

# Compal Confidential

## DAT20 Schematics Document

### Banias uFCPGA Package with 855PM(Odem) + ICH4-M

2003-09-25

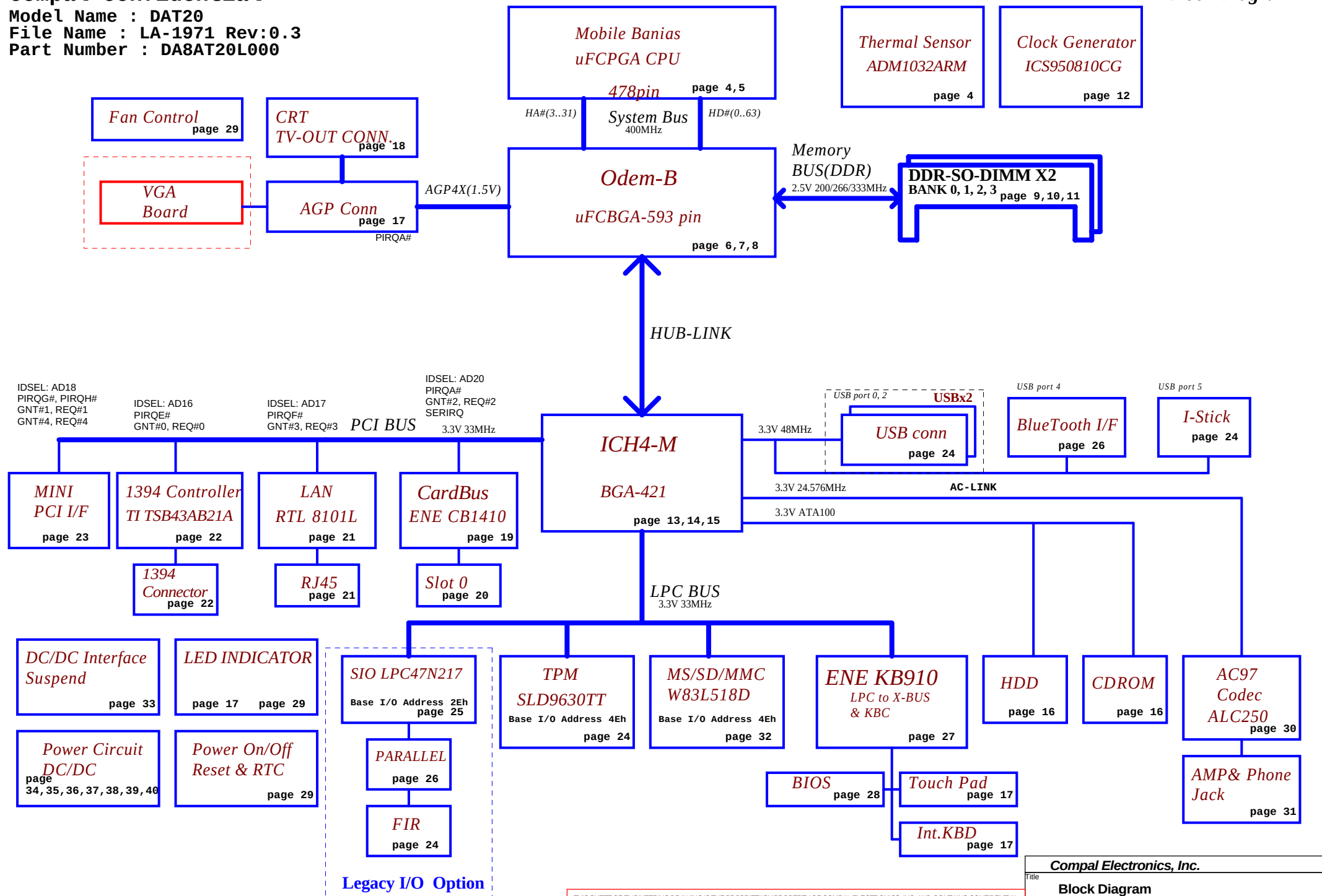
REV: 0.3

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|                          |                            |       |         |
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| Title                    |                            |       |         |
| Compal Electronics, Inc. |                            |       |         |
| Cover Sheet              |                            |       |         |
| Size                     | Document Number            |       | Rev     |
| Custom                   | DAT20 LA-1971              |       | 0.3     |
| Date:                    | Friday, September 26, 2003 | Sheet | 1 of 42 |

Model Name : DAT20  
File Name : LA-1971 Rev:0.3  
Part Number : DA8AT20L000

### Block Diagram



Voltage Rails

| Power Plane | Description                                 | S0-S1 | S3  | S5  |
|-------------|---------------------------------------------|-------|-----|-----|
| VIN         | Adapter power supply (19V)                  | N/A   | N/A | N/A |
| B+          | AC or battery power rail for power circuit. | N/A   | N/A | N/A |
| +CPU_CORE   | Core voltage for CPU                        | ON    | OFF | OFF |
| +VCCP       | 1.05V rail for Processor I/O                | ON    | OFF | OFF |
| +1.2VS      | 1.2VS switched power rail for MCH           | ON    | OFF | OFF |
| +1.25VS     | 1.25V switched power rail                   | ON    | OFF | OFF |
| +1.5VALW    | 1.5V power rail                             | ON    | ON  | ON  |
| +1.5VS      | AGP 4X                                      | ON    | OFF | OFF |
| +1.8VS      | 1.8V switched power rail                    | ON    | OFF | OFF |
| +2.5V       | 2.5V power rail                             | ON    | ON  | OFF |
| +2.5VS      | 2.5V switched power rail                    | ON    | OFF | OFF |
| +3VALW      | 3.3V always on power rail                   | ON    | ON  | ON* |
| +3V         | 3.3V power rail                             | ON    | ON  | OFF |
| +3VS        | 3.3V switched power rail                    | ON    | OFF | OFF |
| +5VALW      | 5V always on power rail                     | ON    | ON  | ON* |
| +5V         | 5V power rail                               | ON    | ON  | OFF |
| +5VS        | 5V switched power rail                      | ON    | OFF | OFF |
| +12VALW     | 12V always on power rail                    | ON    | ON  | ON* |
| +RTCVCC     | RTC power                                   | ON    | ON  | ON  |

Note : ON\* means that this power plane is ON only with AC power available, otherwise it is OFF.

External PCI Devices

| Device   | IDSEL#    | REQ#GNT# | Interrupts  |
|----------|-----------|----------|-------------|
| VGA      |           |          | PIRQA       |
| CardBus  | AD20      | 2        | PIRQA       |
| LAN      | AD17      | 3        | PIRQF       |
| Mini-PCI | AD18,AD22 | 1/4      | PIRQG/PIRQH |
| 1394     | AD16      | 0        | PIRQE       |

EC SM Bus1 address

| Device           | Address     | Device  | Address     |
|------------------|-------------|---------|-------------|
| Smart Battery    | 0001 011X b | ADM1032 | 1001 110X b |
| EEPROM(24C16/02) | 1010 000X b |         |             |
| (24C04)          | 1011 000Xb  |         |             |

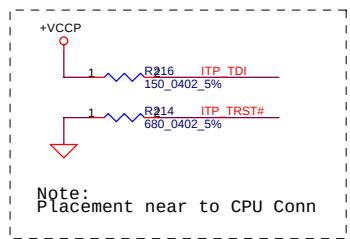
ICH4-M SM Bus address

| Device                         | Address    |
|--------------------------------|------------|
| Clock Generator ( ICS950818C6) | 1101 001Xb |
| DDR DIMM0                      | 1010 000Xb |
| DDR DIMM1                      | 1010 001Xb |

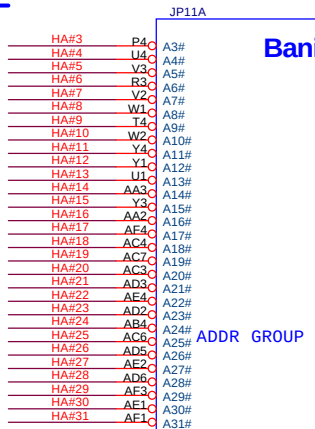
Board ID Table for AD channel

| 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     |

| Board ID | PCB Revision |
|----------|--------------|
| 0        | 0.1          |
| * 1      | 0.2          |
| 2        | 0.3          |
| 3        | 0.4          |
| 4        |              |
| 5        |              |
| 6        |              |
| 7        |              |



H\_RS#[0..2] H\_RS#[0..2] 6  
6 HA#[3..31] HA#[3..31]  
6 H\_REQ#[0..4] H\_REQ#[0..4]



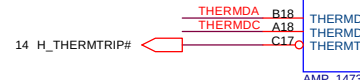
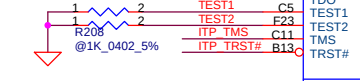
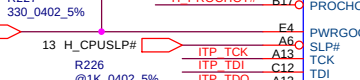
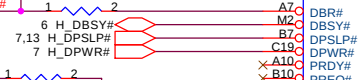
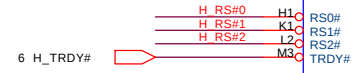
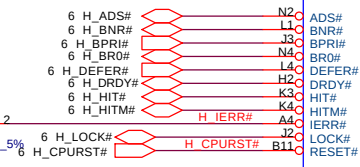
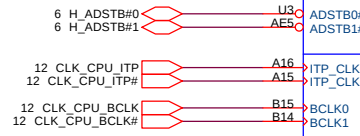
Banias

ADDR GROUP

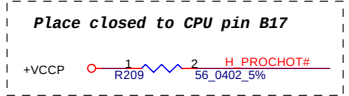
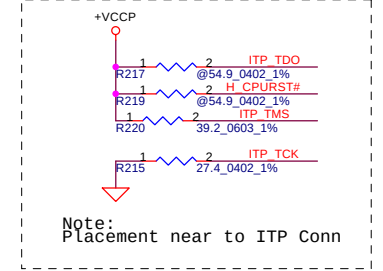
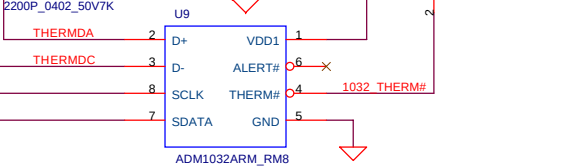
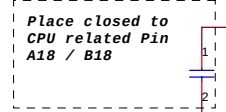
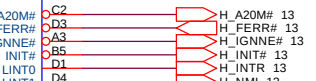
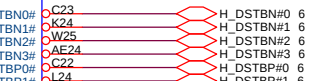
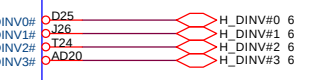
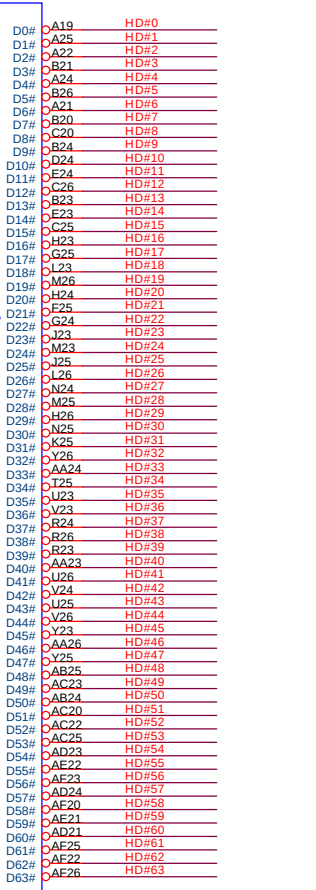
DATA GROUP

HOST CLK

CONTROL GROUP

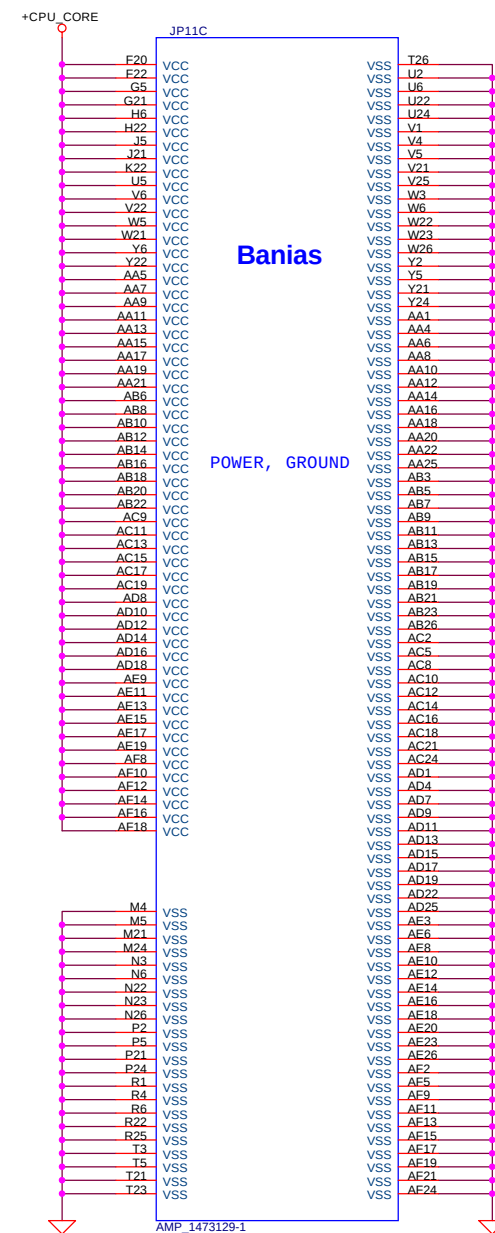
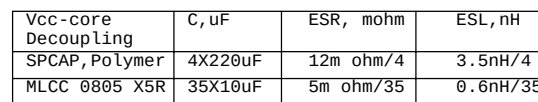
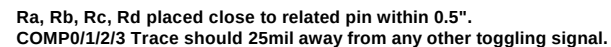


HD#[0..63] HD#[0..63] 6



|                                     |                            |       |         |
|-------------------------------------|----------------------------|-------|---------|
| Compal Electronics, Inc.            |                            |       |         |
| Title                               |                            |       |         |
| Banias Processor in mFCPGA479 (1/2) |                            |       |         |
| Size                                | Document Number            | Rev   |         |
| Custom                              | DAT20 LA-1971              | 0.3   |         |
| Date:                               | Friday, September 26, 2003 | Sheet | 4 of 42 |

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DDR\_SMA[0..12] DDR\_SMA[0..12] 9

9 DDR\_SDQ[0..63] DDR\_SDQ[0..63]

9 DDR\_SDQS[0..8] DDR\_SDQS[0..8]

9 DDR\_CB[0..7] DDR\_CB[0..7]

U8C

Odem

MEMORY

DDR SMA0 E12C SMA0  
DDR SMA1 F17C SMA1  
DDR SMA2 E16C SMA2  
DDR SMA3 G17C SMA3  
DDR SMA4 G18C SMA4  
DDR SMA5 E18C SMA5  
DDR SMA6 F19C SMA6  
DDR SMA7 G20C SMA7  
DDR SMA8 G19C SMA8  
DDR SMA9 F21C SMA9  
DDR SMA10 F13C SMA10  
DDR SMA11 F20C SMA11  
DDR SMA12 G21C SMA12  
XG22C RSVD2

DDR SDQS0 F26C SDQS0  
DDR SDQS1 C26C SDQS1  
DDR SDQS2 C23C SDQS2  
DDR SDQS3 B19C SDQS3  
DDR SDQS4 D12C SDQS4  
DDR SDQS5 C18C SDQS5  
DDR SDQS6 C5C SDQS6  
DDR SDQS7 F3C SDQS7  
DDR SDQS8 F15C SDQS8

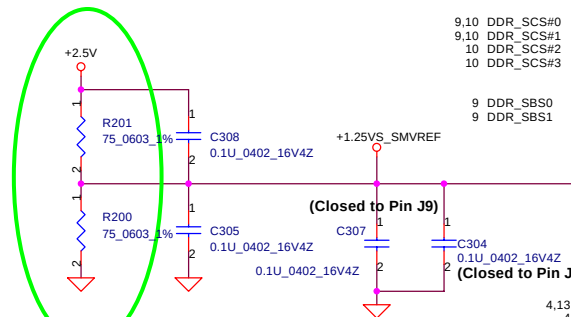
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9 DDR\_SRASH# F11C SRASH#  
9 DDR\_SCASH# G8C SCASH#

9 DDR\_CLK0 J25C SCK0  
9 DDR\_CLK0# K25C SCK#0  
9 DDR\_CLK1 G5C SCK1  
9 DDR\_CLK1# F5C SCK#1  
9 DDR\_CLK2 G24C SCK2  
9 DDR\_CLK2# F24C SCK#2  
10 DDR\_CLK3 G25C SCK3  
10 DDR\_CLK3# J24C SCK#3  
10 DDR\_CLK4 G6C SCK4  
10 DDR\_CLK4# G7C SCK#4  
10 DDR\_CLK5 J23C SCK5

9,10 DDR\_CKE0 G23C SCKE0  
9,10 DDR\_CKE1 E22C SCKE1  
10 DDR\_CKE2 H23C SCKE2  
10 DDR\_CKE3 F23C SCKE3

9,10 DDR\_SCS#0 E9C SCS#0  
9,10 DDR\_SCS#1 F7C SCS#1  
10 DDR\_SCS#2 F9C SCS#2  
10 DDR\_SCS#3 F7C SCS#3

9 DDR\_SBS0 G12C SBS0  
9 DDR\_SBS1 G13C SBS1



+1.25VS  
R203 30.1\_0603 1%  
C316 0.1U\_0402 16V4Z  
M RCV#  
G15C RCVENIN#  
G14C RCVENOUT#  
V8C DPSP#  
Y8C DPWR#  
AD26 NC0  
AD27 NC1

RG82P4300M\_FCBGA593

SDQ0 G28C DDR SDQ0  
SDQ1 E27C DDR SDQ1  
SDQ2 C28C DDR SDQ2  
SDQ3 E28C DDR SDQ3  
SDQ4 H25C DDR SDQ4  
SDQ5 G27C DDR SDQ5  
SDQ6 E25C DDR SDQ6  
SDQ7 B28C DDR SDQ7  
SDQ8 E27C DDR SDQ8  
SDQ9 C27C DDR SDQ9  
SDQ10 B25C DDR SDQ10  
SDQ11 C25C DDR SDQ11  
SDQ12 B27C DDR SDQ12  
SDQ13 D26C DDR SDQ13  
SDQ14 E25C DDR SDQ14  
SDQ15 D24C DDR SDQ15  
SDQ16 E23C DDR SDQ16  
SDQ17 C22C DDR SDQ17  
SDQ18 E21C DDR SDQ18  
SDQ19 C24C DDR SDQ19  
SDQ20 B23C DDR SDQ20  
SDQ21 D22C DDR SDQ21  
SDQ22 B21C DDR SDQ22  
SDQ23 C21C DDR SDQ23  
SDQ24 D20C DDR SDQ24  
SDQ25 C19C DDR SDQ25  
SDQ26 D18C DDR SDQ26  
SDQ27 C20C DDR SDQ27  
SDQ28 E19C DDR SDQ28  
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SDQ47 C6C DDR SDQ47  
SDQ48 D6C DDR SDQ48  
SDQ49 D4C DDR SDQ49  
SDQ50 B3C DDR SDQ50  
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SDQ59 C2C DDR SDQ59  
SDQ60 E2C DDR SDQ60  
SDQ61 G4C DDR SDQ61  
SDQ62 C16C DDR CB0  
SDQ63 D16C DDR CB1  
SDQ64 B15C DDR CB2  
SDQ65 C14C DDR CB3  
SDQ66 B17C DDR CB4  
SDQ67 C17C DDR CB5  
SDQ68 C15C DDR CB6  
SDQ69 D14C DDR CB7  
SDQ70  
SDQ71

RSTIN# J27C PCIRST# 13,19,20,21,23,24,25  
RSVD1 H27C X  
TESTIN# H26C MCH TEST# 1  
R205 @4.7K\_0402\_5%  
+1.5VS

Compal Electronics, Inc.

Title

Odem (2/3)

Size  
Custom

Document Number  
DAT20 LA-1971

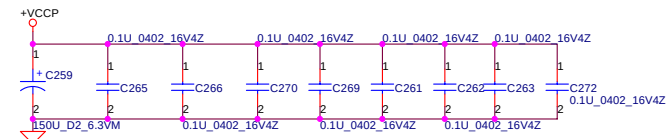
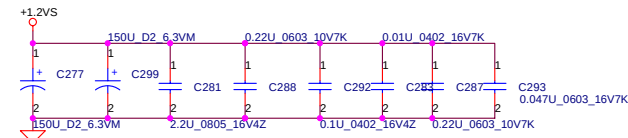
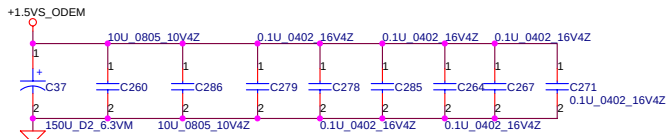
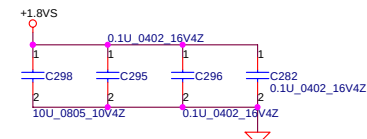
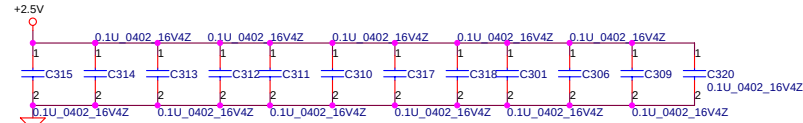
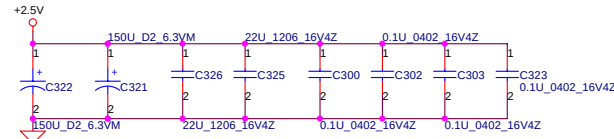
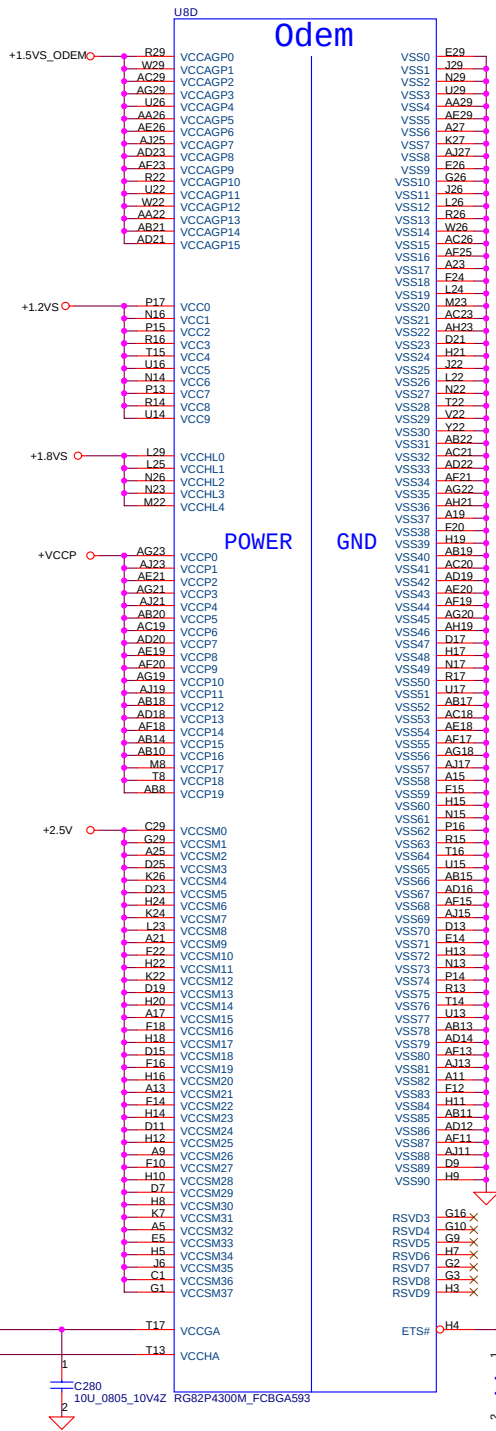
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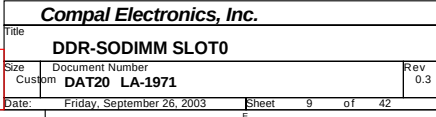


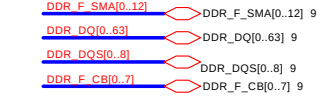
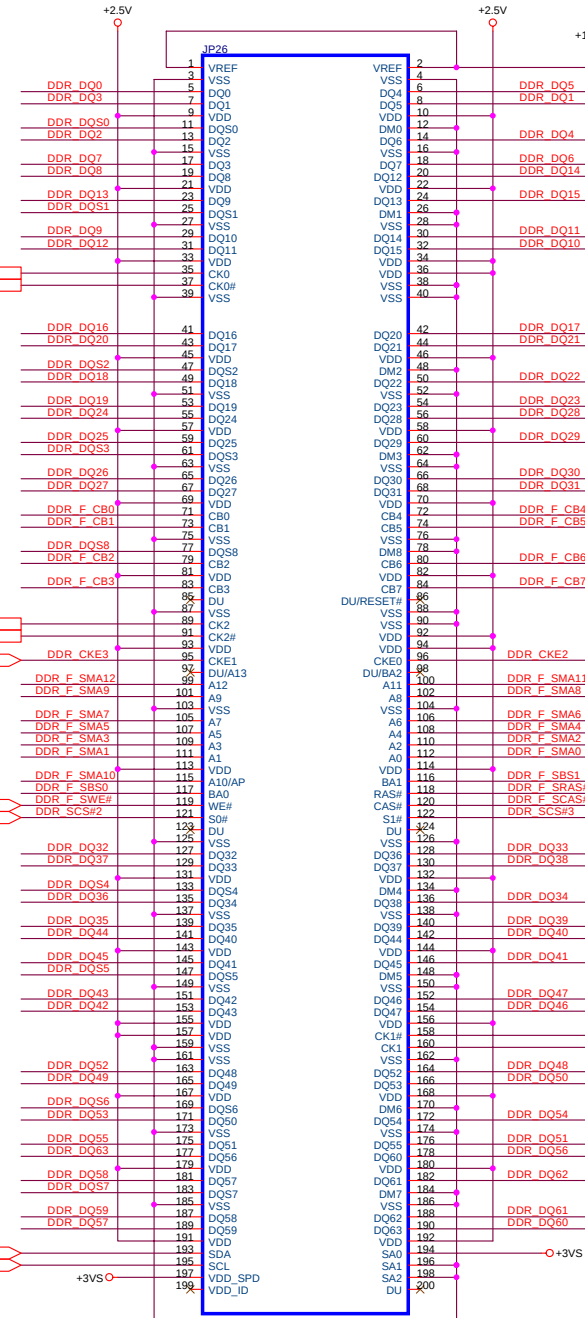
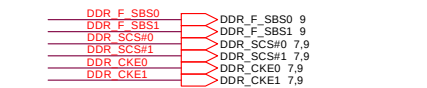
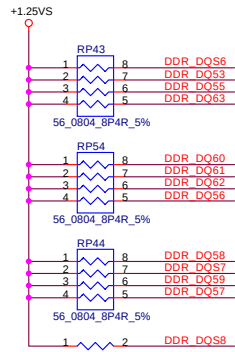
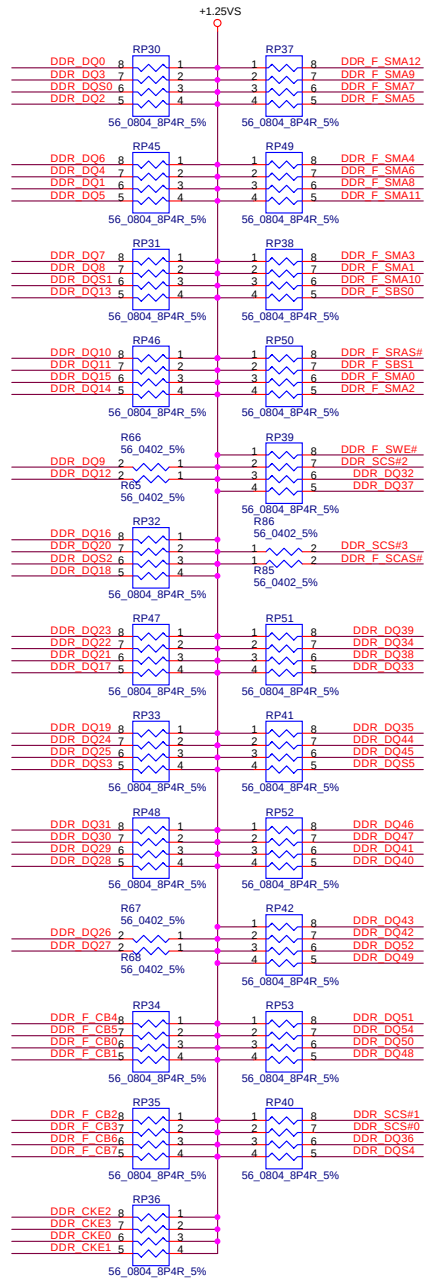


| Compal Electronics, Inc. |                            |       |         |
|--------------------------|----------------------------|-------|---------|
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| Odem (3/3)               |                            |       |         |
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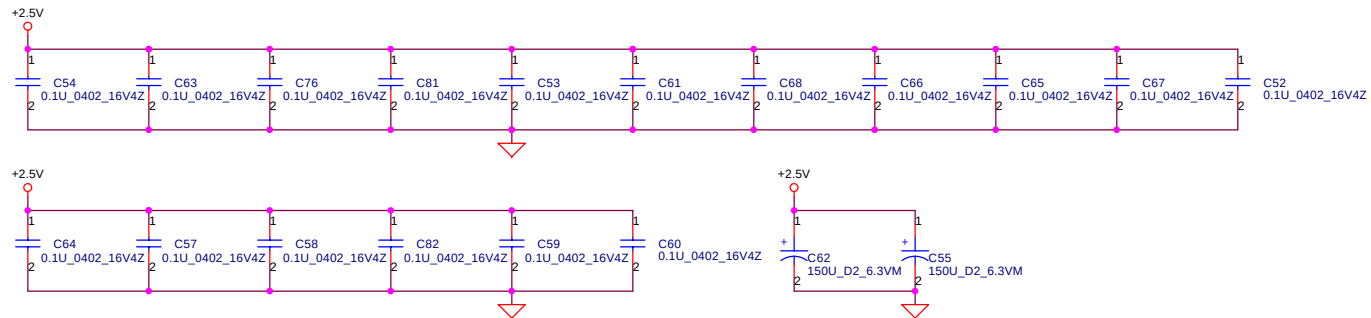


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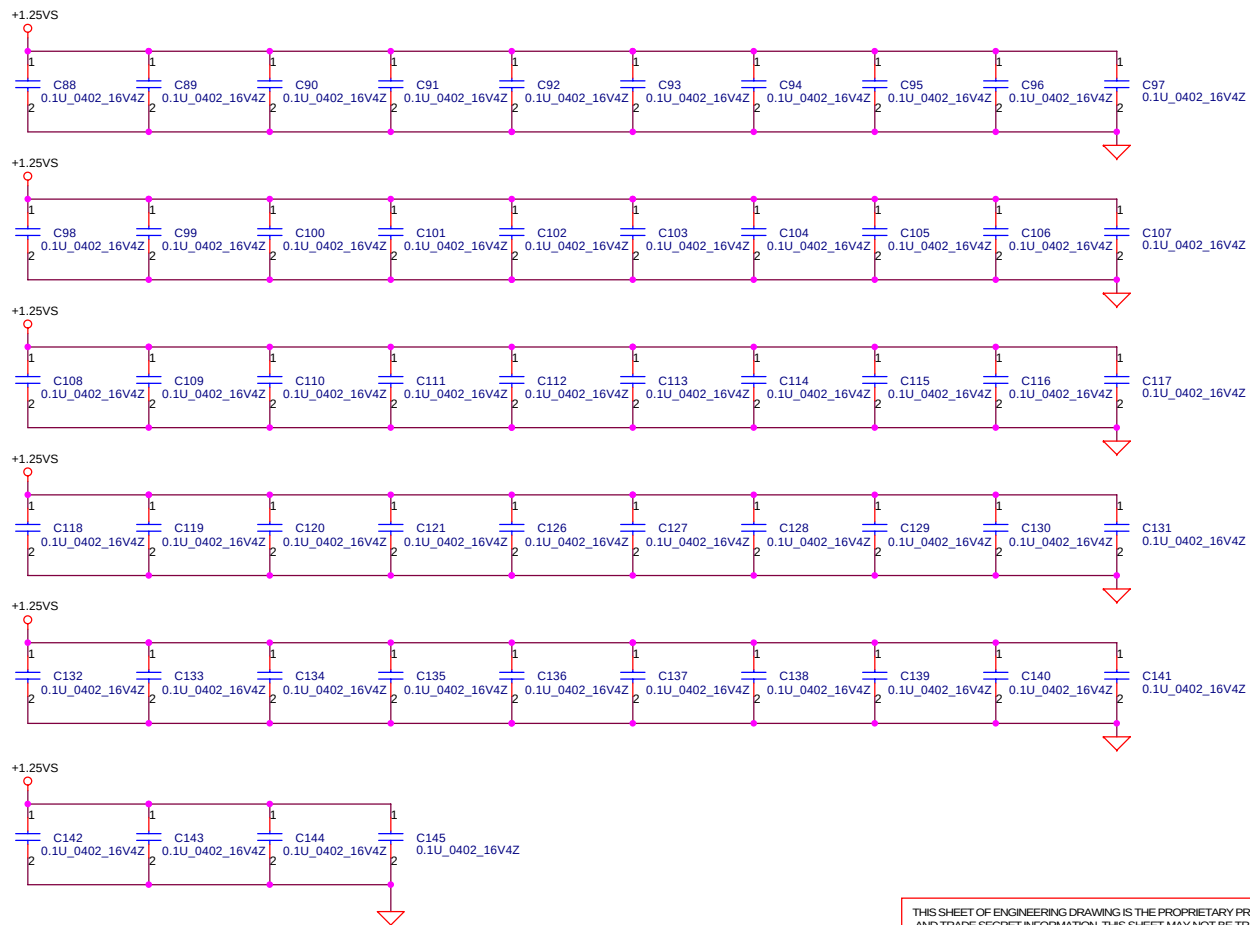
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|--------------------------|----------------------------|-------|----------|
| Title                    |                            |       |          |
| DDR-SODIMM SLOT1         |                            |       |          |
| Size                     | Document Number            | Rev   |          |
| Custom                   | DAT20 LA-1971              | 0.3   |          |
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Layout note :  
Distribute as close as possible  
to DDR-SODIMM.



Layout note :  
Place one cap close to every 2 pull up resistors termination to  
+1.25V

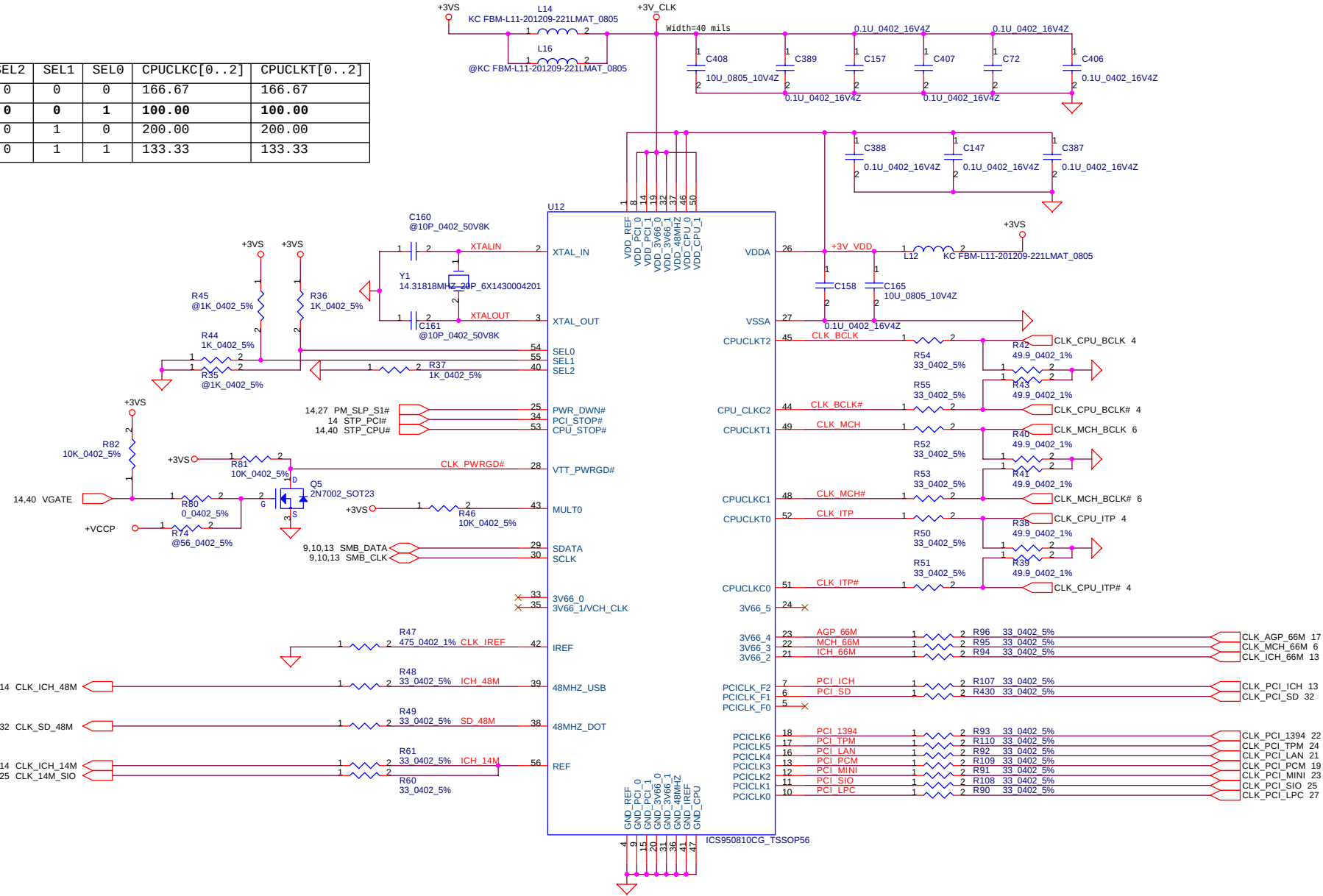


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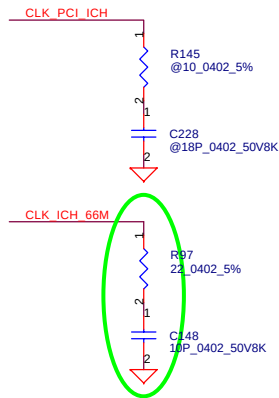
| Compal Electronics, Inc. |                            |       |          |
|--------------------------|----------------------------|-------|----------|
| Title                    |                            |       |          |
| DDR SODIMM Decoupling    |                            |       |          |
| Size                     | Document Number            |       | Rev      |
| Custom                   | DAT20 LA-1971              |       | 0.3      |
| Date:                    | Friday, September 26, 2003 | Sheet | 11 of 42 |

Clock Generator

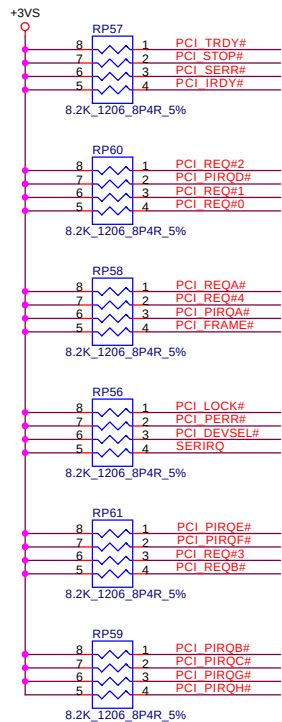
| SEL2 | SEL1 | SEL0 | CPUCLKC[0..2] | CPUCLKT[0..2] |
|------|------|------|---------------|---------------|
| 0    | 0    | 0    | 166.67        | 166.67        |
| 0    | 0    | 1    | 100.00        | 100.00        |
| 0    | 1    | 0    | 200.00        | 200.00        |
| 0    | 1    | 1    | 133.33        | 133.33        |



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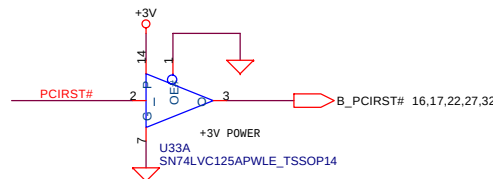
### PCI Pullups



19,21,22,23 PCI\_AD[0..31] PCI\_AD[0..31]

|          |    |      |
|----------|----|------|
| PCI AD0  | H5 | AD0  |
| PCI AD1  | J3 | AD1  |
| PCI AD2  | H3 | AD2  |
| PCI AD3  | K1 | AD3  |
| PCI AD4  | G5 | AD4  |
| PCI AD5  | J4 | AD5  |
| PCI AD6  | H4 | AD6  |
| PCI AD7  | J5 | AD7  |
| PCI AD8  | K2 | AD8  |
| PCI AD9  | G2 | AD9  |
| PCI AD10 | L1 | AD10 |
| PCI AD11 | G4 | AD11 |
| PCI AD12 | L2 | AD12 |
| PCI AD13 | H2 | AD13 |
| PCI AD14 | L3 | AD14 |
| PCI AD15 | F5 | AD15 |
| PCI AD16 | F4 | AD16 |
| PCI AD17 | N1 | AD17 |
| PCI AD18 | E5 | AD18 |
| PCI AD19 | N2 | AD19 |
| PCI AD20 | E3 | AD20 |
| PCI AD21 | N3 | AD21 |
| PCI AD22 | E4 | AD22 |
| PCI AD23 | M5 | AD23 |
| PCI AD24 | E2 | AD24 |
| PCI AD25 | P1 | AD25 |
| PCI AD26 | E1 | AD26 |
| PCI AD27 | P2 | AD27 |
| PCI AD28 | D3 | AD28 |
| PCI AD29 | R1 | AD29 |
| PCI AD30 | D2 | AD30 |
| PCI AD31 | P4 | AD31 |

|                             |             |    |                   |
|-----------------------------|-------------|----|-------------------|
| 19,21,22,23 PCI_C/BE#0      | PCI_C/BE#0  | J2 | C/BE#0            |
| 19,21,22,23 PCI_C/BE#1      | PCI_C/BE#1  | K4 | C/BE#1            |
| 19,21,22,23 PCI_C/BE#2      | PCI_C/BE#2  | M4 | C/BE#2            |
| 19,21,22,23 PCI_C/BE#3      | PCI_C/BE#3  | N4 | C/BE#3            |
| 22 PCI_REQ#0                | PCI_REQ#0   | B1 | REQ#0             |
| 23 PCI_REQ#1                | PCI_REQ#1   | A2 | REQ#1             |
| 19 PCI_REQ#2                | PCI_REQ#2   | B3 | REQ#2             |
| 21 PCI_REQ#3                | PCI_REQ#3   | C7 | REQ#3             |
| 23 PCI_REQ#4                | PCI_REQ#4   | B6 | REQ#4             |
| 22 PCI_GNT#0                | PCI_GNT#0   | C1 | GNT#0             |
| 23 PCI_GNT#1                | PCI_GNT#1   | E6 | GNT#1             |
| 19 PCI_GNT#2                | PCI_GNT#2   | A7 | GNT#2             |
| 21 PCI_GNT#3                | PCI_GNT#3   | B7 | GNT#3             |
| 23 PCI_GNT#4                | PCI_GNT#4   | D6 | GNT#4             |
| 12 CLK_PCI_ICH              | CLK_PCI_ICH | P5 | PCICLK            |
| 19,21,22,23 PCI_FRAME#      | PCI_FRAME#  | F1 | FRAME#            |
| 19,21,22,23 PCI_DEVSEL#     | PCI_DEVSEL# | M3 | DEVSEL#           |
| 19,21,22,23 PCI_IRDY#       | PCI_IRDY#   | L5 | IRDY#             |
| 19,21,22,23 PCI_PAR         | PCI_PAR     | G1 | PAR               |
| 19,21,22,23 PCI_PERR#       | PCI_PERR#   | L4 | PERR#             |
| 19,21,22,23 PCI_LOCK#       | PCI_LOCK#   | M2 | LOCK#             |
| 7,19,20,21,23,24,25 PCIRST# | PCIRST#     | W2 | PME#              |
| 19,21,22,23 PCI_SERR#       | PCI_SERR#   | K5 | SERR#             |
| 19,21,22,23 PCI_STOP#       | PCI_STOP#   | F3 | STOP#             |
| 19,21,22,23 PCI_TRDY#       | PCI_TRDY#   | F2 | TRDY#             |
| 16 SIDERST#                 | SIDERST#    | B5 | REOA#/GPI0        |
|                             |             | A6 | REQB#/GPI1/REQ#5  |
|                             |             | E8 | GNTA#/GPO16       |
|                             |             | C5 | GNTB#/GPO17/GNT#5 |



FW82801DBM\_BGA421

## ICH4

### SM I/F

### CPU I/F

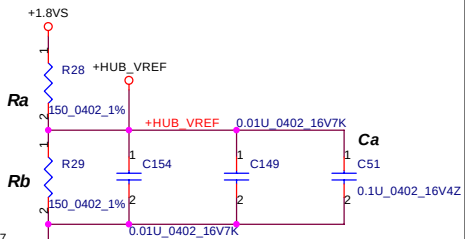
### HUB I/F

### Interrupt I/F

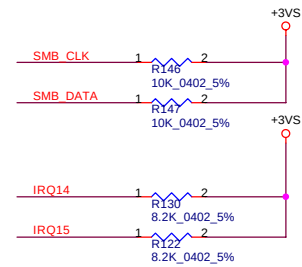
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### LAN I/F

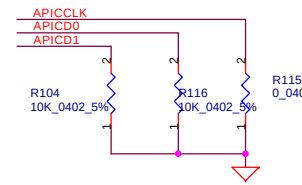
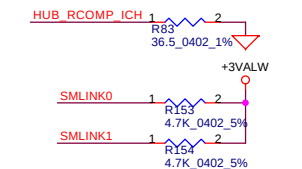
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Note: Ra, Rb, Ca placement center of MCH and ICH4M

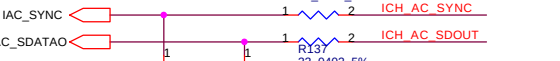
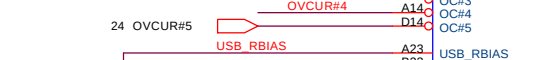
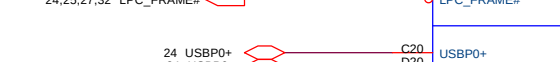
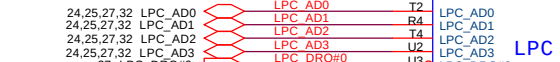
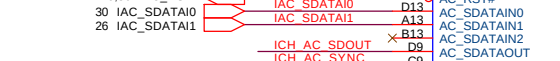
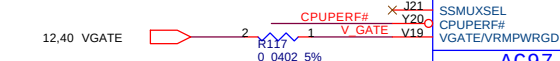
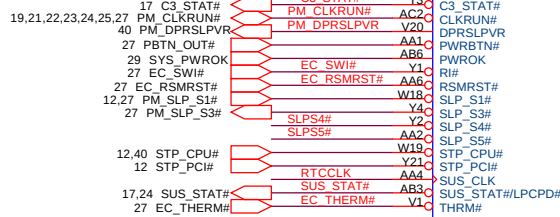
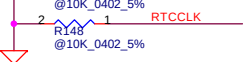
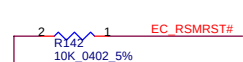
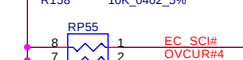
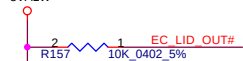
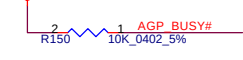
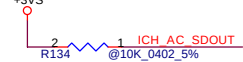
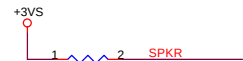
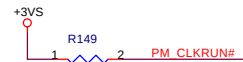
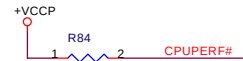
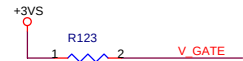
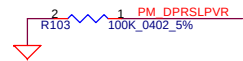
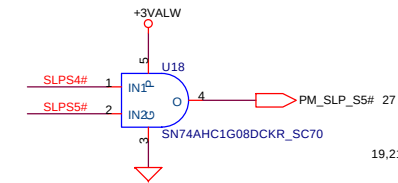


Place closed to Pin AA21



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|        |                            |       |              |     |
|--------|----------------------------|-------|--------------|-----|
| Title  |                            |       | ICH4-M (1/3) |     |
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## ICH4

### GPIO

### PM

### IST

### IDE I/F

### LPC I/F

### USB I/F

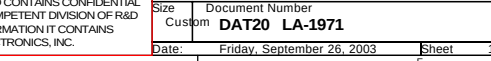
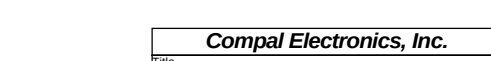
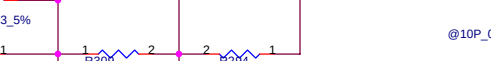
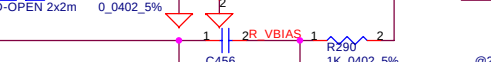
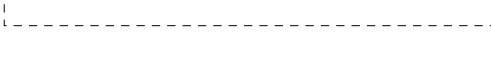
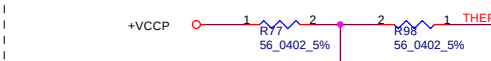
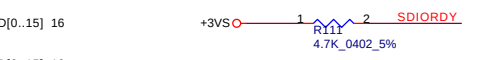
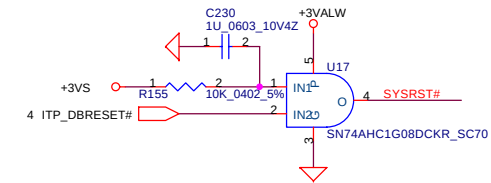
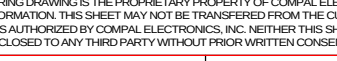
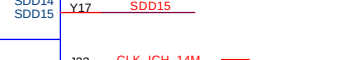
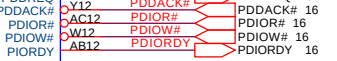
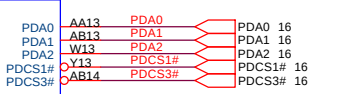
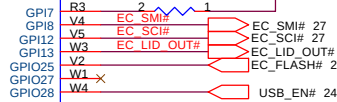
### CLOCK

### GPIO

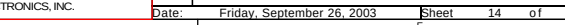
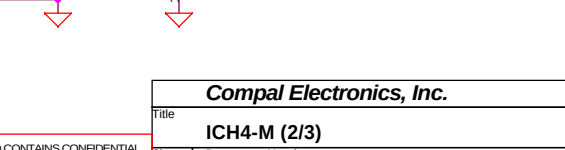
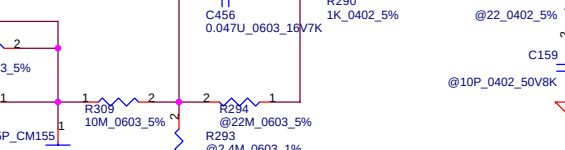
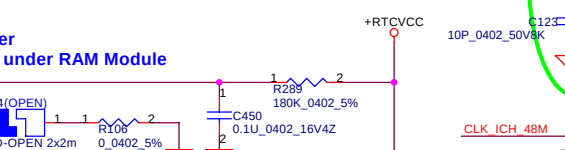
### MISC

FW82801DBM\_BGA421

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Place closed to ICH4-M Pin W20.



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ICH4-M (2/3)

Document Number

DA220 LA-1971

Friday, September 26, 2003

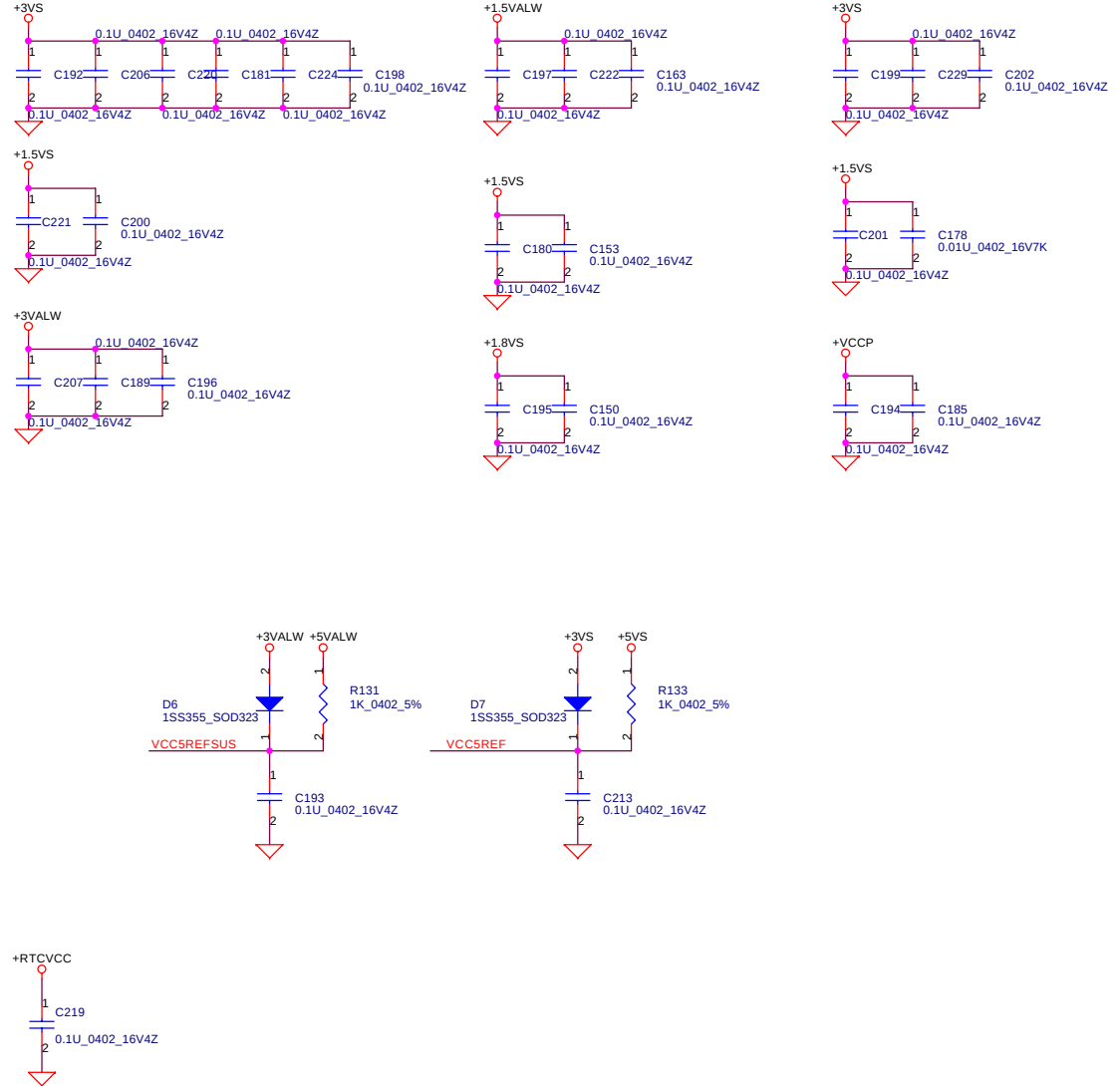
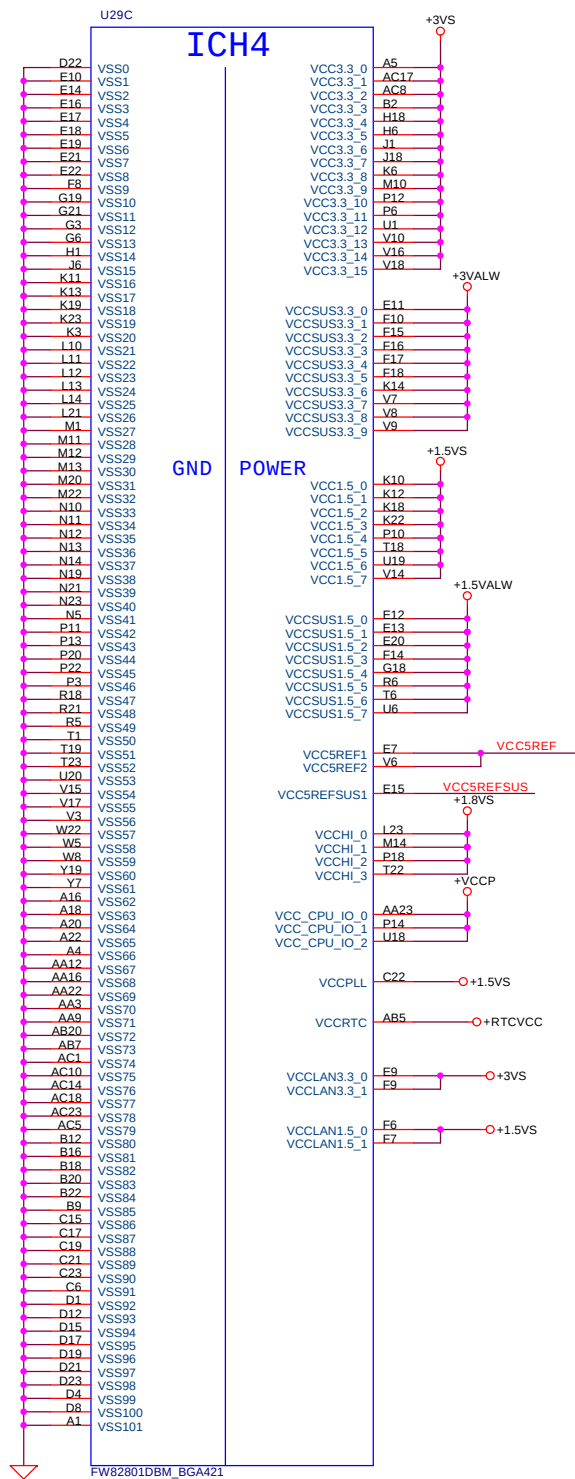
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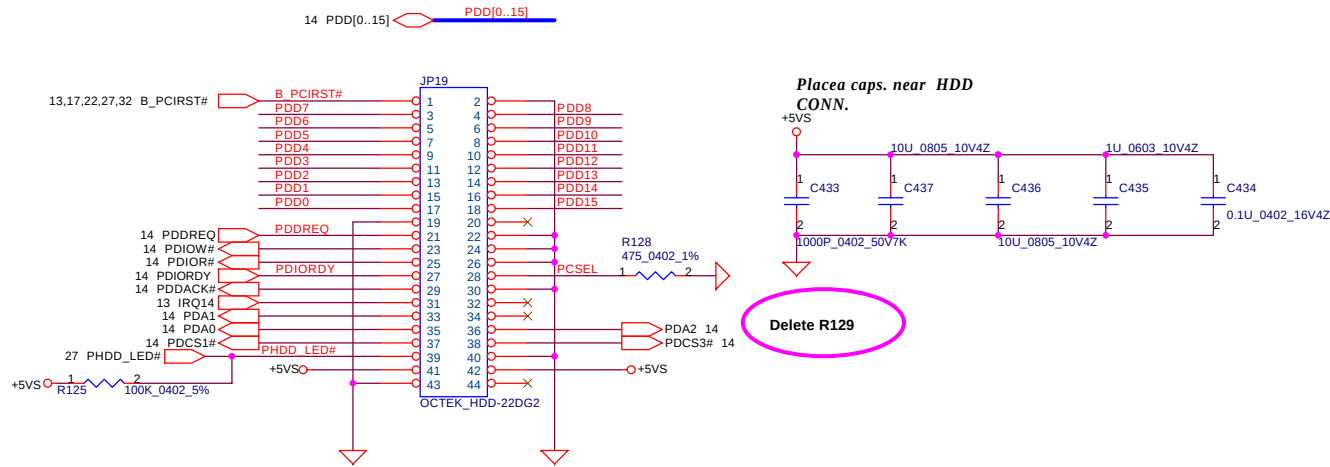


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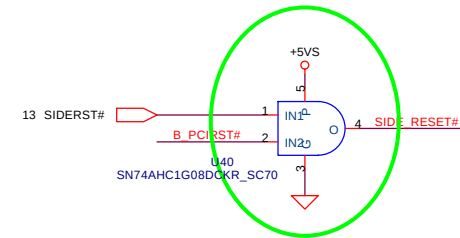
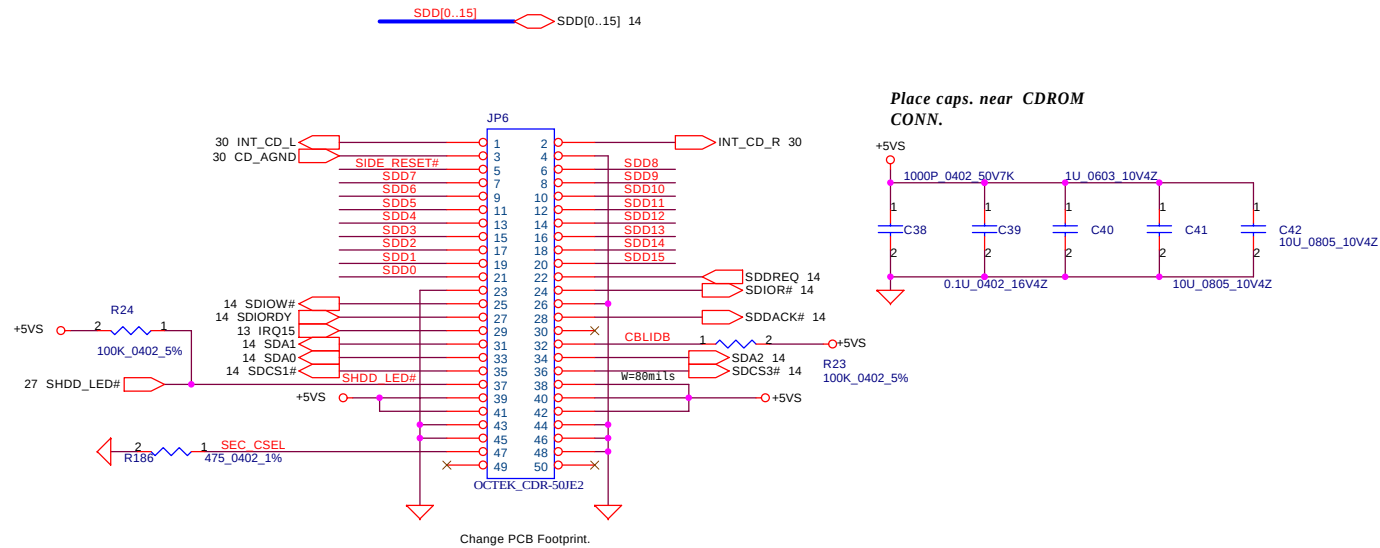
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# HDD Connector

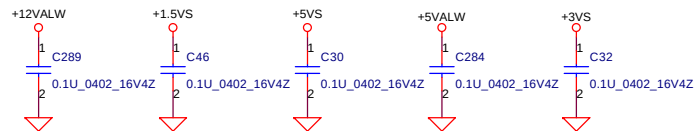
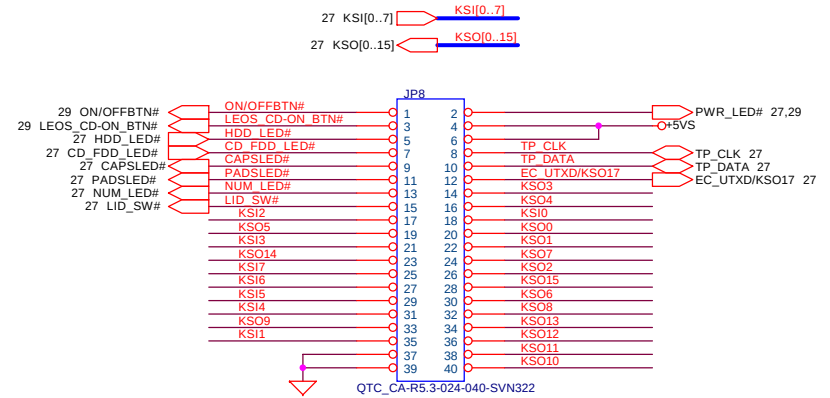
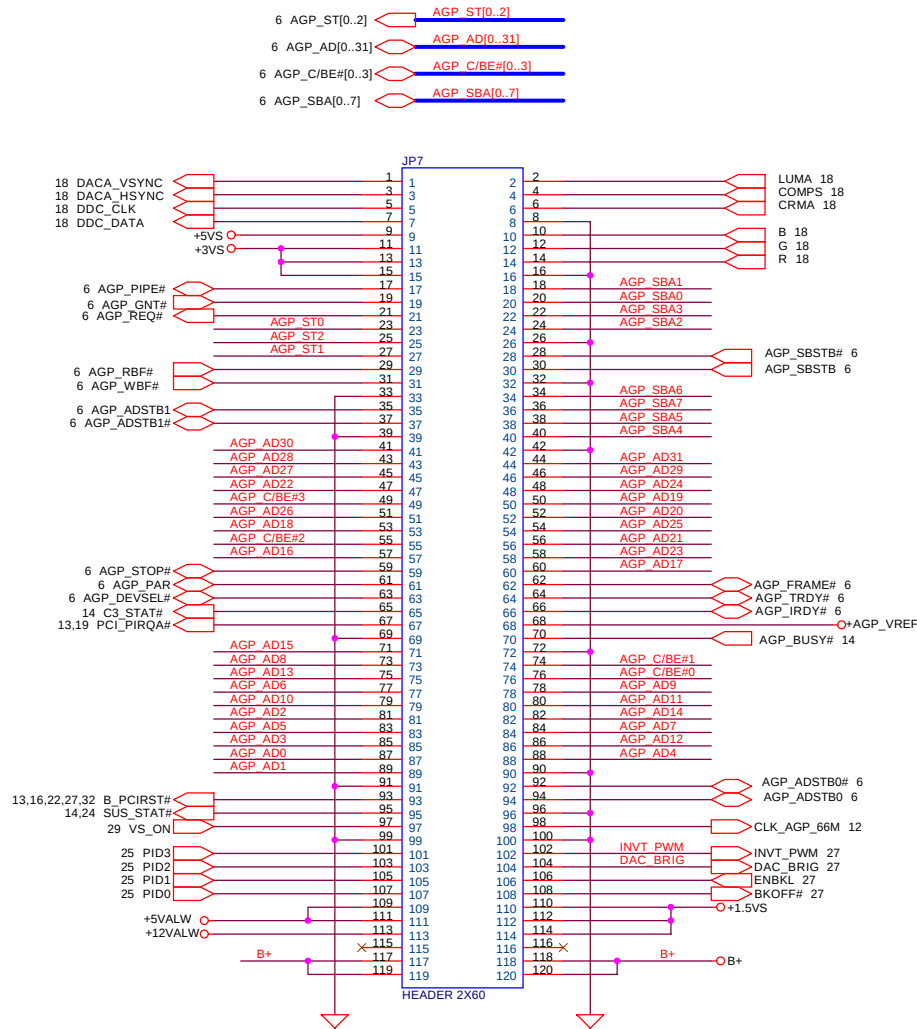


# CD-ROM Connector



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|                          |                            |       |          |
|--------------------------|----------------------------|-------|----------|
| Compal Electronics, Inc. |                            |       |          |
| Title                    | IDE/CD-ROM Module          |       |          |
| Size                     | Document Number            | Rev   |          |
| Custom                   | DAT20 LA-1971              | 0.3   |          |
| Date:                    | Friday, September 26, 2003 | Sheet | 16 of 42 |

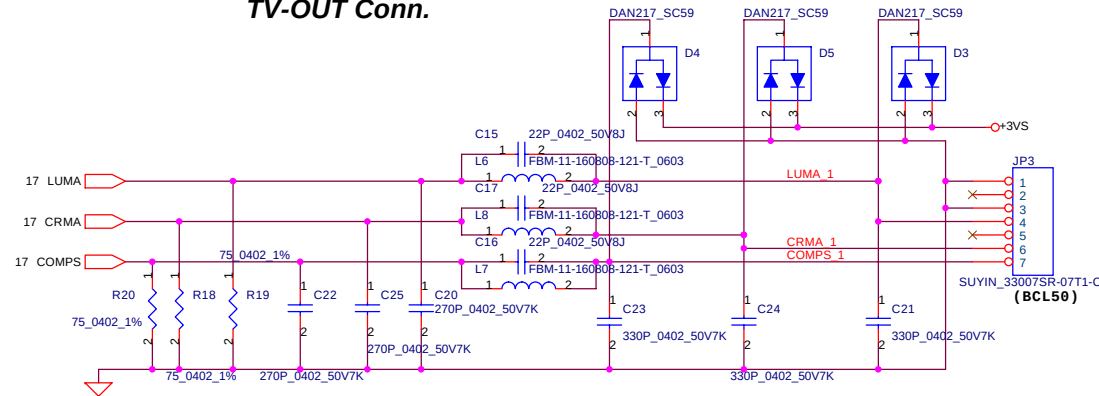


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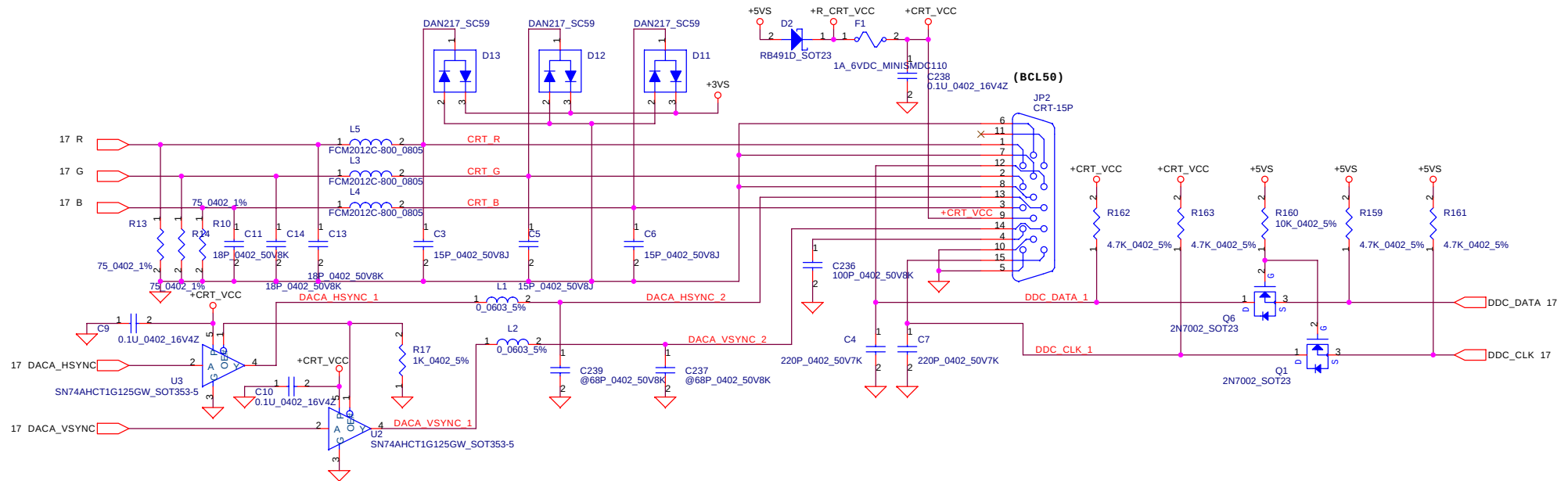
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| Compal Electronics, Inc. |                            |       |          |
| Title                    |                            |       |          |
| AGP Connector            |                            |       |          |
| Size                     | Document Number            | Rev   |          |
| Custom                   | DAT20 LA-1971              | 0.3   |          |
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# CRT, TV-OUT CONNECTOR

## TV-OUT Conn.



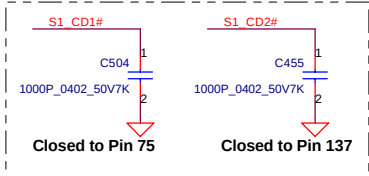
## CRT Conn.



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|        |                            |       |                      |
|--------|----------------------------|-------|----------------------|
| Title  |                            |       | CRT,TV-OUT CONNECTOR |
| Size   | Document Number            | Rev   |                      |
| Custom | DAT20 LA-1971              | 0.3   |                      |
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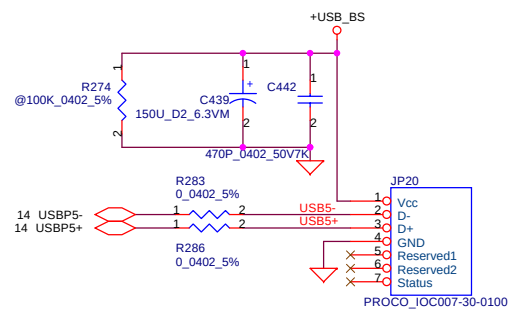
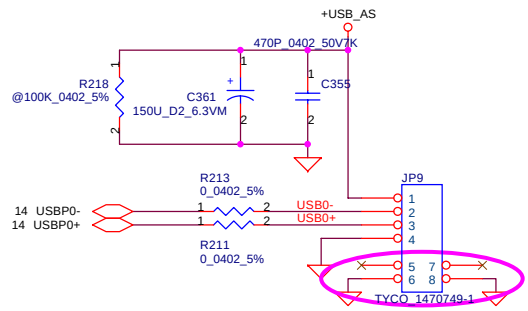
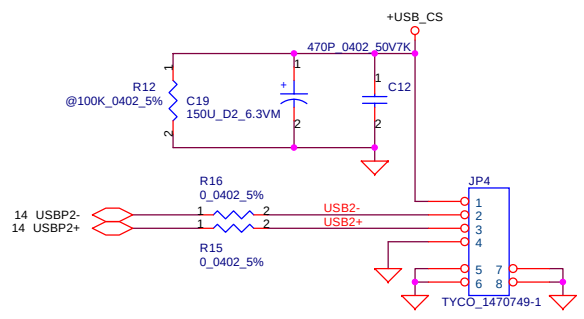




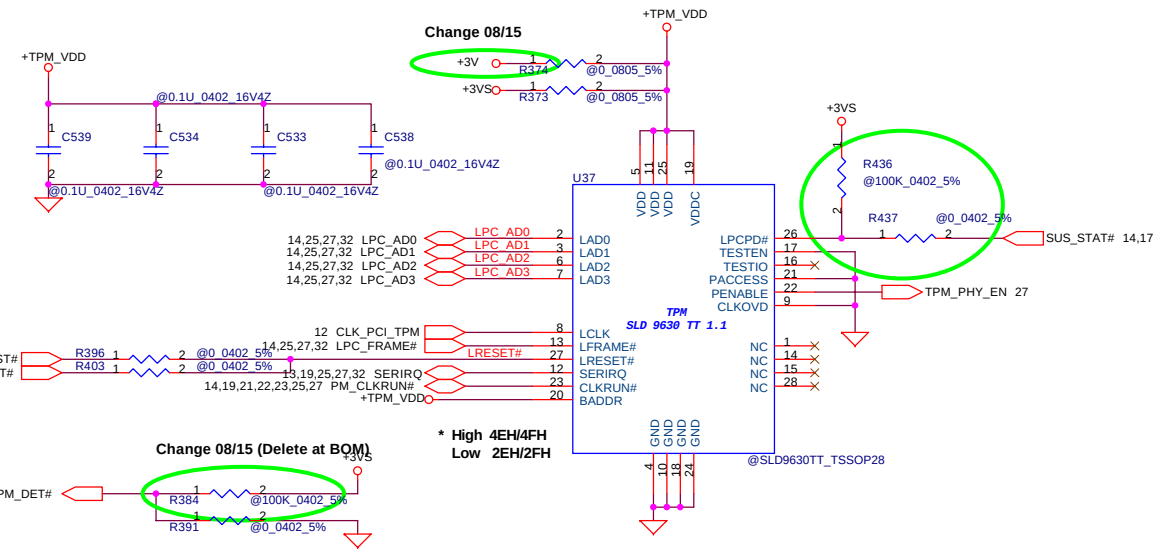
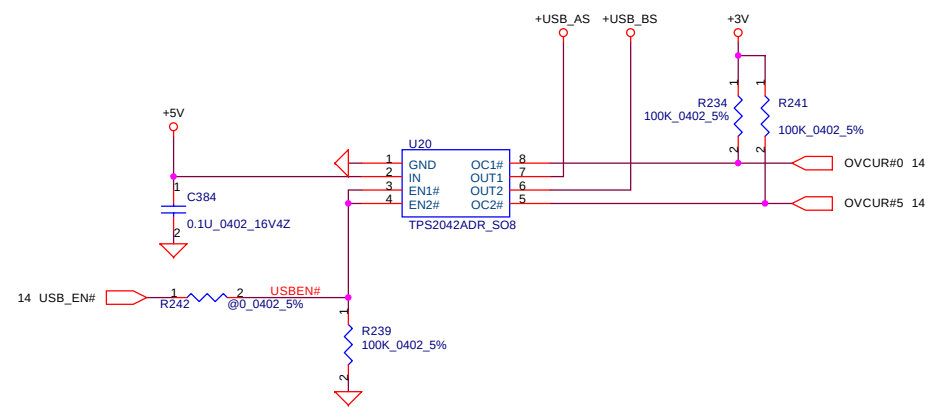
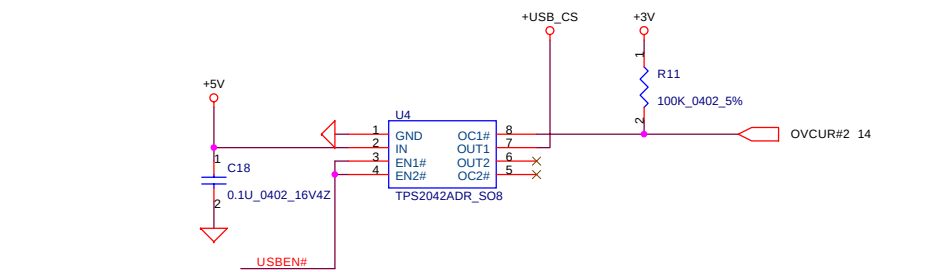
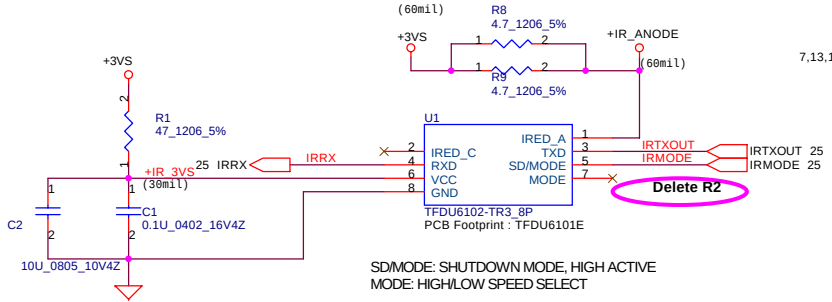








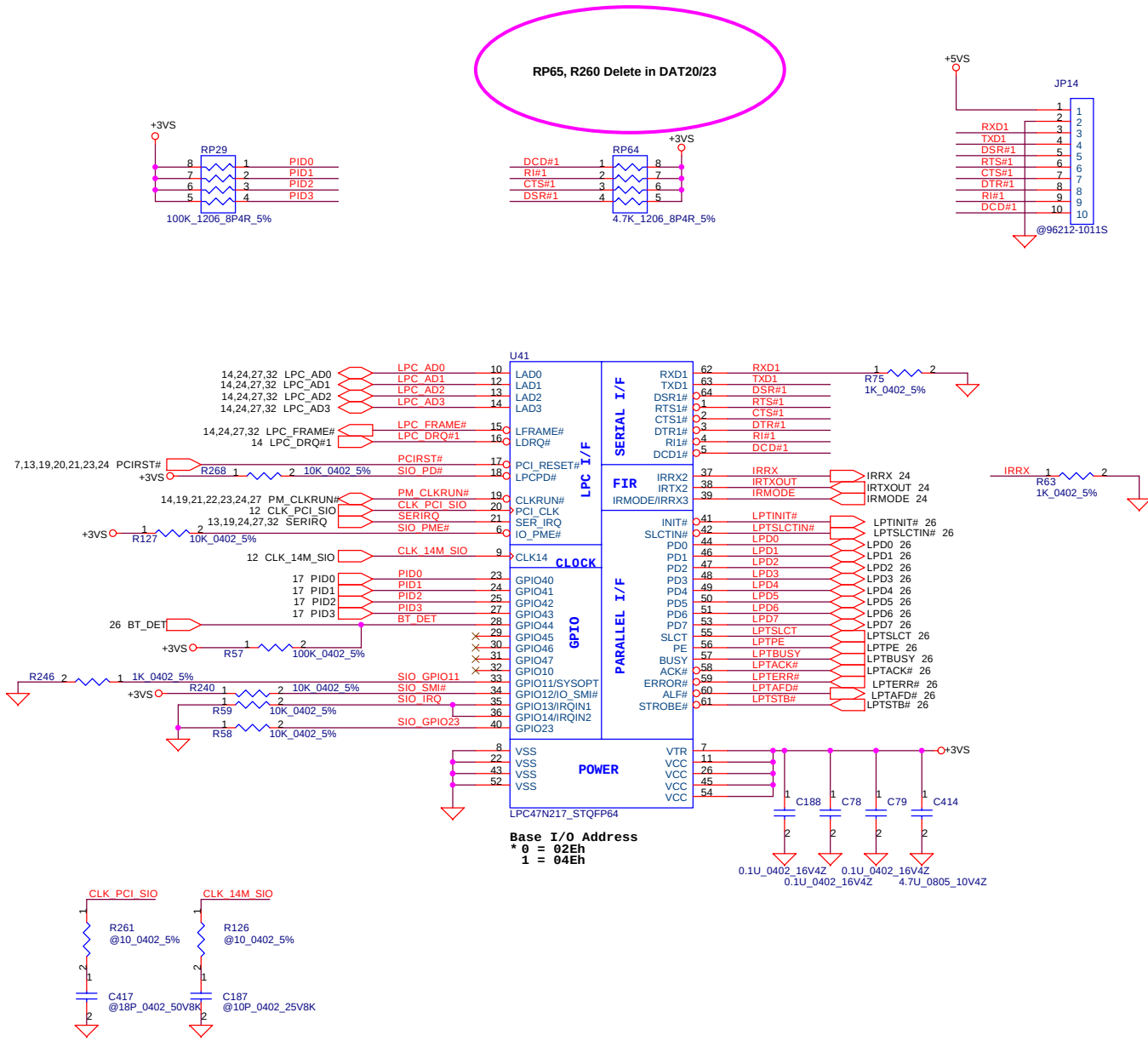
## FIR Module

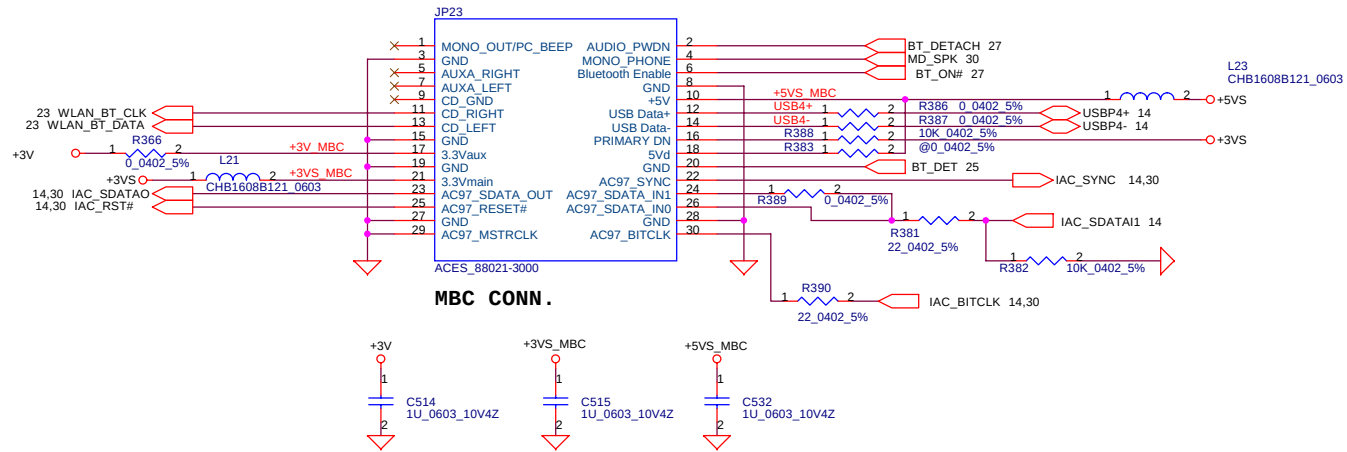


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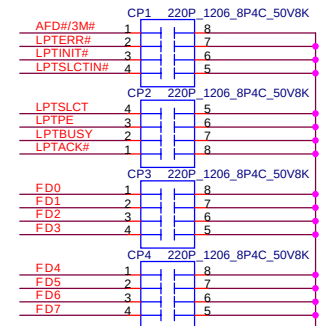
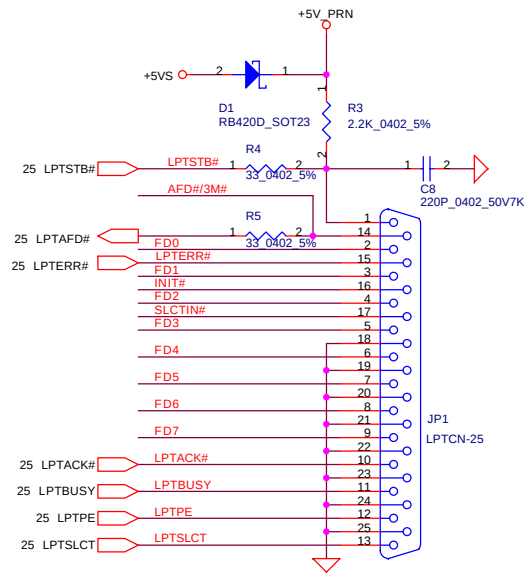
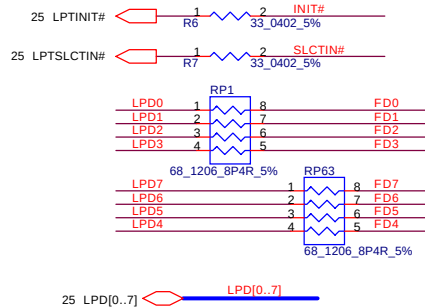
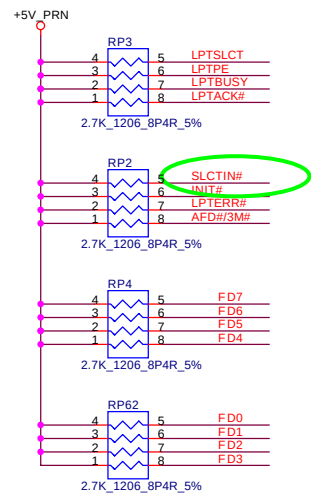
| Compal Electronics, Inc.        |                                         |       |            |
|---------------------------------|-----------------------------------------|-------|------------|
| Title<br><b>USB / FIR / TPM</b> |                                         |       |            |
| Size<br>Custom                  | Document Number<br><b>DAT20 LA-1971</b> |       | Rev<br>0.3 |
| Date:                           | Friday, September 26, 2003              | Sheet | 24 of 42   |

SUPER I/O SMsC LPC47N217



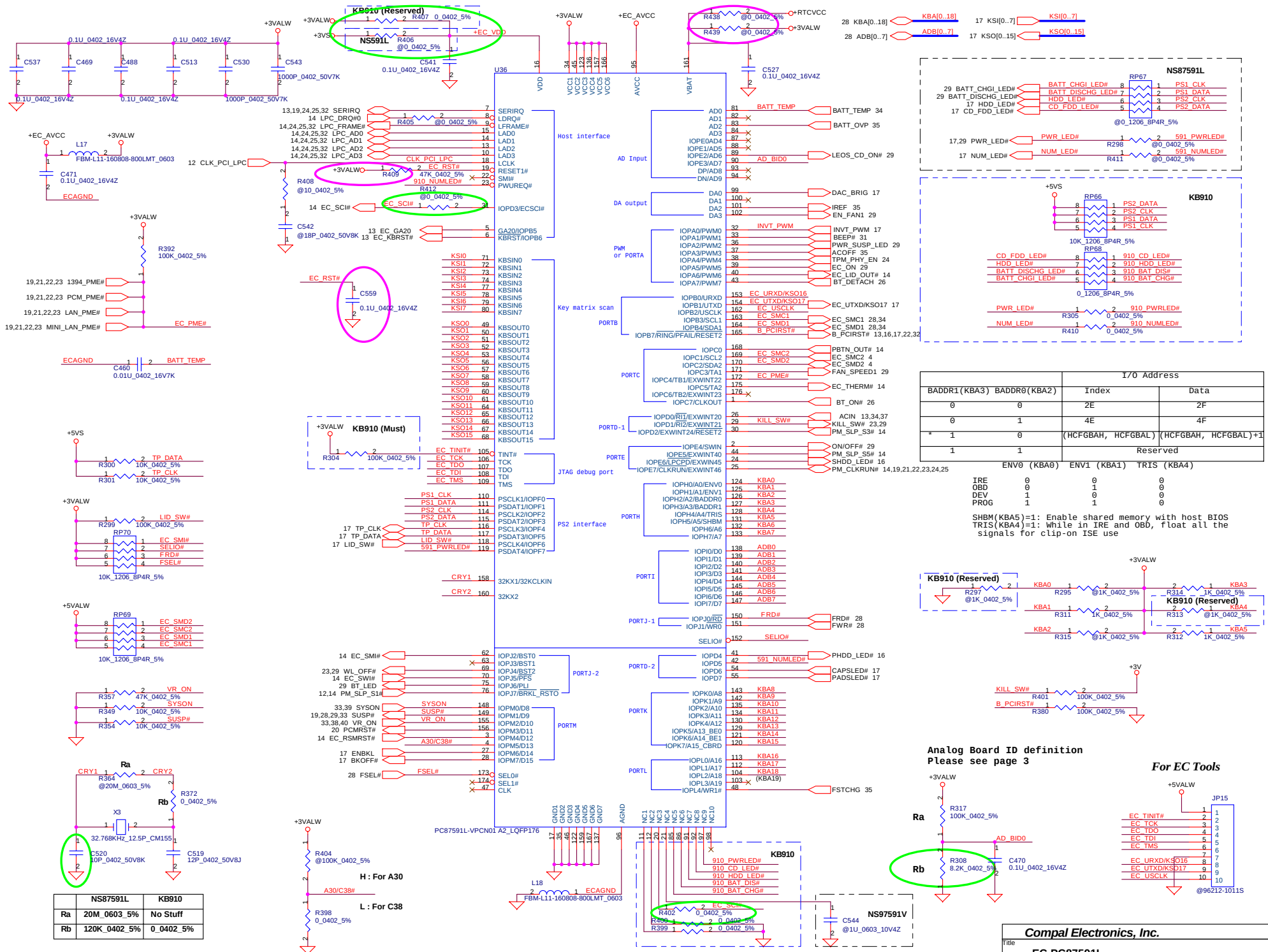


## PARALLEL PORT



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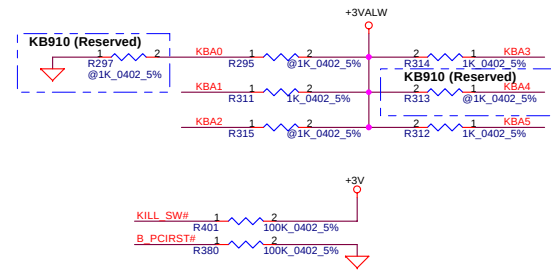
| Compal Electronics, Inc. |                            |       |          |
|--------------------------|----------------------------|-------|----------|
| Title                    |                            |       |          |
| PARALLEL / MDC PORT      |                            |       |          |
| Size                     | Document Number            | Rev   |          |
| Custom                   | DAT20 LA-1971              | 0.3   |          |
| Date:                    | Friday, September 26, 2003 | Sheet | 26 of 42 |



|              |              | I/O Address        |                      |
|--------------|--------------|--------------------|----------------------|
| BADDR1(KBA3) | BADDR0(KBA2) | Index              | Data                 |
| 0            | 0            | 2E                 | 2F                   |
| 0            | 1            | 4E                 | 4F                   |
| * 1          | 0            | (HCFGBAH, HCFGBAL) | (HCFGBAH, HCFGBAL)+1 |
| 1            | 1            | Reserved           |                      |

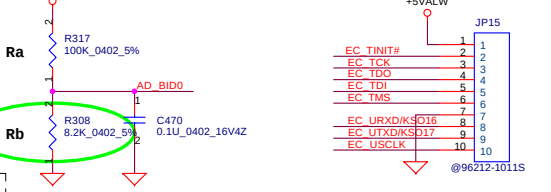
|      | ENV0 (KBA0) | ENV1 (KBA1) | TRIS (KBA4) |
|------|-------------|-------------|-------------|
| IRE  | 0           | 0           | 0           |
| OBD  | 0           | 1           | 0           |
| DEV  | 1           | 0           | 0           |
| PROG | 1           | 1           | 0           |

```
SHBM(KBA5)=1: Enable shared memory with host BIOS
TRIS(KBA4)=1: While in IRE and OBD, float all the
signals for clip-on ISE use
```



Analog Board ID definition  
Please see page 3

*For EC Tools*



|    |              |           |
|----|--------------|-----------|
|    | NS87591L     | KB910     |
| Ra | 20M_0603_5%  | No Stuff  |
| Rb | 120K_0402_5% | 0_0402_5% |

CF2 CF4 CF1 CF3 CF8  
SMDC40M80 SMDC40M80 SMDC40M80 SMDC40M80 SMDC40M80

CF15 CF5 CF6 CF9 CF12  
SMDC40M80 SMDC40M80 SMDC40M80 SMDC40M80 SMDC40M80

CF11 CF14 CF13 CF16  
SMDC40M80 SMDC40M80 SMDC40M80 SMDC40M80

FD1 FD2 FD3  
FIDUCAL FIDUCAL FIDUCAL

FD4 FD5 FD6  
FIDUCAL FIDUCAL FIDUCAL

H4 H3 H9 H22 H19  
H\_S315D138 H\_S315D138 H\_S315D138 H\_S315D138 H\_S315D138

H17 H21 H15 H14  
H\_S315D138 H\_S315D138 H\_S315D138 H\_C315D138

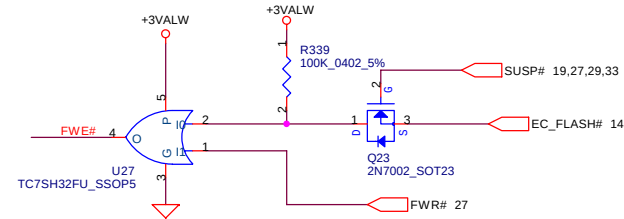
H1 H2 H8 H10  
H\_S315D165 H\_S315D165 H\_S315D165 H\_S315D165

H6 H7 H11 H12  
H\_C354D165 H\_C354D165 H\_C354D165 H\_C354D165

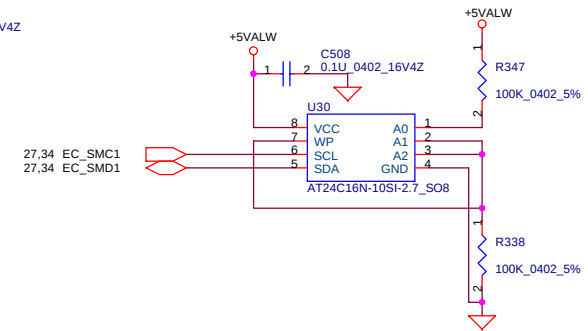
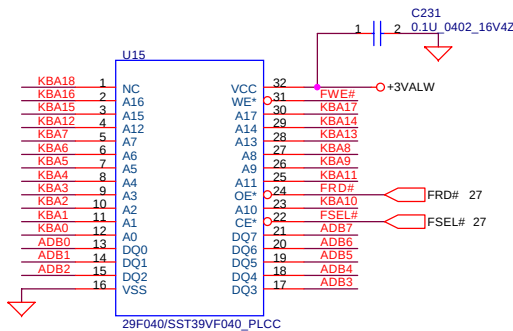
H18 H16 H20  
H\_C276D142 H\_C256D165 H\_R386X189D307X110

H13 H5  
H\_S315D138 H\_S394D165

H24 H23  
H\_O292X55D272X35 H\_O174X55D154X35



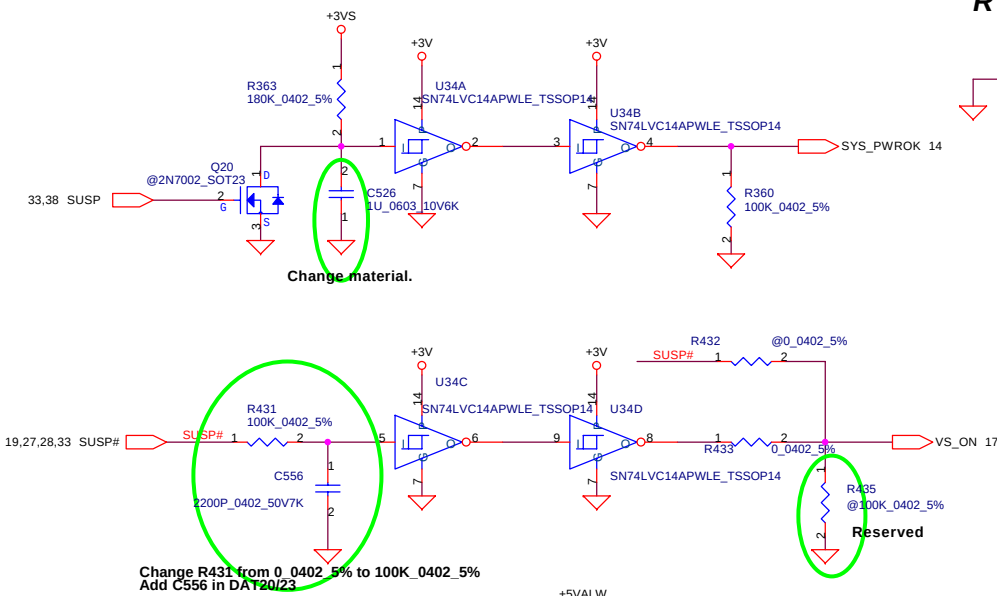
27 KBA[0..18] KBA[0..18]  
27 ADB[0..7] ADB[0..7]



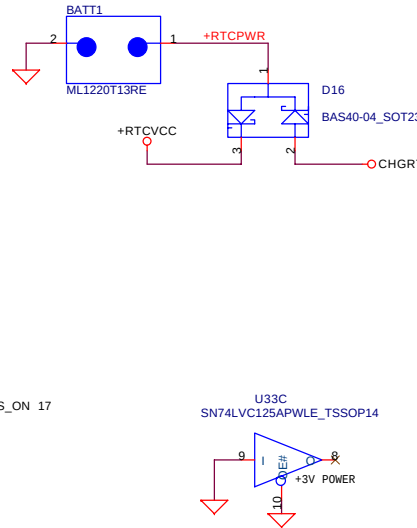
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| Compal Electronics, Inc. |                            |                      |          |
|--------------------------|----------------------------|----------------------|----------|
| Title                    |                            | BIOS & EXT. I/O PORT |          |
| Size                     | Document Number            | Rev                  |          |
| Custom                   | DAT20 LA-1971              | 0.3                  |          |
| Date:                    | Friday, September 26, 2003 | Sheet                | 28 of 42 |

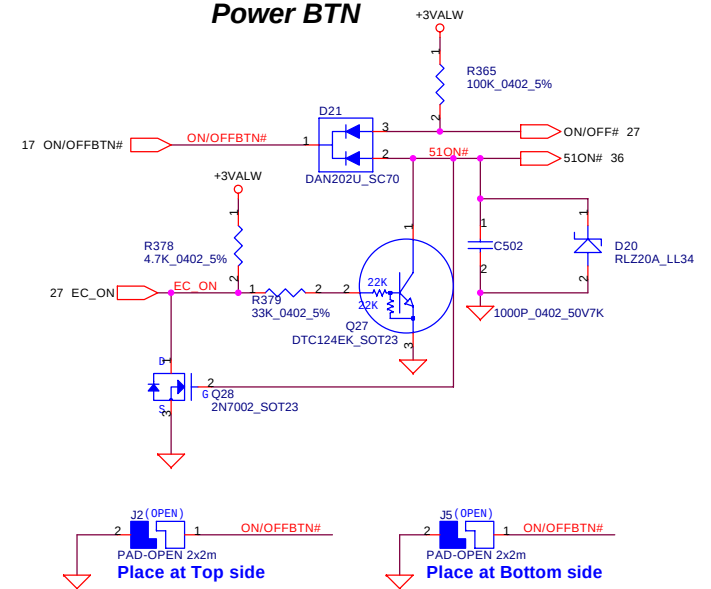
## Power ON Circuit



## RTC Battery

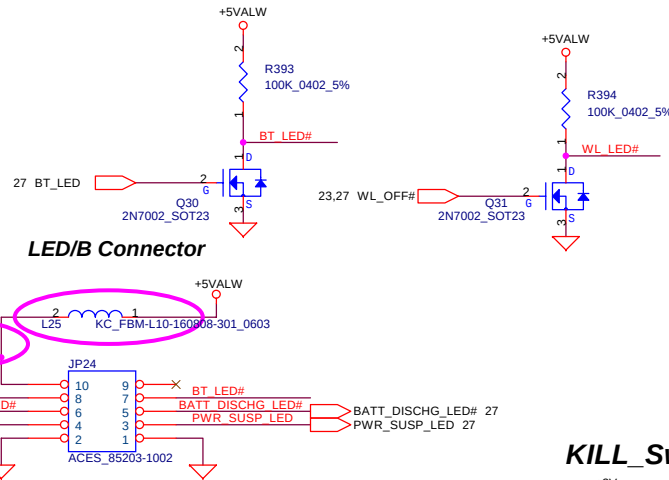


## Power BTN

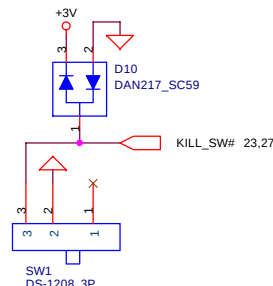


| LED INDICATOR | C38  | 30    |
|---------------|------|-------|
| PWR           | Blue | Green |
| PWR_SUSP      | AMB  | AMB   |
| BATT_CHGI     | Blue | Green |
| BATT_DISCHG   | AMB  | AMB   |
| WL_LED        | Blue | Green |
| BT_LED        | AMB  | AMB   |
| SD_LED        | None | Green |

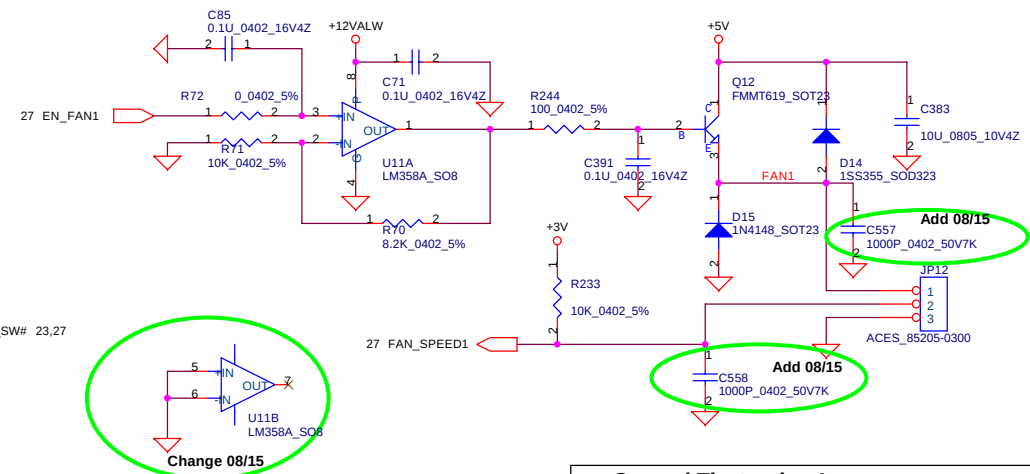
## LED/B Connector



## KILL Switch



## Fan Control circuit



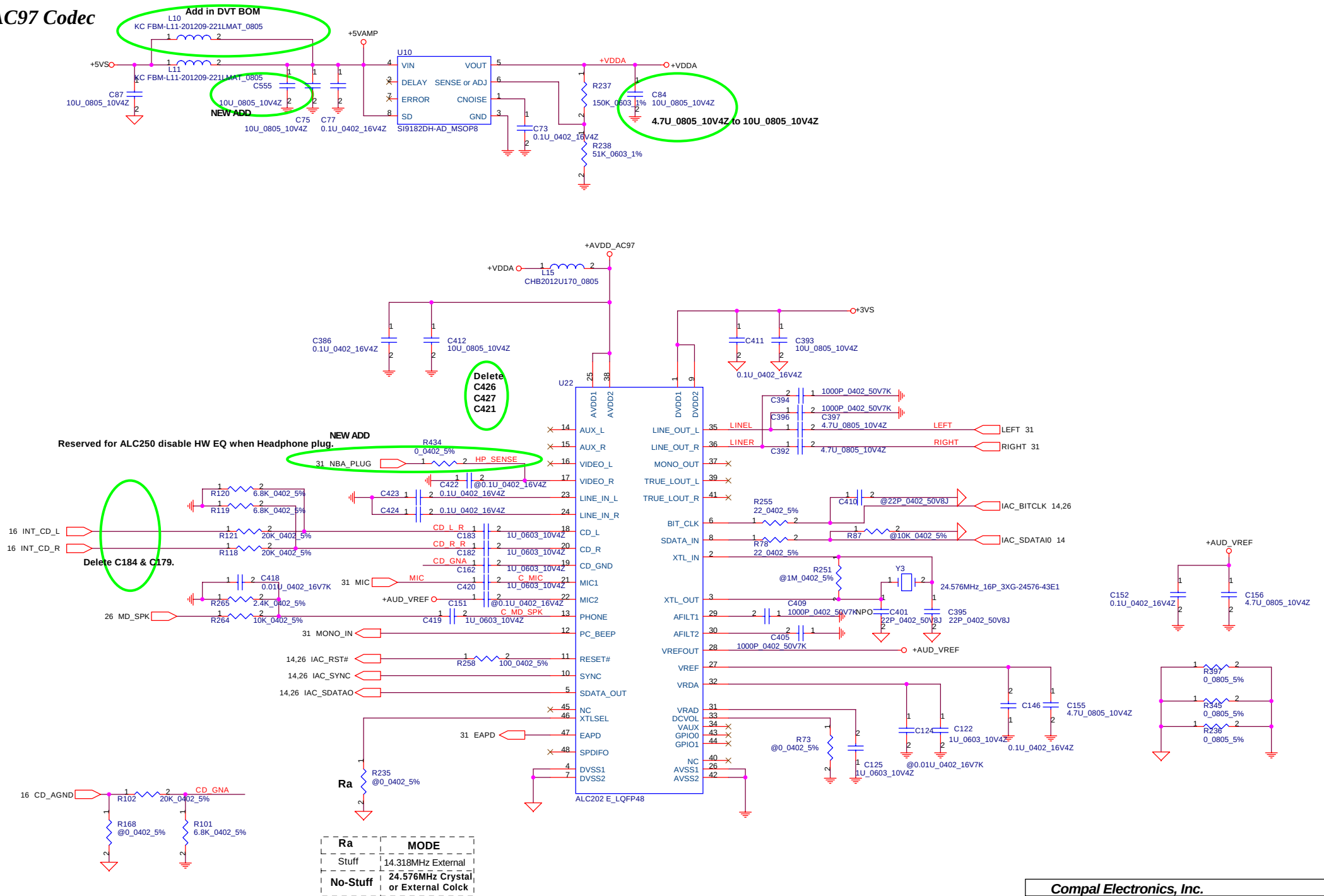
## Compal Electronics, Inc.

|        |                            |       |                            |
|--------|----------------------------|-------|----------------------------|
| Title  | Power OK/Reset/RTC battery | Rev   | 0.3                        |
| Size   | Document Number            | Date  | Friday, September 26, 2003 |
| Custom | DAT20 LA-1971              | Sheet | 29 of 42                   |

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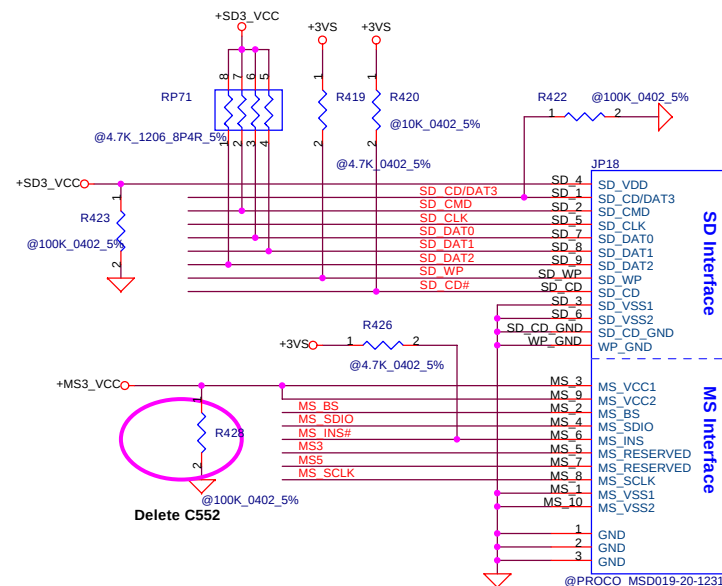
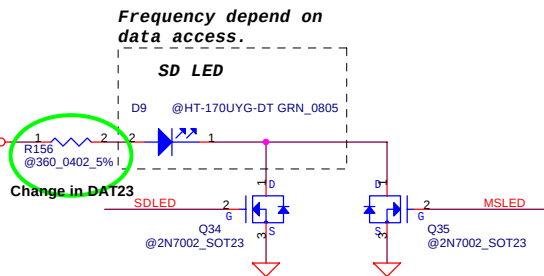
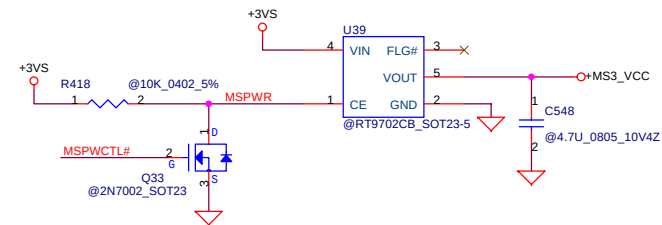
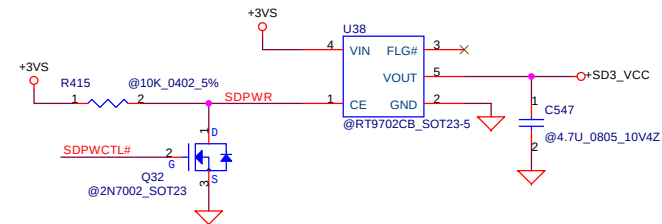
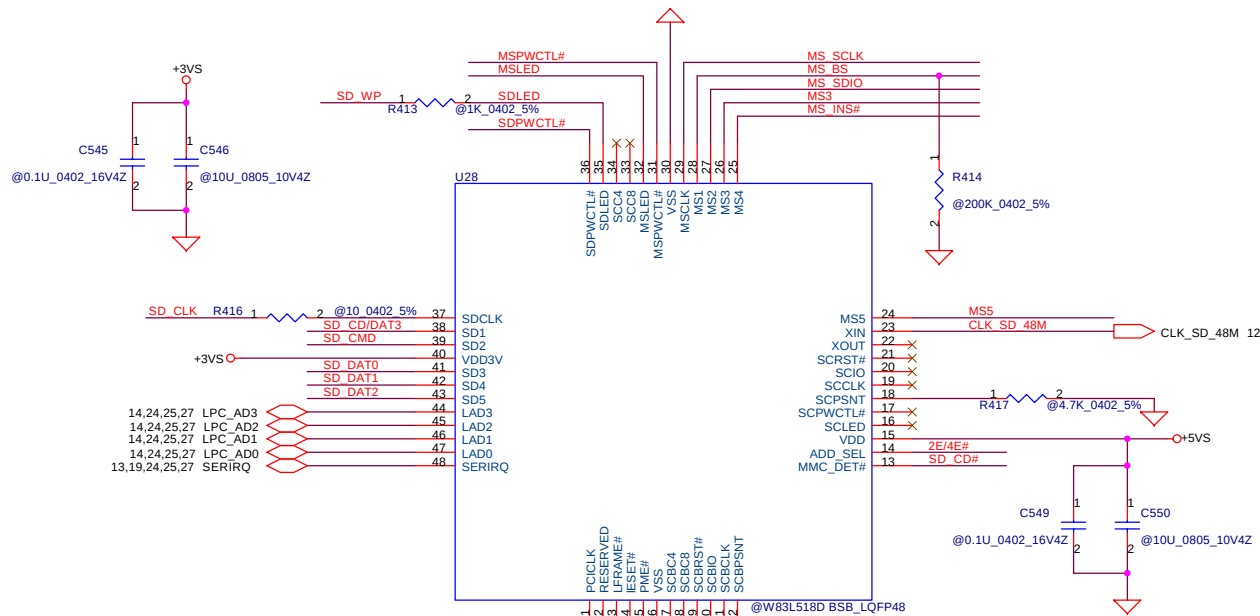


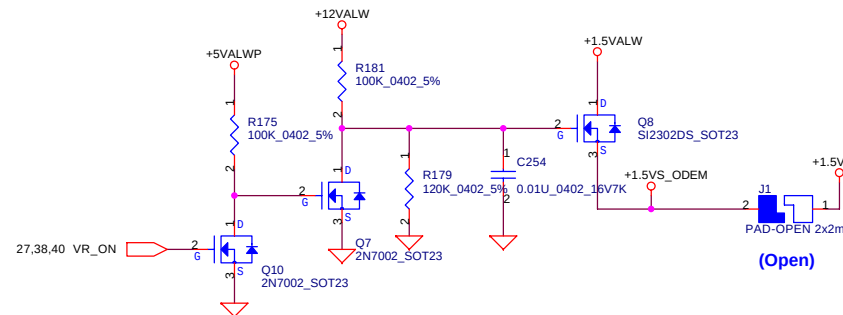
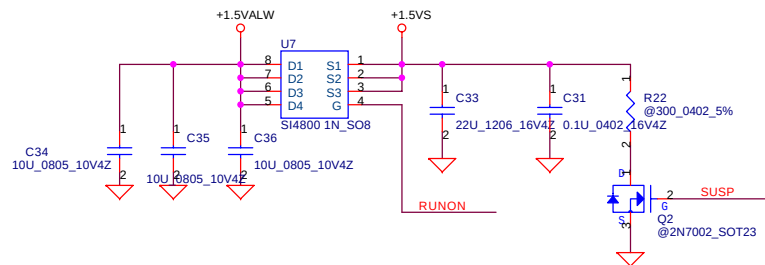
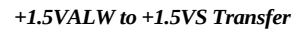
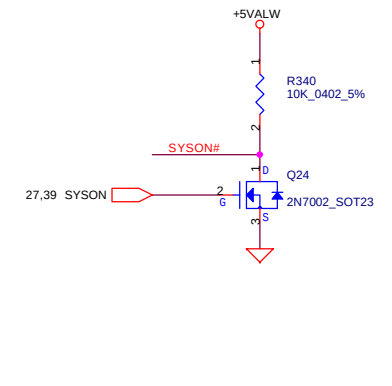
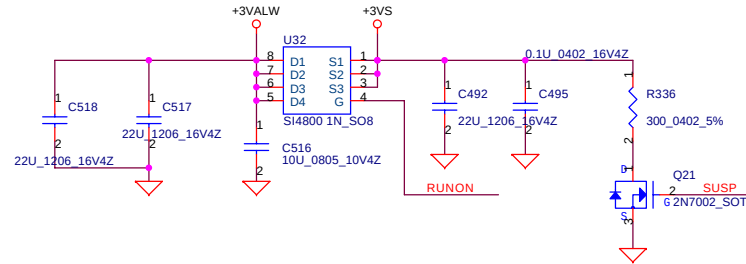
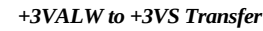
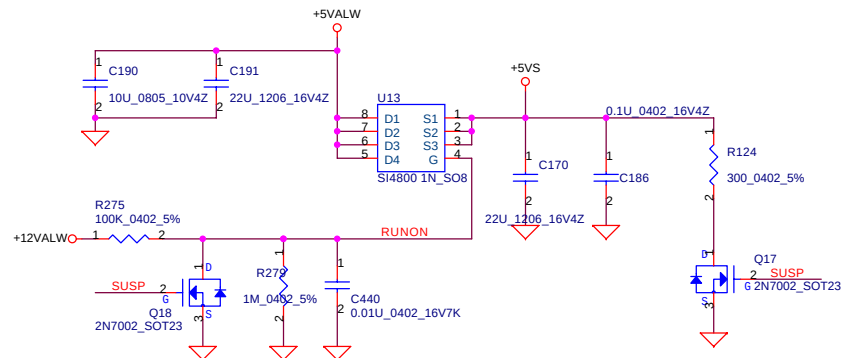
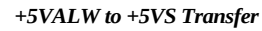
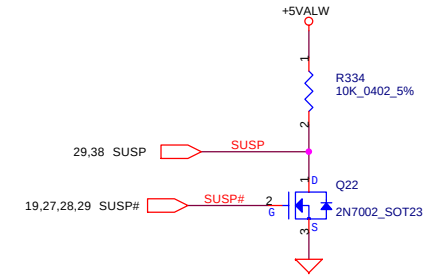
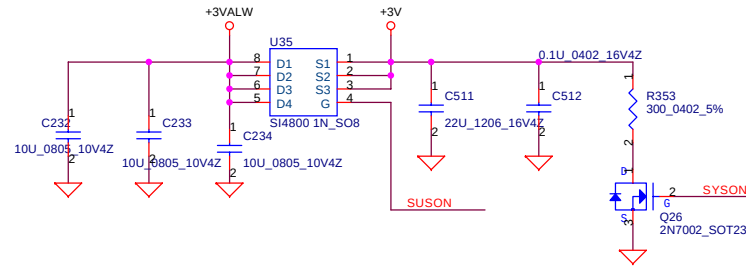
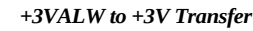
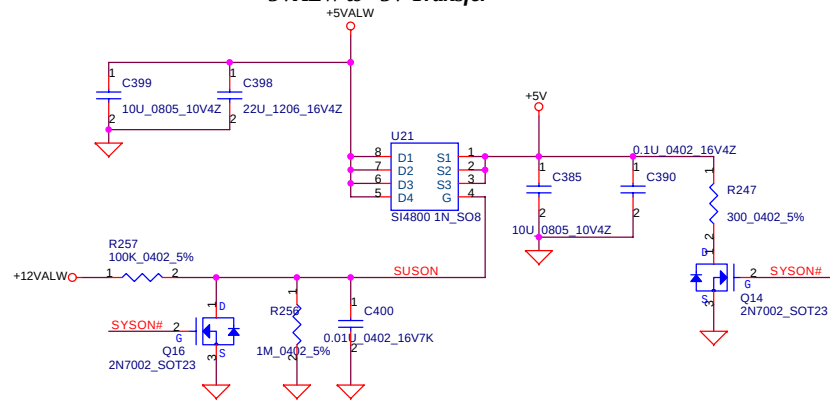
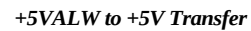
## AC97 Codec



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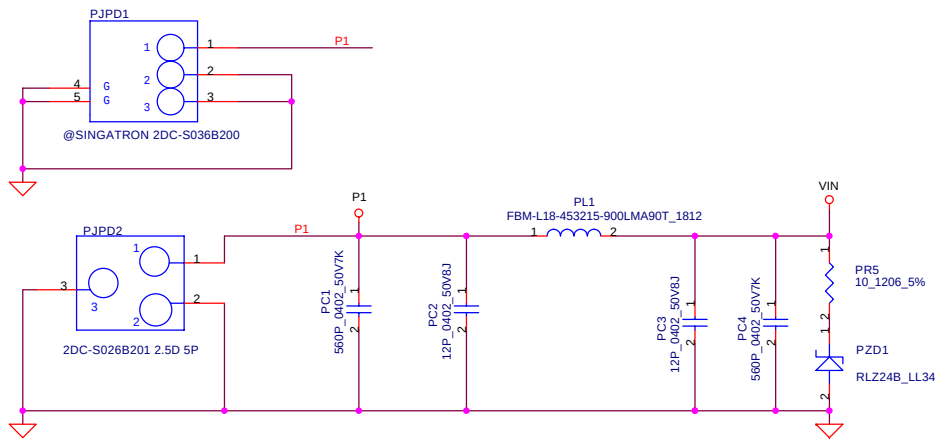
**Compal Electronics, Inc.**

|       |                         |
|-------|-------------------------|
| Title | DC/DC Circuit Interface |
|-------|-------------------------|

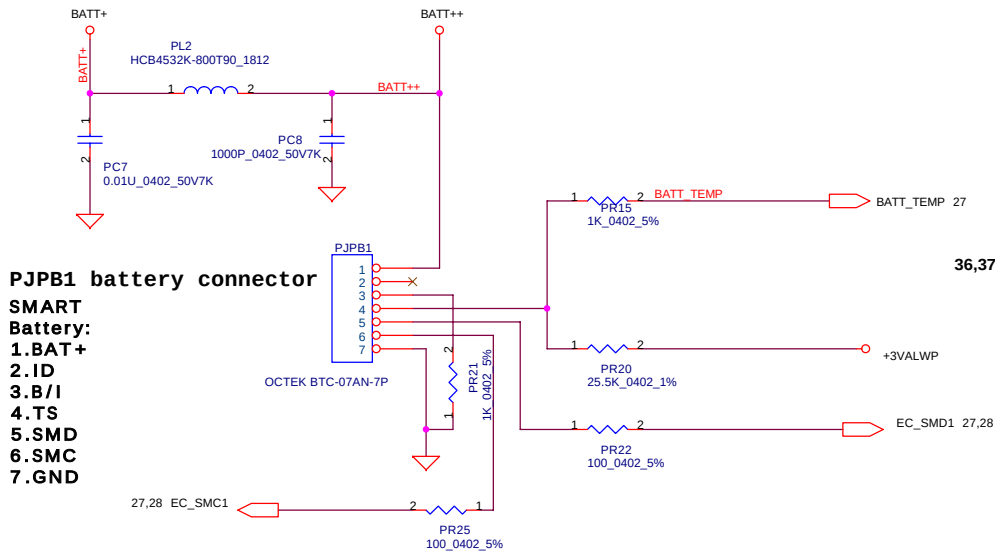
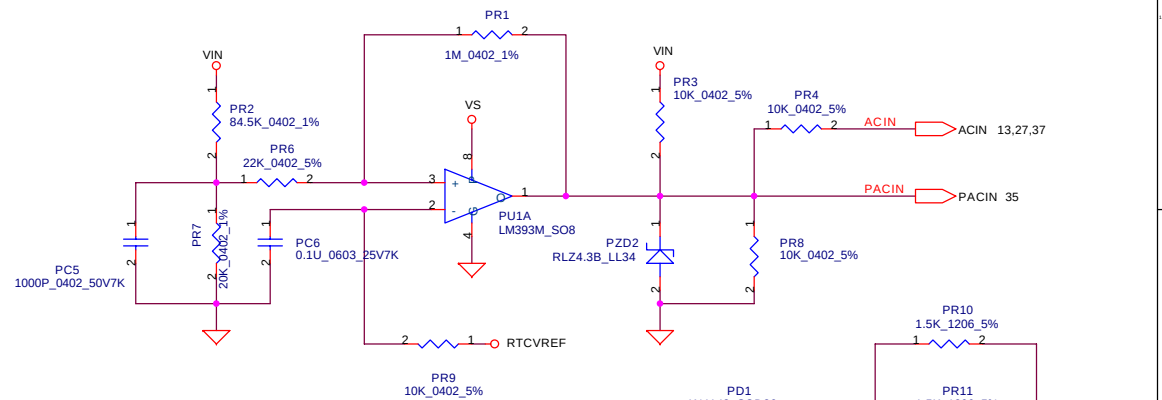
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|----|--------|-----------------|-----|
| AL | Size   | Document Number | Rev |
| D  | Custom | DAT20 LA-1971   | 0.3 |

Date: Friday, September 26, 2003 Sheet 33 of 42

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### Vin Detector 17.90V/17.24V

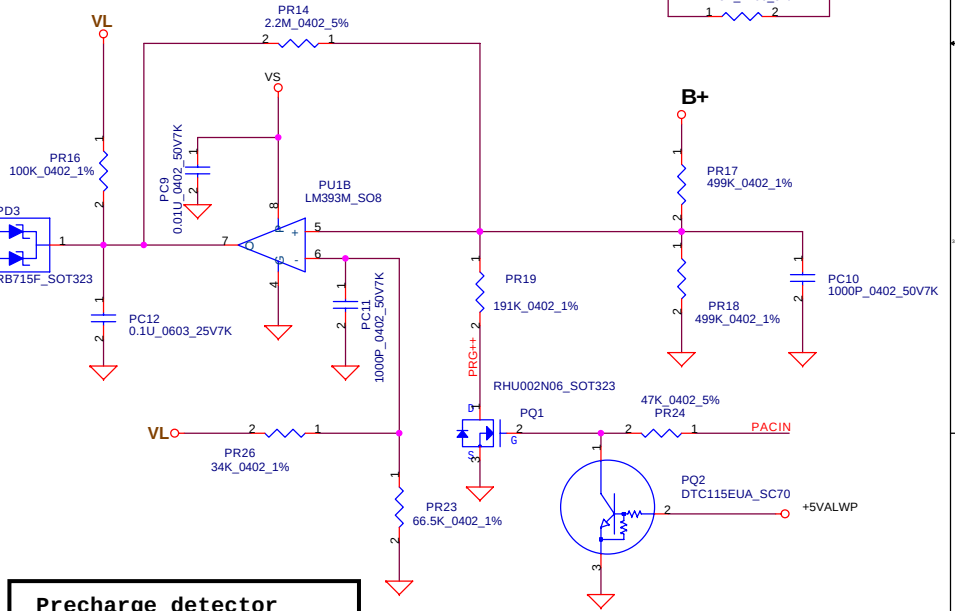


### PJPB1 battery connector

**SMART Battery:**  
1.BAT+  
2.ID  
3.B/I  
4.TS  
5.SMD  
6.SMC  
7.GND

36,37 MAINPWON  
35 ACON

### Precharge detector 15.97V/14.84V For ADAPTOR

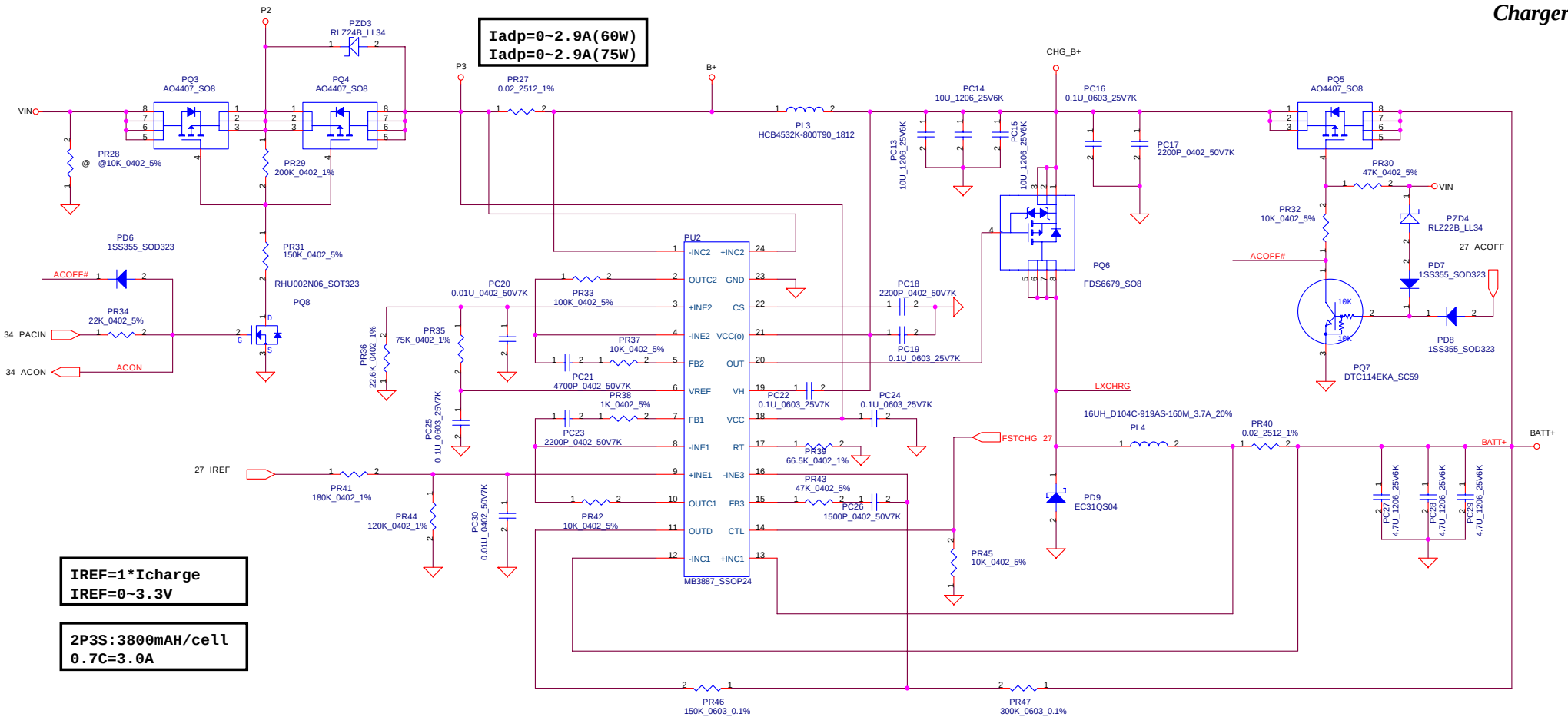


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**Compal Electronics, Inc.**

**DCIN & DETECTOR & Precharge**

|        |                            |                |
|--------|----------------------------|----------------|
| Size   | Document Number            | Rev            |
| Custom | DAT20 LA-1971              | 0.3            |
| Date:  | Friday, September 26, 2003 | Sheet 34 of 42 |



**IREF=1\*Icharge**  
**IREF=0~3.3V**

2P3S:3800mAh/cell  
0.7C=3.0A

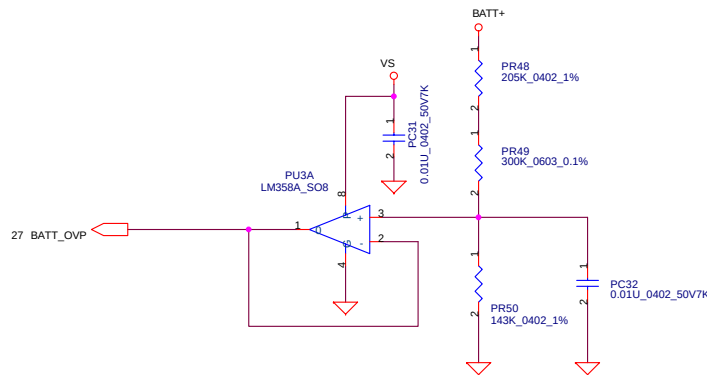
**OVP voltage :**

LI-3S :12.9V- - -BATT-0VP=2.84V

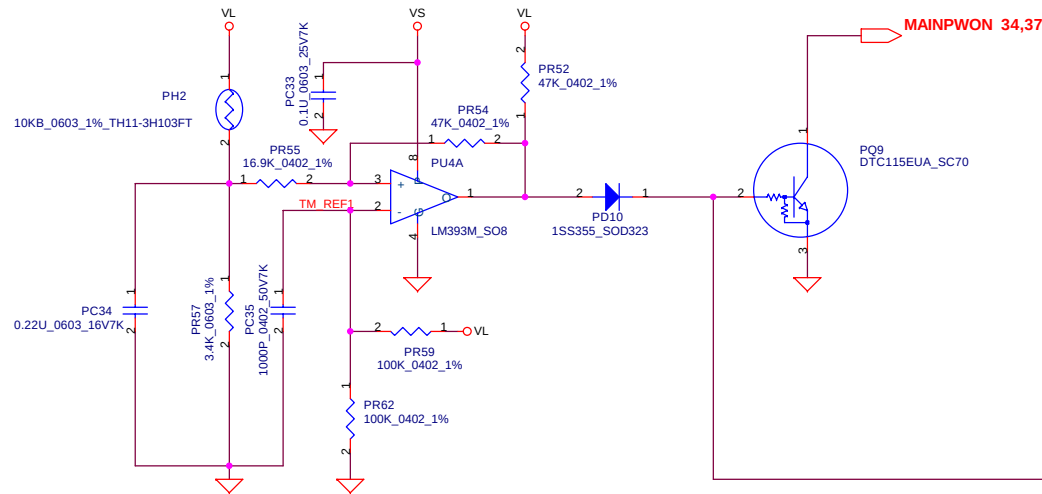
$$\text{BATT-OVP}=0.2206*\text{BATT}+$$

**Charge voltage**

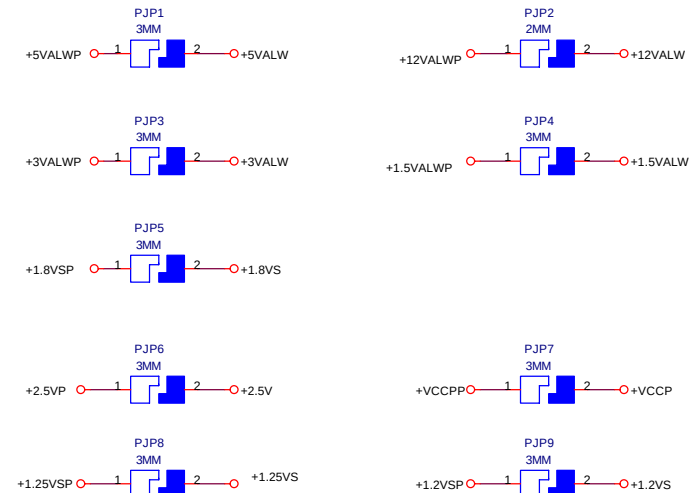
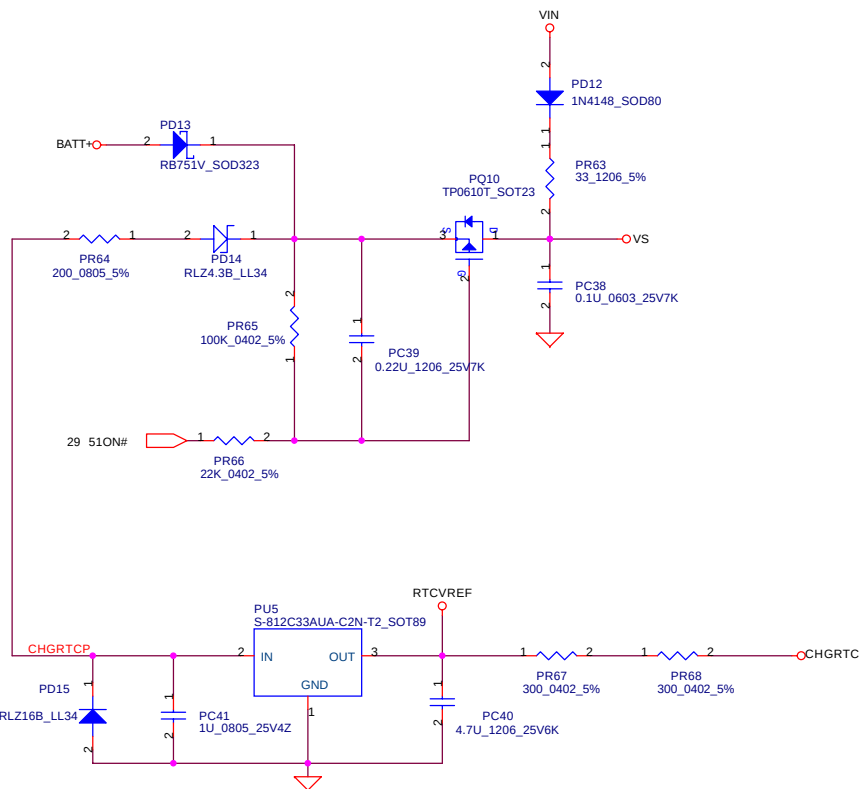
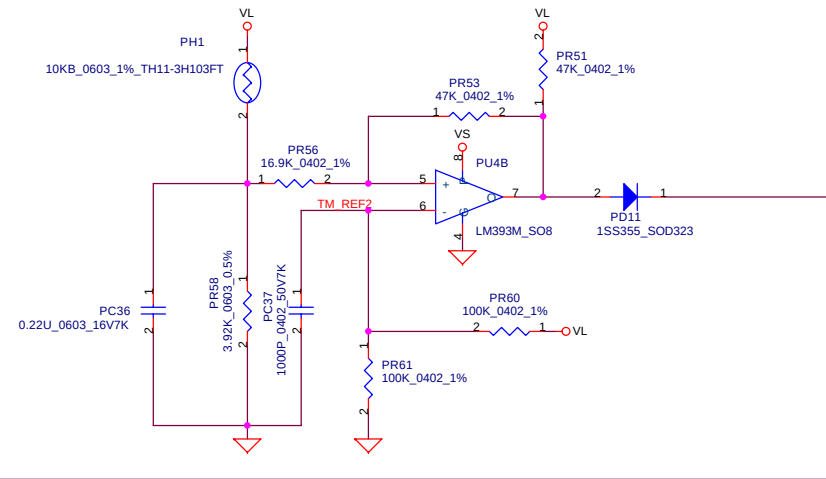
3S CC-CV MODE : 12.6V



**PH1 under CPU botten side :**  
 CPU thermal protection at 85 degree C  
 Recovery at 44(45) degree C

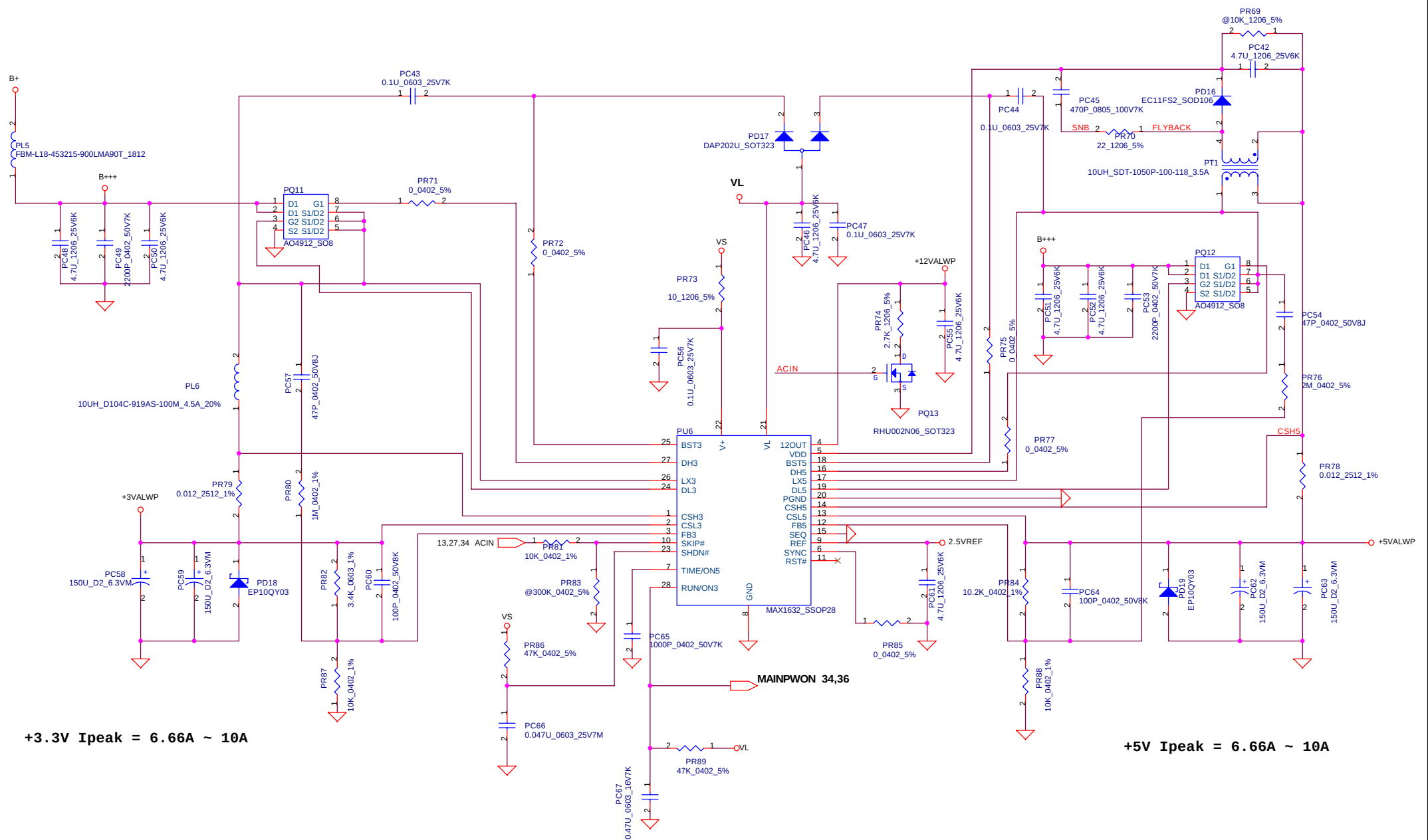


**PH2 near main Battery CONN :**  
 BAT. thermal protection at 78 degree C  
 Recovery at 39(40) degree C



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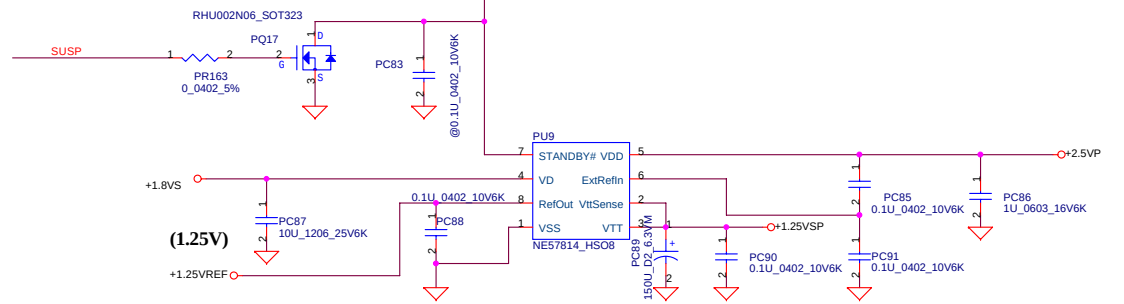
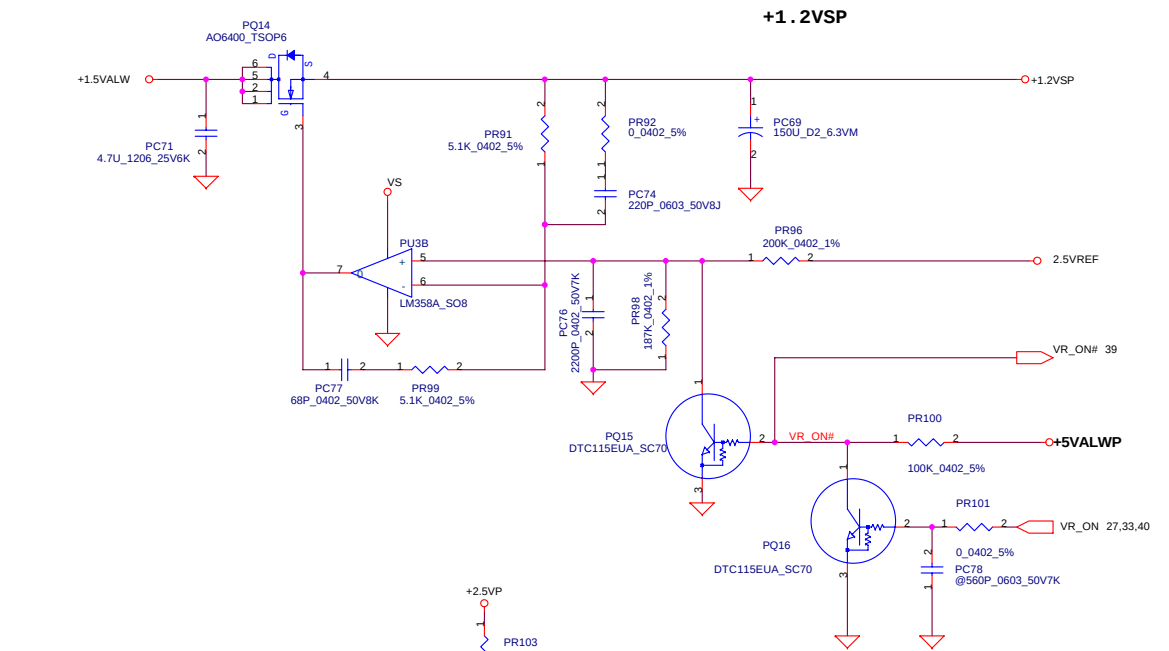
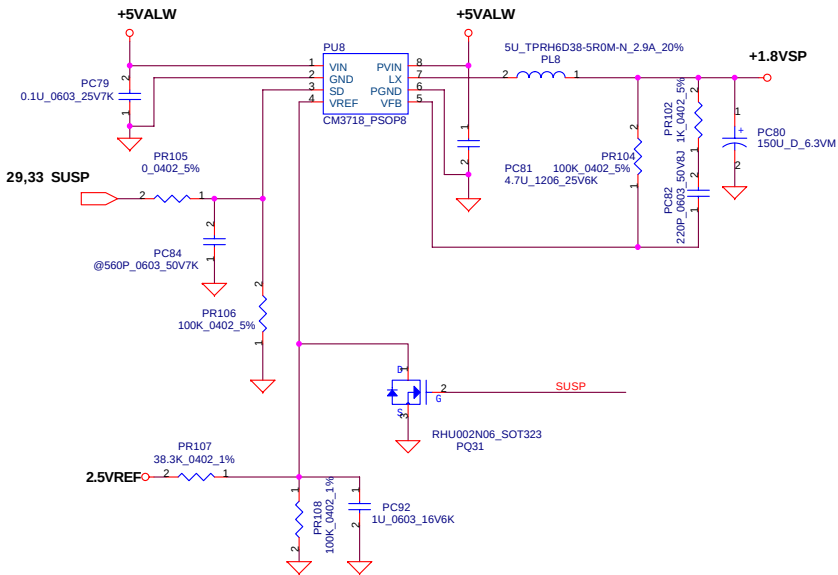
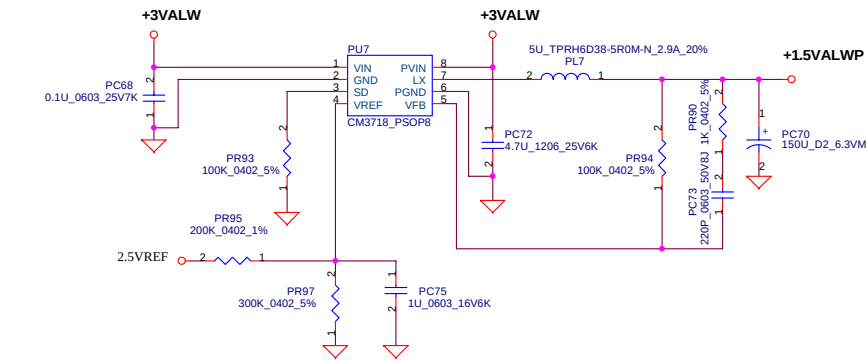
| Compal Electronics, Inc. |                            |                   |          |
|--------------------------|----------------------------|-------------------|----------|
| Title                    |                            | RTC Battery & OTP |          |
| Size                     | Document Number            | Rev               |          |
| B                        | DAT20 LA-1971              | 0.3               |          |
| Date:                    | Friday, September 26, 2003 | Sheet             | 36 of 42 |



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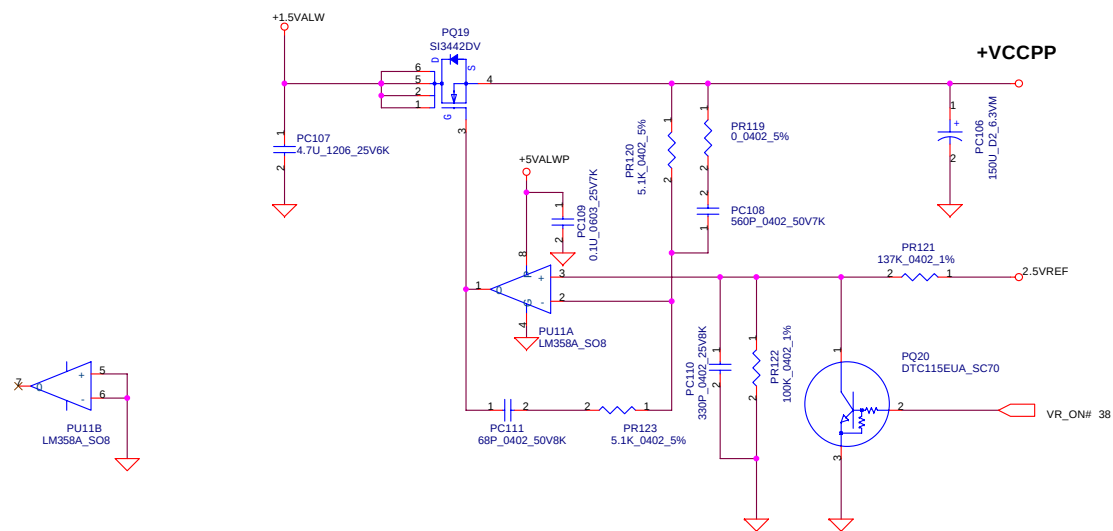
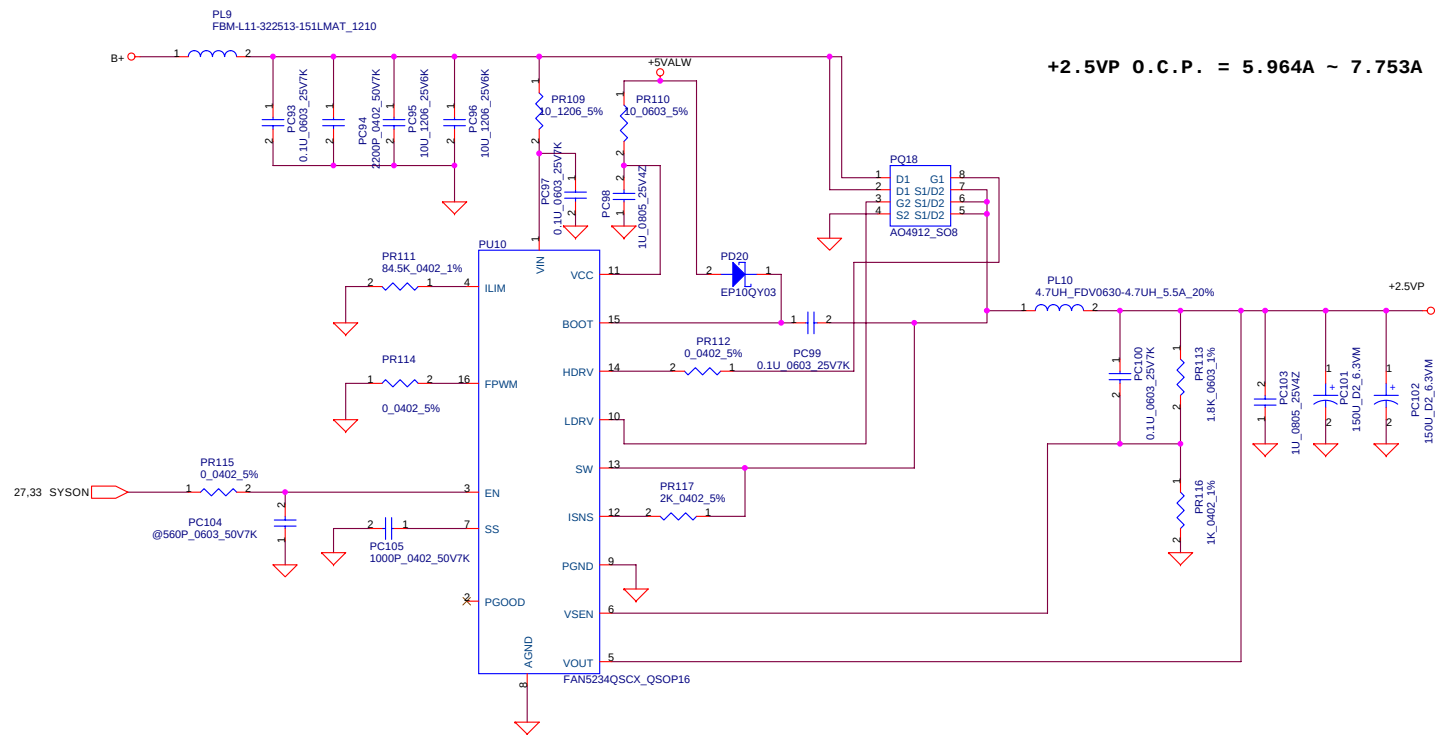
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|------------------------------|--|--|--|
| Title                        |  |  |  |
| +5VALWP / +3VALWP / +12VALWP |  |  |  |
| Size                         |  |  |  |
| Custom                       |  |  |  |
| Document Number              |  |  |  |
| DAT20 LA-1971                |  |  |  |
| Date:                        |  |  |  |
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| Sheet                        |  |  |  |
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| Rev                          |  |  |  |
| 0.3                          |  |  |  |





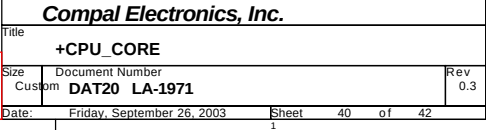
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|-----------------------------------------|----------------------------|-------|----------|
| Title                                   |                            |       |          |
| +1.8VSP & +1.25VSP & 1.5VALWP & +1.2VSP |                            |       |          |
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| File                     |                            |       |          |
| DDR +2.5VP & VCCPP       |                            |       |          |
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DAT20 PIR LIST

HW PIR LIST

EVT -> DVT

[Page 7 & 9] Change Material R33, R34, R200, R201 (75\_0603\_1%)

[Page 14] Change Material R38 (20\_0603\_1%)

[Page 16] Change Material U40

[Page 24] Modify R374 connected from +3VALW to +3V & delete R384 (Remove TPM detect function)

[Page 25] Delete RP65 & R260 which reserved for LPC47N227

[Page 26] Change SLCTIN# connection.

[Page 27] Change R308 from 0\_0402\_5% to 8.2K\_0402\_5% for DVT test AD\_BID0

[Page 29] Change material for C526 from 1U\_0603\_10V4Z to 1U\_0603\_10V6K  
 Add C556 2200P\_0402\_50V7K  
 Add C557, C558 1000P\_0402\_50V7K

[Page 30] Add L10  
 Change C84 from 4.7U\_0805\_10V4Z to 10U\_0805\_10V4Z  
 Add C555 10U\_0805\_10V4Z  
 Delete C184, C179 1U\_0603\_10V4Z

[Page 32] R156 from 390\_0402\_5% to 360\_0402\_5%

[Page 27] R409 from 10K\_0402\_5% to 47K\_0402\_5% & add C559 0.1U\_0402\_16V4Z

DVT -> PVT

[Page 12] Delete C70, C80, C166, C167, C168

[Page 24] Delete R2 (Reserved for FIR)

[Page 31] Delete C476, C531, R319, R371 AudiooHigh pass filter.

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| <b>Compal Electronics, Inc.</b> |                            |  |                |
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| DAT20 PIR LIST                  |                            |  |                |
| Size                            | Document Number            |  | Rev            |
| Custom                          | DAT20 LA-1971              |  | 0.3            |
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| E                               |                            |  |                |

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

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| Item | Fixed Issue                                                | Reason for change                                     | Rev. | PG # | Modify List                                                                                   | B.Ver # | Phase |
|------|------------------------------------------------------------|-------------------------------------------------------|------|------|-----------------------------------------------------------------------------------------------|---------|-------|
| 1    | M/B cannot power on.                                       | RC delay time is not enough of Max1632 on3 pin.       | 0.2  | 34   | 1.Change PC67 from 0.047U_0805_10V6K to 0.47U _16V K X7R 0603.                                | 0.2     | DVT   |
| 2    | Layout symbol error.                                       | Layout symbol error.                                  | 0.2  | 37   | 1.Change PR26 PCB footprint from R_0603 to R_0402.                                            | 0.2     | DVT   |
| 3    | Layout symbol error.                                       | Layout symbol error.                                  | 0.2  | 40   | 1.Change PD22 from EP10QY03 to EP31QS04.                                                      | 0.2     | DVT   |
| 4    | System cannot re-start and Windows fail when into C4.      | The CPU cannot into skip mode,happen the OVP when C4. | 0.2  | 40   | Swap the PR154 and PR155.                                                                     | 0.2     | DVT   |
| 5    | Rating not enough.                                         | Rating not enough.                                    | 0.2  | 34   | 1.Change PC66 from 0.047U_00603_16V7K to 0.047U_00603_25V7M.                                  | 0.2     | DVT   |
| 6.   | Rating is not enough.                                      | Surge power rating concerned.                         | 0.2  | 39   | 1.Change PR109 from 10_0603 to 10_1206.                                                       | 0.2     | DVT   |
| 7.   | Change size.                                               | Change size.                                          | 0.2  |      | 1.Change PR149,PR44,PR48,PR82,PR36,PR107,PR39,PR121, PR140,PR145 and PR146 from 0603 to 0402. | 0.2     | DVT   |
| 8.   | Change size.                                               | Change size.                                          | 0.2  |      | 1.Change PC114,PC131,PC49,PC21,PC53,PC128,PC126,PC124,PC31, PC7 and PC9 from 0603 to 0402.    | 0.2     | DVT   |
| 9.   | Change size.                                               | Change size.                                          | 0.2  |      | 1.Change PC56,PC24,0C38,PC100,PC16 and PC19 from 0805 to 0603.                                | 0.2     | DVT   |
| 10.  | Choke rating is not enough.                                | Charge current power rating concerned.                | 0.2  | 35   | 1.Change PL4 from 22UH to 16UH.                                                               | 0.2     | DVT   |
| 11.  | Appication of CM3718 has overshoot issue during system on. | Charge control signal SHDN# to reference.             | 0.2  | 38   | 1.Add PQ31.                                                                                   | 0.2     | DVT   |
| 12.  | EMI issue of charger.                                      | EMI issue of charger.                                 | 0.3  | 35   | 1.Change PQ6 from A04407 to FDS6679.<br>Add the PR164 on GATE pin of PQ6.                     | 0.3     | PVT   |
| 13.  | EMI issue of CPU_CORE.                                     | EMI issue of CPU_CORE.                                | 0.3  | 40   | 1.Change PQ21 and PQ25 from IRF7821 to IRF7811A.<br>Add the 2200P on PC134 and PC135.         | 0.3     | PVT   |
| 14.  |                                                            |                                                       |      |      |                                                                                               |         |       |

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|                          |                            |       | Rev 0.3  |