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# INTERNATIONAL STANDARD

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## Universal serial bus interfaces for data and power –
## Part 1-3: Universal Serial Bus interfaces – Common components – USB Type-C$^{TM}$ cable and connector specification

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# UNIVERSAL SERIAL BUS INTERFACES FOR DATA AND POWER –

## Part 1-3: Universal Serial Bus interfaces – Common components – USB Type-C™ cable and connector specification

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The text of this standard is based on the following documents:

| CDV | Report on voting |
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| 100/2587/CDV | 100/2681/RVC |

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 62680 series, published under the general title *Universal serial bus interfaces for data and power*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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# INTRODUCTION

The IEC 62680 series is based on a series of specifications that were originally developed by the USB Implementers Forum (USB-IF). These specifications were submitted to the IEC under the auspices of a special agreement between the IEC and the USB-IF.

This standard is the USB-IF publication USB Type-C™ Cable and Connector Specification Revision 1.1.

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# Universal Serial Bus Type-C Cable and Connector Specification

**Revision 1.1**
**April 3, 2015**

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## Specification Work Group Chairs / Specification Editors

| | |
|---|---|
| Intel Corporation (USB 3.0 Promoter company) | Yun Ling – Mechanical WG co-chair, Mechanical Chapter Co-editor<br>Bob Dunstan – Functional WG co-chair, Specification Co-author<br>Brad Saunders – Plenary/Functional WG chair, Specification Co-author |
| Seagate | Alvin Cox, Mechanical WG co-chair, Mechanical Chapter Co-editor |

## Specification Work Group Contributors

| | | | |
|---|---|---|---|
| Advanced-Connectek, Inc. (ACON) | Glen Chandler | Vicky Chuang | Alan Tsai |
| | Jeff Chien | Aven Kao | Stephen Yang |
| | Lee (Dick Lee) Ching | Danny Liao | |
| | Conrad Choy | Alan MacDougall | |
| Advanced Micro Devices | Steve Capezza | Walter Fry | Will Harris |
| Agilent Technologies, Inc. | James Choate | | |
| Apple | Mahmoud Amini | William Ferry | Nathan Ng |
| | Sree Anantharaman | Zheng Gao | James Orr |
| | Paul Baker | Girault Jones | Keith Porthouse |
| | Jason Chung | Keong Kam | Sascha Tietz |
| | David Conroy | Min Kim | Colin Whitby-Strevens |
| | Bill Cornelius | Chris Ligtenberg | Dennis Yarak |
| Cypress Semiconductor | Mark Fu | Anup Nayak | Sanjay Sancheti |
| | Rushil Kadakia | Jagadeesan Raj | Subu Sankaran |
| Dell | Mohammed Hijazi | Sean O'Neal | Thomas Voor |
| | David Meyers | Ernesto Ramirez | |
| DisplayLink (UK) Ltd. | Pete Burgers | Richard Petrie | |
| Electronics Testing Center, Taiwan | Sophia Liu | | |
| Foxconn | Asroc Chen | Chien-Ping Kao | Pei Tsao |
| | Allen Cheng | Ji Li | AJ Yang |
| | Jason Chou | Ann Liu | Yuan Zhang |
| | Edmond Choy | Terry Little | Jessica Zheng |
| | Bob Hall | Steve Sedio | Andy Yao |
| Foxlink/Cheng Uei Precision Industry Co., Ltd. | Robert Chen | Armando Lee | Steve Tsai |
| | Sunny Chou | Dennis Lee | Wen Yang |
| | Carrie Chuang | Justin Lin | Wiley Yang |
| | Wen-Chuan Hsu | Tse Wu Ting | Junjie Yu |
| | Alex Hsue | | |
| Google | Joshua Boilard | Nithya Jagannathan | David Schneider |
| | Jim Guerin | Lawrence Lam | Ken Wu |
| | Jeffrey Hayashida | Ingrid Lin | |
| | Mark Hayter | Adam Rodriguez | |
| Granite River Labs | Mike Engbretson | Johnson Tan | |
| Hewlett Packard (USB 3.0 Promoter company) | Alan Berkema | Michael Krause | Linden McClure |
| | Robin Castell | Jim Mann | Mike Pescetto |

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| | | | |
|---|---|---|---|
| Hirose Electric Co., Ltd. | Jeremy Buan | Gourgen Oganessyan | Sid Tono |
| | William MacKillop | | |
| Intel Corporation (USB 3.0 Promoter company) | Dave Ackelson | James Jaussi | Chee Lim Nge |
| | Mike Bell | Luke Johnson | Sridharan Ranganathan |
| | Kuan-Yu Chen | Jerzy Kolinski | Brad Saunders |
| | Hengju Cheng | Christine Krause | Amit Srivastava |
| | Bob Dunstan | Yun Ling | Ron Swartz |
| | Paul Durley | Xiang Li | Karthi Vadivelu |
| | Howard Heck | Guobin Liu | Rafal Wielicki |
| | Hao-Han Hsu | Steve McGowan | |
| | Abdul (Rahman) Ismail | | |
| Japan Aviation Electronics Industry Ltd. (JAE) | Kenji Hagiwara | Kimiaki Saito | Jussi Takaneva |
| | Masaki Kimura | Yuichi Saito | Tomohiko Tamada |
| | Toshio Masumoto | Mark Saubert | Kentaro Toda |
| | Joe Motojima | Toshio Shimoyama | Kouhei Ueda |
| | Ron Muir | Tatsuya Shioda | Takakazu Usami |
| | Tadashi Okubo | Atsuo Tago | Masahide Watanabe |
| | Kazuhiro Saito | Masaaki Takaku | Youhei Yokoyama |
| JPC/Main Super Inc. | Sam Tseng | Ray Yang | |
| LeCroy Corporation | Daniel H. Jacobs | | |
| Lenovo | Rob Bowser | Wei Lie | Howard Locker |
| | Tomoki Harada | | |
| Lotes Co., Ltd. | Ariel Delos Reyes | Regina Liu-Hwang | JinYi Tu |
| | Ernest Han | Max Lo | Jason Yang |
| | Mark Ho | Charles Kaun | |
| LSI Corporation | Dave Thompson | | |
| Luxshare-ICT | Josue Castillo | CY Hsu | Stone Lin |
| | Daniel Chen | Alan Kinningham | Pat Young |
| | Lisen Chen | John Lin | |
| MegaChips Corporation | Alan Kobayashi | | |
| Microchip (SMSC) | Josh Averyt | Donald Perkins | Mohammed Rahman |
| | Mark Bohm | | |
| Microsoft Corporation (USB 3.0 Promoter company) | Randy Aull | Robert Hollyer | Ivan McCracken |
| | Fred Bhesania | Kai Inha | Toby Nixon |
| | Anthony Chen | Jayson Kastens | Gene Obie |
| | Marty Evans | Andrea Keating | Srivatsan Ravindran |
| | Vivek Gupta | Eric Lee | David Voth |
| | Robbie Harris | | |
| MQP Electronics Ltd. | Sten Carlsen | Pat Crowe | |
| Nokia Corporation | Daniel Gratiot | Samuli Makinen | Timo Toivola |
| | Pekka Leinonen | Pekka Talmola | Panu Ylihaavisto |
| NXP Semiconductors | Vijendra Kuroodi | Guru Prasad | |
| Renesas Electronics Corp. (USB 3.0 Promoter company) | Nobuo Furuya | Philip Leung | Kiichi Muto |

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| | | | |
|---|---|---|---|
| Rohm Co., Ltd. | Mark Aaldering | Arun Kumar | Takashi Sato |
| | Kris Bahar | Chris Lin | Hiroshi Yoshimura |
| | Yusuke Kondo | | |
| Samsung Electronics Co., Ltd. | Soondo Kim | Jagoun Koo | Jun Bum Lee |
| | Woonki Kim | Cheolho Lee | |
| Seagate | Alvin Cox | Tom Skaar | Dan Smith |
| | Tony Priborsky | | |
| STMicroelectronics (USB 3.0 Promoter company) | Nicolas Florenchie | Christophe Lorin | Federico Musarra |
| | Joel Huloux | Patrizia Milazzo | Pascal Legrand |
| Tektronics, Inc. | Randy White | | |
| Texas Instruments (USB 3.0 Promoter company) | Jawaid Ahmad | Win Maung | Anwar Sadat |
| | Richard Hubbard | Lauren Moore | Sue Vining |
| | Scott Jackson | Martin Patoka | Deric Waters |
| | Yoon Lee | Brian Quach | |
| | Grant Ley | Wes Ray | |
| Tyco Electronics Corp. (TE Connectivity Ltd.) | Max Chao | Jim McGrath | Scott Shuey |
| | Robert E. Cid | Takeshi Nakashima | Hidenori Taguchi |
| | Kengo Ijiro | Luis A. Navarro | Bernard Vetten |
| | Eiji Ikematsu | Masako Saito | Ryan Yu |
| | Joan Leu | Yoshiaki Sakuma | Sjoerd Zwartkruis |
| | Clark Li | Gavin Shih | |
| | Mike Lockyer | Hiroshi Shirai | |
| VIA Technologies Inc. | Terrance Shih | Jay Tseng | Fong-Jim Wang |

## Pre-Release Draft Industry Reviewing Companies That Provided Feedback

Aces

Allion Labs, Inc.

Analogix Semiconductor

BizLink International Corp.

Corning Optical Communications LLC

Cypress Semiconductor

Etron Technology Inc.

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## Revision History

| Revision | Date | Description |
|---|---|---|
| 1.0 | August 11, 2014 | Initial Release |
| 1.1 | April 3, 2015 | Reprint release including incorporation of all approved ECNs as of the revision date plus editorial clean-up. |

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# 1 Introduction

With the continued success of the USB interface, there exists a need to adapt USB technology to serve newer computing platforms and devices as they trend toward smaller, thinner and lighter form-factors. Many of these newer platforms and devices are reaching a point where existing USB receptacles and plugs are inhibiting innovation, especially given the relatively large size and internal volume constraints of the Standard-A and Standard-B versions of USB connectors. Additionally, as platform usage models have evolved, usability and robustness requirements have advanced and the existing set of USB connectors were not originally designed for some of these newer requirements. This specification is to establish a new USB connector ecosystem that addresses the evolving needs of platforms and devices while retaining all of the functional benefits of USB that form the basis for this most popular of computing device interconnects.

## 1.1 Purpose

This specification defines the USB Type-C™ receptacles, plug and cables.

The USB Type-C Cable and Connector Specification is guided by the following principles:

- Enable new and exciting host and device form-factors where size, industrial design and style are important parameters
- Work seamlessly with existing USB host and device silicon solutions
- Enhance ease of use for connecting USB devices with a focus on minimizing user confusion for plug and cable orientation

The USB Type-C Cable and Connector Specification defines a new receptacle, plug, cable and detection mechanisms that are compatible with existing USB interface electrical and functional specifications. This specification covers the following aspects that are needed to produce and use this new USB cable/connector solution in newer platforms and devices, and that interoperate with existing platforms and devices:

- USB Type-C receptacles, including electro-mechanical definition and performance requirements
- USB Type-C plugs and cable assemblies, including electro-mechanical definition and performance requirements
- USB Type-C to legacy cable assemblies and adapters
- USB Type-C-based device detection and interface configuration, including support for legacy connections
- USB Power Delivery optimized for the USB Type-C connector

The USB Type-C Cable and Connector Specification defines a standardized mechanism that supports Alternate Modes, such as repurposing the connector for docking-specific applications.

## 1.2 Scope

This specification is intended as a supplement to the existing *USB 2.0*, *USB 3.1* and *USB Power Delivery* specifications. It addresses only the elements required to implement and support the USB Type-C receptacles, plugs and cables.

Normative information is provided to allow interoperability of components designed to this specification. Informative information, when provided, may illustrate possible design implementations.

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