



NVIDIA RTX SERVER™ FOR
BARE METAL RENDERING
WITH AUTODESK ARNOLD 5.3.0.0
ON PNY PNYRTX488RTX6K-102F
DESIGN GUIDE

VERSION: 0.1



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, photo-realistic images for the Media & Entertainment; Architecture, Engineering & Construction; and Manufacturing & Design industries.

1.1 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 PNY PNYRTX488RTX6K-102F is a reference design comprised of (a) NVIDIA Quadro® RTX 6000 graphics cards; (b) Autodesk Arnold 5.3.0.0 rendering software; and (c) PNY PNYRTX488RTX6K-102F 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 ray tracing 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 PNY PNYRTX488RTX6K-102F server **delivers a secure dual-socket tower server with performance, expandability, and proven reliability making it the choice for expanding SMBs, remove offices of larger businesses, an enterprise data-centers. HPE ProLiant ML350 Gen10 leverages the Intel® Xeon® Scalable processors with up to 71% performance gain and 27% increase in cores, align with the 2666 MT's HPE DDR4 SmartMemory supports up to 3.0TB and 11% faster than 2400MT/s. The shorter re-designed rackable chassis with multiple upgrade options provides flexibility that can expand as your business needs grow. It supports 12GB/s**

SAS, NVMe SSD, embedded 4x1Gb3E NIC with a broad range of graphics and compute options. Supported by the HPE Pointnext industry-leading service organization, HPE ProLiant ML350 Gen10 server helps you transform to a digital business with more agility and all within your limited IT budget.

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 | PNY PNYRTX488RTX6K-102F | <ul style="list-style-type: none"> • Dual Intel® Xeon® Gold 6126 processor: 2.6-3.7GHz; 12 Cores, 24 Threads • 32GB HPE 2600 DDR4 SmartMemory • 2TB HPE SSD |
| Graphics | (8) Quadro RTX 6000 (4) Quadro RTX NVLink HB bridge 2-slot Quadro Driver Release 418 U1 (418.81) | <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 | |

