

**UNIVERSITY OF SOUTHERN CALIFORNIA**

**Manager, High Performance Computer Engineering (ITS)**

**Job Code: 165883**

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**OT Eligible: No**

**Comp Approval: 8/2/2019**

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**JOB SUMMARY:**

Directs and oversees the engineering functions in design, development, installation, and maintenance of hardware and software for the Center for High-Performance Computing (HPC) systems, according to stakeholder needs and the university's strategic vision. Leads, manages, mentors and builds a highly talented engineering team to deliver innovative advances in high-performance computing. Responsible for managing the planning, implementation, availability, performance, security, maintenance and repair of the high-performance computing infrastructure. Improves the integrity of networks, services and related hardware by applying leading-edge technical and operational knowledge to configure and maintain high-performance computing server platforms. As part of the leadership team, models, and cultivates ITS culture, values, and behaviors.

**JOB ACCOUNTABILITIES:**

**\*E/M/NA % TIME**

- |       |       |   |
|-------|-------|---|
| _____ | _____ | Directs and oversees the engineering functions in design, development, installation, and maintenance of hardware and software for the Center for High-Performance Computing (HPC) systems, according to stakeholder needs and the university's strategic vision. Contributes in cross-functional coordination, architecture discussions, and priority planning in a highly collaborative environment. |
| _____ | _____ | Improves the integrity of networks, services, and related hardware by applying leading-edge technical and operational knowledge to configure and maintain high-performance computing server platforms. Drives server hardware and software life cycle management, helping to plan, develop, and deploy maintenance fixes to system.   |
| _____ | _____ | Develops tests and plans for new high-performance computing systems and applications implementations, custom scripts, and testing procedures to ensure operational reliability for the campus; trains technical ITS organization staff in use of new software and hardware developed and/or acquired.   |
| _____ | _____ | Supports the HPC Engineering vision, working with other ITS leaders to develop and manage a holistic strategy for delivering service quality and continuous service improvement. Supports governance for software engineering through the implementation of standards and quality measures.   |
| _____ | _____ | Manages team member development, helping them set and achieve goals for their career growth. Fosters an inclusive environment that values team member differences, creating a sense of belonging and appreciation. Contributes to a culture of trust and transparency.  |
| _____ | _____ | Builds and maintains strong relationships with ITS leaders, customers, partners, and stakeholders. Works closely to identify, implement, and support cost-effective, leading solutions for HPC engineering, maintaining currency with industry standards and innovations. Provides input around process optimization, department budgeting, and the monitoring and management of resources.           |

Performs other related duties as assigned or requested. The university reserves the right to add or change duties at any time.

**\*Select E (ESSENTIAL), M (MARGINAL) or NA (NON-APPLICABLE) to denote importance of each job function to position.**

**EMERGENCY RESPONSE/RECOVERY:**

Essential:  No

Yes In the event of an emergency, the employee holding this position is required to “report to duty” in accordance with the university’s Emergency Operations Plan and/or the employee’s department’s emergency response and/or recovery plans. Familiarity with those plans and regular training to implement those plans is required. During or immediately following an emergency, the employee will be notified to assist in the emergency response efforts, and mobilize other staff members if needed.

**JOB QUALIFICATIONS:**

**Minimum Education:**

- Bachelor's degree
- Combined experience/education as substitute for minimum education

**Minimum Experience:**

8 years

**Minimum Field of Expertise:**

Eight years’ experience in IT, high-performance computing, or other related industries. Demonstrated expertise in design configuration and planning. Proficiency with low-latency/high-bandwidth interconnect infrastructure (Infiniband, Myrinet, 10GigE). Expertise with HPC system software cluster management/provisioning tools, including job schedulers (Slurm, salt, xCAT). Proficiency with shared and distributed memory parallelism (OpenMP, MPI), and accelerators (GPUs). Strong scripting ability (Bash, Perl, Python, etc.) and experience with programming fundamentals. Expertise with administration, monitoring and maintaining secure Linux/Unix operating systems (CentOS, Solaris). Experience establishing processes for maintaining system performance and managing best-in-class standards, and familiarity with cloud computing and container technologies. Ability to understand and work with large, complex systems, identify and resolve problems, manage performance, and troubleshoot network issues related to infrastructure. Expertise with multivendor hardware/software management, security, and network/Internet protocols. Strong communication and interpersonal skills, with the ability to provide both detailed information and high-level summaries to management-level individuals and groups, present the business side of technical topics to non-technical audiences, and develop positive working relationships and strong rapport with team members.

**Preferred Education:**

Bachelor's degree

**Preferred Experience:**

10 years

**Preferred Field of Expertise:**

Bachelor's degree in computer science, information systems, or a related field. Ten years' experience in information technology, high-performance computing, or related field. Three years' experience in a management or leadership role. Ability to drive technical leadership and management of complex, large-scale computing systems' projects. Solid knowledge of HPC storage (e.g., FC, SAS), file systems (e.g., SAMFS/QFS, BeeGFS, ZFS), and NFS. Exemplary communication and interpersonal skills, with the ability to present the business side of technical topics to non-technical audiences, and persuasively and effectively interact with relationships with various stakeholders and diverse individuals and groups.

**Supervises: Level:**

Manages through subordinate supervisors.

May oversee staff, students, volunteers, agencies and/or resource employees.

**SIGNATURES:**

Employee: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

The above statements are intended to describe the general nature and level of work being performed. They are not intended to be construed as an exhaustive list of all responsibilities, duties and skills required of personnel so classified.

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