Design more features before the next re-spin with Altera PLDs

Altera in portable entertainment

Your customers demand light-weight mobility and more functionality than ever before. Not only do you have to design all the latest features into your products, but you have to do it in an ever-smaller board space, use less power, and integrate into a wide array of other technologies to stay ahead of the curve. Whether you’re designing for media players, edutainment toys, handheld games, GPS navigators, or another portable device, Altera delivers flexible programmable solutions that will get you to market faster and reduce your total cost of development.

Altera in portable media players

A new generation of portable media players is here. Altera® solutions make it easy for you to deliver all the functionality this new generation demands. Your customers will be able to listen to music, watch videos, and view pictures, functionality that’s integrated into one product that they can carry in the palm of their hand. Envision the future with wireless media sharing, image and video capture, and gaming capabilities. Because Altera is at the forefront of portable media player design, we’ll be able to help you deliver these kind of features and more, only faster.

Portable media player example

In a typical portable media player system, the central functional block is the image processing controller. The basic functions required for the image processing controller can be implemented either in an ASIC, ASSP, or DSP device. A companion Altera programmable logic device (PLD) can also be incorporated into the basic design for feature enhancements. Because PLDs are reprogrammable, this companion device allows you to differentiate products and get them to market faster than designers who use ASICs, ASSPs, or DSP devices alone.
**Portable edutainment toy example**

**Portable entertainment features and benefits**

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<tr>
<th>Functions</th>
<th>MAX IIZ CPLDs</th>
<th>Cyclone® Series FPGAs</th>
<th>Features</th>
<th>Benefits</th>
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<tr>
<td>Power management</td>
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<td>Industry’s lowest dynamic and standby power consumption</td>
<td>Adapts to application for optimal power management</td>
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<td>Video and image processing</td>
<td></td>
<td></td>
<td>Abundant memory and multipliers for video processing applications</td>
<td>Image processing, quality enhancement</td>
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<tr>
<td>Signal conditioning controller</td>
<td></td>
<td></td>
<td>MAX IIZ CPLDs are lower cost than digital signal processors; Cyclone series FPGAs have configurable soft processor for custom-fit solutions</td>
<td>Cost and board space reduction</td>
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<td>LCD timing controller</td>
<td></td>
<td></td>
<td>Built-in LVDS, reduced swing differential signaling (RSDS), mini-LVDS, point-to-point differential signaling (PPDS) display column driver interfaces</td>
<td>Cost and board space reduction</td>
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<tr>
<td>Interface bridging</td>
<td></td>
<td></td>
<td>Configurable I/O buffers with built-in interfaces for common I/O standards and external memory interfaces</td>
<td>No extra components needed for interface bridging</td>
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<td>General purpose I/O (GPIO)</td>
<td></td>
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<td>Adding more I/Os or system user I/F</td>
<td>Flexibility and expandability at minimal cost, highest I/O per mm²</td>
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<td>pin I/O/system port expansion</td>
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<td>Data format conversion</td>
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<td>High bandwidth memory for fast data format conversion</td>
<td>Fast performance, less timing delay</td>
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<td>ASSP-function complement</td>
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<td>Security</td>
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<tr>
<td>Voltage level shifter</td>
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<td>Clock generation</td>
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**Portable edutainment toys**

Educating children while keeping them entertained is the objective of portable edutainment toys. In a typical portable edutainment toy system, the central functional block is the signal conditioning controller. The signal conditioning controller positions the motor, based on inputs from an external sensor. It processes and loads images to the display panel, handles audio processing functions, such as audio tone synthesis, and manages external audio sources. These three functions are unique to an edutainment toy system specification, and a PLD gives you maximum design flexibility, low risk, and fastest time to market in your designs. Similar to the portable media player application, PLDs are ideal for interface bridging, I/O expansion, power management, voltage-level shifting, DSP configuration, and clock generation functions.

Visit us at www.altera.com/consumer for more information.