

Diamanti Spektra™

Purpose-Built Infrastructure for Modern Applications

Diamanti Spektra™ is a purpose-built modern application platform that combines Kubernetes distribution and container runtime with enterprise-ready access controls and management. With Diamanti Spektra™, Kubernetes becomes an out-of-the-box solution delivered on a secure, future-proof platform, allowing organizations to focus on deploying modern applications across on-premises and hybrid cloud infrastructure.

With Diamanti Spektra™, platform architects, IT operations, and application owners can take advantage of the performance and enterprise-class features they need to run containerized applications in production and at scale, complete with data protection and business continuity features built-in.

Diamanti Spektra™ is available with Diamanti Ultima™ I/O acceleration cards on a broad choice of modern, hyperconverged hardware options. It is the industry's first and only Kubernetes solution integrated with a patented I/O-optimized architecture delivering transformational application performance. This combination offers unmatched simplicity, efficiency and security for enterprises.

DIAMANTI SPEKTRA™ USE CASES

- Application modernization
- Microservices
- Databases
- Logging and analytics
- Streaming data processing
- AI/ML
- Hybrid cloud
- DevOps
- Edge
- IoT



Simple

- Ready to deploy cloud native applications in minutes with pre-installed CNCF certified Kubernetes on validated infrastructure
- Pre-integrated with Diamanti's best-in-class Container Networking Interface (CNI) and Container Storage Interface (CSI) plugins
- Complete hardware and software lifecycle management
- Easy integration with the cloud-native ecosystem
- Management console to deploy and manage Kubernetes infrastructure and services
- SLA-backed single-point-of-contact support for the full stack

Efficient

- Bare-metal container deployments remove unnecessary layers of abstraction
- Guaranteed performance with hardware-enforced quality of service (QoS) for storage and networking
- Avoid overprovisioning of resources and eliminate "noisy neighbors"
- Diamanti Ultima™ offers:
 - Offloading of storage and network traffic allowing greater than 95% of compute resources for applications
 - 1 million IOPS per node with less than 100-microsecond latency
 - Intelligent storage resource controls that deliver built-in data protection and business continuity
 - Up to 30x performance improvements for I/O-intensive applications
- 70% reduction in overall data center footprint and TCO

Secure

- Enterprise-ready role-based access controls (RBAC) with integrations to Active Directory (AD) and LDAP systems
- TLS encryption protects the cluster traffic
- Volume encryption
- When used with Diamanti Ultima™ and supported hardware:
 - Hardware-based self-encrypting drives (SED) protect against data theft and unintentional data loss

Diamanti Spektra™

Purpose-Built Infrastructure for Kubernetes

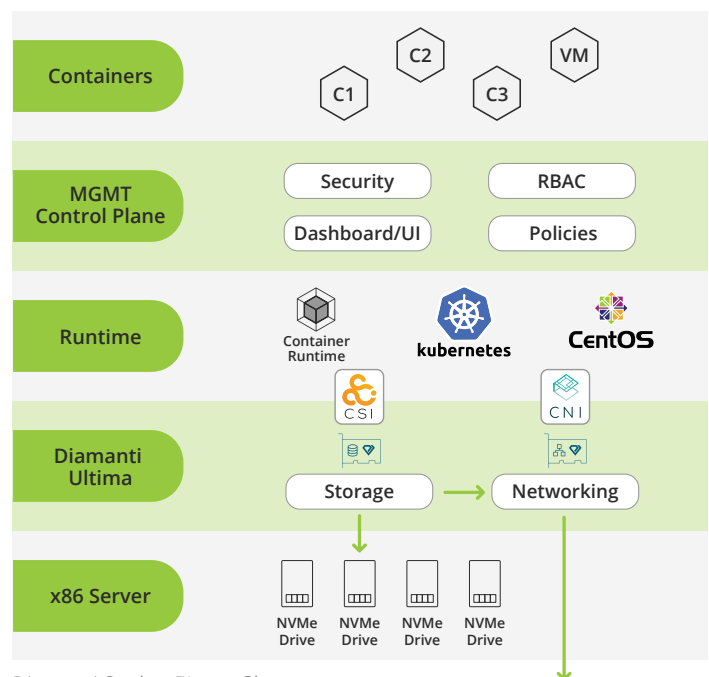
Legacy IT infrastructure isn't architected for the way Kubernetes uses storage and network resources. Diamanti's innovative approach to network and storage traffic management addresses the unique requirements of distributed, containerized applications. At the same time, Diamanti delivers unmatched resource utilization across the entire cluster. No other Kubernetes platform achieves comparable performance in such a small data center footprint.

Integrated Kubernetes

The Diamanti platform includes a certified Kubernetes distribution, container runtime and enterprise-ready access controls and management controls, all pre-configured, tested and validated on a supported CentOS operating system.

Plug-and-Play Networking

Containers have their own unique system of port mappings, overlays, and bandwidth requirements that create a host of interoperability challenges. Diamanti eliminates these configuration roadblocks with its unique plug-and-play CNI that integrates directly with existing network infrastructure.



Diamanti Spektra™ at a Glance



Management Dashboard with Enterprise-Ready Security

- Enterprise visibility and control over the platform
- Access controls with Active Directory and LDAP integration

Pre-validated and Pre-packaged Open Source Tools

- Certified Kubernetes Distribution
- Container runtime
- CentOS Linux Distribution

Integrated Storage and Networking

- Built-in Container Network Interface (CNI) plug-in
- Built-in Container Storage Interface (CSI) plug-in with data protection and business continuity options

Cloud-Native Storage

Diamanti Spektra includes a CSI plugin that supports persistent data and provides the performance required of modern applications. Diamanti Spektra supports advanced features for enterprise-grade data protection and disaster recovery (DP/DR).

24x7 Enterprise-Class Support

With a certified Kubernetes distribution, Diamanti's single-point-of-contact support allows you to focus on developing applications instead of building and maintaining infrastructure.

Open-Source Flexibility

Diamanti Spektra includes CNCF certified Kubernetes distribution along with the CentOS operating system and container runtime. Diamanti Spektra provides an un-opinionated approach to CI/CD, container security and other software integrations enabling no vendor lock-in.

High Availability and Instant Failover

Diamanti Spektra offers flexibility for deploying highly available Kubernetes applications. In case of a failure, the Diamanti control plane can fail over instantaneously from one location to another with zero disruption. Kubernetes applications can seamlessly access storage volumes across geographically distributed availability zones, thus enabling high availability of application data.

Data-At-Rest Encryption

Diamanti Spektra offers protection for data-at-rest with AES 256-bit volume encryption and Self-Encrypting Drives (SED). With these capabilities, enterprise customers can prevent data theft and protect against security breaches while not incurring significant performance penalties.

AI/ML Integration

Diamanti Spektra enables easy integration of GPU resources and intelligent storage thus enabling scalable AI infrastructure and helps simplify AI/ML workloads deployment. Using the power of Kubernetes on bare-metal, data scientists can tap into performance, ease of use, and flexibility of deploying AI/ML workloads in containers.

Diamanti Spektra Console

Full Kubernetes Platform Management, Simplified

The Diamanti Spektra console is the portal for deploying and managing Kubernetes infrastructure. Diamanti Spektra console offers a rich set of container configuration capabilities, resource and user management features, detailed real-time dashboards, and enterprise-class data protection and security.

Container-Granular Quality of Service (QoS)

Configuration of container-granular QoS policies for compute, network, and storage resources to deliver guaranteed SLAs to applications.

Multi-Zone Clustering

Enhanced fault tolerance and application high availability by setting up Kubernetes environment and deploying workloads across geographically distributed availability zones.

Enterprise-Class Data Management

Diamanti Spektra console provides options for enabling data management features such as snapshots, mirroring, multi-cluster asynchronous replication, backup and restore, volume encryption and SEDs.

Detailed Real-Time Monitoring

Monitor cluster nodes and application containers with intuitive dashboards that depict overall compute and GPU resource consumption, network utilization, and storage performance and capacity.

RBAC and Secure Access

Diamanti Spektra supports role-based access control (RBAC) to regulate access to resources. Users can also be authenticated via LDAP and Active Directory (AD). Diamanti Spektra Console can be secured via HTTPS. TLS certificates can be managed through the console.

Diamanti Ultima™

Transformational application performance with I/O acceleration

Diamanti Ultima™ is a patented technology that offloads storage and networking I/O traffic from the CPU, freeing compute and memory resources, enabling greater than 95% host utilization, for your workloads. Using a pair of PCIe cards, Ultima accelerates storage and networking I/O while delivering traffic isolation and guaranteed Quality of Service (QoS).

Diamanti Ultima™ Storage Card

- Second generation PCIe based I/O acceleration card
- Utilizes SR-IOV to provision volumes as virtual functions
- Implements container granular QoS policies for guaranteed IOPS
- Performs volume management
- Offers enterprise-class storage services such as snapshots, mirroring, asynchronous replication and backup and restore
- Allocate-on-write snapshot architecture ensures zero performance impact on applications when snapshots are created

Diamanti Ultima™ Network Card

- Second generation PCIe based I/O acceleration card
- 4x10 GbE via QSFP+ module
- Utilizes SR-IOV to provision network interfaces as virtual functions
- Implements container granular QoS policies for guaranteed throughput
- Provisions virtual network interfaces on-demand

D20 Hardware

Modern Hyperconverged Platforms

Diamanti Spektra supports a wide range of hardware configurations. The Diamanti D20 family of modern hyperconverged platforms consisting of D20, D20X, G20T and G20P and each includes ultra-fast NVMe storage.

The Diamanti D20X is equipped with the latest Intel® Xeon® Scalable Processors delivering unmatched performance for modern applications delivering a significant reduction in footprint and total cost of ownership (TCO).

Diamanti G20T and G20P are purpose-built to support artificial intelligence (AI) and machine learning (ML) use cases with maximum utilization and return on investment (ROI). G20T is ideal for AI/ML model training and supports Nvidia NVLink technology. G20P is intended for AI/ML inference to cater to the varying AI/ML use cases in production.

