PurpleBox

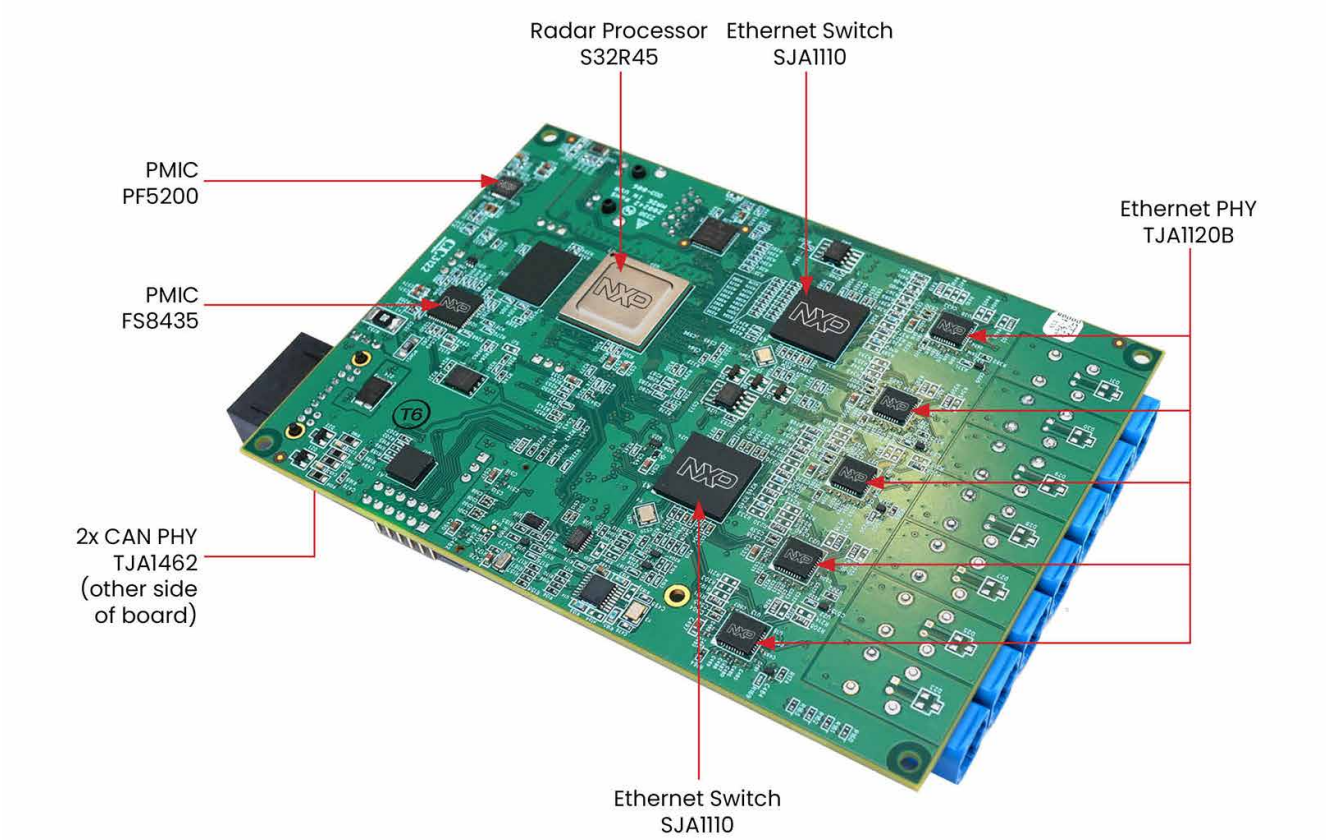
Reference design for distributed architecture

The PurpleBox is a reference design intended for distributed radar architectures. This reference design enables customers to use it as a development platform for processing the four corner radars to create a fused point cloud.

The PurpleBox can be used as a reference ECU and is a key component of a radar bridge proof-of-concept. It comes with a comprehensive software development environment and features an M.2 PCIe interface, which can be used to connect a mass storage device or a machine learning accelerator.

Key features

- Aggregation and processing of four corner radar sensors at once
- Produces a high-density surround point cloud
- Optional AI acceleration up to 26 tera-operations per second (TOPS) enabling enhanced point clouds
- Optional NVMe storage facilities for data gathering and playback
- Full example radar processing chain:
  - Range, Doppler
  - DDMA
  - Coherent/non-coherent combining
  - OS CFAR
  - Accelerated DoA algorithms such as iterative adaptive approach (IAA)



Target application

- Automotive radar systems
- Radar early fusion
- Central and zonal radar processing

Software and tools list

- NXP radar software development kit

List of benefits

- Improved sensor fusion through central radar data processing
- Fusing four corner radars for 360 degree enhanced point cloud
- Enhanced radar performance through processing richer low level sensor data
- AI based object classification
- Enabling Over-the-Air (OTA) software updates

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Document Number: PURPLEBOXA4FS REV 1