

NSLS2 Motorcontrollers and motion applications

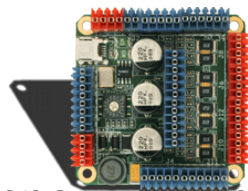
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Standards and deviations

- NSLS2 standardizes on Geobrick-LV-NSLS-II.
 - Units in production since 2012, low failure rates
 - Maintenance performed: changed air filters.
 - Newer units with hardware changes and possibly new components fails noticeably more.
- Several Power Pmacs (custom fly scan, controlling AC motor with custom interface)
- few Newport XPS, vendor insisted, and beamline scientist brought from NSLS.
- Couple dozen FMB MCS-8, partner beamlines delivered in full by FMB, adopted old NSLS controllers.
- Piezo controllers: SmarAct MSC, Smarpod, PI (E621, E625, E712, E517, ECC100, E873), Autocube, Newfocus picomotors Npoint.

Recent Additions

- EZ4 AXIS from All Motion



- For the compact size, in a tight space end station.

- Schneider Lexium integrated drive (controller on motor),



- mandated by beamline controls review in 2018 to introduce a simple motorcontroller solution.
- intend to gather enough operational reliability data before making it an alternate standard.
- for small $< \sim 2$ A motors

Software , EPICS IOCs

- Most on Debian 7
- Built using Debian packages
 - Base 3.14
- Model 3 driver
- Older version of pmac from <https://github.com/epicsdeb/pmacasyn> [pmacutil, pmaccoord]
 - This version is not in sync with pmac repo
 - There is a new pmac from Diamond
- CSS GUI
- Bluesky(<https://nsls-ii.github.io/bluesky/>) data collection interface.

Scans

- Step scan is done via bluesky
 - Move motor,
 - wait till the move is done DMOV
 - Trigger detector
- Flyscans also handled from bluesky.
 - There is no uniform hardware and software implementation
 - No difference from bluesky

Fly scans

- No standard
- Strong interest from beamlines.
- One custom solution with Power Pmac, piezo stack, and customized electronics.
- Using Zebra for triggering detectors and encoder capture
- Interested to know other sites solutions.