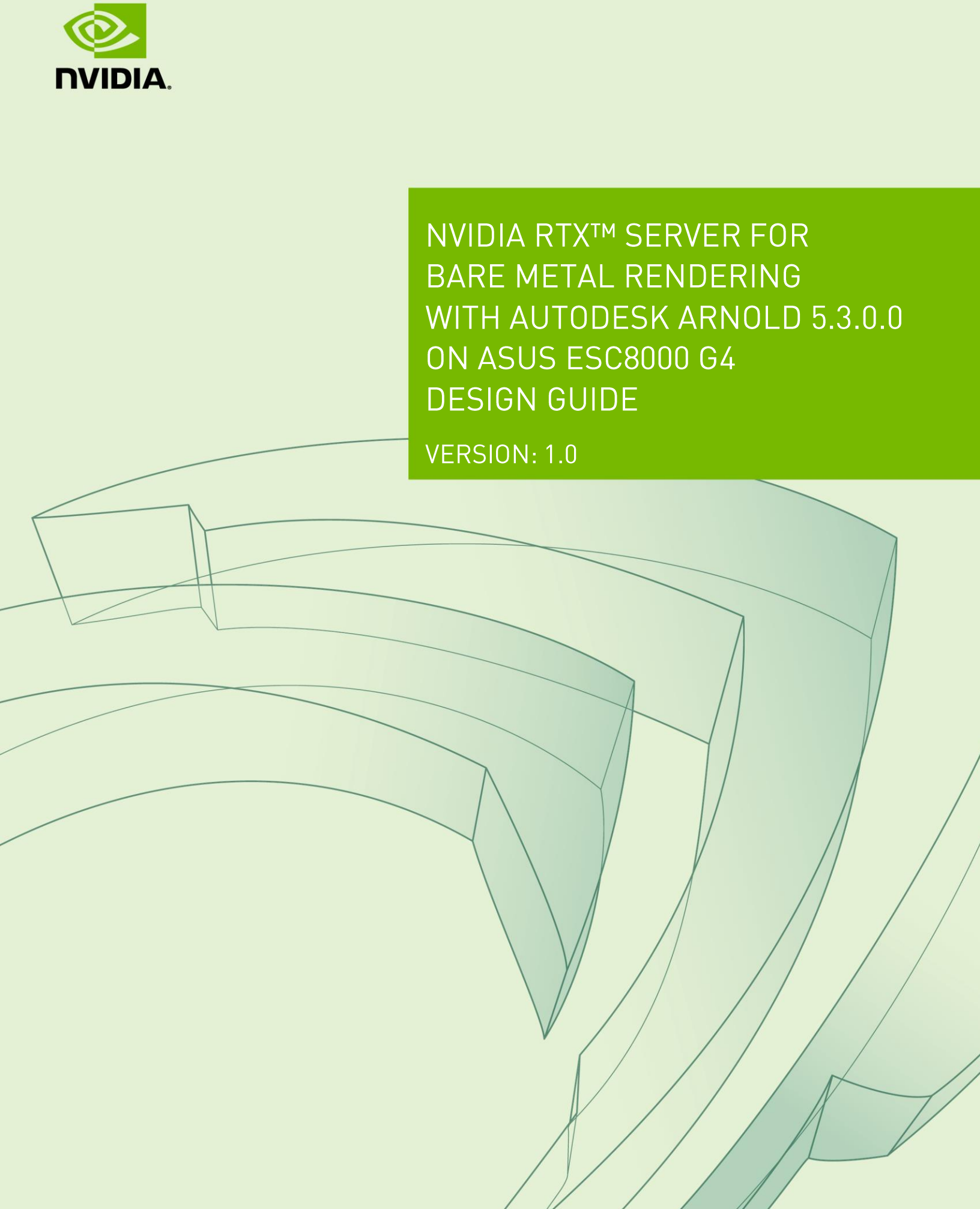

NVIDIA RTX™ SERVER FOR BARE METAL RENDERING WITH AUTODESK ARNOLD 5.3.0.0 ON ASUS ESC8000 G4 DESIGN GUIDE

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 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 on the ASUS ESC8000 G4 is a reference design comprised of (a) NVIDIA Quadro RTX™ 8000 or RTX™ 6000 graphics cards; (b) Autodesk Arnold rendering software; and (c) ASUS ESC8000 G4 server. 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 and 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 ASUS ESC8000 G4 features a powerful GPU architecture that supports up to eight high-performance NVIDIA Quadro® or Tesla® GPU cards in a 4U chassis. With so

much graphics power, the ESC8000 G4 lets you accomplish demanding computing tasks more quickly and with greater efficiency. An optimized internal layout enables the ESC8000 G4 to fit a wide variety of graphics cards – including dual-slot GPUs – with active or passive thermal modules. The ESC8000 G4 provides flexible system topology configurations options, including the ability to choose a single or dual root complex, making it ideal for deep learning requirements. The patented Adaptive Topology design enables users to switch the system topology easily via the intuitive web-based GUI of the ASUS ASMB9-iKVM server management solution, without changing any hardware configurations or cable routing. Link to the product page here: https://www.asus.com/us/Commercial-Servers-Workstations/ESC8000-G4/

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	ASUS ESC8000 G4	• Dual Intel® Xeon® Gold 6126 processor: 2.6-3.7GHz; 12 Cores, 24 Threads • 768GB Memory • 1.9TB SSD
Graphics	8x Quadro RTX™ 8000 or RTX™ 6000 4x Quadro RTX™ NVLink High Bandwidth Bridge 2-slot Quadro Driver Release 418 U1 (418.81)	• GPU memory: 48GB or 24GB • CUDA cores: 4,608 • Tensor cores: 576 • RT cores: 72

Application	Autodesk Arnold 5.3.0.0	

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