# 945U01 Schematic

**Foxconn Precision Co. Inc.**

**Data: 2005/4/26**

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</table>
Close to PCI Slots

[Diagram of a circuit with labeled components and connections, including labels like 5V_SYS, C628, C629, etc.]
Double check high-frequency requirements for GND in matched 1.0 Ohm.

Place GND decoupling close to the GMCH as possible.

PCI Express Filter

If 0.5 Ohm, +/- 1%, R0603 is not easy get, you could replace by 0 Ohm, +/- 1%, R0603.

945U89
Channel A VTT_0.9V Mid Range decoupling caps.
Place as close to termination resistors as possible
Place this cap at the resistor divider circuit and Ch B DIMM 1 as close to the power pins as possible.
Channel B VTT_0.9V high-frequency decoupling caps.
Place as close to termination resistors as possible.
1. from GMCH to the first 150 ohm resistor: 12 mils
2. from the first 150 ohm res. to the second 150 ohm resistor: 7 mils
3. from the second 150 ohm resistor to connector: 4 mils
4. spacing 20 mils
5. R,G,B should be length matched to 200 mils
Add R724 and R725 for option.
04/11/22

R824 2.49K
+/-1%
2.49K
R0603
+/-1%
22pF
C590

R827 0
1K
Dummy
R826

3D3V_SYS

IDSEL 24 , INT D

Place close to Chip

Flake crystal circuit close to Chip

XTAL-25MHz Dummy

XTAL2
22pF
C594
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8100C/8110S

* BC2 to BC8 are for U17 RTL8110S(B)/RTL8100C VDD33 pins, such as 26, 41, 56, 71, 84, 94 and 107.

* BC9 and BC10 are for U21RTL8110S(B) AVDDH pins, such as 10 and 120.

* C76 is for U17 RTL8110S(B)/RTL8100C pin 12.

* BC13 to BC16 are for RTL8110S(B)/RTL8100CAVDDL pins, such as 3, 7, 16, and 20.

* BC19 to BC27 are for U17 RTL8110S(B)/RTL8100C DVDD pins, such as 24, 32, 45, 54, 64, 78, 99, 110 and 116.

At RTL8100C application, keep FB38. At RTL8110S(B) application, remove FB38.

At RTL8100C application, remove R410 and FB36, keep FB37. At RTL8110S application, remove FB37 and R410, keep FB36. At RTL8110SB application, remove FB37, keep R410 and FB36.

When use RT8110C, LAN_AVDDL is 3.3V.

* BC13 to BC16 are for RTL8110S(B)/RTL8100C AVDDL pins, such as 3, 7, 16, and 20.
3.3V to 2.5V refer to Intel seminar 2006-06-29 k.w
SM Bus Bridge

If use 5V0 power good
Function, jump Q7, Q6, Q8
pop R25, R18

CPU Fan Control 4Pin/3Pin dual Layout.

Del Copper 0405-K.w

CPU FAN

System FAN

Max. output current = 3A

Page 1 of 2

Keyboard / Mouse / Fan

FOXCONN PCEG

Date: Sheet

945:U01

8P4R0603

50V, NPO, +/-5%

R0603+/-5%

R0603+/-5%

10V, Y5V, +80%/-20%

CPU_FAN

SYS_FAN

SYS_FAN1

Max. output current = 3A

Del Copper 0405-K.w
ICH7 GPIO Summary

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<th>Power Plane</th>
<th>Type</th>
<th>Description</th>
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<td>Vcc_3_3</td>
<td>I/O</td>
<td>Pull-up through 10K resistor (Unused)</td>
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<tr>
<td>GPIO1</td>
<td>VREF</td>
<td>I/O</td>
<td>REQ_5#</td>
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<tr>
<td>GPIO2</td>
<td>VREF</td>
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<td>PIRO0</td>
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<tr>
<td>GPIO3</td>
<td>VREF</td>
<td>I/O</td>
<td>PIROF</td>
</tr>
<tr>
<td>GPIO4</td>
<td>VREF</td>
<td>I/O</td>
<td>PIROF</td>
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<tr>
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<td>PIROF</td>
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Super I/O GPIO Summary

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<td>I/O</td>
<td>BEEP</td>
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<td>GPIO31</td>
<td>Main</td>
<td>I/O</td>
<td>Thermal Alarm to ICH7</td>
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<td>GPIO40</td>
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<td>I/O</td>
<td>Power LED</td>
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<td>GPIO26</td>
<td>Main</td>
<td>I/O</td>
<td>TURBO PIN</td>
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<tr>
<td>GPIO25</td>
<td>Main</td>
<td>I/O</td>
<td>BIO REMOTE</td>
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<td>FAN OUT</td>
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<td>GPIO52</td>
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FWH GPIO Summary

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PCI Routing Summary

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<th>INTD</th>
<th>INTE</th>
<th>INTF</th>
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<th>INTH</th>
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<td>C</td>
<td>A</td>
<td>D</td>
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## Jumper Setting Summary

<table>
<thead>
<tr>
<th>Jumper Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS_WP</td>
<td>FWH TBL#</td>
</tr>
<tr>
<td></td>
<td>1 : Unlock</td>
</tr>
<tr>
<td></td>
<td>1-2 : lock</td>
</tr>
<tr>
<td>CLR_CMO</td>
<td>Clear CMOS</td>
</tr>
<tr>
<td></td>
<td>1-2 : NI</td>
</tr>
<tr>
<td></td>
<td>1-2 : Normal (Default)</td>
</tr>
<tr>
<td></td>
<td>2-3 : Clear CMOS</td>
</tr>
</tbody>
</table>

## Header Definition Summary

### J28, J25
**Front USB Header**

<table>
<thead>
<tr>
<th>Header</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUSB1</td>
<td>1: PORTA_R</td>
</tr>
<tr>
<td></td>
<td>2: GND</td>
</tr>
<tr>
<td></td>
<td>3: PORTA_L</td>
</tr>
<tr>
<td>FUSB2</td>
<td>4: +5V</td>
</tr>
<tr>
<td>FUSB3</td>
<td>5: PORTF_R</td>
</tr>
<tr>
<td></td>
<td>6: AUD_FP_RET_R</td>
</tr>
<tr>
<td></td>
<td>7: SENSEA</td>
</tr>
<tr>
<td></td>
<td>9: PORTF_L</td>
</tr>
<tr>
<td></td>
<td>10: SENSEB</td>
</tr>
</tbody>
</table>

### J35
**IR Connector**

### J27
**COM Header**

### JP13
**SPDIF-out**

### J37
**Chassis Intruder**

### J25
**Front USB Header**

### J28
**Front USB Header**

### J42
**Front Panel Switch/LED**

<table>
<thead>
<tr>
<th>Switch/LED</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD_LED+</td>
<td>1: Power</td>
</tr>
<tr>
<td>HD_LED-</td>
<td>3: Power LED (Green)</td>
</tr>
<tr>
<td>GND</td>
<td>5: Power button</td>
</tr>
<tr>
<td>Reset button</td>
<td>7: GND</td>
</tr>
<tr>
<td>NC</td>
<td>9: Key</td>
</tr>
<tr>
<td>S0</td>
<td>steady light</td>
</tr>
<tr>
<td>S1</td>
<td>blinking</td>
</tr>
<tr>
<td>S3-5: off</td>
<td></td>
</tr>
</tbody>
</table>

### J17
**BUZZER Header**

### J44
**TPM Header**

### J18
**Front 1394 Header**

### J10
**AUX-in**

### J9
**CD-in**

### J43
**CPU FAN (DC-FAN)**

<table>
<thead>
<tr>
<th>Fan</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
</tr>
<tr>
<td>3</td>
<td>Sense</td>
</tr>
<tr>
<td>4</td>
<td>Control</td>
</tr>
</tbody>
</table>

### J22
**SYSTEM FAN**

<table>
<thead>
<tr>
<th>Fan</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
</tr>
<tr>
<td>3</td>
<td>Sense</td>
</tr>
<tr>
<td>4</td>
<td>Control</td>
</tr>
</tbody>
</table>
### Modify List

<table>
<thead>
<tr>
<th>DATE</th>
<th>Rev</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005/04/05</td>
<td>A</td>
<td><strong>The initial version.</strong></td>
</tr>
<tr>
<td>2005/04/05</td>
<td>A</td>
<td><strong>P24 Change L50/C52 from Read /4.7uF to Inductor/10uF Refer to Intel SATA Workshop</strong></td>
</tr>
<tr>
<td>2005/04/05</td>
<td>A</td>
<td><strong>P38,9 Change VM Solution (Interisil ISL6561)</strong></td>
</tr>
<tr>
<td>2005/04/05</td>
<td>A</td>
<td><strong>P34 Change TPM schematic ,Add GP10,Connection following Lenovo Ref sch</strong></td>
</tr>
<tr>
<td>2005/04/05</td>
<td>A</td>
<td><strong>P28 Add Common Choke LS6,LS7 for rear panel USB port</strong></td>
</tr>
<tr>
<td>2005/04/07</td>
<td>A</td>
<td><strong>P22 Add Common choke for rear USB port ,Change USB header connection follow Lenovo ref Sch</strong></td>
</tr>
<tr>
<td>2005/04/07</td>
<td>A</td>
<td><strong>P21 Add RS232 header for Clone Mactg</strong></td>
</tr>
<tr>
<td>2005/04/07</td>
<td>A</td>
<td><strong>P23 Modify CMOS CRT for Lenovo TF Clone co-layout</strong></td>
</tr>
<tr>
<td>2005/04/08</td>
<td>A</td>
<td><strong>P31 R312 Dummy for Resume GP10, P22 change WOL pull high resistor R477 from 1K to 10K</strong></td>
</tr>
<tr>
<td>2005/04/08</td>
<td>A</td>
<td><strong>P20 Change PIX04, PIX05 for TPM_REV0, PIX025 for TPM_REV1, PIX034 for TPM_REV2</strong></td>
</tr>
<tr>
<td>2005/04/08</td>
<td>A</td>
<td><strong>P34 Change PIX header w/o housing footprint to with housing footprint</strong></td>
</tr>
<tr>
<td>2005/04/08</td>
<td>A</td>
<td><strong>P24 Change Mounting hole R9-R16 footprint from mb40x80_8 to mb40x80_8 lenovo</strong></td>
</tr>
<tr>
<td>2005/04/08</td>
<td>A</td>
<td><strong>P10 Del EC44, Change EC40,EC42 from 1000uF/Local vendor to 1500uF/Japan vendor</strong></td>
</tr>
<tr>
<td>2005/04/09</td>
<td>A</td>
<td><strong>P31 Add JO-Panel2 header follow Lenovo request</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P34 Add R864,R865,R872 for TF 4lenovo co-layout</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P6 Change R148,R151 from 12.1 ohm to 33 ohm</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P22 Change GP1024,25,140 to unuse. Connect GP1012,13,14 to TPM_REV0,1,2</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P21 change R82,83,70,94 netname to correct type</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P22 change ELR footprint</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P30 Change R9 R10 from 4.7K to 2.2K Add R867/4.7K for AC97 Front MIC. Add R888 for FNT NICL8 short</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>PW Del EC18,EC19 Add C598,C599/1uF, Add C650/Dummy,C601/Dummy</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P4 Change C96,C20,C8,C2,C23 from Dummy to Reserve (Realtek Mark’s suggestion)</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P9 add EC92/Dummy for 1.8V input</strong></td>
</tr>
<tr>
<td>2005/04/10</td>
<td>A</td>
<td><strong>P50 PCIe-16X slot Lane Reversal(0-15)</strong></td>
</tr>
<tr>
<td>2005/04/13</td>
<td>A</td>
<td><strong>P41 Change C141 value from .1uf to 2.2uf and close to L50 refer to intel SATA2 workshop</strong></td>
</tr>
<tr>
<td>2005/04/13</td>
<td>A</td>
<td><strong>P41 Del BN18,BR18 Add R869,R876</strong></td>
</tr>
<tr>
<td>2005/04/14</td>
<td>A</td>
<td><strong>P10 Del R572,R570,C421,R550,051(del 1.5V reserved CRT)</strong></td>
</tr>
<tr>
<td>2005/04/14</td>
<td>A</td>
<td><strong>P13 Change R315 from dummy to Dup (BTX pci-express)</strong></td>
</tr>
<tr>
<td>2005/04/14</td>
<td>A</td>
<td><strong>P21 Reserve ESD components in VGA port</strong></td>
</tr>
<tr>
<td>2005/04/14</td>
<td>A</td>
<td><strong>P22,228 Swap USB port 1x3, 3x7</strong></td>
</tr>
<tr>
<td>2005/04/14</td>
<td>A</td>
<td><strong>P23 Modify Clear CMOS CRT</strong></td>
</tr>
<tr>
<td>2005/04/15</td>
<td>A</td>
<td><strong>P31,332 Add BD capacitors C662-C619</strong></td>
</tr>
<tr>
<td>2005/04/15</td>
<td>A</td>
<td><strong>P33 Change Fan speed Tacho pull high voltage from 5V to 12V</strong></td>
</tr>
<tr>
<td>2005/04/20</td>
<td>A</td>
<td><strong>P21, Change EC18 footprint to Height of 6mm, Add GP1034 pull high resistor R888 for TPM IC</strong></td>
</tr>
<tr>
<td>2005/04/20</td>
<td>A</td>
<td><strong>P34 Add TPM CRT refer to Tong Fang requirement</strong></td>
</tr>
<tr>
<td>2005/04/20</td>
<td>A</td>
<td><strong>P23 Add D34 ,R880 For Battery voltage monitor function</strong></td>
</tr>
<tr>
<td>DATE</td>
<td>Rev</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2005/04/21</td>
<td>A</td>
<td>Modify USB DC# protection signal relationship between front &amp; rear port</td>
</tr>
<tr>
<td>2005/04/22</td>
<td>A</td>
<td>Add EMI capacitors</td>
</tr>
<tr>
<td>2005/04/23</td>
<td>A</td>
<td>Change AVX power &amp; GND footprint from w/o stick with stick</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>A</td>
<td>Modify USB header and couple caps</td>
</tr>
<tr>
<td>2005/04/26</td>
<td>A</td>
<td>Modify USB header connection refer to Lenovo spec</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>A</td>
<td>Change B15 B16 mounting hole to Audio GND</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>A</td>
<td>Change R4-8 from 47 ohm to 0 ohm, 41-5 from 47 ohm to 0.047/uH inductor</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>A</td>
<td>04-05.25-011 change from 10 pf to 3.4pf</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>A</td>
<td>Change PCI2.1 to PCI1.2</td>
</tr>
<tr>
<td>2005/04/25</td>
<td>B</td>
<td>Add TPM_Presence header &amp; R881 4.7K for TPM function</td>
</tr>
<tr>
<td>2005/06/28</td>
<td>B</td>
<td>Add R882 for GPIO_LAN_Enable pull high, Change from GPIO20 to GPIO25</td>
</tr>
<tr>
<td>2005/06/28</td>
<td>B</td>
<td>B1102 transformer pull high to 2.5V</td>
</tr>
<tr>
<td>2005/06/29</td>
<td>B</td>
<td>Change 82573E Ball-M2 power from 3.3V to 2.5V refer to Intel seminar</td>
</tr>
<tr>
<td>2005/06/30</td>
<td>B</td>
<td>Add R883 for Activity LED</td>
</tr>
<tr>
<td>2005/07/04</td>
<td>B</td>
<td>Add CE56, CE57 for Lenovo CRT compatibility issue</td>
</tr>
</tbody>
</table>

root cause

945U01