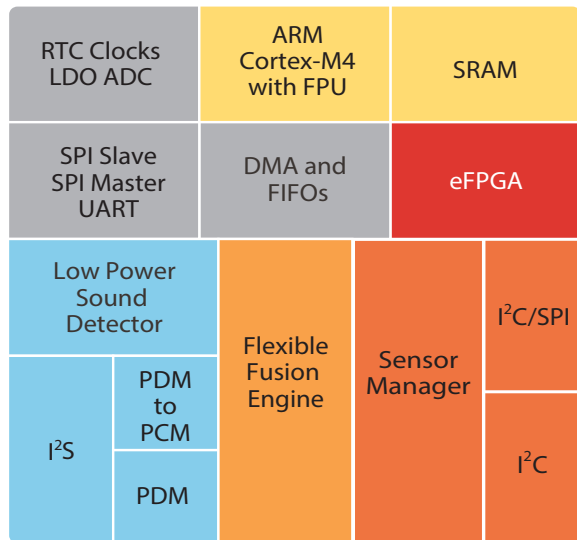


The QuickLogic EOS™ S3 Voice and Sensor Processing

Ultra-Low Power Always-On, Always-Aware Applications



- **Sensor Manager** – Autonomously manages and controls all sensors
- **Flexible Fusion Engine™ (FFE)** – 10 MHz DSP-like processor supports always-on computational processing at one fourth the power
- **eFPGA** – Enables custom logic functions and I/O expansions
- **Voice Processing** – Hard-coded Low Power Sound Detector (LPSD) and PDM to PCM conversion minimizes audio processing power
- **ARM Cortex-M4 with FPU** – Up to 80 MHz and 512 KB SRAM for general purpose processing and running O/S
- **Serial I/O** – SPI Master/Slave, I²C, UART
- **System** – DMA, Integrated RTC, Oscillators, ADC, LDO

Target Applications

Hearable, Wearable, Smartphone, Tablet and IoT applications with voice trigger and sensor management

Benefits

- Comprehensive integrated solution for concurrent voice and motion, environmental and biometric sensor processing
- Hard-coded Low-Power Speech Detection (LPSD) for industry's lowest power always-on listening
- 2-mic beam-forming and noise-suppression for high-accuracy Key-Phrase Detection (KPD) in noisy environments
- Acoustic Echo Cancellation (AEC)
- eFPGA for flexible design
- Ultra-low power biometric and motion sensor processing with dedicated μ DSP (Flexible Fusion Engine)
- On/Off-body detection placing device in lowest power mode when not in use
- Low-Voltage (0.85 VDD) option for 33% power reduction

Key Features

- Cortex M4-F Processor (up to 80 MHz operating frequency)
- μ DSP-like Flexible Fusion Engine (FFE)
 - 10 MHz operating frequency
 - Dedicated 50 KB SRAM Prog, 16 KB SRAM Data
- 512 KB SRAM
- Hardware Sensor Manager
 - Autonomous initialization and sampling of sensors
- Power Management Unit (PMU)
- SPI Master/Slave, I2S Master/Slave & I2C
- eFPGA
 - 2,400 effective logic cells with 64 Kbits of available RAM
 - Eight RAM FIFO controllers
- 12 bit ADC
- PDM Mic Support with dedicated logic for PCM conversion
- Dual Low-Dropout (LDO) regulators

Packaging

- 42 WLSCSP (2.7 x 2.4 x 0.7 mm)
- 64-Ball BGA (3.5 x 3.5 x 0.8 mm)

For more information, please visit www.quicklogic.com