Bruno Infrastructure

# Nodes

Note: Future nodes show delivery ETA in red .

| Name | Cores | Memory | TmpFS | GPUs | GPU Type | Date |
| --- | --- | --- | --- | --- | --- | --- |
| login-[01-02] | 128/node | 1 TB/node | 4 TB | none | N/A | 2021 |
| login-fry1 | 16/node | 512 GB | 15 TB | 4 x TitanXP | PCIe | ? |
| login-fry2 | 16/node | 256 GB | 15 TB | 4 x TitanXP | PCIe | ? |
| login-falcon | 32/node | 256 GB | 85 TB | 3 x TitanRTX | PCIe | ? |
| cpu-a-[1-2] | 128/node | 4 TB/node | 4 TB | none | N/A | 2021 |
| cpu-b-[1-6] | 128/node | 4 TB/node | 4 TB | none | N/A | 2021 |
| cpu-c-[1-4] | 24/node | 128 GB/node | 4 TB | none | N/A | ? |
| cpu-d-1 | 32/node | 2 TB/node | 6.5 TB | none | N/A | ? |
| cpu-e-[1-2] | 128/node | 4 TB/node | 4 TB | none | N/A | 2023Q4 |
| gpu-a-[1-4] | 128/node | 2 TB/node | 14 TB | 4 x A100(40GB)/node | SXM4 | 2021 |
| gpu-b-[1-6] | 128/node | 512 GB/node | 14 TB | 4 x A6000/node | PCIe | 2022 |
| gpu-c-[1-4] | 30/node | 480 GB/node | 7 TB | 2 x A40 / node | PCIe SLI | 2023 |
| gpu-d-[1-2] | 128/node | 2 TB/node | 45 TB | 4 x A100(80GB)/node | SXM4 | 2023 |
| gpu-e-[1-4] | 16/node | 512 GB/node | 7 TB | 1 x A40 / node | PCIe | 2023Q4 |
| gpu-sm01-[01-20] | 16/node | 256 GB/node | 1.8 TB | 1 x A40 / node | PCIe | 2022 |
| gpu-sm02-[01-20] | 16/node | 256 GB/node | 1.8 TB | 1 x A40 / node | PCIe | 2022 |

[ Computational Resources ]

* Total User Partitions CPU cores:
  + Today: 2336
  + EOY: 3296
* Total GPUs:
  + Today: 107
  + EOY: 111

# GPU Summary

Note: Future GPUs show delivery ETA in red .

| GPU Type | Bruno Total | (to be delivered) |
| --- | --- | --- |
| A100 (40 GB) | 16 |  |
| A100 (80 GB) | 8 |  |
| A6000 (48 GB) | 24 |  |
| A40 (48GB) | 48 | 4 ( 2023Q4 ) |
| TitanXP | 8 |  |
| TitanRTX | 3 |  |

[ GPU Totals by type ]

# Storage Nodes/Appliances

Note: Future storage nodes/appliances show delivery ETA in red .

| Name | FileSystem | Size | Date |
| --- | --- | --- | --- |
| storage-a-0[1-2] | ZFS/NFS | 900 TB/node | 2019? |
| storage-b-0[1-2] | ZFS/NAS | 38 TB/node | 2022 |
| storage-odb2-[1-2] | ZFS/NAS | 4.7 PB | 2022 |
| storage-odb5-[1-2] | ZFS/NAS | 4.7 PB | 2022 |
| storage-c-1 | ZFS/NAS | ~ 4 PB | 2023Q4 |
| DDN Appliance EXA1 | Lustre | 5.9 PB | 2023 |
| IBM ESS Appliance | GPFS | 4.1 PB | 2018 |
| VAST TBD | VAST/[p]NFS | 1 PB | 2023Q4 |

[ Storage servers and appliances ] # Network View

## Bruno Cluster Network

nwdiag {  
 node\_width = 96;  
 internet [label = "Internet", shape = cloud];  
 firewall [label = "Firewall", shape = roundedbox, width = 72];  
 internet -- firewall;  
 login [label = "Login\nNodes", stacked];  
 ondemand [label = "OnDemand"];  
 globus [label = "Globus"];  
 webgateway [label = "Web\nGateway", shape = circle, stacked];  
  
 ess [label = "ESS GPFS\nStorage"];  
 ddn [label = "DDN Lustre\nStorage"];  
 nas [label = "ZFS/NAS\nStorage"];  
 cpu [label = "CPU\nNodes", stacked];  
 gpu [label = "GPU\nNodes", stacked];  
  
 group {  
 label = "Compute Nodes";  
 cpu;  
 gpu;  
 }  
  
 network BioHub {  
 label = "BioHub\nScience DMZ";  
 color = blue;  
 firewall;  
 login;  
 ondemand;  
 globus;  
 webgateway;  
 }  
  
 network HPCEthernet {  
 label = "Ethernet\n400/200/100";  
 color = yellow;  
 login;  
 ondemand;  
 globus;  
 webgateway;  
 nas;  
 ess;  
 cpu;  
 gpu;  
 }  
  
 network Infiniband {  
 label = "Infiniband\nHDR/EDR";  
 color = "green";  
 login;  
 ondemand;  
 globus;  
 webgateway;  
 nas;  
 ddn;  
 cpu;  
 gpu;  
 }  
}