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Pentium 4: Old School yet Modern in Engineering

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***Abstract*—** In the last few years, technology, especially microprocessors, have had huge advancements and they are expected to have even more in future therefore with this rapidly growing phase of technology, is it still possible to use microprocessors that were considered to be the most advance, at the time, not to long ago? The project aims to analyze the working and applications of the pentium 4 microprocessor that was released in November 20,2000. And this analysis in turn will provides an in-depth examination of the features and function of Pentium 4 microprocessor.

***Keywords*—**Component, Formatting, Style, Styling, Insert (key words)

I. INTRODUCTION

The Pentium 4 is brand by Intel for entire series of single-core CPUs for desktops, laptop and entry level servers The processors were shipped from November 20,2000, until August 8,2008. All Pentium 4 CPU are based on NetBurst architecture.

The Pentium 4 williamette (180 nm) introduced SSE2, while the Prescott(90 nm) introduced SSE3.Later versions introduced Hyper-Threading technology..

[4]The following are the features of the pentium 4 microprocessor:

- 64-bit data bus
- 8 bytes of data information can be transferred to and from memory in a single bus cycle.
- It Supports burst read and burst write back cycles.
- It Supports pipelining
- Instruction cache.
- 8 KB of dedicated instruction cache.
- Two Integer execution units,one floating point execution unit.

II. INDUSTRY LEADING PERFORMANCE

The Pentium 4 processor is designed to deliver performance across applications where end users can truly appreciate and experience its performance. For example, it allows a much better user experience in areas such as Internet audio and streaming video, image processing, video content creation, speech recognition, 3D applications and games, multi-media, and multi-tasking user environment.

The Pentium 4 processor enables real time MPEG2 video encoding and near real time MPEG4 encoding, allowing efficient video editing and video conferencing. It delivers world-class performance on 3D applications and games, such as Quake 3*, enabling a new level of realism and visual Quality to 3D applications.

The Pentium 4 processor has 42 million transistors implemented on Intel's 0.13u CMOS process.

It consists of six level of interconnect. The die size of Pentium 4 microprocessor is of 217 mm^2 and at 1.5GHz it can consume 55 watts of power. The supply data to today's and tomorrow depending applications it takes 3.2 GB/sec system provides such high bandwidth data.

The single instruction Multiple data (SIMD) also called SSE2 adds 144 to new 128 bit. The SSE2 helps to improve the performance for multimedia, scientific and many other engineering applications. .

III. RESULTS AND DISCUSSION

From these books we can analyse that though Pentium 4 microprocessor may be an old microprocessor as well as old age programming and interfacing and often out shadowed by others such as 8086 and Ryzen Series and so on, it still has various applications which only this microprocessor is capable of performing as of the moment.

Hence, the Pentium 4 microprocessor is state of the art which is used in micro architecture and design. In other words, it is beginning of new family of microprocessors that also utilize the new Intel NetBurst micro architecture.

IV. DIAGRAM

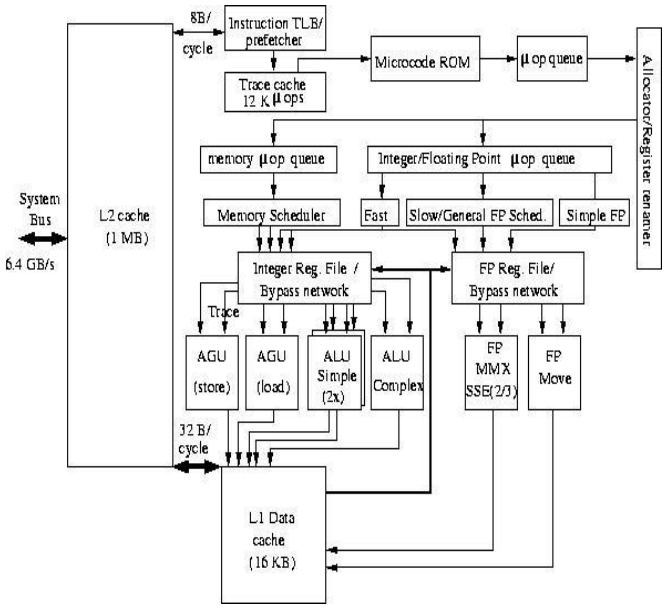

Fig.1. Block diagram of Pentium 4 micro processor

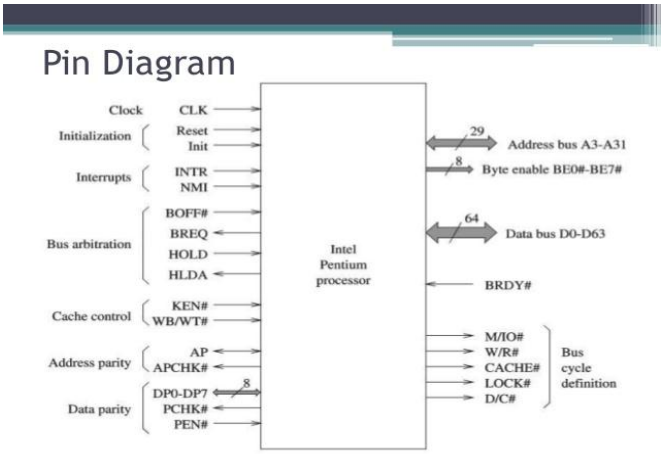

Fig.2. Pin diagram of Pentium 4 micro processor

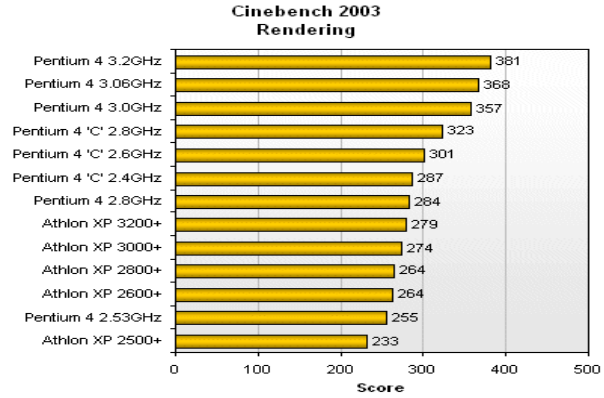

Fig.3

V. CONCLUSION AND FUTURE SCOPE

From this study, we have concluded that the Pentium 4 microprocessor and have found that though the microprocessor is 40 decades old, it still is very much usable in today's modern world albeit a little too slow.

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