

SPEAr1340 embedded microprocessor



SPEAr: as flexible as you are

STMicroelectronics

Dual ARM® Cortex® A9 core eMPU for user interfaces/ multimedia in computing and industrial applications

ST's SPEAr1340 is a part of the growing SPEAr family of embedded MPUs.

Combining dual Cortex A9 cores with the ARM Mali-200 GPU, it targets applications ranging from high-resolution video conferencing and security cameras, to web-connected devices.

The SPEAr1340 is based on ARM's new multi-core technology (Cortex-A9 SMP/AMP), and manufactured with ST's 55 nm HCMOS low-power silicon process.

Key features

- CPU subsystem
 - Dual ARM Cortex-A9 cores, 600 MHz
 - Supports both symmetric (SMP) and asymmetric (AMP) multiprocessing
 - 32 + 32-Kbyte L1 cache per core
 - Shared 512 Kbyte L2 cache
 - Accelerator coherence port
- Bus: 64-bit multilayer NoC
- Memories
 - 32 Kbyte boot ROM
 - 32 Kbyte internal SRAM
 - Multiport controller (MPMC) for external DDR2-800/DDR3-1066
 - Controller (FSMC) for external Flash and SRAM
 - Controller (SMI) for external serial NOR Flash
- Connectivity
 - Giga/Fast Ethernet
 - 1x PCIe 2.0 / SATA
 - 3x USB 2.0 (Host/OTG)
 - I²S, UART, and I²C
- Controls external peripherals
 - TFT LCD display up to 1920 x 1080 (60 Hz)
 - Touchscreen I/F
 - 9 x 9 keyboard
 - Memory card interface
- Multimedia
 - Mali-200 2D/3D GPU, up to 1080p, OpenGL ES 2.0, OpenVG 2.0
 - Multi-standard HD video decoder and encoder, up to 1080p
 - Digital video input port with alternate configuration for 4 camera interfaces
 - 7.1 multichannel surround audio
- Security: C3 cryptographic accelerator
- Power saving
 - Power islands for leakage reduction
 - IP clock gating for dynamic power reduction
 - Dynamic frequency scaling
- Package: PBGA628 (23 x 23 mm, 0.8 mm pitch)



Overview

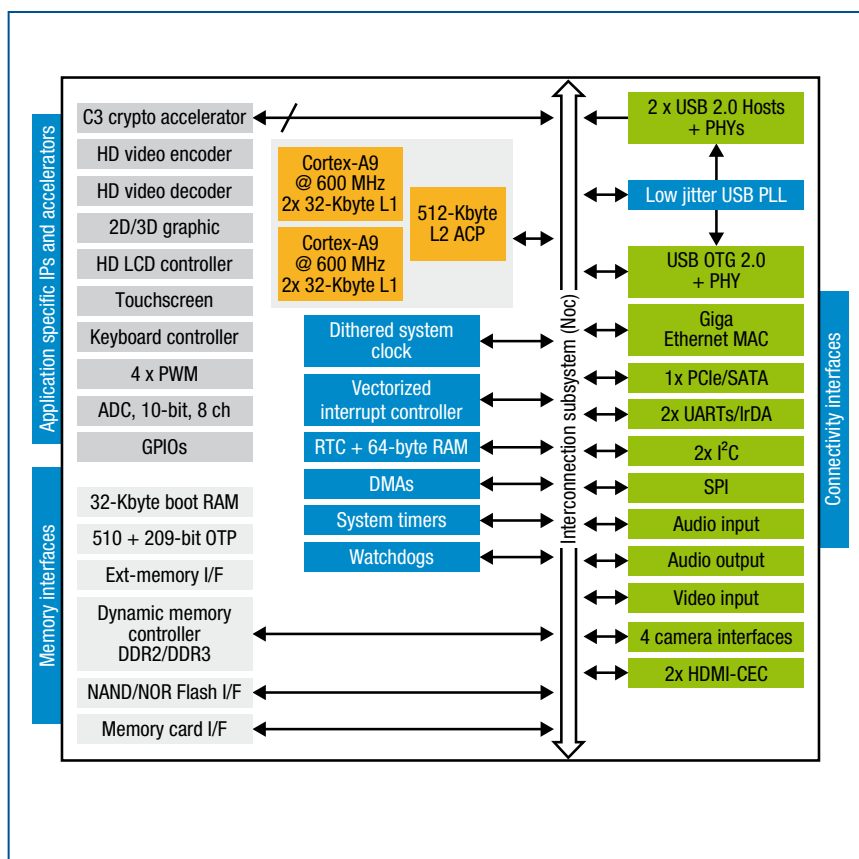
ST's SPEAr1340 integrates a powerful ARM Mali 200 graphics processing unit for advanced 2D and 3D acceleration for user interfaces, navigation, browsing and gaming. The new device also embeds a hardware video encoder and a decoder supporting major compression standards (including H.264 and AVS), with video resolution up to 1080p and 30 frames per second. These capabilities enable multiple concurrent video flows in applications like surveillance and video-conferencing.

Hardware implementations of graphic and video capabilities in the SPEAr1340 result in state-of-the-art multimedia performance at ultra-low power consumption. Meanwhile, the two Cortex-A9 cores are available to performing concurrent tasks as required. With its multiple interfaces, including I²S and S/PDIF, the SPEAr1340 also provides excellent audio capabilities, handling up to 7.1 surround-sound configurations in both input and output paths.

In security, the SPEAr1340 integrates a multi-standard cryptographic engine and one-time programmable (OTP) registers for unique identification and external flash memory anti-tamper protection.

Manufactured in ST's low-power 55 nm HCMOS (high-speed CMOS) process technology, this new microprocessor benefits from the state-of-the-art SPEAr1300 architecture, which combines the unrivalled low-power and multi-processing capabilities of two ARM Cortex-A9 cores with innovative network-on-chip (NoC) technology.

SPEAr1340 block diagram



Design support

Information on development tools and evaluation boards, as well as downloads of the latest STLinux OS, firmware, and technical documentation, can be found on:

www.st.com/spear