Evergreen 586 Processor Upgrade for 486 Systems

White Paper

Version 2.0, 12/19/97

EVERGREEN technologies

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Overview

The Evergreen 586 processor upgrade boosts CPU performance up to a level equivalent to a 75 MHz Pentium® processor. The upgrade is designed for 486 SX, SX2, DX and DX2 systems with bus speeds from 16 to 40 MHz. The Evergreen 586 allows users of 486 systems to run today's leading software for a fraction of the cost of a new PC.

Processor

AMD 5x86 133 MHz PQFP processor

- 133-MHz core clock speed
- Unified 16-Kbyte L1 write-back cache
- An integrated floating-point unit (FPU)
- System Management Mode (SMM)
- Fully certified by Microsoft® as a Windows® 95 and Windows NT compatible. Also compatible with Windows 3.x and UNIX®.

Upgrade Features

- "3X/4X" clock setting (default: "4X")

  This jumper setting is used to determine the processor's core speed as a multiple of the system's bus speed. The recommended setting is "4X" for bus speeds up to 33 MHz and "3X" for a bus speed of 40 MHz.

- "OvrDrv/Normal" socket (default: "Normal")

  This jumper setting enables the Evergreen 586 to function in either a standard 486 socket or OverDrive® socket.

- "WB/WT" cache setting (default: WT)

  This jumper sets the cache to write-through or write-back mode. Some systems support the higher performance write-back cache setting.

- Voltage converter

  enables the upgrade to function in 5-volt processor sockets which is the most commonly used voltage in 486 systems.

- Cooling device (heat sink or cooling fan)

- Measurements

  Width: 1.80", 45.7 mm
  Length: 1.80", 45.7 mm
  Height: 1.10", 27.9 mm
  (Includes cooling device and pins)

Upgrade Benefits

- Increases CPU performance up to the level of 75 MHz Pentium® processors
- Accelerates math- and graphics-intensive functions
- Supports leading operating systems and software such as Microsoft Windows 95 and Windows 3.x.
- Compatible with x86 software
- Selectable jumper settings such as bus speed and socket type for high compatibility
- Selectable write-back cache setting for highest performance in supported systems
- Easy installation (processor replacement)

System Upgrade Path

Original 486 CPU	Bus speed	Upgrade Speed	4X/3X Clock Setting
486 SX-16 486 DX-16	16 MHz	586-64	4X[1]
486SX-20 486DX-20 486DX2-40	20 MHz	586-80	4X[1]
486SX-25 486SX2-50 486DX-25 486DX2-50 486DX4-75	25 MHz	586-100	4X[1]
486SX-33 486SX2-66 486DX-33 486DX2-66 486DX4-100	33 MHz	586-133	4X
486SX-40 486DX-40 486DX2-80	40 MHz	586-120	3X
486DX-50	50 MHz	N/A[2]	N/A[2]

[1] Change of bus speeds can increase performance.
[2] Change of bus speed from 50 MHz to 40 or 33 MHz can enable 486DX-50 systems to function.

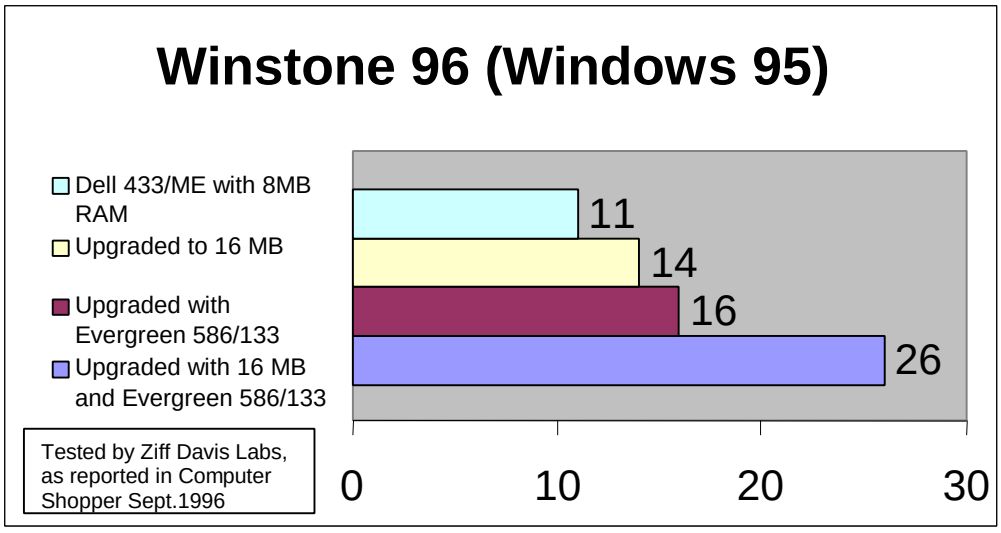
The Evergreen 586 can fit in socket 1 (169 pins), socket 2 (238 pins), socket 3 (237 pins), and OverDrive sockets. The Evergreen 586 requires 5 volts, which is available in all 486 systems.

Performance

Dell 433/ME

The Evergreen 586 more than doubles the performance of the original Dell system when combined with 16 MB of memory. The combination of CPU and memory delivers higher performance than the sum of their two parts. (See graph below)

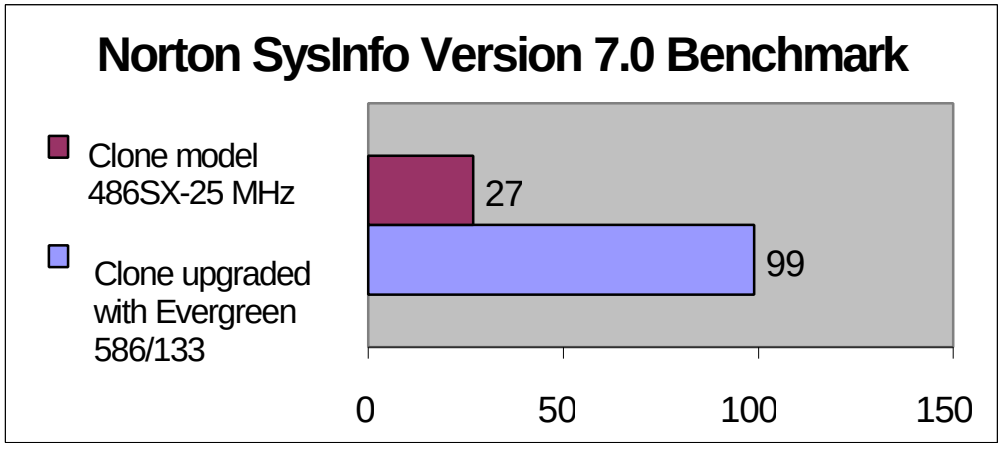
Performance Increase



Clone System

The Evergreen 586 more than triples the CPU performance in a typical clone system.

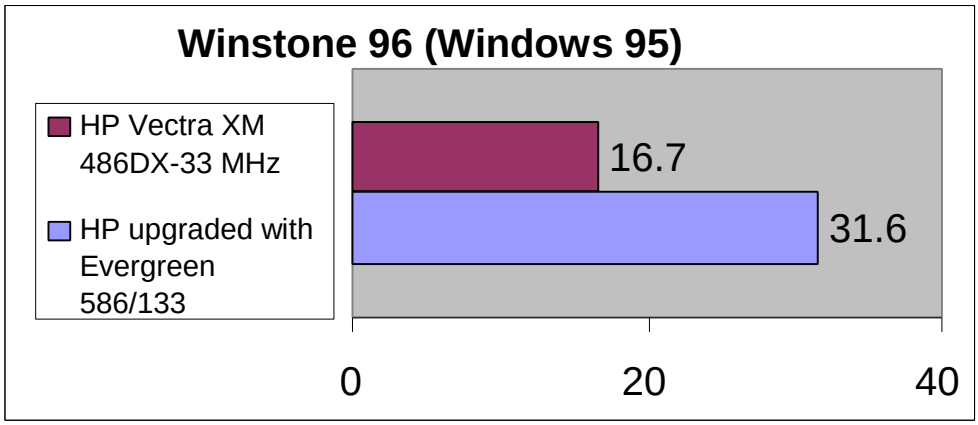
Performance Increase



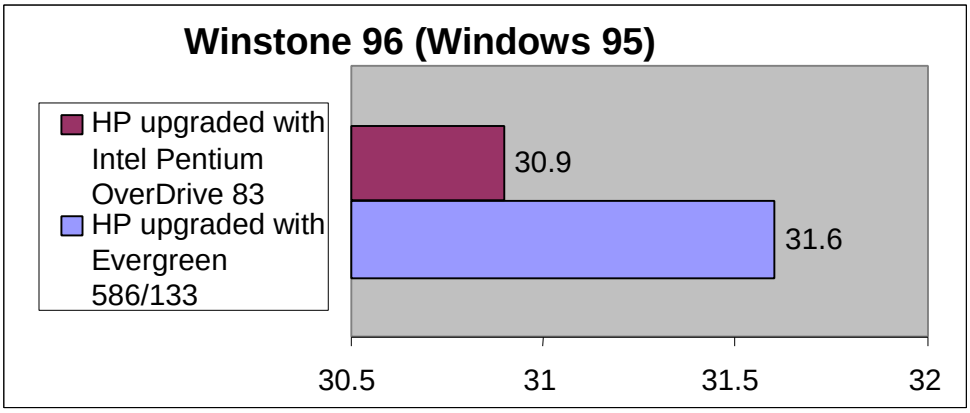
HP Vectra XM 486DX-33

On the HP system, the Evergreen 586 upgrade outperforms a Gateway 2000 Pentium 60 MHz system and the Intel® Pentium OverDrive 83 Upgrade.

Performance Increase of Original System



Upgrade Vs. Intel Pentium OverDrive 83



Upgrade Vs. Gateway Pentium-60 System