

# SC500



## Introduction

Enterprises are storing increasing amounts of data, with new applications and increasing compliance requirements. At the same time, environmental imperatives demand reduction in data center energy consumption. Lossless compression of data offers a way to increase efficiency and decrease CapEx and OpEx in the data center. Indra Networks' StorCompress boards offer high performance lossless compression in dedicated hardware with very low energy consumption to drive data center efficiency.

With a global workforce working

at a variety of hours, systems have to be up 24x7, which results in smaller backup windows. Enterprises are thus forced to acquire high performance servers which can complete the massive job of backing up data quickly. They are also forced to buy more and more disks to store all of their backed up data. However, the StorCompress line of boards is designed to cut the job into less than half of its original size. These board compress data by a factor of about 2.5, and since compression is done through hardware, there is minimal CPU utilization. This speeds backup, saves energy and reduces storage costs.

In addition to use of compression in backup, there is a growing trend to use compression in primary storage in enterprises. For example, the ZFS file system in OpenSolaris includes built in compression features. It has been demonstrated that ZFS compression can reduce load on the disk subsystem and improve system throughput. The SC 500 has been integrated with the ZFS file system to offload compression to hardware. In fact, NexentaStor 2.1, which also uses ZFS, has built in support for the SC 500.

## Hardware Compression Engine

The StorCompress line of products consists of compression accelerators using dedicated hardware to cater to the different throughput needs of storage-related appliances and appliance vendors. All of the StorCompress boards implement the industry-standard 'deflate' algorithm for compression. This algorithm is the most commonly used lossless data compression algorithm, and yields the best compression ratios in the industry. This algorithm is also used by the common open source software gzip and zlib. Therefore, the compressed data output can be decompressed by software gzip or zlib. StorCompress 500 is designed for applications where there is enough CPU power available for software decompression, hence, no hardware decompression is provided.

## StorCompress 500 Board

The SC 500 has two compression engines giving the highest compression throughput in all of the present StorCompress boards. It plugs into a PCI-Express slot in a server and must be accessed using an API provided by Indra Networks.

The SC 500 is supported in the ZFS file system used by OpenSolaris and NexentaStor, using a patch provided by Indra Networks.

## Features and Benefits of the SC 500

Feature	Benefit
Hardware accelerated data compression.	Reduced CPU utilization, allowing CPU to focus on other tasks.
2 compression engines.	Best compression throughput in the StorCompress line of products.
Compression using 'deflate' algorithm.	Best compression ratios in the industry.
Compatible with gzip and zlib.	Compressed data can be decompressed by either gzip or zlib software.
Readymade solution for ZFS.	Saves time for the system administrator.

## Applications

- 1) Disk based backup appliances
- 2) Data warehousing
- 3) Hardware acceleration for ZFS compression

## Technical Specifications

Specifications	StorCompress 500
Compression Algorithm	GZIP/ZLIB format
Compression Ratio	
Calgary corpus	2.39 : 1
Canterbury corpus	2.78 : 1
Performance	
Compression:	260 MByte/sec
Operating System Support	Linux Redhat 9, Fedora Core 10, CentOS 5.2 (Driver source available to OEM customers) Windows server 2003 Edition x86, x64 Windows server 2008 Edition x86, x64
Power Consumption	
+3.3V	800 mA (Typ)/ 960 mA (Max)
+12V	200 mA (Typ)/ 260 mA (Max)
Bus Type	PCI Express 1.1 compliant (x4)
Humidity Range	5% - 85% (non-condensing)
Operating Temperature	Ambient Temperature: 5-45 deg. C
Dimensions	
Form Factor:	Low Profile, MD2
Length:	167.65 mm
Height:	68.90 mm
<i>Note: Above dimensions are for the PCB only and do not include the mounting bracket. This product normally ships with a full size bracket, but low profile brackets are available on request.</i>	
Warranty	1 year return to factory for hardware