



NSTL

Final Report for Cyrix Corporation

Performance Testing of the Cyrix MII,

Intel Celeron, and the AMD CPUs

March, 1999

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Executive Summary

Cyrix contracted NSTL to test the performance of three CPUs, the Cyrix MIII, the Intel Celeron, and the AMD. The three CPUs (Cyrix, Celeron, and AMD) were tested at 333. All testing was to be performed using Ziff Davis' (ZD) Winstone® 99 Build 14 Benchmark Utility. These tests were performed without independent verification by ZD and ZD makes no representations or warranties as to the results of the test. Three CPUs (Cyrix, Celeron, and AMD) were tested at 333.

About NSTL

NSTL is the leading independent information technology testing organization for the computer industry, dedicated to providing high quality services and test tools to hardware developers, software publishers, government agencies and corporations. NSTL has extensive experience developing and conducting objective tests to assess new and existing products for compatibility, performance, comparative performance, usability, and functionality. Our testing services are also used for capacity planning, acquisition support, and impact analysis. NSTL's proficiency and thoroughness provide clients with a high quality, cost-effective means to assess, differentiate and evaluate IT products. Additional information about NSTL is available through the World Wide Web at <http://www.nstl.com>.

¹ Winstone is a registered trademark or trademark of ZD Inc. in the U.S. and other countries.

Testing Environment and Methodology

Testing Environment

The three CPUs (Celeron, AMD, and Cyrix) were tested at 333. Each test was performed in the Windows 98 environment using ZD's Winstone® 99 Build 14. All systems were similar with the exception of the CPU manufacturer.

Test Methodology

NSTL did performance testing for Cyrix on multiply CPUs. In order to provide assurance of accurate benchmark scores, and by request of Cyrix, NSTL used a third party utility, ZD's Winstone® 99 Build 14. In order to expedite the testing process and obtain accurate test results, NSTL used the following utility:

Utility Used

PowerQuest Drive Image Professional 1.01 was used to make backups of the factory image and clean image on the systems.

Backing Up of the Factory Image

When the test systems arrived, a backup was made of the factory image to ensure that the system would be tested with a "clean" environment.

Installing the Environment

NSTL then installed Windows 98. Once the install was complete, all OEM drivers were re-installed to ensure top performance of all components. The systems resolution was then set to 1024x768x16-bit color.

Backing up of a Clean Image

NSTL then used Drive Image 1.01 to make a clean backup image of the systems. If at any point an unrecoverable error occurred, NSTL could restore the clean image and continue testing.

Running Winstone 99

NSTL installed ZD's Winstone® 99 Build 14, Business Tests only, on all test systems. Once installed Winstone® 99's Startup Manger was used to deactivate unnecessary items at boot time. The taskbar properties were then changed so that it no longer stayed on top. The Business Tests were then selected and Winstone® 99 was executed. This was repeated two times to ensure the scores that were reported were within a 5% difference.

Test Results and Analysis

NSTL determined the Cyrix CPUs performed the Winstone® 99 test quicker than the AMD CPUs; however the Cyrix CPU was a bit slower than the Intel Celeron with the same Winstone® 99 tests.

Test Results

| Manufacture and Speed | RUN 1 | RUN 2 | Average |
|------------------------------|--------------|--------------|----------------|
| AMD 333 (66/333) | 15.2 | 15.1 | 15.2 |
| MII 333 (75/262) | 15.9 | 16.0 | 16.0 |
| Intel Celeron 333 (66/333) | 16.2 | 16.1 | 16.2 |

Note: All scores are in Winstone Units and all tests were performed at 1024x768x16 bit.

Conclusion

NSTL performed a sequence of 2 tests involving Winstone® 99. NSTL determined the Cyrix CPUs performed the Winstone® 99 test quicker than the AMD CPUs. However the Cyrix CPU did perform the Winstone® 99 tests slower than the Intel Celeron.

Appendix A: System Configurations**AMD System:**

| | |
|---|---|
| System Name: | AMD |
| Processor Name: | AMD |
| Processor Speed (s): | 333 MHz |
| Motherboard: | Microstar MS 5169-Ali Chipset |
| RAM: | 64MB |
| Secondary Cache: | 512KB |
| Graphics Adapter: | Rage IIc AGP (English) |
| Video RAM: | 4MB |
| Type of Video RAM: | SDRAM |
| Graphics Driver: | Macxw4.driv, Macxw4.vxd |
| Driver Version: | 4.10.2440 |
| Resolution | 1024x768 |
| Color Depth: | 16-bit |
| Refresh Rate: | 60 Hz |
| Hard Disk Manufacturer: | Quantum |
| Hard Disk Model: | Fireball SE |
| File System: | FAT32 |
| Transfer Mode Used: | N/A |
| Hard Disk Controller Model: | Ali M5529 PCI Bus Master IDE Controller |
| Hardware Cache (if any): | N/A |
| Operating System: | Windows 98 |
| Service Pack (if any): | N/A |
| Any other conditions used to obtain the results: | N/A |

Cyrix System:

| | |
|---|---|
| System Name: | Cyrix |
| Processor Name: | Cyrix MII |
| Processor Speed (s): | 75/262 MII-333 |
| Motherboard: | Microstar MS 5169-Ali Chipset |
| RAM: | 64MB |
| Secondary Cache: | 64KB |
| Graphics Adapter: | Rage IIc AGP (English) |
| Video RAM: | 4MB |
| Type of Video RAM: | SDRAM |
| Graphics Driver: | Macxw4.drv, Macxw4.vxd |
| Driver Version: | 4.10.2440 |
| Resolution | 1024x768 |
| Color Depth: | 16-bit |
| Refresh Rate: | 60 Hz |
| Hard Disk Manufacturer: | Quantum |
| Hard Disk Model: | Fireball SE |
| File System: | FAT32 |
| Transfer Mode Used: | N/A |
| Hard Disk Controller Model: | Ali M5529 PCI Bus Master IDE Controller |
| Hardware Cache (if any): | N/A |
| Operating System: | Windows 98 |
| Service Pack (if any): | N/A |
| Any other conditions used to obtain the results: | N/A |

Celeron System:

| | |
|---|--|
| System Name: | Celeron |
| Processor Name: | Intel Celeron |
| Processor Speed (s): | 333 MHz |
| Motherboard: | Abit LX6 - 440LX Chipset |
| RAM: | 64MB |
| Secondary Cache: | 128KB |
| Graphics Adapter: | Rage IIc AGP (English) |
| Video RAM: | 4MB |
| Type of Video RAM: | SDRAM |
| Graphics Driver: | Macxw4.drv, Macxw4.vxd |
| Driver Version: | 4.10.2440 |
| Resolution | 1024x768 |
| Color Depth: | 16-bit |
| Refresh Rate: | 60 Hz |
| Hard Disk Manufacturer: | Quantum |
| Hard Disk Model: | Fireball SE |
| File System: | FAT32 |
| Transfer Mode Used: | N/A |
| Hard Disk Controller Model: | Intel 82371AB/EB PCI Bus Master IDE Controller |
| Hardware Cache (if any): | N/A |
| Operating System: | Windows 98 |
| Service Pack (if any): | N/A |
| Any other conditions used to obtain the results: | N/A |