

Posted to the Gilder forum - June 6, 2000

The Death of DSP

The following was in response to the "The Death of DSP" written by Nick Tredennick.

Fascinating article!

Programable Logic Devices (PLDs)

The major problem with mass production has always been that all the units produced are alike. In consumer goods this gets to be boring. In microprocessors this gets to be counterproductive. Henry Ford understood the problem quite clearly when he said: **"You can have any color car as long as it's black!"** The main problem with mass production is that one fits all but it does not fit well enough!

In computer logic, chips like the Pentium, solve all sorts of problems for all sorts of people at the cost of all the solutions being sub optimal. The move from CISC to RISC is a palliative but it does not solve the problem.

In the old style, you had a microprocessor, which is an array of logical gates (not to be confused with Bill :-). A logical gate is a gadget (or a black box as it is know in the industry) that emits a signal depending on the state of two signals it in turn receives:

- **YES + YES = YES** is an AND gate
- **YES + NO = YES** is an OR gate
- &c.

To solve a problem with this kind of microprocessor you had to design an algorithm, a program, that would fit the problem to the processor. The reason that this is not as efficient as it could be is that very seldom does the program use all the capabilities of the processor. Why do you have so many rooms in your house? Because each one has a specific function and it is very difficult to use the rooms for things for which they were not designed, for example, it is uncomfortable to sleep in the bathroom. All the rooms are sub utilized! Now think

of a house with just one room that will transform itself according to the next thing you want to do: it becomes a bathroom, a kitchen, a bedroom, a den. Not too palatable for our western tastes but very efficient from the point of view of space utilization. Douglas Adams describes scenes like that in "A Hitchhiker's Guide to the Galaxy."

What Nick Tredennick is talking about is a microprocessor that does just that, it fits itself to the problem instead of forcing the problem to conform to its design. Each "page" that he talks about is like one of the rooms that I mentioned above. Programming, as we know it today, disappears and problems are again solved by design engineers like 40 or 50 years ago. This disruptive innovation would have left me without a job, I'm so happy I'm already retired! Curiously, this innovation makes the distinction between hardware and software meaningless because now the hardware adapts, it becomes soft or malleable enough to do the job.

This is disruptive innovation to the max! Over time, we will have to reexamine each and every chipmaker in our portfolios.

Denny

"Demand creates queues. Supply gets rid of them."

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