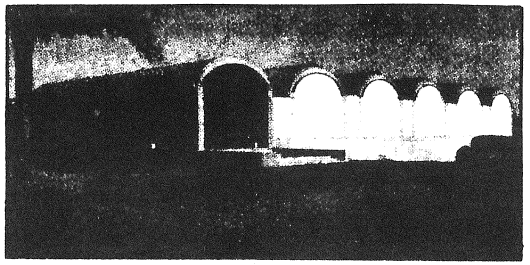

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Computers

When speed is a necessity

Faster bus may make the new Doucette 386 the fastest PC ever

BY LARRY GROEBE

Speed. To some people, it's a luxury; to others, a necessity.

In the computer world, today's bigger programs often require faster computers. The fastest MS-DOS machines out there use the third-generation 80386 CPU, and the fastest of the 80386 chips run at 25 megahertz. And that's fast; about 25 times quicker at calculations than the original IBM-PC or a portable like the Toshiba 1000.

There are more than a dozen of these 25-megahertz '386-based computers out there, and in most ways — speed particularly — they're more alike than different. Start with a fast CPU chip, add a math co-processor to speed calculations, install a high-horsepower hard drive; there are only so many things you can do.

Until now.

A Colorado engineer named Bruce Doucette has come up with a new way to dramatically increase performance: speed up the computer's bus. His specially designed motherboard circuitry forms the heart of Computer Science Technology's Doucette 386. It may just be the fastest PC ever.

The Doucette 386 looks ordinary enough. My test unit resembled a normal if well-equipped AT clone computer, with two floppies, a 70-megabyte hard drive and two megabytes of random-access memory. Inside were the 30386 and 30387 chips. You can plug eight accessory cards into the two eight-bit slots, five 16-bit slots and one 32-bit slot for extra memory.

This machine's difference lies in how those slots are hooked together. An extra layer of circuitry controls data running to each, on an individual slot-by-slot basis. These circuits act as "traffic controllers," reducing the chance of two cards needing access to the bus at the same time. Cards that can run fast are allowed more access to the bus than slower cards.

The result is that access to bus devices like the video display and the disk drives is increased phenomenally. In a simple test of processor calculation speed, this computer is as fast as (but no faster than) other '386 machines. The raw calculation speed of the Doucette and, let's say, a Compaq 386 is about the same. But such a simple test is hardly an accurate representation of the real world, except for perhaps the exact moment you recalculate a spreadsheet. Much of a computer's actual time is spent writing to the screen, and reading and writing to the disk drive. Here's where this machine outraces the competition.

I made speed tests using Power Meter, a program that looks at every aspect of the system — calculation speed, disk speed, memory access time, screen-writing speed — then provides you with a mean rating. In Power Meter's word-processing simulation test for example, 20 percent of the final score is based on memory speed, 35 percent upon calculation and sorting; 10 percent upon screen drawing; and 35 percent upon disk drive access times.

According to another test, the Northgate rates an 18.4 in processor speed and a 4 in disk speed. The Doucette, in contrast, rates a 25.7 in processor speed, and an incredible 39.1 in disk speed.

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