# CALIFORNIA STATE SCIENCE FAIR
# 2002 PROJECT SUMMARY

**Name(s)**
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**Project Number**
22110

**Project Title**
## Six Tests of Computer Performance

**Abstract**

**Objectives/Goals**
This project compared different processor and memory sub-systems, to deduce the most efficient test procedure.

**Methods/Materials**
A wide range of computers were examined in the twenty three computers I tested, from x486 chips to dual processor servers. I used the program SiSoftSandra Professional to measure 6 aspects of a computer's performance. The six tests are:
Integer MMX Memory Bandwidth
Floating FPU Memory Bandwidth
Integer iSSE CPU Multimedia
Float SSE CPU Multimedia
CPU Arithmetic Dhrystone ALU (MIPS)
CPU Arithmetic Whetstone FPU (Mflops)

**Results**
The AMD chips tended to provide superior performance at equivalent clock speeds. Processor speed, the most commonly advertised aspect of a computer, by itself is not a complete indicator of overall computer performance. I compared the results of the six tests on the twenty three computers and found that three of the tests were highly correlated with the other three tests (All correlation coefficiants greater than .96).

**Conclusions/Discussion**
In general, the more modern chips with faster CPU frequencies excelled in most testing situations. However, I found that only three tests of the six were required to completely measure computp performance; three tests were found to be redundant.

**Summary Statement**
Six different ways of measuring computer performance were used on twenty three computers, and the results showed only three of the tests were required.

**Help Received**
Access to a Variety of computers at San Dieguito Academy, Trex Enterprises Corporation, and several households.