The C11 addition to Litmus

Jacques-Pascal Deplaix - London

Introduction: What is Litmus ?

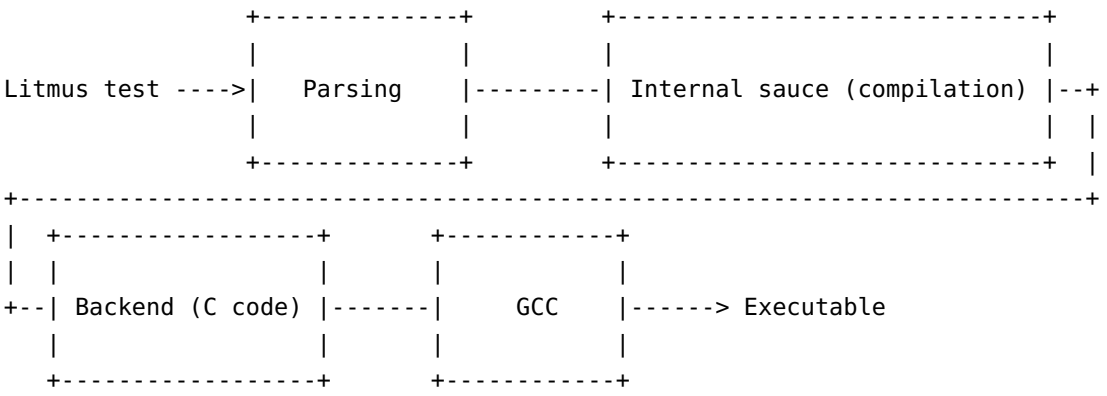
Litmus is compiler which takes a « litmus test » and produces an executable that tests memory models

A litmus test looks like this:

```
X86 MP
""

{}

 P0          | P1          ;
 MOV [x],$1 | MOV EAX,[x] ;
 MOV [y],$1 | MOV ECX,[y] ;

exists (1:EAX=1 /\ 1:ECX=0)
```

The litmus compilation model

The internal compilation model is the following:



The out: An example

```
static void *P0(void *_vb) {
  mbar();
  ...
  for (int _i = _size_of_test-1 ; _i >= 0 ; _i--) {

    barrier_wait(_th_id,_i,&barrier[_i]);

asm __volatile__ (
"\n"
"#START _litmus_P0\n"
"#_litmus_P0_0\n\t"

"movl $1,%[x]\n"
"#_litmus_P0_1\n\t"

"movl $1,%[y]\n"
"#END litmus\n\t"
:[x] "=m" (_a->x[_i]),[y] "=m" (_a->y[_i])
:
:"cc","memory"
);
  }
  mbar();
  return NULL;
}
```

Handling C: Motivations

The motivations for the C frontend is the following:

- Handle multiple architectures with the same test
- Can be used to test the C compiler itself
- Be able to test the C model

Future

Herd with C

Questions ?

« C'est pas faux ! »