

# Summary of 7030 Instruction Execution

	I-box opnd fetch	I-box execution	Opnd fetch for LA	LA (levels)	LAAR needed	LAAR not needed but used if not busy	SAU	PAU	
LX, LV, LC, LR V+, V+C V+(CR(C≠0)), V±ICR(C=0) R(index), RCZ(index, C=0)	yes	yes	no	IX Rec.	no	no	no	no	V+CR(C=0) involves 2 I-box fetches.
LVI, LVNI, LCI, LRI, C±I V±I, V±IC, V±ICR(C≠0) RCZ(C≠0)(index)	no	yes	no	IX Rec.	no	no	no	no	
KV, KC	yes	yes	no	NOOP	no	no	no	no	
KVI, KCI	no	yes	no	NOOP	no	no	no	no	
SX, Z	no	partly	no	store	yes	no	no	no	
SV, SC, SR, SVA	yes	partly	no	store	yes	no	no	no	SVA requires extra decoding
R(memory), RCZ(memory, C=0)	2	partly	no	store	yes	no	no	no	
RCZ(memory, C≠0)	no	yes	no	NOOP	no	no	no	no	
LVE	N	N	no	IX Rec.	no	no	no	no	extra decoding for each instruction fetch
LVS	no	yes	no	IX Rec.	no	no	no	no	repeated addition of index value fields.
RNX	yes	partly	no	LAOP	no	no	no	no	LA is pre-cleared by first level.
				store	yes	no			
				NOOP	no	no			
EX (exclusive of subject instruction) (repeated EX assumed)	N	yes	no	(none)	no	no	no	no	extra decoding for each instruction fetch.
EXIC (exclusive of subject instruction) (repeated EXIC assumed)	2N	partly	no	store	N times	no	no	no	extra decoding for each instruction fetch.
T, SWAP	N	partly	no	LAOP	no	no	no	no	LA is pre-cleared by first level. Each N is doubled in SWAP
				store	N times	no			
				NOOP	no	no			
LA level designation INT: internal operand fetch INT STORE: internal opnd store store: store IX Rec.: index register recovery B Rec.: branch recovery LAOP: LA operation NOOP: no op.; indicator Transfer only									LA level designation (cont'd) op.: operation code level (VFL) opnd: operand level. op.+opnd: op. code plus operand. (usually F.P.)

### Summary of 7030 instruction execution

1Y, 2Y are cleared to receive new instruction for all successful branches	I-box opnd full	I-box execution	Opnd full for Lockout	Lockout levels	LA PRK need 1	LA PRK in media full need 1	SALL	FAIL	
B, BR, BE, NOP	no	yes	no	NOOP	no	no	no	no	
BD	no	yes	no	NOOP	no	no	no	no	LA pre-cleared
BEW	no	partly	no	NOOP	no	no	no	no	Test levels are continuously fed into LA to allow continuous sampling of \$IND for interruption
				N test levels	no	no			
CB, CBR (no refill)	no	yes	no	IX Rec.	no	no	no	no	
CBR (refill)	yes	yes	no	IX Rec.	no	no	no	no	
Bind (XF, XCE, XLZ, XVZ, XVGZ, XL, XE, XH)	no	yes	no	NOOP	no	no	no	no	
Bind (non-index conditions)	no	partly	INT	OP.	no	no	yes	no	
				INT	yes	no			
				INT.stor	no	no			
				B Rec.	no	no			
BB	no	partly	yes	OP	no	no	yes		
				opnd	no	yes			
				store	yes	no			
				B Rec.	no	no			
SK B, SK BR, SK BE, SK BD	yes	partly	no	store	yes	no	no	no	LA pre-cleared in SK BD
SIC BEW	yes	partly	no	store	yes	no	no	no	Test levels are continuously fed into LA to allow continuous sampling of \$IND for interruption
				N test levels	no	no			
SIC CB, SIC CBR (no refill) if branch is taken	yes	partly	no	store	yes	no	no	no	SIC store level will not exist if branch is not taken
				IX Rec.	no	no			
SIC CBR (if refill) if branch is taken	2	partly	no	store	yes	no	no	no	SIC store level will not exist if branch is not taken
				IX Rec.	no	no			
SIC Bind (index conditions) if branch is taken	yes	partly	no	store	yes	no	no	no	store level replaced by noop if branch is not taken
SIC Bind (non-index conditions)	yes	partly	no	op	no	no	yes	no	
				INT	yes	no			
				INT.stor	no	no			
				B Rec.	no	no			
				store	yes	no			

Summary of 7030 instruction execution

	I-box opnd fetch	I-box execution	Opnd fetch for LA	Lookahead level	LAAR needed	LAAR not needed but used if not binary	SALL	PAU	
F.P. ±, L, LWF, ±MG D±, DL, DLWF, D±MG K, KMG, KR, KMGR *, /, R/ F±, E±	no	no	yes	op + opnd	no	yes	exp.	frac.	
E±I	no	no	no	op + opnd	no	no	exp	frac	
SHF	no	no	no	op + count	no	no	no	frac	
ST, SLØ, SRD, SRT	no	no	no	store	yes	no	exp	frac	
M±, M±MG	no	no	yes	op + opnd store	no yes	yes no	exp	frac	
*±	no	no	2	op + opnd <del>op + opnd</del> store	no no yes	yes yes	exp	frac	
LFT, D/	no	no	yes	op + opnd store	no yes	yes no	exp	frac	
VFL ±, L, LWF, ±MG K, KMG, KR, KMGR KE, KF, KFE, KFR. C, CT, LCV	no	no	yes	op opnd	no no	no yes	yes	no	For all VFL operations, if opnd crosses over full word boundary, the no. of LA opnd and/or store levels is doubled. Level Progressive index requires one more LA box.
* (Binary)	no	no	yes	op opnd	no no	no yes	yes	yes	
CV, DCV	no	no	no	op INT	no	no	yes	no	
ST, SRD CM, M±MG, M±I	no	no	yes	op opnd store	no no yes	no yes no	yes	no	
*± (Binary)	no	no	2	op <del>op + opnd</del> <del>op + opnd</del> store	no no no	no yes yes	yes	yes	
LFT, LTRS, LTRCV *(Dec.), / (Dec.), *± (Dec.)	no	no	yes	op opnd store	no no yes	no yes no	yes	no	
I/O	no	no	no	op LACP	no no	no no	no	no	LA communicates with exchange directly.