

Intel Case Processor Serial Number (PSN)



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Issue

Intel recently issued a new CPU (Pentium III) with a unique ID number that could be used for intellectual property protection, marketing, etc. The ID number can be configured to be visible or invisible to applications, including Web browsers.

Question 1: Should the chip be shipped with the ID number visible as the default?

Question 2: Should the ID number exist at all?

Outline

- Introduction
 - What is PSN ?
 - Who will identify what & whom ?
- Controversies
 - Privacy
 - Security
 - Inconvenience
- Overall Implications to Users
 - Network effect ahead
 - Who benefits from the PSN feature?

Introduction

- Embedded 96-bit code during chip fabrication
 - 32-bit: information about processor type
 - 64-bit: unique to each processor
- Not modifiable or erasable
- Configurable to be “on” or “off”
 - Intel’s PSN Control Utility (application level)
 - System BIOS
- Readable by networks & applications

Related Issues

- Security
 - Lack of user control: soft-switchable feature
 - No way of verifying true ID
- Inconvenience
 - A new computer means a new number
computer upgrade, exchanges, etc...
- Privacy
 - No legal protection for Internet privacy
 - “permanent cookie”



Lack of User Control

- C'T Magazine reports
 - Able to bypass Pentium III security mechanism & turn on the PSN without the user rebooting his/her system (Intel confirmed)
- Zero-Knowledge Systems
 - Able to turn on the PSN without owner's knowledge

Expert Opinion

“The software that queries the processor is not trusted. If a remote Web site queries a processor ID, it has no way of knowing whether the number it gets back is a real ID or a forged ID. Likewise, if a piece of software queries its processor’s ID, it has no way of knowing whether the number it gets back is the real ID or whether a patch in the operating system trapped the call and responded with a fake ID”.

Bruce Schneier
Cryptographer

Security

Intel's claim

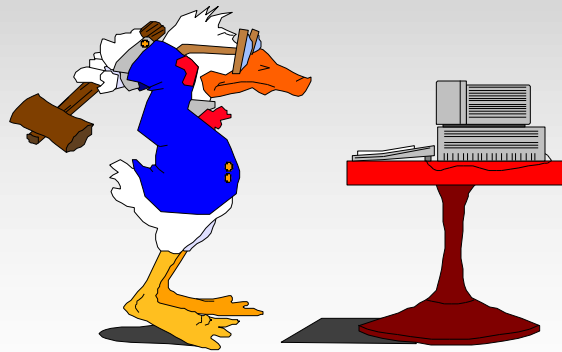
- PSN can be used to identify an individual engaging in e-commerce.

Reality

- PSN can only identify a specific machine, not a specific person.
- Anyone with an account at an online merchant could access that account from home, from the office, or from a friend's home.

User Inconvenience

- A new computer means a new identity
- What about processor update?
- Multiple computer users
- Computer sharing



Threats to Privacy

- No clear laws for privacy protection
 - consumers are vulnerable
- Asymmetric distribution of information
 - Advantages to direct marketers, data-mining companies, other e-commerce companies by tracking the path of Web surfers more easily
 - Information could be stored in databases, uniquely identified by PSN
 - Databases could be shared between companies or sold to other companies

Network Effect

- Intel can leverage their dominance to set the PSN as a de Facto Standard Global User Identification
- Wide adoption by companies in unfair information practices & software developers
- Limited choices for consumers
 - No access to web-sites/chat rooms without PSN
 - Participate in e-commerce with privacy at risk

Opposition

- Boycott of Pentium III
 - Electronic Privacy Information Center
 - Junkbusters Corporation
 - Privacy International
- A complaint filed to FTC
- Numerous on-line protests against the use of PSN



Overall Implications to Users

- Benefits electronic marketing forces at the expense of user's privacy
- Users are the victims of differential pricing
- Adds inconvenience for users in cases of computer sharing, hardware upgrades, etc...
- Does not prevent chip theft or over-clocking
- De Facto standard forces software companies and e-commerce sites to adopt the PSN feature

The End

Wrap-up Slide

Question 1: Should the chip be shipped with the ID number visible as the default?

Argument Used in Favor: It will increase net security.

Fact: It has been demonstrated that the ID number is “hackable” and thus, insecure by definition.

Conclusion: Chip should be shipped with the ID number in the “off” position.

Wrap-up Slide

Question 2: Should the ID number exist at all?

Argument Used in Favor: It will increase net security.

Fact: Privacy is a core American value . Security should NOT be implemented at the expense of user's privacy.

Conclusion: PSN should NOT exist at all.

**Thank you
for your attention**

On the Internet...

