



NVIDIA RTX™ SERVER FOR
BARE METAL RENDERING
WITH AUTODESK ARNOLD 5.3.0.0
ON DELL PRECISION 7920 RACK
DESIGN GUIDE

VERSION: 1.0



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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 Dell Precision 7920 Rack 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) Dell Precision 7920 Rack 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 Dell Precision 7920 Rack delivers the highest level of secure remote access with ultimate workstation performance. Featuring the power, stability, and longevity you need in a sleek 2U rack industrial design, it ensures that the high-performance

applications you rely on every day run smoothly. In addition, every Dell Precision comes with the exclusive Dell Precision Optimizer, which automatically tunes your workstation to run some of the most popular (ISV) applications at the fastest speeds possible.

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
System	Dell Precision 7920 Rack	<ul style="list-style-type: none"> • Dual Intel® Xeon® Gold 6130 processor: 2.1–3.7GHz; 16 Cores, 32 Threads • 128GB DDR4 2666 MHz RDIMM ECC memory • 1TB SATA Class 20 SSD • Windows 10 (64-bit) RS4
Graphics	2x Quadro RTX™ 6000 Quadro Driver Release 418 U2 (419.17)	Each RTX™ 6000: <ul style="list-style-type: none"> • GPU memory: 24GB • CUDA cores: 4,608 • Tensor cores: 576 • RT cores: 72
Application	Autodesk Arnold 5.3.0.0	

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