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5 **Platform Level Data Model (PLDM) State Set**  
6 **Specification**

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## Foreword

76 The *Platform Level Data Model (PLDM) State Set Specification* (DSP0249) was prepared by the PMCI  
77 Subgroup of the Pre-OS Working Group of the DMTF.

78 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems  
79 management and interoperability.

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## Introduction

82 This document describes a collection of state sets, each having a set of enumeration values. The purpose  
83 of a state set is to report the value of a discrete PLDM sensor; the value is one of the values of the state  
84 set's enumeration.

85 The ***Error! Reference source not found.*** (DSP0240) defines the common fields for PLDM messages.  
86 These common fields support the identification of payload type, message, PLDM type, and PLDM  
87 command and completion codes. The *Platform Level Data Model (PLDM) over MCTP Binding*  
88 *Specification* ([DSP0241](#)) defines how the platform level data models and platform functions are  
89 implemented using MCTP communications.

90

# 91 Platform Level Data Model (PLDM) State Set Specification

## 92 1 Scope

93 The *Platform Level Data Model (PLDM) State Set Specification* describes the various state sets that can  
94 be used with PLDM discrete sensors. Only the state sets that pertain to PLDM are included in this  
95 specification. To be considered a PLDM standard definition, a PLDM state set definition must be included  
96 in this specification.

## 97 2 Normative References

98 The following referenced documents are indispensable for the application of this document. For dated  
99 references, only the edition cited applies. For undated references, the latest edition of the referenced  
100 document (including any amendments) applies.

### 101 2.1 Approved References

102 DMTF [DSP4004](#), *DMTF Release Process 1.6*

103 DMTF, [DSP0240](#), *Platform Level Data Model (PLDM) Base Specification*

104 DMTF [DSP0241](#), *Platform Level Data Model (PLDM) over MCTP Binding Specification*

105 DMTF, [DSP0245](#), *Platform Level Data Model (PLDM) for IDs and Codes Specification*

106 DMTF, [DSP0246](#), *Platform Level Data Model (PLDM) for SMBIOS Data Transfer Specification*

107 DMTF, [DSP0247](#), *Platform Level Data Model (PLDM) for BIOS Control and Configuration Specification*

108

### 109 2.2 References under Development

110 DMTF, [DSP0248](#), *Platform Level Data Model (PLDM) for Platform Monitoring and Control Specification*

### 111 2.3 Other References

112 Hewlett-Packard, Intel, Microsoft, Phoenix, and Toshiba, [Advanced Configuration and Power Interface](#)  
113 [Specification v3.0](#), ACPI, September 2, 2004

114 Intel, Hewlett-Packard, NEC, and Dell, [Intelligent Platform Management Interface Specification: Second](#)  
115 [Generation v2.0](#), IPMI, 2004

116

### 117 **3 Terms and Definitions**

118 See [DSP0240](#) for terms and definitions that are used across the PLDM specifications.

### 119 **4 Symbols and Abbreviated Terms**

120 See [DSP0240](#) for symbols and abbreviated terms that are used across the PLDM specifications.

121 The following symbols and abbreviations are used in this document.

#### 122 **4.1**

#### 123 **AC**

124 Alternating Current

#### 125 **4.2**

#### 126 **ACPI**

127 Advanced Configuration and Power Interface

#### 128 **4.3**

#### 129 **BIOS**

130 Basic Input Output System

#### 131 **4.4**

#### 132 **BIST**

133 Built In Self Test

#### 134 **4.5**

#### 135 **CMC**

136 Corrected Machine Check

#### 137 **4.6**

#### 138 **CPU**

139 Central Processing Unit

#### 140 **4.7**

#### 141 **CRC**

142 Cyclical Redundancy Check

#### 143 **4.8**

#### 144 **DC**

145 Direct Current

#### 146 **4.9**

#### 147 **ECC**

148 Error Correcting Code

#### 149 **4.10**

#### 150 **EFI**

151 Extensible Firmware Interface



152	<b>4.11</b>
153	<b>FRB</b>
154	Fault Resilient Boot
155	<b>4.12</b>
156	<b>I/O</b>
157	Input / Output
158	<b>4.13</b>
159	<b>I2C</b>
160	Inter-Integrated Circuit
161	<b>4.14</b>
162	<b>iBIST</b>
163	Interconnect Built In Self Test
164	<b>4.15</b>
165	<b>IERR</b>
166	Internal (CPU) Error
167	<b>4.16</b>
168	<b>INT</b>
169	Interrupt
170	<b>4.17</b>
171	<b>LED</b>
172	Light Emitting Diode
173	<b>4.18</b>
174	<b>LPC</b>
175	Low Pin Count (Interface)
176	<b>4.19</b>
177	<b>MCE</b>
178	Machine Check Error
179	<b>4.20</b>
180	<b>NMI</b>
181	Non-Maskable Interrupt
182	<b>4.21</b>
183	<b>OEM</b>
184	Original Equipment Manufacturer
185	<b>4.22</b>
186	<b>PCI</b>
187	Peripheral Component Interface
188	<b>4.23</b>
189	<b>PERR</b>
190	Parity Error

191	<b>4.24</b>
192	<b>PECI</b>
193	Platform Environmental Control Interface
194	<b>4.25</b>
195	<b>PS/2</b>
196	Personal System 2 (Interface)
197	<b>4.26</b>
198	<b>RAID</b>
199	Redundant Array of Inexpensive Disks
200	<b>4.27</b>
201	<b>ROM</b>
202	Read Only Memory
203	<b>4.28</b>
204	<b>RTC</b>
205	Real Time Clock
206	<b>4.29</b>
207	<b>SATA</b>
208	Serial Advanced Technology Attachment (Interface)
209	<b>4.30</b>
210	<b>SAS</b>
211	Serial Attached SCSI (Small Computer System Interface)
212	<b>4.31</b>
213	<b>SCSI</b>
214	Small Computer System Interface
215	<b>4.32</b>
216	<b>SMBus</b>
217	System Management Bus
218	<b>4.33</b>
219	<b>SMI</b>
220	System Management Interrupt
221	<b>4.34</b>
222	<b>SPI</b>
223	Serial Peripheral Interface
224	<b>4.35</b>
225	<b>TPM</b>
226	Trusted Platform Module
227	<b>4.36</b>
228	<b>USB</b>
229	Universal Serial Bus
230	

## 231 **5 Conventions**

232 See [DSP0240](#) for conventions, notation, and data types that are used across the PLDM specifications.

## 233 **6 PLDM State Set Definitions**

234 A PLDM state set represents a set of values, one of which a discrete sensor may return. The state set  
235 definitions contain all possible conditions that the sensor can detect for a logical or physical entity. For  
236 PLDM, a discrete sensor may have only one value from a state set active at any point in time. State set  
237 IDs are defined as uint16 with values 0x8000 – 0xffff reserved for OEM state set IDs. The state set  
238 enumeration is defined as uint8 with values 0x00 – 0xff with 0x00 defined as unknown.

### 239 **6.1 State Set Goals**

240 One of the goals of the state set definitions is to minimize any entity-specific definitions of the state set.  
241 For example, state set ID 1 can be used with a monitored entity's discrete sensor that detects the  
242 specified types of health states. A temperature probe would use this state set to return the temperature  
243 range condition (such as Upper Non-Critical or Upper Fatal). A virtual disk (a virtual entity) could also  
244 have a discrete sensor that would return Normal, Non-Critical, Critical, or Fatal.

245 *Note* In the case of the virtual disk, the discrete sensor probably would not return the Upper or Lower states (states  
246 5 through 10 in the state set).

247 Because monitored entities may have multiple characteristics, PLDM offers a method for discrete sensors  
248 to contain multiple state sets to the condition of the entity. The method of the “composite” state sensor  
249 associates multiple state sets to the monitored entity. For example, a composite state sensor that returns  
250 a value from state sets 1, 2, and 5 can be defined. The three state sets would represent the combination  
251 of conditions that the monitored entity would concurrently be experiencing. For more information about  
252 discrete sensors using composite state sets, see the *PLDM for Platform Monitoring and Control*  
253 *Specification* (DSP0248).

### 254 **6.2 Unknown State Value**

255 Common to all state sets, the value of 0 (Unknown) indicates that the discrete sensor is unable to detect  
256 the current value from the state set. For example, a discrete sensor using the “health state” set would  
257 return the value of 0 if the sensor was unable to determine the health.

258 **6.3 PLDM State Sets Tables**

259 The state set descriptions in Table 1 through Table 14 are divided into groups, based on the commonality  
 260 of the state sets in the group. This grouping is done only for readability and to facilitate referencing.

261 **Table 1 – General State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>1</b>	<b>Health State</b>	<b>Represents the current health of the entity.</b>
	1 – Normal	The entity is at a normal state of health.
	2 – Non-Critical	The entity is not at a normal state of health, but is still operational.
	3 – Critical	The entity is at a critical state of health. The entity may have suffered permanent damage, and may not be functional.
	4 – Fatal	The entity is at a fatal state of health.
	5 – Upper Non-Critical	The entity’s health is non-critical. The sensor is indicating that the entity is in the upper non-critical state.
	6 – Lower Non-Critical	The entity’s health is non-critical. The sensor is indicating that the entity is in the lower non-critical state.
	7 – Upper Critical	The entity’s health is critical. The sensor is indicating that the entity is in the upper critical state.
	8 – Lower Critical	The entity’s health is critical. The sensor is indicating that the entity is in the lower critical state.
	9 – Upper Fatal	The entity’s health is fatal. The sensor is indicating that the entity is in the upper fatal state.
	10 – Lower Fatal	The entity’s health is fatal. The sensor is indicating that the entity is in the lower fatal state.
<b>2</b>	<b>Availability</b>	<b>The operational state of the entity.</b>
	1 – Enabled	The entity is in an enabled state.
	2 – Disabled	The entity is in a disabled state.
	3 – Shutdown	The entity has been shut down.
	4 – Offline	The entity is in an offline test.
	5 – In Test	The entity is in a test mode.
	6 – Deferred	The entity has been deferred to function.
	7 – Quiescent	The entity is quiescent to function.
	8 – Rebooting	The entity is currently rebooting.
	9 – Resetting	The entity is resetting.
	10 – Failed	The entity is in a failed state.
	11 – Not Installed	The entity is not installed.
	12 – Power Save Mode	The entity is in a power save mode.
	13 – Paused	The entity is paused.
	14 – Shutting Down	The entity is shutting down.
	15 – Starting	The entity is starting or initializing.
	16 – Not Responding	The entity has stopped responding.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
3	<b>Predictive Condition</b>	<b>The sense of whether the entity will experience an error condition in the future.</b>
	1 – Normal 2 – Predictive Failure	The entity is not indicating a predictive error condition. The entity is showing the characteristics of experiencing a failure in the future.
4	<b>Redundancy Status</b>	<b>For a group of entities that together provide redundancy, represents the condition of the group.</b>
	1 – Fully Redundant 2 – Redundancy Degraded  3 – Redundancy Lost	All entities in the redundancy group are functioning correctly. One or more entities in the redundancy group are unable to contribute to the redundancy. However, sufficient entities remain such that one or more additional entities would need to lose their ability to contribute for redundancy to be lost. No redundancy exists in the redundancy group. There may or may not be sufficient resources to continue with full operation using the remaining entities.
5	<b>Health/Redundancy Trend</b>	<b>Represents whether the health (or redundancy) state has improved or is getting worse since the last value of health (or redundancy). For example, if Health State was Lower Non-Critical and is now Lower Critical, the trend is Degrading; if redundancy was Redundancy Lost and is now Redundancy Degraded, the trend is Improving.</b>
	1 – Unchanged 2 – Improving 3 – Degrading	The health/redundancy state of the entity is not changing. The health/redundancy state of the entity has improved from the last health/redundancy state. The health/redundancy state of the entity has degraded from the last health/redundancy state.
6	<b>Group Resource Level</b>	<b>Represents the resource level of the group of entities. Applies for a group of entities that provide redundancy as a group.</b>
	1 – Sufficient Resources 2 – Excess Resources 3 – Insufficient Resources	The group has a sufficient number of entities to provide the level of service that the group is designed to provide. The group has more than the minimum number of entities to provide the level of service that the group is designed to provide. The group does not have a sufficient number of entities to provide the level of service that the group is designed to provide.
7	<b>Redundancy Entity Role</b>	<b>Represents the role of the individual entity in a redundant group.</b>
	1 – Is Hot Spare 2 – In Redundancy Group 3 – In (non-redundant) Group	This entity is reserved and on stand-by in the event of an error in a redundancy group. It is a passive member of a redundancy group. This entity is a member of a redundancy group. It may be active or passive. The entity is a member of a group in which the service load is shared among the members of the group, but there is no fault-tolerant redundancy in the group.
8	<b>Operational Status</b>	<b>The operational status of the entity.</b>
	1 – Normal 2 – Degraded 3 – Completed 4 – Migrating 5 – Emigrating 6 – Immigrating	The entity is functioning with expected performance or capacity. The entity is functioning with reduced performance or capacity. The entity has completed its function. The operation is being moved between entities. The operation is being moved to a different entity. The operation is being moved to this entity from a different entity.

<b>Set ID</b>	<b>PLDM State Set Enumeration List</b>	<b>PLDM State Set Description Enumeration Description</b>
<b>9</b>	<b>Operational Stress Status</b>	<b>The stress status of the monitored entity.</b>
	1 – Normal 2 – Stressed	The entity is functioning with expected performance or capacity. The entity is functioning near the bounds of its acceptable performance or capacity.
<b>10</b>	<b>Operational Fault Status</b>	<b>The fault status of the monitored entity.</b>
	1 – Normal 2 – Error 3 – Non-Recoverable Error	No fault is present. A fault that causes an entity to deviate from its expected behavior is present. A fault that prohibits an entity from continuing to run is present.
<b>11</b>	<b>Operational Running Status</b>	<b>The running status of the monitored entity.</b>
	1 – Starting 2 – Stopping 3 – Stopped 4 – In Service 5 – Aborted 6 – Dormant	The entity is beginning to run. The entity is ceasing to run. The entity is no longer running. The entity is available for use. The entity has prematurely ended. The entity is inactive.
<b>12</b>	<b>Operational Connection Status</b>	<b>Indicates whether the entity has the connectivity necessary to function.</b>
	1 – Normal 2 – No Contact 3 – Lost Communication	Communication is established with the entity. Communication could not be established with the entity. The ability to communicate with the entity has stopped.
<b>13</b>	<b>Presence</b>	<b>Indicates whether the entity is present in the system.</b>
	1 – Present 2 – Not Present	The entity is successfully detected. The entity is not detected.
<b>14</b>	<b>Performance</b>	<b>The performance of any type of entity.</b>
	1 – Normal 2 – Throttled 3 – Degraded	The entity is operating at a full functional level at full speed. The entity is operating at a full functional level at reduced speed. The entity is operating at a degraded functional level.
<b>15</b>	<b>Configuration State</b>	<b>For any entity that can be dynamically configured and have a configuration state.</b>
	1 – Valid Configuration 2 – Invalid Configuration 3 – Not Configured 4 – Missing Configuration	The entity is configured with valid configuration settings. The entity is configured with invalid configuration settings. The entity is detected to not be configured. The entity is missing its configuration settings.
<b>16</b>	<b>Changed Configuration</b>	<b>For any entity that may have its configuration settings changed.</b>
	1 – Normal 2 – Configuration Change Detected	Configuration change is not detected. A configuration change in the entity is detected.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>17</b>	<b>Identify State</b>	<b>For entities that have an identify function, such as LEDs.</b>
	1 – Identify State Unasserted	The entity's identify function is not asserted.
	2 – Identify State Asserted	The entity's identify function is asserted.
<b>18</b>	<b>Version</b>	<b>Version change status.</b>
	1 – Normal	No version change is detected. If this is used by PLDM state set sensor, a manual re-arm would set this sensor back to the Normal state.
	2 – Version Change Detected – Compatible	A firmware or hardware version change of the entity is detected. No compatibility conflicts are detected.
	3 – Version Change Detected – Incompatible	A firmware or hardware version change of the entity is detected. The new version is incompatible with other entities.
<b>19</b>	<b>Alarm State</b>	<b>The current activity of an alarm device.</b>
	1 – Off	The alarm is not active.
	2 – Steady On	The alarm has been activated with the “steady on” setting.
	3 – Alternating On	The alarm has been activated with the “alternating on” setting.
<b>20</b>	<b>Device Initialization</b>	<b>The state of device initialization.</b>
	1 – Normal	The device is initialized.
	2 – Initialization in Progress	The device is in the process of initializing.
	3 – Initialization Hung	The initialization process stopped responding.
	4 – Initialization Failed	The initialization process failed.
<b>21</b>	<b>Thermal Trip</b>	<b>Thermal Trip condition.</b>
	1 – Normal	A Thermal Trip is not presently detected.
	2 – Thermal Trip	The entity automatically shut itself down due to an internal over-temperature condition.

262

**Table 2 – Communication State Sets (Sensor Returns Unknown State if Heartbeat Is Disabled)**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>32</b>	<b>Heartbeat</b>	<b>Heartbeat state.</b>
	1 – Heartbeat present	Periodic messages or signal transitions that are used to verify the availability of communication with a particular node are detected.
	2 – Heartbeat lost	Periodic messages or signal transitions that are used to verify the availability of communication with a particular node are not detected.
<b>33</b>	<b>Link State</b>	<b>For any entity that has a data link to another entity.</b>
	1 – Connected	The link is in the connected state.
	2 – Disconnected	The link is in the disconnected state.

263

**Table 3 – General Sensor State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>64</b>	<b>Smoke State</b>	<b>Indicates whether smoke is detected.</b>
	1 – Normal 2 – Smoke	The sensor is not detecting abnormal levels of smoke. The sensor detected abnormal levels of smoke.
<b>65</b>	<b>Humidity State</b>	<b>Indicates whether humidity is detected.</b>
	1 – Normal 2 – Humid	The sensor is not detecting abnormal levels of humidity. The sensor detected abnormal levels of humidity.
<b>66</b>	<b>Door State</b>	<b>Indicates the state of the physical door.</b>
	1 – Open 2 – Closed	The sensor detects that the door is open. The sensor detects that the door is closed.
<b>67</b>	<b>Switch State</b>	<b>Indicates the state of an on/off switch. This could represent NMI, power switch, or any switch present on the system.</b>
	1 – Pressed/On 2 – Released/Off	The switch is in the on state. The switch is in the off state.

264

**Table 4 – Security-Related State Sets and Their Enumeration Values**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>96</b>	<b>Lock State</b>	<b>For an entity that can have a lock state.</b>
	1 – Locked 2 – Unlocked 3 – Locked Out	The entity is in a locked state. The entity is not in a locked state. The entity is in a state in which the lock (physical or logical) cannot be unlocked in a normal manner. It is likely that elevated privileges are necessary to unlock the entity.
<b>97</b>	<b>Physical Security</b>	<b>Security status related to physical hardware.</b>
	1 – Normal 2 – Hardware Intrusion 3 – Tampering	No abnormal physical security conditions are detected at this time. A door, lock, or other mechanism protecting the internal system hardware from being accessed is detected as being in an insecure state. Physical tampering of the monitored entity is detected.
<b>98</b>	<b>Dock Authorization</b>	<b>Security status related to docking.</b>
	1 – Normal 2 – Unauthorized Dock 3 – Unauthorized Undock	No unauthorized docking or undocking activity is detected. The monitored entity is docked with a receiver in an unauthorized manner, or an unauthorized entity is docked with the monitored entity. The monitored entity is undocked in an unauthorized manner, or an entity that was docked with the monitored entity is undocked in an unauthorized manner.



Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>99</b>	<b>Hardware Security</b>	<b>States that should be associated with a "Security Hardware" type of entity, or a TPM.</b>
	1 – Hardware Security Verified 2 – Hardware Security Unverified	Security hardware that is associated with maintaining security for the monitored entity is detected as being functional. Security hardware that is associated with maintaining security for the monitored entity failed one or more checks verifying that it is functional and complete.
<b>100</b>	<b>Physical Communication Connection</b>	<b>Security status related to physical connection to an entity.</b>
	1 – Normal 2 – Physical Disconnect from Network	No physical connection issues are detected at this time. A physical disconnection from the communication medium is detected. This may be due to the physical removal of the system.
<b>101</b>	<b>Communication Leash Status</b>	<b>The status of the communication leash, which is the communications link between this entity and a remote network entity.</b>
	1 – Leash Connected 2 – Leash Disconnected	Special periodic messages or transmissions that indicate physical connection to an expected network or communication medium are detected. Special periodic messages or transmissions that indicate physical connection to an expected network or communication medium are lost.
<b>102</b>	<b>Foreign Network Detection Status</b>	<b>Status of a connection to an unexpected or unauthorized network or medium.</b>
	1 – Normal 2 – Foreign Network Detected	The entity is not detected as being connected to an unrecognized or unauthorized network or communication medium. The entity is connected to an unrecognized or unauthorized network or communication medium.
<b>103</b>	<b>Password-Protected Access Security</b>	<b>Security status related to the access of the monitored entity.</b>
	1 – No Password Violations Detected 2 – Password Violation Attempted	No password violations are detected. A password violation attempt is detected.
<b>104</b>	<b>Security Access – Privilege Level</b>	<b>Indicates what privilege (if any) has been used for logging onto the entity.</b>
	1 – No Privilege Level Access Detected 2 – Read-only Privilege 3 – Full Control Privilege	No privilege level is detected. The entity is a target of a logon using read-only privilege. The entity is a target of a logon using full control privilege.
<b>105</b>	<b>PLDM Session Audit</b>	<b>PLDM session audit status.</b>
	1 – Session Activated 2 – Session Deactivated	A PLDM session is activated with a PLDM terminus associated with the state sensor. A PLDM session is deactivated with a PLDM terminus associated with the state sensor.

265

**Table 5 – Software-Related State Sets**

Set ID	PLDM State set Enumeration List	PLDM State Set Description Enumeration Description
<b>129</b>	<b>Software Termination Status</b>	<b>Status related to firmware of the operating system.</b>
	1 – Normal	Software termination is not detected.
	2 – Software Termination Detected	Software termination is detected.
	3 – Critical Stop during Load/Initialization	The software entity failed during loading or initialization.
	4 – Run-time Critical Stop	The software entity incurred a run-time failure.
	5 – Graceful Shutdown Requested	The software entity has been requested to shut down gracefully.
	6 – Graceful Restart Requested	The software entity has been requested to restart gracefully.
	7 – Graceful Shutdown	The software entity has been shut down gracefully.
	8 – Termination Request Failed	The request to terminate the execution of the software entity failed.

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**Table 6 – Redundant Storage Media (RAID) State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>160</b>	<b>Storage Media Activity</b>	<b>Represents the current activity of storage media that is part of a redundancy group.</b>
	1 – Normal	The entity is not showing any array configuration or maintenance activity.
	2 – Parity Check in Progress	A parity check is in progress on the storage entity.
	3 – Rebuilding/Remapping	A rebuild or remap operation is in progress on the storage entity.
	4 – Rebuild/Remap Aborted	A rebuild or remap operation has been aborted on the storage entity.
	5 – Prepare for Removal	The storage entity has been prepared for removal.

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**Table 7 – Boot-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>192</b>	<b>Boot/Restart Cause</b>	<b>Represents the stimulus that booted the entity.</b>
	1 – Powered Up	A start of the system is initiated by changing the entity’s state from powered off to powered on.
	2 – Hard Reset	A restart of the system is accomplished by activating the entity’s reset circuitry.
	3 – Warm Reset	A restart of the system is performed by software that does not involve powering the system off or activating the entity’s reset circuitry.
	4 – Manual Hard Reset	A restart is initiated by the user activation of a mechanical device (for example, pressing a button) and bypasses runtime software.
	5 – Manual Warm Reset	A restart is initiated by the user activation of a mechanical device (for example, pressing a button) and does not involve powering the entity off or activating the system’s reset circuitry.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	6 – System Restart 7 – Watchdog Timeout	A restart of the entity is initiated by entity hardware components and accomplished by activating the system's reset circuitry. A restart of the entity is initiated in response to a detected system hang condition.
<b>193</b>	<b>Boot/Restart Request</b>	<b>Indicates status of a request to restart the system in order to boot from a different source.</b>
	1 – Normal 2 – Boot/Restart Requested	No boot/restart request is detected. A boot/restart request is detected.
<b>194</b>	<b>Entity Boot Status</b>	<b>Indicates whether the entity was used as the boot device.</b>
	1 – Normal 2 – Boot Initiation from This Entity Was Detected	This entity was not used as a boot device. This entity was used as a boot device.
<b>195</b>	<b>Boot Error Status</b>	<b>System boot error status.</b>
	1 – Normal 2 – No Bootable Media 3 – Invalid Boot Sector 4 – Timeout for Boot Selection 5 – Remote Media Server Not Found	No boot error is detected. The device selected for the boot source could not be accessed, or the media in that device does not contain a boot sector. The boot sector does not contain valid data for booting. A timeout occurred while accessing the boot sector from the selected boot source (possible boot from default instead). The server that provides the bootstrap program could not be located or a communication error occurred with the remote media server.
<b>196</b>	<b>Boot Progress</b>	<b>System firmware or software booting status.</b>
	1 – Boot Not Active 2 – Boot Completed 3 – Memory Initialization 4 – Hard-Disk Initialization 5 – Secondary Processor(s) Initialization 6 – User Authentication 7 – User-Initiated System Setup 8 – USB Resource Configuration 9 – PCI Resource Configuration 10 – Option ROM Initialization 11 – Video Initialization 12 – Cache Initialization 13 – SM Bus Initialization 14 – Keyboard Controller Initialization 15 – Embedded Controller/Management Controller Initialization	Boot-up of the firmware or software is not active. It may be already functional. The boot process of the firmware or software has completed. The boot process is currently initializing the memory. The boot process is currently initializing the hard disk. The boot process is currently initializing the secondary processors. The boot process is processing the user authentication. System firmware or BIOS has entered the user system firmware or BIOS configuration setup. System firmware or BIOS is currently configuring the USB resource. System firmware or BIOS is configuring the PCI resources. The option ROM is being initialized. The video controller is being initialized. The cache memory is being initialized. The system firmware or BIOS is initializing the SM Bus. The system firmware or BIOS is initializing the keyboard controller. The system firmware or BIOS is initializing the embedded management controller.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	16 – Docking Station Attachment 17 – Enabling Docking Station 18 – Docking Station Ejection 19 – Disabling Docking Station 20 – Calling Operating System Wake-Up Vector 21 – Starting Operating System Boot Process (for example, calling INT 19h) 22 – Baseboard or Motherboard Initialization 23 – Floppy Initialization 24 – Keyboard Test 25 – Pointing Device Test 26 – Primary Processor Initialization	The main system unit is attaching to the docking station. The system firmware or BIOS is enabling the docking station. The main system unit is ejected from the docking station. The system firmware or BIOS is disabling the docking station. The system firmware or BIOS is starting the operating system. The system firmware or BIOS is booting the operating system. The BIOS is initializing the motherboard. The BIOS is initializing the floppy drive. The BIOS is testing the keyboard. The BIOS is testing the pointing device. The BIOS is initializing the primary processor.
<b>197</b>	<b>System Firmware Hang</b>	<b>Indicates if system firmware (BIOS) has been suspended.</b>
	1 – Normal 2 – System Firmware Hang Detected	No system firmware hang is detected. The system firmware's execution has suspended.
<b>198</b>	<b>POST Errors</b>	<b>Errors detected in the system firmware (BIOS) power on self test.</b>
	1 – No POST Error Detected 2 – No System Memory Is Physically Installed in the System. 3 – No Usable System Memory, All Installed Memory Has Experienced an Unrecoverable Failure 4 – Unrecoverable Hard-Disk Device Failure 5 – Unrecoverable System-Board Failure 6 – Unrecoverable Diskette Subsystem Failure 7 – Unrecoverable Hard-Disk Controller Failure 8 – Unrecoverable PS/2 or USB Keyboard Failure 9 – Removable Boot Media Not Found	A system firmware error is not detected. The system firmware determined that no system memory is physically installed in the system. The system firmware determined that no usable system memory is available. The system firmware detected that a hard-disk device has failed and is likely unusable for booting the operating system. The system firmware detected an unrecoverable error in the main system board or board set. This error may prevent the system from further operation. The system firmware detected a failure in the diskette subsystem. The system firmware detected that a hard-disk controller has failed and is likely unusable for booting the operating system. The system firmware detected a failure in the keyboard. The system firmware detected that a removable media device that was designated as a boot source does not have any media installed.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	10 – Unrecoverable Video Controller Failure	The system firmware detected a failure with a video controller. (The controller is likely unusable for driving the display device for a user interface for system firmware configuration.) This error is typically related to the display controller that drives a primary display device that would be used to locally display a user interface for system firmware configuration and as the primary local display used by the operating system.
	11 – No Video Device Detected	The system firmware has not been able to detect the presence of a video output device (computer display or computer monitor). This error is typically related to the primary display device that would be used to locally display a user interface for system firmware configuration and as the primary local display used by the operating system.
	12 – Firmware (BIOS) ROM Corruption Detected	The system firmware detected that its own firmware image is corrupted.
	13 – CPU Voltage Mismatch (processors that share same supply have mismatched voltage requirements)	The system firmware detected that processors that share the same supply have mismatched voltage requirements, and is therefore preventing running further.
	14 – CPU Speed Matching Failure	The system firmware detected that the processors are operating with a combination of speeds that is not supported by the platform.
	15 – FRB1/BIST Failure	A processor BIST (built-in self test) failure is detected.

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Table 8 – Monitored System-Related State Sets

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>225</b>	<b>Log Fill Status</b>	<b>State of the log.</b>
	1 – Normal	Logging is enabled. The log is not empty.
	2 – Reset/Cleared	Logging is enabled. A reset or clear signal has emptied the log.
	3 – Almost Full	Logging is enabled. The log has limited capacity for future entries.
	4 – Full	Logging is enabled. The log is full; no future entries can be added.
<b>226</b>	<b>Log Filter Status</b>	<b>Log filtering.</b>
	1 – Unfiltered	Logging is enabled. All entries are logged.
	2 – Filtered	Logging is enabled, but some entries have been filtered.
<b>227</b>	<b>Log Timestamp Change</b>	<b>State of the log timestamp.</b>
	1 – Normal	A log timestamp change is not detected.
	2 – Timestamp Clock Sync	A log timestamp has been changed.
<b>228</b>	<b>Interrupt Requested</b>	<b>Interrupt requested by entity.</b>
	1 – Normal	No interrupt is requested.
	2 – Interrupt Requested	Interrupt is requested by entity.
<b>229</b>	<b>Interrupt Received</b>	<b>Interrupt received by entity.</b>
	1 – Normal	No interrupt is received.
	2 – Interrupt Received	Interrupt is received by the entity.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>230</b>	<b>Diagnostic Interrupt Requested</b>	<b>Diagnostic interrupt requested by entity.</b>
	1 – Normal 2 – Diagnostic Interrupt Requested	No diagnostic interrupt is requested. Diagnostic interrupt is requested by the entity. (This is equivalent to a front-panel NMI on some systems.)
<b>231</b>	<b>Diagnostic Interrupt Received</b>	<b>Diagnostic interrupt received by entity.</b>
	1 – Normal 2 – Diagnostic Interrupt Received	No diagnostic interrupt is received. Diagnostic interrupt is received by the entity. (This is equivalent to a front-panel NMI on some systems.)
<b>232</b>	<b>I/O Channel Check NMI Requested</b>	<b>I/O Channel Check NMI requested by entity.</b>
	1 – Normal 2 – I/O Channel Check NMI Requested	No I/O Channel Check NMI is requested. I/O Channel Check NMI is requested by the entity.
<b>233</b>	<b>I/O Channel Check NMI Received</b>	<b>Diagnostic interrupt received by entity.</b>
	1 – Normal 2 – I/O Channel Check NMI Received	No I/O Channel Check NMI is received. I/O Channel Check NMI is received by the entity.
<b>234</b>	<b>Fatal NMI Requested</b>	<b>Fatal NMI requested by entity.</b>
	1 – Normal 2 – Fatal NMI Requested	No Fatal NMI is requested. Fatal NMI is requested by the entity.
<b>235</b>	<b>Fatal NMI Received</b>	<b>Fatal NMI received by entity.</b>
	1 – Normal 2 – Fatal NMI Received	No Fatal NMI is received. Fatal NMI is received by the entity.
<b>236</b>	<b>Software NMI Requested</b>	<b>Software NMI requested by entity.</b>
	1 – Normal 2 – Software NMI Request	No Software NMI is requested. Software NMI is requested by the entity.
<b>237</b>	<b>Software NMI Received</b>	<b>Software NMI received.</b>
	1 – Normal 2 – Software NMI Received	No Software NMI is received. Software generated NMI is received by the entity.
<b>238</b>	<b>SMI Requested</b>	<b>SMI requested.</b>
	1 – Normal 2 – SMI Requested	No SMI is requested. System Management Interrupt is requested by the entity.
<b>238</b>	<b>SMI Received</b>	<b>SMI received.</b>
	1 – Normal 2 – SMI Received	No SMI is received. System Management Interrupt is received by the entity.
<b>239</b>	<b>PCI PERR Requested</b>	<b>PCI PERR requested.</b>
	1 – Normal	No PCI Parity Error is requested.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	2 – PCI PERR Requested	PCI Parity Error is requested by the entity.
<b>240</b>	<b>PCI PERR Received</b>	<b>PCI PERR received.</b>
	1 – Normal 2 – PCI PERR Received	No PCI Parity Error is received. PCI Parity Error is received by the entity.
<b>241</b>	<b>PCI SERR Requested</b>	<b>PCI SERR requested.</b>
	1 – Normal 2 – PCI SERR Requested	No PCI SERR is requested. PCI System Error is requested by the entity.
<b>242</b>	<b>PCI SERR Received</b>	<b>PCI SERR received.</b>
	1 – Normal 2 – PCI SERR Received	No PCH SERR is received. PCI System Error is received by the entity.
<b>243</b>	<b>Bus Error Status</b>	<b>Error Status related to busses</b>
	1 – Normal 2 – Bus Correctable Error 3 – Bus Uncorrectable Error 4 – Bus Fatal Error 5 – Bus Degraded 6 – Bus timeout	No bus error is detected. Bus transaction with correctable error occurred. Bus transaction with uncorrectable error occurred. Bus transaction with fatal error occurred. Bus is operating in a degraded state. A bus transaction timeout occurred.
<b>244</b>	<b>Watchdog Status</b>	<b>Conditions related to the watchdog timer.</b>
	1 – Normal 2 – Timer Expired 3 – Pre-expire interrupt	No watchdog event is detected. The watchdog timer expired. Watchdog pre-timeout interrupt occurred.

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Table 9 – Power-Related State Sets

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>256</b>	<b>Power Supply State</b>	<b>Conditions related to power units or power supplies.</b>
	1 – Normal 2 – Power Input Lost 3 – Power Input out-of-range 4 – Power down/off 5 – Power Cycle 6 – Soft Power Control Failure 7 – Voltage Input out of Range 8 – Current Input out of Range 9 – Power Out Failed/Lost 10 – Thermal Trip	No adverse conditions are detected with the power supply entity. The power supply entity lost power from the source. The power supplied to the power supply entity is out of range. The power supply entity is in a power down state. The power supply entity is in a power cycle state. The power supply entity has encountered a soft power control failure. The power source voltage for the power supply entity is out of range. The power source current for the power supply entity is out of range. The power output of the power supply entity is absent. The power supply has experienced a thermal trip.
<b>257</b>	<b>Device Power State</b>	<b>ACPI device power state.</b>
	1 – D0 2 – D1	The ACPI Device Power State is D0: Fully-On. The ACPI Device Power State is D1: Intermediate Power State 1

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
	3 – D2 4 – D3	The ACPI Device Power State is D2. Intermediate Power State 2 The ACPI Device Power State is D3: Off.
<b>258</b>	<b>ACPI Power State</b>	<b>ACPI power state of the system</b>
	1 – S0 2 – S1 3 – S2 4 – S3 5 – S4 6 – S5 7 – G3	The ACPI Global State is G0/S0: Working. The ACPI Global State is S1: Sleeping State. The ACPI Global State is S2: Sleeping State. The ACPI Global State is S3: Sleeping State. The ACPI Global State is S4: Sleeping State. The ACPI Global State is S5: Soft Off State. The ACPI Global State is G3: Mechanical Off.
<b>259</b>	<b>Backup Power Source</b>	<b>Indicates what backup power source is available if primary power is gone.</b>
	1 – No Backup Power Source 2 – UPS Detected	No backup power source is available. A backup power source is available.
<b>260</b>	<b>System Power State</b>	<b>Power states of the system or an entity in the system.</b>
	1 – On 2 – Hibernate (off-soft) 3 – Sleep – Light 4 – Sleep – Deep 5 – Power Cycle Soft 6 – Power Cycle Hard 7 – Power Cycle Off-Soft Graceful 8 – Power Cycle Off-Hard Graceful 9 – Off-Soft Graceful 10 – Off-Hard Graceful 11 – Master Bus Reset 12 – Master Bus Reset (Graceful) 13 – Diagnostic Interrupt (NMI)	System Power is On. System Power is in Hibernate mode. System Power is in light sleep mode. System Power is in deep sleep mode. System Power is cycling to soft off mode. System Power is cycling to hard off mode. System Power is forcing soft off mode. System Power is forcing hard off mode. System Power is in soft off mode. System Power is in hard off mode. System is reaching ACPI state S5 followed by ACPI state S0 in the case of the system master bus reset. System is reaching ACPI state S5 followed by ACPI state S0 in the case of the system master bus reset in a somehow graceful manner. System is reaching ACPI state S5 followed by ACPI state S0, in the case of a non-maskable interrupt.
<b>261</b>	<b>Battery Activity</b>	<b>Current maintenance activity for a battery-like device.</b>
	1 – No Activity 2 – Reconditioning 3 – Charging under Load 4 – Charging 5 – Discharging	No activity is detected on the battery. The battery is being reconditioned. The battery is being charged, but with a load. The battery is being charged. The battery is being discharged.



Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>262</b>	<b>Battery State</b>	<b>Power capacity condition of a battery-like device.</b>
	1 – Fully Charged	The battery is fully charged.
	2 – Partially Charged	The battery is less than fully charged but within normal charge level.
	3 – Low	The battery charge level is low.
	4 – Near Critically Low	The battery charge level is near critical low.
	5 – Depleted	The battery has been depleted.

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**Table 10 – Processor-Related State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>288</b>	<b>Processor Power State</b>	<b>ACPI power state of a processor.</b>
	1 – C0	CPU is in ACPI C-State 0.
	2 – C1	CPU is in ACPI C-State 1.
	3 – C2	CPU is in ACPI C-State 2.
	4 – C3	CPU is in ACPI C-State 3.
<b>289</b>	<b>Power-Performance State</b>	<b>ACPI power performance state of a processor.</b>
	1 – P0	CPU is in ACPI P-State 0.
	2 – P1	CPU is in ACPI P-State 1.
	3 – P2	CPU is in ACPI P-State 2.
	4 – P3	CPU is in ACPI P-State 3.
	5 – P4	CPU is in ACPI P-State 4.
	6 – P5	CPU is in ACPI P-State 5.
	7 – P6	CPU is in ACPI P-State 6.
	8 – P7	CPU is in ACPI P-State 7.
	9 – P8	CPU is in ACPI P-State 8.
	10 – P9	CPU is in ACPI P-State 9.
	11 – P10	CPU is in ACPI P-State 10.
	12 – P11	CPU is in ACPI P-State 11.
	13 – P12	CPU is in ACPI P-State 12.
	14 – P13	CPU is in ACPI P-State 13.
	15 – P14	CPU is in ACPI P-State 14.
	16 – P15	CPU is in ACPI P-State 15.
	17 – P16	CPU is in ACPI P-State 16.
<b>290</b>	<b>Processor Error Status</b>	<b>Error conditions related to processor hardware.</b>
	1 – Normal	A fatal internal processor error is not presently detected.
	2 – IERR	A fatal internal processor error is detected. This error is related to a halt of the processor.
<b>291</b>	<b>BIST Failure Status</b>	<b>BIST Failure detection.</b>
	1 – Normal	A BIST (built-in self test) failure is not detected.
	2 – BIST Failure	A BIST failure (built-in self test) is detected.

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>292</b>	<b>iBIST Failure Status</b>	<b>Interconnect BIST Failure detection.</b>
	1 – Normal 2 – iBIST Failure	An iBIST failure is not detected. An iBIST failure is detected.
<b>293</b>	<b>Processor Hang in POST</b>	<b>Processor hang in system firmware (BIOS) power on self test.</b>
	1 – Normal 2 – FRB2/Hang in POST	A POST hang that is being attributed to a processor hang is not detected. (This was referred to as FRB2 in IPMI.) A hang in POST or system firmware initialization is detected that is being attributed to a processor hang.
<b>294</b>	<b>Processor Startup Failure</b>	<b>Processor fails to start system firmware (BIOS) power on self test.</b>
	1 – Normal 2 – FRB3/Processor Failure	A processor startup failure is not detected. (This was referred to as FRB3 in IPMI.) The processor has been powered up or reset and has failed to start POST or system firmware initialization.
<b>295</b>	<b>Uncorrectable CPU Error</b>	<b>Uncorrectable processor CPU error.</b>
	1 – Normal 2 – Uncorrectable CPU Error	An uncorrectable CPU error is not detected. An uncorrectable error is detected.
<b>296</b>	<b>Machine Check Error</b>	<b>Indicates presence of Machine Check Error (MCE).</b>
	1 – MCE Not Detected 2 – MCE Detected	A Machine Check Error (MCE) is not detected. A Machine Check Error (MCE) occurred. This is a type of critical error that is detected by processor hardware that may be related to internal storage or state machine corruption or external errors that affect the ability of the hardware to continue processing the intended instruction flow. The error is typically associated with the generation of a corresponding software interrupt called a <i>machine check exception</i> . Depending on the error, it may or may not be able to be corrected by additional actions by software that handles the machine check exception.
<b>297</b>	<b>Corrected Machine Check</b>	<b>Indicates the correction of Machine Check Error.</b>
	1 – Normal 2 – Corrected MCE Detected	A Corrected Machine Check (CMC) error is not detected. A Machine Check Error has been detected and corrected. This is an error that is detected by processor hardware that may be related to internal storage or state machine corruption or external errors that would affect the ability of the hardware to continue processing the intended instruction flow, but that has been automatically corrected by the hardware.

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Table 11 – Memory-Related State Sets

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>320</b>	<b>Cache Status</b>	<b>Conditions related to cache memory.</b>
	1 – Normal	The cache appears to be operating normally.
	2 – Dirty upon Power On	The cache memory has been powered up with data still resident in its memory.
<b>321</b>	<b>Memory Error Status</b>	<b>Error conditions related to memory devices.</b>
	1 – Normal	Memory is operating normally. No error conditions are detected.
	2 – Bad Read	A bad read (limit exceeded) event occurred in memory.
	3 – Parity Error	A parity error (limit exceeded) is detected in memory.
	4 – Single-Bit Error	A single-bit error (limit exceeded) is detected in memory.
	5 – Double-Bit Error	A double-bit error (limit exceeded) is detected in memory.
	6 – Multi-Bit Error	A multi-bit error (limit exceeded) is detected in memory.
	7 – Nibble Error	A nibble error (limit exceeded) is detected.
	8 – Checksum Error	A checksum error (limit exceeded) is detected.
	9 – CRC Error	A CRC error (limit exceeded) is detected.
<b>322</b>	<b>Redundant Memory Activity Status</b>	<b>Activities related to memory participating in a redundant memory group.</b>
	1 – Normal	No maintenance or configuration operation is currently detected on the memory entity.
	2 – Scrub	A scrub operation is active on the memory entity.
	3 – Remap	A remapping operation is active on the memory entity.

272 NOTE: Some memories have thresholds of events so that an error condition occurs only when the number of occurrences of an  
273 event (such as a parity error) exceeds a defined threshold.

274

Table 12 – Storage Device State Sets

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>330</b>	<b>Error Detection Status</b>	<b>Error conditions related to devices that can perform error checks.</b>
	1 – Normal	Device is operating normally. No error conditions are detected.
	2 – Correctable ECC	ECC circuits detected bit errors that could be corrected by the ECC logic.
	3 – Uncorrectable ECC	ECC circuits detected bit errors that could not be corrected.
	4 – Parity Error	A parity error is detected.
	5 – Checksum Error	A checksum error is detected.
	6 – CRC Error	A CRC error is detected.
<b>331</b>	<b>Stuck Bit Status</b>	<b>State of stuck bits.</b>
	1 – Normal	Memory is operating normally. No error conditions are detected.
	2 – Stuck Bit	A stuck-at bit is detected.
<b>332</b>	<b>Scrub Status</b>	<b>State of scrub process.</b>
	1 – Normal	Device is operating normally. No error conditions are detected. Previous scrub status is unknown.
	2 – Completed Successfully	Scrub completed with no errors.
	3 – Scrub in Process	Scrub is initiated but not yet complete.
	4 – Scrub Failed	Scrub is completed; unable to purge errors.

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**Table 13 – Slot/Module State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>352</b>	<b>Slot Occupancy</b>	<b>Any slot-like entity, such as a drive slot or PCI slot.</b>
	1 – Empty 2 – Occupied	The slot is not currently occupied. The slot is occupied.
<b>353</b>	<b>Slot State</b>	<b>State of the slot entity.</b>
	1 – Not Ready for Install/Removal 2 – Ready for Device Installation 3 – Ready for Device Removal	The slot is not electrically/mechanically ready to install or remove a device. The slot is unoccupied and is electrically/mechanically ready to accept a device. The slot is occupied and is electrically/mechanically ready for device removal.

276

**Table 14 – OEM State Sets**

Set ID	PLDM State Set Enumeration List	PLDM State Set Description Enumeration Description
<b>32768–65535</b>	<b>OEM State Sets</b>	<b>OEM reserved state sets.</b>
	All other state set values reserved	

277 **7 PLDM Entity ID Codes**

278 A PLDM Entity ID code represents an entity that can be associated to a PLDM state set.

279 For usage examples and further description, see the *PLDM for Platform Monitoring and Control Specification* (DSP0248).

281 **7.1 PLDM Entity ID Code Tables**

282 The entity ID code descriptions in Table 15 are divided into groups, based on commonality of the codes in  
283 the group. This grouping is done only for readability and to facilitate referencing. The IPMI fields are  
284 referenced to aid implementers transitioning from IPMI to PLDM designs.

285

**Table 15 – Entity ID Codes**

Code	IPMI	Entity
0	0x00	Unspecified
1	0x01	Other
<b>Miscellaneous Entities</b>		
2		Network
3	0x25	Group – This is a logical entity for use with Entity Association records. It is provided to allow an Entity-association record to define a grouping of entities when there is no appropriate pre-defined entity for the container entity. This Entity should not be used as a physical entity.
4	0x26	Remote (Out of Band) Management Communication Device

Code	IPMI	Entity
<b>Miscellaneous Entities (continued)</b>		
5	0x27	External Environment – This Entity ID can be used to identify the environment outside the system chassis. For example, a system may have a temperature sensor that monitors the temperature “outside the box.” Such a temperature sensor can be associated with an External Environment entity. This value is typically used as a single instance physical entity. However, the Entity Instance value can be used to denote a difference in regions of the external environment. For example, the region around the front of a chassis may be considered to be different from the region around the back, in which case it would be reasonable to have two different instances of the External Environment entity.
6	0x2F	Communication Channel – This Entity ID enables associating sensors with communication channels. For example, a Redundancy sensor could be used to report redundancy status for a channel that is composed of multiple physical links. By convention, the Entity Instance corresponds to the channel number.
7		PLDM Terminus
8		Platform Event Log
<b>Human Interface Entities</b>		
15		Keypad
16		Switch
17		Pushbutton
18		Display
19		Indicator
<b>Software/Firmware Entities</b>		
30	0x21	System Management Software
31	0x22	System Firmware (for example, BIOS/EFI)
32	0x23	Operating System
33		Virtual Machine Manager
34		OS Loader
35		Device Driver
36	0x2E	Management Controller Firmware (represents firmware or software running on a management controller)
<b>Chassis/Enclosure Entities</b>		
45	0x17	System chassis (main enclosure)
46	0x18	Sub-chassis
47	0x1A	Disk Drive Bay
48	0x1B	Peripheral Bay
49	0x1C	Device Bay
50		Door
51		Access Panel
52		Cover
<b>Board/Card/Module Entities</b>		
60		Board
61		Card
62		Module

Code	IPMI	Entity
<b>Board/Card/Module Entities (continued)</b>		
63	0x06	System management module
64	0x07	System board (main system board, may also be a processor board or internal expansion board)
65	0x08	Memory board (board holding memory devices)
66		Memory module
67	0x09	Processor module (holds processors; use this designation when processors are not mounted on system board)
68	0x0B	Add-in card
69	0x0C	Chassis front panel board (control panel)
70	0x0D	Back panel board
71	0x15	Power management/power distribution board
72	0x0E	Power system board
73	0x0F	Drive backplane
74	0x10	System internal expansion board (contains expansion slots)
75	0x11	Other system board (part of a multi-board set that together forms the “main board” for the system)
76	0x16	Chassis back panel board
77	0x29	Processing blade (a blade module that contains processor, memory, and I/O connections that enable it to operate as a processing entity)
78	0x2A	Connectivity switch (a blade module that provides the fabric or network connection for one or more processing blades or modules)
79	0x2B	Processor/memory module (processor and memory together on a module)
80	0x2C	I/O module (a module that contains the main elements of an I/O interface)
81	0x2D	Processor/ I/O module (a combination processor and I/O module)
<b>Cooling Entities</b>		
90		Cooling device
91		Cooling subsystem
92	0x1E	Cooling unit/domain – Can be used as a pre-defined logical entity for grouping fans or other cooling devices or sensors that are associated in monitoring a particular logical cooling domain.
93		Fan
94		Peltier Cooling Device
95		Liquid Cooling Device
96		Liquid Cooling subsystem
<b>Storage Device Entities</b>		
105		Other storage device
106		Floppy Drive
107		Fixed Disk / Hard Drive
108		CD Drive
109		CD/DVD Drive

Code	IPMI	Entity
<b>Storage Device Entities (continued)</b>		
110		Other Silicon Storage Device (for example, FLASH memory)
111		Solid State Drive
<b>Power Entities</b>		
120		Power supply
121	0x28	Battery
122		Super capacitor
123		Power converter
124		DC-DC converter
125		AC mains power supply
126		DC mains power supply
<b>Chip Entities</b>		
135	0x03	Processor
136		Chipset component
137		Management controller
138		Peripheral controller
139		EEPROM
140		NVRAM chip
141		FLASH Memory chip
142		Memory chip (for single-chip only; use memory module for pre-packed memory devices that are used with standardized connectors, such as DIMMs, SD cards, and so on)
143		Memory controller
144		Network controller
145		I/O controller
146		South bridge
147	0x35	Real Time Clock (RTC)
<b>Bus Entities</b>		
160		Other Bus
161	0x24	System Bus
162		I <sup>2</sup> C Bus
163		SMBus Bus
164		SPI Bus
165	0x30	PCI Bus
166	0x31	PCI Express™ Bus
167		PECI Bus
168		LPC Bus
169		USB Bus
170		FireWire Bus

Code	IPMI	Entity
171	0x32	SCSI Bus (parallel)
172	0x33	SATA/SAS Bus
173	0x34	Processor/front-side Bus
174		Inter-processor Bus
<b>Connectors/Cables</b>		
185		Connector
186		Slot
187	0x1F	Cable
188		Interconnect
189		Plug
190		Socket
<b>OEM/Vendor-Defined Entities</b>		
8192-16383	0x90-0xAF	Chassis-specific entities. These IDs are system specific and can be assigned by the chassis provider.
16384 - 24575	0xB0-0xCF	Board-set specific entities. These IDs are system specific and can be assigned by the board-set provider.
24576 - 32767	0xD0-0xFF	OEM System Integrator defined. These IDs are system specific and can be assigned by the system integrator, or OEM.
		All other values are reserved.



## 287 8 PLDM Effector Semantic ID Codes

288 A PLDM Effector Semantic ID code represents a PLDM-defined or OEM Effector semantic.

289 For usage examples and further description, see the *PLDM for Platform Monitoring and Control*  
290 *Specification* (DSP0248).

### 291 8.1 PLDM Effector Semantic ID Code Table

292 The PLDM Effector Semantic ID code descriptions in Table 16 are divided into DMTF defined PLDM  
293 Effector Semantic ID and OEM Effector Semantic ID ranges. At present no PLDM Effector Semantic IDs  
294 have been defined.

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**Table 16 – Effector Semantic ID Codes**

ID #	Range Name	Description
0	Unspecified	Used when an Effector Semantic ID is not being provided
1-32767	PLDM Effector Semantic IDs	Range reserved for Effector Semantic IDs that are defined by DMTF PLDM specifications.
32768-65535	OEM Effector Semantic IDs	Range reserved for OEM (vendor-defined) Effector Semantic IDs.

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## ANNEX A (informative)

### Change Log

Version	Date	Author	Description
0.5.0	2008/02/11	Chris Wenzel	Initial version.
0.6.0	2008/02/15	Chris Wenzel	Updated tables of state sets.
0.6.5	2008/03/25	Chris Wenzel and team	Integrating input from the rest of the team on enumeration definitions.
0.6.6	2008/04/11	Chris Wenzel & Team	Reviewing on conference calls, making edits and checking in.
0.6.7	2008/04/14	Chris Wenzel & Team	Updating as per comments on conference call.
0.6.8	2008/04/23	Chris Wenzel & Workgroup	Updating as per comments from last conference call.
0.7.0	2008/05/1	Chris Wenzel & Workgroup	Released 0.7v for group review.
0.8.0	2008/06/30	Hemal Shah, Phil Chidester & Workgroup	Updated based on the resolutions to comments on 0.7v. as well as formatting changes. Added Entity ID section and Table.
0.9.0	2008/07/15	Phil Chidester & Workgroup	Review inputs from 7/11/2008.
0.9.1	2008/07/30	Phil Chidester & Workgroup	Updated Sections 2–5 and modified ranges of OEM state sets and entity IDs.
0.9.2	2008/09/10	Phil Chidester , cPubs & Workgroup	Updates from cPubs and workgroup
0.9.3	2008/09/24	Phil Chidester	Defined State Set ID as uint8 and changed Set # to Set ID
0.9.4	2008/10/20	Phil Chidester	Updates from internal review
0.9.5	2009/1/9	Phil Chidester	Moved some reference specifications from under development to approved section
1.0.0	2009/1/23	Phil Chidester	Draft Standard
1.0.0	2009/3/16	Phil Chidester	DMTF Standard

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