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Development Plan for Reliable Card-size IOC

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Recent card-size PCs, such as Raspberry Pi or BBB (Beagle bone black), have enough performance to use as EPICS IOCs. In ERL in KEK-Tsukuba, a few pieces of BBB IOCs with serial lines were developed to monitor radiation-monitoring instruments [1]. However, due to lack of long-term reliability and hardness, mass introduction to accelerator controls is not realistic.

We have started study to develop a customized card-size PC. It will: 1) use long-term guaranteed parts, 2) has simple IOs (1 LAN, 2 serials, 8bit io), 3) be used with a hard metal-chassis, and 4) be not low-cost but ...

We hope to develop a prototype by the end of FY2015. After 2016, it will be used for newly introduced devices. In addition, part of legacy VME-bus IOCs in J-PARC MR will be replaced by them.

[1] T.Obina, "Development of Compact Device Server with EPICS", PASJ2014-MOOL08, 11th Annual Meeting of Particle Accelerator Society of Japan, 2014

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