



"The innovative system offers converged data center services at a fraction of the cost of traditional data centers."  
**Microsoft**

"I can have a dynamic environment that allows me to sense and respond to changing compute needs without having to go through a physical reconfiguration."  
**—Herb Kelsey  
CTO (Federal), CA**

## LIQUIDIQ® DATA SHEET

### LiquidIQ

LiquidIQ makes data centers easy to manage by delivering an integrated solution that makes complicated infrastructure changes dynamic and effortless.

### Product Description

LiquidIQ is a converged system that combines standard physical data center resources, servers and switching, with sophisticated management and control software. The system allows the entire data center to be defined and managed in software, enabling new service offerings, an order of magnitude reduction in time to deployment of applications and dramatically reduced data center operating costs.

### Features & Benefits

#### Rapid provisioning

LiquidIQ's diskless and stateless logical servers provide extremely rapid provisioning of servers and associated networking. Templates can be copied and deployed in minutes.

#### Verifiable disaster recovery & business continuity

The system provides verifiable business continuity as all application, operating system and network data is stored externally on Network Attached Storage (NAS) or on Storage Area Networks (SANs). Simple replication of this data provides business continuity at a second site.

#### Interoperability

LiquidIQ embraces standard operating systems, standard Ethernet networking and management tool interfaces (SNMP, command line interface) to provide simple data center integration.

#### High energy efficiency

The system uses 20-30% less power to provide the same processing power as equivalent clusters built using rack mounts servers and switches

#### High density footprint

LiquidIQ enjoys more than a 6:1 ratio benefit for floor space for an equivalent amount of computing and switching.

#### Hardware lifecycle management

The system is based on a scalable chassis and software design that allows servers with processors from different vendors to co-exist in the system and to be retired at a rate determined by the business.

#### Fully integrated solution

LiquidIQ can be combined with software from Microsoft® and VMware® and storage systems. Financing options are available.





## LIQUIDIQ® TECHNICAL SPECIFICATIONS

<b>CPU</b>	<ul style="list-style-type: none"><li>– AMD Optron™ dual-core (2200 or 8200 series) or quad-core (2300 or 8300 series) – AMD PowerNow! fully supported</li></ul>
<b>Memory</b>	<ul style="list-style-type: none"><li>– Up to 64 GB (16 X 4GB DIMMS) per Compute Module</li></ul>
<b>SMP</b>	<ul style="list-style-type: none"><li>– Dual socket, 4-core (dual core) or 8-core (quad core) coherent regions – Quad socket, 8-core (dual core) or 16-core (quad core) coherent regions</li></ul>
<b>Compute Module (CM)</b>	<ul style="list-style-type: none"><li>– Scales from 1 to 20 CMs in a single chassis . Designed to scale out to many chassis – each Compute Module supports two 1 gigabit Ethernet adaptors and four 10 gigabit Ethernet adaptors plus eSATA and USB external faceplate ports</li></ul>
<b>Fabric</b>	<ul style="list-style-type: none"><li>– Module-to-module, incrementally scalable, fabric bandwidth up to 84 Gbps The chassis mid-plane allows for future bandwidth support</li></ul>
<b>Software Defined Infrastructure</b>	<ul style="list-style-type: none"><li>– Logical server, LAN/WAN and SAN networking, IP addresses and MAC addresses</li></ul>
<b>External Interfaces</b>	<ul style="list-style-type: none"><li>– Supports up to 24 RJ45 (1 gigabit Ethernet) ports on the Fabric Switch Modules per chassis</li><li>– Supports up to 18 CX4 (10 gigabit Ethernet) ports on the Fabric Switch Modules per chassis</li><li>– 802.3ad Link Aggregation on external ports</li><li>– 802.1q port and trunk based VLAN support on internal and external ports</li></ul>
<b>Operating System</b>	<ul style="list-style-type: none"><li>– Windows Server® 2008, Windows Server 2008 Hyper-V, Windows Server® 2003</li><li>– RedHat® Enterprise Linux releases 4 and 5</li><li>– Oracle® Enterprise Linux release 5 update 1</li></ul>
<b>Hypervisors</b>	<ul style="list-style-type: none"><li>– VMware ESX 3.5</li><li>– Oracle VM</li></ul>
<b>Oracle Support</b>	<ul style="list-style-type: none"><li>– Oracle Validated Configurations (see URL below) (<a href="http://www.oracle.com/technology/tech/linux/validated-configurations">http://www.oracle.com/technology/tech/linux/validated-configurations</a>)</li><li>– Oracle Enterprise Linux (OEL)</li><li>– Oracle VM</li></ul>
<b>Power</b>	<ul style="list-style-type: none"><li>– AC or DC powered</li></ul>
<b>System Administration</b>	<ul style="list-style-type: none"><li>– Partitioning of pooled resources</li><li>– Unified management of all hardware and logical elements</li><li>– Built in redundancy to provide auto failover for compute and networking</li><li>– Auto-resolution of specific alarms and alerts</li><li>– Version control and auto-deployment software</li><li>– 'Hot-swappable' hardware modules to allow for replacement or insertion of field replaceable units</li><li>– Unified system logging with dependency tracing</li><li>– VLAN management</li><li>– SNMP Support (SNMPv2c compliant)</li><li>– KVM over IP support</li></ul>

## LIQUIDIQ<sup>®</sup> TECHNICAL SPECIFICATIONS

Compute Module



Chassis



Multi-Chassis  
Scale-Out  
Configuration

Fabric Switch  
Module



FabricBoss  
Module



**Compute Modules** • Up to 20 Compute Modules per chassis • Quad Socket or Dual Socket AMD Opteron dual or quad-core processors per module • Up to 64 GB of memory per Compute Module • In service, hot-swappable field replaceable units • Dynamic sparing

**Chassis Modules** • Alarm Interface Module • Fan-tray Module • In service, hot-swappable field replaceable units

**Chassis** • Mid-Plane design – No cables • Seamlessly scales to multi-chassis • AC/DC powered

**Interconnect Modules** • FabricBoss Module • Fabric Switch Modules provide up to 84 Gbps of throughput guaranteed inside chassis • In service, hot-swappable field replaceable units

**Dimensions** • 26U height • 40" deep • 17.5" wide (19" frame)



### **About Liquid Computing**

Liquid Computing makes data centers easy to manage by delivering an integrated solution, LiquidIQ, that makes complicated infrastructure changes dynamic and effortless. LiquidIQ allows the entire data center to be defined and managed in software, enabling new service offerings, an order of magnitude reduction in time to deployment of applications and dramatically reduced data center operating costs. To learn more about Liquid Computing, please visit [www.liquidcomputing.com](http://www.liquidcomputing.com), email [info@liquidcomputing.com](mailto:info@liquidcomputing.com) or call 1-877-592-2666.