



CALIFORNIA STATE SCIENCE FAIR 2002 PROJECT SUMMARY

Name(s) Sean C. Locko	Project Number J0717
Project Title Upgrading Your Computer's Performance: What Works Best?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective is to determine the best electronic upgrade for a computer. I want to improve my computer's performance instead of buying a new one. My hypothesis is that installing faster processor (CPU) is the best performance upgrade rather than adding memory which most experts recommend.</p> <p>Methods/Materials I used one computer, three chips of memory, and two AMD K6-2 processors. The SDRAM memory chips were 32Mb (megabytes), 64Mb, 96Mb, and 128Mb. I combined the 96Mb and the 32Mb to make the fourth memory size of 128Mb. The CPUs that I used were 350mhz (megahertz) and 550mhz. Megahertz measures how many million cycles the computer can process per second. I tested each of the CPUs with the four different combinations of memory to determine the best performance. I used the Internet to search for the best benchmarking programs to download to my computer. A benchmarking program gives you an overall score for your computer. After I downloaded them I loaded them on my computer and ran the tests. Each time that I ran a test, I had to take apart the computer and find the slots to insert the memory chips or CPU. I timed how long it took the programs (game and Microsoft IE browser) to load up, and then I recorded the results.</p> <p>Results My results showed that the computer performed better by installing a higher mhz CPU, rather than by adding more and more memory. The tests I finally used measured the computer's speed and time to load up programs. My results showed the computer actually slowed down and took longer to load when I put in higher amounts of memory. The new CPU was the best upgrade because it made the computer run faster, and showed the most improvement in the computer's performance.</p> <p>Conclusions/Discussion My conclusion proved my hypothesis correct. Rather than buying a brand new computer, the best way to get increased performance from your existing computer is to install a faster CPU, rather than keep increasing the amounts of memory. My research books all stated that you can never have too much memory, and my project proved these theories to be incorrect. You can have too much memory, and it can slow down your computer. I also learned that benchmarking programs are not the best and only way to test your computer's performance. You can test it's performance better using a few simple applications and timing how long it takes for them to load and run.</p>	
Summary Statement My project determined the best way to upgrade a computer's performance by comparing the results of installing faster CPUs and adding combinations of more memory.	
Help Received My teacher, Mr. Kuhn, made sure I followed the rules and reviewed my project. I learned how to install CPUs and memory from the Internet, and my Dad helped me learn how to use Excel software.	