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Graphics Performance Flash

Digital AlphaStation 255 Family

Digital UNIX

ALPHA™ GENERATION

This document presents the industry-standard graphics benchmark ratings for the Digital AlphaStation™ 255 family members running Digital UNIX®.

Table 1 - Digital AlphaStation 255/233

	Graphics Adapter				
Benchmarks and Metrics	**PowerStorm 3D10**	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf					
Xmark93	5.78	17.78	15.31	7.28	8.77
10 Pixel Lines (millions/sec)	0.50	3.71	3.68	1.02	1.33
PLB					
PLBwire93	nr	82.6	88.6	66.2	67.6
PLBsurf93	nr	32.3	67.6	91.0	105.9
Geometry					
3D Vectors (millions/sec)	nr	2.68	2.67	1.10	1.34
3D Triangles (thousands/sec)	nr	125	125	206	296
3D Polygons (thousands/sec)	nr	56	55	98	145

nr = not reported

Table 2 - Digital AlphaStation 255/300

	Graphics Adapter			
Benchmarks and Metrics	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf				
Xmark93	19.94	17.13	7.80	9.49
10 Pixel Lines (millions/sec)	3.83	3.87	1.02	1.34
PLB				
PLBwire93	96.2	101.8	70.3	72.8
PLBsurf93	44.5	76.1	98.5	113.0
Geometry				
3D Vectors (millions/sec)	2.95	2.97	1.10	1.34
3D Triangles (thousands/sec)	142	146	206	297
3D Polygons (thousands/sec)	65	65	98	145

nr = not reported

Digital evaluated the performance of the AlphaStation family using industry-standard benchmarks. These benchmarks allow comparisons across vendors' systems. Performance characterization is just one "data point" to be used in conjunction with other purchase criteria such as features, service, and price.

Brief descriptions of the benchmarks:

- x11perf is a public domain benchmark which has been contributed to the X Consortium. It is widely used for characterizing the graphics performance of X11 Window systems.
    - Xmark93 is a metric developed by the X Performance Characterization (XPC) Subcommittee of the Graphics Performance Characterization Committee (GPC). It is the normalized weighted geometric mean of tests from x11perf V1.3.
    - 10-pixel lines is a frequently requested individual result from x11perf.
- PLB is a benchmark developed by the Picture Level Benchmark Subcommittee of the GPC. PLB measures the performance of displaying a set of pictures described by files in the Benchmark Interchange Format (BIF). The BIF standard files are divided into two suites, 3D Wireframe and 3D Surface. (The 2D Wireframe suite was recently retired by the PLB Subcommittee.)
    - PLBwire93 is the normalized geometric mean of the 3D Wireframe suite.
    - PLBsurf93 is the normalized geometric mean of the 3D Surface suite.
- Geometry benchmarks measure the speed a graphics system can render the same primitive repeatedly. Although these benchmarks are commonly requested, Digital has found the GPC benchmarks and actual application performance to be far superior indicators of graphics performance.
    - 3D Vectors, 10 pixel polylines, arbitrary orientation, projected, not depth buffered, clip checked (none clipped), flat shaded, not lighted
    - 3D Triangles, 50 pixel triangles in triangle strips, arbitrary orientation, projected, depth buffered, clip checked (none clipped), gouraud shaded, lighted (1 ambient and 1 directional, ambient+diffuse+specular)
    - 3D Polygons, 100 pixel independent quadrilaterals, projected, depth buffered, clip checked (none clipped), gouraud shaded, lighted (1 ambient and 1 directional, ambient+diffuse+specular)

For more information on the GPC benchmarks, see The GPC Quarterly, published by the Standard Performance Evaluation Corporation, see http://www.specbench.org/gpc/.

For more information on Digital's AlphaStation family, contact your local Digital sales representative. Please send questions and comments about the information presented in this Graphics Performance Flash to Internet address: csgperf@zko.dec.com.

Digital believes the information in this publication is accurate as of its publication date; such information is subject to change without notice. Digital is not responsible for inadvertent errors.

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Graphics Performance Flash

Digital AlphaStation 500 Family

Digital UNIX

ALPHA™ GENERATION

This document presents the industry-standard graphics benchmark ratings for the Digital AlphaStation™ 500 family members running Digital UNIX®.

Table 1 - Digital AlphaStation 500/266

	Graphics Adapter			
Benchmarks and Metrics	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf				
Xmark93	29.38	24.78	9.62	11.88
10 Pixel Lines (millions/sec)	3.67	3.68	1.03	1.41
PLB				
PLBwire93	134.7	146.6	84.1	98.0
PLBsurf93	77.4	114.7	113.7	170.4
Geometry				
3D Vectors (millions/sec)	3.45	3.45	1.12	1.42
3D Triangles (thousands/sec)	242	233	207	302
3D Polygons (thousands/sec)	107	102	99	146

nr = not reported

Table 2 - Digital AlphaStation 500/333

	Graphics Adapter			
Benchmarks and Metrics	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf				
Xmark93	32.43	27.26	10.01	12.32
10 Pixel Lines (millions/sec)	3.69	3.69	1.03	1.41
PLB				
PLBwire93	155.9	171.0	85.6	98.2
PLBsurf93	85.7	129.2	114.4	183.9
Geometry				
3D Vectors (millions/sec)	3.43	3.43	1.12	1.42
3D Triangles (thousands/sec)	258	252	207	303
3D Polygons (thousands/sec)	116	114	99	147

nr = not reported

Digital evaluated the performance of the AlphaStation family using industry-standard benchmarks. These benchmarks allow comparisons across vendors' systems. Performance characterization is just one "data point" to be used in conjunction with other purchase criteria such as features, service, and price.

Brief descriptions of the benchmarks:

- x11perf is a public domain benchmark which has been contributed to the X Consortium. It is widely used for characterizing the graphics performance of X11 Window systems.
    - Xmark93 is a metric developed by the X Performance Characterization (XPC) Subcommittee of the Graphics Performance Characterization Committee (GPC). It is the normalized weighted geometric mean of tests from x11perf V1.3.
    - 10-pixel lines is a frequently requested individual result from x11perf.
- PLB is a benchmark developed by the Picture Level Benchmark Subcommittee of the GPC. PLB measures the performance of displaying a set of pictures described by files in the Benchmark Interchange Format (BIF). The BIF standard files are divided into two suites, 3D Wireframe and 3D Surface. (The 2D Wireframe suite was recently retired by the PLB Subcommittee.)
    - PLBwire93 is the normalized geometric mean of the 3D Wireframe suite.
    - PLBsurf93 is the normalized geometric mean of the 3D Surface suite.
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    - 3D Vectors, 10 pixel polylines, arbitrary orientation, projected, not depth buffered, clip checked (none clipped), flat shaded, not lighted
    - 3D Triangles, 50 pixel triangles in triangle strips, arbitrary orientation, projected, depth buffered, clip checked (none clipped), gouraud shaded, lighted (1 ambient and 1 directional, ambient+diffuse+specular)
    - 3D Polygons, 100 pixel independent quadrilaterals, projected, depth buffered, clip checked (none clipped), gouraud shaded, lighted (1 ambient and 1 directional, ambient+diffuse+specular)

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Graphics Performance Flash

Digital AlphaStation 600 Family

Digital UNIX

ALPHA™ GENERATION

This document presents the industry-standard graphics benchmark ratings for the Digital AlphaStation™ 600 family members running Digital UNIX®.

Table 1 - Digital AlphaStation 600 5/266

	Graphics Adapter			
Benchmarks and Metrics	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf				
Xmark93	29.38	24.78	9.62	11.88
10 Pixel Lines (millions/sec)	3.67	3.68	1.03	1.41
PLB				
PLBwire93	134.7	146.6	84.1	98.0
PLBsurf93	77.4	114.7	113.7	170.4
Geometry				
3D Vectors (millions/sec)	3.45	3.45	1.12	1.42
3D Triangles (thousands/sec)	242	233	207	302
3D Polygons (thousands/sec)	107	102	99	146

nr = not reported

Table 2 - Digital AlphaStation 600 5/333

	Graphics Adapter			
Benchmarks and Metrics	**PowerStorm 3D30**	**PowerStorm 4D20**	**ZLXp-L1**	**ZLXp-L2**
x11perf				
Xmark93	33.07	28.04	10.42	12.25
10 Pixel Lines (millions/sec)	3.74	3.74	1.03	1.41
PLB				
PLBwire93	168.2	185.6	86.5	102.8
PLBsurf93	101.7	134.3	115.5	186.4
Geometry				
3D Vectors (millions/sec)	3.45	3.45	1.12	1.42
3D Triangles (thousands/sec)	256	257	207	303
3D Polygons (thousands/sec)	117	115	99	147

nr = not reported

Digital evaluated the performance of the AlphaStation family using industry-standard benchmarks. These benchmarks allow comparisons across vendors' systems. Performance characterization is just one "data point" to be used in conjunction with other purchase criteria such as features, service, and price.

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