



European Coordination for Accelerator Research and Development

PUBLICATION

Application for Management and Monitoring of xTCA Hardware

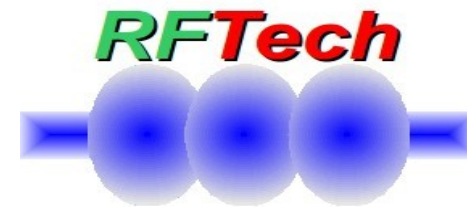
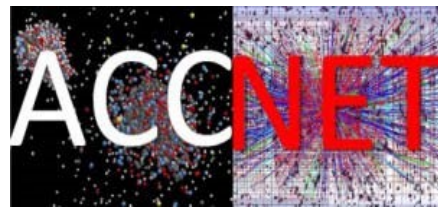
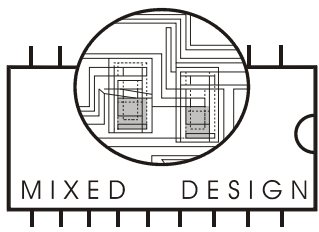
Wychowaniak, J (TUL) *et al*

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Application for Management and Monitoring of xTCA Hardware

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Agenda



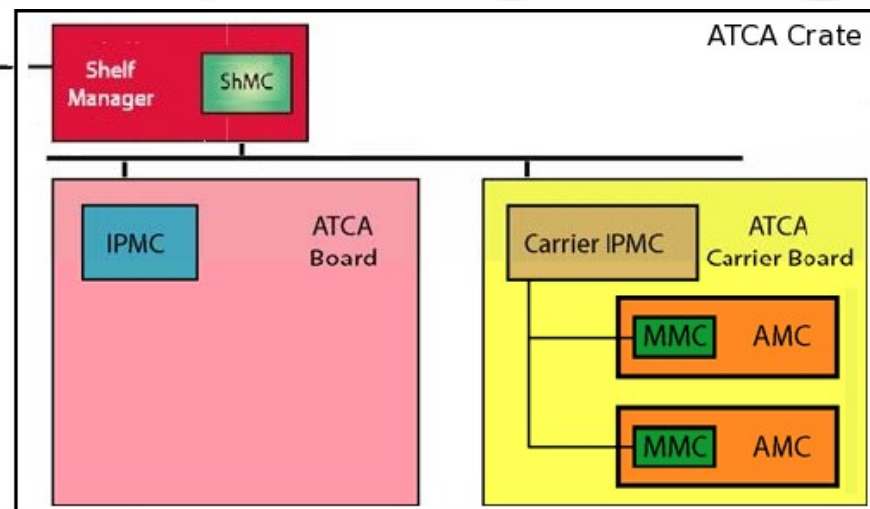
- ***ATCA crate management, vendor-provided tools***
- ***The role of the application***
- ***The capabilities***
- ***Data exchange with ATCA Shelf Manager***
- ***Internal application structure***



ATCA Crate Management



Ethernet-based
System Manager link



Web:

IPM Controller Information

```
10: Entity: (0xf0, 0x60) Maximum FRU device ID: 0x08
    PICMG Version 2.2
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Pro

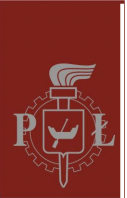
20: Entity: (0xf0, 0x1) Maximum FRU device ID: 0x10
    PICMG Version 2.2
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Pro
```

CLI:

```
# clia ipmc -v

Pigeon Point Shelf Manager Command Line Interpreter

10: Entity: (0xf0, 0x60) Maximum FRU device ID: 0x08
    PICMG Version 2.2
    Hot Swap State: M4 (Active), Previous: M3 (Active)
    Device ID: 0x00, Revision: 0, Firmware: 2.51, IPM
    Manufacturer ID: 00400a, Product ID: 0000, Auxili
    Device ID String: "ShMM-500"
    Global Initialization: 0x0, Power State Notificat
    Controller provides Device SDRs
    Supported features: 0x29
        "Sensor Device" "FRU Inventory Device" "IPMB I
    10: Base Interface (0x00), Channel: 1
        Link: Disabled Ports: 1
    10: Base Interface (0x00), Channel: 2
```



Application Aim

The application provides real-time monitoring capabilities and enables for supervision and management of the ATCA-based system being performed in more efficient and convenient manner.





Functionality (monitoring)



- ***Graphical representation of the shelf front panel for real-time monitoring (remote virtual shelf)***



- ***Determining FRUs and IPMCs presence and state***



Functionality (management)



- ***FRU activation and deactivation***
- ***FRU resetting***
- ***Fan level monitoring and control***
- ***SEL browsing***
- ***Custom IPMI messaging (access to non-standard hardware functionality)***



Minimal Fans Level

Current =

New =

Left Fan

Present:

HS:

Current level =

New =

Right Fan

Present:

HS:

Current level =

New =



Interfaces Compared



```
# clia getfanlevel fan_tray 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
5c: FRU # 0 Override Fan Level: 15, Local Fan Level: 1
```

```
# clia setfanlevel fan_tray 2 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
5c: FRU # 0 Set Fan Level to: 2
```

```
# clia getfanlevel -v fan_tray 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
5c: FRU # 0 Override Fan Level: 2, Local Fan Level: 1
```

```
# clia minfanlevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

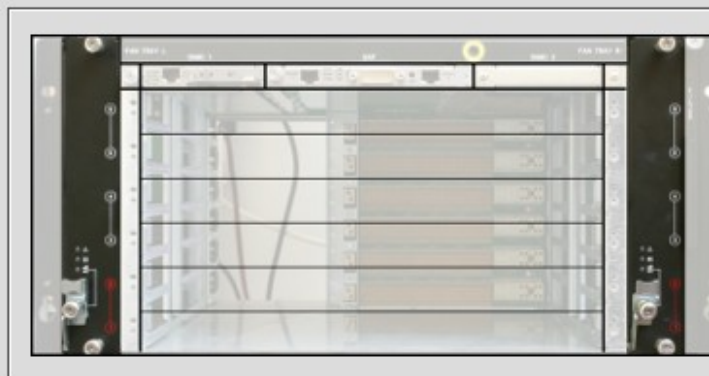
```
Minimal Fan Level is 3
```

```
Dynamic Minimum Fan Level is 3
```

```
# clia minfanlevel 5
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Minimal Fan Level is set to 5
```



Minimal Fans Level

Current =

New =

Left Fan

Present:

HS:

Current level =

New =

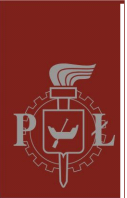
Right Fan

Present:

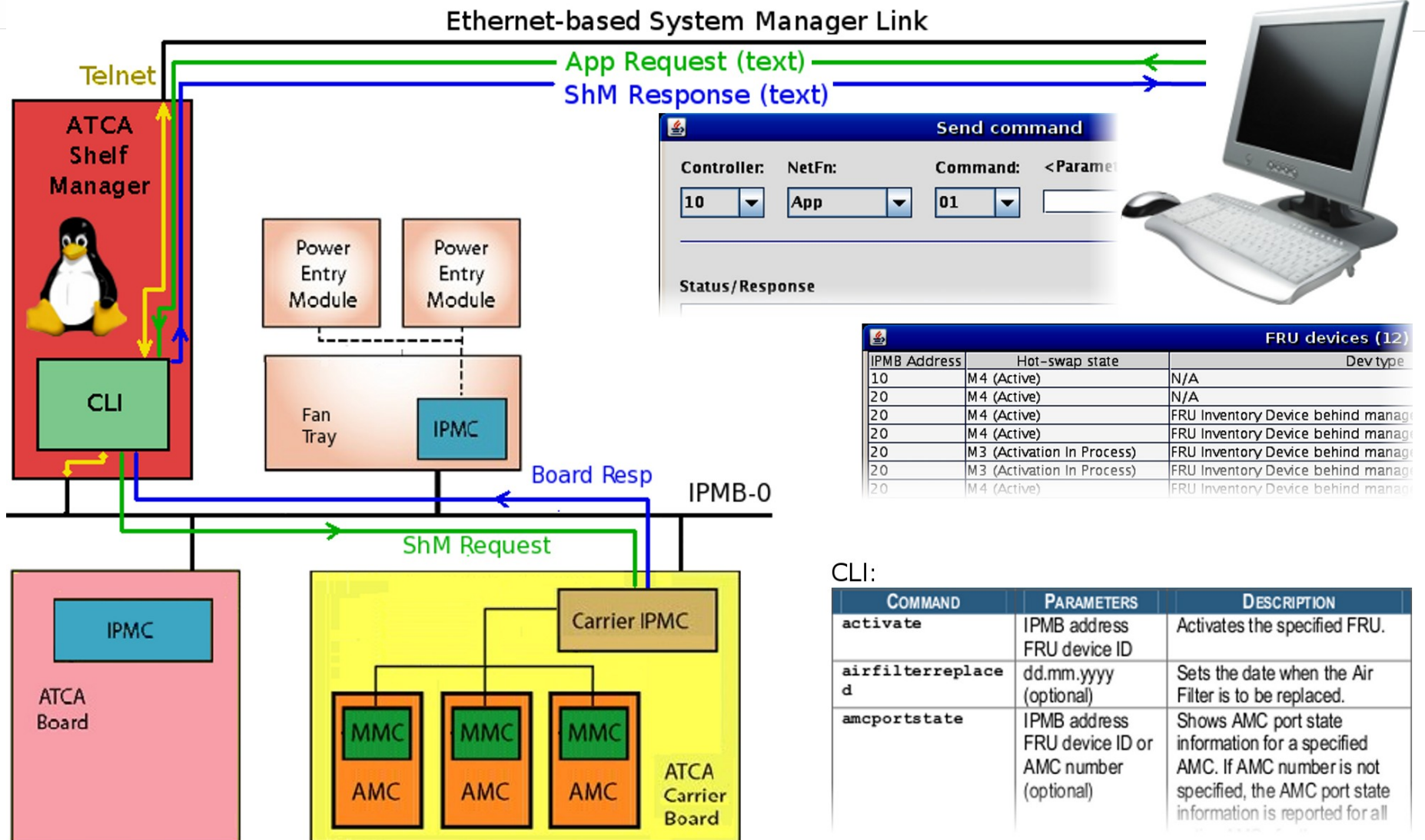
HS:

Current level =

New =

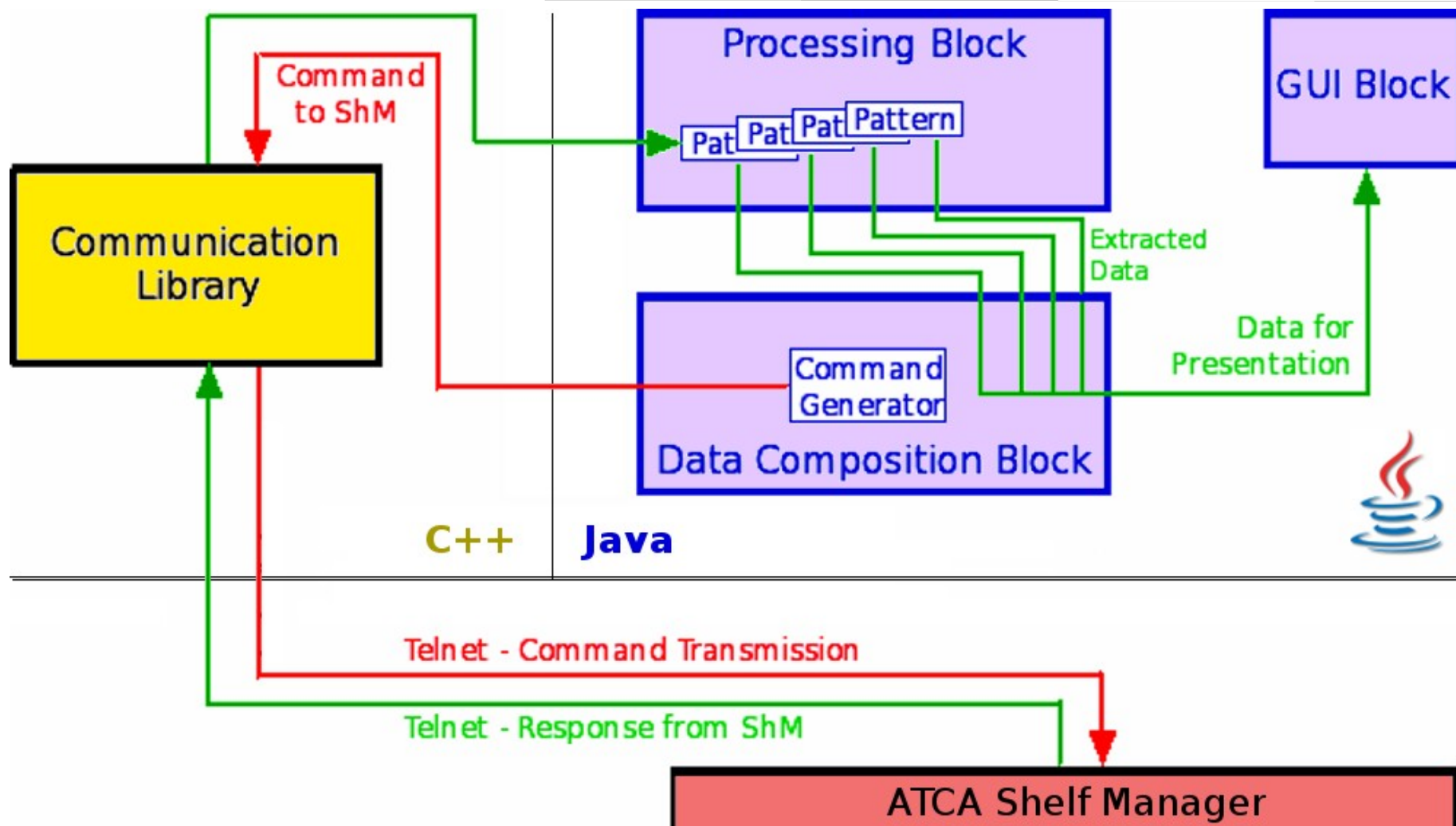


Cooperation with Shelf Manager





Internal Application Structure





CLI Output Data Interpretation



```
# clia ipmc -v
Pigeon Point Shelf Manager Command Line Interpreter
```

```
10: Entity: (0xf0, 0x60) Maximum FRU device ID: 0x08
PICMG Version 2.2
Hot Swap State: M4 (Active), Previous: M3 (Activation In Process),
Last State Change Cause: Normal State Change (0x0) String
Device ID: 0x00, Revision: 0, Firmware: 2.51, IPMI ver 1.5
Manufacturer ID: 00400a, Product ID: 0000, Auxiliary Rev: 99804662
Device ID String: "ShMM-500"
Global Initialization: 0x0, Power State Notification: 0x0, Device Capabilities: 0x29
Supported features: 0x29
"Sensor Device" "FRU Inventory Device" "IPMB Event Generator"
10: Base Interface (0x00), Channel: 1
```

```
private final String entityRegex = "\\w\\w(: Entity:).*?";
private final String hotSwapRegex = "(Hot Swap State: ).+?, ";
private final String devIDStrRegex = "(Device ID String: \").+?\\\"";
private final String suppFtrsRegex = "(Supported features: ).+?(\\\".+?\\\"[ ]?)+";
```

IPM Controllers (5)			
IPMB Address:	Hot Swap State:	Device ID String:	Supported features:
10	M4 (Active)	ShMM-500	Sensor Device, FRU Inventory Device, IPMB Event Generator
20	M4 (Active)	PPS BMC	Sensor Device, SDR Repository Device, SEL Device, FRU Inventory

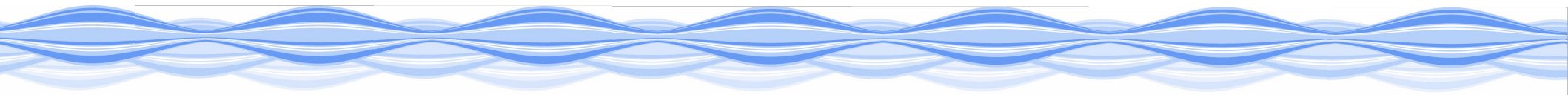
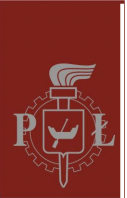




Summary



- ***Improvement of control and supervision efficiency as compared to vendor-provided tools***
- ***Additional real-time monitoring capabilities***
- ***Access to custom hardware functionality***
- ***The architecture of the application supports expandability***
- ***Further development plans***



Thank You

