

The Unshrinking and Unreducing C source code of Samuel H. Smith was used in UnZip 2.0. The full version 1.2 of Samuel H. Smith's code from the file ST\_UNZIP.ZIP follows:

```
#define ATARI_ST 1

/*
 * Copyright 1989 Samuel H. Smith; All rights reserved
 *
 * Do not distribute modified versions without my permission.
 * Do not remove or alter this notice or any other copyright notice.
 * If you use this in your own program you must distribute source code.
 * Do not use any of this in a commercial product.
 *
 */

/*
 * UnZip - A simple zipfile extract utility
 *
 * To compile:
 * tcc -B -O -Z -G -mc unzip.c ;turbo C 2.0, compact model
 *
 */

#define CODE_VERSION "UnZip: Zipfile Extract v1.2 of 03-15-89; (C) 1989 Samuel H. Smith"
#define PRG_VERSION "\
UnZip: Atari ST Zipfile Extract v1.2 of 03-30-89\n\
Ported to the Atari ST by Darin Wayrynen.\n\
Derived from code Copyrighted (c)1989 by S.H.Smith"

typedef unsigned char byte;
/* code assumes UNSIGNED bytes */
typedef long longint;
typedef unsigned word;
typedef char boolean;

#define STRSIZ 256

#include <stdio.h>
/* this is your standard header for all C compiles */

#ifndef ATARI_ST
#include <stdlib.h>
/* this include defines various standard library prototypes */
#else
long buffer_size,in_size,out_size;
#endif

/*
 * SEE HOST OPERATING SYSTEM SPECIFICS SECTION STARTING NEAR LINE 180
 *
 */

/* ----- */
/*
 * Zipfile layout declarations

```

```
*  
*/
```

```
typedef longint signature_type;
```

```
#define LOCAL_FILE_HEADER_SIGNATURE 0x04034b50L
```

```
typedef struct local_file_header
```

```
word version_needed_to_extract;
```

```
word general_purpose_bit_flag;
```

```
word compression_method;
```

```
word last_mod_file_time;
```

```
word last_mod_file_date;
```

```
longint crc32;
```

```
longint compressed_size;
```

```
longint uncompressed_size;
```

```
word filename_length;
```

```
word extra_field_length;  
local_file_header;
```

```
#define CENTRAL_FILE_HEADER_SIGNATURE 0x02014b50L
```

```
typedef struct central_directory_file_header
```

```
word version_made_by;
```

```
word version_needed_to_extract;
```

```
word general_purpose_bit_flag;
```

```
word compression_method;
```

```
word last_mod_file_time;
```

```
word last_mod_file_date;
```

```
longint crc32;
```

```
longint compressed_size;
```

```

longint uncompressed_size;

word filename_length;

word extra_field_length;

word file_comment_length;

word disk_number_start;

word internal_file_attributes;

longint external_file_attributes;

longint relative_offset_local_header;
central_directory_file_header;

#define END_CENTRAL_DIR_SIGNATURE 0x06054b50L

typedef struct end_central_dir_record

word number_this_disk;

word number_disk_with_start_central_directory;

word total_entries_central_dir_on_this_disk;

word total_entries_central_dir;

longint size_central_directory;

longint offset_start_central_directory;

word zipfile_comment_length;
end_central_dir_record;

/* ----- */
/*
 * input file variables
 *
 */

#define INBUFSIZ 0x2000L
byte *inbuf;

/* input file buffer - any size is legal */
byte *inptr;

```

```
int incnt;
unsigned bitbuf;
int bits_left;
boolean zipeof;

int zipfd;
char zipfn[STRSIZ];
local_file_header lrec;
```

```
/* ----- */
/*
 * output stream variables
 *
 */
```

```
#define OUTBUFSIZ 0x6000L
byte *outbuf;          /* buffer for rle look-back */
byte *outptr;
```

```
longint outpos;
```

```
/* absolute position in outfile */
int outcnt;
```

```
/* current position in outbuf */
```

```
int outfd;
char filename[STRSIZ];
char extra[STRSIZ];
```

```
#define DLE 144
```

```
/* ----- */
/*
 * shrink/reduce working storage
 *
 */
```

```
int factor;
byte followers[256][64];
byte Slen[256];
```

```
#define max_bits 13
#define init_bits 9
#define hsize 8192
#define first_ent 257
#define clear 256
```

```
typedef int hsize_array_integer[hsize+1];
typedef byte hsize_array_byte[hsize+1];
```

```
hsize_array_integer prefix_of;
hsize_array_byte suffix_of;
hsize_array_byte stack;
```

```
int codesize;
int maxcode;
int free_ent;
int maxcodemax;
int offset;
int sizex;
```

```
/*
=====
*/
/*
* Host operating system details
*
*/
```

```
#ifndef ATARI_ST
#include <string.h>
#else
#include <strings.h>
#define strchr index
#endif
/* this include defines strcpy, strcmp, etc. */
```

```
#ifndef ATARI_ST
#include <io.h>
/*
* this include file defines
*      struct ftime ...      (* file time/date stamp info *)
*      int setftime (int handle, struct ftime *ftimep);
*      #define SEEK_CUR 1    (* lseek() modes *)
*      #define SEEK_END 2
*      #define SEEK_SET 0
*/
#else
#define SEEK_CUR 1    (* lseek() modes *)
#define SEEK_END 2
#define SEEK_SET 0
#endif
```

```
#include <fcntl.h>
/*
* this include file defines
*      #define O_BINARY 0x8000 (* no cr-lf translation *)
* as used in the open() standard function
*/
```

```
#ifndef ATARI_ST
#include <sys/stat.h>
/*
* this include file defines
*      #define S_IREAD 0x0100 (* owner may read *)
*/
```

```

    *           #define S_IWRITE 0x0080 (* owner may write *)
    * as used in the creat() standard function
    */
#endif

#ifdef ATARI_ST
#define HIGH_LOW 1
#include <osbind.h>
typedef struct _dt                /* My creation! DAW */

unsigned realdt;

unsigned realtime;
dt;
#endif

/*
 * change 'undef' to 'define' if your machine stores high order bytes in
 * lower addresses.
 */

#ifdef ATARI_ST
void set_file_time()
/*
 * set the output file date/time stamp according to information from the
 * zipfile directory record for this file
 */

union
    dt ft;        /* system file time record */

struct
    word ztime;   /* date and time words */
    word zdate;   /* .. same format as in .ZIP file */

zt;

td;

/*
 * set output file date and time - this is optional and can be
 * deleted if your compiler does not easily support setftime()
 */

td.zt.ztime = lrec.last_mod_file_time;

td.zt.zdate = lrec.last_mod_file_date;

```

```
setftime(outfd, &td.ft);

#else
#define set_file_time() ;
#endif

int create_output_file()
/* return non-0 if creat failed */

/* create the output file with READ and WRITE permissions */
#ifdef ATARI_ST

outfd = creat(filename, S_IWRITE | S_IREAD);
#else

outfd = open(filename, O_CREAT | O_RDWR | O_BINARY);
#endif

if (outfd < 1)

printf("Can't create output: %s\n", filename);

return 1;

/*
 * close the newly created file and reopen it in BINARY mode to
 * disable all CR/LF translations
 */
#ifdef ATARI_ST

/*
 * Not necessary with Atari ST. Just open() in Binary mode.
 */

close(outfd);

outfd = open(filename, O_RDWR | O_BINARY);
#endif
```

```

/* write a single byte at EOF to pre-allocate the file */
    lseek(outfd, lrec.uncompressed_size - 1L, SEEK_SET);

write(outfd, "?", 1);

lseek(outfd, 0L, SEEK_SET);

return 0;

int open_input_file()
/* return non-0 if creat failed */

/*
 * open the zipfile for reading and in BINARY mode to prevent cr/lf
 * translation, which would corrupt the bitstreams
 */

zipfd = open(zipfn, O_RDONLY | O_BINARY);

if (zipfd < 1)

printf("Can't open input file: %s\n", zipfn);

return (1);

return 0;

#ifdef HIGH_LOW

void swap_bytes(wordp)
word *wordp;
/* convert intel style 'short int' variable to host format */

char *charp = (char *) wordp;

char temp;

```



```
temp = charp[0];
```

```
charp[0] = charp[1];
```

```
charp[1] = temp;
```

```
void swap_lbytes(longp)
```

```
longint *longp;
```

```
/* convert intel style 'long' variable to host format */
```

```
char *charp = (char *) longp;
```

```
char temp[4];
```

```
temp[3] = charp[0];
```

```
temp[2] = charp[1];
```

```
temp[1] = charp[2];
```

```
temp[0] = charp[3];
```

```
charp[0] = temp[0];
```

```
charp[1] = temp[1];
```

```
charp[2] = temp[2];
```

```
charp[3] = temp[3];
```

```
#endif
```

```
/*
```

```
=====
```

```
*/
```

```
int FillBuffer()
```

```
/* fill input buffer if possible */
```

```
int readsize;
```

```
if (!rec.compressed_size <= 0)
```

```

return incnt = 0;

    if (lrec.compressed_size > in_size)

readsize = in_size;

else
    readsize = (int) lrec.compressed_size;

incnt = read(zipfd, inbuf, readsize);

    lrec.compressed_size -= incnt;

inptr = inbuf;

return incnt--;

int ReadByte(x)
unsigned *x;
/* read a byte; return 8 if byte available, 0 if not */

if (incnt-- == 0)

if (FillBuffer() == 0)

return 0;

*x = *inptr++;

return 8;

/* ----- */
static unsigned mask_bits[] =
    0,    0x0001, 0x0003, 0x0007, 0x000f,
        0x001f, 0x003f, 0x007f, 0x00ff,
        0x01ff, 0x03ff, 0x07ff, 0x0fff,
        0x1fff, 0x3fff, 0x7fff, 0xffff
    ;

int FillBitBuffer(bits)
register int bits;

```

```

/* get the bits that are left and read the next word */

unsigned temp;
    register int result = bitbuf;

int sbits = bits_left;

bits -= bits_left;

/* read next word of input */

bits_left = ReadByte(&bitbuf);

bits_left += ReadByte(&temp);

bitbuf |= (temp << 8);

if (bits_left == 0)

zipeof = 1;

/* get the remaining bits */
    result = result | (int) ((bitbuf & mask_bits[bits]) << sbits);
    bitbuf >>= bits;
    bits_left -= bits;
    return result;

#define READBIT(nbits,zdest) if (nbits <= bits_left) zdest = (int)(bitbuf & mask_bits[nbits]); bitbuf
>>= nbits; bits_left -= nbits; else zdest = FillBitBuffer(nbits);

/*
 * macro READBIT(nbits,zdest)
 *
 *     if (nbits <= bits_left)
 *         zdest = (int)(bitbuf & mask_bits[nbits]);
 *         bitbuf >>= nbits;
 *         bits_left -= nbits;
 *     else
 *         zdest = FillBitBuffer(nbits);
 *
 */

/* ----- */

#include "crc32.h"

```

```

/* ----- */

void FlushOutput()
/* flush contents of output buffer */

UpdateCRC(outbuf, outcnt);

write(outfd, outbuf, outcnt);

outpos += outcnt;

outcnt = 0;

outptr = outbuf;

#define OUTB(intc) *outptr++=intc; if (++outcnt==out_size) FlushOutput();

/*
 * macro OUTB(intc)
 *
 * *outptr++=intc;
 * if (++outcnt==out_size)
 *     FlushOutput();
 *
 */

/* ----- */

void LoadFollowers()

    register int x;
    register int i;

for (x = 255; x >= 0; x--)
    READBIT(6,Slen[x]);

for (i = 0; i < Slen[x]; i++)
    READBIT(8,followers[x][i]);

/* ----- */

```

```
/*
 * The Reducing algorithm is actually a combination of two
 * distinct algorithms. The first algorithm compresses repeated
 * byte sequences, and the second algorithm takes the compressed
 * stream from the first algorithm and applies a probabilistic
 * compression method.
 */
```

```
int L_table[] = 0, 0x7f, 0x3f, 0x1f, 0x0f;
```

```
int D_shift[] = 0, 0x07, 0x06, 0x05, 0x04;
int D_mask[] = 0, 0x01, 0x03, 0x07, 0x0f;
```

```
int B_table[] = 8, 1, 1, 2, 2, 3, 3, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 5,
```

```
5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 6, 6, 6,
```

```
6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6,
```

```
6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 7, 7,
```

```
7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,
```

```
7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,
```

```
7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7,
```

```
7, 7, 7, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,
```

```
8, 8, 8, 8;
```

```
/* ----- */
```

```
void unReduce()
```

```
/* expand probabilisticly reduced data */
```

```
    register int lchar;  
    register int nchar;  
    int ExState;  
    register int V;  
    register int Len;
```

```
    factor = lrec.compression_method - 1;
```

```
ExState = 0;
```

```
lchar = 0;
```

```
LoadFollowers();
```

```
    while (((outpos + outcnt) < lrec.uncompressed_size) && (!zipeof))
```

```
if (Slen[lchar] == 0)
```

```
    READBIT(8,nchar)    /* ; */  
    else
```

```
        READBIT(1,nchar);  
        if (nchar != 0)  
            READBIT(8,nchar)    /* ; */  
        else
```

```
            int follower;  
            int bitsneeded = B_table[Slen[lchar]];  
            READBIT(bitsneeded,follower);  
            nchar = followers[lchar][follower];
```

```
/* expand the resulting byte */
```

```
switch (ExState)
```

```
case 0:
```

```
    if (nchar != DLE)
        OUTB(nchar) /*;*/
```

```
else
```

```
ExState = 1;
```

```
break;
```

```
case 1:
```

```
    if (nchar != 0)
        V = nchar;
```

```
Len = V & L_table[factor];
```

```
if (Len == L_table[factor])
```

```
ExState = 2;
```

else

ExState = 3;

else

OUTB(DLE);

ExState = 0;

break;

case 2:

Len += nchar;

ExState = 3;

break;

case 3:



```
register int i = Len + 3;
```

```
int offset = (((V >> D_shift[factor]) &  
D_mask[factor]) << 8) + nchar + 1;
```

```
longint op = outpos + outcnt - offset;
```

```
/* special case- before start of file */
```

```
while ((op < 0L) && (i > 0))
```

```
OUTB(0);
```

```
op++;
```

```
i--;
```

```
/* normal copy of data from output buffer */
```

```
register int ix = (int) (op % out_size);
```

```
/* do a block memory copy if possible */  
if ( ((ix + i) < out_size) &&  
      ((outcnt+i) < out_size) )  
    memcpy(outptr,&outbuf[ix],i);  
    outptr += i;  
    outcnt += i;
```

```
/* otherwise copy byte by byte */  
else while (i--)  
    OUTB(outbuf[ix]);  
    if (++ix >= out_size)  
        ix = 0;
```

```
ExState = 0;
```

```
break;
```

```
    /* store character for next iteration */  
    lchar = nchar;
```

```
/* ----- */  
/*  
 * Shrinking is a Dynamic Ziv-Lempel-Welch compression algorithm  
 * with partial clearing.  
 *  
 */  
  
void partial_clear()  
  
    register int pr;  
    register int cd;  
  
/* mark all nodes as potentially unused */  
  
for (cd = first_ent; cd < free_ent; cd++)  
  
    prefix_of[cd] |= 0x8000;  
  
/* unmark those that are used by other nodes */  
  
for (cd = first_ent; cd < free_ent; cd++)  
  
    pr = prefix_of[cd] & 0x7fff;  
/* reference to another node? */  
    if (pr >= first_ent)          /* flag node as referenced */  
  
        prefix_of[pr] &= 0x7fff;  
  
/* clear the ones that are still marked */  
  
for (cd = first_ent; cd < free_ent; cd++)  
  
    if ((prefix_of[cd] & 0x8000) != 0)
```

```
prefix_of[cd] = -1;
```

```
/* find first cleared node as next free_ent */  
    cd = first_ent;  
    while ((cd < maxcodemax) && (prefix_of[cd] != -1))  
        cd++;  
    free_ent = cd;
```

```
/* ----- */
```

```
void unShrink()
```

```
    #define GetCode(dest) READBIT(codesize,dest)
```

```
    register int code;
```

```
    register int stackp;
```

```
    int finchar;
```

```
    int oldcode;
```

```
    int incode;
```

```
/* decompress the file */
```

```
maxcodemax = 1 << max_bits;
```

```
codesize = init_bits;
```

```
maxcode = (1 << codesize) - 1;
```

```
free_ent = first_ent;
```

```
offset = 0;
```

```
sizex = 0;
```

```
for (code = maxcodemax; code > 255; code--)
```

```
    prefix_of[code] = -1;
```

```
for (code = 255; code >= 0; code--)
```

```
prefix_of[code] = 0;
```

```
suffix_of[code] = code;
```

```
GetCode(oldcode);
```

```
if (zipeof)
```

```
return;
```

```
finchar = oldcode;
```

```
    OUTB(finchar);
```

```
    stackp = hsize;
```

```
while (!zipeof)
```

```
GetCode(code);
```

```
if (zipeof)
```

```
return;
```

```
while (code == clear)
```

```
GetCode(code);
```

```
switch (code)
```

case 1:

codesize++;

if (codesize == max\_bits)

maxcode = maxcodemax;

else

maxcode = (1 << codesize) - 1;

break;

case 2:

partial\_clear();

break;

GetCode(code);

if (zipeof)

return;

*/\* special case for KwKwK string \*/*

incode = code;

if (prefix\_of[code] == -1)  
    stack[--stackp] = finchar;

code = oldcode;

```

/* generate output characters in reverse order */

while (code >= first_ent)
    stack[--stackp] = suffix_of[code];

code = prefix_of[code];

finchar = suffix_of[code];
    stack[--stackp] = finchar;

    /* and put them out in forward order, block copy */
    if ((hsize-stackp+outcnt) < out_size)
        memcpy(outptr,&stack[stackp],hsize-stackp);
        outptr += hsize-stackp;
        outcnt += hsize-stackp;
        stackp = hsize;

    /* output byte by byte if we can't go by blocks */
    else while (stackp < hsize)
        OUTB(stack[stackp++]);

/* generate new entry */

code = free_ent;

if (code < maxcodemax)

prefix_of[code] = oldcode;

```



```
suffix_of[code] = finchar;
```

```
do
```

```
code++;
```

```
while ((code < maxcodemax) && (prefix_of[code] != -1));
```

```
free_ent = code;
```

```
/* remember previous code */
```

```
oldcode = incode;
```

```
/* ----- */
```

```
void extract_member()
```

```
unsigned b;
```

```
bits_left = 0;
```

```
bitbuf = 0;

incnt = 0;

outpos = 0L;

outcnt = 0;

outptr = outbuf;

zipeof = 0;

crc32val = 0xFFFFFFFFL;

/* create the output file with READ and WRITE permissions */
if (create_output_file())

prg_exit(1);

    switch (lrec.compression_method)

case 0:

/* stored */

printf(" Extracting: %-12s ", filename);

while (ReadByte(&b))

OUTB(b);

break;
```

case 1:

```
printf("UnShrinking: %-12s ", filename);
```

```
unShrink();
```

```
break;
```

case 2:

case 3:

case 4:

case 5:

```
printf(" Expanding: %-12s ", filename);
```

```
unReduce();
```

```
break;
```

default:

```
printf("Unknown compression method.");
```

```
/* write the last partial buffer, if any */
```

```

if (outcnt > 0)

UpdateCRC(outbuf, outcnt);

write(outfd, outbuf, outcnt);

/* set output file date and time */

set_file_time();

close(outfd);

crc32val = -1 - crc32val;
#ifdef HIGH_LOW

swap_lbytes(&lrec.crc32);
#endif
    if (crc32val != lrec.crc32)
        printf(" Bad CRC %08lx (should be %08lx)", lrec.crc32, crc32val);

printf("\n");

/* ----- */

void get_string(len,s)
int len;
char *s;

read(zipfd, s, len);

s[len] = 0;

/* ----- */

void process_local_file_header()

read(zipfd, &lrec, sizeof(lrec));

```

```

#ifdef HIGH_LOW
swap_bytes(&lrec.filename_length);
swap_bytes(&lrec.extra_field_length);
swap_lbytes(&lrec.compressed_size);
swap_lbytes(&lrec.uncompressed_size);
swap_bytes(&lrec.compression_method);
#endif

get_string(lrec.filename_length, filename);
get_string(lrec.extra_field_length, extra);
extract_member();

/* ----- */

void process_central_file_header()

central_directory_file_header rec;

char filename[STRSIZ];

char extra[STRSIZ];

char comment[STRSIZ];

read(zipfd, &rec, sizeof(rec));

#ifdef HIGH_LOW
swap_bytes(&rec.filename_length);
swap_bytes(&rec.extra_field_length);
swap_bytes(&rec.file_comment_length);
#endif

    get_string(rec.filename_length, filename);
get_string(rec.extra_field_length, extra);

```

```
get_string(rec.file_comment_length, comment);

/* ----- */

void process_end_central_dir()

end_central_dir_record rec;

char comment[STRSIZ];

read(zipfd, &rec, sizeof(rec));

#ifdef HIGH_LOW

swap_bytes(&rec.zipfile_comment_length);
#endif

get_string(rec.zipfile_comment_length, comment);

/* ----- */

void process_headers()

longint sig;

while (1)

if (read(zipfd, &sig, sizeof(sig)) != sizeof(sig))

return;

#ifdef HIGH_LOW

swap_lbytes(&sig);
#endif

        if (sig == LOCAL_FILE_HEADER_SIGNATURE)
```

```
process_local_file_header();
    else if (sig == CENTRAL_FILE_HEADER_SIGNATURE)
```

```
process_central_file_header();
    else if (sig == END_CENTRAL_DIR_SIGNATURE)
```

```
process_end_central_dir();
```

```
return;
```

```
    else
```

```
printf("Invalid Zipfile Header\n");
```

```
return;
```

```
/* ----- */
```

```
void extract_zipfile()
```

```
/*
```

```
* open the zipfile for reading and in BINARY mode to prevent cr/lf
```

```
* translation, which would corrupt the bitstreams
```

```
*/
```

```

printf("Buffers - ");

printf("(input --> %7ld bytes) ",in_size);

printf("(output --> %7ld bytes)\n\n",out_size);

if (open_input_file())

prg_exit(1);

process_headers();

close(zipfd);

/* ----- */
/*
 * main program
 *
 */

void main(argc,argv)
int argc;
char **argv;

#ifdef ATARI_ST

int buffer_fail = 0;
#endif

printf("\n\n%s\n",PRG_VERSION);

printf("Courtesy of:  Darin Wayrynen, S.H.Smith and\n
2673.\n");

if (argc != 2)

printf("\nYou may copy and distribute this program freely, provided that:\n");

```

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```

printf("    1)  No fee is charged for such copying and distribution, and\n");

printf("    2)  It is distributed ONLY in its original, unmodified state.\n\n");

printf("If you wish to distribute a modified version of this program, you MUST\n");

printf("include the source code.\n\n");

printf("If you modify this program, we would appreciate a copy of the  new source\n");

printf("code.  Samuel is holding the copyright on the source code, so please don't\n");

printf("delete his  name from the program files or from the documentation.\n\n");
    printf("IN NO EVENT WILL WE BE LIABLE TO YOU FOR ANY DAMAGES, INCLUDING ANY LOST\n");
    printf("PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES\n");
    printf("ARISING OUT OF YOUR USE OR INABILITY TO USE THE PROGRAM, OR FOR ANY\n");
    printf("CLAIM BY ANY OTHER PARTY.\n\n");
    printf("Usage:  UnZip FILE[.zip]\n");
#ifdef ATARI_ST

prg_exit(0);
#else
    exit(1);
#endif

printf("\n");

/* .ZIP default if none provided by user */

strcpy(zipfn, argv[1]);

if (strchr(zipfn, '.') == NULL)

strcat(zipfn, ".ZIP");

#ifdef ATARI_ST

/* ST buffer allocation */

```

```

buffer_size = Malloc(-1L)-10000L;          /* returns largest free block */
if (buffer_size<(INBUFSIZ + OUTBUFSIZ))

buffer_fail=1;

in_size = (buffer_size-(INBUFSIZ + OUTBUFSIZ))/100L*55L+INBUFSIZ;
out_size = (buffer_size-(INBUFSIZ + OUTBUFSIZ))/100L*35L+OUTBUFSIZ;
inbuf = (byte *)Malloc(in_size);

/* 60% */
outbuf = (byte *)Malloc(out_size);

/* 40% */
if ((inbuf== NULL) || (outbuf == NULL) || buffer_fail)

printf("Can't allocate buffers!\n");

prg_exit(1);

#else
    /* allocate i/o buffers */
inbuf = (byte *) (malloc(INBUFSIZ));
outbuf = (byte *) (malloc(OUTBUFSIZ));
if ((inbuf == NULL) || (outbuf == NULL))

printf("Can't allocate buffers!\n");

exit(1);

#endif
    /* do the job... */
    extract_zipfile();
#ifdef ATARI_ST
prg_exit(0);

```

```
#else
```

```
exit(0);  
#endif
```

```
prg_exit(value)  
int value;
```

```
setbuffer(stdout,0L);
```

```
/* turn off printf
```

```
    buffering */
```

```
printf("\nPress any key to continue.");
```

```
Bconin(2);
```

```
/* wait for keypress before
```

```
    exiting, in case prg is
```

```
    run from desktop */
```

```
printf("\n");
```

```
exit(value);
```

```
#ifdef ATARI_ST  
memcpy(to,from,count)  
register char *to,*from;  
register unsigned int count;
```

```
for(;count>0;--count,++to,++from)
```

```
*to=*from;
```

```
#endif
```