

**Team Number:** 6

**School Name:** Los Alamos High School

**Area of Science:** Computer Science

**Project Title:** Green Computing: A Parallel Processing Approach on Data Encoding Problems

**Problem Definition:**

Data coding techniques have been used in wired and wireless data transmission areas for many years. These techniques involve heavy mathematic computing operations. Usually byte streams are used in traditional data transmission and normally embedded processors are used to handle efficient byte stream data coding processes. The “software data coding” method was not used in very large scale storage systems until five years ago. This is due to the fact that, back then the CPU computing power could not efficiently handle software coding processes. Today advanced multicore computing systems are commonly used in many commercial and scientific applications. In this computer science project, I plane to implement a parallel encoding software called PAR-EC. I will then conduct various workload tests on a single compute node and multi-node cluster machines.

**Progress to Date:** I have begun working on my program which will be used for testing. I have completed the necessary research for the project.

**Expected Results:** I hope to obtain results showing increased bandwidth and energy usage reduction.

**Team Members:** Steven Chen

**Sponsoring Teacher:** Adam Drew