Date: 24 Jun 86 14:36 PDT From: Masinter.pa Subject: Opcode survey To: Pedersen.pa cc: xclispcore^

edits are in bold. We should meet to review what's in microcode and what the priority list should be. I suggest we do this at the end of the Common Lisp status meeting... does anyone have any objection to discussing it then?

## OPCODES IMPLEMENTED IN MICROCODE BY MACHINE

Jan Pedersen

```
Key: '09 = 12K Dandetiger
    '08 = 4K Dandelion
    '00 = Dolphin
    '32 = Dorado (as reported by Gwan)
    '32L = Dorado (as reported by Larry)
    '86-4 = 4K Daybreak
    '86-8 = 8K Daybreak
    X = Has microcode
    P = Prolog microcode set
    - = Doesn't have microcode
? = Don't know
```

Opcodes listed by entry in UFN table

op	′09 -	′08 -	′00 -	′32 -	′32L -	′86-4 -	′86-8 <b>-</b>	Name -X- *nobody implements:
cause	es an	error!*	•					
001	X	X	X	X	X	X	X	CAR
002	X	X	X	X	X	X	X	CDR
003	X	X	X	X	X	X	X	LISTP
003	X	X	X	X	X	X	X	NTYPX
005	X	X	X	X	X	X	X	TYPEP
006	X	X	X	X	X	X	X	DTEST {new COERCE}
007	-	-	-	-	-	-	-	CDDR {unused}
010	X	X	X	X	X	X	X	FN0
	X	X	X	X	X	X	X	• • •
015	X	X	X	X	X	X	X	FNX
016	X	X	X	X	X	X	X	APPLYFN
017	_	_	_	_	X	_	_	CHECKAPPLY {?} [not 86-8?]
020	Х	X	X	Х	X	X	X	RETURN
021	X	X	X	X	X	X	X	BIND
	X	X	X	X	X	X	X	
022								UNBIND
023	X	X	X	X	X	X	X	DUNBIND
024	X	X	X	X	X	X	X	RPLPTR.N
025	X	X	X	X	X	X	X	GCREF
026	X	-	-	-	-	-	-	ASSOC [08 but not 86-8?]
027	X	X	X	X	X	X	X	GVAR←
030	X	_	X	X	X	X	X	RPLACA
031	X	_	X	X	X	X	X	RPLACD [which cases?]
032	X	X	X	X	X	X	X	CONS
033	_	-	-	-	-	-	-	{used for GETPROP}
034	X	-	-	-	-	-	-	FMEMB
035	-	-	-	-	-	-	-	{used for GETHASH}
036	-	-	-	-	-	-	-	{unused, named PUTHASH}
037	X	-	X	X	X	X	X	CREATECELL
040	X	-	X	X	X	X	X	BIN
041	-	-	-	-	-	-	-	BOUT {unused}
042	P	-	-	-	-	_	-	{Prolog}OPFETCHPLUSOPDISP
043	-	-	-	-	_	_	-	{unused, named LIST1}
044	_	-	_	-	-	-	-	DOCOLLECT {unused}
045	_	_	_	_	_	_	_	ENDCOLLECT {unused}
046	Х	_	X	_	_	X	X	RPLCONS
047	X	_	_	_	_	-	-	LISTGET
050	_	_	_	_	_	_	_	ELT
051	_	_	_	_	_	_	_	NTHCHC
052	_	_	_	_	_	_	_	SETA
002								ΔH111

053 054 055 056 057	- X - X X	- X - X X	- X - - X	- X - - ?	- X - X X	- X - X X	- X - X X	RPLCHARCODE {unused} EVAL {used for EVALV} TYPECHECK {unused} STKSCAN
060 061 062 063 064 065 066	X X X P P P	- - X - -	-	- - - - - -	- - X - -	- - X - -	- - X - - -	BUSBLT MISC8{IBLT1 and IBLT2} POLY {Poly; Mat. Multiply} TYPEMASK.N {Prolog}PROLOGREADPTR {Prolog}PROLOGREADTAG {Prolog}PROLOGWRITETAGPTR {Prolog}PROLOGWRITETOPTR
070 071 072 073 074 075 076	X X X X X X	- x - x x x	- - - ? - X	- - - ? - X	- X - X X	- X - X X X	- X X X X X X	PSEUDOCOLOR DOVEMISC EQL DRAWLINE STOREN COPYN RAID {unused}RETURN FOR LLBREAK
100  107	X X X	X X	X X X	X X X	X X X	X X X	X X X	IVARO  IVARX
110  117	X X X	X X X	X X X	X X X	X X X	X X X	X X X	PVARO PVARX FVARO
127	X X X	X X X	X X X	X X X	X X X	X X X	X X	FVARX PVARO
137	X	X	X	X	X	X	X	 PVARX←
140 141 142 143 144 145 146 147	X X X X X - X	X X X X X X	x x x x x x	X X X X X X X	X X X X X X	X X X X X - X	X X X X X X	GVAR ARG0 IVARX← FVARX← COPY MYARGCOUNT {used} MYALINK ACONST
150 151 152 153 154 155 156 157	X X X X X X X	X X X X X X X	X X X X X X X	X X X X X X X	X X X X X X X	X X X X X X X	x x x x x x x	'NIL 'T '0 '1 SIC SNIC SICX GCONST
160 161 162 163 164 165 166 167	x x x x x x	X X X X - - X X	X X X X X X X	X X X ? ? ? X X	X X X - X X X	X X X - - X X	X X X X - - X	ATOMNUMBER (used?) READFLAGS READRP WRITEMAP READPRINTERPORT WRITEPRINTERPORT PILOTBITBLT RCLK
170 171 172 173 174 175 176 177	X X X X X X	X X X X X X X	X X X X X X X X X ?	X X X X X X X	X - - X X X X	X X X X X X X	X X X X X X	MISC1 MISC2 RECLAIMCELL GCSCAN1 GCSCAN2 SUBRCALL {used on 08 86?} CONTEXT {unused}AUDIO
200  207	X X X	X X X	X X X	X X X	X X X	X X X	X X X	JUMP00  JUMP07

210  217	X X X	X X X	X X X	X X X	X X X	X X X	X X X	JUMP10  JUMP17
220  227	X X X	X X X	X X X	X X X	X X X	X X X	X X X	FJUMP00  FJUMP07
230  237	X X X	X X X	X X X	X X X	X X X	X X X	X X X	FJUMP10←  FJUMP17←
240  247	X X X	X X X	X X X	X X X	X X X	X X X	X X X	TJUMP00  TJUMP07
250  257	X X X	X X X	X X X	X X X	X X X	X X X	X X X	TJUMP10  TJUMP17
260 261 262 263 264 265 266 267	X X X X X X	X X X X X X	X X X X X X	X X X X X X	X X X X X X	X X X X X X	X X X X X X	JUMPX JUMPX FJUMPX TJUMPX NFJUMPX NTJUMPX ATRAYINDEX1 ARRAYINDEX2
270  276 277	X X X X	X X X X	X X X	X X X X	X X X X	X X X X	X X X X	PVAR0←  PVAR6← POP
300 301 302 303 304 305 306 307	X X X - X X	X X X - X -	- X - X - X	- X - X - X	- X - X - X	X X X - X - X	X X X - X -	POP.N ATOMCELL.N GETBASEBYTE {unused} BLT PIXELBLT {unused} PUTBASEBYTE
310 311 312 313 314 315 316 317	X X X - X X X	X X X - - X X X	x x x - x x x	x x x - - x x x	x x x - x x x	x x x - - x x x	X X X - - X X X	GETBASE.N GETBASEPTR.N GETBITS.N.FD {used for GETBASEFIXP} PUTBASE.N PUTBASEPTR.N PUTBITS.N.FD
320 321 322 323 324 325 326 327	X X X X X X X	x x x x x x x x	x x x x x x x x	x x x x x x x x	X X X X X X X	x x x x x x x x	x x x x x x x x	ADDBASE  VAG2 HILOC LOLOC PLUS2{see notes} DIFFERENCE{see notes} TIMES2{see notes} QUOTIENT{see notes}
330 331 332 333 334 335 336 337	X X X X 	X X X X - -	X X X X - -	x x x x x - -	X X X X 	x x x x x x x	X X X X X X	<pre>IPLUS2{see notes} IDIFFERENCE{see notes} ITIMES2{see notes} IQUOTIENT{see notes} IREMAINDER{see notes} {unused} {IPLUS.N} {unused} {IDIFFERENCE.N} {unused}</pre>
340 341 342 343 344 345 346 347	X X X X X X	x x x x x x	x x x x x x x	x x x x x x x	X X X X X X X	X X X X X X X	X X X X X X X	LLSH1{see notes} LLSH8{see notes} LRSH1{see notes} LRSH8{see notes} LOGOR2{see notes} LOGAND2{see notes} LOGXOR2{see notes} unused}{new ALSH}

350	X	_	X	X	X	_	X	FPLUS2
351	X	_	X	X	X	_	X	FDIFFERENCE
352	X	_	Х	X	X	_	X	FTIMES2
353	X	_	Х	X	X	_	X	FOUOTIENT
354	X	_	_	_	_	_	_	UBFLOAT2 {UFADD, UFSUB,
								UFISUB, UFMULT, UFDIV,
								UGREAT, UMAX, UMIN, UREM}
355	Х	_	_	_	Х	_	_	UBFLOAT1 {UTOB, BTOU, UABS,
555								UNEG, UFIX}
356	Х	_	_	_	_	_	_	ARRAYREAD { GENERAL , UNBOXED }
357	X	_	_	_	_	_	_	ARRAYWRITE {GENERAL, UNBOXED}
337	21							ARRATMETTE (OBREICAE)
360	Х	Х	Х	Х	Х	X	X	EO
361	X	X	X	X	X	X	X	IGREATERP
362	X	-	X	X	X	-	X	FGREATERP
363	X	X	X	X	X	X	X	GREATERP
364	X	X	?	?	X	_	X	EOUAL
365	X	_	X	X	X	_	X	MAKENUMBER
366	X	_	X	X	X	_	Λ	BOXIPLUS
367	X	_	X	X	X	-	-	BOXIDIFFERENCE
307	Λ	_	Λ	Λ	Λ	-	_	BOXIDIFFERENCE
370	_	_	_	_	_	_	_	MISC5
371	X	_	_	_	_	_	_	FFTSTEP
372	X	_	_	_	_	_	_	MISC3
3/2	Λ	_	_	_	_	-	-	{Floating Point Array ops:
								EXP, MAG, FLOAT, COMPLEX,
								BLKMAX, BLKMIN, BLKABSMAX,
2.772	77							BLKABSMIN, FLOATTOBYTE}
373	X	-	-	-	-	-	-	MISC4
								{Floating Point Array ops:
								TIMES, PERM, PLUS,
								DIFFERENCE, MAGIC,
								BITMAPBIT}
374	-	_	?	-	X	-	-	{reserved for DOLPHIN}
375	X	X	X	X	X	X	X	SWAP
376	X	X	X	X	X	X	X	NOP
377	-	-	-	-	-	-	-	{unused}

notes:

4K microcode: PLUS2, DIFFERENCE, TIMES2, QUOTIENT will ufn if args not INTEGERS IPLUS2, IDIFFERENCE will accept FIXP's as arguments, but will ufn if result is not a smallp or smallneg ITIMES2, IQUOTIENT, IREMAINDER will ufn if both args are not smallp

12K microcode:

PLUS2, DIFFERENCE, TIMES2, QUOTIENT will try floating point if args not INTEGERS IPLUS2, IDIFFERENCE will accept FIXP's as arguments, and box the result if it is not a smallp or smallneg
ITIMES2, IQUOTIENT, IREMAINDER will ufn if both args are not smallp

—End of message—