Development of a new VLBI sampling processor equipped with a USB interface

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National Institute of Information and Communications Technology (NICT) has developed a new sampling processor (an A/D converter with a digital data formatter) dedicated to geodetic VLBI system named K5/VSSP32 that is equipped with a USB 2.0 (Universal Serial Bus specification revision 2.0) interface. Sampling processors developed by NICT are categorized into two types: One is K5/VSI series equipped with a VSI (VLBI Standard Interface) interface and the other is K5/VSSP series with another interface. K5/VSSP32 belongs to the latter category. K5/VSSP is the name of the first sampling processor belonging to this category, which is a PCI bus board mountable on a motherboard of general purpose PC and has a maximum sampling frequency of 16 MHz per channel. K5/VSSP has contributed to broaden the base for VLBI users, i.e., any PC equipped with a K5/VSSP PCI-bus board can be a VLBI recorder, and the data transfer through the Internet is easily realized. K5/VSSP has also progressed greatly the development of software correlator. K5/VSSP32 is a successor to the K5/VSSP, but a USB 2.0 is newly adopted as an interface with a host PC. Maximum sampling frequency per channel is increased up to 64 MHz. As a K5/VSSP32 unit has 4 channel analog inputs, 4 units can cover 16 channels which is sufficient number of channels in case of geodetic VLBI. In the meantime, a K5/VSSP32 can connect to a notebook PC or a laptop PC through USB 2.0 interface. It is hence possible to use note book PCs as a recorder not only for VLBI observations but also for a general purpose such as acquiring geophysical data. We have already carried out a so-called VLBI fringe test using both a desktop PC and a notebook PC, and we successfully got fringes. We will report the results of some test observations using K5/VSSP32 at the meeting.