### Table 5: Bill of Materials (BOM) Options In Common Parts

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>051-6680</td>
<td>SCH1SCHEM,MLB,PB15</td>
</tr>
<tr>
<td>1820-1679</td>
<td>PCB1PCBF,MLB,PB15</td>
</tr>
</tbody>
</table>

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**Content Overview**

1. **System Block Diagram**
2. **Power Block Diagram**
3. **PCB Notes and Holes**
4. **mPCI7447 MAXBUS Interface**
5. **mPCI7447 DATA/NC PINS/BOOTBANGER**
6. **CPU PLL and Configuration Straps**
7. **INTREPID MAXBUS and Boot Straps**
8. **INTREPID Memory Interface/Bootrom**
9. **DDR Memory MUXES**
10. **400Pin Stacked DDR SODIMM Connector**
11. **INTREPID AGP 4x/PCI Interfaces**
12. **INTREPID ENET/FW/UATA/EIDE Interfaces**
13. **INTREPID GPIOs/Serial/USB Interfaces/SSCG**
14. **INTREPID Power Rails/1.5V LDO**
15. **INTREPID Decoupling**
16. **USB 2.0 Interface (uPD720101)**
17. **Cardbus Interface (PCI1510)**
18. **M11 AGP Interface & Spread Spectrum**
19. **External TDMs (Dual TDMs - S1178)**
20. **M11 LVDS/TMDS/GPIO & GPU VCORE**
21. **M11 POWER**
22. **Title Page and Contents**
23. **Video Connectors - Inverter, DVI, LVDS, S-Video**
24. **Spidey, PWR Button, ALS**
25. **MM & Battery Current Sense Circuit**
26. **Internal Connectors-Airport, HDD, Odd**
27. **Fan Controller, 5W Modem, Serial Debug Sound/Left USB/BT/Bluetooth**
28. **Gigabit Ethernet Interface**
29. **Firewire PHY**
30. **Firewire Ports**
31. **PMU**
32. **Battery Charger and Connector**
33. **PBUS Supply, PMU Supply, SuperCap, Backup Battery**
34. **1.3V/5V System Power Supply**
35. **CPU Core Voltage Power Supply**
36. **1.5V/1.8V/2.5V SYS. Power Supplies**
37. **Signal Constraints (PG1) - DDR Mem/CLK**
38. **Signal Constraints (PG2) - CPU**
39. **Signal Constraints (PG3) - Digital/Diff**
40. **Signal Constraints (PG4) - Power Nets**
41. **Functional Testpoints**
42. **Revision History**
43-46. **Schematic CREF and Netlist Reports**

**Release Information**

- **Model**: SCHEM, MLB, PB15
- **Date**: 12/17/2004
- **Revision**: A
- **Part**: 051-6680

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Apple Computer Inc.

**Metric**

- **Model**: SCHEM, MLB, PB15
- **Part**: 051-6680
- **Revision**: A

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PCB SPECS

THICKNESS : 1.2 MM / 0.047 IN
1/2 OZ CU THICKNESS: 0.7 MILS
1.0 OZ CU THICKNESS: 1.4 MILS

IMPEDANCE : 50 OHMS +/- 10%
DIELECTRIC: FR-4
LAYER COUNT: 10
SIGNAL TRACE WIDTH: 4 MILS
SIGNAL TRACE SPACING: 4 MILS
PREPREG THICKNESS: 2-3 MILS

SEE PCB CAD FILES FOR MORE SPECIFIC INFO.

BOARD STACK-UP AND CONSTRUCTION

1. SIGNAL (1/2 OZ + COPPER PLATING)
2. PREPREG (3 MIL)
3. PREPREG (3 MIL)
4. CORE (3 MIL)
5. PREPREG (5 MIL)
6. CORE (5 MIL)
7. PREPREG (5 MIL)
8. CORE (3 MIL)
9. PREPREG (3 MIL)
10. PREPREG (3 MIL)

HOLE-VIA-20R10

BOARD HOLES
CHASSIS MOUNTS

ASICS HEATSINK MOUNTS
I/O AREA
DVI

MECH. HOLES

INVERTER

GROUND VIAS

APPLE COMPUTER INC.
BIT 0..15
BIT 16..31
BIT 32..47
BIT 48..63

SEL = LOW; HOST = B PORT; A PORT = 100OHM TO GND
SEL = HIGH; HOST = A PORT; B PORT = 100OHM TO GND
LONGEST PCI CLOCK ROUTE

AGP I/O REFERENCE

SERIES RESISTORS FOR BOOTROM CONTROL SIGNALS
PLACE CLOSE TO INTREPID SIDE
LEFT LIGHT SENSOR CONNECTOR

DEBUG HELPERS

USB Trackpad Connector

KEYBOARD PULLUPS

KEYBOARD/TPAD/SLEEP LED

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PLACE TERMINATORS NEAR INTREPID

PLACE SERIES R CLOSE TO INTERPID

PLACE PULLUP RESISTORS CLOSE TO INTREPID

ANY SEQUENCING REQUIREMENT BETWEEN +5V_NO_SLEEP AND +3V_SLEEP

I/O SUBSYSTEM - UATA100 REQUIRES PULL-UP TO 3.3V
12.8V PBUS SUPPLY

PMU SUPPLY

BACKUP BATTERY

12.8V REGULATOR

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TMDS/DVO SIGNAL CONSTRAINTS

ALL TMDS GROUP SIGNALS ROUTE AT LAYER 4 OR 7 AND HAVE SAME WIDTH SPACING RULE AS OTHER TMDS SIGNALS.

ALL THE DVO GROUP SIGNALS ROUTE AT LAYER 4 OR 7 AND ROUTE AS STANDARD 50 OHM SIGNALS AT 4 MILS.
### Digital Signals (cont'd)

<table>
<thead>
<tr>
<th>Signal Name</th>
<th>Description</th>
<th>Layer</th>
<th>Width</th>
<th>Spacing</th>
<th>Trace Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGP</td>
<td></td>
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<tr>
<td>PCI</td>
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<tr>
<td>EIDE</td>
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<td></td>
</tr>
<tr>
<td>OPTICAL</td>
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</table>

### Differential Signals

<table>
<thead>
<tr>
<th>Signal Name</th>
<th>Description</th>
<th>Layer</th>
<th>Width</th>
<th>Spacing</th>
<th>Trace Width</th>
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<tbody>
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</table>

**Zo** = 100 OHM

**Layers 2 or 9**

**Layers 4 or 7**

**Signal Constraints - Page 2**

**Notes of Precautionary Properties**

1. To prevent the occurrence of corona, use an additional layer of EMI shielding on the trace.
FUNCTIONAL TEST POINTS

The image contains a functional test points diagram for a device. The diagram is divided into sections for different components such as USB, BT USB, WIRELESS, OPTICAL, TRACKPAD, MODEM/SERIAL, KEYBOARD, BATTERY, FANS, ETHERNET, and FIREWIRE. Each section includes various test points with their corresponding pin numbers and test conditions.

For a more detailed analysis or specific information, it's recommended to refer to the diagram directly, as the text representation may not capture all the nuances and specific details present in the visual format.
## REVISION HISTORY

### EVT2 RELEASE

08/13/04 - 1. CHANGE EXT TMDS SWING RESISTORS TO 510 OHM (R869, R876), REMOVE SI_RESET PULL HIGH
2. CHANGE RGB SIGNAL IMPEDANCE (R341, R342, R346, R456, R454, R462)
3. ADD 2 RESISTORS (NO STUFF) BETWEEN FAN_PWM AND FAN_PWM_L OF FAN1 AND FAN2
4. CHANGE 2 CAPS (C233, C803) TO IMPROVE FEEDBACK PROTECTION AND PBUS CURRENT LIMIT CIRCUIT
5. MODIFY CPU_VCORE VID AND CPU_VCORE SETTING

08/16/04 - 1. MODIFY CPU_AVDD SETTING

08/20/04 - 1. ADD TRACKPAD POWER +5V_TPAD CONTROL CIRCUIT

09/01/04 - 1. CHANGE ALL POINTS INTO SMALL ONES

09/02/04 - 1. MODIFY CPU_VCORE VID AND CPU_VCORE SETTING AGAIN
2. MODIFY CPU_AVDD SETTING AGAIN
3. CHANGE INT TMDS DAMPING RESISTERS (R760-R767) TO 0 OHM

09/03/04 - 1. ADD MMM CIRCUIT, ARRANGE 2 INTREPID GPIOS FOR MM_FFIIRQ_L, MM_SRIRQ_L AND PULL UP RESISTORS R801, R802
2. ADD R803 BETWEEN DP6 AND DCDC_IN
3. ADD R804 AND SUPERCAP C692 ON +4_6V_BU
4. CHANGE TRACKPAD CONNECTOR J10 AND PIN OUT

09/06/04 - 1. ADD EMI SOLUTION L12

09/07/04 - 1. CHANGE TRACKPAD CONNECTOR PIN OUT

09/08/04 - 1. ADD BATTERY CURRENT SENSOR CIRCUIT

09/09/04 - 1. ADD EMI SOLUTION R816; ADD MMM RESET CIRCUIT

09/10/04 - 1. MODIFY FIREWIRE PORT0 POWER CIRCUIT
2. ADD NET FROM BATTERY CURRENT SENSOR CIRCUIT TO PMU
3. ADD CURRENT LIMITER R821 BETWEEN PMU0(629) AND U33
4. ADD PULL UP AND PULL DOWN RESISTORS FOR MMM SENSOR

### DVT RELEASE

09/27/04 - 1. ADD ST MMM SENSOR CIRCUIT

10/14/04 - 2. ADD FIREWIRE POWER PROTECT CIRCUIT

10/15/04 - 3. CHANGE EXT_TMDS TERMINAL RESISTERS AND V SWINING RESISTOR

10/22/04 - 4. CHANGE FAN CONTROLLER FROM ADT7460 TO ADT7467

11/02/04 - 5. CHANGE BBANG IC TO ATTINY2313

### PVT RELEASE

12/17/04 - 1. REMOVE ALL OPEN JUMPER

12/17/04 - 2. SCHEMATIC RELEASE FOR PRODUCTION