

FIPS 140-2 Tamper Detection to protect Fuze Technology

Douglas Cox, Trong Huynh,
John Ambrose

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by Douglas Cox
info@mix-sig.com

Mixed Signal Integration

2157F O'Toole Avenue

San Jose, CA 95131

+1 408-434-6305

www.mix-sig.com



**Mixed Signal
Integration**

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

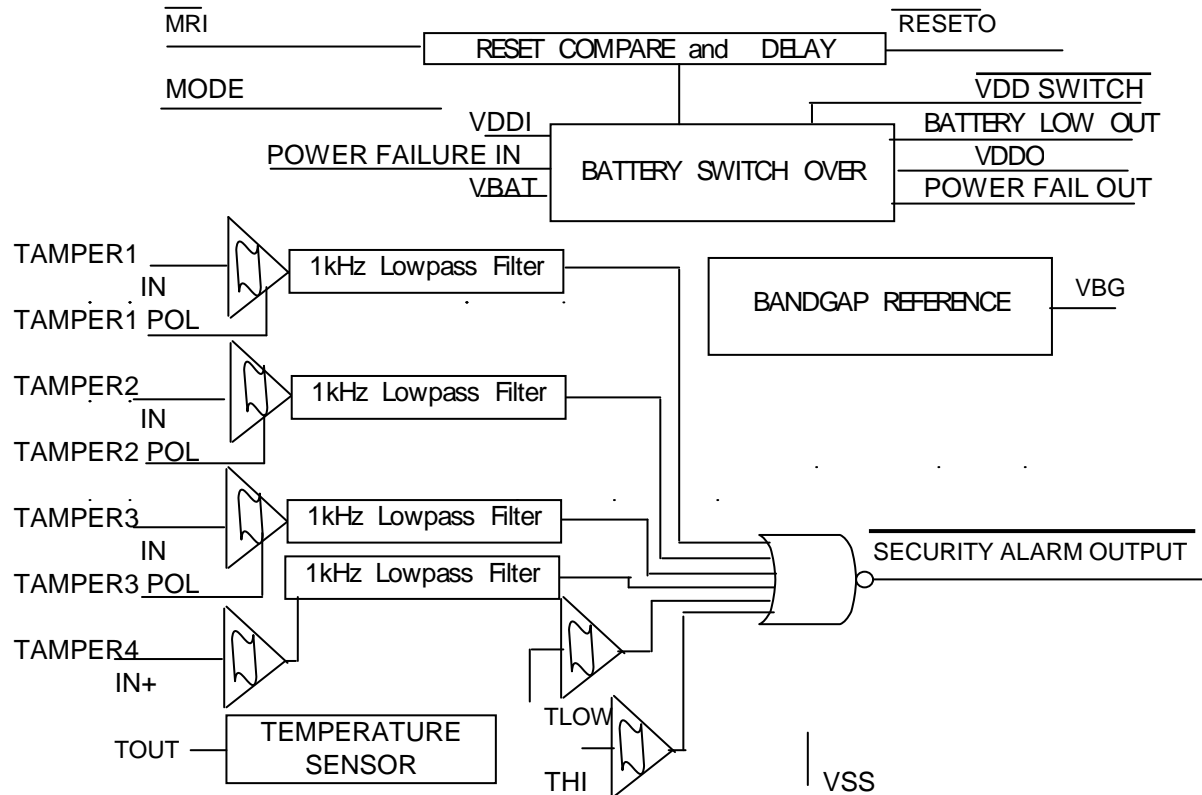


The Problem

- 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



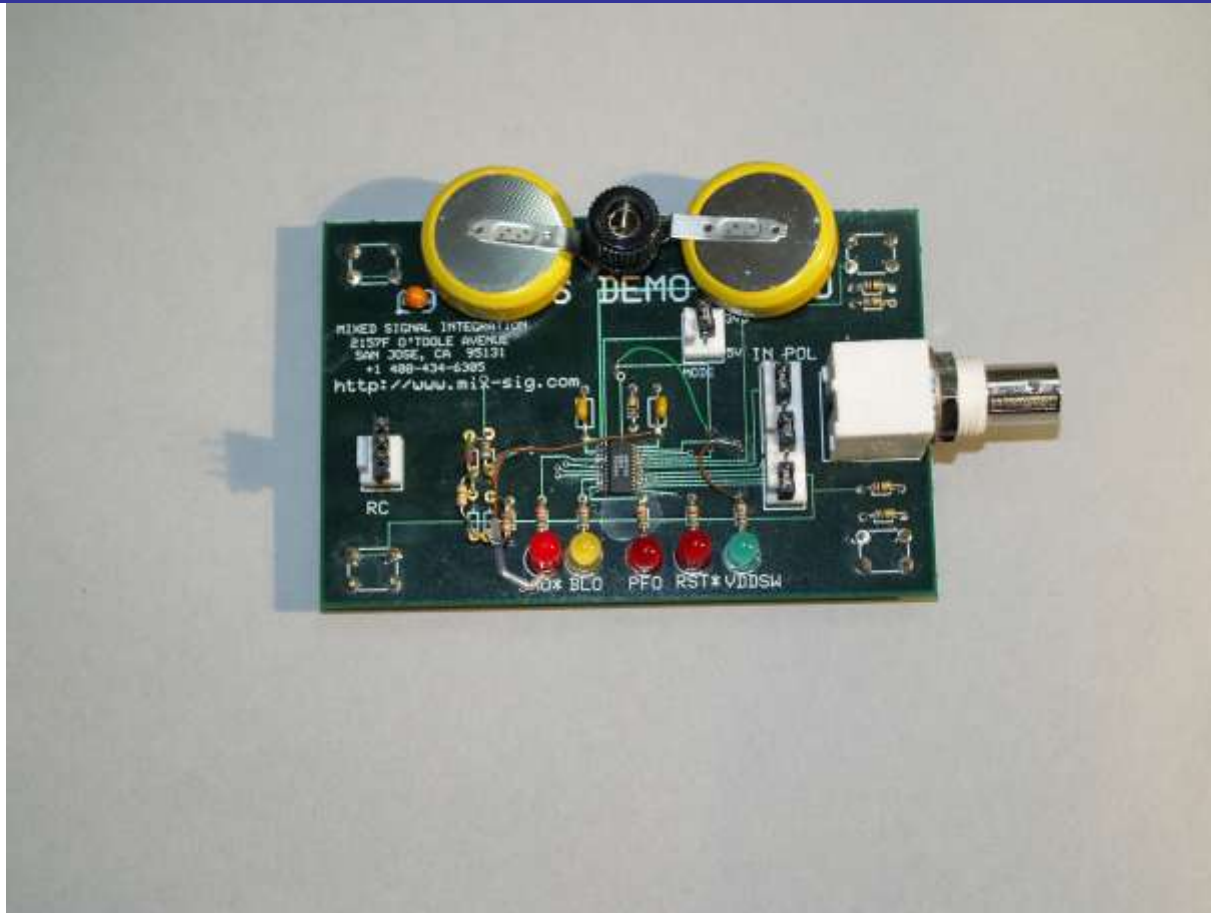
System Design

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

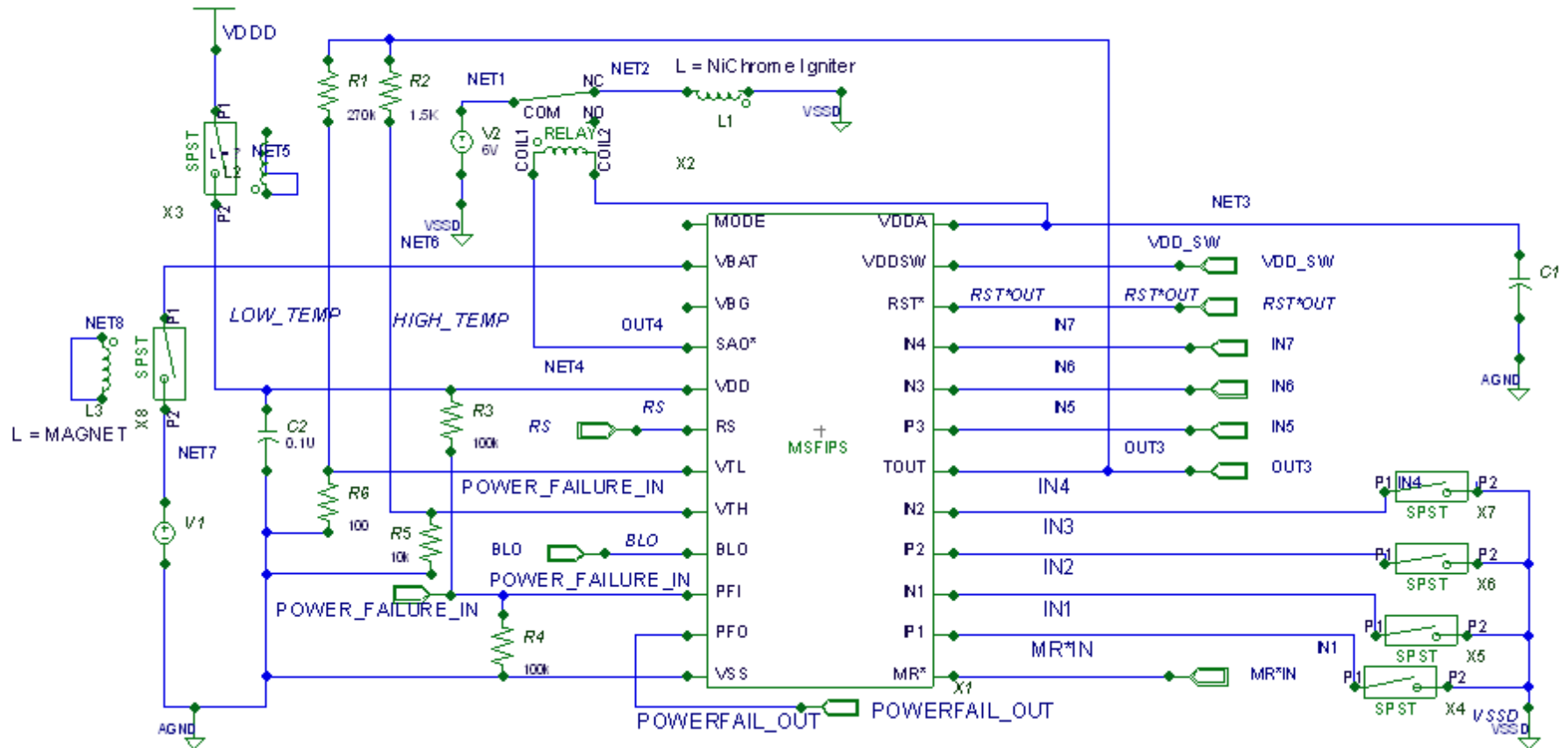


What if Triggered?

- 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.

