



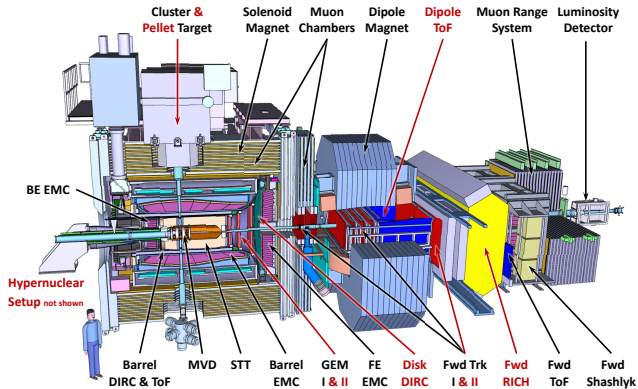
# Deployment for the PANDA Detector Control System

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# The $\bar{P}$ ANDA Detector



## $\bar{P}$ ANDA physics program:

- Hadron spectroscopy
- Hadron structure
- Hadrons in medium
- Hypernuclear physics

# Challenges for the Detector Control System

- Detectors are developed all over the world
- Each subsystem should develop their own DCS partition
- Large diversity in used operating system at the different sites
- Large diversity in skills of “DCS-experts”
- ⇒ Control system should be easy to deploy for everyone
- ⇒ Container Virtualization (docker)

REPOSITORY	TAG	SIZE
paluma.ruhr-uni-bochum.de/epics/archive-engine	4.6.9	520MB
paluma.ruhr-uni-bochum.de/epics/phoebus	4.6.9	897MB
paluma.ruhr-uni-bochum.de/epics/ioc	2.0.0	345MB
paluma.ruhr-uni-bochum.de/epics/ca-gateway	2.1.3.0	17MB

## Dockerfiles written as Jinja2 templates

```
{% if calc_ver %}
  && git clone --branch {{ calc_ver }} --depth 1 https://github.com/epics-modules/calc.git ${EPICS_SRC}/calc \
  && cd ${EPICS_SRC}/calc \
  && echo 'INSTALL_LOCATION = ${SUPPORT}/calc' > configure/CONFIG_SITE.local \
  && make -j \
  && echo "{{ myIOC|default("epicsIoc", true) }}_DBD += calc.dbd" >> ${EPICS_SRC}/modules.dbd \
  && echo "{{ myIOC|default("epicsIoc", true) }}_LIBS += calc" >> ${EPICS_SRC}/modules.lib \
  && echo 'CALC = ${SUPPORT}/calc' >> ${EPICS_DIR}/{{ epics_modules|default("modules", true) }}/RELEASE.local \
{% else %}
  && echo 'undefine CALC' >> ${EPICS_DIR}/{{ epics_modules|default("modules", true) }}/RELEASE.local \
{% endif %}
```

```
'2.0.0-sbc': { 'base_ver': (7,0,6),
              'asyn_ver': (4,4,2),
              'as_ver': (5,10,2),
              'calc_ver': (3.7.4),
              'modbus_ver': (3,2),
              'snmp_ver': (1,1,0,2),
              'stream_ver': (2,8,22),
              'drvasyni2c_ver': 'R1-0-3b',
              'devgpio_ver': (2,0,1),
              'devthmpled_p_ver': (1,0,0),
              'iocstats_ver': 'latest',
              'ftdi_support': 'yes',
            },
```

# Pros and Cons

## Pros:

- Easy to create images for multiple architectures with docker-buildx
- Easy to deploy at remote labs
- ...

## Cons:

- Easy to gain root access on host system  
Can be avoided by running container with Singularity
- ...