DRA72x Automotive Applications Processors Technical Brief

1 Introduction

This technical brief introduces the features, subsystems, and architecture of the DRA72x (Jacinto 6 Eco) family of high-performance infotainment processors.

The DRA72x is a high-performance, infotainment application device family, based on enhanced OMAP™ architecture integrated on a 28-nm technology.

1.1 Features

- The features include:
  - Streaming video up to full high definition (Full-HD) (1920×1080p, 60 fps) including enablement for bring-your-own-device (BYOD) functionality
  - 2-dimensional (2D) and 3-dimensional (3D) graphics and composition
  - Decode of digital radio standards (HD Radio™, DAB, DRM), as well as analog AM/FM/RDS capability
  - Advanced audio processing, noise suppression, and speech enhancement capabilities
  - Support for multiple concurrent high-definition displays and video inputs/cameras
- The device is composed of the following subsystems:
  - ARM® Cortex®-A15 microprocessor unit (MPU)
  - One digital signal processor (DSP) C66x subsystem
  - Image and video accelerator high-definition (IVA-HD) subsystem
  - Two ARM Cortex-M4 processing subsystems, each including two ARM Cortex-M4 microprocessors
  - Display subsystem (DSS)
  - Video processing (VPE) subsystem
  - Video input capture (VIP) subsystem
  - 3D-graphics processing unit (GPU) subsystem, including POWERVR™ SGX544-MPx single-core subsystem
  - 2D-graphics accelerator (BB2D) subsystem, including Vivante™ GC320 core
  - Three pulse-width modulation (PWM) subsystem
  - Real-time clock (RTC) subsystem
  - Debug subsystem
- The device provides a rich set of connectivity peripherals, including:
  - One USB3.0 and two UBS2.0 subsystems
  - SATA 2 subsystem
  - PCI Express Gen2 subsystem
  - 3-port Gigabit Ethernet Switch subsystem
- The device also integrates:
  - On-chip memory
  - External memory interfaces
  - Memory management
  - Level 3 (L3) and level 4 (L4) interconnects
  - System peripherals
  - Car, audio and media peripherals including CAN, MOST MLB, and Ethernet AVB
  - Radio accelerators

1.2 Applications

- Automotive Navigation and Multimedia Systems
- Automotive Display Audio Systems
- Rear Seat Entertainment

1.3 Description

The DRA72x device is offered in a 760-ball, 23×23-mm, 0.8-mm ball pitch with Via Channel™ Array (VCA) technology, ball grid array (BGA) package. Figure 1-1 is the block diagram of the DRA72x device.

The architecture is designed to deliver high-performance concurrencies for automotive applications in a cost-effective solution, providing full scalability from the DRA74x (Jacinto 6) family of infotainment processors, including advanced graphical and voice HMI, and multimedia.

The device includes state-of-the-art integrated power management techniques required for high-performance infotainment products.

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1.4 Functional Block Diagram

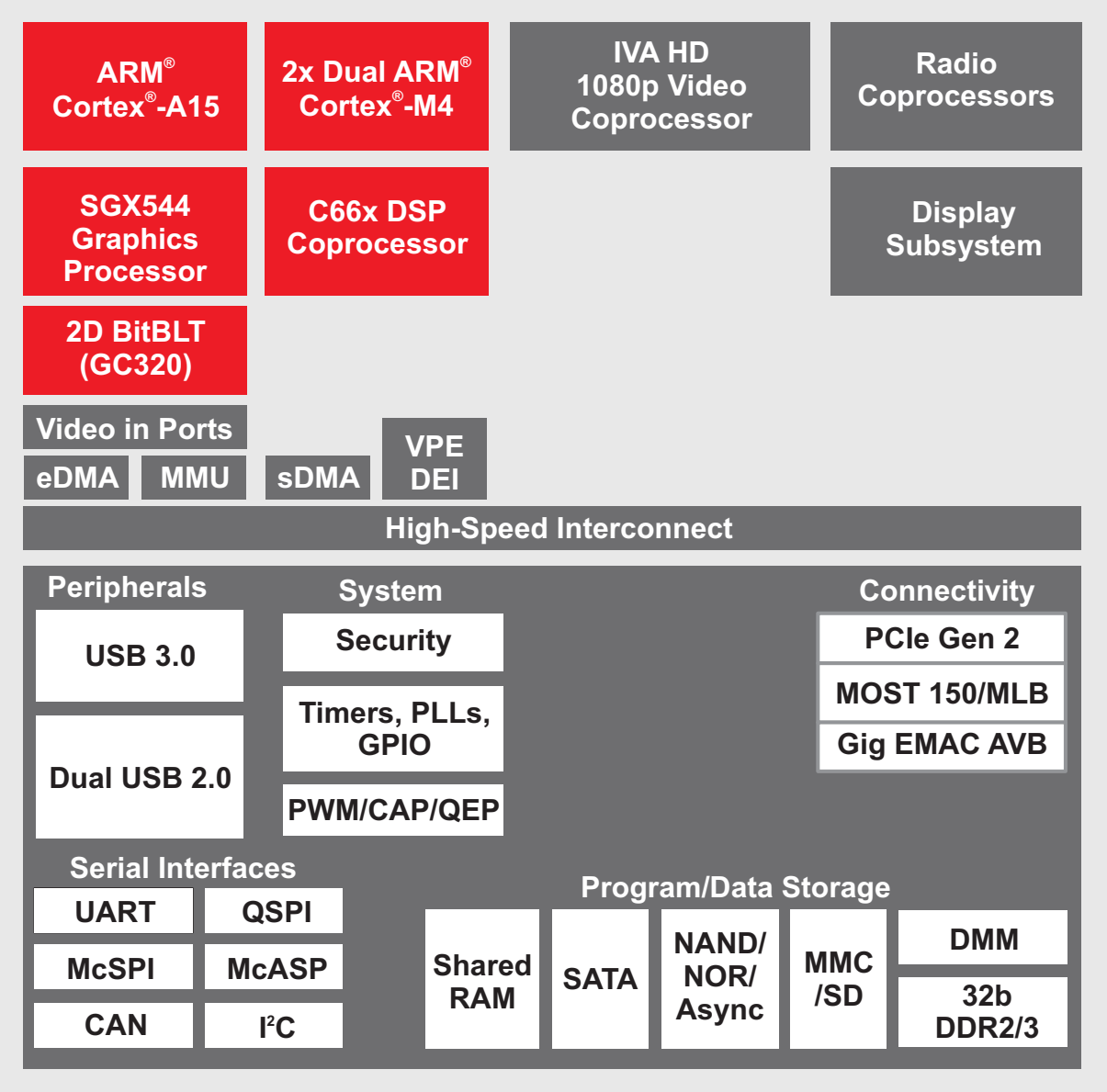


Figure 1-1. DRA72x Block Diagram

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