

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



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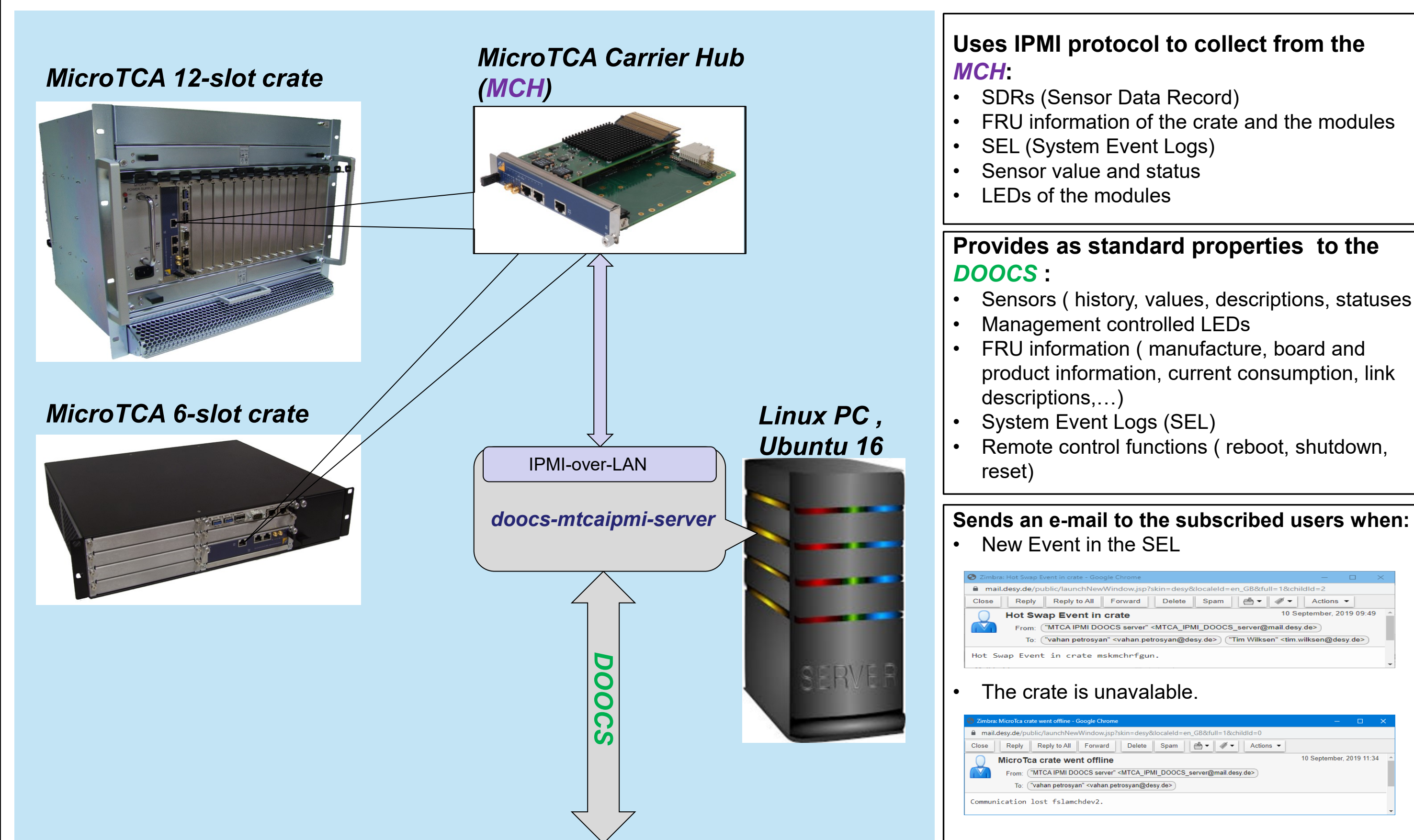
Abstract

The extensive management functionality is one of the key advantage of the MicroTCA standard. The monitoring and control of more than 350 MicroTCA crates and thousands AMC and RTM modules installed in XFEL, FLASH, SINBAD, ANGUS experiments was integrated into DOOCS control system. A middle layer DOOCS server and Java based GUIs JDDD and JDTool developed in DESY provide the visualization and the remote management of the MicroTCA shelves and components. The integrated management includes inventory information, current consumptions, monitoring temperatures, voltages and various types of the sensors. The system event logs and the collected histories of the sensors are used to investigate the failures and issues.

MicroTCA crate in XFEL Tunnel.



DOOCS-IPMI server for the MicroTCA crates.



Motivation

- Monitor basic health of the shelves
- Receive event reports and failure notifications from the boards and other intelligent FRUs
- Manage power, cooling & interconnect resources in the shelves
- Report anomalies
- Take corrective actions when needed
- Retrieve inventory information
- Read sensors and store their values for further investigations

Monitoring MicroTCA crates.

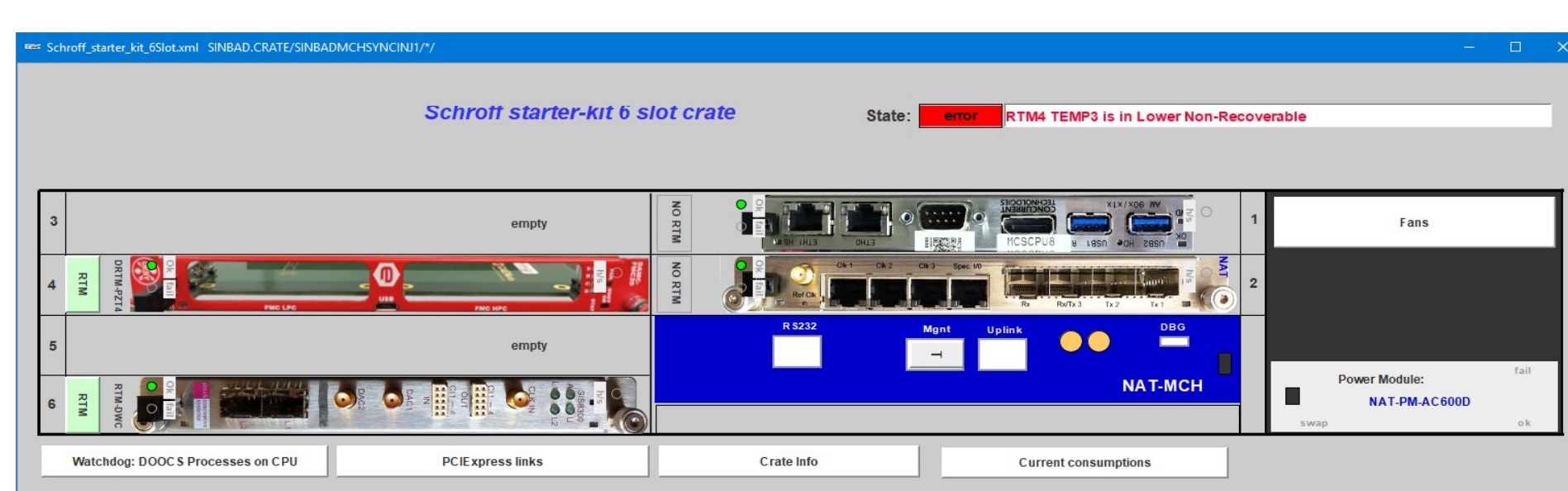
Facility	Crate	Slot	Serial	Firmware	ALIAS	MANUFACTURE	STATUS
XFEL CRATE	XFELMCH0001	5	547	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	4	487	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	6	418	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	10	216	1.46	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	11	219	1.46	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	7	412	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	9	417	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	8	416	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	10	418	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	11	424	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	10	423	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	7	415	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	8	419	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	10	421	1.33	SIB300L2	Stock Inventory System Green	online
XFEL CRATE	XFELMCH0001	11	448	1.33	SIB300L2	Stock Inventory System Green	online
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Remote management of the MicroTCA crates in DOOCS.

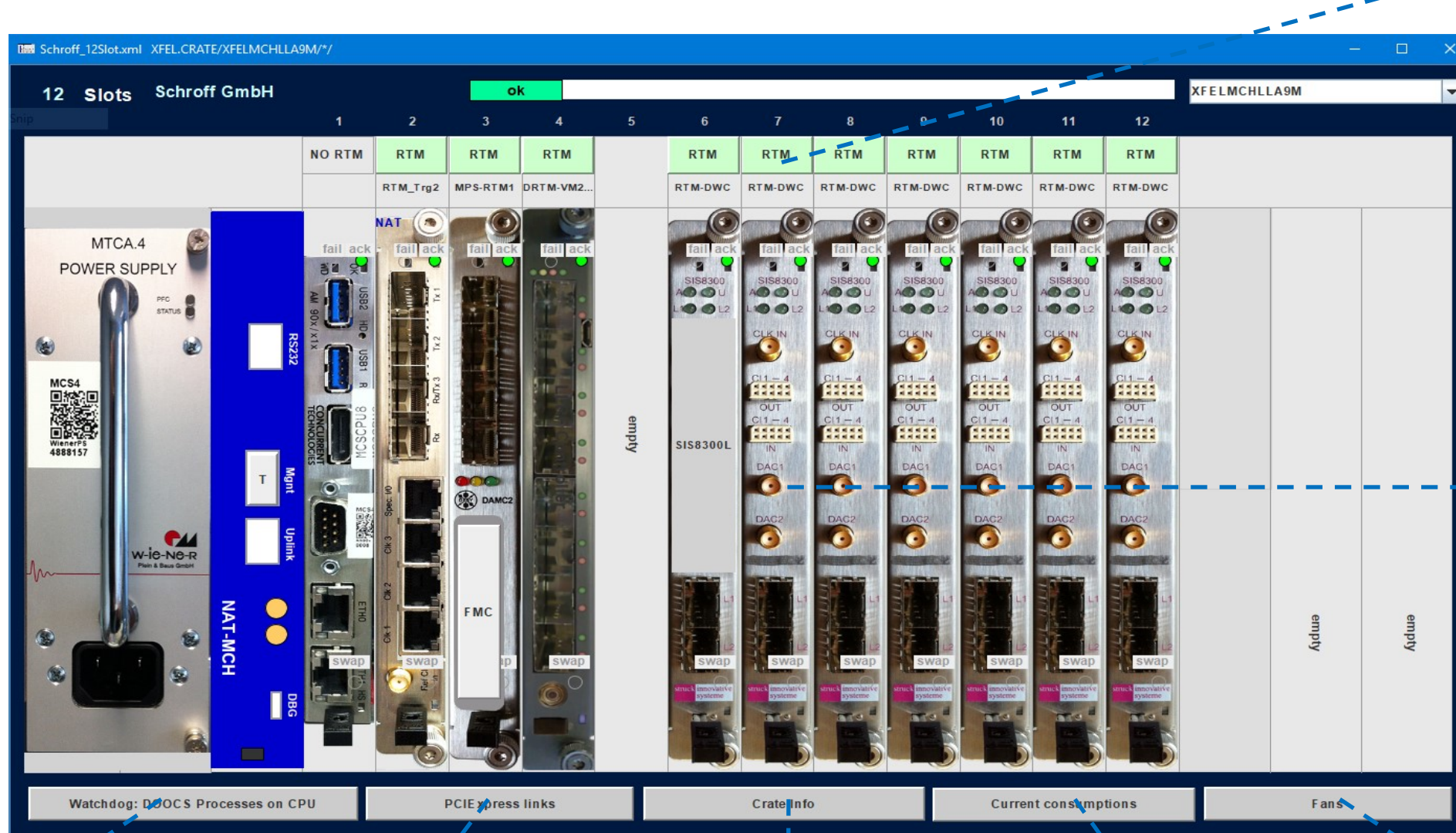
JDDD panels for the module.

- View of the MicroTCA crates based on java GUI - JDDD

MicroTCA 6-slot crate view JDDD.

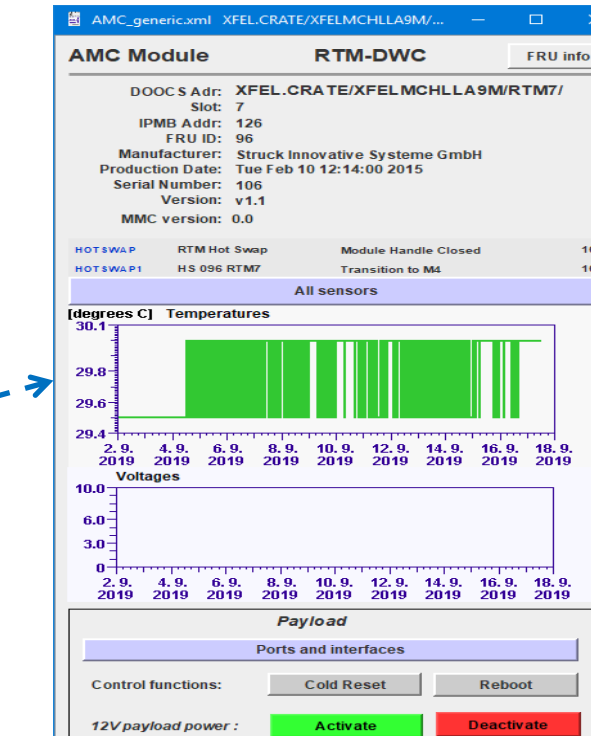


MicroTCA 12-slot crate view JDDD.

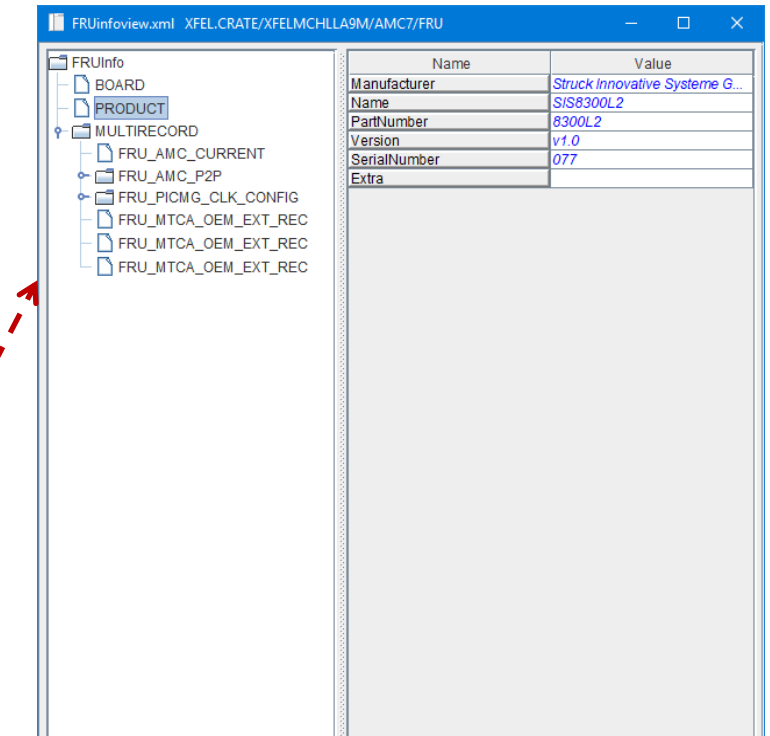


- FRU(Field Replaceable Unit) – pluggable modules which are integrated in chassis, like Power Modules, Fan-trays, AMC and RTM modules etc.

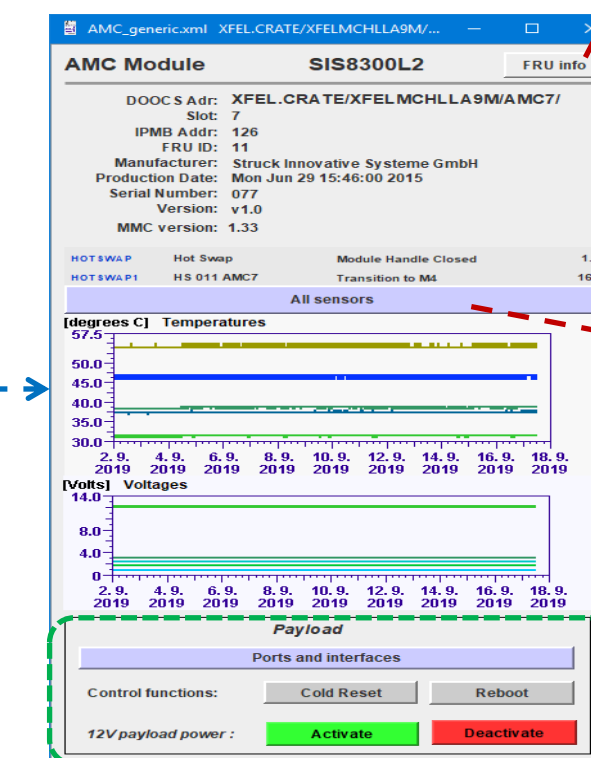
RTM module



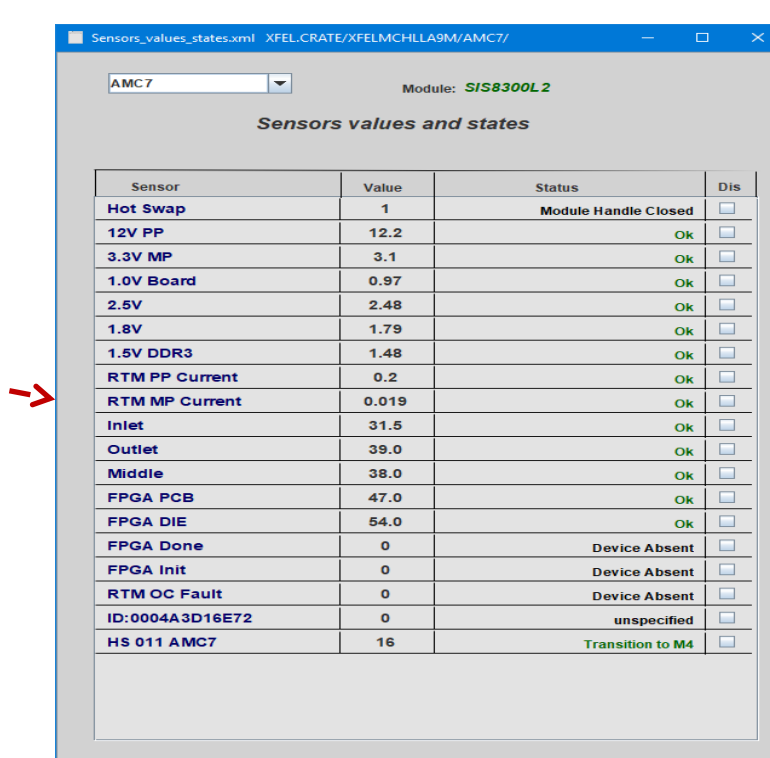
FRU information



AMC module



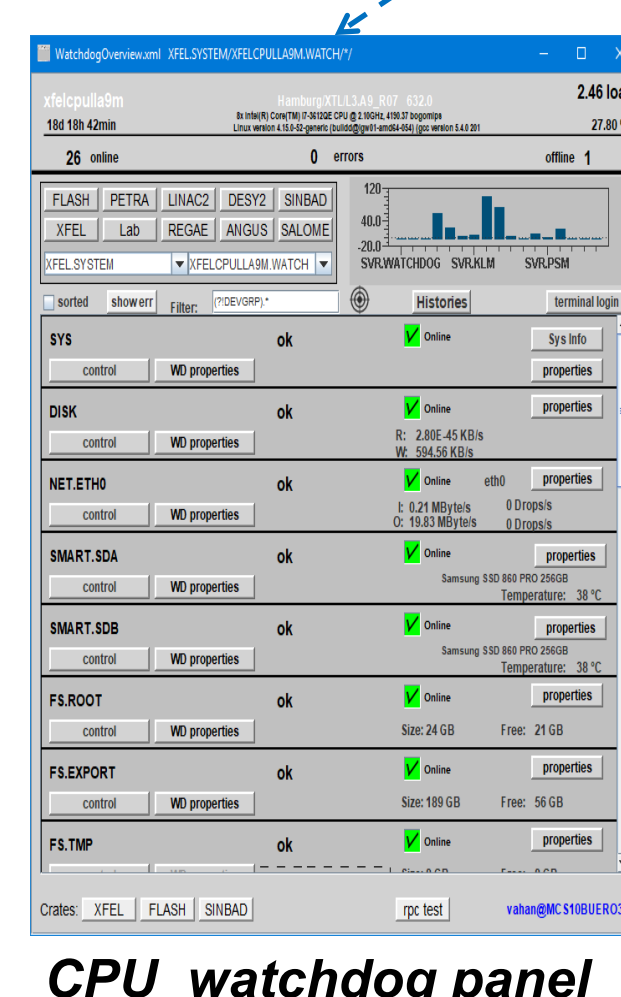
Sensors



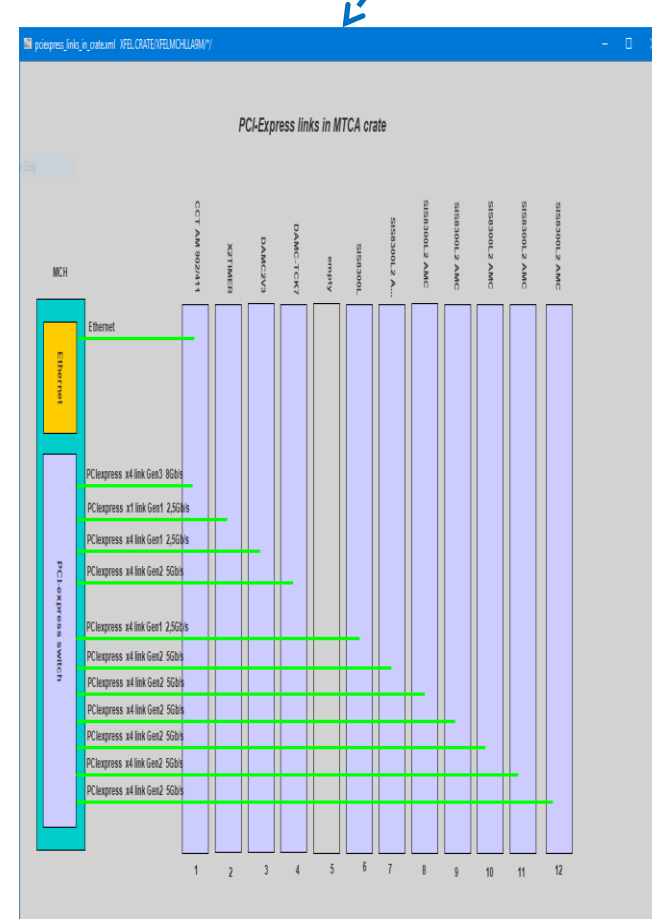
Main control functions for the module and its payload.

Management of the MicroTCA components.

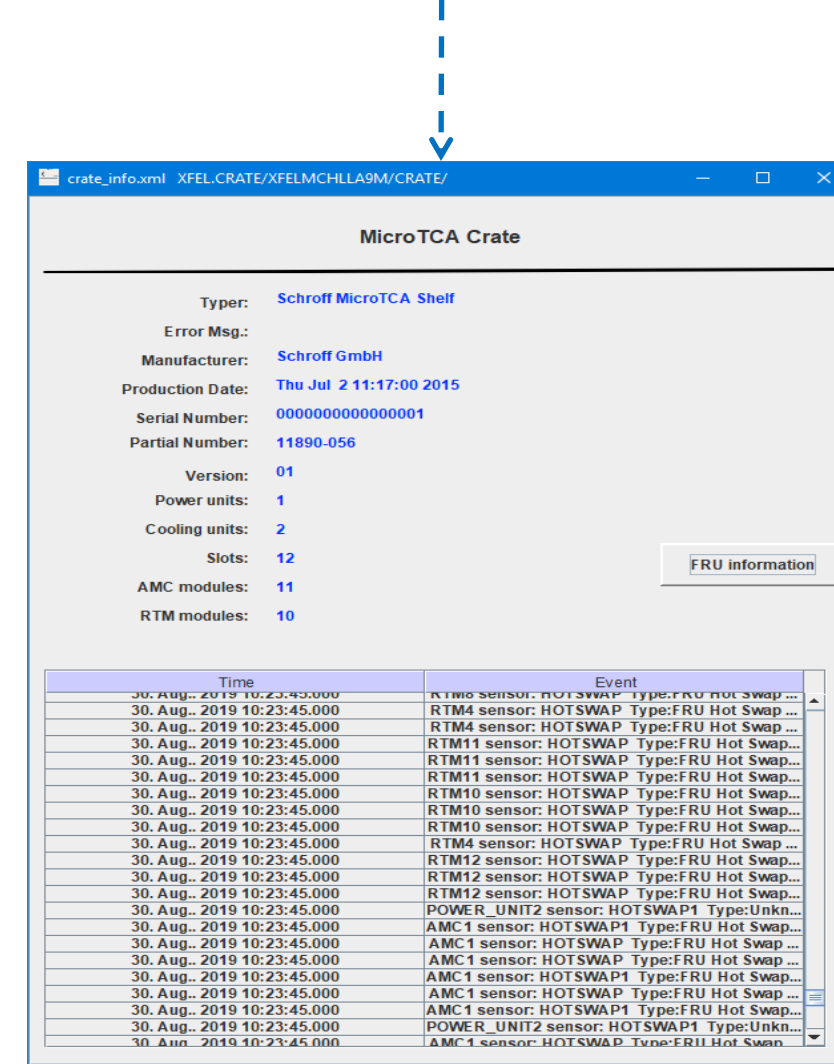
- Tracking of the MicroTCA crates and its components with java based GUI - JDTool



CPU watchdog panel



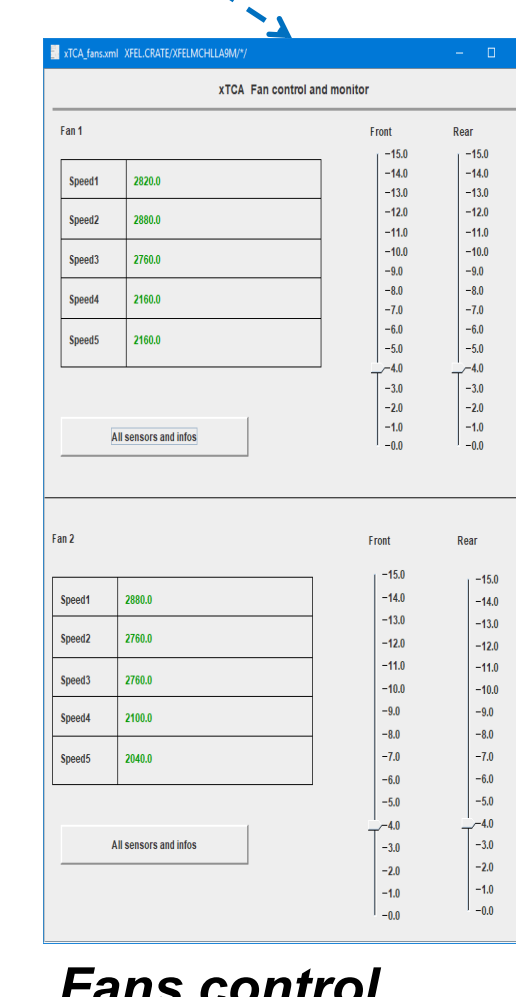
PCI-Express and Ethernet links connections



Main crate information and System Event Logs



Current consumptions of the modules.



Fans control

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MicroTCA crate monitoring panels.