

COST SAVINGS WITH V.34 SUPER G3 FAX TECHNOLOGY

**A Perle Systems Discussion Paper
for the Fax Broadcast Industry**

FAX – STILL A VIABLE COMMUNICATIONS METHOD

Fax machines continue to be popular.

It is estimated that there are 120 million fax machines installed worldwide. Sales of fax machines have maintained a slow, but steady growth rate.

Email, although enormously ubiquitous, cannot perform some of the work done by fax machines. Many companies have not yet implemented customer/supplier EDI and still rely on fax machines to transmit and receive purchase orders. Engineering drawings and legal contracts are still transmitted primarily by fax.

A new fax technology called V.34 is creating excitement for fax server providers as well as for enterprises who are looking for productivity improvements in their fax operation.

V.34 enables companies to transmit more faxes over a shorter period of time and more reliably resulting in cost savings. These improvements are driving the rapid adoption of this new standard.

According to Davidson Consulting, it is estimated that the number of V.34 fax machines will reach over 4 million units by 2005 representing 12% of the general installed base and 36% in the corporate world.

THE V34 SUPER G3 STANDARD

The value of V.34 is based primarily around improvements in fax transmission speed and faster connection times

Faster Connections

To better understand the benefits of V.34 is important to understand how a fax call takes place.

When a fax machine makes a call to another fax machine, a “handshake” sequence takes place to determine the optimal speed that can be used between the devices. With older V.17 fax, this handshake occurs at 300 bps while the V.34 is done at a much faster rate of 1200 bps. This means that the connect time is reduced from 16 seconds with V.17 to seven seconds using V.34.

A V.34 feature called “line probing” allows the V.34 device to choose the optimum operating parameters for a given connection. Line probing analyzes the characteristics of the line and intelligently selects key operating parameters.

This enables V.34 fax machines to connect more quickly and establish a more reliable connection for optimal performance.

Faster Transmission

Traditional fax technology based on the V.17 standard, transmits at 14.4 k bits per second. V.34 on the other hand, transmits double the speed at 33.6 kbps.

There is also “retraining” that occurs after each fax page. Under V.17 this retraining takes an average of 6 seconds to complete, while under V.34 only 0.25 of a second is needed.

To put this in perspective, a 4 page fax sent under V.17 would take 108 seconds to transmit while taking only takes 22 seconds, or around 1/4 of the time with V.34.

COST SAVINGS AND PRODUCTIVITY IMPROVEMENTS WITH V.34 FAX

If we look at the performance improvements provided by V.34 fax technology, an estimate of the potential savings against V.17 fax can be made.

The table below shows the time it takes to transmit a 4 page fax using V.17 and V.34 SuperG3. These figures account for the connection, transmission and retraining times.

	V.17	V.34
Total time	124 seconds	41 seconds

If we make the following assumptions:

- daily fax usage for a typical enterprise customer is 1,000 four page faxes per day.
- 25% of faxes are local calls and free
- 65% are national long distance calls with a charge of \$.05 per minute
- 10% are international long distance calls with a charge of \$0.20 per minute
- 30% of the enterprise fax machines called today are V.34 capable. (this will increase over time as more V.34 is deployed).
- multiple fax lines used.

We can now make an estimate of what the cost savings might be for this enterprise.

Annual Long Distance Costs	V.17	V.34	Savings
Total	\$49, 409	\$39,487	\$9,922

Nearly \$10,000 of savings can be made per year. As the number of V.34 fax machines deployed increases, the savings will increase dramatically.

The V.34 SuperG3 protocol is highly adaptive to varying line conditions and transmission speeds resulting in significant cost savings over time. This should be a strong consideration when looking for fax technology for your server today.

V.34 SUPERG3 FAX MULTI-MODEM CARDS FOR YOUR FAX SERVER

When looking for the right V.34 fax card technology for your server application, it is important to consider the following key features:

- 1) **V.34 SuperG3** – The fax technology in the multi-modem card must support V.34 SuperG3 fax. Some cards may state V.34 technology but support V.17 fax. These cards will only operate at 14.4 kbps. Carefully check the product specifications before purchasing.
- 2) **Universal PCI Technology** – Look for cards that match your server needs for today and for tomorrow. Universal PCI cards which are PCI-X compatible support both the existing 5V and the newer 3.3V slots that are becoming standard in all new server hardware today.

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- 3) **Server Operating System Support** – Fax server software is available for many operating systems such as Unix, Windows and Linux. Make sure that the drivers available for the multi-modem card match the fax server operating system.
 - 4) **Remote Configuration and Management** – For fax server integrators and resellers, it is important to be able to support their customers. To perform simple configuration changes with on-site visits is costly for the integrator and inconvenient for the end customer. Seek out multi-modem cards that support “Remote Configuration and Management” features. This enables remote techs to dial into the fax card and make the necessary changes.
 - 5) **Investment Protection** – Take a look at the levels of support and warranties offered by multi-modem card manufacturers. Companies with fax servers expect their equipment to last greater than 5 years, so ensure that the warranties available from the manufacturer match this expectation.

THE BEST CHOICE IN MULTI-MODEM CARDS

Perle PCI-RAS cards provide a simple solution coupled with high performance to deliver multiple voice, fax and data communications over integrated modems. The applications it can serve include Remote Access, Internet access and Fax Serving for either Windows or Unix/Linux operating systems.

By combining off-the-shelf fax software with PCI-RAS, a powerful fax server for transmission and receipt can be easily created. PCI-RAS comes as a 4 or 8 integrated modem card. And, multiple cards can be installed to cater for most application sizes.

PCI-RAS cards conveniently integrate all necessary hardware and driver elements right in to the server for simple one-step configuration of the multiple modems. There is minimal cabling with no stacks of external modems or power supplies. Standard phone lines are simply connected to the ports on the PCI-RAS.

The cards install easily using standard operating systems procedures or installation wizards, and have been designed to ensure compatibility with a full range of third party communications software.

- 1) **V.34 SuperG3** – Perle PCI-RAS cards support V.34 SuperG3 fax enabling transmission speeds of 33.6 kbps for superior performance.
 - Reduce costs

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- 2) **Universal PCI Technology** – Perle PCI-RAS cards are PCI 2.3 compliant supporting universal 3.3 / 5v PCI slots. As you upgrade your server hardware, the investment made in the multi-modem card is protected
 - Investment protection
 - 3) **Server Operating System Support** – A broad range of operating systems are supported by the Perle PCI-RAS multi-modem card including Windows Server 2003, Windows 2000, NT, XP, 9x, ME, Unix and Linux
 - Simple installation and worry free compatibility
 - 4) **Remote Configuration and Management** – Perle PCI-RAS cards support Remote Management and Configuration enabling a remote tech to dial into the PCI-RAS card and make the necessary changes through the use of standard “AT” fax modem commands.
 - Quick changes save money and increase customer satisfaction
 - 5) **Investment Protection** – All Perle products are backed by a limited lifetime warranty. Software updates are available as a free download for registered users.
 - Leading in investment protection

For more information on Perle’s PCI-RAS Multi-modem Card contact Perle at www.perle.com

GLOSSARY OF TERMS

- V.34 Super G3 fax - the latest fax standard supports speeds of 33.6 Kbps
- V.17 - this older technology supports speeds of 14.4 Kbps
- Kbps - Kilo bits per second



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