FIPS 140-2 Tamper Detection to protect Fuze Technology

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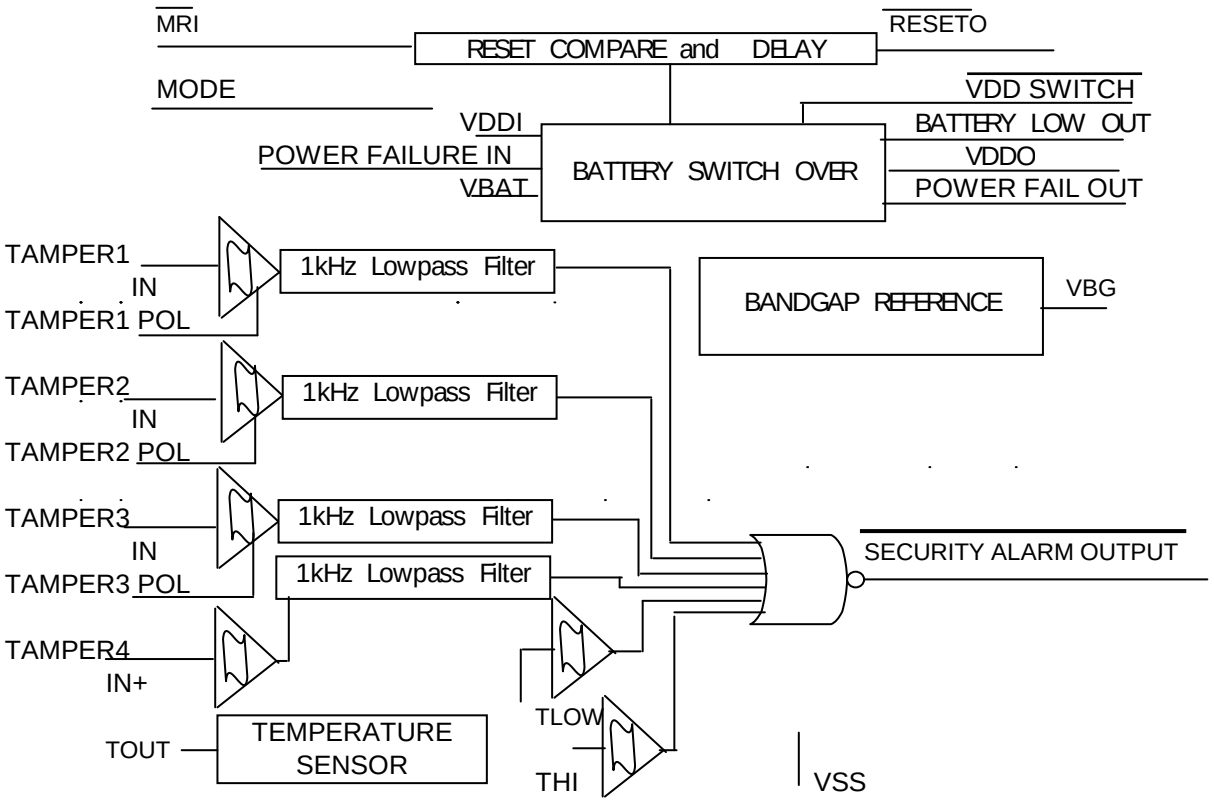
What is F.I.P.S.

- Federal Information Processing Standard
  - 5 Levels of Protection
  - Level 1 is Cryptography
  - Level 2 is Physical protection
  - Level 3 is Voltage and Reset protection
  - Level 4 is Temperature monitoring +Level 3
  - Level 5 is Current monitoring protection +Level 4

The Problem

- Fuze Technology needs protection
  - Sophisticated Analog and Digital Signal Processing techniques
  - Danger of reverse engineering
  - No battery drain
  - Tampering with Fuze ignition sequence
  - Tampering with Safe and Arm

MSI's MSFIPS provides Monitoring Functions

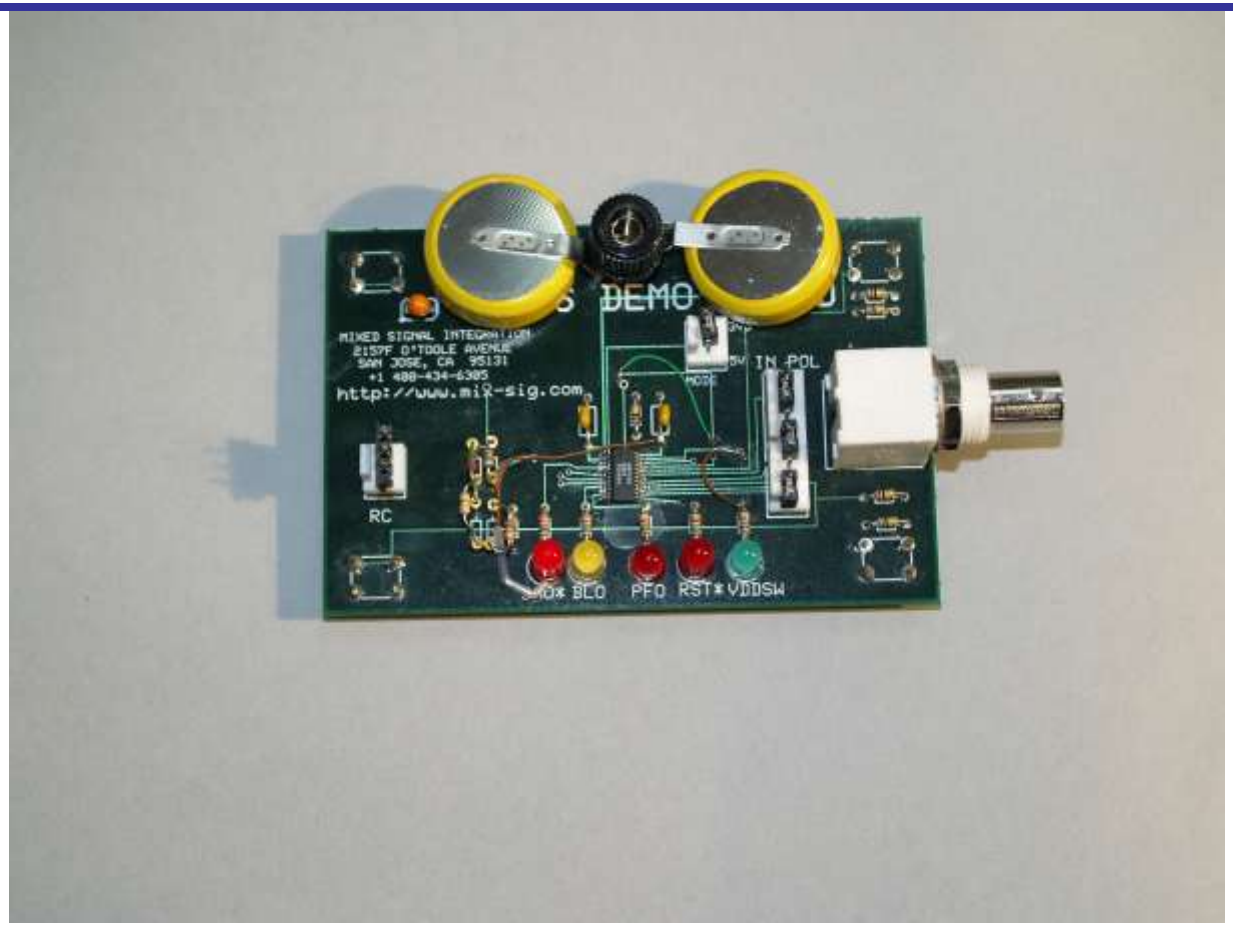


System Design

Life of Lithium Battery with no drain is ~10 years.

- To increase life, switches for access power the MSFIPS.
- Once case is opened, MSFIPS would monitor status.

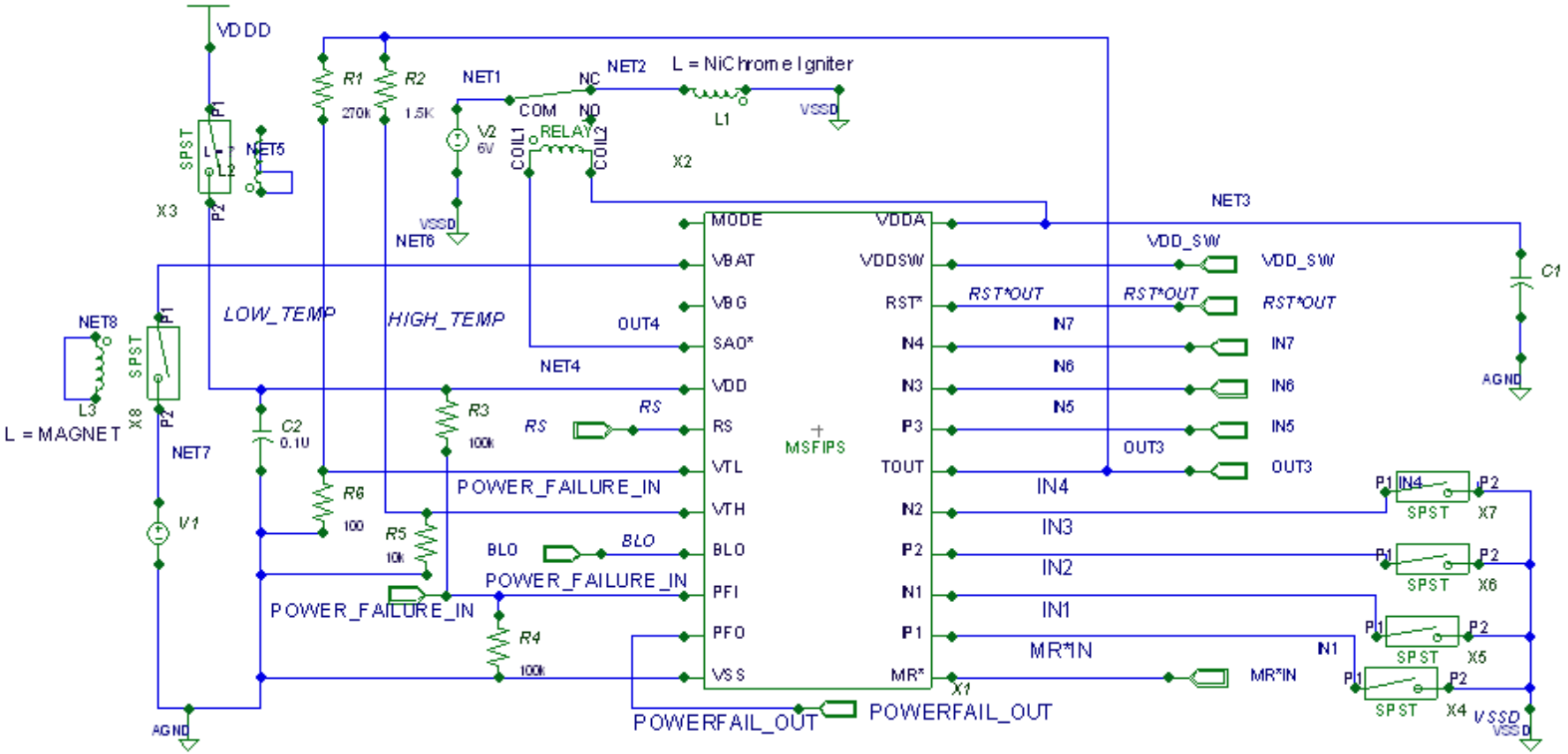
MSFIPS Evaluation Board



What if Triggered?

- SAO* goes low closing relay to igniter.
- 50 gauge NiChrome© wire requires only 500 mA current.
- Able to burn and damage components to prevent reverse engineering.

Simplified Schematic



Technical Issues

- Position of the tamper switches
  - Ensure they cannot be bypassed
- Selection of temperature range
  - Need to be set for range found in outdoors
- Ensuring destruction of fuze technology is complete.

Summary

MSFIPS provides monitor and protection to Fuzing technology

- Monitors tampering.
- Monitors typical hacking techniques
- Triggers destruction of fuze technology.