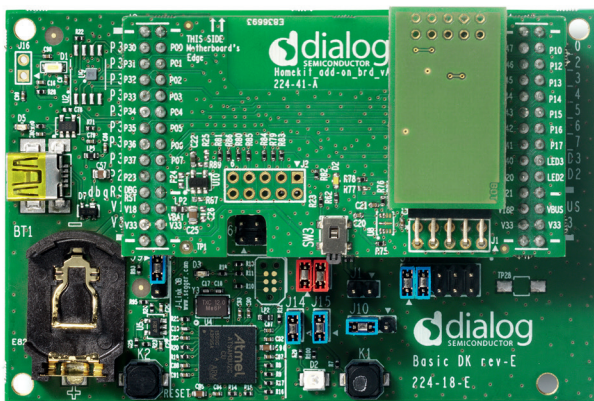


## DA14681 HomeKit Development Kit

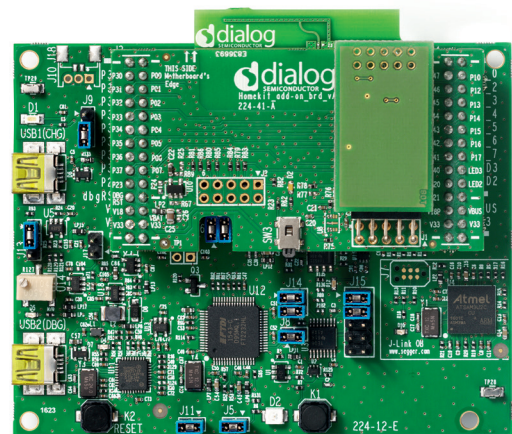
Create HomeKit™ Smart Home accessories with the best performance and user experience

Dialog's second generation development kit represents the first certified solution for the HomeKit Accessory Profile (HAP) 2.0, supporting all Bluetooth® low energy profiles within Apple's Smart Home platform. The kit is built on Dialog's DA14681 System-on-Chip (SoC), the most integrated single-chip solution that is purpose-built for IoT development, providing connectivity to a variety of battery-powered devices. It is the first SoC on the market with dedicated hardware acceleration for HomeKit security operations which ensures end-to-end application encryption, safeguarding personal information in transit.

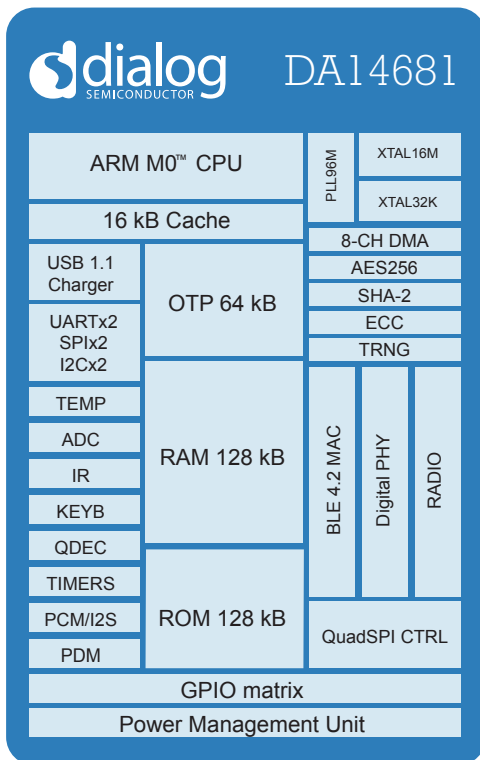
The DA14681 HomeKit development kit lowers the barriers for smart home device development. It creates the fastest response times and the best possible user experience for end devices, with initial pairing taking less than 2.8 seconds and responding faster than 250 ms whenever an iOS device issues a command. This creates an instant response whenever a user interacts with a HomeKit powered light, door lock, smoke detector or other accessory.



DA14681 Development Kit - Basic with HomeKit add-on board and MFi module



DA14681 Development Kit - Pro with HomeKit add-on board and MFi module



The DA14681 supports Bluetooth 4.2 to provide seamless connectivity, and smartly balances power efficiency and performance, with an ARM® Cortex™ M0 processor, expandable flash memory, a Power Management Unit for sensors and motors, and built-in charger that supports a USB interface.

Its integrated topology streamlines development, minimizes BOM cost and enables the application to consume less than 5 µA on standby. The maximizes application space and flexibility, using a mere 170 kB of Flash memory and provides 64 kB of RAM for apps to utilize, even allowing user defined profiles to further customize applications on top of pre-configured HomeKit profiles.

## Applications

- Home automation
- Smoke detectors
- Access control / Door locks
- Lighting control
- Temperature / Humidity monitoring
- HVAC control
- Consumer appliances

## Benefits

- Single-chip solution
- HAP 2.0 Bluetooth low energy certified
- Extremely fast peer set-up
- Supports all HomeKit profiles
- Supports user defined profiles
- In-house development
- Source code deliverables
- Flexible solution

## Features

- Single-chip solution with hardware acceleration for all HomeKit security operations
- Apple pre-certified Software Development Kit reference design:
  - Completed Apple Adjunct Review on latest HomeKit specification (HomeKit BLE2.0)
  - Tested against Apple HomeKit Accessory Tester and Apple HomeKit iOS 10 application
  - Support for all HAP defined profiles
  - Support for custom defined HAP profiles
  - HomeKit custom update over-the-air (SUOTA) profile for secure software upgrade over the air implemented as custom HomeKit service
  - Source code provided
- User application memory resources:
  - Application size only limited by size of external Flash memory
  - 64 kB RAM remaining after existing reference app / BLE stack / HomeKit library usage
- Easy scalable software architecture to integrate other protocols in a single design
- Performance:
  - 2.8 s for Pair Setup (initial pairing)
  - 250 ms for Pair Verify (in first Bluetooth low energy connection)
  - 60 ms for Pair Resume (per Bluetooth low energy connection)
- Power consumption
  - 500 nA to 4  $\mu$ A during sleep mode
  - 1.5 mA average per advertising event
- Runtime CPU clock adjustment for optimum trade-off between performance and power consumption
- Integrated battery and system PMU to minimize the need of external LDOs for powering sensors
- Integrated battery charger and fuel gauge
- Support for multiple simultaneous Bluetooth low energy HomeKit connections

# Hardware and Software Development Kit

The DA14681 HomeKit Development Kit consists of the HomeKit SDK, DA14681 Development Kit Basic or Pro and a flexible add-on board to interface with the separately available MFi chip.

The SDK is part of the generic SmartSnippets™ Studio, a royalty-free software development platform for all SmartBond devices, which contains:

- SmartSnippets Toolbox: A tool suite covering all software developer needs, including power profiling, FLASH or OTP programming and testing
- SmartSnippets IDE: An Eclipse CDT based IDE pre-configured plugins allowing easy out of the box set-up of the build/debug environment
- SmartSnippets DA1468x Software Development Kit and Documentation

The DA14681 HomeKit SDK contains examples of various HomeKit profile instances as well as sample interaction with external hardware peripherals. The SDK detects whether an MFi chip is present and adjusts the pairing process accordingly, allowing to start developing without the add-on board and MFi chip.

## Ordering Information

Ordering number	Description	Packaging	Pack quantity
HOMEKTADDONDB	HomeKit add-on board	Box	1
DA14681-01A9DEVKT-B	DA14681 Development Kit – Basic	Box	1
DA14681-01A9DEVKT-P	DA14681 Development Kit - Pro	Box	1

To certify your product you need an MFi chip or MFi module. Those can be ordered separately with MFi license.

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