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# FAX TRANSMISSION

## To: Friedman Clan

## From: #2 Son

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**Notes:**

Here's my latest product idea. Let me know what you think!

-Gary

# TurboCharged Pentium!®

**Product Concept and Description**

**Sell Line:** If you own a Pentium PC, you're not getting all the performance you paid for. Nearly all PC software sold today is made to run on the 386 or 286 processor to insure broad appeal. As a result, they do not take advantage of the Pentium's multiple pipelines and new instructions; features which, when exploited, could make your processor run your applications 4 to 5 times more efficiently.

**TurboCharged Pentium!®** is an ingenous program which wakes up the power in your Pentium-based PC. It runs overnight on your hard disk, examining your executable files and tweaking them for optimized speed on the Pentium. That's all there is to it! Your programs will run faster forever, even if the TurboCharged Pentium software is removed from your hard disk.

**Technical Description of Problem**

In an attempt to be compatible with the largest possible number of PCs, most software publishers compile their code to run on 386-class processors. Publishing, inventorying, and distributing separate packages targeted for the 386, 486, Pentium, and soon P6 architectures is generally seen as too expensive considering it will not result in a significant sales increase.

As it stands, the Pentium chip has tremendous architectural features that are rarely exploited. The chip has multiple pipelines that can process multiple instructions in a single clock cycle, and new RISC instructions that are never invoked by the old code. The next-generation P6 will likely have even more new features that only P6-specific compilers can take advantage of.

**Technical Description of Solution**

It is a well-known fact that source code compiled using a Pentium-specific optimizing compiler can make that program run significantly faster. Such compilers know about and can exploit the new features of the chip, and often are very clever at identifying dependencies and arranging code sequences so that other instructions can be processed while other instructions are being completed. An optimizing compiler can keep the synchronous instruction pipeline flowing, thereby boosting performance by insuring no clock cycle is wasted.

Although the task of feeding the CPU instructions in the correct order to insure maxiumum throughput may sound like a daunting task for an automated program, optimizing compilers have been doing this successfully for years. We can add to it by developing a binary code examiner which scrutinizes the type and order of the operations, identifies inefficiencies, and re-arranges or shortens the instruction order to match it to the Pentium.

It would take a talented programmer with optimizing compiler experience no more than 8 months to develop working code. (This is the kind of software project whose timeline doesn't decrease if you throw more people at it.)

Good point!

(more)

**Marketing**

If the program were priced under $100, it could be sold to every Pentium owner. (Remember, most Pentium owners are the ones who "Have to have the best!", and $100 is nothing compared to the price of their system.) Pentium owners are also most likely to be Internet-literate, which means we could save money by publishing on-line. Put up a WWW home page describing the software, take credit card orders[1] via Forms and FTP the program to the user after the card has cleared.

**Window of Opportunity**

New operating systems like Windows NT, OS/2, and Windows 95 will require brand new applications that can't run under DOS or Windows, and therefore are more likely to be compiled for the higher-end CPU's. This means that if these new O/S's catch on, the demand for **TurboCharged Pentium!®** will be reduced.

I estimate an 18 month window for such a program optimized for the Pentium. The good news is, we can make a new version optimized for the P6 when it catches on (chips are slated for delivery 95Q4).

Concept by Gary Friedman Feb. 11, 1995

Can you copyright a name with the word "Pentium" in it?
Also isn't "Turbo" another possible infringement?

A good idea!
Can you be more quantitative in your performance improvement claims?
Is it only speed?
Can you save storage too? Bandwidth?

[1] Credit card numbers are dangerous to send over the Net unless public key encryption is used. Mosaic packages that use encryption aren't plentiful yet; maybe we can set up a phone line that will accept the order number and credit card number in the meantime.



Avoid the d error?