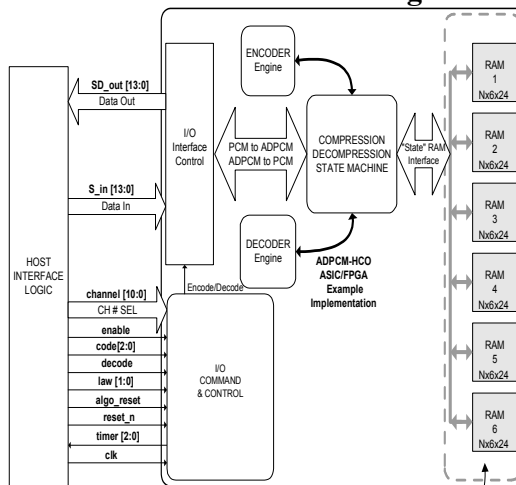


ADPCM Voice Compression logic Core (HCO) High Channel-count optimized

Description

The Pinpoint Solutions Inc, ADPCM-HCO is a hardware optimized CMOS soft logic core, designed to perform the task of large-scale voice compression as a co-processing system element. The design is a unique realization of the G.726 algorithm that allows for a very high channel count – up to 672 full duplex channels may be processed by the core. The product supports the ADPCM standard for digital voice compression as defined in the ITU-T G.726 specification. The true benefit of using the core is to significantly reduce transport or storage bandwidth requirements. The core is designed to offload the internal voice processing tasks from RISC or DSP centric architectures. Flexibility is key to the usage of this core for final implementation as an ASIC, FPGA or element in a SOC design.

Block Diagram



Note: PSI does not supply the RAM "IP" elements. See memory requirements in the data sheet.

Product features:

- Processes 1 to 672 full duplex, 1344 half duplex voice channels.
- Simple synchronous bus interface.
- No register based configuration or core setup is required.
- Sequential channel processing, addressed channel operation.
- Channel by channel, frame by frame encode/decode, and code format.
- Implements ITU-T G.726 specification.
- (32, 24, 16 fixed rate codes)
- A-law, μ -law, Linear code format selection on a per channel basis.
- Single cycle encoding/decoding of voice samples

Key Benefits of Implementation:

- FPGA or ASIC Implementation.
- Lower power consumption.
- Scalable channel count design.
- Reduced board space.
- Cost reduction (per channel associated cost).
- DSP/CPU Task offloading.

Applications:

- (IAD) Integrated Access Devices.
Voice/Data multiplexers.
Channel Bank Voice Concentrators.
- Voice over IP/DSL (Packet/Cell/Frame)
- Voice Storage (selected record and playback).
- Wireless: DECT and Cellular.
- Voice Gateways.
Videoconferencing.
- (SOHO) Small Office Home Office.
DSL Modems.
Cable Modem.
- (CO) Central office equipment.
DSLAM.
Cable Modem Head End equipment.
Large scale Voice Concentrators.
- Computer Telephony Integration.
Voice mail.
WAN voice processing.
- PBX (Private Branch Exchange).

ADPCM-HCO

PS-IP
Product Brief

Specifications:

Host Interface: Synchronous parallel

Internal Ram requirements per channel:

Nx6x24 bits per half-duplex channel

Operating frequency:

43.008MHz processing 672 channels (336 full-duplex)

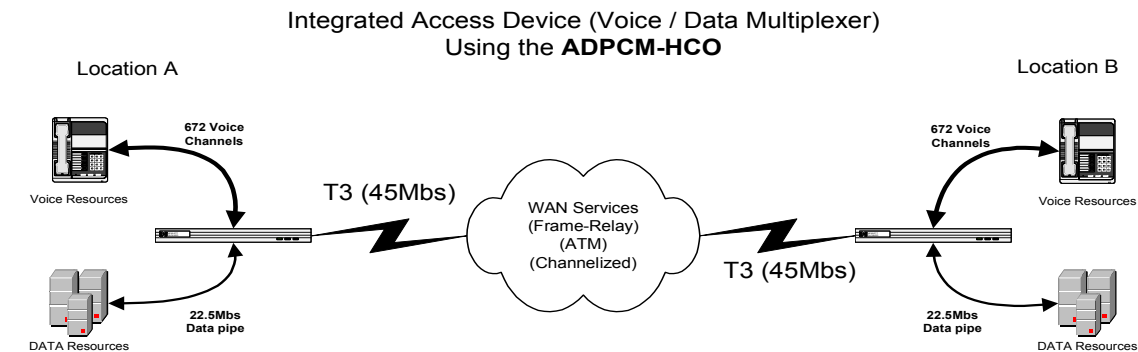
86.016MHz processing 1344 channels (672 full-duplex)

Standards compliance: ITU-T G.726, (Optional G.727)

Compression code rates: 32, 24, 16Kbs

Deliverables

- Test bench for the logic core, and control scripts to run Verilog simulations to exercise the ITU standard vectors for the all G.726 rates.
- Primetime script/shell for verifying timing of the core.
- Synthesis script/shell to assist in synthesis of the core.
- Test bench core coverage analysis document.
- Verilog RTL soft-logic core.



*Note: Application based on 32Kbps voice algorithm.

PSI Reference Documents

ADPCM-HCO Data sheet

Application notes

White papers

Options core include:

- Scalable encoding/decoding channel counts.
- Auto-channel Processing mode.
- Logic BIST
- Custom Interface options.
- FPGA specific targeting.
- Asynchronous bus interface.
- VHDL testbench.
- ITU-T G.727 support.

Product Information

Upon request, PSI will provide complete quotation for this product including: pricing, deliverables list, and licensing agreements.

Pinpoint Solutions, Inc.
5171 Eldorado Springs Drive
Boulder, CO 80303

Tel: 303.543.0050

Fax: 303.494.5769

HTTP:\\ www.asic-design.com

Product Information Requests:

<mailto:IP-info@asic-design.com>