



# nRFReady Smart Remote for nRF52 Series

*Advanced Bluetooth low energy remote control with exceptional voice input options and ultra-low power performance*

## Reference designs for the complete spectrum of remote controls

The nRFReady Smart Remote 3 for nRF52 is a complete HW and SW reference design for completing an advanced, next-generation Bluetooth low energy remote control for media hub devices.

Together with the nRFReady Smart Remote 3 for nRF51 Series these reference designs offer developers a platform to develop any RF remote from simple buttons only to a state of the art fully featured remote with voice and gesture capabilities.

## A modular true single-chip solution

This reference design is based on the Bluetooth low energy nRF52 Series SoC with all remote-side firmware running in a single nRF52 device.

The reference design architecture is modular by design for both HW and SW. This enables remote control OEMs and system integrators to easily select which aspects and features they wish to use without difficulty or compromise. Ultra-low power operation and deep sleep behavior has been designed-in from the ground up to minimize power consumption whilst in use and to ensure absolute minimum power consumption whilst not in use, whilst retaining excellent latency performance on wake-up.

## Unprecedented voice input options, exceptional power consumption

This reference design offers unprecedented voice input choices for developers to develop a highly sophisticated and efficient voice input solution for search and control for remote controls with TVs and media boxes. In hardware the nRF52 supports two digital microphone inputs allowing direct connection of digital microphones. This allows for on-chip noise and echo cancellation, resulting in much cleaner sampling of audio streams.

## KEY FEATURES

- Complete Bluetooth low energy advanced remote control reference design
- All FW runs in single nRF52832 SoC
- Dual digital mic inputs for voice/audio
- Range of audio CODEC support
  - ADPCM
  - BroadVoice™
  - OPUS
- Variable audio compression bit-rate selection
- 6-axis motion-sensing
- Multi-touch trackpad
- Remote control keypad matrix
- Ultra-low power wakeup accelerometer
- IR HW support
- Arduino Uno compatible interface
- Modular design of HW and SW
- Comprehensive suite of profiling and debug tools
- Configuration wizard for rapid prototype development
- Host-side SW library for Linux

## APPLICATIONS

- Connected TV
- Set-Top-Box
- Media Centers
- Computers
- Gaming platforms
- Intuitive interactive systems

## KIT CONTENT

- 1 Development remote control with interface for nRF52 DK
- 1 Complete product example remote control
- 1 Bluetooth low energy Ready dongle
- 4 AA batteries



The reference design supports a rich choice of audio compression options based on the designer's needs. Currently the following codecs are supported

- ADPCM
- BroadVoice™
- OPUS

Power consumption is brought down to unprecedented levels in this reference design. With all firmware running inside a single nRF52 SoC with its inherent ultra-low power capabilities. Additional power savings are achieved by having optimum compression options helping to minimize on-air packet transfers when transmitting voice.

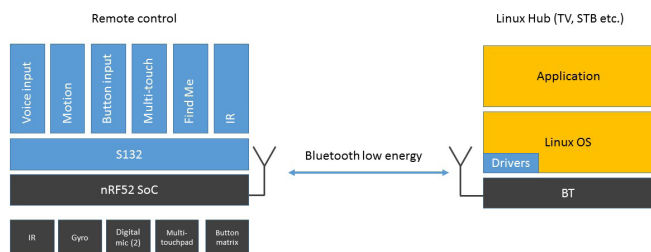
### Sophisticated features for a complete choice in design

Support is present for just about all the possible demands of today's highly sophisticated remote controls. Hardware and software support exists for button matrix input, free space motion sense, multi-touch gesture pad and IR hardware support. A range of under-the-hood features has been introduced such as packet scheduling to allow a wide range of UI operations to work together in a seamless way that enhances performance and user experience.

The reference design kit comprises a development remote control with a multi-sensor add-on that is Arduino Uno form factor compatible for development work. Additionally, it contains a complete 'product example' remote control for full evaluation, test and demonstration purposes.

### Complete software solution

The full system has been taken into account in this reference design, both the remote firmware and the hub side firmware and drivers required for smooth integration into a TV, STB or similar. This is essential for engineers developing a complex remote control solution for a variety of hub platforms.

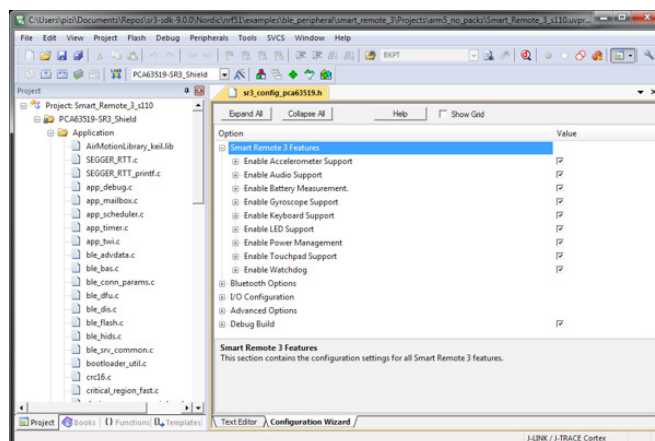


Smart Remote 3 for nRF52 SW architecture.

### Advanced development and configuration tool-suite

The reference design is much more than just functional hardware and software. An extensive tool-suite is also supported allowing sophisticated profiling, debug and configuration by developers so every aspect of operation and performance can be monitored and tailored accordingly.

For rapid prototype development and test an easy to use checkbox based configuration wizard exists allowing almost anyone to select desired performance components and operation and create a dedicated build without ever having to look at the underlying code.



Smart Remote 3 for nRF52 Configuration Wizard

### Ready for the next generation of remote controls

Media content is converging and growing at a rapid rate. The media hubs (TV, STB, Media Boxes) in our homes act as a convergence point for Web, TV, Social Media, Pay-Per-View, Gaming and much more. The ability to navigate these increasingly complex UIs and even multiple application windows is essential for a rewarding user experience.

Voice input as a means of search and control is becoming increasingly popular and is seeing support on many hub-side platforms as a simple, fast and intuitive means of interaction. nRFReady Smart Remote 3 for nRF52 series is the ideal platform for the development of your next generation of sophisticated voice enabled smart remote controls.

### Availability

Available now from Nordic Semiconductor's distribution network. See [www.nordicsemi.com](http://www.nordicsemi.com) for more details.

### RELATED PRODUCTS

nRF52832	Bluetooth low energy and 2.4GHz proprietary multi-protocol SoC
nRF52 DK	Bluetooth low energy/2.4GHz development kit for nRF52 Series SoC

### ORDER INFORMATION

nRF6939	nRFReady Smart Remote 3 for nRF52 Series
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