TS-7552
with 5 USB Ports

Push Switch

Reset Latch

POR

10/100 Ethernet

Strap Options

CLK_OUT   ICE mode (default high)
SPI_MISO  Low = Little Indian
RAM_CLK   High = SPI Host

Technologic Systems
Title: TS-7552 CPU, Ethernet, POR
Rev:      Designer  Sheet 1 of 7
Date:     Jan. 17, 2010
MODE and MODE2 states are limited when CPU_RESET is deasserted. Console always is enabled.

MODE and MODE2 states are limited when CPU_RESET is deasserted. Use 470 ohm resistor to GND to set low.

**FPGA with 5000 LUTs**

**Board ID bits**

<table>
<thead>
<tr>
<th>Pin 54</th>
<th>Pin 138</th>
<th>Pin 71</th>
<th>Pin 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-750D</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>WS-7551</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Module #3</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Module #4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**JTAG**

26-pin Header

**MOSI, MISO, CS#, BOOT_SPI_CLK, CONSOLE_TXD, CONSOLE_RXD, JTAG_DOUT, JTAG_CLK, JTAG_DIN, GPIO_A0, GPIO_A1, GPIO_A15, GPIO_A16, GPIO_A22, GPIO_A23, SCL, GND12, GND13, GND14, EN_SD_POWER**

**UN_RESET** (use edge: choose CPU Reset (Must be careful at start-up. It has a PD resistor - always keep low)

**JTAG** is limited when CPU_RESET is deasserted.

**Power Supply**

- All I/O lines are tri-stated during power cycling.
- Power Supplies can be sequenced in any order but must be monotonic.
- 1.8V max.

**Title:** TS-7552 FPGA, JTAG Header

**Date:** Jan. 17, 2010

**Rev:** Designer RLM Sheet 2 of 7
The DDR clock differential pair is the most critical trace on the entire board.

The data lines in each byte lane can be swapped on the RAM chip for optimal layout. Example: D0 and D9 can be swapped, but not D7 and D8.

The trace length of each data line (in a single byte lane) and the respective QS and DM signals must be matched to within 2.5 mm.

Address and Command signals can be grouped together, but must be isolated from data and M_DSQ and M_DM signals (by at least 5 mm). Or run them on different layer.
Title: TS-7552 Power Supplies

Rev: [Information not visible]
5V Power Supply (2.6 Amps)

Zenner knee at 31-34V
for 1 mA of current
13 Amps @ 45V

TPS5430 Enable
must be driven
by open drain

Force Boot
to SD card

USB pair should have
90 ohm impedance

USB4 Header

Mini PCIe
Socket

8V-28V
Power In

220 ohm @100MHz
10nF
8x11.5 mm
120 mils
493-1743-ND
5V --> 3.3V
Level shifter

CAN Transceiver

Temp Sensor