Highly Integrated Advanced Wireless Connectivity MCU

SMARTBOND™ DA1470X FAMILY

The new product family builds upon the successes of Renesas' SmartBond line, boasting a 160-MHz Arm® Cortex®-M33F application processor, 2D Graphics processor, Arm Cortex-M0+ sensor node controller, Voice Activity Detector (VAD) and Power Management Unit (PMU) integrated into a single die. With its combination of ultra-low-power radio transceiver and software-configurable and upgradeable protocol engine (MAC), the DA1470x family is capable of supporting Bluetooth® low energy as well as multiple other 2.4GHz protocols. These unique features make the DA1470x family the first product in the wireless MCU space to offer this level of integration.

DA1470x and its Quad-Core System enable the highest level of sensor and graphics processing in advanced Bluetooth LE applications

- Arm Cortex-M33F at 160 MHz as main application core offering processing capabilities up to 240 dMIPS
- 2D GPU core & Display Controller combining ultra-low power capabilities with advanced graphic processing
- Dedicated Arm Cortex-M0+ Sensor Node Controller for best in class power consumption while reading and processing sensor data

DA1470x has an integrated battery charger and system Power Management Unit (PMU) enabling cost-effective, reliable and smaller form factor designs

- Integrated 720mA USB charger with power path management supports re-chargeable Li-ion/Li-Po batteries
- Integrated low quiescent current SIMO DCDC (2.9-4.75V) of the PMU efficiently supplies both the internal system as well as external components on the PCB
- Boost DC-DC converter (4.5V – 5V) with 150mA load capabilities

DA1470x comes with an Ultra-Low power Voice Activity Detector (VAD) enabling seamless and always-on audio processing, like Keyword detection use cases

- System on current <30uA in VAD mode
- 11 ENOB, 16 Ksps Audio ADC with Programmable Gain Amplifier

Key Features

- Multi-core system – CM33F as main application core and CM0+ as sensor node controller
- Dedicated 2D GPU & Display controller supporting DPI, JDI parallel, DBI and Single/Dual/Quad SPI interfaces
- Integrated charger and system Power Management Unit (PMU)
- Configurable MAC supporting Bluetooth LE 5.2 and proprietary 2.4 GHz protocols
- State of the art low power Bluetooth LE Radio matched to 50 ohms with a link budget of 103 dB optimizing battery life, system cost and connectivity over the air
- Ultra-low power Voice Activity Detector (VAD)
- Advanced Security with state-of-the-art crypto accelerators, secure boot and key storage and handling

Key Benefits

- Deliver on advanced sensor applications with rich graphical interfaces while optimizing battery lifetime
- Integrated PMU & battery charger eliminates the need of external PMIC resulting in significant cost savings on the Bill of Materials (BoM)
- Software-upgradeable and configurable MAC ensures future proof Bluetooth LE connectivity
- Integrated VAD enables ultra-low power and always-on audio processing, making keyword detection use cases possible at the edge
- Rich set of digital and analog interfaces enabling endless communication options

Applications

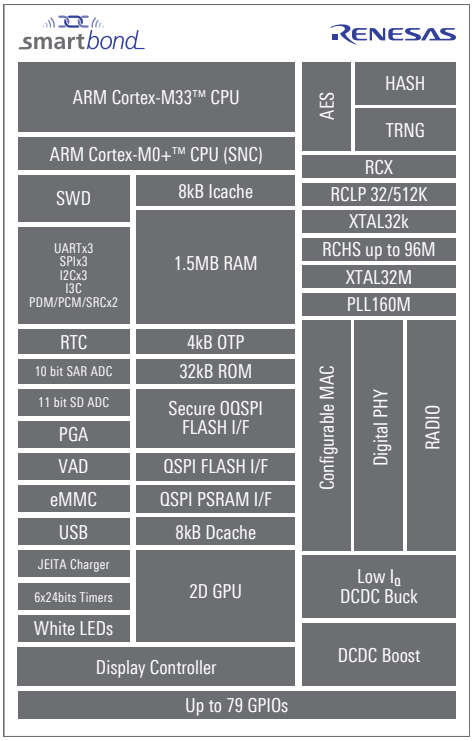
- Fitness trackers
- Sports watches
- Medical Devices (e.g. Glucose Monitoring Readers)
- Smart Home Devices and Appliances (e.g. Thermostat, White Goods, etc.)
- Industrial automation and Security Systems (e.g. Mobile POS, HMI terminals, etc.)
- Smart Consoles (e.g. E-bike, Exercise Equipment, Gaming Consoles, etc.)
- Toys

Software Tools

The DA1470x family parts are supported by Renesas SmartSnippets™ Studio and Toolbox, a royalty-free software development platform for all SmartBond devices.

It contains:

- SmartSnippets Toolbox: A tool suite covering all software development needs, including power profiling, Flash or OTP programming and testing
- SmartSnippets IDE: An Eclipse CDT-based IDE with pre-configured plugins for easy out of the box set-up of the build / debug environment
- SmartSnippets DA1470x Software Development Kit and documentation



DA1470x Product Family Selector Guide

Features	DA14701	DA14705	DA14706	DA14708
External PSRAM with d-cache	✓	✗	✓	✓
JEITA Charger	✗	✓	✓	✓
Boost DCDC converter	✗	✓	✓	✓
eMMc	✓	✗	✗	✓
Rest of the features	✓	✓	✓	✓

Ordering Information

Part number	Package	Pitch (mm)	Size (mm)	Shipment	Pack Quantity
DA14701-00000HZ2	VFBGA142	0.45	6x6.2mm	Reel	4k
DA14705-00000HZ2					
DA14706-00000HZ2					
DA14708-00000HZ2					

DA1470x Development Kits

Part number	Package
DA14706-00HZDEVKT-P	Bluetooth Low Energy DA14706 Development Kit Pro. It contains a motherboard, DA14706 daughterboard, current sensing board and a display board
DA14706-00HZDB-P	Bluetooth Low Energy DA14706 daughter board
DA14708-00HZDB-P	Bluetooth Low Energy DA14708 daughter board

For more information and purchasing please visit;
www.renesas.com/DA1470x

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