



# Programmable Logic Solution Platform

The QuickLogic PolarPro 3 solution platform provides a fully programmable and flexible solution for the mobile handheld market with:

### Ultra Low Power

- Prolongs device battery life

### More Efficient Logic Utilization

- Flexible logic cells, capable of two independent 3-input LUTs or a single 4-input LUT
- 3,500 Effective Logic Cells
- Allows greater functionality in less PCB space

### Embedded Standard Blocks

- Built-in SRAM and FIFO Controllers
- I<sup>2</sup>C Master and SPI Slave Interfaces
- Reduces application processor overhead

### Complete Customizable Solutions

- Allows offloading of computationally-intensive applications
- Includes comprehensive software packages

### Fast Time-to-Market

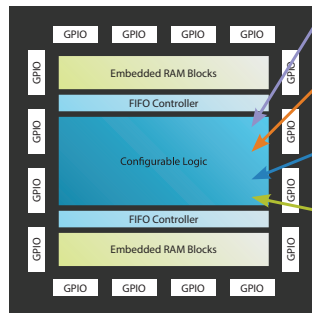
- QuickLogic designs and delivers complete Customer Specific Standard Product (CSSP) solutions, including hardware and software
- Implementation from QuickLogic's existing library of Proven System Blocks (PSBs)
- Reduces development time and costs

### Small Package

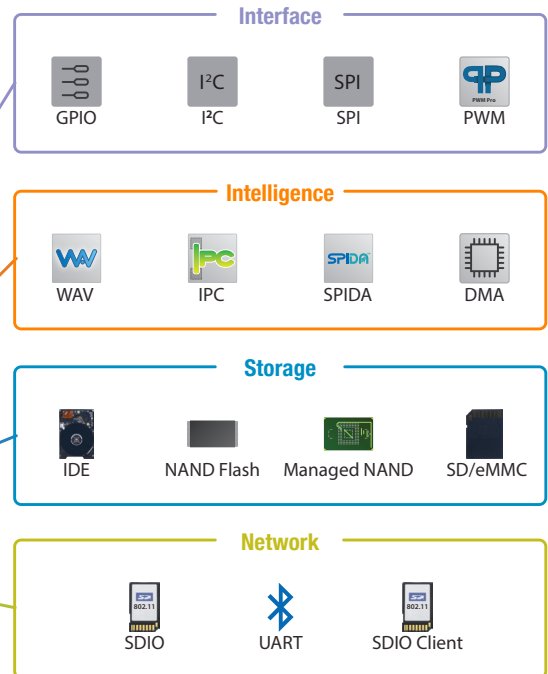
- 2.19mm x 2.47mm
- Designed for the most space-sensitive applications
- WLCSP or die options available

The PolarPro 3E was specifically architected to meet the increasingly complex needs of mobile device OEMs. With special attention paid to efficient logic cell utilization, small size, and low power consumption, the PolarPro 3E is the ideal solution for OEMs who require a programmable logic solution for their application. The PolarPro 3E operates seamlessly with commonly-used mobile processors to address connectivity, I/O bridging, barcode transmission, IR remote control, and custom applications. QuickLogic combines PSBs with software drivers, along with customer-specific logic, to deliver CSSPs based on the exact requirements of our customers.

The PolarPro 3E is the latest generation of QuickLogic's mobile programmable logic devices. It improves upon previous generations by adding embedded standard blocks commonly used in mobile FPGA designs. Featuring 3,500 effective logic cells in an extremely small 2.19 mm x 2.47 mm package, the PolarPro 3E is ideal for low power applications where long battery life is key to a positive user experience.



PolarPro 3E Architecture



QuickLogic PSB Library

## Efficient Logic Cell Utilization

In choosing which programmable logic device to use, an engineer might judge the capabilities of a device based simply on the number of logic cells it contains. However, in this judgment, the engineer assumes that all logic cells are designed the same. For most programmable devices, this is true. However, with the unique flexible logic cell design in the PolarPro 3E platform, logic cells can no longer be looked at as equal to one another.

The PolarPro 3E family features the unique ability to implement two independent 3-input look-up tables (LUT) or a single 4-input LUT from a single logic cell. Typical programmable fabric logic cells only contain a single 4-input LUT, which is why most engineers often view all logic cells as equal in capabilities. As shown in Figure 1, a single logic cell in the PolarPro 3E device can actually perform multiple functions and in multiple configurations, whereas a standard logic cell from other vendors performs a single function.

Since every logic cell in the PolarPro 3E device can function either as a two independent 3-input or 4-input LUT, it allows QuickLogic's designers the ability to more aggressively implement PSBs on the device, as shown in Figure 2. This means that QuickLogic can perform more functions than typical programmable fabric devices if measured on a per-unit PCB area, or can perform the same functions in a much smaller device.

In typical implementations, the PolarPro 3E family has been benchmarked to use available resources twice as efficiently as competing logic cell architectures.

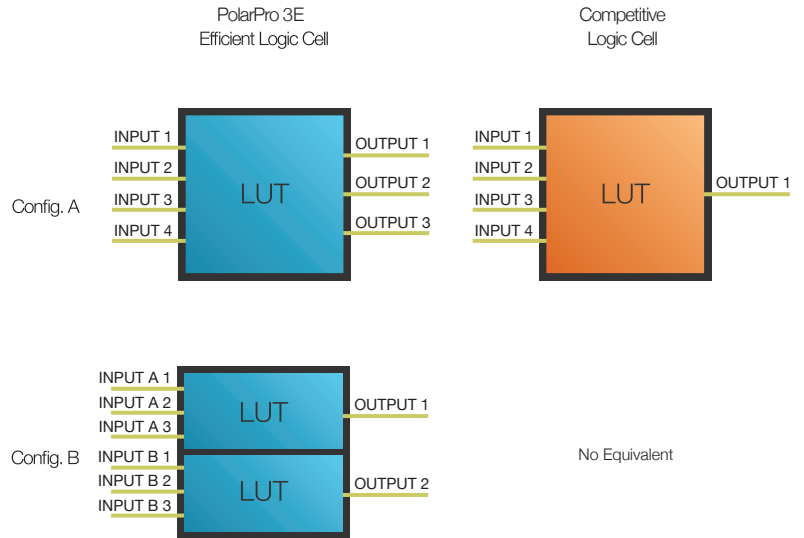


Figure 1

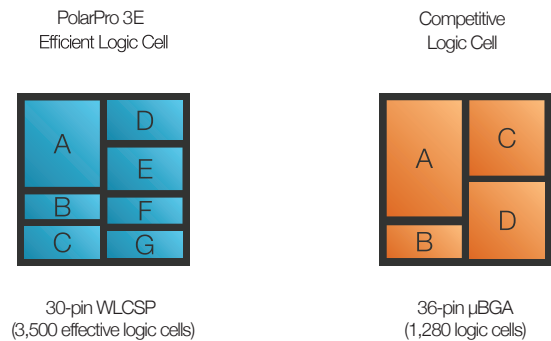


Figure 2

### About QuickLogic

QuickLogic Corporation is the inventor and pioneer of innovative, customizable semiconductor solutions for mobile and portable electronics OEMs and ODMs. These silicon plus software solutions are called Customer Specific Standard Products (CSSPs). CSSPs enable our customers to bring their products to market more quickly and remain in the market longer, with the low power, cost and size demanded by the mobile and portable electronics market. For more information about QuickLogic and CSSPs, visit [www.quicklogic.com](http://www.quicklogic.com)



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