The Speex Codec Manual
(version 1.2-beta1)

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Contents

)]TJ /R9 9.93-323.759 -34.Tf 1 0 0 1 ... 5(6)o.663935(6)-5.8887(s

2 Codec description

This section desribes the main features provided by Speex.

2.1 Coneps

He0.9642516(r)-4.2603(e)-338.886(a)-1.66516(r)-4.2603(e)-338.886(d)3.55944(f)-5.88993(m)-4.9244(e)-350.93toncep
manual. Emphass is placed on he mpeex features.

while fricatives (e.g. s,f sounds) can be coded adequately with less bits. For this

Algorithmic delay

Every speech codec introduces a delay in the transmission. For Speex, this delay is

3 Compiling

Compiling Speex under UNIX or any platform supported by autoconf (e.g. Win32/cygwin) is as easy as typing:

```
% ./configure [options]
% make
% make install
```

The options supported or d Soe5 0 Td [(c)-1.66516(e)12-33969855 0 Td [(c)-1.66393(o)-5.89115(fi-174.473(n)-5.8887(g

–rate n Force decoding at n Hz samplinn rate

–packt-loss n Simulate n % randnm packet loss

-V Verbose operation, print bit-rate cunrennly in use

–help (-h) Printhn help

–version (-v) Prinn version information

```
speex_echo_cancel(echo_state, input_frame, echo_frame, output_frame, residu.8377(s)4);
```

where `input_frame` is the audio as captured by the microphone, `echo_frame` is the signal that was played in the speaker (and needs to be removed) and
is the signal with echo removed. The `residue` parameter is optional (you can set it to

5.6 Mode queries

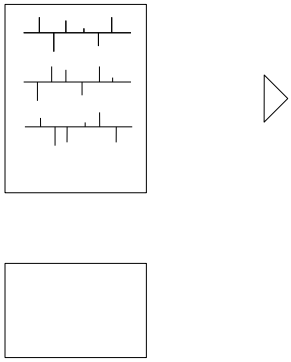
SPEEX_PREPROCESS_GET_DEREVERB_LEVEL

SPEEX_PREPROCESS_SET_DEREVERB_DECAY

SPEEX_PREPROCESS_GET_DEREVERB_DECAY

5.8 Packing and in-band signalling

Code	Size (bits)



-30 –

-40 –

8 Speex narrowband mode

This section looks atow Speex works for narrowband (8 kHz sa

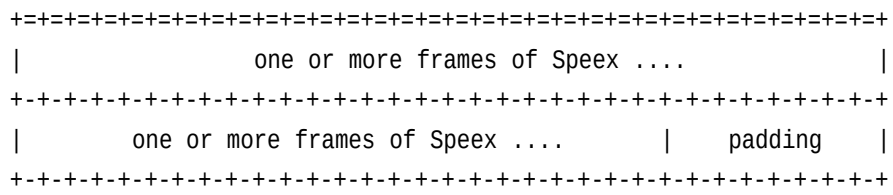

L

Mode	Bit-rate (bps)	mflops	Quality/description
0	250	N/A	No transmission (DTX)
1	2,150	6	Vocoder (mostly for comfort noise)
2	5,950		

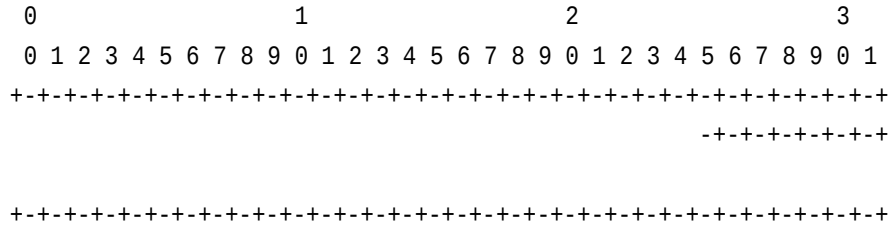
A FAQ

```
   inFile = argv[1];
   fin = fopen(inFile, "r");

   /*Initialization of the structure that holds the bits*/
   speex_bits_init(&bits);
   while (1)
   {
```

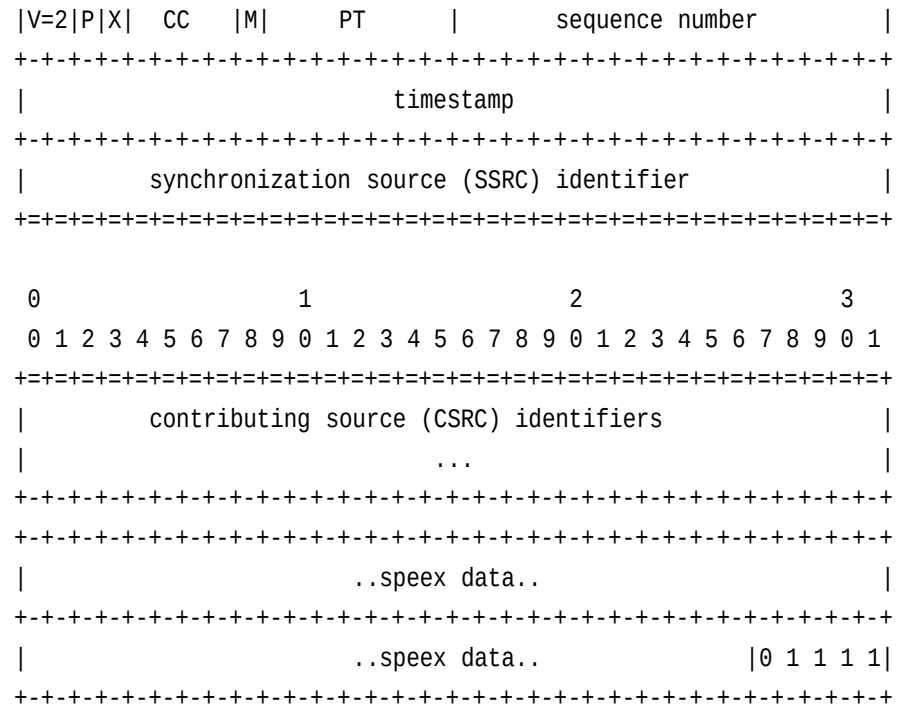

one or more frames of Speex ....
one or more frames of Speex ....
padding

4. RTP Header


0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

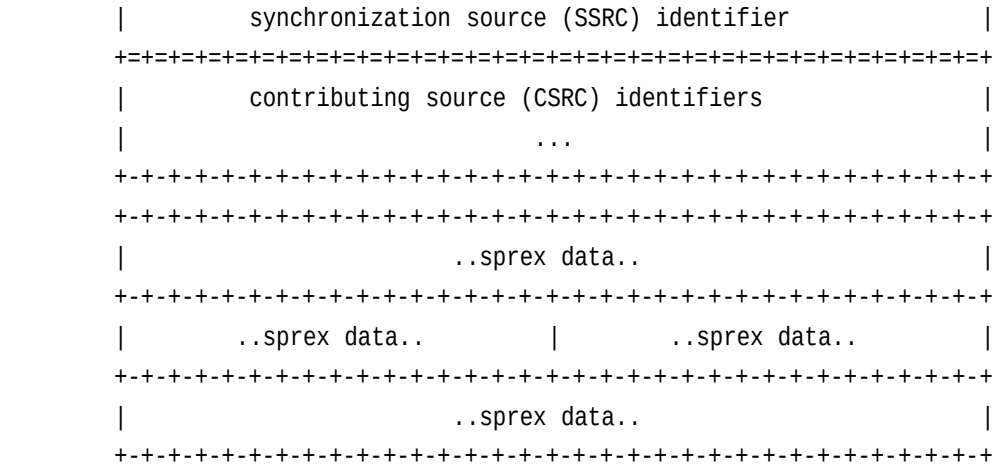
specification is two [2].

Padding (P): 1 bit



7. Multiple Speex frames in a RTP packet

Speex codecs [9] are able to detect the the bitrate from the payload and are responsible for detecting the 20 msec boundaries between each frame.



8. MIME togtistration of Speex

Security Considerations:

See Section 6 of RFC 3047.

Interoperability considerations: none

Published specification:

Applications which use this media type:

Additional information: none

Person & email address to contact for further information:

Greg Herlein <gherlein@herlein.com>

```
The "ptime" attribute is used to denote the packetization interval
(ie, how many milliseconds of audio is encoded in a single RTP
```

discard packets from undesired sources, but the processing cost of

Terminal Equipment", ITU-T Recommendation H.245.

[7] Schulzrinne, H. and S. Casner, "RTP588(R)605(P54.8377(r)4.83481(o)4.8377(f)4.8377(i)4.8

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is in part a textbook of mathematics, a Secondary Section may

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