BUCKET SELECTOR SYSTEM OF KEKB

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The KEKB accelerator complex consists of an injector linac and two colliding rings. With the repetition rate of 50 Hz, the linac supplies electron/positron beams to the rings, each of which has 5120 rf buckets. For efficient operation of the machine complex, it is important to fill these buckets in an appropriate order, considering a number of conditions. At present stage of the commissioning, the next-to-be filled bucket should be determined by checking the following conditions, the required filling pattern by an operator, last-filled bucket and present bunch-current distribution. In order to do this job, we developed a bucket-selector system made up with three VME computers. In the first computer, a process which sets a value to a delay module (selecting a bucket) is running, while a bunch-current-monitor process is running in the second one. The third computer accepts a fill pattern which an operator desires. Each computer has a VME memory-board in its sub-rack and the boards are connected with dedicated optical cables. As a whole, the system works as if these computers have a common memory (the shared memory system). This shared memory system provides us with a fast data-transfer tool among these computers.