24-pin Header
24 + 16 = 40-pin Header

- **4 ADC**
  - ADC lines in parallel with IN[9:0, A[10, IN1, DIO15
- **2 DC**
- **1 GND**
- **6 Latched Outputs (OUT7-OUT0)**
- **7 Buffered Inputs (IN7-IN0)**
- **3 DIO12, DIO13, DIO14**
- **1 SPI_FRAME**

**RS-232 Transceiver**

**COM1 Header**

**JTAG Header**

BLAST_EE_CS# is not used for booting directly from JMB Serial Flash.

**COM2 Header**

Logic "0" on "BLAST_BOOT#" signal indicates booting using TS-9444 2MB Flash.
### Lattice XP2 FPGA

**XP2 features**
- 1800 LUTs / 2 PLLs
- 146 18x18 Multipliers
- 9 blocks of 1Kx18 Block RAM

**TAG Memory**
- 79 bytes of Flash (XP2-5)
- Always available thru JTAG port

**SDM**
- Self Download Mode
  - When CFG0 = 1 then always uses SDM
  - Else it can inhibit Flash --> SRAM

### JTAG Flash programming
- The PROGRAM# pin should be high during JTAG Flash programming

### Make sure these signals are in GND (static)
- SDRAM_CLK
- FPGA_PLL

### CPU_RESET is the same as PWR_RST# (as in TS-7xxx)
- In previous products, it was the OR of LOW_VOLT#, RTC_CS#, and the WatchDog time-out

### Power Supplies can be sequenced in any order
- but must be monotonic
- All IO lines are th-staked during power cycling

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**Diagram of Lattice XP2 FPGA**

**Page 37 of Data Sheet (Hot Socketing)**

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**Title:** TS-7390 FPGA and Frame Buffer

**Date:** Oct. 7, 2008

**Rev:** **Designer:** **Sheet:** 5 of 8

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**Notes:**
- Set CONFIG_MODE to NONE
- This allows all pins to be used
- CFG0 = 1 then always uses SDM
- SDM = Self Download Mode
- CFG0 (as in TS-7xxx)
If SD card is not present then boot from NAND Flash
If JP1 is installed, attempt to boot from SD card
If JP1 not installed -- boot from NAND Flash

EN_LCD_3.3V is removed on Rev B board
Hysteretic Switching Power Supply

5V @ (2.5 Amps)

5-28V Power In

5.06V nominal
65/80 mohms @ Vgs = 4.5V
30V = VDS max
42/50 mohms @ Vgs = 10V

FB5 and FB7 removed on Rev B board

Zener knee at 29-32V for 1 mA of current
14 Amps @ 42V

2.2 uF @ 50V 10%
Murata GRM31CR71H225K

220 ohm @100MHz
50 milliohm DC
220 mohms

5V  @  (2.5 Amps)

Oct. 7, 2008