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5 Management Component Transport Protocol 6 (MCTP) IDs and Codes

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CONTENTS

41	Foreword	4
42	Introduction.....	5
43	1 Scope	7
44	2 Normative references	7
45	3 Terms and definitions	8
46	4 Symbols and abbreviated terms.....	8
47	5 Conventions	8
48	5.1 Reserved and unassigned values.....	8
49	5.2 Byte ordering.....	8
50	6 MCTP Message Type codes	9
51	7 MCTP physical medium identifiers.....	10
52	8 MCTP physical transport binding identifiers.....	11
53	9 MCTP host interface type identifiers	12
54	10 Host interface protocol identifiers.....	12
55	ANNEX A (informative) Notation and conventions	13
56	ANNEX B (informative) Change log.....	14
57		

58 **Tables**

59	Table 1 – MCTP Message Types	9
60	Table 2 – MCTP physical medium identifiers.....	10
61	Table 3 – MCTP physical transport binding identifiers	11
62	Table 4 – MCTP host interface type identifiers	12
63		

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Foreword

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

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

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86

Introduction

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

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

- 90 • Management controllers and other management controllers
- 91 • Management controllers and management devices

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

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

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Management Component Transport Protocol (MCTP) IDs and Codes

100 1 Scope

101 The *Management Component Transport Protocol (MCTP) IDs and Codes* document provides a
102 consolidated list of major IDs and codes used across the MCTP protocol and transport binding
103 specifications. Only IDs and codes that are required by a particular specification should be included in
104 that specification. IDs and codes values for other specifications should not be repeated for reference.
105 Instead, a reference to this specification should be provided.

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

- 108 • **MCTP message type codes**
109 Collection of the message type codes used for MCTP messages
- 110 • **MCTP physical medium identifiers**
111 Collection of identifiers for the different types of physical media that have been defined
- 112 • **MCTP physical transport binding identifiers**
113 Collection of identifiers for the specifications that define the operation, formatting, addressing,
114 and encapsulation of MCTP packets over different physical media
- 115 • **MCTP host interface type identifiers**
116 Collection of identifiers for the different physical interfaces used to transfer MCTP packets
117 between the host and the management controller

118 2 Normative references

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

123 DMTF specifications are available at http://www.dmtf.org/standards/published_documents. Unless
124 otherwise specified, values defined in this document apply to all published DMTF Standard versions of
125 the particular referenced DMTF specification.

126 DMTF DSP0134, *SMBIOS Reference Specification*

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

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

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

130 DMTF DSP0237, *Management Component Transport Protocol (MCTP) SMBus²C Transporting Binding*
131 *Specification*

132 DMTF DSP0238, *Management Component Transport Protocol (MCTP) PCIe VDM Transport Binding*
133 *Specification*

134 DMTF DSP0241, *PLDM Over MCTP Binding Specification*

- 135 DMTF DSP0253, *MCTP Serial Transport Binding Specification*
- 136 DMTF DSP0254, *MCTP KCS Transport Binding Specification*
- 137 DMTF DSP0261, *NC-SI Over MCTP Binding Specification*
- 138 IPMI Consortium, *Intelligent Platform Management Interface Specification* 1.5 Revision 1.1, February 20,
139 2002, http://download.intel.com/design/servers/ipmi/IPMIv1_5rev1_1.pdf
- 140 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
141 <http://isotc.iso.org/livelink/livelink?func=ll&objId=4230456&objAction=browse&sort=subtype>
- 142 PCI-SIG, *PCI Express Base Specification 1.1*, PCIeV1.1, March 28, 2005
- 143 PCI-SIG, *PCI Express Base Specification 2.0*, PCIeV2.1, March 4, 2009
- 144 PCI-SIG, *PCI Express Base Specification 3.0*, PCIeV3.0, November 10, 2010
- 145 Philips Semiconductors, *The I²C-Bus Specification v2.0*, I2C, December 1998
- 146 RMII Consortium, *Reduced Media Independent Interface (RMII) Specification v1.2*, RMII, 1997
- 147 SMBus, *System Management Bus (SMBus) Specification v2.0*, SMBus, 2000,
148 <http://www.smbus.org/specs/smbus20.pdf>

149 **3 Terms and definitions**

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

151 **4 Symbols and abbreviated terms**

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

153 **5 Conventions**

154 The conventions described in the following clauses apply to this specification.

155 **5.1 Reserved and unassigned values**

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

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

160 **5.2 Byte ordering**

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

163 **6 MCTP Message Type codes**

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

166 NOTE A device that supports a given message type may not support that message type equally across all busses
 167 that connect to the device.

168 **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 DSP0236
Platform Level Data Model (PLDM)	0x01	Messages used to convey Platform Level Data Model (PLDM) traffic over MCTP, as specified in DSP0241 .
NC-SI over MCTP	0x02	Messages used to convey NC-SI Control traffic over MCTP, as specified in DSP0261 .
Ethernet over MCTP	0x03	Messages used to convey Ethernet traffic over MCTP. See DSP0261 . This message type can also be used separately by other specifications.
NVM Express Management Messages over MCTP	0x04	Messages used to convey NVMe (NVM Express) Management Messages over MCTP, as specified in DSP0235 .
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 DSP0236 . 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 an "Enterprise Number" that is assigned and maintained by the Internet Assigned Numbers Authority (IANA), www.iana.org , as the means of identifying a particular vendor, company, or organization. The specification of the format of this message is given in DSP0236 . Otherwise, the message body content is specified by the vendor, company, or organization identified by the given vendor ID.
Reserved	all other	Reserved

169 **7 MCTP physical medium identifiers**

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

173 **Table 2 – MCTP physical medium identifiers**

Physical Media Identifier	Description
0x00	Unspecified
0x01	SMBus 2.0 100 kHz compatible
0x02	SMBus 2.0 + I ² C 100 kHz compatible
0x03	I ² C 100 kHz compatible (Standard-mode)
0x04	I ² C 400 kHz compatible (Fast-mode)
0x05	I ² C 1 MHz compatible (Fast-mode Plus)
0x06	I ² C 3.4 MHz compatible (High-speed mode)
0x07	Reserved
0x08	PCIe 1.1 compatible
0x09	PCIe 2.0 compatible
0x0A	PCIe 2.1 compatible
0x0B	PCIe 3.0 compatible
0x0C: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 RMIII as defined in DSP0222)
0x20	KCS ¹ / Legacy (Fixed Address Decoding)
0x21	KCS ¹ / PCI (Base Class 0xC0 Subclass 0x01)
0x22	Serial Host ² / Legacy (Fixed Address Decoding)
0x23	Serial Host ² / PCI (Base Class 0x07 Subclass 0x00)
0x24	Asynchronous Serial ³ (Between MCs and IMDs)
all other	Reserved

1. Keyboard Controller Style Interface – refer to [DSP0236](#).
 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).

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176 8 MCTP physical transport binding identifiers

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

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

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

180

181 9 MCTP host interface type identifiers

182 The SMBIOS specification ([DSP0134](#)) reserves a range of host interface type identifiers 0x00 through
 183 0x3F for use by this specification. Table 4 defines a set of numbers that correspond to different MCTP
 184 host interface types that can be used with MCTP. The identifier indicates which physical interface to
 185 transfer MCTP packets between the host and the management controller.

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

MCTP Host Interface Type Identifier	Description
0x00	Reserved
0x01	Reserved
0x02	KCS: Keyboard Controller Style – refer to Intelligent Platform Management Interface Specification Section 9 Keyboard Controller Style (KCS) Interface
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 (DSP0134)

187 10 Host interface protocol identifiers

188 In earlier versions of this specification, this section contained a table of host interface protocol identifiers.
 189 That table has been moved to the description of the Type 42 record of the SMBIOS specification
 190 ([DSP0134](#)) with a version greater than 3.1.0.

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ANNEX A (informative) Notation and conventions

194 Notations

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

- 196 • 2:N In field descriptions, this will typically be used to represent a range of byte offsets
197 starting from byte two and continuing to and including byte N. The lowest offset is on
198 the left, the highest is on the right.
- 199 • (6) Parentheses around a single number can be used in message field descriptions to
200 indicate a byte field that may be present or absent.
- 201 • (3:6) Parentheses around a field consisting of a range of bytes indicates the entire range
202 may be present or absent. The lowest offset is on the left, the highest is on the right.
- 203 • [PCIe](#) Underlined, blue text is typically used to indicate a reference to a document or
204 specification called out in the “Normative References” section or to items hyperlinked
205 within the document.
- 206 • rsvd Abbreviation for “reserved.” Case insensitive.
- 207 • [4] Square brackets around a number are typically used to indicate a bit offset. Bit offsets
208 are given as zero-based values (that is, the least significant bit [LSb] offset = 0).
- 209 • [7:5] A range of bit offsets. The most significant bit is on the left, the least significant bit is
210 on the right.
- 211 • 1b The lower case “b” following a number consisting of 0s and 1s is used to indicate the
212 number is being given in binary format.
- 213 • 0x12A A leading “0x” is used to indicate a number given in hexadecimal format.

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215
216
217**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	2016-12-30	Limited host interface type identifiers to the range 0x00:0x3F. Moved the host interface protocol identifier table to the SMBIOS specification.

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