

# 5 REASONS WHY AMD INFINITY GUARD MATTERS FOR SECURITY

## AT A GLANCE

AMD EPYC™ processors are designed with a sophisticated suite of security technologies called AMD Infinity Guard.<sup>1</sup> Built-in at the silicon level, AMD Infinity Guard helps your organization take control of security and decrease risks to your most important assets.

1

### MODERN APPROACH

#### *Modernize with a multilayered approach to security*

Implement security features designed to be highly resistant to complex attacks, from BIOS manipulation to in-memory return-oriented programming (ROP) and virtualized malicious hypervisor attacks. AMD Infinity Guard also complements many ecosystem software and hardware solutions.

2

### SECURITY FOUNDATION

#### *Establish a strong foundation for platform security*

Help mitigate malware with the AMD EPYC™ hardware “root of trust,” an embedded security checkpoint designed to validate the initial BIOS software boot without corruption

3

### HARDWARE-BASED ENCRYPTION

#### *Achieve full memory encryption*

Help protect against internal and physical attacks, such as certain cold boot attacks. With full memory encryption, data is encrypted even if memory is physically removed from the server.

4

### CONFIDENTIAL COMPUTING

#### *Help ensure privacy in virtualized environments*

Encrypt memory data for each virtual machine. This aids in protecting confidentiality of your data even if a malicious virtual machine finds a way into your virtual machine's memory.

5

### QUICK DEPLOYMENT

#### *Seamless x86 application support*

Take advantage of security features fast. AMD Infinity Guard is designed to work seamlessly with your x86 applications – without having to modify code.

*Continue reading for more technical detail*

## TECHNICAL DEEP DIVE

### #1 AMD SECURE PROCESSOR

- Authenticates the initial BIOS software boot without corruption.
- Provides cryptographic functionality for secure key generation and management in virtualized environments.

### #2 SECURE MEMORY ENCRYPTION

- Helps protect against attacks on the integrity of main memory (such as certain cold-boot attacks) because it encrypts the data.
- High-performance encryption engines integrated into the memory channels help speed performance.

### #3 AMD SHADOW STACK

- Maintains a record of return addresses, so a comparison can be made to ensure integrity.
- Helps guard against threat vectors such as ROP attacks.
- Enables Microsoft® hardware enforced stack protection.

### #4 SECURE ENCRYPTED VIRTUALIZATION (SEV)

- Only x86 server processor with full Secure Encrypted Virtualization.
- Encrypts each VM with one of up to 509 unique encryption keys known only to the AMD Secure Processor.
- Aids in protecting data confidentiality even if a malicious virtual machine (VM) accesses your VM's memory or a compromised hypervisor reaches into a guest VM.
- SEV-ES (Encrypted State) provides additional confidentiality and integrity layers for data in use.

### #5 SEV-SECURE NESTED PAGING (SEV-SNP)

- Adds strong memory integrity protection capabilities to help prevent malicious hypervisor-based attacks like data replay, memory re-mapping, and more in order to create an isolated execution environment.

# AMD DATA CENTER SOLUTIONS

***We are the undisputed market leader in CPU technology at a time when many businesses are modernizing their data centers.***

That's a responsibility we take seriously. It's why AMD is strengthening its commitment to drive data center innovation now and far into the future. Our solutions are backed by long-term roadmaps for continuous technological advancement and ongoing optimization of your IT investment.

AMD is the ideal partner today and tomorrow. We deliver more choice and outstanding value with future-ready solutions that offer high performance, easy scalability, and reinforced security features. Learn more about AMD EPYC™ for your data center.



<sup>1</sup>AMD Infinity Guard features vary by EPYC processor generations. Infinity Guard features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features.

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