HIGHLIGHTS

- Hardware-accelerated Network Storage with up to 20 Gbps throughput and up to 200,000 observed IOPs
- Dynamically scalable storage up to 4 PB under a single namespace, with file systems up to 256 TB
- Scalable N-Way high availability clustering technology
- Dynamic read caching for scalable read intensive workloads
- Supports over 16 million files per directory
- Unified NAS & SAN
- Cluster namespace for unified directory structure
- Intelligent tiered storage across SSD, FC, SAS and SATA
- Virtual Volumes and Servers
- Integrated WORM file system
- Policy-based management & transparent data migration
- Advanced data protection and disaster recovery

Titan 3000 Series

Intelligent Platform for File Services

BlueArc's Titan 3000 Series is designed to meet the requirements of today's sophisticated enterprise data centers and vertical applications with new levels of storage performance, scalability and reliability. Titan is the first storage solution that consolidates and manages up to 4 petabytes (PB) of data under a single namespace. In addition, Titan supports a Cluster Namespace for a unified directory structure and global access to data for CIFS and NFS connectivity through any node with seamless extensibility from two (2) to eight (8) node clusters.

Titan is designed with a scalable modular blade architecture to accommodate a wide range of demanding performance requirements. The 3100 model supports up to 10 Gbps of aggregate throughput for enterprise environments and the 3200 model supports 20 Gbps of aggregate throughput for high performance configurations. The 3000 series is designed to provide maximum IOPs performance and comes standard with 10 Gigabit Ethernet for high throughput NAS and iSCSI networking connectivity. As data and user population grows, or as workstation and application server performance accelerates, Titan can easily scale up to eight (8) nodes in a single cluster to meet demanding changes in access, capacity and performance.

Titan is built on a unique hardware accelerated architecture and offers enterprise-class management tools – including data migration, replication and anti-virus support. This customer-proven, hardware-based architecture maximizes data access and sustains high levels of user loads with extremely low latency, resulting in increased productivity and significantly reduced cost of ownership.

BLUE ARC®

Titan 3000 Series

TITAN 3100	
System Class	High Performance
Aggregate Throughput	10 Gbps
IOPS Performance	100,000 IOPs Per Node

TITAN 3200	
System Class	High Performance
Aggregate Throughput	20 Gbps
IOPS Performance	200,000 IOPs Per Node

TITAN 3000 SERIES HARDWARE SPECIFICATIONS	
Number of slots	4-slot chassis
Chassis backplane bandwidth	40 Gbps (full-duplex)
Titan modules	• Network Modules - 6 x 1 GbE Network Module - 2 x 10 GbE Network Module • File System Modules - File System Module A - File System Module B - File System Module X (standard on 3200, optional on 3100) • Storage Module - the 3200 has 8 FC ports. The 3100 has 4 FC ports
Power supplies (PSU)	Dual, N+1, load-sharing, hot-swappable power supplies
Server diagnostics	Server status and power LEDs
PSU diagnostics	AC and Battery Status LEDs
Cooling	Hot-swappable N+1 fan assembly

CLUSTERING	
Cluster interfaces	2 x 10 Gigabit Active/Active Ethernet
N-Way High Availability	True 8-Way Active-Active Clustering
Number of ports	Dual ports, SR XFP 300 meters, LR XFP 10 kilometers
Optional licenses	• High Availability Active-Active Clustering • Cluster Namespace • Dynamic Read Caching

MANAGEMENT INTERFACE	
Ethernet interface	Server status and power LEDs
Serial interface	AC and Battery Status LEDs
Ethernet port diagnostics	• Port Status LEDs • Port Activity LEDs

DIMENSIONS	
Height	Height EIA 4U (7”, 17.8 cm)
Width	IEC Rack Compliant (19”, 48.4 cm)
Depth	25” (63.6 cm)
Weight	78 lbs

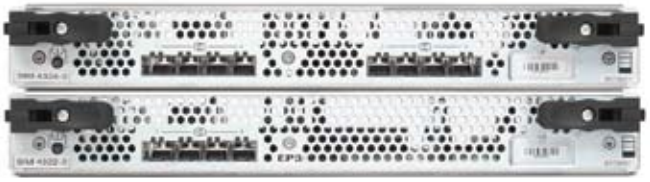
MTBF	
TITAN system	500,000 hours

THERMAL RATING	
Titan System BTU/h	• 1689 BTU/h (Maximum @ 495W) • 1433 BTU/h (Typical @ 420W)

POWER ATTRIBUTES	
AC power option 450W	• 4.1A (max.) @ 110 VAC, 450W Optional • 2.2A (max.) @ 208 VAC, 450W • 2.0A (max.) @ 230 VAC, 450W

REGULATORY COMPLIANCE
CSA 60950-00, UL 60950, EN 60950 FCC Part 15 Class A, EN 55022 Class A, EN 55024 89/336/EEC Electromagnetic Compatibility Directive 72/23/EEC Low Voltage Directive 98/68/EEC CE Marking Directive

Titan Module and Storage Specifications



NETWORK INTERFACE MODULE OPTIONS (NIM MODULE)	
User interface type	• Gigabit Ethernet, IEEE 802.3z • 10 Gbit/s Ethernet, IEEE 802.3ae • Full-duplex support, IEEE 802.3x • Link aggregation (LAG), IEEE 802.3ad • Jumbo frame support (up to 9,180 bytes) • VLAN Tagging IEEE 802.1Q
Number of ports	Options: (1) 6 x 1 Gigabit Ethernet port (1) 2 x 10 Gigabit Ethernet port
Data interfaces	• 1000BASE-SX (500m Optical), SFP • 1000BASE-TX (100m Copper), SFP • 10GBASE-SR (300m Optical), XFP • 10GBASE-LR (10-25km Optical), XFP • 10GBASE-ER (40km Optical), XFP
Port configuration	• Port independent configuration • 2048 IP addresses per Titan (32 IP x 64 EVS)
Module diagnostics	Module Status LEDs
Port diagnostics	• Port Status LEDs • Port Activity LEDs

FILE SYSTEM MODULE OPTIONS
FSA General Purpose File System Module
FSX Accelerated File System Module (std. in Titan 3200)
FSB File System NVRAM Module
System NVRAM 2GB (Titan 3100) or 4GB (Titan 3200)
Dual 10 GbE Cluster Ports

STORAGE INTERFACE MODULE OPTIONS (SIM MODULE)	
User interface type	Fibre Channel, SFP connectors
Number of ports	4 FC ports (Titan 3100) 8 FC ports (Titan 3200)
FC port interfaces	2 or 4 Gbps, Switched or Point-to-Point
Port configuration	Port independent configuration
Module diagnostics	Module Status LEDs
Port diagnostics	• Port Status LEDs • Port Activity LEDs

DISK STORAGE SUB-SYSTEM ATTRIBUTES	
Hard disk drive types supported	Tiered Storage Supported with Mixed Solid State, Fibre Channel (FC) and Serial ATA (SATA) Disks
BlueArc Storage Arrays	• RC16TB: Dual hardware-based FC RAID controllers in a 16 Drive enclosure for High Performance FC or SATA drives • RC16SA: Dual hardware-based FC RAID controllers in a 16 Drive enclosure for SATA drives only • DS16EXP: 16 drive expansion module supporting RC16TB & RC16SA Controllers • SA-48: Dual hardware-based FC RAID controllers in a dense 4U sub-system with 48 SATA drives only
HDS Storage Arrays	• HDS Adaptable Modular Storage - WMS 100, AMS 200, 500, 1000 , 2100, 2300, 2500 • HDS Universal Storage Platform - USP/NSC and USP-V/USP-VM

Titan Software Specifications

Web based graphical user interface

PROTOCOLS SUPPORTED	
Network protocol support	• Common Internet File System (CIFS) • Network Files System (NFS) - v2, v3, v4 • NDMP v2, v3, and v4 • File Transfer Protocol (FTP) • iSCSI
Management protocols	HTTP, SSL, SSH, SNMP v1 and v2c,NIS, DNS, WINS, NTP, Email Alerts

FILE SYSTEM ATTRIBUTES	
File system	• BlueArc File System • Hardware-based File System
Multi-protocol support	Simultaneous CIFS and NFS
Maximum file system size	256 TB, dynamically scalable
Maximum storage supported	Up to 4 PB under a single namespace
Maximum files per directory	Up to 16 Million or more files
RAID striping	Automated Parallel RAID Striping and Multi-Pathing

NDMP BACKUP ATTRIBUTES	
NDMP support	NDMP v2, v3 and v4
Tape library system	Support for SAN and LAN Connectivity
NDMP features	• Direct Access Recovery (DAR) • 3-Way Backup and Restore

SYSTEM MANAGEMENT ATTRIBUTES	
Integrated system management encompassing:	• Titan Storage Server(s) • RAID controller management • Disk sub-system management - Enclosures and disks • FC Switch management
Standard management features	• Manage up to 8 Titan Servers per SMU • Replication management • Automated system configuration and backup • Enhanced system monitoring • Anti-virus support • Out-of-band Ethernet management network • Role-based management
Management interfaces	• GUI based: web browser accessible • CLI-based: Telnet, Serial • Scripting: supports scripting for automated management
Secure management access	• SSL • SSH • HTTPS
Management access control	• User/Password authentication • Management port definition • Management access method • Access Control Lists (ACL's) • NIS, Active Directory, and LDAP
SNMP support	• SNMP v1 and v2c • SNMP Traps

SUPPORTED FEATURES	
Standard Features:	• Centralized Management • Snapshots & Quick Restore • Incremental Data Replication (IDR) • Virtual Volumes (ViVols) • Virtual Servers • Quotas - volume, group or user • NDMP (LAN-free backup) • Anti-Virus Support • Storage Pool • RAID 1, 10, 5, 6 protection
Optional Features:	• NFS • CIFS • iSCSI with Multipath (MPIO) • Virtual Server Migration • Data Migrator • Active-Active Clustering • Cluster Namespace • Incremental Block Replication (IBR) • Synchronous Volume Mirroring • WORM file system • Dynamic Read Caching

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