Retrieving Data from BlueField Via IPMB

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The BMC can retrieve information on NVIDIA® BlueField®'s sensors and FRUs via IPMI over IPMB protocol. IPMItool commands can be issued from the BMC using the following format:

```
ipmitool -I ipmb <ipmitool_arguments>
```

List of IPMI Supported Sensors

Sensor	Sensor ID	Description
`bluefield_temp`	0	Support NIC monitoring of BlueField's temperature
`p0_temp`	5	Port 0 temperature
`p1_temp`	6	Port 1 temperature
`p0_link`	7	Port0 link status • 0x100 – connection OK • 0x200 – connection error
`p1_link`	8	Port1 link status • 0x100 – connection OK • 0x200 – connection error

List of IPMI Supported FRUs

FRU	ID	Description
`update_timer`	0	`set_emu_param.service` is responsible for collecting data on sensors and FRUs every 3 seconds. This regular update is required for sensors but not for FRUs whose content is less susceptible to change. `update_timer` is used to sample the FRUs every hour instead. Users may need this timer if they are issuing several raw IPMItool FRU read commands. This helps assess how many times users must retrieve large FRU data before the next FRU update. `update_timer` is a hexadecimal number.

FRU	ID	Description
`fw_info`	1	ConnectX firmware information, Arm firmware version, and MLNX_OFED version The `fw_info` is in ASCII format
`nic_pci_dev_info`	2	NIC vendor ID, device ID, subsystem vendor ID, and subsystem device ID The `nic_pci_dev_info` is in ASCII format
`cpuinfo`	3	CPU information reported in lscpu and /proc/cpuinfo The `cpuinfo` is in ASCII format
`emmc_info`	8	eMMC size, list of its partitions, and partitions usage (in ASCII format). eMMC CID, CSD, and extended CSD registers (in binary format). The ASCII data is separated from the binary data with `StartBinary` marker.
`qsfp0_eeprom`	9	FRU for QSFP 0 EEPROM page 0 content (256 bytes in binary format)
`qsfp1_eeprom`	10	FRU for QSFP 1 EEPROM page 0 content (256 bytes in binary format) **Info** Applicable for dual-port devices only.

FRU	ID	Description

`ip_addresses`	11	This FRU is empty at start time. It can be used to write the BMC port 0 and port 1 IP addresses to the BlueField. They follow these formats:
		`BMC: XXX.XXX.XXX.XXX`
		`P0: XXX.XXX.XXX.XXX`
		`P1: XXX.XXX.XXX.XXX`
		The size of the written file should be 61 bytes exactly.

`eth0`	13	Network interface 0 information. Updated once every minute.
`eth1`	14	Network interface 1 information. Updated once every minute. **Info** Applicable for dual-port devices only.
`bf_uid`	15	BlueField device UUID
`eth_hw_counters`	16	List of ConnectX interface hardware counters
`oob0`	17	Out-Of-Band port network interface 0 information. Updated once every minute.
`bf_fru`	18	FRU information of the BlueField

FRU	ID	Description
`product_name`	19	The BlueField product name
`dmidecode_info`	20	Dmidecode information (e.g., part number, product name)

Supported IPMI Commands

All the following commands are prepended with `ipmitool` on the command line.

Commands	IPMItool Command	Relevant IPMI 2.0 Rev1.1 Spec Section
Get Device ID	`mc info`	20.1
Broadcast "Get Device ID"	`Part of "mc info"`	20.9
Get BMC Global Enables	`mc getenables`	22.2
Get Device SDR Info	`sdr info`	35.2
Get Device SDR	`"sdr get", "sdr list" or "sdr elist"`	35.3
Get Sensor Hysteresis	`sdr get <sensor_id>`	35.7
Set Sensor Threshold	`sensor thresh <sensor-id> <threshold> <setting>`	35.8

Commands	IPMItool Command	Relevant IPMI 2.0 Rev1.1 Spec Section
Get Sensor Threshold	`sdr get <sensor_id>`	35.9
Get Sensor Event Enable	`sdr get <sensor_id>`	35.11
Get Sensor Reading	`sensor reading <sensor_id>`	35.14
Get Sensor Type	`sdr type <type>`	35.16
Read FRU Data	`fru read <fru_number> <file_to_write_to> – provides FRU data`	34.2
Get SDR Repository Info	`sdr info`	33.9
Get SEL Info	`"sel" or "sel info"`	40.2
Get SEL Allocation Info	`"sel" or "sel info"`	40.3
Get SEL Entry	`"sel list" or "sel elist"`	40.5
Delete SEL Entry	`sel delete <id>`	40.8
Clear SEL	`sel clear`	40.9

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