MAX V CPLDs

Cool Value

With its mix of low price, low power, and high performance, Altera's MAX® V CPLDs deliver the market's best value. Featuring a non-volatile architecture and the market's largest density CPLD, the MAX V family provides robust new features at up to 50 percent lower total power versus competitive CPLDs.

Altera, the CPLD market share leader, has a track record of ramping to high volume quickly and supporting OEMs with devices that have long life cycles. So, you can be assured of having MAX V CPLDs on hand when you need them.

MAX V Device Family Overview

MAX V CPLDs are supported by Quartus® II design software v10.1. This table provides an overview of the device family.

Part Number	Logic Density	
	Logic Elements	Typical Macrocells
5M40Z	40	32
5M80Z	80	64
5M160Z	160	128
5M240Z	240	192
5M570Z	570	440
5M1270Z	1,270	980
5M2210Z	2,210	1,700

What Can You Do with MAX V CPLDs?

MAX V devices are ideal for general-purpose and portable designs in a wide variety of market segments, including: wireline, wireless, industrial, consumer, computer/storage, automotive, broadcast, and military.

With more I/Os and logic per footprint at the same price as competitive CPLDs, MAX V devices are a great value for applications such as I/O expansion, bridging, and power management.

Use MAX V CPLDs to supplement ASSPs, integrating multiple discrete logic devices into a single IC with a smaller footprint. You can also use the CPLDs to supplement ASICs, since the MAX V devices will get you to market faster without NRE costs.

Application Advantages

MAX V CPLDs bring specific advantages to a variety of applications.

- Portable and handheld devices: extend battery life with 45 µW static power and fast power down/reset

- Power management: utilize the instant-on controller with 34 to 272 I/Os in a fooprint as small as 20 mm^2

- Bridging: implement voltage and protocol translation with high I/O, multi-bank, single-chip programmable logic devices (PLDs)

- Glue logic: Integrate more functionality, reduce system design costs, and use as few as one power supply

- Analog interface: tap into a low-cost interface to a variety of sensors and analog ICs

MAX V Silicon Features and Benefits

Feature	Benefit
Instant-on configuration	In less than 500 µs, the CPLD configures quickly during board power-up and subsequently can monitor and/or control power sequencing for other ICs on the board.
Low power	Standby current as low as 25 µA, fast power-down/reset, and as few as one 1.8V power supply
On-chip memory	User flash memory, providing non-volatile memory storage of critical system information.
I/O standards and protocols	Supports commonly used I/O standards: LVCMOS, LVTTL, 3.3V PCI (selected devices and banks), and LVDS outputs.
Phase-locked loops (PLLs)	Digital PLL implementation provides flexible implementation for designs needing frequency multiplication or phase shifting.
Oscillator	Provides an internal clock source accessible by the CPLD core logic for routine, non time-critical functions such as power-up sequencing, system monitoring, tamper detection, or watch dog timers.
In-system programming (ISP)	Provides a simple process for programming the CPLD or re-programming during field upgrades.
Extended temperature	Offered in industrial, extended industrial, and automotive temperature grades to meet market-specific temperature and reliability requirements for industrial, military, wireless, and automotive applications.

MAX V CPLD Development Kit

You can evaluate the MAX V CPLD or begin prototyping applications with the device using the MAX V CPLD Development Kit. The $74.95 kit features an easy-to-use Board Test System (BTS) with capabilities that let you:

- Measure V_{CCINT} and V_{CCIO} power

- Interface to analog chips to bring sound to external speakers and for motor control

- Use the CPLD as a power management controller

Want to Dig Deeper?

To learn more about how MAX V CPLDs can bring value to your design projects, contact your local Altera sales representative or FAE, or visit: **www.altera.com/maxv**.