

## MAX IIZ CPLDs

Maximize your advantage.  
Minimize power, space, and cost.

You rely on your ingenuity to create products that deliver rich functionality in the palm of a hand. But you also know that the technology inside can mean success or failure.

With Altera® zero-power MAX® IIZ devices, you get the industry's lowest standby power in ultra-small packages packed with the most logic and I/O resources available in a CPLD today. Just what you need to design, differentiate, and deliver.

# Fast, inexpensive, risk-free path to excellence

## Delivering the benefits of programmable logic

MAX IIZ CPLDs offer:

- Fast time to market: Realize design innovation in the shortest possible time
- Flexibility: Alter your design at any point during your product development cycle, to respond to late-breaking requirement changes
- Cost-effective integration: Achieve custom functionality at an affordable price



Whether you create feature-packed portable media players or sleek smart phones, offering the unique capabilities you envision requires careful thought. You need to achieve goals that are often contradictory:

- Small form factors with rich functionality
- Rich functionality with low power consumption
- Unique capabilities with short product development cycles
- Low product prices with profitability

MAX IIZ CPLDs can help you reach the right balance in each of these key considerations. Our devices deliver the benefits of programmable logic—including flexibility, fast time to market, and board-level integration—to power-, space-, and cost-constrained applications.

## Power, package, and price leadership

Ever since Altera introduced the market's first CPLDs in 1988, we've been the market leaders in CPLD innovation as well as market share. Our new zero-power MAX IIZ CPLD is the latest milestone in our commitment to power-, space-, and cost-constrained applications. Using the innovative architecture of the MAX II family, we engineered the devices to achieve the industry's lowest power consumption (standby and dynamic). The resulting zero-power MAX IIZ devices offer the same non-volatile, instant-on advantage found in cost-effective MAX II devices. At the same time, MAX IIZ CPLDs also meet the small form factor and minimal power consumption requirements of the most demanding battery-powered, space-constrained applications.

To address shrinking footprint requirements—a particular concern of portable applications designers—we are offering two new ultra-small Micro FineLine BGA (MBGA) packages. The resulting MBGA family delivers up to 6X the density and 3X the I/O resources in the same space as traditional macrocell-based CPLDs.

### MAX IIZ CPLD device features

Device	Logic elements (LEs)	Equivalent macrocells	Maximum user I/O pins	Core voltage	Standby current – typical/max (uA)	Fastest tpd (ns)	User flash memory (bits)
EPM240Z	240	192	80	1.8 V	29/150	7.5	8,192
EPM570Z	570	440	160	1.8 V	32/210	8.7	8,192

### Rich resources in small packages

Device	Logic elements (LEs)	68-pin MBGA <sup>1</sup> 5x5 mm	100-pin MBGA <sup>1</sup> 6x6 mm	144-pin MBGA <sup>1</sup> 7x7 mm	256-pin MBGA <sup>1</sup> 11x11 mm
EPM240Z	240	54 I/Os	80 I/Os		
EPM570Z	570		76 I/Os	116 I/Os	160 I/Os

<sup>1</sup>Micro FineLine BGA package (0.5-mm pitch, 1.2-mm height)

Denotes vertical migration

## Customization companion

If you develop high-volume products, you're likely familiar with designing your applications with an ASSP chipset. You've no doubt encountered their limitations in achieving product differentiation. You may also know how difficult it is to accommodate specification changes during the development cycle. However, by integrating a CPLD into your design—as an ASSP chipset companion—you can quickly and cost effectively customize your design by either creating new functions or enhancing existing functions. What's more, since CPLDs are reprogrammable, you can readily adapt to product change requests.

## Wide-ranging design support

By working with Altera, the inventor and leading supplier of CPLDs, you'll gain access to highly reliable parts in volumes that meet your production needs. We also provide design examples, intellectual property (IP) cores, and support to take you swiftly and smoothly from design concept to volume production.

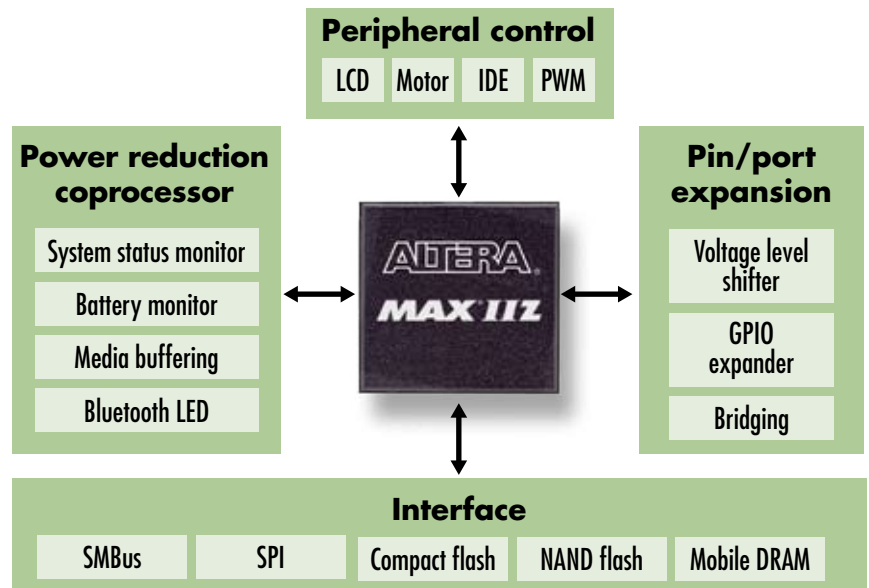
To further simplify your design process, look to our Quartus® II design software, the leader in performance and productivity. Used with our broad portfolio of design-ready IP cores, Quartus II software delivers unmatched levels of performance and productivity. The software is also equipped with excellent power analysis tools that measure both core and I/O power consumption.

## Learn more today

Your ideas are shaping how we work and play. Download Quartus II software from [www.altera.com/download](http://www.altera.com/download) to start designing with MAX IIZ CPLDs today, or contact your Altera sales representative to learn more.

[www.altera.com/max2](http://www.altera.com/max2)

## Application block diagram



GPIO = general-purpose I/O, IDE = integrated drive electronics, PWM = pulse-width modulation, SMBus = system management bus, SPI = serial peripheral interface

## Cellular handset designers, take note

MAX IIZ CPLDs provide:

- A fast, low-cost, risk-free method for differentiating your products
- Best-in-class power consumption, space utilization, and price from the leader in CPLDs

## Common CPLD applications

- Logic integration, such as delay/switcher/decoder and voltage level shifting functions
- Pin/port expansion, with the CPLD using an existing serial bus to create more I/O pins, or the CPLD serving as a bridge between two different ports
- Interfacing and controllers, such as serial bus interfaces and timing controllers
- Power reduction coprocessors, which save power by offloading common system tasks from power-hungry ASSPs to power-frugal CPLDs

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