

## Re: Share Your Experience with 3DNow, SSE, SSE2 etc.

---

*Source:* <http://sci.tech-archive.net/Archive/sci.image.processing/2008-08/msg00011.html>

---

- *From:* aruzinsky <aruzinsky@xxxxxxxxxxxxxxxxxxxxxxxx>
  - *Date:* Sat, 2 Aug 2008 09:33:38 -0700 (PDT)
- 

On Aug 2, 4:36 am, Hendrik van der Heijden <h...@xxxxxx> wrote:

aruzinsky schrieb:

It is my experience that RAM access and not computation speed is usually the bottleneck and typically prefetches are needed before a speed improvement over 10% is seen over 87 code. I use inline asm code in Visual C++. I have an Athlon 64 with 64 KB L1 and 512 KB L2 caches. If I optimize my prefetches by trial and error for my computer under Windows XP, how close to optimum will my prefetches be on other PCs?

Also as optimal, given other PCs have the same CPU model, memory module types and bank allocation. For other CPUs, these prefetches may improve or degrade performance.

My personal experience for image processing (P4, K8, Core2) is that performance gains through prefetching are non-existent or not worth the effort and not consistent over different systems. Though this was code which had quite predictable memory access patterns.

Imo there are other areas to get performance improvement: better algorithms, reordering operations to improve memory access locality and vectorization (SSE)

Hendrik vdH

I experimented with SSE and SSE2 replacements for memcpy with and without prefetches. The SSE version uses movaps for both reading and writing to memory whereas the SSE2 version uses movntpd to write to memory. The percentage decreases in time over memcpy for very large arrays were

SSE without prefetch – 3%

Re: Share Your Experience with 3DNow, SSE, SSE2 etc.

SSE with prefetch – 8%

SSE2 without prefetch – 24%

SSE2 with prefetch – 29%

If I gave you the code, would you (or anyone) run it on your computers and report the results in this thread?

.