Synapps 6-0

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What is synApps?

- APS develops a lot of the support modules that are used with epics
- SynApps is just a collected package of these modules that we deploy to develop our beamline IOCs
- While we do try to make sure that any tagged version of a module works, these versions are the most tested and have more of a guarantee to all work together correctly.
- Releases of synApps relate to updates to beamline IOCs

Behind Schedule

Time between Releases

- 5_0 → 5_1: 13 months   5_1 → 5_2: 21 months
- 5_2 → 5_3: 20 months   5_3 → 5_4: 6 months
- 5_4 → 5_5: 13 months   5_5 → 5_6: 20 months
- 5_6 → 5_7: 20 months   5_7 → 5_8: 19 months

- Average time since 2004: About a year and five months.

- Current amount of time since a release: **39 months!!**

Why so long?

- Moving modules to github
  - Needed time to understand tools and change our workflow
  - Less reliance on our releases
- Changes in module ownership
- Waiting on new support
- Drastic changes

New Release

- SynApps 6-0 due to be released very soon
  - Once areaDetector 3-3 is finished

- Targets epics base 3.15

- Current version on github is going to be pretty much the same as the release version

- Can get the current version from github:
  - https://github.com/EPICS-synApps/support/blob/master/assemble_synApps.sh

What’s New?

Architecture Support

- We haven’t had the best track record with support for Windows

- SynApps_5_8 required changes in at least twelve modules in order to build on Windows

- No longer

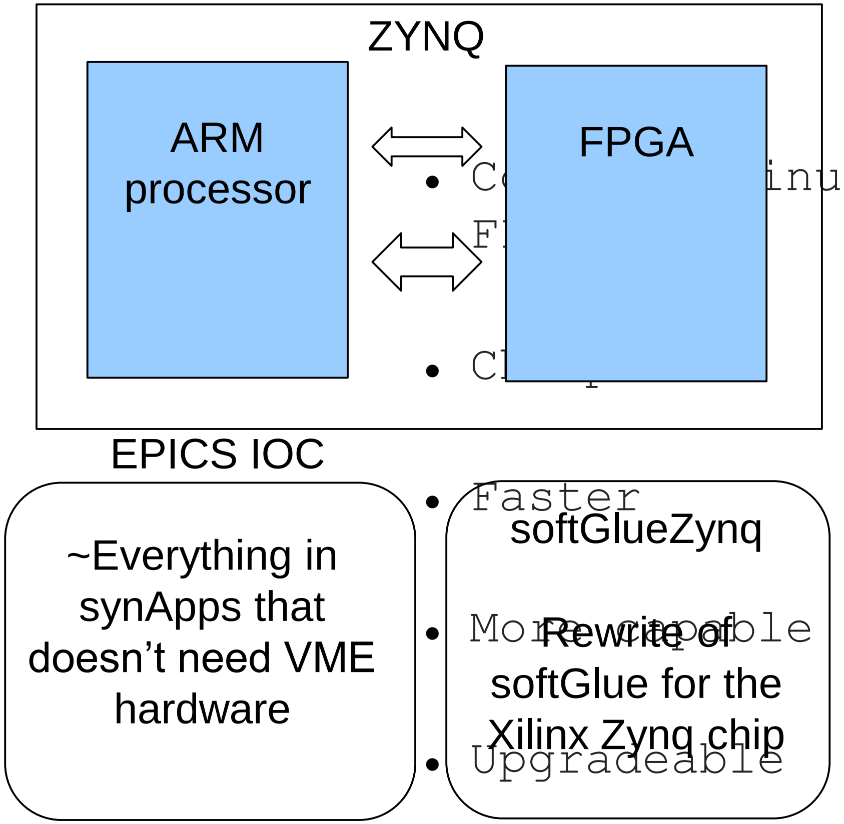
- SynApps_6_0 has been tested for both 32-bit and 64-bit Windows, with both static and dynamic builds.

assemble_synApps.sh

- Script at the top level of the support directory
- Allows users to specify a set of epics modules to download and build
- Sets the RELEASE file correctly and automates some other tasks
- Just comment out modules that you don’t need
- Want to expand the capabilities of this script

New SoftGlue

- SoftGlueZynq supports MicroZed Xilinx Zynq SoC


ZYNQ
ARM processor
FPGA
EPICS IOC
~Everything in synApps that doesn’t need VME hardware
softGlueZynq
Rewrite of softGlue for the Xilinx Zynq chip

- Co inux IOC running on ARM with an F
- Cl p
- Faster
- More capable
- Upgradeable

IOC Shell Scripts

- Add devices to an IOC with just a single line
- For use with EPICS base 3.15’s iocshLoad command

- Example:

```
iocshLoad("$(AUTOSAVE)/iocsh/autosave_settings.iocsh",
  "PREFIX=$(PREFIX), SAVE_PATH=$(TOP)/iocBoot/$(IOC)")

iocshLoad("$(AUTOSAVE)/iocsh/autosaveBuild.iocsh",
  "PREFIX=$(PREFIX)")
```

- Two lines set up all the necessary settings for using autosave to automatically build save files.

Scripting

- lua module puts a full scripting language into synApps
- Script your records
  - luascript record, runs a script with 10 inputs on PROC
  - Device support for common record types
- Script your code
  - Utility functions to add scripting to other modules
- Script your motors
  - Optional motor support to write model 3 drivers in lua
- Script your startup
  - Interpretive shell with links to the IOC commands

GUI Screens

- MEDM Screens were modified for better automatic conversion to caQtDM, CSS-Boy, and EDM.

- New op directory structure
  - Auto-converted screens are kept in a separate directory
  - Any updates to screens will be placed in top-level

- XXX.ui updated to take advantage of features of caQtDM.

Misc

- Alive: new MSG field for alive record, used for alerting monitors to potential issues with an IOC

- MeasComp: Linux version of Universal Library

- Ipac: Support for IP520 and IP521 modules

- Asyn/areaDetector/QuadEM: Too much to even count, each had 5-7 major releases since synApps_5_8

Future Plans

Continuous Integration

- Many of our modules have been updated to use the travis CI system
- Want to have greater use of this feature
- Will help speed up accepting contributions and putting out new releases
- Jenkins?

Unit Tests

- Minor work done into using the epics base unit testing framework

- Currently only implemented in a few modules

- Would like to have a unit test setup for every module and link it with the continuous integration system

- Allows us to be confident in dealing with larger changes to the codebases

More Frequent Releases

- With the modules on github, less reliance on our group’s releases
- Having a grouped release is still useful
  - Larger pool of people working with the same tools
- Having more people using our software means more bugs found and more potential contributors
  - Less work for us
- The less we release, the less relevant we become
- Would like to move to at least a yearly release schedule

Questions / Comments / Opinions?

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