Using Discrete Wavelet analysis and Sequential test to detect the endpoint in CMP process

Abstract

Due to the development in new technologies like semiconductor industry, with advances in sensors and information technology oblige us to handle with large datasets do not stop increasing, while monitoring devices are becoming more and more complexes and sophisticated. As the measurement points become closer. Among the complex monitoring process, the detection of the end of polishing (EPD) during the chemical mechanical planarization (CMP) process is considered as a critical task in semiconductor manufacturing. In this paper, an Acoustic emission (AE) signal is collected during the progression of the CMP process will be monitored using an online method in which the signal will be preprocessed using wavelet analysis (WA) to clean the data from noise and at the same time, a sequential probability ratio test (SPRT) will be developed. This test was applied to the wavelet decomposed. Eventually, it has shown to be efficient in controlling complex processes and suitable for real-time application by developing a moving block strategy.

References


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Index Terms

Computer Science  Signal Processing

Keywords
Sequential Probability Ratio Test (sprt)  End Point Detection (epd)  Chemical Mechanical Planarization (cmp)
Acoustic Emission (ae)
Wavelet Analysis (wa)
Monitoring Process