

SPR CLASSIC™ 2400 bps VOCODER SUPERIOR CHARACTERISTICS



Supply

SPR Classic 2400 bps vocoder can be supplied as object code for any DSP, RISC or general purpose platform or in-chip.

The product delivery package includes object libraries, test environment (in C-code and executable files), test and reference samples and User Guide document, which describes vocoder algorithm, API and examples of the vocoder usage.

Availability

- DSP object code for TMS320C55xx
- DLL for MS Windows
- Any DSP, RISC or general purpose platform within 2-3 months

Applications

- Digital Voice over HF
- Wireless communications



SPR Classic 2400 bps vocoder is based on Sinusoidal Pulsed Representation (SPR) model, where excitation includes mixture of pitch-harmonics, noisy and aperiodic impulses. It allows to synthesize correctly any speech sounds, including mixed voiced+unvoiced and complex transients, to achieve much better speech quality in comparison with conventional model. Choice of optimal quantization schemes and high algorithmic optimization provided superior characteristics of this vocoder in comparison with others for the same bit rate.

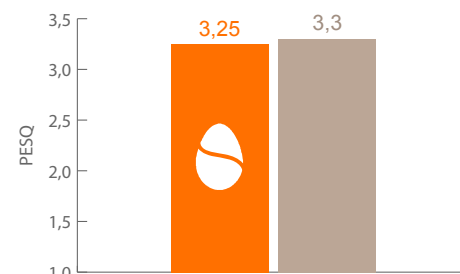
Features

Compared with standard leading vocoder on the same bitrate

Speech Quality

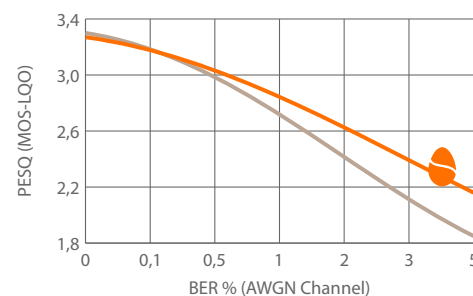
We used ITU-T P.50 multilanguage speech base and ITU-T P.862 utility to estimate speech quality. SPR 2400 bps vocoder doesn't concede practically MELPe 2400 bps standard vocoder. Average PESQ is: 3.25 vs 3.30.

However, all other characteristics of the SPR 2400 vocoder excel considerably appropriate characteristics of the standard vocoder.



Robustness

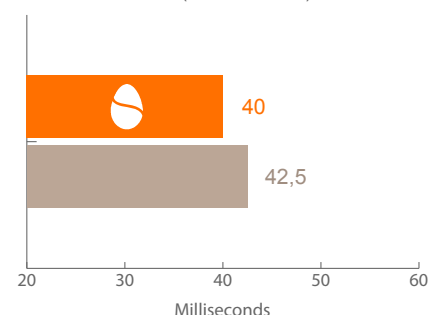
We passed encoded bit streams through AWGN channel simulator with various SNR and estimated quality of decoded speech. SPR 2400 shows superiority over MELPe 2400.



Algorithmic Delay

Time delay is very important characteristic of communication system. Algorithmic delay of vocoder does play determinative role in total delay. Large delay complicates normal conversation.

SPR 2400 provides 40 ms delay, MELPe - 42.5 ms.



See more features on next page

Customization

To provide you the best solution, we are ready to customize vocoder according to your specific environment and requirements.

For example, bit rate and speech quality can be changed to any direction, error control coding can be added to increase robustness. Noise cancelling and/or echo cancelling can be added to vocoder; facilities of signaling (such as DTMF and single tone) can be implemented also.

To download demo wav-samples of SPR Classic 2400 bps vocoder, visit www.dspini.com/dspini_spr2400c.htm

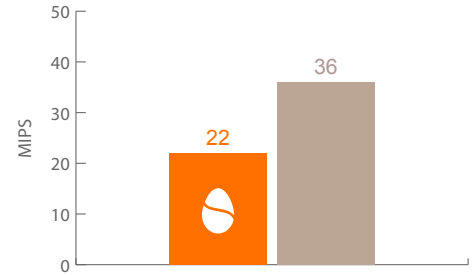
To evaluate PC-application of our vocoder, contact us: request@dspini.com



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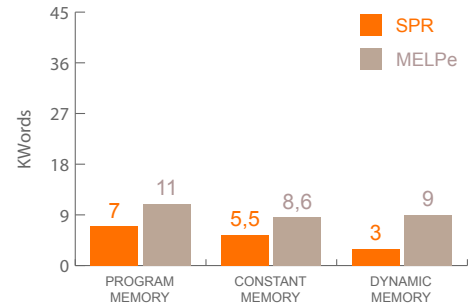
Computing Complexity

SPR 2400 requires almost two times lower computing resources and shows strong superiority over MELPe 2400. Only 22 MIPS versus 36 MIPS for TI's C55xx.



Memory Usage

We have estimated and compared resources of SPR 2400 bps vocoder for TI's C55xx DSP. SPR 2400 shows strong superiority over MELPe 2400.



Performance for TI's C55xx/C64xx DSP

	Encoder	Decoder	Encoder + Decoder
MIPS (max)	17/9	5/3	22/11
Program Memory, KWords	-	-	7/20
Constant Memory, KWords	-	-	5.5
Dynamic Memory, KWords	-	-	3.0
Stack, KWords	-	-	0.3

Reliability and Support

We continuously test and improve the vocoder. We guarantee complete support for each version of the product.

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