

SC VXe



Introduction

Primary storage systems in enterprises are becoming larger and larger, as more and more data is stored. This forces enterprises to scale up the storage area. One method to decrease the amount of storage used is to compress the data. However, since compression is *compute-intensive*, compression implemented in software utilizes a large portion of the CPU's processing power which results in low performance.

The StorCompress VX series is a line of cards specifically designed to address this need in primary storage applications such as NAS, SAN and databases. These cards implement compression in dedicated hardware, so that compression utilizes minimal CPU power. Since the workload of a primary storage system is a mix of reads and writes, the StorCompress VX cards have separate compression and decompression engines. The

mix consists of more reads than writes, hence greater decompression throughput is required. The SC VX series is designed with twice as many decompression engines as compression engines to match this workload.

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 in the industry. This algorithm is also used by the common open source software gzip and zlib. Therefore, data compressed by the StorCompress card can be decompressed in software, if the hardware is not available.

StorCompress VXe board

The SC VXe is a high-end card of the StorCompress VX line of products. The SC VXe offers the best compression and decompression throughputs in the StorCompress series. By offloading the compute-intensive task of compression, it helps reduce electricity consumption, and improves performance of the storage system. It is a very cost-effective method of scaling performance, because it eliminates the need of scaling up to high-performance servers. Indra Networks offers a readymade solution for the use of the SC VXe with the ZFS file system used by both OpenSolaris and Nexenta. In fact, the NexentaStor 2.1 has built-in support for the StorCompress boards.

Features and Benefits of the SC VXe

Feature	Benefit
Hardware accelerated data compression.	Reduced CPU utilization, allowing CPU to focus on other tasks.
Separate compression and decompression engines.	Compression and decompression can be done in tandem.
2 compression and 4 decompression engines.	Best compression and decompression throughputs in the SC 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) NAS and SAN storage systems
- 2) Databases
- 3) Hardware acceleration for ZFS compression

Technical Specifications

Specifications	StorCompress VXe
Compression Algorithm	GZIP/ZLIB format
Compression Ratio	
Calgary corpus	2.39 : 1
Canterbury corpus	2.78 : 1
Performance	
Compression:	260 MByte/sec
Decompression:	420 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	920 mA (Typ)/1.1 Amp (Max)
+12V	210 mA (Typ)/270 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</i>	
Warranty	1 year return to factory for hardware