Data Dynamics LLC Whitepapers

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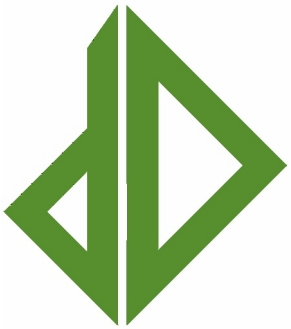
v1.0



Thank you for reviewing Data Dynamics LLC's Whitepapers. The goal of this document is to inform prospective clients and customers of anticipated rental system performance. While we endeavor to use a variety of home and commercial software to compare tests and a consistent testing methodology, each end-user, business, or entity has unique goals that may vary significantly from the results we have collected.

All tests were performed on Microsoft Windows 7 Professional 64-bit with the primary Hard Drive (HDD) consisting of an Intel 160 GB Generation Two SSD. The only operational difference made to the rental test system was a change of base clocking settings which ultimately affect the final operating frequency of the system, coupled with sufficient voltage and signal adjustments to ensure stability at higher frequency ratings. No other performance advantages or disadvantages were made or known; and if any power-saving mode or other throttling hardware or software was used, it is noted on each graph specifically.

Data Dynamics makes no claim that a Renter or Client's results will be identical, however, we have tried to make realistic workloads representative of the traditional business or multimedia environment. Data Dynamics is not responsible for hardware or software which fails to perform to the levels shown, nor is responsible for delays, errors, downtime or other negative effects due to lessened performance than what is shown. It is the role of the Renter, Customer, or Client to inform Data Dynamics of a specific need if necessary of hardware or software, and Data Dynamics (at its discretion) will help said Renter or Client to determine if our systems are valid for their needs.

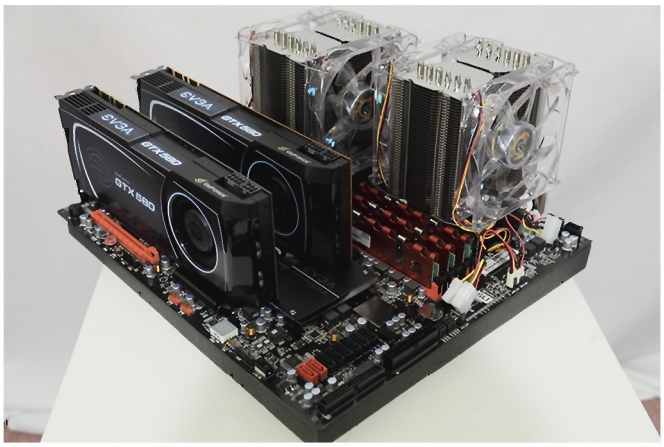
These results have not been independently reviewed, however, it is our belief that testing has been made in as duplicatable a manner as possible so as to achieve valid results.

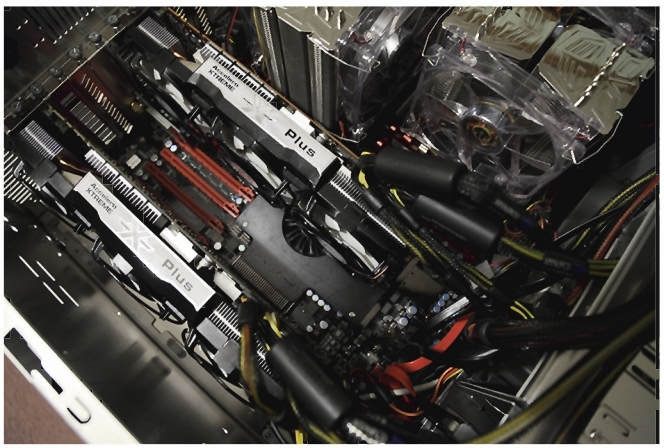
For any questions on this whitepaper, please contact Data Dynamics at (248) 787-1848 or by email at doug@datadynemi.com.

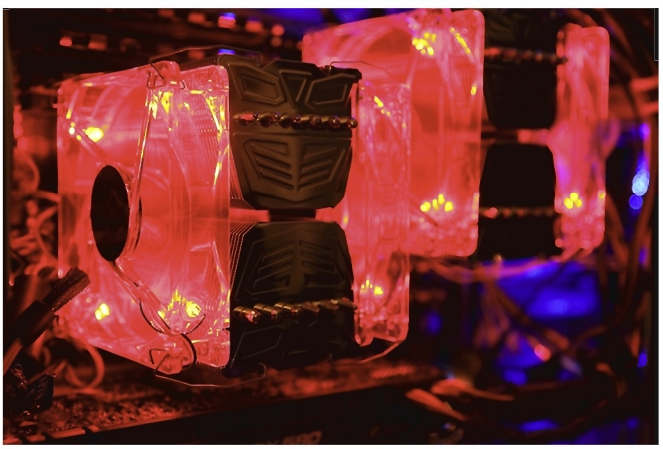
For purposes of this testing document, our two testings systems are configured as follows:

System #1 (pictured below) is a standard Dell XPS 410 Desktop System which Data Dynamics feels is typical of the average office environment. The system is still moderately powerful and as of this writing in early 2011, approximately four years old. It has specifications as follows: Intel LGA 775 Socket paired with an Intel Q6600 Quad-Core Processor operating at 2.40 Ghz, 4 GB of DDR2 1066 (533mhz) non-ECC RAM, Four SATAII 3.0Gbps HDD ports, an EVGA-Brand Nvidia 9800 GTX+ at speeds of 738mhz Core, 1,836mhz Shaders, and 1,100mhz Memory. Also included are a Creative Labs X-Fi Sound Card, a Highpoint Technologies IDE RAID Card, a Dell-Generic 11-In-One Multimedia Card Reader, an 8x DVD-R Drive and an 8x DVD-R/RW Drive. This system, as identified, was utilized as the Baseline System for comparison of our current rentable configuration based on the Melchior System. The Dell system utilized Microsoft Windows 7 Professional 64-bit and the Intel 160 GB G2 SSD for the primary Hard Drive. This was then mitigated into the new system and as such, created an identical test bed as the SSD was installed with approximately 95% of the same data load as the old system utilized (ie. the drive was filled to near capacity and duplicated).

System #2 is described at length on Data Dynamics Website (http://datadynemi.com) and is currently our rented configuration, as such it utilizes the following: EVGA Dual Socket SR-2 Motherboard paired with Dual Quad Core +HT Intel Xeon E5600 Series Processors, 12 GB of DDR3 1600 800mhz (non-ECC) RAM, single or dual EVGA Nvidia GTX 580s (800mhz Core, 1,600mhz Shaders, 2,025mhz Memory), a TP-Link Wireless N 150 Mbps Wireless Network Card, Dual 10/100/1000 NIC Ports, Six SATAII 3Gbps Ports, Two SATAIII 6Gbps Ports, 9 USB 2.0 Ports, 2 USB 3.0 Ports, a Rosewill 40-In-One Card Reader, an 8x BD-R-RW Drive, and Two 8x DVD-R-RW Drives. The system also comes with a CyberPower 1,000 watt UPS backup system. The Operating System, like the Dell configuration, is using Microsoft Windows 7 Professional 64-bit installed on an Intel 160GB G2 SSD.





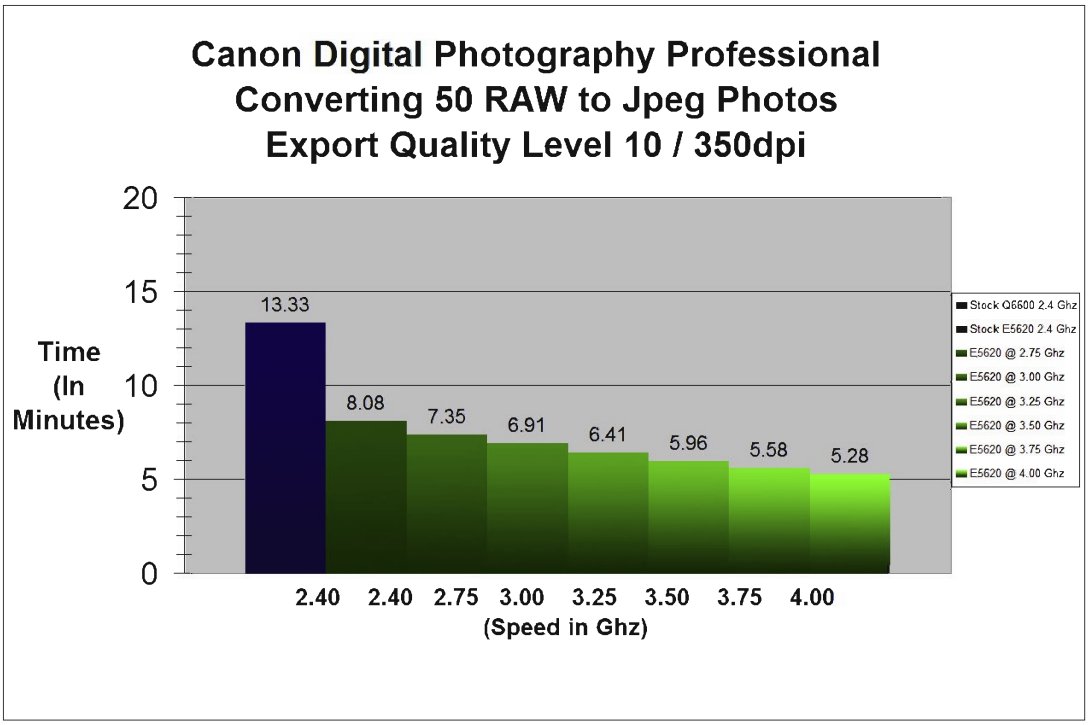


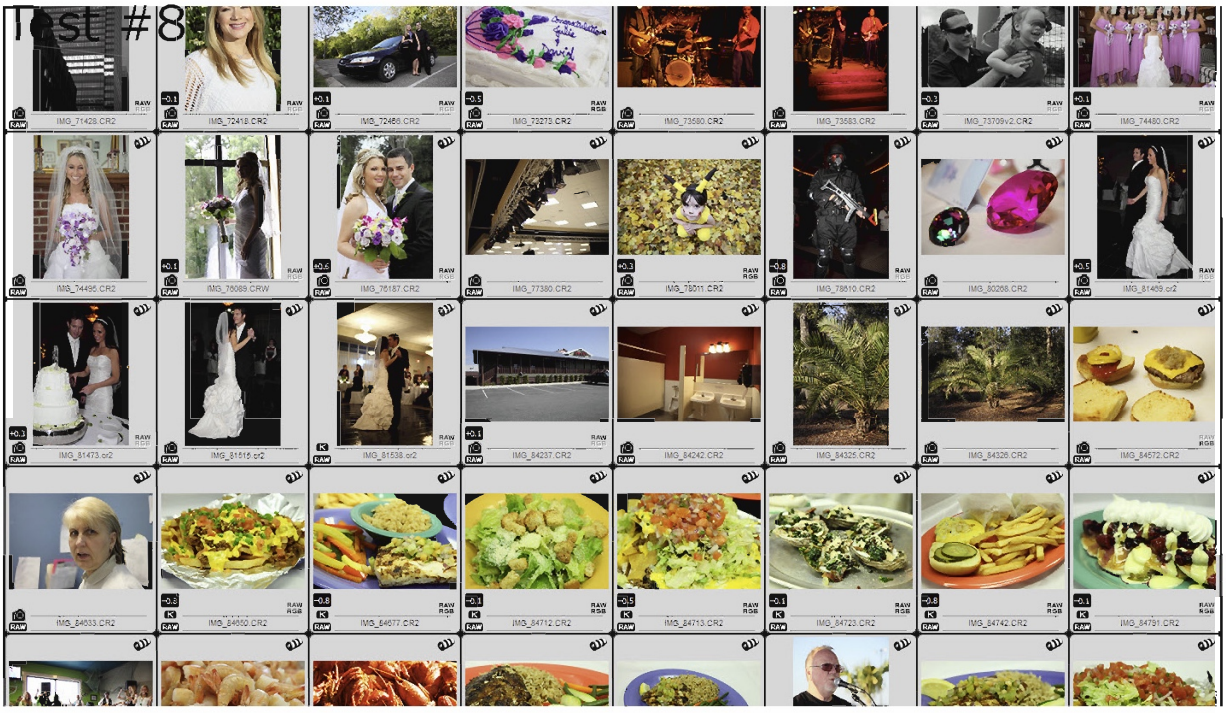
A note: Not all graphs have the full range of data represented due to various reasons. Due to a delay of approximately six weeks during system construction, obtaining a second working and valid GPU took time and as such, many of the GPU-based graphs were already completed. It was the choice of Data Dynamics to not spend even more time to then fully reset the system after a working configuration had been slowly tested and verified after approximately two months of testing. Attempts have been made to, at minimum, include the baseline Dell system and one or two peak results of our rentable equipment for comparison.

If a client or renter needs a specific benchmark carried out, it is again at the discretion of Data Dynamics to do so. If any graphs need clarification, it will be noted on each individually.

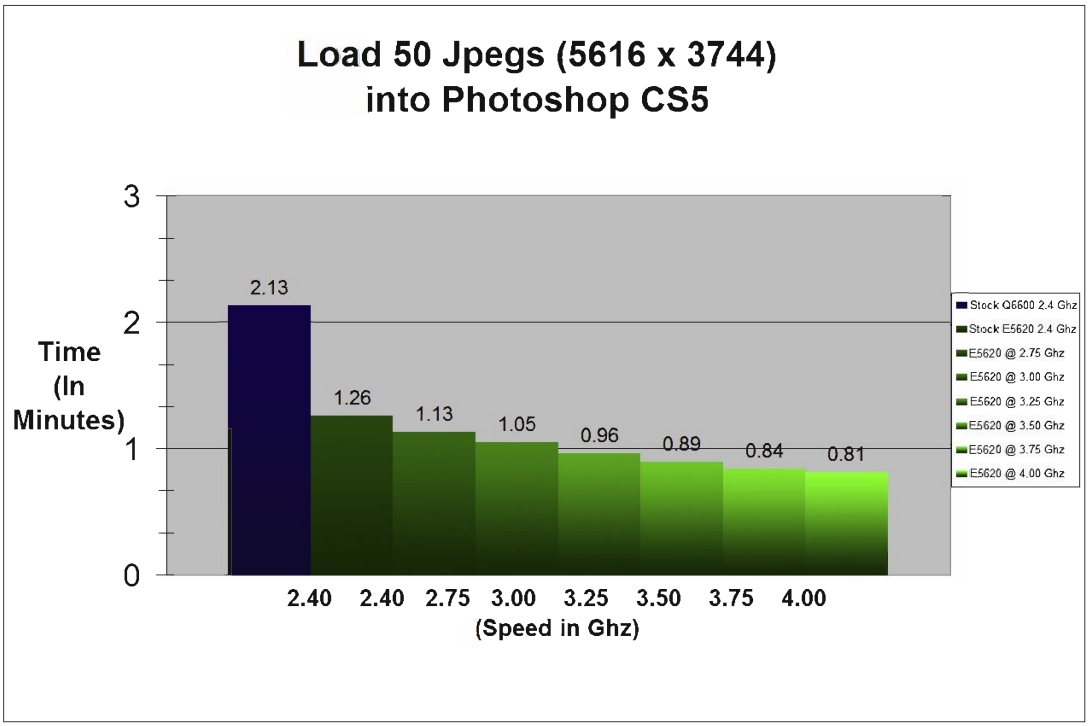
Test #1

(Images shown below are representational of the test directory)

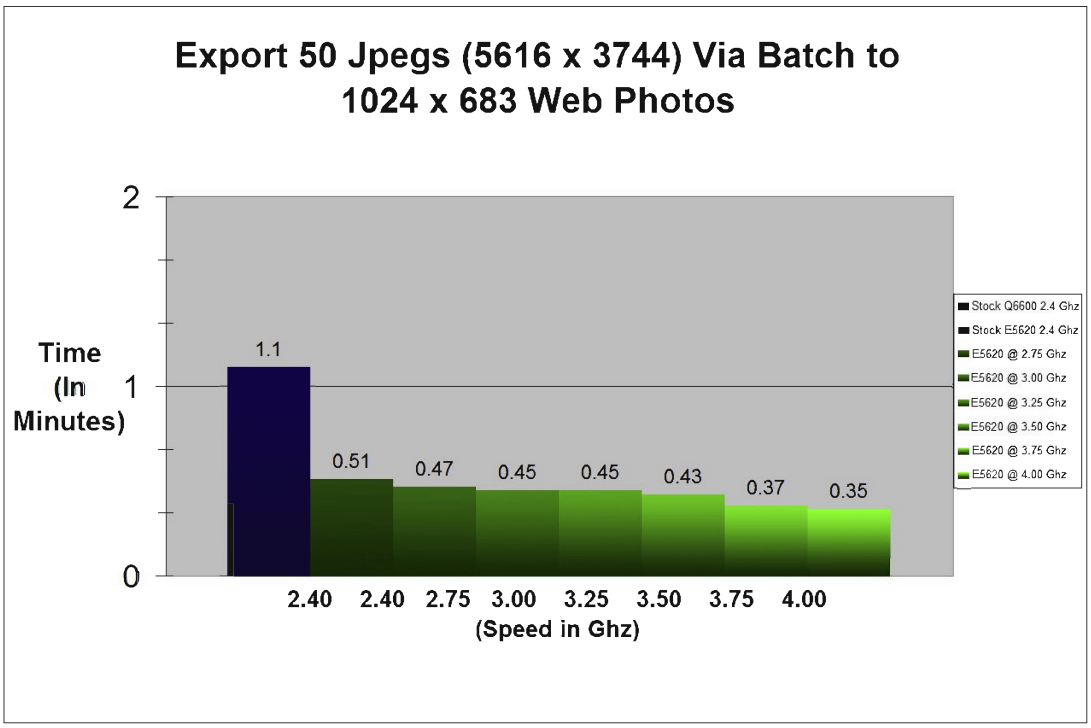




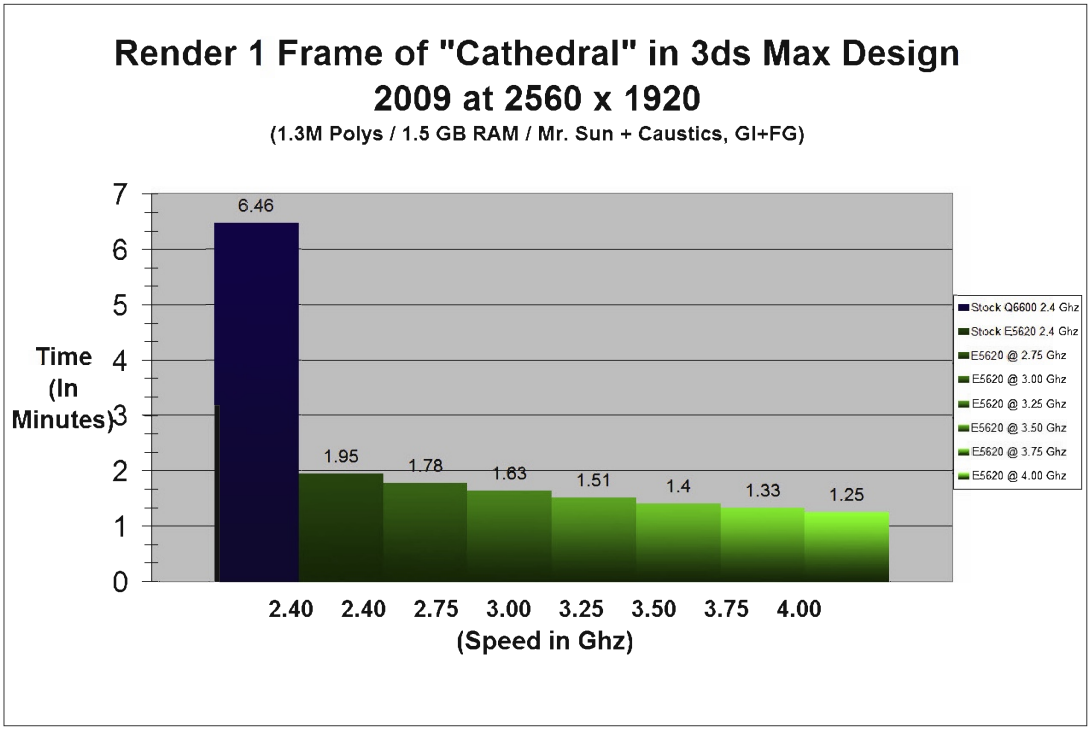
Test #2

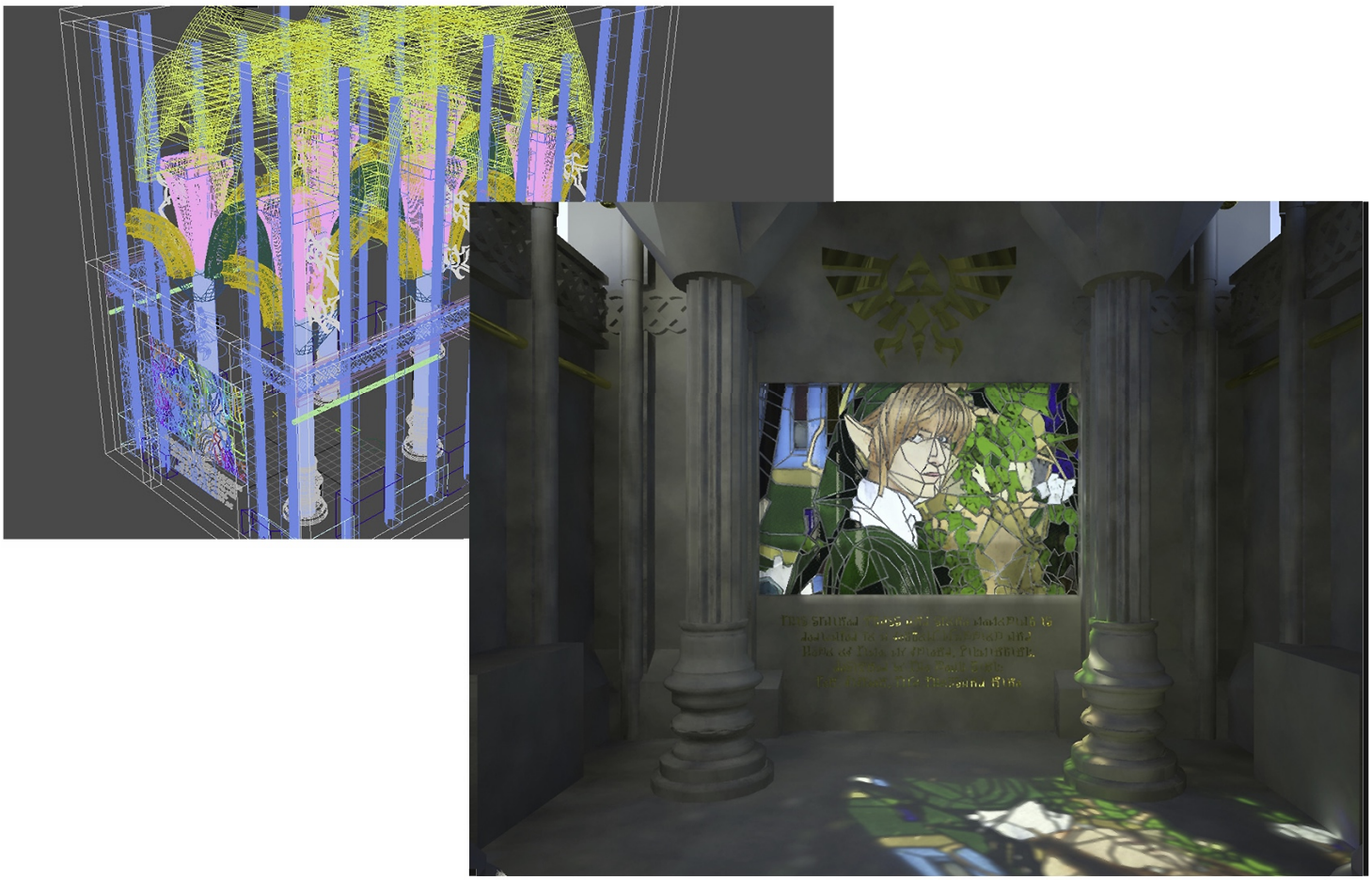

Load 50 Jpegs (5616 x 3744) into Photoshop CS5
Time (In Minutes)
3
2
1
0
2.13
1.26
1.13
1.05
0.96
0.89
0.84
0.81
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

Test #3

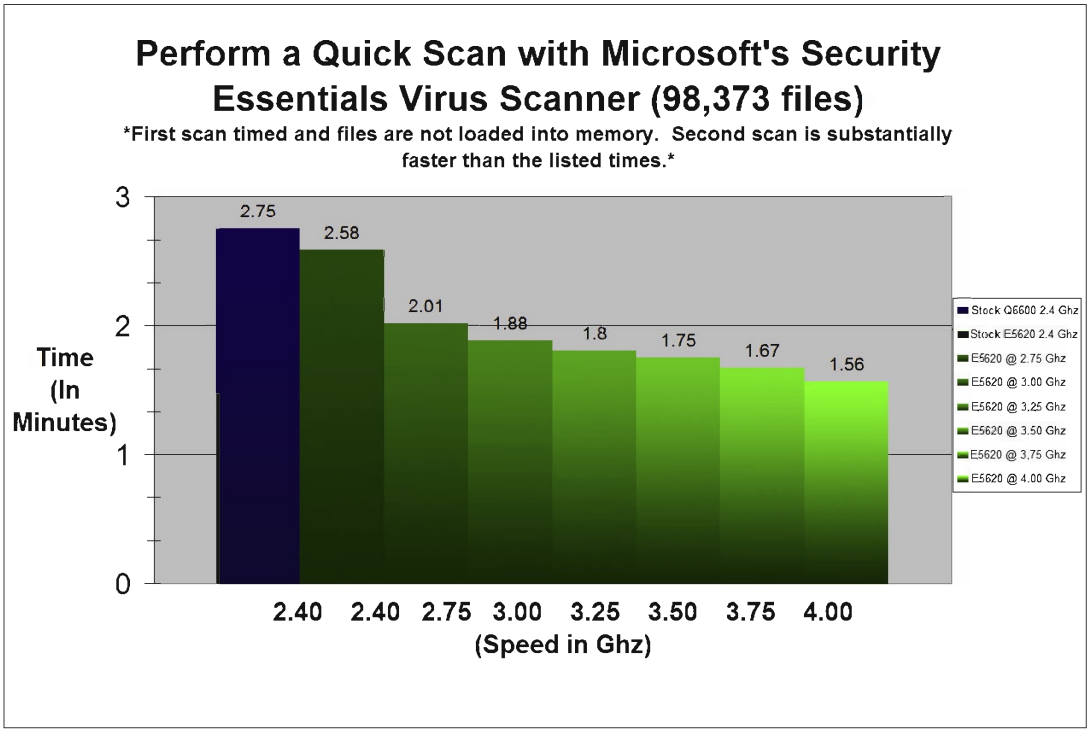

Export 50 Jpegs (5616 x 3744) Via Batch to 1024 x 683 Web Photos
Time (In Minutes)
2
1
0
1.1
0.51
0.47
0.45
0.45
0.43
0.37
0.35
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

Test #4

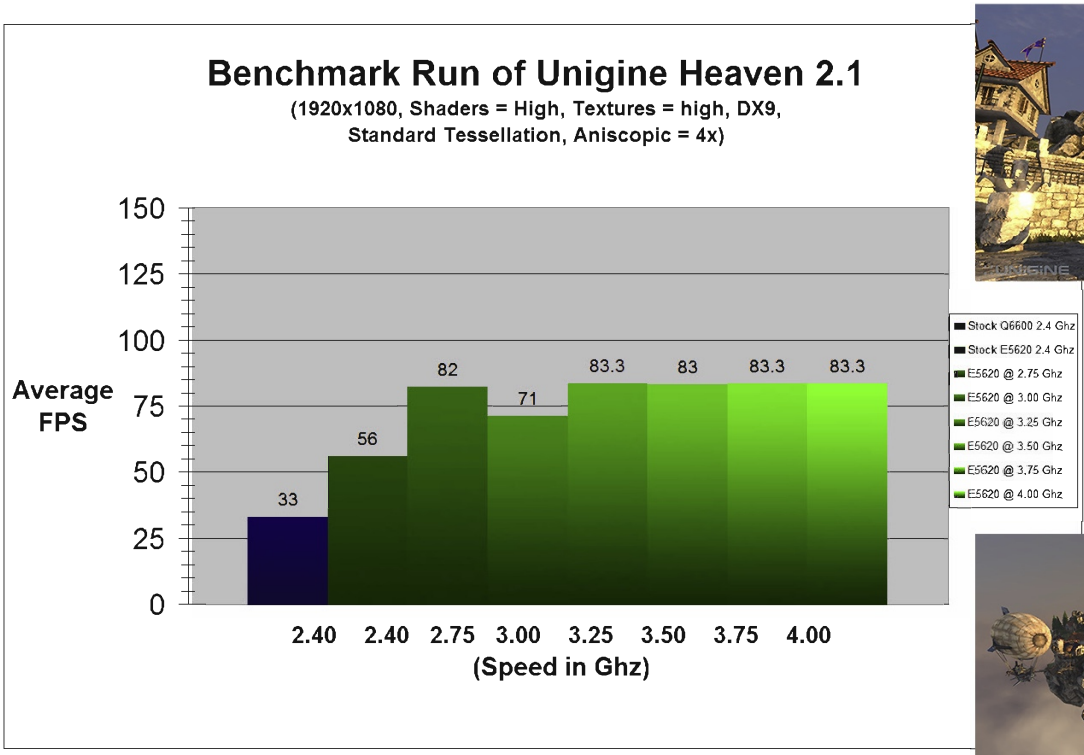

Render 1 Frame of "Cathedral" in 3ds Max Design 2009 at 2560 x 1920
(1.3M Polys / 1.5 GB RAM / Mr. Sun + Caustics, GI+FG)
Time (In Minutes)
7
6
5
4
3
2
1
0
6.46
1.95
1.78
1.63
1.51
1.4
1.33
1.25
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

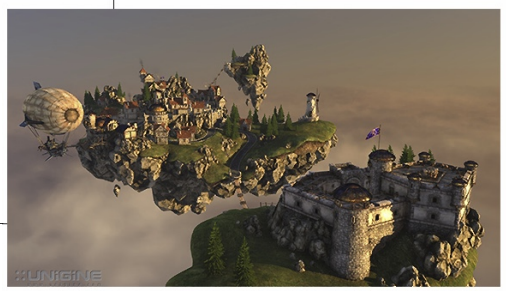


Test #5

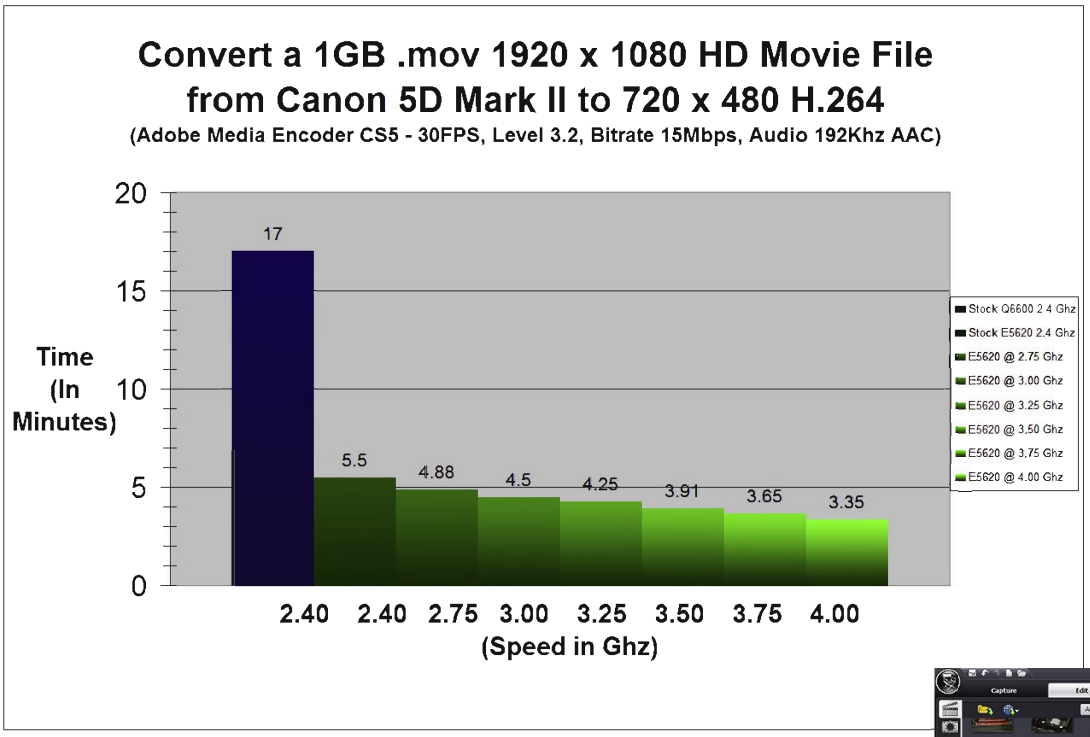

Perform a Quick Scan with Microsoft's Security Essentials Virus Scanner (98,373 files)
First scan timed and files are not loaded into memory. Second scan is substantially faster than the listed times.
Time (In Minutes)
3
2
1
0
2.75
2.58
2.01
1.88
1.8
1.75
1.67
1.56
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

Test #6


Benchmark Run of Unigine Heaven 2.1
(1920x1080, Shaders = High, Textures = high, DX9, Standard Tessellation, Aniscopic = 4x)
Average FPS
150
125
100
75
50
25
0
33
56
82
71
83.3
83
83.3
83.3
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

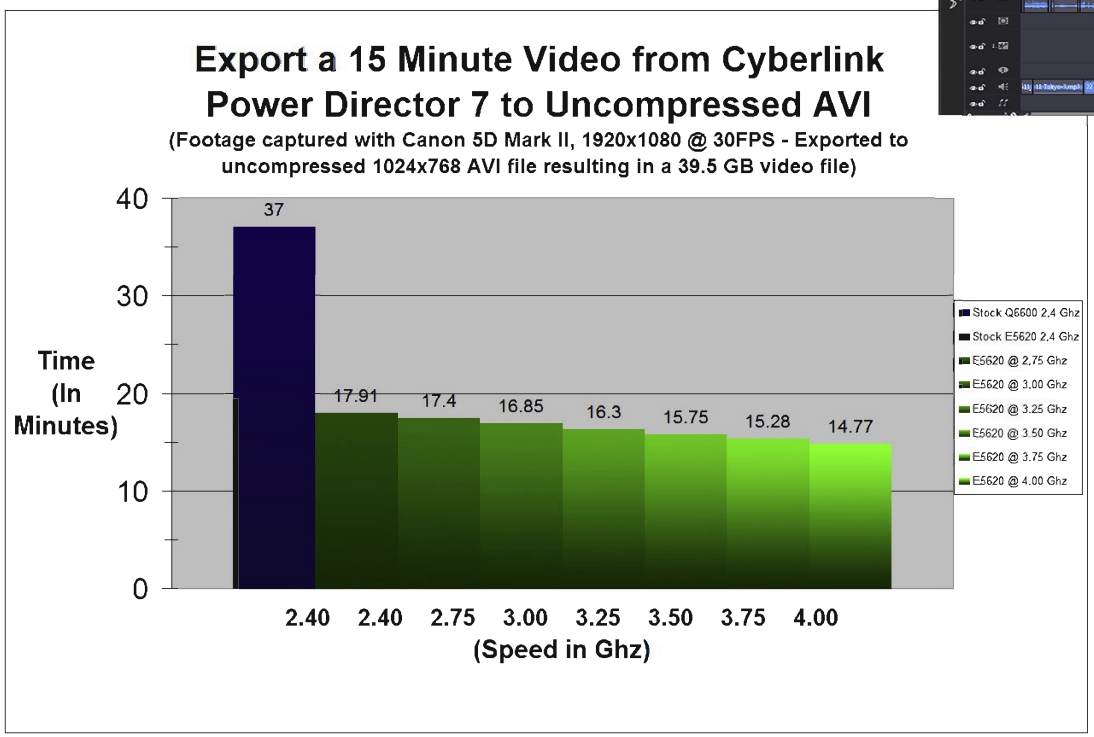


Test #7


Convert a 1GB .mov 1920 x 1080 HD Movie File from Canon 5D Mark II to 720 x 480 H.264
(Adobe Media Encoder CS5 - 30FPS, Level 3.2, Bitrate 15Mbps, Audio 192Khz AAC)
Time (In Minutes)
20
15
10
5
0
17
5.5
4.88
4.5
4.25
3.91
3.65
3.35
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

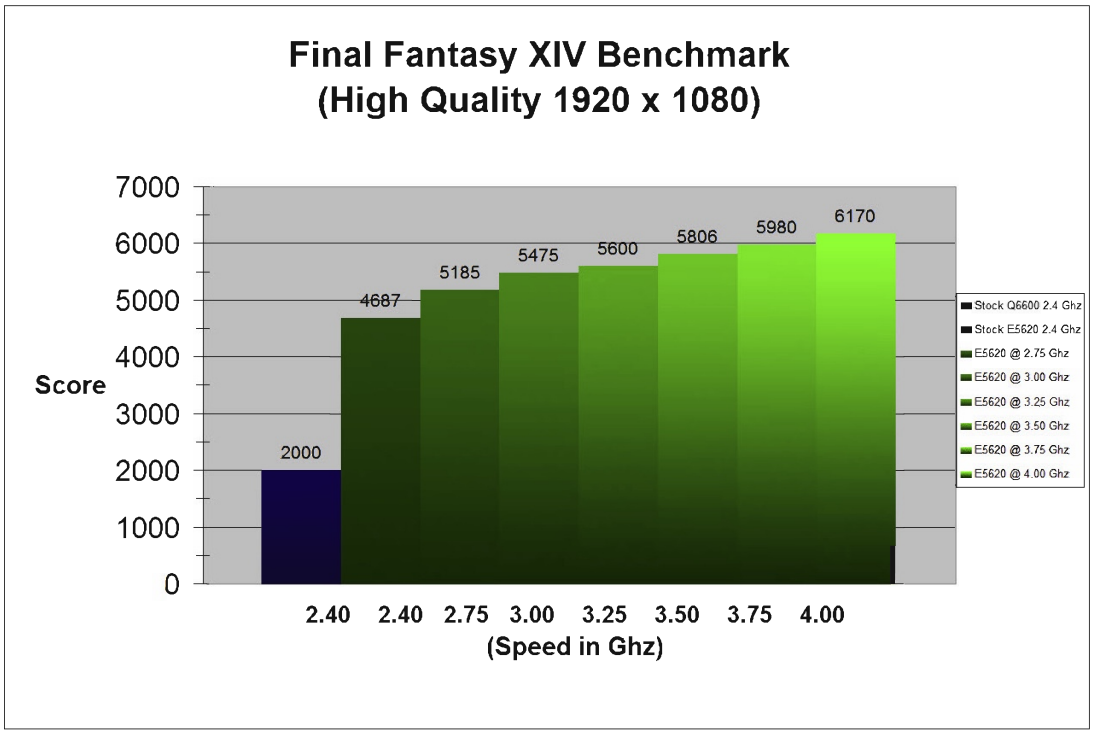

PowerDirector

Test #8

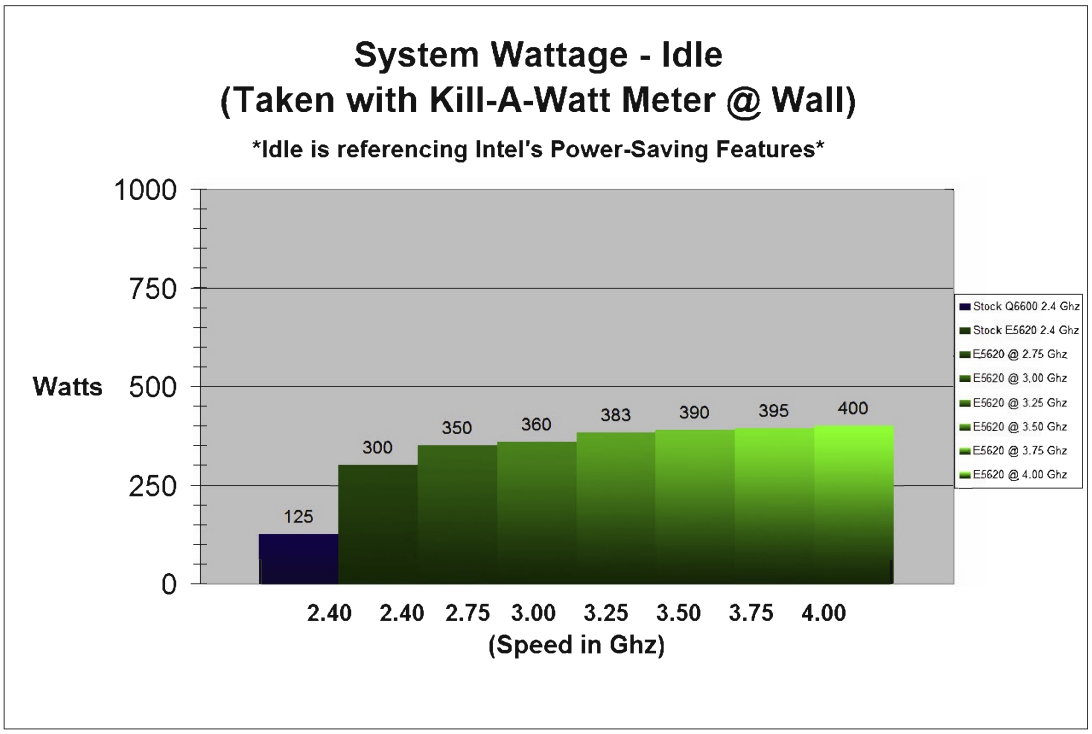

Export a 15 Minute Video from Cyberlink Power Director 7 to Uncompressed AVI
(Footage captured with Canon 5D Mark II, 1920x1080 @ 30FPS - Exported to uncompressed 1024x768 AVI file resulting in a 39.5 GB video file)
Time (In Minutes)
40
30
20
10
0
37
17.91
17.4
16.85
16.3
15.75
15.28
14.77
2.40 2.40 2.75 3.00 3.25 3.50 3.75 4.00
(Speed in Ghz)
Stock Q6600 2.4 Ghz
Stock E5620 2.4 Ghz
E5620 @ 2.75 Ghz
E5620 @ 3.00 Ghz
E5620 @ 3.25 Ghz
E5620 @ 3.50 Ghz
E5620 @ 3.75 Ghz
E5620 @ 4.00 Ghz

Test #9

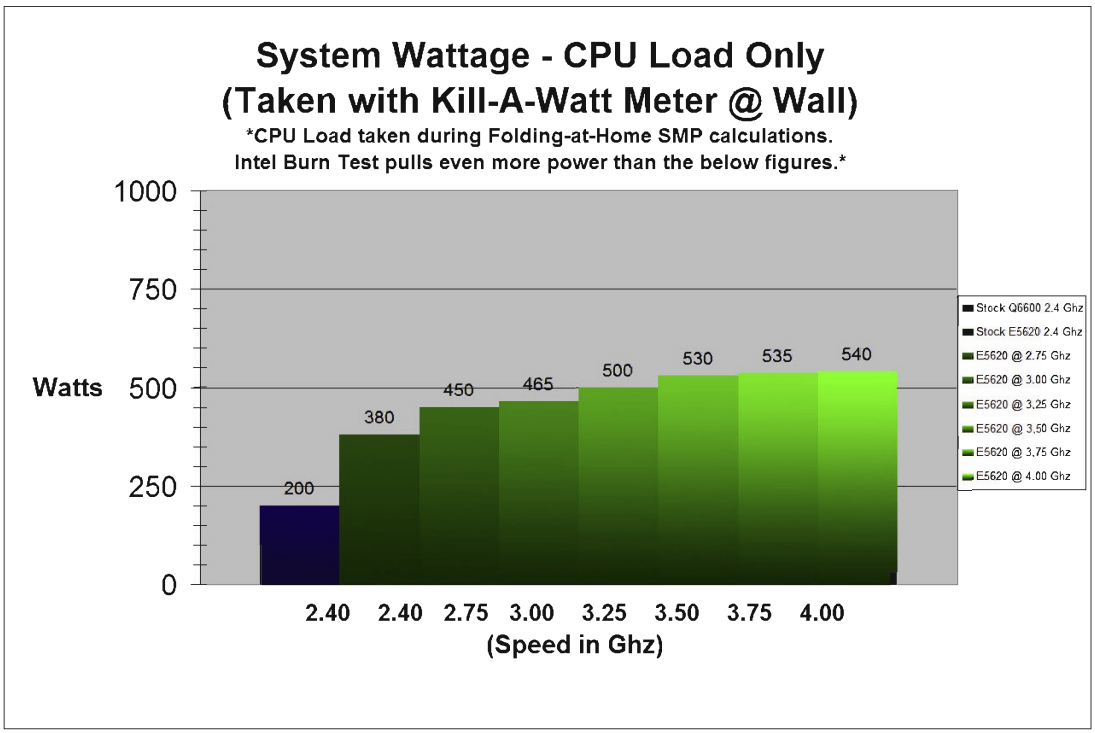
(Score results depicted in images below were screencapped from Dell System)



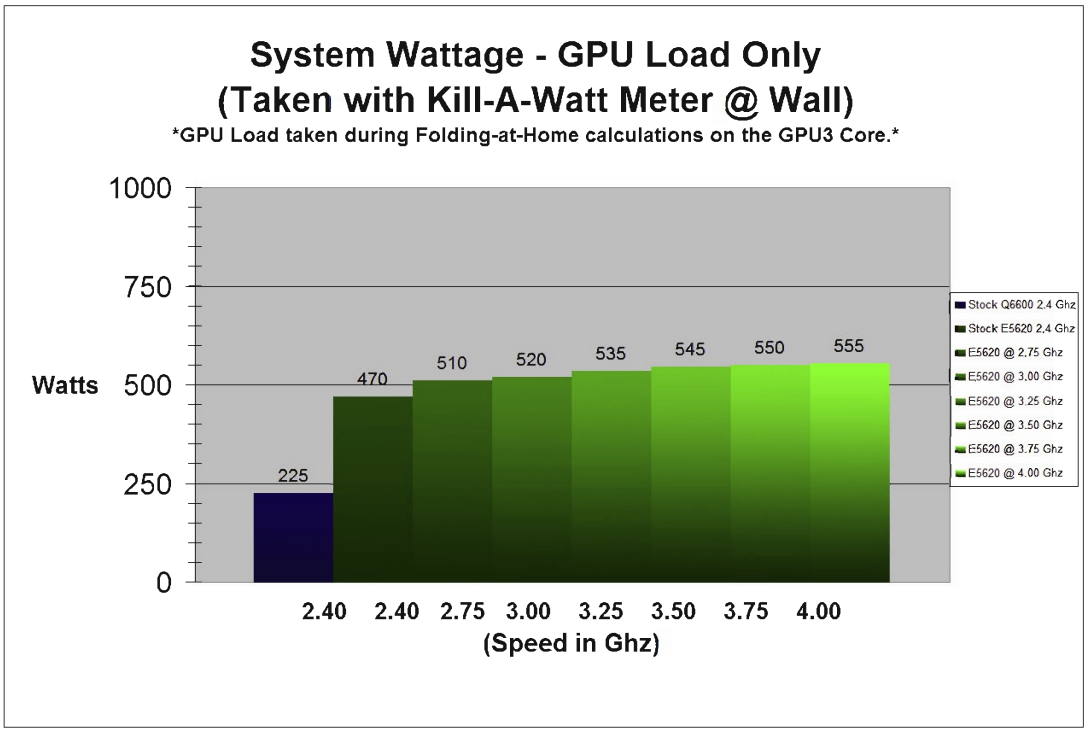
Test #10



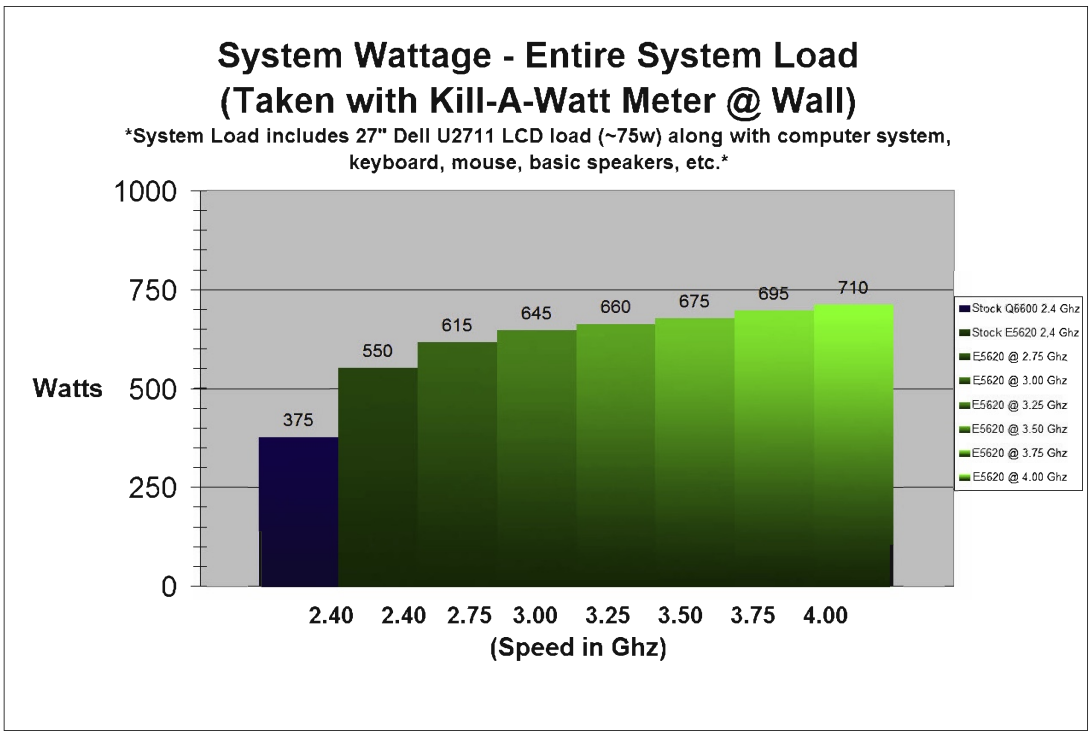
Test #11



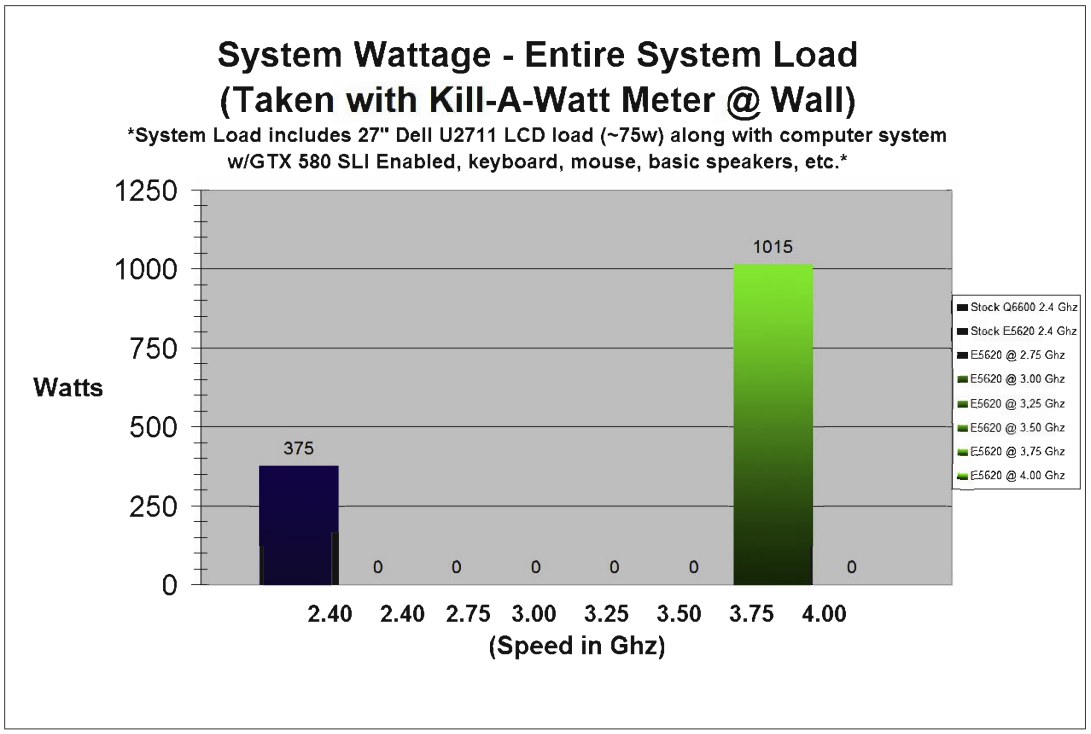
Test #12



Test #13



Test #14



(Only singular peak values of each system were measured here again due to the unforeseen graphics delay in acquiring two cards). These numbers represented a worst-case scenario, with the Melchior system pulling during repeated observations. a maximum of ~1,015 watts from the wall. A load with the monitor turned off would be more approximative of 930 watts. During these maximum tests however, the UPS remained active due to the efficiency loss of AC/DC conversion. If subjected to a 1KW+ wall-load, UPS runtime is ~3 min.

For a copy of this report by mail, please contact us at:

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