

The Interactive Speech™ line of ICs and software was developed to “bring life to products” through advanced speech recognition and audio technologies. The Interactive Speech Product Line is designed for cost-sensitive consumer electronic applications such as home electronics, home automation, toys, and personal communication. The product line includes the award-winning RSC mixed signal processor family and the SC series of long-duration speech and music synthesis microcontrollers. All IC’s are supported by complete evaluation and development tools.

RSC-4x SPEECH RECOGNITION PROCESSORS

The **RSC-4x** family of chips are the world’s most advanced speech processors, and are designed to add sophisticated audio technologies to cost-sensitive embedded and consumer products. Based on an 8-bit microcontroller, the **RSC-4x** family integrates speech-optimized digital and analog processing blocks into a single chip solution capable of accurate speech recognition as well as high quality, low data-rate compressed audio playback. Products can use one or all features in a single application.



The **RSC-4x** family supports the **FluentChip™** technology library, which includes high-quality speech recognition, speech and music synthesis, voice password, and voice record and playback functions. Powerful application code development tools, a C-compiler, and “push-button” voice recognition command tools and speech compression tools are available. **Quick T2SI™** is Sensory’s revolutionary text-based Speaker Independent recognition development tool. The **Quick Synthesis** tool generates highly compressed, low data rate music and speech synthesis in a few minutes.

In addition to best-in-class recognition performance, the **RSC-4x** family provides a high level of on-chip feature integration, including a microphone preamplifier, 16-bit ADC, vector math accelerator, 3 independent timers, 10-bit DAC, 4.8 Kbytes of RAM and code ROM. A complete system may be built by adding only a battery, speaker, microphone, and a few resistors and capacitors.

SC-6x SERIES LONG-DURATION SPEECH PROCESSORS

The SC-6x product line features the highest quality speech synthesis ICs at the lowest data rate in the industry. The **SC-6x** series is intended for high-quality, low-cost long-duration audio playback applications. These fully programmable, 12 MIP, 16-bit DSP’s provide long battery life and offer snappy button and keyboard response.



Members of the SC-6x line can store as much as 37 minutes of speech on-chip and include as many as 64 I/O pins for external interfacing. Integrating this broad range of features onto a single chip enables developers to create products with high quality, long duration speech at very competitive price points.

SC-6x ICs employ three key speech technologies - **CX**, **MX**, and **LPC** - that produce natural sounding speech while using relatively small amounts of memory. Midi-like, polyphonic music output is also supported, and can be played back simultaneously with a vocal track. Features include three low-power modes, configurable I/O, two timers, a 10-bit DAC, and an eight-level interrupt control unit.



SUMMARY TABLE

	RSC-4x Family		SC-6x Series				
	464	4128	601	604	605	614	691
Core	8-bit CPU	8-bit CPU	16-bit DSP	16-bit DSP	16-bit DSP	16-bit DSP	16-bit DSP
Additional Memory Req'd	No	No	No	No	No	No	Yes, plus CPU
External Memory Bus	No	Yes	No	No	No	Yes	Via host CPU
Maskable ROM	64 Kbytes	128 Kbytes	192 Kb	64 Kb	288 Kb	64 Kb	0 ⁽⁴⁾
Speech Duration⁽¹⁾, max	2.5 ⁽²⁾ min	6 ⁽²⁾ min	24 min	6.5 min	37 min	6.5 min	Unlimited (off-chip)
RAM	2.8 Kbytes	4.8 Kbytes	1.36Kb	1.36Kb	1.36Kb	1.36Kb	0 ⁽⁴⁾
I/O lines	16	24	32	16	32	64 ⁽⁵⁾	0
Technology Library	FluentChip™		CX, MX, LPC & Music				
Key Technologies	Speaker Independent Recognition		CX/MX/LX Speech Synthesis 10-Channel Midi-like Music + Vocals				
	Speaker Dependent Recognition						
	Speaker Verification						
	Multi-Word SI/SD WordSpotting						
	Continuous Listening						
	SX Speech Synthesis						
	8-Channel Midi-like Music						
Wake-up on Audio							
SI Words⁽³⁾ On-chip, max	60	500	N/A				
SD/SV Words On-chip	1/1	7/5	N/A				
Package Options	LQFP-100, die	LQFP-100, die	LQFP-100, die	LQFP-64, die	LQFP-100, die	LQFP-100, die	LQFP-64, die

Notes:

- (1) For applications performing only compressed speech playback.
- (2) On-chip—unlimited duration off-chip
- (3) For applications performing only SI recognition.
- (4) The SC-691 is a slave chip with 4/8-bit parallel interface.
- (5) I/O lines on the SC-614 devices can be configured as I/O, address or data lines.
- (6) External memory bus is only available on the die version.

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