

Sieve of Eratosthenes Benchmark#

from Sieve of Eratosthenes Benchmark Page <http://www.bagley.org/~doug/shootout/bench/sieve/sieve.gforth>

With many annotations <http://www.bagley.org/~doug/shootout/bench/sieve/alt/ann.sieve.forth>

gives wrong result in XFORTH, have to investigate

DECIMAL

8192 CONSTANT SIZE

1 VARIABLE FLAGS SIZE 2 - ALLOT

FLAGS SIZE + CONSTANT ENDFLAGS

```
: FLAGMULTS ( n toaddr fromaddr -- )
  DO
    0 I C! DUP
  +LOOP ;
```

```
: PRIMES ( -- n )
```

```
  FLAGS SIZE -1 FILL
```

```
  0 2
```

```
  ENDFLAGS FLAGS
```

```
  DO
```

```
    I C@
```

```
    IF
```

```
      DUP I + DUP ENDFLAGS <
```

```
      IF
```

```
        ENDFLAGS SWAP FLAGMULTS
```

```
      ELSE
```

```
        DROP
```

```
      THEN
```

```
        SWAP 1+ SWAP
```

```
    THEN
```

```
    1+
```

```
  LOOP
```

```
  DROP ;
```

Original BYTE FORTH Benchmark <http://www-personal.umich.edu/~williams/archive/forth/utilities/byteprimes.fs.html>

```
( Eratosthenes sieve benchmark )
```

```
( original BYTE benchmark )
```

8190 CONSTANT SIZE

-1 VARIABLE FLAGS SIZE ALLOT

```
: PRIMES
```

```
  FLAGS SIZE -1 FILL
```

```
  0 SIZE 0 DO
```

```
    I FLAGS + C@ IF
```

```
      I 2 * 3 + DUP I + BEGIN
```

```
DUP SIZE < WHILE
  DUP FLAGS + 0 SWAP C! OVER +
REPEAT DROP DROP 1+
THEN LOOP ;
```

from GNU Forth distribution (Bernd Paysan) <http://www.jwtdt.com/~paysan/gforth.html>

(Sieve by bernd paysan)

DECIMAL

```
-1 VARIABLE FLAGS 8190 ALLOT
FLAGS 8190 + CONSTANT EFLAG
```

```
: PRIMES ( -- n )
  FLAGS 8190 -1 FILL 0 3 EFLAG FLAGS
DO I C@
  IF DUP I + DUP EFLAG <
    IF EFLAG SWAP
      DO 0 I C! DUP +LOOP
    ELSE DROP THEN SWAP 1+ SWAP
  THEN 2 +
LOOP DROP ;
```