TECH NOTE

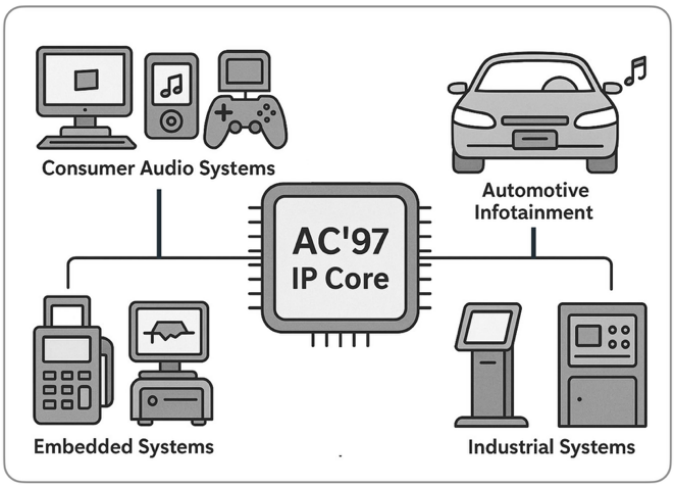
CAST

Use this Flexible and Efficient AC’97 IP Core for Simple Audio Interfaces and Legacy System Upgrades

The AC’97 Audio Interface Controller core supports the latest version of the spec, handles the maximum number of AC’97 specified audio channels, and provides the greatest integration flexibility of any AC’97 Controller IP on the market today. As with all CAST IP, these technical advantages also come with production-ready quality and industry-leading support.

Why Consider Using AC’97?

While the decades-old AC’97 is not the right choice for complex new digital and high-fidelity audio systems, there are several excellent reasons why you might want to use this new core.

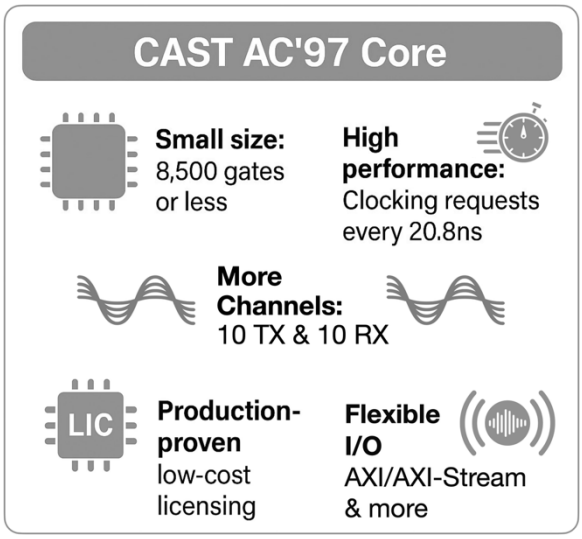


AC’97 itself is a proven, reliable audio interface that remains useful as a simple, efficient solution for devices with less demanding audio requirements. Examples include kiosks, point-of-sale devices, and industrial equipment that just need speech, tone, or basic music playback. It can also be a smart and economical choice for automobile or other diagnostic systems or entertainment displays that still use analog audio.

Moreover, AC’97 is quite prevalent, with perhaps a billion or more devices having shipped with it since the standard’s introduction in 1997. Our AC’97 core provides a clean, low-risk way to update these legacy systems with a drop-in FPGA or SoC replacement while retaining their AC’97 support.

The Best Capabilities and Easiest Integration

The core itself offers several advantages over competing IP or hardware products. Sourced from our partner IObundle, the AC'97 core features:



- **The Latest Spec** — conformance to AC'97 Rev 2.3, which offers more complete codec control.
- **More Audio Channels** — up to 10 transmit and 10 receive channels (versus the more typical 6 transmit and 2 or 3 receive).
- **Flexible I/O** — AXI, AXI-Stream, APB, and microcontroller interface options.
- **Optional Integrated DMA** — to simplify high-throughput audio data transfers (especially those from memory buffers).
- **Comprehensive Reset/Power Logic** — better real-time reliability with cold/warm reset, power-down recovery, and underrun/overrun interrupts.
- **Small Size, Fast Operation** — a modest silicon footprint with high clock speeds across ASICs and major FPGAs.

Our AC'97 IP core is also ready for quicker integration and more reliable deployment, with deliverables including lint-clean Verilog RTL with synthesis scripts, testbenches and simulation scripts for 100% coverage, and a bare-metal driver with example firmware. You also get the CAST *Better IP Experience*, meaning our industry-leading customer support team stands behind you to answer questions and help keep your project on schedule.

The AC97-CTRL AC'97 Audio Controller is available now in synthesizable RTL for ASICs or as targeted netlists for FPGAs. Learn more, including gate counts and sample implementation results, on its product page or by contacting CAST Sales. Also see our Audio Interfaces family page for additional solutions.