USB DevDays 2019 – Welcome Keynote

Taipei, Taiwan

Jeff Ravencraft *– President & COO, USB-IF*

Brad Saunders *– Chairman, USB Promoter Group & USB-IF*

November 19, 2019

USB
Enabling Connections™

Welcome Keynote Agenda

- USB-IF Welcome – *Jeff Ravencraft*
  - Recent Announcements
  - Branding and Certification Overview
  - USB 3.2 and USB4™ Branding Strategy Update
  - Attend the Branding Session

- USB Specifications Overview – *Brad Saunders*
  - USB Promoter Group Specifications
  - USB-IF Device Working Group (DWG) Specifications

- USB DevDays Overview and Schedule

USB in the News

USB-IF Announces Publication of USB4™ Specification

Beaverton, OR, USA – September 03, 2019 — USB Implementers Forum (USB-IF), the support organization for the advancement and adoption of USB technology, today announced the publication of the USB4™ specification, a major update to deliver the next-generation USB architecture that complements and builds upon the existing USB 3.2 and USB 2.0 architectures. The USB4 architecture is based on the Thunderbolt™ protocol specification recently contributed by Intel Corporation to the USB Promoter Group. It doubles the maximum aggregate bandwidth of USB and enables multiple simultaneous data and display protocols.

The development of the USB4 specification was first announced in March 2019 by the USB Promoter Group. It is now officially published by USB-IF and available for download at www.usb.org.

Key characteristics of the USB4 solution include:

- Two-lane operation using existing USB Type-C® cables and up to 40Gbps operation over 40Gbps certified cables
- Multiple data and display protocols that efficiently share the maximum aggregate bandwidth
- Backward compatibility with USB 3.2, USB 2.0 and Thunderbolt 3

Industry Reaction

USB4 will resurrect those ever-so-useful USB hubs

The New USB4 spec promises a lot:
Thunderbolt 3 support, 40Gbps bandwidth, and less confusion

With USB4, Thunderbolt 3's benefits become open to all

Embracing Thunderbolt 3 will make next-gen USB4 twice as fast

Certified USB Fast Chargers
Growing Smartphone Market Adoption

Google now requires Digital Wellbeing and USB-C PD charging standard for new Android phones

iPhone 11 Pro and iPhone 11 Pro Max Include Faster 18W Charger in Box

"…the all-new iPhone 11 Pro and iPhone 11 Pro Max will ship with a faster 18W USB-C power adapter."

The iPhone 11 Pro come with a USB-C 18W wall charger and USB-C to Lightnir

Samsung chips promise secure 100W USB-C fast charging

Samsung's two new chips promise to deliver fast and secure 100W USB-C charging

Branding and Certification Overview

The Importance of Branding

- Communicates to the consumer products are certified and meet the highest standard in the Industry

- USB-IF Logos insures consistent messaging globally across multiple manufacturers and products

- The consumer is conditioned to look for USB-IF Logos

- It is essentially additional free advertising for your company

- USB-IF invests in advertising our logos directly to the consumer and the industry at large

USB 3.2 and USB4™ Branding Overview

USB 3.2 will be the final USB Performance specification and identity to use SuperSpeed USB.

With the introduction of USB4, we have the opportunity to create a visual distinction and a unified brand look for the future of USB Performance.
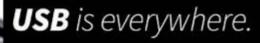
Why Certification – *Why Not!*

- Retailers recognize that the USB-IF logos communicate to the sales associates and consumers:
  - USB logos on products immediately communicates that the product is a safe reliable purchase
  - USB logos quickly/easily communicates that the product has been certified to be compliant to the USB standards

- Protecting your Brand
  - Reassurance/confidence for your customers!
    - Resellers and consumers
  - Validation/reassurance/confidence for your company!

- Certification and logo use means your products have met the highest standards in the industry
  - Products were certified to be compliant to the specification
  - Products were tested for interoperability

- Trademark License agreement/logo license fee included with USB-IF Membership

- USB-IF Members may attend a USB-IF workshop and get their product(s) certified at no cost

Attend the Branding Session

- Branding Session Agenda
  - Importance of Certification/Branding
  - Introduce USB4™
    - Logo/icon first blush
    - Consumer facing brand name
    - 20Gbps cable notice (simplifying/reducing the number of cable SKU's)
  - USB 3.2 Updates
    - SuperSpeed USB 20Gbps logos/icons
    - SuperSpeed USB 5Gbps logos/icon update
  - USB Type-C®, USB-C® – Registered Trademarks

Today in Track Two @ 1:30 PM

Exhibitor Showcase

- **Gold Sponsor**

- Silver Sponsor

- Exhibitors

  - Allion Labs, Inc.
  - ASMedia Technology, Inc.
  - Cypress Semiconductor Corp.
  - Ellisys
  - Genesys Logic, Inc.
  - Granite River Labs Inc.

  - LUXSHARE-ICT
  - SiliConch Systems Private Limited
  - Synopsys
  - Tektronix
  - Teledyne LeCroy
  - Total Phase

USB Specifications Overview

USB Specifications Development

- USB Promoter Groups
    - Each group established by a Promoter Agreement between seven "Promoter" companies
        - Invited contributors/reviewers participate under a Contributor Agreement
        - Adopters agreement available for each group of specifications
    - Chair: Brad Saunders (Intel)

- USB-IF Device Working Group (DWG)
    - Membership open to all USB-IF members
        - Each WG has separate IP contribution agreement
        - Adopters agreements available for each set of specifications
    - Program Manager: Paul Berg (USB-IF)

USB Promoter Group Specifications*

Base Specifications		
USB 2.0	April 2000	Ubiquitous
Embedded USB2 (eUSB2)	Revision 1.1, November 2018	Low-voltage/power PHY for USB 2.0
USB 3.2	September 2017	USB 3.2 added dual-lane support for USB Type-C
USB4™	Version 1.0, August 2019	USB4 introduces new transaction protocol and doubled rate
Base Specification Extensions		
USB 2.0 OTG	Release 2.0, July 2012	Primarily adopted in phones/tablets – mostly only the Embedded Host portion of the specification, being replaced by USB Type-C Dual-Role capability
USB Power Delivery	Revision 3.0, Version 2.0, August 2019	USB4 support added
USB 3.0 OTG	Revision 1.1, May 2012	Being replaced by USB Type-C Dual-Role capability
USB Type-C®	Release 2.0, August 2019	USB4 support added
USB Type-C® Authentication	Revision 1.0, March 2016	Targeted use for authenticating certified chargers and devices
USB Type-C® Port Controller Interface	Revision 2.0, Version 1.0, July 2017	Defines USB PD inter-block interface
USB Type-C® Bridging	Revision 1.1, September 2017	Supporting USB Type-C Authentication and Hub applications
USB PD Firmware Update	Revision 1.0, September 2016	Enables firmware updating of products over USB PD

* Some less known/used specifications, e.g. HSIC and SSIC, are not listed here

USB-IF DWG Specifications Summary*

USB Functional Extensions		
Micro-USB	April 2007	Basis for legacy world-wide mobile battery charging
Battery Charging	Revision 1.2, December 2010	Basis for legacy world-wide mobile battery charging
Device Class Specifications		
HID	Revision 1.11, June 2001	Mouse, keyboard, etc. applications ← numerous extensions published
Audio	Revision 3.0, April 2019	Webcams, headsets, etc. ← MIDI 2.0 update in work
Video	Revision 1.1, June 2005	Webcams
Mass Storage	Revision 1.3, June 2003	Thumb drive storage
MA-USB	Revision 1.0a, July 2015	For connecting USB devices remotely over wireless or wired networking
UASP	Revision 1.0, June 2009	USB 3.1 external HDD/SSD
Printer	Revision 1.1, January 2000	USB printing applications
NCM/MBIM	Revision 1.0, July 2009	Contemporary version of earlier communications device class
Communications	Revision 1.2, December 2012	Modems, networking – NCM/MBIM model
I3C Host Controller	In work – expected in 2020	Interface for USB-based I3C host controllers ← new work
Billboard	Revision 1.21, September 2016	Required for USB Type-C Alternate Mode support ← update pending for USB4
Debug Devices	Revision 1.0, July 2015	Specific to USB 3.2
USB Display Class	In work – expected in 2020	Raw and compress displays ← specification aligned with VESA work

* Some less known/used specifications, e.g. Personal Healthcare Device Class, are not listed here

Ancillary Specifications

- eXtensible Host Controller Interface (xHCI)
  - Scope: Defines the USB Host Controller interface specific to all USB implementations from USB 3.0 forward, applicable to USB 2.0 as well.
  - Spec and Adopters Agreement available directly from Intel Corporation
  - Current Version: Revision 1.2, May 2019

- USB Type-C Connector System Software Interface (UCSI)
  - Scope: Describes register and data structures for use by system software, the OS Policy Manager (OPM), to interface with USB Type-C connectors on a system.
  - Spec and Adopters Agreement available directly from Intel Corporation
  - Current Version: Revision 1.1, August 2017

USB DevDays Overview and Schedule

Some Words of Caution ...

- ***Only design to official released versions of USB specifications***
  - Developer presentations are intended to help familiarize you with the general characteristics of these specifications and provide design guidance
  - These presentations are not technically complete and should not be used as the sole basis for product designs

- ***USB technology has evolved into highly complex and challenging designs***
  - Always make use of certified product suppliers – silicon, connectors, etc.
  - Proper materials and manufacturing processes are increasingly more critical to making successful products
  - *Submit your products for USB certification*
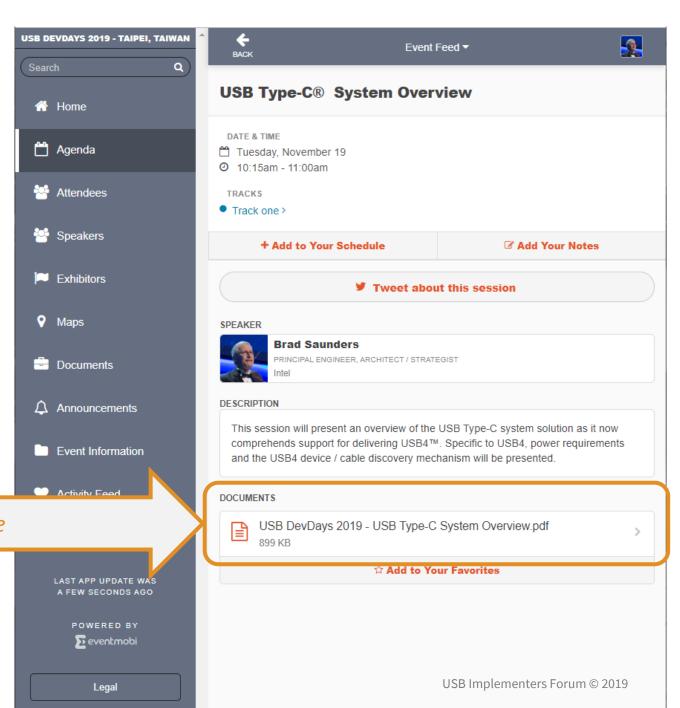
USB Developer Days – Technical Session Schedule

Time	Tuesday – Day 1 Track One	Tuesday – Day 1 Track Two		Wednesday – Day 2 Track One	Wednesday – Day 2 Track Two
	Registration		8 AM	USB4™ Configuration and Tunneling for USB3, DP and PCIe	USB Power Delivery: Overview and Charging Usages
9 AM	*Welcome Keynote*				Break
	Break		10 AM	Break	USB Power Delivery: USB4™ Support and USB PD Certification
	USB Type-C® System Overview			USB4™ Compliance and Certification	
11 AM	USB4™ System Overview				
Noon	Lunch / Showcase			Lunch / Showcase	
1 PM	USB4™ Electricals	*USB Branding Update*		USB4™ Time Management Unit, Host Interface, Connection Manager and TBT3	USB4™ Cable Electricals and System Design
2 PM					
	Break			Break	
3 PM	USB4™ Logical Layer, Re-Timer and Transport	Microsoft/Intel: USB4™ on Windows		VESA: DisplayPort™ Alt Mode	USB Type-C® Active Cables
4 PM		Google: CTVPD, a new PD stack and Making USB-C® thingamajigs		*The Closing Hour: On the Horizon, Key Messages and Final Q&A*	

USB DevDays Presentations

- Presentations are posted early on the same day of its session

  [eventmobi.com\taipeidevdays](eventmobi.com\taipeidevdays)

- Find each presentation attached to the end its session description within the Agenda area of the app

Presentation download from here

Question Time