



AMERICA'S MOST POWERFUL SUPERCOMPUTER IS A MACHINE FOR SCIENTIFIC DISCOVERY.

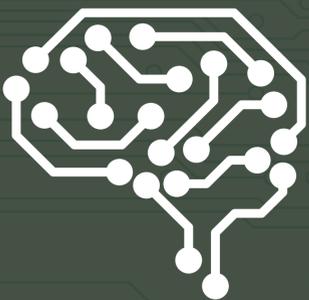
- The US Department of Energy's Summit supercomputer enables scientists to simulate complex physical systems and make predictions critical to advancing research and development.
- Summit's "smart" architecture merges GPU acceleration and dense local memory to support expanding applications in data science and artificial intelligence.



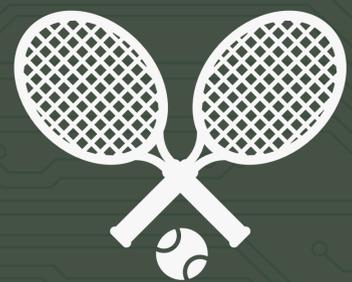
A **200-petaflop** machine, Summit can perform 200 quadrillion (peta-) floating point operations per second (flops). If every person on Earth completed one calculation per second, it would take **305 days** to do what Summit can do in **1 second**.



At over **340 tons**, Summit's cabinets, file system, and overhead infrastructure weigh **more** than a large commercial aircraft.



For some AI applications, researchers can use less precise calculations than flops, potentially **quadrupling** Summit's performance to **exascale levels**, or more than a billion billion calculations per second.



Occupying **5,600 sq. ft.** of floor space, Summit could fill **two tennis courts**.



Summit is connected by **185 miles** of fiber optic cables—or the distance from Knoxville to Nashville, Tennessee.



Summit's file system can store **250 petabytes** of data, or the equivalent of **74 years** of high definition video.



More than **4,000 gallons** of water pump through Summit's cooling system every minute, carrying away about **13 megawatts** of heat.

SUMMIT FEATURES

Application Performance	200 PF
Number of Nodes	4,608
Node performance	42 TF
Memory per Node	512 GB DDR4 + 96 GB HBM2
NV memory per Node	1600 GB
Total System Memory	>10 PB DDR4 + HBM2 + Non-volatile
Processors	2 IBM POWER9™ 9,216 CPUs 6 NVIDIA Volta™ 27,648 GPUs
File System	250 PB, 2.5 TB/s, GPFS™
Power Consumption	13 MW
Interconnect	Mellanox EDR 100G InfiniBand
Operating System	Red Hat Enterprise Linux (RHEL) version 7.4