xTCA working group

M. Hansen, CERN

xTCA

- Owned by PICMG (PCI Industrial Computer Manufacturers Group)
- ATCA (2002, 2007)
  - Advanced Telecommunications Computing Architecture
- AMC (2005)
  - Advanced Mezzanine Card
- uTCA (2006)
  - Micro Telecommunications Computing Architecture

Observations VME vs mTCA

- VME
  - 3U, 6U and 9U cards
  - Single or more slots
  - Well known parallel bus
  - Crate control depending on manufacturer and specification
  - No built in redundancy but some can be provided by manufacturers

- uTCA
  - Single or double width (!)
  - Full, half, quarter height (!)
  - Gigabit ethernet
  - Elaborate shelf control with hand shake to cards in crate
  - Built in support for high availability
    - Power, control

xTCA Working group?

- What would be the goal?
  - Reduce step in effort
    - Shelf control protocol compliance rather complicated
  - Could allow some interoperability
    - Why not study solutions like lane assignments from others at least for a start?
- Would the uTCA Physics Profile bring a part of a solution?

Three Short Contributions

- J-P Cachemiche
  - MMC Mezzanine development and Status
- Ray Larsen
  - uTCA Physics Profile for HEP Experiments
- Greg Iles
  - Example of communication scheme for a HEP experiment in uTCA (CMS)
- ATCA???

Over to the Speakers

Discussion

- HEP working group
  - Can generally suggest readout system architectures
  - Can limit the high step-in effort
    - MMC design, etc
  - For trigger systems
    - Additional backplane for Custom Communication
      - Location well defined (?)
      - Could add something like 25 user defined high speed serial communication lines if reserved pins (power etc) are left alone

Discussion

- HEP working group
  - Can meet bi-annually
    - Coordinated with other working groups
      - Spring
      - Autumn
        » Is TWEPP such a good idea (no EVO etc.)?
        » Could be virtual?