DPA Countermeasures

Protecting over 9 billion products a year, our DPA countermeasures include fundamental solutions and techniques for securing devices against side-channel attacks.

**Superior Protection**
- Robust countermeasures to protect against side-channel attacks
- Broad range of hardware, software and protocol approaches to secure tamper-resistant devices
- Cores validated to resist DPA attacks in billions of traces

**Improve Time-to-Market**
- Simplified device testing for power analysis vulnerabilities
- Training, evaluation services and analysis equipment
- Ready-to-use, DPA Resistant hardware cores and software libraries

**High Flexibility**
- Solutions can be optimized for performance, size, and security level
- Solutions integrate with standard cipher modes such as CBC, ECB, etc.
DPA Countermeasures

Overview
After discovering Simple Power Analysis (SPA) and Differential Power Analysis (DPA), we developed fundamental solutions and techniques for protecting devices against DPA and related side-channel attacks, along with supporting tools, programs, and services.

DPA countermeasures consist of a broad range of software, hardware, and protocol techniques that protect tamper-resistant devices from side-channel attacks in a number of ways including:

**Leakage reduction** – reducing information leaked into the side-channel to decrease signal-to-noise (S/N) ratios

**Amplitude and temporal noise** – adding amplitude or temporal noise into the side-channel to decrease S/N ratio

**Balanced hardware and software** – using hardware and software-based techniques to represent and process data in ways designed to minimize observable data-dependent variations within the side-channel

**Incorporating randomness** – representing cryptographic intermediates in forms that incorporate unpredictable information to reduce correlation between side-channels and the original intermediates

**Protocol-level countermeasures** – modifying cryptographic protocols using key update mechanisms to limit the amount of side-channel information available to an attacker for any particular key

Applications
- Aerospace and Defense
- Content Protection
- Mobile
- Storage
- Secure Communications
- Automotive
- Payments/Point-of-Sale
- Internet of Things

rambus.com/dpa