



University of
CINCINNATI

Advanced Research Computing Center

Office of Research Advanced Research Computing (ARC)

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What is ARC?

- **High performance and high throughput computing facility**
 - enables and accelerates computational research
 - develops a computational workforce of HPC professionals
 - educates emerging computational researchers
- **Office of Research initiative**
 - currently in the pilot phase
 - requested first round of RFPs on April 1
- **ARC team**
 - faculty advisory committee (members from CEAS, CoM, A&S, CoB)
 - Office of Research
 - UCIT
 - most importantly, HPC administrators and user support personnel
 - supported by IUIT and NSF XCRI chief architect and administrators

- **50 teraFLOPS of peak CPU performance**
 - Intel Xeon Gold 6148 2.4G, 20C/40T, 192 GB RAM/node
 - Plans to increase it to 140 teraFLOPS peak CPU performance in the next year
- **224 teraFLOPS deep learning peak performance**
 - NVIDIA Tesla V100 32G Passive GPU
 - Plans to increase it to 896 teraFLOPS deep learning peak performance in the next year
- **ZFS Storage Node – 96TB raw storage**
- **State of the art Omnipath HPC Networking infrastructure**
 - Maximum bandwidth between nodes = 100Gbps

- OpenHPC environment
- Warewulf cluster provisioning system and managed by the SLURM
- Singularity containers being installed soon
- Developmental tools, including compilers, OpenMP, MPI, OpenMPI libraries for parallel code development, debuggers, and open source AI tools
- FLEXlm being installed so that individual researchers can easily maintain and use their software resources
- User login is based on UC/AD, so that user groups and easier access

- **User training and support**
 - E.g., Linux 101, HPC 101
 - installation of codes
- **Procurement and consulting**
 - cheaper negotiated rates for faculty who would like to purchase hardware
 - software consulting
 - installation in the ARC with 24x7 data center operations (no worries about cooling, power, racks, head node, etc.)
- **Commodity services**
 - high-speed data transfer through UCSN and OARnet (10-40 GB/s)
 - high-speed scratch storage
 - back-up, recovery and data security

- **PIs email ARC-Info@uc.edu with the following information**
 - project name and brief description
 - what do you need GPU or CPUs
 - minimum number of cores needed for the job
 - when can you start using the system
 - how many CPU/GPU hours needed for the job
 - software needed
 - can you install software yourself or you need assistance
 - If you have proprietary software, please provide the license file/flexlm server link (if stored on another server at UC)
 - UC usernames of students/postdocs who will need access



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