

*Achieve lower power and price in smaller packages*

## MAX IIZ CPLDs for portable media players

Your ideas are making it easier than ever for people to watch videos and listen to music on the go. With our new zero-power MAX® IIZ CPLDs, you can more easily and swiftly take your unique portable media player concepts into volume production.

Coming from the inventor and market leader in CPLDs, Altera's MAX IIZ devices deliver the advantages of programmable logic to portable media player designers. With every MAX IIZ family member, you gain more logic and I/O resources than you would from traditional macrocell-based CPLDs. As a result, you can achieve more flexibility, faster time to market, and higher board-level integration—all critical advantages in the fast-moving, space-conscious, and extremely competitive consumer market.

With MAX IIZ CPLDs, you can maximize your advantage in the portable media player market, while minimizing power consumption, space, and cost.

### Deliver the exact product features you want, anytime

You're probably relying on an ASSP chipset or digital signal processing (DSP) device to act as your main media processor. This means that the features you can offer are limited to those available in the processor you choose. In addition, since there are only so many chipsets or DSP processors available, it also means that your competition might use the same chipset and offer similar features.

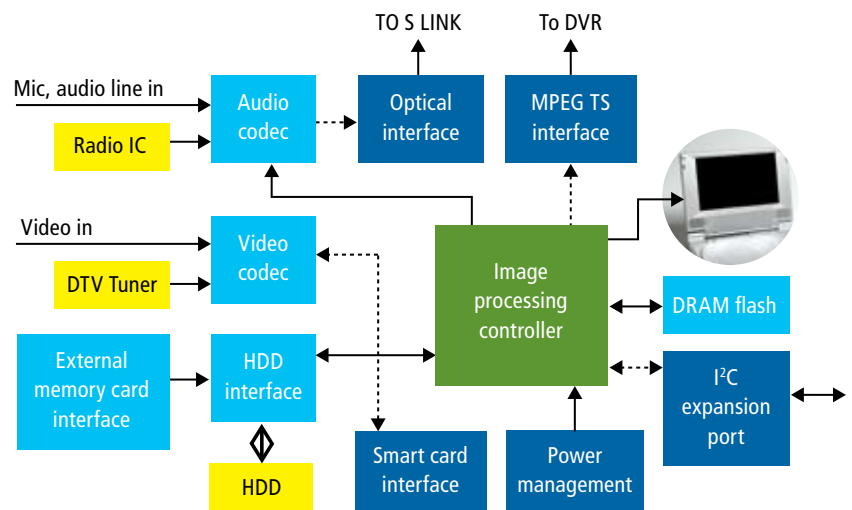
So, how can you innovate and make your product different? MAX IIZ CPLDs place the power to innovate in your hands, where it belongs.

MAX IIZ CPLDs allow rapid, low-risk product innovation:

- Add critical new features not provided by your chosen processor, or modify existing features to meet the exact requirements your customers demand
- Interface to new I/O components
- Support new transmission standards or media formats with custom bridges
- Implement innovative power management schemes

These are just a few examples of what is possible with MAX IIZ CPLDs.

### MAX IIZ CPLDs inside a portable media player design



DTV: digital television  
HDD: hard disk drive

## Meet power, space, and cost requirements

MAX IIZ CPLDs address key requirements for portable media player designs:

- Low power consumption: Engineered for zero standby power, the devices also feature auto power-down and power-up capabilities
- Small form factor: Two new ultra-small Micro FineLine BGA (MBGA) packages deliver up to 6X the density and 3X the I/O resources in the same space as traditional macrocell-based CPLDs
- Low cost: Based on the same architecture as the market's lowest cost CPLDs, MAX IIZ devices are ideal for high-volume products

MAX IIZ devices offer features that are ideal for a variety of portable media player functions:

- Power management
- Signal conditioning control
- Interface bridging
- General purpose I/O (GPIO) pin and system port expansion
- Voltage-level shifting
- Clock generation
- Security

When you design with Altera, you also gain access to a comprehensive portfolio of design resources. Our productivity- and performance-leading Quartus® II design software features power analysis tools to both estimate and measure actual power consumption. Download the software at [www.altera.com/download](http://www.altera.com/download). Together with our partners, we offer intellectual property (IP) cores, reference designs, design examples, and development kits to help you move swiftly from concept to production.

## Questions and answers

### Why would someone use programmable logic in high-volume, cost-sensitive applications like a portable media player?

Portable media player designers make extensive use of ASSP chipsets. However, this can make it difficult to build differentiated products, i.e., there are only a few different chipsets and if everyone uses them, then everyone's products begin to look alike. MAX IIZ CPLDs provide a fast, low-risk method to customize standard chipsets, either by creating a new feature, or modifying an existing feature.

### Why wouldn't I just use an ASIC?

Often, you don't have enough time in your development schedule to use an ASIC. Sometimes, the requirements are not well enough defined, or may change at the last minute. And, sometimes the market acceptance of the product feature that you are implementing is not well enough known to justify spending the time and effort to develop an ASIC.

## Want to dig deeper?

For more information about designing your portable media players with MAX IIZ CPLDs, contact your local Altera sales representative or FAE, or visit [www.altera.com/max2](http://www.altera.com/max2).

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