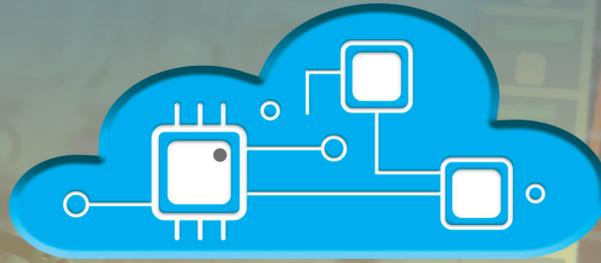


LAB ON THE CLOUD

Quick start guide



LAB on the CLOUD



renesas.com/labonthecloud

LAB ON THE CLOUD – 24/7 ONLINE TEST LAB

- Lab on the Cloud is a unique platform where users can remotely evaluate solutions online.
- Renesas evaluation kits and solutions are accessible 24/7, even for designers in remote locations.
- Solution boards, oscilloscopes, power sources and power meters are connected over the cloud and can be monitored through live video streaming direct from the lab.
- The lab is fully autonomous. Users can test these boards, control the equipment through an intuitive web graphical user interface (GUI).
- Supported mass market applications include cloud-based solutions, low power Bluetooth™, motor drives, electric vehicle systems, advanced face, object, and voice recognition, and voice authentication systems.

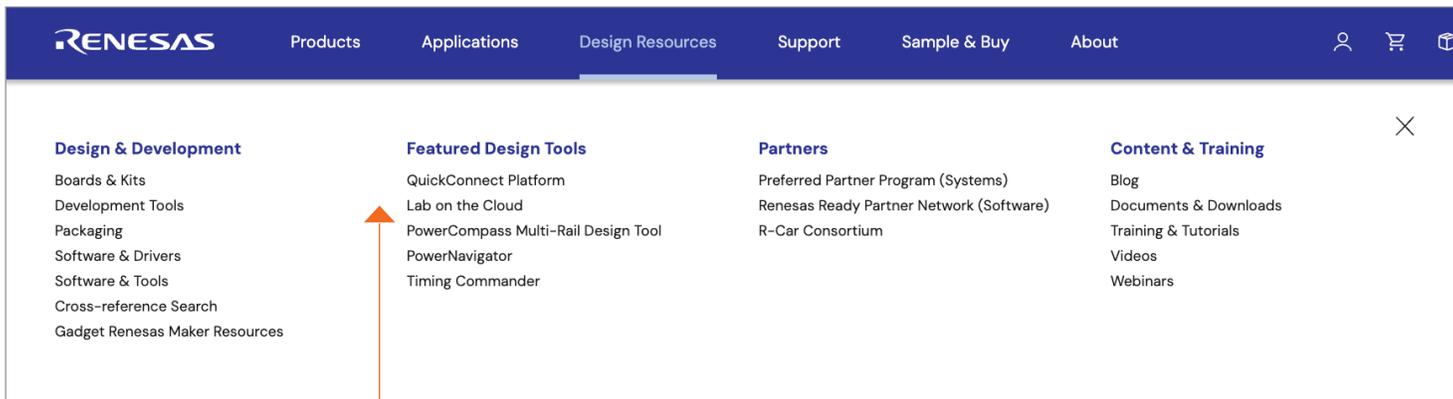
LAB ON THE CLOUD ADVANTAGES

- Optimizes the design process
- Shortens time to market
- Reduces design risk
- Boosts designers' confidence
- Free tool with no subscription required to access Renesas boards
- Intuitive Web GUI
- Access to documents and videos through the library
- Request samples via Lab on the Cloud
- Directly ask queries from board designers using the discussion forum



GETTING STARTED

Lab on the Cloud is a Renesas design tool found under Design Resources



RENESAS Products Applications **Design Resources** Support Sample & Buy About

Design & Development

- Boards & Kits
- Development Tools
- Packaging
- Software & Drivers
- Software & Tools
- Cross-reference Search
- Gadget Renesas Maker Resources

Featured Design Tools

- QuickConnect Platform
- Lab on the Cloud
- PowerCompass Multi-Rail Design Tool
- PowerNavigator
- Timing Commander

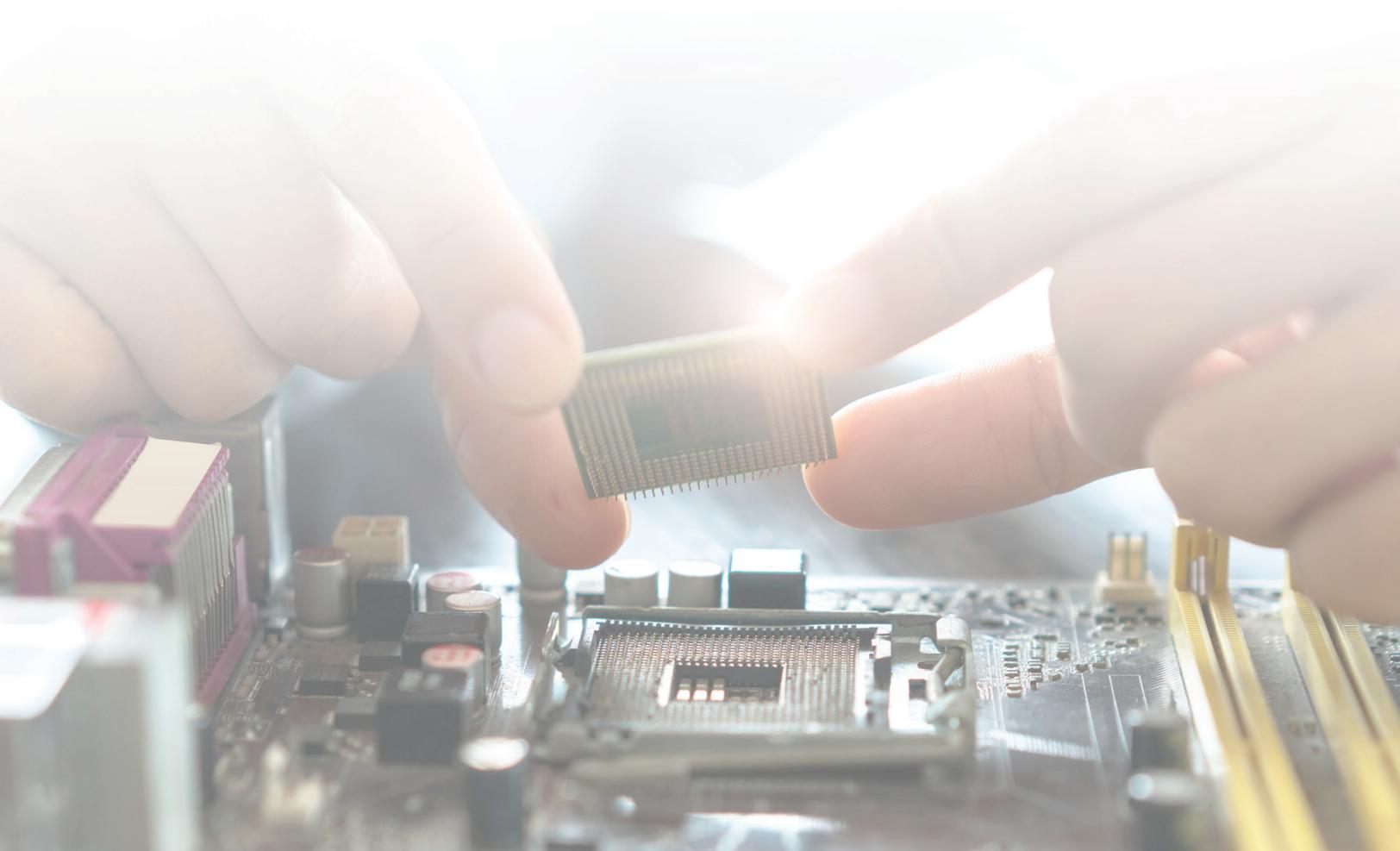
Partners

- Preferred Partner Program (Systems)
- Renesas Ready Partner Network (Software)
- R-Car Consortium

Content & Training

- Blog
- Documents & Downloads
- Training & Tutorials
- Videos
- Webinars

Click on Lab on the Cloud link to reach to the Lab on the cloud landing page.



LANDING PAGE

Description about Lab On the Cloud

Design Resources / Featured Design Tools / Lab on the Cloud

Lab on the Cloud

Videos | Quick Start Guide | Find a Lab

Cloud-based Remote Testing to Perform Real-time Hardware Evaluations Anytime, Anywhere

Lab on the Cloud (LoTC) is a cloud-based remote testing platform that allows you to perform real-time hardware evaluations anytime, anywhere. By removing the limitations of physical lab access and expensive test setups, LoTC enables faster and more efficient semiconductor validation. With over 60 labs tailored for a variety of applications, including motor control, electric vehicles, air quality monitoring, and AI recognition technologies you can evaluate both system and component-level performance with ease.

Lab on the Cloud: Save time and jump start your design online

Can also view labs by application and product category

Lab on the Cloud

Overview | Quick Start Guide | Find a Lab

Find a Lab

Explore our vast array of labs. Search by keyword or filter by application or product category to get started.

Refine 77 Labs Found

Application Category

- Artificial Intelligence (AI) 9
- Automotive 6
- Communications Infrastructure 7
- Consumer Electronics 10
- FPGA Designs 1
- Industrial 44
- Security 1

Product Category

Low-Cost TFT Instrument Cluster with Telematics
This demo is a ready-to-use reference design for advanced instrument clusters with an optional connectivity board. Compact...
Design Resource: AIC-V2

Telematics Gateway
The Telematics Gateway combines the Vehicle Control Unit and Wireless Communication Unit reference designs to demonstrate...
Design Resource: AS049-I-REIN-WCU-V1

Telematics Gateway
The Telematics Gateway combines the Vehicle Control Unit and Wireless Communication Unit reference designs to demonstrate...
Design Resource: AS260-VCU-V1

HVPAK DC Motor Driver Pmod
This board, featuring a highly integrated HVPAK programmable mixed-signal matrix IC and a power monitor for protection...
Design Resource: AS025-HVPAK

List of Labs to choose from

Click on the Lab to go to the Lab page

Click to view the board associated with the lab

Lab on the Cloud

Overview | Quick Start Guide | Find a Lab

Click to view the Quick Start Guide

Discover step-by-step instructions and insightful tips that will seamlessly guide you through Lab on the Cloud.

Download

LOGIN & ACCESS

RENESAS Search Search

Low-Cost TFT Instrument Cluster with Telematics

Enter communication mail ID

PLEASE ENTER YOUR EMAIL *

hello@reallygreatsite.com

By clicking the 'Trial Access Lab' button below, you're agreeing to Renesas' Privacy Policy and Terms of Use as the Lab on the Cloud tool will store certain sensitive user data about your session.

Trial Access Lab **Sign Up**

Click to access Trial lab (Limited Features) Click to login/sign up (Full access of Features)

RENESAS Products Applications Design Resources Support Sample & Buy About

Log In / MyRenesas

Log In

Enter the MyRenesas login credential

Email address *

Password *

Log In

Forgot password? Need Help Logging In?

User Account Benefits

Register to unlock additional resources and functionality:

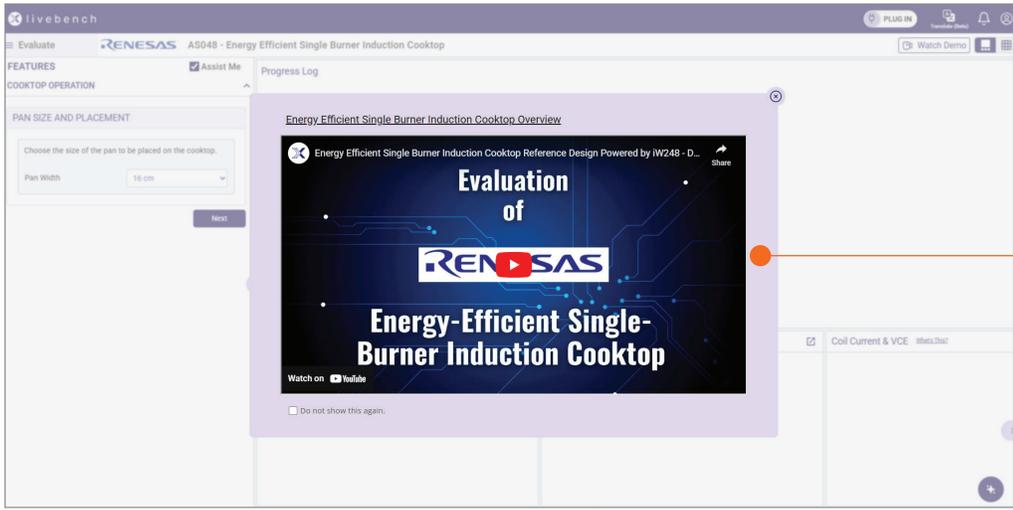
- Buy Renesas products and tools
- Submit sample requests
- Get online technical support from the Renesas Engineering Community
- Access secured content
- Get document update notifications
- Pre-fill form fields

Register Now

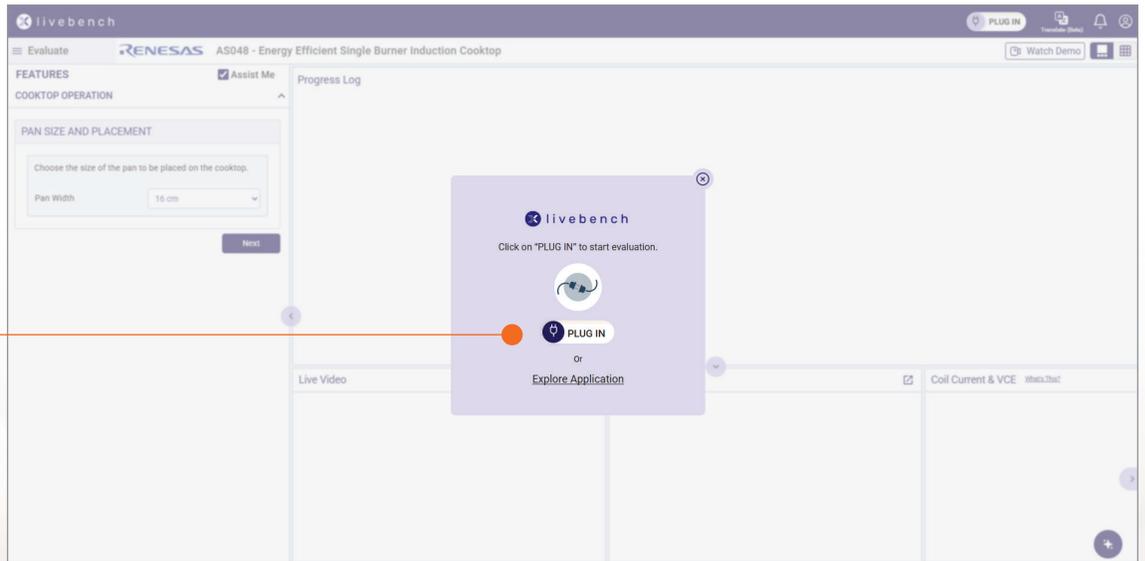
Click to login and access the requested lab

Register with MyRenesas if you are a new user

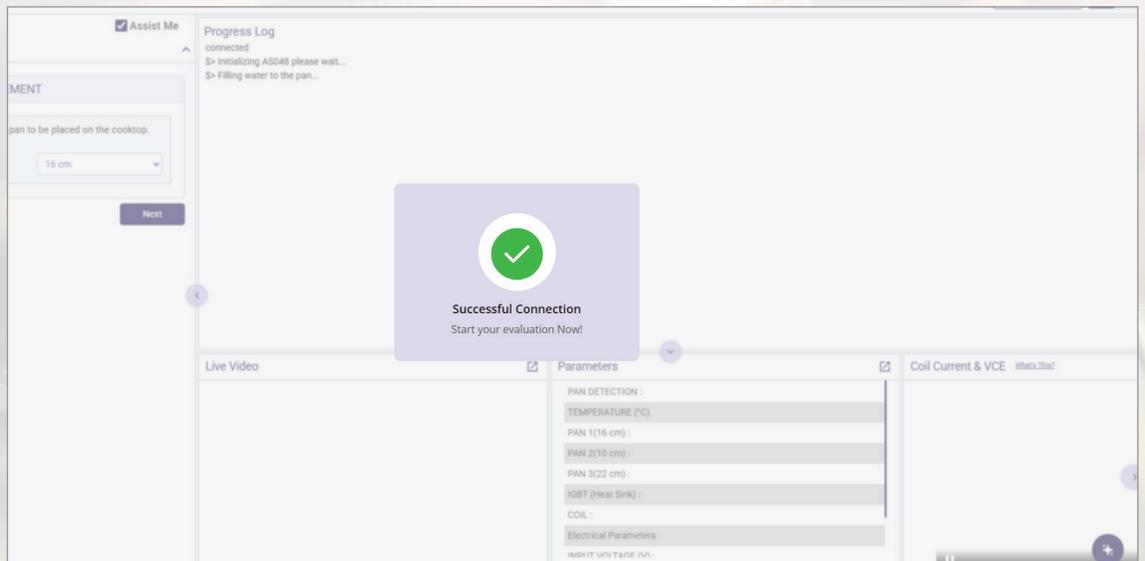
CONNECT TO LAB



Click to view demo video

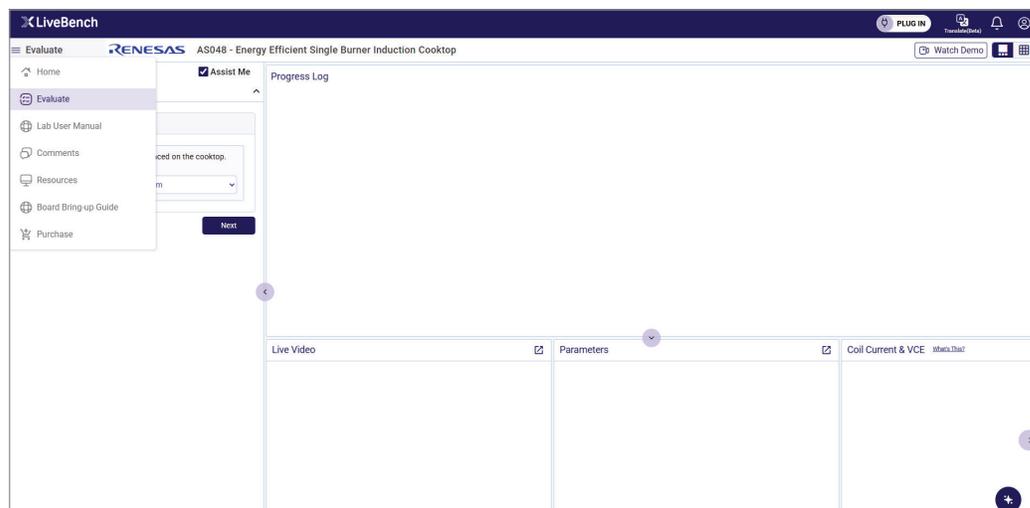


Click "Plug In" to connect with the lab



USER MANUAL

Lab user manual



Energy-Efficient Single-Burner Induction Cooktop

PAGE CONTENTS

- > Energy-Efficient Single-Burner Indu...
- > Introduction
- > Lab Setup
- > Block Diagram
- > LiveBench Evaluation Process
- > Inputs
- > Useful Links and References

This information should help you get started with the evaluation process. The following are covered in this section.

- Introduction
- UI and sequence of the steps to be followed.
- Configurable parameters and their definitions.
- Outputs that can be monitored.

Introduction

The 2100W single plate induction cooktop design, using iW248 single chip ASSP offers a high efficiency and high reliability performance.

The design gives the flexibility to adjust the power in +/-10W steps, which allows the users to cook at simmering condition. The RL78/G15

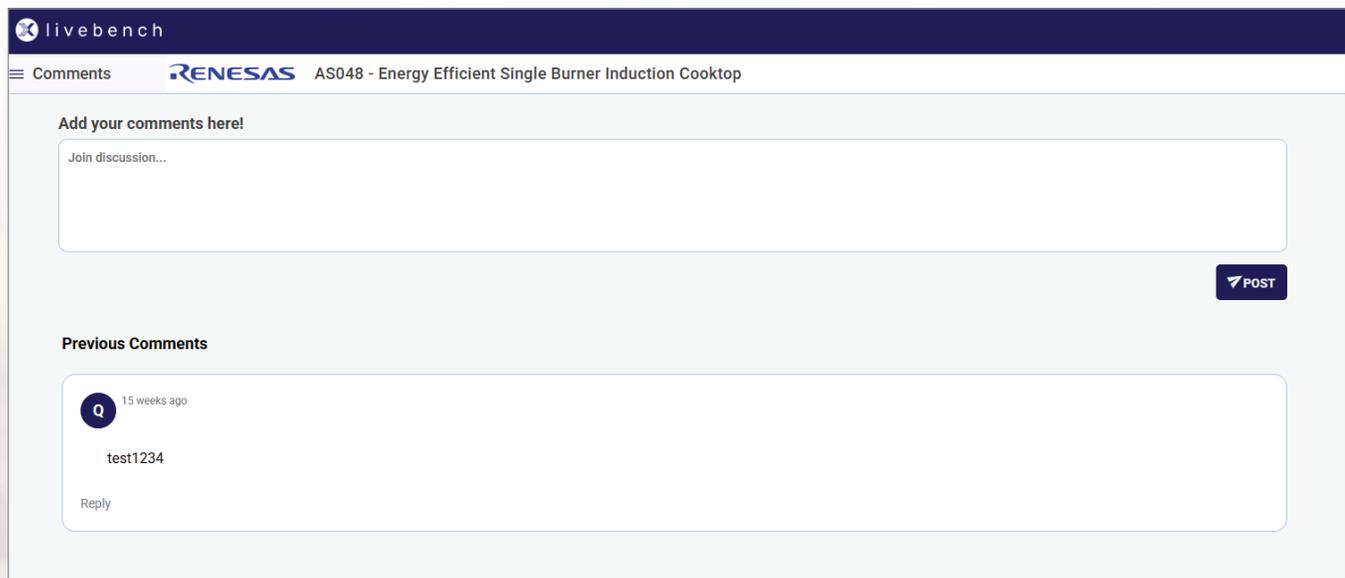
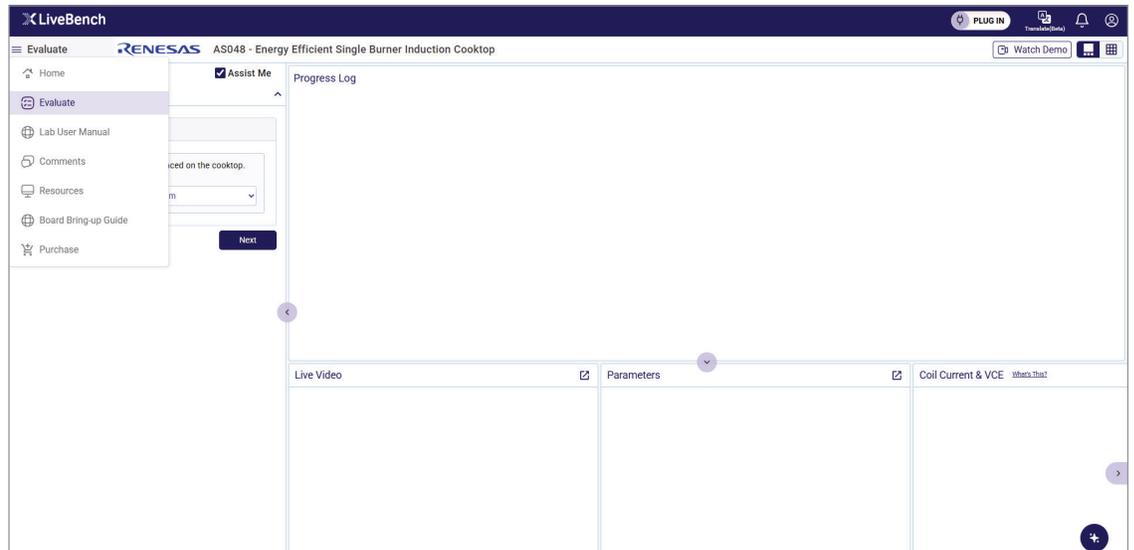
based HMI card offers low pin count, multiple matrix switch, LED Indication, and 7-Segment display. Over temperature detection

using three NTCs are provided in the ASSP.



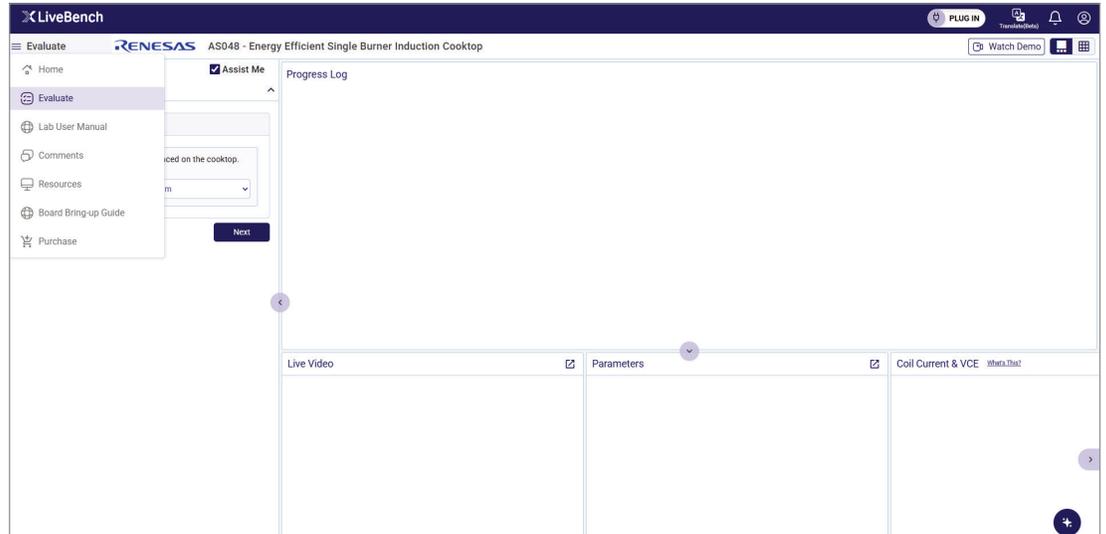
COMMENTS SECTION

Users can post their feedback and queries, that can be addressed by the experts



BOARD BRING-UP GUIDE

A comprehensive guide to assist customers through the board bring-up process after shipment



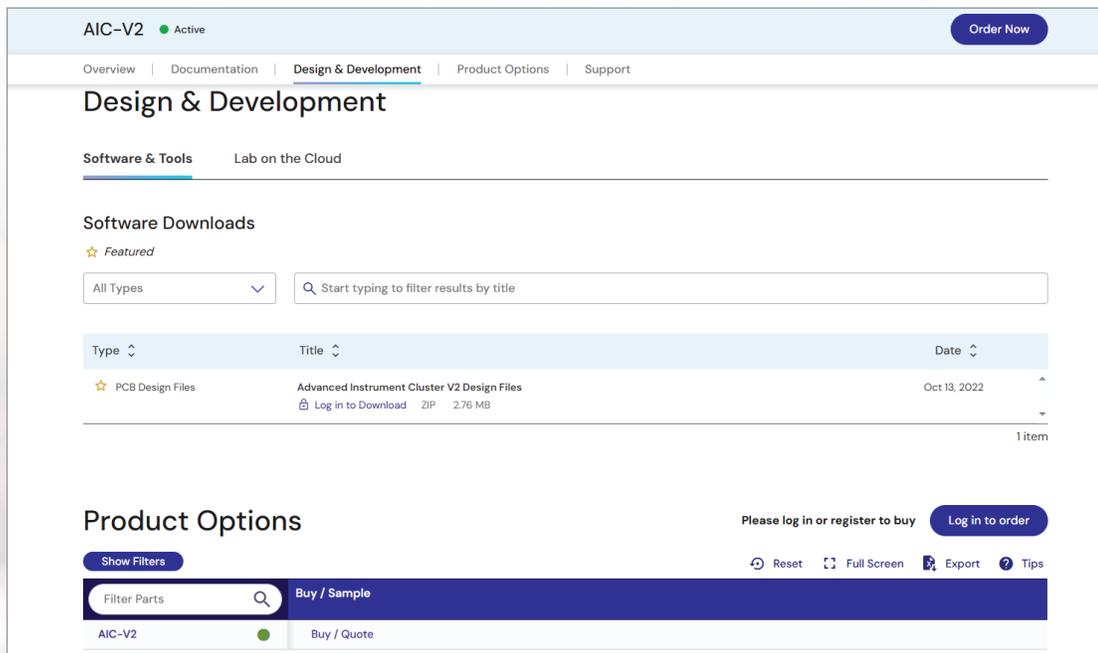
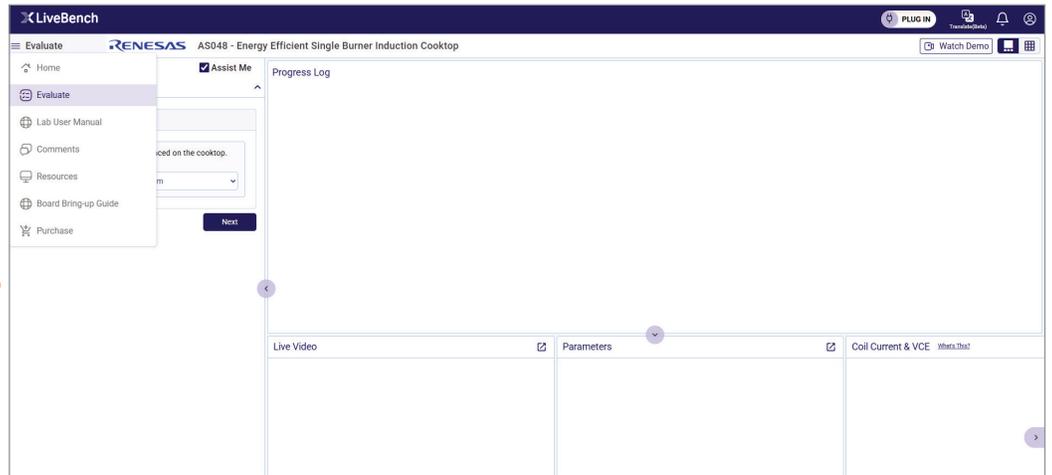
The screenshot displays the 'Lab Setup Guide - Energy-Efficient Single-Burner Induction Cooktop' page. The page header includes the 'LiveBench' logo, 'RENESAS' branding, and the product name. A 'PLUG IN' button and a 'Watch Demo' link are present. The page content is organized into sections:

- 1. Introduction**: The AS048 Energy Efficient Single Burner Induction Cooktop Board is designed to offer energy-efficient cooking solutions using advanced power electronics and control mechanisms. This document serves as a detailed guide for bringing up the AS048 board, including the necessary hardware setup, firmware flashing procedures, testing protocols, and troubleshooting steps. The goal of this guide is to ensure smooth operation and functionality of the board while adhering to safety and performance standards.
- 2. Kit Components**: Before commencing the bring-up process, it is essential to familiarize oneself with the components provided in the AS048 kit. These include:
 - **AS048INDCKTP-D-POCZ HMI Display Card**: This card facilitates user interaction via touch buttons and an LED display.

The page also features a 'PAGE CONTENTS' sidebar on the left and a large image of the AS048INDCKTP-D-POCZ HMI Display Card, which is a green PCB with a digital display showing '188' and various components like buttons and LEDs.

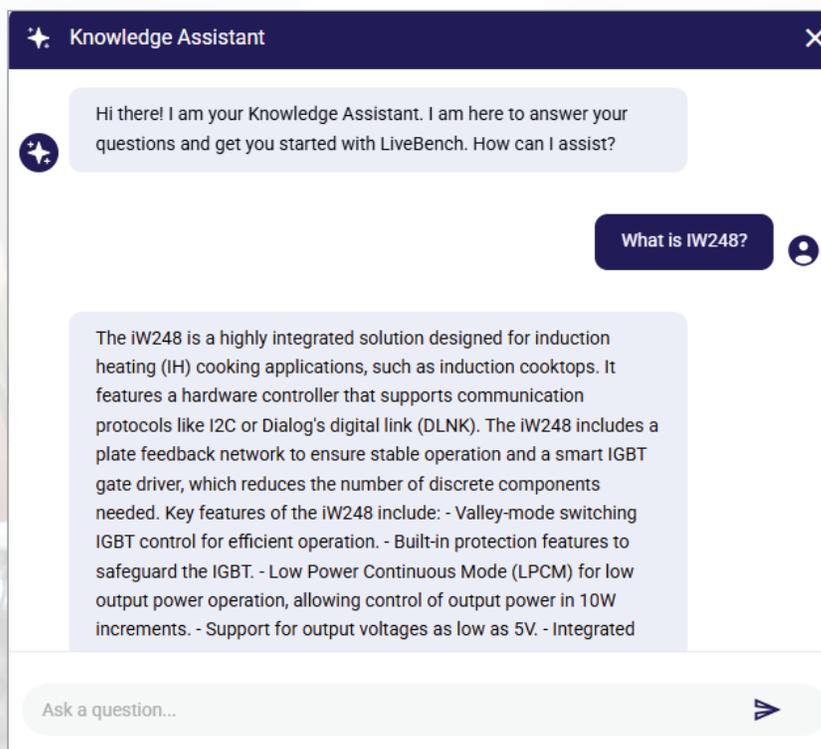
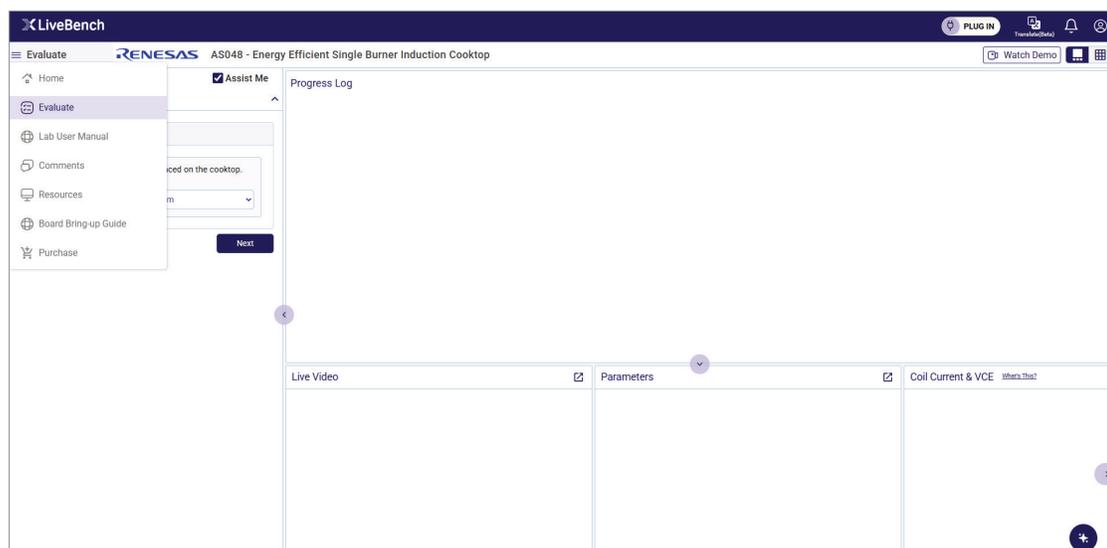
PURCHASE

Users can purchase boards, sample devices, and request quotes for higher volumes



AI KNOWLEDGE ASSISTANT

An AI-powered knowledge assistant helps users find part information and documentation (available in select labs)



TEST & EVALUATE

Provides explanation for each feature that can be set by users

The screenshot displays the livebench interface for the AS048 Energy Efficient Single Burner Induction Cooktop. The interface is divided into several sections:

- Control Panel (Left):** Includes 'PAN SIZE AND PLACEMENT' with a dropdown for 'Pan Width' (16 cm) and instructions for 'On cooktop', 'Above cooktop', and 'Remove'. It also has 'Pan Position' (On Cooktop) and 'Pan Offset' (Center) settings.
- Progress Log (Top Middle):** A list of steps such as 'connected', 'Initializing AS048 please wait...', 'Filling water to the pan...', 'Water filling completed', 'Calibrating Cooktop to the default position.', 'Cooktop calibration completed.', 'AS048 is ready for evaluation.', 'Setting pan position to: On Cooktop...', and 'Pan position has now been set to: On Cooktop.'.
- Live Video (Top Right):** A video stream showing the physical induction cooktop with a 'PAN 16 CM' label.
- Parameters (Bottom Middle):** A table of system parameters:

PAN DETECTION:	Not Detected
TEMPERATURE (°C)	
PAN 1 (16 cm):	24
PAN 2 (10 cm):	24
PAN 3 (22 cm):	24
IGBT (Heat Sink):	20
COIL:	27.12
Electrical Parameters	
INPUT VOLTAGE (V):	231.2
INPUT CURRENT (A):	0.41
INPUT POWER (W):	0.8
- Data Waveforms (Bottom Right):** A graph titled 'Coil Current & VCE' showing 'Coil Current (A)' on the left y-axis (ranging from -50 to 50) and 'IGBT VCE (V)' on the right y-axis (ranging from 0 to 1000) over a 'Time (s)' x-axis (0 to 0.25). The Coil Current is a flat green line at 0A, and the IGBT VCE is a flat red line at approximately 350V.

Annotations with arrows point to these sections:

- Control panel for users to send command
- Progress log: Internal processing information
- Live video streaming to see the output and performance
- Data output can be viewed in the form of waveforms

The lab is now available in multiple languages

What's This: Helps understanding a specific waveform for better analysis

This screenshot shows the same livebench interface but with the 'Coil Current & VCE' and 'VCE & VGE' waveforms enlarged. The 'Coil Current & VCE' plot shows a flat green line at 0A and a flat red line at approximately 350V. The 'VCE & VGE' plot shows a flat red line at approximately 350V and a flat blue line at approximately 20V. Below the waveforms is a 'Lab Set Up' diagram showing the physical hardware and its connection to the livebench software. The diagram includes a power supply, an oscilloscope, and the induction cooktop circuit board.

Annotations with arrows point to these sections:

- Download the plot in a .csv format
- Flexibility is provided to enlarge the tabs
- Easy access to understand the lab setup

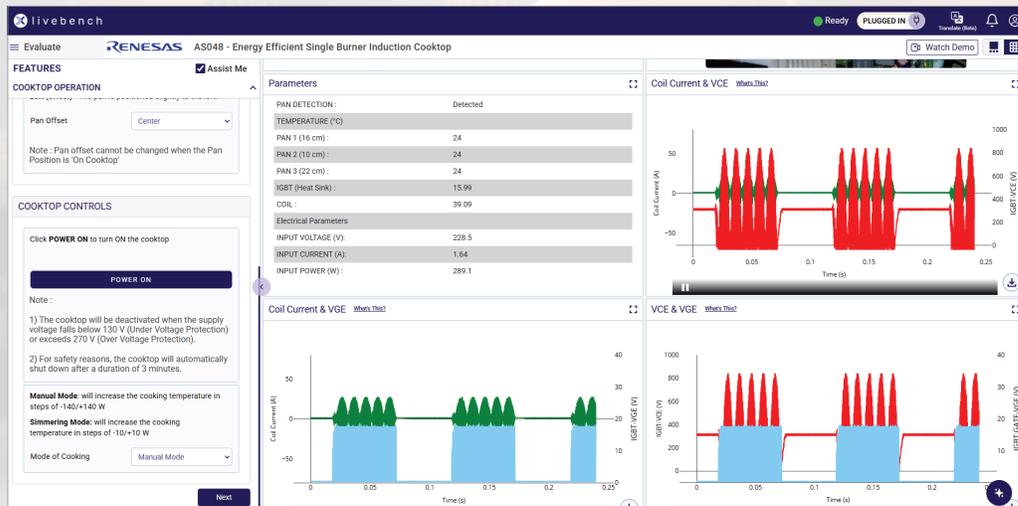
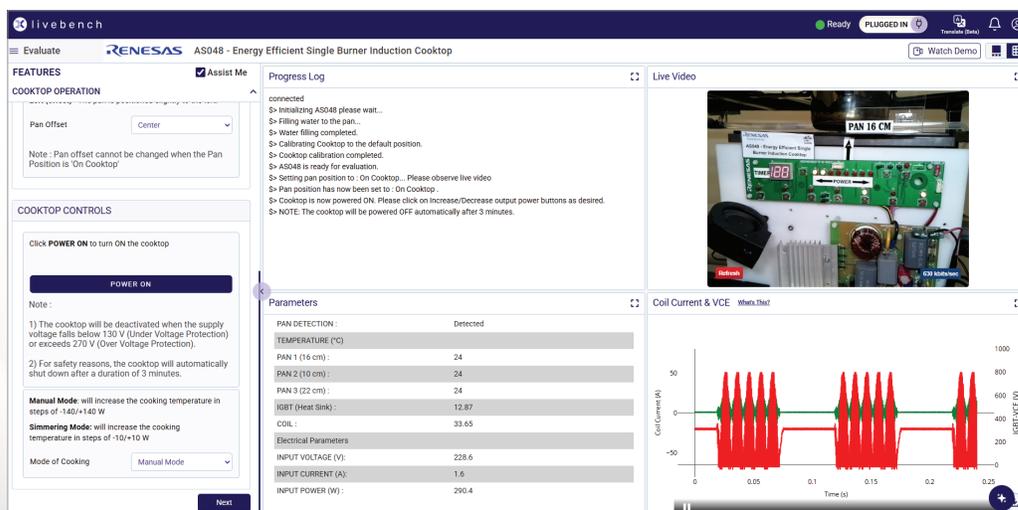
LABS TO EXPLORE 1: ENERGY-EFFICIENT SINGLE-BURNER INDUCTION COOKTOP

In this demo, users can test features like 200W to 1500W power control, and they can also test the power variation in ± 10 W steps, which allow the users to cook at the simmering condition.

Features:

- Evaluate board with live power supply and load system
- Select among three pan sizes and position the cooktop accordingly
- Evaluate board with live power supply and load system.
- Select among 3 pan sizes and position the cooktop accordingly
- Toggle cooktop power
- Choose cooking mode: manual or simmering
- Adjust temperature by varying wattage
- Demonstrate under/over voltage protection

 Click to access the lab



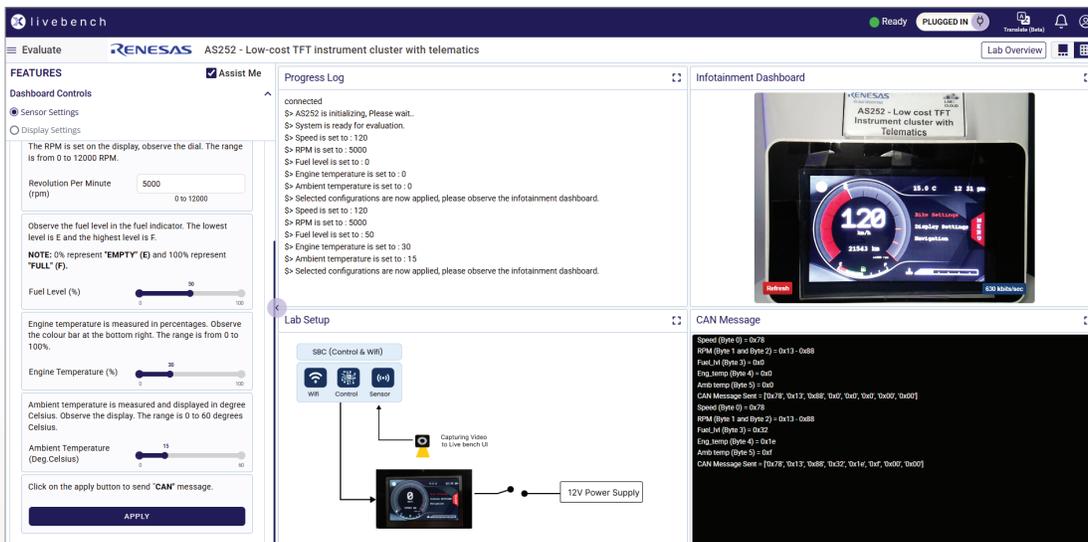
LABS TO EXPLORE 2: LOW-COST TFT INSTRUMENT CLUSTER WITH TELEMATICS

This demo is a ready-to-use reference designs for advanced instrument clusters with an optional connectivity board. Compact and realistic form factor with classic LED tell-tale indicators.

Features:

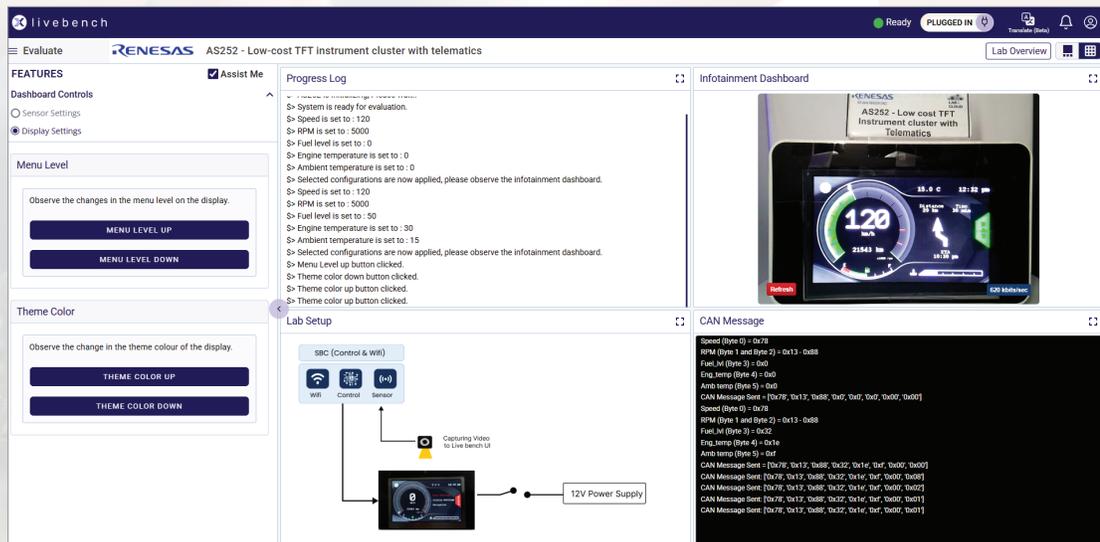
- Evaluate the sensor settings such as speed, RPM, fuel indicator, and engine temperature.
- Evaluate the display settings to change the menu settings: bike settings, display settings, and navigation.

 Click to access the lab



The screenshot shows the livebench interface for the AS252 - Low-cost TFT Instrument cluster with telematics. The interface is divided into several sections:

- FEATURES:** Includes "Dashboard Controls" with "Sensor Settings" and "Display Settings". Under "Sensor Settings", there are sliders for "Revolution Per Minute (rpm)" (set to 5000) and "Fuel Level (%)" (set to 30). Under "Display Settings", there are sliders for "Engine Temperature (%)" (set to 30) and "Ambient Temperature (Deg Celsius)" (set to 13). An "APPLY" button is at the bottom.
- Progress Log:** A list of system events including "connected", "AS252 is initializing", "System is ready for evaluation", and various sensor values being set (Speed: 120, RPM: 5000, Fuel level: 0, Engine temperature: 0, Ambient temperature: 0, etc.).
- Infotainment Dashboard:** A live view of the instrument cluster display showing a speedometer at 120 km/h, fuel gauge at 30%, and engine temperature at 30.0 C.
- Lab Setup:** A diagram showing the hardware setup including an "SBC (Control & Wifi)" board connected to "Wifi", "Control", and "Sensor" modules, a "12V Power Supply", and a "Capturing Video to Livebench UI" camera.
- CAN Message:** A list of CAN bus messages including Speed (0x78), RPM (0x13 and 0x12), Fuel_M (0x03), Eng_temp (0x14), Amb_temp (0x15), and CAN Message Sent (0x78, 0x12, 0x00, 0x00, 0x00, 0x00, 0x00).



This screenshot shows the livebench interface with different settings selected in the "FEATURES" section:

- Menu Level:** The "Display Settings" option is selected. There are two buttons: "MENU LEVEL UP" and "MENU LEVEL DOWN".
- Theme Color:** There are two buttons: "THEME COLOR UP" and "THEME COLOR DOWN".
- Progress Log:** Shows events for "MENU LEVEL UP" and "THEME COLOR UP" button clicks.
- Infotainment Dashboard:** The display shows a speedometer at 120 km/h, fuel gauge at 30%, and engine temperature at 30.0 C.
- Lab Setup:** The hardware diagram is identical to the previous screenshot.
- CAN Message:** Shows updated messages for "Menu Level Up" and "Theme Color Up" (0x78, 0x12, 0x02, 0x14, 0x00, 0x00).

LABS TO EXPLORE 3: TELEMATICS GATEWAY

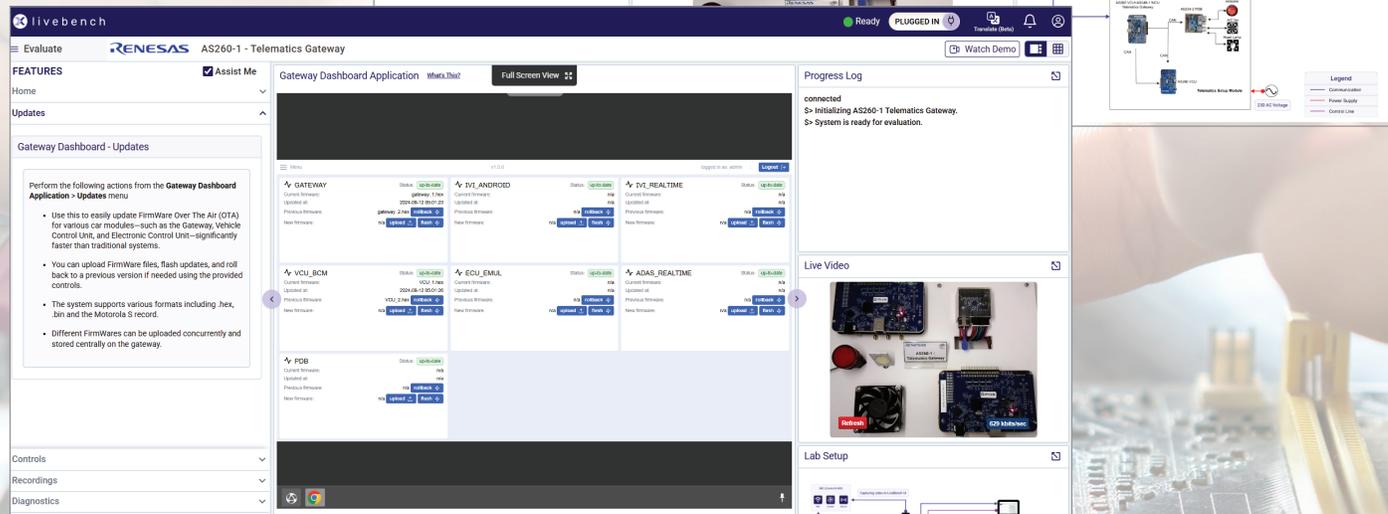
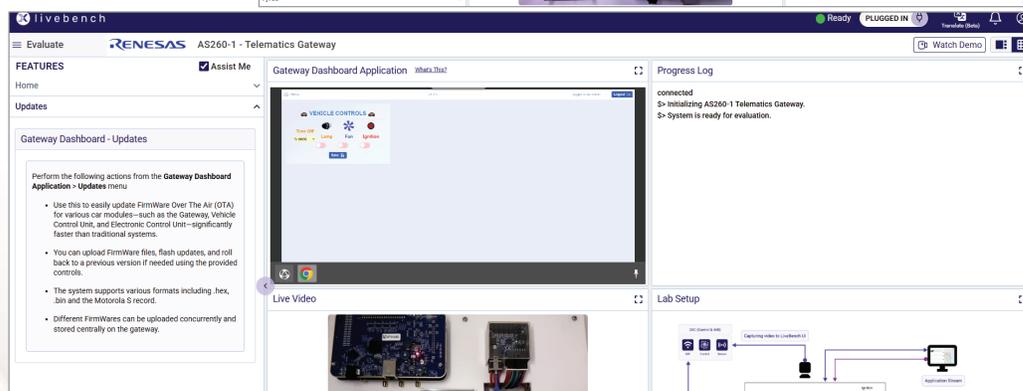
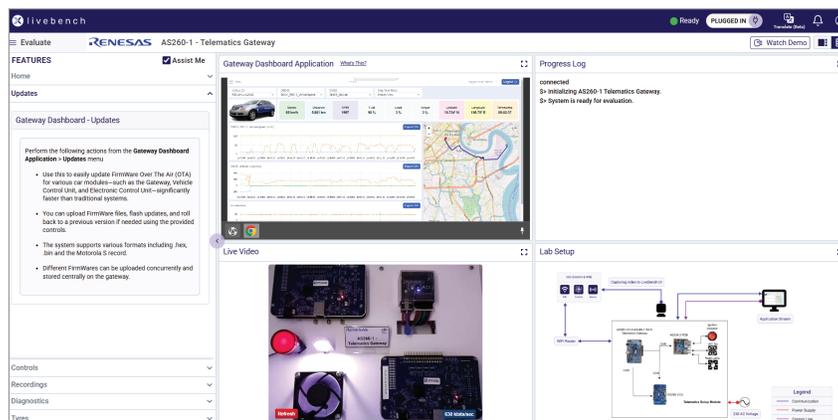
The Telematics Gateway combines the Vehicle Control Unit, and Wireless Communication Unit reference designs to demonstrate typical vehicle gateway software applications to showcase the transformation of vehicles into smarter, safer, and more connected experiences.

Features:

- Consists of a gateway dashboard application
- Emulates the functionality of a real cockpit
- Data can be downloaded in .csv format
- Remotely monitor key tire parameters: temperature and pressure
- No-wait OTA updates software in the background without disruption.

 [Click to check out the demo video](#)

 [Click to access the lab](#)



Renesas Electronics America Inc. | [renesas.com](https://www.renesas.com)
6024 Silver Creek Valley Rd, San Jose, CA 95138 | Phone: 1-888-468-3774

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