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# Z BY HP GRAPHICS QUICK REFERENCE GUIDE

## PROFESSIONAL GRAPHICS SOLUTIONS FOR HP Z WORKSTATIONS

HP is proud to exclusively offer professional graphics choices on all of our HP Workstations—from the HP ZBook Mobile Workstation family to our ultimate workstation, the HP Z8.

HP's professional graphics line-up is perfect for users who are running business critical applications based on OpenGL and DirectX® who require stability, reliability, great performance, additional support, and application-specific features and optimization for things like complex design modeling, dataset manipulation, visual effects and visualization.



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# HP DESKTOP WORKSTATIONS GRAPHICS SUPPORT MATRIX<sup>1</sup>

Platform		HP Z2 Mini G4	HP Z2 SFF G4	HP Z2 Tower G4	HP Z4 G4	HP Z6 G4	HP Z8 G4
Graphics	Category						
Intel® UHD Graphics 630	Office 2D	●	●	●	-	-	-
Intel® UHD Graphics P630	Entry 3D	●	●	●	-	-	-
AMD Radeon™ Pro WX 3100	Low-end 3D	-	●	●	●●	●●	●●
AMD Radeon™ Pro WX 4100	Mid-range 3D	-	-	●	●●	●●	●●●●
AMD Radeon™ Pro WX 4150	Mid-range 3D	●**	-	-	-	-	-
AMD Radeon™ Pro WX 7100	High-end 3D	-	-	●	●●	●●	●●●
AMD Radeon™ Pro WX 9100	Ultra 3D	-	-	-	●	●	●
NVIDIA® Quadro® P400	Sub-entry 3D	-	●	●	●●	●●	●●
NVIDIA® Quadro® P600	Low-end 3D	●****	-	-	-	-	-
NVIDIA® Quadro® P620	Entry 3D	-	●	●	●●	●●	●●
NVIDIA® Quadro® P1000	Mid-range 3D	●***	●	●	●●	●●●	●●●●
NVIDIA® Quadro® P2000	Mid-range 3D	-	-	●	●●	●●	●●●●
NVIDIA® Quadro® P4000	High-end 3D	-	-	●	●●	●●	●●●
NVIDIA® Quadro® P5000	Ultra 3D	-	-	●	●	●●	●●●
NVIDIA® Quadro® P6000	Ultra 3D	-	-	-	●	●	●●●
NVIDIA® Quadro® GP100	Ultra HD	-	-	-	●	●●	●●●
NVIDIA® Quadro® GV100	Ultra 3D	-	-	-	●●	-	●●●
NVIDIA® Quadro® RTX 4000	High End 3D	-	-	●	●●	●●	●●●●
NVIDIA® Quadro® RTX 5000	Ultra 3D	-	-	-	●●*	●*	●●*
NVIDIA® Quadro® RTX 6000	Ultra 3D	-	-	-	●●*	●*	●●*
NVIDIA® Quadro® RTX 8000	Ultra 3D	-	-	-	●●*	●*	●●*

#### NOTE

##### Key Legend:

- single
- dual
- triple
- quad

\*Please refer to platform specifications and ordering guides for applicable configuration restrictions

\*\*Premium solution can be configured to use both discrete and integrated GPUs

\*\*\*MXM module (NVIDIA® Quadro® P600 4 GB, NVIDIA® Quadro® P1000 4 GB)

\*\*\*\*MXM module AMD Radeon™ Pro WX 4150 4 GB



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## HP DESKTOP WORKSTATIONS INTEGRATED GRAPHICS SPEC SUMMARY

Graphics Module	Intel® UHD Graphics 630	Intel® UHD Graphics P630
Graphics Category	Office 2D	Entry 3D
Memory (shared with system)	up to 64 GB	up to 1.7 GB
Execution Units	24	24
DirectX Support	12	12
OpenGL Support	4.5	4.5
Max Resolution (DP)	4096 x 2304 @ 60 Hz	4096 x 2304 @60 Hz
Max Displays	3	3



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## HP DESKTOP WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY

Graphics Module	NVIDIA® Quadro® P400	NVIDIA® Quadro® P600 MXM	NVIDIA® Quadro® P620	AMD Radeon™ Pro WX 3100	AMD Radeon™ Pro WX 4150 MXM
Graphics Category	Sub-entry 3D	Entry 3D	Entry 3D	Entry 3D	Entry 3D
Memory (dedicated memory)	2 GB GDDR5	4 GB GDDR5	2 GB GDDR5	4 GB GDDR5	4 GB GDDR5
Memory Bandwidth	Up to 32 GB/s	-	Up to 64 GB/s	96 GB/s	-
Cores	256	384	512	512	896
Power	30 W	25 W	40 W	35 W	35 W
Form Factor	single slot, Half Height	MXM	single slot, Half Height	single slot, Half Height	MXM
DirectX Support <sup>2</sup>	12/12	12	12/12	12/12	12
OpenGL Support	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60Hz	5120 x 2880 @ 60Hz <sup>5</sup>	5120 x 2880 @ 60 Hz
Max Displays	3	4	4	4 or 6 with DP MST	5
Video Outputs	4x mini-DP	4x mini-DP	4x mini-DP	1x DP + 2x mDP 1.4	-
<b>Included Video Cables:</b>					
CTO	None	-	None	None	-
AMO	2x mini-DP to DP	-	2x mini-DP to DP	None	-
ISV Certified	Yes	Yes	Yes	Yes	Yes
Other	GPU Boost 3.0, CUDA®, Mosaic™	CUDA®	GPU Boost 3.0, CUDA®, Mosaic™	AMD® Sync, OpenCL™ 2.0, Eyefinity, DirectGMA, FreeSync, HDR Ready	OpenCL™ 2.0



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## HP DESKTOP WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY (CONTINUED)

Graphics Module	NVIDIA® Quadro® P1000	NVIDIA® Quadro® P1000 MXM	AMD Radeon™ Pro WX 4100	NVIDIA® Quadro® P2000
Graphics Category	Mid-range 3D	Mid-range 3D	Mid-range 3D	Mid-range 3D
Memory (shared with system)	4 GB GDDR5	4 GB GDDR5	4 GB GDDR5	5 GB GDDR5
Memory Bandwidth	Up to 80 GB/s	-	96 GB/s	Up to 140 GB/s
Cores	1024	640	1024	1024
Power	47 W	40 W	50 W	75 W
Form Factor <sup>10</sup>	single slot, Full Height	MXM	single slot, Half Height	single slot, Full Height
DirectX Support <sup>2</sup>	12/12	12	12/12	12/12
OpenGL Support	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz <sup>5</sup>	5120 x 2880 @ 60 Hz
Max Displays	4	4	4 or 6 with DP MST	4
Video Outputs	4x mini-DP	-	4x mDP 1.4	4x DP 1.4
<b>Included Video Cables:</b>				
CTO	None	-	None	None
AMO	2x mini-DP to DP	-	4x mini-DP to DP	None
ISV Certified	Yes	Yes	Yes	Yes
Other	GPU Boost 3.0, CUDA®, Mosaic™	CUDA®	AMD® Sync, OpenCL™ 2.0, Eyefinity, DirectGMA, FreeSync, HDR Ready	GPU Boost 3.0, CUDA®, Mosaic™



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## HP DESKTOP WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY (CONTINUED)

Graphics Module	AMD Radeon™ Pro WX 7100	NVIDIA® Quadro® P4000	NVIDIA® Quadro® P5000	NVIDIA® Quadro® RTX 4000	NVIDIA® Quadro® RTX 5000
Graphics Category	High-end 3D	High-end 3D	High-end 3D	Ultra 3D	Ultra 3D
Memory (shared with system)	8 GB GDDR5	8 GB GDDR5	16 GB GDDR5X	8 GB GDDR6	16 GB GDDR6
Memory Bandwidth	Up to 224 GB/s	Up to 243 GB/s	Up to 288 GB/s	416 GB/s	Up to 448 GB/s
Cores	2304	1792	2560	2304	3072
Power	130 W	120 W	180 W	160 W	265 W
Form Factor	single slot, Full Height	single slot, Full Height	dual slot, Full Height	single slot, Full Height	dual slot, Full Height
DirectX Support <sup>2</sup>	12/12	12/12	12/12	12/12	12/12
OpenGL Support	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz <sup>5</sup>	5120 x 2880 @ 60Hz	5120 x 2880 @ 60 Hz	7680 x 4320 @ 60Hz	7680 x 4320 @ 60 Hz
Max Displays	4 or 6 with DP MST	4	4	4	4
Video Outputs	4x DP 1.4	4x DP 1.4	4x DP 1.4 and DL-DVI	3x DP 1.4a and VirtualLink <sup>7</sup>	4x DP 1.4a + USB-C <sup>7</sup>
<b>Included Video Cables:</b>					
CTO	None	None	None	None	None
AMO	None	None	None	None	None
ISV Certified	Yes	Yes	Yes	Yes	Yes
Other	AMD® Sync, OpenCL™ 2.0, Eyefinity, DirectGMA, FreeSync, HDR Ready, VR Enabled	Quadro® Sync II, GPUDirect, GPU Boost 3.0, SLI®, CUDA®, Mosaic™, VR Ready	Quadro® Sync II, GPUDirect, GPU Boost 3.0, SLI®, CUDA®, Mosaic™, VR Ready	Quadro® Sync II, CUDA®, Mosaic™, VR Ready	Quadro® Sync II, GPUDirect, GPU Boost 3.0, NVLink/SLI®, CUDA®, Mosaic™, VR Ready



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## HP DESKTOP WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY (CONTINUED)

Graphics Module	NVIDIA® Quadro® P6000	NVIDIA® Quadro® RTX 6000	NVIDIA® Quadro® GP100	NVIDIA® Quadro® GV100	AMD Radeon™ Pro WX 9100
Graphics Category	Ultra 3D	Ultra 3D	Ultra 3D	Ultra 3D	Ultra 3D
Memory (shared with system)	24 GB GDDR5X	24 GB GDDR6	16 GB HBM2	32 GB HBM2	16 GB HBM2
Memory Bandwidth	Up to 432 GB/s	Up to 672 GB/s	Up to 717 GB/s	Up to 870 GB/s	Up to 483 GB/s
Cores	3840	4608	3584	5120	4096
Power	250 W	295 W	235 W	250 W	250 W
Form Factor	dual slot, Full Height	dual slot, Full Height	dual slot, Full Height	dual slot, Full Height	dual slot, Full Height
DirectX Support <sup>2</sup>	12/12	12/12	12/12	12/12	12/12.1
OpenGL Support	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	7680 x 4320 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60Hz	7680 x 4320 @ 60Hz <sup>8</sup>
Max Displays	4	4	4	4	6
Video Outputs	4x DP 1.4 and DL-DVI	4x DP 1.4a + USB-C <sup>7</sup>	4x DP 1.4 and DL-DVI	4x DP 1.4	6x mDP 1.4
<b>Included Video Cables:</b>					
CTO	None	None	None	None	None
AMO	None	None	None	None	2x mini-DP to DP
ISV Certified	Yes	Yes	Yes <sup>6</sup>	Yes <sup>6</sup>	Yes
Other	Quadro® Sync II, GPUDirect, GPU Boost 3.0, SLI®, CUDA®, Mosaic™, VR Ready	Quadro® Sync II, GPUDirect, GPU Boost 3.0, NVLink/SLI®, CUDA®, Mosaic™, VR Ready	Quadro® Sync II, GPUDirect, GPU Boost 3.0, CUDA®, Mosaic™, VR Ready, Multi-GPU Scalability NVLink (2-way) <sup>7</sup>	Quadro® Sync II, GPUDirect, GPU Boost 3.0, CUDA®, Mosaic™, VR Ready, Multi-GPU Scalability NVLink (2-way) <sup>7</sup>	AMD® Sync, OpenCL™ 2.0, Eyefinity, DirectGMA, FreeSync, HDR Ready, VR Ready



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## HP MOBILE WORKSTATIONS GRAPHICS SUPPORT MATRIX

		HP ZBook 14u G5/ 15u G5	HP ZBook 14u/ 15u G6	HP ZBook x2 G4	HP ZBook Studio x360 G5	HP ZBook Studio G5
<b>Graphics</b>	<b>Category</b>	-	-	-	-	-
Intel® HD Graphics 620	Office 2D	-	•	•	-	-
Intel® UHD Graphics 620	Office 2D	-	-	•	-	-
Intel® UHD Graphics 630	Office 2D	•	-	-	•	•
Intel® UHD Graphics P630	Entry 3D	-	-	-	•	•
AMD Radeon™ Pro WX 3100	Entry 3D	•	-	-	-	-
AMD Radeon™ Pro WX 3200	Entry 3D	•	•	-	-	-
NVIDIA® Quadro® M620	Entry 3D	-	-	•	-	-
NVIDIA® Quadro® P1000	Mid-range 3D	-	-	-	•	•
NVIDIA® Quadro® P2000	Mid-range 3D	-	-	-	•	•

#### Key Legend:

- single





# HP MOBILE WORKSTATIONS GRAPHICS SUPPORT MATRIX

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Graphics	Category	HP ZBook 15v G5	HP ZBook 15 G5	HP ZBook 15 G6	HP ZBook 17 G5	HP ZBook 17 G6	HP Z VR Backpack
Intel® UHD Graphics 630	Office 2D	•	•	•	•	•	-
Intel® UHD Graphics P630	Entry 3D	•	•	•	•	•	-
AMD Radeon™ Pro WX 4150	Entry 3D	-	•	-	-	-	-
AMD Radeon™ Pro WX 4170	Mid-range 3D	-	-	-	•	-	-
NVIDIA® Quadro® P600	Entry 3D	•	-	-	-	-	-
NVIDIA® Quadro® P1000	Mid-range 3D	-	•	-	•	-	-
NVIDIA® Quadro® P2000	Mid-range 3D	-	•	-	•	-	-
NVIDIA® Quadro® P3200	High-end 3D	-	-	-	•	-	-
NVIDIA® Quadro® P4200	High-end 3D	-	-	-	•	-	-
NVIDIA® Quadro® P5200	Ultra 3D	-	-	-	•	-	•
NVIDIA® Quadro® T1000	Mid-range 3D	-	-	•	-	•	-
NVIDIA® Quadro® T2000	Mid-range 3D	-	-	•	-	-	-
NVIDIA® Quadro® RTX 3000	High-end 3D	-	-	•	-	•	-
NVIDIA® Quadro® RTX 4000	High-end 3D	-	-	-	-	•	-
NVIDIA® Quadro® RTX 5000	High-end 3D	-	-	-	-	•	-

#### Key Legend:

- single



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## HP MOBILE WORKSTATIONS INTEGRATED GRAPHICS SPEC SUMMARY

Graphics Module	Intel® HD Graphics 620	Intel® UHD Graphics 620	Intel® UHD Graphics 630	Intel® UHD Graphics P630
Graphics Category	Office 2D	Office 2D	Office 2D	Entry 3D
Memory (shared with system)	up to 32 GB	up to 32 GB	up to 64 GB	up to 1.7 GB
Execution Units	24	24	24	24
DirectX Support	12	12	12	12
OpenGL Support	4.4	4.4	4.5	4.5
Max Resolution (DP) <sup>1</sup>	4096 x 2304 @ 60 Hz	4096 x 2304 @ 60 Hz	4096 x 2304 @ 60 Hz	4096 x 2304 @ 60 Hz
Max Displays <sup>1</sup>	3	3	3	3
ISV Certified	No	No	No	Yes
Other	OpenCL™ 2.0	OpenCL™ 2.0	OpenCL™ 2.0	OpenCL™ 2.0



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## HP MOBILE WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY

Graphics Module	NVIDIA® Quadro® M620	NVIDIA® Quadro® P600	AMD Radeon™ Pro WX 3100	AMD Radeon Pro™ WX 3200	AMD Radeon™ Pro WX 4150	AMD Radeon™ Pro WX 4170
Graphics Category	Entry 3D	Entry 3D	Entry 3D	Entry 3D	Entry 3D	Mid-range 3D
Memory	2 GB GDDR5	4 GB GDDR5	2 GB GDDR5	4 GB GDDR5	4 GB GDDR5	4 GB GDDR5
Cores	512	384	512	640	896	1024
Power	30 W	25 W	18 W	18 W	35 W	50 W
DirectX Support	12	12	12	12	12	12
OpenGL Support	4.5	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz
Display Pipelines <sup>3</sup>	4	4	4	4	5	5
ISV Certified	Yes	Yes	Yes	Yes	Yes	Yes
Other	CUDA®	CUDA®	OpenCL™ 2.0 Vulkan 1.0	OpenCL™ 2.0 Vulkan 1.0	OpenCL™ 2.0	OpenCL™ 2.0

## HP MOBILE WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY (CONTINUED)

Graphics Module	NVIDIA® Quadro® P1000	NVIDIA® Quadro® P2000	NVIDIA® Quadro® P3200	NVIDIA® Quadro® P4200	NVIDIA® Quadro® P5200
Graphics Category	Mid-range 3D	Mid-range 3D	High-end 3D	High-end 3D	Ultra 3D
Memory	4 GB GDDR5	4 GB GDDR5	6 GB GDDR5	8 GB GDDR5	16 GB GDDR5
Cores	640	768	1792	2304	2560
Power	40 W	50 W	78 W	80 W	100 W <sup>5</sup>
DirectX Support	12	12	12	12	12
OpenGL Support	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz
Display Pipelines <sup>3</sup>	4	4	4	4	4
ISV Certified	Yes	Yes	Yes	Yes	Yes
Other	CUDA®	CUDA®	CUDA®	CUDA®	CUDA®



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## HP MOBILE WORKSTATIONS DISCRETE GRAPHICS SPEC SUMMARY

Graphics Module	NVIDIA® Quadro® T1000	NVIDIA® Quadro® T2000	NVIDIA® Quadro® RTX 3000	NVIDIA® Quadro® RTX 4000	NVIDIA® Quadro® RTX 5000
Graphics Category	Mid-range 3D	Mid-range 3D	High-end 3D	High-end 3D	High-end 3D
Memory	4 GB GDDR5	4 GB GDDR5	2 GB GDDR5	4 GB GDDR5	4 GB GDDR5
Cores	768	1024	2304	2560	3072
Power	40 W	80 W	80 W <sup>6</sup>	80 W	80 W
DirectX Support	12	12	12	12	12
OpenGL Support	4.5	4.5	4.5	4.5	4.5
Max Resolution (DP) <sup>3</sup>	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz	5120 x 2880 @ 60 Hz
Display Pipelines <sup>3</sup>	4	4	4	4	4
ISV Certified	Yes	Yes	Yes	Yes	Yes
Other	CUDA®	CUDA®	CUDA®	CUDA®	CUDA®



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DisplayPort™ to DVI-D	Single link DVI-D support (max 1920x1200 @ 60 Hz) <b>Part number: FH973AA</b>
DisplayPort™ to dual link DVI	Dual link DVI-D supports 2560x1600 @60 Hz <b>Part number: NR078AA</b>
DisplayPort™ to HDMI True 4K Adapter	Supports audio over DP, supports UHD up to 30 Hz and True 4K up to 24 Hz (HDMI 1.4) <b>Part number: 2JA63AA</b>
DisplayPort™ to VGA	VGA support <b>Part number: AS615AA</b>
DVI-I to VGA	VGA support <b>Part number: VE053AA</b>
6-pin to 8-pin Power Adapter	HP Z Workstation PSU adaptor for graphics <b>Part number: N1G35AA</b>
NVIDIA® SLI® 2-Slot Connector	For NVIDIA® Quadro® P4000, P5000, and P6000 on HP Z4 G4 or HP Z8 G4 <b>Part number: 2YY84AA</b>
NVIDIA® SLI® 3-Slot Connector	For NVIDIA® Quadro® P4000, P5000, and P6000 on HP Z6 G4 <b>Part number: 2YY85AA</b>
NVIDIA® 3D Stereo Bracket	For NVIDIA® Quadro® M4000, M5000, M6000, P5000, P6000 applications <b>Part number: K0A25AA</b>
NVIDIA® Quadro® Sync II	For NVIDIA® Quadro® P4000, P5000, P6000, GP100, GV100, RTX 4000, RTX 5000, RTX 6000, RTX 8000 <b>Part number: 1WT20AA</b>
HP (Bulk 12) miniDP-to-DP Adapter Cables	To connect additional displays to graphics cards with miniDP ports <b>Part number: 2KW87A6</b>
HP Single miniDP-to-DP Adapter Cable	To connect one additional display to graphics card's miniDP port <b>Part number: 2MY05AA</b>
HP NVIDIA® GP100 NVLINK Bridge Kit (Pair)	To connect two GP100 graphics cards for GPU-compute scaling <b>Part number: 2YY86AA</b>
HP NVIDIA® GV100 NVLINK Bridge Kit (Pair)	To connect two GV100 graphics cards for GPU-compute scaling <b>Part number: 3NZ66AA</b>
Quadro RTX NVLink 2-slot Bridge	To connect two RTX 5000 graphics cards for GPU-compute scaling <b>Part number: 6FY12AA</b>
Quadro RTX NVLink 3-slot Bridge	To connect two RTX 5000 graphics cards for GPU-compute scaling <b>Part Number:6FY14AA</b>
Quadro RTX NVLink High-Bandwidth 2-slot Bridge	To connect two RTX 6000 or RTX 8000 graphics cards for GPU-compute scaling <b>Part number: 6FY11AA</b>
Quadro RTX NVLink High-Bandwidth 3-slot Bridge	To connect two RTX 6000 or RTX 8000 graphics cards for GPU-compute scaling <b>Part number: 6FY13AA</b>



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## ADDITIONAL RESOURCES

Resources, contacts, or additional links

AMD FirePro™ Professional Graphics [amd.com/en-us/solutions/workstations](http://amd.com/en-us/solutions/workstations)

NVIDIA® Quadro® Graphics [nvidia.com/object/hp\\_workstations.html](http://nvidia.com/object/hp_workstations.html)

High Performance Computing [www8.hp.com/us/en/campaigns/workstations/gpu-computing.html](http://www8.hp.com/us/en/campaigns/workstations/gpu-computing.html)

Learn more at [hp.com/go/leadershipgraphics](http://hp.com/go/leadershipgraphics)

## SOURCES AND LEGAL DISCLAIMERS

### HP Z Desktop Workstation notes

- <sup>1</sup> Only Z4 G4 with 750 W PSU needs 6pin-to-8pin Aux Power Adapter.
- <sup>2</sup> 1st/2nd where 1st is DirectX HW level version support, and 2nd is SW API DirectX version support.
- <sup>3</sup> Not all video outputs of the graphics card may support the stated Max Resolution. See the card QuickSpecs for details and any restrictions.
- <sup>4</sup> Two video card DP outputs must be cabled using two DP cables to a 5K (5120x2880) display that accepts dual DP inputs (such as the HP Z27q).
- <sup>5</sup> 2x dual DP 1.3 cabled 5k displays max., or 1x single cable DP 1.4.
- <sup>6</sup> Tested by select ISVs.
- <sup>7</sup> As of March 2019, VirtualLink's USB-C (data) cannot be disabled at a hardware level.
- <sup>8</sup> 6x DP 1.3 4K @60 Hz or 3x 5K @60 Hz or 1x 8K @60 Hz.
- <sup>9</sup> "Half Height" is also known as "Low Profile", "Single Slot" is also known as "Single Width", and "Dual Slot" is also known as "Dual Width".

### HP ZBook Mobile Workstation and HP Z VR Backpack notes

- <sup>1</sup> On system board for the HP ZBook Studio G4.
- <sup>2</sup> On system board for the HP ZBook Studio G3.
- <sup>3</sup> See mobile workstation system specifications for display output types and max displays and resolutions supported.
- <sup>4</sup> 4 GB GDDR5 configuration offered on HP ZBook Studio G3 only.
- <sup>5</sup> Z VR Backpack enables 150 W GPU.
- <sup>6</sup> HP ZBook 15 G6 uses 65 W MaxQ RTX 3000, and all GPUs are on the system board.

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