



NVIDIA RTX™ SERVER FOR BARE  
METAL RENDERING WITH AUTODESK  
ARNOLD 5.3.0.0 ON TYAN THUNDER HX  
FT77D-B7109 SERVER 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 Tyan Thunder HX FT77D-B7109 Server is a reference design comprised of (a) NVIDIA Quadro RTX 6000 graphics cards; (b) Autodesk Arnold 5.3.0.0 rendering software; on a (c) Tyan Thunder HX FT77D-B7109 Server 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 Thunder HX FT77D-B7109 is the fifth generation of Tyan's 4U 8GPU server platform based on the new Intel Xeon Scalable Processor Family. It builds upon the success of previous generations by adding additional features that our customers have asked for over the years. These enhancements include support for an internal storage mezzanine slot, allowing the deployment of SAS drives without consuming precious PCIe slots in the rear that would otherwise be used by GPU cards. Tyan's engineers also found additional space next to the 8

GPU cards in the server for a 9th PCIe x16 slot, ideal for high speed networking or NVMe retimer deployment.

## 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>	Tyan Thunder HX FT77D-B7109	<ul style="list-style-type: none"> <li>• Dual socket 2nd Gen Xeon Scalable Processor</li> <li>• Up to 3TB DDR4 RAM</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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