

# Integrated Circuits for Digital Communications

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## References

### General References

- E.A. Lee and D.G. Messerschmitt, *Digital Communication*, Kluwer, Norwell, MA, 1994  
S. Haykin, *Digital Communications*, Wiley, NY, NY.  
J.G. Proakis, *Digital Communications*, McGraw Hill, 1995.  
J.W.M. Bergmans, *Digital Baseband Transmission and Recording*, Kluwer Academic Publishers, Boston, 1996

### Information Theory and Capacity

- R.E. Blahut, *Digital Transmission of Information*, Addison-Wesley, NY, 1990  
T.M. Cover and J.A. Thomas, *Elements of Information Theory*, Wiley-Interscience, NY, 1991.

### Adaptive Filters and Equalization

- B. Widrow and S.D. Stearns, *Adaptive Signal Processing*, Prentice Hall Inc., 1985.  
C.S.H. Wong, et al, "A 50 MHz eight-tap adaptive equalizer for partial-response channels," *IEEE Journal of Solid-State Circuits*, vol. 30, pp. 228-234, March 1995.  
A.J. Baker, "An adaptive cable equalizer for serial digital video rates to 400Mb/s," *IEEE ISSCC*, pp. 174-175, San Francisco, Feb. 1996.  
J.E.C. Brown, et al, "A comparison of analog DFE architectures for disk-drive applications," *IEEE Int. Symp. Circuits and Systems*, pp. 99-102, May 1994.  
D.A. Johns, W.M. Snelgrove and A.S. Sedra, "Orthonormal ladder filters," *IEEE Trans. on Circuits and*



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*Systems*, vol. CAS-36, pp. 337-343, March 1989.

- S. Qureshi, "Adaptive equalization," *Proceedings of the IEEE*, vol. 73, pp. 1349-1387, Sept. 1985.
- A. Shoal, W.M. Snelgrove and D.A. Johns, "A 100Mb/s BiCMOS adaptive pulse-shaping filter", accepted for publication in *IEEE Journal on Selected Areas in Communications: Special issue on Copper Wire Access Technologies for High Performance Networks*.
- A. Shoal, D.A. Johns and W.M. Snelgrove, "DC offset performance of four LMS adaptive algorithms," *IEEE Trans. on Circuits and Systems — II: Analog and Digital Signal Processing*, vol. 42, pp. 176-185, March 1995.
- A. Shoal, D.A. Johns and W.M. Snelgrove, "Median-based offset cancellation circuit technique," *IEEE International Symposium on Circuits and Systems*, pp. 2033-2036, San Diego, May 1992.

## **Wired Channels**

- D.A. Johns and D. Essig, "Integrated circuits for data transmission over twisted-pair channels," *IEEE Journal of Solid-State Circuits*, vol. 32, pp. 398-406, March 1997.
- Special issue on Copper Wire Access Technologies for High Performance Networks, *IEEE Journal on Selected Areas in Communications*, Dec. 1995
- J.S. Chow, J.C. Tu and J.M. Cioffi, "A discrete multitone transceiver for HDSL applications," *IEEE Journal on Selected Areas in Communications*, Aug. 1991.
- J.J. Werner, "Tutorial on Carrierless AM/PM - Part 1: Fundamentals and Digital CAP Transmitter," Contribution to ANSI X3T9.5 TP/PMD Working Group, Minneapolis, June 23, 1992.

## **Timing Recovery**

- K.H. Mueller and M. Muller, "Timing recovery in digital synchronous data receivers," *IEEE Trans. on Communications*, vol. 24, pp. 516-531, May 1976.



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- A. Buchwald and K. Martin, *Integrated Fibre-Optic Receivers*, Kluwer, 1995.

## **Partial-Response and Viterbi Detection**

- P. Kabal and S. Pasupathy, "Partial-Response Signaling," *IEEE Trans. Commun.*, vol. 23, pp. 921-934, Sept. 1975.
- T. W. Matthews and R. R. Spencer, "An Integrated Analog CMOS Viterbi Detector for Digital Magnetic Recording," *IEEE Journal of Solid-State Circuits*, vol. 28, No. 12, pp. 1294-1302, Dec. 1993.
- R. G. Yamasaki, T. Pan, M. Palmer, and D. Browning, "A 72Mb/S PRML Disk-Drive Channel Chip with an Analog Sampled-Data Signal Processor," *IEEE Int. Solid-State Circ. Conf.*, pp. 278-279, Feb. 1994.
- R. W. Wood and D. A. Petersen, "Viterbi Detection of Class IV Partial Response on a Magnetic Recording Channel," *IEEE Trans. Commun.*, vol. 34, pp. 454-461, May 1986.
- M.H. Shakiba, D.A. Johns and K.W. Martin, "A 200MHz 3.3V BiCMOS class-IV partial-response analog Viterbi decoder," *Custom Integrated Circuits Conference*, pp. 567-570, Santa Clara, California, May, 1995.
- M.H. Shakiba, D.A. Johns and K.W. Martin, "General approach for implementing analogue Viterbi decoders," *Electronic Letters*, vol. 30, pp. 1823-1824, Oct. 1994.

## **Infrared**

- J.R. Barry, *Wireless Infrared Communications*, Kluwer Academic Publishers, 1994.
- J.M. Kahn and J.R. Barry, "Wireless Infrared Communications," *Proceedings of the IEEE*, Feb. 1997.



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