

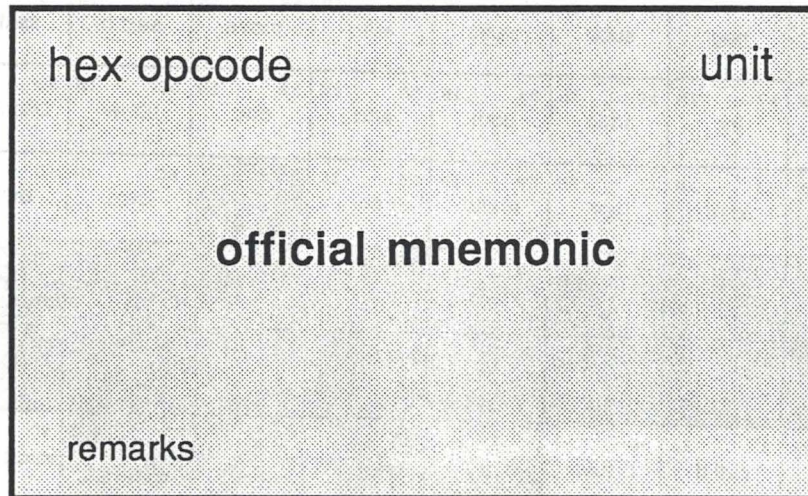
PERIODIC TABLE OF OPCODES

December 20, 1988

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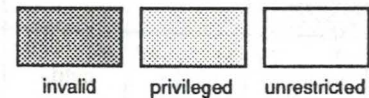
| | | | | | | | | | | | | | | | |
|--|-----------------------|-----------------------|------------------------|-------------------|----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-----------------------|-----------------------|--------------------------|-----------------------------|-----------------------|------------------------|
| 00 DE nop | 01 DE halt PRIV | 02 | 03 | 04 FE jump () | 05 FE call () | 06 FE ickill() | 07 FL exts() TRAP | 08 FE jump | 09 FE call | 0A | 0B IN rps | 0C ** wps [S/PRIV] | 0D IN spl PRIV | 0E | 0F ?? rtrpd TRAP |
| 10 DE bpt | 11 DE trap | 12 DE strap | 13 DE xtrap PRIV | 14 | 15 | 16 FE iskill | 17 | 18 FE lipage PRIV | 19 LS ldpage PRIV | 1A | 1B | 1C LS slstrpd TRAP | 1D LS dflush [S/PRIV] | 1E | 1F IN wit PRIV |
| 20 IN cmpgt.l | 21 IN cmpgt.w | 22 IN cmpgt.h | 23 IN cmpgt.b | 24 IN cmpeq.l | 25 IN cmpeq.w | 26 IN cmpeq.h | 27 IN cmpeq.b | 28 IN cmpugt.l | 29 IN cmpugt.w | 2A IN cmpugt.h | 2B IN cmpugt.b | 2C IN zext.b | 2D IN zext.h | 2E IN zext.w | 2F IN boof (reg) |
| 30 IN cmpgt.s | 31 IN cmpgt.d | 32 IN cmplg.s | 33 IN cmplg.d | 34 IN cmpleg.s | 35 IN cmpleg.d | 36 IN cmpge.s | 37 IN cmpge.d | 38 IN cmpugt.s | 39 IN cmpugt.d | 3A IN cmpeq.s | 3B IN cmpeq.d | 3C IN cmpun.s | 3D IN cmpun.d | 3E IN cmpueq.s | 3F IN cmpueq.d |
| 40 IN sel f0 | 41 IN sel f1 | 42 IN sel f2 | 43 IN sel f3 | 44 IN sel f4 | 45 IN sel f5 | 46 IN sel f6 | 47 IN neg | 48 IN subb | 49 IN subt | 4A IN sub | 4B IN move | 4C IN sext.b | 4D IN sext.h | 4E IN sext.w | 4F IN boof (flag) |
| 50 IN chk.b | 51 IN chk.h | 52 IN chk.w | 53 IN chku.b | 54 IN chku.h | 55 IN chku.w | 56 IN srm | 57 IN inc | 58 IN addc | 59 IN addt | 5A IN add | 5B IN dec | 5C IN bitrev | 5D IN bitcnt.w | 5E IN lzcnt | 5F IN rut |
| 60 IN shf | 61 IN ashf | 62 | 63 IN and | 64 IN not | 65 IN andcc | 66 IN rot | 67 IN xnor | 68 IN xor | 69 IN andtc | 6A IN or | 6B | 6C IN orcc | 6D IN dshfl | 6E IN dshfr | 6F IN ortc |
| 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 7A | 7B | 7C SE | 7D ES | 7E | 7F |
| reserved for architecture simulator (perl) | | | | | | | | | | | | | | | |
| 80 FA add.s | 81 FA sub.s | 82 FA neg.s | 83 | 84 FA cvts.d | 85 FA cvts.l | 86 | 87 | 88 | 89 | 8A | 8B | 8C | 8D | 8E | 8F |
| 90 FA add.d | 91 FA sub.d | 92 FA neg.d | 93 FA move.d | 94 FA cvt.d.s | 95 FA cvt.d.l | 96 FA cvt.l.s | 97 FA cvt.l.d | 98 FA cvtul.d | 99 | 9A | 9B | 9C | 9D LS loadcpu [:] | 9E | 9F LS storecpu [:] |
| A0 FM mult.s | A1 FM mult.d | A2 FD div.s | A3 FD div.d | A4 FD divsst | A5 FM multlss | A6 FD divssr | A7 FM multlss | A8 | A9 FM multluu | AA | AB FM multhuu | AC | AD FM multlus | AE | AF FM multlus |
| B0 | B1 | B2 FD sqrt.s | B3 FD sqrt.d | B4 | B5 | B6 | B7 | B8 | B9 | BA | BB | BC LS ldnecc | BD | BE | BF |
| C0 LS load.b | C1 LS load.b [] | C2 LS relf | C3 LS store.b | C4 LS load.h | C5 LS load.h [] | C6 LS load.h [:] | C7 LS store.h | C8 LS load.w | C9 LS load.w [] | CA LS load.w [:] | CB LS store.w | CC LS load.l | CD LS load.l [] | CE LS load.l [:] | CF LS store.l |
| D0 LS loadu.b | D1 LS loadu.b [] | D2 LS welf | D3 LS store.b [] | D4 LS loadu.h | D5 LS loadu.h [] | D6 LS loadu.h [:] | D7 LS store.h [] | D8 LS loadu.w | D9 LS loadu.w [] | DA LS loadu.w [:] | DB LS store.w [] | DC LS ldecc | DD | DE | DF LS store.l [] |
| E0 LS eload.b | E1 LS eload.b [] | E2 LS rfec PRIV | E3 | E4 LS eload.h | E5 LS eload.h [] | E6 LS eload.h [:] | E7 LS store.h [:] | E8 LS eload.w | E9 LS eload.w [] | EA LS eload.w [:] | EB LS store.w [:] | EC LS eload.l | ED LS eload.l [] | EE LS eload.l [:] | EF LS store.l [:] |
| F0 LS eloadu.b | F1 LS eloadu.b [] | F2 LS wfec PRIV | F3 LS echk | F4 LS eloadu.h | F5 LS eloadu.h [] | F6 LS eloadu.h [:] | F7 LS pcl | F8 LS eloadu.w | F9 LS eloadu.w [] | FA LS eloadu.w [:] | FB LS wdwp PRIV | FC LS swat | FD LS wios PRIV | FE LS rios PRIV | FF LS zcl |

LEGEND



Functional unit codes

| | |
|----|--------------------|
| DE | decode |
| FA | floating add |
| FD | floating divide |
| FE | fetch |
| FM | floating multiply |
| IN | integer unit |
| LS | load/store |
| ** | all units involved |



Remark Codes

| | |
|----------|---|
| (blank) | allowed in any mode |
| PRIV | privileged mode only |
| [S/PRIV] | allowed in both modes, but functions differently in privileged mode |
| TRAP | allowed in trap state only |

Special Mnemonic Codes

| | |
|-----|--|
| () | jump or call to (%ra) |
| [] | load/store at address (%ra) [%rb] |
| [:] | load/store at address (%ra) [%rb:size] |