

Sycamore Summary

Compute Nodes:

40 x dual AMD EPYC 9654 96C 360W 2.4GHz (7,980 cores total)

38 x dual AMD EPYC 9684X 96C 400W 2.55GHz (7,296 cores total)

Each compute node has

1.5 TB of RAM via: Qty 24 of [64GB TruDDR5 4800MHz (2Rx4) 9x4 RDIMM-A]

Qty 1: M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD

Onboard 10/25 GbE

NVIDIA ConnectX-7 NDR200/200GbE QSFP112 2-port PCIe Gen5 x16 InfiniBand Adapter

Total cores: 14,976

Total compute nodes: 78

Frontend:

32 cores, 768 GB ram

dual mirrored: M.2 7450 PRO 960GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD

dual hot swap power supplies

ConnectX-6 Lx 10/25GbE SFP28 2-Port OCP Ethernet Adapter

NVIDIA ConnectX-7 NDR200/200GbE QSFP112 2-port PCIe Gen5 x16 InfiniBand Adapter

Scheduler:

Identical to Frontend

SchedDB:

Identical to Frontend except for local storage

dual mirrored: U.3 7450 PRO 3.84TB Read Intensive NVMe PCIe 4.0 x4 HS SSD

Login (Qty 2): identical to the 9684X series compute nodes Except for:

dual hot swap power supplies

ConnectX-6 Lx 10/25GbE SFP28 2-Port OCP Ethernet Adapter

Network Switches:

Ethernet Management main (Qty 3)

Nvidia SN2201 1GbE Managed Switch with Cumulus (oPSE)

Ethernet Highspeed 25G Main (Qty 3)

Mellanox SN2410 25GbE Managed Switch with Cumulus (oPSE)

InfiniBand NDR Main (Qty 1)

NVIDIA QM9700 64-Port Managed Quantum NDR InfiniBand Switch (oPSE)

2-way breakout cables to reach 128 ports

Water Cooled:

DLC, Direct Liquid Cooling system

Coolant Distribution Unit (CDU)

Sycamore will contain three liquid cooled racks.

The CDU can support up to three additional liquid cooled racks.

From Lenovo: Liquid cooling allows your processors to run in turbo mode or accelerated mode the whole time as they will be thermally "happy." We expect that this rack will generate 65Kw max power but will only eject about 4-6Kw of heat into the data center via air (switches and power supplies are mostly the culprit here). Liquid will remove the other 60KW from the rack.

SD665 V3 Compute (DWC)

Compute Node: Lenovo SD665 V3

- 2x AMD EPYC 9684X 96C 400W 2.55GHz Processor
- 1.5TB - 24x 64GB TruDDR5, 4800MHz
- 2x 960GB M.2 NVMe SSD
- 1x ThinkSystem Mellanox ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 IB Adapter SharedIO DWC
- 2x 10/25Gb LOM
- 1Gb RJ45 LOM
- 5YR NBD Warranty

