

## SPiRiT 2400 bps Vocoder

SPiRiT 2400 bps vocoder is based on the classic LPC model, but it utilizes Mixed Multi-Band Excitation (MMBE) model for excitation signal that ensures correct transmission of all speech signals with tone, noise and mixed spectrum components. It can be effectively used in all applications where storage capacity and/or bandwidth are limited.

### Features

- High level of speech quality (MOS about 3.5)
- 2400 bps encoded bit stream rate
- Frame size 20 ms
- Algorithmic delay 40 ms
- Noise robustness
- Automatic built-in frame synchronization on input bit stream
- Input/output samples format: Linear PCM, 8 kHz, 16 bits
- Simple application interface
- eXpressDSP compliant. Code is reentrant, supports multithreading and dynamic memory allocation. At the same time allows direct (non-eXpressDSP) interface to enable static memory allocation

### Specifications

SPiRiT provides porting services to multiple DSP (Motorola, Analog Devices, etc), RISC and general-purpose processors. The product is supplied with test environment and integration example code.

Detailed Product Annotation and User Guide documents describing testing procedures, interface and integration of this product, as well as PC-based and DSP-based (TI 5402 DSK) demos are available for evaluation upon request.

### Resource Requirements

PLATFORM	TI C54xx		
	Encoder	Decoder	Encoder+Decoder
Peak MIPS	18	5.2	23.2
Program Memory, KWords	-	-	7.05
Constant Memory, KWords	-	-	5.34
Dynamic Memory, KWords	-	-	1.8
Stack, KWords	-	-	1.7

### Benefits

- Highly optimized
- Low bitrate
- High speech quality

### Key Features

- Mixed MBE-LPC algorithm

### Applications

- Trunking systems
- Wireless communications
- Digital voice over HF
- Call-logging systems
- Answering machines

### Availability

SPiRiT 2400bps vocoder is available in the following forms:

- eXpressDSP compliant object code for TMS320C54xx
- eXpressDSP compliant object code for TMS320C55xx
- DSP object code for OMAP
- Object code for Compaq iPAQ
- Fully functional evaluation object code (available upon request)
- DLL for MS Windows

PLATFORM	C55xx	
	Encoder	Decoder
Peak MIPS	19.7	5.38
Program Memory, KBytes	15.24	
Constant Memory, KBytes	10.74	
Dynamic Memory, KBytes	4.63	
Stack, KBytes	5.12	
System Stack, KBytes	0.5	

PLATFORM	iPAQ
CPU Load	80%*
Program Size	75 Kbytes
Encoder Data Size	4.1 Kbytes
Decoder Data Size	1 Kbyte
Frame Size	20 ms
Packed Frame Size	48 bits
Interface	Windows CE DLL

measured on StrongARM 1110 206 MHz

## CONTACTS

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