

040 质数工厂

Subtitle

2022/10/05

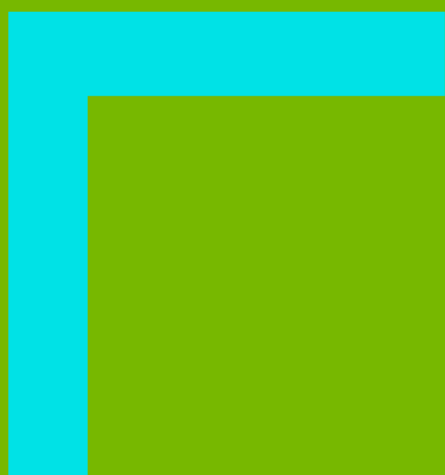
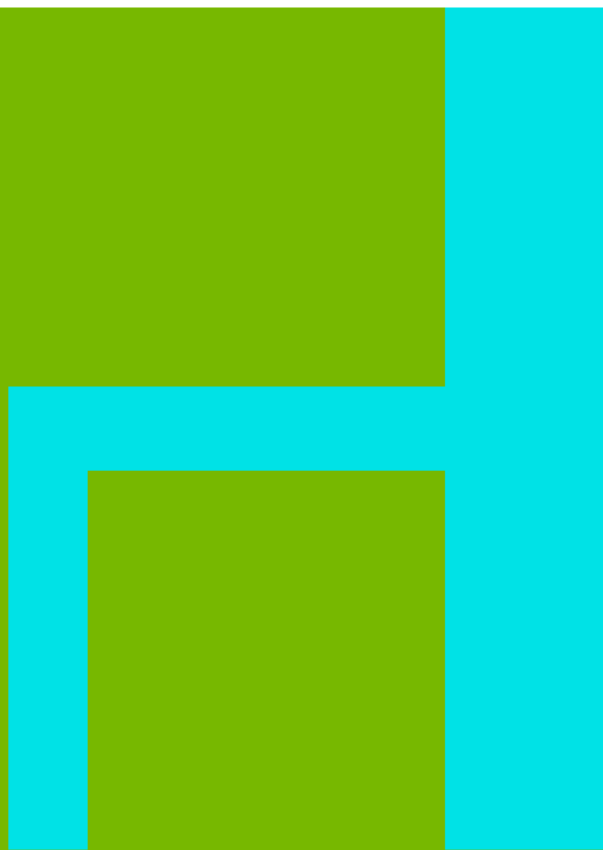


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040 质数工厂

优化目标：28行399步

28行247步

体积速度都满足，

见：<https://github.com/atesgoral/hrm-solutions/blob/master/solutions/40-Prime-Factor-28.399/28.247-jdashton.asm>

[snippet.asm](#)

```
-- HUMAN RESOURCE MACHINE PROGRAM --
```

```
a:
```

```
b:
```

```
INBOX
```

```
COPYTO 10
```

```
COPYFROM 24
```

```
COPYTO 22
```

```
BUMPUP 22
```

```
COPYTO 1
```

```
c:
```

```
BUMPUP 1
```

```
d:
```

```
COPYFROM 24
```

```
COPYTO 12
```

```
SUB 10
```

```
e:
```

```
COPYTO 11
```

```
BUMPUP 12
```

```
COPYFROM 11
```

```
ADD 1
```

```
JUMPN e
```

```
JUMPZ f
```

```
BUMPDN 22
```

```
JUMPZ c
```

```
COPYFROM 10
```

```
OUTBOX
```

```
JUMP b
```

```
f:
```

```
COPYFROM 1
```

```
OUTBOX
```

```
BUMPDN 12
```

```
JUMPZ a
```

```
BUMPUP 12
```

```
COPYTO 10
```

```
JUMP    d
```

69行267步

提前准备前几个质数

[snippet.asm](#)

```
COPYFROM 24
COPYTO 11
BUMPUP 11
BUMPUP 11
COPYTO 12
BUMPUP 12
ADD 11
COPYTO 13
ADD 11
COPYTO 14
ADD 12
COPYTO 15
BUMPUP 15
ADD 11
COPYTO 16
ADD 12
COPYTO 17
BUMPUP 17
ADD 11
COPYTO 18

JUMP start

out:
COPYFROM 23
OUTBOX

start:
COPYFROM 24
COPYTO 10
BUMPUP 10

INBOX
COPYTO 23
SUB 11
JUMPZ out
ADD 11
SUB 12
JUMPZ out
ADD 12
```

```
SUB 13
JUMPZ out
ADD 13
SUB 14
JUMPZ out
ADD 14
SUB 15
JUMPZ out
ADD 15
SUB 16
JUMPZ out
ADD 16
SUB 17
JUMPZ out
ADD 17
SUB 18
JUMPZ out

continue:
BUMPUP 10

prepare:
COPYFROM 24
COPYTO 0
COPYFROM 23

test:
SUB 10
JUMPN continue
JUMPZ out2
COPYTO 22
BUMPUP 0
COPYFROM 22
JUMP test

out2:
COPYFROM 10
OUTBOX
COPYFROM 0
JUMPZ start
COPYTO 23
BUMPUP 23
JUMP prepare
```

23行414步

参
考 : <https://github.com/atesgoral/hrm-solutions/blob/master/solutions/40-Prime-Factory-28.399/23.414-fbastien.asm>

相对于 439 步，将 test 中 COPYTO 22 移到了 JUMPZ 和 JUMPN 指令之后，并交换了 JUMPZ，JUMPN 顺序

[snippet.asm](#)

```
start:
COPYFROM 24
COPYTO 10
BUMPUP 10

INBOX
COPYTO 23

continue:
BUMPUP 10

prepare:
COPYFROM 24
COPYTO 0
COPYFROM 23

test:
SUB 10
JUMPN continue
JUMPZ out2
COPYTO 22
BUMPUP 0
COPYFROM 22
JUMP test

out2:
COPYFROM 10
OUTBOX
COPYFROM 0
JUMPZ start
COPYTO 23
BUMPUP 23
JUMP prepare
```

23行439步

[snippet.asm](#)

```
start:
COPYFROM 24
COPYTO 10
BUMPUP 10

INBOX
```

```
COPYTO 23

continue:
BUMPUP 10

prepare:
COPYFROM 24
COPYTO 0
COPYFROM 23

test:
SUB 10
COPYTO 22
JUMPZ out2
JUMPN continue
BUMPUP 0
COPYFROM 22
JUMP test

out2:
COPYFROM 10
OUTBOX
COPYFROM 0
JUMPZ start
COPYTO 23
BUMPUP 23
JUMP prepare
```

27行500步

[snippet.asm](#)

```
start:
COPYFROM 24
COPYTO 0
COPYTO 10
BUMPUP 10

INBOX
COPYTO 23

continue:
BUMPDN 23
JUMPZ start
BUMPUP 10
COPYFROM 24
COPYTO 0
BUMPUP 23
```

```
test:
SUB 10
COPYTO 22
JUMPZ out2
JUMPN continue
BUMPUP 0
COPYFROM 22
JUMP test

out2:
COPYFROM 10
OUTBOX
BUMPUP 0
COPYTO 23
COPYFROM 24
COPYTO 0
COPYFROM 23
JUMP test
```

第一次pass 29行508步

从2开始循环找出因子

[snippet.asm](#)

```
start:
COPYFROM 24
COPYTO 0
COPYTO 10
BUMPUP 10
BUMPUP 10

INBOX
COPYTO 23

test:
SUB 10
COPYTO 22
JUMPZ out2
JUMPN continue
BUMPUP 0
COPYFROM 22
JUMP test

out2:
COPYFROM 10
OUTBOX
```

```
BUMPUP 0  
COPYTO 23  
COPYFROM 24  
COPYTO 0  
COPYFROM 23  
JUMP test
```

continue:

```
BUMPUP 10  
COPYFROM 24  
COPYTO 0  
BUMPDN 23  
JUMPZ start  
BUMPUP 23  
JUMP test
```

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