



PRODUCT BRIEF

February 2002

Revision 1.0

PC21100 (SafeKeeper™) LPC-Based TCPA-Compliant Security Controller

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General Description

The PC21100 is a single-chip Trusted Platform Module (TPM) solution for PC security based on the TCPA standard. It is fully TCPA-compliant and offers system designers all the advantages of Trusted Computing as defined by the TCPA.

The PC21100 is a member of the National Semiconductor® TrustedI/O family, which provides TCPA-compliant security functions. The PC21100 includes a CompactRISC embedded RISC core for hidden execution of security code, flash memory-based secured information storage, SecureRun, a performance accelerator that supports cryptographic algorithms (SHA-1 and RSA), and a true RNG. In addition, the PC21100 integrates a variety of system functions, enabling efficient implementation of a highly secure trustworthy system.

The PC21100 provides desktop and mobile PC platforms with:

System integrity checks:

Ensures that no unauthorized changes have been made to the hardware or software

Authentication:

Provides assurances that the source of the data is valid and as expected

Data integrity checks:

Provides assurances that received data is exactly as sent

Secure storage:

Protects sensitive and confidential data, such as credit card numbers and passwords

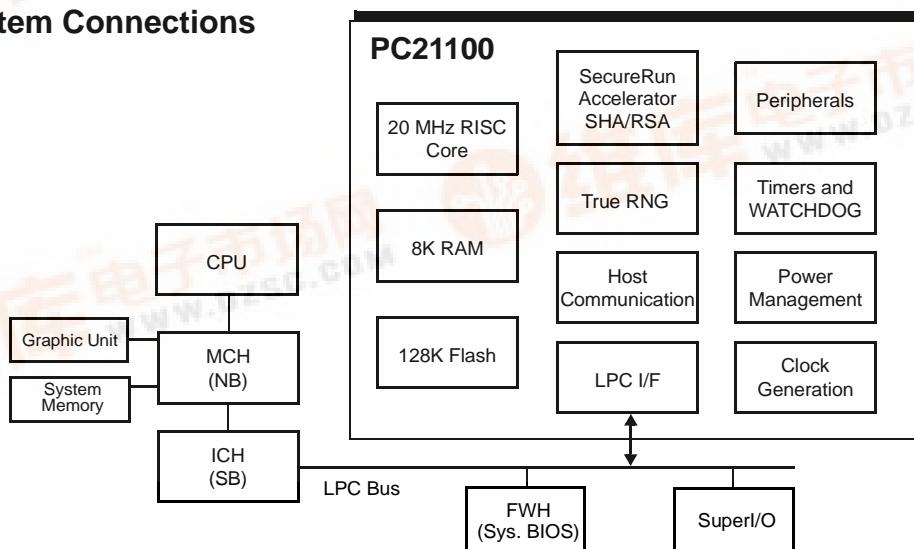
Trustworthiness:

Allows the user to trust authorized third parties, while proving that the user's PC is trustworthy and maintaining privacy

Outstanding Features

- TCPA 1.1 compliant
- PC01 and ACPI 2.0 compliant
- LPC based Host interface (based on Intel's LPC Interface Specification Revision 1.0) with optimized communication modes and Mobile System Support
 - Fast BIOS hash mode
 - BIOS mode
 - OS mode with low communication overhead
- 16-bit RISC core, with 2 Mbyte address space, and 20 MHz execution cycle
- Integrated 128 Kbyte secure flash memory and 8 Kbyte of RAM
- Embedded TCPA 1.1 firmware
- Full Host Software Stack implementation
- Storage for more than thirty 2048-bit RSA keys
- SHA-1 and RSA cryptographic accelerator
- Platform attachment indicator
- Secure GPIO port
- Low power consumption
- Extremely low idle current
- Hardware True-Random Number Generator
- 28-pin PLCC and 36-pin LLP packages

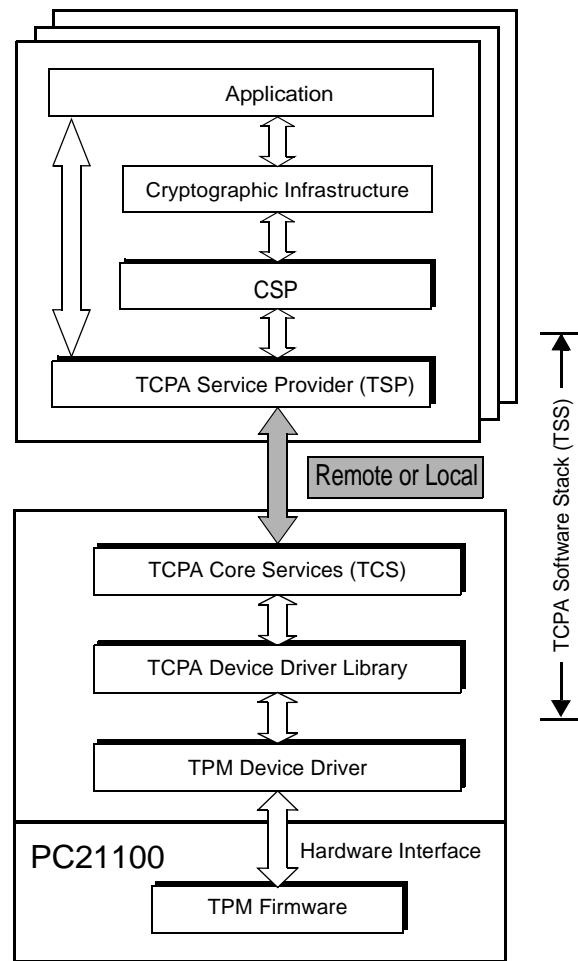
PC21100 System Connections



Software Package

- TPM Firmware, TCPA V1.1 compliant
 - Integrity Metrics (used for BIOS and OS authentication)
 - Random Number Generation service
 - Cryptographic Keys generation
 - Secure digital sign/verify
 - Secure storage
 - Hidden execution using internal memories (Flash and RAM)
- Full TCPA Software Stack implementation
 - Device drivers (BIOS & OS)
 - TDDL layer
 - TSS (TCS and TSP)
- PKCS#11 and CAPI Crypto-Service Providers (CSP)

Software Block Diagram



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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



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