# Target Emulation

## DATASHEET


## OVERVIEW

SANBlaze target emulation systems for FCoE, Fibre Channel, SAS, and iSCSI provide a virtual, extremely cost-efficient configurable environment for SAN product development, testing and QA.

Target emulation reduces the need to deploy large farms of physical "scratch" disks or tapes, providing port density, high performance, non-volatile media at a fraction of the cost of physical disks or tapes.

### Flexibility

Target Emulation systems allow for multiple target environments to be configured, saved and restored with a simple Web based interface or Command Line. Target devices can be loaded with OS's and/or Meta data and behave exactly as real devices. Efficiently build a large number of formatted drives or tapes, create a predictable bad drive or integrate error conditions with very specific trigger events.

### Configurability/Scalability

Each emulator port can be configured to simulate a wide range of disk or tape configurations, for a single device to many hundreds, all with programmable size, speed, profile and behaviors.

### Vendor Specific Devices

With the profiling functionality the system can be configured to simulate a specific vendor device such as a drive, tape or array. Numerous parameters can be configured such as vendor ID and worldwide node name to simulate a specific device. Mode, diagnostic and custom inquiry pages can be defined, edited and written to create vendor specific test environments. Profiles can be built by attached target devices directly to the system and running the unique Profile Builder application.

### Error Injection and Bad Drive Testing

DVT and Test Labs are often tasked with testing the error recovery capability of their product in the face of errors that previously have been difficult to create in a predictable manner. SANBlaze target emulation systems can emulate exact conditions, on command, and remain in the error state for a number of I/Os, for a period of time or indefinitely, allowing qualification engineering to characterize the ability of their product to deal with specific error cases. Multiple error trigger events allow control of specific error injection cases. The software can also be scripted to simulate specific error conditions

### Performance

If you want to test at full line rate speeds, real drives do not keep up and have mechanics that add latency to reads and writes. SANBlaze emulated targets are RAM based can act as a wire speed target devices.

## KEY APPLICATIONS

- Capacity planning
- Error handling testing
- Failover and multipath simulation
- Performance Testing
- Storage Software verification
- Virtual environment testing
- Scalability testing
- Software and hardware development
- FCoE, FC and iSCSI switch and network testing
- Network Congestion Simulation
- SAN management software verification
- Simulate bad SAS disks
- Backplane and raid controller testing
- Validate and test FC and SAS HBAs
- Validate and test FCoE and iSCSI CNAs

## SUPPORTED PROTOCOLS

- Fibre Channel (FC)
- FCoE
- iSCSI
- SAS

## PLATFORM OPTIONS

- 1U VirtuaLUN
- 3U GargantuLUN
- Software License

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### FEATURES

- Real device emulation mode where all data is retained
- Virtual Device emulation for LUNs up to 100TB
- Disk, Tape, Array and Tape Loader Library emulation
- Near line rate performance
- Configuration and Data Retention via Save/Load to disk function
- Real time statistics
- T10 DIF emulation including inbound and outbound verification
- Configurable LUN parameters
- Speed
- Size
- Personality
- Errors
- Real time statistics including **
- I/O Performance Counters
- Network Performance Counters
- Outstanding I/O Count

*** See Protocol specific Datasheets for details*

### FCoE FEATURES INCLUDE:

- Emulation of up to 256 FCoE Targets per port
- Up to 512 LUNs per port (Disk and/or Tape)
- Multi path target support
- Configurable World Wide Names (WWNN/WWPN)

### SAS FEATURES INCLUDE:

- 1 target per phy (wide or narrow)
- 60 configurable LUNs per target
- Dual-ported target support
- Cabling solutions add ability to replace existing SAS drives in user applications
- Ability to stand alone as storage device (JBOD)
- Real device emulation mode where all data is retained

### FC FEATURES INCLUDE:

- Emulation of up to 256 FC Targets per port
- Up to 512 LUNs per port (Disk and/or Tape)
- Real device emulation mode where all data is retained
- FC Specific Traffic Class Counters
- FIP and Extended Link Service (ELS) Counters

### iSCSI FEATURES INCLUDE:

- Up to 256 virtual targets per port
- Up to 512 LUNs per port
- Configurable target IQN names
- Multi path target support
- Real device emulation mode where all data is retained

### CONFIGURABLE ERROR CAPABILITIES INCLUDE**:

- Force Logout
- Busy
- Drop
- QueueFull
- CheckCond
- Read Over/Read Under
- WriteOver/Write Under
- ReadDelay
- WriteDelay
- Out of order Data
- Data Corruption
- Bad Block
- Bad Status
- Bad T10 DIF Guard Inbound / Outbound
- Bad T10 DIF Ref Inbound / Outbound
- Link Reset

For more information please visit our web site at www.sanblaze.com or send email to info@sanblaze.com

**SANBlaze Technology, Inc.** • One Monarch Drive, Suite 204 • Littleton, MA 01460 • Tel: (978) 679-1400 • Fax: (978) 897-3171

SANBlaze Technology, Inc. is a pioneer in SAN Emulation technologies and a leading provider of solutions for embedded systems. SANBlaze emulation products provide storage engineers, test and QA teams with scalable, high performance and configurable emulated environments for Fibre Channel, iSCSI, SAS and FCoE targets and initiators.