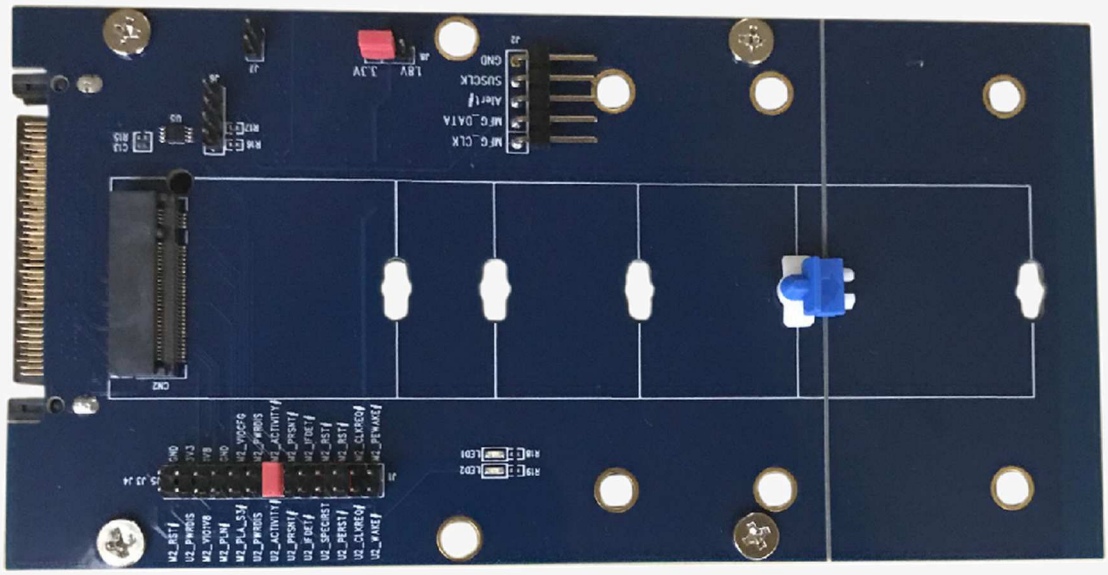
PCIe Gen5 U.2 To M.2

Adapter Card

Part Number: PCI5-AD-U2M2-04



User's Manual

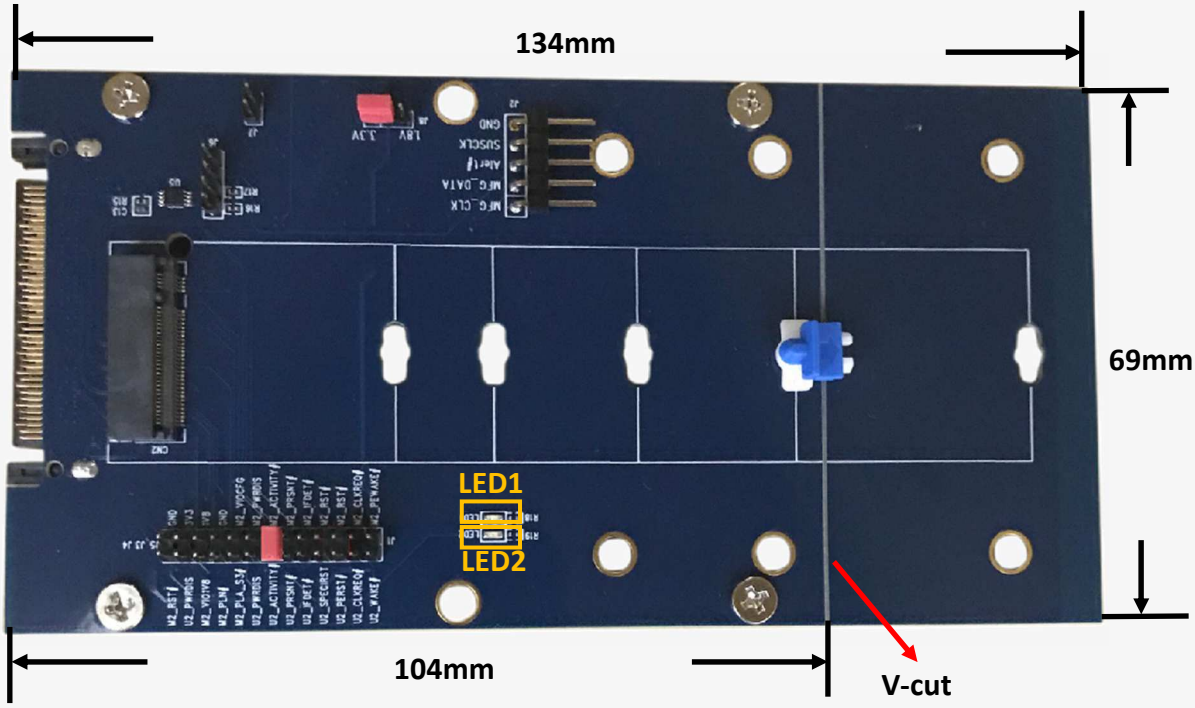
REV: 1.2

April. 2024

Change history

REV	Change history	Date of Release
1.0	New created	Dec. 2022
1.1	Updated the default jumper setting	Aug.2023
1.2	Added descriptions for pin headers	Apr. 2024

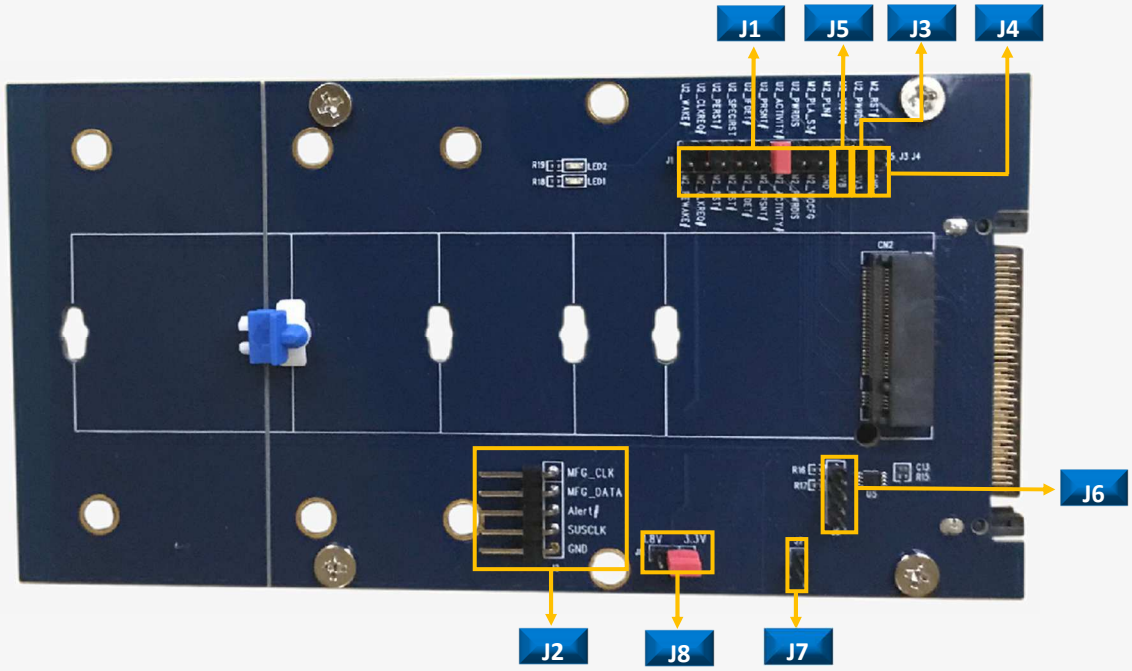
Product Brief



Hardware Specification

Model	PCI5-AD-U2M2-04
PCBA Physical Dimension	69mm(W) x 104mm(L), not including V-cut and supports up to 2280 M.2 SSDs. 69mm(W) x 134mm(L), including V-cut and supports up to 22110 M.2 SSDs. Thickness .063" +/- 0.008" (1.6mm +/- 0.2mm)
LEDs	LED1: **Blue**, Power LED. LED2: **Green**, M.2 Activity LED.
M.2 support	2230/2242/2260/2280/22110

Functions of Headers



<table>
<tr><th>Headers</th><th>Descriptions</th></tr>
<tr><td>J8</td><td>Pin1&2 ON: Set the pull up to be 1.8V for M.2 side-band signals.
Pin2&3 ON: Set the pull up to be 3.3V for M.2 side-band signals.

Note: Side-band signals include M2_WAKE# and M2_PERST#.
<table>
<tr><th>Pins in Header</th><th>Signals</th></tr>
<tr><td>1</td><td>1.8V</td></tr>
<tr><td>2</td><td>M2_VIO</td></tr>
<tr><td>3</td><td>3.3V</td></tr>
</table></td></tr>
<tr><td>J2</td><td><u>For M.2 MFG SMBus accessing.2</u>
<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2 connector</th></tr>
<tr><td>1</td><td>MFG_CLK</td><td>58</td></tr>
<tr><td>2</td><td>MFG_DATA</td><td>56</td></tr>
<tr><td>3</td><td>M2_ALERT#</td><td>44</td></tr>
<tr><td>4</td><td>M2_SUSCLK</td><td>68</td></tr>
<tr><td>5</td><td>GND</td><td></td></tr>
</table></td></tr>
<tr><td>J4</td><td>ON: Assert M.2 PERST# signal.
OFF: De-assert M.2 PERST# signal.
<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2 connector</th></tr>
<tr><td>2</td><td>GND</td><td></td></tr>
<tr><td>1</td><td>M2_PERST#</td><td>50</td></tr>
</table></td></tr>
<tr><td>J3</td><td>ON: Force U.2 power disable.
OFF: Force U.2 power enable.
<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2 connector</th></tr>
<tr><td>2</td><td>GND</td><td></td></tr>
<tr><td>1</td><td>U2_PWRDIS</td><td>P3</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Headers</th><th>Descriptions</th></tr>
<tr><td>J5</td><td>ON: Provide 1.8V to M.2 VIO 1.8V
OFF: M.2 VIO 1.8V to be floating
<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2</th></tr>
<tr><td>1</td><td>1.8V</td><td></td></tr>
<tr><td>2</td><td>M2_VIO1V8</td><td>22</td></tr>
</table></td></tr>
<tr><td>J6</td><td><u>For M.2 SMBus accessing.</u>
<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2</th></tr>
<tr><td>1</td><td>GND</td><td></td></tr>
<tr><td>2</td><td>M2_ALERT#</td><td>44</td></tr>
<tr><td>3</td><td>M2_SMDAT</td><td>42</td></tr>
<tr><td>4</td><td>M2_SMCLK</td><td>40</td></tr>
</table>
Note: There is a I2C level shifter to translate the 3.3V SMBus which sending from golden finger to 1.8V SMBus in M.2 connector.
M.2 ALERT# is 1.8V signal level also.</td></tr>
<tr><td>J7</td><td>ON: Disable 12V to 3.3V switching power for M.2
OFF: Enable 12V to 3.3V switching power for M.2</td></tr>
</table>

<table>
<tr><th>Headers</th><th>Descriptions</th></tr>
<tr><td>J1</td><td>

<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in M.2 connector</th></tr>
<tr><td>1</td><td>M2_WAKE#</td><td>M2_54</td></tr>
<tr><td>3</td><td>M2_CLKREQ#</td><td>M2_52</td></tr>
<tr><td>5</td><td rowspan="2">M2_PERST#</td><td rowspan="2">M2_50</td></tr>
<tr><td>7</td></tr>
<tr><td>9</td><td>M2_IFDET#</td><td>M2_69</td></tr>
<tr><td>11</td><td>M2_PRSNT#</td><td>M2_1</td></tr>
<tr><td>13</td><td>M2_ACTIVITY#</td><td>M2_10</td></tr>
<tr><td>15</td><td>M2_PWRDIS</td><td>M2_6</td></tr>
<tr><td>17</td><td>M2_VIOCFG</td><td>M2_73</td></tr>
<tr><td>19</td><td>GND</td><td></td></tr>
</table>

<table>
<tr><th>Pins in Header</th><th>Signals</th><th>Pins in U.2 or M.2 connector</th></tr>
<tr><td>2</td><td>U2_WAKE#</td><td>U2_P1</td></tr>
<tr><td>4</td><td>PE_CLKREQ#</td><td>U2_E4</td></tr>
<tr><td>6</td><td>U2_PERST#</td><td>U2_E5</td></tr>
<tr><td>8</td><td>U2_SPCIERST</td><td>U2_P2</td></tr>
<tr><td>10</td><td>M2_PRSNT#</td><td>M2_1</td></tr>
<tr><td>12</td><td>U2_PRSNT#</td><td>U2_P10</td></tr>
<tr><td>14</td><td>U2_ACT#</td><td>U2_P11</td></tr>
<tr><td>16</td><td>U2_PWRDIS</td><td>U2_P3</td></tr>
<tr><td>18</td><td>M2_PLA_S3#</td><td>M2_30</td></tr>
<tr><td>20</td><td>M2_PLN#</td><td>M2_8</td></tr>
</table>

Pin1&2 ON: connect the WAKE# signals between U2 and M.2.

Pin3&4 ON: connect the CLKREQ# signals between U2 and M.2.

Pin13&14 ON: connect the LED activity# signals between U2 and M.2.

Note1 : There is a signal buffer between Pin5&7(M2_PERST#) and Pin6(U2_PERST#) of J1.

Can’t have jumper short on Pin5&7 and Pin6, otherwise, M2_PERST# signal will be latch off.

Note2: M2_IFDET# is connected to M.2 connector Pin69, it is CONFIG_1.

L=GND for SATA SSD

H=NC for PCIe SSD

Note3: M2 PRSNT# is connected to U2_IFDET# in design.

A M.2 SSD attached, it will drive U2_IFDET# to low.

if no M.2 SSD attached, U2_IFDET# asserts high.

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