Effect of Crosstalk on HP25 SNR Margin

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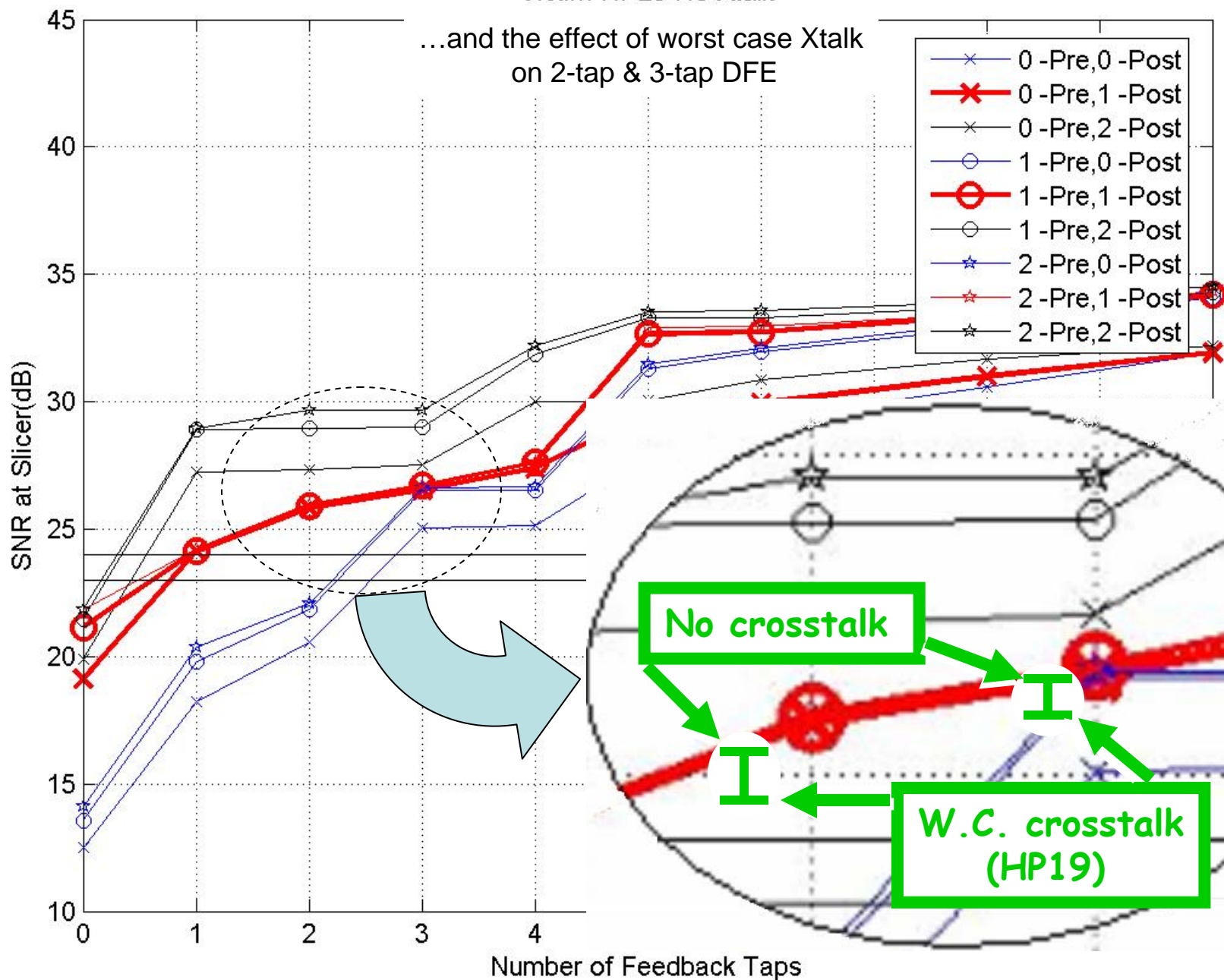Mike Jenkins
LSI Logic
4 April 2007
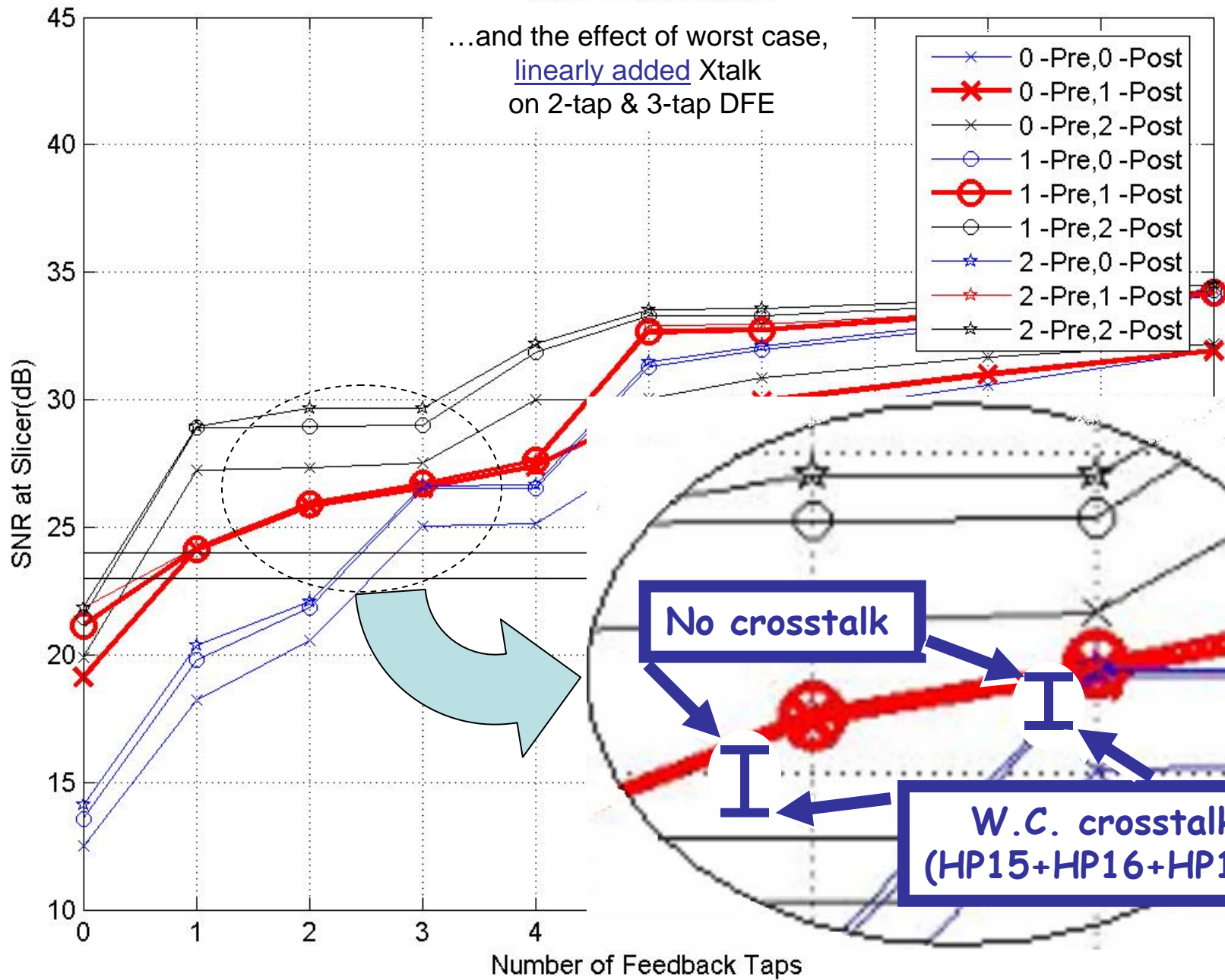
Victim-HP25 No Xtalk

…and the effect of worst case Xtalk
on 2-tap & 3-tap DFE

Legend:
- 0 -Pre, 0 -Post
- 0 -Pre, 1 -Post
- 0 -Pre, 2 -Post
- 1 -Pre, 0 -Post
- 1 -Pre, 1 -Post
- 1 -Pre, 2 -Post
- 2 -Pre, 0 -Post
- 2 -Pre, 1 -Post
- 2 -Pre, 2 -Post

SNR at Slicer(dB)

No crosstalk

W.C. crosstalk
(HP19)

Number of Feedback Taps

Victim-HP25 No Xtalk

…and the effect of worst case, linearly added Xtalk on 2-tap & 3-tap DFE

Legend:
- 0 -Pre, 0 -Post
- 0 -Pre, 1 -Post
- 0 -Pre, 2 -Post
- 1 -Pre, 0 -Post
- 1 -Pre, 1 -Post
- 1 -Pre, 2 -Post
- 2 -Pre, 0 -Post
- 2 -Pre, 1 -Post
- 2 -Pre, 2 -Post

SNR at Slicer(dB)

Number of Feedback Taps

No crosstalk

W.C. crosstalk (HP15+HP16+HP17)

Summary

- HP25 was re-simulated with aggressors HP15-18 (power summed), HP15-17 (linearly summed with worst case phase) & HP19

- HP19 depressed SNR at the slicer by only ¾ dB for 2-tap DFE and ½ dB for 3-tap DFE

- HP15-17 linearly summed with worst case phase depressed SNR at the slicer by < 1 dB for 2-tap DFE and < ¾ dB for 3-tap DFE

- SNR of a 2-tap reference DFE after worst case channel (HP25) with worst case Xtalk (HP15-17 summed linearly) is 24.18 dB, guaranteeing <10^{-15} BER