

SOFTWARE TOOLS

IAR Embedded Workbench (RL78 & RH850)

- Integrated development environment for C/C++
- Package includes project manager, editor, compiler, assembler, linker and simulator
- Supports ELF/DWARF debugging format
- Different license options: locked to PC, dongled (USB), floating
- Order code depends on target platform and license type
- For more information visit www.iar.com



Green Hills Multi (RH850)

- Integrated development environment for C/C++
- Package includes project manager, editor, compiler, assembler, linker, simulator and debugger
- Supports ELF/DWARF debugging format
- Different license options: locked to PC, dongled (USB), floating
- Order code depends on target platform and license type
- For more information visit www.ghs.com



Tasking VX-toolset (RH850)

- Integrated development environment for C
- Package includes project manager, editor, compiler, assembler, linker, simulator and debugger
- Supports ELF/DWARF debugging format
- Different license options: locked to PC, dongled (USB), floating
- For more information visit www.tasking.com



Wind River Diab Compiler (RH850)

- Integrated development environment for C
- Package includes project manager, editor, compiler, assembler, linker and simulator
- Supports ELF/DWARF debugging format
- Different license options: locked to PC, dongled (USB), floating
- For more information visit www.windriver.com



AUTOSAR

- Standard Peripheral Abstraction Layer (SPAL) drivers, communication drivers and test drivers
- For AUTOSAR AP4 based MCAL for RH850
- Worldwide support infrastructure with interface for 1st and 2nd level support in Europe
- Cooperation with various BSW/OS vendors and integrators
- Flexible mass-production licenses
- Free-of-charge development licenses for up to 500 prototypes



AP4, AppliNet3, SmartConfigurator (RL78 & RH850)

- Peripheral driver code generator for RL78 & RH850 devices
- Based on graphical user interface settings the peripheral driver initialization and API function code will be generated
- Available for free at <http://www.renesas.com/ap4>



AppliNet3 for RL78/D1A

- Peripheral driver code generator for RL78 devices
- Based on graphical user interface settings the peripheral driver initialization and API function code will be generated
- Available for free at <http://www.renesas.com/ap4>



Renesas Graphics Library (RGL) for RH850/D1x

- Driver stack for all graphic related macros
- Simple interface for graphics programming
- Production quality code a customer will use in product
- Easy to integrate into no-OS and RTOS environment
- Example programs for the best possible out of the box experience



ON-CHIP DEBUGGING

E2 On-Chip Debugging Emulator (RL78 & RH850)

- On-Chip Debugging Emulator for all RL78 and RH850 devices
- Supports fast in-circuit flash programming (Download speed 2 times faster than E1)
- Supports various Target Interfaces
 - LPD (Low Pin Debug) for RH850
 - Single-pin for RL78
- Supports power supply to target
 - 3.3V ... 5V (max. 200mA)
- Supports hot plug-in function (including connector)
- Package includes USB interface cable and 14-pin target cable
- Order code: RTE0T0002KCE0000R

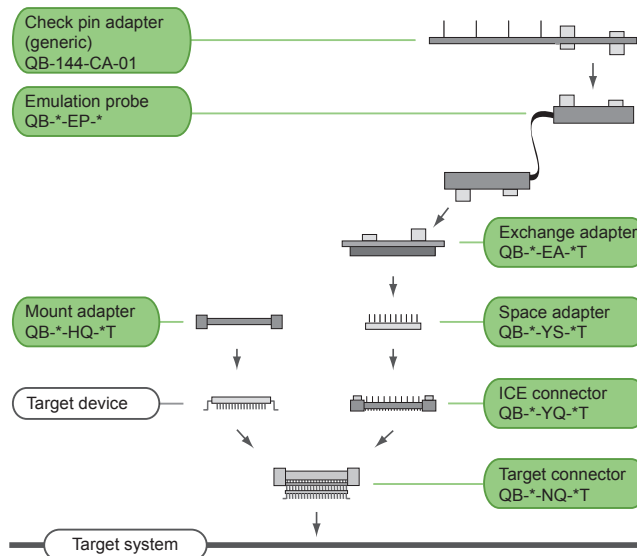


IECUBE In-Circuit Emulator (RL78)

- For RL78 devices
- Package includes
 - IAR Embedded Workbench (size limited)
 - USB cable, power supply
- Order codes:
 - Y-QB-RL78F12-ZZZ-EE (RL78/F12)
 - Y-QB-RL78F14-ZZZ-EE (RL78/F13 & RL78/F14)
 - Y-QB-RL78F15-ZZZ-EE (RL78/F15)
 - Y-QB-RL78D1A-ZZZ-EE (RL78/D1A)
 - Y-QB-RL78D1A2-ZZZ-EE (RL78/D1A, 512 KB version)



Socket System (RL78)



IE850 In-Circuit Emulator (RH850)

- For RH850/D1x devices
- Universal main unit, device dependent emulation probe
- Package includes
 - USB cable, power supply
- Order codes:
 - Y-QB-V850E2-EE (main unit)
 - RTE770146EFA0000R (Emulation Probe for RH850/D1M2H, RH850/D1V2, RH850/D1M1-V2, RH850/D1L2H, RH850/D1L2, RH850/D1L1 and RH850/D1S1)



IE850A Emulator featuring AURORA Trace (RH850/E2M and RH850/U2A16)

- For RH850/E2M and RH850/U2A16 devices
- The IE850A emulator features 9 GB of memory for storing histories of program execution, enabling the saving and checking of histories of program execution over longer periods, and is equipped with a rich variety of debugging functions, such as events, tracing, and time measurement.
- Order codes:
 - RTE0T0850A0CT0000J (IE850A Emulator main unit)
 - Y-RH850-E2X-40NM-EMU-ADAPTER-REV2 (Emulation Adapter for RH850/E2M)
 - RTE7702200EAB0000J (Emulation Adapter for RH850/U2A16)



Please visit <http://www.renesas.com/eu/en/products/software-tools/tools/emulator/ie850a.html> for additional tool information.

IN-CIRCUIT EMULATION

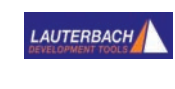
iSYSTEM

- Universal emulator and debugger system:
 - On-chip debugging for RL78 and RH850
 - In-Circuit Emulation of RL78
 - On-Chip and Off-Chip Trace (Parallel and AURORA) for RH850
 - Support for common compiler platforms
 - Software API for 3rd party tools and test automation
- For more information visit www.isystem.com



Lauterbach

- Universal debugger system TRACE32™
 - On-chip debugging for RL78 and RH850
 - On-Chip and Off-Chip Trace (Parallel and AURORA) for RH850
 - Support for common compiler platforms
 - Software API for 3rd party tools and test automation
- For more information visit www.lauterbach.com



PLS

- Universal Debug Engine for debugging, trace and testing:
 - UAD2pro, UADnext, UAD3+ support for RH850
 - Support for common compiler platforms
 - Software API for 3rd party tools and test automation
- For more information visit www.pls-mc.com



3RD PARTY EMULATORS

Flash Programmer PG-FP6

- Supports RL78 and RH850 flash microcontrollers
- For development, prototyping and mass production
- Windows™ and terminal interface
- Host-controlled and stand-alone operation
- 256 MB internal memory for up to 8 program codes incl. setup data
- USB2.0 and RS-232 interface
- Order code: RTE0T0001FVREAA000R



Renesas Flash Programming Software (RFP) for Microsoft Windows™

- Supports RL78 and RH850 flash microcontrollers
- For development and prototyping
- Works with E2 On-Chip Debugging emulator and direct RS-232/UART connection
- Graphical user interface
- Ability to save programming settings in workspace files
- Support for automated programming using scripts
- Available for free at <http://www.renesas.com/rfp>



FLASH PROGRAMMERS

RL78/F12 Starter Kit

- Equipped with
 - 48-pin RL78/F12 device (RSF109GE)
 - LIN interface
 - One switch, two LEDs
 - Breadboard area (2.54 mm pin pitch)
 - 20 MHz main clock resonator
 - 14-pin debugging and programming interface
- Package includes
 - KickStart Edition of IAR EWRL78 (16 KB)
 - E1 On-Chip Debugging Emulator
 - Quick-start guide, user's manual and sample software
- Order code: Y-ASK-RL78F12



RL78/F13 Starter Kit

- Equipped with
 - 80-pin device (RSF108MG)
 - CAN & LIN interface
 - One switch, two LEDs
 - Breadboard area (2.54 mm pin pitch)
 - 4 MHz main clock resonator
 - 14-pin debugging and programming interface
- Package includes
 - KickStart Edition of IAR EWRL78 (16 KB)
 - E1 On-Chip Debugging Emulator
 - Quick-start guide, user's manual and sample software
- Order code: Y-ASK-RL78F13



RL78/F14 Starter Kit

- Equipped with
 - 100-pin device (RSF109PJ)
 - CAN & LIN interface
 - One switch, two LEDs
 - Breadboard area (2.54 mm pin pitch)
 - 4 MHz main clock resonator
 - 14-pin debugging and programming interface
- Package includes
 - KickStart Edition of IAR EWRL78 (16 KB)
 - E1 On-Chip Debugging Emulator
 - Quick-start guide, user's manual and sample software
- Order code: Y-ASK-RL78F14



RL78/F14 BLDC Starter Kit

- Equipped with
 - 80-pin device (RSF10PMJ)
 - LIN interface
 - One switch
 - 8 MHz main clock resonator
 - 14-pin debugging and programming interface
- Package includes
 - KickStart Edition of IAR EWRL78 (16 KB)
 - E1 On-Chip Debugging Emulator, BLDC motor
 - Quick-start guide, user's manual and sample software
- Order code: Y-BLDC-SK-RL78F14



RL78/F15 Starter Kit

- Equipped with
 - 144-pin RL78/F15 (RSF113TL) device
 - 14-pin debug and flash programming interface
 - CAN & LIN interface
 - 4 MHz main clock resonator
 - One switch, two LEDs
 - Universal breadboard area (2.54 mm pin pitch)
- Package includes
 - Target board: Y-QB-RSF113TL-TB-V2
 - E1 On-Chip Debugging Emulator
 - IAR EWRL78 KickStart Edition
 - Quick-Start Guide
- Order code: Y-ASK-RL78F15



RH850/F1KM-S1 Starter Kit

- Equipped with
 - 100-pin RH850/F1KM-S1 device (R7F701684)
 - 2 CAN-FD, LIN, UART/RS232 interface
 - rotary switch with LEDs and push button
 - potentiometer for analogue measurements
 - pin headers for direct access to all microcontroller I/O pins
- Package includes
 - 14-pin debugging and programming interface
 - GHS Multi evaluation license (90 days)
 - KickStart Edition of IAR EWRL850 (128 KB)
 - E1 On-Chip Debugging Emulator
 - iSYSTEM WinIDEA/E1 evaluation license
 - sample code software
- Order code: Y-ASK-RH850F1KM-S1-V3



RH850/F1K Starter Kit

- Equipped with
 - 176-pin RH850/F1K PREMIUM device (R7F701507)
 - 2 CAN-FD, LIN, UART/RS232 interface
 - rotary switch with LEDs and push button
 - potentiometer for analogue measurements
 - pin headers for direct access to all microcontroller I/O pins
- Package includes
 - 14-pin debugging and programming interface
 - GHS Multi evaluation license (90 days)
 - KickStart Edition of IAR EWRL850 (128 KB)
 - E1 On-Chip Debugging Emulator
 - iSYSTEM WinIDEA/E1 evaluation license
 - sample code software
- Order code: Y-ASK-RH850F1K-V3



RH850/F1KM-S4 Starter Kit

- Equipped with
 - 176-pin RH850/F1KM-S4 device (R7F701649)
 - 2 CAN-FD, LIN, UART/RS232 interface
 - rotary switch with LEDs and push button
 - potentiometer for analogue measurements
 - pin headers for direct access to all microcontroller I/O pins
- Package includes
 - 14-pin debugging and programming interface
 - GHS Multi evaluation license (90 days)
 - KickStart Edition of IAR EWRL850 (128 KB)
 - E1 On-Chip Debugging Emulator
 - iSYSTEM WinIDEA/E1 evaluation license
 - sample code software
- Order code: Y-ASK-RH850F1KM-S4-V3



RH850/F1KH-D8 Starter Kit

- Equipped with
 - 176-pin RH850/F1KH-D8 device (R7F701609)
 - Ethernet, FlexRay, 2 CAN-FD, LIN, UART/RS232 interface
 - rotary switch with LEDs and push button
 - potentiometer for analogue measurements
 - pin headers for direct access to all microcontroller I/O pins
- Package includes
 - 14-pin debugging and programming interface
 - GHS Multi evaluation license (90 days)
 - KickStart Edition of IAR EWRL850 (128 KB)
 - E1 On-Chip Debugging Emulator
 - iSYSTEM WinIDEA/E1 evaluation license
 - sample code software
- Order code: Y-ASK-RH850F1KH-D8-V3



RH850/F1KM-S1 BLDC Starter Kit

- Equipped with
 - 100-pin RH850/F1KM-S1 device (R7F701684)
 - 2 CAN-FD, LIN, UART/RS232 interface
 - rotary switch with LEDs and push button
 - potentiometer for analogue measurements
 - pin headers for direct access to all microcontroller I/O pins
- Package includes
 - 14-pin debugging and programming interface
 - GHS Multi evaluation license (90 days)
 - KickStart Edition of IAR EWRL850 (128 KB)
 - E1 On-Chip Debugging Emulator, BLDC motor
 - Quick-start guide, user's manual and sample software
- Order code: Y-BLDC-SK-RH850F1KM-S1



STARTER KITS

RL78/F1x Target Boards

- For RL78/F1x evaluation
- Equipped with
 - RL78/F12, RL78/F13, RL78/F14 or RL78/F15
 - 14-pin debugging and programming interface
 - CAN & LIN interface
 - 4 or 20 MHz main clock resonator
 - switch, 2 LEDs
 - breadboard area (2.54 mm pitch)
- Board dimensions: approx. 110 mm x 55 mm
- Order codes:
 - Y-QB-RSF109GE-TB (RL78/F12)
 - Y-QB-RSF108MG-TB (RL78/F13)
 - Y-QB-RSF109PJ-TB (RL78/F14)
 - Y-QB-RSF113TL-TB-V2 (RL78/F15)



RH850 Evaluation Platform - F1Kx Adapter Boards

- For RH850/F1K and F1Kx evaluation
- To be used in combination with the RH850 Evaluation Platform main boards or stand-alone operation
- Equipped with
 - Burn-in socket to adapt RH850/F1Kx devices
 - pin headers for direct access to all microcontroller I/O pins
 - 8 Signal LEDs
 - Reset circuit, Oscillator circuit
 - 14-pin debug and flash programming connector
- Board dimensions: 160 mm x 100 mm
- Package includes CD with user's manual and schematic
- Order codes:
 - Y-RH850-F1X-048PIN-PB-T1-V1 (RH850/F1KM-S1, 48 pin)
 - Y-RH850-F1X-064PIN-PB-T1-V1 (RH850/F1KM-S1, 64 pin)
 - Y-RH850-F1X-080PIN-PB-T1-V1 (RH850/F1K, F1KM-S1, 80-pin)
 - Y-RH850-F1X-100PIN-PB-T1-V3 (RH850/F1K, F1KM-S1, 100-pin)
 - Y-RH850-F1X-144PIN-PB-T1-V3 (RH850/F1K, F1KM-S4, 144-pin)
 - Y-RH850-F1X-176PIN-PB-T1-V4 (RH850/F1K, F1KM-S4, F1KH-D8 176-pin)
 - Y-RH850-F1X-233PIN-PB-T1-V1 (RH850/F1KM-S4, F1KH-D8, 233-pin)
 - Y-RH850-F1X-324PIN-PB-T1-V1 (RH850/F1KH-D8, 324-pin)



RH850 Evaluation Platform - P1M-E, P1x-C Adapter Boards

- For RH850/P1M-E and P1x-C evaluation
- To be used in combination with the RH850 Evaluation Platform main boards or stand-alone operation
- Equipped with
 - Burn-in socket to adapt RH850/P1M-E, P1x-C devices
 - pin headers for direct access to all microcontroller I/O pins
 - 8 Signal LEDs
 - Reset circuit, Oscillator circuit
 - 14-pin debug and flash programming connector
- Board dimensions: 160 mm x 100 mm
- Package includes CD with user's manual and schematic
- Order codes:
 - Y-RH850-P1X-100PIN-PB-T1-V2 (RH850/P1M-E, 100-pin, 0.5 mm p.p.)
 - Y-RH850-P1X-144PIN-PB-T1-V2 (RH850/P1M-E, 144-pin, 0.4 mm p.p.)
 - Y-RH850-P1XC-080PIN-PB-T1-V1 (RH850/P1x-C, 80-pin, 0.4 mm p.p.)
 - Y-RH850-P1XC-100PIN-PB-T1-V1 (RH850/P1x-C, 100-pin, 0.4 mm p.p.)
 - Y-RH850-P1XC-144PIN-PB-T1-V1 (RH850/P1x-C, 144-pin, 0.4 mm p.p.)
 - Y-RH850-P1XC-156PIN-PB-T1-V1 (RH850/P1x-C, 156-pin)
 - Y-RH850-P1XC-292PIN-PB-T1-V2 (RH850/P1x-C, 292-pin)
 - Y-RH850-P1XC-404PIN-PB-T1-V2 (RH850/P1x-C Emulation Device supporting AURORA Trace)



RH850 Evaluation Platform - E2M Adapter Boards

- For RH850/E2M evaluation
- To be used in combination with the RH850 Evaluation Platform or stand-alone operation
- Equipped with
 - Burn-in socket to adapt RH850/E2M devices
 - pin headers for direct access to all microcontroller I/O pins
 - 8 Signal LEDs
 - Reset circuit, Oscillator circuit
 - 14-pin debug and flash programming connector
- Board dimensions: 160 mm x 100 mm
- Package includes CD with user's manual and schematic
- Order codes:
 - Y-RH850-E2X-292PIN-PB-T1-V2 (RH850/E2x, 292-pin)
 - Y-RH850-E2X-373PIN-PB-T1-V3 (RH850/E2x, 373-pin)
 - Y-RH850-E2X-468PIN-PB-T1-V1 (RH850/E2x, 468-pin)



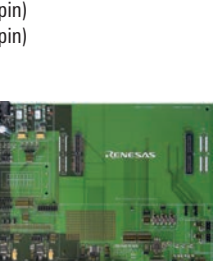
RH850 Evaluation Platform - U2A16 Adapter Boards

- For RH850/U2A16 evaluation
- To be used in combination with the RH850 Evaluation Platform or stand-alone operation
- Equipped with
 - Burn-in socket to adapt RH850/U2A16 devices
 - pin headers for direct access to all microcontroller I/O pins
 - 8 Signal LEDs
 - Reset circuit, Oscillator circuit
 - Gigabit Ethernet interface
 - 14-pin debug and flash programming connector
- Board dimensions: 160 mm x 100 mm
- Package includes CD with user's manual and schematic
- Order codes:
 - Y-RH850-U2A-292PIN-PB-T1-V1 (RH850/U2A16, 292-pin)
 - Y-RH850-U2A-373PIN-PB-T1-V1 (RH850/U2A16, 373-pin)
 - Y-RH850-U2A-516PIN-PB-T1-V1 (RH850/U2A16, 516-pin)



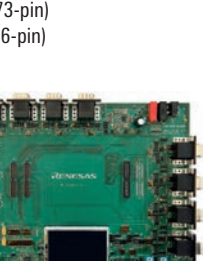
RH850/x1x Evaluation Platform Main Board - Type 1

- For RH850 evaluation
- To be used in combination with MCU-specific Adapter Boards
- Equipped with
 - various interfaces/connectors:
 - 2 CAN, 2 LIN
 - FlexRay (2 channels)
 - Ethernet
 - 2 UART/RS232, 2 SENT, 2 PSIS
 - 4 Signal LEDs (active high), 3 push buttons, 3 analogue inputs
 - LCD Module, breadboard area
- Board dimensions: 260 mm x 174 mm
- Package includes CD with user's manual and schematic
- Order code: Y-RH850-X1X-MB-T1-V1



RH850/x1x Evaluation Platform Main Board - Type 2

- For RH850 evaluation
- To be used in combination with MCU-specific Adapter Boards
- Equipped with
 - various interfaces/connectors:
 - 8 CAN-FD, 16 LIN
 - FlexRay (2 channels)
 - Ethernet (selectable for either for BroadR-Reach or RJ45)
 - 2 UART/RS232
 - 4 Signal LEDs (active high), 3 push buttons, 2 analogue inputs
 - 2.8" TFT touch display, breadboard area
- Board dimensions: 272 mm x 206 mm
- Package includes CD with user's manual and schematic
- Order codes:
 - Y-RH850-X1X-MB-T2-V1 (excluding TFT display)
 - Y-RH850-X1X-MB-T2-V2 (including TFT display)



RH850/x2x Evaluation Platform Main Board

- For RH850 evaluation
- To be used in combination with MCU-specific Adapter Boards
- Equipped with
 - various interfaces/connectors:
 - 16 CAN, FD, 24 LIN
 - FlexRay (2 channels)
 - Ethernet (2 channels)
 - SENT (2 channels)
 - 2 UART/RS232
 - 20 Signal LEDs (active high), 2 push buttons, 2 analogue inputs
 - Interface connector for 2.8" TFT touch display
- Board dimensions: 324 mm x 222 mm
- Package includes CD with user's manual and schematic
- Order code: Y-RH850-X2X-MB-T1-V1



RH850/D1x Evaluation Platform 'MANGO'

- For RH85