

debugging/gdb/example_division_by_zero

GDB (The GNU Project Debugger)

Example: GDB - Division by zero

- Source code division_by_zero.c++:

```
#include <iostream>

int main(int argc, char *argv[]) {
    int a=1, b=0;
    std::cout << a / b << std::endl;
}
```

- Set up compiler environment

```
module add compiler/gnu
```

- Compile (add debug symbols)

```
c++ -ggdb -Wall division_by_zero.c++ -o division_by_zero
```

- Execute

```
./division_by_zero
```

```
Floating point exception (core dumped)
```

- Execute with GDB

```
gdb division_by_zero
```

```
tui enable
```

```
(gdb) run
```

```
Program received signal SIGFPE, Arithmetic exception.
```

```
0x0000000004007a3 in main (argc=1, argv=0x7fffffffb298) at division_by_zero.c++:5
5         std::cout << a/b << std::endl;
```

```
(gdb) bt
```

```
#0 0x0000000004007a3 in main (argc=1, argv=0x7fffffffb298) at division_by_zero.c++:5
```

```
(gdb) print a
$1 = 1
(gdb) print b
$2 = 0
(gdb) info locals
a = 1
b = 0
```

- GDB non-interactive execution (e.g. in batch job)

```
gdb -ex run -ex bt -ex "info locals" -batch --args ./division_by_zero
```

```
Program received signal SIGFPE, Arithmetic exception.
```

```
0x0000555555555516a in main (argc=1, argv=0x7fffffff198) at division_by_zero.c++:5
```

```
5      std::cout << a / b << std::endl;
```

```
#0 0x0000555555555516a in main (argc=1, argv=0x7fffffff198) at division_by_zero.c++:5
```

```
a = 1
```

```
b = 0
```