



NVIDIA RTX™ SERVER FOR  
BARE METAL RENDERING WITH  
AUTODESK ARNOLD 5.3.0.0  
ON EQUUS G4760 (FOR SINGLE ROOT)  
DESIGN GUIDE

VERSION: 1.0



# TABLE OF CONTENTS

- Chapter 1. SOLUTION OVERVIEW..... 1**
- 1.1 NVIDIA RTX Server Overview..... 1
- Chapter 2. SOLUTION DETAILS ..... 2**
- 2.1 Solution Configuration..... 3

# Chapter 1.

## SOLUTION OVERVIEW

Designed and tested through multi-vendor cooperation between NVIDIA and its system and ISV partners, NVIDIA RTX™ Server provides a trusted environment for artists and designers to create professional, photorealistic images for the Media & Entertainment; Architecture, Engineering & Construction; and Manufacturing & Design industries.

### 1.1 NVIDIA RTX SERVER OVERVIEW

#### Introduction:

Content production is undergoing a massive surge as render complexity and quality increases. Designers and artists across industries continually strive to produce more visually rich content faster than ever before, yet find their creativity and productivity bound by inefficient CPU-based render solutions. NVIDIA RTX Server is a validated solution that brings GPU-accelerated power and performance to deliver the most efficient end-to-end rendering solution, from interactive sessions in the desktop to final batch rendering in the data center.

#### Audience:

The audience for this document include, but not limited to: Sales Engineers, Field Consultants, Professional Services, Partner Engineers, IT Managers and Customers who wish to take advantage of an appliance that is built and optimized to deliver on batch rendering workflows.

## Chapter 2.

# SOLUTION DETAILS

NVIDIA RTX Server for Bare Metal Rendering with Autodesk Arnold 5.3.0.0 on the Equus G4760 (for single root) is a reference design comprised of (a) NVIDIA Quadro RTX 6000 graphics cards; (b) Autodesk Arnold 5.3.0.0 rendering software; and a (c) Equus G4760 (single root) system. Combined, this validated solution provides unprecedented rendering and compute performance at a fraction of the cost, space, and power consumption of traditional CPU-based render nodes.

NVIDIA Quadro 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.

Autodesk Arnold software is an advanced Monte Carlo raytracing renderer. It's designed for artists and for the demands of modern animation and visual effects (VFX) production. Originally co-developed with Sony Pictures Imageworks and now their main renderer, Arnold is used at over 300 studios worldwide including ILM, Framestore, MPC, The Mill and DigiC Pictures. Arnold was the primary renderer on dozens of films from Monster House and Cloudy with a Chance of Meatballs to Pacific Rim and Gravity. It is available as a standalone renderer on Linux, Windows and Mac OS X, with supported plug-ins for Maya, 3dsMax, Houdini, Cinema 4D, and Katana. It is the built-in interactive renderer for Maya and 3dsMax.

The Equus G4760 is a dense 10GPU single root platform that is highly optimized for Deep Learning and Artificial Intelligence workloads. Each GPU is connected to the same CPU using PCIe switches to handle the connectivity. This GPUDirect RDMA

topology is being used in many of today’s deep learning applications that are being developed on single root systems to realize potential advantages in bi-directional bandwidth and latency. The G4760 has up to 14 2.5” hot-swap SSD/HDD drive bays with support for 10 + 4 NVMe, up to 3TB memory, (3+1) 4,800W RPSU, and a solid mechanical structure. This GPU platform provides the power and flexibility for high performance AI applications.

## 2.1 SOLUTION CONFIGURATION

Table 1 outlines the system configuration utilized to complete the rigorous NVIDIA NVQual verification as well as the NVIDIA RTX Server validation process.

Table 1: Solution components

Component	Vendor & Model	Details
<b>System</b>	Equus G4760 (single root)	<ul style="list-style-type: none"> <li>• Dual Intel® Xeon® Gold 6126 processor: 2.6-3.7GHz; 12 Cores, 24 Threads</li> <li>• 256GB ECC DDR4 memory</li> <li>• 1TB M.2 PCIe NVMe SSD</li> <li>• Windows 10 (64-bit) RS4</li> </ul>
<b>Graphics</b>	8x Quadro RTX 6000  4x Quadro RTX NVLink HB bridge 2-slot  Quadro Driver Release 430 U2 (430.64)	<ul style="list-style-type: none"> <li>• GPU memory: 24GB</li> <li>• CUDA cores: 4,608</li> <li>• Tensor cores: 576</li> <li>• RT cores: 72</li> </ul>
<b>Application</b>	Autodesk Arnold 5.3.0.0	

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