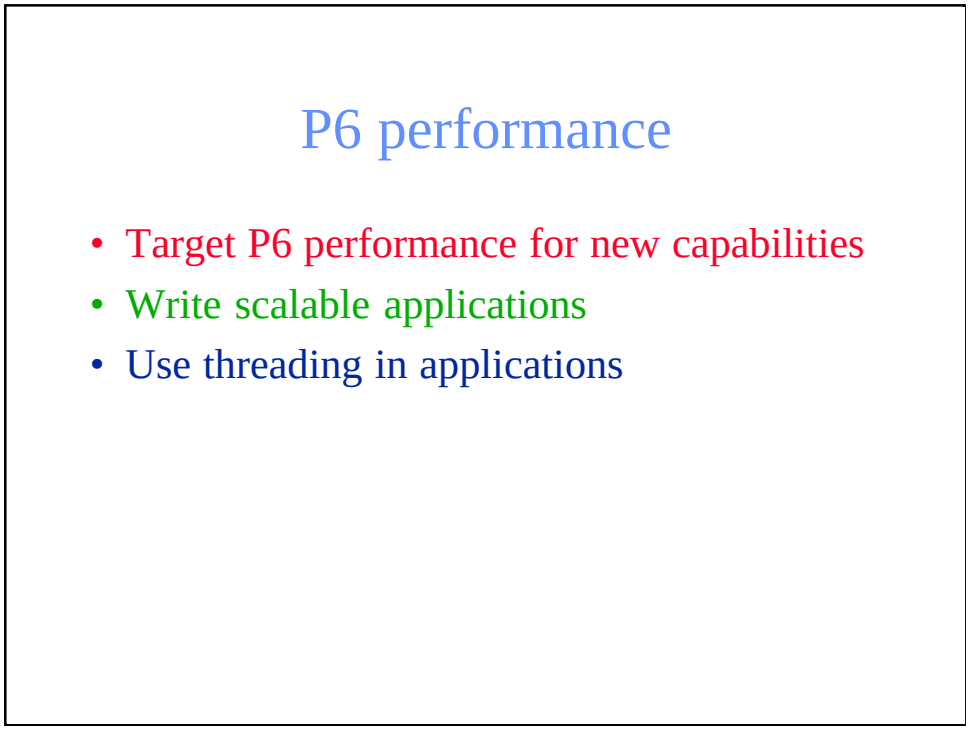
P6 Performance



Targeting P6 Performance:

When compared with a 100 MHz Pentium® processor, the first P6 is about twice as fast. Most of the P6's performance gain is due to its Dynamic Execution microarchitecture (as detailed in the section on 'How the P6 Works' in this CD).

The first P6 is just the start of a new era of higher performance microprocessors. We have already started the work to move the P6 from its current 0.6 micron process to the new .35 micron process (the same process used for the 120 MHz Pentium® processor). We are planning for P6 speeds greater than 200MHz on this new process.

It's time to target new applications at the P6, and to use its performance to deliver capabilities never before possible on a PC.

P6 performance

- The larger and more complex the application, the higher the performance multiplier

The P6's Dynamic Execution microarchitecture will accelerate ALL Intel Architecture applications. It gives the BEST performance boost to large programs with large datasets -- typical of the newer "natural data type," "object oriented" and "associative database" applications recently introduced running on the Pentium® processor.

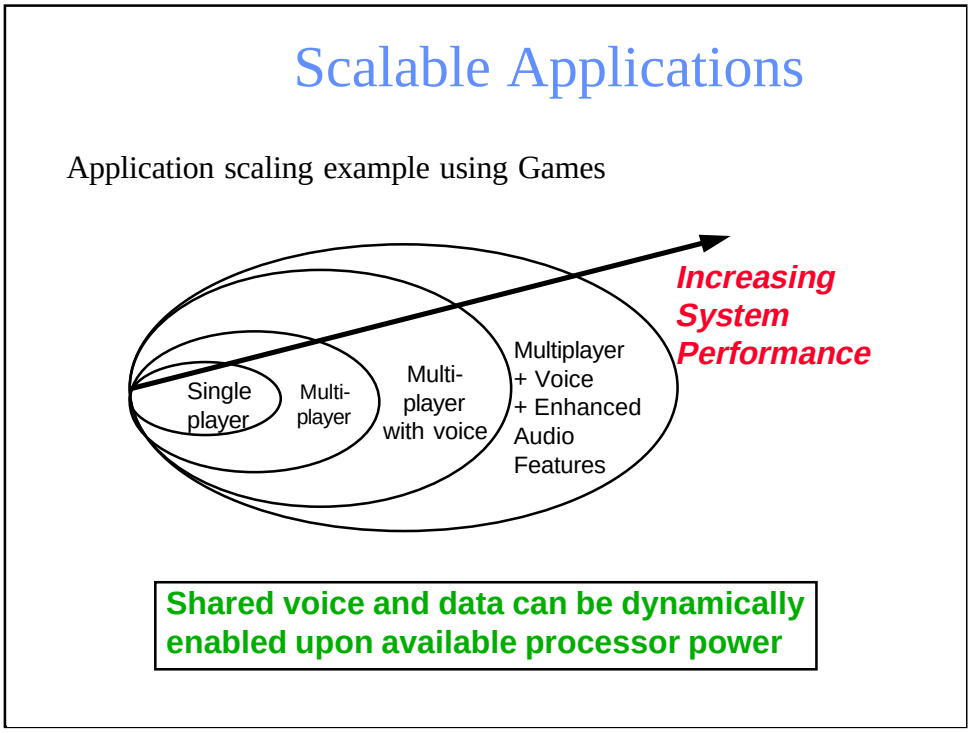
The P6 also boosts Native Signal Processing applications very well due to their very predictable algorithms (as detailed in the 'P6 and NSP' under the 'Vision '95/'96' section of this CD).

P6 Performance Impact on Applications

- P6 performance will enable the creation of applications that were previously not possible in a desktop PC environment
  - New 3D imaging, graphics & multimedia
  - Continuous real-time speech recognition
  - SW-only video conferencing

So what can you do with this extra processing power? Above are just a few examples of the new capabilities enabled by the P6.

Processor performance will continue to increase on a steep curve, and we are seeing more rapid adoption of the latest processor technology by "power users." Thus it's critical to target application performance and capabilities ahead of the current power curve, knowing the processor will soon catch up.



For applications that are aimed at broader audiences (i.e. beyond power users), one of the keys to success is to write SCALABLE applications. These applications provide additional capabilities if performance is available on a given user's system.

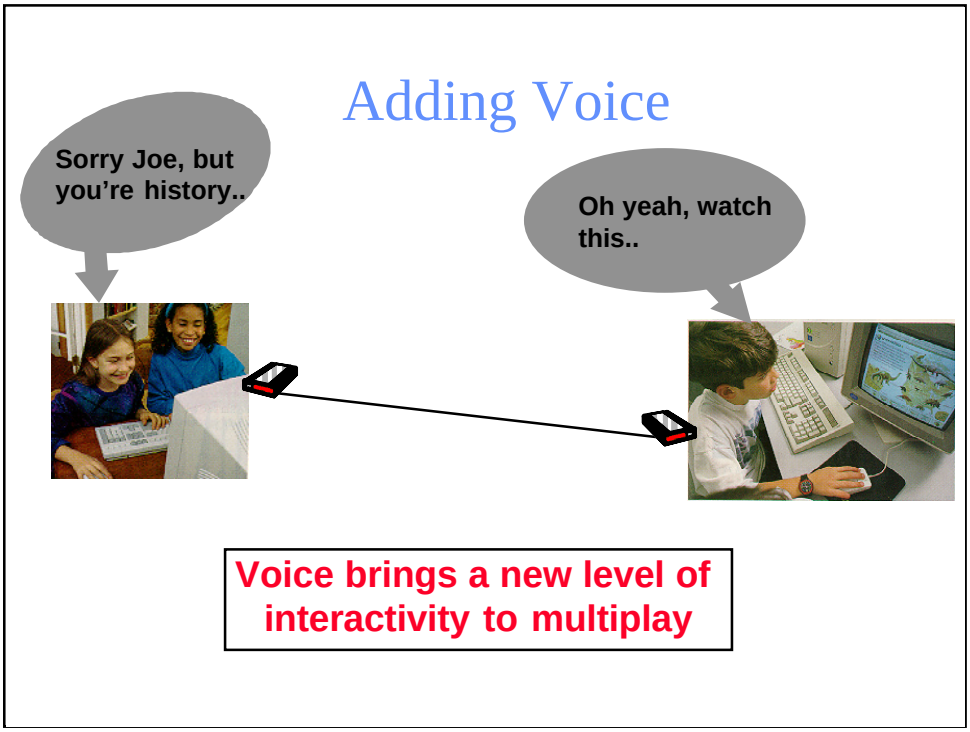
Above is an example of what could be done with a scalable application using a DSVD modem and sufficient processor power.

-Multiplayer game:

>Enables users to talk to other players during game play

>Work together to solve a crime

>Challenge opponents



With sufficient Pentium® or P6 processor power, simultaneous DATA and VOICE will enable a whole new experience for users.

Whether in a business setting, or in entertainment as above, new applications will flourish with these capabilities.

Scalable Applications

- Scalable applications will enable a set of features that are determined by the performance capabilities of the system:
  - Continuous speech recognition on a P6 system with a simple microphone digitization card
  - Continuous speech recognition on an i486™ processor-based system equipped with a professional speech recognition sub-system

The APIs and Hardware Control Interfaces allow a variety of hardware platforms to support this new scalable software. As another example, an application could do speech processing on a P6 with simple hardware (NSP approach) or on an Intel486™ processor with an extensive hardware add-in board (DSP approach). Either way, a scalable application will make the best use of the capabilities of the platform.

P6 Performance Scaling

- P6 is Multi-Processor capable
- We will see a rapid increase in the availability of Dual Processor desktop systems
- Applications will have access to true multi-processing and a massive compute capability

The P6 is designed to make multiprocessing much more straightforward for system manufacturers. This will enable an increase in the availability and cost effectiveness of these systems, and will increase their adoption by system buyers. This means now is the time to take your application scaling even further, taking advantage of multiple processors if they are present in the hardware platform.

Threading

- Applications should be positioning now for the MP opportunity
- The threading interfaces provided by Win32 for Windows95 and WindowsNT for example will enable applications to take advantage of MP
- Any new application should be architected to take advantage of these threading interfaces

*other brands and names are property of their respective owners

Threading your applications is another excellent step in taking advantage of P6 performance, whether running on single or multi-processing systems.

In short, if you haven't already, it's time to take advantage of the continuing increases in processor performance:

-Target P6 performance

-Write scalable applications (which could include multiple processors)

-Build in threading