



Error 404: Compiler Not Found

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Internal Representations

- First Internal Representation (Inter1)
 - Maintains class structure of Java
- Simplified Internal Representation (SimpleInter)
 - All expressions become full statements that correlate to x86 statement types
- Standardized x86 Representation (x86)
 - Uses single object type for all commands



Optimizers

- Collapse Memory Chains
- Inline Immediates
- Minimize Memory Accesses
- Remove Instantly Overwritten Assignments
- Remove Unused Assignments
- Remove Useless Operations
- Stack Recalculator
- Remove Writing to Self



Collapse Memory Chains

```
mov EAX, DWORD PTR [EBP - 4]
mov DWORD PTR [EBP - 8], EAX
mov EAX, DWORD PTR [EBP - 8]
add EAX, EBX
```

```
mov EAX, DWORD PTR [EBP - 4]
add EAX, EBX
```



Stack Recalculation

```
sub ESP, 32
mov EAX, DWORD PTR [EBP - 24]
add EAX, 2
mov DWORD PTR [EBP - 12], EAX
add ESP, 32
```

```
sub ESP, 8
mov EAX, DWORD PTR [EBP - 4]
add EAX, 2
mov DWORD PTR [EBP - 8], EAX
add ESP, 8
```



Fibonacci Testing

- Runs in under 2 seconds for 40
- 43 is the highest number in 10 seconds

Demonstration

