



BMC Sensor Data

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SDR Sensor List

The following is a list of the available sensors maintained by the BMC including their type and name.

Sensor Name	Sensor Type	Source	Description
p0_link	Discrete	IPMB	Uplink port 0 link status <ul style="list-style-type: none"> 0x100 – connection OK 0x200 – connection error
p1_link	Discrete	IPMB	Uplink port 1 link status <ul style="list-style-type: none"> 0x100 – connection OK 0x200 – connection error
bluefield_temp	Temperature	IPMB	NVIDIA® BlueField® temperature
p0_temp	Temperature	IPMB	Uplink port 0 SFP temperature
p1_temp	Temperature	IPMB	Uplink port 1 SFP temperature
ddr_temp	Temperature	IPMB	DDR temperature
rtc_voltage	Voltage	IPMB	RTC battery voltage
power_envelope	Power	IPMB	<ul style="list-style-type: none"> This sensor indicates the maximum power consumption allowed for BlueField-3 This sensor is incompatible with unsecured Linux
soc_power	Power	IPMB	<ul style="list-style-type: none"> This sensor indicates the current power consumption of the BlueField-3 DPU This sensor is incompatible with unsecured Linux

Sensor Name	Sensor Type	Source	Description
power_envelope_deviation	Power	Synthesized Sensor	<p>Measures the deviation of soc_power sensor value from power_envelope sensor value.</p> $\text{power_envelope_deviation} = \text{soc_power} - \text{power_envelope}$ <ul style="list-style-type: none"> The sensor value should be negative for normal conditions. If the sensor value is positive, then SoC power has exceeded the allowed power envelope. If the value of soc_power is NaN, then the power_envelope_deviation sensor value will also be NaN.
1V_BMC	Voltage	BMC ADC	
1_2V_BMC	Voltage	BMC ADC	
1_8V	Voltage	BMC ADC	
1_8V_BMC	Voltage	BMC ADC	
2_5V	Voltage	BMC ADC	
3_3V	Voltage	BMC ADC	
3_3V_RGM	Voltage	BMC ADC	
5V	Voltage	BMC ADC	
12V_ATX	Voltage	BMC ADC	Input power rail from ATX (provided from gold fingers in case of power off when ATX power is off)
12V_PCIE	Voltage	BMC ADC	Input power rail from gold fingers
DVDD	Voltage	BMC ADC	
HVDD	Voltage	BMC ADC	

Sensor Name	Sensor Type	Source	Description
VDD	Voltage	BMC ADC	
VDDQ	Voltage	BMC ADC	
VDD_CPU_L	Voltage	BMC ADC	
VDD_CPU_R	Voltage	BMC ADC	

i Note

IPMB sourced sensors are supported when operating in DPU mode only.

Sensor Redfish Commands

Getting List of Support Sensors

BlueField sensors are stored within the Sensors schema under the Chassis schema. To retrieve the list of supported sensors, execute the following command:

```
curl -k -u root:'<password>' -H 'Content-Type: application/json'
-X GET https://<bmc_ip>/redfish/v1/Chassis/Card1/Sensors
```

The following is an example of the anticipated output:

```

{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors",
  "@odata.type": "#SensorCollection.SensorCollection",
  "Description": "Collection of Sensors for this Chassis",
  "Members": [
    {
      "@odata.id":
"/redfish/v1/Chassis/Card1/Sensors/power_envelope"
    },
    {
      "@odata.id":
"/redfish/v1/Chassis/Card1/Sensors/power_envelope_deviation"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/soc_power"
    },
    {
      "@odata.id":
"/redfish/v1/Chassis/Card1/Sensors/bluefield_temp"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/ddr_temp"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/p0_temp"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/p1_temp"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/12V_ATX"
    },
    {
      "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/12V_PCIE"
    },
  ],
}

```

```
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/1V_BMC"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/1_2V_BMC"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/1_8V"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/1_8V_BMC"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/2_5V"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/3_3V"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/3_3V_RGM"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/5V"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/DVDD"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/HVDD"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/VDD"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/VDDQ"
},
},
```

```
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/VDD_CPU_L"
},
{
  "@odata.id": "/redfish/v1/Chassis/Card1/Sensors/VDD_CPU_R"
},
{
  "@odata.id":
"/redfish/v1/Chassis/Card1/Sensors/rtc_voltage"
}
],
"Members@odata.count": 24,
"Name": "Sensors"
}
```

Getting Data for Specific Sensor

```
curl -k -u root:'<password>' -H 'Content-Type: application/json'
-X GET
https://<bmc_ip>/redfish/v1/Chassis/Card1/Sensors/<sensor_name>
```

The following is an example of a temperature sensor BlueField reading:

```
curl -k -u root:'<password>' -H 'Content-Type: application/json'
-X GET
https://<bmc_ip>/redfish/v1/Chassis/Card1/Sensors/bluefield_temp
{
  "@odata.id":
"/redfish/v1/Chassis/Card1/Sensors/bluefield_temp",
  "@odata.type": "#Sensor.v1_2_0.Sensor",
  "Id": "bluefield_temp",
  "Name": "bluefield temp",
  "Reading": 43.0,
  "ReadingRangeMax": 255.0,
  "ReadingRangeMin": 0.0,
  "ReadingType": "Temperature",
  "ReadingUnits": "Cel",
  "RelatedItem": [
    {
      "@odata.id": "/redfish/v1/Systems/Bluefield"
    }
  ],
  "Status": {
    "Conditions": [],
    "Health": "OK",
    "HealthRollup": "OK",
    "State": "Enabled"
  },
  "Thresholds": {
    "LowerCaution": {
      "Reading": 5.0
    },
    "LowerCritical": {
      "Reading": 0.0
    },
    "UpperCaution": {
      "Reading": 95.0
    }
  },
}
```

```
"UpperCritical": {  
  "Reading": 105.0  
}  
}  
}
```

Configuring Sensor Thresholds

The following commands set the thresholds for sensors that support setting a threshold:

```
curl -k -u root:'<password>' -X PATCH  
https://<bmc_ip>/redfish/v1/Chassis/Card1/Sensors/<sensor name>/  
-d '{"Thresholds":{"<Threshold name>": {"Reading":<value>}}}'
```

The following is an example of how to set the upper critical threshold for the BlueField temperature sensor:

```
curl -k -u root:'<password>' -X PATCH
https://<bmc_ip>/redfish/v1/Chassis/Card1/Sensors/bluefield_temp
-d '{"Thresholds":{"UpperCritical":{"Reading":100}}}'
{
  "@Message.ExtendedInfo": [
    {
      "@odata.type": "#Message.v1_1_1.Message",
      "Message": "The request completed successfully.",
      "MessageArgs": [],
      "MessageId": "Base.1.15.0.Success",
      "MessageSeverity": "OK",
      "Resolution": "None"
    }
  ]
}
```

Sensor IPMI Commands

BMC software supports reading chassis sensor information using the IPMITool.

The following subsections list commands which allow reading SDR data.

Displaying Sensor Data

Displays sensor data repository entry readings and their status.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sdr list
```

Displaying Extended Sensor Data

Displays extended sensor information.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sdr elist
```

Displaying Sensors and Thresholds

Displays sensors and thresholds in a wide table format.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sensor  
list
```

Displaying Sensor Data Records Specified by Sensor ID

Displays sensor data records specified by sensor ID.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sdr get  
<name>
```

Displaying All Records from SDR Repository of Specific Type

Displays all records from the SDR repository of a specific type.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sdr type  
<type>
```

Displaying Data for Sensors Specified by Name

Displays information for sensors specified by name.

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sensor  
get <sensor_name>
```

Displaying Readings for Sensors Specified by Name (Only for Numeric Sensors)

```
ipmitool -C 17 -I lanplus -H <bmc_ip> -U ADMIN -P ADMIN sensor  
reading <name>...<name>
```

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