2021

NERSC by the Numbers
2021 NERSC USERS ACROSS US AND WORLD

50 States + Washington D.C. and Puerto Rico
46 Countries

~9,000 ANNUAL USERS FROM ~800 Institutions + National Labs

27% Graduate Students
17% Postdoctoral Fellows
14% Staff Scientists
11% University Faculty
7% Undergraduate Students
6% Professional Staff

59% Universities
29% DOE Labs
5% Other Government Labs
3% Industry
1% Small Businesses
<1% Private Labs
Top Science Disciplines
(By computational hours used)

- Nuclear Physics
- Chemical Sciences
- High Energy Physics
- Geosciences
- Plasma Science
- Small Business Innovation Research
- Biological Systems Science
- Fusion Energy
- Biosciences
- Climate and Environmental Science
- Material Sciences
- Scientific User Facilities
- Chemical Sciences, Geosciences, and Biosciences
- Fusion Energy and Plasma Science

Breakdown of Compute Used by DOE Program

- <1% Small Business Innovation Research
- 1% Biological Systems Science
- 2% Scientific User Facilities
- 11% Climate and Environmental Science
- 13% Nuclear Physics
- 19% High Energy Physics
- 18% Chemical Sciences, Geosciences, and Biosciences
- 18% Material Sciences
- 15% Fusion Energy and Plasma Science

~1,000 Projects
NERSC Systems 2021

**Perlmutter**
- 1,536 NVIDIA A100 accelerated nodes
- 4 A100 GPUs & 1 AMD “EPYC” CPU per node
- 384 TB (CPU) + 240 TB (GPU) memory
- HPE Cray Slingshot high speed interconnect
- World’s 5th most powerful supercomputer
- 140 PF Peak
- Pre-production system

**Cori**
- 9,600 Intel Xeon Phi “KNL” manycore nodes
- 2,000 Intel Xeon “Haswell” nodes
- 700,000 processor cores, 1.2 PB memory
- Cray XC40 / Aries Dragonfly interconnect
- 30 PF Peak

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**Data Stored**
- 200 Petabytes

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**NERSC Systems 2021**

- **8.25 BILLION**
  - COMPUTE HOURS USED IN 2021

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**>2,000**
- Refereed Publications
- Cited NERSC

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**ESnet**
- Science Friendly Security
- Production Monitoring
- Power Efficiency
- LAN

**Ethernet & IB Fabric**
- 2 x 100 Gb/s SDN

**HPSS Tape Archive**
- ~200 PB

**28 PB Scratch**
- 700 GB/s

**2 PB Burst Buffer**
- 1.5 TB/s

**120 PB /ufs**
- 50 GB/s

**275 TB /home**
- 100 GB/s

**5 GB/s**
- 5 TB/s

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