

Jupiter (REV A)

Date: 1/28/15

Introduction:

The Jupiter board is a stripped down version of the MAD_Oreo door sensor board. This unit strips away the multiple functions of Oreo to provide a smaller footprint, capable of transmitting via ZigBee, whether or not a door/window is closed. This board is based on the EM3585 micro-controller, implemented as a discrete design, allowing direct interfacing with the antenna. Other components used on the board include an accelerometer (MMA8653FCR1), a Hall Effect Sensor (MRMS511H), a thermistor (NTCLE203), a tamper switch (KSU213WLFG) and a tri-color LED (LTST-C19FD1WT).

Hardware Description:

The Jupiter board is based on the EM3585 micro-controller operating at 24 MHz. The CPU interfaces directly to 1 switch, 1 tri-color LED, 1 Hall Effect Sensor, 1 Thermistor, and 1 accelerometer via I2C. A JTAG port is also available for programming/debugging the internal CPU Flash memory. The board is powered by a 2450 Coin Cell Battery, supplying +3V.

The pin assignments for the JTAG Port (J1):

Pin 1: VDD (3V)

Pin 2: JTDO

Pin 3: JRST

Pin 4: JTDI

Pin 5: GND

Pin 6: JTCK

Pin 7: JTMS

Pin 8: RESET

Pin 9: PTI_EN

Pin 10: PTI_DATA

Pin listings for GPIO lines on the EM357:

PA0: SI

PA1: SO

PA2: SCLK

PA3: SS

PA4: PTI_EN

PA5: PTI_DATA

PA6: DOOR_OUT ("0" if magnetic field applied, "1" if no magnetic field)

PA7: GREEN_LED ("1" to turn LED off, "0" to turn LED on)

PB0: THERM_VDC (Voltage output for thermistor divider circuit)

PB1: NC

PB2: NC

PB3: NC

PB4: READ_TAMPER ("1" when switch is depressed, "0" when switch is released)

PB5: NC

PB6: RED_LED ("1" to turn LED off, "0" to turn LED on)

PB7: BLUE_LED ("1" to turn LED off, "0" to turn LED on)

PC0: JRST

PC1: THERM_READ (Value from thermistor divider circuit)

PC2: JTDO

PC3: JTDI

PC4: JTMS

PC5: NC

PC6: NC

PC7: NC