NVIDIA RTX SERVER™ FOR BARE METAL RENDERING WITH AUTODESK ARNOLD 5.3.1.1 ON PNY PNYRTX488RTX8K-102F 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, 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 5.3.1.1 on the PNY PNYRTX488RTX8K-102F system is a reference design comprised of (a) NVIDIA Quadro® RTX 8000 graphics cards; (b) Autodesk Arnold 5.3.1.1 rendering software; and (c) PNY PNYRTX488RTX8K-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 8000, 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 PNYRTX488RTX8K-102F system delivers dense GPU compute capacity, high-speed flash storage and flexible add-on card options (ex: Mellanox HDR IB adapter), all with the best cost for ownership. The System's performance, expandability, and reliability have been proven by end customers, making it the choice for expanding SMBs, remote offices of larger businesses, and enterprise datacenters.

The System also supports 12GB/s SAS HDD/SSD and U.2 NVMe SSD and has embedded 2x10GbE NIC + 1x1GbE IPMI ports. The System can also be delivered with PNY Professional NBD On-Site Service, making the solution ideal for customers with critical operation requirements.

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 PNYRTX488RTX8K-102F	• 2 x Intel® Xeon® Gold 6126 processor: 2.6-3.7GHz; 12 Cores, 24 Threads per CPU • 24 x 32GB Samsung 2666MHz DDR4 ECC RDIMM Memory • Intel 240GB SSD for OS • Intel 1.92TB SSD for data
Graphics	8 x Quadro RTX 8000 4 x Quadro RTX NVLink HB bridge 2-slot Quadro Driver Release 431.2	**Per GPU specs:** • GPU memory: 48GB • CUDA cores: 4,608 • Tensor cores: 576 • RT cores: 72
Application	Autodesk Arnold 5.3.1.1	

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