


# Schematics Page Index (Title / Revision / Change Date)

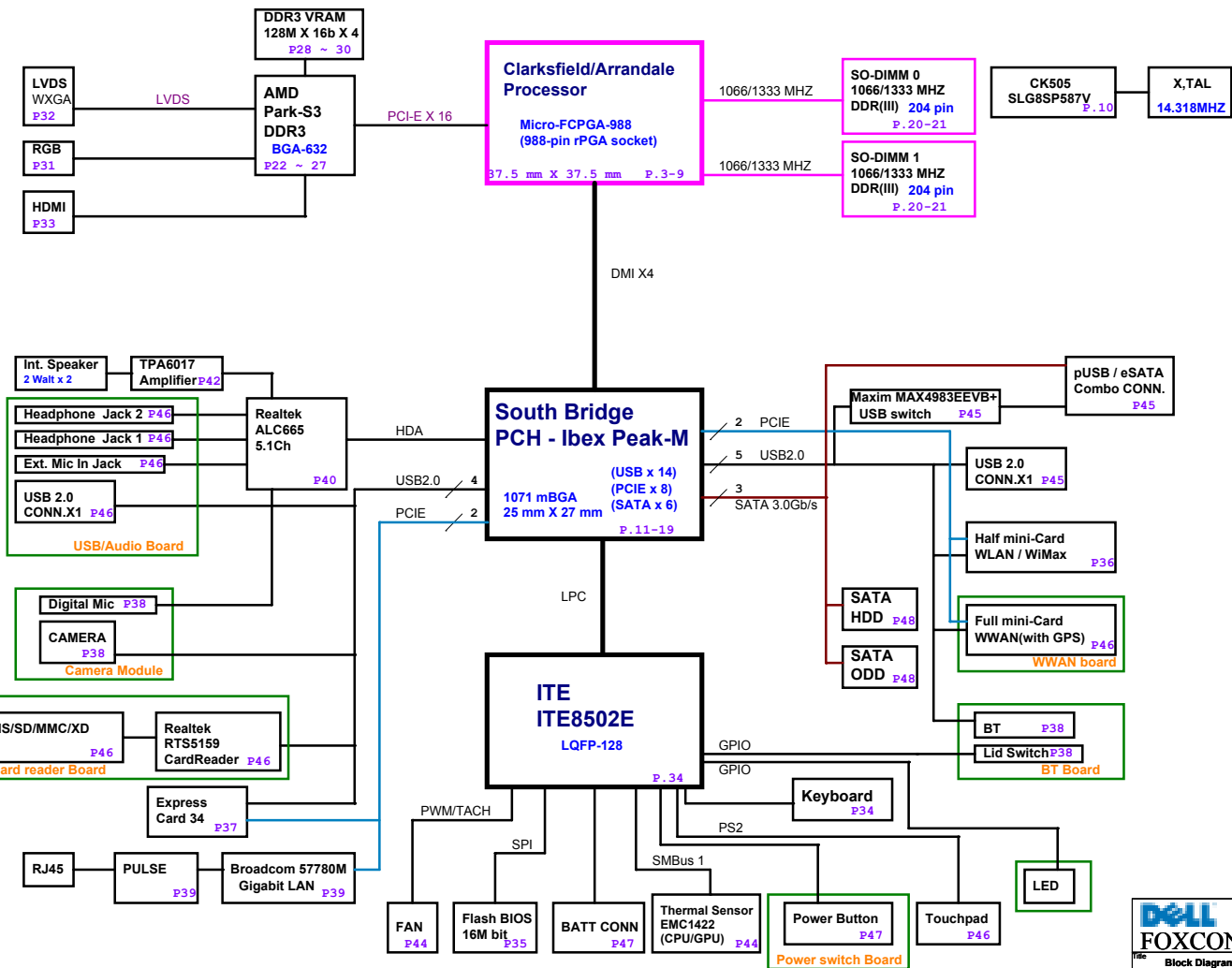
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| 01   | Schematics Page Index        | A00  | 09'12'25 | 36   | WLAN/WiMAX Mini-PCIECard | A00  | 09'12'25 |
| 02   | Block Diagram                | A00  | 09'12'25 | 37   | EXPRESS CARD             | A00  | 09'12'25 |
| 03   | Clarksfield (DMI,PEG,FDI)    | A00  | 09'12'25 | 38   | BT & CAMERA/Dig MIC CON  | A00  | 09'12'25 |
| 04   | Clarksfield (CLK,MISC,JTAG)  | A00  | 09'12'25 | 39   | Broadcom LAN(BCM57780M)  | A00  | 09'12'25 |
| 05   | Clarksfield (DDR3)           | A00  | 09'12'25 | 40   | Audio (CODEC & POWER)    | A00  | 09'12'25 |
| 06   | Clarksfield (POWER)          | A00  | 09'12'25 | 41   | Audio (HP,EXT MIC)       | A00  | 09'12'25 |
| 07   | Clarksfield (GRAPHICS POWER) | A00  | 09'12'25 | 42   | Audio (SPKR)             | A00  | 09'12'25 |
| 08   | Clarksfield (GND)            | A00  | 09'12'25 | 43   | Audio (MUTE)             | A00  | 09'12'25 |
| 09   | Clarksfield (RESERVED)       | A00  | 09'12'25 | 44   | FAN/Thermal/G Sensor     | A00  | 09'12'25 |
| 10   | CLOCK GEN                    | A00  | 09'12'25 | 45   | USB2.0 & e-SATA          | A00  | 09'12'25 |
| 11   | PCH (HDA,JTAG,SAT)           | A00  | 09'12'25 | 46   | DB board connector (MB)  | A00  | 09'12'25 |
| 12   | PCH (PCI-E,SMBUS,CLK)        | A00  | 09'12'25 | 47   | PWR BTN & BT & LED DB    | A00  | 09'12'25 |
| 13   | PCH (DMI,FDI,GPIO)           | A00  | 09'12'25 | 48   | SATA HDD/ODD             | A00  | 09'12'25 |
| 14   | PCH (LVDS,DDI)               | A00  | 09'12'25 | 49   | Power Design Diagram     | A00  | 09'12'25 |
| 15   | PCH (PCI,USB,NVRAM)          | A00  | 09'12'25 | 50   | DCIN & Battery           | A00  | 09'12'25 |
| 16   | PCH (GPIO,VSS NCTF,RSVD)     | A00  | 09'12'25 | 51   | MAX8731A Smart Charger   | A00  | 09'12'25 |
| 17   | PCH (POWER) 1/2              | A00  | 09'12'25 | 52   | MAX17020 (+3.3V/+5V)     | A00  | 09'12'25 |
| 18   | PCH (POWER) 2/2              | A00  | 09'12'25 | 53   | SYS Power+1.1VTT/+1.05V  | A00  | 09'12'25 |
| 19   | PCH (VSS)                    | A00  | 09'12'25 | 54   | DDR3 Power(+1.5V/+0.75V) | A00  | 09'12'25 |
| 20   | DDR3(SO-DIMM 0) 1/2          | A00  | 09'12'25 | 55   | CPU Power VHCORE         | A00  | 09'12'25 |
| 21   | DDR3(SO-DIMM 1) 2/2          | A00  | 09'12'25 | 56   | CPU Power DRV-PHASE3     | A00  | 09'12'25 |
| 22   | VGA (PCI-E) 1/6              | A00  | 09'12'25 | 57   | VGA Power(ATI VDD)       | A00  | 09'12'25 |
| 23   | VGA (STRAP) 2/6              | A00  | 09'12'25 | 58   | SYS Power +1.8V          | A00  | 09'12'25 |
| 24   | VGA (IO) 3/6                 | A00  | 09'12'25 | 59   | Others power plane       | A00  | 09'12'25 |
| 25   | VGA (DDR3) 4/6               | A00  | 09'12'25 | 60   | HOLE                     | A00  | 09'12'25 |
| 26   | VGA (DP) 5/6                 | A00  | 09'12'25 | 61   | History (1)              | A00  | 09'12'25 |
| 27   | VGA (POWER) 6/6              | A00  | 09'12'25 | 62   | History (2)              | A00  | 09'12'25 |
| 28   | VRAM (DDR3) 1/3              | A00  | 09'12'25 | 63   | History (3)              | A00  | 09'12'25 |
| 29   | VRAM (DDR3) 2/3              | A00  | 09'12'25 | 64   | Power History (1)        | A00  | 09'12'25 |
| 30   | VRAM (BYPASS) 3/3            | A00  | 09'12'25 | 65   | Power History (2)        | A00  | 09'12'25 |
| 31   | CRT                          | A00  | 09'12'25 | 66   |                          |      |          |
| 32   | LVDS                         | A00  | 09'12'25 | 67   |                          |      |          |
| 33   | HDMI                         | A00  | 09'12'25 | 68   |                          |      |          |
| 34   | EC+KBC(IT8502E)              | A00  | 09'12'25 | 69   |                          |      |          |
| 35   | Flash ROM/SPI                | A00  | 09'12'25 | 70   |                          |      |          |

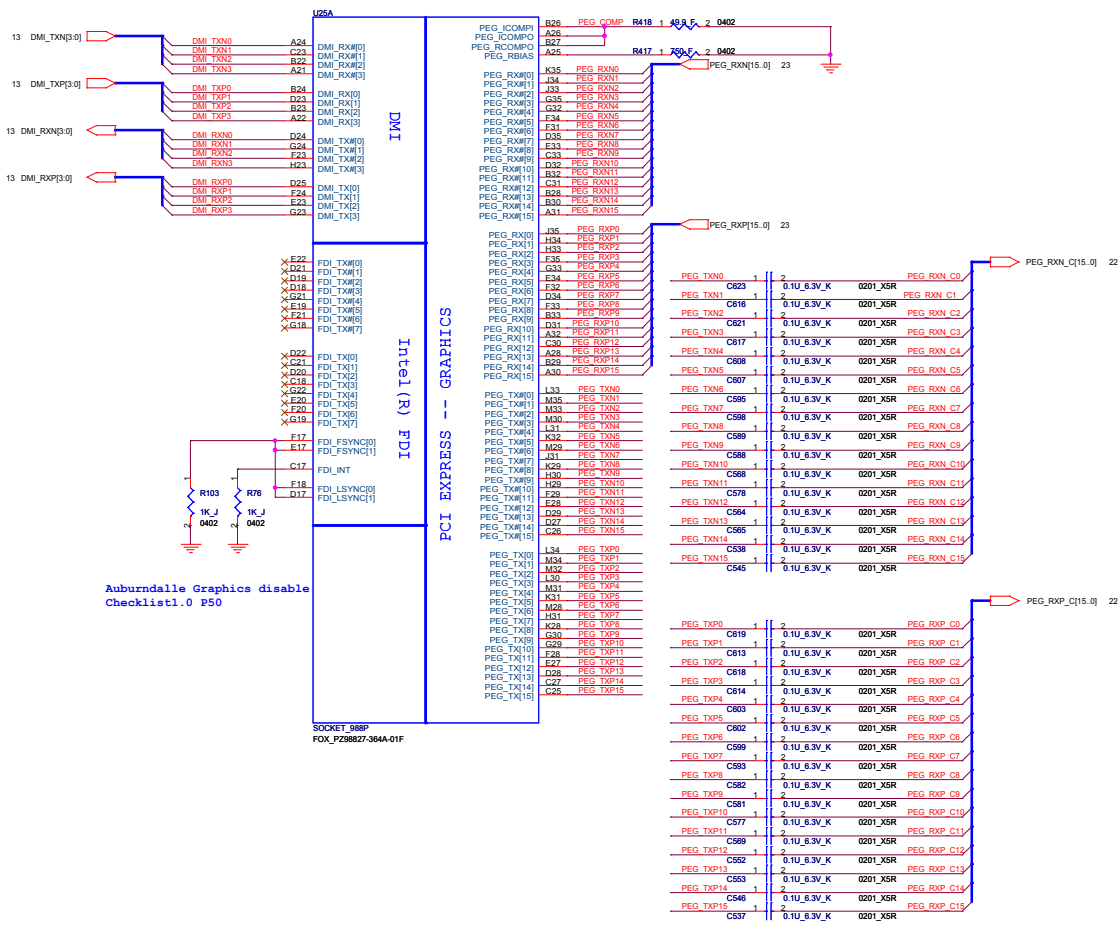
Project Code & Schematics Subject: H902 Main Board 8L

|             |                            |
|-------------|----------------------------|
| PCB P/N:    | 1P-009CJ00-8000 (IRIS)     |
|             | 1P-009C500-8000 (HANNSTAR) |
|             | 1P-009C200-8000 (NANYA)    |
| BT DB P/N:  | 1P-1098J01-8000 (IRIS)     |
|             | 1P-1098501-8000 (HANNSTAR) |
|             | 1P-1098201-8000 (NANYA)    |
| LED DB P/N: | 1P-1098J00-8000 (IRIS)     |
|             | 1P-1098500-8000 (HANNSTAR) |
|             | 1P-1098200-8000 (NANYA)    |
| P/B DB P/N: | 1P-1098J02-8000 (IRIS)     |
|             | 1P-1098502-8000 (HANNSTAR) |
|             | 1P-1098202-8000 (NANYA)    |

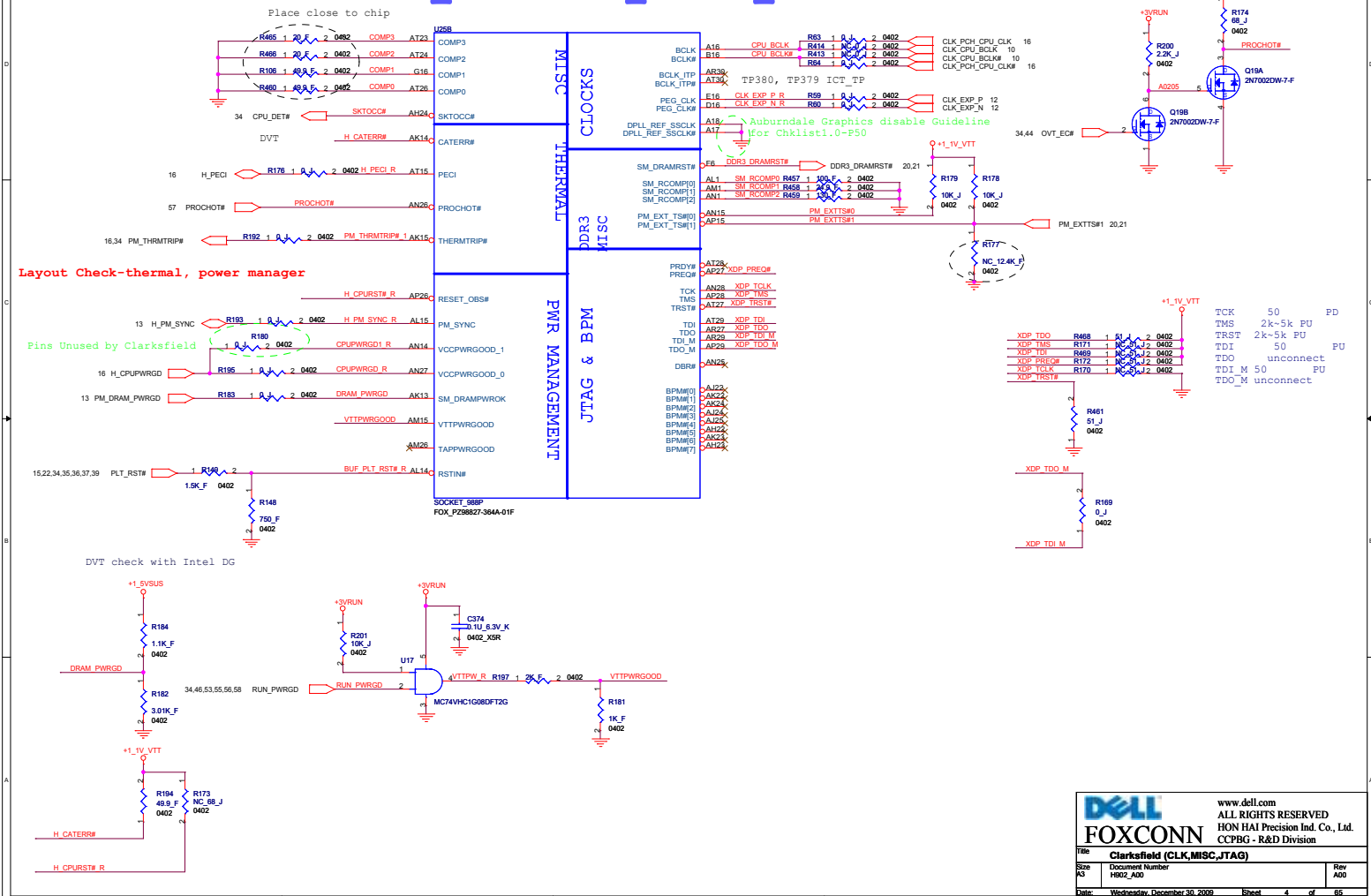
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| P. Leader | Check by | Design by |
|           |          |           |

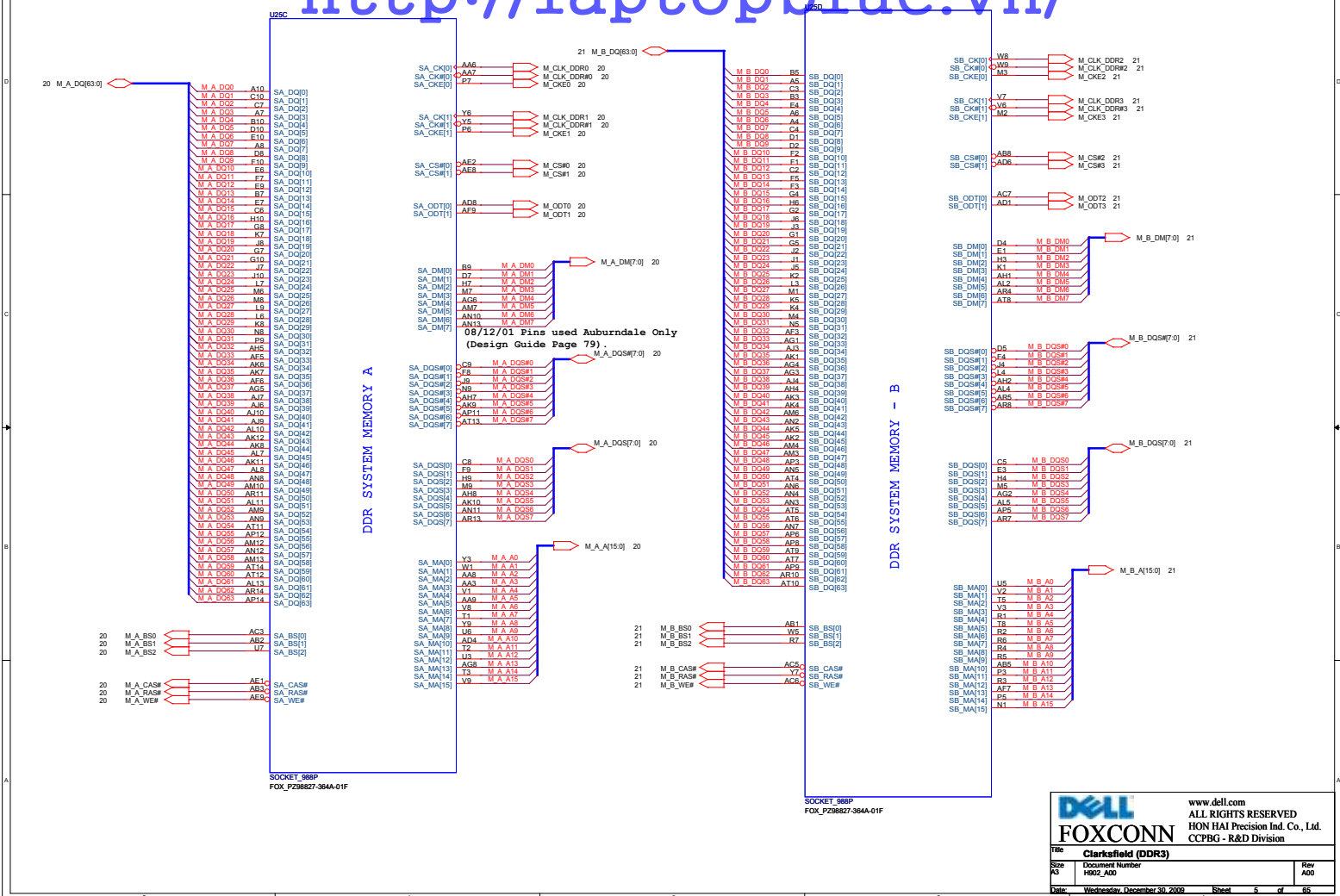
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| <b>FOXCONN</b>   |                           |   |
| Title: Index Page  |                           |   |
| Size: K3   | Document Number: H902_A00 | Rev: A00  |
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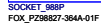


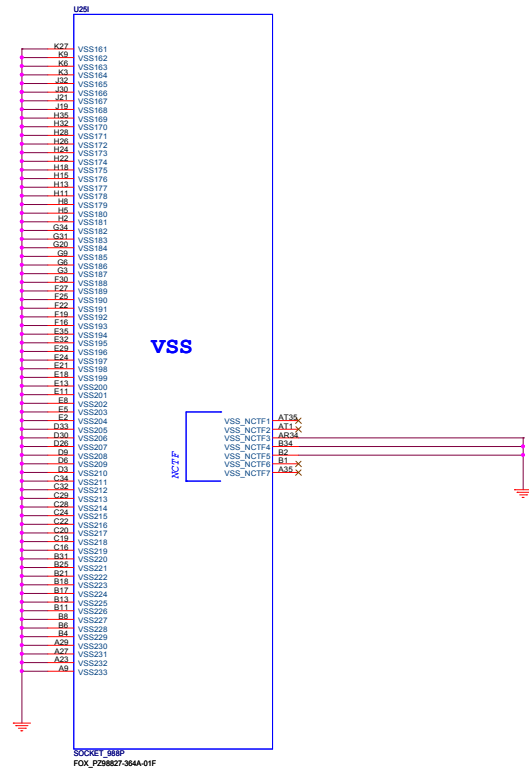
http://laptopblue.vn/















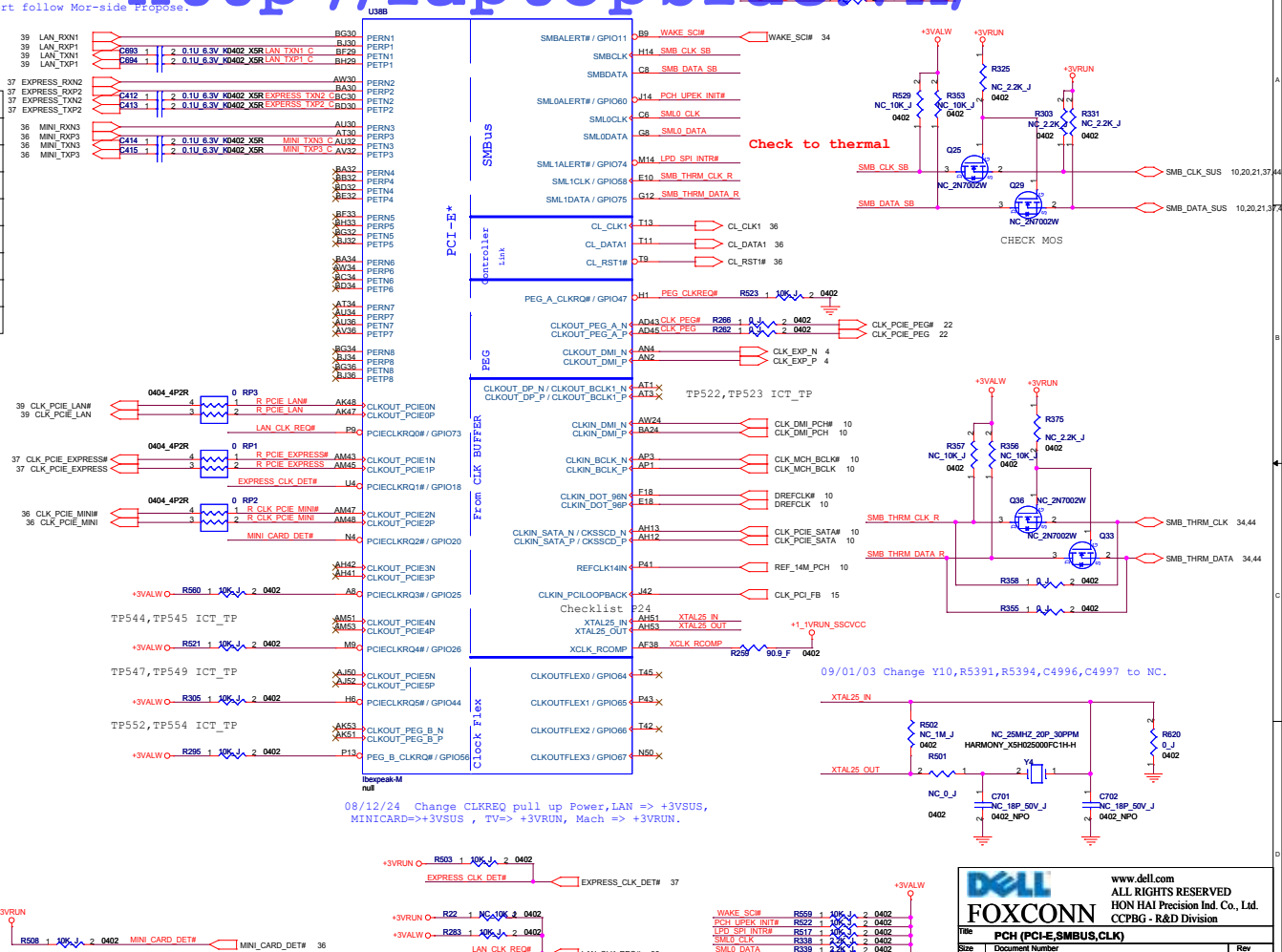


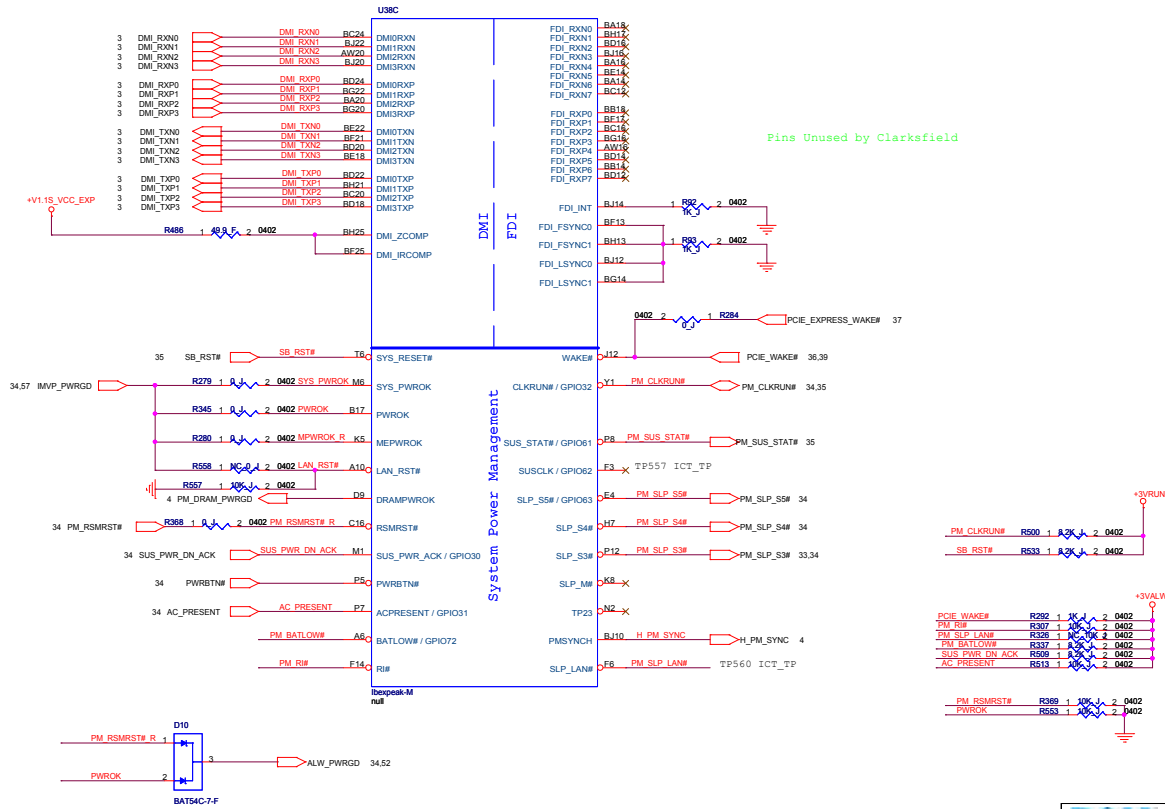


08/12/24 Update PCIe Port follow Mor-side Propose.

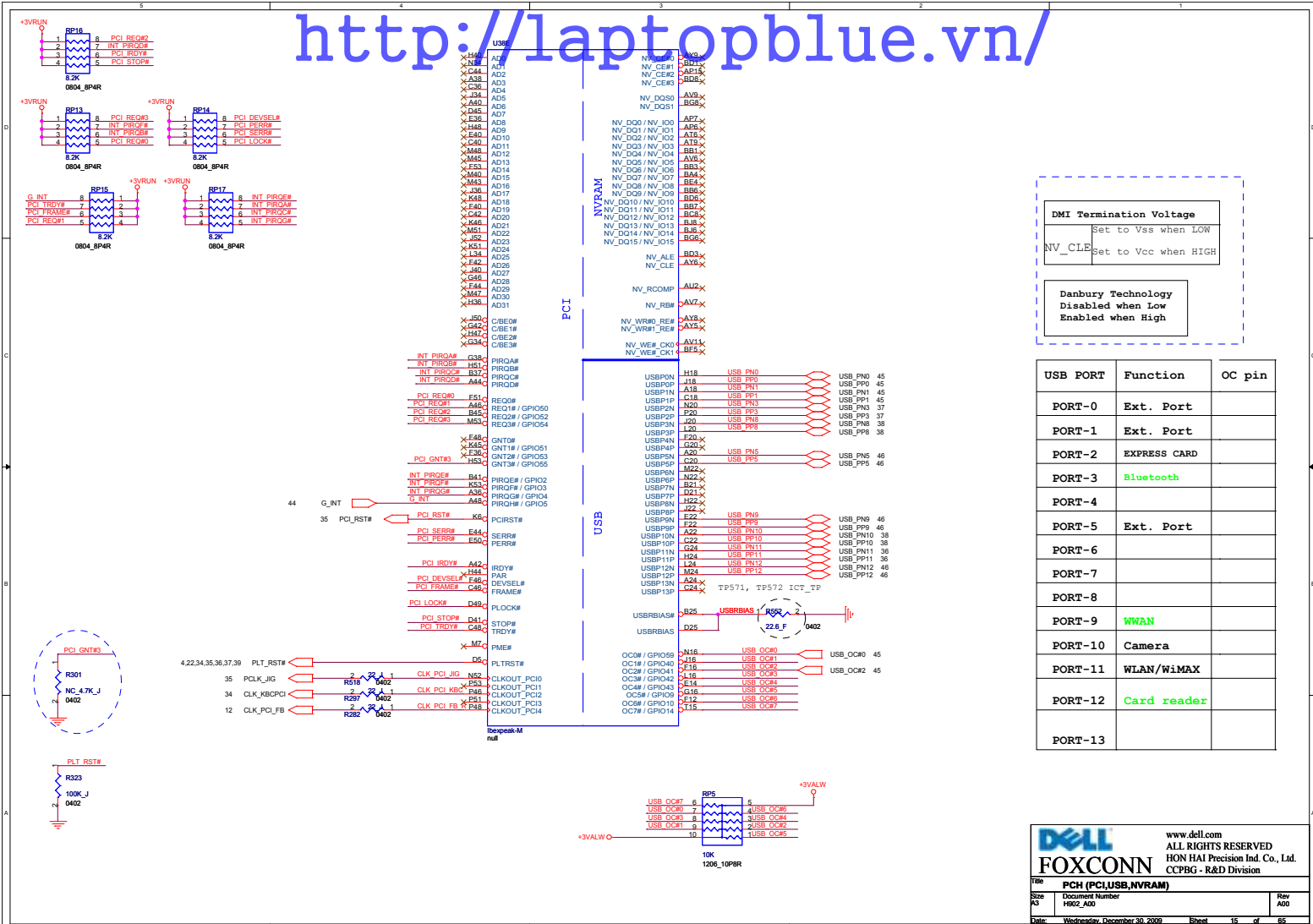
## PCI-E Port Table

| Port  | Function     |
|-------|--------------|
| Port1 | LAN          |
| Port2 | Express Card |
| Port3 | WLAN         |
| Port4 | Un-used      |
| Port5 | Un-used      |
| Port6 | Un-used      |
| Port7 | Un-used      |
| Port8 | Un-used      |









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|            |                              |                |
|------------|------------------------------|----------------|
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| USB |         |
|-----|---------|
| AV7 | VSS1599 |
| B11 | VSS1599 |
| B15 | VSS1601 |
| B19 | VSS1601 |
| B23 | VSS1602 |
| B27 | VSS1603 |
| B31 | VSS1604 |
| B35 | VSS1605 |
| B39 | VSS1606 |
| B43 | VSS1607 |
| B47 | VSS1608 |
| B51 | VSS1609 |
| B55 | VSS1610 |
| B59 | VSS1611 |
| B63 | VSS1612 |
| B67 | VSS1613 |
| B71 | VSS1614 |
| B75 | VSS1615 |
| B79 | VSS1616 |
| B83 | VSS1617 |
| B87 | VSS1618 |
| B91 | VSS1619 |
| B95 | VSS1620 |
| B99 | VSS1621 |
| C03 | VSS1622 |
| C07 | VSS1623 |
| C11 | VSS1624 |
| C15 | VSS1625 |
| C19 | VSS1626 |
| C23 | VSS1627 |
| C27 | VSS1628 |
| C31 | VSS1629 |
| C35 | VSS1630 |
| C39 | VSS1631 |
| C43 | VSS1632 |
| C47 | VSS1633 |
| C51 | VSS1634 |
| C55 | VSS1635 |
| C59 | VSS1636 |
| C63 | VSS1637 |
| C67 | VSS1638 |
| C71 | VSS1639 |
| C75 | VSS1640 |
| C79 | VSS1641 |
| C83 | VSS1642 |
| C87 | VSS1643 |
| C91 | VSS1644 |
| C95 | VSS1645 |
| C99 | VSS1646 |
| D03 | VSS1647 |
| D07 | VSS1648 |
| D11 | VSS1649 |
| D15 | VSS1650 |
| D19 | VSS1651 |
| D23 | VSS1652 |
| D27 | VSS1653 |
| D31 | VSS1654 |
| D35 | VSS1655 |
| D39 | VSS1656 |
| D43 | VSS1657 |
| D47 | VSS1658 |

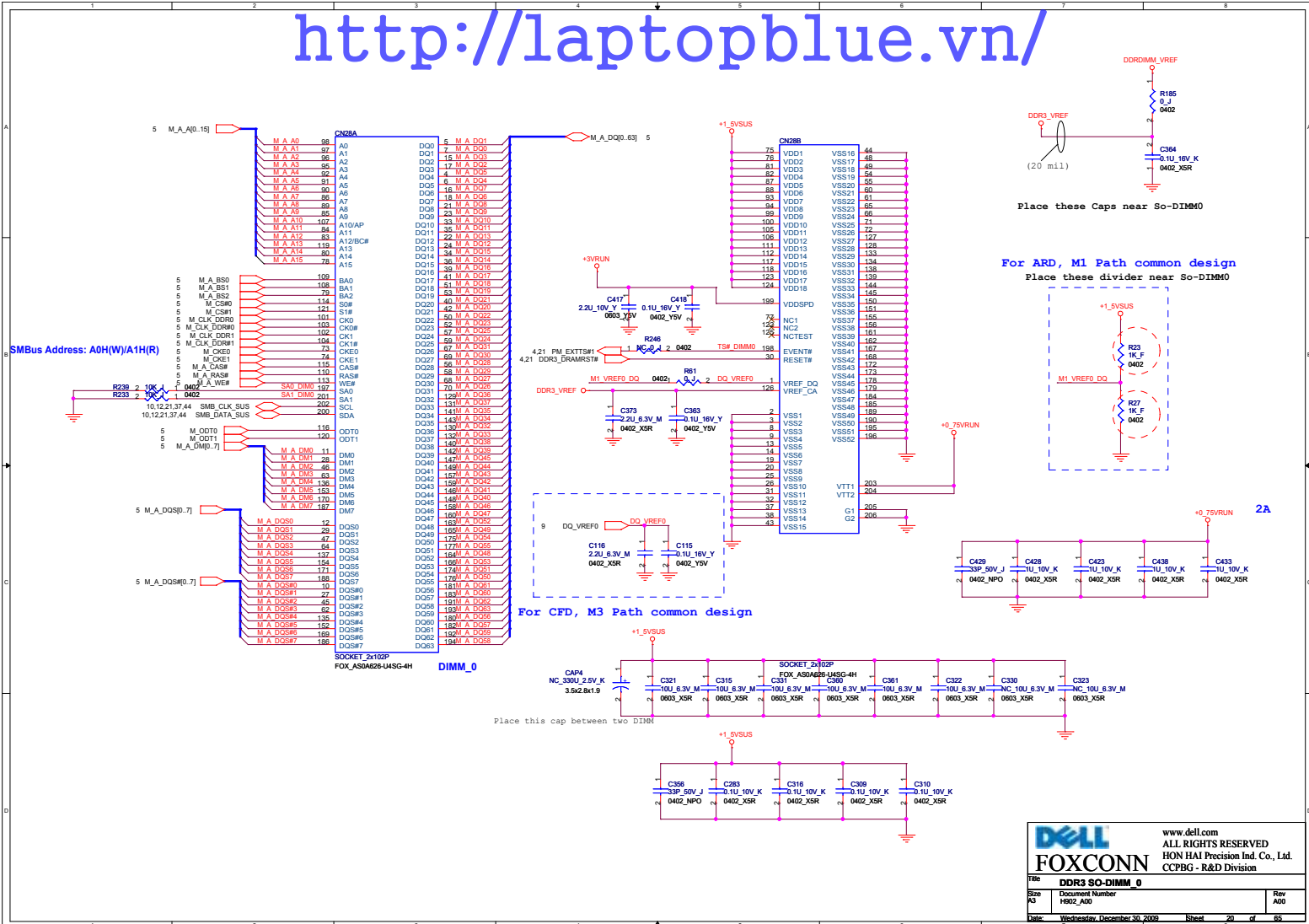
| USB   |       |
|-------|-------|
| AB16  | VSS01 |
| AA19  | VSS01 |
| AA20  | VSS02 |
| AA22  | VSS03 |
| AA24  | VSS04 |
| AA26  | VSS05 |
| AA28  | VSS06 |
| AA30  | VSS07 |
| AA32  | VSS08 |
| AA34  | VSS09 |
| AA36  | VSS10 |
| AA38  | VSS11 |
| AA40  | VSS12 |
| AA42  | VSS13 |
| AA44  | VSS14 |
| AA46  | VSS15 |
| AA48  | VSS16 |
| AA50  | VSS17 |
| AA52  | VSS18 |
| AA54  | VSS19 |
| AA56  | VSS20 |
| AA58  | VSS21 |
| AA60  | VSS22 |
| AA62  | VSS23 |
| AA64  | VSS24 |
| AA66  | VSS25 |
| AA68  | VSS26 |
| AA70  | VSS27 |
| AA72  | VSS28 |
| AA74  | VSS29 |
| AA76  | VSS30 |
| AA78  | VSS31 |
| AA80  | VSS32 |
| AA82  | VSS33 |
| AA84  | VSS34 |
| AA86  | VSS35 |
| AA88  | VSS36 |
| AA90  | VSS37 |
| AA92  | VSS38 |
| AA94  | VSS39 |
| AA96  | VSS40 |
| AA98  | VSS41 |
| AA100 | VSS42 |
| AA102 | VSS43 |
| AA104 | VSS44 |
| AA106 | VSS45 |
| AA108 | VSS46 |
| AA110 | VSS47 |
| AA112 | VSS48 |
| AA114 | VSS49 |
| AA116 | VSS50 |
| AA118 | VSS51 |
| AA120 | VSS52 |
| AA122 | VSS53 |
| AA124 | VSS54 |
| AA126 | VSS55 |
| AA128 | VSS56 |
| AA130 | VSS57 |
| AA132 | VSS58 |
| AA134 | VSS59 |
| AA136 | VSS60 |
| AA138 | VSS61 |
| AA140 | VSS62 |
| AA142 | VSS63 |
| AA144 | VSS64 |
| AA146 | VSS65 |
| AA148 | VSS66 |
| AA150 | VSS67 |
| AA152 | VSS68 |
| AA154 | VSS69 |
| AA156 | VSS70 |
| AA158 | VSS71 |
| AA160 | VSS72 |
| AA162 | VSS73 |
| AA164 | VSS74 |
| AA166 | VSS75 |
| AA168 | VSS76 |
| AA170 | VSS77 |
| AA172 | VSS78 |
| AA174 | VSS79 |
| AA176 | VSS80 |

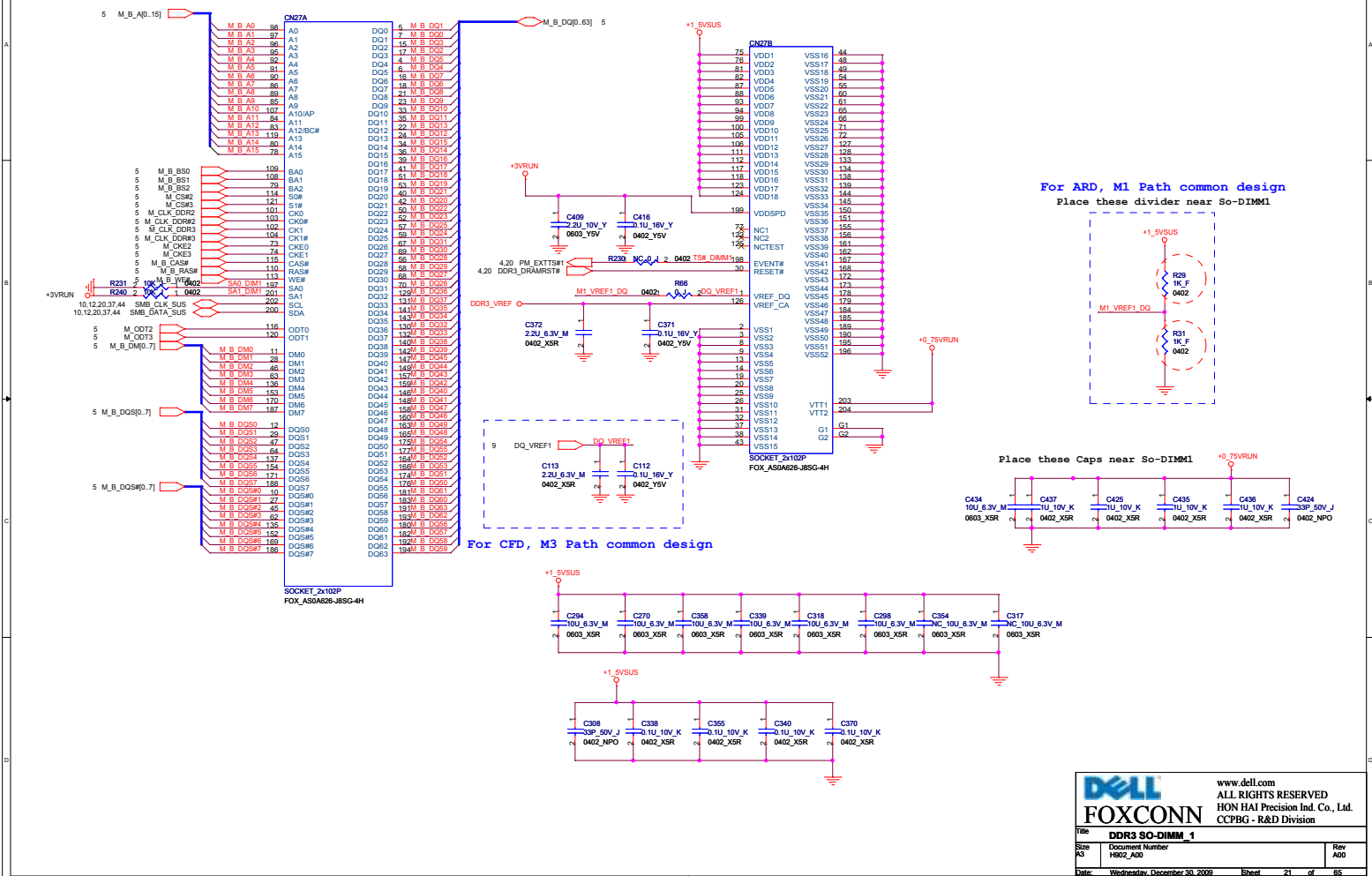
| USB   |       |
|-------|-------|
| AB16  | VSS01 |
| AA19  | VSS01 |
| AA20  | VSS02 |
| AA22  | VSS03 |
| AA24  | VSS04 |
| AA26  | VSS05 |
| AA28  | VSS06 |
| AA30  | VSS07 |
| AA32  | VSS08 |
| AA34  | VSS09 |
| AA36  | VSS10 |
| AA38  | VSS11 |
| AA40  | VSS12 |
| AA42  | VSS13 |
| AA44  | VSS14 |
| AA46  | VSS15 |
| AA48  | VSS16 |
| AA50  | VSS17 |
| AA52  | VSS18 |
| AA54  | VSS19 |
| AA56  | VSS20 |
| AA58  | VSS21 |
| AA60  | VSS22 |
| AA62  | VSS23 |
| AA64  | VSS24 |
| AA66  | VSS25 |
| AA68  | VSS26 |
| AA70  | VSS27 |
| AA72  | VSS28 |
| AA74  | VSS29 |
| AA76  | VSS30 |
| AA78  | VSS31 |
| AA80  | VSS32 |
| AA82  | VSS33 |
| AA84  | VSS34 |
| AA86  | VSS35 |
| AA88  | VSS36 |
| AA90  | VSS37 |
| AA92  | VSS38 |
| AA94  | VSS39 |
| AA96  | VSS40 |
| AA98  | VSS41 |
| AA100 | VSS42 |
| AA102 | VSS43 |
| AA104 | VSS44 |
| AA106 | VSS45 |
| AA108 | VSS46 |
| AA110 | VSS47 |
| AA112 | VSS48 |
| AA114 | VSS49 |
| AA116 | VSS50 |
| AA118 | VSS51 |
| AA120 | VSS52 |
| AA122 | VSS53 |
| AA124 | VSS54 |
| AA126 | VSS55 |
| AA128 | VSS56 |
| AA130 | VSS57 |
| AA132 | VSS58 |
| AA134 | VSS59 |
| AA136 | VSS60 |
| AA138 | VSS61 |
| AA140 | VSS62 |
| AA142 | VSS63 |
| AA144 | VSS64 |
| AA146 | VSS65 |
| AA148 | VSS66 |
| AA150 | VSS67 |
| AA152 | VSS68 |
| AA154 | VSS69 |
| AA156 | VSS70 |
| AA158 | VSS71 |
| AA160 | VSS72 |
| AA162 | VSS73 |
| AA164 | VSS74 |
| AA166 | VSS75 |
| AA168 | VSS76 |
| AA170 | VSS77 |
| AA172 | VSS78 |
| AA174 | VSS79 |
| AA176 | VSS80 |

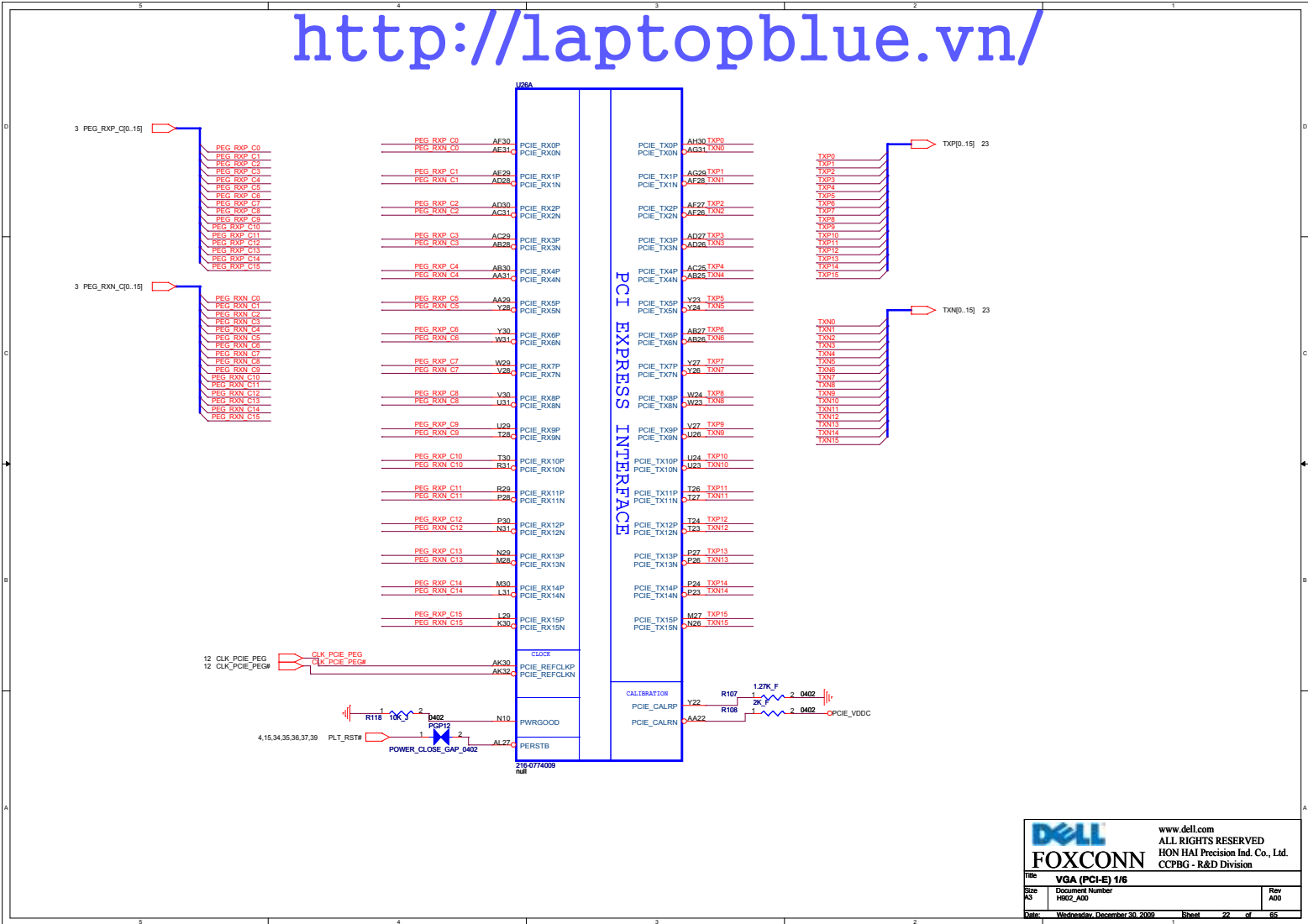


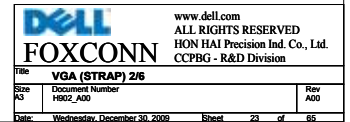
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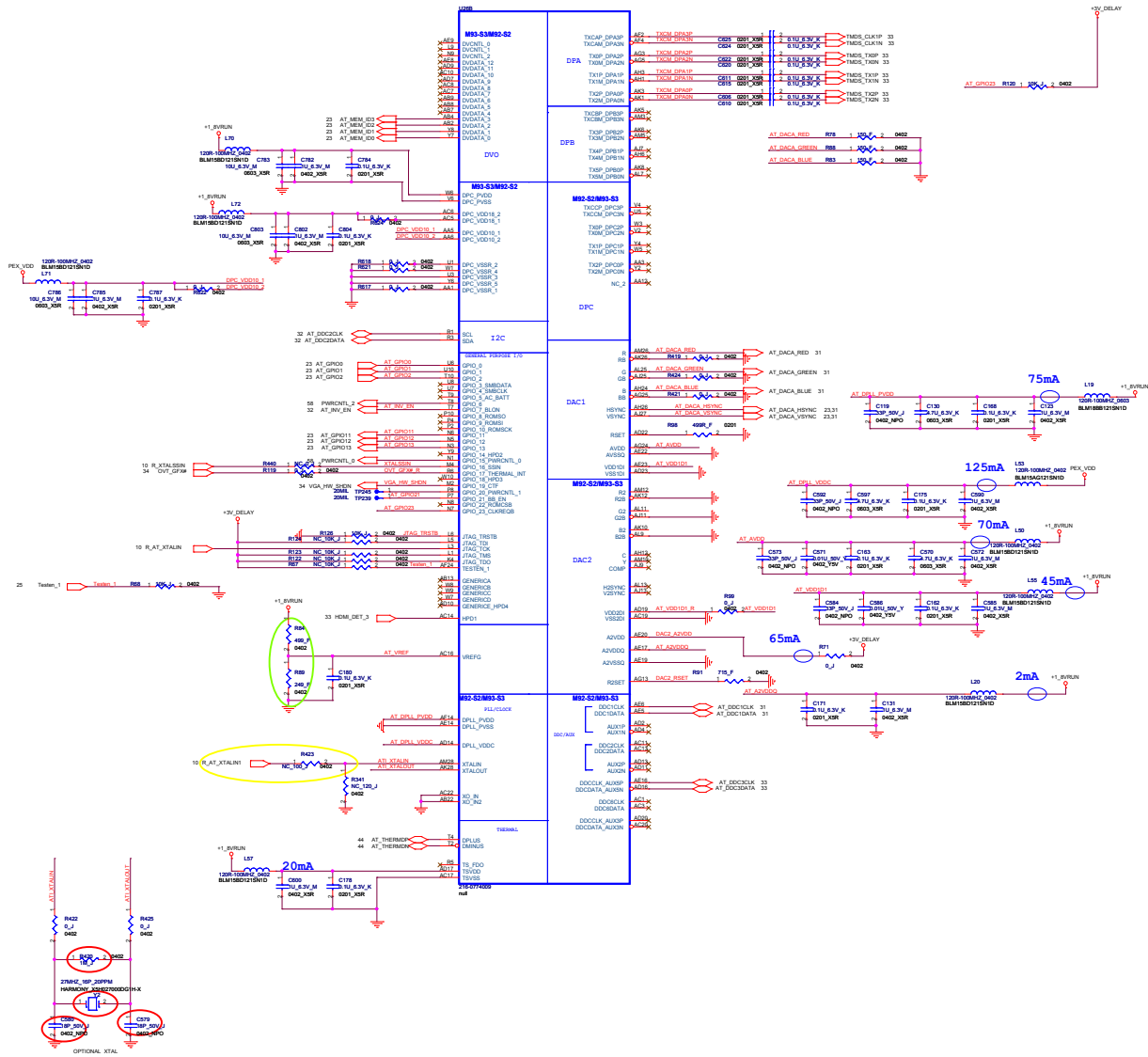
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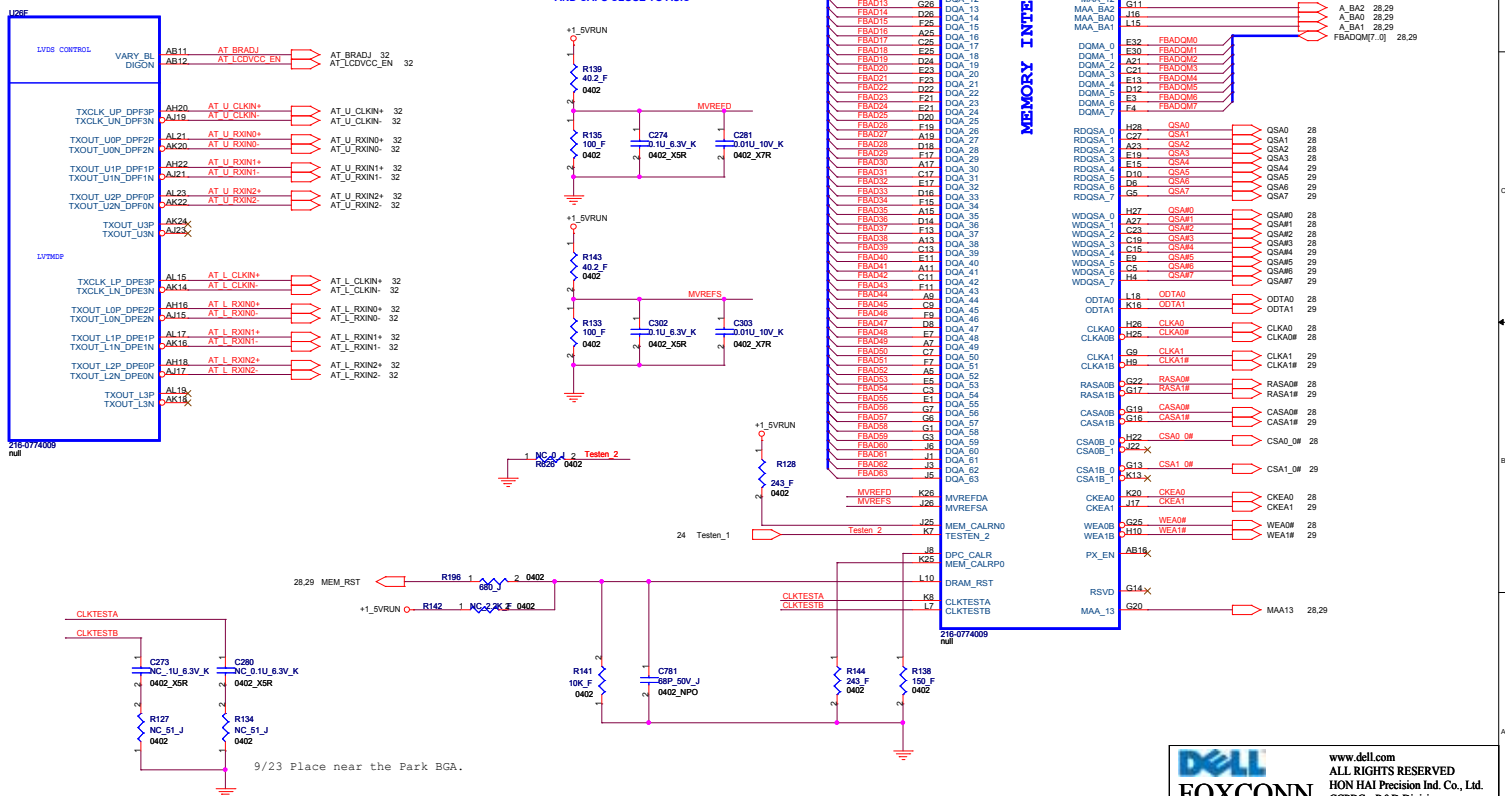


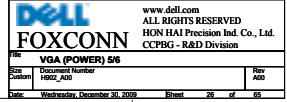


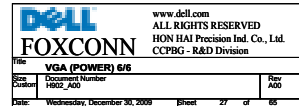




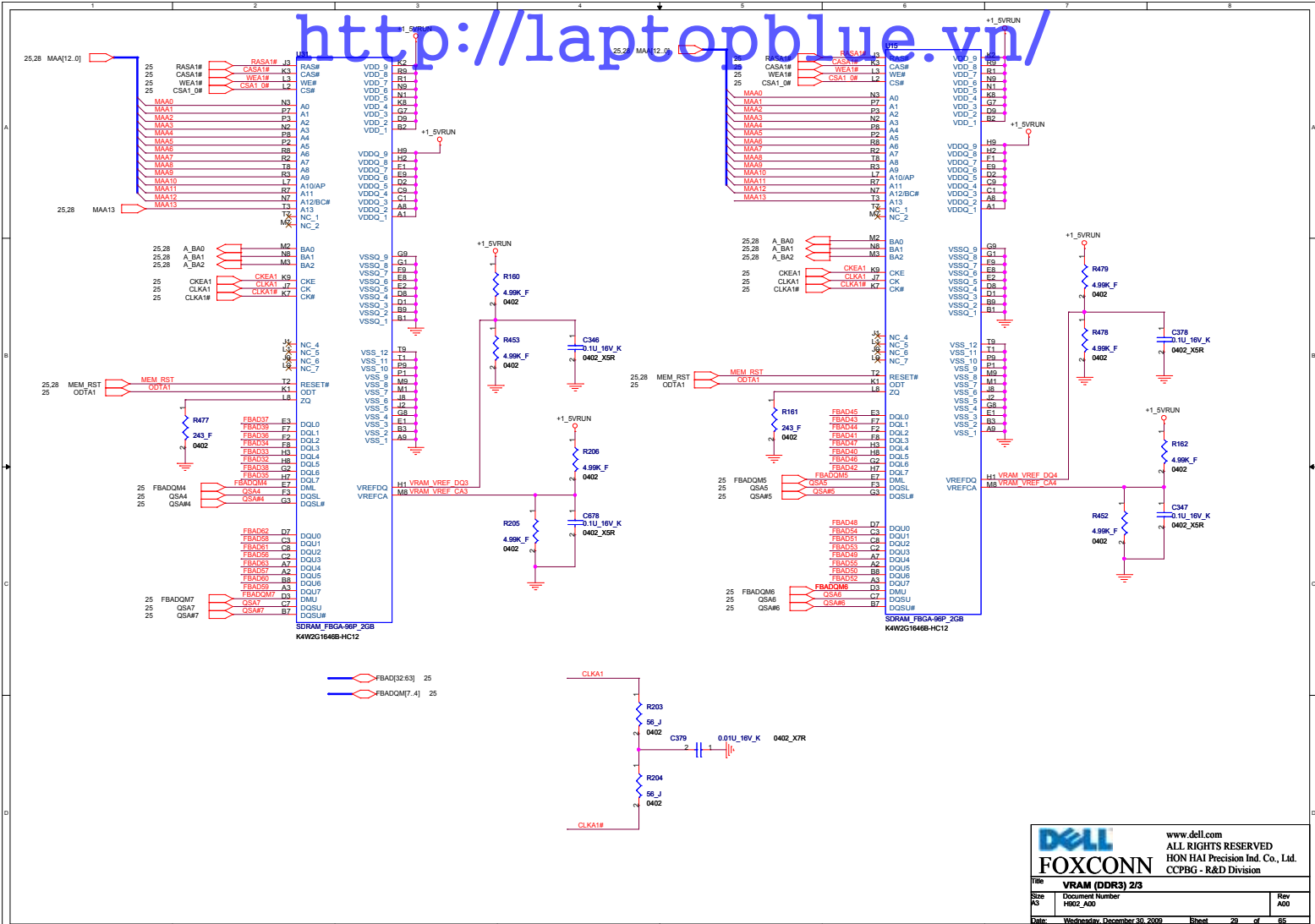


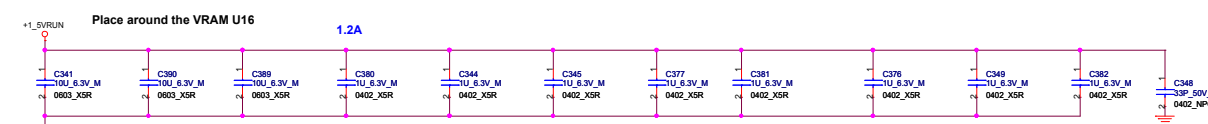
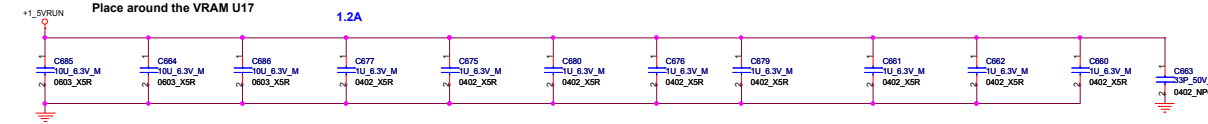
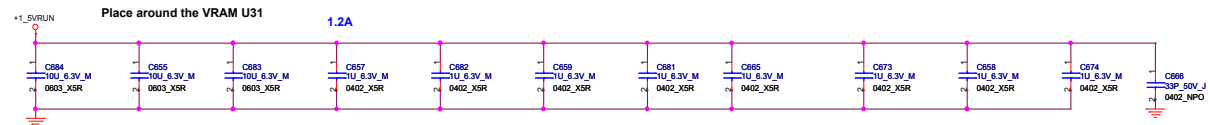
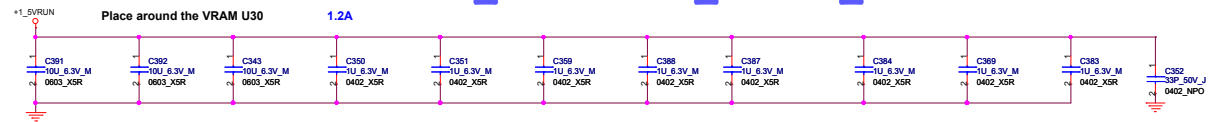












For EMI

CRT CONNECT

Place close to CRT CN

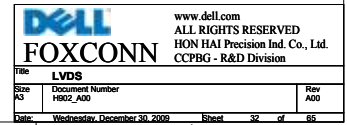


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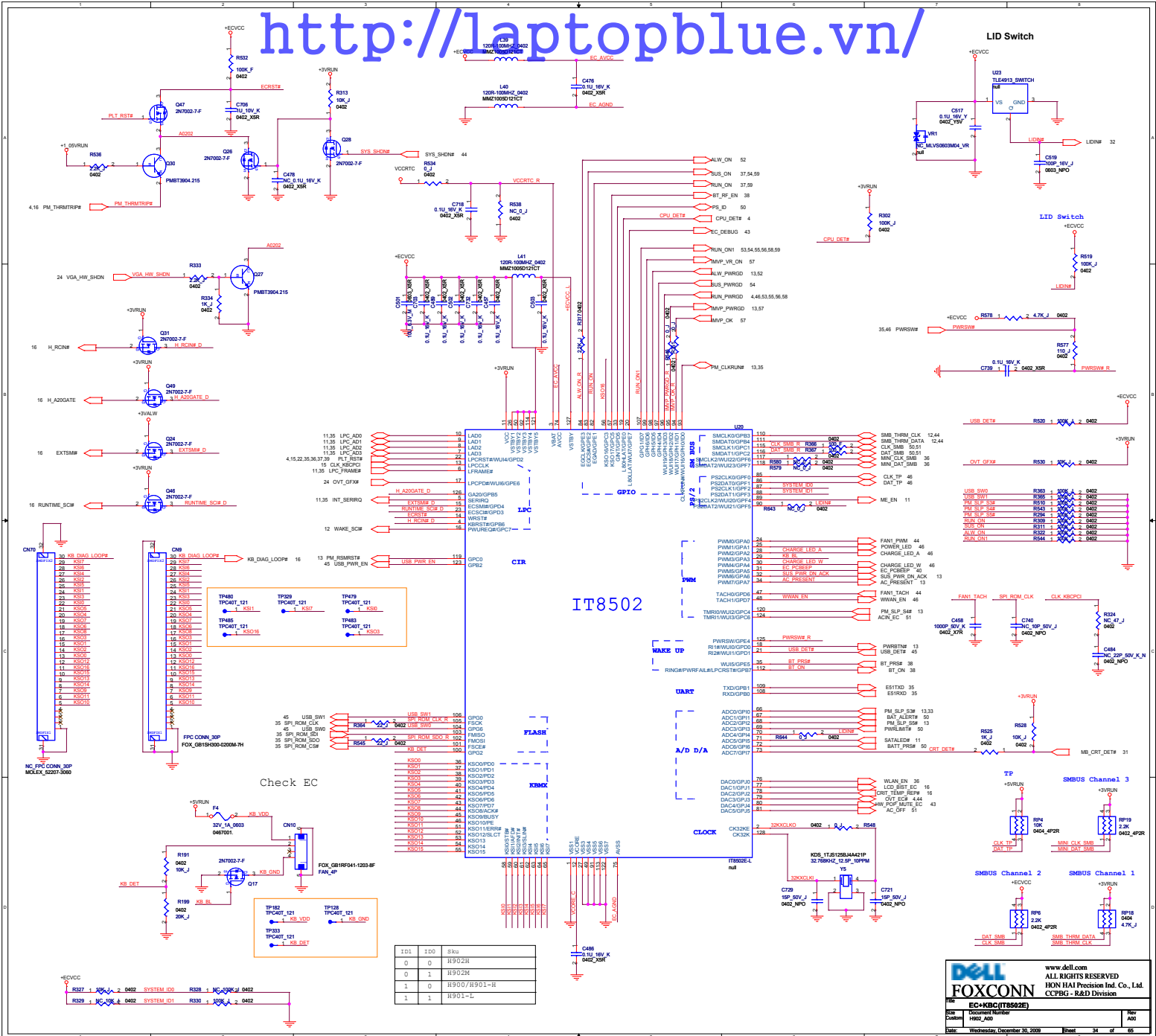
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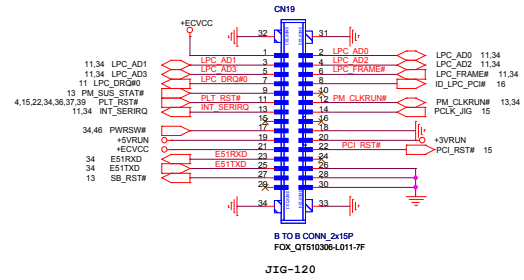
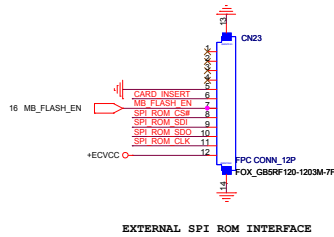
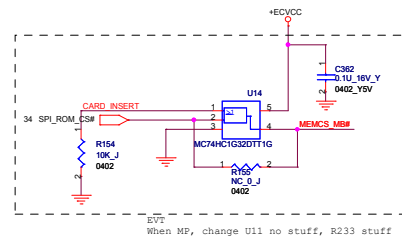
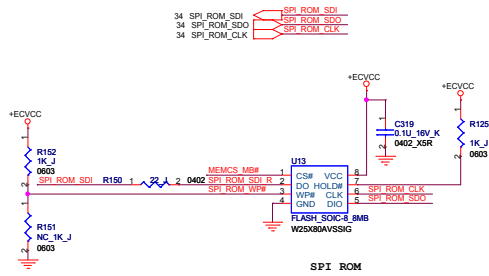
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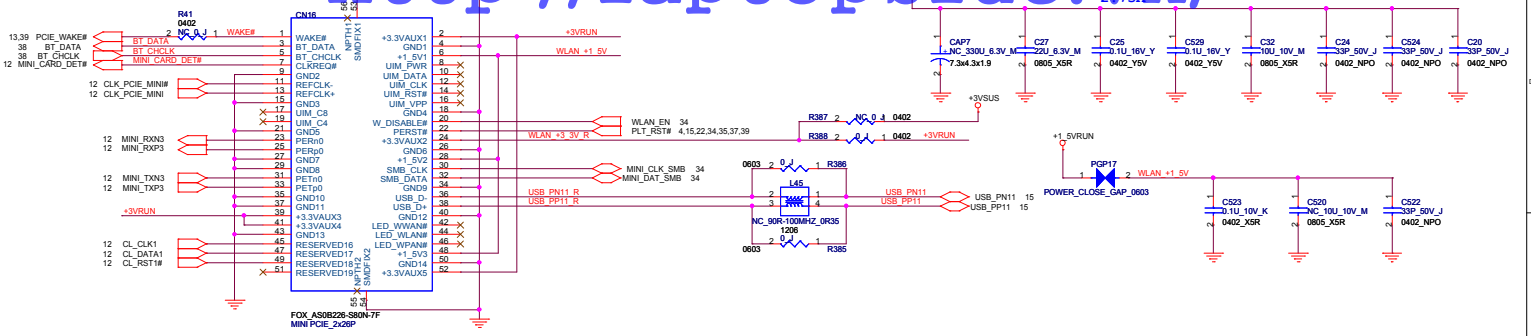




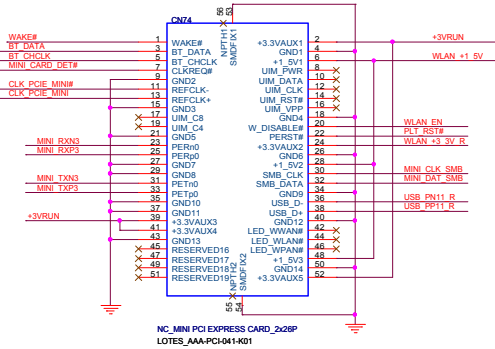




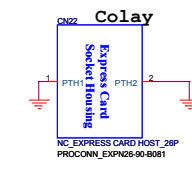
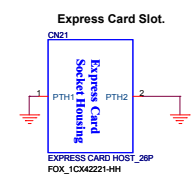
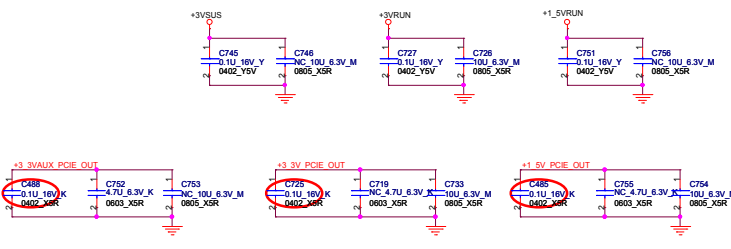
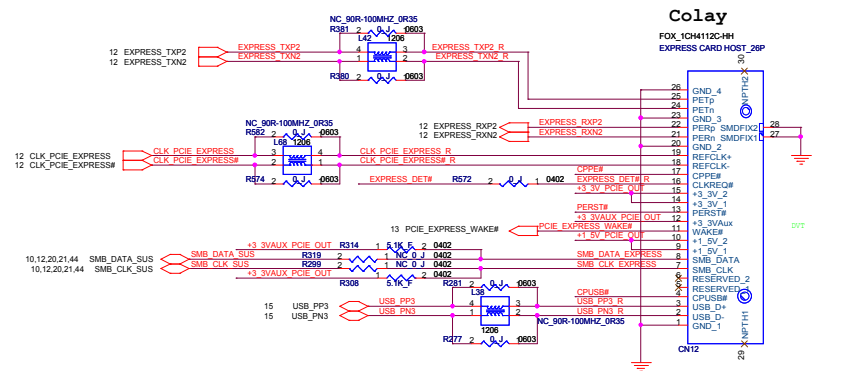
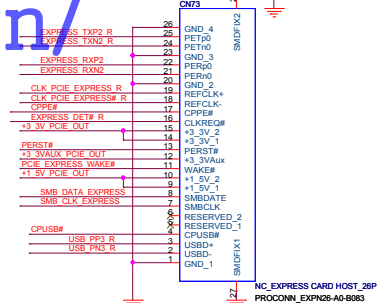
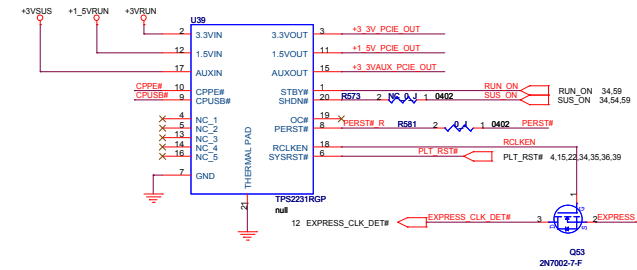
+1.5V=>0.5A Peak/0.395A Normal  
+3.3Vaux=>2.75A Peak/1.1A Normal



Half Mini Card for WLAN or WiMAX



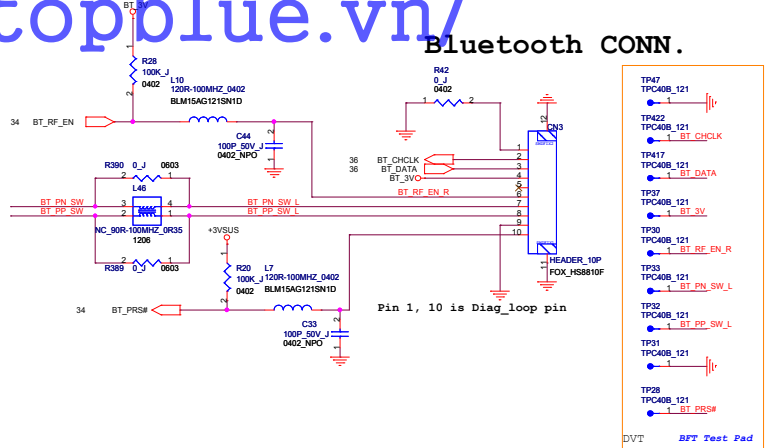
+1\_5V=>650mA  
+3\_3VAux=>270mA  
+3\_3V=>1.0A  
Express Card Power Switch



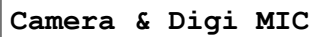
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| Express card |                              |                |
|--------------|------------------------------|----------------|
| Rev          | Document Number              | Rev            |
| A3           | H002_A00                     | A00            |
| Date:        | Wednesday, December 30, 2009 | Sheet 37 of 85 |

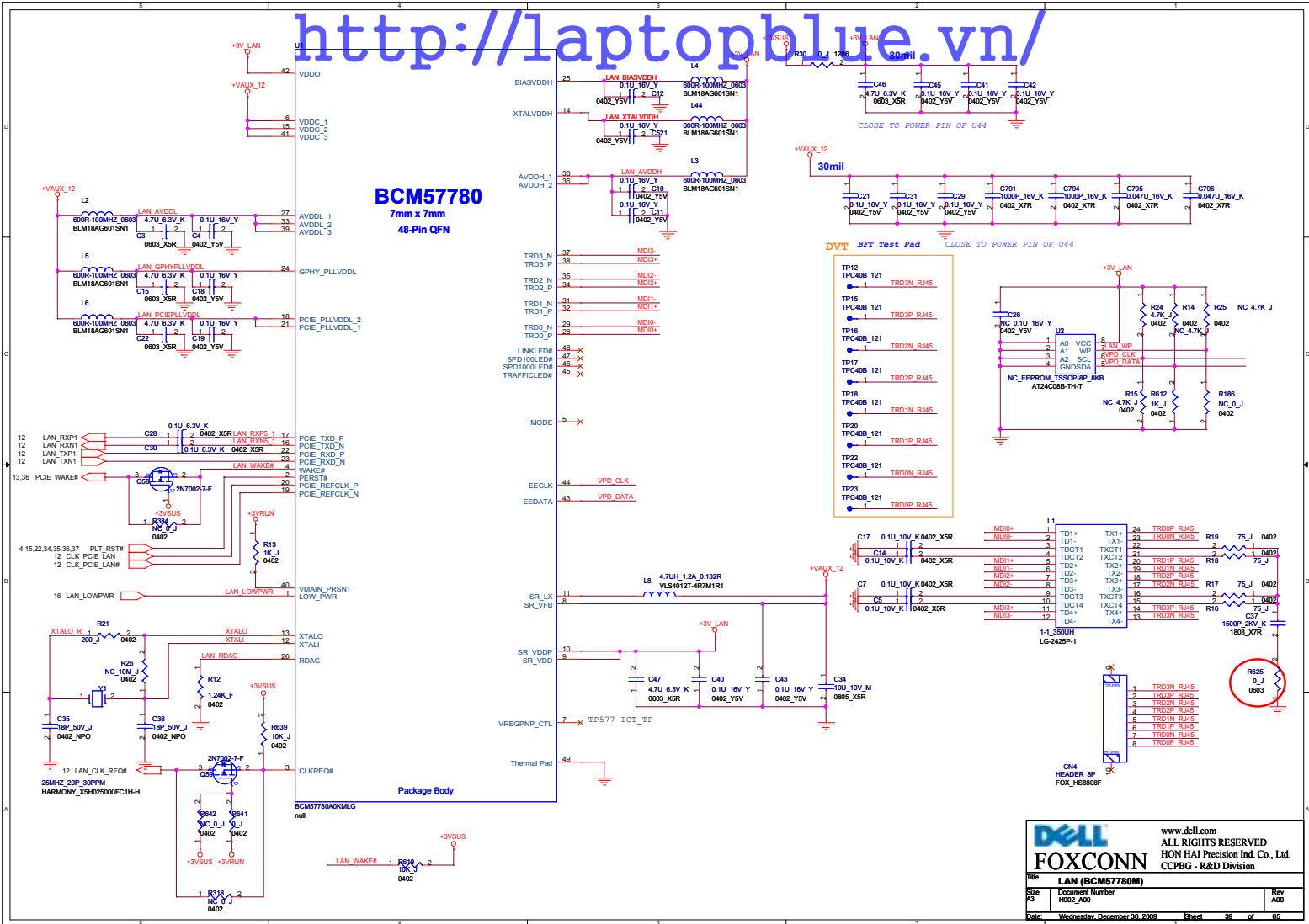


*CAMERA/Int MIC Connector*



|   |                                    |  |                   |
|---|------------------------------------|--|-------------------|
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| <b>Title    BT &amp; CAMERA/Dig MIC CON</b>   |                                    |  |                   |
| <b>Size</b><br>A3   | <b>Document Number</b><br>H802_A00 |  | <b>Rev</b><br>A00 |
| <b>Date:</b>  | Wednesday, December 30, 2009       | <b>Sheet</b>   | 38 of 65          |

**BCM57780**  
7mm x 7mm  
48-Pin QFN

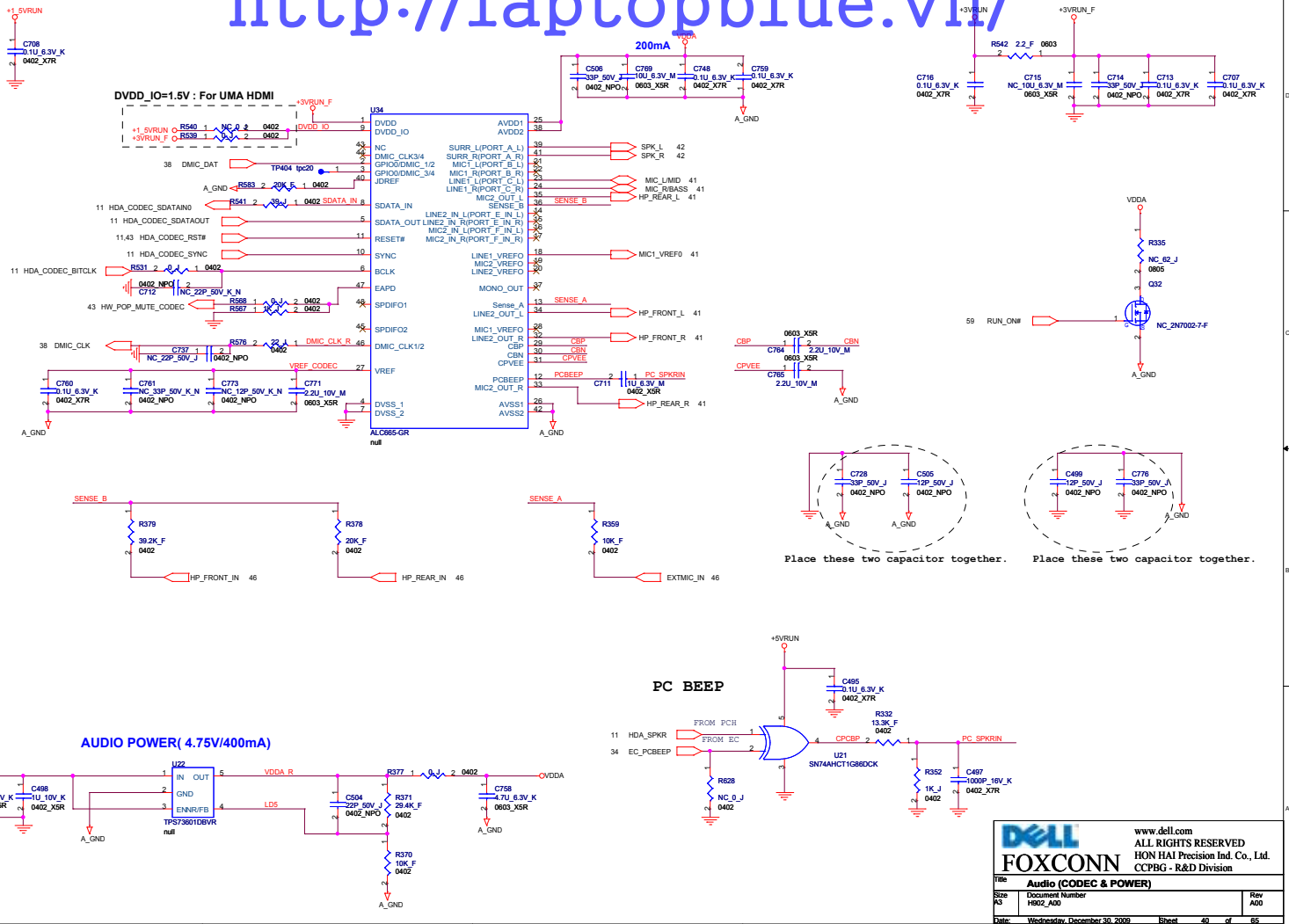


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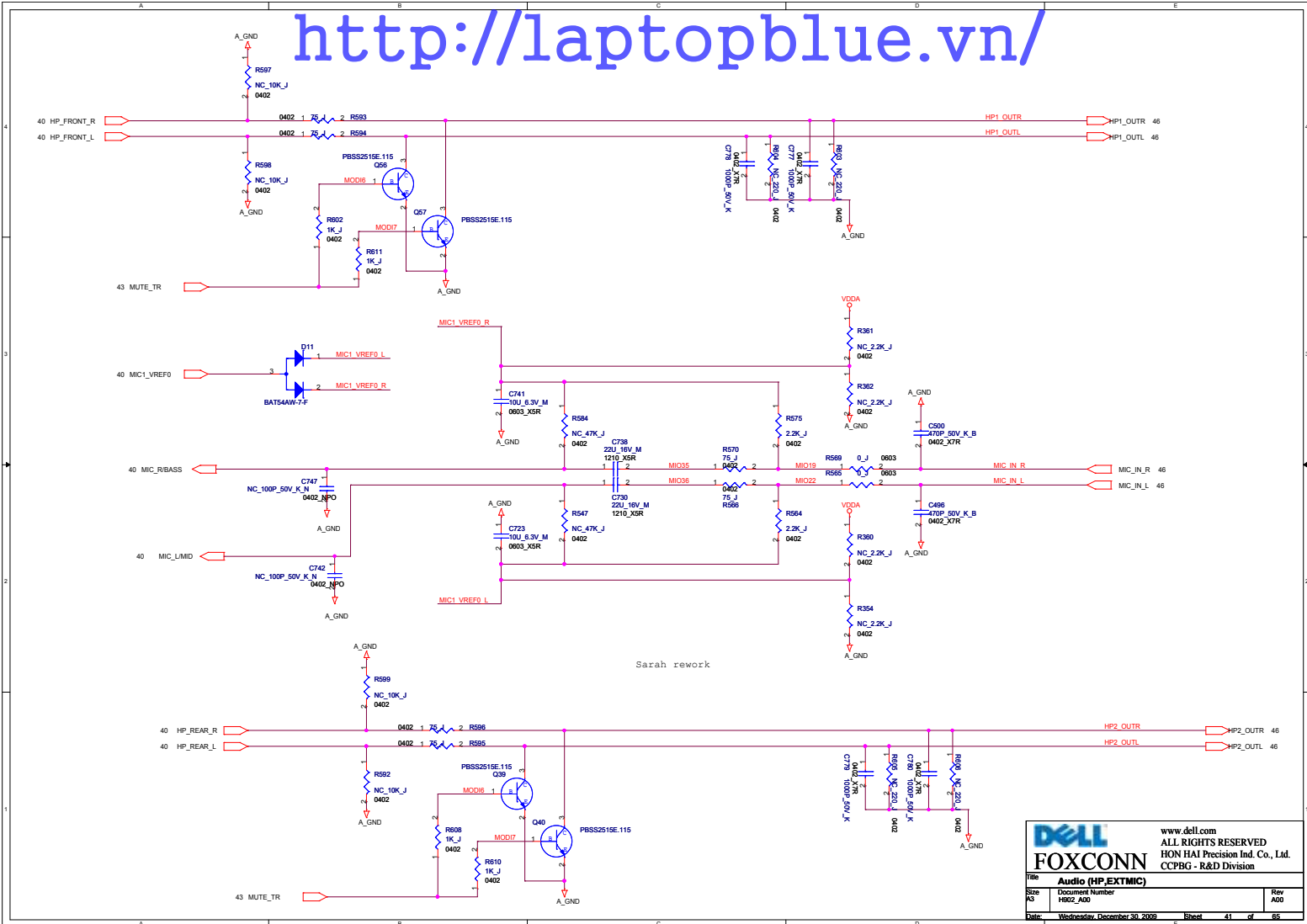
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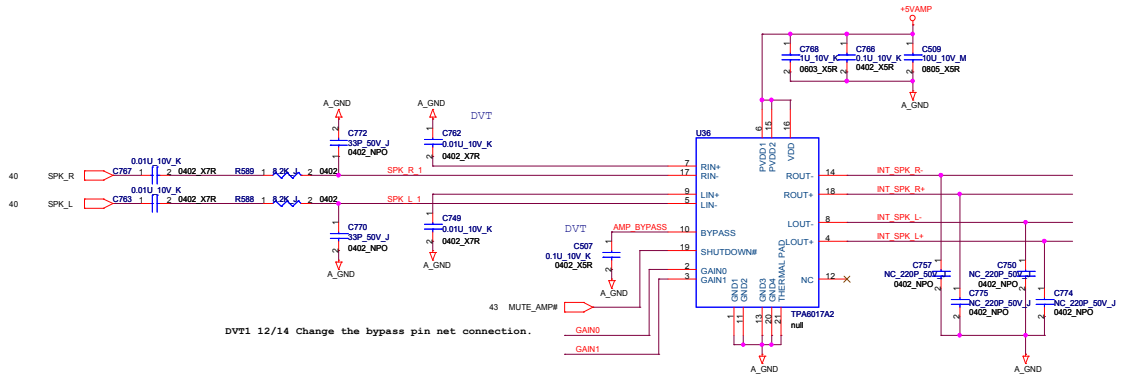
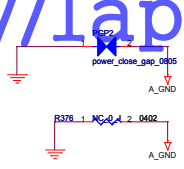
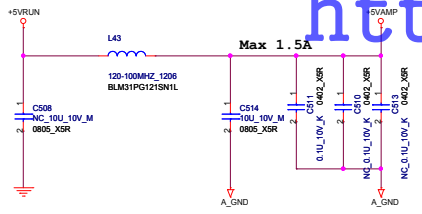
Rev: A00

Date: Wednesday, December 30, 2009

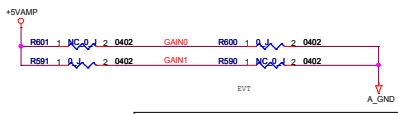








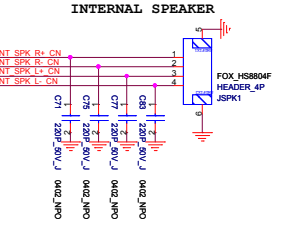
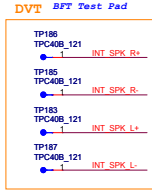
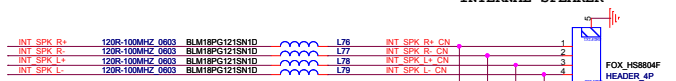
DVT1 12/14 Change the bypass pin net connection.



**SPEAKER AMP**

|         | GAIN0 | GAIN1 |
|---------|-------|-------|
| 6 dB    | 0     | 0     |
| 10 dB   | 0     | 1     |
| 15.6 dB | 1     | 0     |
| 21.6 dB | 1     | 1     |

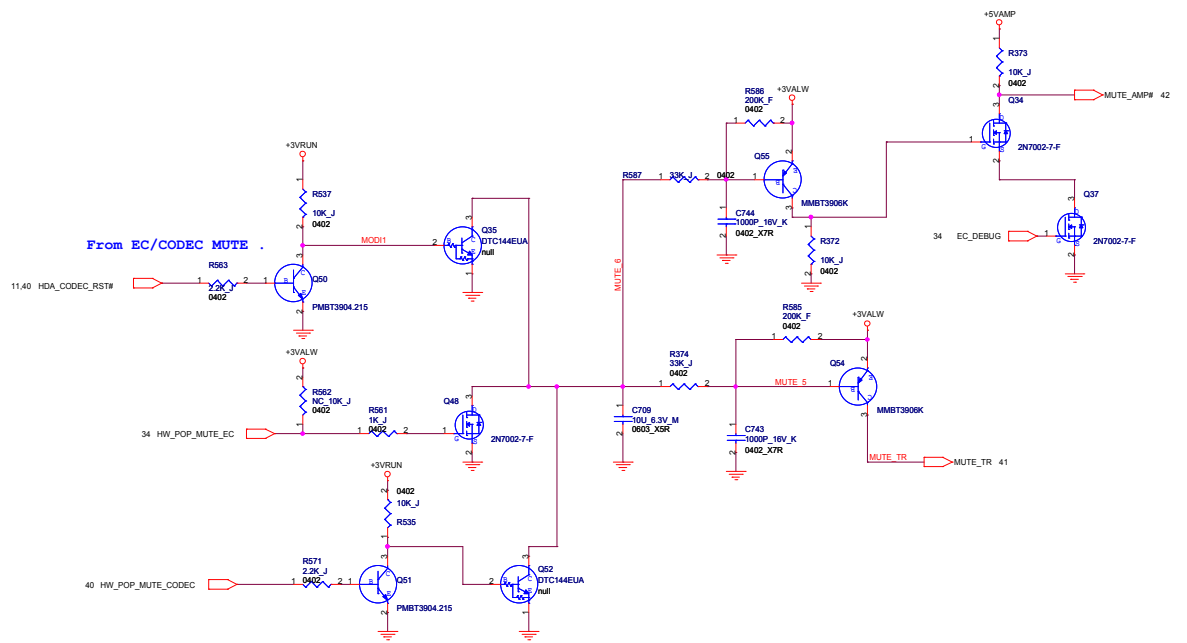
dB=20logGain  
If set 10dB , gain is 3.162.  
 $P_o = \{(1.2V_{rms} * 3.162)^2\} / 4 = 3.599 W$

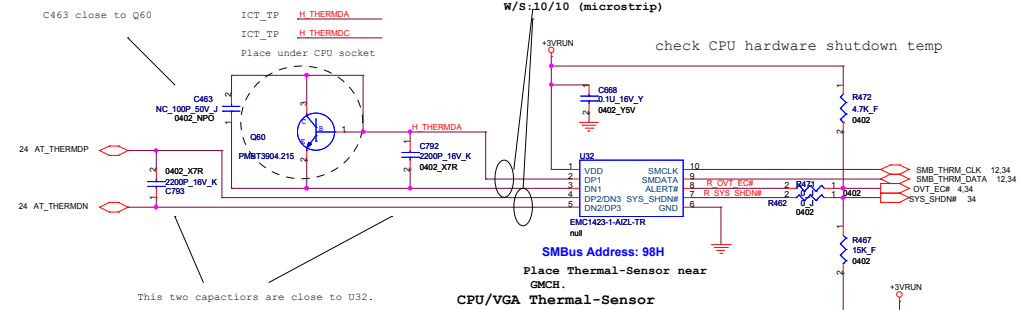
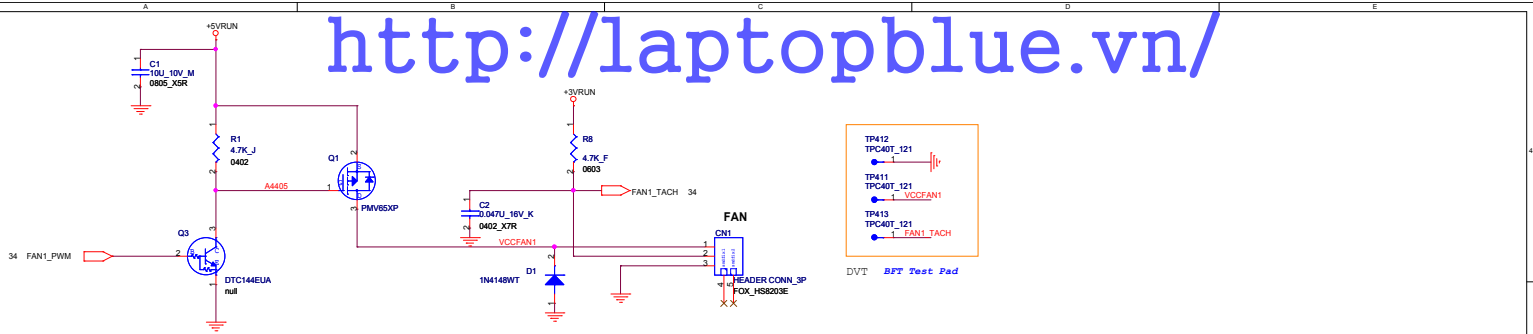


**DELL FOXCONN**

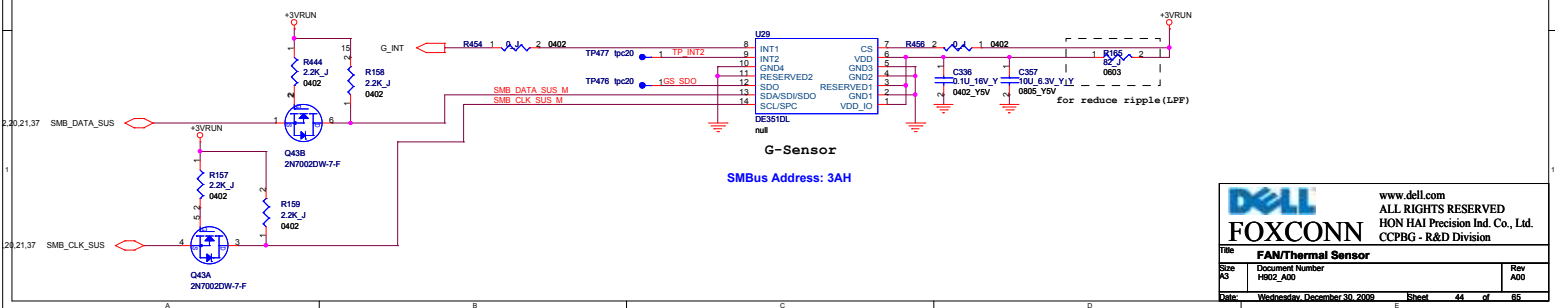
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Title: Audio (SPKR)  
Size: A3  
Document Number: H002\_A00  
Rev: A00  
Date: Wednesday, December 30, 2009  
Sheet: 42 of 55

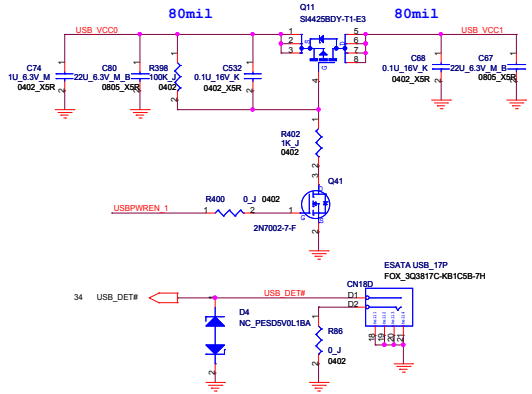


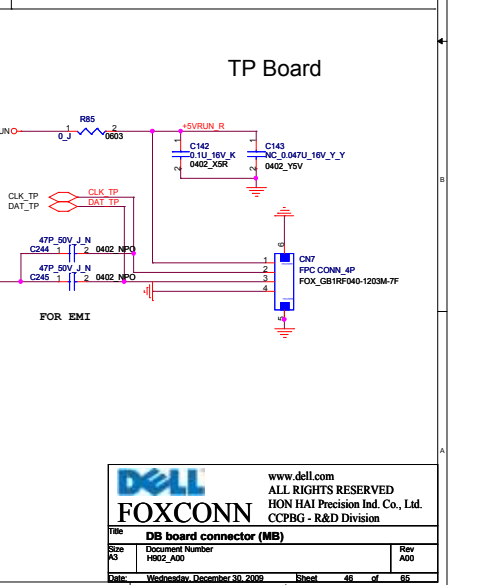
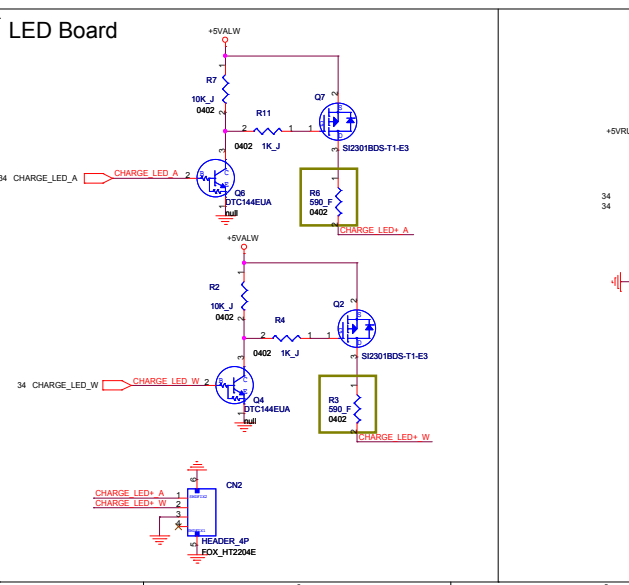
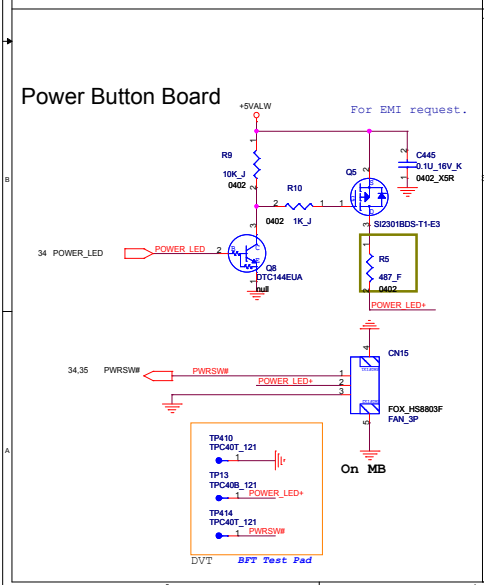
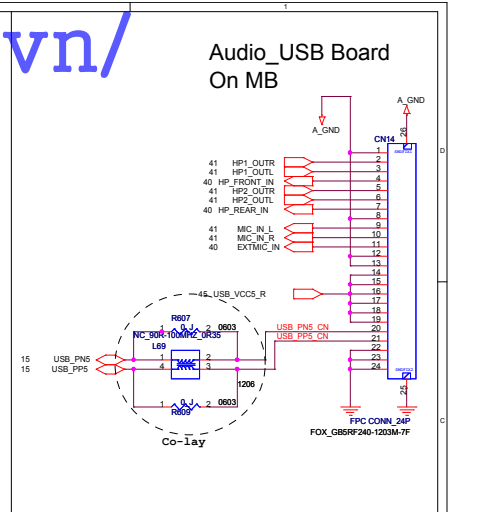
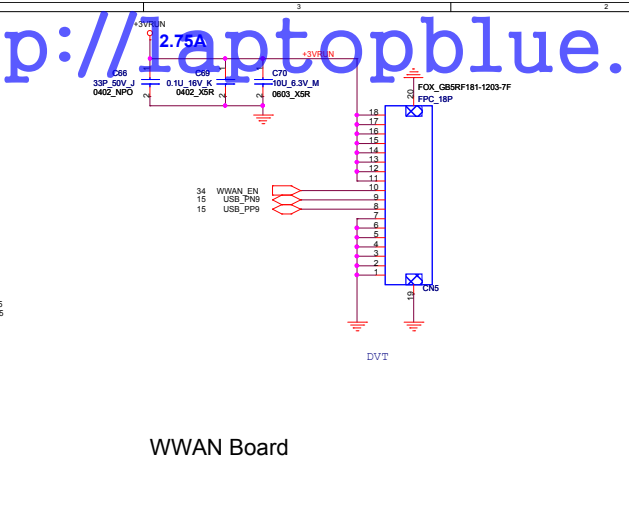
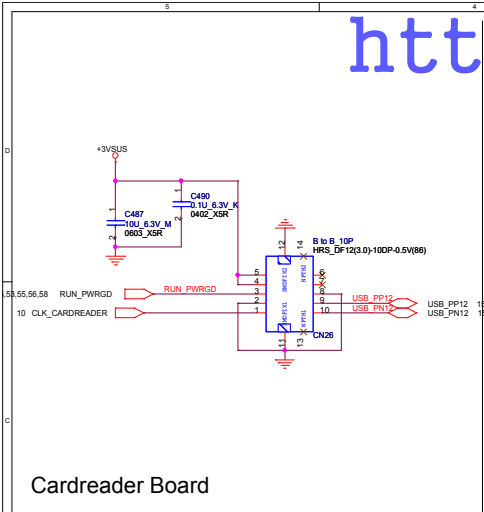



### G Sensor



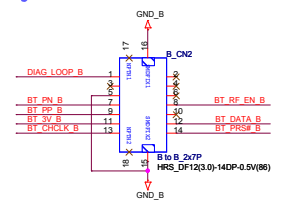
|  |                           |          |                                  |
|--|---------------------------|----------|----------------------------------|
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|  |                           |          | CCPBG - R&D Division             |
| Title: FAN/Thermal Sensor                          |                           |          |                                  |
| Size: A3   | Document Number: H802_A00 | Rev: A00 |                                  |
| Date: Wednesday, December 30, 2009 Sheet: 44 of 95 |                           |          |                                  |





|   |                        |                                  |              |
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|   |                        | CCPBG - R & D Division           |              |
| <b>Title</b>  |                        |                                  |              |
| <b>DB board connector (MB)</b>  |                        |                                  |              |
| <b>Size</b>   | <b>Document Number</b> | <b>Rev</b>                       |              |
| A3  | H802_A00               | A00                              |              |
| <b>Date:</b> Wednesday, December 30, 2009   |                        | <b>Sheet</b> 46                  | <b>of</b> 85 |

WHITE:  $V_f=2.55V$  (typ)



B\_BOSS1  
BOSS\_5.5x4.9  
null



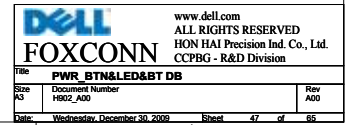
|                 |
|-----------------|
| Bluetooth Board |
|-----------------|

The schematic shows two LEDs connected to a common GND\_L rail. The left LED, L\_LED1 (LWTW-C195DS0KF-5A), has its cathode connected to GND\_L and its anode connected to a node labeled "null". This node is also connected to a capacitor L\_C1 (100P 50V J 0402\_NPO) which is connected to CHARGE\_LED\_V. The right LED, L\_LED2 (LWTW-C195DS0KF-5A), has its cathode connected to GND\_L and its anode connected to a node labeled "CHARGE\_LED\_A". This node is also connected to a capacitor L\_C2 (100P 50V J 0402\_NPO) which is connected to CHARGE\_LED\_V.

**WHITE:** Vf=2.55V (typ)  
**AMBER:** Vf=2.0V (typ)

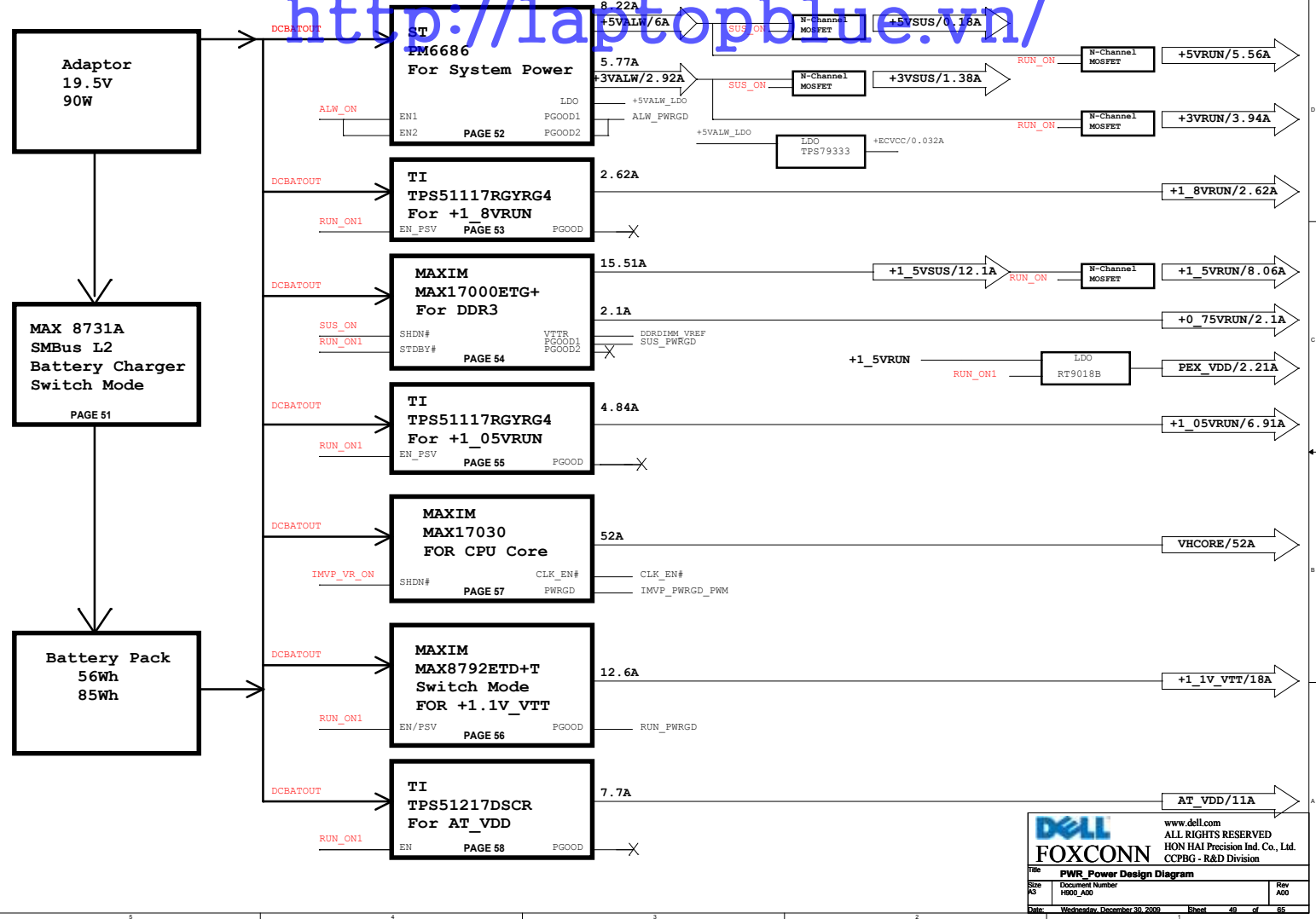
WHITE:  $V_f=2.55V$  (typ)  
AMBER:  $V_f=2.0V$  (typ)

AMBER:  $V_f=2.0V$  (typ)

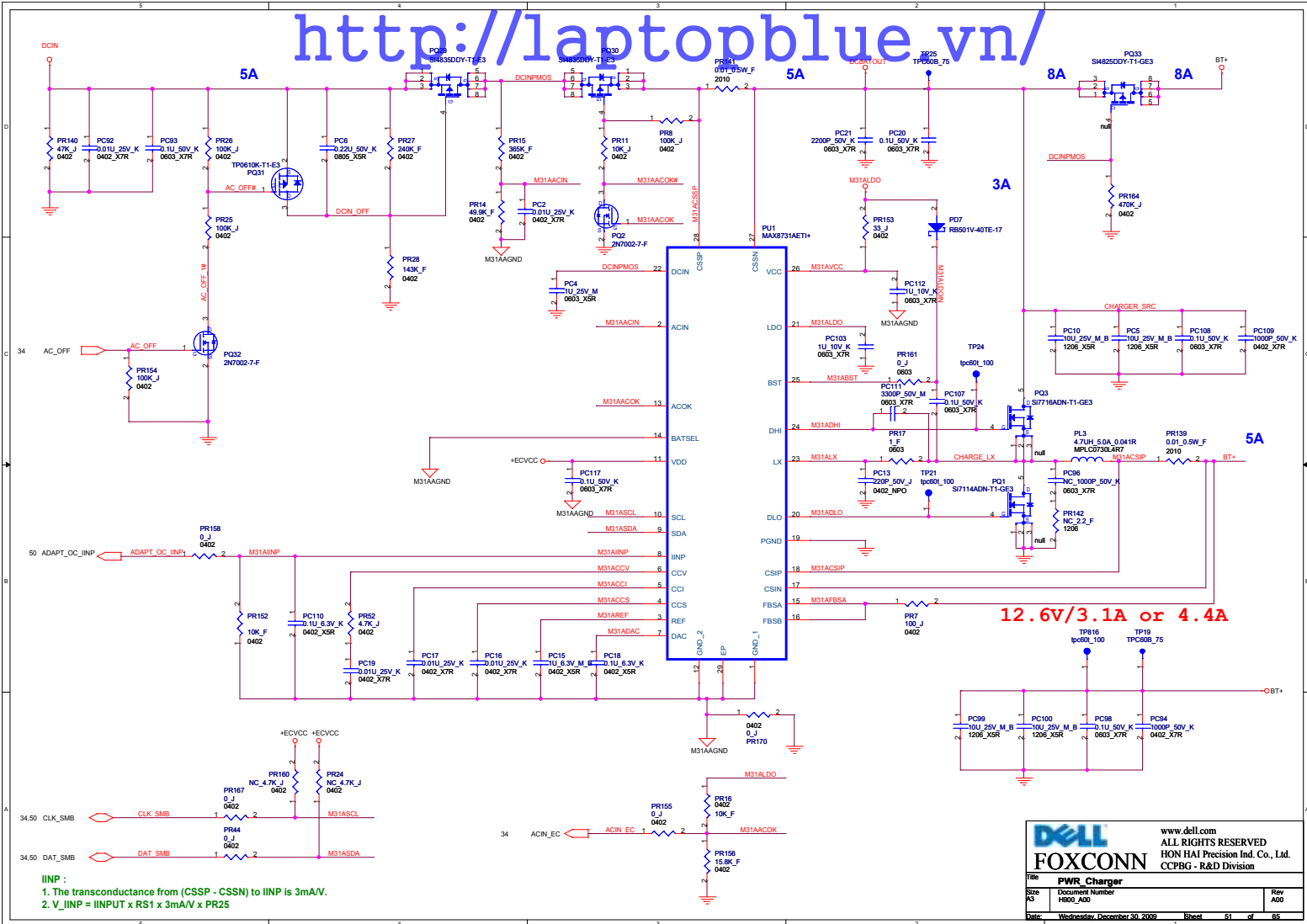






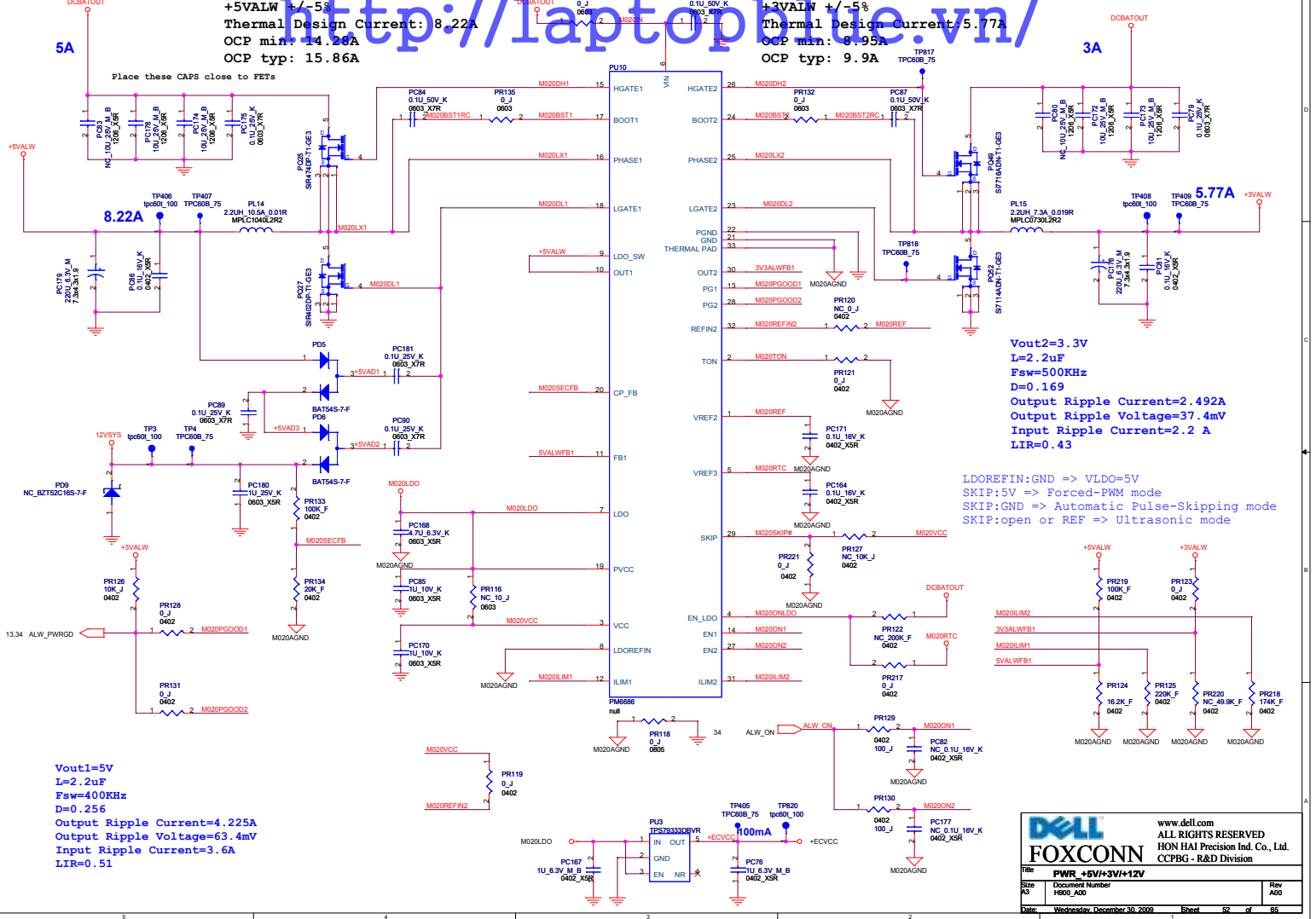






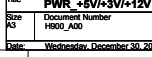

+5VALW +/-5%  
Thermal Design Current: 8.22A  
OC min: 14.26A  
OCP typ: 15.86A

+3VALW +/-5%  
Thermal Design Current: 5.77A  
OC min: 8.95A  
OCP typ: 9.9A



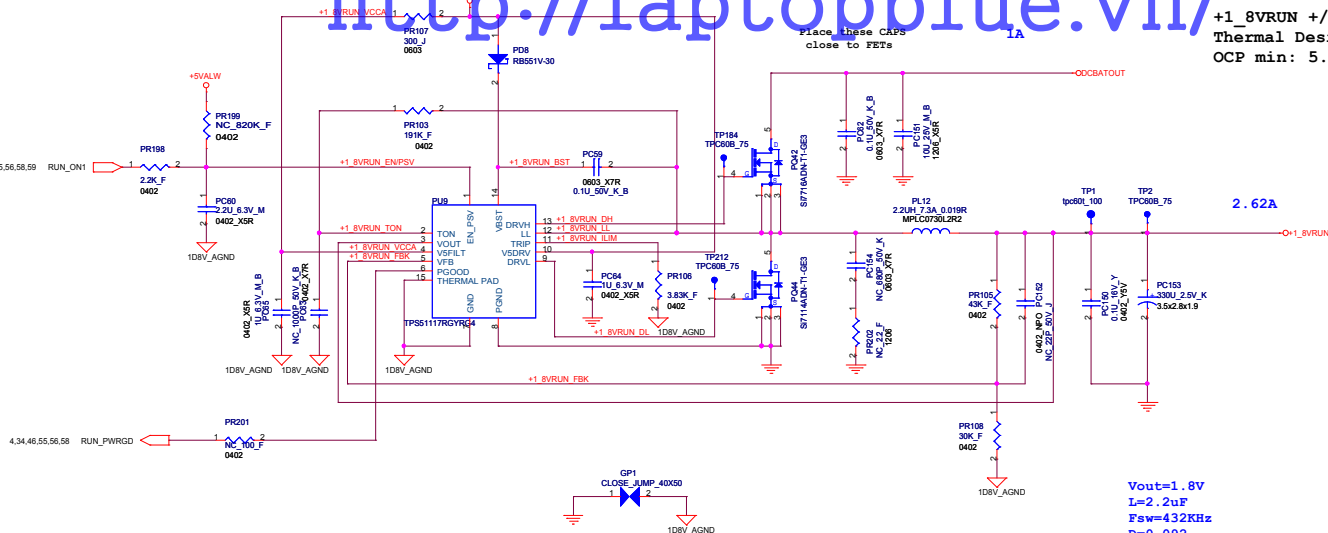
Vout2=3.3V  
I=2.2uF  
Fsw=500KHz  
D=0.169  
Output Ripple Current=2.492A  
Output Ripple Voltage=37.4mV  
Input Ripple Current=2.2 A  
LIR=0.43

LDOREFIN:GND => VLDO=5V  
SKIP:5V => Forced-PWM mode  
SKIP:GND => Automatic Pulse-Skipping mode  
SKIP:open or REF => Ultrasonic mode



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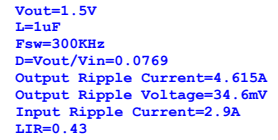
|  |                           |          |
|--|---------------------------|----------|
| Title: PWR +5V/+3V/+12V                            |                           |          |
| Size: A3   | Document Number: H800_A00 | Rev: A00 |
| Date: Wednesday, December 30, 2009 Sheet: 52 of 85 |                           |          |



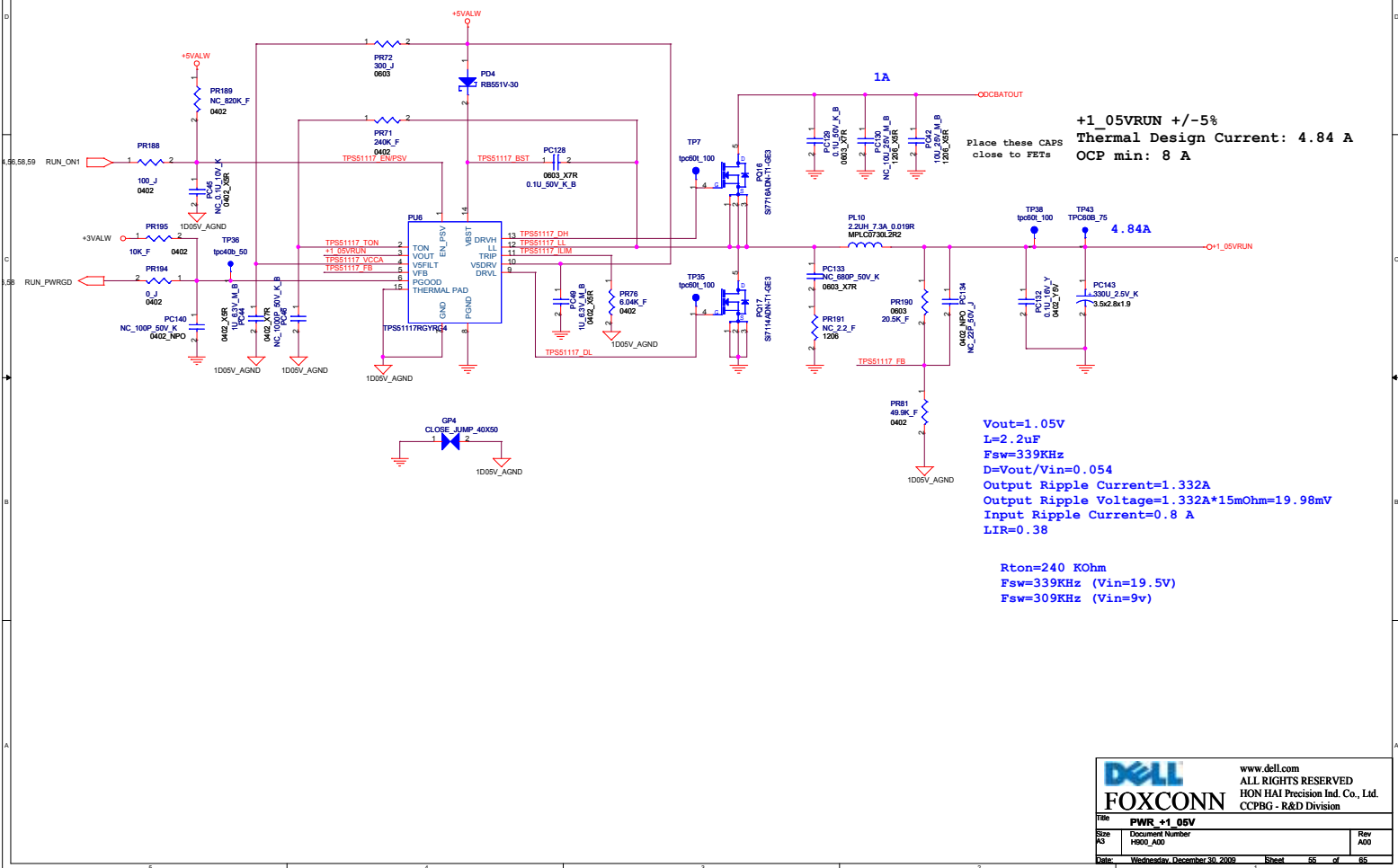
Vout=1.8V  
L=2.2uF  
Fsw=432KHz  
D=0.092  
Output Ripple Current=1.719A  
Output Ripple Voltage=1.719A\*15mOhm=25.78mV  
Input Ripple Current=0.8A  
LIR=0.65

Rton=191 Kohm  
Fsw=432KHz (Vin=19.5V)  
Fsw=404KHz (Vin=9v)

|   |                           |          |
|---|---------------------------|----------|
|   |                           |          |
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| Title: PWR +1.8V  |                           |          |
| Size: A3  | Document Number: H800_A00 | Rev: A00 |
| Date: Wednesday, December 30, 2009  | Sheet: 53                 | of 95    |



+0\_75VRUN +/-5%  
Maximum current: 2.1A







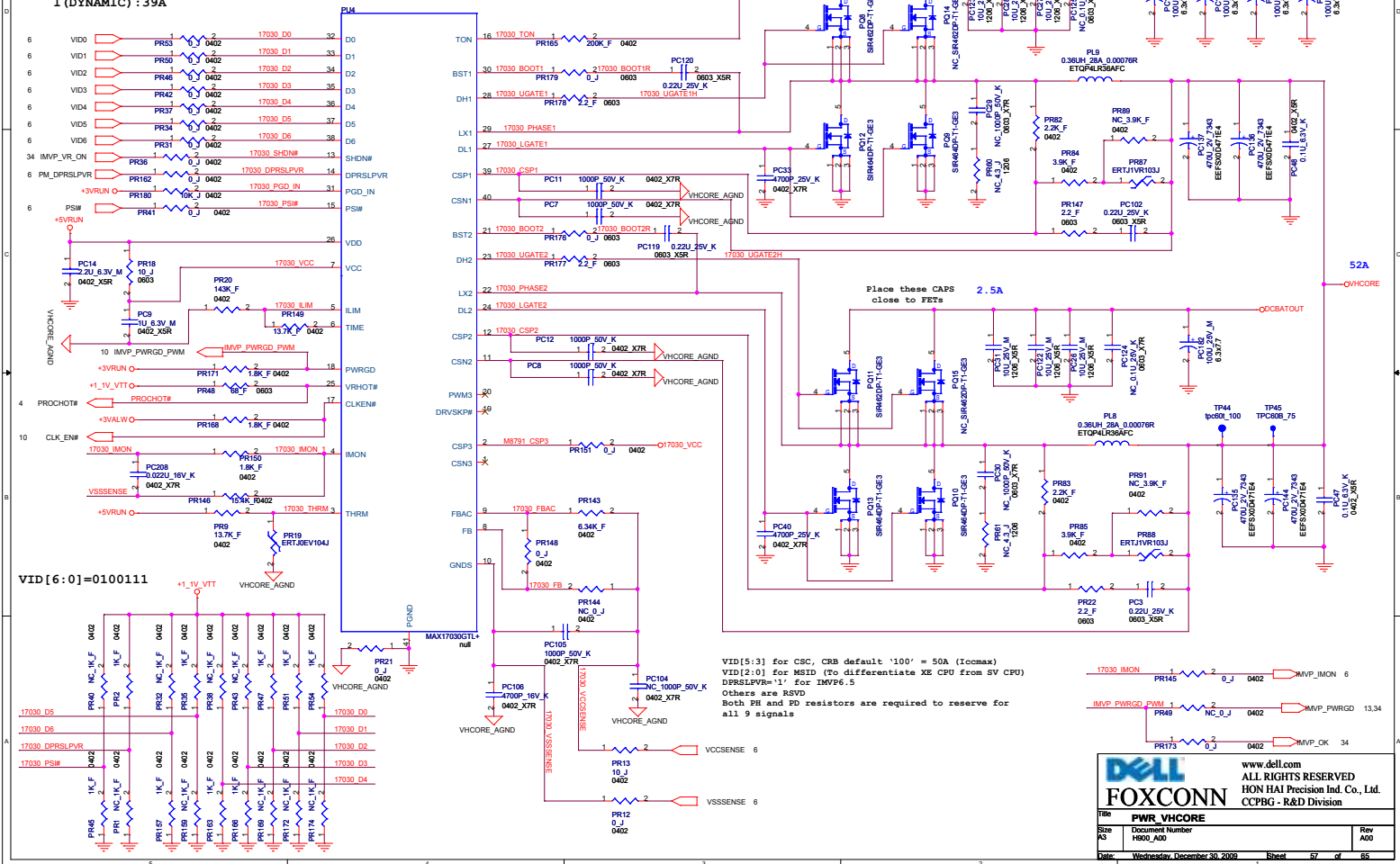
Clarksfield SV 45W CPU  
V(HFM): 0.95V  
V(LFM): 0.875V  
LL: -1.9mOhm  
I(HFM): 51A  
I(TDC): 38A  
I(DYNAMIC): 39A

http://laptopblue.vn/

OC setting: 61.7A (39.83A per phase)  
PR649 = 13.775 Ohm  
OCpmax: 65.6A  
OCpmin: 58.2A

Place these CAPS  
close to FETs

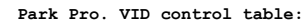
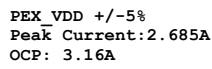
Place these CAPS  
close to VCORE input



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| PWR_VCORE    |                              |
|--------------|------------------------------|
| Docu. Number | H800_A00                     |
| Rev          | A00                          |
| Date         | Wednesday, December 30, 2009 |
| Sheet        | 57 of 85                     |



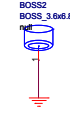
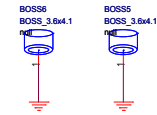
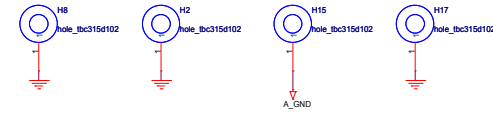
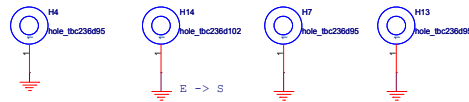
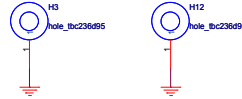
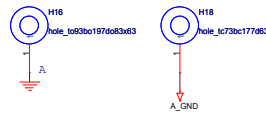
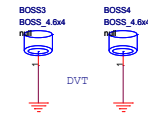
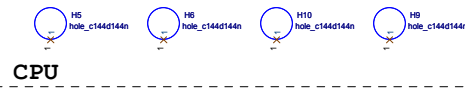
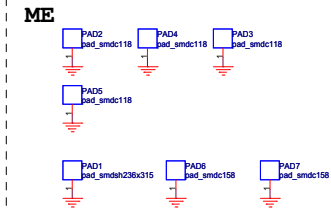
| PWRCNTL_2 | PWRCNTL_0 | GPU Voltage | R_top  | R_bot                      |
|-----------|-----------|-------------|--------|----------------------------|
| 0         | 0         | 1.05V       | 10Kohm | 20K//120K//60.4K= 13.3Kohm |
| 0         | 1         | 0.95V       | 10Kohm | 20K//120K= 17.1Kohm        |
| 1         | 1         | 0.9V        | 10Kohm | 20Kohm                     |

|               |        |
|---------------|--------|
| Power Control | GPIO   |
| PWRCNTL_0     | GPIO15 |
| PWRCNTL_2     | GPIO6  |

|   |                                 |   |              |
|---|---------------------------------|---|--------------|
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| <b>Title PWR_AT_VDD/PEX_VDD</b>   |                                 |   |              |
| <b>Size K3</b>  | <b>Document Number H802_A00</b> | <b>Rev A00</b>  |              |
| <b>Date: Wednesday, December 30, 2009</b>   |                                 | <b>Sheet 58</b>   | <b>of 65</b> |

$$V_o = (1 + (PR_{97}/PR_{98})) * 0.8 = 1V$$

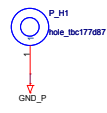
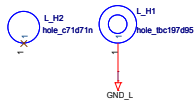




BOSS in Bottom side




BOSS in Top side



**LED**

**Power Button**

H -> R

|   |                             |   |            |
|---|-----------------------------|---|------------|
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| Title <b>HOLE</b>   |                             |   |            |
| Size<br>A3  | Document Number<br>H802_A00 |   | Rev<br>A00 |
| Date: Wednesday, December 30, 2009      Sheet 60 of 95  |                             |   |            |

H902 DVT

(2009/09/25)

P.25 Change R139 & R143 from 100 ohm to 40.2 ohm for AMD recommend.  
P.24 Change AT MEM ID0~3 connect to DVDDATA 0~3.  
P.26 Reserve R627 & R629 for reduce DPE/F PLL.  
P.26 Add R630 & R631 to replace Bead L74, L75 and NC C667, C797, C798, C800, C799, C801 for AMD recommend.  
P.25 NC C273, C280, R127, R134 for AMD recommend.



H902 PVT

(2009/11/03)

P.22-27 Change U26 HHPN to 12-2160774-0002.  
P.17 Change L35, L37, L66, L67 to 1L-DML2201-2M00 for PUR recommend.  
P.20 Change C364 to 1C-2B20104-K301 for PUR recommend.  
P.31 Change C263 to 1C-2B20104-K301 for PUR recommend.  
P.34 Change C457, C732, C502, C489, C703, C476, C486, C503, C718 & C739 to 1C-2B20104-K301 for PUR recommend.  
P.35 Change C319 to 1C-2B20104-K301 for PUR recommend.  
P.37 Change C485 & C488 & C725 to 1C-2B20104-K301 for PUR recommend.  
P.45 Change C68 & C532 to 1C-2B20104-K301 for PUR recommend.  
P.46 Change C69 & C142 to 1C-2B20104-K301 for PUR recommend.  
P.46 Change C194, C195, C430 & C431 to 1C-2B20104-K301 for PUR recommend.

(2009/11/18)

P.46 Add C445 0.1uF for EMI recommend.  
P.33 Change CN11 for ME recommend.



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Title: History (1)

|          |                           |          |
|----------|---------------------------|----------|
| Size: A3 | Document Number: H902_A00 | Rev: A00 |
|----------|---------------------------|----------|

Date: Wednesday, December 30, 2009 Sheet: 61 of 95

H900 EVT -> DVT

(2009/03/26)

- P.47 Add BT2(CSR) BC\_BOSS1 NC for reserve.
- P.32 Change LVDS connector pin define switch Pin4 and Pin10. (Pin4 NC, Pin10 +3VRUN)
- P.47 Add BT2(CSR) BC\_BOSS1 NC for reserve.

(2009/03/27)

- P.46 Modify WWAN CN5 pin define.
- P.32 LVDS CN, change +3VRUN to pin 4, pin3 to NC prevent DCBATOUT short to +3VRUN.

(2009/03/31)

- P.42 Change R588,R589 to 8.2K ohm for 1.5W speaker.

(2009/04/01)

- P.40 Change R332 to 13.3K for Realtek recommend.
- P.24 Reserve R382, R383, R617 and R293 0 ohm for Park.
- P.24 Reserve L71, C785 1uF, C786 10uF, C787 0.1uF, L70, C782 1uF, C783 10uF, C784 0.1uF for Park.
- P.24 Reserve R619, R620 0 ohm for Park.
- P.27 Add R622 0 ohm for saperate Park schematics.
- P.27 Reserve R618 and R621 0ohm, C512 1uF, C515 10uF, and L72 for Park.

(2009/04/02)

- P.26 Reserve L73, C788 1uF, C789 10uF, C790 0.1uF and R623 0ohm for Park.

(2009/04/03)

- P.27 Reserve R624 150 ohm, R627 0 ohm for Park.
- P.27 Add R625,R626 0 ohm for Park.

(2009/04/06)

- P.11 Stuff R495 for Flash SPI.

(2009/04/10)

- P.11 Change PCH SPI\_CS# to SPI\_ROM\_CS#.
- P.34 Change H\_PWRGD to H\_CPUPWRGD.

(2009/04/13)

- P.40 Reserve R628 0 ohm for PC beep.
- P.42 Change R45,R47,R49,R50 to bead L76,L77,L78,L79 for EMI request.
- P.24 Change L19 to BLM18BB121SN1D to solve AT\_DPLL\_PVDD Vpp over spec issue.
- P.32 Change F8 to 467002 (32V-2A\_0603) for LVDS VCC protection.
- P.47 Del BC\_CN4,BC\_CN3,BC\_BOSS1,BC\_TP1,BC\_TP2 for BT2 board is not necessary.
- P.42 Change C767,C763,C762,C749 to 0.01uF; C507 to 0.1uF for speaker pop noise.
- P.32 Del R29 0ohm for no necessary.
- P.36 Del R27 0ohm for no necessary.
- P.45 Change R384, R34, R52 to close gap PGP4,PGP5,PGP6.
- P.45 Change F5,F1 to close gap PGP7,PGP8 for un-necessary.
- P.22 Change R410 0ohm to close gap PGP12.
- P.26 Change R92,R93 0ohm to close gap PGP13,PGP14.
- P.36 Change R391 0ohm to close gap PGP17.

(2009/04/15)

- P.39 Add D15, D16 for solving leakage issue.

(2009/04/23)

- P.4 Del R196 0ohm for no necessary.

(2009/04/24)

- P.4 Add CPU DET# for Dell PC Beep.

(2009/04/27)

- P.4 Change R384 to 1k1ohm R182 to 3.0K ohm for Intel recommend.

(2009/04/28)

- P.36 Add R27 0 ohm for DVT.
- P.41 Change R602, R611, R608, R610 to 1k ohm for Audio headphone noise.
- P.45 Add F1 and F5 for protection and del PGP7 and PGP8.

(2009/04/30)

- P.6 Del R401, R115 for Vcore power plane.
- P.38 Change TP29, TP46, TP42, TP40, TP39, TP428, TP430 to TPC40B\_121.
- P.50 Change TP8, TP11, TP14, TP10, TP9 to TPC60B\_121.
- P.44 Change TP412, TP411, TP413 to TPC40T\_121.
- P.39 Change TP12, TP15, TP16, TP17, TP18, TP20, TP22, TP23 to TPC40B\_121.
- P.42 Change TP186, TP185, TP183, TP187 to TPC40B\_121.
- P.34 Change TP480, TP485, TP329, TP479, TP483, TP182, TP333, TP128 to TPC40T\_121.
- P.46 Change TP414, TP410 to TPC40T\_121 and TP13 to TPC40B\_121.
- P.38 Change TP47, TP422, TP417, TP37, TP30, TP33, TP32, TP31, TP28 to TPC40B\_121.
- P.11 Change C736 to 15pF for cystal vendor recommend.
- P.30 Change C35 and C38 to 18pF for cystal vendor recommend.
- P.34 Del Q28 and R318 2.2k ohm for CPU PC Beep solution .

(2009/05/5)

- P.32 Change C65 to 6800pF for LVDS sequence.
- P.39 Reserve R318 and R384 0 ohm for leakage solution.
- P.45 Change F1 and F5 to 1M-F08V05A-0000.

(2009/05/8)


- P.16 Reserve R391 1K ohm for following the CRB.
- P.7 Del R55 0 ohm for leakage.
- P.35 Change U13 to W25X80A.
- P.31 Change L61, L62, L63 to 33R100MHz for CRT SI issue.

(2009/05/11)

- P.17 Change C479 to 1uF for Intel recommend.
- P.24 Reserve R410 and R629 0 ohm for Park.
- P.24 Reserve R634, R631, R632, and R633 0 ohm for Park.
- P.24 Del R619 and R620 0 ohm for Park NC.
- P.25 Change C781 to 1nF for AMD recommend.
- P.25 Reserve R630 680 ohm and R115 10K PD for Park.
- P.27 Reserve R635 0 ohm for Park.
- P.25 Add TP172, TP173, TP174, TP175, TP176 and TP177 for Layout request.
- P.60 Change BOSS3 and BOSS4 for ME request.
- P.17 Del C445 and C463 33pF for unused.
- P.36 Del R27 0 hom for unused.
- P.45 Del F1, F5, and R31 0 ohm for unused.
- P.46 Del F2 for unused.

(2009/05/12)

- P.46 Reserve R637 and R638 0 ohm for WWAN change.
- P.46 Add R636 0 ohm for WWAN change.
- P.13 Add R92 and R93 1k ohm for Intel recommend.



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## H900 EVT -> DVT

(2009/05/13)

P.25 Add R196 0 ohm and change R630 68 ohm to DRAM\_RST pin for AMD recommend.

(2009/05/14)

P.12 Add R620 0 ohm to GND in Xtal\_in for Intel recommend.  
P.7 Del R407, R399, and R405 0 ohm for 1.1VTT power plane.

(2009/05/20)

P.4 Change R173 to NC for un-used.  
P.27 Change C208 from 0.22u 10V to 0.22u 16V for derating issue.  
P.17 Stuff R268 0 ohm to GND for disable Intel internal LAN.

(2009/05/22)

P.17 Change R237 and R265 from 0603 to 0805 for derating.  
P.27 Change R146 from 0805 to 1206 for derating.

(2009/05/25)

P.17 Change CAP5 and CAP6 from 35m ohm ESR to 45m ohm ESR.

(2009/06/06)

P.39 Add Q58, Q59, R619, and R639 10K ohm and del D15 & D16 for leakage issue.  
P.6 Add R401 0 ohm and Add R399, R405, R407, R640 1K ohm NC for C-state debugging.

(2009/06/16)

P.6 Add R641 & R642 0 ohm for controlling LAN\_CLK\_REQ# turn on voltage.  
P.34 Add R643 & R644 0 ohm for debugging white screen issue.

(2009/06/25)

P.11 Change RTC battery P/N from 1M-BCR2032-LB00 to 1M-BCR2032-LB01.

(2009/07/01)

P.60 Add H32 for ME request.

(2009/07/14)

P.12 Add R645 & R646 2.2K ohm for SMBUS PH.

(2009/07/20)

P.38 Change C33 and C44 from NPO 10% to 5% for PUR recommend.  
P.47 Change P\_C1, P\_C2, L\_C1, L\_C2 from 10pF NPO 10% to 5% for PUR recommend.  
P.40 Change C499 and C505 from 12pF NPO 10% to 5% for PUR recommend.  
P.11 Change C735 from 12pF NPO 10% to 5% for PUR recommend.  
P.38 Change C78 and C79 from 15pF NPO 10% to 5% for PUR recommend.  
P.11 Change C736 from 15pF NPO 10% to 5% for PUR recommend.  
P.46 Change C244 and C245 from 47pF NPO 10% to 5% for PUR recommend.  
P.39 Add C445 0.1uF for Hipot test.  
P.27 Delete R146 0ohm for derating.  
P.18 Delete R257 0ohm for derating.  
P.17 Delete R237 0ohm for derating.

(2009/07/22)

P.17 Change C208 0.22uF from 16V to 25V for derating.  
P.39 Add C791, C794 1000pF and C795, C796 0.047uF for EMI request.  
P.12 Change R303 & R331 from 4.7K to 2.2K ohm NC.

## H900 DVT -> PVT

(2009/07/24)

P.34 Add Q28 and NC C478 0.1uF for Sys\_shdn#.  
P.44 Change R467 from 33K to 10K ohm & R472 from 15K to 6.8Kohm for thermal setting.  
P.39 NC C26 0.1uF, R14 1K ohm and U2 24C08.  
Add R612 1K ohm for disable external EEPROM.  
P.44 Add C463 100p NC for Thermal sensor vendor recommend.

(2009/07/28)

P.9 Change R51 & R53 from NC to introduce.  
P.33 Change HDMI connector from 2N-0019003-FKG0 to 2N-0019002-MKG0

## H900 PVT -> X-Build

(2009/08/03)

P.31 Change L61, L62, and L63 from 33R to 47R for CRT debug.  
P.33 Change D5 location to D9 for Safety recommend.  
P.11 Change D9 location to D5 for Safety recommend.  
P.11 Change R340 & R341 location to R427 & R426 for Safety recommend.  
P.24 Change R426 location to R341 for Safety recommend.  
P.45 Change R427 location to R340 for Safety recommend.  
P.32 Change U5 location to U4 for Safety recommend.  
P.10 Change U37 location to U40 for Safety recommend.  
P.45 Change U4 & U40 location to U5 & U37 for Safety recommend.  
P. 4 Change U17 from 14-MC74VHC-1G04 to 14-74AHC1G-1400 for L6 recommend.

(2009/08/07)

P.31 Change C646 & C640 from 47p to 22p.

(2009/08/20)

P.30 Change L1 to LanKom 1T-1LG2425-P100.  
P.20 Change R61 to NC for DDR Intel recommend.  
P.21 Change R66 to NC for DDR Intel recommend.

(2009/08/22)


P.20 & 21 Del R146 & R237 for customer recommend.  
P.20 Reserve R23 & R27 1K ohm for intel DDR3 M1 solution.  
P.21 Reserve R29 & R31 1K ohm for intel DDR3 M1 solution.

(2009/08/24)

P.24 Add R636 0 ohm for EMI recommend.  
P.24 Add Cap7 330 uF for debugging WLAN issue.



(2009/08/25)

P.44 Add R637, R638, R645 & R646 0 ohm for Intel recommend.

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## H900 Power Change History


| Number | Date       | Page         | Title                  | Issue   | Description  | Version |
|--------|------------|--------------|------------------------|---|--|---------|
| 1      | 2009/04/10 | P.55         | +1_05VRUN              | 1.05V Vripple over spec.  | Change PC143 from 220uF 2.5V 35m Ohm(1C-31R0227-MX00) to 330uF 2.5V 15m Ohm(1C-33U0337-KX00).  | X01     |
| 2      | 2009/04/13 | P.51         | Charger                | Change PR152 for ADAPT OC function.                                     | Change PR152 from 8.45K 0402 1%(1R-0008451-F200) to 10K 0402 1%(1R-0000103-F200)   | X01     |
| 3      | 2009/05/06 | P.57         | VCORE                  | Fine tune VCORE setting for loadline, transition and mosfet ring issue. | Add PC7 :470pF 50V X7R 0402(1C-2B20471-K000)<br>Add PC106 :4700pF 16V X7R 0402(1C-2B20472-K002)<br>Add PC29 and PC30 :1000pF 50V X7R(1C-2B3012-MX00)<br>Add PR60 and PR61 :4.3 Ohm 1206 5%(1R-000043X-J600)<br>Del PQ14 and PQ15 SiR462DP-T1-GE3 (17-SiR462D-PT00)<br>Change PR12 from 10 Ohm 0402 5%(1R-0000100-J200) to 0 Ohm 0402 5%(1R-0000000-J200)<br>Change PR143 from 7.15K Ohm 0402 1%(1R-0007151-F200) to 6.34K Ohm 0402 1%(1R-0006341-F200)<br>Change PR82 and PR83 from 2.7K Ohm 0402 1%(1R-0000272-F200) to 2.2K Ohm 0402 1%(1R-0000222-F200)<br>Change PR84 and PR85 from 4.02K Ohm 0402 1%(1R-0004021-F200) to 1.69K Ohm 0402 1%(1R-0001691-F200) | X01     |
| 4      | 2009/05/06 | P.58         | AT_VDD                 | Changing H-S,L-S Mosfets and boost resistor for solving ring issue.     | Change PQ40 from Si7716ADN(17-S17716A-DN00) to AON7402L(17-AON7402-L000)<br>Change PQ41 from Si7114ADN(17-S17114A-DN00) to AON7700(17-AON7700-0000)<br>Change PR222 from 0 Ohm 0603 1%(1R-0000000-J300) to 1 Ohm 0603 1%(1R-000010X-F300)  | X01     |
| 5      | 2009/05/07 | P.54         | +1_5VSUS               | Modifying OCP setting for +1_5VSUS.                                     | Change PR204 from 4.87K 0603 1%(1R-0004871-F300) to 5.23K 0603 1%(1R-0005231-F300)<br>Change PR203 from 3.24K 0603 1%(1R-0003241-F300) to 3.09K 0603 1%(1R-0003091-F300)   | X01     |
| 6      | 2009/05/11 | P.56         | +1_1V_VTT              | Change remote sense detection from CPU to output Cap.                   | Add PR184 10 Ohm 0402 1%(1R-0000100-F200)<br>Delete PR183 0 Ohm 0402 5%(1R-0000000-J200)   | X01     |
| 7      | 2009/05/12 | P.50         | PSID                   | Change PQ4 to high ESD protection (6000KV).                             | Change PQ4 from 2N7002K(17-2N7002K-0001) to FDV301N(17-FDV301N-0000).  | X01     |
| 8      | 2009/05/12 | P.55<br>P.56 | +1_05VRUN<br>+1_1V_VTT | Change RUN_PWRGD singal from +1_1V_VTT rail to +i_05VRUN rail.          | Delete PR70 100 Ohm 0402 1%(1R-000010I-F200)<br>Add PR195 10 Kohm 0402 1%(1R-0000103-F200)<br>Add PR194 0 Ohm 0402 5%(1R-0000000-J200)   | X01     |
| 9      | 2009/05/13 | P.57         | VCORE                  | PROCHOT# signal pull-up resistor is 56 ohm in IMVP side.                | Change PR48 from 56 Ohm 0603 1%(1R-0000560-J300) to 68 Ohm 0603 1%(1R-0000680-F300)  | X01     |
| 10     | 2009/05/20 | P.58         | PEX_VDD                | Modify feedback capacitor for improving loop response.                  | Change PC57 from 0.01uF 0402 25V X7R(1C-2B20103-M000) to 470pF 0402 50V X7R(1C-2B20471-K000)   | X01     |
| 11     | 2009/05/20 | P.51         | DC_IN                  | Modify resistor and capacitor for reducing adapeter's inrush current.   | Change PR28 from 47KOhm 0402 5%(1R-0000473-J200) to 100KOhm 0402 5%(1R-0000104-J200)<br>Change PC6 from 0.1uF 0603 50V(1C-2B30104-K000) to 0.22uF 0603 25V X5R(1C-2B30224-K400)  | X01     |
| 12     | 2009/05/26 | P.54         | +1_5VSUS               | Add a capacitor between CSH and FB for improving jitter issue.          | Add PC207 4700pF 25V 0402 X7R 10%(1C-2B20472-K001)   | X01     |

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| Number | Date       | Page | Title             | Issue   | Description  | Version |
|--------|------------|------|-------------------|---|--|---------|
| 13     | 2009/06/18 | P.57 | V_CORE            | Change GND design for C-state issue   | Change PR21.1 to PGND.<br>Change PR21.2 to AGND.<br>Change PC14.2 to PGND.   | X02     |
| 14     | 2009/07/02 | P.57 | V_CORE            | Change boost resistor to reduce ring of Mosfet.<br>Add feedback capacitor to reduce ground noise. | Change PR178 from 0 Ohm 0603 5% (1R-0000000-J300) to 2.2 Ohm 0603 1% (1R-000022X-F300).<br>Change PR177 from 0 Ohm 0603 5% (1R-0000000-J300) to 2.2 Ohm 0603 1% (1R-000022X-F300).<br>Add PC7: 1000pF 16V X7R (1C-2B20102-K001) .<br>Add PC8: 1000pF 16V X7R (1C-2B20102-K001) .<br>Add PC11: 1000pF 16V X7R (1C-2B20102-K001) .<br>Add PC12: 1000pF 16V X7R (1C-2B20102-K001) . | X02     |
| 15     | 2009/07/06 | P.51 | Charger           | Change rating voltage from 25V to 50V and size from 0603 to 0805 for Capacitor(PC6) .             | Change PC6 from 0.22uF 25V X5R 0603 10% (1C-2B30224-K400) to 0.22uF 50V X5R 0805 10% (1C-2B70224-K600)   |         |
| 16     | 2009/07/10 | P.57 | V_CORE            | Modify DCR feedback and IMON setting.   | Change PR84 and PR85 from 1.69K 0402 1% (1R-000169I-F200) to 3.9K 0402 1% (1R-000390I-F200)<br>Change PR150 from 10K 0402 1% (1R-0000103-F200) to 1.8K 0402 1% (1R-0000182-F200)<br>Change PC208 from 0.1uF 6.3V 0402 (1C-2B20104-K101) to 0.022uF 16V 0402 X7R (1C-2B20223-K000)<br>Change PR146 from 12K 0402 1% (1R-0000123-F200) to 15.4K 0402 1% (1R-0001542-F200)          | X02     |
| 17     | 2009/07/20 | P.59 | Other power plane | Add discharge path for 1_VRUN and 1_05VRUN  | Add PR104:330 Ohm 0603 5% (1R-000033I-J300)<br>Add PR95:330 Ohm 0603 5% (1R-000033I-J300)<br>Add PQ21:2N7002-7-F SOT-23 (17-2N70027-F000)<br>Add PQ18:2N7002-7-F SOT-23 (17-2N70027-F000)  | X02     |
| 18     | 2009/07/24 | P.57 | V_CORE            | Add AL capacitor to reduce acoustic noise.  | Add PC113:EEEFK1E101XP,100uF,25V,20%, 6.3*7.7,0.34ohm (1C-1XX0107-M400)<br>Add PC182:EEEFK1E101XP,100uF,25V,20%, 6.3*7.7,0.34ohm (1C-1XX0107-M400)   | X02     |
| 19     | 2009/09/25 | P.58 | VGA_CORE          | Add more GPIO pin for VAG 4 level controller  | Add NC_PC187,NC_PC188,NC_PC189 PR230,PR231,PR232, 0ohm<br>Remove PR79, PR80  | X02     |
| 20     | 2009/09/25 | P.58 | VGA_CORE          | Change AOS MOS to ON MOS for reducing risk of induce voltage                                      | Change PQ40 PQ41 and PQ54 to ON MOS 4823 and 4821.   |         |
| 21     | 2009/11/19 | P.58 | VGA_CORE          | EMI request add one cap   | Add PC185 1000pF   |         |
| 22     | 2009/11/19 | P.58 | VGA_CORE          | Reduce inductor current when VID change   | change PR230, PR232, from 0 to 47K.<br>change PC188, PC189, from 0.047uF to 0.015uF. PC56 from 22pF to 560pF<br>NC_PC131, PC141, PC142, from 330uF 15mohm to 330uF 9mohm.<br>Add NC_PC190,NC_PC191<br>change PR86, to 46.4K for OCP 15A  |         |
| 23     | 2009/11/19 | P.58 | VGA_CORE          | TI suggest reducing short through risk  | change PR222, from 1 ohm to 2.2 ohm  |         |
| 24     | 2009/11/19 | P.58 | VGA_CORE          | Remove unused GPIO pin  | Remove PQ57,PD10,PR228,PR229   |         |
| 24     | 2009/11/27 | P.58 | VGA_CORE          | R C delay as Dell request   | NC_PC188, PC_PC189 and add PC190, PC191 0.1uF  |         |

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