xTCA Remote Management

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Integration of xTCA management in DOOCS control system

**IPMI** (Intelligent Platform Management Interface) is the management protocol.

- The several open-source projects are available for IPMI interface:
  - Ipmitool  ipmitool.sourceforge.net
  - Ipmiutil  ipmiutil.sourceforge.net
  - Freeipmi  www.gnu.org/software/freeipmi
  - OpenIPMI  sourceforge.net/projects/openipmi

- The sources from ipmitool project were used to create *doocs-ipmilib*. It was originally written to take advantage of IPMI-over-LAN interface. The *doocs-ipmilib* provides base IPMI functions (reading FRU infos and Sensors) and extended commands for xTCA control and monitor (PICMG commands).
Integration of xTCA management in DOOCS control system

The DOOCS (Distributed Object Oriented Control System) server was developed to integrate the remote management of the MicroTCA crates in DOOCS control system.

The mtcaipmi_server:
- communicates to MCH via Ethernet using IPMI messages and provides interface to the DOOCS system
- requires only hostname of the MCH in configuration file
- dynamically removes and adds modules
- provides FRU information, LEDs statuses, system events (SEL), sensors values with histories
- gives a possibility to switch on/off, reboot and reset modules remotely
Remote Management of the crates in DOOCS

- The crates in Java GUI applications

DOOCS mtcaipmi_server
IPMI over LAN

JDDD
jDTtool
Remote Management of the crates in DOOCS

- The crates in Java GUI applications

JDDD
Remote Management of the crates in DOOCS

- 12 slot ELMA MicroTCA Crate View
Remote Management of the crates in DOOCS

- MicroTCA crate information
Remote Management of the crates in DOOCS

- Power monitoring of the crate
Remote Management of the crates in DOOCS

- AMC modules in crate