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Development of a highly segmented scintillator hodoscope to construct intelligent trigger system for J-PARC E07 KENICHIRO OUE, Osaka university, HIROYUKI EKAWA, Kyoto university, SANGHOON HWANG, KENJI HOSOMI, Japan Atomic Energy Agency (JAEA), SHUHEI HAYAKAWA, ATSUSHI SAKAGUCHI, Osaka university — The purposes of J-PARC E07 are a systematic study of double Lambda hypernuclei with 10 times higher yields than the previous experiment (KEK-E373) and the first measurement of Ξ^- atomic X-rays. In the experiment, we produce Ξ^- via the quasi-free (K^-,K^+) reaction off a diamond target and expect to observe 10^4 stopped Ξ^- (Ξ^- atoms) in the emulsion counters. The (K^-,K^+) reaction is measured by using the KURAMA spectrometer and the acceptance of the KURAMA spectrometer is enlarged from the KEK-E373 experiment. So, a sophisticated online trigger system is inevitable to operate the new KURAMA spectrometer. We employ an intelligent three-dimensional matrix trigger system with a fine-beam-hodoscope (FBH), a highly segmented charge-hodoscope (CH) and a time-of-flight wall (TOF). The FBH is placed in the beamline, whereas CH is located at the upstream of the KURAMA magnet and TOF is located at the most downstream. The highly segmented CH consists of 64 segments, and each segment is made of a plastic scintillator 2 mm thickness, 11.5 mm width and 450 mm length. Scintillation light signals are read out with a wave-length-shifting fiber. Multi-pixel photon counters and front-end read-out EASIROC boards are used. The performance of CH is evaluated by using positron beams and cosmic rays. I will present the results of the performance studies of CH.

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