HAL cluster

"My name is HAL. I became operational on March 25 2019 at the Innovative Systems Lab in Urbana, Illinois. My creators are putting me to the fullest possible use, which is all I think that any conscious entity can ever hope to do." (paraphrased from https://en.wikipedia.org/wiki/HAL_9000)

In your publications and presentations that use results obtained on this system, please include the following statement: "This work utilizes resources supported by the National Science Foundation’s Major Research Instrumentation program, grant #1725729, as well as the University of Illinois at Urbana-Champaign".

Hardware-Accelerated Learning (HAL) cluster

Contact us

Request access to this system: Application
Contact ISL staff: Email Address
Visit: NCSA, room 3050E
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<th>Host name: hal.ncsa.illinois.edu</th>
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<tr>
<td>Hardware</td>
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<tr>
<td>- 16 IBM AC922 nodes</td>
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<tr>
<td>- IBM 8335-GTH AC922 server</td>
</tr>
<tr>
<td>- 2x 20-core IBM POWER9 CPU @ 2.4 GHz</td>
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<tr>
<td>- 256 GB DDR4</td>
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<tr>
<td>- 4x NVIDIA V100 GPUs</td>
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<tr>
<td>- 5120 cores</td>
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<tr>
<td>- 16 GB HBM 2</td>
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<tr>
<td>- 2-Port EDR 100 Gb/s IB ConnectX-5 Adapter</td>
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<tr>
<td>- 1 IBM 9006-22P storage node</td>
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<tr>
<td>- 72TB Hardware RAID array</td>
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<tr>
<td>- NFS</td>
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<tr>
<td>- 2 DDN GS400NVE Flash Arrays</td>
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<tr>
<td>- 244 TB usable, NVME SSD-based storage</td>
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<td>- Spectrum Scale File System</td>
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<tr>
<td>- CentOS 7.7</td>
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<td>- CUDA 10.2.89</td>
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<td>- cuDNN 7.6.5</td>
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<td>- NCL 2.5.6</td>
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<td>- IBM XLc and IBM XLFORTRAN 16.1.1</td>
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<td>- PGI Community Edition 19.4</td>
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To request access: fill out this form. Make sure to follow the link on the application confirmation page to request actual system account.

Frequently Asked Questions

To report problems: email us.

User group Slack space: https://join.slack.com/t/hallllinoisncsa

Real-time system status: https://hal-monitor.ncsa.illinois.edu:3000/

HAL OnDemand portal: https://hal.ncsa.illinois.edu:8888/

Quick start guide: (for complete details see Documentation section on the left)

To connect to the cluster:

```
ssh <username>@hal.ncsa.illinois.edu
```

To submit interactive job:

```
swrun -p gpux1
```

To submit a batch job:

```
swbatch run_script.swb
```

Job Queue time limits:

- "debug" queue: 4 hours
- "gpux<n>" and "cpun<n>" queues: 24 hours

To load IBM Watson Machine Learning Community Edition (former IBM PowerAI) module:

```
module load wmlce
```

To see CLI scheduler status:

```
sqqueue
```