AND!XOR DEFCON 24 LED Badge

The LED AKA “Bling” badge is a mostly complete AND!XOR Badge minus a few components and the full software. But don’t worry. No DRM here! You can get up and running easy. Not all hardware is required, but certainly recommended.

RFM69W (433mhz)

- Radio mounted on back side. “HW” variant of the radio will work as well but software will not take advantage of it
- Ensure good solder joint from radio to RF path for antenna
- Radio requires the forehead 1uf/100nF caps and a solder bridge or 0 ohm resistor on rear.
- 0 ohm resistor must be able to handle high current and be high quality

SSD1306 OLED Display

- 0.96” 7 pin SPI
- Pin Order: GND, VDD, SCK, SDA, RES, DC, CS (right to left when mounted upside down on forehead)

Tilt

- SW200D ball tilt switch used
- Gold pin should be on top
- Bias tilt switch out from PCB (silver pin away from PCB, gold pin close) to keep display from rotating when on a flat surface

16 Mbit Flash

- S25FL216K 8-SOIC 208 mil (wide)
- Any standard NAND flash may work (700KB used by badge graphics)
- Mounted on right eyebrow
- 100nF cap adjacent to flash

Reset Button

- Any 4mm x 4mm tactile switch will work

Software

- Flash the badge over USB using DFU util and one of the .bin files
- Or
- Flash the badge over USB from Arduino 1.6.9 IDE

USB

- Simple through hole USB Type A
- 1.5k ohm 0805 resistor required for pull-up (without it bender will not be detected)
- 2 x 22 ohm resistors
- 1A diode SOD-323F / SC-90
- USB will require the AND!XOR bootloader to be flashed over USART
- Red LED to the right of “24” will flash when in DFU mode

Notes

- SSD1306 OLED Display reqd for full badge
- 16 Mbit NAND Flash reqd for full badge
- Radio not required
- CAPS are optional but impact stability of radio and flash
- If badge is flashed with DFU only Serial-over-USB will work
- If badge is flashed over USART, only Serial-over-USART will work
- DFU mode requires Maple drivers on Windows or udev rules to be added in Linux