



BY GRAHAM PROPHET, EDITOR



## The chip that changed the world

In the US edition of *EDN*, my colleagues have been celebrating the fact that September 2006 marks the magazine's 50th anniversary. To mark this anniversary year, *EDN*'s staff have dipped into the treasury of material that has built up over half a century of reporting on the electronics industry, picking key innovations over the years and noting how *EDN* reported them at the time, in the occasional series "Milestones that Mattered."

This month, we arrived at one of the most momentous of those innovations—the introduction of the microprocessor. Some of the original text is reproduced below; read more at [www.edn.com/060720mile](http://www.edn.com/060720mile).

Of course, there is ample scope for dispute as to whether this was in fact the first microprocessor: numerous authors have explored those debates at length in many histories of the subject, and rapidly become boring. You run out of clichés equally rapidly, when you try to sum up the impact of the microprocessor. To observe that our lives would be unimaginably different without it, and that it has become all-pervasive in

every aspect of daily existence—while true—does not really capture the scale of the way it has changed the world.

Likewise, it has changed the "default settings" of how we go about the electronic design process. To carry out almost any processing of any sort of signal or data, it's now an obvious route to digitise it and set a microprocessor to work on it. Some would argue—and have done in these pages, over the years—that we take that option too readily: which goes hand-in-hand with that other perpetual lament, "You can't get enough good analogue engineers these days." This also, perhaps, is part of the impact the microprocessor has had.

It's also worth noting how much of the design process that has evolved over those 35 years is foreshadowed in this 1972 extract. Prior to that, if you wanted a circuit to make logical decisions, you constructed the dedicated logic for every decision path. As the original extract from *EDN* observes, this approach was faster in 1972: it still is. Most often these days, the order of precedence is reversed and we build the logic when we need the speed boost; now, we call it hardware acceleration.

What's not explicit in the 1972 extract is the other key driver of those 50 years of innovation: the relentless downward-cost trend of semiconductor technology. That first microprocessor cost around \$100, which was a spectacular price for a component in the early 1970s. If the microprocessor has changed the world, it is the economics of ever-cheaper functions built on silicon that has underpinned the whole enterprise. That, plus the way designers have rapidly exploited each new generation of that technology. Happily, neither of those trends shows any sign of slowing. *EDN*