z3 egg

A gzip (RFC1951 + RFC1952) compression and decompression library
Extension for Chicken Scheme
Version 1.32

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1 About this egg

1.1 Version history

`1.32` Fixed bug in z3lib code, related to 64-bit architectures

`1.31` Fixed bug in `z3:encode`

`0.9` Initial release

1.2 Usage

Load this egg like so:

```
(require-extension z3)
```

2 Documentation

Provides functions to read and write compressed data using the gzip algorithm. This extension includes code from Oskar Schirmers excellent z3liblibrary.

Errors occurring in inflation/deflation procedures will result in a composite condition of the kinds `exn` and `z3`.

2.1 Raw data interface

`z3:encode-init` [procedure]

```
(z3:encode-init #!key buffer buffer-size tellwhen thrmin thrmax initialgrant pref
```

Initializes compression of data into a memory buffer. Various keyword arguments can be supplied to control compression:

buffer — The target buffer for the compressed data

buffer-size — maximal size of the compressed data

tellwhen — Frequency for code size estimation (0 for none, i.e. full block usage)

thrmin, thrmax — Threshold for block close decision

initialgrant — For threshold comparison, all but the first slice are asumed to be incremented by this value to roughly compensate RFC1951 block dynamic table size

preferlonger — When non-zero, the compressor will try to find a longer match at n+1 and prefer it over a previous match at n

Returns a z3 handle.

`z3:encode` [procedure]

```
(z3:encode Z3HANDLE RECEIVER DATA [LENGTH])
```

Encode data (a string) into a memory buffer and returns the number of bytes written. If less data has been commpressed than given in the call, invoke `z3:encode` repeatedly with the remaining data. Returns `#f` when finished. Each time some compressed data is available, the one-argument procedure `RECEIVER` is called with a string containing a chunk of compressed data.

`z3:decode-init` [procedure]

```
(z3:decode-init)
```

Initialize an in-memory decompression and return a z3 handle for it.

`z3:decode` [procedure]

```
(z3:decode Z3HANDLE RECEIVER BUFFER [LENGTH])
```

Decode the compressed data in `BUFFER` (a string) and return the number of bytes decompressed.

`z3:handle?` [procedure]

```
(z3:handle? X)
```

Returns `#t` if `X` is a z3 handle or `#f` otherwise.

2.2 File-system interface

`z3:encode-file` [procedure]

```
(z3:encode-file FILENO #!key level filename comment ostype extra)
```

Open a compressed file (specified by the file-descriptor in `FILENO`) for encoded data. The keyword arguments have the following meaning:

level Desired compression-level in the range 1 .. 9, or 0 for selecting the default compression level

filename The name of the file to compress, will be included in the gzip-file header

comment An arbitrary comment

ostype Operating system indicator byte (defaults to -1)

extra Extra data to be encoded in the header

Returns a z3 file-handle.

`z3:write-encoded` [procedure]

```
(z3:write-encoded Z3FHANDLE DATA [LENGTH])
```

Writes `DATA` (a string) into a compressed file, optionally limited in length. Before a file has been encoded completely, this procedure must be called once more with `DATA` being `#f` to indicate that the compression process is finished.

`z3:decode-file` [procedure]

```
(z3:decode-file FILENO)
```

Returns a z3 file-handle for reading the file designated by the file-descriptor `FILENO`.

`z3:read-decoded` [procedure]

```
(z3:read-decoded Z3FHANDLE [LENGTH])
```

Reads a chunk of decoded data from a compressed file. The length of the chunk can be given as an optional argument and defaults to 4096 bytes. Returns a string or the end-of-file object.

`z3:file-handle?` [procedure]

```
(z3:file-handle? X)
```

Returns `#t` if `X` is a z3 file handle or `#f` otherwise.

`z3:file-handle-fileno` [procedure]

```
(z3:file-handle-fileno Z3FHANDLE)
```

Returns the file-descriptor associated with a z3 file-handle.

2.3 Port interface

`z3:open-compressed-input-file` [procedure]

```
(z3:open-compressed-input-file FILENAME)
```

Opens a compressed input file and returns a port that automatically decompresses the data as it is read.

`z3:open-compressed-output-file` [procedure]

```
(z3:open-compressed-output-file FILENAME #!key level comment ostype extra)
```

Creates a compressed file and returns an output-port. The keyword arguments have the same meaning as for the `z3:encode-file` procedure.

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