



KPIT

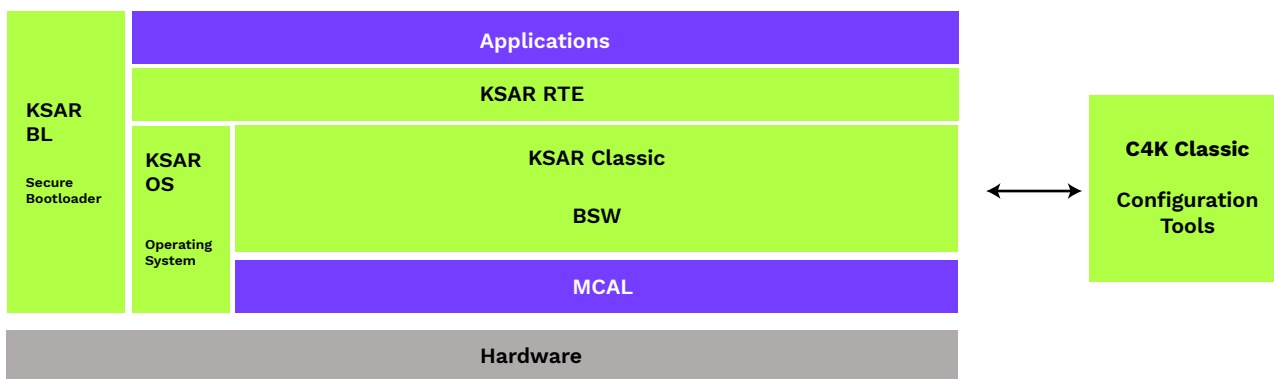
KPIT's AUTOSAR Classic Platform

KSARclassic
KPIT

KPIT's AUTOSAR Classic Platform- KSAR Classic provides a robust Base Software Stack Solution for Safety-Critical ECUs. KSAR Classic solutions include Configuration and Code generation tools required for development of AUTOSAR Classic applications.



KSAR Classic: KPIT's AUTOSAR Platform Architecture



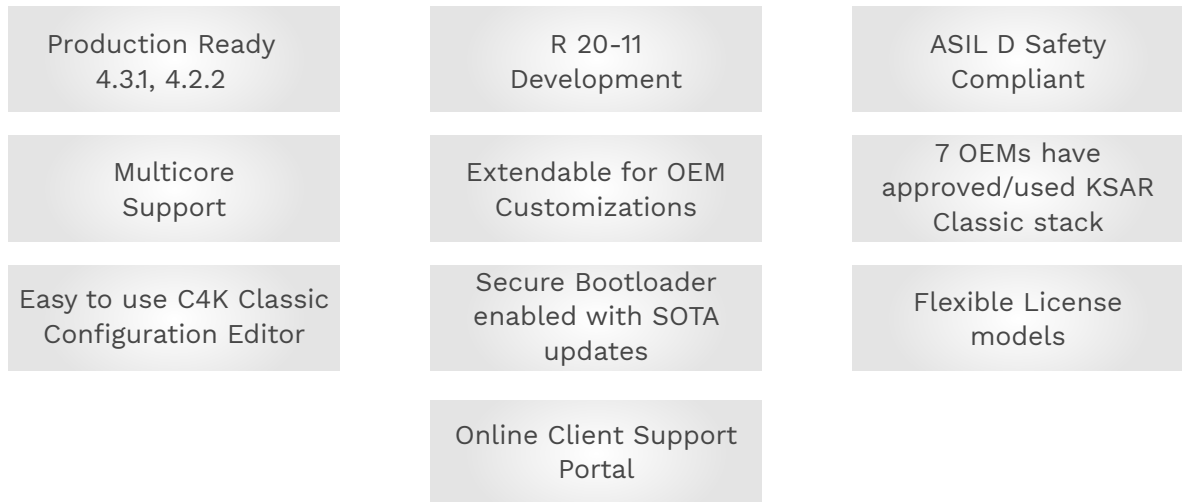
Product Coverage

Services Coverage

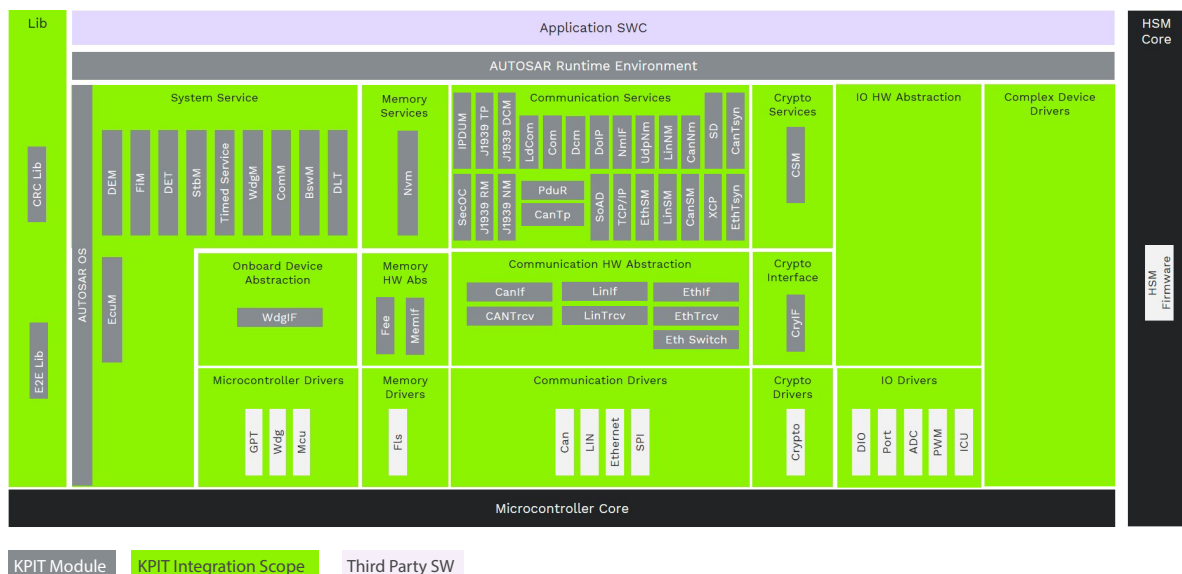
Production Ready Ports on
Renesas | Infineon | Texas Instruments | ST Micro | Xilinx | Broadcom



Key Highlights



KSAR Classic Features



- Consists of Basic Software Modules, Run Time Environment and Operating System
- Implementation based on AUTOSAR version 4.3.1 and 4.2.2
- Suitable for Safety related functions up to ASIL D
- Supports Multicore Processors
- Supports J1939 for Commercial Vehicles
- Efficient Memory Utilization
- Easy Configuration using C4K Classic
- Automatic parameterization and updating of the communication and diagnostic BSW based on commonly used data formats
- Consistency checks right after user input assists in configuring basic software
- Post-build loadable feature; flexibility to update parameters after ECU delivery
- Simple and Fast Integration with application using SIP



Classic AUTOSAR Programs with KSAR Classic

Domain	Application
ADAS	<ul style="list-style-type: none">Surround View CameraRadar Units - Active SafetyTop View CameraRear View Camera
Powertrain /Chassis	<ul style="list-style-type: none">Transmission Control Module – HybridHybrid ECU – Main controllerHybrid – Motor controllerTransmission Control ModuleElectronis Power SteeringBelt Integrated Starter GeneratorBattery Management SystemHybrid ECU – BSW Migration to AUTOSARBraking ECU
Body	<ul style="list-style-type: none">Seat MassageRear Light ECUBody Control Unit
Gateway	<ul style="list-style-type: none">Power Management and Central Gateway - IPower Management and Central Gateway - IIPower Management and Central Gateway - IIIBody Domain Gateway Controller
Instrument Cluster	<ul style="list-style-type: none">Instrument Cluster ECU
Others	<ul style="list-style-type: none">Rear Light ECUFront Light ECUTailgate Control ECUInverter ECUDC OBC Charger ECU48v Inverter ECUDual Clutch Transmission ECUTwo Wheeler Fuel Injection ECUTACM ECU



List of Supported Microcontrollers

- Infineon - 32-bit Tricore AURIX
- Cypress - Traveo II 32-bit ARM, FR81S core CY91520 series
- Renesas - R-Car SoC, V850 Family, RH850 Family, SuperH RISC Engine Family
- ST - SPC56 B Line and L Line MCUs
- NXP - S32K, MPC5xxx MCU Platforms
- Texas Instruments- DRA8x Jacinto, TMS4xx, Radar Sensors, TDA2Eco SOC
- Xilinx - Zynq UltraScale+ MPSoC
- Broadcom- BroadR-Reach camera endpoint MCU, Ethernet Switch



Engagement Examples with KSAR Classic

Engaged with clients for deliveries of customized KSAR stacks as per end OEM requirements

Client ECU	KSAR Classic Implementation with Software Integration
Early Adoption and Continued Engagement of AUTOSAR for an OEM Gateway ECU	<ul style="list-style-type: none">▪ Partner to OEM with Software Development and Integration Responsibility for KPIT NOS and KSAR Classic based Gateway software platform (continued engagement over 10 years)▪ AUTOSAR & MBD based Development, Configuration Integration, Validation Activities with HIL▪ Designed and developed non-standard features (Concurrent Download, Ethernet Mirroring, TSync, DoIP via External Tester and SOTA, Ethernet switch management, Firewall, Cyber security) in GWM ECU▪ Program Specific HIL Rig Setup
Powertrain Interface Module (PIM) for an OEM	<ul style="list-style-type: none">▪ Delivery of KSAR with of CAN FD stack, LIN stack, DCM, XCP and Security modules▪ Configuration and Integration of KSAR for multiple vehicle programs▪ Developing the wrapper modules to integrate the AUTOSAR modules with FCA specific modules▪ Delivery of Secure Bootloader software with FOTA for multiple vehicle programs.
Inverter ECU for a Tier 1	<ul style="list-style-type: none">▪ Delivered KSAR except COM stack and integrate with Third party COM stack▪ Delivered Secure Bootloader.▪ Supports Multicore and Cyber security features▪ Compliant to ASIL C▪ Improved throughput to handle 100us tasks.
48v Inverter ECU for a Tier1	<ul style="list-style-type: none">▪ Responsible for complete Basic Software solution on TC375 micro including CDDs and Secure Bootloader.▪ Tier1 migrated from RH850 to AURIX TC375▪ Supports Multicore, Cyber security features and OEM specific FOTA solution▪ Compliant to ASIL C
TACM ECU for a Tier1	<ul style="list-style-type: none">▪ Delivered KSAR on TC233 micro including Secure Bootloader.▪ LIN modules are customized to support LIN slave functionality▪ Customized solution for OEM specific DEM and Network Management requirements▪ Compliant to ASIL B

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KPIT is a leading independent software development and integration partner helping mobility leapfrog towards a clean, smart, and safe future. With 7000 automobile believers across the globe specializing in embedded software, AI, and digital solutions, KPIT accelerates clients' implementation

of next-generation technologies for the future mobility roadmap. With engineering centers in Europe, the USA, Japan, China, Thailand, and India, KPIT works with leaders in automotive and mobility and is present where the ecosystem is transforming.