Top 10 Super Computers

State of the Art

- GTC 2017 keynote
- Top500.org
- LINPACK benchmark
- Theoretical Peak

1- Summit

First Since 06/2018

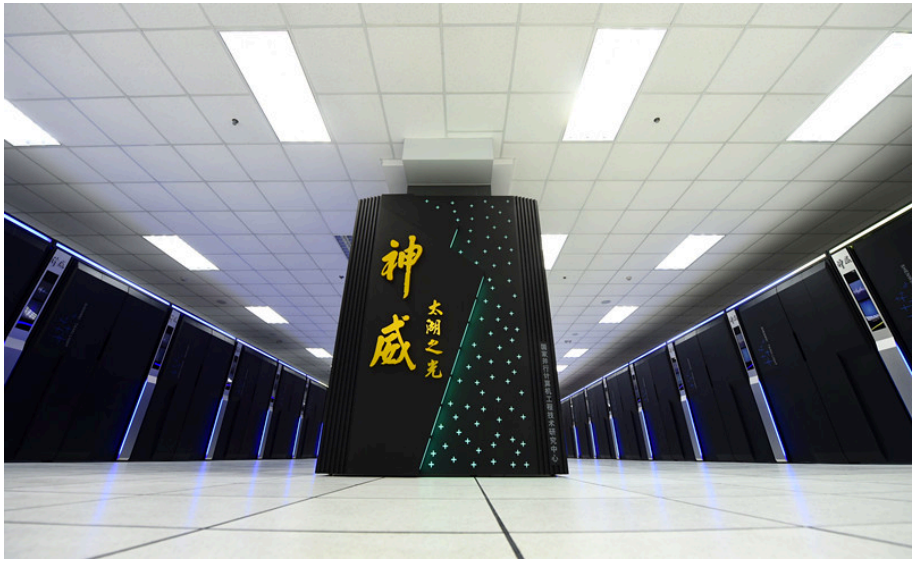
- DOE/SC/Oak Ridge National Laboratory
- Has 1,572,480 cores (IBM POWER9 22C 3.07GHz + NVIDIA Volta GV100)
- 1382 Tera Bytes of Memory
- Linpack: ~ 94.64 Petaflops
- Theortical Max – ~ 125.7 Petaflops
- Red Hat Enterprise Linux
- Consumes 7.43 Mega Watts
- Dual-rail Mellanox EDR Infiniband
- Cost: 200 Million Dollars

2- Sierra

Since 11/2018

- DOE/SC/Oak Ridge National Laboratory
- Has 2,414,592 cores (IBM POWER9 22C 3.07GHz + NVIDIA Volta GV100)
- 2801 Tera Bytes of Memory
- Linpack: ~ 148.6 Petaflops
- Theortical Max – ~ 200.79 Petaflops
- RHEL 7.4
- Consumes 10 Mega Watts
- Dual-rail Mellanox EDR Infiniband
- Cost: 125 Million Dollars

3-Sunway TaihuLight



First 11/2017 -> 3rd on 11/2018

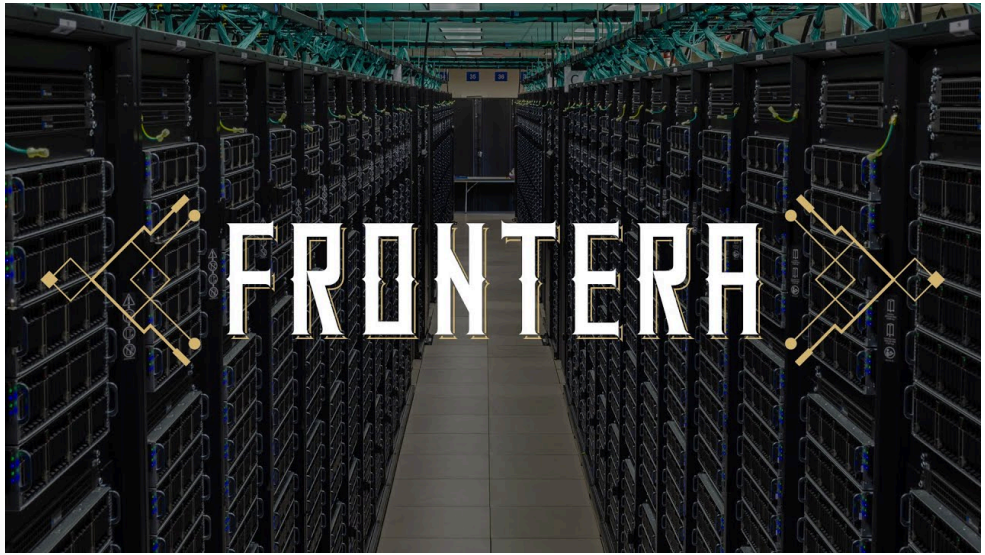
- National Super Computer Center, Wuxi, China
- Has 10,649,600 cores (Sunway SW26010 260c 1.45GHz)
- 1280 Tera Bytes of Memory
- Linpack: ~93 Petaflops
- Theortical Max – ~125 Petaflops
- Sunway RaiseOS 2.0.5
- Consumes 15.371 Mega Watts
- Sunway interconnect
- Cost: 273 Million Dollars

4-Tianhe-2A

First 06/2013 – 06/2016

- National Super Computer Center, Guangzhou, China
- Has 3,120,000 cores (Intel Xeon E5-2692 12c, Intel Xeon phi 31S1P)
- 1024 Tera Bytes of Memory
- Linpack: 33.86 Petaflops
- Theortical Max – 54.9 Petaflops
- Kylin Linux
- Consumes 17.808 Mega Watts
- TH Express-2 interconnect
- Cost: 390 Million Dollars

5- Frontera



Since 06/2019

- Texas Advanced Computing Center/Univ. of Texas
- Has 448,448 cores (Xeon Platinum 8280 28C 2.7GHz)
- 1537 Tera Bytes of Memory
- Linpack: 23.5 Petaflops
- Theortical Max – ~ 38.74 Petaflops
- CentOS Linux 7
- Consumes -- Mega Watts
- Mellanox EDR Infiniband
- Cost: 60 Million Dollars

6- Piz Daint – Upgraded

- Swiss National Supercomputing Center
- 361,760 processors
- Hybrid: Intel Xeon E5-2690 and Nvidia Tesla P100
- Linpack: 19.59 PFlop/s
- Theoretical: 25.326 PFlops
- 2.271 MegaWatts
- Aries Interconnect
- Cray Linux

Was 8th in Nov 2016

7 - Trinity

Was 6th 06/2018

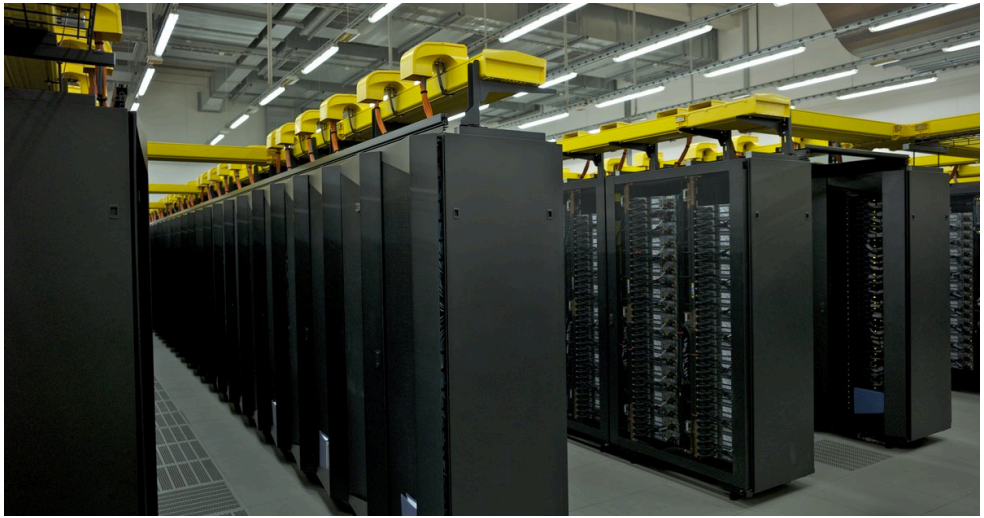
- NNSA – United States
- Cray XC40, Xeon E5-2698v3 16C 2.3GHz
- 979,072 cores (Intel Xeon Phi 7250 68C 1.4GHz)
- Linpack: 20.16 Pflops
- Theoretical: 41.46 Pflops
- Cray Linux Environment
- Power: 7.6 Megawatts
- Aries interconnect
- Cost:$174 Million

8- AI Bridging Cloud Infrastructure

Was 5th on 06/2018

- AIST, Japan
- Has 391,680 cores(Xeon Gold 6148 20C 2.4GHz)
- 418 TBytes memory
- Linpack: 19.88 PetaflopTheoretical Peak: 32.576 Pflops
- Linux
- Consumes 1.65 MegaWatts
- Infiniband EDR
- Cost: $181 Million

9- SuperMUC-NG



- Leibniz Rechenzentru, Germany
- Has 305,856 cores (Xeon Platinum 8174 24C 3.1GHz)
- 718.8 PetaBytes memory
- Linpack: 19.5 Petaflop
- Theoretical Peak: 16.87 Pflops
- SUSE Linux Enterprise Server 12 SP3
- Consumes 12.66 MegaWatts
- Intel Omni-Path interconnect
- Cost: 96 Billion Euro

Was 8th 11/2018

10- Lassen

- DOE/NNSA/LLNL
- Has 288,288 cores (IBM POWER9 22C 3.1GHz + NVIDIA Tesla V100)
- 253.4 PBytes
- Linpack:18.2 PFlop/s
- Theoretical: 23.05 Pflops
- Red Hat Enterprise Linux
- -- MegaWatts
- Dual-rail Mellanox EDR Infiniband
- Cost: $50 million

Was 11rd 11/2018

Questions??