Mode: All
Left file: D:\Source\github\CSS422_Hardware\Disassembler\UnitTests\Test_002.X68
Right file: D:\Source\github\CSS422_Hardware\Disassembler\Output.txt

```
*===============================================
» ==============================================
» ==========================
* Title      : Test_002
* Written by : CSS 422 Best Group
*
*   The CSS 422 Best Group is:
*       - Howie Catlin
*       - Kyle Dukart
*       - Colton Sellers
*
*
* Date       : 10-Nov-2019
*
* Description:
*   Test input file used to perform software v
» erification
*   and validation (i.e.: validation that the
» disassembler
*   is capable of converting hexidecimal to En
» glish,
*   verification that the the strings being tr
» anslated are
*   in fact correct).
*
*   First parts of this file attempt to prove
» that each
*   operation code is capable of being transla
» ted. The
*   registers D0, D7, A0, & A7 and hex values
» '0', '1', '5',
*   'A', and 'F' as edge cases most likely to
» uncover early
*   programming errors. This method exercises
» all opcodes,
*   but performs less addressing.
*
*   Later in the file, a brute-force matrix of
»  every-register
*   to-every-register is employed to verify th
» e Effective
*   Addressing code paths. This method uses fe
» wer op codes,
*   but performs more addressing.
*
*   Refer to the Test Plan and test matrix for
»  more
*   information.
*===============================================
» ==============================================
» ==========================
```

```
111112  MULS    $AAFF, D0
```

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```
                                                    111118  MULS     $AFAF5, D1
                                                    11111E  ADD.W             D0, D1
                                                    111120  ADDA.W   D0, A0


TESTIO
*----------------------------------------------
» --------------
* BCLR
*----------------------------------------------
» --------------
    BCLR        D0,D7                               111122  BCLR     D0, D7
    BCLR        D7,(A7)                             111124  BCLR     D7, (A7)
    BCLR        D0,(A0)+                            111126  BCLR     D0, (A0)+
    BCLR        D7,-(A7)                            111128  BCLR     D7, -(A7)
    BCLR        D0,$FFFF                            11112A  BCLR     D0, $FFFF
    BCLR        D7,$55555                           111130  BCLR     D7, $55555

*----------------------------------------------
» --------------
* ORI
*----------------------------------------------
» --------------
    ORI.W       #$1111,D0                           111136  ORI.W    #$1111, D0
    ORI.W       #$AAAA,(A0)+                        11113A  ORI.W    #$AAAA, (A0)+
    ORI.W       #$0000,-(A0)                        11113E  ORI.W    #$0000, -(A0)
    ORI.L       #$FFFFF,D0                          111142  ORI.L    #$FFFFF, D0
    ORI.L       #$55555,(A0)+                       111148  ORI.L    #$55555, (A0)+
    ORI.L       #$AAAAA,-(A0)                       11114E  ORI.L    #$AAAAA, -(A0)
*----------------------------------------------
» --------------
* CMPI
*----------------------------------------------
» --------------
    CMPI.W      #$1111,D0                           111154  CMPI.W   #$1111, D0
    CMPI.W      #$AAAA,(A0)+                        111158  CMPI.W   #$AAAA, (A0)+
    CMPI.W      #$0000,-(A0)                        11115C  CMPI.W   #$0000, -(A0)
    CMPI.L      #$FFFFF,D0                          111160  CMPI.L   #$FFFFF, D0
    CMPI.L      #$55555,(A0)+                       111166  CMPI.L   #$55555, (A0)+
    CMPI.L      #$AAAAA,-(A0)                       11116C  CMPI.L   #$AAAAA, -(A0)
*----------------------------------------------
» --------------
* MOVE.B
*----------------------------------------------
» --------------
    MOVE.B      #$0F,D0                             111172  MOVE.B   #F, D0
    MOVE.B      D7,(A7)                             111176  MOVE.B   D7, (A7)
    MOVE.B      D7,(A0)+                            111178  MOVE.B   D7, (A0)+
    MOVE.B      D0,-(A7)                            11117A  MOVE.B   D0, -(A7)
    MOVE.B      $1000,D0                            11117C  MOVE.B   $1000, D0
    MOVE.B      $10000,D0                           111180  MOVE.B   $10000, D0

    MOVE.W      #$AA,D0                             111186  MOVE.W   #$AA, D0
```

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```
        MOVE.W      D7,A0                    11118A  MOVEA.W D7, A0
        MOVE.W      D7,(A7)                  11118C  MOVE.W  D7, (A7)
        MOVE.W      D0,(A0)+                 11118E  MOVE.W  D0, (A0)+
        MOVE.W      D7,-(A7)                 111190  MOVE.W  D7, -(A7)
        MOVE.W      $5555,D0                 111192  MOVE.W  $5555, D0
        MOVE.W      $AAAAA,D0                111196  MOVE.W  $AAAAA, D0
        MOVE.L      #$AA,D0                  11119C  MOVE.L  #$AA, D0
        MOVE.L      D0,A0                    1111A2  MOVEA.L D0, A0
        MOVE.L      D0,(A0)                  1111A4  MOVE.L  D0, (A0)
        MOVE.L      D0,(A0)+                 1111A6  MOVE.L  D0, (A0)+
        MOVE.L      D0,-(A0)                 1111A8  MOVE.L  D0, -(A0)
        MOVE.L      $1000,D0                 1111AA  MOVE.L  $1000, D0
        MOVE.L      $10000,D0                1111AE  MOVE.L  $10000, D0


*-----------------------------------------
» --------------
* MOVEA.W
*-----------------------------------------
» --------------


        MOVEA.W     D7,A0                    1111B4  MOVEA.W D7, A0
        MOVEA.W     (A0),A7                  1111B6  MOVEA.W (A0), A7
        MOVEA.W     (A0)+,A7                 1111B8  MOVEA.W (A0)+, A7
        MOVEA.W     -(A7),A0                 1111BA  MOVEA.W -(A7), A0
        MOVEA.W     $AAAA,A0                 1111BC  MOVEA.W $AAAA, A0
        MOVEA.W     $55555,A0                1111C2  MOVEA.W $55555, A0
        MOVEA.L     D0,A0                    1111C8  MOVEA.L D0, A0
        MOVEA.L     D7,A0                    1111CA  MOVEA.L D7, A0
        MOVEA.L     (A7),A0                  1111CC  MOVEA.L (A7), A0
        MOVEA.L     (A0)+,A7                 1111CE  MOVEA.L (A0)+, A7
        MOVEA.L     -(A7),A0                 1111D0  MOVEA.L -(A7), A0
        MOVEA.L     $FFAA,A7                 1111D2  MOVEA.L $FFAA, A7
        MOVEA.L     $FFAA5,A0                1111D8  MOVEA.L $FFAA5, A0
                                             1111DE  NOP
                                             1111E0  RTS

*-----------------------------------------------
» --------------
* NOP, RTS, ILLEGAL
*-----------------------------------------------
» --------------
        NOP


        RTS


        ILLEGAL                              1111E2  ILLEGAL
*-----------------------------------------------
» --------------
* LEA
*-----------------------------------------------
» --------------
        LEA         (A7),A0                  1111E4  LEA             (A7), A0
        LEA         $FFAA,A0                 1111E6  LEA             $FFAA, A0
```

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```
        LEA         $AA551,A7                1111EC  LEA              $AA551, A7
                                             1111F2  NEG.W   D0

*-------------------------------------
» -------------
* NEG
*-------------------------------------
» -------------
    NEG         D0
    NEG         (A6)                         1111F4  NEG.W   (A6)
    NEG         (A0)+                        1111F6  NEG.W   (A0)+
    NEG         -(A1)                        1111F8  NEG.W   -(A1)
    NEG         $AAFF                        1111FA  NEG.W   $AAFF
    NEG         $55FAA                       111200  NEG.W   $55FAA

*-------------------------------------
» -------------
* JSR
*-------------------------------------
» -------------
    JSR         (A6)                         111206  JSR              (A6)
    JSR         $AAFF                        111208  JSR              $AAFF
    JSR         $55FAA                       11120E  JSR              $55FAA

*-------------------------------------
» -------------
* MOVEM
*-------------------------------------
» -------------
*-------------------------------------
» -------------
* SUBQ.x
*-------------------------------------
» -------------
    SUBQ.B      #1,D0                        111214  SUBQ.B  #1, D0
    SUBQ.B      #3,(A7)                      111216  SUBQ.B  #3, (A7)
    SUBQ.B      #4,(A0)+                     111218  SUBQ.B  #4, (A0)+
    SUBQ.B      #5,-(A0)                     11121A  SUBQ.B  #5, -(A0)
    SUBQ.B      #6,$AAFF                     11121C  SUBQ.B  #6, $AAFF
    SUBQ.B      #7,$AFAF5                    111222  SUBQ.B  #7, $AFAF5

    SUBQ.W      #1,D0                        111228  SUBQ.W  #1, D0
    SUBQ.W      #3,(A7)                      11122A  SUBQ.W  #3, (A7)
    SUBQ.W      #4,(A0)+                     11122C  SUBQ.W  #4, (A0)+
    SUBQ.W      #5,-(A0)                     11122E  SUBQ.W  #5, -(A0)
    SUBQ.W      #6,$AAFF                     111230  SUBQ.W  #6, $AAFF
    SUBQ.W      #7,$AFAF5                    111236  SUBQ.W  #7, $AFAF5
    SUBQ.L      #1,D0                        11123C  SUBQ.L  #1, D0
    SUBQ.L      #3,(A7)                      11123E  SUBQ.L  #3, (A7)
    SUBQ.L      #4,(A0)+                     111240  SUBQ.L  #4, (A0)+
    SUBQ.L      #5,-(A0)                     111242  SUBQ.L  #5, -(A0)
    SUBQ.L      #6,$AAFF                     111244  SUBQ.L  #6, $AAFF
    SUBQ.L      #7,$AFAF5                    11124A  SUBQ.L  #7, $AFAF5
```

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```
*-----------------------------------------
» --------------
* DIVS
*-----------------------------------------
» --------------
    DIVS        D0,D1                       111250  DIVS      D0, D1
    DIVS        (A1)+,D1                     111252  DIVS      (A1)+, D1
    DIVS        -(A2),D2                     111254  DIVS      -(A2), D2
    DIVS        #01,D1                       111256  DIVS      #$1, D1
    DIVS        $AAFF,D1                     11125A  DIVS      $AAFF, D1
    DIVS        $FFAA5,D2                    111260  DIVS      $FFAA5, D2
*-----------------------------------------
» --------------
* OR
*-----------------------------------------
» --------------
    OR          D0,D1                       111266  OR.W      D0, D1
    OR          (A0),D0                      111268  OR.W      (A0), D0
    OR          (A0)+,D7                     11126A  OR.W      (A0)+, D7
    OR          -(A7),D0                     11126C  OR.W      -(A7), D0
    OR          #02,D1
                                            11126E  OR.W      #$2, D1
*-----------------------------------------
» --------------
* SUB
*-----------------------------------------
» --------------
    SUB         D0,D1                       111272  SUB.W     D0, D1
    SUB         A0,D0                        111274  SUB.W     A0, D0
    SUB         (A0),D0                      111276  SUB.W     (A0), D0
    SUB         (A0)+,D0                     111278  SUB.W     (A0)+, D0
    SUB         -(A7),D1                     11127A  SUB.W     -(A7), D1
    SUB         #02,D1                       11127C  SUBQ.W    #2, D1
    SUB         $AAFF,D0                     11127E  SUB.W     $AAFF, D0
    SUB         $AFAF5,D1                    111284  SUB.W     $AFAF5, D1
*-----------------------------------------
» --------------
* CMP
*-----------------------------------------
» --------------
    CMP         D0,D1                       11128A  CMP.W     D0, D1
    CMP         A0,D0                        11128C  CMP.W     A0, D0
    CMP         (A0),D0                      11128E  CMP.W     (A0), D0
    CMP         (A0)+,D0                     111290  CMP.W     (A0)+, D0
    CMP         -(A7),D1                     111292  CMP.W     -(A7), D1
    CMP         #02,D1                       111294  CMP.W     #$2, D1
    CMP         $AAFF,D0                     111298  CMP.W     $AAFF, D0
    CMP         $AFAF5,D1                    11129E  CMP.W     $AFAF5, D1
*-----------------------------------------
» --------------
* EOR
*-----------------------------------------
```

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```
»  --------------
    EOR         D0,D1                      1112A4  EOR.W    D0, D1
    EOR         D0,(A0)                    1112A6  EOR.W    D0, (A0)
    EOR         D0,(A0)+                   1112A8  EOR.W    D0, (A0)+
    EOR         D0,-(A7)                   1112AA  EOR.W    D0, -(A7)
    EOR.W       #$AAFF,D0                  1112AC  EORI.W   #$AAFF, D0
    EOR.L       #$AFAF5,D1                 1112B0  BCLR     #$A, D1
                                           1112B4  DATA     FAF5
*-------------------------------------------
»  --------------
*  MULS
*-------------------------------------------
»  --------------
    MULS        D0,D1                      1112B6  MULS     D0, D1
    MULS        (A0),D0                    1112B8  MULS     (A0), D0
    MULS        (A0)+,D0                   1112BA  MULS     (A0)+, D0
    MULS        -(A7),D1                   1112BC  MULS     -(A7), D1
    MULS        #02,D1                     1112BE  MULS     #$2, D1
    MULS        $AAFF,D0                   1112C2  MULS     $AAFF, D0
    MULS        $AFAF5,D1                  1112C8  MULS     $AFAF5, D1
*-------------------------------------------
»  --------------
*  ADD
*-------------------------------------------
»  --------------
    ADD         D0,D1                      1112CE  ADD.W          D0, D1
    ADD         D0,A0                      1112D0  ADDA.W   D0, A0
    ADD         (A0),D0                    1112D2  ADD.W          (A0), D0
    ADD         (A0)+,D0                   1112D4  ADD.W          (A0)+, D0
    ADD         -(A7),D1                   1112D6  ADD.W          -(A7), D1
    ADD         #02,D1                     1112D8  ADDQ.W   #2, D1
    ADD         $AAFF,D0                   1112DA  ADD.W          $AAFF, D0
    ADD         $AFAF5,D1                  1112E0  ADD.W          $AFAF5, D1
*-------------------------------------------
»  --------------
*  ADDA
*-------------------------------------------
»  --------------
    ADDA        D0,A0                      1112E6  ADDA.W   D0, A0
    ADDA        D0,A0                      1112E8  ADDA.W   D0, A0
    ADDA        (A0),A0                    1112EA  ADDA.W   (A0), A0
    ADDA        (A0)+,A0                   1112EC  ADDA.W   (A0)+, A0
    ADDA        -(A7),A1                   1112EE  ADDA.W   -(A7), A1
    ADDA        #02,A1                     1112F0  ADDQ.W   #2, A1
    ADDA        $AAFF,A0                   1112F2  ADDA.W   $AAFF, A0
    ADDA        $AFAF5,A7                  1112F8  ADDA.W   $AFAF5, A7
*-------------------------------------------
»  --------------
*  ASR
*-------------------------------------------
»  --------------
    ASR         (A0)                       1112FE  ASR      (A0)
```

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	ASR	(A7)+		111300	ASR	(A7)+
	ASR	-(A0)		111302	ASR	-(A0)
	ASR	$AFAF		111304	ASR	$AFAF
	ASR	$FFAA550		11130A	ASR	$FFAA550
*--						
» -------------						
* ASL						
*--						
» -------------						
	ASL	(A0)		111310	ASL	(A0)
	ASL	(A7)+		111312	ASL	(A7)+
	ASL	-(A0)		111314	ASL	-(A0)
	ASL	$AFAF		111316	ASL	$AFAF
	ASL	$FFAA550		11131C	ASL	$FFAA550
*--						
» -------------						
* LSR						
*--						
» -------------						
	LSR	(A0)		111322	LSR	(A0)
	LSR	(A7)+		111324	LSR	(A7)+
	LSR	-(A0)		111326	LSR	-(A0)
	LSR	$AFAF		111328	LSR	$AFAF
	LSR	$FFAA550		11132E	LSR	$FFAA550
*--						
» -------------						
* LSL						
*--						
» -------------						
	LSL	(A0)		111334	LSL	(A0)
	LSL	(A7)+		111336	LSL	(A7)+
	LSL	-(A0)		111338	LSL	-(A0)
	LSL	$AFAF		11133A	LSL	$AFAF
	LSL	$FFAA550		111340	LSL	$FFAA550
*--						
» -------------						
* ROL						
*--						
» -------------						
	ROL	(A0)		111346	ROL	(A0)
	ROL	(A7)+		111348	ROL	(A7)+
	ROL	-(A0)		11134A	ROL	-(A0)
	ROL	$AFAF		11134C	ROL	$AFAF
	ROL	$FFAA550		111352	ROL	$FFAA550
*--						
» -------------						
* ROR						
*--						
» -------------						
	ROR	(A0)		111358	ROR	(A0)
	ROR	(A7)+		11135A	ROR	(A7)+

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```
     ROR           -(A0)                   11135C  ROR         -(A0)
     ROR           $AFAF                   11135E  ROR         $AFAF
     ROR           $FFAA550                111364  ROR         $FFAA550
*---------------------------------------
» -------------
* BRUTE-FORCE VERIFICATION
*---------------------------------------
» -------------
       ; D0 to all other data registers
     ADD           D0,D0                   11136A  ADD.W                D0, D0
     ADD           D0,D1                   11136C  ADD.W                D0, D1
     ADD           D0,D2                   11136E  ADD.W                D0, D2
     ADD           D0,D3                   111370  ADD.W                D0, D3
     ADD           D0,D4                   111372  ADD.W                D0, D4
     ADD           D0,D5                   111374  ADD.W                D0, D5
     ADD           D0,D6                   111376  ADD.W                D0, D6
     ADD           D0,D7                   111378  ADD.W                D0, D7
       ; D1 to all other data registers
     ADD           D1,D0                   11137A  ADD.W                D1, D0
     ADD           D1,D1                   11137C  ADD.W                D1, D1
     ADD           D1,D2                   11137E  ADD.W                D1, D2
     ADD           D1,D3                   111380  ADD.W                D1, D3
     ADD           D1,D4                   111382  ADD.W                D1, D4
     ADD           D1,D5                   111384  ADD.W                D1, D5
     ADD           D1,D6                   111386  ADD.W                D1, D6
     ADD           D1,D7                   111388  ADD.W                D1, D7
       ; D2 to all other data registers
     ADD           D2,D0                   11138A  ADD.W                D2, D0
     ADD           D2,D1                   11138C  ADD.W                D2, D1
     ADD           D2,D2                   11138E  ADD.W                D2, D2
     ADD           D2,D3                   111390  ADD.W                D2, D3
     ADD           D2,D4                   111392  ADD.W                D2, D4
     ADD           D2,D5                   111394  ADD.W                D2, D5
     ADD           D2,D6                   111396  ADD.W                D2, D6
     ADD           D2,D7                   111398  ADD.W                D2, D7
       ; D3 to all other data registers
     ADD           D3,D0                   11139A  ADD.W                D3, D0
     ADD           D3,D1                   11139C  ADD.W                D3, D1
     ADD           D3,D2                   11139E  ADD.W                D3, D2
     ADD           D3,D3                   1113A0  ADD.W                D3, D3
     ADD           D3,D4                   1113A2  ADD.W                D3, D4
     ADD           D3,D5                   1113A4  ADD.W                D3, D5
     ADD           D3,D6                   1113A6  ADD.W                D3, D6
     ADD           D3,D7                   1113A8  ADD.W                D3, D7
       ; D4 to all other data registers
     ADD           D4,D0                   1113AA  ADD.W                D4, D0
     ADD           D4,D1                   1113AC  ADD.W                D4, D1
     ADD           D4,D2                   1113AE  ADD.W                D4, D2
     ADD           D4,D3                   1113B0  ADD.W                D4, D3
     ADD           D4,D4                   1113B2  ADD.W                D4, D4
     ADD           D4,D5                   1113B4  ADD.W                D4, D5
     ADD           D4,D6                   1113B6  ADD.W                D4, D6
```

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Left	Right
`        ADD        D4,D7`	`1113B8  ADD.W            D4, D7`
`        ; D5 to all other data registers`	
`        ADD        D5,D0`	`1113BA  ADD.W            D5, D0`
`        ADD        D5,D1`	`1113BC  ADD.W            D5, D1`
`        ADD        D5,D2`	`1113BE  ADD.W            D5, D2`
`        ADD        D5,D3`	`1113C0  ADD.W            D5, D3`
`        ADD        D5,D4`	`1113C2  ADD.W            D5, D4`
`        ADD        D5,D5`	`1113C4  ADD.W            D5, D5`
`        ADD        D5,D6`	`1113C6  ADD.W            D5, D6`
`        ADD        D5,D7`	`1113C8  ADD.W            D5, D7`
`        ; D6 to all other data registers`	
`        ADD        D6,D0`	`1113CA  ADD.W            D6, D0`
`        ADD        D6,D1`	`1113CC  ADD.W            D6, D1`
`        ADD        D6,D2`	`1113CE  ADD.W            D6, D2`
`        ADD        D6,D3`	`1113D0  ADD.W            D6, D3`
`        ADD        D6,D4`	`1113D2  ADD.W            D6, D4`
`        ADD        D6,D5`	`1113D4  ADD.W            D6, D5`
`        ADD        D6,D6`	`1113D6  ADD.W            D6, D6`
`        ADD        D6,D7`	`1113D8  ADD.W            D6, D7`
`        ; D7 to all other data registers`	
`        ADD        D7,D0`	`1113DA  ADD.W            D7, D0`
`        ADD        D7,D1`	`1113DC  ADD.W            D7, D1`
`        ADD        D7,D2`	`1113DE  ADD.W            D7, D2`
`        ADD        D7,D3`	`1113E0  ADD.W            D7, D3`
`        ADD        D7,D4`	`1113E2  ADD.W            D7, D4`
`        ADD        D7,D5`	`1113E4  ADD.W            D7, D5`
`        ADD        D7,D6`	`1113E6  ADD.W            D7, D6`
`        ADD        D7,D7`	`1113E8  ADD.W            D7, D7`
`        ; D0 to all other address registers`	
`        ADD        D0,A0`	`1113EA  ADDA.W   D0, A0`
`        ADD        D0,A1`	`1113EC  ADDA.W   D0, A1`
`        ADD        D0,A2`	`1113EE  ADDA.W   D0, A2`
`        ADD        D0,A3`	`1113F0  ADDA.W   D0, A3`
`        ADD        D0,A4`	`1113F2  ADDA.W   D0, A4`
`        ADD        D0,A5`	`1113F4  ADDA.W   D0, A5`
`        ADD        D0,A6`	`1113F6  ADDA.W   D0, A6`
`        ADD        D0,A7`	`1113F8  ADDA.W   D0, A7`
`        ; D1 to all other address registers`	
`        ADD        D1,A0`	`1113FA  ADDA.W   D1, A0`
`        ADD        D1,A1`	`1113FC  ADDA.W   D1, A1`
`        ADD        D1,A2`	`1113FE  ADDA.W   D1, A2`
`        ADD        D1,A3`	`111400  ADDA.W   D1, A3`
`        ADD        D1,A4`	`111402  ADDA.W   D1, A4`
`        ADD        D1,A5`	`111404  ADDA.W   D1, A5`
`        ADD        D1,A6`	`111406  ADDA.W   D1, A6`
`        ADD        D1,A7`	`111408  ADDA.W   D1, A7`
`        ; D2 to all other address registers`	
`»`	
`        ADD        D2,A0`	`11140A  ADDA.W   D2, A0`
`        ADD        D2,A1`	`11140C  ADDA.W   D2, A1`
`        ADD        D2,A2`	`11140E  ADDA.W   D2, A2`

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(continued)

ADD	D2,A3		111410	ADDA.W	D2, A3
ADD	D2,A4		111412	ADDA.W	D2, A4
ADD	D2,A5		111414	ADDA.W	D2, A5
ADD	D2,A6		111416	ADDA.W	D2, A6
ADD	D2,A7		111418	ADDA.W	D2, A7
; D3 to all other address registers					
ADD	D3,A0		11141A	ADDA.W	D3, A0
ADD	D3,A1		11141C	ADDA.W	D3, A1
ADD	D3,A2		11141E	ADDA.W	D3, A2
ADD	D3,A3		111420	ADDA.W	D3, A3
ADD	D3,A4		111422	ADDA.W	D3, A4
ADD	D3,A5		111424	ADDA.W	D3, A5
ADD	D3,A6		111426	ADDA.W	D3, A6
ADD	D3,A7		111428	ADDA.W	D3, A7
; D4 to all other address registers					
ADD	D4,A0		11142A	ADDA.W	D4, A0
ADD	D4,A1		11142C	ADDA.W	D4, A1
ADD	D4,A2		11142E	ADDA.W	D4, A2
ADD	D4,A3		111430	ADDA.W	D4, A3
ADD	D4,A4		111432	ADDA.W	D4, A4
ADD	D4,A5		111434	ADDA.W	D4, A5
ADD	D4,A6		111436	ADDA.W	D4, A6
ADD	D4,A7		111438	ADDA.W	D4, A7
; D5 to all other address registers					
ADD	D5,A0		11143A	ADDA.W	D5, A0
ADD	D5,A1		11143C	ADDA.W	D5, A1
ADD	D5,A2		11143E	ADDA.W	D5, A2
ADD	D5,A3		111440	ADDA.W	D5, A3
ADD	D5,A4		111442	ADDA.W	D5, A4
ADD	D5,A5		111444	ADDA.W	D5, A5
ADD	D5,A6		111446	ADDA.W	D5, A6
ADD	D5,A7		111448	ADDA.W	D5, A7
; D6 to all other address registers					
ADD	D6,A0		11144A	ADDA.W	D6, A0
ADD	D6,A1		11144C	ADDA.W	D6, A1
ADD	D6,A2		11144E	ADDA.W	D6, A2
ADD	D6,A3		111450	ADDA.W	D6, A3
ADD	D6,A4		111452	ADDA.W	D6, A4
ADD	D6,A5		111454	ADDA.W	D6, A5
ADD	D6,A6		111456	ADDA.W	D6, A6
ADD	D6,A7		111458	ADDA.W	D6, A7
; D7 to all other address registers					
ADD	D7,A0		11145A	ADDA.W	D7, A0
ADD	D7,A1		11145C	ADDA.W	D7, A1
ADD	D7,A2		11145E	ADDA.W	D7, A2
ADD	D7,A3		111460	ADDA.W	D7, A3
ADD	D7,A4		111462	ADDA.W	D7, A4
ADD	D7,A5		111464	ADDA.W	D7, A5
ADD	D7,A6		111466	ADDA.W	D7, A6
ADD	D7,A7		111468	ADDA.W	D7, A7
; values from all address registers to					

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(continued)

» A0	
ADD (A0),A0	11146A ADDA.W (A0), A0
ADD (A1),A0	11146C ADDA.W (A1), A0
ADD (A2),A0	11146E ADDA.W (A2), A0
ADD (A3),A0	111470 ADDA.W (A3), A0
ADD (A4),A0	111472 ADDA.W (A4), A0
ADD (A5),A0	111474 ADDA.W (A5), A0
ADD (A6),A0	111476 ADDA.W (A6), A0
ADD (A7),A0	111478 ADDA.W (A7), A0
; values from all address registers to	
» A1	
ADD (A0),A1	11147A ADDA.W (A0), A1
ADD (A1),A1	11147C ADDA.W (A1), A1
ADD (A2),A1	11147E ADDA.W (A2), A1
ADD (A3),A1	111480 ADDA.W (A3), A1
ADD (A4),A1	111482 ADDA.W (A4), A1
ADD (A5),A1	111484 ADDA.W (A5), A1
ADD (A6),A1	111486 ADDA.W (A6), A1
ADD (A7),A1	111488 ADDA.W (A7), A1
; values from all address registers to	
» A2	
ADD (A0),A2	11148A ADDA.W (A0), A2
ADD (A1),A2	11148C ADDA.W (A1), A2
ADD (A2),A2	11148E ADDA.W (A2), A2
ADD (A3),A2	111490 ADDA.W (A3), A2
ADD (A4),A2	111492 ADDA.W (A4), A2
ADD (A5),A2	111494 ADDA.W (A5), A2
ADD (A6),A2	111496 ADDA.W (A6), A2
ADD (A7),A2	111498 ADDA.W (A7), A2
; values from all address registers to	
» A3	
ADD (A0),A3	11149A ADDA.W (A0), A3
ADD (A1),A3	11149C ADDA.W (A1), A3
ADD (A2),A3	11149E ADDA.W (A2), A3
ADD (A3),A3	1114A0 ADDA.W (A3), A3
ADD (A4),A3	1114A2 ADDA.W (A4), A3
ADD (A5),A3	1114A4 ADDA.W (A5), A3
ADD (A6),A3	1114A6 ADDA.W (A6), A3
ADD (A7),A3	1114A8 ADDA.W (A7), A3
; values from all address registers	
» to A4	
ADD (A0),A4	1114AA ADDA.W (A0), A4
ADD (A1),A4	1114AC ADDA.W (A1), A4
ADD (A2),A4	1114AE ADDA.W (A2), A4
ADD (A3),A4	1114B0 ADDA.W (A3), A4
ADD (A4),A4	1114B2 ADDA.W (A4), A4
ADD (A5),A4	1114B4 ADDA.W (A5), A4
ADD (A6),A4	1114B6 ADDA.W (A6), A4
ADD (A7),A4	1114B8 ADDA.W (A7), A4

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```
          ; values from all address registers to
»  A5
    ADD          (A0),A5                    1114BA  ADDA.W   (A0), A5
    ADD          (A1),A5                    1114BC  ADDA.W   (A1), A5
    ADD          (A2),A5                    1114BE  ADDA.W   (A2), A5
    ADD          (A3),A5                    1114C0  ADDA.W   (A3), A5
    ADD          (A4),A5                    1114C2  ADDA.W   (A4), A5
    ADD          (A5),A5                    1114C4  ADDA.W   (A5), A5
    ADD          (A6),A5                    1114C6  ADDA.W   (A6), A5
    ADD          (A7),A5                    1114C8  ADDA.W   (A7), A5

          ; values from all address registers to
»  A6
    ADD          (A0),A6                    1114CA  ADDA.W   (A0), A6
    ADD          (A1),A6                    1114CC  ADDA.W   (A1), A6
    ADD          (A2),A6                    1114CE  ADDA.W   (A2), A6
    ADD          (A3),A6                    1114D0  ADDA.W   (A3), A6
    ADD          (A4),A6                    1114D2  ADDA.W   (A4), A6
    ADD          (A5),A6                    1114D4  ADDA.W   (A5), A6
    ADD          (A6),A6                    1114D6  ADDA.W   (A6), A6
    ADD          (A7),A6                    1114D8  ADDA.W   (A7), A6

          ; values from all address registers to
»  A7
    ADD          (A0),A7                    1114DA  ADDA.W   (A0), A7
    ADD          (A1),A7                    1114DC  ADDA.W   (A1), A7
    ADD          (A2),A7                    1114DE  ADDA.W   (A2), A7
    ADD          (A3),A7                    1114E0  ADDA.W   (A3), A7
    ADD          (A4),A7                    1114E2  ADDA.W   (A4), A7
    ADD          (A5),A7                    1114E4  ADDA.W   (A5), A7
    ADD          (A6),A7                    1114E6  ADDA.W   (A6), A7
    ADD          (A7),A7                    1114E8  ADDA.W   (A7), A7

          ; post-increment from all address regi
»  sters to A0
    ADD          (A0)+,A0                   1114EA  ADDA.W   (A0)+, A0
    ADD          (A1)+,A0                   1114EC  ADDA.W   (A1)+, A0
    ADD          (A2)+,A0                   1114EE  ADDA.W   (A2)+, A0
    ADD          (A3)+,A0                   1114F0  ADDA.W   (A3)+, A0
    ADD          (A4)+,A0                   1114F2  ADDA.W   (A4)+, A0
    ADD          (A5)+,A0                   1114F4  ADDA.W   (A5)+, A0
    ADD          (A6)+,A0                   1114F6  ADDA.W   (A6)+, A0
    ADD          (A7)+,A0                   1114F8  ADDA.W   (A7)+, A0

          ; post-increment from all address regi
»  sters to A1
    ADD          (A0)+,A1                   1114FA  ADDA.W   (A0)+, A1
    ADD          (A1)+,A1                   1114FC  ADDA.W   (A1)+, A1
    ADD          (A2)+,A1                   1114FE  ADDA.W   (A2)+, A1
    ADD          (A3)+,A1                   111500  ADDA.W   (A3)+, A1
    ADD          (A4)+,A1                   111502  ADDA.W   (A4)+, A1
    ADD          (A5)+,A1                   111504  ADDA.W   (A5)+, A1
```

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```
        ADD        (A6)+,A1              111506  ADDA.W  (A6)+, A1
        ADD        (A7)+,A1              111508  ADDA.W  (A7)+, A1

        ; post-increment from all address regi
» sters to A2
        ADD        (A0)+,A2              11150A  ADDA.W  (A0)+, A2
        ADD        (A1)+,A2              11150C  ADDA.W  (A1)+, A2
        ADD        (A2)+,A2              11150E  ADDA.W  (A2)+, A2
        ADD        (A3)+,A2              111510  ADDA.W  (A3)+, A2
        ADD        (A4)+,A2              111512  ADDA.W  (A4)+, A2
        ADD        (A5)+,A2              111514  ADDA.W  (A5)+, A2
        ADD        (A6)+,A2              111516  ADDA.W  (A6)+, A2
        ADD        (A7)+,A2              111518  ADDA.W  (A7)+, A2

        ; post-increment from all address regi
» sters to A3
        ADD        (A0)+,A3              11151A  ADDA.W  (A0)+, A3
        ADD        (A1)+,A3              11151C  ADDA.W  (A1)+, A3
        ADD        (A2)+,A3              11151E  ADDA.W  (A2)+, A3
        ADD        (A3)+,A3              111520  ADDA.W  (A3)+, A3
        ADD        (A4)+,A3              111522  ADDA.W  (A4)+, A3
        ADD        (A5)+,A3              111524  ADDA.W  (A5)+, A3
        ADD        (A6)+,A3              111526  ADDA.W  (A6)+, A3
        ADD        (A7)+,A3              111528  ADDA.W  (A7)+, A3

        ; post-increment from all address regi
» sters to A4
        ADD        (A0)+,A4              11152A  ADDA.W  (A0)+, A4
        ADD        (A1)+,A4              11152C  ADDA.W  (A1)+, A4
        ADD        (A2)+,A4              11152E  ADDA.W  (A2)+, A4
        ADD        (A3)+,A4              111530  ADDA.W  (A3)+, A4
        ADD        (A4)+,A4              111532  ADDA.W  (A4)+, A4
        ADD        (A5)+,A4              111534  ADDA.W  (A5)+, A4
        ADD        (A6)+,A4              111536  ADDA.W  (A6)+, A4
        ADD        (A7)+,A4              111538  ADDA.W  (A7)+, A4

        ; post-increment from all address regi
» sters to A5
        ADD        (A0)+,A5              11153A  ADDA.W  (A0)+, A5
        ADD        (A1)+,A5              11153C  ADDA.W  (A1)+, A5
        ADD        (A2)+,A5              11153E  ADDA.W  (A2)+, A5
        ADD        (A3)+,A5              111540  ADDA.W  (A3)+, A5
        ADD        (A4)+,A5              111542  ADDA.W  (A4)+, A5
        ADD        (A5)+,A5              111544  ADDA.W  (A5)+, A5
        ADD        (A6)+,A5              111546  ADDA.W  (A6)+, A5
        ADD        (A7)+,A5              111548  ADDA.W  (A7)+, A5

        ; post-increment from all address regi
» sters to A6
        ADD        (A0)+,A6              11154A  ADDA.W  (A0)+, A6
        ADD        (A1)+,A6              11154C  ADDA.W  (A1)+, A6
        ADD        (A2)+,A6              11154E  ADDA.W  (A2)+, A6
```

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```
        ADD         (A3)+,A6                    111550  ADDA.W    (A3)+, A6
        ADD         (A4)+,A6                    111552  ADDA.W    (A4)+, A6
        ADD         (A5)+,A6                    111554  ADDA.W    (A5)+, A6
        ADD         (A6)+,A6                    111556  ADDA.W    (A6)+, A6
        ADD         (A7)+,A6                    111558  ADDA.W    (A7)+, A6

            ; post-increment from all address reg
»   isters to A7
        ADD         (A0)+,A7                    11155A  ADDA.W    (A0)+, A7
        ADD         (A1)+,A7                    11155C  ADDA.W    (A1)+, A7
        ADD         (A2)+,A7                    11155E  ADDA.W    (A2)+, A7
        ADD         (A3)+,A7                    111560  ADDA.W    (A3)+, A7
        ADD         (A4)+,A7                    111562  ADDA.W    (A4)+, A7
        ADD         (A5)+,A7                    111564  ADDA.W    (A5)+, A7
        ADD         (A6)+,A7                    111566  ADDA.W    (A6)+, A7
        ADD         (A7)+,A7                    111568  ADDA.W    (A7)+, A7

            ; pre-decrement from all address regis
»   ters to A0
        ADD         -(A0),A0                    11156A  ADDA.W    -(A0), A0
        ADD         -(A1),A0                    11156C  ADDA.W    -(A1), A0
        ADD         -(A2),A0                    11156E  ADDA.W    -(A2), A0
        ADD         -(A3),A0                    111570  ADDA.W    -(A3), A0
        ADD         -(A4),A0                    111572  ADDA.W    -(A4), A0
        ADD         -(A5),A0                    111574  ADDA.W    -(A5), A0
        ADD         -(A6),A0                    111576  ADDA.W    -(A6), A0
        ADD         -(A7),A0                    111578  ADDA.W    -(A7), A0

            ; pre-decrement from all address regis
»   ters to A1
        ADD         -(A0),A1                    11157A  ADDA.W    -(A0), A1
        ADD         -(A1),A1                    11157C  ADDA.W    -(A1), A1
        ADD         -(A2),A1                    11157E  ADDA.W    -(A2), A1
        ADD         -(A3),A1                    111580  ADDA.W    -(A3), A1
        ADD         -(A4),A1                    111582  ADDA.W    -(A4), A1
        ADD         -(A5),A1                    111584  ADDA.W    -(A5), A1
        ADD         -(A6),A1                    111586  ADDA.W    -(A6), A1
        ADD         -(A7),A1                    111588  ADDA.W    -(A7), A1

            ; pre-decrement from all address regis
»   ters to A2
        ADD         -(A0),A2                    11158A  ADDA.W    -(A0), A2
        ADD         -(A1),A2                    11158C  ADDA.W    -(A1), A2
        ADD         -(A2),A2                    11158E  ADDA.W    -(A2), A2
        ADD         -(A3),A2                    111590  ADDA.W    -(A3), A2
        ADD         -(A4),A2                    111592  ADDA.W    -(A4), A2
        ADD         -(A5),A2                    111594  ADDA.W    -(A5), A2
        ADD         -(A6),A2                    111596  ADDA.W    -(A6), A2
        ADD         -(A7),A2                    111598  ADDA.W    -(A7), A2

            ; pre-decrement from all address regis
»   ters to A3
```

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```
    ADD           -(A0),A3              11159A  ADDA.W   -(A0), A3
    ADD           -(A1),A3              11159C  ADDA.W   -(A1), A3
    ADD           -(A2),A3              11159E  ADDA.W   -(A2), A3
    ADD           -(A3),A3              1115A0  ADDA.W   -(A3), A3
    ADD           -(A4),A3              1115A2  ADDA.W   -(A4), A3
    ADD           -(A5),A3              1115A4  ADDA.W   -(A5), A3
    ADD           -(A6),A3              1115A6  ADDA.W   -(A6), A3
    ADD           -(A7),A3              1115A8  ADDA.W   -(A7), A3

        ; pre-decrement from all address regis
» ters to A4
    ADD           -(A0),A4              1115AA  ADDA.W   -(A0), A4
    ADD           -(A1),A4              1115AC  ADDA.W   -(A1), A4
    ADD           -(A2),A4              1115AE  ADDA.W   -(A2), A4
    ADD           -(A3),A4              1115B0  ADDA.W   -(A3), A4
    ADD           -(A4),A4              1115B2  ADDA.W   -(A4), A4
    ADD           -(A5),A4              1115B4  ADDA.W   -(A5), A4
    ADD           -(A6),A4              1115B6  ADDA.W   -(A6), A4
    ADD           -(A7),A4              1115B8  ADDA.W   -(A7), A4

        ; pre-decrement from all address regis
» ters to A5
    ADD           -(A0),A5              1115BA  ADDA.W   -(A0), A5
    ADD           -(A1),A5              1115BC  ADDA.W   -(A1), A5
    ADD           -(A2),A5              1115BE  ADDA.W   -(A2), A5
    ADD           -(A3),A5              1115C0  ADDA.W   -(A3), A5
    ADD           -(A4),A5              1115C2  ADDA.W   -(A4), A5
    ADD           -(A5),A5              1115C4  ADDA.W   -(A5), A5
    ADD           -(A6),A5              1115C6  ADDA.W   -(A6), A5
    ADD           -(A7),A5              1115C8  ADDA.W   -(A7), A5

        ; pre-decrement from all address regis
» ters to A6
    ADD           -(A0),A6              1115CA  ADDA.W   -(A0), A6
    ADD           -(A1),A6              1115CC  ADDA.W   -(A1), A6
    ADD           -(A2),A6              1115CE  ADDA.W   -(A2), A6
    ADD           -(A3),A6              1115D0  ADDA.W   -(A3), A6
    ADD           -(A4),A6              1115D2  ADDA.W   -(A4), A6
    ADD           -(A5),A6              1115D4  ADDA.W   -(A5), A6
    ADD           -(A6),A6              1115D6  ADDA.W   -(A6), A6
    ADD           -(A7),A6              1115D8  ADDA.W   -(A7), A6

        ; pre-decrement from all address regis
» ters to A7
    ADD           -(A0),A7              1115DA  ADDA.W   -(A0), A7
    ADD           -(A1),A7              1115DC  ADDA.W   -(A1), A7
    ADD           -(A2),A7              1115DE  ADDA.W   -(A2), A7
    ADD           -(A3),A7              1115E0  ADDA.W   -(A3), A7
    ADD           -(A4),A7              1115E2  ADDA.W   -(A4), A7
    ADD           -(A5),A7              1115E4  ADDA.W   -(A5), A7
    ADD           -(A6),A7              1115E6  ADDA.W   -(A6), A7
    ADD           -(A7),A7              1115E8  ADDA.W   -(A7), A7
```

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```
        ; immediate to all data registers
    ADD         #01,D0              1115EA  ADDQ.W   #1, D0
    ADD         #01,D1              1115EC  ADDQ.W   #1, D1
    ADD         #01,D2              1115EE  ADDQ.W   #1, D2
    ADD         #01,D3              1115F0  ADDQ.W   #1, D3
    ADD         #01,D4              1115F2  ADDQ.W   #1, D4
    ADD         #01,D5              1115F4  ADDQ.W   #1, D5
    ADD         #01,D6              1115F6  ADDQ.W   #1, D6
    ADD         #01,D7              1115F8  ADDQ.W   #1, D7
        ; immediate to all address register
    ADD         #01,A0              1115FA  ADDQ.W   #1, A0
    ADD         #01,A1              1115FC  ADDQ.W   #1, A1
    ADD         #01,A2              1115FE  ADDQ.W   #1, A2
    ADD         #01,A3              111600  ADDQ.W   #1, A3
    ADD         #01,A4              111602  ADDQ.W   #1, A4
    ADD         #01,A5              111604  ADDQ.W   #1, A5
    ADD         #01,A6              111606  ADDQ.W   #1, A6
    ADD         #01,A7              111608  ADDQ.W   #1, A7
        ; immediate to all address register va
» lues
    ADD         #01,(A0)            11160A  ADDQ.W   #1, (A0)
    ADD         #01,(A1)            11160C  ADDQ.W   #1, (A1)
    ADD         #01,(A2)            11160E  ADDQ.W   #1, (A2)
    ADD         #01,(A3)            111610  ADDQ.W   #1, (A3)
    ADD         #01,(A4)            111612  ADDQ.W   #1, (A4)
    ADD         #01,(A5)            111614  ADDQ.W   #1, (A5)
    ADD         #01,(A6)            111616  ADDQ.W   #1, (A6)
    ADD         #01,(A7)            111618  ADDQ.W   #1, (A7)
        ; immediate to all address register wi
» th post increment
    ADD         #01,(A0)+           11161A  ADDQ.W   #1, (A0)+
    ADD         #01,(A1)+           11161C  ADDQ.W   #1, (A1)+
    ADD         #01,(A2)+           11161E  ADDQ.W   #1, (A2)+
    ADD         #01,(A3)+           111620  ADDQ.W   #1, (A3)+
    ADD         #01,(A4)+           111622  ADDQ.W   #1, (A4)+
    ADD         #01,(A5)+           111624  ADDQ.W   #1, (A5)+
    ADD         #01,(A6)+           111626  ADDQ.W   #1, (A6)+
    ADD         #01,(A7)+           111628  ADDQ.W   #1, (A7)+
        ; immediate to all address register wi
» th pre-decrement
    ADD         #01,-(A0)           11162A  ADDQ.W   #1, -(A0)
    ADD         #01,-(A1)           11162C  ADDQ.W   #1, -(A1)
    ADD         #01,-(A2)           11162E  ADDQ.W   #1, -(A2)
    ADD         #01,-(A3)           111630  ADDQ.W   #1, -(A3)
    ADD         #01,-(A4)           111632  ADDQ.W   #1, -(A4)
    ADD         #01,-(A5)           111634  ADDQ.W   #1, -(A5)
    ADD         #01,-(A6)           111636  ADDQ.W   #1, -(A6)
    ADD         #01,-(A7)           111638  ADDQ.W   #1, -(A7)
        ; absolute short to all data registers
    ADD         $01,D0              11163A  ADD.W            $1, D0
    ADD         $01,D1              11163E  ADD.W            $1, D1
```

Left file: D:\Source\github\CSS422_Hardware\Disassembler\UnitTests\Test_002.X68
Right file: D:\Source\github\CSS422_Hardware\Disassembler\Output.txt
(continued)

```
     ADD          $01,D2                    111642  ADD.W              $1, D2
     ADD          $01,D3                    111646  ADD.W              $1, D3
     ADD          $01,D4                    11164A  ADD.W              $1, D4
     ADD          $01,D5                    11164E  ADD.W              $1, D5
     ADD          $01,D6                    111652  ADD.W              $1, D6
     ADD          $01,D7                    111656  ADD.W              $1, D7
        ; absolute long to all data registers
     ADD          $0A05,A0                  11165A  ADDA.W  $A05, A0
     ADD          $0A05,A1                  11165E  ADDA.W  $A05, A1
     ADD          $0A05,A2                  111662  ADDA.W  $A05, A2
     ADD          $0A05,A3                  111666  ADDA.W  $A05, A3
     ADD          $0A05,A4                  11166A  ADDA.W  $A05, A4
     ADD          $0A05,A5                  11166E  ADDA.W  $A05, A5
     ADD          $0A05,A6
     ADD          $0A05,A7
*~Font name~Courier New~
*~Font size~10~
*~Tab type~1~
*~Tab size~4~
```

Beyond Compare v4.2.10