



WMI Interface for Intel[®] NUC Products

WMI Specification – Frost Canyon

July 2020
Revision 1.0

Revision History

| Version | Description | Date |
|---------|---------------|--------------|
| 1.0 | First Release | 28 Jyly 2020 |

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1. Introduction

This document provides a Specification for the WMI interface calls in select Intel® NUC products facilitating the query and control of various feature from within an operating system, such as LED Indicator.

To locate WMI object through WMI explorer or programmed code, BIOS provides a MOMF (Managed Object Format) in the ASL code.

1. WMI Object Name: "CISD_WMI"
2. GUID: 8C5DA44C-CDC3-46b3-8619-4E26D34390B7

Reference:

More information about WMI and ACPI can be found at:

[https://msdn.microsoft.com/en-us/library/windows/hardware/dn614028\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/hardware/dn614028(v=vs.85).aspx)

2. Specification of LED indicator programming

2.1 Query LED Support Capability

| | | Description |
|--------------------------|--------|---|
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (03h) |
| Arg 2 Input Parameter | Byte 0 | Function Number 00h: List all LED types support in the platform 01h: Query to know the LED Color Type for the LED type 02h: Query to know all Indicator options support for the LED type 03h: Query to know all Control items support for the Indicator option of the LED type |
| | Byte 1 | Parameter 0 Fun(0) - No require Fun(1/2/3) - Index of LED Type (refer to Table 2.1 LED Type) |
| | Byte 2 | Parameter 1 Fun(0/1/2) – No require Fun(3) – Index of Indicator option (refer to Table 2.3 LED Indicator options) |
| | Byte 3 | Parameter 2 Reserved |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Return '1' to the corresponding bitmap [0:7] if corresponding type/options support in the platform Fun(0) - Refer to bit number of Table 2.1 LED Type Fun(1) - Refer to bit number of Table 2.2 LED Color Type Fun(2) - Refer to bit number of Table 2.3 LED Indicator options Fun(3) - Refer to bit number of Table 2.4.x¹ Control items |
| | Byte 2 | Return '1' to the corresponding bitmap [8:15] if corresponding type/options support in the platform Fun(0) - Refer to bit number of Table 2.1 LED Type Fun(1) - Refer to bit number of Table 2.2 LED Color Type Fun(2) - Refer to bit number of Table 2.3 LED Indicator options Fun(3) - Refer to bit number of Table 2.4.x¹ Control items |
| | Byte 3 | Return '1' to the corresponding bitmap [16:23] if corresponding type/options support in the platform Fun(0) - Refer to bit number of Table 2.1 LED Type |

| | | Description |
|--|--|--|
| | | Fun(1) - Refer to bit number of Table 2.2 LED Color Type |
| | | Fun(2) - Refer to bit number of Table 2.3 LED Indicator options |
| | | Fun(3) - Refer to bit number of Table 2.4.x¹ Control items |

Note:

1. If LED color type is either dual color LED or RGB color LED, refers to the table 2.4.x with the table title end of multi-color LED. If the LED type is single color LED, refers to the table 2.4.x with the table title end of single-color LED

2.2 New Get LED Status

| | | Description |
|--------------------------|--------|--|
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (04h) |
| Arg 2 Input Parameter | Byte 0 | Function Number 00h: Get current Indicator option for the LED type 01h: Get current setting for the control item of the Indicator option and the LED type |
| | Byte 1 | Parameter 0 Index of LED Type (refer to Table 2.1 LED Type) |
| | Byte 2 | Parameter 1 Fun(0) - No require Fun(1) - Index of Indicator option (refer to Table 2.3 LED Indicator options) |
| | Byte 3 | Parameter 2 Fun(0) - No require Fun(1) - Index of Control item (refer to Table 2.4.x¹ Control items) |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Fun(0) – Return current Indicator option for the LED type (refer to Table 2.3 LED Indicator options) Fun(1) – Return current setting for the control item of the Indicator option and the LED type (refer to Table 2.4.x¹ Control items) |
| | Byte 2 | Reserved |
| | Byte 3 | Reserved |

Note:

1. If LED color type is either dual color LED or RGB color LED, refers to the table 2.4.x with the table title end of multi-color LED. If the LED type is single color LED, refers to the table 2.4.x with the table title end of single-color LED

2.3 Set an indicator option for the LED type

| | | Description |
|--------------------------|--------|---|
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (05h) |
| Arg 2 Input Parameter | Byte 0 | Parameter 0 Index of LED Type (refer to Table 2.1 LED Type) |
| | Byte 1 | Parameter 1 Index of Indicator option (refer to Table 2.3 LED Indicator options) |
| | Byte 2 | Parameter 2 No require |
| | Byte 3 | Parameter 3 No require |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Reserved |
| | Byte 2 | Reserved |
| | Byte 3 | Reserved |

2.4 Set the value to the control item of the indicator option and the LED type

| | | Description |
|--------------------------|--------|---|
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (06h) |
| Arg 2 Input Parameter | Byte 0 | Parameter 0 Index of LED Type (refer to Table 2.1 LED Type) |
| | Byte 1 | Parameter 1 Index of Indicator option (refer to Table 2.3 LED Indicator options) |
| | Byte 2 | Parameter 2 Index of Control item (refer to Table 2.4.x¹ Control items) |
| | Byte 3 | Parameter 3 Control item value (refer to Table 2.4.x¹ Control items) |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Reserved |
| | Byte 2 | Reserved |

| | | |
|--|--------|-------------|
| | | Description |
| | Byte 3 | Reserved |

Note:

1. If LED color type is either dual color LED or RGB color LED, refers to the table 2.4.x with the table title end of multi-color LED. If the LED type is single color LED, refers to the table 2.4.x with the table title end of single-color LED

2.5 Notification of LED App

| | | |
|--------------------------|--------|---|
| | | Description |
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (07h) |
| Arg 2 Input Parameter | Byte 0 | Function Number 01h – Notification for saving all LED configurations |
| | Byte 1 | Parameter 1 No require |
| | Byte 2 | Parameter 2 No require |
| | Byte 3 | Parameter 3 No require |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Reserved |
| | Byte 2 | Reserved |
| | Byte 3 | Reserved |

2.6 Switch LED Type

| | | |
|--------------------------|--------|---|
| | | Description |
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (08h) |
| Arg 2 Input Parameter | Byte 0 | LED Type 01h – Single color LED 02h – Multi color LED |
| | Byte 1 | Parameter 1 Not required |

| | | |
|--------------|--------|------------------------------------|
| | Byte 2 | Parameter 2 Not required |
| | Byte 3 | Parameter 3 Not required |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | Reserved |
| | Byte 2 | Reserved |
| | Byte 3 | Reserved |

2.7 Version Control

| | | |
|--------------------------|--------|---|
| | | Description |
| Control method | | WMAA |
| Arg 0 | | Instance |
| Arg 1 | | Method ID (09h) |
| Arg 2 Input Parameter | Byte 0 | Function Number 01h – Return the version number of the WMI interface spec compliance |
| | Byte 1 | Parameter 1 Not required |
| | Byte 2 | Parameter 2 Not required |
| | Byte 3 | Parameter 3 Not required |
| Return Value | Byte 0 | Return Code – Refers to Appendix C |
| | Byte 1 | 0x0126 |
| | Byte 2 | |
| | Byte 3 | Reserved |

This function call is used to the utility/app which version of the WMI interface specification the BIOS follows

Reference table

Table 2.1 LED Type

| Bit Number | Index | Type |
|------------|-------|------------------|
| 0 | 0 | Power Button LED |
| 1 | 1 | HDD LED |

| | | |
|---|---|------------|
| 2 | 2 | Skull LED |
| 3 | 3 | Eyes LED |
| 4 | 4 | Front LED1 |
| 5 | 5 | Front LED2 |
| 6 | 6 | Front LED3 |

Table 2.2 LED Color Type

| Bit Number | Type |
|------------|-------------------------|
| 0 | Dual-color Blue / Amber |
| 1 | Dual-color Blue / White |
| 2 | RGB-color |
| 3 | Single-color LED |

Table 2.3 LED Indicator options (Usage type)

| Bit Number | Index | Options |
|------------|-------|------------------------|
| 0 | 0 | Power State Indicator |
| 1 | 1 | HDD Activity Indicator |
| 2 | 2 | Ethernet Indicator |
| 3 | 3 | WiFi Indicator |
| 4 | 4 | Software Indicator |
| 5 | 5 | Power Limit Indicator |
| 6 | 6 | Disable |

Table 2.4.1A Control items of Power State Indicator of multi-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | |
|------------|-----------|---------------------------------|---|-------|---------|---|-------|---|-----------|---|---------|---|----------|
| 0 | 0 | S0 Indicator Brightness | 00h/0% ~ 64h/100% (1% increments up to 100%) | | | | | | | | | | |
| 1 | 1 | S0 Indicator Blinking Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Solid</td> </tr> <tr> <td>1</td> <td>Breathing</td> </tr> <tr> <td>2</td> <td>Pulsing</td> </tr> <tr> <td>3</td> <td>Strobing</td> </tr> </tbody> </table> | Index | Options | 0 | Solid | 1 | Breathing | 2 | Pulsing | 3 | Strobing |
| Index | Options | | | | | | | | | | | | |
| 0 | Solid | | | | | | | | | | | | |
| 1 | Breathing | | | | | | | | | | | | |
| 2 | Pulsing | | | | | | | | | | | | |
| 3 | Strobing | | | | | | | | | | | | |
| 2 | 2 | S0 Indicator Blinking Frequency | 01h/0.1Hz ~ 0Ah/1.0Hz (0.1Hz increments up to 1.0Hz) | | | | | | | | | | |

| Bit Number | Index | Control Item | Options | | | | | | |
|---|---------|---|---|---------|---------|-------|------|---|-------|
| 3 | 3 | S0 Indicator Color | For LED Color Type - Dual-color Blue / Amber <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> | Index | Options | 0 | Blue | 1 | Amber |
| | | | Index | Options | | | | | |
| | | | 0 | Blue | | | | | |
| 1 | Amber | | | | | | | | |
| For LED Color Type - Dual-color Blue / White <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </tbody> </table> | Index | Options | 0 | Blue | 1 | White | | | |
| Index | Options | | | | | | | | |
| 0 | Blue | | | | | | | | |
| 1 | White | | | | | | | | |
| For LED Color Type - RGB-color RED[7:0] - RGB color space | | | | | | | | | |
| 4 | 4 | S0 Indicator Color 2 | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | | | |
| 5 | 5 | S0 Indicator Color 3 | For LED Color Type - RGB-color BLUE[7:0] - RGB color space | | | | | | |
| 6 | 6 | S3 Indicator Brightness | same above | | | | | | |
| 7 | 7 | S3 Indicator Blinking Behavior | same above | | | | | | |
| 8 | 8 | S3 Indicator Blinking Frequency | same above | | | | | | |
| 9 | 9 | S3 Indicator Color | same above | | | | | | |
| 10 | A | S3 Indicator Color 2 | same above | | | | | | |
| 11 | B | S3 Indicator Color 3 | same above | | | | | | |
| 12 | C | Modern Standby Indicator Brightness | same above | | | | | | |
| 13 | D | Modern Standby Indicator Blinking Behavior | same above | | | | | | |
| 14 | E | Modern Standby Indicator Blinking Frequency | same above | | | | | | |
| 15 | F | Modern Standby Indicator Color | same above | | | | | | |
| 16 | 10 | Modern Standby Indicator Color 2 | same above | | | | | | |
| 17 | 11 | Modern Standby Indicator Color 3 | same above | | | | | | |
| 18 | 12 | | | | | | | | |
| 19 | 13 | | | | | | | | |
| 20 | 14 | | | | | | | | |
| 21 | 15 | | | | | | | | |
| 22 | 16 | | | | | | | | |

| Bit Number | Index | Control Item | Options |
|------------|-------|--------------|---------|
| 23 | 17 | | |

Table 2.4.1B Control items of Power State Indicator of single-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|-------------|--------------------------------|---|-------|---------|---|-----|---|--------|---|----------|---|-------------|---|-----------|
| 0 | 0 | S0 Indicator Brightness | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>50%</td> </tr> <tr> <td>2</td> <td>100%</td> </tr> </tbody> </table> | Index | Options | 0 | OFF | 1 | 50% | 2 | 100% | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | OFF | | | | | | | | | | | | | | |
| 1 | 50% | | | | | | | | | | | | | | |
| 2 | 100% | | | | | | | | | | | | | | |
| 1 | 1 | S0 Indicator Blinking Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1Hz</td> </tr> <tr> <td>1</td> <td>0.25Hz</td> </tr> <tr> <td>2</td> <td>1Hz Fade</td> </tr> <tr> <td>3</td> <td>0.25Hz Fade</td> </tr> <tr> <td>4</td> <td>Always On</td> </tr> </tbody> </table> | Index | Options | 0 | 1Hz | 1 | 0.25Hz | 2 | 1Hz Fade | 3 | 0.25Hz Fade | 4 | Always On |
| Index | Options | | | | | | | | | | | | | | |
| 0 | 1Hz | | | | | | | | | | | | | | |
| 1 | 0.25Hz | | | | | | | | | | | | | | |
| 2 | 1Hz Fade | | | | | | | | | | | | | | |
| 3 | 0.25Hz Fade | | | | | | | | | | | | | | |
| 4 | Always On | | | | | | | | | | | | | | |
| 2 | 2 | S3 Indicator Brightness | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>50%</td> </tr> <tr> <td>2</td> <td>100%</td> </tr> </tbody> </table> | Index | Options | 0 | OFF | 1 | 50% | 2 | 100% | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | OFF | | | | | | | | | | | | | | |
| 1 | 50% | | | | | | | | | | | | | | |
| 2 | 100% | | | | | | | | | | | | | | |
| 3 | 3 | S3 Indicator Blinking Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1Hz</td> </tr> <tr> <td>1</td> <td>0.25Hz</td> </tr> <tr> <td>2</td> <td>1Hz Fade</td> </tr> <tr> <td>3</td> <td>0.25Hz Fade</td> </tr> <tr> <td>4</td> <td>Always On</td> </tr> </tbody> </table> | Index | Options | 0 | 1Hz | 1 | 0.25Hz | 2 | 1Hz Fade | 3 | 0.25Hz Fade | 4 | Always On |
| Index | Options | | | | | | | | | | | | | | |
| 0 | 1Hz | | | | | | | | | | | | | | |
| 1 | 0.25Hz | | | | | | | | | | | | | | |
| 2 | 1Hz Fade | | | | | | | | | | | | | | |
| 3 | 0.25Hz Fade | | | | | | | | | | | | | | |
| 4 | Always On | | | | | | | | | | | | | | |

Table 2.4.2A Control items of HDD activity Indicator of multi-color LED

| Bit Number | Index | Control Item | Options |
|------------|-------|--------------|--|
| 0 | 0 | Brightness | 00h/0% ~ 64h/100% (1% increments up to 100%) |

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|------------------------------|--------------|--|-------|---------|---|------------------------------|---|------------------------------|-------|---------|---|------|---|-------|
| 1 | 1 | Color | <p>For LED Color Type - Dual-color Blue / Amber</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> <p>For LED Color Type - Dual-color Blue / White</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </tbody> </table> <p>For LED Color Type - RGB-color RED[7:0] - RGB color space</p> | Index | Options | 0 | Blue | 1 | Amber | Index | Options | 0 | Blue | 1 | White |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | Amber | | | | | | | | | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | White | | | | | | | | | | | | | | |
| 2 | 2 | Color 2 | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | | | | | | | | | |
| 3 | 3 | Color 3 | For LED Color Type - RGB-color BLUE[7:0] - RGB color space | | | | | | | | | | | | |
| 4 | 4 | Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Normally off, ON when active</td> </tr> <tr> <td>1</td> <td>Normally on, OFF when active</td> </tr> </tbody> </table> | Index | Options | 0 | Normally off, ON when active | 1 | Normally on, OFF when active | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Normally off, ON when active | | | | | | | | | | | | | | |
| 1 | Normally on, OFF when active | | | | | | | | | | | | | | |

Table 2.4.2B Control items of HDD activity Indicator of single-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | |
|------------|------------------------------|--------------|--|-------|---------|---|------------------------------|---|------------------------------|---|------|
| 0 | 0 | Brightness | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>50%</td> </tr> <tr> <td>2</td> <td>100%</td> </tr> </tbody> </table> | Index | Options | 0 | OFF | 1 | 50% | 2 | 100% |
| Index | Options | | | | | | | | | | |
| 0 | OFF | | | | | | | | | | |
| 1 | 50% | | | | | | | | | | |
| 2 | 100% | | | | | | | | | | |
| 1 | 1 | Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Normally off, ON when active</td> </tr> <tr> <td>1</td> <td>Normally on, OFF when active</td> </tr> </tbody> </table> | Index | Options | 0 | Normally off, ON when active | 1 | Normally on, OFF when active | | |
| Index | Options | | | | | | | | | | |
| 0 | Normally off, ON when active | | | | | | | | | | |
| 1 | Normally on, OFF when active | | | | | | | | | | |

Table 2.4.3 Control items of Ethernet Indicator of multi-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|-------------|--------------|--|-------|---------|---|------|---|-------|-------|-------------|---|------|---|-------|
| 0 | 0 | Type | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>LAN1</td> </tr> <tr> <td>1</td> <td>LAN2</td> </tr> <tr> <td>2</td> <td>LAN1 + LAN2</td> </tr> </tbody> </table> | Index | Options | 0 | LAN1 | 1 | LAN2 | 2 | LAN1 + LAN2 | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | LAN1 | | | | | | | | | | | | | | |
| 1 | LAN2 | | | | | | | | | | | | | | |
| 2 | LAN1 + LAN2 | | | | | | | | | | | | | | |
| 1 | 1 | Brightness | 00h/0% ~ 64h/100% (1% increments up to 100%) | | | | | | | | | | | | |
| 2 | 2 | Color | <p>For LED Color Type - Dual-color Blue / Amber</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> <p>For LED Color Type - Dual-color Blue / White</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </tbody> </table> <p>For LED Color Type - RGB-color RED[7:0] - RGB color space</p> | Index | Options | 0 | Blue | 1 | Amber | Index | Options | 0 | Blue | 1 | White |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | Amber | | | | | | | | | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | White | | | | | | | | | | | | | | |
| 3 | 3 | Color 2 | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | | | | | | | | | |
| 4 | 4 | Color 3 | For LED Color Type - RGB-color BLUE[7:0] - RGB color space | | | | | | | | | | | | |

Table 2.4.4 Control items of WiFi Indicator of multi-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | |
|------------|---------|--------------|---|-------|---------|---|------|---|-------|-------|---------|--|--|
| 0 | 0 | Brightness | 00h/0% ~ 64h/100% (1% increments up to 100%) | | | | | | | | | | |
| 1 | 1 | Color | <p>For LED Color Type - Dual-color Blue / Amber</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> <p>For LED Color Type - Dual-color Blue / White</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table> | Index | Options | 0 | Blue | 1 | Amber | Index | Options | | |
| Index | Options | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | |
| 1 | Amber | | | | | | | | | | | | |
| Index | Options | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| | | | | | | | |
|---|-------|---------|---|---|------|---|-------|
| | | | <table border="1"> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </table> <p>For LED Color Type - RGB-color RED[7:0] - RGB color space</p> | 0 | Blue | 1 | White |
| 0 | Blue | | | | | | |
| 1 | White | | | | | | |
| 2 | 2 | Color 2 | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | |
| 3 | 3 | Color 3 | For LED Color Type - RGB-color BLUE[7:0] - RGB color space | | | | |

Table 2.4.5A Control items of Software Indicator of multi-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|-----------|--------------------|--|-------|---------|---|-------|---|-----------|-------|---------|---|----------|---|-------|
| 0 | 0 | Brightness | 00h/0% ~ 64h/100% (1% increments up to 100%) | | | | | | | | | | | | |
| 1 | 1 | Blinking Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Solid</td> </tr> <tr> <td>1</td> <td>Breathing</td> </tr> <tr> <td>2</td> <td>Pulsing</td> </tr> <tr> <td>3</td> <td>Strobing</td> </tr> </tbody> </table> | Index | Options | 0 | Solid | 1 | Breathing | 2 | Pulsing | 3 | Strobing | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Solid | | | | | | | | | | | | | | |
| 1 | Breathing | | | | | | | | | | | | | | |
| 2 | Pulsing | | | | | | | | | | | | | | |
| 3 | Strobing | | | | | | | | | | | | | | |
| 2 | 2 | Blinking Frequency | 01h/0.1Hz ~ 0Ah/1.0Hz (0.1Hz increments up to 1.0Hz) | | | | | | | | | | | | |
| 3 | 3 | Color | <p>For LED Color Type - Dual-color Blue / Amber</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> <p>For LED Color Type - Dual-color Blue / White</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </tbody> </table> <p>For LED Color Type - RGB-color RED[7:0] - RGB color space</p> | Index | Options | 0 | Blue | 1 | Amber | Index | Options | 0 | Blue | 1 | White |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | Amber | | | | | | | | | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | White | | | | | | | | | | | | | | |
| 4 | 4 | Color 2 | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | | | | | | | | | |
| 5 | 5 | Color 3 | For LED Color Type - RGB-color BLUE[7:0] - RGB color space | | | | | | | | | | | | |

Table 2.4.6B Control items of Software Indicator of single-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|-------------|-------------------|---|-------|---------|---|-----|---|--------|---|----------|---|-------------|---|-----------|
| 0 | 0 | Brightness | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OFF</td> </tr> <tr> <td>1</td> <td>50%</td> </tr> <tr> <td>2</td> <td>100%</td> </tr> </tbody> </table> | Index | Options | 0 | OFF | 1 | 50% | 2 | 100% | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | OFF | | | | | | | | | | | | | | |
| 1 | 50% | | | | | | | | | | | | | | |
| 2 | 100% | | | | | | | | | | | | | | |
| 1 | 1 | Blinking Behavior | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1Hz</td> </tr> <tr> <td>1</td> <td>0.25Hz</td> </tr> <tr> <td>2</td> <td>1Hz Fade</td> </tr> <tr> <td>3</td> <td>0.25Hz Fade</td> </tr> <tr> <td>4</td> <td>Always On</td> </tr> </tbody> </table> | Index | Options | 0 | 1Hz | 1 | 0.25Hz | 2 | 1Hz Fade | 3 | 0.25Hz Fade | 4 | Always On |
| Index | Options | | | | | | | | | | | | | | |
| 0 | 1Hz | | | | | | | | | | | | | | |
| 1 | 0.25Hz | | | | | | | | | | | | | | |
| 2 | 1Hz Fade | | | | | | | | | | | | | | |
| 3 | 0.25Hz Fade | | | | | | | | | | | | | | |
| 4 | Always On | | | | | | | | | | | | | | |

Table 2.4.7 Control items of Power Limit Indicator of multi-color LED

| Bit Number | Index | Control Item | Options | | | | | | | | | | | | |
|------------|--------------|-------------------------------|--|-------|---------|---|--------------|---|--------------|-------|---------|---|------|---|-------|
| 0 | 0 | Indication Scheme | <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Green to Red</td> </tr> <tr> <td>1</td> <td>Single Color</td> </tr> </tbody> </table> | Index | Options | 0 | Green to Red | 1 | Single Color | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Green to Red | | | | | | | | | | | | | | |
| 1 | Single Color | | | | | | | | | | | | | | |
| 1 | 1 | Brightness (for Green to Red) | 00h/0% ~ 64h/100% (1% increments up to 100%) | | | | | | | | | | | | |
| 2 | 2 | Color (For Single Color) | <p>For LED Color Type - Dual-color Blue / Amber</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>Amber</td> </tr> </tbody> </table> <p>For LED Color Type - Dual-color Blue / White</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Blue</td> </tr> <tr> <td>1</td> <td>White</td> </tr> </tbody> </table> <p>For LED Color Type - RGB-color RED[7:0] - RGB color space</p> | Index | Options | 0 | Blue | 1 | Amber | Index | Options | 0 | Blue | 1 | White |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | Amber | | | | | | | | | | | | | | |
| Index | Options | | | | | | | | | | | | | | |
| 0 | Blue | | | | | | | | | | | | | | |
| 1 | White | | | | | | | | | | | | | | |
| 3 | 3 | Color 2 (For Single Color) | For LED Color Type - RGB-color GREEN[7:0] - RGB color space | | | | | | | | | | | | |
| 4 | 4 | Color 3 (For Single Color) | For LED Color Type - RGB-color | | | | | | | | | | | | |

| | | | |
|--|--|--|-----------------------------|
| | | | BLUE[7:0] - RGB color space |
|--|--|--|-----------------------------|

Appendix C – Error Code Definition

| Error Code | Description |
|------------|--|
| 00h | No Error |
| E1h | Function not support |
| E2h | Undefined device |
| E3h | EC no respond |
| E4h | Invalid Parameter |
| E5h | Node busy. Command could not be executed because command processing resources are temporarily unavailable |
| E6h | Command execution failure. Parameter is illegal because destination device has been disabled or is unavailable |
| E7h | Invalid CEC Opcode |
| E8h | Data Buffer size is not enough |
| EFh | Unexpected error |
| Others | Reserved |