

ice40 UltraLite™

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

Lowest Power. Most Capable. Tiny Footprint.



60%

less power consumption
than our previous family



5x

more IP than the
competition



60%

smaller package size
than the competition



30%

less power needed with more
LUTs density than competition

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.

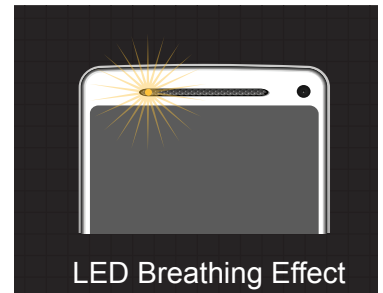
The most capable, customizable device for performing common functions related to:



User Identification

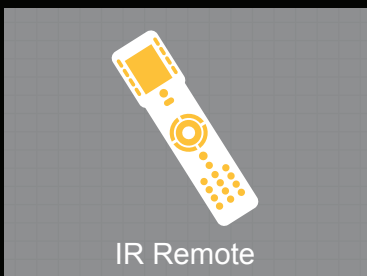


Pedometer

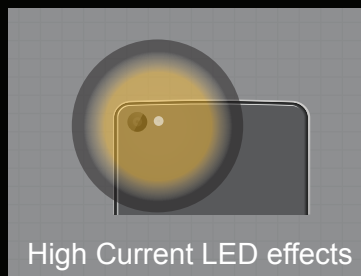


LED Breathing Effect

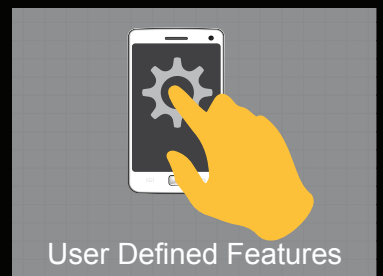
Flexibility to differentiate. Programmability speeds customization of awesome functions like:



IR Remote



High Current LED effects

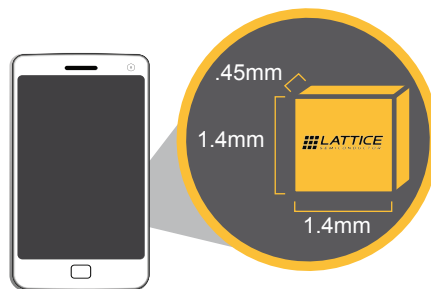


User Defined Features

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.

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 constraints are no barrier to flexibility, innovation and customization. All of this functionality in the world's smallest FPGA!

0.45mm thick

1.44mm



iCE40 UltraLite™		
Feature	iCE40 UltraLite 640	iCE40 UltraLite 1K
Density LUTs	640	1248
EBR RAM	56	56
PLL	1	1
NVCM	Yes	Yes
Hard I²C	2	2
Oscillator (10Khz)	1	1
Oscillator (48Mhz)	1	1
24mA RGB LED Sink	3	3
100mA IR LED Sink	1	1
400mA IR LED Sink	1	1
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

Applications Support

techsupport@latticesemi.com



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