

IBM Reference Manual

PERFORMANCE CHARACTERISTICS

7030 Data Processing System

volume 2

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IBM Reference Manual
®

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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
        LX, SX2, CN1
MORE   LX, SX1, CN2
        L (U), A
        ST (U), B
        LX, SX5, SX2
        L, ZERO
        ST, TEMP1
        Z, TEMP2
        DL, A+1, 0
        BRZ, ERROR
        ST, TEMP
        D*, DETER
        SRD, DETER
        DL, ONE
        D/, TEMP
        SRD, TEMP
FROM   DL, A+2.0 (SX1)
        D*, TEMP
        SRD, B+1.0 (SX1)
        CB+, SX1, FROW
        L, TEMP
        ST, B+1.0 (SX1)
        LX, SX4, CN2
        LX, SX3, CN2
        LV, SX3, CONSW
        CNOP
ROW    SX, SX4, TEMP

```

'SET UP FOR EVALUATION OF DETERMINATE

'SET UP TO FIND MAX FIUCT FLEMENTS

'PIUOT ELEMENT TO STORAGE

EVALUATE DETERMINAN

'STORE NORMALIZED ELEMENT-

'REPEAT FOR REST OF FIRST ROW

CALCULATE ELEMENT FOR INVERSE

	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
 K01, \$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
 CONSW 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
      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
      LC,$4,$3
      B,LVE3
N12Z TI,2,N12ZW,VPI
      8,LVE3
      CNOP
N11ZW B,LOOP1B
          *+(N),0($3)

```

NORMAL RETURN MEASURE

-LOOP1A HAS B,LOOP1B
-N12 IN \$4 COUNT FIELD

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
      LVI, $1, TABL
      SV, $1, $1A
LX, $6, XW6
      SX, $6, $UB      'SET BOUNDARY CONTROL
      'BEGINNING OF PROGRAM

```


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) FFFFFFFFFFFFFFFFFF
      DD (3U, 64), (16) FFFFFFFFFFFFFFFFFF
      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), SL
 +(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

QD WALL B IS CLOSER
 *(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. (S1)
 *(N), OPF
 -(N), PS
 ST(N), TSF
 *(N), TSF
 EXVLZ, OMGD
 ST(N), TS
 L(N), U+2. (S1)
 *(N), SL
 M+(N), TS
 L(N), U(S1)
 *(N), OPF
 -(N), PS
 ST(N), YD
 *(N), YD
 +(N), TS
 *(N), SL
 -(N), U+2.(S1)
 BRGZ, DG
 ROTATE VELOCITY VECTOR RELATIVE TO CYLINDER WALL
 L(N), X
 *(N), TSF
 ST(N), TSE
 L(N), Z
 *(N), U+2.(S1)
 -(N), TSE
 STN(N), ZD
 L(N), Z
 *(N), TSF
 ST(N), TSI
 L(N), X
 *(N), U+2.(S1)
 +(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.(S1) 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), SL ST(N), TS L(N), Z *(N), SL +(N), TS -(N), ONE ST(N), TSA L(N), YD *(N), SL ST(N), TS L(N), ZD *(N), SL +(N), TS ST(N), TSS *(N), TSA ST(N), TS L(N), TSC *(N), SL

	-(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	NOF
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)0080000000000000
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.

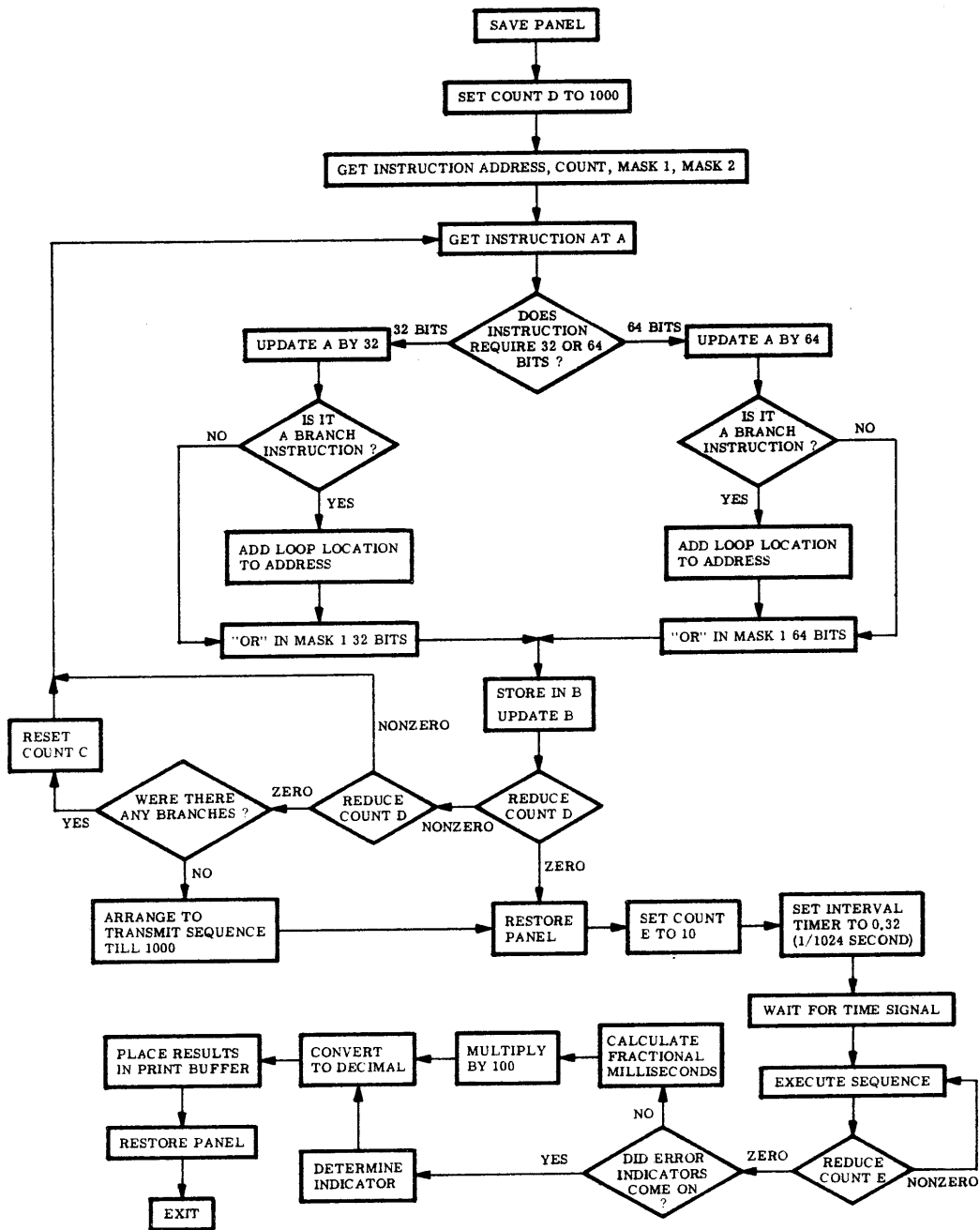


Figure 1. Flow Chart of GENER

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_g to 100014_g. Cases with forwarding used 1000011_g.

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 consecutive 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 μ s.

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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPFN. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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 I.								
		(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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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	I-BOX	INTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED 1.						
		(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 XPFN. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPFN. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED I.								
		(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(N)	7.50	7.50	7.50	7.50	7.50	7.50
		A(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(N)	7.50	7.50	7.50	7.50	7.50	7.50
		(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(U)	7.50	7.50	7.50	7.50	7.50	7.50
		A(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(U)	7.50	7.50	7.50	7.50	7.50	7.50
BOTH OPERANDS WITH XPFN								
		(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(N)	7.50	7.50	7.50	7.50	7.50	7.50
		A(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(N)	7.50	7.50	7.50	7.50	7.50	7.50
		(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(U)	7.50	7.50	7.50	7.50	7.50	7.50
		A(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(U)	7.50	7.50	7.50	7.50	7.50	7.50
AC EXPNT N. MEM EXPNT XPFN								
		(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(N)	7.50	7.50	7.50	7.50	7.50	7.50
		A(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(N)	7.50	7.50	7.50	7.50	7.50	7.50
		(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(U)	7.50	7.50	7.50	7.50	7.50	7.50
		A(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(U)	7.50	7.50	7.50	7.50	7.50	7.50
AC WITH XFPF. MEM WITH XPFN								
		(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(N)	7.50	7.50	7.50	7.50	7.50	7.50
		A(N)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(N)	7.50	7.50	7.50	7.50	7.50	7.50
		(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	(U)	7.50	7.50	7.50	7.50	7.50	7.50
		A(U)	7.50	7.50	7.50	7.50	7.50	7.50
	NEG	A(U)	7.50	7.50	7.50	7.50	7.50	7.50

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

			NO INDEXING			INDEXING		
			INTERNAL	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED I.								
		(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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED I.								
		(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
AC 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
AC 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
			OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPPF. 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

AH INDICATOR OFF	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)	1.50	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 XPEN						
(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 XPEN						
(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 XPEN						
(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 OPERAION. WITHOUT FORWARDING OF EXTERNAL AND I-BOX OPERANDS

		NO INDEXING			INDEXING		
		INTERNAL	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
AH INDICATOR OFF		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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)		1.50	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 XFPF. 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

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)	1.51	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 XPPP. 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	INTERNAL OPERAND	EXTERNAL 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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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 I.						
(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)		1.33	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	

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 XFPF						
(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 XFPF						
(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
NORMALIZED I.					
(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

FLOATING POINT SHF

		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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPPF. 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 XFPF. 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 4MG OPERATION. WITH FORWARDING OF EXTERNAL AND I-BOX OPERANDS.

		NO INDEXING			INDEXING		
		INTERNAL	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPPF. MEM WITH XPPF							
	(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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED I.							
	(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 XPPF. 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 XPPF. MEM WITH XPPF						
(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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPFN. 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 DIVISION 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 XPPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED I.							
	(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 XFPF. 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 XPPF. 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 1.						
(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 XFPF. 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

AH INDICATOR ON	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)	3.61	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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XPPF. 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 XFPF. 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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF. 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 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 XFPF. 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 1.						
(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 XFPF						
(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 XFPF						
(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 DEWF 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 XPPF							
	(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 LEFT 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)	6.76	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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	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 XFPF							
	(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	EXTERNAL	I-BOX	INTERNAL	EXTERNAL	I-BOX
		OPERAND	OPERAND	OPERAND	OPERAND	OPERAND	OPERAND
NORMALIZED 1.							
	(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 μ s 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

$$\begin{aligned} \text{group time} &= t_{\text{group}} = (n+1) \cdot t_{AV} \\ &= n \cdot t_B + t_A \end{aligned}$$

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

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

$$\begin{aligned}t_{ST} &= 4 * 2.25 - 3 * 2.71 \\ &= 0.87 \mu s \text{ approximately.}\end{aligned}$$

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 $(2n+1) \cdot (0.01) \mu s$. 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 A 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 A V+IC ENVIRONMENT)	2.41	2.61	2.41	2.53	2.41	2.49	2.41	2.48
V+ICR	(3.92 IN A 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

	ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	
FOLLOWED BY +(U) OPS AT 2.71 _{us} 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 A 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 A V+IC ENVIRONMENT)	2.41	2.61	2.48	2.59	2.56	2.62	2.59	2.64
V+ICR	(3.92 IN A 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.

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	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
5WD	25.94	25.94	30.16	14.46	14.47	13.28	13.28	13.85	13.85
7WD									
823 I	31.97		38.58				13.27	13.85	
9WD									
823 I	37.99		47.00				13.27	13.85	
11WD									
823 I	43.99		55.46				13.27	13.85	
13WD									
823 I	50.04		63.87					13.85	
15WD									
823 I	56.07								

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	
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			
		SUCCESS CONSEC	UNSUCCESS CONSEC	SUCCESS NONCON	UNSUCCESS NONCON	SUCCESS CONSEC	UNSUCCESS CONSEC	SUCCESS NONCON	UNSUCCESS 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 $(444 \dots 4)_{16}$ was used for both binary and decimal type operations. For data-signed operations this would be interpreted as $+(44444 \dots 4)_{16}$. 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 $+(444 \dots 4)_{16}$. This provided for continual recomplementation where the sign of the instruction was inverted (subtract). For add to memory (n+) the accumulator was initially $+(444 \dots 4)_{16}$ 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 ...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.

	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	11.48			7.23	16.57	12.09		
{B,16,1}	7.23	17.16	12.09			7.53	17.17	12.69		
{B,32,1}	8.43	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		

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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		

	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	1-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	1-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	14.40	13.20			13.20	14.40	13.20		

	NO INDEXING			INDEXING						
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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		

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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		

	NO INDEXING						INDEXING					
	EXTERNL OPERAND	EXTERNL WB	EXTERNL XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB	EXTERNL OPERAND	EXTERNL WB	EXTERNL XOVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB
(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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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		

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
{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 XOVK	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XOVK
{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		

	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		

	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			
{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			PF
{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			
{B, 8, 1}	11.40	12.60	11.40			11.40	12.60	11.40			PF
{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			
{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			PF
{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			
{B, 8, 1}	11.40	12.60	11.40			11.40	12.60	11.40			PF
{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			

	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	INTERNAL OPERAND	INTERNAL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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			

	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		

	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				

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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		

	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, 1)	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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
{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

	NO INDEXING					INDEXING					
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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 LFT 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	15.60	18.60	13.20	14.41	13.20	15.60	18.61
(B,48,1)	13.20	14.41	13.20	15.61	18.60	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

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL WB XOVR	EXTERNL OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
{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+I 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

	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

	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

VEL INSTRUCTION KFR FORWARDING DIRECT ADDRESSING OFFSET 0 INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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

	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	

	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)	18.00	*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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	EXTERNL OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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 μ s) time.

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

	NO INDEXING					INDEXING				
	ACCUM. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	ACCUM. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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

	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	31.51	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 01011 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	00						
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	70						
C007217.4	000020.00	00						
C007215.0	001750.00	00						
C007106.4	056000.30	70						
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 XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	IMMED. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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				

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	IMMED. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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 LWF1

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				

NO INDEXING

INDEXING

	IMMED. OPERAND	EXTERNAL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL WB XOVR	IMMED. OPERAND	EXTERNAL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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				

	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 KEY

IMMEDIATE ADDRESSING

OFFSET 0

INSTRUCTION AT FULL WORD ADDRESS

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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				

	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	INTERNAL OPERAND	INTERNAL WB XOVR	IMMED. OPERAND	EXTERNL WB XOVR	I-BOX OPERAND	INTERNAL OPERAND	INTERNAL 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				

	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				

	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				

	NO INDEXING					INDEXING				
	IMMED. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR	IMMED. OPERAND	EXTERNL WB XQVR	I-BOX OPERAND	INTERNL OPERAND	INTERNL WB XQVR
(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				

	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				