

COMPILING GPC ON MAC OS X:

1) link error :

```
[localhost:~/Documents/CC/essais] pascal% more essai.p
program Essai;
```

```
begin
```

```
  WriteLn("Hello World again.");
```

```
end.
```

```
[localhost:~/Documents/CC/essais] pascal% gpc -v essai.p
```

```
Reading specs from /usr/libexec/ppc/2.95.2/specs
```

```
Reading specs from /usr/libexec/ppc/specs
```

```
Apple Computer, Inc. version cc-2, based on gpc version 20010115, based on gcc-2.95.2 19991024 (release)
```

```
gcc version 2.95.2 19991024 (release)
```

```
gpcpp -lang-pascal -v -famtmpfile=/var/tmp/cc000323 -fdelphi-comments -D__GNU_PASCAL__ -undef -D__GNUC__=2
-D__GNUC_MINOR__=95 -D__GPC__=2 -D__GPC_MINOR__=0 -D__GPC_RELEASE__=20010115 -D__BITS_BIG_ENDIAN__=1
-D__BYTES_BIG_ENDIAN__=1 -D__WORDS_BIG_ENDIAN__=1 -D__ppc__ -D__NATURAL_ALIGNMENT__ -D__MACH__
-D__BIG_ENDIAN__ -D__APPLE__ -D__ppc__ -D__NATURAL_ALIGNMENT__ -D__MACH__ -D__BIG_ENDIAN__ -D__APPLE__
-D__STDC__ -D__APPLE_CC__=912 -D__DYNAMIC__ essai.p /var/tmp/cc000323.i
```

```
GNU Pascal Compiler PreProcessor version 20010115, based on gcc-2.95.2 19991024 (release)
```

```
#include "..." search starts here:
```

```
#include <...> search starts here:
```

```
  /usr/local/include/c++
```

```
  /usr/local/include
```

```
  /System/Library/Frameworks/System.framework/Headers
```

```
  /usr/include
```

```
End of search list.
```

```
gpc1 /var/tmp/cc000323.i -Wno-four-char-constants -quiet -dumpbase essai.pas -version -famtmpfile=/var/tmp/cc000323 -o
```

```
/var/tmp/cc000323.s
```

```
GNU Pascal version 2.95.2 19991024 (release) (powerpc-apple-macosx) compiled by GNU C version 2.7.2.1.
```

```
GNU Pascal version is actually 20010115, based on gcc-2.95.2 19991024 (release)
```

```
/usr/libexec/ppc/as -arch ppc -o /var/tmp/cc0003231.o /var/tmp/cc000323.s
```

```
/usr/bin/ld -arch ppc -dynamic -lcr1.o /var/tmp/cc0003231.o -lgpc -lcc_dynamic -framework System
```

```
/usr/bin/ld: /usr/lib/libgpc.a(error.o) has external relocation entries in non-writable section (__TEXT,__text) for symbols:
```

```
  _memcpy
```

```
  _strlen
```

2) Builtin functions :

On the track of builtin functions, I pointed out that GPC force no builtin for initial value in gpc.c

So I put "-fbuiltin" option in order to make libgpc.a :

```
make CFLAGS="-O -DMACOSX -g -fno-dollars-in-identifiers -fbuiltin"
```

I got some warning :

```
/Users/pascal/GCC/gcc-2/gcc/p/rts/error.pas:40: warning: extern declaration of `memcpy' doesn't match global one
```

And the generated library led to the same linking error.

3) Differences between :

```
cc -v essais.c
```

```
and
```

```
gpc -v essai.p
```

(Legend :

- bold : same,

- normal : spécifique,

- red : critical difference ?)

```
> gpcpp -lang-pascal -v -famtmpfile=/var/tmp/cc000289 -fdelphi-comments -D__GNU_PASCAL__
```

```
-undef -D__GNUC__=2 -D__GNUC_MINOR__=95
```

```
-D__GPC__=2 -D__GPC_MINOR__=0 -D__GPC_RELEASE__=20010115 -D__BITS_BIG_ENDIAN__=1
```

```
-D__BYTES_BIG_ENDIAN__=1 -D__WORDS_BIG_ENDIAN__=1
```

```
-D__ppc__ -D__NATURAL_ALIGNMENT__ -D__MACH__ -D__BIG_ENDIAN__ -D__APPLE__ -D__ppc__
```

```
-D__NATURAL_ALIGNMENT__ -D__MACH__ -D__BIG_ENDIAN__ -D__APPLE__ -D__STDC__ -D__APPLE_CC__=912
```

```
-D__DYNAMIC__
```

```

essai.p /var/tmp/cc000289.i
< /usr/libexec/ppc/cpp-precomp -smart -lang-c -v -arch ppc
-undef -D_GNUC_=2 -D_GNUC_MINOR_=95
-D_ppc__ -D_NATURAL_ALIGNMENT__ -D_MACH__ -D_BIG_ENDIAN__ -D_APPLE__ -D_ppc__
-D_NATURAL_ALIGNMENT__ -D_MACH__ -D_BIG_ENDIAN__ -D_APPLE__ -D_STDC__ -D_APPLE_CC_=912
-D_DYNAMIC__
essai.c /var/tmp/cc000251.i

> gpc1 /var/tmp/cc000289.i -Wno-four-char-constants -quiet -dumpbase essai.pas -version -famtmpfile=/var/tmp/cc000289 -o
/var/tmp/cc000289.s
< /usr/libexec/ppc/2.8.1-egcs/cc1obj /var/tmp/cc000256.i -mno-string -arch ppc -quiet -dumpbase essai.c -version -dynamic -fPIC -o
/var/tmp/cc000256.s

> /usr/libexec/ppc/as -arch ppc -o /var/tmp/cc0002891.o /var/tmp/cc000289.s
< /usr/libexec/ppc/as -arch ppc -o /var/tmp/cc000251-essai.o /var/tmp/cc000251.s

> /usr/bin/ld -arch ppc -dynamic -lcr1.o /var/tmp/cc0002891.o -lgpc -lcc_dynamic -framework System
< /usr/bin/ld -arch ppc -dynamic -lcr1.o /var/tmp/cc000251-essai.o -lcc_dynamic -framework System

```

Some differences about "dynamic" features are pointed out.

4) Shared :

I saw these option in the libgpc.a makefile with the variable WITH_SHARED.
 So I put yes in the makefile.
 The result was :

```

../../../../xgpc-B././ -c -l. -W -Wall -Wpointer-arith -Wwrite-strings -Wmissing-prototypes -Wmissing-declarations -O -DMACOSX -g -fno-
dollars-in-identifiers -DRTS_RELEASE_STRING="" cat /Users/pascal/GCC/gcc-2/gcc/p/rts/rts-version`"" --unit-
path=/Users/pascal/GCC/gcc-2/gcc/p/rts --automake -fPIC -o string.lo /Users/pascal/GCC/gcc-2/gcc/p/rts/string.pas
/Users/pascal/GCC/gcc-2/gcc/p/rts/string.pas: In function `Upcasestr':
/Users/pascal/GCC/gcc-2/gcc/p/rts/string.pas:204: Unable to generate reloads for:
(call_insn 64 62 68 (parallel[
  (call (mem:SI (symbol_ref:SI ("_p_upcase_string")) 0)
    (const_int 32 [0x20]))
  (use (const_int 0 [0x0]))
  (clobber (scratch:SI))
]) 546 {*call_nonlocal_sysv} (insn_list 62 (nil))
(expr_list:REG_DEAD (reg:SI 3 r3)
  (expr_list:REG_UNUSED (scratch:SI)
    (nil)))
  (expr_list (use (reg:SI 3 r3))
    (nil)))
make: *** [string.lo] Error 1

```

I hope these points may help.
 Regards, Pascal Pignard.