THE UNIVERSITY OF UTAH

**CENTER FOR
HIGH PERFORMANCE
COMPUTING**

2016

**Center for High Performance Computing
University Information Technology
University of Utah
155 S 1452 E, RM 405
Salt Lake City, Utah 84112–0190**

**(801) 585–3791
issues@chpc.utah.edu**

Mission

In addition to deploying and operating high-performance computational resources and providing advanced user support and training, the Center for High Performance Computing broadly supports the increasingly diverse research computing needs on campus. These needs include support for big data, data movement, analytics, security, virtual machines, Windows science application servers, protected environments for data mining and analysis of protected health information, and advanced networking.

By the Numbers

28 years of operation

44 user training sessions provided in 2016

17 full-time staff

10 student staff

Over **100M** core hours on HPC clusters used by more than **500** users YTD (as of October 31)

Affiliates

INTERNET®

ACI-REF
Advanced Cyberinfrastructure
Research & Education Facilitators

CAMPUS
CHAMPIONS

RMACC
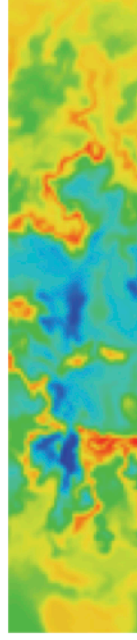Rocky Mountain Advanced Computing Consortium

Research Highlights

USTAR Center for Genetic Discovery

UCGD develops algorithms, software tools, analysis pipelines, and data management systems that enable researchers and clinicians to visualize and interpret genomic big data. They lead efforts to understand the structure and evolution of genomes. A major focus is the integration of a patient's genome data into healthcare.

Sloan Digital Sky Survey

The SDSS project is an international project that created the most detailed three-dimensional maps of the universe ever made. The current project includes surveys to study the expansion history of the universe, explore the formation of the Milky Way, and map nearby galaxies.

Bioinformatics
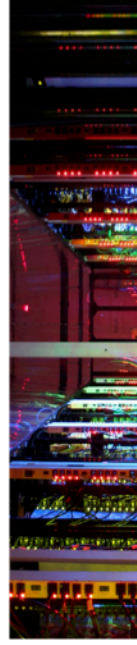
Researchers in the Department of Bioinformatics utilize CHPC resources, specifically those in the Protected Environment, for numerous projects that rely on access to patient data. CHPC hosts services of the Biomedical Informatics Core, including REDCap, OpenSpecimen, and OpenFurther.

Carbon-Capture Multidisciplinary Simulation Center

CCMSC is demonstrating exascale computing with V&V/UQ to more rapidly deploy a new technology for providing low-cost, low-emission electric power generation to meet the growing energy needs of the world. They are using a hierarchal validation approach to predict performance of full-scale, coal-fired boilers.

MesoWest

MesoWest provides access to current and archived weather observations across the United States. It is a cooperative project between researchers at the University of Utah, forecasters at the Salt Lake City NWS Office, the NWS Western Region Headquarters, and participants from other public and private entities.

CI-WATER

A joint project involving researchers from multiple institutions in Utah and Wyoming, CI-WATER uses modeling in the study of the interconnection of natural and human water resources and systems.

Resources

HPC
Six compute clusters with nearly 1,200 nodes and over 20,000 cores

Storage
Approximately 13 PB in home, group, scratch, and archive space

Data Transfer
Multiple data transfer nodes and tools for moving big data

Networking
100 Gbps science connection with perfSONAR; campus backbone of 40 Gbps

Protected Environment
HIPAA-compliant computational cluster, Windows server, VM farm, and storage

Windows Servers
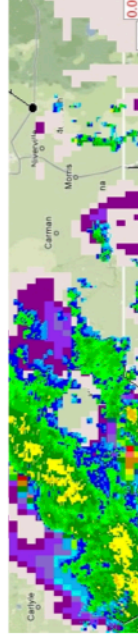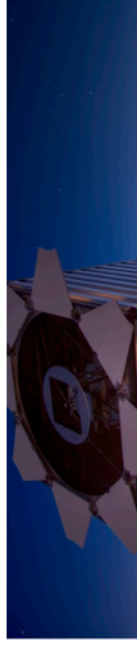Two servers with 48 cores and 512 GB RAM each, featuring popular statistical packages

Virtual Machines
Two virtual machine farms, one for general use and the other for protected environment, including community web, database, Git, and SVN servers

User Services
Staff available to assist with the utilization of resources and installation of software, and to provide user training