

Interactive comment on “Development of a new distributed hybrid seismic-electrical data acquisition station based on system–on-a-programmable-chip technology” by Qisheng Zhang et al.

Anonymous Referee #2

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The paper is relevant to the present, describes a system that combines various methods of geophysical research. Particular attention in the paper is paid to the synchronization of measurements from a large number of stations that measure both seismic fluctuations and electric. On the scientific side, another method of synchronizing a large number of measurements without using GPS system is shown. Comments: 1. The article does not show clearly enough how to synchronize at SoPC and ADC ADS1271 levels. As we know, delta-sigma ADCs do not like frequent interruptions in data processing, which leads to a deterioration of their measurement capabilities.

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Please, comment. 2. Figure 3 shows the structure diagram of the analogue part of the device, which shows that the seismic channel is different from the electric structure, which will result in different time delays in these channels. Also, in this case, attention should be paid to the identity of the LPF parameters both in different channels and in different stations. Please, explain this. 3. On Fig. 7 it would be good to show the time scale of the delay and the time itself. 4. In section 4, to test the noise characteristics of the station, it would be good to use the spectral characteristics that better indicate the noise of the device at different frequencies. 5. Fig. 10, it would also be nice to add the spectral characteristics of these signals. 6. Table 3 - Power consumption is measured in mW, not in mV. 7. The article states the accuracy of the synchronization should be 200 nsec, when approximate calculations show that for a frequency of 31.25 Hz (test signal in the article) and the dynamic range of this ADC, it should be at least 100 nsec. Please, clarify.

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