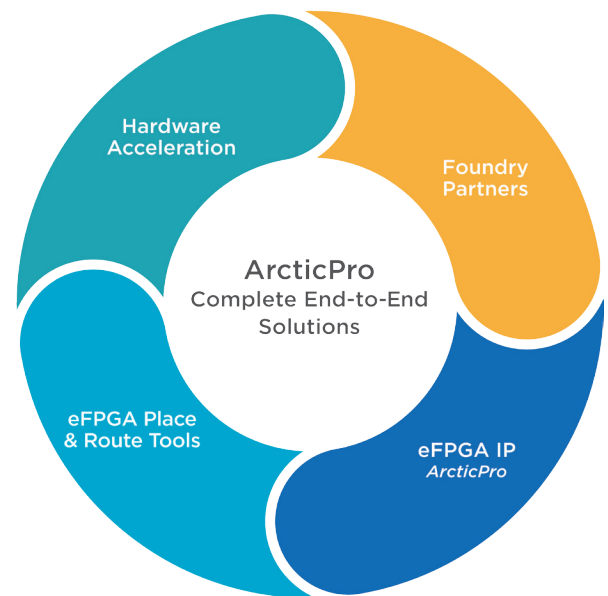**QuickLogic**

ArcticPro™

Build Flexibility and Differentiation Into Your Next Low Power SoC

With over 30 years of programmable logic device, software and IP experience, QuickLogic is the world's leading developer of low-cost, ultra-low power, high-performance embedded FPGA (eFPGA) solutions. The company's ArcticPro eFPGA technology enables SoC designs to be customized post-production without expensive and time-consuming redesign—allowing developers to easily address rapidly evolving market requirements, support emerging standards, and address multiple applications with a single mask set.

The QuickLogic Solution

ArcticPro™ 2 eFPGA Silicon on GLOBALFOUNDRIES' 22FDX® (FD-SOI) Process

The ArcticPro 2 embedded FPGA (eFPGA) technology is the industry's first on the GLOBALFOUNDRIES' 22FDX® (FD-SOI) process. ArcticPro is already supported in 65nm and 40nm CMOS manufacturing processes. QuickLogic's ultra-low power eFPGA architecture and mature software offer SoC designers an easy-to-integrate, highly reliable and extremely low power eFPGA IP. Designers can now create multiple chip variants from a single mask set post-manufacturing, enabling their device to address fragmented or rapidly evolving markets and/or emerging standards.

Hardware Acceleration

Foundry Partners

ArcticPro
Complete End-to-End Solutions

eFPGA Place & Route Tools

eFPGA IP
ArcticPro

eFPGA Design Tools

• **Aurora: Device Creation Tool**
  - During the SoC integration phase, we provide an intuitive way to define your eFPGA array and port mappings

• **SymbiFlow: Open Source Development Software**
  - Including Synthesis, Place & Route and bitstream generation
  - Compatible with industry standard simulators
  - Back annotated timing data for performance analysis
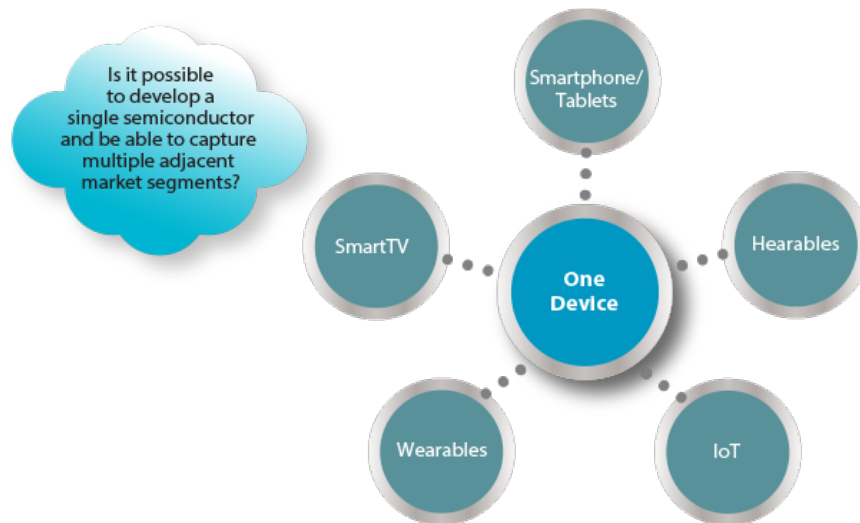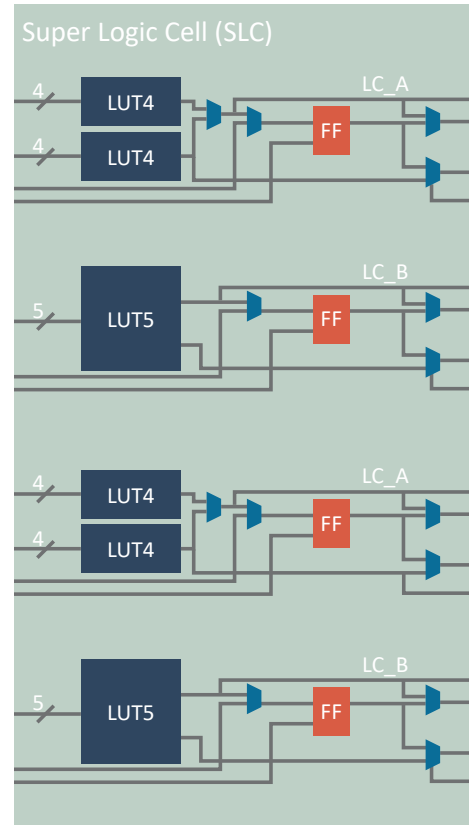 - Power calculator

• **Benefits:**
  - Easy to use and with a large community of users and developers
  - Access to the source code for fast customizations and feature improvements
  - Ability to integrate into your own tool suite

ArcticPro 2 eFPGA Technology

High-performance architecture for low power applications

- **2 types of Logic Cell A and B**
  - LC_A: 2 independent LUT4 with access to 1 register (FF)
  - LC_B: 1 LUT 5 with access to 1 register (FF)

- **Super Logic Cell (SLC) consists of 2 LC_A and 2 LC_B**
  - 4 LUT4 and 2 LUT5
  - 4 registers

- **Hierarchical routing networks for optimum performance and power consumption**
  - Multiple outputs per logic cell are strategically selected to either feedback within the same SLC or to travel out to another SLC. A shared register clock, and set/reset signal for all four logic cells helps reduce routing congestion
  - Two carry-in muxes per logic cell allow each logic cell to function as a 2-bit adder, which results in an 8-bit adder per SLC

- **Flexible Flip Flop**
  - Flip flop can be driven by combinatorial logic in the cell
  - Flip flop can be used independently of the combinatorial logic in the cell

- **Array sizes ranging from 8x8 SLC up to 64x64 SLC**

Super Logic Cell (SLC)

4 LUT4	LC_A
4 LUT4	FF
5 LUT5	LC_B FF
4 LUT4	LC_A
4 LUT4	FF
5 LUT5	LC_B FF

Is it possible to develop a single semiconductor and be able to capture multiple adjacent market segments?

Smartphone/Tablets

SmartTV

Hearables

One Device

Wearables

IoT

For more information about QuickLogic, please visit **www.quicklogic.com**

9.10.2020