Appendix B

A Sample CM Fortran Program

This is the source code for the CM Fortran program **`primes.fcm`**, used as an example in this manual:

```
          program findprimes
          implicit none
          integer i, n, nextprime
          parameter (n = 70000)
          logical primes(n), candid(n)
          integer identity(n)

C
C         Initialization
C

          identity = [1:n]
          primes = .false.
          candid = .true.
          candid(1) = .false.
          call loop(n, identity, primes, candid)
          call results(n, primes)
          end

          subroutine loop(n, identity, primes, candid)
          logical primes(n), candid(n)
          integer identity(n)
          integer i, n, nextprime

C
C         Loop: Find next valid candidate, mark it as a prime,
C               invalidate all multiples as candidates, repeat.
C

          nextprime = 2
          do while (nextprime .le. sqrt(real(n)))
            primes(nextprime) = .true.
```


Copyright © 1993–1994 Thinking Machines Corporation

```
          candid(nextprime:n:nextprime) = .false.
          nextprime = minval(identity, 1, candid)
        end do

C
C       At this point, all valid candidates are prime
C

        primes(nextprime:n) = candid(nextprime:n)
        end

        subroutine results(n, primes)
        logical primes(n)
        integer i, n
C
C       Print results
C

        print *, "Number of primes: ", count(primes)
        do i = n,1, -1
          if (primes(i)) then
            print *,i
            goto 10
          end if
        end do
  10    end
```


Copyright © 1993–1994 Thinking Machines Corporation