



AMD FIREPRO™ GRAPHICS

MARCH 26, 2014

#AMDFIREPRO

AMD FIREPRO™ GRAPHICS



- ▲ Serving multiple markets – from mobile to server
- ▲ Designed for highest quality, reliability and application performance
- ▲ Shipping with top OEMs including Apple, Dell, and HP
- ▲ Leading ISV partnerships

The AMD logo, consisting of the letters "AMD" in a bold, sans-serif font followed by a square icon containing a stylized white arrow pointing up and to the right.

AMD

The AMD FirePro logo, featuring the word "FIREPRO" in a bold, white, sans-serif font centered within a red rectangular box with a dark border.

FIREPRO

The AMD FirePro logo, featuring the word "FIREPRO" in a bold, white, sans-serif font centered within a red rectangular box with a dark border.

FIREPRO

AMD FIREPRO™ GRAPHICS STRATEGY

LEADING IN CONTENT CREATION AND ANALYTICS



ENGINEERING

MEDIA & ENTERTAINMENT

EDUCATION / RESEARCH



CLIENT



CLOUD

CONTENT

COMPUTE



MEDICAL



DISPLAY WALLS

FINANCE



THE WORLD'S TOP ISVS ARE MOVING TO OPENCL™





THE WORLD'S LEADING OEMS
ARE ALSO BEHIND OPENCL™

*"[Mac Pro] is a machine unlike anything
we've ever made both inside and out."*

– Phil Schiller, Senior Vice President, Apple



OPENCL™
LEADERSHIP



4K ULTRAHD DISPLAYS

THE NEXT DISPLAY STANDARD FOR WORKSTATIONS

DETAIL

4X MORE
PIXELS*

PROFESSIONAL USERS DEMAND

A NEW CLASS OF GPU FOR A NEW ERA

...OF CONTENT CREATION & PRODUCTIVITY



FIREPRO



INTRODUCING
AMD FIREPRO™
W9100
GRAPHICS



POWERED BY **OPENCL™**
DESIGNED FOR **REAL-TIME 4K**



AMD FIREPRO™
W9100

OVER

2 teraFLOPS
Double
Precision

OVER

5 teraFLOPS
of Compute
Power

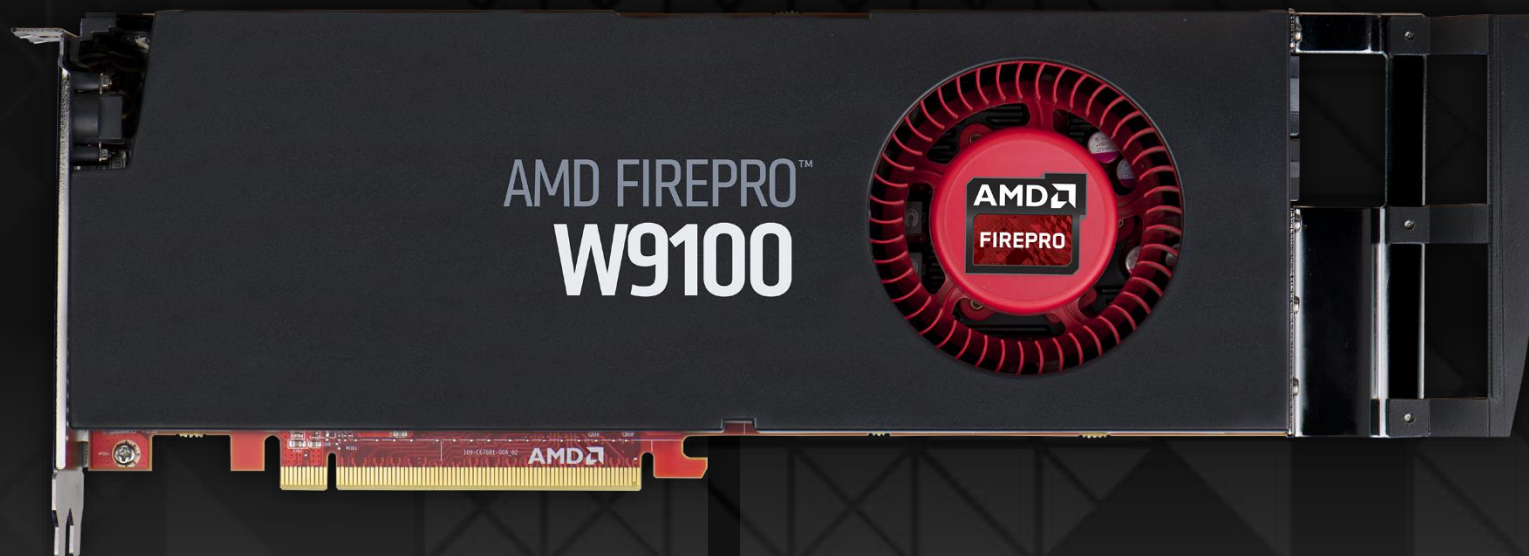
UP TO

6 4K DISPLAYS
With Mini-
DisplayPort 1.2

16 GB GDDR5
Frame
Buffer

MAXIMUM GRAPHICS CAPABILITIES AND COMPUTE LEADERSHIP

VS. COMPETITION



- ▲ **1.5X** Dual Precision compute performance
- ▲ **16GB** vs. 12GB
- ▲ **Six 4K Displays** vs. two

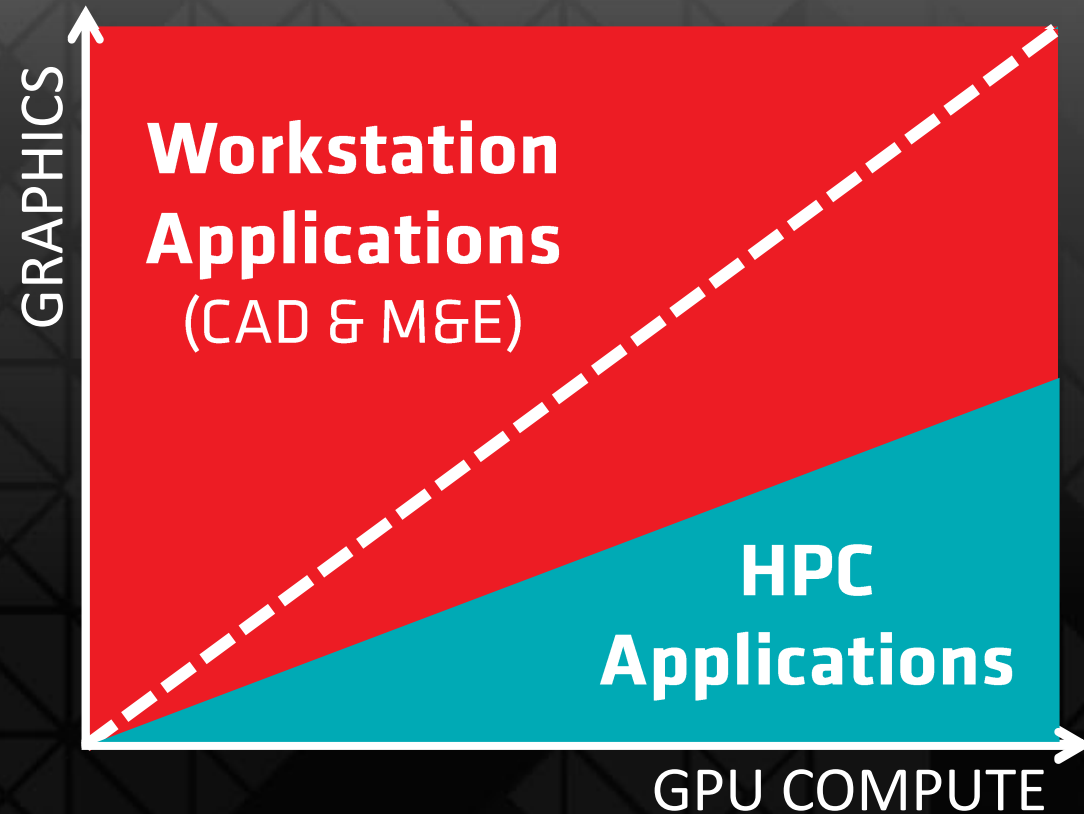
vs. Nvidia Quadro **K6000**

- ▲ **29X** Dual Precision compute performance
- ▲ **1.8x** memory bandwidth
- ▲ **2X** PCI Express bandwidth

vs. Nvidia Quadro **K5000**

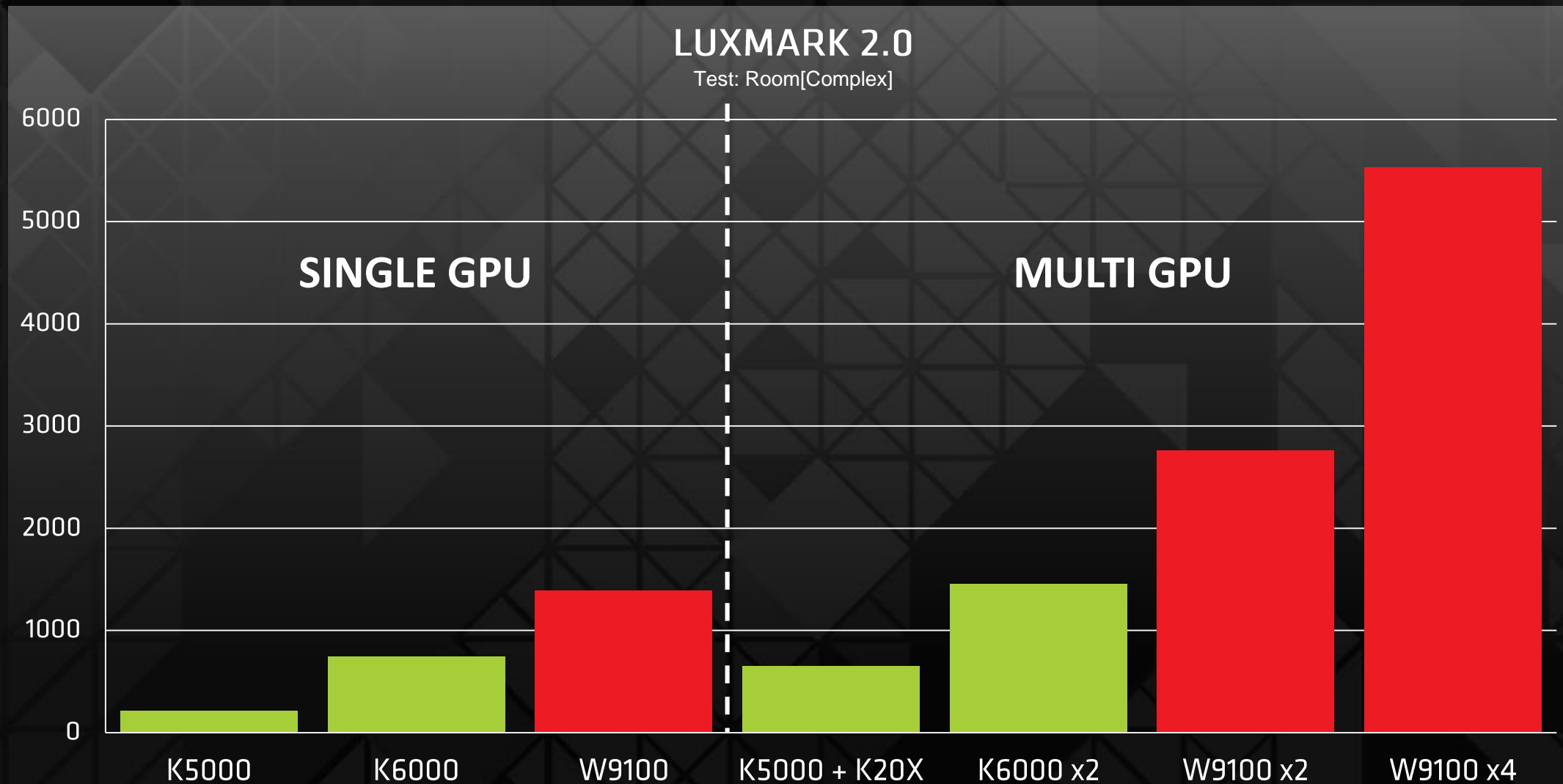
THE INCREASED RELEVANCE OF GPU COMPUTE FOR WORKSTATIONS

- ▶ Today's workstation applications are taking advantage of the GPU for compute



GPU COMPUTE LEADERSHIP WITH OPENCL™

LUXMARK 2.0*



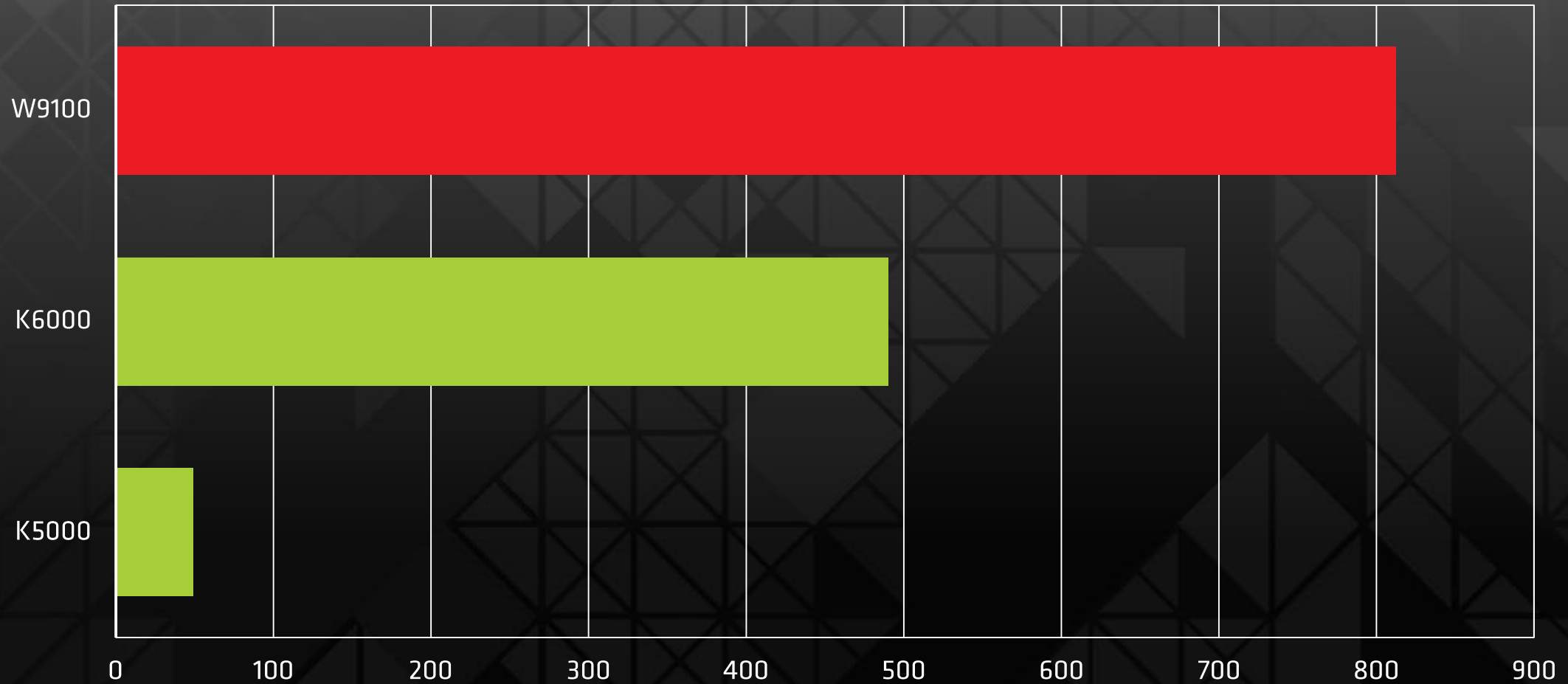
GPU COMPUTE LEADERSHIP WITH OPENCL™



SISOFT SANDRA* (DOUBLE PRECISION – FP64)

SISOFT SANDRA

Financial Analysis (“Monte Carlo”) – Double Precision (FP64)



4K FOR CREATIVE PROFESSIONALS

GOALS:

- ▶ Work with content in its native resolution
- ▶ Work in real-time



4K FOR ENGINEERING PROFESSIONALS

GOALS:

- ▶ Interact with entire assemblies
- ▶ Create with higher visual precision

A DECADE OF WORKSTATION TRANSFORMATION



A DECADE OF WORKSTATION TRANSFORMATION



| | FireGL X3 2004 | FirePro W9100 2014 | Increase |
|--------------------|---------------------------|-------------------------------|-----------------|
| Bandwidth | 28.8 | >300 GB/Sec | >10X |
| Memory Size | 256 MB | 16 GB | 64X |

A DECADE OF WORKSTATION TRANSFORMATION

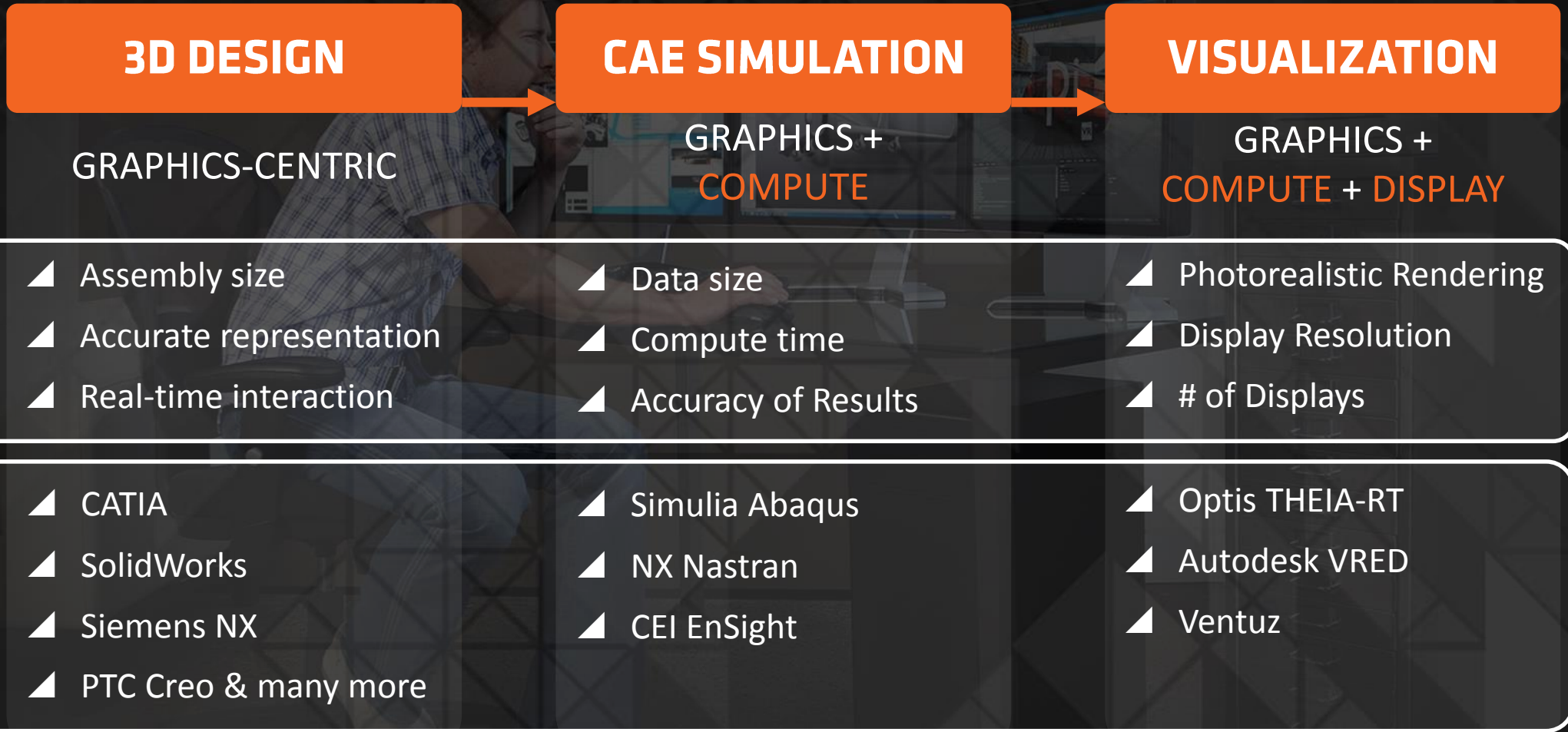


| | FireGL X3 2004 | FirePro W9100 2014 | Increase |
|--------------------|---------------------------|-------------------------------|-----------------|
| Bandwidth | 28.8 | >300 GB/Sec | >10X |
| Memory Size | 256 MB | 16 GB | 64X |
| Compute | 21 GFLOPS | >5 TFLOPS | 250X |



**ENGINEERING
WORKFLOWS** ▲

POWERED BY AMD FIREPRO™ W9100 GRAPHICS



3D DESIGN

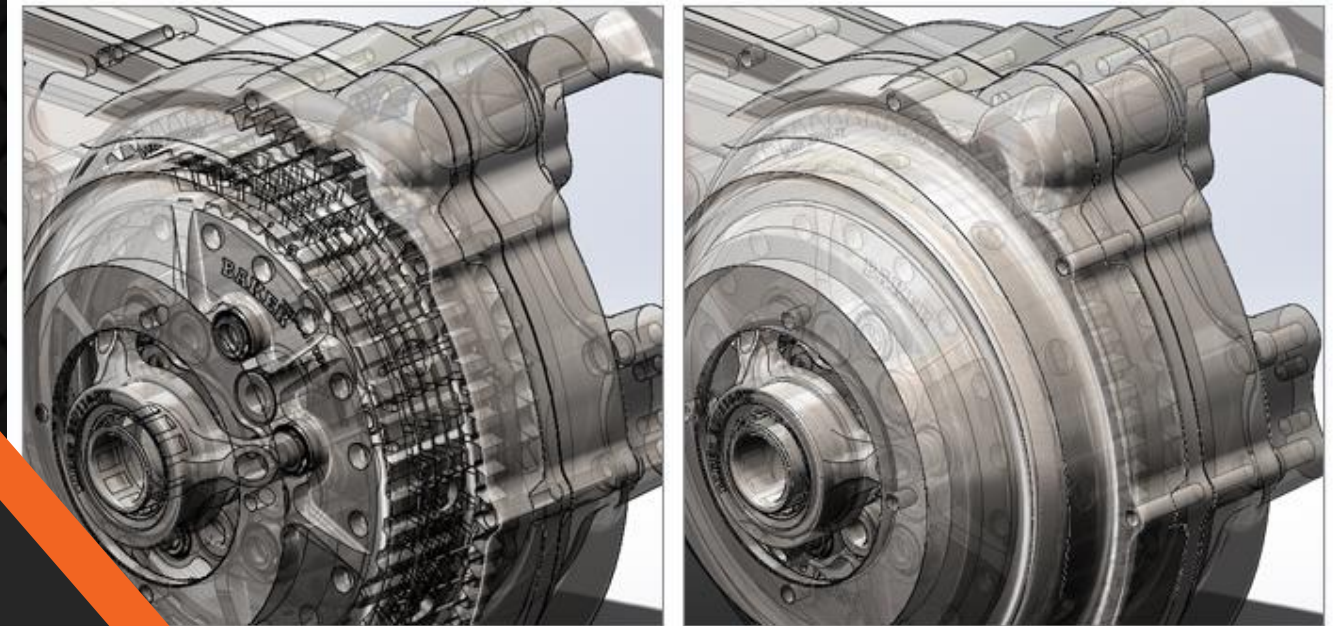
THE POWER OF AMD FIREPRO™ GRAPHICS

SOLIDWORKS 2014 WITH OIT SUPPORT



SOLIDWORKS 2014

Order Independent Transparency (OIT)



Classic Blended Mode

With OIT

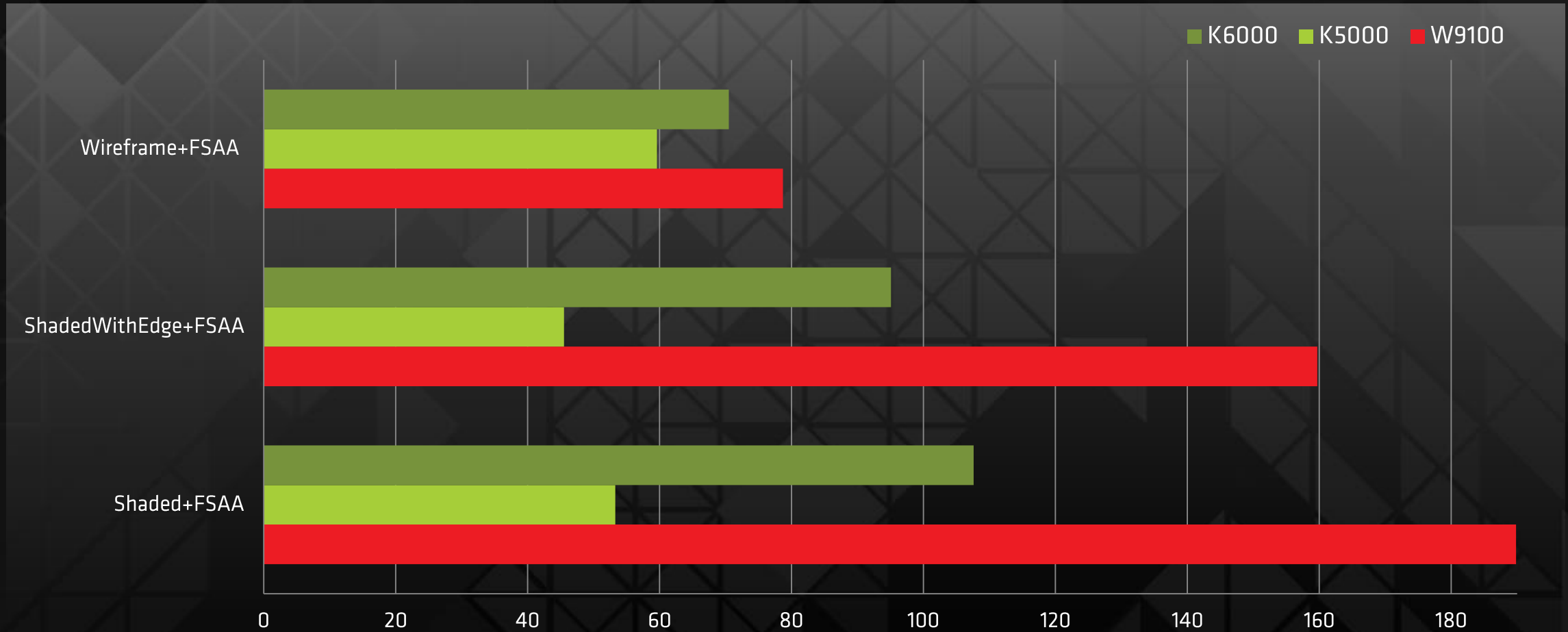


- ▲ More Accurate Designs
- ▲ Accelerated by AMD FirePro™ W9100 Graphics

ENGINEERING 3D DESIGN REAL-WORLD PERFORMANCE



SOLIDWORKS 2014*



SolidWorks 2014 Engine (case transparent)

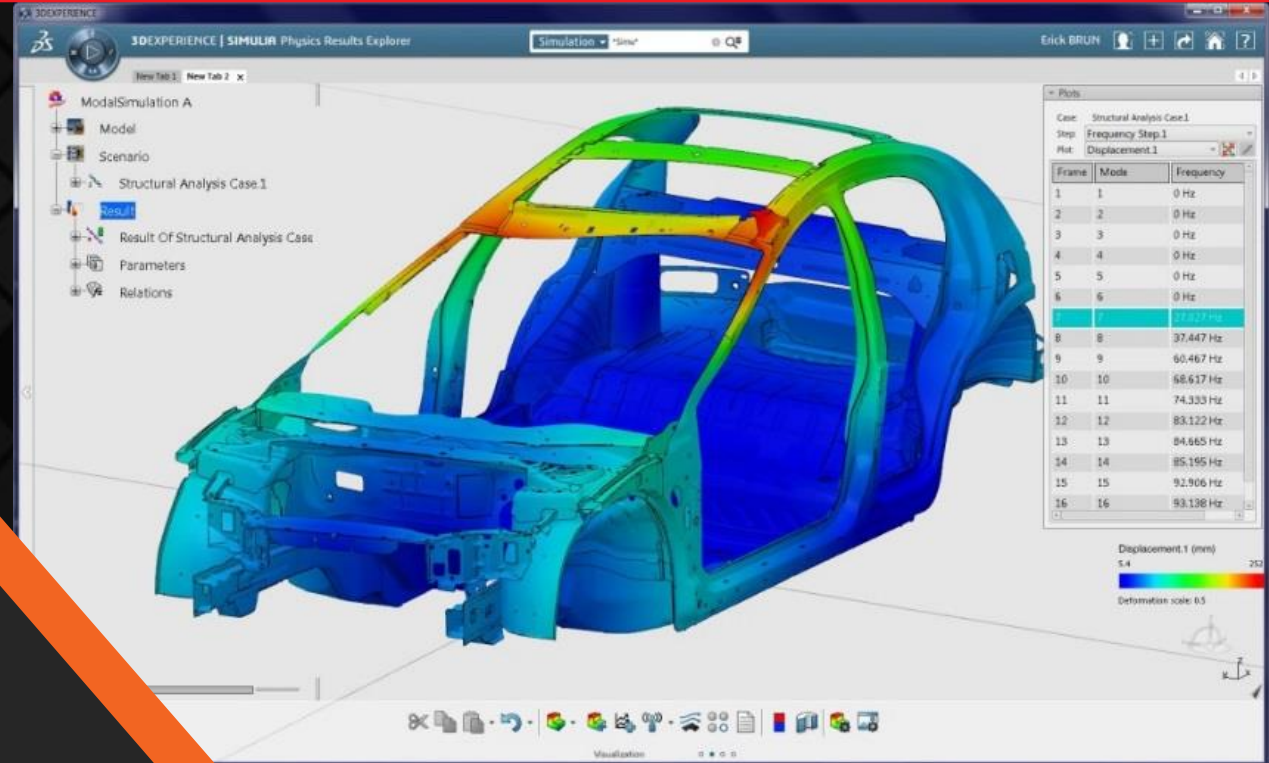
AMD internal test (FPS)

CAE
SIMULATION

DASSAULT
Systemes
Simulia

Abaqus 6.14

THE POWER OF AMD FIREPRO™ GRAPHICS
DASSAULT SYSTEMES SIMULIA WITH OPENCL™



AMD FirePro™ W9100 graphics enables users to design and simulate on same machine

VISUALIZATION

THE POWER OF AMD FIREPRO™ GRAPHICS

HIGH-QUALITY RENDERINGS WITH AUTODESK VRED 2014



Autodesk

VRED 2014



- ▲ 4K for “real-life” view of design
- ▲ 16GB enables smooth rotations
- ▲ GCN allows much heavier scene files & models





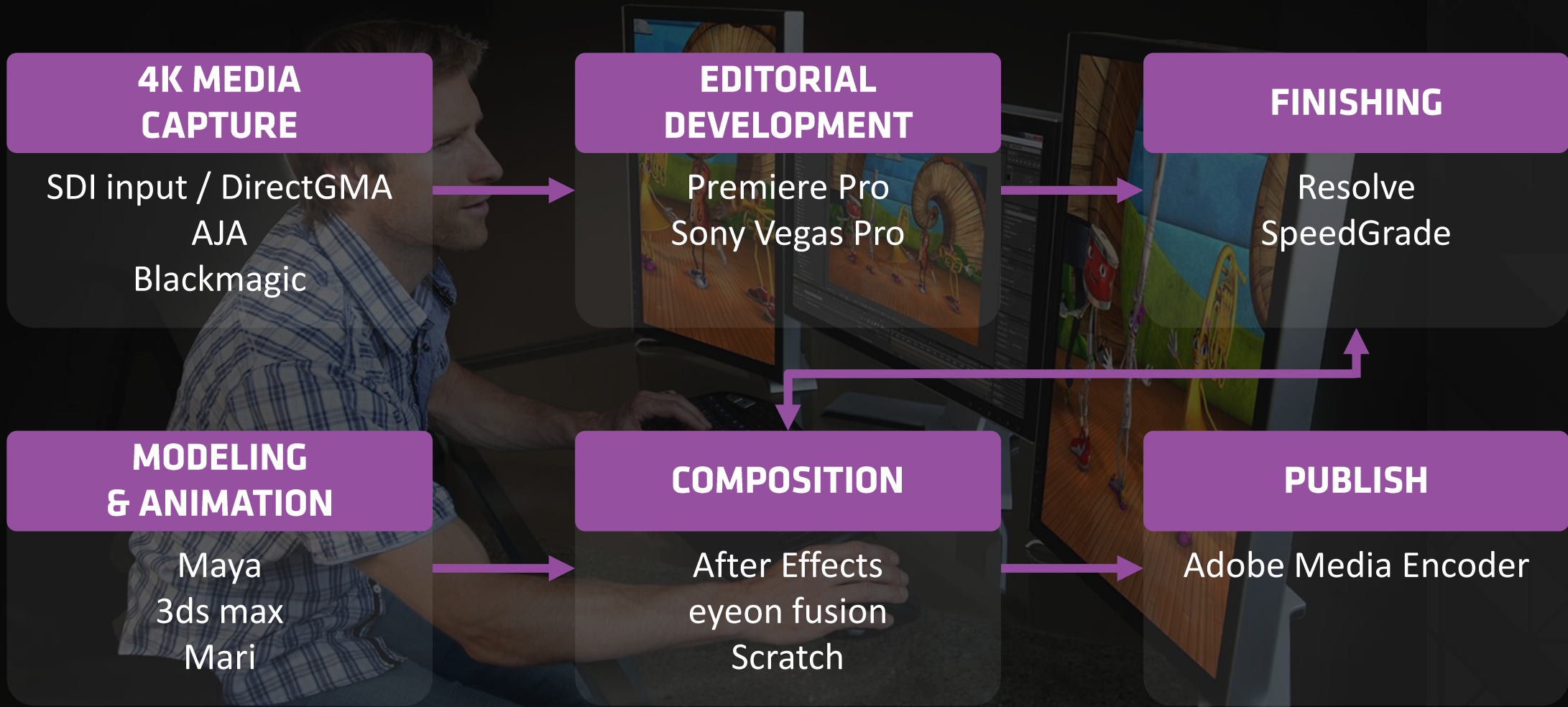
**MEDIA & ENTERTAINMENT
WORKFLOWS** ▲

POWERED BY AMD FIREPRO™ W9100 GRAPHICS

MEDIA AND ENTERTAINMENT WORKFLOW



AMD FIREPRO™ GRAPHICS: ADDRESSING THE ENTIRE 4K PRODUCTION PIPELINE



BLACKMAGIC
DAVINCI RESOLVE

THE GOAL:

- ▲ Maximum productivity

THE CHALLENGE:

- ▲ Real-time 4K video with color correction and effects

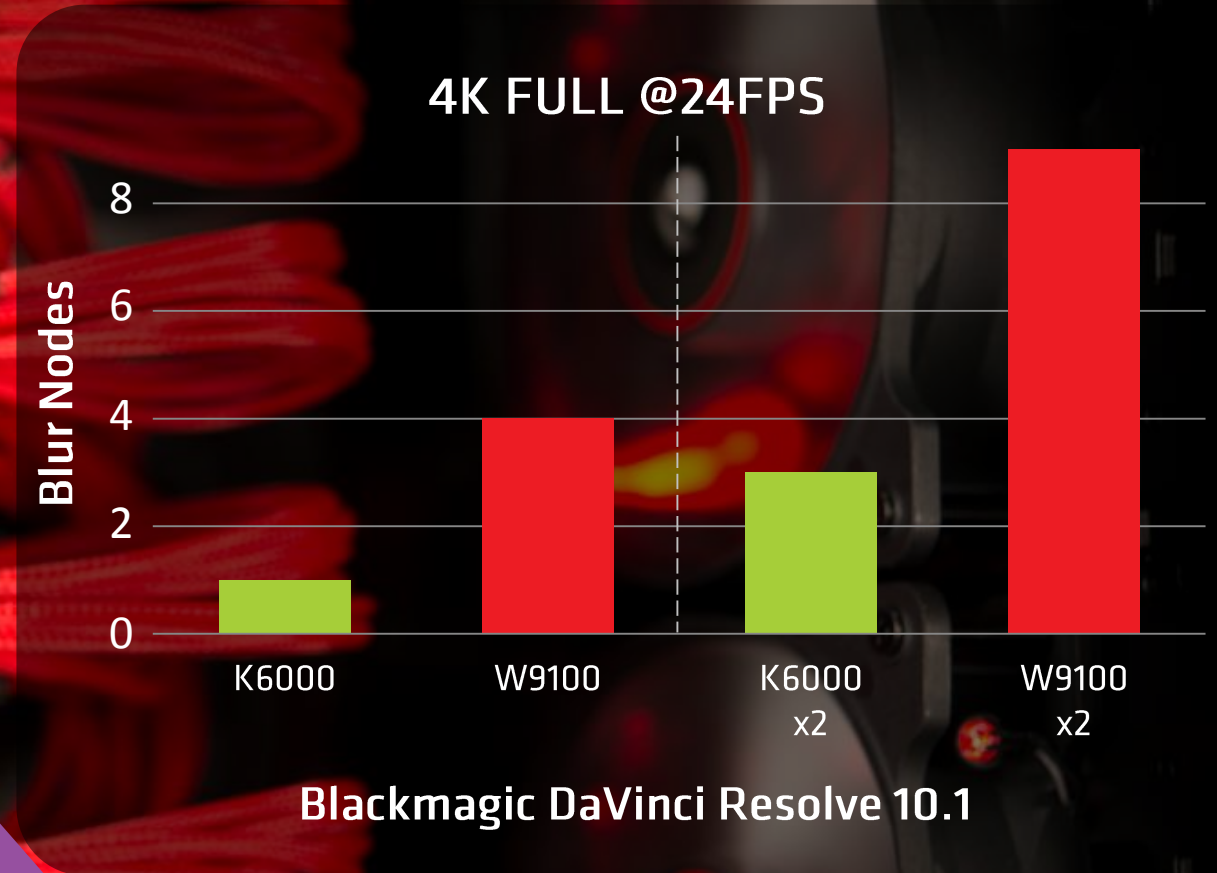


- ▲ Enables applying effects “on the fly,” via OpenCL™
- ▲ Multi-GPU (4) allows 4K @60Hz with most effect “nodes”

FINISHING

"It is exciting to see the performance our customers will get using OpenCL™ on AMD's GPUs. ...And with OpenCL™ support in DaVinci Resolve 10 for both Mac and Windows OS, you can use up to four GPUs with a single Resolve, giving absolutely amazing real-time performance."

Grant Petty
CEO, Blackmagic Design



Blackmagic DaVinci Resolve 10.1

>3x vs competition

* See footnote #3 at end of presentation

AUTODESK®
MAYA BULLET

THE GOAL:

- ▲ Less time waiting and more time roughing out dynamic simulations

THE CHALLENGE:

- ▲ Allow artists to quickly create, view and edit simulations in real-time



- ▲ Accelerates fast physics solver (OpenCL™)
- ▲ 16GB GDDR5: massive geometry
- ▲ 4K shows how the mesh will deform

THE FOUNDRY
MARI



THE GOAL:

- ▲ More time painting, less time waiting

THE CHALLENGE:

- ▲ Create truly stunning effects and detail in a fluid and flexible way to paint directly onto 3D models



- ▲ Real-time 3D preview with full effects enabled (OpenCL™)
- ▲ 16GB GDDR5: massively-high resolution textures and millions of polygons

THE WORKFLOW SOLUTION



ADOBE®
PREMIERE PRO CC

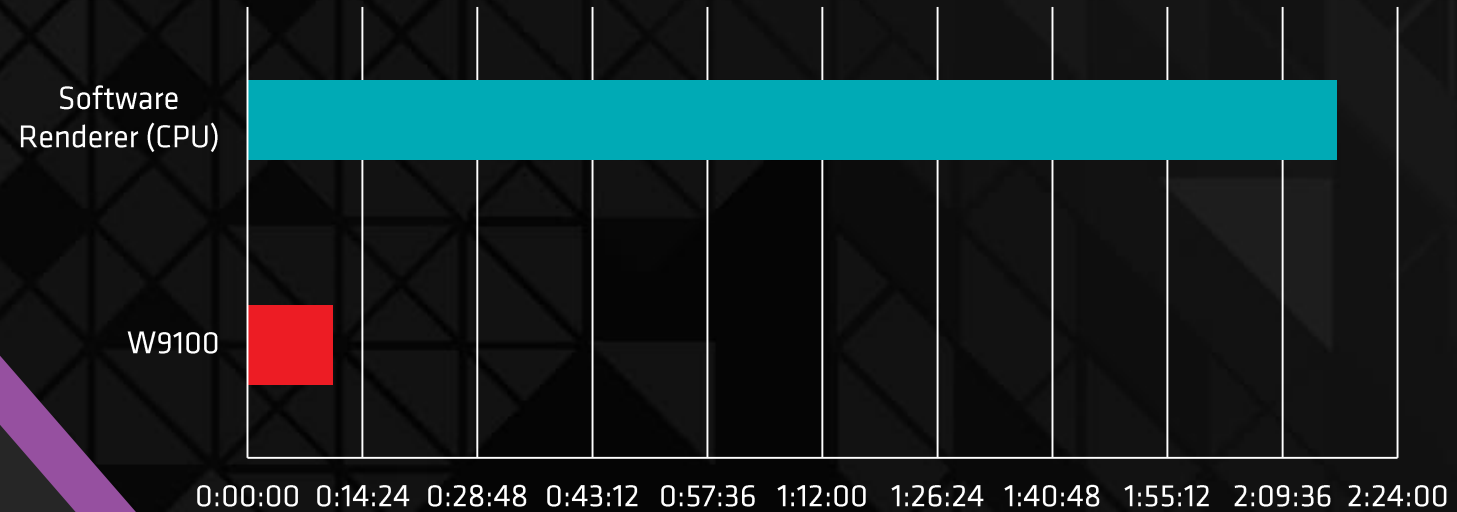
THE GOAL:

- ▲ Edit video faster and more fluidly

THE CHALLENGE:

- ▲ Maintain real-time in 4K while applying effects, compositing and rendering to preview

Raw 4K Render to H.264 File @1080p 24FPS
(lower is better)



Adobe Premiere Pro CC Render in to out



Ensures users can enjoy real-time 4K video through superior OpenCL™ performance



AMD FIREPRO™ GRAPHICS

MARCH 26, 2014

#AMDFIREPRO



**THE NEXT GENERATION
OF WORKSTATION**

POWERED BY AMD FIREPRO™ W9100 GRAPHICS

WHAT DOES THE NEXT GENERATION OF WORKSTATION REQUIRE?



Powerful Single and Multi-GPU **COMPUTE** Performance

Maximum **GRAPHICS** Capabilities

Uncompromised **4K** Performance and Display Flexibility

INTRODUCING THE ULTRA WORKSTATION

THE **VISUAL SUPERCOMPUTER** FOR YOUR DESK



| CPU | MEMORY | GRAPHICS | DISPLAY |
|------------------------------|--|---|--------------------------------------|
| Up to two 8-Core CPUs | 32GB DDR3 System Memory or more | Up to four AMD FirePro™ W9100 Graphics Cards | Up to six 4K Displays per GPU |

NEW AMD PROGRAM FOR WORKSTATION SYSTEM INTEGRATORS

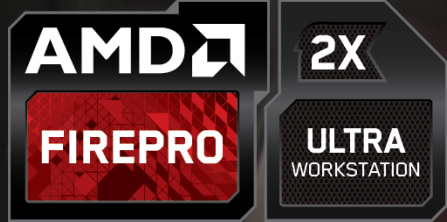
▲ Special program and branding for select WSI partners

▲ Targeting High End, professional workflows

▲ Standardized system requirements



▲ Digital Content Creation
▲ CAD/CAE/CAM

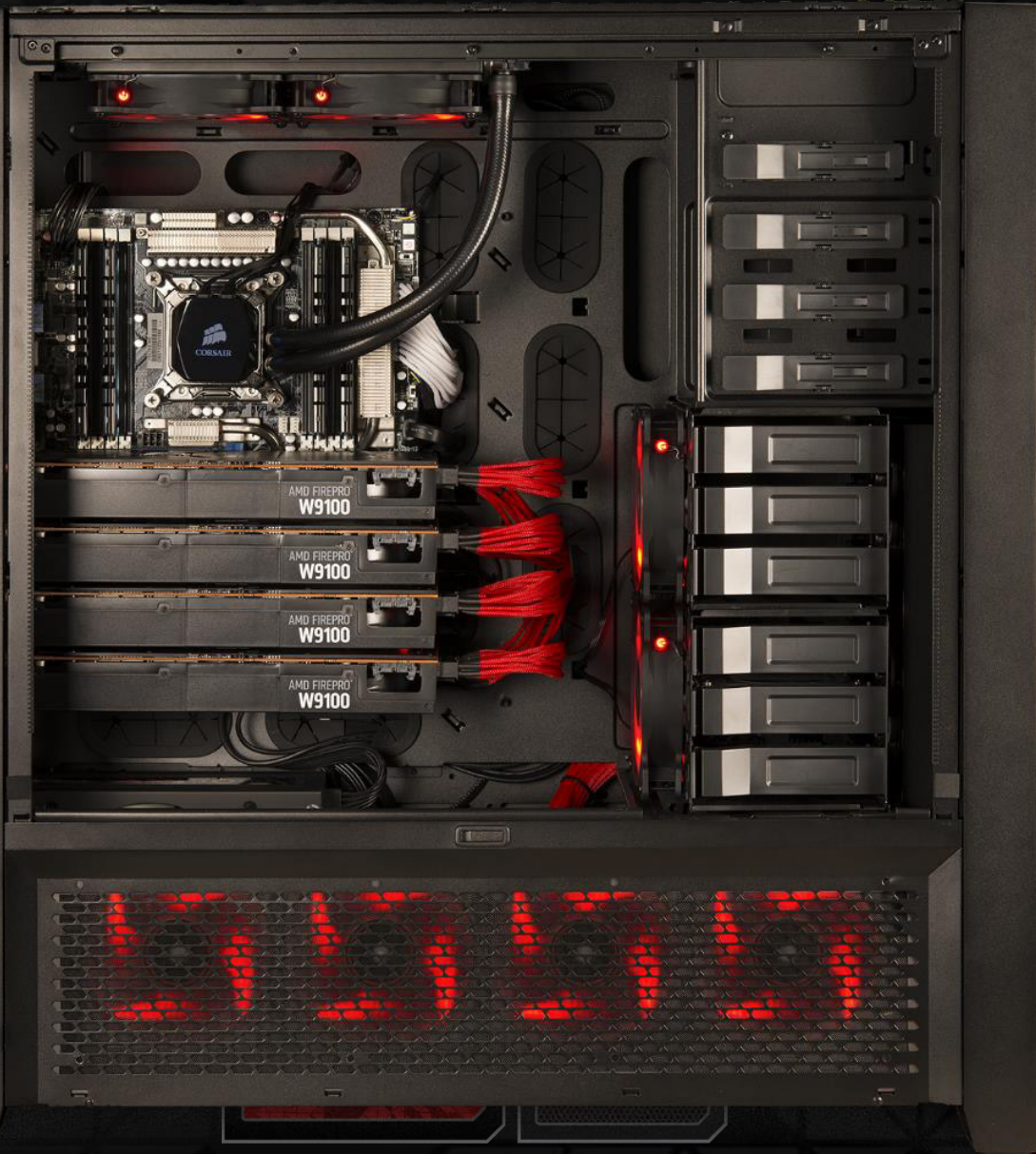


▲ Digital Video Editing & Post Production



▲ 4K Color Correction

AMD FIREPRO™ GRAPHICS ULTRA WORKSTATION LAUNCH PARTNERS



 **schneider**
d i g i t a l
Professional 3D-Hardware

AMD FIREPRO™
W9100

AMD FIREPRO™
W9100

AMD FIREPRO™
W9100

AMD FIREPRO™
W9100

OVER
2 teraFLOPS
Double
Precision

16 GB GDDR5
Frame
Buffer

REAL-TIME
4K

POWERING THE
ULTRA
WORKSTATION



#AMDFIREPRO

THANK YOU ▲

1. SiSoftware Sandra, LuxMark, BASEMARK CL test details:

System Description: ASUS P9X79E-WS, Intel Xeon E5-2697 v2, 32GB Kingston DDR3-2133, 750GB SSD Samsung 840EVO, Corsair AX1500i PSU, Corsair Obsidian 950D chassis, Corsair H100i CPU cooler
AMD Driver 13.35 | Nvidia Driver 332.50

2. SOLIDWORKS 2014 test details:

System Config: Intel E5-1660 3.30GHz, 16GB RAM, Win7 64-bit SP1, AMD 13.35 beta Nvidia 334.95

3. Blackmagic DaVinci Resolve Test Details:

Note: Tests were run using multiple 4K TIFF sequences. System Description: ASUS P9X79E-WS, Intel Xeon E5-2697 v2, 32GB Kingston DDR3-2133, 750GB SSD Samsung 840EVO, Corsair AX1500i PSU, Corsair Obsidian 950D chassis, Corsair H100i CPU cooler. AMD Driver 13.35 | Nvidia Driver 332.50

4. Software: Adobe Premiere Pro pre-release build 294 / Windows 7 64-bit | Effects: ProcAmp, Sharpen, Color Balance (RGB), RGB Color Corrector, Lumetri (multiple Deep Color effects) | System: Intel Xeon E5530 @ 2.40 GHZ, 12GB memory, 160GB Velociraptor | Drivers: AMD 12.102 / NVIDIA 311.35, Content: 4K TIFF 24-bit sequence

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