2.9V <-- 5V
Level shifter

RS-232 Transceiver

COM1 RS-485 Driver

COM2 RS-485 Driver

CAN1 Transceiver

COM2 RS-422 Receiver

TJA1040T has low power STBY mode
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**

**LCD PWM Filter**
Input Power

4.7V to 5.4V
or
6.0V to 30V

5V Power Supply (3.0 Amps)

Warning:

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

5V Regulator Bypass

Turns P-FET (Q4) on
when Vin < 5.5V nominal
Board ID = 6

RTC Battery

Force Boot to SD card

SBC
10/100 Ethernet

LEDs
on the TS-8100
pin 30 is PLD_24MHz
and Data Bus
MUXed Address
DIO_PIN_[01:15]
Input on Left
Output on Right
DIO_PIN_01
DIO_PIN_05
DIO_PIN_07
DIO_PIN_09
DIO_PIN_11
DIO_PIN_13
DIO_PIN_15
AD_00
AD_01
AD_02
AD_03
AD_04
AD_05
AD_07
AD_09
AD_10
AD_11
AD_12
AD_13
AD_14
AD_15
OF_BD_RESET#
PLD_14.3_MHZ
PLD_JTAG_TDO
EN_LCD_5V
PLD_JTAG_TMS
PLD_JTAG_TDI
ISA_WAIT#
CAN2_STBY
CAN1_STBY
AVR_RESET
EN_OSC
BUS_ALE#
AVR_MISO
AVR_MOSI
AVR_SCLK
EN_232
BUS_CS#
BUS_DIR
PLD_CLK
33 IO
2 IO
1 IO
8 IO
3 IO
2 IO
1 IO
74 IO
35 IO
27 IO
47 IO
76 IO
82 IO
50 IO
77 IO
42 IO
67 IO
66 IO
68 IO
70 IO
71 IO
21 IO
88VCCINT/IO
39VCCINT/IO
63VCCINT
13VCCINT
9VCCIO
31VCCIO
45VCCIO
59VCCIO
80VCCIO
94VCCIO
1.8V

EPM240G 1.8V static current
is 2mA typical
Transient turn-on is <50 mA

EPM240G

Outputs
DIO_A16 thru DIO_A21 and LCD_EN should default to logic zero
DIO_B11 and DIO_B12 should default to logic "1"
EN_232, EN_OSC, CAN1_STBY, and CAN2_STBY must default to a logic one

AVR SPI bus outputs:
AVR_MDI
AVR_SCLK
AVR_RESET
must initialize to zero

PC/104
64-pin Connector

PLD

Inputs on Left

Outputs on Right

Place C88 and C107 near U19
pin 50 is USB_RESET#
on the TS-8100

Provides 5V tolerance

Technologic Systems
Nov. 3, 2010
Title: TS-8160 PLD, PC/104 bus
Rev: Designer Sheet 7 of 10
AVR MicroController

Push Switch

Drive EN_BYPASS and EN_BUCK low to go into Sleep mode

Current drain should be < 150 uA

NV 3.3V Regulator for AVR

Push Switch can wake up AVR also
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 has a 12K pull-up resistor on the SBC module.
- Use a 12K ohm resistor on OFF_BD_RESET to strap logic low.
- OFF_BD_RESET is an output from the SBC used to reset all peripherals.

**TS-8160 base board requires < 50 mA of CPU_3.3V current**

**TS-8160 base board requires < 50 mA of 1.8V current transient at power on < 10 mA steady state**