



# InfiniFlash™ IF550 Platform

All-Flash Storage Platform for OpenStack®

## Features

- **OpenStack integration**
  - Up to 512TB in 3U chassis
  - 8TB InfiniFlash cards, up to 64 per chassis
- **Ceph tuned for maximum performance with InfiniFlash**
- **Modular architecture, non-disruptive expansion**
  - 64TB to 512TB in 3U
  - up to 6PB in one rack
- **Low power consumption, only 450W typical for 512TB**

## Benefits

- **Fast access to data, opens new world of applications and services**
- **High-performance storage for OpenStack/Ceph environments**
- **Cost-effective flash storage rivaling that of HDD based systems and public-cloud storage**
- **Greater than 10 times the reliability (AFR) of HDD arrays<sup>1</sup>**
- **Independent scaling of compute and storage nodes**

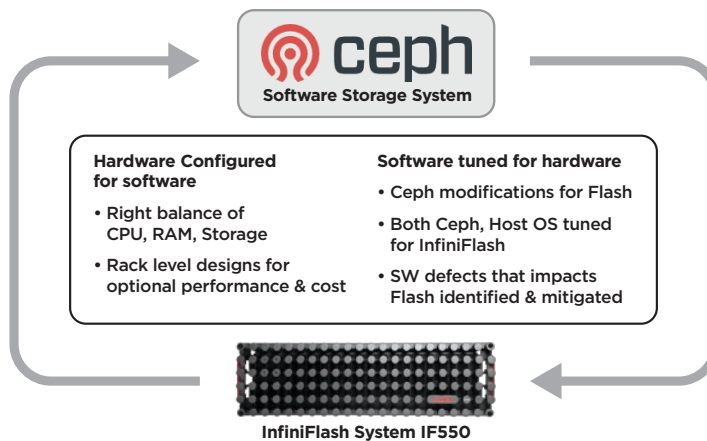
With the growth of mobile, social, Big Data, and the Internet of Things, the quantity and variety of data has skyrocketed. InfiniFlash IF550 is a massive scale-out, high performance, all-flash storage platform that provides boundless scale, efficiency, and resiliency for OpenStack environments.

## InfiniFlash

The InfiniFlash IF550 provides petabyte-scale capacity, high density and performance for OpenStack/Ceph environments, delivering breakthrough economics for customers with big data storage requirements. The IF550 delivers the performance of an all-flash array with the economics of an HDD-based system. It is the ideal storage choice for medium to large OpenStack deployments, providing very low latency, extreme IOPS, and sustained throughput.

Each platform can be configured with up to 64 hot-swappable cards, delivering up to half a petabyte (512TB<sup>2</sup>) of raw flash storage in a 3U enclosure and up to 6PB in a single rack. The IF550 scales easily as each unit may connect up to eight servers. The Ceph cluster software provides high availability, load balancing, data replication and storage services required by OpenStack solutions.

## One Storage Platform for all OpenStack Storage



## IF550 provides usability and performance utilities without sacrificing Open Source principles

SanDisk's Ceph distribution ensures packaging with stable, production-ready code with consistent quality. Additionally, all Ceph performance improvements developed by SanDisk® are contributed back to the community.

## InfiniFlash

The InfiniFlash platform contains all the hardware necessary for enterprise and hyperscale storage for: up to 64 InfiniFlash cards in a 3U chassis, and 12Gbps SAS connectors for up to 8 servers.

The InfiniFlash operating system software is available to provide flash optimized scale out and management, providing large capacity block and object storage interfaces, easing administration and saving you time.

## Ceph from SanDisk

Using Ceph from SanDisk on the IF550 in your OpenStack environment provides:

- Ceph installer that is specifically built for InfiniFlash
- Out-of-the-box configurations tuned for performance with flash
- Improved diagnostics with log collection tool
- InfiniFlash card management integrated into Ceph management
- High performance iSCSI storage
- Sizing and planning tool

InfiniFlash Product Specifications	
<b>Capacity</b>	
Maximum raw capacity	512TB <sup>2</sup> in 3U
<b>Performance<sup>3</sup></b>	
IOPS	2M IOPS (raw hardware)
Throughput	12GBps (raw hardware)
<b>Power and Connectivity</b>	
Power per node	Active: 750W, Idle: 350W
Connectivity: SAS 3.0 12Gb/s	8 SFF-8088 connectors;
<b>Reliability, Availability and Serviceability</b>	
MTBF	1.5 million hours
Hot-swappable hardware	Expanders, fans, power supplies, flash cards
Fans	N+2 (Sustain any two fan failures)
Power Supplies	N+1 (Sustain any one power supply failure)
Expanders	N+1 (Sustain any one expander failure)
<b>Compatibility</b>	
Node OS (IF550)	Ubuntu 14.04
Application Servers	All Linux distributions

InfiniFlash Software Specifications	
<b>Performance</b>	
IOPS with IF550 Ceph	>1M <sup>3</sup>
Throughput with IF550 Ceph	12GB/s
Latency with IF550 Ceph	<2msec
<b>Scalability</b>	
Per cluster or namespace	10s - 100s of nodes
Maximum unique objects (per cluster or namespace)	1B per device group; no limits on device groups
Maximum replicas	10 per unique object
Total cluster maximum	15PB
<b>Services and Protocols</b>	
Cloud protocol access	RESTful API, Swift, S3 API
Block access	iSCSI
Snapshots	256
Data protection	Snapshots, configurable replicas, erasure coding
Disaster recovery	Geographic asynchronous replication of objects
Management	CLI, RESTful HTTP
Maximum storage zones (for protection)	64,000 per cluster or namespace

## IF550 Server Node Guidelines

The IF550 requires a companion server, containing a dedicated Linux OS along with the flash-optimized Ceph storage cluster software.

A wide range of servers can be used and are easily available via the the SanDisk Technology Partner (STP) ecosystem program. The STP program, which includes most major OEMs, tests the IF550 with various server platforms to ensure compatibility and optimized performance. A current listing of these platforms can be found at [www.sandisk.com/business/partners/manufacturers](http://www.sandisk.com/business/partners/manufacturers)

Additionally, if the specific server used in your infrastructure is not listed, contact your local SanDisk sales representative for details around server requirements for the IF550.

### Contact Information

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<sup>1</sup> InfiniFlash AFR based on internal testing. Results available upon request.

<sup>2</sup> 490TB usable capacity.

<sup>3</sup> Based on internal testing. Results and performance may vary according to configuration, usage, and broader system architecture.

Specifications subject to change without notice. 1TB = 1,000,000,000,000 bytes.

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