

A continuación, se presentarán los resultados de la ejecución de cada programa. El programa se puede encontrar en los respectivos archivos.

#### Ejemplo RISCv64

```
0x000000000000100b8 in _start ()
(gdb) b calcXOR
Breakpoint 1 at 0x100c8
(gdb) b saveVAL
Breakpoint 2 at 0x1010c
(gdb) b compare
Breakpoint 3 at 0x10118
(gdb) b end
Breakpoint 4 at 0x10124
(gdb) s
Single stepping until exit from function _start,
which has no line number information.

Breakpoint 1, 0x000000000000100c8 in calcXOR ()
(gdb) i r
ra          0x100c8  0x100c8  <calcXOR>
sp          0x40007fff90 0x40007fff90
gp          0x0      0x0
tp          0x0      0x0
t0          0x0      0
t1          0x0      0
t2          0x0      0
fp          0x0      0x0
s1          0x0      0
a0          0xa      10
a1          0x4000800090 274886295696
a2          0x41      65
a3          0x0      0
a4          0x0      0
a5          0x0      0
a6          0x0      0
a7          0x0      0
s2          0x0      0
s3          0x0      0
s4          0x0      0
s5          0x0      0
s6          0x0      0
s7          0x0      0
s8          0x0      0
s9          0x0      0
s10         0x0      0
s11         0x0      0
t3          0x0      0
t4          0x0      0
t5          0x0      0
t6          0x0      0
pc          0x100c8  0x100c8  <calcXOR>
```

```

Breakpoint 3, 0x00000000000010118 in compare ()
(gdb) s
Single stepping until exit from function compare,
which has no line number information.

Breakpoint 1, 0x000000000000100c8 in calcXOR ()
(gdb) s
Single stepping until exit from function calcXOR,
which has no line number information.

Breakpoint 2, 0x0000000000001010c in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 3, 0x00000000000010118 in compare ()
(gdb) s
Single stepping until exit from function compare,
which has no line number information.
0x00000000000010120 in end ()
(gdb) i r
ra          0x10114  0x10114  <compare>
sp          0x40007fff90  0x40007fff90
gp          0x0      0x0
tp          0x0      0x0
t0          0x0      0
t1          0x0      0
t2          0x0      0
fp          0x0      0x0
s1          0x0      0
a0          0x0      0
a1          0x40008000b8  274886295736
a2          0x1a      26
a3          0x0      0
a4          0x0      0
a5          0x0      0
a6          0x0      0
a7          0x0      0
s2          0x0      0
s3          0x1      1
s4          0x1      1
s5          0x0      0
s6          0x0      0
s7          0x0      0
s8          0x0      0
s9          0x0      0
s10         0x0      0
s11         0x0      0
t3          0x0      0
t4          0x0      0
t5          0x0      0
t6          0x0      0
pc          0x10120  0x10120  <end>
(gdb)

```

```
Breakpoint 2, 0x0000000000001010c in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 3, 0x00000000000010118 in compare ()
(gdb) i r
ra      0x10114  0x10114 <compare>
sp      0x40007fff90  0x40007fff90
gp      0x0      0x0
tp      0x0      0x0
t0      0x0      0
t1      0x0      0
t2      0x0      0
fp      0x0      0x0
s1      0x0      0
a0      0x9      9
a1      0x4000800094  274886295700
a2      0x20      32
a3      0x0      0
a4      0x0      0
a5      0x0      0
a6      0x0      0
a7      0x0      0
s2      0x0      0
s3      0x0      0
s4      0x0      0
s5      0x0      0
s6      0x0      0
s7      0x0      0
s8      0x0      0
s9      0x0      0
s10     0x0      0
s11     0x0      0
t3      0x0      0
t4      0x0      0
t5      0x0      0
t6      0x0      0
pc      0x10118  0x10118 <compare+4>
(gdb) x/1dw 0x4000800090
0x4000800090: 65
(gdb) x/1dw 0x4000800094
0x4000800094: 32
(gdb) s
```

```
(gdb) x/1dw 0x4000800090
0x4000800090: 65
(gdb) x/1dw 0x4000800094
0x4000800094: 32
(gdb) x/1dw 0x4000800098
0x4000800098: 144
(gdb) x/1dw 0x400080009C
0x400080009C: 72
(gdb) x/1dw 0x40008000A0
0x40008000A0: 164
(gdb) x/1dw 0x40008000A4
0x40008000A4: 82
(gdb) x/1dw 0x40008000A8
0x40008000A8: 169
(gdb) x/1dw 0x40008000AC
0x40008000AC: 212
(gdb) x/1dw 0x40008000B0
0x40008000B0: 106
(gdb) x/1dw 0x40008000B4
0x40008000B4: 53
(gdb)
```

## Ejemplo ARM64

```
Type "apropos word" to search for commands related to "word".
(gdb) file example1
Reading symbols from example1...
(No debugging symbols found in example1)
(gdb) target remote localhost:1233
Remote debugging using localhost:1233
0x00010054 in _start ()
(gdb) b calcXOR
Breakpoint 1 at 0x1006c
(gdb) b saveVAL
Breakpoint 2 at 0x100b4
(gdb) b compare
Breakpoint 3 at 0x100c4
(gdb) b end
Breakpoint 4 at 0x100d4
(gdb) s
Single stepping until exit from function _start,
which has no line number information.

Breakpoint 1, 0x0001006c in calcXOR ()
(gdb) i r
r0          0xb          11
r1          0x408002a0    1082131104
r2          0x41         65
r3          0x0          0
r4          0x0          0
r5          0x0          0
r6          0x0          0
r7          0x0          0
r8          0x0          0
r9          0x100        256
r10         0x100dc      65756
r11         0x0          0
r12         0x0          0
sp          0x40800100    0x40800100
lr          0x10068      65640
pc          0x1006c      0x1006c <calcXOR>
cpsr       0x10         16
fpscr       0x0          0
fpsid       0x41034070    1090732144
fpexc       0x40000000    1073741824
ID_MMFR1    0x40000000    1073741824
ID_MMFR2    0x1260000     19267584
```



```
Breakpoint 2, 0x000100b4 in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.
```

```
Breakpoint 3, 0x000100c4 in compare ()
(gdb) i r
r0          0xb          11
r1          0x408002a0    1082131104
r2          0x20         32
r3          0x0          0
r4          0x0          0
r5          0x0          0
r6          0x0          0
r7          0x0          0
r8          0x0          0
r9          0x104        260
r10         0x100dc      65756
r11         0x0          0
r12         0x0          0
sp          0x40800100    0x40800100
lr          0x100c0      65728
```

```
DBGDEVID2    0x0          0
DBGWCR1_EL1  0x0          0
ID_PFR1      0x10001      65537
DBGDEVID1    0x2          2
ID_DFR0      0x6010009    100728841
MFAR         0x0          0
MAIR0        0x0          0
DBGDEVID     0x110f13     1117971
MFAR         0x0          0
ID_AFR0      0x0          0
MAIR1        0x0          0
RES_0_C0_C9_X 0x0          0
ID_MMFR0     0x10101105    269488389
OSLSR_EL1    0xa         10
(gdb) x/1dw 0x408000200
0x8000200: Cannot access memory at address 0x8000200
(gdb) x/1dw 0x40800200
0x40800200: 65
(gdb) x/1dw 0x40800204
0x40800204: 32
(gdb)
```

```
ID_MMFR0      0x10101105      269488389
OSLSR_EL1      0xa          10
(gdb) x/1dw 0x40800200
0x40800200:    65
(gdb) x/1dw 0x40800204
0x40800204:    32
(gdb) x/1dw 0x40800208
0x40800208:   144
(gdb) x/1dw 0x4080020C
0x4080020c:    72
(gdb) x/1dw 0x40800210
0x40800210:   164
(gdb) x/1dw 0x40800214
0x40800214:    82
(gdb) x/1dw 0x40800218
0x40800218:   169
(gdb) x/1dw 0x4080021C
0x4080021c:   212
(gdb) x/1dw 0x40800220
0x40800220:   106
(gdb) x/1dw 0x40800224
0x40800224:    53
```

## Ejemplo x86

```
(gdb) b _start
Breakpoint 1 at 0x401000
(gdb) b calcXOR
Breakpoint 2 at 0x40101c
(gdb) b saveVAL
Breakpoint 3 at 0x401078
(gdb) b compare
Breakpoint 4 at 0x401085
(gdb) b end
Breakpoint 5 at 0x40108f
(gdb) run
Starting program: /home/johnnyzaet/Documents/isa/x86/test/example

Breakpoint 1, 0x0000000000401000 in _start ()
(gdb) s
Single stepping until exit from function _start,
which has no line number information.

Breakpoint 2, 0x000000000040101c in calcXOR ()
(gdb) i r
rax                0xb                11
rbx                0x7fffffff370        140737488348016
rcx                0x41                65
rdx                0x0                0
rsi                0x0                0
rdi                0x0                0
rbp                0x0                0x0
rsp                0x7fffffff268        0x7fffffff268
r8                 0x0                0
r9                 0x0                0
r10                0x0                0
r11                0x0                0
r12                0x0                0
r13                0x0                0
r14                0x0                0
r15                0x0                0
rip                0x40101c            0x40101c <calcXOR>
eflags            0x202                [ IF ]
cs                 0x33                51
ss                 0x2b                43
ds                 0x0                0
es                 0x0                0
fs                 0x0                0
gs                 0x0                0
```



```

gs          0xb          0
(gdb) s
Single stepping until exit from function calcXOR,
which has no line number information.

Breakpoint 3, 0x0000000000401078 in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 4, 0x0000000000401085 in compare ()
(gdb) i r
rax          0xb          11
rbx          0x7fffffff374  140737488348020
rcx          0x20          32
rdx          0x0           0
rsi          0x0           0
rdi          0x0           0
rbp          0x0           0x0
rsp          0x7fffffff250  0x7fffffff250
r8           0x0           0
r9           0x0           0
r10          0x0           0
r11          0x0           0
r12          0x0           0
r13          0x0           0
r14          0x0           0
r15          0x0           0
rip          0x401085       0x401085 <compare>
eflags       0x206         [ PF IF ]
cs           0x33          51
ss           0x2b          43
ds           0x0           0
es           0x0           0
fs           0x0           0
gs           0x0           0
(gdb) x/1dw 0x7fffffff370
0x7fffffff370: 65
(gdb) x/1dw 0x7fffffff374
0x7fffffff374: 32
(gdb)

```

```
Breakpoint 3, 0x0000000000401078 in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 4, 0x0000000000401085 in compare ()
(gdb) s
Single stepping until exit from function compare,
which has no line number information.

Breakpoint 2, 0x000000000040101c in calcXOR ()
(gdb) s
Single stepping until exit from function calcXOR,
which has no line number information.

Breakpoint 3, 0x0000000000401078 in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 4, 0x0000000000401085 in compare ()
(gdb) s
Single stepping until exit from function compare,
which has no line number information.

Breakpoint 2, 0x000000000040101c in calcXOR ()
(gdb) s
Single stepping until exit from function calcXOR,
which has no line number information.

Breakpoint 3, 0x0000000000401078 in saveVAL ()
(gdb) s
Single stepping until exit from function saveVAL,
which has no line number information.

Breakpoint 4, 0x0000000000401085 in compare ()
(gdb) s
Single stepping until exit from function compare,
which has no line number information.

Breakpoint 2, 0x000000000040101c in calcXOR ()
(gdb) s
Single stepping until exit from function calcXOR,
which has no line number information.
```

```
g-3 0x0
(gdb) x/1dw 0x7fffffff370
0x7fffffff370: 65
(gdb) x/1dw 0x7fffffff374
0x7fffffff374: 32
(gdb) x/1dw 0x7fffffff378
0x7fffffff378: 144
(gdb) x/1dw 0x7fffffff37C
0x7fffffff37C: 72
(gdb) x/1dw 0x7fffffff380
0x7fffffff380: 164
(gdb) x/1dw 0x7fffffff384
0x7fffffff384: 82
(gdb) x/1dw 0x7fffffff388
0x7fffffff388: 169
(gdb) x/1dw 0x7fffffff38c
0x7fffffff38c: 212
(gdb) x/1dw 0x7fffffff390
0x7fffffff390: 106
(gdb) x/1dw 0x7fffffff394
0x7fffffff394: 53
(gdb)
```