



## **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"> <li>• 0x100 – connection OK</li> <li>• 0x200 – connection error</li> </ul>
p1_link	Discrete	IPMB	Uplink port 1 link status <ul style="list-style-type: none"> <li>• 0x100 – connection OK</li> <li>• 0x200 – connection error</li> </ul>
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
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	

Sensor Name	Sensor Type	Source	Description
3_3V_RGM	Voltage	BMC ADC	
5V	Voltage	BMC ADC	
12V_ATX	Voltage	BMC ADC	Input power rail from ATX (power from gold fingers in case of Sub75 when ATX power is off)
12V_PCIE	Voltage	BMC ADC	Input power rail from gold fingers
DVDD	Voltage	BMC ADC	
HVDD	Voltage	BMC ADC	
VDD	Voltage	BMC ADC	
VDDQ	Voltage	BMC ADC	
VDD_CPU_L	Voltage	BMC ADC	
VDD_CPU_R	Voltage	BMC ADC	

## 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/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"
}
],
"Members@odata.count": 20,
"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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