LA & IBM meeting: Thurs AM   Oct 18, 57

Los Alamos Says:

I. Symmetry of OA + index SA + index, more imp than 12 bit I Field.

II. Full wd. symmetry   6 Bit natural

Present half wd — indexing becomes hard to switch to 64 registers.
larger generality & flexibility.

& full wd decision — groundrules were dropped in going to ½ wd. — minimum format. — 12 bit index field -- fixed op code formats.

Preferences between full-wd — half wd

↑ more flex. & power in indexing.   simpler. — fewer compound

Br. & Store loc. counter.

Convenience in Coding in large problems
Simplicity in Thinking   need flexibility

Operational definition of Weights: — years of experience — gives feeling"
— proof

– don't want machine to be "tricky" for every one. –

– this present IBM format is ~~as~~ at least as good as old full wd format
but either of LA formats are better than any of the others

Geometric. indexing ~ . . . . .) ~~Δ~~ Important difference

genly: Description of IBM
IBM Philosophy : – can use any mem loc. in a full wd (2 halves)
——→ e.g. geometric index – question of what is more & less important,

question of Immediate Index : – bit address
Fred : very-very useful) Δ Imp. difference
Roger : half wd only .

Roger → (Load Geom: question of using 15 + 3 others
as modifiers of some sort ?)

we have assumed half wd index reg – simple vocab –
could use complicated vocab. just as well – here as
in full wd.
need not increase vocab for full wd ind. regs.?
—

ReName Store $C(II) \rightarrow C(C(I))$ ⎫ use any
load $W \rightarrow C(I)$ (name) ⎬ mem loc.
load $C(W) \rightarrow C(II)$ (value) ⎭ for index

Branches: — almost complete ~~a~~ agreement,

leave or set ~~B~~ to zero.

better to say leave or invert. conditional invert,

Chain Indexing — not vital

Brooks Geom: 1, as 16 insufficient compared

2, Geom indexing on every fl. pt. instr.

3, if 2 how do 4 bits vs 6 bits?

Points for geom every order.

1, Will increase Code.

2, Convenience to coder.

conceptually → better but speed pending 3, Looping back is dangerous if may be r, s, v or r, s, t

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Worlton: (comparison) of LA & IBM half wd

1. 6/4 bit index in connect format

2, 2 vs 3 index addr. on transmit format

3, 64/192 Fl~~o~~ point ops, Floating

4, Di. Geometric 6 + 63 index vs Geometric ~~load~~ 18 + 15 ← LA can have an order to avo. load also.

(Conditional Br. are same)

Fred feels this is worst → 5, Indexed-Indexing

6, 25 bit Immediate } full wd LA vs half wd IBM

7, Full wd. Index vs half wd index

8. Direct-Indirect in Fl Pt. vs. general Indirect loading, etc.

1 & 5 are almost incompatible

LA Full word answers all the above

(Fred.) (1) – compound arith. orders are repugnant ← extra decode time. 2 adders,
Multiple..

(2) – Simplicity of putting 2 halves together ....

code length – compensation - ..

Kolsky	(1)	Full no prepost	1.0	↓29%
	(2)	Full pre or post	0.71	↓18%
	(3)	Half with "name"	0.61	
	(4)	Present Half	0.53	~(0.55)

Try with Pre store, Post load

Friday:

Bit efficiency — but restricts future changes.

Store effective address – order –, — same as load geo . . .

Index Registers . . . . full vs half ?

25	12	25

32	32

18	18	18

would rather have full with two fields than 2 halves.

V Δ L   which ?

V C L

V C R   R can be 18

V L R   L = 25   count can be 18 . .

1. V=25 L=25 R=12
2. V=25 L=25 unused (12)
3. V=25, C=18, R=18
4. V=25, L=19, Δ=19
5. V=25, Δ=19, C=19 ← is Δ bit add?
6. V25, L=25, Δ=12
7. V_{25}, L_{25} ; C =12
8. V_{25}, $(\text{op. code determined})_{37}$ (eg #3, #4, #5)
9. V_{25}, L_{18}, R_{18} (exchange)

~~10. V=25 V=25~~

10. V_{25}, Δ_{25}, C_{12}

1, 2, 6, 7
3, 4, 5, 9