Software Activities

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Physics Department, AUTH

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SBC (Single Board Computer)

▶ SBC is a Single Board Computer including a processor, memory and input/output ports

▶ SBC used in FTK runs Linux operating system and appropriate software and drivers

▶ Access and control the VME bus using commands

▶ Run an OPC UA Server for DCS purposes

▶ 3 x SBCs (including hard disks) configured for AUTH, PRISMA and Patras

SBC Setup and Required Files

- Operating System: Scientific Linux CERN v6

- Download binary files and libraries for the specific tdaq version from CERN AFS

  - cp /afs/cern.ch/atlas/project/tdaq/inst/tdaq/tdaq-05-05-00/installed

- Download tdaq-05-05-00 drivers

- Download vmetab configuration file

SBC Drivers and TDAQ-05-05 Setup

▶ Install drivers taking into consideration

   ❑ the kernel version and

   ❑ SBC architecture (64bit addressing or not)

▶ Test drivers using the corresponding driver_tdaq {start|stop|status} script

▶ Configure drivers to automatically start on boot time

▶ Setup tdaq-05-05-00

   ❑ Download the trunk file from SVN

   ❑ Use FTK-nightly

▶ Load FPGA firmware using iMPACT
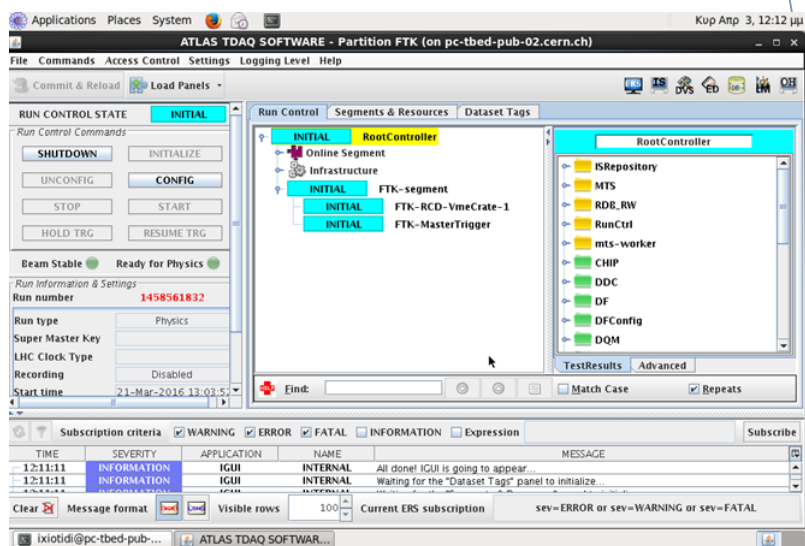
Test VME Functionality

▶ Connect SBC and AMBSLP board on the crate

▶ Test basic VME functionality

▶ Read register using vme_peek

▶ Write register using vme_poke
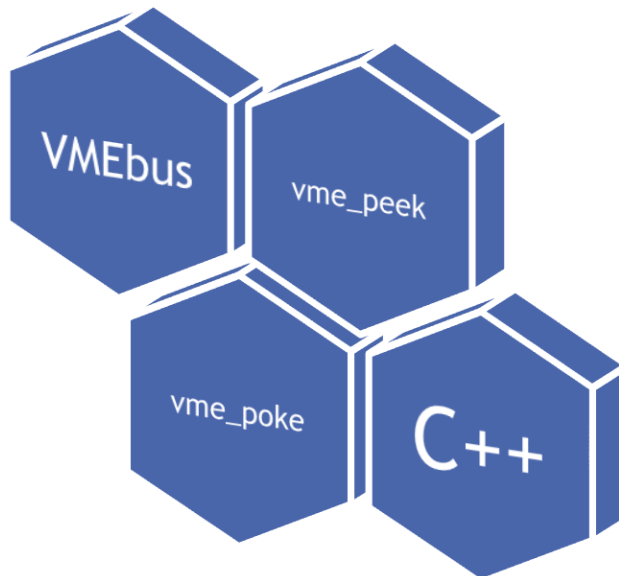
Test using ATLAS Run Control

- ▶ Use tbed account to download necessary files
  - ❑ partitions
  - ❑ segments
  - ❑ schema
- ▶ Run partition
- ▶ Start the TDAQ infrastructure and the IGUI

AMB Readout Application

- https://svnweb.cern.ch/trac/atlastdaq/browser/FTK/ambs lp/trunk/src/ReadoutModuleAmbslp.cxx

- When running, it publishes periodically some information using following methods:
  - publish()
  - publishFullStats()

- Publish strings and numbers to IS

- Prepare and publish histograms to OH service

- Fetch the spybuffers, pack them as payload in order to make a proper FullEventFragment and provide them to emon service

- From emon to a monitor application such as GNAM

Thank you!

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