ENGINEERED FOR INNOVATION

Security Processing Units
 Formula E is the world’s first racing series for fully electric, single-seater cars. These electric cars deliver immense acceleration and performance while pushing the development of e-mobility forward. For companies like BMW, Formula E is the ideal platform for the future of mobility and a technology laboratory regarding future generations of electrified and electric vehicles.

Fortinet SPUs also offer similar characteristics of immense acceleration, high performance, and future technologies. These key shared characteristics make Fortinet proud to be the official cybersecurity sponsor of BMW i Motorsport.
Three Families of Fortinet SPUs

**Network Processor 7 (NP7)**
- Network Processors operate in-line to deliver unmatched performance for network functions and hyperscale for stateful firewall functions.

**Content Processor 9 (CP9)**
- As a co-processor to the main CPU, Content Processors offload resource-intensive processing and drive content inspection to accelerate security functions.

**System-on-a-Chip 4 (SoC4)**
- The System-on-a-Chip consolidates network and content processing, delivering fast application identification, steering, and overlay performance.

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### Accelerate CPU Performance

Remove performance bottlenecks with dual-chip architecture.

- **CPU + GPU** = Accelerated Graphics Rendering
- **CPU + TPU** = Accelerated AI/ML in the Cloud
- **CPU + SPU** = Accelerated Networking & Security
The Fortinet family of SPU (Security Processors Unit) products significantly increases the speed, scale, and performance of Fortinet solutions through the measurement of the Security Compute Rating. This rating surpasses competitors with the highest Security Compute Ratings for the following benchmarks:

- Stateful Firewall Throughput
- IPsec VPN Performance
- Concurrent Sessions
- Sessions per Second

Security Compute Rating is a benchmark that compares the network and security performance of the Fortinet purpose-built ASIC-based NGFW with other NGFWs that fall in the same price range and are built with general-purpose CPUs.

NP7 only needs 30 watts compared to 17 CPUs consuming 2,380 watts. NP7 is 75x more expensive than NP7.

Instant torque provides unmatched acceleration.

Purpose built for power and efficiency.

Racing toward a cleaner future with electric power.
The seventh generation of Fortinet Network Processor, NP7, is engineered specifically for hyperscale applications. With large elephant flows, low latency, and high-scale connections per second, NP7 can operate independently from the CPU because it employs zero CPU-oriented forwarding.

NP7 runs at the network layer to speed functions that typically slow CPUs, such as IPv4, IPv6, unicast, and multicast. In addition, NP7 accelerates IPsec decryption, VXLAN termination, and address translation, while providing hardware logging and policy enforcement.

The Fortinet solutions enabled this financial customer to:

- Receive market data with the lowest required latency to avoid revenue loss
- Keep up with microbursts of traffic with high-speed packet forwarding
- Accelerate tens of millions of connections per second

NP7 Key Benefits

- Single-session flow with 100 Gbps throughput needed for high-bandwidth internet2 sites
- Millions of connections per second in hardware as required by high-demand ecommerce
- Single-digit microsecond latency as called for by a financial exchange

NP7 Advantage

<table>
<thead>
<tr>
<th>Specification</th>
<th>FortiGate 1800F</th>
<th>Industry Average*</th>
<th>Security Compute Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firewall</td>
<td>200 Gbps</td>
<td>15 Gbps</td>
<td>15x</td>
</tr>
<tr>
<td>IPsec VPN</td>
<td>75 Gbps</td>
<td>4.3 Gbps</td>
<td>17x</td>
</tr>
<tr>
<td>Concurrent Sessions</td>
<td>30M</td>
<td>2.73M</td>
<td>4x</td>
</tr>
<tr>
<td>Sessions per Second</td>
<td>500K</td>
<td>114K</td>
<td>11x</td>
</tr>
</tbody>
</table>

*Competitors are Palo Alto Networks, Check Point, and Cisco

NP7 Featured on: FortiGate 1800F
The ninth generation of Fortinet Content Processor, CP9, is designed for protection. CP9 works as a CPU co-processor, taking on resource-intensive security functions such as SSL/TLS decryption (including TLS1.3), IPS, and antivirus, so the CPU can perform other important tasks.

CP9 also performs fast inspection of real-time traffic for application identification, all without compromising user experience. In addition, it enables full network visibility, thus eliminating blind spots.

CP9 Key Benefits
- Manages internal and external risks while reducing complexity
- Protects applications while optimizing user experience
- Removes blind spots without minimizing performance degradation

Customer Use Case
Engineered for Large Education Networks
Fortinet solutions enabled this education customer to:
- Gain full visibility into clear-text and encrypted traffic flows to implement granular web policies
- Automatically detect and remediate malware
- Implement safety compliance measures such as the Children's Internet Protection Act (CIPA)

CP9 Advantage
NSS Labs NGFW 2019 – Performance % degradation with HTTPS Traffic
- Fortinet shows least performance impact on SSL inspection for NGFW

FortiGate 600E
- Manages internal and external risks while reducing complexity
- Protects applications while optimizing user experience
- Removes blind spots without minimizing performance degradation

CP9 Featured on:
- FortiGate 600E
- FortiASIC-CP9
- FortiASIC-CP9 1824QPF21
The fourth generation of the Fortinet System-on-a-Chip, SoC4, supports customer WAN edge transformation with the industry’s highest Security Compute Ratings. SoC4 consolidates both network and content processing functions on a single chip, delivering fast application identification, steering, and overlay performance.

SoC4 is a fully integrated set of security functions, including a Layer 7 firewall, on a fast and cost-effective chip. It meets the high-performance requirements for optimal end-user experience and secures branches deployed in SD-WAN environments.

### SoC4 Key Benefits

- Simplifies operations and automation
- Delivers high-performance application experience with low TCO
- Secures and accelerates multi-cloud connectivity

### SoC4 Advantage

- *Competitors are Palo Alto Networks, Check Point, Cisco Meraki, VMware VeloCloud, and Cisco Viptela*

### SoC4 Featured on:

- FortiGate 60F

### Specification FortiGate 60F (SoC4 ASIC)

<table>
<thead>
<tr>
<th>Security Function</th>
<th>Industry Average (Mbps)</th>
<th>Security Compute Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firewall</td>
<td>10 Gbps</td>
<td>0.65 Gbps</td>
</tr>
<tr>
<td>IPsec VPN</td>
<td>6.5 Gbps</td>
<td>0.38 Gbps</td>
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<tr>
<td>Threat Prevention</td>
<td>0.70 Gbps</td>
<td>0.18 Gbps</td>
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<tr>
<td>SSL Inspection</td>
<td>0.75 Gbps</td>
<td>0.065 Gbps</td>
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<tr>
<td>Concurrent Sessions</td>
<td>700,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

*Comparisons are Palo Alto Networks, Check Point, Cisco Meraki, VMware VeloCloud, and Cisco Viptela*

### Customer Use Case

**Engineered for Large Distributed Retail**

Fortinet Secure SD-WAN and SD-Branch solutions enabled this retailer to:

- Provide encrypted access to cloud-based applications
- Improve application performance to enhance the user experience
- Streamline operations to reduce cost and complexity
Fortinet continues to set industry records for performance with the highest Security Compute Ratings. With the security-driven networking framework, Fortinet delivers consistent security across every enterprise edge.

The Fortinet family of SPUs delivers best-of-breed security, scale, and performance across hyperscale data centers to SD-WAN-enabled branches and campus locations, all without sacrificing performance or user experience.

Learn more at www.fortinet.com.