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Assembly listing for file ./prime_sasm/prime.sasm
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SrcLin -Addr- Op Oprnd   --- Source line ---
     1                   # ############################################################################
     2                   #
     3                   # NAME        : PRIME.SASM
     4                   # AUTHOR      : GERARD WASSINK
     5                   # DATE        : JUNE 2019
     6                   # PURPOSE     : FINDING PRIMES FROM 1 TO 4095
     7                   #
     8                   # ############################################################################
     9                   #
    10 000000            START       EQU
    11 000000 20 0001                LIA     X'01                # LOAD 1
    12 000003 28 0086                STA     NUMBER              #   INTO NUMBER
    13                   #
    14                   #                                       # LOOP NUMBER = 1 TO 4095
    15                   #
    16 000006            NLOOP       EQU
    17 000006 20 0001                LIA     X'01                # ASSUME THIS ONE
    18 000009 28 008C                STA     PRIME               #   IS A PRIME
    19                   #
    20 00000C 51 0086                LMB     NUMBER              # TRACK NUMBER IN B REGISTER
    21                   #
    22 00000F 20 0002                LIA     X'02                # LOAD 2
    23 000012 28 0088                STA     COUNT               #   INTO COUNT
    24                   #
    25                   #                                       # LOOP COUNT = 2 TO NUMBER
    26                   #
    27 000015            CLOOP       EQU
    28 000015 52 0088                LMC     COUNT               # TRACK COUNT IN C REGISTER
    29                   #
    30 000018 50 0086                LMA     NUMBER              # CALC =
    31 00001B E9 0088                SBM     COUNT               #   NUMBER -
    32 00001E 28 008A                STA     CALC                #     COUNT
    33                   #
    34 000021 11 0039                JC      ATEND               # CALC < 0 ? : ATEND
    35 000024 12 0039                JZ      ATEND               # CALC = 0 ? : ATEND
    36                   #
    37 000027            SUBTR       EQU
    38 000027 50 008A                LMA     CALC                # CALC =
    39 00002A E9 0088                SBM     COUNT               #   CALC -
    40 00002D 28 008A                STA     CALC                #     COUNT
    41                   #
    42 000030 11 0039                JC      ATEND               # CALC < 0 ? : ATEND
    43 000033 12 0039                JZ      ATEND               # CALC = 0 ? : ATEND
    44 000036 10 0027                JMP     SUBTR               #   ELSE KEEP SUBTRACTING
    45                   #
    46 000039            ATEND       EQU
    47 000039 50 008A                LMA     CALC                # CALC
    48 00003C E2 0000                CPI     X'00                #   EQUAL ZERO?
    49 00003F 13 0045                JE      SKIP                #     GO SKIP
    50 000042 10 0057                JMP     NEXTC               #     ELSE NEXTC
    51                   #
    52 000045            SKIP        EQU
    53 000045 50 0086                LMA     NUMBER              # NUMBER
    54 000048 EA 0088                CPM     COUNT               #   EQUAL COUNT?
    55 00004B 13 0057                JE      NEXTC               #     GO NEXTC
    56                   #
    57 00004E 20 0000                LIA     X'00                # SET PRIME INDICOATOR
    58 000051 28 008C                STA     PRIME               #   TO FALSE
    59 000054 10 0069                JMP     SKIP1               #     LEAVE COUNT LOOP
    60                   #
    61 000057            NEXTC       EQU
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    62 000057 50 0088              LMA     COUNT               # COUNT =
    63 00005A E0 0001              ADI     X'01                #   COUNT +
    64 00005D 28 0088              STA     COUNT               #     1
    65                  #
    66 000060 EA 0086              CPM     NUMBER              # COUNT > NUMBER ?
    67 000063 15 0069              JG      SKIP1               #   GO SKIP1
    68 000066 10 0015              JMP     CLOOP               #   ELSE GO CLOOP
    69                  #
    70 000069              SKIP1   EQU
    71 000069 50 008C              LMA     PRIME               # PRIME INDICATOR
    72 00006C E2 0000              CPI     X'00                #   FALSE ?
    73 00006F 13 0076              JE      NEXTN               #     GO NEXTN
    74                  #
    75 000072              FOUNDPR     EQU
    76 000072 50 0086              LMA     NUMBER              # FOUND PRIME
    77 000075 30                   OPA                         #   PUT ON OUTPUT
    78                  #
    79 000076              NEXTN   EQU
    80 000076 50 0086              LMA     NUMBER              # INCREMENT
    81 000079 E0 0001              ADI     X'01                #   NUMBER
    82 00007C 28 0086              STA     NUMBER              #     BY 1
    83 00007F E2 0FFF              CPI     X'0FFF              # LESS THAN 4095 ?
    84 000082 14 0006              JL      NLOOP               #   GO NEXT NUMBER
    85                  #
    86 000085              FINISH  EQU
    87 000085 FF                   HLT                         # HALT PROGRAM
    88                  #
    89                  # ############################################################################
    90                  # ### STORAGE AREA (RESERVE TWO BYTES PER NUMBER)
    91                  # ############################################################################
    92 000086              NUMBER  DS  CL2
    93 000088              COUNT   DS  CL2
    94 00008A              CALC    DS  CL2
    95 00008C              PRIME   DS  CL2
    96                  #
    97 00008E    FFFFF             DC  X'FFFFFFFF
    98                  #

Phase 1 parsing ended successfully

Phase 2 parsing ended successfully

Phase 3 parsing ended successfully

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End of assembly for file ./prime_sasm/prime.sasm
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