

*Materials of Conferences***THE REVIEW OF MODERN SYSTEMS OF DATA GATHERING**

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The data gathering system is the complex of means intended for work together with the personal computer and the carrying out automated gathering of the information on values physical parameters in the set points of object of research from analog and/or digital sources of a signal, and also preprocessing, accumulation and data transmission.

Now a lot of attention is given to designing of systems of data gathering.

As a rule, data gathering systems are issued now in following kinds: the external modules of input-output ADC-DAC, connected to the computer through interfaces USB, RS-232 or Ethernet; the universal payments of input-output ADC-DAC established directly in the computer in sockets of tires PCI or ISA; LTR kreit – as modular system. First two executions are most extended.

The price of such systems of data gathering depends on the basic indicators of their main component – the analog-digital converter (ADC): word length (from 8 to 24 categories), frequencies (from units of Hz to hundreds in MHz), numbers of channels (from 2 to 32).

According to these indicators the price changes also. And, in very wide limits: from 3 000 roubles for the block with 8-digit ADC (JIA-50USB, Company «Rudnev-Shiljaev»), to 99 000 roubles for the block with 14-digit ADC (AD-USB2-14.400 MHz, Company «the Company the Signal»), and even to 327 568 roubles for the block with 14-digit ADC (ADP64Z4CP2, «Center ADC»). As the price and depending on frequency of work used ADC promptly grows.

It is obvious that most expensive an element of modern systems of the data gathering, in such wide spectrum their price, the analog-digital converter is defining.

It is connected also by that at analog-digital transformation there is a problem: the more word length (that is potential accuracy ADC), the more slowly it works (that is the less its frequency of digitization). For today of the compromise while isn't present. Developers aspire to create fast and exact ADC. And consumers not against, but want that it was not expensive. Here also it turns out that manufacturers of electronic components (ADC, DAC, sources of basic pressure, sample and storage devices) work over perfection of the products, periodically letting out high-precision, but very expensive copies. And developers of systems of data gathering complete the systems with typical, average blocks at the price, losing thus accuracy of system.

Therefore the alternative is required: to create inexpensive, but exact system of data gathering. Our scientific research is devoted working out of such system.

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WAYS OF PERFECTION OF MODERN SYSTEMS OF DATA GATHERING

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We work over creation of universal systems of data gathering for various applications, on the basis of offered external modules of increase of accuracy the analog-digital converter (ADC), such as: the sample and storage device; the device of formation of absolute value of signals; the device of formation of basic pressure; the device of correction of errors.

Scientific novelty of decisions offered by us consists that we work over increase of accuracy of the devices entering into block ADC and operations, realized by them, considering block ADC as difficult system. While neither among developers, nor in the technical literature to these operations it is not given proper attention. Developers of systems of data gathering simply use standard schemes of these devices, considering block ADC as «a black box».

We can realize two variants of such systems with use of the developed external modules of increase of accuracy ADC: on the basis of cheaper element base that will provide characteristics of our system, comparable with analogs. A principle: quality (accuracy) – too, the price – more low; or on the basis of the same element base that will provide increase of accuracy and efficiency of our system in comparison with analogs. A principle: quality (accuracy) – above, the price – a little above.

The expected result of our work is a universal system of data gathering with use of the developed modules of increase of accuracy ADC, with possibilities:

- uses of cheaper element base (less exact ADC and DAC) at the expense of application of the developed module of correction of errors ADC;

- increases of word length used ADC at the expense of application of the developed modules of the device of formation of absolute value of entrance signals ADC (provides increase in word length ADC at 1 category) and a source of basic pressure (provides increase of effective word length ADC on 1-3 categories because of decrease in level of noise of a source of basic pressure and increase of its temperature stability);

- increases in speed ADC at the expense of application of the developed module of the device of a sample and storage (provides decrease in time of a sample and storage time increase);

- decrease in power consumption in case of application of more simple ADC with the lowered power consumption

It is natural that the price of systems offered by us will be much more low, than at competitors.

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