1. **News Release**

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**Renesas Electronics Delivers High-End 3D Graphics for Large-Scale Display Instrument Clusters with R-Car E3 System-On-Chip**

Single-Chip SoC Reduces System Costs and Expands Scalability Across the R-Car Family for Integrated Instrument Clusters and IVI Systems Such as Display Audio

**Düsseldorf, October 17, 2018** –To address the increasing demand for large-scale digital instrument clusters among all class of vehicles, Renesas Electronics Corporation (TSE: 6723), a premier supplier of advanced semiconductor solutions, extends the scalable range of the R-Car family of system-on-chip (SoC) devices with the introduction of the R-Car E3 to realize high-end 3D graphics on the largest class of displays used for automotive instrument clusters – 12.3 inches, 1,920 x 720 pixels. Combining the smooth 3D rendering capabilities with integrated audio DSP and other peripheral functions, the single-chip SoC supports instrument clusters as well as in-vehicle infotainment (IVI) systems with display audio and other capabilities.

The R-Car E3 is an upscale to the predecessor [R-Car D3](https://www.renesas.com/us/en/solutions/automotive/soc/r-car-d3.html) SoC for 3D graphics clusters, that brings enhanced 3D graphics rendering performance. As part of the Renesas R-Car family, the new SoC also offers the functional safety and security functions that are essential for connected cars as the role of human-machine interface (HMI) becomes more important. With these features, the R-Car E3 simplifies the task of developing robust systems capable of dealing safely with both malfunctions and cyberattacks.

The single-chip design enables the integration of a variety of systems, significantly reducing overall system development costs and achieving substantial space savings. The R-Car E3 shares the scalability of the [R-Car H3](https://www.renesas.com/us/en/solutions/automotive/soc/r-car-h3.html) and [R-Car M3](https://www.renesas.com/us/en/solutions/automotive/soc/r-car-m3.html) for integrated cockpits as well as the R-Car D3 for instrument clusters, establishing the highest level of software reuse. Renesas partner companies with extensive experience in the instrument cluster field are ready to provide operating systems (OS) and HMI tools in addition to system integration support. This will greatly reduce the development burden, extending software support to a wide range of vehicles, from the premium class, which currently features the high-end 3D graphics experience, to entry-class vehicles where integrated systems and full graphics are expected to become mainstream.

“Stringent safety and security requirements are driving the demand for instrument clusters with increasingly rich graphics capabilities to accurately display larger amounts of information to the driver,” said **William Asburry, Manager, Electrical Engineering, Fiat Chrysler Automobiles (FCA).** “The ability to present this information in 3D and 2D using high-resolution graphics has become essential for future cluster implementations, and the scalability of Renesas R-Car SoCs with their software assets contributes greatly to implementing the required features and optimizing our development efforts.”

“Graphics cluster systems are extremely important to accurately and reliably convey instrument and IVI information to the driver,” said **Ryoichi Nishikawa, General Manager, Cockpit Systems Division**, **Denso Corporation**. “In the future, as the graphics used in these systems become richer, Renesas’ R-Car products will not only allow carmakers to meet drivers’ informational needs but also will also deliver unmatched development efficiency by enabling full utilization of software resources across a wide range of vehicle categories.”

“Full graphic instrument clusters capable of displaying appropriate information to the driver precisely when it is needed will become the industry’s de facto standard as self-driving capabilities and ADAS functionality advance,” said **Keiichi Nagano, Executive Manager for Development at Nippon Seiki Co., Ltd.** “This will require high-performance graphic engines with sophisticated graphic rendering functionality as well as cybersecurity and functional safety. Renesas’ R-Car E3 perfectly meets these new needs and facilitates development next-generation cockpit systems.”

Renesas works with several OS manufacturers, HMI manufacturers, and system integrators who are leading the instrument cluster and IVI fields. System developers can take advantage of a wide range of automotive solutions by working with the more than 250 [Renesas R-Car Consortium](https://www.renesas.com/us/en/support/partners/r-car-consortium.html) partner companies to further reduce the number of development steps and cost for 3D graphics in vehicles ranging from entry to premium class.

Please refer to the [separate sheet](https://www.renesas.com/eu/en/about/press-center/news/2018/10/20181017-r-car-e3-specs.pdf) for the main specifications of the new product.

For more information on Renesas R-Car E3 products, please visit: <https://www.renesas.com/en/solutions/automotive/soc/r-car-e3.html>

For more information on Renesas instrument cluster–related products, please visit: <https://www.renesas.com/en/solutions/automotive/instrument-cluster.html>

**Availability**

Samples of the R-Car E3 SoC are available now, priced at US$60 per unit. Mass production is scheduled to begin in December 2019, and monthly production volume is anticipated to reach a combined 100,000 units by December 2020.

**About Renesas Electronics Corporation**

Renesas Electronics Corporation ([TSE: 6723](http://www.jpx.co.jp/english/)) delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live—securely and safely. A [global](https://www.renesas.com/en-hq/about/company/profile/global.html) leader in microcontrollers, analog, power, SoC products and integrated platforms, Renesas provides the expertise, quality, and comprehensive solutions for a broad range of Automotive, Industrial, Home Electronics, Office Automation and Information Communication Technology applications to help shape a limitless future. Learn more at [renesas.com](http://www.renesas.com/).

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**Company contact for reader and customer inquiries:**Simone Kremser-Czoer

Renesas Electronics Europe GmbH, Karl-Hammerschmidt-Str. 42, 85609 Aschheim-Dornach

Tel.: +49 89 38070-216
Email: simone.kremser-czoer@renesas.com
Web: [www.renesas.com](http://www.renesas.com)

**Agency contact for further media information, text and graphics or to discuss feature article opportunities:**

Alexandra Janetzko / Martin Stummer

HBI Helga Bailey GmbH (PR agency), Stefan-George-Ring 2, 81929 Munich, Germany

Tel.: +49 89 99 38 87-32 / -34

Fax: +49 89 930 24 45

Email: alexandra\_janetzko@hbi.de / martin\_stummer@hbi.de

Web: [www.hbi.de](http://www.hbi.de/)