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NXP collaborates with Quanta on deterministic zonal networking for software-defined vehicles

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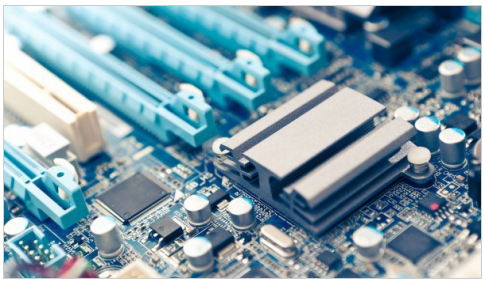
The jointly developed S32-based platform with MotionWise middleware offers turnkey, real-time zonal SDV architectures



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NXP Semiconductors is collaborating with Quanta to enable a deterministic zonal networking solution for next-generation vehicle architectures as the automotive industry transitions to software-defined vehicle (SDV) architectures. The solution is based on NXP's S32 automotive processing platform and the TrustMotion MotionWise middleware to provide predictable, real-time communication across zonal vehicle networks.

The solution is built on NXP S32-based zonal controllers and targets a major original equipment manufacturer pain point: ensuring deterministic timing across hosts and network components, thereby reducing late-stage integration risk. Using a plug-and-play development flow, NXP is helping customers such as Quanta significantly accelerate the deployment of modern SDV designs. The solution supports automated topology discovery, schedule generation, and deployment through a continuous integration workflow. By combining MotionWise deterministic scheduling and communication with a scalable hardware and software foundation, it offers automotive OEMs a turnkey approach for developing and deploying zonal SDV architectures. Delivered as a single, validated platform that integrates automotive-grade compute, networking and system orchestration, NXP provides end-to-end determinism across both hosts and networks, instead of requiring OEMs to assemble and validate these capabilities themselves.

As automakers move from distributed, domain-based electronic control unit (ECU) architectures to zonal and cross-domain electrical/electronic (E/E) systems, legacy designs are limiting the ability to deliver software-defined functionality at scale. Ensuring deterministic timing across distributed compute and networking is a critical challenge that affects system performance, integration complexity and time to market. The joint solution addresses this by delivering predictable, end-to-end latency and low jitter across ECUs and in-vehicle networks, supporting system-level quality of service and reducing late-stage integration risk. Its plug-and-play development approach enables automated configuration, scheduling and deployment, potentially accelerating SDV program timelines. The platform also supports latency-sensitive use cases such as audio over Ethernet, HPC up-integration, real-time RCP control and smart energy networking, enabling OEMs to scale a unified zonal architecture across multiple vehicle programs.

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CONTACTS

The Americas
+1 877 863 1306

Europe, Middle East & Africa
+44 20 7176 1234

Asia-Pacific
+852 2533 3565

www.spglobal.com/mobility