Engineering Workstations Compared

		HP Z1 workstation (one 3.5GHz Intel Xeon E3-1280 quad-core CPU [3.9GHz turbo], NVIDIA Quadro 4000M, 16GB RAM)	**Lenovo E30** workstation (one 3.2GHz Intel Xeon E3-1230 quad-core CPU [3.6GHz turbo], NVIDIA Quadro 600, 4GB RAM)		**HP Z210** workstation (one 3.36GHz Intel Xeon E3-1245 quad-core CPU [3.7GHz turbo], NVIDIA Quadro 2000, 8GB RAM)		**BOXX 3DBOXX 3970 EXTREME** workstation (one 3.4GHz Intel Core i7-2600K quad-core CPU over-clocked to 4.5GHz, NVIDIA Quadro 4000, 8GB RAM)	**Dell Precision T1600** workstation (one 3.4GHz Intel Xeon E3-1270 quad-core CPU, NVIDIA Quadro 2000, 4GB RAM)		**BOXX 3DBOXX 8550XTREME** workstation (two 3.33GHz Intel Xeon X5680 six-core CPUs over-clocked to 4.2GHz, NVIDIA Quadro 5000, 24GB RAM)		**Dell T5500** workstation (two 3.33GHz Intel Xeon X5680 six-core CPUs, NVIDIA Quadro 5000, 6GB RAM)	
Price as tested		$5,625	$1,099		$2,269		$4,048	$1,875		$11,396		$9,242	
Date tested		6/29/12	4/21/12		2/12/12		10/12/11	9/11/11		3/20/11		1/14/11	
Operating System		Windows 7 64-bit	Windows XP	Windows 7 64-bit	Windows XP	Windows 7 64-bit	Windows 7 64-bit	Windows XP	Windows 7 64-bit	Windows XP	Windows 7 64-bit	Windows XP	Windows 7 64-bit
SPECviewperf	higher												
3dsmax-04		82.83[1]	79.01[1]	77.43[1]	80.67	79.46	99.03[1]	83.61	81.72	95.97	95.44[1]	76.05	78.72
catia-02		98.89[1]	77.80[1]	77.68[1]	94.20	91.47	124.75[1]	96.38	93.28	120.44	121.1[1]	98.48	100.25
ensight-03		90.20[1]	48.20[1]	49.27[1]	75.78	73.57	109.56[1]	76.62	74.16	132.41	130.13[1]	118.29	121.70
maya-02		330.32[1]	156.64[1]	157.63[1]	291.17	270.83	399.43[1]	297.27	270.53	529.89	476.95[1]	490.95	435.44
proe-04		97.22[1]	60.66[1]	60.79[1]	88.48	84.83	120.33[1]	89.24	85.86	113.84	113.24	92.19	90.61
SW-01		196.11[1]	94.38[1]	94.68[1]	168.06	161.45	231.44[1]	169.31	160.61[1]	221.31	214.06	180.49	169.75
tcvis-01		62.98[1]	34.25[1]	34.22[1]	56.41	54.43	79.05[1]	56.76	54.24	98.58	94.17	93.99	90.34
ugnx-01		44.98[1]	29.01[1]	29.16[1]	43.41	42.49	65.91[1]	43.40	42.47	89.32	86.90	89.31	87.95
SPECapc SolidWorks	lower												
Score	seconds	110.61[1,2]	127.48[1]	n/a	110.91	n/a	n/a	106.63[1]	n/a	106.56[1]	n/a	146.86	n/a
Graphics	seconds	38.31[1,2]	48.40[1]	n/a	35.71	n/a	n/a	34.24[1]	n/a	35.33[1]	n/a	58.42	n/a
CPU	seconds	30.52[1,2]	27.90[1]	n/a	25.89	n/a	26.44[1]	25.05[1]	n/a	25.99[1]	n/a	32.27	n/a
I/O	seconds	41.32[1,2]	55.17[1]	n/a	50.74	n/a	47.01[1]	48.26[1]	n/a	46.51[1]	n/a	60.76	n/a
SPECapc SolidWorks	higher												
Score	ratio	4.46[1,2]	6.25[1]	n/a	7.92	n/a	n/a	8.04[1]	n/a	8.23[1]	n/a	5.32	n/a
Graphics	ratio	5.06[1,2]	3.89[1]	n/a	5.78	n/a	n/a	5.74[1]	n/a	6.08[1]	n/a	3.23	n/a
CPU	ratio	4.01[1,2]	11.57[1]	n/a	12.46	n/a	12.20[1]	12.88[1]	n/a	12.61[1]	n/a	10.00	n/a
I/O	ratio	3.42[1,2]	5.74[1]	n/a	6.24	n/a	6.73[1]	6.56[1]	n/a	6.81[1]	n/a	5.21	n/a
Autodesk Render Test	lower												
Time	seconds	87.92[1]	85.66[1]	71.75[1]	71.66[1]	62.33[1]	45.6[1]	82.2[1]	60.5[1]	34.0[1]	19.0[1]	42.0[1]	28.0[1]

Numbers in blue indicate best recorded results. Numbers in red indicate worst recorded results. 1=Hyper-threading enabled. 2= SPECapcSW2007 benchmark. Results are shown separately for single- and dual-socket workstations.