

# IGT30

## Schematics Document

Mobile Merom uFCPGA with Intel  
Crestline\_GM/PM+ICH8-M core logic

Monday, December 25, 2006

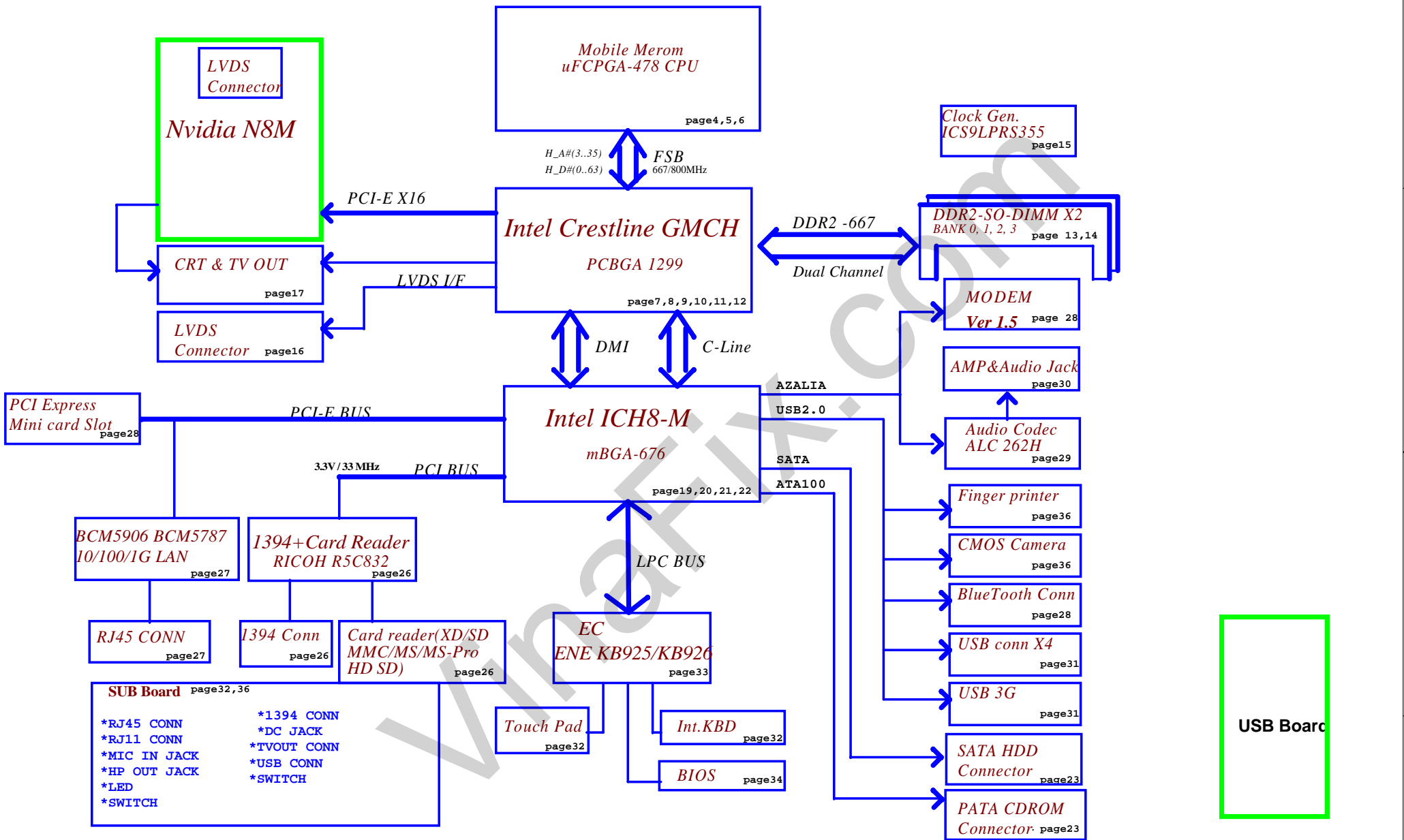
REV:0.1

|   |                    |                 |            |                                       |               |            |
|---|--------------------|-----------------|------------|---------------------------------------|---------------|------------|
| Security Classification   | Compal Secret Data |                 |            | Title <b>Compal Electronics, Inc.</b> |               |            |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | Custom <b>IGT30 LA-3571P</b>          |               | Rev<br>0.1 |
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LEFT SWITCH Board

LEDs Board



TP Board

|   |                    |                 |            |
|---|--------------------|-----------------|------------|
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|                          |                           |       |         |
|--------------------------|---------------------------|-------|---------|
| Title                    |                           |       |         |
| Compal Electronics, Inc. |                           |       |         |
| Block Diagram            |                           |       |         |
| Size                     | Document Number           | Rev   |         |
| Custom                   | IGT30 LA-3571P            | 0.1   |         |
| Date:                    | Monday, December 25, 2006 | Sheet | 2 of 47 |

**Voltage Rails**    O MEANS ON    X MEANS OFF

| power plane / State            | +B<br>LDO3<br>LDO5 | +5VALW<br>+3VALW | +1.8V<br>+5V<br>+0.9V | +5VS<br>+3VS<br>+2.5VS<br>+1.8VS<br>+1.5VS<br>+1.25VS<br>+VGA_CORE<br>+CPU_CORE<br>+VCCP | CLOCK |
|--------------------------------|--------------------|------------------|-----------------------|--|-------|
| S0                             | O                  | O                | O                     | O  | O     |
| S3                             | O                  | O                | O                     | X  | O     |
| S5 S4/AC                       | O                  | O                | X                     | X  | O     |
| S5 S4/ Battery only            | O                  | X                | X                     | X  | X     |
| S5 S4/AC & Battery don't exist | X                  | X                | X                     | X  | X     |

O MEANS ON    S3 : STR  
X MEANS OFF    S4 : STD  
                      S5 : SOFT OFF

**SKU ID Table**

| Vcc      | 3.3V +/- 5% |             |             |             |
|----------|-------------|-------------|-------------|-------------|
| Ra       | 100K +/- 5% |             |             |             |
| Board ID | Rb          | VAD_BID min | VAD_BID typ | VAD_BID max |
| * 0      | 0           | 0 V         | 0 V         | 0 V         |
| 1        | 8.2K +/- 5% | 0.216 V     | 0.250 V     | 0.289 V     |
| 2        | 18K +/- 5%  | 0.436 V     | 0.503 V     | 0.538 V     |
| 3        | 33K +/- 5%  | 0.712 V     | 0.819 V     | 0.875 V     |
| 4        | 56K +/- 5%  | 1.036 V     | 1.185 V     | 1.264 V     |
| 5        | 100K +/- 5% | 1.453 V     | 1.650 V     | 1.759 V     |
| 6        | 200K +/- 5% | 1.935 V     | 2.200 V     | 2.341 V     |
| 7        | NC          | 2.500 V     | 3.300 V     | 3.300 V     |

**External PCI Devices**

| Device | IDSEL# | REQ#/GNT# | Interrupts |
|--------|--------|-----------|------------|
| 1394   | AD22   | 0         | PIRQ/H     |

**BOM Structure**

| MARK  | FUNCTION        |
|-------|-----------------|
| @     | NC FOR ALL      |
| GIGA@ | BCM5787         |
| 100@  | BCM5906         |
| UMA@  | Internal 965GM  |
| VGA@  | 965PM + Ext VGA |

Address

**USB PORT LIST**

| PORT | DEVICE     |
|------|------------|
| 0    | LEFT SIDE  |
| 1    | WIRELESS   |
| 2    | RIGHT SIDE |
| 3    | CMOS       |
| 4    | RIGHT SIDE |
| 5    | NEW CARD   |
| 6    |            |
| 7    | BT (HDL20) |
| 8    |            |
| 9    | 3G         |

**EC SM Bus1 address**

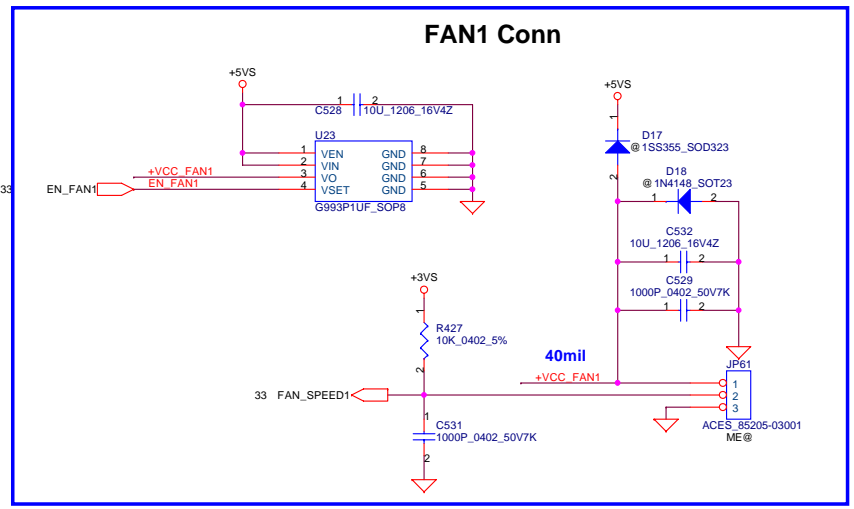
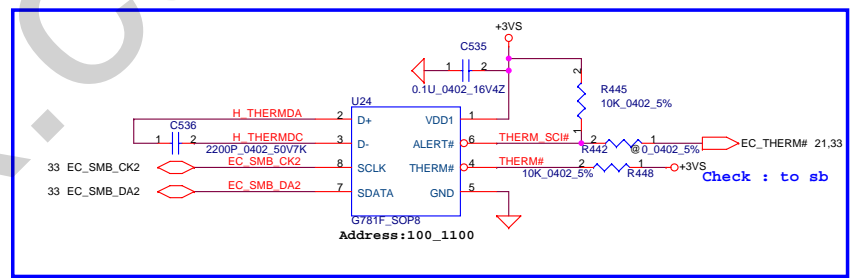
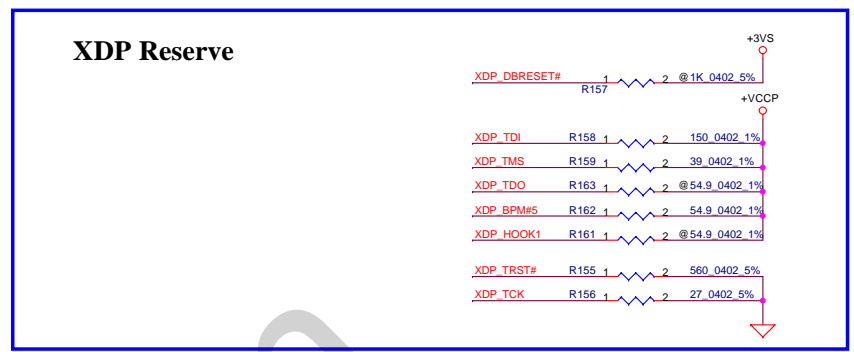
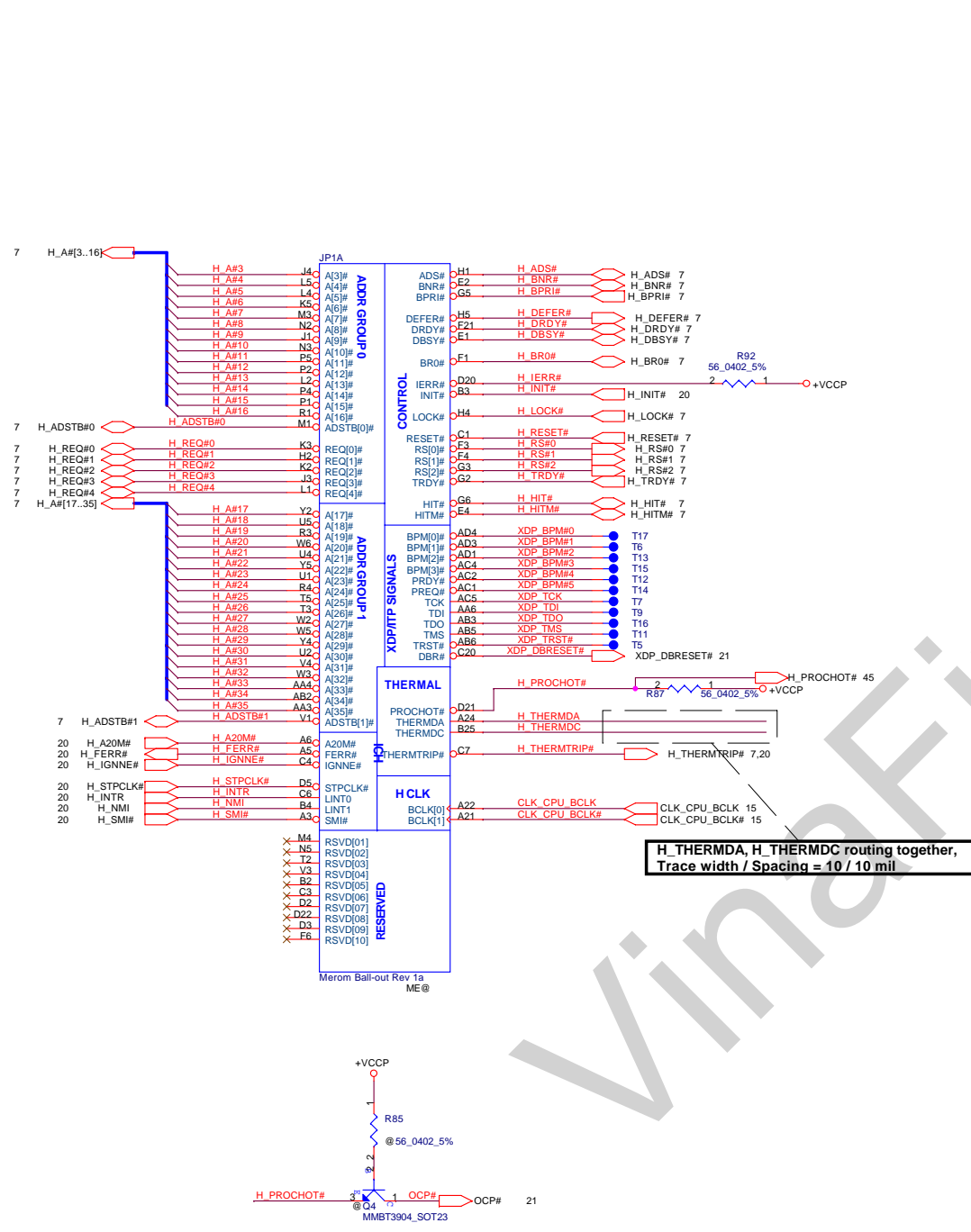
**EC SM Bus2 address**

| Device           | Address     | Device  | Address     |
|------------------|-------------|---------|-------------|
| Smart Battery    | 0001 011X b | ADM1032 | 1001 100X b |
| EEPROM(24C16/02) | 1010 000X b |         |             |

**ICH8 SM Bus address**

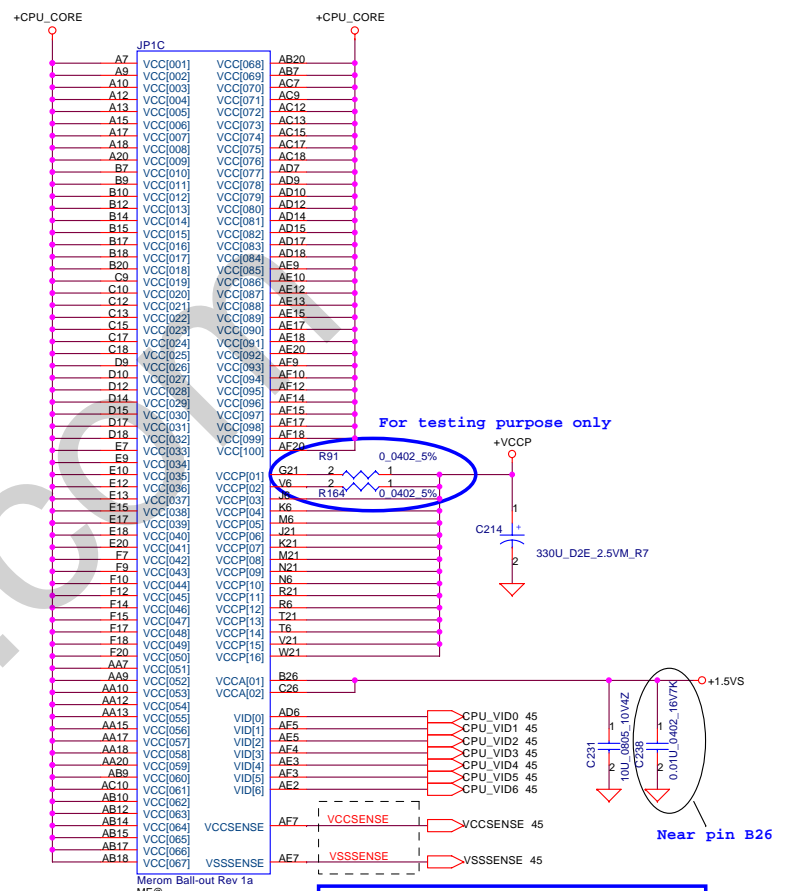
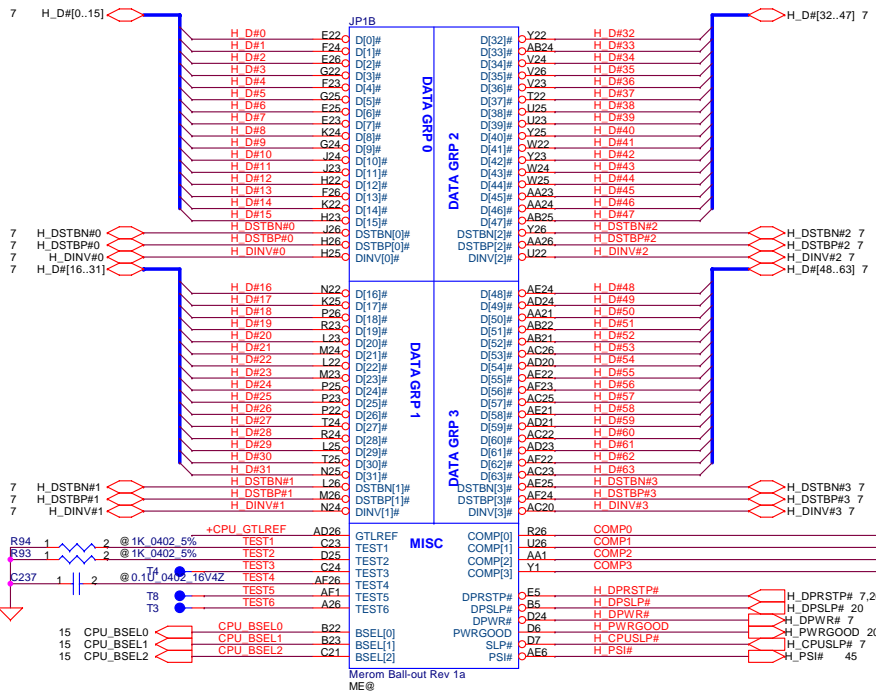
| Device                      | Address    |
|-----------------------------|------------|
| Clock Generator (ICS954226) | 1101 001Xb |
| DDRII DIMM0                 | 1010 000Xb |
| DDRII DIMM1                 | 1010 010Xb |

|   |                           |                 |            |                          |
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**H\_THERMDA, H\_THERMDC routing together,  
Trace width / Spacing = 10 / 10 mil**

|   |                    |                 |            |                                 |               |
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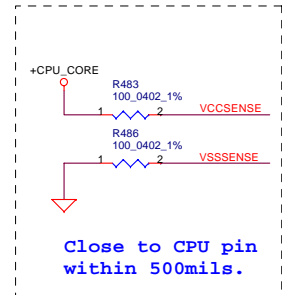
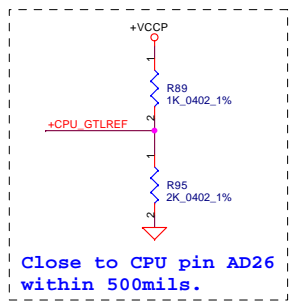
layout note: Route TEST3 & TEST5 traces on ground referenced layer to the PFS

| CPU_BSEL | CPU_BSEL2 | CPU_BSEL1 | CPU_BSEL0 |
|----------|-----------|-----------|-----------|
| 166      | 0         | 1         | 1         |
| 200      | 0         | 1         | 0         |

Resistor placed within 0.5" of CPU pin. Trace should be at least 25 mils away from any other toggling signal. COMP[0,2] trace width is 18 mils. COMP[1,3] trace width is 4 mils.

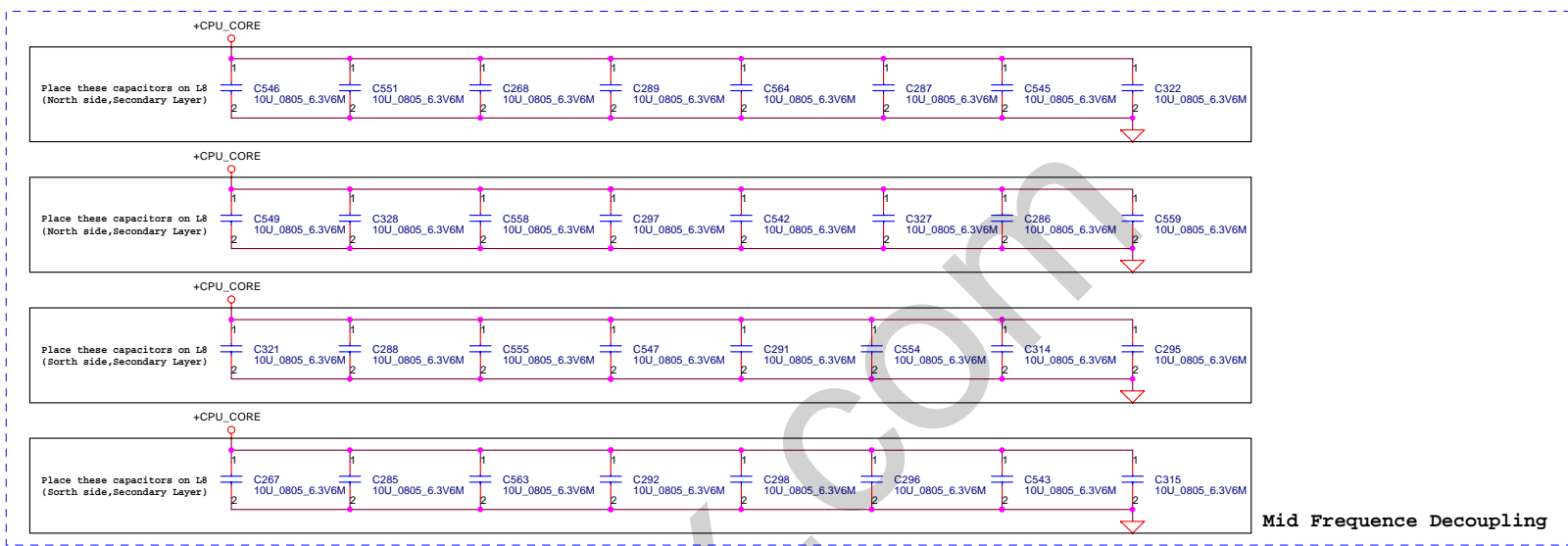
For testing purpose only

Length match within 25 mils. The trace width/space/other is 20/7/25.

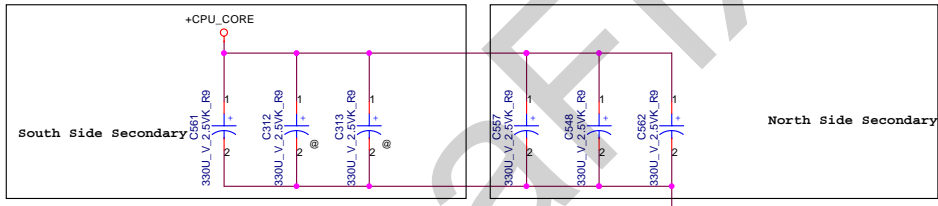


| JP1D |         |         |
|------|---------|---------|
| A4   | VSS1001 | VSS1002 |
| A8   | VSS1002 | VSS1003 |
| A11  | VSS1003 | VSS1004 |
| A14  | VSS1004 | VSS1005 |
| A16  | VSS1005 | VSS1006 |
| A19  | VSS1006 | VSS1007 |
| A23  | VSS1007 | VSS1008 |
| A27  | VSS1008 | VSS1009 |
| B6   | VSS1009 | VSS1010 |
| B8   | VSS1010 | VSS1011 |
| B11  | VSS1011 | VSS1012 |
| B13  | VSS1012 | VSS1013 |
| B16  | VSS1013 | VSS1014 |
| B19  | VSS1014 | VSS1015 |
| B21  | VSS1015 | VSS1016 |
| B24  | VSS1016 | VSS1017 |
| C5   | VSS1017 | VSS1018 |
| C8   | VSS1018 | VSS1019 |
| C11  | VSS1019 | VSS1020 |
| C14  | VSS1020 | VSS1021 |
| C16  | VSS1021 | VSS1022 |
| C19  | VSS1022 | VSS1023 |
| C2   | VSS1023 | VSS1024 |
| C22  | VSS1024 | VSS1025 |
| C25  | VSS1025 | VSS1026 |
| D1   | VSS1026 | VSS1027 |
| D4   | VSS1027 | VSS1028 |
| D8   | VSS1028 | VSS1029 |
| D11  | VSS1029 | VSS1030 |
| D13  | VSS1030 | VSS1031 |
| D16  | VSS1031 | VSS1032 |
| D19  | VSS1032 | VSS1033 |
| D23  | VSS1033 | VSS1034 |
| D26  | VSS1034 | VSS1035 |
| E3   | VSS1035 | VSS1036 |
| E6   | VSS1036 | VSS1037 |
| E8   | VSS1037 | VSS1038 |
| E11  | VSS1038 | VSS1039 |
| E14  | VSS1039 | VSS1040 |
| E16  | VSS1040 | VSS1041 |
| E19  | VSS1041 | VSS1042 |
| E21  | VSS1042 | VSS1043 |
| E24  | VSS1043 | VSS1044 |
| F5   | VSS1044 | VSS1045 |
| F8   | VSS1045 | VSS1046 |
| F11  | VSS1046 | VSS1047 |
| F13  | VSS1047 | VSS1048 |
| F16  | VSS1048 | VSS1049 |
| F19  | VSS1049 | VSS1050 |
| F2   | VSS1050 | VSS1051 |
| F22  | VSS1051 | VSS1052 |
| F25  | VSS1052 | VSS1053 |
| G4   | VSS1053 | VSS1054 |
| G1   | VSS1054 | VSS1055 |
| G23  | VSS1055 | VSS1056 |
| G26  | VSS1056 | VSS1057 |
| H3   | VSS1057 | VSS1058 |
| H6   | VSS1058 | VSS1059 |
| H21  | VSS1059 | VSS1060 |
| H24  | VSS1060 | VSS1061 |
| J2   | VSS1061 | VSS1062 |
| J5   | VSS1062 | VSS1063 |
| J22  | VSS1063 | VSS1064 |
| J25  | VSS1064 | VSS1065 |
| K1   | VSS1065 | VSS1066 |
| K4   | VSS1066 | VSS1067 |
| K23  | VSS1067 | VSS1068 |
| K26  | VSS1068 | VSS1069 |
| L3   | VSS1069 | VSS1070 |
| L6   | VSS1070 | VSS1071 |
| L21  | VSS1071 | VSS1072 |
| L24  | VSS1072 | VSS1073 |
| M2   | VSS1073 | VSS1074 |
| M5   | VSS1074 | VSS1075 |
| M22  | VSS1075 | VSS1076 |
| M25  | VSS1076 | VSS1077 |
| N1   | VSS1077 | VSS1078 |
| N4   | VSS1078 | VSS1079 |
| N23  | VSS1079 | VSS1080 |
| N26  | VSS1080 | VSS1081 |
| P3   | VSS1081 | VSS1082 |
|      | VSS1082 | VSS1083 |
|      | VSS1083 | VSS1084 |
|      | VSS1084 | VSS1085 |
|      | VSS1085 | VSS1086 |
|      | VSS1086 | VSS1087 |
|      | VSS1087 | VSS1088 |
|      | VSS1088 | VSS1089 |
|      | VSS1089 | VSS1090 |
|      | VSS1090 | VSS1091 |
|      | VSS1091 | VSS1092 |
|      | VSS1092 | VSS1093 |
|      | VSS1093 | VSS1094 |
|      | VSS1094 | VSS1095 |
|      | VSS1095 | VSS1096 |
|      | VSS1096 | VSS1097 |
|      | VSS1097 | VSS1098 |
|      | VSS1098 | VSS1099 |
|      | VSS1099 | VSS1100 |
|      | VSS1100 | VSS1101 |
|      | VSS1101 | VSS1102 |
|      | VSS1102 | VSS1103 |
|      | VSS1103 | VSS1104 |
|      | VSS1104 | VSS1105 |
|      | VSS1105 | VSS1106 |
|      | VSS1106 | VSS1107 |
|      | VSS1107 | VSS1108 |
|      | VSS1108 | VSS1109 |
|      | VSS1109 | VSS1110 |
|      | VSS1110 | VSS1111 |
|      | VSS1111 | VSS1112 |
|      | VSS1112 | VSS1113 |
|      | VSS1113 | VSS1114 |
|      | VSS1114 | VSS1115 |
|      | VSS1115 | VSS1116 |
|      | VSS1116 | VSS1117 |
|      | VSS1117 | VSS1118 |
|      | VSS1118 | VSS1119 |
|      | VSS1119 | VSS1120 |
|      | VSS1120 | VSS1121 |
|      | VSS1121 | VSS1122 |
|      | VSS1122 | VSS1123 |
|      | VSS1123 | VSS1124 |
|      | VSS1124 | VSS1125 |
|      | VSS1125 | VSS1126 |
|      | VSS1126 | VSS1127 |
|      | VSS1127 | VSS1128 |
|      | VSS1128 | VSS1129 |
|      | VSS1129 | VSS1130 |
|      | VSS1130 | VSS1131 |
|      | VSS1131 | VSS1132 |
|      | VSS1132 | VSS1133 |
|      | VSS1133 | VSS1134 |
|      | VSS1134 | VSS1135 |
|      | VSS1135 | VSS1136 |
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|      | VSS1144 | VSS1145 |
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|      | VSS1146 | VSS1147 |
|      | VSS1147 | VSS1148 |
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|      | VSS1151 | VSS1152 |
|      | VSS1152 | VSS1153 |
|      | VSS1153 | VSS1154 |
|      | VSS1154 | VSS1155 |
|      | VSS1155 | VSS1156 |
|      | VSS1156 | VSS1157 |
|      | VSS1157 | VSS1158 |
|      | VSS1158 | VSS1159 |
|      | VSS1159 | VSS1160 |
|      | VSS1160 | VSS1161 |
|      | VSS1161 | VSS1162 |
|      | VSS1162 | VSS1163 |

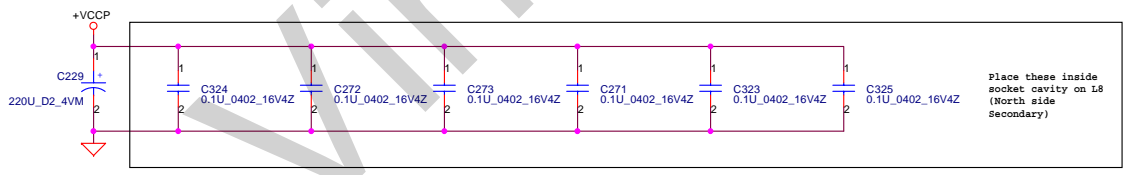
Merom Ball-out Rev 1a



Mid Frequency Decoupling

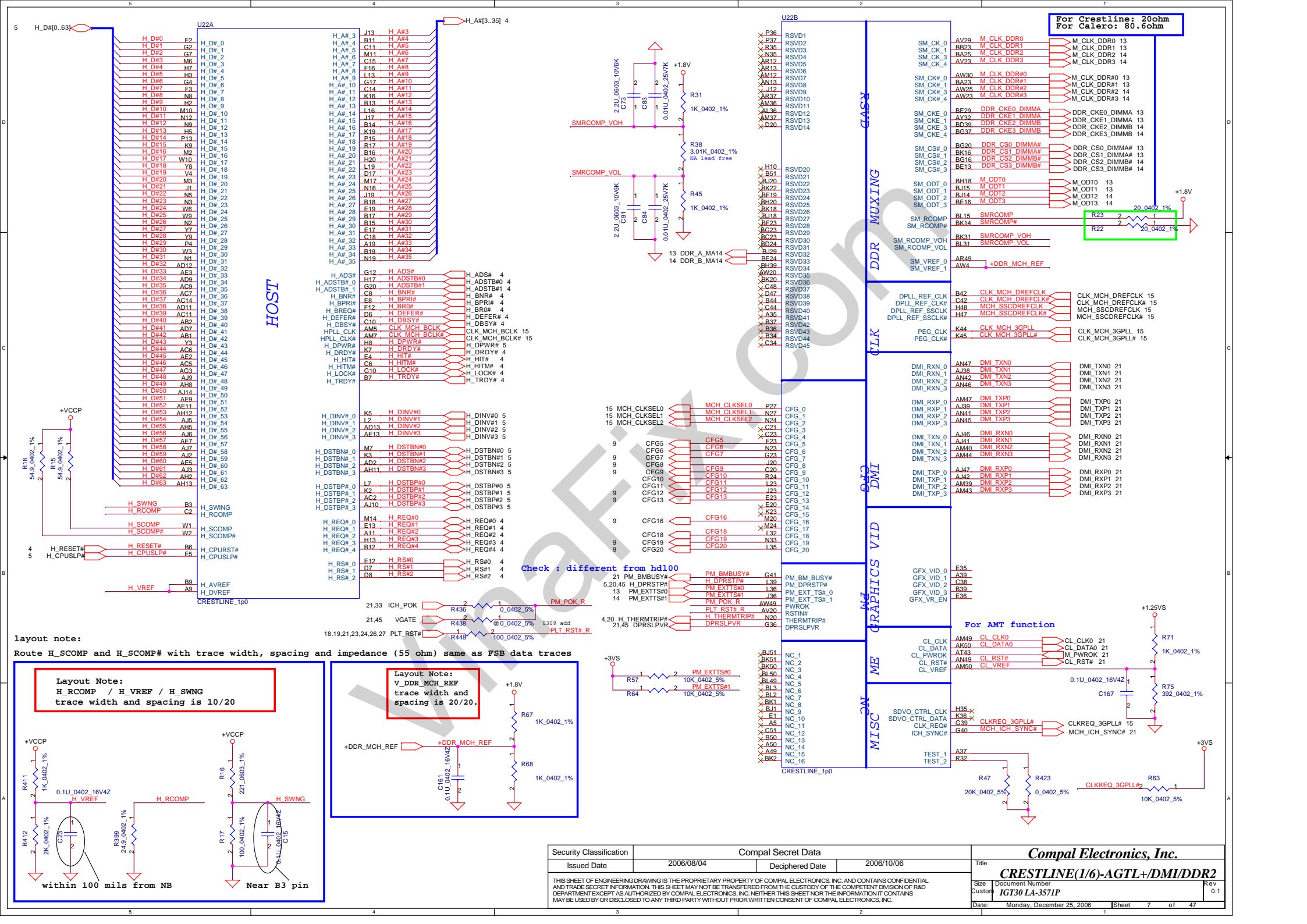


ESR <= 1.5m ohm  
Capacitor > 1980uF



Place these inside socket cavity on L8 (North side Secondary)

|   |                    |                 |            |   |
|---|--------------------|-----------------|------------|---|
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| Sheet 6 of 47   |                    |                 |            |   |



For Crestline: 20ohm  
For Calero: 80.6ohm

HOST

DDR

MUXING

CLK

DMI

VID

ME

MISC

Check : different from hd100

layout note:  
Route H\_SCOMP and H\_SCOMP# with trace width, spacing and impedance (55 ohm) same as FSB data traces

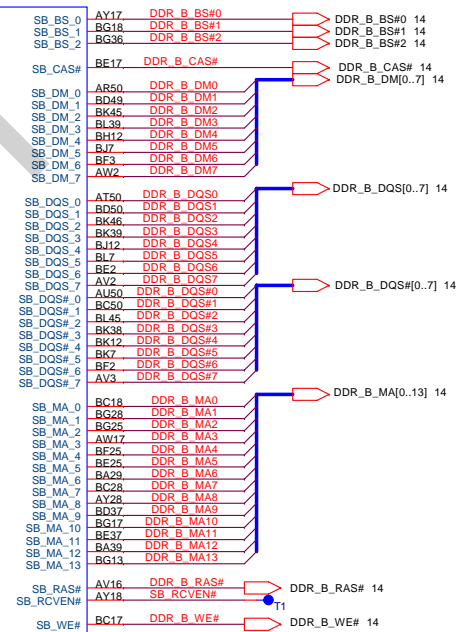
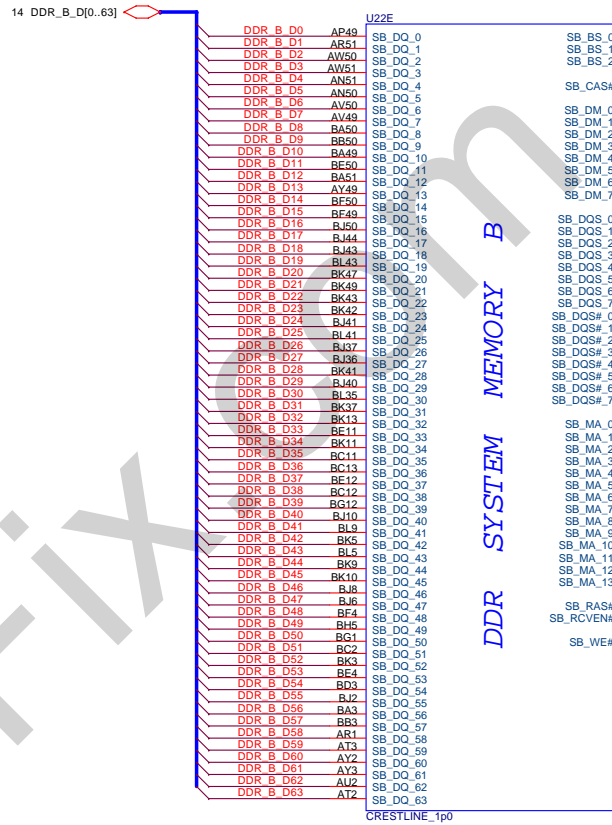
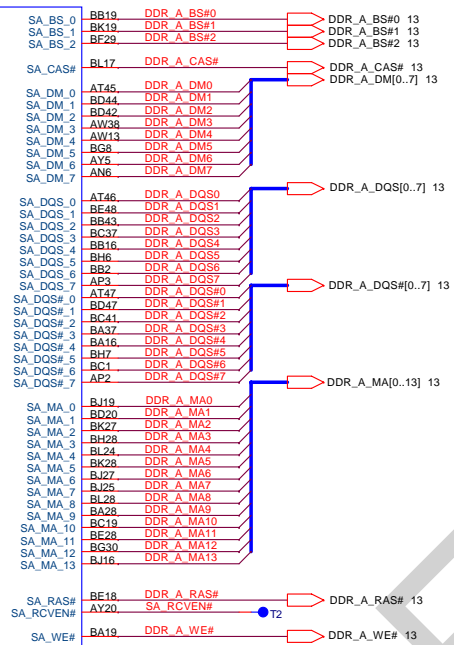
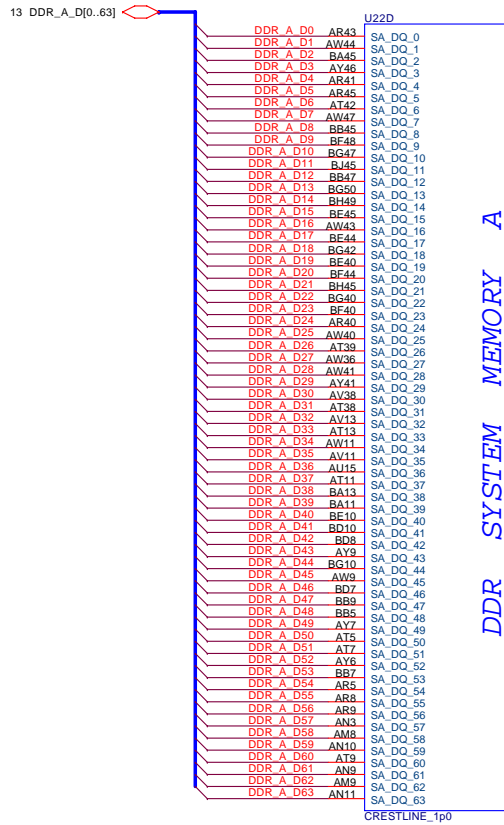
Layout Note:  
H\_RCOMP / H\_VREF / H\_SWNG  
trace width and spacing is 10/20

Layout Note:  
V\_DDR\_MCH\_REF  
trace width and spacing is 20/20.

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|-------------------------|--------------------|-----------------|
| Issued Date             | 2006/08/04         | Deciphered Date |
|                         |                    | 2006/10/06      |

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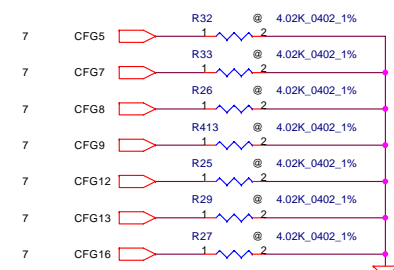
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| <b>Compal Electronics, Inc.</b>    |                           |               |
| <b>CRESTLINE((2/6)-DDR2 A/B CH</b> |                           |               |
| Title                              | Document Number           | Rev           |
|                                    | IGT30 LA-3571P            | 0.1           |
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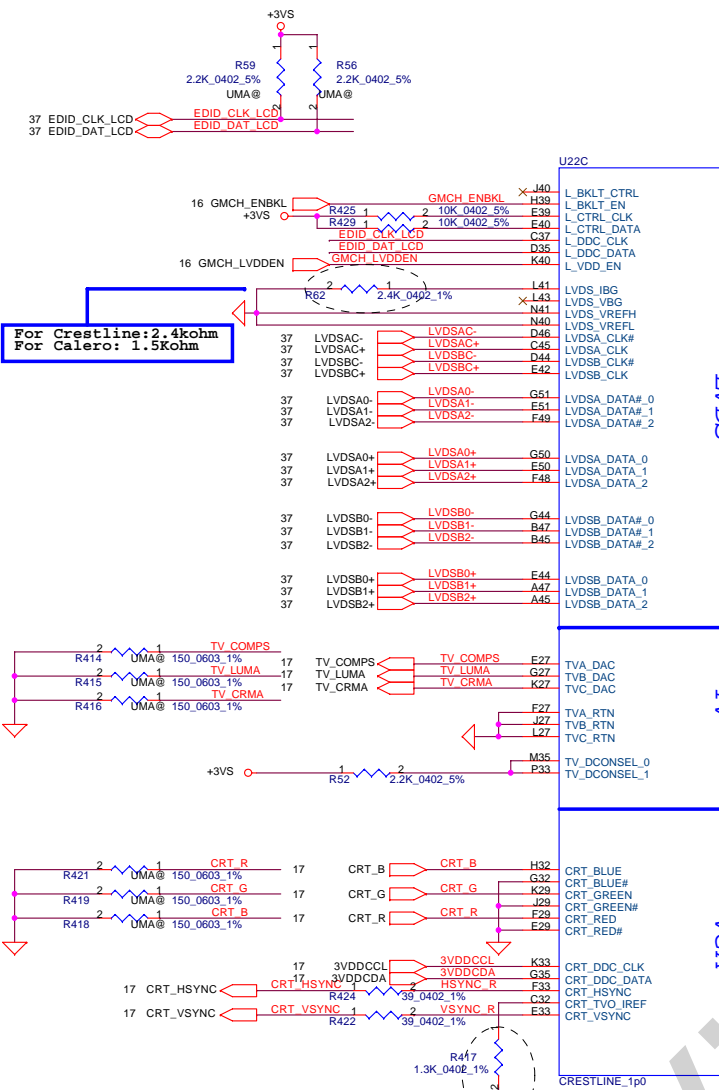
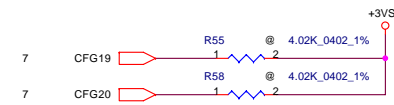


# Strap Pin Table

|                                    |  |
|------------------------------------|--|
| CFG[2:0] FSB Freq select           | 010 = FSB 800MHz<br>011 = FSB 667MHz<br>Others = Reserved  |
| CFG5 (DMI select)                  | 0 = DMI x 2<br>1 = DMI x 4 *   |
| CFG6                               | Reserved   |
| CFG7 (CPU Strap)                   | 0 = Reserved<br>1 = Mobile CPU *   |
| CFG8 (Low power PCIe)              | 0 = Normal mode<br>1 = Low Power mode *  |
| CFG9 (PCIe Graphics Lane Reversal) | 0 = Reverse Lane<br>1 = Normal Operation *   |
| CFG[11:10]                         | Reserved   |
| CFG[13:12] (XOR/ALLZ)              | 00 = Reserved<br>01 = XOR Mode Enabled<br>10 = All Z Mode Enabled<br>11 = Normal Operation (Default) * |
| CFG[15:14]                         | Reserved   |
| CFG16 (FSB Dynamic ODT)            | 0 = Disabled<br>1 = Enabled *  |
| CFG[18:17]                         | Reserved   |
| SDVO_CTRLDATA                      | 0 = No SDVO Device Present *<br>1 = SDVO Device Present  |
| CFG19 (DMI Lane Reversal)          | 0 = Normal Operation (Lane number in Order) *<br>1 = Reverse Lane                                      |
| CFG20 (PCIe/SDVO concurrent)       | 0 = Only PCIe or SDVO is operational. *<br>1 = PCIe/SDVO are operating simu.                           |

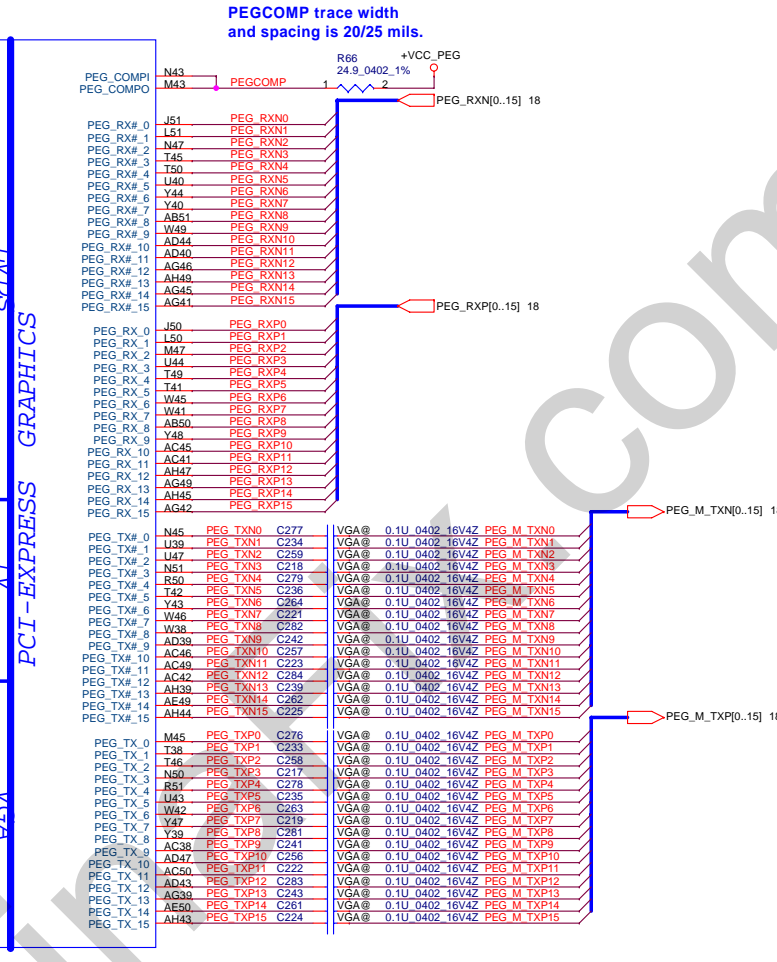


CFG[17:3] have internal pull up  
CFG[19:18] have internal pull down



For Crestline: 2.4kohm  
For Calero: 1.5kohm

For Crestline: 1.3kohm  
For Calero: 255ohm

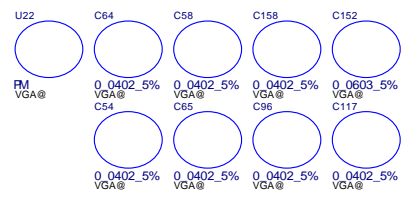
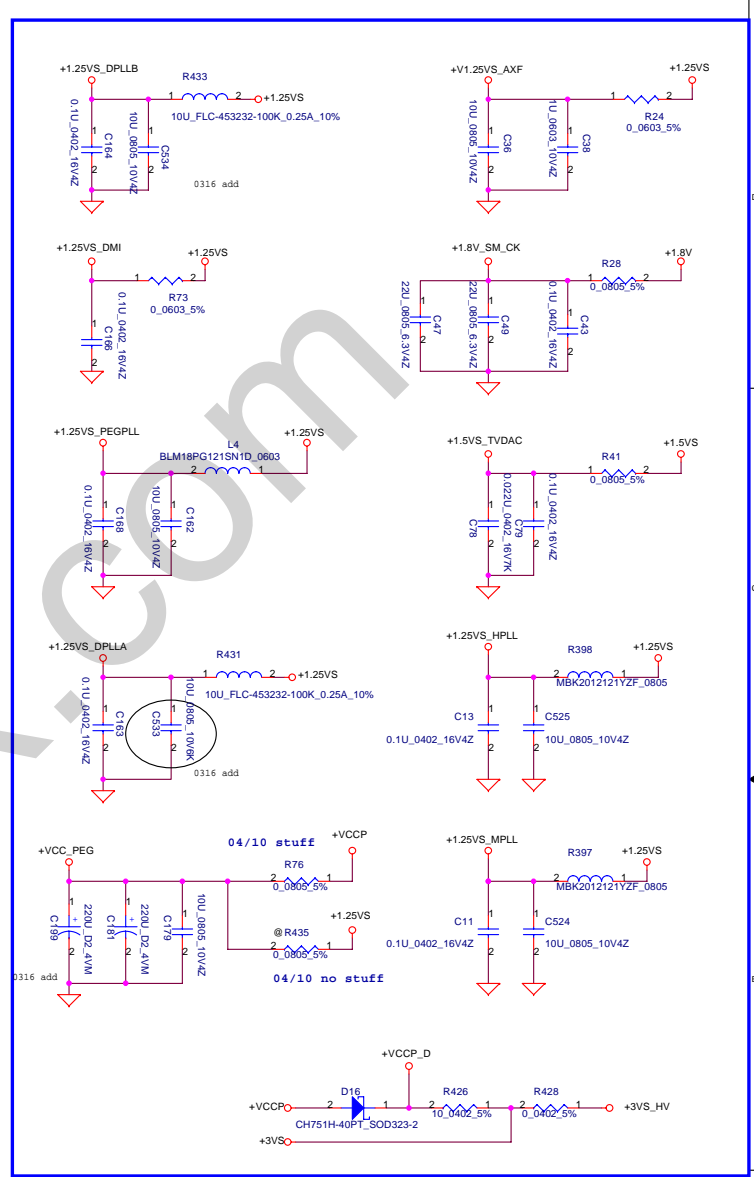
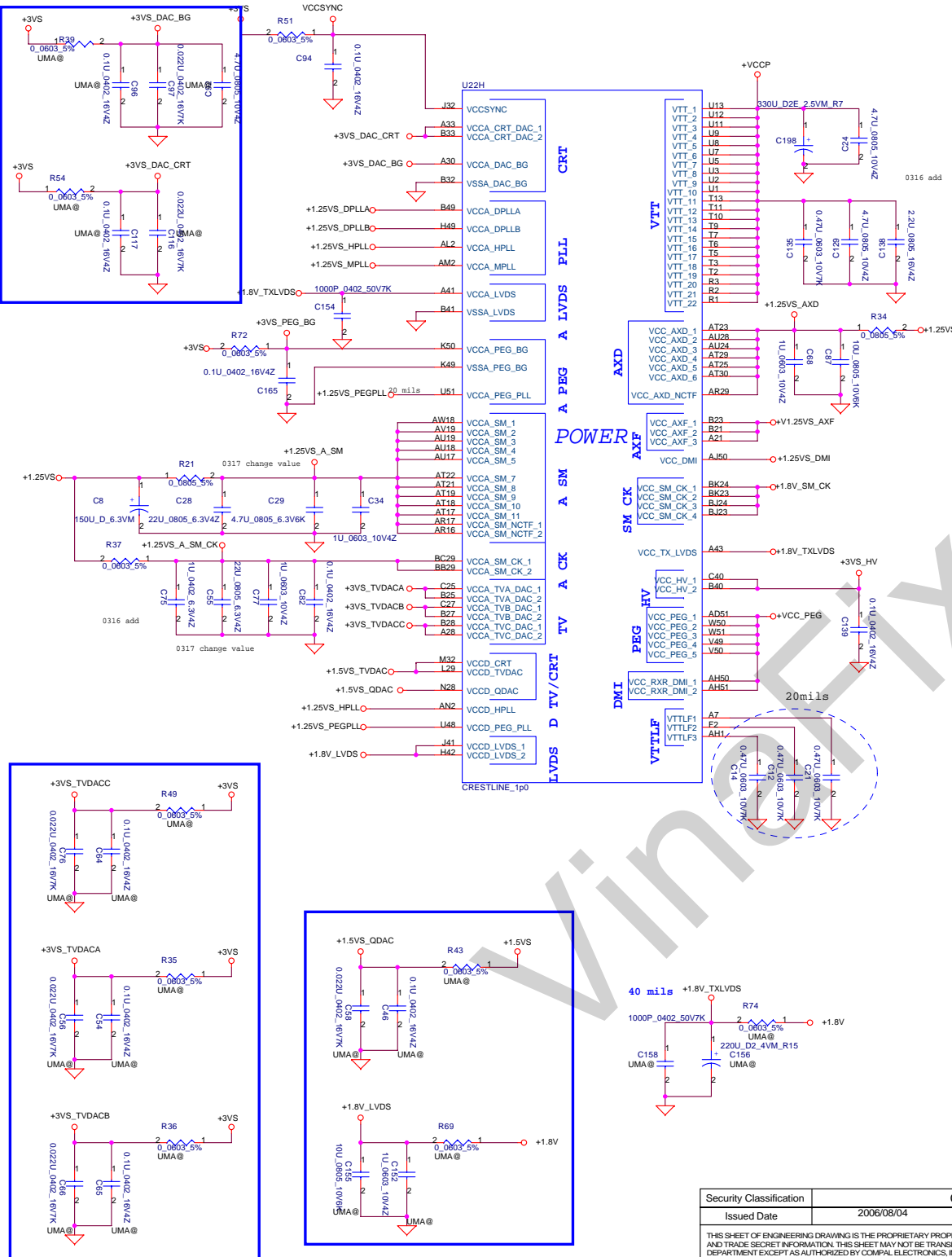


PEGCOMP trace width and spacing is 20/25 mils.

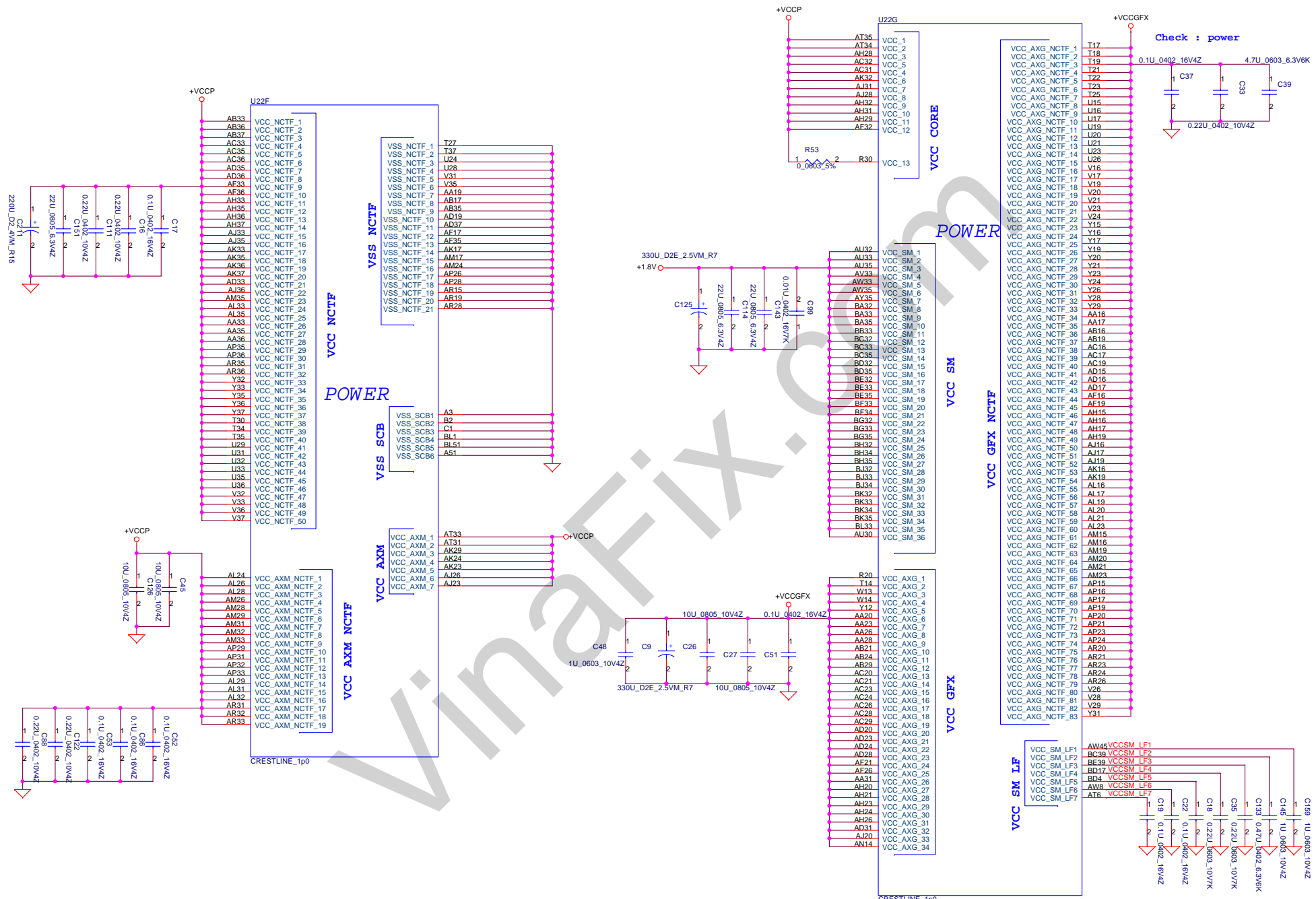
STAT  
GRAPHICS  
PCI-EXPRESS  
FPGA

| Security Classification   | Compal Secret Data |                 |
|---|--------------------|-----------------|
| Issued Date   | 2006/08/04         | Deciphered Date |
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|                                    |                           |               |
|------------------------------------|---------------------------|---------------|
| <b>Compal Electronics, Inc.</b>    |                           |               |
| <b>CRESTLINE((3/6)-VGA/LVDS/TV</b> |                           |               |
| Size                               | Document Number           | Rev           |
| Custom                             | IGT30 LA-3571P            | 0.1           |
| Date:                              | Monday, December 25, 2006 | Sheet 9 of 47 |

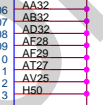
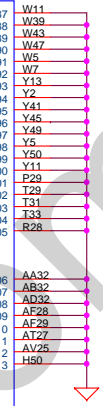
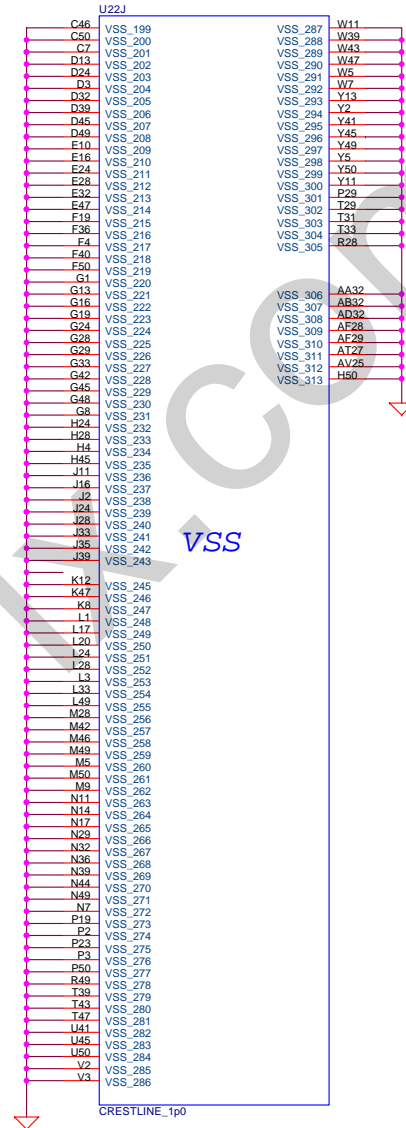
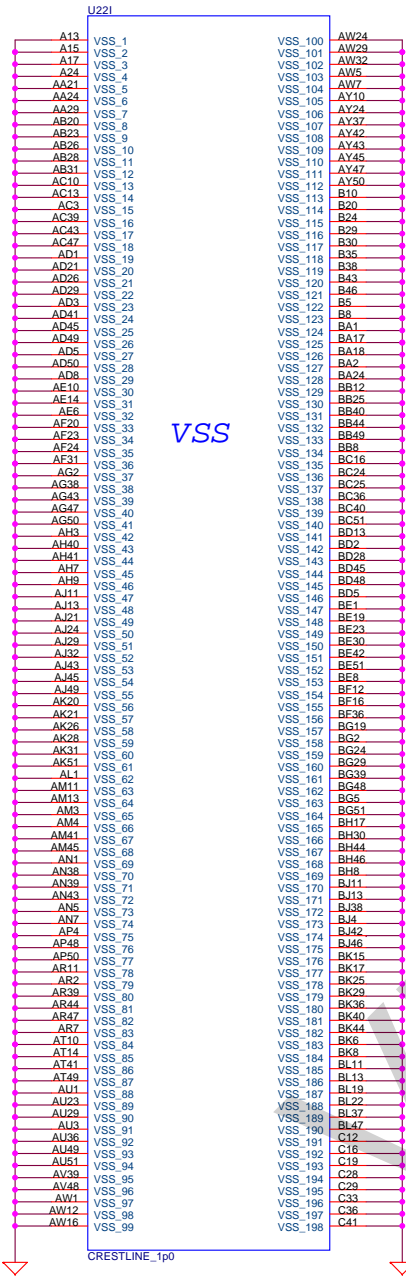


|   |   |                 |            |
|---|---|-----------------|------------|
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| Title   | Compal Electronics, Inc.<br><b>CRESTLINE(4/6)-PWR</b> |                 |            |
| Size  | Document Number                                       | Rev             |            |
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| Date  | Monday, December 25, 2006                             | Sheet           | 10 of 47   |



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|         |                           |       |                                 |    |    |
|---------|---------------------------|-------|---------------------------------|----|----|
| Title   |                           |       | <b>Compal Electronics, Inc.</b> |    |    |
| Custome |                           |       | <b>IGT30 LA-3571P</b>           |    |    |
| Date:   | Monday, December 25, 2006 | Sheet | 11                              | of | 47 |

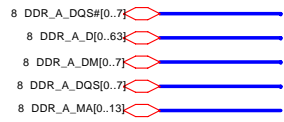


VSS

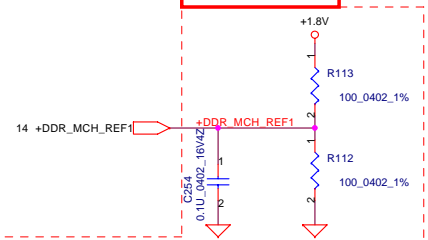
VSS

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|--|--------------------|-----------------|
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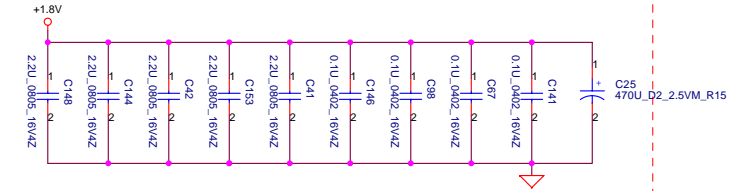
|                                 |                           |                |
|---------------------------------|---------------------------|----------------|
| <b>Compal Electronics, Inc.</b> |                           |                |
| <b>CRESTLINE((6/6)-PWR/GND</b>  |                           |                |
| Size                            | Document Number           | Rev            |
| Custom                          | IGT30 LA-3571P            | 0.1            |
| Date:                           | Monday, December 25, 2006 | Sheet 12 of 47 |



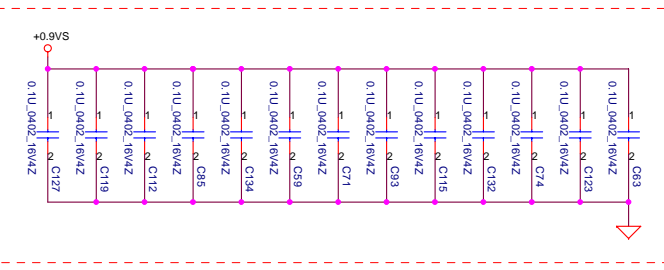
**Layout Note:**  
+DDR\_MCH\_REF  
trace width and  
spacing is 20/20.



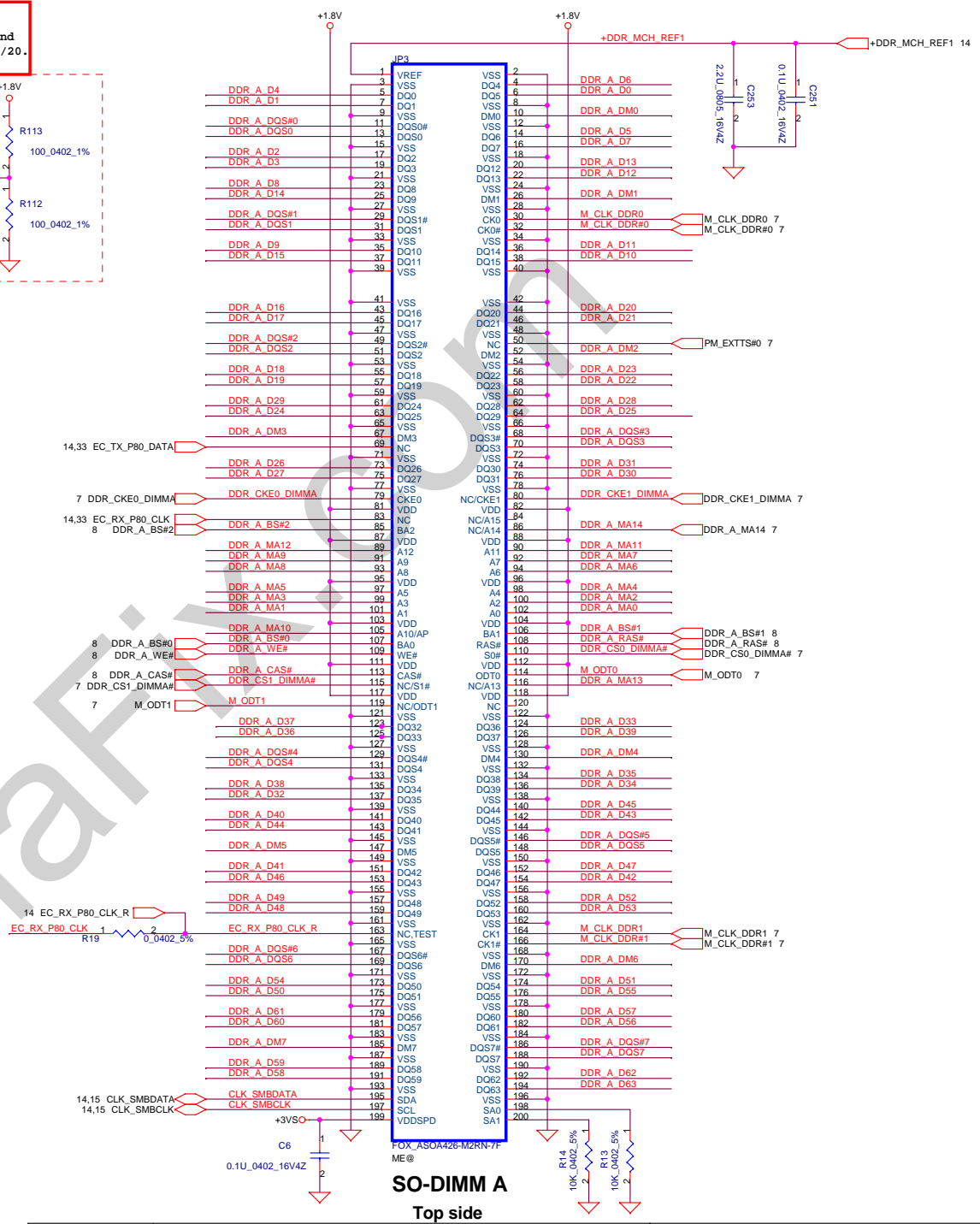
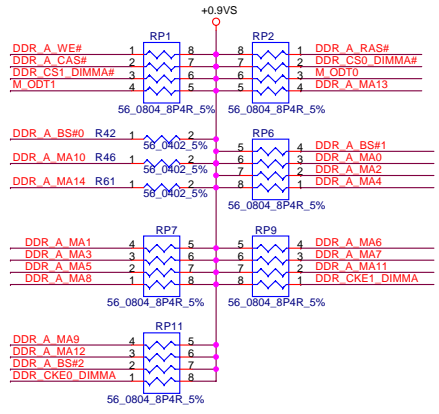
**Layout Note:**  
Place near JP41



**Layout Note:**  
Place one cap close to every 2 pullup  
resistors terminated to +0.9VS

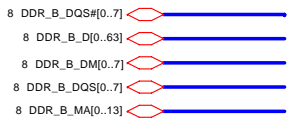


**Layout Note:**  
Place these resistor  
closely JP41, all  
trace length Max=1.5"

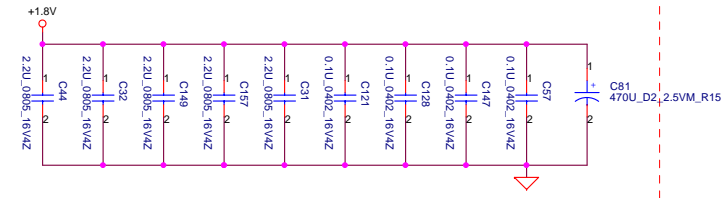


**SO-DIMM A**  
Top side

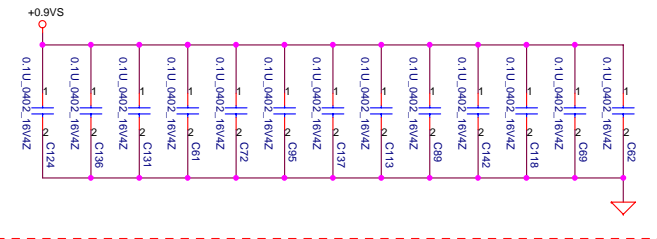
|  |                    |                 |  |                                 |  |
|--|--------------------|-----------------|--|---------------------------------|--|
| Security Classification  | Compal Secret Data |                 | Title  | <b>Compal Electronics, Inc.</b> |  |
| Issued Date  | 2006/08/04         | Deciphered Date | 2006/10/06                                     | <b>DDRII-SODIMM SLOT1</b>       |  |
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| Size   | Document Number    | Rev             | Date: Monday, December 25, 2006 Sheet 13 of 47 |                                 |  |
| Custom   | IGT30 LA-3571P     | 0.1             |  |                                 |  |



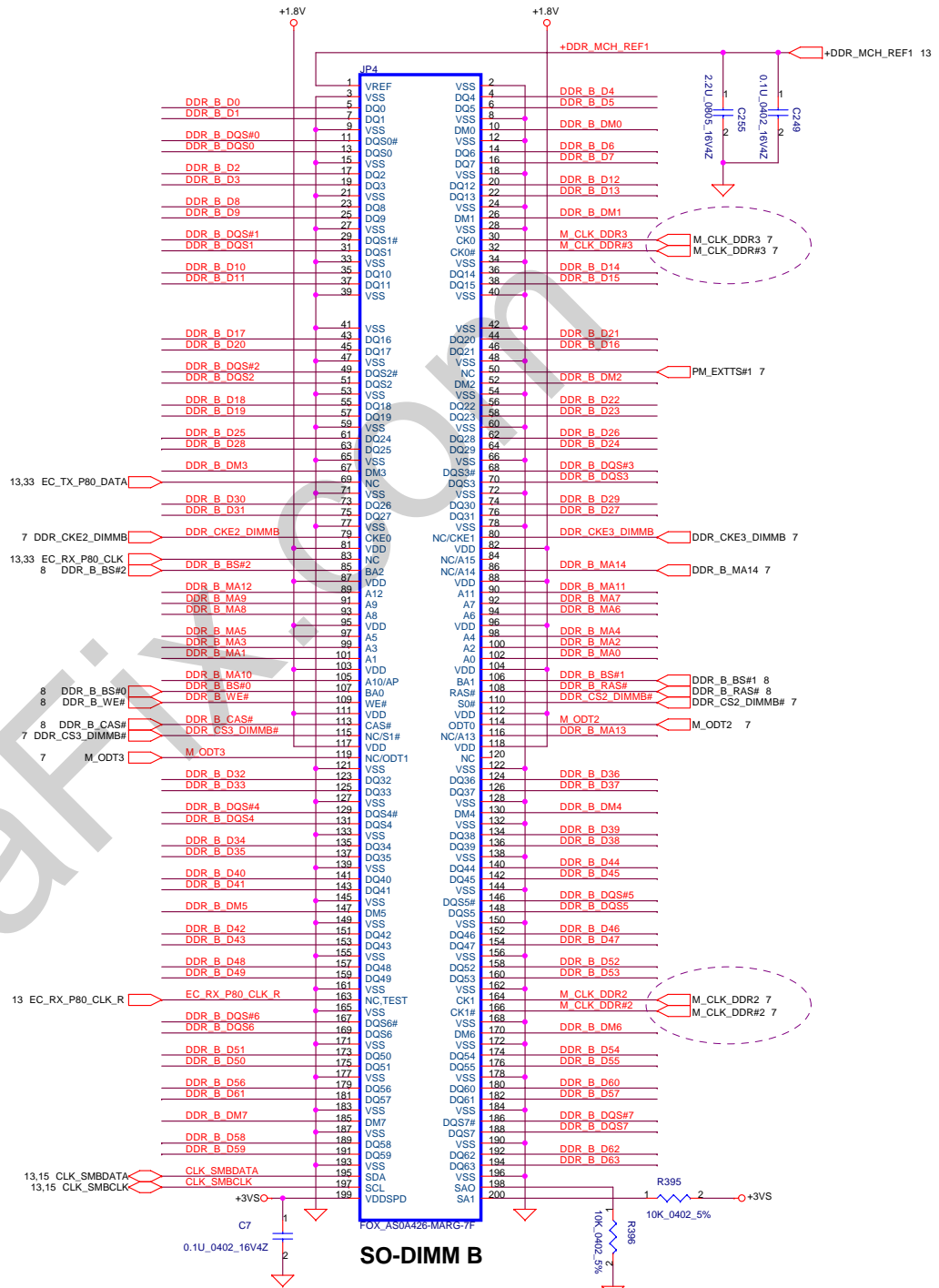
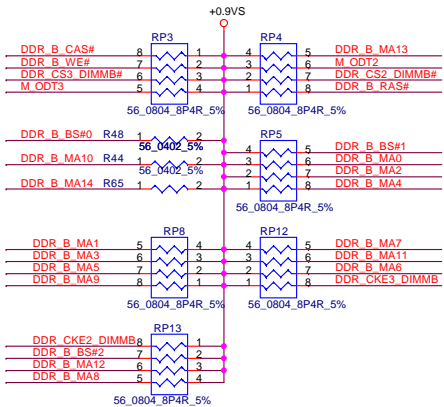
**Layout Note:**  
Place near JP42



**Layout Note:**  
Place one cap close to every 2 pullup resistors terminated to +0.9VS



**Layout Note:**  
Place these resistor closely JP42, all trace length Max=1.5"

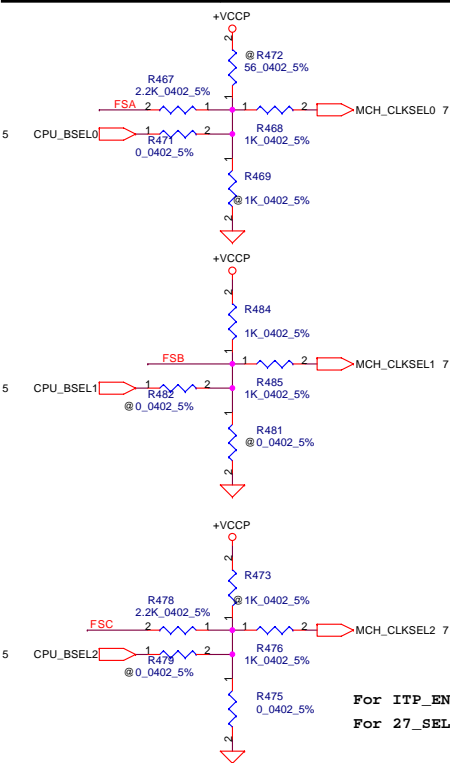


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| Date:   | Monday, December 25, 2006 | Sheet           | 14 of 47  |

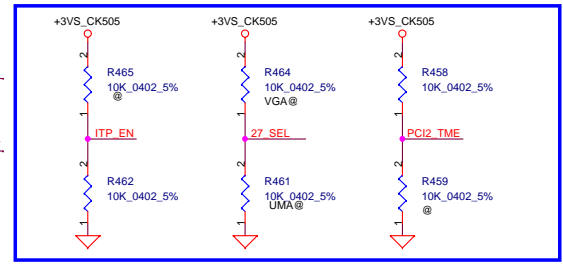
| FSLC    | FSLB    | FSLA    | CPU | SRC | PCI  |
|---------|---------|---------|-----|-----|------|
| CLKSEL2 | CLKSEL1 | CLKSEL0 | MHz | MHz | MHz  |
| 0       | 1       | 0       | 200 | 100 | 33.3 |
| 0       | 1       | 1       | 166 | 100 | 33.3 |

**FSB Frequency Selet:**

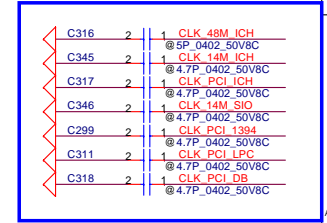
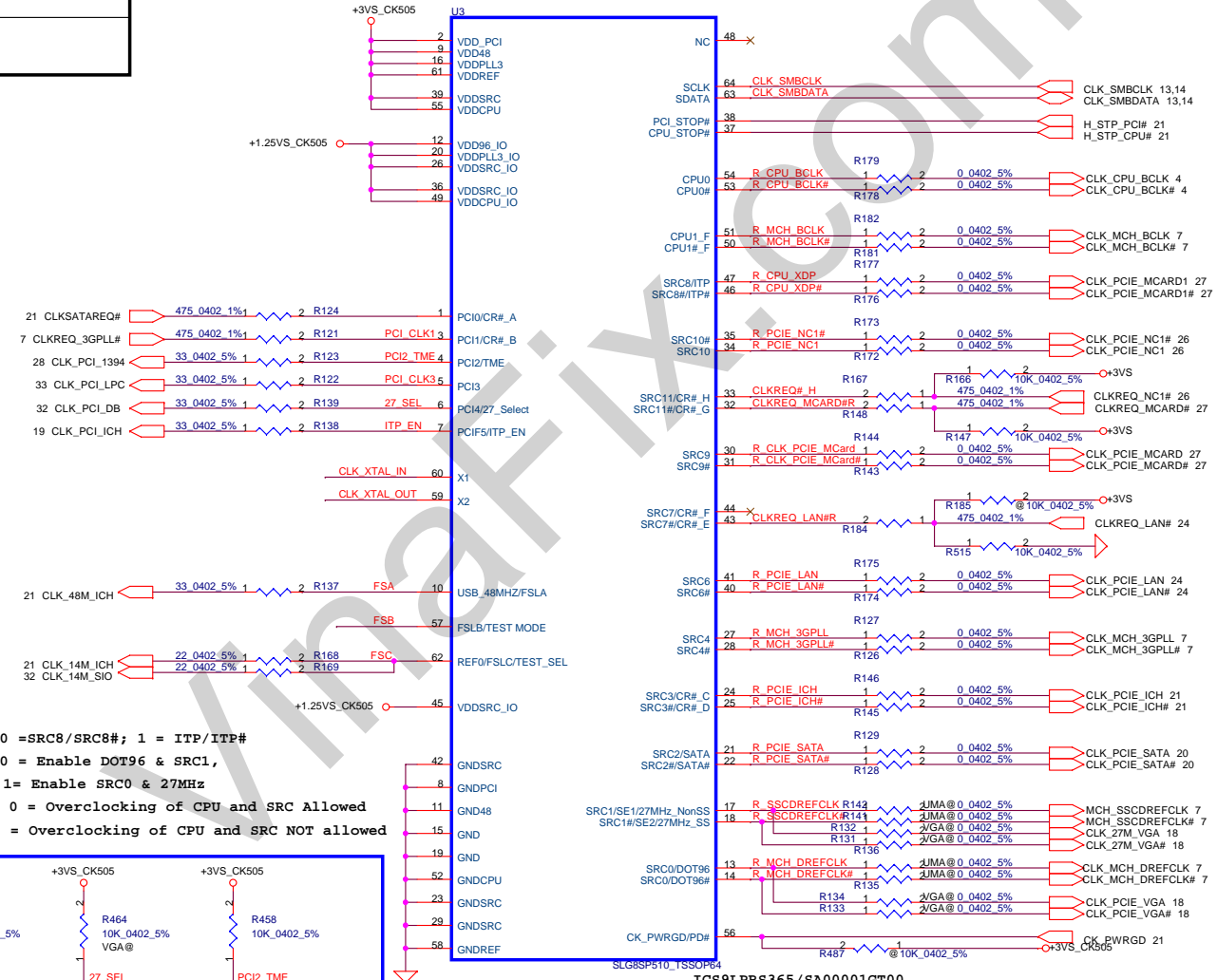
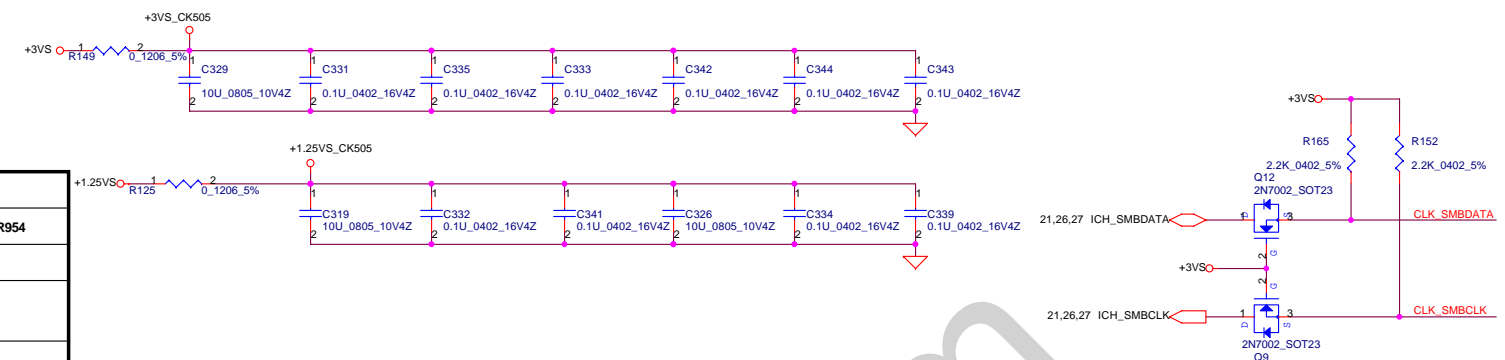
| CPU Driven | Stuff    | R919 | R940 | R956 |
|------------|----------|------|------|------|
| *(Default) | No Stuff | R914 | R921 | R930 |
|            | Stuff    | R919 | R940 | R956 |
| 667MHz     | No Stuff | R919 | R940 | R956 |
|            | Stuff    | R949 | R943 | R921 |
| 800MHz     | No Stuff | R919 | R940 | R956 |
|            | Stuff    | R949 | R943 | R914 |



For ITP\_EN, 0 = SRC8/SRC8#, 1 = ITP/ITP#  
 For 27\_SEL, 0 = Enable DOT96 & SRC1, 1 = Enable SRC0 & 27MHz  
 For PCI2\_EN, 0 = Overclocking of CPU and SRC Allowed, 1 = Overclocking of CPU and SRC NOT allowed

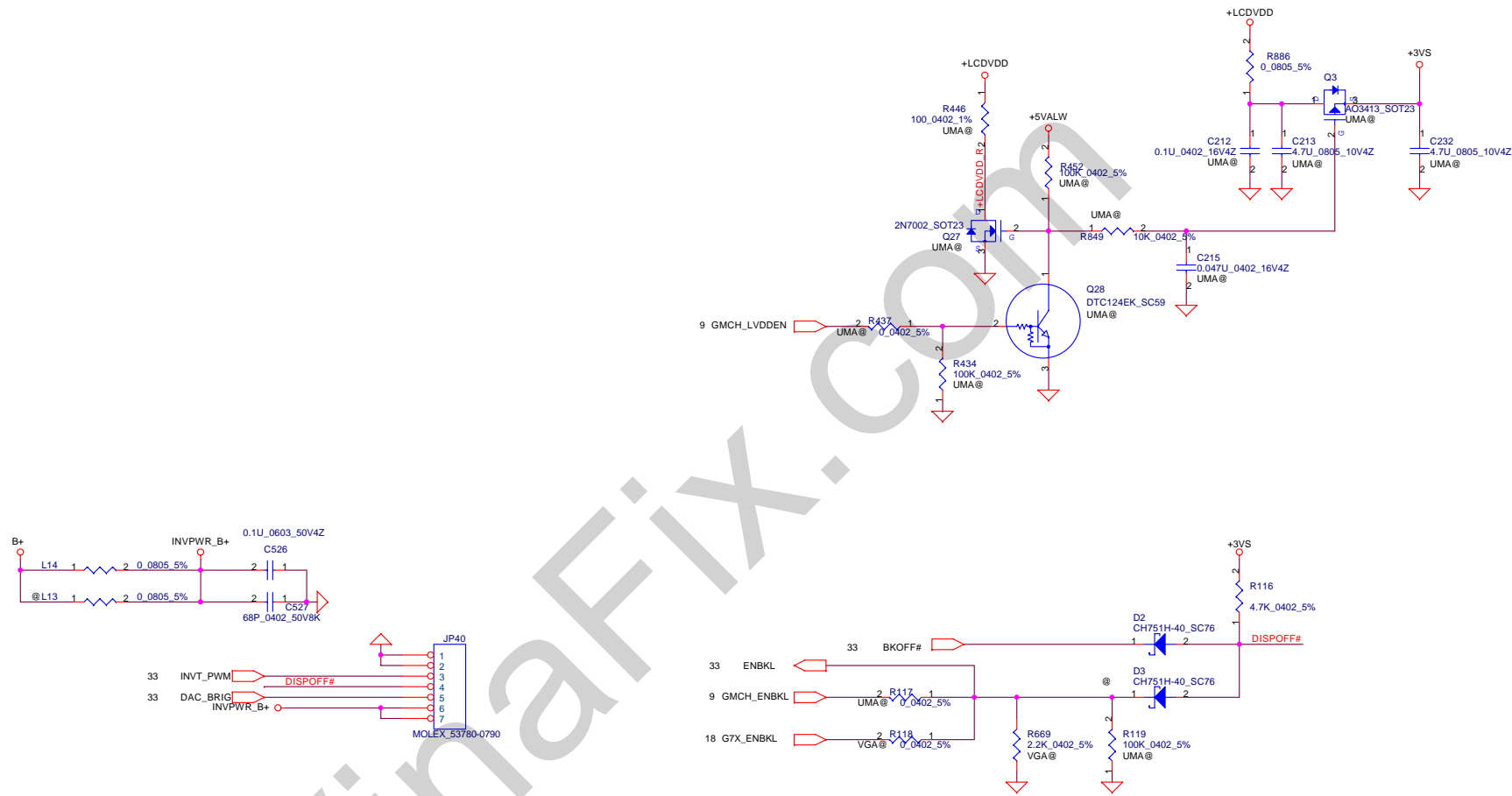


Routing the trace at least 10mil



Place close to U41

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|---|--------------------|-----------------|------------|------------------------------|
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|   |                    |                 |            | <b>Clock generator</b>       |
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|   |                    |                 |            | IGT30 LA-3571P   0.1         |
| Date: Monday, December 25, 2006   |                    |                 |            | Sheet 15 of 47               |

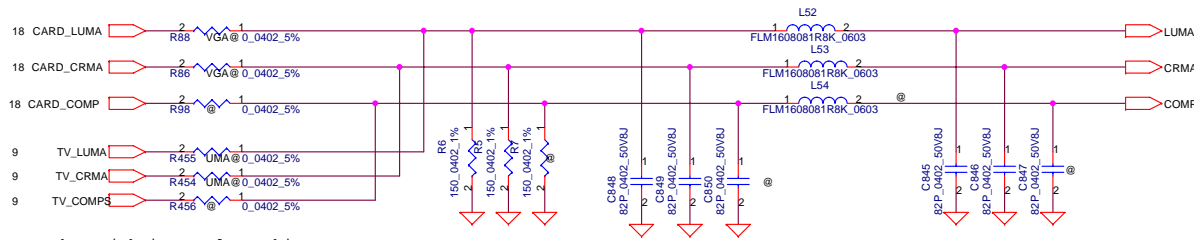


|                         |                    |                 |
|-------------------------|--------------------|-----------------|
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|                         |                    | 2006/10/06      |

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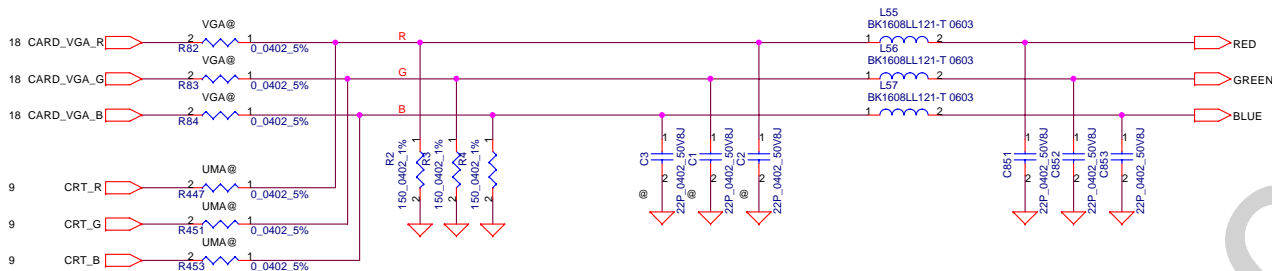
|        |                           |                                 |          |
|--------|---------------------------|---------------------------------|----------|
| Title  |                           | <b>Compal Electronics, Inc.</b> |          |
|        |                           | <b>LVDS Connector</b>           |          |
| Size   | Document Number           | Rev                             |          |
| Custom | <b>IGT30 LA-3571P</b>     | 0.1                             |          |
| Date:  | Monday, December 25, 2006 | Sheet                           | 16 of 47 |





Pop when with internal graphics

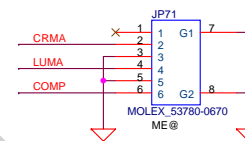
CRT Conn.



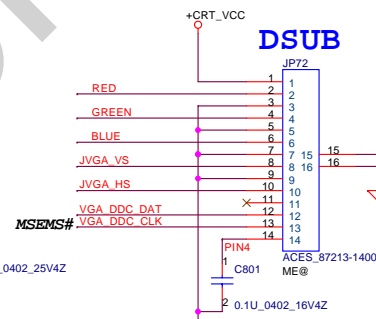
Pop when with internal graphics

VGA I/O PORT Connector

S-VIDEO

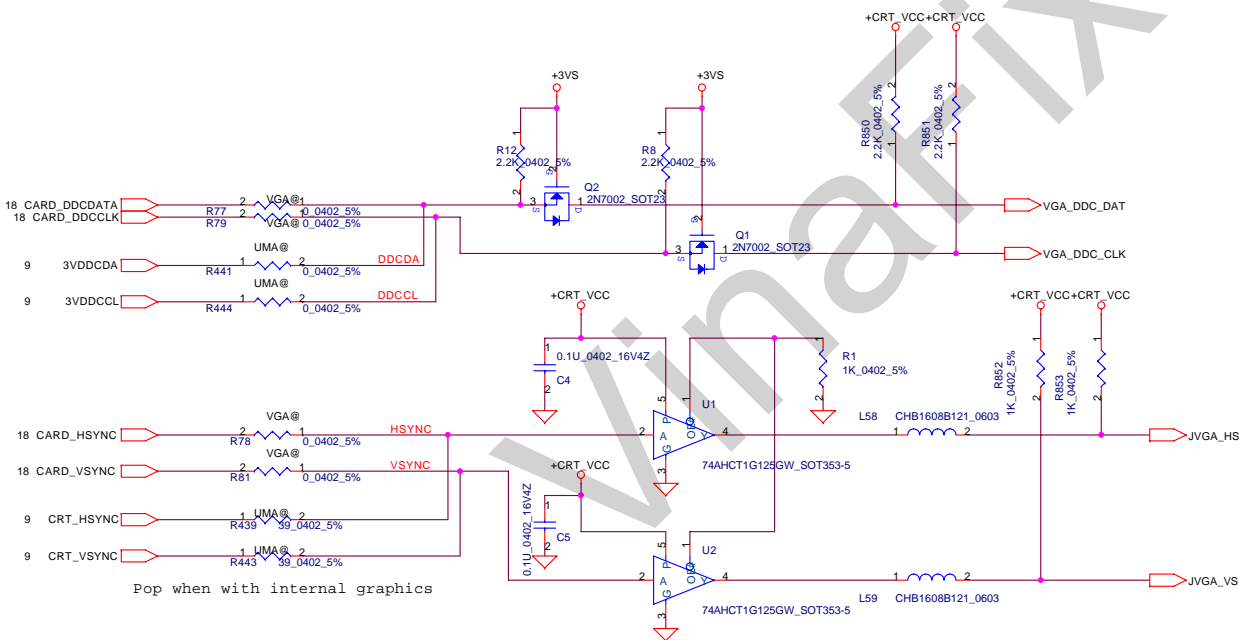


DSUB

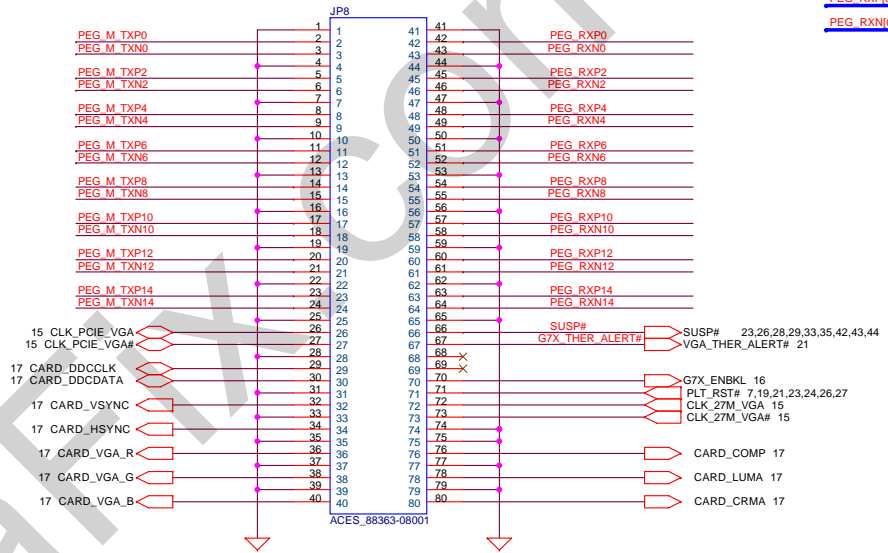
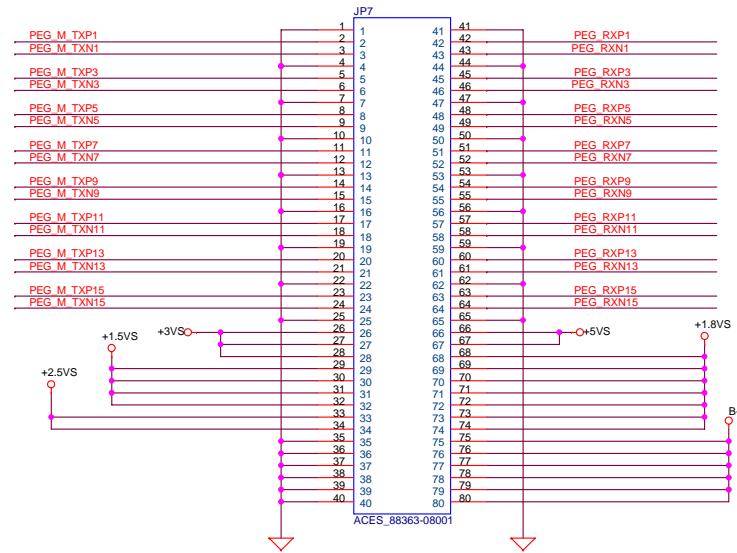


PIN ASSIGMENT

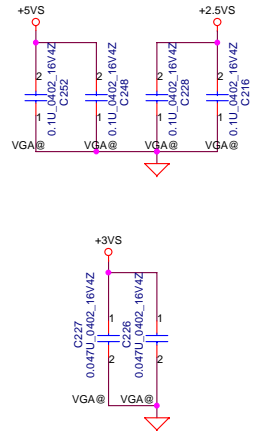
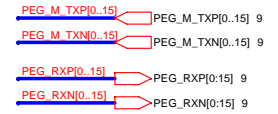
| PIN | D-SUB | FUNCTION | PIN | SVIDEO | FUNCTION |
|-----|-------|----------|-----|--------|----------|
| 1   | 9     | +CRT_VCC | 1   | 1      | NC       |
| 2   | 1     | RED      | 2   | 4      | CRMA     |
| 3   | 6     | GND      | 3   | 2      | GND      |
| 4   | 2     | GREEN    | 4   | 3      | LUMA     |
| 5   | 7     | GND      | 5   | 5      | GND      |
| 6   | 3     | BLUE     | 6   | 6      | CVBS     |
| 7   | 8     | GND      |     |        |          |
| 8   | 14    | VSYNC    |     |        |          |
| 9   | 10    | GND      |     |        |          |
| 10  | 13    | HSYNC    |     |        |          |
| 11  | 11    | SENSE    |     |        |          |
| 12  | 12    | SM_DAT   |     |        |          |
| 13  | 15    | SM_CLK   |     |        |          |
| 14  | 4     | PIN4     |     |        |          |



Pop when with internal graphics



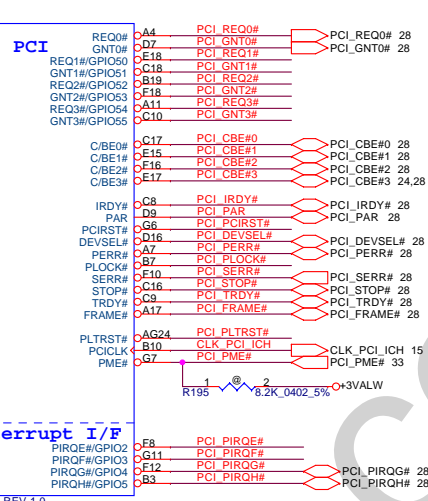
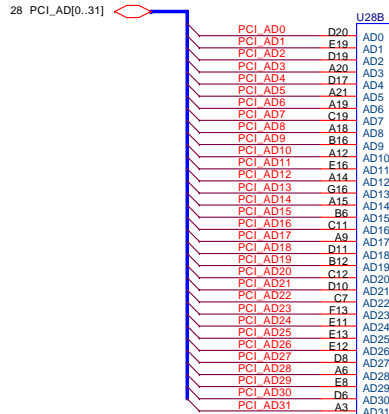
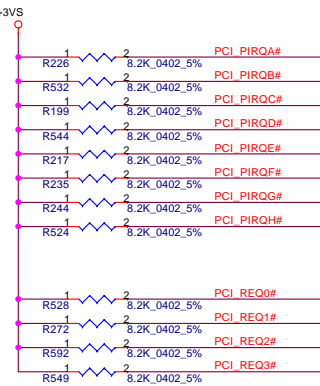
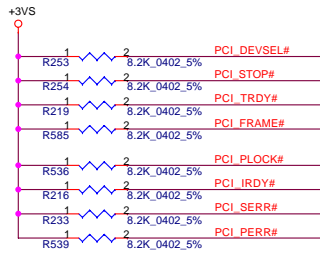
MAX. 4.06A @ 1.8V  
 MAX. 130mA @ 2.5V  
 MAX. 655mA @ 3.3V



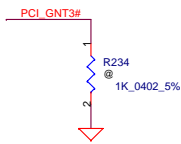
Vina.com

|                                 |                           |                |
|---------------------------------|---------------------------|----------------|
| <b>Compal Electronics, Inc.</b> |                           |                |
| <b>VGA/B connector</b>          |                           |                |
| Title                           |                           |                |
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| Date:                           | Monday, December 25, 2006 | Sheet 18 of 47 |

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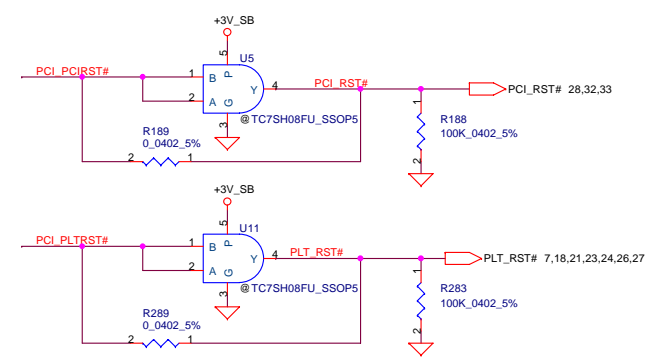
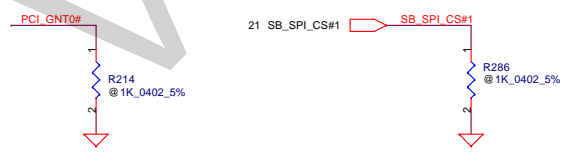
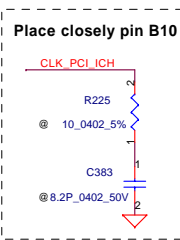


Interrupt I/F  
ICH8M REV 1.0



| A16 swap override Strap       |                 |
|-------------------------------|-----------------|
| Low= A16 swap override enable | High= Default * |
| PCI_GNT3#                     |                 |

| Boot BIOS Strap |          |                    |
|-----------------|----------|--------------------|
| PCI_GNT0#       | SPI_CS#1 | Boot BIOS Location |
| 0               | 1        | SPI                |
| 1               | 0        | PCI                |
| 1               | 1        | LPC *              |

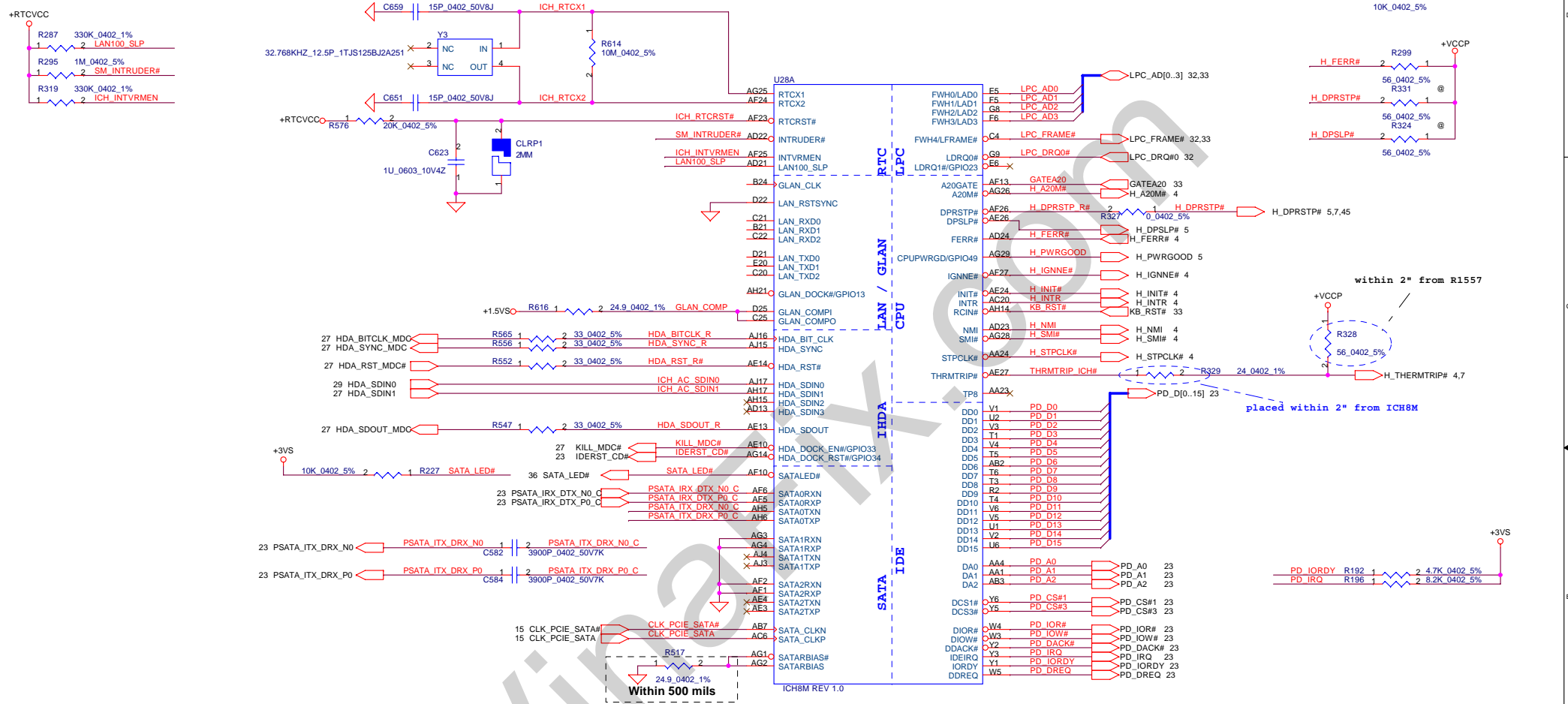


|   |                    |                 |            |
|---|--------------------|-----------------|------------|
| Security Classification   | Compal Secret Data |                 |            |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 |
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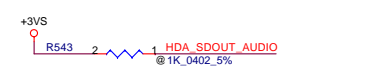
|                          |                           |       |          |
|--------------------------|---------------------------|-------|----------|
| Title                    |                           |       |          |
| Compal Electronics, Inc. |                           |       |          |
| ICH8(1/4)-PCI/INT        |                           |       |          |
| Size                     | Document Number           | Rev   |          |
|                          | IGT30 LA-3571P            | 0.1   |          |
| Date:                    | Monday, December 25, 2006 | Sheet | 19 of 47 |

**ICH8M Internal VR Enable Strap**  
(Internal VR for VccSus1.05, VccSus1.5, VccCL1.5)

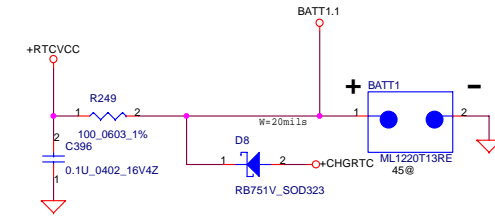
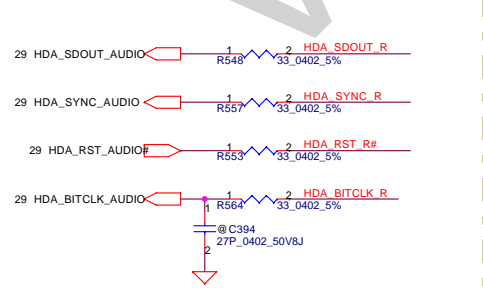
|              |   |
|--------------|---|
| LAN100_SLP   | Low = Internal VR Disabled<br>High = Internal VR Enabled(Default) |
| ICH_INTVRMEN | High = Internal VR Enabled(Default)                               |



**XOR CHAIN ENTRANCE STRAP:RSVD**



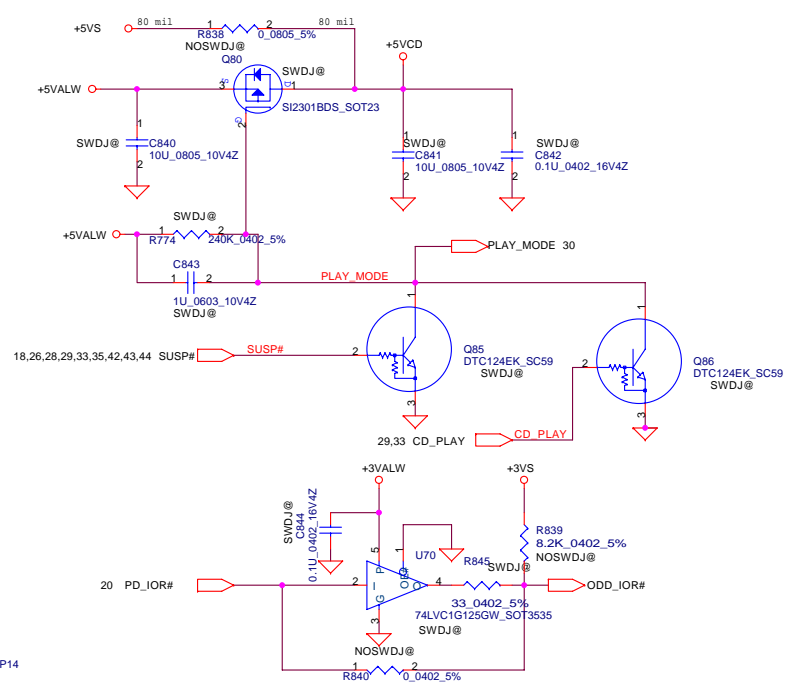
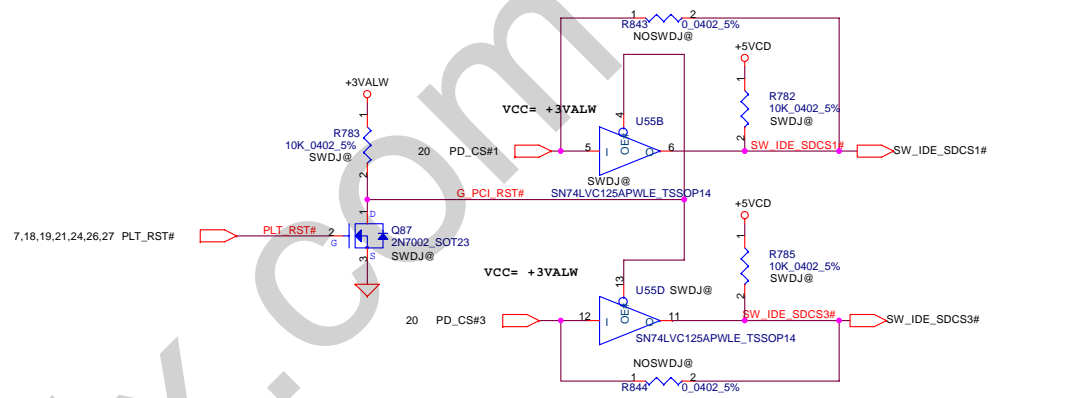
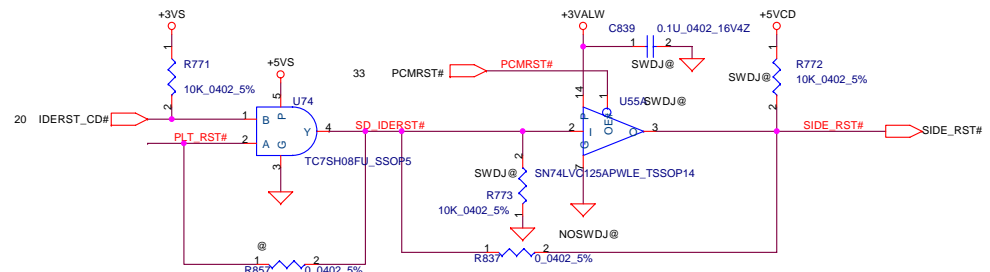
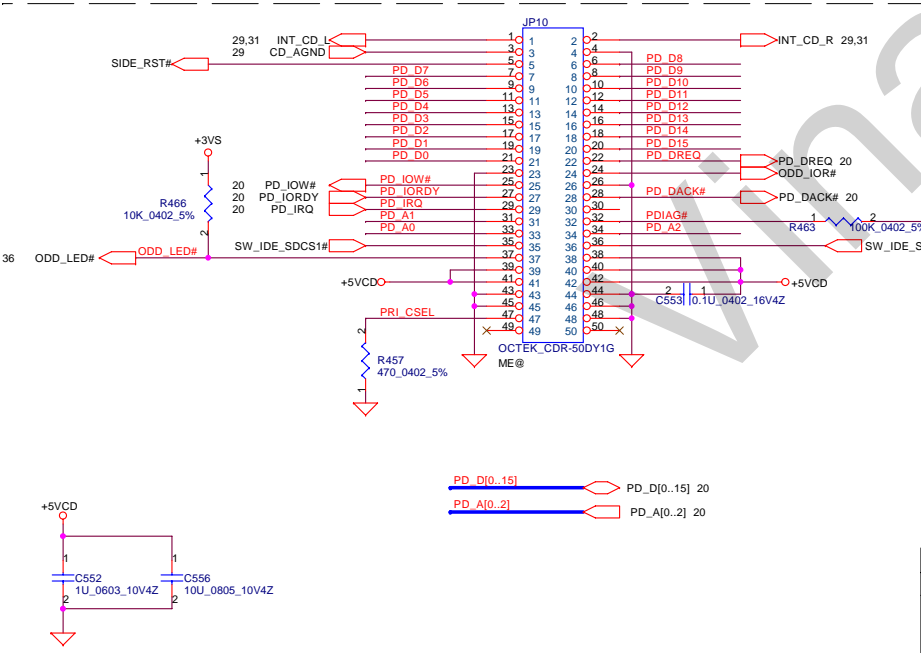
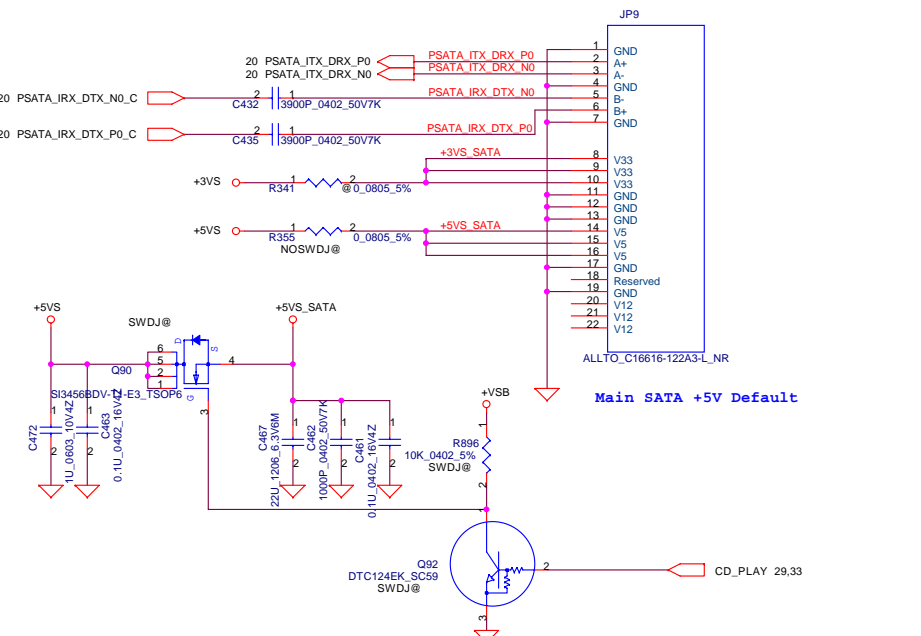
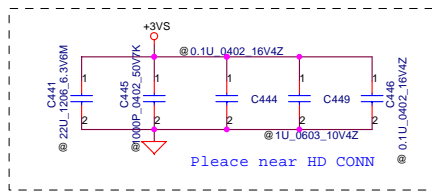
**Close to ICH**



|   |                    |                 |            |  |                           |
|---|--------------------|-----------------|------------|--|---------------------------|
| Security Classification   | Compal Secret Data |                 | Title      | <b>Compal Electronics, Inc.</b>          |                           |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | Title<br><b>ICH8(2/4) LAN,HD,IDE,LPC</b> |                           |
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|   |                    |                 |            | Date:                                    | Monday, December 25, 2006 |
|   |                    |                 |            | Sheet                                    | 20 of 47                  |
|   |                    |                 |            | Rev                                      | 0.1                       |

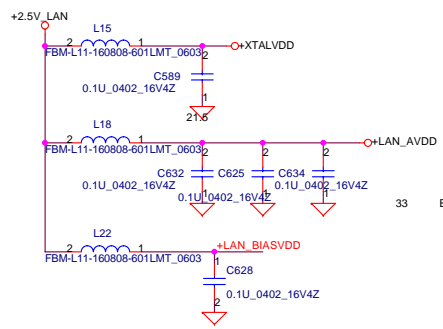




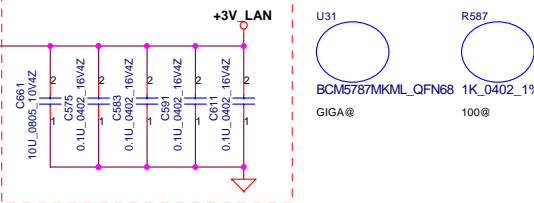


|   |            |                    |            |             |                           |
|---|------------|--------------------|------------|-------------|---------------------------|
| Security Classification   |            | Compal Secret Data |            | Title       |                           |
| Issued Date   | 2006/08/04 | Deciphered Date    | 2006/10/06 | HDD & CDROM |                           |
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|   |            |                    |            | Date        | Monday, December 25, 2006 |
|   |            |                    |            | Sheet       | 23 of 47                  |

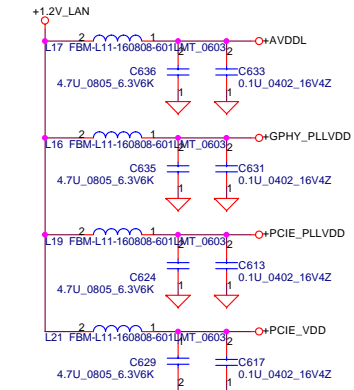
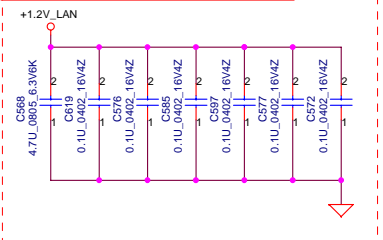
**Layout Notice : Filter place as close chip as possible.**



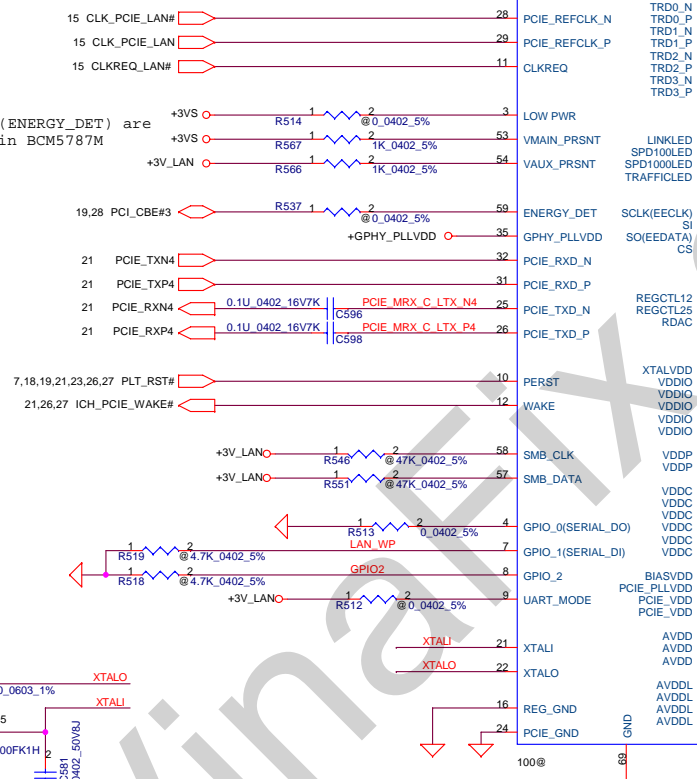
**Layout Notice : Place as close chip as possible.**



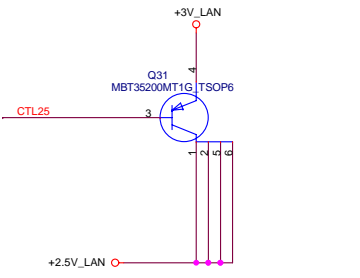
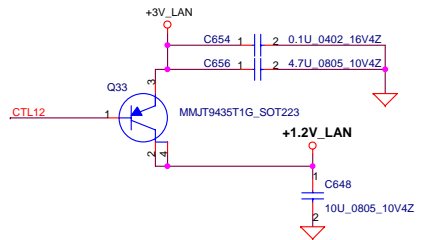
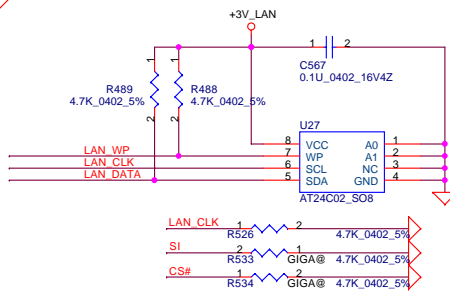
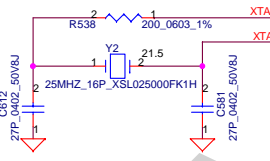
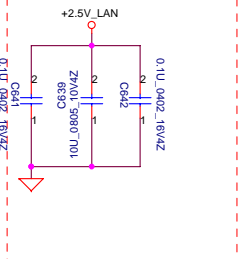
**Layout Notice : 1.2V filter. Place as close chip as possible.**



(CLKREQ#) and (ENERGY\_DET) are only supported in BCM5787M



**Layout Notice : Place as close chip as possible.**



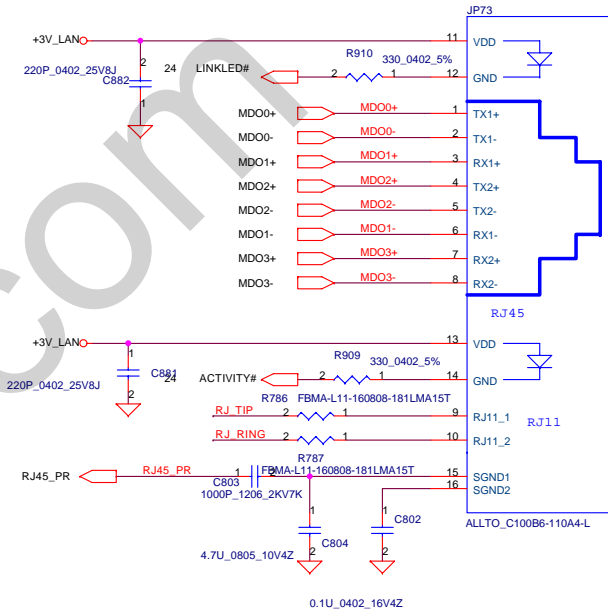
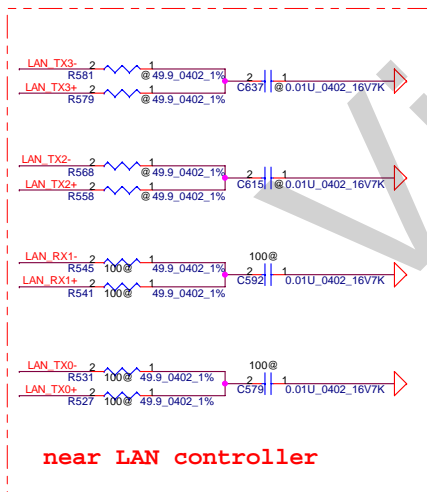
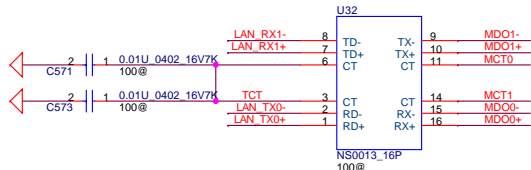
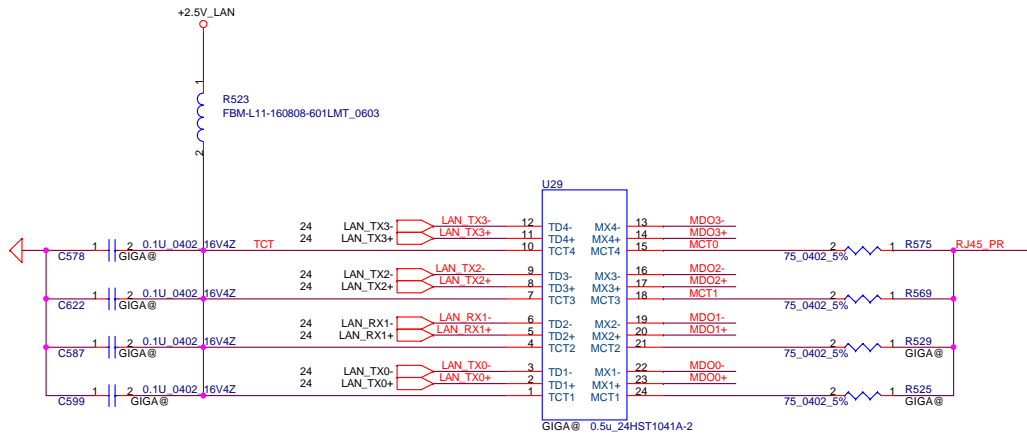
**Notice : 4.7u 6.3V capacitor Thickness 1.25mm**

**Layout Notice : Filter place as close chip as possible.**

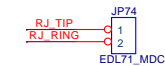
| Security Classification   | Compal Secret Data        |                 | Title      |             |
|---|---------------------------|-----------------|------------|-------------|
| Issued Date   | 2006/08/04                | Deciphered Date | 2006/10/06 | BCM5787MKML |
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| Size  | Document Number           | Rev             |            | 0.1         |
| IGT30 LA-3571P  |                           |                 |            |             |
| Date:   | Monday, December 25, 2006 | Sheet           | 24         | of 47       |



# RJ11+RJ45 CONN

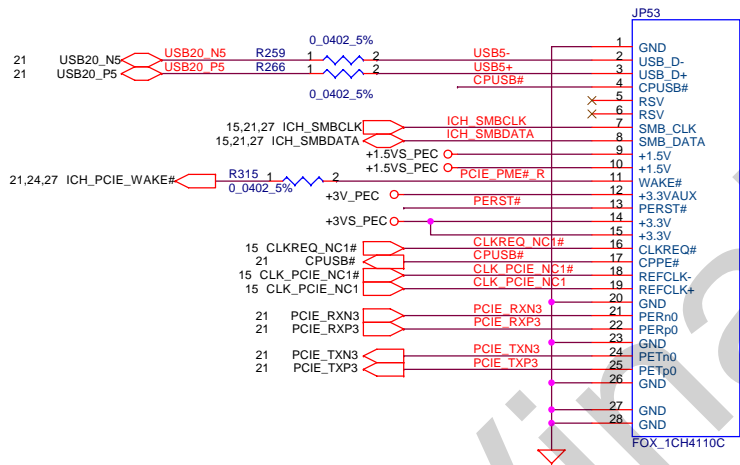
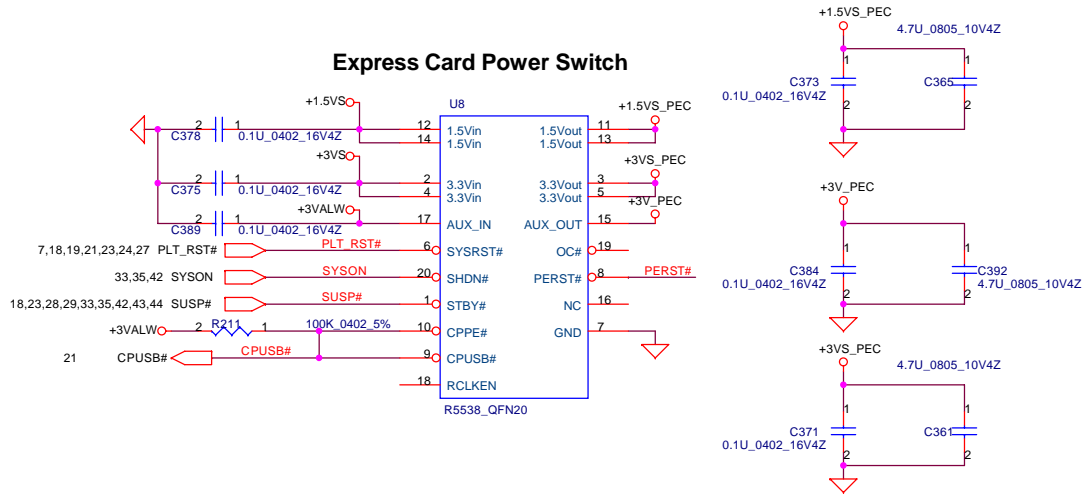


# MDC CONN



|   |                    |                 |            |                |
|---|--------------------|-----------------|------------|----------------|
| Security Classification   | Compal Secret Data |                 | Title      |                |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | LAN CONTROLLER |
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| Date: Monday, December 25, 2006   |                    |                 |            | Sheet 25 of 47 |

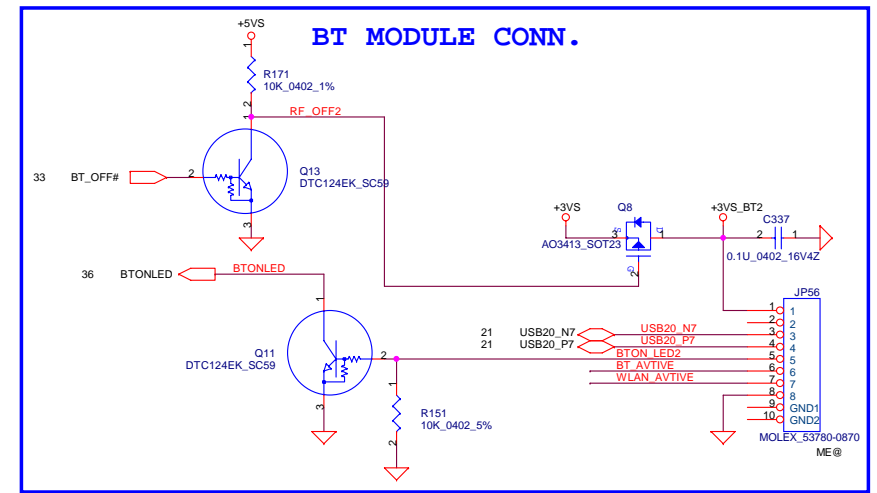
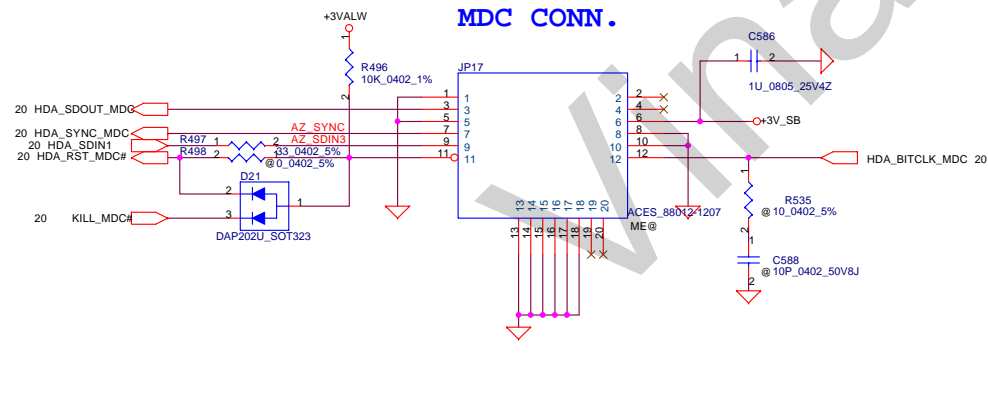
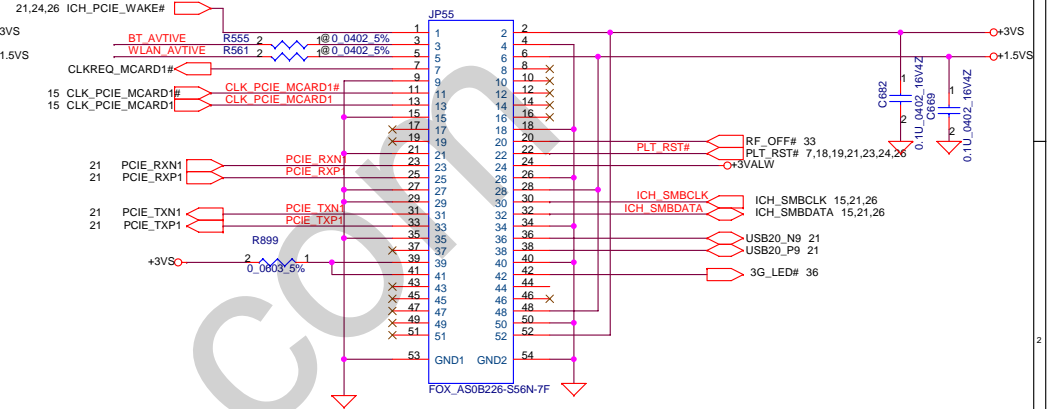
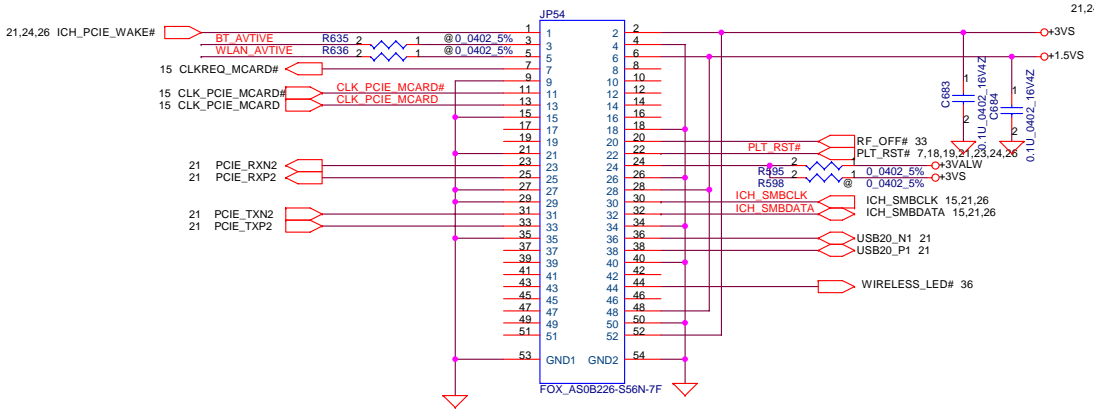
### Express Card Power Switch



|   |                           |                    |                |                          |     |
|---|---------------------------|--------------------|----------------|--------------------------|-----|
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| Size  | Custom                    | Document Number    | IGT30 LA-3571P | Rev                      | 0.1 |
| Date:   | Monday, December 25, 2006 | Sheet              | 26             | of                       | 47  |

### Mini-Express Card(Slot 1-WLAN)

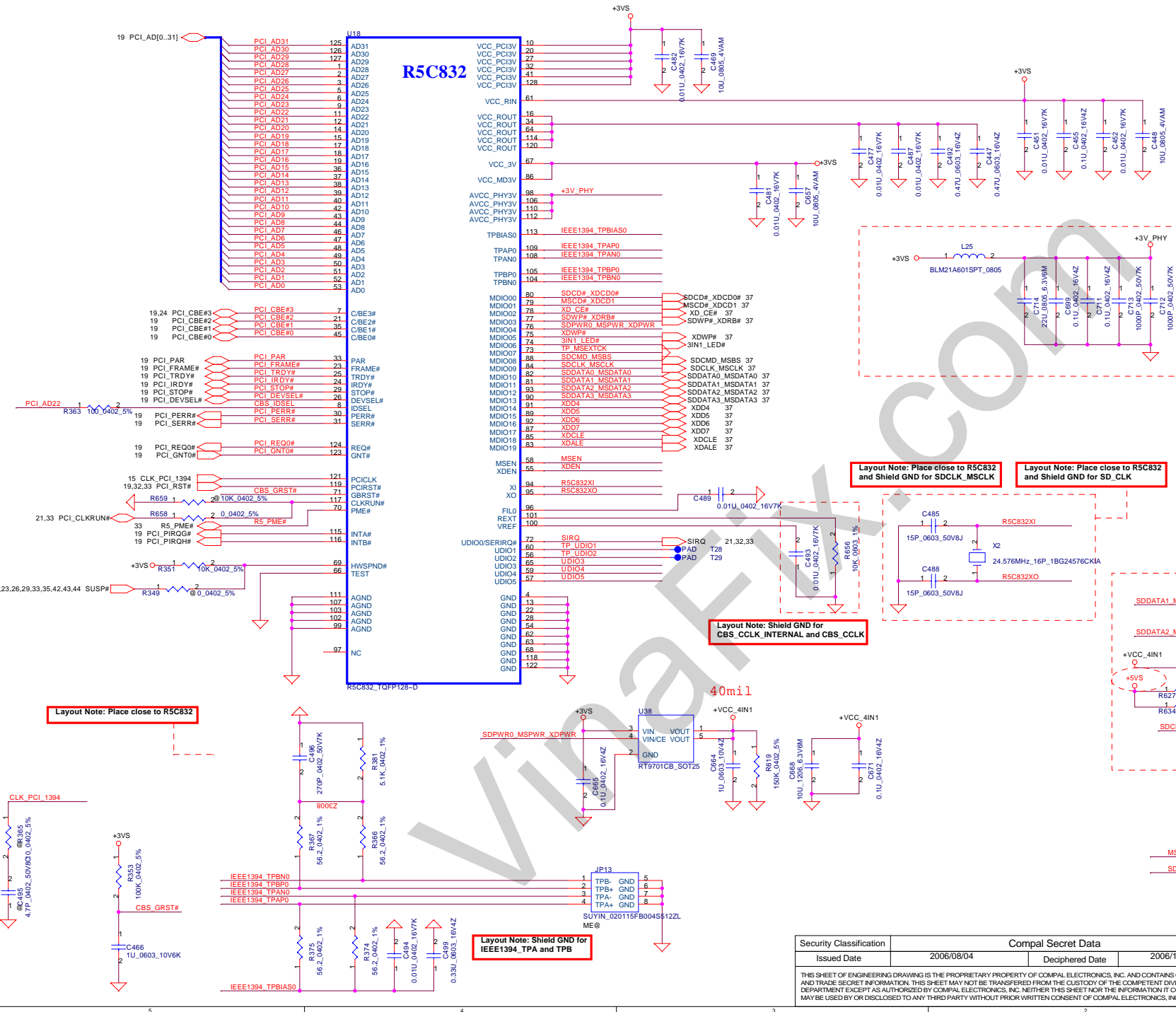
### Mini-Express Card(Slot 2-3G)



| Security Classification | Compal Secret Data |                 |
|-------------------------|--------------------|-----------------|
| Issued Date             | 2006/08/04         | Deciphered Date |
|                         |                    | 2006/10/06      |

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|                                 |                           |
|---------------------------------|---------------------------|
| <b>Compal Electronics, Inc.</b> |                           |
| <b>Mini Card / MDC CONN</b>     |                           |
| Size                            | Document Number           |
| Custom                          | IGT30 LA-3571P            |
| Date                            | Monday, December 25, 2006 |
| Sheet                           | 27 of 47                  |
| Rev                             | 0.1                       |



**SD, MMC, MS, XD multi-function pin define**

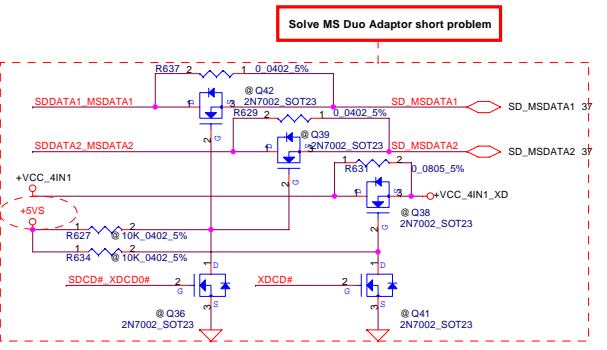
| MDIO PIN Name | SD Card PIN Name | MMC Card PIN Name | MS Card PIN Name | XD Card PIN Name |
|---------------|------------------|-------------------|------------------|------------------|
| MDIO00        | SDCD#            | MMCCD#            | MSCD#            | XDCD#            |
| MDIO01        |                  |                   |                  | XDCD1#           |
| MDIO02        |                  |                   |                  | XDCD#            |
| MDIO03        | SDWP#            |                   |                  | XDR/#            |
| MDIO04        | SDPWR0           | MMCPWR            | MSWR             | XDPWR            |
| MDIO05        | SDPWR1           |                   |                  | XDWP#            |
| MDIO06        | SDLED#           | MMCLEd#           | MSLED#           | XDLED#           |
| MDIO07        |                  |                   |                  | MSEXTCK          |
| MDIO08        | SDCCMD           | MMCCMD            | MSBS             | XDWE#            |
| MDIO09        | SDCLCK           | MMCLCK            | MSCCLK           | XDRE#            |
| MDIO10        | SDCAT0           | MMCDAT            | MSCDAT0          | XDCDAT0          |
| MDIO11        | SDCAT1           |                   | MSCDAT1          | XDCDAT1          |
| MDIO12        | SDCAT2           |                   | MSCDAT2          | XDCDAT2          |
| MDIO13        | SDCAT3           |                   | MSCDAT3          | XDCDAT3          |
| MDIO14        |                  |                   |                  | XDCDAT4          |
| MDIO15        |                  |                   |                  | XDCDAT5          |
| MDIO16        |                  |                   |                  | XDCDAT6          |
| MDIO17        |                  |                   |                  | XDCDAT7          |
| MDIO18        |                  |                   |                  | XDCLE            |
| MDIO19        |                  |                   |                  | XDALe            |

**Function set pin define**

| UDIO3   | UDIO4   | MSEN    | XDEN    | Function                    |
|---------|---------|---------|---------|-----------------------------|
| Pull-up | Pull-up | Pull-up | Pull-up | Enable SD, XD, MS, MMC Card |

**Layout Note: Place close to R5C832 and Shield GND for SDCLK, MSCLK and Shield GND for SD, CLK**

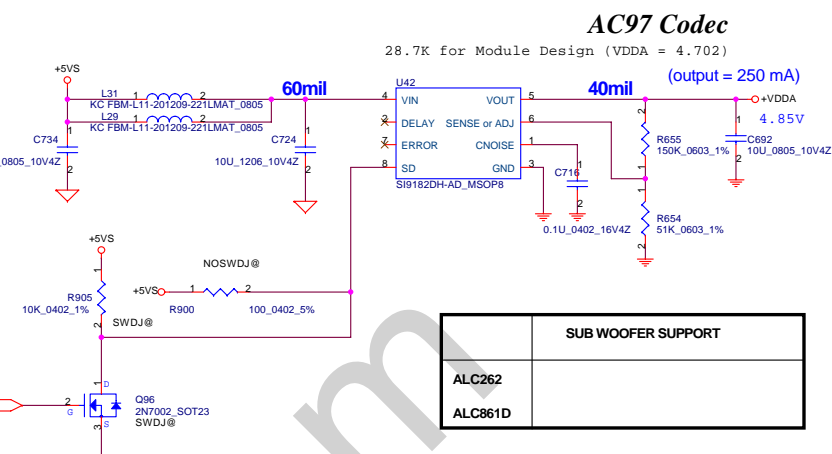
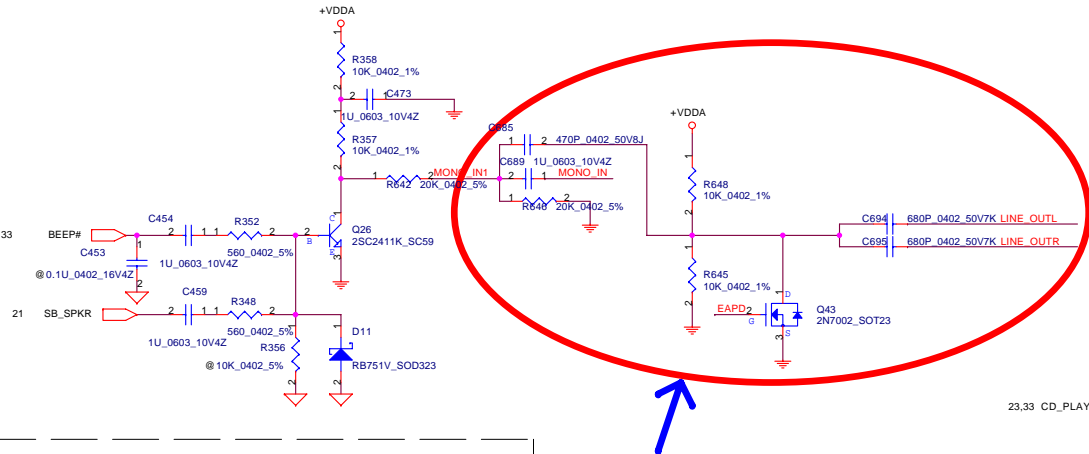
**Layout Note: Shield GND for CBS\_CCLK\_INTERNAL and CBS\_CCLK**



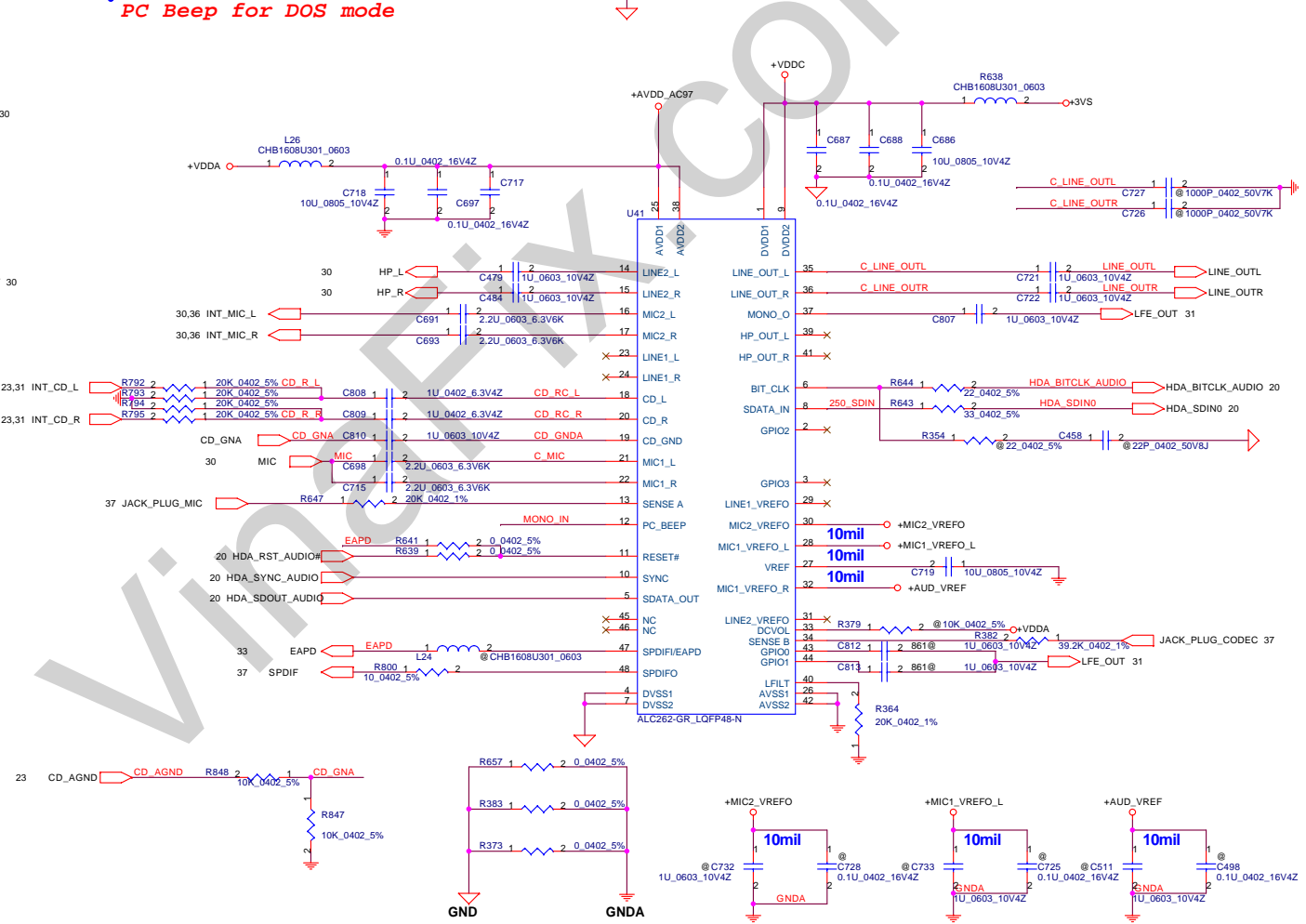
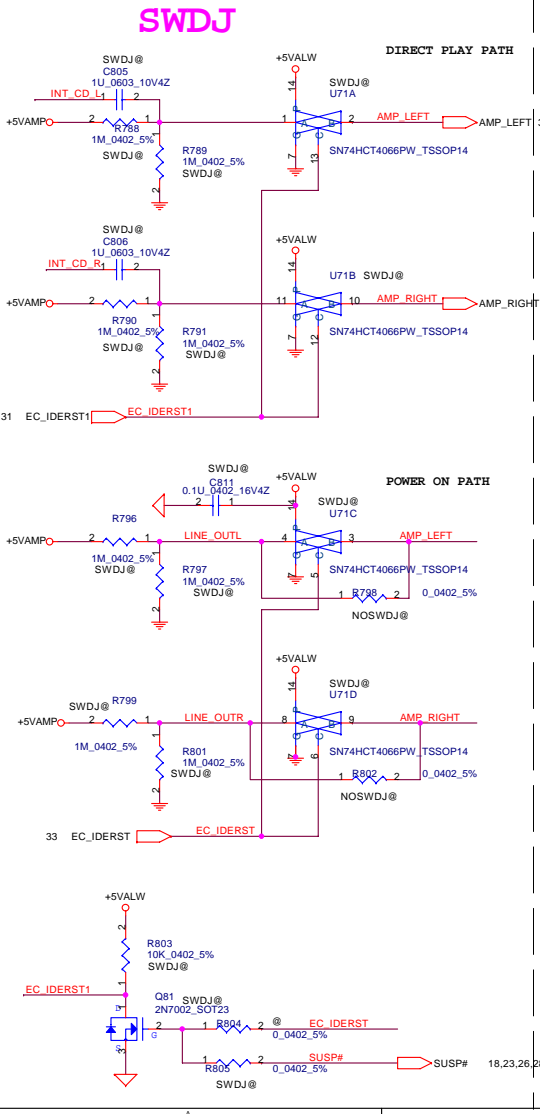
AC97 Codec

28.7K for Module Design (VDDA = 4.702)

(output = 250 mA)

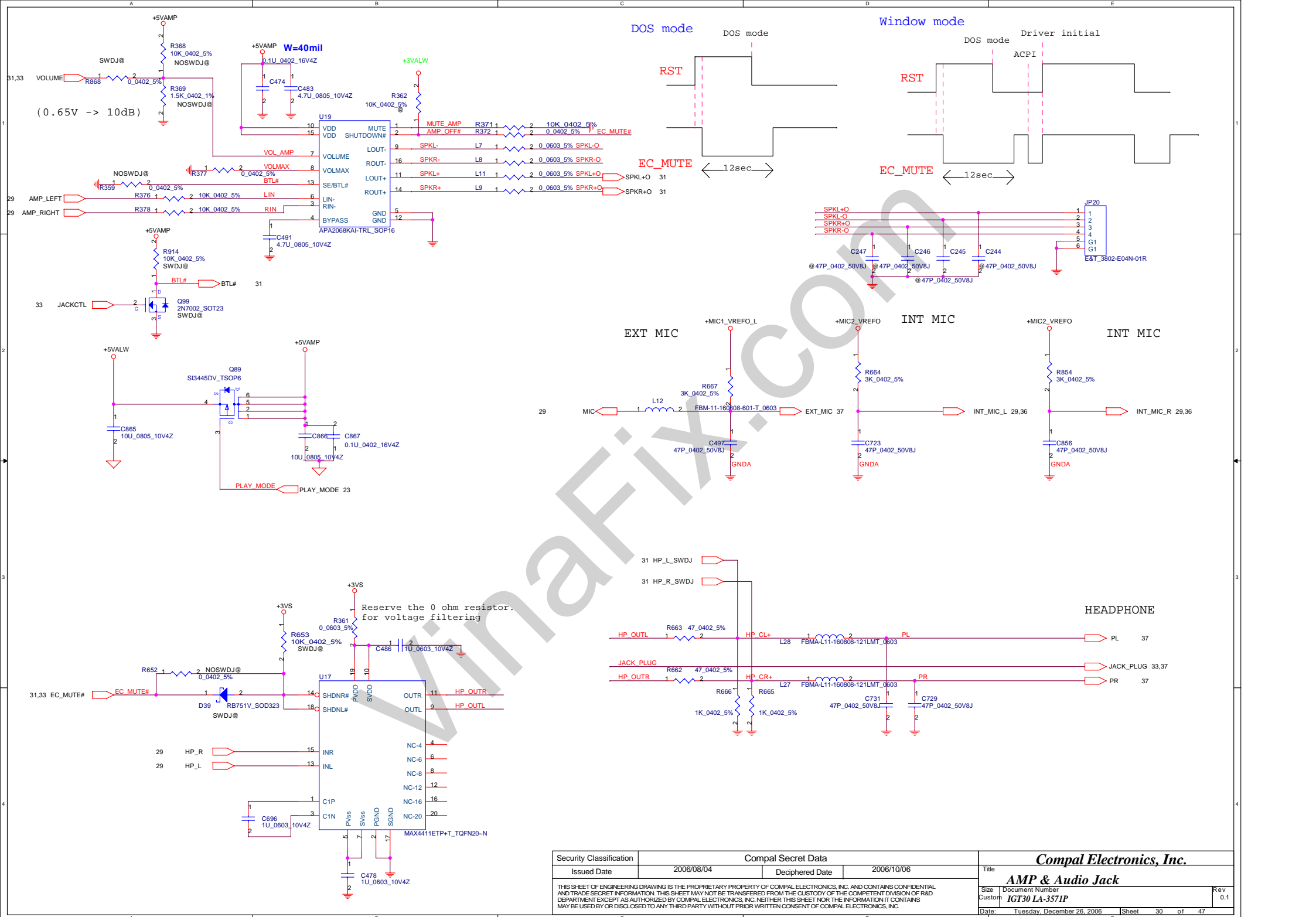


| SUB WOOFER SUPPORT |  |
|--------------------|--|
| ALC262             |  |
| ALC861D            |  |



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|---|--------------------|
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|--------------------------|---------------------------|
| Title                    | ALC861 VD Codec           |
| Size                     | Document Number           |
| Customer                 | IGT30 LA-3571P            |
| Date                     | Monday, December 25, 2006 |
| Sheet                    | 29 of 47                  |
| Rev                      | 0.1                       |



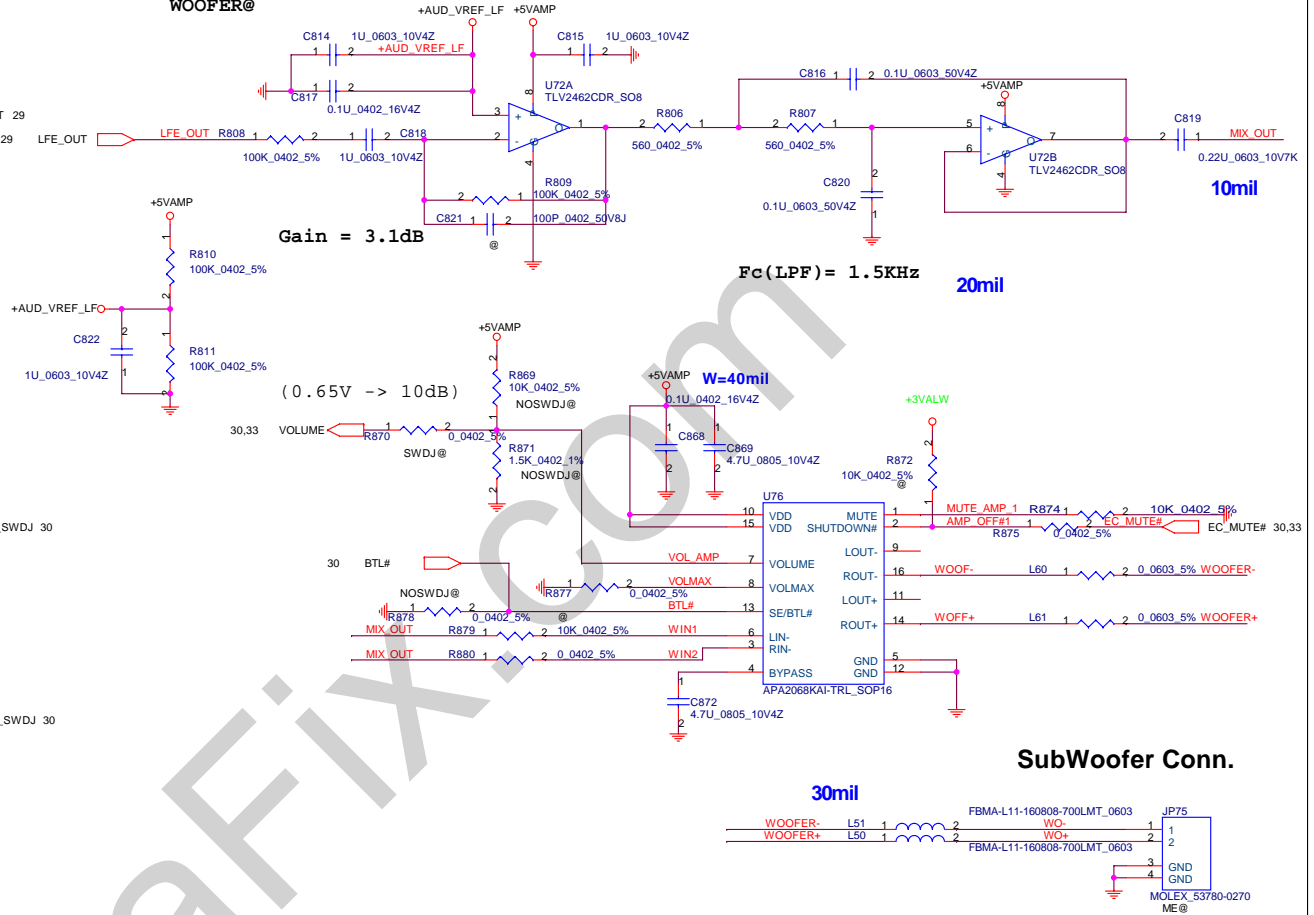
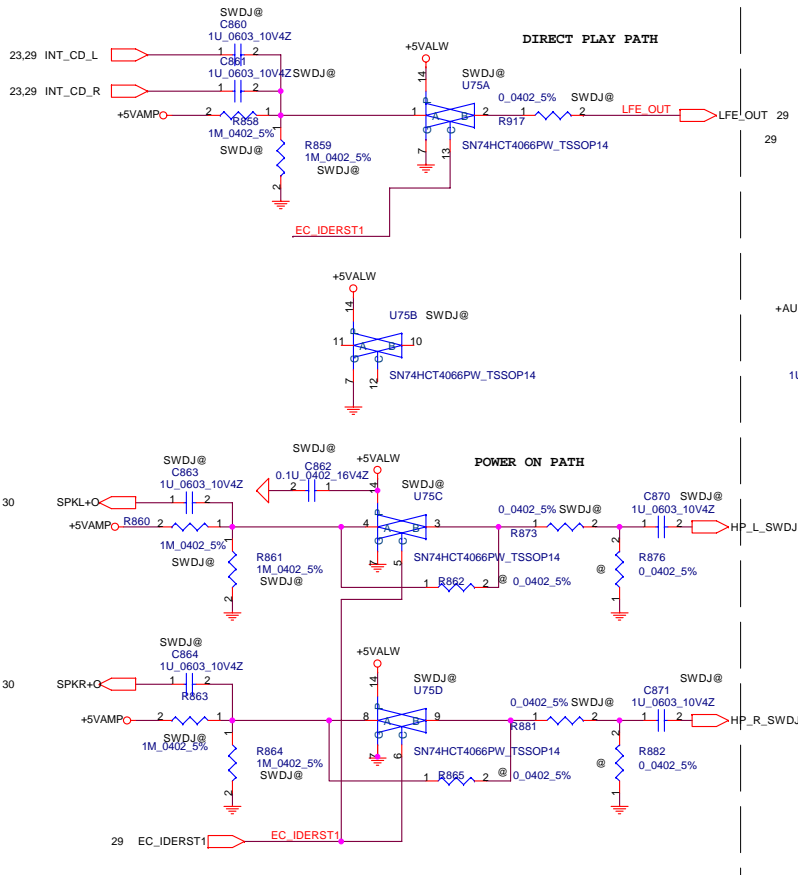
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|-------------------------|--------------------|-----------------|
| Issued Date             | 2006/08/04         | Deciphered Date |
|                         |                    | 2006/10/06      |

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| Compal Electronics, Inc. |                             |                |
|--------------------------|-----------------------------|----------------|
| Title                    | <b>AMP &amp; Audio Jack</b> |                |
| Size                     | Document Number             | Rev            |
| Custom                   | <b>IGT30 LA-3571P</b>       | 0.1            |
| Date:                    | Tuesday, December 26, 2006  | Sheet 30 of 47 |

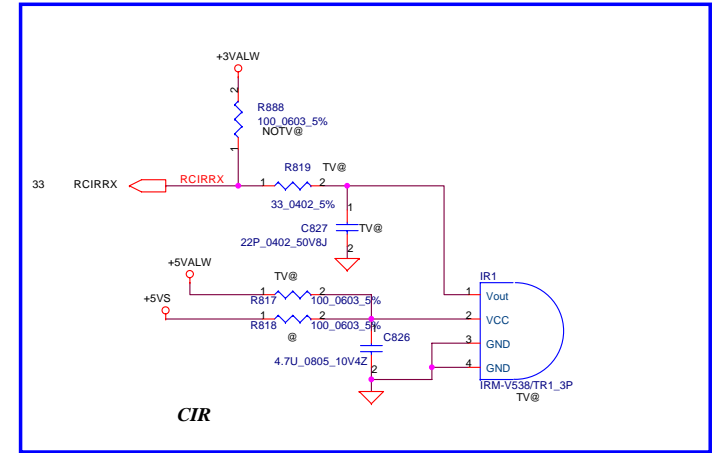
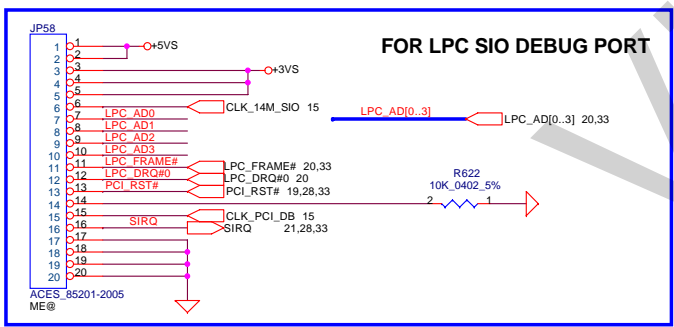
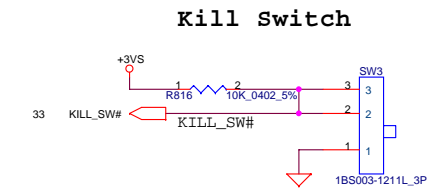
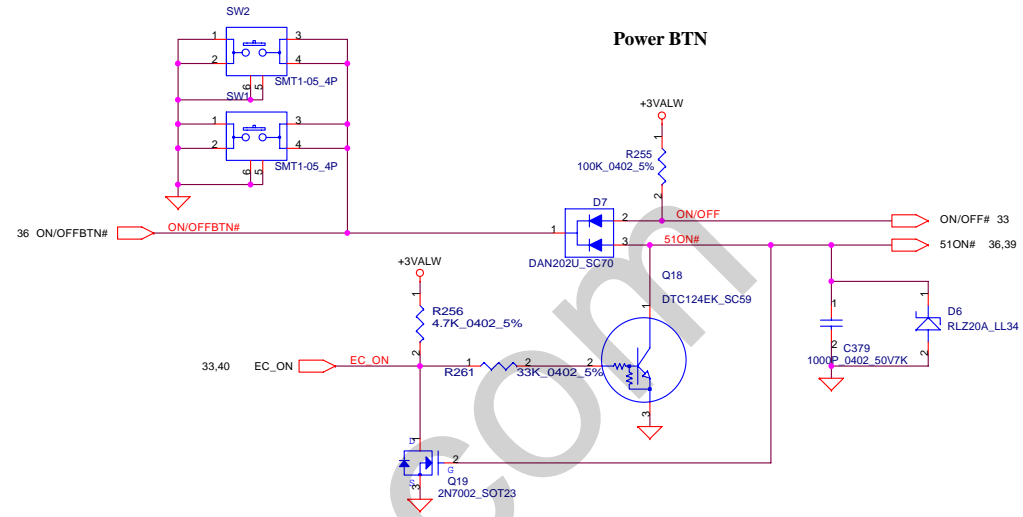
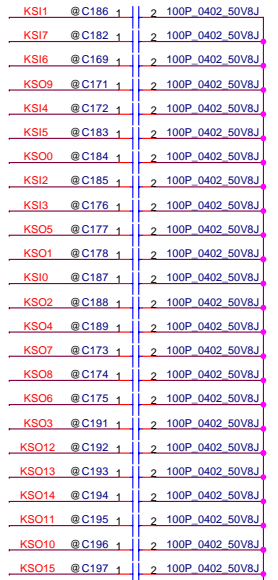
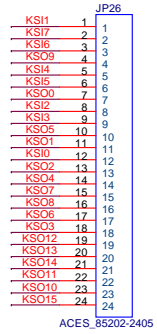
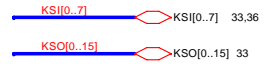
SWDJ

WOOFER (Reserved for C38)



|   |                            |                 |                          |                       |
|---|----------------------------|-----------------|--------------------------|-----------------------|
| Security Classification   | Compal Secret Data         |                 | Compal Electronics, Inc. |                       |
| Issued Date   | 2006/08/04                 | Deciphered Date | 2006/10/06               | Title                 |
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| Size  | Document Number            | Rev             |                          |                       |
| Custom  | IGT30 LA-3571P             | 0.1             |                          |                       |
| Date:   | Tuesday, December 26, 2006 | Sheet           | 31                       | of 47                 |

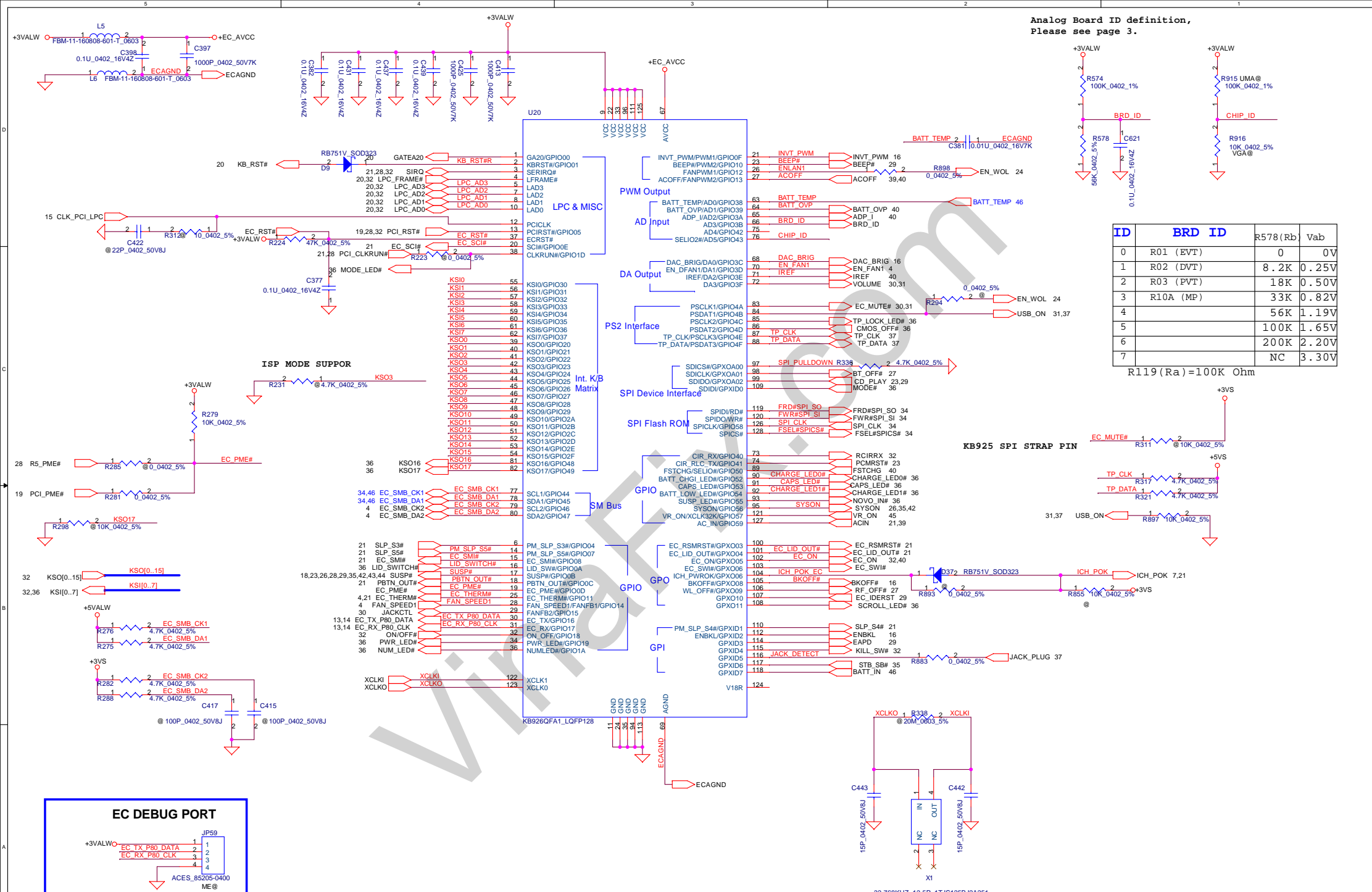
### INT\_KBD CONN.( TYPE "D" KB)



|   |                    |                 |            |  |
|---|--------------------|-----------------|------------|--|
| Security Classification   | Compal Secret Data |                 | Title      |  |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | <b>KBD,ON/OFF,TP,LED/B,DEBUG</b>   |
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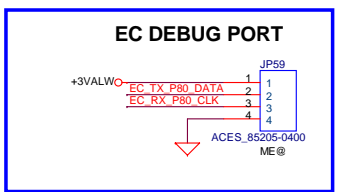


Analog Board ID definition,  
Please see page 3.

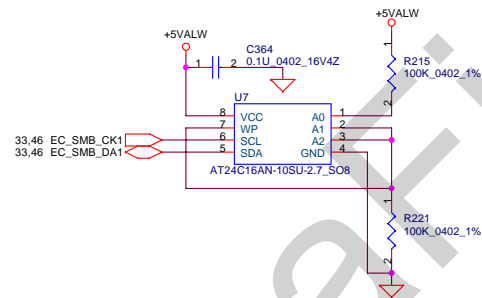
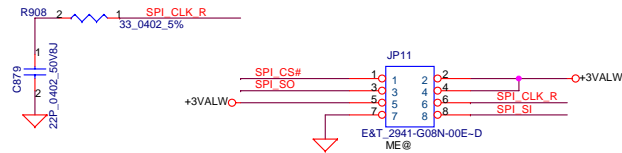
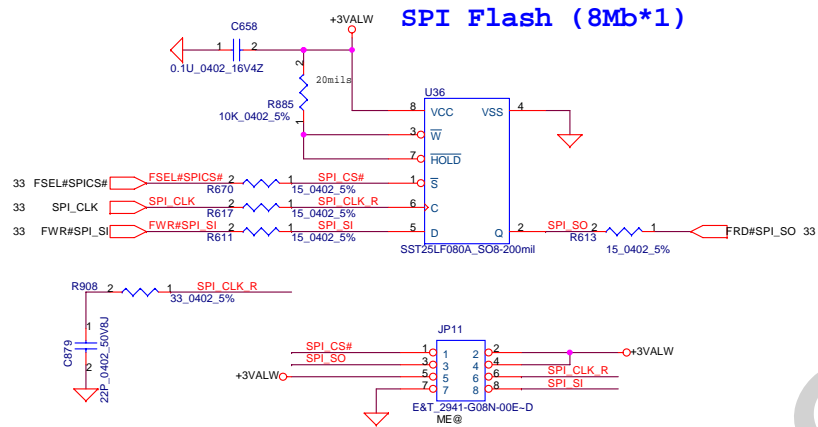


| ID | BRD ID    | R578 (Rb) | Vab   |
|----|-----------|-----------|-------|
| 0  | R01 (EVT) | 0         | 0V    |
| 1  | R02 (DVT) | 8.2K      | 0.25V |
| 2  | R03 (PVT) | 18K       | 0.50V |
| 3  | R10A (MP) | 33K       | 0.82V |
| 4  |           | 56K       | 1.19V |
| 5  |           | 100K      | 1.65V |
| 6  |           | 200K      | 2.20V |
| 7  |           | NC        | 3.30V |

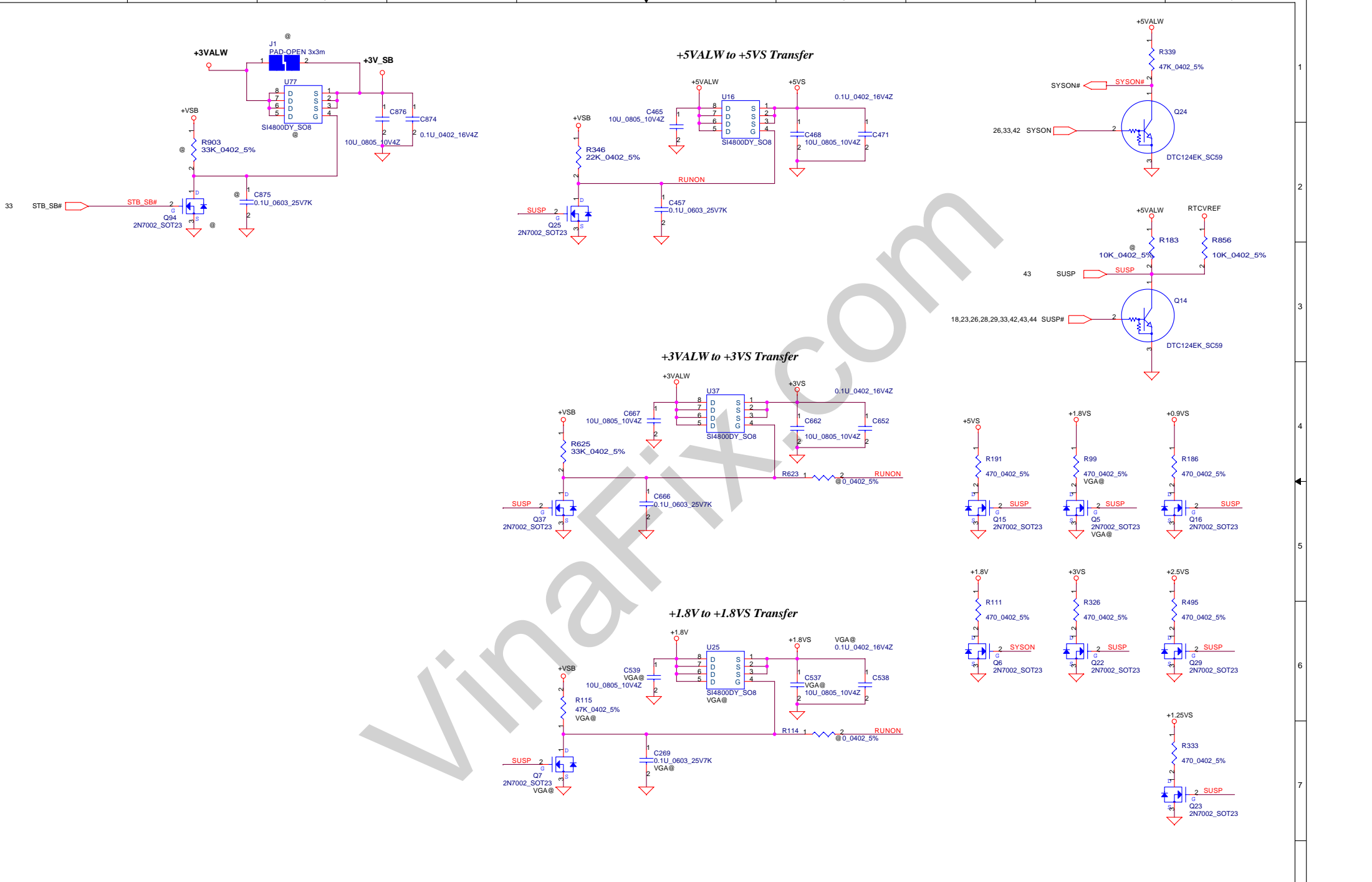
R119 (Ra) = 100K Ohm



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| <p>32.768KHZ 12.5P 1TJS125BJ2A251</p>  |                    |                 | <p>Sheet 33 of 47</p>   |

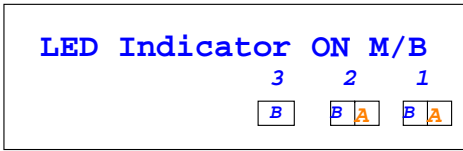


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|   |                    |                 |                                 | Document Number<br><b>IGT30 LA-3S71P</b> |
|   |                    |                 |                                 | Rev<br>0.1                               |
|   |                    |                 |                                 | Date: Monday, December 25, 2006          |
|   |                    |                 |                                 | Sheet 34 of 47                           |

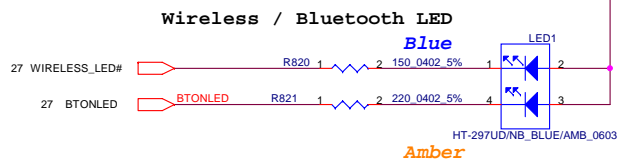


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|                                 |                           |
|---------------------------------|---------------------------|
| <b>Compal Electronics, Inc.</b> |                           |
| Title                           | <b>DC/DC Circuit</b>      |
| Size                            | Document Number           |
| Custom                          | <b>IGT30 LA-3571P</b>     |
| Date:                           | Monday, December 25, 2006 |
| Sheet                           | 35 of 47                  |
| Rev                             | 0.1                       |

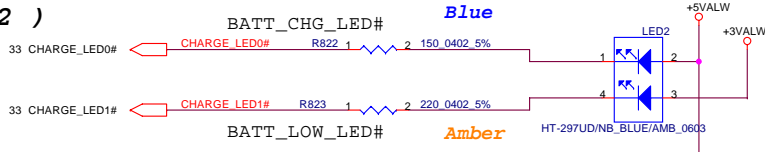


( 1 )

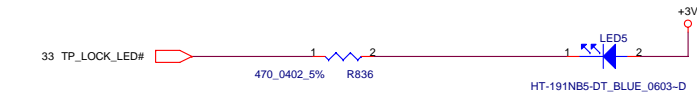
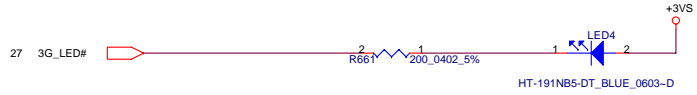
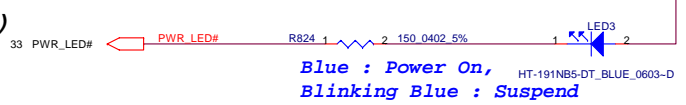


| STATUS   |               |
|----------|---------------|
| AC       | BLUE          |
| Chargin  | Blinking Blue |
| Low BATT | Amber         |

( 2 )

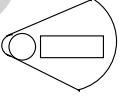


( 3 )



| STATUS   |               |
|----------|---------------|
| AC       | BLUE          |
| Chargin  | Blinking Blue |
| Low BATT | Amber         |

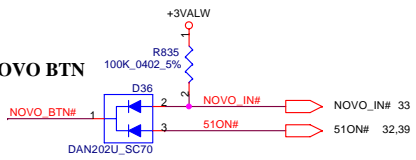
### Dial Wheel



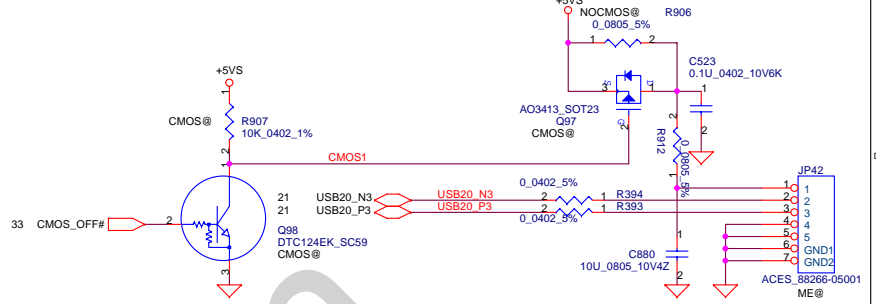
| KEY Matrix | K016     | K017    |
|------------|----------|---------|
| KSI0       | DW-UP    | DW-DOWN |
| KSI1       | DW-ENTER | MUTE    |

NOVA\_BTN#

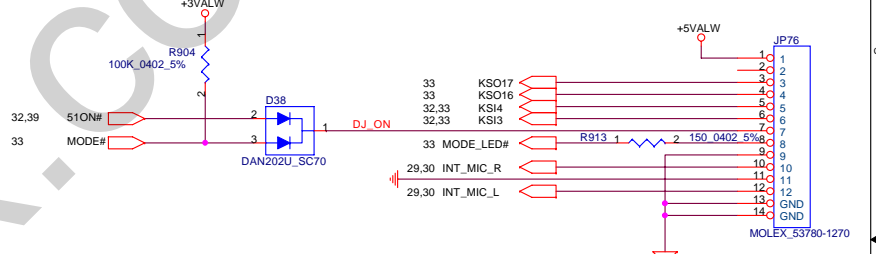
### NOVO BTN



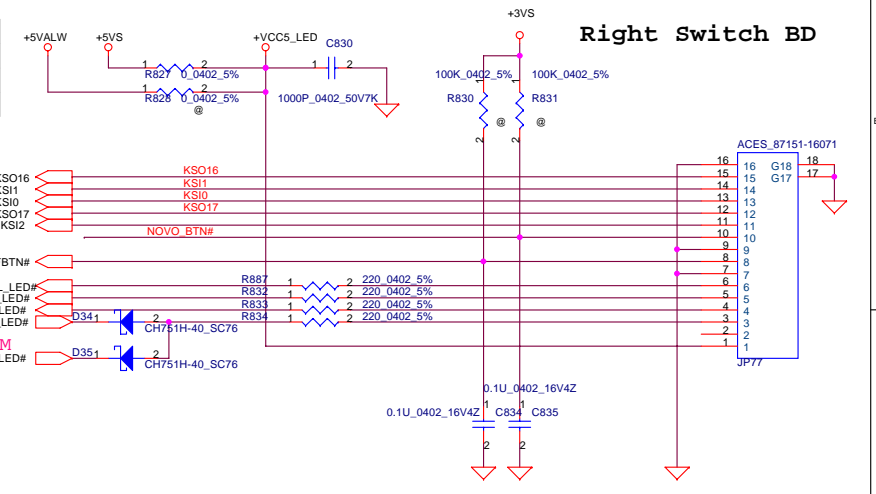
### CMOS Camera Conn



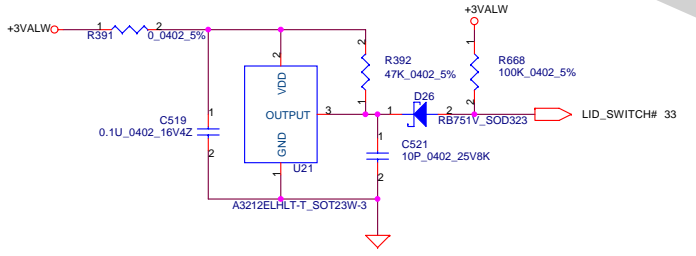
### Left Switch BD(AUDIO DJ)



### Right Switch BD



C839, C841, C842 For EMI Solution

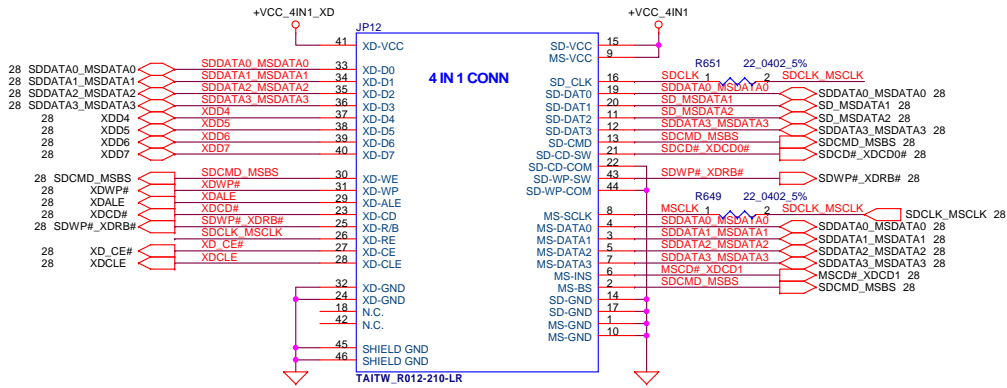


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|-------------------------|--------------------|
| Issued Date             | 2006/08/04         |
| Deciphered Date         | 2006/10/06         |

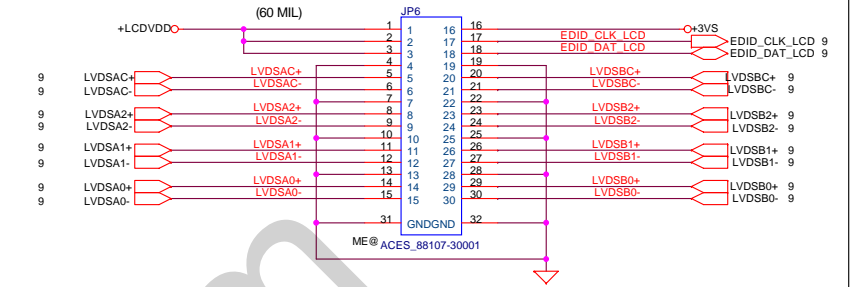
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|--------|-----------------|---------------------|--|
| Title  |                 | <b>INDICATE LED</b> |  |
| Size   | Document Number | Rev                 |  |
| Custom | IGT30 LA-3571P  | 0.1                 |  |

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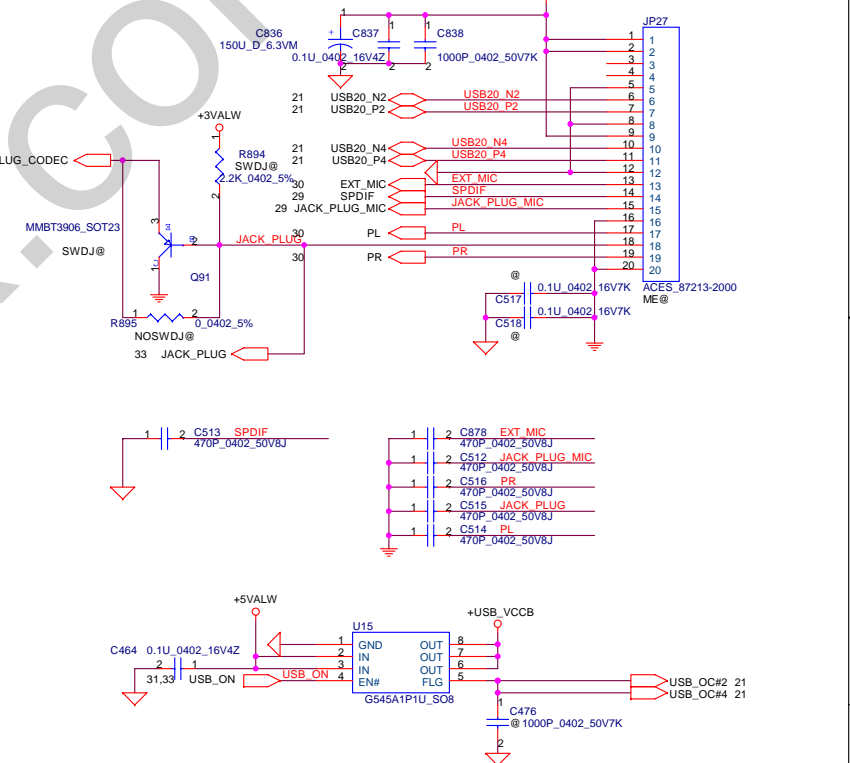
### 4 in 1 Card Reader



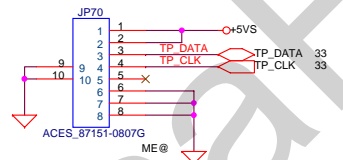
### UMA LCD/PANEL Conn.



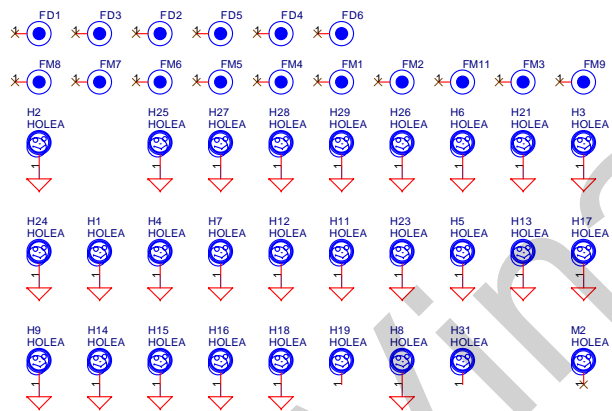
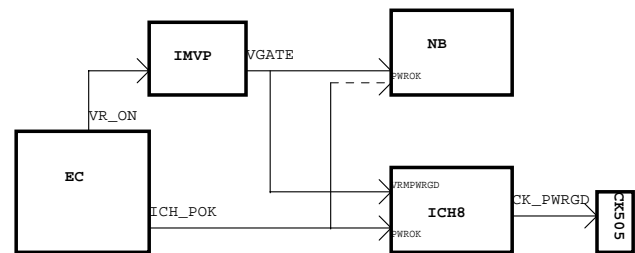
### Audio Jack/USB Conn.



### T/P Board



|   |                    |                 |            |                     |                           |
|---|--------------------|-----------------|------------|---------------------|---------------------------|
| Security Classification   | Compal Secret Data |                 | Title      | <b>INDICATE LED</b> |                           |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | Size                | Document Number           |
|   |                    |                 |            | Custom              | <b>IGT30 LA-3571P</b>     |
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|   |                    |                 |            | Sheet               | 37 of 47                  |



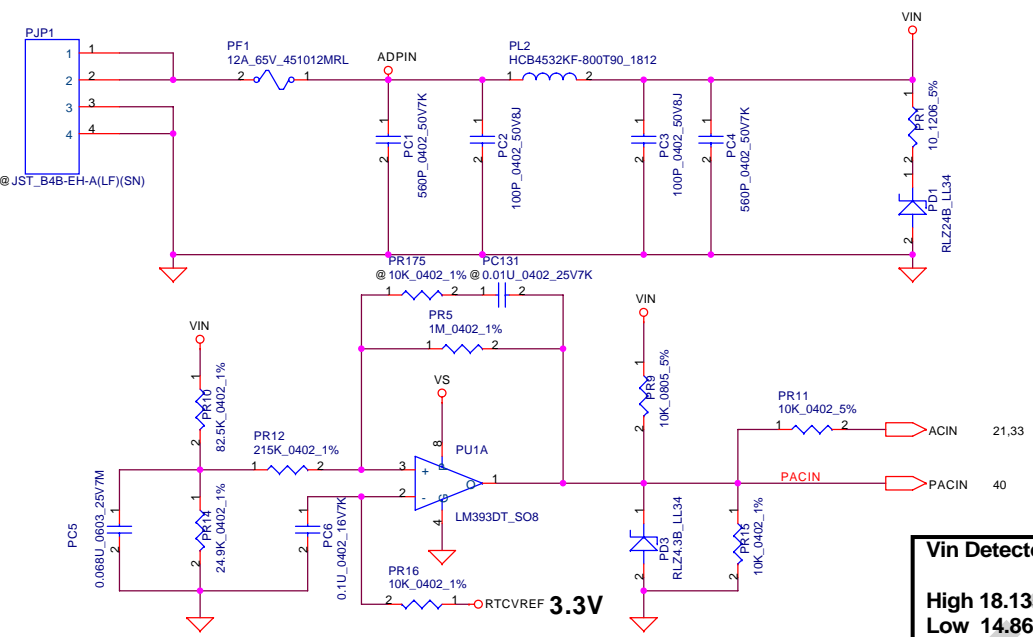
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| Security Classification   | Compal Secret Data |                 | Title      |   |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06 | <b>Compal Electronics, Inc.</b>   |
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|   |                    |                 |            | Rev<br>0.1<br>Sheet 38 of 47  |

ACIN

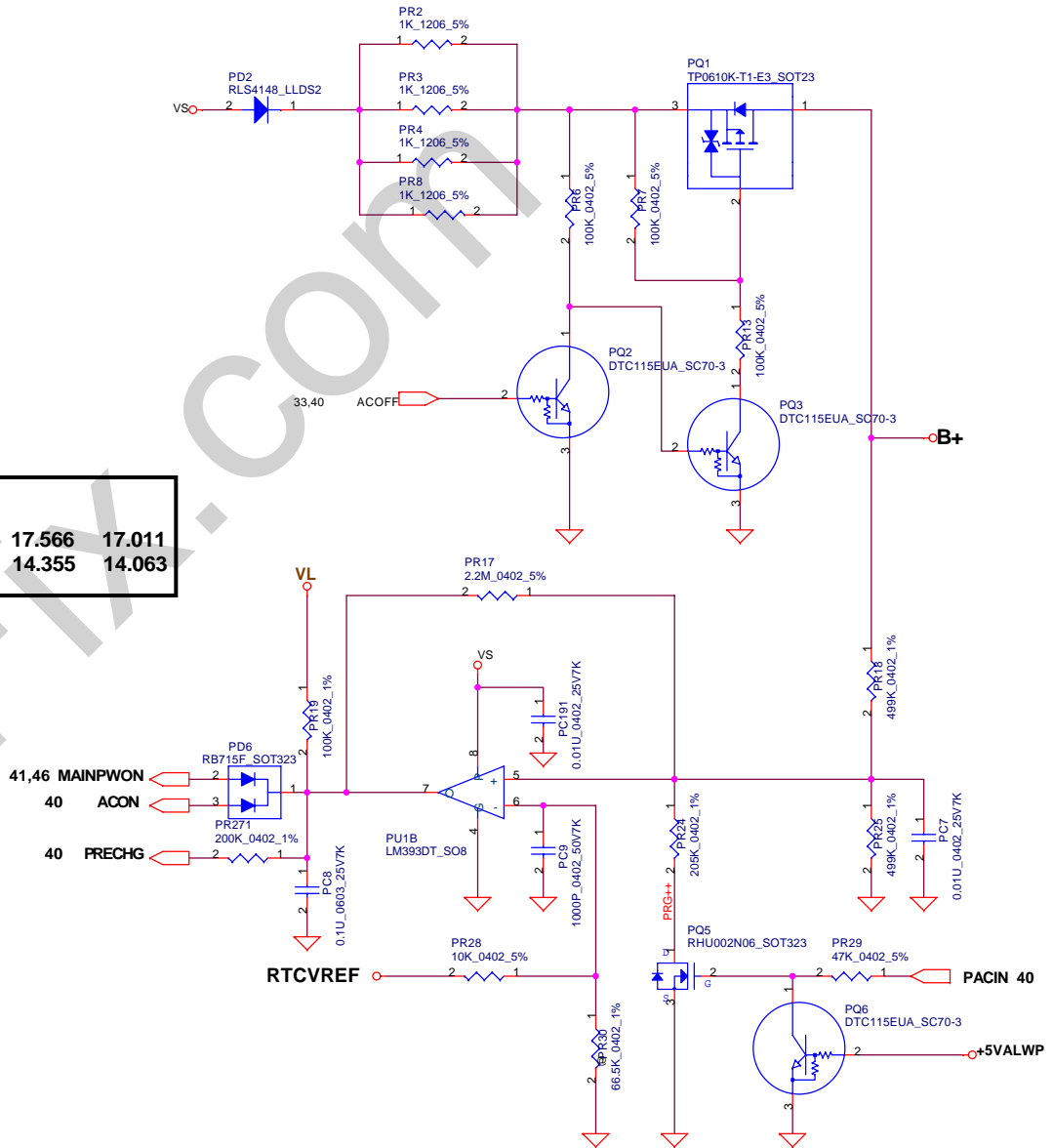
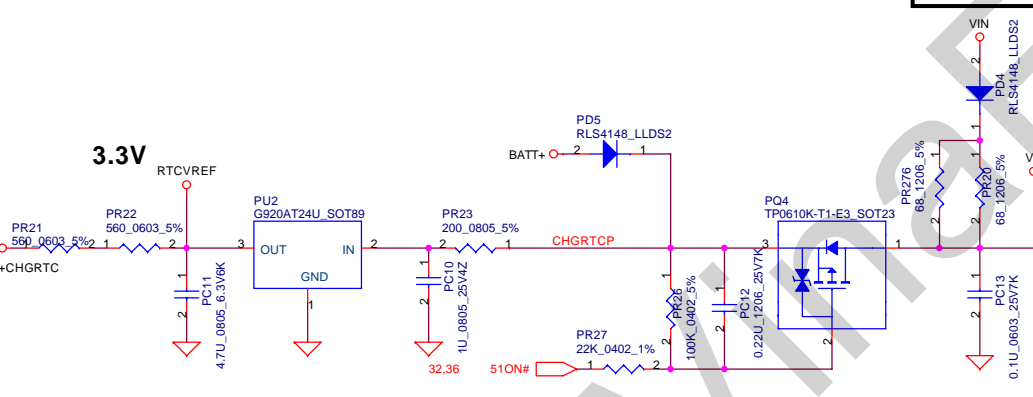
| Precharge detector |         |         |         |
|--------------------|---------|---------|---------|
|                    | Min.    | typ.    | Max.    |
| H->L               | 13.843V | 14.247V | 14.636V |
| L->H               | 14.936V | 15.381V | 15.814V |

BATT ONLY

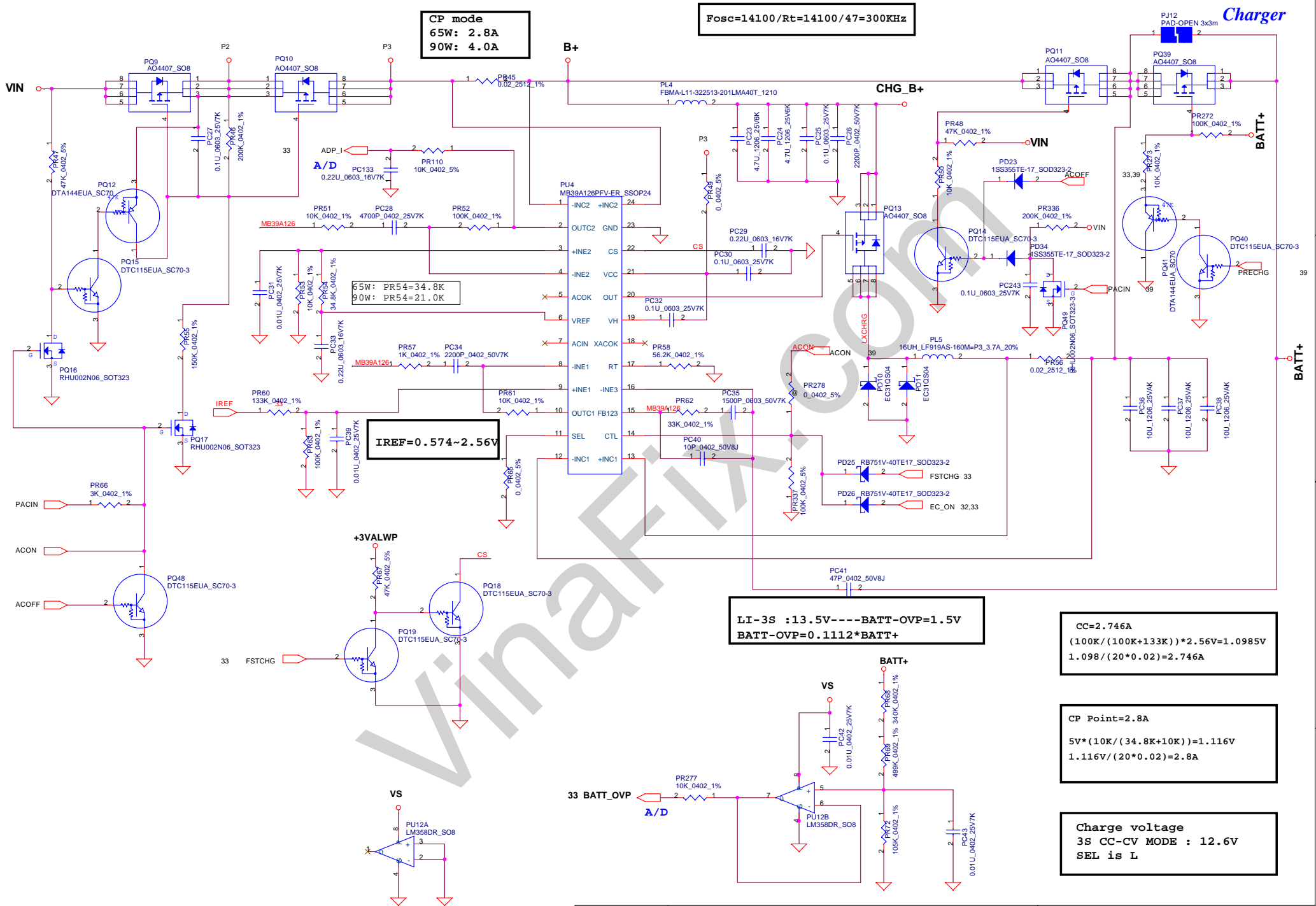
| Precharge detector |        |        |        |
|--------------------|--------|--------|--------|
|                    | Min.   | typ.   | Max.   |
| H->L               | 6.138V | 6.214V | 6.359V |
| L->H               | 7.196V | 7.349V | 7.505V |



| Vin Detector |        |        |        |
|--------------|--------|--------|--------|
|              | High   | 17.566 | 17.011 |
| High         | 18.135 | 17.566 | 17.011 |
| Low          | 14.866 | 14.355 | 14.063 |



|   |            |                    |            |                          |                           |                |
|---|------------|--------------------|------------|--------------------------|---------------------------|----------------|
| Security Classification   |            | Compal Secret Data |            | Compal Electronics, Inc. |                           |                |
| Issued Date   | 2006/08/04 | Deciphered Date    | 2006/10/06 | Title                    | DCIN/DETECTOR             |                |
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|   |            |                    |            | B                        |                           | 0.1            |
|   |            |                    |            | Date:                    | Monday, December 25, 2006 | Sheet 39 of 47 |

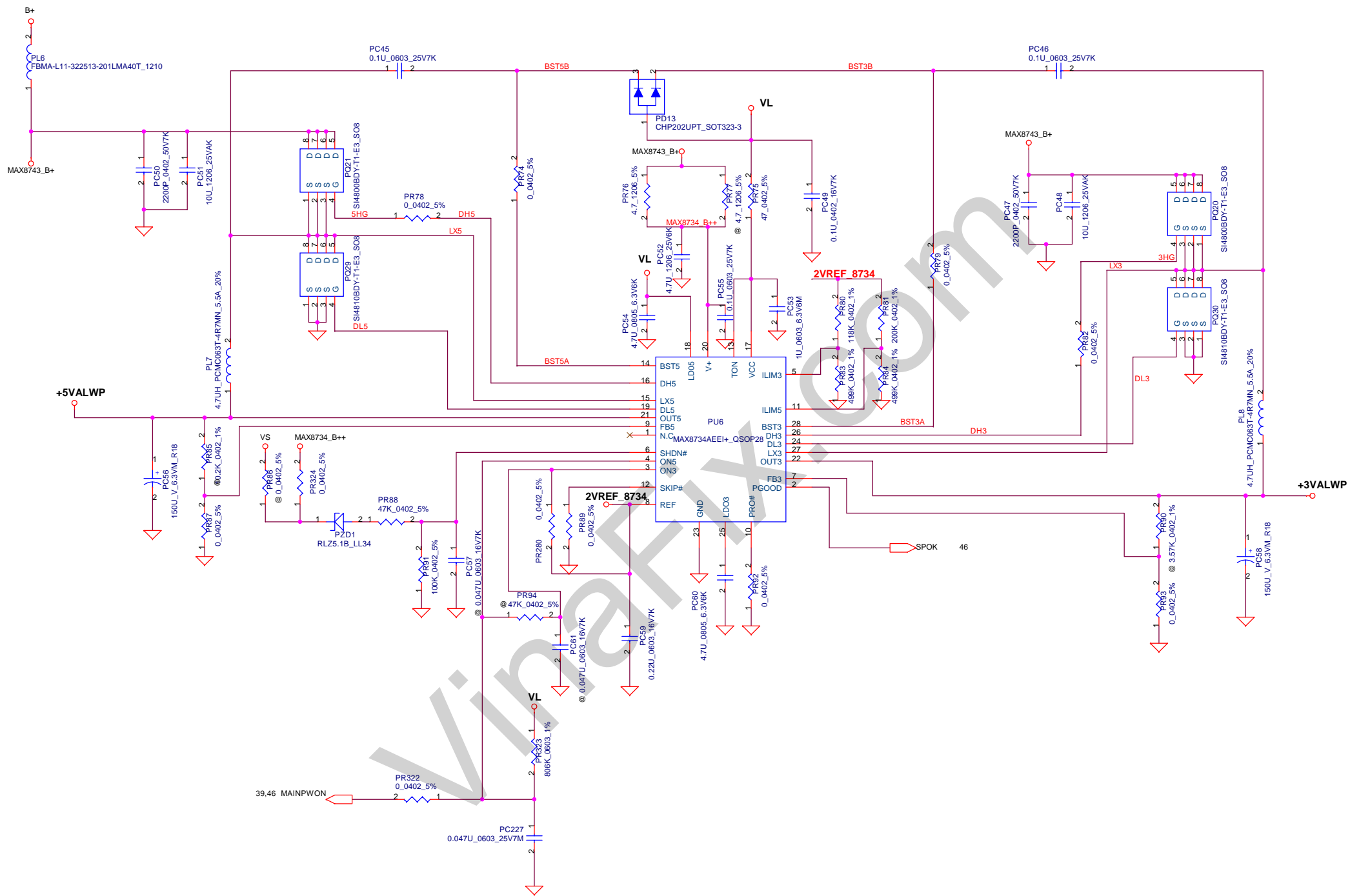


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| Issued Date             | 2006/08/04         | Deciphered Date |
|                         |                    | 2006/10/06      |

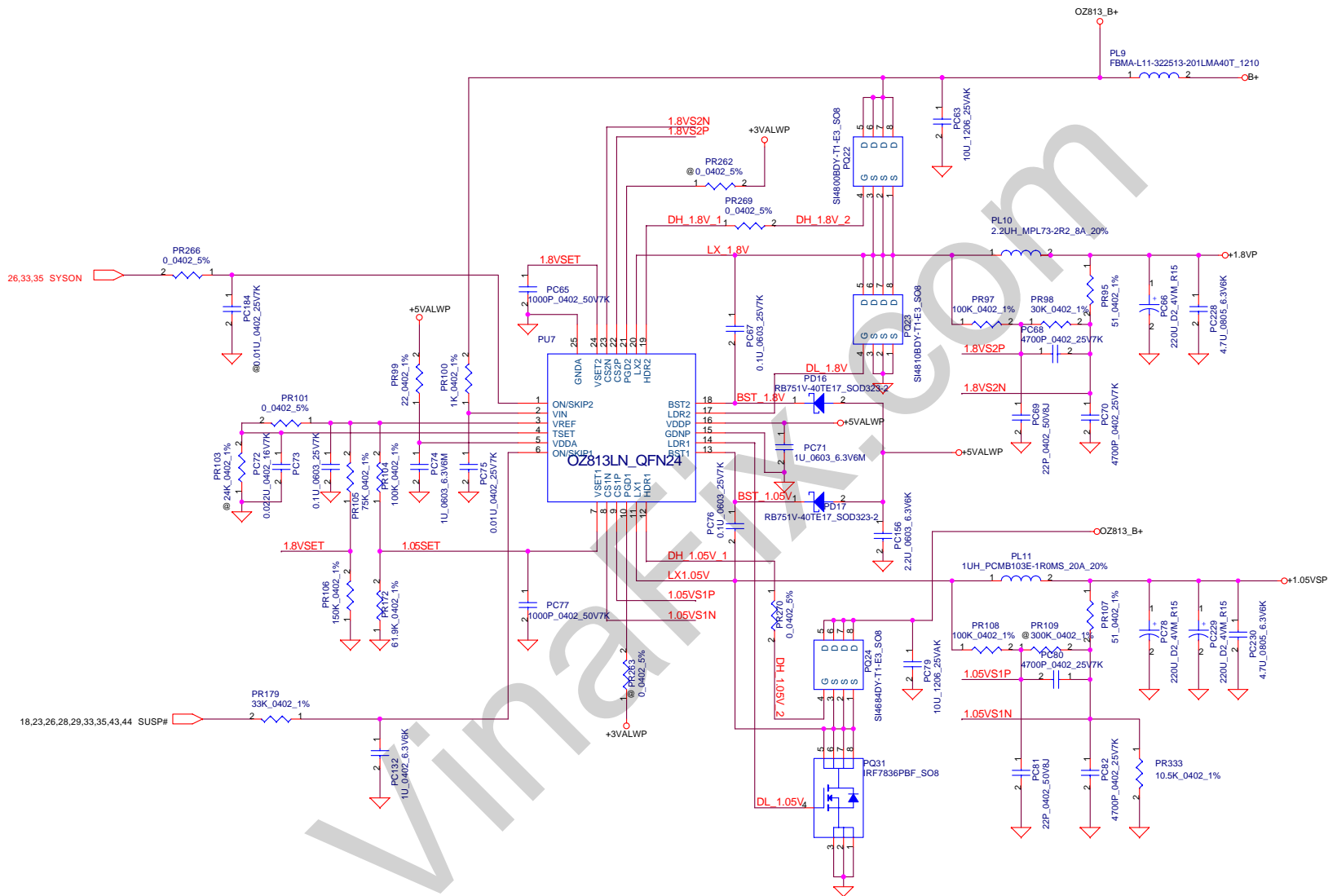
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| Compal Electronics, Inc.           |                 |            |
|------------------------------------|-----------------|------------|
| Title<br><b>CHARGER</b>            |                 |            |
| Size<br>B                          | Document Number | Rev<br>0.1 |
| Date:<br>Monday, December 25, 2006 | Sheet<br>40     | of<br>47   |



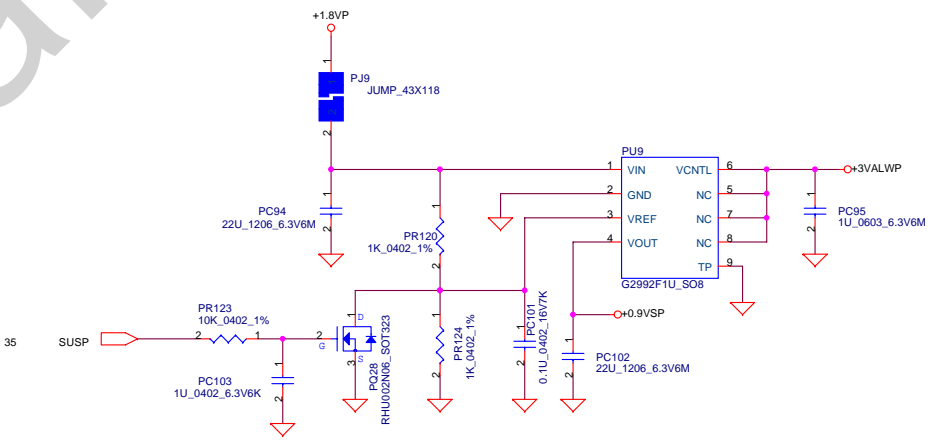
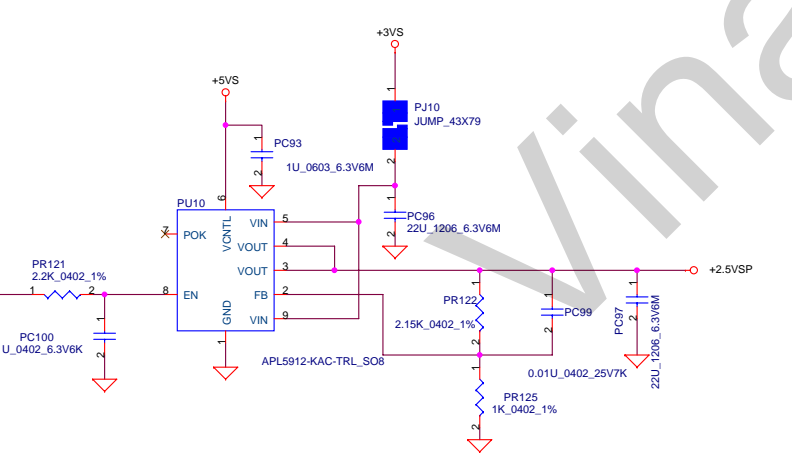
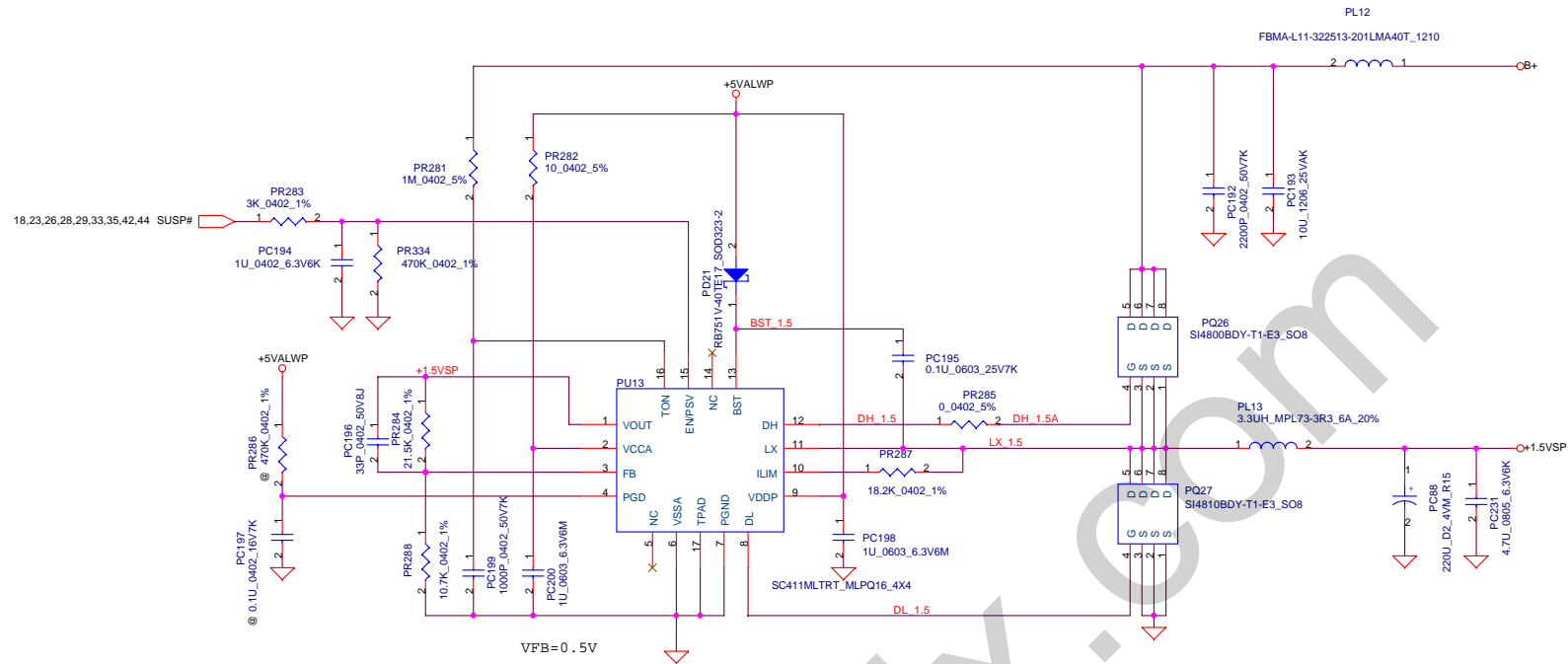


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|---|---------------------------|--------------------|------------|--------------------------|----|
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| Size  | Document Number           | Rev                |            |                          |    |
| Custom  |                           | 0.1                |            |                          |    |
| Date:   | Monday, December 25, 2006 | Sheet              | 41         | of                       | 47 |



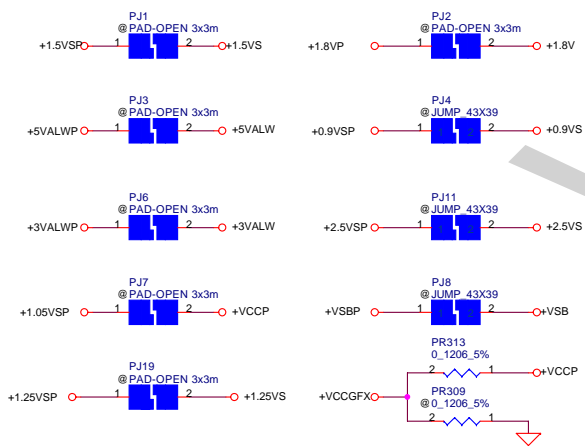
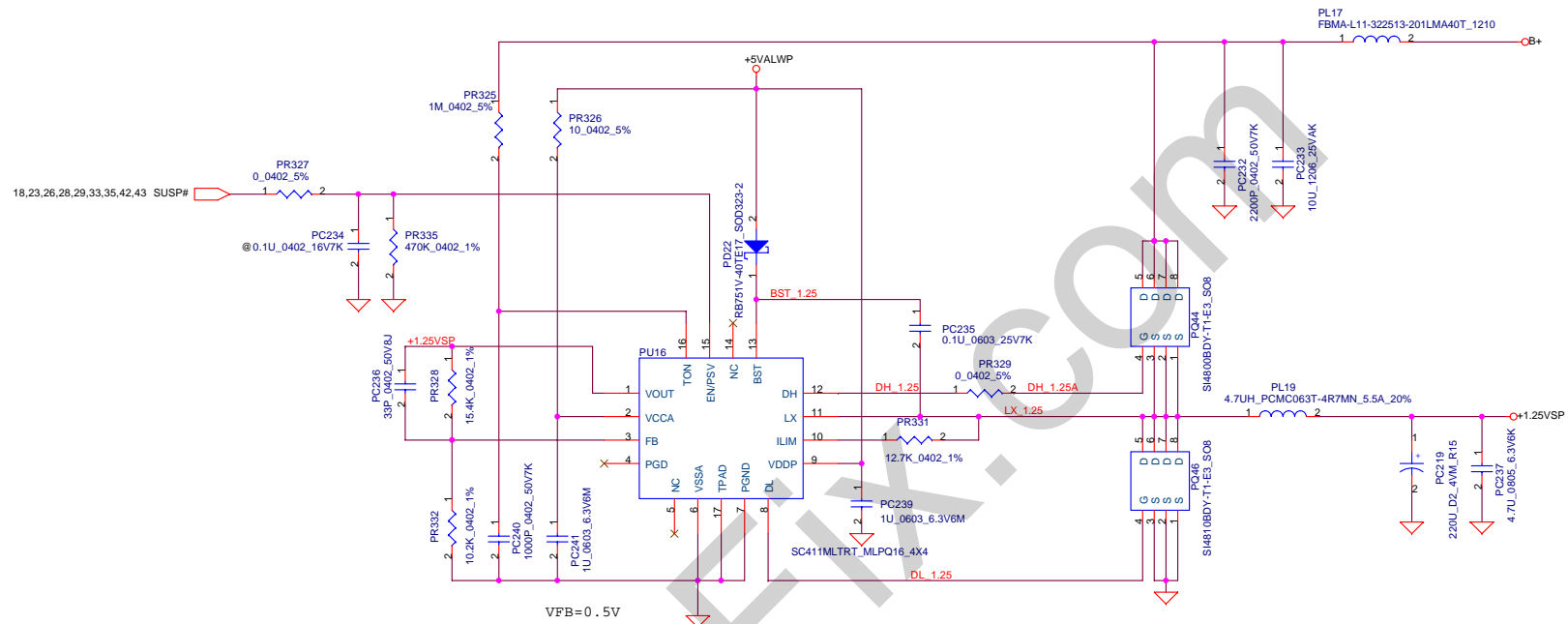
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|                                 |                           |       |          |
|---------------------------------|---------------------------|-------|----------|
| <b>Compal Electronics, Inc.</b> |                           |       |          |
| <b>1.05VSP/1.8VP</b>            |                           |       |          |
| Size                            | Document Number           | Rev   |          |
| Custom                          |                           | 0.1   |          |
| Date:                           | Monday, December 25, 2006 | Sheet | 42 of 47 |



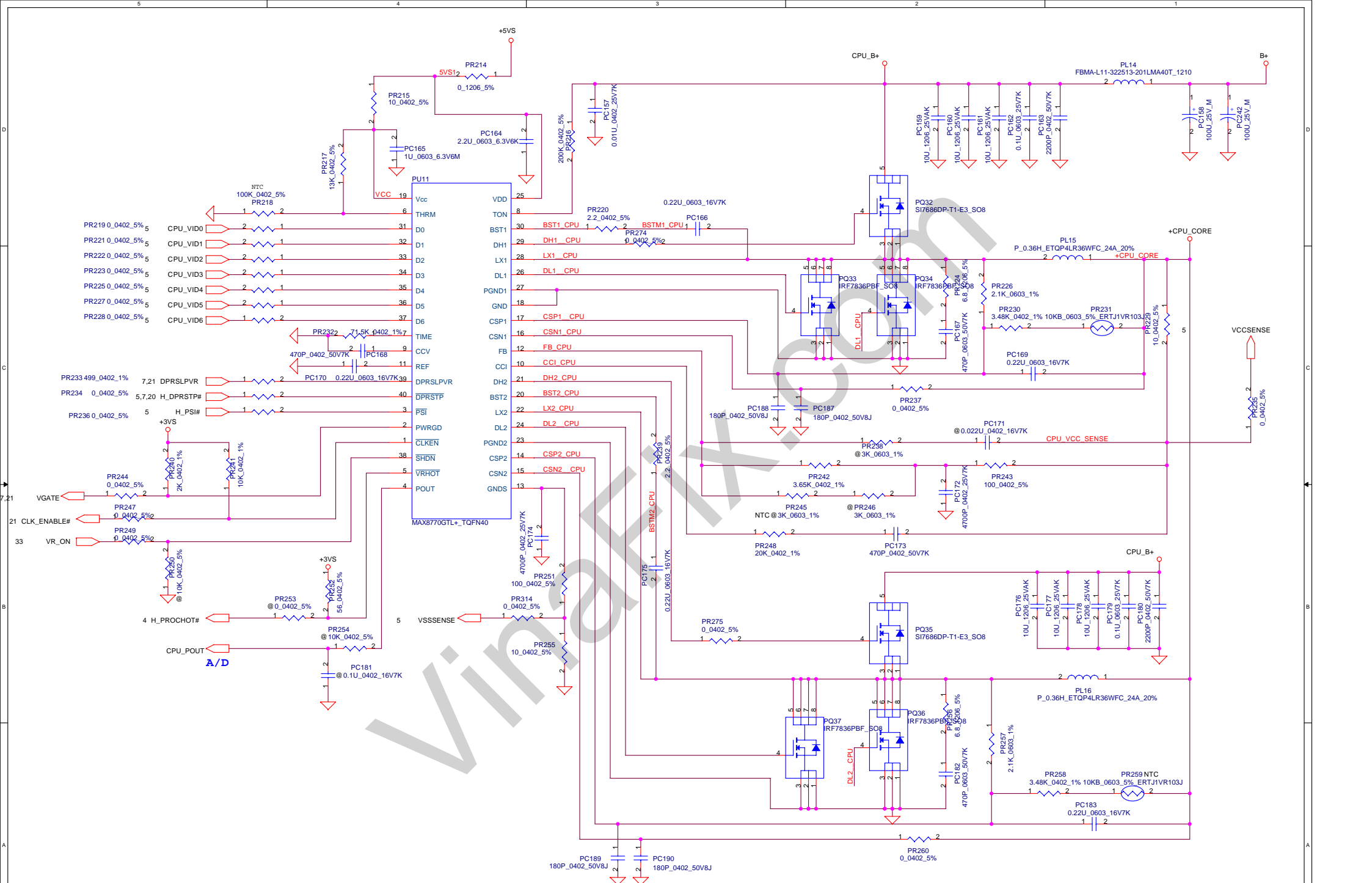
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|   |                    | 2006/10/06      |
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|   |                           |                |
|---|---------------------------|----------------|
| <b>Compal Electronics, Inc.</b><br><b>+1.5VSP/+0.9VSP/+2.5VSP</b> |                           |                |
| Title   |                           |                |
| Size  | Document Number           | Rev            |
| Custom  |                           | 0.1            |
| Date:   | Monday, December 25, 2006 | Sheet 43 of 47 |

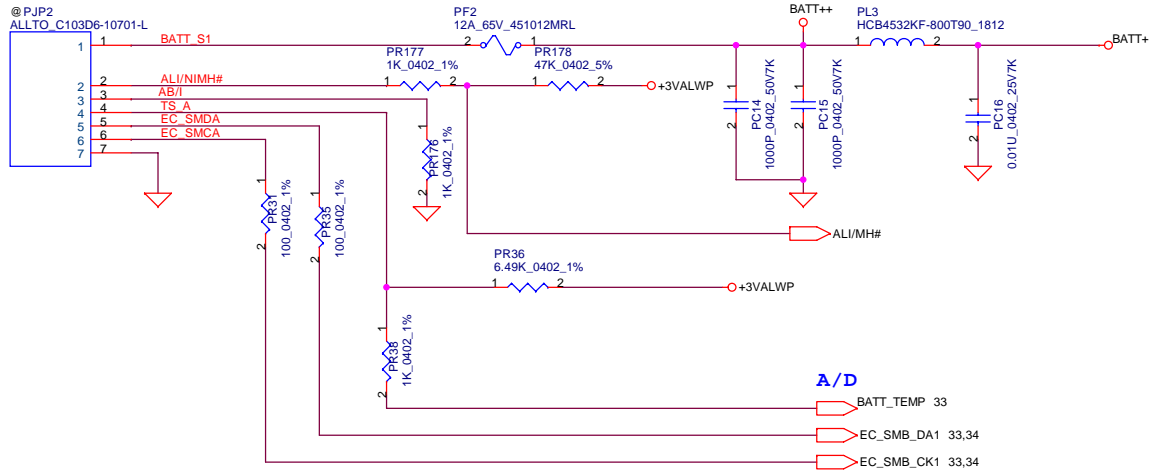


**UMA Discrete** PR313 PR309

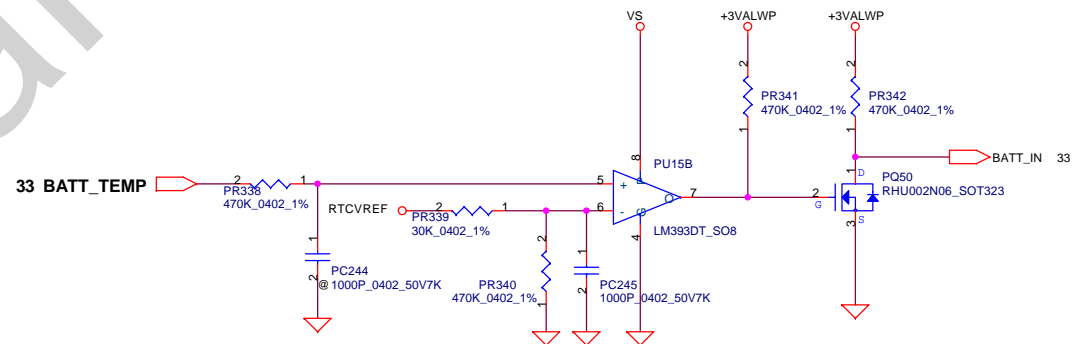
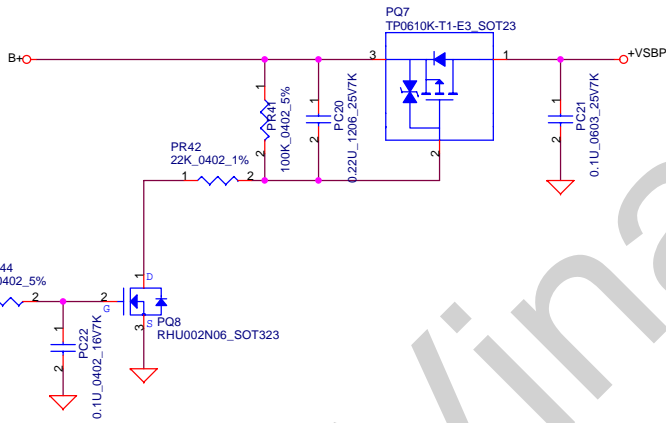
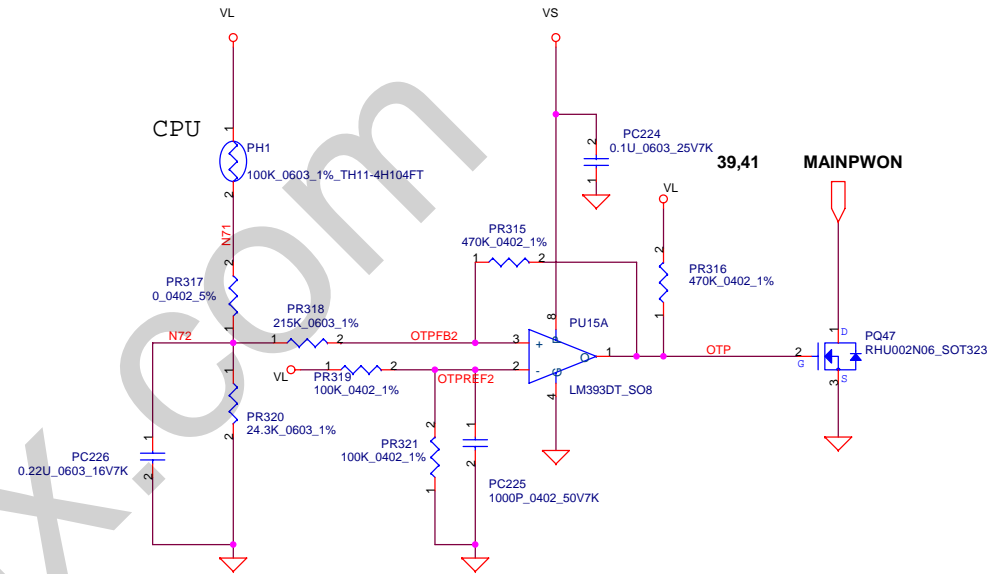
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| Issued Date   | 2006/08/04                | Deciphered Date | 2006/10/06 | <b>1.25VSP</b> |
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| Date:   | Monday, December 25, 2006 | Sheet           | 44 of 47   | 0.1            |



|   |                    |                 |                          |  |
|---|--------------------|-----------------|--------------------------|--|
| Security Classification   | Compal Secret Data |                 | Compal Electronics, Inc. |  |
| Issued Date   | 2006/08/04         | Deciphered Date | 2006/10/06               | Title  |
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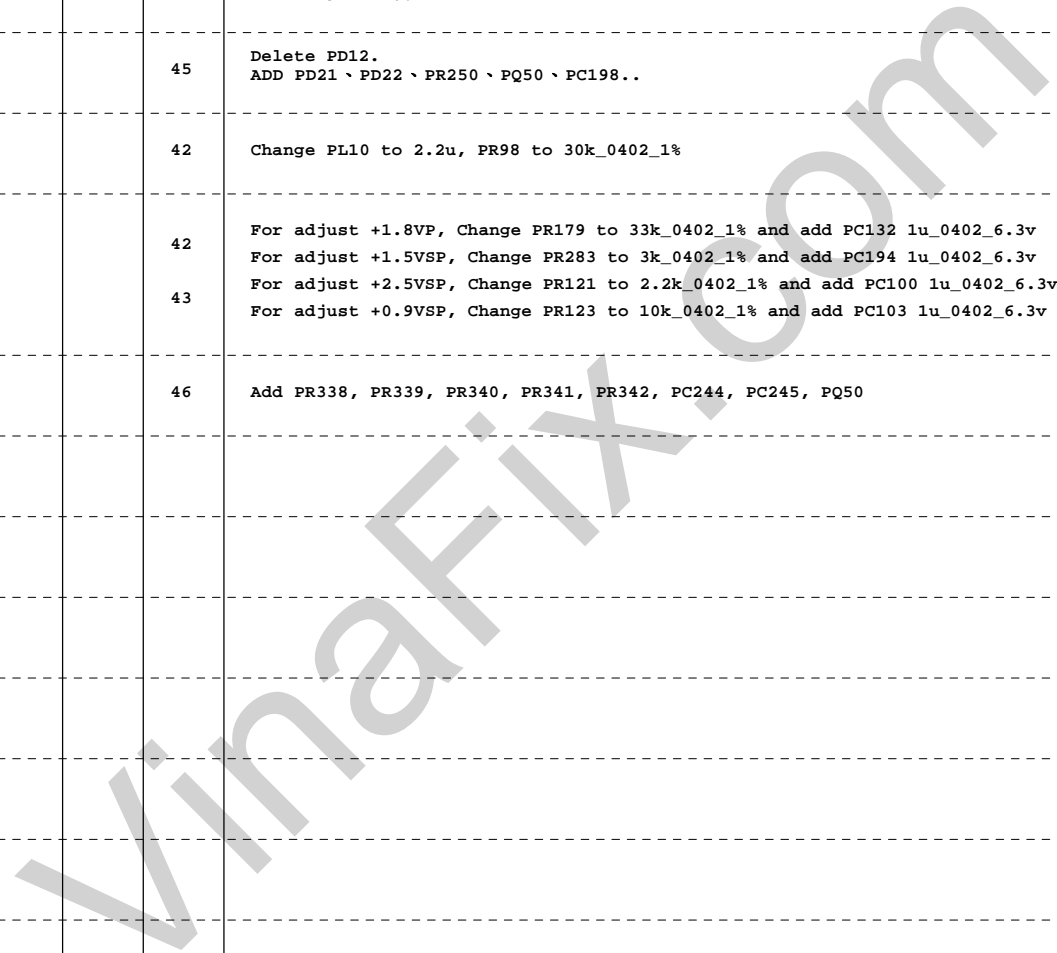


PH1 under CPU bottom side :  
 CPU thermal protection at 84 degree C  
 Recovery at 45 degree C



|   |                           |                    |            |                          |     |
|---|---------------------------|--------------------|------------|--------------------------|-----|
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| Size  | B                         | Document Number    |            | Rev                      | 0.1 |
| Date:   | Monday, December 25, 2006 | Sheet              | 46         | of                       | 47  |

| Item | Fixed Issue   | Rev. | PG# | Modify List  | B.Ver# | Phase |
|------|---|------|-----|--|--------|-------|
| 1    | Improve CPU input capcaity noise issue                      |      | 45  | Advence CPU input capacity PC242   |        |       |
| 2    | Decrease S5 power consumption.                              |      | 40  | Delete PR59、PR64.<br>ADD PD19、PD20.  |        |       |
| 3    | Protect battery discharge mos damage when plug 15V adapter. |      | 45  | Delete PD12.<br>ADD PD21、PD22、PR250、PQ50、PC198..   |        |       |
| 4    | Improve 1.8v transient response.                            |      | 42  | Change PL10 to 2.2u, PR98 to 30k_0402_1%   |        |       |
| 5    | Adjust power sequence.                                      |      | 42  | For adjust +1.8VSP, Change PR179 to 33k_0402_1% and add PC132 1u_0402_6.3v   |        |       |
|      |   |      | 43  | For adjust +1.5VSP, Change PR283 to 3k_0402_1% and add PC194 1u_0402_6.3v<br>For adjust +2.5VSP, Change PR121 to 2.2k_0402_1% and add PC100 1u_0402_6.3v<br>For adjust +0.9VSP, Change PR123 to 10k_0402_1% and add PC103 1u_0402_6.3v |        |       |
| 6    | For improve EPA   |      | 46  | Add PR338, PR339, PR340, PR341, PR342, PC244, PC245, PQ50  |        |       |

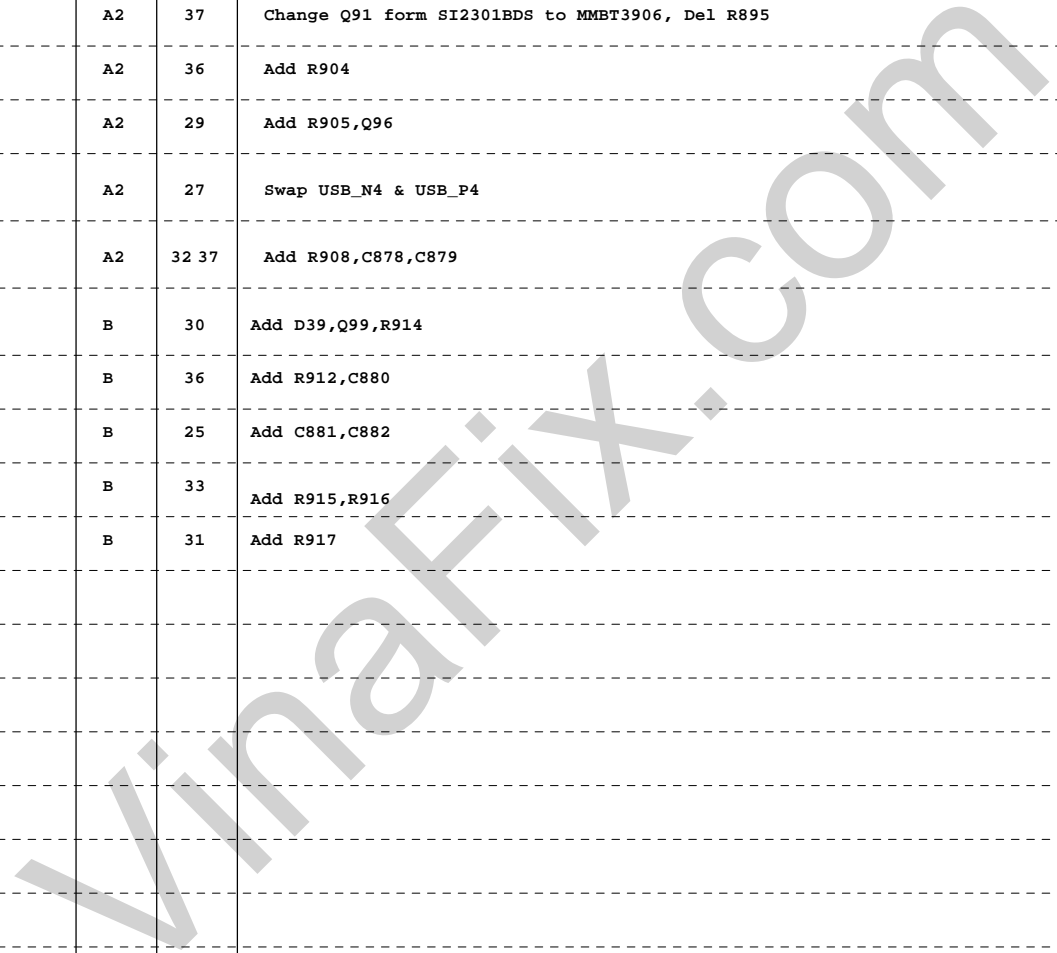


|                                 |                |
|---------------------------------|----------------|
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| Title: <b>POWER PIR</b>         |                |
| Size: Document Number           | Rev            |
| Date: Monday, December 25, 2006 | Sheet 47 of 47 |

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Version change list (P.I.R. List)

| Item | Fixed Issue                    | Rev. | PG#   | Modify List                                     | B. Ver# | Phase |
|------|--------------------------------|------|-------|---|---------|-------|
| 1    | Add Energize star function     | A2   | 35    | Add C(874-876),R903,J1,Q94,U77                  |         |       |
| 2    | Modify LAN chip power control  | A2   | 24    | Add C877,R902,Q93                               |         |       |
| 3    | Fixed Speaker no function      | A2   | 37    | Change Q91 form SI2301BDS to MMBT3906, Del R895 |         |       |
| 4    | Fixed SWDJ function can't work | A2   | 36    | Add R904  |         |       |
| 5    | Fixed Audio Codec can't work   | A2   | 29    | Add R905,Q96                                    |         |       |
| 6    | Fixed USB Port4 can't work     | A2   | 27    | Swap USB_N4 & USB_P4                            |         |       |
| 7    | Fixed EMI issue                | A2   | 32 37 | Add R908,C878,C879                              |         |       |
| 8    | Fixed SWDJ mode EC_MUTE# ISSUE | B    | 30    | Add D39,Q99,R914                                |         |       |
| 9    | Fixed CMOS noise               | B    | 36    | Add R912,C880                                   |         |       |
| 10   | Fixed EMI                      | B    | 25    | Add C881,C882                                   |         |       |
| 11   | Add chipset id                 | B    | 33    | Add R915,R916                                   |         |       |
| 12   | Fix SWDJ Subwoofer issue       | B    | 31    | Add R917  |         |       |



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|                                 |                            |                |
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| Date:                           | Tuesday, December 26, 2006 | Sheet 48 of 48 |