                                                      Contact: Jean Friedrich

IOWA STATE UNIVERSITY
EQUIPMENT PURCHASE

Actions Requested: Consider ratification of Executive Director approval of the purchase of a Sun High Performance Computing System for Computer Engineering at Iowa State University at an estimated cost of $1,120,982.

Executive Summary: Iowa State University requests Board ratification of Executive Director approval to proceed with the purchase of Sun High Performance Computing System. The order for the Sun High Performance Computing System needed to be placed with Sun by June 30, 2008, to take advantage of the Sun matching grant program of $200,000.

Description of Equipment

The equipment request is for a High Performance Computing (HPC) system, otherwise known as a cluster. This HPC system will be used on the Teragrid network to work with other HPC systems, primarily the Texas Advanced Computer Center (TACC) Ranger. Major components of the proposed acquisition are 396 node dual quadcore compute nodes, Sun Thumper storage system, Sun Luster file system, and a high bandwidth Infiniband network.

Justification of need for Equipment

It is important for Iowa State University's Computer Engineering to be at the cutting edge of technology in High Performance Computing (HPC); however, top end HPC systems cost $50-200 million, and the University's resources for such systems are typically in the $1-2 million range. Therefore, it makes sense for ISU to procure smaller systems with similar configurations as the cutting edge systems, and allows University researchers to build codes and perform code optimizations on the local system and run them on the current high-end system, the recently installed TACC Ranger. Examples of research that will take advantage of this technology include projects in systems biology and materials science.

Any Known Alternatives to the Equipment Proposed

There are numerous small-scale vendors who focus on buying components and integrating systems, and some major vendors which have no internal research programs and cannot offer such collaboration. The primary goal of this purchase is to use it in conjunction with the TACC Sun Ranger system which is the most powerful computing system in the world for open science research. The University can take advantage of Suns' expertise in implementing this system and scaling middleware, management tools, and the storage infrastructure to support massive programs. Utilizing a system that does not have a matching configuration would likely sacrifice performance and require additional resources to make them interface appropriately.

Estimated Cost and Source of Funding

The estimated cost of the computer system is $1,120,982. The source of funding is an NSF award ($719,000), an investment from Mechanical Engineering Department ($160,000), and the balance from ISU cost-match.

Board Policy

Chapter 7.05B(12) of the Regent Policy Manual requires that:

- Equipment costing more than $1,000,000 must be submitted to the Board for approval; and

- Requests submitted to the Board Office for approval must include the following information:

    - Description of the equipment;

    - Justification of the need for the equipment;

    - Any known alternatives to the equipment proposed; and

    - Estimated cost and source of funding.