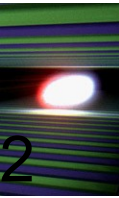


# MicroTCA Management

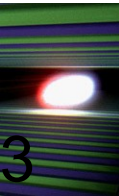
Vahan Petrosyan  
17.04.2012





- IPMI and PICMG specifications
- MicroTCA shelf management structure
- Remote Management of the crates in DOOCS

# IPMI and PICMG specifications



## ■ IPMI( Intelligent Platform Management Interface)

- IPMI – The base specification, released in 1998 by major system vendors( [Intel](#) [Hewlett-Packard](#) [NEC](#) [Dell](#) ...) to define manageability across multiple platforms
- IPMB(Intelligent Platform Management Bus) – the I2C-based bus definition for IPMI.
- Platform Management FRU Information Storage Definition – FRU information.

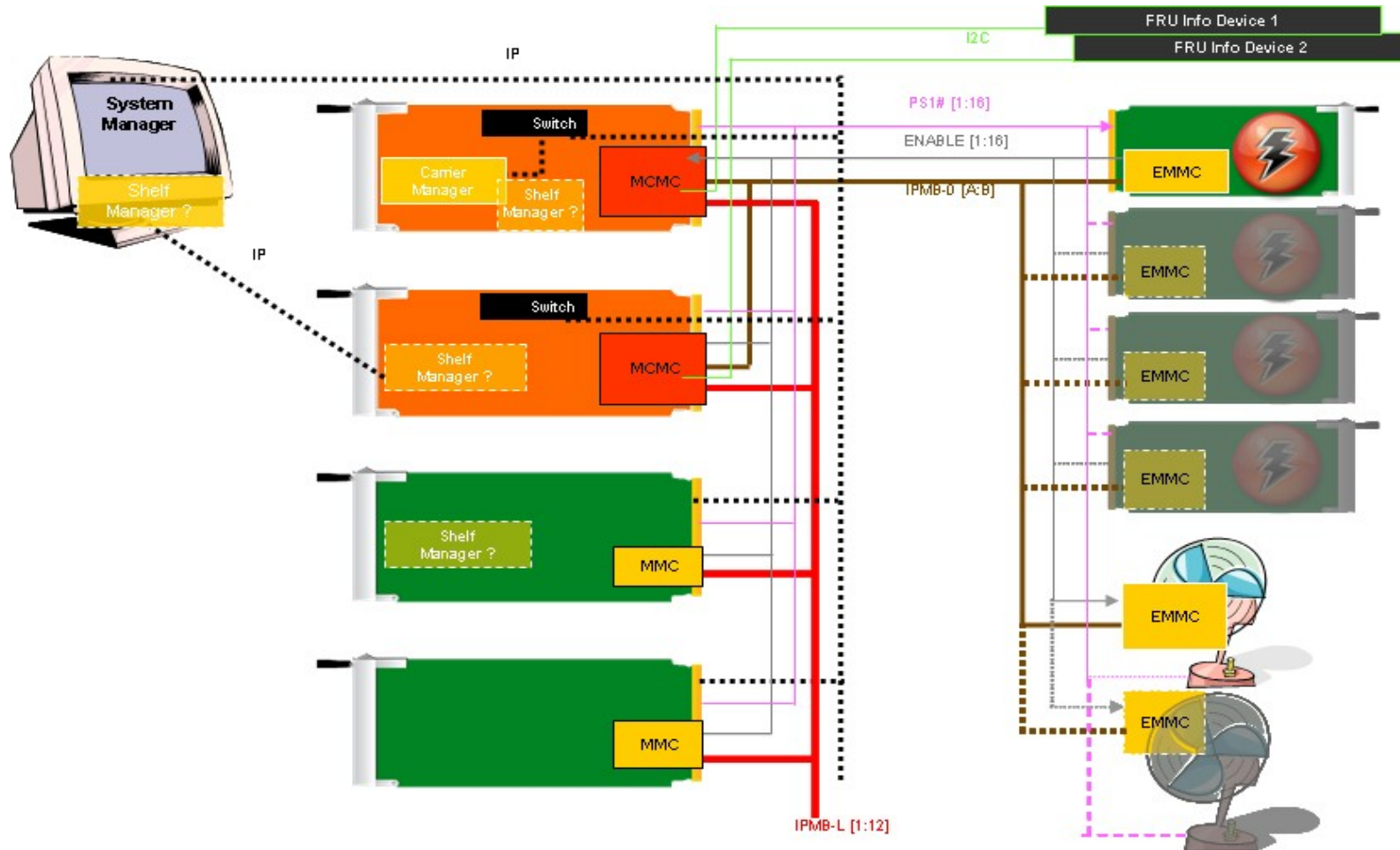
## ■ PICMG specifications

- PICMG 3.0 – ATCA base specification that includes the definition and HW/SW implementation details of Shelf Management/Hot Swap Control for ATCA.
- PICMG AMC.0 – AdvancedMC base specification that includes the definition and HW/SW implementation details of carrier and module management for AMC.
- PICMG MicroTCA.0 – Base specification that includes the definition and HW/SW implementation details of management for MicroTCA and AMC.
- MTCA.4 xTCA for Physics Develops additional features and options for use in particle physics research including Rear Transmission Module(RTM) for signal conditioning, data collection and accelerator control systems.

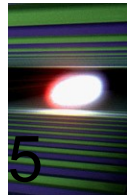
# MicroTCA shelf management structure

4

## MicroTCA shelf management option



# MicroTCA shelf management structure



- **M**odule **M**anagement **C**ontroller for DESY designed AMC modules
  - Based on 8-bit ATmega128L AVR microcontroller with sensors and control circuitry
  - IPMI firmware developed in DESY is used by other institutes( CERN, IN2P3 ... ) and manufacturers



**DAMC1**



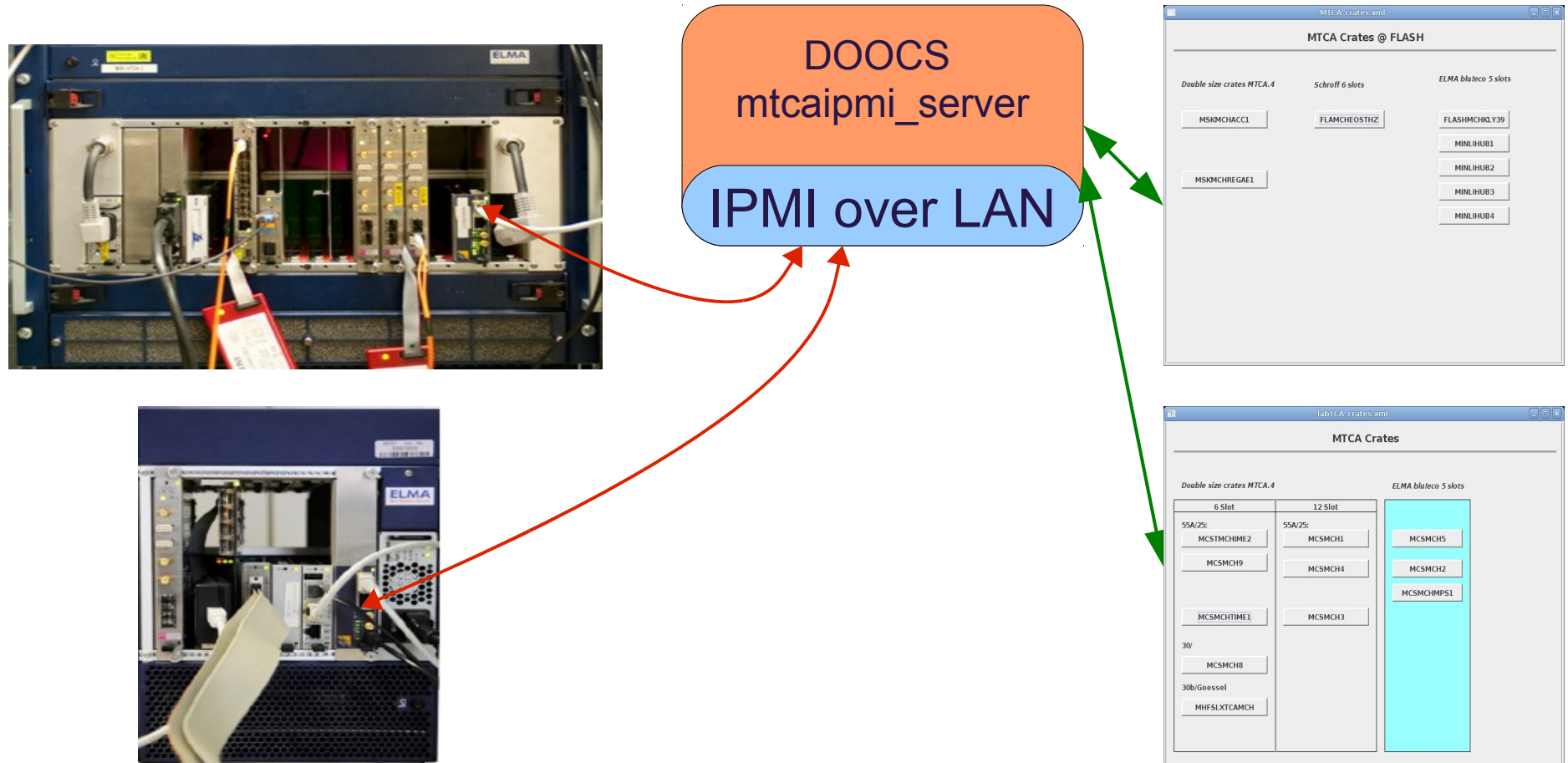
**DAMC2**



*Timing module  
designed in Stockholm  
University*

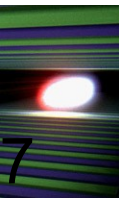
## Remote Management of the crates in DOOCS

## ■ Remote Management implementation

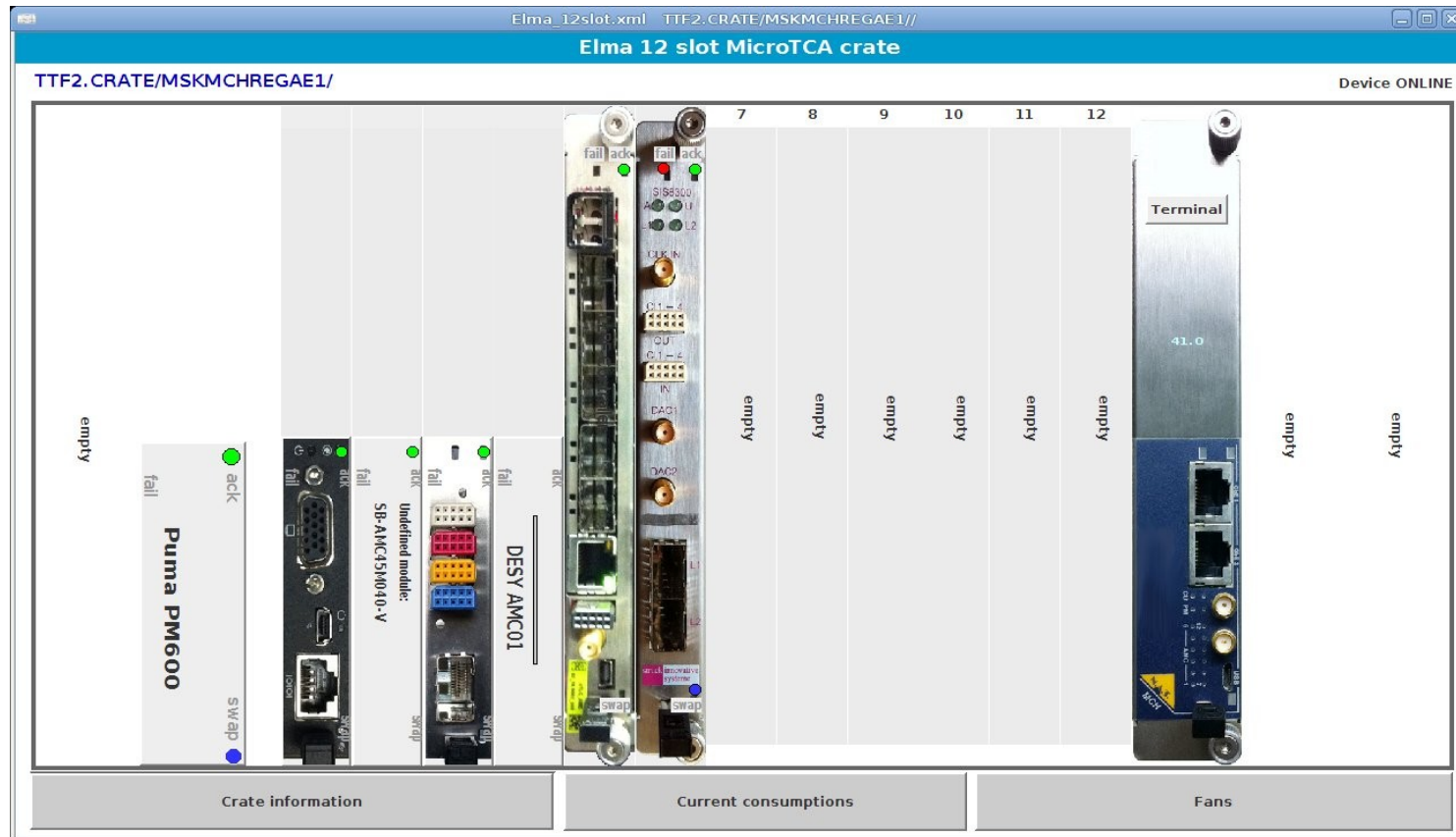




## Remote Management of the crates in DOOCS



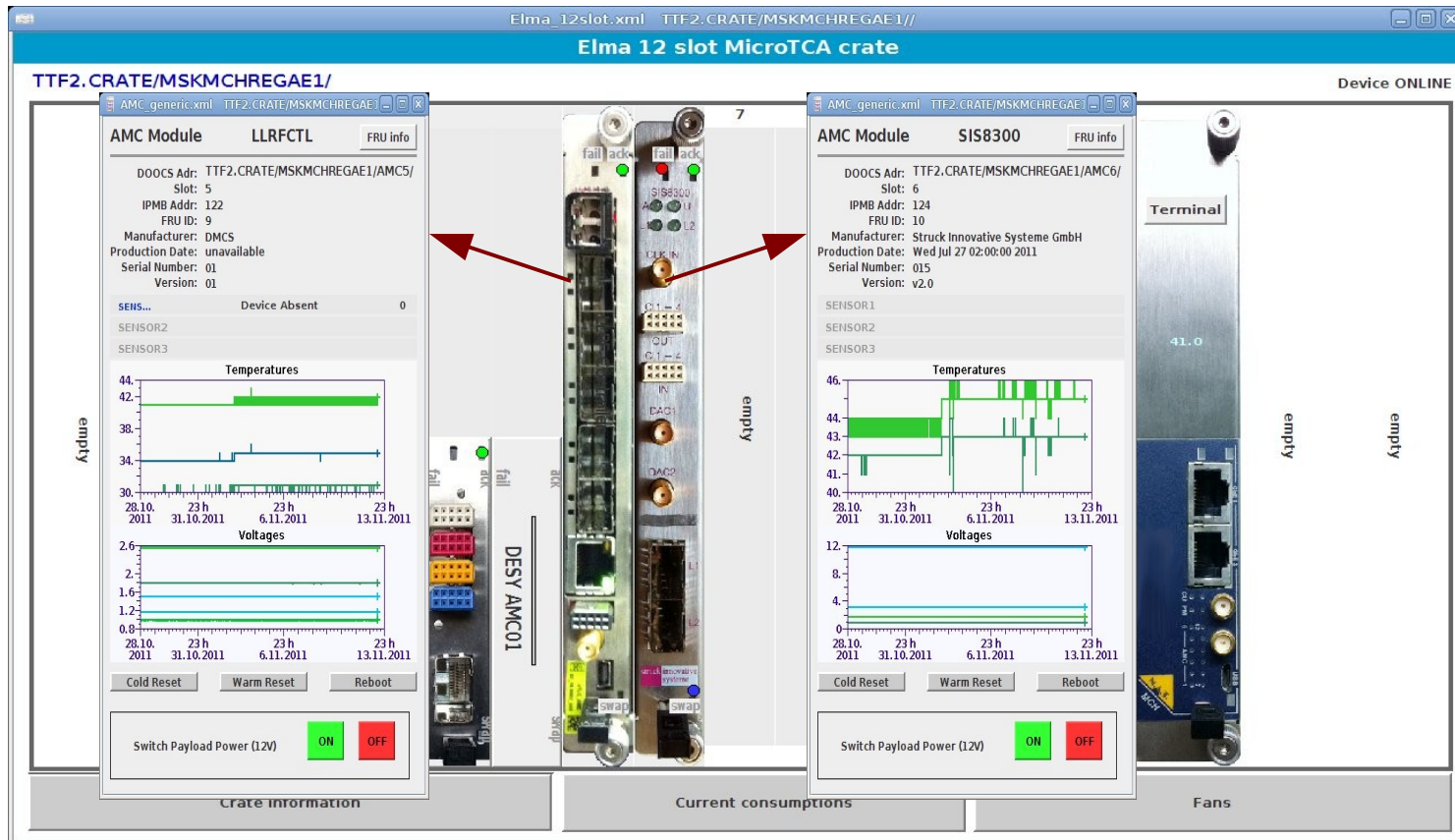
## ■ 12 slot ELMA MicroTCA Crate View



## Remote Management of the crates in DOOCS

8

## ■ AMC modules in crate





# Remote Management of the crates in DOOCS

9

## MicroTCA crate information

The screenshot displays the MicroTCA management interface with several windows open:

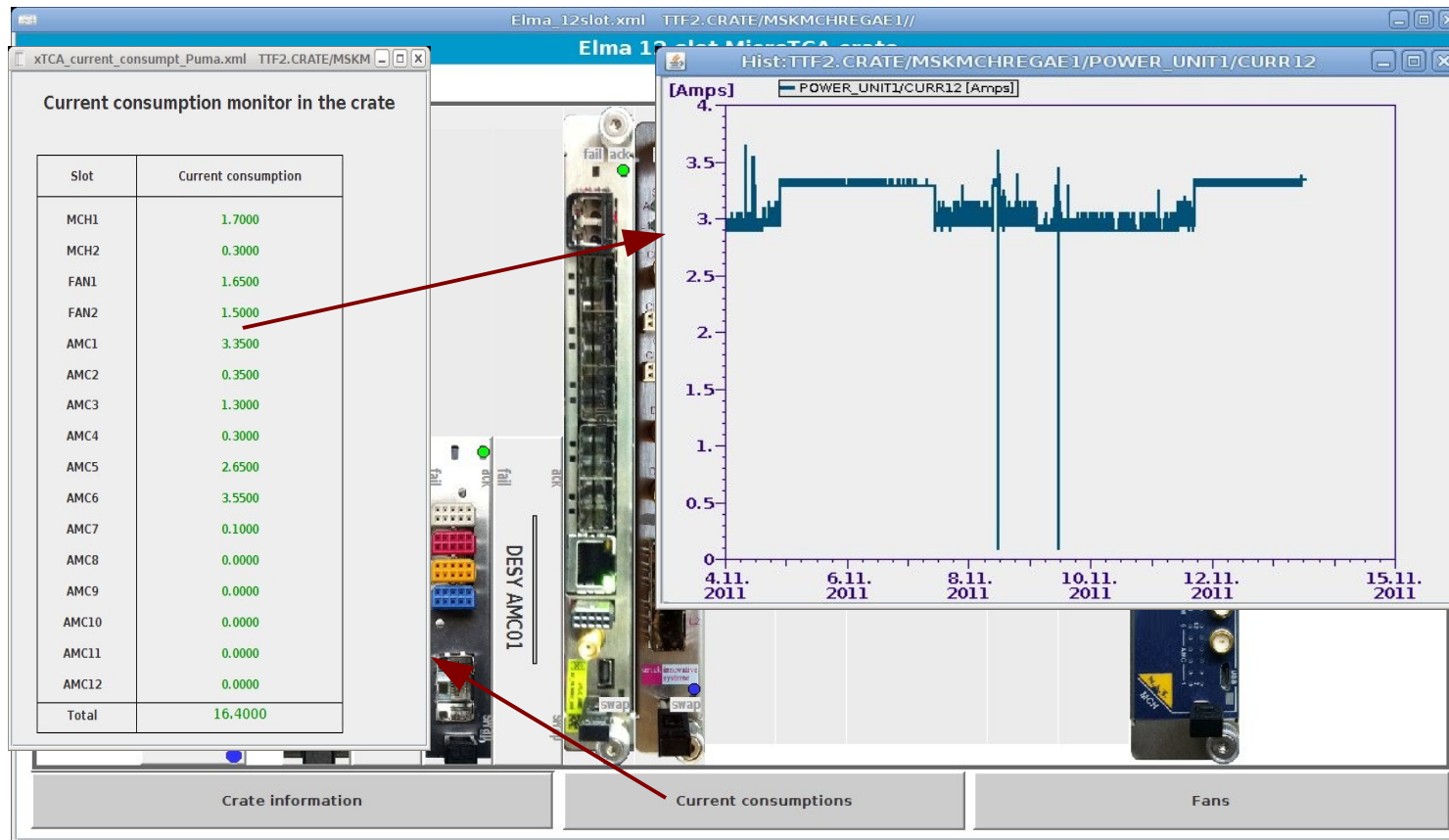
- System event messages:** Shows a list of events for the ELMA Trenew xTCA-12 Std. crate, including IPMB.Dxc6 Sensor N:23 Type:Voltage Event:Lower Non-recoverable going low.
- Elma 12 slot MicroTCA crate:** Displays the crate's details, including Manufacturer (ELMA Trenew Electronic GmbH), Production Date (Thu Feb 17 15:45:00 2011), Serial Number (10545690), Partial Number (039-362), Version (Ind.A), Power units (1), Cooling units (2), Slots (12), and AMC modules (6).
- FRUinfoview.xml:** Shows a tree view of the FRU information, including CHASSIS, BOARD, PRODUCT, and MULTIRECORD. The right pane displays a table of FRU details.

Red arrows indicate the flow of information from the system event messages to the crate information and then to the FRU information.

Name	Value
Manufacturer	ELMA Trenew Electronic ...
Name	xTCA-12 Std.
PartNumber	039-362
Version	Ind.A
SerialNumber	10545690
FRU ID	xxx.bin
Extra	

## Remote Management of the crates in DOOCS

## ■ Power monitoring of the crate



## ■ HPM.1 Firmware Upgrade

**HPM.1 specification defines an open mechanism for systems to upgrade the software and firmware on the various components and subsystems.**

