IBM® Reference Manual

PERFORMANCE CHARACTERISTICS

7030 Data Processing System

volume 2

VOLUME 2

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7030 Data Processing System

March 8, 1961

INTERNATIONAL BUSINESS MACHINES CORPORATION

LISTING OF GERB2 PROGRAM

```
        PUNID, GERBERIC
        -A (I,J) = 1/(I+J-1)-
START   LX, $X1, XTWO
        BD, $, 32                   -DISABLE-
NEXTN   SX, $X1, CN1
        C-I, $X1, 1.0
        SX, $X1, CN2
        C+I, $X1, 2.0
        SX, $X1, CN4
        C+1, $X1, DELTA+A-1.0
        SC, $X1, TEMP
        LV, $X1, TEMP
        SVA, $X1, LOC5
        L, ZERO
        ST, TEMP                        'SET (I+J-2) IN TEMP-
        LX, IX2, CN1
NEXT    L, TEMP
        +, ONE                          'ADVANCE TEMP TO (I+J-1)-
        ST. TEMP
        DL, ONE
        D/, TEMP                        'CALCULATE A (I,J)-
        SRD, A+1, 0 ($X2)
        CB+, $X2, NEXT              'REPEAT FOR FIRST ROW
        LX, $X2, CN2
        LX, $X3, CN2
LOC1    I. $X3, A+2 ($X2), DELTA+1.0+A ($X2)    'COPY REPEATED ELEMENTS-
        L, TEMP
        +, ONE
        ST, TEMP                        'ADVANCE (I+J+1)-
```

```
        DL, ONE
        D/, TEMP
LOCS    5RD, A ($X2)                    'CACULATE LAST TERM IN ROW-
        V+I, $X2, DELTA                 'ADVANCE TO NEXT ROW-
        CB, $X2, LOC1                   'REPEAT FOR NEXT ROW-
        LX, $X2, CN1
        LX, $X3, CN3
LOC3    SV, $X3, A ($X2)                'STORE ROW INDICATOR-
        V+I, $X2, DELTA
        V+I, $X3, 1.0
        CB, IX2, LOC3
        'FIND LARGEST ELEMENT IN FIRST COLUMN
        BD, $+, 32
        SC, $X2, 1.0                    'INTERVAL TIMER RESET
DELTAI  SYN, 250
DELTAM  SYN, DELTAI-1
DELTA   SYN, 250, 0
        LX, $X2, CN2
        Z, TEMP                         'SET ROW ONE AS LARGEST
        LA, A+1, 0                      'FIRST ELEMENT TO ACC.
REP     KA,DELTA+1, 0+A ($X2)           'COMPARE TO FIRST ELEMENT IN I-TH ROW

        BZAL, CON
        SV, $X2, TEMP                   'SET I-TH ROW AS LARGEST
        L-DELTA+1, 0+A ($X2)            'LARGEST ELEMENT TO ACC
CON     V+IC, $X2, DELTA                'ADVANCE I
        BZXCZ, REP                      'REPEAT FOR ALL ROWS
        LX, $X3, TEMP
        BXVZ, BEGIN                     'TRANSFER FIRST ROW CONTAINS LARGEST
        LX, $X2, CN4
        SWAP, $X2, A,DELTA+A ($X3)      'SWAP ROWS
```

```
        'NORMALIZE PIUOT ROW
BEGIN   L, ONE
        ST. DETER                   'SET UP FOR EVALUATION OF DETERMINATE
        LX, $X2, CN1
MORE    LX, $X1, CN2
        L (U), A
        ST (U), B
        LX, $X5, $X2
        L, ZERO
        ST, TEMP1
        Z, TEMP2                    'SET UP TO FIND MAX FIUCT FLEMENTS
        DL, A+1, 0
        BRZ, ERROR
        ST, TEMP                    'PIUOT ELEMENT TO STORAGE
        D*, DETER
        SRD, DETER                      EVALUATE DETERMINAN
        DL, ONE
        D/, TEMP
        SRD, TEMP
FROW    DL, A+2.0 ($X1)
        D*, TEMP
        SRD, B+1.0 ($X1)              'STORE NORMALIZED ELEMENT-
        CB+, $X1, FROW              'REPEAT FOR REST OF FIRST ROW
        L, TEMP
        ST, B+1.0 ($X1)              CALCULATE ELEMENT FOR INVERSE
        LX, $X4, CN2
        LX. $X3, CN2
        LV, $X3, CONSXW
        CNOP
ROW     SX, $X4, TEMP
```

```
        SVA, $X3, T1
        SVA, $X3, T2
        L (U), DELTA+A ($X4)
        ST (U), A ($X4)
        LFTN, DELTA+1.0+A ($X4)
LOOF    DL, DELTA+2.0+A ($X4)
T1      *+, B+1.0 ($X4)
        SRD, 9+1,0 ($X4)
        CB+, $X4, LOOP
        DL (N) , $FT
T2      B*, B+1,0 ($X4)
        SRD, A+1.0 ($X4)          'CALCULATE ELEMENT FOR INVERSE
        LX, $X4, TEMP
        CBZ, $X5, FIN             'CHECK ONLY UNUSED ROWS FOR MAX.
        LA, 1.0+A ($X4)
        KA, TEMP 1
        BZAH, CON1
        SV, $X2, TEMP2            'SAVE LOCATION OF MAX
        ST, TEMP1                 'SAVE MAX ELEMENT
        B, CON1
FIN     LCI, $X5, 1.0
CON1    V+I, $X4, DELTA
        V-IC, $X3, DELTA
        BZXCZ, ROW                'REPEAT FOR ALL ROWS
        LX, $X3, CN4
        T, $X3, B,A ($X4)         'MOVE PIUOT ROW INTO LAST PLACE
        LX, $X5, TEMP2
        BXVZ, CON3
        SWAP, $X3, A,A ($X5)
CON3    CB, $X2, MORE             'REPEAT FOR ALL PIVOT ROWS
```

```
        LV,$X4,1.0
        LX,$X1,CN1
        SC,$X1,$X10
        SV,$X4, CLOCK-2.0($X10)
        C+I, $X1,1.0
        K0I,$X1,101.0
        BXL, NEXTN
        BEW,$,0
ERROR   BEW, $,0
        CNOP
CN4     XW,0,N+1.0
XTWO    XW,0,2.0,0
DETER   DR(N), (1)
TEMP1   DR(N),(1)
TEMP2   DR(N),(1)
ZERO    DD(N), 0.0
ONE     DD(N), 1.0
TEMP    DR(N),(1)
CN1     XW, 0,N,0
CN2     XW,0,N-1,0
CN3     XW,1,0,0,0
CONSXW  XW, S+1,0,0,0
N       SYN, 4,0
CLOCK   DR(N),(250)
        SLC, 32768.0
A       DR(N),(DELTAI, DELTAI)
B       DR(N), (DELTAI)
        END, START
```

LISTING OF MATRIX MULTIPLY PROGRAM

```
        PUNID, TC MXM16
        SLC, 32,
BEGIN   NOP
        BD, $+0,32
        LVI,$13,0
        LCI,$1,6000
        T1,1,WON,32767.
        T,$1,32767,,32768,
        LVI,$1,20,
        LCI,$1,6
BD      BD,$+0.32
        LVI,$2,0
        SV,$2,$IT
        LVI,$15,$+1.0
        B,MXM16
        SIC,32768.
        SIC,0($1)
        SIC,0($1)
        SIC,0
        SIC,52768.
        SIC,0($1)
        SIC,0($1)
        SIC,0
        SIC,72768.
        SIC,0($1)
        SIC,0($1)
        SIC,0
        BEW,$
```

```
        NOP
        LV,$2,$IT
        SV,$2,TIME($13)
        V+I,$13,1.0
        V+ICR,$1,20.
        BZXCZ,BD
        BEW,$
WON     DD(N),1.0
TIME    DRZ(U),(10)
'RECTANGULAR MATRIX MULTIPLY SUBROUTINE, MXM16
'CALLING SEQUENCE AS FOLLOWS
        LVI,$15,$+1.0 - B,MXM16
        ,LMTRIX - ,M1 - ,N1 - ,0
        ,RMTRIX - ,M2 - ,N2 - ,0
        ,PMTRIX - ,M3 - ,N3 - ,0          -PRODUCT MATRIX ADDRESS ,M3XN3
        (FULL WORD ERROR RETURN)
        NORMAL RETURN
'M3 IS ASSUMED EQUAL TO M1,N3 IS ASSUMED EQUAL TO N2
'CHECK IS MADE FOR M2 EQUAL TO N1
'PROGRAM DOES NOT USE M3,N3 INFORMATION
'NO CHECK FOR MATRICES EXCEEDING MEMORY CAPACITY
MXM16   TI,4,$2,SPACE
        LVE,$3,1.0($15)
                                          LVE,$2,2.32($15)
        KV,$2,$3
                BZXE,ERR
        SVA,$3,DUMMY 2+0.32
        SVA,$3,VPI3                       -VPI3
        L(BU,18),$3,128-18-4
        LC,$4,$L                          -$4 COUNT
```

```
        BXCZ,N11Z
        ST(BU,4),VPI+1.32+.18-.4,128-18-4      -VPI+1.32
        BRZ,N12Z
LVE3    LVE,$4,0($15)
                    LRI,$4,$4                  -$4 COMPLETE
        LVE,$5,2.0($15)
                    LVE,$3,3.0($15)
        LC,$5,$3
                    LRI,$5,$5                  '$5 COMPLETE
        LVE,$14,4.0($15)
                    LVE,$2,0.32($15)
        LC,$14,$2
                    LRI,$14,$14                '$14 COMPLETE
        SVA,$3,LOOP1B+1.0                      'LOOP1B+1.0
        SVA,$3,DUMMY+0.32
                    LCI,$2,15
        LVI,$2,0
                    LWF(U),LOOP1B              '+,EXP HAS +0
PLU     +(U),DUMMY
                    ST(U),LOOP1A+1.0($2)
        CB+,$2,PLU
        +(U),DUMMY
        ST(BU,18),VPI,128-32-18                'VPI
        L(U),DUMMY 2
        D*(U),DUMMY
        -(BU,1),VFL,40
        ST(BU,18),SRD+1.0,40
        TI,2,$4,$2
        CNOP
SIX     SX,$2,$4                               'NEW ROW OF PRODUCT
```

```
DLU     DL(U),ZERO              'NEW ELEMENT OF PRODUCT
LOOP1A LFT(U),0($2)
                        *+(N),0($3)
        LFT(U),1.0($2)
                        *+(N),N2($3)
        LFT(U),2.0($2)
                        *+(N),N22($3)
        LFT(U),3.0($2)
                        *+(N),N23($3)
        LFT(U),4.0($2)
                        *+(N),N24($3)
        LFT(U),5.0($2)
                        *+(N),N25($3)
        LFT(U),6.0($2)
                        *+(N),N26($3)
        LFT(U),7.0($2)
                        *+(N),N27($3)
        LFT(U),8.0($2)
                        *+(N),N28($3)
        LFT(U),9.0($2)
                        *+(N),N29($3)
        LFT(U),A.0($2)
                        *+(N),N2A($3)
        LFT(U),B.0($2)
                        *+(N),N2B($3)
        LFT(U),C.0($2)
                        *+(N),N2C($3)
        LFT(U),D.0($2)
                        *+(N),N2D($3)
        LFT(U),E.0($2)
                        *+(N),N2E($3)
```

```
        LFT(U),F.0($2)
                        *+(N),N2F($3)
VPI     V+I,$3,N2G
                        V+IC,$2,16.0
        BZXCZ,LOOP1A
                        LCI,$2,N12
LOOP1B  LFT(U),0($2)
                        *+(N),0($3)
        V+I,$3,N2
                        CBR+,$2,LOOP1B
SRD     SRD(N),0($14)
                        V+I,$4,1.0
        V-ICR,$3,M2*N2-1.0
        BZXCZ,DLU
VP13    V+I,$2,N1
                        CB,$14,SIX
RECOV   TI,1,N11ZR,LOOP1A               NORMAL RETURN MEASURE
        TI,2,N12ZR,VPI
        TI,4,SPACE,$2
        B,7.0($15)
ERR     TI,4,SPACE,$2
        B,6.0($15)
N11Z    TI,1,N11ZW,LOOP1A               -LOOP1A HAS B,LOOP1B
        LC,$4,$3                        -N12 IN $4 COUNT FIELD
        B,LVE3
N12Z    TI,2,N12ZW,VPI
        8,LVE3
        CNOP
N11ZW   B,LOOP1B
                        *+(N),0($3)
```

```
N12ZW  V+I,$3,N2G
                    V+ICR,$2,16.0
       BZXCZ,LOOP1A
                    B,SRD
N11ZR  SYN,LOOP1B
N12ZR  V+I,$3,N2G
                    V+IC,$2,16.0
       BZXCZ,LOOP1A
                    LCI,$2,N12
DUMMY2 BE,0
                    BE,M2
DUMMY  BE,1.0
                    BE,N2
ZERO   DD(N),0
SPACE  DRZ(U),(4)
VFL    SYN(BU,1),ZERO                    -XPF BIT OF WHICH IS ONE
- $J   XW,LMTRIX,N11,$4
- $5   XW,RMTRIX,N2,$5
- $14  XW,PMTRIX,M1,$14
M1     SYN,64.0
M2     SYN,128.0
M3     SYN,192.0
N1     SYN,1.0
N2     SYN,2.0
N3     SYN,3.0
N11    SYN,9.0
N12    SYN,10.0
LMTRIX SYN,16384.0
RMTRIX SYN,32768.0
PMTRIX SYN,65536.0
```

```
A       SYN,10
B       SYN,11
C       SYN,12
D       SYN,13
E       SYN,14
F       SYN,15
N22     SYN,N2+N2
N23     SYN,N22+N2
N24     SYN,N23+N2
N25     SYN,N24+N2
N26     SYN,N25+N2
N27     SYN,N26+N2
N28     SYN,N27+N2
N29     SYN,N28+N2
N2A     SYN,N29+N2
N2B     SYN,N2A+N2
N2C     SYN,N2B+N2
N2D     SYN,N2C+N2
N2E     SYN,N2D+N2
N2F     SYN,N2E+N2
N2G     SYN,N2F+N2
        END, BEGIN
```

LISTING OF PRIME NUMBER PROGRAM PRIMC

```
        PUNID, TCCPRIMC
'THIS VERSION USES BOUNDARY CONTROL FEATURE OF THE 7030
'(P+1)/2 IS IN VF OF $4
'ODD NUMBER N ABOVE 3 REPRESENTED BY POSITION (N-1)/2
 BEYOND BASE ADDR
'PRIME P IS IN VF OF $1
'(P*P+2*K*P)/2 IN VF OF $2
        SLC,32,0
LOLIM   SYN (BU,24), 32.0
UPLIM   SYN (BU,24), (8) 273000.0
BASE    SYN (BU,24), 8160.32
TABL    SIC, SICK                       MUST BEGIN AT FULL WORD
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                NOP
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
```

```
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
        SIC, SICK
                BEW,$
AD      SIC, SICK
                BD, INTRUP
        SIC, SICK
                BEW,$
        SIC, SICK
                BD, SICK.
DS      SIC, SICK
                BD, INTRUP
SICK    NOP, 0
                BEW, SICK
PRIMC   BD, $+1                         'BEGINNING OF PROGRAM
                LVI, $1, TABL
                                SV, $1, $IA
        LX, $6, XW6
                        SX, $6, $UB     'SET BOUNDARY CONTROL
```

```
        LX, $4, XW4
        LV, $3, VF3
                LV, $5, VF5
        T, $4, WON5+1.0, WON5+2.0
INTRUP  BD, CAT
VPI     V+, $4, VF
CAT     CT0011 (BU,32) (V+IC), 0.1 ($4)     'LOCATE NEXT NONZERO BIT
        BRZ,VPI                             'USUALLY UNSUCCESSFUL
        V+, $4, 7.0                         'INCORPORATE $LZC CONTENTS
        SV, $4, $1
        LVS, $1, $1, $3, $4                 'P IN $ VALUE FIELD
        SVR, $1, DOG
                SVA, $1, DOGG
                        SVA, $1, DOGGG
        L (BU, 24), 17.0, 68                'P AT FP FRACTION BOUNDARY
        D*(U), $L                           'P*P.  THIS IS AN ODD NUMBER
        ST (BU, 24), 18.0, 21               '(P*P-1)/2 STORED IN VF OF $2
        V+, $2, $5
                KV, $2, $6
        BZXL, EXIT
        BE, DOG
        CNOP
DOG     CM0000  (BU, 1) (V+I), $($2)
DOGG    CM0000 (BU, 1) (V+I), $($2)         'SIEVING LOOP. USES $D5 FOR EXIT
DOGGG   CM0000 (BU, 1) (V+I), $($2)
        BE, DOG
EXIT    LVI, $15, $+1.0                     'ENTER DUMP SUBROUTINE
                B, (8) 277777.0
        TI.0, 32.0, 500.0
        5WAPI, 0, (8) 272000.0, (8) 273000.0
```

```
        BEW,$
VF3     VF, -BASE-BASE-.1
VF5     VF, BASE
VF      VF, .31
XW4     XW, BASE+.1, UPLIM-BASE+1, $
XW6     BE, UPLIM
                    BE, LOLIM (.25) 1
        SLC, BASE-2.0
WONS    DD (3U, 64), (16) FFFFFFFFFFFFFFFF
        DD (3U, 64), (16) FFFFFFFFFFFFFFFF
        END, PRIMC
```

LISTING OF MONTE CARLO PROGRAM

```
                PRNS
                SEM, C, 6, V
                SLC, 100.
LB              SYN, $
PRNT            SYN, 18.32
TAPE            SYN, 16.32
                PUNID, NH MC
START           Z, COUNT
                LCI, 1, 31
                T, 1, COUNT, COUNT+1.
                L(U), RANS
                ST(U), RAN
                BD, $+.32
                LV, 1, $IA
                LCI, 1, 48
                T, 1, 0($1), IT
                LVI, 1, IT
                SV, 1, $IA
RESM            TI, 1, FIXZ, IT+4.
                TI, 1, BOUND, $UB
                LVI, 1, 1
                SV, 1, $IT
                BE, $+, 32
                REL(SEOP), PRNT
                CCW, PRNT, CWB
                BB, CWB+.24, $-1.
                Z, $SB
                TI, 10, PBUF+1., PBUF+2.
                LCI, 1, 48
                T, 1, PBUF, PBUF+12.
                LCI, 1, 1000
                CB, 1, $
MX              LCI, 5, 10001
                LVI, 1, 0
                LVI, 2, 0
-           CHOOSE DIRECTION FOR ENTRY
AG              V-I, 1, 3.
                L(N), U($1)
                *(N), CPF
                -(N), PS
                ST(N), YD
                *(N), YD
```

```
            ST(N), TS
            BXVLZ, OMGA
            L(N), U+1. ($1)
            *(N), OPF
            -(N), PS
            ST(N), ZD
            *(N), ZD
            M+(N), TS
            L(N), U+2. ($1)
            *(N), $L
            +(N), TS
            *(N), SL
            -(N), U+2, ($1)
            BRGZ, AG
            CBZ, 5, STOP
            M+1(BU,64), PN
-           CHOOSE LOCATION FOR ENTRY
BG          V-I, 2, 2.
            L(N), V($2)
            E+I, 1
            -(N), ONE
            ST(N), Y
            *(N), Y
            BXVLZ, OMGB
            ST(N), TSQ
            L(N), V+1. ($2)
            E+I, 1
            -(N), ONE
            ST(N), Z
            *(N), Z
            +(N), TSQ
            -(N), ONE
            BRGZ, BG
            ST(N), TSA
-           CLASSIFY ENTRY
            LVI, 3, 0
            -(N), AT
            BRLZ, $+1.
            V+I, 3, 1.
            L(N), Y
            BRGZ, $+1.
            V+I, 3, 2.
-           PARTICLE IS AT (A, Y, Z) GOING IN DIRECTION (-(U+2.($1)), YD, ZD)
-            HOW FAR TO BOUNDARY
            L(N), YD
```

```
                +(N), U+2, ($1)
                BZRGZ, AWAYB
                ST(N), TSR
                L(N), A
                -(N), Y
                /(N), TSR
OB              ST(N), TTB
-             HOW FAR TO WALL
                L(N), Y
                *(N), YD
                ST(N), TSB
                L(N), Z
                *(N), ZD
                +(N), TSB
                ST(N), TSC
                *(N), TSC
                ST(N), TSD
                LN(N), TSA
                *(N), TS
                +(N), TSD
                SRT(N), $L
                -(N), TSC
                /(N), TS
-             WHICH IS CLOSER
                K(U), TTB
                BAH, TOBOUN
-             WALL IS CLOSER
                ST(N), TTWA
                L(N), U+2. ($1)
                *(N), TTWA
                -(N), A
                STN(N), X
JOIN            L(N), YD
                *(N), TTWA
                M+(N), Y
                L(N), ZD
                *(N), TTWA
                M+(N), Z
-           PARTICLE IS NOW ON WALL A AT (X, Y, Z)
-            CHOOSE NEW VELOCITY
CG              V-I, 1, 3.
                L(N), U+1. ($1)
                *(N), OPF
                -(N), PS
                ST(N), TSF
```

```
        *(N), TSF
        BXVLZ, OMGC
        ST(N), TS
        L(N), U+2. ($1)
        *(N), $L
        M+(N), TS
        L(N), U($1)
        *(N), OPF
        -(N), PS
        ST(N), XD
        *(N), XD
        +(N), TS
        *(N), $L
        -(N), 0+2. ($1)
        BRGZ, CG
    ROTATE VELOCITY RELATIVE TO CYLINDER WALL
        L(N), Y
        *(N), TSF
        ST(N), TSE
        L(N), Z
        *(N), U+2. ($1)
        -(N), TSE
        STN(N), ZD
        L(N), Z
        *(N), TSF
        ST(N), TSI
        L(N), Y
        *(N), U+2. ($1)
        +(N), TSI
        STN(N), YD
-       PARTICLE NOW HAS VELOCITY (XD, YD, ZD) ON WALL A AT (X, Y, Z)
-       HOW FAR TO BOUNDARY
        L(N), YD
        -(N), XD
        BZRGZ, AWAYA
        ST(N), TSJ
        L(N), X
        -(N), Y
        /(N), TSJ
        ST(N), TTB
-       HOW FAR TO WALL A
        L(N), Y
        *(N), YD
        ST(N), TSK
        L(N), Z
```

```
                *(N), ZD
                +(N), TSK
                /N(N), TS
                E+I, 1
-           WHICH IS CLOSER
                K(U), TTB
                BAH, TBOUN
QA              ST(N), TTWA
-           WALL A IS CLOSER
-           IS END CLOSER YET
                L(N), A
                -(N), X
                /(N), XD
                K(U), TTWA
                BAL, OUTA
-           NO, GO TO WALL.
AWAYC           L(N), XD
                *(N), TTWA
                M+(N), X
                L(N), YD
                *(N), TTWA
                M+(N), Y
                L(N), ZD
                *(N), TTWA
                M+(N), Z
                B, CG
OUTA            BRLZ, AWAYC
                ST(N), TSL
                *(N), YD
                M+(N), Y
                BRGZ, $+1.
                V+I, 3, 8.
                L(N), Y
                *(N), $L
                ST(N), TSM
                L(N), TSL
                *(N), ZD
                +(N), Z
                *(N), $L
                +(N), TSM
                -(N), TEST
                BRLZ, $+1.
                V+I, 3, 4.
                L(N), ONE
                M+(N), COUNT ($3)
```

```
        B, AG
        CNOP
AWAYA   L(N), Y
        *(N), YD
        ST(N), TSK
        L(N), Z
        *(N), ZD
        +(N), TSK
        /N(N), TS
        E+I, 1
        B, QA
OMGA    LX, 1, XA
        L(U), RAN
        CNOP
        D*(U), $L
        SHFL, 24
        ST(N), U($1)
        CB+, 1, $-1.-.32
        ST(U), RAN
        B, AG
OMGB    LX, 2, XA
        ST (BU, 64), TST
        L(U), RAN
        CNOP
        D*(U), $L
        SHFL, 24
        ST(N), V($2)
        CB+, 2, $-1.-.32
        ST (U), RAN
        L(BU, 64), TST
        B, BG
OMGC    LX, 1, XA
        L(U), RAN
        CNOP
        D*(U), $L
        SHFL, 24
        ST(N), U($1)
        CB+, 1, $-1.-.32
        ST(U), RAN
        B, CG
OMGD    LX, 1, XA
        L(U), RAN
        CNOP
        D*(U), $L
        SHFL, 24
```

```
                ST(N), U($1)
                CB+, 1, $-1.-32
                ST(U), RAN
                B, DG
AWAYB           L(N), AWQ
                B, QB
              HOW FAR TO END B
TBOUN           L(N), B
                -(N), Y
                /(N), YD
                ST(N), TSN
                HOW FAR TO WALL B
                L(N), XD
                *(N), $L
                ST(N), TS
                L(N), ZD
                *(N), $L
                +(N), TS
                ST(N), TSO
                L(N), X
                *(N), XD
                ST(N), TS
                L(N), Z
                *(N), ZD
                +(N), TS
                ST(N), TSP
                L(N), X
                *(N), $L
                ST(N), TS
                L(N), Z
                *(N), $L
                +(N), TS
                -(N), ONE
                *(N), TSO
                ST(N), TS
                L(N), TSP
                *(N), $L
                -(N), TS
                SRT(N), $L
                -(N), TSP
                /(N), TSO
                K(U), TSN
                ST(N), TTWB
                WHICH IS CLOSER
                BAH, OUTB
```

```
            WALL B IS CLOSER
QD            *(N), XD
              M+(N), X
              L(N), TTWB
              *(N), YD
              M+(N), Y
              L(N), TTWB
              *(N), ZD
              M+(N), Z
                 PARTICLE IS ON WALL B AT (X, Y, Z)
                 CHOOSE NEW VELOCITY
DG            V-I, 1, 3.
              L(N), U+1. ($1)
              *(N), OPF
              -(N), PS
              ST(N), TSF
              *(N), TSF
              EXVLZ, OMGD
              ST(N), TS
              L(N), U+2. ($1)
              *(N), $L
              M+(N), TS
              L(N), U($1)
              *(N), OPF
              -(N), PS
              ST(N), YD
              *(N), YD
              +(N), TS
              *(N), $L
              -(N), U+2.($1)
              BRGZ, DG
            ROTATE VELOCITY VECTOR RELATIVE TO CYLINDER WALL
              L(N), X
              *(N), TSF
              ST(N), TSE
              L(N), Z
              *(N), U+2.($1)
              -(N), TSE
              STN(N), ZD
              L(N), Z
              *(N), TSF
              ST(N), TSI
              L(N), X
              *(N), U+2.($1)
              +(N), TSI
```

```
          STN(N), XD
        PARTICLE HAS VELOCITY (XD, YD, ZD) AT (X, Y, Z) ON WALL B
        HOW FAR TO BOUNDARY
          L(N), XD
          -(N), YD
          BZRGZ, AWAYE
          ST(N), TSJ
          L(N), Y
          -(N), X
          /(N), TSJ
QE        ST(N), TTB
        HOW FAR TO WALL B
          L(N), X
          *(N), XD
          ST(N), TSK
          L(N), Z
          *(N), ZD
          +(N), TSK
          /N(N), TS
          E+I, 1
-       WHICH IS CLOSER
          K(U), TTB
          BAH, TBOUM
          ST(N), TTWB
-       WALL B IS CLOSER
-         IS END CLOSER YET
          L(N), YD
          BZRGZ, AWAYF
          L(N), B
          -(N), Y
          /(N), YD
          K(U), TTWB
          BAL, OUTBS
-       NO, GO TO WALL B
AWAYF     L(N), XD
          *(N), TTWB
          M+(N), X
          L(N), YD
          *(N), TTWB
          M+(N), Y
          L(N), ZD
          *(N), TTWB
          M+(N), Z
          B, DG
          CNOP
```

```
AWAYE       L(N), AWQ
            B, QE
AWAYG       L(N), AWQ
            B, QG
TOBOUN      L(N), A
            ST(N), X
            L(N), U+2.($1)
            STN(N), XD
            B, TBOUN
-           PARTICLE IS CROSSING BACK INTO PIPE A
-           HOW FAR TO END
TBOUM       L(N), XD
            BZRGZ, AWAYG
            L(N), A
            -(N), X
            /(N), XD
QG          ST(N), TSR
            L(N), Y
            *(N), YD
            ST(N), TSB
            L(N), Z
            *(N), ZD
            +(N), TSB
            ST(N), TSC
            *(N), TSC
            ST(N), TSD
            L(N), Y
            *(N), $L
            ST(N), TS
            L(N), Z
            *(N), $L
            +(N), TS
            -(N), ONE
            ST(N), TSA
            L(N), YD
            *(N), $L
            ST(N), TS
            L(N), ZD
            *(N), $L
            +(N), TS
            ST(N), TSS
            *(N), TSA
            ST(N), TS
            L(N), TSC
            *(N), $L
```

```
                -(N), TS
                SRT, $L
                -(N), TSC
                /(N), TSS
                K(U), TSR
                BAH, OUTAB
                ST(N), TTWA
                L(N), XD
                *(N), TTWA
                M+(N), X
                B, JOIN
                CNOP
OUTAB           L(N), TSR
                B, OUTA+.32
OUTBS           ST(N), TSN
OUTB            L(N), TSN
                BZRGZ, FIX
                *(N), XD
                M+(N), X
                BRGZ, $+1.
                V+I, 3, 8.
                L(N), ISN
                *(N), ZD
                +(N), Z
                V+I, 3, 16.
                *(N), $L
                ST(N), TS
                L(N), X
                *(N),$L
                +(N), TS
                -(N), TEST
                BRLZ, $+1.
                V+I, 3, 4.
                L(N), ONE
                M+(N), COUNT ($3)
                B, AG
FIX             L(N), TTWB
                B, QD
                SLC, 33000.
COUNT           DR(N), (32)
TIME            DR(BU, 64), (1)
TIMEE           DR(BU, 64), (1)
STOP            CCW, PRNT, CWB
                BB, CWB+.24, $-1.
                LVI, 8, 10.32
```

```
        LVI, 7, 0
        LCI, 7, 33
        LCV(BU, 64), BN
        ST(DU, 16,8), PRUF+11. -.16, 32
        ST(DU, 64, 8), PBUF+11
        B, BPR
APR     DL(U), COUNT-1. ($7)
        D+(U), FIXE
        LCV(BU, 64-12), $L+.12
        ST(SU, 64, 8), PBUF+.32($8)
BPR     LCI, 9, 10.
        LV, 9, $8
        LI(BU, 8), (16)A
        CT0011(BU, 8), PBUF+.16($9)
        BZRZ, $+1.32
        ST(BU, 8), PBUF+.16($9)
        V+, 9, PE
        GB, 8, APR
        CB, 9, $-3.
        V+, 8, FLD
        CB+, 7, APR
        LCV(BU, 36), $TC
        LCI, 7, 11
        LVI, 7, 0
        LVI, 8, 5
        CI0011(BU, 8), (16)A, -8
        ST(DU, 8, 8), PBUF+.8($7), 0($8)
        BZRZ, $+1.32
        ST(DU, 8, 8), PBUF+.8($7), -8
        V+, 7, PE
        V-I, 8, 2.
        CB, 7, $-3.-.32
        W(SEOP), PRNT, CWD
        W(SEOP), TAPE, CWE
        CCW, TAPE, CWB
        BB, CWB+.24, $-1.
        B, MX
        CNOP
FIXZ    SIC, ZET
        BD, ZET+.32
ZEI     BE, 00
        TI, 1, REFIX, IT+4
        TI, 1, INTER, $IT
        BE, $+.32
        TI, 9, 7.,HOLD
```

```
                TI, 16, 16., HGLD+9
                RD (SEOP), CNSL, CWA
                CCW, CNSL, CWB
                BB, CWB+.24  $-1.
                BB, CNSLE+2., RESTAR
                LCV(BU, 64), PN
                ST(DU, 64), CNSLA+1.
                TI, 1, CNSLE+2., CNSLA+2.
                W(SEOP), CNSL, CWC
                CCW, CNSL, CWB
                BB, CWB+.24, $-1.
                L(BU, 7), CNSLE+2.33
                *I(BU,7), 100
                +I (BU,15), 50, 20
                ST(BU, 18), 20
                TI, 9, HOLD, 7.
                TI, 16, HOLD+9., 16.
                BD, $+.32
                TI, 1, FIXZ, IT+4.
                B, ZET
REFIX           SIC, ZETA
                BC, $
ZETA            VF, 00
                CNOP
INTER           VF, 4096
FIXE            DD(BU, 64), (16) 0680000000000000
FLD             VF, .96
                CNOP
PBUF            DD(BU, 64), (16)0010101010101010,(16) 1010101010101010

PE              VF, .8
PN              DD(BU, 64), 0
CNSL            SYN, 19.32
                CNOP
IT              DR(BU, 64), (48)
HOLD            DR(BU, 64), (25)
                CNOP
BOUND           VF, UB
                VF, LB
                DD(BU,1), 1
CWA             CW, CNSLE, 3
CWB             CW
CWC             CW, CNSLA
CNSLE           DR(BU, 64), (3)
CNSLA           DR(BU, 64), (3)
```

```
CWD     CW(CDSC), PBUF, 12, $+1.
        CW(CDSC), PBUF+12., 12, $+1.
        CW(CDSC), PBUF+42., 12, $+1.
        CW,
        CW (CDSC), BPUF+36., 12, $+1
        CW(CD), PRUF+48., 12
CWE     CW(CCR), COUNT, 32, $+1.
        CW(CCR), RAN, 1, $+1
        CW9CCR), A, 2, $+1.
        CW, PN, 1
RESTAR  TI, I, FIXT, IT+4.
        CTL(SEOP), TAPE, (8) 136
        CCW, TAPE, CWB
        BB, CWB+.24, $-1.
        CCW, TAPE, CWB 7
        BZB, CWB+.18, $-1.
        LCV(DU, 64, 4), CNSL+1.
        ST(BU, 64), TESTN
AGT     RD(SEOP), TAOE, CWE
        CCW, TAPE, CWB
        BB, CWB+.24, $-1.
        K(BU, 64), PN
        BAH, AGT
        LCV(BU, 64), PN
        ST(DU, 64), CNSLA+1.
        W(SEOP), CNSL, CWC
        CCW, CNSL, CWB
        BB, CWB+.24, $–1
        RD(SEOP), CNSL, CWA
        CCW, CNSL, CWB
        BB, CWB+.24, $-1.
        BB, CNSLE+2., $-3.
        BB, RESTAR+2.1, RESTAR
        BD, RESM.
        CNOP
FIXT    NOP
TSR     DR(N), (1)
TSS     DR (N), (1)
TST     DR(N), (1)
TSN     DR(N), (1)
TSO     DR(N), (1)
TSP     DR(N), (1)
TTWB    DR(N), (1)
AWQ     DD(BU, 64),(168)008000000000000
RANS    DD(U), .7314156265
```

```
RAN     DR (U), (1)
YD      DR (N), (1)
ZD      DR (N), (1)
TTB     DR(N), (1)
TSA     DR (N), (1)
TSQ     DR (N, (1)
TSB     DR(N), (1)
TSC     DR(N), (1)
TSD     DR (N), (1)
X       DR (N), (1)
Y       DR (N), (1)
Z       DR (N), (1)
TTWA    DR (N), (1)
TSE     DR (N), (1)
TSF     DR (N), (1)
TSG     DR (N), (1)
TSH     DR (N), (1)
XD      DR (N), (1)
TSI     DR (N), (1)
TSJ     DR (N), (1)
TSK     DR (N), (1)
TSL     DR (N), (1)
TSM     DR (N), (1)
TS      DR (N), (1)
TESTN   DR (BU, 64), (1)
PS      DD (N), .7
OPF     DD (N), 1.4
ONE     DD (N), 1
AT      DD (N), .5-1
A       DD (N), 1.
B       DD (N), 2.
TEST    DD (N), .5
        DD (N), 1, 1, 1
U
        DR (N), (10000)
        DD (N), 1, 1, 1
V       DR (N), (10000)
XA      XW, 0, 9900
UB      SYN, S
        END, START
```

PREFACE

The following are representative times of 7030 instructions. They will be updated when more information becomes available.

INSTRUCTION SEQUENCE GENERATION AND TIMING

A subroutine (GENER) was written to handle the generation of a long sequence of instructions, the execution of that sequence, the calculation of execution time, and the conversion and printing of that time.

The subroutine accepts as parameters the following four items:

a. The location of the first instruction of the sequence to be generated.
b. The count of instructions starting at A that constitute a sequence.
c. The location of a mask to be OR'ed into each instruction of the sequence.
d. The location of a second mask to be OR'ed into each instruction of the sequence.

It picks up the instruction at A, determines if it is full or half word, determines if it is a branch type instruction, "ors" in both masks, stores the instruction, and reduces the count B. It then updates A by a full or half word and cycles till the count B is zero. This series is then reproduced until a thousand instructions are available after which a count branch (with an original count of 10) is inserted.

Branch instructions are handled especially with the branch address being updated by the address indicating the location where the first instruction of each sequence is stored; e.g. assume the calling sequence

```
LVI, $15, $+1.0; B, GENER
   , A
   , 3
   , 0
   , 0
```

At A there might be these three instructions: B, 1.; B, 1.32; B, -.32 which would cause the following sequence to be stored, at say $(1000)_8$.

```
1000.00     B, 1001.00
1000.40     B, 1001.40
1001.00     B, 1000.40
1001.40     B, 1002.40
```

The interpretation of branches embedded in other instruction types allows any instruction sequence to be constructed and timed.

This sequence is then executed 10 times (as specified by the count in the CB instruction) and the measured elapsed time is multiplied by 100 to produce the execution time for 1 million instructions; the seconds now indicate integer micro-seconds. The results are calculated to two fractional positions and compare exactly to representative timings when the loop is actually executed one thousand times. The last digit in each number may be in error by one unit.

A subroutine SCRIB (used in the Load Dump Trace package) is used for printing.

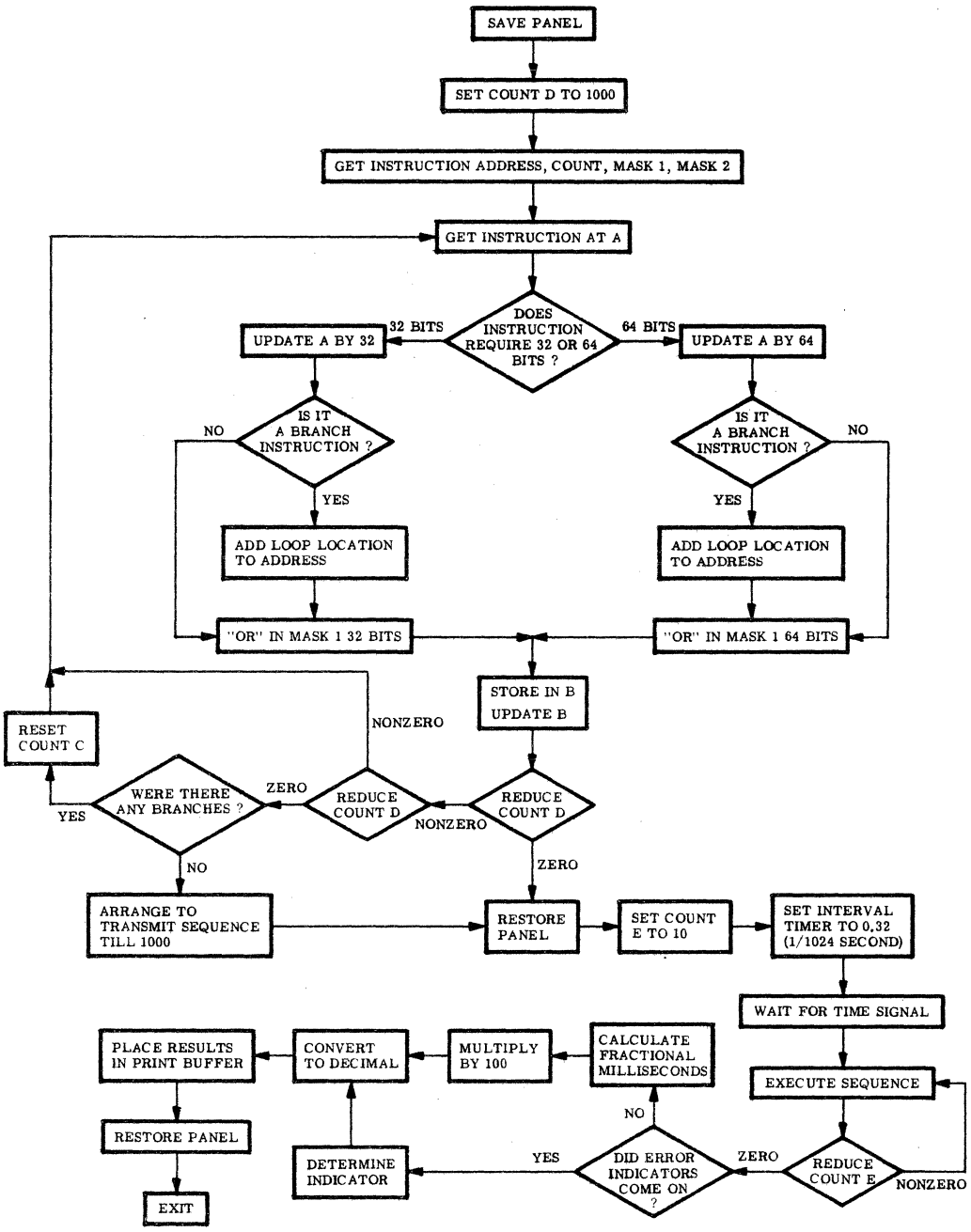

Figure 1. Flow Chart of GENER

FLOATING POINT TIMING

Method:

Sequences of operations were generated and timed by GENER.

External Operands:

Consecutive memory boxes were used where possible. Cases without forwarding used a repetition of four consecutive addresses 100011_8 to 100014_8. Cases with forwarding used 1000011_8.

I-Box Operands:

Index registers nine to twelve were used in the cases without forwarding and index nine in the cases with forwarding.

Internal Operands:

The right half of the accumulator, $R, was used for all cases. As $R was changed during the execution of successive double length operations a large factor of time was introduced by large exponent differences. This effort is illustrated in double add.

Data:

A normalized floating point one (1) was the initial operand unless otherwise specified. (Cases were run with flagged exponents superimposed.) The execution of large numbers of consectuve operations caused a time increase due to shifting in some cases (normalized add is one example). The addition of 10 thousand ones involves preshifting and post normalization time.

COMMENTARY ON FLOATING POINT MEASUREMENTS

Pre- and post-shifting naturally has an effect on instruction timing. This explains the difference between normalized and unnormalized operations on the following pages:

pp. 35, 66	(+)
pp. 36, 67	(D+)
pp. 39, 70	(+MG)
pp. 40, 71	(D+MG)
pp. 42, 73	(SLO)
pp. 50, 81	(*+ . 4 cases of very long shifts on p. 81)
pp. 62, 93	(M+)
pp. 63, 94	(M+MG)

The present measurements for /, D/, and R/ do not give a realistic timing, since the latter is strongly data dependent. The average divide time should be about 10 μs.

Repeated "to memory" operations lead to queuing for the LAAR, and the present measurements on these instructions actually refer to the worst possible situations, not often realized in actual practice. The following pages refer to "to memory" operations:

pp. 41, 72	(ST)
pp. 42, 73	(SLO)
pp. 43, 74	(SRD)
pp. 44, 75	(SRT)
pp. 48, 79	(D/)
pp. 61, 92	(LFT)
pp. 62, 93	(M+)
pp. 63, 94	(M+MG)

Forwarding merely means using the same operand address. For fetch-type instructions, "forwarding on consecutive fetch" actually occurs, and only one true memory fetch is made for the entire sequence of 10,000 instructions.

FLOATING POINT + OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		2.27	2.27		2.27	2.41
NEG (N)		2.27	2.27		2.27	2.41
A(N)		2.27	2.27		2.27	2.41
NEG A(N)		2.27	2.27		2.27	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		1.50	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.50	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.50	1.81		1.51	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		1.50	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.51	1.81		1.51	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT D+ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	2.57	2.57		2.57	2.58	
NEG (N)	2.57	2.57		2.57	2.58	
A(N)	2.57	2.57		2.57	2.58	
NEG A(N)	2.57	2.57		2.57	2.58	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	
BOTH OPERANDS WITH XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	
AC EXPNT N. MEM EXPNT XPFN						
(N)	2.10	2.10		2.10	2.41	
NEG (N)	2.10	2.10		2.10	2.41	
A(N)	2.10	2.10		2.10	2.41	
NEG A(N)	2.10	2.10		2.10	2.41	
(U)	2.10	2.10		2.10	2.41	
NEG (U)	2.10	2.10		2.10	2.41	
A(U)	2.10	2.10		2.10	2.41	
NEG A(U)	2.10	2.10		2.10	2.41	
AC WITH XPFP. MEM WITH XPFN						
(N)	2.10	2.10		2.10	2.41	
NEG (N)	2.10	2.10		2.10	2.41	
A(N)	2.10	2.10		2.10	2.41	
NEG A(N)	2.10	2.10		2.10	2.41	
(U)	2.10	2.10		2.10	2.41	
NEG (U)	2.10	2.10		2.10	2.41	
A(U)	2.10	2.10		2.10	2.41	
NEG A(U)	2.10	2.10		2.10	2.41	

FLOATING POINT K OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		1.51	1.81		1.51	2.41
NEG (N)		1.51	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.51	1.81		1.51	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		1.50	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.51	1.81		1.51	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.51	1.81		1.51	2.41
NEG (N)		1.50	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.50	1.81		1.51	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		1.50	1.81		1.51	2.41
A(U)		1.51	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT KMG OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	1.51	1.81		1.51	2.41	
NEG (N)	1.51	1.81		1.51	2.41	
A(N)	*01*	*01*		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.50	1.81		1.51	2.41	
NEG (U)	1.51	1.81		1.51	2.41	
A(U)	1.51	1.81		1.51	2.41	
NEG A(U)	1.51	1.81		1.51	2.41	
BOTH OPERANDS WITH XPFN						
(N)	1.50	1.81		1.51	2.41	
NEG (N)	1.51	1.81		1.51	2.41	
A(N)	1.51	1.81		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.50	1.81		1.51	2.41	
NEG (U)	1.50	1.81		1.51	2.41	
A(U)	1.50	1.81		1.51	2.41	
NEG A(U)	1.50	1.81		1.51	2.41	
AC EXPNT N. MEM EXPNT XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	
AC WITH XPFP. MEM WITH XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	

The two *01* error indications here are due to machine error. The correct answers are obviously 1.50 and 1.81.

FLOATING POINT +MG OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		2.27	2.27		2.27	2.41
NEG (N)		2.10	2.10		2.10	2.41
A(N)		2.27	2.27		2.27	2.41
NEG A(N)		2.10	2.10		2.10	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		2.10	2.10		2.10	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		2.10	2.10		2.10	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.51	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.50	1.81		1.51	2.41
(U)		1.51	1.81		1.51	2.41
NEG (U)		1.51	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.51	1.81		1.51	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT D+MG OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		2.57	2.57		2.57	2.58
NEG (N)		6.90	6.90		6.90	6.90
A(N)		2.57	2.57		2.57	2.58
NEG A(N)		6.90	6.90		6.90	6.90
(U)		1.80	1.81		1.80	2.41
NEG (U)		2.40	2.40		2.40	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		2.40	2.40		2.40	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		2.10	2.10		2.10	2.41
NEG (N)		2.10	2.10		2.10	2.41
A(N)		2.10	2.10		2.10	2.41
NEG A(N)		2.10	2.10		2.10	2.41
(U)		2.10	2.10		2.10	2.41
NEG (U)		2.10	2.10		2.10	2.41
A(U)		2.10	2.10		2.10	2.41
NEG A(U)		2.10	2.10		2.10	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		2.10	2.10		2.10	2.41
NEG (N)		2.10	2.10		2.10	2.41
A(N)		2.10	2.10		2.10	2.41
NEG A(N)		2.10	2.10		2.10	2.41
(U)		2.10	2.10		2.10	2.41
NEG (U)		2.10	2.10		2.10	2.41
A(U)		2.10	2.10		2.10	2.41
NEG A(U)		2.10	2.10		2.10	2.41

FLOATING POINT ST OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	4.80	7.25		4.80	7.55	
NEG (N)	4.80	7.25		4.80	7.55	
A(N)	4.80	7.25		4.80	7.55	
NEG A(N)	4.80	7.25		4.80	7.55	
(U)	4.80	7.25		4.80	7.55	
NEG (U)	4.80	7.25		4.80	7.55	
A(U)	4.80	7.25		4.80	7.55	
NEG A(U)	4.80	7.25		4.80	7.55	
BOTH OPERANDS WITH XPFN						
(N)	4.80	7.25		4.80	7.55	
NEG (N)	4.80	7.25		4.80	7.55	
A(N)	4.80	7.25		4.80	7.55	
NEG A(N)	4.80	7.25		4.80	7.55	
(U)	4.80	7.25		4.80	7.55	
NEG (U)	4.80	7.25		4.80	7.55	
A(U)	4.80	7.25		4.80	7.55	
NEG A(U)	4.80	7.25		4.80	7.55	
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.80	7.25		4.80	7.55	
NEG (N)	4.80	7.25		4.80	7.55	
A(N)	4.80	7.25		4.80	7.55	
NEG A(N)	4.80	7.25		4.80	7.55	
(U)	4.80	7.25		4.80	7.55	
NEG (U)	4.80	7.25		4.80	7.55	
A(U)	4.80	7.25		4.80	7.55	
NEG A(U)	4.80	7.25		4.80	7.55	
AC WITH XPFP. MEM WITH XPFN						
(N)	4.80	7.25		4.80	7.55	
NEG (N)	4.80	7.25		4.80	7.55	
A(N)	4.80	7.25		4.80	7.55	
NEG A(N)	4.80	7.25		4.80	7.55	
(U)	4.80	7.25		4.80	7.55	
NEG (U)	4.80	7.25		4.80	7.55	
A(U)	4.80	7.25		4.80	7.55	
NEG A(U)	4.80	7.25		4.80	7.55	

FLOATING POINT SLO OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	10.80	13.29		10.80	13.60	
NEG (N)	10.80	13.29		10.80	13.60	
A(N)	10.80	13.29		10.80	13.60	
NEG A(N)	10.80	13.29		10.80	13.60	
(U)	9.60	12.09		9.60	12.39	
NEG (U)	9.60	12.09		9.60	12.39	
A(U)	9.60	12.09		9.60	12.39	
NEG A(U)	9.60	12.09		9.60	12.39	
BOTH OPERANDS WITH XPFN						
(N)	9.60	12.09		9.60	12.39	
NEG (N)	9.60	12.09		9.60	12.39	
A(N)	9.60	12.09		9.60	12.39	
NEG A(N)	9.60	12.09		9.60	12.39	
(U)	9.60	12.09		9.60	12.39	
NEG (U)	9.60	12.09		9.60	12.39	
A(U)	9.60	12.09		9.60	12.39	
NEG A(U)	9.60	12.09		9.60	12.39	
AC EXPNT N. MEM EXPNT XPFN						
(N)	9.60	12.09		9.60	12.39	
NEG (N)	9.60	12.09		9.60	12.39	
A(N)	9.60	12.09		9.60	12.39	
NEG A(N)	9.60	12.09		9.60	12.39	
(U)	9.60	12.09		9.60	12.39	
NEG (U)	9.60	12.09		9.60	12.39	
A(U)	9.60	12.09		9.60	12.39	
NEG A(U)	9.60	12.09		9.60	12.39	
AC WITH XPFP. MEM WITH XPFN						
(N)	9.60	12.09		9.60	12.39	
NEG (N)	9.60	12.09		9.60	12.39	
A(N)	9.60	12.09		9.60	12.39	
NEG A(N)	9.60	12.09		9.60	12.39	
(U)	9.60	12.09		9.60	12.39	
NEG (U)	9.60	12.09		9.60	12.39	
A(U)	9.60	12.09		9.60	12.39	
NEG A(U)	9.60	12.09		9.60	12.39	

FLOATING POINT SRD OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	5.10	7.86		5.10	8.16	
NEG (N)	5.10	7.86		5.10	8.16	
A(N)	5.10	7.86		5.10	8.16	
NEG A(N)	5.10	7.86		5.10	8.16	
(U)	5.10	7.86		5.10	8.16	
NEG (U)	5.10	7.86		5.10	8.16	
A(U)	5.10	7.86		5.10	8.16	
NEG A(U)	5.10	7.86		5.10	8.16	
BOTH OPERANDS WITH XPFN						
(N)	5.10	7.86		5.10	8.16	
NEG (N)	5.10	7.86		5.10	8.16	
A(N)	5.10	7.86		5.10	8.16	
NEG A(N)	5.10	7.86		5.10	8.16	
(U)	5.10	7.86		5.10	8.16	
NEG (U)	5.10	7.86		5.10	8.16	
A(U)	5.10	7.86		5.10	8.16	
NEG A(U)	5.10	7.86		5.10	8.16	
AC EXPNT N. MEM EXPNT XPFN						
(N)	5.10	7.86		5.10	8.16	
NEG (N)	5.10	7.86		5.10	8.16	
A(N)	5.10	7.86		5.10	8.16	
NEG A(N)	5.10	7.86		5.10	8.16	
(U)	5.10	7.86		5.10	8.16	
NEG (U)	5.10	7.86		5.10	8.16	
A(U)	5.10	7.86		5.10	8.16	
NEG A(U)	5.10	7.86		5.10	8.16	
AC WITH XPFP. MEM WITH XPFN						
(N)	5.10	7.86		5.10	8.16	
NEG (N)	5.10	7.86		5.10	8.16	
A(N)	5.10	7.86		5.10	8.16	
NEG A(N)	5.10	7.86		5.10	8.16	
(U)	5.10	7.86		5.10	8.16	
NEG (U)	5.10	7.86		5.10	8.16	
A(U)	5.10	7.86		5.10	8.16	
NEG A(U)	5.10	7.86		5.10	8.16	

FLOATING POINT SRT OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		36.01	39.28		36.01	39.58
NEG (N)		36.01	39.28		36.01	39.58
A(N)		36.01	39.28		36.01	39.58
NEG A(N)		36.01	39.28		36.01	39.58
(U)		36.01	39.28		36.01	39.58
NEG (U)		36.01	39.28		36.01	39.58
A(U)		36.01	39.28		36.01	39.58
NEG A(U)		36.01	39.28		36.01	39.58
BOTH OPERANDS WITH XPFN						
(N)		36.01	39.28		36.01	39.58
NEG (N)		36.01	39.28		36.01	39.58
A(N)		36.01	39.28		36.01	39.58
NEG A(N)		36.01	39.28		36.01	39.58
(U)		36.01	39.28		36.01	39.58
NEG (U)		36.01	39.28		36.01	39.58
A(U)		36.01	39.28		36.01	39.58
NEG A(U)		36.01	39.28		36.01	39.58
AC EXPNT N. MEM EXPNT XPFN						
(N)		36.01	39.28		36.01	39.58
NEG (N)		36.01	39.28		36.01	39.58
A(N)		36.01	39.28		36.01	39.58
NEG A(N)		36.01	39.28		36.01	39.58
(U)		36.01	39.28		36.01	39.58
NEG (U)		36.01	39.28		36.01	39.58
A(U)		36.01	39.28		36.01	39.58
NEG A(U)		36.01	39.28		36.01	39.58
AC WITH XPFP. MEM WITH XPFN						
(N)		36.01	39.28		36.01	39.58
NEG (N)		36.01	39.28		36.01	39.58
A(N)		36.01	39.28		36.01	39.58
NEG A(N)		36.01	39.28		36.01	39.58
(U)		36.01	39.28		36.01	39.58
NEG (U)		36.01	39.28		36.01	39.58
A(U)		36.01	39.28		36.01	39.58
NEG A(U)		36.01	39.28		36.01	39.58

FLOATING POINT * OPERATION, WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		2.70	2.70		2.70	2.70
NEG (N)		2.70	2.70		2.70	2.70
A(N)		2.70	2.70		2.70	2.70
NEG A(N)		2.70	2.70		2.70	2.70
(U)		2.70	2.70		2.70	2.70
NEG (U)		2.70	2.70		2.70	2.70
A(U)		2.70	2.70		2.70	2.70
NEG A(U)		2.70	2.70		2.70	2.70
BOTH OPERANDS WITH XPFN						
(N)		2.70	2.70		2.70	2.70
NEG (N)		2.70	2.70		2.70	2.70
A(N)		2.70	2.70		2.70	2.70
NEG A(N)		2.70	2.70		2.70	2.70
(U)		2.70	2.70		2.70	2.70
NEG (U)		2.70	2.70		2.70	2.70
A(U)		2.70	2.70		2.70	2.70
NEG A(U)		2.70	2.70		2.70	2.70
AC EXPNT N. MEM EXPNT XPFN						
(N)		2.70	2.70		2.70	2.70
NEG (N)		2.70	2.70		2.70	2.70
A(N)		2.70	2.70		2.70	2.70
NEG A(N)		2.70	2.70		2.70	2.70
(U)		2.70	2.70		2.70	2.70
NEG (U)		2.70	2.70		2.70	2.70
A(U)		2.70	2.70		2.70	2.70
NEG A(U)		2.70	2.70		2.70	2.70
AC WITH XPFP. MEM WITH XPFN						
(N)		2.70	2.70		2.70	2.70
NEG (N)		2.70	2.70		2.70	2.70
A(N)		2.70	2.70		2.70	2.70
NEG A(N)		2.70	2.70		2.70	2.70
(U)		2.70	2.70		2.70	2.70
NEG (U)		2.70	2.70		2.70	2.70
A(U)		2.70	2.70		2.70	2.70
NEG A(U)		2.70	2.70		2.70	2.70

FLOATING POINT D* OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.00	3.00		3.00	3.00	
NEG (N)	3.00	3.00		3.00	3.00	
A(N)	3.00	3.00		3.00	3.00	
NEG A(N)	3.00	3.00		3.00	3.00	
(U)	3.00	3.00		3.00	3.00	
NEG (U)	3.00	3.00		3.00	3.00	
A(U)	3.00	3.00		3.00	3.00	
NEG A(U)	3.00	3.00		3.00	3.00	
BOTH OPERANDS WITH XPFN						
(N)	3.00	3.00		3.00	3.00	
NEG (N)	3.00	3.00		3.00	3.00	
A(N)	3.00	3.00		3.00	3.00	
NEG A(N)	3.00	3.00		3.00	3.00	
(U)	3.00	3.00		3.00	3.00	
NEG (U)	3.00	3.00		3.00	3.00	
A(U)	3.00	3.00		3.00	3.00	
NEG A(U)	3.00	3.00		3.00	3.00	
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.00	3.00		3.00	3.00	
NEG (N)	3.00	3.00		3.00	3.00	
A(N)	3.00	3.00		3.00	3.00	
NEG A(N)	3.00	3.00		3.00	3.00	
(U)	3.00	3.00		3.00	3.00	
NEG (U)	3.00	3.00		3.00	3.00	
A(U)	3.00	3.00		3.00	3.00	
NEG A(U)	3.00	3.00		3.00	3.00	
AC WITH XPFP. MEM WITH XPFN						
(N)	3.00	3.00		3.00	3.00	
NEG (N)	3.00	3.00		3.00	3.00	
A(N)	3.00	3.00		3.00	3.00	
NEG A(N)	3.00	3.00		3.00	3.00	
(U)	3.00	3.00		3.00	3.00	
NEG (U)	3.00	3.00		3.00	3.00	
A(U)	3.00	3.00		3.00	3.00	
NEG A(U)	3.00	3.00		3.00	3.00	

FLOATING POINT / OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	7.50	7.50		7.50	7.50	
NEG (N)	7.50	7.50		7.50	7.50	
A(N)	7.50	7.50		7.50	7.50	
NEG A(N)	7.50	7.50		7.50	7.50	
(U)	7.50	7.50		7.50	7.50	
NEG (U)	7.50	7.50		7.50	7.50	
A(U)	7.50	7.50		7.50	7.50	
NEG A(U)	7.50	7.50		7.50	7.50	
BOTH OPERANDS WITH XPFN						
(N)	7.50	7.50		7.50	7.50	
NEG (N)	7.50	7.50		7.50	7.50	
A(N)	7.50	7.50		7.50	7.50	
NEG A(N)	7.50	7.50		7.50	7.50	
(U)	7.50	7.50		7.50	7.50	
NEG (U)	7.50	7.50		7.50	7.50	
A(U)	7.50	7.50		7.50	7.50	
NEG A(U)	7.50	7.50		7.50	7.50	
AC EXPNT N. MEM EXPNT XPFN						
(N)	7.50	7.50		7.50	7.50	
NEG (N)	7.50	7.50		7.50	7.50	
A(N)	7.50	7.50		7.50	7.50	
NEG A(N)	7.50	7.50		7.50	7.50	
(U)	7.50	7.50		7.50	7.50	
NEG (U)	7.50	7.50		7.50	7.50	
A(U)	7.50	7.50		7.50	7.50	
NEG A(U)	7.50	7.50		7.50	7.50	
AC WITH XPFP. MEM WITH XPFN						
(N)	7.50	7.50		7.50	7.50	
NEG (N)	7.50	7.50		7.50	7.50	
A(N)	7.50	7.50		7.50	7.50	
NEG A(N)	7.50	7.50		7.50	7.50	
(U)	7.50	7.50		7.50	7.50	
NEG (U)	7.50	7.50		7.50	7.50	
A(U)	7.50	7.50		7.50	7.50	
NEG A(U)	7.50	7.50		7.50	7.50	

FLOATING POINT D/ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	9.61	9.60		9.61	9.60	
NEG (N)	9.61	9.60		9.61	9.60	
A(N)	9.61	9.60		9.61	9.60	
NEG A(N)	9.61	9.60		9.61	9.60	
(U)	9.61	9.60		9.61	9.60	
NEG (U)	9.61	9.60		9.61	9.60	
A(U)	9.61	9.60		9.61	9.60	
NEG A(U)	9.61	9.60		9.61	9.60	
BOTH OPERANDS WITH XPFN						
(N)	9.61	9.60		9.61	9.60	
NEG (N)	9.61	9.60		9.61	9.60	
A(N)	9.61	9.60		9.61	9.60	
NEG A(N)	9.61	9.60		9.61	9.60	
(U)	9.61	9.60		9.61	9.60	
NEG (U)	9.61	9.60		9.61	9.60	
A(U)	9.61	9.60		9.61	9.60	
NEG A(U)	9.61	9.60		9.61	9.60	
AC EXPNT N. MEM EXPNT XPFN						
(N)	9.61	9.60		9.61	9.60	
NEG (N)	9.61	9.60		9.61	9.60	
A(N)	9.61	9.60		9.61	9.60	
NEG A(N)	9.61	9.60		9.61	9.60	
(U)	9.61	9.60		9.61	9.60	
NEG (U)	9.61	9.60		9.61	9.60	
A(U)	9.61	9.60		9.61	9.60	
NEG A(U)	9.61	9.60		9.61	9.60	
AC WITH XPFP. MEM WITH XPFN						
(N)	9.61	9.60		9.61	9.60	
NEG (N)	9.61	9.60		9.61	9.60	
A(N)	9.61	9.60		9.61	9.60	
NEG A(N)	9.61	9.60		9.61	9.60	
(U)	9.61	9.60		9.61	9.60	
NEG (U)	9.61	9.60		9.61	9.60	
A(U)	9.61	9.60		9.61	9.60	
NEG A(U)	9.61	9.60		9.61	9.60	

FLOATING POINT R/ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	8.70	8.70		8.70	8.70	
NEG (N)	8.70	8.70		8.70	8.70	
A(N)	8.70	8.70		8.70	8.70	
NEG A(N)	8.70	8.70		8.70	8.70	
(U)	8.70	8.70		8.70	8.70	
NEG (U)	8.70	8.70		8.70	8.70	
A(U)	8.70	8.70		8.70	8.70	
NEG A(U)	8.70	8.70		8.70	8.70	
BOTH OPERANDS WITH XPFN						
(N)	8.70	8.70		8.70	8.70	
NEG (N)	8.70	8.70		8.70	8.70	
A(N)	8.70	8.70		8.70	8.70	
NEG A(N)	8.70	8.70		8.70	8.70	
(U)	8.70	8.70		8.70	8.70	
NEG (U)	8.70	8.70		8.70	8.70	
A(U)	8.70	8.70		8.70	8.70	
NEG A(U)	8.70	8.70		8.70	8.70	
AL EXPNT N. MEM EXPNT XPFN						
(N)	8.70	8.70		8.70	8.70	
NEG (N)	8.70	8.70		8.70	8.70	
A(N)	8.70	8.70		8.70	8.70	
NEG A(N)	8.70	8.70		8.70	8.70	
(U)	8.70	8.70		8.70	8.70	
NEG (U)	8.70	8.70		8.70	8.70	
A(U)	8.70	8.70		8.70	8.70	
NEG A(U)	8.70	8.70		8.70	8.70	
AE WITH XPFP. MEM WITH XPFN						
(N)	8.70	8.70		8.70	8.70	
NEG (N)	8.70	8.70		8.70	8.70	
A(N)	8.70	8.70		8.70	8.70	
NEG A(N)	8.70	8.70		8.70	8.70	
(U)	8.70	8.70		8.70	8.70	
NEG (U)	8.70	8.70		8.70	8.70	
A(U)	8.70	8.70		8.70	8.70	
NEG A(U)	8.70	8.70		8.70	8.70	

FLOATING POINT ** OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	7.24	7.24		7.24	7.24	
NEG (N)	7.24	7.24		7.24	7.24	
A(N)	7.24	7.24		7.24	7.24	
NEG A(N)	7.24	7.24		7.24	7.24	
(U)	6.60	6.60		6.60	6.60	
NEG (U)	6.60	6.60		6.60	6.60	
A(U)	6.60	6.60		6.60	6.60	
NEG A(U)	6.60	6.60		6.60	6.60	
BOTH OPERANDS WITH XPFN						
(N)	6.60	6.60		6.60	6.60	
NEG (N)	6.60	6.60		6.60	6.60	
A(N)	6.60	6.60		6.60	6.60	
NEG A(N)	6.60	6.60		6.60	6.60	
(U)	6.60	6.60		6.60	6.60	
NEG (U)	6.60	6.60		6.60	6.60	
A(U)	6.60	6.60		6.60	6.60	
NEG A(U)	6.60	6.60		6.60	6.60	
AC EXPNT N. MEM EXPNT XPFN						
(N)	6.90	6.90		6.90	6.90	
NEG (N)	6.90	6.90		6.90	6.90	
A(N)	6.90	6.90		6.90	6.90	
NEG A(N)	6.90	6.90		6.90	6.90	
(U)	6.90	6.90		6.90	6.90	
NEG (U)	6.90	6.90		6.90	6.90	
A(U)	6.90	6.90		6.90	6.90	
NEG A(U)	6.90	6.90		6.90	6.90	
AC WITH XPFP. MEM WITH XPFN						
(N)	6.60	6.60		6.60	6.60	
NEG (N)	6.60	6.60		6.60	6.60	
A(N)	6.60	6.60		6.60	6.60	
NEG A(N)	6.60	6.60		6.60	6.60	
(U)	6.60	6.60		6.60	6.60	
NEG (U)	6.60	6.60		6.60	6.60	
A(U)	6.60	6.60		6.60	6.60	
NEG A(U)	6.60	6.60		6.60	6.60	

FLOATING POINT KR OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR OFF						
NORMALIZED I.						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.50	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.50	1.81		1.51	2.41
(U)		1.51	1.81		1.51	2.41
NEG (U)		1.51	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.50	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.50	1.81		1.51	2.41
(U)		1.50	1.81		1.51	2.41
NEG (U)		1.51	1.81		1.51	2.41
A(U)		1.51	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT KR OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

AH INDICATOR ON	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.50	1.81		1.51	2.41
A(N)		1.51	1.81		1.51	2.41
NEG A(N)		1.51	1.81		1.51	2.41
(U)		1.51	1.81		1.51	2.41
NEG (U)		1.50	1.81		1.51	2.41
A(U)		1.50	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.50	1.81		1.51	2.41
NEG (N)		1.51	1.81		1.51	2.41
A(N)		1.50	1.81		1.51	2.41
NEG A(N)		1.51	1.81		1.51	2.41
(U)		1.51	1.81		1.51	2.41
NEG (U)		1.51	1.81		1.51	2.41
A(U)		1.51	1.81		1.51	2.41
NEG A(U)		1.50	1.81		1.51	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT KMGR OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR OFF						
NORMALIZED I.						
(N)	1.50	1.81		1.51	2.41	
NEG (N)	1.50	1.81		1.51	2.41	
A(N)	1.51	1.81		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.50	1.81		1.51	2.41	
NEG (U)	1.50	1.81		1.51	2.41	
A(U)	1.51	1.81		1.51	2.41	
NEG A(U)	1.51	1.81		1.51	2.41	
BOTH OPERANDS WITH XPFN						
(N)	1.50	1.81		1.51	2.41	
NEG (N)	1.50	1.81		1.51	2.41	
A(N)	1.51	1.81		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.51	1.81		1.51	2.41	
NEG (U)	1.50	1.81		1.51	2.41	
A(U)	1.50	1.81		1.51	2.41	
NEG A(U)	1.50	1.81		1.51	2.41	
AC EXPNT N. MEM EXPNT XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	
AC WITH XPFP. MEM WITH XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	

FLOATING POINT KMGR OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR ON						
NORMALIZEC 1.						
(N)	1.50	1.81		1.51	2.41	
NEG (N)	1.51	1.81		1.51	2.41	
A(N)	1.50	1.81		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.50	1.81		1.51	2.41	
NEG (U)	1.50	1.81		1.51	2.41	
A(U)	1.51	1.81		1.51	2.41	
NEG A(U)	1.50	1.81		1.51	2.41	
BOTH OPERANDS WITH XPFN						
(N)	1.51	1.81		1.51	2.41	
NEG (N)	1.50	1.81		1.51	2.41	
A(N)	1.50	1.81		1.51	2.41	
NEG A(N)	1.50	1.81		1.51	2.41	
(U)	1.50	1.81		1.51	2.41	
NEG (U)	1.50	1.81		1.51	2.41	
A(U)	1.50	1.81		1.51	2.41	
NEG A(U)	1.50	1.81		1.51	2.41	
AC EXPNT N. MEM EXPNT XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	
AC WITH XPFP. MEM WITH XPFN						
(N)	1.80	1.81		1.80	2.41	
NEG (N)	1.80	1.81		1.80	2.41	
A(N)	1.80	1.81		1.80	2.41	
NEG A(N)	1.80	1.81		1.80	2.41	
(U)	1.80	1.81		1.80	2.41	
NEG (U)	1.80	1.81		1.80	2.41	
A(U)	1.80	1.81		1.80	2.41	
NEG A(U)	1.80	1.81		1.80	2.41	

FLOATING POINT F+ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
BOTH OPERANDS WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)		1.80	1.81		1.80	2.41
NEG (N)		1.80	1.81		1.80	2.41
A(N)		1.80	1.81		1.80	2.41
NEG A(N)		1.80	1.81		1.80	2.41
(U)		1.80	1.81		1.80	2.41
NEG (U)		1.80	1.81		1.80	2.41
A(U)		1.80	1.81		1.80	2.41
NEG A(U)		1.80	1.81		1.80	2.41

FLOATING POINT E+ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	2.40	2.40		2.40	2.41	
NEG (N)	2.40	2.40		2.40	2.41	
A(N)	2.40	2.40		2.40	2.41	
NEG A(N)	2.40	2.40		2.40	2.41	
(U)	2.40	2.40		2.40	2.41	
NEG (U)	2.40	2.40		2.40	2.41	
A(U)	2.40	2.40		2.40	2.41	
NEG A(U)	2.40	2.40		2.40	2.41	
BOTH OPERANDS WITH XPFN						
(N)	2.40	2.40		2.40	2.41	
NEG (N)	2.40	2.40		2.40	2.41	
A(N)	2.40	2.40		2.40	2.41	
NEG A(N)	2.40	2.40		2.40	2.41	
(U)	2.40	2.40		2.40	2.41	
NEG (U)	2.40	2.40		2.40	2.41	
A(U)	2.40	2.40		2.40	2.41	
NEG A(U)	2.40	2.40		2.40	2.41	
AC EXPNT N. MEM EXPNT XPFN						
(N)	2.40	2.40		2.40	2.41	
NEG (N)	2.40	2.40		2.40	2.41	
A(N)	2.40	2.40		2.40	2.41	
NEG A(N)	2.40	2.40		2.40	2.41	
(U)	2.40	2.40		2.40	2.41	
NEG (U)	2.40	2.40		2.40	2.41	
A(U)	2.40	2.40		2.40	2.41	
NEG A(U)	2.40	2.40		2.40	2.41	
AC WITH XPFP. MEM WITH XPFN						
(N)	2.40	2.40		2.40	2.41	
NEG (N)	2.40	2.40		2.40	2.41	
A(N)	2.40	2.40		2.40	2.41	
NEG A(N)	2.40	2.40		2.40	2.41	
(U)	2.40	2.40		2.40	2.41	
NEG (U)	2.40	2.40		2.40	2.41	
A(U)	2.40	2.40		2.40	2.41	
NEG A(U)	2.40	2.40		2.40	2.41	

FLOATING POINT L OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)		1.33	1.81		1.33	2.41
NEG (N)		1.33	1.81		1.33	2.41
A(N)		1.33	1.81		1.33	2.41
NEG A(N)		1.33	1.81		1.33	2.41
(U)		1.33	1.81		1.33	2.41
NEG (U)		1.33	1.81		1.33	2.41
A(U)		1.33	1.81		1.33	2.41
NEG A(U)		1.33	1.81		1.33	2.41
MEMORY OPERAND HAS XPFN						
(N)		1.33	1.81		1.33	2.41
NEG (N)		1.33	1.81		1.33	2.41
A(N)		1.33	1.81		1.33	2.41
NEG A(N)		1.33	1.81		1.33	2.41
(U)		1.33	1.81		1.33	2.41
NEG (U)		1.33	1.81		1.33	2.41
A(U)		1.33	1.81		1.33	2.41
NEG A(U)		1.33	1.81		1.33	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)		1.33	1.81		1.33	2.41
NEG (N)		1.33	1.81		1.33	2.41
A(N)		1.33	1.81		1.33	2.41
NEG A(N)		1.33	1.81		1.33	2.41
(U)		1.33	1.81		1.33	2.41
NEG (U)		1.33	1.81		1.33	2.41
A(U)		1.32	1.81		1.33	2.41
NEG A(U)		1.33	1.81		1.33	2.41
MEMORY OPERAND HAS XPFP						
(N)		1.33	1.81		1.33	2.41
NEG (N)		1.33	1.81		1.33	2.41
A(N)		1.32	1.81		1.33	2.41
NEG A(N)		1.33	1.81		1.33	2.41
(U)		1.33	1.81		1.33	2.41
NEG (U)		1.33	1.81		1.33	2.41
A(U)		1.33	1.81		1.33	2.41
NEG A(U)		1.33	1.81		1.33	2.41

FLOATING POINT LWF OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	1.33	1.81		1.33	2.41	
NEG (N)	1.32	1.81		1.33	2.41	
A(N)	1.33	1.81		1.33	2.41	
NEG A(N)	1.33	1.81		1.33	2.41	
(U)	1.32	1.81		1.33	2.41	
NEG (U)	1.33	1.81		1.33	2.41	
A(U)	1.33	1.81		1.33	2.41	
NEG A(U)	1.32	1.81		1.33	2.41	
MEMORY OPERAND HAS XPFN						
(N)	1.33	1.81		1.33	2.41	
NEG (N)	1.33	1.81		1.33	2.41	
A(N)	1.33	1.81		1.33	2.41	
NEG A(N)	1.33	1.81		1.33	2.41	
(U)	1.33	1.81		1.33	2.41	
NEG (U)	1.33	1.81		1.33	2.41	
A(U)	1.33	1.81		1.33	2.41	
NEG A(U)	1.33	1.81		1.33	2.41	
MEMORY OPERAND HAS U,V FLAGS						
(N)	1.33	1.81		1.33	2.41	
NEG (N)	1.33	1.81		1.33	2.41	
A(N)	1.33	1.81		1.33	2.41	
NEG A(N)	1.33	1.81		1.33	2.41	
(U)	1.33	1.81		1.33	2.41	
NEG (U)	1.33	1.81		1.33	2.41	
A(U)	1.33	1.81		1.33	2.41	
NEG A(U)	1.33	1.81		1.33	2.41	
MEMORY OPERAND HAS XPFP						
(N)	1.33	1.81		1.33	2.41	
NEG (N)	1.33	1.81		1.33	2.41	
A(N)	1.33	1.81		1.33	2.41	
NEG A(N)	1.33	1.81		1.33	2.41	
(U)	1.33	1.81		1.33	2.41	
NEG (U)	1.33	1.81		1.33	2.41	
A(U)	1.33	1.81		1.33	2.41	
NEG A(U)	1.33	1.81		1.33	2.41	

FLOATING POINT DL OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	1.40	1.81		1.41	2.41	
NEG (N)	1.41	1.81		1.41	2.41	
A(N)	1.40	1.81		1.41	2.41	
NEG A(N)	1.40	1.81		1.41	2.41	
(U)	1.40	1.81		1.41	2.41	
NEG (U)	1.41	1.81		1.41	2.41	
A(U)	1.40	1.81		1.41	2.41	
NEG A(U)	1.40	1.81		1.41	2.41	
MEMORY OPERAND HAS XPFN						
(N)	1.40	1.81		1.41	2.41	
NEG (N)	1.41	1.81		1.41	2.41	
A(N)	1.40	1.81		1.41	2.41	
NEG A(N)	1.41	1.81		1.41	2.41	
(U)	1.40	1.81		1.41	2.41	
NEG (U)	1.40	1.81		1.41	2.41	
A(U)	1.40	1.81		1.41	2.41	
NEG A(U)	1.40	1.81		1.41	2.41	
MEMORY OPERAND HAS U,V FLAGS						
(N)	1.41	1.81		1.41	2.41	
NEG (N)	1.40	1.81		1.41	2.41	
A(N)	1.40	1.81		1.41	2.41	
NEG A(N)	1.40	1.81		1.41	2.41	
(U)	1.40	1.81		1.41	2.41	
NEG (U)	1.40	1.81		1.41	2.41	
A(U)	1.40	1.81		1.41	2.41	
NEG A(U)	1.40	1.81		1.41	2.41	
MEMORY OPERAND HAS XPFP						
(N)	1.40	1.81		1.41	2.41	
NEG (N)	1.40	1.81		1.41	2.41	
A(N)	1.40	1.81		1.41	2.41	
NEG A(N)	1.40	1.81		1.41	2.41	
(U)	1.41	1.81		1.41	2.41	
NEG (U)	1.40	1.81		1.41	2.41	
A(U)	1.40	1.81		1.41	2.41	
NEG A(U)	1.41	1.81		1.41	2.41	

FLOATING POINT DLWF OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)		1.41	1.81		1.41	2.41
NEG (N)		1.40	1.81		1.41	2.41
A(N)		1.40	1.81		1.41	2.41
NEG A(N)		1.40	1.81		1.41	2.41
(U)		1.40	1.81		1.41	2.41
NEG (U)		1.40	1.81		1.41	2.41
A(U)		1.40	1.81		1.41	2.41
NEG A(U)		1.41	1.81		1.41	2.41
MEMORY OPERAND HAS XPFN						
(N)		1.41	1.81		1.41	2.41
NEG (N)		1.40	1.81		1.41	2.41
A(N)		1.41	1.81		1.41	2.41
NEG A(N)		1.40	1.81		1.41	2.41
(U)		1.40	1.81		1.41	2.41
NEG (U)		1.41	1.81		1.41	2.41
A(U)		1.41	1.81		1.40	2.41
NEG A(U)		1.40	1.81		1.41	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)		1.40	1.81		1.41	2.41
NEG (N)		1.40	1.81		1.41	2.41
A(N)		1.40	1.81		1.41	2.41
NEG A(N)		1.40	1.81		1.41	2.41
(U)		1.40	1.81		1.41	2.41
NEG (U)		1.40	1.81		1.41	2.41
A(U)		1.40	1.81		1.41	2.41
NEG A(U)		1.40	1.81		1.41	2.41
MEMORY OPERAND HAS XPFP						
(N)		1.40	1.81		1.41	2.41
NEG (N)		1.41	1.81		1.41	2.41
A(N)		1.40	1.81		1.41	2.41
NEG A(N)		1.40	1.81		1.41	2.41
(U)		1.40	1.81		1.41	2.41
NEG (U)		1.40	1.81		1.41	2.41
A(U)		1.40	1.81		1.41	2.41
NEG A(U)		1.40	1.81		1.41	2.41

FLOATING POINT LFT OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	4.36	4.06		4.36	4.07	
NEG (N)	4.37	4.06		4.37	4.07	
A(N)	4.37	4.06		4.37	4.07	
NEG A(N)	4.36	4.06		4.36	4.07	
(U)	4.37	4.06		4.37	4.07	
NEG (U)	4.37	4.06		4.37	4.07	
A(U)	4.36	4.06		4.36	4.07	
NEG A(U)	4.37	4.06		4.37	4.07	
MEMORY OPERAND HAS XPFN						
(N)	4.37	4.06		4.37	4.07	
NEG (N)	4.37	4.06		4.37	4.07	
A(N)	4.36	4.06		4.36	4.07	
NEG A(N)	4.37	4.06		4.36	4.07	
(U)	4.37	4.06		4.37	4.07	
NEG (U)	4.37	4.06		4.36	4.07	
A(U)	4.37	4.06		4.37	4.07	
NEG A(U)	4.36	4.06		4.36	4.07	
MEMORY OPERAND HAS U,V FLAGS						
(N)	4.37	4.06		4.37	4.07	
NEG (N)	4.36	4.06		4.36	4.07	
A(N)	4.37	4.06		4.36	4.07	
NEG A(N)	4.37	4.06		4.37	4.07	
(U)	4.36	4.06		4.36	4.07	
NEG (U)	4.36	4.06		4.36	4.07	
A(U)	4.37	4.06		4.37	4.07	
NEG A(U)	4.36	4.06		4.36	4.07	
MEMORY OPERAND HAS XPFP						
(N)	4.36	4.06		4.36	4.07	
NEG (N)	4.37	4.06		4.36	4.07	
A(N)	4.37	4.06		4.37	4.07	
NEG A(N)	4.37	4.06		4.37	4.07	
(U)	4.36	4.06		4.36	4.07	
NEG (U)	4.37	4.06		4.36	4.07	
A(U)	4.37	4.06		4.37	4.07	
NEG A(U)	4.37	4.06		4.36	4.07	

FLOATING POINT M+ OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	4.79	8.46		4.93	9.89	
NEG (N)	4.93	8.68		4.81	9.67	
A(N)	4.80	8.46		4.93	9.89	
NEG A(N)	4.93	8.68		4.80	9.67	
(U)	4.52	7.86		4.52	9.07	
NEG (U)	4.52	7.86		4.52	9.07	
A(U)	4.52	7.86		4.52	9.07	
NEG A(U)	4.52	7.86		4.52	9.07	
MEMORY OPERAND HAS XPFN						
(N)	4.52	7.86		4.52	9.07	
NEG (N)	4.52	7.86		4.52	9.07	
A(N)	4.52	7.86		4.52	9.07	
NEG A(N)	4.52	7.86		4.52	9.07	
(U)	4.52	7.86		4.52	9.07	
NEG (U)	4.52	7.86		4.52	9.07	
A(U)	4.52	7.86		4.52	9.07	
NEG A(U)	4.52	7.86		4.52	9.07	
MEMORY OPERAND HAS U,V FLAGS						
(N)	4.64	8.46		4.62	9.67	
NEG (N)	4.65	8.46		4.64	9.67	
A(N)	4.65	8.46		4.63	9.67	
NEG A(N)	4.66	8.46		4.64	9.67	
(U)	4.61	8.46		4.64	9.67	
NEG (U)	4.63	8.46		4.64	9.67	
A(U)	4.64	8.46		4.62	9.67	
NEG A(U)	4.65	8.46		4.65	9.67	
MEMORY OPERAND HAS XPFP						
(N)	4.67	8.46		4.62	9.67	
NEG (N)	4.65	8.46		4.62	9.67	
A(N)	4.62	8.46		4.62	9.67	
NEG A(N)	4.62	8.46		4.65	9.67	
(U)	4.65	8.46		4.65	9.67	
NEG (U)	4.65	8.46		4.62	9.67	
A(U)	4.63	8.46		4.63	9.67	
NEG A(U)	4.62	8.46		4.62	9.67	

FLOATING POINT M+MG OPERATION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.80	8.46		4.93	9.89	
NEG (N)	4.93	8.68		4.81	9.67	
A(N)	4.81	8.46		4.93	9.89	
NEG A(N)	4.93	8.68		4.81	9.67	
(U)	4.52	7.86		4.52	9.07	
NEG (U)	4.82	8.46		4.82	9.67	
A(U)	4.52	7.86		4.52	9.07	
NEG A(U)	4.82	8.46		4.82	9.67	
MEMORY OPERAND HAS XPFN						
(N)	4.52	7.86		4.52	9.07	
NEG (N)	4.52	7.86		4.52	9.07	
A(N)	4.52	7.86		4.52	9.07	
NEG A(N)	4.52	7.86		4.52	9.07	
(U)	4.52	7.86		4.52	9.07	
NEG (U)	4.52	7.86		4.52	9.07	
A(U)	4.52	7.86		4.52	9.07	
NEG A(U)	4.52	7.86		4.52	9.07	
MEMORY OPERAND HAS U,V FLAGS						
(N)	4.63	8.46		4.64	9.67	
NEG (N)	4.60	8.46		4.63	9.67	
A(N)	4.65	8.46		4.65	9.67	
NEG A(N)	4.62	8.46		4.65	9.67	
(U)	4.63	8.46		4.62	9.67	
NEG (U)	4.63	8.46		4.62	9.67	
A(U)	4.65	8.46		4.62	9.67	
NEG A(U)	4.65	8.46		4.64	9.67	
MEMORY OPERAND HAS XPFP						
(N)	4.61	8.46		4.63	9.67	
NEG (N)	4.62	8.46		4.62	9.67	
A(N)	4.60	8.46		4.63	9.67	
NEG A(N)	4.65	8.46		4.63	9.67	
(U)	4.63	8.46		4.65	9.67	
NEG (U)	4.62	8.46		4.64	9.67	
A(U)	4.64	8.46		4.64	9.67	
NEG A(U)	4.67	8.46		4.64	9.67	

FLOATING POINT E+I

EFFECTIVE ADDRESSES

	ONE	2040
ADDRESS FIELD NOT INDEXED		
(N)	2.40	2.40
NEG (N)	2.40	2.40
A(N)	2.40	2.40
NEG A(N)	2.40	2.40
(U)	2.40	2.40
NEG (U)	2.40	2.40
A(U)	2.40	2.40
NEG A(U)	2.40	2.40
ADDRESS FIELD IS INDEXED		
(N)	2.40	2.40
NEG (N)	2.40	2.40
A(N)	2.40	2.40
NEG A(N)	2.40	2.40
(U)	2.40	2.40
NEG (U)	2.40	2.40
A(U)	2.40	2.40
NEG A(U)	2.40	2.40

	SHIFT 1	SHIFT 3	SHIFT 6	SHIFT 9	SHIFT 12	SHIFT 95
ADDRESS FIELD NOT INDEXED						
(N)	1.80	1.80	2.10	2.40	2.70	8.70
NEG (N)	1.80	1.80	2.10	2.40	2.70	8.70
A(N)	1.80	1.80	2.10	2.40	2.70	8.70
NEG A(N)	1.80	1.80	2.10	2.40	2.70	8.70
(U)	1.80	1.80	2.10	2.40	2.70	8.70
NEG (U)	1.80	1.80	2.10	2.40	2.70	8.70
A(U)	1.80	1.80	2.10	2.40	2.70	8.70
NEG A(U)	1.80	1.80	2.10	2.40	2.70	8.70
ADDRESS FIELD IS INDEXED						
(N)	1.80	1.80	2.10	2.40	2.40	8.70
NEG (N)	1.80	1.80	2.10	2.40	2.40	8.70
A(N)	1.80	1.80	2.10	2.40	2.40	8.70
NEG A(N)	1.80	1.80	2.10	2.40	2.40	8.70
(U)	1.80	1.80	2.10	2.40	2.40	8.70
NEG (U)	1.80	1.80	2.10	2.40	2.40	8.70
A(U)	1.80	1.80	2.10	2.40	2.40	8.70
NEG A(U)	1.80	1.80	2.10	2.40	2.40	8.70

FLOATING POINT + OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.37	2.41	2.27	4.37	2.41	2.41
NEG (N)	4.37	2.41	2.27	4.37	2.41	2.41
A(N)	4.37	2.41	2.27	4.37	2.41	2.41
NEG A(N)	4.37	2.41	2.27	4.37	2.41	2.41
(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT D+ OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.43	2.58	2.57	4.43	2.58	2.58
NEG (N)	15.01	2.58	2.57	15.01	2.58	2.58
A(N)	4.43	2.58	2.57	4.43	2.58	2.58
NEG A(N)	15.00	2.58	2.57	15.01	2.58	2.58
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	4.20	2.41	1.81	4.20	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	4.20	2.41	1.81	4.20	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.10	4.20	2.41	2.41
A(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.10	4.20	2.41	2.41
(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.10	4.20	2.41	2.41
A(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.10	4.20	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.10	4.20	2.41	2.41
A(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.10	4.20	2.41	2.41
(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.10	4.20	2.41	2.41
A(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.10	4.20	2.41	2.41

FLOATING POINT K OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.61	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT KMG OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.61	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT +MG OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.37	2.41	2.27	4.37	2.41	2.41
NEG (N)	4.20	2.41	2.10	4.20	2.41	2.41
A(N)	4.37	2.41	2.27	4.37	2.41	2.41
NEG A(N)	4.20	2.41	2.10	4.20	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	4.20	2.41	2.10	4.20	2.41	2.41
A(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG A(U)	4.20	2.41	2.10	4.20	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.60	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT D+MG OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.43	2.58	2.57	4.43	2.58	2.58
NEG (N)	15.01	6.90	6.90	15.00	6.90	6.90
A(N)	4.43	2.58	2.57	4.43	2.58	2.58
NEG A(N)	15.00	6.90	6.90	15.01	6.90	6.90
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	2.40	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	2.40	3.90	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.10	4.20	2.41	2.41
A(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.10	4.20	2.41	2.41
(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.10	4.20	2.41	2.41
A(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.10	4.20	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.10	4.20	2.41	2.41
A(N)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.10	4.20	2.41	2.41
(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.10	4.20	2.41	2.41
A(U)	4.20	2.41	2.10	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.10	4.20	2.41	2.41

FLOATING POINT ST OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.61	4.80	7.25	3.61	4.80	7.55
NEG (N)	3.61	4.80	7.25	3.60	4.80	7.55
A(N)	3.61	4.80	7.25	3.61	4.80	7.55
NEG A(N)	3.61	4.80	7.25	3.60	4.80	7.55
(U)	3.61	4.80	7.25	3.61	4.80	7.55
NEG (U)	3.61	4.80	7.25	3.60	4.80	7.55
A(U)	3.61	4.80	7.25	3.61	4.80	7.55
NEG A(U)	3.61	4.80	7.25	3.61	4.80	7.55
BOTH OPERANDS WITH XPFN						
(N)	3.61	4.80	7.25	3.61	4.80	7.55
NEG (N)	3.61	4.80	7.25	3.60	4.80	7.55
A(N)	3.60	4.80	7.25	3.60	4.80	7.55
NEG A(N)	3.61	4.80	7.25	3.60	4.80	7.55
(U)	3.60	4.80	7.25	3.60	4.80	7.55
NEG (U)	3.61	4.80	7.25	3.61	4.80	7.55
A(U)	3.61	4.80	7.25	3.61	4.80	7.55
NEG A(U)	3.61	4.80	7.25	3.60	4.80	7.55
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.61	4.80	7.25	3.60	4.80	7.55
NEG (N)	3.61	4.80	7.25	3.60	4.80	7.55
A(N)	3.61	4.80	7.25	3.60	4.80	7.55
NEG A(N)	3.60	4.80	7.25	3.60	4.80	7.55
(U)	3.61	4.80	7.25	3.60	4.80	7.55
NEG (U)	3.60	4.80	7.25	3.60	4.80	7.55
A(U)	3.61	4.80	7.25	3.60	4.80	7.55
NEG A(U)	3.61	4.80	7.25	3.60	4.80	7.55
AC WITH XPFP. MEM WITH XPFN						
(N)	3.61	4.80	7.25	3.61	4.80	7.55
NEG (N)	3.61	4.80	7.25	3.61	4.80	7.55
A(N)	3.61	4.80	7.25	3.61	4.80	7.55
NEG A(N)	3.61	4.80	7.25	3.60	4.80	7.55
(U)	3.61	4.80	7.25	3.60	4.80	7.55
NEG (U)	3.61	4.80	7.25	3.61	4.80	7.55
A(U)	3.61	4.80	7.25	3.60	4.80	7.55
NEG A(U)	3.61	4.80	7.25	3.60	4.80	7.55

FLOATING POINT SLO OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	9.00	10.80	13.29	9.00	10.80	13.60
NEG (N)	9.00	10.80	13.29	9.00	10.80	13.60
A(N)	9.00	10.80	13.29	9.00	10.80	13.60
NEG A(N)	9.00	10.80	13.30	9.00	10.80	13.60
(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (U)	8.40	9.60	12.09	8.40	9.60	12.39
A(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(U)	8.40	9.60	12.09	8.40	9.60	12.39
BOTH OPERANDS WITH XPFN						
(N)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (N)	8.40	9.60	12.09	8.40	9.60	12.39
A(N)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(N)	8.40	9.60	12.09	8.40	9.60	12.39
(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (U)	8.40	9.60	12.09	8.40	9.60	12.39
A(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(U)	8.40	9.60	12.09	8.40	9.60	12.39
AC EXPNT N. MEM EXPNT XPFN						
(N)	9.00	9.60	12.09	9.00	9.60	12.39
NEG (N)	9.00	9.60	12.09	9.00	9.60	12.39
A(N)	9.00	9.60	12.09	9.00	9.60	12.39
NEG A(N)	9.00	9.60	12.09	9.00	9.60	12.39
(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (U)	8.40	9.60	12.09	8.40	9.60	12.39
A(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(U)	8.40	9.60	12.09	8.40	9.60	12.39
AC WITH XPFP. MEM WITH XPFN						
(N)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (N)	8.40	9.60	12.09	8.40	9.60	12.39
A(N)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(N)	8.40	9.60	12.09	8.40	9.60	12.39
(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG (U)	8.40	9.60	12.09	8.40	9.60	12.39
A(U)	8.40	9.60	12.09	8.40	9.60	12.39
NEG A(U)	8.40	9.60	12.09	8.40	9.60	12.39

FLOATING POINT SRD OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.61	5.10	7.86	3.60	5.10	8.16
NEG (N)	3.60	5.10	7.86	3.60	5.10	8.16
A(N)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(N)	3.61	5.10	7.86	3.60	5.10	8.16
(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG (U)	3.61	5.10	7.86	3.61	5.10	8.16
A(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(U)	3.61	5.10	7.86	3.61	5.10	8.16
BOTH OPERANDS WITH XPFN						
(N)	3.61	5.10	7.86	3.60	5.10	8.16
NEG (N)	3.61	5.10	7.86	3.61	5.10	8.16
A(N)	3.60	5.10	7.86	3.60	5.10	8.16
NEG A(N)	3.61	5.10	7.86	3.61	5.10	8.16
(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG (U)	3.61	5.10	7.86	3.61	5.10	8.16
A(U)	3.60	5.10	7.86	3.60	5.10	8.16
NEG A(U)	3.61	5.10	7.86	3.61	5.10	8.16
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.61	5.10	7.86	3.61	5.10	8.16
NEG (N)	3.61	5.10	7.86	3.60	5.10	8.16
A(N)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(N)	3.61	5.10	7.86	3.61	5.10	8.16
(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG (U)	3.61	5.10	7.86	3.60	5.10	8.16
A(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(U)	3.60	5.10	7.86	3.60	5.10	8.16
AC WITH XPFP. MEM WITH XPFN						
(N)	3.61	5.10	7.86	3.60	5.10	8.16
NEG (N)	3.61	5.10	7.86	3.61	5.10	8.16
A(N)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(N)	3.61	5.10	7.86	3.61	5.10	8.16
(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG (U)	3.61	5.10	7.86	3.61	5.10	8.16
A(U)	3.61	5.10	7.86	3.61	5.10	8.16
NEG A(U)	3.61	5.10	7.86	3.61	5.10	8.16

FLOATING POINT SRT OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (N)	34.81	36.01	39.28	34.81	36.01	39.58
A(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(N)	34.81	36.01	39.28	34.81	36.01	39.58
(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (U)	34.81	36.01	39.28	34.81	36.01	39.58
A(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(U)	34.81	36.01	39.28	34.81	36.01	39.58
BOTH OPERANDS WITH XPFN						
(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (N)	34.81	36.01	39.28	34.81	36.01	39.58
A(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(N)	34.81	36.01	39.28	34.81	36.01	39.58
(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (U)	34.81	36.01	39.28	34.81	36.01	39.58
A(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(U)	34.81	36.01	39.28	34.81	36.01	39.58
AC EXPNT N. MEM EXPNT XPFN						
(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (N)	34.81	36.01	39.28	34.81	36.01	39.58
A(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(N)	34.81	36.01	39.28	34.81	36.01	39.58
(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (U)	34.81	36.01	39.28	34.81	36.01	39.58
A(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(U)	34.81	36.01	39.28	34.81	36.01	39.58
AC WITH XPFP. MEM WITH XPFN						
(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (N)	34.81	36.01	39.28	34.81	36.01	39.58
A(N)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(N)	34.81	36.01	39.28	34.81	36.01	39.58
(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG (U)	34.81	36.01	39.28	34.81	36.01	39.58
A(U)	34.81	36.01	39.28	34.81	36.01	39.58
NEG A(U)	34.81	36.01	39.28	34.81	36.01	39.58

FLOATING POINT * OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.80	2.70	2.70	4.80	2.70	2.70
NEG (N)	4.80	2.71	2.70	4.80	2.71	2.70
A(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG A(N)	4.80	2.71	2.70	4.80	2.71	2.70
(U)	4.80	2.70	2.70	4.80	2.70	2.70
NEG (U)	4.80	2.71	2.70	4.80	2.71	2.70
A(U)	4.80	2.70	2.70	4.80	2.70	2.70
NEG A(U)	4.80	2.71	2.70	4.80	2.71	2.70
BOTH OPERANDS WITH XPFN						
(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG (N)	4.80	2.70	2.70	4.80	2.71	2.70
A(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG A(N)	4.80	2.70	2.70	4.80	2.71	2.70
(U)	4.80	2.71	2.70	4.80	2.71	2.70
NEG (U)	4.80	2.71	2.70	4.80	2.71	2.70
A(U)	4.80	2.70	2.70	4.80	2.71	2.70
NEG A(U)	4.80	2.71	2.70	4.80	2.71	2.70
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG (N)	4.80	2.71	2.70	4.80	2.71	2.70
A(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG A(N)	4.80	2.70	2.70	4.80	2.71	2.70
(U)	4.80	2.71	2.70	4.80	2.71	2.70
NEG (U)	4.80	2.71	2.70	4.80	2.71	2.70
A(U)	4.80	2.71	2.70	4.80	2.71	2.70
NEG A(U)	4.80	2.70	2.70	4.80	2.71	2.70
AC WITH XPFP. MEM WITH XPFN						
(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG (N)	4.80	2.71	2.70	4.80	2.71	2.70
A(N)	4.80	2.71	2.70	4.80	2.71	2.70
NEG A(N)	4.80	2.71	2.70	4.80	2.71	2.70
(U)	4.80	2.70	2.70	4.80	2.70	2.70
NEG (U)	4.80	2.71	2.70	4.80	2.71	2.70
A(U)	4.80	2.70	2.70	4.80	2.70	2.70
NEG A(U)	4.80	2.71	2.70	4.80	2.71	2.70

FLOATING POINT D* OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	5.70	3.00	3.00	5.70	3.00	3.00
NEG (N)	5.70	3.00	3.00	5.70	3.00	3.00
A(N)	5.70	3.00	3.00	5.70	3.00	3.00
NEG A(N)	5.70	3.00	3.00	5.70	3.00	3.00
(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (U)	5.10	3.00	3.00	5.10	3.00	3.00
A(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(U)	5.10	3.00	3.00	5.10	3.00	3.00
BOTH OPERANDS WITH XPFN						
(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (N)	5.10	3.00	3.00	5.10	3.00	3.00
A(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(N)	5.10	3.00	3.00	5.10	3.00	3.00
(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (U)	5.10	3.00	3.00	5.10	3.00	3.00
A(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(U)	5.10	3.00	3.00	5.10	3.00	3.00
AC EXPNT N. MEM EXPNT XPFN						
(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (N)	5.10	3.00	3.00	5.10	3.00	3.00
A(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(N)	5.10	3.00	3.00	5.10	3.00	3.00
(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (U)	5.10	3.00	3.00	5.10	3.00	3.00
A(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(U)	5.10	3.00	3.00	5.10	3.00	3.00
AC WITH XPFP. MEM WITH XPFN						
(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (N)	5.10	3.00	3.00	5.10	3.00	3.00
A(N)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(N)	5.10	3.00	3.00	5.10	3.00	3.00
(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG (U)	5.10	3.00	3.00	5.10	3.00	3.00
A(U)	5.10	3.00	3.00	5.10	3.00	3.00
NEG A(U)	5.10	3.00	3.00	5.10	3.00	3.00

FLOATING POINT / OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (N)	9.60	7.50	7.50	9.60	7.50	7.50
A(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(N)	9.60	7.50	7.50	9.60	7.50	7.50
(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (U)	9.60	7.50	7.50	9.60	7.50	7.50
A(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(U)	9.60	7.50	7.50	9.60	7.50	7.50
BOTH OPERANDS WITH XPFN						
(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (N)	9.60	7.50	7.50	9.60	7.50	7.50
A(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(N)	9.60	7.50	7.50	9.60	7.50	7.50
(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (U)	9.60	7.50	7.50	9.60	7.50	7.50
A(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(U)	9.60	7.50	7.50	9.60	7.50	7.50
AC EXPNT N. MEM EXPNT XPFN						
(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (N)	9.60	7.50	7.50	9.60	7.50	7.50
A(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(N)	9.60	7.50	7.50	9.60	7.50	7.50
(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (U)	9.60	7.50	7.50	9.60	7.50	7.50
A(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(U)	9.60	7.50	7.50	9.60	7.50	7.50
AC WITH XPFP. MEM WITH XPFN						
(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (N)	9.60	7.50	7.50	9.60	7.50	7.50
A(N)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(N)	9.60	7.50	7.50	9.60	7.50	7.50
(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG (U)	9.60	7.50	7.50	9.60	7.50	7.50
A(U)	9.60	7.50	7.50	9.60	7.50	7.50
NEG A(U)	9.60	7.50	7.50	9.60	7.50	7.50

FLOATING POINT D/ OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (N)	4.82	9.61	9.60	4.82	9.61	9.60
A(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(N)	4.82	9.61	9.60	4.82	9.61	9.60
(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (U)	4.82	9.61	9.60	4.82	9.61	9.60
A(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(U)	4.82	9.61	9.60	4.82	9.61	9.60
BOTH OPERANDS WITH XPFN						
(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (N)	4.82	9.61	9.60	4.82	9.61	9.60
A(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(N)	4.82	9.61	9.60	4.82	9.61	9.60
(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (U)	4.82	9.61	9.60	4.82	9.61	9.60
A(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(U)	4.82	9.61	9.60	4.82	9.61	9.60
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (N)	4.82	9.61	9.60	4.82	9.61	9.60
A(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(N)	4.82	9.61	9.60	4.82	9.61	9.60
(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (U)	4.82	9.61	9.60	4.82	9.61	9.60
A(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(U)	4.82	9.61	9.60	4.82	9.61	9.60
AC WITH XPFP. MEM WITH XPFN						
(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (N)	4.82	9.61	9.60	4.82	9.61	9.60
A(N)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(N)	4.82	9.61	9.60	4.82	9.61	9.60
(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG (U)	4.82	9.61	9.60	4.82	9.61	9.60
A(U)	4.82	9.61	9.60	4.82	9.61	9.60
NEG A(U)	4.82	9.61	9.60	4.82	9.61	9.60

FLOATING POINT R/ OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (N)	10.80	8.70	8.70	10.80	8.70	8.70
A(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(N)	10.80	8.70	8.70	10.80	8.70	8.70
(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (U)	10.80	8.70	8.70	10.80	8.70	8.70
A(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(U)	10.80	8.70	8.70	10.80	8.70	8.70
BOTH OPERANDS WITH XPFN						
(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (N)	10.80	8.70	8.70	10.80	8.70	8.70
A(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(N)	10.80	8.70	8.70	10.80	8.70	8.70
(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (U)	10.80	8.70	8.70	10.80	8.70	8.70
A(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(U)	10.80	8.70	8.70	10.80	8.70	8.70
AC EXPNT N. MEM EXPNT XPFN						
(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (N)	10.80	8.70	8.70	10.80	8.70	8.70
A(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(N)	10.80	8.70	8.70	10.80	8.70	8.70
(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (U)	10.80	8.70	8.70	10.80	8.70	8.70
A(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(U)	10.80	8.70	8.70	10.80	8.70	8.70
AC WITH XPFP. MEM WITH XPFN						
(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (N)	10.80	8.70	8.70	10.80	8.70	8.70
A(N)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(N)	10.80	8.70	8.70	10.80	8.70	8.70
(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG (U)	10.80	8.70	8.70	10.80	8.70	8.70
A(U)	10.80	8.70	8.70	10.80	8.70	8.70
NEG A(U)	10.80	8.70	8.70	10.80	8.70	8.70

FLOATING POINT ** OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	8.70	7.24	7.24	8.70	7.24	7.24
NEG (N)	16.80	7.24	7.24	16.80	7.24	7.24
A(N)	8.70	7.24	7.24	8.70	7.24	7.24
NEG A(N)	16.80	7.24	7.24	16.80	7.24	7.24
(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG (U)	8.70	6.60	6.60	8.70	6.60	6.60
A(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG A(U)	8.70	6.60	6.60	8.70	6.60	6.60
BOTH OPERANDS WITH XPFN						
(N)	8.40	6.60	6.60	8.40	6.60	6.60
NEG (N)	8.40	6.60	6.60	8.40	6.60	6.60
A(N)	8.40	6.60	6.60	8.40	6.60	6.60
NEG A(N)	8.40	6.60	6.60	8.40	6.60	6.60
(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG (U)	8.40	6.60	6.60	8.40	6.60	6.60
A(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG A(U)	8.40	6.60	6.60	8.40	6.60	6.60
AC EXPNT N. MEM EXPNT XPFN						
(N)	8.70	6.90	6.90	8.70	6.90	6.90
NEG (N)	8.70	6.90	6.90	8.70	6.90	6.90
A(N)	8.70	6.90	6.90	8.70	6.90	6.90
NEG A(N)	8.70	6.90	6.90	8.70	6.90	6.90
(U)	8.70	6.90	6.90	8.70	6.90	6.90
NEG (U)	8.70	6.90	6.90	8.70	6.90	6.90
A(U)	8.70	6.90	6.90	8.70	6.90	6.90
NEG A(U)	8.70	6.90	6.90	8.70	6.90	6.90
AC WITH XPFP. MEM WITH XPFN						
(N)	8.40	6.60	6.60	8.40	6.60	6.60
NEG (N)	8.40	6.60	6.60	8.40	6.60	6.60
A(N)	8.40	6.60	6.60	8.40	6.60	6.60
NEG A(N)	8.40	6.60	6.60	8.40	6.60	6.60
(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG (U)	8.40	6.60	6.60	8.40	6.60	6.60
A(U)	8.40	6.60	6.60	8.40	6.60	6.60
NEG A(U)	8.40	6.60	6.60	8.40	6.60	6.60

FLOATING POINT KR OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR OFF						
NORMALIZED I.						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.60	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.61	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90.	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT KR OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR ON						
NORMALIZED I.						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.61	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.61	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.61	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT KMGR OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
AH INDICATOR OFF						
NORMALIZED I.						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.61	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT KMGR OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

AH INDICATOR ON	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.61	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.60	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (N)	3.60	2.41	1.81	3.61	2.41	2.41
A(N)	3.60	2.41	1.81	3.61	2.41	2.41
NEG A(N)	3.60	2.41	1.81	3.61	2.41	2.41
(U)	3.60	2.41	1.81	3.61	2.41	2.41
NEG (U)	3.60	2.41	1.81	3.61	2.41	2.41
A(U)	3.61	2.41	1.81	3.61	2.41	2.41
NEG A(U)	3.60	2.41	1.81	3.61	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT F+ OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (U)	3.90	2.41	1.81	3.90	2.41	2.41
A(U)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(U)	3.90	2.41	1.81	3.90	2.41	2.41

FLOATING POINT E+ OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.40	4.20	2.41	2.41
A(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.40	4.20	2.41	2.41
(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.40	4.20	2.41	2.41
A(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.40	4.20	2.41	2.41
BOTH OPERANDS WITH XPFN						
(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.40	4.20	2.41	2.41
A(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.40	4.20	2.41	2.41
(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.40	4.20	2.41	2.41
A(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.40	4.20	2.41	2.41
AC EXPNT N. MEM EXPNT XPFN						
(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.40	4.20	2.41	2.41
A(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.40	4.20	2.41	2.41
(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.40	4.20	2.41	2.41
A(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.40	4.20	2.41	2.41
AC WITH XPFP. MEM WITH XPFN						
(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (N)	4.20	2.41	2.40	4.20	2.41	2.41
A(N)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(N)	4.20	2.41	2.40	4.20	2.41	2.41
(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG (U)	4.20	2.41	2.40	4.20	2.41	2.41
A(U)	4.20	2.41	2.40	4.20	2.41	2.41
NEG A(U)	4.20	2.41	2.40	4.20	2.41	2.41

FLOATING POINT L OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS XPFN						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS XPFP						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41

FLOATING POINT LWF OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS XPFN						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41
MEMORY OPERAND HAS XPFP						
(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (N)	3.01	2.41	1.81	3.01	2.41	2.41
A(N)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(N)	3.01	2.41	1.81	3.01	2.41	2.41
(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG (U)	3.01	2.41	1.81	3.01	2.41	2.41
A(U)	3.01	2.41	1.81	3.01	2.41	2.41
NEG A(U)	3.01	2.41	1.81	3.01	2.41	2.41

FLOATING POINT DL OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS XPFP						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41

FLOATING POINT DEMF OPERATION, WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS XPFN						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS U,V FLAGS						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41
MEMORY OPERAND HAS XPFP						
(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG (N)	3.90	2.41	1.81	3.90	2.41	2.41
A(N)	3.90	2.41	1.81	3.90	2.41	2.41
NEG A(N)	3.90	2.41	1.81	3.90	2.41	2.41
(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG (U)	3.31	2.41	1.81	3.31	2.41	2.41
A(U)	3.31	2.41	1.81	3.31	2.41	2.41
NEG A(U)	3.31	2.41	1.81	3.31	2.41	2.41

FLOATING POINT LFT OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED 1.						
(N)	6.76	4.36	4.06	6.76	4.37	4.07
NEG (N)	6.76	4.36	4.06	6.76	4.36	4.07
A(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(N)	6.76	4.36	4.06	6.76	4.36	4.07
(U)	6.76	4.36	4.06	6.76	4.37	4.07
NEG (U)	6.76	4.37	4.06	6.76	4.37	4.07
A(U)	6.76	4.37	4.06	6.76	4.36	4.07
NEG A(U)	6.76	4.36	4.06	6.76	4.37	4.07
MEMORY OPERAND HAS XPFN						
(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (N)	6.76	4.36	4.06	6.76	4.37	4.07
A(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(N)	6.76	4.37	4.06	6.76	4.36	4.07
(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (U)	6.76	4.36	4.06	6.76	4.36	4.07
A(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(U)	6.76	4.37	4.06	6.76	4.36	4.07
MEMORY OPERAND HAS U,V FLAGS						
(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (N)	6.76	4.36	4.06	6.76	4.36	4.07
A(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(N)	6.76	4.36	4.06	6.76	4.37	4.07
(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (U)	6.76	4.36	4.06	6.76	4.37	4.07
A(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(U)	6.76	4.36	4.06	6.76	4.37	4.07
MEMORY OPERAND HAS XPFP						
(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (N)	6.76	4.36	4.06	6.76	4.37	4.07
A(N)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(N)	6.76	4.36	4.06	6.76	4.36	4.07
(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG (U)	6.76	4.36	4.06	6.76	4.37	4.07
A(U)	6.76	4.36	4.06	6.76	4.36	4.07
NEG A(U)	6.76	4.36	4.06	6.76	4.36	4.07

FLOATING POINT M+ OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	6.00	4.39	8.82	6.00	4.52	10.27
NEG (N)	6.00	4.52	9.07	6.00	4.39	10.03
A(N)	6.00	4.39	8.82	6.00	4.52	10.27
NEG A(N)	5.72	4.52	9.07	5.72	4.39	10.02
(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (U)	5.42	3.62	7.86	5.42	3.62	9.07
A(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(U)	5.42	3.62	7.86	5.42	3.62	9.07
MEMORY OPERAND HAS XPFN						
(N)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (N)	5.42	3.62	7.86	5.42	3.62	9.07
A(N)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(N)	5.42	3.62	7.86	5.42	3.62	9.07
(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (U)	5.42	3.62	7.86	5.42	3.62	9.07
A(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(U)	5.42	3.62	7.86	5.42	3.62	9.07
MEMORY OPERAND HAS U,V FLAGS						
(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (N)	5.42	3.92	8.46	5.42	3.92	9.67
A(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(N)	5.42	3.92	8.46	5.42	3.92	9.67
(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (U)	5.42	3.92	8.46	5.42	3.92	9.67
A(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(U)	5.42	3.92	8.46	5.42	3.92	9.67
MEMORY OPERAND HAS XPFP						
(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (N)	5.42	3.92	8.46	5.42	3.92	9.67
A(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(N)	5.42	3.92	8.46	5.42	3.92	9.67
(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (U)	5.42	3.92	8.46	5.42	3.92	9.67
A(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(U)	5.42	3.92	8.46	5.42	3.92	9.67

FLOATING POINT M+MG OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS

	NO INDEXING			INDEXING		
	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND	INTERNAL OPERAND	EXTERNAL OPERAND	I-BOX OPERAND
NORMALIZED I.						
(N)	6.00	4.39	8.82	6.00	4.52	10.27
NEG (N)	6.02	4.52	9.07	6.01	4.39	10.03
A(N)	6.00	4.39	8.82	6.00	4.52	10.27
NEG A(N)	6.02	4.52	9.07	6.01	4.39	10.03
(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (U)	6.01	4.22	8.46	6.02	4.22	9.67
A(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(U)	6.01	4.21	8.46	6.02	4.22	9.67
MEMORY OPERAND HAS XPFN						
(N)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (N)	5.42	3.62	7.86	5.42	3.62	9.07
A(N)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(N)	5.42	3.62	7.86	5.42	3.62	9.07
(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG (U)	5.42	3.62	7.86	5.42	3.62	9.07
A(U)	5.42	3.62	7.86	5.42	3.62	9.07
NEG A(U)	5.42	3.62	7.86	5.42	3.62	9.07
MEMORY OPERAND HAS U,V FLAGS						
(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (N)	5.42	3.92	8.46	5.42	3.92	9.67
A(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(N)	5.42	3.92	8.46	5.42	3.92	9.67
(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (U)	5.42	3.92	8.46	5.42	3.92	9.67
A(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(U)	5.42	3.92	8.46	5.42	3.92	9.67
MEMORY OPERAND HAS XPFP						
(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (N)	5.42	3.92	8.46	5.42	3.92	9.67
A(N)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(N)	5.42	3.92	8.46	5.42	3.92	9.67
(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG (U)	5.42	3.92	8.46	5.42	3.92	9.67
A(U)	5.42	3.92	8.46	5.42	3.92	9.67
NEG A(U)	5.42	3.92	8.46	5.42	3.92	9.67

ENVIRONMENTAL TIMING

Method:

Sequences of operations were generated and timed by GENER.

Environment:

Cases were run with environments of one, two, and up to eight consecutive unnormalized floating point adds and also with similar sequences of unnormalized floating point multiplies, all using the same external operand.

Time Evaluation:

The printed output is actually the average instruction times.

The "environment" is actually a "forwarding" environment in each case, since the operand addresses are all the same. The average times for the background instructions thus should be 2.41 μs for +(u) (according to p. 66) and close to 2.71 for *(u) (according to p. 76).

Assuming the environment to be unaffected by the instruction, the subject instruction time can be computed as follows: if a test group consists of one subject instruction A followed by n environment instruction B, and if the average instruction time is $t_{AV.}$, then

$$\text{group time} = t_{group} = (n+1) \cdot t_{AV}$$

$$= n \cdot t_B + t_A$$

$$\text{and} \quad t_A = (n+1)\ t_{AV} - nt_B$$

where t_A, t_B are the instruction times for A and B respectively.

For example, in the case of a ST (u) followed by 3 * (u) instructions, the effective store time is

$$t_{ST} = 4 * 2.25 - 3 * 2.71$$

$$= 0.87 \ \mu s \text{ approximately.}$$

The same method when applied to the case of 3 + (u) instructions leads to a negative effective store time.

Each time measurement may have an error on 0.01 μs, and the absolute error bound of the formula is actually $(2n+1) \cdot (0.01)$ μs. For the above computation, the error is not larger than 0.07.

FLOATING POINT ENVIRONMENTAL TEST

	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT
FOLLOWED BY +(U) OPS AT 2.41 EACH								
ST(U) (4.82 IN A ST ENVIRONMENT)	2.51	2.01	1.73	2.21	2.21	2.28	2.26	2.31
SRD(U) (5.10 IN A SRD ENVIRONMENT)	2.56	2.04	1.81	1.93	2.20	2.28	2.25	2.31
SLO(U) (9.59 IN A SLO ENVIRONMENT)	4.80	3.21	2.55	2.76	2.70	2.66	2.63	2.61
L(U) (1.34 IN A L ENVIRONMENT)	3.00	2.50	3.16	3.00	2.91	2.83	2.78	2.74
DL(U) (1.41 IN A DL ENVIRONMENT)	3.15	2.61	3.16	3.00	2.91	2.83	2.78	2.74
LFT(U) (4.35 IN A LFT ENVIRONMENT)	2.56	2.32	2.26	2.02	2.46	2.44	2.48	2.44
LX (5.73 IN A LX ENVIRONMENT)	3.31	3.12	2.86	2.83	2.71	2.71	2.63	2.64
SX (3.46 IN A SX ENVIRONMENT)	2.11	2.41	2.11	2.47	2.51	2.49	2.48	2.47
LV (5.42 IN A LV ENVIRONMENT)	3.02	2.96	2.71	2.74	2.61	2.64	2.56	2.59
SV (7.81 IN A SV ENVIRONMENT)	4.21	3.21	2.72	3.07	3.01	2.92	2.86	2.81
LC (5.42 IN A LC ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
SC (7.81 IN A SC ENVIRONMENT)	4.21	3.22	2.72	3.07	3.01	2.92	2.86	2.81
LR (5.42 IN A LR ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
SR (7.81 IN A SR ENVIRONMENT)	4.21	3.22	2.72	3.07	3.01	2.92	2.86	2.81
KV (5.27 IN A KV ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
KC (5.27 IN A KC ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
V+ (5.27 IN A V+ ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
V+C (5.27 IN A V+C ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
V+CR (5.27 IN V+CR ENVIRONMENT)	3.01	2.96	2.71	2.74	2.61	2.64	2.56	2.59
LVI (3.32 IN A LVI ENVIRONMENT)	2.11	2.41	2.26	2.41	2.31	2.41	2.33	2.41
V+I (3.31 IN A V+I ENVIRONMENT)	2.11	2.41	2.26	2.41	2.31	2.41	2.33	2.41
V+IC (3.92 IN V+IC ENVIRONMENT)	2.41	2.61	2.41	2.53	2.41	2.49	2.41	2.48
V+ICR (3.92 IN V+ICR ENVIRONMENT)	2.41	2.61	2.41	2.53	2.41	2.49	2.41	2.48
KVI (3.32 IN A KVI ENVIRONMENT)	2.11	2.41	2.26	2.41	2.31	2.41	2.33	2.41
KCI (3.32 IN A KCI ENVIRONMENT)	2.11	2.41	2.26	2.41	2.31	2.41	2.33	2.41
FOLLOWED BY *(U) OPS AT 2.71μs EACH								
ST(U) (4.82 IN A ST ENVIRONMENT)	2.84	2.36	2.25	2.34	2.40	2.53	2.48	2.57
SRD(U) (5.10 IN A SRD ENVIRONMENT)	2.83	2.41	2.33	2.40	2.45	2.53	2.52	2.57
SLO(U) (9.59 IN A SLO ENVIRONMENT)	4.80	3.71	3.45	3.30	3.20	3.13	3.07	3.04
L(U) (1.34 IN A L ENVIRONMENT)	1.80	2.41	2.55	2.53	2.60	2.58	2.63	2.61
DL(U) (1.41 IN A DL ENVIRONMENT)	1.95	2.41	2.55	2.53	2.61	2.58	2.63	2.61
LFT(U) (4.35 IN A LFT ENVIRONMENT)	2.89	2.51	2.48	2.46	2.61	2.71	2.63	2.71
LX (5.73 IN A LX ENVIRONMENT)	3.31	3.12	2.86	2.83	2.81	2.79	2.78	2.78
SX (3.46 IN A SX ENVIRONMENT)	2.41	2.41	2.47	2.52	2.61	2.62	2.63	2.64
LV (5.42 IN A LV ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
SV (7.81 IN A SV ENVIRONMENT)	4.21	3.22	2.72	3.19	3.11	3.05	3.01	2.98
LC (5.42 IN A LC ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
SC (7.81 IN A SC ENVIRONMENT)	4.21	3.22	2.72	3.19	3.11	3.05	3.01	2.98
LR (5.42 IN A LR ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
SR (7.81 IN A SR ENVIRONMENT)	4.21	3.21	2.72	3.19	3.11	3.05	3.01	2.98
KV (5.27 IN A KV ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
KC (5.27 IN A KC ENVIRONMENT)	3.02	2.96	2.71	2.74	2.71	2.73	2.71	2.73
V+ (5.27 IN A V+ ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
V+C (5.27 IN A V+C ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
V+CR (5.27 IN V+CR ENVIRONMENT)	3.01	2.96	2.71	2.74	2.71	2.73	2.71	2.73
LVI (3.32 IN A LVI ENVIRONMENT)	2.25	2.41	2.48	2.53	2.55	2.58	2.59	2.61
V+I (3.31 IN A V+I ENVIRONMENT)	2.25	2.41	2.48	2.53	2.55	2.58	2.59	2.61
V+IC (3.92 IN V+IC ENVIRONMENT)	2.41	2.61	2.48	2.59	2.56	2.62	2.59	2.64
V+ICR (3.92 IN V+ICR ENVIRONMENT)	2.41	2.61	2.48	2.59	2.56	2.62	2.59	2.64
KVI (3.32 IN A KVI ENVIRONMENT)	2.25	2.41	2.48	2.53	2.55	2.58	2.59	2.61
KCI (3.32 IN A KCI ENVIRONMENT)	2.25	2.41	2.48	2.53	2.55	2.58	2.59	2.61

COMMENTARY ON TRANSMIT INSTRUCTION

The transmit instructions were timed with the external operands in the two lowest memory boxes and the internal operands in locations 4.0 through 9.0. The index operands were in $2 through $14 (18.0 through 30.0).

LA is emptied before the actual transmission of information.

TRANSMITI

	EXTERNAL TO EXTERNAL	EXTERNAL TO INTERNAL	EXTERNAL TO I-BOX	INTERNAL TO INTERNAL	INTERNAL TO EXTERNAL	INTERNAL TO I-BOX	I-BOX TO I-BOX	I-BOX TO EXTERNAL	I-BOX TO INTERNAL
1WD	13.84	13.85	13.28	14.47	14.47	13.28	13.28	13.85	13.85
3WD	19.89	19.90	21.69	14.47	14.47	13.28	13.28	13.85	13.85
D 5WD	25.94	25.94	30.16	14.46	14.47	13.28	13.28	13.85	13.85
7WD									
823 1	31.97		38.58				13.27	13.85	
9WD									
823 1	37.99		47.00				13.27	13.85	
11WD									
* 1	43.99		55.46				13.27	13.85	
13WD									
* 1	50.04		63.87					13.85	
15WD									
* 1	56.07								

TRANSMIT

	EXTERNAL TO EXTERNAL	EXTERNAL TO INTERNAL	EXTERNAL TO I-BOX	INTERNAL TO INTERNAL	INTERNAL TO EXTERNAL	INTERNAL TO I-BOX	I-BOX TO I-BOX	I-BOX TO EXTERNAL	I-BOX TO INTERNAL
1WD	14.47	14.48	13.85	15.04	15.06	13.87	13.85	14.48	14.47
3WD	20.48	20.48	22.32	28.30	28.32	24.72	22.31	20.48	20.48
5WD	26.51	26.52	30.74	41.52	41.52	35.55	30.74	26.51	26.51
7WD	32.56		39.16				39.16	32.56	
9WD	38.58		47.61				47.62	38.58	
11WD	44.63		56.05				56.05	44.63	
13WD	50.68		64.46					50.65	
15WD	56.66								
50WD	162.15								
100WD	312.88								

COMMENTARY ON INDEX ARITHMETIC INSTRUCTIONS

These were timed with external, internal and index operands both with and without indexing of the operand addresses.

The external operands refer to the two lowest memory boxes. The internal operands refer to locations 7.0, 8.0 and 9.0.

Conditional refill operations were tested for both conditions.

In the LVS instruction the answer is placed in the location of one of the summands.

The instructions LVE and SVA were timed for all three sizes of the address field: 18, 19, and 24 bits.

In SX, no memory fetch is necessary. This is not true for SV, SC and SR. This explains the large difference in timing.

All successful refill action requires memory fetches. All direct index arithmetic instruction except SX require memory fetches. No memory fetch is required for immediate index arithmetic.

Concurrent E-box activity can overlap much of the I-box time. This is, of course, not possible if the LA is empty. The RNX instruction requires the draining of LA.

I-BOX INSTRUCTIONS

	EXTERNAL OPERAND**		INTERNAL OPERAND **		INDEX OPERAND**		IMMEDIATE
	DIRECT	EFFECTIVE	DIRECT	EFFECTIVE	DIRECT	EFFECTIVE	
LX	5.73	6.33	6.93	7.53	5.72	6.33	
LV	5.42	5.87	5.88	6.48	5.27	5.87	3.31
LC	5.42	5.87	5.88	6.48	5.27	5.87	3.31
LR	5.42	5.87	5.88	6.48	5.27	5.87	3.31
SX	3.46	3.61	3.01	3.31	5.12	5.73	
SV	7.81	7.82	7.83	7.83	6.33	6.93	
SC	7.81	7.82	7.83	7.83	6.33	6.93	
SR	7.81	7.82	7.83	7.83	6.33	6.93	
V+	5.27	5.87	5.87	6.48	5.27	5.87	3.31
V+C	5.27	5.87	5.87	6.48	5.87	6.48	3.92
V+CR	5.27	5.88	5.88	6.48	5.88	6.48	3.92
V+CR	9.34	9.94	9.94	10.54	9.94	10.54	8.13
KV	5.27	5.87	5.87	6.48	5.27	5.87	3.31
KC	5.27	5.87	5.87	6.48	5.27	5.87	3.31
LVNI							3.31
V-I							3.31
V-IC							3.92
V-ICR							3.92
V-ICR							8.13
C+I							3.31
C-I							3.31
KVNI							3.31
R	11.42	11.43	10.83	10.84	7.68	8.29	
RCZ	5.27	5.87	5.87	6.48	4.07	4.67	
RCZ	11.42	11.43	10.83	10.84	7.68	8.29	
RNX	12.96	13.56					

I-BOX INSTRUCTIONS

LVS		J FIELD EQUAL TO INDEX OPERAND				J FIELD NOT EQUAL TO INDEX OPERAND			
	CLEAR VF	1XR	5XR	10XR	15XR	1XR	5XR	10XR	14XR
	6.48	6.48	13.71	22.75	31.78	8.29	15.52	24.55	31.78

LVE	I-BOX INSTRUCTIONS					
	DIRECT	EFFECTIVE	DIRECT	EFFECTIVE	DIRECT	EFFECTIVE
18BITS	8.89	9.04	9.49	9.49	7.68	7.68
19BITS	8.89	9.04	9.49	9.49	7.68	7.68
24BITS	8.89	9.04	9.49	9.49	7.68	7.68

SVA						
18BITS	7.81	7.82	7.82	7.83	6.33	6.93
19BITS	7.81	7.82	7.82	7.83	6.33	6.93
24BITS	7.81	7.82	7.82	7.83	6.33	6.93

BRANCH INSTRUCTIONS

"Consecutive" means that each instruction called for a branch to the next instructions. "Non-consecutive" means that the branch was to a location from one to four instructions from the one being executed.

For CBR type, the "success" refers to a successful refill in which the register is refilled with its original contents. A one was in the count field. For an unsuccessful CBR the branch was unsuccessful and thus no refill. The original count in the count field in this case was greater than 10,000.

The right-most four columns of data involved indexed addresses.

BRANCHING CB BIND NO FORWARDING DIRECT ADDRESSING INSTRUCTION AT FULL WORD ADDR

	NO INDEXING				BRANCH ADDRESS INDEX			
	SUCCES CONSEC	UNSUCC CONSEC	SUCCES NONCON	UNSUCC NONCON	SUCCES CONSEC	UNSUCC CONSEC	SUCCES NONCON	UNSUCC NONCON
CB CBZ	4.82	4.52	4.82	4.52	5.12	5.12	5.12	5.12
CB+ CBZ+	4.82	4.52	4.82	4.52	5.12	5.12	5.12	5.12
CB- CBZ-	4.82	4.52	4.82	4.52	5.12	5.12	5.12	5.12
CBH CBZH	4.82	4.52	4.82	4.52	5.12	5.12	5.12	5.12
CBR	11.14	4.52	11.14	4.52	11.44	5.12	11.44	5.12
CBR+	11.14	4.52	11.14	4.52	11.44	5.12	11.44	5.12
CBR-	11.14	4.52	11.14	4.52	11.44	5.12	11.44	5.12
CBRH	11.14	4.52	11.14	4.52	11.44	5.12	11.44	5.12
BIND								
I-BOX IND								
BXL BZXL	4.52	2.26	4.52	2.26	4.67	2.86	4.67	2.86
ARITH RESULT IND								
BAL BZAL	19.78	7.20	19.78	7.20	20.08	7.21	20.08	7.21

VFL TIMING

The page heading gives the name of the instruction and conditions under which it was tested. Each line represents a variation in operand data definition, as shown in the left-hand column. Each column of figures represents a variation of operand placement; external memory, external with word boundary crossover, I-box, internal (accumulator), and internal with word boundary crossover. The columns are then repeated for the case of operand indexing. Here the effective address was modified by an index register containing zero.

A standard operand $(444 \ldots\ldots 4)_{16}$ was used for both binary and decimal type operations. For data-signed operations this would be interpreted as $+(44444 \ldots 4)_{16}$. Exceptions to the use of this standard operand were made in the following cases. For add (+) the accumulator was initially a low order +1, and the memory operand $+(444 \ldots 4)_{16}$. This provided for continual recomplementation where the sign of the instruction was inverted (subtract). For add to memory (n+) the accumulator was initially $+(444 \ldots 4)_{16}$ and the memory operand +1, again to provide for recomplementation. For multiply (*), multiply and add (*+) and divide (/) the accumulator and factor registers initially contained the standard operand and the memory operand was +1. This was done to provide some control of the data during repeated execution of the instruction. Finally, for convert (CV) and convert double (DCV) the accumulator was originally +1 at offset 20. This was done mainly for the case of double convert decimal to binary so that the result would always be accepted as legitimate decimal data for the next execution.

There are some cases where a number enclosed in asterisks was printed instead of a time in microseconds. These numbers show that an indicator has come on during the execution which would invalidate the results. The bit position of this indicator bit is displayed. Specifically, *01* shows an instruction check reject. In the case of load transit and load factor, these were caused by machine errors in handling a partial field

condition. In decimal operations it was probably due to the use of binary data. When these are not interpretable as legal decimal quantities, $IJ will be turned on. For divide, *24* shows a zero divide condition. Again it was probably generated during the course of repeated execution. A "PF" printed out to the right of a line indicates a partial field occurrence for the data definition in question.

There were three runs through the VFL instruction set:

NO FORWARDING DIRECT ADDRESSING

No forwarding implies that the operands were picked up or stored in four consecutive locations. For external operands, these were $(150000.0)_8$, $(150001.0)_8$, $(150002.0)_8$, $(150003.0)_8$, then back to $(150000.0)_8$, $(150001.0)_8$, etc. This was done to provide maximum speed benefits from the STRETCH memory-box configuration. For I-box operands, the locations were $X0, $X1, $X2, $X3, $X0, etc. Here there should be no difference in times between no forwarding vs. forwarding, and this was indeed the case.

FORWARDING DIRECT ADDRESSING

Forwarding implies no updating of operand location for succeeding instructions. This provides look-ahead the opportunity to forward data from one level to another. The operand locations used were: external $(150000.0)_8$ external with word boundary crossover $(150000.74)_8$, I-box $X0 $(20.0)_8$, internal $(10.0)_8$, internal with word boundary crossover $(10.74)_8$.

IMMEDIATE ADDRESSING

The 24 bit address of the instruction contained the equivalent of the standard operand $(444 \ldots 4)_{16}$. There is, of course, no case of forwarding with immediate operands. The to-memory type instructions were deleted since they are undefined for immediate addressing.

COMMENTARY ON VFL INSTRUCTIONS

1. All VFL instructions require an operation code LA level.
2. All VFL "to memory" operations require memory fetches.
3. The number of LA data levels are doubled whenever word boundary crossover is present.
4. VFL stores with word boundary crossover involves a "sequential store" situation. The second store level cannot be loaded into LA until the LAAR is no longer busy processing the first store level.
5. The word "forwarding" is being used in the same context as for floating point instructions, meaning identical operand address.

   Actual fetch-type forwarding action is possible only for consecutive fetch-type VFL instructions with no word boundary crossover.

   "Store-close-to-fetch" forwarding is present for consecutive "to memory" VFL instructions with no word boundary crossover.
6. The error marks on divide instructions (pp. 127, 154, 177) are due the use of a zero divider.

VFL INSTRUCTION + NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.36	6.32	4.36			4.82	6.77	4.36		
(BU,16,8)	4.96	6.40	4.96			4.96	6.81	4.96		
(BU,32,8)	6.16	7.36	6.16			6.16	7.37	6.16		
(BU,48,8)	7.36	8.56	7.36			7.36	8.56	7.36		
(BU,64,8)	8.56	9.76	8.56			8.56	9.76	8.56		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.80	6.41	4.80			4.82	6.82	4.80		
(B,16,1)	5.40	6.78	5.40			5.40	6.92	5.40		
(B,32,1)	6.60	7.98	6.60			6.60	7.98	6.60		
(B,48,1)	7.80	9.16	7.80			7.80	9.16	7.80		
(B,64,1)	9.00	10.36	9.00			9.00	10.36	9.00		
(DU,4,4)	4.47		4.47			4.82		4.47		
(DU,8,4)	5.09	6.47	5.09			5.09	6.84	5.09		
(DU,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(DU,32,4)	8.70	9.90	8.70			8.70	9.90	8.70		
(DU,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(DU,64,4)	13.50	14.70	13.50			13.50	14.70	13.50		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.80	6.45	4.80			4.82	6.83	4.80		
(D,16,4)	6.00	7.50	6.00			6.00	7.51	6.00		
(D,32,4)	8.40	9.90	8.40			8.40	9.90	8.40		
(D,48,4)	10.80	12.30	10.80			10.80	12.30	10.80		
(D,64,4)	13.20	14.70	13.20			13.20	14.70	13.20		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.36	6.32	4.36			4.82	6.77	4.36		
(BU,16,8)	4.96	6.40	4.96			4.96	6.81	4.96		
(BU,32,8)	6.16	7.36	6.16			6.16	7.37	6.16		
(BU,48,8)	7.36	8.56	7.36			7.36	8.56	7.36		
(BU,64,8)	8.56	9.76	8.56			8.56	9.76	8.56		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	7.20	6.41	7.20			7.20	6.81	7.20		
(B,16,1)	7.80	6.78	7.80			7.80	6.92	7.80		
(B,32,1)	10.20	7.98	10.20			10.20	7.98	10.20		
(B,48,1)	12.60	9.16	12.60			12.60	9.17	12.60		
(B,64,1)	15.01	10.36	15.00			15.00	10.36	15.00		
(DU,4,4)	4.47		4.47			4.82		4.47		
(DU,8,4)	5.09	6.47	5.09			5.09	6.84	5.09		
(DU,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(DU,32,4)	8.70	9.90	8.70			8.70	9.90	8.70		
(DU,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(DU,64,4)	13.50	14.70	13.50			13.50	14.70	13.50		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	7.20	6.46	7.20			7.20	6.83	7.20		
(D,16,4)	9.00	7.50	9.00			9.00	7.51	9.00		
(D,32,4)	13.80	9.90	13.80			13.80	9.90	13.80		
(D,48,4)	18.61	12.30	18.61			18.61	12.30	18.61		
(D,64,4)	23.41	14.70	23.41			23.41	14.70	23.41		

VFL INSTRUCTION M+ NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	6.63		10.88			6.92		11.48			
(BU,8,8)	6.63	15.96	10.88			6.92	15.97	11.48			
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09			
(BU,32,8)	7.84	17.76	12.69			7.84	17.77	13.30			
(BU,48,8)	9.02	18.97	13.90			9.03	18.98	14.51			
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11			
(B,1,1)	6.63		10.88			6.93		11.48			PF
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09			
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69			
(B,32,1)	8.42	18.36	13.29			8.44	18.38	13.90			
(B,48,1)	9.61	19.57	14.51			9.62	19.58	15.11			
(B,64,1)	10.80	20.78	15.72			10.81	20.79	16.32			
(DU,4,4)	6.63		10.88			6.92		11.48			
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09			
(DU,16,4)	7.84	17.77	12.69			7.84	17.77	13.29			
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.72			
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13			
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94			
(D,4,4)	6.63		10.88			6.93		11.48			PF
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09			
(D,16,4)	7.84	17.76	12.69			7.84	17.77	13.29			
(D,32,4)	10.21	20.17	15.11			10.22	20.19	15.72			
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13			
(D,64,4)	15.01	24.99	19.94			15.00	25.00	20.55			
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	7.23		12.09			7.53		12.69			
(BU,8,8)	7.23	17.16	12.09			7.53	17.17	12.69			
(BU,16,8)	8.42	18.36	13.30			8.44	18.38	13.90			
(BU,32,8)	10.80	20.78	15.72			10.81	20.79	16.32			
(BU,48,8)	13.20	23.18	18.13			13.20	23.20	18.74			
(BU,64,8)	12.31	22.95	17.22			12.31	22.97	17.83			
(B,1,1)	6.63		10.88			6.92		11.48			PF
(B,8,1)	6.93	16.56	11.49			7.23	16.57	12.09			
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69			
(B,32,1)	8.43	18.36	13.30			8.44	18.38	13.90			
(B,48,1)	9.62	19.57	14.51			9.62	19.58	15.11			
(B,64,1)	10.80	20.78	15.71			10.81	20.79	16.32			
(DU,4,4)	7.23		12.09			7.53		12.69			
(DU,8,4)	8.42	18.36	13.30			8.44	18.38	13.90			
(DU,16,4)	10.80	20.77	15.72			10.81	20.79	16.32			
(DU,32,4)	15.60	25.59	20.55			15.61	25.60	21.15			
(DU,48,4)	20.40	30.41	25.38			20.40	30.43	25.98			
(DU,64,4)	19.51	30.78	24.48			19.51	30.80	25.08			
(D,4,4)	6.63		10.88			6.93		11.48			PF
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09			
(D,16,4)	7.84	17.77	12.69			7.84	17.77	13.30			
(D,32,4)	10.21	20.17	15.11			10.22	20.19	15.71			
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13			
(D,64,4)	15.01	24.99	19.95			15.01	25.01	20.55			

VFL INSTRUCTION +MG NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.36	6.32	4.36			4.82	6.77	4.36		
(BU,16,8)	4.96	6.40	4.96			4.96	6.81	4.96		
(BU,32,8)	6.16	7.37	6.16			6.16	7.37	6.16		
(BU,48,8)	7.36	8.56	7.36			7.36	8.56	7.36		
(BU,64,8)	8.56	9.76	8.56			8.56	9.76	8.56		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.96	6.39	4.96			4.96	6.81	4.96		
(B,16,1)	5.56	6.78	5.56			5.56	6.92	5.56		
(B,32,1)	6.76	7.96	6.76			6.76	7.96	6.76		
(B,48,1)	7.96	9.17	7.96			7.96	9.16	7.96		
(B,64,1)	9.16	10.36	9.16			9.16	10.36	9.16		
(DU,4,4)	4.47		4.47			4.82		4.47		
(DU,8,4)	5.09	6.47	5.09			5.09	6.84	5.09		
(DU,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(DU,32,4)	8.70	9.90	8.70			8.70	9.90	8.70		
(DU,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(DU,64,4)	13.50	14.70	13.50			13.50	14.70	13.50		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	5.07	6.46	5.07			5.07	6.83	5.07		
(D,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(D,32,4)	8.70	9.90	8.69			8.70	9.90	8.70		
(D,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(D,64,4)	13.50	14.70	13.50			13.50	14.70	13.50		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.36	6.32	4.36			4.82	6.77	4.36		
(BU,16,8)	4.96	6.40	4.96			4.96	6.81	4.96		
(BU,32,8)	6.16	7.37	6.16			6.16	7.37	6.16		
(BU,48,8)	7.36	8.56	7.36			7.36	8.56	7.36		
(BU,64,8)	9.00	10.20	9.00			9.00	10.20	9.00		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.96	6.40	4.96			4.96	6.81	4.96		
(B,16,1)	5.56	6.78	5.56			5.56	6.92	5.56		
(B,32,1)	6.76	7.96	6.76			6.76	7.96	6.76		
(B,48,1)	7.96	9.17	7.96			7.96	9.16	7.96		
(B,64,1)	9.60	10.50	9.60			9.60	10.50	9.60		
(DU,4,4)	4.47		4.47			4.82		4.47		
(DU,8,4)	5.09	6.47	5.09			5.09	6.84	5.09		
(DU,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(DU,32,4)	8.70	9.90	8.70			8.70	9.90	8.70		
(DU,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(DU,64,4)	13.80	*01*	13.80			13.80	*01*	13.80		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	5.07	6.46	5.07			5.07	6.83	5.07		
(D,16,4)	6.30	7.50	6.30			6.30	7.51	6.30		
(D,32,4)	8.70	9.90	8.70			8.70	9.90	8.70		
(D,48,4)	11.10	12.30	11.10			11.10	12.30	11.10		
(D,64,4)	13.80	14.71	13.80			13.80	14.70	13.80		

VFL INSTRUCTION M+MG NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.63		10.88			6.92		11.48		
(BU,8,8)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,32,8)	7.84	17.77	12.69			7.84	17.77	13.29		
(BU,48,8)	9.02	18.97	13.90			9.03	18.98	14.51		
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,1,1)	6.63		10.88			6.92		11.48		
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69		
(B,32,1)	8.42	18.36	13.30			8.44	18.37	13.90		
(B,48,1)	9.61	20.77	14.50			9.62	20.79	15.11		
(B,64,1)	10.80	22.28	15.72			10.81	22.29	16.32		
(DU,4,4)	6.63		10.88			6.93		11.48		
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(DU,16,4)	7.84	17.77	12.69			7.84	17.77	13.29		
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.72		
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94		
(D,4,4)	6.63		10.88			6.92		11.48		
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(D,16,4)	7.84	17.77	12.69			7.84	17.77	13.29		
(D,32,4)	10.21	20.17	15.11			10.21	20.18	15.72		
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(D,64,4)	15.00	24.99	19.94			15.01	25.00	20.55		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.23		12.09			7.53		12.69		
(BU,8,8)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,16,8)	8.42	18.36	13.29			8.44	18.37	13.90		
(BU,32,8)	10.80	20.78	15.72			10.81	20.79	16.31		
(BU,48,8)	13.20	23.18	18.13			13.20	23.20	18.74		
(BU,64,8)	15.00	24.99	19.94			15.00	25.00	20.55		
(B,1,1)	7.23		12.09			7.53		12.69		
(B,8,1)	8.42	18.36	13.29			8.44	18.37	13.90		
(B,16,1)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,32,1)	12.00	21.98	16.92			12.01	21.99	17.53		
(B,48,1)	14.40	24.39	19.34			14.41	24.40	19.94		
(B,64,1)	16.80	26.79	21.76			16.80	26.81	22.36		
(DU,4,4)	7.23		12.09			7.53		12.69		
(DU,8,4)	8.42	18.36	13.30			8.44	18.37	13.90		
(DU,16,4)	10.80	20.77	15.72			10.81	20.79	16.32		
(DU,32,4)	15.61	25.59	20.55			15.61	25.61	21.15		
(DU,48,4)	20.40	30.41	25.38			20.40	30.43	25.98		
(DU,64,4)	24.60	34.62	29.61			24.60	34.64	30.21		
(D,4,4)	7.23		12.09			7.53		12.69		
(D,8,4)	8.42	18.36	13.29			8.44	18.37	13.90		
(D,16,4)	10.80	20.77	15.72			10.81	20.79	16.32		
(D,32,4)	15.61	25.59	20.55			15.60	25.61	21.15		
(D,48,4)	20.40	30.41	25.38			20.40	30.43	25.98		
(D,64,4)	25.21	35.22	30.22			25.21	35.25	30.82		

VFL INSTRUCTION L NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,8)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,32,8)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,48,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,64,8)	8.40	9.60	8.40			8.40	9.60	8.40		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.80	6.32	4.80			4.82	6.77	4.80		
(B,16,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,32,1)	6.60	7.80	6.60			6.60	7.80	6.60		
(B,48,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(B,64,1)	9.00	10.20	9.00			9.00	10.20	9.00		
(DU,4,4)	4.20		4.20			4.82		4.22		
(DU,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(DU,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(DU,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(DU,64,4)	13.20	14.40	13.20			13.20	14.40	13.20		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(D,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(D,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(D,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(D,64,4)	13.20	14.40	13.20			13.20	14.40	13.20		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,8)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,32,8)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,48,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,64,8)	8.40	9.60	8.40			8.40	9.60	8.40		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.80	6.32	4.80			4.82	6.77	4.80		
(B,16,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,32,1)	6.60	7.80	6.60			6.60	7.80	6.60		
(B,48,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(B,64,1)	9.00	10.20	9.00			9.00	10.20	9.00		
(DU,4,4)	4.20		4.20			4.82		4.22		
(DU,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(DU,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(DU,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(DU,64,4)	13.20	14.41	13.20			13.20	14.40	13.20		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(D,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(D,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(D,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(D,64,4)	13.20	14.41	13.20			13.20	14.40	13.20		

VFL INSTRUCTION LWF NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,8)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,32,8)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,48,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,64,8)	8.40	9.60	8.40			8.40	9.60	8.40		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.80	6.32	4.80			4.82	6.77	4.80		
(B,16,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,32,1)	6.60	7.80	6.60			6.60	7.80	6.60		
(B,48,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(B,64,1)	9.00	10.20	9.00			9.00	10.20	9.00		
(DU,4,4)	4.20		4.20			4.82		4.22		
(DU,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(DU,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(DU,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(DU,64,4)	13.20	14.40	13.20			13.20	14.40	13.20		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(D,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(D,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(D,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(D,64,4)	13.20	14.40	13.20			13.20	14.40	13.20		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,8)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,32,8)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,48,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,64,8)	8.40	9.60	8.40			8.40	9.60	8.40		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.80	6.32	4.80			4.82	6.77	4.80		
(B,16,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,32,1)	6.60	7.80	6.60			6.60	7.80	6.60		
(B,48,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(B,64,1)	9.00	10.20	9.00			9.00	10.20	9.00		
(DU,4,4)	4.20		4.20			4.82		4.22		
(DU,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(DU,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(DU,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(DU,64,4)	13.20	14.40	13.20			13.20	14.40	13.20		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(D,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(D,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(D,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(D,64,4)	13.20	14.41	13.20			13.20	14.40	13.20		

VFL INSTRUCTION LFT NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20		13.20			13.20		13.20		
(BU,8,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,16,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,32,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,48,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,64,8)	*01*	*01*	*01*			*01*	*01*	*01*		
(B,1,1)	13.20		13.20			13.20		13.20		
(B,8,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,16,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,32,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,48,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,64,1)	*01*	*01*	*01*			*01*	*01*	*01*		
(DU,4,4)	19.81		19.81			19.81		19.81		
(DU,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		
(D,4,4)	19.81		19.81			19.81		19.81		
(D,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20		13.20			13.20		13.20		
(BU,8,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,16,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,32,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,48,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,64,8)	*01*	*01*	*01*			*01*	*01*	*01*		
(B,1,1)	13.20		13.20			13.20		13.20		
(B,8,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,16,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,32,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,48,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,64,1)	*01*	*01*	*01*			*01*	*01*	*01*		
(DU,4,4)	19.81		19.81			19.81		19.81		
(DU,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,64,4)	24.61	25.81	24.61			24.61	25.81	24.61		
(D,4,4)	19.81		19.81			19.81		19.81		
(D,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		

VFL INSTRUCTION LTRS NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20		13.20			13.20		13.20		
(BU,8,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,16,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,32,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,48,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,64,8)	*01*	*01*	*01*			*01*	*01*	*01*		
(B,1,1)	13.20		13.20			13.20		13.20		
(B,8,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,16,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,32,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,48,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,64,1)	*01*	*01*	*01*			*01*	*01*	*01*		
(DU,4,4)	19.81		19.81			19.81		19.81		
(DU,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,64,4)	24.60	25.81	24.61			24.60	25.81	24.61		
(D,4,4)	19.81		19.81			19.81		19.81		
(D,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20		13.20			13.20		13.20		
(BU,8,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,16,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,32,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,48,8)	13.20	14.41	13.20			13.20	14.41	13.20		
(BU,64,8)	*01*	*01*	*01*			*01*	*01*	*01*		
(B,1,1)	13.20		13.20			13.20		13.20		
(B,8,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,16,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,32,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,48,1)	13.20	14.41	13.20			13.20	14.41	13.20		
(B,64,1)	*01*	*01*	*01*			*01*	*01*	*01*		
(DU,4,4)	19.81		19.81			19.81		19.81		
(DU,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(DU,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		
(D,4,4)	19.81		19.81			19.81		19.81		
(D,8,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,16,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,32,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,48,4)	19.81	21.01	19.81			19.81	21.01	19.81		
(D,64,4)	24.60	25.81	24.61			24.61	25.81	24.61		

VFL INSTRUCTION ST NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.63		10.88			6.92		11.48		
(BU,8,8)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,32,8)	7.84	17.77	12.69			7.84	17.77	13.29		
(BU,48,8)	9.02	18.97	13.90			9.03	18.98	14.51		
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,1,1)	6.63		10.88			6.92		11.48		
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69		
(B,32,1)	8.42	18.36	13.30			8.44	18.37	13.90		
(B,48,1)	9.62	19.57	14.50			9.62	19.58	15.11		
(B,64,1)	10.80	20.77	15.72			10.81	20.79	16.32		
(DU,4,4)	6.63		10.88			6.92		11.48		
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(DU,16,4)	7.84	17.76	12.69			7.84	17.77	13.29		
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.72		
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(DU,64,4)	14.41	24.39	19.34			14.41	24.40	19.94		
(D,4,4)	6.63		10.88			6.92		11.48		
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(D,16,4)	7.84	17.76	12.69			7.84	17.77	13.29		
(D,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(D,64,4)	15.00	24.99	19.94			15.00	25.00	20.55		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.63		10.88			6.92		11.48		
(BU,8,8)	6.63	15.96	10.88			6.92	15.97	11.48		
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,32,8)	7.84	17.77	12.69			7.84	17.77	13.29		
(BU,48,8)	9.02	18.97	13.90			9.03	18.98	14.51		
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,1,1)	6.63		10.88			6.92		11.48		
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69		
(B,32,1)	8.42	18.36	13.29			8.44	18.37	13.90		
(B,48,1)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,64,1)	10.80	20.77	15.72			10.81	20.79	16.32		
(DU,4,4)	6.63		10.88			6.92		11.48		
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(DU,16,4)	7.84	17.77	12.69			7.84	17.77	13.30		
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94		
(D,4,4)	6.63		10.88			6.92		11.48		
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(D,16,4)	7.84	17.77	12.69			7.84	17.77	13.30		
(D,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(D,64,4)	15.00	24.99	19.94			15.00	25.00	20.55		

VFL INSTRUCTION SRD NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.63		10.88			6.93		11.48		
(BU,8,8)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,32,8)	7.84	17.77	12.69			7.84	17.77	13.29		
(BU,48,8)	9.02	18.97	13.90			9.03	18.98	14.51		
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,1,1)	6.63		10.88			6.92		11.48		
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69		
(B,32,1)	8.42	18.36	13.30			8.44	18.37	13.90		
(B,48,1)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,64,1)	10.80	20.77	15.72			10.81	20.79	16.32		
(DU,4,4)	6.63		10.88			6.92		11.48		
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(DU,16,4)	7.84	17.77	12.69			7.84	17.77	13.30		
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.72		
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94		
(D,4,4)	6.63		10.88			6.93		11.48		
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(D,16,4)	7.84	17.77	12.69			7.84	17.77	13.29		
(D,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(D,64,4)	15.00	24.99	19.94			15.01	25.00	20.55		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.63		10.88			6.92		11.48		
(BU,8,8)	6.63	15.96	10.88			6.92	15.97	11.48		
(BU,16,8)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,32,8)	7.84	17.77	12.69			7.84	17.77	13.29		
(BU,48,8)	9.02	18.96	13.90			9.03	18.98	14.50		
(BU,64,8)	9.61	19.57	14.50			9.62	19.58	15.11		
(B,1,1)	6.63		10.88			6.92		11.48		
(B,8,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,16,1)	7.23	17.16	12.09			7.53	17.17	12.69		
(B,32,1)	8.42	18.36	13.29			8.44	18.37	13.90		
(B,48,1)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,64,1)	10.80	20.77	15.72			10.81	20.79	16.32		
(DU,4,4)	6.63		10.88			6.92		11.48		
(DU,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(DU,16,4)	7.84	17.77	12.69			7.84	17.77	13.29		
(DU,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(DU,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94		
(D,4,4)	6.63		10.88			6.92		11.48		
(D,8,4)	6.93	16.56	11.48			7.23	16.57	12.09		
(D,16,4)	7.84	17.76	12.69			7.84	17.77	13.29		
(D,32,4)	10.21	20.17	15.11			10.22	20.18	15.71		
(D,48,4)	12.60	22.58	17.53			12.60	22.59	18.13		
(D,64,4)	15.00	24.99	19.94			15.00	25.00	20.55		

VFL INSTRUCTION M+I NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.33		10.27			6.63		10.88		
(BU,8,8)	6.33	15.35	10.27			6.63	15.36	10.88		
(BU,16,8)	6.33	15.36	10.28			6.63	15.37	10.88		
(BU,32,8)	6.33	15.35	10.28			6.63	15.37	10.88		
(BU,48,8)	6.33	15.35	10.28			6.63	15.37	10.88		
(BU,64,8)	6.33	15.35	10.28			6.63	15.37	10.88		
(B,1,1)	6.33		10.27			6.63		10.88		
(B,8,1)	6.63	15.95	10.88			6.92	15.97	11.48		
(B,16,1)	6.63	15.96	10.88			6.93	15.97	11.49		
(B,32,1)	6.63	15.96	10.88			6.93	15.97	11.49		
(B,48,1)	6.63	15.96	10.88			6.93	15.97	11.49		
(B,64,1)	6.63	15.96	10.88			6.93	15.97	11.49		
(DU,4,4)	6.33		10.27			6.63		10.88		
(DU,8,4)	6.36	15.42	10.34			6.66	15.42	10.94		
(DU,16,4)	6.36	15.42	10.34			6.66	15.43	10.94		
(DU,32,4)	6.36	15.42	10.34			6.66	15.43	10.94		
(DU,48,4)	6.36	15.42	10.34			6.66	15.43	10.94		
(DU,64,4)	6.36	15.42	10.34			6.66	15.43	10.94		
(D,4,4)	6.33		10.27			6.63		10.88		
(D,8,4)	6.63	15.95	10.88			6.92	15.97	11.48		
(D,16,4)	6.66	16.02	10.94			6.96	16.03	11.55		
(D,32,4)	6.66	16.02	10.94			6.96	16.03	11.55		
(D,48,4)	6.66	16.02	10.94			6.96	16.03	11.55		
(D,64,4)	6.66	16.02	10.94			6.96	16.03	11.55		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.63		10.88			6.93		11.48		
(BU,8,8)	6.62	15.94	10.86			6.92	15.95	11.47		
(BU,16,8)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,32,8)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,48,8)	8.42	18.36	13.30			8.44	18.37	13.90		
(BU,64,8)	9.61	19.57	14.51			9.62	19.58	15.11		
(B,1,1)	6.93		11.48			7.23		12.09		
(B,8,1)	6.63	15.96	10.88			6.92	15.97	11.48		
(B,16,1)	6.93	16.56	11.48			7.23	16.57	12.09		
(B,32,1)	7.84	17.77	12.69			7.84	17.77	13.29		
(B,48,1)	9.02	18.97	13.90			9.03	18.98	14.50		
(B,64,1)	10.21	20.17	15.11			10.22	20.18	15.71		
(DU,4,4)	6.63		10.88			6.92		11.48		
(DU,8,4)	7.22	16.84	11.77			7.38	16.85	12.37		
(DU,16,4)	7.23	17.16	12.09			7.53	17.17	12.69		
(DU,32,4)	9.61	19.57	14.51			9.62	19.58	15.11		
(DU,48,4)	12.00	21.98	16.92			12.01	21.99	17.53		
(DU,64,4)	14.40	24.39	19.34			14.40	24.40	19.94		
(D,4,4)	*01*		*01*			*01*		*01*		
(D,8,4)	6.63	15.96	10.88			6.92	15.97	11.48		
(D,16,4)	6.76	16.22	11.15			7.06	16.24	11.75		
(D,32,4)	9.61	19.57	14.51			9.62	19.58	15.11		
(D,48,4)	12.01	21.98	16.92			12.01	21.99	17.53		
(D,64,4)	14.40	22.29	19.34			14.40	22.31	19.94		

VFL INSTRUCTION K NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,32,8)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,48,8)	6.60	7.80	6.60			6.60	7.80	6.60		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.80	6.47	4.80			4.82	6.77	4.80		
(B,32,1)	6.00	7.21	6.00			6.00	7.22	6.00		
(B,48,1)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,64,1)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(DU,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,48,4)	10.20	11.40	10.20			10.20	11.40	10.20		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(D,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(D,48,4)	10.20	11.41	10.20			10.20	11.40	10.20		
(D,64,4)	12.60	11.85	12.60			12.60	11.85	12.60		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.41	4.20			4.82	8.72	4.22		

VFL INSTRUCTION KR NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,32,8)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,48,8)	6.60	7.80	6.60			6.60	7.81	6.60		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.80	6.47	4.80			4.82	6.77	4.80		
(B,32,1)	6.00	7.21	6.00			6.00	7.22	6.00		
(B,48,1)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,64,1)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(DU,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,48,4)	10.20	11.41	10.20			10.20	11.40	10.20		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(D,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(D,48,4)	10.20	11.40	10.20			10.20	11.41	10.20		
(D,64,4)	12.60	11.85	12.60			12.60	11.85	12.60		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.41	4.20			4.82	8.72	4.22		

VFL INSTRUCTION KE NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,32,8)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,48,8)	6.60	7.80	6.60			6.60	7.81	6.60		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.80	6.47	4.80			4.82	6.77	4.80		
(B,32,1)	6.00	7.21	6.00			6.00	7.22	6.00		
(B,48,1)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,64,1)	8.40	9.60	8.40			8.40	9.60	8.40		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(DU,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,48,4)	10.20	11.41	10.20			10.20	11.40	10.20		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	5.40	6.62	5.40			5.40	6.92	5.40		
(D,32,4)	7.80	9.00	7.80			7.80	9.00	7.80		
(D,48,4)	10.20	11.40	10.20			10.20	11.41	10.20		
(D,64,4)	12.60	11.85	12.60			12.60	11.85	12.60		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20		4.20			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	4.20		4.20			4.82		4.22		
(D,8,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.41	4.20			4.82	8.72	4.22		

VFL INSTRUCTION KF NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,48,8)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,48,1)	6.60	7.80	6.60			6.60	7.81	6.60		
(B,64,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(DU,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(DU,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(D,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(D,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(D,64,4)	12.01	11.41	12.01			12.01	11.41	12.01		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.27	4.20			4.82	8.57	4.22		

VFL INSTRUCTION KFR NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,48,8)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,48,1)	6.60	7.80	6.60			6.60	7.81	6.60		
(B,64,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(DU,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(DU,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.00		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(D,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(D,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(D,64,4)	12.01	11.40	12.01			12.01	11.40	12.00		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.27	4.20			4.82	8.57	4.22		

VFL INSTRUCTION KFE NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,48,8)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	5.40	6.62	5.40			5.40	6.92	5.40		
(B,48,1)	6.60	7.80	6.60			6.60	7.80	6.60		
(B,64,1)	7.80	9.00	7.80			7.80	9.00	7.80		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(DU,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(DU,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(DU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(D,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(D,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(D,64,4)	12.01	11.41	12.01			12.01	11.40	12.01		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61		3.61			4.82		4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,48,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,64,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,1,1)	3.61		3.61			4.82		4.22		
(B,8,1)	3.61	6.17	3.61			4.82	6.77	4.22		
(B,16,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,32,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,48,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(B,64,1)	4.20	6.32	4.20			4.82	6.77	4.22		
(DU,4,4)	3.61		3.61			4.82		4.22		
(DU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,16,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,32,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(DU,48,4)	3.61	6.32	3.61			4.82	6.77	4.22		
(DU,64,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,4,4)	3.61		3.61			4.82		4.22		
(D,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(D,16,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,32,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,48,4)	4.20	6.32	4.20			4.82	6.77	4.22		
(D,64,4)	4.20	8.28	4.20			4.82	8.57	4.22		

VFL INSTRUCTION • NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	10.80		10.80			10.80		10.80			PF
(BU,8,8)	10.80	12.01	10.80			10.80	12.01	10.80			PF
(BU,16,8)	10.80	12.01	10.80			10.80	12.01	10.80			
(BU,32,8)	10.80	12.01	10.80			10.80	12.01	10.80			
(BU,48,8)	10.80	12.01	10.80			10.80	12.01	10.80			
(BU,64,8)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,1,1)	11.40		11.40			11.40		11.41			PF
(B,8,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,16,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,32,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,48,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,64,1)	12.01	13.20	12.01			12.00	13.20	12.01			
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	10.80		10.80			10.80		10.80			PF
(BU,8,8)	10.80	12.01	10.80			10.80	12.01	10.80			PF
(BU,16,8)	10.80	12.01	10.80			10.80	12.01	10.80			
(BU,32,8)	10.80	12.01	10.80			10.80	12.01	10.80			
(BU,48,8)	10.80	12.00	10.80			10.80	12.01	10.80			
(BU,64,8)	11.40	12.60	11.41			11.40	12.60	11.40			
(B,1,1)	11.41		11.40			11.40		11.41			PF
(B,8,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,16,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,32,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,48,1)	11.40	12.60	11.40			11.40	12.60	11.40			
(B,64,1)	12.01	13.20	12.01			12.00	13.20	12.00			

VFL INSTRUCTION / NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	*24*		*24*			*24*		*24*			PF
(BU,8,8)	*24*	*24*	*24*			*24*	*24*	*24*			PF
(BU,16,8)	22.21	*24*	22.21			22.21	*24*	22.21			
(BU,32,8)	24.61	*24*	24.61			24.61	*24*	24.61			
(BU,48,8)	27.62	25.21	27.62			27.61	25.21	27.62			
(BU,64,8)	28.81	26.41	28.81			28.81	26.41	28.81			
(B,1,1)	*24*		*24*			*24*		*24*			PF
(B,8,1)	35.42	*24*	35.41			35.41	*24*	35.41			
(B,16,1)	36.61	*24*	36.61			36.61	*24*	36.61			
(B,32,1)	39.62	24.01	39.62			39.62	24.01	39.62			
(B,48,1)	42.01	27.01	42.01			42.01	27.01	42.01			
(B,64,1)	43.22	28.21	43.21			43.21	28.21	43.22			
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	*24*		*24*			*24*		*24*			PF
(BU,8,8)	*24*	*24*	*24*			*24*	*24*	*24*			PF
(BU,16,8)	22.21	*24*	22.21			22.21	*24*	22.21			
(BU,32,8)	24.61	*24*	24.61			24.61	*24*	24.61			
(BU,48,8)	27.62	25.21	27.61			27.62	25.21	27.61			
(BU,64,8)	28.81	26.41	28.81			28.81	26.41	28.81			
(B,1,1)	*24*		*24*			*24*		*24*			PF
(B,8,1)	35.41	*24*	35.41			35.41	*24*	35.41			
(B,16,1)	36.62	*24*	36.61			36.61	*24*	36.61			
(B,32,1)	39.62	24.01	39.62			39.62	24.01	39.62			
(B,48,1)	42.02	27.01	42.01			42.01	27.01	42.02			
(B,64,1)	43.22	28.22	43.21			43.22	28.21	43.22			

VFL INSTRUCTION ** NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	13.80		13.80			13.80		13.80			PF
(BU,8,8)	13.80	15.00	13.80			13.80	15.00	13.80			PF
(BU,16,8)	18.01	18.16	18.01			18.01	18.16	18.01			
(BU,32,8)	18.01	18.15	18.00			18.00	18.16	18.01			
(BU,48,8)	18.61	22.21	18.61			18.61	22.21	18.61			
(BU,64,8)	19.81	23.41	19.81			19.81	23.41	19.81			
(B,1,1)	14.41		14.40			14.40		14.41			PF
(B,8,1)	18.01	15.61	18.01			18.01	15.61	18.01			
(B,16,1)	18.01	15.61	18.01			18.01	15.61	18.01			
(B,32,1)	18.01	21.61	18.01			18.01	21.60	18.01			
(B,48,1)	18.61	22.21	18.61			18.61	22.21	18.61			
(B,64,1)	19.81	23.41	19.81			19.81	23.41	19.81			
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	13.80		13.80			13.80		13.80			PF
(BU,8,8)	13.80	*01*	13.80			13.80	*01*	13.80			PF
(BU,16,8)	18.01	*01*	18.01			18.01	*01*	18.01			
(BU,32,8)	18.01	*01*	18.01			18.01	*01*	18.01			
(BU,48,8)	18.61	22.21	18.61			18.61	22.21	18.61			
(BU,64,8)	19.81	23.41	19.81			19.81	23.41	19.81			
(B,1,1)	14.41		14.41			14.40		14.41			PF
(B,8,1)	18.01	*01*	18.01			18.01	*01*	18.01			
(B,16,1)	18.01	*01*	18.01			18.00	*01*	18.01			
(B,32,1)	18.01	21.61	18.01			18.00	21.61	18.01			
(B,48,1)	18.61	22.21	18.61			18.61	22.21	18.61			
(B,64,1)	19.81	23.41	19.81			19.81	23.41	19.81			

VFL INSTRUCTION LCV NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AI FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00		6.00			6.00		6.00		
(BU,8,8)	11.40	12.60	11.40			11.40	12.60	11.40		
(BU,16,8)	17.40	18.61	17.40			17.40	18.61	17.40		
(BU,32,8)	28.21	29.41	28.21			28.21	29.41	28.21		
(BU,48,8)	39.02	40.22	39.01			39.01	40.22	39.01		
(BU,64,8)	50.42	51.62	50.42			50.42	51.62	50.42		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	11.40	12.60	11.40			11.40	12.60	11.40		
(B,16,1)	16.80	18.00	16.80			16.80	18.00	16.80		
(B,32,1)	28.21	29.41	28.21			28.21	29.41	28.21		
(B,48,1)	39.02	40.22	39.01			39.01	40.22	39.01		
(B,64,1)	50.42	51.62	50.42			50.42	51.62	50.42		
(DU,4,4)	23.41		23.41			23.41		23.41		
(DU,8,4)	24.61	25.81	24.61			24.61	25.81	24.61		
(DU,16,4)	26.41	27.61	26.41			26.41	27.61	26.41		
(DU,32,4)	30.01	31.21	30.01			30.01	31.21	30.01		
(DU,48,4)	33.01	34.21	33.01			33.01	34.21	33.01		
(DU,64,4)	36.62	37.81	36.61			36.61	37.81	36.62		
(D,4,4)	22.21		22.21			22.21		22.21		
(D,8,4)	23.41	24.61	23.41			23.41	24.61	23.41		
(D,16,4)	25.21	26.41	25.21			25.21	26.41	25.21		
(D,32,4)	28.21	29.41	28.21			28.21	29.41	28.21		
(D,48,4)	31.81	33.01	31.81			31.81	33.01	31.81		
(D,64,4)	35.41	36.61	35.41			35.41	36.61	35.41		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00		6.00			6.00		6.00		
(BU,8,8)	11.40	12.60	11.40			11.40	12.60	11.40		
(BU,16,8)	17.40	18.61	17.40			17.40	18.61	17.40		
(BU,32,8)	28.21	29.41	28.21			28.21	29.41	28.21		
(BU,48,8)	39.01	40.22	39.01			39.01	40.22	39.01		
(BU,64,8)	50.42	51.62	50.42			50.42	51.62	50.42		
(B,1,1)	4.20		4.20			4.82		4.22		
(B,8,1)	11.41	12.60	11.40			11.40	12.60	11.40		
(B,16,1)	16.80	18.01	16.80			16.80	18.00	16.80		
(B,32,1)	28.21	29.41	28.21			28.21	29.41	28.21		
(B,48,1)	39.01	40.22	39.01			39.01	40.22	39.01		
(B,64,1)	50.42	51.62	50.42			50.42	51.62	50.42		
(DU,4,4)	23.41		23.41			23.41		23.41		
(DU,8,4)	24.60	25.81	24.61			24.61	25.81	24.61		
(DU,16,4)	26.41	27.61	26.41			26.41	27.61	26.41		
(DU,32,4)	30.01	31.21	30.01			30.01	31.21	30.01		
(DU,48,4)	33.01	34.21	33.01			33.01	34.21	33.01		
(DU,64,4)	36.61	37.81	36.62			36.62	37.81	36.62		
(D,4,4)	22.21		22.21			22.21		22.21		
(D,8,4)	23.41	24.61	23.41			23.41	24.61	23.41		
(D,16,4)	25.21	26.41	25.21			25.21	26.41	25.21		
(D,32,4)	28.21	29.41	28.21			28.21	29.41	28.21		
(D,48,4)	31.81	33.01	31.81			31.81	33.01	31.81		
(D,64,4)	35.41	36.61	35.41			35.41	36.61	35.41		

VFL INSTRUCTION LTRCV NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.84		7.22			8.03		7.22		
(BU,8,8)	11.41	12.60	11.40			11.41	12.61	11.40		
(BU,16,8)	16.20	17.41	16.20			16.20	17.41	16.20		
(BU,32,8)	25.81	27.01	25.81			25.81	27.01	25.81		
(BU,48,8)	39.62	40.81	39.62			39.62	40.81	39.62		
(BU,64,8)	51.02	52.22	51.02			51.02	52.22	51.02		
(B,1,1)	7.43		6.62			7.75		6.73		
(B,8,1)	11.41	12.60	11.40			11.41	12.61	11.40		
(B,16,1)	16.20	17.41	16.20			16.20	17.41	16.20		
(B,32,1)	25.81	27.01	25.81			25.81	27.01	25.81		
(B,48,1)	39.61	40.81	39.62			39.62	40.81	39.62		
(B,64,1)	51.02	52.22	51.02			51.02	52.22	51.02		
(DU,4,4)	30.61		30.61			30.61		30.61		
(DU,8,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(DU,16,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(DU,32,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(DU,48,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(DU,64,4)	35.41	36.61	35.41			35.41	36.61	35.41		
(D,4,4)	30.61		30.61			30.61		30.61		
(D,8,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(D,16,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(D,32,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(D,48,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(D,64,4)	35.41	36.61	35.41			35.41	36.61	35.41		
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.84		7.22			8.03		7.22		
(BU,8,8)	11.41	12.60	11.40			11.41	12.61	11.40		
(BU,16,8)	16.20	17.41	16.20			16.20	17.41	16.20		
(BU,32,8)	25.81	27.01	25.81			25.81	27.01	25.81		
(BU,48,8)	39.62	40.81	39.62			39.62	40.81	39.62		
(BU,64,8)	51.02	52.22	51.02			51.02	52.22	51.02		
(B,1,1)	7.43		6.62			7.75		6.73		
(B,8,1)	11.41	12.60	11.40			11.41	12.61	11.40		
(B,16,1)	16.20	17.41	16.20			16.20	17.41	16.20		
(B,32,1)	25.81	27.01	25.81			25.81	27.01	25.81		
(B,48,1)	39.62	40.81	39.62			39.62	40.81	39.62		
(B,64,1)	51.02	52.22	51.02			51.02	52.22	51.02		
(DU,4,4)	30.61		30.61			30.61		30.61		
(DU,8,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(DU,16,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(DU,32,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(DU,48,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(DU,64,4)	35.42	36.61	35.41			35.41	36.61	35.41		
(D,4,4)	30.61		30.61			30.61		30.61		
(D,8,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(D,16,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(D,32,4)	30.61	31.82	30.61			30.61	31.81	30.61		
(D,48,4)	30.61	31.81	30.61			30.61	31.81	30.61		
(D,64,4)	35.42	36.61	35.41			35.42	36.61	35.41		

VFL INSTRUCTION CV NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	22.14					22.14				
(DU,8,4)	22.14					22.14				
(DU,16,4)	22.14					22.14				
(DU,32,4)	22.14					22.14				
(DU,48,4)	22.14					22.14				
(DU,64,4)	22.14					22.14				
(D,4,4)	22.14					22.14				
(D,8,4)	22.14					22.14				
(D,16,4)	22.14					22.14				
(D,32,4)	22.14					22.14				
(D,48,4)	22.14					22.14				
(D,64,4)	22.14					22.14				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	22.14					22.14				
(DU,8,4)	22.14					22.14				
(DU,16,4)	22.14					22.14				
(DU,32,4)	22.14					22.14				
(DU,48,4)	22.14					22.14				
(DU,64,4)	22.14					22.14				
(D,4,4)	22.14					22.14				
(D,8,4)	22.14					22.14				
(D,16,4)	22.14					22.14				
(D,32,4)	22.14					22.14				
(D,48,4)	22.14					22.14				
(D,64,4)	22.14					22.14				

VFL INSTRUCTION DCV NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	5.40					5.40				
(DU,8,4)	5.40					5.40				
(DU,16,4)	5.40					5.40				
(DU,32,4)	5.40					5.40				
(DU,48,4)	5.40					5.40				
(DU,64,4)	5.40					5.40				
(D,4,4)	5.40					5.40				
(D,8,4)	5.40					5.40				
(D,16,4)	5.40					5.40				
(D,32,4)	5.40					5.40				
(D,48,4)	5.40					5.40				
(D,64,4)	5.40					5.40				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	5.40					5.40				
(DU,8,4)	5.40					5.40				
(DU,16,4)	5.40					5.40				
(DU,32,4)	5.40					5.40				
(DU,48,4)	5.40					5.40				
(DU,64,4)	5.40					5.40				
(D,4,4)	5.40					5.40				
(D,8,4)	5.40					5.40				
(D,16,4)	5.40					5.40				
(D,32,4)	5.40					5.40				
(D,48,4)	5.40					5.40				
(D,64,4)	5.40					5.40				

VFL INSTRUCTION C0011 NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,8,2)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,8,3)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,8,4)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,8,5)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,8,6)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,8,7)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,8,8)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,1)	13.20	14.40	13.20			13.20	14.40	13.20		
(BU,16,2)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,16,3)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,16,4)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,16,5)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,16,6)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,16,7)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,16,8)	4.80	6.32	4.80			4.82	6.77	4.80		
(BU,32,1)	13.20	14.41	13.20			13.20	14.40	13.20		
(BU,32,2)	13.20	14.41	13.20			13.20	14.40	13.20		
(BU,32,3)	10.20	11.40	10.20			10.20	11.41	10.20		
(BU,32,4)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,32,5)	7.80	9.00	7.80			7.80	9.00	7.80		
(BU,32,6)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,32,7)	6.60	7.80	6.60			6.60	7.80	6.60		
(BU,32,8)	6.00	7.21	6.00			6.00	7.21	6.00		
(BU,48,3)	13.20	14.41	13.20			13.20	14.40	13.20		
(BU,48,4)	10.80	12.01	10.80			10.80	12.01	10.80		
(BU,48,5)	9.60	10.80	9.60			9.60	10.80	9.60		
(BU,48,6)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,48,7)	7.80	9.00	7.80			7.80	9.00	7.80		
(BU,48,8)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,64,4)	13.20	14.41	13.20			13.20	14.40	13.20		
(BU,64,5)	11.40	12.60	11.40			11.40	12.60	11.40		
(BU,64,6)	10.20	11.40	10.20			10.20	11.40	10.20		
(BU,64,7)	9.60	10.80	9.60			9.60	10.80	9.60		
(BU,64,8)	8.40	9.60	8.40			8.40	9.60	8.40		

VFL INSTRUCTION CM0101 NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	9.61	19.57	14.51			9.62	19.58	15.11		
(BU,8,2)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,8,3)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,8,4)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,8,5)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,8,6)	6.63	15.95	10.88			6.92	15.97	11.48		
(BU,8,7)	6.63	15.96	10.88			6.92	15.97	11.48		
(BU,8,8)	6.33	15.35	10.27			6.63	15.36	10.88		
(BU,16,1)	14.40	24.39	19.34			14.41	24.40	19.94		
(BU,16,2)	9.61	19.57	14.51			9.62	19.58	15.11		
(BU,16,3)	8.42	18.36	13.29			8.44	18.37	13.90		
(BU,16,4)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,16,5)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,16,6)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,16,7)	6.93	16.56	11.48			7.23	16.57	12.09		
(BU,16,8)	6.63	15.96	10.88			6.92	15.97	11.48		
(BU,32,1)	24.01	34.02	29.01			24.01	34.04	29.61		
(BU,32,2)	14.40	24.39	19.34			14.41	24.40	19.94		
(BU,32,3)	11.40	21.38	16.32			11.40	21.39	16.92		
(BU,32,4)	9.62	19.57	14.50			9.62	19.58	15.11		
(BU,32,5)	9.02	18.96	13.90			9.03	18.98	14.50		
(BU,32,6)	8.42	18.36	13.29			8.44	18.37	13.90		
(BU,32,7)	7.84	17.76	12.69			7.84	17.77	13.29		
(BU,32,8)	7.23	17.16	12.09			7.53	17.17	12.69		
(BU,48,3)	14.41	24.39	19.34			14.40	24.40	19.94		
(BU,48,4)	12.01	21.98	16.92			12.01	21.99	17.53		
(BU,48,5)	10.80	20.77	15.72			10.81	20.79	16.31		
(BU,48,6)	9.61	19.57	14.51			9.62	19.58	15.11		
(BU,48,7)	9.02	18.97	13.90			9.03	18.98	14.50		
(BU,48,8)	8.42	18.36	13.29			8.44	18.37	13.90		
(BU,64,4)	14.41	24.39	19.34			14.40	24.40	19.94		
(BU,64,5)	12.60	22.58	17.53			12.60	22.59	18.13		
(BU,64,6)	11.40	21.38	16.32			11.40	21.39	16.92		
(BU,64,7)	10.80	20.77	15.72			10.81	20.79	16.32		
(BU,64,8)	9.61	19.57	14.50			9.62	19.58	15.11		

VFL INSTRUCTION CTOIII NO FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,8,2)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,8,3)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,8,4)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,8,5)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,8,6)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,8,7)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,8,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,16,1)	12.01	13.20	12.01			12.01	13.20	12.00		
(BU,16,2)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,16,3)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,16,4)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,16,5)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,16,6)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,7)	4.20	6.32	4.20			4.82	6.77	4.22		
(BU,16,8)	3.61	6.17	3.61			4.82	6.77	4.22		
(BU,32,1)	12.01	13.20	12.01			12.01	13.20	12.00		
(BU,32,2)	12.01	13.20	12.01			12.01	13.20	12.01		
(BU,32,3)	9.00	10.20	9.00			9.00	10.20	9.00		
(BU,32,4)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,32,5)	6.60	7.80	6.60			6.60	7.80	6.60		
(BU,32,6)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,32,7)	5.40	6.62	5.40			5.40	6.92	5.40		
(BU,32,8)	4.80	6.47	4.80			4.82	6.77	4.80		
(BU,48,3)	12.01	13.20	12.01			12.01	13.20	12.01		
(BU,48,4)	9.60	10.80	9.60			9.60	10.80	9.60		
(BU,48,5)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,48,6)	7.20	8.40	7.20			7.20	8.40	7.20		
(BU,48,7)	6.60	7.80	6.60			6.60	7.81	6.60		
(BU,48,8)	6.00	7.21	6.00			6.00	7.22	6.00		
(BU,64,4)	12.01	13.20	12.01			12.01	13.20	12.01		
(BU,64,5)	10.20	11.40	10.20			10.20	11.41	10.20		
(BU,64,6)	9.00	10.20	9.00			9.00	10.20	9.00		
(BU,64,7)	8.40	9.60	8.40			8.40	9.60	8.40		
(BU,64,8)	7.20	8.40	7.20			7.20	8.40	7.20		

VFL INSTRUCTION + FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.36	5.57	4.36	5.56	8.58	4.82	5.57	4.36	5.56	8.59
(BU,16,8)	4.96	6.16	4.96	6.16	9.18	4.96	6.17	4.96	6.16	9.18
(BU,32,8)	6.16	7.36	6.16	7.36	10.37	6.16	7.36	6.16	7.36	10.37
(BU,48,8)	7.36	8.56	7.36	8.56	11.56	7.36	8.56	7.36	8.56	11.56
(BU,64,8)	8.56	9.76	8.56	9.76	12.76	8.56	9.76	8.56	9.76	12.76
(B,1,1)	4.21		4.20	5.40		4.82		4.21	5.40	
(B,8,1)	4.96	6.16	4.96	6.00	9.02	4.96	6.17	4.96	6.00	9.03
(B,16,1)	5.56	6.76	5.56	6.60	9.61	5.56	6.76	5.56	6.60	9.62
(B,32,1)	6.76	7.96	6.76	7.80	10.80	6.76	7.96	6.76	7.80	10.81
(B,48,1)	7.96	9.17	7.96	9.00	12.00	7.96	9.16	7.96	9.00	12.01
(B,64,1)	9.16	10.36	9.16	10.20	13.20	9.17	10.36	9.16	10.20	13.20
(DU,4,4)	4.47		4.47	5.66		4.82		4.47	5.67	
(DU,8,4)	5.09	6.30	5.09	6.29	9.31	5.09	6.30	5.09	6.29	9.32
(DU,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(DU,32,4)	8.70	9.90	8.70	9.90	12.90	8.70	9.90	8.70	9.90	12.90
(DU,48,4)	11.10	12.30	11.10	12.30	15.32	11.10	12.30	11.10	12.30	15.32
(DU,64,4)	13.50	14.70	13.50	14.70	17.58	13.50	14.70	13.50	14.70	17.59
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	5.07	6.27	5.07	6.00	9.02	5.07	6.27	5.07	6.00	9.03
(D,16,4)	6.30	7.50	6.30	7.20	10.21	6.30	7.50	6.30	7.20	10.22
(D,32,4)	8.70	9.63	8.70	9.60	12.60	8.70	9.63	8.70	9.60	12.60
(D,48,4)	11.10	12.30	11.10	12.01	15.00	11.10	12.30	11.10	12.01	15.00
(D,64,4)	13.50	14.70	13.50	14.40	17.40	13.50	14.70	13.50	14.40	17.40
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.36	5.57	4.36	5.56	8.58	4.82	5.57	4.36	5.56	8.59
(BU,16,8)	4.96	6.16	4.96	6.16	9.18	4.96	6.17	4.96	6.16	9.18
(BU,32,8)	6.16	7.36	6.16	7.36	10.37	6.16	7.36	6.16	7.36	10.37
(BU,48,8)	7.36	8.56	7.36	8.56	11.56	7.36	8.56	7.36	8.56	11.56
(BU,64,8)	8.56	9.76	8.56	9.76	12.60	8.56	9.76	8.56	9.76	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.21	5.40	
(B,8,1)	4.96	6.16	4.96	6.00	9.02	4.96	6.17	4.96	6.00	9.03
(B,16,1)	5.56	6.76	5.56	6.60	9.61	5.56	6.76	5.56	6.60	9.62
(B,32,1)	6.76	7.96	6.76	7.80	10.80	6.76	7.96	6.76	7.80	10.81
(B,48,1)	7.96	9.17	7.96	9.00	12.01	7.96	9.17	7.96	9.00	12.01
(B,64,1)	9.17	10.36	9.16	10.20	13.20	9.17	10.36	9.17	10.20	13.20
(DU,4,4)	4.47		4.47	5.66		4.82		4.47	5.67	
(DU,8,4)	5.09	6.29	5.09	6.29	9.31	5.09	6.30	5.09	6.29	9.32
(DU,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(DU,32,4)	8.70	9.90	8.70	9.90	12.90	8.70	9.90	8.70	9.90	12.90
(DU,48,4)	11.10	12.30	11.10	12.30	15.29	11.10	12.30	11.10	12.30	15.29
(DU,64,4)	13.50	14.70	13.50	14.70	17.40	13.50	14.70	13.50	14.70	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	5.07	6.27	5.07	6.00	9.02	5.07	6.27	5.07	6.00	9.03
(D,16,4)	6.30	7.50	6.30	7.20	10.21	6.30	7.50	6.30	7.20	10.21
(D,32,4)	8.70	9.63	8.70	9.60	12.60	8.70	9.63	8.70	9.60	12.60
(D,48,4)	11.10	12.30	11.10	12.01	15.00	11.10	12.30	11.10	12.01	15.00
(D,64,4)	13.50	14.70	13.50	14.41	17.40	13.50	14.70	13.50	14.40	17.40

VFL INSTRUCTION M+ FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83		
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46	
(BU,16,8)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06	
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.29	9.03	16.27	
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.51	10.21	17.47	
(BU,64,8)	9.60	18.66	14.50	11.40	18.07	9.61	18.68	15.11	11.40	18.68	
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83		PF
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.66	12.09	7.83	15.06	
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.67	
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87	
(B,48,1)	9.60	18.67	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07	
(B,64,1)	10.80	19.87	15.72	12.00	18.68	10.80	19.88	16.32	12.01	19.28	
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83		
(DU,8,4)	6.62	15.65	11.48	7.83	14.46	7.81	15.66	12.09	7.83	15.06	
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.29	9.03	16.27	
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68	
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.09	
(DU,64,4)	14.40	23.48	19.34	16.21	22.89	14.40	23.50	19.94	16.20	23.50	
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83		PF
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.81	15.66	12.09	7.83	15.06	
(D,16,4)	7.82	16.86	12.69	9.02	15.66	7.82	16.87	13.29	9.03	16.27	
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68	
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08	
(D,64,4)	15.00	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50	
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	7.22		12.09	8.42		7.22		12.69	8.43		
(BU,8,8)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.67	
(BU,16,8)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87	
(BU,32,8)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.01	19.28	
(BU,48,8)	13.20	22.28	18.13	14.41	21.08	13.20	22.29	18.74	14.40	21.69	
(BU,64,8)	12.30	24.09	17.22	16.50	23.50	12.31	24.10	17.83	16.50	24.10	
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83		PF
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06	
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66	
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.48	13.90	9.62	16.87	
(B,48,1)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07	
(B,64,1)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.01	19.28	
(DU,4,4)	7.22		12.09	8.42		7.22		12.69	8.43		
(DU,8,4)	8.41	17.46	13.29	9.61	16.27	8.42	17.47	13.90	9.62	16.87	
(DU,16,4)	10.80	19.87	15.72	12.00	18.68	10.80	19.88	16.32	12.01	19.28	
(DU,32,4)	15.61	24.69	20.55	16.80	23.50	15.61	24.70	21.15	16.80	24.10	
(DU,48,4)	20.40	29.50	25.38	21.60	28.31	20.40	29.52	25.99	21.60	28.92	
(DU,64,4)	19.51	33.72	24.48	26.11	33.14	19.51	33.74	25.08	26.11	33.74	
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83		PF
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.66	12.09	7.83	15.06	
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27	
(D,32,4)	10.20	19.27	15.11	11.41	18.07	10.20	19.28	15.72	11.41	18.68	
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08	
(D,64,4)	15.01	24.09	19.94	16.20	22.90	15.01	24.10	20.55	16.20	23.50	

VFL INSTRUCTION — FORWARDING — DIRECT ADDRESSING — OFFSET 0 — INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.36	5.57	4.36	5.56	8.58	4.82	5.57	4.36	5.56	8.59
(BU,16,8)	4.96	6.16	4.96	6.16	9.18	4.96	6.17	4.96	6.16	9.18
(BU,32,8)	6.16	7.36	6.16	7.36	10.37	6.16	7.36	6.16	7.36	10.37
(BU,48,8)	7.36	8.56	7.36	8.56	11.57	7.36	8.56	7.36	8.56	11.56
(BU,64,8)	8.56	9.76	8.56	9.76	12.76	8.56	9.76	8.56	9.76	12.76
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.96	6.16	4.96	6.16	9.17	4.96	6.17	4.96	6.16	9.18
(B,16,1)	5.56	6.76	5.56	6.76	9.77	5.56	6.76	5.56	6.76	9.78
(B,32,1)	6.76	7.96	6.76	7.96	11.40	6.76	7.96	6.76	7.96	11.40
(B,48,1)	7.96	9.16	7.96	9.16	12.28	7.96	9.16	7.96	9.16	12.29
(B,64,1)	9.17	10.80	9.16	10.80	13.21	9.17	10.80	9.17	10.80	13.21
(DU,4,4)	4.47		4.47	5.66		4.82		4.47	5.66	
(DU,8,4)	5.09	6.29	5.09	6.29	9.31	5.09	6.30	5.09	6.29	9.32
(DU,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(DU,32,4)	8.70	9.90	8.70	9.90	12.90	8.70	9.90	8.70	9.90	12.90
(DU,48,4)	11.10	12.30	11.10	12.30	15.32	11.10	12.30	11.10	12.30	15.32
(DU,64,4)	13.50	14.70	13.50	14.70	17.58	13.50	14.70	13.50	14.70	17.58
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	5.07	6.27	5.07	6.27	9.28	5.07	6.27	5.07	6.27	9.29
(D,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(D,32,4)	8.70	9.90	8.70	9.90	14.28	8.70	9.90	8.70	9.90	14.28
(D,48,4)	11.10	12.30	11.10	12.30	15.32	11.10	12.30	11.10	12.30	15.31
(D,64,4)	13.50	15.01	13.50	15.60	17.52	13.50	15.00	13.50	15.60	17.52
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.36	5.57	4.36	5.56	8.58	4.82	5.57	4.36	5.56	8.59
(BU,16,8)	4.96	6.16	4.96	6.16	9.18	4.96	6.17	4.96	6.16	9.18
(BU,32,8)	6.16	7.36	6.16	7.36	10.37	6.16	7.36	6.16	7.36	10.37
(BU,48,8)	7.36	8.56	7.36	8.56	11.56	7.36	8.56	7.36	8.56	11.56
(BU,64,8)	9.00	10.20	9.00	9.76	12.60	9.00	10.20	9.00	9.76	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.96	6.16	4.96	6.16	9.18	4.96	6.17	4.96	6.16	9.18
(B,16,1)	5.56	6.76	5.56	6.76	9.77	5.56	6.76	5.56	6.76	9.78
(B,32,1)	6.76	7.96	6.76	7.96	11.40	6.76	7.96	6.76	7.96	11.40
(B,48,1)	7.96	9.16	7.96	9.16	12.16	7.96	9.16	7.96	9.16	12.16
(B,64,1)	9.60	10.36	9.60	10.80	13.27	9.60	10.36	9.60	10.80	13.27
(DU,4,4)	4.47		4.47	5.66		4.82		4.47	5.66	
(DU,8,4)	5.09	6.29	5.09	6.29	9.31	5.09	6.30	5.09	6.29	9.32
(DU,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(DU,32,4)	8.70	9.90	8.70	9.90	12.90	8.70	9.90	8.70	9.90	12.90
(DU,48,4)	11.10	12.30	11.10	12.30	15.29	11.10	12.30	11.10	12.30	15.29
(DU,64,4)	13.80	*01*	13.80	14.70	17.40	13.80	*01*	13.80	14.70	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	5.07	6.27	5.07	6.27	9.28	5.07	6.27	5.07	6.27	9.29
(D,16,4)	6.30	7.50	6.30	7.50	10.50	6.30	7.50	6.30	7.50	10.51
(D,32,4)	8.70	9.90	8.70	9.90	14.79	8.70	9.90	8.70	9.90	14.79
(D,48,4)	11.10	12.30	11.10	12.30	15.30	11.10	12.30	11.10	12.30	15.30
(D,64,4)	13.80	14.70	13.80	16.19	17.41	13.80	14.70	13.80	16.19	17.41

VFL INSTRUCTION M*MG FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83	
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,16,8)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.02	16.27
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.51	10.22	17.47
(BU,64,8)	9.60	18.66	14.51	11.40	18.07	9.62	18.68	15.11	11.40	18.68
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83	
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.48	13.90	9.62	16.87
(B,48,1)	9.60	23.48	14.51	10.80	17.48	9.61	23.50	15.11	10.81	18.07
(B,64,1)	10.80	25.89	15.72	12.00	18.68	10.80	25.91	16.32	12.00	19.28
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(DU,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(DU,64,4)	14.40	23.48	19.34	16.20	22.89	14.40	23.50	19.94	16.20	23.50
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(D,8,4)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(D,48,4)	12.60	29.50	17.53	13.80	20.49	12.60	29.52	18.13	13.80	21.08
(D,64,4)	15.01	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.22		12.09	8.42		7.22		12.69	8.43	
(BU,8,8)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,16,8)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(BU,32,8)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.00	19.28
(BU,48,8)	13.20	22.28	18.13	14.41	21.08	13.20	22.29	18.74	14.40	21.69
(BU,64,8)	15.00	24.09	19.94	16.20	23.50	15.00	24.10	20.55	16.20	24.10
(B,1,1)	7.22		12.09	8.42		7.22		12.69	8.43	
(B,8,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.48	13.90	9.62	16.87
(B,16,1)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(B,32,1)	12.01	21.08	16.92	13.20	19.88	12.01	21.08	17.52	13.20	20.49
(B,48,1)	14.40	23.48	19.34	15.61	22.29	14.40	23.50	19.94	15.61	22.89
(B,64,1)	16.80	25.89	21.76	18.01	24.70	16.80	25.91	22.36	18.00	25.30
(DU,4,4)	7.22		12.09	8.42		7.22		12.69	8.43	
(DU,8,4)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(DU,16,4)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.01	19.28
(DU,32,4)	15.60	24.69	20.55	16.80	23.50	15.60	24.70	21.15	16.80	24.10
(DU,48,4)	20.40	29.50	25.38	21.60	28.31	20.40	29.52	25.99	21.61	28.92
(DU,64,4)	24.61	33.72	29.61	25.81	33.14	24.60	33.74	30.22	25.81	33.74
(D,4,4)	7.22		12.09	8.42		7.22		12.69	8.43	
(D,8,4)	8.41	17.46	13.30	9.61	16.27	8.42	17.48	13.90	9.62	16.87
(D,16,4)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.00	19.28
(D,32,4)	15.61	24.69	20.55	16.80	23.50	15.61	24.70	21.15	16.80	24.10
(D,48,4)	20.40	29.50	25.38	21.61	28.31	20.40	29.52	25.98	21.60	28.92
(D,64,4)	25.21	34.32	30.22	26.41	33.14	25.21	34.34	30.82	26.41	33.74

VFL INSTRUCTION L FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,32,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,48,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.41
(BU,64,8)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,16,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,32,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,48,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(B,64,1)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(DU,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(DU,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(DU,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,48,4)	10.80	12.01	10.80	12.00	15.01	10.80	12.01	10.80	12.00	15.00
(DU,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(D,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(D,48,4)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00
(D,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,8)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,32,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.21
(BU,48,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,64,8)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,16,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,32,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,48,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.00
(B,64,1)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(DU,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(DU,8,4)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.21
(DU,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,48,4)	10.80	12.01	10.80	12.00	15.00	10.80	12.01	10.80	12.01	15.00
(DU,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.40	13.20	14.40	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(D,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(D,48,4)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00
(D,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.40	13.20	14.40	17.40

VFL INSTRUCTION LWF FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,8)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,32,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,48,8)	7.20	8.40	7.20	8.40	11.40	7.20	8.40	7.20	8.40	11.40
(BU,64,8)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,16,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,32,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,48,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(B,64,1)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(DU,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(DU,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(DU,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,48,4)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.01
(DU,64,4)	13.20	14.40	13.20	14.40	17.40	13.20	14.40	13.20	14.40	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.21
(D,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(D,48,4)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00
(D,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,32,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,48,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,64,8)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,16,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,32,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,48,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.00
(B,64,1)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(DU,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(DU,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(DU,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,48,4)	10.80	12.01	10.80	12.00	15.01	10.80	12.01	10.80	12.00	15.00
(DU,64,4)	13.20	14.40	13.20	14.40	17.40	13.20	14.40	13.20	14.40	17.40
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(D,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(D,48,4)	10.80	12.01	10.80	12.01	15.00	10.80	12.00	10.80	12.01	15.00
(D,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40

VFL INSTRUCTION LET FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20		13.20	15.60		13.20		13.20	15.60	
(BU,8,8)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.61
(BU,16,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(BU,32,8)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.61
(BU,48,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(BU,64,8)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(B,1,1)	13.20		13.20	15.60		13.20		13.20	15.60	
(B,8,1)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(B,16,1)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.60
(B,32,1)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(B,48,1)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.60
(B,64,1)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(DU,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(DU,8,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,64,4)	24.61	25.81	24.61	27.01	30.01	24.60	25.81	24.61	27.01	30.01
(D,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(D,8,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.20
(D,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,48,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.21
(D,64,4)	24.61	25.81	24.61	27.01	30.01	24.61	25.81	24.61	27.01	30.01
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20		13.20	15.60		13.20		13.20	15.60	
(BU,8,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(BU,16,8)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.60
(BU,32,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(BU,48,8)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(BU,64,8)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(B,1,1)	13.20		13.20	15.61		13.20		13.20	15.60	
(B,8,1)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(B,16,1)	13.20	14.41	13.20	15.61	18.61	13.20	14.41	13.20	15.60	18.60
(B,32,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.61
(B,48,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(B,64,1)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(DU,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(DU,8,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,32,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.20
(DU,48,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.21
(DU,64,4)	24.60	25.81	24.61	27.01	30.01	24.61	25.81	24.61	27.01	30.01
(D,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(D,8,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,64,4)	24.61	25.81	24.61	27.01	30.01	24.61	25.81	24.61	27.01	30.01

VFL INSTRUCTION LTRS FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20		13.20	15.60		13.20		13.20	15.60	
(BU,8,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(BU,16,8)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(BU,32,8)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.61
(BU,48,8)	13.20	14.41	13.20	15.60	18.61	13.20	14.41	13.20	15.60	18.60
(BU,64,8)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(B,1,1)	13.20		13.20	15.60		13.20		13.20	15.60	
(B,8,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(B,16,1)	13.20	14.41	13.20	15.60	18.61	13.20	14.41	13.20	15.60	18.60
(B,32,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(B,48,1)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(B,64,1)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(DU,4,4)	19.81		19.81	22.21		19.81		19.81	22.20	
(DU,8,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.20
(DU,16,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.21
(DU,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,64,4)	24.61	25.81	24.61	27.01	30.01	24.60	25.81	24.61	27.01	30.01
(D,4,4)	19.81		19.81	22.21		19.81		19.81	22.20	
(D,8,4)	19.81	21.01	19.81	22.20	25.20	19.81	21.01	19.81	22.21	25.20
(D,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,64,4)	24.60	25.81	24.61	27.01	30.01	24.61	25.81	24.61	27.01	30.01
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20		13.20	15.61		13.20		13.20	15.60	
(BU,8,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(BU,16,8)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(BU,32,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(BU,48,8)	13.20	14.41	13.20	15.60	18.60	13.20	14.41	13.20	15.60	18.60
(BU,64,8)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(B,1,1)	13.20		13.20	15.60		13.20		13.20	15.60	
(B,8,1)	13.20	14.41	13.20	15.60	18.61	13.20	14.41	13.20	15.60	18.61
(B,16,1)	13.20	14.41	13.20	15.60	18.61	13.20	14.41	13.20	15.60	18.60
(B,32,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.61
(B,48,1)	13.20	14.41	13.20	15.61	18.60	13.20	14.41	13.20	15.60	18.60
(B,64,1)	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
(DU,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(DU,8,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(DU,64,4)	24.61	25.81	24.61	27.01	30.01	24.61	25.81	24.61	27.01	30.01
(D,4,4)	19.81		19.81	22.21		19.81		19.81	22.21	
(D,8,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,16,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,32,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,48,4)	19.81	21.01	19.81	22.21	25.21	19.81	21.01	19.81	22.21	25.21
(D,64,4)	24.60	25.81	24.61	27.01	30.01	24.61	25.81	24.60	27.01	30.01

VFL INSTRUCTION ST FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83	
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,16,8)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.50	10.22	17.47
(BU,64,8)	9.60	18.66	14.51	11.40	18.07	9.61	18.68	15.11	11.40	18.68
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83	
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(B,48,1)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(B,64,1)	10.80	19.87	15.72	12.00	18.68	10.80	19.88	16.32	12.00	19.28
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(DU,8,4)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(DU,64,4)	14.40	23.48	19.34	16.20	22.89	14.40	23.50	19.94	16.20	23.50
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(D,64,4)	15.00	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83	
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,16,8)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.02	16.27
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.50	10.22	17.47
(BU,64,8)	9.60	18.66	14.51	11.40	18.07	9.61	18.68	15.11	11.40	18.68
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83	
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(B,48,1)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(B,64,1)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.00	19.28
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(DU,8,4)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(DU,64,4)	14.40	23.48	19.34	16.20	22.89	14.40	23.50	19.94	16.20	23.50
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(D,64,4)	15.00	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50

VFL INSTRUCTION SRD FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83	
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,16,8)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.50	10.22	17.47
(BU,64,8)	9.60	18.66	14.51	11.40	18.07	9.61	18.68	15.11	11.40	18.68
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83	
(B,8,1)	6.62	15.66	11.48	7.83	14.46	7.80	15.66	12.09	7.83	15.06
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(B,48,1)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(B,64,1)	10.80	19.87	15.72	12.00	18.68	10.80	19.88	16.32	12.01	19.28
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(DU,8,4)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(DU,64,4)	14.40	23.48	19.34	16.20	22.89	14.40	23.50	19.94	16.20	23.50
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.02	16.27
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(D,64,4)	15.00	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.20		10.88	7.23		7.22		11.48	7.83	
(BU,8,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,16,8)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,32,8)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(BU,48,8)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.51	10.22	17.47
(BU,64,8)	9.60	18.66	14.51	11.40	18.07	9.61	18.68	15.11	11.40	18.68
(B,1,1)	7.20		10.88	7.23		7.22		11.48	7.83	
(B,8,1)	6.62	15.65	11.48	7.83	14.46	7.80	15.66	12.09	7.83	15.06
(B,16,1)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(B,32,1)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(B,48,1)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(B,64,1)	10.80	19.87	15.72	12.00	18.68	10.80	19.88	16.32	12.00	19.28
(DU,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(DU,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(DU,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(DU,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68
(DU,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(DU,64,4)	14.40	23.48	19.34	16.21	22.89	14.40	23.50	19.94	16.20	23.50
(D,4,4)	7.20		10.88	7.23		7.22		11.48	7.83	
(D,8,4)	6.62	15.65	11.48	7.83	14.46	7.80	15.66	12.09	7.83	15.06
(D,16,4)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.02	16.27
(D,32,4)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.72	11.40	18.68
(D,48,4)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(D,64,4)	15.00	24.09	19.94	16.20	22.89	15.00	24.10	20.55	16.20	23.50

VFL INSTRUCTION M+1 FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.62		10.27	7.23		7.81		10.88	7.83	
(BU,8,8)	6.62	14.45	10.27	7.23	13.26	7.80	14.46	10.88	7.83	13.86
(BU,16,8)	6.62	14.45	10.28	7.23	13.26	7.57	14.46	10.88	7.83	13.86
(BU,32,8)	6.62	14.45	10.28	7.23	13.26	7.57	14.46	10.88	7.83	13.86
(BU,48,8)	6.62	14.45	10.28	7.23	13.26	7.57	14.46	10.88	7.83	13.86
(BU,64,8)	6.62	14.45	10.28	7.23	13.26	7.57	14.46	10.88	7.83	13.86
(B,1,1)	6.62		10.27	7.23		7.80		10.88	7.83	
(B,8,1)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(B,16,1)	6.89	15.05	10.88	7.23	13.86	7.22	15.06	11.49	7.83	14.46
(B,32,1)	6.85	15.05	10.88	7.23	13.86	7.22	15.06	11.49	7.83	14.46
(B,48,1)	6.86	15.05	10.88	7.23	13.86	7.22	15.06	11.49	7.83	14.46
(B,64,1)	6.82	15.05	10.88	7.23	13.86	7.22	15.06	11.49	7.83	14.46
(DU,4,4)	6.62		10.27	7.23		7.80		10.88	7.83	
(DU,8,4)	6.62	14.51	10.34	7.23	13.31	7.22	14.52	10.94	7.83	13.92
(DU,16,4)	6.63	14.52	10.34	7.24	13.32	7.22	14.53	10.95	7.83	13.92
(DU,32,4)	6.63	14.52	10.34	7.24	13.32	7.22	14.53	10.94	7.83	13.93
(DU,48,4)	6.63	14.52	10.34	7.23	13.32	7.22	14.53	10.94	7.83	13.93
(DU,64,4)	6.63	14.52	10.34	7.24	13.32	7.22	14.53	10.94	7.83	13.93
(D,4,4)	6.62		10.27	7.23		7.80		10.88	7.83	
(D,8,4)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(D,16,4)	6.11	15.12	10.94	7.30	13.93	7.22	15.13	11.55	7.84	14.53
(D,32,4)	6.12	15.12	10.94	7.30	13.93	7.22	15.13	11.55	7.84	14.53
(D,48,4)	6.12	15.12	10.94	7.30	13.93	7.22	15.13	11.55	7.84	14.53
(D,64,4)	6.11	23.48	10.94	7.30	13.93	7.22	23.50	11.55	7.84	14.53
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.62		10.88	7.53		7.80		11.48	7.83	
(BU,8,8)	6.62	15.05	10.87	7.53	13.85	7.81	15.06	11.48	7.83	14.45
(BU,16,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,32,8)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,48,8)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(BU,64,8)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(B,1,1)	6.62		11.48	7.83		7.81		12.09	7.83	
(B,8,1)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(B,16,1)	6.67	15.58	11.41	7.75	14.38	7.73	15.59	12.01	7.83	14.99
(B,32,1)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.29	9.03	16.27
(B,48,1)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.50	10.22	17.47
(B,64,1)	10.20	19.27	15.11	11.40	18.07	10.20	19.28	15.71	11.40	18.68
(DU,4,4)	6.62		10.88	7.53		7.80		11.48	7.83	
(DU,8,4)	6.93	15.95	11.78	8.13	14.76	7.52	15.96	12.39	8.43	15.36
(DU,16,4)	8.05	17.09	12.93	9.26	15.90	8.05	17.10	13.53	9.26	16.50
(DU,32,4)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(DU,48,4)	12.01	21.08	16.92	13.20	19.88	12.01	21.08	17.53	13.20	20.49
(DU,64,4)	14.41	23.48	19.34	15.61	22.29	14.40	23.50	19.94	15.61	22.89
(D,4,4)	*01*		*01*	*01*		*01*		*01*	*01*	
(D,8,4)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(D,16,4)	6.16	15.17	11.00	7.35	13.97	7.22	15.18	11.60	7.87	14.58
(D,32,4)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(D,48,4)	12.01	21.08	16.92	13.20	19.88	12.01	21.08	17.53	13.20	20.49
(D,64,4)	14.41	15.12	19.34	15.61	22.29	14.40	15.13	19.94	15.61	22.89

VFL INSTRUCTION K FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		3.61	4.80		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,32,8)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,48,8)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,64,8)	7.20	8.40	7.20	9.00	12.00	7.20	8.40	7.20	9.00	12.00
(B,1,1)	4.21		3.61	4.80		4.82		4.22	4.82	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,32,1)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(B,48,1)	7.20	8.40	7.20	8.40	11.40	7.20	8.40	7.20	8.40	11.40
(B,64,1)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.22	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(DU,32,4)	7.80	9.00	7.80	9.00	12.00	7.80	9.00	7.80	9.00	12.01
(DU,48,4)	10.20	11.40	10.20	11.40	14.40	10.20	11.40	10.20	11.40	14.41
(DU,64,4)	12.01	13.20	12.01	13.80	16.80	12.01	13.20	12.01	13.80	16.80
(D,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(D,32,4)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(D,48,4)	10.20	11.41	10.20	11.40	14.40	10.20	11.40	10.20	11.40	14.41
(D,64,4)	12.60	6.01	12.60	13.80	16.80	12.60	6.01	12.60	13.80	16.80
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.80	4.20	5.40	8.42	4.82	13.80	4.22	5.40	8.43

VFL INSTRUCTION KR FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		3.61	4.80		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,32,8)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,48,8)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,64,8)	7.20	8.40	7.20	9.00	12.01	7.20	8.40	7.20	9.00	12.01
(B,1,1)	4.21		3.61	4.80		4.82		4.22	4.82	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,32,1)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(B,48,1)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(B,64,1)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(DU,32,4)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(DU,48,4)	10.20	11.40	10.20	11.41	14.40	10.20	11.40	10.20	11.41	14.41
(DU,64,4)	12.01	13.20	12.01	13.80	16.80	12.00	13.20	12.01	13.80	16.80
(D,4,4)	4.21		3.61	4.81		4.82		4.22	4.82	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(D,32,4)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(D,48,4)	10.20	11.40	10.20	11.40	14.40	10.20	11.40	10.20	11.41	14.41
(D,64,4)	12.60	6.01	12.60	13.80	16.80	12.60	6.01	12.60	13.80	16.80
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.80	4.20	5.40	8.42	4.82	13.80	4.22	5.40	8.43

VFL INSTRUCTION KE — FORWARDING — DIRECT ADDRESSING — OFFSET 0 — INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		3.61	4.81		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,32,8)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,48,8)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,64,8)	7.20	8.40	7.20	9.00	12.00	7.20	8.40	7.20	9.00	12.01
(B,1,1)	4.21		3.61	4.81		4.82		4.22	4.82	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(B,32,1)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(B,48,1)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(B,64,1)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(DU,32,4)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(DU,48,4)	10.20	11.40	10.20	11.41	14.41	10.20	11.40	10.20	11.40	14.40
(DU,64,4)	12.01	13.20	12.01	13.80	16.80	12.01	13.20	12.01	13.80	16.80
(D,4,4)	4.21		3.61	4.81		4.82		4.22	4.82	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(D,32,4)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(D,48,4)	10.20	11.41	10.20	11.40	14.40	10.20	11.40	10.20	11.40	14.41
(D,64,4)	12.60	6.01	12.60	13.80	16.80	12.60	6.01	12.60	13.80	16.80
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.22		4.20	5.40		4.82		4.22	5.40	
(BU,8,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.80		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		4.20	5.40		4.82		4.22	5.40	
(D,8,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.80	4.20	5.40	8.42	4.82	13.80	4.22	5.40	8.43

VFL INSTRUCTION KF FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.22		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,48,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,64,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,48,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,64,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.22	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(DU,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(DU,64,4)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(D,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(D,64,4)	12.01	6.00	12.00	13.20	16.20	12.01	6.01	12.01	13.20	16.20
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.20	4.20	5.40	8.42	4.82	13.20	4.22	5.40	8.43

VFL INSTRUCTION KER FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,48,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,64,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.41
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,48,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,64,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(DU,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(DU,64,4)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(D,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(D,64,4)	12.01	6.01	12.01	13.20	16.20	12.01	6.01	12.01	13.20	16.20
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.20	4.20	5.40	8.42	4.82	13.20	4.22	5.40	8.43

VFL INSTRUCTION KFE FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.21		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,48,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.21
(BU,64,8)	7.20	8.40	7.20	8.40	11.40	7.20	8.40	7.20	8.40	11.40
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(B,48,1)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(B,64,1)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(DU,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(DU,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(DU,64,4)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(D,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(D,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(D,64,4)	12.01	6.00	12.00	13.20	16.20	12.01	6.01	12.01	13.20	16.20
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.21		3.61	4.22		4.82		4.22	4.82	
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,8)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(BU,48,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,64,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,1,1)	4.21		3.61	4.22		4.82		4.22	4.82	
(B,8,1)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(B,16,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,32,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,48,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(B,64,1)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(DU,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(DU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,16,4)	4.21	4.82	3.61	4.80	7.83	4.82	4.82	4.22	4.82	7.83
(DU,32,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,48,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(DU,64,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,4,4)	4.21		3.61	4.22		4.82		4.22	4.82	
(D,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(D,16,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,32,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,48,4)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(D,64,4)	4.21	13.20	4.20	5.40	8.42	4.82	13.20	4.22	5.40	8.43

VFL INSTRUCTION * FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	10.80		10.80	12.01		10.80		10.80	12.01		PF
(BU,8,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00	PF
(BU,16,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00	
(BU,32,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.00	15.00	
(BU,48,8)	10.80	12.01	10.80	12.01	15.01	10.80	12.01	10.80	12.01	15.00	
(BU,64,8)	11.40	12.60	11.40	12.60	15.61	11.41	12.60	11.40	12.60	15.61	
(B,1,1)	11.40		11.40	12.60		11.41		11.40	12.60		PF
(B,8,1)	11.40	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,16,1)	11.40	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,32,1)	11.40	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,48,1)	11.40	12.60	11.40	12.60	15.61	11.41	12.60	11.40	12.60	15.61	
(B,64,1)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.00	13.20	16.20	
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	10.80		10.80	12.01		10.80		10.80	12.01		PF
(BU,8,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00	PF
(BU,16,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00	
(BU,32,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.00	
(BU,48,8)	10.80	12.01	10.80	12.01	15.00	10.80	12.01	10.80	12.01	15.01	
(BU,64,8)	11.40	12.60	11.40	12.60	15.61	11.41	12.60	11.40	12.60	15.61	
(B,1,1)	11.41		11.41	12.60		11.40		11.40	12.60		PF
(B,8,1)	11.41	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,16,1)	11.40	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,32,1)	11.40	12.60	11.40	12.60	15.61	11.40	12.60	11.40	12.60	15.61	
(B,48,1)	11.40	12.60	11.40	12.60	15.61	11.41	12.60	11.40	12.60	15.61	
(B,64,1)	12.00	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20	

VFL INSTRUCTION / FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	*24*		*24*	*24*		*24*		*24*	*24*		PF
(BU,8,8)	*24*	*24*	*24*	*24*	37.81	*24*	*24*	*24*	*24*	37.81	PF
(BU,16,8)	22.21	*24*	22.21	*24*	35.41	22.21	*24*	22.21	*24*	35.41	
(BU,32,8)	24.61	*24*	24.61	*24*	36.01	24.61	*24*	24.61	*24*	36.01	
(BU,48,8)	27.62	25.21	27.62	*24*	35.41	27.62	25.21	27.62	*24*	35.41	
(BU,64,8)	28.81	26.41	28.81	*24*	33.61	28.81	26.41	28.81	*24*	33.61	
(B,1,1)	*24*		*24*	*24*		*24*		*24*	*24*		PF
(B,8,1)	35.41	*24*	35.41	*24*	39.61	35.41	*24*	35.41	*24*	39.61	
(B,16,1)	36.61	*24*	36.61	*24*	36.01	36.61	*24*	36.62	*24*	36.01	
(B,32,1)	39.62	24.01	39.62	*24*	36.61	39.62	24.01	39.61	*24*	36.61	
(B,48,1)	42.01	27.01	42.01	*24*	36.01	42.01	27.01	42.01	*24*	36.01	
(B,64,1)	43.22	28.21	43.22	*24*	34.21	43.22	28.21	43.22	*24*	34.21	
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	*24*		*24*	*24*		*24*		*24*	*24*		PF
(BU,8,8)	*24*	*24*	*24*	*24*	37.81	*24*	*24*	*24*	*24*	37.81	PF
(BU,16,8)	22.21	*24*	22.21	*24*	35.41	22.21	*24*	22.21	*24*	35.41	
(BU,32,8)	24.61	*24*	24.61	*24*	36.01	24.61	*24*	24.61	*24*	36.01	
(BU,48,8)	27.62	25.21	27.62	*24*	35.41	27.62	25.21	27.62	*24*	35.41	
(BU,64,8)	28.81	26.41	28.81	*24*	33.61	28.81	26.41	28.81	*24*	33.61	
(B,1,1)	*24*		*24*	*24*		*24*		*24*	*24*		PF
(B,8,1)	35.41	*24*	35.41	*24*	39.62	35.41	*24*	35.41	*24*	39.62	
(B,16,1)	36.61	*24*	36.62	*24*	36.01	36.61	*24*	36.62	*24*	36.01	
(B,32,1)	39.61	24.01	39.62	*24*	36.61	39.62	24.01	39.61	*24*	36.61	
(B,48,1)	42.01	27.01	42.01	*24*	36.01	42.01	27.01	42.01	*24*	36.01	
(B,64,1)	43.21	28.21	43.21	*24*	34.21	43.22	28.21	43.22	*24*	34.21	

VFL INSTRUCTION ++ FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	
(BU,1,8)	13.80		13.80	15.01		13.80		13.80	15.01		PF
(BU,8,8)	13.80	15.01	13.80	15.00	22.21	13.80	15.00	13.80	15.00	22.21	PF
(BU,16,8)	18.01	15.01	18.01	15.01	22.72	18.01	15.01	18.00	15.01	22.72	
(BU,32,8)	18.01	15.01	18.01	15.01	24.00	18.01	15.00	18.01	15.01	24.00	
(BU,48,8)	18.61	22.21	18.61	15.61	25.80	18.61	22.21	18.61	15.61	25.80	
(BU,64,8)	19.81	23.41	19.81	16.80	27.00	19.81	23.41	19.81	16.80	27.00	
(B,1,1)	14.41		14.41	15.61		14.40		14.40	15.61		PF
(B,8,1)	18.01	15.60	18.01	15.61	22.47	18.01	15.61	18.01	15.61	22.47	
(B,16,1)	18.00	15.61	18.01	15.61	*01*	18.01	15.61	18.01	15.61	*01*	
(B,32,1)	18.00	21.61	18.01	15.61	*01*	18.01	21.61	18.01	15.61	*01*	
(B,48,1)	18.61	22.21	18.61	16.20	*01*	18.61	22.21	18.61	16.20	*01*	
(B,64,1)	19.81	23.41	19.81	17.40	*01*	19.81	23.41	19.81	17.40	*01*	
INVERT SIGN OF INSTRUCTION											
(BU,1,8)	13.80		13.80	15.01		13.80		13.80	15.01		PF
(BU,8,8)	13.80	*01*	13.80	15.00	*01*	13.80	*01*	13.80	15.01	*01*	PF
(BU,16,8)	18.01	*01*	18.01	15.01	*01*	18.01	*01*	18.01	15.01	*01*	
(BU,32,8)	18.01	*01*	18.01	15.00	24.00	18.01	*01*	18.01	15.01	24.00	
(BU,48,8)	18.61	*01*	18.61	15.61	25.80	18.61	*01*	18.61	15.61	25.80	
(BU,64,8)	19.81	*01*	19.81	16.80	27.00	19.81	*01*	19.81	16.80	27.00	
(B,1,1)	14.40		14.40	15.61		14.40		14.41	15.61		PF
(B,8,1)	18.01	*01*	18.00	15.61	*01*	18.00	*01*	18.01	15.61	*01*	
(B,16,1)	18.00	*01*	18.01	15.61	*01*	18.01	*01*	18.01	15.61	*01*	
(B,32,1)	18.01	*01*	18.01	15.61	*01*	18.01	*01*	18.00	15.61	*01*	
(B,48,1)	18.61	*01*	18.61	16.20	*01*	18.61	*01*	18.61	16.20	*01*	
(B,64,1)	19.81	*01*	19.81	17.40	*01*	19.81	*01*	19.81	17.40	*01*	

VFL INSTRUCTION LCV FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00		6.00	7.20		6.00		6.00	7.20	
(BU,8,8)	11.41	12.60	11.41	11.41	14.41	11.41	12.60	11.40	11.40	14.40
(BU,16,8)	17.41	18.61	17.40	16.20	19.21	17.40	18.61	17.40	16.20	19.21
(BU,32,8)	28.21	29.41	28.21	25.81	28.81	28.21	29.41	28.21	25.81	28.81
(BU,48,8)	39.01	40.22	39.01	35.41	38.41	39.02	40.22	39.01	35.41	38.41
(BU,64,8)	50.42	51.62	50.42	45.01	54.56	50.42	51.62	50.42	45.01	54.56
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	11.41	12.60	11.40	11.41	14.40	11.40	12.60	11.40	11.40	14.40
(B,16,1)	16.80	18.01	16.80	16.20	19.21	16.80	18.01	16.80	16.20	19.21
(B,32,1)	28.21	29.41	28.21	25.81	28.81	28.21	29.41	28.21	25.81	28.81
(B,48,1)	39.02	40.22	39.01	35.41	38.41	39.02	40.22	39.01	35.41	38.41
(B,64,1)	50.42	51.62	50.42	45.01	54.49	50.42	51.62	50.42	45.02	54.49
(DU,4,4)	23.41		23.41	23.41		23.41		23.41	23.41	
(DU,8,4)	24.61	25.81	24.61	23.41	26.41	24.61	25.81	24.60	23.41	26.41
(DU,16,4)	26.41	27.61	26.41	23.41	26.41	26.41	27.61	26.41	23.41	26.41
(DU,32,4)	30.01	31.21	30.01	23.41	26.41	30.01	31.21	30.01	23.41	26.41
(DU,48,4)	33.01	34.21	33.01	23.41	*01*	33.01	34.21	33.01	23.41	*01*
(DU,64,4)	36.62	37.81	36.62	23.41	*01*	36.61	37.81	36.62	23.41	*01*
(D,4,4)	22.21		22.21	23.41		22.21		22.21	23.41	
(D,8,4)	23.41	24.61	23.41	23.41	26.41	23.41	24.61	23.41	23.41	26.41
(D,16,4)	25.21	26.41	25.21	23.41	26.41	25.21	26.41	25.21	23.41	26.41
(D,32,4)	28.21	29.41	28.21	23.41	26.41	28.21	29.41	28.21	23.41	26.41
(D,48,4)	31.81	33.01	31.81	23.41	*01*	31.81	33.01	31.81	23.41	*01*
(D,64,4)	35.42	36.62	35.41	23.41	*01*	35.42	36.61	35.41	23.41	*01*
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00		6.00	7.20		6.00		6.00	7.20	
(BU,8,8)	11.41	12.60	11.41	11.41	14.41	11.41	12.60	11.40	11.40	14.40
(BU,16,8)	17.40	18.61	17.40	16.20	19.21	17.40	18.61	17.40	16.20	19.21
(BU,32,8)	28.21	29.41	28.21	25.81	28.81	28.21	29.41	28.21	25.81	28.81
(BU,48,8)	39.02	40.22	39.01	35.41	38.41	39.02	40.22	39.01	35.41	38.41
(BU,64,8)	50.42	51.62	50.42	45.02	54.56	50.42	51.62	50.42	45.01	54.56
(B,1,1)	4.21		4.20	5.40		4.82		4.22	5.40	
(B,8,1)	11.41	12.60	11.40	11.40	14.40	11.40	12.60	11.40	11.40	14.40
(B,16,1)	16.80	18.00	16.80	16.20	19.21	16.80	18.01	16.80	16.20	19.21
(B,32,1)	28.21	29.41	28.21	25.81	28.81	28.21	29.41	28.21	25.81	28.81
(B,48,1)	39.02	40.22	39.01	35.41	38.41	39.02	40.22	39.01	35.41	38.41
(B,64,1)	50.42	51.62	50.42	45.01	54.49	50.42	51.62	50.42	45.01	54.49
(DU,4,4)	23.41		23.41	23.41		23.41		23.41	23.41	
(DU,8,4)	24.61	25.81	24.61	23.41	26.41	24.61	25.81	24.60	23.41	26.41
(DU,16,4)	26.41	27.61	26.41	23.41	26.41	26.41	27.61	26.41	23.41	26.41
(DU,32,4)	30.01	31.21	30.01	23.41	26.41	30.01	31.21	30.01	23.41	26.41
(DU,48,4)	33.01	34.21	33.01	23.41	*01*	33.01	34.21	33.01	23.41	*01*
(DU,64,4)	36.61	37.81	36.61	23.41	*01*	36.61	37.81	36.62	23.41	*01*
(D,4,4)	22.21		22.21	23.41		22.21		22.21	23.41	
(D,8,4)	23.41	24.61	23.41	23.41	26.41	23.41	24.61	23.41	23.41	26.41
(D,16,4)	25.21	26.41	25.21	23.41	26.41	25.21	26.41	25.21	23.41	26.41
(D,32,4)	28.21	29.41	28.21	23.41	26.41	28.21	29.41	28.21	23.41	26.41
(D,48,4)	31.81	33.01	31.81	23.41	*01*	31.81	33.01	31.81	23.41	*01*
(D,64,4)	35.41	36.61	35.41	23.41	*01*	35.41	36.61	35.41	23.41	*01*

VFL INSTRUCTION LTRCV FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.84		7.22	9.62		8.03		7.22	9.92	
(BU,8,8)	11.41	12.60	11.40	13.81	16.81	11.41	12.61	11.40	13.80	16.80
(BU,16,8)	16.20	17.41	16.20	18.61	21.60	16.20	17.41	16.20	18.61	21.60
(BU,32,8)	25.81	27.01	25.81	28.21	31.21	25.81	27.01	25.81	28.21	31.21
(BU,48,8)	39.61	40.81	39.62	42.01	45.01	39.62	40.81	39.62	42.01	45.01
(BU,64,8)	51.02	52.22	51.02	53.42	56.42	51.02	52.22	51.02	53.42	56.42
(B,1,1)	7.43		6.62	9.32		7.74		6.73	9.62	
(B,8,1)	11.41	12.60	11.40	13.81	16.81	11.41	12.61	11.40	13.80	16.80
(B,16,1)	16.20	17.41	16.20	18.60	21.60	16.20	17.41	16.20	18.61	21.60
(B,32,1)	25.81	27.01	25.81	28.21	31.21	25.81	27.01	25.81	28.21	31.21
(B,48,1)	39.61	40.81	39.62	42.01	45.01	39.62	40.81	39.62	42.01	45.01
(B,64,1)	51.02	52.22	51.02	53.42	56.42	51.02	52.22	51.02	53.42	56.42
(DU,4,4)	30.61		30.61	33.01		30.61		30.61	33.01	
(DU,8,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,16,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,32,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,48,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,64,4)	35.41	36.61	35.41	37.81	40.81	35.42	36.61	35.41	37.81	40.81
(D,4,4)	30.61		30.61	33.01		30.61		30.61	33.01	
(D,8,4)	30.61	31.81	30.61	33.01	36.01	30.61	31.82	30.61	33.01	36.01
(D,16,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(D,32,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(D,48,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.82	30.61	33.01	36.01
(D,64,4)	35.41	36.61	35.41	37.81	40.81	35.41	36.61	35.41	37.81	40.81
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.84		7.22	9.62		8.03		7.22	9.92	
(BU,8,8)	11.41	12.60	11.40	13.81	16.81	11.41	12.61	11.40	13.80	16.80
(BU,16,8)	16.20	17.41	16.20	18.61	21.60	16.20	17.41	16.20	18.61	21.60
(BU,32,8)	25.81	27.01	25.81	28.21	31.21	25.81	27.01	25.81	28.21	31.21
(BU,48,8)	39.61	40.81	39.62	42.01	45.01	39.62	40.81	39.62	42.01	45.01
(BU,64,8)	51.02	52.22	51.02	53.42	56.42	51.02	52.22	51.02	53.42	56.42
(B,1,1)	7.43		6.62	9.32		7.75		6.73	9.62	
(B,8,1)	11.41	12.60	11.40	13.81	16.81	11.41	12.61	11.41	13.80	16.80
(B,16,1)	16.20	17.41	16.20	18.61	21.60	16.20	17.41	16.20	18.61	21.60
(B,32,1)	25.81	27.01	25.81	28.21	31.21	25.81	27.01	25.81	28.21	31.21
(B,48,1)	39.62	40.81	39.62	42.01	45.01	39.61	40.81	39.62	42.01	45.01
(B,64,1)	51.02	52.22	51.02	53.42	56.42	51.02	52.22	51.02	53.42	56.42
(DU,4,4)	30.61		30.61	33.01		30.61		30.61	33.01	
(DU,8,4)	30.61	31.81	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,16,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,32,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(DU,48,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.82	30.61	33.01	36.01
(DU,64,4)	35.42	36.61	35.41	37.81	40.81	35.42	36.61	35.41	37.81	40.81
(D,4,4)	30.61		30.61	33.01		30.61		30.61	33.01	
(D,8,4)	30.61	31.81	30.61	33.01	36.01	30.61	31.82	30.61	33.01	36.01
(D,16,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(D,32,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(D,48,4)	30.61	31.82	30.61	33.01	36.01	30.61	31.81	30.61	33.01	36.01
(D,64,4)	35.41	36.61	35.41	37.81	40.81	35.41	36.61	35.41	37.81	40.81

VFL INSTRUCTION CV FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	22.14					22.14				
(DU,8,4)	22.14					22.14				
(DU,16,4)	22.14					22.14				
(DU,32,4)	22.14					22.14				
(DU,48,4)	22.14					22.14				
(DU,64,4)	22.14					22.14				
(D,4,4)	22.14					22.14				
(D,8,4)	22.14					22.14				
(D,16,4)	22.14					22.14				
(D,32,4)	22.14					22.14				
(D,48,4)	22.14					22.14				
(D,64,4)	22.14					22.14				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	22.14					22.14				
(DU,8,4)	22.14					22.14				
(DU,16,4)	22.14					22.14				
(DU,32,4)	22.14					22.14				
(DU,48,4)	22.14					22.14				
(DU,64,4)	22.14					22.14				
(D,4,4)	22.14					22.14				
(D,8,4)	22.14					22.14				
(D,16,4)	22.14					22.14				
(D,32,4)	22.14					22.14				
(D,48,4)	22.14					22.14				
(D,64,4)	22.14					22.14				

THE CV INSTRUCTION

The result of a decimal to binary CV operation is placed in the accumulator at an offset of 68. For subsequent execution of identical CV instructions the operand appears to be a very large number. The CV operation times are strongly data dependent, and the above fact explains the rather long (22.14 μs) time.

Under normal conditions decimal to binary convert operations are expected to be faster than binary to decimal operations.

VFL INSTRUCTION DCV FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	ACCUM. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	5.40					5.40				
(DU,8,4)	5.40					5.40				
(DU,16,4)	5.40					5.40				
(DU,32,4)	5.40					5.40				
(DU,48,4)	5.40					5.40				
(DU,64,4)	5.40					5.40				
(D,4,4)	5.40					5.40				
(D,8,4)	5.40					5.40				
(D,16,4)	5.40					5.40				
(D,32,4)	5.40					5.40				
(D,48,4)	5.40					5.40				
(D,64,4)	5.40					5.40				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00					6.00				
(BU,8,8)	6.00					6.00				
(BU,16,8)	6.00					6.00				
(BU,32,8)	6.00					6.00				
(BU,48,8)	6.00					6.00				
(BU,64,8)	6.00					6.00				
(B,1,1)	6.00					6.00				
(B,8,1)	6.00					6.00				
(B,16,1)	6.00					6.00				
(B,32,1)	6.00					6.00				
(B,48,1)	6.00					6.00				
(B,64,1)	6.00					6.00				
(DU,4,4)	5.40					5.40				
(DU,8,4)	5.40					5.40				
(DU,16,4)	5.40					5.40				
(DU,32,4)	5.40					5.40				
(DU,48,4)	5.40					5.40				
(DU,64,4)	5.40					5.40				
(D,4,4)	5.40					5.40				
(D,8,4)	5.40					5.40				
(D,16,4)	5.40					5.40				
(D,32,4)	5.40					5.40				
(D,48,4)	5.40					5.40				
(D,64,4)	5.40					5.40				

VFL INSTRUCTION C0011 FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,8,2)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,8,3)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,8,4)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,8,5)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,8,6)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,8,7)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,8,8)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,1)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
(BU,16,2)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,16,3)	7.20	8.40	7.20	8.40	11.40	7.20	8.40	7.20	8.40	11.40
(BU,16,4)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.21
(BU,16,5)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,16,6)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,16,7)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,16,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,32,1)	13.20	14.41	13.20	14.40	17.40	13.20	14.40	13.20	14.40	17.40
(BU,32,2)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
(BU,32,3)	10.20	11.40	10.20	11.40	14.40	10.20	11.41	10.20	11.40	14.40
(BU,32,4)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,32,5)	7.80	9.00	7.80	9.00	12.01	7.80	9.00	7.80	9.00	12.01
(BU,32,6)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,32,7)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,32,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,48,3)	13.20	14.41	13.20	14.40	17.40	13.20	14.40	13.20	14.41	17.40
(BU,48,4)	10.80	12.01	10.80	12.00	15.01	10.80	12.01	10.80	12.00	15.00
(BU,48,5)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(BU,48,6)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,48,7)	7.80	9.00	7.80	9.00	12.00	7.80	9.00	7.80	9.00	12.01
(BU,48,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,64,4)	13.20	14.41	13.20	14.40	17.40	13.20	14.41	13.20	14.40	17.40
(BU,64,5)	11.41	12.60	11.40	12.60	15.61	11.41	12.60	11.40	12.60	15.61
(BU,64,6)	10.20	11.40	10.20	11.41	14.40	10.20	11.41	10.20	11.40	14.40
(BU,64,7)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(BU,64,8)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60

VFL INSTRUCTION CM0101 FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(BU,8,2)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,8,3)	6.62	15.65	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,8,4)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,8,5)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,8,6)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,8,7)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,8,8)	6.62	14.45	10.27	7.23	13.26	7.81	14.46	10.88	7.83	13.86
(BU,16,1)	14.40	23.48	19.34	15.61	22.29	14.41	23.50	19.94	15.61	22.89
(BU,16,2)	9.60	18.66	14.51	10.80	17.48	9.61	18.68	15.11	10.81	18.07
(BU,16,3)	8.41	17.46	13.29	9.61	16.27	8.42	17.48	13.90	9.62	16.87
(BU,16,4)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,16,5)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,16,6)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,16,7)	6.62	15.66	11.48	7.83	14.46	7.80	15.67	12.09	7.83	15.06
(BU,16,8)	7.20	15.05	10.88	7.23	13.86	7.22	15.06	11.48	7.83	14.46
(BU,32,1)	24.01	33.11	29.01	25.21	31.93	24.01	33.14	29.61	25.21	32.53
(BU,32,2)	14.40	23.48	19.34	15.61	22.29	14.40	23.50	19.94	15.61	22.89
(BU,32,3)	11.40	20.47	16.32	12.60	19.28	11.40	20.49	16.92	12.60	19.88
(BU,32,4)	9.60	18.67	14.50	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(BU,32,5)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.51	10.22	17.47
(BU,32,6)	8.41	17.46	13.29	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(BU,32,7)	7.82	16.86	12.69	9.02	15.67	7.82	16.87	13.30	9.03	16.27
(BU,32,8)	7.22	16.26	12.09	8.42	15.06	7.22	16.27	12.69	8.43	15.66
(BU,48,3)	14.40	23.48	19.34	15.61	22.29	14.40	23.50	19.94	15.61	22.89
(BU,48,4)	12.00	21.08	16.92	13.20	19.88	12.01	21.08	17.52	13.20	20.49
(BU,48,5)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.01	19.28
(BU,48,6)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07
(BU,48,7)	9.01	18.06	13.90	10.21	16.87	9.01	18.07	14.50	10.22	17.47
(BU,48,8)	8.41	17.46	13.30	9.61	16.27	8.42	17.47	13.90	9.62	16.87
(BU,64,4)	14.40	23.48	19.34	15.61	22.29	14.41	23.50	19.94	15.61	22.89
(BU,64,5)	12.60	21.67	17.53	13.80	20.49	12.60	21.69	18.13	13.80	21.08
(BU,64,6)	11.40	20.47	16.32	12.60	19.28	11.40	20.49	16.92	12.60	19.88
(BU,64,7)	10.80	19.87	15.72	12.01	18.68	10.80	19.88	16.32	12.00	19.28
(BU,64,8)	9.60	18.66	14.51	10.80	17.47	9.61	18.68	15.11	10.81	18.07

VFL INSTRUCTION [illegible] FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,8,2)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,8,3)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,8,4)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,8,5)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,8,6)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,8,7)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,8,8)	4.21	4.82	3.61	4.22	7.23	4.82	4.82	4.22	4.82	7.83
(BU,16,1)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(BU,16,2)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,16,3)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,16,4)	4.80	6.01	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,16,5)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,16,6)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,7)	4.21	5.41	4.20	5.40	8.42	4.82	5.42	4.22	5.40	8.43
(BU,16,8)	4.21	4.82	3.61	4.81	7.83	4.82	4.82	4.22	4.82	7.83
(BU,32,1)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(BU,32,2)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(BU,32,3)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(BU,32,4)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,32,5)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,32,6)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,32,7)	5.40	6.60	5.40	6.60	9.61	5.40	6.60	5.40	6.60	9.62
(BU,32,8)	4.80	6.00	4.80	6.00	9.02	4.82	6.01	4.80	6.00	9.03
(BU,48,3)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(BU,48,4)	9.60	10.80	9.60	10.80	13.80	9.60	10.80	9.60	10.80	13.80
(BU,48,5)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,48,6)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40
(BU,48,7)	6.60	7.80	6.60	7.80	10.80	6.60	7.80	6.60	7.80	10.81
(BU,48,8)	6.00	7.20	6.00	7.20	10.21	6.00	7.20	6.00	7.20	10.22
(BU,64,4)	12.01	13.20	12.01	13.20	16.20	12.01	13.20	12.01	13.20	16.20
(BU,64,5)	10.20	11.40	10.20	11.40	14.40	10.20	11.41	10.20	11.40	14.40
(BU,64,6)	9.00	10.20	9.00	10.20	13.20	9.00	10.20	9.00	10.20	13.20
(BU,64,7)	8.40	9.60	8.40	9.60	12.60	8.40	9.60	8.40	9.60	12.60
(BU,64,8)	7.20	8.40	7.20	8.40	11.41	7.20	8.40	7.20	8.40	11.40

TIMING TEST

C271004.0	271004.44	00	270777.01	02	271004.22	00	271004.00 80
C271006.0	271003.01	20	273107.10	00			

C007211.0	777777.60	00	000000.00	00			
C007110.4	000000.03	70					
C006060.0	000000.30	00					
C007150.4	007130.40	00					
C007140.4	007001.04	00					
C007111.4	000000.77	0D					
C011225.0	040100.20	10	040354.12	07			
C007126.4	007130.50	00					
C007145.4	000010.30	80					
C007147.0	000040.16	70					
C007150.0	000040.12	F0					
C007217.4	000020.00	00					
C007215.0	001750.00	00					
C007106.4	056000.30	F0					
C007211.0	777777.60	80					
C007215.0	000144.00	00					
C007217.4	000240.00	00					
C000644.4	002004.01	10					
P007117.0	144000.37	04	011227.33	42			
P007106.0	144000.37	04	011227.33	42			
P007111.4	011225.00	80	007205.02	A0	000001.37	00	
P007172.4	006040.37	01	000002.37	30			

VFL INSTRUCTION +I IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.36					4.36				
(BU,16,8)	4.96					4.96				
(BU,32,8)	6.16					6.16				
(BU,48,8)	7.36					7.36				
(BU,64,8)	8.56					8.56				
(B,1,1)	4.20					4.20				
(B,8,1)	4.96					4.96				
(B,16,1)	5.56					5.56				
(B,32,1)	6.76					6.76				
(B,48,1)	7.96					7.96				
(B,64,1)	9.16					9.16				
(DU,4,4)	4.47					4.47				
(DU,8,4)	5.09					5.09				
(DU,16,4)	6.30					6.30				
(DU,32,4)	8.70					8.70				
(DU,48,4)	11.10					11.10				
(DU,64,4)	13.50					13.50				
(D,4,4)	4.20					4.20				
(D,8,4)	5.07					5.07				
(D,16,4)	6.30					6.30				
(D,32,4)	8.70					8.70				
(D,48,4)	11.10					11.10				
(D,64,4)	13.50					13.50				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.36					4.36				
(BU,16,8)	4.96					4.96				
(BU,32,8)	6.16					6.16				
(BU,48,8)	7.36					7.36				
(BU,64,8)	8.56					8.56				
(B,1,1)	4.20					4.20				
(B,8,1)	4.96					4.96				
(B,16,1)	5.56					5.56				
(B,32,1)	6.76					6.76				
(B,48,1)	7.96					7.96				
(B,64,1)	9.17					9.17				
(DU,4,4)	4.47					4.47				
(DU,8,4)	5.09					5.09				
(DU,16,4)	6.30					6.30				
(DU,32,4)	8.70					8.70				
(DU,48,4)	11.10					11.10				
(DU,64,4)	13.50					13.50				
(D,4,4)	4.20					4.20				
(D,8,4)	5.07					5.07				
(D,16,4)	6.30					6.30				
(D,32,4)	8.70					8.70				
(D,48,4)	11.10					11.10				
(D,64,4)	13.50					13.50				

VFL INSTRUCTION +MGI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.36					4.36				
(BU,16,8)	4.96					4.96				
(BU,32,8)	6.16					6.16				
(BU,48,8)	7.36					7.36				
(BU,64,8)	8.56					8.56				
(B,1,1)	4.20					4.20				
(B,8,1)	4.96					4.96				
(B,16,1)	5.56					5.56				
(B,32,1)	6.76					6.76				
(B,48,1)	7.96					7.96				
(B,64,1)	9.17					9.17				
(DU,4,4)	4.47					4.47				
(DU,8,4)	5.09					5.09				
(DU,16,4)	6.30					6.30				
(DU,32,4)	8.70					8.70				
(DU,48,4)	11.10					11.10				
(DU,64,4)	13.50					13.50				
(D,4,4)	4.20					4.20				
(D,8,4)	5.07					5.07				
(D,16,4)	6.30					6.30				
(D,32,4)	8.70					8.70				
(D,48,4)	11.10					11.10				
(D,64,4)	13.50					13.50				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.80					4.80				
(BU,16,8)	5.40					5.40				
(BU,32,8)	6.60					6.60				
(BU,48,8)	7.80					7.80				
(BU,64,8)	9.00					9.00				
(B,1,1)	4.20					4.20				
(B,8,1)	5.40					5.40				
(B,16,1)	6.00					6.00				
(B,32,1)	7.20					7.20				
(B,48,1)	8.40					8.40				
(B,64,1)	9.60					9.60				
(DU,4,4)	4.80					4.80				
(DU,8,4)	5.40					5.40				
(DU,16,4)	6.60					6.60				
(DU,32,4)	9.00					9.00				
(DU,48,4)	11.41					11.40				
(DU,64,4)	13.80					13.80				
(D,4,4)	4.20					4.20				
(D,8,4)	5.40					5.40				
(D,16,4)	6.60					6.60				
(D,32,4)	9.00					9.00				
(D,48,4)	11.41					11.40				
(D,64,4)	13.80					13.80				

VFL INSTRUCTION LI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.20					4.20				
(BU,16,8)	4.80					4.80				
(BU,32,8)	6.00					6.00				
(BU,48,8)	7.20					7.20				
(BU,64,8)	8.40					8.40				
(B,1,1)	4.20					4.20				
(B,8,1)	4.80					4.80				
(B,16,1)	5.40					5.40				
(B,32,1)	6.60					6.60				
(B,48,1)	7.80					7.80				
(B,64,1)	9.00					9.00				
(DU,4,4)	4.20					4.20				
(DU,8,4)	4.80					4.80				
(DU,16,4)	6.00					6.00				
(DU,32,4)	8.40					8.40				
(DU,48,4)	10.80					10.80				
(DU,64,4)	13.20					13.20				
(D,4,4)	4.20					4.20				
(D,8,4)	4.80					4.80				
(D,16,4)	6.00					6.00				
(D,32,4)	8.40					8.40				
(D,48,4)	10.80					10.80				
(D,64,4)	13.20					13.20				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.20					4.20				
(BU,16,8)	4.80					4.80				
(BU,32,8)	6.00					6.00				
(BU,48,8)	7.20					7.20				
(BU,64,8)	8.40					8.40				
(B,1,1)	4.20					4.20				
(B,8,1)	4.80					4.80				
(B,16,1)	5.40					5.40				
(B,32,1)	6.60					6.60				
(B,48,1)	7.80					7.80				
(B,64,1)	9.00					9.00				
(DU,4,4)	4.20					4.20				
(DU,8,4)	4.80					4.80				
(DU,16,4)	6.00					6.00				
(DU,32,4)	8.40					8.40				
(DU,48,4)	10.80					10.80				
(DU,64,4)	13.20					13.20				
(D,4,4)	4.20					4.20				
(D,8,4)	4.80					4.80				
(D,16,4)	6.00					6.00				
(D,32,4)	8.40					8.40				
(D,48,4)	10.80					10.80				
(D,64,4)	13.20					13.20				

VFL INSTRUCTION LWFI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.20					4.20				
(BU,16,8)	4.80					4.80				
(BU,32,8)	6.00					6.00				
(BU,48,8)	7.20					7.20				
(BU,64,8)	8.40					8.40				
(B,1,1)	4.20					4.20				
(B,8,1)	4.80					4.80				
(B,16,1)	5.40					5.40				
(B,32,1)	6.60					6.60				
(B,48,1)	7.80					7.80				
(B,64,1)	9.00					9.00				
(DU,4,4)	4.20					4.20				
(DU,8,4)	4.80					4.80				
(DU,16,4)	6.00					6.00				
(DU,32,4)	8.40					8.40				
(DU,48,4)	10.80					10.80				
(DU,64,4)	13.20					13.20				
(D,4,4)	4.20					4.20				
(D,8,4)	4.80					4.80				
(D,16,4)	6.00					6.00				
(D,32,4)	8.40					8.40				
(D,48,4)	10.80					10.80				
(D,64,4)	13.20					13.20				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	4.20					4.20				
(BU,8,8)	4.20					4.20				
(BU,16,8)	4.80					4.80				
(BU,32,8)	6.00					6.00				
(BU,48,8)	7.20					7.20				
(BU,64,8)	8.40					8.40				
(B,1,1)	4.20					4.20				
(B,8,1)	4.80					4.80				
(B,16,1)	5.40					5.40				
(B,32,1)	6.60					6.60				
(B,48,1)	7.80					7.80				
(B,64,1)	9.00					9.00				
(DU,4,4)	4.20					4.20				
(DU,8,4)	4.80					4.80				
(DU,16,4)	6.00					6.00				
(DU,32,4)	8.40					8.40				
(DU,48,4)	10.80					10.80				
(DU,64,4)	13.20					13.20				
(D,4,4)	4.20					4.20				
(D,8,4)	4.80					4.80				
(D,16,4)	6.00					6.00				
(D,32,4)	8.40					8.40				
(D,48,4)	10.80					10.80				
(D,64,4)	13.20					13.20				

VFL INSTRUCTION LFTI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20					13.20				
(BU,8,8)	13.20					13.20				
(BU,16,8)	13.20					13.20				
(BU,32,8)	13.20					13.20				
(BU,48,8)	13.20					13.20				
(BU,64,8)	*01*					*01*				
(B,1,1)	13.20					13.20				
(B,8,1)	13.20					13.20				
(B,16,1)	13.20					13.20				
(B,32,1)	13.20					13.20				
(B,48,1)	13.20					13.20				
(B,64,1)	*01*					*01*				
(DU,4,4)	19.81					19.81				
(DU,8,4)	19.81					19.81				
(DU,16,4)	19.81					19.81				
(DU,32,4)	19.81					19.81				
(DU,48,4)	19.81					19.81				
(DU,64,4)	24.61					24.61				
(D,4,4)	19.81					19.81				
(D,8,4)	19.81					19.81				
(D,16,4)	19.81					19.81				
(D,32,4)	19.81					19.81				
(D,48,4)	19.81					19.81				
(D,64,4)	24.61					24.61				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20					13.20				
(BU,8,8)	13.20					13.20				
(BU,16,8)	13.20					13.20				
(BU,32,8)	13.20					13.20				
(BU,48,8)	13.20					13.20				
(BU,64,8)	*01*					*01*				
(B,1,1)	13.20					13.20				
(B,8,1)	13.20					13.20				
(B,16,1)	13.20					13.20				
(B,32,1)	13.20					13.20				
(B,48,1)	13.20					13.20				
(B,64,1)	*01*					*01*				
(DU,4,4)	19.81					19.81				
(DU,8,4)	19.81					19.81				
(DU,16,4)	19.81					19.81				
(DU,32,4)	19.81					19.81				
(DU,48,4)	19.81					19.81				
(DU,64,4)	24.61					24.61				
(D,4,4)	19.81					19.81				
(D,8,4)	19.81					19.81				
(D,16,4)	19.81					19.81				
(D,32,4)	19.81					19.81				
(D,48,4)	19.81					19.81				
(D,64,4)	24.61					24.61				

VFL INSTRUCTION LTRSI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.20					13.20				
(BU,8,8)	13.20					13.20				
(BU,16,8)	13.20					13.20				
(BU,32,8)	13.20					13.20				
(BU,48,8)	13.20					13.20				
(BU,64,8)	*01*					*01*				
(B,1,1)	13.20					13.20				
(B,8,1)	13.20					13.20				
(B,16,1)	13.20					13.20				
(B,32,1)	13.20					13.20				
(B,48,1)	13.20					13.20				
(B,64,1)	*01*					*01*				
(DU,4,4)	19.81					19.81				
(DU,8,4)	19.81					19.81				
(DU,16,4)	19.81					19.81				
(DU,32,4)	19.81					19.81				
(DU,48,4)	19.81					19.81				
(DU,64,4)	24.61					24.61				
(D,4,4)	19.81					19.81				
(D,8,4)	19.81					19.81				
(D,16,4)	19.81					19.81				
(D,32,4)	19.81					19.81				
(D,48,4)	19.81					19.81				
(D,64,4)	24.61					24.61				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.20					13.20				
(BU,8,8)	13.20					13.20				
(BU,16,8)	13.20					13.20				
(BU,32,8)	13.20					13.20				
(BU,48,8)	13.20					13.20				
(BU,64,8)	*01*					*01*				
(B,1,1)	13.20					13.20				
(B,8,1)	13.20					13.20				
(B,16,1)	13.20					13.20				
(B,32,1)	13.20					13.20				
(B,48,1)	13.20					13.20				
(B,64,1)	*01*					*01*				
(DU,4,4)	19.81					19.81				
(DU,8,4)	19.81					19.81				
(DU,16,4)	19.81					19.81				
(DU,32,4)	19.81					19.81				
(DU,48,4)	19.81					19.81				
(DU,64,4)	24.61					24.61				
(D,4,4)	19.81					19.81				
(D,8,4)	19.81					19.81				
(D,16,4)	19.81					19.81				
(D,32,4)	19.81					19.81				
(D,48,4)	19.81					19.81				
(D,64,4)	24.61					24.61				

VFL INSTRUCTION KI — IMMEDIATE ADDRESSING — OFFSET 0 — INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	4.20					4.20				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION KRI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	4.20					4.20				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION KEI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	4.20					4.20				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	4.20					4.20				
(D,8,4)	4.20					4.20				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION KFI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION KFRI — IMMEDIATE ADDRESSING — OFFSET 0 — INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION KFEI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	4.80					4.80				
(BU,64,8)	6.00					6.00				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	3.61					3.92				
(B,32,1)	4.20					4.20				
(B,48,1)	5.40					5.40				
(B,64,1)	6.60					6.60				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	4.20					4.20				
(DU,48,4)	6.60					6.60				
(DU,64,4)	9.00					9.00				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	6.60					6.60				
(D,64,4)	9.00					9.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,8)	3.61					3.92				
(BU,32,8)	3.61					3.92				
(BU,48,8)	3.61					3.92				
(BU,64,8)	3.61					3.92				
(B,1,1)	3.61					3.92				
(B,8,1)	3.61					3.92				
(B,16,1)	4.20					4.20				
(B,32,1)	4.20					4.20				
(B,48,1)	4.20					4.20				
(B,64,1)	4.20					4.20				
(DU,4,4)	3.61					3.92				
(DU,8,4)	3.61					3.92				
(DU,16,4)	3.61					3.92				
(DU,32,4)	3.61					3.92				
(DU,48,4)	3.61					3.92				
(DU,64,4)	3.61					3.92				
(D,4,4)	3.61					3.92				
(D,8,4)	3.61					3.92				
(D,16,4)	4.20					4.20				
(D,32,4)	4.20					4.20				
(D,48,4)	4.20					4.20				
(D,64,4)	4.20					4.20				

VFL INSTRUCTION *I IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	10.80					10.80				
(BU,8,8)	10.80					10.80				
(BU,16,8)	10.80					10.80				
(BU,32,8)	10.80					10.80				
(BU,48,8)	10.80					10.80				
(BU,64,8)	11.40					11.40				
(B,1,1)	11.40					11.41				
(B,8,1)	11.40					11.40				
(B,16,1)	11.40					11.40				
(B,32,1)	11.41					11.40				
(B,48,1)	11.40					11.41				
(B,64,1)	12.01					12.00				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	10.80					10.80				
(BU,8,8)	10.80					10.80				
(BU,16,8)	10.80					10.80				
(BU,32,8)	10.80					10.80				
(BU,48,8)	10.80					10.80				
(BU,64,8)	11.40					11.40				
(B,1,1)	11.40					11.40				
(B,8,1)	11.40					11.40				
(B,16,1)	11.40					11.40				
(B,32,1)	11.41					11.40				
(B,48,1)	11.40					11.40				
(B,64,1)	12.00					12.01				

VFL INSTRUCTION /I IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	*24*					*24*				
(BU,8,8)	20.41					20.41				
(BU,16,8)	21.00					21.01				
(BU,32,8)	22.21					22.21				
(BU,48,8)	23.41					23.41				
(BU,64,8)	24.61					24.61				
(B,1,1)	*24*					*24*				
(B,8,1)	21.01					21.01				
(B,16,1)	21.61					21.61				
(B,32,1)	22.81					22.81				
(B,48,1)	24.01					24.01				
(B,64,1)	25.21					25.21				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	*24*					*24*				
(BU,8,8)	20.41					20.41				
(BU,16,8)	21.01					21.01				
(BU,32,8)	22.21					22.21				
(BU,48,8)	23.41					23.41				
(BU,64,8)	24.61					24.61				
(B,1,1)	*24*					*24*				
(B,8,1)	21.01					21.00				
(B,16,1)	21.61					21.61				
(B,32,1)	22.81					22.81				
(B,48,1)	24.01					24.01				
(B,64,1)	25.21					25.21				

VFL INSTRUCTION *I* IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	13.80					13.80				
(BU,8,8)	18.01					18.01				
(BU,16,8)	18.61					18.61				
(BU,32,8)	19.81					19.81				
(BU,48,8)	21.61					21.61				
(BU,64,8)	22.81					22.81				
(B,1,1)	14.40					14.41				
(B,8,1)	18.61					18.61				
(B,16,1)	19.21					19.21				
(B,32,1)	20.41					20.41				
(B,48,1)	22.21					22.21				
(B,64,1)	23.41					23.41				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	13.80					13.80				
(BU,8,8)	18.01					18.01				
(BU,16,8)	18.61					18.61				
(BU,32,8)	19.81					19.81				
(BU,48,8)	21.61					21.61				
(BU,64,8)	22.81					22.81				
(B,1,1)	14.40					14.41				
(B,8,1)	18.61					18.61				
(B,16,1)	19.21					19.21				
(B,32,1)	20.41					20.41				
(B,48,1)	22.21					22.21				
(B,64,1)	23.41					23.41				

VFL INSTRUCTION LCVI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	6.00					6.00				
(BU,8,8)	11.40					11.40				
(BU,16,8)	17.40					17.41				
(BU,32,8)	28.21					28.21				
(BU,48,8)	39.01					39.02				
(BU,64,8)	50.42					50.42				
(B,1,1)	4.20					4.20				
(B,8,1)	11.40					11.41				
(B,16,1)	16.80					16.80				
(B,32,1)	28.21					28.21				
(B,48,1)	39.01					39.01				
(B,64,1)	50.42					50.42				
(DU,4,4)	23.41					23.41				
(DU,8,4)	24.61					24.61				
(DU,16,4)	26.41					26.41				
(DU,32,4)	30.01					30.01				
(DU,48,4)	33.01					33.01				
(DU,64,4)	36.62					36.61				
(D,4,4)	22.21					22.21				
(D,8,4)	23.41					23.41				
(D,16,4)	25.21					25.21				
(D,32,4)	28.21					28.21				
(D,48,4)	31.81					31.81				
(D,64,4)	35.41					35.41				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	6.00					6.00				
(BU,8,8)	11.40					11.40				
(BU,16,8)	17.41					17.41				
(BU,32,8)	28.21					28.21				
(BU,48,8)	39.01					39.01				
(BU,64,8)	50.42					50.42				
(B,1,1)	4.20					4.20				
(B,8,1)	11.40					11.41				
(B,16,1)	16.80					16.80				
(B,32,1)	28.21					28.21				
(B,48,1)	39.01					39.01				
(B,64,1)	50.42					50.42				
(DU,4,4)	23.41					23.41				
(DU,8,4)	24.61					24.61				
(DU,16,4)	26.41					26.41				
(DU,32,4)	30.01					30.01				
(DU,48,4)	33.01					33.01				
(DU,64,4)	36.61					36.61				
(D,4,4)	22.21					22.21				
(D,8,4)	23.41					23.41				
(D,16,4)	25.21					25.21				
(D,32,4)	28.21					28.21				
(D,48,4)	31.81					31.81				
(D,64,4)	35.41					35.41				

VFL INSTRUCTION LTRCVI IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,1,8)	7.22					7.22				
(BU,8,8)	11.41					11.40				
(BU,16,8)	16.20					16.20				
(BU,32,8)	25.81					25.81				
(BU,48,8)	39.62					39.62				
(BU,64,8)	51.02					51.02				
(B,1,1)	6.62					6.63				
(B,8,1)	11.41					11.40				
(B,16,1)	16.20					16.20				
(B,32,1)	25.81					25.81				
(B,48,1)	39.62					39.61				
(B,64,1)	51.02					51.02				
(DU,4,4)	30.61					30.61				
(DU,8,4)	30.61					30.61				
(DU,16,4)	30.61					30.61				
(DU,32,4)	30.61					30.61				
(DU,48,4)	30.61					30.61				
(DU,64,4)	35.42					35.41				
(D,4,4)	30.61					30.61				
(D,8,4)	30.61					30.61				
(D,16,4)	30.61					30.61				
(D,32,4)	30.61					30.61				
(D,48,4)	30.61					30.61				
(D,64,4)	35.42					35.41				
INVERT SIGN OF INSTRUCTION										
(BU,1,8)	7.22					7.22				
(BU,8,8)	11.40					11.40				
(BU,16,8)	16.20					16.20				
(BU,32,8)	25.81					25.81				
(BU,48,8)	39.62					39.62				
(BU,64,8)	51.02					51.02				
(B,1,1)	6.62					6.63				
(B,8,1)	11.41					11.40				
(B,16,1)	16.20					16.20				
(B,32,1)	25.81					25.81				
(B,48,1)	39.61					39.62				
(B,64,1)	51.02					51.02				
(DU,4,4)	30.61					30.61				
(DU,8,4)	30.61					30.61				
(DU,16,4)	30.61					30.61				
(DU,32,4)	30.61					30.61				
(DU,48,4)	30.61					30.61				
(DU,64,4)	35.41					35.41				
(D,4,4)	30.61					30.61				
(D,8,4)	30.61					30.61				
(D,16,4)	30.61					30.61				
(D,32,4)	30.61					30.61				
(D,48,4)	30.61					30.61				
(D,64,4)	35.41					35.41				

VFL INSTRUCTION C10011 IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	8.40					8.40				
(BU,8,2)	6.00					6.00				
(BU,8,3)	5.40					5.40				
(BU,8,4)	4.80					4.80				
(BU,8,5)	4.80					4.80				
(BU,8,6)	4.80					4.80				
(BU,8,7)	4.80					4.80				
(BU,8,8)	4.20					4.20				
(BU,16,1)	13.20					13.20				
(BU,16,2)	8.40					8.40				
(BU,16,3)	7.20					7.20				
(BU,16,4)	6.00					6.00				
(BU,16,5)	6.00					6.00				
(BU,16,6)	5.40					5.40				
(BU,16,7)	5.40					5.40				
(BU,16,8)	4.80					4.80				
(BU,32,1)	13.20					13.20				
(BU,32,2)	13.20					13.20				
(BU,32,3)	10.20					10.20				
(BU,32,4)	8.40					8.40				
(BU,32,5)	7.80					7.80				
(BU,32,6)	7.20					7.20				
(BU,32,7)	6.60					6.60				
(BU,32,8)	6.00					6.00				
(BU,48,3)	13.20					13.20				
(BU,48,4)	10.80					10.80				
(BU,48,5)	9.60					9.60				
(BU,48,6)	8.40					8.40				
(BU,48,7)	7.80					7.80				
(BU,48,8)	7.20					7.20				
(BU,64,4)	13.20					13.20				
(BU,64,5)	11.41					11.40				
(BU,64,6)	10.20					10.20				
(BU,64,7)	9.60					9.60				
(BU,64,8)	8.40					8.40				

VFL INSTRUCTION CTIQIII IMMEDIATE ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR
(BU,8,1)	7.20					7.20				
(BU,8,2)	4.80					4.80				
(BU,8,3)	4.20					4.20				
(BU,8,4)	3.61					3.92				
(BU,8,5)	3.61					3.92				
(BU,8,6)	3.61					3.92				
(BU,8,7)	3.61					3.92				
(BU,8,8)	3.61					3.92				
(BU,16,1)	12.00					12.01				
(BU,16,2)	7.20					7.20				
(BU,16,3)	6.00					6.00				
(BU,16,4)	4.80					4.80				
(BU,16,5)	4.80					4.80				
(BU,16,6)	4.20					4.20				
(BU,16,7)	4.20					4.20				
(BU,16,8)	3.61					3.92				
(BU,32,1)	12.01					12.01				
(BU,32,2)	12.01					12.01				
(BU,32,3)	9.00					9.00				
(BU,32,4)	7.20					7.20				
(BU,32,5)	6.60					6.60				
(BU,32,6)	6.00					6.00				
(BU,32,7)	5.40					5.40				
(BU,32,8)	4.80					4.80				
(BU,48,3)	12.01					12.01				
(BU,48,4)	9.60					9.60				
(BU,48,5)	8.40					8.40				
(BU,48,6)	7.20					7.20				
(BU,48,7)	6.60					6.60				
(BU,48,8)	6.00					6.00				
(BU,64,4)	12.01					12.00				
(BU,64,5)	10.20					10.20				
(BU,64,6)	9.00					9.00				
(BU,64,7)	8.40					8.40				
(BU,64,8)	7.20					7.20				