iCE40 UltraLite™

The Lowest Power, Most Capable, Smallest Foot Print Solution for Mobile & Handheld Applications

Lowest Power. Most Capable. Tiny Footprint.

- Less power consumption than our previous family (60%)
- More IP than the competition (5x)
- Smaller package size than the competition (60%)
- Less power needed with more LUTs density than competition (30%)

Unsurpassed integration of hardened IP in an incredibly small package size. Reduced chip size and power consumption with integrated IR and RGB current sinks in one device.

The most capable, customizable device for performing common functions related to:

- User Identification
- Pedometer
- LED Breathing Effect

Flexibility to differentiate. Programmability speeds customization of awesome functions like:

- IR Remote
- High Current LED effects
- User Defined Features

Integrated hard IP & programmable logic enable rapid customization

- Three 24mA current sinks for RGB LED drivers
- Up to 500mA constant current sink for IR / high bright LEDs

Instant-on capability with integrated non-volatile memory

- Tiny package reduces board area, complexity and cost
- Production-ready proven solutions for Smart Remote, Barcode Emulator, Breathing LED driver, etc.

latticesemi.com/ice40UltraLite
iCE40 UltraLite™ FPGAs for Mobile Devices

Tiny, energy efficient and cost effective. The world’s integrated mobile FPGA.

Unsurpassed integration accelerates customization, drives down cost
Expand innovation, create exciting customer experiences and minimize BOMs.
1K LUTs and key hardened IP for IR remote, barcode emulator LED effect, pedometer and more.

Reduce power consumption without compromising performance
Extend battery life in compact, high functionality mobile platforms.
iCE40 UltraLite is the lowest power FPGA device on the market today,
consuming 30% less power than the nearest competition.

Super tiny 1.4mm x 1.4mm x 0.45mm WLCSP
Space contraints are no barrier to flexibility, innovation and customization.
All of this functionality in the world’s smallest FPGA!

<table>
<thead>
<tr>
<th>Feature</th>
<th>iCE40 UltraLite 640</th>
<th>iCE40 UltraLite 1K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density LUTs</td>
<td>640</td>
<td>1248</td>
</tr>
<tr>
<td>EBR RAM</td>
<td>56</td>
<td>56</td>
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<tr>
<td>PLL</td>
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<td>1</td>
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<tr>
<td>NVCM</td>
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<td>Yes</td>
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<tr>
<td>Hard I2C</td>
<td>2</td>
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</tr>
<tr>
<td>Oscillator (10Khz)</td>
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<td>1</td>
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<tr>
<td>Oscillator (48Mhz)</td>
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<tr>
<td>24mA RGB LED Sink</td>
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<tr>
<td>100mA IR LED Sink</td>
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<tr>
<td>400mA IR LED Sink</td>
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</tbody>
</table>

0.35 mm Pitch Package

16-ball WLCSP (1.4 x 1.4 x 0.45) IO 10 10

0.40 mm Pitch Package

36-ball BGA (2.5 x 2.5 x 1.0) IO 26 26

Example Solutions

- Infrared Remote Control: latticesemi.com/InfraredTxRx
- Pedometer: latticesemi.com/Pedometer
- RGB LED Indicator: latticesemi.com/RGB
- Barcode Emulator: latticesemi.com/BarcodeEmulation

Need to know more?

- Product Information: latticesemi.com/iCE40UltraLite
- Packaging Information: latticesemi.com/BGA
- Quality Information: latticesemi.com/QualityAndReliability

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