

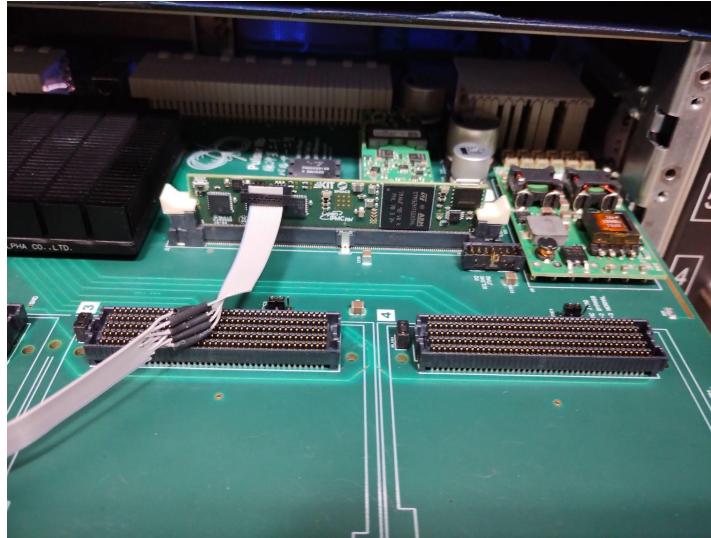
# OpenIPMC-specific-demo

Test on an ATCA crate

Carlos R. Dell'Aquila (UMass)

# Test conditions

- OpenIPMC-HW v1.2 is connected in a Pulsar-II ATCA board
- Pulsar-II board is always inserted in the crate
  - Tests are done remotely
  - The handle switch is simulated with the 'handle [ o | c ]' CLI command
  - The firmware is loaded with a STLink device, which is also used to debug

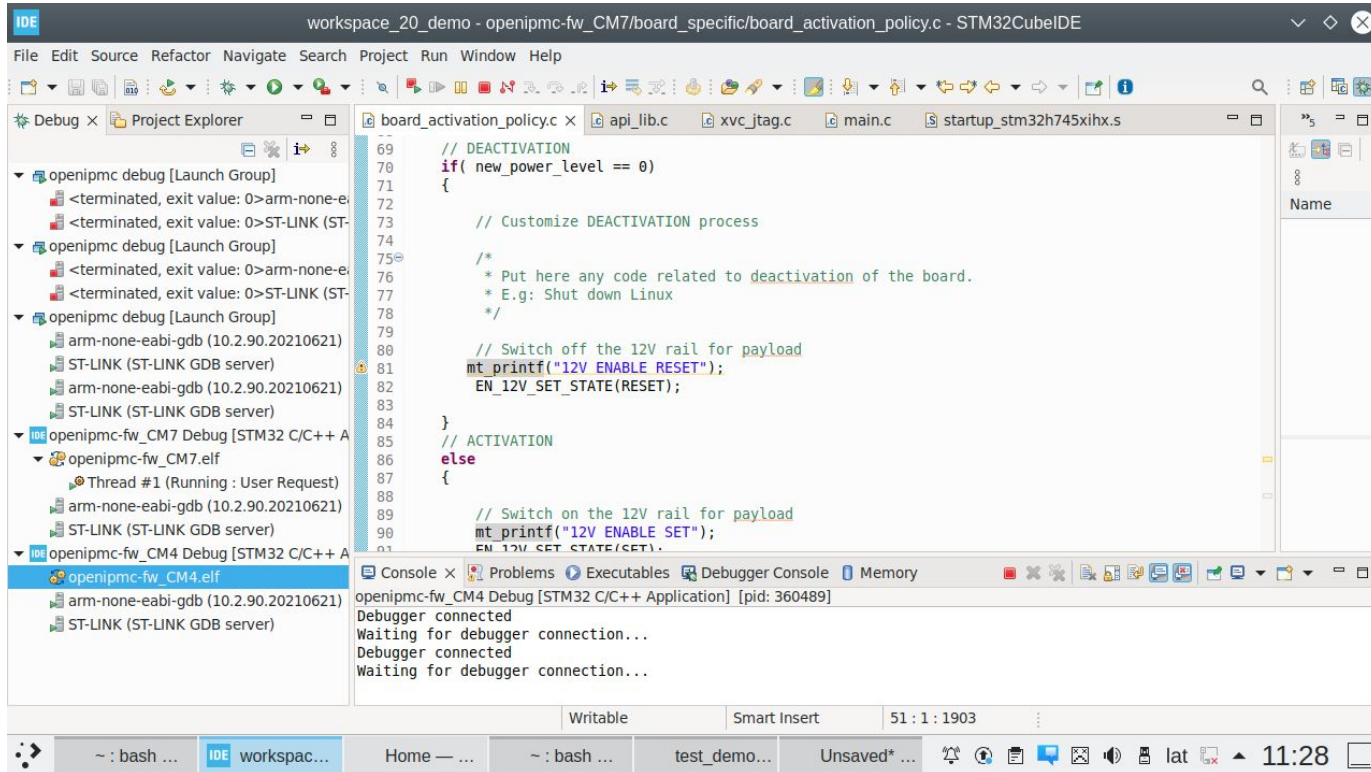


# Test conditions

- Tests conducted with **board-specific-demo** project
  - <https://gitlab.com/openipmc/openipmc-fw-board-specific-demo>
  - All sensors are simulated in the code
  - Before testing, it is highly recommend to update the OpenIPMC-FW module to the latest devel branch commit.
    - The following commands can be used as reference:

```
$ git clone --recursive https://gitlab.com/openipmc/openipmc-fw-board-specific-demo
$ cd openipmc-fw-board-specific-demo/
$ cd openipmc-fw
$ git checkout devel
$ git submodule update --init --recursive
```

# Printouts added before the 12V\_ENABLE SET/RESET



# IPMITOOL to verify the IPMB-0 bus communication

```
~ : bash — Konsole <2>
File Edit View Bookmarks Settings Help
dellaquila@spin01:~$ ipmitool -H "10.0.0.171" -P "" -t 0x8a sensor list
Hot Swap Carrier | 0x0      | discrete | 0x1000 | na      | na      | na      | na      | na      | na
IPMB-0 Sensor    | 0x88     | discrete | 0x0800 | na      | na      | na      | na      | na      | na
FPGA TEMP        | 53.000   | degrees C | ok     | na      | na      | 0.000   | na      | na      | na
AIR TEMP         | 28.500   | degrees C | ok     | na      | na      | -20.000 | na      | na      | na
12V RAIL         | 12.400   | Volts    | ok     | na      | na      | na      | na      | na      | na
dellaquila@spin01:~$ ipmitool -H "10.0.0.171" -P "" -t 0x8a sensor list
Hot Swap Carrier | 0x0      | discrete | 0x1000 | na      | na      | na      | na      | na      | na
IPMB-0 Sensor    | 0x88     | discrete | 0x0800 | na      | na      | na      | na      | na      | na
FPGA TEMP        | 53.000   | degrees C | ok     | na      | na      | 0.000   | na      | na      | na
AIR TEMP         | 28.500   | degrees C | ok     | na      | na      | -20.000 | na      | na      | na
12V RAIL         | 12.400   | Volts    | ok     | na      | na      | na      | na      | na      | na
dellaquila@spin01:~$
```

- : sudo minicom X ~ : bash X ~ : bash X

~ : bash ... IDE workspac... Home — ... ~ : bash ... Unsaved\* ... Untitled 1 ... 10:20



# Shelf-Manager's SEL Output

```
~ : bash — Konsole <2>
File Edit View Bookmarks Settings Help
390 | 11/20/2024 | 09:59:14 | FRU Hot Swap | Transition to M2 | Asserted
391 | 11/20/2024 | 09:59:15 | IPMB Physical Link #0x01 | IPMB-A enabled, IPMP-B enabled | Asserted
392 | 11/20/2024 | 09:59:15 | FRU Hot Swap | Transition to M3 | Asserted
393 | 11/20/2024 | 09:59:15 | FRU Hot Swap | Transition to M4 | Asserted
394 | 11/20/2024 | 10:03:16 | FRU Hot Swap | Transition to M7 | Asserted
395 | 11/20/2024 | 10:03:16 | IPMB Physical Link #0x01 | IPMB-A enabled, IPMB-B disabled | Asserted
396 | 11/20/2024 | 10:03:22 | FRU Hot Swap | Transition to M2 | Asserted
397 | 11/20/2024 | 10:03:22 | FRU Hot Swap | Transition to M3 | Asserted
398 | 11/20/2024 | 10:03:22 | FRU Hot Swap | Transition to M4 | Asserted
399 | 11/20/2024 | 10:03:25 | IPMB Physical Link #0x01 | IPMB-A enabled, IPMP-B enabled | Asserted
39a | 11/20/2024 | 10:04:39 | Session Audit #0x8b | | Asserted
276 | 11/20/2024 | 10:04:39 | Session Audit #0x8b | | Asserted
10b | 11/20/2024 | 10:04:44 | Session Audit #0x8b | | Asserted
10c | 11/20/2024 | 10:04:47 | Session Audit #0x8b | | Asserted
10d | 11/20/2024 | 10:05:28 | Session Audit #0x8b | | Asserted
10e | 11/20/2024 | 10:05:34 | Session Audit #0x8b | | Asserted
10f | 11/20/2024 | 10:09:23 | FRU Hot Swap | Transition to M0 | Asserted
110 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M2 | Asserted
111 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M3 | Asserted
112 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M4 | Asserted
113 | 11/20/2024 | 10:18:23 | Session Audit #0x8b | | Asserted
114 | 11/20/2024 | 10:18:26 | Session Audit #0x8b | | Asserted
115 | 11/20/2024 | 10:18:27 | FRU Hot Swap | Transition to M7 | Asserted
116 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M2 | Asserted
117 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M3 | Asserted
118 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M4 | Asserted
119 | 11/20/2024 | 10:18:53 | Session Audit #0x8b | | Asserted
11a | 11/20/2024 | 10:18:55 | Session Audit #0x8b | | Asserted
11b | 11/20/2024 | 10:26:18 | Session Audit #0x8b | | Asserted
dellaquila@spin01:~$
```

~ : sudo minicom ✕ ~ : bash ✕ ~ : bash ✕

~ : bash ... IDE workspac... Home — ... ~ : bash ... Unsaved\* ... Untitled 1 ... 10:23







# Shelf-Manager's SEL Output

```
~ : bash — Konsole <2>
File Edit View Bookmarks Settings Help
397 | 11/20/2024 | 10:03:22 | FRU Hot Swap | Transition to M3 | Asserted
398 | 11/20/2024 | 10:03:22 | FRU Hot Swap | Transition to M4 | Asserted
399 | 11/20/2024 | 10:03:25 | IPMB Physical Link #0x01 | IPMB-A enabled, IPMP-B enabled | Asserted
39a | 11/20/2024 | 10:04:39 | Session Audit #0x8b | | Asserted
276 | 11/20/2024 | 10:04:39 | Session Audit #0x8b | | Asserted
10b | 11/20/2024 | 10:04:44 | Session Audit #0x8b | | Asserted
10c | 11/20/2024 | 10:04:47 | Session Audit #0x8b | | Asserted
10d | 11/20/2024 | 10:05:28 | Session Audit #0x8b | | Asserted
10e | 11/20/2024 | 10:05:34 | Session Audit #0x8b | | Asserted
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111 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M3 | Asserted
112 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M4 | Asserted
113 | 11/20/2024 | 10:18:23 | Session Audit #0x8b | | Asserted
114 | 11/20/2024 | 10:18:26 | Session Audit #0x8b | | Asserted
115 | 11/20/2024 | 10:18:27 | FRU Hot Swap | Transition to M7 | Asserted
116 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M2 | Asserted
117 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M3 | Asserted
118 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M4 | Asserted
119 | 11/20/2024 | 10:18:53 | Session Audit #0x8b | | Asserted
11a | 11/20/2024 | 10:18:55 | Session Audit #0x8b | | Asserted
11b | 11/20/2024 | 10:26:18 | Session Audit #0x8b | | Asserted
11c | 11/20/2024 | 10:26:20 | Session Audit #0x8b | | Asserted
11d | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M5 | Asserted
11e | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M6 | Asserted
11f | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M1 | Asserted
120 | 11/20/2024 | 10:28:45 | Session Audit #0x8b | | Asserted
121 | 11/20/2024 | 10:28:45 | Session Audit #0x8b | | Asserted
122 | 11/20/2024 | 10:29:35 | Session Audit #0x8b | | Asserted
dellaquila@spin01:~$
```

~ : sudo minicom ✕ ~ : bash ✕ ~ : bash ✕

~ : bash ... IDE workspac... Home — ... ~ : bash ... Unsaved\* ... Untitled 1 ... 10:25

# Simulation of the handle switch close state

```
- : sudo minicom — Konsole
File Edit View Bookmarks Settings Help

Terminal v1.4
sw ver.: Nov 20 2024 09:26:36
*****

Count base command: 2
Max command: 28

>> 12V ENABLE SET
Syslog INFO: Syslog server ip addr cannot be read from FS. The Gateway addr is used as default

Syslog INFO: Syslog server port cannot be read from FS. DEFAULT port 514.24-11-20 10:18:46 Set RTC.
>>
>>
>>
>>
Key ESC
>>
>>
>> handle o
>> 12V ENABLE RESET24-11-20 11:18:48 Set RTC.
>>
>>
>> handle c
>> 12V ENABLE SET
CTRL-A Z for help | 115200 8N1 | NOR | Minicom 2.7.90 | VT102 | Offline | ttyACM0

- : sudo minicom x ~ : bash x ~ : bash x
- : sudo minic... IDE workspace_2... Home — Dolp... ~ : bash — Ko... test_demo_pr... 11:24
```

# Shelf-Manager's SEL Output

```
~ : bash — Konsole <2>
File Edit View Bookmarks Settings Help
10b | 11/20/2024 | 10:04:44 | Session Audit #0x8b | | Asserted
10c | 11/20/2024 | 10:04:47 | Session Audit #0x8b | | Asserted
10d | 11/20/2024 | 10:05:28 | Session Audit #0x8b | | Asserted
10e | 11/20/2024 | 10:05:34 | Session Audit #0x8b | | Asserted
10f | 11/20/2024 | 10:09:23 | FRU Hot Swap | Transition to M0 | Asserted
110 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M2 | Asserted
111 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M3 | Asserted
112 | 11/20/2024 | 10:09:24 | FRU Hot Swap | Transition to M4 | Asserted
113 | 11/20/2024 | 10:18:23 | Session Audit #0x8b | | Asserted
114 | 11/20/2024 | 10:18:26 | Session Audit #0x8b | | Asserted
115 | 11/20/2024 | 10:18:27 | FRU Hot Swap | Transition to M7 | Asserted
116 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M2 | Asserted
117 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M3 | Asserted
118 | 11/20/2024 | 10:18:29 | FRU Hot Swap | Transition to M4 | Asserted
119 | 11/20/2024 | 10:18:53 | Session Audit #0x8b | | Asserted
11a | 11/20/2024 | 10:18:55 | Session Audit #0x8b | | Asserted
11b | 11/20/2024 | 10:26:18 | Session Audit #0x8b | | Asserted
11c | 11/20/2024 | 10:26:20 | Session Audit #0x8b | | Asserted
11d | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M5 | Asserted
11e | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M6 | Asserted
11f | 11/20/2024 | 10:28:39 | FRU Hot Swap | Transition to M1 | Asserted
120 | 11/20/2024 | 10:28:45 | Session Audit #0x8b | | Asserted
121 | 11/20/2024 | 10:28:45 | Session Audit #0x8b | | Asserted
122 | 11/20/2024 | 10:29:35 | Session Audit #0x8b | | Asserted
123 | 11/20/2024 | 10:29:37 | Session Audit #0x8b | | Asserted
124 | 11/20/2024 | 11:28:50 | FRU Hot Swap | Transition to M2 | Asserted
125 | 11/20/2024 | 11:28:50 | FRU Hot Swap | Transition to M3 | Asserted
126 | 11/20/2024 | 11:28:51 | FRU Hot Swap | Transition to M4 | Asserted
127 | 11/20/2024 | 11:29:45 | Session Audit #0x8b | | Asserted
dellaquila@spin01:~$
```

~ : sudo minicom X ~ : bash X ~ : bash X

~ : bash ... IDE workspac... Home — ... ~ : bash ... test\_demo... Unsaved\* ... 11:25

# Telnet Connection

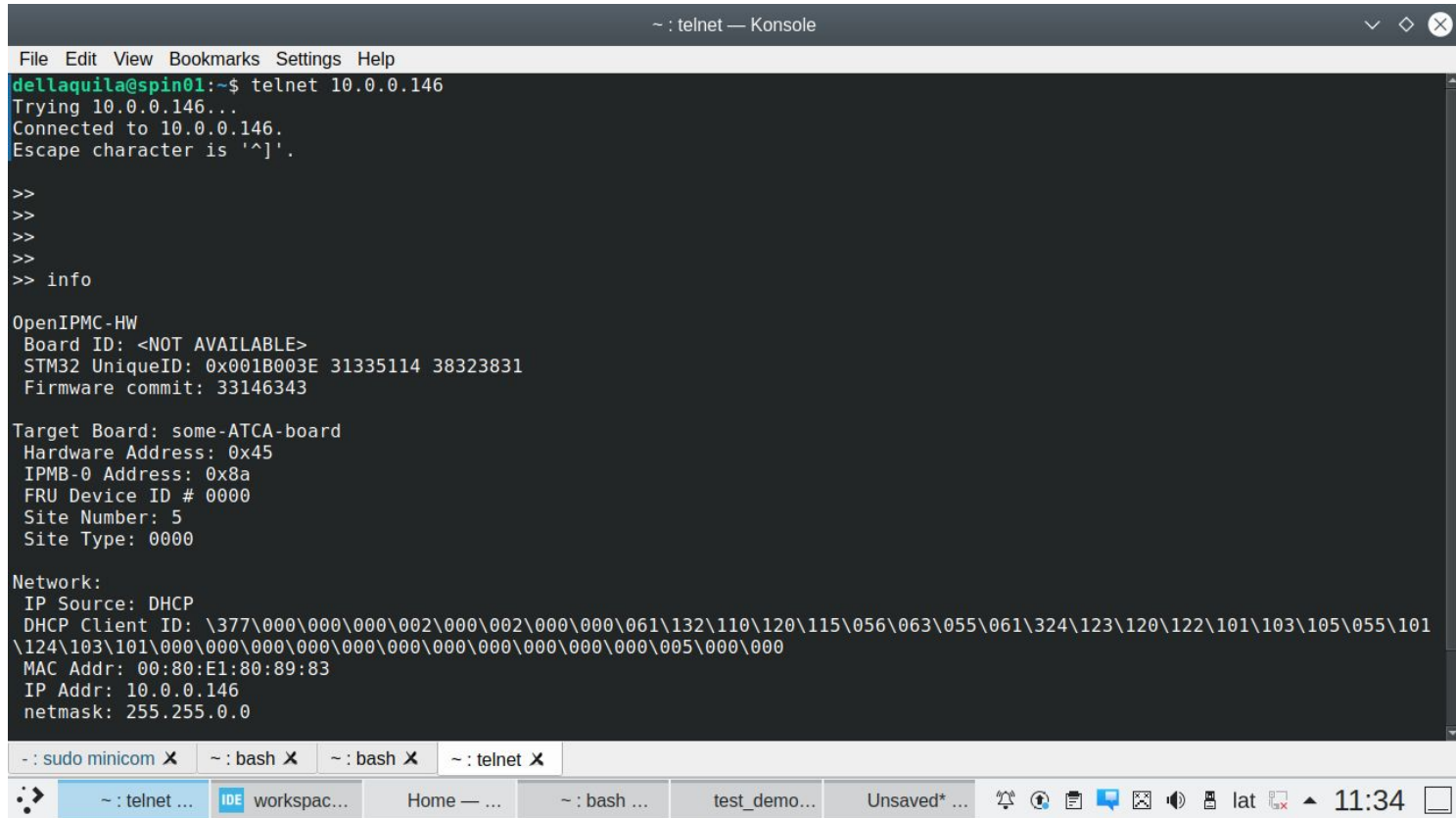
```
- : sudo minicom — Konsole
File Edit View Bookmarks Settings Help
>>
>>
>>
>>
>> info
OpenIPMC-HW
Board ID: <NOT AVAILABLE>
STM32 UniqueID: 0x001B003E 31335114 38323831
Firmware commit: 33146343

Target Board: some-ATCA-board
Hardware Address: 0x45
IPMB-0 Address: 0x8a
FRU Device ID # 0000
Site Number: 5
Site Type: 0000

Network:
IP Source: DHCP
DHCP Client ID: \377\000\000\000\002\000\002\000\000\006\1\132\110\120\115\056\063\055\061\324\123\120\122\101\103\105\055\100
MAC Addr: 00:80:E1:80:89:83
IP Addr: 10.0.0.146
netmask: 255.255.0.0
GW Addr: 10.0.0.254

Shelf Address: SPRACE-ATCA
>>
CTRL-A Z for help | 115200 8N1 | NOR | Minicom 2.7.90 | VT102 | Offline | ttyACM0
- : sudo minicom X ~ : bash X ~ : bash X
- : sudo minic... IDE workspace_2... Home — Dolp... ~ : bash — Ko... test_demo_pr... 11:32
```

# Telnet Connection



```
~ : telnet — Konsole
File Edit View Bookmarks Settings Help
dellaquila@spin01:~$ telnet 10.0.0.146
Trying 10.0.0.146...
Connected to 10.0.0.146.
Escape character is '^]'.

>>
>>
>>
>>
>> info

OpenIPMC-HW
Board ID: <NOT AVAILABLE>
STM32 UniqueID: 0x001B003E 31335114 38323831
Firmware commit: 33146343

Target Board: some-ATCA-board
Hardware Address: 0x45
IPMB-0 Address: 0x8a
FRU Device ID # 0000
Site Number: 5
Site Type: 0000

Network:
IP Source: DHCP
DHCP Client ID: \377\000\000\000\002\000\002\000\000\061\132\110\120\115\056\063\055\061\324\123\120\122\101\103\105\055\101\124\103\101\000\000\000\000\000\000\000\000\000\000\000\000\005\000\000
MAC Addr: 00:80:E1:80:89:83
IP Addr: 10.0.0.146
netmask: 255.255.0.0

~: sudo minicom X ~: bash X ~: bash X ~: telnet X
~: telnet ... IDE workspac... Home — ... ~: bash ... test_demo... Unsaved* ... 11:34
```