

SYIPHERMEDIA LIBRARY™ | SML™

# Circuit Camouflage Technology

Keep design secrets away from competitors and counterfeiters. Protect specialized security features & functions of customized ASICs from reverse engineering and cloning.

SypherMedia International, Inc. (SMI) is dedicated to the development of turnkey technology products and services that address today's security issues. SypherMedia Library (SML) is our camouflage technique applied to a standard cell silicon library. SML is a unique and innovative technology that when incorporated into an ASIC design, the silicon itself will resist reverse-engineering attacks. SML utilizes standard tools and design methodology, doesn't rely on coatings or shields, and provides a high return on investment for silicon manufacturers and those customers using this technology.

SMI has patented methods making reverse engineering of semiconductors virtually impossible and saving our Customers *billions* of dollars. With worldwide applications rights and over 40 granted US patents and numerous international patents, we have developed proprietary, trade secret techniques uniquely positioned to implement these designs. SMI offers training and licensing options, enabling your design team to implement SML circuit camouflage technology on your devices. SMI offers a range of courses in hardening silicon IP to reverse engineering, cloning, and tamper attacks

Figure 1

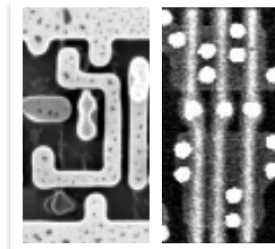
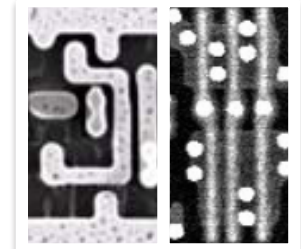


Figure 2



## SypherMedia Library™ stops image recognition

**Figure 1**, a normal AND2 gate, appears identical to **Figure 2**, a SML camouflage AND2 look-alike gate. A reverse engineer would mistakenly interpret both gates as normal AND2 gates, and will extract an incorrect netlist from the ASIC.

## Circuit Camouflage Overview

- SMI receives frontend and backend cell library files
- SMI designs Camo Cells and SmartFill Cells
- SMI delivers Camo frontend and backend cell library models
- Integrate Camo cell models into Customer design database
- Run design through Customer's tool flow to validate design
- Tape Out and fabricate Customer's design

## SypherMedia International has developed technologies specifically for Anti-Tamper, Intellectual Property protection and Cloning Prevention.

SMI's patented and trade secret protection methods make reverse engineering of semiconductors virtually impossible. Using our designs and techniques, chip makers keep sensitive and strategic aspects of custom designs secret from competitors and counterfeiters providing hardware protection to secure your intellectual property. We provide high tamper resistance from unauthorized modifications to the design and further increase reverse engineering difficulty by using Camo SmartFill to fill the entire chip with circuitry. By filling in empty space with realistic circuitry, Camo SmartFill also prevents attackers from inserting a Trojan circuit without destroying the underlying function of the ASIC. These techniques also secure and protect your intellectual property during the manufacturing process.

- Keeps designs secret from manufacturers, competitors, and counterfeiters
- Protects against state-of-the-art circuit extraction attacks
- Applicable to any CMOS process and any digital design
- Extends the security life of your product
- Low-risk technology that has been in practice for over 20 years
- Easily applied to any standard cell design flow
- Minimal impact to area, performance, and power consumption
- Camouflage of analog IP is also available
- Secures design during device manufacturing

*"The SypherMedia Library™ Circuit Camouflage is the most effective hardware intellectual property protection solution I have encountered."* **Michael Strizich** President, Analytical Solutions, Inc.

*"The SypherMedia Library™ Circuit Camouflage has been successfully integrated by Infineon Technologies into customer specific products."* Infineon Technologies.

### ABOUT SMI

SMI is dedicated to developing point-wise and turnkey technology products and services that address today's security issues. Founded in 2003 by a team of veteran media security and content protection executives and engineers, SMI has quickly emerged as the market leader for global technological security needs for operators, content protection companies, media outlets, consumer electronics companies and others. SMI is a full-service, California-based corporation dedicated to developing security technology products and services that address content and data protection.

#### We offer expertise in the areas of:

##### Unique and patented technologies for Hardware and Software Intellectual Property protection

Circuit Camouflage: Hardware based Standard Cell and Custom Cell library design styles

##### Security Architecture Systems design and development for Content Delivery Systems

Secure Data and Content Distribution for high value assets

##### Key Management & BlackBox Programming

Third Party security device programming for SoCs and modules on chip manufacturing lines

##### Consulting & Product Evaluation Services

Experienced team of security developers spanning a wide array of systems offering Architecture and Integration services



For more information regarding SypherMedia International and our technologies, please contact us at the following:

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Figure 3

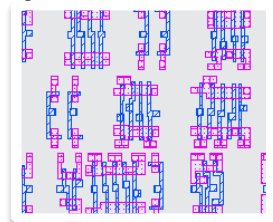
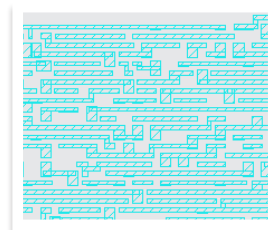
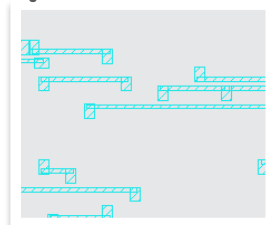


Figure 4



#### SypherMedia Library™ hides your critical IP

*Figure 3 shows how SML can hide ASIC gates among a dense network of camouflage circuitry. Figure 4 shows how SML can hide ASIC metal traces among a dense network of camouflage nets. These techniques increase the effort and the error rate of a reverse engineering attack.*

[www.smi.tv](http://www.smi.tv)