



Accelerate Innovation

with High-Performance Computing

Businesses intent on maximizing the value-creating potential of supercomputing investments require a data center built for high-density deployments.

Is Your Data Center Ready For Supercomputing Capability?

High-Performance Compute (HPC) applications are moving into the mainstream as new and innovative technologies like AI and machine learning require higher computing and storage levels to process massive data sets. Element Critical's Houston facility is designed for custom environments, supporting three types of high-density power and cooling environments.

Ask us about our customizable data center space at Element Critical.



Immersion Cooling

Immersing the server board in a nonconductive heat transfer liquid offers advanced cooling efficiency, greater than forced-air cooling systems.



Liquid Cooling

Liquid coolant is strategically routed to specific high-power components within the server, enabling high-performance computing systems to operate in dense configurations where air-based cooling may not meet HPC system requirements.



Hot or Cold Aisle Containment Cooling

Rack rows are positioned back-to-back and front to front to redirect hot air exiting the back of racks upward to a hot air plenum, ensuring hot air is not mixed with the cold air. Cold air is forced to the front of the servers to improve airflow and cooling efficiency.

Houston One

an Element Critical property

Retail and wholesale space in a data center customizable to support high performance computing (HPC) specifications

Element Critical is uniquely positioned to support current and future HPC deployments and their challenging environmental requirements. With expertise supplying ample power reliability and housing complex cooling infrastructure, Houston One stands ready to support the next generation of chipsets we expect from vendors and our customers.

✓ Facility Summary

- 132,000 SQ FT data center
- 48,600 SQ FT raised floor (with 23,500 SF newly constructed space)
- Six individual data halls
- Dedicated and shared office space available
- Custom designed HPC deployments available

✓ Private Data Suites

- 10,000 SQ FT dedicated customizable suites, hard walled
- Custom cooling design to match customer requirements (cooling towers, chillers etc.)
- Custom power design for N, N+1 or 2N, based on customer requirement
- 8-Layers of facility security, and customizable suite security options, including dedicated entrances utilizing single or multiple authentications

✓ Cooling

- Facility designed to support a variety of HPC environments, including:
 - Immersion cooling
 - Liquid to the chip deployments
 - Liquid-cooled or radiated cabinets
 - High-density hot and cold aisle containment solutions
- Customizable chiller options as required for HPC design specifications include:
 - Chiller required cooling options
 - Cooling tower options
 - Customized chilled water loop
 - Computer room air handler design

✓ Fire Protection

- Full HSSD sensors (VESDA)
- Dual interlock, dry pipe, pre-action sprinkler system
- Customized gas options are available

✓ Purpose Built Data Center

- 20-acre campus in Katy, TX
- Wholesale and retail colocation space
- Only data center in Houston area located next to a dual fed 400MW substation
- Carrier neutral with 13+ providers
- 50+ kW per cabinet with custom containment or HPC data center designs, including immersion-cooled environments and liquid-to-the-chip solutions
- 24x7x365 staffed NOC and remote hands support
- Chiller capacity and generator capacity sized to meet customer HPC requirements per data hall

✓ Power

- Powered by an adjacent 400MW dual-fed substation
- Zoned high-resistance grounding
- Lighting protection system
- UPS configuration to meet customer requirement

✓ Network

- 13+ Telecommunications Carriers
- EC Cloud Connect - direct, private cloud on-ramp
- EC IP-Blend - reliable blended bandwidth from Tier I carrier providers, DDoS mitigation/scrubbing available

✓ Amenities

- Dedicated on-site office space and conference rooms
- Secure loading dock with semi-trailer access and staging area, zero rise from the loading dock to the data hall floor
- 2500-lb rated raised floor tiles
- 36-inch raised floor depressed slab design (no ramps or stairs access to data halls)
- Data halls built with MEP galleries to reduced traffic related to data hall maintenance cycles
- Data hall doors are 8 feet 9 Inches tall, ceiling is 12 feet from floor to plenum

High-Density Colocation

USE CASE #1

Immersion Cooling Deployment

Element Critical's data center also supports a 15 MW full immersion HPC deployment in a 10,000 SF dedicated data hall. With the efficiency of dielectric fluid, chill towers, and custom designed water distribution solutions, our customers can achieve PUE numbers of less than 1.10.

15MW
full immersion

<1.10
PUE numbers

USE CASE #2

Liquid-to-the-Chip Deployment

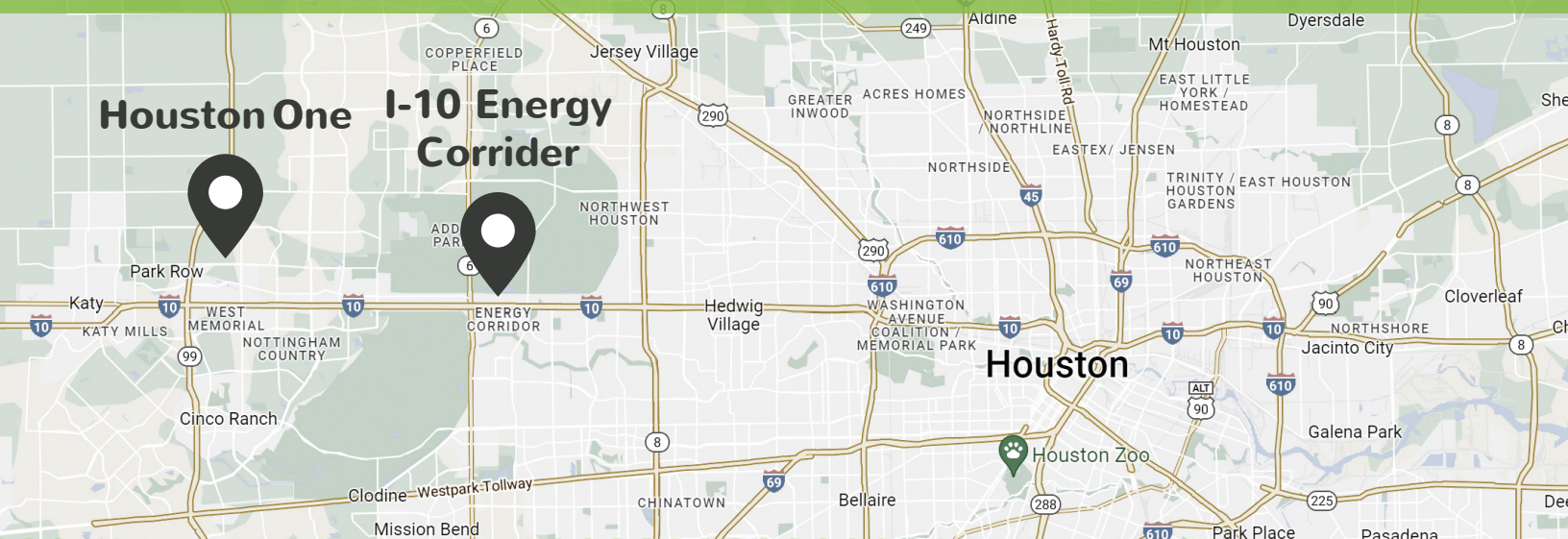
By utilizing hot aisle containment and liquid to the chip technology, a Fortune 100 customer supports 50+ kW per rack in a 6 MW and 10,000 SF data hall. Element Critical expects this kW per rack to increase and is currently working with the client to ensure support of their HPC needs well into the future.

50+ kW
per rack

10K SF
data hall

Houston One | 22000 Franz Rd, Katy, TX 77449

Strategically situated just north of Houston's I-10 fiber optic backbone, Element Critical provides ultra-low latency connectivity with abundant power and a robust building envelope to the Houston area.



Tour Houston's Data Center Leader In High Density Data Center Services

To book, email us at sales@elementcritical.com or call **571.374.8022**.



Learn more at elementcritical.com