

Overview

Since 2001, Silicon Mechanics' clients have relied on its custom-tailored, open-source systems and professional services expertise to overcome the world's most complex computing challenges. Regardless of your use case and resource needs, Silicon Mechanics' engineers can create the right solution for your needs, leveraging cutting edge technologies in compute, storage, and networking. With thousands of customers across the world, Silicon Mechanics solutions always come with Expert IncludedSM.

Capabilities

HPC Software/Applications

Overview

Custom HPC cluster design, implementation, and deployment based on individual need and use cases. Including storage, networking, power, rack and room layout design as needed. Supporting installations of OpenHPC Warewulf and Bright Cluster Manager support for MLS (SELinux).

- Hardware - Scale from small research or POC clusters to multi rack supercomputers
 - Single workgroup
 - Multi-tenant
- CPU Compute
 - Intel
 - AMD
 - arm
 - Cluster Managers
 - OpenHPC Warewulf
 - OpenHPC xCAT
 - Bright Cluster Manager
- GPU Compute
 - NVIDIA
 - AMD
- HPC Software/Applications
 - MLS (SELinux)
 - Ansys
 - WRF
 - Gaussian
 - AMBER
 - VASP
 - CFD

Hardware

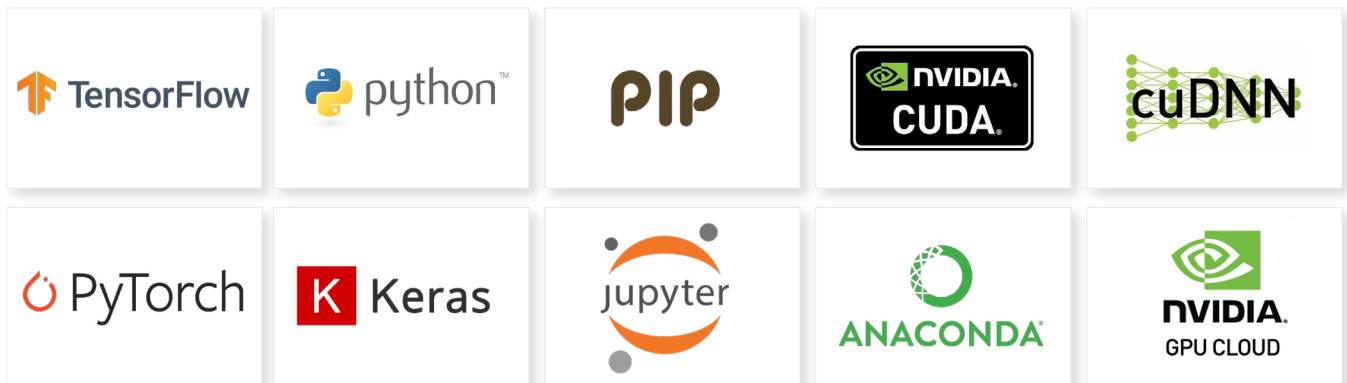
- Silicon Mechanics A380A HGX System
 - Third-generation NVIDIA® NVLink® and NVSwitch™
 - GPUDirect RDMA
 - 8x NVIDIA HGX™ A100 CPUs
 - Mellanox ConnectX®-6 HDR IB 200GB/s interconnect
 - 2x AMD EPYC™ CPUs (128 cores total)
 - DDR4-3200 memory
 - NVMe storage and boot
- HGX POD
 - Rack
 - Storage
 - All-flash, or hybrid flash + Object

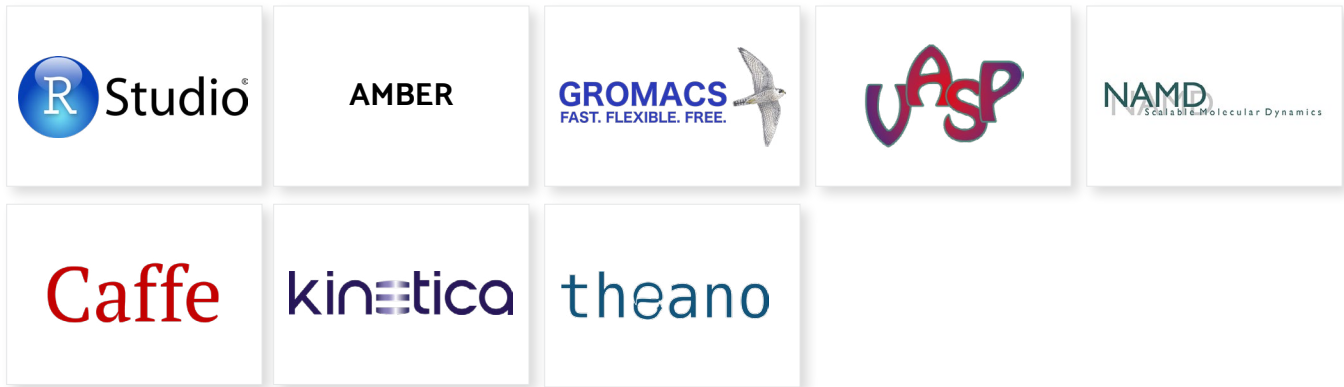


- Networking
 - InfiniBand Fat Tree
 - Ethernet storage/management
- Management Servers
 - Kubernetes Server Components
 - DGX POD Management Software

Software

- AI stack(s) - GPU-Optimized NGC Software for DL, ML, and HPC





Storage

Silicon Mechanics offers a variety of storage choices, with various industry-leading software partners for block, file, and object storage.

- HPC Storage

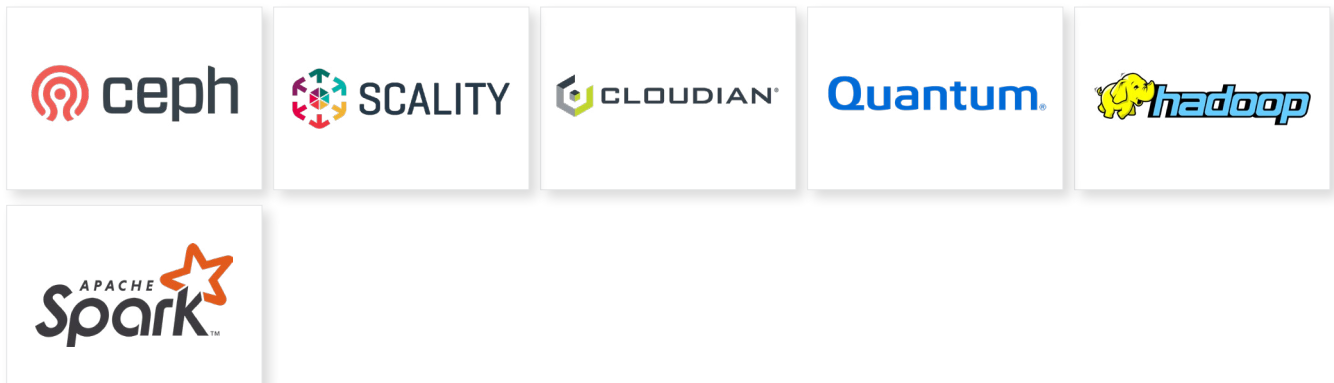


- AI/ML Optimized Storage



*Paired with S3-compliant object storage for data lake

- Big Data Object Storage



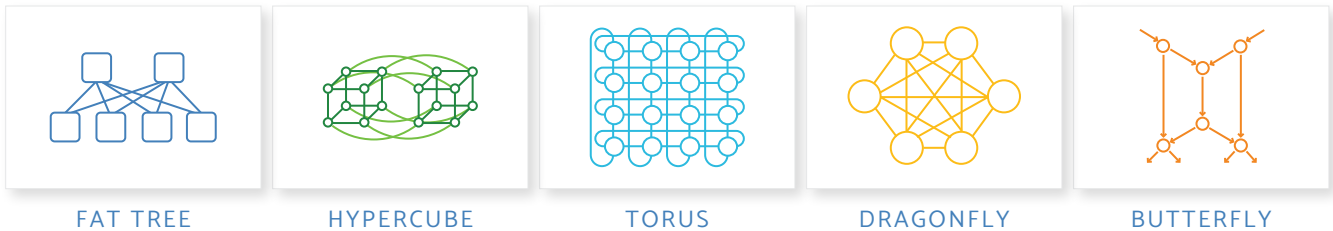
● NAS



Networking

● InfiniBand – HDR and EDR

- complex designs e.g., dragonfly, fat tree



FAT TREE

HYPERCUBE

TORUS

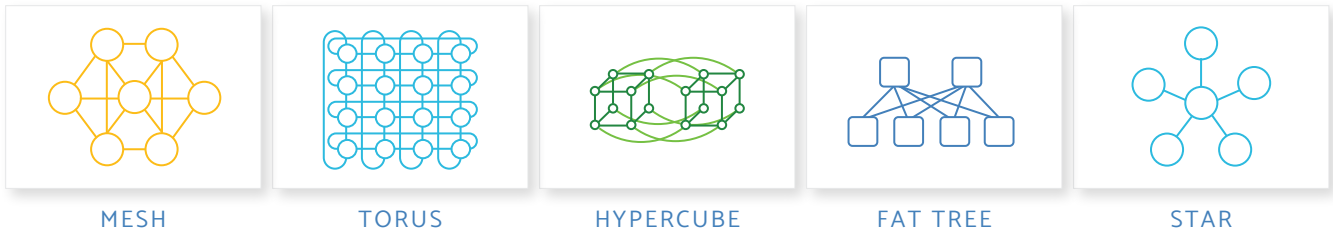
DRAGONFLY

BUTTERFLY

- IPoIB

● Ethernet

- RoCE/IBoE



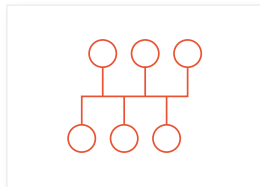
MESH

TORUS

HYPERCUBE

FAT TREE

STAR



BUS

● Switches/Routers



Infrastructure

- Virtual Machines & Hyperconverged Infrastructure
 - VMware ESXi, vSAN, NSX
 - Microsoft Hyper-V, Storage Spaces Direct
- Virtual Desktop Infrastructure
 - VMware Horizon
 - Microsoft RDS, RDP, App-V
 - Thin clients
- Liquid Composable Infrastructure
 - Nodes (Single, Quad, Blade)
 - Switches
 - JBO(X)

Professional Services

- Rack & Stack
- Knowledge transfer
- Turn-key cluster
- Deployment
- Onsite support - smart hands through tier 3 engineering resources
- Black site warranty
- Top plate warranty
- COVID precautions
- Performance and acceptance testing
 - HPL, FIO, IOR, etc.
- Custom burn
 - Detect and minimize early life failure
- Lifecycle management – long life BOMs

Certifications & Capabilities

- Certifications
 - ITAR
 - ISO [ISO-9001-2015]
 - MLS
 - Vendor certifications
- GSA Schedule [47QTCA21D0003]
- Capabilities
 - In-house manufacturing
 - Engineering
 - Ruggedized and MIL-SPEC

General Products & Building Blocks

Silicon Mechanics provides a comprehensive enterprise product line that includes many flexible server and storage offerings, as well as HPC products from high-performance professional workstations to clusters. Select from one of our proven best sellers or consult with our skilled sales team to design the compute, storage, or HPC technology that's exactly right for you.

Our focus is finding the right combination of technology for your needs, so we work closely with trusted partners to offer reliable platforms with all the latest technologies. Be sure to ask our sales team to help you select the best choices for your needs. As a custom solution provider, we have many products and capabilities beyond what is on our website.

