

Trossen Uses Intel Technology for Powerful AI / ML Workstation

TOTL Workstation is purpose-built and streamlined for AI / ML workloads; system uses Intel® Core™ Ultra 9 Processor 285K



Developing AI and machine language (ML) models requires an investment in extreme compute power. Many companies have turned to the cloud where they can access this compute power, along with the storage and networking capabilities required by these workloads.

But some models can't be developed or used in the cloud because they need low latency, data privacy, fixed system costs or cybersecurity. These needs are driving the market for standalone AI / ML workstations. According to its analyst insight report titled "Why AI Workstations Are Blossoming: Q3 2024," Futurum reports that AI / ML workstations had sales of \$1.9 Billion in Q3 2024, which grew 7.8% quarter-on-quarter¹.



One remaining challenge that stands in the way of more widespread adoption of these systems is finding a workstation that is made specifically for the task. Many of the systems promoted on the market are consumer-grade systems designed originally for gaming or are multipurpose enterprise tower servers. Too many of these workstations come with restrictive BIOS settings, poor Linux compatibility, bloated software environments, and limited or costly GPU options.

Trossen Robotics, an Intel® Industry Solution Builders Partner, developed its TOTL Workstation to provide a purpose-built AI / ML solution that's ready to work out of the box.

TOTL Workstation: Built for AI / ML Workflows

The Trossen Robotics TOTL Workstation is a Linux-native, high-performance desktop PC engineered to meet the specific needs of AI / ML researchers, robotics developers, and technical institutions.

From the BIOS to the operating system – and all other systems and software – the TOTL Workstation supports these use cases out-of-the-box without requiring reconfiguration to change settings or eliminate non-essential software.

Streamlining the system configuration is important because it reduces the time that engineers need to spend wrestling with a full stack of dependencies, including hardware drivers, communication standards, software libraries, frameworks, and data sets. Each of these layers comes with its own quirks and frequent updates, and one small change in a driver or library can ripple through and break other components.

For a robotic ML engineer, that often means unproductive time spent digging through documentation, troubleshooting compatibility issues, and forcing multiple tools to cooperate.

¹<https://futurumgroup.com/press-release/why-ai-workstations-are-blossoming-q3-2024/>



Figure 1. Front/side view of TOTL Workstation.

This is even an issue higher up the stack, where frameworks like PyTorch, CUDA, and OpenCV need to be installed, but also constantly aligned, stabilized, and optimized for the hardware in use. That's before the actual research can even begin.

The TOTL Workstation was built to eliminate this wasted effort. By doing the heavy lifting up front like integrating drivers, validating libraries, and preloading essential tools, the system delivers a stable, Linux-native platform that's ready for AI/ML projects.

For many labs and startups, that time savings is the difference between meeting a grant deadline, submitting a white paper, or proving a prototype. By streamlining the technical groundwork, the TOTL Workstation lets researchers focus on what matters most: advancing robotics and AI itself.

Flexible Deployment Options

The TOTL Workstation can be used as either a high-performance AI PC or an edge compute node. It's designed to locally run machine learning workloads, computer vision pipelines, and embodied AI models while directly interfacing with sensors, cameras, and robotic hardware. As a local edge compute node, the workstation is capable of model training, inference, and real-time control of physical systems such as robotic arms and sensors.

By combining GPU-accelerated training and inference with real-time control and data collection, it enables edge deployment without reliance on the cloud or external servers, making it ideal for research labs, robotics platforms, and field-deployed automation systems.

Standing for "Top of the Line," the TOTL Workstation includes:

- Enterprise-grade GPU delivering cost-effective performance for ML workloads like computer vision, training, and robotics. The TOTL Workstation features ML-optimized GPU driver integration that eliminates the need for complex, manual driver setups.
- Native Linux compatibility with Ubuntu validation and preloaded with Ubuntu 24.04 with no vendor lock-in.
- Enterprise-class networking and I/O, including PCIe 5.0, 10GbE networking and Thunderbolt 4.
- Built-in 360mm liquid cooling.
- ML tools including CUDA, PyTorch, Hugging Face LeRobot, Trossen AI control software, and more.

TOTL is Powered by Intel Technology

Trossen worked closely with Intel technology to maximize the performance of the TOTL Workstation. The CPU specified for the system is the Intel® Core™ Ultra 9 Processor 285K, a 24-core CPU that supports AI / ML workflows, including training, inference, development, and simulation.

One reason that Trossen chose this CPU was its Ubuntu driver support, which is well-established and contributes to Trossen's goal of developing a streamlined system.

The Intel Core Ultra 9 Processor 285K has a hybrid architecture that balances high processing performance with power efficiency. The processor features eight powerful Performance-cores (P-cores) and 16 Efficient-cores (E-cores). This architecture delivers clock speeds of up to 5.7 GHz with base power draw of 125W (250W when Intel® Turbo Boost Max is engaged). The result is outstanding performance per watt and power consumption that scales up and down with workload.

The CPU also has up to 36 MB of built-in Intel® Smart Cache and supports up to 256 Gbps of the industry's fastest DDR5-6400 memory.

Other important technologies include:

Embedded Intel® Wi-Fi 7 Chipset: This technology delivers the latest Wi-Fi 7 standard for ultra-high-speed wireless connectivity. This is used by the TOTL Workstation for environments where wired Ethernet is unavailable or for quick field deployment. Wi-Fi 7 offers up to 46 Gbps of throughput, delivering high-capacity and high-reliability connectivity for remote data sync, model pushing, or lightweight control.

Thunderbolt™ 4 Support: This high-speed device connectivity standard provides up to 40 Gbps of data transfer and support for 4K and 8K displays and up to 100W of power all through a USB-C connector. The technology enables fast, low-latency connections to external storage or additional compute/GPU peripherals.

TOTL Workstation Use Cases

The performance and unique feature set of the TOTL Workstation makes it a great solution for a wide range of applications. Some of the most prominent applications include:

Academic Research - Universities and labs are advancing machine learning and embodied AI technologies and models. They rely on Linux-ready hardware to accelerate research in robotics, perception, and applied real-world AI.

AI Startups in Robotics and Autonomy - Startup companies are developing core models for control, robotics, and real-time decision-making. They can use the TOTL Workstation to iterate quickly, prove out prototypes, and reduce the need for heavy infrastructure.

Data Collection and Annotation – These workflows produce large, high-quality datasets for training, labeling, or licensing. They benefit from the system's strong networking, GPU acceleration, and multi-sensor integration to streamline data pipelines and edge processing.

Conclusion

The market for AI / ML workstations is growing thanks to strong underlying demand for AI / ML solutions and the availability of more cost-effective solutions. At the same time, system demand is driven by companies moving away from cloud-based compute that delivers slow latency, high costs, and limited cybersecurity protection.

But still, too many companies buy consumer-grade systems or enterprise tower computers that are not optimized for these advanced applications. The result is complex reconfiguration and sub-optimal performance.

Trossen Robotics is changing these market dynamics with the TOTL Workstation which is custom-designed to be plug-and-play for a wide range of AI / ML training, inferencing and other tasks. The TOTL Workstation leverages Intel Core Ultra 9 Processor 285K for performance and support of software and other necessary technologies, including Wi-Fi 7, Thunderbolt 4 and others. Trossen and Intel have re-imagined the AI / ML workstation to a streamlined and focused system poised to meet the needs of challenging workflows.

Learn More

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