

Saturn (RevA)

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Introduction:

The Saturn 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 a Hall Effect Sensor (MRMS511H), a thermistor (NTCLE203), a tamper switch (SPVM110200), a reset switch, and a tri-color LED (LTST-C19HE1WT).

Hardware Description:

The Jupiter board is based on the EM3585 micro-controller operating at 24 MHz. The CPU interfaces directly to 1 or 2 switches, 1 tri-color LED, 1 Hall Effect Sensor, and 1 Thermistor. 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. This device uses a ceramic balun in its TX/RX circuit.

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 EM3585:

PA0: NC

PA1: NC

PA2: NC

PA3: NC

PA4: PTI_EN

PA5: PTI_DATA

PA6: NC

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

PB5: Reset Switch

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: DOOR_OUT

PC7: NC