

Overview

The HP AXL600L SSL Accelerator Card (AXL600L) is a 33-MHz, 32-bit PCI adapter for HP ProLiant servers operating Red Hat Linux (kernel version 2.4.x or earlier) based security applications. The AXL600L overcomes performance bottlenecks in SSL-secured Linux application servers. It adds a dedicated coprocessor to HP ProLiant servers, offloading cycle-consuming cryptographic processing. The AXL600L supports more than 600 SSL connections per second with standard web servers such as Netscape 6 and Apache with OpenSSL 0.9.5a or later.

The AXL600L is enabled with Chinese Remainder Theorem (CRT) to further improve performance to more than 700 SSL connections per second with CRT-enabled applications. It is also enabled with HP MultiPrime, a patented technology from HP/Atalla that increases the performance of public key cryptography on both server and client platforms and on resource-constrained devices such as web phones and PDAs. Up to eight cards per ProLiant server provide linear, scalable performance. The AXL600L is designed for fast and easy installation and use on HP ProLiant servers and is supported by HP Systems Insight Manager.

Models

HP AXL600L SSL Accelerator Card

524545-B21

Standard Features

- The performance solution for secure Red Hat Linux applications
- Overcomes the performance bottleneck of SSL-secured applications
- Supports over 600 SSL connections per second
- Supports over 700 SSL connections using Chinese Remainder Theorem (CRT)
- Accelerates SSL security processing for secure web application servers such as Netscape 6 and Apache with OpenSSL 0.9.5a or later
- Adds a dedicated coprocessor to HP ProLiant servers, offloading cycle-consuming exponentiation
- Enabled with HP MultiPrime for MultiPrime-enabled applications such as wireless e-Commerce
- Up to eight AXL600L cards per HP ProLiant server provide linear, scalable performance

The performance bottleneck in SSL-secured application servers

Secure Sockets Layer (SSL) is a cryptographic protocol that protects the digital communications between a browser and a server. SSL is a standard for Internet security and is found in software in millions of browsers and thousands of application servers. It is a crucial element in many Internet applications such as home banking, online trading, and consumer e-commerce. As secure servers handle more and more SSL traffic, a performance bottleneck occurs which can severely affect customer satisfaction.

The SSL protocol provides a "handshake" between a browser and a server that establishes which cryptographic algorithms will be used for that session. This handshake requires the server to perform a compute-intensive exponentiation of a cryptographic key. Performing this exponentiation in software, a typical secure server is severely taxed at only a handful of SSL connections per second. The server's CPUs perform cryptographic processing with few cycles left for business processing. A successful application may have new customers waiting to connect to the server. Customers may become frustrated and go elsewhere.

The HP AXL600L SSL Accelerator Card solves the performance bottleneck

The immediate recourse to the performance bottleneck is to add another application processor. This can be expensive and may require that additional memory be installed. The preferred alternative is to offload all exponentiation processing to a special-purpose co-processing card, leaving the general-purpose processor free to run the business application.

The AXL600L brings the power of a special-purpose AXL processor to positively affect the performance bottleneck of secure applications. For example, a typical secure server is saturated operating only a handful of SSL connects per second at 100 percent CPU utilization. The AXL600L Accelerator Card offloads security processing overhead so that CPU utilization devoted to exponentiation drops to near zero, therefore freeing the server to run the business application.

Overview

The HP AXL600L Accelerator PCI Card ensures that a secure server grows with the business

As a more customers access the secure application on the server, the AXL600L Accelerator PCI Card continues to alleviate the performance bottleneck caused by the compute-intensive exponentiation. The AXL600L can support more than 600 SSL connections per second using 1024-bit RSA keys with today's standard web servers. The AXL600L is also enabled with Chinese Remainder Theorem. The card has been tested at more 700 SSL connections per second with CRT for faster performance with CRT-enabled web servers. With support for HP MultiPrime, public key cryptography performance gains are realized on both server platforms and on resource-constrained client devices, such as web phones and PDAs.

Multiple AXL600L cards scale linearly and ensure that the secure application server can grow with business needs. The result is a much more cost-effective Red Hat based solution to alleviate the performance bottleneck of a secure application, which in turn ensures that customers do not leave your web site prematurely.

Supported Servers

NOTE: Within this list of supported servers, some may be discontinued.

HP ProLiant DL140	HP ProLiant ML310 G2
HP ProLiant DL140 G2	HP ProLiant ML330 G3
HP ProLiant DL145	HP ProLiant ML350 G4
HP ProLiant DL145 G2	HP ProLiant ML350 G4p
HP ProLiant DL320 G3	HP ProLiant ML370 G4
HP ProLiant DL360 G4	HP ProLiant ML570 G3
HP ProLiant DL360 G4p	
HP ProLiant DL380 G4	
HP ProLiant DL380 G4 Packaged Cluster	
HP ProLiant DL385	
HP ProLiant DL560	
HP ProLiant DL580 G3	
HP ProLiant DL585	
HP ProLiant DL740	
HP ProLiant DL760 G2	

Technical Specifications

Performance	Standard RSA with 1024-bit keys	Over 600+ SSL connections per second
	RSA 1024-bit keys with CRT	Over 700+ SSL connections per second
Physical Characteristics	PCI Specifications	PCI 2.2 compliant, 32-bit, 33-MHz
	Length	6.875 in (17.46 cm)
	Width	4.2 in (10.67 cm)
	Height (primary side)	0.57 in (1.45 cm)
	Height (back side)	0.105 in (0.27 cm)
Maximum Power Consumption	2.5W (0.5 A x 5 V)	
Operating Temperature	32° to 100.4° F (0° to 38° C)	
Calculated Mean Time to Failure	Greater than 800,000 hours	
Safety	UL, CSA, TUV	

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