



NVIDIA RTX SERVER FOR VIRTUAL
WORKSTATION WITH TERADICI
CLOUD ACCESS ON ASUS ESC4000 G4
DESIGN GUIDE
VERSION 1.0



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Chapter 1.

SOLUTION OVERVIEW

NVIDIA RTX Server™ is a validated combination of qualified partner systems hosting NVIDIA® Quadro® RTX™ 6000 or RTX 8000 GPUs and Quadro® Virtual Data Center Workstation (Quadro vDWS) software to provide virtualized design workstations where artists and designers can create professional, photorealistic images for the Media & Entertainment, Architecture, Engineering & Construction (AEC), and Manufacturing & Design industries.

1.1 RTX SERVER OVERVIEW

In today's media rich world, there is a massive surge of content production. Designers and artists are looking for ways to create faster and more efficiently anywhere on the device of their choice. IT looks to enable this in a secure, easily managed, cost-effective and flexible way. NVIDIA RTX Server is an ideal platform to increase user productivity while increasing data center utilization and reducing cost.

The audience for this document includes, but is not limited to, sales engineers, field consultants, professional services, partner engineers, and IT Managers who wish to take advantage of a solution that is purpose built and optimized to deliver a virtualized design and creation workflow.

Chapter 2.

SOLUTION DETAIL

NVIDIA RTX Server for Virtual Workstation with Teradici Cloud Access on ASUS ESC4000 G4 is a reference design comprised of (a) NVIDIA Quadro RTX 8000 or RTX 6000 graphics cards; (b) VMware vSphere Hypervisor with vCenter; (c) NVIDIA Quadro vDWS software; (d) ASUS ESC4000 G4 Server; (e) ASUS VivoMini VC66-C 2018; (f) Teradici Cloud Access Software with PCoIP® Ultra. This validated solution provides unprecedented graphics performance in a virtualized environment on professional applications at a fraction of the cost, space, and power consumption to individual local workstations.

NVIDIA Quadro RTX 8000 and RTX 6000, powered by the NVIDIA Turing™ architecture and the NVIDIA RTX platform, brings the most significant advancement in computer graphics in over a decade to professional workflows. Designers and artists can now wield the power of hardware-accelerated ray tracing, deep learning, and advanced shading to dramatically boost productivity and create amazing content faster than ever before.

NVIDIA Quadro vDWS enables delivery of the most powerful virtual workstations from the data center or cloud to any device, anywhere. It lets IT virtualize any application from the data center with a native workstation user experience, eliminate constrained workflows, and flexibly scale GPU resources to run multiple workloads. Efficiently centralize applications and data for a dramatically lower IT operating expense and focus IT resources on managing strategic projects versus individual workstations – all while enabling a more secure, work-from-anywhere environment with reduced threat of data loss or leakage.

VMware vSphere provides a powerful, flexible, and secure foundation for business agility that accelerates your digital transformation. With vSphere, you can support new workloads and use cases while keeping pace with the growing needs and complexity of your infrastructure. vSphere is the heart of a secure software defined data center (SDDC), securing applications, data, infrastructure, and access. Advanced security capabilities fully integrated into the

hypervisor and powered by machine learning, provide better visibility, protection and faster response time for security incidents. vSphere helps you run, manage, connect and secure your applications in a common operating environment across the hybrid cloud.

Teradici Cloud Access Software with PCoIP® Ultra enhancements enables NVIDIA RTX servers to deliver highly interactive graphics to remote users without compromise. Leveraging NVIDIA NVENC encoding technology with security and performance benefits of the Teradici PCoIP protocol, graphic designers, artists, and CAD/CAM users can work productively over virtually any network.

The ASUS ESC4000 G4 series is built on the Intel® Xeon® Scalable Platform to deliver incredible 2U server performance, packing incredible power into minimal space. 16 DIMM slots provide best-in-class memory capacity and bandwidth, and an integrated I/O controller on the processor eliminates data transfer bottlenecks caused by discrete I/O chipsets for reduced latency and dramatically faster system performance. The ESC4000 G4 series offers eight full-length PCI Express 3.0 x16 (4 at x16 Link or 8 at x8 Link), one low-profile PCI Express 3.0 x24 with support of a riser card for additional one PCI Express x16 (x16 Gen3 Link) and one PCI Express x8. One PCI Express x8 for internal HBA/RAID card. Flexible expandability in a 2U form factor supports diverse storage and networking applications to meet the demands of future expansion and high scalability. Product detail page link located here: <https://www.asus.com/us/Commercial-Servers-Workstations/ESC4000-G4/>

ASUS VivoMini VC66-C is a high-performance mini PC with a versatile modular design and full connectivity. VivoMini VC66-C takes processor-intensive tasks in stride, thanks to its desktop-grade 8th Generation Intel® Core™ processor and DDR4 memory. There's 4K UHD display support, and all-around connectivity with several video output ports for compatibility with various displays. VivoMini VC66-C can be specified with one M.2 SSD and two 2.5-inch HDDs or SSDs, or with one 2.5-inch HDD/SSD and an optical disc drive. This flexibility means you can use VivoMini VC66-C as a file server, a media editing platform, or simply as a mini PC for daily multitasking and entertainment.

2.1 SOLUTION CONFIGURATION

Table 1 outlines the system and virtual machine configuration recommended for Media and Entertainment industry designers. Depending on their workload size, frame buffer allocation can be changed by configuring the NVIDIA virtual GPU (vGPU) type on virtual machine.

Table 1: Designer virtual machine configuration

Component	Vender & Model	Details
System	ASUS ESC4000 G4 Server	<ul style="list-style-type: none"> High Performance Dual Intel Xeon Gold 6126 processors: 2.6-3.7GHz; 12 Cores, or Higher User Density Dual Intel Xeon Gold 6148 processors: 2.4-3.7GHz; 20 Cores 1.5TB Memory (128GB recommended for each user), system memory size might change based on customer's deployment configuration Network attached storage, SSD recommended for higher performance 10GbE network ports
Graphics Hardware	4x Quadro RTX 8000 or RTX 6000	<ul style="list-style-type: none"> RTX 8000 48GB frame buffer, 4,608 CUDA Cores, 72 RT Cores, 576 Tensor Cores, RTX 6000 24GB frame buffer, 4,608 CUDA Cores, 72 RT Cores, 576 Tensor Cores,
Graphics Software	<p>Quadro vDWS Software</p> <p>(vGPU 8.0 or later)</p> <p>128GB memory / 16 vCPU cores</p> <p>vGPU frame buffer: 12GB / 16GB / 24GB</p>	<p>Examples</p> <ul style="list-style-type: none"> 16GB FB per user GRID_RTX8000-16Q: 3 users, Max. 9 users supported 12GB FB per user GRID_RTX8000-12Q: 4 users, Max. 12 users supported GRID_RTX6000-12Q: 2 users, Max. 6 users supported

SOLUTION DETAIL

Hypervisor	VMware vSphere 6.7U1 or later	Enterprise license
Client Device	ASUS VivoMini VC66-C 2018	<ul style="list-style-type: none"> • 8th Gen Intel® Core™ i7-8700, i5-8400, i3-8100 • 8-32 GB DDR4 2 x SO-DIMM

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