



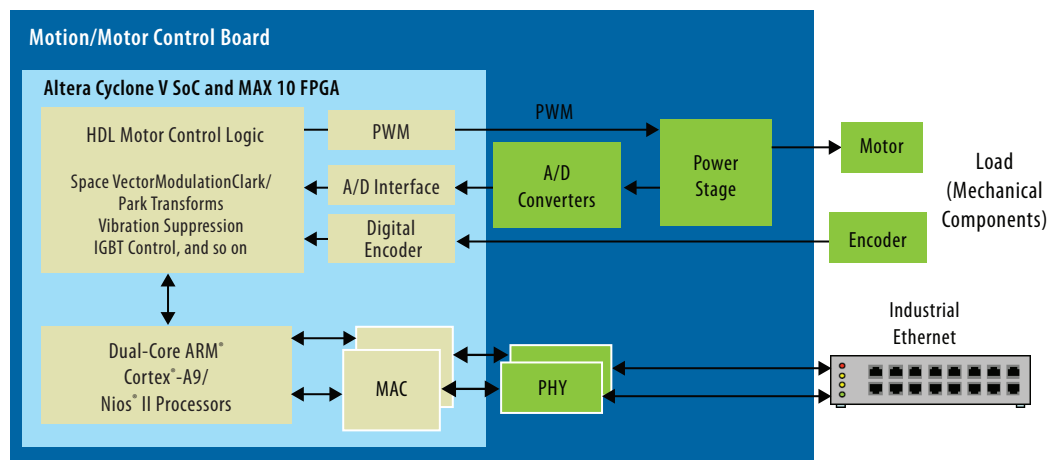
## Build Flexibility into Your Industrial Applications with FPGAs

As designs for industrial systems become more complex, it's no wonder Altera® FPGAs are playing a more central role. Increasingly, our FPGAs are used as the processor of choice, replacing microcontroller units (MCUs) and digital signal processing (DSP) devices. FPGAs are also addressing cost pressures by integrating multiple functions into system-on-a-chip (SoC) implementations.

With a platform like the low-cost, low-power Cyclone® series and MAX® 10 FPGAs, you can easily add new features to your industrial products. FPGAs let you build flexibility into your industrial applications in many ways. For example, you can:

- Accelerate algorithmic performance over traditional MCU and DSP based architectures.
- Integrate your own and third-party intellectual property (IP) and software stacks into your designs.
- Easily adapt to evolving industrial standards or changing design requirements.
- Scale performance with embedded processors and hardware accelerators like DSP blocks, finite impulse response (FIR) filters, and floating-point functions.
- Protect against device obsolescence, with a simple migration path to future FPGA families.
- Design with a familiar GUI-based software development environment, rather than lower-level hardware language.

### Cyclone V SoC or MAX 10 FPGA as an Integrated SoC System



## Get More Performance with Fewer Boards

FPGAs deliver flexibility to:

- Implement industrial networking applications, which require a multi-processor with real-time switching capability, on a single device.
- Provide on-the-fly programmability to remote units at any time, even in the field.
- Improve performance for sequential processing of object-oriented programming methods through hardware acceleration.
- Save board space and cost by integrating features, such as digital motor encoders, pulse-width modulation control, analog/digital (A/D) interfaces, DSP functions, and custom media access controls (MACs).
- Support functions previously handled by an external MCU or DSP device on embedded processors on the FPGA, since C code is portable.

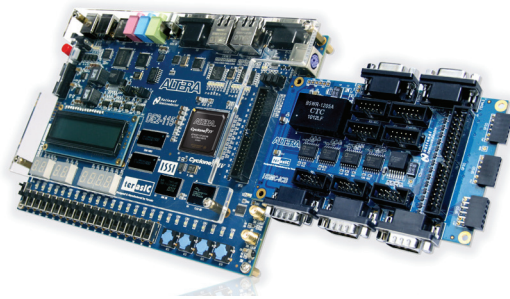
## Support Multiple Products on One FPGA Platform

FPGAs have evolved far beyond glue logic and simple I/O expansion. As a single, highly integrated platform for multiple industrial products, FPGAs can substantially cut your development time and risk.

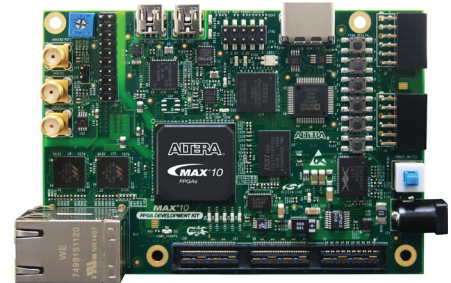
Start your industrial design with a Terasic Cyclone IV FPGA Industrial Networking Kit (INK) or an Altera MAX 10 FPGA Development Kit (available soon).

These kits are optimized for your networking needs, but also flexible enough to address your FPGA requirements.

### Terasic Cyclone IV FPGA Industrial Networking Kit



### Altera MAX 10 FPGA Development Kit



**Available Soon**

For further information on availability contact your local sales representative.

## Want to Dig Deeper?

To learn more about how Altera FPGAs can bring flexibility to your industrial applications, contact your local Altera sales representative or FAE. For white papers, videos, webcasts, and other information, visit [www.altera.com/industrial](http://www.altera.com/industrial).

### Use MAX 10 FPGAs as:

- Programmable logic controllers (PLCs)
- Human-machine interfaces (HMIs)
- Servo drives
- I/O modules
- Computer numerical control (CNC) machines, printing machines, and robots
- Factory automation and process systems
- Machine vision
- Video surveillance
- Transportation systems (ships, trains, off-highway vehicles)
- Inverters for renewables, such as PV solar panels and wind turbine
- Energy storage
- Smart grid communications
- Industrial ethernet communications
- Industrial Internet of Things (IIoT)



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