

The Virtual Machine of Lua 5.0

WHAT IS LUA?

WHAT IS LUA? (CONT.)

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VIRTUAL M

ANOTHER MODEL FOR VIRTUAL MACHINES

INSTRUCTION FORMATS

INSTRUCTION EXAMPLES

```
ADD      0  0  259      ; a = a+1
```

```
DIV      0  259  0      ; a = 1/a
```

```
GETT0. 91LT0. E0  0
```

```
TT0. 91LT0. E0  0
```

INSTRUCTION FORMATS

- There is an alternative fl(0

TABLES: HASH PART

- Hashing with internal lists for collision resolution
- Run a *rehash* when table is full:

COMPUTING THE SIZE OF A TABLE

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PERFORMANCE

program	Lua 4.0
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FINAL REMARKS

- Compiler for register-based machine is more complex
needs some primitive optimizations to use registers
- Interpreter for register-based machine is more complex
needs to decode instructions
- Requirements
no more than 256 local variables and temporaries
- Main gains:
avoid moves of local variables and constants
fewer instructions p0 (w)10.0000000000 (.)-278.0000000000 (p0 (w)10.00010