FAMILIARITY BREEDS PRODUCTIVITY:

Engineering Managers Choose Intel® Architecture
Conventional wisdom holds that the electronics industry is marked by constant change. New products replace old ones, innovation keeps everyone on their toes, and today’s technology is tomorrow’s antique relic. While that’s certainly true of the technology itself, the way that products are created has actually changed very little. And that’s a good thing.

Engineering and programming are creative, results-oriented professions. The people who develop tomorrow’s new technology rely on the skills, experience, and expertise they’ve developed over many years. Like any skilled craftsman or professional practitioner, their talents and knowledge improve over time. They benefit from experience, even as they learn to incorporate (or even create) entirely new technologies. It’s a paradoxical balance of old and new.

For a product-development company in the industrial, medical, automotive, or embedded fields, the trick to maximizing developer productivity is finding the right balance between old and new techniques and technology. Knowing when to push the envelope and when to rely on hard-won experience is the mark of a good manager, and one of the characteristics of a successful product company.

The overwhelming majority reuse software from their previous project, even when it’s for an entirely new product.

For a product-development company in the industrial, medical, automotive, or embedded fields, the trick to maximizing developer productivity is finding the right balance between old and new techniques and technology. Knowing when to push the envelope and when to rely on hard-won experience is the mark of a good manager, and one of the characteristics of a successful product company.

So Much Code, So Little Time

Even brand-new products are created from components and software that existed before. Every innovation is built upon the foundation of its predecessors. In product-development companies, programmers and engineers reuse the components, tools, software, and libraries that they used in previous projects. When surveyed, in fact, the overwhelming majority (85 to 89 percent) of developers reuse some or all of the software from their previous product-development project¹, even when the new project is for an entirely new product². That leaves just a scant 11 to 15 percent of projects that require all-new code, even for all-new products. Clearly, reuse is the rule, not the exception.

With that being the case, it’s important for developers to have access to as much existing software as possible. That can be in-house code from an earlier project, commercial third-party software offerings, or open-source libraries and utilities that can be downloaded for free. Regardless of the details, a large and healthy library of compatible software is key to success. Conversely, anything that’s not already available will have to be written from scratch, which takes time, ties up valuable resources, and introduces bugs, uncertainties, and delays.
The Intel® architecture family of processors has what is perhaps the largest software library of any processor architecture in the world. Because Intel processors are so popular, so well established, and so broadly applicable to a range of applications and markets, they’ve developed an enviable ecosystem of software for any imaginable application. That support translates directly into faster, more productive product development. It also fuels a virtuous cycle, because the more Intel-compatible software is available, the more it’s used in new-product development, which in turn is used in the next generation of projects. Intel Architecture (IA) has thus become almost a de facto standard in many product areas, in part because of its enormous base of readily available software.

**Intel® Architecture a Platform for Success**

Productivity is a concern for every manager, and keeping a project on track (and on budget) is every manager’s headache. Business studies often show that time-to-market delays lead to lost revenue and a sometimes insurmountable setback in market penetration. In short, everyone is motivated to get their product done and into the market as quickly as possible. To that end, it’s vitally important to remove potential roadblocks so that the product’s developers – the engineers and programmers – can be as productive as possible, as quickly as possible.

Keeping developers productive means leveraging their preferred tools and techniques. No one is productive in an unfamiliar environment or stumbling around with untested chips, tools, or software. Developers spend, on average, about one-quarter of their overall development time doing testing and debugging. That’s the largest single unit of time spent on any segment of the entire project – more time, even, than they spend in the detailed design stage, prototyping, simulation, or any other stage of the design. In fact, engineers and programmers typically spend more time debugging a project than they do designing it in the first place!

That makes it all the more important to surround developers with familiar tools, well-understood chips, and tried and tested software. An unfamiliar microprocessor, for example, can have obscure bugs that are difficult to locate, or even identify. If the chip misbehaves, is it the fault of the new processor or an indication of something wrong in the software? Can you recreate the failure on demand? Where do you turn to solve such a problem – or even understand it?

In contrast, Intel’s processors are so popular, so broadly used, and so well documented that there’s little mystery left for developers to explore. The Intel Architecture has been used in everything from industrial robotics to vision-inspection systems, and from automotive in-dash electronics to portable tablets, and more. The talent pool of IA programmers is large and growing, and every
nuance of this popular processor family has been well explored. Sometimes knowing where the bug isn’t is the first step to finding and fixing it.

**In With the New**

Developing new products and driving innovation are exciting, and delivering those advances on time is key to success. Paradoxically, the best way to deliver that innovation is to leverage the familiar and well-understood. Intel’s popular range of microprocessors offer leading-edge performance combined with a globally supported architecture and an unrivalled base of software, knowledgeable support, and experienced talent. It’s the one familiar component in an industry full of new developments.

---


---

**ABOUT INTEL**

Intel (NASDAQ: INTC) is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world’s computing devices. Additional information about Intel is available at [www.intel.com/pressroom](http://www.intel.com/pressroom) and [blogs.intel.com](http://blogs.intel.com).