

At the Heart of Consumer and Automotive Innovation

Xilinx offers silicon, development tools, IP, middleware, and design services for the automotive electronics market while meeting the industry's temperature, quality, and reliability requirements.

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As we move toward an increasingly digital world, consumers want to experience content such as audio, video, and data anytime and anywhere. Better and inexpensive wired and wireless infrastructure is available to deliver content for a better consumer experience, and product manufacturers are consistently challenged to come up with new innovations to improve that experience.

As an example, digital music players, HDTV digital displays, automotive electronics, cell phones, and broadband Internet access have all changed consumer expectations and behavior on how to access and experience content at home, in the car, or on the move. Predicting which innovations will be successful often requires potentially risky product decisions, and manufacturers are trying to incorporate feedback directly from consumers into product development cycles early to ensure success of their products. This often translates to the need for quick product development cycles to get innovative products to market quickly.

The initial costs of developing ASICs have been exponentially rising with each process geometry shrink, making this path less attractive for most applications. Also,



ASSPs typically cannot meet the needs of every customer, and silicon manufacturers must make compromises to implement the features customers request the most.

Xilinx® FPGAs and CPLDs are at the heart of innovation. These products provide flexible yet low-cost solutions to meet the application-specific requirements of high-volume products such as digital displays, set-top boxes, automotive rear-seat entertainment systems, smartphones, and video equipment.

Xilinx in Consumer Electronics

Consumer electronics manufacturers need to differentiate their products from their competitors. They are often driven to deliver the latest technologies and innovations as quickly as possible to the consumer to stay ahead in a highly competitive market-

place. Later in the product life cycle, manufacturers focus on driving product costs down to deliver more and more value at lower prices to the consumer.

As an example, HDTV digital display manufacturers are challenged with the evolution of new flat-panel technologies and interface standards while trying to improve image quality to address any shortcomings



Xilinx in Automotive Electronics

New and future vehicles are increasingly reliant on electronics in order to allow OEM automakers to differentiate their products. These electronics systems range from driver information and rear-seat entertainment systems to newer driver-assistance technologies such as night-view and lane-departure warning systems.

The Xilinx Automotive (XA) family of products brings the scalability and flexibility of FPGAs and CPLDs to the automotive electronics market, allowing automotive tier-ones to bring out innovative features while also giving them platform development capabilities (even in a fragmented application sector), thus lowering costs.

With the increasing use of LCD/TFT displays, multiple networking protocols, video, and graphics, Xilinx XA solutions allow for quick development cycles and flexibility of customization through to production. By using Xilinx XA programmable logic, automotive tier-ones can quickly add new features, improve existing features, or change interfaces simply by making changes within the FPGA fabric without needing to wait years until the next time the electronics are redesigned. FPGAs also allow designers to look again at their overall application architecture and build systems based on their needs instead of what is available in semiconductor hardware today.

Conclusion

With Xilinx high-volume Spartan, CoolRunner™-II CPLD, and XA product families, manufacturers can afford to deliver more innovative products quickly to market, knowing that they have the flexibility of programmable logic minimizing their risk.

Decreasing costs from our suppliers, along with leading-edge technology, have allowed us to extend lower prices to our customers, accelerating our success in high-volume design wins moving into production. With cost points starting in the low single digits, Xilinx FPGAs and CPLDs can eliminate the need to move to ASICs or ASSPs in production in high-volume applications such as consumer or automotive electronics, while still allowing endless customization to meet your customer requirements. ●●●

in the quest to deliver the perfect TV picture. Variations in panels used in different models often have different specifications or even different suppliers.

FPGA programmability enables manufacturers to easily accommodate these variations using image-enhancement algorithms implemented in a Spartan™ FPGA and allowing the same hardware design to be utilized in a whole family of products. Native support for most differential I/O interfaces in Spartan FPGAs makes it easy to directly interface with the new panel interfaces. These advantages make Spartan FPGAs a compelling option in many consumer electronics products.