

WE₅₀₀



Introduction

A key issue for website operators is the need to offer fast response time to site visitors. Over time, with more sophistication, web page size has increased. Web servers take longer to process requests, encryption (SSL) and TCP/IP processing times are higher, and more real-time bandwidth is needed to transmit the pages. All this is worsening download times for the site's users who typically abandon sites if pages take more than 8 seconds to download.

Web sites are responding by adding web acceleration devices such as load balancers, SSL acceleration engines, TCP/IP off-load engines, and by making massive investments in Content Delivery Networks (CDNs). However, CDNs accelerate downloads of static-pages but do not provide a solution to dynamically generated content, which is the backbone of all web-based applications, services and personalized pages.

Compression remains the only method to expedite the download of dynamically generated content. Simultaneously, it also increases the throughput of web acceleration devices such as SSL accelerators and speeds up TCP/IP processing. As compressed data travels over the Internet and reaches the requesting client, the browser automatically decompresses the data and displays it.

The WebEnhance 500 Compression Engine

The challenge is that compression is very compute-intensive, and requires a significant portion of the Web appliance's CPU cycles.

WebEnhance 500 from Indra Networks is a powerful, newly designed, 1 Gbps compression accelerator in its WebEnhance product line. It offloads HTTP compression to a dedicated PCI-X hardware card, freeing the Web appliance CPU to perform its primary tasks. The card can be plugged into Web appliances such as SSL accelerators, load balancers, caches, and other content acceleration devices that are located in the Internet Data Center (IDC).

WebEnhance 500 contains two compression engines in a single FPGA. A built-in load distributor ensures even usage of the two engines.

WebEnhance 500 compresses web pages that use HTML, JavaScript, Cascaded Style Sheets and other text-based languages by a factor of 3x-6x. For web sites using CDNs, static images or text may be downloaded from nearby caches but dynamic HTML content undergoes real-time compression before arriving at the client's browser.

Customer Benefits

Real-time compression of WebEnhance 500 offers several major advantages.

- **Faster Page Downloads**

Compressing static and dynamic HTML pages enables faster page downloads by an overall factor of 2x-3x, depending on the data compression ratio achieved and the page composition.
- **Reduction of Bandwidth costs**

The total data volume transmitted is reduced. Compressing 1Gbps of incoming traffic down to approx. 250 Mbps of outgoing traffic, lowers both the peak and the average bandwidth requirement by a factor of four. This reduces bandwidth costs proportionately and the investment pays for itself in a matter of weeks.
- **Low CPU utilization**

WebEnhance 500 performs the compression entirely in hardware. Therefore, very little additional CPU overhead is incurred in enabling compression.
- **Faster SSL traffic**

Since SSL establishes an encrypted connection between the client and the server, it renders caches and CDNs ineffective, and defeats compression built into modems. Since WebEnhance 500 will compress before SSL encryption, the full advantage of reduced download time is obtained.

In addition, with less to encrypt, the SSL acceleration throughput is increased.

With WebEnhance 500, SSL vendors can offer their customers a significant additional capability and differentiate their SSL offerings.
- **Reduced TCP/IP processing loads**

With less data to transmit, the TCP/IP processing burden on the Web appliance is also reduced. This saves expensive CPU cycles, which can be a significant issue in high traffic situations.

Technical Specifications

Specifications			
Data Compressed	HTML JavaScript Office Documents Executables (.Exe) XML CSS PDF		
Note: Any type of data can be submitted for compression, but already compressed data will not compress further.			
Compression Algorithm	GZIP		
Performance	1 Gbps		
Raw Data Transfer Rates	1 Gbps		
Tests with Real World web sites		Measured Download Speed Improvement (Dialup users)	Compression Ratio = Reduced Bandwidth
	Hotmail	2.31X	3.96
	Ebay	1.62X	4.3
	Ebooks	1.44X	5.8
	Google	2.21x	3.72
Operating System Support	Fedora core 10, cent 05, 5.2 Linux Redhat 9 FreeBSD 4.5, 7.2 (Driver source available to OEM customers)		
Browser Support	Netscape 4.07 and higher Internet Explorer 4.72 and higher		
Power Consumption	+3.3v	800 mA (Typ)/960 mA (Max)	
	+12v	200 mA (Typ)/260 mA (Max)	
Bus Type	PCI - Express x4		
Humidity Range	5% - 85 % (non-condensing)		
Operating environment	Ambient Temperature: 5-45°C.		
Dimensions	Form Factor: Low Profile PCI-X, MD1 card Length: 167.65 mm Height: 68.9 mm		
Note: Above dimensions are for the PCB only and do not include the bracket.			
Warranty	1year return to factory for hardware		

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