COM Connectors and Headers

COM1

DB9M

COM1 Header

COM2

Header

COM3

Header

2nd CAN Transceiver

14.3 MHz Osc.

5V --> 3.3V

Provides 5V Tolerance

Technologic Systems
Title: TS-8100 DB9, COM Headers
Rev: 2
Design: 3 of 10
SMSC USB Hub

USB Device Port for Win CE

External Dual USB

Internal USB Headers

Typical 3.3V current with all ports active is 288 mA (950 mW)

Test pins: must be as wired as shown

Can be used as inputs to enable port power or as inputs to sense over current

USB Hub

3.3V

Moles 47590-0001
or 47589-0001
DIO and LCD and SATA

**DIO Port**

**Warning:**
DIO are not 5V tolerant!
Only SPI_MISO is 5V tolerant

**LCD Port**

**Warning:**
LCD_D0 thru LCD_D7 are 5V tolerant
LCD_WR#, LCD_RS, and LCD_EN are not!

**4.3V Supply**

**SATA Port**

![Diagram of DIO, LCD, and SATA connections]

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**Technologic Systems**

Title: TS-8100 DIO, LCD, SATA

Rev:  Design Sheet 4 of 10

Aug. 7, 2010
**5V Power Supply (3.0 Amps)**

- **5V Power Supply**
  - 5V Regulator Bypass
    - DR125-220-R
      - 74 cents @ 800
      - 3.7A rms @ 85 deg.
      - 39 mohms
      - exact same size as CoilCraft MS1260
      - same footprint too
    - 30V @ VIN max
    - 65/80 mohms @ VIN = 6.5V
    - Q4 FET turns OFF when VIN > 5.6V
    - Then back ON when VIN < 5.6V

- **Warning:**
  - When Vin is between 5.4V and 6.0V
  - The 5V rail can fall below 4.5V
  - This means the SBC may reset

- **Input Power**
  - 4.7V to 5.4V
  - or
  - 6.0V to 30V

- **5V Power Supply Details**
  - 5V Regulator Bypass
    - TPS5430
      - 3.1A @ 85 deg.
      - 37 mohms
    - 86 cents @ 500

- **TPS5430 Enable**
  - 4.7V to 5.4V
  - or
  - GND

- **5V Regulator Bypass**
  - VIN to 5V
  - ENABL E to SW
  - BOOST to CASE_GND
  - Input : 5V rail will start to drop when Input voltage drops below 6.5V (5V supply falls out of regulation)
  - At 5.6V Input, the 5V rail could be as low as 4.3V
  - Then at around 5.5V, the 5V rail will "snap" back up due to the "Bypass circuit" turning on (5V rail could go as high as 5.4V)
  - Then below 5.5V input, it will track the input with a small voltage drop
Board ID = 7

RTC Battery

LEDs

Push Switch

Force Boot to SD card

SBC Primary
10/100 Ethernet

Technologic Systems  Aug. 7, 2010
Title: TS-8100 Ethernet, Battery, Board ID
Rev: Designer RLM Sheet 6 of 10
**Title:** TS-8100 PLD, PC/104 bus

**Rev:** Design_  Sheet 7 of 10

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**Inputs on Left**

- Address range 000-3FF
- Read and Write supported over address range 000-3FF
- Address range 100-3FF drives PC/104 bus
- Address range 000-0FF is internal PLD registers

**Warning:**

- Make sure PLD pins 39 and 88 are Inputs

**PLD**

- 8-bit and 16-bit I/O
- 16-bit addres s range 000-0FF
- Drive PC/104 bus

**Outputs on Right**

- Address range 100-3FF
- Address range 000-3FF

**DIO Outputs**

- DIO_A16 thru DIO_A21 and LCD_EN should default to logic zero
- DIO_B11 and DIO_B12 should default to logic '1'
- USB_RESET should default to a logic zero

**DIO Inputs**

- LCD_WR, LCD_RS and LCD_D0 thru LCD_D7 should default as Inputs
- DIO_PIN_1 thru DIO_PIN_15 should default as Inputs

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**PC/104**

- 64-pin Connector

**Outputs**

- Provides 5V tolerance

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**MAX240**

- 8-bit and 16-bit I/O
- Read and Write supported over address range 000-3FF
- Address range 100-3FF drives PC/104 bus
- Address range 000-0FF is internal PLD registers
16-bit A/D Converter

Four single-ended 0-10V Inputs
Two differential pairs 0-2V range
2nd Ethernet Port
(Optional)

SMSC Ethernet Port

POE RJ45
Two 100-pin Module Connectors

**Boot Strap**

<table>
<thead>
<tr>
<th>BUS_DIR</th>
<th>SBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NAND Flash</td>
</tr>
<tr>
<td>0</td>
<td>SD Card</td>
</tr>
</tbody>
</table>

**Notes:**
- BUS_DIR is used to select NAND Flash or SD Card.
- BUS_DIR is a 3.3V pull-up resistor on the SBC module.
- Use a 10K pull-up resistor to OFF_BD_RESET# to bring logic low.

The SBC can supply up to 400 mA of 3.3V power to the base board.