

We present a technique to enable the integration of sensitive analog circuits with a high performance microprocessor (Pentium® 4), on a lossy substrate. We show that by exploiting the spectral content of substrate noise, and the use of appropriately tuned analog amplification it is possible to limit the isolation requirements to 70dB. By using a combination of measurement and field solver results, we show that a minimal process enhancement (i.e. a deep nwell) will yield 50 dB of isolation, and the remainder can be achieved by layout and differential circuit techniques.