

```

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-----
Case 1
-----
main()
{
  int i;

  for(i=1;i<=2;i++){printf("test out\n"); }
  printf("end\n");
}

-----
-O0 No Optimization
-----
.section          .rodata
.LC0:
  .byte          0x74,0x65,0x73,0x74,0x20,0x6f,0x75,0x74,0xa,0x0
.LC1:
  .byte          0x65,0x6e,0x64,0xa,0x0
.text
  .p2align 2,0x90
.globl main
.type            main,@function
main:
  pushl %ebp
  movl %esp,%ebp
  subl $24,%esp
  nop
  movl $1,-4(%ebp)
  .p2align 2,0x90
.L3:
  cmpl $2,-4(%ebp)
  jle .L6
  jmp .L4
  .p2align 2,0x90
.L6:
  addl $-12,%esp
  pushl $.LC0
  call printf
  addl $16,%esp
.L5:
  incl -4(%ebp)
  jmp .L3
  .p2align 2,0x90
.L4:
  addl $-12,%esp
  pushl $.LC1
  call printf
  addl $16,%esp
.L2:
  leave
  ret
.Lfel:
  .size          main,.Lfel-main
  .ident         "GCC: (GNU) c 2.95.4 20020320 [FreeBSD]"

-----
cc -O3 Max Optimization
-----
  .file          "test-opt1.c"
  .version       "01.01"

```

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-----
gcc2_compiled.:
  .section       .rodata
.LC0:
  .byte          0x74,0x65,0x73,0x74,0x20,0x6f,0x75,0x74,0xa,0x0
.LC1:
  .byte          0x65,0x6e,0x64,0xa,0x0
.text
  .p2align 2,0x90
.globl main
.type            main,@function
main:
  pushl %ebp
  movl %esp,%ebp
  subl $20,%esp
  pushl %ebx
  movl $1,%ebx
  .p2align 2,0x90
.L6:
  addl $-12,%esp
  pushl $.LC0
  call printf
  addl $16,%esp
  decl %ebx
  jns .L6
  addl $-12,%esp
  pushl $.LC1
  call printf
  movl -24(%ebp),%ebx
  leave
  ret
.Lfel:
  .size          main,.Lfel-main
  .ident         "GCC: (GNU) c 2.95.4 20020320 [FreeBSD]"

-----
Case 2
-----
main()
{
  int i,x;

  i=2;
  x=1+i;
  printf("result=%d\n",x);
}

-----
No Optimization
-----
  .file          "test-opt2.c"
  .version       "01.01"
gcc2_compiled.:
  .section       .rodata
.LC0:
  .byte          0x72,0x65,0x73,0x75,0x6c,0x74,0x3d,0x25,0x64,0xa
  .byte          0x0
.text
  .p2align 2,0x90
.globl main
.type            main,@function

```

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main:
    pushl %ebp
    movl %esp,%ebp
    subl $24,%esp
    movl $2,-4(%ebp)
    movl -4(%ebp),%eax
    incl %eax
    movl %eax,-8(%ebp)
    addl $-8,%esp
    movl -8(%ebp),%eax
    pushl %eax
    pushl $.LC0
    call printf
    addl $16,%esp

.L2:
    leave
    ret

.Lfel:
    .size      main,.Lfel-main
    .ident    "GCC: (GNU) c 2.95.4 20020320 [FreeBSD]"

-----
Max Optimization
-----

    .file     "test-opt2.c"
    .version  "01.01"
gcc2_compiled.:
    .section  .rodata

.LC0:
    .byte    0x72,0x65,0x73,0x75,0x6c,0x74,0x3d,0x25,0x64,0xa
    .byte    0x0

.text
    .p2align 2,0x90
.globl main
    .type     main,@function

main:
    pushl %ebp
    movl %esp,%ebp
    subl $8,%esp
    addl $-8,%esp
    pushl $3
    pushl $.LC0
    call printf
    leave
    ret

.Lfel:
    .size      main,.Lfel-main
    .ident    "GCC: (GNU) c 2.95.4 20020320 [FreeBSD]"

-----
Case 3
-----

main()
{
    long i,x;
    x=0;
    for(i=1;i<100000000;i++){x=x+i; }
    printf("result=%d\n",x);
}

-----
% cc -O0 test-opt1.c

```

```

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% time a.out
result=887459712
0.301u 0.000s 0:00.31 96.7%      5+167k 0+0io 0pf+0w

% cc -O3 test-opt1.c

% time a.out
result=887459712
0.114u 0.000s 0:00.11 100.0%    5+192k 0+0io 0pf+0w

```