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# Management Component Transport Protocol (MCTP) IDs and Codes

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## Foreword

60 The *Management Component Transport Protocol (MCTP) IDs and Codes* (DSP0239) was prepared by  
61 the PMCI Working Group.

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

64 This version supersedes version 1.7.0. For a list of changes, see the change log in ANNEX B.

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84

## Introduction

85 This document presents a collection of IDs and codes that are used across the Management Component  
86 Transport Protocol (MCTP) and transport binding specifications.

87 The MCTP defines a communication model intended to facilitate communication between:

- 88 • Management controllers and other management controllers
- 89 • Management controllers and management devices

90 The communication model includes a message format, transport description, message exchange  
91 patterns, and configuration and initialization messages.

92 The *MCTP Base Protocol Specification* ([DSP0236](#)) describes the protocol and commands used for  
93 communication within and initialization of an MCTP network. Associated with the *Base Protocol*  
94 *Specification* are transport binding specifications that define how the MCTP base protocol and MCTP  
95 control commands are implemented on a particular physical transport type and medium.

## 96 Document conventions

### 97 Typographical conventions

98 The following typographical conventions are used in this document:

- 99 • Document titles are marked in *italics*.
- 100 • ABNF rules are in monospaced font.

### 101 ABNF usage conventions

102 Format definitions in this document are specified using ABNF (see [RFC5234](#)), with the following  
103 deviations:

- 104 • Literal strings are to be interpreted as case-sensitive Unicode characters, as opposed to the  
105 definition in [RFC5234](#) that interprets literal strings as case-insensitive US-ASCII characters.

### 106 Reserved and unassigned values

107 Unless otherwise specified, any reserved, unspecified, or unassigned values in enumerations or other  
108 numeric ranges are reserved for future definition by the DMTF.

109 Unless otherwise specified, numeric or bit fields that are designated as reserved shall be written as 0  
110 (zero) and ignored when read.

### 111 Byte ordering

112 Unless otherwise specified, byte ordering of multi-byte numeric fields or bit fields is "Big Endian" (that is,  
113 the lower byte offset holds the most significant byte, and higher offsets hold lesser significant bytes).

### 114 Notations

115 See [ANNEX A](#) for notations.

116



# 118 Management Component Transport Protocol (MCTP) IDs and 119 Codes

## 120 1 Scope

121 The *Management Component Transport Protocol (MCTP) IDs and Codes* document provides a  
122 consolidated list of major IDs and codes used across the MCTP protocol and transport binding  
123 specifications. Only IDs and codes that are required by a particular specification are to be included in that  
124 specification. IDs and codes values for other specifications are not be repeated for reference. Instead,  
125 provide a reference to this specification.

126 The following is an overview of the different sets of codes and identifiers (enumeration values) that are  
127 specified in this document:

- 128 • **MCTP message type codes**  
129 Collection of the message type codes used for MCTP messages
- 130 • **MCTP physical medium identifiers**  
131 Collection of identifiers for the different types of physical media that have been defined
- 132 • **MCTP physical transport binding identifiers**  
133 Collection of identifiers for the specifications that define the operation, formatting, addressing,  
134 and encapsulation of MCTP packets over different physical media
- 135 • **MCTP host interface type identifiers**  
136 Collection of identifiers for the different physical interfaces used to transfer MCTP packets  
137 between the host and the management controller

## 138 2 Normative references

139 The following referenced documents are indispensable for the application of this document. For dated or  
140 versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies.  
141 For references without a date or version, the latest published edition of the referenced document  
142 (including any corrigenda or DMTF update versions) applies.

143 DMTF specifications are available at [http://www.dmtf.org/standards/published\\_documents](http://www.dmtf.org/standards/published_documents). Unless  
144 otherwise specified, values defined in this document apply to all published DMTF Standard versions of  
145 the particular referenced DMTF specification.

146 DMTF DSP0134, *SMBIOS Reference Specification*

147 DMTF DSP0222, *Network Controller Sideband Interface (NC-SI) Specification*

148 DMTF DSP0233, *Management Component Transport Protocol (MCTP) I3C Transport Binding*  
149 *Specification*

150 DMTF DSP0234, *CXL™ Fabric Manager API over MCTP Binding Specification*

151 DMTF DSP0235, *NVMe (NVM Express) Management Messages over MCTP Binding Specification*

152 DMTF DSP0236, *Management Component Transport Protocol (MCTP) Base Specification*

153 DMTF DSP0237, *Management Component Transport Protocol (MCTP) SMBus<sup>2</sup>C Transporting Binding*  
154 *Specification*

- 155 DMTF DSP0238, *Management Component Transport Protocol (MCTP) PCIe VDM Transport Binding*  
156 *Specification*
- 157 DMTF DSP0241, *PLDM Over MCTP Binding Specification*
- 158 DMTF DSP0253, *MCTP Serial Transport Binding Specification*
- 159 DMTF DSP0254, *MCTP KCS Transport Binding Specification*
- 160 DMTF DSP0261, *NC-SI Over MCTP Binding Specification*
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186 [gen-v2-0-spec-update.html](https://www.intel.com/content/www/us/en/servers/ipmi/ipmi-intelligent-platform-mgt-interface-spec-2nd-gen-v2-0-spec-update.html)
- 187 *Private Enterprise Numbers*, Internet Assigned Numbers Authority (IANA),  
188 <https://www.iana.org/assignments/enterprise-numbers/enterprise-numbers>



### 189 3 Terms and definitions

190 In this document, some terms have a specific meaning beyond the normal English meaning. Those terms  
191 are defined in this clause.

192 The terms "shall" ("required"), "shall not", "should" ("recommended"), "should not" ("not recommended"),  
193 "may", "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described  
194 in [ISO/IEC Directives, Part 2](#), Clause 7. The terms in parentheses are alternatives for the preceding term,  
195 for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that  
196 [ISO/IEC Directives, Part 2](#), Clause 7 specifies additional alternatives. Occurrences of such additional  
197 alternatives shall be interpreted in their normal English meaning.

198 The terms "clause", "subclause", "paragraph", and "annex" in this document are to be interpreted as  
199 described in [ISO/IEC Directives, Part 2](#), Clause 6.

200 The terms "normative" and "informative" in this document are to be interpreted as described in ISO/IEC  
201 Directives, Part 2, Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do  
202 not contain normative content. Notes and examples are always informative elements.

203 The terms defined in DSP0004, DSP0223, and DSP1001 apply to this document.

204 Refer to [DSP0236](#) for terms and definitions that are used in the MCTP specifications.

### 205 4 Symbols and abbreviated terms

206 Refer to [DSP0236](#) for symbols and abbreviated terms that are used in the MCTP specifications.

### 207 5 MCTP Message Type codes

208 Table 1 defines the values for the Message Type field for different message types transported through  
209 MCTP.

210 NOTE A device that supports a given message type might not support that message type equally across all busses  
211 that connect to the device.

212

Table 1 – MCTP Message Types

Message Type	Message Type Code	Description
MCTP Control	0x00	Messages used to support initialization and configuration of MCTP communication within an MCTP network, as specified in <a href="#">DSP0236</a>
Platform Level Data Model (PLDM)	0x01	Messages used to convey Platform Level Data Model (PLDM) traffic over MCTP, as specified in <a href="#">DSP0241</a> .
NC-SI over MCTP	0x02	Messages used to convey NC-SI Control traffic over MCTP, as specified in <a href="#">DSP0261</a> .
Ethernet over MCTP	0x03	Messages used to convey Ethernet traffic over MCTP. See <a href="#">DSP0261</a> . This message type can also be used separately by other specifications.
NVM Express Management Messages over MCTP	0x04	Messages used to convey NVM Express (NVMe) Management Messages over MCTP, as specified in <a href="#">DSP0235</a> .
SPDM over MCTP	0x05	Messages used to convey Security Protocol and Data Model Specification (SPDM) traffic over MCTP, as specified in <a href="#">DSP0275</a> .
Secured Messages	0x06	Messages used to convey <i>Secured Messages using SPDM over MCTP Binding Specification</i> traffic, as specified in <a href="#">DSP0276</a> .
CXL FM API over MCTP	0x07	Messages used to convey <i>CXL™ Fabric Manager API over MCTP Binding Specification</i> traffic as specified in <a href="#">DSP0234</a> .
Vendor Defined – PCI	0x7E	Message type used to support VDMs where the vendor is identified using a PCI-based vendor ID. The specification of the initial Message Header bytes for this message type is provided within this specification. The specification of the format of this message is given in <a href="#">DSP0236</a> . Otherwise, the message body content is specified by the vendor, company, or organization identified by the given vendor ID.
Vendor Defined – IANA	0x7F	Message type used to support VDMs where the vendor is identified using an IANA-based vendor ID. This format uses a number from the <i>Private Enterprise Numbers</i> table that is assigned and maintained by the Internet Assigned Numbers Authority (IANA) as the means of identifying a particular vendor, company, or organization. The specification of the format of this message is given in <a href="#">DSP0236</a> . Otherwise, the message body content is specified by the vendor, company, or organization identified by the given vendor ID.
Reserved	all other	Reserved

## 213 6 MCTP physical medium identifiers

214 Table 2 defines a set of numbers that correspond to different media types that can be used with MCTP.  
 215 The identifier is primarily used to identify which physical addressing format is used for MCTP packets on  
 216 the bus.

217 NOTE PCIe revision numbers are intended to indicate specification compatibility, not bit transfer rate or throughput.

218

219

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**Table 2 – MCTP physical medium identifiers**

Physical Media Identifier	Description
0x00	Unspecified
0x01	SMBus 2.0 100 kHz compatible
0x02	SMBus 2.0 + I <sup>2</sup> C 100 kHz compatible
0x03	I <sup>2</sup> C 100 kHz compatible (Standard-mode)
0x04	SMBus 3.0 or I <sup>2</sup> C 400 kHz compatible (Fast-mode)
0x05	SMBus 3.0 or I <sup>2</sup> C 1 MHz compatible (Fast-mode Plus)
0x06	I <sup>2</sup> C 3.4 MHz compatible (High-speed mode)
0x07	Reserved
0x08	PCIe revision 1.1 compatible
0x09	PCIe revision 2.0 compatible
0x0A	PCIe revision 2.1 compatible
0x0B	PCIe revision 3.x compatible
0x0C	PCIe revision 4.x compatible
0x0D	PCIe revision 5.x compatible, CXL 1.x / 2.x compatible
0x0E	Reserved
0x0F	PCI compatible (PCI 1.0,2.0,2.1,2.2,2.3,3.0,PCI-X 1.0, PCI-X 2.0)
0x10	USB 1.1 compatible
0x11	USB 2.0 compatible
0x12	USB 3.0 compatible
0x13:0x17	Reserved
0x18	NC-SI over RBT (A physical interface based on RMII as defined in <a href="#">DSP0222</a> )
0x19:0x1F	Reserved
0x20	KCS <sup>1</sup> / Legacy (Fixed Address Decoding)
0x21	KCS <sup>1</sup> / PCI (Base Class 0xC0 Subclass 0x01)
0x22	Serial Host <sup>2</sup> / Legacy (Fixed Address Decoding)
0x23	Serial Host <sup>2</sup> / PCI (Base Class 0x07 Subclass 0x00)
0x24	Asynchronous Serial <sup>3</sup> (Between MCs and IMDs)
0x30	I3C Basic compatible
0x31:0xFF	Reserved
<p>1. Keyboard Controller Style Interface – refer to <a href="#">DSP0254</a>.                      2. Serial Host refers to a register based UART interface.                      3. Asynchronous Serial refers to an 8-bit asynchronous bi-directional serial transmission media where characters are transmitted independently (i.e., each frame carries 8-bits of data).</p>	

221

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## 223 7 MCTP physical transport binding identifiers

224 Table 3 defines as set of numbers that correspond to different media types that can be used with MCTP.  
 225 The identifier indicates which physical addressing format is used for MCTP packets on the bus.

226 **Table 3 – MCTP physical transport binding identifiers**

MCTP Physical Transport Binding Identifier	Description
0x00	Reserved
0x01	MCTP over SMBus ( <a href="#">DSP0237</a> )
0x02	MCTP over PCIe VDM ( <a href="#">DSP0238</a> )
0x03	Reserved for MCTP over USB
0x04	MCTP over KCS ( <a href="#">DSP0254</a> )
0x05	MCTP over Serial ( <a href="#">DSP0253</a> )
0x06	MCTP over I3C ( <a href="#">DSP0233</a> )
0xFF	Vendor defined NOTE A vendor-defined transport binding must meet the requirements in <a href="#">DSP0236</a> (in particular, when being bridged to or from standard MCTP transport binding and media combinations).
All other	Reserved

## 227 8 MCTP host interface type identifiers

228 The SMBIOS specification ([DSP0134](#)) reserves a range of host interface type identifiers 0x00 through  
 229 0x3F for use by this specification. Table 4 defines a set of numbers that correspond to different MCTP  
 230 host interface types that can be used with MCTP. The identifier indicates which physical interface to  
 231 transfer MCTP packets between the host and the management controller.

232 **Table 4 – MCTP host interface type identifiers**

MCTP Host Interface Type Identifier	Description
0x00	Reserved
0x01	Reserved
0x02	KCS: Keyboard Controller Style – refer to the section titled "Keyboard Controller Style (KCS) Interface" of <a href="#">IPMI</a>
0x03	8250 UART Register Compatible
0x04	16450 UART Register Compatible
0x05	16550/16550A UART Register Compatible
0x06	16650/16650A UART Register Compatible
0x07	16750/16750A UART Register Compatible
0x08	16850/16850A UART Register Compatible
0x09:0x3F	Reserved
all other	Assigned by the SMBIOS specification ( <a href="#">DSP0134</a> )

## 233 **9 Host interface protocol identifiers**

234 In earlier versions of this specification, this section contained a table of host interface protocol identifiers.  
235 That table has been moved to the description of the Type 42 record in the SMBIOS specification  
236 ([DSP0134](#)) version 3.1.1 or later.

237  
238  
239

## ANNEX A (informative) Notations

### 240 Notations

241 Examples of notations used in this document are as follows:

- 242       • 2:N       In field descriptions, this will typically be used to represent a range of byte offsets  
243                   starting from byte two and continuing to and including byte N. The lowest offset is on  
244                   the left, the highest is on the right.
- 245       • (6)       Parentheses around a single number can be used in message field descriptions to  
246                   indicate a byte field that may be present or absent.
- 247       • (3:6)     Parentheses around a field consisting of a range of bytes indicates the entire range  
248                   may be present or absent. The lowest offset is on the left, the highest is on the right.
- 249       • [PCle](#)       Underlined, blue text is typically used to indicate a reference to a document or  
250                   specification called out in the “Normative References” section or to items hyperlinked  
251                   within the document.
- 252       • rsvd       Abbreviation for “reserved.” Case insensitive.
- 253       • [4]       Square brackets around a number are typically used to indicate a bit offset. Bit offsets  
254                   are given as zero-based values (that is, the least significant bit [LSb] offset = 0).
- 255       • [7:5]     A range of bit offsets. The most significant bit is on the left, the least significant bit is  
256                   on the right.
- 257       • 1b        The lower case “b” following a number consisting of 0s and 1s is used to indicate the  
258                   number is being given in binary format.
- 259       • 0x12A     A leading “0x” is used to indicate a number given in hexadecimal format.

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262  
263

## ANNEX B (informative) Change log

Version	Date	Description
1.0.0	2009-07-28	
1.1.0	2009-11-03	Added Host Interface Type Identifiers. Added Host Interface Protocol Identifiers. Added reference to NC-SI and added clarification on physical medium identifiers.
1.2.0	2012-06-04	Added Ethernet over MCTP message type. Clarified the description of NC-SI over MCTP and PLDM over MCTP. Added I2C fast plus and high-speed physical medium identifiers. Clarified RMI/NC-SI physical medium identifier description. Fixed references.
1.3.0	2015-03-06	Added message type NVMe (NVM Express) Management Messages over MCTP. Updated references.
1.4.0	2017-01-11	Limited host interface type identifiers to the range 0x00:0x3F. Moved the host interface protocol identifier table to the SMBIOS specification. Updated references.
1.5.0	2017-11-16	Updated contributors and references. Added support for SMBus 3.0 and PCIe Gen 4.
1.6.0	2019-06-04	Added an MCTP Message Type for SPDM. Added an MCTP physical medium identifiers for PCIe revision 5.0, and I3C.
1.7.0	2020-05-26	Added an MCTP Message Type for MCTP Security using SPDM. Added an MCTP physical medium identifiers for CXL.
1.7.1	2020-12-07	Update the contributor list. Correct the I3C entries in the MCTP physical medium identifiers table.
1.7.2	2021-04-05	Removed separate entry for CXL from physical medium identifiers table since CXL uses PCIe as the physical medium. Added CXL compatible reference to physical medium identifier table PCIe 5.x row. Updated to comply with ISO guidelines.
1.8.0	2021-06-15	Added CXL FM API over MCTP to Message Type table. Added MCTP over I3C to MCTP physical transport binding identifiers table.

264

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