

HP recommends Windows® 7.

	Mid-range 3D		High-end 3D			Ultra high-end 3D
Graphics segment	NVIDIA Quadro 2000	AMD FirePro V5900	NVIDIA Quadro 4000	AMD FirePro V7900	NVIDIA Quadro 5000	NVIDIA Quadro 6000
Positioning statement	Superior performance and capabilities at an attractive mid-range price	Exceptional visual quality, great performance and an incredible price for the mid range	Accelerate your entire workflow	Exceptional performance, superb visual quality, and outstanding multi-display capabilities in a single slot solution	Design, iterate and deliver higher quality results in less time	Data integrity and precision is assured with ECC memory and fast double precision capabilities
Supported HP Workstations (• single; •• dual)						
HP Z200	•					
HP Z210 CMT	••	•	• ¹	•		
HP Z400	•••	•••	••	••	••	
HP Z600	••••	••••	•••	•••	•••	
HP Z800	••••	••••	••••	••••	••••	••
Supported operating systems						
Genuine Windows® 7 Professional²	•	•	•	•	•	•
Red Hat Enterprise Linux 4	•	•	•	•	•	•
HP Linux Installation Kit	•	•	•	•	•	•
Graphics memory	1.0 GB	2.0 GB	2.0 GB	2.0 GB	2.5 GB	6.0 GB
Memory type	GDDR5	GDDR5	GDDR5	GDDR5	GDDR5	GDDR5
Supported with:	Parallels Software	AMD Eyefinity Technology	3rd party stereo connector Parallels Software	AMD Eyefinity Technology	NVIDIA SLI Connector Parallels Software	NVIDIA SLI Connector NVIDIA Tesla C2050/C2075 Parallels Software
Connectors	1 dual link DVH, 2 DP outputs with one DP to single link DVI adapter	2 DP 1.2 connectors, 1 dual link DVH	2 DP, 1 dual link DVH output with 1 DP to single link DVI adapter	4 DP 1.2 connectors	2 DP, 1 dual link DVH, 1 stereo output with 1 DP to single link DVI adapter	2 DP, 1 dual link DVH, 1 stereo output with 1 DP to single link DVI adapter
Display configurations						
VGA + VGA	•	•	•	•	•	•
Quad Digital						
VGA + Digital	•	•	•	•	•	•
VGA + DisplayPort	•	•	•	•	•	•
Digital+ Digital	•	•	•	•	•	•
Digital + DisplayPort	•	•	•	•	•	•
DisplayPort + DisplayPort	•	•	•	•	•	•
Dual DisplayPort + Dual Digital						
Quad DisplayPort						
VGA + VGA + VGA		•				
VGA + VGA + Digital		•				
VGA + Digital + Digital		•				
VGA + DisplayPort + DisplayPort		•				
VGA + VGA + DisplayPort		•				
Digital + Digital + DisplayPort		•				
Digital + DisplayPort + DisplayPort		•				
DisplayPort + DisplayPort + DisplayPort		•				
Digital + DisplayPort + VGA		•				
Quad VGA				•		
Max. VGA display resolution	2048 x 1536	2048x1536	2048 x 1536	2048 x 1536	2048 x 1536	2048 x 1536
Max. digital display resolution	2560 x 1600	2560x1600	2560 x 1600	2560 x 1600	2560 x 1600	2560 x 1600
Number of 19"-to-30" diagonal displays supported	2	3 ³	2	4 ³	2	2
Host interface	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16
Number of slots required	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe x16 + adjacent slot	1 PCIe x16 + adjacent slot
ISV certifications	Yes	Yes	Yes	Yes	Yes	Yes
OpenGL Version	OGL 4.0	OGL 4.1	OGL 4.0	OGL 4.1	OGL 4.0	OGL 4.0
Vertex and pixel shaders	Shader Model 5.0	Shader Model 5.0	Shader Model 5.0	Shader Model 5.0	Shader Model 5.0	Shader Model 5.0
DirectX version	Direct X 11	DX 11	DX 11	DX 11.0	DX 11	DX 11
Max. power consumption	62 W	<75 W	140 W	<150 W	150 W – Active dual slot	225 W – Active dual slot

¹ After-market option. Learn more about AMOs for HP personal workstations by visiting <http://www.hp.com/go/wsaccessories>.

² Windows 7 systems may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

³ ATI Eyefinity Technology supported on Windows 7, Windows Vista, and Linux. Up to 2 displays supported with Windows XP.†



Configure and buy HP personal workstations online <http://www.hp.com/workstations>

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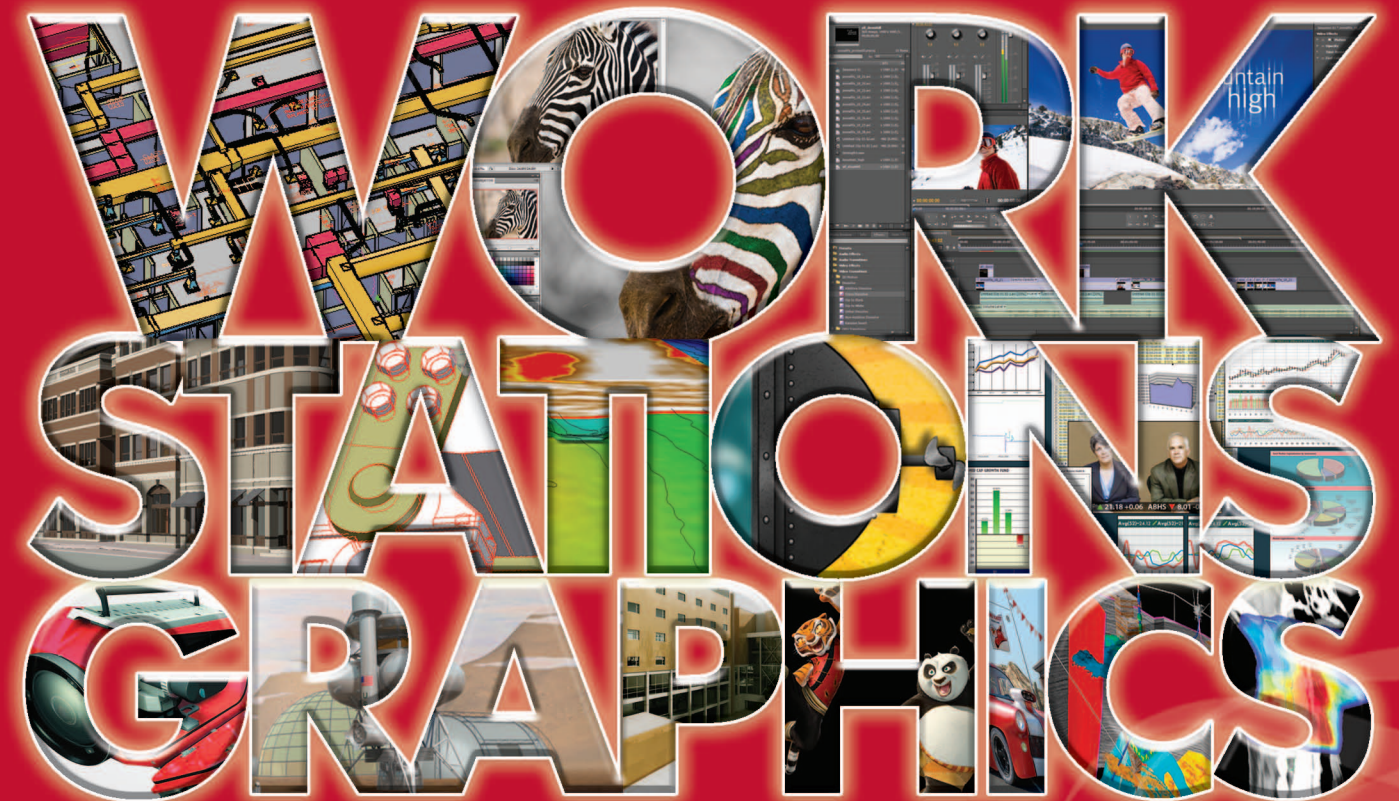
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HP Z WORKSTATIONS — GRAPHICS CARD OPTIONS QUICK REFERENCE GUIDE



INNOVATION • PERFORMANCE • RELIABILITY



Graphics segment	Integrated Graphics†			Professional 2D				Entry 3D				
	Intel HD Graphics (integrated)	Intel HD Graphics 2000	Intel HD Graphics P3000	NVIDIA Quadro NVS 295	NVIDIA NVS 300	AMD FirePro 2270	NVIDIA Quadro NVS 450	NVIDIA Quadro FX 380	NVIDIA Quadro 400	ATI FirePro V3800	NVIDIA Quadro 600	ATI FirePro V4800
Positioning statement	Readily available entry graphics for your office or entertainment needs	Readily available entry graphics for your office or entertainment needs	Readily available entry graphics for your office, entertainment, or some entry 3D needs	The business standard for multi-display desktop graphics	Business graphics solution to drive all your displays	Low-profile dual-display professional graphics card delivering the flexibility and convenience	Drives up to four displays to maximize productivity for the most demanding business users	New level of performance at a breakthrough price	Delivers superior professional application performance and capabilities compared to consumer graphics	Entry level professional 3D graphics at an unbelievable price	Delivering exceptional value to the entry level professional graphics market	Simplify your workflow with 1GB of memory and ATI Eyefinity technology support for up to 3 simultaneous displays
Supported HP Workstations (• single; •• dual)												
HP Z200 SFF	•			••	••				•	•	•	
HP Z200	•			••	••			•	•	•	•	•
HP Z210 SFF		•		••	••	••			•	•	•	
HP Z210 CMT		•	•	••	••	••		•	•	•	•	•
HP Z400				••	••	••	••	••	••	••	••	••
HP Z600				••	••	••	••	••	••	••	••	••
HP Z800				••	••	••	•• ¹	••	••	••	••	••
Supported operating systems												
Genuine Windows® 7 Professional²	•	•	•	•	•	•	•	•	•	•	•	•
Genuine Windows Vista® 32 and 64-bit		•	•			•			•			
Genuine Windows® XP Professional 32 and 64-bit		•	•			•			•			
Red Hat Enterprise Linux 4	•	•	•	•	•		•	•	•	•	•	•
HP Linux Installation Kit	•	•	•	•	•		•	•	•	•	•	•
Graphics memory	Shared with system	Shared with system	Shared with system	256 MB	512 MB	512 MB	512 MB (256 MB per GPU)	256 MB	512 MB	512 MB	1.0 GB	1.0 GB
Memory type	N/A	N/A	N/A	GDDR3	GDDR3	DDR3	GDDR3	GDDR3	DDR3	GDDR3	GDDR3	GDDR5
Supported with:				NVIDIA				NVIDIA Tesla C2050				ATI Eyefinity Technology
Connectors	HP Z200: 1 single link DVH, 1 DP HP Z200 SFF: 1 VGA, 1 DP	Z210 CMT: 1 Single Link DVH, 1 DP Z210 SFF: 1 VGA, 1 DP	Z210 CMT: 1 Single Link DVH, 1 DP Z210 SFF: 1 VGA, 1 DP	2 DP outputs with 2 DP to single link DVI adapters	DMS-59 Includes DMS-59 to dual DVH adapter	DMS-59 Includes DMS-59 to Dual DVH adapter	4 DP outputs with 4 DP to single link DVI adapters	2 dual link DVH outputs with 2 DVH to VGA adapters	1 dual link DVH, 1 DP output with one DP to DVH adapter	1 dual link DVH, 1 DP with 1 DP to single link DVI adapter	1 dual link DVH, 1 DP output with one DP to single link DVI adapter	1 dual link DVH, 2 DP with 1 DP to single link DVI adapter
Display configurations												
VGA + VGA	•	•	•	•	(with optional adapter)	(with optional adapter)	•	•	•	•	•	•
Quad Digital							•					
VGA + Digital	•	•	•	•			•	•	•	•	•	•
VGA + DisplayPort	•	•	•	•			•	•	•	•	•	•
Digital+ Digital	•	•	•	•	•	•	•	•	•	•	•	•
Digital + DisplayPort	•	•	•	•	(with optional adapter)	(with optional adapter)	•	•	•	•	•	•
DisplayPort + DisplayPort				•			•				•	•
Dual DisplayPort + Dual Digital							•					
Quad DisplayPort							•					
VGA + VGA + VGA ^{††}												•
VGA + VGA + Digital ^{††}												•
VGA + Digital + Digital ^{††}												•
VGA + DisplayPort + DisplayPort ^{††}												•
VGA + VGA + DisplayPort ^{††}												•
Digital + Digital + DisplayPort ^{††}												•
Digital + DisplayPort + DisplayPort ^{††}												•
DisplayPort + DisplayPort + DisplayPort ^{††}												•
Digital + DisplayPort + VGA ^{††}												•
Max. VGA display resolution	2048 x 1536	2048 x 1536	2048 x 1536	2048 x 1536	1920 x 1080	1920 x 1080	N/A	2048 x 1536	2048x1536	2048x1536	2048 x 1536	2048x1536
Max. digital display resolution†	2560 x 1600	2560 x 1600 DP 1920 x 1200 DVI	2560 x 1600 DP 1920 x 1200 DVI	2560 x 1600	2560 x 1600 DP 1920 x 1200 DVI	2560 x 1600 DP 1920 x 1200 DVI	2560x1600	2560 x 1600	2560x1600	2560x1600	2560 x 1600	2560x1600
Number of 19"-to-30" diagonal displays supported	2	2	2	2	2	2	4	2	2	2	2	3 ³
Host interface	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16	PCI Express x16
Number of slots required	0	0	0	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe	1 PCIe
ISV certifications	limited	limited	limited	No	No	No	No	Yes	Yes	Yes	Yes	Yes
OpenGL Version	OpenGL 2.1	3	3	OpenGL 3.0	OpenGL 3.3	OpenGL 4.0	OpenGL 2.1	OpenGL 3.0	OpenGL 3.3	OpenGL 3.2	OpenGL 4.0	OpenGL 3.2
Vertex and pixel shaders	Shader Model 3.0	Shader Model 4.0	Shader Model 4.0	Shader Model 4.0	Shader Model 4.1	Shader Model 5.0	Shader Model 4.0	Shader Model 4.0	Shader Model 4.1	Shader Model 5.0	Shader Model 5.0	Shader Model 5.0
DirectX version	DX 10	10	10	DX 10	DX 10.1	DX 11	DX 10	DX 10	DX 10.1	DX 11	DX 11	DX 11
Max. power consumption	Shared with system	shared with system	shared with system	23 W	17.5 W	17 W	35 W – Passive	34 W	32 W	<50 W	40 W	<75 W

[†] Available on select processor configurations. Please see product QuickSpecs for details.
^{††} Support for up to three and four displays with ATI Eyefinity Technology.