



1
2
3
4

Document Number: DSP0239

Date: 2012-08-28

Version: 1.2.0

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

7 **Document Type: Specification**
8 **Document Status: DMTF Standard**
9 **Document Language: en-US**

10

11 Copyright Notice

12 Copyright © 2012 Distributed Management Task Force, Inc. (DMTF). All rights reserved.

13 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
14 management and interoperability. Members and non-members may reproduce DMTF specifications and
15 documents, provided that correct attribution is given. As DMTF specifications may be revised from time to
16 time, the particular version and release date should always be noted.

17 Implementation of certain elements of this standard or proposed standard may be subject to third party
18 patent rights, including provisional patent rights (herein "patent rights"). DMTF makes no representations
19 to users of the standard as to the existence of such rights, and is not responsible to recognize, disclose,
20 or identify any or all such third party patent right, owners or claimants, nor for any incomplete or
21 inaccurate identification or disclosure of such rights, owners or claimants. DMTF shall have no liability to
22 any party, in any manner or circumstance, under any legal theory whatsoever, for failure to recognize,
23 disclose, or identify any such third party patent rights, or for such party's reliance on the standard or
24 incorporation thereof in its product, protocols or testing procedures. DMTF shall have no liability to any
25 party implementing such standard, whether such implementation is foreseeable or not, nor to any patent
26 owner or claimant, and shall have no liability or responsibility for costs or losses incurred if a standard is
27 withdrawn or modified after publication, and shall be indemnified and held harmless by any party
28 implementing the standard from any and all claims of infringement by a patent owner for such
29 implementations.

30 For information about patents held by third-parties which have notified the DMTF that, in their opinion,
31 such patent may relate to or impact implementations of DMTF standards, visit
32 <http://www.dmtf.org/about/policies/disclosures.php>.

33 PCI-SIG, PCIe, and the PCI HOT PLUG design mark are registered trademarks or service marks of PCI-
34 SIG.

35 All other marks and brands are the property of their respective owners.

36

37

CONTENTS

38	Foreword	5
39	Introduction.....	6
40	1 Scope	7
41	2 Normative References.....	7
42	3 Terms and Definitions	8
43	4 Symbols and Abbreviated Terms	8
44	5 Conventions	8
45	5.1 Reserved and Unassigned Values	8
46	5.2 Byte Ordering	8
47	6 MCTP Message Type Codes	9
48	7 MCTP Physical Medium Identifiers	10
49	8 MCTP Physical Transport Binding Identifiers.....	11
50	9 MCTP Host Interface Type Identifiers	12
51	10 Host Interface Protocol Identifiers	12
52	Annex A (informative) Notation and Conventions	13
53	Annex B (informative) Change Log.....	14
54		

55 **Tables**

56	Table 1 – MCTP Message Types	9
57	Table 2 – MCTP Physical Medium Identifiers	10
58	Table 3 – MCTP Physical Transport Binding Identifiers	11
59	Table 4 – MCTP Host Interface Type Identifiers.....	12
60	Table 5 – Host Interface Protocol Identifiers.....	12
61		

62

Foreword

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

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

67 **Acknowledgments**

68 The DMTF acknowledges the following individuals for their contributions to this document:

69 **Editors:**

- 70 • Hemal Shah – Broadcom Corporation
- 71 • Tom Slaight – Intel Corporation
- 72 • Philip Chidester – Dell

73 **Contributors:**

- 74 • Alan Berenbaum – SMSC
- 75 • Ed Klodnicki – IBM
- 76 • Patrick Kutch – Intel Corporation
- 77 • Eliel Louzoun – Intel Corporation
- 78 • Bob Stevens - Dell

79

Introduction

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

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

- 83 • Management controllers and other management controllers
- 84 • Management controllers and management devices

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

87 The *MCTP Base Protocol Specification* ([DSP0236](#)) describes the protocol and commands used for
88 communication within and initialization of an MCTP network. Associated with the *Base Protocol*
89 *Specification* are transport binding specifications that define how the MCTP base protocol and MCTP
90 control commands are implemented on a particular physical transport type and medium, such as
91 SMBus/I²C, PCI Express™ (PCIe) Vendor Defined Messaging (VDM), and so on.

92

93 Management Component Transport Protocol (MCTP) IDs and 94 Codes

95 1 Scope

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

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

- 103 • **MCTP message type codes**
104 Collection of the message type codes used for MCTP messages
- 105 • **MCTP physical medium identifiers**
106 Collection of identifiers for the different types of physical media that have been defined
- 107 • **MCTP physical transport binding identifiers**
108 Collection of identifiers for the specifications that define the operation, formatting, addressing,
109 and encapsulation of MCTP packets over different physical media

110 2 Normative References

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

114 DMTF DSP0222, *Network Controller Sideband Interface (NC-SI) Specification 1.0*,
115 http://www.dmtf.org/standards/published_documents/DSP0222_1.0.pdf

116 DMTF DSP0236, *Management Component Transport Protocol (MCTP) Base Specification 1.0*, MCTP,
117 http://www.dmtf.org/standards/published_documents/DSP0236_1.0.pdf

118 DMTF DSP0237, *Management Component Transport Protocol (MCTP) SMBus²C Transporting Binding
119 Specification 1.0*, MCTP SMBus-I²C,
120 http://www.dmtf.org/standards/published_documents/DSP0237_1.0.pdf

121 DMTF DSP0238, *Management Component Transport Protocol (MCTP) PCIe VDM Transport Binding
122 Specification 1.0*, MCTP PCIe-V, http://www.dmtf.org/standards/published_documents/DSP0238_1.0.pdf

123 IPMI Consortium, *Intelligent Platform Management Interface Specification 1.5* Revision 1.1, February 20,
124 2002, http://download.intel.com/design/servers/ipmi/IPMIv1_5rev1_1.pdf

125 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
126 <http://isotc.iso.org/livelink/livelink?func=ll&objId=4230456&objAction=browse&sort=subtype>

127 PCI-SIG, *PCI Express Base Specification 1.1*, PCIeV1.1, March 28, 2005,
128 http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_11.pdf

- 129 PCI-SIG, *PCI Express Base Specification 2.0*, PCIeV2.1, March 4, 2009,
130 [http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r2_1_04Mar09.](http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r2_1_04Mar09.pdf)
131 [pdf](http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r2_1_04Mar09.pdf)
- 132 PCI-SIG, *PCI Express Base Specification 3.0*, PCIeV3.0, November 10, 2010,
133 [http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r3.0_10Nov10.](http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r3.0_10Nov10.pdf)
134 [pdf](http://www.pcisig.com/members/downloads/specifications/pciexpress/PCI_Express_Base_r3.0_10Nov10.pdf)
- 135 Philips Semiconductors, *The I²C-Bus Specification v2.0*, I2C, December 1998
136 http://www.nxp.com/acrobat_download/literature/9398/39340011_20.pdf
- 137 RMII Consortium, *Reduced Media Independent Interface (RMII) Specification v1.2*, RMII, 1997,
138 http://www.national.com/assets/en/other/rmii_1_2.pdf
- 139 SMBus, *System Management Bus (SMBus) Specification v2.0*, SMBus, 2000,
140 <http://www.smbus.org/specs/smbus20.pdf>

141 **3 Terms and Definitions**

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

143 **4 Symbols and Abbreviated Terms**

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

145 **5 Conventions**

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

147 **5.1 Reserved and Unassigned Values**

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

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

152 **5.2 Byte Ordering**

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

155

156 6 MCTP Message Type Codes

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

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

161 **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.
NC-SI over MCTP	0x02	Messages used to convey NC-SI Control traffic over MCTP.
Ethernet over MCTP	0x03	Messages used to convey Ethernet traffic over MCTP.
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

7 MCTP Physical Medium Identifiers

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

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	RMII / NC-SI (A physical interface based on RMII 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).

167

168

169 8 MCTP Physical Transport Binding Identifiers

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

172 **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
0x05	MCTP over Serial
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

173

174 9 MCTP Host Interface Type Identifiers

175 Table 3 defines a set of numbers that correspond to different MCTP host interface types that can be used
 176 with MCTP. The identifier indicates which physical interface to transfer MCTP packets between the host
 177 and the management controller.

178 **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
0xF0	OEM
all other	Reserved

179 10 Host Interface Protocol Identifiers

180 Table 3 defines a set of numbers that correspond to different protocols that can be used on a physical
 181 host interface. These protocol identifiers are used in SMBIOS Management Controller Host Interface
 182 Type 42 record as well as the ACPI MCHI description record.

183 **Table 5 – Host Interface Protocol Identifiers**

Protocol Identifier	Description
0x00	Reserved
0x01	Reserved
0x02	IPMI : Intelligent Platform Management Interface – refer to Intelligent Platform Management Interface Specification Appendix C1
0x03	MCTP : Management Component Transport Protocol – refer to DSP0236
0xF0	OEM
all other	Reserved

184

185
186
187

Annex A (informative) Notation and Conventions

188 A.1 Notations

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

- 190 • 2:N In field descriptions, this will typically be used to represent a range of byte offsets
191 starting from byte two and continuing to and including byte N. The lowest offset is on
192 the left, the highest is on the right.
- 193 • (6) Parentheses around a single number can be used in message field descriptions to
194 indicate a byte field that may be present or absent.
- 195 • (3:6) Parentheses around a field consisting of a range of bytes indicates the entire range
196 may be present or absent. The lowest offset is on the left, the highest is on the right.
- 197 • PCIe Underlined, blue text is typically used to indicate a reference to a document or
198 specification called out in the “Normative References” section or to items hyperlinked
199 within the document.
- 200 • rsvd Abbreviation for “reserved.” Case insensitive.
- 201 • [4] Square brackets around a number are typically used to indicate a bit offset. Bit offsets
202 are given as zero-based values (that is, the least significant bit [LSb] offset = 0).
- 203 • [7:5] A range of bit offsets. The most significant bit is on the left, the least significant bit is
204 on the right.
- 205 • 1b The lower case “b” following a number consisting of 0s and 1s is used to indicate the
206 number is being given in binary format.
- 207 • 0x12A A leading “0x” is used to indicate a number given in hexadecimal format.

208

209
210
211

Annex B (informative) Change Log

Version	Date	Description
1.0.0	07/28/2009	
1.1.0	11/03/2009	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	8/28/2012	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.

212