Open Issues for Rev. A

- Fix USB_OTG stubs
- RAM standby ever to be used?
- Separate 0.9V Vref?

TS-7400_V2 BOM

- CN9 and FB19 not pop
- R31 and 32 Not pop
- Full Size SD card socket is optional
- CAN and RS-232 transceivers are optional
- 5V Reg. is optional
- MX283 CPU OK for non-CAN versions
- D1 populated?

PWM outputs can be 24 MHz divided by 16-bit integer.
Allows clock 12 MHz and lower.
The MX286 ARM9 CPU integrates features such as UARTs, ADCs, SPI Boot, Audio, SD Card, and NAND/PWM functionality. This diagram provides a comprehensive view of the hardware components and their connections, along with detailed descriptions of each section.

- **UARTs, ADC**: Module for serial communication and analog-to-digital conversion.
- **Audio**: Interface for audio input and output.
- **SD Card**: Access to memory cards for data storage.
- **SPI Boot**: Boot mode for microcontrollers.
- **NAND, PWM**: NAND flash memory and Pulse Width Modulation outputs.
- **JTAG, I2C**: Support for debugging and serial communication protocols.

The diagram also includes connections to various ports such as CAN_RX1, CAN_TX1, HS_ADC, and SPI-related pins like SPI_CS#, SPI_M ISO, and SPI_CLK.

**Important Notes**:
- MX286 adds 4 CAN signals and a 12 MHz default boot clock.
- U3.D3 and U3.D4 are extra 2 data lines for SPI x4 read.
- Page 1311 of Data sheet provides details on Winbond chip references and clock division.

Additional details on JTAG and I2C interface are also included, emphasizing the reference design and EVK schematics used in the project.

**Technology Systems**
- Date: Dec. 31, 2013
- Title: TS-7400 V2 MX286 CPU
- Rev: A

All JTAG have 47K internal pull except RTCK.
Battery pin supplies current to charge battery

DCDC_BAT pin is power input for DCDC converters -- connect direct to battery

PSWITCH can be driven to 3.3V if a series 10K res is used.
Length of this trace is equal to (CLK + Data) lengths

Data = Average length of all data traces
Auto MDIX is supported and
Polarity Correction supported
Cortex M0

3.3V Reg. for M0

Switched 5V

Brown out Detect

Technologic Systems  Date Dec. 31, 2013
Title: TS-7400_V2 FPGA
Rev: A  Designer  Sheet 6 of 11
**Aux. 3.3V Reg**

- **Defaults**
  - 3.3V
  - ETM off
  - TEST off

**Boot Strap Bias Res.**

- Jumper forces SD Boot
- Select Boot NAND or SD only

**CPU BATT 3.7V**

- This Reg only required for extra low power mode
- FB19 not installed when this reg. is used
- Requires a positive pulse on PSWITCH
RTC, RS-232 and Analog

RTC and Temp. Sensor

RS-232 Tran.

Analog Inputs

Red/Green LEDs
Flash Memory

Micro SD Card Socket

Only one SD card can be installed!

Full Size SD Socket

NAND Flash

Technologic Systems
Title: TS-7400 V2 SD Card, NAND, LEDs
Rev: A
Date Dec. 31, 2013
Sheet 9 of 11
5V Power Supply (2000 mA)

8-28 VDC
Power Input

5V Power Barrel Conn.

CAN Tranceiver

TJA1040 allows low power 15 uA mode