**Management of the MicroTCA systems and its components with a DOOCS-based control system.**

**Abstract**

The extensive management functionality is one of the key advantages of the MicroTCA standard. The monitoring and control of more than 300 MicroTCA crates and thousands AMC and RTM modules is enabled in a systems.Flashing, snapshots, and other diagnostic tools are integrated into the DOOCS control system. A middle layer works as an interface between the control panel and the MicroTCA crates. The main control functions for the module and its payload are performed in the MicroTCA carrier hub. The DOOCS server and Java-based GUIs (JDDD and JDDD Panels) are integrated into the DOOCS control system. A middle layer is developed in DESY to provide visualization and remote control functions (reboot, shutdown, FRU information, etc.).

**Motivation**

- Monitor basic health of the crates.
- Receive event reports and failure notifications from the boards and other intelligent FRUs.
- Manage power, cooling & interconnect resources in the crates.
- Report accounts.
- Flexibility of additional uses which needed.
- Retrieve inventory information.
- Fixed sensors and share their values for further investigations.

**Monitoring MicroTCA crates.**

- **MicroTCA-PMI server for the MicroTCA crates.**
  - Uses IPMI protocol to collect from the DOOCS:
  - SDM (Sensor Data Record)
  - SEL (System Event Log)
  - Sensor status records
  - IPMI protocol to collect from the MicroTCA crates and components.
  - Provides standard properties to the DOOCS:
  - Sensor status records
  - IPMI protocol to collect from the MicroTCA crates and components.

**Remote management of the MicroTCA crates in DOOCS.**

- View of the MicroTCA crates based on java GUI - JDDD.
  - MicroTCA 6-slot crate view - JDDD.
  - MicroTCA 12-slot crate view - JDDD.

**JDDD panels for the module.**

- FRU (Field Replaceable Units) – pluggable modules which are integrated in chassis, like Power Modules, Fan trays, AMC and RTM modules etc.

**Management of the MicroTCA components.**

- Tracking of the MicroTCA crates and its components with java-based GUI - JDDD.