PyPy - what is it?

- a Python Interpreter
- a VM Generator

Python Interpreter

- single source “specification” in RPython
- PyPy compiles it to native C, .NET, JVM

RPython: static subset of Python

- static subset of Python
- we do whole-program type-inference

Interpreters written in RPython

- directly testable on top of CPython
- GC, threading, **JIT-Compiler** added automatically!

Garbage Collection framework

- write GC in RPython
- test in simulation (with pdb!)
- weave into translation of *any* interpreter

stackless / threading

- stackless transform for rpython programs (*any* interpreter)
- infinite recursion, greenlets, co-routines in Python!

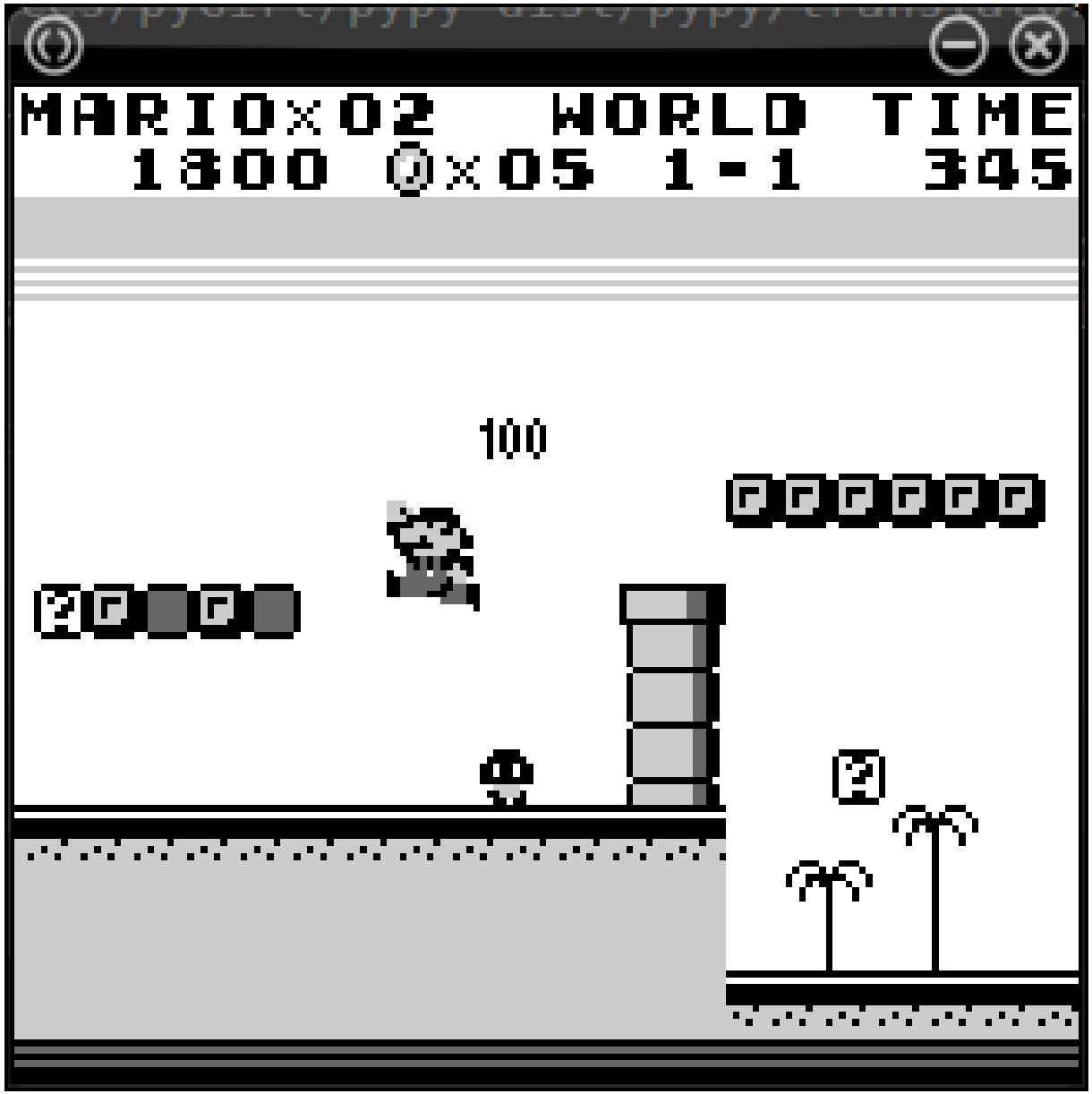
JIT-Compiler Generator

- written in RPython
- test in simulation (with pdb!)
- weave into translation of *any* interpreter

JIT-generator for Python

- removes object boxing, frame objects penalties
- but can present them if needed!
- current speedup: 20 times for simple examples

Any Interpreter or VM?



Strong points

- large automated test suite, good debugging tools
- Generating *efficient* Interpreters
- works for Python, a relatively complex language

Challenges

- improve the JIT generator until it can generate a good JIT-Compiler for Python!
- release and distribute Python Interpreter
- get some more funding