

Prediction Fusion

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Motivation

Prior hybrid predictors

- *selection* mechanism to choose one predictor
- ignore any useful information by other predictors

Leverage the
information from all
component predictors!

Fusion table

- Take predictions from n subpredictors
- Concatenate n predictions into an index
- New index = combination of old index + PC bits (+ bits from Global BHR)
- New index into the fusion table
- Most significant bit of the saturating counter -> Prediction!

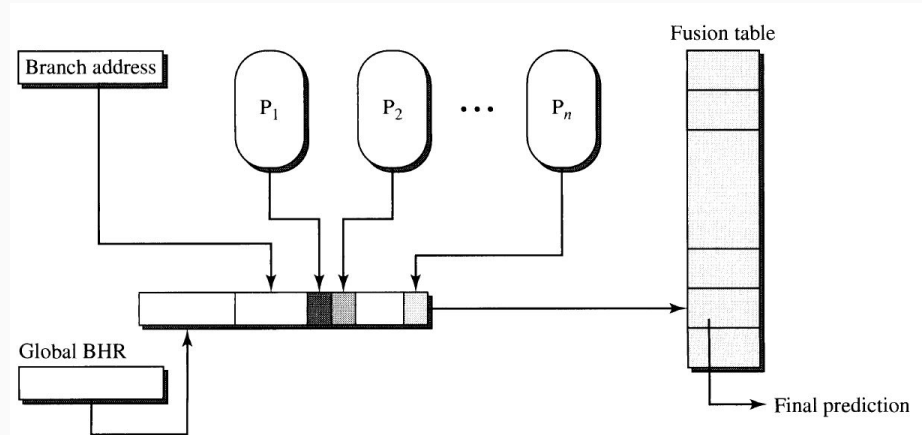


Figure 9.28

The Fusion Table Hybrid Predictor.

Conclusion

- Provides a way to correlate branch outcomes to multiple branch predictions
- Wide array of branch predictors can be covered:
 - global-history, local-history
 - short and long history components

Covers a wide variety of predictors

- Selection-based hybrid predictors
 - (ignore $n-1$ inputs)
- gskewed predictor
 - 3 gshare predictors
 - Different hashing functions as inputs
 - Majority function as fusion mechanism

Backup

(More examples)