

## Re: difference btw H/W & S/W implementations

**Source:** <http://www.derkeiler.com/Newsgroups/sci.crypt/2004-02/1957.html>

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Date: Thu, 26 Feb 2004 10:02:36 -0800

Stephen Harris wrote:

>

[snip]

- > *The basic difference between speeds is that the Digital Signal Processing*
- > *(DSP) time is quicker with a dedicated device because it is more efficient,*
- > *the medium of signal transfer is more conductive, and the signal covers a*
- > *shorter distance such as in L1 cache that helps out processor efficiency.*
- > *The cache memory is physically placed nearer--onboard of the cpu.*
- >
- > *This is covered in a computer hardware class. I recommend you take*
- > *such a class at a local community college and save lots of money by*
- > *fixing your own computer. A couple of newsgroups probably more*
- > *appropriate are comp.dsp (DSP) and sci.electronics.design*

Its also a function of software design. The response time of dedicated hardware is limited by propagation delay through a known set of analog or digital components. It is therefore both faster and more predictable. This predictability is often as important as sheer speed in many applications.

Software implementations can approach dedicated h/w solutions if the software is designed for the application. However, if you start looking at more general purpose software (which includes the popular operating systems), the issues of interrupt handling, multitasking, etc. are far from optimum for many DSP applications. Particularly if predictable response times are required, having a time critical process stuck waiting for another slower process just won't do.

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note to spammers:   a Washington State resident

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If the first attempt at making a drawing board had been a failure,  
what would they go back to?