



# 2U Network Appliance Delivers Next-gen Server Performance

5th Generation Intel Xeon Scalable processor-based rackmount server addresses the increasing needs of data centers and network infrastructure with advanced processing power and network throughput.

## OVERVIEW

Networking and communication have become indispensable elements in people's daily lives, making the world smaller by facilitating constant connectivity and faster progress. At the same time, the complexity of the underlying network architecture has expanded to support

an always-on world where mission-critical communications between business systems must happen quickly and securely, keeping data safe from bad actors.

The hardware to support these expanding systems has grown more powerful, with many functions split into specialized units. Some of those include enterprise network security, IoT security, advanced threat protection, unified threat management (UTM), firewall, VPN, content filtering, SDN/NFV/SD-WAN, vCPE/uCPE, remote access, data management, storage, application delivery, and analytics.

IBASE provides powerful modular network appliances that can be tailored to serve many purposes, allowing a standardized set of components to be mixed and matched to tackle specific application challenges in a rapidly evolving networking environment.

## **New Challenges**

Unrelenting technology advancements mean that modern network appliances must face increasing speed, capacity, and expansion requirements to tackle complex AI and IoT workloads while implementing failsafes that protect these systems in diverse distributed environments across public, private, and hybrid clouds.

## **Speed and Capacity**

Speed is the benchmark for computing prowess and reaches across processing, memory, storage, and networking. The processor must provide multitasking and parallel processing power to keep up with the ever-increasing demands of AI-enhanced networking applications. Network speed is also a consideration, and as data flows have increased, the need to get more bandwidth has become critical. Hyperscale data centers already use 100G, while enterprises are catching up with 10G rollouts. Capacity must also be adaptable, as a storage server needs more capacity than a server designed to deliver applications where speed is the key rather than storage. The latest Intel Xeon processors provide an ideal balance of multitasking and parallel processing capacity for modern applications.

## **AI Workloads**

The new kid in town is AI, and many organizations have embraced its potential to enhance security, optimize the network, and automate configuration. Enhanced security is possible through anomaly detection that identifies unusual network traffic patterns, threat intelligence that analyzes emerging threats and helps appliances adapt defenses, and intrusion detection that prevents unauthorized access. AI can also intelligently route traffic to minimize congestion and maximize performance while monitoring equipment to detect when it's likely

to fail, enabling proactive maintenance and minimizing downtime. With all the data collected by AI, many manual processes can be eliminated, and the AI can automatically suggest optimal network configurations that enforce network policies, ensure compliance, and reduce human error.

## **Expandable**

Expansion is a key component to flexible systems, helping to make parts replacements and upgrades quick and simple. The trend across the computer industry is towards modularization. In much the same way that standardized expansion slots made it possible to upgrade commercial computers by opening them up and putting in a new card, modularization takes that one step further and one step easier. Instead of opening up the system to add new cards, modules are located on the front panel and upgraded or switched around as needed without removing the server from the rack. The modules can provide different functions to a standardized barebones base server to meet quickly changing application requirements.

## **Failsafes**

Reliability is the cornerstone of the network. Sometimes, the impact of one failure can cascade down the network, causing extended downtime and cost. It is critical to take steps at every level to ensure that a catastrophic failure in one part of the system doesn't have a knock-on effect. This approach gives the network engineers more breathing room to get faulty systems working again. With network ports being the most prolific connection within networks, it is imperative to have a fallback mechanism to ensure the single point of failure at the network port doesn't affect other systems. The ideal is to have a failsafe on a network port pair to bypass the faulty port and keep network traffic flowing.

## **New Technologies to Face Challenges**

With these challenges and precautions in mind, what new technologies are available to face them?

### **■ 5th Gen Intel® Xeon® and DDR5**

The INA7605 2U firewall server supports dual 5th Gen (Emerald Rapids) Intel® Xeon® Scalable Processors, providing unmatched computational power and efficiency. The 5th Gen Intel® Xeon® processors are optimized for AI computational loads, with built-in AI accelerators on every core and an Intel AI software suite of open-source frameworks and tools providing out-of-the-box performance and E2E productivity with over 300

validated models.

Processing capacity is further enhanced with up to 1TB of DDR5 (16x DDR5 RDIMM, up to 512GB each). DDR5 provides double the throughput of DDR4 and enables higher capacities, allowing more to be installed in the limited space within the server, optimizing the use of server rack space.

### ■ **PCIe x16 expansion**

The INA7605 2U firewall server supports a single PCIe x16 GPU card, a powerful tool for accelerating AI workloads. Its high-speed data transfer rate, parallel processing capabilities, and dedicated memory make it ideal for handling large datasets and complex AI models. The GPU's specialized hardware, such as CUDA cores and Tensor Cores, is optimized for AI-related calculations, providing significant performance boosts.

Popular deep learning frameworks are well-suited for GPUs, making it easy to leverage their power. This combination of factors makes the PCIe x16 port ideal for adding complex AI processing power for advanced threat detection and deep network capacity analysis.

### ■ **Modular**

The INA7605 2U firewall server is easy to scale, customize, and maintain with expansion modules. The INA7605 has two SKUs that provide the same core processing power and features but with a different balance of network ports and storage capacity. Eight module slots support either NIC or 2.5" storage modules.

Network flexibility is maximized with options for up to 8x NIC modules, allowing up to 64 GbE ports. Storage options are also expansive with up to 8x 2.5" swappable HDD bays, and system management is streamlined through an optional IPMI 2.0 module.

### ■ **LAN bypass**

LAN bypass is a hardware device that serves as a fail-safe access port for an in-line monitoring appliance, such as an IPS, firewall, WAN optimization device, or UTM system. Traffic cannot flow through the link if the appliance loses power, experiences a software failure, or is removed, so the LAN bypass mitigates this problem by automatically diverting traffic around the appliance whenever it cannot pass traffic.

The LAN bypass feature ensures that network traffic continues to flow even when the

in-line appliance fails. System developers can choose to set this option in the BIOS for greater flexibility for upgrades or modifications, or they can hardwire it and prevent tampering by using the hardware jumper to lock the setting.



### Features of INA7605 2U Rackmount Network Appliance:

- Dual 5th Gen Intel® Xeon® Scalable Processors
- 16x DDR5 RDIMM, Max. 1,024GB
- Max. 8x NIC modules; Max. 64 GbE ports (Optional)
- Max. 8x 2.5" HDD Swappable
- Optional IPMI 2.0 module
- 1x PCI-E (x16) expansion slot
- 2x 1600-watt redundant power supply

### Conclusion

With the 5th Gen Intel® Xeon® Scalable Processors-based INA7605 networking solution, community operators can gain near-real-time insights to help create smart, fast, and safe environments. The INA7605 provides next-generation technology capabilities to tackle processing-intensive AI and IoT workloads, and increased data and speed requirements.

### About IBASE

IBASE Technology (TPEX: 8050) specializes in the design and manufacture of robust industrial PC products, delivering high-quality products and excellent service since its establishment in 2000. We carry out manufacturing and quality control at our own facilities in Taiwan that are ISO 9001, ISO 13485, ISO 14001, and ISO 27001 certified. Current product offerings comprise x86- and RISC-based industrial motherboards, embedded

systems, edge AI computers, panel PCs, digital signage players, and network appliances for applications in the AIoT, automation, smart retail, transportation, networking, and medical sectors. We also offer ODM customization services, tailoring products to meet customers' specific requirements. For more information, please visit [www.ibase.com.tw](http://www.ibase.com.tw).

IBASE is a Titanium member of the [Intel® Partner Alliance](#) that offers exclusive resources for AI, cloud, high performance computing, and other solution areas to help plan, build, and deliver more customer value. As an Intel-recognized top-tier partner, IBASE works together with Intel and the ecosystem to deliver the most advanced products and solutions to our customers.



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## CONTACT US

### **IBASE Technology Inc.**

Bldg. F, 15F-1, No. 3, Yuan Qu Street, Nangang, Taipei 11503, Taiwan

Tel: +886-2-2655-7588

[sales@ibase.com.tw](mailto:sales@ibase.com.tw)

[www.ibase.com.tw](http://www.ibase.com.tw)