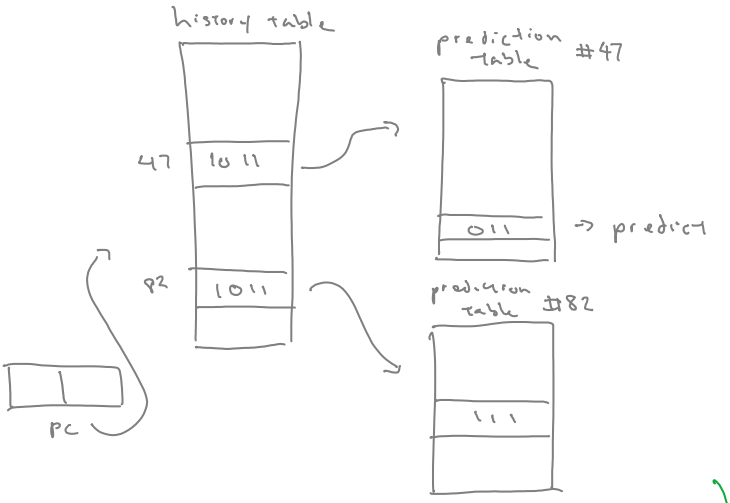
22 Two-Level Branch Predictors

Monday, October 26, 2015 10:01

Two-Level Prediction

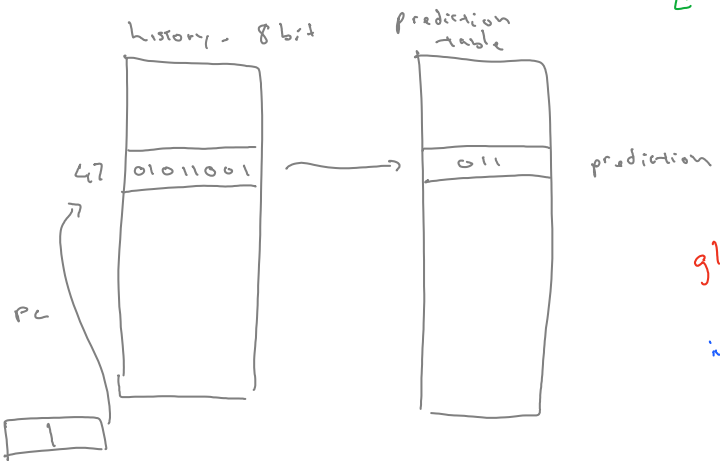


local table
option
implement for #6

PAG?
GAP?

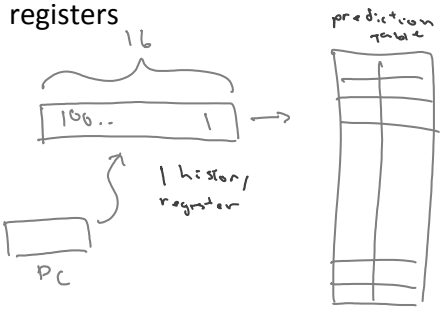
saves memory but slightly less good results

Another setup



global table
option
implement for #6

What did the last 8 or 16 branches do?
Break the history register into a lot of registers



Turns out being about the same size, and about the same effective

https://en.wikipedia.org/wiki/Branch_predictor#Two-level_adaptive_predictor

Why don't we code without branches?

A,b
If (a < b) {
    C = b
} else {
    C = a
}

Conditional Move

movn	$t0	$t1	$t2
movz			

Predicated Instructions
ARM
Itanium - not backwards compatible
Intel builds processors that AMD made instructions for

WARNING INTEL HW

Move ILP
-mulitple functioned unites
3 integers ALU 2FP ALU Branch unit

Read the instrucitons
Out of order execute
In order commit

VERY LONG INSTRUCTION WORDS
VLIW