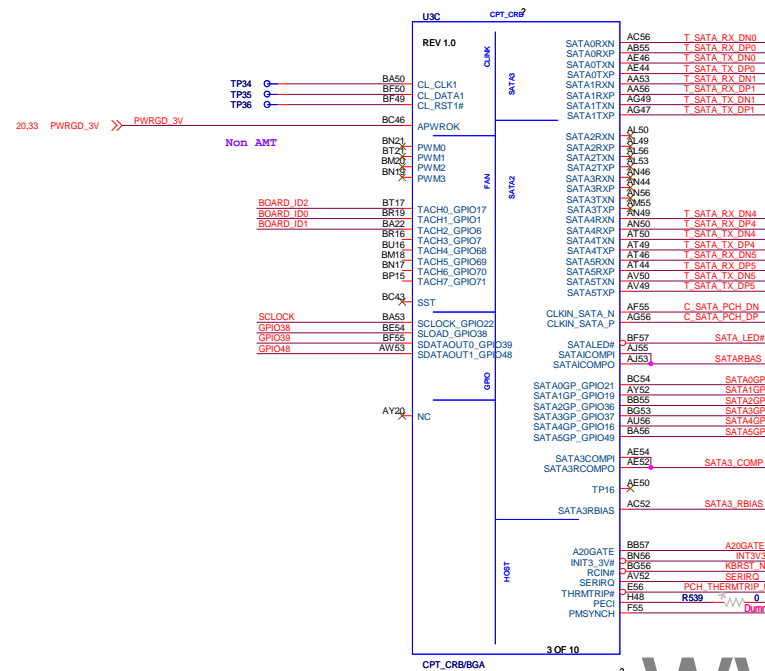


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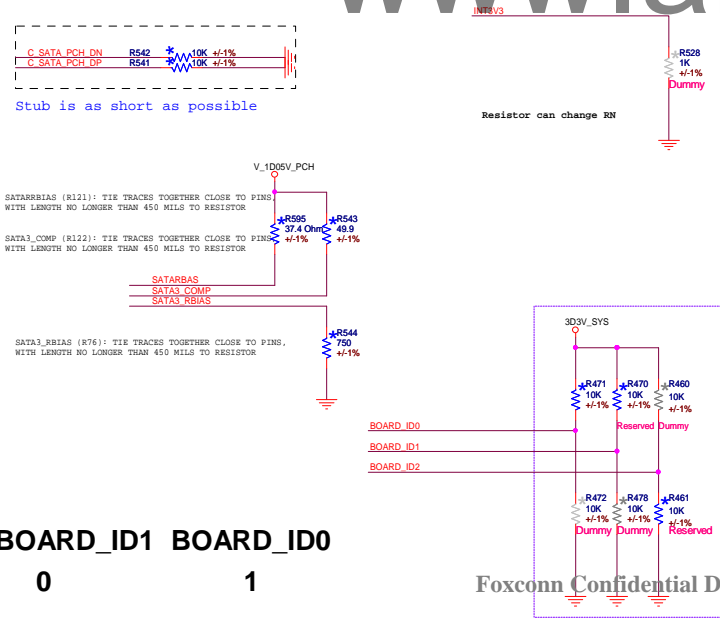


**FOXCONN PCEG**

|                                                      |                                  |          |
|------------------------------------------------------|----------------------------------|----------|
| Title<br><b>PCH2-DMI/PCIE/USB</b>                    |                                  |          |
| Size<br>C                                            | Document Number<br><b>H61M06</b> | Rev<br>A |
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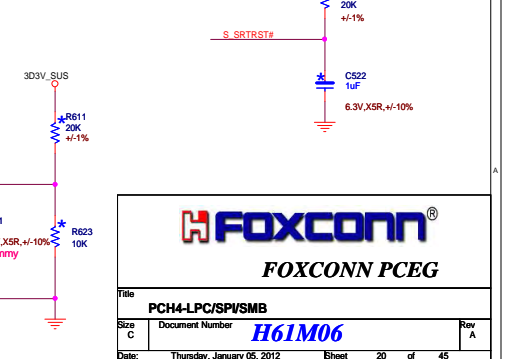
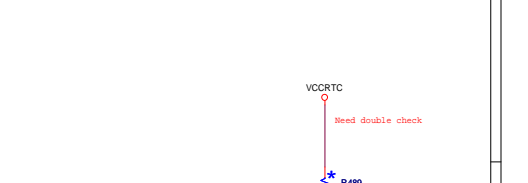
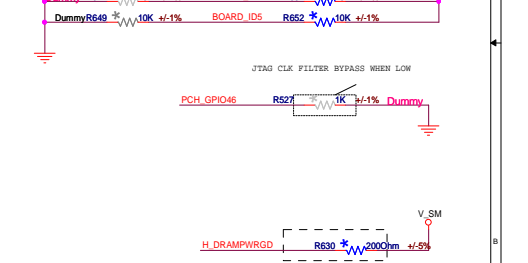
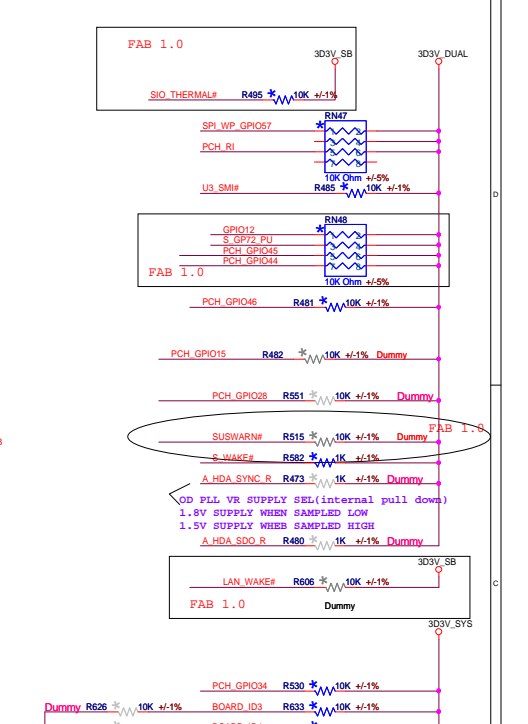
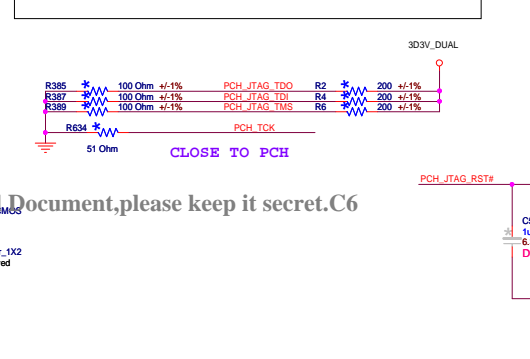
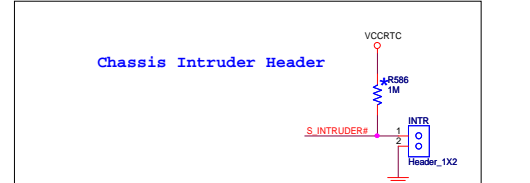
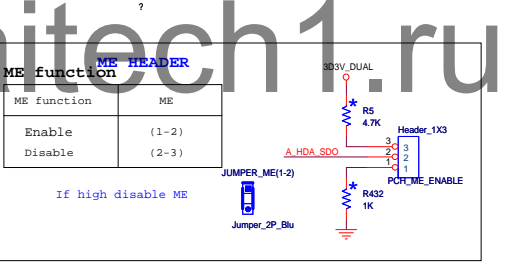
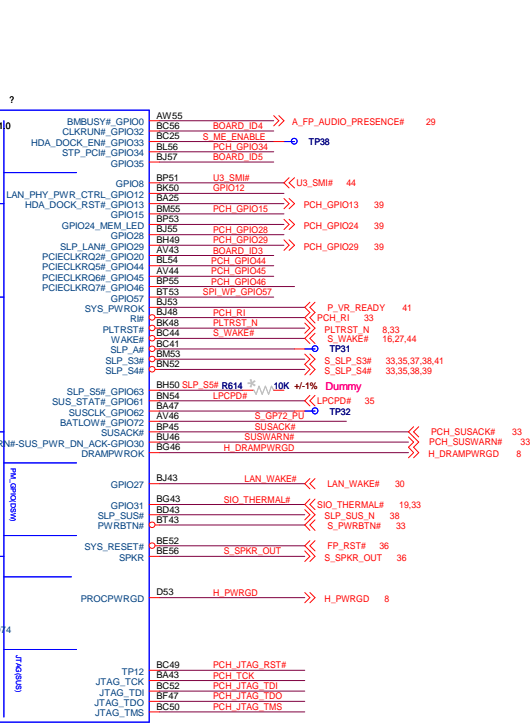
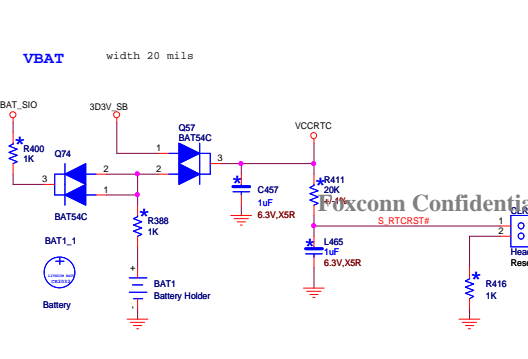
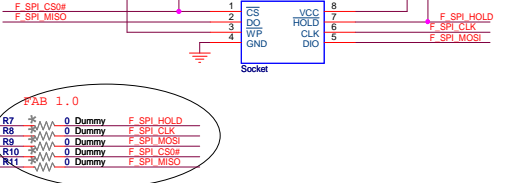
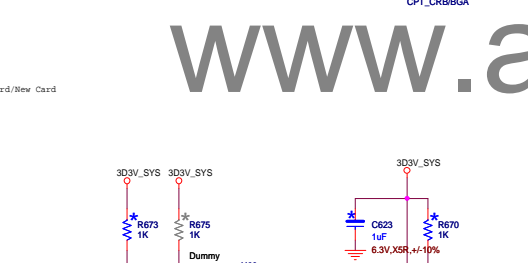
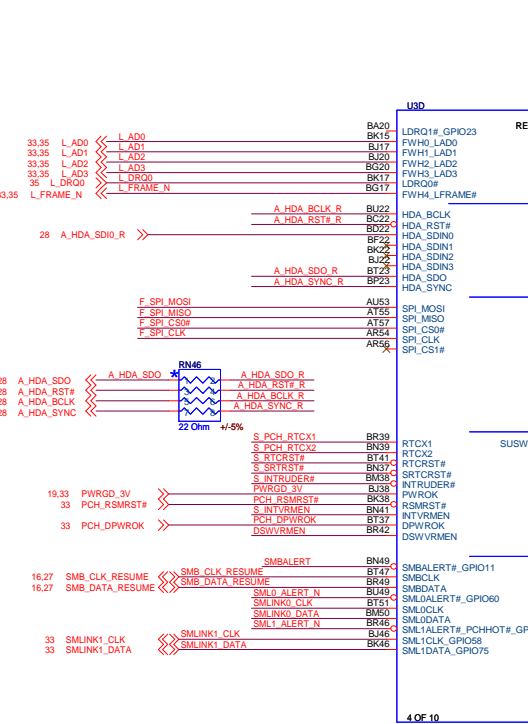
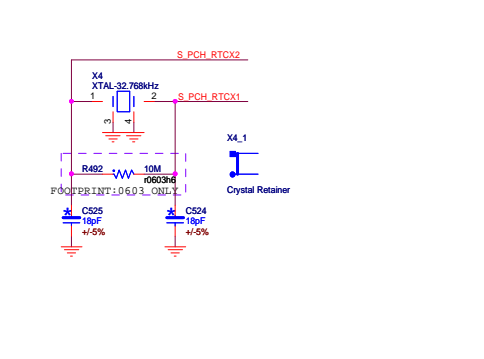
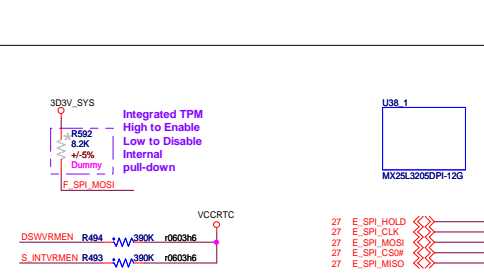
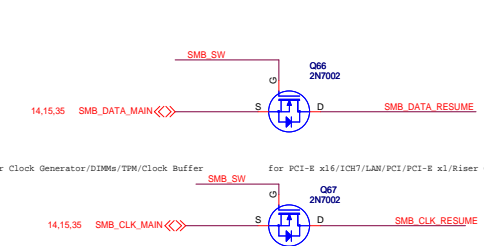
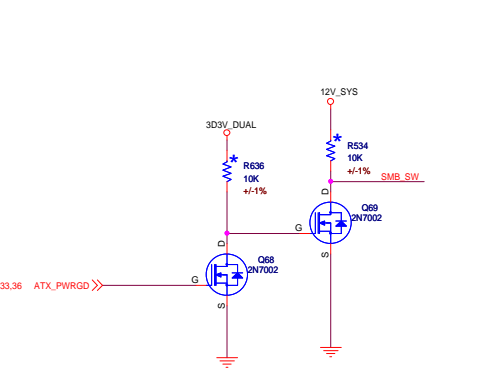
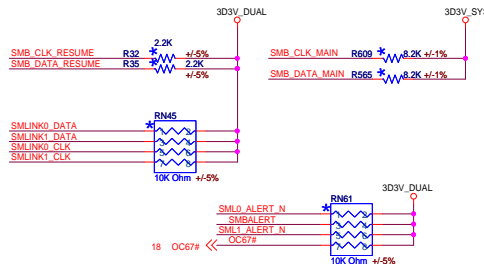
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|          | BOARD_ID2 | BOARD_ID1 | BOARD_ID0 |
|----------|-----------|-----------|-----------|
| H61MXE-S | 0         | 0         | 1         |
| H61MXE   | 0         | 1         | 0         |
| H61MXE-V | 0         | 1         | 1         |

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|                                  |                                |        |
|----------------------------------|--------------------------------|--------|
|                                  |                                |        |
| <b>FOXCONN PCEG</b>              |                                |        |
| <b>PCH3-SATA/Host</b>            |                                |        |
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### ME function

| ME function | ME    |
|-------------|-------|
| Enable      | (1-2) |
| Disable     | (2-3) |

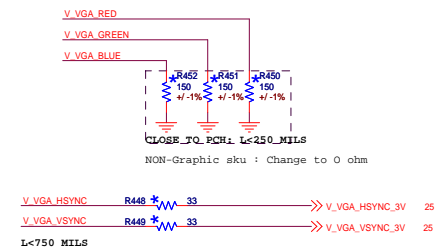
If high disable ME

### Chassis Intruder Header

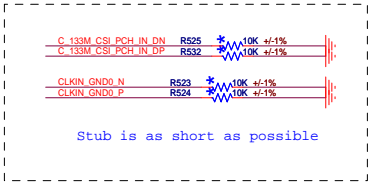
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|       |                            |                  |          |
|-------|----------------------------|------------------|----------|
| Title |                            | PCHA-LPC/SPI/SMB |          |
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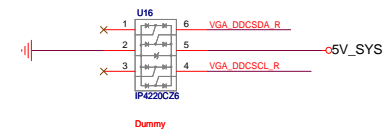


|                                                                                                              |                            |               |          |
|--------------------------------------------------------------------------------------------------------------|----------------------------|---------------|----------|
| <br><b>FOXCONN PCEG</b> |                            |               |          |
| Title                                                                                                        |                            |               |          |
| <b>PCH8-CLOCK</b>                                                                                            |                            |               |          |
| Size                                                                                                         | Document Number            | <b>H61M06</b> | Rev      |
|                                                                                                              |                            |               | <b>A</b> |
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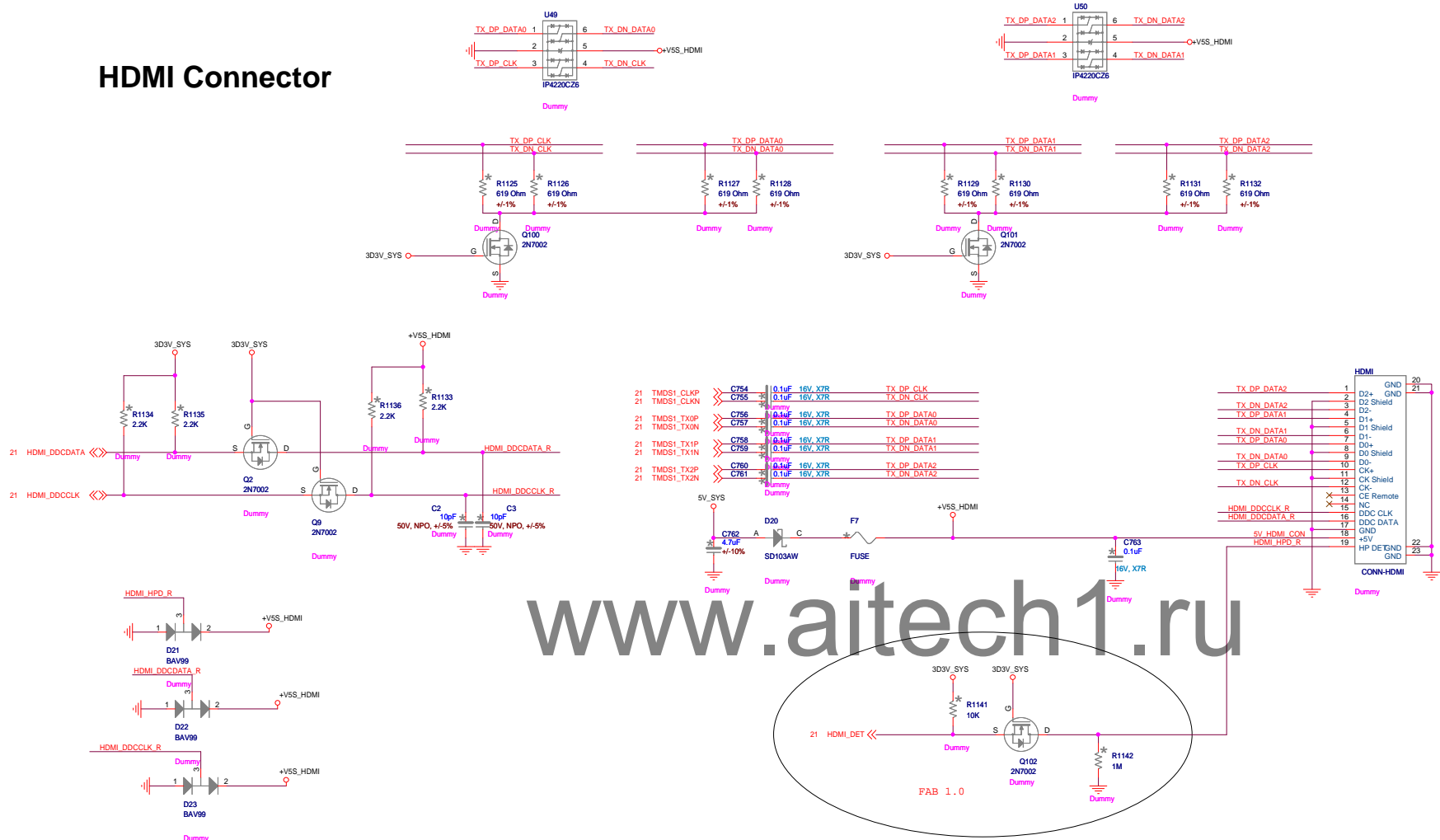






|                                                                                                              |                            |       |          |
|--------------------------------------------------------------------------------------------------------------|----------------------------|-------|----------|
| <br><b>FOXCONN PCEG</b> |                            |       |          |
| File                                                                                                         |                            |       |          |
| VGA                                                                                                          |                            |       |          |
| Size                                                                                                         | Document Number            | Rev   |          |
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# HDMI Connector



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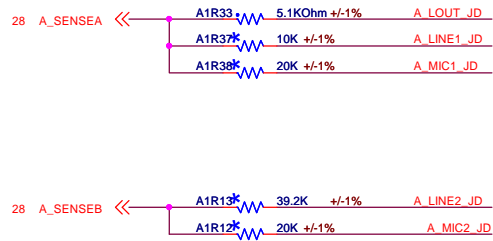
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|                                                                                                              |                                  |          |
|--------------------------------------------------------------------------------------------------------------|----------------------------------|----------|
| <br><b>FOXCONN PCEG</b> |                                  |          |
| Title<br><b>PCIE 1X</b>                                                                                      |                                  |          |
| Size<br>C                                                                                                    | Document Number<br><b>H61M06</b> | Rev<br>A |
| Date<br>Thursday, January 05, 2012                                                                           | Sheet<br>27                      | of<br>45 |

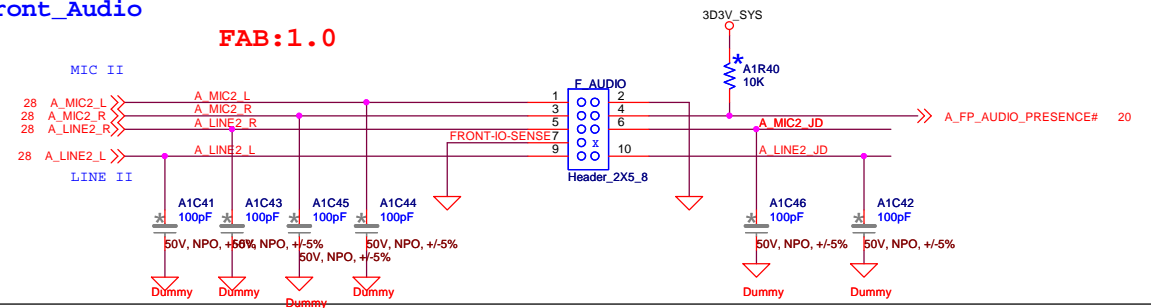


## JACK SENSE



## Front\_Audio

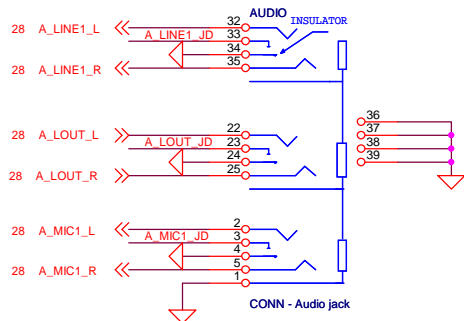
FAB:1.0



## +5VA for AUDIO

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## Audio Jack



## Audio Jack



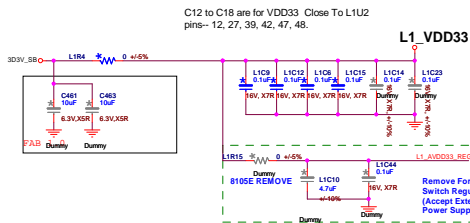
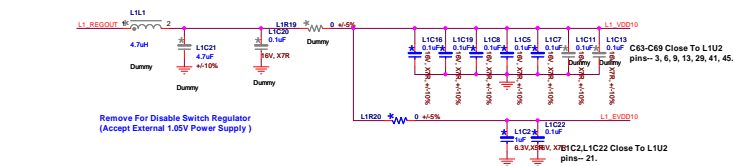
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**FOXCONN PCEG**

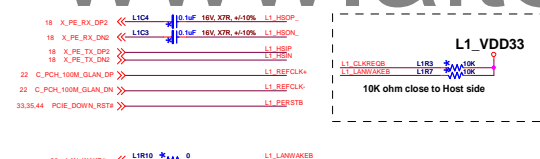
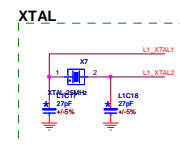
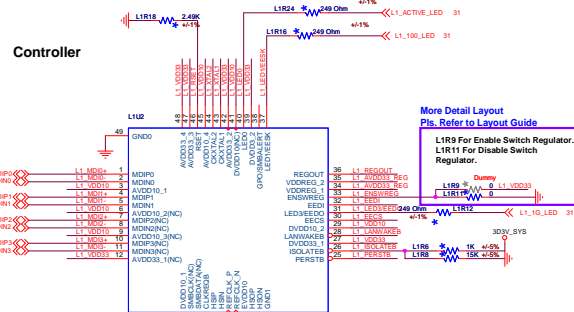
|       |                            |                   |          |
|-------|----------------------------|-------------------|----------|
| Title |                            | AUDIO-2:CONNECTOR |          |
| Size  | A3                         | Document Number   | H61M06   |
| Date: | Thursday, January 05, 2012 | Sheet             | 29 of 45 |
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|                                        | 1.05V / 1.0V source | L1L1 | L1C21 | L1C20 | L1R9/ reserve | L1R11/ reserve |
|----------------------------------------|---------------------|------|-------|-------|---------------|----------------|
| B111E Series/B111F Series/B105E Series | SWR                 | O    | O     | O     | O             | X              |
| B105E Series (except for VL)           | LDO                 | X    | X     | X     | X             | O              |
| B111E Series/B111F Series/B105E-VB     | External            | X    | X     | X     | X             | O              |
| B105E Series (except for VB)           | External            | X    | X     | X     | O             | X              |



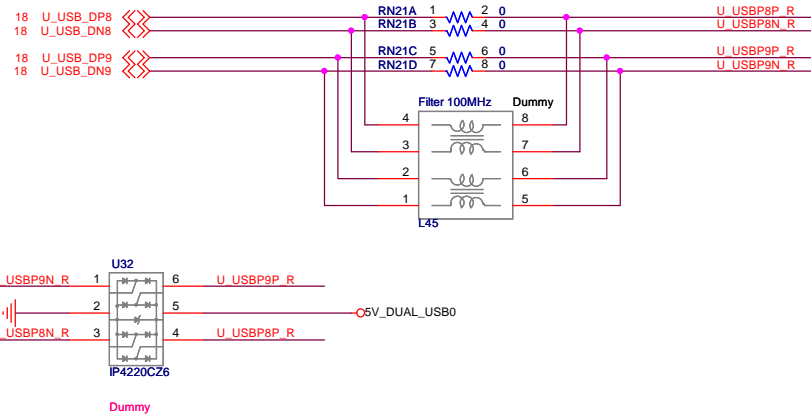
L1R18 value should be 2.49K (1%)  
for all application.

LED define change after remove EEPROM

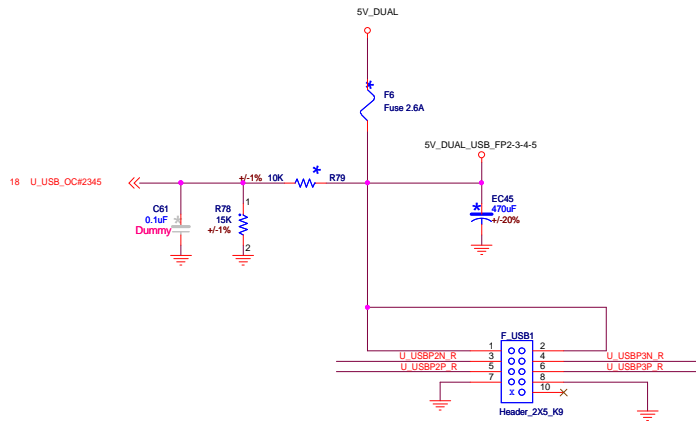


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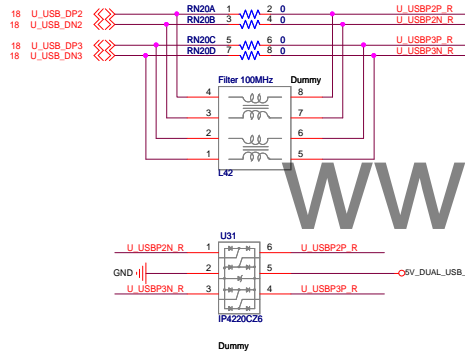
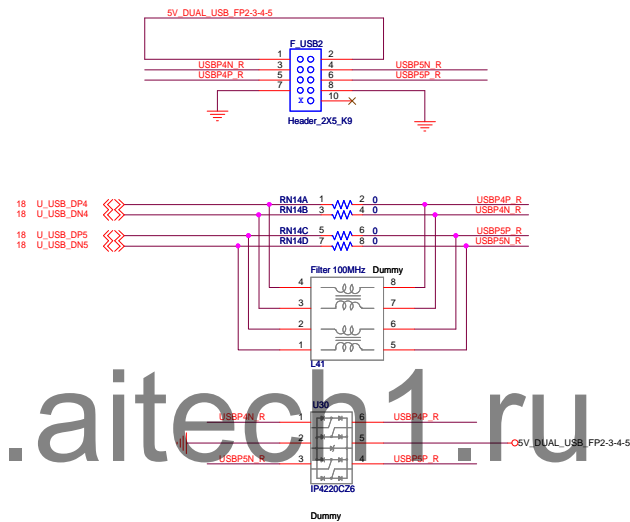
| SPEED LED  |        |
|------------|--------|
| LINK 10M   | OFF    |
| LINK 100M  | GREEN  |
| LINK 1000M | YELLOW |



## Front\_USB1



## Front\_USB2



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| Title               |                            |                |
|---------------------|----------------------------|----------------|
| Front USB2.0 Header |                            |                |
| Size                | Document Number            | Rev            |
| C                   | H61M06                     | A              |
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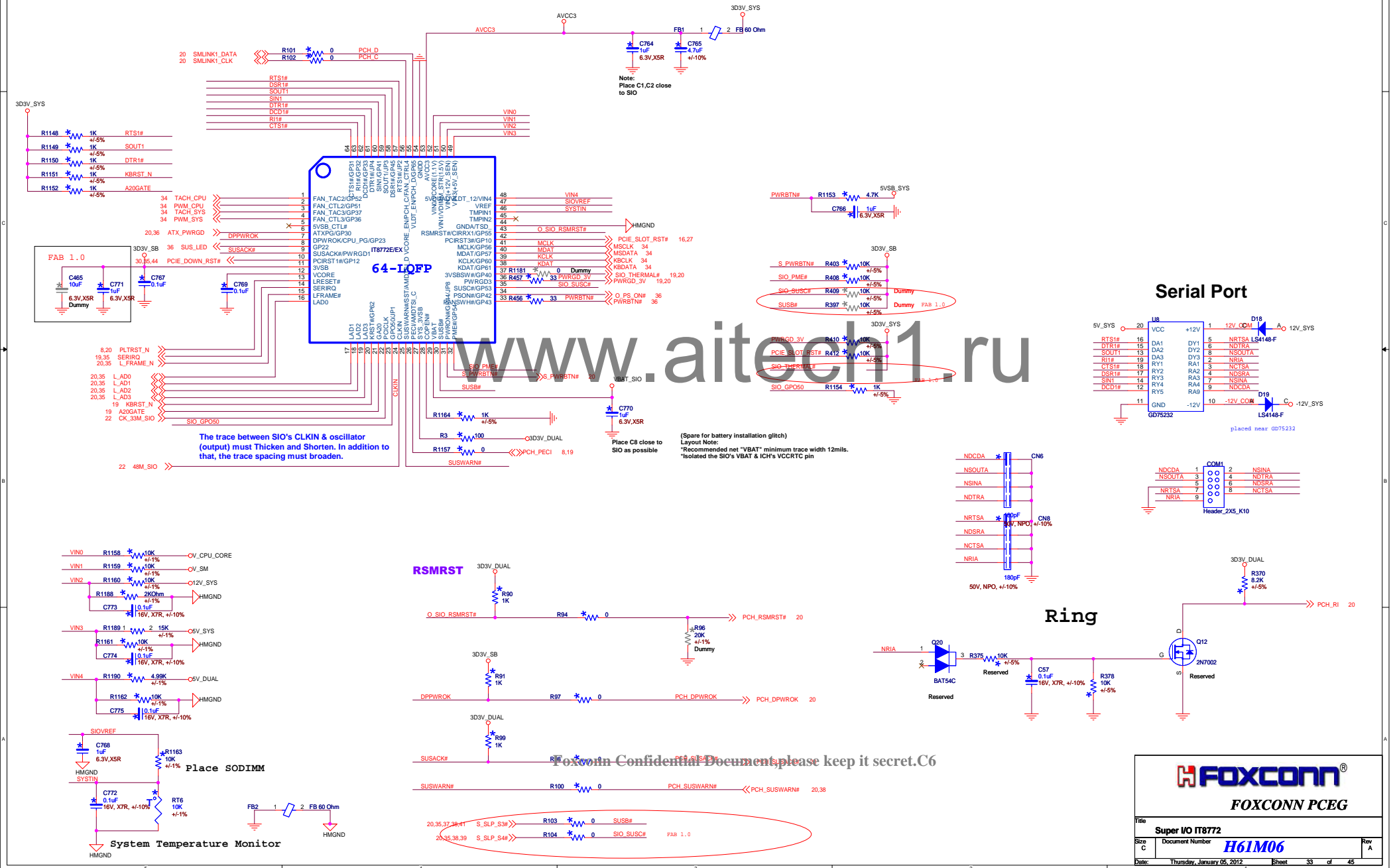


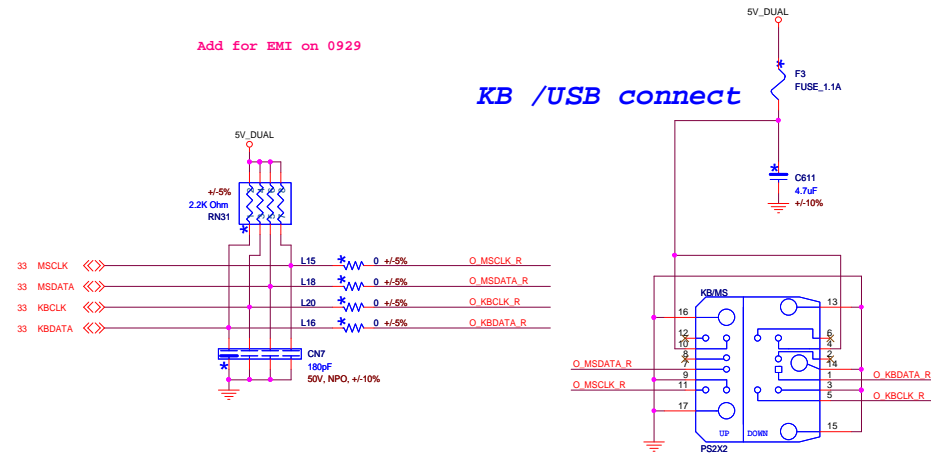
# Power-On Strapping

| Symbol | Value       | Description                          |
|--------|-------------|--------------------------------------|
| JP1    | DSW_EUP_SEL | 1 RUP(default)                       |
| Pin-23 | WDT_EN      | 0 DSW                                |
| JP2    |             | Disable WDT to reset PWROK(default)  |
| Pin-57 |             | Enable WDT to reset PWROK            |
| JP3    | FAN_CTL_SEL | 1 EC Index 6Bh/73h default = 80h     |
| Pin-59 |             | EC Index 6Bh/73h default = 80h       |
| JP4    | K8PWR_EN    | 1 Disable K8 Power Sequence(default) |
| Pin-61 |             | Enable K8 Power Sequence             |

If without use these pins, Please pull-up. Don't let it floating

- 1.Pin 6:ATXPG
- 2.Pin 30:SUSB#
- 3.Pin Pin 23 / Pin 57/ Pin 59/ Pin61
- 4.Pin38-41 KCLK/KDAT/MCLK/MDAT
- 5.Pin 63 pull high to 3VSB



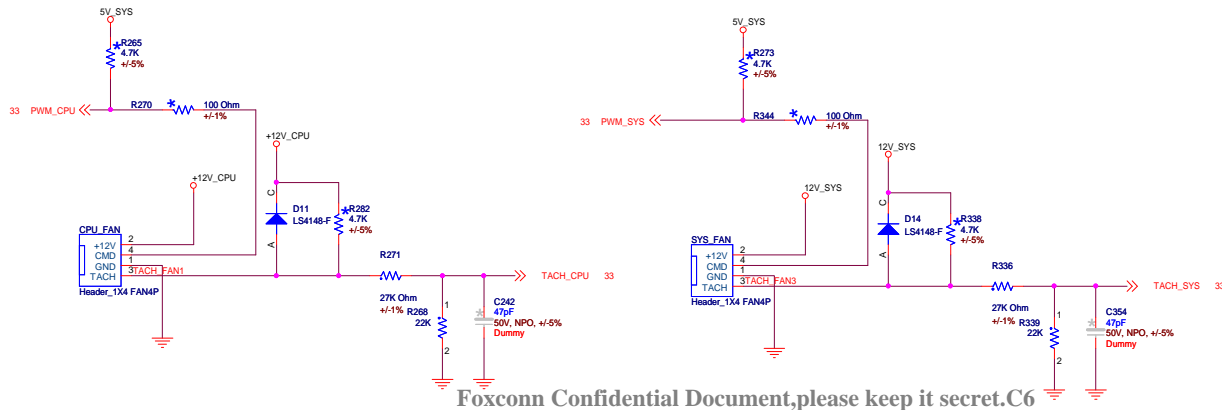


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## CPU FAN

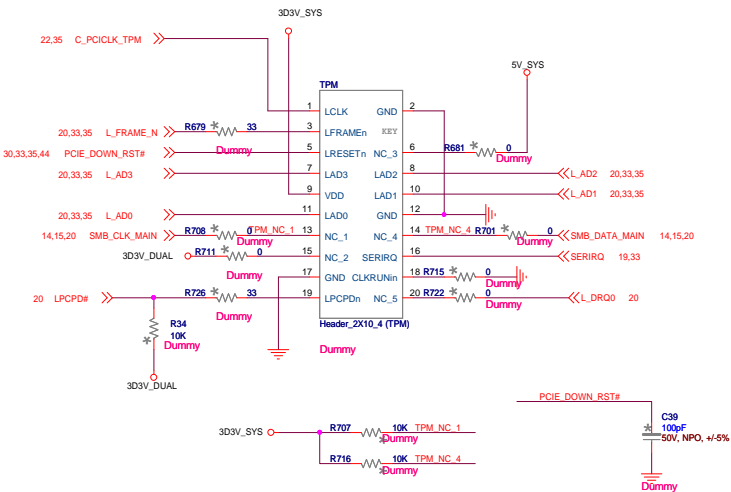
## SYS FAN

New FAN Header Definition  
pin1. GND  
pin2. +12V  
pin3. Sense  
pin4. PWM

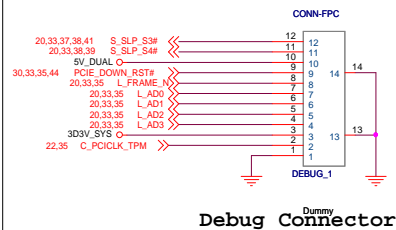


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# TPM



## LPT PORT



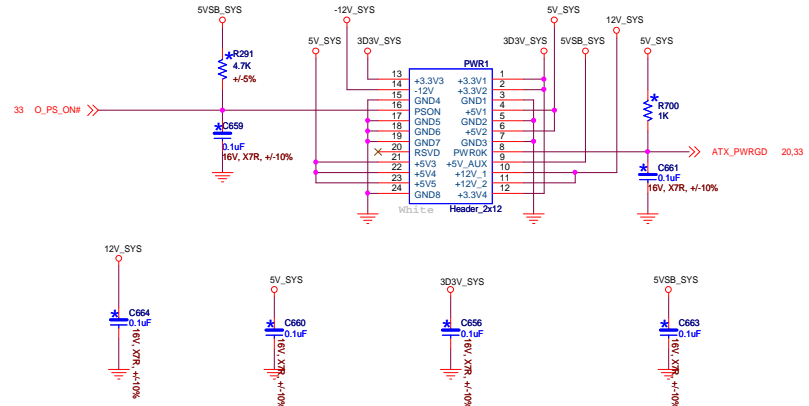
**COM HEADER**

## COM PORT

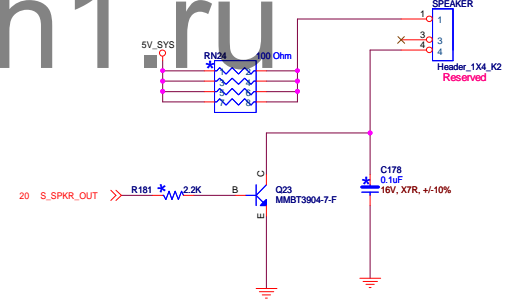
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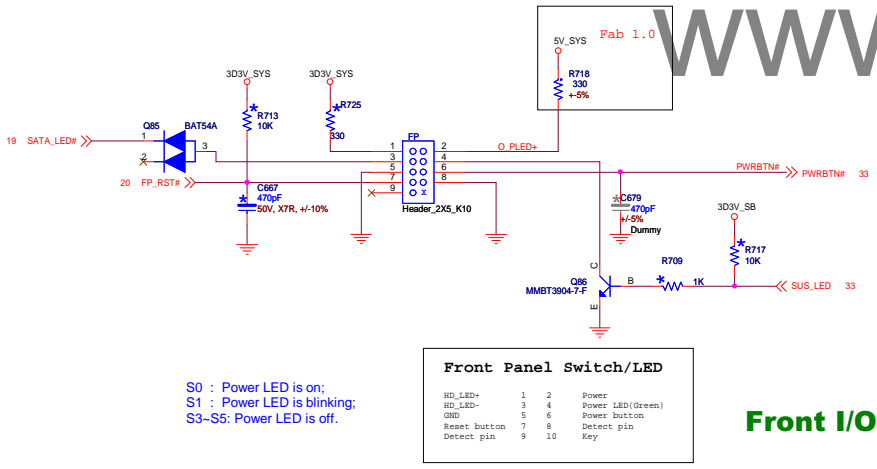
ATX POWER CONNECTOR



BUZZER/Speaker Header



Front I/O Header

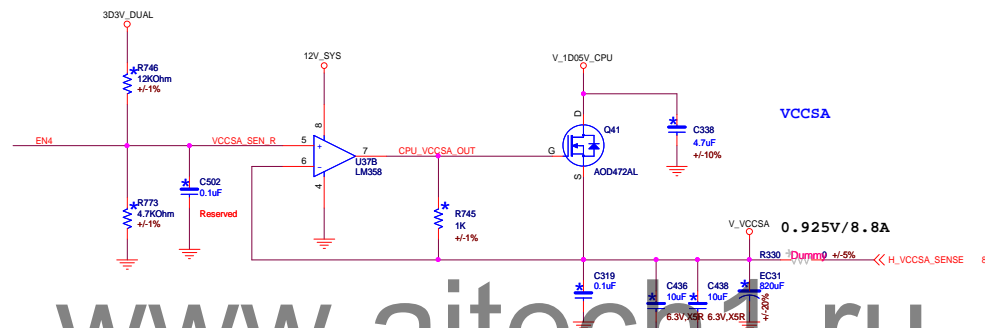
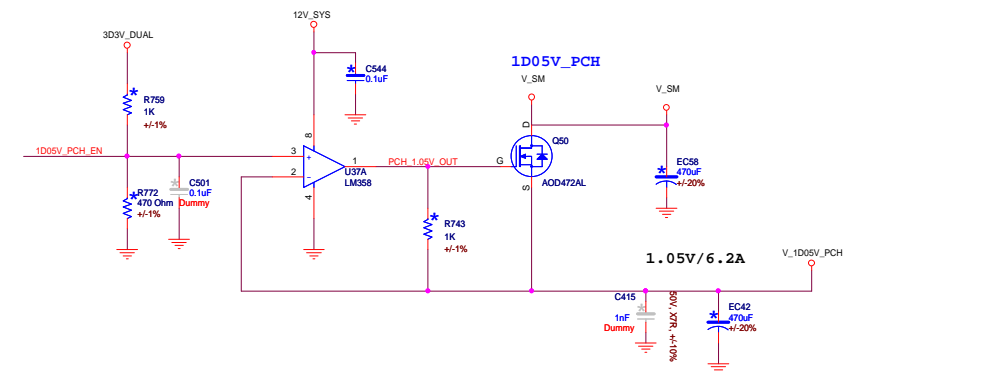
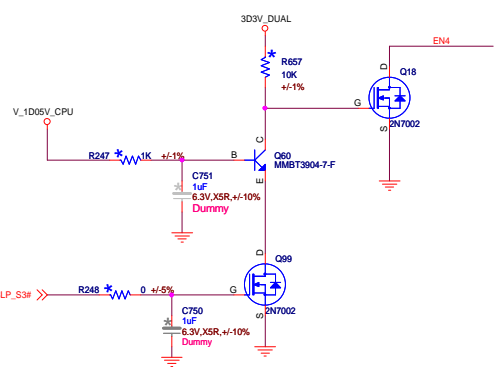
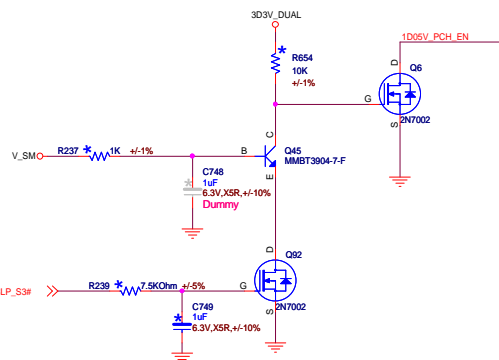


| Front Panel Switch/LED |   |    |                  |
|------------------------|---|----|------------------|
| HD_LED+                | 1 | 2  | Power            |
| HD_LED-                | 3 | 4  | Power LED(Green) |
| GND                    | 5 | 6  | Power button     |
| Reset button           | 7 | 8  | Detect pin       |
| Detect pin             | 9 | 10 | Key              |

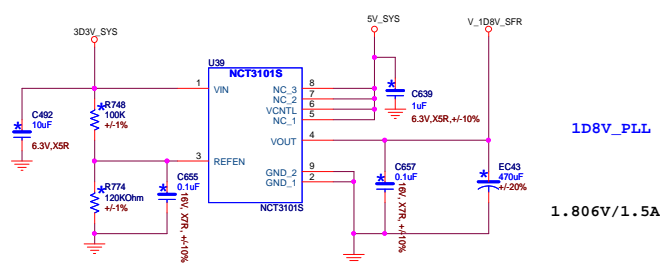
S0 : Power LED is on;  
S1 : Power LED is blinking;  
S3-S5: Power LED is off.

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Pull lo for 0.9V vref out and address 54h



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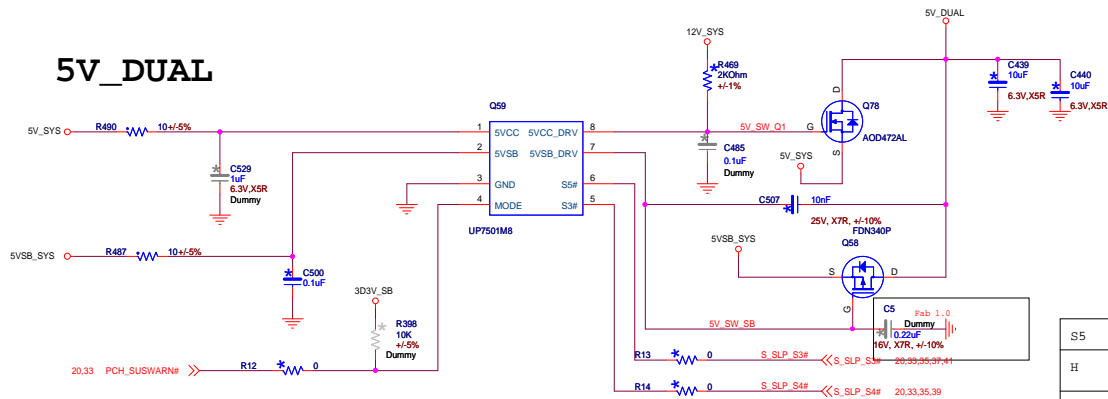


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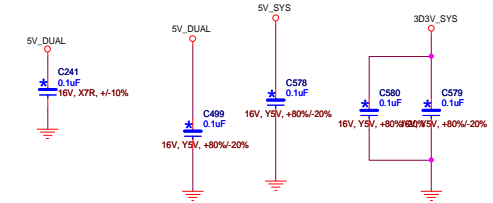
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|--------------------|----------------------------|-------|----------|
| Title              |                            |       |          |
| FOX21D051D8V/VCCSA |                            |       |          |
| Size               | Document Number            | Rev   |          |
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## 5V\_DUAL



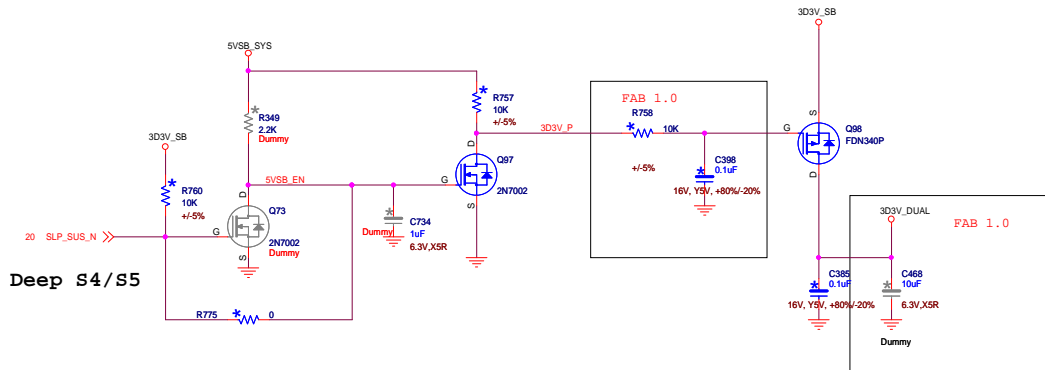
HI= S4/S5 5VDUAL FORM 5VSB  
Low= S4/S5 5VDUAL TURN OFF

| S5 | S3 | NODE | 5VDUAL   |
|----|----|------|----------|
| H  | H  | X    | 5VCC     |
| H  | L  | X    | 5VSB     |
| L  | X  | H    | 5VSB     |
| L  | X  | L    | Shutdown |



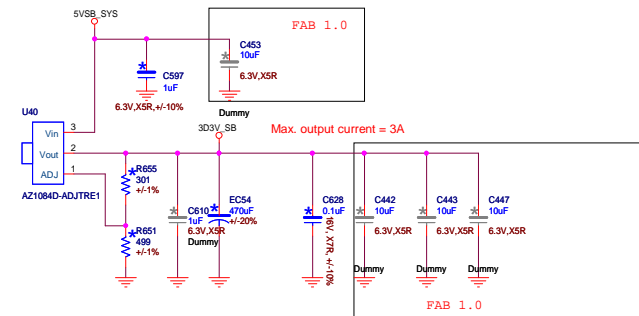
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## 3D3V\_DUAL



Deep S4/S5

## 3D3V\_SB



$V_{out} = V_{ref}(1 + R2/R1) + I_{adj}R2$   
R1 is Up Resistor.  
 $I_{adj} = 50\mu A$   
 $V_{ref} = 1.25V$

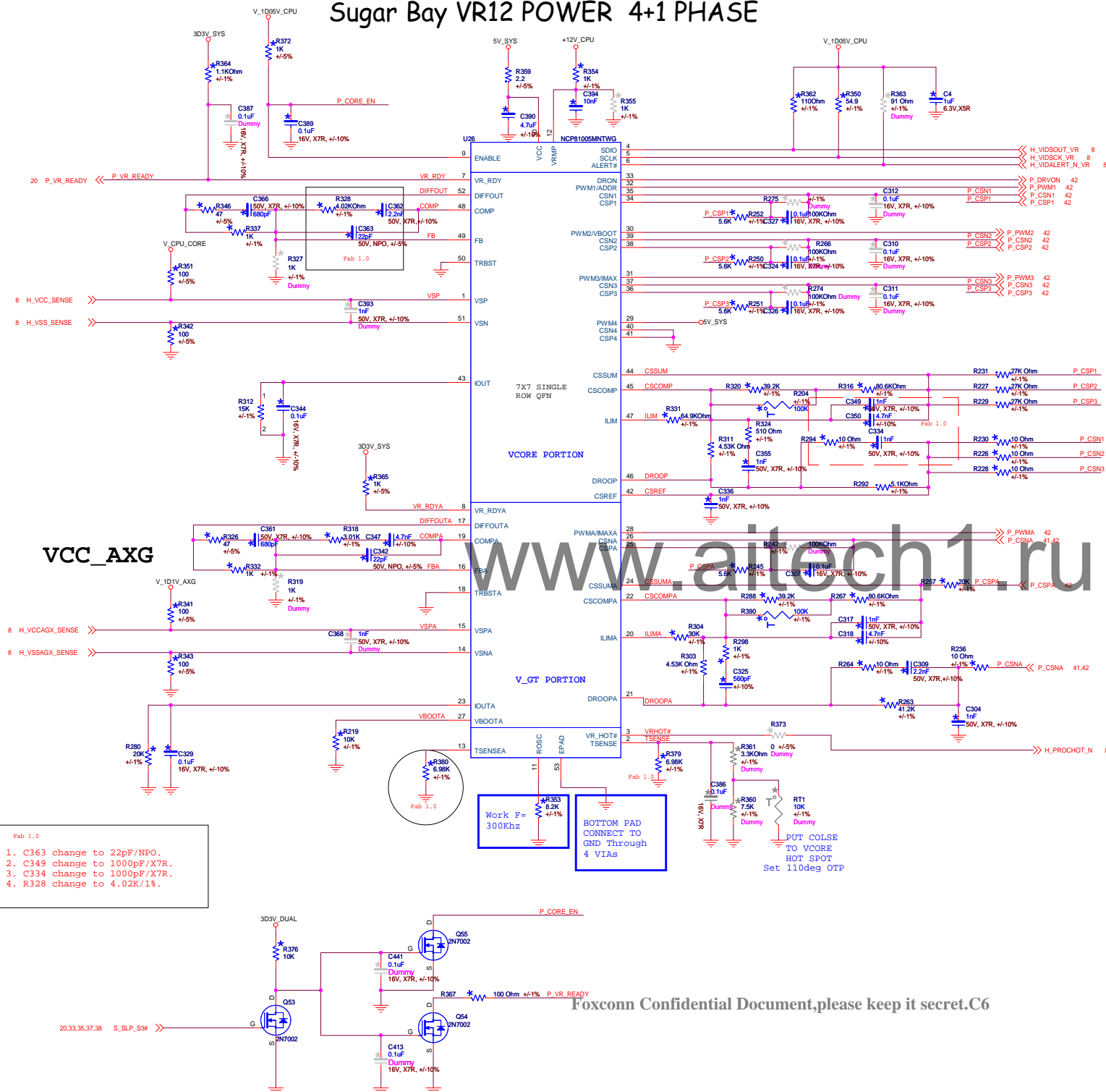
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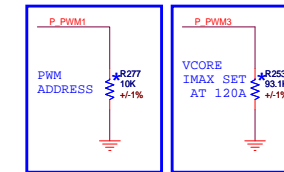
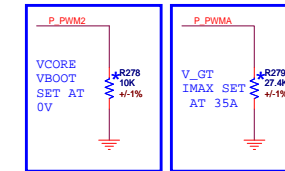




# Sugar Bay VR12 POWER 4+1 PHASE



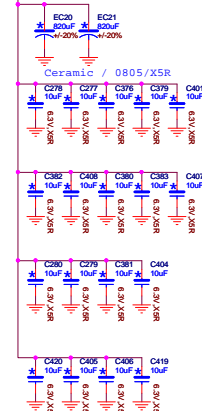
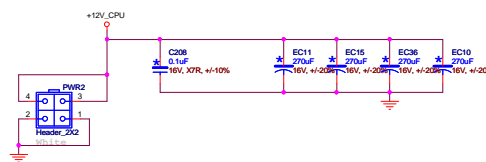
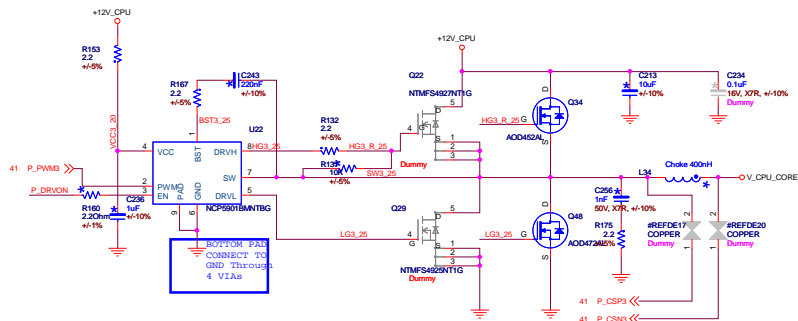
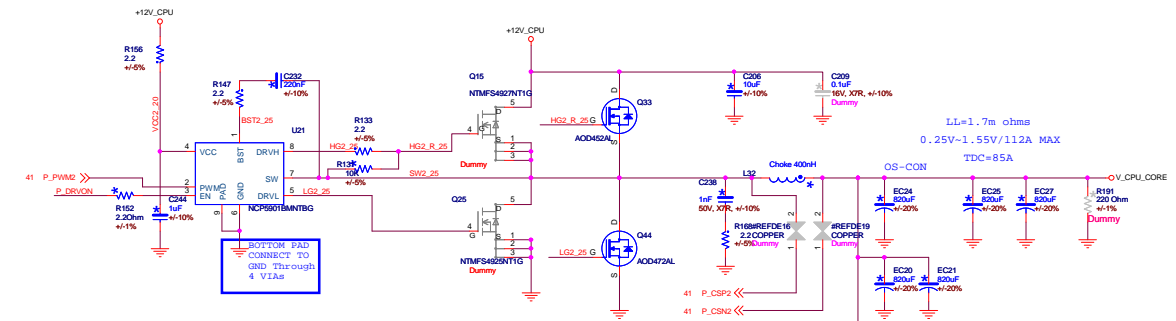
VCC\_CORE



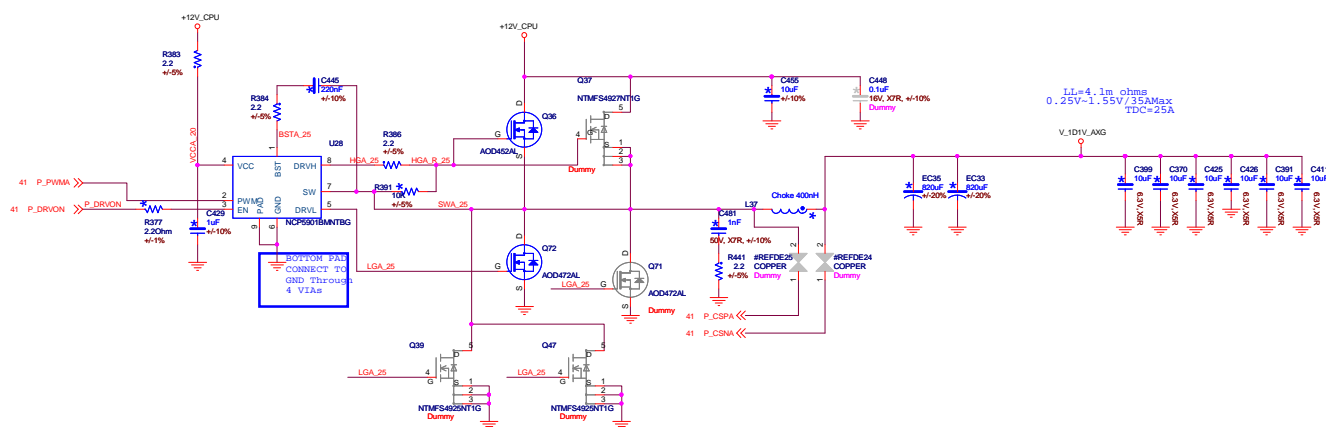
| BOOT VOLTAGE   |              |
|----------------|--------------|
| RESISTOR VALUE | BOOT VOLTAGE |
| 10K            | 0V           |
| 25K            | 0.9V         |
| 45K            | 1.0V         |
| 70K            | 1.1V         |
| 95K            | 1.2V         |
| 125K           | 1.35V        |
| 165K           | 1.5V         |

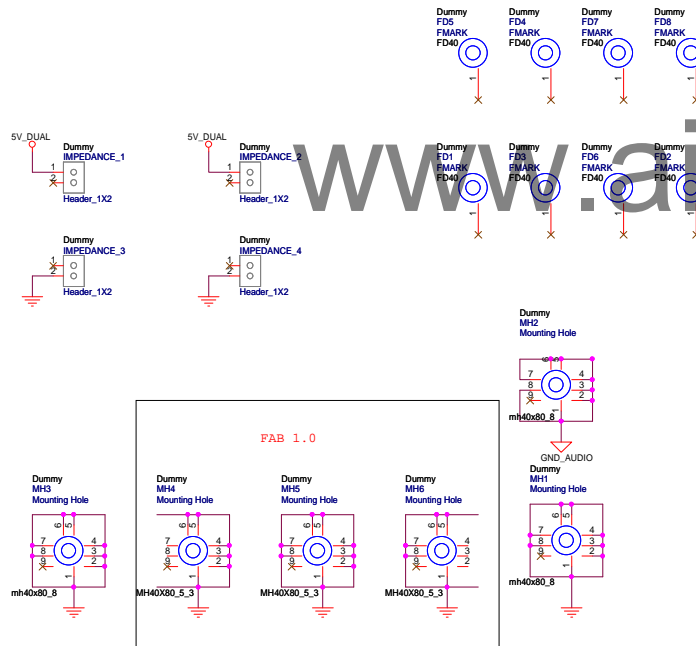
| PWM ADDRESS       |                                  |                                  |
|-------------------|----------------------------------|----------------------------------|
| RESISTOR<br>VALUE | SVID<br>ADDRESS FOR<br>VORE RAIL | SVID<br>ADDRESS FOR<br>V_GT RAIL |
| 10K               | 0000                             | 0001                             |
| 25K               | 0010                             | 0011                             |
| 45K               | 0100                             | 0101                             |
| 70K               | 0110                             | 0111                             |
| 95K               | 1000                             | 1001                             |
| 125K              | 1010                             | 1011                             |
| 165K              | 1100                             | 1101                             |

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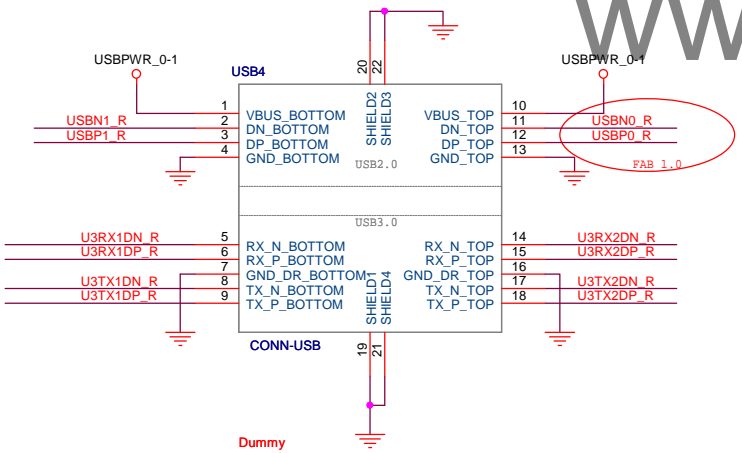
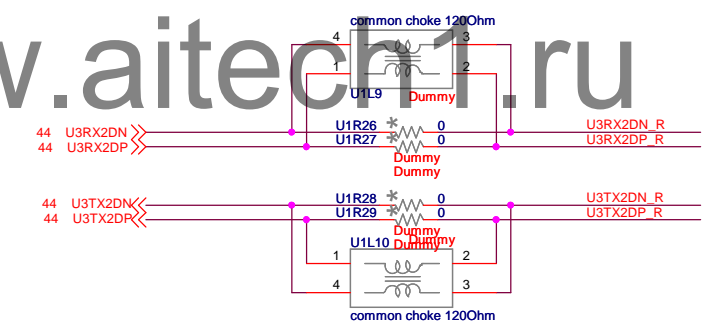
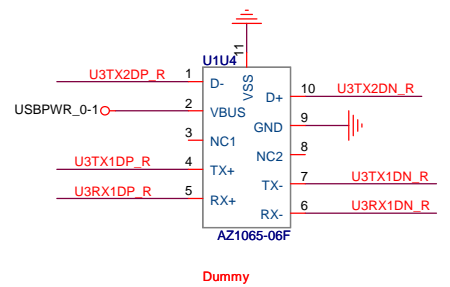
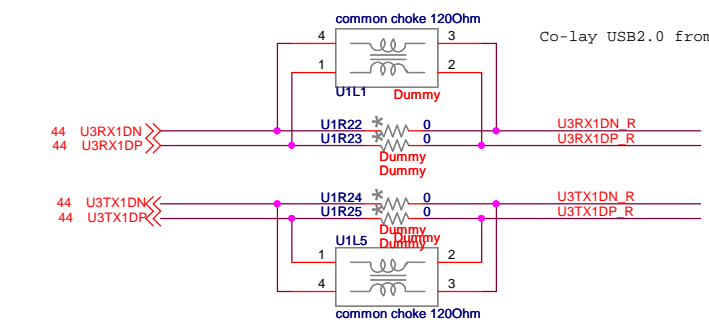
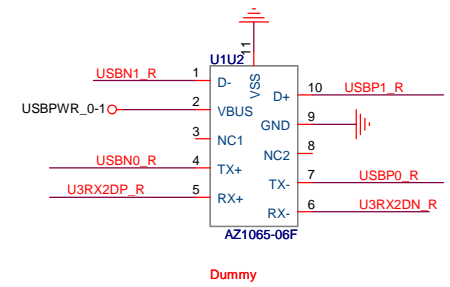
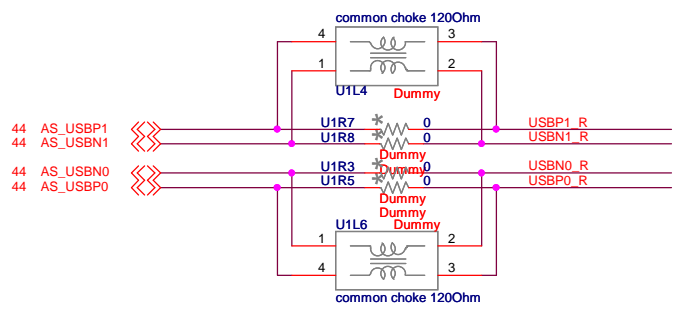
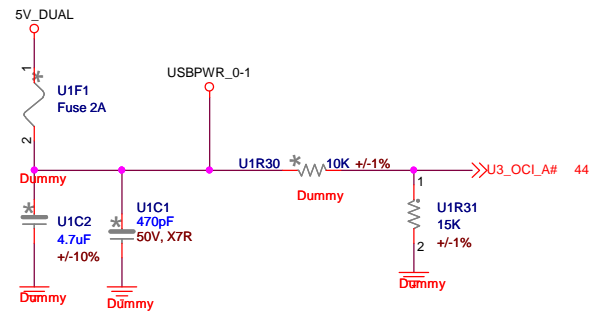




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**FOXCONN PCEG**

|                 |                            |                |
|-----------------|----------------------------|----------------|
| Title           |                            |                |
| <b>USB PORT</b> |                            |                |
| Size B          | Document Number            | Rev A          |
|                 | <b>H61M06</b>              |                |
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