Intel® Compute Card Slot Design Overview

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## Revision History

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<th>Revision</th>
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<tr>
<td>1.0</td>
<td>First Release</td>
<td>16 Feb 2018</td>
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<tr>
<td>1.1</td>
<td>Updates to Table 2</td>
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1 Introduction

There are hardware components and firmware components required to design a slot device for the Intel® Compute Card. This document is an overview of the design guides and supporting collateral available for designing an Intel® Compute Card Slot Device. This collateral will provide the needed information to allow for the design of a slot device. Support will also be required from hardware and firmware suppliers.

For more information about the Intel® Compute Card, visit the Intel® Compute Card website.

1.1 Embedded Controller

The Embedded Controller will need to support communication with the Type C Power Delivery Port Controller for USB Power Delivery and Vendor Defined Messaging (VDM). The Embedded Controller in the Compute Card will send and receive VDMs across the CC line using Type C Port Controllers. The Embedded Controller will require custom firmware developed specifically for the slot device.

1.2 Type C Power Delivery Port Controller

The Type C Power Delivery Port Controller will need to meet the USB Type C specification 1.2 release and power delivery specification R2 version 1.2. Firmware for this device will need to be able to support the defined requirements such as VDM.

1.3 CryptoAuthentication Device

A hardware accelerated cryptographic solution will need to be supported. This can be achieved by either including an embedded controller which meets the minimum cryptographic requirements, or by including a discrete cryptographic integrated circuit which meets the minimum cryptographic requirements and is controlled by an embedded controller. The firmware developed for the Embedded Controller will need to support this solution for authentication.

1.4 Compute Card Connector

A special connector has been developed for the interface between the Compute Card and the slot device. The details of this connector are covered in the design guides along with the connector part number.
1.5 Collateral Lists

Table 1. Technical Product Specifications

<table>
<thead>
<tr>
<th>Title</th>
<th>Number</th>
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<tr>
<td>Intel® Compute Card CD1M3128MK and CD1IV128MK Technical Product Specification</td>
<td>J46734-001</td>
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<tr>
<td>Intel® Compute Card CD1C64GK and CD1P64GK Technical Product Specification</td>
<td>J46736-001</td>
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<td>Intel® Compute Card Dock DK132EPJ Technical Product Specification</td>
<td>J46737-001</td>
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The technical product specification documents in Table 1 are publically available and can be located on the Intel® Compute Card website.

Table 2. Guides

<table>
<thead>
<tr>
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<tr>
<td>Intel® Compute Card Slot Design Guide</td>
<td>573063</td>
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<tr>
<td>Intel® Compute Card Authentication Guide</td>
<td>573064</td>
</tr>
<tr>
<td>Intel® Compute Card VDM Usage Guide</td>
<td>573065</td>
</tr>
<tr>
<td>Intel® Compute Card Embedded Controller Function Alternate Mode Guide</td>
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<td>Intel® Compute Card Regulatory Guide</td>
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<td>Intel® Compute Card Provisioning Tool Users Guide</td>
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<td>Intel® Compute Card Slot Development Vehicle Guide</td>
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<td>Intel® Compute Card Slot Reference Firmware Guide</td>
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The guides in Table 2 are Intel Confidential and can only be downloaded from MyIntel under CNDA.

Table 3. Other Collateral

<table>
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<tr>
<td>Intel® Compute Card Exterior Drawings</td>
<td>575632</td>
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<td>Intel® DK132EPJ Reference Design</td>
<td>573624</td>
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<td>Intel® Compute Card Dock Concepts</td>
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The collateral in Table 3 is Intel Confidential and can only be downloaded from MyIntel under CNDA.
2 Technical Product Specifications Descriptions

A summary of the technical product specifications that are available.

- Intel® Compute Card CD1M3128MK and CD1IV128MK Technical Product Specification
  The Technical Product Specification (TPS) specifies the layout, components, connectors, power, environmental and BIOS features for the Intel® Compute Card CD1M3128MK and CD1IV128MK.

- Intel® Compute Card CD1C64GK and CD1P64GK Technical Product Specification
  The Technical Product Specification (TPS) specifies the layout, components, connectors, power, environmental and BIOS features for the Intel® Compute Card CD1C64GK and CD1P64GK.

- Intel® Compute Card Dock DK132EPJ Technical Product Specification
  The Technical Product Specification (TPS) specifies the layout, components, connectors, power and environmental features for the Intel® Compute Card Dock DK132EPJ.
3 Guide Descriptions

A summary of the guides that are available. The guides are listed in the suggested reading order.

- **Intel® Compute Card Slot Design Guide**
  This guide covers the electrical, mechanical, connectors, operation and component areas of a Compute Card slot design.

- **Intel® Compute Card Embedded Controller Function Alternate Mode Guide**
  This guide covers the purpose of using the Alternate Mode of the Type C controller via the Embedded Controller.

- **Intel® Compute Card VDM Usage Guide**
  This guide covers the use of Vendor Defined Messaging protocol and how to implement VDM so the Compute Card can communicate with the Compute Card slot device.

- **Intel® Compute Card Authentication Guide**
  This guide covers how Authentication works and how to implement Authentication for a Compute Card slot design.

- **Intel® Compute Card Slot Reference Firmware Guide**
  This guide provides an overview of the embedded controller reference firmware that can be used in the development of a Compute Card slot device.

- **Intel® Compute Card Slot Development Vehicle Guide**
  This guide provides usage instructions for the slot development vehicle that can be used to test and debug Compute Card slot designs.

- **Intel® Compute Card Provisioning Tool Users Guide**
  This guide covers how to install and use the provisioning software to provision security keys into both the Compute Card and the Compute Card slot device.

- **Intel® Compute Card Regulatory Guide**
  This guide provides information on the regulatory certifications for the Compute Card, Compute Card Dock and 3rd party Compute Card slot device designs.
4 Other Collateral Descriptions

A summary of the other collateral that is available.

- Intel® Compute Card Exterior Drawings
  This package includes exterior mechanical drawings of the Compute Card in STEP and EASM formats.

- Intel® DK132EPJ Reference Design
  This package includes the board layout, schematics, mechanical drawings and the bill of materials for the DK132EPJ dock.

- Intel® Compute Card Dock Concepts
  This package includes an overview document on five slot concepts with mechanical drawings in STEP format, thermal simulations and thermal reports for two of the concepts.