



AMD RADEON™ PRO SOFTWARE FOR ENTERPRISE

19.Q2 QUARTERLY RELEASE

MAY 9, 2019

AMD
RADEON PRO
Software
FOR ENTERPRISE

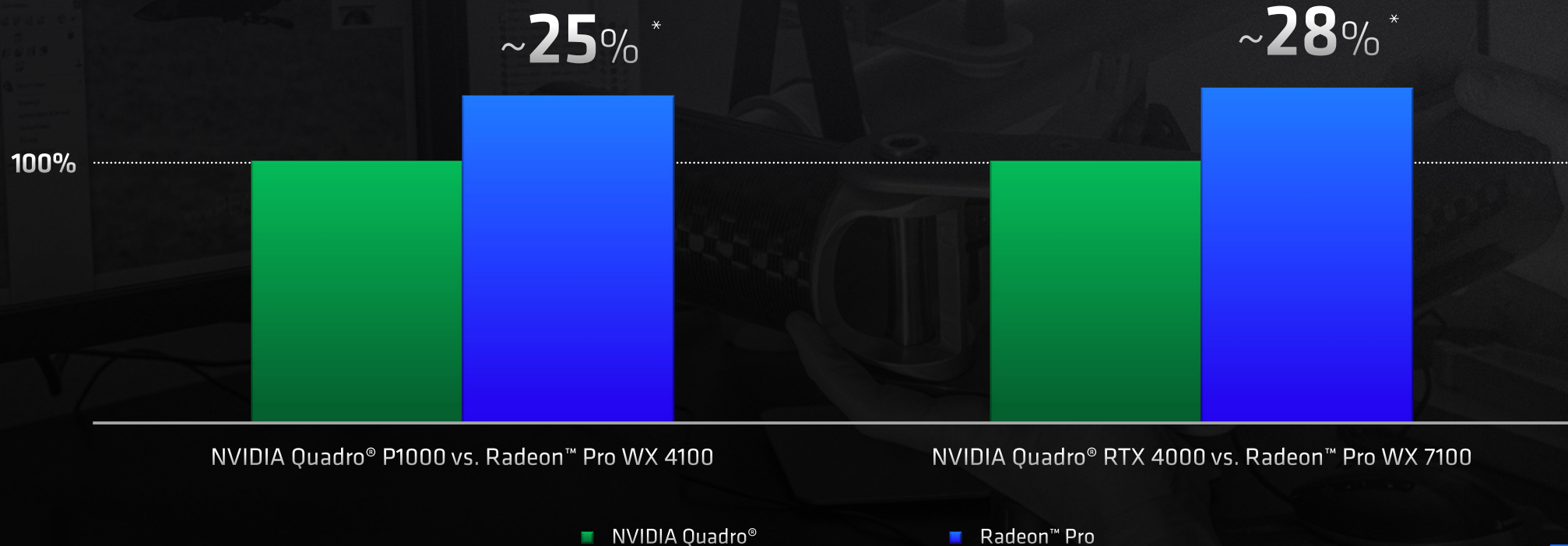


LEADING REAL-WORLD PERFORMANCE

FASTER THAN THE COMPETITION IN ALL 3D MODELING DESIGN STEPS

AMD INTERNAL SOLIDWORKS® BENCHMARK PERFORMANCE IN ALL DESIGN STEPS

*SEE RPS-59 AND RPS-60 IN ENDNOTES

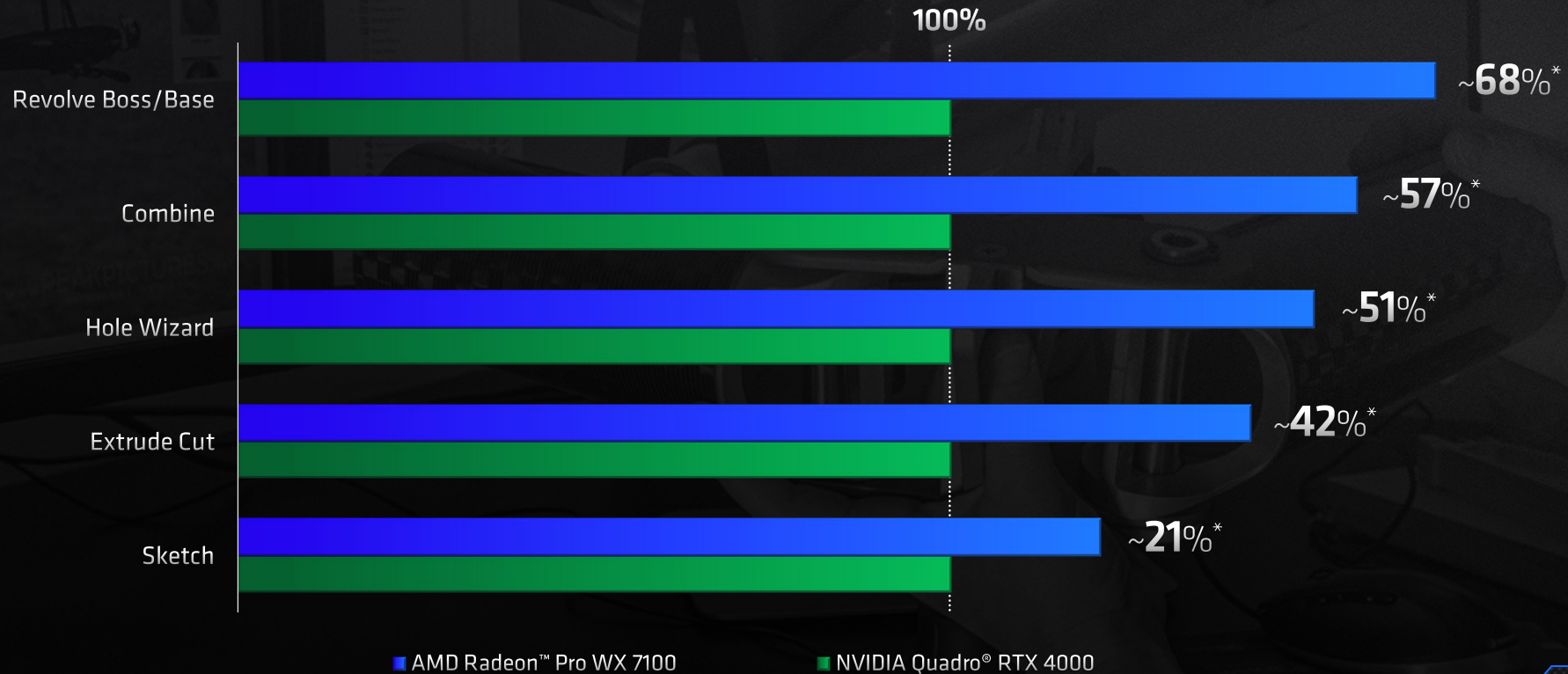


LEADING REAL-WORLD PERFORMANCE

FASTER THAN THE COMPETITION IN INDIVIDUAL 3D MODELING DESIGN STEPS

AMD INTERNAL SOLIDWORKS® BENCHMARK PERFORMANCE IN FIVE INDIVIDUAL DESIGN STEPS

*SEE RPS-62, RPS-65, RPS-66, RPS-68, AND RPS-75 IN ENDNOTES



“We have been using Radeon™ Pro graphics cards for years and rely on the stability and performance to meet our product development deadlines. The performance of the Radeon™ Pro is smooth and effortless, and exploits all of the advanced features of SOLIDWORKS®. I really appreciate the regular delivery of Enterprise Drivers, so our graphics solutions are up-to-date to meet the demands of our workflows.”

– Steven Pearson, Lead Partner and Chief Designer, Wills Wing

FULL WORKSTATION PERFORMANCE

WITH AMD REMOTE WORKSTATION*



AMD Radeon™ Pro WX 4100*



AMD Radeon™ Pro WX 4100 via Remote Workstation*

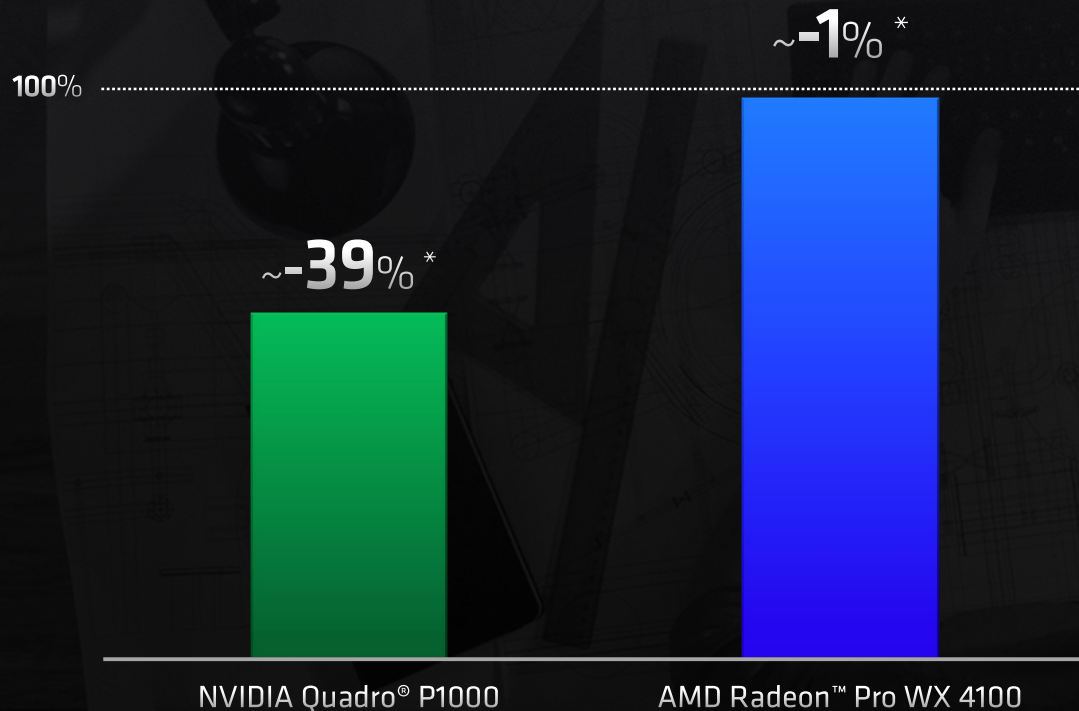


*SEE RPS-50 AND RPS-53 IN ENDNOTES

OUTSTANDING PERFORMANCE

IN DEMANDING MULTITASKING ENVIRONMENTS

MULTITASKING PERFORMANCE TEST



“At Blox Architects we use a host of CAD and graphic programs switching between them constantly. To stay productive, we needed a graphics solution that could multitask along with us. We see the difference in performance with Radeon™ Pro hardware and have been impressed with the results and the speed of the machines running this.”

– Peter Bloxham, Founding Director, BLOX Architects Ltd.

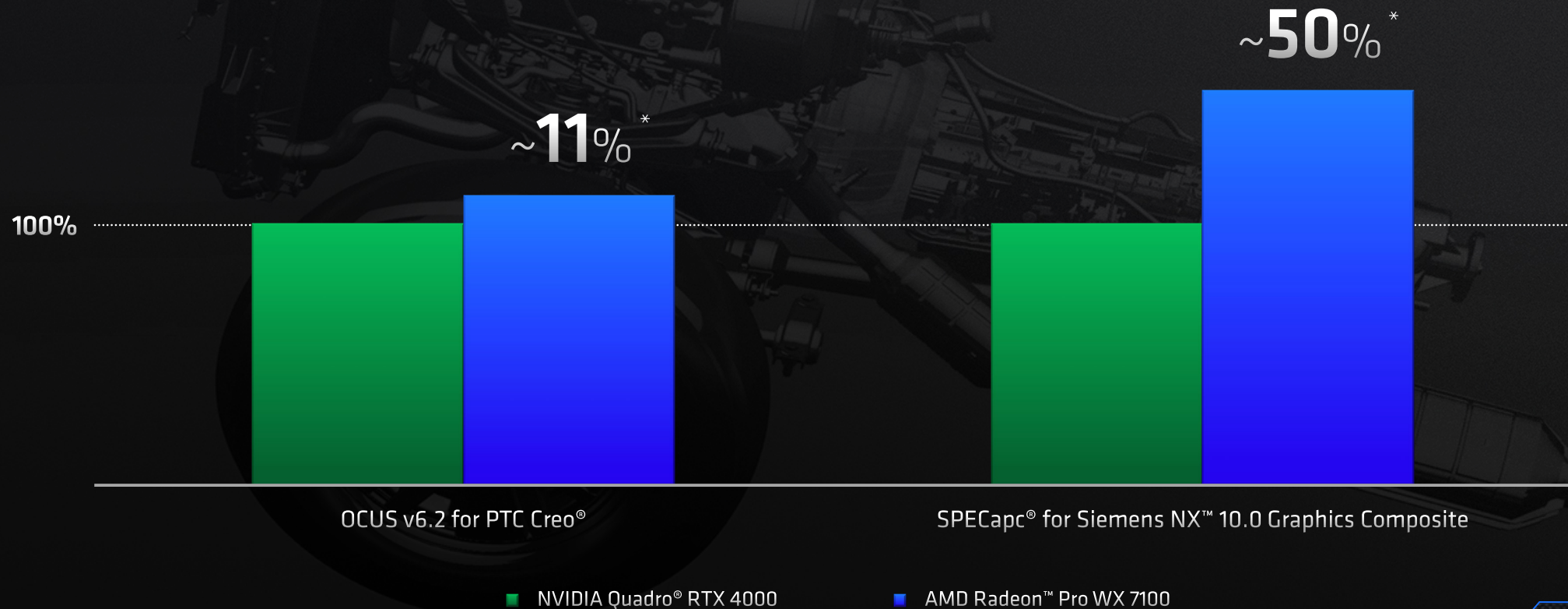
*SEE RPS-54 IN ENDNOTES

PERFORMANCE LEADERSHIP

FASTER IN TRADITIONAL BENCHMARK TESTS

OCUS AND SPECAPC® PERFORMANCE TESTS

*SEE RPS-56 AND RPS-57 IN ENDNOTES



DAY ZERO CERTIFICATIONS

MORE LISTED DURING PROGRAM LIFETIME THAN THE COMPETITION*

OVER **750**

ISV APPLICATION CERTIFICATIONS SINCE
DAY ZERO PROGRAM LAUNCH**

“Our long-term partnership with AMD has helped us continuously develop robust, reliable experiences for our users. The Day Zero Certification Program, AMD's benchmark for product excellence, has further enhanced that experience by providing timely solutions that creators can use with confidence.”

– Jon Wadelton, CTO, Foundry

*SEE RPS-78 IN ENDNOTES

**COMBINING 18.Q4 AND 19.Q1 ENTERPRISE DRIVER ISV APPLICATION CERTIFICATIONS. SEE RPS-79 IN ENDNOTES

AMD REMOTE WORKSTATION

USED BY HPE IN THE TOP LEVEL OF MOTORSPORT*

CITRIX®

Supports Citrix® Virtual Apps and Desktops**



**Hewlett Packard
Enterprise**

Edgeline EL4000 Engineering Workstation

*LEARN MORE AT [COMMUNITY.HPE.COM/T5/INTERNET-OF-THINGS-IOT/HPE-EDGELINE-EL4000-ENGINEERING-WORKSTATION-UNCHAIN-YOUR/BA-P/7027176#.XMQPX-HKJ-H](https://community.hpe.com/t5/INTERNET-OF-THINGS-IOT/HPE-EDGELINE-EL4000-ENGINEERING-WORKSTATION-UNCHAIN-YOUR/BA-P/7027176#.XMQPX-HKJ-H)

**SEE RPS-50 IN ENDNOTES

WINDOWS® 10 MAY 2019 UPDATE READY

Support for the Latest OS Update
from Microsoft®

DETAILED INFO

SUPPORT FOR

- Windows® 10 May 2019 Update
- Windows® Server 2019



DAY-0 GAME SUPPORT

RADEON™ SOFTWARE ADRENALIN 2019 EDITION NOW
SUPPORTS RADEON™ PRO GRAPHICS CARDS*

AMD
RADEON
Software
Adrenalin 2019 Edition

*UPGRADES THE RADEON™ PRO SOFTWARE "DRIVER OPTIONS" FEATURE
NOT ALL RADEON™ SOFTWARE GAMING FEATURES ARE AVAILABLE ON RADEON™ PRO GRAPHICS CARDS. SEE RPS-80 IN ENDNOTES

RADEON™ PRO SOFTWARE **SIMPLICITY**

Keeping it Simple,
Making Enterprise IT Easier

DETAILED INFO

NEW SIMPLICITY FEATURES

- Help Center Button
- Driver Subscription
- Driver Auto-Detect

RADEON™ PRO SOFTWARE **SECURITY** FEATURES

Added Protection for Your
Intellectual Property

DETAILED INFO

ADVANCED SECURITY FEATURES

- **STARTUP:** AMD Secure Processor Boot & Firmware Validation
- **WORKFLOW:** AMD Secure Processor & Windows® Defender Device Guard
- **SHUTDOWN:** AMD Secure Processor Helps Secure Graphics Bound IP

RADEON™ PRO RELIVE **STREAMING**

Live Stream Professional Workflows
For Collaboration and Training

DETAILED INFO

LIVE STREAMING FEATURES

- Supports Major Streaming Platforms*
- Up to 50 Mbps Streaming Bitrate
- Stream at up to 4K Resolution

*RADEON™ PRO RELIVE SUPPORTS LIVE STREAMING TO FACEBOOK, MIXER, RESTREAM, SINA WEIBO, STAGE TEN, TWITCH, AND YOUTUBE

ENDNOTES

RPS-50

AMD Remote Workstation functionality requires AMD Radeon™ Pro Software for Enterprise driver 18.Q4 or newer plus purchase and installation of Citrix® Virtual Apps & Desktops or Microsoft® Remote Desktop Services. RPS-50

RPS-53

Radeon™ Pro Software for Enterprise 19.Q2 with AMD Remote Workstation delivers comparable performance on SPECviewperf® 13 3dsmax-06 when compared local (non-remoted) performance. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of Intel® Core i5 8400 CPU, MSI Z370-A PRO motherboard, ADATA XPG Z1 16 GB DDR4 RAM, Samsung 860 EVO 250GB SSD, Windows® 10 Pro October 2018 Update with a Radeon™ Pro WX 4100 graphics card using Radeon™ Pro Software for Enterprise 19.Q2. Test was conducted using running benchmark the application SPECviewperf® 13 benchmark for its “3dsmax-06” viewset subtest. Radeon Pro Software Adrenalin 2019 Edition for Enterprise 19.Q2 with Radeon™ Pro Remote Workstation: 50.22. 19.Q2 run locally: 51.36 resulting in only up to a 2% drop. The results are the average of 3 iterations. The AMD Remote Workstation solution was implemented using the Citrix® XenDesktop® 7.18 application on an HP ZBook 17 G5 Client. Performance Differential: $51.36 - 50.22 = \sim 2.0\%$ performance drop with the AMD Remote Workstation solution on Radeon™ Pro Software for Enterprise 19.Q2 versus running locally. Additional information about the SPEC benchmarks can be found at www.spec.org/gwpg. RPS-53

RPS-54

While multitasking, a Radeon™ Pro WX 4100 using Radeon™ Pro Software for Enterprise 19.Q2 shows near performance parity where the NVIDIA Quadro® P1000 using the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver has up to a 39% drop with the SPECviewperf® 13 benchmark medical-02 viewset while Prime95 is running in the background. Testing was conducted by AMD labs as of April 22nd, 2019 on a test system comprising of Dell Inspiron 7810, Intel® Xeon® E5-2609 v3 @ 1.90 GHz, 48 GB RAM, Windows® 10 Pro October 2018 Update, Radeon™ Pro WX 4100 graphics card using Radeon™ Pro Software for Enterprise 19.Q2. For the competition, the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver was used with the NVIDIA Quadro® P1000 graphics card. For both “multitasking” scenarios, the application “Prime95” was running in the background. Test was conducted using benchmark application running the SPECviewperf® 13 benchmark “medical-02” viewset. The Radeon™ Pro WX 4100 using Radeon™ Pro Software for Enterprise 19.Q2 with Prime95 running scored an average of 20.38, while the test running without Prime95 running scored an average of 20.60, resulting in a 1% performance drop. The results are an average of 3 iterations. For the NVIDIA Quadro® P1000 using the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver with Prime95 running scored an average of 10.98, while the test running without Prime95 running scored an average of 17.96, resulting in a 39% performance drop. The results are an average of 3 iterations. Performance Differential: For AMD, $20.6 \text{ (Without workload)} - 20.38 \text{ (With Workload)} = \sim 1.0\%$. For NVIDIA®, $17.96 \text{ (Without workload)} - 10.98 \text{ (With Workload)} = \sim 39\%$. Additional information about the SPEC benchmarks can be found at www.spec.org/gwpg. RPS-54

ENDNOTES

RPS-56

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 11% faster than the NVIDIA Quadro® RTX 4000 running on NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in PTC Creo® 5.0. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of Intel® Core i5 8400 CPU, MSI Z370-A PRO motherboard, ADATA XPG Z1 16 GB DDR4 RAM, Samsung 860 EVO 250GB SSD, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on a Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on an NVIDIA Quadro® RTX 4000. The test was conducted using the OCUS v6.2 benchmark for PTC Creo® 5.0. Using this configuration, the Radeon™ Pro WX 7100 took 180 seconds to complete the test while the NVIDIA Quadro® RTX 4000 took 200 seconds, resulting in a 11% lead for AMD. Performance Differential: 200-180 (seconds) = ~11.0% lead for Radeon™ Pro WX 7100 over NVIDIA Quadro® RTX 4000. RPS-56

RPS-57

The Radeon™ Pro WX 7100 running on Radeon™ Pro Software for Enterprise 19.Q2 is up to 50% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver when tested with the SPECapc® for Siemens NX™ 10 benchmark estimated Graphics Composite. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z6 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 32 GB RAM, and the Windows® 10 Pro May 2019 Update using Radeon™ Pro Software for Enterprise 19.Q2 running the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running the NVIDIA Quadro® RTX 4000. The test was conducted using the SPECapc® for Siemens NX™ 10 benchmark. Using this configuration, the Radeon™ Pro WX 7100 achieved an estimated Graphics Composite score of 4.00 while the NVIDIA Quadro® RTX 4000 scored an estimated Graphics Composite score of 2.67 resulting in an up to 50% lead for the Radeon™ Pro WX 7100. These scores are the average of 3 runs for each. Performance Differential: 4.00 -2.67 = ~50.0% lead for the Radeon™ Pro WX 7100 over the NVIDIA Quadro® RTX 4000. Additional information about the SPEC benchmarks can be found at www.spec.org/gwpg. RPS-57

RPS-59

The Radeon™ Pro WX 7100 running on Radeon™ Pro Software for Enterprise 19.Q2 is up to 28% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world SOLIDWORKS® 2019 design steps benchmark. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world SOLIDWORKS® 2019 design steps benchmark. Using this configuration, the Radeon™ Pro WX 7100 took 145.4 seconds to finish the test while the competition took 186.2 seconds. Making the Radeon™ Pro WX 7100 up to 28% faster than the NVIDIA Quadro® RTX 4000. Performance Differential: 186.2-145.4 (seconds) = ~28.0%. RPS-59

ENDNOTES

RPS-60

The Radeon™ Pro WX 4100 running on Radeon™ Pro Software for Enterprise 19.Q2 is up to 25% faster than the NVIDIA Quadro® P1000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world SOLIDWORKS® 2019 design steps benchmark. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 4100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® P1000. The test was conducted using the AMD internal real-world SOLIDWORKS® 2019 design steps benchmark. Using this configuration, the Radeon™ Pro WX 4100 took 152 seconds to finish the test while the competition took 190 seconds. Making Radeon™ Pro WX 4100 up to 25% faster than the NVIDIA Quadro® P1000. Performance Differential: 190–152 (seconds) =~25.0%. RPS-60

RPS-62

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 57% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world benchmark for SOLIDWORKS® 2019 “Combine” design step. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world benchmark for SOLIDWORKS® 2019 where the total time taken for the “Combine” design feature was recorded for both AMD and the competition. Using this configuration, the Radeon™ Pro WX 7100 had a total time of 0.7 seconds for all instances of the “Combine” design feature through the test while the competition took a total time of 1.1 seconds. Making the Radeon™ Pro WX 7100 up to 57% faster than the NVIDIA Quadro® RTX 4000 in this feature. Performance Differential: 1.1–0.7 (seconds) =~57.0%. RPS-62

RPS-65

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 42% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world benchmark for SOLIDWORKS® 2019 “Extrude Cut” design step. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world benchmark for SOLIDWORKS® 2019 where the total time taken for the “Extrude Cut” design feature was recorded for both AMD and the competition. Using this configuration, the Radeon™ Pro WX 7100 had a total time of 33.3 seconds for all instances of the “Extrude Cut” design feature through the test while the competition took a total time of 47.4 seconds. Making Radeon™ Pro WX 7100 up to 42% faster than the NVIDIA Quadro® RTX 4000 in this feature. Performance Differential: 47.4–33.3 (seconds) =~42.0%. RPS-65

ENDNOTES

RPS-66

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 68% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world benchmark for SOLIDWORKS® 2019 “Revolve Boss/Base” design step. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world benchmark for SOLIDWORKS® 2019 where the total time taken for the “Revolve Boss/Base” design feature was recorded for both AMD and the competition. Using this configuration, the Radeon™ Pro WX 7100 had a total time of 6.4 seconds for all instances of the “Revolve Boss/Base” design feature through the test while the competition took a total time of 10.8 seconds. Making the Radeon™ Pro WX 7100 up to 68% faster than the NVIDIA Quadro® RTX 4000 in this feature. Performance Differential: 10.8–6.4 (seconds) =~68.0%. RPS-66

RPS-68

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 51% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world benchmark for SOLIDWORKS® 2019 “Hole Wizard” design step. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world benchmark for SOLIDWORKS® 2019 where the total time taken for the “Hole Wizard” design feature was recorded for both AMD and the competition. Using this configuration, the Radeon™ Pro WX 7100 had a total time of 11.59 seconds for all instances of the “Hole Wizard” design feature through the test while the competition took a total time of 17.55 seconds. Making the Radeon™ Pro WX 7100 up to 51% faster than the NVIDIA Quadro® RTX 4000 in this feature. Performance Differential: 17.55–11.59 (seconds) =~51%. RPS-68

RPS-75

The Radeon™ Pro WX 7100 running Radeon™ Pro Software for Enterprise 19.Q2 is up to 21% faster than the NVIDIA Quadro® RTX 4000 running on the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver in the AMD internal real-world benchmark for SOLIDWORKS® 2019 “Sketch” design step. Testing conducted by AMD labs as of April 22nd, 2019 on a test system comprising of HP Z8 Workstation platform, Intel® Xeon® Gold 5122 CPU @ 3.60 GHz, 16 GB RAM, Windows® 10 Pro October 2018 Update using Radeon™ Pro Software for Enterprise 19.Q2 running on the Radeon™ Pro WX 7100 and the NVIDIA Quadro® Optimal Driver for Enterprise (ODE) R418 U4 (425.31) driver running on the NVIDIA Quadro® RTX 4000. The test was conducted using the AMD internal real-world benchmark for SOLIDWORKS® 2019 where the total time taken for the “Sketch” design features was recorded for both AMD and the competition. Using this configuration, the Radeon™ Pro WX 7100 had a total time of 224.4 seconds for all instances of the “Sketch” design features through the test while the competition took a total time of 272.6 seconds. Making the Radeon™ Pro WX 7100 up to 21% faster than the NVIDIA Quadro® RTX 4000 in this feature. Performance Differential: 272.6–224.4 (seconds) =~21%. RPS-75

ENDNOTES

RPS-78

AMD Radeon™ Pro Software for Enterprise has more listed ISV application certifications than the competition since the start of the Day Zero Certification Program. As of May 3rd, 2019, based on certifications listed on AMD.com (<https://www.amd.com/en/support/certified-drivers>) and Nvidia.com (<https://www.nvidia.com/object/quadro-certified-drivers.html#page=partnerSelected>), AMD Radeon™ Pro Software for Enterprise has more listed ISV application certifications than the competition since the start of the Day Zero Certification Program (18.Q4 or November 14, 2018). AMD drivers released since that date are: (18.Q4, 18.Q4.1, 19.Q1, 19.Q1.1, 19.Q1.2); NVIDIA® drivers released since that date are (411.81, 416.78, 411.95, 412.16, 418.81, 419.17, 412.29, 419.67, 425.31 and 430.39). Results are subject to change as certifications are completed. RPS-78

RPS-79

AMD Radeon™ Pro Software for Enterprise has over 750 ISV application certifications since the start of the Day Zero Certification Program. Based on AMD internal research as of April 30th, 2019, the total number of ISV application certifications for the AMD Radeon™ Pro Software for Enterprise drivers (18.Q4 + 19.Q1) since the start of the Day Zero Certification Program (18.Q4 or November 14, 2018) is 773. ISV application certifications for Radeon™ Pro Software for Enterprise 18.Q4: 300. ISV application certifications for Radeon™ Pro Software for Enterprise 19.Q1: 473. Total: 300+473 =773 ISV application certifications for Radeon™ Pro Software for Enterprise since the start of the Day Zero Certification Program. Learn more at <https://www.amd.com/en/support/certified-drivers>. RPS-79

RPS-80

Not all AMD Radeon™ Software Adrenalin 2019 Edition gaming features are enabled when this driver is installed on AMD Radeon™ Pro graphics cards, including but not limited to Enhanced Sync, Performance Monitoring, Radeon™ Chill, Radeon™ Game Advisor, Radeon™ Overlay, Radeon™ Settings Advisor, Radeon™ WattMan, and Upgrade Advisor. RPS-80

DISCLAIMER & ATTRIBUTION

The information contained herein is for informational purposes only and is subject to change without notice. While every precaution has been taken in the preparation of this document, it may contain technical inaccuracies, omissions and typographical errors, and AMD is under no obligation to update or otherwise correct this information. Advanced Micro Devices, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this document, and assumes no liability of any kind, including the implied warranties of noninfringement, merchantability or fitness for particular purposes, with respect to the operation or use of AMD hardware, software or other products described herein. No license, including implied or arising by estoppel, to any intellectual property rights is granted by this document. Terms and limitations applicable to the purchase or use of AMD's products are as set forth in a signed agreement between the parties or in AMD's Standard Terms and Conditions of Sale. GD-18

Palatov D2 design is property of Palatov Motorsport LLC, used with permission.

© 2019 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Radeon, and combinations thereof are trademarks of Advanced Micro Devices, Inc. Citrix is a trademark of Citrix Systems, Inc. and/or one or more of its subsidiaries, and may be registered in the United States Patent and Trademark Office and in other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the US and other countries. NX is a trademark or registered trademark of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries. SOLIDWORKS is a registered trademark of Dassault Systèmes or its subsidiaries in the US and other countries. SPEC®, SPECviewperf® and SPECcapc® are registered trademarks of Standard Performance Evaluation Corporation. Learn more at www.spec.org. PTC Creo is a registered trademark of PTC Inc. or its subsidiaries in the U.S. and in other countries. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies.