



## Features and Benefits

- Flip-Chip packaging option for small form factor applications (5x5mm)
- Turn-key software: production ready, configurable for specific embedded applications
- 16-bit memory-map interface to host processor up to 400Mbit throughput. Supports major baseband processors
- OS Support includes: Linux<sup>®</sup>, Windows Mobile<sup>®</sup>, Nucleus<sup>®</sup>, and AMX<sup>®</sup>
- Multiple power-save modes to maximize battery life
- IPSEC for network security
- 13-bit Voice Codec (A/D and D/A converters)
- Direct connection to speakers, microphones and headsets
- Speaker driver amplifier capable of driving 32 ohm load, low noise programmable gain input amplifiers and side-tone generation circuitry
- External audio codec interface for and communications to Bluetooth chipset

## SV1000 Product Brief

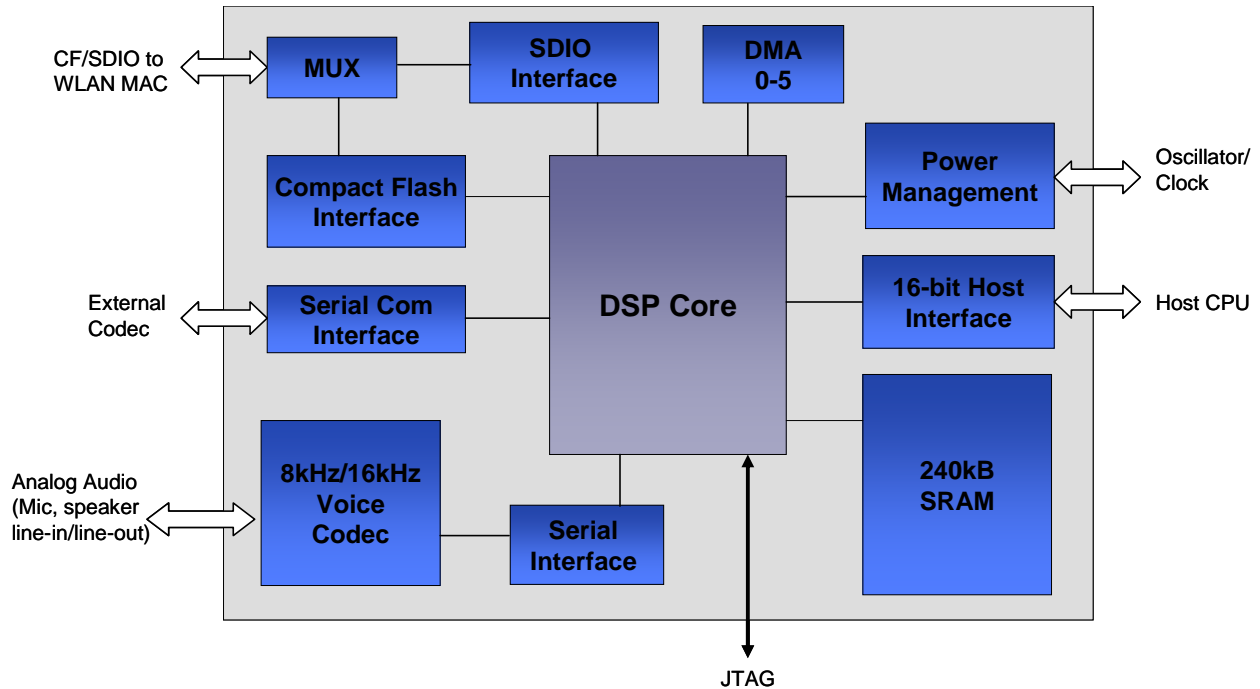
### *Voice over IP Processing Engine for Wireless VoIP Applications*

The SyVoice<sup>™</sup> SV1000 is an integrated circuit optimized for voice-over-IP (VoIP) media stream processing. The device is typically used as a co-processor to a cellular baseband for offloading VoIP functions in a dual-mode cellular phone that supports both WAN and WLAN networks. The SV1000 has a unique architecture to perform the real-time end-to-end signal processing tasks in VoIP calls, from the layer two data packets to the analog audio input and output.

SV1000 is optimized for low power consumption and the high processing power needed for mobile VoIP applications. The device includes a high speed digital signal processor (DSP) along with on-chip A/D and D/A converters for direct analog I/O. Using a DSP architecture allows for low power consumption by efficient implementation of real-time algorithms such as advanced speech compression and acoustic echo cancellation. To further reduce battery power consumption, the SV1000 includes innovative power management logic along with fast low power memory on-chip. No external memory is required to perform the VoIP media stream processing.

The SV1000 can interface to most microprocessors and WLAN chips with no external logic. The 16-bit parallel port is a standard memory mapped interface to a microprocessor over its local memory bus. To communicate with IEEE 802.11a/b/g WLAN chipsets, the SV1000 supports either a Compact Flash or SDIO interface. This enables the chip to perform the antenna-to-audio processing in a wireless VoIP capable mobile phone.

Along with the integrated circuit, SyChip provides the SyVoice<sup>™</sup> software suite that includes all the software needed to manage a VoIP call.



**SV1000 Block Diagram**

## Specifications:

- Wafer scale package (flip chip): 5x5mm
- JEDEC standard 160-pin TCBGA 8x8x1.2mm (TBD)
- 80Mhz Crystal oscillator input
- 13-bit single channel voice codec (8kHz or 16kHz)
- Host Interface: 16-bit Memory Map (1.8v – 3.3V)
- WLAN Interface: 4-bit SDIO and 16-bit compact flash
- Digital Voltage: 1.8v
- General I/O voltage: 3.3v
- Analog voltage: 3.3v
- Operating current: 29mA (active call, CF interface, G.711 vocoder)
- Sleep current: 1.0mA
- 120k byte program memory
- 120k byte data memory
- SyVoice Software suite:
  - Vocoders available: G.729A/B, G.711, G.723.1, G.726, G.722.2
  - SIP 2.0 Stack (3<sup>rd</sup> party)
  - TCPIP stack
  - IPSEC
  - Call control
  - DTMF tone generation
  - NAT Traversal
  - Three way calling
  - Conversation recode
  - Acoustic Echo canceller (fall 06)
  - SyVoice Software suite:
- Operating Systems: Linux<sup>®</sup>, Windows Mobile<sup>®</sup>, Nucleus<sup>®</sup>, AMX<sup>®</sup>

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