[Released on the web]

RX Family

Demonstration of Digital Signal Analysis and Judgement Using FFT Rev.1.50

Outline

The RX Family Demonstration of Digital Signal Analysis and Judgement Using FFT is now available on the Web.

This product is available free of charge.

Note: Although this product is newly released, its revision number starts from 1.50.

1. Product Features

The application note features a demonstration that assumes the application of RX microcontroller to sensing systems. Using the sample program associated with the application note, a single RX231 performs processing such as intaking analog signal directly, digital signal analysis and analysis result display.

➢ Functions of the sample program

- Analog signal input using A/D converter on RX231
- Digital signal processing
  IIR filter, FFT (Fast Fourier Transform) for frequency analysis
- A pass/fail judgement is made based on the frequency analysis results.
- Frequency analysis results (peak frequency) and judgement, etc., are displayed on the LCD.
- IIR filter characteristics is selected by switch operation

➢ Visualization of waveforms and frequency magnitude characteristics on e² studio

Utilizing the Waveform rendering function of the integrated development environment e² studio, waveforms of the signal input to the RX231 and frequency magnitude characteristics by FFT processing are displayed graphically. See Figure 1.

➢ Target Boards

The sample program runs on the Renesas Starter Kit for RX231 (RSK) or the Target Board for RX231 (Target Board). Note that LCD display processing is supported only by RSK. See Figure 2 and 3.
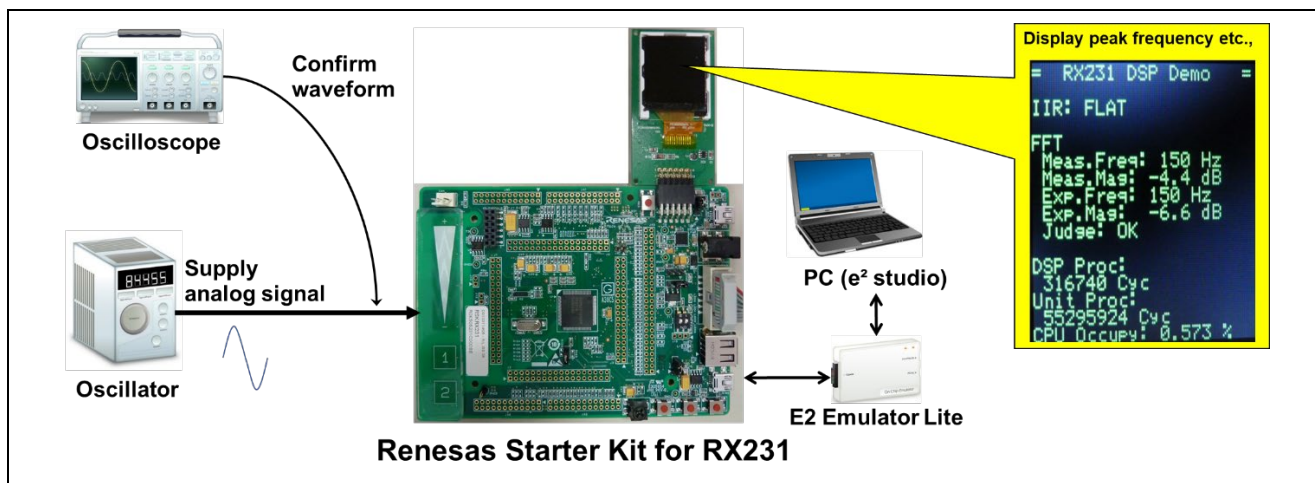

Figure 1 Console of e² studio

RENESAS

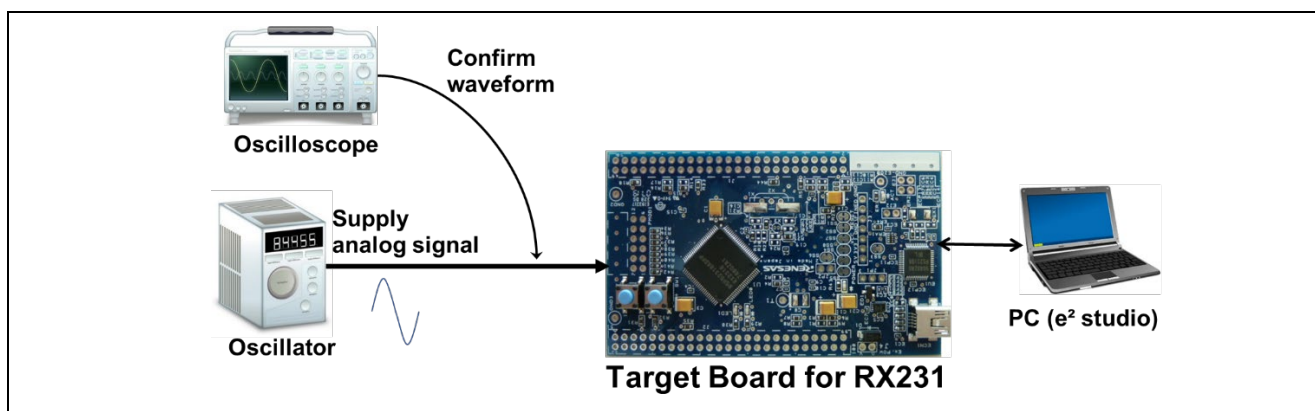**Figure 2 Example Configuration for Demonstration (RSK)**

Figure 3 Example Configuration for Demonstration (Target Board)

2. Supported Devices

RX231 Group

3. Operating Environment

The operating environments are shown below. For details, see "1.3 Operating Environment" in the application note.

- Renesas Electronics e² studio 2021-01, or later revisions
- Renesas Electronics RX Compiler CC-RX V3.03.00, or later revisions

4. Obtaining the Product

Obtain the product from the URL below. (Released on May.26.2021)

https://www.renesas.com/search?keywords=R01AN4431

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5. Related web site

· DSP Library for RX Family (Introduction for DSP Library)

  https://www.renesas.com/software-tool/dsp-library-rx-family

· Renesas Starter Kit for RX231

  https://www.renesas.com/products/microcontrollers-microprocessors/rx-32-bit-performance-efficiency-mcus/rx231-starter-kit-renesas-starter-kit-rx231

· Target Board for RX231

  https://www.renesas.com/products/microcontrollers-microprocessors/rx-32-bit-performance-efficiency-mcus/rtk5rx2310c00000br-target-board-rx231

· FFT Demo using RX Family DSP Library (Introduction video for DSP of RX microcontrollers)

  https://www.renesas.com/video/fft-demo-using-rx-family-dsp-library

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jun.01.21	-	First edition issued

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