



Contribution ID: 40

Type: **not specified**

NSLS-II Bunch by Bunch (BxB) BPM update and Hypervisor VM-based EPICS interface

Thursday, April 18, 2024 2:10 PM (25 minutes)

The new RFSoc-based advanced BxB was installed after the beam test and provided advanced capabilities for measuring BxB beam transients, multi-bunch coupling, injection transient, efficiency, ion instability detection, and single/multi-bunch motion analysis.

For BxB BPM integration, the control system employed high-performance IOCs and clients based on a hypervisor virtual machine (VM) system. The VMware Type-1 bare-metal hypervisor supports NSLS-II accelerator control IOCs and clients.

In this talk, I will introduce the new BxB hardware architecture, FPGA data processing, beam performance measurement results, and VM IOC and EPICS interfaces for the NSLS-II control system.

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Session Classification: Low-Level Controls

Track Classification: Low-Level Controls